AD-779 449

APPLICATION OF AN INTERDISCIPLINARY ROTARY-WING AIRCRAFT ANALYSIS TO THE PREDICTION OF HELICOPTER MANEUVER LOADS

William D. Anderson, et al

Lockheed-California Company

Prepared for:

Army Air Mobility Research and Development Laboratory

December 1973

DISTRIBUTED BY:

NTIS

National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

Unclassified
Security Classification

AD 779 449

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) LOCKHEED-CALIFORNIA COMPANY P.O. Box 551 Burbank, Calif.	2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED 2b. GROUP

3. REPORT TITLE

APPLICATION OF AN INTERDISCIPLINARY ROTARY-WING AIRCRAFT ANALYSIS TO THE PREDICTION OF HELICOPTER MANEUVER LOADS

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

FINAL REPORT

5. AUTHOR(S) (First name, middle initial, last name)

William D. Anderson
Fox Conner
Andrew W. Kerr

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1973	418	12

8a. CONTRACT OR GRANT NO. DAAJ02-72-C-0100	9a. ORIGINATOR'S REPORT NUMBER(S) USAAMRDL Technical Report 73-83
b. PROJECT NO. 1F162208AA82	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) LR 25945
d.	

10. DISTRIBUTION STATEMENT

Approved for public release; distribution unlimited

11. SUPPLEMENTARY NOTES Reproduced from best available copy.	12. SPONSORING MILITARY ACTIVITY Eustis Directorate U.S. Army Air Mobility R & D Laboratory Fort Eustis, Virginia

13. ABSTRACT

An interdisciplinary analytical model for total vehicle simulation, revised and extended rotor (REXOR), has been developed to provide a tool for predicting the flight envelope of rotary-wing aircraft in terms of performance, dynamic stability, handling qualities, and transient load limits. A study was undertaken to correlate this analysis with steady-state and transient flight test maneuver loads data for the AH-56A and XH-51A compound helicopters.

The flight test data for the correlation study covers compound helicopter operation at speeds between 111 and 204.5 KEAS, gross weights from 4500 to 18,300 pounds, and normal load factors between 0.2 and 2.0 g. Fifty-six flight test cases were selected, from which thirty-seven steady-state cases and twelve transient cases have been correlated. Harmonic components of steady-state flap and chord loads test data at various rotor blade spans are compared with analytical estimates for the steady-state cases, while time history comparisons of the transient maneuver loads are presented. Feather moment and some blade torsion loads are also compared.

The results of the correlation study indicate that the analysis provides sufficient correlation of low harmonic blade loads to be a useful prediction tool for transient maneuver loads and to define vehicle flight envelopes. Areas where the method needs improvement are discussed.

The report contains a discussion of the model and its applications, a description of the two test aircraft and their instrumentation, and a summary of correlation results. A detailed listing of harmonic components of steady-state flight test data, a detailed comparison of the harmonic components of test and analysis, a listing of REXOR input data for both test aircraft, and a comparison of REXOR with the C-81 program are presented in appendixes.

DD FORM 1 NOV 65 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

Unclassified
Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Helicoptors						
Compound Helicopters						
Helicopter Rotors						
Helicopter Rotor Loads						
Helicopter Transient Maneuver Loads						
Compound Helicopter Test Data						
Helicopter Analysis						
Hingeless Rotors						

Unclassified
Security Classification

DISCLAIMERS

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission, to manufacture, use, or sell any patented invention that may in any way be related thereto.

Trade names cited in this report do not constitute an official endorsement or approval of the use of such commercial hardware or software.

DISPOSITION INSTRUCTIONS

Destroy this report when no longer needed. Do not return it to the originator.

DEPARTMENT OF THE ARMY
U. S. ARMY AIR MOBILITY RESEARCH & DEVELOPMENT LABORATORY
EUSTIS DIRECTORATE
FORT EUSTIS, VIRGINIA 23604

This report has been reviewed by the Eustis Directorate, U. S. Army Air Mobility Research and Development Laboratory and is considered to be technically sound. The purpose of this program was to investigate the validity of analytically predicting helicopter maneuver flight loads using the REXOR II computer program.

The technical monitor for this contract was Mr. Donald J. Merkley, Aeromechanics, Technology Applications Division.

Project 1F162208AA82
Contract DAAJ02-72-C-0100
USAAMRDL Technical Report 73-83
December 1973

APPLICATION OF AN INTERDISCIPLINARY ROTARY-WING AIRCRAFT ANALYSIS TO THE PREDICTION OF HELICOPTER MANEUVER LOADS

Final Report

Lockheed Report 25945

By

W. D. Anderson
F. Conner
A. W. Kerr

Prepared by

Lockheed-California Company
Burbank, California

for

EUSTIS DIRECTORATE
U.S. ARMY AIR MOBILITY RESEARCH AND DEVELOPMENT LABORATORY
FORT EUSTIS, VIRGINIA

FOREWORD

This report describes a correlation study comparing REXOR analysis results with flight test data for evaluation of the transient load prediction capabilities of the REXOR analysis. This study was conducted by the Lockheed-California Company from June 1972 to June 1973 under Contract DAAJ02-72-C-0100 (Project 1F162208AA82) with the Eustis Directorate, U.S. Army Air Mobility Research and Development Laboratory. USAAMRDL direction was provided by D. J. Merkley.

Major Lockheed contributors to this report include R. E. Donham, P. Kretsinger, T. Liu, and A. J. Potthast.

Preceding page blank

TABLE OF CONTENTS

Preceding page blank

TABLE OF CONTENTS - Continued

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF ILLUSTRATIONS - Continued

LIST OF TABLES

INTRODUCTION

A complete understanding of the factors which establish the flight envelope of a helicopter requires simultaneous consideration of power, static and dynamic stability, handling qualities, and pilot techniques as well as resulting loads and vibration levels. To facilitate this understanding, an interdisciplinary mathematical model that provides analytical prediction of free-flight characteristics of single-rotor helicopter and compound helicopter configurations has been developed by the Lockheed California Company. This interdisciplinary analysis tool (see Reference 1), known as REXOR (Revised and EXtended rotOR), is a fully coupled rotor/body/control system model that includes nonlinear mathematical simulation and has over 30 degrees of freedom.

To make a total vehicle model in sufficient depth to predict detailed transient rotor loads is inhibitively expensive with the current computer state of the art. The approach taken in the formulation of the interdisciplinary model is to produce reasonably accurate transient shaft and fundamental blade loadings which can be used to define a structural flight envelope that may be checked at a few critical points with a detailed rotor loads analysis and be adjusted if required. The model is not designed to provide highly accurate spanwise load distributions or higher harmonic internal blade loads. This study is designed to evaluate REXOR as a tool for prediction of rotor loads in transient maneuvers by providing correlation of both steady and transient computed maneuver loads with compound helicopter flight test data.

The work described in this report presents a loads correlation of the current (REXOR II) program with existing AH-56A and XH-51A (compound) test data with primary focus on steady and cyclic loads during steady and transient maneuvers. The 18,300-pound and 4500-pound gross weights of these aircraft and the relatively large compound helicopter flight envelope of each that has been flown offer a broad spectrum of test conditions between 100- and 200-knot flight speeds. The correlation was done under Contract DAAJ02-72-C-0100, sponsored by the Eustis Directorate, U.S. Army Air Mobility Research and Development Laboratory, Fort Eustis, Virginia.

BACKGROUND OF REXOR DEVELOPMENT AND APPLICATIONS

Analytical prediction of practical flight envelopes for helicopters including compound configurations requires evaluation of the effects of limits of steady or maneuvering flight on performance, dynamics, handling qualities, and loads. To meet these requirements, analytical models must fully describe the dynamically coupled rotor/body/control system combination, including both nonlinear and the time-variant effects. Outputs of such programs are in the form of transient response time histories, steady-state time histories, steady-state harmonic analyses, and constant or periodic numerical coefficients for use in linear analyses.

REXOR is an integrated rotor/body model of this type which has been applied in the prediction of performance, dynamics, handling qualities, and steady and transient loads for hingeless rotor aircraft throughout their flight envelopes. The analysis method can readily be applied to other rotor systems by minor modifications to the model. Figures 1, 2, and 3 show the organization of the program, body and rotor degrees of freedom, and rotor blade and hub geometric definitions. The approach employed to develop this model was a coordinated effort among specialists in several applicable rotary-wing disciplines. Equations of motion were derived from a basic Lagrangian formulation, resulting in a rotor/body/control system model consisting of 30 fully-coupled degrees of freedom with a minimum of simplifying assumptions. In the formulation, each blade mode, although developed from a multi-degree of freedom analysis, constitutes but a single degree of freedom. In Reference 1, the modeling approach used is discussed in detail along with a description of the procedural ground rules required for sucessful implementation and use of this type model. This reference includes derivation of the model, program structuring, data management, checkout procedures, and documentation. The basic requirements were that the model fully describe the dynamically coupled rotor/body/control system, including both nonlinear and time-variant effects.

By examining results of this free-flight vehicle analysis, the engineer is able to conduct flight test programs by digital computer. As implemented, the control system, aeroelastic rotor, and body combination requires that the aircraft remain continuously in equilibrium. This permits evaluation of transient control input and subsequent transient response behavior in order to investigate the helicopter's static and dynamic stability. The steady-state loads analysis that can be performed is a restricted case for examining linear systems. In the case of nonlinear or transient behavior, the system is examined in time-varying modes of equilibrium.

Two different gyro-controlled hingeless rotor system concepts have been modeled in REXOR. The first of these, the flap/feather-moment feedback system, was used in the XH-51A and in the early AH-56A configurations.

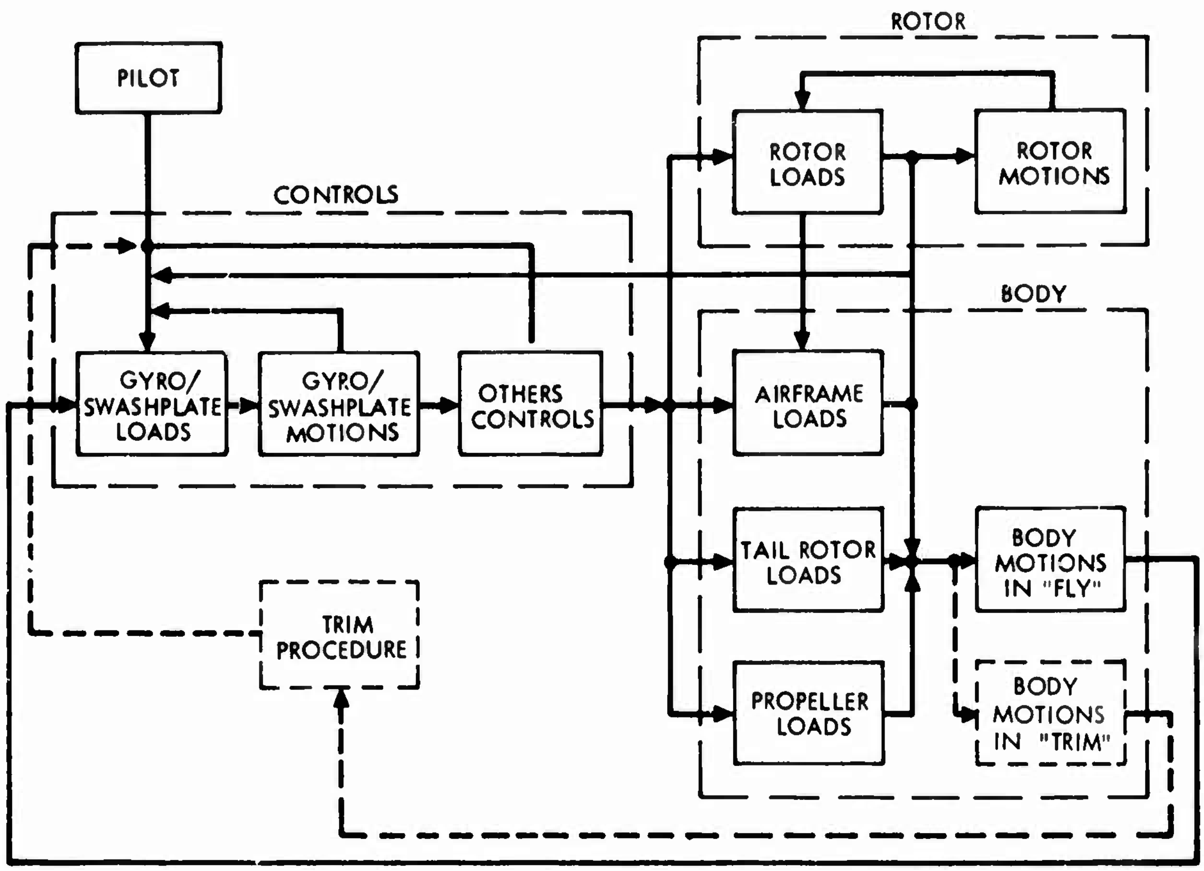


Figure 1. REXOR Program Organization.

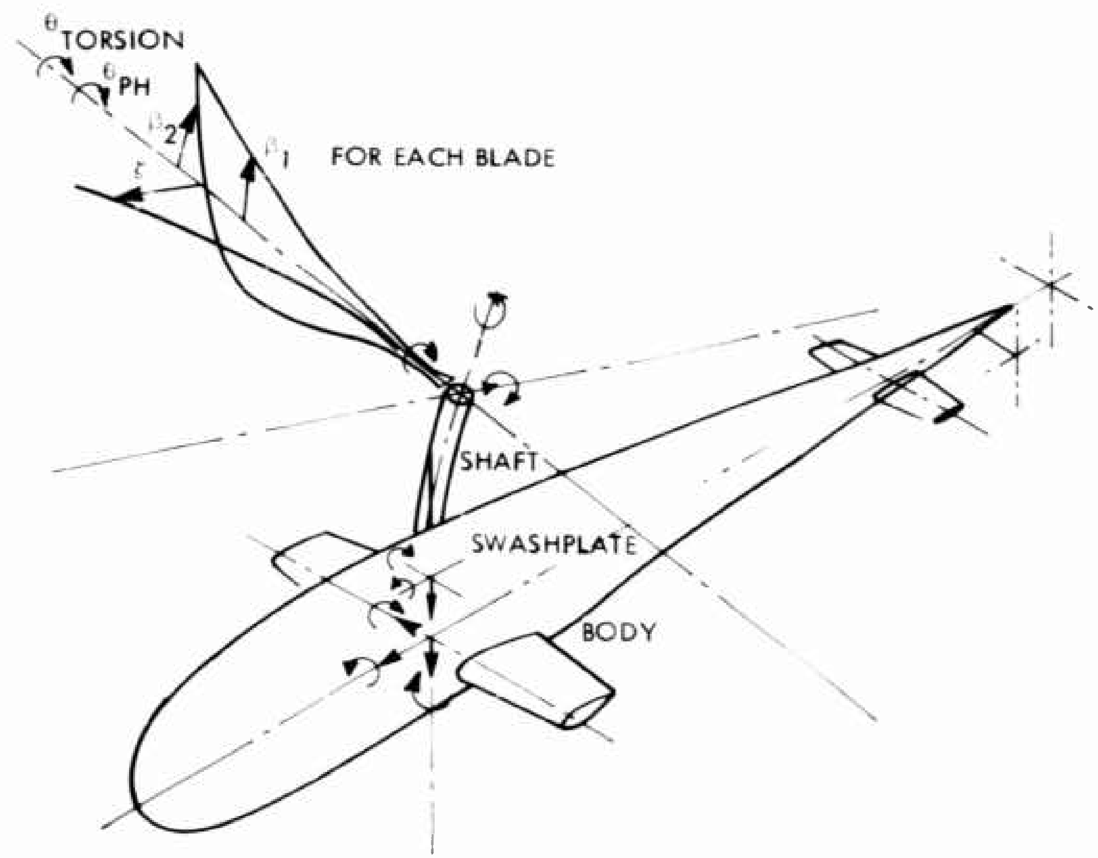


Figure 2. Rotor and Body Degrees of Freedom.

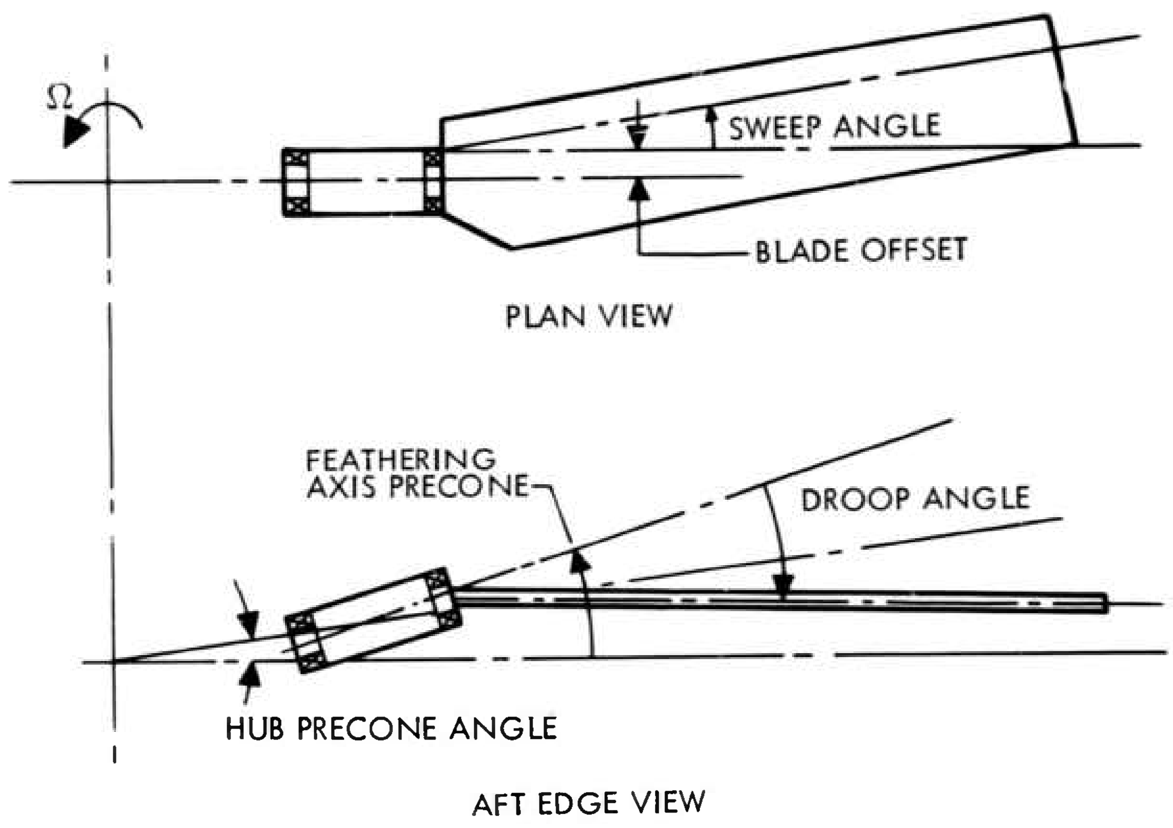


Figure 3. Rotor Blade and Hub Geometry.

This is the system for which correlation will be provided in this report. For the AH-56A, this system is called the Improved Control System (ICS) configuration. The second concept, the Advanced Mechanical Control System (AMCS), is a direct flap-moment feedback system. The REXOR analysis was used extensively in the design of the AMCS, using experience gained in the analysis of phenomena encountered in ICS flight tests. A brief description of each system is presented for reference.

The flap/feather-moment feedback gyro-controlled rotor (ICS) is presented schematically in Figure 4. Figure 5 is a representative simple block diagram of the system. Pilot control input drives an irreversible actuator which applies control moment to the gyro through a positive-negative spring assembly, linkage, and swashplate. With the gyro fixed, compression of the positive spring by the actuator applies control moment to the gyro. With the actuator input fixed, gyro motion drives both the positive and negative spring, the sum of which represents the steady-state impedance to the gyro and the value of the gyro net positive spring. A small damper is used to damp the gyro nutation mode (2P). The gyro responds to the pilot input and drives the rotor blade cyclically through pitch links and a blade control horn.

Cyclic blade angle changes create a rotor flap moment which is tranmitted to the aircraft body via the fixed hub and shaft to pitch or roll the aircraft. Precise rotor moment control and reduced rotor lag is obtained by feedback of rotor flap-moment (proportional to rotor shaft moment) through the feather axis to the gyro. Feathering moment proportional to flap moment is obtained by sweeping the blade quarter-chord forward of the feathering axis (sweep angle ψ_0), as noted in Figure 4. Feather moment is then proportional to the product of flap moment and effective sweep angle. The total moment applied to the gyro with this concept is the difference of the pilot input and feathering feedback moment proportional to blade flap moment, as shown in Figure 5.

The direct flap-moment feedback rotor system is shown in block diagram form in Figure 6 and in schematic form in Figure 7. The concept is the same as the flap-feathering feedback system except that irreversible hydraulic actuators have been added between the gyro and the cyclic blades. Secondly, only moment proportional to rotor blade cyclic flap moment is fed back to the gyro. Except for the distinct features noted above, the direct flap feedback system operates in the same manner as the feathering feedback system.

Major areas of application of the REXOR analysis are described briefly below.

PERFORMANCE

An analytical study of the maneuverability of 16,000-pound class winged and conventional helicopter configurations is reported in Reference 2. This analytic investigation, which was also sponsored by the Eustis Directorate, U.S. Army Air Mobility Research and Development Laboratory, was conducted

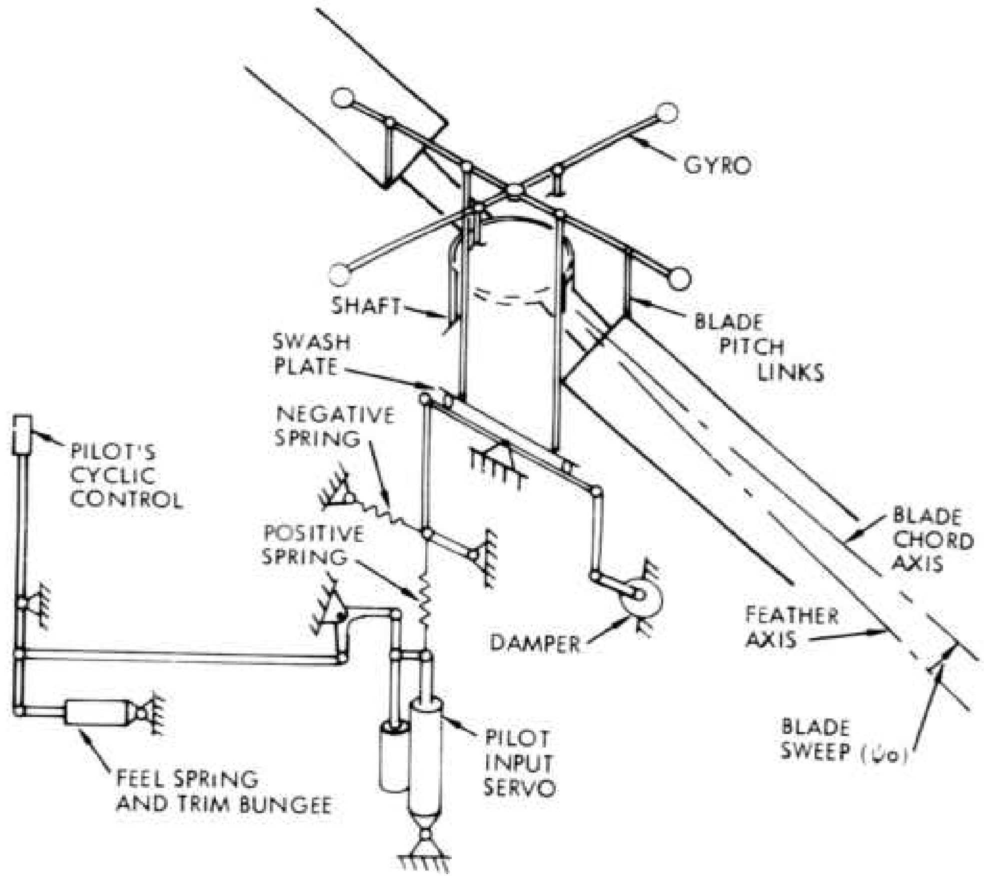


Figure 4. Flap/Feather-Moment Feedback Control System Schematic.

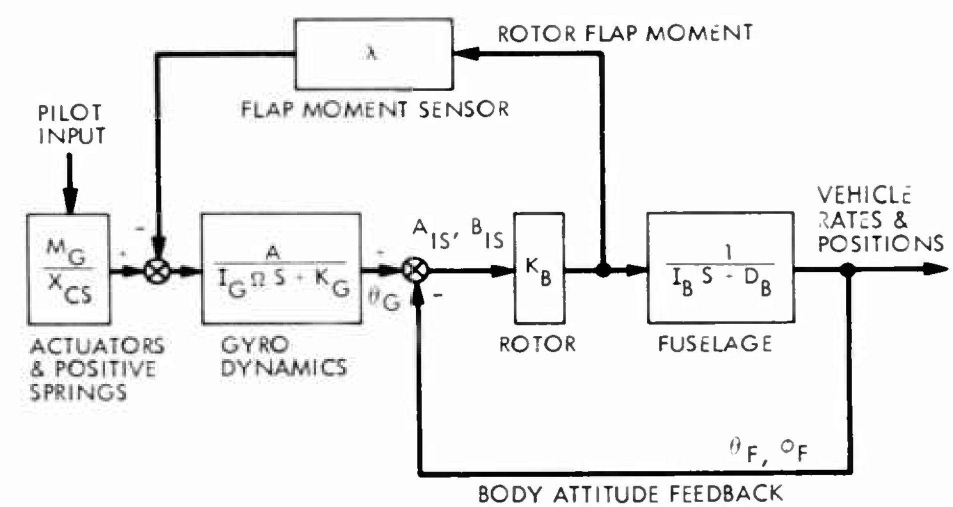


Figure 5. Flap/Feather-Moment Feedback Control System Block Diagram.

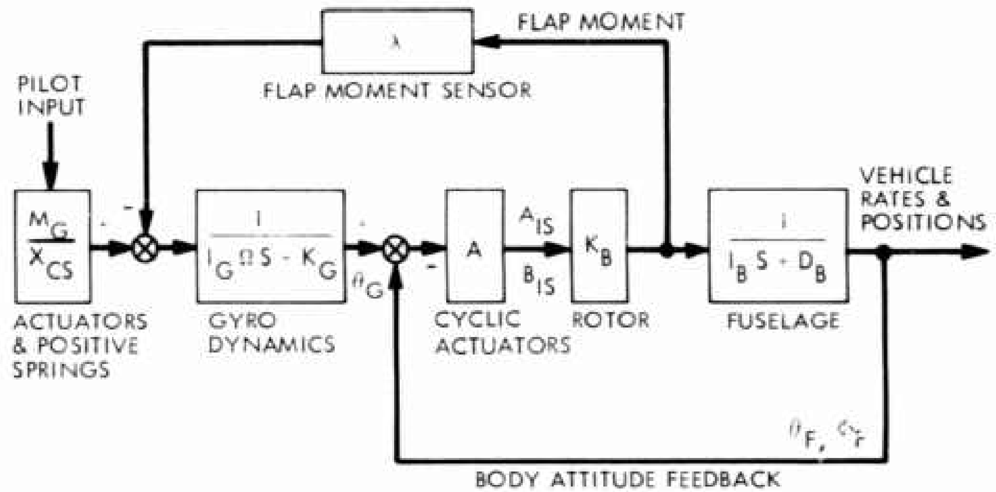


Figure 6. Direct Flap-Moment Feedback Control System Block Diagram.

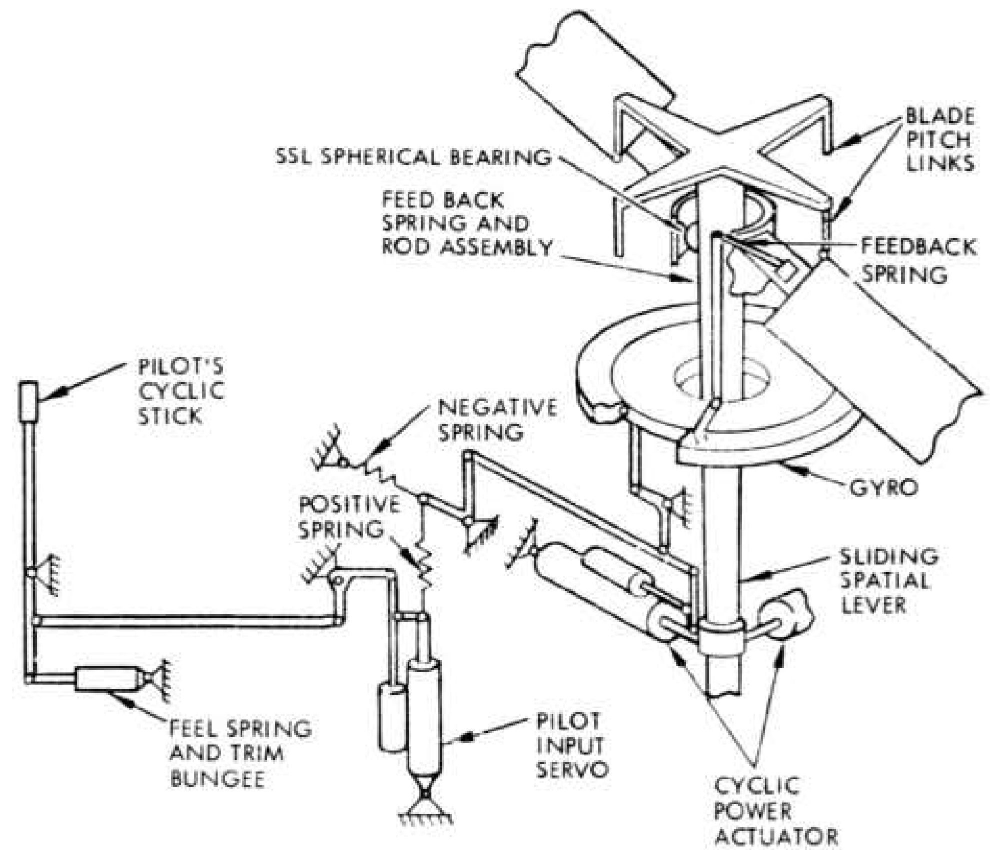


Figure 7. Direct Flap-Moment Feedback Control System Schematic.

under Contract DAAJ02-70-C-0032, using the REXOR simulation program. In this previous investigation, specific transient requirements had to be met for prescribed power and maneuvering levels. The study investigated maneuvering load factors of 1.5, 1.75, and 2.0 g in coordinated turns and symmetrical maneuvers, at flight speeds up to 150 KEAS (167 KTAS), sustaining maximum load factors for 3 seconds during coordinated turns, without excessive speed loss or altitude change.

Subsequent refinements in the analytical description have been incorporated in the current REXOR II program, but basic degrees of freedom and methodology are common to both programs. These refinements were directed at providing an improved control system description and accounting for the structural principal axis position of the blade as it varies with time relative to the spin plane due to collective and cyclic blade angle variations. The effect of these changes has been of some importance in the dynamics area, but their prime benefit has been to contribute to completeness of the description. Results of the referenced study should be unchanged with respect to power, altitude, and velocity relationships as a result of the new program refinements.

DYNAMICS

Development of the gyro-controlled hingeless rotor was motivated by the outstanding control and stability achievable with this system. During this development, several dynamic problems were encountered. Through the use of the REXOR analysis, these problems were thoroughly analyzed and understood. They can now be eliminated during design, as they have been in the current (AMCS) version of the AH-56A and proposed advanced configurations.

In an early version of the AH-56A flap/feather-moment feedback system, a 1P x 2P problem resulted from feathering feedbacks due to in-plane motion in conjunction with flapping motions of the blades. The feedback mechanism which caused this problem is only possible with the flap/feathering-moment feedback system. With the direct flap-moment feedback system, as currently employed in the AH-56A/AMCS configuration, the mechanism for this problem is eliminated. This has been demonstrated both on the whirl tower and in extensive flight test programs.

A second problem that was experienced in earlier hingeless rotor configurations was the 1/2P hop problem. Computer studies and flight tests revealed that this problem resulted from insufficient stiffness of the collective system and from an unstable δ_3 coupling. Successful elimination of the problem has been demonstrated in both flap/feathering-moment feedback and direct flap-moment feedback configurations of the AH-56A. Correlation between REXOR analysis and flight test data was highly successful, providing a high confidence level in selecting suitable design parameters prior to flight for the AH-56A/AMCS and subsequent advanced designs.

Another problem which manifested itself in rigid rotor configurations was that due to a reactionless in-plane blade mode. REXOR analysis, whirl tower testing, and flight testing all demonstrated that this problem is closely associated with pitch-lag coupling and may be encountered in hingeless rotors under very high lift conditions. In this case again, correlation of computer analysis, whirl tower, and flight testing has provided a high confidence level through diagnostic analysis to select suitable parameters and to eliminate the problem or avoid it in new designs. This was demonstrated in the AH-56A program and is documented in Reference 3.

Examples of REXOR program computations and related flight test results for an AH-56A rotor system are shown in Figures 8 through 10. Figure 8 illustrates analytically the effect of blade droop with respect to the feather axis as shown in Figure 3, and rotor lift on reactionless mode damping and chord load. The traces shown at the top of the figure are the analytical time histories of the reactionless mode content of the blade root chord load for three different configurations. The curves at the bottom of the figure show the results of a moving block Fast Fourier Transform (FFT), Reference 4, of these traces. The slope of the moving block analysis results indicate the damping of the mode. These results and additional REXOR results are compared with flight test in the evaluation of reactionless mode damping shown in Figure 9. A summary of the mode as a function of speed from the analysis and flight test is presented in Figure 10.

HANDLING QUALITIES

The original purpose of the analysis effort which led to the development of REXOR was to provide a full vehicle model for evaluating rotary-wing aircraft handling qualities. It is for this reason that the full control system is modeled so that the vehicle response to pilot control inputs may be evaluated.

In the development of the AH-56A, REXOR was also used extensively to evaluate handling qualities. In the ICS configuration, a reduction in longitudinal stability due to retreating blade moment stall under high maneuvering load factor conditions limited the flight envelope of the aircraft. This resulted from high feather moments associated with shifts in the aerodynamic center on the retreating blade. This problem again related to the flap/feather-moment feedback system of the earlier rigid rotor control systems under high lift conditions. The mechanism for the problem is eliminated with the direct flap-moment feedback in the present AMCS/AH-56A, as demonstrated by extensive flight testing which increased the demonstrated flight envelope (Figure 11).

An example of the use of the REXOR program in analytic studies which involve the interface of various technical disciplines (dynamics, handling qualities, loads, etc.) is presented in Figures 12 and 13. A blade canopy clearance analysis for the AH-56A was made based on dynamic response of the vehicle to various types of pilot control input. Rotor blade deflection, shaft moments, and body rates of Figure 12 represent typical output data.

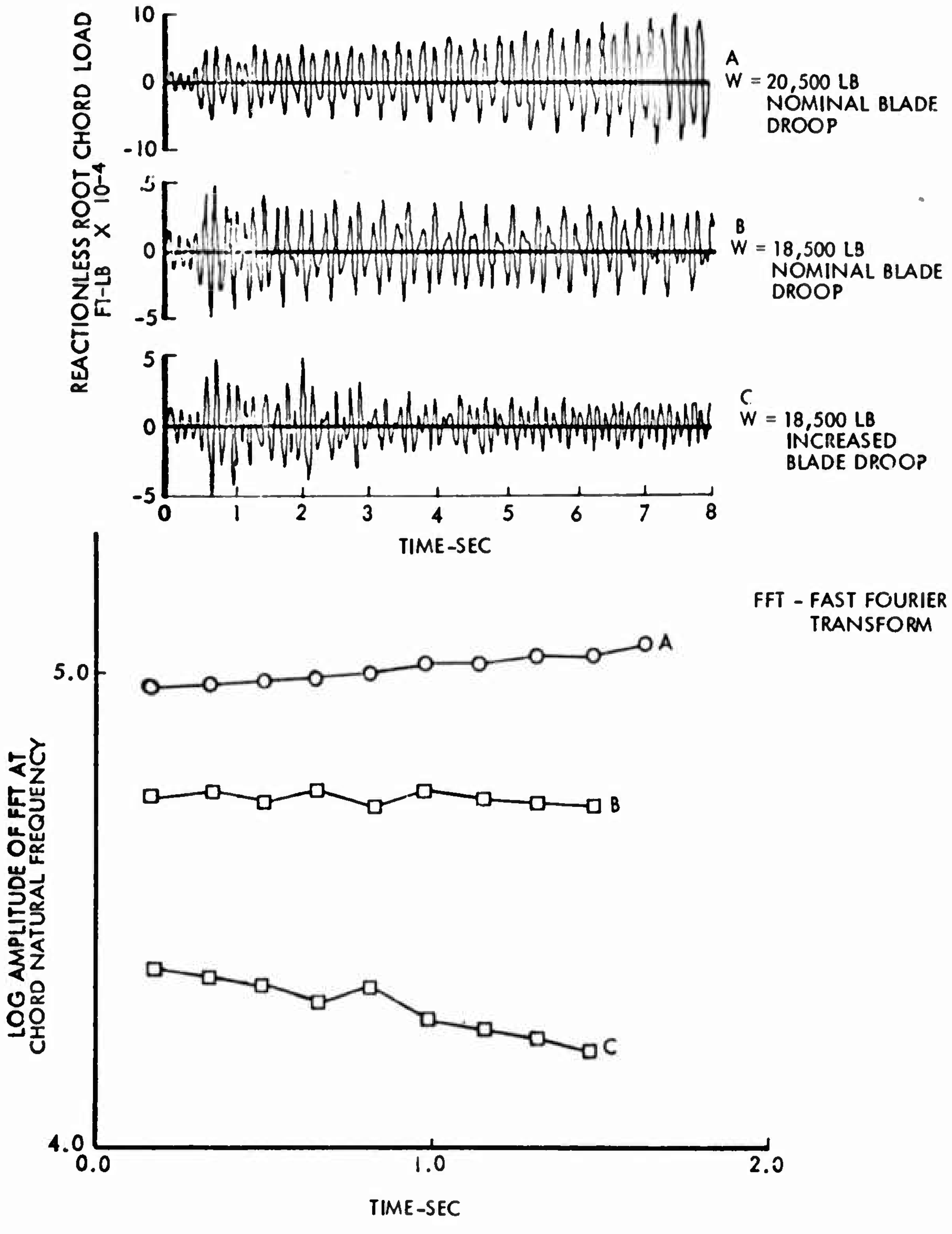


Figure 8. Effect of Blade Droop and Gross Weight on Reactionless Mode Damping and Chord Load Time Histories.

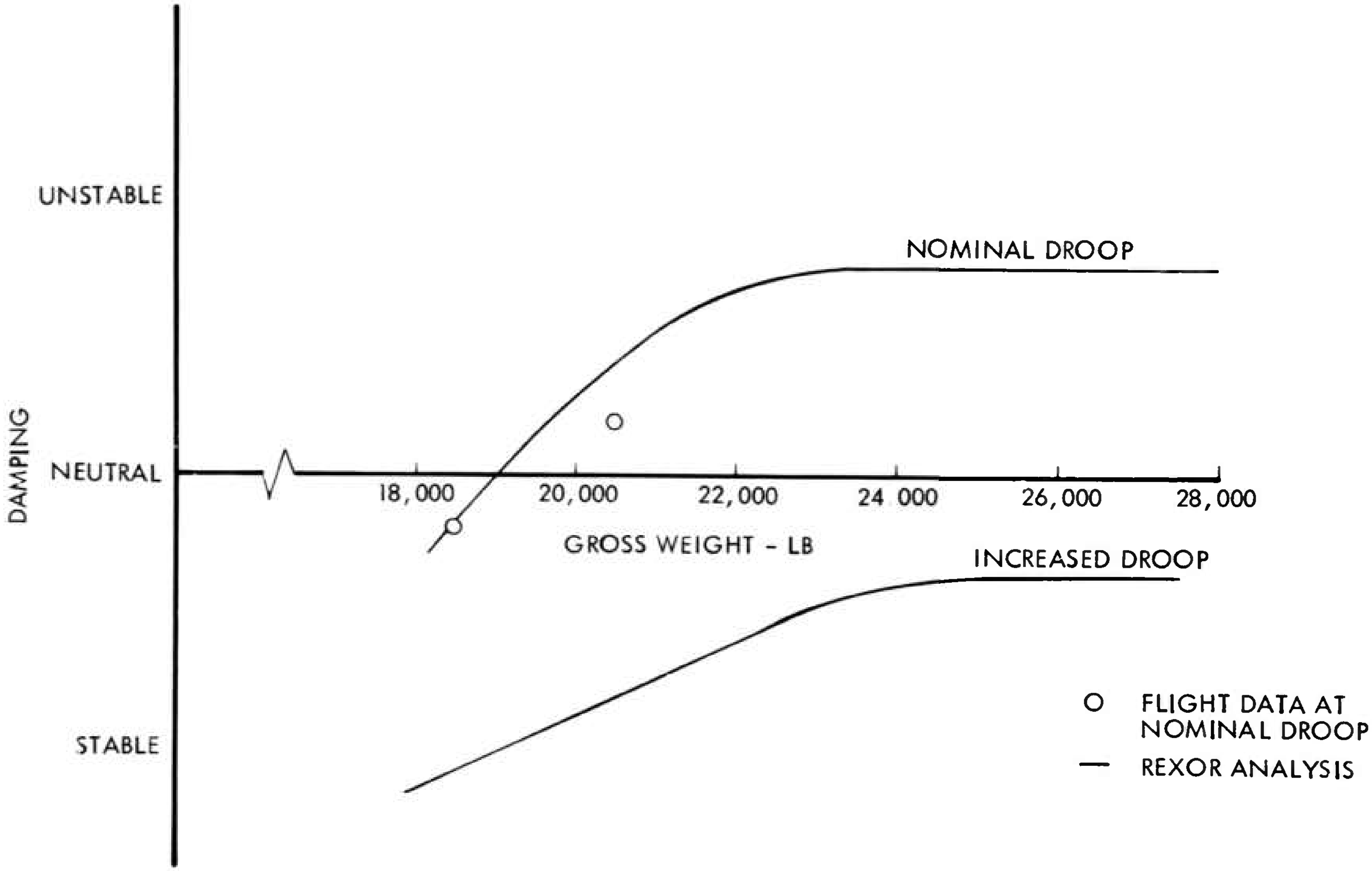


Figure 9. Reactionless Mode Damping vs. Gross Weight.

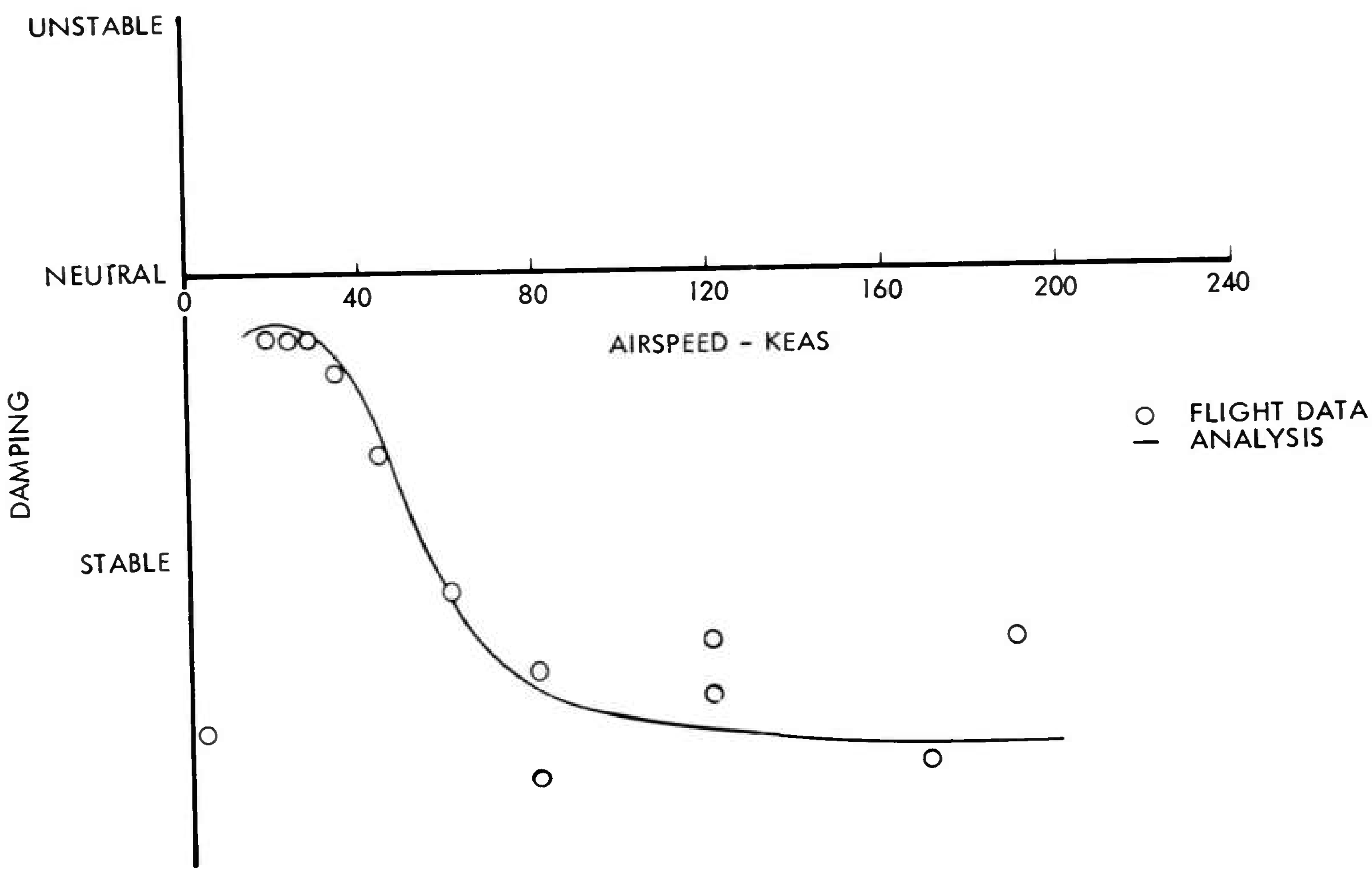


Figure 10. Reactionless Mode Damping vs. Forward Speed.

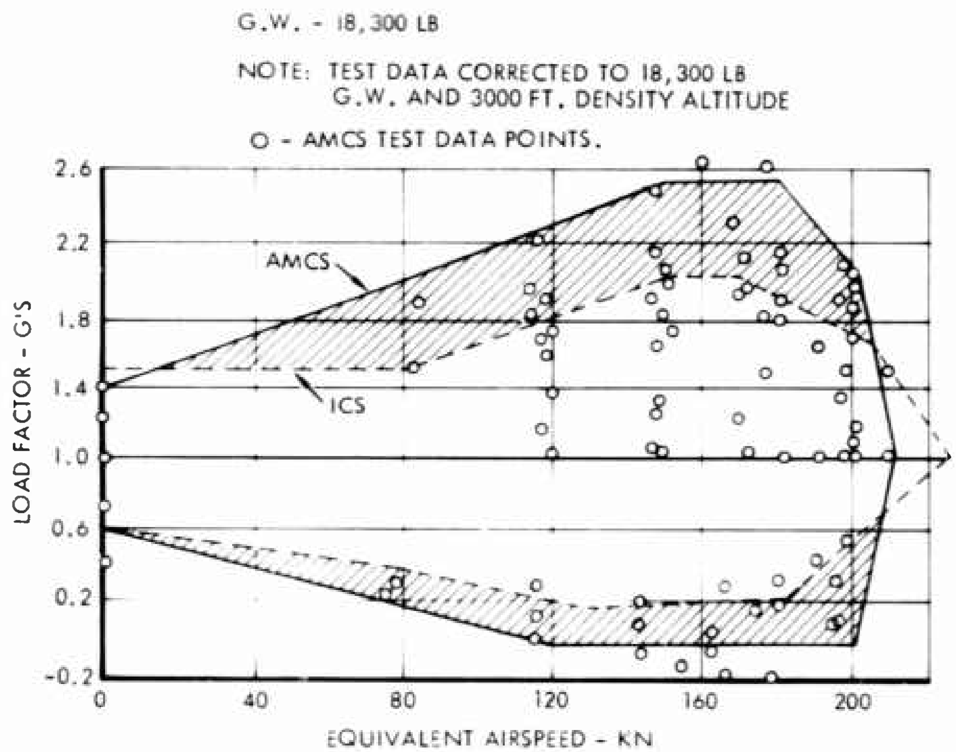


Figure 11. AH-56A ICS/AMCS Flight Envelope Comparison.

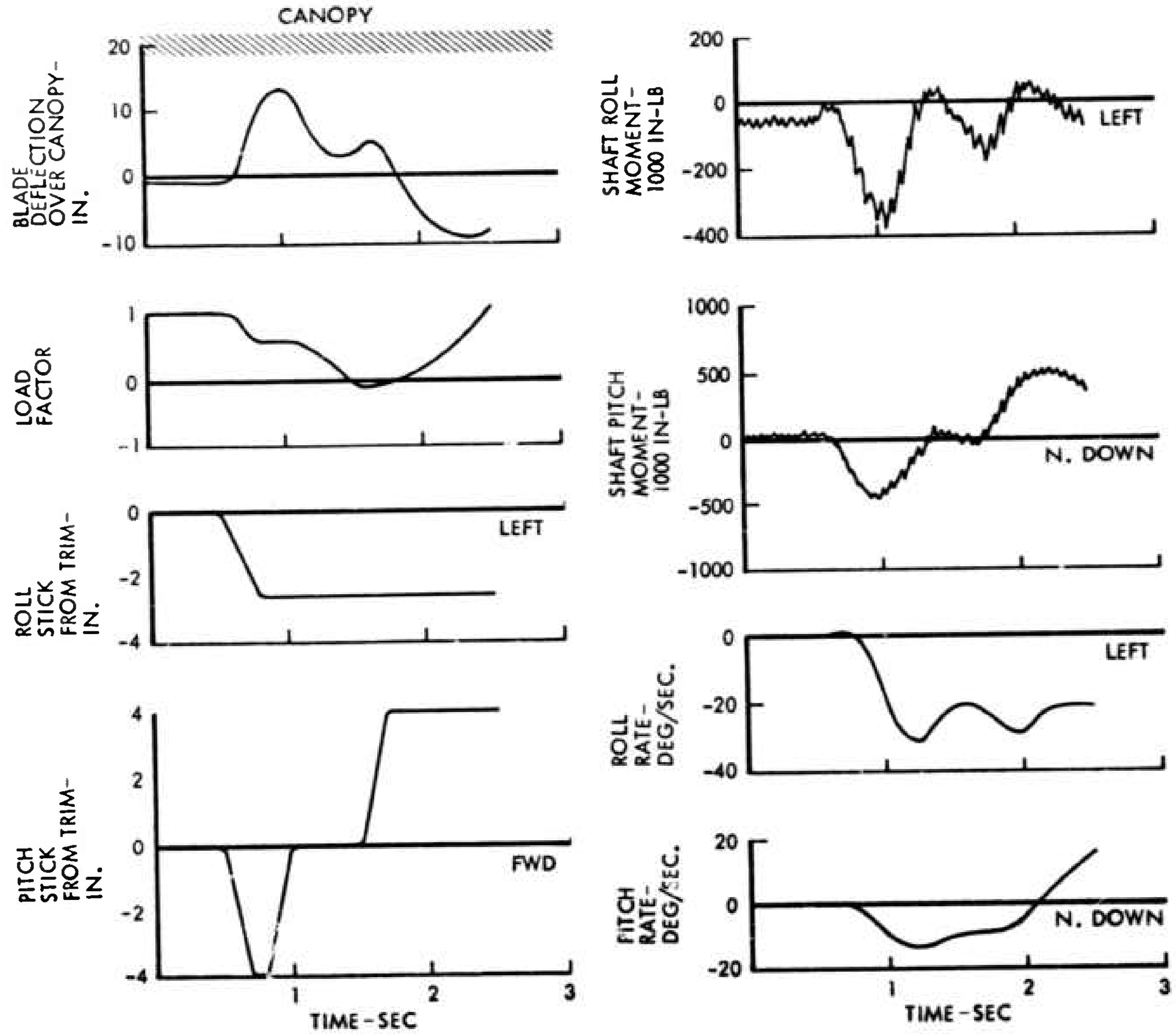


Figure 12. Canopy Clearance Time History - V=200 KTAS.

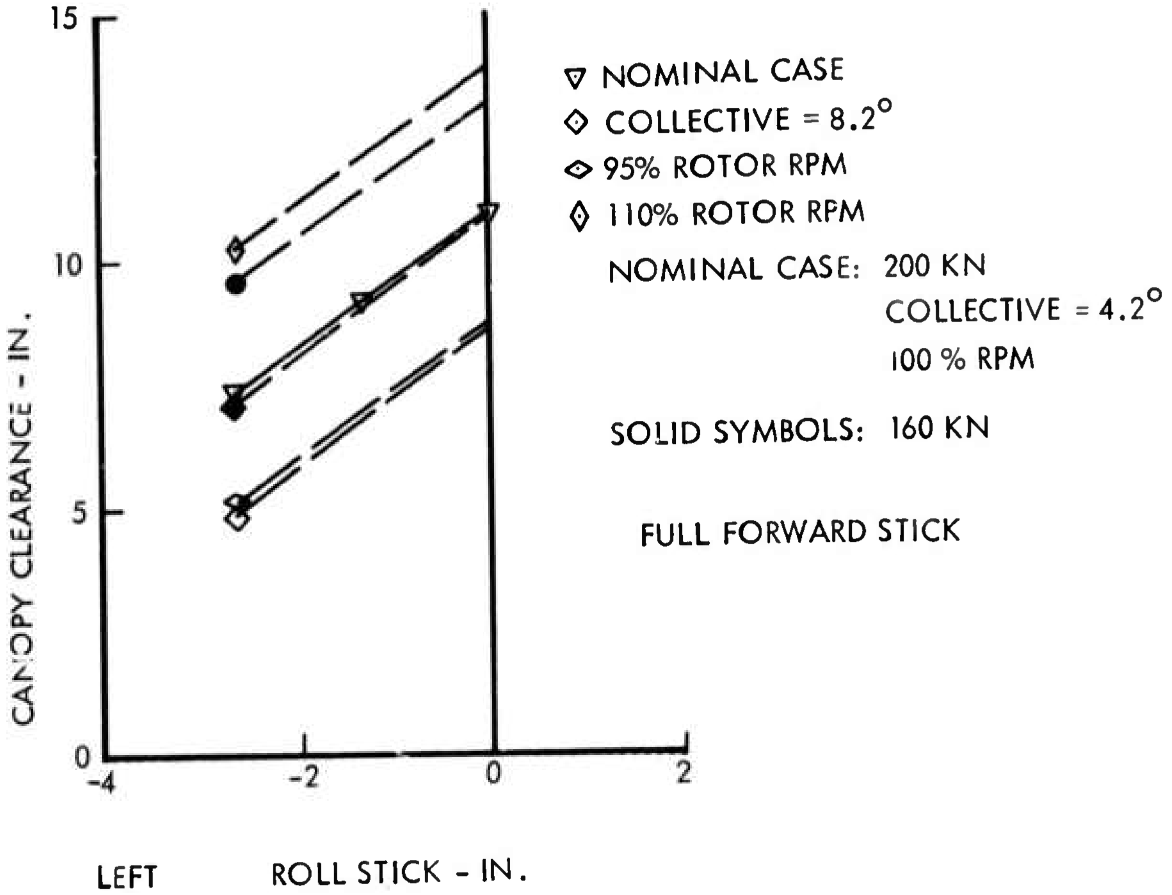


Figure 13. Canopy Clearance Analysis Summary.

Figure 13 shows a summary of the analytic results for pitch and roll control inputs. The relationship of the various technical disciplines to the problem investigated is readily apparent. A more complete discussion of this study is presented in Reference 5.

LOADS

It is evident that in these varied applications, a good estimate of rotor transient loads is inherent in the model. The analysis has shown good agreement in defining the practical flight envelope of the various versions of the AH-56A. This study will provide a detailed correlation of the loads capability of the REXOR analysis.

TECHNICAL APPROACH

The purpose of this study is to correlate a mathematical rotary-wing simulation program (REXOR) with AH-56A and XH-51A flight test data. Primary emphasis is placed on steady and cyclic blade loads during steady and transient maneuvers. Correlation of analytical results with experimental data for both high speed and high load factor conditions offers a basis for analytic extension into regions beyond those measured. The 4,500- and 18,300-pound respective gross weights, 100- to 200-knot flight speed range, and large maneuver envelope of each aircraft establish a quantitative assessment of the limiting factors for a range of aircraft. Factors of prime consideration are root blade loads (chordwise and flapping), feathering moments, and blade torsion moments. Distributed blade loads, both chordwise and flapwise, and in particular midspan loads, are also considered to be important in the correlation effort.

Two sets of test data were made available, one set for the AH-56A and one set for the XH-51A (compound mode). Each set consists of a number of steady and transient maneuvers over a defined load factor and speed range. Because of the fundamental differences in the two configurations, each must be considered separately and requires individual adaptation of the REXOR mathematical analysis. The correlation effort was segmented into five tasks:

- Selection and review of test data (AH-56A and XH-51A).
- Reduction of test data to correlation format.
- Modification of REXOR.
- Operation of REXOR to obtain data for correlation.
- Correlation report.

TEST DATA SELECTION AND REVIEW

Correlation cases were selected to cover the aircraft operational range from which test data are available and to place emphasis on a flight regime of high interest with respect to steady and transient rotor loads. The selected range covers maneuver load factors from 0.2 to 2 g and a speed range from 100 to 200 KEAS. A set of 56 flight test cases was made available and processed for correlation purposes. From a subset of 48, 33 steady-state and 8 transient cases for the AH-56A were correlated with analytic data; for the XH-51A, 4 steady-state and 4 transient cases were correlated.

The correlated static and dynamic cases for the AH-56A as a function of the flight envelope are noted in Figure 14. XH-51A cases are noted in Figure 15. A tabulation of all the flight cases considered for correlation and for which data were tabulated are noted in Table I.

REDUCTION OF TEST DATA TO CORRELATION FORMAT

The selected data were reduced from its time history format. Harmonic analysis of blade bending loads, determination of transient rates and accelerations, and extractions of time history records from oscillograph rolls were among the data reduction requirements. Data items utilized for correlation for each of the aircraft are listed in Table II. Time history data were also read and processed to provide data plotted to the same scale as that which is output by the REXOR analysis to allow for a direct comparison.

REXOR PROGRAM MODIFICATIONS

To correlate AH-56A maneuver loads, data output consistent with test data measurement items must be available from the REXOR analysis model. Minor modifications to the program were made to provide computational outputs required that had not previously been made available. For example, calculation of blade bending loads at specific blade radial stations consistent with test instrumentation locations was required.

The REXOR program was originally developed for the AH-56A. For the XH-51A correlation, additional modifications were required. The XH-51A turbojet was simulated by a scaled-down version of the AH-56A pusher propeller model. Minor XH-51A control and rotor blade mechanical geometry description changes were also necessary. Blade radial stations for load computations were changed to be consistent with the test configuration of the XH-51A aircraft.

REXOR DATA FOR CORRELATION

Operation of the REXOR program to obtain simulated flight data for correlation is straightforward and only requires submittal of input data listed in Appendix III along with the appropriate case data. No modifications of the mathematical model or the computer program were made to achieve or improve the correlation except those required to correctly describe the control geometry as defined above, or to facilitate a data output consistent with the measurement references used in the flight test program. Pilot control inputs were made consistent with flight test measurements. Data management and bookkeeping procedures to control the program are indicated by the arrangement of the data in the appendix.

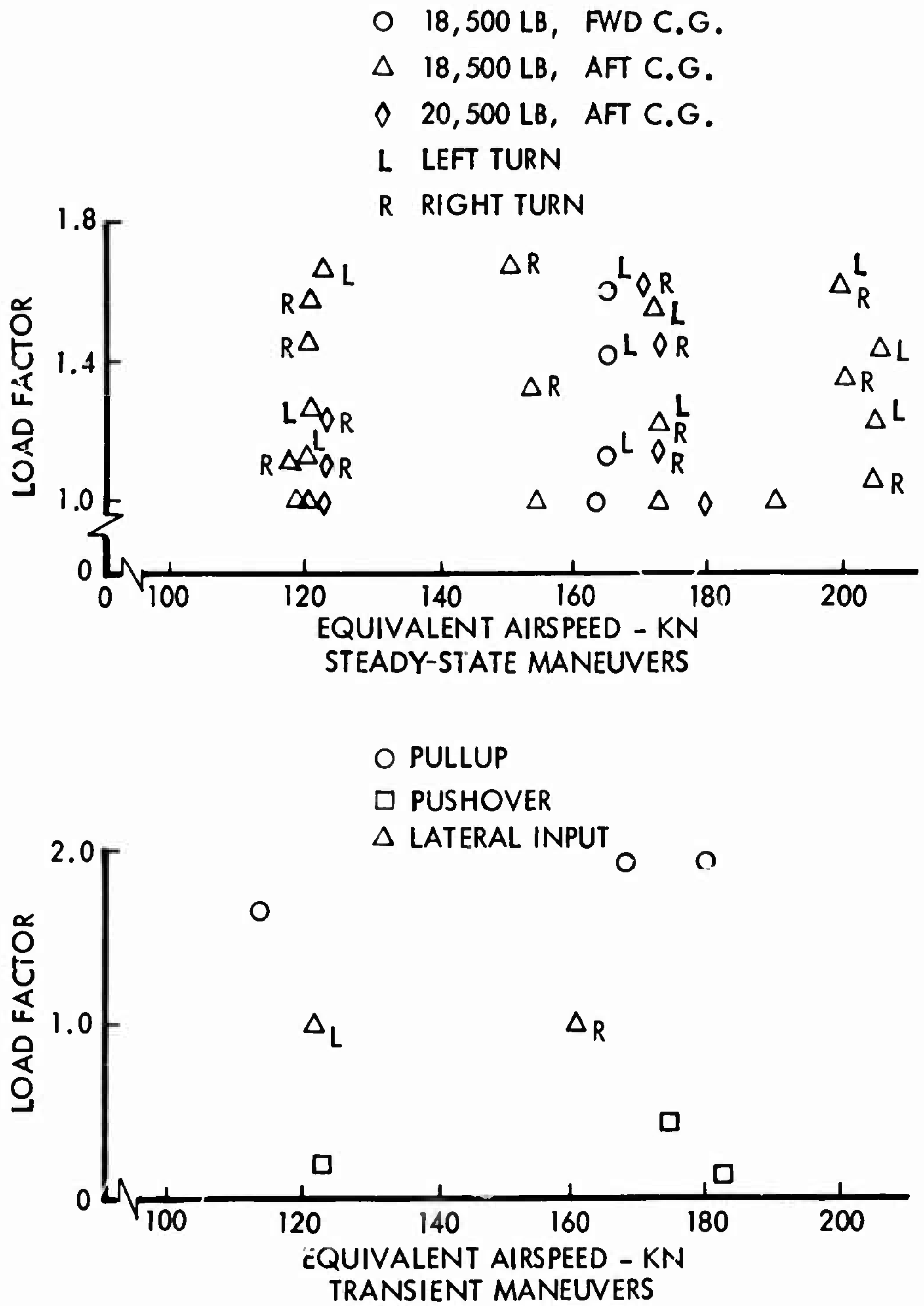


Figure 14. AH-56A Correlation Data Flight Envelope.

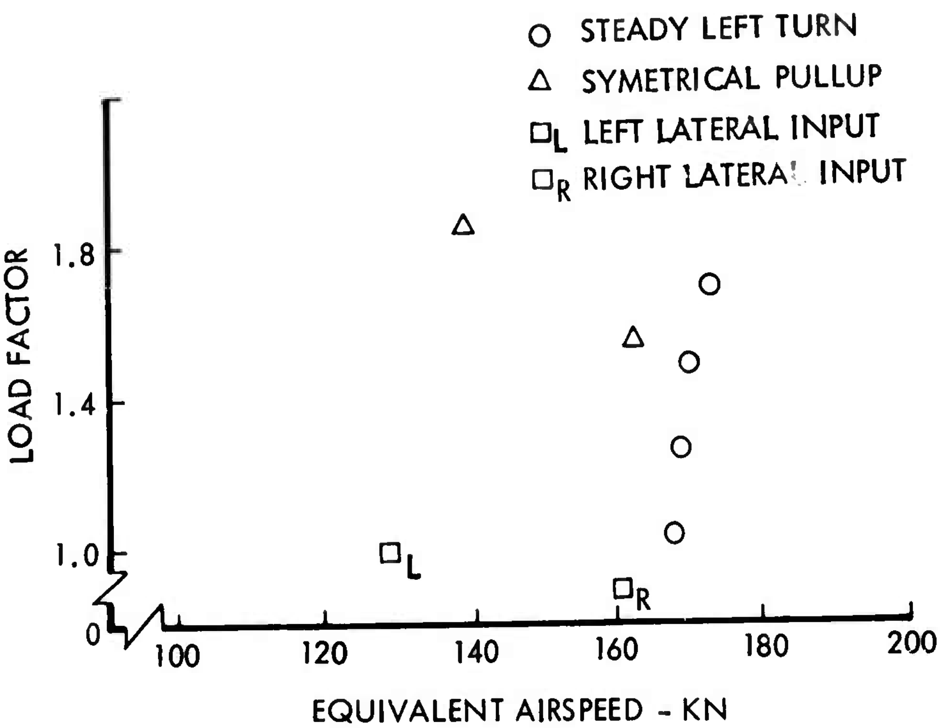


Figure 15. XH-51A Correlation Data Flight Envelope.

TABLE I. SELECTED FLIGHT TEST CASES

CASE NUMBER	VEHICLE	DESCRIPTION	TEST NUMBER	COUNTER NUMBER	EQUIVALENT AIRSPEED (KN)	RATE OF CLIMB (FT/MIN)	ROTOR SPEED (%)	TRIM LOAD FACTOR	PRESSURE ALTITUDE (FT)	FREE AIR TEMPERATURE (°F)	TRIM COLLECTIVE (DEG)	GROSS WEIGHT (LB)	CENTER OF GRAVITY (IN.)	ROTOR LIFT (LB)	ROLL SHAFT MOMENT (IN.-LB)	PITCH SHAFT MOMENT (IN.-LB)
1	AH-56A	Forward Flt	406	330	154	0	99.9	1.00	[illegible]	75	5.6	Normal	Aft	7,500	-96,000	+[illegible],000
2	AH-56A	Forward Flt	406	[illegible]	[illegible]	0	100.8	1.00	[illegible]	75	8.[illegible]	Normal	Aft	[illegible]	[illegible]	-11,000
3	AH-56A	Forward Flt	406	[illegible]	190	-800	100.0	1.00	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
4	AH-56A	Forward Flt	394	347	[illegible]	0	99.1	1.00	[illegible]	[illegible]	[illegible]	Normal	Forward	[illegible]	[illegible]	+115,500
5	AH-56A	Left Turn	394	[illegible]	[illegible]	[illegible]	98.3	[illegible]	[illegible]	[illegible]	7.9	Normal	Forward	9,400	[illegible]	[illegible]
6	AH-56A	Left Turn	394	[illegible]	[illegible]	-400	[illegible]	[illegible]	[illegible]	69	[illegible]	Normal	Forward	[illegible]	[illegible]	[illegible]
7	AH-56A	Left Turn	394	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	69	[illegible]	Normal	Forward	[illegible]	[illegible]	[illegible]
8	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
9	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
10	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
11	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	5,600	[illegible]	[illegible]
12	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
13	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	7,500	[illegible]	[illegible]
14	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
15	AH-56A	Pushover	469	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	9.1	Normal	Aft	[illegible]	[illegible]	[illegible]
16	AH-56A	Pushover	469	[illegible]	[illegible]	0	100.4	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	-3,000
17	AH-56A	Left Turn	469	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
18	AH-56A	Right Turn	469	[illegible]	[illegible]	0	100.0	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	[illegible]	[illegible]
19	AH-56A	Left Turn	469	[illegible]	[illegible]	-500	[illegible]	[illegible]	[illegible]	[illegible]	9.7	Normal	Aft	[illegible]	-60,000	[illegible]
20	AH-56A	Right Turn	469	946	[illegible]	-400	100.4	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible]	-59,000	[illegible]
21	AH-56A	Left Turn	469	779	119.5	-800	[illegible]	[illegible]	[illegible]	[illegible]	9.9	Normal	Aft	[illegible]	-65,000	[illegible]
22	AH-56A	Right Turn	469	948	[illegible]	-1000	[illegible]	[illegible]	[illegible]	[illegible]	9.7	Normal	Aft	[illegible]	[illegible]	[illegible]
23	AH-56A	Left Turn	469	759	[illegible]	-600	100.8	[illegible]	[illegible]	[illegible]	9.9	Normal	Aft	[illegible]	[illegible]	+64,000
24	AH-56A	Right Turn	469	[illegible]	[illegible]	[illegible]	[illegible]	1.17	[illegible]	55	8.9	Normal	Aft	15,600	[illegible]	[illegible]
25	AH-56A	Forward Flt	405	[illegible]	111	+500	100.0	[illegible]	[illegible]	[illegible]	[illegible]	Heavy	Aft	[illegible]	[illegible]	[illegible]
26	AH-56A	Right Turn	405	[illegible]	173	-500	100.0	1.15	3470	74	[illegible]	Heavy	Aft	11,100	[illegible]	[illegible]
27	AH-56A	Right Turn	405	[illegible]	[illegible]	-700	[illegible]	[illegible]	[illegible]	74	[illegible]	Heavy	Aft	[illegible]	[illegible]	[illegible]
28	AH-56A	Right Turn	405	301	174	-800	100.4	[illegible]	3270	75	[illegible]	Heavy	Aft	14,700	[illegible]	+87,000
29	AH-56A	Right Turn	405	307	170.5	-800	100.4	1.62	3150	75	6.9	Heavy	Aft	[illegible]	-105,000	+111,000

TABLE I. Continued.

CASE NUMBER	VEHICLE	DESCRIPTION	TEST NUMBER	COUNTER NUMBER	EQUIVALENT AIRSPEED KN	RATE OF CLIMB FT MIN	ROTOR SPEED (%)	TRIM LOAD FACTOR	PRESSURE ALTITUDE (FT)	FREE AIR TEMPERATURE (°F)	TRUE COLLECTIVE (DEG)	GROSS WEIGHT (Lb)	CENTER OF GRAVITY (IN.)	ROTOR LIFT (LB)	ROLL SHAFT MOMENT (IN.-Lb)	PITCH SHAFT MOMENT (IN.-Lb)
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.8	Heavy	Aft	14,600	-71,000	[illegible],000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Heavy	Aft	16,300	-7[illegible],000	+[illegible],000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.[illegible]	Heavy	Aft	15,400	-7[illegible],000	+16,000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.8	Heavy	Aft	[illegible],400	-7[illegible],000	+[illegible],000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Heavy	Aft	[illegible]	-74,000	+17,000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Heavy	Aft	[illegible],600	-68,000	+[illegible]3,000
[illegible]	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.[illegible]	Normal	Aft	7,000	-89,000	+[illegible],000
[illegible]	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	9,600	-9[illegible],000	+58,000
[illegible]	AH-56A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible],100	-9[illegible],000	+80,000
39	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	[illegible],100	-102,000	+62,000
[illegible]	AH-56A	Right Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Aft	17,600	-106,000	+117,000
[illegible]	XH-51A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Normal	[illegible],550	-16,000	-10,300
[illegible]	XH-51A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Normal	[illegible],810	-11,100	+200
[illegible]	XH-51A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Normal	[illegible]	-4,[illegible]00	+[illegible],400
[illegible]	XH-51A	Left Turn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Normal	Normal	[illegible],700	[illegible],050	+7,200
[illegible]	AH-56A	Pullup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible],400	[illegible]	[illegible],100	-1[illegible],000	+197,000
[illegible]	AH-56A	Pushover	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],400	[illegible]	9,400	[illegible],000	+[illegible]56,000
[illegible]	AH-56A	Right Roll	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],700	[illegible]	8,100	-89,000	+7,000
[illegible]	AH-56A	Left Roll	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],600	-[illegible],000	-5,000
[illegible]	AH-56A	Pushover	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-8[illegible],000	+[illegible],000
[illegible]	AH-56A	Pullup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],400	-1[illegible],000	+156,000
[illegible]	AH-56A	Pullup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-53,000	-8,000
[illegible]	AH-56A	Pushover	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],400	-56,000	-6,000
53	[illegible]-51A	Left Roll	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],400	+8,800	-15,200
54	[illegible]-51A	Right Roll	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-5,800	-18,100
[illegible]	[illegible]-51A	Pullup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	500	-19,500	-[illegible],500
[illegible]	[illegible]-51A	Pullup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],400	-8,[illegible]	-1[illegible],700

TABLE II. EXPERIMENTAL DATA CORRELATION PARAMETERS

AH-56A

1. Main Rotor Fixed Hub Flap Bending Moment at Station 18.
2. Main Rotor Fixed Hub Chord Bending Moment at Station 18.
3. Main Rotor Blade Chord Moment at Station 103.
4. Main Rotor Blade Flapping Moment at Station 130.5.
5. Main Rotor Blade Flapping Moment at Station 174.
6. Main Rotor Blade Chord Moment at Station 174.
7. Main Rotor Shaft Bending Moment.
8. Main Rotor Blade Torsion Moment at Station 131.5
9. Blade Pitch Link Axial Load.
10. Blade Angle.
11. Longitudinal Cyclic Stick Position.
12. Lateral Cyclic Stick Position.
13. Collective Control Position.
14. C.G. Vertical Acceleration.
15. Pitch Rate.
16. Roll Rate.
17. Yaw Rate.
18. Angle of Attack.
19. Sideslip Angle.

XH-51A

1. Main Rotor Fixed Hub Flap Bending Moment at Station 6.
2. Main Rotor Fixed Hub Chord Bending Moment at Station 6.
3. Main Rotor Blade Chord Bending Moment at Station 45.
4. Main Rotor Blade Flap Bending Moment at Station 115.
5. Main Rotor Blade Angle.
6. Longitudinal Cyclic Stick Position.
7. Lateral Cyclic Stick Position.
8. Collective Control Position.
9. Main Rotor Pitch Link Axial Load.
10. C.G. Vertical Acceleration.

TABLE II. (Continued)
11. Pitch Rate.
12. Roll Rate.
13. Yaw Rate.
14. Angle of Attack.

CORRELATION REPORT

A one-to-one comparison of REXOR results with corresponding AH-56A and XH-51A experimental data is presented in this report. Emphasis has been placed upon comparing blade harmonic loads versus load factor and time history comparisons of loads and responses. A diagram of the scope of study is illustrated in Figure 16. As a part of the report, other areas for future productive correlation activity are also identified.

ANALYTICAL DATA (REXOR)

- MODIFY REXOR
- GENERATE AH-56A INPUTS
- GENERATE XH-51A INPUTS
- OPERATE REXOR

TEST DATA

- READ AH-56A STEADY-STATE CASES (40)
- READ AH-56A MANEUVERS (8)
- READ XH-51A STEADY-STATE CASES (4)
- READ XH-51A MANEUVERS (4)
- HARMONICALLY ANALYZE TRIM CASES
- PLOT TIME HISTORY OF TRANSIENTS

CORRELATION

- MATCH ANALYTICAL ROTOR LOADS TO TEST IN TRIM
- VARY PILOT STICK UNTIL ANALYTICAL BODY MOTIONS AGREE WITH TEST
- RUN CHECK WITH BASIC LOADS PROGRAM
- RESCALE TEST MANEUVER DATA TO REXOR SCALES

REPORT MATERIAL

- HARMONICS VERSUS LOAD FACTOR
- HARMONICS VERSUS BLADE STATION
- TIME HISTORY COMPARISON

Figure 16. Study Scope.

REXOR MODEL DESCRIPTION

The model is written for a helicopter which can be conventional, winged or compounded, with a single, four-bladed main rotor. Figure 17 is a computational flow diagram for the REXOR computer program and indicates how the various components are related to one another in the analysis. The motions of the entire helicopter are simulated including a detailed dynamic description of the rotor and control system as well as a conventional, six degree-of-freedom airframe.

The model operates in two modes identified as TRIM or FLY. The TRIM procedure operates directly on main rotor collective, angle of attack, main rotor cyclic, tail rotor collective, and propeller blade angle. TRIM may be established in either a level, climbing, or descending flight path at a steady load factor. Besides free flight, TRIM can be conducted for the fixed-shaft case for whirl tower or wind tunnel analysis. When TRIM is complete, the analysis proceeds to the FLY model where all the degrees of freedom are activated and the helicopter responds for a specified length of time to any input. The pilot simulation can be single- or multiple-control inputs such as steps, pulses, doublet, stick stirs, or other transient inputs within the capability of the control system. Hence, transient loads and the resulting rotor, control, and airframe motions can be generated. Additionally, gust inputs and other types of external excitations can be applied directly to the rotor and airframe.

The aircraft is described dynamically by 28 fully coupled degrees of freedom. These include the airframe with 6 rigid-body degrees of freedom; the swashplate motions with roll, pitch, and heave; the main rotor hub with tilt in roll and pitch due to shaft bending; and with rotor speed due to engine and drive train dynamics. The motion of each main rotor blade is described by three coupled bending modes with flapwise and lagwise components and an elastic feathering or pitch horn bending degree of freedom between the swashplate and the blade. The four independent blades have a total of 16 degrees of freedom, making a grand total of 28 fully coupled dynamic degrees of freedom. In addition to these coupled degrees of freedom, there is a first torsion mode for each blade. This mode is included either as a dynamic mode or as a massless torsion response to blade torsion loads through a first-order lag, depending on the type of analysis being performed.

The three rotating natural modes for each blade are obtained from the Lockheed Rotor Blade Loads program. This computer program consists of an aerodynamic performance-trim analysis of an isolated rotor that is coupled

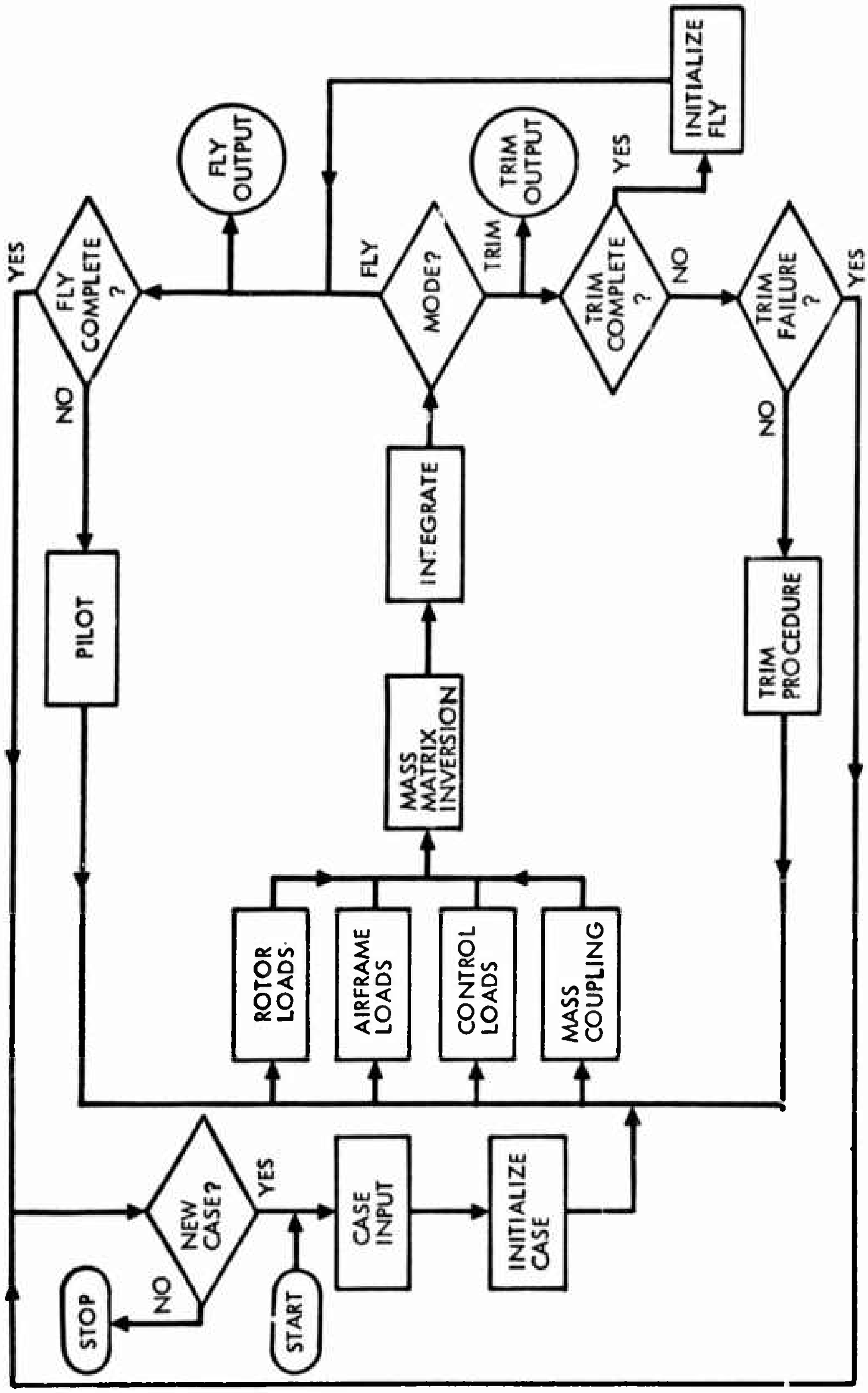


Figure 17. REXOR Computational Flow Diagram.

with the dynamic response of the blades. A relaxation type of iterative procedure is employed between the aerodynamics and the structural response of the blades. Converged trim characteristics of the rotor that are consistent with the blade mode shape and loads are obtained. The first three modes of the cantilevered rotating beam which can be characterized as the first-flap, first-in-plane, and second-flap bending modes are obtained from this principal axis coupled finite element analysis. The program structurally models the rotating blade, using up to 75 discrete span-wise lumped parameter loading stations with the flapwise-chordwise response fully coupled.

The structural description is generalized in that two separate beams in a centrifugal force field are used to describe one arm of the rotor. The two beams represent the feathering blade, and the fixed hub which supports the blade. Each beam is free to deform independently of the other except for the constraint at the points of attachment to each other (feathering bearings). These points must have the same spatial displacement. A provision in the description permits the consideration of bearing support elasticity at the feather bearing locations as a function of the radial reaction forces acting on the bearings. The structural modeling accommodates either concentric hub and blade or door hinge blade concepts, and either compression-torsion or tension-torsion packs for blade retention with the appropriate load transfers. The elastic response of the blade considers the structural coupling between flapwise and chordwise bending due to collective pitch and the built-in blade twist.

The natural frequencies and mode shapes are used directly as basic input data for the REXOR program. The number of blade and hub stations is, however, reduced to facilitate computational times. Thirteen inertial stations and eleven aerodynamic stations (the two root stations are not loaded) are used to represent each rotor blade for this correlation study although any number up to 20 may be used. The highest frequency mode of the rotating natural modes used in the study is approximately 2.6P at nominal rotor rpm for both the AH-56A and the XH-51A. As a result, the 3rd harmonic and all higher harmonic loadings are not as well represented due to the use of only three modes. The Rotor Blade Loads program has also been used to provide a basis of comparison for REXOR correlation. In some cases, Rotor Blade Loads analysis data is included in this report to show the limitations of the REXOR structural description on loads estimation.

The dynamic equations of motion are written in matrix form as:

$$-[A(q, t)]\{\ddot{q}\} + \{G(\dot{q}, q, t)\} = 0$$

where $[A]$ is a matrix of generalized mass elements, which is a function of the displacements of the generalized coordinates, q, and the time, t;

$\{\ddot{q}\}$ is a column matrix of accelerations of the generalized coordinates; and $\{G\}$ is a column matrix derived from the Lagrangian energy functions, dissipation functions and generalized forces, and contains all of the linear and nonlinear dynamic and aerodynamic terms.

The equations of motion are solved in the time domain at rotor azimuth angle increments small enough to provide computationally stable results for the highest frequency mode present. The analysis is fully coupled and nonlinear, with the generalized forces and masses being automatically generated at each time point; application of the above equation assures complete force equilibrium of the system at each instant.

The blade motions are in terms of modal displacements where the centrifugal and structural stiffness terms are separately defined. This permits a description of the periodic reorientation of the structural and centrifugal springs due to cyclic blade angle. Additionally, the blade response includes motions due to simultaneous consideration of blade feathering and the blade element locations relative to the feather axis due to precone, sweep, droop geometry, and elastic blade deflections. The feathering and shaft moments include all of the nonlinear terms associated with coupled flapping and in-plane loads acting on the combined static and elastic displacements of the blade and shaft.

The equations of motion are obtained by application to each of the generalized coordinates q_r, of the following equation, which is a form of the Lagrangian energy expression.

$$\sum_{i=1}^{n} (F_{x_i} - m_i \ddot{x}_i) \frac{\partial x_i}{\partial q_r} + \sum_{i=1}^{n} (F_{y_i} - m_i \ddot{y}_i) \frac{\partial y_i}{\partial q_r}$$

$$+ \sum_{i=1}^{n} (F_{z_i} - m\ddot{z}_i) \frac{\partial z_i}{\partial q_r} + \frac{\partial U}{\partial q_r} = 0$$

F_{x_i}, F_{y_i}, and F_{z_i} are forces acting on n elements of mass, m_i, with orthogonal coordinates x_i, y_i and z_i. The generalized potential, $U \equiv U(q_r, \dot{q}_r)$ provides additional generalized forces not included by F_{x_i}, F_{y_i}, and F_{z_i}. The elemental accelerations, velocities, and displacements are derived using conventional vector analysis techniques.

The aerodynamic description comprises a rotor inflow model, nonlinear steady and unsteady blade element airloads, nonlinear body airloads, rotor and airframe airflow interference, and airloads from the tail rotor and the propeller. The rotor inflow model is an empirical modification to uniform downwash based on data from Reference 6, with adjustments for shaft moments. The inflow velocity at station x of a blade of radius R and azimuth Ψ has the form:

$$w_i = \bar{w}_i \{1 + \frac{x}{R} [f(X_u) \cos \Psi + f(X_v) \sin \Psi]\} + \frac{x}{R} (\bar{p}_i \sin \Psi + \bar{q}_i \cos \Psi)$$

where $\bar{w}_i$ is the uniform momentum inflow velocity, $f(X_u)$ and $f(X_v)$ are functions of longitudinal and lateral wake angles, and $\bar{p}_i$ and $\bar{q}_i$ are first harmonic inflow components that are functions of rotor rolling and pitching shaft moments and translational velocity. $\bar{w}_i$, $\bar{p}_i$, and $\bar{q}_i$ are filtered with first-order lags which represent the delay in establishing a new inflow pattern following a change in rotor loading.

The blade section lift, drag, and pitching moment are nonlinear functions of the section thickness ratio and camber, the angle of attack, and the Mach number as determined from a table lookup routine. Aerodynamic loads due to pitch and plunge are quasi-steady and are of the general form found in Reference 7, with the Theodorsen deficiency function set to 1.0. Stall hysteresis is also included in a form similar to that described in Reference 8. This dynamic stall was not available at the beginning of this study and therefore, was not used.

The aircraft control system simulates the pilot controls operating through a servo boost on all control axes. Gearing and phasing are provided in the cyclic control path. The servos are simulated by first-order lags with rate limits. Soft and hard stops are modeled. The dynamic equations include the response of blade feathering to swashplate springs and blade loads.

The input data are printed as a card listing and also as a listing grouping like inputs which give the FORTRAN symbol as well as the value. A high degree of flexibility is provided by making each input an element of one large array of dimension 3000. Changes in either the master, the overrides to the master, or case data are minimized. The standard output format gives time history plots of up to 40 parameters in the TRIM mode and 60 in the FLY mode. Automatic scaling is provided on all plots. Output data are also tabulated at the start and end of both TRIM and FLY modes. The program can provide plots of the blade loads over the last revolution of trim on an expanded time scale. These loads are harmonically analyzed and the components tabulated. Other capabilities are included such as the generation of linear models with or without periodic coefficients for solution by linear or Floquet eigenvalue routines, Reference 9, or Fast Fourier Transform techniques which permit identification of frequency and damping during transients, Reference 4.

MODIFICATION AND OPERATION FOR STUDY

To minimize computation time, several degrees of freedom not required to define the test vehicle were eliminated. These included the shaft tilt degrees of freedom for the AH-56A and XH-51A configurations, and the rotor speed degree of freedom for the XH-51A helicopter due to a lack of data concerning its engine dynamic characteristics.

Modifications to the modeling of the physical systems were made to accommodate the XH-51A helicopter. The jet thrustor was modeled as a scaled-down version of the AH-56A propeller. This simplification has a minor effect on body accelerations and a negligible effect on blade loads. Tail rotor height and thrustor lateral offsets were added to accommodate the XH-51A configuration.

A number of other modifications were made to obtain the desired output capability and to save computational time. The blade loads plot time history capability in the FLY mode was expanded. A harmonic analysis subroutine was created, and the output was converted to standard engineering units and signs. TRIM SAVE data were made available to save computing time in the TRIM mode. One blade trim procedure was activated for the AH-56A configuraiton to save computer time in the TRIM mode.

Harmonic analyses are conducted during the last revolution in TRIM. In order to compute true equilibrated blade loads, however, a modification to the program was required due to the computational sequence used in the REXOR program. For a given time point, the accelerations from the previous time are integrated to provide the current velocities and displacements. Accelerations at the last time point and the current velocities and displacements are then used to compute loads and "generalized forces." The acclerations at the current time point are found by multiplying the generalized forces by the inverted mass matrix to give delta accelerations which are added to the accelerations from the previous time to give the true current acceleration.

Loads computed up to this point are not completely accurate in that they are based upon current velocities and displacements but previous time accelerations. Therefore, the program was modified to compute internal loads using all current values of accelerations, velocities, and displacements before proceeding to the next integration step for the next time velocities and displacements. This loads computation is only implemented during the harmonic analysis cycle to conserve computation time.

DESCRIPTION OF TEST VEHICLES

As a basis for correlation of the loads evaluation capability of the REXOR analysis, flight test data from two test aircraft were used: The AH-56A compound helicopter and the XH-51A compound helicopter.

The AH-56A data were obtained on the Lockheed S/N 1009 in its Improved Control System (ICS) configuration. The XH-51A compound helicopter is a modified XH-51A helicopter (Lockheed S/N 1002), which was developed under contract to the U.S. Army Aviation Materiel Laboratories to study the high-speed compound helicopter flight regime. The results of this research have been reported in Reference 10. This section contains a brief description of these test aircraft.

AH-56A COMPOUND HELICOPTER

The AH-56A is a two-place, high-performance, compound attack helicopter powered by a single General Electric T64-GE-716 turboshaft engine. A fixed wing unloads the main rotor and assumes the greater portion of the total aircraft lift at high speeds. Longitudinal thrust is provided by a three-bladed pusher propeller. Photographs of the test vehicle are presented in Figures 18 through 20. A three-view drawing is presented in Figure 21.

The low aspect ratio wing consists of left and right panels which are mounted to the sponsons low on the fuselage. The wings are trapezoidal in planform, having a total area of 196 square feet. The wing cross section is a convex upper surface and a concave lower surface airfoil tapering from 12-percent thickness at the root to 8-percent thickness at the tip.

The horizontal stabilizer is mounted to the aft end of the fuselage. The two panels of the horizontal stabilizer are basically trapezoidal in planform. The trailing edge of both panels is unswept. The left panel is contoured from a symmetrical airfoil with a cutoff trailing edge ("bobtailed"). The right panel also is derived from a symmetric airfoil with the aft third of the chord deflected downward 2.84 degrees.

The vertical stabilizer is ventrally mounted near the aft end of the fuselage. It is mounted on the fuselage centerline with no incidence relative to the fuselage centerline. The fin airfoil section is symmetrical.

Figure 18. AH-56A, S/N 66-8834 (1009), Test Configuration, Front View.

Figure 19. AH-56A, S/N 66-8834 (1009), Test Configuration, Front Quarter View.

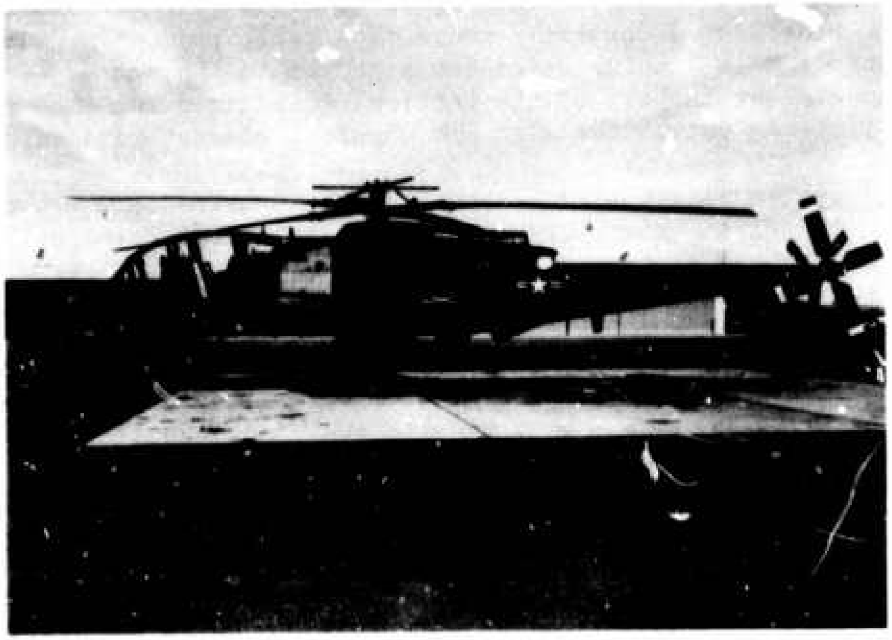


Figure 20. AH-56A, S/N 66-8834 (1009), Test Configuration, Side View.

The engine is installed in the upper mid-fuselage with inlets on both sides of the main rotor mast. The engine exhausts over the aft fuselage with the wake deflected upward by means of a tailpipe design feature. The retractable main landing gears are attached to the sponsons. The tail wheel is mounted at the tip of the vertical stabilizer and also retracts. Table III lists in detail the airframe physical characteristics.

The dynamic system is comprised of the main rotor, the tail rotor and the propeller. The rotating components are integrally connected with no clutching provisions except at the engine where a sprague-type clutch separated the rotating system from the engine during autorotations.

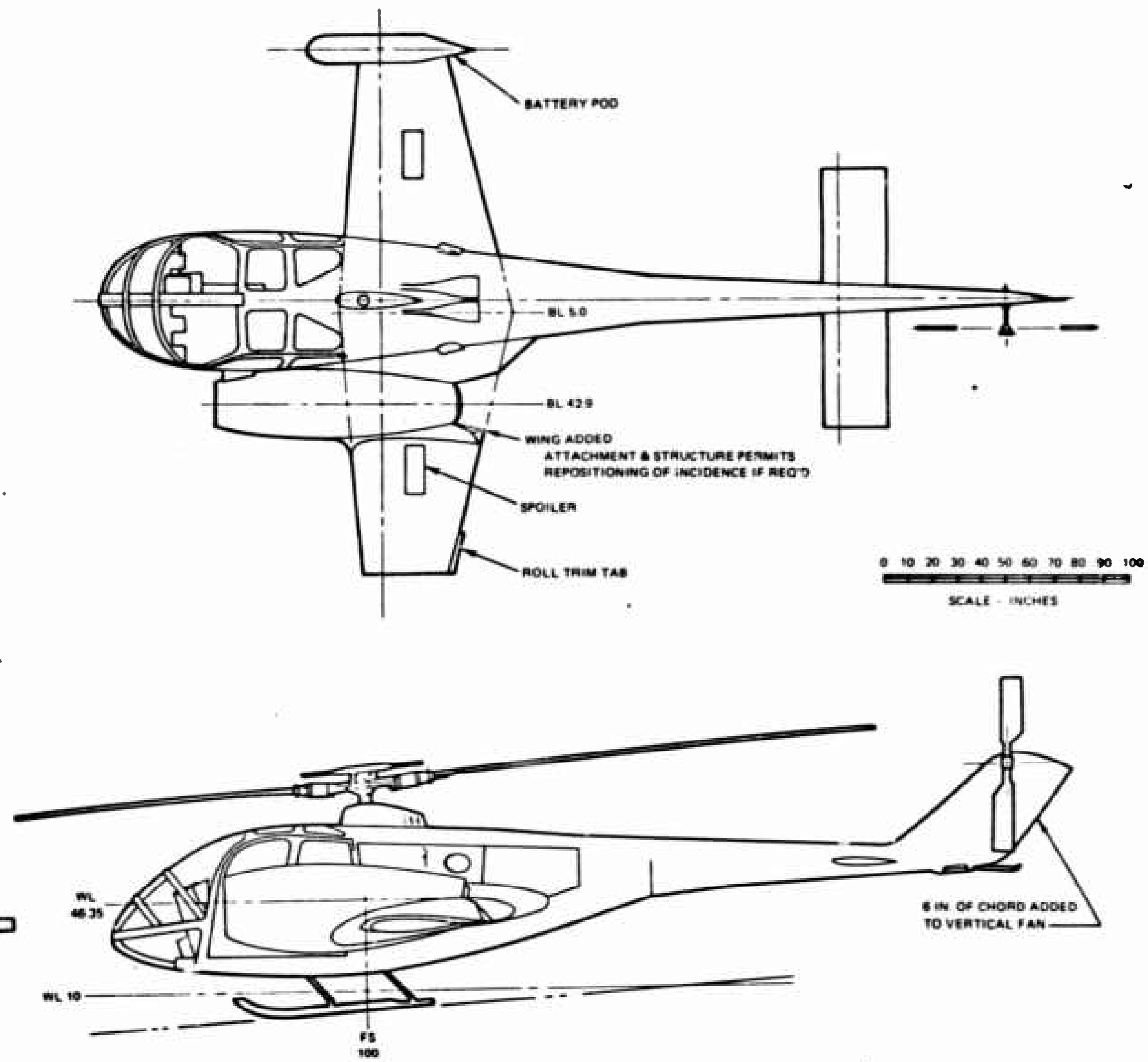
The four-bladed hingeless main rotor is centered on fuselage station 300 and waterline 165.3. The blades are rectangular in planform. Each blade is attached to a movable hub at blade station 70 (blade station 0 was defined to be at the hub center). Each movable hub is attached to a fixed hub with feather bearings located at blade stations 35 and 60. The centrifugal load, rather than passing through the bearings, is reacted through a tension-torsion pack which attached to the movable hub at station 30 and the fixed hub at station 12. The blade airfoil section is cambered, with thickness tapered from root to tip. Typical airfoil sections are illustrated in Figure 22. The blade in the ICS configuration is swept forward 4 degrees and drooped down 1 degree 57 minutes at station 70. Additional droop is provided by 23 minutes of feather bearing offset in the fixed hub and 50 minutes of feather bearing offset in the movable hub, resulting in a total of 3 degrees 10 minutes of blade droop with respect to the feather axis. Figure 23 schematically illustrates blade sweep and droop and the configuration relationships of the blade, movable hub, fixed hub, feather bearings, and tension-torsion pack.

The tail rotor is mounted on the tip of the left stabilizer. The four-bladed teetering tail rotor is centered on fuselage station 658.5, waterline 114.5 and buttline 72 left. The constant chord airfoil section has a constant thickness over a large percentage of the chord and a droop nose. The airfoil section is shown in Figure 22. The direction of rotation is in the sense of opposing the main rotor downwash (i.e., upper blade rotates aft).

A three-bladed Hamilton Standard 1311 GE 30/11FA 10A4-0 propeller is mounted at the aft end of the fuselage. The propeller thrust is controlled by variation of the collective blade angle at essentially constant speed (i.e., beta prop). The airfoil sections are NACA 16-series sections over the outer span and NACA 64-series sections in the spinner region, with the transition occurring between approximately 38 and 49 percent of span.

The shaft moment capability available with Lockheed's hingeless rotor design makes possible ample roll and pitch control with main rotor cyclic feathering. Elevator, aileron, or rudder provisions are not incorporated

AREA (SQ FT)		70.00
ASPECT RATIO		4.05
TAPER RATIO		5
SPAN (IN.)		2.03
ROOT CHORD (IN.)		66.5
TIP CHORD (IN.)		33.25
M.A.C. (IN.)		51.9
AIRFOIL SECTION	ROOT	NACA 23012
	TIP	NACA 23012
INCIDENCE	ROOT	.9° FROM WL
	MAC	
	TIP	9° FROM WL
DIHEDRAL		.0° AT TE
SWEEP		.0° AT .25 C
HORIZONTAL TAIL		
SPAN (IN.)		108.00
CHORD (IN.)		26.4
AIRFOIL SECTION		NACA – 15
INCIDENCE TO FRL		.25°



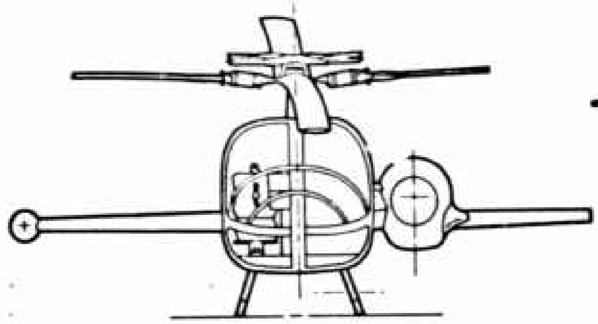
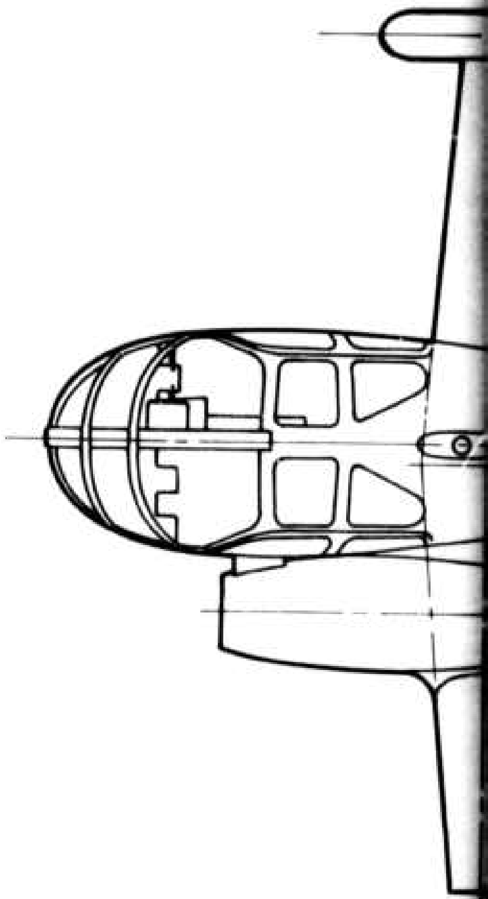


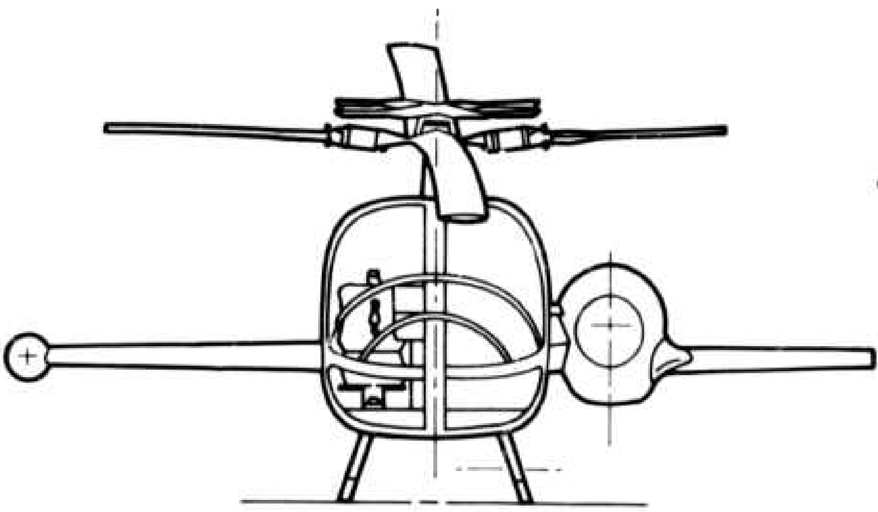
Figure 21. AH-56A Three View (General Arrangement)

AREA (SQ FT)		70.00
ASPECT RATIO		4.05
TAPER RATIO		.5
SPAN (IN.)		2.03
ROOT CHORD (IN.)		66.5
TIP CHORD (IN.)		33.25
M.A.C. (IN.)		51.9
AIRFOIL SECTION	ROOT	NACA 23012
	TIP	NACA 23012
INCIDENCE	ROOT	$.9^{\circ}$ FROM WL
	MAC	
	TIP	$.9^{\circ}$ FROM WL
DIHEDRAL		$.0^{\circ}$ AT TE
SWEEP		$.0^{\circ}$ AT .25 C

HORIZONTAL TAIL

SPAN (IN.)	108.00
CHORD (IN.)	26.4
AIRFOIL SECTION	NACA – 15
INCIDENCE TO FRL	$.25^{\circ}$





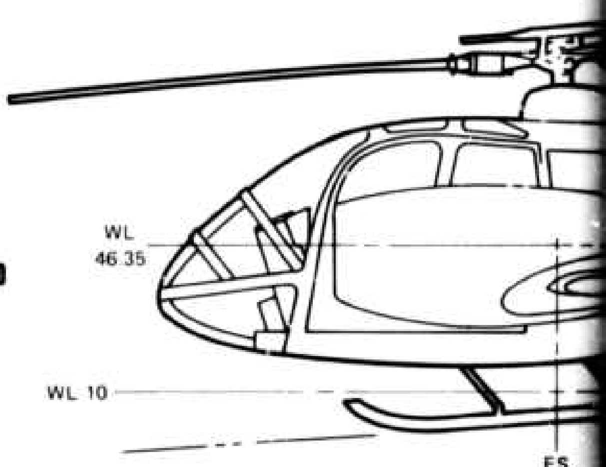
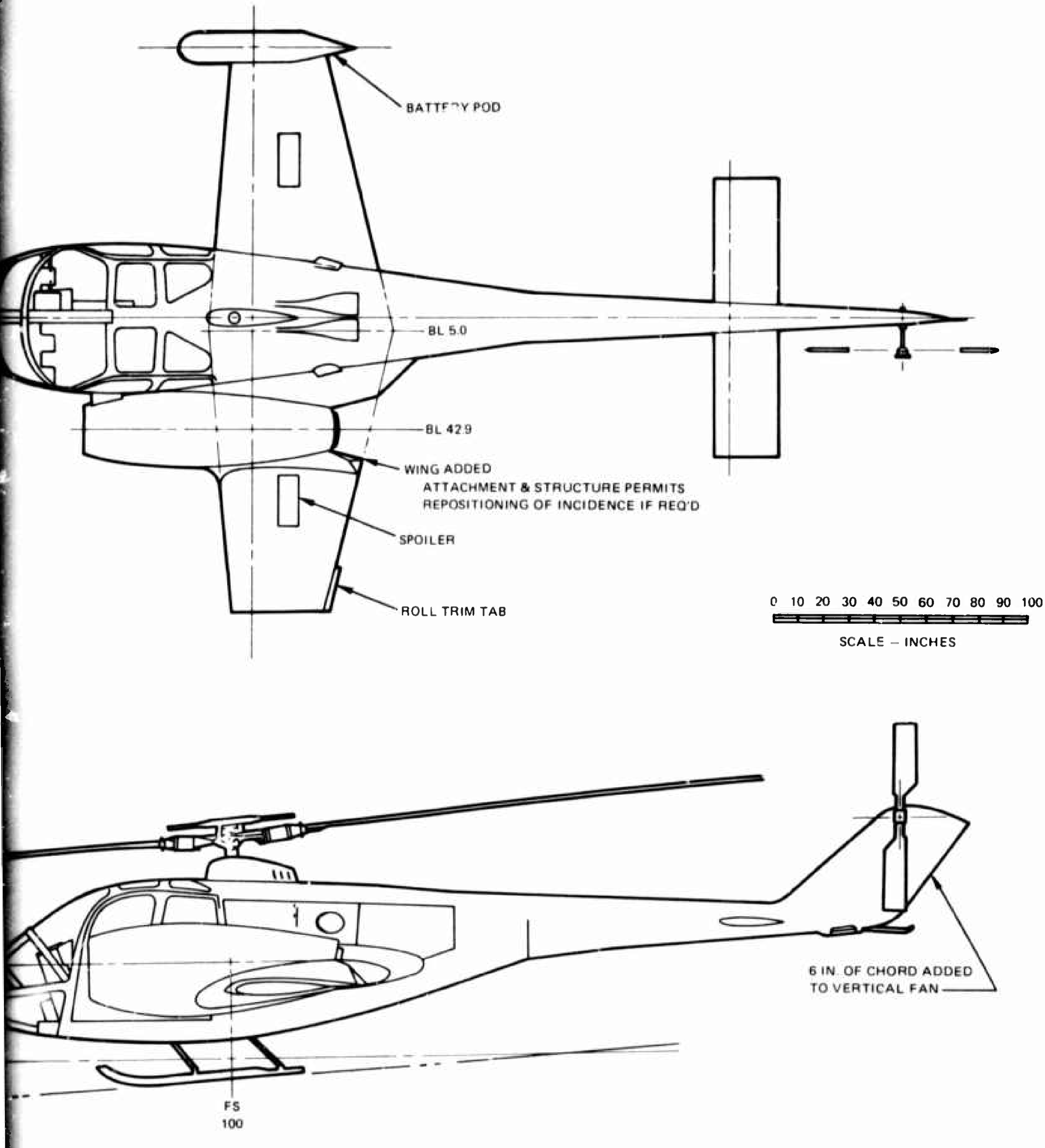


Figure 21. AH-56A Three View
(General Arrangement)



BATTERY POD
BL 5.0
BL 42.9
WING ADDED
ATTACHMENT & STRUCTURE PERMITS
REPOSITIONING OF INCIDENCE IF REQ'D
SPOILER
ROLL TRIM TAB
0 10 20 30 40 50 60 70 80 90 100
SCALE – INCHES
6 IN. OF CHORD ADDED
TO VERTICAL FAN
FS
100

TABLE III. CHARACTERISTICS OF THE AH-56A ICS AIRFRAME AERODYNAMIC SURFACES	
WING	
Airfoil:	
Root	AH-56A 12%
Tip	AH-56A 8%
Area	195 ft^2
Span	26.7 ft
Aspect Ratio	3.66
Mean Aerodynamic Chord	7.6 ft
Fuselage Station at 25% M.A.C.	308.2
Taper	0.50
Dihedral	5°
Root Chord Incidence:	
Left Wing	11° 52'
Right Wing	12° 58'
Twist Root to Tip:	
Left Wing	-3° 06'
Right Wing	-3° 02'
HORIZONTAL STABILIZER	
Airfoil:	
Right Panel:	
Root, B.L. 0	NACA 0018 (MOD)
Tip, B.L. 65.0	NACA 0012 (MOD)
Left Panel	NACA 0018 (Highly modified, bobtailed)
Area:	
Left Side	16.25 ft^2
Right Side	15.58 ft^2
Total	31.83 ft^2
Span, B.L. 65.0 Left to B.L. 65.0 Right	10.83 ft^2

Preceding page blank

TABLE III. (Continued)

Aspect Ratio	3.68
Mean Aerodynamic Chord:	
Left Side	3.07 ft
Right Side	2.95 ft
Average	3.01 ft
Fuselage Station at 25% M.A.C.	
Left Side	637.38
Right Side	636.98
Average	637.18
Taper:	
Left Side	0.583
Right Side	0.568
Average	0.576
Dihedral	0°
Twist	0°
Deflection of aft 33% of Right Panel	5° Down
VERTICAL STABILIZER	
Airfoil	
Root, W.L. 114.5	NACA 0018(MOD)
Tip, W.L. 37.6	NACA 0018(MOD)
Area between W.L. 37.6 and W.L. 114.5	24.6 ft^2
Span	6.41 ft
Aspect Ratio	1.67
Mean Aerodynamic Chord	3.92 ft
Fuselage Station at 25% M.A.C.:	
Fuselage Station	620.3
Waterline	79.4
Taper	0.587
Incidence	0°

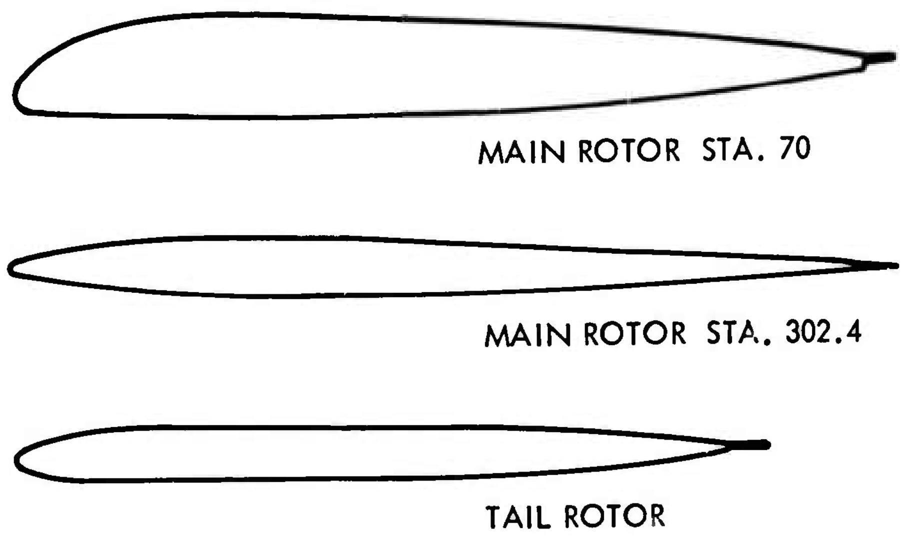


Figure 22. AH-56A Rotor Blade Airfoil Sections.

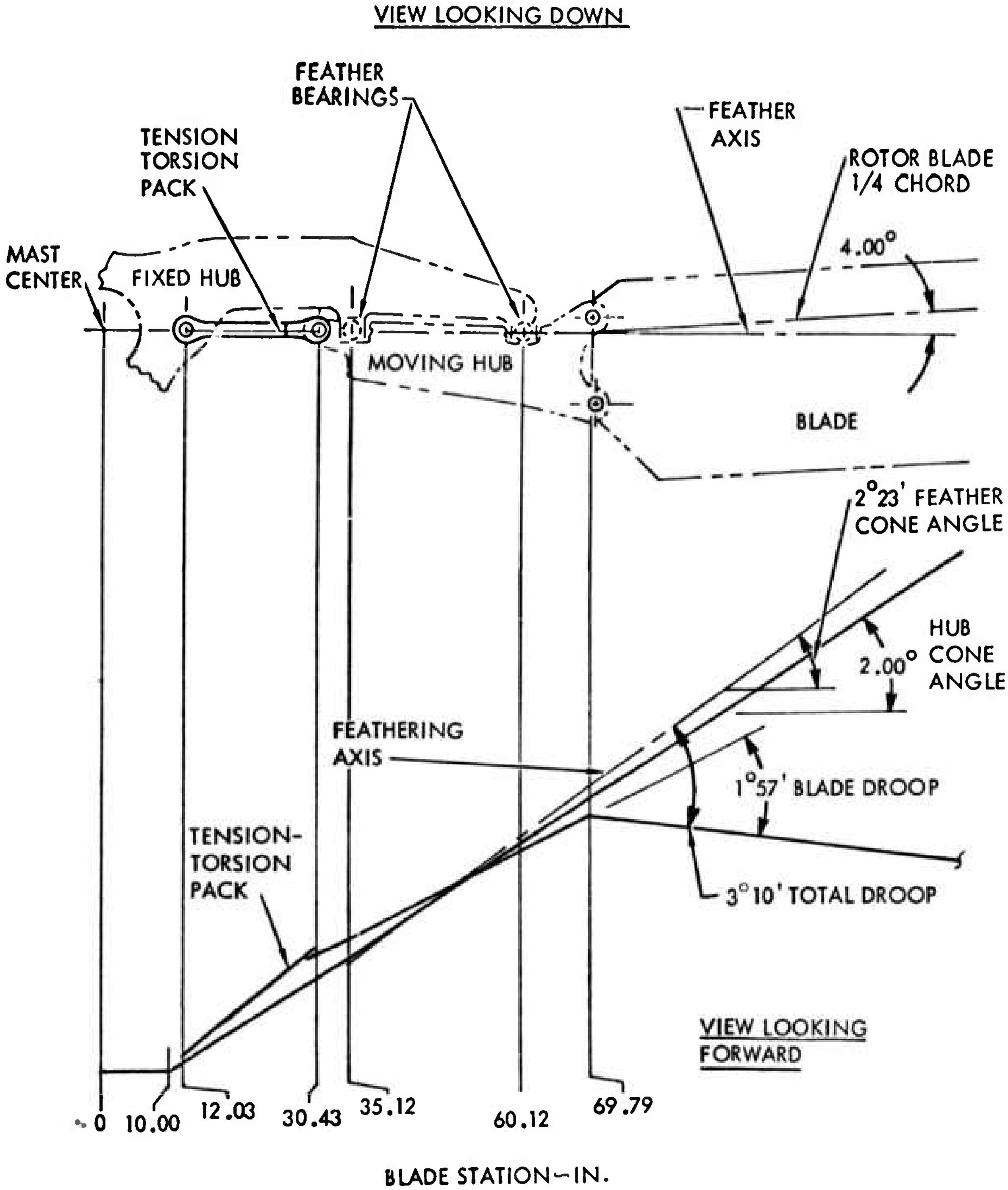


Figure 23. Detailed Blade/Hub Description.

in the design. Flight stabilization is achieved with a unique gyro control system. The ICS (Improved Control System) on the test vehicle was a version featuring an external gyro and feedback of the feathering moments for shaft moment control. The gyro is located above and concentric with the main rotor. It is attached to each blade by means of the pitch link and pitch horn. Gyro tilt is therefore equivalent to cyclic feathering. The pilot controls the vehicle by moving the cyclic stick. This control motion deflects a positive spring system and applies a moment to the gyro. The gyro precesses until a new tilt angle is achieved. This gyro tilt angle (i.e., blade cyclic angle) is that spatial position where the moments due to the feathering loads are in balance with the pilot's control gyro moment. The stability augmentation function is accomplished by the spatial reference characteristics of the control gyro.

In the simplest terms, the blade flapping associated with an external disturbance (i.e., gust) acting through a moment arm determined by the blade sweep results in a feathering feedback moment being applied to the gyro. This feedback moment precesses the gyro to a position which, by design, commands cyclic blade angle of a magnitude and phasing sufficient to correct for the external disturbance.

Pilot control of pitch and roll control moments to the gyro is accomplished with a conventional cyclic stick. Directional control is accomplished with "rudder" pedals which control tail rotor collective pitch. A conventional collective stick controls main rotor collective blade angle. A propeller collective blade angle control (Beta) is provided through a twist grip located at the top of the collective stick.

The normal mode of operation at low airspeed utilizes standard helicopter techniques of main rotor collective blade angle thrust and vehicle attitude variations for acceleration and flight path control. The compound technique used at higher airspeeds (i.e., above 100 KEAS) essentially fixes the main rotor collective at a predetermined position, and the vehicle is flown in a manner similar to a fixed-wing aircraft with the propeller used for acceleration and deceleration control.

Details of the rotating system are listed in Table IV.

The aircraft design gross weight is 18,300 pounds, the maximum overload gross weight is 22,550 pounds, and the weight empty is 12,847 pounds. Inertia data are listed in Table V.

XH-51A COMPOUND HELICOPTER

The XH-51A is a five-place light helicopter with a single gyro-controlled hingeless rotor. The basic configuration was modified by the addition of a tapered wing and the installation of a Pratt and Whitney J60-P-3 turbojet engine. The J60-P-3 was mounted in a nacelle on the left wing panel next to the fuselage. A photograph of the XH-51A compound helicopter is presented in Figure 24, and a three-view drawing is shown in Figure 25.

TABLE IV. CHARACTERISTICS OF AH-56A ICS DYNAMIC COMPONENTS

MAIN ROTOR		
Hub Location:		
Fuselage Station		300.0
Waterline		165.3
Hub Precone		2°
Shaft Incidence		0°
Number of Blades		4
Airfoil Section:		
Root		NACA(4.6) 3012(MOD)
Tip		NACA(0.6) 3006(MOD)
Radius		25.617 ft
Blade Chord:		
Rotor Station 79.12		27.50 in.
Rotor Station 140.0	Linear taper between stations	27.60 in.
Rotor Station 170.0		27.66 in.
Rotor Station 302.4		27.94 in.
Rotor Station 302.4 to tip		27.94 in.
Droop:		
Fixed Hub Feather Bearing Offset		23'
Moving Hub Feather Bearing Offset		50'
At Station 70		1° 57'
Total		3° 10'
Sweep Forward at Station 70		4° 00'
Disc Area		2062 ft^2
Solidity		0.1159
Blade Twist, Root to Station 302.4		-5°
Blade Station at Tab Centerline		264.0
Tab Size		28.1 in. x 2 in.

TABLE IV. (Continued)

Direction of Rotation, viewed from above	Counterclockwise
Normal Tip Speed	660 ft/sec
TAIL ROTOR	
Hub Locatior:	
Fuselage Station	658.5
Waterline	114.5
Buttline	72.0 Left
Precone	0°
Number of Blades	4
Airfoil Section	NACA(0.675) 300(5.89)(MOD)
Radius	5 ft
Chord	1.167 ft
Disc Area	78.5 ft^2
Solidity	0.297
Twist	0°
Delta -3 Hinge	37.5°
Normal Tip Speed	648 ft/sec
Direction of Rotation, viewed from left side	Clockwise
PROPELLER	
Propeller Designation	Hamilton Standard 1311 GB 30/11FA 10A4-0
Hub Location:	
Fuselage Station	675.7
Waterline	114.5
Shaft Incidence	0°
Number of Blades	3
Radius	5 ft
Activity Factor Per Blade	142
Integrated Design Lift Coefficient	0.411
Direction of Rotation, viewed from rear	Counterclockwise
Normal Tip Speed	899 ft/sec

TABLE V. AH-56A INERTIA DATA		
	Design Weight	Maximum Weight
Weight (entire aircraft)	18,300 lb	22,550 lb
Center of Gravity (entire aircraft, gear up)		
Fuselage Station	301.0	300.4
Waterline	108.0	-
Products and Moments of Inertia: (excluding main rotor):		
Roll I_{xx}	7,120 slug-ft^2	18,100 slug-ft^2
Pitch I_{yy}	55,300 slug-ft^2	58,000 slug-ft^2
Yaw I_{zz}	51,600 slug-ft^2	62,800 slug-ft^2
Products I_{xy}	1,611 slug-ft^2	1,092 slug-ft^2
Products I_{xz}	1,127 slug-ft^2	1,640 slug-ft^2
Products I_{yz}	35.3 slug-ft^2	49 slug-ft^2

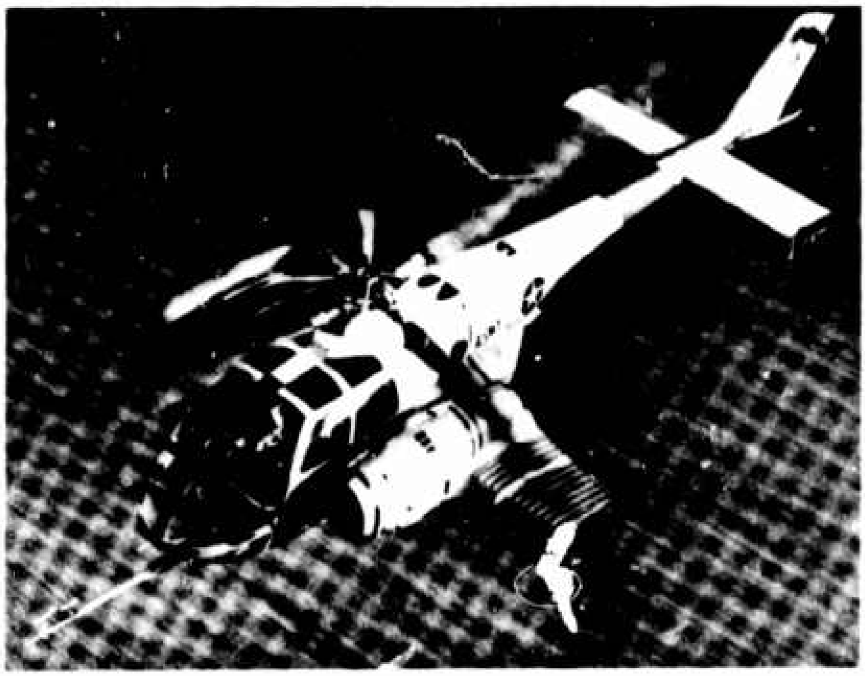


Figure 24. XH-51A Compound Helicopter (In Flight).

MAIN ROTOR

DIAMETER	51.234 FT
CHORD AT TIP	27.89 IN
DISC AREA	2062 SQ FT
TIP SPEED	660 FT/SEC

TAIL ROTOR

DIAMETER	10 FT 0 IN.
CHORD	1 FT 2 IN. (14.0 IN.)
TIP SPEED	628 FT/SEC

PUSHER PROPELLER

DIAMETER	10 FT 0 IN.
RPM	1717
TIP SPEED	899 FT/SEC

WING

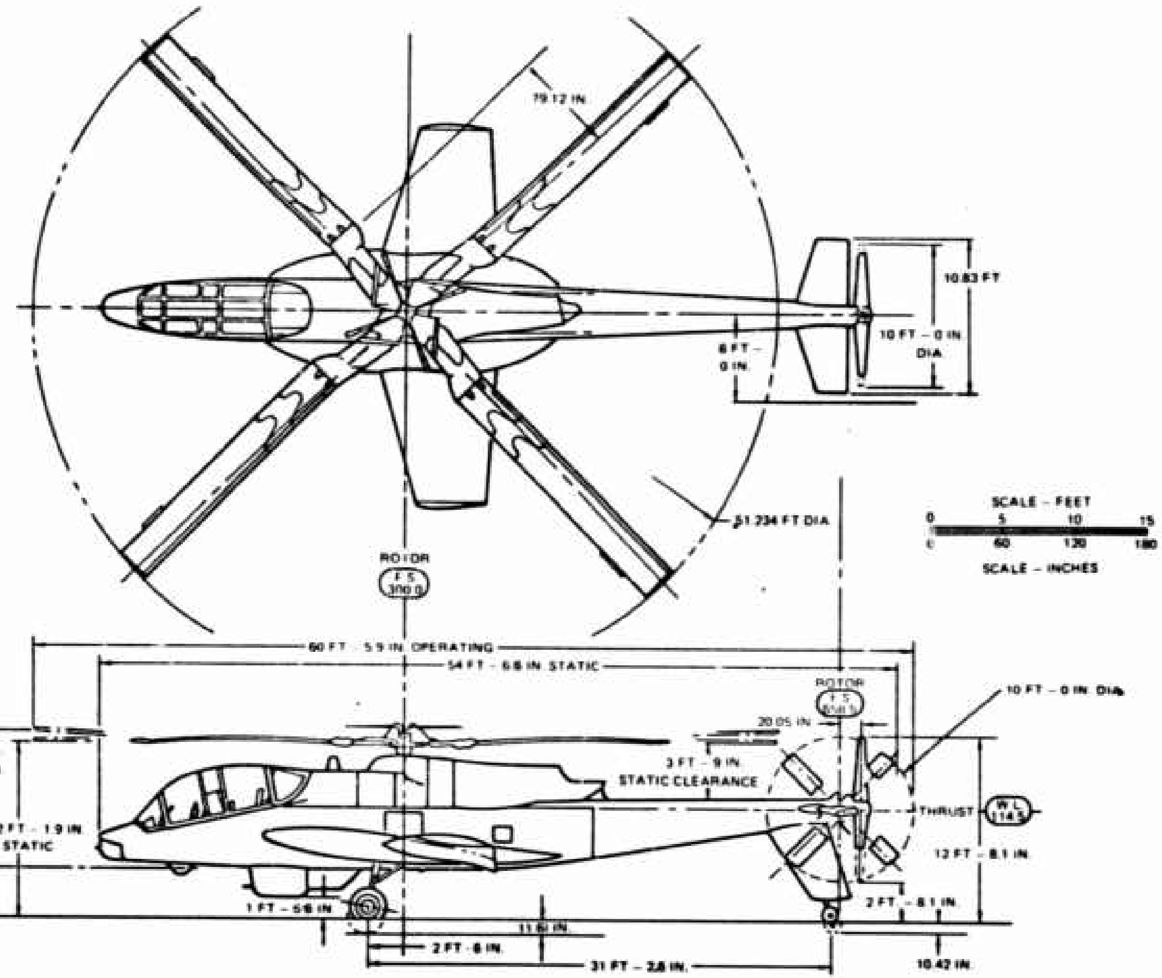
AREA	195.52 FT
ASPECT RATIO	3.65 FT

HORIZONTAL TAIL

AREA	31.8 SQ FT

VERTICAL TAIL

AREA	24.6 SQ FT



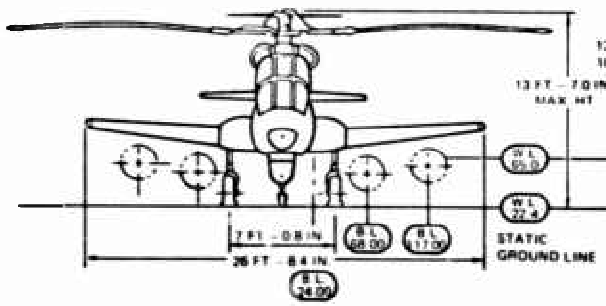


Figure 25. XH-51A Compound General Arrangement

MAIN ROTOR

DIAMETER	51.234 FT
CHORD AT TIP	27.89 IN.
DISC AREA	2062 SQ FT
TIP SPEED	660 FT/SEC

TAIL ROTOR

DIAMETER	10 FT-0 IN.
CHORD	1 FT-2 IN. (14.0 IN.)
TIP SPEED	648 FT/SEC

PUSHER PROPELLER

DIAMETER	10 FT-0 IN.
RPM	1717
TIP SPEED	899 FT/SEC

WING

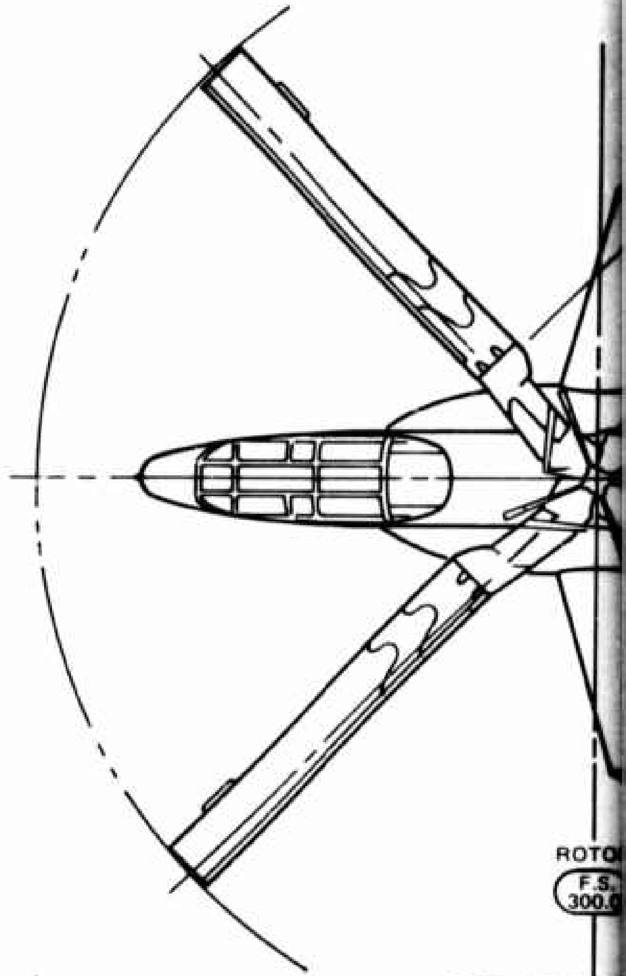
[illegible]	195.52 FT
ASPECT RATIO	3.65 FT

HORIZONTAL TAIL

AREA	31.8 SQ FT

VERTICAL TAIL

AREA	24.6 SQ FT



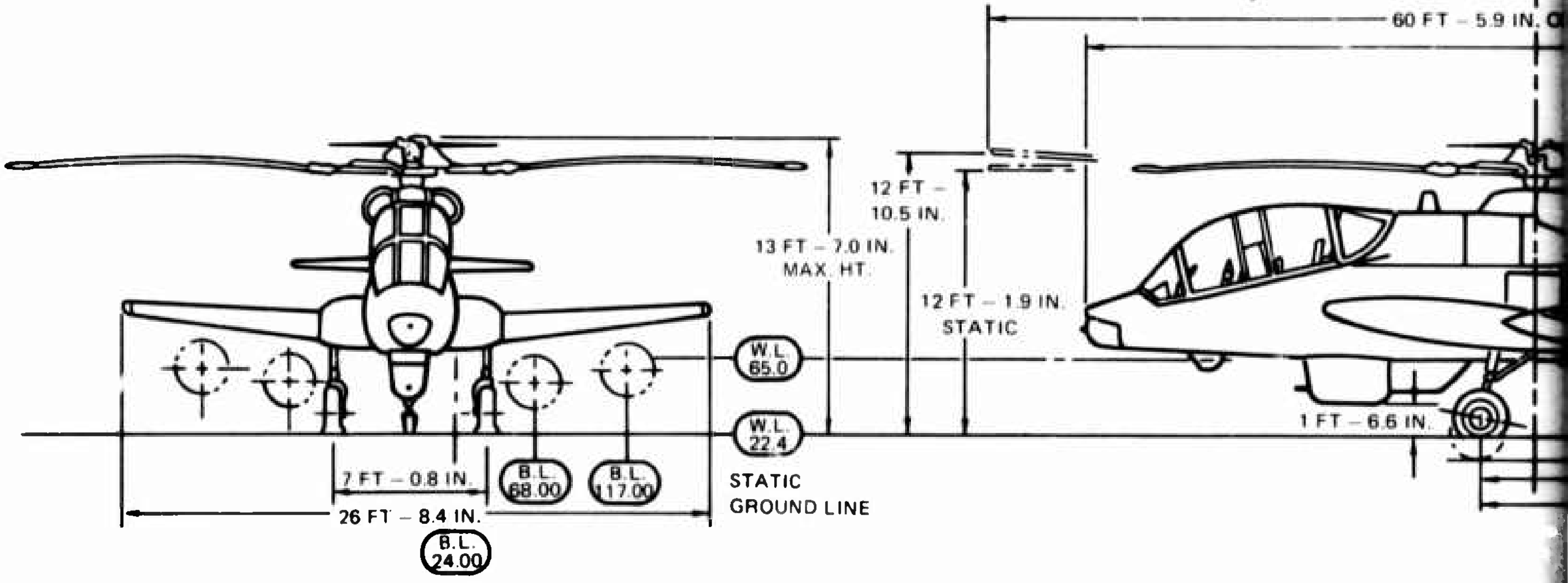
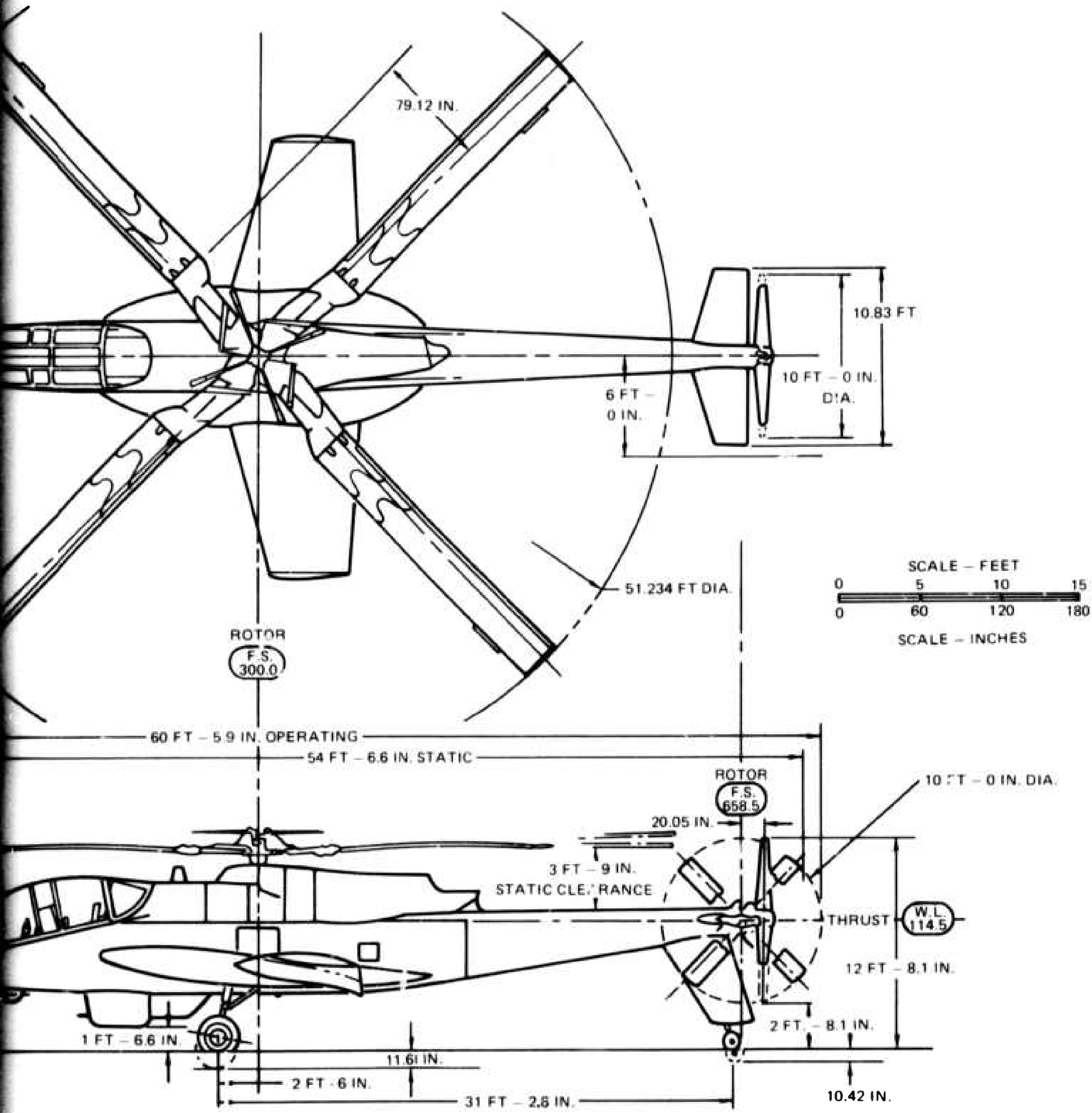


Figure 25. XH-51A Compound General Arrangement



79.12 IN.
10.83 FT
10 FT – 0 IN. DIA.
6 FT – 0 IN.
51.234 FT DIA.
SCALE – FEET
0 5 10 15
0 60 120 180
SCALE – INCHES
ROTOR F.S. 300.0
60 FT – 5.9 IN. OPERATING
54 FT – 6.6 IN. STATIC
ROTOR F.S. 658.5
10 FT – 0 IN. DIA.
20.05 IN.
3 FT – 9 IN. STATIC CLEARANCE
THRUST
W.L. 114.5
12 FT – 8.1 IN.
2 FT. – 8.1 IN.
1 FT – 6.6 IN.
11.61 IN.
2 FT - 6 IN.
31 FT – 2.6 IN.
10.42 IN.

The vertical stabilizer is swept back from the aft fuselage with a two-bladed tail rotor mounted at the tip. The horizontal stabilizer is rectangular in planform and mounted to the aft fuselage just forward of the tail rotor tip-path plane.

The main rotor design is similar to that previously described for the AH-56A except there are no external tension-torsion packs. The centrifugal force passes into the fixed hub through tension-torsion packs concentric and internal to the feather bearings. The blade attaches to the movable hub at blade station 27.8. The feather bearings are located at stations 15 and 23.

A Canadian Pratt and Whitney PT6B-9 turbine engine with a maximum takeoff horsepower of 550 powers the dynamic system. The landing gear consists of two retractable skids.

The controls, including the external gyro above the main rotor, are similar in design and principle of operation to those of the AH-56A with the ICS controls installed.

In the test configuration, the passenger space is used for instrumentation and extra fuel. The design gross weight of the test vehicle is 4,500 pounds.

Table VI summarizes the pertinent XH-51A configuration characteristics.

Preceding page blank

TABLE VI. CHARACTERISTICS OF THE XH-51A COMPOUND HELICOPTER

WING	
Span	16.83 ft
Taper Ratio	0.5
Twist	0°
Area	70 ft
Dihedral	0°
Aspect Ratio	4.05
Sweepback, 25% M.A.C.	0
Mean Aerodynamic Chord	51.72 in.
Airfoil Section	NACA 23012
Incidence Relative to Fuselage Reference	-0.9°
HORIZONTAL STABILIZER	
Span	108 in.
Chord (Constant)	26.4 in.
Twist	0°
Area	19.8 ft^2
Dihedral	0°
Aspect Ratio	4.1
Incidence Relative to Fuselage Reference	-0.25°
Airfoil Section	NACA 0015
Sweep	0°
VERTICAL STABILIZER	
Span	41.75 in.
Tip Chord	38.5 in.
Root Chord	51.5 in.
Area	12.68 ft^2
Sweepback, 25% M.A.C.	45°
Taper Ratio	0.70
Aspect Ratio	0.95

TABLE VI. (Continued)	
VERTICAL STABILIZER (Cont'd)	
Airfoil Section	NACA 4424(MOD)
Incidence	0°
MAIN ROTOR	
Type	Rigid
Diameter	35 ft
Number of Blades	4
Blade Chord	13.5 in.
Airfoil Section	NACA 0012(MOD)
Blade Taper	1
Blade Twist, Root to Tip	-5°
Rotor Tilt	6° forward
Hub Precone	$+3.2^\circ$
Droop at Station 27.85 (No Bearing Offset)	1°
Sweep Forward at Station 27.85	1.4°
Disc Area	962 ft^2
Solidity	0.0818
Normal Operating Speed	355 rpm
TAIL ROTOR	
Diameter	72 in.
Number of Blades	2
Blade Chord	8.5 in.
Type	Teetering
Airfoil Section	NACA 0012
Blade Taper	1
Blade Twist, Root to Tip	-4.35°
Feathering Moment Balance Weights:	
Weight	2.25 lb/blade
Arm	3.0 in.
Delta -3 Hinge	15°

TABLE VI. (Continued)	
TAIL ROTOR (Cont'd)	
Disc Area	28.27 ft^2
Solidity	0.1503
Pitch Change Travel	27° to -8°
Normal Operating Speed	2,085 rpm
TURBOJET	
Type	Turbojet J60-P2
Military Thrust at 200 Knots and Sea Level	2,490 lb
Engine Centerline Incidence	$+7^\circ$
INERTIA DATA	
Design Gross Weight	4,500 lb
Roll Mass Moment of Inertia (including rotor)	1,500 slug-ft^2
Pitch Mass Moment of Inertia (including rotor)	3,180 slug-ft^2
Yaw Mass Moment of Inertia (including rotor)	3,800 slug-ft^2
Rotor Polar Moment of Inertia	1,013 slug-ft^2

INSTRUMENTATION AND DATA REDUCTION

AH-56A

The AH-56A data used in this report were recorded on a photo recorder and two 50-channel oscillographs. The photo recorder took time-lapse pictures of a photo panel of calibrated instruments similar to those installed in the pilot's panel. The oscillographs recorded the vehicle body rates and attitudes, gyro position, control positions, the blade-feathering angle, shaft moment, blade loads, and control loads. Correlation between the recording devices was effected by a timer that activated counters on the photo panel and simultaneously activated counters which were photographed on the oscillograms.

The following data were obtained from the photo panel:

- Airspeed (Boom)
- Pressure altitude (Boom)
- Outside air temperature
- Fuel used
- Rate of climb
- Time

All the above were corrected for instrument error. Airspeed and altitude were measured with a test airspeed boom system mounted on the nose of the vehicle. A position error calibration was applied to all airspeed and altitude data. Vanes measuring the angle of attack and the angle of sideslip were also mounted on the end of the nose boom. The ambient air temperature was obtained by correcting the indicated temperature for adiabatic temperature rise. The Mach number used in the computations was based on the speed of sound corresponding to ambient temperature. Vehicle weight and center of gravity were calculated from the fuel used.

The parameters listed below were not necessarily available on every test nor are they necessarily included in this report. They are, however, representative of the sensors installed on the test vehicle and recorded at various times during the test program.

- Angle of attack
- Angle of sideslip
- Longitudinal stick position
- Lateral stick position
- Roll rate
- Pitch rate
- Load factor at center of gravity
- Bank angle
- Pitch angle
- Collective servo control load
- Roll servo control load
- Pitch servo control load
- Gyro roll input angle
- Gyro pitch input angle
- Pitch link tension
- Main rotor blade angle
- Shaft bending moment
- Flap bending moment at station 18 fixed hub
- Flap bending moment at station 31 fixed hub
- Flap bending moment at station 40.5 movable hub
- Flap bending moment at station 52.5 movable hub
- Flap bending moment at station 130.5 blade
- Flap bending moment at station 174 blade
- Flap bending moment at station 205 blade
- Flap bending moment at station 235 blade

Blade No. 1

- Flap bending moment at station 270 blade
- Chord bending moment at station 18 fixed hub
- Chord bending moment at station 46 movable hub
- Chord bending moment at station 103 blade
- Chord bending moment at station 174 blade
- Chord bending moment at station 235 blade
- Torsion at station 131.5 blade
- Blade azimuth reference

Blade No. 1

The rotating bending moments and loads were sensed with strain-gage bridges. These bridges were compensated during calibration to eliminate unwanted axis "crosstalk." The signals were transmitted from the rotor through a slip ring assembly to appropriate signal-conditioning equipment and then to the oscillograph. No signal amplification was used with any of the sensors. This eliminated the "drift" concern which is often a problem in amplified signals. All measurements were deadweight calibrated in a laboratory. A pilot-operated shunt/calibration resistor system was included in each circuit to provide both a means of in-flight calibration determination and a check on proper sensor operation. The reference galvo deflection for the flap bending moments and the pitch link tension were corrected to compensate for the static weight of the blade.

The main rotor blade angle was measured between the fixed and movable hubs. The collective value of this measurement was adjusted for geometric blade twist so that the reduced data is applicable to the projected blade root on the hub centerline. The feathering moment was obtained by multiplying the pitch link load by an equivalent moment arm determined from the geometry of the pitch link and the pitch horn.

The angle of attack was corrected for fuselage upwash using data obtained during full-scale wind tunnel tests of the vehicle without the main rotor. A correction was also applied for the main rotor upwash which was estimated to have a value of 20 percent of a uniform rotor downwash distribution at the location of the angle of attack vane, Reference 6. An additional correction was applied to account for the effect of pitch rate on measured angle of attack due to offset of the vane from the aircraft center of gravity.

The rotor lift was determined from the collective flap bending at blade station 18. A calibration of this relationship was obtained during whirl tower tests. An analysis conducted using the Rotor Blade Loads program indicates the change in this calibration with airspeed was engligible. In accelerated maneuvers, a correction was applied to the calibration for an additional blade weight inertial effect not included in the whirl tower calibration which was obtained at a load factor of one.

XH-51A

The instrumentation and data reduction for the XH-51A compound helicopter were similar to that previously described for the AH-56A. Only differences between the two vehicles will be discussed. The XH-51A photo recorder took time-lapse pictures of the pilot's panel instead of a separate photo panel.

The parameters obtained from the oscillograph were:

- Angle of attack
- Longitudinal stick position
- Lateral stick position
- Roll rate
- Pitch rate
- Load factor at center of gravity
- Bank angle
- Pitch angle
- Pitch link axial load
- Main rotor blade angle
- Rotor lift
- Flap bending at station 6 fixed hub, blade number 2
- Flap bending at station 115 blade
- Flap bending at station 157 blade
- Chord bending at station 6 fixed hub   blade no. 1
- Chord bending at station 45 blade
- Blade azimuth reference

Rotor lift was determined from a "direct" measurement instead of from a collective flap bending-lift relationship. The XH-51A transmission was mounted on springs compared to the AH-56A transmission which was hard mounted to the fuselage. Sufficient structural deflections occurred with the XH-51A transmission springs to result in sufficient strain gage output which was proportional to lift.

The XH-51A instrumentation did not include strain gages on the rotor shaft for shaft bending moments. Instead, the shaft moment magnitude was determined by multiplying the 1P flap bending moment at station 6 by a value determined from the Rotor Blade Loads program. The phase angles for the two parameters were assumed to be the same.

XH-51A blade load data are presented in Reference 10 at more test conditions and for more blade stations than are included in this report. The suitability of the reference data for comparison with REXOR is questionable because during the tests from which the referenced data was obtained, one blade was highly modified for installation of blade pressure transducers. The structural characteristics of this modified blade differed from the other three blades. The blade bending instrumentation was located on this modified blade. The REXOR program has four equal blades and uncertainty exists whether the XH-51A blades in question would be adequately represented in REXOR. Therefore, these previously published data are not suitable for this correlation effort.

DATA QUALITY

The following discussion describes items pertinent to making a judgment on the accuracy and consistency of the test data. This includes the machine routines used to process the data in a form suitable for analysis.

The overall static instrumentation system accuracy was between 1 percent and 5 percent of the full-scale value of the particular parameter. The dynamic (i.e., rotating) accuracy was primarily a function of the natural frequency of the galvanometer used for the particular measurement. In all cases, the galvanometers were selected to result in negligible load magnitude attenuation within the frequency range of interest. The frequency response of the galvanometer does have an impact on the phasing. The theoretical phasing lags resulting from the galvanometers used for the rotating measurements are tabulated in Table VII.

The system accuracy on establishing phase angle was primarily limited by readibility. The phasing of the 1P could not be reliably reduced more accurately than ±5 degrees and the 2P not more accurately than ±10 degrees. Therefore, to be consistent with system accuracy capability, the only lag correction applied to the rotating data was for the 1P blade angle data. Although the theoretical lag was 36 degrees, a correction of only 30 degrees was applied. This number was based on experimental comparisons of the swashplate position as derived from the rotating blade angle measurement compared to that derived from the nonrotating measurements.

TABLE VII. PHASING LAGS FOR ROTATING MEASUREMENTS			
Measurement	Galvanometer Frequency Response	Harmonic	Lag (deg)
Main Rotor Blade Angle	10 Hz	1P	36
Strain Gage Measurements	100 Hz	1P	3.7
		2P	7.4

The consistency of the test data is shown in Figures 26 through 28. On these curves, representative loads are broken down into the primary harmonics and the corresponding phasings are plotted versus airspeed. Note that the scatter from the faired curves of this data, which was taken at various stages of the program, is small. Some of this scatter can be attributed to the listed variations in weight, center of gravity, and collective blade angle.

The computer software used for the harmonic analysis routines was identical to that used to analyze the data of Reference 10. A two-rotor revolution time span was used for each data point to improve accuracy. The system was checked by inputting periodic waveforms of known characteristics and comparing the computer output with the known harmonics.

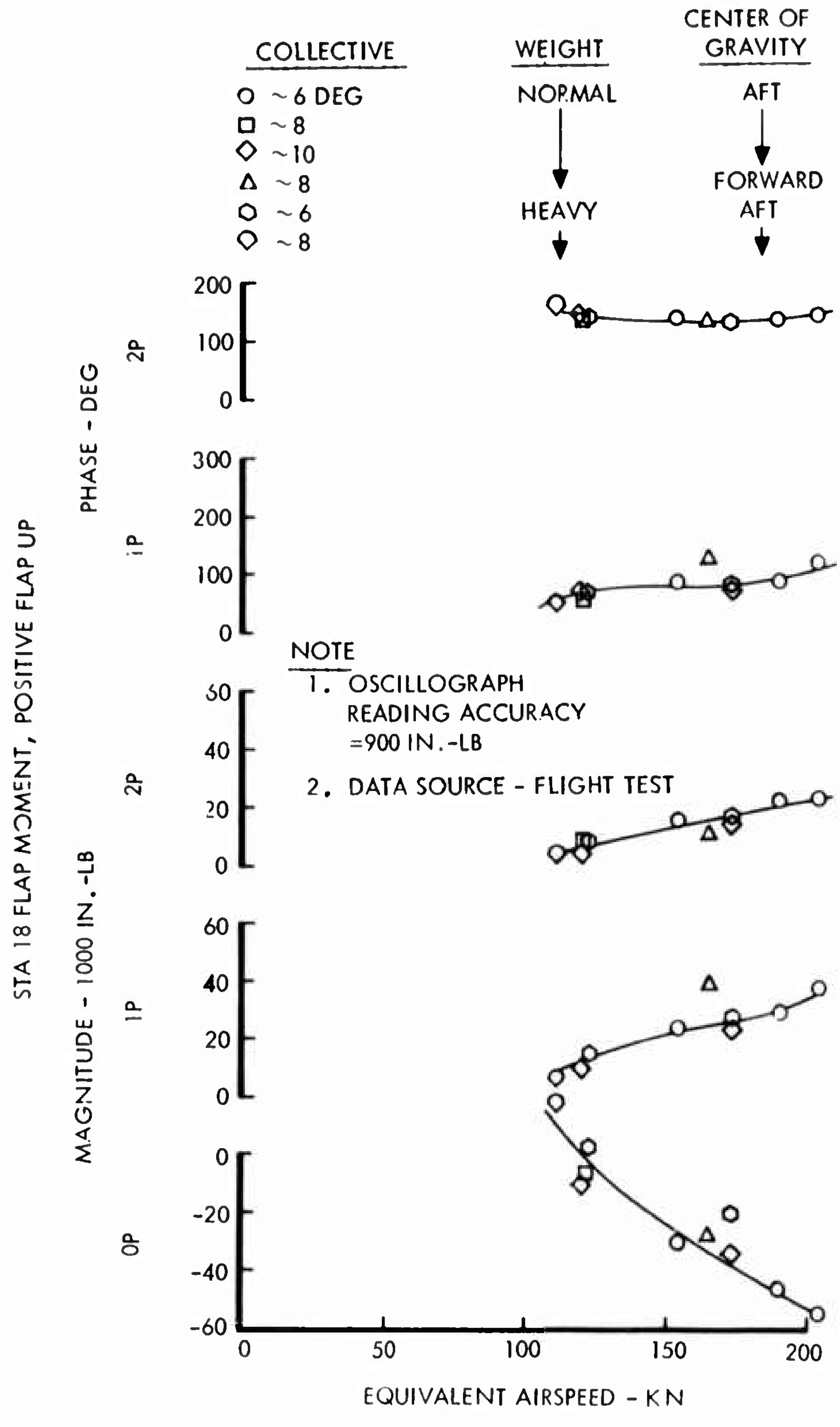


Figure 26. AH-56A Blade Sta 18 Flap Moment vs. Airspeed.

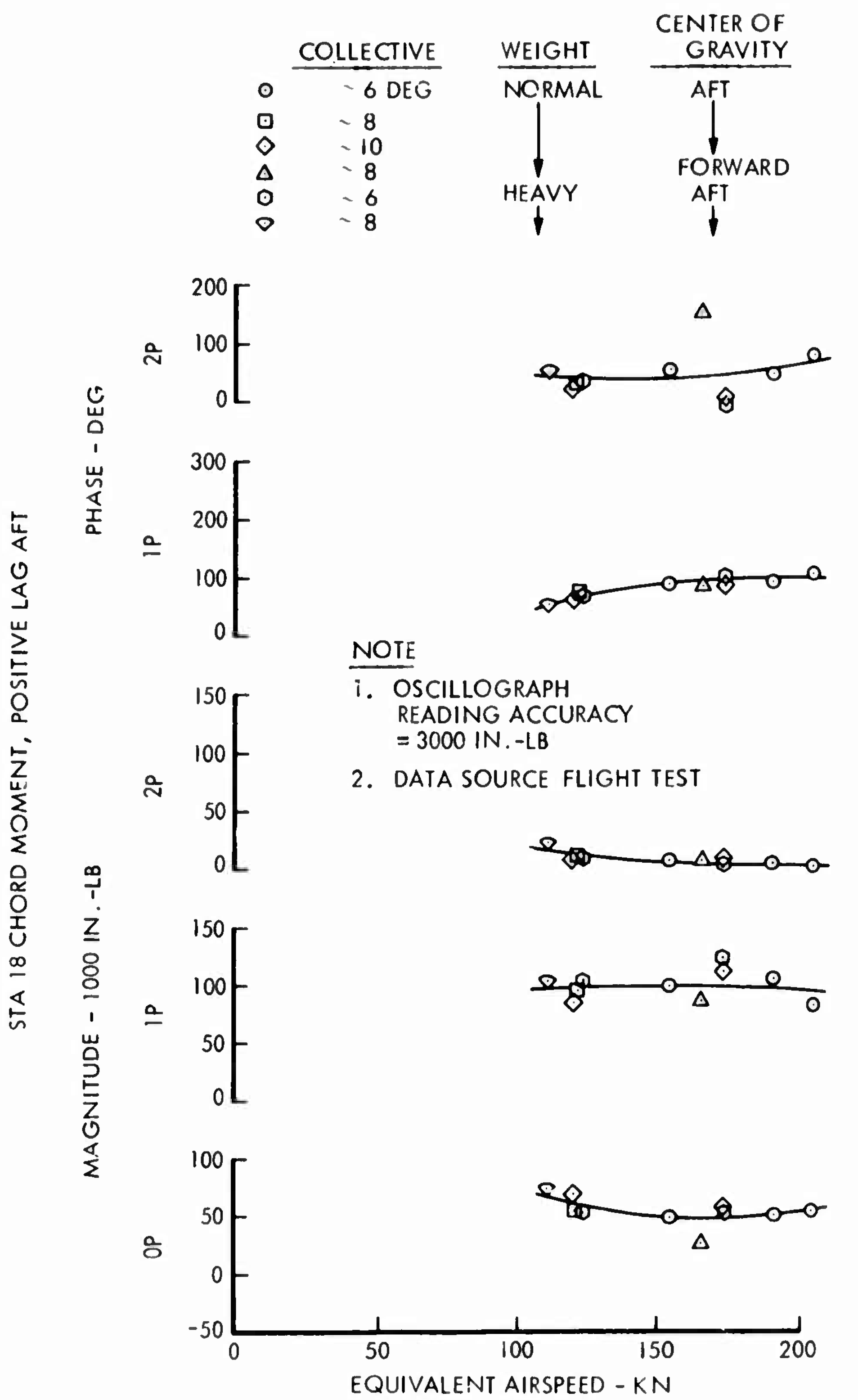


Figure 27. AH-56A Blade Sta 18 Chord Moment vs. Airspeed.

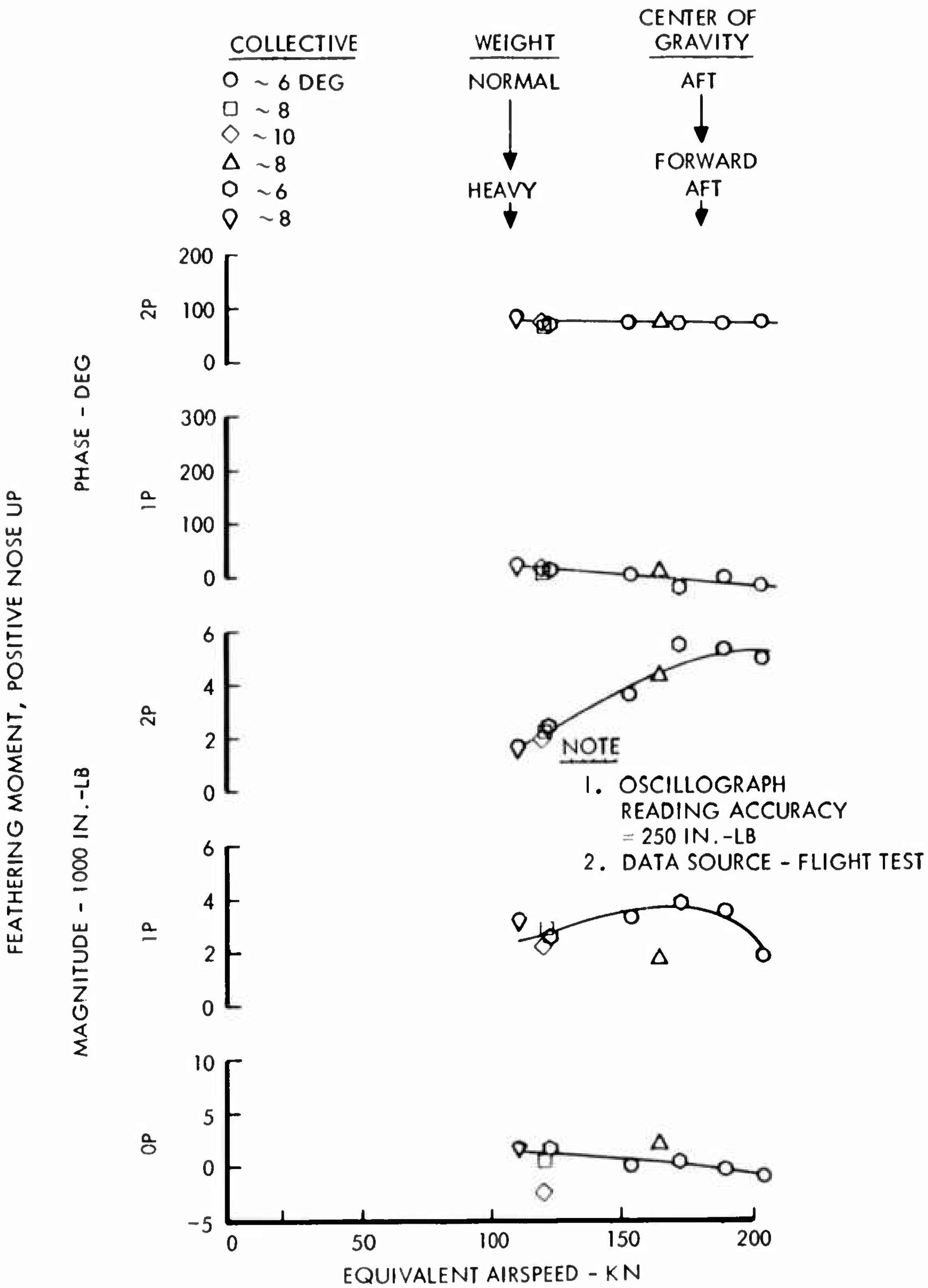


Figure 28. AH-56A Feathering Moment vs. Airspeed.

DISCUSSION OF RESULTS

This section presents a discussion and review of typical steady-state correlation data plus a complete summary of the transient response correlation data. In addition, Appendix II presents all of the steady-state correlation data obtained during the study. Table I gives a listing of the various correlation cases contained in this study. The first 40 cases (33 on which correlation studies were made) are AH-56A steady-state trim conditions, Cases 41 to 44 are XH-51A steady-state trim conditions, and Cases 45 through 52 and 53 through 56 are transient maneuver conditions for the AH-56A and XH-51A vehicles, respectively. The table also includes a tabulation of the parameters which define each flight condition. Items tabulated include airspeed, atmospheric conditions, collective blade angle, gross weight, center of gravity, rotor lift, shaft moment, rate of climb, load factor, and rotor speed.

The correlation data is presented in terms of either comparisons of harmonics of blade loads for the steady-state conditions or time histories of blade loads for transient conditions. The harmonics of the blade loads, M, are defined by the following equation.

$$M(t) = a_o + c_1 \cos(\Omega t - \phi_1) + c_2 \cos(2\,\Omega t - \phi_2) + \ldots + c_n \cos(n\,\Omega t - \phi_n)$$

where t is time; Ω is rotor speed; a_o is mean or "OP" component; and $c_1, c_2, \ldots, c_n$, and $\phi_1, \phi_2, \ldots, \phi_n$ are the amplitude and phase of the 1P, 2P, . . . , nP harmonic, respectively. Only the OP, 1P, and 2P components of response are included for comparison in the correlation study and are referred to accordingly.

The following points are introduced to clarify the data presented:

- Blade loads are referred to moving axes aligned with the blade chord. Fixed hub loads at blade station 0.0, the hub center, and at station 18 on the AH-56A and station 6 on the XH-51A are defined in orthogonal coordinates perpendicular and parallel to the shaft.

- Test data for the root 1P flapping moments are measured shaft moments divided by two.

- Test data for torsion were only available on the AH-56A, and then only at rotor station 131.5 on the blade.

- Torsion is referenced to the elastic axis while the flapping and chordwise moments are referenced to the neutral axis.

- REXOR was trimmed to the same rotor lift and shaft moments as occurred on the test case. Collective pitch was also fixed while the rotor angle of attack and the blade cyclic feathering angles were allowed to vary until rotor lift and shaft moments were achieved. Airspeed, load factor, and ambient air pressure and temperature were the same in the analysis as occurred at the flight test condition.

AH-56A STEADY-STATE CORRELATION RESULTS

As indicated above, test data was reduced for 40 cases with airspeeds ranging from 111 to 205 KEAS, load factors from slightly below 1.0 to 1.77 g, rotor lifts from 3400 to 22,600 pounds, and shaft moments up to 310,000 inch-pounds. Again, Table I presents the basic trim conditions for these cases. All but Cases 2, 3 and 25 fell into eight groups where load factor was the principal variable, with airspeed being held about constant in each group. REXOR correlation studies were performed by trimming to the flight conditions for a selection of 33 of the 40 cases. A few test cases were obtained in mild pushovers, where the load factor was slightly below 1 g, which could not be precisely duplicated since pushovers are not true steady-state maneuvers. Also, trim could not be established in the analysis in Cases 33, 34, and 35, where there was substantial penetration into blade stall. The inability to trim these conditions is attributed to the lack of a dynamic stall description in the analysis and the associated nonlinearities in trim derivatives in the stall region. As indicated in the model description, a dynamic stall description has been subsequently added to the model but was not used in the present study.

Since the primary purpose of this study was prediction of maneuver flight loads, only a summary of correlation data obtained for steady-state cases is presented in this section. The complete set of steady-state correlation data is given in Appendix II. The summary contained in this section reviews trends with forward speed and load factor. Figures 29 through 34 present root and midspan flap, chord and torsion moments versus airspeed for 1 g flight and at a nominal collective blade angle of six degrees. The root chord and flap moments are for span station 18 on the fixed hub, and the midspan moments are at rotor station 174. The root torsion moment is the feathering moment reacted by the pitch arm, while the midspan torsion moment is measured at rotor station 131.5.

Likewise, Figures 35 through 40 present these same loads as a function of load factor for typical conditions at 165 KEAS. Figure 41 gives the corresponding trim angles associated with these load factors. Figures 42 through 46 show correlation data as a function of span for a 1 g level flight case at 154 knots; Figure 42 gives steady or 0P flapping and chordwise moments as a function of span; Figure 43, the 1P and 2P flapping

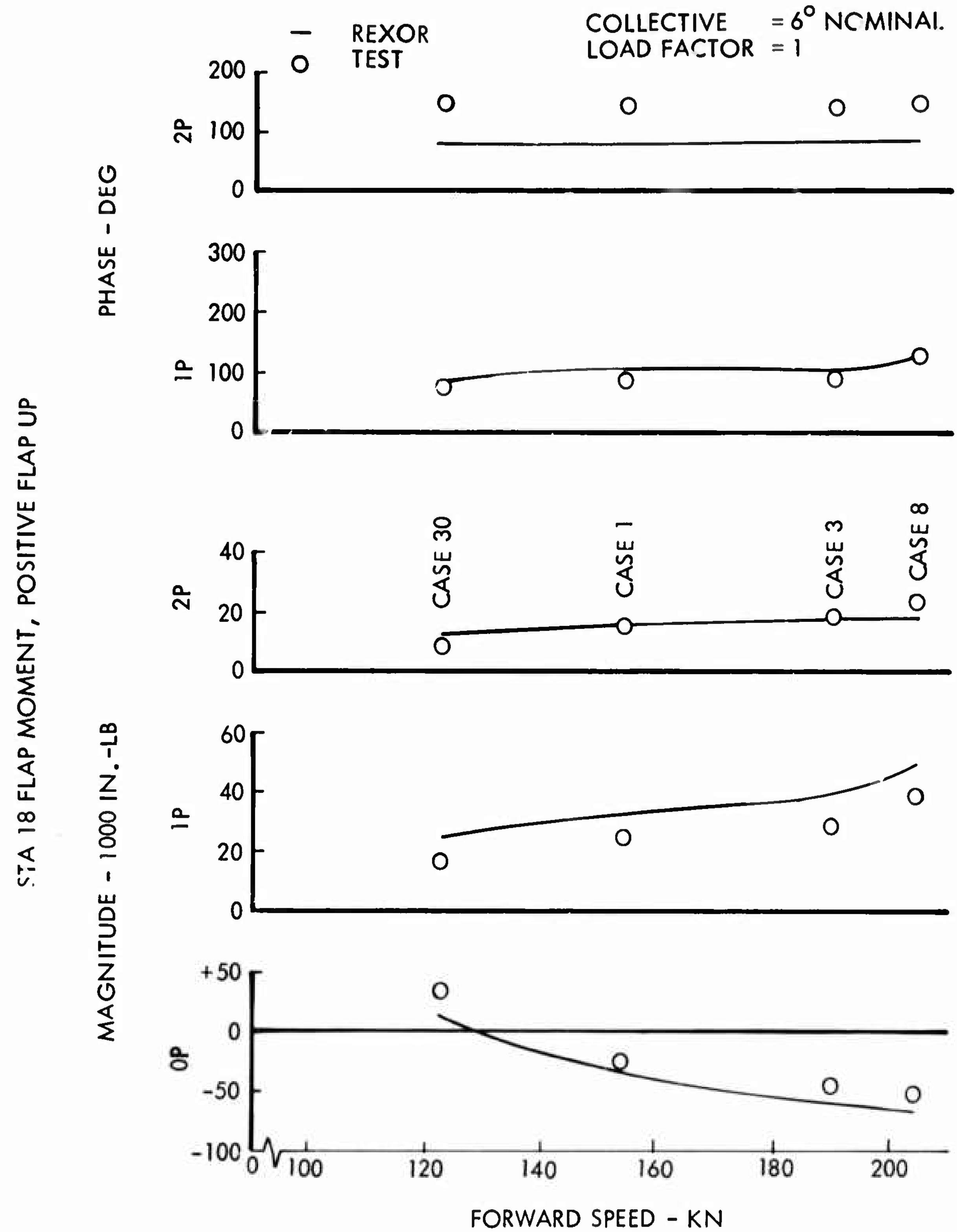


Figure 29. AH-56A Flap Moment vs. Forward Speed.

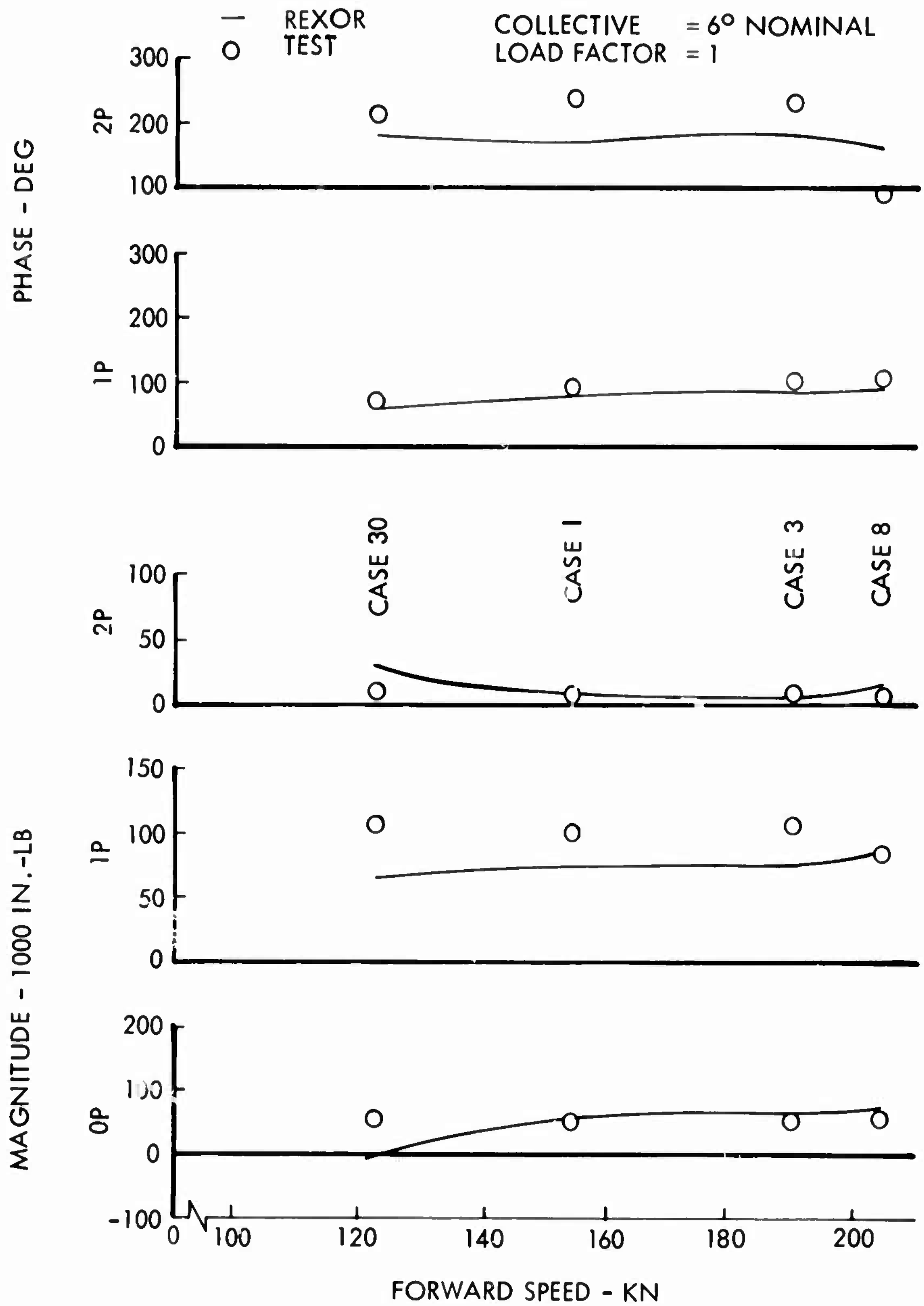


Figure 30. AH-56A Sta 18 Chord Moment vs. Forward Speed.

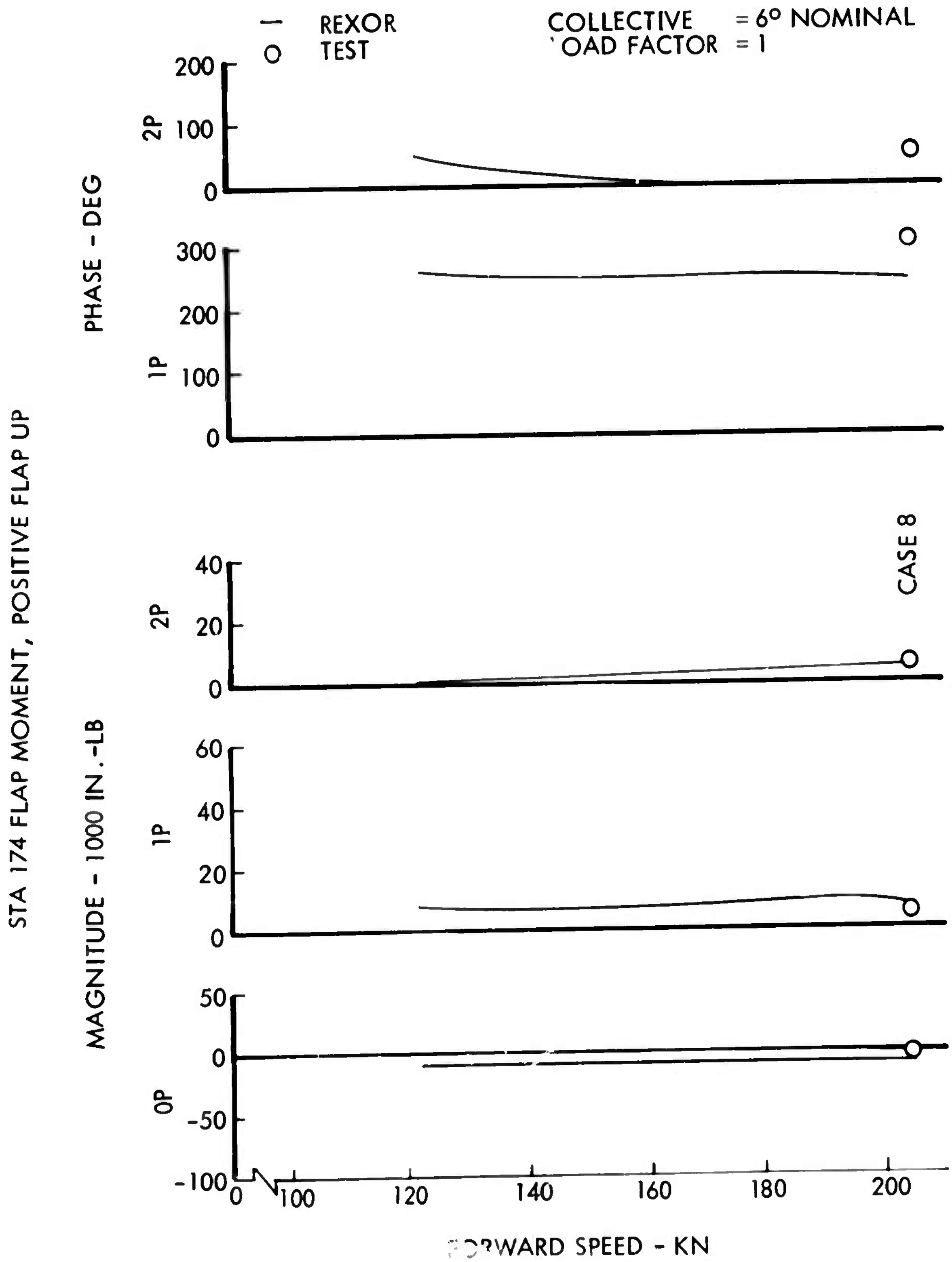


Figure 31. AH-56A Sta 174 Flap Moment vs. Forward Speed.

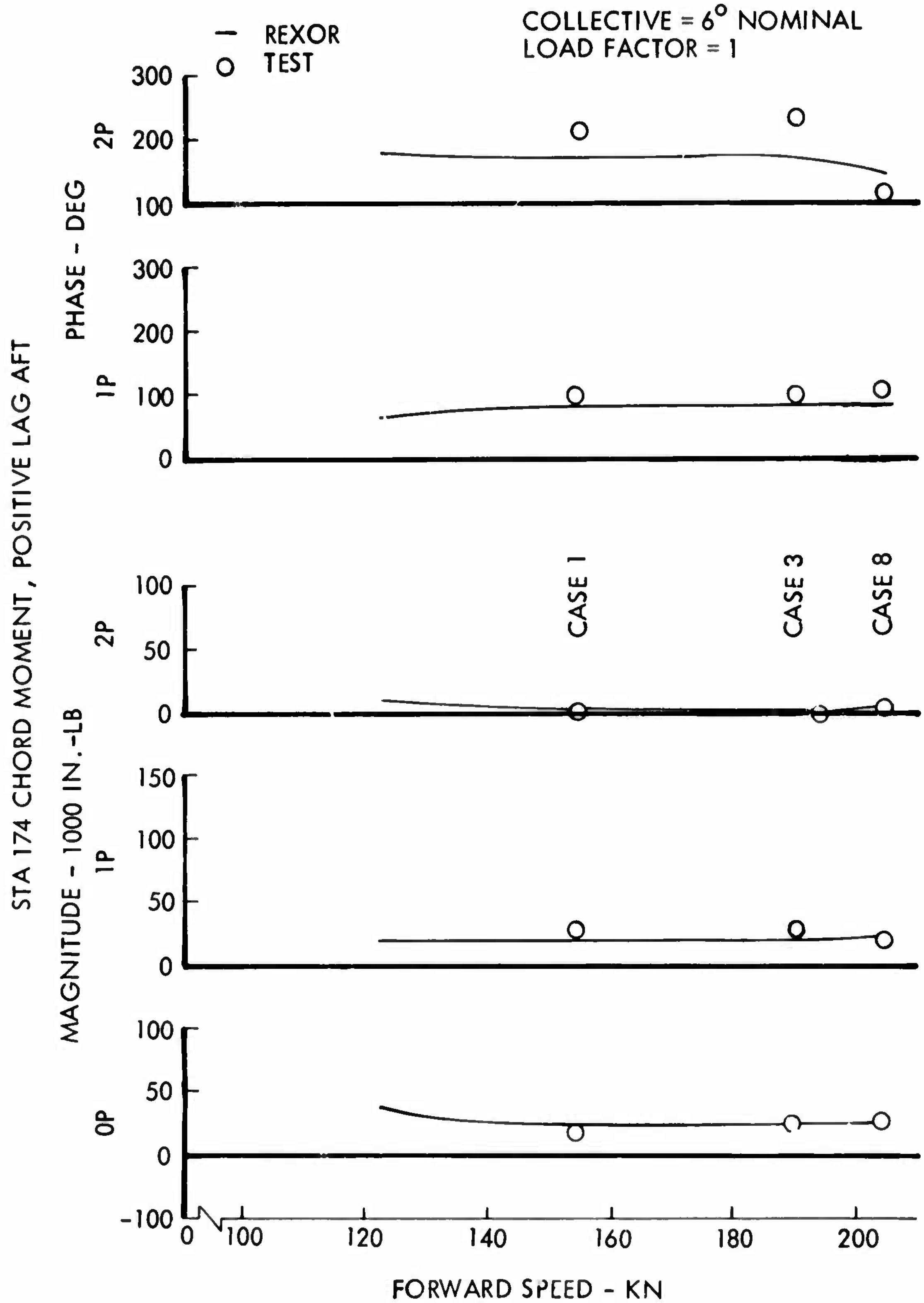


Figure 32. AH-56A Sta 174 Chord Moment vs. Forward Speed.

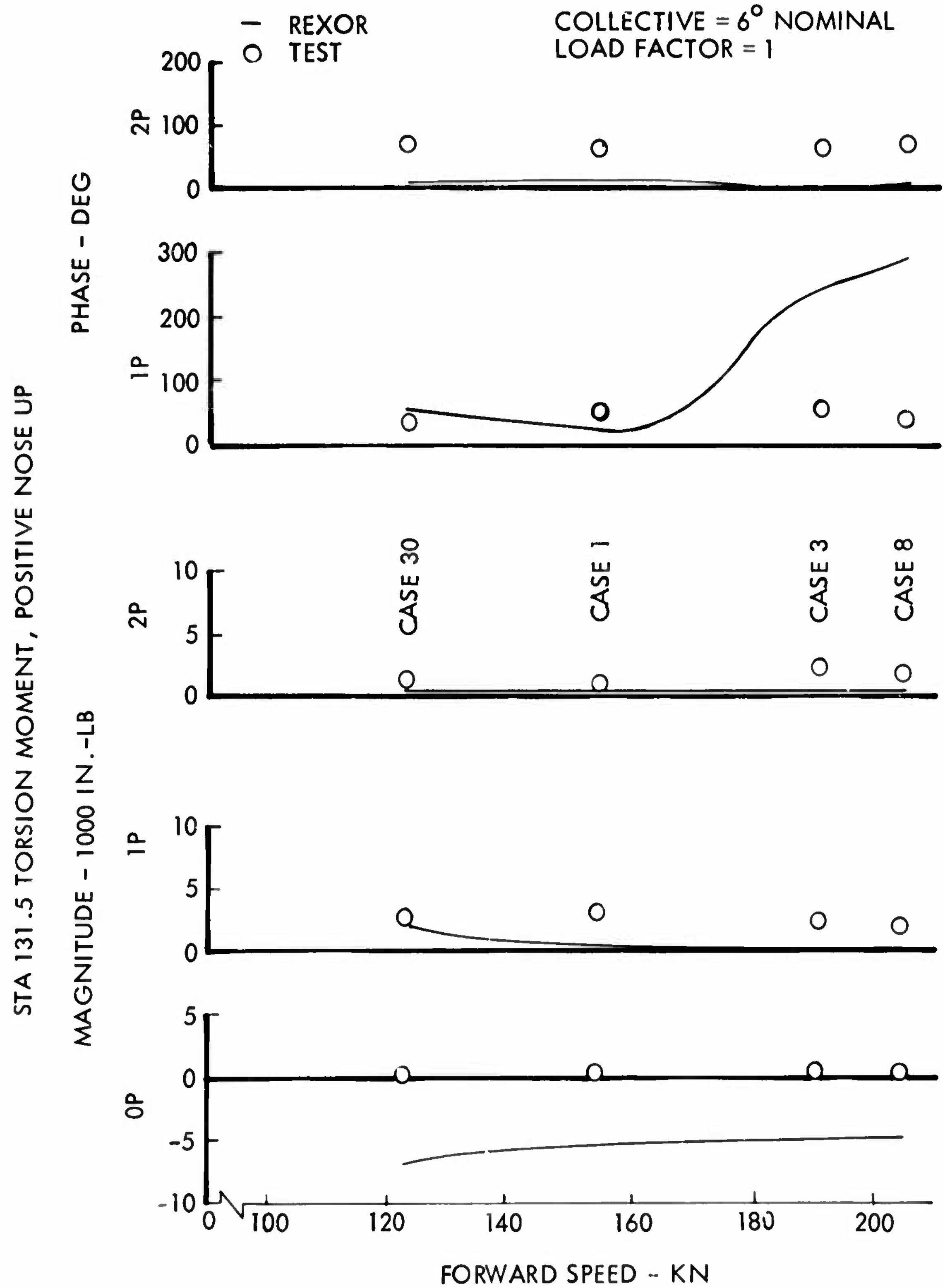


Figure 33. AH-56A Sta 131.5 Torsion Moment vs. Forward Speed.

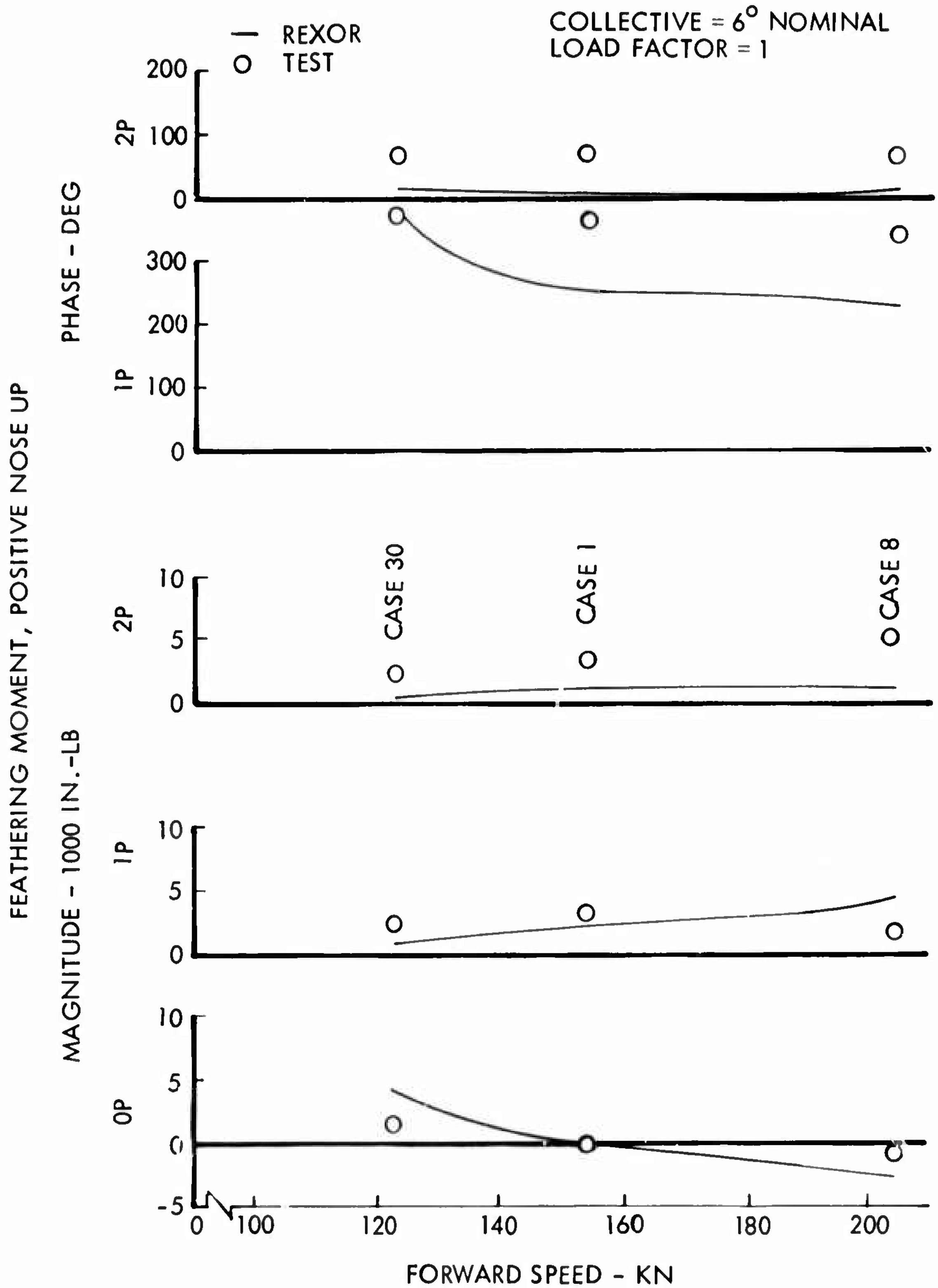


Figure 34. AH-56A Feathering Moment vs. Forward Speed.

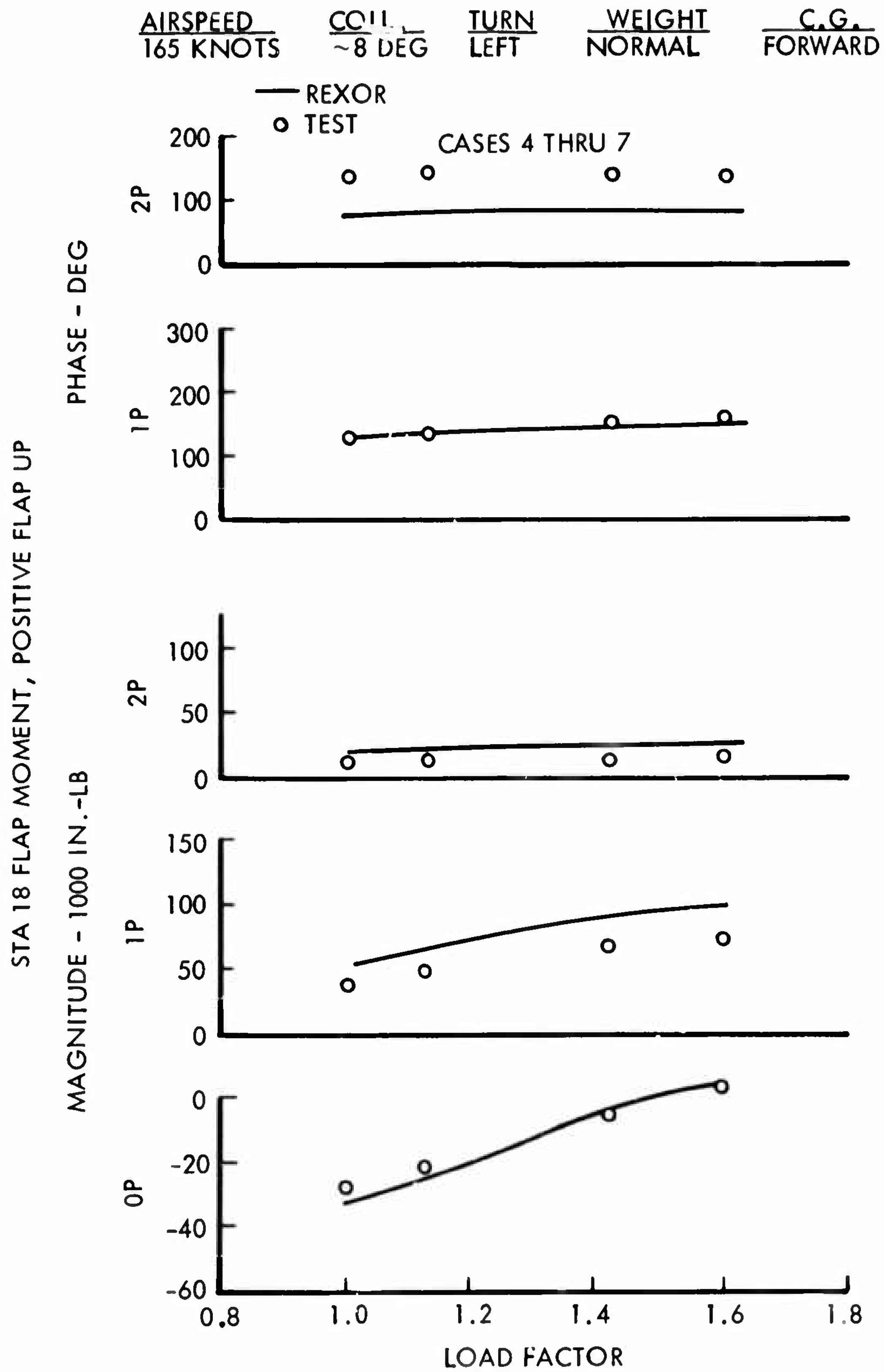


Figure 35. AH-56A Sta 18 Flap Moment vs. Load Factor.

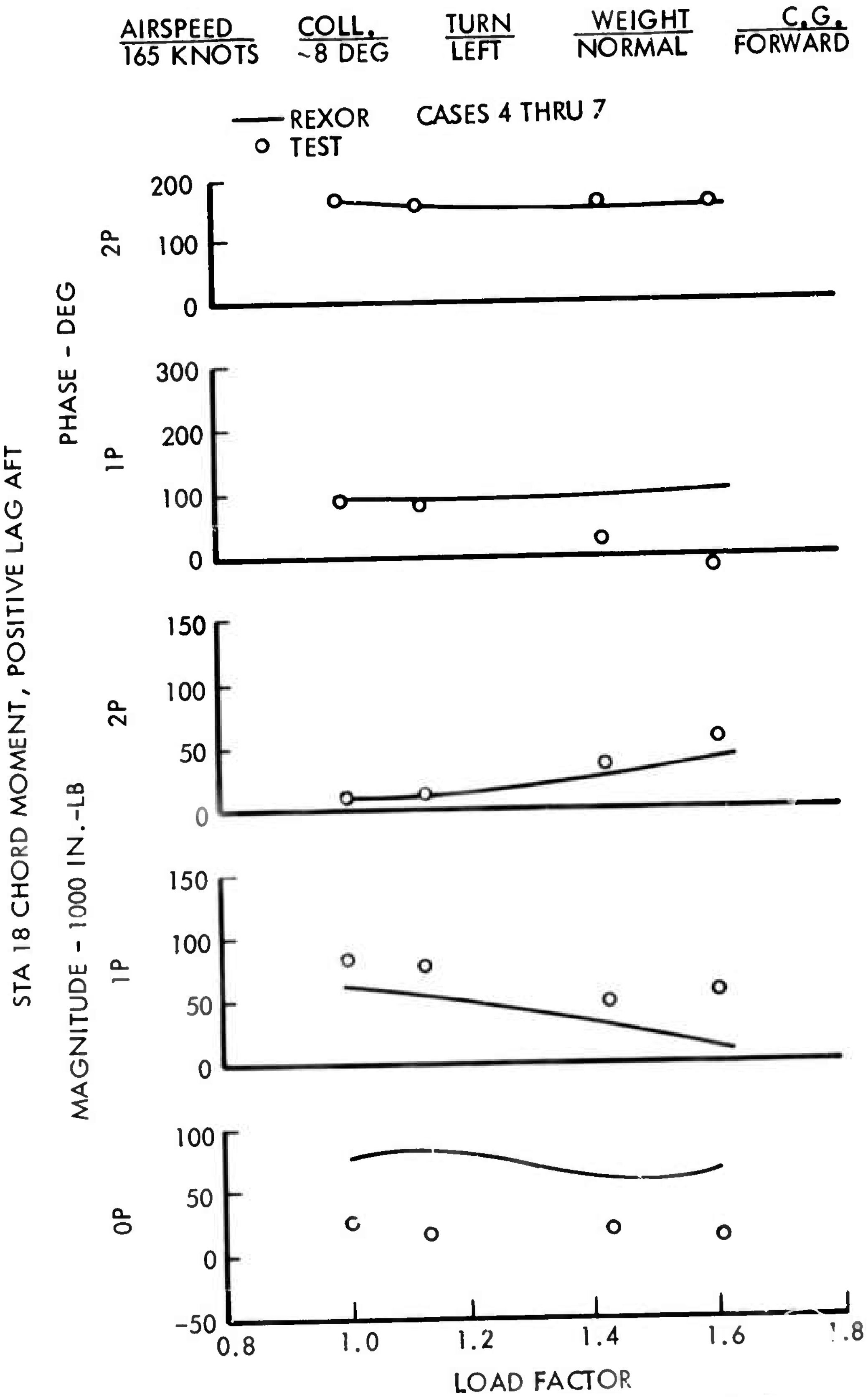


Figure 36. AH-56A Sta 18 Chord Moment vs. Load Factor.

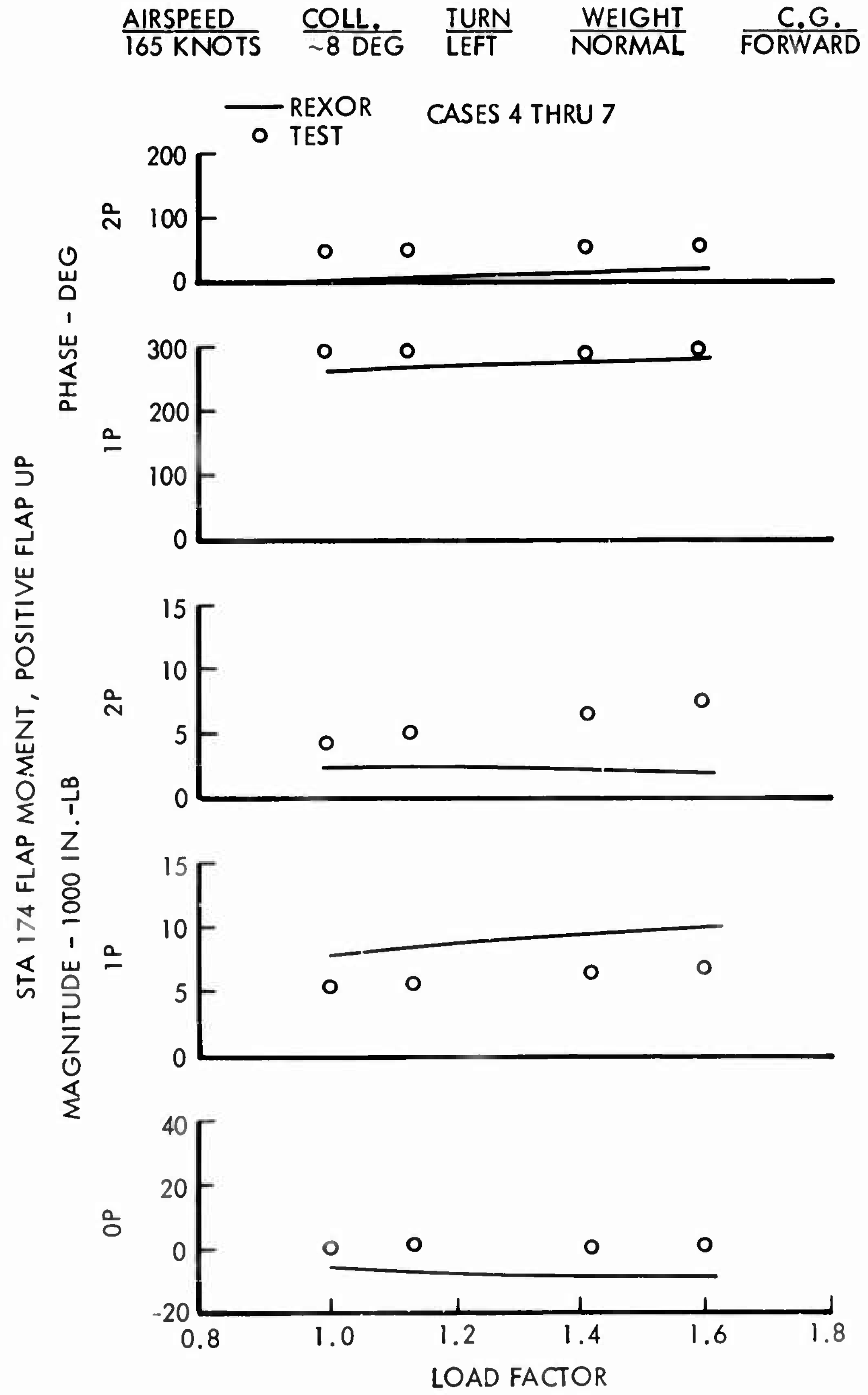


Figure 37. AH-56A Blade Sta 174 Flap Moment vs. Load Factor.

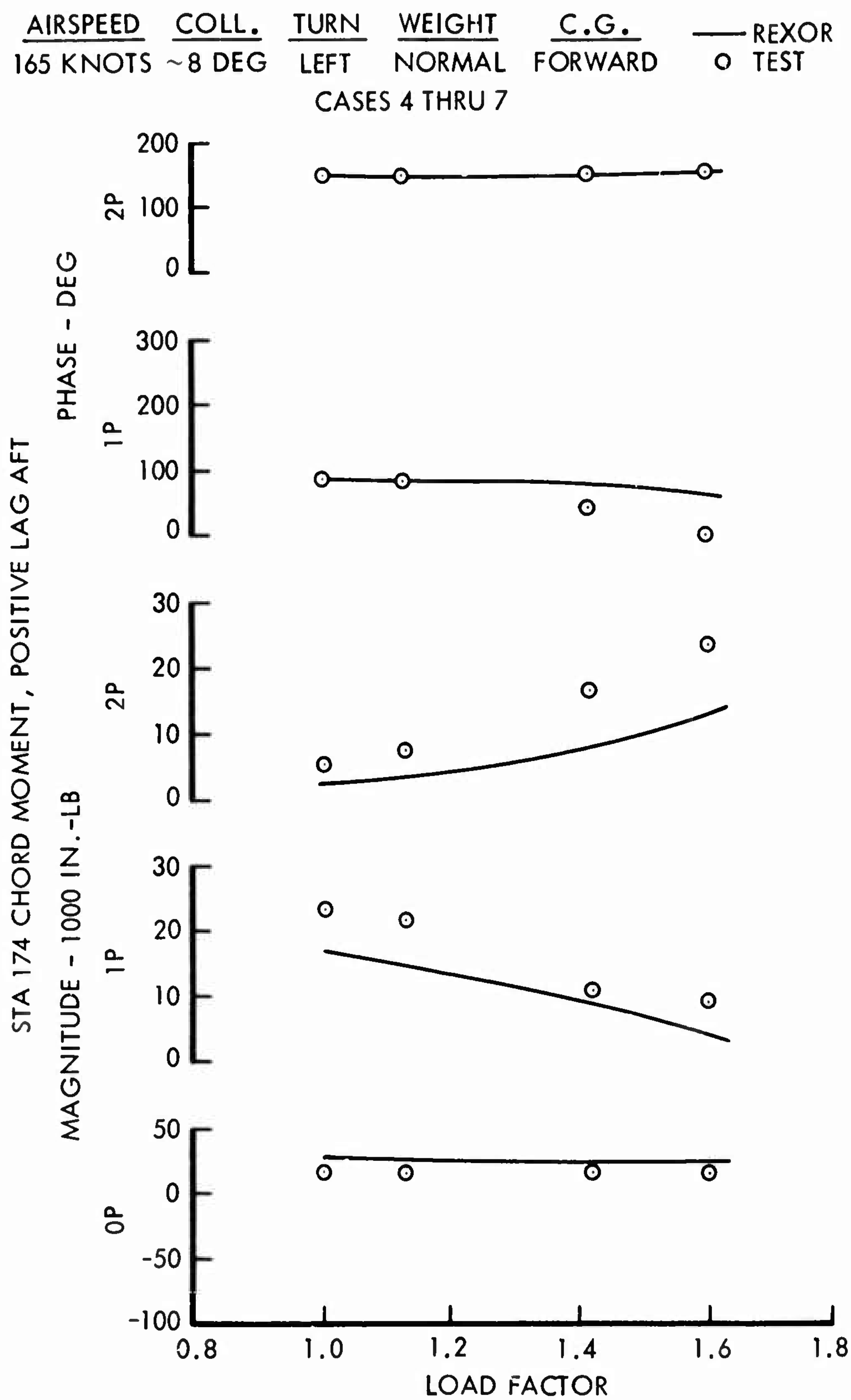


Figure 38. AH-56A Blade Sta 174 Chord Moment vs. Load Factor.

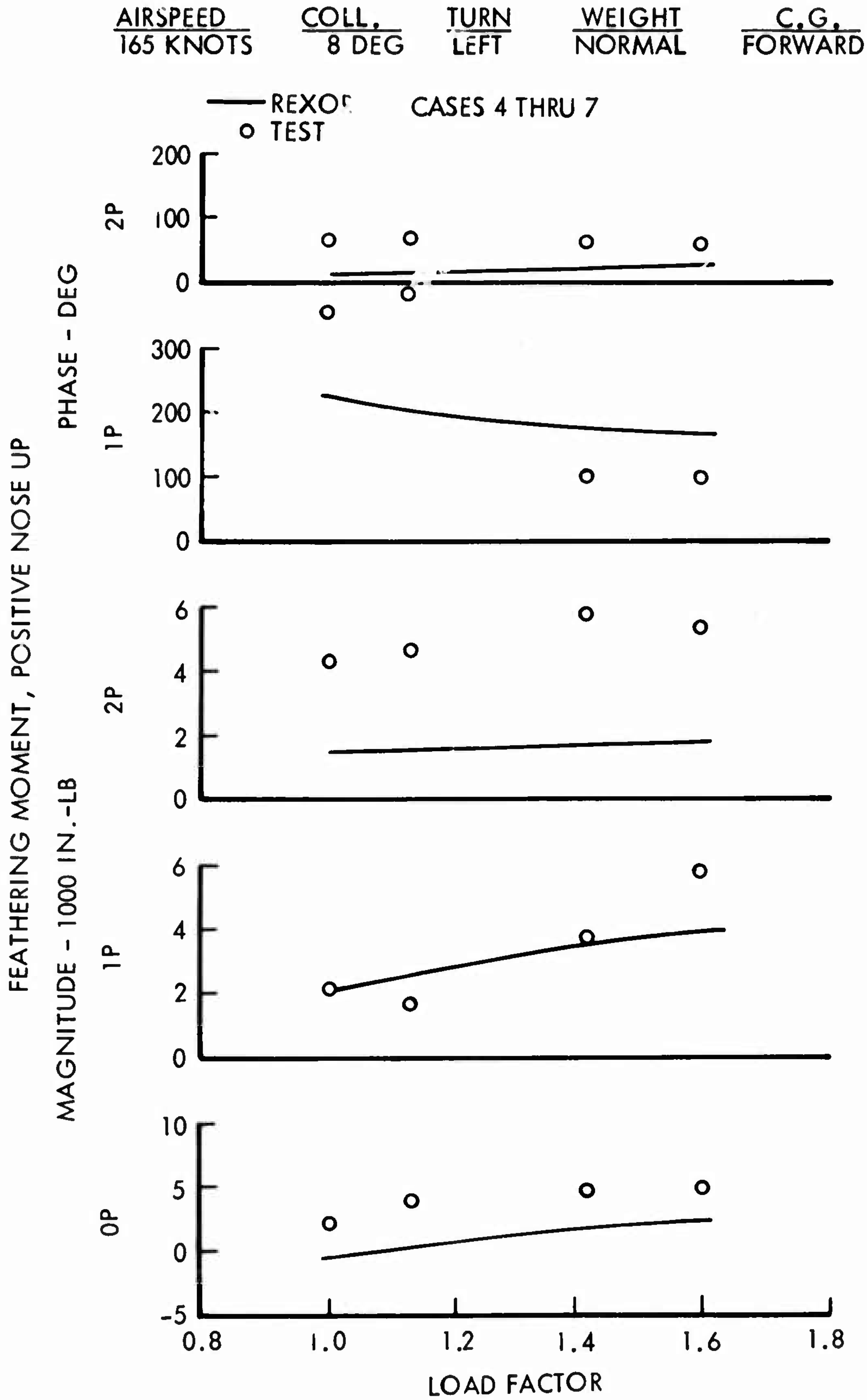


Figure 39. AH-56A Feathering Moment vs. Load Factor.

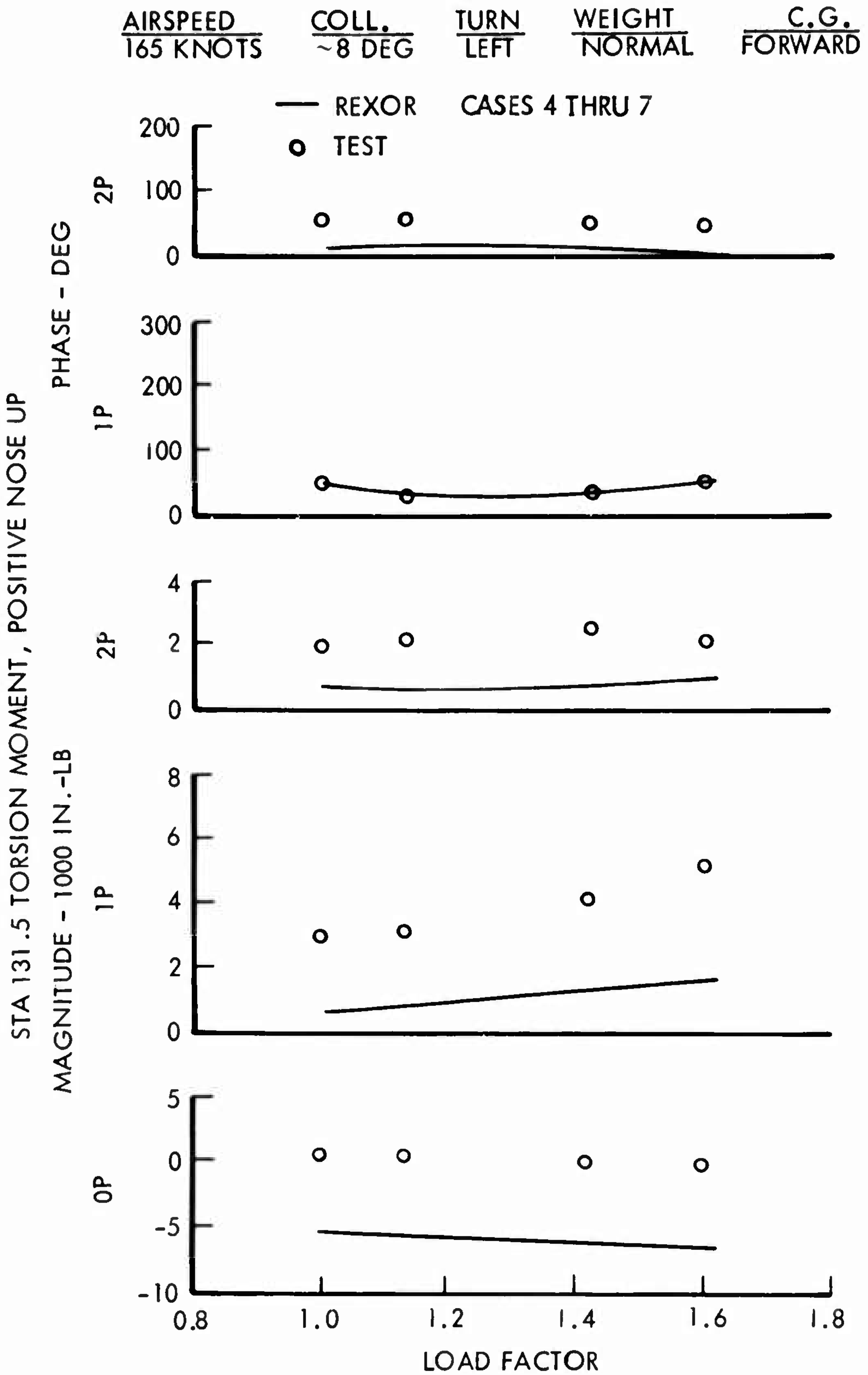


Figure 40. AH-56A Blade Sta 131.5 Torsion Moment vs. Load Factor.

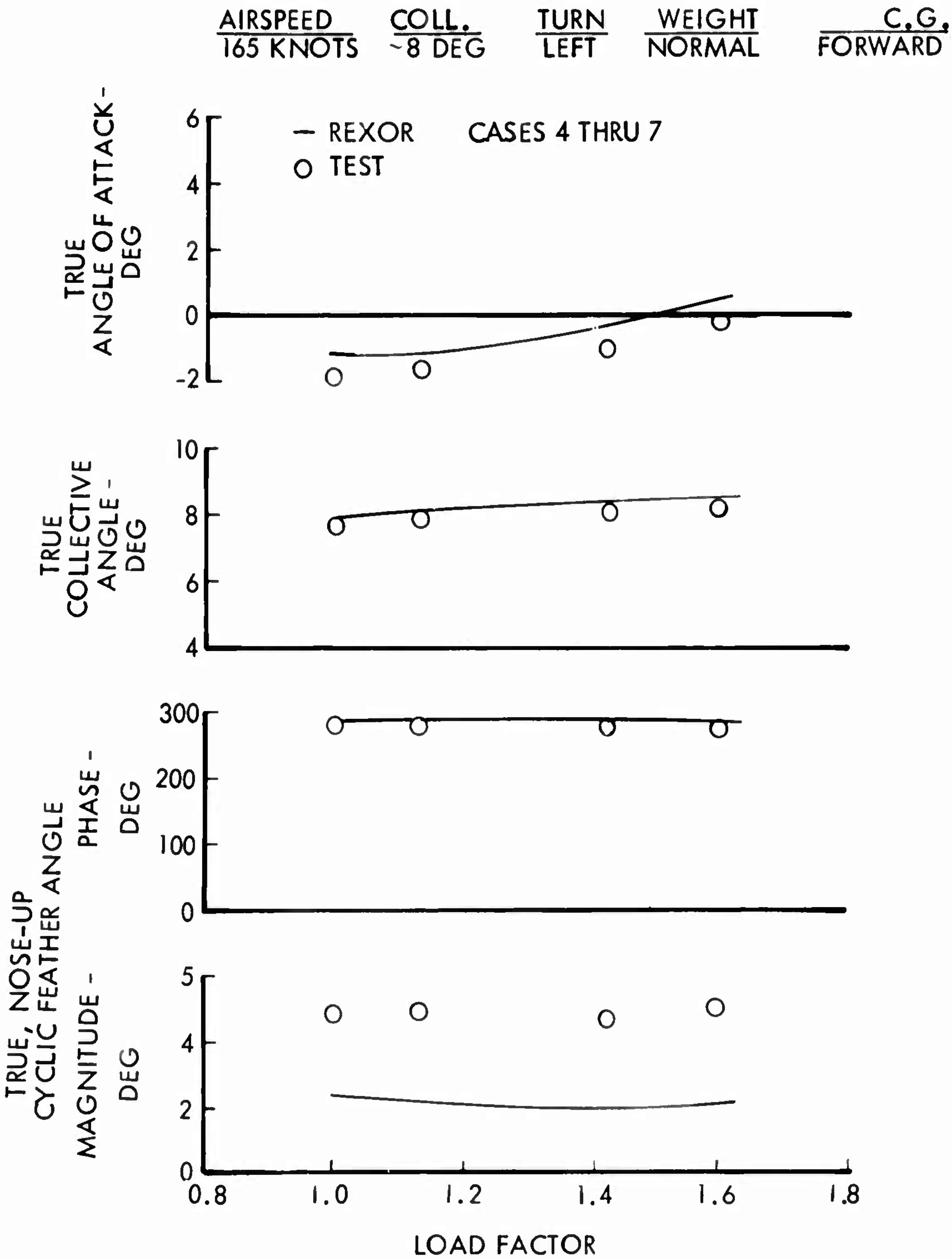


Figure 41. AH-56A Main Rotor Trim Angle vs. Load Factor.

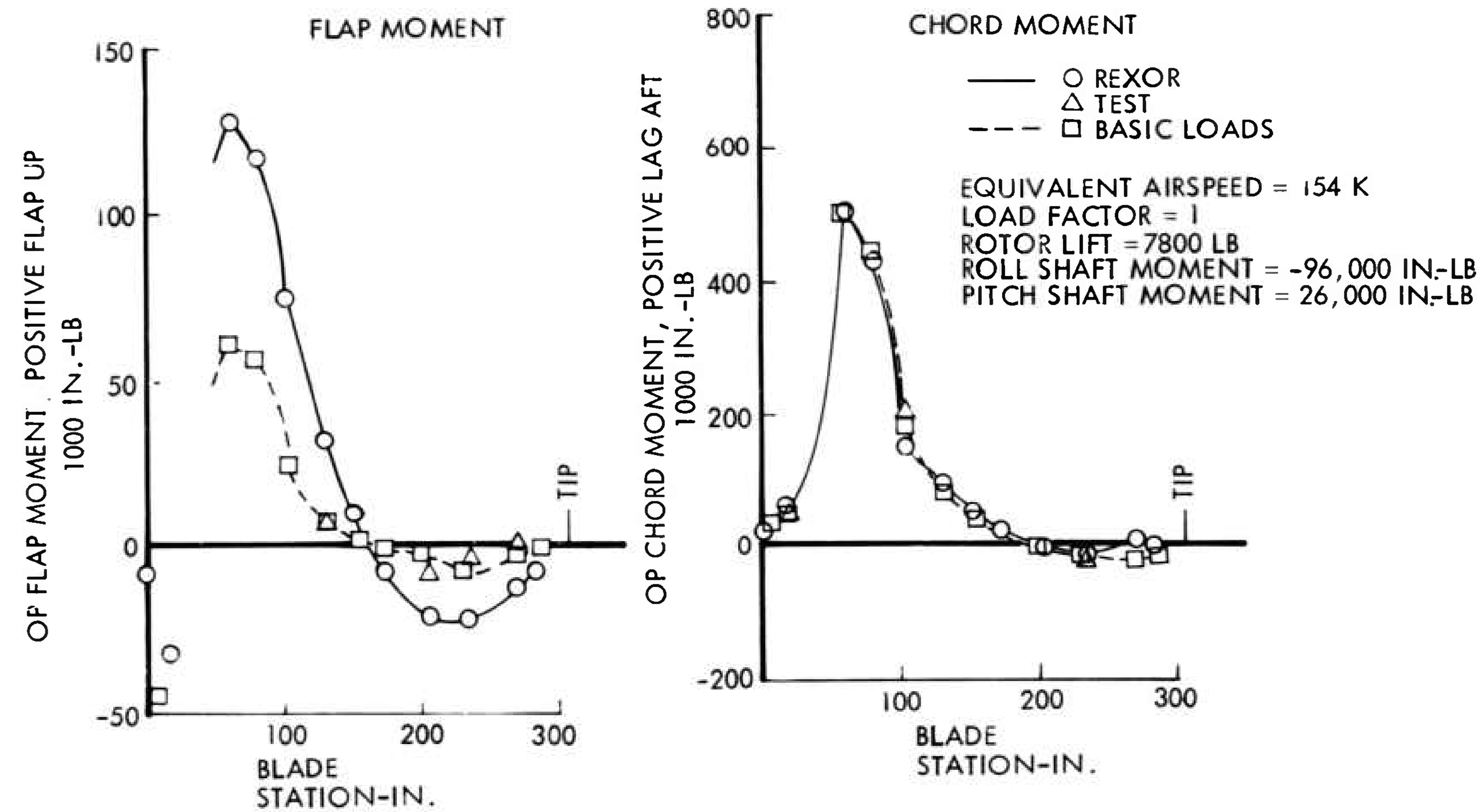


Figure 42. AH-56A OP Flap and Chord Moment vs. Blade Station ~ Case 1.

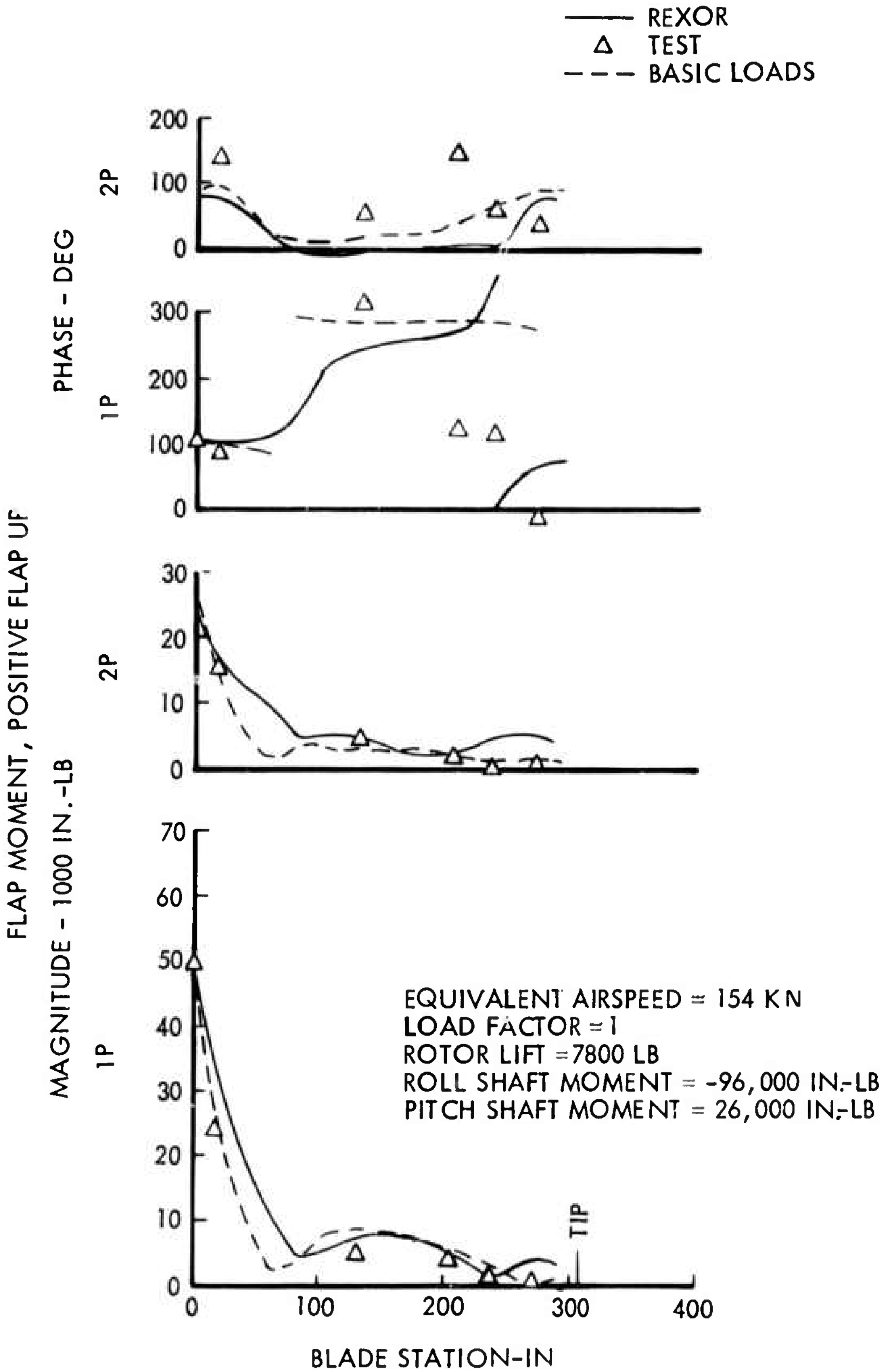


Figure 43. AH-56A 1P and 2P Flap Moment vs. Blade Station ~ Case 1.

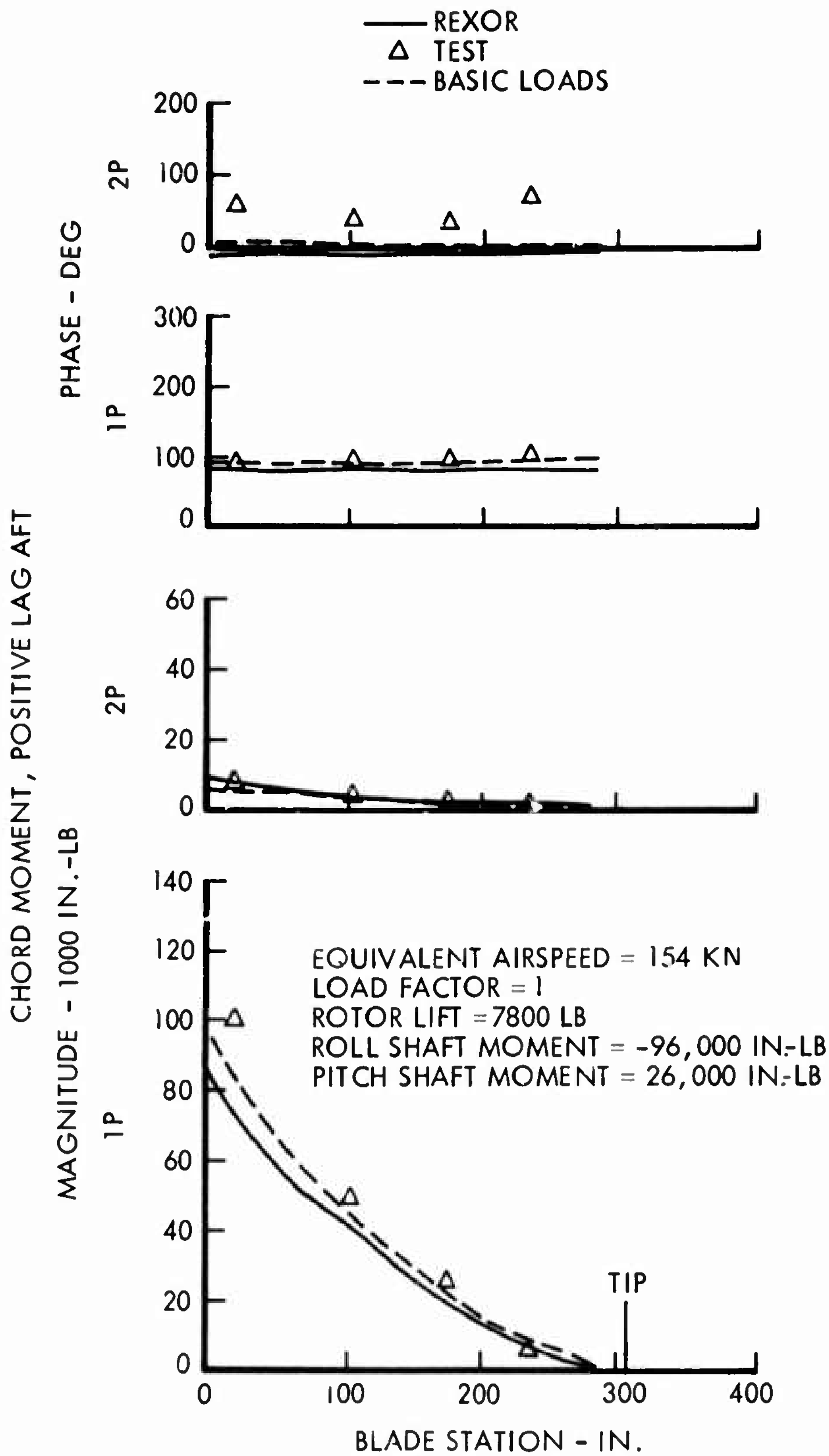


Figure 44. AH-56A 1P and 2P Chord Moment vs. Blade Station ~ Case 1.

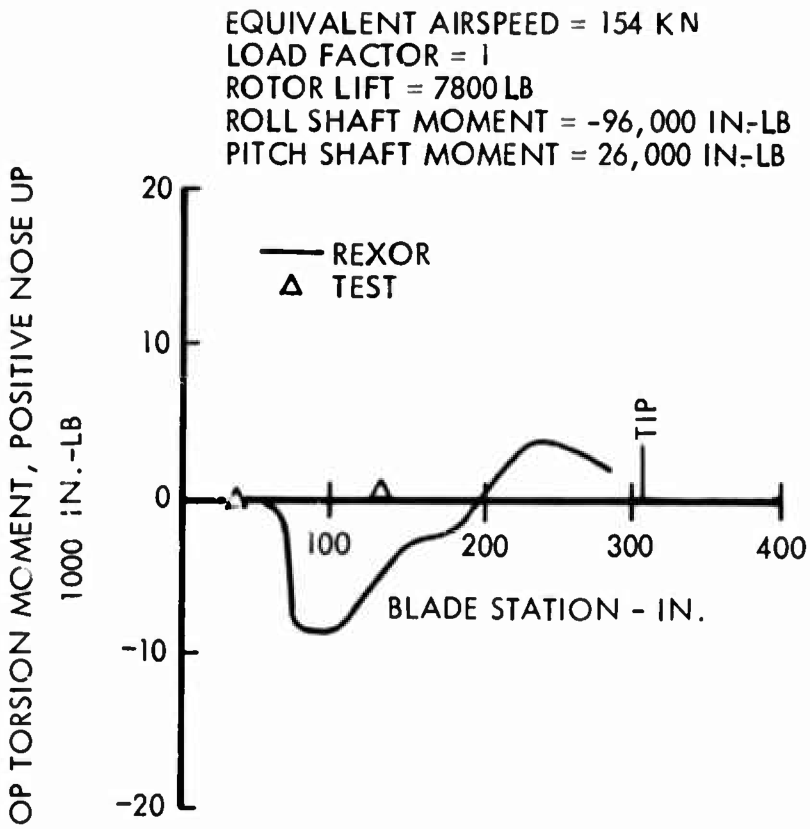


Figure 45. AH-56A OP Torsion Moment vs. Blade Station ~ Case 1.

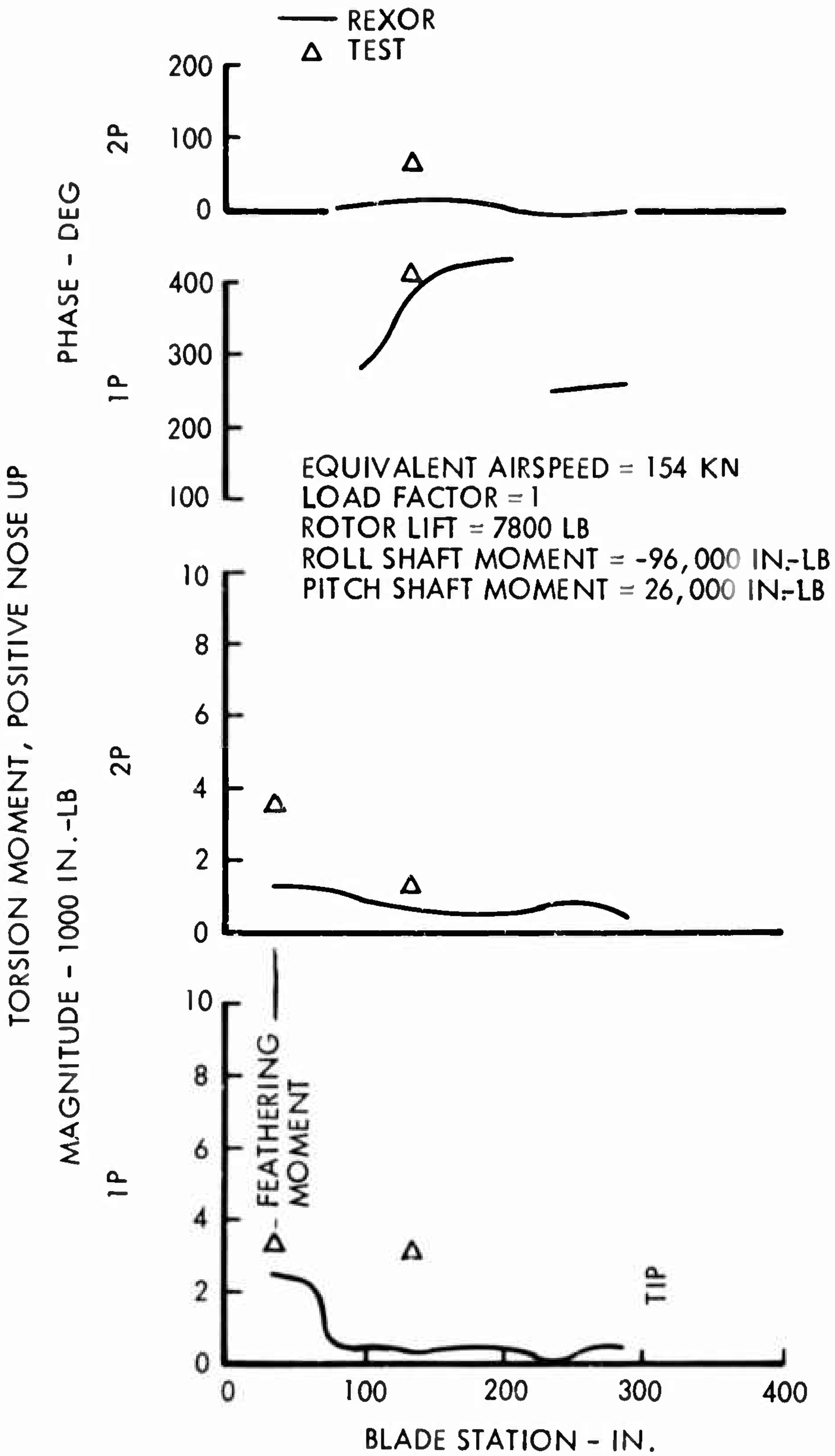


Figure 46. AH-56A 1P and 2P Torsion Moment vs. Blade Station ~ Case 1.

moments; Figure 44, the 1P and 2P chordwise moments; Figure 45, the steady torsion moments; and Figure 46, the 1P and 2P torsion moments. It is noted for 1P and 2P moments that both amplitude and phase are compared.

A review of Figures 29 through 32 and 35 through 38 shows that overall correlation on flapping and chordwise bending moments is fairly good for these steady-state conditions. This is true for both absolute levels and trends with forward speed and load factor.

The flapwise bending moments computed internally at station 18 in REXOR were effectively the total moment acting across the fixed hub and tension-torsion (T-T) pack at that station. The end kick shears of the T-T pack were included in the internal load balance and generalized forces in the system, but were not included in the specific integration for loads at station 18 since this integration included only external loads and not internal loads. A correction was therefore made to the REXOR computed flapping moments at station 18 to account for the internal load of the T-T pack. This correction was found to have a significant effect on steady moments, a lesser effect on 1P flapping moments, and 5 percent or less effect on 2P flapping moments at station 18. Therefore, it was only necessary to apply the correction to the steady and 1P moments.

Correlation With Forward Speed

Figure 29 shows that fairly good correlation is achieved between the measured 0P, 1P, and 2P flapping moments at station 18 (approximately 0.06R) and the predicted moments. Steady moments, which are not particularly critical loads, are seen to be in very good agreement. The first harmonic moments at station 18 predicted by REXOR are 20 to 30 percent higher than the measured levels, with the phase angle showing very good agreement. It is believed that the predicted 1P flapping moments at station 18 are apparently high due to the limitation imposed on blade deflections by only including three blade modes (2 flapwise and 1 in-plane), or less importantly, by the radial loading stations being limited to 12. This has been demonstrated by the Rotor Blade Loads analysis of the same test conditions where the blade was described by this analysis with approximately 60 stations. The measured and computed loads with this method fell within 5 percent of each other as shown in Figure 43. Subtleties involved in defining 1P bending deflection shape include coupling effects such as the products of 1P cyclic feathering times the blade forward sweep. This results in a sharp discontinuity in the vertical deflection of the blade at the point where the blade sweep occurs. This discontinuity is not well represented by the deflections allowed in a first- and second-mode bending formulation. As a result, errors are generated which cause some error in the predicted distributed 1P flapping moments in the REXOR program. These differences in moment are readily identified by comparisons with the Rotor Blade Loads program. Once noted, the differences can then be applied to results of transient solutions, the principal purpose for applying REXOR as a loads analysis tool.

The amplitudes of the 2P flapping moments, as seen in Figure 29, agree quite well. However, differences do exist between the measured and predicted 2P phase angle. This phase difference is attributed to several factors. The primary contributor is differences in cyclic blade angle required for trim, Figure 41. The error in cyclic blade angle on the AH-56A has not been totally resolved but could be due to an inadequate accounting of inflow effects associated with the forebody shape and its proximity to the main rotor, the wing downwash, and the method for accounting for propeller inflow. The forebody proximity to the rotor and the propeller influence are peculiar to the AH-56A configuration.

Referring to Figure 30, good agreement was obtained between measured and predicted blade chord moments as a function of airspeed. The biggest discrepancy in loads occurred at the low-speed end. Here, the nominal collective setting was only 6 degrees. This means that rotor lift must be obtained to a large degree by angle of attack of the rotor. Any error in collective setting will result in large differences in rotor angle of attack. For this condition, REXOR trimmed to an angle of attack that was approximately 3 degrees higher than the measured value, thus causing REXOR to be in a more autorotative state than the test vehicle. This resulted in the smaller predicted steady chordwise bending moment at the low-speed points. At higher speeds, any differences in collective setting result in a much lower discrepancy in rotor angle of attack.

Figures 31 and 32 show the flap and chord moment comparison at rotor station 174 for these same forward speed conditions. It is noted that flapping moment at station 174 was only available on the high-speed 204 KEAS test condition. Also, chord moment at this station was not available for the low-speed test point. The results show very good correlation for 1P and 2P phase angles.

Figures 33 and 34 give correlation between test and analysis for the same speed conditions for blade torsion moment at rotor station 131.5 and for feathering moment respectively. The steady and 1P feathering moments show reasonable agreement, with the 2P moments showing less agreement. Poor agreement is also shown for steady, 1P, and 2P harmonics of blade torsion moment.

Blade torsion moment at station 131.5 is affected on a first-order basis by pure torsion moments on the blade and secondarily by effects of the product of flapping and/or chordwise deflections times chordwise and/or flapping moments. In contrast, for the feathering moment, each of these is a first-order effect. In review of the torsion moments (referring again to Figure 34), it is seen that predicted steady moments are more nose down than the values measured. Study of the azimuthal histories revealed that 1P predicted moments on the advancing side of the rotor were more nose down than measured, with this discrepancy increasing with airspeed. Both of these discrepancies could be compensated for in the analysis with a larger, more positive value of C_{M_0} for the airfoil to account for tracking tab setting. The AH-56A rotor blades are equipped with fairly large tracking tabs. These tabs are easily capable of producing increments of steady torsion or feathering moments of ±3,000 inch-pounds in hover. For a given radius or rotor station r, TM_{OP} and TM_{1P}, the OP and 1P aerodynamic torsion moment due to C_{Mo}, can be written in terms of TM_{HOVER}, the hover value, as follows:

$$TM_{OP} = (1 + \mu_r^2/2)\ TM_{HOVER}$$

and

$$TM_{1P} = \mu_r\ TM_{HOVER}$$

where μ_r is the equivalent advance ratio at station r. At $\mu_r = 0.5$ or approximately 180 KEAS, a steady moment of 1125 inch-pounds and a 1P moment of 500 inch-pounds would result due to each 1,000 inch-pounds of hovering C_{Mo} torsion moment due to tab setting.

The correlation analysis presented was all performed with an analytical tab setting which produced the test value of collective control load in hover. This analytical tab setting is lower than that measured on the test vehicle. If the test setting were used, the computed collective control load would be reduced between 1,000 and 1,500 pounds tension, which is equivalent to 1,700 to 2,550 inch-pounds of blade torsion moment for the hovering case. Because of this, the analytical setting which matches hover control loads was used. If the measured tab setting had been used, at 180 KEAS an increment of steady nose-up torsion moment of 2,400 inch-pounds and a 1P torsion moment of 1,060 inch-pounds nose up on the advancing blade would result. Combining these load increments with the predicted torsion moments in Figure 33 would improve correlation of the magnitude of both the steady and 1P torsion moments and the phase of the 1P torsion moments.

Another item affecting the 1P torsion moment is aerodynamic pitch rate damping due to cyclic feathering. The higher experimental cyclic blade trim angles compared to the REXOR trim angles result in fairly significant increments of nose-up feathering in the right rear quadrant of the rotor system. This effect would further enhance the degree of correlation obtained on the 1P torsion moments in level flight. The magnitude of this vector can range from 1,000 to 2,000 inch-pounds of torsion moment and is in a direction to improve this prediction.

The mechanisms producing feathering moments include the same items that result in blade torsion moments and additionally significant contributions due to the product of flapping and in-plane moments times in-plane and flapping deflections, both geometric and elastic. Referring to Figure 30, at 120 KEAS the discrepancy in steady in-plane moment times the blade droop below the feathering axis for this condition would result in an increment of nose-up feathering moment. This increment of feathering moment due to the discrepancy in the steady chord moment would disappear with increasing airspeed. This, combined with the effects on steady and 1P torsion moments discussed earlier, would bring the overall correlation of steady and first-harmonic feathering loads into much better agreement.

Correlation With Load Factor

Data for typical steady-state load factor penetrations are shown in Figures 35 through 41. The data are for a 165-KEAS, 8-degree collective-blade-angle flight condition, and the load factor is obtained in a steady left-bank turn. The vehicle is configured at its normal gross weight with a forward center of gravity in contrast to an aft center of gravity for the data previously discussed.

Figure 35 presents a comparison of predicted flap moments at station 118 with measured values. Good correlation is shown, both in the absolute levels of moment and in the variation with load factor. Comparing Figures 29 and 35 at the 1 g condition, the predicted 2P flapping moments increased approximately 20 percent due to the combined effect of increased shaft moment and an increase of collective pitch from 6 degrees to 8 degrees, as would be expected. In contrast, the experimental data indicated an unexplained small reduction in the 2P flapping moments.

The chord moments at station 18 are shown in Figure 36. Comparing the steady chord moments with those on Figure 30 casts some doubt on the validity of the experimental data. The 1 g point in Figure 36 shows a steady chord moment of 27,000 inch-pounds for a collective angle of 8 degrees, whereas the data in Figure 30 for a collective angle of 6 degrees indicates a level of 50,000 inch-pounds. The higher collective should require a higher rotor torque or a more aft bending steady chord moment. This requirement is reflected in the predicted station 18 steady chordwise bending moments.

The 1P chord moment amplitude and phase correlates poorly at the high load factor. The phase of the experimental data moves from a predominant lag aft in the advancing blade position at 1 g load factor, to a lag aft in the aft quadrant at the higher load factor. The poor correlation is due to the lack of agreement on cyclic blade angle discussed earlier. The higher experiemental cyclic blade angles, particularly in the aft quadrant, are required basically to account for inflow distortions which cause 1P variations in the tilt of the lift vector. Figure 41 shows that the measured cyclic blade angle is approximately 2.5 times the predicted angles for the high load factor shown. The rotor lift, of course, increases with increasing load factor. The product then of the lift and the increase in inflow angle over the aft quadrant, times an effective in-plane moment arm, causes an increase in lag aft in-plane bending moment in the aft quadrant of the rotor. This effect is not present to any large degree in the REXOR predicted loads for this condition due to the significantly lower blade cyclic trim angles obtained by the analysis. Therefore, the REXOR analysis does not indicate a shifting of the 1P in-plane moment from a predominant lag aft bending on the advancing blade to a predominant drag aft when the blade is in the aft quadrant.

Again, where the blade cyclic trim angles are in better agreement, as in the case of the XH-51A data presented later, the 1P chord moments, both amplitude and phase, are in much better agreement.

Correlation With Blade Radial Station

Figure 42 presents the steady flap and chord moments as a function of rotor station for Case 1. This case is the same for the 154-KEAS point used in presenting the correlation with forward speed. Figures 29 through 34. Shown are spanwise distribution of moments from REXOR, from the Rotor Blade Loads program and from test data. Good or excellent agreement is obtained between REXOR, and Rotor Blade Loads program, and the test data for the steady chord moment distribution. The chordwise bending moments are not heavily dependent upon the deflection of the blade. In contrast, for steady flap moments, where the moments are strongly dependent upon blade flexibility and the associated contribution of centrifugal force, the correlation between the REXOR results and the rotor loads program and test data is not as good. This is particularly true in the region of rotor station 60 to 70 where the blade built-in droop occurs. It is apparent that incorporation of a static or steady mode, or higher modes into REXOR would greatly improve its ability to predict spanwise distribution of steady flapping moments. The discrepancy is primarily due to the lack of blade deformation sufficient to relieve the steady centrifugal flapping moments, and so that trends with load factor, airspeed, etc., as has been earlier demonstrated, are valid.

Referring to Figure 43, where the forced response is much closer to the natural mode response, much better agreement in 1P flapping moments is obtained between the REXOR, test and Rotor Blade Loads program moment distributions. In fact, as indicated in Figures 43 and 44, good correlation on the spanwise distribution of moments for both the 1P and 2P components of flap and chord moments is achieved.

Figure 45 gives a comparison of the REXOR steady torsion moments versus span, and the measured data for this same flight condition. Figure 46 is a comparison of the 1P and 2P torsion moments, amplitude, and phase. In addition to the earlier discussion on feathering and torsion moments, it is evident from Figure 42 that the REXOR computed steady flapping moment is 60,000 to 70,000 inch-pounds more flap up at station 70 than computed by the Rotor Blade Loads program. Station 70 is the span location at which the blade is swept forward 4 degrees. This increment of flapping moment times the 4-degree sweep angle produces a nose-up feathering moment of approximately 4,500 inch-pounds. Correcting for this flapping moment discrepancy would result in a steady nose-down feathering moment for the case shown in Figure 45. Referring now to Figures 33, 34, 39, and 40, a nose-down correction in the feathering moment of this magnitude combined with the nose-up correction in torsion/feathering moment due to blade-up tabbing discussed earlier, would bring the overall correlation of steady torsion/feathering moments into much better agreement. Similarly, these corrections would bring the predicted 1P torsion/feathering moment spanwise distributions into good agreement with the measured data. The assessment of any of these effects on the 2P feathering moments is much more difficult to make since they involve much higher order effects.

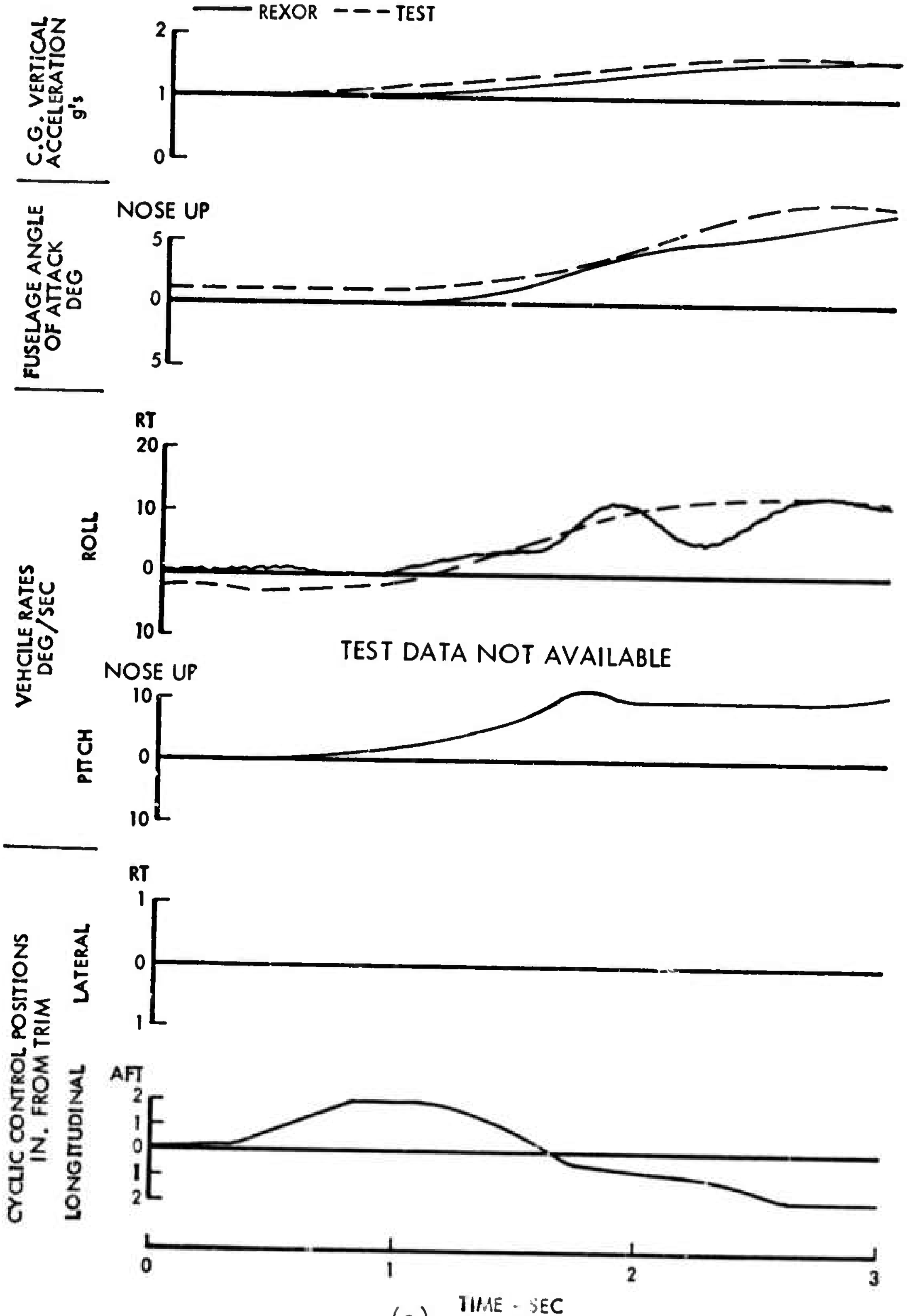
The foregoing discussion has attempted to be objective in its review of the correlation data presented. The areas in which good agreement was obtained were noted, and the areas in which fair or poor agreement was obtained were highlighted. An attempt was made to give the reader a comprehensive understanding of both the capabilities and limitations of the REXOR program relative to steady-state loads predictions and, also, of the various factors which influence the correlation study both from the standpoint of mathematical modeling and from interpretation of test data. It is felt that this understanding is essential before proceeding to the part of the study involving transient maneuvering loads, which is the prime reason for applying REXOR as a loads analysis tool.

AH-56A TRANSIENT MANEUVERING CORRELATION RESULTS

Eight cases were selected for transient maneuvering correlation on the AH-56A. These cases included pullups at 114, 169 and 180 KEAS, pushovers at 123, 176 and 183 KEAS, a right roll maneuver at 161 KEAS, and a left roll maneuver at 122 KEAS.

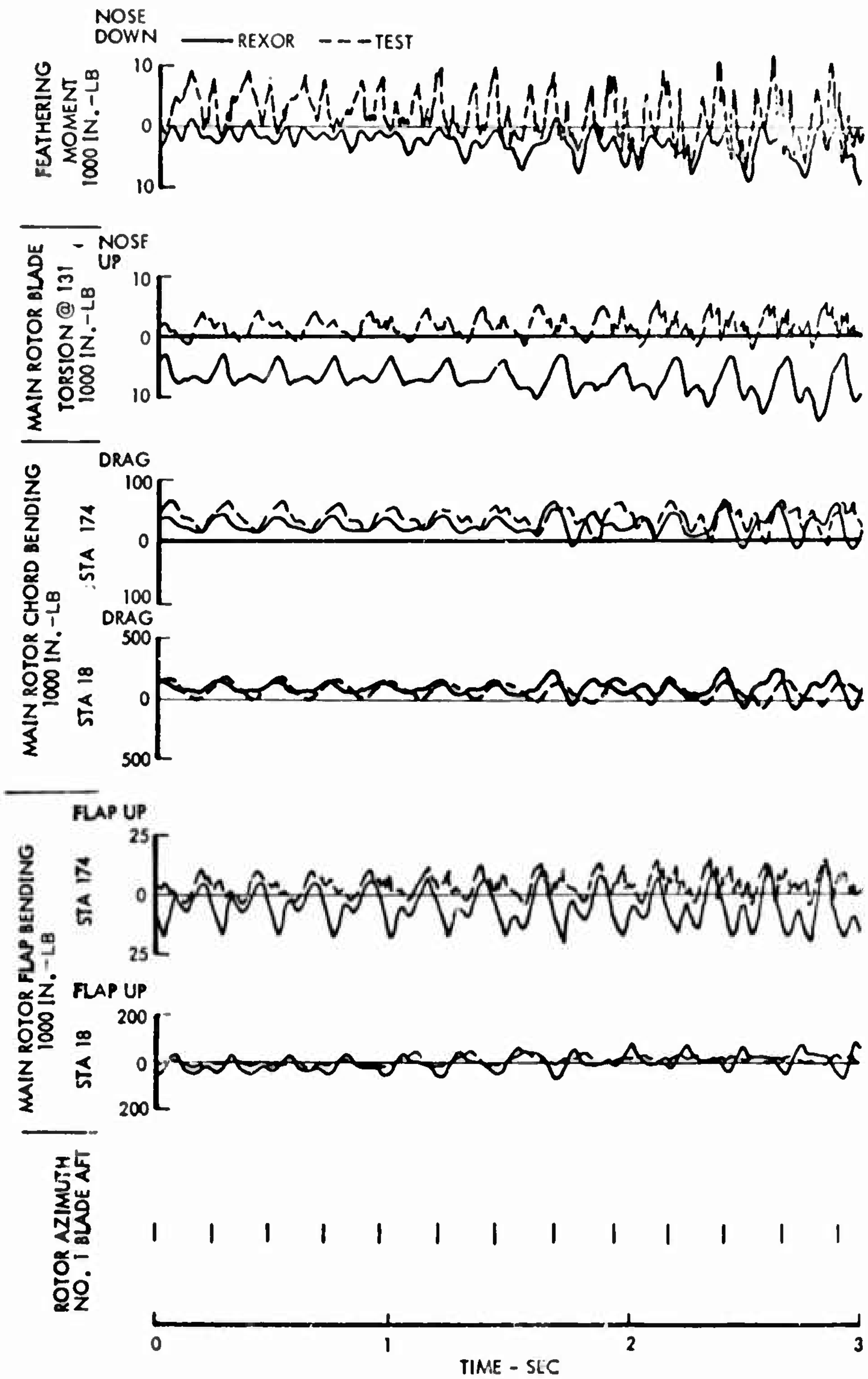
The pullups, in order of the speeds indicated above, are given in Figures 47, 52, and 53; the pushovers, in Figures 48, 51 and 54; and the rolling maneuvers, in Figures 49 and 50. The correlation data is presented on two separate pages, an (a) and a (b) figure, for each condition or maneuver. The (a) portion of each figure presents time histories of flight condition data such as vertical acceleration, angle of attack, roll and pitch rates, and stick positions. The (b) portion of each figure presents time histories of main rotor blade loads, including feathering moment, torsion at station 131.5, chordwise and flapwise bending at station 18 and station 174, and a rotor index pip which references when the subject blade is straight aft at the zero azimuth position.

The transient maneuvers on REXOR were performed by selecting a particular flight condition parameter and attempting to fly REXOR with the cyclic stick to match the maneuver. For pullups and pushovers, the center of gravity vertical acceleration was chosen with attention also given to pitch rate and roll rate. For rolling maneuvers, roll rate was the prime parameter selected to which to fly REXOR. The initial REXOR time histories generated used measured stick motions from the flight test maneuvers. Usually it was found that some modest correction or change in stick positions was required to give reasonable duplication of the flight condition. The degree to which the AH-56A transient maneuvers were duplicated can be seen by reviewing the (a) portions of Figures 47 through 54.



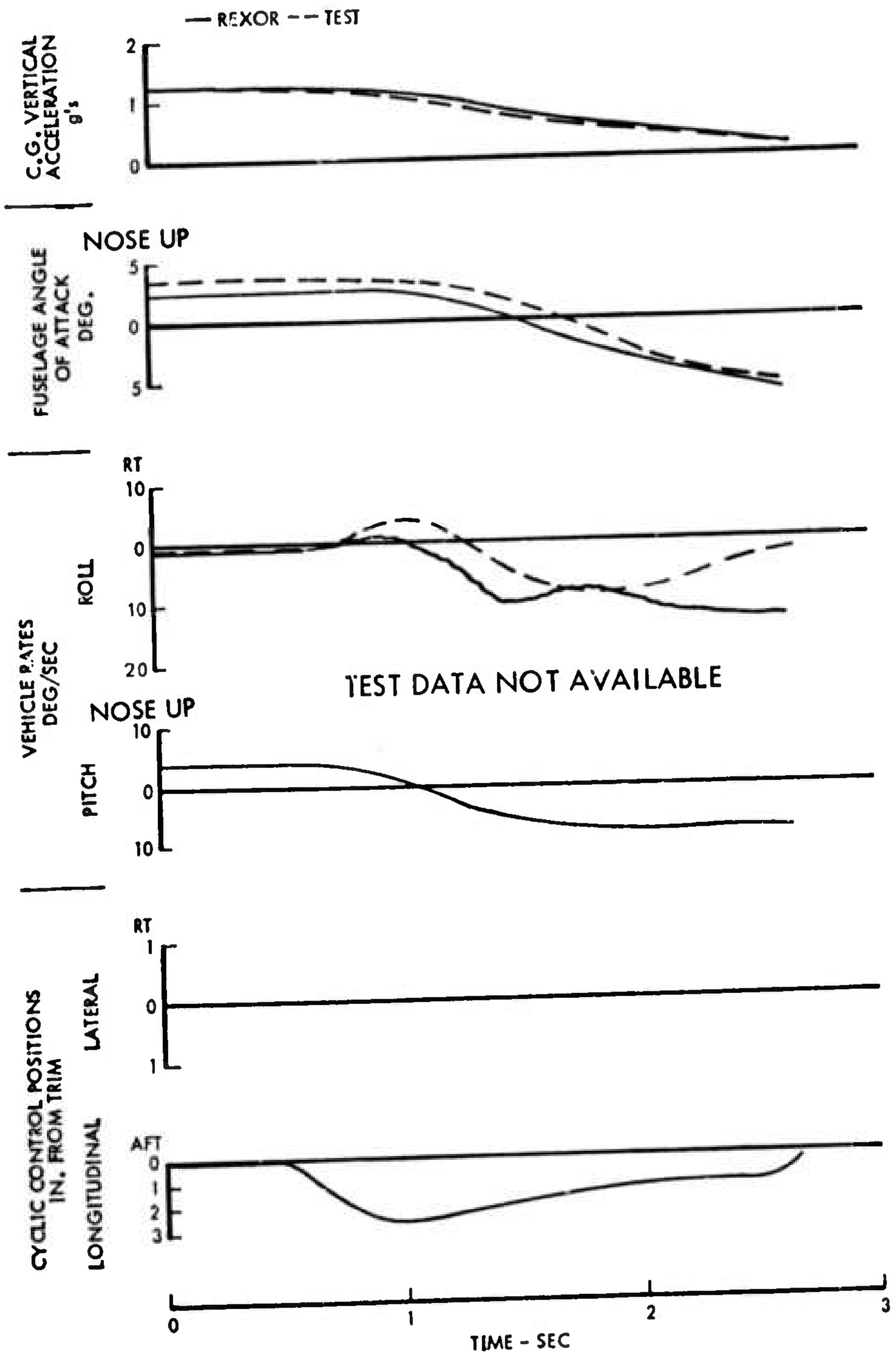
(a)

Figure 47. AH-56A Transient Maneuver, Pullup ~ Case 51.



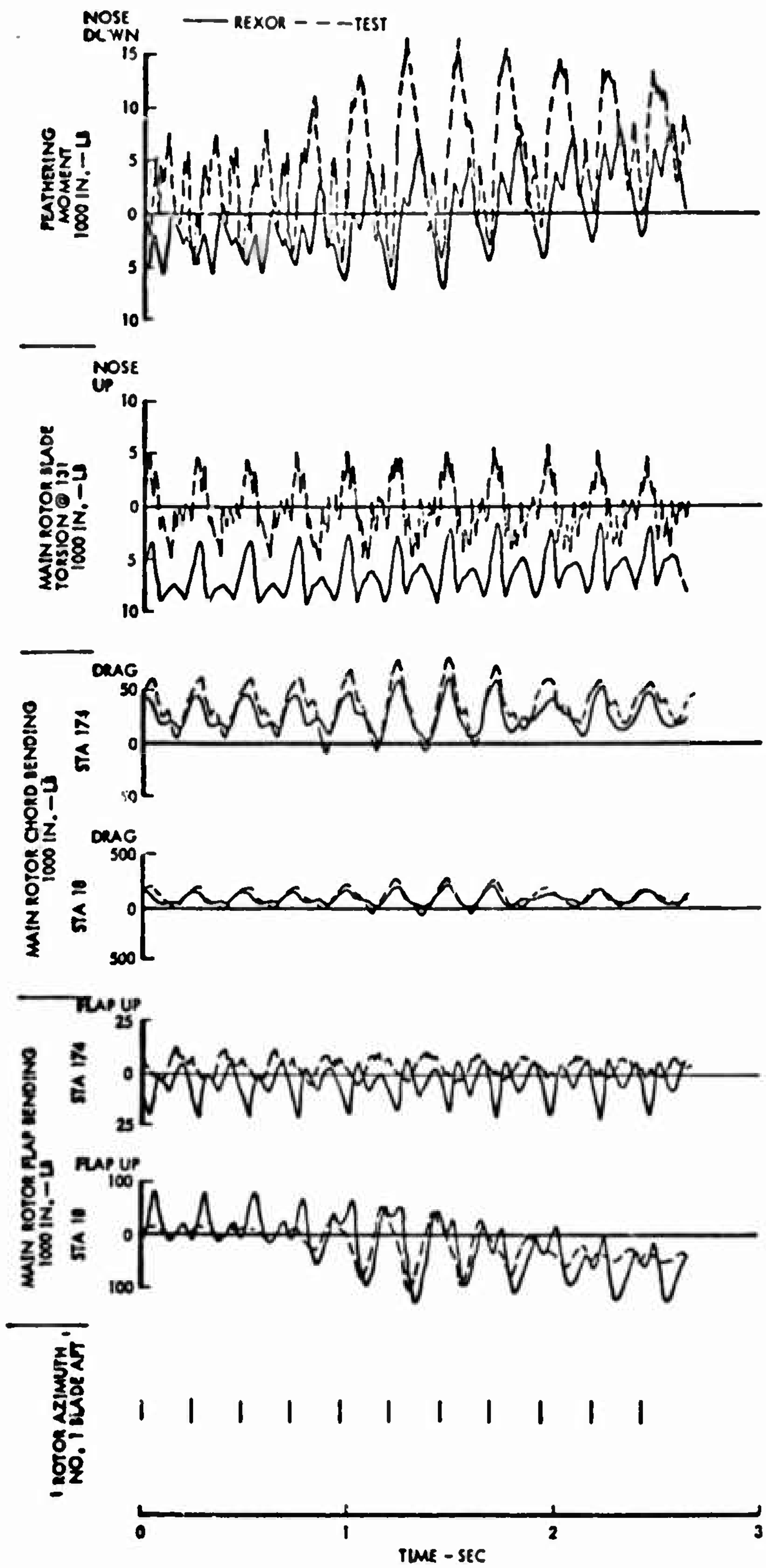
(b)

Figure 47. Continued.



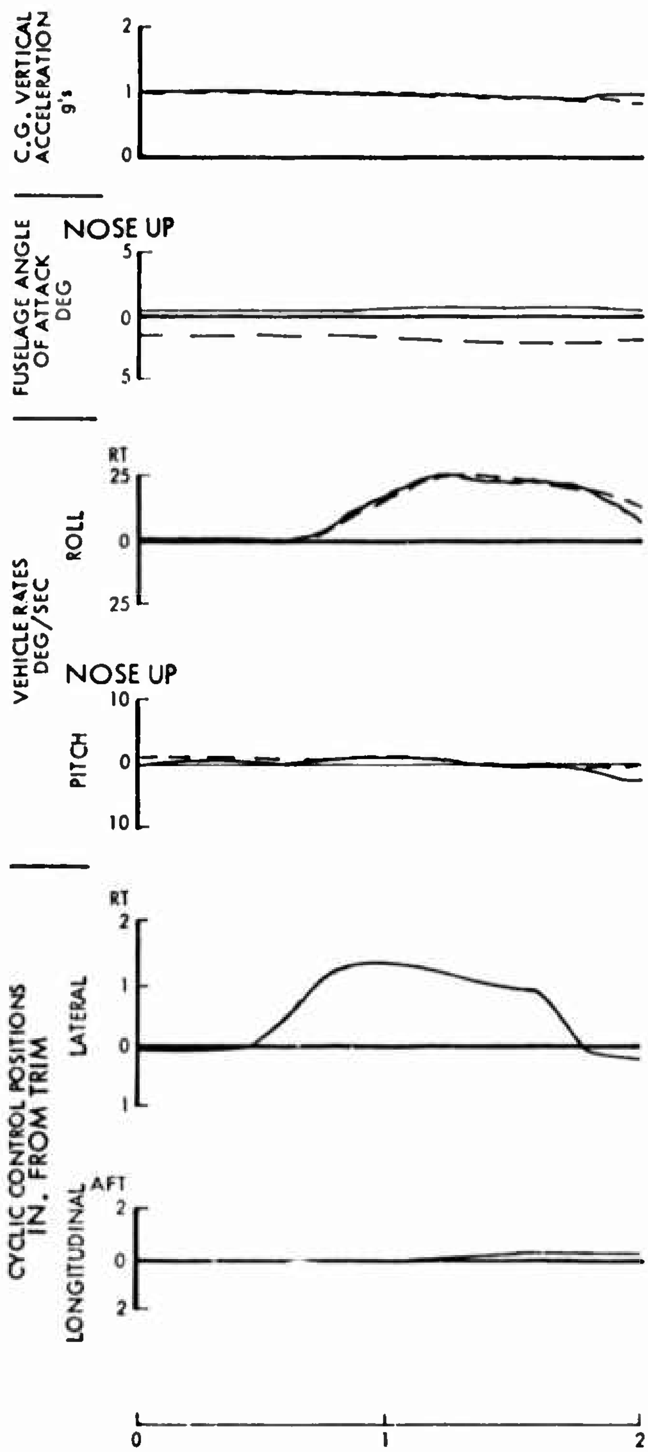
(a)

Figure 48. AH-56A Transient Manuever, Pushover ~ Case 50.



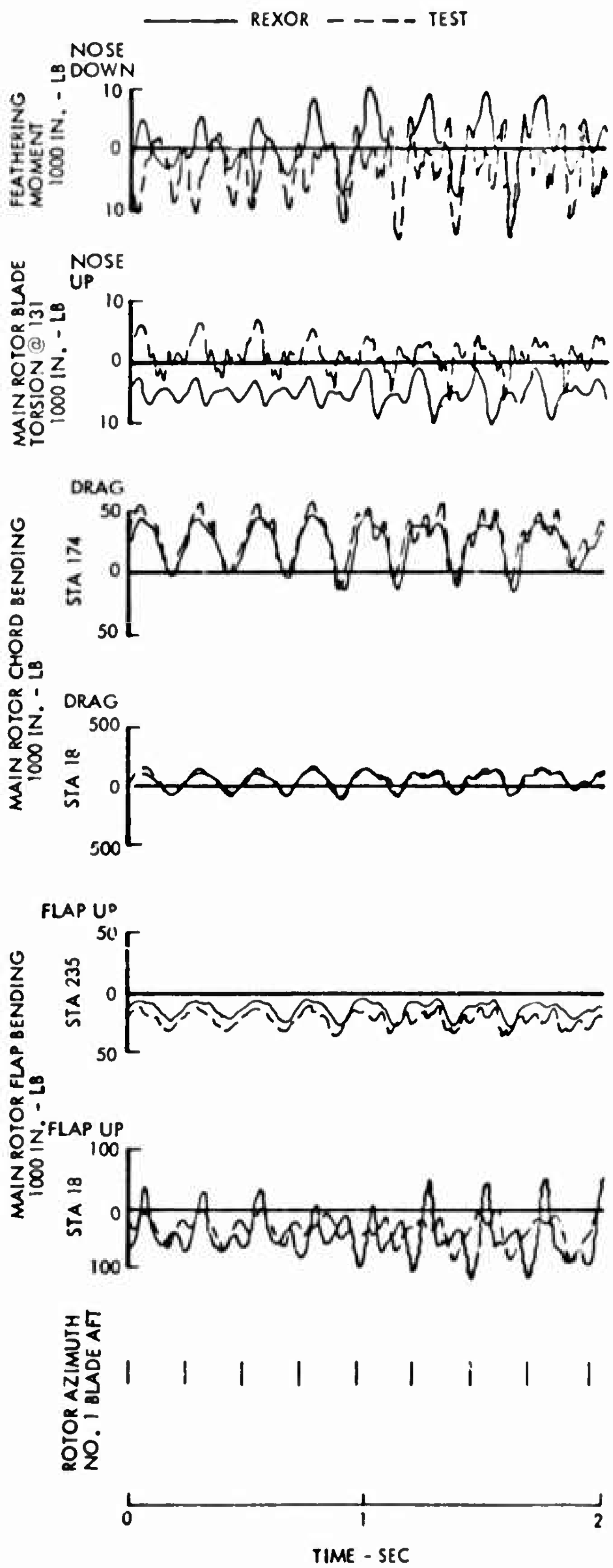
(b)

Figure 48. Continued.



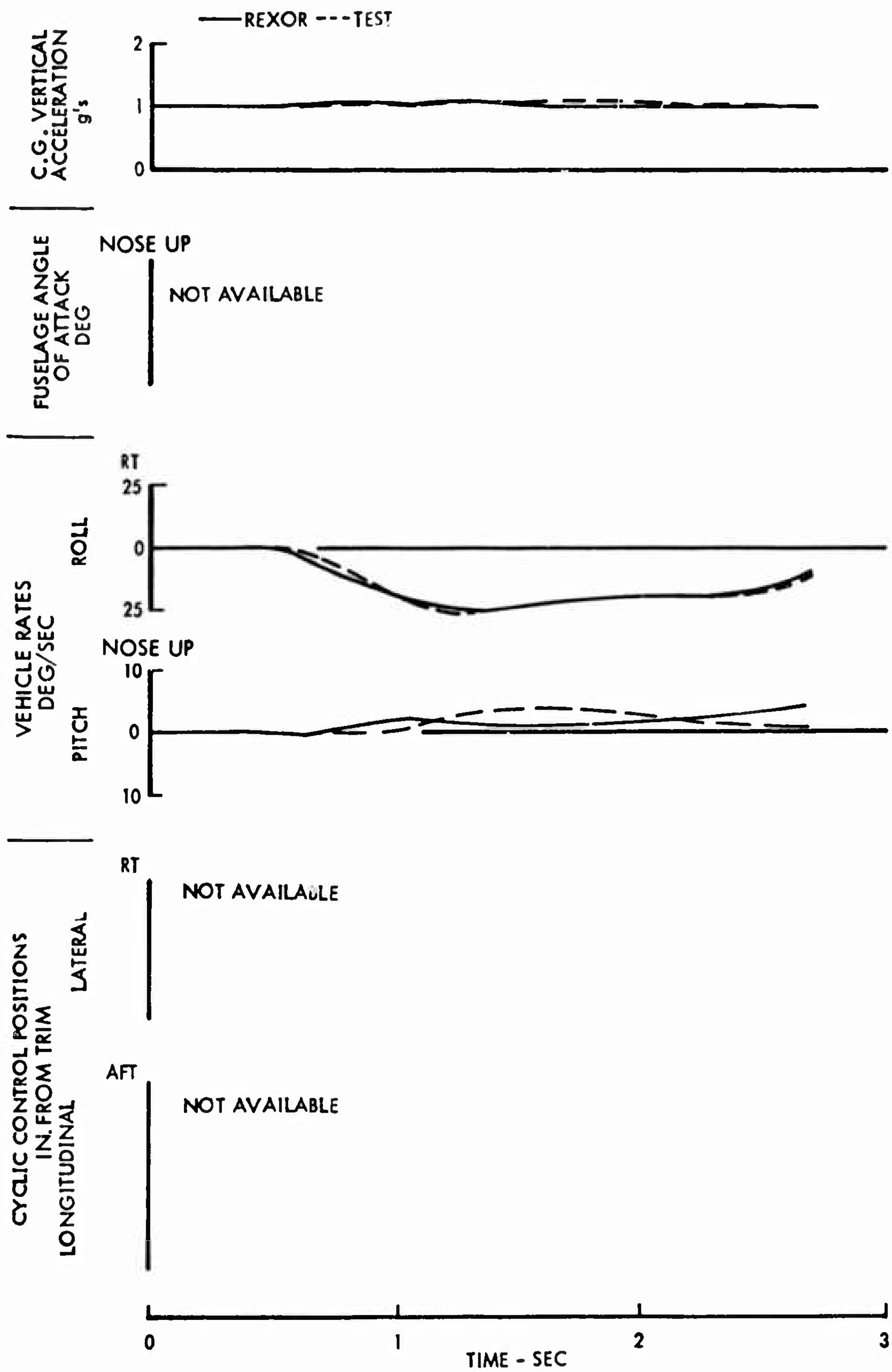
(a)

Figure 49. AH-56A Transient Manuever, Right Roll - Case 47.



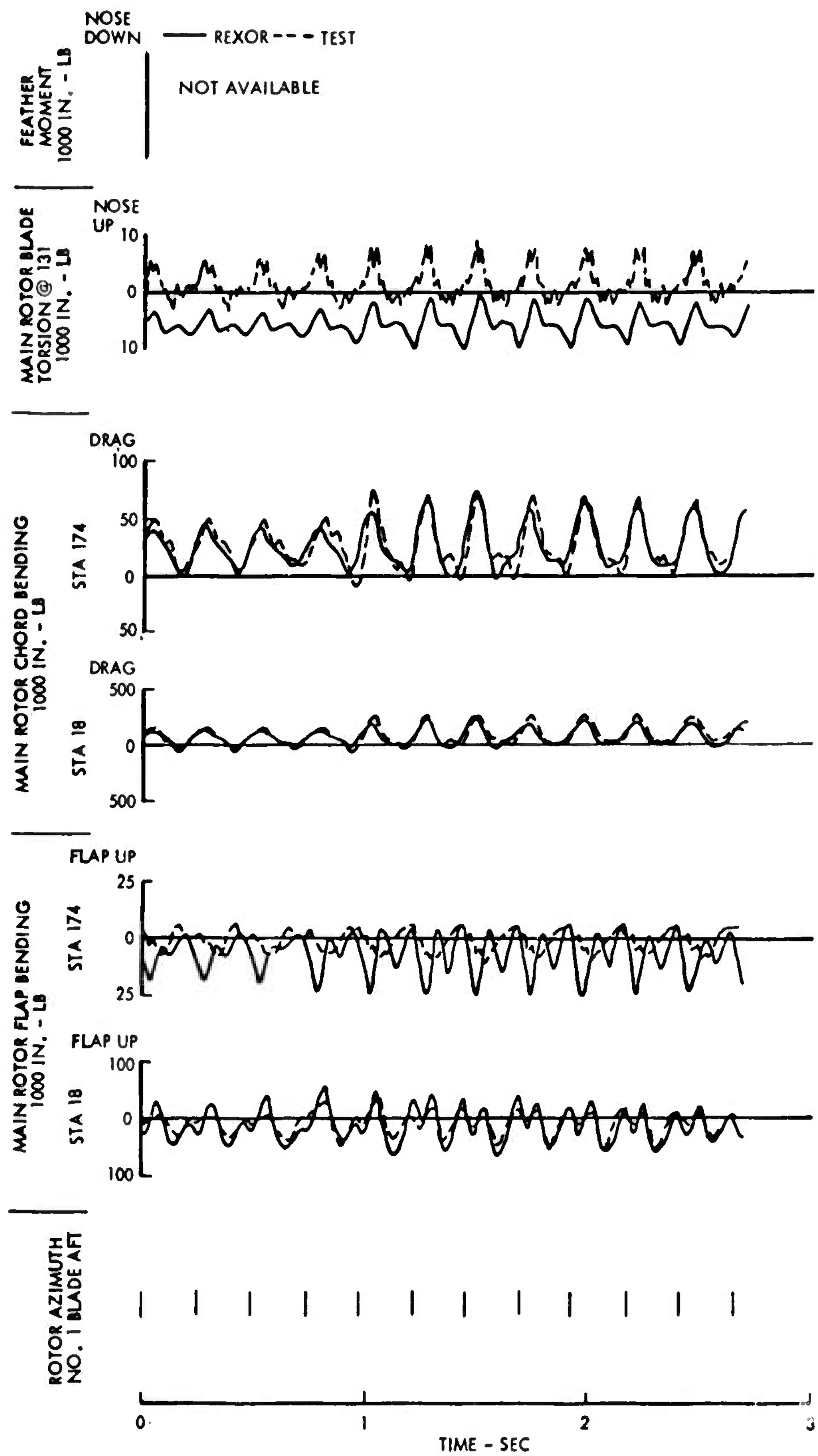
(b)

Figure 49. Continued.



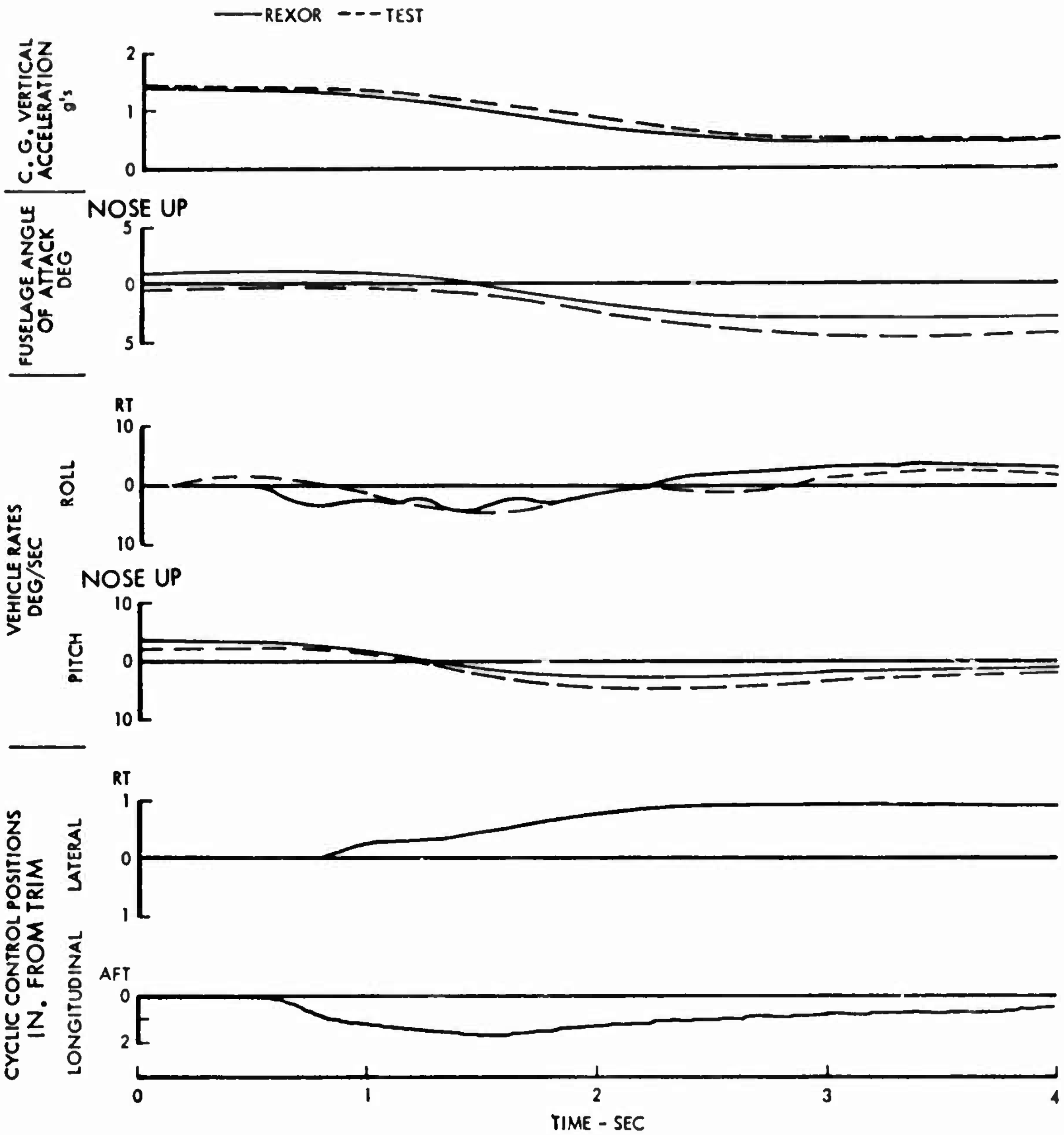
(a)

Figure 50. AH-56A Transient Manuever, Left Roll ~ Case 48.



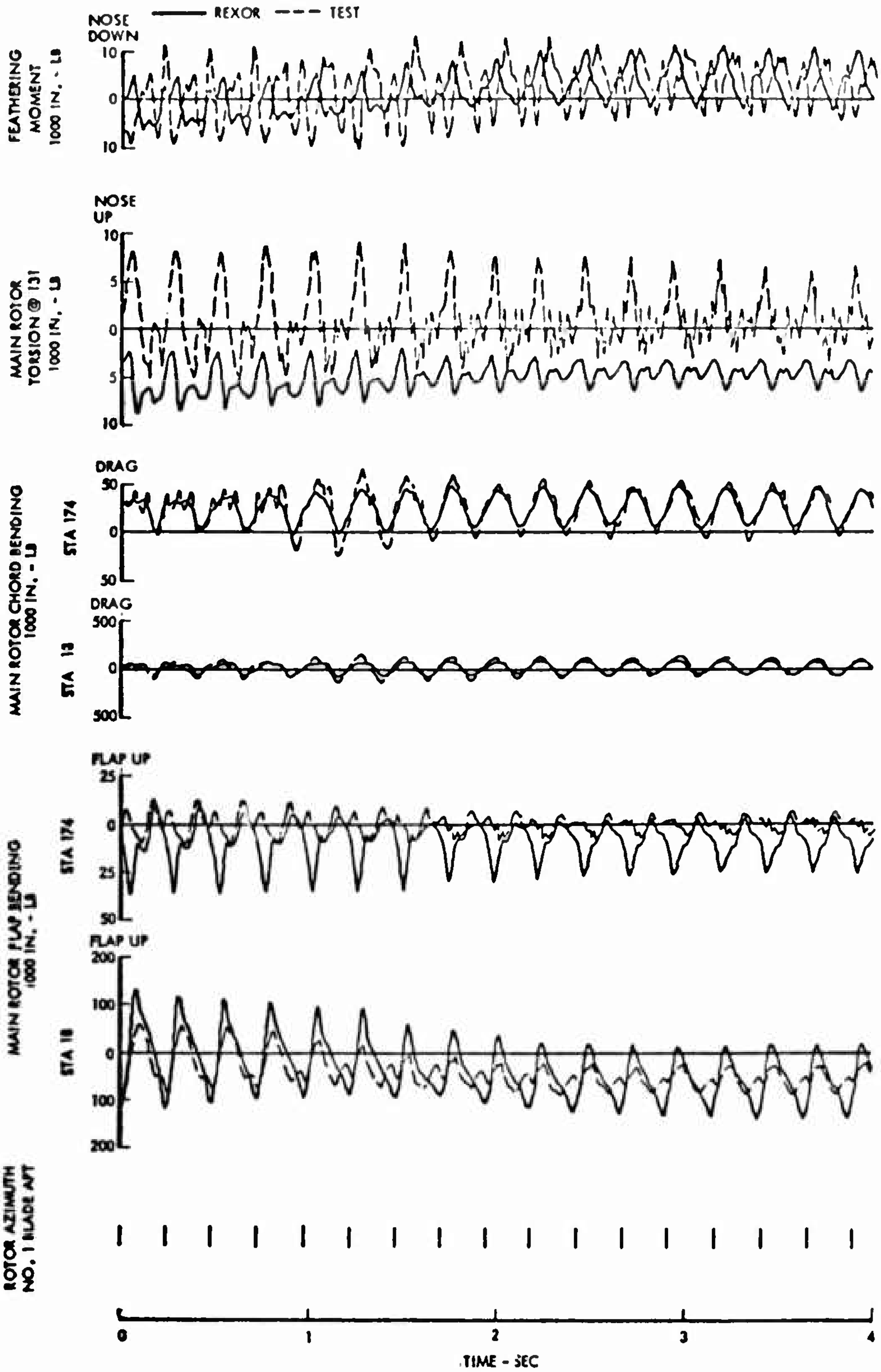
(b)

Figure 50. Continued.



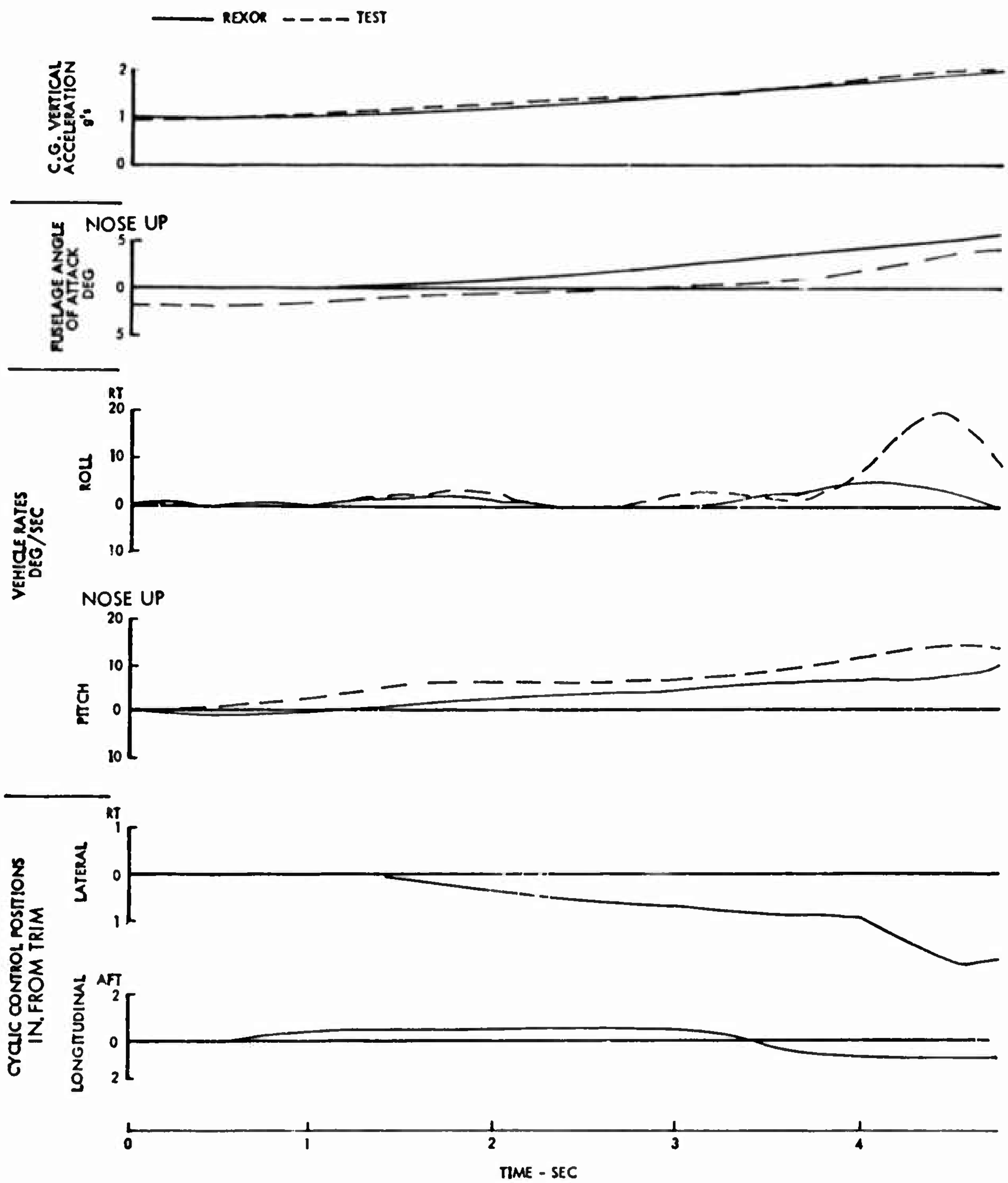
(a)

Figure 51. AH-56A Transient Manuever, Pushover - Case 49.



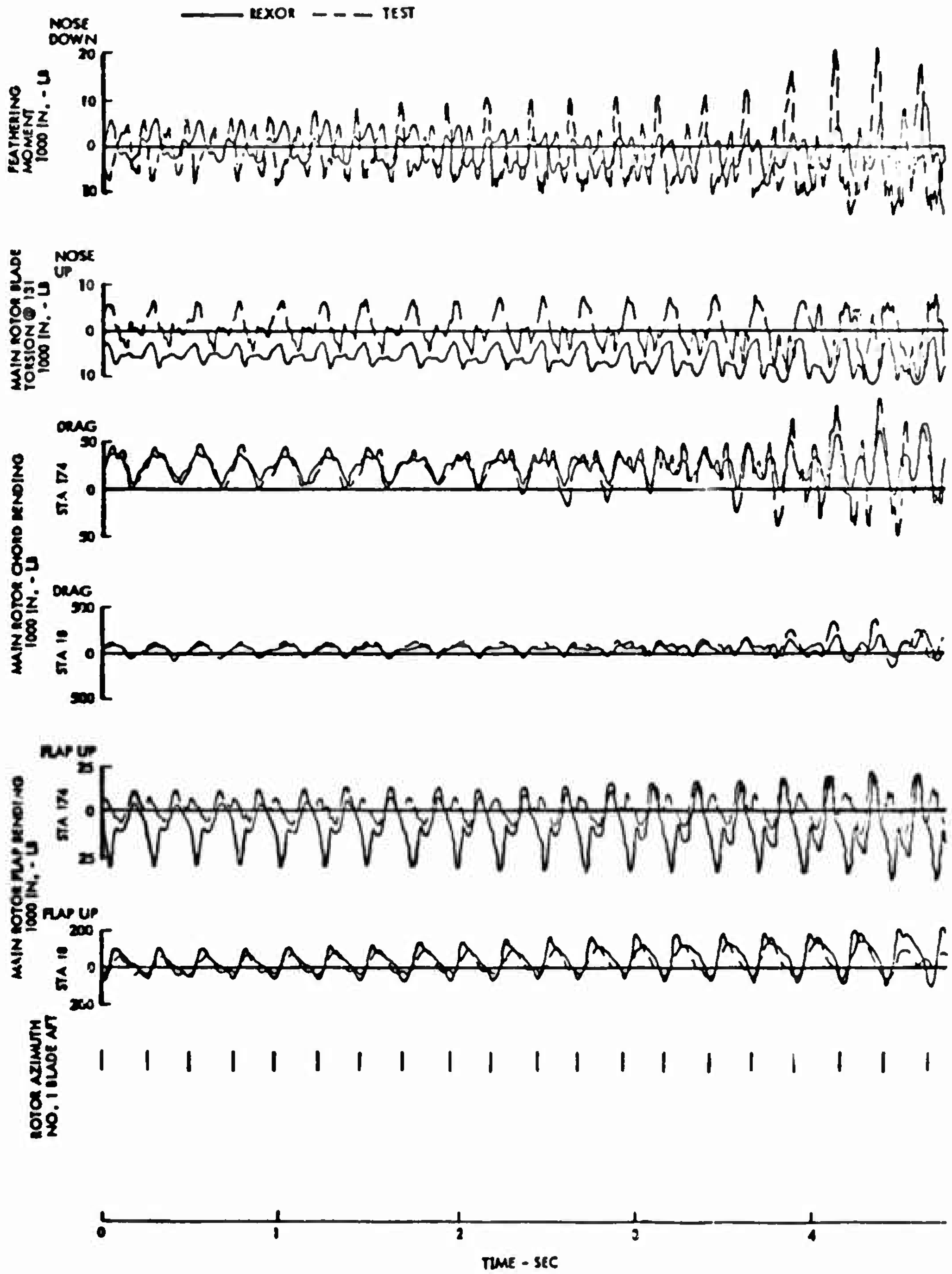
(b)

Figure 51. Continued.



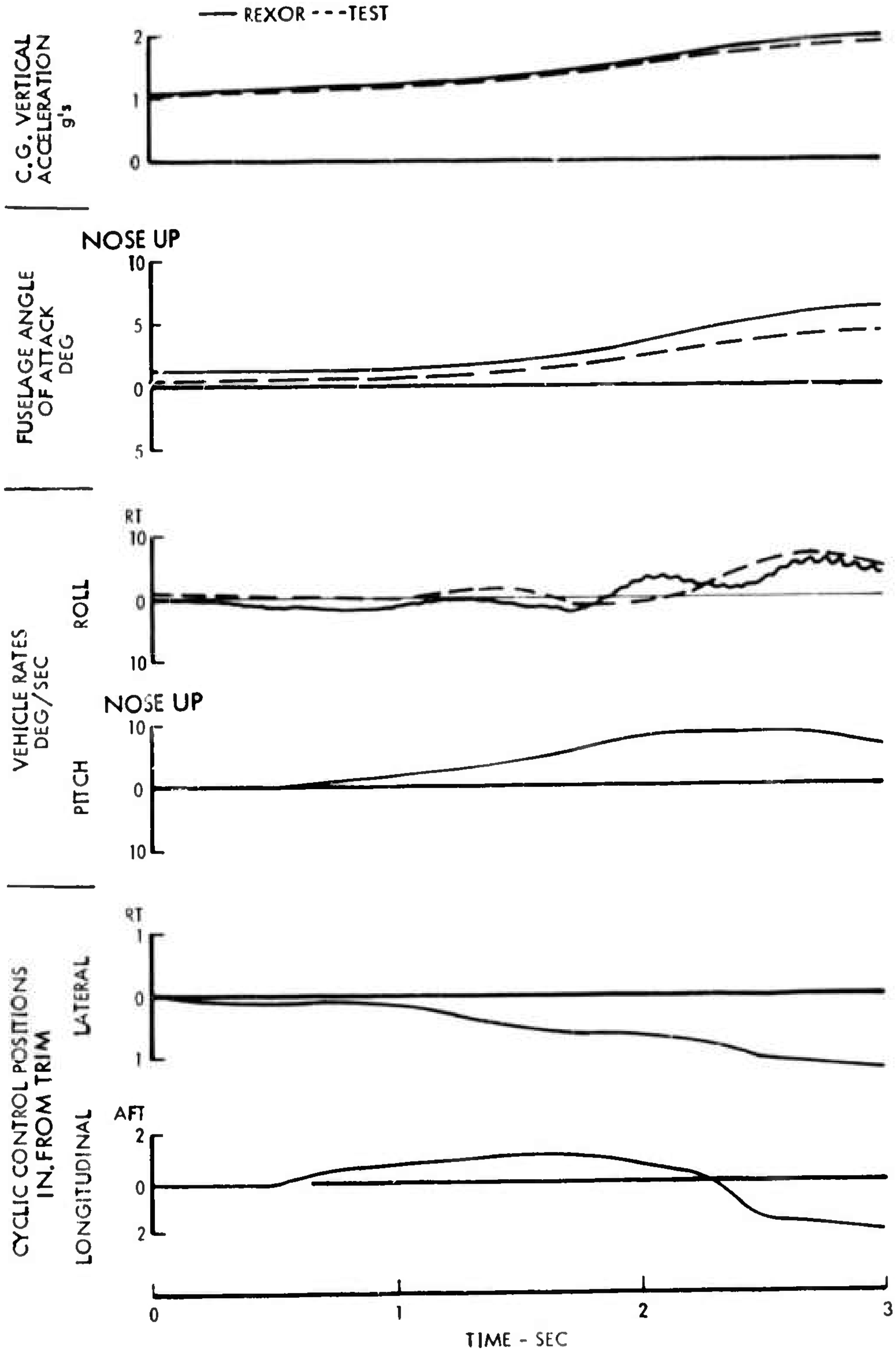
(a)

Figure 52. AH-56A Transient Manuever, Pullup - Case 50.



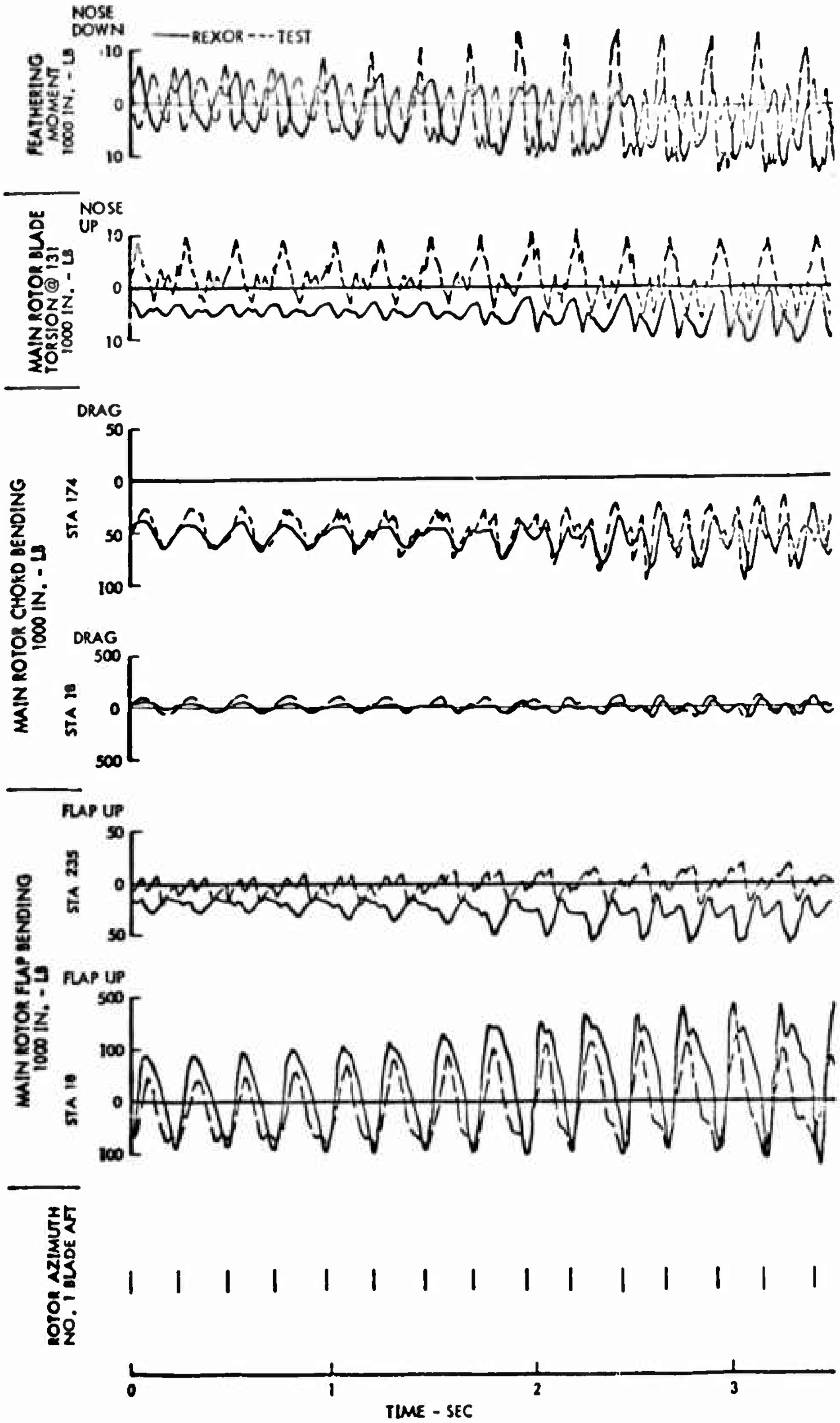
(b)

Figure 52. Continued.



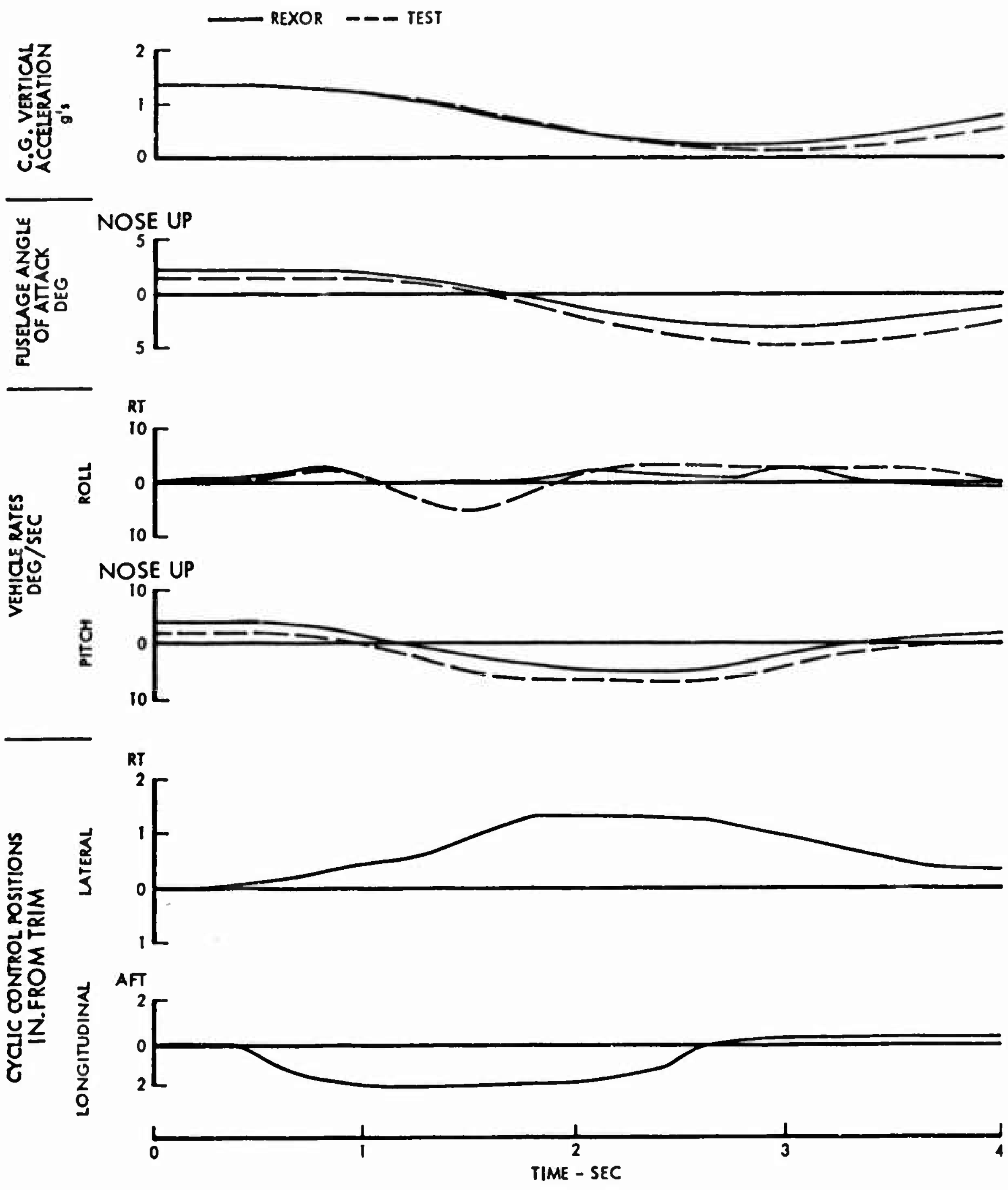
(a)

Figure 53. AH-56A Transient Manuever, Pullup - Case 45.



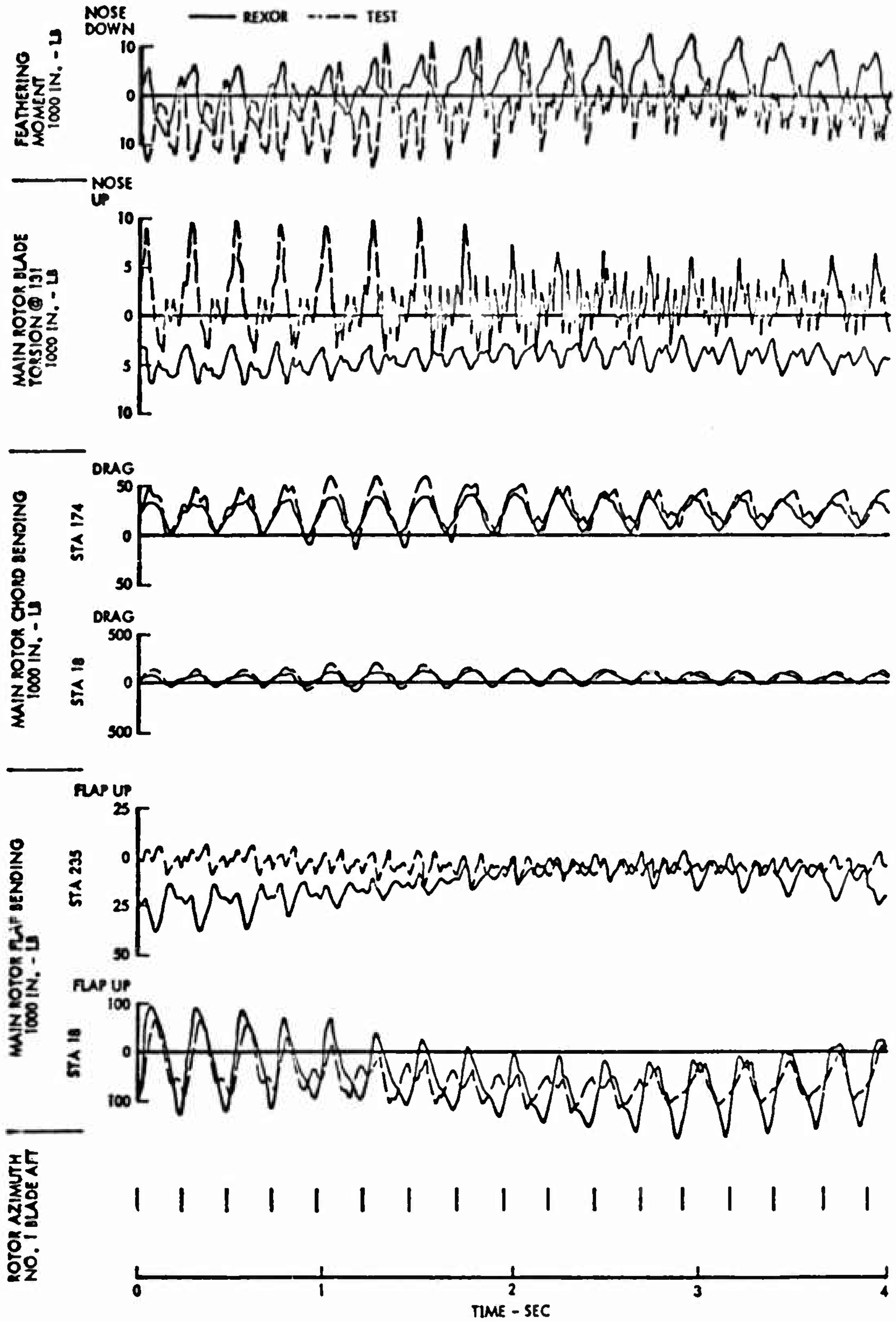
(b)

Figure 53. Continued.



(a)

Figure 54. AH-56A Transient Manuever, Pushover - Case 46.



(b)

Figure 54. Continued.

In some cases, test data was not available for certain parameters or data items. A note on the respective figure indicates that the test data was not available, or another parameter may be substituted in place of the nominal parameters previously described as being selected for correlation. For blade loads, an attempt was made to show correlation of data for loads near the rotor centerline and near the midspan of the blade. The correction previously discussed on the flap moment at station 18 due to the T-T pack was applied to the steady value of this moment in the time histories shown. However, no correction was applied to the oscillatory portion of the station 18 computed time histories, which means they are approximately 9 percent too high.

Correlation With Pullup Maneuvers

In Figures 47, 52 and 53, the three pullup maneuver conditions are shown. Figure 47 is a pullup to approximately 1.7 g at 114 KEAS; Figure 52 to approximately 1.9 g at 169 KEAS; and Figure 53 to 2 g at 180 KEAS. Referring to the (a) portion of these figures, it can be seen that fairly good duplication of the experimental flight conditions is impractical to achieve; it is to be expected that exact duplication of the corresponding rotor loads is not achieved. The (b) portions of these three figures show that excellent correlation of the REXOR computed root and midspan chordwise bending moments is achieved throughout each maneuver. Similarly, good correlation is seen with the station 18 flapwise bending moment. However, the midspan flapping moment correlation is only fair. Again this is due to the limitations imposed by inclusion of only three blade modes. The correlation on feathering moments and torsion moments is only fair at best; however, the predicted overall levels of torsion/feathering loads and their trends agree well with the measured data. It is apparent that poor 2P and higher harmonic torsion and feathering moment correlation is obtained, particularly at the load factor peaks, because dynamic stall was not accounted for in the correlation study.

In the 114 KEAS pullup in Figure 47, a roll rate oscillation occurred which was not present in the experimental time history. This resulted in the computed flap and chord moment rotor loads in some phase shifting and changing in amplitude relative to the test data. Where the predicted roll rate was in good agreement with the experimental data, as in Figures 52 and 53, excellent agreement is seen in these loads.

Correlation With Pushover Maneuvers

The three pushover maneuver correlation cases are shown in Figures 48, 51 and 54. Figure 48 presents a pushover maneuver at 123 KEAS to 0.25 g; Figure 51 at 176 KEAS to 0.5 g; and Figure 54 at 183 KEAS to 0.2 g. These maneuvers are roller-coaster type maneuvers in that they are not initialized from 1 g level flight, but from a positive load factor or pullup condition. Again, referring to the (a) portion of these three figures, it can be seen that there is fairly good agreement between the

REXOR time history of parameters defining the maneuvers and the test response. Some deviation in roll rate is seen in the low-speed case in Figure 48 and in the high-speed case in Figure 54. However, neither of these deviations is as sharp or rapid as for the pullup case in Figure 48; therefore, less effect should be seen on the flap and chord moments. A review of the (b) portion of Figures 48, 51 and 54 shows that the correlation of chord moments is excellent, flap moments is good and torsion and feathering moments is fair. The same influences as discussed previously on feathering moments and torsion moments still hold true.

In the pushover maneuver in Figure 48, it is seen that the 1P station 18 flapping moment at the low load factor, negative angle-of-attack end of the maneuver, is more flap up over the tail than measured. The 1P flapping moment at station 18 is directly proportional to the shaft moment required to balance the pitching moments coming from the body. This discrepancy in flapping moment would therefore be indicative of a more nose-down, aerodynamic pitching moment on the test vehicle body with negative angle of attack than that used in the analysis. Also, referring to Figure 52, the test shaft moment or 1P station 18 flap moment gradient with increased load factor or positive angle of attack appears to be larger than the predicted level. This would tend to indicate that the effective aerodynamic center to center of gravity relationship on the test vehicle wing body was somewhat ahead of that used in the REXOR analysis. This could come from several sources, including definition of the wing body aerodynamic characteristics, main rotor to body inflow or aerodynamic interference effects, and main rotor-propeller inflow considerations and associated flow and loading effects on the horizontal tail.

With this consideration in mind, overall good agreement is obtained in these transient pushover maneuvers between REXOR and flight data on both chord and flap moments. The predicted torsion and feathering moments show similar trends to the test data and are in agreement on general levels of loads.

Correlation With Rolling Transient Maneuvers

Two cases were selected for correlation of transient rolling maneuvers. The correlation data for these two cases is shown in the form of time histories in Figures 49 and 50. Figure 49 shows a right rolling maneuver to 25 degrees per second at an airspeed of 161 KEAS, and Figure 50 shows a left rolling maneuver to 25 degrees per second at 122 KEAS. Both of these maneuvers were conducted from 1 g level flight condition.

Again, referring to the (a) portion of these two figures it can be seen that good duplication of each of these two flight conditions is achieved by the computed time histories. Also, a review of the (b) portion of the figures for these two rolling maneuvers shows that correspondingly excellent correlation is achieved for the chordwise bending moments.

The correlation obtained on the flapping moments, particularly flap at station 18, is good to excellent. The flapping moment correlation for the left rolling maneuver is very good. The higher speed right rolling maneuver, however, shows a higher level of 3P flapping than measured.

Fairly good agreement in the fundamental oscillatory behavior of both the torsion and feathering moments computed by REXOR and those measured in test has been achieved. The predicted amplitudes and phases of the predominant frequency (1P) response in these moments are in very good agreement. As would be expected, due to the restricted number of modes used in the analysis, the test data shows lower amplitude, higher frequency responses which are not duplicated by the REXOR time histories.

XH-51A STEADY-STATE CORRELATION RESULTS

Four XH-51A cases were selected for correlation with the REXOR program. These cases include four steady load factors ranging from 1.03 g to 1.69 g, all at an airspeed of 170 KEAS and at a collective setting of 3 degrees measured at the blade root. The results of these studies are presented in Figures 55 through 63.

Figures 55 and 56 show the harmonics of hub and blade flapwise moments as a function of load factor at rotor stations 6 and 115. Figures 57 and 58 present the chord moments for these conditions at stations 5 and 45, and Figure 59 presents the harmonics of feathering moment. Figure 60 presents a comparison of the corresponding trim angles for each of these load conditions. In addition to the harmonic data vs load factor, harmonics of flapping and chord moments as a function of rotor station are given in Figures 61, 62, and 63.

In general, a review of these data shows that much of the same discussion as on the AH-56A steady-state correlation is applicable here. The predicted chord moments and 1P flapping moments show good agreement with measured data. The feathering moment exhibits much the same characteristics as on the AH-56A, and the degree of correlation is similar.

One item made evident by the study, which has primary effect on the blade and hub steady flapping moments, is an apparent shortcoming in REXOR in the accounting of the energy contribution of the centrifugal loads into the blade mode generalized forces. The rotor blade on the XH-51A is sheared forward so that the 1/4 chord at the blade attachment to the cuff (station 27.85) is approximately 10 percent of the chord forward of the feathering axis. In the REXOR program, the centrifugal loads and the work done by these loads are treated independently in that they are not incorporated as equivalent generalized stiffness in the several blade modes. This was done to permit the time variation of the structural principal axes on the blade relative to the centifugal force field and thus enhance its capability in dynamic stability computations by inclusion of these periodic effects.

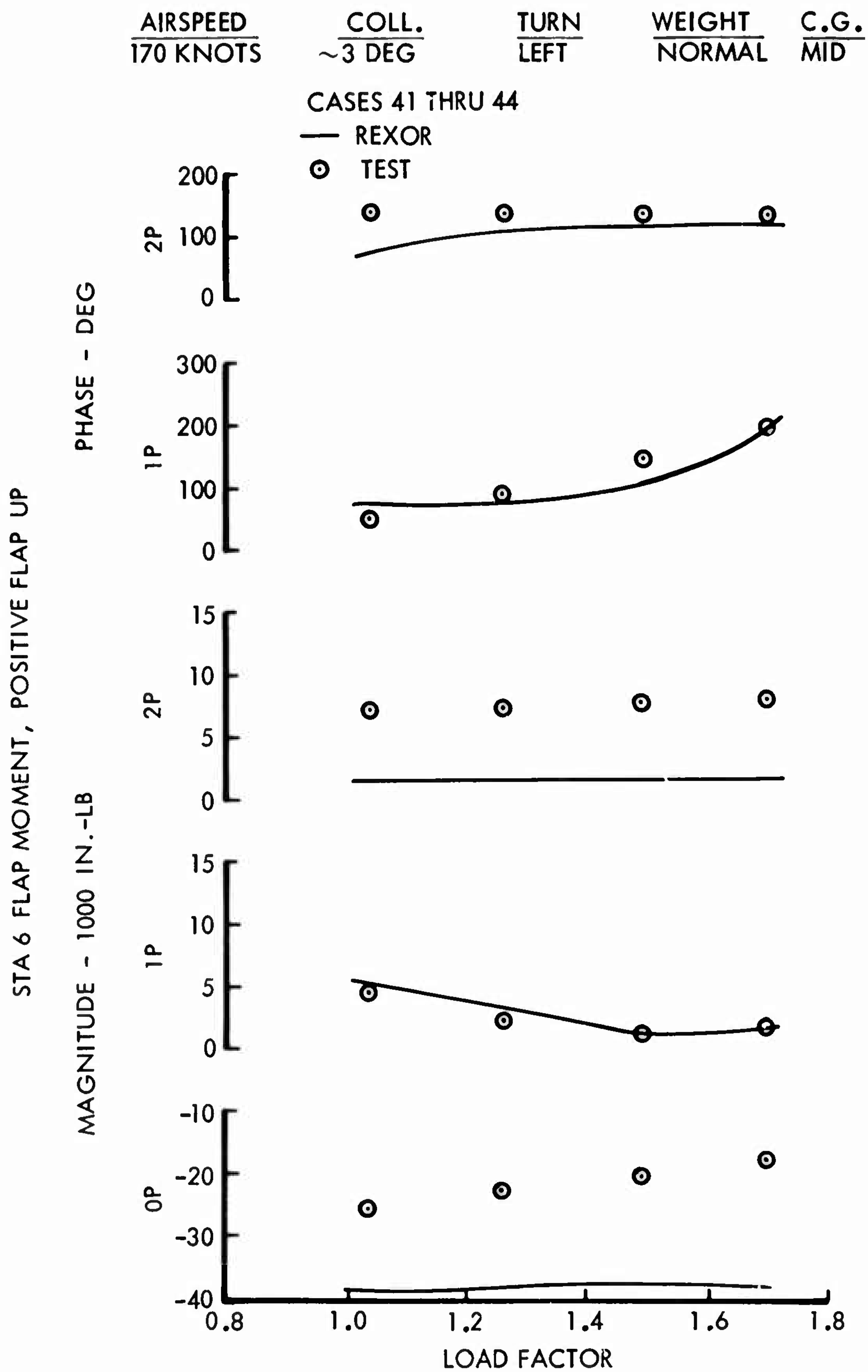


Figure 55. XH-51A Sta 6 Flap Moment vs. Load Factor.

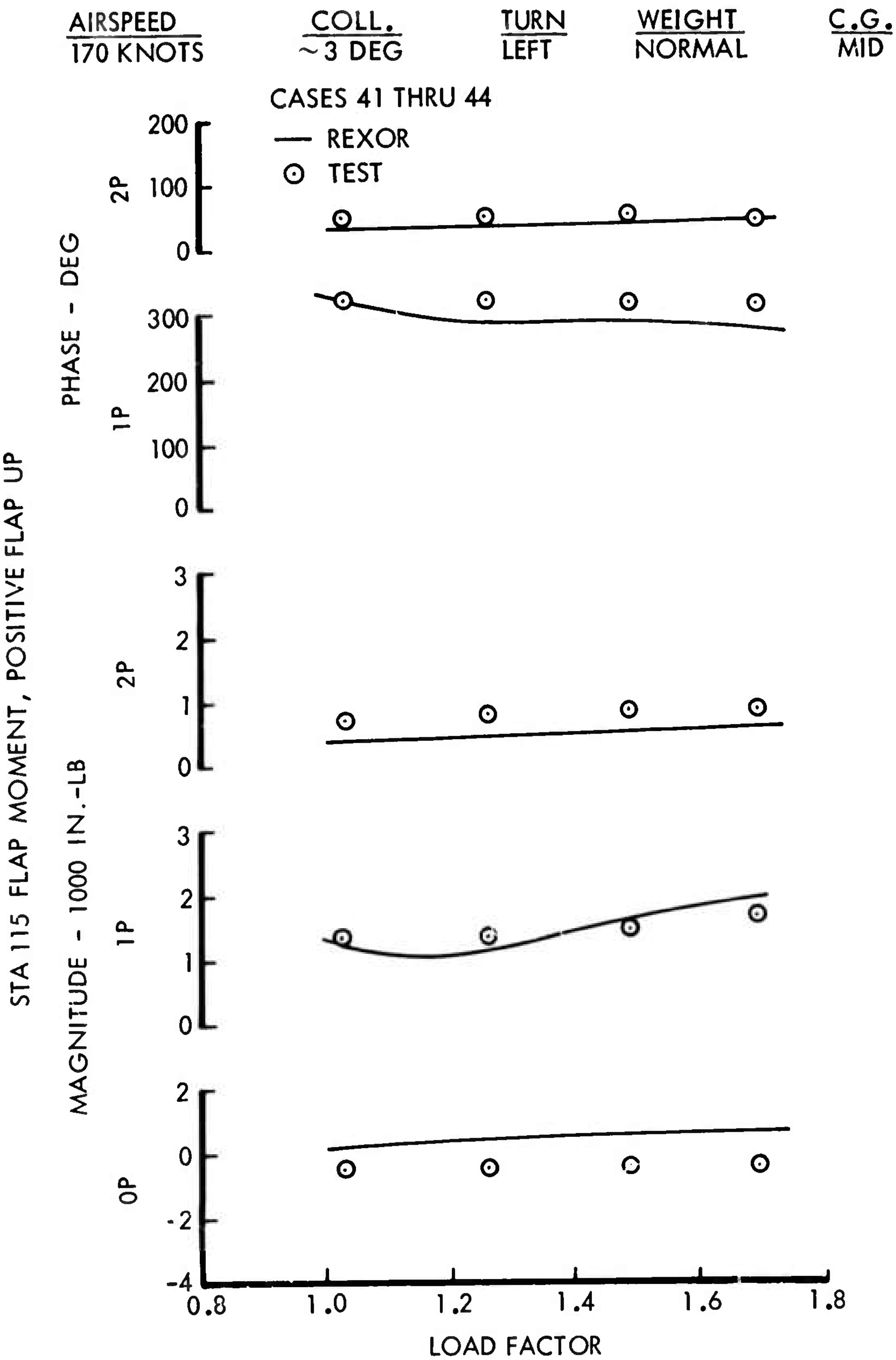


Figure 56. XH-51A Sta 115 Flap Moment vs. Load Factor.

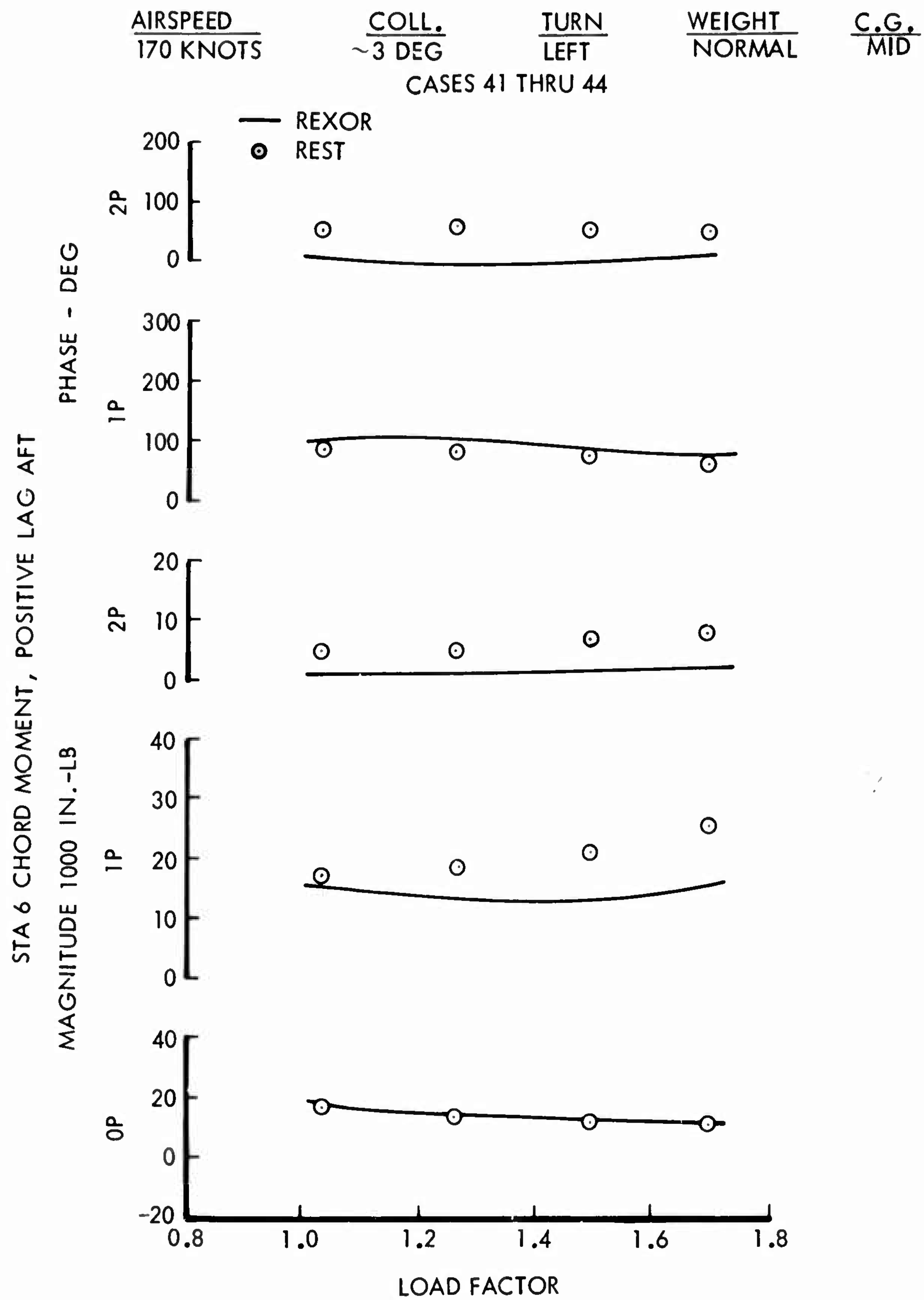


Figure 57. XH-51A Sta 6 Chord Moment vs. Load Factor.

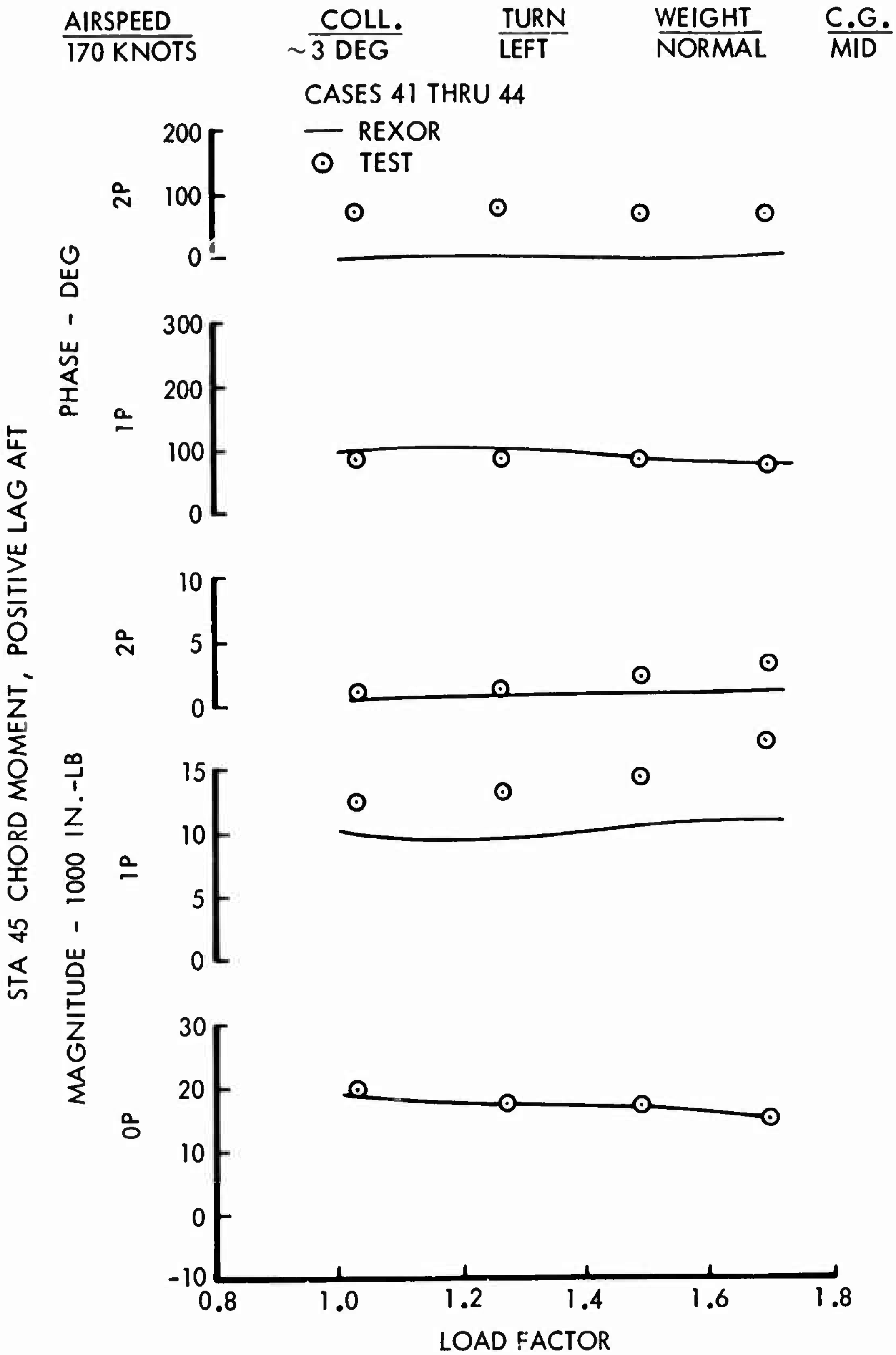


Figure 58. XH-51A Sta 45 Chord Moment vs. Load Factor.

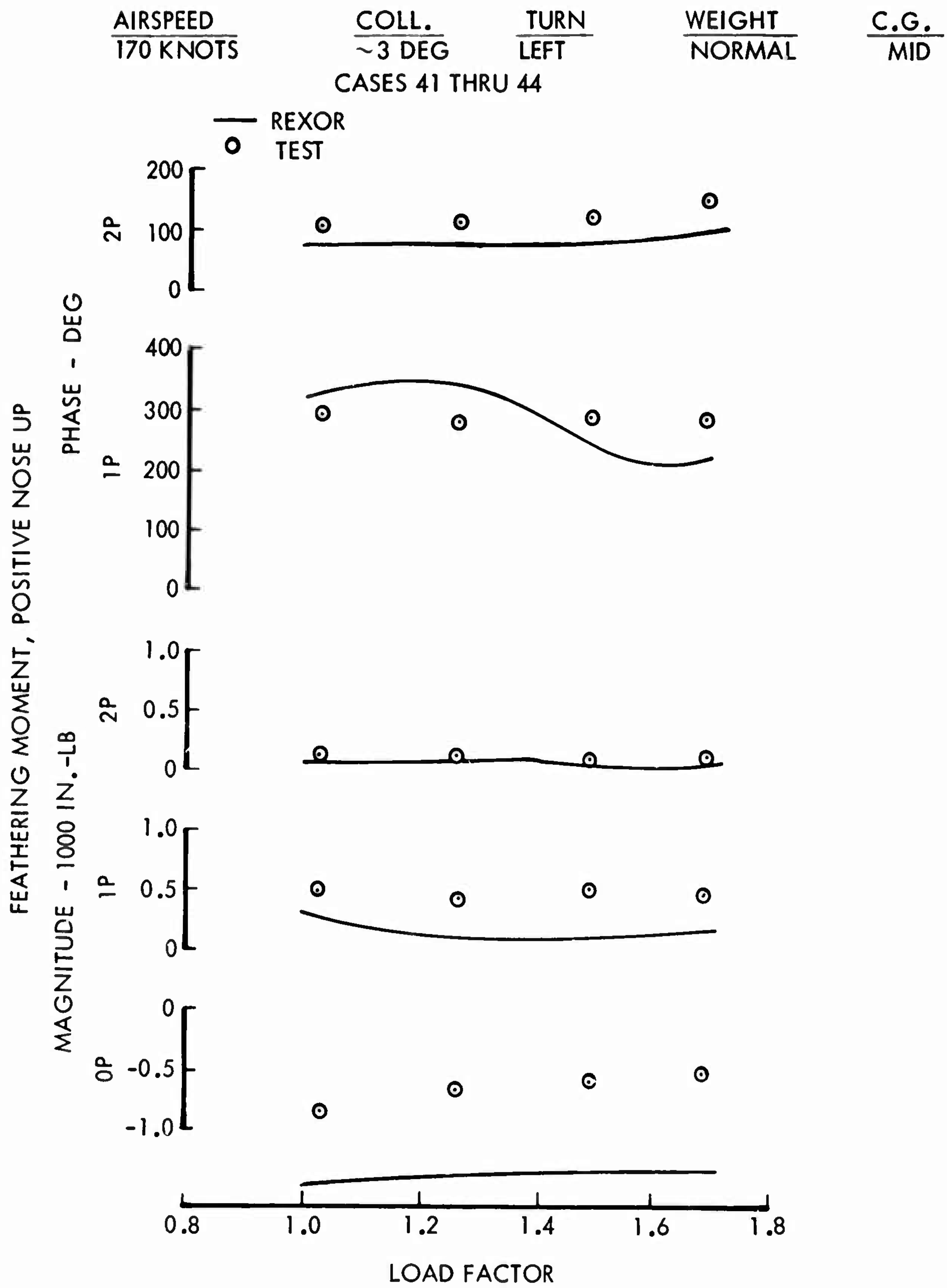


Figure 59. XH-51A Feathering Moment vs. Load Factor.

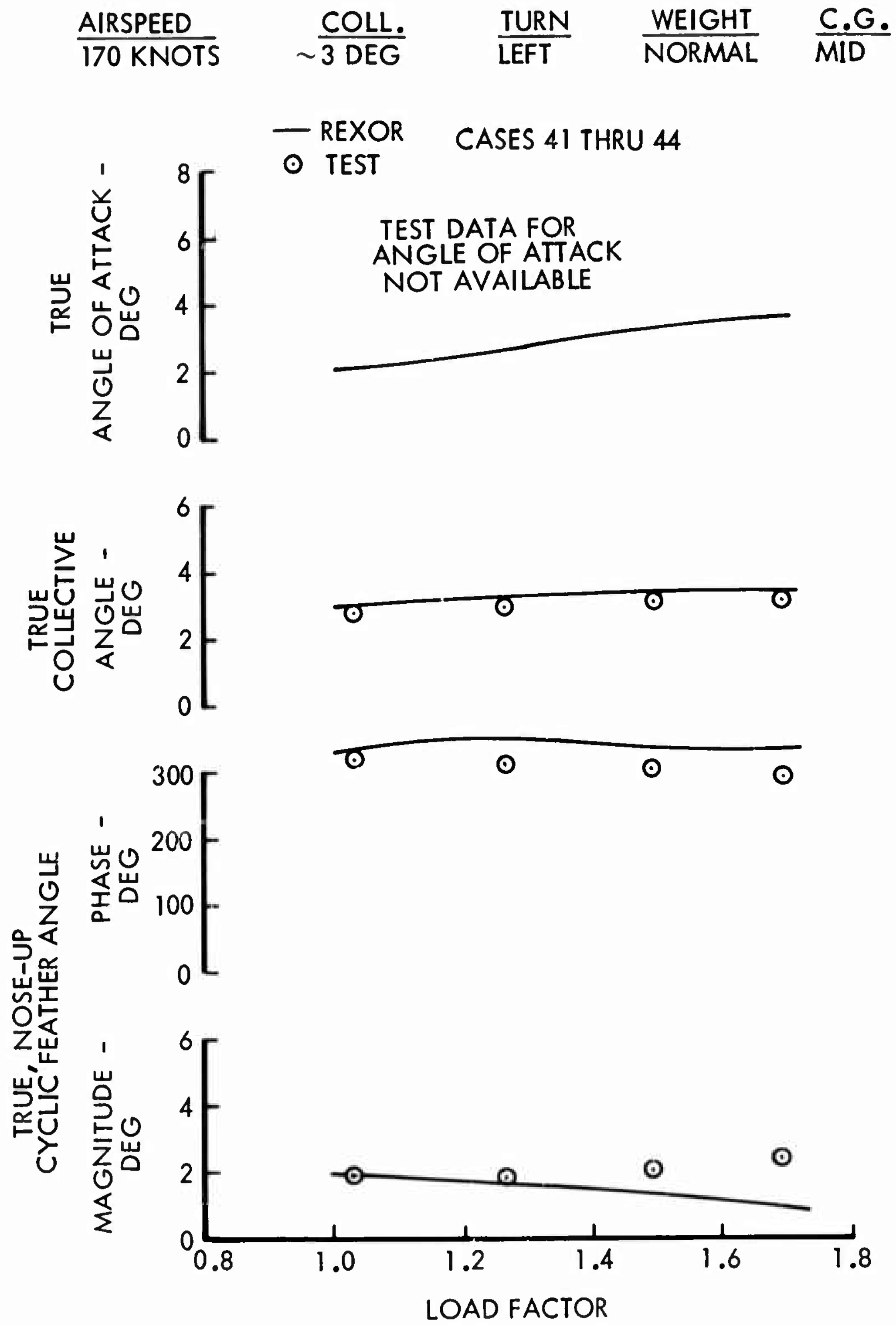


Figure 60. XH-51A Main Rotor Trim Angles vs. Load Factor.

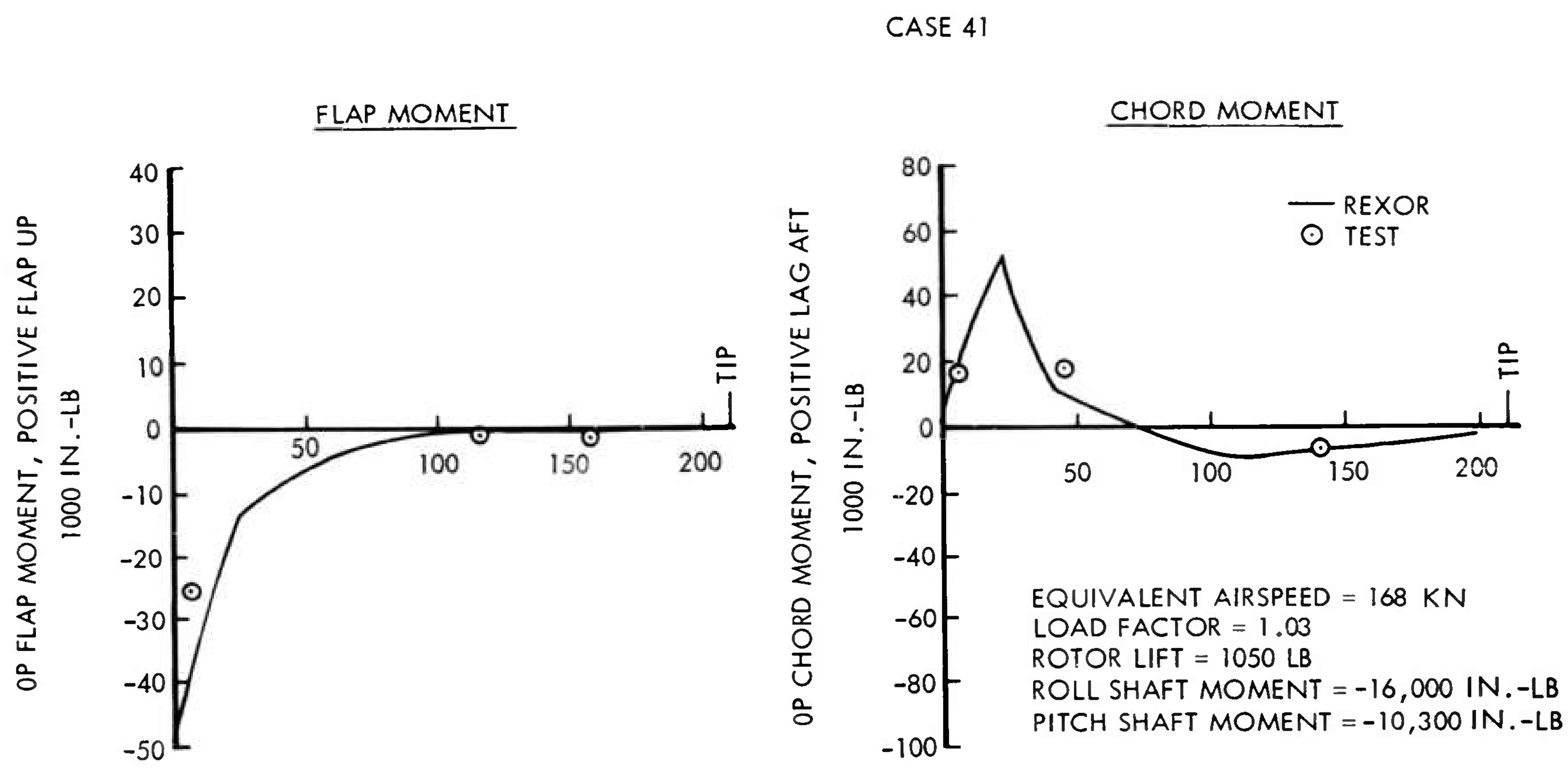


Figure 61. XH-51A OP Flap and Chord Moment vs. Blade Station.

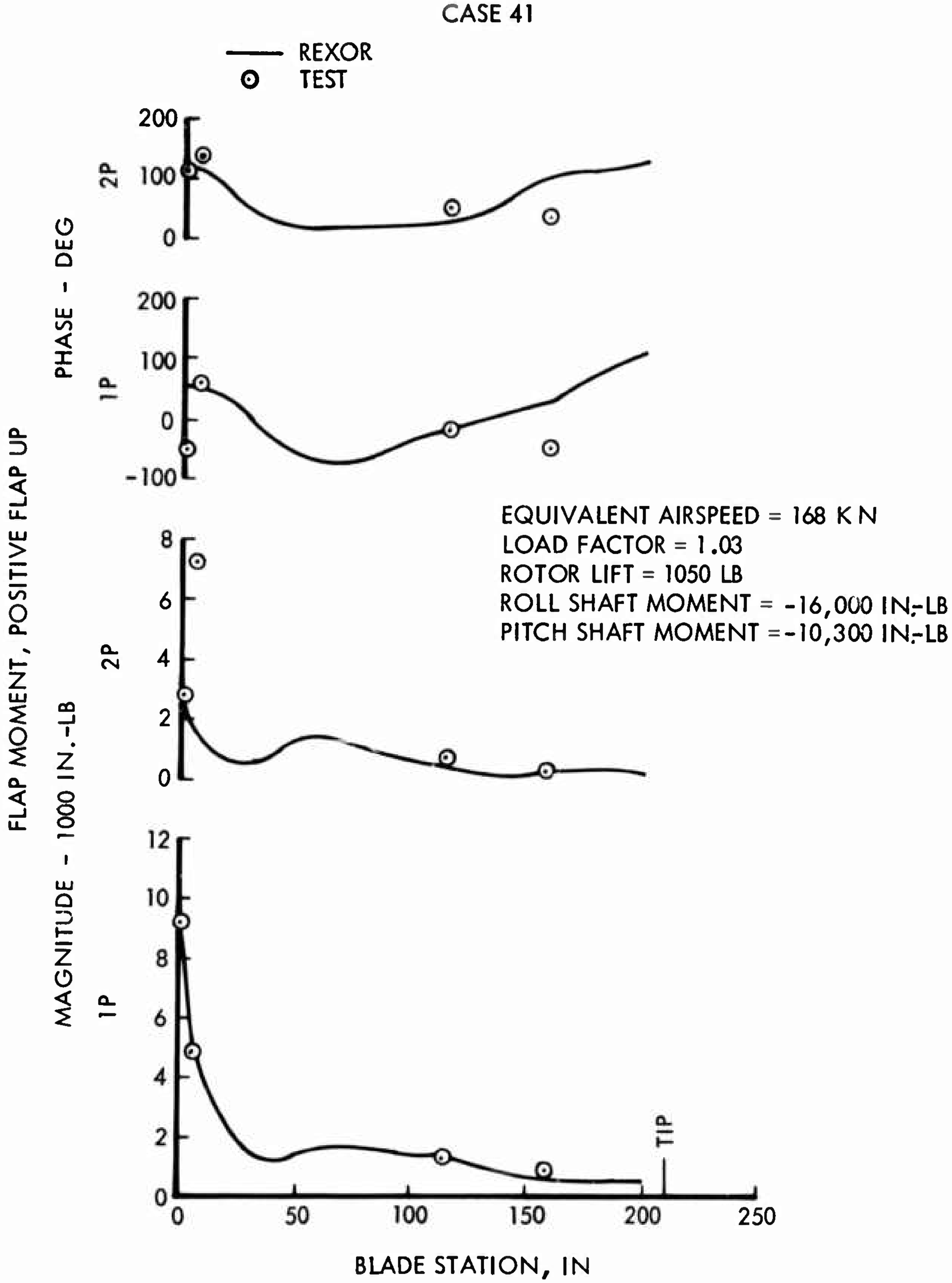


Figure 62. XH-51A 1P and 2P Flap Moment vs. Blade Station.

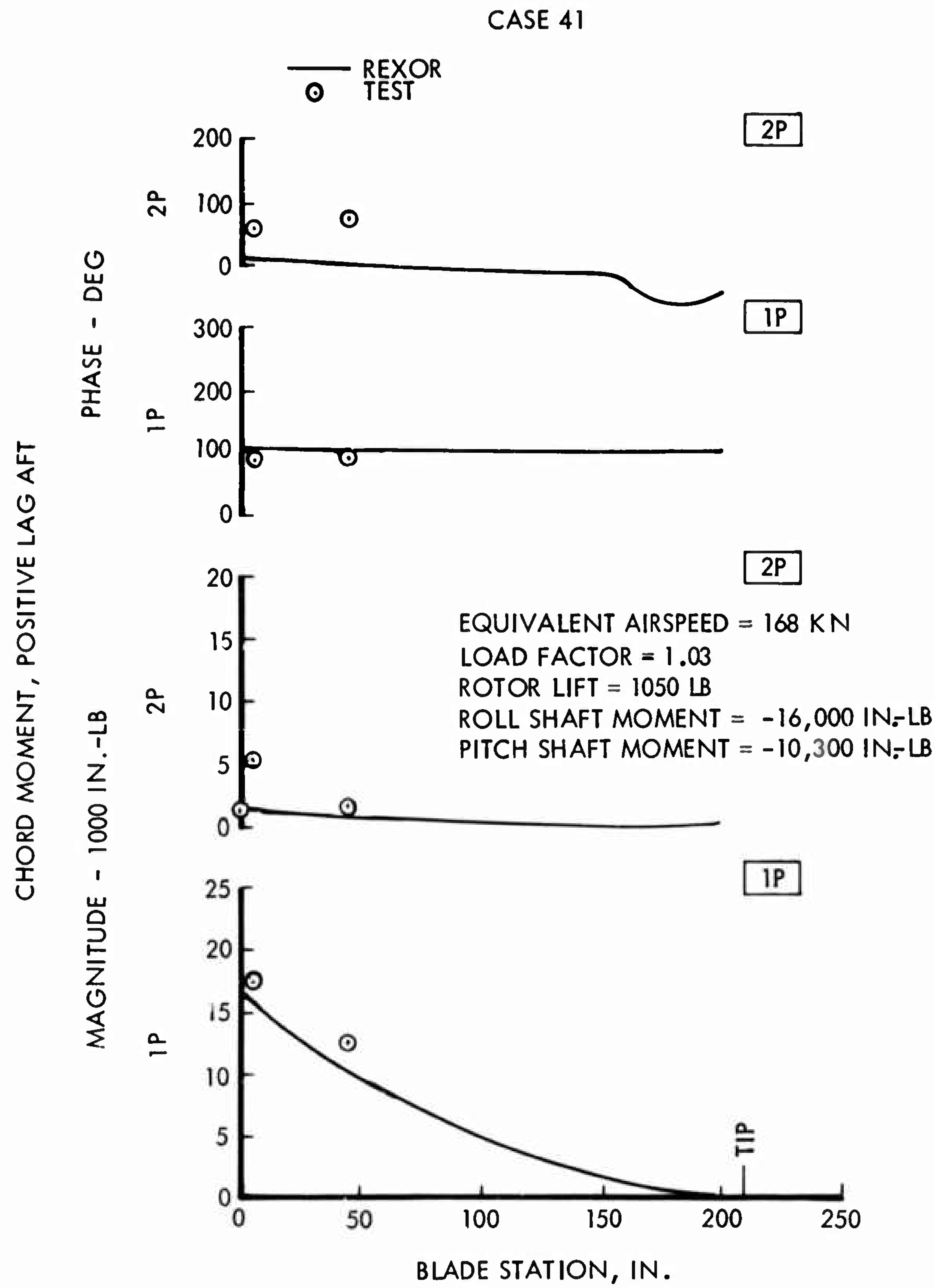


Figure 63. XH-51A 1P and 2P Chord Moment vs. Blade Station.

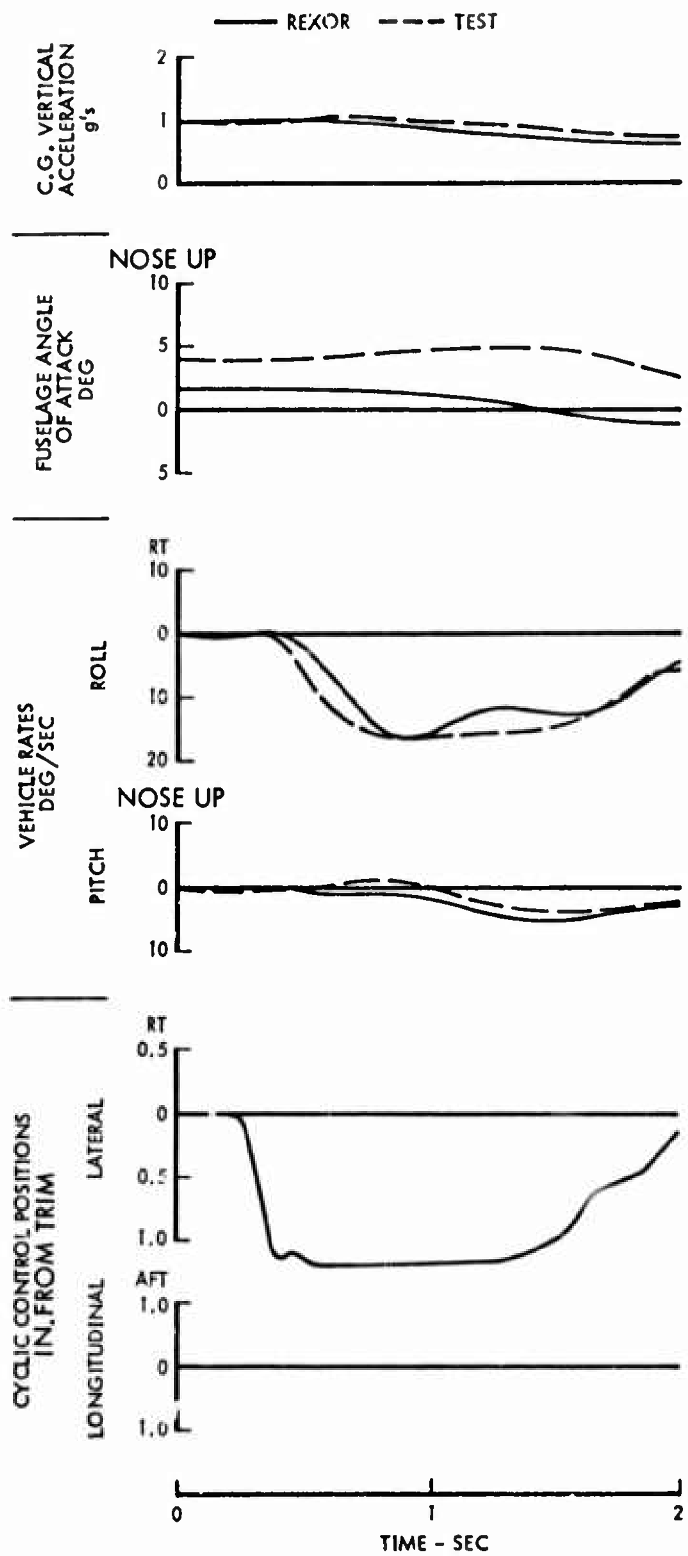
The shortcoming in the analysis was in the computation of the energy contribution due to the centrifugal loads. This computation requires computing the spanwise or radial motion of each blade element. The computation for this is based on the computed span motion of a reference line with a transformation then being made to the center of gravity. This reference line was originally selected as the quarter-chord which is an improper choice. The reference line should be the neutral axis of the blade. This improper choice of axes results in errors in the work done by the centrifugal force in the various modes, particularly in a system as in the XH-51A blade description where large differences can exist between the neutral axis, one-quarter chord and blade center of gravity. The correction to the program is relatively simple but was not incorporated in this correlation effort since the contract called for taking the existing REXOR program and performing the correlation. The result of this correction, however, would provide a much better determination of the steady deformed shape of the blade. Differences in the steady shape of the blade, particularly in flapping, have been noted between REXOR and the Rotor Blade Loads program which are not totally attributable to the restrictions imposed by three blade modes. This improved representation should resolve these differences to a large degree and therefore enhance the prediction of steady flapping moments by the REXOR program.

XH-51A TRANSIENT MANEUVERING CORRELATION RESULTS

Four XH-51A transient maneuvering cases were also selected for correlation. The cases included a left rolling maneuver at 129 KEAS, a right rolling maneuver at 161 KEAS, and pullups at 139 and 162.5 KEAS. Correlation data for each of these cases are presented in Figures 64, 65, 66, and 67 respectively. The data presented is similar to that presented for the AH-56A transient maneuvers. That is, the (a) portion of each figure shows maneuver condition data, and the (b) portion of each figure presents time histories of predicted and measured blade loads. Flapping moment at station 6 was not measured during any of the experimental transient maneuvers.

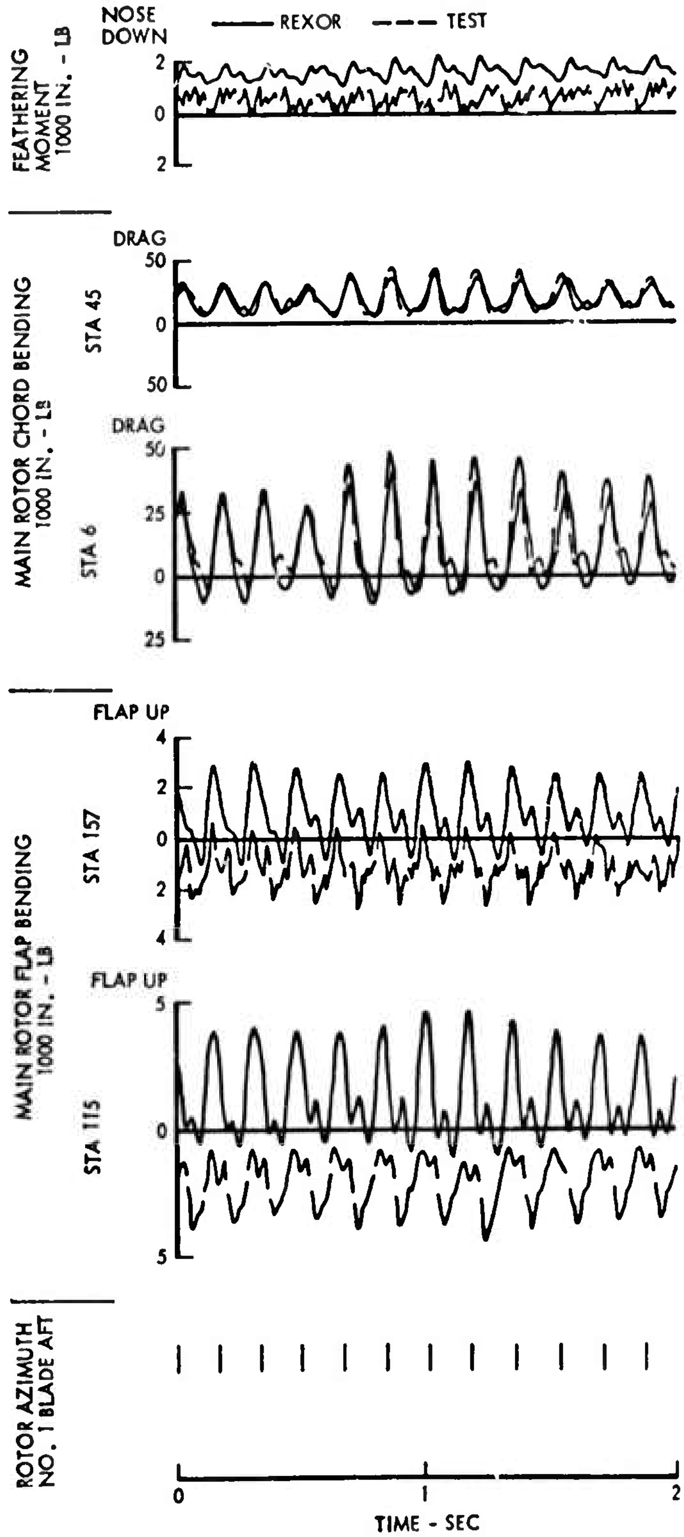
Referring to the (a) portion of Figures 64 and 65, good duplication of the left and right rolling maneuvers is achieved. The predicted angle of attack in each case, however, is on an average approximately 3 degrees lower than measured. It is not clear whether this is a real difference or an error in the measured data. The (b) portion of these two figures shows that very good correlation is obtained in the levels of the fundamental responses of each of the loads compared.

It is interesting to note the predicted chord moment at station 6, for the right rolling maneuver shows very good agreement up to the peak load measured during the maneuver and then remains at a higher level than that



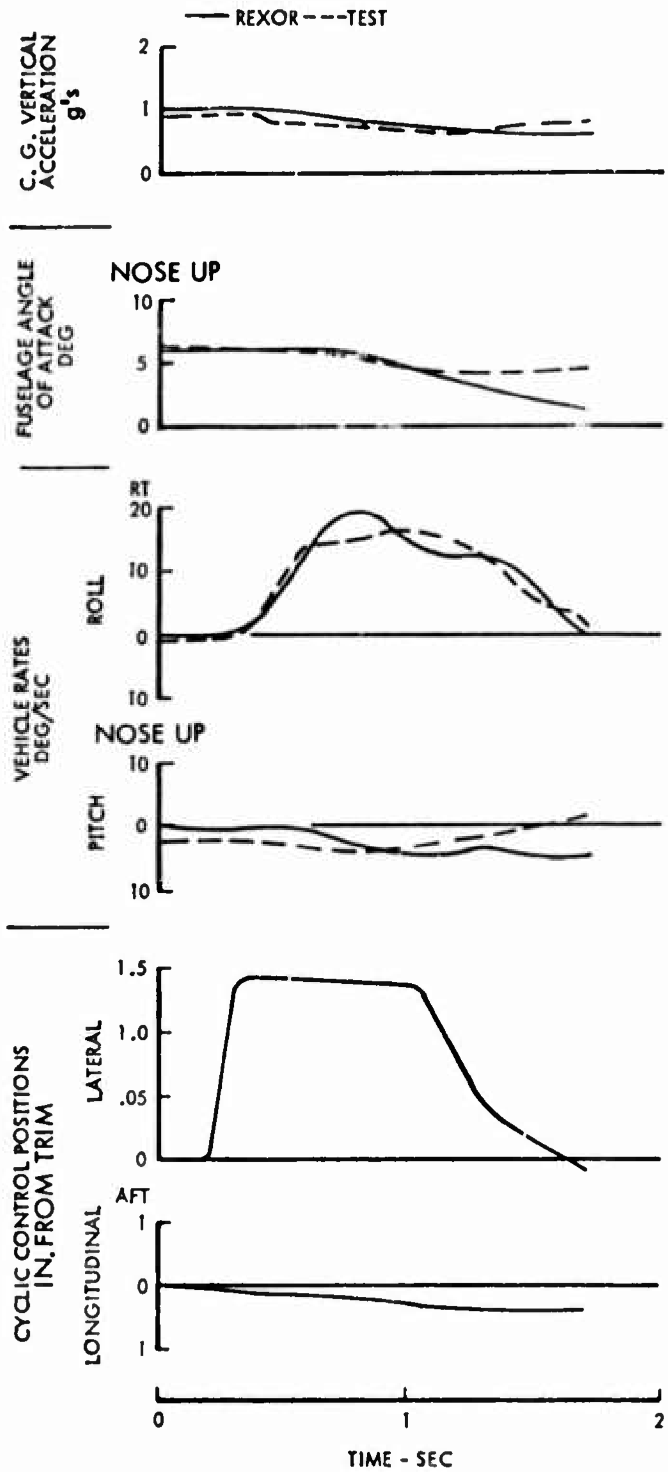
(a)

Figure 64. XH-51A Transient Manuever, Left Roll - Case 53.



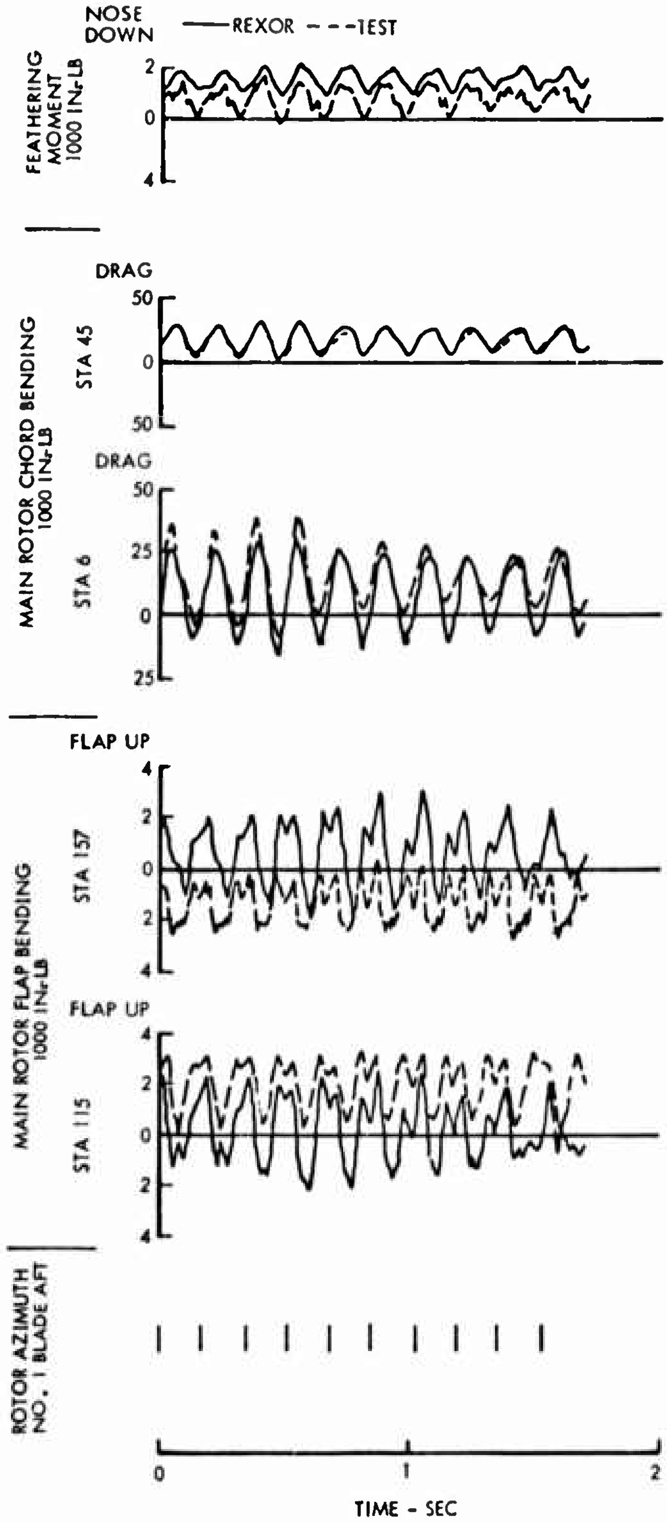
(b)

Figure 64. Continued.



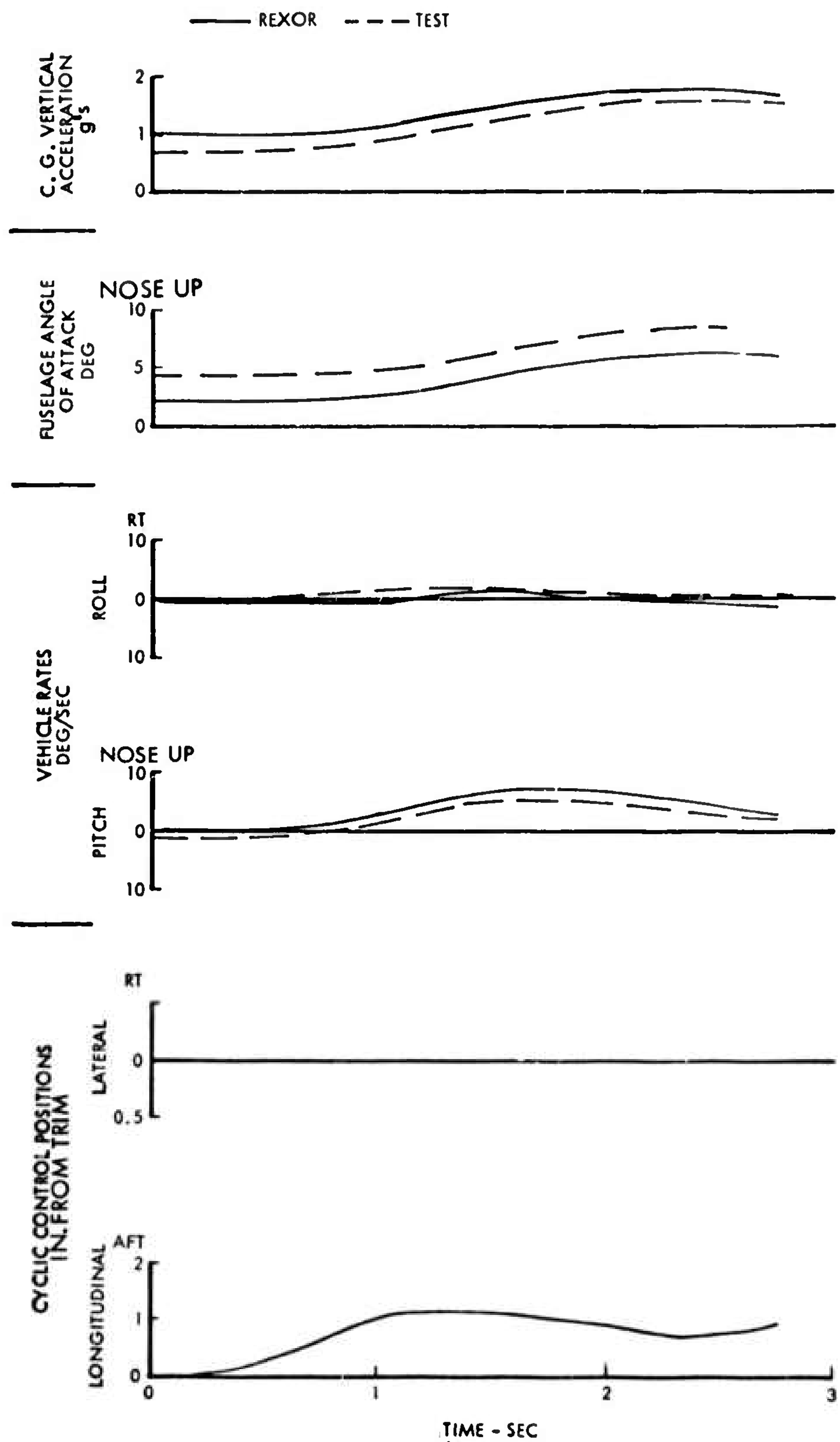
(a)

Figure 65. XH-51A Transient Manuever, Right Roll ~ Case 54.



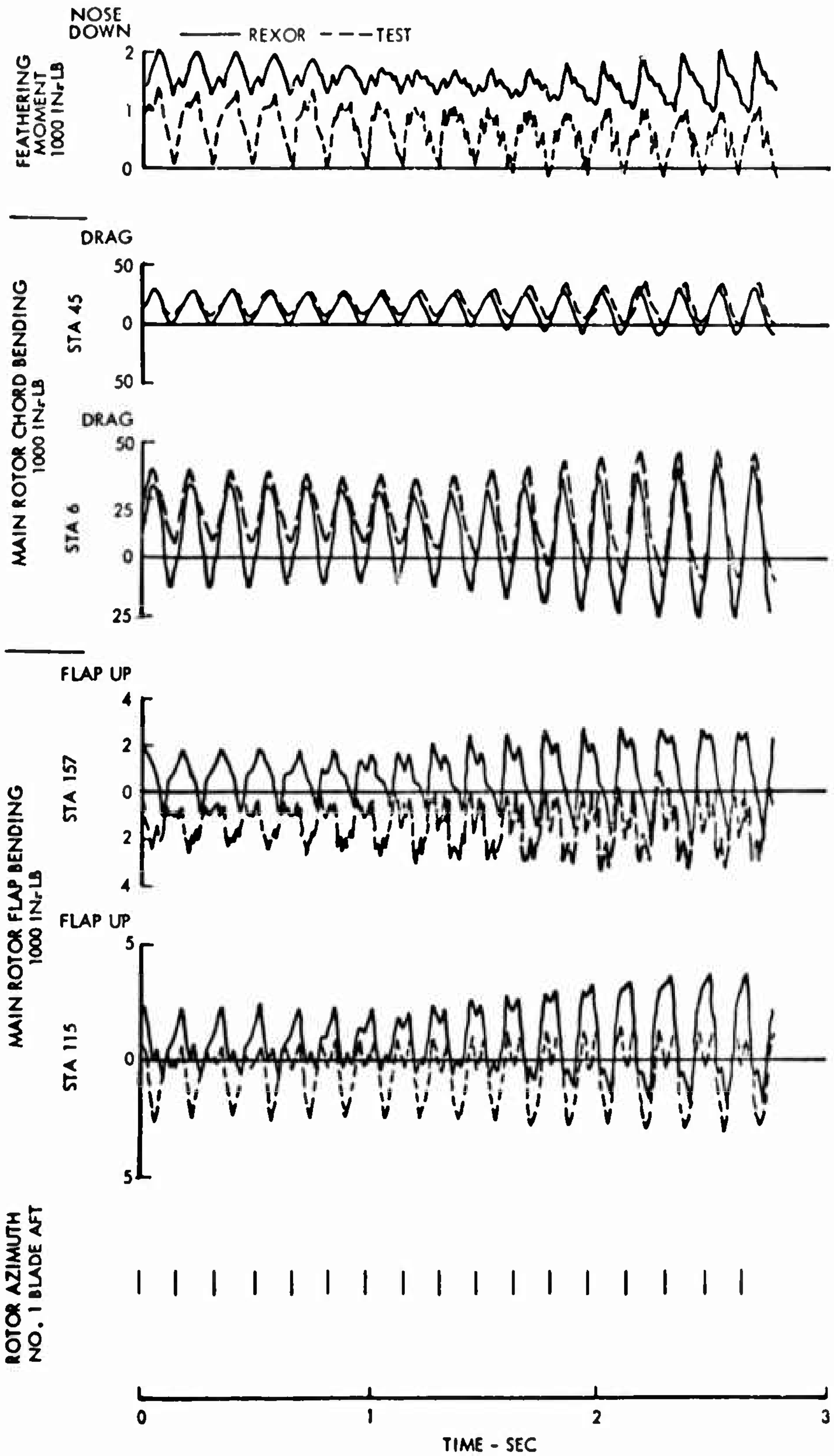
(b)

Figure 65. Continued.



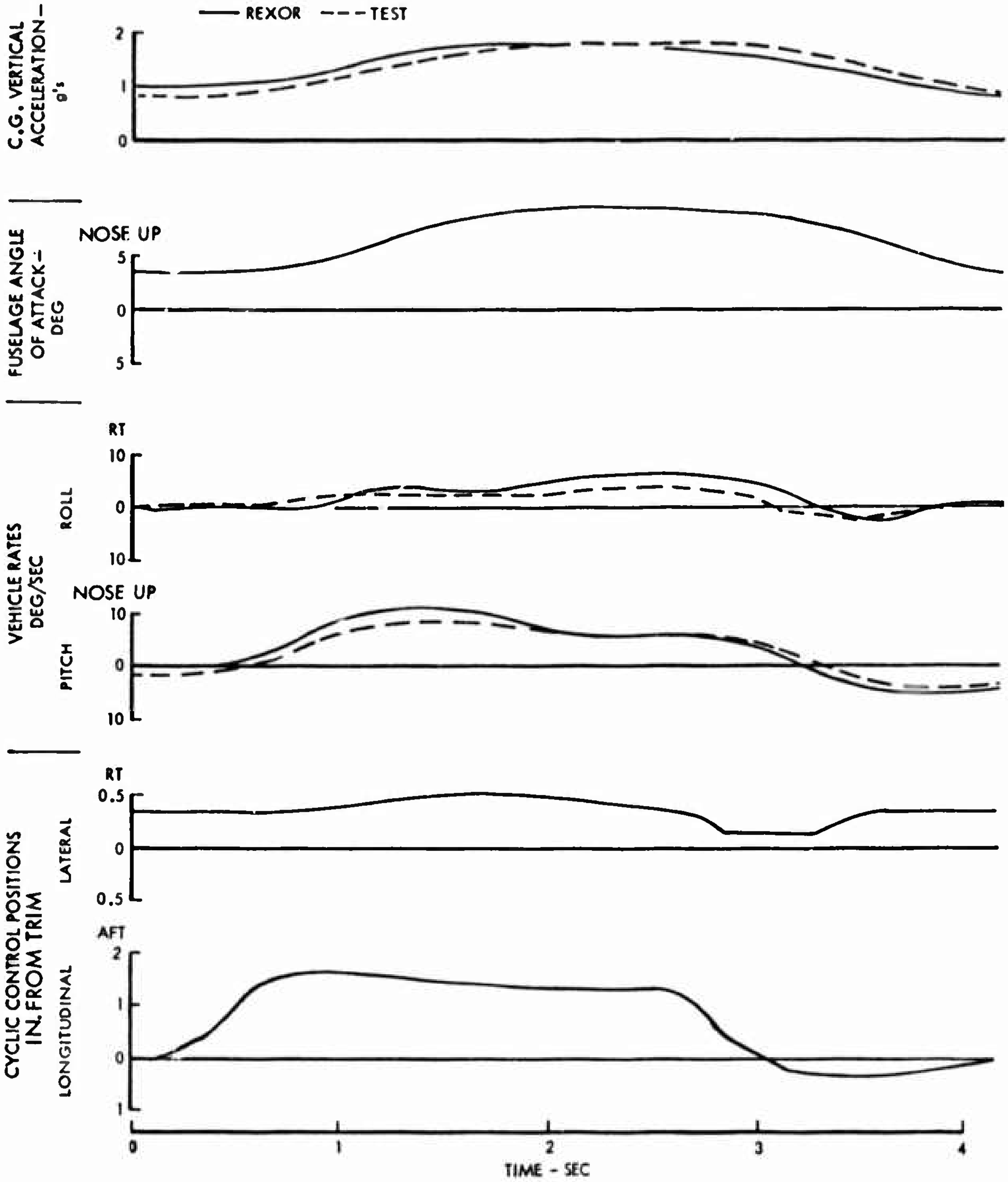
(a)

Figure 66. XH-51A Transient Maneuver, Pullup - Case 55.



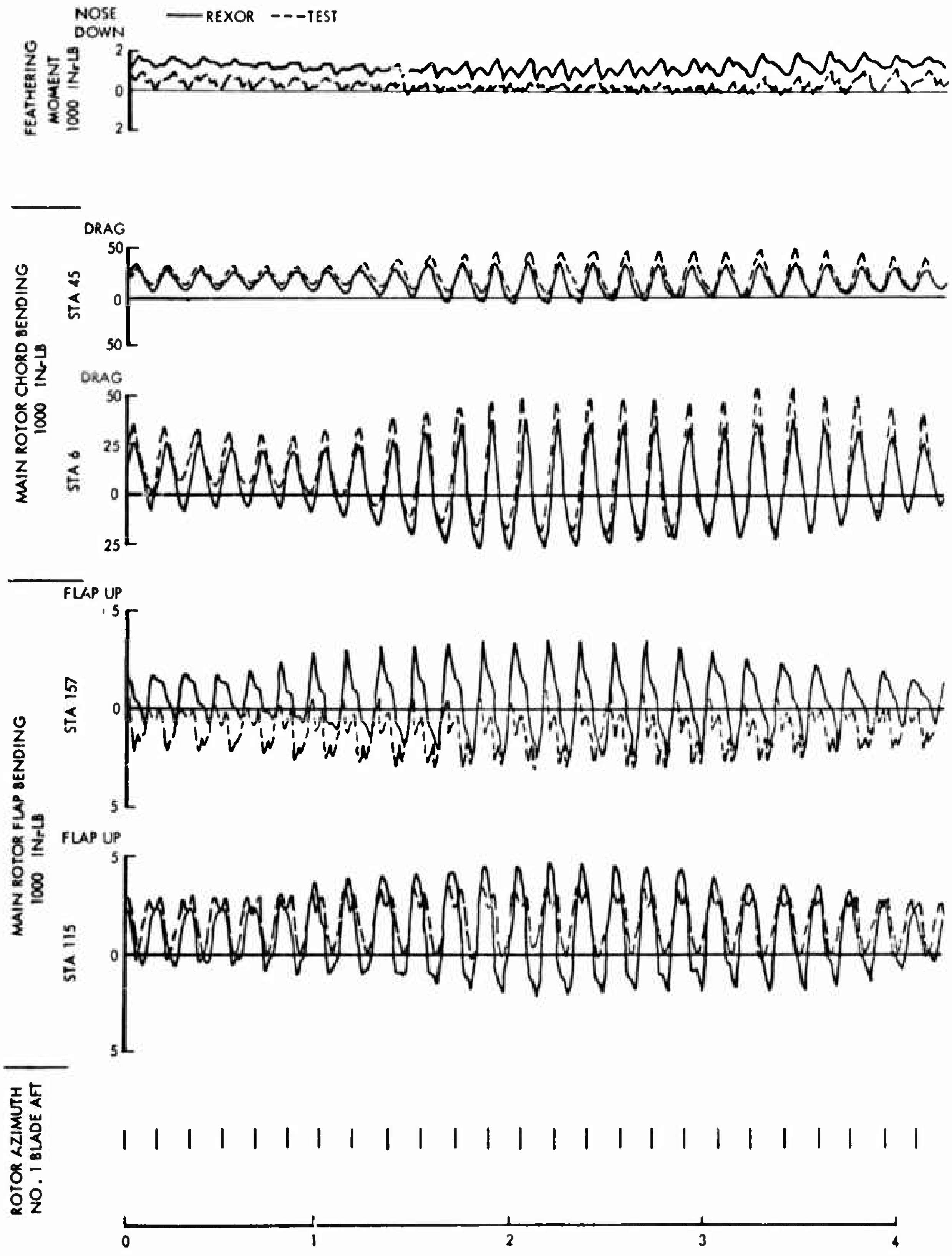
(b)

Figure 66. Continued.



(a)

Figure 67. XH-51A Transient Maneuver, Pullup ~ Case 56.



(b)

Figure 67. Continued.

measured during the time history. The predicted chordwise bending at station 45, however, shows nearly precise duplication of the experimental result. The left rolling maneuver exhibits a similar characteristic with a less pronounced difference in the station 6 chordwise moment.

The two XH-51A pullup maneuvers are shown in Figures 66 and 67. The pilot technique for making pullup maneuvers in the XH-51A test program was to initiate the maneuver from a mild pushover. The REXOR analysis does not currently include trim capability in pushover maneuvers, so the load factors variation shows the same trends as the test data, but is not identical. As in the case of the AH-56A, correlation of chord loads is excellent and the correlation of flap loads is fair. The feathering-moment correlation is better than that on the AH-56A.

CONCLUSIONS

The results of the correlation effort between REXOR and AH-56A and XH-51A flight data lead to the following conclusions:

- The REXOR analysis, which has been developed as an interdisciplinary method for predicting performance, dynamic stability, and handling qualities, can also be successfully applied to predict steady-state and transient maneuver rotor loads and corresponding flight envelope limits.

- The REXOR analysis, as applied for predicting both steady-state and transient rotor loads, accounts for the full coupling of individual rotor blades to each other through the hub and control system dynamics to the fuselage.

- The study has demonstrated the capability of REXOR to simulate any specific actual flight condition, thus permitting prediction of blade loads for these conditions.

- The study has demonstrated the flexibility of the REXOR analysis in application to different helicopter configurations. In this report, successful application of the analysis has been carried out for two helicopters - the AH-56A and the XH-51A.

- Results of the investigation showed excellent agreement between REXOR and flight test data for blade chordwise loads in both steady-state and transient maneuver flight. Within the limitations imposed by including only two flap bending modes, good correlation was achieved between predicted and measured flapwise bending moments.

- The feathering moment at the blade root and outboard blade torsion loads gave only fair agreement in steady-state and AH-56A transient maneuver cases. The reason for the discrepancy is discussed within the text and is partially due to difficulties in determining the proper blade trim tab setting for the analysis.

- The correlation studies revealed that the accuracy of prediction with the REXOR analysis was strongly dependent upon precise definition of the relative locations of the blade feathering axis, center of gravity axis, neutral axis, elastic axis, and hub and blade reference axes.

LITERATURE CITED

1. Kerr, A.W., Potthast, A.J., and Anderson, W.D., AN INTERDISCIPLINARY APPROACH TO INTEGRATED ROTOR/BODY MATHEMATICAL MODELING, Presented at the American Helicopter Symposium on the Status of Testing and Modeling for V/STOL Aircraft, October 1972.

2. Gorenberg, N.B., and Harvic, W.P., ANALYSIS OF MANEUVERABILITY EFFECTS ON ROTOR/WING DESIGN CHARACTERISTICS, Lockheed Report 24051, USAAVLABS Contract DAAJ02-70-C-0032, March 1971.

3. Anderson, W.D., INVESTIGATION OF REACTIONLESS MODE STABILITY CHARACTERISTICS OF A STIFF INPLANE HINGELESS ROTOR SYSTEM, Presented at the 29th Annual National Forum of the American Helicopter Society, May 1973.

4. Kobayashi, B., and McCorkle, B.R., FOURIER TRANSFORM ANALYSIS, Lockheed-California Company Report, LR 25111, March 31, 1972.

5. Carlson, R.M., and Kerr, A.W., INTEGRATED ROTOR/BODY LOADS PREDICTION, Presented at the AGARD Specialists Meeting on Helicopter Rotor Loads Prediction Methods, AGARD-CPP-122, March 1973.

6. Heyson, H.H., and Katzoff, S., INDUCED VELOCITIES NEAR A LIFTING ROTOR WITH NONUNIFORM DISK LOADING, NACA Report 1319, Langley Aeronautical Laboratory, Langley Field, Virginia, 1957.

7. Bisplinghoff, B., Ashley, R.L., and Halfman, R.L., AEROELASTICITY, Reading, Mass., Second Printing, November 1957, Addison-Wesley Publishing Company, Inc.

8. Harris, F.D., Tarzanin, F.J. Jr., and Fisher R.K. Jr., ROTOR HIGH SPEED PERFORMANCE, THEORY VS. TEST, Journal of the American Helicopter Society, Volume 15, Number 3, July 1970.

9. Gockel, M.A., PRACTICAL SOLUTION OF LINEAR EQUATIONS WITH PERIODIC COEFFICIENTS, Journal of the American Helicopter Society, Volume 17, Number 1, January 1972.

10. Bartsch, E.A., and Sweers, J.E., IN-FLIGHT MEASUREMENT AND CORRELATION WITH THEORY OF BLADE AIRLOADS AND RESPONSES ON THE XH-51A COMPOUND HELICOPTER ROTOR, USAAVLABS Technical Reports 68-22A,B, & C, May 1968, AD 674193, AD 674194, and AD 674195.

11. Carpenter, P.J., "Lift and Profile-Drag Characteristics of an NACA 0012 Airfoil Section as Derived from Measured Helicopter-Rotor Hovering Performance," NACA TN 4357, September 1958.

12. Tanner, W.H., "Charts for Estimating Rotary Wing Performance in Hover and at High Forward Speeds," NASA CR-114, November 1964.

APPENDIX I

FLIGHT TEST DATA

The harmonic components of the blade loads and related parameters from trimmed flight conditions are presented in tabular form in this appendix. Forty AH-56A cases and four XH-51A cases are included as shown in Table I.

The harmonic components are defined from the equation:

$$Y = AO + \sum_{J=1}^{N} AD \text{ Cos } JX + \sum_{J=1}^{N} BJ \text{ Sin } JX$$

or in complex notation

$$Y = AO + \sum_{J=1}^{N} CJ \text{ Cos } (JX - PSIJC)$$

where Y = Y(t) is the time history being harmonically analyzed. The other symbols and abbreviations used above and in the tables are defined as:

T	Test Number
CTR	Counter number
FLT	Flight number
TR	Oscillograph trace number
AO	Mean or zero harmonic
AJ	Cosine component of the J'th harmonic. In the tables the first number in the column is AO.
BJ	Sine component of the J'th harmonic
CJ	Magnitude of the J'th harmonic
CJ MAX	CJ component having the largest value

JX   Azimuth of the J'th component

PHIJC   Phase Angle

PSIJC   Equals PHIJC/J, the azimuth for the first maximum

The tabulated frequencies are in Hertz (cycles per second) and the phase angles are in degrees where the blade in the aft position is defined as zero azimuth. The units for other variables and their positive directions are:

Flap moments, flap up, in.-lb

Inplane moments, drag aft, in.-lb

Torsion, nose up, in.-lb

Pitch link axial load, tension, lb

Main rotor blade feather angle, nose up, deg

The pitch link loads were converted to feather moments for discussion and presentation in the body of the report. They were obtained from the pitch link loads tabulated in this appendix by multiplying the load by an effective arm using the relationships defined in Figures 68 and 69. Tension in the pitch link corresponds to a nose-down feathering moment. A static weight tare correction of 1,600 in-lb should be subtracted from the feathering moments derived from the data in this appendix. The data presented for the flap bending measurements include a static tare correction.

The feather-angle phase presented, lags the true value by 30 degrees because of the frequency response considerations previously discussed. The phase angles for all other parameters are correct as presented.

The harmonic analysis was conducted over two rotor revolutions in every case.

The rotating measurements with one exception were taken from blade No. 1. The one exception was the XH-51A fixed hub flap bending at station 6 which was taken from blade No. 2. The No. 2 blade passes the blade reference position one-quarter of a revolution or 90 degrees after the No. 1 blade. A correction of 90 degrees should be applied to these data to obtain an equivalent No. 1 blade load.

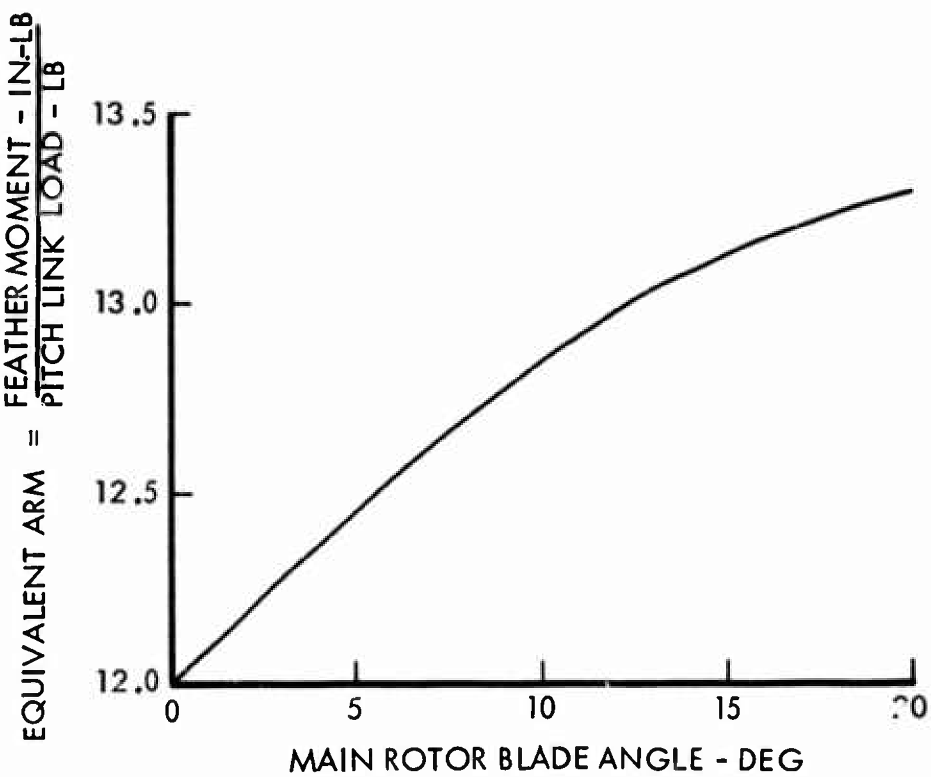


Figure 68. Conversion Factor, Pitch Link Load to Feather Moment, AH-56A ICS Phase III Blade.

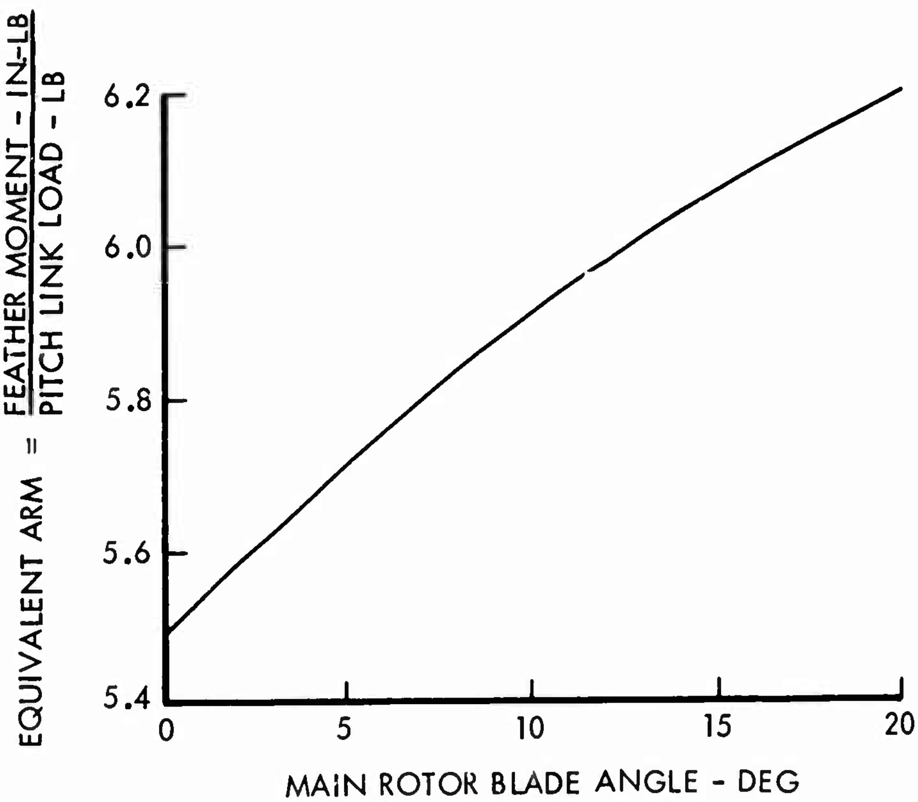


Figure 69. Conversion Factor, Pitch Link Load to Feather Moment, XH-51A Compound.

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 1 V= 154 KTS n= 1 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5551811E 01							
0.3034893E 01	-0.2344831E 01	0.3835200E 01	322.309	322.309	1.000000	1	4.098
-0.1401474E 00	-0.1524124E 00	0.2070527E 00	227.401	113.700	0.053987	2	8.197
-0.2147982E-01	-0.5902130E-02	0.2227594E-01	195.364	65.121	0.005808	3	12.295
-0.9970015E-01	-0.1023623E 00	0.1472649E 00	227.369	56.847	0.038398	4	16.393
0.1613834E-01	0.4234107E-01	0.4531239E-01	69.136	13.827	0.011815	5	20.492
0.4969411E-02	0.6599669E-03	0.5013041E-02	7.565	1.261	0.001307	6	24.590
-0.3175351E-01	-0.6597374E-02	0.3269081E-01	195.150	27.879	0.008578	7	28.689
-0.1933313E-01	-0.1254349E-01	0.2304328E-01	212.980	26.622	0.006008	8	32.787
0.2409474E-01	-0.2507672E-02	0.2422489E-01	354.058	39.340	0.006316	9	36.885
-0.2979335E-02	-0.4625849E-03	0.3015081E-02	188.825	18.883	0.000786	10	40.984

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4568033E 04							
-0.2533500E 05	0.9634150E 05	0.9986806E 05	105.272	105.272	1.000000	1	4.098
-0.1163949E 04	-0.1430291E 04	0.1844019E 04	230.863	115.431	0.018465	2	8.197
0.1879670E 03	-0.6955782E 03	0.7205350E 03	285.120	95.042	0.007215	3	12.295
-0.7648381E 03	0.1711671E 03	0.7837617E 03	167.384	41.846	0.007848	4	16.393
0.7705055E 04	0.5531978E 03	0.7725408E 04	4.106	0.821	0.077357	5	20.492
0.1954721E 02	-0.8546414E 03	0.8548647E 03	271.310	45.218	0.008560	6	24.590
-0.3679382E 04	-0.5312953E 03	0.3716533E 04	188.219	26.888	0.037215	7	28.689
-0.2513025E 03	0.1602114E 03	0.2978425E 03	147.459	18.432	0.002982	8	32.787
-0.7493127E 03	0.6224443E 03	0.9745029E 03	140.303	15.589	0.009756	9	36.885
-0.2454124E 03	-0.1902818E 03	0.3142510E 03	218.653	21.065	0.003147	10	40.984

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1355157E 03							
-0.2646677E 03	-0.2400822E 02	0.2657542E 03	185.183	185.183	0.933417	1	4.098
0.1912943E 03	-0.2110935E 03	0.2847112E 03	312.145	156.072	1.000000	2	8.197
0.3947307E 02	-0.3552912E 01	0.3960239E 02	354.795	118.265	0.139097	3	12.295
-0.4246302E 02	-0.7307433E 02	0.8453616E 02	239.850	59.962	0.296919	4	16.393
-0.5314647E 02	0.6753560E 02	0.6520406E 02	128.036	25.727	0.229265	5	20.492
-0.1825377E 01	0.5420160E 02	0.5423254E 02	91.929	15.322	0.190483	6	24.590
0.4349440E 01	-0.2850810E 02	0.2889532E 02	278.657	39.808	0.101490	7	28.689
0.2031749E 01	-0.1170642E 02	0.1196026E 02	279.781	34.973	0.042008	8	32.787
-0.2924935E 01	-0.3657264E 01	0.4682506E 01	231.357	25.706	0.016447	9	36.885
0.1512057E 02	0.2404018E 01	0.1627934E 02	7.557	0.756	0.064203	10	40.984

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2031532E 05							
0.1349732E 03	0.2941693E 05	0.2941193E 05	89.680	89.680	1.000000	1	4.098
0.3555113E 04	-0.1559728E 05	0.1599772E 05	282.840	141.420	0.663275	2	8.197
0.2465242E 04	-0.1023324E 02	0.2465363E 04	359.762	119.921	0.102215	3	12.295
-0.1449599E 04	-0.7149243E 03	0.2072789E 04	230.176	57.544	0.083939	4	16.393
0.1457391E 04	0.5727250E 03	0.1565611E 04	21.455	4.297	0.064911	5	20.492
0.1277495E 03	-0.5943579E 02	0.1409218E 03	335.050	55.838	0.005843	6	24.590
-0.4609009E 03	-0.5643152E 02	0.4643590E 03	187.225	26.746	0.017662	7	28.689
0.6805550E 03	-0.9531110E 03	0.1171167E 04	305.530	33.191	0.048557	8	32.787
0.8419933E 02	0.4800263E 02	0.9691241E 02	29.690	3.299	0.004018	9	36.885
0.1620930E 03	-0.2649601E 03	0.3101830E 03	301.504	30.150	0.012861	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 1 V= 154 KTS n= 1 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5054094E 05							
-0.1127023E 05	0.1001745E 06	0.1008065E 06	96.419	96.419	1.000000	1	4.098
-0.4143125E 04	0.7704176E 04	0.8747559E 04	118.270	59.135	0.086776	2	8.197
-0.3015568E 04	-0.4720684E 04	0.5601715E 04	237.428	79.143	0.055569	3	12.295
-0.6364791E 02	0.6860142E 03	0.6891528E 03	95.470	23.868	0.006836	4	16.393
0.1901837E 04	-0.1820242E 03	0.1910527E 04	354.533	70.907	0.018952	5	20.492
0.6918870E 03	-0.1025220E 04	0.1237374E 04	303.998	50.666	0.012275	6	24.590
-0.1328519E 04	0.1530763E 03	0.1337775E 04	173.404	24.772	0.013271	7	28.689
0.2723032E 03	-0.1679[illegible] 04	0.1701139E 04	279.232	34.904	0.016875	8	32.787
-0.6654072E 03	-0.2193173E 03	0.6991943E 03	198.281	22.031	0.006936	9	36.885
-0.3651304E 03	-0.1040472E 04	0.1102679E 04	250.663	25.066	0.010939	10	40.984

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7498250E 04							
0.3796405E 04	-0.3200675E 04	0.4965629E 04	319.867	319.867	1.000000	1	4.098
-0.1228910E 04	0.4261464E 04	0.4435137E 04	106.086	53.043	0.893167	2	8.197
-0.4296785E 03	0.2391955E 03	0.4917703E 03	150.896	50.299	0.099035	3	12.295
0.7655042E 03	-0.2124068E 03	0.7944478E 03	344.466	86.122	0.159989	4	16.393
-0.8153721E 03	0.1787142E 03	0.8347278E 03	167.637	33.527	0.168101	5	20.492
-0.1897240E 03	0.2365100E 03	0.3032030E 03	128.736	21.456	0.061060	6	24.590
-0.2834540E 03	-0.3420690E 03	0.4442656E 03	230.355	32.908	0.089468	7	28.689
0.4487773E 03	0.9170844E 02	0.4580520E 03	11.549	1.444	0.092245	8	32.787
-0.9446534E 02	-0.3405586E 02	0.1004166E 03	199.825	22.203	0.020222	9	36.885
-0.4214192E 01	-0.8514485E 02	0.8524907E 02	267.166	26.717	0.017168	10	40.984

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.8348324E 04							
-0.2309455E 04	0.3807264E 04	0.4452957E 04	121.241	121.241	1.000000	1	4.098
0.6420115E 03	-0.1615907E 04	0.1738773E 04	291.668	145.834	0.390476	2	8.197
-0.2291966E 04	-0.1062015E 04	0.2526081E 04	204.861	68.237	0.567282	3	12.295
0.3782449E 03	0.7751069E 02	0.3861855E 03	11.639	2.910	0.086726	4	16.393
-0.4576694E 03	-0.1913672E 03	0.4964446E 03	202.736	40.547	0.111486	5	20.492
-0.2026127E 03	0.2423090E 03	0.3158569E 03	129.902	21.650	0.070932	6	24.590
0.2999238E 03	-0.3918165E 00	0.2999238E 03	359.925	51.418	0.067354	7	28.689
0.1102974E 03	0.2103393E 03	0.2375040E 03	62.328	7.791	0.053336	8	32.787
-0.6919933E 02	0.4931433E 02	0.8497321E 02	144.525	16.058	0.019082	9	36.885
0.1400593E 03	-0.1607066E 03	0.2135643E 03	311.195	31.120	0.047960	10	40.984

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4221063E 04							
-0.6017397E 03	0.1489627E 04	0.1638403E 04	114.589	114.589	0.530541	1	4.098
-0.5513645E 02	0.1120592E 03	0.1249028E 03	116.180	58.090	0.040446	2	8.197
-0.2853[illegible] 04	-0.1078775E 04	0.3088109E 04	200.446	66.815	1.000000	3	12.295
0.1[illegible] 03	-0.3653[illegible] 03	0.4132701E 03	297.797	74.449	0.133826	4	16.393
-0.4528[illegible] 03	-0.369[illegible] 03	0.5844941E 03	219.199	43.840	0.189240	5	20.492
-0.2355[illegible] 03	0.213[illegible] 03	0.3177346E 03	137.640	22.973	0.102888	6	24.590
-0.4[illegible] 03	-0.3[illegible] 03	0.58[illegible] 03	223.472	31.925	0.188263	7	28.689
0.2545534E 03	-0.2909567E 03	0.6898509E 03	335.054	41.882	0.223385	8	32.787
0.7703796E 01	0.5856119E 02	0.5907715E 02	82.422	9.158	0.019130	9	36.885
-0.1584636E 03	0.1357363E 03	0.2086521E 03	139.418	13.942	0.067565	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 1 V= 154 KTS n= 1 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3342383E 03							
0.6949666E 03	-0.2075609E 03	0.7253000E 03	343.371	343.371	0.287449	1	4.098
0.2303469E 03	0.7691467E 03	0.8029147E 03	73.348	36.674	0.318170	2	8.197
-0.2443786E 04	-0.6083766E 03	0.2523228E 04	193.952	64.651	1.000000	3	12.295
-0.1362149E 03	-0.6171912E 03	0.6320437E 03	257.554	64.389	0.250490	4	16.393
-0.2135469E 03	-0.3647166E 03	0.4226350E 03	239.650	47.930	0.167498	5	20.492
-0.2786099E 03	0.4611047E 03	0.5387402E 03	121.141	20.190	0.213512	6	24.590
-0.3493962E 03	-0.2465525E 03	0.4276282E 03	215.209	30.744	0.169477	7	28.689
0.1969249E 03	-0.6702930E 03	0.6986216E 03	286.372	35.797	0.276876	8	32.787
-0.5313734E 01	-0.2267103E 03	0.2267641E 03	268.544	29.838	0.090871	9	36.885
-0.1333066E 03	0.1804939E 03	0.2246826E 03	126.551	12.655	0.089046	10	40.984

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2073290E 05							
-0.9370301E 04	0.4913750E 05	0.5002296E 05	100.796	100.796	1.000000	1	4.098
0.9692044E 03	0.4481230E 04	0.4584840E 04	77.796	38.898	0.091655	2	8.197
-0.3332444E 04	-0.5360642E 03	0.3375288E 04	189.139	63.046	0.067475	3	12.295
0.4908557E 03	-0.7192656E 03	0.8707942E 03	304.311	76.078	0.017408	4	16.393
0.6795415E 03	-0.1123727E 04	0.1313217E 04	301.162	60.232	0.026252	5	20.492
0.5261301E 03	0.6229003E 03	0.8153694E 03	49.814	8.302	0.016300	6	24.590
0.8971128E 03	0.5364426E 03	0.1046294E 04	30.972	4.425	0.020916	7	28.689
0.5817964E 03	-0.1949438E 02	0.5821233E 03	358.082	44.760	0.011637	8	32.787
-0.9737672E 02	0.6655206E 02	0.1179466E 03	145.649	16.183	0.002358	9	36.885
-0.2490798E 03	-0.1829305E 03	0.3090378E 03	216.294	21.629	0.006178	10	40.984

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1496759E 05							
-0.5182750E 04	0.2642851E 05	0.2693189E 05	101.095	101.095	1.000000	1	4.098
0.1043833E 04	0.2207021E 04	0.2441419E 04	64.688	32.344	0.090652	2	8.197
-0.1905706E 04	-0.1232205E 03	0.1909680E 04	183.700	61.233	0.070908	3	12.295
0.4510386E 03	-0.6060132E 03	0.7558398E 03	306.636	76.659	0.028065	4	16.393
-0.5702871E 03	-0.7453711E 03	0.9385125E 03	232.580	46.516	0.034848	5	20.492
0.4220333E 03	0.4255959E 03	0.5993816E 03	45.240	7.540	0.022255	6	24.590
0.9636362E 03	0.5838013F 03	0.1126716E 04	31.211	4.459	0.041836	7	28.689
-0.7085654E 03	0.6652686E 02	0.7117192E 03	174.604	21.826	0.026427	8	32.787
0.1117643E 04	-0.1454374E 03	0.1127066E 04	352.586	39.176	0.041849	9	36.885
0.4036208E 03	0.2575645E 03	0.4787998E 03	32.543	3.254	0.017778	10	40.984

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2610694E 05							
-0.1520183E 04	0.6615559E 04	0.6787969E 04	102.941	102.941	1.000000	1	4.098
-0.8999504E 03	0.7374434E 03	0.1163500E 04	140.668	70.334	0.171406	2	8.197
-0.5025776E 03	0.5729473E 03	0.7621370E 03	131.257	43.752	0.112278	3	12.295
0.6655705E 03	-0.2280676E 03	0.7035615E 03	341.085	85.271	0.103648	4	16.393
0.7067230E 02	-0.1689261F 03	0.1831136E 03	292.703	58.541	0.026976	5	20.492
0.2247068E 03	-0.2669553E 03	0.3489776E 03	310.096	51.683	0.051411	6	24.590
-0.1445080E 03	-0.1196063E 02	0.1450022E 03	184.732	26.390	0.021362	7	28.689
-0.3515576E 03	0.3833035E 03	0.5201301E 03	132.529	16.566	0.076625	8	32.787
0.3185064E 03	-0.5830555E 02	0.3239082E 03	349.619	38.847	0.047718	9	36.885
-0.1392545E 03	0.1364967E 03	0.1949953E 03	135.573	13.557	0.028727	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 1 V= 154 KTS n= 1 g

PLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 230 FLT 503.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4793384E 03							
0.1905493E 04	0.2427032E 04	0.3080146E 04	51.871	51.871	1.000000	1	4.098
-0.7941697E 03	0.1099149E 04	0.1356036E 04	125.849	62.925	0.439395	2	8.197
-0.3260540E 03	-0.4854043E 03	0.5847466E 03	236.110	78.703	0.189475	3	12.295
-0.3213882E 03	0.1377241E 02	0.3216829E 03	177.546	44.387	0.104234	4	16.393
0.8349548E 03	-0.2711125E 03	0.8778677E 03	342.011	68.402	0.284454	5	20.492
0.1388745E 03	-0.2077633E 03	0.2499200E 03	303.757	50.626	0.080961	6	24.590
-0.3824632E 03	0.1037050E 03	0.3962927E 03	164.830	23.547	0.128410	7	28.689
0.5684603E 03	-0.7330541E 03	0.9276426E 03	307.833	38.479	0.300583	8	32.787
0.2437057E 02	-0.2115020E 02	0.3226875E 02	319.046	35.450	0.010456	9	36.885
0.5657806E 02	-0.9830490E 02	0.1134237E 03	299.922	29.992	0.036753	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 2 V= 121.5 KTS n= 1 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8090535E 01							
0.3835425E 01	-0.3549701E 01	0.5225979E 01	317.216	317.216	1.000000	1	4.098
-0.8850052E-01	-0.1999507E 00	0.2183707E 00	246.111	123.056	0.041647	2	8.197
-0.5992224E-01	-0.5040485E-01	0.7834142E-01	220.103	73.368	0.014991	3	12.295
-0.2813308E-01	0.1126571E-01	0.3030553E-01	158.177	39.544	0.005799	4	16.393
0.4196960E-01	0.8746516E-02	0.4287131E-01	11.772	2.354	0.008203	5	20.492
-0.9248044E-02	-0.7957842E-02	0.1220053E-01	220.712	36.785	0.002335	6	24.590
-0.8363418E-02	0.2054228E-02	0.8612033E-02	166.200	23.743	0.001648	7	28.689
0.1129177E-03	0.5713355E-02	0.5714467E-02	88.868	11.108	0.001093	8	32.787
0.4836280E-02	0.1840671E-02	0.5174715E-02	20.837	2.315	0.000990	9	36.885
-0.5255672E-03	-0.7783438E-03	0.9391697E-03	235.971	23.597	0.000180	10	40.984

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5083738E 04							
0.1119648E 05	0.5248809E 05	0.5366900E 05	77.958	77.958	1.000000	1	4.098
-0.2714552E 04	-0.1360607E 04	0.3034457E 04	206.958	103.479	0.056745	2	8.197
-0.5758009E 04	-0.1335228E 05	0.1462155E 05	245.951	81.984	0.272439	3	12.295
-0.3067017E 03	0.1584054E 03	0.3451934E 03	152.684	38.171	0.006432	4	16.393
0.1717487E 04	0.5243711E 04	0.5517969E 04	71.860	14.372	0.102815	5	20.492
-0.2242379E 04	-0.5381970E 03	0.2306052E 04	193.496	32.249	0.042968	6	24.590
-0.3339566E 04	-0.1559227E 04	0.3702733E 04	205.038	29.370	0.068992	7	28.685
0.5530664E 03	0.7469192E 03	0.9293925E 03	53.481	6.685	0.017317	8	32.787
0.3907402E 03	0.9732612E 03	0.1048753E 04	68.126	7.570	0.019541	9	36.885
0.4620056E 03	-0.1901815E 03	0.5017326E 03	336.992	33.699	0.009352	10	40.984

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1527253E 03							
-0.2235010E 03	-0.2255687E 02	0.2246364E 03	185.763	185.763	1.000000	1	4.098
0.1202926E 03	-0.1165838E 03	0.1689108E 03	315.409	157.705	0.751957	2	8.197
-0.2395[illegible]E 02	-0.8181201E 02	0.8524615E 02	253.681	84.560	0.379485	3	12.295
-0.1037165E 02	-0.4677373E 02	0.4790784E 02	257.497	64.374	0.213277	4	16.393
-0.2866452E 02	-0.4017516E 02	0.4945321E 02	234.304	46.861	0.220219	5	20.492
0.3625118E 01	-0.9573135E 01	0.1003477E 02	291.144	48.524	0.044738	6	24.590
0.1993370E 02	-0.9670737E 01	0.2224332E 02	333.656	47.665	0.099021	7	28.689
0.6842752E 01	-0.1120891E 01	0.6933749E 01	350.697	43.837	0.030867	8	32.787
0.1255444E 01	0.3004784E 01	0.3256511E 01	67.324	7.480	0.014497	9	36.885
0.2505572E 01	0.1564145E 02	0.1584103E 02	82.722	8.272	0.066147	10	40.984

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6620063E 04							
0.7302105E 04	0.1215492E 05	0.1443990E 05	57.024	57.024	1.000000	1	4.098
0.1901521E 04	-0.8466797E 04	0.8677695E 04	282.658	141.329	0.598914	2	8.197
-0.4313395E 03	-0.2233027E 04	0.2274333E 04	259.067	86.356	0.156967	3	12.295
-0.1563784E 04	-0.9976245E 03	0.1871903E 04	212.212	53.053	0.129195	4	16.393
-0.2746430E 02	-0.5439635E 03	0.5446557E 03	267.109	53.422	0.037591	5	20.492
-0.3565560E 03	-0.6529473E 03	0.7439515E 03	241.376	40.229	0.051340	6	24.590
-0.4142230E 03	-0.3719668E 03	0.5567335E 03	221.923	31.703	0.038424	7	28.689
0.8033301E 03	-0.2778633E 03	0.8471997E 03	340.852	42.607	0.058472	8	32.787
0.2428438E 02	0.5923051E 02	0.6401553E 02	67.706	7.523	0.004418	9	36.885
0.7146778E 02	0.3713467E 02	0.8053756E 02	27.456	2.746	0.005559	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 2 V= 121.5 KTS n= 1 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5322EC7E 05							
0.2601153E 05	0.9094763E 05	0.9459525E 05	74.037	74.037	1.000000	1	4.098
0.3926220E 04	0.1068648E 05	0.1138491E 05	69.827	34.913	0.120354	2	8.197
-0.3275745E 04	-0.6230258E 04	0.7038933E 04	242.265	80.755	0.074411	3	12.295
0.6045326E 03	0.3755547E 03	0.7115924E 03	31.850	7.962	0.007524	4	16.393
0.6373965E 03	0.6052664E 03	0.8789849E 03	43.519	8.704	0.009292	5	20.492
-0.1778626E 04	-0.9122307E 03	0.1998918E 04	207.153	34.525	0.021131	6	24.590
-0.3469346E 03	0.5650732E 03	0.6675327E 03	121.515	17.359	0.007057	7	28.689
0.2966519E 03	-0.1757399E 03	0.3448340E 03	329.360	41.170	0.003645	8	32.787
-0.7353153E 03	-0.4899431E 03	0.8835942E 03	213.676	23.742	0.009341	9	36.885
-0.3654136E 03	0.4030654E 03	0.5576927E 03	133.716	13.372	0.005896	10	40.984

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9661530E 04							
0.3618525E 04	-0.2974936E 04	0.4684438E 04	320.575	320.575	1.000000	1	4.098
-0.1202846E 04	0.2517863E 04	0.2790425E 04	115.535	57.768	0.595680	2	8.197
0.6971787E 03	0.5953848E 03	0.9168103E 03	40.497	13.499	0.195714	3	12.295
0.6161662E 03	-0.1202680E 02	0.6163037E 03	358.882	89.720	0.131564	4	16.393
0.3542578E 02	0.9625873E 02	0.1025706E 03	69.795	13.959	0.021896	5	20.492
0.4865940E 03	-0.1571754E 03	0.5113483E 03	342.099	57.016	0.109159	6	24.590
0.2119520E 03	-0.3362512E 03	0.3974773E 03	302.225	43.[illegible]	0.084851	7	28.689
0.2941216E 03	0.3461626E 03	0.4542422E 03	49.647	6.206	0.096968	8	32.787
0.9290310E 01	0.1155616E 03	0.1159322E 03	85.557	9.506	0.024600	9	36.885
0.1495375E 03	-0.1335205E 02	0.1501324E 03	354.897	35.490	0.032049	10	40.984

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7332012E 04							
-0.1942294E 04	0.3563560E 04	0.4058523E 04	118.592	118.592	1.000000	1	4.098
0.1734232E 04	-0.1348288E 04	0.2196707E 04	322.136	161.069	0.541273	2	8.197
-0.1132670E 04	-0.4155820E 03	0.1206593E 04	200.145	66.715	0.297323	3	12.295
0.4299607E 03	0.6319221E 02	0.4345790E 03	8.361	2.090	0.107076	4	16.393
-0.1244316E 03	-0.5115750E 03	0.5264902E 03	256.329	51.266	0.129725	5	20.492
0.2101045E 03	0.8996609E 02	0.2285604E 03	23.185	3.864	0.056317	6	24.590
0.9618532E 02	-0.2151785E 02	0.9859032E 02	347.163	49.595	0.024307	7	28.689
-0.1061666E 03	0.1261460E 03	0.1648775E 03	130.085	16.261	0.040625	8	32.787
0.4397081E 02	-0.3577393E 02	0.5668515E 02	320.869	35.652	0.013967	9	36.885
0.4510704E 02	0.3048339E 02	0.5444132E 02	34.051	3.405	0.013414	10	40.984

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1560330E 04							
-0.2698945E 03	0.1598048E 04	0.1620673E 04	99.586	99.586	0.999870	1	4.098
0.1589105E 04	0.3194170E 03	0.1620884E 04	11.365	5.683	1.000000	2	8.197
-0.4096003E 03	-0.2869827E 03	0.5001335E 03	215.016	71.672	0.308555	3	12.295
0.7837417E 03	-0.4100613E 00	0.7837417E 03	359.970	89.992	0.483526	4	16.393
0.1715059E 03	-0.1104377E 03	0.2039832E 03	327.221	65.444	0.125850	5	20.492
0.1171146E 03	0.9202673E 02	0.1489454E 03	38.160	6.360	0.091891	6	24.590
-0.2066727E 02	-0.3444683E 03	0.3450874E 03	266.566	38.081	0.212900	7	28.689
0.5863[illegible] 03	0.2380013E 03	0.6333674E 03	22.142	2.768	0.390768	8	32.787
0.2243401E 02	-0.7557740E 01	0.2367357E 02	340.609	37.833	0.014606	9	36.885
-0.4599348E 02	-0.1141873E 03	0.1231022E 03	248.061	24.806	0.075947	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 2 V= 121.5 KTS n= 1 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2795232E 04							
0.8967691E 03	-0.1770235E 02	0.8969426E 03	358.869	358.869	0.991861	1	4.098
0.5908739E 03	0.1681845E 03	0.6143442E 03	15.889	7.944	0.679357	2	8.197
-0.8990525E 03	-0.9730626E 02	0.9043035E 03	186.177	62.059	1.000000	3	12.295
0.4686069E 03	-0.2345776E 03	0.5420012E 03	334.354	83.589	0.599358	4	16.393
0.5425543E 01	-0.3507451E 03	0.3507952E 03	270.908	54.194	0.387916	5	20.492
-0.2091509E 03	-0.5655777E 02	0.2167016E 03	195.129	32.521	0.239634	6	24.590
-0.2032232E 03	-0.2341311E 03	0.3100273E 03	229.042	32.720	0.342836	7	28.689
0.4739763E 03	-0.1343035E 03	0.4926372E 03	344.180	43.022	0.544770	8	32.787
0.4360405E 02	-0.6756456E 02	0.8075665E 02	302.875	33.631	0.089314	9	36.885
-0.3341344E 02	-0.1563226E 03	0.1592537E 03	258.990	25.899	0.176107	10	40.984

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2155556E 06							
0.7193554E 04	0.4595188E 05	0.4651153E 05	81.103	81.103	1.000000	1	4.098
-0.3657726E 02	0.4338793E 04	0.4338946E 04	90.483	45.242	0.093287	2	8.197
-0.6083371E 04	-0.4045349E 04	0.7305629E 04	213.623	71.208	0.157071	3	12.295
0.1883509E 04	-0.8630953E 03	0.2072039E 04	335.366	83.841	0.044550	4	16.393
-0.1854826E 04	-0.1053805E 04	0.2133230E 04	209.603	41.921	0.045866	5	20.492
-0.6115754E 03	-0.8166899E 03	0.1020293E 04	233.172	38.862	0.021936	6	24.590
-0.2589546E 03	-0.5575007E 03	0.6147238E 03	245.082	35.012	0.013217	7	28.689
0.6166230E 03	-0.7276831E 03	0.9538064E 03	310.277	38.785	0.020507	8	32.787
0.3480007E 03	-0.3171484E 03	0.4708372E 03	317.656	35.295	0.010123	9	36.885
-0.4478523E 03	-0.5208584E 03	0.6869243E 03	229.310	22.931	0.014769	10	40.984

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2337673E 05							
0.4018530E 04	0.2307208E 05	0.2341943E 05	80.119	80.119	1.000000	1	4.098
-0.3555207E 03	0.9824365E 03	0.1045153E 04	109.869	54.935	0.044627	2	8.197
-0.4774145E 04	-0.9159331E 03	0.4861965E 04	190.907	63.636	0.207603	3	12.295
0.1261082E 04	-0.4400564E 03	0.1335650E 04	340.763	85.191	0.057032	4	16.393
-0.1743024E 04	-0.7246223E 03	0.1887725E 04	202.714	40.543	0.080604	5	20.492
-0.5814330E 03	-0.3035676E 03	0.6563533E 03	207.549	34.591	0.028026	6	24.590
-0.4129624E 03	-0.1347287E 03	0.4343443E 03	198.068	28.295	0.018549	7	28.689
-0.8655501E 03	-0.9353992E 03	0.1274440E 04	227.220	28.402	0.054418	8	32.787
-0.8784587E 03	-0.5565950E 03	0.1039976E 04	212.359	23.595	0.044405	9	36.885
-0.5979221E 03	-0.1373235E 03	0.6134918E 03	192.935	19.293	0.026196	10	40.984

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2550624E 05							
0.1228141E 04	0.6236535E 04	0.6356273E 04	78.863	78.863	1.000000	1	4.098
0.5705215E 03	0.1774554E 04	0.1864010E 04	72.177	36.089	0.293163	2	8.197
-0.2441037E 02	-0.4019939E 03	0.4027341E 03	266.525	88.842	0.063340	3	12.295
0.6244717E 03	0.5444494E 02	0.6268403E 03	4.983	1.246	0.098617	4	16.393
-0.4021189E 03	0.4586123E 03	0.6099382E 03	131.245	26.249	0.095928	5	20.492
0.5414109E 03	0.8084337E 02	0.5474133E 03	8.493	1.415	0.086095	6	24.590
-0.9952798E 02	-0.3167969E 01	0.9957837E 02	181.823	25.975	0.015661	7	28.689
-0.4243821E 03	-0.9882672E 02	0.4357375E 03	193.109	24.139	0.068551	8	32.787
-0.1433565E 03	-0.1205458E 03	0.1873335E 03	220.052	24.450	0.029463	9	36.885
-0.1949507E 03	0.5052299E 01	0.1950161E 03	178.516	17.852	0.030676	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 2 V= 121.5 KTS n= 1 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 392 FLT 503.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1341396E 03							
0.1636148E 04	0.1925133E 04	0.2661752E 04	46.324	46.324	1.000000	1	4.098
-0.1270372E 04	0.4970125E 03	0.1364136E 04	158.633	79.316	0.512495	2	8.197
-0.5913262E 03	0.1915457E 03	0.6215757E 03	162.052	54.017	0.233521	3	12.295
-0.2018650E 03	-0.1846951E 01	0.2018734E 03	180.524	45.131	0.075842	4	16.393
-0.1506653E 02	-0.1713335E 02	0.2281553E 02	228.673	45.735	0.008572	5	20.492
-0.8186967E 03	-0.2596550E 03	0.8590748E 03	197.593	32.932	0.322749	6	24.590
-0.4675313E 03	-0.1305152E 03	0.4854007E 03	195.598	27.942	0.182364	7	28.689
0.3865647E 03	-0.4145303E 03	0.5668047E 03	313.000	39.125	0.212944	8	32.787
0.1065141E 02	-0.3309781E 02	0.3476947E 02	287.839	31.982	0.013063	9	36.885
0.8951261E 02	0.7687267E 02	0.1179529E 03	41.289	4.129	0.044306	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 3 V= 190 KTS n= 1 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5424683E 01							
0.2615634E 01	-0.2427973E 01	0.3564836E 01	317.131	317.131	1.000000	1	4.098
-0.2426046E 00	-0.2167934E 00	0.3253084E 00	221.761	110.881	0.091209	2	8.197
-0.1127580E 00	-0.8940017E-01	0.1439238E 00	218.399	72.800	0.040330	3	12.295
-0.2823414E 00	-0.1698700E 00	0.3295033E 00	211.033	52.758	0.092328	4	16.393
-0.6382406E-01	-0.5565418E-01	0.8468115E-01	221.088	44.218	0.023728	5	20.492
-0.1026559E 00	-0.5527657E-01	0.1167334E 00	208.262	34.710	0.032722	6	24.590
-0.3307963E-01	-0.3228464E-01	0.4665421E-01	223.798	31.970	0.013073	7	28.689
-0.6256798E-01	-0.5621787E-01	0.8412913E-01	221.931	27.741	0.023573	8	32.787
-0.3569777E-01	-0.1507262E-01	0.3967253E-01	202.329	22.481	0.011116	9	36.885
-0.3642631E-01	-0.2179638E-01	0.4244947E-01	210.895	21.087	0.011894	10	40.984

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7392656E 04							
-0.3312531E 05	0.1177285E 06	0.1215218E 05	104.353	104.353	1.000000	1	4.098
-0.3305369E 04	0.7552267E 02	0.3301031E 04	178.562	89.281	0.024772	2	8.197
0.3720170E 04	0.1113208E 05	0.1173725E 05	71.521	23.840	0.096566	3	12.295
0.9561553E 03	-0.5002031E 03	0.1079370E 04	332.384	83.096	0.008880	4	16.393
0.1182265E 05	-0.2576087E 04	0.1210048E 05	347.698	69.540	0.099575	5	20.492
0.1136731E 04	0.1359898E 04	0.1773705E 04	50.058	8.343	0.014596	6	24.590
0.1930426E 04	-0.2007311E 04	0.2784931E 04	313.881	44.840	0.022917	7	28.689
-0.1250957E 04	0.1633380E 04	0.2219304E 04	124.307	15.538	0.018264	8	32.787
-0.2295657E 04	0.2503671E 04	0.3397105E 04	132.518	14.724	0.027955	9	36.885
0.4037778E 03	-0.5729590E 02	0.4078228E 03	351.924	35.192	0.003356	10	40.984

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1045326E 03							
-0.2819457E 03	0.1687218E 02	0.2823501E 03	176.574	176.574	0.662311	1	4.098
0.2983044E 03	-0.3045566E 03	0.4263103E 03	314.406	157.203	1.000000	2	8.197
0.8954066E 02	0.2498533E 02	0.9296127E 02	15.591	5.197	0.218060	3	12.295
-0.7305630E 02	-0.1274649E 03	0.1469167E 03	240.181	60.045	0.344624	4	16.393
-0.3086762E 02	0.7262071E 02	0.7334518E 02	112.988	22.598	0.165042	5	20.492
0.4168153E 02	0.9553395E 02	0.1042309E 03	66.428	11.071	0.244495	6	24.590
-0.6844494E 00	-0.2415633E 01	0.2510712E 01	254.170	36.310	0.005890	7	28.689
0.5727858E 01	-0.6530524E 01	0.8686596E 01	311.254	38.907	0.020376	8	32.787
-0.1051575E 02	-0.1421811E 02	0.1770435E 02	233.740	25.960	0.041905	9	36.885
0.1347716E 02	0.1226879E 02	0.1822517E 02	42.313	4.231	0.042751	10	40.984

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 406 CTR 335 FLT 503.0 [illegible] 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4655154E 05							
0.4742295E 03	0.2906622E 05	0.2907009E 05	89.065	89.065	1.000000	1	4.098
0.3492571E 04	-0.2180569E 05	0.2215037E 05	280.121	140.061	0.762440	2	8.197
0.3102556E 04	-0.2951757E 03	0.3115967E 04	354.488	118.163	0.107296	3	12.295
-0.3912685E 04	-0.8076518E 03	0.3995403E 04	191.665	47.916	0.137535	4	16.393
0.2328665E 04	0.5006576E 03	0.2381751E 04	12.120	2.424	0.081988	5	20.492
0.1450136E 04	-0.6234304E 03	0.1603346E 04	337.159	56.193	0.055265	6	24.590
0.2054316E 03	-0.1516467E 03	0.2553357E 03	323.567	46.224	0.008790	7	28.689
0.1465683E 04	-0.4455801E 03	0.1551234E 04	343.307	42.913	0.053399	8	32.787
-0.5305173E 03	0.1671618E 03	0.5562247E 03	162.511	18.057	0.019147	9	36.885
-0.3195854E 03	-0.1741412E 03	0.3639534E 03	208.560	20.359	0.012526	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 3 V= 190 KTS n= 1 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5227957E 05							
-0.1470455E 05	0.1038545E 06	0.1048703E 06	98.059	98.059	1.000000	1	4.098
-0.1520275E 04	0.5853391E 04	0.6047594E 04	104.560	52.280	0.057656	2	8.197
-0.4113203E 04	-0.4722492E 04	0.6262617E 04	228.945	76.315	0.059706	3	12.295
-0.1254230E 04	0.2055415E 03	0.1270963E 04	170.693	42.673	0.012117	4	16.393
0.2249544E 04	-0.1473530E 04	0.2731136E 04	327.348	65.470	0.026038	5	20.492
0.1140857E 04	-0.3066169E 04	0.3270288E 04	290.288	48.381	0.031369	6	24.590
0.2603510E 02	-0.2301925E 03	0.2316602E 03	276.453	39.493	0.002209	7	28.689
0.1908291E 04	-0.1563353E 04	0.2476333E 04	320.317	40.040	0.023640	8	32.787
-0.4259605E 03	-0.1359429E 04	0.1462823E 04	253.071	28.119	0.013946	9	36.885
0.4496169E 03	-0.7933994E 03	0.9123395E 03	299.551	29.955	0.008695	10	40.984

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6893684E 04							
0.4063491E 04	-0.2382974E 04	0.4713080E 04	329.611	329.611	0.901475	1	4.098
-0.4513145E 03	0.5200000E 04	0.5225523E 04	94.955	47.477	1.000000	2	8.197
-0.2717607E 03	-0.5526800E 03	0.6158960E 03	243.816	81.272	0.117861	3	12.295
0.1776194E 04	-0.6837830E 03	0.1903267E 04	338.945	84.736	0.364225	4	16.393
-0.7343167E 03	0.3989082E 03	0.8356726E 03	151.488	30.298	0.159921	5	20.492
-0.3310417E 03	0.9192603E 03	0.9770308E 03	109.805	18.301	0.186977	6	24.590
-0.2079543E 03	0.1172260E 02	0.2082844E 03	176.774	25.253	0.039859	7	28.689
0.3091782E 03	0.2476844E 03	0.3961549E 03	38.698	4.837	0.075811	8	32.787
-0.1462139E 03	-0.2106450E 02	0.1477234E 03	188.198	20.911	0.028270	9	36.885
-0.1126243E 03	-0.2531356E 03	0.2771406E 03	245.977	24.598	0.053036	10	40.984

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.9489449E 04							
-0.2110544E 04	0.3837438E 04	0.4379535E 04	118.810	118.810	1.000000	1	4.098
0.3167583E 03	-0.1675855E 04	0.1705528E 04	280.703	140.352	0.389431	2	8.197
-0.3205871E 04	-0.4852986E 03	0.3242394E 04	188.608	62.869	0.740351	3	12.295
0.1166445E 04	0.1662535E 03	0.1174233E 04	8.112	2.028	0.269032	4	16.393
-0.3145007E 03	0.7870366E 02	0.3290515E 03	166.162	33.232	0.075134	5	20.492
-0.2327601E 03	0.6413206E 03	0.6822551E 03	109.948	18.325	0.155783	6	24.590
0.1259071E 02	-0.9245714E 02	0.9331047E 02	277.755	39.679	0.021306	7	28.689
-0.9494581E 02	0.4124854E 03	0.4232725E 03	102.963	12.870	0.096648	8	32.787
-0.1504895E 03	-0.1071202E 03	0.1847209E 03	215.444	23.938	0.042178	9	36.885
-0.8545370E 02	-0.9310182E 02	0.1264036E 03	227.459	22.744	0.028862	10	40.984

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 335 FLT 503.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5262406E 04							
-0.1330175E 03	0.1841902E 04	0.1846782E 04	94.132	94.132	0.487933	1	4.098
0.2340795E 03	0.7183320E 03	0.7555090E 03	71.951	35.975	0.199611	2	8.197
-0.3735732E 04	-0.6081514E 03	0.3784910E 04	189.246	63.082	1.000000	3	12.295
0.3741355E 03	-0.7057148E 03	0.7987557E 03	297.930	74.483	0.211037	4	16.393
-0.4213101E 03	-0.8190808E 02	0.4291930E 03	191.002	38.200	0.113397	5	20.492
-0.2324900E 02	0.9783115E 03	0.9786372E 03	91.478	15.246	0.258563	6	24.590
-0.2665795E 03	0.2303545E 03	0.3523174E 03	139.169	19.881	0.093085	7	28.689
0.3784214E 03	0.4981830E 02	0.3817261E 03	7.499	0.937	0.100855	8	32.787
-0.3418420E 03	0.2243136E 03	0.4088745E 03	146.727	16.303	0.108026	9	36.885
-0.3204705E 03	0.1011443E 03	0.3436307E 03	162.685	16.288	0.090805	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 3 V= 190 KTS n= 1 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009 T 408 CTR 335 FLT 503.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1031118E 04							
0.3739556E 03	-0.9767534E 02	0.3863012E 03	345.362	345.362	0.115174	1	4.098
0.1061298E 03	0.1366375E 04	0.1370471E 04	85.558	42.779	0.408396	2	8.197
-0.3346536E 04	0.2435995E 03	0.3355791E 04	175.837	58.612	1.000000	3	12.295
-0.1073726E 03	-0.5462094E 03	0.5573611E 03	258.893	64.723	0.166089	4	16.393
-0.2610530E 03	-0.2383348E 03	0.3534356E 03	222.395	44.479	0.105336	5	20.492
0.1726100E [illegible]	[illegible]0.8222208E 03	0.8460632E 03	78.214	13.036	0.252120	6	24.590
-0.3450339E [illegible]	0.5133770E 03	0.6185533E 03	123.905	17.701	0.184323	7	28.685
0.2337632E 03	0.1022951E 03	0.3016344E 03	19.824	2.478	0.089886	8	32.767
-0.3210224E 03	0.1439758E 03	0.3518320E 03	155.844	17.316	0.104843	9	36.885
-0.2956641E 03	0.1362933E 03	0.3255637E 03	155.252	15.525	0.097016	10	40.984

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009 T 408 CTR 335 FLT 503.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2098855E 06							
-0.1294435E 05	0.4875597E 05	0.5043755E 05	104.856	104.356	1.000000	1	4.098
-0.7797229E 03	0.1620751E 04	0.1798555E 04	115.692	57.846	0.035624	2	8.197
-0.2064548E 03	0.2179130E 04	0.2188838E 04	95.412	31.804	0.043395	3	12.295
0.9283653E 03	-0.5073350E 03	0.1057964E 04	331.344	82.836	0.020955	4	16.393
0.1126461E 04	-0.6454521E 03	0.1330012E 04	330.231	66.046	0.025749	5	20.4 2
0.9200493E 03	-0.7282378E 03	0.1173330E 04	321.637	53.606	0.023241	6	24.590
0.6629502E 03	-0.4673040E 02	0.6645535E 03	355.968	50.853	0.013164	7	28.685
-0.7497100E 03	0.5075564E 03	0.9053608E 03	145.902	18.238	0.017932	8	32.787
-0.3470562E 03	0.4569922E 03	0.5738021E 03	127.218	14.135	0.011366	9	36.885
-0.1060792E 04	0.1729375E 03	0.1074776E 04	170.741	17.074	0.021266	10	40.984

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009 T 408 CTR 335 FLT 503.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2142186E 05							
-0.5929320E 04	0.2639836E 05	0.2705605E 05	102.659	102.659	1.000000	1	4.098
-0.5193193E 03	0.1104237E 04	0.1220254E 04	115.188	57.594	0.045101	2	8.197
-0.4746006E 03	0.1773039E 04	0.1835460E 04	104.985	34.995	0.067839	3	12.295
0.2179703E 04	-0.3800693E 03	0.2212591E 04	350.109	87.527	0.081778	4	16.393
-0.6217419E 02	-0.4656567E 03	0.4739524E 03	262.402	52.492	0.017517	5	20.492
0.1299276E 03	-0.1611033E 03	0.2069714E 03	308.888	51.481	0.007650	6	24.590
0.4234683E 03	-0.3218362E 03	0.5318873E 03	322.765	46.109	0.019659	7	28.685
-0.7130687E 03	0.9574131E 03	0.1194136E 04	126.701	15.838	0.044136	8	32.787
0.1935620E 03	0.1142382E 04	0.1158664E 04	80.383	8.931	0.042825	9	36.885
-0.9590459E 03	0.8256006E 03	0.1265453E 04	139.276	13.928	0.046772	10	40.984

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009 T 408 CTR 335 FLT 503.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2568202E 05							
-0.1177779E 04	0.6666586E 04	0.6769824E 04	100.019	100.019	1.000000	1	4.098
0.5009711E 02	-0.1435451E 03	0.1520359E 03	289.239	144.619	0.022458	2	8.197
0.6000081E 03	-0.2289801E 03	0.6422151E 03	339.112	113.037	0.094864	3	12.295
0.6193003E 03	-0.8453245E 03	0.1047906E 04	306.227	76.557	0.154791	4	16.393
-0.1488299E 03	-0.6423987E 03	0.6594136E 03	256.956	51.391	0.097405	5	20.492
-0.7508675E 02	-0.4572612E 03	0.4633853E 03	260.675	43.446	0.068449	6	24.590
0.1073278E 03	-0.1637513E 03	0.1957931E 03	303.242	43.320	0.028921	7	28.685
-0.4303069E 03	-0.8555609E 02	0.4446162E 03	191.094	23.887	0.065676	8	32.787
-0.1832472E 03	0.4821604E 03	0.5158685E 03	110.810	12.312	0.076192	9	36.885
-0.2491926E 03	-0.4357144E 02	0.2529732E 03	189.918	18.992	0.037368	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 3 V= 190 KTS n= 1 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009   T 408   CTR 335 FLT 503.0   TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5585945E 03							
0.1671490E 04	0.2464049E 04	0.2977931E 04	55.855	55.855	1.000000	1	4.098
-0.1831673E 04	0.1787301E 04	0.2559235E 04	135.702	67.851	0.859386	2	8.197
-0.8748076E 03	0.9792259E 01	0.8748623E 03	179.359	59.786	0.293777	3	12.295
-0.2676360E 03	0.3773154E 03	0.4625969E 03	125.349	31.337	0.155339	4	16.393
0.1300195E 04	-0.5440698E 03	0.1409437E 04	337.293	67.459	0.473267	5	20.492
0.3337594E 03	-0.8831040E 03	0.9440634E 03	290.703	48.451	0.317016	6	24.590
-0.1844562E 03	0.1668933E 03	0.2447513E 03	137.662	19.695	0.083530	7	28.689
0.7375626E 03	0.5793343E 02	0.7401536E 03	4.489	0.561	0.248542	8	32.787
-0.2071030E 03	0.3748401E 03	0.4232433E 03	118.921	13.213	0.143605	9	36.885
-0.8347525E 02	0.1384531E 03	0.1616735E 03	121.086	12.109	0.054289	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 4 V= 163.5 KTS n= 1 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7080332E 01							
0.2887794E 01	-0.3610663E 01	0.4623445E 01	308.653	308.653	1.000000	1	4.065
-0.2239363E 00	-0.2547255E 00	0.3391647E 00	228.680	114.340	0.073358	2	8.130
-0.1092243E 00	-0.6323081E-01	0.1262065E 00	210.067	70.022	0.027297	3	12.195
-0.1228452E-02	-0.1934551E-01	0.1938447E-01	266.366	66.592	0.004193	4	16.260
-0.5467066E-03	-0.2531135E-01	0.2531725E-01	268.762	53.752	0.005476	5	20.325
-0.1532835E-01	0.3704548E-02	0.1576965E-01	166.413	27.736	0.003411	6	24.390
-0.2931503E-01	0.2523686E-01	0.3868463E-01	139.279	19.897	0.008367	7	28.455
-0.1199191E-01	0.2833717E-01	0.3077013E-01	112.938	14.117	0.006655	8	32.520
0.1170071E-01	-0.4836135E-02	0.1266075E-01	337.544	37.505	0.002738	9	36.585
-0.6025512E-02	-0.1824723E-02	0.6295744E-02	196.848	19.685	0.001362	10	40.650

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4332557E 04							
-0.1176579E 06	0.1222863E 06	0.1697254E 06	133.905	133.905	1.000000	1	4.065
-0.2346025E 04	0.9579395E 02	0.2347980E 04	177.662	88.831	0.013834	2	8.130
-0.1337659E 05	-0.2673486E 05	0.2989453E 05	243.419	81.140	0.176135	3	12.195
0.7996745E 03	0.1203565E 04	0.1445008E 04	56.399	14.100	0.008514	4	16.260
0.7353074E 04	0.4495008E 04	0.8618164E 04	31.438	6.288	0.050777	5	20.325
-0.6352742E 03	-0.1692925E 03	0.6574443E 03	194.922	32.487	0.003874	6	24.390
-0.2687024E 04	0.1261407E 04	0.2968373E 04	154.853	22.122	0.017489	7	28.455
0.5213220E 03	0.1389325E 04	0.1483914E 04	69.432	8.679	0.008743	8	32.520
0.1432133E 04	0.1835176E 04	0.2327343E 04	52.032	5.781	0.013715	9	36.585
0.4449043E 03	0.3174395E 03	0.5465417E 03	35.508	3.551	0.003220	10	40.650

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2909353E 03							
-0.1702506E 03	-0.1355203E 02	0.1707871E 03	184.551	184.551	0.497565	1	4.065
0.2245436E 03	-0.2556160E 03	0.3432493E 03	310.857	155.428	1.000000	2	8.130
-0.6340466E 02	-0.2450976E 03	0.2524313E 03	256.155	85.385	0.735416	3	12.195
-0.6689744E 01	-0.4491972E 02	0.4541513E 02	261.529	65.382	0.132309	4	16.260
-0.2096266E 02	-0.4910136E 02	0.5338893E 02	246.881	49.376	0.155540	5	20.325
-0.2409518E 02	0.4504619E 02	0.5108746E 02	118.146	19.691	0.148835	6	24.390
0.1243486E 02	-0.2180157E 02	0.2509935E 02	299.699	42.814	0.073120	7	28.455
-0.3455876E 01	-0.2812773E 02	0.2833923E 02	262.995	32.874	0.082562	8	32.520
-0.9532016E 01	-0.1579161E 00	0.9533321E 01	180.949	20.105	0.027774	9	36.585
0.1220164E 00	-0.1860057E 02	0.1860097E 02	270.376	27.038	0.054191	10	40.650

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2303542E 05							
-0.2629782E 05	0.2965279E 05	0.3963411E 05	131.568	131.568	1.000000	1	4.065
0.8955537E 03	-0.1137541E 05	0.1141061E 05	274.501	137.251	0.287899	2	8.130
-0.2142781E 04	-0.5599227E 04	0.5994331E 04	249.055	83.018	0.151241	3	12.195
-0.3590820E 03	-0.1224615E 04	0.1276174E 04	253.658	63.414	0.032199	4	16.260
0.1251713E 04	-0.3731456E 03	0.1306145E 04	343.400	68.680	0.032955	5	20.325
0.3775557E 03	-0.2247054E 02	0.3782617E 03	356.594	59.432	0.009544	6	24.390
-0.8734685E 03	0.3705405E 03	0.9488320E 03	157.013	22.430	0.023940	7	28.455
0.6762112E 03	-0.7631414E 03	0.1034604E 04	310.809	38.851	0.026106	8	32.520
0.2069537E 03	0.3525820E 03	0.4088525E 03	59.584	6.620	0.010316	9	36.585
-0.2900588E 03	0.6874202E 02	0.2980933E 03	166.667	16.667	0.007521	10	40.650

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 4 V= 163.5 KTS n= 1 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2742519E 05							
-0.2062136E 04	0.8380719E 05	0.3383256E 05	91.410	91.410	1.000000	1	4.065
0.9221754E 04	-0.6204246E 04	0.1111456E 05	326.068	163.034	0.132580	2	8.130
-0.8804560E 04	-0.1065940E 05	0.1382546E 05	230.444	76.815	0.164917	3	12.195
-0.3940864E 03	0.1148447E 04	0.1210971E 04	108.492	27.123	0.014445	4	16.260
0.2103227E 04	0.1005123E 04	0.2331038E 04	25.543	5.109	0.027806	5	20.325
0.3235566E 03	-0.1658112E 03	0.3731147E 03	330.132	55.022	0.004451	6	24.390
0.9171553E 03	0.5311892E 03	0.1059937E 04	30.078	4.297	0.012643	7	28.455
0.2341224E 03	-0.1625398E 04	0.1642173E 04	278.197	34.775	0.019589	8	32.520
-0.4854192E 03	-0.1157387E 04	0.1255060E 04	247.246	27.472	0.014971	9	36.585
0.8157581E 03	0.2835837E 03	0.8636317E 03	19.168	1.917	0.010302	10	40.650

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1218521E 05							
0.1838560E 04	-0.2562963E 04	0.3154217E 04	305.654	305.654	0.682273	1	4.065
-0.1781731E 04	0.4265969E 04	0.4623099E 04	112.668	56.334	1.000000	2	8.130
0.6032620E 03	0.1465607E 04	0.1584906E 04	67.627	22.542	0.342823	3	12.195
0.3702407E 03	0.1082856E 02	0.3703989E 03	1.675	0.419	0.080119	4	16.260
-0.5790610E 03	-0.2588025E 02	0.5798313E 03	182.954	36.591	0.125421	5	20.325
-0.4075090E 03	0.2082122E 03	0.4576195E 03	152.936	25.489	0.098985	6	24.390
-0.6013379E 02	-0.2064568E 03	0.2150360E 03	253.761	36.252	0.046513	7	28.455
0.5730085E 03	-0.8364095E 01	0.5730696E 03	359.164	44.895	0.123958	8	32.520
-0.2874585E 03	0.5840369E 02	0.2933706E 03	168.517	18.724	0.063458	9	36.585
-0.1305431E 03	-0.1551166E 03	0.2027379E 03	229.917	22.992	0.043853	10	40.650

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6705056E 03							
0.2200502E 04	-0.4799281E 04	0.5279871E 04	294.636	294.636	1.000000	1	4.065
-0.1184944E 04	0.4193352E 04	0.4357555E 04	105.779	52.890	0.825315	2	8.130
0.1774489E 04	0.3165483E 03	0.1802501E 04	10.115	3.372	0.341391	3	12.195
-0.1843219E 03	0.9463717E 02	0.2072077E 03	152.775	38.194	0.039262	4	16.260
0.2721297E 03	0.3089414E 03	0.4117021E 03	48.625	9.725	0.077976	5	20.325
0.5095511E 02	0.3451484E 03	0.3488701E 03	81.601	13.600	0.066079	6	24.390
-0.2986792E 03	0.5751705E 03	0.6516504E 03	117.280	16.754	0.123422	7	28.455
-0.2226121E 03	-0.5269482E 03	0.5720312E 03	247.157	30.895	0.108707	8	32.520
0.1694506E 03	-0.6288200E 01	0.1696371E 03	357.875	39.764	0.032123	9	36.585
0.2338576E 03	0.2170083E 03	0.3191330E 03	42.863	4.286	0.060430	10	40.650

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.9997074E 04							
-0.2077469E 04	0.4426141E 04	0.4889438E 04	115.144	115.144	1.000000	1	4.065
0.2232118E 04	-0.2684285E 04	0.3491093E 04	309.745	154.873	0.714007	2	8.130
-0.2399629E 04	-0.5303306E 03	0.2457723E 04	192.461	64.154	0.502661	3	12.195
0.1022345E 03	0.7895941E 02	0.1291761E 03	37.680	9.420	0.026419	4	16.260
-0.4465427E 03	-0.1245028E 03	0.4635745E 03	195.579	39.116	0.094811	5	20.325
-0.1033697E 03	0.7786967E 02	0.1294174E 03	143.009	23.835	0.026469	6	24.390
0.7565529E 02	-0.2920703E 03	0.3017107E 03	284.523	40.646	0.061707	7	28.455
0.1926544E 03	0.1350518E 03	0.2354723E 03	34.997	4.375	0.048159	8	32.520
-0.1671852E 02	-0.4855316E 02	0.5135033E 02	251.000	27.889	0.010502	9	36.585
-0.1703520E 02	-0.1461408E 03	0.1471304E 03	263.351	26.335	0.030091	10	40.650

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 4 V= 163.5 KTS n= 1 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2706290E 04							
-0.6116572E 03	0.2457842E 04	0.2532835E 04	103.979	103.979	1.000000	1	4.065
0.2008119E 04	-0.1110797E 04	0.2294367E 04	331.051	165.525	0.906040	2	8.130
-0.2469247E 04	-0.4081650E 03	0.2522483E 04	189.312	63.104	0.995907	3	12.195
-0.1755283E 03	-0.1871074E 03	0.2565527E 03	226.829	56.707	0.101290	4	16.260
-0.6013506E 03	-0.1346951E 03	0.6162930E 03	192.624	38.525	0.243318	5	20.325
-0.3031875E 03	0.4096602E 03	0.5093164E 03	126.491	21.082	0.201281	6	24.390
-0.4961448E 03	-0.4020435E 03	0.6385911E 03	219.019	31.288	0.252123	7	28.455
0.3944055E 03	-0.2934651E 03	0.4915039E 03	323.348	40.419	0.194092	8	32.520
-0.1384733E 03	-0.1238660E 03	0.1851625E 03	221.710	24.634	0.073499	9	36.585
-0.1925585E 03	0.2310940E 03	0.3003042E 03	129.803	12.980	0.118761	10	40.650

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8150621E 03							
0.6997500E 03	-0.2616111E 03	0.7470544E 03	339.501	339.501	0.380906	1	4.065
0.1322338E 04	-0.4689092E 03	0.1403015E 04	340.475	170.238	0.715366	2	8.130
-0.1959530E 04	0.7194048E 02	0.1961255E 04	177.898	59.299	1.000000	3	12.195
-0.5682285E 03	-0.3266484E 03	0.6554238E 03	209.893	52.473	0.334187	4	16.260
-0.4731150E 03	-0.2594517E 03	0.5395859E 03	208.740	41.748	0.275123	5	20.325
-0.2358810E 03	0.3325201E 03	0.4092741E 03	125.709	20.951	0.208680	6	24.390
-0.5086855E 03	0.6197818E 02	0.5124512E 03	173.053	24.722	0.261287	7	28.455
-0.3203279E 02	-0.5260352E 03	0.5270095E 03	266.515	33.314	0.268710	8	32.520
-0.8417067E 02	-0.1479283E 03	0.1701983E 03	240.360	26.707	0.086780	9	36.585
-0.7884526E 02	0.1625488E 03	0.1806613E 03	115.876	11.588	0.092115	10	40.650

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2278272E 06							
-0.2554496E 04	0.3937940E 05	0.3946217E 05	93.712	93.712	1.000000	1	4.065
0.6724078E 04	-0.3793928E 04	0.7720563E 04	330.567	165.283	0.195645	2	8.130
-0.7814547E 04	-0.5800172E 04	0.9735438E 04	216.612	72.204	0.246703	3	12.195
0.3017702E 04	-0.2744140E 04	0.4078327E 04	317.718	79.430	0.103360	4	16.260
-0.1817316E 04	0.6602170E 02	0.1818514E 04	177.919	35.584	0.046082	5	20.325
0.6277004E 03	0.2718922E 02	0.6282891E 03	2.480	0.413	0.015921	6	24.390
-0.1287765E 04	-0.3760972E 03	0.1341561E 04	196.281	28.040	0.033996	7	28.455
-0.8309712E 03	-0.1947352E 03	0.8534339E 03	193.189	24.149	0.021626	8	32.520
-0.5471534E 03	-0.1139063E 02	0.5473118E 03	181.193	20.132	0.013869	9	36.585
0.1364358E 03	0.6843576E 02	0.1526374E 03	26.638	2.664	0.003868	10	40.650

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1754159E 05							
-0.1158519E 04	0.2367671E 05	0.2370505E 05	92.802	92.802	1.000000	1	4.065
0.3317544E 04	-0.4965848E 04	0.5972301E 04	303.749	151.874	0.251942	2	8.130
-0.6895250E 04	-0.1024996E 04	0.6971016E 04	188.455	62.818	0.294073	3	12.195
0.2392010E 04	-0.2385355E 04	0.3378111E 04	315.080	78.770	0.142506	4	16.260
-0.9759260E 03	0.7928064E 03	0.1257357E 04	140.911	28.182	0.053042	5	20.325
0.1030370E 04	-0.3933418E 03	0.1102901E 04	339.106	56.518	0.046526	6	24.390
-0.3406218E 03	0.1526147E 03	0.3732435E 03	155.865	22.266	0.015746	7	28.455
-0.8893328E 03	0.4908992E 03	0.1015822E 04	151.102	18.888	0.042853	8	32.520
0.3030264E 03	0.4006344E 02	0.3057033E 03	7.534	0.837	0.012896	9	36.585
-0.7615095E 03	[illegible]2947405E 03	0.8165591E 03	158.841	15.884	0.034447	10	40.650

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 4 V= 163.5 KTS n= 1 g

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.21342526E 05							
-0.52005591E 03	0.60554110E 04	0.60776772E 04	94.909	94.909	1.000000	1	4.065
0.94222261E 03	-0.10292220E 04	0.13953395E 04	312.474	156.237	0.229591	2	8.130
-0.17540805E 04	-0.85255598E 03	0.17502965E 04	205.922	68.641	0.320894	3	12.195
0.10063026E 04	-0.86259335E 03	0.13320135E 04	322.948	80.737	0.219164	4	16.260
-0.76722329F 03	0.23583656E 03	0.80266014E 03	162.913	32.583	0.132067	5	20.325
0.16104495E 03	-0.46285206E 02	0.16756372E 03	343.965	57.327	0.027570	6	24.390
-0.47631105F 03	0.30337600E 03	0.56472003E 03	147.506	21.072	0.092917	7	28.455
-0.19926767F 03	0.22431056F 03	0.30003373E 03	131.617	16.452	0.049367	8	32.520
0.10887135E 03	0.29476027E 03	0.31422533E 03	69.728	7.748	0.051701	9	36.585
-0.11705777E 03	0.18828566E 03	0.22170339E 03	121.869	12.187	0.036479	10	40.650

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 367 FLT 481.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.75025206E 03							
0.25698897E 04	0.16490145E 04	0.30534660E 04	32.687	32.687	1.000000	1	4.065
-0.99961111E 03	0.17575085E 04	0.20167609E 04	119.383	59.691	0.660552	2	8.130
-0.14023106E 02	0.35939916F 03	0.35966650E 03	92.235	30.745	0.117789	3	12.195
-0.27131105E 03	0.13424145E 01	0.27131373E 03	179.717	44.929	0.088854	4	16.260
0.69980815E 03	0.50413833E 02	0.69739944E 03	4.131	0.826	0.229215	5	20.325
0.45850010E 02	-0.24608801E 03	0.24532053E 03	280.777	46.796	0.080304	6	24.390
-0.22046886F 03	0.50053952E 03	0.54693387F 03	113.772	16.253	0.179121	7	28.455
0.54335057E 02	-0.75340055E 03	0.75536023E 03	274.125	34.266	0.247379	8	32.520
0.71522545E 02	0.34607388E 02	0.79482345E 02	25.860	2.873	0.026030	9	36.585
-0.85726994E 02	-0.10249495E 02	0.86337751E 02	186.818	18.682	0.028275	10	40.650

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 5 V= 165 KTS n= 1.13 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7374333F 01							
0.2930340F 01	-0.3541785F 01	0.4546860E 01	309.603	309.603	1.000000	1	4.032
-0.2551535E 00	-0.2340738E 00	0.3462862E 00	222.528	111.264	0.075331	2	8.065
-0.8621025E-01	0.4087936E-02	0.8633711E-01	177.285	59.395	0.018775	3	12.097
0.1648233E-01	-0.6212126E-02	0.1761417E-01	339.349	84.837	0.003832	4	16.125
0.2457660F-01	0.7472724E-02	0.2568735E-01	16.912	3.382	0.005568	5	20.161
0.5744626E-03	-0.1465877E-03	0.5923677E-03	345.686	57.614	0.000129	6	24.194
-0.1187033F-01	0.2144195E-01	0.2453844E-01	118.969	16.996	0.005332	7	28.226
0.3404048F-02	0.1307512F-01	0.1351037E-01	75.407	9.426	0.002939	8	32.258
-0.3709462E-02	0.2270401E-01	0.2300504E-01	99.279	11.031	0.005005	9	36.290
-0.2731853F-02	-0.1199974F-02	0.2983782E-02	203.714	20.371	0.000649	10	40.323

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7208477F 04							
-0.1604331F 06	0.1280098F 06	0.2052444E 06	141.414	141.414	1.000000	1	4.032
-0.5159661F 03	0.4306350E 03	0.6759224E 03	139.761	69.880	0.003293	2	8.065
-0.1837986E 05	-0.2726478F 05	0.3243142E 05	236.015	78.672	0.160206	3	12.097
0.4806543E 03	0.3373376F 04	0.3406402E 04	81.888	20.472	0.016597	4	16.125
0.6090012F 04	0.5603805E 04	0.8275922E 04	42.619	8.524	0.040322	5	20.161
-0.3179020F 03	0.1240107E 04	0.1283236E 04	104.378	17.396	0.006237	6	24.194
-0.2540766E 04	0.1335634E 04	0.2870457E 04	152.270	21.753	0.013986	7	28.226
0.5355164F 03	0.9072385F 03	0.1053494E 04	59.448	7.431	0.005133	8	32.258
-0.1352656F 03	0.1335860E 04	0.1342691E 04	95.782	10.642	0.006542	9	36.290
0.1343482E 04	0.6603228F 03	0.1496937E 04	26.174	2.617	0.007294	10	40.323

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3976026F 03							
-0.1106182E 03	-0.7117502E 02	0.1315364E 03	212.759	212.759	0.358558	1	4.032
0.2503594E 03	-0.2681052F 03	0.3668481E 03	313.043	156.522	1.000000	2	8.065
-0.9422803E 02	-0.2231927E 03	0.2422633E 03	247.111	82.370	0.660405	3	12.097
-0.3111604E 02	-0.4092160F 02	0.5140802E 02	232.751	58.188	0.140134	4	16.125
-0.3280701E 02	-0.4575165F 02	0.5629443E 02	234.357	46.871	0.153465	5	20.161
-0.2355759E 02	0.5110332E 02	0.5854131E 02	114.197	19.366	0.159574	6	24.194
0.3395482F 01	-0.2719778F 02	0.2747591E 02	278.159	39.737	0.074897	7	28.226
0.7401424E 01	-0.1902002E 02	0.2043936E 02	291.263	36.408	0.055634	8	32.258
-0.7309387F 01	0.6656149E 01	0.9883755E 01	137.676	15.296	0.026948	9	36.290
0.2314654F 01	-0.1443658F 02	0.1462036E 02	279.109	27.911	0.039856	10	40.323

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2195647E 05							
-0.3747586F 05	0.3010036E 05	0.4806733E 05	141.229	141.229	1.000000	1	4.032
0.3112144F 04	-0.1180819F 05	0.1221142E 05	284.765	142.382	0.254048	2	8.065
-0.2615012E 04	-0.5109348E 04	0.5739660E 04	242.896	80.965	0.119409	3	12.097
-0.1184630F 04	-0.9051519F 03	0.1490374E 04	217.397	54.349	0.031006	4	16.125
0.6418523F 03	-0.8246978F 03	0.1045051E 04	307.895	61.579	0.021742	5	20.161
0.5878931E 03	-0.1444612E 03	0.6053318E 03	346.194	57.699	0.012594	6	24.194
-0.8127796F 03	0.2316444E 03	0.8452410E 03	164.094	23.442	0.017585	7	28.226
0.7455653F 03	-0.9482585E 03	0.1129343E 04	311.513	38.914	0.023495	8	32.258
0.2748721E 03	0.6986103E 01	0.2749637E 03	1.455	0.162	0.005720	9	36.290
-0.4179549F 03	-0.7756819E 02	0.4251311E 03	190.513	19.051	0.008844	10	40.323

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 5 V= 165 KTS n= 1.13 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1766658E 05							
0.8796584E 04	0.7730938E 05	0.7736906E 05	83.512	83.512	1.000000	1	4.032
0.9937944E 04	-0.9729281E 04	0.1390761E 05	315.608	157.804	0.176605	2	8.065
-0.1112478E 05	-0.1127556E 05	0.1583979E 05	225.386	75.129	0.203418	3	12.097
-0.1664652E 03	0.8253059E 03	0.8419205E 03	101.404	25.351	0.010812	4	16.129
0.1614681E 04	0.9366465E 03	0.1866634E 04	30.114	6.023	0.023975	5	20.161
0.8726592E 03	-0.1400936E 03	0.8839328E 03	350.880	58.480	0.011350	6	24.194
0.7262854E 03	0.5726948E 03	0.9249160E 03	38.257	5.465	0.011878	7	28.226
0.1316043E 03	-0.9699902E 03	0.9753179E 03	275.991	34.499	0.012525	8	32.258
-0.2600020E 03	0.1801427E 02	0.2606252E 03	176.037	19.560	0.003347	9	36.290
0.4113496E 03	0.3615024E 03	0.5476245E 03	41.310	4.131	0.007033	10	40.323

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1359514E 05							
0.1609510E 04	-0.2780282E 04	0.3212752E 04	300.073	300.073	0.609552	1	4.032
-0.2157525E 04	0.4864803E 04	0.5270630E 04	114.164	57.082	1.000000	2	8.065
0.7637599E 03	0.1631193E 04	0.1800732E 04	64.335	21.445	0.343358	3	12.097
0.6068455E 03	0.1268287E 03	0.6199573E 03	11.805	2.951	0.117624	4	16.129
-0.3495549E 03	-0.1368037E 03	0.3753723E 03	201.374	40.275	0.071217	5	20.161
-0.3557104E 03	0.1390014E 03	0.3819094E 03	158.656	26.443	0.072458	6	24.194
-0.1643244E 03	-0.1908956E 03	0.2519063E 03	229.271	32.753	0.047794	7	28.226
0.6105464E 03	-0.6554008E 02	0.6140542E 03	353.873	44.234	0.116504	8	32.258
-0.1257726E 03	0.8965861E 02	0.1545743E 03	144.456	16.051	0.029327	9	36.290
-0.2731195E 02	-0.1436971E 03	0.1462695E 03	259.238	25.924	0.027752	10	40.323

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8166270E 03							
0.2219678E 04	-0.5114418E 04	0.5575036E 04	293.455	293.455	1.000000	1	4.032
-0.1122523E 04	0.4911051E 04	0.5037703E 04	102.875	51.438	0.903610	2	8.065
0.1874231E 04	0.3483850E 03	0.1906336E 04	10.530	3.510	0.341938	3	12.097
-0.3332612E 03	0.3254560E 01	0.3332771E 03	179.440	44.860	0.059780	4	16.129
0.9982204E 02	0.2422974E 03	0.2620542E 03	67.609	13.522	0.047005	5	20.161
-0.1002478E 03	0.4056099E 03	0.4216937E 03	103.752	17.292	0.075640	6	24.194
-0.2900171E 03	0.7224009E 03	0.7784425E 03	111.874	15.982	0.139629	7	28.226
-0.3158289E 03	-0.5763066E 03	0.6571775E 03	241.276	30.159	0.117878	8	32.258
0.1786451E 03	0.5147546E 02	0.1859172E 03	16.074	1.786	0.033348	9	36.290
0.1639526E 03	0.3082175E 03	0.3491108E 03	61.990	6.199	0.062620	10	40.323

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1028569E 05							
-0.2415674E 04	0.5094914E 04	0.5638582E 04	115.367	115.367	1.000000	1	4.032
0.2324618E 04	-0.3299398E 04	0.4035138E 04	305.169	152.585	0.715816	2	8.065
-0.2456629E 04	-0.8120085E 03	0.2587543E 04	198.305	66.102	0.458903	3	12.097
0.2353330E 03	0.2421294E 03	0.3376511E 03	45.815	11.454	0.059882	4	16.129
-0.1521023E 03	-0.1736273E 03	0.2308277E 03	228.781	45.756	0.040937	5	20.161
-0.1714259E 02	-0.3047054E 02	0.3496351E 02	240.632	40.105	0.006201	6	24.194
0.1113567E 03	-0.4105378E 03	0.4253633E 03	284.967	40.710	0.076467	7	28.226
0.9755615E 02	0.1157626E 03	0.1514077E 03	50.834	6.354	0.027395	8	32.258
0.1993603E 02	0.4696304E 02	0.5101956E 02	66.998	7.444	0.009048	9	36.290
-0.6383551E 01	-0.2111418E 03	0.2112333E 03	268.268	26.827	0.037463	10	40.323

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 5 V= 165 KTS n= 1.13 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1226502E 04							
-0.9354231E 03	0.3000000E 04	0.3163373E 04	108.147	108.147	1.000000	1	4.032
0.1364325E 04	-0.1633035E 04	0.2478439E 04	318.763	159.392	0.783321	2	8.065
-0.2386501E 04	-0.7302698E 03	0.2498027E 04	196.998	65.666	0.789521	3	12.097
0.7023676E 02	-0.5892535E 02	0.9171770E 02	319.978	79.994	0.028988	4	16.129
-0.4392650E 03	-0.2105669E 03	0.4873030E 03	205.653	41.131	0.154016	5	20.161
-0.2763301E 03	0.1460911E 03	0.3146201E 03	152.209	25.368	0.099438	6	24.194
-0.4044604E 03	-0.1088492E 03	0.4188513E 03	195.063	27.866	0.132381	7	28.226
0.3596240E 03	-0.3180012E 03	0.5030779E 03	320.794	40.099	0.159002	8	32.258
-0.1626440E 03	-0.3163031E 02	0.1656911E 03	191.005	21.223	0.052368	9	36.290
-0.1239570E 03	0.2115877E 03	0.2452233E 03	120.364	12.036	0.077505	10	40.323

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1275874E 04							
0.6010325E 03	0.2660474E 03	0.6572832E 03	23.877	23.877	0.323368	1	4.032
0.1098466E 04	-0.6803406E 03	0.1292037E 04	328.228	164.114	0.635677	2	8.065
-0.2019521E 04	-0.2303678E 03	0.2032617E 04	186.508	62.169	1.000000	3	12.097
-0.3551304E 03	-0.2707766E 03	0.4465934E 03	217.325	54.331	0.219710	4	16.129
-0.4370791E 03	-0.1536919E 03	0.4633155E 03	199.373	39.875	0.227939	5	20.161
-0.2929387E 03	0.2716257E 03	0.3994917E 03	137.162	22.860	0.196541	6	24.194
-0.5934270E 03	-0.1340256E 02	0.5935734E 03	181.294	25.899	0.292027	7	28.226
-0.8532580E 02	-0.6035823E 03	0.6095340E 03	261.953	32.744	0.299901	8	32.258
-0.8555700E 02	-0.5531934E 02	0.1041177E 03	214.732	23.859	0.051223	9	36.290
-0.1003665E 03	0.1556619E 03	0.1886047E 03	122.151	12.215	0.092789	10	40.323

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2249765E 06							
0.3286727E 04	0.3637576E 05	0.3652394E 05	84.837	84.837	1.000000	1	4.032
0.7002098E 04	-0.6512551E 04	0.9562556E 04	317.074	158.537	0.261816	2	8.065
-0.1057584E 05	-0.7052852E 04	0.1271521E 05	213.689	71.230	0.348134	3	12.097
0.3879337E 04	-0.1354496E 04	0.4109034E 04	340.753	85.188	0.112502	4	16.129
-0.1032015E 04	-0.6984226E 03	0.1247847E 04	212.842	42.568	0.035260	5	20.161
0.8218594E 03	0.9304980E 03	0.1241483E 04	48.548	8.091	0.033991	6	24.194
-0.8797559E 03	0.3159039E 02	0.9003225E 03	177.967	25.424	0.024650	7	28.226
-0.5528220E 03	-0.6616472E 03	0.8623535E 03	230.129	28.766	0.023611	8	32.258
0.4547117E 03	0.4519773E 03	0.6411237E 03	44.827	4.981	0.017554	9	36.290
0.3595547E 03	0.4796641E 03	0.5994641E 03	53.145	5.314	0.016413	10	40.323

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1555655E 05							
0.1315482E 04	0.2184692E 05	0.2188639E 05	86.554	86.554	1.000000	1	4.032
0.3314649E 04	-0.7217918E 04	0.7942621E 04	294.666	147.333	0.362902	2	8.065
-0.7905637E 04	-0.1413117E 04	0.8030339E 04	190.134	63.378	0.366938	3	12.097
0.2954195E 04	-0.1653643E 04	0.3437593E 04	327.095	81.773	0.159350	4	16.129
-0.1122744E 04	0.3065652E 03	0.1164373E 04	164.633	32.927	0.053201	5	20.161
0.7634360E 03	0.2125085E 02	0.7637317E 03	1.594	0.266	0.034895	6	24.194
-0.4407024E 03	0.3228987E 03	0.5463352E 03	143.770	20.539	0.024962	7	28.226
-0.2461884E 03	0.3401450E 03	0.4198895E 03	125.896	15.737	0.019185	8	32.258
0.3635360E 03	0.2784225E 03	0.4579063E 03	37.448	4.161	0.020922	9	36.290
0.5724451E 02	0.3944060E 03	0.3985346E 03	81.742	9.174	0.018209	10	40.323

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 5 V= 165 KTS n= 1.13 g

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 22
OVERALL CYCLIC LOAD = 0.922113E 04

ZERO POSITION USED 6.42 LOAD/IN USED -63300.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2047505E 05							
0.2373795E 03	0.5324379E 04	0.5329008E 04	87.447	87.447	1.000000	1	4.032
0.1061142E 04	-0.1443926E 04	0.1791911E 04	306.312	153.156	0.336214	2	8.065
-0.2274407E 04	-0.5737871E 03	0.2345068E 04	194.159	64.720	0.440115	3	12.097
0.1321380E 04	-0.7025059E 03	0.1496510E 04	332.003	83.001	0.280790	4	16.129
-0.7006682E 03	-0.5926355E 02	0.7031699E 03	184.835	36.967	0.131935	5	20.161
0.3604021E 03	-0.3367216E 02	0.3620692E 03	354.670	59.112	0.068010	6	24.194
-0.3893545E 03	0.1598494E 03	0.4208904E 03	157.679	22.526	0.078971	7	28.226
-0.1167676E 03	-0.8135046E 02	0.1423344E 03	214.878	26.860	0.026706	8	32.258
0.2344962E 03	0.2602749E 03	0.3503330E 03	47.983	5.331	0.065732	9	36.290
-0.2049720E 03	0.1184030E 03	0.2367125E 03	149.987	14.999	0.044414	10	40.323

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 377 FLT 481.0 TR 44
OVERALL CYCLIC LOAD = 0.567778E 04

ZERO POSITION USED 1.49 LOAD/IN USED 12530.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6777244E 03							
0.2691706E 04	0.1712721E 04	0.3190406E 04	32.468	32.468	1.000000	1	4.032
-0.1160976E 04	0.1851249E 04	0.2185174E 04	122.093	61.047	0.684920	2	8.065
0.7611946E 02	0.2377963E 03	0.2496823E 03	72.250	24.083	0.078260	3	12.097
-0.2477146E 03	-0.1114654E 03	0.2716377E 03	204.227	51.057	0.085142	4	16.129
0.6199238E 03	0.3189195E 01	0.6199319E 03	0.295	0.059	0.194311	5	20.161
-0.1089505E 02	-0.2884558E 03	0.2886614E 03	267.837	44.639	0.090478	6	24.194
-0.1798467E 03	0.3857168E 03	0.4272131E 03	114.772	16.396	0.134532	7	28.226
-0.1150871E 03	-0.7532239E 03	0.7619653E 03	261.313	32.664	0.238830	8	32.258
0.9855208E 02	0.5573621E 02	0.1132212E 03	29.490	3.277	0.035488	9	36.290
-0.6989406E 02	0.1296609E 02	0.7108662E 02	169.490	16.949	0.022281	10	40.323

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 6 V= 165.5 KTS n= 1.42 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 31

AJ	HJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8397724E 01							
0.2714504E 01	-0.3644401E 01	0.4544300E 01	306.642	306.642	1.000000	1	4.115
-0.3091535E 00	-0.2859232E 00	0.4211034E 00	222.764	111.382	0.092585	2	8.230
-0.1140314E 00	0.2565742E-02	0.1140633E 00	178.711	59.570	0.025078	3	12.346
0.6449604E-01	-0.6344473E-01	0.9047085E-01	315.471	78.868	0.019891	4	16.461
-0.1896744E-01	-0.1253148E-01	0.2295019E-01	214.235	42.857	0.005047	5	20.576
-0.1564057E-01	0.9020738E-02	0.1827248E-01	150.417	25.070	0.004017	6	24.691
-0.1417429E-01	-0.8477144E-02	0.1651582E-01	210.882	30.126	0.003631	7	28.807
-0.1291106E-01	0.3622360E-02	0.1341033E-01	164.329	20.541	0.002948	8	32.922
-0.6366212E-02	-0.5742179E-03	0.6392054E-02	185.154	20.573	0.001405	9	37.037
0.4667572E-03	-0.5578503E-02	0.5597934E-02	274.783	27.478	0.001231	10	41.152

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4584601E 04							
-0.2601042E 06	0.1343379E 06	0.2927471E 06	152.685	152.685	1.000000	1	4.115
-0.1147042E 04	0.1891848E 04	0.2212418E 04	121.229	60.614	0.007557	2	8.230
-0.3425733E 05	-0.3570174E 05	0.4952253E 05	226.231	75.410	0.169165	3	12.346
-0.9264114E 03	0.5135070E 04	0.5217905E 04	100.227	25.057	0.017824	4	16.461
0.6836040E 03	0.8874399E 04	0.8900634E 04	85.595	17.119	0.030404	5	20.576
0.7305766E 03	-0.9462152E 02	0.7370752E 03	352.624	58.771	0.002518	6	24.691
-0.3005016E 04	-0.3992690E 03	0.3031413E 04	187.568	26.795	0.010355	7	28.807
0.7237620E 03	0.4335376E 03	0.8437000E 03	30.925	3.866	0.002882	8	32.922
0.1161291E 04	0.1557581E 04	0.1942793E 04	53.290	5.921	0.006637	9	37.037
0.5949495E 03	0.6302361E 03	0.8710683E 03	46.921	4.692	0.002975	10	41.152

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4722087E 03							
0.3769156E 02	-0.2901903E 03	0.2925413E 03	277.403	277.403	0.643252	1	4.115
0.2331558E 03	-0.3904698E 03	0.4547849E 03	300.843	150.421	1.000000	2	8.230
-0.2297710E 03	-0.2524711E 03	0.3413702E 03	227.819	75.940	0.749151	3	12.346
-0.3174080E 02	0.5093596E 01	0.3214577E 02	170.883	42.721	0.070686	4	16.461
-0.8973122E 02	-0.2789765E 02	0.9396553E 02	197.266	39.453	0.206615	5	20.576
-0.4212503E 01	0.1590040E 02	0.1644974E 02	104.833	17.472	0.036181	6	24.691
-0.3762580E 00	-0.4209483E 02	0.4209551E 02	269.488	38.498	0.092564	7	28.807
-0.1704114E 02	-0.9821594E 01	0.1966835E 02	209.957	26.245	0.043249	8	32.922
-0.7098674E 01	-0.4546926E 01	0.8421624E 01	212.678	23.631	0.018518	9	37.037
-0.1720920E 02	0.1365293E 02	0.2209209E 02	141.167	14.117	0.048577	10	41.152

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 1

AJ	PJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4737477E 04							
-0.6210794E 05	0.3010138E 05	0.6901800E 05	154.142	154.142	1.000000	1	4.115
0.2301112E 04	-0.1368019E 05	0.1387238E 05	279.548	139.774	0.200996	2	8.230
-0.4990871E 04	-0.5207562E 04	0.7213323E 04	226.217	75.406	0.104509	3	12.346
-0.1871559E 04	-0.6547183E 03	0.1776713E 04	200.361	50.090	0.028730	4	16.461
-0.1443392E 04	0.5320892E 02	0.1444373E 04	177.889	35.578	0.020927	5	20.576
0.3257573E 03	0.4775734E 03	0.5780907E 03	55.702	9.284	0.008376	6	24.691
-0.5356184E 03	0.2643407E 03	0.5973542E 03	152.410	21.773	0.008270	7	28.807
0.2650203E 03	-0.2753530E 03	0.3821424E 03	313.905	39.238	0.005537	8	32.922
0.9009005E 03	0.6958549E 02	0.9035842E 03	4.417	0.491	0.013092	9	37.037
0.6659174E 02	-0.2923225E 02	0.7272537E 02	336.300	33.630	0.001054	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 6 V= 165.5 KTS n= 1.42 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009   T 394   CTR 383 FLT 481.0   TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1868164E 05							
0.4313C14E 05	0.2123829E 05	0.4807575E 05	26.217	26.217	1.000000	1	4.115
0.2574304E 05	-0.2560897E 05	0.3631151E 05	315.150	157.575	0.755298	2	8.230
-0.1515564E 05	-0.1761718E 05	0.2323119E 05	229.295	76.432	0.483387	3	12.346
0.1342623E 03	0.9540337E 03	0.9634235E 03	81.993	20.498	0.020040	4	16.461
-0.4380632E 02	-0.2224365E 02	0.4913367E 02	206.889	41.378	0.001023	5	20.576
-0.9100337E 03	-0.1332048E 04	0.1613235E 04	235.660	39.277	0.033556	6	24.691
0.1032504E 03	0.9652637E 03	0.9747517E 03	83.917	11.988	0.020275	7	28.807
0.3193622E 03	-0.5763750E 03	0.6592339E 03	299.037	37.380	0.013713	8	32.922
0.1119366E 04	-0.1478648E 04	0.1854557E 04	307.126	34.125	0.038576	9	37.037
0.1501566E 03	-0.6776335E 03	0.6940734E 03	282.494	28.249	0.014437	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009   T 394   CTR 383 FLT 481.0   TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1494332E 05							
0.6134570E 03	-0.3639529E 04	0.3690867E 04	279.567	279.567	0.535130	1	4.115
-0.2899627E 04	0.6258008E 04	0.6897137E 04	114.861	57.430	1.000000	2	8.230
0.1249996E 04	0.1934225E 04	0.2302933E 04	57.127	19.042	0.333904	3	12.346
0.7395181E 03	0.1444320E 03	0.7534702E 03	11.051	2.763	0.109247	4	16.461
0.8864551E 02	-0.5813767E 03	0.5880943E 03	277.897	55.579	0.085100	5	20.576
0.8519878E 02	-0.3653949E 02	0.9362350E 02	337.028	56.171	0.013574	6	24.691
-0.1196571E 03	-0.4674097E 03	0.5018823E 03	256.207	36.601	0.072767	7	28.807
0.3427080E 03	-0.1393132E 03	0.3699417E 03	337.878	42.235	0.053637	8	32.922
-0.1209672E 03	-0.3057019E 02	0.1247702E 03	194.183	21.576	0.018090	9	37.037
-0.1630656E 02	-0.6459049E 02	0.6700475E 02	255.915	25.591	0.009715	10	41.152

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009   T 394   CTR 383 FLT 481.0   TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1000167E 04							
0.2214641E 04	-0.5890227E 04	0.6292875E 04	290.607	290.607	0.956647	1	4.115
-0.1631553E 04	0.6372504E 04	0.6578051E 04	104.361	52.181	1.000000	2	8.230
0.2187494E 04	0.4714304E 03	0.2237526E 04	12.163	4.054	0.340150	3	12.346
-0.4436304E 03	0.1791822E 03	0.4803047E 03	158.096	39.524	0.073016	4	16.461
-0.1507830E 03	0.4570310E 03	0.4812637E 03	108.259	21.652	0.073162	5	20.576
-0.3469473E 03	0.4219205E 03	0.5462505E 03	129.431	21.572	0.083041	6	24.691
-0.1716779E 03	0.4650395E 03	0.4962773E 03	110.259	15.748	0.075445	7	28.807
-0.6397575E 02	-0.3576370E 03	0.3673645E 03	256.785	32.099	0.055847	8	32.922
0.5615570E 02	-0.1116544E 03	0.1251574E 03	296.659	32.962	0.019027	9	37.037
0.3273201E 02	-0.8016714E 02	0.8659187E 02	292.210	29.221	0.013164	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A   SHIP 1009   T 394   CTR 383 FLT 481.0   TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.9045644E 04							
-0.2914313E 04	0.5755461E 04	0.6487133E 04	116.699	116.699	1.000000	1	4.115
0.2412644E 04	-0.4768844E 04	0.5554237E 04	300.417	150.208	0.856202	2	8.230
-0.2170566E 04	-0.6047273E 03	0.2314933E 04	200.342	66.781	0.356850	3	12.346
0.6557603E 03	-0.3869560E 02	0.6569239E 03	356.623	89.156	0.101265	4	16.461
0.2612412E 03	-0.4514231E 03	0.5215647E 03	300.058	60.012	0.080400	5	20.576
0.3101660E 03	-0.3559244E 02	0.3122014E 03	353.454	58.909	0.048126	6	24.691
0.1444234E 03	-0.3967444E 03	0.4222136E 03	290.003	41.429	0.065085	7	28.807
0.4855550E 02	-0.2721787E 01	0.4863171E 02	356.792	44.599	0.007497	8	32.922
-0.1555653E 02	0.2599213E 02	0.3029185E 02	120.901	13.433	0.004670	9	37.037
-0.7413411E 02	-0.3361382E 01	0.7421032E 02	182.596	18.260	0.011440	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 6 V= 165.5 KTS n= 1.42 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1798116E 03							
-0.1517505E 04	0.3823198E 04	0.4113352E 04	111.649	111.649	1.000000	1	4.115
0.2252740E 04	-0.2747943E 04	0.3553483E 04	309.324	154.662	0.864224	2	8.230
-0.1859794E 04	-0.8036518E 03	0.2026030E 04	203.375	67.792	0.492563	3	12.346
0.6382729E 03	-0.2663635E 03	0.6640374E 03	336.351	84.088	0.161435	4	16.461
-0.1033097E 03	-0.6460762E 03	0.6543065E 03	261.447	52.289	0.159068	5	20.576
-0.1093443E 03	-0.2197059E 03	0.2455407E 03	243.562	40.594	0.059706	6	24.691
-0.3337569E 03	-0.3610488E 03	0.4911157E 03	226.821	32.403	0.120368	7	28.807
0.3375774E 03	-0.1759247E 03	0.3543330E 03	330.232	41.279	0.086143	8	32.922
0.1164840E 03	-0.2600081E 03	0.2849082E 03	294.132	32.681	0.069264	9	37.037
-0.7998359E 02	0.9073508E 02	0.1209557E 03	131.397	13.140	0.029406	10	41.152

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2674787E 04							
0.2531043E 03	0.1016474E 04	0.1047511E 04	76.018	76.018	0.552019	1	4.115
0.1516872E 04	-0.1140435E 04	0.1897603E 04	323.059	161.530	1.000000	2	8.230
-0.1413531E 04	-0.4388145E 03	0.1480439E 04	197.242	65.747	0.780175	3	12.346
0.8680240E 02	-0.4776853E 03	0.4855073E 03	280.299	70.075	0.255854	4	16.461
-0.2304555E 03	-0.4136990E 03	0.4597356E 03	244.149	48.830	0.242256	5	20.576
-0.4734778E 03	0.1762276E 03	0.5078357E 03	160.416	26.736	0.267631	6	24.691
-0.4166570E 03	-0.2284357E 03	0.4751532E 03	208.734	29.819	0.250405	7	28.807
0.9330191E 01	-0.4640046E 03	0.4640977E 03	271.148	33.894	0.244571	8	32.922
-0.5121597E 02	-0.2784875E 03	0.2835513E 03	259.594	28.844	0.149426	9	37.037
0.1563971E 02	-0.6440629E 01	0.1691397E 02	337.617	33.762	0.008913	10	41.152

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2265564E 06							
0.2295322E 05	0.7140785E 04	0.2403832E 05	17.281	17.281	1.000000	1	4.115
0.1582427E 05	-0.1723118E 05	0.2344077E 05	312.468	156.234	0.975142	2	8.230
-0.1765505E 05	-0.9439699E 04	0.2002023E 05	208.132	69.377	0.832845	3	12.346
0.4443055E 04	0.2944912E 03	0.4452831E 04	3.792	0.948	0.185238	4	16.461
-0.1840470E 04	0.7392629E 03	0.1983391E 04	158.116	31.623	0.082510	5	20.576
-0.9640320E 03	0.4680190E 03	0.1071634E 04	154.104	25.684	0.044580	6	24.691
-0.1893590E 04	-0.7925694E 02	0.1895241E 04	182.397	26.057	0.078843	7	28.807
-0.9875270E 03	-0.1052865E 03	0.9931641E 03	186.085	23.261	0.041316	8	32.922
0.4130075E 03	0.7809885E 03	0.8820710E 03	62.301	6.922	0.036694	9	37.037
-0.1658215E 03	-0.7922690E 03	0.8093339E 03	258.174	25.817	0.033671	10	41.152

BLADE CHORD AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1028465E 05							
0.7502965E 04	0.7197059E 04	0.1039674E 05	43.808	43.808	0.612725	1	4.115
0.9381563E 04	-0.1433316E 05	0.1696804E 05	302.358	151.179	1.000000	2	8.230
-0.1282274E 05	-0.2247088E 04	0.1301913E 05	189.939	63.313	0.767274	3	12.346
0.4047278E 04	-0.8073025E 03	0.4127033E 04	348.719	87.180	0.243222	4	16.461
-0.1186621E 04	0.2101815E 04	0.2413651E 04	119.448	23.890	0.142247	5	20.576
0.3310352E 03	0.1113822E 04	0.1161974E 04	73.448	12.241	0.068480	6	24.691
-0.1804575E 04	0.1107915E 04	0.2117533E 04	148.452	21.207	0.124796	7	28.807
-0.4331787E 03	0.1400041E 04	0.1465539E 04	107.080	13.385	0.086317	8	32.922
-0.5549879E 02	0.1376148E 04	0.1377267E 04	92.310	10.257	0.081168	9	37.037
0.3939185E 03	0.2960992E 02	0.3950342E 03	4.307	0.431	0.023281	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 6 V= 165.5 KTS n= 1.42 g

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2074C125 05							
0.2373543E 04	0.8801917E 03	0.2533958E 04	20.471	20.471	0.544785	1	4.115
0.3263520E 04	-0.3313825E 04	0.4651331E 04	314.565	157.283	1.000000	2	8.23C
-0.3378707E 04	-0.1387433E 04	0.4117402E 04	199.683	66.561	0.885645	3	12.346
0.1323664F 04	-0.2844202F 03	0.1353881E 04	347.873	86.968	0.291076	4	16.461
-0.8292529F 03	0.9487117F 03	0.1260045E 04	131.156	26.231	0.270902	5	20.576
0.1641566F 03	0.4396331E 03	0.4692810E 03	69.525	11.587	0.100892	6	24.691
-0.8919492E 03	0.1201519E 02	0.8920330E 03	179.228	25.604	0.191781	7	28.807
-0.3017455E 03	0.5116387E 03	0.5939905E 03	120.531	15.066	0.127704	8	32.922
-0.6920079E 02	0.6117351E 03	0.6156367E 03	96.454	10.717	0.132358	9	37.037
-0.2786490E 02	-0.1482308E 03	0.1508271E 03	259.354	25.935	0.032427	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 383 FLT 481.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1955211E 03							
0.2974260F 04	0.2825078E 04	0.4102184E 04	43.525	43.525	1.000000	1	4.115
-0.5601162E 03	0.2436096E 04	0.2501608E 04	102.938	51.469	0.609824	2	8.230
0.5391245E 03	-0.2907742E 03	0.6569758E 03	333.730	111.243	0.160153	3	12.346
-0.9126149E 03	-0.3466914E 03	0.9764351E 03	200.797	50.199	0.238028	4	16.461
0.1051772E 03	0.7079634E 03	0.7161002E 03	81.312	16.262	0.174585	5	20.576
-0.2081116E 03	0.2429500F 03	0.3199087E 03	130.583	21.764	0.077982	6	24.691
0.2031765F 03	0.3417402E 03	0.3975754E 03	59.267	8.467	0.096918	7	28.807
0.3590C15E 03	-0.7636587E 03	0.8433349E 03	295.178	36.897	0.205704	8	32.922
-0.9261322E 02	-0.1280173E 03	0.1580032E 03	234.116	26.013	0.038517	9	37.037
0.1147C40E 02	-0.1625537E 02	0.1989490E 02	305.208	30.521	0.004850	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 7 V= 165 KTS n= 1.6 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8196277E 01							
0.2916435E 01	-0.3827657E 01	0.4812124E 01	307.305	307.305	1.000000	1	4.082
-0.2782773E 00	-0.2176533E 00	0.3532363E 00	218.031	109.015	0.073416	2	8.163
-0.1288282E 00	0.3342491E-01	0.1330937E 00	165.455	55.152	0.027658	3	12.245
0.6111514E-01	-0.5969060E-01	0.8543152E-01	315.677	78.919	0.017753	4	16.327
-0.2323687E-01	-0.1517126E-01	0.2775203E-01	213.138	42.628	0.005767	5	20.408
0.2371860E-01	0.2061583E-01	0.3565033E-01	48.294	8.049	0.007409	6	24.490
-0.6743660E-01	-0.2852453E-02	0.6749832E-01	182.422	26.060	0.014027	7	28.571
-0.1631702E-01	0.4485811E-01	0.4773358E-01	109.989	13.749	0.009919	8	32.653
0.2396568E-01	0.3556410E-02	0.2423207E-01	8.439	0.938	0.005036	9	36.735
0.9323622E-03	-0.2512971E-01	0.2514703E-01	272.125	27.212	0.005226	10	40.816

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7309887E 04							
-0.2885975E 06	0.1151683E 06	0.3107233E 05	158.245	158.245	1.000000	1	4.082
-0.3561892E 03	-0.3524086E 04	0.3627374E 04	256.313	128.157	0.011673	2	8.163
-0.4439151E 05	-0.4227903E 05	0.6130382E 05	223.604	74.535	0.197290	3	12.245
0.1719527E 04	0.1963530E 04	0.2609365E 04	48.807	12.202	0.008398	4	16.327
0.8763714E 04	0.1235319E 05	0.1514603E 05	54.647	10.929	0.048744	5	20.408
0.1516207E 04	-0.1529696E 03	0.1523703E 04	354.239	59.040	0.004904	6	24.490
0.1567219E 04	0.4725102E 04	0.4978258E 04	71.649	10.236	0.016021	7	28.571
0.8517675E 03	0.1963403E 03	0.8741035E 03	12.980	1.623	0.002813	8	32.653
0.1371221E 04	-0.1204853E 04	0.1825336E 04	318.695	35.411	0.005874	9	36.735
-0.5774495E 03	0.2692307E 03	0.6371287E 03	155.003	15.500	0.002050	10	40.816

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4914219E 03							
0.5576616E 02	-0.4474937E 03	0.4509551E 03	277.104	277.104	1.000000	1	4.082
0.1552676E 03	-0.3853616E 03	0.4154653E 03	291.945	145.973	0.921301	2	8.163
-0.3208184E 03	-0.1671474E 03	0.3617937E 03	207.516	69.172	0.802283	3	12.245
-0.5380432E 01	0.1836758E 01	0.5685307E 01	161.151	40.288	0.012607	4	16.327
-0.5906223E 02	-0.6396548E 02	0.8706277E 02	227.282	45.456	0.193063	5	20.408
-0.7424565E 02	-0.7241909E 01	0.7459776E 02	185.571	30.928	0.165422	6	24.490
-0.7501004E 02	-0.6250342E 02	0.9763779E 02	219.803	31.400	0.216514	7	28.571
-0.2055483E 02	0.5454608E 01	0.2156631E 02	165.240	20.655	0.047824	8	32.653
-0.3559212E-01	0.2340976E 02	0.2341377E 02	90.068	10.010	0.051912	9	36.735
0.2919726E 02	0.3635603E 02	0.4600722E 02	52.203	5.220	0.102026	10	40.816

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3420194E 04							
-0.6569538E 05	0.2796541E 05	0.7143365E 05	157.908	157.909	1.000000	1	4.082
0.1762744E 04	-0.1451321E 05	0.1462223E 05	277.003	138.501	0.196646	2	8.163
-0.7347632E 04	-0.3304565E 04	0.8056721E 04	204.215	68.072	0.108350	3	12.245
-0.1692546E 04	0.4187139E 03	0.1743553E 04	166.105	41.526	0.023448	4	16.327
0.4565789E 03	0.7087720E 03	0.8441373E 03	57.097	11.419	0.011353	5	20.408
0.1905507E 04	0.1031823E 04	0.2167234E 04	28.430	4.738	0.029146	6	24.490
0.7104275E 01	0.8223870E 03	0.8224177E 03	89.505	12.786	0.011060	7	28.571
-0.1172542E 03	-0.8546125E 03	0.8626223E 03	262.187	32.773	0.011604	8	32.653
0.4692625E 03	-0.1022026E 04	0.1125153E 04	294.649	32.737	0.015131	9	36.735
0.6538452E 02	-0.4601714E 03	0.4647312E 03	278.050	27.505	0.006250	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 7 V= 165 KTS n= 1.6 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1469263E 05							
0.5194840E 05	-0.1419296E 05	0.5385236E 05	344.719	344.719	0.973621	1	4.082
0.3953103E 05	-0.3868655E 05	0.5531141E 05	315.618	157.809	1.000000	2	8.163
-0.2231575E 05	-0.1844532E 05	0.2895315E 05	219.571	73.190	0.523493	3	12.245
0.3592116E 04	0.4886670E 03	0.3625202E 04	7.747	1.937	0.065542	4	16.327
0.3351446E 04	0.2856249E 04	0.4427496E 04	40.833	8.167	0.080083	5	20.408
0.1787221E 04	-0.1129077E 04	0.2113995E 04	327.717	54.620	0.038220	6	24.490
0.3111490E 04	0.2390888E 03	0.3120662E 04	4.394	0.628	0.056420	7	28.571
-0.2285645E 04	0.4058003E 03	0.2321337E 04	169.932	21.242	0.041969	8	32.653
-0.1339775E 04	0.3417690E 03	0.1382630E 04	165.689	18.410	0.024998	9	36.735
-0.5036604E 03	-0.8647056E 03	0.1000705E 04	239.780	23.978	0.018092	10	40.816

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1564790E 05							
0.4200374E 03	-0.4143734E 04	0.4164965E 04	275.788	275.788	0.573172	1	4.082
-0.3179075E 04	0.6534199E 04	0.7266516E 04	115.944	57.972	1.000000	2	8.163
0.2028052E 04	0.1834647E 04	0.2734762E 04	42.134	14.045	0.376351	3	12.245
0.9720728E 03	-0.2668472E 03	0.1008034E 04	344.650	86.162	0.138723	4	16.327
-0.7519622E 03	-0.1080661E 04	0.1316551E 04	235.168	47.034	0.181180	5	20.408
-0.1026180E 04	-0.1737229E 03	0.1040781E 04	189.609	31.601	0.143230	6	24.490
-0.8006582E 03	-0.6838025E 03	0.1052919E 04	220.499	31.500	0.144900	7	28.571
0.2565701E 03	-0.2573266E 03	0.3865403E 03	318.275	39.784	0.053209	8	32.653
0.1365023E 03	-0.5914281E 02	0.1506210E 03	336.859	37.429	0.020728	9	36.735
0.7922455E 02	-0.1355809E 03	0.1570339E 03	300.299	30.030	0.021610	10	40.816

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1306395E 04							
0.2621681E 04	-0.6154188E 04	0.6689336E 04	293.074	293.074	0.909047	1	4.082
-0.2497565E 04	0.6921668E 04	0.7358621E 04	109.844	54.922	1.000000	2	8.163
0.2359406E 04	0.7139392E 03	0.2465057E 04	16.835	5.612	0.334989	3	12.245
-0.6107312E 03	0.3781292E 03	0.7183135E 03	148.237	37.059	0.097615	4	16.327
0.2078135E 03	0.5747904E 03	0.6112097E 03	70.123	14.025	0.083060	5	20.408
0.3452283E 03	0.4809617E 03	0.5920359E 03	54.330	9.055	0.080455	6	24.490
0.3579427E 01	0.5487048E 03	0.5487163E 03	89.626	12.804	0.074568	7	28.571
-0.2974497E 03	-0.7314543E 03	0.7896093E 03	247.837	30.980	0.107331	8	32.653
-0.3371404E 03	-0.5060449E 03	0.6080667E 03	236.327	26.259	0.082633	9	36.735
-0.4152429E 03	-0.2544614E 02	0.4160249E 03	183.514	18.351	0.056536	10	40.816

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.8828750E 04							
-0.3459043E 04	0.6220750E 04	0.7117793E 04	119.077	119.077	1.000000	1	4.082
0.3164891E 04	-0.5421254E 04	0.6287563E 04	300.433	150.217	0.883358	2	8.163
-0.1983282E 04	-0.9548594E 03	0.2201173E 04	205.709	68.570	0.309249	3	12.245
0.8392852E 03	-0.4539492E 03	0.9733508E 03	329.521	82.380	0.136819	4	16.327
-0.6124646E 03	-0.1149249E 04	0.1302263E 04	241.946	48.389	0.182959	5	20.408
-0.6811753E 03	-0.3428198E 03	0.7625779E 03	206.715	34.452	0.107137	6	24.490
-0.3951843E 03	-0.5559026E 03	0.6820544E 03	234.591	33.513	0.095824	7	28.571
-0.4221583E 02	0.1170113E 03	0.1243951E 03	109.840	13.730	0.017477	8	32.653
0.7458791E 02	0.2921077E 03	0.3015744E 03	75.621	8.402	0.042366	9	36.735
0.9375683E 02	0.9362054E 02	0.1333902E 03	45.890	4.589	0.016319	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 7 V= 165 KTS n= 1.6 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6769438E 03							
-0.2142002E 04	0.4447609E 04	0.4736535E 04	115.716	115.716	1.000000	1	4.082
0.2616530E 04	-0.3428126E 04	0.4312570E 04	307.353	153.676	0.873603	2	8.163
-0.1725262E 04	-0.1250791E 04	0.2130963E 04	215.942	71.981	0.431672	3	12.245
0.6018223E 03	-0.7140151E 03	0.9338521E 03	310.129	77.532	0.189172	4	16.327
-0.8315633E 03	-0.1151545E 04	0.1450257E 04	232.564	46.513	0.293780	5	20.408
-0.9837166E 03	-0.1802246E 03	0.1000070E 04	190.382	31.730	0.202589	6	24.490
-0.7207261E 03	-0.3927920E 03	0.8208115E 03	208.590	29.799	0.166273	7	28.571
0.8716537E 02	-0.9074800E 03	0.9116570E 03	275.487	34.436	0.184675	8	32.653
-0.5260460E 02	-0.4154417E 03	0.4187733E 03	262.783	29.198	0.084828	9	36.735
-0.2364230E 02	0.6593701E 02	0.7004744E 02	109.726	10.973	0.014190	10	40.816

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3349328E 04							
-0.2931138E 03	0.1361241E 04	0.1392446E 04	102.153	102.153	0.618435	1	4.082
0.1629822E 04	-0.1554503E 04	0.2251564E 04	316.337	158.169	1.000000	2	8.163
-0.1279518E 04	-0.9675996E 03	0.1604506E 04	217.089	72.363	0.712618	3	12.245
0.2101121E 03	-0.6977190E 03	0.7286733E 03	286.760	71.690	0.323630	4	16.327
-0.5770471E 03	-0.7332898E 03	0.9331116E 03	231.800	46.360	0.414428	5	20.408
-0.7794543E 03	0.1935800E 03	0.8031323E 03	166.053	27.675	0.356700	6	24.490
-0.5913796E 03	-0.1450626E 03	0.6089163E 03	193.784	27.683	0.270441	7	28.571
-0.1749056E 03	-0.8422573E 03	0.8602263E 03	258.268	32.284	0.382057	8	32.653
-0.1441591E 03	-0.5833333E 03	0.6009713E 03	256.115	28.457	0.266877	9	36.735
-0.2301861E 03	-0.2312860E 03	0.3263110E 03	225.137	22.514	0.144926	10	40.816

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2236094E 06							
0.2840343E 05	-0.9501406E 04	0.2995044E 05	341.504	341.504	0.870366	1	4.082
0.2447207E 05	-0.2414216E 05	0.3441137E 05	315.324	157.665	1.000000	2	8.163
-0.2393651E 05	-0.8247965E 04	0.2531768E 05	199.013	66.338	0.735736	3	12.245
0.8972824E 04	-0.2180912E 04	0.9136922E 04	346.190	86.548	0.265520	4	16.327
-0.7272290E 03	0.1115443E 04	0.1331559E 04	123.103	24.621	0.038696	5	20.408
0.1425965E 04	0.1656050E 03	0.1435547E 04	6.624	1.104	0.041717	6	24.490
-0.8254348E 03	0.6565955E 03	0.1054732E 04	141.499	20.214	0.030651	7	28.571
-0.2929148E 03	0.9659721E 02	0.3090637E 03	161.396	20.175	0.008981	8	32.653
0.1986876E 04	-0.5152056E 03	0.2052586E 04	345.463	38.385	0.059648	9	36.735
-0.1162248E 03	-0.2594478E 03	0.2842910E 03	245.869	24.587	0.008262	10	40.616

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1509901E 05							
0.9198566E 04	-0.3255247E 03	0.9204324E 04	357.973	357.973	0.394864	1	4.082
0.1414736E 05	-0.1852605E 05	0.2331013E 05	307.367	153.683	1.000000	2	8.163
-0.1661501E 05	-0.2045099E 04	0.1674039E 05	187.017	62.339	0.718159	3	12.245
0.7005051E 04	-0.1946078E 04	0.7270833E 04	344.459	86.115	0.311919	4	16.327
-0.6080610E 03	0.1286382E 04	0.1422855E 04	115.300	23.060	0.061040	5	20.408
0.2001157E 04	0.1508904E 03	0.2006837E 04	4.312	0.719	0.086093	6	24.490
-0.7803300E 03	0.2067782E 04	0.2210122E 04	110.675	15.811	0.094814	7	28.571
0.1794324E 04	-0.1019568E 03	0.1797214E 04	356.748	44.593	0.077100	8	32.653
0.2230018E 04	-0.1191681E 04	0.2528455E 04	331.881	36.876	0.108470	9	36.735
0.1137189E 03	-0.6190538E 03	0.6294087E 03	280.409	28.041	0.027002	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 7 V= 165 KTS n= 1.6 g

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 394 CTR 392 FLT 481.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.21125000E 05							
0.26460036E 04	-0.18546071E 04	0.32311302E 04	324.972	324.972	0.461176	1	4.082
0.48980012E 04	-0.50102254E 04	0.70056522E 04	314.351	157.175	1.000000	2	8.163
-0.56735960E 04	-0.10183061E 04	0.57682227E 04	190.371	63.457	0.823250	3	12.245
0.24216597E 04	-0.62493059E 03	0.25012259E 04	345.531	86.383	0.356979	4	16.327
-0.33704457E 03	0.12026349E 04	0.12489753E 04	105.656	21.131	0.178256	5	20.408
0.93162745E 03	0.60682035E 03	0.11114327E 04	33.078	5.513	0.158682	6	24.490
-0.34946870E 03	0.10123285E 04	0.10709503E 04	109.045	15.578	0.152848	7	28.571
0.91655520E 03	0.16750988E 03	0.93173342E 03	10.357	1.295	0.132978	8	32.653
0.12714423E 04	-0.38450015E 03	0.13282335E 04	343.182	38.131	0.189567	9	36.735
-0.68971560E 02	-0.38033337E 03	0.38653695E 03	259.721	25.972	0.055167	10	40.816

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 394 CTR 392 FLT 481.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.23882214E 03							
0.34768444E 04	0.37837742E 04	0.51399945E 04	47.404	47.404	1.000000	1	4.082
-0.11769574E 03	0.21137600E 04	0.21170343E 04	93.187	46.594	0.411879	2	8.163
0.58309589E 03	-0.64893360E 03	0.87242143E 03	311.941	103.980	0.169734	3	12.245
-0.10495254E 04	0.35771449E 03	0.11098814E 04	161.179	40.295	0.215725	4	16.327
0.10170012E 04	0.16647772E 04	0.19508415E 04	58.579	11.716	0.379545	5	20.408
0.13480074E 04	0.21943775E 03	0.13653816E 04	9.245	1.541	0.265726	6	24.490
0.25657725E 03	0.25522493E 03	0.36189797E 03	44.850	6.407	0.070409	7	28.571
-0.12555883E 03	-0.12906490E 04	0.13025583E 04	264.467	33.058	0.253419	8	32.653
-0.20817823E 03	-0.18648814E 01	0.20817907E 03	180.513	20.057	0.040504	9	36.735
0.14362345E 03	0.14509444E 02	0.14435444E 03	5.769	0.577	0.028085	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA

CASE 8 V= 204.5 KTS n= 1.06 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.59770756 01							
0.18553365E 01	-0.64760538 00	0.15652C8E 01	340.753	340.753	1.000000	1	4.098
-0.15727E5E 00	-0.11563242 00	0.19760688E 00	217.256	108.629	0.100553	2	8.197
0.26334624E-01	0.11637281 00	0.12126671E 00	77.450	25.819	0.061707	3	12.295
-0.44023366E-01	-0.23051107 -01	0.45575278E-01	208.243	52.061	0.025432	4	16.393
-0.43711425E-01	0.54603557 -01	0.70100762E-01	123.576	25.715	0.035671	5	20.492
-0.14532355E-01	0.18017786 -01	0.23776026E-01	127.678	21.280	0.012078	6	24.590
-0.12473436E-01	0.20220171E-01	0.23764795E-01	121.650	17.380	0.012093	7	28.689
0.11066325E-01	0.20058011E-01	0.22908238E-01	61.114	7.639	0.011657	8	32.787
0.65307032E-02	0.88553601E-02	0.11072055E-01	53.405	5.934	0.005634	9	36.885
0.22204720E-02	0.76114120E-02	0.81208760E-02	74.132	7.413	0.004132	10	40.984

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.97659420F 03							
-0.97933360F 05	0.11601064F 06	0.15723063E 05	130.024	130.024	1.000000	1	4.098
-0.44950064F 04	0.28162225F 04	0.53031173E 04	147.903	73.952	0.034804	2	8.197
-0.17553135F 05	0.22594710E 05	0.28614319E 05	127.809	42.603	0.187797	3	12.295
0.42035160F 04	0.21922026E 04	0.47449354E 04	27.517	6.879	0.031158	4	16.393
0.70720405F 04	0.77956173E 04	0.10461235F 05	47.953	9.591	0.068563	5	20.492
-0.87420559F 03	0.46035315E 04	0.47063638F 04	100.767	16.794	0.030905	6	24.590
0.55924800F 03	-0.17763728 04	0.18753432F 04	288.332	41.190	0.012302	7	28.689
-0.6[illegible] 03	-0.15277457 04	0.20942460F 04	246.999	30.875	0.013752	8	32.787
-0.17[illegible]58 04	-0.16607552E 03	0.17763377F 04	185.386	20.598	0.011665	9	36.885
-0.22[illegible]91E 03	0.12027006F 04	0.12223054E 04	100.448	10.045	0.008031	10	40.984

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.55696494F 02							
-0.14059932E 03	0.43310511E 02	0.14702530F 03	162.990	162.990	0.353657	1	4.098
0.34382585E 03	-0.23756107 03	0.41566607E 03	325.078	162.539	1.000000	2	8.197
-0.24170330 02	0.16161530 03	0.16341127E 03	98.506	32.835	0.393121	3	12.295
0.58035582E 02	-0.13977350 03	0.15135090E 03	292.556	73.139	0.364104	4	16.393
-0.53332780 02	0.26139600 02	0.66572392 02	154.995	30.999	0.160153	5	20.492
-0.63856025 02	0.10629590 03	0.12422227E 03	119.335	19.889	0.278142	6	24.590
-0.24337160 02	-0.14053700 01	0.24377935 02	183.306	26.187	0.058646	7	28.689
-0.11160695F 02	0.10247016 02	0.15157215 02	137.454	17.183	0.036464	8	32.787
0.15709538E 01	-0.32842155 02	0.32879575E 02	272.739	30.304	0.079099	9	36.885
-0.27771432E 02	0.17031056 02	0.32580208E 02	148.434	14.848	0.078376	10	40.984

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.52123500F 05							
-0.70577419E 05	0.33159780 05	0.35230580E 05	122.320	122.320	1.000000	1	4.098
0.10172730 05	-0.21272860 05	0.23580C01E 05	295.557	147.779	0.600933	2	8.197
0.94759180E 03	0.60640870 04	0.68705278 04	82.072	27.357	0.175094	3	12.295
-0.32396560 04	-0.22201170 04	0.39337375 04	213.422	53.356	0.100378	4	16.393
0.21497775F 04	0.25172707 04	0.32307945 04	43.338	8.668	0.082335	5	20.492
0.16167310 04	0.31550[illegible] 03	0.16473590 04	11.036	1.839	0.041764	6	24.590
0.29483556E 03	0.20[illegible] 03	0.35831478E 03	35.61[illegible]	4.945	0.009132	7	28.689
0.12330410 04	0.11790075 04	0.17015856E 04	43.6[illegible]	5.462	0.043375	8	32.787
-0.17333111F 03	0.12[illegible] 03	0.21555795 03	143.5[illegible]	15.945	0.005494	9	36.885
-0.01455835 02	0.[illegible] 03	0.34201080 03	103.753	10.375	0.008736	10	40.984

HARMONIC COMPONENTS OF FLIGHT T[illegible]T DATA
CASE 8 V= 204.5 KTS n= 1.[illegible] g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5464463E 05							
-0.2330943E 05	0.8045263E 05	0.8379569E 05	106.150	106.150	1.000000	1	4.098
-0.3942083E 04	-0.4147456E 03	0.3964657E 04	186.038	93.004	0.047311	2	8.197
-0.2483403E 04	-0.4135203E 04	0.4823605E 04	239.013	79.671	0.057561	3	12.295
-0.4468284E 03	-0.1624422E 04	0.1684755E 04	254.620	63.655	0.020135	4	16.393
0.1412159E 04	0.7383110E 03	0.1593669E 04	27.595	5.520	0.019018	5	20.492
0.1562406E 04	-0.5329375E 03	0.1815749E 04	329.153	54.860	0.021715	6	24.590
0.5577555E 03	-0.6183764E 03	0.8354855E 03	312.556	44.651	0.010018	7	28.689
0.1236175E 03	-0.1653746E 02	0.1249557E 03	351.471	43.934	0.001492	8	32.787
0.3476571E 03	-0.2327601E 03	0.4178626E 03	326.151	36.239	0.004987	9	36.885
0.4351563E 02	-0.9110074E 02	0.1029758E 03	297.792	29.779	0.001229	10	40.984

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6751016E 02							
0.2992454E 04	-0.3461443E 04	0.4575625E 04	310.844	310.844	0.826036	1	4.098
-0.9301599E 03	0.5476563E 04	0.5535238E 04	99.674	49.837	1.000000	2	8.197
0.1731529E 04	0.2357323E 03	0.1757586E 04	7.664	2.555	0.324753	3	12.295
0.5426036E 03	-0.1548520E 03	0.5765857E 03	340.248	85.062	0.104106	4	16.393
0.1414166E 03	0.4427661E 03	0.4648008E 03	72.287	14.457	0.083971	5	20.492
0.2274478E 03	0.4121005E 03	0.4707064E 03	61.105	10.184	0.085037	6	24.590
-0.1761750E 03	-0.1534747E 03	0.2316500E 03	220.531	31.506	0.041851	7	28.689
0.5735642E 03	[illegible]	0.1047345E 04	56.775	7.039	0.189214	8	32.787
-0.6632151E 03	0.2347903E 02	0.6633262E 03	177.541	19.727	0.119927	9	36.885
-0.2305547E 03	-0.4240723E 03	0.5004763E 03	236.512	23.651	0.091662	10	40.984

BLADE CHORD AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2654573E 05							
-0.5220363E 04	0.1979544E 05	0.2047221E 05	104.774	104.774	1.000000	1	4.098
-0.9214753E 03	-0.1076771E 04	0.1417236E 04	229.444	114.722	0.069227	2	8.197
-0.2670954E 03	0.1019001E 04	0.1053425E 04	104.688	34.896	0.051456	3	12.295
0.1871436E 04	-0.2369764E 04	0.3019613E 04	308.299	77.075	0.147498	4	16.393
-0.2384542E 03	-0.2069166E 04	0.2082660E 04	263.426	52.685	0.101741	5	20.492
-0.7262764E 03	-0.1391049E 04	0.1569233E 04	242.431	40.405	0.076652	6	24.590
0.1248575E 04	0.6255546E 03	0.1396964E 04	26.621	3.803	0.068237	7	28.689
0.5426023E 03	-0.7023930E 02	0.5471296E 03	352.624	44.078	0.026725	8	32.787
-0.5847129E 03	0.7209321E 03	0.1144255E 04	140.951	15.661	0.055898	9	36.885
-0.4155574E 03	-0.8783057E 02	0.4247375E 03	191.934	19.193	0.020747	10	40.984

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 522 FLT 609.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4364524E 03							
0.1409874E 04	0.1309990E 04	0.1924531E 04	42.897	42.897	0.911567	1	4.098
-0.1772152E 04	0.1147515E 04	0.2111233E 04	147.076	73.538	1.000000	2	8.197
-0.1016521E 03	-0.8956011E 03	0.9013547E 03	263.522	87.841	0.426933	3	12.295
-0.6335625E 03	-0.1827256E 03	0.6593662E 03	196.088	49.022	0.312323	4	16.393
0.1560572E 04	0.1543277E 03	0.1568184E 04	5.648	1.130	0.742781	5	20.492
0.1140119E 04	-0.5341917E 03	0.1259058E 04	334.895	55.816	0.596362	6	24.590
0.7505630E 02	-0.2618764E 03	0.2724197E 03	285.993	40.856	0.129033	7	28.689
0.3647400E 03	0.8119540E 03	0.8900237E 03	65.807	8.226	0.421566	8	32.787
-0.4248795E 03	-0.9518126E 02	0.4354185E 03	192.627	21.403	0.206239	9	36.885
-0.4362376E 02	-0.1573251E 03	0.1644767E 03	252.826	25.283	0.077997	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 9 V= 204.5 KTS n= 1.11 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.60233033E 01							
0.19445902E 01	-0.66507246E 00	0.21206554E 01	336.022	336.022	1.000000	1	4.098
-0.18146125E 00	-0.25497228E 00	0.31295201E 00	234.561	117.280	0.147316	2	8.197
0.51354323E-01	0.53214603E-01	0.73953151E-01	46.019	15.340	0.034741	3	12.295
-0.21079443E-01	-0.36615580E-01	0.42253508E-01	240.074	60.019	0.019850	4	16.393
-0.19163703E-01	0.25113555E-01	0.31582556E-01	127.357	25.471	0.014837	5	20.492
0.73960395E-02	0.12051306E-01	0.14135898E-01	58.462	9.744	0.006643	6	24.590
0.35417710E-03	0.20320501E-02	0.26563778E-02	32.337	11.762	0.001248	7	28.689
-0.11077183E-02	0.27207271E-02	0.29432162E-02	112.113	14.014	0.001383	8	32.787
0.43224476E-02	0.22229715E-02	0.48605736E-02	27.215	3.024	0.002283	9	36.885
0.34361303E-02	-0.16136707E-02	0.38414880E-02	335.161	33.516	0.001805	10	40.984

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.49151217E 04							
-0.10731559E 06	0.12339209E 06	0.16353765E 06	131.016	131.016	1.000000	1	4.098
0.39649565E 04	0.51222037E 04	0.64358133E 04	52.740	26.370	0.039354	2	8.197
-0.16053135E 05	0.14598346E 05	0.21698438E 05	137.742	45.914	0.132620	3	12.295
0.12766195E 04	0.45590785E 04	0.47358753E 04	74.431	18.608	0.029130	4	16.393
0.98340131E 04	0.33100553E 04	0.10382572E 05	18.596	3.719	0.063487	5	20.492
-0.44303154E 03	-0.13562165E 04	0.19084335E 04	252.576	42.763	0.011669	6	24.590
0.53844246E 03	-0.28786081E 04	0.29286123E 04	280.595	40.085	0.017908	7	28.689
-0.19124430E 03	-0.17971135E 03	0.26243315E 03	223.220	27.902	0.001605	8	32.787
-0.13204015E 04	0.35725178E 03	0.13557135E 04	164.902	18.545	0.008290	9	36.885
0.27220545E 03	-0.65993058E 01	0.27230046E 03	358.656	35.866	0.001669	10	40.984

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.63722059E 02							
-0.15306753E 03	0.67045440E 01	0.15102428E 03	177.455	177.455	0.363905	1	4.098
0.33692173E 03	-0.24216391E 03	0.41500566E 03	324.132	162.066	1.000000	2	8.197
-0.10019545E 02	0.13005255E 03	0.13073700E 03	94.395	31.465	0.315025	3	12.295
0.44151695E 02	-0.14750008E 03	0.15547406E 03	288.430	72.107	0.374631	4	16.393
-0.75473135E 02	0.56118068E 02	0.83701937E 02	154.397	30.878	0.201689	5	20.492
-0.53213462E 02	0.11359764E 03	0.12455555E 03	113.773	18.962	0.300154	6	24.590
0.43706548E 01	0.17460050E 02	0.17955447E 02	74.095	10.585	0.043263	7	28.689
-0.11776842E 02	0.18149657E 02	0.21635536E 02	122.979	15.372	0.052133	8	32.787
-0.19961335E 01	-0.22527708E 02	0.23014606E 02	265.019	29.447	0.055456	9	36.885
-0.24399728E 02	0.20363638E 02	0.31551130E 02	139.803	13.980	0.076026	10	40.984

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.53017557E 05							
-0.22340635E 05	0.34253838E 05	0.40952582E 05	123.178	123.178	1.000000	1	4.098
0.11047046E 05	-0.22412659E 05	0.24987318E 05	296.238	148.119	0.610551	2	8.197
0.92214848E 03	0.59372159E 04	0.60084738E 04	81.172	27.057	0.146814	3	12.295
-0.37180316E 04	-0.28756526E 04	0.47003446E 04	217.720	54.430	0.114650	4	16.393
0.23857416E 04	0.14137677E 04	0.29812116E 04	29.648	5.930	0.072844	5	20.492
0.20663778E 04	-0.17855636E 03	0.20741111E 04	355.050	59.175	0.050680	6	24.590
0.51675428E 03	0.68521115E 03	0.86150178E 03	53.142	7.592	0.021050	7	28.689
0.71918363E 03	0.93518650E 03	0.11797458E 04	52.439	6.555	0.028826	8	32.787
-0.19406615E 03	-0.33260560E 03	0.38550788E 03	237.324	26.369	0.00[illegible]	9	36.885
-0.61672568E 02	-0.16849500E 01	0.61783206E 02	103.423	18.342	0.001510	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 9 V= 204.5 KTS n= 1.11 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.52706545E 05							
-0.32456650E 05	0.75131500E 05	0.83525945E 05	112.303	112.303	1.000000	1	4.098
-0.60325144E 04	0.25256642E 04	0.65346695E 04	137.224	73.612	0.076405	2	8.197
0.13797522E 04	-0.55318160E 04	0.57455574E 04	283.675	94.625	0.067223	3	12.295
0.57230264E 03	-0.15046490E 04	0.15097206E 04	286.736	71.684	0.023257	4	16.393
-0.15137432E 03	0.30040795E 04	0.30078160E 04	92.828	18.566	0.036008	5	20.492
0.17908918E 04	0.62639456E 03	0.19025441E 04	19.219	3.203	0.022249	6	24.590
0.45204796E 03	-0.65543751E 03	0.57107150E 03	297.743	42.535	0.011354	7	28.689
0.94456067E 03	0.14728611E 03	0.95599985E 03	8.862	1.108	0.011177	8	32.787
0.11067769E 04	0.33755560E 03	0.12135446E 04	16.139	1.790	0.014224	9	36.885
0.43630635E 03	0.27539038E 02	0.54394002E 03	36.160	3.616	0.006319	10	40.984

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.62175370E 03							
0.29574433E 04	-0.35838825E 04	0.46521460E 04	309.633	309.633	0.822539	1	4.098
-0.43351035E 03	0.56394445E 04	0.56559352E 04	94.366	47.183	1.000000	2	8.197
0.14315346E 04	0.14956615E 03	0.14393336E 04	5.969	1.990	0.254486	3	12.295
0.65934310E 03	-0.92315638E 03	0.11561446E 04	305.631	76.408	0.204415	4	16.393
-0.20354471E 03	0.60330715E 03	0.63732366E 03	108.663	21.733	0.112683	5	20.492
0.12951826E 03	-0.15595830E 03	0.20271130E 03	309.774	51.629	0.035878	6	24.590
0.18768530E 03	-0.17653630E 02	0.18871155E 03	354.635	50.662	0.033366	7	28.689
0.16131112E 03	0.60231981E 03	0.62432356E 03	75.010	9.377	0.110333	8	32.787
-0.55383222E 03	0.45738892E 02	0.55597735E 03	171.201	19.022	0.098297	9	36.885
-0.52308275E 03	-0.33352330E 03	0.62034745E 03	212.493	21.249	0.109606	10	40.984

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.25603710E 05							
-0.78018498E 04	0.19462410E 05	0.20967950E 05	111.844	111.844	1.000000	1	4.098
-0.38454277E 03	-0.10806457E 03	0.42805930E 03	206.059	103.030	0.020415	2	8.197
-0.50902730E 03	0.25618365E 03	0.56896568E 03	153.239	51.080	0.027135	3	12.295
0.23819578E 04	-0.15808912E 04	0.28632770E 04	326.294	81.574	0.136555	4	16.393
-0.63924660E 03	-0.13290580E 04	0.14747598E 04	244.313	48.863	0.070336	5	20.492
0.36678692E 02	-0.71399561E 03	0.71493701E 03	272.941	45.490	0.034097	6	24.590
0.54946046E 03	-0.40722666E 02	0.55096730E 03	355.761	50.823	0.026277	7	28.689
0.14955262E 04	-0.15283938E 04	0.21404598E 04	314.435	39.304	0.102082	8	32.787
-0.17125542E 04	0.10234591E 04	0.19957031E 04	149.012	16.557	0.095271	9	36.885
-0.25815430E 03	-0.15039101E 03	0.29876591E 03	210.223	21.022	0.014249	10	40.984

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 527 FLT 609.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.29959470E 02							
0.15097550E 04	0.13899351E 04	0.20521420E 04	42.634	42.634	0.918309	1	4.098
-0.19703968E 04	0.10542320E 04	0.22346960E 04	151.852	75.926	1.000000	2	8.197
0.44861055E 02	-0.65036578E 03	0.65193248E 03	273.948	91.316	0.291732	3	12.295
-0.47897530E 03	-0.92084960E 02	0.48774988E 03	190.882	47.721	0.218262	4	16.393
0.13834450E 04	0.30212111E 03	0.14160560E 04	12.319	2.464	0.633665	5	20.492
0.11359201E 04	-0.34272951E 03	0.11865098E 04	343.210	57.202	0.530948	6	24.590
0.75581140E 02	-0.25187720E 03	0.26296294E 03	286.699	40.957	0.117673	7	28.689
0.14725935E 03	0.97207710E 03	0.98316880E 03	81.386	10.173	0.439956	8	32.787
-0.34066800E 03	-0.10957521E 03	0.35785640E 03	197.830	21.981	0.160136	9	36.885
-0.11344360E 03	-0.16005960E 03	0.19618490E 03	234.673	23.467	0.087790	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 10 V= 200.5 KTS n= 1.35 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 31
OVERALL CYCLIC LOAD = 0.2747666E 01

ZERO POSITION USED 3.90 LOAD/IN USED 10.48

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8140012E 01							
0.2355556E 01	-0.1146356E 01	0.2624392E 01	334.058	334.058	1.000000	1	4.098
-0.2934277E 00	-0.2190185E 00	0.3662022E 00	216.733	108.366	0.139538	2	8.197
0.4315396E-01	0.1407383E-02	0.4317329E-01	1.869	0.623	0.016451	3	12.295
0.8839733E-02	-0.5542412E-01	0.5612645E-01	279.062	69.766	0.021386	4	16.393
-0.1817301E-01	-0.2652222E-01	0.3107143E-01	233.645	47.729	0.011843	5	20.492
-0.5446480E-02	0.2552830E-02	0.6053194E-02	154.031	25.672	0.002308	6	24.590
0.2010393E-03	0.3050832E-02	0.3087484E-02	86.266	12.324	0.001176	7	28.689
0.2552245E-02	-0.2736052E-02	0.4033024E-02	317.213	39.652	0.001536	8	32.787
-0.3551295E-02	-0.1342935E-02	0.4184685E-02	198.806	22.090	0.001595	9	36.885
-0.1221550E-02	0.1685964E-02	0.2082007E-02	125.926	12.593	0.000793	10	40.984

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 36
OVERALL CYCLIC LOAD = 0.2088128E 06

ZERO POSITION USED 4.88 LOAD/IN USED -215359.88

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6376533E 04							
-0.1436[illegible]E 06	0.1250052E 06	0.1906193E 06	139.358	139.358	1.000000	1	4.098
-0.2030[illegible]E 04	-0.2069453E 04	0.2892520E 04	226.250	113.125	0.015254	2	8.197
-0.8[illegible]E 04	0.[illegible]E 04	0.1011819E 05	143.[illegible]	47.827	0.053044	3	12.295
-0.2112[illegible]E 04	0.2245123E 04	0.3075257E 04	133.381	33.345	0.016218	4	16.393
0.834[illegible]E 04	0.3510704E 04	0.9058[illegible]E 04	22.807	4.561	0.047763	5	20.492
-0.758[illegible]E 02	-0.4608846E 03	0.47[illegible]E 03	260.684	43.447	0.002503	6	24.590
0.2355[illegible]E 04	-0.1234025E 04	0.2673575E 04	332.330	47.476	0.014014	7	28.689
-0.8242822E 03	-0.1170404E 04	0.1436773E 04	234.963	29.370	0.007577	8	32.781
-0.1013[illegible]E 04	0.15[illegible]E 03	0.10[illegible]E 04	169.605	18.845	0.005435	9	36.885
0.1155[illegible]E 03	0.13[illegible]E 03	0.1743[illegible]E 03	48.495	4.849	0.000920	10	40.984

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 11
OVERALL CYCLIC LOAD = 0.6844488E 03

ZERO POSITION USED 0.52 LOAD/IN USED 2195.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1803[illegible]E 03							
-0.1261773E 03	-0.5713787E 02	0.1385319E 03	204.382	204.382	0.281767	1	4.098
0.3712253E 03	-0.3223347E 03	0.4916182E 03	319.035	159.517	1.000000	2	8.197
-0.2293473E 02	0.5834479E 02	0.6269234E 02	111.534	37.178	0.126933	3	12.295
0.1621681E 01	-0.1327916E 03	0.1324915E 03	270.702	67.675	0.269318	4	16.393
-0.7554[illegible]E 02	0.1613411E 02	0.772[illegible]E 02	167.938	33.591	0.157143	5	20.492
-0.4651793E 02	0.1023675E 03	0.1124412E 03	114.438	19.073	0.228716	6	24.590
-0.2147394E 02	0.2130551E 02	0.3025388E 02	135.226	19.318	0.061531	7	28.689
0.3384745E 01	0.1037[illegible]E 01	0.3248317E 01	17.976	2.247	0.006[illegible]07	8	32.787
0.7574260E 01	-0.2655075E 02	0.2761315E 02	285.923	31.769	0.056162	9	36.835
-0.9488731E 01	0.1824358E 02	0.2058176E 02	117.453	11.745	0.041865	10	40.934

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 1
OVERALL CYCLIC LOAD = 0.6741395E 05

ZERO POSITION USED 9.40 LOAD/IN USED 94830.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3335707E 05							
-0.3232371E 05	0.3424834E 05	0.4683465E 05	133.066	133.065	1.000000	1	4.093
0.121[illegible]E 05	-0.266[illegible]E 0[illegible]	0.2935195E 05	294.540	147.275	0.625911	2	8.197
0.1053[illegible]E 04	0.2139550E 04	0.2380634E 04	63.813	21.273	0.050773	3	12.295
-0.3794552E 04	-0.2781455E 04	0.4705717E 04	216.234	54.059	0.100346	4	16.393
0.1590301E 04	0.2054673E 03	0.1603377E 04	7.373	1.476	0.034201	5	20.492
0.1562876E 04	-0.3213261E 03	0.1593331E 04	350.733	58.455	0.034241	6	24.590
0.4076[illegible]E 03	0.8425798E 03	0.9[illegible]E 03	64.176	9.167	0.019951	7	28.689
0.8367222E 02	0.1061147E 04	0.1064[illegible]E 04	85.157	10.645	0.022709	8	32.787
-0.2529600E 03	-0.2352864E 03	0.3304512E 03	213.203	24.245	0.007113	9	36.885
-0.1579291E 03	-0.3211660E 03	0.3578953E 03	243.815	24.381	0.007632	10	40.934

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 10 V= 200.5 KTS n= 1.35 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4501579F 05							
-0.2441281E 05	0.8819600E 05	0.9151431E 05	105.472	105.472	1.000000	1	4.098
-0.5582771E 04	-0.8131987E 02	0.5588316E 04	180.839	90.419	0.061065	2	8.197
-0.2264870E 04	-0.7830172E 04	0.8151148E 04	253.867	84.622	0.089070	3	12.295
-0.1383570E 04	0.7368536E 02	0.1385730E 04	176.952	44.238	0.015144	4	16.393
0.2847344E 04	0.6309254E 03	0.2918127E 04	12.645	2.529	0.031887	5	20.492
0.3137824E 04	-0.2023795E 03	0.3194274E 04	356.355	59.393	0.034905	6	24.590
0.1397573E 04	0.5335307E 03	0.1959335E 04	15.718	2.245	0.021520	7	28.689
0.8691736E 03	0.7955620E 03	0.1178296E 04	42.468	5.307	0.012876	8	32.787
0.4009041E 03	0.6593223E 03	0.7716411E 03	58.699	6.522	0.008432	9	36.885
0.5519566E 02	-0.5955528E 02	0.7418477E 02	318.076	31.638	0.000811	10	40.984

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9082343E 03							
0.3809847E 04	-0.4075528E 04	0.5579117E 04	313.076	313.076	0.891311	1	4.098
-0.1659603E 04	0.6034273E 04	0.6258332E 04	105.378	52.688	1.000000	2	8.197
0.1612301E 04	0.1507349E 04	0.2207173E 04	43.073	14.358	0.352678	3	12.295
0.5001057E 02	-0.9051011E 03	0.9064317E 03	273.163	68.291	0.144844	4	16.393
0.1403531E 02	0.4561719E 03	0.4563377E 03	88.237	17.647	0.072925	5	20.492
-0.2504715E 02	-0.1572530E 03	0.1592329E 03	260.950	43.492	0.025443	6	24.590
0.2138680E 03	0.3754878E 03	0.4345190E 03	59.795	8.541	0.069430	7	28.689
-0.3594021E 03	0.6451324E 03	0.7517507E 03	121.762	15.220	0.121240	8	32.787
-0.4839590E 03	0.5352562E 02	0.4839600E 03	173.650	19.294	0.077332	9	36.885
-0.5012791E 03	-0.4855255E 03	0.6978655E 03	224.085	22.409	0.111510	10	40.984

BLADE CHORD AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2436220E 05							
-0.8037406E 04	0.2291396E 05	0.2428269E 05	109.329	109.329	1.000000	1	4.098
-0.1236127E 02	-0.2381554E 04	0.2381586E 04	269.702	134.851	0.098077	2	8.197
-0.2667717E 03	0.4979656E 03	0.5649397E 03	118.176	39.393	0.023265	3	12.295
0.2803393E 04	-0.1959635E 04	0.3419634E 04	325.055	81.265	0.140834	4	16.393
-0.2256955E 03	-0.4844673E 03	0.5344778E 03	245.022	49.004	0.022011	5	20.492
-0.1262431E 04	-0.1371600E 04	0.1864184E 04	227.375	37.896	0.076770	6	24.590
0.1201021E 04	0.1024925E 04	0.1578835E 04	40.474	5.782	0.065019	7	28.689
-0.6451226E 03	0.4921834E 03	0.8122310E 03	142.702	17.838	0.033449	8	32.787
[illegible] 03	[illegible] 03	[illegible] 03	197.799	21.978	0.039271	9	36.885
-0.4222073E 03	-0.3149135E 03	0.5266560E 03	216.710	21.671	0.021669	10	40.984

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 532 FLT 609.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3694295E 03							
0.1882766E 04	0.1946694E 04	0.2708215E 04	45.956	45.956	1.000000	1	4.098
-0.2405512E 04	0.1184736E 04	0.2682601E 04	153.792	76.896	0.990542	2	8.197
0.1149089E 02	-0.4268438E 03	0.4369549E 03	271.507	90.502	0.161359	3	12.295
-0.2669546E 03	-0.1888931E 03	0.3258921E 03	214.995	53.749	0.120331	4	16.393
0.1155625E 04	0.3324497E 03	0.1205400E 04	16.012	3.202	0.445090	5	20.492
0.1236475E 04	-0.6896099E 02	0.1238400E 04	356.808	59.468	0.457275	6	24.590
0.9627012E 02	0.1081828E 03	0.1448151E 03	48.335	6.905	0.053473	7	28.689
-0.3014204E 03	0.7138245E 03	0.7748545E 03	112.893	14.112	0.286113	8	32.787
-0.2433199E 03	-0.1850524E 03	0.3056941E 03	217.254	24.139	0.112877	9	36.885
0.1712408E 02	-0.6027359E 02	0.6265992E 02	285.860	28.586	0.023137	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 11 V= 199 KTS n= 1.62 g

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5156753E 03							
0.4505004E 04	-0.5065953E 04	0.6779301E 04	111.646	111.646	0.886676	1	4.115
-0.1671544E 04	0.7460770E 04	0.7645727E 04	102.629	51.314	1.000000	2	8.230
0.1962651E 04	0.1369362E 04	0.2234925E 04	28.577	9.526	0.292310	3	12.346
-0.2413[illegible] 03	-0.3877417E 03	0.4511824E 03	239.248	59.312	0.059011	4	16.461
-0.4[illegible] 02	0.120[illegible] 03	0.1293730E 03	111.457	22.291	0.016924	5	20.576
0.3832[illegible] 03	-0.1215086E 03	0.4021626E 03	342.354	57.059	0.052600	6	24.691
0.3152[illegible] 03	0.369[illegible] 03	0.4981540E 03	49.155	7.022	0.065147	7	28.807
-0.3357[illegible] 01	0.8211704E 03	0.8211794E 03	90.269	11.284	0.107404	8	32.922
-0.7068157E 03	0.2011830E 03	0.7348702E 03	164.112	18.235	0.096118	9	37.037
-0.5372[illegible] 03	-0.2003[illegible] 03	0.5454543E 03	201.577	20.158	0.071341	10	41.152

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4332303E 05							
-0.1776219E 05	0.9893804E 05	0.1005591E 06	100.173	100.173	1.000000	1	4.115
-0.8622164E 04	-0.1071052E 05	0.8683434E 04	187.081	93.541	0.086393	2	8.230
-0.2357[illegible] 04	-0.1225400E 05	0.1247453E 05	259.208	86.403	0.124049	3	12.346
-0.1586[illegible] 04	0.2399791E 03	0.1607377E 04	171.450	42.862	0.015983	4	16.461
0.6546[illegible] 03	0.1553302E 03	0.7120127E 03	12.683	2.537	0.007080	5	20.576
0.1558[illegible] 04	-0.1170229E 04	0.2281560E 04	329.144	54.857	0.022687	6	24.691
0.1172[illegible] 03	-0.4252427E 03	0.4420598E 03	285.378	40.768	0.004396	7	28.807
0.1630521E 03	0.3715850E 03	0.4057874E 03	67.308	8.289	0.004035	8	32.922
0.4693[illegible] 03	0.6007947E 02	0.4731650E 03	7.287	0.810	0.004710	9	37.037
0.5732335E 02	-0.8505[illegible] 02	0.9313728E 02	293.973	29.397	0.000926	10	41.152

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2441163E 05							
-0.6600438E 04	0.2515026E 05	0.2600195E 05	104.705	104.705	1.000000	1	4.115
-0.1952948E 04	-0.1219463E 04	0.2356902E 04	214.044	107.022	0.090643	2	8.230
0.2371463E 03	-0.2975870E 04	0.2985304E 04	274.556	91.519	0.114811	3	12.346
0.3027590E 04	-0.6054548E 03	0.3087329E 04	348.690	87.173	0.118735	4	16.461
-0.4521006E 03	-0.9505581E 02	0.1052598E 04	244.563	48.913	0.040461	5	20.576
-0.9882551E 03	-0.5692334E 03	0.1140471E 04	209.942	34.990	0.043861	6	24.691
0.1332112E 04	0.3274788E 02	0.1332514E 04	1.408	0.201	0.051247	7	28.807
0.1327234E 04	-0.5378223E 03	0.1432064E 04	337.941	42.243	0.055075	8	32.922
-0.1470459E 04	-0.3551956E 03	0.1512779E 04	193.580	21.509	0.058179	9	37.037
-0.1964162E 03	-0.2101880E 03	0.2841929E 03	239.253	23.925	0.014776	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 44

AJ	FJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6176614E 03							
0.2445876E 04	0.2281532E 04	0.3349580E 04	43.097	43.097	1.000000	1	4.115
-0.2605151E 04	0.1784060E 04	0.3157450E 04	145.596	72.798	0.942649	2	8.230
-0.7622091E 02	-0.5242798E 03	0.5297913E 03	261.728	87.243	0.158166	3	12.346
-0.3222217E 03	-0.1267061E 03	0.3513294E 03	201.108	50.277	0.105040	4	16.461
0.9471929E 03	0.9292712E 02	0.9517295E 03	5.604	1.121	0.284137	5	20.576
0.1229162E 04	-0.4200435E 03	0.1298895E 04	341.132	56.855	0.387778	6	24.691
0.2994766E 03	0.1213526E 03	0.3231296E 03	22.055	3.151	0.096469	7	28.807
-0.6060519E 02	0.8952837E 03	0.8973325E 03	93.873	11.734	0.267894	8	32.922
-0.2316654E 03	-0.1624567E 02	0.2324411E 03	184.033	20.448	0.069394	9	37.037
-0.1779443E 02	-0.1003626E 03	0.1019289E 03	259.946	25.995	0.030430	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 11 V= 199 KTS n= 1.62 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.21602[illegible] 01							
0.3024234[illegible] 01	-0.1283017[illegible] 01	0.3239741E 01	337.045	337.045	1.000000	1	4.115
-0.2[illegible] 00	-0.234[illegible] 00	0.3132277E 00	228.470	114.235	0.095213	2	8.230
-0.2404E72E-01	0.5631246E-02	0.2469[illegible]E-01	166.817	55.606	0.007598	3	12.346
-0.3302[illegible]E-02	-0.6751323E-01	0.6759337E-01	267.200	66.800	0.020547	4	16.461
-0.[illegible]-01	-0.1179[illegible]E-01	0.254[illegible]E-01	207.660	41.532	0.007721	5	20.576
-0.3367316E-02	0.95[illegible]E-02	0.1086[illegible]E-01	109.623	18.270	0.003366	6	24.691
-0.676[illegible]E-02	-0.13[illegible]707E-02	0.6901246E-02	191.304	27.329	0.002098	7	28.807
-0.544[illegible]E-02	0.1044075E-02	0.5545471E-02	169.148	21.143	0.001636	8	32.922
-0.33[illegible]E-02	-0.1397437E-02	0.3632695E-02	202.572	22.502	0.001104	9	37.037
-0.345[illegible]E-02	0.2813[illegible]E-02	0.[illegible]E-02	140.870	14.089	0.001354	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4992[illegible] 04							
-0.1824[illegible] 06	0.1330692E 06	0.2258214E 06	143.895	143.895	1.000000	1	4.115
-0.1104[illegible] 04	-0.1703601E 04	0.2030401E 04	237.043	118.521	0.008991	2	8.230
0.128717[illegible] 04	0.162765[illegible] 04	0.2075272E 04	51.666	17.222	0.009190	3	12.346
-0.[illegible] 04	0.2813[illegible] 04	0.3[illegible] 04	134.725	33.681	0.017537	4	16.461
0.6[illegible] 04	0.2073156E 04	0.63[illegible] 04	18.936	3.787	0.028290	5	20.576
0.1705[illegible] 04	-0.7515667E 03	0.1880[illegible] 04	335.107	55.851	0.008328	6	24.691
0.2795[illegible] 04	-0.1103705E 04	0.3027[illegible] 04	337.396	48.199	0.013407	7	28.807
-0.1215[illegible] 04	-0.6[illegible] 03	0.1342[illegible] 04	208.499	26.062	0.006124	8	32.922
-0.6937[illegible] 03	0.7[illegible] 03	0.9[illegible] 03	134.912	14.990	0.004383	9	37.037
0.38[illegible] 03	-0.3093702E 03	0.[illegible] 03	321.550	32.155	0.002203	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2844937[illegible] 03							
-0.1535313[illegible] 02	-0.12456[illegible] 03	0.1983426E 03	219.104	219.104	0.366253	1	4.115
0.353121[illegible] 03	-0.405[illegible] 03	0.5408359E 03	310.762	155.381	1.000000	2	8.230
0.2311293[illegible] 02	0.305348[illegible] 02	0.3827209E 02	52.849	17.616	0.070765	3	12.346
-0.[illegible] 02	-0.13[illegible] 03	0.1467517[illegible] 03	250.643	62.661	0.271342	4	16.461
-0.4[illegible] 02	0.177[illegible] 02	0.498[illegible] 02	159.172	31.834	0.092088	5	20.576
-0.5[illegible] 02	0.9[illegible] 02	0.1066224E 03	121.559	20.260	0.197144	6	24.691
-0.1912851[illegible] 02	0.2944234[illegible] 02	0.3515793[illegible] 02	123.071	17.582	0.065007	7	28.807
0.3[illegible] 01	0.1359[illegible] 01	0.37[illegible] 01	21.324	2.666	0.006913	8	32.922
-0.2705194[illegible] 01	-0.3087721E 02	0.3[illegible]548[illegible] 02	264.993	29.444	0.057310	9	37.037
0.2016365[illegible] 02	0.10[illegible] 02	0.2294762[illegible] 02	26.525	2.653	0.042434	10	41.152

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 538 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2910[illegible]17E 05							
-0.3918014[illegible] 05	0.3611133E 05	0.5328329E 05	137.334	137.334	1.000000	1	4.115
0.104262[illegible] 05	-0.3159366E 05	0.3326761E 05	288.263	144.132	0.624391	2	8.230
0.1533396[illegible] 04	0.9871473E 03	0.1771560E 04	30.053	10.018	0.033248	3	12.346
-0.4[illegible] 04	-0.1534015E 04	0.4292840E 04	200.937	50.234	0.080566	4	16.461
0.1842774[illegible] 04	-0.1103621[illegible] 04	0.2147930E 04	329.083	65.817	0.040312	[illegible]	20.576
0.1871545E 04	0.3329126E 03	0.1901318E 04	10.086	1.681	0.035683	6	24.691
0.1348900[illegible] 04	0.6671439E 03	0.1504951E 04	26.323	3.760	0.028244	7	28.807
0.3292581E 03	0.1142103[illegible] 04	0.1188622E 04	73.918	9.240	0.022308	[illegible]	32.922
-0.5721118E 03	0.1189562E 03	0.5843454E 03	168.254	18.695	0.010967	[illegible]	37.037
-0.5454594E 02	-0.3853379[illegible] 03	0.3896743[illegible] 03	261.953	26.195	0.007313	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 12 V= 204.5 KTS n= 1.23 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3035505E 01							
0.3511777E 01	-0.2356627E 01	0.4650752E 01	325.044	325.044	1.000000	1	4.082
-0.3767418E 00	-0.3716413E 00	0.5291591E 00	224.610	112.305	0.113787	2	8.163
0.7825726E-01	0.3455615E-01	0.8556336E-01	23.849	7.950	0.018398	3	12.245
-0.5630131E-01	-0.1161325E 00	0.1290603E 00	244.136	61.034	0.027750	4	16.327
-0.9520375E-02	0.2342355E-01	0.2528762E-01	112.137	22.427	0.005437	5	20.408
0.1510399E-01	0.1806455E-01	0.2355502E-01	49.930	8.330	0.005072	6	24.490
0.5213939E-02	0.5327230E-02	0.7454146E-02	45.616	6.517	0.001603	7	28.571
0.1245773E-01	0.5996544E-02	0.1382560E-01	25.734	3.213	0.002973	8	32.653
0.1599153E-02	0.1110022E-01	0.1122275E-01	81.803	9.090	0.002413	9	36.735
0.1734127E-01	-0.4143596E-02	0.1782543E-01	346.561	34.656	0.003834	10	40.816

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5786[illegible]E 04							
-0.7716[illegible]E 05	0.1436704E 06	0.1630[illegible]E 06	118.237	118.237	1.000000	1	4.082
-0.749[illegible]E 03	0.1061202E 04	0.12[illegible]2E 04	125.245	62.623	0.007968	2	8.163
-0.[illegible]E 03	0.1473534E 05	0.1474237E 05	91.564	30.521	0.090396	3	12.245
-0.12[illegible]E 04	-0.1724[illegible]E 03	0.1213[illegible]E 04	186.169	47.042	0.007440	4	16.327
[illegible]E 04	[illegible]E 04	[illegible]	[illegible]	5.268	0.045449	5	20.408
0.[illegible]E 03	-0.5[illegible]E 03	0.[illegible]E 03	[illegible]	51.414	0.003935	6	24.490
0.1220[illegible]E 04	-0.1[illegible]E 04	0.2277[illegible]E 04	302.406	43.201	0.013964	7	28.571
0.412[illegible]E 03	-0.717[illegible]E 03	0.827[illegible]E 03	299.891	37.486	0.005075	8	32.653
-0.3438[illegible]E 04	-0.3535[illegible]E 03	0.345[illegible]E 04	185.870	20.652	0.021197	9	36.735
0.8713219E 03	-0.8514304E 03	0.121[illegible]E 04	315.661	31.566	0.007470	10	40.816

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1359[illegible]E 03							
-0.2626355E 03	0.3564351E 02	0.2650471E 03	172.272	172.272	0.485531	1	4.082
0.4627383E 03	-0.2650[illegible]E 03	0.5458511E 03	327.959	163.980	1.000000	2	8.163
0.5399304E 02	0.4000256E 02	0.5759500E 02	24.236	8.079	0.1[illegible]791	3	12.245
0.2355[illegible]E 02	-0.1765[illegible]E 03	0.1785[illegible]E 03	277.579	69.395	0.327[illegible]	4	16.327
-0.3763[illegible]E 02	-0.1672[illegible]E 02	0.4123143E 02	203.925	40.785	0.075530	5	20.408
-0.5378[illegible]E 02	0.72[illegible]E 02	0.8865[illegible]E 02	124.951	20.825	0.162[illegible]	6	24.490
0.5749037E 01	0.1363073E 02	0.1478576E 02	57.203	[illegible]	0.027086	7	28.571
0.7773057E 01	0.1991059E [illegible]	0.2100156E 02	68.278	8.535	0.038473	8	32.653
0.1756121E 02	-0.1465855E 02	0.2287053E 02	320.130	35.576	0.041932	9	36.735
-0.4238079E 01	-0.1461363E 01	0.4530802E 01	199.016	19.902	0.008300	10	40.816

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4031316E 05							
-0.1[illegible]E 05	0.1560049E 05	0.4244140E 05	110.065	110.065	1.000000	1	4.082
0.10[illegible]E 05	-0.2549250E 05	0.2744517E 05	291.762	145.881	0.646754	2	8.163
0.4133751E 04	0.3[illegible]E 04	0.5633715E 04	43.171	14.390	0.132741	3	12.245
-0.[illegible]712E 04	-0.27[illegible]E 04	0.4623115E 04	217.052	54.263	0.108930	4	16.327
0.2115232E 04	0.1177443E 04	0.2420863E 04	29.132	5.820	0.057040	5	20.408
0.1547[illegible]E 04	-0.2[illegible]E 03	0.1561[illegible]E 04	321.693	53.616	0.[illegible]	6	24.490
0.6513032E 03	0.8277751E 03	0.1057742E 04	36.496	5.231	0.024922	7	28.571
0.9567040E 03	0.1062762E 04	0.1471764E 04	47.368	5.921	0.034676	8	32.653
-0.6326444E 02	-0.4[illegible]E 03	0.4183213E 03	259.516	28.724	0.009856	9	36.735
-0.2732651E 03	-0.1255[illegible]E 03	0.3024409E 03	205.372	20.537	0.007126	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 12 V= 204.5 KTS n= 1.23 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5410920E 05							
-0.1940369E 05	0.1102476E 06	0.1119514E 06	99.978	99.978	1.000000	1	4.082
-0.2515641E 04	-0.7261035E 03	0.2618527E 04	196.099	98.049	0.023382	2	8.163
-0.3685955E 04	-0.7267250E 04	0.8148570E 04	243.106	81.035	0.072761	3	12.245
-0.1723570E 04	0.1450951E 04	0.2256819E 04	139.990	34.998	0.020152	4	16.327
0.9060024E 03	0.2243610E 04	0.2424335E 04	68.055	13.611	0.021648	5	20.408
0.1290934E 04	-0.3937560E 03	0.1349502E 04	343.059	57.176	0.012050	6	24.490
-0.5772031E 03	-0.1007861E 04	0.1214244E 04	236.102	33.729	0.010842	7	28.571
-0.3529519E 03	-0.1169064E 04	0.1221659E 04	253.208	31.651	0.010909	8	32.653
0.3869395E 03	0.3080502E 02	0.3354729E 03	1.985	0.221	0.007942	9	36.735
0.5152500E 03	-0.2175560E 03	0.5594514E 03	337.071	33.707	0.004995	10	40.816

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 53

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1335002E 04							
0.3975261E 04	-0.3626543E 04	0.5382269E 04	317.611	317.611	0.893634	1	4.082
-0.2114315E 04	0.5634617E 04	0.6022926E 04	110.551	55.276	1.000000	2	8.163
0.1201400E 04	0.4393301E 03	0.1269218E 04	18.815	6.272	0.210731	3	12.245
0.2563345E 03	-0.9745555E 03	0.1007869E 04	284.733	71.183	0.167339	4	16.327
-0.9719541E 02	-0.4146140E 02	0.1018761E 03	206.433	41.286	0.016077	5	20.408
0.2408499E 03	0.1391545E 03	0.2781794E 03	30.025	5.004	0.046187	6	24.490
-0.3560293E 02	-0.4359556E 03	0.4374739E 03	265.295	37.899	0.072635	7	28.571
0.9604971E 03	0.5615442E 03	0.1112603E 04	30.312	3.789	0.184728	8	32.653
-0.4877304E 03	-0.1862542E 03	0.5222708E 03	200.893	22.321	0.086714	9	36.735
-0.2457567E 03	-0.3703721E 03	0.4444505E 03	236.434	23.643	0.073830	10	40.816

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2712051E 05							
-0.6867543E 04	0.2697790E 05	0.2783829E 05	104.282	104.282	1.000000	1	4.082
0.1411382E 02	-0.8548528E 03	0.8549592E 03	270.946	135.473	0.030712	2	8.163
-0.9629239E 03	-0.8605471E 03	0.1291348E 04	221.789	73.930	0.046387	3	12.245
0.3566082E 04	-0.6638311E 03	0.3627342E 04	349.455	87.364	0.130300	4	16.327
0.3582722E 03	-0.1017710E 04	0.1078931E 04	289.394	57.879	0.038757	5	20.408
0.5717182E 03	-0.2907877E 02	0.5730522E 03	356.040	59.340	0.020585	6	24.490
0.7526858E 03	-0.3306562E 03	0.8221931E 03	336.271	48.039	0.029535	7	28.571
0.6836543E 03	-0.1541204E 03	0.7008110E 03	347.296	43.412	0.025174	8	32.653
-0.1872969E 04	0.2873506E 03	0.1894883E 04	171.278	19.031	0.068067	9	36.735
0.2883718E 03	-0.2593499E 03	0.3871729E 03	318.143	31.814	0.013908	10	40.816

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 404 FLT 609.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2608105E 03							
0.2134534E 04	0.1876634E 04	0.2810718E 04	40.586	40.586	0.899527	1	4.082
-0.2660075E 04	0.1639357E 04	0.3124661E 04	148.355	74.178	1.000000	2	8.163
-0.4659044E 03	-0.5354399E 03	0.7096973E 03	228.978	76.326	0.227129	3	12.245
-0.5948533E 03	-0.1402274E 03	0.6014292E 03	193.483	48.371	0.192478	4	16.327
0.1126087E 04	0.3155300E 03	0.1169457E 04	15.653	3.131	0.374267	5	20.408
0.1129566E 04	-0.3926587E 03	0.1195866E 04	340.842	56.805	0.382720	6	24.490
0.1934952E 03	-0.1026111E 03	0.2190192E 03	332.063	47.438	0.070094	7	28.571
0.3531850E 03	0.9468879E 03	0.1010613E 04	69.544	8.693	0.323431	8	32.653
-0.3472246E 03	-0.3809045E 03	0.5154155E 03	227.648	25.294	0.164951	9	36.735
-0.5475372E 01	-0.1075142E 03	0.1076536E 03	267.084	26.708	0.034453	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 13 V= 204.5 KTS n= 1.44 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8035715E 01							
0.3637208E 01	-0.2766854E 01	0.4547361E 01	322.490	322.490	1.000000	1	4.082
-0.2725239E 00	-0.3374358E 00	0.4494563E 00	232.675	116.337	0.098839	2	8.163
-0.6769013E-01	0.3231589E-01	0.7500845E-01	154.430	51.493	0.016495	3	12.245
0.3338359E-01	-0.8431149E-01	0.9068030E-01	291.602	72.900	0.019941	4	16.327
0.3357354E-01	-0.2613564E-01	0.4022235E-01	319.475	63.895	0.008845	5	20.408
-0.1557736E-01	0.2747035E-01	0.3157969E-01	119.556	19.926	0.006945	6	24.490
-0.1195768E-02	0.3584576E-01	0.3586369E-01	91.719	13.103	0.007886	7	28.571
-0.4627356E-02	0.4275905E-03	0.4647069E-02	174.721	21.840	0.001022	8	32.653
-0.3715777E-01	-0.3824468E-02	0.3733412E-01	185.571	20.619	0.008210	9	36.735
0.4115105E-02	-0.6267361E-03	0.4162554E-02	351.340	35.134	0.000915	10	40.816

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 472 CTR 413 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1032544E 05							
-0.1226175E 06	0.1411934E 06	0.1870019E 06	130.969	130.969	1.000000	1	4.082
0.4602126E 03	-0.7815181E 03	0.9110393E 03	300.926	150.463	0.004872	2	8.163
-0.8210305E 04	-0.8446078E 04	0.1043344E 05	218.136	72.712	0.055820	3	12.245
-0.5776257E 03	0.7974357E 03	0.9846624E 03	125.918	31.479	0.005266	4	16.327
0.6413633E 04	0.1713335E 04	0.6639844E 04	14.959	3.000	0.035507	5	20.408
-0.4395659E 03	-0.3660510E 03	0.5493105E 03	221.789	36.965	0.002937	6	24.490
0.3276654E 04	-0.2032756E 04	0.3855133E 04	325.187	46.384	0.020621	7	28.571
-0.7555771E 03	-0.1291257E 04	0.1496034E 04	239.666	29.958	0.008000	8	32.653
-0.1038464E 04	-0.4772090E 03	0.1119743E 04	203.647	22.627	0.006362	9	36.735
-0.2987525E 03	-0.3628510E 03	0.4723004E 03	230.761	23.076	0.002526	10	40.816

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1932854E 03							
-0.1555926E 03	0.2656250E 02	0.1581550E 03	170.331	170.331	0.265771	1	4.082
0.4871001E 03	-0.3232310E 03	0.5842566E 03	326.541	163.270	1.000000	2	8.163
-0.1177383E 02	-0.1229121E 03	0.1234754E 03	264.530	88.177	0.210617	3	12.245
0.2183124E 01	-0.1341004E 03	0.1341182E 03	270.933	67.733	0.229770	4	16.327
-0.6540494E 02	-0.5763566E 02	0.8717868E 02	221.339	44.278	0.149704	5	20.408
-0.3359637E 02	0.7350635E 02	0.8302504E 02	117.702	19.617	0.141619	6	24.490
-0.3273115E 02	0.1431295E 02	0.3573855E 02	155.947	22.421	0.061046	7	28.571
-0.5766315E 01	0.6455855E 01	0.8666001E 01	131.595	16.449	0.014816	8	32.653
0.1244525E 02	-0.2442912E 02	0.2741653E 02	296.596	33.030	0.046765	9	36.735
-0.2281464E 02	-0.1056044E 02	0.2514021E 02	204.838	20.484	0.042883	10	40.816

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3219090E 05							
-0.2571236E 05	0.3900513E 05	0.4671750E 05	123.393	123.393	1.000000	1	4.082
0.1354564E 05	-0.2316165E 05	0.2685130E 05	300.306	150.153	0.574759	2	8.163
-0.1073389E 04	-0.1406250E 04	0.1767134E 04	232.732	77.577	0.037826	3	12.245
-0.2255763E 04	-0.2553865E 04	0.3407469E 04	228.547	57.137	0.072938	4	16.327
0.1911001E 04	-0.3574146E 03	0.1944137E 04	349.406	69.881	0.041615	5	20.408
0.1698937E 04	0.9900615E 03	0.1970516E 04	30.438	5.076	0.042188	6	24.490
0.6226345E 03	0.5578857E 03	0.8632156E 03	43.838	6.263	0.018477	7	28.571
0.3727753E 03	0.1321219E 04	0.1374726E 04	74.256	9.283	0.029426	8	32.653
-0.3479731E 03	0.4872696E 02	0.3513614E 03	172.028	19.114	0.007521	9	36.735
-0.2204779E 03	-0.5574117E 03	0.5994302E 03	248.419	24.842	0.012831	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 13 V= 204.5 KTS n= 1.44 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 3
OVERALL CYCLIC LOAD = 0.121045[illegible] 06

ZERO POSITION USED 8.31 LOAD/IN USED 317979.81

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5107613[illegible] 05							
-0.1276456E 05	0.1037364E 06	0.1045208E 06	97.015	97.015	1.000000	1	4.082
0.3749[illegible] 04	-0.6304223E 04	0.7334770E 04	300.740	150.370	0.070175	2	8.163
-0.7018[illegible] 04	-0.12[illegible] 05	0.1442072E 05	240.375	80.292	0.137970	3	12.245
-0.1324072E 04	0.1162542E 04	0.1762006E 04	138.717	34.679	0.016858	4	16.327
0.2272512E 04	0.1138147E 04	0.2541690E 04	26.603	5.321	0.024318	5	20.408
0.2560462E 04	-0.8103854E 02	0.2561752E 04	358.188	59.698	0.024701	6	24.490
0.2425555E 03	-0.8603066E 03	0.8938466E 03	285.746	40.821	0.008552	7	28.571
0.3922510E 03	-0.2430085E 03	0.4625232E 03	328.002	41.000	0.004425	8	32.653
0.1741335E 04	0.9604844E 03	0.1988662E 04	28.830	3.203	0.019026	9	36.735
0.6143952E 03	0.9086543E 03	0.1095876E 04	55.935	5.593	0.010494	10	40.816

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 50
OVERALL CYCLIC LOAD = 0.116130E 05

ZERO POSITION USED 1.26 LOAD/IN USED 41340.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1764651E 04							
0.3363602E 04	-0.3316947E 04	0.5432473E 04	315.333	315.333	0.716304	1	4.082
-0.3537542E 04	0.6621613E 04	0.7594035E 04	119.179	59.590	1.000000	2	8.163
0.2143955E 04	0.1613138E 04	0.2683050E 04	36.958	12.319	0.353776	3	12.245
0.7940776E 02	-0.1064442E 04	0.1067399E 04	274.266	68.567	0.140743	4	16.327
0.1332326E 03	0.2464408E 03	0.2809465E 03	62.334	12.467	0.037045	5	20.408
0.3949415E 00	-0.6685107E 03	0.6685107E 03	270.034	45.006	0.088147	6	24.490
0.2879619E 03	0.2870077E 03	0.4065747E 03	44.902	6.415	0.053609	7	28.571
-0.4960985E 02	0.4052677E 03	0.4083994E 03	96.986	12.123	0.053850	8	32.653
-0.2356672E 03	-0.2003827E 02	0.2358713E 03	189.606	21.067	0.035540	9	36.735
-0.3737219E 03	-0.3240591E 03	0.4964421E 03	220.552	22.055	0.065723	10	40.816

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 42
OVERALL CYCLIC LOAD = 0.374422E 05

ZERO POSITION USED 1.42 LOAD/IN USED -127699.94

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2034859E 05							
-0.1030332E 05	0.1673033E 05	0.1964647E 05	121.627	121.627	1.000000	1	4.082
0.5505651E 04	-0.1116084E 05	0.1244468E 05	296.255	148.127	0.633366	2	8.163
-0.3184757E 04	-0.2429760E 04	0.4005797E 04	217.341	72.447	0.203873	3	12.245
0.1865301E 04	-0.7142144E 03	0.2016522E 04	339.256	84.814	0.102630	4	16.327
-0.1042092E 04	0.6466531E 02	0.1226424E 04	148.179	29.636	0.062418	5	20.408
-0.3585432E 02	0.9535173E 03	0.9541912E 03	92.154	15.359	0.048563	6	24.490
0.3343598E 03	-0.2053770E 03	0.3923904E 03	328.439	46.920	0.019971	7	28.571
0.4709443E 03	-0.1104223E 04	0.1200457E 04	293.098	36.637	0.061097	8	32.653
-0.3059690E 03	-0.4641558E 03	0.5559290E 03	236.607	26.290	0.028294	9	36.735
0.2112175E 03	0.5022181E 03	0.5449185E 03	67.194	6.719	0.027733	10	40.816

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 413 FLT 609.0 TR 44
OVERALL CYCLIC LOAD = 0.725450E 04

ZERO POSITION USED 2.12 LOAD/IN USED -12470.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1649269E 02							
0.2365219E 04	0.1614568E 04	0.2863755E 04	34.319	34.319	0.970762	1	4.082
-0.2552164E 04	0.1479530E 04	0.2950009E 04	149.898	74.949	1.000000	2	8.163
-0.7192915E 01	0.1440527E 03	0.1442322E 03	92.859	30.953	0.048892	3	12.245
-0.4411743E 03	-0.3794878E 03	0.5819326E 03	220.701	55.175	0.197265	4	16.327
0.1185975E 04	0.3621567E 03	0.1240037E 04	16.981	3.396	0.420350	5	20.408
0.1109846E 04	-0.3696787E 03	0.1176268E 04	340.653	56.776	0.398734	6	24.490
0.2641370E 03	0.6069162E 02	0.2710196E 03	12.940	1.849	0.091871	7	28.571
0.1526967E 03	0.7130330E 03	0.7291997E 03	77.913	9.739	0.247186	8	32.653
-0.3747061E 03	-0.1400805E 03	0.4000339E 03	200.490	22.278	0.135604	9	36.735
-0.4979260E 02	-0.2013696E 03	0.2074344E 03	256.111	25.611	0.070317	10	40.816

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 14 V= 199 KTS n= 1.61 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.61460025E 01							
0.25205340E 01	-0.14993510E 01	0.31942650E 01	332.006	332.006	1.000000	1	4.098
-0.22409550E 00	-0.13372540E 00	0.28978250E 00	219.347	109.673	0.090719	2	8.197
-0.82610250E-02	0.63937130E-01	0.64461620E-01	97.363	32.454	0.020182	3	12.295
0.61197280E-02	-0.56125310E-01	0.56455970E-01	276.223	69.056	0.017674	4	16.393
-0.20003120E-01	0.63243150E-02	0.20980550E-01	162.445	32.489	0.006568	5	20.492
-0.27105930E-01	0.20113690E-01	0.33753440E-01	143.423	23.904	0.010567	6	24.590
-0.21434430E-01	0.32164180E-01	0.38630250E-01	123.741	17.677	0.012105	7	28.689
-0.83271790E-02	0.25941550E-01	0.27245250E-01	107.737	13.475	0.008529	8	32.787
-0.51377000E-02	0.13155190E-01	0.14122880E-01	111.333	12.370	0.004421	9	36.885
0.19510630E-02	0.59754440E-02	0.62860155E-02	71.910	7.191	0.001968	10	40.984

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.77302330E 04							
-0.17471080E 06	0.12775330E 06	0.21643060E 06	143.925	143.925	1.000000	1	4.098
0.10503590E 04	-0.22409900E 04	0.24654070E 04	295.212	147.606	0.011393	2	8.197
-0.11102570E 05	0.45900788E 04	0.12131780E 05	156.229	52.076	0.056052	3	12.295
0.89350450E 03	0.68137460E 03	0.11236870E 04	37.328	9.332	0.005192	4	16.393
0.61230470E 04	0.80659430E 03	0.61759370E 04	7.505	1.501	0.028535	5	20.492
-0.11786450E 04	-0.87718310E 03	0.14692350E 04	216.656	36.110	0.006788	6	24.590
0.29235630E 04	-0.16800940E 04	0.33752730E 04	330.030	47.147	0.015595	7	28.689
0.65363210E 01	-0.21526720E 04	0.21526320E 04	270.174	33.772	0.009946	8	32.787
-0.14793610E 04	0.47670140E 02	0.14801290E 04	178.154	19.795	0.006839	9	36.885
0.58455200E 03	0.12107130E 04	0.13444340E 04	64.229	6.423	0.006212	10	40.984

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.31547380E 03							
-0.11635760E 03	-0.89430500E 02	0.14715540E 03	217.424	217.424	0.272970	1	4.098
0.34330250E 03	-0.41566410E 03	0.53910400E 03	309.554	154.777	1.000000	2	8.197
-0.53896570E 02	0.46434150E 02	0.70107730E 02	148.689	49.563	0.130045	3	12.295
-0.19973650E 02	-0.12940750E 03	0.13094030E 03	261.226	65.306	0.242885	4	16.393
-0.79328560E 02	0.11149720E 02	0.80106720E 02	172.019	34.404	0.148563	5	20.492
-0.97036160E 01	0.10670650E 03	0.10714600E 03	95.196	15.866	0.198750	6	24.590
-0.30490660E 02	0.25201730E 02	0.40011330E 02	139.658	19.951	0.074219	7	28.689
-0.77762560E 01	0.84165510E 01	0.11460360E 02	132.743	16.593	0.021258	8	32.787
0.18237600E 02	-0.33521180E 02	0.38160560E 02	298.543	33.172	0.070786	9	36.885
-0.66759030E 01	0.93381510E 01	0.11478620E 02	125.570	12.557	0.021288	10	40.984

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.24912200E 05							
-0.33612150E 05	0.35720110E 05	0.52161750E 05	136.781	136.781	1.000000	1	4.098
0.11711640E 05	-0.29560630E 05	0.31601410E 05	291.609	145.805	0.605809	2	8.197
-0.52245570E 02	0.22460050E 04	0.22466081E 04	91.351	30.450	0.043071	3	12.295
-0.45263360E 04	-0.22161210E 04	0.51257340E 04	205.595	51.399	0.098343	4	16.393
0.20032190E 04	-0.87227250E 03	0.21848500E 04	336.473	67.294	0.041887	5	20.492
0.23731440E 04	0.21264270E 03	0.23833530E 04	5.120	0.853	0.045692	6	24.590
0.97360550E 03	0.13654230E 04	0.16945240E 04	55.061	7.866	0.032494	7	28.689
0.19755590E 03	0.71615730E 03	0.73715090E 03	75.465	9.433	0.014131	8	32.787
-0.33569730E 03	-0.38259330E 02	0.33786640E 03	186.780	20.753	0.006478	9	36.885
-0.24723540E 01	-0.20662180E 03	0.20663350E 03	269.324	26.932	0.003961	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 14 V= 199 KTS n= 1.61 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.41950565E 05							
-0.61552343E 04	0.10064645E 05	0.1008355E 06	93.505	93.505	1.000000	1	4.098
-0.66421095E 04	-0.40530555E 04	0.7955344E 04	210.676	105.338	0.078834	2	8.197
-0.35223423E 04	-0.63464645E 04	0.7259348E 04	239.785	79.928	0.069413	3	12.295
-0.14280213E 04	-0.65912451E 03	0.1588526E 04	205.973	51.495	0.015754	4	16.393
0.97346557E 03	0.15938527E 03	0.98643122E 03	9.299	1.860	0.009783	5	20.492
0.61705596E 03	-0.24723055E 03	0.66476346E 03	338.161	56.360	0.006593	6	24.590
-0.25761625E 03	-0.57578518E 03	0.63075258E 03	245.896	35.128	0.006256	7	28.689
0.93684315E 01	-0.10101245E 03	0.1022511E 03	275.545	34.443	0.001014	8	32.767
0.63381545E 02	0.29474788E 03	0.3025063E 03	76.994	8.555	0.003000	9	36.885
-0.96026085E 02	0.19579415E 03	0.2183350E 03	116.267	11.627	0.002165	10	40.984

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1019210E 04							
0.4260784E 04	-0.4756520E 04	0.6421156E 04	311.643	311.643	0.835359	1	4.098
-0.1891042E 04	0.7463457E 04	0.7686659E 04	104.242	52.121	1.000000	2	8.197
0.2037675E 04	0.9450347E 03	0.2291810E 04	24.355	8.118	0.298127	3	12.295
-0.1255126E 03	-0.6319136E 03	0.6442576E 03	258.766	64.691	0.083815	4	16.393
-0.4881961E 02	-0.1555657E 03	0.1629314E 03	253.255	50.651	0.021198	5	20.492
0.2217279E 03	-0.7263430E 02	0.2333279E 03	341.857	56.976	0.030355	6	24.590
0.9147339E 02	0.1783621E 02	0.9319656E 02	11.035	1.576	0.012124	7	28.689
0.2347522E 03	0.8316720E 03	0.9118093E 03	75.031	9.385	0.118622	8	32.787
-0.6964131E 03	0.2084155E 03	0.7269219E 03	163.339	18.149	0.094570	9	36.885
-0.6476215E 03	-0.1391755E 03	0.6746873E 03	196.234	19.623	0.087773	10	40.984

BLADE CHORD AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.23818465E 05							
-0.51799616E 04	0.24362233E 05	0.24906813E 05	102.004	102.004	1.000000	1	4.098
-0.36407306E 03	-0.81830105E 03	0.89563706E 03	246.015	123.008	0.035959	2	8.197
-0.12733117E 04	-0.20690598E 04	0.24294731E 04	238.391	79.464	0.097542	3	12.295
0.32463599E 04	-0.44066066E 03	0.32761306E 04	352.270	88.067	0.131535	4	16.393
-0.97171098E 03	-0.82922207E 03	0.12774316E 04	220.476	44.095	0.051286	5	20.492
-0.32862555E 03	-0.75950076E 03	0.82754815E 03	246.602	41.100	0.033226	6	24.590
0.45722776E 03	0.23609498E 01	0.45723396E 03	0.296	0.042	0.018358	7	28.689
0.93706135E 03	0.10028897E 04	0.13725406E 04	46.943	5.568	0.055107	8	32.787
-0.11962741E 04	-0.55915606E 03	0.13204716E 04	205.055	22.784	0.053016	9	36.885
0.17852206E 02	-0.13060001E 03	0.13201286E 03	277.772	27.777	0.005300	10	40.984

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 472 CTR 454 FLT 609.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.48525175E 03							
0.23987106E 04	0.21530668E 04	0.32232776E 04	41.911	41.911	1.000000	1	4.098
-0.25592466E 04	0.17769616E 04	0.31155776E 04	145.226	72.613	0.966587	2	8.197
0.25225945E 02	-0.40397064E 03	0.40466643E 03	273.590	91.197	0.125544	3	12.295
-0.56072295E 03	-0.26776376E 03	0.62137655E 03	205.526	51.381	0.192773	4	16.393
0.11720905E 04	-0.10318728E 03	0.11766238E 04	354.969	70.994	0.365039	5	20.492
0.11704745E 04	-0.67102127E 03	0.13491425E 04	330.174	55.029	0.418562	6	24.590
0.40253391E 03	0.20441746E 03	0.45146441E 03	26.923	3.846	0.140064	7	28.689
0.18649318E 03	0.75601988E 03	0.77860198E 03	76.143	9.518	0.241581	8	32.787
-0.26027275E 03	-0.13578198E 02	0.26064775E 03	183.074	20.342	0.080864	9	36.885
-0.84097175E 02	-0.72617178E 01	0.84411606E 02	184.949	18.495	0.026188	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 15 V= 119.5 KTS n= .96 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 01							
0.1177726E 01	-0.3535721E 01	0.5175538E 01	316.863	316.863	1.000000	1	4.115
[illegible]-01	-0.1094213E 00	0.1377442E 00	[illegible]	116.298	0.026614	2	8.230
[illegible]-01	-0.5464850E-01	0.7601525E-01	[illegible]	75.116	0.014847	3	12.346
[illegible]-01	-0.3625680E-01	0.5180843E-01	315.652	78.913	0.010022	4	16.461
[illegible]-02	-0.8405390E-02	0.1662025E-01	210.300	42.076	0.003211	5	20.576
[illegible]-01	0.1576672E-01	0.2164878E-01	[illegible]	22.210	0.004183	6	24.691
0.1176634E-01	0.1075437E-01	0.1594061E-01	42.427	6.061	0.003080	7	28.807
[illegible]-02	-0.5457456E-02	[illegible]-02	[illegible]	31.690	0.001914	8	32.922
-0.4177325E-03	0.7712178E-02	0.7723462E-02	[illegible]	10.344	0.001492	9	37.037
[illegible]-02	0.6441008E-03	0.1685539E-02	157.540	15.754	0.000326	10	41.152

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
0.1506175E 05	0.5121153E 05	0.5338013E 05	73.590	73.590	1.000000	1	4.115
-0.1540755E 04	-0.9368037E 03	0.1803196E 04	211.355	105.678	0.033795	2	8.230
-0.2121644E 04	-0.2474261E 05	0.2483330E 05	265.094	88.365	0.464793	3	12.346
-0.1012716E 04	0.2985517E 03	0.1055775E 04	163.579	40.895	0.019776	4	16.461
[illegible] 03	0.7121341E 04	0.7122370E 04	91.043	18.209	0.133416	5	20.576
0.1301751E 03	-0.3795000E 03	0.4077030E 03	281.577	46.930	0.016316	6	24.691
-0.7177656E 03	-0.1488137E 04	0.1650332E 04	244.220	34.889	0.030914	7	28.807
-0.4183630E 03	0.5477446E 03	[illegible] 03	128.671	16.084	0.013141	8	32.922
0.8170528E 03	0.2326825E 04	[illegible] 04	70.129	7.792	0.045330	9	37.037
0.5736520E 03	0.2241915E 03	[illegible] 03	21.345	2.134	0.011537	10	41.152

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2074412E 03							
-0.1530166E 03	-0.3132793E 02	0.1955425E 03	185.219	185.219	0.092282	1	4.115
0.1145921E 03	-0.7635324E 02	0.1380402E 03	[illegible]	162.812	0.633543	2	8.230
0.8011087E 01	-0.2190024E 03	0.2191408E 03	[illegible]	90.698	1.000000	3	12.346
-0.9465553E 00	-0.5732764E 02	0.5733549E 02	269.051	67.263	0.261628	4	16.461
[illegible] 02	[illegible] 02	[illegible] 02	251.761	50.352	[illegible]	5	20.576
-0.1677908E 02	-0.2845662E 01	0.1659345E 02	188.617	31.436	0.086665	6	24.691
0.1413772E 02	0.7032360E 01	0.1578567E 02	26.447	3.778	0.072050	7	28.807
-0.1445514E 02	0.1155572E 02	0.1877757E 02	140.319	17.540	0.085684	8	32.922
-0.2665121E 02	-0.1558295E 02	0.3310453E 02	216.267	24.030	0.151066	9	37.037
-0.2054562E 02	-0.7788655E 01	0.2197612E 02	200.758	20.076	0.100279	10	41.152

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.9552231E 04							
0.5722953E 04	0.5440145E 04	0.1103541E 05	58.774	58.774	1.000000	1	4.115
0.8876467E 03	-0.4000051E 04	0.4097390E 04	282.514	141.257	0.371161	2	8.230
-0.2230741E 04	-0.4329772E 04	0.4556283E 04	241.294	80.431	0.416180	3	12.346
-0.6378153E 03	-0.4403025E 03	0.7750354E 03	214.618	53.655	0.070206	4	16.461
0.9476754E 02	-0.3646563E 03	0.3767693E 03	284.568	56.914	0.034125	5	20.576
-0.1344532E 03	-0.2937144E 03	[illegible] 03	245.415	[illegible]	[illegible]	6	24.691
-0.1562455E 03	0.3283914E 03	0.3775253E 03	115.560	17.080	0.034158	7	28.807
0.6451145E 03	0.4798718E 03	[illegible] 03	[illegible]	4.205	0.070258	8	32.922
0.1522803E 02	0.1558675E 03	[illegible] 03	84.508	5.389	0.019189	9	37.037
[illegible] 02	0.2611051E 03	[illegible] 03	[illegible]	7.025	0.025150	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 15 V= 119.5 KTS n= .96 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
[illegible] 05	0.8133626E 05	0.8505800E 05	72.565	72.065	1.000000	1	4.115
[illegible] 04	0.7554813E 04	0.9559449E 04	56.754	28.371	0.112380	2	8.230
[illegible] 03	-0.1075801E 05	0.1081900E 05	273.805	51.270	0.127194	3	12.346
[illegible] 04	-0.5254493E 02	0.1563418E 04	182.712	45.678	0.073084	4	16.461
-0.1476503E 04	-0.1171240E 02	0.1480550E 04	180.453	36.091	[illegible]	5	20.576
[illegible] 03	-0.6333735E 03	0.6720552E 03	250.456	41.743	0.007902	6	24.691
[illegible] 03	0.2316811E 03	[illegible] 03	165.043	23.578	0.010552	7	28.807
0.1132244E 04	0.5865572E 03	0.1276363E 04	27.367	3.421	0.015032	8	32.922
[illegible] 03	-0.5615864E 03	0.1244335E 04	305.768	34.374	0.014629	9	37.037
[illegible] 03	-0.4133845E 03	0.5257720E 03	231.936	23.184	0.006181	10	41.152

LADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2167951E 04							
[illegible] 04	-0.3015148E 04	0.4709563E 04	320.192	320.192	1.000000	1	4.115
[illegible] 04	0.5302025E 03	0.3125115E 04	170.082	85.041	0.663572	2	8.230
0.5467720E 03	0.1455690E 04	0.1588490E 04	69.750	23.263	0.337292	3	12.346
-0.2174671E 03	-0.1522623E 03	0.2902710E 03	221.480	55.370	0.061635	4	16.461
[illegible] 03	0.1432846E 03	0.1800400E 03	127.891	25.578	0.038229	5	20.576
[illegible] 03	-0.4825556E 03	0.6245806E 03	230.589	38.431	0.132620	6	24.691
0.1424243E 03	-0.7882872E 02	0.1627906E 03	330.725	47.247	0.034568	7	28.807
0.2514025E 02	0.8717825E 03	0.8722768E 03	88.151	11.019	0.185206	8	32.922
0.5441826E 02	0.3652257E 03	0.3692615E 03	81.525	9.058	0.078407	9	37.037
[illegible] 01	-0.3532114E 01	0.5539831E 01	219.621	21.962	0.001176	10	41.152

ILADE CHORD AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3061441E 05							
0.3403942E 04	0.2027263E 05	0.2055636E 05	80.469	80.469	1.000000	1	4.115
0.1425454E 04	0.3137358E 04	0.3446003E 04	65.565	32.783	0.167637	2	8.230
0.8571987E 03	-0.5096727E 04	0.5168305E 04	279.547	93.182	0.251421	3	12.346
0.8104951E 02	0.1134636E 04	0.1394382E 04	54.461	13.615	0.067832	4	16.461
-0.9912378E 02	-0.7025211E 02	0.9837495E 03	184.095	36.819	0.047856	5	20.576
-0.3266438E 03	0.6480129E 03	0.7257019E 03	116.754	19.459	0.035303	6	24.691
0.2466630E 03	0.5752148E 03	0.6267415E 03	66.605	9.515	0.030489	7	28.807
0.5327820E 02	-0.8668913E 03	0.8685171E 03	273.517	34.190	0.042251	8	32.922
0.5715369E 02	-0.7791145E 02	0.5769228E 03	352.237	39.137	0.028061	9	37.037
0.3255764E 03	-0.6207671E 02	0.3317363E 03	349.215	34.921	0.016139	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 755 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX		FREQUENCY
-0.4487388E 03							
0.1714944E 04	0.1494010E 04	0.2274143E 04	41.066	41.068	1.000000	1	4.115
-0.1124984E 04	0.3889649E 03	0.1190325E 04	160.926	80.463	0.523421	2	8.230
-0.3544280E 03	0.4368296E 03	0.5625293E 03	129.055	43.018	0.247359	3	12.346
-0.3792000E 03	-0.3153419E 02	0.3805088E 03	184.754	46.188	0.167320	4	16.461
-0.6077737E 03	0.4064104E 03	0.7311348E 03	146.230	29.246	0.321499	5	20.576
-0.1319656E 02	-0.3066240E 03	0.3089060E 03	267.551	44.592	0.135834	6	24.691
-0.7850635E 02	-0.3865447E 03	0.3944358E 03	258.519	36.931	0.173444	7	28.807
-0.1277127E 03	0.7020264E 03	0.7135486E 03	100.311	12.539	0.313766	8	32.922
-0.1290930E 03	0.1348294E 02	0.1297952E 03	174.037	19.337	0.057074	9	37.037
-0.4665941E 02	0.1019782E 03	0.1120626E 03	114.493	11.449	0.049277	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 16 V= 120.5 KTS n= .93 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 925 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.97443263 01							
0.75699295E 01	-0.31176095E 01	0.50439572E 01	321.805	321.805	1.000000	1	4.115
-0.41522377E-01	-0.13612315E 00	0.14311082E 00	229.229	114.612	0.027786	2	8.230
-0.97064775E-02	-0.96762215E-01	0.97173046E-01	264.260	89.287	0.019267	3	12.346
0.37726546E-01	-0.25651495E-01	0.41263336E-01	331.492	80.373	0.008181	4	16.461
-0.15653257E-02	0.10515735E-02	0.27453795E-02	146.443	27.289	0.000544	5	20.576
-0.10772147E-01	-0.25958356E-02	0.11081208E-01	193.610	22.268	0.002187	6	24.691
0.28937791E-02	-0.78544005E-02	0.82505966E-02	289.668	41.238	0.001644	7	28.807
-0.72984475E-02	0.16163775E-01	0.17677695E-01	113.888	14.238	0.003505	8	32.922
-0.75771197E-03	-0.60064795E-02	0.60571905E-02	262.436	29.160	0.001201	9	37.037
0.31625646E-03	-0.38770608E-02	0.38905558E-02	275.532	27.553	0.000762	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 925 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.62157815E 04							
0.27600525E 04	0.47056035E 05	0.47153326E 05	86.376	86.376	1.000000	1	4.115
-0.13240545E 04	-0.85214262E 03	0.15737545E 04	212.734	106.392	0.033377	2	8.230
0.59307975E 04	-0.21431295E 05	0.22236316E 05	285.593	95.198	0.471893	3	12.346
-0.44084575E 03	-0.29785335E 03	0.57414325E 03	211.250	52.813	0.012177	4	16.461
-0.32152175E 04	0.48735165E 04	0.56792235E 04	123.885	24.177	0.120448	5	20.576
-0.85077065E 03	-0.11669126E 04	0.14476573E 04	233.713	38.952	0.030703	6	24.691
0.43387115E 03	-0.20634635E 04	0.21133545E 04	281.874	40.268	0.044720	7	28.807
-0.24394625E 03	-0.21065178E 03	0.32245535E 03	220.836	27.604	0.006839	8	32.922
-0.21271665E 04	0.74615635E 03	0.22542395E 04	160.670	17.852	0.047609	9	37.037
0.31440728E 03	0.72175126E 03	0.78725306E 03	66.461	6.646	0.016697	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 925 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.14469500E 03							
-0.14830745E 03	-0.22554085E 02	0.16588709E 03	187.780	187.780	0.744747	1	4.115
0.13475455E 03	-0.83326365E 02	0.16154258E 03	328.254	163.427	0.739233	2	8.230
0.32416085E 02	-0.22537695E 03	0.22809921E 03	278.170	92.723	1.000000	3	12.346
-0.16103606E 01	-0.76557715E 02	0.79613466E 02	268.841	67.210	0.349041	4	16.461
-0.36130400E 02	-0.72064560E 02	0.80507258E 02	236.449	47.290	0.352964	5	20.576
-0.37322955E 02	0.18778675E 02	0.41513709E 02	153.105	25.518	0.182001	6	24.691
0.10893776E 02	0.32677126E 02	0.34322346E 02	71.518	10.274	0.150476	7	28.807
-0.90661727E 01	0.51485555E 01	0.10472640E 02	150.396	18.799	0.045654	8	32.922
-0.21572725E 02	-0.28518475E 02	0.35807852E 02	232.878	25.870	0.159175	9	37.037
-0.17355573E 02	0.95581315E 01	0.20026095E 02	151.144	15.024	0.087790	10	41.152

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 925 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.15587400E 04							
0.38778633E 04	0.81587978E 04	0.90344742E 04	64.552	64.992	1.000000	1	4.115
0.11740225E 04	-0.40113625E 04	0.41681845E 04	285.656	142.828	0.460940	2	8.230
-0.18808135E 04	-0.42786415E 04	0.46417308E 04	247.092	82.364	0.513157	3	12.346
-0.61893645E 03	-0.81475215E 03	0.10227037E 04	232.806	58.201	0.113087	4	16.461
0.76922795E 03	-0.40515075E 03	0.86414058E 03	332.038	66.408	0.095541	5	20.576
0.19660967E 03	-0.60746735E 03	0.63853115E 03	287.890	47.982	0.070575	6	24.691
[illegible] 03	0.53681115E 02	0.23771575E 03	165.573	23.710	0.026282	7	28.807
0.38022727E 03	0.53376465E 03	0.65534845E 03	54.535	6.817	0.072456	8	32.922
-0.30657544E 01	0.16002465E 03	0.16105728E 03	93.096	10.343	0.017807	9	37.037
-0.77337645E 02	0.73126135E 02	0.10417385E 03	137.693	13.769	0.011518	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 16 V= 120.5 KTS n= .93 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 925 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6006248E 05							
0.2705715E 05	0.7655500E 05	0.8162406E 05	70.611	70.611	1.000000	1	4.115
0.6454497E 04	0.8032047E 04	0.1053915E 05	52.841	26.520	0.134019	2	8.230
-0.6147462E 03	-0.1106153E 05	0.1113685E 05	266.818	88.939	0.135639	3	12.346
-0.2565426E 04	0.9767446E 03	0.3076765E 04	162.460	40.872	0.037688	4	16.461
-0.5470370E 03	0.1311580E 04	0.1423702E 04	112.603	22.521	0.017437	5	20.576
0.6126566E 02	-0.1237819E 04	0.1239362E 04	272.854	45.482	0.014816	6	24.691
-0.7751506E 03	0.3852944E 03	0.8247380E 03	152.141	21.734	0.010104	7	28.807
0.1574945E 04	0.5792109E 03	0.1654540E 04	31.871	3.984	0.022720	8	32.922
0.5436630E 03	-0.8628196E 03	0.1018335E 04	302.080	33.564	0.012476	9	37.037
-0.1600011E 03	-0.2449593E 03	0.2924595E 03	236.838	23.684	0.003583	10	41.152

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 925 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2552324E 04							
0.3346760E 04	-0.3033759E 04	0.4517133E 04	317.808	317.808	1.000000	1	4.115
-0.3206953E 04	0.1927850E 03	0.3212528E 04	177.274	88.637	0.711187	2	8.230
0.2434215E 03	0.1615152E 04	0.1632587E 04	81.534	27.178	0.361510	3	12.346
-0.2271615E 03	-0.3466807E 03	0.4143157E 03	236.751	59.188	0.091721	4	16.461
-0.3654355E 03	-0.1675410E 03	0.4051372E 03	204.283	40.877	0.089844	5	20.576
-0.2570632E 03	-0.5638242E 03	0.6196603E 03	245.493	40.915	0.137183	6	24.691
0.1512905E 03	-0.3178067E 03	0.3519730E 03	295.457	42.208	0.077921	7	28.807
0.1570605E 02	0.5357307E 03	0.5359492E 03	88.262	11.045	0.113648	8	32.922
-0.1416518E 03	0.2751376E 03	0.3093645E 03	117.126	13.014	0.068487	9	37.037
0.1116056E 03	0.1627007E 03	0.2001649E 03	30.865	3.087	0.044312	10	41.152

BLADE CHORD AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 925 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3019449E 05							
0.2756237E 04	0.1970215E 05	0.1989400E 05	82.036	82.036	1.000000	1	4.115
0.1627069E 04	0.2515193E 04	0.2995555E 04	57.102	28.551	0.150576	2	8.230
0.6581767E 03	-0.5595066E 04	0.5633723E 04	276.716	92.239	0.283187	3	12.346
0.7935588E 03	0.1456007E 04	0.1658219E 04	61.406	15.352	0.083353	4	16.461
-0.5896228E 03	-0.2252612E 03	0.6313813E 03	200.904	40.181	0.031737	5	20.576
-0.4525336E 01	0.4826973E 03	0.4827165E 03	90.537	15.090	0.024265	6	24.691
0.3749737E 03	0.2747358E 03	0.4647300E 03	36.241	5.177	0.023360	7	28.807
0.4307820E 03	-0.6645820E 03	0.7919863E 03	302.951	37.869	0.039810	8	32.922
0.2920088E 03	0.4718041E 03	0.5548621E 03	58.246	6.472	0.027891	9	37.037
0.3661472E 03	-0.1942774E 03	0.4340977E 03	332.349	33.340	0.021821	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 925 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4807962E 03							
0.1678074E 04	0.1469654E 04	0.2230655E 04	41.212	41.212	1.000000	1	4.115
-0.1105015E 04	0.3297756E 03	0.1153173E 04	163.383	81.692	0.516966	2	8.230
-0.3479902E 03	0.3875337E 03	0.5208450E 03	131.923	43.974	0.233494	3	12.346
-0.3798216E 03	-0.1671515E 03	0.4149749E 03	203.753	50.938	0.186033	4	16.461
-0.5036370E 03	0.2735044E 03	0.5731099E 03	151.495	30.299	0.256925	5	20.576
0.6410297E 02	-0.4069456E 03	0.4155457E 03	281.677	46.946	0.186285	6	24.691
-0.1139053E 02	-0.3849736E 03	0.3851418E 03	268.306	38.329	0.172659	7	28.807
-0.7022461E 02	0.6578457E 03	0.6615833E 03	96.093	12.012	0.296587	8	32.922
-0.2105922E 03	-0.2997281E 02	0.2127144E 03	188.100	20.900	0.095360	9	37.037
-0.1449115E 03	0.5412671E 02	0.1546860E 03	159.521	15.952	0.069346	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 17 V= 121 KTS n= 1.13 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5474246E 01							
[illegible] 01	-0.2655570E 01	0.5379322E 01	328.478	328.478	1.000000	1	4.132
-0.3390517E-01	-0.1225179E 00	0.1271227E 00	254.531	127.266	0.025327	2	8.264
-0.5647505E-01	-0.6533870E-01	0.8743808E-01	228.028	76.009	0.017215	3	12.397
-0.2116095E-01	-0.6356489E-01	0.6737095E-01	251.676	62.919	0.012264	4	16.529
-0.9518583E-02	-0.2628159E-01	0.2951619E-01	251.287	50.257	0.006087	5	20.661
0.2276955E-01	-0.1423926E-01	0.2523672E-01	325.387	54.231	0.004965	6	24.793
-0.2241615E-01	-0.3147856E-01	0.3861177E-01	234.512	33.501	0.007602	7	28.926
-0.1532627E-01	0.7318520E-03	0.1532016E-01	177.262	22.158	0.003016	8	33.058
0.3781353E-03	0.8655161E-02	0.8663416E-02	87.495	9.722	0.001706	9	37.190
-0.6319880E-02	-0.1062228E-01	0.1166973E-01	248.030	24.803	0.002257	10	41.322

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.8230875E 04							
-0.2017413E 05	0.5532591E 05	0.5881493E 05	110.036	110.036	1.000000	1	4.132
-0.1635567E 04	-0.1442038E 04	0.2143562E 04	221.402	110.701	0.037028	2	8.264
0.1036533E 05	-0.1545976E 05	0.2191030E 05	297.359	99.120	0.372064	3	12.397
-0.3740829E 02	-0.2572412E 03	0.2599458E 03	261.726	65.431	0.004414	4	16.529
-0.5794567E 04	0.2573898E 04	0.6513145E 04	152.832	30.566	0.110600	5	20.661
-0.6113897E 03	0.2921980E 03	0.6652397E 03	156.788	26.131	0.011296	6	24.793
0.2559227E 04	-0.3180151E 04	0.4036112E 04	308.762	44.109	0.069386	7	28.926
-0.2539106E 03	-0.6755273E 03	0.9235590E 03	251.443	31.430	0.015693	8	33.058
-0.1583770E 04	0.1256049E 04	0.2021794E 04	141.520	15.724	0.034332	9	37.190
0.6539035E 02	0.4301667E 03	0.4351046E 03	81.357	8.136	0.007389	10	41.322

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1132426E 03							
-0.1112854E 03	-0.9180571E 02	0.1765815E 03	211.251	211.251	0.978996	1	4.132
0.1204959E 03	-0.7205349E 02	0.1459141E 03	331.083	165.542	0.824382	2	8.264
0.3607759E 02	-0.1771216E 03	0.1807589E 03	281.513	93.838	1.000000	3	12.397
-0.1172018E 02	-0.3873575E 02	0.4035597E 02	253.709	63.427	0.223259	4	16.529
-0.2046957E 02	-0.5996451E 02	0.6344197E 02	250.998	50.200	0.350976	5	20.661
0.4411255E 01	-0.1381372E 02	0.1449812E 02	287.714	47.952	0.080207	6	24.793
0.1585608E 02	0.1098701E 02	0.1923390E 02	34.474	4.925	0.106406	7	28.926
-0.6616614E 01	0.1057804E 02	0.1243460E 02	122.148	15.269	0.068791	8	33.058
-0.1722507E 02	-0.1533191E 02	0.2243773E 02	219.762	24.418	0.123965	9	37.190
-0.3263680E 02	-0.2162317E 02	0.4002110E 02	212.704	21.270	0.221406	10	41.322

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1533263E 04							
0.5350849E 03	0.1046955E 05	0.1047832E 05	87.215	87.215	1.000000	1	4.132
0.2879542E 04	-0.3670898E 04	0.4484285E 04	305.054	152.527	0.427959	2	8.264
-0.8675934E 03	-0.3125414E 04	0.3247545E 04	254.488	84.833	0.309930	3	12.397
-0.7012653E 03	-0.7726375E 03	0.1043831E 04	227.748	56.937	0.099618	4	16.529
0.2840586E 03	-0.1466777E 03	0.2551900E 03	330.158	66.032	0.024357	5	20.661
-0.2425071E 03	-0.8585365E 03	0.9206870E 03	254.856	42.483	0.088920	6	24.793
-0.1713760E 03	0.1380815E 03	0.2234595E 03	141.315	20.146	0.021343	7	28.926
0.4415063E 03	0.5264807E 03	0.6871025E 03	50.017	6.252	0.065574	8	33.058
-0.3012097E 02	0.2149017E 03	0.2166081E 03	97.993	10.888	0.020672	9	37.190
-0.1660150E 03	0.3838403E 03	0.3959275E 03	114.527	11.453	0.038167	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 17 V= 121 KTS n= 1.13 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7010338E 05							
0.3421156E 05	0.8265869E 05	0.5024291E 05	66.342	66.342	1.000000	1	4.132
0.7781154E 04	0.7021012E 04	0.7413816E 04	71.265	35.633	0.082154	2	8.264
0.1132542E 04	-0.9522402E 04	0.9586028E 04	276.511	92.170	0.110666	3	12.397
-0.1354743E 04	0.1667834E 04	0.2175299E 04	129.948	32.487	0.024105	4	16.529
0.2560476E 03	0.2247734E 03	0.3407604E 03	41.215	8.243	0.003772	5	20.661
-0.6222576E 03	-0.4566592E 03	0.7562198E 03	218.596	36.433	0.008823	6	24.793
-0.1362144E 03	0.2852632E 03	0.3161160E 03	115.525	16.504	0.003503	7	28.926
0.1426424E 04	0.5203027E 03	0.1512715E 04	20.116	2.515	0.016762	8	33.058
-0.3519000E 03	-0.9777769E 03	0.1016217E 04	247.341	27.482	0.011261	9	37.190
0.2355827E 03	-0.1555315E 03	0.2095374E 03	320.822	32.083	0.003430	10	41.322

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 53

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1617295E 04							
0.3817172E 04	-0.3033669E 04	0.4919719E 04	321.920	321.920	1.000000	1	4.132
-0.2667703E 04	0.2664492E 03	0.2683576E 04	174.296	87.148	0.545356	2	8.264
-0.8150851E 01	0.1431001E 04	0.1430076E 04	90.343	30.114	0.291748	3	12.397
-0.1360839E 03	-0.2361132E 03	0.2945413E 03	232.288	58.321	0.059882	4	16.529
-0.3259044E 03	-0.8051436E 02	0.3451245E 03	193.559	38.712	0.070165	5	20.661
0.7456971E 02	-0.5647412E 03	0.5657996E 03	273.505	45.584	0.115030	6	24.793
0.1560837E 03	-0.1633761E 03	0.2451518E 03	318.094	45.442	0.049882	7	28.926
0.2148249E 03	0.5625308E 03	0.6025208E 03	69.112	8.639	0.122457	8	33.058
-0.6756442E 02	0.2774639E 03	0.2856721E 03	103.768	11.530	0.058078	9	37.190
-0.2626585E 02	0.2327093E 03	0.2344187E 03	96.520	9.693	0.047658	10	41.322

BLADE CHORD AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3181782E 05							
0.4229379E 04	0.2040658E 05	0.2084005E 05	78.294	78.294	1.000000	1	4.132
0.1235746E 04	0.2528783E 04	0.2814571E 04	63.956	31.978	0.135056	2	8.264
0.8637034E 03	-0.4572191E 04	0.4653051E 04	280.697	93.566	0.223274	3	12.397
0.1012749E 04	0.1096643E 04	0.1492744E 04	47.278	11.819	0.071629	4	16.529
-0.7734326E 03	-0.4217727E 03	0.8809597E 03	208.605	41.721	0.042272	5	20.661
-0.5539507E 02	0.2205440E 03	0.2273945E 03	104.100	17.350	0.010911	6	24.793
0.3899886E 03	-0.8598251E 02	0.3983735E 03	347.538	49.648	0.019116	7	28.926
0.6489652E 03	-0.4481604E 03	0.7885898E 03	325.368	40.671	0.037840	8	33.058
-0.2142247E 03	0.6977073E 03	0.7298545E 03	107.069	11.897	0.035022	9	37.190
-0.1295540E 02	0.2179125E 03	0.2182973E 03	93.402	9.340	0.010475	10	41.322

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 763 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2893416E 03							
0.1677294E 04	0.1766540E 04	0.2435990E 04	46.485	46.485	1.000000	1	4.132
-0.1195112E 04	0.1844633E 03	0.1209262E 04	171.226	85.613	0.496415	2	8.264
-0.2275612E 03	0.2899075E 03	0.3685518E 03	128.130	42.710	0.151294	3	12.397
-0.2782463E 03	-0.6358404E 02	0.2854209E 03	192.872	48.218	0.117168	4	16.529
-0.6482178E 03	0.1612635E 03	0.6679761E 03	166.030	33.206	0.274211	5	20.661
0.1907474E 03	-0.6257754E 03	0.6542014E 03	286.952	47.825	0.268557	6	24.793
0.1031944E 03	-0.3371362E 03	0.3525762E 03	287.019	41.003	0.144736	7	28.926
-0.1787366E 03	0.4566331E 03	0.4903677E 03	111.377	13.922	0.201301	8	33.058
-0.1751367E 03	0.3767369E 02	0.1791449E 03	167.860	18.651	0.073541	9	37.190
-0.1713604E 03	0.1345084E 02	0.1719074E 03	175.512	17.551	0.070570	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 18 V= 118.5 KTS n= 1.12 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 934 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.54658455E 01							
0.41049936E 01	-0.26353430E 01	0.48777728E 01	327.297	327.297	1.000000	1	4.098
-0.12042658E 00	-0.11068688E 00	0.16356718E 00	222.587	111.293	0.033593	2	8.197
-0.54518930E-01	-0.65475205E-01	0.85458108E-01	230.011	76.670	0.017520	3	12.295
0.91789660E-02	-0.25888190E-01	0.27467298E-01	289.522	72.381	0.005631	4	16.393
0.33821850E-01	0.12561590E-01	0.36084195E-01	20.405	4.081	0.007398	5	20.492
0.12713228E-01	-0.30872025E-02	0.12592478E-01	345.502	57.650	0.002582	6	24.590
-0.13522560E-01	0.15274268E-01	0.23768918E-01	125.857	17.980	0.004873	7	28.689
0.70235955E-02	-0.31595715E-02	0.77176288E-02	335.515	41.939	0.001582	8	32.787
-0.62654670E-02	-0.81856785E-04	0.62900005E-02	180.746	20.083	0.001290	9	36.885
0.22946070E-02	-0.28514968E-02	0.36600081E-02	338.824	33.882	0.000750	10	40.984

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 934 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.79676728E 04							
-0.16436875E 05	0.55731886E 05	0.58105971E 05	106.434	106.434	1.000000	1	4.098
-0.10555900E 04	-0.14096745E 04	0.13397152E 04	234.302	117.151	0.031145	2	8.197
0.11719260E 04	-0.21296813E 05	0.21328346E 05	273.150	91.050	0.367061	3	12.295
-0.86706650E 02	0.26533550E 03	0.27971305E 03	108.056	27.015	0.004814	4	16.393
-0.49636056E 04	0.36088775E 04	0.61350177E 04	143.641	28.728	0.106506	5	20.492
0.92368920E 03	-0.17554235E 02	0.92377628E 03	359.222	59.870	0.015898	6	24.590
0.32369140E 03	-0.41936535E 04	0.42029345E 04	274.417	39.202	0.072333	7	28.689
-0.48917210E 03	0.14620010E 04	0.15416557E 04	108.500	13.562	0.026532	8	32.787
-0.36776010E 03	0.13818710E 04	0.14299733E 04	104.904	11.656	0.024610	9	36.865
-0.30066570E 03	0.50180150E 03	0.58497353E 03	120.928	12.093	0.010068	10	40.984

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 934 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.17522480E 02							
-0.14628495E 03	-0.10006555E 03	0.17572146E 03	213.835	213.835	0.913288	1	4.098
0.12533116E 03	-0.73066097E 02	0.14537738E 03	329.554	164.777	0.736335	2	8.197
-0.27731455E 02	-0.19660216E 03	0.19746335E 03	262.096	87.699	1.000000	3	12.295
-0.24745106E 02	-0.41507925E 02	0.48324156E 02	239.199	59.800	0.244762	4	16.393
-0.32626123E 02	-0.51558518E 02	0.57896966E 02	243.026	48.605	0.293248	5	20.492
-0.16574539E 02	0.27645106E 01	0.16747458E 02	170.846	28.474	0.084928	6	24.590
0.10662606E 02	0.10206745E 02	0.14717095E 02	43.510	6.273	0.074542	7	28.689
0.26643264E 01	0.13693390E 02	0.13951126E 02	78.960	9.870	0.070460	8	32.787
-0.21529230E 02	-0.20053367E 02	0.29715798E 02	222.442	24.716	0.150510	9	36.885
-0.41622459E 02	-0.83101570E 01	0.42641196E 02	191.290	19.124	0.215977	10	40.984

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 934 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.45762195E 04							
0.43312221E 01	0.10154800E 05	0.10190078E 05	89.973	89.973	1.000000	1	4.098
0.27266455E 04	-0.24706445E 04	0.36794938E 04	317.820	158.910	0.363832	2	8.197
-0.18587370E 04	-0.40182178E 04	0.44265565E 04	245.181	81.727	0.434100	3	12.295
-0.91081510E 03	-0.85464145E 03	0.12490001E 04	223.177	55.794	0.122474	4	16.393
0.35468325E 03	-0.83367995E 03	0.90595298E 03	293.047	58.609	0.089335	5	20.492
-0.16274765E 01	-0.44850925E 03	0.44802374E 03	269.428	41.571	0.047090	6	24.590
0.95665961E 02	0.46254965E 03	0.47234475E 03	78.311	11.187	0.046317	7	28.689
0.92585206E 02	0.32776195E 03	0.34060135E 03	74.156	9.270	0.033355	8	32.787
0.14435775E 03	0.35152535E 02	0.14857346E 03	13.709	1.523	0.014544	9	36.885
-0.94366605E 02	0.45744145E 02	0.10477945E 03	154.114	15.411	0.010274	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 18 V= 118.5 KTS n= 1.12 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 934 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5572088E 05							
0.3305146E 05	0.7811131E 05	0.8481613E 05	67.065	67.065	1.000000	1	4.098
0.3645228E 04	0.7135535E 04	0.8137551E 04	61.456	33.028	0.095593	2	8.197
0.2650332E 04	-0.1085422E 05	0.1110276E 05	283.522	54.641	0.131847	3	12.295
-0.1124803E 04	0.1775800E 04	0.2105438E 04	122.292	30.573	0.024824	4	16.393
-0.1869302E 03	-0.2111313E 03	0.2797305E 03	311.325	62.236	0.003298	5	20.492
0.5374735E 02	-0.1033714E 04	0.1035106E 04	272.966	45.494	0.012251	6	24.590
-0.1012951E 04	-0.1176771E 04	0.1549178E 04	229.132	32.733	0.018253	7	28.689
-0.6165846E 02	0.1082603E 04	0.1093425E 04	93.242	11.655	0.012856	8	32.787
0.1461838E 03	-0.3187646E 03	0.3506858E 03	294.636	32.737	0.004135	9	36.885
-0.2501231E 02	-0.1414036E 03	0.1436133E 03	259.302	25.838	0.001702	10	40.984

BLADE FLAP AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 934 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3405557E 04							
0.3550357E 04	-0.3466868E 04	0.4962465E 04	315.762	315.762	1.000000	1	4.098
-0.2855332E 04	0.8346609E 03	0.2978066E 04	163.727	81.863	0.599394	2	8.197
0.5644426E 03	0.1627150E 04	0.1722655E 04	70.873	23.624	0.346645	3	12.295
-0.3644668E 03	-0.2301921E 03	0.4311004E 03	212.298	53.075	0.086766	4	16.393
-0.3286248E 03	-0.1178936E 03	0.3491118E 03	199.735	39.947	0.070255	5	20.492
-0.1465577E 03	-0.5005695E 03	0.5228171E 03	253.278	42.230	0.105206	6	24.590
0.3604325E 03	-0.1253514E 03	0.3816002E 03	340.823	48.689	0.076751	7	28.689
0.3460676E 03	0.7365476E 03	0.7876238E 03	63.773	7.972	0.158452	8	32.787
0.1860045E 03	0.4257734E 03	0.4657393E 03	66.194	7.355	0.094525	9	36.885
0.6055307E 02	0.2255201E 03	0.2339122E 03	74.925	7.492	0.047082	10	40.984

BLADE CHORD AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 934 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2912060E 05							
0.4970984E 04	0.1925686E 05	0.1988812E 05	75.526	75.526	1.000000	1	4.098
0.1990478E 04	0.2331264E 04	0.3065393E 04	49.509	24.755	0.154132	2	8.197
-0.1473962E 03	-0.4893531E 04	0.4895750E 04	268.275	89.425	0.246165	3	12.295
0.1403575E 04	0.1265021E 04	0.1889524E 04	42.028	10.507	0.095008	4	16.393
-0.1102165E 04	-0.3866589E 02	0.1102846E 04	182.061	36.412	0.055455	5	20.492
0.6794215E 02	-0.2031987E 02	0.7091563E 02	343.349	57.225	0.003566	6	24.590
0.3525024E 03	-0.2577180E 02	0.3534431E 03	355.818	50.831	0.017772	7	28.689
0.1002014E 04	-0.8214604E 03	0.1295696E 04	320.655	40.082	0.065149	8	32.787
-0.2630234E 03	0.4701843E 03	0.5387527E 03	119.223	13.247	0.027089	9	36.885
-0.3661166E 02	0.8331310E 02	0.9100273E 02	113.723	11.372	0.004576	10	40.984

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 934 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6019707E 03							
0.1554663E 04	0.1467664E 04	0.2138128E 04	43.347	43.347	1.000000	1	4.098
-0.1189947E 04	0.2854175E 03	0.1223698E 04	166.512	83.256	0.572322	2	8.197
-0.1605059E 03	0.4147170E 03	0.4446936E 03	111.158	37.053	0.207983	3	12.295
-0.3329652E 03	0.4119899E 02	0.3351072E 03	172.936	43.234	0.156729	4	16.393
-0.5269360E 03	0.3639633E 03	0.6403577E 03	145.374	29.075	0.299495	5	20.492
-0.1703951E 03	-0.6246553E 03	0.6474788E 03	254.742	42.457	0.302825	6	24.590
-0.3599306E 02	-0.3201282E 03	0.3224559E 03	263.126	37.589	0.150812	7	28.689
0.1539840E 03	0.5715264E 03	0.5919065E 03	74.921	9.365	0.276834	8	32.787
-0.1027710E 03	0.1277501E 03	0.1639572E 03	128.816	14.313	0.076683	9	36.885
-0.9131516E 02	0.1195209E 03	0.1504118E 03	127.380	12.738	0.070347	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 19 V= 121.5 KTS n= 1.26 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.93151145E 01							
0.43106580E 01	-0.23434295E 01	0.45308542E 01	330.959	330.959	1.000000	1	4.132
-0.82516180E-01	-0.56829745E-01	0.12787064E 00	229.222	114.611	0.025934	2	8.264
-0.27148771E-01	0.43450045E-02	0.27592962E-01	171.009	57.003	0.005644	3	12.397
-0.41186529E-02	-0.21116921E-01	0.21517076E-01	258.964	64.741	0.004364	4	16.529
-0.55289665E-02	0.16603189E-01	0.17821845E-01	109.466	21.893	0.003615	5	20.661
0.14314565E-01	0.35266589E-01	0.37951405E-01	68.329	11.388	0.007697	6	24.793
0.24744277E-02	0.27825500E-01	0.27935310E-01	84.918	12.131	0.005666	7	28.926
-0.12895098E-01	0.16604597E-01	0.20819565E-01	127.102	15.888	0.004223	8	33.059
-0.29578814E-02	0.12435757E-01	0.12778298E-01	103.256	11.477	0.002592	9	37.190
0.57466695E-03	0.11162346E-01	0.11177145E-01	87.052	8.705	0.002267	10	41.322

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.71265938E 04							
-0.38678216E 05	0.60064874E 05	0.71442617E 05	122.785	122.785	1.000000	1	4.132
0.22770638E 03	-0.11156002E 04	0.11386365E 04	291.536	140.768	0.015941	2	8.264
0.69452598E 04	-0.17294603E 05	0.18639443E 05	291.926	97.309	0.260409	3	12.397
-0.11615695E 03	0.46230062E 02	0.12292658E 03	160.897	40.224	0.001721	4	16.529
-0.72035355E 04	0.14447791E 03	0.72049375E 04	179.007	35.801	0.100868	5	20.661
0.78809309E 03	-0.21874077E 02	0.78842342E 03	353.412	59.735	0.011050	6	24.793
0.23736008E 04	-0.30463352E 04	0.38619016E 04	307.924	43.989	0.054068	7	28.926
-0.12266746E 04	-0.64606503E 02	0.12283753E 04	183.018	22.877	0.017198	8	33.058
-0.23602146E 04	0.14716777E 04	0.25313036E 04	148.461	16.051	0.035447	9	37.190
-0.12421078E 03	0.37762682E 03	0.39753153E 03	108.207	10.821	0.005566	10	41.322

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.76545760E 02							
-0.11562735E 03	-0.12554215E 03	0.17026798E 03	227.504	227.504	0.951665	1	4.132
0.15725550E 03	-0.85324715E 02	0.17891598E 03	331.517	165.758	1.000000	2	8.264
0.18584530E 01	-0.14535355E 03	0.14536599E 03	270.749	90.250	0.810806	3	12.397
-0.24761172E 02	-0.25593578E 02	0.35612915E 02	225.944	56.486	0.199048	4	16.529
-0.24742558E 01	-0.63204004E 02	0.63218298E 02	265.656	53.139	0.353341	5	20.661
0.13675520E 02	-0.18486555E 02	0.21248031E 02	293.538	48.923	0.119761	6	24.793
0.16645165E 02	0.87073300E 01	0.11750165E 02	35.269	5.610	0.076853	7	28.926
-0.10211172E 02	-0.15871195E 00	0.10213666E 02	181.115	22.639	0.057086	8	33.058
-0.15123595E 02	-0.33635595E 02	0.36877335E 02	238.392	26.448	0.231642	9	37.190
-0.35434685E 02	-0.81511625E 01	0.36365098E 02	193.016	19.302	0.203215	10	41.322

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.38511460E 04							
-0.35141795E 04	0.11317018E 05	0.11850948E 05	107.250	107.250	1.000000	1	4.132
0.42125311E 04	-0.37558938E 04	0.51682858E 04	320.895	160.447	0.436111	2	8.264
-0.64255555E 03	-0.25750325E 04	0.26547676E 04	255.993	85.331	0.224015	3	12.397
-0.55160506E 03	-0.33014555E 03	0.13009888E 04	199.562	49.891	0.095217	4	16.529
0.21526105E 03	-0.48733230E 03	0.53275685E 03	293.832	58.766	0.044955	5	20.661
0.22119795E 03	-0.48026795E 03	0.48077208E 03	272.637	45.439	0.040565	6	24.793
0.26624566E 03	0.95835776E 02	0.28296855E 03	19.796	2.828	0.023878	7	28.926
0.50879715E 03	0.58353160E 03	0.77453217E 03	48.933	6.117	0.065354	8	33.058
0.15472165E 03	0.22025675E 03	0.29358888E 03	48.521	5.391	0.024807	9	37.190
-0.30357525E 03	0.13925135E 03	0.33437300E 03	155.282	15.538	0.028215	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 19 V= 121.5 KTS n= 1.26 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7188639E 04							
0.3502766E 05	0.8711450E 05	0.9545775E 05	65.867	65.867	1.000000	1	4.132
-0.5742949E 03	0.3885858E 04	0.3928104E 04	98.407	49.203	0.041150	2	8.264
0.3608571E 04	-0.1046793E 05	0.1107221E 05	289.023	96.341	0.115951	3	12.397
-0.2316724E 04	0.4248125E 03	0.2355258E 04	169.609	42.402	0.024674	4	16.529
-0.8797767E 03	0.1076083E 03	0.8800654E 03	172.967	34.593	0.009219	5	20.661
-0.4330771E 03	-0.1415610E 04	0.1480393E 04	252.993	42.165	0.015508	6	24.793
-0.5507324E 03	-0.1016692E 04	0.1160105E 04	241.205	34.458	0.012157	7	28.926
0.7210458E 03	0.9158792E 03	0.1165653E 04	51.787	6.473	0.012211	8	33.058
0.6744465E 03	-0.1153396E 04	0.1347823E 04	297.696	33.077	0.014120	9	37.190
0.6157590E 03	0.4371152E 03	0.7547272E 03	35.352	3.539	0.007906	10	41.322

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2452480E 04							
0.3584468E 04	-0.2983422E 04	0.4577629E 04	323.175	323.175	1.000000	1	4.132
-0.2621759E 04	0.2501074E 03	0.2633741E 04	174.990	87.495	0.575322	2	8.264
-0.3722781E 03	0.1202564E 04	0.1259065E 04	103.625	34.542	0.274843	3	12.397
-0.1286122E 03	-0.1511955E 02	0.1294344E 03	186.225	46.556	0.028012	4	16.529
-0.2681520E 03	-0.4011269E 03	0.4126687E 03	236.250	47.250	0.090148	5	20.661
0.3266685E 03	-0.4883381E 03	0.5872761E 03	303.796	50.633	0.117083	6	24.793
0.1233278E 03	-0.2333294E 03	0.2645813E 03	295.610	42.801	0.053154	7	28.926
0.1075051E 02	0.6754787E 03	0.6756865E 03	89.446	11.056	0.135745	8	33.058
-0.1770287E 03	0.3049456E 03	0.3526062E 03	120.136	13.348	0.070838	9	37.190
0.3532659E 02	0.2697698E 03	0.2722925E 03	82.465	8.247	0.058721	10	41.322

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2945975E 05							
0.6210742E 04	0.2101800E 05	0.2191642E 05	73.538	73.538	1.000000	1	4.132
0.1107972E 04	0.1732496E 04	0.2056489E 04	57.400	28.700	0.093833	2	8.264
0.7764626E 03	-0.4719922E 04	0.4783688E 04	279.365	93.122	0.218270	3	12.397
0.4530830E 03	0.1616651E 04	0.1678941E 04	74.344	18.586	0.076607	4	16.529
0.4890504E 02	0.5557036E 02	0.7402544E 02	48.650	9.730	0.003378	5	20.661
-0.2629331E 03	0.9197378E 03	0.9556218E 03	105.971	17.662	0.043603	6	24.793
0.1251953E 04	0.2049462E 02	0.1252121E 04	0.938	0.134	0.057132	7	28.926
0.9085142E 03	-0.4449121E 03	0.1011605E 04	333.908	41.739	0.046157	8	33.058
-0.5604321E 03	0.1162866E 03	0.5723694E 03	168.278	18.698	0.026116	9	37.190
0.7881352E 02	-0.2311704E 03	0.2442362E 03	288.626	28.863	0.011144	10	41.322

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 770 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3780571E 03							
0.1469592E 04	0.1786120E 04	0.2312990E 04	50.553	50.553	1.000000	1	4.132
-0.1352908E 04	-0.2764734E 02	0.1353194E 04	181.179	90.590	0.585041	2	8.264
-0.1655986E 03	0.1543039E 03	0.2263462E 03	137.022	45.674	0.097859	3	12.397
-0.2365266E 03	-0.1433657E 03	0.2769255E 03	211.178	52.795	0.119726	4	16.529
-0.6602617E 03	-0.1352477E 03	0.6739714E 03	191.576	38.315	0.291385	5	20.661
0.2933381E 03	-0.7535164E 03	0.8086001E 03	291.271	48.545	0.349591	6	24.793
0.1341623E 03	-0.2854097E 03	0.3153699E 03	295.177	42.168	0.136347	7	28.926
-0.1622824E 03	0.2413231E 03	0.2908132E 03	123.920	15.490	0.125730	8	33.058
-0.1410161E 03	-0.1957338E 02	0.1423680E 03	187.902	20.878	0.061552	9	37.190
-0.1254921E 03	-0.4103973E 02	0.1320323E 03	198.109	19.811	0.057083	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 20 V= 117.5 KTS n= 1.22 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 469 CTR 940 FLT 604.0 TR 31
OVERALL CYCLIC LOAD = 0.494041E 01

ZERO POSITION USED 3.97 LOAD/IN USED 9.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible]							
[illegible]	[illegible]	[illegible]	332.210	332.210	1.000000	1	4.115
[illegible]	[illegible]	0.1515257E 00	270.156	135.074	0.033155	2	8.230
[illegible]	-0.8710475E-02	[illegible]	197.043	65.681	0.006104	3	12.346
[illegible]	[illegible]	[illegible]	349.793	87.448	0.007058	4	16.461
[illegible]	0.1262951E-01	0.2231133E-01	145.524	29.105	0.004580	5	20.576
[illegible]	-0.2179227E-01	[illegible]	217.771	36.295	0.007303	6	24.691
[illegible]	[illegible]	[illegible]	192.655	27.520	0.004168	7	28.807
[illegible]	[illegible]	[illegible]	255.529	31.941	0.006071	8	32.922
[illegible]	[illegible]	[illegible]	145.010	16.112	0.007039	9	37.037
[illegible]	-0.3133217E-02	[illegible]	254.166	25.417	0.000665	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 30
OVERALL CYCLIC LOAD = 0.955304E 05

ZERO POSITION USED 3.90 LOAD/IN USED -213949.88

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1365290E 05							
-0.2165579E 05	0.5900105E 05	0.6291394E 05	110.326	110.326	1.000000	1	4.115
-0.6345834E 03	0.8404919E 02	0.6401356E 03	172.452	86.226	0.010174	2	8.230
0.6463803E 04	-0.2144108E 05	0.2239425E 05	286.776	95.592	0.355922	3	12.346
-0.8934348E 03	-0.7617676E 03	0.1174115E 04	220.453	55.113	0.018661	4	16.461
-0.5565785E 04	0.2391218E 04	0.6057734E 04	156.800	31.360	0.096588	5	20.576
0.2517034E 03	-0.1779084E 03	0.3082307E 03	324.747	54.124	0.004899	6	24.691
0.3124174E 04	-0.2623990E 04	0.4079925E 04	319.973	45.710	0.064844	7	28.807
0.5342761E 02	0.1275955E 04	[illegible]	87.737	10.967	0.020295	8	32.922
-0.2497815E 04	0.5185706E 03	0.2551134E 04	168.265	18.696	0.040546	9	37.037
-0.5073240E 03	0.3074854E 03	0.5932410E 03	148.781	14.878	0.009429	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 469 CTR 940 FLT 604.0 TR 31
OVERALL CYCLIC LOAD = 0.453398E 03

ZERO POSITION USED 2.47 LOAD/IN USED 2181.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible]							
[illegible]	[illegible]	[illegible]	229.137	229.137	0.851506	1	4.115
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.906511	2	8.230
[illegible]	[illegible]	[illegible]	263.013	87.671	1.000000	3	12.346
[illegible]	-0.5244421E 02	[illegible]	273.209	67.552	0.291860	4	16.461
[illegible]	[illegible]	[illegible]	[illegible]	51.558	0.456259	5	20.576
[illegible]	[illegible]	[illegible]	241.203	[illegible]	0.133601	6	24.691
0.1544571E 02	0.1649707E 02	[illegible]	51.654	7.379	0.119472	7	28.807
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.031562	8	32.922
-0.2308594E 02	-0.2225615E 02	[illegible]	227.072	25.297	0.164464	9	37.037
[illegible]	-0.2015625E 02	[illegible]	[illegible]	22.104	0.252962	10	41.152

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 1
OVERALL CYCLIC LOAD = [illegible]

ZERO POSITION USED 5.65 LOAD/IN USED [illegible]

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.000000	1	4.115
[illegible]	[illegible]	[illegible]	338.100	169.050	0.427850	2	8.230
[illegible]	[illegible]	[illegible]	230.710	76.903	0.376846	3	12.346
[illegible]	[illegible]	[illegible]	[illegible]	51.331	[illegible]	4	16.461
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.072682	5	20.576
[illegible]	[illegible]	[illegible]	[illegible]	43.205	0.035388	6	24.691
[illegible]	[illegible]	[illegible]	49.355	7.051	0.027658	7	28.807
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	32.922
[illegible]	[illegible]	[illegible]	93.212	10.357	0.008270	9	37.037
[illegible]	0.1122216E 03	[illegible]	[illegible]	[illegible]	0.020693	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 20 V= 117.5 KTS n= 1.22 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5577604E 05							
0.4003126E 05	0.7803873E 05	0.8773781E 05	62.843	62.843	1.000000	1	4.115
0.4405746E 04	0.6410377E 04	0.8111367E 04	52.265	26.132	0.092506	2	8.230
0.2771164E 04	-0.4679707E 04	0.1335477E 05	239.937	95.321	0.114756	3	12.346
-0.1173416E 04	-0.5211143E 02	0.1176372E 04	182.543	45.636	0.013392	4	16.461
-0.8330667E 03	-0.4313346E 03	0.9380587E 03	206.638	41.363	0.010901	5	20.576
-0.5150603E 03	-0.7324507E 03	0.8957337E 03	236.645	39.441	0.010681	6	24.691
-0.1590622E 04	-0.6393145E 02	0.1591133E 04	182.284	26.041	0.015150	7	28.807
0.2531376E 03	0.1023610E 04	0.1054466E 04	76.109	9.514	0.012022	8	32.922
-0.3551445E 03	-0.2601765E 03	0.4402134E 03	217.435	24.160	0.005248	9	37.037
0.6764268E 02	0.2274930E 03	0.2374131E 03	73.385	7.339	0.002707	10	41.152

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2249211E 04							
0.3593032E 04	-0.3141800E 04	0.4811170E 04	319.164	319.164	1.000000	1	4.115
-0.2757339E 04	0.3241033E 03	0.2773873E 04	173.807	86.903	[illegible]	2	8.230
0.8150761E 02	0.1437368E 04	0.1443803E 04	86.961	28.954	0.305173	3	12.346
-0.2756700E 03	-0.1689221E 03	0.3233339E 03	211.241	52.810	0.066726	4	16.461
-0.2743767E 03	-0.1269976E 03	0.3373533E 03	204.970	40.995	0.063072	5	20.576
-0.1358226E 03	-0.5222037E 03	0.5402401E 03	255.306	42.218	0.111703	6	24.691
0.8125645E 02	-0.1272726E 03	0.1510333E 03	302.556	43.222	0.030935	7	28.807
0.1869530E 03	0.6525598E 03	0.6788123E 03	74.013	9.252	0.139067	8	32.922
-0.3244175E 02	0.2160237E 03	0.2184537E 03	98.442	10.938	0.045280	9	37.037
0.2150357E 02	0.3124434E 03	0.3130965E 03	87.007	8.701	0.065612	10	41.152

BLADE CHORD AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2452928E 05							
0.5390090E 04	0.2007053E 05	0.2078170E 05	74.967	74.967	1.000000	1	4.115
0.2184124E 04	0.3280108E 04	0.3940783E 04	56.341	28.170	0.189628	2	8.230
0.3901960E 03	-0.5018156E 04	0.5033301E 04	274.446	91.482	0.242199	3	12.346
0.8474453E 03	0.1832410E 04	0.2018863E 04	65.181	16.295	0.097147	4	16.461
-0.2017570E 03	-0.2015112E 03	0.2851538E 03	224.965	44.993	0.013721	5	20.576
-0.6864891E 03	0.1057085E 03	0.6945762E 03	171.246	28.541	0.033422	6	24.691
0.6121587E 03	-0.1943467E 03	0.6422686E 03	342.386	48.912	0.030905	7	28.807
0.9917854E 03	0.7256189E 02	0.9944363E 03	4.184	0.523	0.047852	8	32.922
0.5545616E 02	0.5065354E 03	0.5095623E 03	83.752	9.306	0.024520	9	37.037
0.1382741E 03	-0.4812608E 02	0.1464098E 03	340.810	34.081	0.007045	10	41.152

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 940 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4737276E 03							
0.1525323E 04	0.1519659E 04	0.2153131E 04	44.893	44.893	1.000000	1	4.115
-0.1208665E 04	0.3052808E 03	0.1246641E 04	165.825	82.913	0.578990	2	8.230
-0.1705661E 02	0.3732561E 03	0.3736455E 03	92.616	30.872	0.173536	3	12.346
-0.3425977E 03	0.1753094E 00	0.3425977E 03	179.971	44.993	0.159116	4	16.461
-0.5289414E 03	0.5365354E 03	0.7534250E 03	134.592	26.918	0.349921	5	20.576
-0.1815426E 03	-0.7231831E 03	0.7456216E 03	255.908	42.651	0.346296	6	24.691
-0.1661147E 02	-0.1343373E 03	0.1353605E 03	262.951	37.564	0.062867	7	28.807
0.2190264E 03	0.4733086E 03	0.5215300E 03	65.167	8.146	0.242219	8	32.922
-0.1159598E 03	0.2056609E 03	0.2362740E 03	119.392	13.266	0.109735	9	37.037
-0.1264528E 03	0.1108341E 03	0.1680547E 03	138.311	13.831	0.077401	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 21 V= 119.5 KTS n= 1.43 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9155485E 01							
0.4687127E 01	-0.2184231E 01	0.5143688E 01	334.873	334.873	1.000000	1	4.132
-0.1468335E-01	-0.1257612E 00	0.1266594E 00	261.596	130.998	0.024689	2	8.264
-0.3140787E-01	-0.2753046E-02	0.3152879E-01	185.005	61.670	0.006125	3	12.397
-0.2324565E-01	0.1581961E-01	0.3064428E-01	140.015	35.005	0.005956	4	16.529
-0.4255116E-03	-0.8223254E-02	0.8275655E-02	263.548	52.710	0.001609	5	20.661
-0.9854565E-03	-0.8850446E-03	0.1325562E-02	221.593	36.999	0.000259	6	24.793
0.1602080E-01	0.4595566E-02	0.1667771E-01	16.011	2.287	0.003242	7	28.926
0.5938846E-02	0.1287534E-01	0.1416591E-01	65.362	8.170	0.002755	8	33.058
0.7585746E-02	0.6448150E-02	0.9958227E-02	40.651	4.517	0.001924	9	37.190
0.2281404E-02	0.4065473E-02	0.4711558E-02	59.640	5.964	0.000916	10	41.322

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1147844E 05							
-0.3781651E 05	0.6471030E 05	0.7495003E 05	120.302	120.302	1.000000	1	4.132
-0.7663167E 03	-0.1918767E 04	0.2066114E 04	248.229	124.115	0.027567	2	8.264
-0.7489127E 04	-0.2280047E 05	0.2405594E 05	251.861	83.954	0.320959	3	12.397
-0.7556400E 03	0.1327802E 04	0.1541405E 04	119.783	29.946	0.020566	4	16.529
-0.5397666E 04	0.4951477E 04	0.7324702E 04	137.469	27.494	0.097729	5	20.661
0.7064744E 03	-0.1194493E 04	0.1392503E 04	300.487	50.081	0.018579	6	24.793
-0.6978591E 02	-0.3899077E 04	0.3899602E 04	268.974	38.425	0.052029	7	28.926
0.6859815E 03	0.6223951E 03	0.9265701E 03	42.241	5.280	0.012363	8	33.058
0.4214424E 03	0.1969445E 04	0.2014032E 04	77.921	8.658	0.026872	9	37.190
0.7342944E 03	0.6242620E 03	0.9576032E 03	40.178	4.018	0.012910	10	41.322

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2563175E 01							
-0.1431525E 01	-0.2311603E 02	0.2718983E 02	238.231	238.231	1.000000	1	4.132
0.1224974E 01	-0.1253344E 03	0.2132354E 03	324.335	162.332	0.784135	2	8.264
-0.5357243E 02	-0.1672250E 03	0.1769925E 03	250.880	83.627	0.650950	3	12.397
0.3013648E 01	-0.3552774E 01	0.4655634E 01	299.836	74.959	0.015063	4	16.529
-0.6155500E 02	-0.3561753E 02	0.7361357E 02	212.627	42.525	0.270728	5	20.661
-0.2851147E 02	-0.1182471E 02	0.3086629E 02	202.525	33.754	0.113521	6	24.793
0.1070557E 02	0.1110035E 02	0.1542442E 02	46.026	6.575	0.056729	7	28.926
-0.2507215E 02	-0.3050320E 02	0.3979536E 02	230.946	28.868	0.146361	8	33.058
-0.2827595E 02	0.1180164E 02	0.3069106E 02	157.216	17.468	0.112843	9	37.190
-0.3645616E 02	-0.8446177E 01	0.3742178E 02	193.044	19.304	0.137631	10	41.322

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TP 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9511227E 04							
-0.4473339E 04	0.9593506E 04	0.1058077E 05	114.937	114.937	1.000000	1	4.132
0.4805512E 04	-0.2344867E 04	0.5349781E 04	334.004	167.002	0.488084	2	8.264
-0.2877950E 04	-0.2826453E 04	0.4033815E 04	224.483	74.828	0.368323	3	12.397
-0.9912283E 03	-0.1013756E 04	0.1350185E 04	226.824	56.706	0.125833	4	16.529
-0.1594508E 02	-0.6276892E 03	0.6278816E 03	268.581	53.716	0.057284	5	20.661
0.3264252E 03	-0.4798323E 03	0.5877513E 03	304.275	50.879	0.053623	6	24.793
0.7682413E 03	0.4693606E 03	0.8465511E 03	31.587	4.798	0.077238	7	28.926
0.2657429E 03	0.6728619E 03	0.7236493E 03	68.230	8.541	0.066646	8	33.058
0.3705014E 03	0.3885599E 03	0.5371653E 03	46.332	5.148	0.049038	9	37.190
0.3327376E 01	-0.3534577E 02	0.3554186E 02	275.409	27.541	0.003260	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 21 V= 119.5 KTS n= 1.43 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL [illegible] SHIP [illegible] T 469 CTR 779 FLT 604.0 TR [illegible]

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
[illegible] 05	[illegible] 05	[illegible] 06	57.176	57.176	1.000000	1	4.132
[illegible] 04	[illegible] 04	0.7[illegible]E 04	[illegible]	27.628	0.075533	2	8.264
[illegible] 04	-0.[illegible] 05	[illegible] 05	290.215	63.405	0.114420	3	12.397
-0.[illegible] 04	[illegible] 02	[illegible] 04	17[illegible]	44.765	0.015022	4	16.529
[illegible] 03	-0.7055625 03	0.[illegible] 03	294.213	59.843	0.008652	5	20.661
[illegible] 03	-[illegible] 03	[illegible] 03	294.502	47.430	0.009523	6	24.793
-[illegible] 04	[illegible] 03	[illegible] 04	16[illegible]	23.760	0.019632	7	28.926
[illegible] 03	[illegible] 03	[illegible] 04	54.091	6.761	0.010272	8	33.058
[illegible] 03	[illegible] 02	[illegible] 03	1.516	0.213	0.004562	9	37.190
[illegible] 03	-[illegible] 03	[illegible] 03	292.525	25.254	0.005981	10	41.322

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2662351E 04							
[illegible] 04	-0.3261540E 04	0.5148770E 04	315.241	315.241	1.000000	1	4.132
-[illegible] 04	0.4059339E 03	0.2974338E 04	172.164	86.082	0.577675	2	8.264
0.4[illegible] 03	0.1465362E 04	0.1541657E 04	72.379	24.126	0.299430	3	12.397
-0.1[illegible] 03	-0.1040[illegible] 03	0.1835448E 03	214.548	53.637	0.035648	4	16.529
-0.4[illegible] 03	-0.3380146E 03	0.5345962E 03	219.342	43.869	0.103830	5	20.661
0.9422439 02	-0.5635417E 03	0.5717591E 03	279.485	46.581	0.111048	6	24.793
0.[illegible] 03	0.8[illegible] 02	0.[illegible] 03	12.401	1.772	0.076465	7	28.926
0.1[illegible] 03	0.80[illegible] 03	0.8[illegible] 03	78.197	9.775	0.159437	8	33.058
0.[illegible] 02	0.3[illegible] 03	0.[illegible] 03	85.032	9.448	0.075804	9	37.190
0.1[illegible] 03	0.3[illegible] 02	0.1[illegible] 03	10.627	1.063	0.039375	10	41.322

BLADE CHORD AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2931907E 05							
0.1113527E 05	0.2012557E 05	0.2300069E 05	61.045	61.045	1.000000	1	4.132
0.3030648E 04	0.1575740E 04	0.3415991E 04	27.470	13.735	0.148517	2	8.264
-0.1549753E 04	-0.5934023E 04	0.6132934E 04	255.366	85.122	0.266641	3	12.397
0.2133696E 04	0.1082863E 04	0.2392759E 04	26.908	6.727	0.104030	4	16.529
-0.6503796E 03	0.9543203E 03	0.1154868E 04	124.275	24.855	0.050210	5	20.661
0.2864033E 03	0.4195320E 03	0.5079705E 03	55.690	9.290	0.022085	6	24.793
0.1047000E 04	-0.1419466E 03	0.1056578E 04	352.279	50.326	0.045937	7	28.926
0.4691965E 03	-0.1055024E 04	0.1191320E 04	293.194	36.649	0.051795	8	33.058
-0.5211179E 03	0.6325254E 03	0.8241836E 03	129.219	14.358	0.035833	9	37.190
0.8297075E 02	-0.9754763E 02	0.1283662E 03	310.266	31.027	0.005581	10	41.322

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 779 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3691204E 03							
0.1556152E 04	0.2039851E 04	0.2565657E 04	52.661	52.661	1.000000	1	4.132
-0.1386457E 04	0.2945599E 02	0.1386769E 04	178.783	89.391	0.540512	2	8.264
0.7838275E 02	0.2640719E 03	0.2754587E 03	73.468	24.489	0.107364	3	12.397
-0.2700349E 03	-0.1600162E 03	0.3138866E 03	210.649	52.662	0.122342	4	16.529
-0.6590720E 03	0.2239634E 03	0.6960957E 03	161.231	32.246	0.271309	5	20.661
0.7643629E 02	-0.6463289E 03	0.6508330E 03	276.745	46.124	0.253671	6	24.793
0.2501463E 02	0.9210334E 01	0.2665656E 02	20.213	2.886	0.010390	7	28.926
-0.1525869E 03	0.6239648E 03	0.6423511E 03	103.742	12.968	0.250365	8	33.058
-0.9474635E 02	0.1946322E 03	0.2164684E 03	115.957	12.884	0.084371	9	37.190
-0.1251517E 03	0.7464621E 02	0.1457273E 03	149.186	14.919	0.056797	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 22 V= 120.5 KTS n= 1.45 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.[illegible] 01							
0.44045[illegible] 01	-0.24245[illegible] 01	0.50287[illegible] 01	331.149	331.149	1.000000	1	4.149
-0.[illegible] -01	-0.15749[illegible] 00	0.16232[illegible] 00	256.365	128.184	0.032215	2	8.299
-0.[illegible] -01	-0.83452[illegible] -01	0.[illegible] -01	240.027	80.009	0.019166	3	12.448
-0.[illegible] -01	-0.[illegible] -02	0.22133[illegible] -01	201.076	50.269	0.004401	4	16.598
-0.27855541[illegible] -02	-0.46445[illegible] -02	0.54756[illegible] -02	238.326	47.605	0.001089	5	20.747
-0.[illegible] -02	-0.21253[illegible] -01	0.21[illegible] -01	262.100	43.783	0.004269	6	24.896
-0.21029[illegible] -02	-0.15446[illegible] -01	0.15591[illegible] -01	262.245	37.464	0.003101	7	29.046
0.758C1[illegible] -02	0.30097[illegible] -01	0.31137[illegible] -01	75.150	9.394	0.006192	8	33.195
[illegible] -02	0.74512[illegible] -02	0.12283[illegible] -01	37.345	4.149	0.002443	9	37.344
0.5F61755[illegible] -02	-0.62275[illegible] -02	0.8[illegible] -02	313.267	31.327	0.001701	10	41.494

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.70[illegible] 04							
-0.344[illegible] 05	0.67[illegible] 05	0.76211[illegible] 05	116.901	116.901	1.000000	1	4.149
-0.[illegible] 03	-0.8[illegible] 02	0.5[illegible] 03	188.820	94.410	0.007702	2	8.299
-0.7[illegible] 04	-0.26031[illegible] 05	0.271[illegible] 05	253.163	84.388	0.350456	3	12.448
-0.845[illegible] 03	-0.21211[illegible] 04	0.2293[illegible] 04	249.277	62.369	0.029961	4	16.598
-0.[illegible] 04	0.592[illegible] 04	0.62[illegible] 04	141.198	28.238	0.082119	5	20.747
0.29682141 02	0.9757[illegible] 03	0.9761[illegible] 03	88.293	14.715	0.012809	6	24.896
-0.[illegible] 03	-0.39[illegible] 04	0.40146[illegible] 04	260.442	37.206	0.052730	7	29.046
-0.70[illegible] 03	-0.23451[illegible] 03	0.7412[illegible] 03	198.443	24.805	0.009727	8	33.195
0.1159[illegible] 03	0.145[illegible] 04	0.1461[illegible] 04	85.467	9.496	0.019176	9	37.344
-0.[illegible] 03	0.12019[illegible] 04	0.12159[illegible] 04	93.715	9.871	0.015955	10	41.494

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.12[illegible] 03							
-0.9[illegible] 02	-0.18417[illegible] 03	0.20874[illegible] 03	241.920	241.920	0.834870	1	4.149
0.1474[illegible] 03	-0.8[illegible] 02	0.16825[illegible] 03	327.865	163.934	0.672911	2	8.299
-0.1277[illegible] 03	-0.2145102[illegible] 03	0.25003[illegible] 03	239.262	79.754	1.000000	3	12.448
-0.23[illegible] 02	-0.669[illegible] 02	0.72385[illegible] 02	247.[illegible]	61.890	0.289515	4	16.598
-0.50[illegible] 02	-0.97647[illegible] 02	0.10996[illegible] 03	242.[illegible]	48.524	0.439756	5	20.747
0.9[illegible] 01	-0.359[illegible] 02	0.372[illegible] 02	285.377	47.563	0.149140	6	24.896
0.3[illegible] 02	0.5193[illegible] 01	0.3224[illegible] 02	9.196	1.314	0.128962	7	29.046
-0.12[illegible] 02	-0.3120[illegible] 02	0.33[illegible] 02	248.808	31.101	0.133834	8	33.195
-0.34[illegible] 02	-0.674[illegible] 00	0.34374[illegible] 02	181.123	20.125	0.137480	9	37.344
-0.2454[illegible] 02	-0.1436[illegible] 02	0.28444[illegible] 02	210.343	21.034	0.113762	10	41.494

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.[illegible] 04							
-0.42[illegible] 04	0.1200[illegible] 05	0.1[illegible] 05	109.531	109.531	1.000000	1	4.149
0.[illegible] 04	-0.14[illegible] 04	0.[illegible] 04	345.4[illegible]	172.729	0.449835	2	8.299
-0.[illegible] 04	-0.372[illegible] 04	0.51199[illegible] 04	226.712	75.571	0.431956	3	12.448
-0.[illegible] 03	-0.1182[illegible] 04	0.14048[illegible] 04	237.340	59.335	0.110292	4	16.598
-0.[illegible] 03	-0.[illegible] 03	0.7494[illegible] 03	234.083	46.817	0.059838	5	20.747
0.[illegible] 03	-0.877[illegible] 03	0.[illegible] 03	279.793	46.632	0.369856	6	24.896
0.[illegible] 03	0.4[illegible] 02	0.[illegible] 03	4.536	0.648	0.048787	7	29.046
0.[illegible] 03	0.[illegible] 03	0.[illegible] 03	55.[illegible]	6.951	0.046667	8	33.195
0.[illegible] 01	0.6557[illegible] 03	0.6557[illegible] 03	89.[illegible]	9.964	0.051755	9	37.344
-0.816[illegible] 02	0.2652[illegible] 03	0.[illegible] 03	105.771	10.577	0.023594	10	41.494

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 22 V= 120.5 KTS n= 1.45 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.54[illegible] 05							
0.5417251E 05	0.7567231E 05	0.9305290E 05	54.412	54.412	1.000000	1	4.149
0.8814441E 04	0.4055355E 04	0.9521281E 04	25.210	12.605	0.102321	2	8.299
0.2553941E 04	-0.1235273E 05	0.1265303E 05	281.662	93.887	0.135986	3	12.449
-0.9601215E 02	0.5707813E 03	0.4755176E 03	95.648	23.912	0.010483	4	16.598
0.3605079E 02	-0.1067276E 04	0.1067892E 04	271.948	54.389	0.011476	5	20.747
-0.5135337E 03	-0.3858457E 04	0.3940415E 04	261.631	43.605	0.042346	6	24.896
-0.2007467E 04	-0.1451733E 04	0.2497826E 04	216.671	30.953	0.026843	7	29.046
-0.1066513E 04	0.4256020E 03	0.1144207E 04	157.938	19.742	0.012297	8	33.195
-0.3557412E 03	-0.8127864E 02	0.3648389E 03	192.721	21.415	0.003963	9	37.344
-0.7144807E 03	0.5746565E 03	0.9170542E 03	141.179	14.118	0.009855	10	41.494

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 53

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2551434E 04							
0.3322211E 04	-0.3754536E 04	0.5013645E 04	311.501	311.501	1.000000	1	4.149
[illegible]	0.1756976E 04	0.3483924E 04	149.716	74.858	0.694888	2	8.299
0.9123524E 03	0.1140716E 04	0.1460629E 04	51.350	17.117	0.291331	3	12.448
-0.3117581E 03	-0.7742220E 03	0.8357117E 03	192.847	48.212	0.064965	4	16.598
-0.5278276E 03	0.1625212E 03	0.5547439E 03	162.315	32.463	0.110647	5	20.747
-0.3504736E 03	-0.4434492E 03	0.5656162E 03	231.711	38.618	0.112815	6	24.896
-0.9250511E 02	-0.2915850E 03	0.3055090E 03	252.356	36.057	0.061015	7	29.046
0.5676113E 03	-0.2421233E 03	0.6170538E 03	336.895	42.112	0.123083	8	33.195
0.3242400E 03	-0.7967171E 02	0.3325642E 03	347.155	38.578	0.066320	9	37.344
0.2858754E 03	-0.1652032E 03	0.3151531E 03	327.528	32.753	0.062855	10	41.494

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2853896E 05							
0.1291201E 05	0.1691116E 05	0.2127692E 05	52.638	52.638	1.000000	1	4.149
0.4224543E 04	0.3241780E 03	0.4236961E 04	4.388	2.194	0.199134	2	8.299
-0.3830872E 04	-0.5325488E 04	0.6389668E 04	234.455	78.818	0.300310	3	12.448
0.1913160E 04	0.1662386E 03	0.1920368E 04	4.966	1.242	0.090256	4	16.598
-0.9920051E 03	0.1113995E 04	0.1495031E 04	131.297	26.279	0.069795	5	20.747
0.3290610E 03	0.5206562E 03	0.6140967E 03	59.783	9.964	0.028862	6	24.896
0.3160075E 03	-0.7820320E 03	0.8436919E 03	292.041	41.720	0.039653	7	29.046
-0.8201852E 03	-0.6031479E 03	0.1018084E 04	216.330	27.041	0.047849	8	33.195
0.7804946E 03	0.8025176E 03	0.1119467E 04	45.797	5.089	0.052614	9	37.344
-0.4374692E 03	-0.4068650E 01	0.4374883E 03	180.535	18.054	0.020562	10	41.494

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 948 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5236523E 03							
0.1828297E 04	0.1605293E 04	0.2433023E 04	41.284	41.284	1.000000	1	4.149
-0.1076375E 04	0.5231152E 03	0.1196759E 04	154.080	77.040	0.491881	2	8.299
0.3455874E 03	0.3138403E 03	0.4668262E 03	42.244	14.081	0.191871	3	12.448
-0.2919114E 03	0.6767236E 02	0.2899199E 03	166.502	41.625	0.119160	4	16.598
-0.3595820E 03	0.8194666E 03	0.8948002E 03	113.692	22.738	0.367809	5	20.747
-0.7247566E 03	-0.3456445E 03	0.8029587E 03	205.497	34.249	0.330025	6	24.696
-0.1857043E 03	-0.1061852E 03	0.2139234E 03	209.760	29.966	0.087925	7	29.046
0.6128801E 03	0.3833580E 02	0.6140779E 03	3.579	0.447	0.252393	8	33.195
0.2975159E 03	0.6067349E 02	0.3036394E 03	11.526	1.281	0.124799	9	37.344
0.1496544E 03	0.1567556E 03	0.2181738E 03	46.690	4.669	0.089672	10	41.494

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 23 V= 122.5 KTS n= 1.66 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 789 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4500023E 01							
0.3372749E 01	-0.2502220E 01	0.5036311E 01	330.209	330.209	1.000000	1	4.167
-0.1072451E 00	-0.7263815E-01	0.1262405E 00	215.127	107.564	0.025066	2	8.333
-0.1801935E-01	0.5467110E-01	0.1036167E 00	148.155	49.385	0.023574	3	12.500
-0.9357449E-01	0.5758042E-02	0.9415311E-01	176.474	44.119	0.018695	4	16.667
-0.4827759E-01	0.1835072E-01	0.5173174E-01	159.223	31.845	0.010272	5	20.833
-0.3238955E-01	-0.1015189E-01	0.3455232E-01	197.398	32.900	0.006742	6	25.000
-0.4668812E-02	-0.1547284E-04	0.4685849E-02	180.229	25.748	0.000930	7	29.167
0.3184839E-01	0.2657726E-02	0.5202554E-01	3.193	0.399	0.010331	8	33.333
-0.1213427E-01	-0.1153576E-02	0.1223167E-01	185.553	20.617	0.002425	9	37.500
-0.3634794E-01	0.1445744E-02	0.3637692E-01	177.707	17.770	0.007163	10	41.667

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 789 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1330664E 05							
-0.6394659E 05	0.5171411E 05	0.8223513E 05	141.046	141.046	1.000000	1	4.167
-0.2649110E 04	-0.4015000E 04	0.4727249E 04	238.161	119.081	0.057470	2	8.333
-0.5205387E 04	-0.4047865E 05	0.4081197E 05	262.672	87.557	0.496157	3	12.500
-0.1793327E 04	-0.2818361E 04	0.3340536E 04	237.531	59.383	0.040611	4	16.667
-0.1104391E 05	0.1915403E 04	0.1120478E 05	170.161	34.032	0.136267	5	20.833
0.1910055E 04	0.2066451E 04	0.2814065E 04	47.163	7.860	0.034260	6	25.000
0.3782290E 04	-0.6656121E 04	0.7655345E 04	299.607	42.801	0.093071	7	29.167
-0.2022494E 04	0.2678716E 03	0.2042474E 04	171.899	21.487	0.024836	8	33.333
-0.2563016E 04	0.3310513E 04	0.4189773E 04	127.801	14.200	0.050936	9	37.500
-0.4130459E 03	0.2083542E 04	0.2124039E 04	101.213	10.121	0.025823	10	41.667

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 789 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1360069E 03							
0.1222563E 02	-0.2523733E 03	0.2526223E 03	276.258	276.258	1.000000	1	4.167
0.1376592E 03	-0.8532520E 02	0.1325481E 03	326.242	163.121	0.522591	2	8.333
-0.1560768E 03	-0.1833264E 03	0.2284259E 03	223.075	74.358	0.913584	3	12.500
-0.1597677E 02	0.1473466E 01	0.3058130E 02	177.333	44.325	0.137666	4	16.667
-0.2325935E 02	-0.6475600E 02	0.6884703E 02	250.255	50.051	0.234316	5	20.833
0.9515400E 02	-0.4032129E 02	0.1070759E 03	337.875	56.313	0.424426	6	25.000
0.5084135E 02	-0.2523253E 02	0.5675847E 02	333.635	47.658	0.193174	7	29.167
-0.3387355E 02	0.1390296E 02	0.3659235E 02	157.568	19.696	0.124540	8	33.333
-0.5470440E 02	-0.3357021E 02	0.6439336E 02	211.540	23.538	0.219159	9	37.500
-0.2522905E 02	0.1305176E 02	0.2832786E 02	155.873	15.587	0.139335	10	41.667

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 T 469 CTR 789 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1631103E 05							
-0.8356689E 04	0.8272602E 04	0.1175803E 05	135.290	135.290	1.000000	1	4.167
0.5521719E 04	-0.1599467E 04	0.5758339E 04	343.883	171.941	0.489678	2	8.333
-0.4563137E 04	-0.3085407E 04	0.5844008E 04	211.868	70.623	0.496985	3	12.500
-0.1930412E 04	-0.1333365E 04	0.2345008E 04	214.625	53.656	0.199502	4	16.667
-0.1652246E 04	-0.7122451E 03	0.1836547E 04	232.814	46.563	0.156218	5	20.833
-0.9419940E 03	-0.1550200E 03	0.9605664E 03	191.410	31.902	0.081689	6	25.000
0.1302151E 04	-0.5205371E 03	0.1780921E 04	343.005	45.001	0.151454	7	29.167
0.2557117E 03	0.7840918E 03	0.8394727E 03	69.381	8.635	0.071386	8	33.333
0.4008577E 03	0.7047686E 03	0.8109130E 03	60.367	6.707	0.068954	9	37.500
0.4393511E 03	0.2973236E 02	0.4395592E 03	3.880	0.388	0.037368	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 23 V= 122.5 KTS n= 1.66 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 789 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
[illegible] 05	0.5720147E 05	0.1020503E 06	34.077	34.077	1.000000	1	4.167
[illegible] 05	0.1845116E 04	0.2035547E 05	5.212	2.606	0.199387	2	8.333
[illegible] 04	-0.1675671E 05	0.1639467E 05	277.061	52.354	0.165390	3	12.500
[illegible] 03	-0.1155931E 03	[illegible] 03	351.665	87.917	0.008084	4	16.667
[illegible] 04	-0.2766210E 04	0.4761492E 04	220.528	44.106	0.041742	5	20.833
-0.2512542E 04	-0.1759477E 04	0.3089084E 04	215.595	35.933	0.030266	6	25.000
[illegible] 04	0.1221831E 04	0.4085222E 04	163.597	23.228	0.040016	7	29.167
[illegible] 03	0.1035276E 04	0.1057773E 04	83.455	10.432	0.010361	8	33.333
0.1672558E 04	0.2815760E 03	0.1696111E 04	9.555	1.062	0.016614	9	37.500
[illegible] 03	[illegible] 03	0.8552579E 03	70.742	7.074	0.008378	10	41.667

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 789 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
[illegible] 04	-0.3565338E 04	0.5259566E 04	317.322	317.322	1.000000	1	4.167
[illegible] 04	0.9757812E 03	[illegible] 04	165.365	82.683	0.734292	2	8.333
[illegible] 03	0.1811778E 04	0.1845326E 04	79.058	26.353	0.350851	3	12.500
[illegible] 03	-0.2365527E 03	[illegible] 03	190.684	47.671	0.140275	4	16.667
[illegible] 03	-0.8254554E 02	[illegible] 03	185.336	37.067	0.168764	5	20.833
-0.2422476E 03	-0.4522810E 03	0.5130710E 03	241.826	40.304	0.097550	6	25.000
[illegible] 03	-0.2400106E 03	0.5506653E 03	334.160	47.737	0.104693	7	29.167
0.9622429E 03	0.1206818E 04	0.1543476E 04	51.433	6.429	0.293461	8	33.333
0.3672444E 03	0.4599808E 03	0.5884670E 03	51.386	5.710	0.111005	9	37.500
0.4552134E 03	-0.1776521E 02	0.4855356E 03	357.520	35.792	[illegible]	10	41.667

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 789 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2901913E 05							
0.1673472E 05	0.1528165E 05	0.2266229E 05	42.401	42.401	1.000000	1	4.167
0.7942563E 04	0.2249838E 04	0.8255063E 04	15.815	7.908	0.364264	2	8.333
-0.1235925E 04	-0.9697645E 04	0.9776082E 04	262.737	87.579	0.431381	3	12.500
0.1679645E 04	0.2500943E 04	0.3012627E 04	56.114	14.029	0.132936	4	16.667
-0.1913203E 04	0.3814395E 03	0.1950857E 04	168.725	33.745	0.086084	5	20.833
-0.1136522E 04	0.5369861E 03	0.1256104E 04	154.749	25.792	0.055546	6	25.000
0.2068267E 04	0.6447111E 01	0.2068277E 04	0.178	0.025	0.091265	7	29.167
0.1160521E 03	-0.1622305E 04	0.1626451E 04	274.092	34.261	0.071769	8	33.333
-0.1554714E 04	-0.4045261E 03	0.1606485E 04	194.585	21.620	0.070888	9	37.500
0.6383262E 03	-0.3056599E 03	0.7077346E 03	334.413	33.441	0.031230	10	41.667

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 789 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7417051E 03							
0.1492763E 04	0.2812606E 04	0.3184194E 04	62.043	62.043	1.000000	1	4.167
-0.7330693E 03	0.4338027E 03	0.8518071E 03	149.385	74.692	0.267511	2	8.333
0.7381223E 03	0.9202051E 02	0.7438362E 03	7.106	2.369	0.233603	3	12.500
-0.6490259E 03	-0.6955091E 03	0.9512971E 03	226.980	56.745	0.298756	4	16.667
-0.1709241E 04	0.3290587E 02	0.1709558E 04	178.897	35.779	0.536889	5	20.833
-0.1170477E 04	-0.4204971E 03	0.1243718E 04	199.761	33.293	0.390591	6	25.000
0.5542041E 02	0.2497192E 03	0.2557950E 03	77.487	11.070	0.080333	7	29.167
0.4840649E 03	0.1816108E 04	0.1879512E 04	75.075	9.384	0.590263	8	33.333
0.1445292E 03	0.2409028E 03	0.2809321E 03	59.038	6.560	0.088227	9	37.500
-0.8579768E 02	0.7216882E 02	0.1121141E 03	139.931	13.993	0.035210	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 24 V= 121 KTS n= 1.57 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 469 CTR 953 FLT 604.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5949513E 01							
0.4579423E 01	-0.2272530E 01	0.5112116E 01	333.606	333.606	1.000000	1	4.132
-0.3304372E-02	-0.2199421E 00	0.2179731E 00	269.038	134.304	0.043030	2	8.264
-0.1149116E 00	-0.1554056E-01	0.1233223E 00	187.409	62.470	0.023570	3	12.397
-0.3706327E-01	-0.2124291E-01	0.4275063E-01	209.853	52.463	0.008364	4	16.529
0.1257231E-02	0.4426443E-02	0.4603215E-02	74.141	14.828	0.000900	5	20.661
0.4235949E-01	-0.3317841E-01	0.5357316E-01	321.732	53.622	0.010479	6	24.793
-0.1216403E-01	-0.1605583E-01	0.2017925E-01	232.921	33.274	0.003947	7	28.926
0.3410577E-02	0.3149262E-01	0.3213665E-01	82.979	10.372	0.006273	8	33.058
-0.2449673E-02	-0.6500573E-03	0.3023777E-02	192.439	21.382	0.000591	9	37.190
0.7253062E-02	-0.1164306E-01	0.1372137E-01	301.919	30.191	0.002684	10	41.322

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 469 CTR 953 FLT 604.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3014516E 04							
-0.4631141E 05	0.7241779E 05	0.8101394E 05	116.629	116.629	1.000000	1	4.132
-0.6516181E 03	-0.1823241E 04	0.1929522E 04	250.886	125.443	0.023819	2	8.264
-0.1435540E 05	-0.2662478E 05	0.3233512E 05	235.417	78.472	0.399191	3	12.397
0.1476166E 03	-0.1553555E 03	0.2462305E 03	313.665	79.916	0.003039	4	16.529
-0.4404742E 04	0.5613147E 04	0.7135254E 04	128.121	25.624	0.088078	5	20.661
-0.1313249E 04	0.2144452E 03	0.1340393E 04	168.105	28.017	0.012845	6	24.793
-0.4575415E 04	-0.5819715E 04	0.7412937E 04	231.826	33.118	0.091382	7	28.926
-0.6539435E 02	0.1311024E 04	0.1312727E 04	92.919	11.615	0.016204	8	33.058
0.2674527E 04	0.8562725E 03	0.2808425E 04	17.753	1.973	0.034665	9	37.190
0.1024985E 04	0.1152265E 04	0.1545104E 04	48.224	4.822	0.019073	10	41.322

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 469 CTR 953 FLT 604.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3344460E 03							
-0.2733578E 02	-0.2343551E 03	0.2351341E 03	262.865	262.865	1.000000	1	4.132
0.1521137E 03	-0.6750325E 02	0.1656644E 03	336.034	168.027	0.704810	2	8.264
-0.1194203E 03	-0.1998044E 03	0.2233372E 03	237.920	79.273	0.949713	3	12.397
0.2333328E 01	-0.2105640E 02	0.2111034E 02	276.439	69.110	0.089722	4	16.529
-0.1396326E 02	-0.8249172E 02	0.8447443E 02	256.385	51.277	0.359376	5	20.661
0.5924141E 02	-0.1121173E 01	0.5373143E 02	358.924	59.821	0.252777	6	24.793
0.2316903E 02	0.9613290E 01	0.2512337E 02	20.093	2.870	0.113571	7	28.926
-0.2467634E 02	-0.1012437E 02	0.2627033E 02	202.053	25.331	0.111314	8	33.058
-0.5504060E 02	-0.2499506E 02	0.6163778E 02	204.419	22.689	0.262000	9	37.190
-0.3519112E 02	-0.2600233E 02	0.4034821E 02	210.725	21.073	0.173135	10	41.322

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 469 CTR 953 FLT 604.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6482740E 04							
-0.5585265E 04	0.1073404E 05	0.1210394E 05	117.304	117.304	1.000000	1	4.132
0.6174535E 04	-0.1511436E 04	0.6431133E 04	352.395	176.197	0.531192	2	8.264
-0.3304371E 04	-0.3505814E 04	0.5171449E 04	222.662	74.221	0.427313	3	12.397
-0.1044922E 04	-0.1359372E 04	0.1714323E 04	232.462	58.115	0.141599	4	16.529
-0.6780231E 03	-0.9587065E 03	0.1202931E 04	235.824	47.166	0.099503	5	20.661
0.2555110E 03	-0.8162591E 03	0.8531103E 03	257.902	44.517	0.071703	6	24.793
0.9711970E 03	0.3147316E 03	0.1020399E 04	17.957	2.565	0.084322	7	28.926
0.2574305E 03	0.9525444E 03	0.9866444E 03	73.208	9.151	0.082182	8	33.058
0.6183678E 02	0.4990403E 03	0.5013531E 03	80.606	8.956	0.041411	9	37.190
-0.2127574E 02	0.4982703E 03	0.5987743E 03	115.042	11.504	0.049427	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 24 V= 121 KTS n= 1.57 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 953 FLT 604.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2347815E 05							
0.6785450E 05	0.7879450E 05	0.1034734E 05	49.337	49.337	1.000000	1	4.132
0.8146875E 04	0.1632309E 04	0.8410403E 04	7.050	3.525	0.080468	2	8.264
0.2815578E 04	-0.1382494E 05	0.1411350E 05	281.507	93.836	0.135673	3	12.397
-0.2265088E 04	0.9326109E 03	0.2449572E 04	157.621	39.405	0.023502	4	16.529
-0.1756433E 04	0.1572044E 03	0.1763244E 04	174.891	34.978	0.016994	5	20.661
-0.2363724E 03	-0.8392761E 03	0.8723877E 03	254.271	42.378	0.008394	6	24.793
-0.1827727E 04	0.6405972E 03	0.1936737E 04	160.685	22.955	0.018645	7	28.926
-0.1152551E 02	0.2472030E 04	0.2473737E 04	90.267	11.283	0.023815	8	33.058
0.1734514E 04	-0.3229722E 03	0.1764325E 04	349.452	38.828	0.016985	9	37.190
0.6342920E 03	-0.2081625E 03	[illegible] 03	340.376	34.088	0.006741	10	41.322

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 953 FLT 604.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2425541E 04							
0.3176027E 04	-0.5500625E 04	0.6357619E 04	300.855	300.855	1.000000	1	4.132
-0.2404543E 04	0.2423823E 04	0.3774115E 04	134.745	[illegible]	[illegible]	2	8.264
0.1765150E 04	0.8234450E 03	0.1952332E 04	24.951	8.317	0.351248	3	12.397
-0.3304687E 03	0.3045314E 03	0.4712333E 03	133.340	32.585	0.080058	4	16.529
-0.6997625E 03	0.2914377E 03	0.7212422E 03	156.160	31.234	0.127707	5	20.661
-0.6244625E 03	-0.3859834E 02	0.6257147E 03	183.551	33.592	0.113303	6	24.793
-0.2740547E 03	-0.6779775E 03	0.7312227E 03	248.513	35.216	0.133015	7	28.926
0.4267245E 03	-0.9047209E 03	0.1135630E 04	295.233	36.904	0.180903	8	33.058
0.5456587E 03	-0.4003076E 03	0.5503433E 03	300.567	34.063	0.104472	9	37.190
-0.6301057E 02	-0.3587175E 03	0.3642115E 03	260.037	26.004	0.065336	10	41.322

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 953 FLT 604.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2966682E 05							
0.1753744E 05	0.1246900E 05	0.2151831E 05	35.413	35.413	1.000000	1	4.132
0.5552863E 04	-0.1245361E 04	0.5690801E 04	347.359	173.680	0.264463	2	8.264
-0.6219781E 04	-0.4593801E 04	0.7732313E 04	216.445	72.150	0.359336	3	12.397
0.1052583E 04	-0.5086294E 03	0.1169031E 04	334.209	83.552	0.054327	4	16.529
0.2084076E 04	0.9154756E 03	0.2276286E 04	23.714	4.743	0.105784	5	20.661
0.2563235E 03	-0.1660465E 03	0.3054075E 03	327.064	54.511	0.014193	6	24.793
-0.6383931E 03	0.1349958E 03	0.6525103E 03	168.060	24.009	0.030323	7	28.926
-0.1930196E 04	0.1267529E 04	0.2309174E 04	146.708	18.338	0.107312	8	33.058
0.1364140E 04	-0.7495654E 03	0.1556510E 04	331.212	36.801	0.072334	9	37.190
0.1837928E 03	-0.1404574E 02	0.1843288E 03	355.630	35.563	0.008566	10	41.322

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 469 CTR 953 FLT 604.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4069583E 03							
0.2179070E 04	0.1797450E 04	0.2824704E 04	39.519	39.519	1.000000	1	4.132
-0.9393472E 03	0.7190432E 03	0.1182961E 04	142.567	71.283	0.418791	2	8.264
0.4176611E 03	-0.2174263E 02	0.4182266E 03	357.020	119.007	0.148060	3	12.397
-0.6227502E 03	0.8160730E 02	0.6280745E 03	172.534	43.134	0.222350	4	16.529
-0.2344029E 03	0.8696626E 03	0.9007160E 03	105.084	21.017	0.318872	5	20.661
-0.8549561E 03	0.1097043E 03	0.8619656E 03	172.688	28.781	0.305152	6	24.793
0.1415453E 03	-0.3103018E 03	0.3410603E 03	294.520	42.074	0.120742	7	28.926
0.8903467E 03	-0.6611709E 03	0.1108992E 04	323.402	40.425	0.392605	8	33.058
0.2435227E 03	-0.2390360E 03	0.3412354E 03	315.533	35.059	0.120804	9	37.190
0.1201251E 03	0.4316922E 02	0.1277142E 03	19.851	1.985	0.045213	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 25 V= 111 KTS n= 1 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6314573E 01							
0.4857330E 01	-0.4110741E 01	0.6363313E 01	319.759	319.759	1.000000	1	4.098
-0.5321929E-01	-0.3530065E 00	0.3570374E 00	261.355	130.678	0.055645	2	8.197
-0.4879477E-01	-0.9691411E-01	0.1085036E 00	243.274	81.091	0.017052	3	12.295
0.1496315E-02	0.8103538E-01	0.8104914E-01	88.942	22.236	0.012737	4	16.393
-0.3434054E-01	0.1234233E-01	0.3622637E-01	159.996	31.999	0.005693	5	20.492
-0.1067337E-01	-0.2791391E-02	0.1103235E-01	194.656	32.443	0.001734	6	24.590
-0.3520592E-01	-0.8084044E-02	0.3612213E-01	192.932	27.562	0.005677	7	28.689
0.1496228E-01	0.1373342E-01	0.2023597E-01	42.739	5.342	0.003180	8	32.787
-0.1356330E-01	0.7052090E-02	0.1530434E-01	152.563	16.951	0.002405	9	36.885
0.4319450E-02	-0.6456770E-02	0.8057113E-02	306.738	30.674	0.001266	10	40.984

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.8775535E 04							
0.4624514E 05	0.6494419E 05	0.7972673E 05	54.546	54.546	1.000000	1	4.098
-0.2864476E 04	-0.1154201E 04	0.3089639E 04	201.944	100.972	0.038740	2	8.197
-0.5962133E 04	-0.2160369E 05	0.2246914E 05	254.612	84.871	0.281827	3	12.295
-0.8442581E 03	0.1263612E 04	0.1519699E 04	123.748	30.937	0.019061	4	16.393
-0.2430103E 03	0.5904580E 04	0.5911214E 04	92.715	18.543	0.074143	5	20.492
0.7761448E 03	0.1003294E 03	0.7845637E 03	7.347	1.224	0.009841	6	24.590
0.1290860E 04	-0.1754588E 04	0.2178160E 04	306.338	43.763	0.027320	7	28.689
-0.1739426E 03	0.5260000E 02	0.1816143E 03	163.342	20.418	0.002278	8	32.787
0.2850126E 04	0.1207809E 04	0.3095433E 04	22.966	2.552	0.038826	9	36.885
0.3902969E 03	-0.2959951E 03	0.4922043E 03	322.453	32.245	0.006174	10	40.984

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2531160E 03							
-0.2235562E 03	-0.8482150E 02	0.2391333E 03	200.775	200.775	1.000000	1	4.098
0.1160616E 03	-0.4163229E 02	0.1232401E 03	340.257	170.129	0.515375	2	8.197
-0.5982996E 02	-0.1424931E 03	0.1545442E 03	247.223	82.408	0.646254	3	12.295
-0.7375520E 02	-0.2873853E 02	0.7915637E 02	201.288	50.322	0.331006	4	16.393
-0.7324283E 02	0.6710698E 01	0.7855354E 02	175.044	35.019	0.328489	5	20.492
-0.4651794E 01	0.1910449E 02	0.1973044E 02	103.756	17.293	0.082506	6	24.590
0.6081285E 01	-0.1604465E 01	0.6239180E 01	345.220	49.317	0.026090	7	28.689
0.1702472E 02	0.2079800E 02	0.2687745E 02	50.697	6.337	0.112393	8	32.787
-0.1129522E 02	0.5868317E 01	0.1272457E 02	152.546	16.950	0.053227	9	36.885
0.5810506E 01	-0.3983833E 01	0.7045391E 01	325.564	32.556	0.029460	10	40.984

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1779328E 05							
0.3466811E 04	0.4776770E 04	0.5902227E 04	54.029	54.029	1.000000	1	4.098
0.2307757E 04	-0.2345634E 04	0.3290553E 04	314.533	157.267	0.557510	2	8.197
-0.3239457E 04	-0.4468977E 04	0.5519540E 04	234.062	78.021	0.935170	3	12.295
-0.2660307E 04	0.3053535E 03	0.2677774E 04	173.452	43.363	0.453689	4	16.393
-0.2309115E 04	0.1356530E 04	0.2678081E 04	149.568	29.914	0.453741	5	20.492
-0.4149558E 03	0.9894458E 03	0.1073003E 04	112.991	18.832	0.182141	6	24.590
-0.3994382E 02	0.7357698E 03	0.7368533E 03	93.107	13.301	0.124843	7	28.689
0.1154393E 04	0.9892300E 03	0.1520282E 04	40.544	5.074	0.257574	8	32.787
-0.5587135E 02	0.1203932E 04	0.1205117E 04	92.657	10.295	0.204194	9	36.885
0.2785125E 03	0.9251465E 03	0.9661832E 03	73.242	7.324	0.163698	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 25 V= 111 KTS n= 1 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 180 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7380544E 05							
0.6144400E 05	0.8260269E 05	0.1029373E 06	53.376	53.376	1.000000	1	4.098
0.1205304E 05	0.1761975E 05	0.2137030E 05	55.537	27.768	0.207486	2	8.197
-0.7168376E 03	-0.1108331E 05	0.1110547E 05	266.299	88.766	0.107832	3	12.295
0.5787672E 02	0.5667122E 03	0.5696599E 03	84.169	21.042	0.005531	4	16.393
-0.6407235E 03	0.1317823E 04	0.1465327E 04	115.929	23.186	0.014227	5	20.492
0.3500596E 03	-0.1287591E 04	0.1334333E 04	285.211	47.535	0.012955	6	24.590
0.6434626E 03	0.3553689E 03	0.7343967E 03	29.237	4.185	0.007130	7	28.689
-0.3811371E 02	0.1500052E 04	0.1530534E 04	91.450	11.431	0.014627	8	32.787
0.9598516E 03	-0.2707692E 04	0.2872734E 04	289.519	32.169	0.027892	9	36.885
0.3925594E 02	-0.6060901E 03	0.6073501E 03	273.706	27.371	0.005897	10	40.984

BLADE FLAP AT STA 130.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1274303E 05							
0.4536727E 04	-0.2791004E 04	0.5326500E 04	328.400	328.400	1.000000	1	4.098
-0.1669265E 04	0.7947737E 03	0.1848831E 04	154.540	77.270	0.347100	2	8.197
0.2822720E 03	0.1309503E 04	0.1339581E 04	77.836	25.945	0.251494	3	12.295
0.4769236E 03	-0.3438238E 03	0.5879437E 03	324.211	81.053	0.110380	4	16.393
0.8767692E 02	-0.7003602E 03	0.7058335E 03	277.136	55.427	0.132513	5	20.492
-0.1731754E 02	-0.1180975E 02	0.2096123E 02	214.293	35.715	0.003935	6	24.590
0.9754660E 02	-0.4611632E 02	0.1078933E 03	334.697	47.814	0.020257	7	28.689
0.2807380E 03	0.5438613E 03	0.6165922E 03	62.911	7.864	0.115741	8	32.787
-0.1333130E 03	0.2679688E 03	0.2993154E 03	116.448	12.939	0.056194	9	36.885
0.8954214E 02	0.4538492E 02	0.1003872E 03	26.878	2.686	0.018847	10	40.984

BLADE FLAP AT STA 174

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1694793E 04							
0.3106057E 04	-0.3904814E 04	0.4987504E 04	308.500	308.500	1.000000	1	4.098
-0.3054909E 04	0.5098652E 03	0.3097082E 04	170.534	85.267	0.620719	2	8.197
0.5939520E 03	0.1021161E 04	0.1181334E 04	59.816	19.939	0.236764	3	12.295
-0.3756079E 03	0.1753459E 02	0.3760355E 03	177.266	44.317	0.075385	4	16.393
-0.3565332E 03	0.3427224E 03	0.5334216E 03	132.235	26.447	0.106307	5	20.492
-0.7719357E 02	0.1670123E 03	0.2023175E 03	112.430	18.738	0.040549	6	24.590
0.3765557E 03	-0.5809624E 02	0.3829875E 03	351.275	50.182	0.076759	7	28.689
0.1667172E 04	-0.6262910E 03	0.1799863E 04	339.635	42.454	0.360690	8	32.787
0.7186387E 03	0.2585921E 02	0.7191033E 03	2.061	0.229	0.144123	9	36.885
0.6600427E 02	0.1231718E 03	0.1397421E 03	61.814	6.181	0.028007	10	40.984

BLADE FLAP AT STA 205

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6407449E 04							
-0.1966048E 04	0.3352838E 04	0.3931597E 04	120.349	120.349	1.000000	1	4.098
0.3616204E 04	-0.1519388E 03	0.3619374E 04	357.594	178.797	0.920591	2	8.197
0.6200214E 02	-0.9508507E 03	0.9528749E 03	273.734	91.245	0.242365	3	12.295
0.8512654E 03	-0.3583950E 03	0.9236524E 03	337.169	84.292	0.234931	4	16.393
0.2318213E 03	-0.5526691E 03	0.6365008E 03	291.356	58.271	0.161914	5	20.492
-0.5173456E 02	-0.2220306E 03	0.2279843E 03	256.884	42.814	0.057988	6	24.590
-0.1651136E 03	-0.9563770E 02	0.2083593E 03	207.323	29.618	0.052996	7	28.689
-0.4024070E 03	0.1327852E 03	0.4237433E 03	161.738	20.217	0.107780	8	32.787
-0.1641186E 03	-0.7213636E 02	0.1792722E 03	203.727	22.636	0.045598	9	36.885
0.8090430E 02	-0.5278819E 02	0.9660277E 02	326.876	32.688	0.024571	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 25 V= 111 KTS n= 1 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1220006E 04							
0.4846082E 02	0.1967626E 04	0.1968222E 04	88.589	88.589	0.673601	1	4.098
0.2916181E 04	-0.1482137E 03	0.2921343E 04	357.092	178.546	1.000000	2	8.197
0.4334316E 03	-0.4558579E 03	0.6589173E 03	311.169	103.730	0.225506	3	12.295
0.1097294E 04	-0.3505034E 03	0.1152493E 04	342.294	85.574	0.394426	4	16.393
-0.2520206E 02	-0.6031855E 03	0.6036323E 03	267.830	53.566	0.227815	5	20.492
-0.1402941E 03	0.2011133E 03	0.2452121E 03	124.899	20.817	0.083921	6	24.590
0.3463267E 03	0.8150081E 02	0.3557871E 03	13.242	1.892	0.121764	7	28.689
0.1070335E 04	0.1860009E 03	0.1086473E 04	9.889	1.236	0.371834	8	32.787
0.5528081E 03	0.1953972E 03	0.5863250E 03	19.467	2.163	0.200663	9	36.885
0.1101562E 03	0.1833934E 03	0.2139334E 03	59.009	5.901	0.073216	10	40.984

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2532143E 04							
0.1165381E 04	0.1580043E 03	0.1183122E 04	7.736	7.736	0.727367	1	4.098
0.1621575E 04	0.3954779E 02	0.1622457E 04	1.397	0.698	1.000000	2	8.197
0.5317876E 03	-0.2054143E 03	0.5700815E 03	338.880	112.960	0.351369	3	12.295
0.1104807E 04	0.1002544E 03	0.1109340E 04	5.185	1.296	0.683744	4	16.393
-0.1695170E 03	-0.5508732E 03	0.5763574E 03	252.896	50.579	0.355244	5	20.492
-0.1208873E 03	0.3251909E 03	0.3469268E 03	110.369	18.395	0.213828	6	24.590
0.6561050E 03	0.2351411E 03	0.6970695E 03	19.717	2.817	0.429576	7	28.689
0.1275749E 04	0.8485800E 03	0.1532230E 04	33.629	4.204	0.944393	8	32.787
0.6310371E 03	0.1237438E 03	0.6430559E 03	11.095	1.233	0.396347	9	36.885
-0.3273745E 03	-0.8150773E 01	0.3274758E 03	181.426	18.143	0.201840	10	40.984

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1732545E 06							
0.2267141E 05	0.1460236E 05	0.2713582E 05	32.556	32.556	1.000000	1	4.098
-0.2210167E 04	0.6810060E 04	0.7160301E 04	107.979	53.990	0.263869	2	8.197
-0.7645135E 02	-0.9770234E 03	0.9800313E 03	265.526	88.509	0.036115	3	12.295
0.2747561E 04	0.1039670E 03	0.2749327E 04	2.167	0.542	0.101339	4	16.393
0.6590051E 03	-0.8664946E 03	0.1088623E 04	307.254	61.451	0.040118	5	20.492
0.1235605E 03	0.3115866E 03	0.3355313E 03	68.400	11.400	0.012366	6	24.590
0.2430465E 03	0.3166603E 02	0.2451337E 03	7.428	1.061	0.009032	7	28.689
-0.2013281E 02	-0.2569740E 03	0.2577650E 03	266.122	33.265	0.010969	8	32.787
-0.1013644E 04	0.1652708E 04	0.1938893E 04	121.527	13.503	0.071452	9	36.885
0.2187065E 03	0.5311597E 03	0.5744244E 03	67.620	6.762	0.021169	10	40.984

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2460476E 05							
0.4218453E 04	0.5807664E 04	0.7178093E 04	54.007	54.007	1.000000	1	4.098
0.1821657E 04	0.1829796E 04	0.2582113E 04	45.125	22.562	0.359724	2	8.197
-0.6446072E 03	-0.1752317E 04	0.1867113E 04	249.803	83.268	0.260115	3	12.295
0.6762384E 03	-0.3360334E 03	0.7556643E 03	333.597	83.399	0.105274	4	16.393
0.6347960E 02	0.5340828E 03	0.5378423E 03	83.222	16.644	0.074929	5	20.492
0.3450667E 03	0.6620359E 03	0.7466116E 03	62.472	10.412	0.104013	6	24.590
0.5500784E 03	-0.2916587E 03	0.6226152E 03	332.067	47.438	0.086739	7	28.689
0.1325337E 03	-0.1104424E 04	0.1112352E 04	276.843	34.605	0.154966	8	32.787
-0.1349576E 04	0.2842887E 04	0.3146701E 04	115.395	12.822	0.438415	9	36.885
-0.2532531E 03	0.1883375E 03	0.3156345E 03	143.367	14.337	0.043973	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 25 V= 111 KTS n= 1 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 180 FLT 500.0 TR 44
OVERALL CYCLIC LOAD = 0.439530E 04

ZERO POSITION USED 1.49 LOAD/IN USED 12705.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.24540249E 03							
0.20730210E 04	0.16080708E 04	0.26283493E 04	37.721	37.721	1.000000	1	4.098
-0.93350786E 03	0.47321117E 03	0.10465979E 04	153.119	76.559	0.398196	2	8.197
0.12640095E 03	0.29963438E 03	0.32539495E 03	67.046	22.349	0.123804	3	12.295
-0.14638594E 03	0.23495559E 03	0.27789163E 03	122.275	30.569	0.105729	4	16.393
0.22490865E 03	0.51106239E 03	0.55838005E 03	66.247	13.249	0.212445	5	20.492
-0.76961645E 02	-0.10046936E 02	0.77634650E 02	187.876	31.313	0.029560	6	24.590
0.20278565E 03	0.33850988E 01	0.20281397E 03	0.956	0.137	0.077164	7	28.689
0.12049906E 04	0.10828111E 03	0.12098655E 04	5.135	0.642	0.460306	8	32.787
0.26341066E 03	0.10564470E 03	0.31116355E 03	32.164	3.574	0.118388	9	36.885
0.77480302E 02	-0.31799156E 02	0.33751897E 02	337.686	33.769	0.031865	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 26 V= 173 KTS n= 1.15 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6319443E 01							
0.4025393E 01	-0.4481025E 01	0.6023557E 01	311.934	311.934	1.000000	1	4.167
-0.3056506E 00	-0.3538746E 00	0.4675036E 00	229.161	114.591	0.077629	2	8.333
-0.5334249E-01	0.9698205E-02	0.5427350E-01	169.706	56.569	0.009010	3	12.500
0.3057053E-01	-0.5056983E-01	0.5945132E-01	300.944	75.236	0.009870	4	16.667
0.6132054E-02	-0.4101707E-01	0.4147270E-01	278.503	55.701	0.006885	5	20.833
0.5407065E-02	0.3303406E-01	0.3347305E-01	80.704	13.451	0.005557	6	25.000
-0.3847412E-03	-0.1701769E-01	0.1702203E-01	268.705	38.386	0.002826	7	29.167
-0.1255769E-01	-0.1210929E-01	0.1744537E-01	223.959	27.995	0.002896	8	33.333
-0.9274535E-02	-0.4675651E-03	0.9286314E-02	182.886	20.321	0.001542	9	37.500
-0.9152649E-02	0.3713541E-02	0.9882875E-02	157.929	15.793	0.001641	10	41.667

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5776055E 04							
-0.3998276E 05	0.1176506E 06	0.1242539E 06	108.770	108.770	1.000000	1	4.167
-0.9166206E 03	-0.1379082E 04	0.1655917E 04	236.390	118.195	0.013326	2	8.333
-0.7557816E 04	-0.2801938E 05	0.2902073E 05	254.904	84.968	0.233551	3	12.500
0.9473376E 02	0.1398652E 04	0.1401355E 04	86.125	21.531	0.011282	4	16.667
0.5070535E 04	0.8455996E 03	0.5141219E 04	9.512	1.902	0.041375	5	20.833
0.2208192E 03	-0.1084256E 04	0.1106513E 04	281.511	46.919	0.008905	6	25.000
-0.3254321E 04	-0.4167329E 03	0.3245354E 04	187.266	26.755	0.026444	7	29.167
-0.5163655E 03	0.1039706E 04	0.1161770E 04	116.500	14.563	0.009350	8	33.333
-0.3141719E 03	-0.4565410E 03	0.5375857E 03	237.678	26.409	0.004729	9	37.500
0.1282700E 03	-0.9833383E 02	0.1620215E 03	322.343	32.234	0.001304	10	41.667

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2281646E 03							
-0.3102652E 03	-0.2520303E 02	0.3116303E 03	185.377	185.377	0.683304	1	4.167
0.3338633E 03	-0.3107478E 03	0.4561018E 03	317.054	158.527	1.000000	2	8.333
-0.9249443E 01	-0.2321208E 03	0.2323053E 03	267.718	89.239	0.509327	3	12.500
-0.5068892E 02	-0.6640657E 02	0.8354033E 02	232.646	58.162	0.183162	4	16.667
-0.3695865E 02	-0.1501614E 02	0.3393213E 02	202.112	40.422	0.087465	5	20.833
-0.4037660E 02	0.5325026E 02	0.6682828E 02	127.172	21.195	0.146520	6	25.000
-0.8920420E 01	-0.2188721E 02	0.2359706E 02	248.051	35.436	0.051738	7	29.167
0.1343253E 02	-0.3666850E 02	0.3905137E 02	290.119	36.265	0.085620	8	33.333
-0.2570025E 00	0.7276581E 01	0.7241116E 01	92.023	10.225	0.015964	9	37.500
0.1659004E 02	-0.1837211E 01	0.1669150E 02	353.681	35.368	0.036596	10	41.667

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1473596E 05							
-0.2432526E 04	0.2868700E 05	0.2378995E 05	94.847	94.847	1.000000	1	4.167
0.2456720E 04	-0.1867841E 05	0.1881426E 05	276.889	138.444	0.653500	2	8.333
-0.7766514E 03	-0.6602480E 04	0.6648003E 04	263.291	87.764	0.230914	3	12.500
-0.1520595E 04	-0.9902290E 03	0.1814597E 04	213.073	53.268	0.063029	4	16.667
0.1551143E 04	0.9803677E 02	0.1554235E 04	3.616	0.723	0.053985	5	20.833
0.1953899E 03	-0.5332942E 02	0.2054325E 03	344.954	57.492	0.007136	6	25.000
-0.6557126E 03	0.4180594E 03	0.7730753E 03	147.430	21.061	0.027026	7	29.167
0.5654583E 03	-0.5207881E 03	0.7637412E 03	317.355	39.669	0.026702	8	33.333
0.1095814E 03	0.3860054E 03	0.4012583E 03	74.151	8.239	0.013937	9	37.500
0.2088485E 03	-0.1584014E 03	0.2621233E 03	322.821	32.282	0.009105	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 26 V= 173 KTS n= 1.15 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.52071132E 05							
0.14297331E 05	0.11556490E 06	0.11645030E 06	82.948	82.948	1.000000	1	4.167
0.10998030E 05	0.33105160E 04	0.11487215E 05	16.781	8.390	0.098645	2	8.333
-0.12517780E 05	-0.15011590E 05	0.19545400E 05	230.176	76.725	0.167848	3	12.500
0.15450415E 03	0.15402145E 04	0.15539146E 04	84.294	21.073	0.013344	4	16.667
0.16624032E 03	0.18079130E 04	0.18155916E 04	84.745	16.949	0.015591	5	20.833
0.12286111E 04	-0.19372635E 04	0.22940335E 04	302.383	50.397	0.019700	6	25.000
0.10335294E 04	0.32876030E 03	0.10845588E 04	17.646	2.521	0.009314	7	29.167
-0.94480208E 03	-0.33251295E 03	0.10016063E 04	199.389	24.924	0.008601	8	33.333
-0.55484945E 03	-0.34313795E 03	0.65238132E 03	211.734	23.526	0.005602	9	37.500
-0.18753460E 03	-0.27495660E 00	0.18753605E 03	180.084	18.008	0.001610	10	41.667

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.98402625E 04							
0.48633391E 04	-0.28767178E 04	0.56504925E 04	329.396	329.396	0.917795	1	4.167
-0.23758159E 04	0.56798015E 04	0.61565996E 04	112.698	56.349	1.000000	2	8.333
0.29534491E 03	0.18226008E 04	0.18460563E 04	80.857	26.952	0.299850	3	12.500
0.75245176E 03	0.28198055E 03	0.80354943E 03	20.542	5.136	0.130525	4	16.667
-0.78049392E 03	0.94424912E 02	0.78602735E 03	173.106	34.621	0.127770	5	20.833
-0.59039222E 03	0.46569385E 03	0.75242458E 03	141.762	23.627	0.122214	6	25.000
-0.23087412E 03	-0.24692528E 03	0.34340685E 03	225.965	32.281	0.055788	7	29.167
0.28653495E 03	-0.17540895E 03	0.33766943E 03	328.703	41.088	0.054847	8	33.333
-0.12610252E 03	-0.17977355E 03	0.21959913E 03	234.952	26.106	0.035668	9	37.500
0.20231105E 03	-0.15045988E 03	0.27785693E 03	316.728	31.673	0.045132	10	41.667

BLADE FLAP AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.16038718E 04							
0.40475105E 04	-0.48836600E 04	0.63429068E 04	309.651	309.651	1.000000	1	4.167
-0.23695176E 04	0.49858480E 04	0.55203434E 04	115.423	57.712	0.870332	2	8.333
0.22254300E 04	0.17828346E 04	0.28515035E 04	38.699	12.900	0.449558	3	12.500
-0.68184675E 03	-0.76400825E 02	0.68611386E 03	186.393	46.598	0.108170	4	16.667
-0.89992032E 02	0.30383764E 03	0.31688450E 03	106.499	21.300	0.049959	5	20.833
-0.28144560E 03	0.23130016E 03	0.36433425E 03	140.591	23.432	0.057440	6	25.000
-0.67097126E 03	0.55250025E 03	0.86917145E 03	140.531	20.076	0.137030	7	29.167
-0.30278445E 03	-0.42769470E 03	0.52401715E 03	234.672	29.334	0.082552	8	33.333
-0.31355745E 03	0.65456795E 01	0.31362575E 03	178.803	19.867	0.049445	9	37.500
-0.23560726E 03	0.18929442E 03	0.30238626E 03	141.244	14.124	0.047673	10	41.667

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.65922597E 04							
-0.32154475E 04	0.51007035E 04	0.60296133E 04	122.227	122.227	1.000000	1	4.167
0.26164550E 04	-0.26911618E 04	0.37534483E 04	314.196	157.097	0.622502	2	8.333
-0.32111078E 04	-0.15068035E 04	0.35479135E 04	205.167	68.389	0.588415	3	12.500
0.56924608E 03	0.17965850E 03	0.59692463E 03	17.516	4.379	0.098999	4	16.667
-0.24918841E 03	-0.13324412E 03	0.28257135E 03	208.134	41.627	0.046864	5	20.833
-0.27665485E 03	0.67559945E 02	0.28478443E 03	166.277	27.715	0.047231	6	25.000
0.19282158E 03	-0.27439318E 03	0.33530795E 03	305.096	43.585	0.055620	7	29.167
0.18694985E 03	-0.66507275E 02	0.19924465E 03	339.767	42.471	0.033044	8	33.333
0.18975150E 03	0.39750495E 02	0.19390935E 03	11.829	1.314	0.032160	9	37.500
0.16923105E 03	-0.18652295E 03	0.22856415E 03	304.430	30.443	0.037907	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 26 V= 173 KTS n= 1.15 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.25005454E 04							
-0.65005316F 03	0.31874495E 04	0.33305534E 04	105.043	105.043	0.903922	1	4.167
0.21666546E 04	-0.77241026E 03	0.23013378E 04	340.390	170.195	0.630321	2	8.333
-0.35053535E 04	-0.10222706E 04	0.36513755E 04	196.258	65.419	1.000000	3	12.500
0.33721306E 03	-0.19134255E 03	0.38771753E 03	330.428	82.607	0.106184	4	16.667
-0.55722605E 03	-0.10296428E 03	0.56665435E 03	190.470	38.094	0.155189	5	20.833
-0.60949025E 03	0.64748403E 03	0.88922606E 03	133.268	22.211	0.243531	6	25.000
-0.70101906E 03	-0.18108885E 03	0.72403105E 03	194.484	27.783	0.198290	7	29.167
-0.23369346E 02	-0.48179325E 03	0.48238611E 03	267.171	33.396	0.132109	8	33.333
0.67081206E 01	-0.13185695E 03	0.13202745E 03	272.912	30.324	0.036156	9	37.500
-0.13162726E 03	-0.37771075E 02	0.13693335E 03	196.011	19.601	0.037503	10	41.667

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.13425449E 04							
0.10323835E 04	0.13823635E 03	0.10415965E 04	7.627	7.627	0.342541	1	4.167
0.15966026E 04	0.57895705E 03	0.16985195E 04	19.929	9.965	0.558577	2	8.333
-0.29601546E 04	-0.59429716E 03	0.30407949E 04	191.271	63.757	1.000000	3	12.500
-0.21651795E 03	-0.10228445E 03	0.23946213E 03	205.286	51.322	0.078750	4	16.667
-0.20456017E 03	-0.47877915E 03	0.52081303E 03	246.825	49.365	0.171275	5	20.833
-0.41002156E 03	0.54139316E 03	0.67913635E 03	127.138	21.190	0.223341	6	25.000
-0.79512626E 03	-0.21782756E 03	0.82442335E 03	195.320	27.903	0.271121	7	29.167
-0.35957916E 03	-0.70287076E 03	0.78951425E 03	242.906	30.363	0.259641	8	33.333
-0.15634456E 03	-0.47147295E 03	0.49671495E 03	251.654	27.962	0.163352	9	37.500
-0.15903226E 03	-0.11309516E 03	0.19514603E 03	215.419	21.542	0.064176	10	41.667

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.20575116E 06							
-0.72233706E 03	0.58406075E 05	0.58410895E 05	90.734	90.734	1.000000	1	4.167
0.73535306E 04	0.19133249E 03	0.73560993E 04	1.490	0.745	0.130408	2	8.333
-0.86241525E 04	-0.93385206E 04	0.12711573E 05	227.277	75.759	0.225340	3	12.500
0.58649326E 04	-0.16501025E 04	0.58661386E 04	343.663	85.916	0.103991	4	16.667
0.80492725E 03	-0.37082233E 03	0.94101225E 03	336.792	67.358	0.016681	5	20.833
-0.28264555E 03	-0.52864140E 03	0.59955256E 03	241.851	40.309	0.010628	6	25.000
-0.60124295E 03	-0.14898405E 04	0.16332035E 04	245.427	35.061	0.029041	7	29.167
0.60777[illegible]7E 02	-0.13191735E 04	0.13235723E 04	272.638	34.080	0.023410	8	33.333
0.52984365E 03	0.48938535E 03	0.72127125E 03	42.727	4.747	0.012786	9	37.500
-0.49632206E 03	0.32556556E 03	0.59357233E 03	146.737	14.674	0.010522	10	41.667

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 252 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.27666606E 03							
0.12333126E 02	0.48918595E 04	0.48918675E 04	89.920	89.920	1.000000	1	4.167
0.14148546E 04	-0.14028596E 03	0.14257695E 04	354.353	177.177	0.160345	2	8.333
-0.23345296E 04	-0.13211236E 04	0.26826849E 04	209.503	69.834	0.301701	3	12.500
0.18734906E 04	-0.55337075E 03	0.19535375E 04	343.544	85.886	0.219696	4	16.667
-0.59444936E 02	-0.20603657E 03	0.21331663E 03	253.908	50.788	0.023996	5	20.833
0.20591006E 03	-0.14449658E 03	0.25132143E 03	324.853	54.142	0.028320	6	25.000
-0.71092446E 03	-0.23717366E 03	0.74944802E 03	198.449	28.350	0.084285	7	29.167
0.36614345E 03	-0.62166025E 03	0.72137403E 03	300.511	37.564	0.081150	8	33.333
0.38037016E 03	0.11533556E 03	0.39380036E 03	17.487	1.943	0.044850	9	37.500
0.12507006E 03	-0.85516066E 02	0.15173723E 03	325.513	32.551	0.017065	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 26 V= 173 KTS n= 1.15 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1001 T 405 CTR 252 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5734316E 03							
0.2478602E 04	0.2237938E 04	0.3725646E 04	36.919	36.919	1.000000	1	4.167
-0.1801494E 04	0.2025744E 04	0.2710937E 04	131.646	65.823	0.727642	2	8.333
-0.2383427E 03	0.2368530E 03	0.3360137E 03	135.180	45.060	0.090189	3	12.500
-0.1473597E 03	-0.2059150E 03	0.2532338E 03	234.404	58.601	0.067970	4	16.667
0.7783826E 03	-0.9523122E 02	0.7841360E 03	353.025	70.605	0.210483	5	20.833
0.2967502E 03	-0.4701033E 03	0.5559624E 03	302.218	50.370	0.149145	6	25.000
-0.5353806E 03	0.2803237E 03	0.6069645E 03	152.495	21.785	0.162922	7	29.167
0.2061953E 03	-0.3786018E 03	0.4322513E 03	298.802	37.350	0.115967	8	33.333
0.6231696E 01	-0.5252306E 02	0.5289145E 02	276.766	30.752	0.014197	9	37.500
0.4027796E 02	-0.9485307E 02	0.1030511E 03	293.008	29.301	0.027660	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 27 V= 173.5 KTS n= 1.22 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 256 FLT 500.0 TR 41

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6449C54E 01							
0.42578637E 01	-0.43417025E 01	0.60810948E 01	314.441	314.441	1.000000	1	4.132
-0.31744417E 00	-0.29496087E 00	0.43333310E 00	222.898	111.449	0.071259	2	8.264
-0.69917445E-01	0.33335263E-01	0.77457615E-01	154.509	51.503	0.012737	3	12.397
-0.69873595E-02	0.14257175E-02	0.71313275E-02	168.468	42.117	0.001173	4	16.529
0.27254335E-01	0.42541535E-02	0.27584543E-01	8.872	1.774	0.004536	5	20.661
-0.21892428E-01	0.29675775E-01	0.36877313E-01	126.418	21.070	0.006064	6	24.793
0.51956695E-03	0.10162595E-01	0.10175873E-01	87.073	12.439	0.001673	7	28.926
-0.93547228E-02	0.67532078E-03	0.93793355E-02	175.847	21.981	0.001542	8	33.058
-0.22527246E-02	0.86031335E-02	0.88931918E-02	104.673	11.630	0.001462	9	37.190
0.10672518E-01	-0.86517185E-02	0.13739111E-01	320.971	32.097	0.002259	10	41.322

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1001 T 405 CTR 256 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.79362495E 04							
-0.69877731E 05	0.11196560E 06	0.13198108E 06	121.968	121.968	1.000000	1	4.132
-0.88405602E 03	-0.19437925E 04	0.21354049E 04	245.542	122.771	0.016180	2	8.264
0.11342462E 04	-0.27695595E 05	0.27718315E 05	272.345	90.782	0.210020	3	12.397
-0.12061395E 04	0.18651156E 04	0.21739925E 04	123.750	30.938	0.016449	4	16.529
0.35941710E 04	0.27751745E 04	0.45408875E 04	37.673	7.535	0.034405	5	20.661
-0.36333364E 03	-0.41824660E 03	0.55402495E 03	229.019	38.170	0.004198	6	24.793
-0.31161056E 04	-0.11108815E 04	0.33101563E 04	199.609	28.516	0.025080	7	28.926
0.38552652E 02	0.47099608E 03	0.47257235E 03	85.320	10.665	0.003581	8	33.058
-0.11408560E 04	-0.75440095E 03	0.13677588E 04	213.474	23.719	0.010363	9	37.190
0.22606436E 03	0.51096095E 03	0.55497075E 03	66.080	6.608	0.004235	10	41.322

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 256 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.25892550E 03							
-0.30237928E 03	-0.94719455E 02	0.31686725E 03	197.393	197.393	0.677658	1	4.132
0.33642505E 03	-0.32474225E 03	0.46759163E 03	316.012	158.006	1.000000	2	8.264
0.11615846E 01	-0.22989265E 03	0.22989545E 03	270.234	90.095	0.491659	3	12.397
-0.67060105E 02	-0.45458965E 02	0.83325353E 02	216.410	54.102	0.178203	4	16.529
-0.31456105E 02	0.95013425E 00	0.31471635E 02	178.197	35.639	0.067306	5	20.661
-0.49904345E 02	0.53385935E 02	0.73073725E 02	133.070	22.178	0.156287	6	24.793
-0.10837395E 02	-0.19169300E 02	0.22021135E 02	240.519	34.360	0.047095	7	28.926
0.10384045E 02	-0.29649675E 02	0.31415478E 02	289.302	36.163	0.067186	8	33.058
-0.21671670E 01	0.23635735E 02	0.23734885E 02	95.239	10.582	0.050760	9	37.190
0.11347185E 02	0.87031960E 01	0.14300535E 02	37.488	3.749	0.030583	10	41.322

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.99447730E 04							
-0.67168445E 04	0.28542638E 05	0.29322332E 05	103.242	103.242	1.000000	1	4.132
0.21465800E 04	-0.20519845E 05	0.20632365E 05	275.979	137.989	0.703630	2	8.264
-0.29392245E 03	-0.63872075E 04	0.63939055E 04	267.365	89.122	0.218058	3	12.397
-0.19536445E 04	-0.10936335E 04	0.22389195E 04	209.240	52.310	0.076355	4	16.529
0.16026300E 04	-0.58153215E 01	0.16020403E 04	359.792	71.958	0.054636	5	20.661
0.79835405E 03	-0.70923455E 02	0.80153315E 03	354.924	59.154	0.027335	6	24.793
-0.10967715E 04	0.39716335E 03	0.11664073E 04	160.094	22.871	0.039781	7	28.926
0.30169520E 03	-0.77642195E 03	0.83353326E 03	291.478	36.672	0.028211	8	33.058
-0.13022942E 03	-0.21567049E 02	0.13199335E 03	189.378	21.042	0.004501	9	37.190
0.22814195E 03	0.25812875E 03	0.34449833E 03	48.529	4.853	0.011749	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 27 V= 173.5 KTS n= 1.22 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5247804E 05							
0.1039513E 05	0.1069003E 06	0.1135371E 06	80.240	80.240	1.000000	1	4.132
0.9211852E 04	0.4652980E 04	0.1032329E 05	26.799	13.399	0.095085	2	8.264
-0.1159471E 05	-0.1726618E 05	0.2081530E 05	236.151	78.717	0.191790	3	12.397
0.8550759E 03	0.2602477E 04	0.2739351E 04	71.811	17.953	0.025239	4	16.529
0.2280707E 04	0.2064293E 04	0.3075147E 04	42.149	8.430	0.028342	5	20.661
0.1243240E 04	-0.1504357E 04	0.1951593E 04	309.571	51.595	0.017981	6	24.793
0.1850732E 04	-0.4405153E 02	0.1851255E 04	358.636	51.234	0.017056	7	28.926
-0.9255156E 03	0.4530696E 03	0.1033402E 04	153.917	19.240	0.009494	8	33.058
-0.1110803E 04	0.4350683E 02	0.1114736E 04	175.185	19.465	0.010271	9	37.190
0.9075208E 03	-0.3308308E 03	0.9659414E 03	339.971	33.997	0.008900	10	41.322

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1037556E 05							
0.5140483E 04	-0.2796459E 04	0.5853367E 04	331.686	331.686	0.934619	1	4.132
-0.2787512E 04	0.5654023E 04	0.6308307E 04	116.224	58.112	1.000000	2	8.264
0.6943391E 02	0.1662700E 04	0.1664208E 04	87.609	29.203	0.263812	3	12.397
0.8594607E 03	0.2358937E 03	0.8917471E 03	15.339	3.835	0.141361	4	16.529
-0.6219550E 03	0.1524468E 02	0.6221423E 03	178.596	35.719	0.098623	5	20.661
-0.5605989E 03	0.4777422E 03	0.7365442E 03	139.562	23.260	0.116758	6	24.793
-0.9755760E 02	-0.3775442E 03	0.3899443E 03	255.512	36.502	0.061814	7	28.926
0.4360873E 03	-0.8512749E 02	0.4449072E 03	348.969	43.621	0.070527	8	33.058
-0.3151584E 00	-0.1089709E 03	0.1089713E 03	269.834	29.982	0.017274	9	37.190
0.2423950E 03	-0.7304991E 02	0.2531632E 03	343.229	34.323	0.040132	10	41.322

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1637455E 04							
0.4623742E 04	-0.5021359E 04	0.6825910E 04	312.639	312.639	1.000000	1	4.132
-0.2725257E 04	0.4789598E 04	0.5510660E 04	119.640	59.820	0.807316	2	8.264
0.1585147E 04	0.1553534E 04	0.2219493E 04	44.423	14.808	0.325157	3	12.397
-0.5258884E 03	-0.5686631E 03	0.7745557E 03	227.238	56.809	0.113473	4	16.529
-0.9412501E 02	0.1388037E 03	0.1677599E 03	124.131	24.826	0.024577	5	20.661
-0.1990228E 03	0.7294357E 02	0.2119734E 03	159.872	26.645	0.031054	6	24.793
-0.8063730E 03	0.3641216E 02	0.8071523E 03	177.414	25.345	0.118248	7	28.926
0.4646457E 02	-0.4311831E 03	0.4336814E 03	276.153	34.519	0.063535	8	33.058
-0.2647463E 03	-0.2018555E 03	0.3329237E 03	217.324	24.147	0.048773	9	37.190
-0.2124248E 03	-0.1724475E 03	0.2736077E 03	219.070	21.907	0.040084	10	41.322

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.8354828E 04							
-0.3470251E 04	0.5215043E 04	0.6264152E 04	123.641	123.641	1.000000	1	4.132
0.2570866E 04	-0.2332459E 04	0.3475710E 04	317.850	158.925	0.554858	2	8.264
-0.3078536E 04	-0.1706466E 04	0.3519853E 04	209.000	69.667	0.561905	3	12.397
0.5997625E 03	0.2537950E 03	0.6512532E 03	22.936	5.734	0.103965	4	16.529
-0.1892227E 03	-0.2970972E 03	0.3522600E 03	237.501	47.500	0.056234	5	20.661
-0.1766677E 03	0.5314447E 02	0.1844735E 03	163.276	27.213	0.029482	6	24.793
0.4156218E 03	-0.1610655E 03	0.4278752E 03	346.255	49.465	0.068305	7	28.926
0.2793811E 03	0.1435930E 03	0.3141221E 03	27.202	3.400	0.050146	8	33.058
0.1362776E 03	0.1040353E 03	0.1714475E 03	37.358	4.151	0.027370	9	37.190
0.1220279E 03	-0.3254811E 02	0.1262943E 03	345.065	34.507	0.020161	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 27 V= 173.5 KTS n= 1.22 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 405 CTR 256 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2224743E 04							
-0.7697515E 03	0.3435232E 04	0.3520425E 04	102.631	102.631	0.921437	1	4.132
0.1954780E 04	-0.4367954E 03	0.2002992E 04	347.404	173.702	0.524264	2	8.264
-0.3686422E 04	-0.1004298E 04	0.3820392E 04	195.240	65.080	1.000000	3	12.397
0.4538376E 03	-0.1480923E 03	0.4775730E 03	341.859	85.465	0.125001	4	16.529
-0.4480315E 03	-0.1782993E 03	0.4822353E 03	201.701	40.340	0.126213	5	20.661
-0.4561423E 03	0.6554990E 03	0.8018757E 03	124.670	20.778	0.209883	6	24.793
-0.5993789E 03	-0.2219200E 03	0.6391423E 03	200.317	28.617	0.167289	7	28.926
0.3909337E 02	-0.2667549E 03	0.2696034E 03	278.337	34.792	0.070566	8	33.058
-0.7832085E 02	-0.1850546E 03	0.2014937E 03	247.127	27.459	0.052740	9	37.190
-0.9589084E 02	0.1108149E 03	0.1465415E 03	130.870	13.087	0.038356	10	41.322

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 405 CTR 256 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2105223E 04							
0.1725345E 04	0.1715342E 04	0.2432972E 04	44.833	44.833	0.880368	1	4.132
0.1366015E 04	0.1081177E 04	0.1742103E 04	38.361	19.180	0.630380	2	8.264
-0.2615871E 04	-0.8514115E 03	0.2763534E 04	198.818	66.273	1.000000	3	12.397
-0.7317262E 02	-0.3336624E 03	0.3426975E 03	256.814	64.203	0.124005	4	16.529
-0.1124513E 03	-0.4540337E 03	0.4677615E 03	256.084	51.217	0.169259	5	20.661
-0.4677725E 03	0.3413193E 03	0.5953325E 03	145.018	24.170	0.215420	6	24.793
-0.6627594E 03	-0.4642439E 03	0.8091804E 03	215.010	30.716	0.292801	7	28.926
0.7166754E 02	-0.6769914E 03	0.6833967E 03	275.969	34.496	0.247286	8	33.058
-0.7613042E 02	-0.4647617E 03	0.4739555E 03	260.697	28.966	0.170415	9	37.190
-0.4790071E 02	-0.6016260E 02	0.7690264E 02	231.474	23.147	0.027827	10	41.322

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2347570E 06							
0.2832714E 04	0.5241694E 05	0.5249343E 05	86.907	86.907	1.000000	1	4.132
0.6400422E 04	0.7680128E 03	0.6446406E 04	6.848	3.424	0.122804	2	8.264
-0.7953344E 04	-0.1038953E 05	0.1308426E 05	232.565	77.522	0.249255	3	12.397
0.5327164E 04	-0.9915949E 03	0.5416944E 04	349.560	87.390	0.103191	4	16.529
0.1019745E 04	-0.2678774E 03	0.1054934E 04	344.235	68.847	0.020185	5	20.661
0.3753516E 03	-0.5438832E 02	0.3792712E 03	351.755	58.626	0.007225	6	24.793
-0.1397144E 04	-0.9746475E 03	0.1703432E 04	215.010	30.716	0.032496	7	28.926
0.2111727E 03	-0.8025806E 03	0.8299726E 03	284.741	35.593	0.015810	8	33.058
0.6773500E 03	-0.3292447E 02	0.6781504E 03	357.217	39.691	0.012919	9	37.190
-0.4630396E 03	0.1110825E 03	0.4767613E 03	166.527	16.653	0.009082	10	41.322

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2730684E 05							
0.9729025E 02	0.8567297E 04	0.8567844E 04	89.349	89.349	1.000000	1	4.132
0.1686950E 04	0.3248257E 03	0.1717977E 04	10.899	5.449	0.200514	2	8.264
-0.1814005E 04	-0.1463265E 04	0.2330513E 04	218.891	72.964	0.272018	3	12.397
0.1966542E 04	-0.3573138E 02	0.1966807E 04	358.959	89.740	0.229564	4	16.529
-0.1395690E 03	-0.2626128E 03	0.2974053E 03	242.008	48.402	0.034712	5	20.661
-0.1078185E 02	-0.2193566E 03	0.2205959E 03	265.637	44.273	0.025747	6	24.793
-0.7204192E 03	-0.5660142E 03	0.9333251E 03	218.894	31.271	0.104934	7	28.926
0.4306621E 03	-0.5450276E 03	0.6946013E 03	308.714	38.589	0.081526	8	33.058
0.3444716E 03	0.7083536E 02	0.3520311E 03	11.615	1.291	0.041093	9	37.190
-0.3661414E 02	-0.7779004E 02	0.8597603E 02	244.795	24.479	0.010035	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 27 V= 173.5 KTS n= 1.22 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 256 FLT 506.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.49701966E 03							
0.24730820E 04	0.26358018E 04	0.36147325E 04	42.556	42.556	1.000000	1	4.132
-0.21935656E 04	0.19277777E 04	0.29218835E 04	138.718	69.359	0.749715	2	8.264
-0.21776778E 03	0.10836735E 03	0.24324118E 03	153.544	51.181	0.062412	3	12.397
0.58240955E 02	-0.40779596E 03	0.41194033E 03	278.135	69.534	0.105698	4	16.529
0.70460335E 03	-0.52842577E 01	0.70462103E 03	359.604	71.921	0.196191	5	20.661
0.37985600E 03	-0.46279545E 03	0.59872367E 03	309.379	51.563	0.153624	6	24.793
-0.57053478E 03	-0.50140677E 02	0.57324903E 03	185.620	26.517	0.147098	7	28.926
0.35436506E 03	-0.25526646E 02	0.35528135E 03	355.880	44.485	0.091161	8	33.058
-0.19322055E 02	0.48813845E 02	0.52499135E 02	111.596	12.400	0.013471	9	37.190
0.66220860E 02	-0.15845835E 02	0.68090303E 02	346.543	34.654	0.017471	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 28 V= 173 KTS n= 1.45 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6681200E 01							
0.4749455E 01	-0.4633245E 01	0.6623075E 01	315.655	315.655	1.000000	1	4.115
-0.2576517E 00	-0.4159533E 00	0.4891924E 00	238.205	119.102	0.073830	2	8.230
-0.6845343E-01	-0.6006651E-02	0.6871659E-01	185.016	61.672	0.010367	3	12.346
-0.3150951E-01	0.3324992E-01	0.4580534E-01	133.457	33.364	0.006910	4	16.461
0.2364403E-01	0.2478701E-01	0.3425545E-01	46.352	9.270	0.005168	5	20.576
-0.1472681E-01	0.2342208E-01	0.2766494E-01	122.153	20.359	0.004174	6	24.691
0.3555042E-01	0.1387910E-01	0.3812057E-01	21.351	3.050	0.005751	7	28.807
-0.9962986E-03	-0.1389530E-01	0.1389107E-01	265.887	33.236	0.002096	8	32.922
0.1196890E-01	0.4189610E-02	0.1269937E-01	19.262	2.140	0.001916	9	37.037
-0.4957438E-02	-0.1318165E-01	0.1408334E-01	249.389	24.939	0.002125	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6636281E 04							
-0.8743275E 05	0.1121558E 06	0.1420661E 06	127.875	127.875	1.000000	1	4.115
-0.1132655E 04	-0.1653205E 04	0.2003994E 04	235.584	117.792	0.014104	2	8.230
-0.6746285E 04	-0.3040536E 05	0.3114479E 05	257.490	85.830	0.219196	3	12.346
0.2880364E 03	-0.2600174E 03	0.3870350E 03	317.640	79.410	0.002724	4	16.461
-0.3955665E 04	-0.8623831E 03	0.4073091E 04	192.208	38.442	0.028702	5	20.576
-0.2512491E 03	-0.6378879E 03	0.6855852E 03	248.502	41.417	0.004825	6	24.691
-0.4945655E 04	-0.2224416E 04	0.5422553E 04	204.218	29.174	0.038164	7	28.807
0.4491570E 03	-0.7157117E 03	0.8449753E 03	302.111	37.764	0.005947	8	32.922
-0.1295760E 04	-0.2213229E 03	0.1314525E 04	189.693	21.077	0.009252	9	37.037
-0.5019324E 02	0.2031823E 03	0.2092902E 03	103.876	10.368	0.001473	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3440137E 03							
-0.2159430E 03	-0.2687402E 03	0.3447502E 03	231.217	231.217	0.704423	1	4.115
0.3059634E 03	-0.3795388E 03	0.4874082E 03	309.149	154.574	1.000000	2	8.230
-0.3644049E 02	-0.2207195E 03	0.2237155E 03	260.612	86.871	0.457114	3	12.346
-0.9734561E 02	-0.4367328E 02	0.1066972E 03	204.162	51.041	0.218013	4	16.461
-0.6762331E 02	0.2414146E 02	0.7180333E 02	160.353	32.071	0.146715	5	20.576
-0.1710667E 02	0.4373181E 02	0.4695853E 02	111.364	18.561	0.095950	6	24.691
0.3369607E 02	-0.2116711E 02	0.3723451E 02	325.413	46.488	0.076191	7	28.807
0.1163441E 02	-0.2311703E 02	0.2597018E 02	297.109	37.139	0.053064	8	32.922
0.1033113E 02	-0.1434435E 02	0.1767749E 02	305.762	33.974	0.036120	9	37.037
-0.6774451E 01	-0.1673550E 02	0.1805464E 02	247.962	24.796	0.036891	10	41.152

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1831549E 04							
-0.1234885E 05	0.2657663E 05	0.2930546E 05	114.922	114.922	1.000000	1	4.115
0.1595980E 04	-0.2328346E 05	0.2333854E 05	273.921	136.961	0.796390	2	8.230
0.3057104E 03	-0.6109246E 04	0.6115831E 04	272.865	90.955	0.208694	3	12.346
-0.2502063E 04	-0.7488223E 03	0.2611714E 04	196.661	49.165	0.089120	4	16.461
-0.6492794E 02	-0.7314525E 02	0.9734235E 02	228.425	45.685	0.003339	5	20.576
-0.3067422E 03	-0.1802911E 03	0.3558027E 03	210.445	35.074	0.012141	6	24.691
-0.6424326E 03	-0.3884468E 03	0.7507430E 03	211.159	30.166	0.025618	7	28.807
0.3330551E 03	-0.3804707E 03	0.5036833E 03	310.942	38.868	0.017187	8	32.922
0.3710176E 03	0.2243291E 02	0.3716951E 03	3.460	0.384	0.012683	9	37.037
0.3084016E 03	-0.7792393E 02	0.3180938E 03	345.820	34.582	0.010854	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 28 V= 173 KTS n= 1.45 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 8

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4776476E 05							
0.5075316E 05	0.7829575E 05	0.9330650E 05	57.048	57.048	1.000000	1	4.115
0.1955176E 05	0.7719770E 04	0.2134853E 05	21.516	10.758	0.225585	2	8.230
-0.9949852E 04	-0.2350882E 05	0.2552770E 05	247.060	82.353	0.273590	3	12.346
0.1769680E 04	0.1036641E 04	0.2053231E 04	30.081	7.520	0.022166	4	16.461
0.1420547E 03	0.4821905E 03	0.5026804E 03	73.585	14.717	0.005387	5	20.576
-0.2367360E 02	-0.1614050E 04	0.1614224E 04	269.159	44.860	0.017300	6	24.691
-0.1651336E 04	0.1713732E 04	0.2379873E 04	133.938	19.134	0.025506	7	28.807
0.5224065E 03	-0.3907144E 03	0.6523542E 03	323.207	40.401	0.006992	8	32.922
-0.4467620E 03	0.1117880E 04	0.1203843E 04	111.784	12.420	0.012902	9	37.037
0.2743650E 03	0.6264757E 02	0.2814263E 03	12.862	1.286	0.003016	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1152419E 05							
0.5639600E 04	-0.3379282E 04	0.6574594E 04	329.070	329.070	0.935804	1	4.115
-0.2951602E 04	0.6384746E 04	0.7025613E 04	114.663	57.331	1.000000	2	8.230
-0.1270021E 03	0.1853215E 04	0.1857562E 04	93.920	31.307	0.264398	3	12.346
0.1082141E 04	0.3609282E 02	0.1082742E 04	1.910	0.478	0.154114	4	16.461
-0.2016195E 03	0.4000860E 01	0.2016592E 03	178.863	35.773	0.028703	5	20.576
-0.1495126E 03	0.5267117E 03	0.5474453E 03	105.790	17.632	0.078206	6	24.691
0.2640542E 03	-0.1508328E 03	0.3333934E 03	323.616	46.259	0.047455	7	28.807
0.3562910E 03	-0.1238709E 03	0.3772097E 03	340.829	42.604	0.053691	8	32.922
0.1648257E 03	-0.2931284E 03	0.3362913E 03	299.349	33.261	0.047866	9	37.037
0.1230564E 03	-0.1599556E 03	0.2018134E 03	307.572	30.757	0.028725	10	41.152

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1490552E 04							
0.5061200E 04	-0.5579570E 04	0.7534573E 04	312.324	312.324	1.000000	1	4.115
-0.2528504E 04	0.6194000E 04	0.6690213E 04	112.206	56.103	0.886523	2	8.230
0.1117904E 04	0.1740984E 04	0.2068996E 04	57.295	19.098	0.274163	3	12.346
-0.1121852E 04	-0.2681685E 03	0.1153453E 04	193.444	48.361	0.152845	4	16.461
-0.1032576E 04	-0.4690430E 02	0.1033735E 04	182.268	36.454	0.136987	5	20.576
-0.6467556E 03	-0.2344055E 03	0.6879446E 03	199.664	33.311	0.091412	6	24.691
-0.5028514E 03	-0.1302399E 03	0.5194824E 03	194.520	27.788	0.068837	7	28.807
0.2604380E 03	-0.1866555E 03	0.3204246E 03	324.369	40.546	0.042460	8	32.922
0.1637115E 02	0.4474829E 02	0.4764837E 02	69.905	7.767	0.006314	9	37.037
0.8661182E 02	0.5530197E 02	0.1044527E 03	31.968	3.197	0.013841	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7767574E 04							
-0.3776795E 04	0.5666496E 04	0.6977102E 04	122.773	122.773	1.000000	1	4.115
0.2848034E 04	-0.3321654E 04	0.4375984E 04	310.618	155.309	0.627192	2	8.230
-0.2620230E 04	-0.1339461E 04	0.2942732E 04	207.076	69.025	0.421773	3	12.346
0.1059440E 04	0.3334136E 03	0.1110670E 04	17.469	4.367	0.159188	4	16.461
0.5610667E 03	0.4081561E 02	0.5625579E 03	4.161	0.832	0.080628	5	20.576
0.2665815E 03	0.2767021E 03	0.3842122E 03	46.069	7.678	0.055068	6	24.691
0.3918069E 03	-0.2545714E 02	0.3929126E 03	355.700	50.814	0.056315	7	28.807
0.2572473E 03	0.5744032E 02	0.2635823E 03	12.587	1.573	0.037778	8	32.922
0.1699255E 03	-0.9147607E 02	0.1929833E 03	331.705	36.856	0.027660	9	37.037
0.1299827E 03	-0.9963356E 02	0.1637753E 03	322.529	32.253	0.023473	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 28 V= 173 KTS n= 1.45 g

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 6

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4463809E 03							
-0.1139717E 04	0.4037525E 04	0.4209163E 04	106.418	106.418	1.000000	1	4.115
0.2221552E 04	-0.8319316E 03	0.2372593E 04	339.473	169.737	0.563673	2	8.230
-0.3066059E 04	-0.1263093E 04	0.3323746E 04	202.708	67.569	0.789646	3	12.346
0.7962366E 03	-0.4021963E 03	0.8920513E 03	333.201	83.300	0.211931	4	16.461
0.1693420E 02	-0.3844172E 03	0.3848033E 03	272.820	54.564	0.091439	5	20.576
-0.7720117E 02	0.4888764E 03	0.4949365E 03	98.974	16.496	0.117586	6	24.691
-0.2459426E 03	-0.1956422E 03	0.3167727E 03	219.068	31.295	0.075258	7	28.807
0.4759495E 03	-0.1346892E 02	0.4761339E 03	358.379	44.797	0.113132	8	32.922
0.1893191E 03	-0.3025483E 03	0.3569399E 03	302.036	33.560	0.084791	9	37.037
0.9955583E 02	0.3492712E 02	0.1055008E 03	19.332	1.933	0.025066	10	41.152

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1434753E 04							
0.1067631E 04	0.1146477E 04	0.1566067E 04	47.049	47.049	0.545671	1	4.115
0.1931652E 04	0.8468376E 03	0.2109126E 04	23.673	11.836	0.733954	2	8.230
-0.2765780E 04	-0.7799495E 03	0.2873649E 04	195.748	65.249	1.000000	3	12.346
0.2330127E 03	-0.6557422E 03	0.6959114E 03	289.562	72.391	0.242170	4	16.461
-0.4904723E 02	-0.5303618E 03	0.5326245E 03	264.716	52.943	0.185348	5	20.576
-0.7848254E 03	0.5611729E 02	0.7868774E 03	175.765	29.294	0.273859	6	24.691
-0.5619104E 03	-0.3729426E 03	0.6744104E 03	213.572	30.510	0.234688	7	28.807
0.1951636E 03	-0.4616101E 03	0.5011714E 03	292.918	36.615	0.174402	8	32.922
0.6479047E 02	-0.2183406E 03	0.2277584E 03	286.528	31.836	0.079255	9	37.037
-0.4005659E 02	0.1688099E 03	0.1734974E 03	103.349	10.335	0.060375	10	41.152

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2263592E 06							
0.1888130E 05	0.3877501E 05	0.4312777E 05	64.036	64.036	1.000000	1	4.115
0.1213373E 05	0.3441643E 04	0.1261233E 05	15.836	7.918	0.292443	2	8.230
-0.8103640E 04	-0.1408044E 05	0.1624595E 05	240.078	80.026	0.376693	3	12.346
0.7955318E 04	0.1217895E 04	0.8047913E 04	8.704	2.176	0.186608	4	16.461
0.3617656E 03	-0.1140049E 04	0.1196070E 04	287.605	57.521	0.027733	5	20.576
-0.4958271E 03	-0.1200555E 03	0.5101549E 03	193.611	32.269	0.011829	6	24.691
-0.8354963E 03	-0.1850127E 04	0.2030031E 04	245.697	35.100	0.047070	7	28.807
-0.1212832E 04	-0.1319805E 03	0.1220403E 04	186.533	23.567	0.028437	8	32.922
-0.1373646E 03	-0.3146230E 03	0.3661873E 03	239.225	26.581	0.008491	9	37.037
-0.3259655E 03	0.1062266E 04	0.1111155E 04	107.059	10.706	0.025764	10	41.152

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 301 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2765571E 05							
0.2733449E 04	0.6106852E 04	0.6690691E 04	65.887	65.887	1.000000	1	4.115
0.3031184E 04	0.4850693E 03	0.3069750E 04	9.092	4.546	0.458809	2	8.230
-0.2287513E 04	-0.2920165E 04	0.3709438E 04	231.927	77.309	0.554421	3	12.346
0.2050621E 04	0.1944240E 03	0.2059817E 04	5.416	1.354	0.307863	4	16.461
0.3613597E 02	-0.4170455E 03	0.4186377E 03	274.952	54.990	0.062573	5	20.576
0.6344571E 02	0.4183379E 03	0.4231221E 03	81.376	13.563	0.063240	6	24.691
-0.4767156E 03	-0.7062117E 03	0.8520320E 03	235.979	33.711	0.127349	7	28.807
-0.4655858E 03	-0.4270062E 02	0.4675437E 03	185.240	23.155	0.069880	8	32.922
-0.2769705E 03	-0.2464045E 03	0.3823333E 03	218.991	24.332	0.057107	9	37.037
-0.7126380E 02	0.2623618E 03	0.2718735E 03	105.200	10.520	0.040635	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 28 V= 173 KTS n= 1.45 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 435 CTR 301 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.22803357E 03							
0.31657958E 04	0.35347108E 04	0.47451488E 04	48.151	48.151	1.000000	1	4.115
-0.15567055E 04	0.27633465E 04	0.31716875E 04	119.395	59.698	0.668406	2	8.230
0.30516260E 03	-0.16617855E 03	0.34747588E 03	331.429	110.476	0.073228	3	12.346
-0.27903330E 03	-0.76469655E 03	0.81401449E 03	249.953	62.488	0.171547	4	16.461
-0.64278438E 02	-0.34396560E 03	0.34991449E 03	259.415	51.883	0.073743	5	20.576
-0.49974608E 03	-0.43871268E 03	0.66499249E 03	221.279	36.880	0.140142	6	24.691
-0.32363999E 03	0.26954835E 03	0.42118175E 03	140.210	20.030	0.088762	7	28.807
0.76055994E 03	0.15690205E 03	0.77657145E 03	11.656	1.457	0.163665	8	32.922
0.16060435E 03	-0.19350695E 03	0.25152618E 03	309.706	34.412	0.053007	9	37.037
-0.25200607E 02	-0.11150823E 03	0.11439425E 03	257.273	25.727	0.024107	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 29 V= 170.5 KTS n= 1.62 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 435 CTR 307 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.65772207E 01							
0.45556441E 01	-0.46835065E 01	0.65264158E 01	315.729	315.729	1.000000	1	4.115
-0.27260595E 00	-0.34556877E 00	0.44346178E 00	231.764	115.882	0.063591	2	8.230
-0.10552695E 00	0.33666505E-01	0.11496155E 00	162.972	54.324	0.016598	3	12.346
-0.55886465E-01	0.26056125E-02	0.55543105E-01	177.508	44.377	0.008654	4	16.461
0.25244241E-01	-0.22540525E-01	0.33735917E-01	312.509	62.502	0.005394	5	20.576
0.64727594E-02	-0.21120871E-02	0.26026175E-02	284.401	47.400	0.000376	6	24.691
-0.65533457E-02	-0.55995215E-01	0.55593128E-01	269.288	38.470	0.008084	7	28.807
-0.23272627E-01	0.16417552E-01	0.28480135E-01	144.799	18.100	0.004112	8	32.922
0.14711575E-01	0.16545435E-01	0.22453306E-01	25.485	2.832	0.005552	9	37.037
0.32711025E-02	-0.22705535E-02	0.22538305E-02	278.097	27.810	0.000331	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 435 CTR 307 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.63413765E 04							
-0.11107235E 06	0.10465380E 06	0.15260095E 06	136.704	136.704	1.000000	1	4.115
-0.61426377E 03	0.46622630E 02	0.61633130E 03	175.660	87.830	0.004037	2	8.230
-0.17151167E 05	-0.30011335E 05	0.34586155E 05	240.195	80.065	0.226634	3	12.346
-0.65960237E 03	0.66125540E 03	0.89251446E 03	137.650	34.412	0.005848	4	16.461
-0.35548125E 04	0.72545135E 04	0.81149498E 04	115.980	23.196	0.053175	5	20.576
0.37715575E 03	0.20113392E 03	0.42753105E 03	28.094	4.682	0.002801	6	24.691
-0.51535095E 04	0.55772070E 04	0.76207610E 04	132.960	18.994	0.049937	7	28.807
0.11169775E 04	-0.10422505E 04	0.15552238E 04	315.901	39.488	0.010191	8	32.922
-0.36515605E 03	-0.42757285E 03	0.56411106E 03	229.190	25.466	0.003702	9	37.037
0.10127335E 04	0.10520665E 03	0.10181705E 04	5.933	0.593	0.006565	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 435 CTR 307 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.41536115E 03							
-0.17942337E 03	-0.45300265E 03	0.48578213E 03	248.831	248.831	1.000000	1	4.115
0.72682730E 03	-0.39351095E 03	0.43608578E 03	298.313	149.156	0.897697	2	8.230
-0.14710355E 03	-0.15737725E 03	0.21270015E 03	227.719	75.906	0.437867	3	12.346
-0.82155765E 02	-0.15453406E 02	0.83596615E 02	190.653	47.663	0.172086	4	16.461
-0.47543295E 02	0.26435561E 02	0.54309715E 02	150.924	30.185	0.111982	5	20.576
-0.22366845E 02	-0.35283795E 02	0.45707615E 02	239.255	39.876	0.094091	6	24.691
-0.12865545E 02	-0.64723145E 02	0.65909415E 02	258.757	36.965	0.135841	7	28.807
-0.24358265E 02	-0.12457475E 02	0.27110375E 02	207.451	25.931	0.055808	8	32.922
-0.38901555E 02	0.78207638E 01	0.39679938E 02	168.634	18.737	0.081682	9	37.037
-0.25320688E 02	0.35213578E 02	0.43302615E 02	125.699	12.570	0.089325	10	41.152

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 435 CTR 307 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.13301678E 05							
-0.15931505E 05	0.21984015E 05	0.24407135E 05	131.619	131.619	1.000000	1	4.115
-0.82547325E 03	-0.23324355E 05	0.23334998E 05	267.937	133.968	0.783445	2	8.230
-0.32327466E 04	-0.42515808E 04	0.53411448E 04	232.755	77.585	0.181634	3	12.346
-0.28427155E 04	0.82122885E 03	0.29589608E 04	163.887	40.972	0.100620	4	16.461
0.62351420E 02	0.27055835E 04	0.27933735E 04	88.726	17.745	0.094884	5	20.576
-0.13241655E 03	0.66054805E 03	0.67401198E 03	101.329	16.888	0.022922	6	24.691
-0.62050395E 01	0.18033528E 03	0.64615466E 03	163.790	23.399	0.021974	7	28.807
0.11218195E 04	-0.38937735E 03	0.11873731E 04	340.872	42.609	0.040377	8	32.922
-0.15634755E 03	-0.50967315E 03	0.54611408E 03	248.931	27.659	0.018573	9	37.037
0.11321666E 03	-0.38644295E 03	0.50521395E 03	308.311	30.831	0.017181	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 29 V= 170.5 KTS n= 1.62 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTP 307 FLT 500.0 TP 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4370554E 05							
0.7448525E 05	0.4403742E 05	0.8654819E 05	30.614	30.614	1.000000	1	4.115
0.2492019E 05	0.3316563E 04	0.2513150E 05	7.292	3.646	0.301930	2	8.230
-0.1672128E 05	-0.2534215E 05	0.3014122E 05	237.217	79.072	0.348282	3	12.346
0.1295593E 04	0.2135724E 04	0.2389553E 04	57.059	14.265	0.027614	4	16.461
-0.3724844E 03	0.4413836E 04	0.4429573E 04	94.825	18.965	0.051180	5	20.576
0.3113984E 04	0.3323262E 03	0.3131667E 04	6.092	1.015	0.036184	6	24.691
0.2217463E 04	0.2497273E 04	0.3339688E 04	48.396	6.914	0.038588	7	28.807
0.1018542E 03	-0.1928870E 04	0.1931557E 04	273.023	34.128	0.022318	8	32.922
0.1165549E 04	-0.1176373E 04	0.1655196E 04	314.834	34.982	0.019166	9	37.037
-0.2781423E 03	-0.4356111E 03	0.5168167E 03	237.441	23.744	0.005972	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTP 307 FLT 500.0 TP 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1277858E 05							
0.5854858E 04	-0.4153121E 04	0.7178316E 04	324.653	324.650	0.994079	1	4.115
-0.2547456E 04	0.6552823E 04	0.7194934E 04	114.219	57.110	1.000000	2	8.230
0.3546356E 03	0.1638473E 04	0.1683336E 04	76.742	25.581	0.234287	3	12.346
0.1355755E 04	-0.4715549E 03	0.1435346E 04	340.857	85.214	0.200328	4	16.461
-0.2302681E 03	-0.8775863E 03	0.8980115E 03	255.142	51.028	0.124985	5	20.576
-0.2507039E 03	-0.3815358E 03	0.4569451E 03	237.527	39.588	0.064989	6	24.691
-0.7678499E 01	-0.8435035E 03	0.8435435E 03	269.477	38.497	0.114987	7	28.807
0.5995670E 03	0.3074351E 02	0.6007549E 03	2.935	0.367	0.083613	8	32.922
-0.1750845E 03	-0.4255870E 02	0.1801915E 03	193.674	21.519	0.025079	9	37.037
0.1265327E 03	0.1505314E 03	0.1966536E 03	49.862	4.986	0.027405	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTP 307 FLT 500.0 TP 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7347227E 04							
-0.3835824E 04	0.6293584E 04	0.7372870E 04	121.357	121.357	1.000000	1	4.115
0.3199543E 04	-0.3785556E 04	0.4954215E 04	310.166	155.083	0.671966	2	8.230
-0.2246650E 04	-0.1427584E 04	0.2661947E 04	212.442	70.814	0.361046	3	12.346
0.1465559E 04	-0.3390566E 03	0.1498479E 04	347.158	86.789	0.203244	4	16.461
0.2401357E 03	-0.7626467E 03	0.7995013E 03	288.091	57.618	0.108820	5	20.576
-0.1147957E 03	-0.3641550E 03	0.3818216E 03	252.503	42.084	0.051788	6	24.691
0.1734357E 03	-0.2351555E 03	0.2904554E 03	305.929	43.704	0.039396	7	28.807
0.4735757E 02	0.1951097E 03	0.2007842E 03	76.346	9.543	0.027233	8	32.922
-0.5280043E 02	0.3037295E 03	0.3176113E 03	107.004	11.889	0.043075	9	37.037
-0.3674725E 02	0.1198319E 03	0.1253129E 03	107.052	10.705	0.016997	10	41.152

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTP 307 FLT 500.0 TP 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1127559E 04							
-0.9741111E 03	0.4773453E 04	0.4871828E 04	101.534	101.534	1.000000	1	4.115
0.2700592E 04	-0.9516621E 03	0.2876746E 04	339.836	169.918	0.590506	2	8.230
-0.2407764E 04	-0.1290346E 04	0.2731724E 04	208.187	69.396	0.560719	3	12.346
0.9574578E 03	-0.9071198E 03	0.1319475E 04	316.860	79.215	0.270817	4	16.461
-0.2525806E 03	-0.1156234E 04	0.1192078E 04	255.800	51.160	0.244811	5	20.576
-0.3602501E 03	-0.1037500E 03	0.3749593E 03	196.062	32.677	0.076971	6	24.691
-0.4517387E 03	-0.6217654E 03	0.7685264E 03	234.002	33.429	0.157749	7	28.807
0.1048035E 04	-0.6680149E 03	0.1242828E 04	327.487	40.936	0.255105	8	32.922
0.1571067E 03	-0.2961735E 03	0.3352188E 03	297.948	33.105	0.068808	9	37.037
0.6162971E 02	-0.1288645E 03	0.1428439E 03	295.559	29.556	0.029320	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 29 V= 170.5 KTS n= 1.62 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 307 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.15569796E 04							
0.97948580E 02	0.12107445E 04	0.12143936E 04	85.563	85.563	0.419544	1	4.115
0.13620495E 04	0.21653166E 03	0.13791529E 04	9.033	4.516	0.476469	2	8.231
-0.26952321E 04	-0.12477706E 04	0.29545293E 04	201.222	67.074	1.000000	3	12.346
-0.63542115E 02	-0.81763847E 03	0.82011598E 03	265.528	66.382	0.283340	4	16.461
-0.83758335E 03	-0.83000606E 03	0.11797415E 04	224.767	44.953	0.407576	5	20.576
-0.12139215E 04	0.92555306E 02	0.12174445E 04	175.640	29.273	0.420602	6	24.691
-0.98925517E 03	-0.47528538E 03	0.10101145E 04	208.224	29.761	0.349001	7	28.807
0.46551215E 03	-0.84718335E 03	0.96878036E 03	299.016	37.377	0.334694	8	32.922
0.38129645E 02	-0.85405307E 03	0.85573346E 03	272.554	30.284	0.295627	9	37.037
0.17032055E 03	-0.38071125E 03	0.42040465E 03	295.098	29.510	0.145241	10	41.152

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 307 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.20563372E 06							
0.33511196E 05	0.27272355E 05	0.40800228E 05	34.783	34.783	1.000000	1	4.115
0.16689696E 05	0.53853325E 03	0.16698375E 05	1.849	0.924	0.409271	2	8.230
-0.12866725E 05	-0.13382225E 05	0.19285365E 05	223.940	74.647	0.472678	3	12.346
0.96765883E 04	-0.45685755E 03	0.96877706E 04	357.297	89.324	0.237444	4	16.461
-0.41887675E 03	0.67056006E 03	0.79777478E 03	121.672	24.334	0.019553	5	20.576
-0.35562505E 02	0.20227675E 04	0.20537525E 04	99.971	16.662	0.050338	6	24.691
-0.18026446E 04	-0.36555466E 03	0.18394225E 04	191.477	27.354	0.045084	7	28.807
0.17333215E 04	0.46575155E 03	0.17981231E 04	19.708	2.464	0.033854	8	32.922
-0.11127505E 04	0.74339525E 03	0.13382265E 04	146.254	16.250	0.032800	9	37.037
-0.87801376E 03	0.65441955E 03	0.10950666E 04	143.301	14.330	0.026840	10	41.152

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 307 FLT 500.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.18307555E 04							
0.54869022E 04	-0.60268032E 04	0.81504406E 04	312.315	312.315	1.000000	1	4.115
-0.26319247E 04	0.62727897E 04	0.68025636E 04	112.762	56.381	0.834628	2	8.230
0.16415551E 04	0.16371955E 04	0.23184406E 04	44.923	14.974	0.284459	3	12.346
-0.83371000E 02	-0.31590650E 03	0.89187455E 03	200.807	50.202	0.109427	4	16.461
-0.72144871E 03	0.66357366E 03	0.98755.2E 03	137.785	27.557	0.121171	5	20.576
-0.37464547E 03	0.36352055E 03	0.52230405E 03	135.872	22.645	0.064083	6	24.691
-0.47152541E 03	0.74227017E 02	0.47717775E 03	171.172	24.453	0.058546	7	28.807
0.54329330E 03	-0.67727716E 03	0.85695155E 03	309.344	38.668	0.105143	8	32.922
0.17082695E 02	-0.55152876E 03	0.55219366E 03	271.773	30.197	0.067750	9	37.037
-0.24505415E 01	-0.54015766E 03	0.54016125E 03	269.740	26.974	0.066275	10	41.152

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 307 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.27059737E 05							
0.48259765E 04	0.37358245E 04	0.61085518E 04	37.751	37.751	1.000000	1	4.115
0.42956175E 04	-0.47915785E 03	0.43226345E 04	353.640	176.820	0.708225	2	8.230
-0.37243325E 04	-0.27194565E 04	0.46115355E 04	216.137	72.046	0.754931	3	12.346
0.25475405E 04	0.36184595E 03	0.25731665E 04	8.084	2.021	0.421230	4	16.461
-0.30550525E 03	0.78872285E 02	0.32003445E 03	165.548	33.110	0.052392	5	20.576
-0.14722495E 03	0.66557146E 03	0.68255725E 03	102.402	17.067	0.112298	6	24.691
-0.12592227E 04	0.44130815E 03	0.13286563E 04	160.601	22.943	0.217507	7	28.807
0.52368334E 03	0.61259345E 03	0.80622490E 03	49.493	6.187	0.131984	8	32.922
0.36173297E 02	0.32514018E 03	0.33112198E 03	83.728	9.303	0.054206	9	37.037
-0.43770835E 02	0.27639555E 03	0.27293465E 03	99.230	9.923	0.044681	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 29 V= 170.5 KTS n= 1.62 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1005 * 405 CTR 307 FLT 500.0 TR 44
OVERALL CYCLIC LOAD = 0.86729935 04

ZERO POSITION LOAD 1.49 LOAD/IN LBS 12735.33

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.28326595E 03							
0.33436803E 04	0.44476591E 04	0.57278024E 04	54.235	54.235	1.000000	1	4.115
-0.78151485E 03	0.27551866E 04	0.28678188E 04	105.822	52.911	0.500685	2	8.230
0.51375585E 03	-0.62141605E 03	0.80631908E 03	309.582	103.194	0.140768	3	12.346
-0.76801787E 03	-0.56042308E 02	0.76984653E 03	183.728	45.932	0.134370	4	16.461
-0.28576641E 02	0.95738946E 03	0.95781593E 03	91.710	18.342	0.167169	5	20.576
0.14766655E 03	0.66585564E 03	0.68207598E 03	77.497	12.916	0.119081	6	24.691
0.17896527E 03	0.48246556E 02	0.18557446E 03	15.059	2.151	0.032428	7	28.807
0.11331745E 04	-0.72712308E 03	0.13464398E 04	327.313	40.914	0.235063	8	32.922
-0.12655597E 03	-0.32551955E 03	0.34657722E 03	248.717	27.635	0.061065	9	37.037
0.32647718E 01	0.73981130E 02	0.74053336E 02	87.471	8.747	0.012920	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 30 V= 122.5 KTS n= .99 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS [illegible] SHIP [illegible] CTR 336 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 01							
[illegible] 01	-0.36501[illegible] 01	0.3474[illegible] 01	318.225	318.225	1.000000	1	4.115
[illegible] 00	[illegible]-01	[illegible]	203.372	101.686	0.037656	2	8.230
-0.7150[illegible]-02	-0.2507[illegible]-01	0.27[illegible]-01	250.210	65.403	0.005464	3	12.346
[illegible]-01	-0.141[illegible]-02	[illegible]-01	354.180	89.545	0.008132	4	16.461
[illegible]-01	-0.5122301[illegible]-03	[illegible]	357.250	71.463	0.001963	5	20.576
[illegible]-01	-0.3328125[illegible]-02	0.135013[illegible]-01	345.744	57.032	0.002475	6	24.691
[illegible]-02	-0.2542111[illegible]-01	[illegible]-01	272.678	33.354	0.004665	7	28.807
[illegible]-02	-0.27520[illegible]-02	[illegible]-02	204.654	25.592	0.001204	8	32.922
0.2363[illegible]-02	-0.3515202[illegible]-02	[illegible]-02	301.123	33.458	0.000835	9	37.037
[illegible]-02	0.1613775[illegible]-01	0.17[illegible]-01	111.355	11.185	0.003177	10	41.152

SHAFT MOMENT

HARMONIC ANALYSIS [illegible] SHIP [illegible] CTR 336 FLT 500.0 TR 35

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5[illegible] 04							
[illegible] 04	0.71[illegible] 05	0.7111[illegible] 05	80.767	80.767	1.000000	1	4.115
-0.2363[illegible] 04	-0.16[illegible] 04	0.2[illegible] 04	[illegible]	107.495	0.040573	2	8.230
-0.92[illegible] 04	-0.141183[illegible] 05	0.16[illegible] 05	236.[illegible]	78.950	0.237070	3	12.346
[illegible] 03	0.13722[illegible] 04	0.1[illegible] 04	[illegible]	19.112	0.019448	4	16.461
[illegible] 04	0.4425[illegible] 03	0.11[illegible] 04	156.[illegible]	31.397	0.015[illegible]	5	20.576
0.555133[illegible] 03	-0.2677[illegible] 03	[illegible] 03	339.481	56.58[illegible]	0.008335	6	24.691
-0.2[illegible] 04	-0.218107[illegible] 04	0.32[illegible] 04	222.243	31.749	0.045032	7	28.807
-0.479[illegible] 02	0.541366[illegible] 03	[illegible] 03	92.790	[illegible]	0.013825	8	32.922
-0.1[illegible] 03	-0.3651553[illegible] 02	0.1[illegible] 03	191.583	21.287	0.002585	9	37.037
0.25975[illegible] 03	-0.327793[illegible] 03	[illegible] 03	[illegible]	[illegible]	0.005481	10	41.152

PITCH LINK TENSION

HARMONIC ANALYSIS [illegible] SHIP [illegible] CTR 336 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.247[illegible] 03							
-0.2281[illegible] 03	-0.3512[illegible] 02	0.23[illegible] 03	190.746	190.746	1.000000	1	4.115
0.1446[illegible] 03	-0.128015[illegible] 03	0.1[illegible] 03	319.490	159.245	0.920561	2	8.230
-0.221[illegible] 02	-0.91[illegible] 02	[illegible] 02	256.384	85.461	0.449336	3	12.346
-0.329[illegible] 02	-0.270210[illegible] 02	[illegible] 02	217.315	54.329	0.263249	4	16.461
-0.2521[illegible] 02	[illegible] 02	0.27[illegible] 02	232.811	[illegible]	0.150[illegible]	5	20.576
0.2342[illegible] 02	-0.701374[illegible] 01	[illegible] 02	343.334	57.222	0.110553	6	24.691
0.135[illegible] 02	-0.1725[illegible] 02	0.2355[illegible] 02	317.727	45.390	0.122262	7	28.807
0.7645[illegible] 01	[illegible] 01	0.1[illegible] 02	41.155	5.144	0.048390	8	32.922
-0.1594[illegible] 02	0.214385[illegible] 01	0.1[illegible] 02	172.340	19.149	0.076055	9	37.037
-0.32[illegible] 02	0.141250[illegible] 02	0.1[illegible] 02	103.015	10.301	0.069091	10	41.152

FIXED HUB FLAP AT STA 19

HARMONIC ANALYSIS [illegible] SHIP [illegible] CTR 336 FLT 500.0 TR [illegible]

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
0.514378[illegible] 04	0.159223[illegible] 05	0.167327[illegible] 05	72.097	72.097	1.000000	1	4.115
0.243520[illegible] 04	-0.854[illegible] 04	[illegible] 04	283.[illegible]	[illegible]	0.540240	2	8.230
-0.126574[illegible] 04	-0.287190[illegible] 04	0.31[illegible] 04	246.215	82.072	0.187564	3	12.346
-0.14[illegible] 04	[illegible] 03	0.1[illegible] 04	193.341	[illegible]	0.116545	4	16.461
[illegible] 03	[illegible] 03	0.373313[illegible] 03	[illegible]	[illegible]	0.022609	5	20.576
-0.5[illegible] 03	-0.98[illegible] 03	0.11[illegible] 04	239.348	39.891	0.068702	6	24.691
-0.351173[illegible] 03	-1.4874573 03	[illegible] 03	234.259	33.465	0.035929	7	28.807
0.12345[illegible] 04	-0.11308[illegible] 03	0.12[illegible] 04	[illegible]	44.371	0.077064	8	32.922
0.927753[illegible] 02	0.165522[illegible] 03	0.133751[illegible] 03	60.728	6.748	0.011340	9	37.037
0.1454[illegible] 03	-0.144[illegible] 03	0.2357[illegible] 03	315.392	31.538	0.012294	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 30 V= 122.5 KTS n= .99 g

BLADE FLAP AT STA 270

[illegible] SHIP 1007 T 435 CTR 336 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3177350 04							
[illegible] 03	0.4320221 03	0.1337[illegible] 04	24.159	24.159	1.000000	1	4.115
[illegible] 03	0.3915[illegible] 03	[illegible] 03	40.630	20.315	[illegible]	2	8.230
-0.5307[illegible] 03	-0.1607735 03	[illegible] 03	193.992	64.664	0.496016	3	12.346
[illegible] 03	0.1152539 03	[illegible] 03	19.755	4.414	0.531437	4	16.461
0.2213047 03	-0.2527622 03	[illegible] 03	310.538	62.108	0.522113	5	20.576
[illegible] 03	0.6403[illegible] 02	[illegible] 03	167.658	27.943	0.286083	6	24.691
0.3554790 03	-0.1822305 03	[illegible] 03	333.530	47.647	0.380771	7	28.807
[illegible] 03	0.7291[illegible] 02	[illegible] 03	5.951	0.744	0.065282	8	32.922
[illegible] 03	[illegible] 03	[illegible] 03	126.421	14.047	0.380062	9	37.037
[illegible] 03	0.3543750 03	[illegible] 03	63.946	6.395	0.414974	10	41.152

BLADE CHORD AT STA 103

HARMONIC ANALYSIS MODEL AH-56A SHIP 1007 T 435 CTR 336 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 06							
[illegible] 05	0.4517637 05	[illegible] 05	77.214	77.214	1.000000	1	4.115
[illegible] 04	0.5549[illegible] 04	[illegible] 04	69.150	34.075	0.118572	2	8.230
-0.359[illegible] 04	-0.5260891 04	[illegible] 04	235.646	78.549	0.126372	3	12.346
[illegible] 04	-0.1849[illegible] 03	[illegible] 04	355.996	88.999	[illegible]	4	16.461
0.1321370 04	[illegible] 03	[illegible] 04	321.707	64.341	0.025807	5	20.576
[illegible] 02	[illegible] 02	[illegible] 02	238.647	39.775	0.001074	6	24.691
[illegible] 03	0.4072742 02	[illegible] 03	6.313	0.959	0.007710	7	28.807
[illegible] 03	0.1150733 04	[illegible] 04	58.772	7.346	[illegible]	8	32.922
0.4113[illegible] 03	0.1093[illegible] 04	0.1175[illegible] 04	69.473	7.719	0.023265	9	37.037
-0.5707[illegible] 02	-0.4177195 03	[illegible] 03	262.219	26.222	0.008361	10	41.152

BLADE CHORD AT STA 235

[illegible] SHIP 1007 T 435 CTR 336 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2037[illegible] 03							
0.2151194 04	0.6058555 04	[illegible] 04	72.091	72.091	1.000000	1	4.115
[illegible] 03	0.1070914 04	[illegible] 04	69.450	34.925	0.163051	2	8.230
[illegible] 03	[illegible] 03	[illegible] 03	212.770	70.923	0.138817	3	12.346
[illegible] 03	-0.1949849[illegible] 03	[illegible] 03	347.004	86.751	0.123946	4	16.461
-0.1004[illegible] 03	-0.4737971 03	0.5021735 03	250.645	53.129	0.071786	5	20.576
[illegible] 03	-0.1835277 03	[illegible] 03	304.377	50.729	0.032653	6	24.691
-0.3401426 02	-0.3553027 03	[illegible] 03	264.430	37.777	0.051030	7	28.807
[illegible] 02	-0.2467017 03	[illegible] 03	283.008	35.376	0.042356	8	32.922
0.4544169 02	0.4807613 03	[illegible] 03	84.467	9.387	0.142002	9	37.037
-0.2354115 03	-0.1847[illegible] 03	[illegible] 03	213.121	21.312	0.042775	10	41.152

BLADE TORSION AT STA 131.5

[illegible] SHIP 1007 T 435 CTR 336 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 03							
0.2203[illegible] 04	0.1590096 04	0.2723[illegible] 04	35.920	35.920	1.000000	1	4.115
-0.1055[illegible] 04	[illegible] 03	[illegible] 04	138.107	69.054	0.522909	2	8.230
0.4994[illegible] 01	0.2550219 02	0.2751[illegible] 02	68.944	22.981	0.010225	3	12.346
-0.1374341 03	-0.9441562 01	[illegible] 03	183.916	45.979	0.050618	4	16.461
0.2460144 02	-0.5531212 02	[illegible] 02	333.099	66.620	0.028687	5	20.576
-0.6025271 03	-0.3330[illegible] 03	0.7[illegible] 03	206.748	34.458	0.272697	6	24.691
-0.2945[illegible] 03	-0.8256933 02	[illegible] 03	195.661	27.952	0.112424	7	28.807
[illegible] 03	-0.2554[illegible] 03	[illegible] 03	332.422	41.553	0.234556	8	32.922
0.1354335 03	0.7943213 02	0.1533[illegible] 03	29.758	3.306	0.058623	9	37.037
0.1193[illegible] 03	0.5365136 02	[illegible] 03	24.194	2.419	0.048099	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 30 V= 122.5 KTS n= .99 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL 3H-56[illegible] SHIP 1304 T 405 CTR 336 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5323[illegible] 05							
0.3342[illegible] 05	0.1000637 06	[illegible] 05	71.527	71.527	1.000000	1	4.115
[illegible] 04	0.5594457 04	[illegible] 04	75.126	37.563	0.094096	2	8.23C
-0.3313[illegible] 04	-0.8101465 04	0.1752413 04	247.755	82.585	0.062900	3	12.346
-0.9562261 03	0.1103545 04	0.1400403 04	131.204	32.801	0.013903	4	16.461
[illegible] 03	0.1110333 04	0.1449272 04	127.302	25.460	0.013699	5	20.576
-0.7511094 03	-0.6277500 03	0.1102469 04	227.700	39.294	0.011022	6	24.691
-0.1726[illegible] 04	0.9274192 03	0.17[illegible] 04	151.759	21.680	0.010578	7	28.807
0.19[illegible] 03	-0.1009411 03	0.25[illegible] 03	320.039	40.005	0.002375	8	32.922
-0.3145[illegible] 02	-0.2000014 04	0.2303253 04	269.128	29.903	0.019604	9	37.037
-0.3323750 03	-0.3174607 03	0.4[illegible] 03	223.667	22.369	0.004357	10	41.152

BLADE FLAP AT STA 130.5

HARMONIC ANALYSIS MODEL 3H-56[illegible] SHIP 1304 T 405 CTR 336 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
0.4320[illegible] 04	-0.2470757 04	0.4951189 04	323.405	323.405	1.000000	1	4.115
-0.1073[illegible] 04	0.2359030 04	0.2592731 04	125.342	62.671	0.580496	2	8.23C
0.5254[illegible] 03	0.9330495 03	0.10[illegible] 04	60.536	20.179	0.214361	3	12.346
0.7970[illegible] 03	-0.1031705 03	0.8047332 03	352.490	88.122	0.161490	4	16.461
0.1314[illegible] 03	-0.1099983 01	0.25[illegible] 03	313.402	63.080	0.051385	5	20.576
0.4751[illegible] 03	0.2441761 03	0.5342[illegible] 03	27.196	4.533	0.107211	6	24.691
0.1473[illegible] 03	-0.7881[illegible] 01	0.1473922 03	359.110	51.302	0.037605	7	28.807
0.3280757 03	0.4157044 03	0.52[illegible] 03	51.723	6.465	0.106281	8	32.922
-0.1547[illegible] 02	0.1605578 03	0.1507217 03	94.913	10.546	0.030[illegible]	9	37.037
0.6[illegible] 02	0.117011[illegible] 03	0.1333[illegible] 03	61.518	6.152	0.026352	10	41.152

BLADE FLAP AT STA 205

HARMONIC ANALYSIS MODEL 3H-56[illegible] SHIP 1304 T 405 CTR 336 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.72[illegible] 04							
-0.2174[illegible] 04	0.3049319 04	[illegible] 04	120.000	120.000	1.000000	1	4.115
0.2135[illegible] 04	-0.1100113 04	0.2477123 04	333.917	165.958	0.564301	2	8.23C
-0.[illegible] 03	-0.7600604 03	0.1167741 04	220.908	73.636	0.275929	3	12.346
0.7257[illegible] 03	0.531[illegible] 01	0.72[illegible] 03	0.420	0.105	0.171191	4	16.461
0.11[illegible] 03	-0.572[illegible] 02	0.1[illegible] 03	342.954	68.591	0.040097	5	20.576
0.37[illegible] 03	0.1792273 03	0.4142[illegible] 03	25.309	4.218	0.094892	6	24.691
0.[illegible] 03	0.1011556 03	0.2[illegible] 03	20.[illegible]	2.938	0.067933	7	28.807
-0.1164071 03	0.2472535 03	0.31[illegible] 03	111.336	13.923	0.075301	8	32.922
-0.1761529 03	0.3862133 02	0.1[illegible] 03	167.634	18.626	0.042538	9	37.037
0.5[illegible] 01	0.[illegible] 02	0.[illegible] 02	82.[illegible]	3.29[illegible]	0.013[illegible]	10	41.152

BLADE FLAP AT STA 235

HARMONIC ANALYSIS MODEL 3H-56[illegible] SHIP 1304 T 405 CTR 336 FLT 500.0 TR [illegible]

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.72[illegible] 03							
-0.244142[illegible] 03	0.1523301 04	0.17[illegible] 04	98.709	98.707	1.000000	1	4.115
0.10[illegible] 04	-0.1157[illegible] 03	0.1075[illegible] 04	355.901	177.950	0.862323	2	8.23C
-0.[illegible] 03	-0.4429649 03	0.[illegible] 03	208.091	69.364	0.464232	3	12.346
0.1067196 04	0.7222055 02	0.1050[illegible] 04	3.871	0.968	0.550593	4	16.461
0.31[illegible] 03	-0.1297131 03	0.36[illegible] 03	324.077	65.815	0.190030	5	20.576
0.16[illegible] 03	0.2721536 02	0.16[illegible] 03	9.316	1.553	0.086537	6	24.691
0.2251[illegible] 03	-0.1716702 03	0.2312[illegible] 03	322.044	46.092	0.149804	7	28.807
0.6335159 03	0.4433057 03	0.[illegible] 03	32.767	4.096	0.421673	8	32.922
0.2514737 02	0.1543093 03	0.1451542 03	81.927	9.103	0.095825	9	37.037
0.3001503 02	0.5977945 02	0.66[illegible] 02	63.336	6.334	0.034433	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 31 V= 123 KTS n= 1.11 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 01							
0.4304331 01	-0.3472334 01	0.5533325 01	321.106	321.106	1.000000	1	4.098
-0.1025271 00	-0.7622344 -01	[illegible] 00	205.700	102.850	0.032617	2	8.197
-0.3674622 -01	0.4747929 -01	[illegible] -01	127.443	42.481	0.010927	3	12.295
[illegible] -01	-0.1215497 -02	[illegible] -01	358.990	89.725	0.011434	4	16.393
0.2567[illegible] -01	-0.2432[illegible] -02	0.257[illegible] -01	354.589	70.918	0.004664	5	20.492
-0.1173[illegible] -01	0.1887719 -02	[illegible] -01	176.861	29.477	0.002149	6	24.590
-0.2535184 -02	[illegible] -03	[illegible] -02	182.451	26.06[illegible]	0.000459	7	28.689
[illegible] -02	-0.2155553 -01	[illegible] -01	247.340	33.917	0.004224	8	32.787
0.1165746 -02	[illegible] -02	[illegible] -02	283.105	31.456	0.000746	9	36.885
-0.6587755 -02	-0.3845152 -02	0.7627[illegible] -02	210.271	21.027	0.001379	10	40.984

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7603373 04							
-0.1334027 04	0.7653331 05	[illegible] 05	90.668	[illegible]	1.000000	1	4.098
-0.2303544 04	-0.7434744 03	0.2474102 04	197.482	98.741	0.034593	2	8.197
-0.1352258 05	-0.2004230 05	[illegible] 05	215.913	[illegible]	0.338276	3	12.295
[illegible] 03	0.1055792 04	[illegible] 04	55.028	13.757	0.019010	4	16.393
[illegible] 04	0.1004247 04	[illegible] 04	153.332	30.666	0.031276	5	20.492
-0.8471[illegible] 03	-0.5816006 03	[illegible] 04	213.249	35.542	0.014827	6	24.590
[illegible] 04	[illegible] 04	[illegible] 04	247.693	35.385	0.044458	7	28.685
[illegible] 02	0.3027759 03	[illegible] 03	99.440	12.305	0.004363	8	32.787
0.1027095 04	-0.1022801 04	[illegible] 04	315.120	35.013	0.020261	9	36.885
[illegible] 04	[illegible] 03	[illegible] 04	24.343	2.434	0.024258	10	40.984

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 03							
[illegible] 03	-0.9600409 02	[illegible] 03	210.067	210.067	1.000000	1	4.098
0.1513740 03	-0.1150840 03	0.1701174 03	322.612	161.306	0.994026	2	8.197
-0.6152771 02	-0.1279335 03	[illegible] 03	244.315	81.438	0.740670	3	12.295
[illegible] 01	-0.4610359 02	[illegible] 02	272.791	68.198	0.240830	4	16.393
-0.3513414 02	-0.2330333 02	[illegible] 02	212.876	42.577	0.224503	5	20.492
0.2712167 02	0.1281719 01	[illegible] 02	2.706	0.451	0.141665	6	24.590
0.2275901 02	0.8720760 00	[illegible] 02	2.191	0.313	0.115992	7	28.689
[illegible] 01	0.1067951 01	[illegible] 01	163.097	20.387	0.019164	8	32.787
-0.1103574 02	0.1497539 01	0.1113631 02	172.272	19.141	0.058107	9	36.885
[illegible] 01	[illegible] 02	[illegible] 02	117.237	11.724	[illegible]	10	40.984

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TP 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
[illegible] 04	0.1551429 05	[illegible] 05	72.308	72.308	1.000000	1	4.098
[illegible] 04	-0.8083202 04	[illegible] 04	296.504	148.252	0.555630	2	8.197
[illegible] 04	-0.3275838 04	[illegible] 04	233.433	77.810	0.250755	3	12.295
[illegible] 04	-0.1117964 04	0.2152332 04	211.293	52.823	0.132317	4	16.393
[illegible] 03	0.3636130 03	[illegible] 03	152.003	30.401	0.047650	5	20.492
[illegible] 03	-0.7659551 03	[illegible] 03	256.465	42.744	0.047698	6	24.590
[illegible] 03	-0.3505859 03	[illegible] 03	289.333	41.333	0.022841	7	28.689
[illegible] 04	[illegible] 03	[illegible] 04	341.162	[illegible]	0.067642	8	32.787
[illegible] 03	0.2957038 03	[illegible] 03	63.035	[illegible]	0.020859	9	36.885
[illegible] 03	-0.1020900 03	[illegible] 03	335.728	33.573	0.015269	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 31 V= 123 KTS n= 1.11 g

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP [illegible] T 405 CTR 345 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
[illegible] 05	0.4342329E 03	[illegible] 06	65.736	65.736	1.000000	1	4.098
[illegible] 04	0.4758013E 04	[illegible] 05	68.216	34.108	0.102546	2	8.197
[illegible] 04	-0.4176172E 04	[illegible] 05	241.580	83.527	0.101838	3	12.295
[illegible] 04	[illegible] 04	[illegible] 04	216.175	54.044	0.025598	4	16.393
[illegible] 04	-0.1359535E 04	[illegible] 04	213.033	42.607	0.024338	5	20.492
[illegible] 04	[illegible] 03	[illegible] 04	208.795	34.799	0.015051	6	24.590
[illegible] 04	0.1208806E 04	[illegible] 04	142.785	20.398	0.017504	7	28.689
[illegible] 04	[illegible] 03	0.2141162E 04	[illegible]	44.125	0.021285	8	32.787
[illegible] 03	-0.2194207E 04	[illegible] 04	293.483	32.609	0.023340	9	36.885
[illegible] 02	[illegible] 02	[illegible] 02	13.126	1.313	0.000920	10	40.984

BLADE FLAP AT STA 130.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1004 T 405 CTR 345 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 05							
[illegible] 04	-0.2961473E 04	[illegible] 04	324.190	324.190	1.000000	1	4.098
[illegible] 04	0.2410113E 04	[illegible] 04	129.565	64.782	0.617673	2	8.197
[illegible] 03	0.1063406E 04	[illegible] 04	57.242	19.081	0.249828	3	12.295
0.3117925E 03	[illegible] 02	[illegible] 03	2.521	0.630	0.163541	4	16.393
[illegible] 03	-0.1862831E 03	[illegible] 03	318.915	63.783	0.056005	5	20.492
[illegible] 03	0.1724329E 03	[illegible] 03	26.372	4.395	0.076704	6	24.590
[illegible] 03	[illegible] 02	0.1671107E 03	345.074	49.296	0.033014	7	28.689
[illegible] 03	[illegible] 03	[illegible] 03	65.066	8.133	0.083631	8	32.787
[illegible] 03	0.6151743E 02	[illegible] 03	143.431	15.937	0.027032	9	36.885
[illegible] 02	[illegible] 02	[illegible] 03	33.092	3.309	0.020155	10	40.984

BLADE FLAP AT STA 205

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 345 FLT 500.0 TP 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
-0.2513577E 04	0.3801045E 04	[illegible] 04	123.304	123.304	1.000000	1	4.098
0.2457015E 04	-0.1266477E 04	[illegible] 04	332.766	166.383	0.599702	2	8.197
[illegible] 04	[illegible] 03	[illegible] 04	210.126	70.043	0.262326	3	12.295
[illegible] 03	0.3260413E 03	[illegible] 03	29.307	7.077	0.149236	4	16.393
0.3361037E 03	[illegible] 02	[illegible] 03	347.254	69.451	0.074951	5	20.492
[illegible] 03	0.2710037E 03	[illegible] 03	49.676	8.113	0.076327	6	24.590
[illegible] 03	0.1654072E 01	[illegible] 03	0.444	0.063	0.051953	7	28.689
[illegible] 03	[illegible] 03	[illegible] 03	132.003	16.500	0.039065	8	32.787
[illegible] 02	-0.4313628E 02	[illegible] 02	232.464	25.829	0.011607	9	36.885
0.5742757E 02	0.5852907E 02	[illegible] 02	45.544	4.554	0.017798	10	40.984

BLADE FLAP AT STA 235

HARMONIC ANALYSIS MODEL AH-56A SHIP 1004 T 405 CTR 345 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1049527E 03							
[illegible] 03	[illegible] 04	[illegible] 04	101.321	101.321	1.000000	1	4.098
0.1715121E 04	-0.1814738E 03	[illegible] 04	353.970	176.985	0.675737	2	8.197
-0.6640410E 03	[illegible] 03	[illegible] 03	213.436	71.145	0.311231	3	12.295
0.9330776E 03	0.5271331E 03	[illegible] 04	30.272	7.568	0.408985	4	16.393
[illegible] 03	-0.1785206E 03	[illegible] 03	323.557	65.711	0.133653	5	20.492
0.2797605E 03	[illegible] 02	[illegible] 03	12.885	2.147	0.112226	6	24.590
0.3230732E 03	-0.1470470E 03	[illegible] 03	328.620	46.946	0.148010	7	28.689
0.5715826E 03	0.4943694E 03	[illegible] 03	43.511	5.064	0.294049	8	32.787
0.2052579E 03	[illegible] 02	[illegible] 03	11.950	1.328	0.082076	9	36.885
-0.1317575E 03	[illegible] 02	[illegible] 03	232.717	[illegible]	0.043189	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 31 V= 123 KTS n= 1.11 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
[illegible] 04							
0.1102920E 04	0.4005942E 03	0.1133337E 04	20.001	20.001	1.000000	1	4.098
0.0593570E 03	0.1184110E 03	0.6747413E 03	13.031	5.316	0.598755	2	8.197
-0.1253824E 03	-0.4150740E 03	0.4343333E 03	253.222	84.407	0.382586	3	12.295
0.9303770E 03	0.4038041E 02	0.9372371E 03	2.469	0.617	0.825532	4	16.393
0.3335590E 03	0.1571390E 02	0.3341333E 03	3.527	0.705	0.267461	5	20.492
0.5613530E 01	0.3315455E 02	0.3336334E 02	80.138	14.356	0.073409	6	24.590
0.1734450E 03	-0.2555510E 03	0.3123270E 03	304.739	43.387	0.275273	7	28.689
0.7253400E 03	0.3541411E 03	0.8076205E 03	26.008	3.251	0.711354	8	32.787
0.1553170E 03	0.2065550E 03	0.2643777E 03	51.382	5.709	0.233303	9	36.885
0.6105407E 02	-0.6913950E 02	[illegible] 03	309.084	30.904	[illegible]	10	40.984

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2377144E [illegible]							
[illegible] 05	0.4634118E 05	0.4837713E 05	71.115	71.115	1.000000	1	4.098
0.3340627E 04	0.5033105E 04	[illegible] 04	56.022	28.011	0.123848	2	8.197
-0.3906117E 04	-0.6515803E 04	0.7596118E 04	239.056	79.686	0.155109	3	12.295
0.2737155E 04	-0.4150445E 03	0.3316333E 04	352.056	88.014	0.061560	4	16.393
-0.5311757E 03	-0.4541912E 03	0.9472701E 03	151.335	30.267	0.019341	5	20.492
-0.4197073E 03	-0.4609349E 03	0.6274337E 03	223.049	38.303	0.012819	6	24.590
0.9753725E 03	-0.7301570E 03	0.1230371E 04	324.124	46.303	0.024602	7	28.689
0.9124045E 02	0.3656213E 03	0.3762833E 03	76.096	9.596	0.008091	8	32.787
-0.4434942E 03	0.6107754E 03	0.7533334E 03	126.494	14.277	0.016090	9	36.885
-0.1425243E 03	-0.3024037E 03	0.3343113E 03	244.700	24.477	0.006826	10	40.934

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1003 T 405 CTR 345 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2541562E 03							
0.2410007E 04	0.6457648E 04	0.6892377E 04	69.534	69.534	1.000000	1	4.098
0.6730219E 03	0.1074514E 04	0.1273013E 04	57.179	28.590	0.185503	2	8.197
-0.8379561E 03	-0.7616935E 03	0.1110372E 04	223.312	74.437	0.161097	3	12.295
0.7427676E 03	-0.2706817E 03	0.7905344E 03	339.977	84.994	0.114694	4	16.393
0.3767759E 01	-0.9150042E 02	0.9163733E 02	272.356	54.471	0.013295	5	20.492
-0.2034521E 02	0.1711127E 02	0.2658425E 02	139.935	23.322	0.003857	6	24.590
-0.5712644E 02	-0.2249339E 03	0.2319202E 03	255.852	36.976	0.042787	7	28.695
-0.4402365E 03	0.2776339E 02	0.4411133E 03	176.391	22.049	0.063997	8	32.787
-0.3571542E 03	0.9633631E 03	0.1049703E 04	110.476	12.275	0.152292	9	36.885
-0.1977277E 03	-0.4540597E 02	[illegible] 03	192.933	19.293	0.029433	10	40.984

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 345 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4891687E [illegible]							
0.2041222E 04	0.1671700E 04	0.2677278E 04	39.639	39.639	1.000000	1	4.098
-0.1191718E 04	0.7838367E 03	0.1393145E 04	145.762	72.881	0.520359	2	8.197
0.6857258E 02	0.1243960E 03	0.1546291E 03	63.599	21.170	0.057756	3	12.295
-0.3399404E 03	-0.6452450E 02	0.3459866E 03	189.639	47.410	0.143045	4	16.393
-0.6517314E 02	0.6144413E 02	0.8077629E 02	136.625	25.725	0.030424	5	20.492
-0.5592145E 03	-0.4276121E 03	0.7291617E 03	216.090	36.015	0.272354	6	24.590
-0.1765911E 02	-0.2314552E 03	0.2321708E 03	265.628	37.947	0.086719	7	28.689
0.8340454E 03	0.1075261E 03	0.8409563E 03	7.355	0.919	0.313735	8	32.787
0.9205987E 02	0.8527051E 02	0.1262453E 03	42.807	4.721	0.047155	9	36.885
0.7235137E 02	0.5609180E 02	0.9157338E 02	37.765	3.777	0.034204	10	40.984

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 32 V= 123 KTS n= 1.24 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7100453E 01							
0.4715574E 01	-0.3014045E 01	0.5594524E 01	327.415	327.415	1.000000	1	4.115
-0.7227124E-01	-0.1013274E 00	0.1244603E 00	234.502	117.251	0.022239	2	8.230
-0.5783382E-01	0.1017034E-01	0.5872127E-01	170.026	56.675	0.010492	3	12.346
0.7506514E-01	0.1082404E-01	0.7584161E-01	8.206	2.051	0.013552	4	16.461
-0.2319330E-01	-0.1678960E-01	0.2863255E-01	215.901	43.180	0.005116	5	20.576
-0.3053269E-01	0.5330802E-03	0.3053735E-01	178.999	29.833	0.005456	6	24.691
0.1677250E-01	-0.8475740E-02	0.1879247E-01	333.191	47.599	0.003358	7	28.807
-0.2432805F-01	-0.2358296E-01	0.3416191E-01	224.591	28.074	0.006104	8	32.922
-0.1491703E-01	-0.6133906E-02	0.1612393E-01	202.353	22.484	0.002882	9	37.037
-0.3239486E-02	-0.6350348E-02	0.7128943E-02	242.973	24.297	0.001274	10	41.152

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR [illegible]6

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4056871E 04							
-0.1024582F 05	0.7233081F 05	0.7413363E 05	102.662	102.662	1.000000	1	4.115
-0.1583140E 04	-0.2572880E 04	0.3020422E 04	238.395	119.198	0.040750	2	8.230
-0.1554571F 05	-0.2310291E 05	0.2784629E 05	236.064	78.688	0.375622	3	12.346
0.1052592F 03	0.5743379E 03	0.5838036E 03	79.615	19.904	0.007876	4	16.461
-0.4016011F 04	-0.1096543E 04	0.4163023E 04	195.272	39.054	0.056156	5	20.576
0.8213401E 03	0.2134692E 03	0.8486276E 03	14.569	2.428	0.011447	6	24.691
-0.1521882E 04	-0.5275605E 04	0.5490676E 04	253.910	36.273	0.074065	7	28.807
0.2100616F 03	-0.7255173E 03	0.7573001E 03	286.584	35.823	0.010211	8	32.922
0.1644304F 04	-0.1171385E 04	0.2018940E 04	324.534	36.059	0.027233	9	37.037
-0.2038523F 03	0.5711605E 03	0.6064678E 03	109.645	10.965	0.008181	10	41.152

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3627354F 03							
-0.1595245E 03	-0.1616008E 03	0.2270781E 03	225.371	225.371	1.000000	1	4.115
0.1225640E 03	-0.1134407E 03	0.1670395E 03	317.201	158.601	0.735601	2	8.230
-0.9526871F 02	-0.1245453E 03	0.1568045E 03	232.586	77.529	0.690529	3	12.346
-0.1626302F 02	-0.4622900E 02	0.4900613E 02	250.618	62.655	0.215811	4	16.461
-0.2702694E 02	-0.4340724E 02	0.5113451E 02	238.090	47.618	0.225184	5	20.576
0.4510161F 02	-0.1563085E 02	0.4773533E 02	340.878	56.813	0.210215	6	24.691
0.2075656E 02	-0.1217751E 02	0.2406533E 02	329.601	47.086	0.105977	7	28.807
0.1055649F 02	0.6562354F 01	0.1244477E 02	31.955	3.994	0.054804	8	32.922
-0.1437592E 02	0.1736400E 01	0.1448041E 02	173.113	19.235	0.063768	9	37.037
0.5850131E 01	0.5857322E 01	0.8306770E 01	45.230	4.523	0.036581	10	41.152

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2069769E 05							
0.2718371E 04	0.1580006E 05	0.1603280E 05	80.238	80.238	1.000000	1	4.115
0.3911160E 04	-0.8244617F 04	0.9125283E 04	295.379	147.690	0.569164	2	8.230
-0.3340082E 04	-0.3265909F 04	0.4671434E 04	224.357	74.786	0.291367	3	12.346
-0.2036710F 04	-0.1646744E 04	0.2623409E 04	218.991	54.748	0.163441	4	16.461
-0.1062655F 04	0.2530864F 02	0.1062956E 04	178.636	35.727	0.066299	5	20.576
-0.3068542E 02	-0.9746049E 03	0.9749537E 03	268.183	44.697	0.060805	6	24.691
0.2020020E 03	-0.5146982F 03	0.5529187E 03	291.428	41.633	0.034487	7	28.807
0.1534805E 04	-0.1117796F 03	0.1538860E 04	355.834	44.479	0.095970	8	32.922
0.2465437F 03	0.1440375E 03	0.2855330E 03	30.295	3.366	0.017809	9	37.037
0.2374377E 03	-0.1767165E 02	0.2380944E 03	355.743	35.574	0.014850	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 32 V= 123 KTS n= 1.24 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4921491E 05							
0.5821559E 05	0.8574706E 05	0.1036440E 06	55.825	55.825	1.000000	1	4.115
0.2814419E 04	0.1045693E 05	0.1082905E 05	74.936	37.468	0.104483	2	8.230
-0.4335604E 04	-0.1074136E 05	0.1158336E 05	248.019	82.673	0.111761	3	12.346
0.1687191E 04	0.1485066E 03	0.1693714E 04	5.030	1.258	0.016342	4	16.461
-0.2449850E 04	-0.5265906E 03	0.2505803E 04	192.131	38.426	0.024177	5	20.576
-0.1336016E 04	-0.5815163E 03	0.1449217E 04	202.796	33.799	0.013983	6	24.691
-0.1518735E 04	0.9672361E 03	0.1800583E 04	147.508	21.073	0.017373	7	28.807
0.1625754E 04	-0.6511436E 03	0.1751303E 04	338.173	42.272	0.016897	8	32.922
0.3660322E 03	-0.2705188E 04	0.2733803E 04	277.694	30.855	0.026377	9	37.037
-0.5376558E 02	0.1067135E 03	0.1194945E 03	116.742	11.674	0.001153	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1164130E 05							
0.4545004E 04	-0.3007631E 04	0.5450035E 04	326.506	326.506	1.000000	1	4.115
-0.1751254E 04	0.2265104E 04	0.2863143E 04	127.709	63.855	0.525344	2	8.230
0.9235547E 03	0.1190308E 04	0.1506581E 04	52.192	17.397	0.276435	3	12.346
0.8517898E 03	0.1794792E 03	0.8704934E 03	11.899	2.975	0.159723	4	16.461
0.4408587E 03	-0.3317566E 03	0.5517734E 03	323.040	64.608	0.101242	5	20.576
0.6291201E 03	0.1569914E 03	0.6484121E 03	14.012	2.335	0.118974	6	24.691
0.1950736E 03	0.5869585E 02	0.2037122E 03	16.746	2.392	0.037378	7	28.807
0.2476559E 03	0.4658652E 03	0.5276208E 03	62.001	7.750	0.096810	8	32.922
0.6283679E 02	-0.2551703E 01	0.6288853E 02	357.675	39.742	0.011539	9	37.037
0.7049370E 02	-0.2309184E 02	0.7417944E 02	341.863	34.186	0.013611	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6233336E 04							
-0.2391421E 04	0.4423406E 04	0.5028457E 04	118.397	118.397	1.000000	1	4.115
0.2377157E 04	-0.1030837E 04	0.2591042E 04	336.556	168.278	0.515276	2	8.230
-0.7545186E 03	-0.6847034E 03	0.1018880E 04	222.223	74.074	0.202623	3	12.346
0.9024678E 03	0.2558557E 03	0.9380164E 03	15.820	3.955	0.186541	4	16.461
0.5552270E 03	-0.1565509E 03	0.5774221E 03	344.063	68.813	0.114831	5	20.576
0.4252246E 03	0.2126565E 03	0.4754712E 03	26.566	4.428	0.094556	6	24.691
0.1926094E 03	0.1477838E 03	0.2427724E 03	37.498	5.357	0.048280	7	28.807
-0.1596015E 03	0.8321667E 02	0.1799935E 03	152.462	19.058	0.035795	8	32.922
-0.1417566E 03	-0.2431467E 01	0.1417737E 03	180.983	20.109	0.028195	9	37.037
0.1006626E 03	-0.6684229E 02	0.1329456E 03	319.215	31.922	0.026439	10	41.152

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5569812E 03							
-0.2077615E 03	0.3084639E 04	0.3091220E 04	94.953	94.953	1.000000	1	4.115
0.1686458E 04	-0.2373229E 03	0.1703074E 04	351.990	175.995	0.549163	2	8.230
-0.4751479E 03	-0.5721418E 03	0.7437148E 03	230.291	76.764	0.234014	3	12.346
0.1152230E 04	0.3133664E 03	0.1194093E 04	15.214	3.804	0.385036	4	16.461
0.3319524E 03	-0.3203028E 03	0.4402361E 03	313.305	62.661	0.141956	5	20.576
0.4614550E 03	0.7586584E 02	0.4680415E 03	9.421	1.570	0.157371	6	24.691
0.4368599E 03	-0.3352974E 03	0.5531448E 03	322.164	46.023	0.178364	7	28.807
0.7610620E 03	0.5720643E 03	0.9681536E 03	36.220	4.527	0.312165	8	32.922
0.2762087E 03	-0.2886690E 02	0.2777053E 03	354.046	39.338	0.089548	9	37.037
-0.1235986E 03	-0.1681647E 03	0.2087003E 03	233.685	23.368	0.067296	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 32 V= 123 KTS n= 1.24 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 26
OVERALL CYCLIC LOAD = 0.371338E 04

ZERO POSITION USED 8.18 LOAD/IN USED 17863.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2096474E 04							
0.1106696E 04	0.1020181E 04	0.1504349E 04	42.833	42.833	1.000000	1	4.115
0.4833265E 03	0.5023489E 03	0.6971343E 03	46.103	23.052	0.461864	2	8.230
-0.6704023E 03	-0.3046005E 03	0.7363591E 03	204.435	68.145	0.487851	3	12.346
0.6461189E 03	0.3921138E 03	0.7557927E 03	31.253	7.813	0.500726	4	16.461
0.1751566E 02	-0.9363043E 02	0.9466448E 02	280.665	56.133	0.062717	5	20.576
-0.3473550E 03	-0.2635144E 02	0.4006085E 03	192.259	32.043	0.269425	6	24.691
0.1824074E 03	-0.2702283E 03	0.3263103E 03	304.093	43.442	0.216186	7	28.807
0.9457559E 03	0.3255492E 03	0.1001659E 04	19.233	2.404	0.663617	8	32.922
0.2981516E 03	0.1265500E 03	0.3238970E 03	22.999	2.555	0.214568	9	37.037
-0.5138530E 02	-0.4745363E 02	0.6994507E 02	222.722	22.272	0.046340	10	41.152

BLADE CHORD AT STA 183
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 17
OVERALL CYCLIC LOAD = 0.621913E 05

ZERO POSITION USED 7.44 LOAD/IN USED -237209.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2013374E 06							
0.2142578E 05	0.4687919E 05	0.5154507E 05	65.433	65.433	1.000000	1	4.115
0.3887494E 04	0.5101371E 04	0.6414023E 04	52.688	26.344	0.124435	2	8.230
-0.4925406E 04	-0.8582109E 04	0.1024392E 05	241.261	80.420	0.198737	3	12.346
0.3562480E 04	0.2311432E 03	0.3569924E 04	3.692	0.923	0.069646	4	16.461
0.8792402E 03	-0.8340277E 02	0.8831870E 03	354.581	70.916	0.017134	5	20.576
-0.9108602E 03	-0.3050067E 03	0.9619728E 03	198.743	33.124	0.018661	6	24.691
-0.1122309E 03	-0.5140615E 03	0.5261702E 03	257.684	36.812	0.010208	7	28.807
0.2682595E 03	-0.2132717E 03	0.3427008E 03	321.514	40.189	0.006649	8	32.922
-0.7618925E 03	0.1132789E 04	0.1319258E 04	120.834	13.426	0.025594	9	37.037
-0.6488740E 03	0.2764903E 03	0.7032970E 03	157.370	15.737	0.013639	10	41.152

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 22
OVERALL CYCLIC LOAD = 0.110748E 05

ZERO POSITION USED 6.31 LOAD/IN USED -64988.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2752574E 05							
0.3480606E 04	0.6308004E 04	0.7204551E 04	61.111	61.111	1.000000	1	4.115
0.6479342E 03	0.1045365E 04	0.1229883E 04	58.208	29.104	0.170709	2	8.230
-0.1074706E 04	-0.1225000E 04	0.1629608E 04	228.739	76.246	0.226191	3	12.346
0.1049249E 04	-0.1326938E 03	0.1057606E 04	352.792	88.198	0.146797	4	16.461
-0.1360603E 03	-0.3106752E 03	0.3401287E 03	246.063	49.213	0.047210	5	20.576
-0.4470646E 02	0.8471980E 02	0.9674104E 02	118.868	19.811	0.013428	6	24.691
0.6462676E 01	-0.5235945E 03	0.5236343E 03	270.707	38.672	0.072681	7	28.807
-0.5552698E 03	-0.3150081E 03	0.6384247E 03	209.571	26.196	0.088615	8	32.922
-0.2937014E 03	0.1127721E 04	0.1165339E 04	104.598	11.622	0.161750	9	37.037
-0.2727524E 03	-0.4308420E 02	0.2761340E 03	188.976	18.898	0.038328	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 351 FLT 500.0 TR 44
OVERALL CYCLIC LOAD = 0.508516E 04

ZERO POSITION USED 1.49 LOAD/IN USED 12705.00

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1573257E 04							
0.1255473E 04	0.1080624E 04	0.1656430E 04	40.720	40.720	1.000000	1	4.115
-0.6000806E 03	0.6810475E 03	0.9081523E 03	131.359	65.679	0.548239	2	8.230
-0.3615547E 03	0.5244710E 02	0.3653784E 03	171.747	57.249	0.220574	3	12.346
-0.1806403E 02	-0.1731028E 03	0.1740428E 03	264.042	66.011	0.105067	4	16.461
-0.3708307E 03	-0.1659622E 02	0.3712078E 03	182.562	36.512	0.224093	5	20.576
-0.5255306E 03	-0.5865918E 03	0.7874402E 03	228.153	38.026	0.475367	6	24.691
0.3231040E 03	-0.4952361E 03	0.5913162E 03	303.121	43.303	0.356969	7	28.807
0.7392329E 03	0.1262533E 03	0.7499368E 03	9.692	1.212	0.452726	8	32.922
0.1055642E 03	0.2103600E 03	0.2353617E 03	63.351	7.039	0.142085	9	37.037
-0.3151431E 02	-0.2296216E 02	0.3899246E 02	216.078	21.608	0.023539	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 33 V= 123.5 KTS n= 1.4 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6768570E 01							
0.4505326E 01	-0.3208065E 01	0.5530789E 01	324.547	324.547	1.000000	1	4.132
-0.1564492E 00	-0.9293807E-01	0.1819721E 00	210.712	105.356	0.032902	2	8.264
-0.4810751E-01	0.8568094E-01	0.9843731E-01	119.256	39.752	0.017798	3	12.397
0.8702260E-01	-0.2962373E-01	0.9192637E-01	341.201	85.300	0.016621	4	16.529
0.1212795E-02	-0.1037862E-02	0.1596255E-02	319.444	63.889	0.000289	5	20.661
-0.7662110E-02	-0.2863150E-01	0.2963903E-01	255.018	42.503	0.005359	6	24.793
-0.1161174E-01	-0.1425234E-01	0.1851371E-01	230.349	32.907	0.003347	7	28.926
-0.1215835E-01	0.6222870E-03	0.1217743E-01	176.788	22.099	0.002202	8	33.058
-0.1110505E-01	-0.1064883E-01	0.1538573E-01	223.799	24.867	0.002782	9	37.190
-0.1007017E-01	-0.2520627E-02	0.1038085E-01	194.053	19.405	0.001877	10	41.322

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5459410E 04							
-0.2111100E 05	0.7228994E 05	0.7530938E 05	106.280	106.280	1.000000	1	4.132
-0.2916300E 04	-0.1592876E 04	0.3322959E 04	208.643	104.322	0.044124	2	8.264
-0.2987346E 05	-0.1356121E 05	0.3280749E 05	204.416	68.139	0.435636	3	12.397
0.1472282E 04	0.5058528E 03	0.1556768E 04	18.962	4.740	0.020672	4	16.529
-0.7633090E 04	0.1332642E 04	0.7748547E 04	170.097	34.019	0.102890	5	20.661
0.1871409E 03	-0.7221007E 02	0.2005892E 03	338.900	56.483	0.002664	6	24.793
-0.4872059E 04	-0.3920124E 04	0.6253346E 04	218.821	31.260	0.083035	7	28.926
0.8873093E 03	-0.8218381E 02	0.8911072E 03	354.708	44.339	0.011833	8	33.058
0.6929160E 03	-0.1461165E 04	0.1712414E 04	301.429	33.492	0.022738	9	37.190
0.9660777E 02	-0.8355592E 02	0.1294004E 03	319.781	31.978	0.001718	10	41.322

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5273107E 03							
-0.1053344E 03	-0.2256813E 03	0.2490530E 03	244.980	244.980	1.000000	1	4.132
0.1022580E 03	-0.9671082E 02	0.1407759E 03	316.608	158.304	0.565245	2	8.264
-0.1714133E 03	-0.8920784E 02	0.1944574E 03	201.986	67.329	0.742241	3	12.397
-0.3625455E 02	-0.3149196E 02	0.4802225E 02	220.979	55.245	0.192819	4	16.529
-0.2342023E 02	-0.1968201E 02	0.3057224E 02	220.043	44.009	0.122834	5	20.661
0.7266848E 02	-0.3323421E 02	0.7992573E 02	335.429	55.905	0.320919	6	24.793
0.5048830E 02	-0.2245634E 02	0.5525536E 02	336.020	48.003	0.221862	7	28.926
0.8790575E 01	0.1630943E 02	0.1852777E 02	61.675	7.709	0.074393	8	33.058
-0.2391150E 02	-0.1164278E 02	0.2659537E 02	205.962	22.885	0.106786	9	37.190
-0.6055674E 01	0.1064983E 02	0.1225113E 02	119.623	11.962	0.049191	10	41.322

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2978577E 05							
0.2187334E 03	0.1406400E 05	0.1406570E 05	89.109	89.109	1.000000	1	4.132
0.4004628E 04	-0.8010094E 04	0.8955102E 04	296.559	148.280	0.636662	2	8.264
-0.5803616E 04	-0.1285083E 04	0.5944316E 04	192.491	64.164	0.422625	3	12.397
-0.3142508E 04	-0.8814170E 03	0.3258820E 04	195.327	48.832	0.231686	4	16.529
-0.1476837E 04	0.5838796E 03	0.1587355E 04	158.425	31.685	0.112888	5	20.661
-0.4003711E 03	-0.1263264E 04	0.1346602E 04	249.737	41.623	0.095737	6	24.793
0.2541573E 03	-0.1211452E 04	0.1237833E 04	281.850	40.264	0.088004	7	28.926
0.2032922E 04	-0.9557330E 01	0.2032944E 04	359.729	44.966	0.144532	8	33.058
0.3402695E 03	-0.1510635E 03	0.3725388E 03	335.977	37.331	0.026486	9	37.190
0.3298479E 03	-0.2292403E 03	0.4016848E 03	325.201	32.520	0.028558	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 33 V= 123.5 KTS n= 1.4 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.41210643E 05							
0.76517063E 05	0.82317008E 05	0.11238798E 06	47.091	47.091	1.000000	1	4.132
0.47747277E 04	0.84011646E 04	0.97154148E 04	60.563	30.282	0.086445	2	8.264
-0.44781451E 04	-0.11380198E 05	0.12229557E 05	248.520	82.840	0.108816	3	12.397
0.32122603E 03	0.64713356E 03	0.72243888E 03	63.598	15.900	0.006429	4	16.529
-0.34952551E 04	0.11201046E 04	0.36703406E 04	162.231	32.446	0.032658	5	20.661
-0.21939041E 04	-0.42545928E 03	0.22347778E 04	190.975	31.829	0.019885	6	24.793
-0.15188356E 04	0.14281498E 04	0.20847008E 04	136.758	19.537	0.018549	7	28.926
0.12274378E 04	-0.20464068E 03	0.12443785E 04	350.534	43.817	0.011072	8	33.058
0.52061508E 03	-0.31415058E 04	0.31843348E 04	279.410	31.046	0.028334	9	37.190
0.14774358E 03	-0.10517158E 04	0.10620428E 04	277.996	27.800	0.009450	10	41.322

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.13349238E 05							
0.47385316E 04	-0.33745828E 04	0.58173403E 04	324.543	324.543	1.000000	1	4.132
-0.19373049E 04	0.23344498E 04	0.30336052E 04	129.688	64.844	0.521484	2	8.264
0.14910594E 04	0.87739368E 03	0.17300515E 04	30.474	10.158	0.297395	3	12.397
0.13044598E 04	0.18362088E 01	0.13044603E 04	0.081	0.020	0.224236	4	16.529
0.66381818E 03	-0.55580498E 03	0.86577916E 03	320.061	64.012	0.148827	5	20.661
0.82778308E 03	0.65517908E 02	0.83037188E 03	4.525	0.754	0.142741	6	24.793
0.63485748E 03	-0.81510098E 02	0.64006808E 03	352.684	50.383	0.110026	7	28.926
0.58006278E 03	0.42604748E 03	0.71971463E 03	36.297	4.537	0.123719	8	33.058
-0.11761168E 02	0.42694608E 02	0.44284518E 02	105.401	11.711	0.007613	9	37.190
0.11322488E 03	0.14509118E 02	0.11417033E 03	7.300	0.730	0.019629	10	41.322

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.66631258E 04							
-0.20807188E 04	0.47581608E 04	0.54013468E 04	119.397	119.397	1.000000	1	4.132
0.26697848E 04	-0.12726798E 04	0.29576138E 04	334.513	167.256	0.541553	2	8.264
-0.62658768E 03	-0.73231378E 03	0.96379228E 03	229.449	76.483	0.176475	3	12.397
0.13733658E 04	0.25794028E 03	0.13973788E 04	10.637	2.659	0.255867	4	16.529
0.86178478E 03	-0.39321178E 03	0.94725298E 03	335.474	67.095	0.173447	5	20.661
0.64306557E 03	0.15330918E 03	0.66111678E 03	13.409	2.235	0.121054	6	24.793
0.15328088E 03	0.20914128E 03	0.25929718E 03	53.762	7.680	0.047475	7	28.926
-0.16989798E 03	0.32177058E 03	0.36387043E 03	117.835	14.729	0.066626	8	33.058
-0.15435658E 03	-0.54322378E 01	0.15445408E 03	181.272	20.141	0.028307	9	37.190
0.14574408E 03	0.72602928E 02	0.16945105E 03	21.365	2.137	0.036520	10	41.322

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.14647428E 04							
-0.51990148E 03	0.34104808E 04	0.34498808E 04	98.668	98.668	1.000000	1	4.132
0.18969808E 04	-0.46167458E 03	0.19533601E 04	345.983	172.992	0.551805	2	8.264
-0.93386270E 01	-0.61508200E 03	0.61515238E 03	269.130	89.710	0.178311	3	12.397
0.13909725E 04	0.15084128E 03	0.13991863E 04	6.433	1.608	0.405749	4	16.529
0.70670318E 03	-0.44668758E 03	0.83772403E 03	327.777	65.555	0.242828	5	20.661
0.80470348E 03	-0.31646968E 03	0.86251808E 03	338.902	56.484	0.250014	6	24.793
0.79665878E 03	-0.52341708E 03	0.95325445E 03	326.696	46.671	0.276315	7	28.926
0.15394618E 04	0.73336528E 03	0.17053938E 04	25.469	3.184	0.494335	8	33.058
0.29998098E 03	0.11309578E 03	0.32058159E 03	20.757	2.306	0.092992	9	37.190
-0.73019048E 02	-0.91532388E 02	0.11708935E 03	231.419	23.142	0.033940	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 33 V= 123.5 KTS n= 1.4 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4109035E 04							
0.1215119E 04	0.1614129E 04	0.2020377E 04	53.027	53.027	1.000000	1	4.132
0.7910594E 03	0.2153760E 03	0.8198933E 03	15.230	7.615	0.405812	2	8.264
0.7266152E 02	-0.8881123E 03	0.8910813E 03	274.678	91.559	0.441047	3	12.397
0.1064101E 04	0.2237596E 03	0.1087372E 04	11.875	2.969	0.538202	4	16.529
0.4336546E 03	-0.1509939E 03	0.4591917E 03	340.802	68.160	0.227280	5	20.661
0.1602821E 03	-0.2916821E 03	0.3329946E 03	298.772	49.795	0.164818	6	24.793
0.5898354E 03	-0.7789421E 03	0.9773036E 03	307.134	43.876	0.483605	7	28.926
0.1842356E 04	0.1955642E 03	0.1852633E 04	6.053	0.757	0.916999	8	33.058
0.5285706E 03	-0.1064767E 03	0.5391882E 03	348.611	38.734	0.266875	9	37.190
0.2210437E 02	0.5808896E 02	0.6215785E 02	68.739	6.874	0.030172	10	41.322

BLADE CHORD AT STA 105
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2031530E 06							
0.3115693E 05	0.4368876E 05	0.5366062E 05	54.505	54.505	1.000000	1	4.132
0.5637051E 04	0.5188195E 04	0.7661180E 04	42.626	21.313	0.142771	2	8.264
-0.6779559E 04	-0.7899234E 04	0.1040963E 05	229.362	76.454	0.193990	3	12.397
0.2286184E 04	-0.5382891E 03	0.2348700E 04	346.751	86.688	0.043770	4	16.529
-0.8727178E 03	0.1938515E 04	0.2125900E 04	114.237	22.847	0.039618	5	20.661
0.1170990E 03	0.3624131E 03	0.3808613E 03	72.094	12.016	0.007098	6	24.793
0.7284550E 03	-0.1668416E 04	0.1820510E 04	293.507	41.931	0.033926	7	28.926
0.1620477E 03	-0.8947891E 03	0.9093442E 03	280.265	35.033	0.016946	8	33.058
-0.1309115E 02	0.1656309E 04	0.1656360E 04	90.453	10.050	0.030867	9	37.190
-0.1427170E 03	0.6306118E 03	0.6524131E 03	102.636	10.264	0.012158	10	41.322

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2657149E 05							
0.5015629E 04	0.5550922E 04	0.7481262E 04	47.900	47.900	1.000000	1	4.132
0.1430794E 04	0.7941653E 03	0.1636420E 04	29.033	14.516	0.218736	2	8.264
-0.1447937E 04	-0.9458896E 03	0.1731707E 04	213.266	71.089	0.231473	3	12.397
0.6461079E 03	-0.2231381E 03	0.6835540E 03	340.947	85.237	0.091369	4	16.529
-0.2602222E 03	0.4965339E 02	0.2649346E 03	169.155	33.831	0.035416	5	20.661
0.1059351E 03	-0.5240060E 02	0.1181866E 03	333.681	55.613	0.015798	6	24.793
-0.4908757E 03	-0.1002217E 04	0.1082413E 04	247.606	35.401	0.144683	7	28.926
-0.3902807E 03	-0.7516135E 03	0.8275331E 03	243.265	30.658	0.110615	8	33.058
0.6597004E 03	0.1415137E 04	0.1561351E 04	65.006	7.223	0.208701	9	37.190
-0.1577805E 03	-0.1452081E 03	0.2144149E 03	222.626	22.263	0.028660	10	41.322

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 366 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5177039E 03							
0.2300664E 04	0.2341590E 04	0.3282840E 04	45.503	45.503	1.000000	1	4.132
-0.5253567E 03	0.8503416E 03	0.9995400E 03	121.709	60.854	0.304474	2	8.264
0.4173513E 03	-0.4127922E 03	0.5870093E 03	315.314	105.105	0.178811	3	12.397
-0.9312368E 03	0.4191748E 02	0.9321797E 03	177.423	44.356	0.283955	4	16.529
-0.5785940E 03	0.4716045E 03	0.7464460E 03	140.817	28.163	0.227376	5	20.661
-0.1053479E 04	0.2057506E 03	0.1073333E 04	168.949	28.158	0.326960	6	24.793
0.2715376E 03	-0.7265125E 03	0.7755980E 03	290.493	41.499	0.236258	7	28.926
0.1330828E 04	-0.7156323E 03	0.1511061E 04	331.728	41.466	0.460230	8	33.058
0.1415042E 03	-0.1274336E 03	0.1904278E 03	317.995	35.333	0.058007	9	37.190
0.7550565E 02	-0.8681403E 00	0.7551065E 02	359.341	35.934	0.023002	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 34 V= 121 KTS n= 1.5 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6227459E 01							
0.5021C03E 01	-0.2546607E 01	0.5629890E 01	333.106	333.106	1.000000	1	4.132
-0.7085294E-01	-0.1063172E 00	0.1277634E 00	236.319	118.160	0.022694	2	8.264
-0.1319940E-01	0.7353723E-01	0.7471169E-01	100.173	33.391	0.013271	3	12.397
0.7520229E-01	-0.6079550E-01	0.9670299E-01	321.047	80.262	0.017177	4	16.529
0.4470547E-02	0.1483572E-01	0.1549638E-01	73.209	14.642	0.002753	5	20.661
0.1544735E-01	0.5754709E-02	0.1648445E-01	20.432	3.405	0.002928	6	24.793
0.4336486E-01	-0.2653592E-01	0.5083963E-01	328.537	46.934	0.009030	7	28.926
-0.4008574E-01	0.5863518E-02	0.4051231E-01	171.678	21.460	0.007196	8	33.056
0.3916523E-02	0.2404291E-01	0.2436013E-01	80.742	8.971	0.004327	9	37.190
0.1298895E-01	0.6610218E-02	0.1457422E-01	26.972	2.697	0.002589	10	41.322

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7492180E 04							
-0.1669551E 05	0.7347488E C5	0.7534869E 05	102.805	102.805	1.000000	1	4.132
-0.3028435E 04	-0.3787697E 04	0.4849543E 04	231.356	115.678	0.064361	2	8.264
-0.3463216E 05	-0.1354714E C5	0.3719311E 05	201.361	67.120	0.493613	3	12.397
0.1564478E 04	-0.4266088E 03	0.1621600E 04	344.747	86.187	0.021521	4	16.529
-0.9738600E 04	-0.1769674E 04	0.9897432E 04	190.300	38.060	0.131356	5	20.661
0.8115125E 03	-0.1156192E 04	0.1412562E 04	305.064	50.844	0.018747	6	24.793
-0.2713265E 04	-0.5164500E 04	0.5783803E 04	242.007	34.572	0.076721	7	28.926
0.3002763E 03	-0.9222446E C3	0.9698977E 03	288.035	36.004	0.012872	8	33.058
0.5505134E 03	-0.1615382E 04	0.1706612E 04	288.819	32.091	0.022650	9	37.190
0.1121535E 04	-0.5560934E 03	0.1249800E 04	333.856	33.386	0.016587	10	41.322

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6010C765 03							
-0.1328159E 03	-0.2418208E 03	0.2759930E 03	241.223	241.223	1.000000	1	4.132
0.5481209E 02	-0.1022743E 03	0.1160366E 03	298.187	149.094	0.420599	2	8.264
-0.1999518E 03	-0.2515556E 02	0.2020663E 03	188.296	62.765	0.732407	3	12.397
-0.2932600E 02	-0.5587524E 02	0.6310355E 02	242.307	60.577	0.228724	4	16.529
-0.2134328E 02	-0.2517111E 02	0.3300182E 02	229.704	45.941	0.119618	5	20.661
0.6764416E 02	-0.3736757E 02	0.7746385E 02	331.142	55.190	0.280774	6	24.793
0.4772482E 02	-0.1385843E 02	0.4969623E 02	343.808	49.115	0.180128	7	28.926
0.7633C05E 01	0.2538457E 02	0.2651213E 02	73.267	9.158	0.096096	8	33.058
-0.7253124E 01	-0.1530107E 02	0.2001690E 02	244.404	27.712	0.074735	9	37.190
0.8152747E 01	0.1058392E 02	0.1335788E 02	53.416	5.342	0.049581	10	41.322

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3290319E C5							
0.3445838E 04	0.1472809E 05	0.1512578E 05	76.832	76.832	1.000000	1	4.132
0.3559567E 04	-0.9084270E 04	0.9756910E 04	291.399	145.700	0.645052	2	8.264
-0.6518348E 04	0.5447786E C3	0.6541070E 04	175.223	58.408	0.432445	3	12.397
-0.3192563E 04	-0.7631587E C3	0.3282510E 04	193.444	48.361	0.217014	4	16.529
-0.1381353E 04	0.1020095E C4	0.1717187E 04	143.555	28.711	0.113527	5	20.661
-0.2970330E 03	-0.1475541E C4	0.1505141E 04	258.618	43.103	0.099508	6	24.793
0.5319014E 03	-0.9752925E 03	0.1110937E 04	298.607	42.658	0.073445	7	28.926
0.1730205E 04	-0.1847467E C3	0.1740040E 04	353.905	44.238	0.115038	8	33.058
0.3242217E 03	-0.5418321E 02	0.3287183E 03	350.512	38.946	0.021732	9	37.190
0.3206904E 03	-0.3663232E C2	0.3227753E 03	353.483	35.348	0.021339	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 34 V= 121 KTS n= 1.5 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2220446E 05							
0.8325050E 05	0.9217775E 05	0.1242070E 06	47.913	47.913	1.000000	1	4.132
-0.4465715E 04	0.9637492E 04	0.1064157E 05	117.260	58.630	0.087286	2	8.264
-0.5332582E 04	-0.8770000E 04	0.1026393E 05	238.698	79.566	0.082636	3	12.397
-0.7129131E 03	0.3712256E 03	0.8037764E 03	152.493	38.123	0.006471	4	16.529
-0.3501561E 04	0.4737229E 03	0.3533957E 04	172.296	34.459	0.028451	5	20.661
-0.1874474E 04	0.7588455E 03	0.2022437E 04	157.963	26.327	0.016283	6	24.793
-0.2990556E 04	0.2159865E 03	0.2998346E 04	175.869	25.124	0.024140	7	28.926
0.1734496E 04	-0.1632340E 04	0.2381810E 04	316.738	39.592	0.019176	8	33.058
-0.1644089E 04	-0.2850141E 04	0.3290340E 04	240.022	26.669	0.026491	9	37.190
-0.3254141E 03	-0.1374947E 04	0.1412471E 04	256.763	25.676	0.011372	10	41.322

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1305603E 05							
0.5418344E 04	-0.3451296E 04	0.6445742E 04	327.204	327.204	1.000000	1	4.132
-0.1641557E 04	0.2060020E 04	0.2633592E 04	128.449	64.224	0.409665	2	8.264
0.1700564E 04	0.3657725E 03	0.1793551E 04	11.734	3.911	0.279029	3	12.397
0.1598519E 04	-0.1651377E 03	0.1607343E 04	353.961	88.490	0.249442	4	16.529
0.7483105E 03	-0.6026021E 03	0.9608174E 03	321.153	64.231	0.149062	5	20.661
0.8749392E 03	-0.1335654E 03	0.8850173E 03	351.369	58.561	0.136078	6	24.793
0.6817517E 03	-0.4000900E 02	0.6829245E 03	356.641	50.949	0.105950	7	28.926
0.6140567E 03	0.5630481E 03	0.8460773E 03	43.514	5.439	0.131373	8	33.058
0.1938312E 03	-0.2594243E 02	0.1955396E 03	352.377	39.153	0.030339	9	37.190
0.2812764E 03	-0.1225508E 03	0.3068145E 03	336.457	33.646	0.047600	10	41.322

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5866896E 04							
-0.2522863E 04	0.4881191E 04	0.5494621E 04	117.332	117.332	1.000000	1	4.132
0.2336404E 04	-0.9604722E 03	0.2526121E 04	337.653	168.826	0.459744	2	8.264
-0.5245872E 03	-0.2923501E 03	0.6005498E 03	209.131	69.710	0.109296	3	12.397
0.1326867E 04	0.2427469E 03	0.1348889E 04	10.367	2.592	0.245493	4	16.529
0.8846289E 03	-0.1767732E 03	0.9021132E 03	348.699	69.740	0.164182	5	20.661
0.5808235E 03	0.1960051E 03	0.6130037E 03	18.648	3.108	0.111564	6	24.793
0.1249064E 03	0.1673172E 03	0.2087931E 03	53.256	7.608	0.038000	7	28.926
-0.5153624E 02	0.1917666E 03	0.1985710E 03	105.043	13.130	0.036139	8	33.058
-0.9951253E 02	-0.1221916E 03	0.1575868E 03	230.841	25.649	0.028680	9	37.190
0.2053669E 03	-0.1425516E 03	0.2499931E 03	325.234	32.523	0.045498	10	41.322

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2653730E 04							
-0.4696082E 02	0.3727408E 04	0.3727763E 04	90.722	90.722	1.000000	1	4.132
0.1699071E 04	0.1798246E 02	0.1699166E 04	0.606	0.303	0.455814	2	8.264
-0.7179542E 02	-0.5300586E 03	0.5348992E 03	262.286	87.429	0.143491	3	12.397
0.1367505E 04	0.1398949E 03	0.1374642E 04	5.841	1.460	0.368758	4	16.529
0.6800126E 03	-0.4016768E 03	0.7897652E 03	329.430	65.886	0.211866	5	20.661
0.6622898E 03	-0.4461343E 03	0.7952019E 03	326.393	54.399	0.213319	6	24.793
0.6632312E 03	-0.5750933E 03	0.8778428E 03	319.071	45.582	0.235488	7	28.926
0.1478556E 04	0.5182461E 03	0.1567130E 04	19.311	2.414	0.420394	8	33.058
0.1636894E 03	-0.4053265E 02	0.1686331E 03	346.092	38.455	0.045237	9	37.190
-0.1524545E 03	0.1307862E 03	0.2008606E 03	139.375	13.937	0.053884	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 34 V= 121 KTS n= 1.5 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4073375E 04							
0.1626800E 04	0.1507490E 04	0.2217833E 04	42.820	42.820	1.000000	1	4.132
0.6047647E 03	0.4705654E 03	0.8179385E 03	35.637	17.818	0.368806	2	8.264
-0.7701702E 02	-0.6619087E 03	0.6664438E 03	263.312	87.771	0.300486	3	12.397
0.1130514E 04	0.1058533E 03	0.1135833E 04	5.550	1.388	0.512127	4	16.529
0.3574731E 03	-0.2084210E 03	0.4137949E 03	329.756	65.951	0.186572	5	20.661
0.1680106E 03	-0.3037703E 03	0.3471305E 03	298.946	49.824	0.156517	6	24.793
0.8505134E 03	-0.5987690E 03	0.1040143E 04	324.854	46.408	0.468980	7	28.926
0.1540525E 04	0.4214304E 03	0.1597315E 04	15.296	1.912	0.720288	8	33.058
0.1940251E 03	0.8181494E 02	0.2105692E 03	22.864	2.540	0.094941	9	37.190
-0.1900580E 03	0.1070998E 03	0.2184608E 03	150.406	15.047	0.098511	10	41.322

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1945782E 06							
0.3276525E 05	0.4535033E 05	0.5925073E 05	56.400	56.400	1.000000	1	4.132
-0.1232079E 04	0.3839947E 04	0.4032767E 04	107.789	53.895	0.068063	2	8.264
-0.7234678E 04	-0.6067676E 04	0.9403430E 04	219.709	73.236	0.158705	3	12.397
0.3684426E 04	-0.1463542E 04	0.3942513E 04	339.145	84.786	0.066535	4	16.529
0.2448267E 04	0.2624175E 03	0.2462291E 04	6.118	1.224	0.041557	5	20.661
-0.9727065E 03	-0.9095676E 03	0.1331717E 04	223.079	37.180	0.022476	6	24.793
0.5444087E 03	-0.1727371E 04	0.1811233E 04	287.508	41.073	0.030570	7	28.926
0.9149505E 02	-0.8084895E 02	0.1220933E 03	318.535	39.817	0.002061	8	33.058
-0.6430554E 03	0.1394764E 04	0.1535840E 04	114.752	12.750	0.025921	9	37.190
-0.6647566E 03	0.1020877E 03	0.6725500E 03	171.269	17.127	0.011351	10	41.322

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2349414E 05							
0.5621646E 04	0.6955195E 04	0.8943023E 04	51.053	51.053	1.000000	1	4.132
0.5830354E 03	0.9405571E 03	0.1106606E 04	58.206	29.103	0.123740	2	8.264
-0.1811314E 04	-0.8024065E 03	0.1981089E 04	203.893	67.964	0.221523	3	12.397
0.8401079E 03	-0.3292432E 03	0.9023206E 03	338.599	84.650	0.100897	4	16.529
0.6400589E 03	-0.3357446E 03	0.7227076E 03	332.322	66.464	0.080824	5	20.661
-0.4746300E 02	-0.1956952E 03	0.2043745E 03	256.591	42.765	0.022886	6	24.793
0.3101855E 03	-0.9418485E 03	0.9915121E 03	288.229	41.175	0.110881	7	28.926
-0.5504590E 03	-0.5048007E 03	0.7469334E 03	222.524	27.816	0.083524	8	33.058
0.4106410E 03	0.1203794E 04	0.1271971E 04	71.156	7.906	0.142231	9	37.190
-0.7781429E 02	0.3339912E 03	0.3429360E 03	103.115	10.312	0.038347	10	41.322

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 370 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7187747E 03							
0.2364518E 04	0.2592338E 04	0.3508727E 04	47.631	47.631	1.000000	1	4.132
-0.4730137E 03	0.8305730E 03	0.9558470E 03	119.668	59.834	0.272363	2	8.264
0.5547824E 03	-0.4255076E 03	0.6991555E 03	322.511	107.504	0.199262	3	12.397
-0.8846109E 03	-0.5664925E 02	0.8864303E 03	183.664	45.916	0.252636	4	16.529
-0.5748200E 03	0.4050724E 02	0.5762442E 03	175.930	35.186	0.164252	5	20.661
-0.7790446E 03	-0.2572650E 03	0.8333370E 03	200.886	33.481	0.237647	6	24.793
0.5724209E 03	-0.6623473E 03	0.8754023E 03	310.832	44.405	0.249510	7	28.926
0.1486671E 04	-0.6724049E 02	0.1488168E 04	357.414	44.677	0.424709	8	33.058
0.1100680E 03	-0.1167278E 03	0.1604393E 03	313.458	34.829	0.045831	9	37.190
-0.1039863E 02	-0.7439328E 02	0.7511650E 02	262.043	29.204	0.021408	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 35 V= 122.5 KTS n= 1.55 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7129143E 01							
0.4776320E 01	-0.3633175E 01	0.6001298E 01	322.742	322.742	1.000000	1	4.115
-0.8181560E-01	-0.1366424E 00	0.1592640E 00	239.069	119.544	0.026538	2	8.230
0.3137721E-02	0.6707597E-01	0.6714924E-01	87.322	29.107	0.011189	3	12.346
0.4634985E-01	0.1516913E-01	0.4881552E-01	18.104	4.526	0.008134	4	16.461
0.2357648E-01	0.2760523E-01	0.3630136E-01	49.499	9.900	0.006049	5	20.576
-0.1049805E-01	-0.6520949E-02	0.1235873E-01	212.081	35.347	0.002065	6	24.691
-0.2634750E-02	-0.5035823E-01	0.5042711E-01	267.005	38.144	0.008403	7	28.807
-0.1595072E-01	0.3223246E-01	0.3596325E-01	116.329	14.541	0.005993	8	32.922
0.3266555E-01	0.2699150E-01	0.4237432E-01	39.567	4.396	0.007061	9	37.037
-0.3043276E-03	-0.5438657E-02	0.5447363E-02	266.797	26.680	0.000908	10	41.152

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1308790E 05							
-0.1279423E 05	0.6755730E 05	0.6875884E 05	100.722	100.722	1.000000	1	4.115
-0.2500450E 04	-0.4501512E 04	0.5149359E 04	240.949	120.475	0.074887	2	8.230
-0.4804003E 05	-0.4996617E 04	0.4894908E 05	191.182	63.727	0.711780	3	12.346
0.2367563E 04	0.6476542E 03	0.2454936E 04	15.297	3.824	0.035683	4	16.461
-0.3649845E 04	0.1025534E 05	0.1088547E 05	109.591	21.918	0.158222	5	20.576
0.1646594E 04	-0.1156043E 04	0.2011872E 04	324.928	54.155	0.029263	6	24.691
-0.1476406E 04	-0.1437872E 04	0.2062319E 04	224.204	32.029	0.029976	7	28.807
-0.1474349E 02	-0.5407959E 03	0.5409969E 03	268.438	33.555	0.007863	8	32.922
-0.3075938E 03	-0.3316494E 04	0.3315391E 04	264.677	29.409	0.048198	9	37.037
-0.5581802E 02	-0.6790486E 03	0.6813389E 03	265.301	26.530	0.009903	10	41.152

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5391396E 03							
-0.1035587E 03	-0.4343250E 03	0.4465032E 03	256.589	256.589	1.000000	1	4.115
-0.3561648E 02	-0.6498697E 02	0.7410799E 02	241.273	120.637	0.165975	2	8.230
-0.2706379E 03	0.9458252E 02	0.2923597E 03	161.124	53.708	0.654781	3	12.346
-0.2937249E 02	0.2472044E 02	0.3839327E 02	139.930	34.982	0.085985	4	16.461
0.2556725E 02	-0.4554375E 01	0.2596971E 02	349.900	69.980	0.058163	5	20.576
-0.1790649E 02	-0.1285100E 03	0.1297598E 03	262.041	43.673	0.290615	6	24.691
-0.1668550E 02	-0.7122021E 02	0.7314871E 02	256.814	36.688	0.163827	7	28.807
0.8304554E 01	0.2281538E 02	0.2417883E 02	70.007	8.833	0.054152	8	32.922
-0.1534607E 01	0.2678880E 02	0.2681276E 02	93.282	10.365	0.060051	9	37.037
0.3174565E 02	0.6135399E 01	0.3233310E 02	10.939	1.094	0.072414	10	41.152

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 1 = 1 F.H. FLAP ' 18

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4027182E 05							
0.1686294E 04	0.1079432E 05	0.1092525E 05	81.121	81.121	1.000000	1	4.115
0.1127667E 04	-0.6452453E 04	0.6550250E 04	279.913	139.957	0.599552	2	8.230
-0.8019592E 04	0.1965524E 04	0.8257332E 04	166.229	55.410	0.755803	3	12.346
-0.3492324E 04	0.1811074E 04	0.3933935E 04	152.589	38.147	0.360083	4	16.461
0.1045537E 04	0.3255575E 04	0.3419467E 04	72.189	14.438	0.312988	5	20.576
0.9279231E 03	-0.1545165E 03	0.9408101E 03	348.161	58.027	0.086781	6	24.691
0.1725499E 03	-0.1031300E 04	0.1045591E 04	279.498	39.928	0.095709	7	28.807
0.1909677E 04	-0.1820078E 04	0.2638396E 04	316.376	39.547	0.241468	8	32.922
0.1644807E 02	-0.6539822E 03	0.6542426E 03	271.616	30.180	0.059884	9	37.037
-0.8301579E 02	-0.2367657E 03	0.2509216E 03	250.679	25.068	0.022967	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 35 V= 122.5 KTS n= 1.55 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3519471E 05							
0.1040134E 06	0.4000971E 05	0.1120033E 06	20.930	20.930	1.000000	1	4.115
0.1440243E 05	0.8151844E 04	0.1657261E 05	29.624	14.812	0.147965	2	8.230
-0.1102644E 05	-0.8162000E 04	0.1434818E 05	218.275	72.758	0.125427	3	12.346
0.3271484E 03	0.2468800E 04	0.2490382E 04	82.451	20.613	0.022235	4	16.461
-0.1960713E 04	0.5748645E 04	0.6082914E 04	109.083	21.817	0.054310	5	20.576
0.4699243E 03	0.2030041E 04	0.2083721E 04	76.966	12.828	0.018604	6	24.691
0.5906509E 03	-0.1504849E 04	0.1616660E 04	291.429	41.633	0.014434	7	28.807
0.5041579E 02	0.4563809E 02	0.6800482E 02	42.153	5.269	0.000607	8	32.922
-0.4012503E 04	-0.2513338E 04	0.5429231E 04	207.576	23.064	0.048474	9	37.037
-0.1069736E 04	0.1551750E 04	0.1917813E 04	123.903	12.390	0.017123	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 15

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1401578E 05							
0.5163789E 04	-0.3840824E 04	0.6439156E 04	323.315	323.315	1.000000	1	4.115
-0.1414246E 04	0.2312700E 04	0.2710913E 04	121.446	60.723	0.421004	2	8.230
0.2323546E 04	0.5637378E 03	0.2393355E 04	13.638	4.546	0.371315	3	12.346
0.1415162E 04	-0.1241260E 04	0.1882394E 04	318.745	79.686	0.292336	4	16.461
-0.2275713E 03	-0.1833620E 04	0.1847637E 04	262.925	52.585	0.286946	5	20.576
-0.3402117E 03	-0.7787207E 03	0.8497939E 03	246.400	41.067	0.131973	6	24.691
0.7633256E 02	-0.7029600E 03	0.7070926E 03	276.198	39.457	0.109811	7	28.807
0.1006070E 04	-0.3655550E 02	0.1006680E 04	357.805	44.726	0.156337	8	32.922
0.2527329E 03	0.2195365E 03	0.3347688E 03	40.979	4.553	0.051990	9	37.037
0.2393140E 03	-0.1160906E 03	0.2659854E 03	334.122	33.412	0.041307	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5435488E 04							
-0.2849952E 04	0.5306570E 04	0.6022844E 04	118.188	118.188	1.000000	1	4.115
0.3081631E 04	-0.1593871E 04	0.3469419E 04	332.651	166.326	0.576043	2	8.230
-0.4277632E 03	-0.7827980E 03	0.8920513E 03	241.345	80.448	0.148111	3	12.346
0.1602469E 04	-0.1116917E 04	0.1953307E 04	325.124	81.281	0.324316	4	16.461
0.2895265E 02	-0.1412502E 04	0.1412759E 04	271.174	54.235	0.234573	5	20.576
-0.4904644E 03	-0.7131098E 03	0.8680387E 03	235.154	39.192	0.144269	6	24.691
-0.1464692E 03	0.6025321E 01	0.1466183E 03	177.410	25.344	0.024344	7	28.807
0.7300260E 02	0.4460825E 03	0.4526086E 03	80.718	10.090	0.075149	8	32.922
0.6015621E 01	0.1434841E 03	0.1436101E 03	87.599	9.733	0.023844	9	37.037
0.1326418E 03	-0.5503444E 02	0.1453683E 03	336.040	33.604	0.024136	10	41.152

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3233593E 04							
-0.5169866E 03	0.4286207E 04	0.4317961E 04	97.167	97.167	1.000000	1	4.115
0.2386715E 04	-0.6516074E 03	0.2474063E 04	344.729	172.365	0.572706	2	8.230
0.3562308E 03	-0.1159635E 04	0.1251410E 04	286.539	95.513	0.289681	3	12.346
0.1391025E 04	-0.1299722E 04	0.1903748E 04	316.943	79.236	0.440685	4	16.461
-0.1440579E 03	-0.1499240E 04	0.1505212E 04	264.487	52.897	0.348463	5	20.576
-0.3720242E 03	-0.9410242E 03	0.1011894E 04	248.429	41.405	0.234237	6	24.691
-0.1217485E 02	-0.7615308E 03	0.7616282E 03	269.083	38.440	0.176304	7	28.807
0.1663327E 04	-0.7736816E 03	0.2017566E 04	337.451	42.181	0.467033	8	32.922
-0.2043348E 01	-0.9514753E 02	0.9921855E 02	268.820	29.869	0.022967	9	37.037
-0.1480787E 03	0.1511132E 03	0.2417673E 03	127.769	12.777	0.055965	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 35 V= 122.5 KTS n= 1.55 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5395573E 04							
0.1364295E 04	0.1974785E 04	0.2400224E 04	55.361	55.361	1.000000	1	4.115
0.1269526E 04	-0.1484333E 03	0.1278571E 04	353.333	176.667	0.532688	2	8.230
0.5006150E 03	-0.1342703E 04	0.1435174E 04	290.671	96.890	0.597933	3	12.346
0.1519573E 04	-0.9049331E 03	0.1768963E 04	329.232	82.308	0.736998	4	16.461
0.2410542E 02	-0.1204233E 04	0.1204473E 04	271.147	54.229	0.501817	5	20.576
-0.2784419E 03	-0.8950240E 03	0.9379334E 03	252.730	42.122	0.390759	6	24.691
0.8944069E 02	-0.1033032E 04	0.1036896E 04	274.948	39.278	0.432000	7	28.807
0.1690600E 04	-0.1051738E 04	0.1996220E 04	328.206	41.026	0.831680	8	32.922
0.1063522E 03	-0.3230505E 03	0.3413191E 03	288.516	32.057	0.142203	9	37.037
-0.2132854E 03	0.2775107E 03	0.3500039E 03	127.545	12.754	0.145821	10	41.152

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1969536E 06							
0.4079371E 05	0.2207869E 05	0.5174097E 05	25.260	25.260	1.000000	1	4.115
0.9418566E 04	0.3372681E 04	0.1000422E 05	19.702	9.851	0.193352	2	8.230
-0.1516800E 05	-0.4722426E 04	0.1588614E 05	197.294	65.764	0.307032	3	12.346
0.3893501E 04	-0.1483302E 04	0.4166852E 04	339.146	84.787	0.080533	4	16.461
0.2849768E 04	0.1933889E 04	0.3443935E 04	34.161	6.832	0.066562	5	20.576
0.1162532E 04	-0.1524957E 03	0.1178301E 04	350.598	58.433	0.022774	6	24.691
-0.1008749E 04	0.1644343E 04	0.1929103E 04	121.528	17.361	0.037284	7	28.807
0.2368750E 03	-0.2031866E 03	0.3130013E 03	319.615	39.952	0.006061	8	32.922
0.1078629E 04	0.1751526E 04	0.2057008E 04	58.374	6.486	0.039756	9	37.037
0.2876152E 03	0.2961831E 03	0.4128521E 03	45.841	4.584	0.007979	10	41.152

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2702154E 05							
0.7137883E 04	0.3223673E 04	0.7832078E 04	24.305	24.305	1.000000	1	4.115
0.3336477E 04	-0.1135858E 03	0.3338423E 04	358.043	179.022	0.426250	2	8.230
-0.3100411E 04	-0.1300327E 04	0.3362053E 04	202.753	67.584	0.429267	3	12.346
0.4731543E 03	0.1477593E 02	0.4734253E 03	1.789	0.447	0.060447	4	16.461
0.9976213E 03	0.2146577E 03	0.1020459E 04	12.143	2.429	0.130292	5	20.576
0.7076501E 03	-0.2256927E 02	0.7082097E 03	358.174	59.696	0.090424	6	24.691
-0.2710944E 02	0.3655099E 03	0.3665129E 03	94.242	13.463	0.046796	7	28.807
0.5141655E 02	-0.7986057E 03	0.8002590E 03	273.684	34.210	0.102177	8	32.922
0.2379160E 04	0.1555598E 04	0.2842583E 04	33.178	3.686	0.362941	9	37.037
-0.9248204E 02	0.2314766E 03	0.2492676E 03	111.778	11.176	0.031826	10	41.152

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 405 CTR 405 FLT 500.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1022110E 03							
0.2842011E 04	0.3657520E 04	0.4631895E 04	52.152	52.152	1.000000	1	4.115
0.6073845E 03	0.4070914E 03	0.7315247E 03	33.870	16.935	0.157932	2	8.230
0.1932555E 03	-0.1456533E 04	0.1469247E 04	277.558	92.519	0.317213	3	12.346
-0.1361590E 04	0.7583601E 03	0.1578731E 04	149.622	37.406	0.340839	4	16.461
0.3339497E 03	0.1522035E 04	0.1558324E 04	77.625	15.525	0.336415	5	20.576
0.1124305E 04	0.5333923E 03	0.1244415E 04	25.381	4.230	0.268662	6	24.691
0.1669531E 03	-0.1333324E 04	0.1343736E 04	277.137	39.591	0.290105	7	28.807
0.7770541E 03	-0.1765525E 04	0.1929563E 04	293.767	36.721	0.416583	8	32.922
-0.1427424E 02	0.1626384E 02	0.2163945E 02	131.257	14.584	0.004675	9	37.037
0.1335241E 03	0.2222015E 02	0.1353603E 03	9.448	0.945	0.029224	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 36 V= 173 KTS n= .99 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.92942431E 01							
0.39734?6E 01	-0.37740810E 01	0.54801780E 01	316.474	316.474	1.000000	1	4.132
-0.19725C6E 00	-0.23863111E 00	0.30644436E 00	231.143	115.571	0.055919	2	8.264
-0.87319066E-02	-0.74433192E-01	0.74944566E-01	263.307	87.769	0.013676	3	12.397
-0.55076855E-01	-0.88202368E-01	0.10398610E 00	238.018	59.504	0.018975	4	16.529
0.51960465E-01	-0.11174366E-01	0.53146426E-01	347.863	69.573	0.009698	5	20.661
-0.92238826E-02	0.31418688F-01	0.32744675E-01	106.361	17.727	0.005975	6	24.793
-0.17396450E-01	0.31279635E-01	0.35791845E-01	119.081	17.012	0.006531	7	28.926
-0.26555605E-02	0.20460405E-01	0.20637220E-01	97.505	17.188	0.003766	8	33.058
-0.20596771E-01	-0.94098692E-02	0.22247C8E-01	202.209	22.468	0.004060	9	37.190
-0.19802571E-02	0.61449735E-03	0.20734C41E-02	162.760	16.276	0.000378	10	41.322

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.78211172E 04							
-0.21640188E 04	0.88521068E 05	0.88547500E 05	91.400	91.400	1.000000	1	4.132
-0.24515501E 04	-0.18435378E 03	0.24585222E 04	184.300	92.150	0.027765	2	8.264
0.47717142E 04	-0.18102898E 05	0.18727020E 05	284.762	94.921	0.211491	3	12.397
-0.10639598E 04	0.12000416E 04	0.16037125E 04	131.558	32.889	0.018111	4	16.529
0.63218528E 04	0.83125398E 04	0.10443388E 05	52.746	10.549	0.117941	5	20.661
0.58160558E 03	-0.31108945E 00	0.58160558E 03	359.969	59.995	0.006568	6	24.793
-0.25847088E 04	-0.23373770E 04	0.34848518E 04	222.123	31.732	0.039356	7	28.926
-0.74998171E 03	0.78424615E 03	0.10851330E 04	133.721	16.715	0.012255	8	33.058
-0.16918235E 04	0.10492925E 04	0.19823C6E 04	148.040	16.449	0.022387	9	37.190
0.74056735E 02	-0.35850595E 03	0.40533598E 03	280.533	28.053	0.004578	10	41.322

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.34254877E 05							
0.76487730E 04	0.21870168E 05	0.23165111E 05	70.723	70.723	1.000000	1	4.132
0.14493C9E 04	-0.15996500E 05	0.16052126E 05	275.182	137.591	0.692824	2	8.264
0.13566966E 04	-0.41946725E 04	0.44116641E 04	288.044	96.015	0.190410	3	12.397
-0.14054118E 04	-0.87512625E 03	0.16556C4E 04	211.910	52.977	0.071457	4	16.529
0.20152955E 04	-0.27651715E 03	0.20341775E 04	352.187	70.437	0.087797	5	20.661
0.72281935E 03	0.32094175E 03	0.79086745E 03	23.942	3.990	0.034135	6	24.793
-0.48110118E 03	-0.13676535E 03	0.50014288E 03	195.869	27.981	0.021587	7	28.926
0.14630995E 04	-0.56763675E 03	0.15693435E 04	338.795	42.349	0.067734	8	33.058
-0.24581615E 03	0.12699035E 03	0.27658C4E 03	152.679	16.964	0.011942	9	37.190
-0.33614525E 02	0.12715795E 03	0.13152595E 03	104.808	10.481	0.005677	10	41.322

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.58302915E 05							
0.10044615E 04	0.11334295E 06	0.11334735E 06	89.492	89.492	1.000000	1	4.132
0.62262615E 04	0.44161955E 04	0.76450235E 04	35.470	17.735	0.067446	2	8.264
-0.87933598E 04	-0.96969695E 04	0.13090245E 05	227.798	75.933	0.115488	3	12.397
-0.88927295E 03	0.31104115E 04	0.32378CCE 04	106.126	26.531	0.028565	4	16.529
0.10516245E 04	0.12994875E 04	0.16639395E 04	50.901	10.160	0.014680	5	20.661
0.16607975E 04	0.42368105E 02	0.16613375E 04	1.461	0.244	0.014657	6	24.793
0.11049570E 04	0.17730635E 03	0.11191325E 04	9.116	1.302	0.009873	7	28.926
0.75204150E 03	-0.[illegible]19885460E 04	0.14152C5E 04	302.100	37.763	0.012486	8	33.058
-0.51949015E 03	-0.20566995E 03	0.55872735E 03	201.599	22.400	0.004929	9	37.190
0.36488870E 03	0.51245835E 03	0.62905235E 03	54.548	5.455	0.005550	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 36 V= 173 KTS n= .99 g

BLADE FLAP AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.8633572E 03							
0.3370375E 04	-0.4010550E 04	0.5238695E 04	310.043	310.043	1.000000	1	4.132
-0.1914373E 04	0.3757578E 04	0.4217133E 04	116.998	58.499	0.804997	2	8.264
0.1469910E 04	0.1151212E 04	0.1967063E 04	38.068	17.689	0.356398	3	12.397
-0.1226991E 03	-0.5042603E 03	0.5189734E 03	256.324	64.081	0.099065	4	16.529
-0.9235112E 02	0.4593207E 03	0.5060718E 03	99.365	19.873	0.096603	5	20.661
-0.1248069E 03	0.3773997E 03	0.3975012E 03	108.299	18.050	0.075878	6	24.793
-0.6513232E 03	-0.2596665E 03	0.7008069E 03	201.660	28.809	0.133775	7	28.926
0.7925012E 03	-0.5061028E 03	0.9403181E 03	327.437	40.930	0.179495	8	33.058
-0.9059527E 02	0.3305640E 03	0.3427546E 03	105.327	11.703	0.065427	9	37.190
-0.2094194E 03	0.5090250E 02	0.2155170E 03	166.338	16.634	0.041139	10	41.322

BLADE CHORD AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2830403E 05							
-0.2735789E 04	0.2666726E 05	0.2680717E 05	95.856	95.856	1.000000	1	4.132
0.3175281E 04	0.1640008E 04	0.3573799E 04	27.316	13.658	0.133315	2	8.264
-0.3560474E 04	-0.3448015E 04	0.4956387E 04	224.081	74.694	0.184890	3	12.397
0.2981951E 04	-0.7026317E 01	0.2985816E 04	346.388	86.597	0.111391	4	16.529
-0.1966779E 04	-0.1136383E 03	0.1970056E 04	183.306	36.661	0.073490	5	20.661
0.5841340E 03	-0.6304779E 03	0.8596211E 03	312.825	52.137	0.032067	6	24.793
-0.2805930E 03	0.2909470E 03	0.4042061E 03	133.962	19.137	0.015078	7	28.926
-0.9341469E 03	-0.4611232E 02	0.9352849E 03	187.827	22.857	0.034889	8	33.058
0.5294531E 03	-0.5549110E 03	0.7662102E 03	313.606	34.845	0.028582	9	37.190
0.6176453E 02	0.3452861E 03	0.3507668E 03	79.858	7.986	0.013085	10	41.322

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 174 FLT 438.0 TR 21

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1131732E 04							
0.2272720E 04	0.2257344E 04	0.3203257E 04	44.806	44.806	1.000000	1	4.132
-0.1694662E 04	0.1667349E 04	0.2380946E 04	135.550	67.775	0.743285	2	8.264
-0.4688789E 03	-0.4036217E 02	0.4706128E 03	184.920	61.640	0.146917	3	12.397
-0.2298647E 03	-0.1267939E 02	0.2302141E 03	183.157	45.789	0.071869	4	16.529
0.8711033E 03	0.2544929E 03	0.9075173E 03	16.286	3.257	0.283311	5	20.661
0.2317329E 03	-0.2973848E 03	0.3691750E 03	309.881	51.480	0.115250	6	24.793
-0.5122669E 03	-0.5559903E 02	0.5152751E 03	186.194	26.599	0.160860	7	28.926
0.9366665E 03	-0.2113040E 03	0.9309636E 03	346.481	43.360	0.290630	8	33.058
-0.2008765E 03	-0.1085517E 02	0.2011196E 03	183.094	20.344	0.062786	9	37.190
-0.4127927E 02	-0.9048285E 02	0.1003007E 03	244.437	24.444	0.031312	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 37 V= 173 KTS n= 1.24 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9455121E 01							
0.5454806E 01	-0.3949321E 01	0.5588852E 01	315.042	315.042	1.000000	1	4.132
-0.2683421E 00	-0.1895930E 00	0.3285561E 00	215.241	107.621	0.058788	2	8.264
-0.6620309E-01	-0.6086749E-01	0.8953226E-01	222.595	74.198	0.016091	3	12.397
-0.6675513E-01	-0.7122219E-01	0.1122454E 00	219.385	54.846	0.020084	4	16.529
0.3266203E-01	-0.1145625E-01	0.3461285E-01	340.671	68.134	0.006193	5	20.661
-0.1073821E-01	0.9646811E-02	0.1443503E-01	138.065	23.011	0.002583	6	24.793
-0.1510109E-01	0.1037363E-01	0.1832372E-01	145.500	20.786	0.003279	7	28.926
0.3030445E-02	-0.3892660E-02	0.4533153E-02	307.901	38.488	0.000883	8	33.058
0.2239995E-02	0.6211463E-02	0.6603017E-02	70.165	7.797	0.001181	9	37.190
0.2294607E-02	-0.6695215E-02	0.7077508E-02	288.918	28.892	0.001266	10	41.322

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.9117395E 04							
-0.5781907E 05	0.9192163E 05	0.1085538E 06	122.170	122.170	1.000000	1	4.132
-0.3057655E 04	-0.1011727E 04	0.3230188E 04	198.253	99.126	0.029746	2	8.264
-0.4790230E 04	-0.2482621E 05	0.2528412E 05	259.079	86.360	0.232832	3	12.397
-0.9943984E 03	0.5695706E 03	0.1145966E 04	150.197	37.549	0.010553	4	16.529
0.7207926E 04	0.5487219E 04	0.9059500E 04	37.281	7.456	0.083420	5	20.661
-0.3350234E 03	-0.2337032E 03	0.4093030E 03	214.818	35.803	0.003769	6	24.793
-0.3601290E 04	-0.9792378E 03	0.3733979E 04	195.204	27.886	0.034385	7	28.926
0.3524049E 03	-0.1919777E 03	0.4013035E 03	331.420	41.427	0.003695	8	33.058
-0.2206509E 03	0.9431465E 03	0.9686226E 03	103.170	11.463	0.008920	9	37.190
0.5143984E 03	0.2641638E 02	0.5150381E 03	2.940	0.294	0.004743	10	41.322

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2218356E 05							
-0.7701617E 04	0.2272765E 05	0.2399710E 05	108.720	108.720	1.000000	1	4.132
0.2511839E 04	-0.1816279E 05	0.1833564E 05	277.874	138.937	0.764078	2	8.264
0.1049357E 03	-0.5381855E 04	0.5382875E 04	271.116	90.372	0.224314	3	12.397
-0.1559485E 04	-0.1527766E 04	0.2183131E 04	224.411	56.103	0.090975	4	16.529
0.1764385E 04	-0.3615564E 03	0.1801539E 04	348.422	69.684	0.075073	5	20.661
0.6756721E 03	0.3240544E 03	0.7493625E 03	25.623	4.270	0.031227	6	24.793
-0.5707954E 03	-0.6886534E 02	0.5749346E 03	186.879	26.697	0.023959	7	28.926
0.9600346E 03	-0.7924049E 03	0.1260282E 04	321.042	40.130	0.052518	8	33.058
-0.1809039E 03	0.6290577E 02	0.1514961E 03	160.854	17.873	0.007980	9	37.190
-0.7104671E 02	0.1675874E 03	0.1820252E 03	112.974	11.297	0.007585	10	41.322

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5310491E 05							
0.1147713E 05	0.1075498E 06	0.1082036E 06	83.698	83.698	1.000000	1	4.132
0.4854625E 04	0.5847536E 02	0.4854577E 04	0.690	0.345	0.044869	2	8.264
-0.1256796E 05	-0.1242165E 05	0.1838732E 05	226.881	75.627	0.169933	3	12.397
-0.1527373E 04	0.1896786E 04	0.2427515E 04	128.991	32.248	0.022435	4	16.529
0.5680715E 03	0.1367844E 04	0.1481115E 04	67.447	13.489	0.013688	5	20.661
0.9134902E 03	-0.1639036E 04	0.1876407E 04	299.132	49.855	0.017341	6	24.793
-0.3341739E 03	-0.8905000E 03	0.9511375E 03	249.431	35.633	0.008790	7	28.926
-0.8847451E 03	-0.8339348E 03	0.1215821E 04	223.307	27.913	0.011236	8	33.058
-0.2009783E 03	-0.2510656E 03	0.3215596E 03	231.323	25.703	0.002972	9	37.190
0.2077449E 03	0.4433550E 03	0.4896138E 03	64.893	6.489	0.004525	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 37 V= 173 KTS n= 1.24 g

BLADE FLAP AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1441809E 04							
0.3647915E 04	-0.4919086E 04	0.6124109E 04	306.560	306.560	1.000000	1	4.132
-0.1578512E 04	0.4419754E 04	0.4692168E 04	109.656	54.828	0.766180	2	8.264
0.1858513E 04	0.1113549E 04	0.2166578E 04	30.928	10.309	0.353779	3	12.397
-0.3908962E 03	-0.3038728E 03	0.4951270E 03	217.862	54.466	0.080849	4	16.529
-0.5345740E 02	0.5357908E 03	0.5384509E 03	95.698	19.140	0.087923	5	20.661
-0.1757442E 03	0.4529380E 03	0.4858850E 03	111.205	18.534	0.079340	6	24.793
-0.9904443E 03	0.1928071E 03	0.1009036E 04	168.984	24.141	0.164765	7	28.926
0.1609986E 03	-0.8368857E 03	0.8522314E 03	280.885	35.111	0.139160	8	33.058
-0.8875052E 02	0.1490711E 03	0.1734904E 03	120.768	13.419	0.028329	9	37.190
-0.3055132E 03	0.4761157E 02	0.3092007E 03	171.142	17.114	0.050489	10	41.322

BLADE CHORD AT STA 176

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2695961E 05							
0.8015962E 03	0.2629196E 05	0.2630416E 05	88.254	88.254	1.000000	1	4.132
0.3170221E 04	-0.1843962E 03	0.3175608E 04	356.662	178.331	0.120726	2	8.264
-0.5468719E 04	-0.3007579E 04	0.6242149E 04	208.825	69.608	0.237306	3	12.397
0.3142494E 04	-0.4704258E 03	0.3177500E 04	351.486	87.872	0.120798	4	16.529
-0.1630896E 04	-0.3761282E 03	0.1673707E 04	192.987	38.597	0.063629	5	20.661
0.4942385E 03	-0.2493353E 02	0.4948665E 03	357.112	59.519	0.018813	6	24.793
-0.6974773E 03	0.3393174E 03	0.7756450E 03	154.056	22.008	0.029488	7	28.926
0.1954683E 03	-0.3222698E 03	0.3769263E 03	301.241	37.655	0.014330	8	33.058
0.1347414E 03	-0.3064019E 03	0.3344785E 03	293.644	32.627	0.012716	9	37.190
-0.1140650E 03	0.2465935E 03	0.2716568E 03	114.824	11.482	0.010329	10	41.322

BLADE TORSION AT STA 131.5

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 202 FLT 438.0 TR 21

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.9756509E 03							
0.2539431E 04	0.2381737E 04	0.3480848E 04	43.176	43.176	1.000000	1	4.132
-0.2041099E 04	0.1712078E 04	0.2664075E 04	140.010	70.005	0.765352	2	8.264
-0.3256355E 03	0.1137515E 01	0.3256375E 03	179.800	59.933	0.093551	3	12.397
-0.1634167E 03	-0.2232451E 03	0.2766648E 03	233.796	58.449	0.079482	4	16.529
0.7125923E 03	0.3777463E 03	0.8065146E 03	27.928	5.586	0.231701	5	20.661
0.3280466E 03	-0.3388296E 03	0.4716145E 03	314.073	52.346	0.135488	6	24.793
-0.6806680E 03	-0.3646741E 02	0.6816421E 03	183.067	26.152	0.195826	7	28.926
0.7856839E 03	-0.3539651E 03	0.8617368E 03	335.748	41.968	0.247565	8	33.058
-0.1585949E 03	-0.3930266E 02	0.1633204E 03	193.316	21.535	0.046920	9	37.190
0.2787195E 02	-0.6525304E 02	0.7095633E 02	293.129	29.313	0.020385	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 38 V= 172 KTS n= 1.56 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.97633344E 01							
0.43751351E 01	-0.46119918E 01	0.63584462E 01	313.478	313.478	1.000000	1	4.167
-0.31544815E 00	-0.32005565E 00	0.44938080E 00	225.415	112.708	0.070674	2	8.333
-0.10281046E 00	0.28286691E-02	0.10284492E 00	178.424	59.475	0.016175	3	12.500
-0.40168591E-01	-0.92071659E-01	0.10045526E 00	246.429	61.607	0.015798	4	16.667
0.58019944E-02	-0.71659746E-01	0.71894231E-01	274.629	54.926	0.011307	5	20.833
0.29055999E-01	0.16046614E-01	0.33192300E-01	28.910	4.818	0.005220	6	25.000
0.36152575E-01	-0.20912566E-01	0.41725346E-01	330.048	47.150	0.006562	7	29.167
-0.13161865E-01	0.17678745E-02	0.13280005E-01	172.350	21.544	0.002089	8	33.333
0.97925592E-02	-0.76153130E-02	0.12405150E-01	322.129	35.792	0.001951	9	37.500
-0.73960207E-02	-0.82570690E-02	0.11085145E-01	228.149	22.815	0.001743	10	41.667

SHAFT MOMENT

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1028643E 05							
-0.7951789E 05	0.9225025E 05	0.1217951E 06	130.761	130.761	1.000000	1	4.167
-0.2544276E 04	-0.2475813E 04	0.3550069E 04	224.219	112.109	0.029149	2	8.333
-0.1357070E 05	-0.3714321E 05	0.3954466E 05	249.930	83.310	0.324691	3	12.500
0.4390006E 03	0.1389280E 04	0.1457258E 04	72.430	18.108	0.011965	4	16.667
0.3089043E 04	0.6042957E 04	0.6782801E 04	62.989	12.598	0.055692	5	20.833
-0.2535156E 02	-0.2728462E 03	0.2740212E 03	264.691	44.115	0.002250	6	25.000
-0.4210816E 04	-0.1750532E 04	0.4560188E 04	202.574	28.939	0.037443	7	29.167
-0.7666066E 02	-0.4640380E 03	0.4703286E 03	260.618	32.577	0.003862	8	33.333
-0.5462742E 03	0.6684695E 03	0.8636755E 03	129.235	14.359	0.007091	9	37.500
0.3291578E 03	-0.1371814E 03	0.3566367E 03	337.378	33.738	0.002528	10	41.667

FIXED HUB FLAP AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7163583E 04							
-0.1349339E 05	0.2198638E 05	0.2579703E 05	121.539	121.539	1.000000	1	4.167
0.1638664E 04	-0.2183440E 05	0.2189558E 05	274.292	137.146	0.848772	2	8.333
-0.2476444E 04	-0.5752627E 04	0.6263023E 04	246.709	82.236	0.242781	3	12.500
-0.1892414E 04	-0.1309144E 04	0.2301100E 04	214.675	53.669	0.089200	4	16.667
-0.1166554E 02	-0.1572020E 04	0.1572043E 04	269.575	53.915	0.060940	5	20.833
0.1178179E 03	-0.5860190E 03	0.5977451E 03	281.368	46.895	0.023171	6	25.000
-0.8459443E 03	0.2539645E 03	0.8861177E 03	163.345	23.335	0.034350	7	29.167
0.3143940E 03	-0.4334993E 03	0.5355553E 03	305.640	38.205	0.020916	8	33.333
-0.1028461E 03	-0.1212063E 03	0.1599600E 03	229.685	25.521	0.006162	9	37.500
0.3017883E 03	-0.1691259E 03	0.3459475E 03	330.733	33.073	0.013410	10	41.667

FIXED HUB CHORD AT STA 18

HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4832000E 05							
0.3402995E 05	0.8516206E 05	0.9170531E 05	68.219	68.219	1.000000	1	4.167
0.1862676E 05	0.1959249E 04	0.1892843E 05	5.941	2.971	0.206396	2	8.333
-0.1389482E 05	-0.1772369E 05	0.2252059E 05	231.905	77.302	0.245565	3	12.500
0.5907256E 03	0.2978599E 04	0.3056231E 04	78.955	19.714	0.033325	4	16.667
0.1721252E 04	-0.2250342E 03	0.1737230E 04	352.224	70.445	0.018943	5	20.833
0.5464496E 02	-0.1968635E 04	0.1969393E 04	271.590	45.265	0.021474	6	25.000
-0.1047118E 03	0.1045872E 04	0.1051160E 04	95.717	13.674	0.011461	7	29.167
-0.3607534E 03	0.9709399E 03	0.1035753E 04	110.383	13.798	0.011294	8	33.333
0.5947601E 02	0.9174851E 03	0.9194105E 03	86.291	9.588	0.010025	9	37.500
-0.3134226E 03	-0.1407463E 03	0.3435747E 03	204.183	20.418	0.003746	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 38 V= 172 KTS n= 1.56 g

BLADE FLAP AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 50

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1981165E 04							
0.42379065E 04	-0.56359773E 04	0.70546027E 04	306.923	306.923	1.000000	1	4.167
-0.20317711E 04	0.58520908E 04	0.61947598E 04	109.146	54.573	0.878116	2	8.333
0.17530050E 04	0.12062098E 04	0.21254659E 04	34.576	11.525	0.301288	3	12.500
-0.51312335E 03	-0.26241898E 03	0.57633288E 03	207.086	51.771	0.081696	4	16.667
-0.58127268E 03	0.51314887E 03	0.77533598E 03	138.560	27.712	0.109905	5	20.833
-0.61756278E 03	0.17091868E 03	0.64075178E 03	164.538	27.423	0.090827	6	25.000
-0.55577035E 03	0.29640168E 03	0.62986878E 03	151.928	21.704	0.089285	7	29.167
-0.13243768E 02	-0.19872788E 03	0.19916886E 03	266.187	33.273	0.028232	8	33.333
-0.17644470E 03	0.21438665E 03	0.27766026E 03	129.456	14.384	0.039355	9	37.500
-0.19455868E 03	0.92227378E 02	0.21531128E 03	154.637	15.464	0.030521	10	41.667

BLADE CHORD AT STA 176
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.24474935E 05							
0.44603120E 04	0.21166238E 05	0.21631C8E 05	78.100	78.100	1.000000	1	4.167
0.77124578E 04	-0.11173918E 04	0.77922668E 04	351.792	175.896	0.360235	2	8.333
-0.84155208E 04	-0.42528678E 04	0.94290948E 04	206.810	68.937	0.435905	3	12.500
0.41872348E 04	0.61971398E 03	0.42328448E 04	8.419	2.105	0.195683	4	16.667
-0.25961858E 04	0.88413458E 03	0.27426678E 04	161.190	32.238	0.126793	5	20.833
0.40854698E 03	0.41355578E 03	0.58132500E 03	45.349	7.558	0.026875	6	25.000
-0.11531620E 03	-0.21434488E 04	0.21435528E 04	266.916	38.131	0.099096	7	29.167
0.16105908E 04	-0.29071448E 04	0.33234758E 04	298.987	37.373	0.153644	8	33.333
0.47673248E 03	0.28949588E 03	0.55774668E 03	31.268	3.474	0.025785	9	37.500
-0.38414598E 03	0.12810168E 04	0.13373758E 04	106.693	10.669	0.061827	10	41.667

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 365 CTR 217 FLT 438.0 TR 21

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.66453225E 03							
0.29770548E 04	0.32208878E 04	0.43860208E 04	47.253	47.253	1.000000	1	4.167
-0.16891078E 04	0.25856308E 04	0.30884578E 04	123.155	61.578	0.704159	2	8.333
0.24198748E 03	0.35347418E 02	0.24455538E 03	8.310	2.770	0.055758	3	12.500
-0.45836338E 03	-0.66298248E 03	0.80600428E 03	235.341	58.835	0.183767	4	16.667
0.98617438E 02	0.21933068E 03	0.24048140E 03	65.790	13.158	0.054829	5	20.833
-0.84869798E 02	-0.58458590E 03	0.59071448E 03	261.739	43.623	0.134681	6	25.000
-0.37046738E 03	0.40349578E 03	0.54776818E 03	132.557	18.937	0.124890	7	29.167
0.47748128E 03	-0.63005698E 02	0.48162018E 03	352.483	44.060	0.109808	8	33.333
0.10660658E 03	-0.12399188E 03	0.16351288E 03	310.691	34.521	0.037280	9	37.500
0.44799778E 02	-0.14096848E 03	0.14791598E 03	287.630	28.763	0.033724	10	41.667

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 39 V= 154 KTS n= 1.36 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6317047E 01							
0.3829372E 01	-0.2217057E 01	0.4424864E 01	329.931	329.931	1.000000	1	4.115
-0.1062524E 00	-0.1478055E 00	0.1820331E 00	234.289	117.144	0.041139	2	8.230
-0.4421707E-01	0.6539278E-02	0.4469800E-01	171.587	57.196	0.010102	3	12.346
0.4306689E-02	-0.2939537E-01	0.2970909E-01	278.334	69.583	0.006714	4	16.461
-0.6854333E-02	0.3424292E-01	0.3492219E-01	101.319	20.264	0.007892	5	20.576
0.1122059E-01	0.6983463E-02	0.1321625E-01	31.897	5.316	0.002987	6	24.691
-0.4563645E-02	-0.1373013E-01	0.1459987E-01	250.124	35.732	0.003300	7	28.807
0.1284904E-01	0.9507900E-02	0.1541045E-01	326.490	40.811	0.003483	8	32.922
-0.1294552E-01	[illegible]69854E-02	0.1304036E-01	186.914	20.768	0.002947	9	37.037
0.5288570E-02	[illegible]44632E-01	0.1576505E-01	61.968	6.197	0.004467	10	41.152

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3678044E 04							
-0.6208391E 05	0.1018633E 06	0.1192918E 06	121.362	121.362	1.000000	1	4.115
-0.1288563E 04	-0.2661271E 04	0.2956815E 04	244.164	122.082	0.024786	2	8.230
-0.4322316E 04	-0.9343188E 04	0.1029454E 05	245.174	81.725	0.086297	3	12.346
-0.7613350E 03	0.9182385E 03	0.1192808E 04	129.663	32.416	0.009999	4	16.461
0.7548484E 04	0.2998466E 04	0.8120359E 04	21.670	4.334	0.068071	5	20.576
0.4455135E 02	0.1887636E 03	0.1939590E 03	76.709	12.785	0.001626	6	24.691
-0.3029320E 04	-0.2217054E 04	0.3753970E 04	216.200	30.886	0.031469	7	28.807
-0.1771578E 04	0.8153171E 03	0.1950188E 04	155.287	19.411	0.016348	8	32.922
0.2355365E 02	-0.1565830E 04	0.1566007E 04	270.862	30.096	0.013128	9	37.037
0.2166683E 03	-0.8882151E 03	0.9142598E 03	283.709	28.371	0.007664	10	41.152

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3092356E 03							
-0.2398074E 03	-0.1177061E 03	0.2671372E 03	206.143	206.143	0.860442	1	4.115
0.1973148E 03	-0.2396986E 03	0.3104651E 03	309.460	154.730	1.000000	2	8.230
-0.1291221E 02	-0.3278607E 02	0.3523708E 02	248.504	82.835	0.113498	3	12.346
-0.2073201E 02	-0.8452376E 02	0.8702917E 02	256.219	64.055	0.280319	4	16.461
-0.7634787E 02	0.9879066E 01	0.7698434E 02	172.627	34.525	0.247965	5	20.576
-0.1296426E 02	0.3937418E 02	0.4145355E 02	108.225	18.037	0.133521	6	24.691
-0.4864753E 01	-0.2189960E 02	0.2243341E 02	257.476	36.782	0.072257	7	28.807
-0.1704031E 01	-0.3219047E 01	0.3642245E 01	242.105	30.263	0.011732	8	32.922
-0.1118447E 01	-0.4289042E 00	0.1197865E 01	200.981	22.331	0.003858	9	37.037
0.1948241E 02	0.1371413E 02	0.2382523E 02	35.143	3.514	0.076740	10	41.152

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1024629E 05							
-0.7310094E 04	0.2517956E 05	0.2621960E 05	106.189	106.189	1.000000	1	4.115
0.4725413E 04	-0.1788004E 05	0.1849392E 05	284.804	142.402	0.705347	2	8.230
0.7994724E 03	-0.4628767E 03	0.9238027E 03	329.930	109.977	0.035233	3	12.346
-0.2142467E 04	-0.1102014E 04	0.2409273E 04	207.220	51.805	0.091888	4	16.461
0.2359070E 02	0.7404350E 02	0.7771072E 02	72.328	14.466	0.002964	5	20.576
0.6529504E 03	-0.2435518E 03	0.6968943E 03	339.544	56.591	0.026579	6	24.691
-0.1938492E 03	-0.2915376E 03	0.3484502E 03	236.790	33.827	0.013290	7	28.807
0.5016797E 03	-0.6054009E 03	0.7862522E 03	309.647	38.706	0.029987	8	32.922
-0.1652858E 03	-0.3003252E 03	0.3428040E 03	241.174	26.797	0.013074	9	37.037
0.1649338E 03	-0.2841056E 02	0.1673629E 03	350.226	35.023	0.006383	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 39 V= 154 KTS n= 1.36 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3897213E 05							
0.4104672E 04	0.1081141E 06	0.1081920E 06	87.826	87.826	1.000000	1	4.115
-0.7553824E 04	0.6800805E 04	0.1046491E 05	139.468	69.734	0.096725	2	8.230
-0.6629266E 04	-0.7253547E 04	0.9960387E 04	226.714	75.571	0.092062	3	12.346
0.1235699E 04	0.3699917E 03	0.1289901E 04	16.669	4.167	0.011922	4	16.461
0.1459135E 04	-0.5363589E 03	0.1554592E 04	339.817	67.963	0.014369	5	20.576
0.5525002E 03	-0.1040853E 04	0.1178437E 04	297.959	49.660	0.010892	6	24.691
0.7855233E 02	0.3516050E 03	0.3602815E 03	77.400	11.057	0.003330	7	28.807
0.1570871E 04	0.3878928E 03	0.1618053E 04	13.870	1.734	0.014955	8	32.922
-0.1050763E 04	-0.2216018E 03	0.1073876E 04	191.909	21.323	0.009926	9	37.037
0.7017241E 02	0.4486506E 03	0.4541052E 03	81.110	8.111	0.004197	10	41.152

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5168145E 04							
0.4410565E 04	-0.3293621E 04	0.5504957E 04	323.252	323.252	1.000000	1	4.115
-0.1485643E 04	0.4748113E 04	0.4975109E 04	107.374	53.687	0.903751	2	8.230
0.1973916E 03	0.2888554E 03	0.3498616E 03	55.653	18.551	0.063554	3	12.346
0.8506774E 03	-0.1413304E 03	0.9020183E 03	350.986	87.746	0.163856	4	16.461
-0.5628684E 03	-0.6431282E 02	0.5665305E 03	186.518	37.304	0.102913	5	20.576
-0.2268151E 03	0.3541116E 03	0.4205256E 03	122.641	20.440	0.076390	6	24.691
-0.7675673E 01	-0.2049620E 03	0.2051056E 03	267.855	38.265	0.037258	7	28.807
0.2641396E 03	0.9985677E 01	0.2643284E 03	2.165	0.271	0.048016	8	32.922
0.3993217E 02	-0.1000475E 03	0.1077222E 03	291.759	32.418	0.019568	9	37.037
0.8408002E 02	-0.1345140E 03	0.1586300E 03	302.008	30.201	0.028816	10	41.152

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.7266570E 04							
-0.2817269E 04	0.5076219E 04	0.5805605E 04	119.030	119.030	1.000000	1	4.115
0.9684573E 03	-0.2188154E 04	0.2392907E 04	293.875	146.937	0.412172	2	8.230
-0.2465250E 04	-0.1151535E 04	0.2720971E 04	205.037	68.346	0.468680	3	12.346
0.4348784E 03	0.3460833E 03	0.5557813E 03	38.513	9.628	0.095732	4	16.461
-0.1202452E 02	-0.2375023E 03	0.2378065E 03	267.102	53.420	0.040961	5	20.576
-0.5521017E 02	0.9362358E 02	0.1061165E 03	121.351	20.225	0.018278	6	24.691
0.7565424E 02	0.1578557E 02	0.7728362E 02	11.786	1.684	0.013312	7	28.807
0.9733154E 02	0.2212733E 03	0.2417339E 03	66.257	8.282	0.041638	8	32.922
0.9564420E 02	0.2003168E 02	0.9771936E 02	11.829	1.314	0.016832	9	37.037
0.1292028E 03	-0.9559390E 02	0.1607220E 03	323.503	32.350	0.027684	10	41.152

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2111651E 04							
-0.6516514E 03	0.3051053E 04	0.3119906E 04	102.056	102.056	1.000000	1	4.115
0.1292602E 03	0.5535953E 02	0.1406160E 03	23.184	11.592	0.045071	2	8.230
-0.2836314E 04	-0.9132324E 03	0.2979710E 04	197.847	65.949	0.955064	3	12.346
0.4368006E 03	-0.2843267E 03	0.5211924E 03	326.939	81.735	0.167054	4	16.461
-0.3005513E 03	-0.2123217E 03	0.3679832E 03	215.239	43.048	0.117947	5	20.576
-0.2518423E 03	0.3525728E 03	0.4332805E 03	125.538	20.923	0.138876	6	24.691
-0.2646584E 03	-0.3370598E 03	0.3940166E 03	238.839	34.116	0.126291	7	28.807
0.2274344E 03	-0.1794174E 03	0.2896841E 03	321.731	40.216	0.092850	8	32.922
0.1872482E 02	-0.1309961E 03	0.1323277E 03	278.135	30.904	0.042414	9	37.037
-0.1152543E 03	0.1129911E 03	0.1614304E 03	135.578	13.558	0.051742	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 39 V= 154 KTS n= 1.36 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2234015E 04							
0.1072115E 04	0.7428176E 03	0.1304304E 04	34.716	34.716	0.510214	1	4.115
0.9667589E 02	0.5794902E 03	0.5878313E 03	80.336	40.168	0.229946	2	8.230
-0.2411013E 04	-0.8497773E 03	0.2556385E 04	199.415	66.472	1.000000	3	12.346
-0.2625157E 02	-0.2590613E 03	0.2603877E 03	264.214	66.053	0.101858	4	16.461
0.1477742E 01	-0.3382014E 03	0.3382046E 03	270.250	54.050	0.132298	5	20.576
-0.1567214E 03	0.1102852E 03	0.1916385E 03	144.865	24.144	0.074965	6	24.691
-0.2351306E 03	-0.3373640E 03	0.4112188E 03	235.125	33.589	0.160859	7	28.807
0.2259402E 03	-0.3356733E 03	0.4046301E 03	303.944	37.993	0.158282	8	32.922
0.8364197E 02	-0.3880403E 03	0.3969524E 03	282.164	31.352	0.155279	9	37.037
-0.8041260E 02	-0.1670369E 03	0.1859255E 03	244.374	24.437	0.072730	10	41.152

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2033122E 06							
-0.4435688E 04	0.5384798E 05	0.5403070E 05	94.713	94.713	1.000000	1	4.115
-0.2776203E 04	0.2298818E 04	0.3605964E 04	140.394	70.197	0.066739	2	8.230
-0.6549000E 04	-0.3577451E 04	0.7806930E 04	207.274	69.091	0.144491	3	12.346
0.2715025E 04	0.7075251E 03	0.2805701E 04	14.606	3.652	0.051928	4	16.461
0.3980527E 03	0.1420365E 03	0.4226350E 03	19.638	3.928	0.007822	5	20.576
0.5016206E 03	-0.7899434E 03	0.9357529E 03	302.416	50.403	0.017319	6	24.691
-0.6038472E 03	-0.4345354E 03	0.7439438E 03	215.739	30.820	0.013769	7	28.807
-0.1085155E 04	-0.1202160E 04	0.1619491E 04	227.928	28.491	0.029974	8	32.922
0.9945521E 03	-0.1197934E 03	0.1002138E 04	353.135	39.237	0.018548	9	37.037
0.2506076E 01	0.2542534E 01	0.3569995E 01	45.414	4.541	0.000066	10	41.152

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1834830E 05							
-0.3987825E 04	0.2751632E 05	0.2780379E 05	98.246	98.246	1.000000	1	4.115
-0.8965626E 03	0.9039956E 03	0.1273479E 04	134.776	67.388	0.045802	2	8.230
-0.5160207E 04	-0.1243352E 04	0.5307895E 04	193.548	64.516	0.190905	3	12.346
0.1643641E 04	0.2185054E 03	0.1658544E 04	6.759	1.690	0.066773	4	16.461
0.1485877E 03	0.7371406E 03	0.7519670E 03	78.603	15.721	0.027045	5	20.576
-0.1836791E 03	0.5466840E 02	0.1887686E 03	163.166	27.194	0.006789	6	24.691
-0.3561274E 03	0.3458367E 03	0.4964170E 03	135.840	19.406	0.017854	7	28.807
-0.9105642E 03	-0.9745537E 03	0.1333747E 04	226.944	28.368	0.047970	8	32.922
0.1537259E 04	0.2941943E 03	0.1565195E 04	10.834	1.204	0.056294	9	37.037
0.4450458E 03	-0.1983661E 03	0.4872559E 03	335.977	33.598	0.017525	10	41.152

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2701514E 05							
-0.1055180E 04	0.7727813E 04	0.7799516E 04	97.775	97.775	1.000000	1	4.115
-0.1005868E 04	0.1060860E 04	0.1461920E 04	133.476	66.738	0.187437	2	8.230
-0.1154477E 04	-0.2104359E 03	0.1173588E 04	190.354	63.451	0.150469	3	12.346
0.1082035E 04	-0.4743245E 03	0.1181432E 04	336.329	84.082	0.151475	4	16.461
-0.4405610E 03	0.2753650E 03	0.5195381E 03	147.993	29.599	0.066612	5	20.576
-0.7083295E 02	0.1769784E 03	0.1924858E 03	111.592	18.599	0.024679	6	24.691
-0.4579074E 02	-0.1298166E 03	0.1376558E 03	250.570	35.796	0.017649	7	28.807
-0.5943176E 03	-0.7676256E 03	0.9708083E 03	232.252	29.031	0.124470	8	32.922
0.3645303E 03	-0.1928434E 03	0.4123950E 03	332.121	36.902	0.052874	9	37.037
-0.5495563E 02	-0.7099533E 02	0.8978015E 02	232.257	23.226	0.011511	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 39 V= 154 KTS n= 1.36 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 247 FLT 503.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7330781E 03							
0.2323003E 04	0.2518277E 04	0.3426048E 04	47.309	47.309	1.000000	1	4.115
-0.1324225E 04	0.1070526E 04	0.1702820E 04	141.047	70.524	0.497022	2	8.230
-0.3212671E 03	-0.4040618E 03	0.5162153E 03	231.512	77.171	0.150674	3	12.346
-0.3194760E 03	0.2008486E 03	0.3773665E 03	147.843	36.961	0.110146	4	16.461
0.9033540E 03	0.2088402E 03	0.9271799E 03	13.017	2.603	0.270627	5	20.576
0.2433658E 03	-0.5746926E 03	0.6241060E 03	292.953	48.825	0.182165	6	24.691
-0.3317478E 03	-0.1041968E 03	0.3477261E 03	197.437	28.205	0.101495	7	28.807
0.5581563E 03	0.3705243E 02	0.5593848E 03	3.798	0.475	0.163274	8	32.922
0.2338294E 03	-0.3449205E 02	0.2363597E 03	351.609	39.068	0.068989	9	37.037
0.1737529E 03	-0.1223955E 03	0.2125363E 03	324.837	32.484	0.062035	10	41.152

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 40 V= 152.5 KTS n= 1.77 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.6260518E 01							
0.4524400E 01	-0.1690132E 01	0.4829775E 01	339.516	339.516	1.000000	1	4.132
-0.5283300E-02	-0.1414799E 00	0.1415785E 00	267.861	133.931	0.029314	2	8.264
-0.7236415E-01	0.3653254E-01	0.8106309E-01	153.213	51.071	0.016784	3	12.397
-0.1010240E 00	-0.4806053E-01	0.1124157E 00	205.311	51.328	0.023276	4	16.529
-0.2724642E-01	0.5162062E-01	0.5854787E-01	117.736	23.547	0.012122	5	20.661
0.1267844E-01	0.1330512E-01	0.1837849E-01	46.382	7.730	0.003805	6	24.793
0.1363198E-02	-0.2559940E-02	0.2909730E-02	298.383	42.626	0.000602	7	28.926
0.6733599E-04	-0.2343429E-02	0.2344350E-02	271.646	33.956	0.000485	8	33.058
-0.3275672E-02	-0.3724152E-01	0.3738530E-01	264.973	29.441	0.007741	9	37.190
-0.8324742E-02	-0.1366663E-01	0.1600244E-01	238.653	23.865	0.003313	10	41.322

SHAFT MOMENT
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.3712327E 04							
-0.1166750E 06	0.1084122E 06	0.1592708E 06	137.103	137.103	1.000000	1	4.132
-0.1778490E 04	-0.1819353E 04	0.2544223E 04	225.651	112.825	0.015974	2	8.264
-0.1625140E 05	-0.6961063E 04	0.1767948E 05	203.187	67.729	0.111003	3	12.397
-0.9392534E 03	0.2338020E 03	0.9679295E 03	166.018	41.505	0.006077	4	16.529
0.1962211E 04	0.1088627E 04	0.2243965E 04	29.021	5.804	0.014089	5	20.661
-0.1188050E 03	-0.3022402E 03	0.3246787E 03	248.574	41.429	0.002039	6	24.793
-0.1278265E 04	-0.4633000E 04	0.4803211E 04	254.566	36.367	0.030158	7	28.926
-0.1145960E 04	-0.4656665E 03	0.1240666E 04	202.045	25.256	0.007790	8	33.058
-0.2657837E 03	0.5626736E 03	0.6240071E 03	115.616	12.846	0.003918	9	37.190
-0.5415063E 03	0.4138438E 03	0.6815343E 03	142.611	14.261	0.004279	10	41.322

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 11

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6119678E 03							
-0.1602582E 03	-0.1679618E 03	0.2321509E 03	226.344	226.344	0.703660	1	4.132
0.2515601E 03	-0.2134565E 03	0.3299185E 03	319.684	159.842	1.000000	2	8.264
-0.1131250E 03	0.9149756E 01	0.1134945E 03	175.376	58.459	0.344008	3	12.397
-0.4179018E 01	-0.7798756E 02	0.7809923E 02	266.936	66.734	0.236723	4	16.529
-0.9462577E 02	-0.3474435E 02	0.1008029E 03	200.150	40.030	0.305721	5	20.661
0.2753339E 02	0.2062746E 02	0.3440318E 02	36.840	6.140	0.104278	6	24.793
0.6544918E 01	0.2933867E 02	0.3005983E 02	77.424	11.061	0.091113	7	28.926
0.6926123E 01	0.2988844E 02	0.3068085E 02	76.949	9.619	0.092995	8	33.058
0.4681264E 01	-0.9815064E 01	0.1087429E 02	295.499	32.833	0.032961	9	37.190
-0.4333157E 01	-0.1884596E 00	0.4337252E 01	182.490	18.249	0.013146	10	41.322

FIXED HUB FLAP AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 1

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1418528E 05							
-0.2150500E 05	0.2452433E 05	0.3261760E 05	131.247	131.247	1.000000	1	4.132
0.6302674E 04	-0.1988314E 05	0.2085798E 05	287.586	143.793	0.639470	2	8.264
-0.1079342E 04	0.2108845E 04	0.2369010E 04	117.104	39.035	0.072630	3	12.397
-0.2557592E 04	-0.2431155E 04	0.3828894E 04	219.417	54.854	0.117387	4	16.529
-0.2114111E 04	-0.4790781E 03	0.2167713E 04	192.768	38.554	0.066458	5	20.661
-0.3233340E 03	-0.1188624E 04	0.1231814E 04	254.782	42.464	0.037765	6	24.793
0.2593760E 03	-0.3596670E 03	0.4434368E 03	305.797	43.685	0.013595	7	28.926
0.8162480E 03	0.8917227E 03	0.1208896E 04	47.530	5.941	0.037063	8	33.058
-0.2044112E 03	0.6210010E 02	0.2136360E 03	163.101	18.122	0.006550	9	37.190
0.3597678E 02	0.8921565E 02	0.9776283E 02	65.863	6.586	0.002997	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 40 V= 152.5 KTS n= 1.77 g

FIXED HUB CHORD AT STA 18
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 3

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2865584E 05							
0.4475093E 05	0.8857106E 05	0.9923444E 05	63.195	63.195	1.000000	1	4.132
-0.4408859E 04	0.6226023E 04	0.1128229E 05	146.507	73.253	0.113693	2	8.264
-0.5111172E 04	-0.1037114E 05	0.1156220E 05	243.765	81.255	0.116514	3	12.397
0.1016036E 03	0.5727607E 03	0.5817026E 03	79.941	19.985	0.005862	4	16.529
0.2561046E 02	-0.1658821E 04	0.1659018E 04	270.885	54.177	0.016718	5	20.661
-0.2010630E 03	-0.1660778E 04	0.1672904E 04	263.097	43.849	0.016858	6	24.793
0.4188223E 03	-0.2546715E 03	0.4901731E 03	328.698	46.957	0.004940	7	28.926
0.9295190E 03	0.6808354E 03	0.1152190E 04	36.221	4.528	0.011611	8	33.056
-0.4742551E 03	0.7902164E 02	0.4807935E 03	170.540	18.949	0.004845	9	37.190
0.7432361E 03	0.2955779E 03	0.7998538E 03	21.687	2.169	0.008060	10	41.322

BLADE FLAP AT STA 130.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 19

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1063019E 05							
0.5405738E 04	-0.3580357E 04	0.6487223E 04	326.502	326.502	1.000000	1	4.132
-0.1815197E 04	0.4584000E 04	0.4930313E 04	111.603	55.801	0.760004	2	8.264
0.1386094E 03	-0.2653944E 00	0.1386096E 03	359.890	119.963	0.021367	3	12.397
0.1340530E 04	0.4794951E 03	0.1423705E 04	19.682	4.920	0.219463	4	16.529
0.1649503E 03	-0.3756607E 02	0.1692129E 03	347.173	69.435	0.026084	5	20.661
0.2530160E 03	0.5932563E 03	0.6449575E 03	66.902	11.150	0.099420	6	24.793
0.2777209E 03	0.2718852E 03	0.3886548E 03	44.392	6.342	0.059911	7	28.926
-0.2102383E 03	0.5926575E 03	0.6288425E 03	109.532	13.691	0.096936	8	33.058
0.1065529E 03	-0.8881960E 02	0.1390246E 03	320.292	35.588	0.021431	9	37.190
0.4745822E 02	-0.1554795E 01	0.4748369E 02	358.124	35.812	0.007320	10	41.322

BLADE FLAP AT STA 205
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.5803671E 04							
-0.3573850E 04	0.6076324E 04	0.7260383E 04	123.184	123.184	1.000000	1	4.132
0.9491970E 03	-0.1942316E 04	0.2161843E 04	296.044	148.022	0.297759	2	8.264
-0.1655592E 04	-0.8958528E 03	0.1885947E 04	208.360	69.453	0.259759	3	12.397
0.6250598E 03	0.6475415E 03	0.9000051E 03	46.012	11.503	0.123961	4	16.529
0.4164561E 03	-0.9602637E 02	0.4274226E 03	347.017	69.403	0.058871	5	20.661
0.2408653E 03	0.5168142E 03	0.5701023E 03	65.030	10.838	0.078522	6	24.793
0.4768652E 02	0.3684211E 03	0.3714944E 03	82.625	11.804	0.051167	7	28.926
-0.1440789E 03	0.1088955E 03	0.1806016E 03	142.918	17.865	0.024875	8	33.058
-0.2086670E 02	0.3146544E 02	0.3775565E 02	123.551	13.728	0.005200	9	37.190
-0.3431749E 02	0.1456326E 02	0.3727972E 02	157.005	15.701	0.005135	10	41.322

BLADE FLAP AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 4

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1269825E 03							
-0.7886787E 03	0.4489652E 04	0.4558395E 04	99.963	99.963	1.000000	1	4.132
0.1531429E 03	-0.8346033E 02	0.1744086E 03	331.410	165.705	0.038261	2	8.264
-0.2014387E 04	-0.9408574E 03	0.2223278E 04	205.036	68.345	0.487733	3	12.397
0.1195728E 04	0.6212268E 03	0.1347475E 04	27.454	6.863	0.295603	4	16.529
0.4116025E 03	-0.4270486E 03	0.5931165E 03	313.945	62.789	0.130115	5	20.661
0.1645751E 03	0.7269319E 02	0.1799146E 03	23.831	3.972	0.039469	6	24.793
0.4554275E 03	-0.9879811E 02	0.4660208E 03	347.760	49.680	0.102233	7	28.926
0.2558245E 03	0.7806917E 03	0.8215386E 03	71.857	8.982	0.180225	8	33.058
0.7440950E 02	-0.5876389E 02	0.9481543E 02	321.700	35.744	0.020800	9	37.190
0.3085223E 02	0.8810704E 02	0.9335260E 02	70.701	7.070	0.020479	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 40 V= 152.5 KTS n= 1.77 g

BLADE FLAP AT STA 270
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 26

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.4371199E 04							
0.5512553E 03	0.2172476E C4	0.2387954E 04	65.473	65.473	1.000000	1	4.132
-0.2070971E 03	0.1010116E 04	0.1031127E 04	101.586	50.793	0.431804	2	8.264
-0.1612393E 04	-0.9851621E 03	0.1889530E 04	211.425	70.475	0.791279	3	12.397
0.4957554E 03	0.1588129E 03	0.5206099E 03	17.761	4.440	0.218015	4	16.529
0.3640613E 03	-0.3575898E 03	0.5103045E 03	315.514	63.103	0.213700	5	20.661
0.8156732E 02	-0.2813301E C3	0.2929230E 03	286.168	47.695	0.122667	6	24.793
0.5455985E 03	-0.4828555E C3	0.7288764E 03	318.512	45.502	0.305231	7	28.926
0.5390156E 03	0.4102764E 03	0.6773955E 03	37.277	4.660	0.283672	8	33.058
0.2212685E 03	-0.1683839E C3	C.2780522E 03	322.729	35.859	0.116440	9	37.190
0.3685087E 02	0.1267748E 03	0.1320333E 03	73.775	7.378	0.055291	10	41.322

BLADE CHORD AT STA 103
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 17

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1905229E 06							
0.1323884E 05	0.4551832E C5	0.4740447E 05	73.783	73.783	1.C00000	1	4.132
-0.3359524E 04	0.2759227E 04	0.4347383E 04	140.603	70.302	0.091708	2	8.264
-0.7593789E 04	-0.6092851E 04	0.1C05107E 05	217.315	72.438	0.212028	3	12.397
0.2643348E 04	0.10081C2E 04	0.2829056E 04	20.875	5.219	0.059679	4	16.529
-0.1632422E 03	0.1230712E C4	0.1241491E 04	97.556	19.511	0.026189	5	20.661
-0.4275276E 03	-0.2779158E C3	0.5C99185E 03	213.026	35.504	0.010757	6	24.793
0.4552C90E 03	-0.1454661E 04	0.1528495E 04	287.321	41.046	0.032254	7	28.926
0.1220186E 04	-0.5465451E C2	0.1221405E 04	357.435	44.679	0.025766	8	33.058
0.6902881E 03	-0.1505087E 03	0.7C65059E 03	347.700	38.633	0.C14904	9	37.190
0.9573228E 03	-0.2255668E 03	C.9835381E 03	346.741	34.674	0.020748	10	41.322

BLADE CHORD AT STA 174
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 42

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1953545E 05							
0.2787174E 04	0.2407534E 05	0.2423271E 05	83.467	83.467	1.C00000	1	4.132
-0.7146523E 03	0.1873461E 04	0.2C02336E 04	110.911	55.455	0.082629	2	8.264
-0.4996535E 04	-0.3552318E 04	0.6130605E 04	215.411	71.804	0.252989	3	12.397
0.56CC745E 03	0.2437210E C3	C.9935266E 03	14.244	3.561	0.040876	4	16.529
-0.8556501E 03	0.2297245E 04	0.2465668E 04	111.300	22.260	0.101750	5	20.661
-0.2300471E 03	0.5863C25E C3	0.6298191E 03	111.424	18.571	0.025990	6	24.793
-0.8591895E 03	-0.1190680E C4	0.1468307E 04	234.186	33.455	0.060592	7	28.926
0.5C5546CE 03	-0.1372090E C4	0.1462359E 04	290.241	36.280	0.C60348	8	33.058
0.1C23371E 04	-0.9088834E 02	0.1C27394E 04	354.925	39.436	0.042397	9	37.190
0.5857629E 03	0.6253162E 02	0.5890879E 03	6.090	0.609	0.024310	10	41.322

BLADE CHORD AT STA 235
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 22

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2865277E 05							
0.2140508E 04	0.5804770E 04	0.6186848E 04	69.759	69.759	1.000000	1	4.132
-0.4398818E 03	0.5032402E 03	0.6683911E 03	131.157	65.578	0.108034	2	8.264
-0.1644758E 04	-0.1040526E 04	0.1946259E 04	212.319	70.773	0.314580	3	12.397
0.9965330E 03	0.2823041E 02	0.9969326E 03	1.623	0.406	0.161137	4	16.529
-0.1364349E 03	0.9765476E C3	C.9860322E 03	97.953	19.591	0.159375	5	20.661
0.2673714E 01	0.3579553E C3	0.3579653E 03	89.572	14.929	0.057859	6	24.793
-0.5429C19E 03	-0.5072542E 03	0.7430006E 03	223.056	31.865	0.120093	7	28.926
-0.8416476E 02	-0.8089756E C3	0.8133420E 03	264.060	33.008	0.131463	8	33.058
0.1813224E 03	-0.9651437E C2	0.2054089E 03	331.974	36.886	0.033201	9	37.190
0.4336713E 02	0.7070328E 02	0.8294371E 02	58.476	5.848	0.013406	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 40 V= 152.5 KTS n= 1.77 g

BLADE TORSION AT STA 131.5
HARMONIC ANALYSIS MODEL AH-56A SHIP 1009 T 408 CTR 306 FLT 503.0 TR 44

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.41171124E 03							
0.16225665E 04	0.38466221E 04	0.41746617E 04	67.122	67.122	1.000000	1	4.132
-0.15511080E 04	0.18499855E 04	0.24142046E 04	129.970	64.989	0.578305	2	8.264
0.54705533E 03	-0.59267802E 03	0.80650495E 03	312.710	104.237	0.193212	3	12.397
-0.74659392E 03	-0.36765160E 03	0.83251780E 03	206.207	51.552	0.199424	4	16.529
0.55247158E 02	0.60501866E 02	0.81990208E 02	47.637	9.527	0.019640	5	20.661
-0.37925370E 03	-0.11173550E 04	0.11800140E 04	251.250	41.875	0.282664	6	24.793
0.25752650E 03	-0.21977600E 03	0.37021830E 03	323.584	46.226	0.088683	7	28.926
0.27183590E 03	0.10871660E 04	0.11206350E 04	75.961	9.495	0.268440	8	33.058
0.13164270E 03	0.38800720E 02	0.13743360E 03	16.399	1.822	0.032921	9	37.190
0.44732090E 02	0.10523480E 03	0.11514450E 03	66.055	6.606	0.027582	10	41.322

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 41 V= 168 KTS n= 1.03 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.2825999E 01							
0.1465569E 01	-0.1194484E 01	0.1890683E 01	320.819	320.819	1.000000	1	5.848
-0.1161456E-01	0.6595750E-02	0.1355873E-01	148.938	74.469	0.007171	2	11.696
0.3330175E-01	0.2482055E-01	0.4158230E-01	36.649	12.216	0.021993	3	17.544
-0.2298272E-01	0.4505311E-01	0.5061157E-01	117.006	29.252	0.026769	4	23.392
-0.6442625E-02	0.1270517E-01	0.1424530E-01	116.889	23.378	0.007534	5	29.240
0.6962746E-02	0.1965015E-02	0.7235803E-02	15.791	2.632	0.003827	6	35.088
-0.7344153E-02	0.5485253E-02	0.9168508E-02	143.224	20.461	0.004850	7	40.936
-0.2527263E-02	0.1194456E-01	0.1220859E-01	101.947	12.743	0.006457	8	46.784
0.2330610E-03	-0.1662356E-01	0.1662566E-01	270.820	30.091	0.008793	9	52.632
0.3595312E-02	0.1710243E-02	0.3981356E-02	25.440	2.544	0.002106	10	58.480

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1055066E 03							
-0.3365354E 02	0.6243478E 02	0.7092714E 02	118.326	118.326	1.000000	1	5.848
0.8373910E 01	0.6759656E 01	0.1047474E 02	37.376	18.688	0.147683	2	11.696
0.8558366E 01	0.7497303E 01	0.1137544E 02	41.228	13.743	0.160382	3	17.544
0.4753652E 01	-0.1706317E 02	0.1771315E 02	285.567	71.392	0.249737	4	23.392
0.2070933E 01	-0.4460671E 00	0.2079769E 01	347.559	69.512	0.029323	5	29.240
-0.1362651E 02	-0.1243005E 02	0.1844420E 02	222.371	37.062	0.260044	6	35.088
0.6315534E 01	-0.2459918E 01	0.6775568E 01	339.699	47.133	0.096741	7	40.936
0.5231893E 00	-0.4984925E 01	0.5011802E 01	275.958	34.495	0.070662	8	46.784
0.3060196E 01	0.4264523E 01	0.5248839E 01	54.337	6.037	0.074004	9	52.632
0.1437985E 00	0.9956701E 00	0.1006001E 01	81.782	8.178	0.014184	10	58.480

BLADE 2 FIXED HUB FLAP AT STA 6
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 43

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2872376E 05							
-0.4100061E 04	0.2658215E 04	0.4991320E 04	147.061	147.061	0.664940	1	5.848
-0.1749194E 04	0.7145317E 04	0.7356331E 04	103.756	51.878	1.000000	2	11.696
0.1015557E 04	-0.9685409E 03	0.1403639E 04	316.345	105.448	0.190815	3	17.544
-0.7877765E 03	-0.3582346E 03	0.8072268E 03	204.432	51.708	0.109738	4	23.392
-0.2246541E 03	0.2337636E 03	0.3314497E 03	138.240	27.648	0.045060	5	29.240
0.7460645E 02	0.1803857E 02	0.7675616E 02	13.592	2.265	0.010434	6	35.088
0.1198326E 03	-0.2585594E 03	0.2852507E 03	294.841	42.120	0.038778	7	40.936
-0.1535386E 03	-0.1773412E 03	0.2325999E 03	229.679	28.710	0.031620	8	46.784
0.5150277E 02	-0.9767322E 02	0.1105627E 03	297.998	33.111	0.015030	9	52.632
-0.8000870E 02	0.7983939E 02	0.1130867E 03	135.089	13.509	0.015373	10	58.480

FIXED HUB CHORD AT STA 6
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 5

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1687977E 05							
-0.6615534E 03	0.1770314E 05	0.1771250E 05	92.142	92.142	1.000000	1	5.848
-0.2475599E 04	0.4857176E 04	0.5453494E 04	117.044	58.522	0.307889	2	11.696
-0.1116336E 04	-0.9674179E 03	0.1477196E 04	220.912	73.637	0.083398	3	17.544
0.5191775E 03	-0.2286696E 03	0.5663899E 03	336.188	84.047	0.031977	4	23.392
-0.1649868E 03	0.4545757E 02	0.1710362E 03	164.587	32.917	0.009656	5	29.240
0.2724697E 03	-0.1562294E 03	0.3140813E 03	330.171	55.028	0.017732	6	35.088
-0.1226566E 03	0.6217165E 02	0.1375224E 03	153.123	21.875	0.007764	7	40.936
0.1491362E 03	-0.1650755E 02	0.1490532E 03	353.641	44.205	0.008415	8	46.784
0.2272711E 03	0.4136739E 03	0.4694126E 03	61.029	6.781	0.026502	9	52.632
-0.2570463E 02	-0.1022935E 03	0.1065205E 03	253.805	25.380	0.006014	10	58.480

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 41 V= 168 KTS n= 1.03 g

BLADE FLAP AT STA 115

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 27

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4721072E 01							
0.1133347E 04	-0.7302346E 03	0.1347971E 04	327.198	327.198	1.000000	1	5.848
-0.7315655E 03	0.7525465E 03	0.7794946E 03	105.017	52.508	0.578265	2	11.696
0.1055291E 03	0.1055676E 03	0.1492675E 03	45.019	15.339	0.110735	3	17.544
0.1597633E 02	-0.3725939E 02	0.4050064E 02	293.077	73.270	0.030046	4	23.392
-0.1022069E 02	0.3417630E 02	0.3586866E 02	107.569	21.514	0.026594	5	29.240
-0.4294253E 02	0.1967756E 02	0.4420770E 02	166.283	27.715	0.032792	6	35.398
-0.2113557E 02	0.4873773E 02	0.5310957E 02	113.457	16.208	0.039389	7	40.936
-0.8620185E 02	-0.7782942E 02	0.1161781E 03	222.130	27.763	0.086187	8	46.784
-0.4374951E 02	-0.2133896E 02	0.4958589E 02	208.078	23.120	0.036786	9	52.632
0.5533391E 00	-0.1429851E 01	0.1546969E 01	292.433	29.243	0.001148	10	58.480

BLADE FLAP AT STA 157

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.6124920E 03							
0.5760029E 03	-0.6721281E 03	0.8851694E 03	310.596	310.596	1.000000	1	5.848
0.5542413E 02	0.4049770E 03	0.4087083E 03	82.150	41.075	0.461729	2	11.696
0.3265650E 03	0.2513174E 03	0.3967222E 03	39.309	13.103	0.448188	3	17.544
-0.8516950E 02	-0.6682471E 02	0.1138859E 03	217.815	54.454	0.128660	4	23.392
-0.1218231E 03	-0.1154351E 03	0.1687991E 03	218.654	43.731	0.190697	5	29.240
0.1867360E 03	-0.1542900E 03	0.2419675E 03	320.380	53.397	0.273357	6	35.088
0.7458930E 01	-0.5760555E 02	0.5808658E 02	277.378	39.625	0.065622	7	40.936
0.2259961E 03	0.8397367E 02	0.2410921E 03	20.383	2.548	0.272368	8	46.784
0.7470154E 02	0.2056415E 02	0.7748036E 02	15.392	1.710	0.087532	9	52.632
0.1420654E 02	-0.8989813E 01	0.1689603E 02	327.859	32.786	0.019088	10	58.480

BLADE CHORD AT STA 45

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 181 FLT 511.0 TR 29

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1806724E 05							
-0.6137473E 03	0.1258589E 05	0.1260088E 05	92.837	92.837	1.000000	1	5.848
-0.1172691E 04	0.6384612E 03	0.1335229E 04	151.434	75.717	0.105963	2	11.696
-0.7158259E 03	-0.4200233E 03	0.7255816E 03	187.284	62.428	0.057580	3	17.544
0.3238690E 03	0.1422812E 03	0.3537441E 03	23.717	5.929	0.028073	4	23.392
-0.1515945E 03	0.1615565E 03	0.2218156E 03	133.254	26.651	0.017603	5	29.240
-0.1886922E 02	-0.6003219E 02	0.6292802E 02	252.551	42.092	0.004994	6	35.088
0.7290639E 02	0.3121470E 02	0.7970642E 02	23.839	3.406	0.006325	7	40.936
0.4571443E 02	-0.8760676E 02	0.9883765E 02	297.535	37.192	0.007848	8	46.784
0.7582726E 02	-0.8914096E 02	0.1170290E 03	310.386	34.487	0.009287	9	52.632
0.9442230E 02	-0.5554036E 02	0.7775934E 02	314.417	31.442	0.006171	10	58.480

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 42 V= 169 KTS n= 1.26 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TP 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.30059894E 01							
0.12170326E 01	-0.13925311E 01	0.18494C8E 01	311.152	311.152	1.000000	1	5.917
0.26302977E-01	0.10644618E-01	0.28375238E-01	22.033	11.016	0.015343	2	11.834
-0.16659908E-02	0.37164206E-01	0.37201706E-01	92.573	30.858	0.020115	3	17.751
0.20415568E-01	0.42127778E-01	0.46813528E-01	64.145	16.036	0.025313	4	23.669
-0.12317248E-01	-0.65831208E-02	0.13896898E-01	210.160	42.032	0.007515	5	29.586
0.21086428E-01	0.30952568E-02	0.21312578E-01	8.361	1.394	0.011524	6	35.503
0.54866601E-02	-0.72878156E-02	0.91222648E-02	306.974	43.853	0.004933	7	41.420
0.14261578E-01	0.13553628E-01	0.19674688E-01	43.542	5.443	0.010638	8	47.337
-0.14853338E-01	0.18689718E-01	0.23873138E-01	128.475	14.275	0.012909	9	53.254
0.72071668E-02	0.27518806E-02	0.77146668E-02	20.898	2.090	0.004171	10	59.172

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TP 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.93473271E 02							
-0.10764958E 02	0.58341145E 02	0.59325995E 02	100.455	100.455	1.000000	1	5.917
0.72376695E 01	0.71232367E 01	0.10155901E 02	44.543	22.272	0.171173	2	11.834
0.11371476E 02	0.11947125E 01	0.11434365E 02	5.998	1.999	0.192733	3	17.751
-0.72549708E 01	-0.13674385E 02	0.13827938E 02	261.453	65.363	0.233084	4	23.669
0.10142004E 02	0.18303427E 01	0.10307536E 02	10.330	2.066	0.172058	5	29.586
-0.74651028E 01	-0.10261325E 02	0.12689266E 02	233.963	38.994	0.213890	6	35.503
0.36716752E 01	-0.11674608E 01	0.38453078E 01	342.716	48.959	0.064817	7	41.420
0.22059257E 00	-0.23850735E 01	0.24054198E 01	276.683	34.585	0.040546	8	47.337
0.64744975E 01	0.34053655E 01	0.73154278E 01	27.743	3.083	0.123309	9	53.254
0.36281005E 01	0.53483775E 00	0.36647532E 01	8.431	0.843	0.061483	10	59.172

BLADE 2 FIXED HUB FLAP AT STA 6
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TP 43

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.22657095E 05							
-0.29553424E 04	-0.95366615E 02	0.28599325E 04	181.911	181.911	0.377182	1	5.917
-0.11149045E 04	0.74999777E 04	0.75823758E 04	98.455	49.227	1.000000	2	11.834
0.52740185E 02	-0.78651565E 02	0.11303018E 03	316.266	105.422	0.015912	3	17.751
-0.86659580E 03	-0.34922247E 03	0.93463695E 03	201.927	50.482	0.123263	4	23.669
0.38187215E 03	0.31197655E 01	0.38198558E 03	0.468	0.096	0.050365	5	29.586
-0.99745505E 02	0.16069396E 03	0.18331078E 03	119.047	19.841	0.024242	6	35.503
-0.72173115E 02	-0.20514325E 03	0.21746798E 03	250.617	35.802	0.028681	7	41.420
-0.20336365E 03	-0.63179705E 01	0.20346318E 03	181.836	22.726	0.026838	8	47.337
-0.11711346E 02	-0.75537705E 02	0.76364978E 02	261.651	29.072	0.010071	9	53.254
0.47504225E 02	0.12046345E 03	0.12952845E 03	68.437	6.844	0.017083	10	59.172

FIXED HUB CHORD AT STA 6
HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TP 5

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.11325577E 05							
0.14745617E 04	0.18776617E 05	0.18834265E 05	85.508	85.508	1.000000	1	5.917
-0.32130664E 04	0.45614427E 04	0.55816098E 04	125.155	62.578	0.296354	2	11.834
-0.47930615E 03	-0.99763165E 03	0.10797338E 04	243.661	81.220	0.057327	3	17.751
0.23320675E 03	-0.96532105E 02	0.25795928E 03	339.022	84.506	0.013696	4	23.669
-0.15967355E 03	-0.19664017E 03	0.20082645E 03	185.584	37.117	0.010663	5	29.586
0.96607725E 01	-0.19159565E 03	0.19183935E 03	272.893	45.482	0.010186	6	35.503
-0.34077757E 02	-0.92108375E 02	0.98524925E 02	249.209	35.601	0.005231	7	41.420
0.16556415E 03	-0.18976107E 03	0.25133165E 03	311.119	38.915	0.013344	8	47.337
-0.36459595E 03	0.15651735E 03	0.39784915E 03	156.520	17.391	0.021124	9	53.254
-0.64767056E 02	-0.41753457E 03	0.42202658E 03	261.181	26.119	0.022455	10	59.172

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 42 V= 169 KTS n= 1.26 g

BLADE FLAP AT STA 115

HARMONIC ANALYSIS MODEL YH-51A SHIP 1002 T 459 CTR 214 FLT 511.0 TR 27

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.40[illegible] 03							
0.1178[illegible] 04	-0.9156023[illegible] 03	0.1433925E 04	325.323	325.323	1.000000	1	5.917
-0.[illegible] 03	0.8175960E 03	0.8675043E 03	109.453	54.727	0.605150	2	11.834
0.16[illegible] 03	0.2395071E 03	0.2895532E 03	55.807	18.602	0.201987	3	17.751
-0.4405149E 01	-0.1285474E 02	0.1360815E 02	250.845	62.711	0.009493	4	23.669
-0.6115163E 02	0.1156307E 02	0.6247105E 02	169.333	33.867	0.043579	5	29.586
-0.3774164E 02	-0.3007500E 02	0.4825906E 02	218.550	36.425	0.033665	6	35.503
-0.13[illegible] 02	0.4183131E 02	0.4411227E 02	108.503	15.500	0.030772	7	41.420
-0.6585973E 02	-0.6581044E 02	0.9311122E 02	224.982	28.123	0.064953	8	47.337
0.6354814E 01	-0.3551129E 02	0.3647046E 02	280.051	31.117	0.025441	9	53.254
-0.1538006E 02	-0.4203431E 01	0.1594413E 02	195.286	19.529	0.011122	10	59.172

BLADE FLAP AT STA 157

HARMONIC ANALYSIS MODEL YH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.711371[illegible] 03							
0.666[illegible] 03	-0.8302120E 03	0.1064868E 04	308.772	308.772	1.000000	1	5.917
0.[illegible] 03	0.4565475E 03	0.4619705E 03	81.298	40.634	0.433829	2	11.834
0.52[illegible] 03	0.4080700E 03	0.6679731E 03	37.656	12.552	0.627283	3	17.751
-0.5[illegible] 02	0.2493594E 02	0.6334509E 02	156.819	39.205	0.059486	4	23.669
-0.1312[illegible] 03	-0.1632413E 03	0.2095267E 03	231.178	46.236	0.196763	5	29.586
0.1566083E 03	-0.1165271E 03	0.1952043E 03	323.348	53.891	0.183313	6	35.503
-0.3103774E 02	-0.7949537E 02	0.8534009E 02	248.673	35.525	0.080141	7	41.420
0.1543346E 03	0.5826106E 02	0.1649650E 03	20.681	2.585	0.154916	8	47.337
0.6041943E 02	0.3483623E 02	0.6973511E 02	29.970	3.330	0.065487	9	53.254
0.2873462E 02	0.2122203E 02	0.3572069E 02	36.445	3.645	0.033545	10	59.172

BLADE CHORD AT STA 65

HARMONIC ANALYSIS MODEL YH-51A SHIP 1002 T 458 CTR 214 FLT 511.0 TR 29

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1717779[illegible] 05							
0.1153[illegible] 02	0.1336540E 05	0.1336545E 05	89.839	89.839	1.000000	1	5.917
-0.1255[illegible] 04	0.466[illegible] 03	0.1342690E 04	159.851	79.926	0.100475	2	11.834
-0.46[illegible] 03	-0.3696[illegible] 03	0.5743969E 03	216.372	72.124	0.042976	3	17.751
0.4451580 03	0.2189470E 03	0.4960442E 03	26.180	6.545	0.037114	4	23.669
-0.2047197E 03	-0.9601855E 02	0.2257550E 03	205.171	41.034	0.016891	5	29.586
0.3295[illegible] 03	0.3975946E 01	0.3295659E 03	0.692	0.115	0.024658	6	35.503
-0.57[illegible] 02	0.9[illegible] 02	0.1121561E 03	120.779	17.254	0.008391	7	41.420
-0.8555201 01	-0.3626030E 02	0.3725072E 02	256.121	32.015	0.002785	8	47.337
0.1425925E 03	-0.8369367E 01	0.1428347E 03	356.649	39.628	0.010687	9	53.254
0.2441330E 02	-0.7154654E 02	0.7559705E 02	288.841	28.884	0.005656	10	59.172

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 43   V= 170 KTS   n= 1.49 g

BLADE FEATHER ANGLE
HARMONIC ANALYSIS MODEL XH-51A   SHIP 1002   T 458   CTR 247 FLT 511.0   TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.3135850E 01							
0.1116911E 01	-0.1720084E 01	0.2050833E 01	302.998	302.998	1.000000	1	5.917
0.4617703E-02	-0.1031946E-01	0.1344423E-01	309.861	154.932	0.006555	2	11.834
0.1041905E-01	0.3464011E-01	0.3617311E-01	73.260	24.420	0.017638	3	17.751
0.5134457E-01	0.2141454E-01	0.5563150E-01	22.640	5.660	0.027126	4	23.669
-0.2012174E-01	-0.3505455E-02	0.2043337E-01	189.890	37.973	0.009963	5	29.586
0.3054460E-01	0.1715583E-01	0.1513466E-01	29.284	4.881	0.017132	6	35.503
0.2634684E-01	-0.2443207E-01	0.3571224E-01	316.832	45.262	0.017414	7	41.420
0.1050472E-01	0.3597006E-02	0.1123545E-01	20.832	2.604	0.005480	8	47.337
-0.6352452E-02	0.4561316E-02	0.8459548E-02	144.095	16.011	0.004125	9	53.254
0.8353561E-02	0.1384740E-01	0.1617156E-01	58.899	5.890	0.007886	10	59.172

PITCH LINK TENSION
HARMONIC ANALYSIS MODEL XH-51A   SHIP 1002   T 459   CTR 247 FLT 511.0   TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.7356661E 02							
-0.5170981E 01	0.6501247E 02	0.6520593E 02	94.284	94.284	1.000000	1	5.917
0.5651634E 01	0.7685317E 01	0.9701317E 01	54.367	27.184	0.140189	2	11.834
0.1492982E 02	-0.2512493E 01	0.1521124E 02	349.962	116.321	0.219797	3	17.751
-0.1011586E 02	-0.8804609E 01	0.1341086E 02	221.036	55.259	0.193782	4	23.669
0.1455771E 02	0.3994619E 01	0.1503904E 02	15.405	3.081	0.217296	5	29.586
-0.9117734E 01	-0.2518361E 01	0.9459030E 01	195.439	32.573	0.136679	6	35.503
-0.4616157E 00	-0.6706229E 00	0.8141456E 00	235.459	33.637	0.011764	7	41.420
0.3745773E 01	-0.5298673E 01	0.5370369E 01	273.373	34.922	0.077600	8	47.337
0.4123499E 01	-0.3599445E 01	0.4717466E 01	347.686	38.632	0.068161	9	53.254
0.4987074E 01	-0.2272479E 01	0.5480424E 01	335.502	33.550	0.079190	10	59.172

BLADE 2 FIXED HUB FLAP AT STA 6
HARMONIC ANALYSIS MODEL XH-51A   SHIP 1002   T 458   CTR 247 FLT 511.0   TR 43

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.2073191E 05							
-0.6115751E 03	-0.1073209E 04	0.1236307E 04	240.244	240.244	0.156948	1	5.917
0.3547151E 03	0.7868070E 04	0.7877107E 04	87.390	43.695	1.000000	2	11.834
-0.5259394E 03	0.2466641E 03	0.5845730E 03	155.044	51.681	0.074212	3	17.751
-0.7151230E 03	-0.1296614E 03	0.7267817E 03	190.277	47.569	0.092265	4	23.669
0.7825547E 03	-0.7222819E 02	0.7858809E 03	354.727	70.945	0.099768	5	29.586
-0.1206959E 02	0.1697711E 03	0.1701946E 03	94.067	15.678	0.021607	6	35.503
-0.7235143E 02	-0.1559439E 03	0.2090337E 03	249.715	35.673	0.026507	7	41.420
-0.2160455E 03	0.4025217E 02	0.2197636E 03	169.446	21.181	0.027899	8	47.337
-0.4021701E 01	-0.9523382E 02	0.9531529E 02	267.679	29.742	0.012608	9	53.254
0.2095156E 02	0.5503957E 02	0.6258443E 02	70.538	7.054	0.007945	10	59.172

FIXED HUB CHORD AT STA 6
HARMONIC ANALYSIS MODEL XH-51A   SHIP 1002   T 458   CTR 247 FLT 511.0   TR 5

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1186784E 05							
0.5038941E 04	0.2075766E 05	0.2135990E 05	76.363	76.363	1.000000	1	5.917
-0.2886253E 04	0.6635025E 04	0.7239988E 04	113.494	56.747	0.338954	2	11.834
-0.1057878E 04	-0.3766131E 03	0.1132905E 04	199.427	66.476	0.053011	3	17.751
0.1134114E 03	-0.5026370E 01	0.1135227E 03	357.462	89.366	0.005315	4	23.669
-0.1075566E 03	0.3246245E 03	0.3419797E 03	108.332	21.666	0.016011	5	29.586
-0.2236485E 02	0.3011252E 02	0.3769617E 02	126.402	21.067	0.001764	6	35.503
0.6528487E 02	0.1314329E 03	0.1467536E 03	63.542	9.077	0.006871	7	41.420
0.3874139E 03	-0.5608151E 02	0.3914519E 03	351.763	43.970	0.018327	8	47.337
-0.1058313E 03	0.6131611E 03	0.6226263E 03	99.790	11.088	0.029140	9	53.254
-0.1218233E 03	-0.1187599E 03	0.1701317E 03	224.270	22.427	0.007965	10	59.172

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 43 V= 170 KTS n= 1.49 g

BLADE FLAP AT STA 115

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 247 FLT 511.0 TR 27

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.4555644[illegible] 03							
0.12[illegible] 04	-0.15879[illegible] 03	0.15383490E 04	321.445	321.445	1.000000	1	5.917
-0.25368[illegible] 03	0.[illegible]6735314E 03	0.99985770E 03	106.375	53.187	0.584950	2	11.834
0.2102[illegible] 03	0.25630130E 03	0.33729968E 03	49.452	16.484	0.219261	3	17.751
-0.2555[illegible] 02	-0.2252[illegible] 02	0.34092658E 02	221.350	55.338	0.022162	4	23.669
-0.11946395E 02	-0.16652255E 02	0.20526785E 02	234.409	46.882	0.013343	5	29.586
-0.1259210[illegible] 02	0.19225160E 02	0.23036[illegible]E 02	123.432	20.572	0.014975	6	35.503
-0.4[illegible] 01	0.6093[illegible] 02	0.65074668E 02	93.593	13.370	0.044902	7	41.420
-0.1007120[illegible] 03	-0.67602[illegible] 02	0.12129[illegible]E 03	213.871	26.734	0.078649	8	47.337
-0.37426595E 02	-0.17005987E 02	0.41109945E 02	204.436	22.715	0.026723	9	53.254
0.75507338E 01	-0.12361505E 02	0.14719[illegible]E 02	302.879	30.288	0.009568	10	59.172

BLADE FLAP AT STA 157

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 247 FLT 511.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.[illegible] 03							
0.65[illegible]617[illegible] 03	-0.951[illegible] 03	0.11556316E 04	304.374	304.374	1.000000	1	5.917
0.1575[illegible] 02	0.46844[illegible] 03	0.4687[illegible]8E 03	88.074	44.037	0.405586	2	11.834
0.60[illegible]68[illegible] 03	0.40265[illegible] 03	0.72731865E 03	33.616	11.205	0.629369	3	17.751
-0.3474014[illegible] 02	-0.3[illegible]755[illegible]7 02	0.47774448E 02	[illegible]	55.933	0.041341	4	23.669
-0.20339[illegible] 03	-0.2[illegible]2671[illegible] 03	0.33347[illegible]5E 03	232.415	46.483	0.288569	5	29.586
0.11453[illegible] 03	-0.13562245 03	0.17775495E 03	310.195	51.699	0.153639	6	35.503
-0.4764[illegible] 01	-0.1169[illegible] 03	0.11698[illegible]7E 03	267.862	38.266	0.101228	7	41.420
0.2335341[illegible] 03	0.40725[illegible] 02	0.24190857E 03	9.689	1.211	0.209397	8	47.337
0.638[illegible] 02	0.513[illegible] 02	0.79410843E 02	39.997	4.444	0.068714	9	53.254
0.6174087[illegible] 02	0.12946[illegible] 02	0.61616[illegible]9E 02	12.129	1.213	0.053319	10	59.172

BLADE CHORD AT STA 65

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 247 FLT 511.0 TR 29

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.15735915 05							
0.1719[illegible] 04	0.14199[illegible] 05	0.14306[illegible]65 05	82.992	82.992	1.000000	1	5.917
-0.17[illegible] 04	0.16173[illegible] 04	0.23471[illegible]9E 04	138.444	69.222	0.164168	2	11.834
-0.78314[illegible] 03	-0.2184[illegible] 03	0.81021395E 03	195.644	65.215	0.056634	3	17.751
0.3552[illegible]21 03	0.38[illegible] 03	0.55166245E 03	44.0[illegible]	11.02[illegible]	0.0385[illegible]	4	23.669
-0.10629577 03	0.22544[illegible] 03	0.24929155 03	115.264	23.053	0.017425	5	29.586
0.1111[illegible]51E 03	0.22511[illegible] 03	0.25469[illegible]0E 03	62.114	10.352	0.017903	6	35.503
0.3628[illegible] 02	0.144[illegible] 03	0.14857[illegible]0E 03	75.865	10.838	0.010385	7	41.420
-0.32[illegible]5535[illegible] 02	0.6317[illegible] 02	0.71647195 02	118.144	14.768	0.005008	8	47.337
-0.5[illegible] 01	0.15715[illegible] 02	0.1[illegible]11E 02	104.476	11.609	0.001425	9	53.254
0.34442[illegible]54E 02	0.42457[illegible] 02	0.54671015 02	50.950	5.095	0.003821	10	59.172

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 44 V= 173 KTS n= 1.69 g

BLADE FEATHER ANGLE

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 20

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.31132793E 01							
0.8820010E 00	-0.2249010E 01	0.2415727E 01	291.669	291.669	1.000000	1	5.988
0.6940777E-03	0.3657155E-01	0.3657625E-01	88.904	44.452	0.015142	2	11.976
0.3143850E-01	0.6242051E-01	0.7007158E-01	62.575	20.992	0.029006	3	17.964
0.5287034E-01	0.4203647E-02	0.5303719E-01	4.546	1.136	0.021955	4	23.952
-0.4673739E-01	-0.3535640E-02	0.4687055E-01	184.326	36.865	0.019402	5	29.940
-0.4052187E-03	-0.3327012E-02	0.3351722E-02	263.038	43.840	0.001387	6	35.928
-0.2637605E-01	-0.2365756E-01	0.3543155E-01	221.890	31.699	0.014667	7	41.916
0.2240220E-01	-0.4035076E-01	0.4615240E-01	299.038	37.380	0.019105	8	47.904
0.1524359E-01	0.1261767E-01	0.1978819E-01	39.616	4.402	0.008191	9	53.892
0.2749546E-01	-0.1685757E-01	0.3225179E-01	328.487	32.849	0.013351	10	59.880

PITCH LINK TENSION

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 36

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.5609[illegible] 02							
-0.7452[illegible] 00	0.6147017E 02	0.6147488E 02	90.695	90.695	1.000000	1	5.988
-0.5634[illegible] 01	0.1253539E 02	0.1374489E 02	114.223	57.113	0.223585	2	11.976
0.1767651E 02	-0.9071174E 01	0.1986819E 02	332.834	110.945	0.323192	3	17.964
-0.1625559E 02	-0.5547920E 01	0.1888676E 02	210.367	52.592	0.307227	4	23.952
0.1079911E 02	0.1037654E 02	0.1497643E 02	43.857	8.771	0.243619	5	29.940
-0.6113783E 01	0.3083295E 01	0.6869792E 01	153.329	25.555	0.111733	6	35.928
0.1513535 01	0.2390[illegible] 01	0.2839932E 01	57.317	8.188	0.046197	7	41.916
-0.2856408E 01	-0.3573615E 01	0.4601243E 01	230.956	28.869	0.074848	8	47.904
0.7520415E 00	-0.8839515E 00	0.1160500E 01	310.393	34.488	0.018878	9	53.892
0.3623841E 01	-0.5314130E 01	0.6321577E 01	302.793	30.279	0.102832	10	59.880

BLADE 2 FIXED HUB FLAP AT STA 6

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 43

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1752433E 05							
0.5478479[illegible] 03	-0.1830052E 04	0.1910285E 04	286.666	286.566	0.231263	1	5.988
0.6590146[illegible] 03	0.8247617E 04	0.8269234E 04	86.835	43.418	1.000000	2	11.976
-0.3524689[illegible] 03	0.3599804E 03	0.5036816E 03	134.413	44.333	0.063977	3	17.964
-0.[illegible] 03	0.1185493[illegible] 03	0.8142703E 03	171.621	42.907	0.098578	4	23.952
0.7109642E 03	-0.4262546E 03	0.9237049E 03	332.521	66.504	0.111835	5	29.940
-0.7032172 02	0.1551316E 03	0.1703324E 03	114.384	19.064	0.020621	6	35.928
-0.1376512E 03	-0.2[illegible] 03	0.3106577E 03	250.274	35.753	0.038577	7	41.916
-0.9414352E 02	0.7595956E 02	0.1240515E 03	139.867	17.483	0.015018	8	47.904
-0.1541115[illegible] 02	-0.8336870E 02	0.8478113E 02	259.527	28.836	0.010264	9	53.892
0.2469[illegible] 02	0.1772000E 02	0.2992621E 02	35.293	3.529	0.003623	10	59.880

FIXED HUB CHORD AT STA 6

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 5

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.1[illegible]54[illegible] 05							
0.9970[illegible] 04	0.2354158E 05	0.2555986E 05	67.039	67.039	1.000000	1	5.988
-0.1[illegible] 04	0.8235534E 04	0.8470285E 04	103.406	51.703	0.331273	2	11.976
-0.1578035 04	-0.5577410E 02	0.1579038E 04	182.024	60.675	0.061756	3	17.964
0.2527227 03	-0.2167[illegible] 03	0.3354[illegible] 03	321.780	80.445	0.013079	4	23.952
0.1591456 03	-0.1191[illegible] 03	0.1998690E 03	323.176	64.635	0.007778	5	29.940
0.1228094 03	0.7564637E 02	0.1442380E 03	31.632	5.272	0.005641	6	35.928
-0.3605381E 03	0.1361226E 03	0.3844158E 03	163.090	23.627	0.015035	7	41.916
0.2146779 03	-0.2567[illegible] 03	0.3571126E 03	306.867	38.358	0.013964	8	47.904
0.4352573E 03	0.5729362[illegible] 03	0.7206780E 03	47.675	5.297	0.028186	9	53.892
-0.1363259 03	0.7761[illegible] 02	0.1569717E 03	150.292	15.029	0.006139	10	59.880

HARMONIC COMPONENTS OF FLIGHT TEST DATA
CASE 44 V= 173 KTS n= 1.69 g

BLADE FLAP AT STA 115

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 27

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.1758267E 03							
0.12[illegible] 04	-0.1185[illegible] 04	0.1749107E 04	317.157	317.157	1.000000	1	5.988
-0.[illegible] 02	0.90036[illegible] 03	0.9051804E 03	95.923	47.961	0.517510	2	11.976
0.27[illegible] 03	0.27312[illegible] 03	0.3888845E 03	44.614	14.871	0.222333	3	17.964
0.79[illegible] 01	-0.69922[illegible] 01	0.1043353E 02	318.656	79.664	0.005965	4	23.952
-0.2344[illegible] 02	-0.1548[illegible] 02	0.3530982E 02	213.50[illegible]	42.700	0.020187	5	29.940
-0.8151618[illegible]	0.14378[illegible] 02	0.14431[illegible] 02	93.24[illegible]	15.541	0.008233	6	35.928
0.6[illegible] 02	0.5665[illegible] 02	0.8312439E 02	43.004	6.143	0.047524	7	41.916
-0.85[illegible] 02	0.25401[illegible] 02	0.8997969E 02	160.928	20.116	0.051443	8	47.904
-0.4514297E 02	0.3645[illegible] 02	0.5802179E 02	141.081	15.676	0.033172	9	53.892
-0.10[illegible] 02	0.1244010E 02	0.1612889E 02	129.530	12.953	0.009221	10	59.880

BLADE FLAP AT STA 157

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 31

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
-0.94[illegible] 03							
0.6[illegible] 03	-0.1117523[illegible] 04	0.1303220E 04	300.962	300.962	1.000000	1	5.988
0.1[illegible] 03	0.44219[illegible] 03	0.4604253E 03	73.817	36.908	0.353298	2	11.976
0.7814404E 03	0.31933[illegible] 03	0.8460237E 03	22.176	7.392	0.649179	3	17.964
0.7883979[illegible] 01	0.30090[illegible] 02	0.3110637E 02	75.318	18.830	0.023869	4	23.952
-0.26[illegible] 03	-0.19638[illegible] 03	0.3274209E 03	216.855	43.371	0.251240	5	29.940
0.3450384E 02	-0.1755700E 03	0.1793202E 03	281.093	46.849	0.137598	6	35.928
-0.1[illegible] 03	-0.35614[illegible] 02	0.1151219E 03	197.989	28.284	0.088493	7	41.916
0.2357024E 03	-0.10653[illegible] 03	0.2316540E 03	332.619	41.577	0.177755	8	47.904
0.94[illegible] 02	-0.52757[illegible] 02	0.9974265E 02	327.337	36.376	0.076536	9	53.892
0.3233670E 02	-0.3577457E 02	0.5126093E 02	309.111	30.911	0.039334	10	59.880

BLADE CHORD AT STA 45

HARMONIC ANALYSIS MODEL XH-51A SHIP 1002 T 458 CTR 258 FLT 511.0 TR 29

AJ	BJ	CJ	PHIJC	PSIJC	CJ/CJMAX	J	FREQUENCY
0.14914[illegible] 05							
0.45[illegible] 04	0.1641[illegible] 05	0.1732632E 05	74.577	74.577	1.000000	1	5.988
-0.2[illegible] 04	0.2409[illegible] 04	0.3348216E 04	133.979	66.989	0.196649	2	11.976
-0.1349[illegible] 04	-0.637[illegible] 03	0.1489220E 04	205.360	68.453	0.087466	3	17.964
0.61[illegible] 03	0.1372[illegible] 03	0.6276563E 03	12.142	3.036	0.036864	4	23.952
-0.30[illegible] 03	-0.771[illegible] 02	0.3155215E 03	194.146	38.829	0.018531	5	29.940
0.50[illegible] 03	0.5230[illegible] 03	0.7257075E 03	46.116	7.686	0.042623	6	35.928
0.1094[illegible] 03	0.1194[illegible] 03	0.1623635E 03	47.533	6.786	0.009518	7	41.916
-0.38[illegible] 02	0.4786[illegible] 02	0.6152272E 02	129.954	16.119	0.003613	8	47.904
-0.7848264E 02	-0.1141[illegible] 03	0.1387174E 03	235.343	26.149	0.008147	9	53.892
0.4631[illegible] 02	-0.3352[illegible] 02	0.5545697E 02	326.629	32.663	0.003257	10	59.880

APPENDIX II

CORRELATION DATA

Harmonic correlation data for REXOR analysis and flight test results are tabulated in this appendix for AH-56A and XH-51A steady trim cases. The 37 cases for which REXOR calculations were made are included. A complete listing of the test conditions is available in Table I.

Data are provided for the steady (mean) component and the magnitude and phase of 1P and 2P cyclic components of the rotor loads. The AH-56A loads include the flap and chord moments on the fixed hub at station 18; blade flap moments at a maximum of five stations; the blade chord moment at a maximum of three stations; the torsion moment at station 131.5; and the feather moment. Fixed hub flap and chord moments at station 6 are presented for the XH-51A vehicle, along with the flap moments at stations 115 and 157, the blade chord moment at station 45, and the feathering moment. No XH-51A blade torsion load measurements were available from flight test data. The tables also show correlation of the steady (collective) and 1P cyclic feathering angles.

All loads are presented in inch-pounds, and the angles are presented in degrees. Positive directions are flap up, lag aft, and blade nose up. All loads and the cyclic blade angle were measured on blade 1, except the fixed hub flap moment at station 6 on the XH-51A compound was taken from blade 2. A 90-degree adjustment was made to the phase angles for these data so that the data listed in the tables are effective for blade 1 in all cases. The feathering angle measurements were lagging due to galvanometer response characteristics, so the phase angle of the feather angle data has been corrected by 30 degrees to give the "true" value listed in the tables.

AH-56A CORRELATION DATA CASE 1

AIRSPEED = 154 KEAS; PRESSURE ALTITUDE = 3920 FT; AMBIENT TEMPERATURE = 75 °F

ROTOR LIFT = 78[illegible] LB; SHAFT MOMENT = 100,000 IN-LB FLAP UP AT 105 DEG

LOAD FACTOR = 1.00 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 2.0 DEG, TEST 2.3 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	5.9	5.6	1.7	3.8	287	292	-	-	-	-
Blade Feather Moment	in.-lb	160	100	2400	3320	-16	5	1340	3560	7	66
Fixed Hub Flap @ Sta 18	in.-lb	-33,300	-33,300	33,400	24,100	104	90	16,300	16,000	81	141
Fixed Hub Chord @ Sta 18	in.-lb	57,900	50,500	74,300	100,800	81	96	8,600	8800	-11	59
Blade Flap @ Sta 130.5	in.-lb	32,600	7500	7800	5000	247	320	4500	4400	-6	53
Blade Flap @ Sta 205	in.-lb	-21,400	-8300	4200	4500	273	121	2200	1700	69	146
Blade Flap @ Sta 235	in.-lb	-22,600	-4220	1350	1640	356	115	4870	130	76	58
Blade Flap @ Sta 270	in.-lb	-12,700	330	4040	720	67	-17	5140	800	78	37
Blade Chord @ Sta 103	in.-lb	138,000	207,000	41,400	50,000	81	101	4200	4600	-11	39
Blade Chord @ Sta 174	in.-lb	24,000	20,000	20,300	26,900	81	101	2500	2400	-12	32
Blade Chord @ Sta 235	in.-lb	-14,000	-26,100	7200	6800	80	103	1300	1200	-11	70
Blade Torsion @ Sta 131.5	in.-lb	-5160	480	270	3090	21	52	570	1360	12	63

AH-56A CORRELATION DATA CASE 2

AIRSPEED = 121.5 KEAS; PRESSURE ALTITUDE = 4190 FT; AMBIENT TEMPERATURE = 75 °F

ROTOR LIFT = 12600 LB; SHAFT MOMENT = 53700 IN-LB FLAP UP AT 78 DEG

LOAD FACTOR = 1.0 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 2.2 DEG, TEST 2.9 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.5	8.1	3.9	5.2	287	287	-	-	-	-
Blade Feather Moment	in.-lb	1840	480	1360	2860.	310	6	560	2150	20	68
Fixed Hub Flap @ Sta 18	in.-lb	270	-6620.	18,600	14,500.	80	57	1340	8680	81	141
Fixed Hub Chord @ Sta 18	in.-lb	63,700	55,200.	59,300	94,600.	58	74	20,600	11,400.	8	35
Blade Flap @ Sta 130.5	in.-lb	41,800	9660.	7800	4700.	263	320	3900	2800	-3	58
Blade Flap @ Sta 205	in.-lb	-25,200	-7300.	3000	4100.	268	118	3400	2200	81	161
Blade Flap @ Sta 235	in.-lb	-31,200	-1580.	840	1620.	69	100	6100	1620	82	6
Blade Flap @ Sta 270	in.-lb	-21,700	2800.	3710	900.	85	359	5800	614	8	8
Blade Chord @ Sta 103	in.-lb	153,000	216,000.	35,000	46,500.	65	81	10,400	4340	9	45
Blade Chord @ Sta 174	in.-lb	23,500	23,400.	17,000	23,400	64	80	5900	1050.	7	55
Blade Chord @ Sta 235	in.-lb	-13,200	-25,500.	5600	6400.	58	79	2700	1900	4	36
Blade Torsion @ Sta 131.5	in.-lb	-6450	135	1190	2700	49	46	508	1400	33	79

AH-56A CORRELATION DATA CASE 3

AIRSPEED = 190 KEAS; PRESSURE ALTITUDE = 3250 FT; AMBIENT TEMPERATURE = 78 °F

ROTOR LIFT = 4500 LB; SHAFT MOMENT = 122,000 IN-LB FLAP UP AT 104 DEG

LOAD FACTOR = 1.0 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 0.3 DEG, TEST 0.8 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blede Feather Angle	deg	5.2	5.4	0.8	3.6	282	287	-	-	-	-
Blade Feather Moment	in.-lb	1780	-300	3460	3520.	243	357	1310	5300.	5	67
Fixed Hub Flap @ Sta 18	in.-lb	-58,900	-46,500	39,500	29,000.	103	89	17,400	22,000	82	140
Fixed Hub Chord @ Sta 18	in.-lb	65,400	52,300.	74,700	105,000.	85	98	5600	6100.	1	52
Blade Flap @ Sta 130.5	in.-lb	26,800	6900	9300	4700	241	330	6000	5200	-6	47
Blade Fla. @ Sta 205	in.-lb	-19,100	-9500	6000	4400	268	119	1500	1700	29	140
Blade Flap @ Sta 235	in.-lb	-17,400	-5300	1930	1850	320	94	3000	750	69	36
Blade Flap @ Sta 270	in.-lb	-7400	-1030.	3960	400	59	345	3740	1400	77	43
Blade Chord @ Sta 103	in.-lb	160,000	210,000	41,000	51,000.	85	105	2500	1800.	6	58
Blade Chord @ Sta 174	in.-lb	26,500	21,500.	20,200	27,000	84	103	1200	1200	3	58
Blade Chord @ Sta 235	in.-lb	-13,400	-26,000	7300	6800	84	100	800	150	-1	145
Blade Torsion @ Sta 131.5	in.-lb	-4480	560	210	3000.	240	56	520	2600.	6	68

AH-56A CORRELATION DATA CASE 4

AIRSPEED = 163.5 KEAS; PRESSURE ALTITUDE = 3460 FT; AMBIENT TEMPERATURE = 68 °F

ROTOR LIFT = 8200 LB; SHAFT MOMENT = 170,000. IN.-LB FLAP UP AT 134 DEG

LOAD FACTOR = 1.00 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 1.2 DEG, TEST 1.8 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	7.9	7.7	2.3	4.6	284	279	-	-	-	-
Blade Feather Moment	in.-lb	-710	2100.	2120	2170.	224	5	1550	4350.	12	65
Fixed Hub Flap @ Sta 18	in.-lb	-32,600	-28,000.	53,500	39,600	130	132	21,000	11,400	79	137
Fixed Hub Chord @ Sta 18	in.-lb	76,800	27,400	63,300	84,000.	91	91	11,200	11,100.	-20	163
Blade Flap @ Sta 130.5	in.-lb	34,700	12,200.	7800	3150.	229	305	5800	4600	-7	56
Blade Flap @ Sta 174	in.-lb	-6500	670.	7900	5300.	262	295.	2500	4400	4	53
Blade Flap @ Sta 205	in.-lb	-21,300	-10,000.	5540	4900	285	115	3420	3500	66	155
Blade Flap @ Sta 235	in.-lb	-23,900	-2700	3230	2500	336	104	7090	2300	73	165
Blade Flap @ Sta 270	in.-lb	-14,600	800	4240	750	46	339	7180	1400	75	170
Blade Chord @ Sta 103	in.-lb	158,000	228,000	35,000	39,500	89	94	5500	7700	157	165
Blade Chord @ Sta 174	in.-lb	26,100	17,500	17,400	23,700	88	93	3000	6000	157	152
Blade Chord @ Sta 235	in.-lb	-12,600	-21,500	6000	6100	89	9[illegible]	1700	1400	161	156
Blade Torsion @ Sta 131.5	in.-lb	-5580	750	630	2100	340	33	650	2000	15	60

AH-56A CORRELATION DATA CASE 5

AIRSPEED = 165 KEAS; PRESSURE ALTITUDE = 3400 FT; AMBIENT TEMPERATURE = 69 °F

ROTOR LIFT = 9400 LB; SHAFT MOMENT = 205,000 IN.-LB FLAP UP AT 141 DEG

LOAD FACTOR = 1.13 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -1.2 DEG, TEST -1.6 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.2	7.8	2.2	4.6	286	280	-	-	-	-
Blade Feather Moment	in.-lb	-160	3[illegible]50.	2480	1670.	199	33	1600	4650.	15	66
Fixed Hub Flap @ Sta 18	in.-lb	-25,800	-22,000.	66,700	48,000.	137	141	21,700	12,200.	78	143
Fixed Hub Chord @ Sta 11	in.-lb	83,400	17,900	52,700	78,000	92	83	11,800	13,900	152	158
Blade Flap @ Sta 130.5	in.-lb	35,600	13,600	8500	3200	226	300	5900	5300	-6	57
Blade Flap @ Sta 174	in.-lb	-6500	820	8600	5600	264	293	2500	5000	7	51
Blade Flap @ Sta 205	in.-lb	-22,300	-10,300	6900	5600	288	115	3800	4000	65	153
Blade Flap @ Sta 235	in.-lb	-25,600	-1250	4700	3200	325	108	7400	2500	72	159
Blade Flap @ Sta 270	in.-lb	-16,100	1300	4100	660	30	24	7400	1300	74	164
Blade Chord @ Sta 103	in.-lb	158,000	230,000	29,400	36,500	87	85	6300	9600	148	158
Blade Chord @ Sta 174	in.-lb	27,100	15,600	14,800	22,000	86	86	3400	8000	149	147
Blade Chord @ Sta 235	in.-lb	-12,000	-21,000	4900	5300	88	87	1800	1800	155	153
Blade Torsion @ Sta 131.5	in.-lb	-5700	700	800	3200	-20	32	590	2200	14	61

AH-56A CORRELATION DATA CASE 6

AIRSPEED = 165.5 KEAS; PRESSURE ALTITUDE = 3260 FT; AMBIENT TEMPERATURE = 69 °F

ROTOR LIFT = 13,400 LB; SHAFT MOMENT = 293,000 IN-LB FLAP UP AT 153 DEG

LOAD FACTOR = 1.42 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 0.0 DEG, TEST -1.0 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.3	8.1	2.0	4.5	287	276	-	-	-	-
Blade Feather Moment	in.-lb	1700	4400	3600	3720	179	97	1740	5800	22	60
Fixed Hub Flap @ Sta 18	in.-lb	-3500	-4750	91,300	69,000	147	154	24,400	14,000	79	140
Fixed Hub Chord @ Sta 18	in.-lb	58,700	18,700	28,700	48,000.	92	26	26,000	36,300.	150	157
Blade Flap @ Sta 130.5	in.-lb	39,100	15,000	8900	3700	224	280	6100	6900	-7	57
Blade Flap @ Sta 174	in.-lb	-8300	1000	9300	6300	273	291	2200	6600	11	52
Blade Flap @ Sta 205	in.-lb	-27,700	-9000	8800	6500	299	117	5000	5500	67	150
Blade Flap @ Sta 235	in.-lb	-32,500	200	7200	4100	326	112	9100	3500	72	155
Blade Flap @ Sta 270	in.-lb	-21,600	2700	5100	1050	15	76	8800	1900	74	161
Blade Chord @ Sta 103	in.-lb	155,000	227,000	17,800	24,000	77	17	14,000	23,500	149	156
Blade Chord @ Sta 174	in.-lb	24,000	16,300	9000	10,400	80	44	7400	16,700	149	151
Blade Chord @ Sta 235	in.-lb	-13,300	-21,000	2230	2550	86	20	3640	4650	153	157
Blade Torsion @ Sta 131.5	in.-lb	-6330	200	1230	4100	-17	43	640	2500	11	51

AH-56A CORRELATION DATA CASE 7

AIRSPEED = 165 KEAS; PRESSURE ALTITUDE = 3260 FT; AMBIENT TEMPERATURE = 69 °F

ROTOR LIFT = 14,900 LB; SHAFT MOMENT = 311,000 IN.-LB FLAP UP AT 158 DEG

LOAD FACTOR = 1.60 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 0.5 DEG, TEST -0.2 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.6	8.2	2.1	4.8	281	277	-	-	-	-
Blade Feather Moment	in.-lb	2150	4600	3950	5740	165	97	1740	5300	23	56
Fixed Hub Flap @ Sta 18	in.-lb	4500	3420	99,400	74,400	153	158	26,500	14,600	79	138
Fixed Hub Chord @ Sta 18	in.-lb	65,300	14,700	9300	5400	100	-15	39,100	55,300	152	158
Blade Flap @ Sta 130.5	in.-lb	39,700	15,700	9500	4200	228	276	6200	7300	171	58
Blade Flap @ Sta 174	in.-lb	-8700	1300	10,000	6700	278	293	1900	7400	17	55
Blade Flap @ Sta 205	in.-lb	-29,300	-8800	10,000	7100	303	119	5900	6300	67	150
Blade Flap @ Sta 235	in.-lb	-34,800	680	8500	4950	326	116	10,300	4300	71	154
Blade Flap @ Sta 270	in.-lb	-23,500	3500	5800	1400	76	102	9700	2250	73	158
Blade Chord @ Sta 103	in.-lb	154,000	224,000	8800	30,000	56	341	21,200	34,400	151	158
Blade Chord @ Sta 174	in.-lb	25,000	15,100	4100	9200	66	358	11,200	23,300	151	154
Blade Chord @ Sta 235	in.-lb	-12,600	-21,100	100	3250	30	325	5400	7000	153	157
Blade Torsion @ Sta 131.5	in.-lb	-6650	-2400	1510	5200	-1	47	840	2100	0	46

AH-56A CORRELATION DATA CASE 8

AIRSPEED = 204.5KEAS; PRESSURE ALTITUDE = 4690 FT; AMBIENT TEMPERATURE = 43 °F

ROTOR LIFT = 3400 LB; SHAFT MOMENT = 152,300 IN-LB FLAP UP AT 130 DEG

LOAD FACTOR = 1.06 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -1.8 DEG, TEST 0.4 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.1	6.0	0.7	2.0	255	311		.2		109
Blade Feather Moment	in.-lb	-2610	-1040	4700	1840	234	343	1230	5200	14	72
Fixed Hub Flap @ Sta 18	in.-lb	-65,900	-52,100	49,000	39,300	126	122	18,300	23,600	82	148
Fixed Hub Chord @ Sta 18	in.-lb	73,100	55,000	86,400	84,000	87	106	15,500	4000	156	93
Blade Flap @ Sta 174	in.-lb	-8000	-68	7500	4600	255	311	4500	5550	2	50
Blade Chord @ Sta 174	in.-lb	27,400	26,600	23,700	20,500	86	105	3400	1420	154	115
Blade Torsion @ Sta 131.5	in.-lb	-4670	440	300	1925	290	43	720	2100	11	73

AH-56A CORRELATION DATA CASE 10

AIRSPEED = 200.5 KEAS; PRESSURE ALTITUDE = 4250 FT; AMBIENT TEMPERATURE = 46 °F

ROTOR LIFT = 6400 LB; SHAFT MOMENT = 190,000 IN-LB FLAP UP AT 139 DEG

LOAD FACTOR = 1.35 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.9 DEG, TEST 1.9 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.3	6.1	0.7	2.6	264	3[illegible]	-	-	-	-
Blade Feather Moment	in.-lb	-1020	420	4620	1740	225	13	1720	6200	16	69
Fixed Hub Flap @ Sta 18	in.-lb	-47,800	-38,400	61,100	46,900	134	133	21,000	29,400	83	147
Fixed Hub Chord @ Sta 18	in.-lb	71,100	49,000	81,200	91,500	89	105	15,900	5600	152	90
Blade Flap @ Sta 174	in.-lb	-8400	900	8700	5600	261	313	4700	6300	6	53
Blade Chord @ Sta 174	in.-lb	26,900	24,400	22,500	24,300	87	109	3900	2400	149	135
Blade Torsion @ Sta 131.5	in.-lb	-5080	370	590	2700	301	46	820	2700	11	77

AH-56A CORRELATION DATA CASE 11

AIRSPEED = 199 KEAS; PRESSURE ALTITUDE = 3730 FT; AMBIENT TEMPERATURE = 48 °F

ROTOR LIFT = 8600 LB; SHAFT MOMENT = 226,000 IN-LB FLAP UP AT 144 DEG

LOAD FACTOR = 1.62 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.4 DEG, TEST 3.2 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.4	6.2	0.6	3.3	271	307	-	-	-	-
Blade Feather Moment	in.-lb	20	2000	4676	2500	164	29	2230	6800.	16	65
Fixed Hub Flap @ Sta 18	in.-lb	-35,600	-29,100	72,100	53,300	138	137	23,700	33,300	84	144
Fixed Hub Chord @ Sta 18	in.-lb	64,700	43,800	73,800	100,600	90	100	16,100	8700	149	93
Blade Flap @ Sta 174	in.-lb	-8900	515	9600	6800	264	312	5000	7650.	9	51
Blade Chord @ Sta 174	in.-lb	25,700	24,400	20,900	26,000	86	105	4300	2400	145	107
Blade Torsion @ Sta 131.5	in.-lb	-5440	620	890	3350	300	43	970	3200	10	73

AH-56A CORRELATION DATA CASE 12

AIRSPEED = 204.5 KEAS; PRESSURE ALTITUDE = 4220 FT; AMBIENT TEMPERATURE = 47 °F

ROTOR LIFT = 6000 LB; SHAFT MOMENT = 163,000 IN.-LB FLAP UP AT 118 DEG

LOAD FACTOR = 1.23 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -2.4 DEG, TEST 0.8 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.2	8.0	2.3	4.6	279	295	-	-	-	-
Blade Feather Moment	in.-lb	-2430	130	3070	3360	246	352	2150	6950	18	74
Fixed Hub Flap @ Sta 18	in.-lb	-51,400	-40,300	53,200	42,500	112	110	24,700	27,500	82	146
Fixed Hub Chord @ Sta 18	in.-lb	78,500	54,100	102,000	112,000	90	100	13,400	2600	153	[illegible]
Blade Flap @ Sta 174	in.-lb	-6900	1340	7800	5400	259	318	4800	6000	4	55
Blade Chord @ Sta 174	in.-lb	28,100	27,100	27,100	27,800	89	104	3000	850	145	135
Blade Torsion @ Sta 131.5	in.-lb	-5460	260	430	2800	295	41	1030	3100	20	74

AH-56A CORRELATION DATA CASE 13

AIRSPEED = 204.5 KEAS; PRESSURE ALTITUDE = 3650 FT; AMBIENT TEMPERATURE = 49 °F

ROTOR LIFT = 7800 LB; SHAFT MOMENT = 187,000 IN-LB FLAP UP AT 131 DEG

LOAD FACTOR = 1.44 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -2.0 DEG, TEST 1.4 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	8.3	8.1	2.2	4.5	279	292	-	-	-	-
Blade Feather Moment	in.-lb	-1560	850	3040	2000	231	350	2460	7450	18	73
Fixed Hub Flap @ Sta 18	in.-lb	-41,200	-32,200	61,100	46,700	124	123	26,500	26,850	83	150
Fixed Hub Chord @ Sta 18	in.-lb	78,400	51,000	89,000	104,500	91	97	14,400	7350	150	150
Blade Flap @ Sta 174	in.-lb	-7000	1760	8600	5430	262	315	5100	7600	6	59
Blade Chord @ Sta 174	in.-lb	27,900	20,300	24,300	19,600	89	122	3600	12,400	143	148
Blade Torsion @ Sta 131.5	in.-lb	-5730	-20	670	2870	302	34	1100	2950	19	75

AH-56A CORRELATION DATA CASE 14

AIRSPEED = 199 KEAS; PRESSURE ALTITUDE = 3660 FT; AMBIENT TEMPERATURE = 48 °F

ROTOR LIFT = 8500 LB; SHAFT MOMENT = 217,000 IN-LB FLAP UP AT 144 DEG

LOAD FACTOR = 1.61 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.3 DEG, TEST 3.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.3	6.1	0.5	3.2	284	302	-	-	-	-
Blade Feather Moment	in.-lb	-20	2360	4320	1850	215	27	2160	6750	15	65
Fixed Hub Flap @ Sta 18	in.-lb	-35,900	-29,900	69,400	52,200	138	137	23,800	31,800	84	146
Fixed Hub Chord Sta 18	in.-lb	63,400	42,000	70,800	101,000	89	93	15,100	8000	151	105
Blade Flap @ Sta 174	in.-lb	-9000	1020.	9600	6420	264	312	5000	7700	7	52
Blade Chord @ Sta 174	in.-lb	25,600	23,800	20,300	24,900	86	102	2900	900	148	123
Blade Torsion @ Sta 131.5	in.-lb	-5400	485	760	3200	297	42	940	3100	10	73

AH-56A CORRELATION DATA CASE 16

AIRSPEED = 120.5 KEAS; PRESSURE ALTITUDE = 3850 FT; AMBIENT TEMPERATURE = 51 °F

ROTOR LIFT = 10,700 LB; SHAFT MOMENT = 47,150 IN-LB FLAP UP AT 86 DEG

LOAD FACTOR = 0.93 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 1.7 DEG, TEST 0.2 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	9.5	9.2	3.8	5.0	284	292	-	-	-	-
Blade Feather Moment	in.-lb	250	250	1170	2180	312	8	720	2070	17	73
Fixed Hub Flap @ Sta 18	in.-lb	-14,500	-15,600	16,800	9050	88	65	14,200	4200	80	143
Fixed Hub Chord @ Sta 18	in.-lb	74,000	61,000	50,200	82,000	58	71	14,000	11,000	13	27
Blade Flap @ Sta 174	in.-lb	-3700	2550	6000	4500	263	318	840	3200	1	89
Blade Chord @ Sta 174	in.-lb	25,200	30,200	14,700	19,900	64	82	2400	3000	12	28
Blade Torsion @ Sta 131.5	in.-lb	-6410	-480	940	2250	41	41	520	1150	36	82

AH-56A CORRELATION DATA CASE 17

AIRSPEED = 121 KEAS; PRESSURE ALTITUDE = 4210 FT; AMBIENT TEMPERATURE = 50 °F

ROTOR LIFT = 13,300 LB; SHAFT MOMENT = 59,000 IN-LB FLAP UP AT 110 DEG

LOAD FACTOR = 1.13 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.5 DEG, TEST 1.3 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	9.9	9.5	3.9	5.1	286	298	-	-	-	-
Blade Feather Moment	in.-lb	1380	150	340	2270	2	31	660	1910	19	75
Fixed Hub Flap @ Sta 18	in.-lb	1100	-3500	22,400	10,500	106	87	14,800	4500	81	152
Fixed Hub Chord @ Sta 18	in.-lb	70,000	70,100	49,700	90,200	43	66	15,600	7400	10	36
Blade Flap @ Sta 174	in.-lb	-4200	1800	6200	4900	267	322	800	2700	-1	87
Blade Chord @ Sta 174	in.-lb	25,000	32,800	14,300	21,000	51	78	3800	2800	8	32
Blade Torsion @ Sta 131.5	in.-lb	-6820	-300	1120	2500	38	46	520	1200	39	86

AH-56A CORRELATION DATA CASE 18

AIRSPEED = 118.5 KEAS; PRESSURE ALTITUDE = 3790 FT; AMBIENT TEMPERATURE = 51 °F

ROTOR LIFT = 13,100 LB; SHAFT MOMENT = 58,100 IN-LB FLAP UP AT 106 DEG

LOAD FACTOR = 1.12 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.5 DEG, TEST 2.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	9.9	9.5	3.9	4.9	287	297	-	-	-	-
Blade Feather Moment	in.-lb	1410	640	430	2300.	1	34	600	1860	21	75
Fixed Hub Flap @ Sta 18	in.-lb	1000	-4600	22,000	10,200	105	90	13,600	3700	80	159
Fixed Hub Chord @ Sta 18	in.-lb	82,200	59,300	45,100	85,000	45	67	17,400	8100	10	31
Blade Flap @ Sta 174	in.-lb	-4000	2400	6300	5000	266	316	800	3000	2	82
Blade Chord @ Sta 174	in.-lb	26,400	29,100	13,100	20,000	53	75	4300	3100	8	25
Blade Torsion @ Sta 131.5	in.-lb	-6710	-600	1080	2100	38	43	500	1200	40	83

AH-56A CORRELATION DATA CASE 19

AIRSPEED = 121.5 KEAS; PRESSURE ALTITUDE = 4120 FT; AMBIENT TEMPERATURE = 50 °F

ROTOR LIFT = 15,000 LB; SHAFT MOMENT = 71,500 IN-LB FLAP UP AT 123 DEG

LOAD FACTOR = 1.26 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 0.2 DEG, TEST 2.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	10.0	9.7	3.9	4.9	288	301	-	-	-	-
Blade Feather Moment	in.-lb	2130	-620	720	2180	90	47	600	2300	12	76
Fixed Hub Flap @ Sta 18	in.-lb	10,000	3600	27,200	12,000	117	107	15,000	5200	81	160
Fixed Hub Chord @ Sta 18	in.-lb	71,300	72,000	45,100	95,500	29	66	17,800	4000	7	49
Blade Flap @ Sta 174	in.-lb	-4600	2500	6500	5000	270	323	900	2900	0	87
Blade Chord @ Sta 174	in.-lb	25,500	29,500	12,600	22,000	39	73	4400	2100	5	29
Blade Torsion @ Sta 131.5	in.-lb	-7060	-400	1190	2300	35	50	510	1350	41	90

AH-56A CORRELATION DATA CASE 22

AIRSPEED = 120.5 KEAS; PRESSURE ALTITUDE = 3480 FT; AMBIENT TEMPERATURE = 53 °F

ROTOR LIFT = 16000 LB; SHAFT MOMENT = 76200 IN-LB FLAP UP AT117 DEG

LOAD FACTOR = 1.45 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 0.4 DEG, TEST 3.4 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	10.1	9.7	3.6	5.0	290	301	-	-	-	-
BLADE FEATHER MOMENT	in.-lb	2730	0	1280	2680	101	62	620	2160	13	74
FIXED HUB FLAP @ STA 18	in.-lb	16,400	8900	29,500	12,800	111	109	12,800	5700	81	173
FIXED HUB CHORD @ STA 18	in.-lb	74,900	54,000	41,406	93,000	29	54	14,500	9500	7	13
BLADE FLAP @ STA 174	in.-lb	-4700	2950	6800	5000	269	311	1000	3500	4	75
BLADE CHORD @ STA 174	in.-lb	25,800	28,500	11,600	21,300	41	53	3500	4200	6	2
BLADE TORSION @ STA 131.5	in.-lb	-7170	-500	1020	2400	33	41	460	1200	47	77

AH-56A CORRELATION DATA CASE 23

AIRSPEED =122.5 KEAS; PRESSURE ALTITUDE = 3550 FT; AMBIENT TEMPERATURE = 53 °F

ROTOR LIFT = 18,300 LB; SHAFT MOMENT = 82,250 IN-LB FLAP UP AT 141 DEG

LOAD FACTOR = 1.66 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 1.6 DEG, TEST 5.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	10.4	9.9	3.7	5.0	290	300	-	-	-	-
BLADE FEATHER MOMENT	in.-lb	3600	150	2070	3780	108	96	540	1970	12	73
FIXED HUB FLAP @ STA 1[illegible]	in.-lb	28,800	18,300	30,900	11,800	129	135	14,400	5800	82	172
FIXED HUB CHORD @ STA 18	in.-lb	73,500	55,000	49,106	102,000	2	34	19,100	20,400	3	5
BLADE FLAP @ STA 174	in.-lb	-5500	2700	6700	5300	275	317	1100	3900	2	83
BLADE CHORD @ STA 174	in.-lb	26,500	29,000	12,300	22,700	13	42	4800	8300	1	8
BLADE TORSION @ STA 131.5	in.-lb	-7570	-750	1240	3200	32	62	420	850	44	75

AH-56A CORRELATION DATA CASE 24

AIRSPEED = 121 KEAS; PRESSURE ALTITUDE = 3060 FT; AMBIENT TEMPERATURE = 55 °F

ROTOR LIFT = 15800 LB; SHAFT MOMENT = 81000 IN-LB FLAP UP AT 117 DEG

LOAD FACTOR = 1.57 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 1.4 DEG, TEST 4.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	9.3	8.9	3.0	5.1	293	304		.22		134
BLADE FEATHER MOMENT	in.-lb	3200	3300	1360	3000	118	83	650	2120	21	78
FIXED HUB FLAP @ STA 18	in.-lb	15,500	6500	30,900	12,100	110	117	11,400	6450	83	176
FIXED HUB CHORD @ STA 18	in.-lb	68,400	24,000	44,300	104,000	47	49	10,700	8400	8	3
BLADE FLAP @ STA 174	in.-lb	-5200	2800	6700	5600	268	305	1200	3750	6	70
BLADE CHORD @ STA 174	in.-lb	24,300	29,700	12,900	21,500	56	35	2700	5700	6	174
BLADE TORSION @ STA 131.5	in.-lb	-6960	-400	800	2800	37	39	400	1200	49	71

AH-56A CORRELATION DATA CASE 25

AIRSPEED = 111 KEAS; PRESSURE ALTITUDE = 2190 FT; AMBIENT TEMPERATURE = 79 °F

ROTOR LIFT = 17500 LB; SHAFT MOMENT = 80000 IN-LB FLAP UP AT 55 DEG

LOAD FACTOR = 1.0 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 7.2 DEG, TEST 2.0 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	8.7	8.3	5.0	6.4	291	290	-	-	-	-
BLADE FEATHER MOMENT	in.-lb	3700	1620	1880	3040	28	21	300	1570	170	80
FIXED HUB FLAP @ STA 18	in.-lb	33,100	17,800	24,900	5900	58	54	13,300	3300	81	157
FIXED HUB CHORD @ STA 18	in.-lb	59,800	73,800	68,700	103,000	22	53	41,106	21,400	8	28
BLADE FLAP @ STA 130.5	in.-lb	45,700	12,800	9300	5300	271	328	3900	1850	-1	77
BLADE FLAP @ STA 174	in.-lb	-6600	1700	7000	5000	264	308	470	3100	56	85
BLADE FLAP @ STA 205	in.-lb	-30,900	-6400	2700	3900	255	120	4700	3600	82	179
BLADE FLAP @ STA 235	in.-lb	-39,000	1220	1600	2000	109	89	7706	2900	83	179
BLADE FLAP @ STA 270	in.-lb	-28,000	-2500	4200	1180	95	8	7000	1600	83	1
BLADE CHORD @ STA 103	in.-lb	150,000	173,000	37,500	27,000	35	33	21,100	7200	8	54
BLADE CHORD @ STA 235	in.-lb	9400	-24,800	11,400	7200	25	54	7900	2600	4	23
BLADE TORSION @ STA 131.5	in.-lb	-7600	250	2500	2600	54	38	680	1050	102	76

AH-56A CORRELATION DATA CASE 26

AIRSPEED = 173 KEAS; PRESSURE ALTITUDE = 3470 FT; AMBIENT TEMPERATURE = 74 °F

ROTOR LIFT = 11,100 LB; SHAFT MOMENT = 124,250 IN-LB FLAP UP AT 109 DEG

LOAD FACTOR = 1.15 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 3.2 DEG, TEST 2.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	6.6	6.3	2.9	6.0	285	282		.5		115
BLADE FEATHER MOMENT	in.-lb	1300	1260	1670	3920	264	5	1550	5740	11	68
FIXED FLAP @ STA 18	in.-lb	-12,800	-14,800	42,700	28,800	107	95	21,800	18,800	81	138
FIXED HUB CHORD @ STA 18	in.-lb	52,900	52,000	79,800	116,500	82	83	24,500	11,500	174	8
BLADE FLAP @ STA 130.5	in.-lb	34,800	9840	9900	5650	249	329	6900	6200	175	56
BLADE FLAP @ STA 174	in.-lb	-3400	1600	10,100	6350	262	307	2300	5500	10	58
BLADE FLAP @ STA 205	in.-lb	-24,400	-8600	6300	6000	273	122	4500	3800	71	157
BLADE FLAP @ STA 235	in.-lb	-27,200	-2500	2000	3300	319	105	8000	2300	76	170
BLADE FLAP @ STA 270	in.-lb	-16,700	-1400	4000	1050	65	8	8300	1700	78	10
BLADE CHORD @ STA 103	in.-lb	150,000	206,000	46,400	56,500	83	91	12,700	7400	-6	1
BLADE CHORD @ STA 235	in.-lb	-13,700	-27,700	7906	8900	81	90	3600	1400	171	177
BLADE TORSION @ STA 131.5	in.-lb	-5750	600	790	3700	38	37	780	2700	134	66

AH-56A CORRELATION DATA CASE 27

AIRSPEED = 173.5 KEAS; PRESSURE ALTITUDE = 3330 FT; AMBIENT TEMPERATURE = 74 °F

ROTOR LIFT = 12,100 LB; SHAFT MOMENT = 132,000 IN-LB FLAP UP AT 122 DEG

LOAD FACTOR = 1.22 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 3.3 DEG, TEST 2.3 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	6.7	6.4	2.8	6.1	284	284		.4		111
BLADE FEATHER MOMENT	in.-lb	1550	1660	1590	3980	245	17	1720	5880	11	68
FIXED HUB FLAP @ STA 18	in.-lb	-7800	-9950	44,500	29,300	118	103	23,100	20,600	81	138
FIXED HUB CHORD @ STA 18	in.-lb	45,800	52,500	76,700	108,500	76	80	25,500	10,300	170	13
BLADE FLAP @ STA 130.5	in.-lb	36,000	10,400	10,106	5900	247	332	7100	6300	-5	58
BLADE FLAP @ STA 174	in.-lb	-8600	1640	10,300	6800	264	313	2200	5500	12	60
BLADE FLAP @ STA 205	in.-lb	-25,600	-8350	6600	6300	278	124	5100	3500	71	159
BLADE FLAP @ STA 235	in.-lb	-28,900	-2200	2600	3500	326	103	9400	2000	75	174
BLADE FLAP @ STA 270	in.-lb	-18,100	-2200	4200	2400	60	45	9000	1740	77	19
BLADE CHORD @ STA 103	in.-lb	150,000	205,000	45,200	52,500	77	87	13,300	6450	169	3
BLADE CHORD @ STA 235	in.-lb	-14,100	-27,400	7700	8600	74	89	3900	1700	167	5
BLADE TORSION @ STA 131.5	in.-lb	-6010	500	1020	3900	34	42	830	2900	11	69

AH-56A CORRELATION DATA CASE 28

AIRSPEED = 173 KEAS, PRESSURE ALTITUDE = 3270 FT; AMBIENT TEMPERATURE =75 °F

ROTOR LIFT = 14,700 LB; SHAFT MOMENT = 142,000 IN-LB FLAP UP AT 128 DEG

LOAD FACTOR =1.45 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 4.9 DEG, TEST 4.2 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	7.0	6.7	3.5	6.6	282	286		.5		119
BLADE FEATHER MOMENT	in.-lb	2110	2740	680	4350	104	51	2060	6160	10	65
FIXED HUB FLAP @ STA 18	in.-lb	7700	1830	48,300	29,300	122	115	25,800	23,300	80	137
FIXED HUB CHORD @ STA 18	in.-lb	45,000	47,800	54,900	93,300	72	57	45,400	21,000	169	11
BLADE FLAP @ STA 130.5	in.-lb	37,800	11,500	10,500	6600	249	329	8800	7000	-4	57
BLADE FLAP @ STA 174	in.-lb	-9000	1500	11,200	7500	265	312	2600	6700	18	56
BLADE FLAP @ STA 205	in.-lb	-28,000	-7800	7900	7000	278	123	7000	4400	70	155
BLADE FLAP @ STA 235	in.-lb	-32,500	-500	3600	4200	311	106	12,100	2400	74	170
BLADE FLAP @ STA 270	in.-lb	-21,100	1450	3706	1600	53	47	11,200	2100	76	12
BLADE CHORD @ STA 103	in.-lb	147,000	206,000	35,206	43,000	73	64	24,000	12,600	168	8
BLADE CHORD @ STA 235	in.-lb	-13,400	-27,400	5700	6700	68	66	6800	3100	166	5
BLADE TORSION @ STA 131.5	in.-lb	-6880	230	1956	4750	48	48	1250	3200	3	60

AH-56A CORRELATION DATA CASE 29

AIRSPEED = 170.5 KEAS; PRESSURE ALTITUDE = 3150 FT; AMBIENT TEMPERATURE = 75 °F

ROTOR LIFT = 17,200 LB; SHAFT MOMENT = 152,600 IN-LB FLAP UP AT 137 DEG

LOAD FACTOR = 1.62 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 7.6 DEG, TEST 5.6 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
BLADE FEATHER ANGLE	deg	7.2	6.9	4.6	6.9	280	286	-	-	-	-
BLADE FEATHER MOMENT	in.-lb	2180	3650	3200	6100	81	69	1890	5500	14	59
FIXED HUB FLAP @ STA 18	in.-lb	22,200	13,300	46,400	29,400.	122	132	32,900	23,000	80	134
FIXED HUB CHORD @ STA 18	in.-lb	40,200	43,700	27,200	86,500	32	31	74,800	26,000	170	4
BLADE FLAP @ STA 130.5	in.-lb	38,800	12,800	11,300	7200	253	325	10,200	7200	175	57
BLADE FLAP @ STA 174	in.-lb	-10,100	1830	12,000	8150	266	312	2500	6800	24	56
BLADE FLAP @ STA 205	in.-lb	-30,800	-7250	8500	7400	275	121	9600	4950	72	155
BLADE FLAP @ STA 235	in.-lb	-36,000	1120	3700	4900	300	101	16,200	2900	75	170
BLADE FLAP @ STA 270	in.-lb	-24,000	1600	3500	1200	57	86	14,800	1400	76	4
BLADE CHORD @ STA 103	in.-lb	145,000	205,600	21,700	40,800	50	35	39,900	16,700	170	1
BLADE CHORD @ STA 235	in.-lb	-12,800	-27,000	4000	6100	32	38	11,200	4300	166	177
BLADE TORSION @ STA 131.5	in.-lb	-8060	-300	3170	5700	58	54	1546	2900	9	53

AH-56A CORRELATION DATA CASE 30

AIRSPEED = 122.5 KEAS; PRESSURE ALTITUDE = 3860 FT; AMBIENT TEMPERATURE = 73 °F

ROTOR LIFT = 14,600 LB; SHAFT MOMENT = 71,100 IN-LB FLAP UP AT 87 DEG

LOAD FACTOR = 0.99 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 7.0 DEG, TEST = 3.9 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	7.3	6.8	3.9	5.5	289	288	-	-	-	-
Blade Feather Moment	in. - lb	4300	1520	990	2640	341	11	460	2430	12	69
Fixed Hub Flap @ Sta 18	in. - lb	12,800	3200	25,700	16,700	87	72	13,000	9000	81	144
Fixed Hub Chord @ Sta 18	in. - lb	- 7700	53,200	65,900	105,500	61	71	31,400	9900	1	38
Blade Flap @ Sta 1305	in. - lb	40,400	10,500	9200	5000	260	323	3900	2900	- 4	63
Blade Flap @ Sta 205	in. - lb	- 28,800	- 7200	3400	4300	270	121	4300	2500	81	166
Blade Flap @ Sta 235	in. - lb	- 34,500	- 700	1200	1950	63	99	7200	1700	82	178
Blade Flap @ Sta 270	in. - lb	- 23,400	- 3400	4400	1060	82	24	6600	600	81	20
Blade Chord @ Sta 103	in. - lb	121,000	210,500	39,800	50,500	67	77	16,800	6000	1	34
Blade Chord @ Sta 235	in. - lb	- 18,200	-27,000	6200	7000	58	72	4400	1140	- 3	35
Blade Torsion @ Sta 131.5	in. - lb	- 6910	500	1916	2700	55	36	600	1400	11	69

AH-56A CORRELATION DATA CASE 31

AIRSPEED = 123 KEAS; PRESSURE ALTITUDE = 3800 FT; AMBIENT TEMPERATURE = 73 °F

ROTOR LIFT = 16,300 LB; SHAFT MOMENT = 71,500 IN-LB FLAP UP AT 91 DEG

LOAD FACTOR = 1.11 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 8.4 DEG, TEST = 4.9 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	7.4	7.0	4.3	5.5	289	291	-	-	-	-
Blade Feather Moment	in. - lb	4380	2400	1650	2420	47	30	500	2400	2	71
Fixed Hub Flap @ Sta 18	in. - lb	23,300	11,000	25,600	16,300	90	72	14,100	9000	80	148
Fixed Hub Chord @ Sta 18	in. - lb	10,000	49,000	51,000	102,500	42	66	42,800	10,500	2	34
Blade Flap @ Sta 130.5	in. - lb	41,600	11,500	9600	5100	262	324	4500	3100	- 1	65
Blade Flap @ Sta 205	in. - lb	- 30,400	- 7100	4400	4600	268	123	5200	2800	79	166
Blade Flap @ Sta 235	in. - lb	- 36,900	165	300	2600	9	101	8400	1700	81	177
Blade Flap @ Sta 270	in. - lb	- 25,500	1900	3600	1150	84	21	7500	680	81	5
Blade Chord @ Sta 103	in. - lb	149,000	208,000	31,900	49,000	53	71	22,800	6100	1	28
Blade Chord @ Sta 235	in. - lb	- 16,000	-26,500	5100	6900	37	69	6000	1300	- 3	29
Blade Torsion @ Sta 131.5	in. - lb	- 7390	500	2550	2700	58	39	920	1400	2	73

AH-56A CORRELATION DATA CASE 32

AIRSPEED = 123 KEAS; PRESSURE ALTITUDE = 3610 FT; AMBIENT TEMPERATURE = 73°F

ROTOR LIFT = 18,400 LB; SHAFT MOMENT = 71,100 IN-LB FLAP UP AT 103 DEG

LOAD FACTOR = 1.24 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 10.3 DEG, TEST = 6.1 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	7.6	7.1	4.6	5.6	289	297	-	-	-	-
Blade Feather Moment	in. - lb	4600	2980	3400	2860	70	45	786	2110	- 1	69
Fixed Hub Flap @ Sta 18	in. - lb	35,400	21,000	26,600	16,000	98	80	14,900	9100	80	148
Fixed Hub Chord @ Sta 18	in. - lb	4400	49,200	46,600	103,600	12	56	52,000	10,800	0	37
Blade Flap @ Sta 130.5	in. - lb	43,200	11,600	9600	5450	264	326	5700	2900	- 3	64
Blade Flap @ Sta 205	in. - lb	- 32,700	- 6200	5300	5000	271	118	6200	2600	78	168
Blade Flap @ Sta 235	in. - lb	- 40,100	600	1000	3100	297	95	9700	1700	79	176
Blade Flap @ Sta 270	in. - lb	- 28,000	2900	3000	1500	81	43	8700	700	80	23
Blade Chord @ Sta 103	in. - lb	149,000	201,300	27,700	51,500	30	65	27,700	6400	- 1	26
Blade Chord @ Sta 235	in. - lb	- 15,700	-27,500	5200	7200	9	61	7500	1200	- 6	29
Blade Torsion @ Sta 131.5	in. - lb	- 8300	1580	3500	1660	61	41	1330	900	- 1	66

AH-56A CORRELATION DATA CASE 36

AIRSPEED = 173 KEAS; PRESSURE ALTITUDE = 3670 FT; AMBIENT TEMPERATURE = 75 °F

ROTOR LIFT = 7000 LB; SHAFT MOMENT = 88,500 IN-LB FLAP UP AT 91 DEG

LOAD FACTOR = 0.99 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 2.7 DEG, TEST = -1.0 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	9.4	9.3	3.9	5.5	277	286	-	-	-	-
Fixed Hub Flap @ Sta 18	in.-lb	-40,900	-34,000	30,700	23,000	89	71	25,700	16,000	79	138
Fixed Hub Chord @ Sta 18	in.-lb	70,000	58,300	84,100	113,300	80	89	7200	7650	-1	18
Blade Flap @ Sta 174	in.-lb	-4400	860	7300	5250	261	310	2800	4200	2	58
Blade Chord @ Sta 174	in.-lb	-25,700	28,300	22,900	26,800	80	96	1200	3600	-3	14
Blade Torsion @ Sta 131.5	in.-lb	-6000	1130	380	3200	19	45	900	2400	24	68

AH-56A CORRELATION DATA CASE 37

AIRSPEED = 173 KEAS; PRESSURE ALTITUDE = 3490 FT; AMBIENT TEMPERATURE = 76°F

ROTOR LIFT = 9600 LB; SHAFT MOMENT = 108,600 IN.-LB FLAP UP AT 122 DEG

LOAD FACTOR = 1.24 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -2.1 DEG, TEST = -0.2 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	9.7	9.5	3.9	5.6	278	285	-	-	-	-
Fixed Hub Flap @ Sta 18	in.-lb	-25,800	-22,200	38,100	24,000	116	109	26,400	18,300	80	139
Fixed Hub Chord @ Sta 18	in.-lb	64,600	53,100	77,600	108,200	80	84	11,200	4900	162	180
Blade Flap @ Sta 174	in.-lb	- 4800	1440	7800	5100	263	306	2900	4700	5	55
Blade Chord @ Sta 174	in.-lb	24,300	27,000	21,500	26,300	79	88	2600	3200	155	178
Blade Torsion @ Sta 131.5	in.-lb	- 6400	1000	630	3500	6	43	870	2700	23	70

AH-56A CORRELATION DATA CASE 38

AIRSPEED = 172 KEAS; PRESSURE ALTITUDE = 3390 FT; AMBIENT TEMPERATURE = 76 °F

ROTOR LIFT = 13,100 LB; SHAFT MOMENT = 121,800 IN-LB FLAP UP AT DEG

LOAD FACTOR = 1.56 g's; FUSELAGE ANGLE OF ATTACK; REXOR = -0.7 DEG, TEST = 1.8 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	10.1	9.8	4.3	6.4	279	283	-	-	-	-
Fixed Hub Flap @ Sta 18	in.-lb	- 6000	- 7200	43,800	25,800	122	121	28,500	21,900	81	137
Fixed Hub Chord @ Sta 18	in.-lb	59,000	48,300	57,100	91,700	68	68	20,100	19,000	- 11	3
Blade Flap @ Sta 174	in.-lb	- 5600	1980	8600	7000	266	307	2800	6200	7	55
Blade Chord @ Sta 174	in.-lb	24,100	24,500	16,700	21,600	69	78	4900	7800	164	176
Blade Torsion @ Sta 131.5	in.-lb	- 7000	660	970	4400	5	47	1030	3100	22	62

AH-56A CORRELATION DATA CASE 39

AIRSPEED = 154 KEAS; PRESSURE ALTITUDE = 3690 FT; AMBIENT TEMPERATURE = 77 °F

ROTOR LIFT = 12,200 LB; SHAFT MOMENT = 119,300 IN-LB FLAP UP AT 121 DEG

LOAD FACTOR = 1.36 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 4.2 DEG, TEST = 7.8 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.3	6.0	2.3	4.4	290	300	-	-	-	-
Blade Feather Moment	in.-lb	2400	2280	1180	3350	218	26	1030	3900	7	65
Fixed Hub Flap @ Sta 18	in.-lb	- 9700	-10,250	40,900	26,200	116	106	15,700	18,500	82	142
Fixed Hub Chord @ Sta 18	in.-lb	43,900	39,000	67,400	108,000	76	88	15,700	10,500	- 4	70
Blade Flap @ Sta 130.5	in.-lb	36,700	9200	8600	5500	246	323	4800	5000	- 3	54
Blade Flap @ Sta 205	in.-lb	-26,100	- 7300	6900	5800	275	119	2900	2400	72	147
Blade Flap @ Sta 235	in.-lb	-29,600	- 2100	3400	3100	299	102	5700	140	77	12
Blade Flap @ Sta 270	in.-lb	-18,700	2250	2400	1300	43	35	5600	600	79	40
Blade Chord @ Sta 103	in.-lb	147,000	200,000	39,200	54,000	77	95	8600	3600	- 5	70
Blade Chord @ Sta 174	in.-lb	21,600	18,300	19,500	27,800	76	98	5100	1300	- 7	67
Blade Chord @ Sta 235	in.-lb	-14,200	-27,000	6600	7800	75	98	2600	1500	- 8	67
Blade Torsion @ Sta 131.5	in.-lb	- 5700	700	790	3400	40	47	440	1700	14	70

AH-56A CORRELATION DATA CASE 40

AIRSPEED = 152.5 KEAS; PRESSURE ALTITUDE = 3380 FT; AMBIENT TEMPERATURE = 78 °F

ROTOR LIFT = 17,600 LB; SHAFT MOMENT = 159,300 IN-LB FLAP UP AT 137 DEG

LOAD FACTOR = 1.77 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 7.7 DEG, TEST = 5.0 DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	6.8	6.3	3.1	4.8	287	309	-	-	-	-
Blade Feather Moment	in.-lb	4030	6100	3320	2920	101	46	1120	4150	10	70
Fixed Hub Flap @ Sta 18	in.-lb	21,700	14,200	53,800	32,600	129	131	19,500	20,900	81	144
Fixed Hub Chord @ Sta 18	in.-lb	27,600	28,700	23,600	99,250	35	63	46,900	11,300	-10	73
Blade Flap @ Sta 130.5	in.-lb	41,200	10,600	9300	6500	246	326	6900	4930	-5	56
Blade Flap @ Sta 205	in.-lb	-31,700	-5800	8800	7300	280	123	6200	2200	71	148
Blade Flap @ Sta 235	in.-lb	-37,800	130	5400	4600	300	100	10,000	175	75	166
Blade Flap @ Sta 270	in.-lb	-25,700	4400	2600	2400	16	65	9000	1030	76	51
Blade Chord @ Sta 103	in.-lb	151,000	190,500	18,500	47,400	48	74	25,500	4350	-11	70
Blade Chord @ Sta 174	in.-lb	20,600	15,600	9900	24,200	50	83	14,800	2000	-14	55
Blade Chord @ Sta 235	in.-lb	-13,900	-28,700	2700	6200	33	70	7300	670	-4	66
Blade Torsion @ Sta 131.5	in.-lb	-7490	400	2590	4200	51	67	1100	2400	-4	65

XH-51A CORRELATION DATA CASE 41

AIRSPEED = 168 KEAS; PRESSURE ALTITUDE = 4600 FT; AMBIENT TEMPERATURE = 65°F

ROTOR LIFT = 1050 LB; SHAFT MOMENT = 19,100 IN.-LB FLAP UP AT 57 DEG

LOAD FACTOR = 1.03 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 2.2 DEG, TEST * DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	3.0	2.8	1.9	1.9	334	321	-	-	-	-
Blade Feather Moment	in.-lb	-1480	-465	260	400	329	298	120	60	77	109
Fixed Hub Flap @ Sta 6	in.-lb	-38,900	-25,700	5400	4900	54	57	1700	7400	119	142
Fixed Hub Chord @ Sta 6	in.-lb	9400	16,900	15,600	17,700	105	92	1100	5500	10	58
Blade Flap @ Sta 115	in.-lb	250	-430	1220	1350	328	327	440	800	37	52
Blade Flap @ Sta 157	in.-lb	530	-610	570	900	34	311	320	400	110	41
Blade Chord @ Sta 45	in.-lb	18,600	18,000	10,200	12,600	101	93	700	1300	1	76
*Not Available											

XH-51A CORRELATION DATA CASE 42

AIRSPEED = 169 KEAS; PRESSURE ALTITUDE = 4410 FT; AMBIENT TEMPERATURE = 65 °F

ROTOR LIFT = 1810 LB; SHAFT MOMENT = 11,800 IN-LB FLAP UP AT 92 DEG

LOAD FACTOR = 1.26 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 2.6 DEG, TEST * DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	3.1	3.0	1.6	1.8	348	311	-	-	-	-
Blade Feather Moment	in.-lb	-1410	-320	100	330	34	280	110	60	79	112
Fixed Hub Flap @ Sta 6	in.-lb	-38,600	-22,700	3300	2900	83	92	1800	7600	110	139
Fixed Hub Chord @ Sta 6	in.-lb	8800	13,900	13,900	18,800	104	85	1200	5600	-3	63
Blade Flap @ Sta 115	in.-lb	390	-400	1140	1400	290	325	490	900	33	55
Blade Flap @ Sta 157	in.-lb	420	-700	130	1100	75	309	340	460	105	41
Blade Chord @ Sta 45	in.-lb	16,900	17,000	9500	13,400	100	90	900	1300	-14	80
*Not Available											

XH-51A CORRELATION DATA CASE 43

AIRSPEED = 170 KEAS; PRESSURE ALTITUDE = 4100 FT; AMBIENT TEMPERATURE = 67 °F

ROTOR LIFT = 2320 LB; SHAFT MOMENT = 4800 IN-LB FLAP UP AT 150 DEG

LOAD FACTOR = 1.49 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 3.3 DEG, TEST * DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	3.3	3.1	1.3	2.0	334	303	-	-	-	-
Blade Feather Moment	in.-lb	-1390	-270	80	390	241	274	30	50	76	117
Fixed Hub Flap @ Sta 6	in.-lb	-37,800	-21,000	1200	1300	109	150	1800	7900	115	134
Fixed Hub Chord @ Sta 6	in.-lb	8300	11,900	15,200	21,400	84	76	1400	7300	8	57
Blade Flap @ Sta 115	in.-lb	540	-450	1600	1550	290	321	580	900	41	53
Blade Flap @ Sta 157	in.-lb	290	-850	270	1150	301	304	470	470	96	44
Blade Chord @ Sta 45	in.-lb	16,600	15,700	10,400	14,300	82	83	860	2400	-3	68
*Not Available											

XH-51A CORRELATION DATA CASE 44

AIRSPEED = 173 KEAS; PRESSURE ALTITUDE = 3540 FT; AMBIENT TEMPERATURE = 70°F

ROTOR LIFT = 2720 LB; SHAFT MOMENT = 7470 IN-LBFLAP UP AT 197 DEG

LOAD FACTOR = 1.69 g's; FUSELAGE ANGLE OF ATTACK; REXOR = 3.6 DEG, TEST *DEG

PARAMETER	UNITS	STEADY		1-P MAGNITUDE		1-P PHASE		2-P MAGNITUDE		2-P PHASE	
		REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST	REXOR	TEST
Blade Feather Angle	deg	3.2	3.1	1.0	2.4	336	292	-	-	-	-
Blade Feather Moment	in.-lb	-1370	--190	150	350	213	270	20	80	92	147
Fixed Hub Flap @ Sta 6	in.-lb	-38,000	-17,500	1800	1900	201	197	1900	8300	115	133
Fixed Hub Chord @ Sta 6	in.-lb	8000	10,500	15,500	25,600	74	67	2000	8500	10	52
Blade Flap @ Sta 115	in.-lb	630	-400	1960	1750	280	317	610	900	44	48
Blade Flap @ Sta 157	in.-lb	210	-850	500	1300	265	301	560	460	96	37
Blade Chord @ Sta 45	in.-lb	15,000	14,900	10,800	17,000	74	75	1300	3400	0	67
*Not Available											

APPENDIX III

REXOR INPUT DATA

This appendix contains a listing of input data for the REXOR program for both the AH-56A and XH-51A compound helicopter configurations, together with a definition of each input quantity. The REXOR input format is comprised of 3000 data locations identified as relative addresses (RA's). Using this format, any data item or series of data items may be changed for expediting stacking of multiple-case data. The listing provided is indexed by relative address to guarantee that all input data are provided.

REXOR DATA PAGE 1

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1	******(15)	TITLE CARD 1	1-10	8/22
2			-71	/72
3			PHAS	XH-5
4			E II	1A C
5			I AH	OMPO
6			56A	UND
7			2C 7	HELI
8			3MBO	COPT
9			1.9	ER -
10			5D 4	W/O
11			.S .	COU
12			57 F	NTER
13			HIEI	WEIG
14			3.	HTS
15			56 T	
16	******(15)	TITLE CARD 2	THET	THET
17			AO=	AO=
18			9.0	3.0
19			OME	OME
20			GA=	GA=
21			25.7	37.1
22			6 RA	8 BL
23			(82)	ADE
24			= 35	NO.
25			.64	600
26			CONV	CONV
27			. 2N	. 2N
28			D FL	D FL
29			AP M	AP M
30			ODE	ODE
31	XCSMAX	MAX LONG. STICK TRAVEL ,FT.	1.0000E 03	1.0000E 03
32	AZI	NO. OF POINTS/REV. IN TRIM	1.8000E 02	1.8000E 02
33	TRIMQ(3)	TRIM ROTOR ROLL MOMENT,FT-LB	0.0	0.0

REXOR DATA PAGE 2

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
34		TRIM ROTOR PITCH MOMENT,FT-LB	0.0	0.0
35		TRIM ROTOR TORQUE MOMENT,FT-LB	0.0	0.0
36	TCUT	MAX REVOLUTIONS TO TRIM	1.6000E 01	2.0000E 01
37	ZE	INITIAL ALTITUDE,FT,+=UP	0.0	0.0
38	BET	SIDESLIP ANGLE,RAD	0.0	0.0
39	******	STICK STABILIZER DISP. COEFF. 0=OFF,.NE.0=ON	0.0	0.0
40	******	STICK STABILIZER RATE. COEFF.	0.0	0.0
41	XBOB	DIST. BOBWEIGHT FORWARD OF CG. FT.	1.2800E 01	0.0
42	HARDSP	1=HARD SWASH PLATE,KINEMATIC LINKAGE ONLY,NO SP D.O.F.	0.0	0.0
43	ZPLT	BLADE TIP PLOT FLAG INACTIVE	0.0	0.0
44	NSDATA	BLADE SECTION AERO FLAG 0=TABLE,1=LINEAR	0.0	0.0
45	CRSFG	CONSTANT ROTOR SPEED FLAG 1=CONST. ROTOR SPEED	0.0	1.0000E 00
46	ICONTR	MASS MATRIX PRINT FLAG 0=OFF,1=ON	0.0	1.0000E 00
47	IPUNCH	PUNCH FLAG 0=OFF 1=ON	1.0000E 00	1.0000E 00
48	IPLOT	PLOT FLG,0=NONE,1=TRIM,2=FLY 3=TRM AND FLY,4=LST.5SEC SPRD	3.0000E 00	3.0000E 00

REXOR DATA PAGE 3

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
49	IPRINT	EVERY POINT PRINT FLAG 0=OFF,1=ON	0.0	0.0
50	CASE	CASE NO.	7.5130E 03	5.6300E 02
51	NAZ	NO. OF POINTS/REV. IN FLY	1.8000E 02	1.8000E 02
52	Ω	MAIN ROTOR SPEED,RAD/SEC	2.5880E 01	3.6740E 01
53	θP	PROPELLER BLADE ANGLE,RAD	4.3920E-01	4.1181E-01
54	A1S	LATERAL CYCLIC,RAD	-1.3152E-02	-2.7823E-02
55	B1S	LONGITUDINAL CYCLIC,RAD	2.5955E-02	3.7001E-02
56	THO	COLLECTIVE,RAD	1.4300E-01	7.0000E-02
57	THOTR	TAIL ROTOR COLLECTIVE,RAD	2.2956E-02	5.5050E-02
58	ALPHA	ANGLE OF ATTACK,RAD	3.3300E-02	6.3041E-02
59	PHI	BANK ANGLE,RAD	-8.1390E-03	-1.1973E-02
60	OPEN(2)	OPEN	-7.5130E-01	0.0
61			0.0	0.0
62	VT	TOTAL VELOCITY,FT/SEC	2.1500E 02	2.4800E 02
63	GAMMA	FLIGHT PATH ANGLE,RAD	0.0	0.0
64	GAMA1	NOT USED	-2.5440E 03	0.0
65	WIMR	VERTICAL DOWNWASH	3.5000E 00	2.0127E 00
66	PIMR	ROLL DOWNWASH	2.1400E-02	4.0923E-03
67	QIMR	PITCH DOWNWASH	-6.3900E-03	1.1603E-02

REXOR DATA PAGE 4

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
68 KFKG	BOBWEIGHT FEEDBACK GAIN	0.0	0.0
69 GLCON	FILTERED GYRO ROLL MOMENT OR SP ROLL MOMENT,FT-LB	0.0	-3.8400E 00
70 GMCON	FILTERED GYRO PITCH MOMENT OR SP PITCH MOMENT,FT-LB	0.0	2.0031E 01
71 WIMRD	D/DT OF WIMR	0.0	0.0
72 PIMRD	D/DT OF PIMR	0.0	0.0
73 QIMRD	D/DT OF QIMR	0.0	0.0
74 WIMRV1	NOT USED IN CURRENT PROGRAM KEEP OPEN	3.5000E 00	0.0
75 PIMRV1		2.1486E-02	0.0
76 QIMRV1		-6.4000E-03	0.0
77 AITR	TAIL ROTOR LONG.FLAP ANGLE	0.0	2.3978E-02
78 WITR	TAIL ROTOR DOWNWASH	5.0000E 00	4.9343E 00
79 DNWFLG	DOWN WASH FLAG 0=ON	0.0	0.0
80 TAU	TRIM CONTROL TIME CONSTANT,SEC	5.0000E-02	6.0000E-02
81 R	ROTOR RADIUS = RA(513),FT	2.5700E 01	1.7500E 01
82 OB(3)	NAT.FREQ.,RAD/SEC,WITH BLADE DATA,(INFO.ONLY) SEE RA(1286)	3.5640E 01	5.7030E 01
83		2.8280E 01	4.0500E 01
84		6.9670E 01	1.0070E 02
85 TH1	BLADE TWIST ANGLE,RAD	-8.7270E-02	-8.1050E-02

REXOR DATA PAGE 5

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
86	SL	LONGITUDINAL C.G. OFFSET,FT	0.0	0.0
87	QNBAR	LATERAL C.G. OFFSET,FT	0.0	0.0
88	DY(2)	NOT USED IN CURRENT PROGRAM KEEP OPEN	5.6140E 03	0.0
89			5.3710E 04	0.0
90	IPITCH	PITCH DESENSITIZER FLAG 0=OFF,1=ON	0.0	0.0
91	FMASS	FUSELAGE MASS,SLUGS	4.7200E 02	1.3400E 02
92	OPEN	OPEN	1.0000E 04	0.0
93	H	ALTITUDE,FT	1.0000E 04	1.0000E 04
94	KRD	ROLL DAMPER GAIN	0.0	0.0
95	HC	VERT. DIST. HUB TO C.G.,FT	5.7000E 00	0.0
96	HF	VERT. DIST. HUB TO FUSLG. AXIS ,FT	5.4500E 00	2.7400E 00
97	STR	TAIL FIN BLOCKAGE FACTOR	1.0000E 00	8.0000E-01
98	SLTR	AFT.DIST. TAIL ROTOR TO FUSE AXIS,FT 98.5 FT.	2.9900E 01	2.1800E 01
99	SLP	AFT.DIST. PROPELLER TO FUSE AXIS,FT	3.1400E 01	0.0
100	HP	VERT DIST. PROPELLER TO FUSE AXIS,FT	9.5000E-01	-1.3300E 00
101	SLHS	AFT DIST. HORIZONTAL SURFACE TO FUSE AXIS,FT	2.8200E 01	1.7500E 01

REXOR DATA PAGE 6

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
102 SIVS	AFT DIST. VERT. SURFACE TO FUSE AXIS,FT	2.6700E 01	2.2200E 01
103 HVS	VERT DIST. VERT SURFACE TO FUSE AXIS,FT	-1.7200E 00	-2.0000E-01
104 EDIT	NEW DATA DECK OPTION 0=OFF ,.NE.0=ON	0.0	0.0
105 IDAMP	ROLL DAMPER FLAG NOT USED IN CURRENT PROG. KEEP OPEN	0.0	0.0
106 ETAF	EQUIVALENT VELOCITY RATIO AT TAIL	9.0000E-01	8.6000E-01
107 QPOPT	TAIL BLOCKAGE FACTOR FOR PROP.	1.0000E 00	1.0000E 00
108 OIP	PROP. INCIDENT ANGLE,RAD	0.0	2.2700E-01
109 RHO	AIR DENSITY,SLUG/FT3	2.1700E-03	2.1300E-03
110 CORD	BLADE CHORD,FT	2.3300E 00	1.1240E 00
111 SMALLA	BLADE LIFT CURVE SLOPE	5.7000E 00	5.7000E 00
112 DELTO	BLADE DRAG AT ZERO LIFT	8.0000E-03	8.0000E-03
113 DELT2	BLADE DRAG VARIATION WITH LIFT SQUARED	3.6000E-01	3.6000E-01
114 FCF	FEATH. FRICTION	0.0	0.0
115 RLF	FEATH. STICTION BREAKPOINT	0.0	0.0
116 FCG	GYRO OR SWASHPLATE FRICTION	0.0	0.0

REXOR DATA PAGE 7

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
117	RLG	GYRO OR SWASHPLATE STICTION BREAKPOINT	0.0	0.0
118	QJGYRO	GYRO OR SP. POLAR MOM. OF INERTIA,	4.5300E 01	8.0400E 00
119	CHI	GYRO TO CONTROL PHASE ANGLE (SWP.),FT	6.2800E-01	4.1900E-01
120	TUP	AUTHORITY LIMITS ON LATERAL STICK	3.3000E-02	0.0
121	QCGK	GYRO DAMPING CONSTANT,ROLL (SWP.)	1.0570E 03	1.5000E 02
122	QCGD	GYRO DAMPING CONSTANT,PITCH (SWP.)	1.0570E 03	1.5000E 02
123	QKXCS	SPRING CONSTANT,LONG. STICK	3.3300E 03	3.7000E 02
124	QKYCS	SPRING CONSTANT,LAT. STICK	6.3000E 03	7.3000E 02
125	BETAG	GYRO TO ROTOR CANT ANGLE (SWP.),RAD	5.7600E-01	7.8500E-01
126	QKGK	GYRO SPRING CONSTANT, ROLL (SWP.)	4.1000E 03	2.5000E 02
127	QKGD	GYRO SPRING CONSTANT, PITCH (SWP.)	4.1000E 03	2.5000E 02
128	HUBL(5)	DIST TO INBRD.BRNG.,FT	2.9170E 00	1.2080E 00
129		DIST.BETWEEN FEATH.BRNGS.,FT	2.0830E 00	6.6670E-01
130		DIST.TO AMCS FDBK.MOUNT,FT	0.0	0.0
131		NOT USED	0.0	0.0
132			0.0	0.0

REXOR DATA PAGE 8

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
133 NGORF	GROUND RUN OR FREE FLY FLAG O=FREE FLY,1=FIXED SHAFT	0.0	0.0
134 CYCFLG	FLY PLOT SCALE FLAG,RA(298) O=SEC/IN,1=CYCLES/IN	0.0	0.0
135 DEDCA	DE/D(ALPHA) AT TAIL FROM WING .365	4.3000E-01	6.5000E-01
136 E	PITCH HORN LENGTH,FT	1.3300E 00	5.5000E-01
137 QKGZ1	FIRST VERT. GYRO SPRING CONST. (SWP.)	6.7200E 02	1.6000E 05
138 QCGZ	GYRO VERT. DAMPING CONSTANT (SWP.)	3.6000E 02	1.0000E 03
139 GMASS	GYRO MASS (SWP.),SLUGS	8.7000E 00	2.0000E 00
140 QKGZ2	SECOND VERT. GYRO SPRING CONST (SWP.)	1.6800E 05	1.6000E 05
141 ZG1	GYRO VERT. SPRING BREAKPOINT (SWP.)	4.1600E-03	1.0000E 00
142 CORAF	TRIM OPTION	1.0000E 00	1.0000E 00
143 TURNLF	TURN LOAD FACTOR,G	1.0000E 00	1.0000E 00
144 TURNSN	FLAG FOR TURN LEFT OR RIGHT +=RIGHT	-1.0000E 00	-1.0000E 00
145 C1I1	INPLANE TO FEATHER COUPLING	7.0000E-01	5.8980E-01
146 C1F1	FIRST FLAP TO FEATHER COUPLING	5.5000E-02	-2.6970E-01
147 C1F2	C1F1 WITH FEATHER ANGLE	-6.3800E-01	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
148	C2F1	SECOND FLAP TO FEATHER COUPLNG	-1.8500E-01	-3.1060E-01
149	C2F2	C2F1 WITH FEATHER ANGLE	-6.3800E-01	0.0
150	NMP	NO. OF POINTS FOR PILOT TABLES	1.9000E 01	1.6000E 01
151	PT(20)	PILOT TIME TABLE SEC	0.0	0.0
152			3.2000E-01	1.2500E-01
153			3.8000E-01	2.5000E-01
154			4.8000E-01	3.7500E-01
155			5.5000E-01	6.2500E-01
156			6.0000E-01	8.7500E-01
157			8.0000E-01	1.6250E 00
158			1.0000E 00	2.5000E 00
159			1.2000E 00	2.6250E 00
160			1.4000E 00	2.7500E 00
161			1.6000E 00	2.8250E 00
162			1.8000E 00	3.1250E 00
163			2.0000E 00	3.2500E 00
164			2.2000E 00	3.5000E 00
165			2.3000E 00	3.8750E 00
166			2.4000E 00	4.2500E 00
167			2.5000E 00	0.0
168			2.6000E 00	0.0
169			2.7000E 00	0.0
170			0.0	0.0
171	PXCS(20)	PILOT LONG.STICK DISPL.TBL.,FT	0.0	0.0
172			0.0	8.0000E-03
173			0.0	2.9000E-02
174			1.2500E-02	5.8000E-02
175			1.6700E-02	1.3800E-01
176			1.6700E-02	1.5000E-01
177			1.4200E-02	1.2500E-01
178			1.5000E-02	1.2100E-01
179			1.4200E-02	1.1700E-01
180			1.4200E-02	8.3000E-02

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
181			1.6700E-02	4.2000E-02
182			1.6700E-02	-8.0000E-03
183			2.0800E-02	-1.7000E-02
184			2.0800E-02	-1.7000E-02
185			2.0800E-02	0.0
186			2.0800E-02	1.3000E-02
187			2.0800E-02	0.0
188			2.5000E-02	0.0
189			2.5000E-02	0.0
190			0.0	0.0
191	PYCS(20)	PILOT LAT. STICK DISPL.TBL.,FT	0.0	0.0
192			0.0	0.0
193			-1.6700E-02	0.0
194			-6.7000E-02	0.0
195			-9.6000E-02	0.0
196			-9.8000E-02	4.0000E-03
197			-9.6000E-02	1.6000E-02
198			-9.2000E-02	4.0000E-03
199			-8.8000E-02	-1.0000E-03
200			-8.3000E-02	-5.0000E-03
201			-7.9000E-02	-1.7000E-02
202			-7.5000E-02	-1.7000E-02
203			-7.1000E-02	-1.7000E-02
204			-6.3000E-02	0.0
205			-5.4000E-02	0.0
206			-2.8000E-02	0.0
207			-4.0000E-03	0.0
208			1.2000E-02	0.0
209			2.5000E-02	0.0
210			0.0	0.0
211	PTHO(20)	PILOT COLLECTIVE TABLE,RADIANS	0.0	0.0
212			0.0	0.0
213			0.0	0.0
214			0.0	0.0
215			0.0	0.0

REXOR DATA PAGE 11

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
216			0.0	0.0
217			0.0	0.0
218			0.0	0.0
219			0.0	0.0
220			0.0	0.0
221			0.0	0.0
222			0.0	0.0
223			0.0	0.0
224			0.0	0.0
225			0.0	0.0
226			0.0	0.0
227			0.0	0.0
228			0.0	0.0
229			0.0	0.0
230			0.0	0.0
231	PTHOTR(20)	PILOT TAIL RTR.COLCTV.TBL.,RAD	0.0	0.0
232			0.0	0.0
233			0.0	0.0
234			0.0	0.0
235			0.0	0.0
236			0.0	0.0
237			0.0	0.0
238			0.0	0.0
239			0.0	0.0
240			0.0	0.0
241			0.0	0.0
242			0.0	0.0
243			0.0	0.0
244			0.0	0.0
245			0.0	0.0
246			0.0	0.0
247			0.0	0.0
248			0.0	0.0
249			0.0	0.0
250			0.0	0.0

REXOR DATA PAGE 12

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
251	PBP(20)	PILOT PROP.BLD.ANGLE.TBL.,RAD	0.0	0.0
252			0.0	0.0
253			0.0	0.0
254			0.0	0.0
255			0.0	0.0
256			0.0	0.0
257			0.0	0.0
258			0.0	0.0
259			0.0	0.0
260			0.0	0.0
261			0.0	0.0
262			0.0	0.0
263			0.0	0.0
264			0.0	0.0
265			0.0	0.0
266			0.0	0.0
267			0.0	0.0
268			0.0	0.0
269			0.0	0.0
270			0.0	0.0
271	DOF0	GEAR RATIO - STATIC (SWP.)	7.2000E-01	7.8000E-01
272	DOF1	GEAR RATIO (SWP.)	-2.0000E-01	-3.0000E-01
273	FKSPT	SHAFT BENDING DELTA-3 COEFF.	6.0000E-07	0.0
274	DELQMR	TRIM VARIABLE	0.0	0.0
275	FBL1I(2,2)	FEATH.BEAR.DISPL.,INPLANE	1.0700E-02	5.4160E-03
276			-6.1790E-03	-4.3460E-03
277			6.1650E-02	2.1160E-02
278			-2.9650E-02	-8.1240E-03
279	FBL1F(2,2)	FEATH.BEAR.DISPL.,1ST.FLAP	2.2580E-04	4.7180E-05
280			2.8410E-02	3.0720E-02
281			1.2830E-03	1.8220E-04

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
282			1.0350E-01	5.6270E-02
283	FBL2F(2,2)	FEATH.BEAR.DISPL.,2ND.FLAP	-3.4510E-03	-2.2690E-04
284			-8.0910E-02	-8.6160E-02
285			-1.9700E-02	-8.8680E-04
286			-2.4240E-01	-1.5560E-01
287	TC(5)	DWNWSH TIME CONST. IN TRIM	1.0000E-01	1.0000E-01
288		DWNWSH TIME CONST. IN FLY	5.0000E-02	5.0000E-02
289		NOT USED	1.0000E-01	1.0000E-01
290		SHAFT BENDING TIME CONSTANT	1.0000E-02	1.0000E-02
291		NOT USED	1.0000E-01	0.0
292	TCX	PILOT LONG. ACTUATOR TIME CON. ,SEC	2.5000E-02	2.5000E-02
293	TCY	PILOT LAT. ACTUATOR TIME CON. ,SEC	2.5000E-02	2.5000E-02
294	TXS	FEATHER SPRING	7.1600E 02	0.0
295	PRI	ROLL RATE INPUT FOR TRIM RAD/SEC	0.0	0.0
296	QRI	PITCH RATE INPUT FOR TRIM RAD/SEC	0.0	0.0
297	DSTAF	DISTANCE ALONG BLADE FOR PLOT, FT	1.9500E 01	1.3080E 01
298	TSCLE	SCALE FACTOR FOR PLOT	5.0000E-01	5.0000E-01
299	NVAR1	NO. PARAMS. TO BE PLOTTED IN TRIM	4.0000E 01	4.0000E 01
300	NVAR2	NO. PARAMS. TO BE PLOTTED IN FLY	4.0000E 01	4.0000E 01

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
301	NVEC1(40)	CODE NO. OF PARAM. TO BE PLOTTED IN TRIM	1.0000E 00	1.0000E 00
302			2.0000E 00	2.0000E 00
303			3.0000E 00	3.0000E 00
304			4.0000E 00	4.0000E 00
305			1.0000E 01	1.0000E 01
306			1.1000E 01	1.1000E 01
307			1.2000E 01	1.2000E 01
308			5.0000E 00	5.0000E 00
309			8.0000E 00	8.0000E 00
310			9.0000E 00	9.0000E 00
311			6.0000E 00	6.0000E 00
312			4.1000E 01	4.1000E 01
313			5.3000E 01	5.3000E 01
314			5.5000E 01	5.5000E 01
315			5.6000E 01	5.6000E 01
316			3.6000E 01	3.6000E 01
317			4.3000E 01	4.3000E 01
318			4.6000E 01	4.6000E 01
319			5.9000E 01	5.9000E 01
320			6.0000E 01	6.0000E 01
321			1.3000E 01	1.3000E 01
322			2.2000E 01	2.2000E 01
323			4.4000E 01	4.4000E 01
324			1.8000E 01	1.8000E 01
325			3.1000E 01	3.1000E 01
326			3.2000E 01	3.2000E 01
327			8.3000E 01	8.3000E 01
328			8.4000E 01	8.4000E 01
329			7.0000E 00	7.0000E 00
330			8.5000E 01	8.5000E 01
331			8.6000E 01	8.6000E 01
332			8.7000E 01	8.7000E 01
333			8.8000E 01	8.8000E 01
334			8.9000E 01	8.9000E 01
335			4.7000E 01	4.7000E 01
336			4.8000E 01	4.8000E 01

REXOR DATA PAGE 15

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
337			3.3000E 01	4.9000E 01
338			3.4000E 01	5.0000E 01
339			1.4000E 01	1.4000E 01
340			1.5000E 01	1.5000E 01
341	GRCI	AMCS DATA	0.0	0.0
342	QKXCSG	LONG. STICK SPRING, AMCS	0.0	0.0
343	QKYCSG	LAT. STICK SPRING, AMCS	0.0	0.0
344	PSIPG	ACTUATOR PHASE ANGLE (SWP.) =PA(119)	-1.5360E 00	-1.5360E 00
345	CHIG	STICK-TO-GYRO PHASE ANGLE,AMCS ,RAD	0.0	0.0
346	KCYC	NOT USED	1.0300E 06	0.0
347	MUB	GYRO UNBALANCED MASS,SLUG	0.0	0.0
348	PXPZ	GYRO UNBALANCED MASS,X DISPL., FT	0.0	0.0
349	PYPZ	GYRO UNBALANCED MASS,Y DISPL., FT	0.0	0.0
350	IZZGR	GYRO POLAR INERTIA,AMCS	0.0	0.0
351	TAUACT	ACTUATOR TIME CONST.,AMCS(SWP) ,SEC	2.5000E-02	2.5000E-02
352	GSKL	GYRO SPRING,ROLL,AMCS	0.0	0.0
353	GSDL	GYRO SPRING,PITCH-ROLL COUPLNG ,AMCS	0.0	0.0

R/A	PFG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
354	GFDDL	GYRO DAMPER,PITCH-ROLL COUPLNG ,AMCS	0.0	0.0
355	GSKM	GYRO SPRING,PITCH-ROLL COUPLNG ,AMCS	0.0	0.0
356	GSDM	GYRO SPRING,PITCH,AMCS	0.0	0.0
357	GFKDM	GYRO DAMPER,PITCH-ROLL COUPLNG ,AMCS	0.0	0.0
358	GFDDM	GYRO DAMPER,PITCH,AMCS	0.0	0.0
359	GFKDL	GYRO DAMPER,ROLL,AMCS	0.0	0.0
360	IZZGVR	GYRO POLAR INERTIA,NON-ROTATNG ,AMCS	0.0	0.0
361	IXXG	ROLL INERTIA,(SWP.)	2.2500E 01	3.7500E 00
362	GRK	GYRO-TO-SWASHPLATE GEAR RATIO ,AMCS	2.3000E-01	0.0
363	GRD	GYRO-TO-SWASHPLATE GEAR RATIO ,AMCS	2.4700E-01	0.0
364	XTHTF	PARTIAL(X-FUSELAGE/THETA-SHFT)	-2.6950E 00	-2.6950E 00
365	YPHIF	PARTIAL(Y-FUSELAGE/PHI-SHAFT)	2.6950E 00	2.6950E 00
366	HMASS	HUB MASS,SLUG	1.8600E 01	8.1200E 00
367	MXXGF	ADDED FUSELAGE ROLL MOMENT	0.0	0.0
368	MYYGF	ADDED FUSELAGE PITCH MOMENT	0.0	0.0
369	MZZGF	ADDED FUSELAGE YAW MOMENT	0.0	0.0

REXOR DATA PAGE 17

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
370	NHELL	VEHICLE FLAG 0=AH56A .NE.0=AAH	0.0	0.0
371	TCL	NOT USED	0.0	0.0
372	XFBAR	AFT DIST. FUSFLAGE TO C.G.,FT	-1.7500E-01	2.0000E-02
373	YFBAR	RT. DIST. FUSELAGE TO C.G.,FT	-1.0400E-01	-3.2000E-01
374	ZFBAR	DOWN DIST. FUSELAGE TO C.G.,FT	2.9200E-01	7.8000E-01
375	FKS	SHAFT BENDING SPRING	3.4000E 06	3.4000E 06
376	KPHCON	SWASHPLATE SPRING,ROLL=RA(126)	4.1000E 03	7.3000E 02
377	KTHCON	SWASHPLATE SPRING,PITCH =RA(127)	4.1000E 03	7.3000E 02
378	CPHDSP	SWASHPLATE DAMPER,ROLL=RA(121)	1.0570E 03	1.5000E 02
379	CTHDSP	SWASHPLATE DAMPER,PITCH =RA(122)	1.0570E 03	1.5000E 02
380	******(15)	PT (C) DATA - NOT USED	1.0700E-02	5.4160E-03
381			2.2580E-04	4.7180E-05
382			-3.4510E-03	-2.2690E-04
383			-6.1790E-03	-4.3460E-03
384			2.8410E-02	3.0720E-02
385			-8.0910E-02	-8.6160E-02
386			2.0300E-02	1.9340E-02
387			3.8300E-04	1.6720E-04
388			-6.5390E-03	-8.1020E-04
389			-1.1510E-02	-5.6020E-03
390			3.5410E-02	3.8090E-02
391			-7.7620E-02	-1.0390E-01
392			2.9170E 00	1.2080E 00
393			0.0	0.0
394			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
395	KFPHG	GYRO FRICTION,AMCS	0.0	0.0
396	RFBL	EQUIV.RADIUS AT INBOARD END OF FDBK LEVER	4.3600E-01	0.0
397	PSIFBL	ANGLE INBOARD END OF FDBK LEVR LEADS BLADE	4.0700E-01	0.0
398	CAPHIS	COEF. FOR PHI,IN SHAFT BENDING (SWP.)	5.2000E-01	0.0
399	IFLFX	SHAFT BENDING FLAG 0=OFF,1=ON	0.0	0.0
400	ROFFT	O ROLL RATE FFT .NE.O REACTIONLESS FLAP	0.0	0.0
401	OPEN(36)		-4.1310E-01	0.0
402			-1.4240E 00	0.0
403			-3.5910E-02	0.0
404			3.1260E-01	0.0
405			3.2240E 00	0.0
406			4.6540E-01	0.0
407			4.1540E 01	0.0
408			3.2890E 02	0.0
409			2.8560E 00	0.0
410			-2.9630E-01	0.0
411			-8.1220E-01	0.0
412			-2.1280E-02	0.0
413			3.1630E 00	0.0
414			1.3110E 01	0.0
415			-7.1290E-02	0.0
416			-3.3300E 00	0.0
417			-4.6780E 01	0.0
418			-4.3960E 00	0.0
419			-1.8650E-01	0.0
420			-3.8220E-01	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
421			-2.3480E-02	0.0
422			-7.1890E-01	0.0
423			-2.4370E 00	0.0
424			4.6510E-02	0.0
425			-9.6930E 01	0.0
426			-3.6890E 02	0.0
427			-1.2510E 00	0.0
428			-3.3180E-01	0.0
429			-1.0290E 00	0.0
430			-3.6540E-02	0.0
431			-2.4440E 00	0.0
432			-1.3750E 01	0.0
433			-4.4050E-01	0.0
434			2.2650E 01	0.0
435			9.8650E 01	0.0
436			3.6420E 00	0.0
437	XCPDL	MAX.LONG.STICK ACTUATOR RATE LIMIT	1.5000E 00	1.0000E 03
438	YCPDL	MAX.LAT.STICK ACTUATOR RATE LIMIT	1.0000E 00	1.0000E 03
439	FGF3r	FILTERED GYRO YAW MOMENT	0.0	0.0
440	FAST	SINGLE BLADE TRIM FLAG 0=OFF,1=ON	3.0000E 00	0.0
441	FMN(6,8)	FUSFLAGE AIRLOAD	0.0	0.0
442			0.0	0.0
443			0.0	0.0
444			-3.0000E-02	2.6000E-02
445			0.0	0.0
446			0.0	0.0
447			-1.8500E-01	0.0
448			0.0	0.0
449			0.0	0.0

REXOR DATA PAGE 20

R/A	PPG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
450			0.0	0.0
451			-6.2000E 00	0.0
452			0.0	0.0
453			0.0	0.0
454			-2.3200E-01	-6.5000E-02
455			0.0	0.0
456			-3.7000E-01	-1.3000E-01
457			0.0	0.0
458			-6.6000E-01	0.0
459			0.0	0.0
460			0.0	0.0
461			0.0	0.0
462			-2.4200E 01	-5.0000E 00
463			0.0	0.0
464			0.0	0.0
465			0.0	0.0
466			0.0	0.0
467			-1.0200E-01	-8.1000E-02
468			0.0	0.0
469			-2.8200E 00	-1.3500E 00
470			0.0	0.0
471			0.0	0.0
472			-9.7000E-02	-2.7000E-02
473			0.0	0.0
474			1.6900E-01	-3.1000E-02
475			0.0	0.0
476			2.5900E 00	6.5000E-01
477			0.0	0.0
478			0.0	0.0
479			0.0	0.0
480			0.0	0.0
481			0.0	0.0
482			0.0	0.0
483			0.0	0.0
484			0.0	0.0
485			0.0	0.0
486			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
487			0.0	0.0
488			0.0	0.0
489	GAMMAG	ROTOR-TO-GYRO FEEDBACK ANGLE	0.0	0.0
490	IAMCS	FLAG FOR AMCS 0=ICS,1=AMCS	0.0	0.0
491	QIXS	NOT USED	0.0	0.0
492	QKFEED	AMCS FEEDBACK SPRING	0.0	0.0
493	TCG1	AMCS GYRO ACTUATOR TIME CONST. ,SEC	0.0	0.0
494	YCSMAX	LAT.STICK TRAVEL LIMIT	1.0000E 03	1.0000E 03
495	GK1L	AMCS ACT. RATE LIMIT	1.0000E 03	0.0
496	GD1L	AMCS ACT. RATE LIMIT	1.0000E 03	0.0
497	DISTCN	BLADE STA.(FT.) FOR BLADE-CANOPY CLEARANCE	0.0	0.0
498	NRAD	NO. OF BLADE STATIONS	1.3000E 01	1.3000E 01
499	NINC	INCREMENT OF STATIONS	1.0000E 00	1.0000E 00
500	KSTART	STARTING STATION	2.0000E 00	2.0000E 00
501	SX(40)	DISTANCE ALONG BLADE,FT	1.5000E 00	5.0000E-01
502			2.5830E 00	5.1000E-01
503			5.1660E 00	3.7500E 00
504			6.8330E 00	6.0830E 00
505			8.5820E 00	7.8330E 00
506			1.0920E 01	9.5830E 00
507			1.2670E 01	1.0670E 01

REXOR DATA PAGE 22

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
508			1.4500E 01	1.1670E 01
509			1.7080E 01	1.3080E 01
510			1.9580E 01	1.4330E 01
511			2.2500E 01	1.5420E 01
512			2.3570E 01	1.6420E 01
513			2.5620E 01	1.7500E 01
514			0.0	0.0
515			0.0	0.0
516			0.0	0.0
517			0.0	0.0
518			0.0	0.0
519			0.0	0.0
520			0.0	0.0
521			0.0	0.0
522			0.0	0.0
523			0.0	0.0
524			0.0	0.0
525			0.0	0.0
526			0.0	0.0
527			0.0	0.0
528			0.0	0.0
529			0.0	0.0
530			0.0	0.0
531			0.0	0.0
532			0.0	0.0
533			0.0	0.0
534			0.0	0.0
535			0.0	0.0
536			0.0	0.0
537			0.0	0.0
538			0.0	0.0
539			0.0	0.0
540			0.0	0.0
541	QM(40)	MASS/LENGTH ALONG BLADE SLUG/FT	1.7100E-01	3.1170E-01
542			7.9740E-01	6.3490E-01

REXOR DATA   PAGE   23

R/A PEG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
543		1.0290E 00	2.6600E-01
544		1.3800E 00	1.3800E-01
545		4.3820E-01	1.2990E-01
546		3.1680E-01	1.3200E-01
547		3.4020E-01	1.4240E-01
548		5.5670E-01	1.4700E-01
549		2.9570E-01	1.0730E-01
550		2.4040E-01	1.4350E-01
551		2.9910E-01	1.2580E-01
552		3.8420E-01	8.5120E-02
553		8.7370E-01	3.0120E-01
554		0.0	0.0
555		0.0	0.0
556		0.0	0.0
557		0.0	0.0
558		0.0	0.0
559		0.0	0.0
560		0.0	0.0
561		0.0	0.0
562		0.0	0.0
563		0.0	0.0
564		0.0	0.0
565		0.0	0.0
566		0.0	0.0
567		0.0	0.0
568		0.0	0.0
569		0.0	0.0
570		0.0	0.0
571		0.0	0.0
572		0.0	0.0
573		0.0	0.0
574		0.0	0.0
575		0.0	0.0
576		0.0	0.0
577		0.0	0.0
578		0.0	0.0
579		0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
580			0.0	0.0
581	VEO1	INITIAL AIRSPEED,LONG.STICK DESENSITIZER	1.8600E 02	0.0
582	DVEO1	AIRSPEED,FULL LONG.STICK DESENSITIZER	1.0100E 02	0.0
583	VEO2	INITIAL AIRSPEED,XCS-P COUPLNG	1.8600E 02	0.0
584	DVEO2	AIRSPEED,FULL XCS-P COUPLING	1.5200E 02	0.0
585	KXCS	LONG.DESENSITIZER FEEDBACK RATIO	5.0000E-01	0.0
586	KYCS	LAT. DESENSITIZER FEEDBACK RATIO	0.0	0.0
587	KXPR	XCS-P FEEDBACK RATIO	1.2000E-01	0.0
588	XCS1	LONG.DESENSITIZER LIMIT	4.1700E-02	0.0
589	XCS2	LONG.DESENSITIZER PLUS XCS-P FEEDBACK LIMIT	5.8300E-02	0.0
590	YCS1	LAT.DESENSITIZER LIMIT	1.0000E-01	0.0
591	PQENG	ENGINE INPUTS	1.1200E 04	0.0
592	PQEOM	ENGINE INPUTS	5.0000E 03	0.0
593	K1PRM	ENGINE INPUTS	1.0000E 00	0.0
594	K2PRM	ENGINE INPUTS	3.3000E 00	0.0
595	TAUG	ENGINE INPUTS	7.5000E-01	1.0000E 00

REXOR DATA PAGE 25

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
596	TAUD	ENGINE INPUTS	0.0	0.0
597	DYD(4)	SELECTIVE PERTURBATION INCRMNT FOR A MATRIX	0.0	0.0
598			0.0	0.0
599			0.0	0.0
600			0.0	0.0
601	SY(40)	CHORDWISE DISTANCE ON BLADE	0.0	0.0
602			-2.0260E-02	0.0
603			-2.4980E-01	-1.0400E-01
604			-2.3170E-01	-4.0000E-02
605			-1.0720E-01	-2.8000E-02
606			-4.0050E-02	-6.7000E-03
607			-1.2550E-02	-3.3000E-03
608			-2.8110E-02	0.0
609			-2.6010E-03	5.4000E-03
610			-3.8600E-03	5.4000E-03
611			-7.9080E-02	5.4000E-03
612			5.7500E-02	5.4000E-03
613			-1.7380E-02	5.4000E-03
614			0.0	0.0
615			0.0	0.0
616			0.0	0.0
617			0.0	0.0
618			0.0	0.0
619			0.0	0.0
620			0.0	0.0
621			0.0	0.0
622			0.0	0.0
623			0.0	0.0
624			0.0	0.0
625			0.0	0.0
626			0.0	0.0
627			0.0	0.0
628			0.0	0.0
629			0.0	0.0

REXOR DATA PAGE 26

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
630			0.0	0.0
631			0.0	0.0
632			0.0	0.0
633			0.0	0.0
634			0.0	0.0
635			0.0	0.0
636			0.0	0.0
637			0.0	0.0
638			0.0	0.0
639			0.0	0.0
640			0.0	0.0
641	PSIT3(20)	PILOT ENGINE SPEED	0.0	0.0
642			0.0	0.0
643			0.0	0.0
644			0.0	0.0
645			0.0	0.0
646			0.0	0.0
647			0.0	0.0
648			0.0	0.0
649			0.0	0.0
650			0.0	0.0
651			0.0	0.0
652			0.0	0.0
653			0.0	0.0
654			0.0	0.0
655			0.0	0.0
656			0.0	0.0
657			0.0	0.0
658			0.0	0.0
659			0.0	0.0
660			0.0	0.0
661	GLCN	GYRO ROLL CONTROL MOMENT	0.0	0.0
662	GMCN	GYRO PITCH CONTROL MOMENT	0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
663	OPEN		0.0	0.0
664	APHI	GAIN FACTORS IN CONTROL EQ.S A-PHI	0.0	0.0
665	BPHI	GAIN FACTORS IN CONTROL EQ.S B-PHI	0.0	0.0
666	APSI	GAIN FACTORS IN CONTROL EQ.S A-PSI	0.0	0.0
667	BPSI	GAIN FACTORS IN CONTROL EQ.S B-PSI	0.0	0.0
668	ATH	GAIN FACTORS IN CONTROL EQ.S A-THETA	0.0	0.0
669	BTH	GAIN FACTORS IN CONTROL EQ.S B-THETA	0.0	0.0
670	ATC	GAIN FACTORS IN CONTROL EQ.S A-THETA-C	0.0	0.0
671	OPEN(10)	OPEN	0.0	0.0
672			0.0	0.0
673			0.0	0.0
674			0.0	0.0
675			0.0	0.0
676			0.0	0.0
677			0.0	0.0
678			0.0	0.0
679			0.0	0.0
680	NMPAT	NO. OF AUTOPILOT POINTS	0.0	2.0000E 01
681	PTAUTO(20)	AUTOPILOT TIME	0.0	0.0
682			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
683			0.0	0.0
684			0.0	0.0
685			0.0	0.0
686			0.0	0.0
687			0.0	0.0
688			0.0	0.0
689			0.0	0.0
690			0.0	0.0
691			0.0	0.0
692			0.0	0.0
693			0.0	0.0
694			0.0	0.0
695			0.0	0.0
696			0.0	0.0
697			0.0	0.0
698			0.0	0.0
699			0.0	0.0
700			0.0	0.0
701	PXCSAT(20)	AUTOPILOT LONG. STICK	0.0	0.0
702			0.0	0.0
703			0.0	0.0
704			0.0	0.0
705			0.0	0.0
706			0.0	0.0
707			0.0	0.0
708			0.0	0.0
709			0.0	0.0
710			0.0	0.0
711			0.0	0.0
712			0.0	0.0
713			0.0	0.0
714			0.0	0.0
715			0.0	0.0
716			0.0	0.0
717			0.0	0.0
718			0.0	0.0

REXOR DATA PAGE 29

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
719			0.0	0.0
720			0.0	0.0
721	PYCSAT(20)	AUTOPILOT LAT. STICK	0.0	0.0
722			0.0	0.0
723			0.0	0.0
724			0.0	0.0
725			0.0	0.0
726			0.0	0.0
727			0.0	0.0
728			0.0	0.0
729			0.0	0.0
730			0.0	0.0
731			0.0	0.0
732			0.0	0.0
733			0.0	0.0
734			0.0	0.0
735			0.0	0.0
736			0.0	0.0
737			0.0	0.0
738			0.0	0.0
739			0.0	0.0
740			0.0	0.0
741	PTHDAT(20)	AUTOPILOT COLLECTIVE	0.0	0.0
742			0.0	0.0
743			0.0	0.0
744			0.0	0.0
745			0.0	0.0
746			0.0	0.0
747			0.0	0.0
748			0.0	0.0
749			0.0	0.0
750			0.0	0.0
751			0.0	0.0
752			0.0	0.0
753			0.0	0.0

REXOR DATA PAGE 30

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
754			0.0	0.0
755			0.0	0.0
756			0.0	0.0
757			0.0	0.0
758			0.0	0.0
759			0.0	0.0
760			0.0	0.0
761	BMS1I(40,4)	INPLANE YO COORDINATE	0.0	0.0
762			3.9370E-03	0.0
763			6.6880E-02	8.6790E-02
764			1.2250E-01	1.9250E-01
765			1.8390E-01	2.9060E-01
766			2.7340E-01	4.0260E-01
767			3.4670E-01	4.7790E-01
768			4.2910E-01	5.5030E-01
769			5.5300E-01	6.5650E-01
770			6.8040E-01	7.5260E-01
771			8.3420E-01	8.3690E-01
772			8.9110E-01	9.1510E-01
773			1.0000E 00	1.0000E 00
774			0.0	0.0
775			0.0	0.0
776			0.0	0.0
777			0.0	0.0
778			0.0	0.0
779			0.0	0.0
780			0.0	0.0
781			0.0	0.0
782			0.0	0.0
783			0.0	0.0
784			0.0	0.0
785			0.0	0.0
785			0.0	0.0
787			0.0	0.0
788			0.0	0.0
789			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
790			0.0	0.0
791			0.0	0.0
792			0.0	0.0
793			0.0	0.0
794			0.0	0.0
795			0.0	0.0
796			0.0	0.0
797			0.0	0.0
798			0.0	0.0
799			0.0	0.0
800			0.0	0.0
801		INPLANE ZO COORDINATE	0.0	0.0
802			-2.3470E-03	0.0
803			-3.1370E-02	-1.6900E-02
804			-4.7070E-02	-1.5130E-02
805			-5.8100E-02	-1.0900E-02
806			-5.9610E-02	-7.1610E-03
807			-5.4100E-02	-5.6180E-03
808			-4.5230E-02	-5.1970E-03
809			-3.0470E-02	-5.8260E-03
810			-1.5080E-02	-7.2600E-03
811			2.9210E-03	-9.2180E-03
812			9.4600E-03	-1.1400E-02
813			2.1840E-02	-1.3920E-02
814			0.0	0.0
815			0.0	0.0
816			0.0	0.0
817			0.0	0.0
818			0.0	0.0
819			0.0	0.0
820			0.0	0.0
821			0.0	0.0
822			0.0	0.0
823			0.0	0.0
824			0.0	0.0
825			0.0	0.0
826			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
827			0.0	0.0
828			0.0	0.0
829			0.0	0.0
830			0.0	0.0
831			0.0	0.0
832			0.0	0.0
833			0.0	0.0
834			0.0	0.0
835			0.0	0.0
836			0.0	0.0
837			0.0	0.0
838			0.0	0.0
839			0.0	0.0
840			0.0	0.0
841		INPLANE Y-PRI-O COORDINATE	0.0	0.0
842			2.0210E-02	0.0
843			3.1950E-02	3.9080E-02
844			3.4240E-02	5.1640E-02
845			3.6350E-02	6.0200E-02
846			4.0350E-02	6.7580E-02
847			4.3390E-02	7.1040E-02
848			4.6420E-02	7.3560E-02
849			4.9610E-02	7.6120E-02
850			5.2050E-02	7.7440E-02
851			5.3070E-02	7.8090E-02
852			5.3180E-02	7.8340E-02
853			5.3250E-02	7.8400E-02
854			0.0	0.0
855			0.0	0.0
856			0.0	0.0
857			0.0	0.0
858			0.0	0.0
859			0.0	0.0
860			0.0	0.0
861			0.0	0.0
862			0.0	0.0
863			0.0	0.0

REXOR DATA PAGE 33

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
864		0.0	0.0
865		0.0	0.0
866		0.0	0.0
867		0.0	0.0
868		0.0	0.0
869		0.0	0.0
870		0.0	0.0
871		0.0	0.0
872		0.0	0.0
873		0.0	0.0
874		0.0	0.0
875		0.0	0.0
876		0.0	0.0
877		0.0	0.0
878		0.0	0.0
879		0.0	0.0
880		0.0	0.0
881	INPLANE Z-PRI-O COORDINATE	0.0	0.0
882		-1.1470E-02	0.0
883		-1.0260E-02	-2.3420E-03
884		-8.1980E-03	2.2320E-03
885		-3.8520E-03	2.1020E-03
886		1.8240E-03	1.1780E-03
887		4.0570E-03	5.0210E-04
888		5.3380E-03	-1.3530E-04
889		5.9730E-03	-1.0100E-03
890		6.1570E-03	-1.6550E-03
891		6.1110E-03	-2.0800E-03
892		6.0690E-03	-2.2910E-03
893		6.0360E-03	-2.3610E-03
894		0.0	0.0
895		0.0	0.0
896		0.0	0.0
897		0.0	0.0
898		0.0	0.0
899		0.0	0.0
900		0.0	0.0

REXOR DATA PAGE 34

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
901			0.0	0.0
902			0.0	0.0
903			0.0	0.0
904			0.0	0.0
905			0.0	0.0
906			0.0	0.0
907			0.0	0.0
908			0.0	0.0
909			0.0	0.0
910			0.0	0.0
911			0.0	0.0
912			0.0	0.0
913			0.0	0.0
914			0.0	0.0
915			0.0	0.0
916			0.0	0.0
917			0.0	0.0
918			0.0	0.0
919			0.0	0.0
920			0.0	0.0
921	BMSIF(40,4)	1ST.FLAP YO COORDINATE	0.0	0.0
922			9.8090E-05	0.0
923			1.4010E-03	9.0100E-04
924			2.7290E-03	2.9540E-03
925			4.4490E-03	4.9710E-03
926			7.5640E-03	7.1550E-03
927			1.0390E-02	8.5620E-03
928			1.3660E-02	9.8830E-03
929			1.8630E-02	1.1780E-02
930			2.3740E-02	1.3470E-02
931			2.9920E-02	1.4930E-02
932			3.2220E-02	1.6290E-02
933			3.6620E-02	1.7750E-02
934			0.0	0.0
935			0.0	0.0
936			0.0	0.0

REXOR DATA PAGE 35

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
937		0.0	0.0
938		0.0	0.0
939		0.0	0.0
940		0.0	0.0
941		0.0	0.0
942		0.0	0.0
943		0.0	0.0
944		0.0	0.0
945		0.0	0.0
946		0.0	0.0
947		0.0	0.0
948		0.0	0.0
949		0.0	0.0
950		0.0	0.0
951		0.0	0.0
952		0.0	0.0
953		0.0	0.0
954		0.0	0.0
955		0.0	0.0
956		0.0	0.0
957		0.0	0.0
958		0.0	0.0
959		0.0	0.0
960		0.0	0.0
961	1ST.FLAP ZO COORDINATE	0.0	0.0
962		1.6620E-02	0.0
963		1.0960E-01	1.3350E-01
964		1.7170E-01	2.5900E-01
965		2.3910E-01	3.6630E-01
966		3.3470E-01	4.7770E-01
967		4.0980E-01	5.4780E-01
968		4.9050E-01	6.1310E-01
969		6.0640E-01	7.0630E-01
970		7.2050E-01	7.8910E-01
971		8.5520E-01	8.6110E-01
972		9.0490E-01	9.2770E-01
973		1.0000E 00	1.0000E 00

REXOR DATA PAGE 36

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
974		0.0	0.0
975		0.0	0.0
976		0.0	0.0
977		0.0	0.0
978		0.0	0.0
979		0.0	0.0
980		0.0	0.0
981		0.0	0.0
982		0.0	0.0
983		0.0	0.0
984		0.0	0.0
985		0.0	0.0
986		0.0	0.0
987		0.0	0.0
988		0.0	0.0
989		0.0	0.0
990		0.0	0.0
991		0.0	0.0
992		0.0	0.0
993		0.0	0.0
994		0.0	0.0
995		0.0	0.0
996		0.0	0.0
997		0.0	0.0
998		0.0	0.0
999		0.0	0.0
1000		0.0	0.0
1001	1ST.FLAP Y-PRI-0 COORDINATE	0.0	0.0
1002		3.8620E-04	0.0
1003		7.2660E-04	5.9950E-04
1004		8.7340E-04	1.0770E-03
1005		1.1320E-03	1.2110E-03
1006		1.5110E-03	1.2830E-03
1007		1.7060E-03	1.3110E-03
1008		1.8590E-03	1.3300E-03
1009		1.9910E-03	1.3460E-03
1010		2.0870E-03	1.3520E-03

REXOR DATA PAGE 37

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1011			2.1400E-03	1.3540E-03
1012			2.1480E-03	1.3540E-03
1013			2.1530E-03	1.3540E-03
1014			0.0	0.0
1015			0.0	0.0
1016			0.0	0.0
1017			0.0	0.0
1018			0.0	0.0
1019			0.0	0.0
1020			0.0	0.0
1021			0.0	0.0
1022			0.0	0.0
1023			0.0	0.0
1024			0.0	0.0
1025			0.0	0.0
1026			0.0	0.0
1027			0.0	0.0
1028			0.0	0.0
1029			0.0	0.0
1030			0.0	0.0
1031			0.0	0.0
1032			0.0	0.0
1033			0.0	0.0
1034			0.0	0.0
1035			0.0	0.0
1036			0.0	0.0
1037			0.0	0.0
1038			0.0	0.0
1039			0.0	0.0
1040			0.0	0.0
1041		1ST.FLAP Z-PRI-O COORDINATE	0.0	0.0
1042			3.5310E-02	0.0
1043			3.6900E-02	4.6270E-02
1044			3.7760E-02	5.9240E-02
1045			3.9550E-02	6.2820E-02
1046			4.2200E-02	6.4390E-02
1047			4.3500E-02	6.5020E-02

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1048			4.4490E-02	6.5490E-02
1049			4.5300E-02	6.6030E-02
1050			4.5920E-02	6.6380E-02
1051			4.6350E-02	6.6580E-02
1052			4.6440E-02	6.6680E-02
1053			4.6490E-02	6.6700E-02
1054			0.0	0.0
1055			0.0	0.0
1056			0.0	0.0
1057			0.0	0.0
1058			0.0	0.0
1059			0.0	0.0
1060			0.0	0.0
1061			0.0	0.0
1062			0.0	0.0
1063			0.0	0.0
1064			0.0	0.0
1065			0.0	0.0
1066			0.0	0.0
1067			0.0	0.0
1068			0.0	0.0
1069			0.0	0.0
1070			0.0	0.0
1071			0.0	0.0
1072			0.0	0.0
1073			0.0	0.0
1074			0.0	0.0
1075			0.0	0.0
1076			0.0	0.0
1077			0.0	0.0
1078			0.0	0.0
1079			0.0	0.0
1080			0.0	0.0
1081	BMS2F(40,4)	2ND.FLAP YO COORDINATE	0.0	0.0
1082			-1.2730E-03	0.0
1083			-2.1340E-02	-3.6770E-03

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1084			-3.8410E-02	-6.7120E-03
1085			-5.5440E-02	-7.6600E-03
1086			-7.3140E-02	-7.6180E-03
1087			-8.1530E-02	-7.3390E-03
1088			-8.4810E-02	-7.0780E-03
1089			-7.9650E-02	-7.0060E-03
1090			-6.3310E-02	-7.4940E-03
1091			-3.3060E-02	-8.4170E-03
1092			-1.9810E-02	-9.6100E-03
1093			6.7830E-03	-1.1080E-02
1094			0.0	0.0
1095			0.0	0.0
1096			0.0	0.0
1097			0.0	0.0
1098			0.0	0.0
1099			0.0	0.0
1100			0.0	0.0
1101			0.0	0.0
1102			0.0	0.0
1103			0.0	0.0
1104			0.0	0.0
1105			0.0	0.0
1106			0.0	0.0
1107			0.0	0.0
1108			0.0	0.0
1109			0.0	0.0
1110			0.0	0.0
1111			0.0	0.0
1112			0.0	0.0
1113			0.0	0.0
1114			0.0	0.0
1115			0.0	0.0
1116			0.0	0.0
1117			0.0	0.0
1118			0.0	0.0
1119			0.0	0.0
1120			0.0	0.0

REXOR DATA PAGE 40

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1121		2ND.FLAP ZO COORDINATE	0.0	0.0
1122			-5.5050E-02	0.0
1123			-2.5510E-01	-3.5300E-01
1124			-3.8060E-01	-5.5140E-01
1125			-5.0000E-01	-6.0950E-01
1126			-6.0480E-01	-5.6380E-01
1127			-6.2820E-01	-4.7650E-01
1128			-5.8930E-01	-3.5390E-01
1129			-4.1990E-01	-1.1240E-01
1130			-1.1800E-01	1.6070E-01
1131			3.7540E-01	4.3240E-01
1132			5.8400E-01	7.0110E-01
1133			1.0000E 00	1.0000E 00
1134			0.0	0.0
1135			0.0	0.0
1136			0.0	0.0
1137			0.0	0.0
1138			0.0	0.0
1139			0.0	0.0
1140			0.0	0.0
1141			0.0	0.0
1142			0.0	0.0
1143			0.0	0.0
1144			0.0	0.0
1145			0.0	0.0
1146			0.0	0.0
1147			0.0	0.0
1148			0.0	0.0
1149			0.0	0.0
1150			0.0	0.0
1151			0.0	0.0
1152			0.0	0.0
1153			0.0	0.0
1154			0.0	0.0
1155			0.0	0.0
1156			0.0	0.0
1157			0.0	0.0

REXOR DATA PAGE 41

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1158			0.0	0.0
1159			0.0	0.0
1160			0.0	0.0
1161		2ND.FLAP Y-PRI-O COORDINATE	0.0	0.0
1162			-6.5180E-03	0.0
1163			-9.9850E-03	-1.5650E-03
1164			-1.0170E-02	-8.8690E-04
1165			-8.9980E-03	-2.0340E-04
1166			-6.0570E-03	2.2100E-04
1167			-3.4030E-03	2.9000E-04
1168			4.0710E-06	2.0690E-04
1169			4.4020E-03	-1.4460E-04
1170			8.4760E-03	-6.2650E-04
1171			1.1970E-02	-1.0420E-03
1172			1.2670E-02	-1.2950E-03
1173			1.3120E-02	-1.3880E-03
1174			0.0	0.0
1175			0.0	0.0
1176			0.0	0.0
1177			0.0	0.0
1178			0.0	0.0
1179			0.0	0.0
1180			0.0	0.0
1181			0.0	0.0
1182			0.0	0.0
1183			0.0	0.0
1184			0.0	0.0
1185			0.0	0.0
1186			0.0	0.0
1187			0.0	0.0
1188			0.0	0.0
1189			0.0	0.0
1190			0.0	0.0
1191			0.0	0.0
1192			0.0	0.0
1193			0.0	0.0
1194			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1195			0.0	0.0
1196			0.0	0.0
1197			0.0	0.0
1198			0.0	0.0
1199			0.0	0.0
1200			0.0	0.0
1201		2ND.FLAP Z-PRI-O COORDINATE	0.0	0.0
1202			-7.7430E-02	0.0
1203			-7.6470E-02	-1.0270E-01
1204			-7.3100E-02	-5.9350E-02
1205			-6.0280E-02	-5.1800E-03
1206			-2.7920E-02	5.9040E-02
1207			2.5260E-03	1.0230E-01
1208			4.1720E-02	1.4260E-01
1209			9.4270E-02	1.9710E-01
1210			1.4520E-01	2.3650E-01
1211			1.8950E-01	2.6170E-01
1212			1.9880E-01	2.7340E-01
1213			2.0500E-01	2.7710E-01
1214			0.0	0.0
1215			0.0	0.0
1216			0.0	0.0
1217			0.0	0.0
1218			0.0	0.0
1219			0.0	0.0
1220			0.0	0.0
1221			0.0	0.0
1222			0.0	0.0
1223			0.0	0.0
1224			0.0	0.0
1225			0.0	0.0
1226			0.0	0.0
1227			0.0	0.0
1228			0.0	0.0
1229			0.0	0.0
1230			0.0	0.0
1231			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1232			0.0	0.0
1233			0.0	0.0
1234			0.0	0.0
1235			0.0	0.0
1236			0.0	0.0
1237			0.0	0.0
1238			0.0	0.0
1239			0.0	0.0
1240			0.0	0.0
1241	BLADK(3,3)	BLADE STIFFNESS MATRIX ELEMENTS K(1,1)-K(3,3)	2.9870E 03	1.5300E 03
1242			3.4520E 01	3.8990E 00
1243			-7.0790E 02	-3.8490E 01
1244			3.4520E 01	3.8990E 00
1245			1.6260E 02	1.2510E 02
1246			-3.4230E 02	-2.8140E 02
1247			-7.0790E 02	-3.8490E 01
1248			-3.4230E 02	-2.8140E 02
1249			3.0150E 03	1.4520E 03
1250	CTRIM	BLADE MODE DAMPING AFTER 1 SECOND OF TRIM	5.7000E-04	5.7000E-04
1251	CFLY	FLY DAMPING FACTOR	5.7000E-04	5.7000E-04
1252	CZERO	INITIAL DAMPING FACTOR	3.0000E-02	1.0000E-02
1253	CUNK	K USED IN TAIL ROTOR	1.0000E 00	1.0000E 00
1254	OPEN		0.0	0.0
1255			0.0	0.0
1256	DCMR	INCREMENTAL BLADE CM FOR TAB	0.0	0.0
1257	IHAFLG	FLAG FOR HARMONIC ANALYSIS 0=OFF,1=ON	0.0	0.0

REXOR DATA PAGE 44

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1258	SXB(4)	BLADE STA. FOR HARM. ANALYSIS	5.8200E 00	0.0
1259			5.8300E 00	0.0
1260			1.0910E 01	0.0
1261			1.4400E 01	0.0
1262	IHAPLT	HARM.ANAL.PLOT FLAG,0=NONE	2.0000E 00	2.0000E 00
1263	DGDHG	VERT-TO-ROTARY SWASHPLATE DAMP. COUPLING	-1.0430E 00	0.0
1264	DELCD	ADJUSTMENT TO CD TABLES	0.0	0.0
1265	WTOL	TOL. FOR WIMR CONVERGENCE	0.0	0.0
1266	BETA	CONE ANGLE,DEG	2.0000E 00	3.2000E 00
1267	TAJ	SWEEP ANGLE,DEG	4.0000E 00	1.4000E 00
1268	GAMMA	DROOP ANGLE,DEG	2.7800E 00	1.0000E 00
1269	PHIREF	REFERENCE FEATHER ANGLE,DEG	9.0000E 00	3.0000E 00
1270	BFAS	BLADE BEARING CONE ANGLE,DEG	2.3830E 00	3.2000E 00
1271	PTOL	TOL FOR PIMR CONVERGENCE	0.0	0.0
1272	QTOL	TOL FOR QIMR CONVERGENCE	0.0	0.0
1273	WITOL	TOL FOR WITR CONVERGENCE	0.0	0.0
1274	K1	CONSTANTS FOR PERTURBATION MODEL	0.0	0.0
1275	K2	CONSTANTS FOR PERTURBATION MODEL	0.0	0.0
1276	GASTOP	GYRO STOP CONTACT ANGLE (SWP.)	1.0000E 03	1.0000E 03

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1277	GKSTOP	GYRO STOP SPRING CONSTANT (SHP.)	1.0000E 03	1.0000E 03
1278	RRK	ROLL RATE CONSTANT	0.0	0.0
1279	TWTR	TAIL ROTOR WASHUP TIME	5.0000E 00	5.0000E 00
1280	TCTRA	TAIL ROTOR ACTUATOR TIME CONST	3.5000E-02	3.5000E-02
1281	GRRO	AMCS,GEAR RATIO ROLL	0.0	0.0
1282	GRPO	AMCS,GEAR RATIO PITCH	0.0	0.0
1283	DGRRTH	AMCS,GEAR RATIO	0.0	0.0
1284	DGRPTH	AMCS,GEAR RATIO	0.0	0.0
1285	GBOBM	AMCS,GYRO BOB WEIGHT MOMENT	0.0	0.0
1286	******	NAT.FREQ.,RAD/SEC,WITH BLD.OTA (INFO.ONLY) SEE RA(82)	1.1500E 02	1.7000E 02
1287	THKTW	AMCS,CYCLIC STIFFNESS	0.0	0.0
1288	THKTWC	AMCS,COLLECTIVE STIFFNESS	0.0	0.0
1289	C3F1	AMCS,83,SHAFT BENDING	0.0	0.0
1290	C3F2	AMCS,83,SHAFT BENDING	0.0	0.0
1291	SS	SPEED OF SOUND,FT/SEC	1.1440E 03	1.1300E 03
1292	TRM2M	FLAG=1 TRIM TO SPEC. MOMENT USE TRIMQ 1,2,3	0.0	0.0
1293	Z31I	AMCS,FEEDBACK PICKUP	0.0	0.0

REXOR DATA PAGE 46

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1294	Z31F	AMCS,FEEDBACK PICKUP	0.0	0.0
1295	Z32F	AMCS,FEEDBACK PICKUP	0.0	0.0
1296	ZP31I	AMCS,FEEDBACK PICKUP	0.0	0.0
1297	ZP31F	AMCS,FEEDBACK PICKUP	0.0	0.0
1298	ZP32F	AMCS,FEEDBACK PICKUP	0.0	0.0
1299	BRKSH	AMCS,SHAFT BENDING STIFFNESS	0.0	0.0
1300	IBLADE	BLADE AERO FLAG	3.0000E 00	3.0000E 00
1301	BI(40)	BLADE POLAR MOMENT OF INEPTIA	1.9450E-04	1.6200E-02
1302			2.6500E-02	3.1680E-02
1303			1.3610E-01	2.1210E-02
1304			3.6310E-01	1.6020E-02
1305			1.6880E-01	1.3220E-02
1306			1.0650E-01	1.1690E-02
1307			1.0040E-01	1.1750E-02
1308			8.6980E-02	1.1610E-02
1309			6.7310E-02	8.4480E-03
1310			6.4830E-02	1.1520E-02
1311			1.1660E-01	1.0320E-02
1312			7.1820E-02	8.9450E-03
1313			2.4440E-01	1.7090E-02
1314			0.0	0.0
1315			0.0	0.0
1316			0.0	0.0
1317			0.0	0.0
1318			0.0	0.0
1319			0.0	0.0
1320			0.0	0.0
1321			0.0	0.0
1322			0.0	0.0
1323			0.0	0.0

REXOR DATA PAGE 47

P/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1324			0.0	0.0
1325			0.0	0.0
1326			0.0	0.0
1327			0.0	0.0
1328			0.0	0.0
1329			0.0	0.0
1330			0.0	0.0
1331			0.0	0.0
1332			0.0	0.0
1333			0.0	0.0
1334			0.0	0.0
1335			0.0	0.0
1336			0.0	0.0
1337			0.0	0.0
1338			0.0	0.0
1339			0.0	0.0
1340			0.0	0.0
1341	DCOEF(4)	DAMPING COEFFICIENTS	1.0000E-01	1.0000E-01
1342			3.0000E-01	3.0000E-01
1343			3.0000E-01	3.0000E-01
1344			2.0000E-01	2.0000E-01
1345	KTI	INBOARD TAB STATION	1.0000E 01	1.0000E 01
1346	KTO	OUTBOARD TAB STATION	1.1000E 01	1.1000E 01
1347	DCMR1	INCREMENT ADDED TO CM TABLE	1.0000E-02	0.0
1348	HTR	HEIGHT OF THE TAIL ROTOR	0.0	3.0800E 00
1349	YP	THRUST LATERAL OFFSET	0.0	-3.5800E 00
1350	THRCON	PROP THRUST CONSTANT	2.9364E 01	7.2000E 00
1351	TORCON	PROP TORQUE CONSTANT	4.6663E 01	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1352	OPEN(9)	OPEN	9.0020E-02	1.3000E-01
1353			0.0	0.0
1354			0.0	0.0
1355			0.0	0.0
1356			0.0	0.0
1357			0.0	0.0
1358			0.0	0.0
1359			0.0	0.0
1360			0.0	0.0
1361	DSJGJ(40)	BLADE TORSIONAL SPRING DATA	0.0	0.0
1362			0.0	0.0
1363			0.0	1.1000E-05
1364			9.0000E-07	1.4000E-05
1365			1.1000E-06	2.0000E-05
1366			1.6000E-06	2.0000E-05
1367			1.9000E-06	2.0000E-05
1368			2.1000E-06	2.0000E-05
1369			2.4000E-06	2.0000E-05
1370			2.9000E-06	2.0000E-05
1371			3.7000E-06	2.0000E-05
1372			4.1000E-06	2.0000E-05
1373			5.0000E-06	2.0000E-05
1374			0.0	0.0
1375			0.0	0.0
1376			0.0	0.0
1377			0.0	0.0
1378			0.0	0.0
1379			0.0	0.0
1380			0.0	0.0
1381			0.0	0.0
1382			0.0	0.0
1383			0.0	0.0
1384			0.0	0.0
1385			0.0	0.0
1386			0.0	0.0
1387			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1388			0.0	0.0
1389			0.0	0.0
1390			0.0	0.0
1391			0.0	0.0
1392			0.0	0.0
1393			0.0	0.0
1394			0.0	0.0
1395			0.0	0.0
1396			0.0	0.0
1397			0.0	0.0
1398			0.0	0.0
1399			0.0	0.0
1400			0.0	0.0
1401	TCT	STATIC TWIST NUMER. TIME CONST	1.0000E-02	1.5000E-02
1402	DTH1	BLADE ELASTIC TWIST DATA STA.1	1.4000E 01	1.4000E 01
1403	DTH2	BLADE ELASTIC TWIST DATA STA.2	2.0000E 01	2.0000E 01
1404	TTFLAG	TTPACK FLAG IF 0. SKIP	1.0000E 00	0.0
1405	CDRO	BLADE ROOT DRAG COEF.	2.5000E-02	2.5000E-02
1406	GAM2	ANGLE BET. PITCH LINK PT. AND FEATHER AXIS,AMCS	0.0	0.0
1407	TC1(2)	AMCS,TIME CONSTANT	0.0	0.0
1408			0.0	0.0
1409	YIV1	PARTIALS FOR TT PACK	1.0000E-04	0.0
1410	YIV2	PARTIALS FOR TT PACK	0.0	0.0
1411	YIV3	PARTIALS FOR TT PACK	0.0	0.0
1412	ZIV1	PARTIALS FOR TT PACK	-1.0000E-04	0.0

REXOR DATA PAGE 50

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1413	ZIV2	PARTIALS FOR TT PACK	9.0000E-04	0.0
1414	ZIV3	PARTIALS FOR TT PACK	-3.0000E-03	0.0
1415	YOV1	PARTIALS FOR TT PACK	3.0000E-03	0.0
1416	YOV2	PARTIALS FOR TT PACK	1.0000E-04	0.0
1417	YOV3	PARTIALS FOR TT PACK	-7.0000E-04	0.0
1418	ZOV1	PARTIALS FOR TT PACK	-1.3000E-03	0.0
1419	ZOV2	PARTIALS FOR TT PACK	1.5000E-02	0.0
1420	ZOV3	PARTIALS FOR TT PACK	-5.1300E-02	0.0
1421	YSC(40)	BLADE SHEAR CENTER CHORDWISE POS.	0.0	0.0
1422			-4.0000E-01	0.0
1423			-4.3000E-01	1.4000E-01
1424			1.0000E-01	1.4000E-01
1425			2.0000E-01	1.4000E-01
1426			2.1000E-01	1.4000E-01
1427			2.0000E-01	1.4000E-01
1428			1.9000E-01	1.4000E-01
1429			1.7000E-01	1.4000E-01
1430			1.4000E-01	1.4000E-01
1431			1.2000E-01	1.4000E-01
1432			1.[illegible]000E-01	1.4000E-01
1433			1.0000E-01	1.4000E-01
1434			0.0	0.0
1435			0.0	0.0
1436			0.0	0.0
1437			0.0	0.0
1438			0.0	0.0
1439			0.0	0.0
1440			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1441			0.0	0.0
1442			0.0	0.0
1443			0.0	0.0
1444			0.0	0.0
1445			0.0	0.0
1446			0.0	0.0
1447			0.0	0.0
1448			0.0	0.0
1449			0.0	0.0
1450			0.0	0.0
1451			0.0	0.0
1452			0.0	0.0
1453			0.0	0.0
1454			0.0	0.0
1455			0.0	0.0
1456			0.0	0.0
1457			0.0	0.0
1458			0.0	0.0
1459			0.0	0.0
1460			0.0	0.0
1461	IXXF	FUSE,MOM.INERTIA,ROLL	6.0000E 03	1.0000E 03
1462	IYYF	FUSE,MOM.INERTIA,PITCH	5.3300E 04	2.6800E 03
1463	IZZF	FUSE,MOM.INERTIA,YAW	5.1900E 04	2.8000E 03
1464	IXYF	FUSE,PROD.OF MOM. INERTIA, ROLL-PITCH	1.1460E 03	0.0
1465	IXZF	FUSE,PROD.OF MOM. INERTIA, ROLL-YAW	1.6270E 03	0.0
1466	IYZF	FUSE,PROD.OF MOM. INERTIA, PITCH-YAW	5.2900E 01	0.0
1467	IEQU	MISC.MOM.INERTIA ABOUT ZZ-AXIS	2.5060E 03	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1468	IZZH	IZZH A HUB.MOM.INERTIA ABOUT ZZ-AXIS	2.1000E 02	1.4900E 01
1469	ZGS	GYRO C.G. IN Z DTR.,ROTOR SYS. (SWP.)	-1.3300E 00	-6.3000E-01
1470	IXXPRO	PROP.MOM.INERTIA ABOUT XX-AXIS (ALSO PROP. FLAG)	1.3980E 01	1.0000E 00
1471	IXXENG	ENG.MOM.INERTIA ABOUT XX-AXIS	5.6700E-01	6.1000E-02
1472	IYYTR	TAIL ROTOR MOM.INERTIA ABOUT XY-AXIS	1.2600E 01	6.6000E-01
1473	GRPRO	GEAR RATIO,PROP.	7.0000E 00	4.8500E 00
1474	GRENG	GEAR RATIO,ENG.	5.5300E 01	1.0200E 02
1475	GRTR	GEAR RATIO,TAIL ROTOR	5.2500E 00	5.8700E 00
1476	GAINEN	GAIN,ENG.	4.1200E 03	0.0
1477	ZBPH	PITCH HORN ARM OFFSET	1.0000E 00	0.0
1478	AKPH	PITCH HORN SPRING CONST.	4.2500E 04	0.0
1479	DELZOB	OUTBOARD BEARING OFFSET ADJ.	-4.5000E-03	0.0
1480	IPHORN	FLAG FOR PITCH HORN 0=OFF,1=ON	1.0000E 00	0.0
1481	SKIPIN	SKIP N MATRIX INVERSIONS	0.0	9.5600E-02
1482	ZJOG	BLADE JOG REQUIRED BY REXOR GEOMETRY	-1.8200E-02	0.0
1483	IFFT	FAST FOURIER TRANSFORM FLAG	0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1484	ENGHPX	MAX.HORSEPOWER WITH ENG. D.O.F	3.8000E 03	1.0000E 05
1485	CFB	FEATHERING VISCOUS FRICTION	5.5000E 01	0.0
1486	WICON	CONST. MULTIPLIER ON WIMRN	1.0000E 00	0.0
1487	KPH	SPRING ONLY USED WITH PSEUDO PITCH HORN D.O.F	0.0	0.0
1488	TPH	TIME CONST. USED WITH PSEUDO PITCH HORN D.O.F	0.0	0.0
1489	K1D	CONSTANTS FOR INTERNALLY GENE-RATING 2	0.0	0.0
1490	K2D	CONSTANTS FOR INTERNALLY GENE-RATING 2	0.0	0.0
1491	RTWANG(3)	REACTIONLESS INPLANE EXCITATN	0.0	0.0
1492			0.0	0.0
1493			0.0	0.0
1494	FIDDLE	COLLECTIVE CONTROL LOAD ADJMNT	0.0	0.0
1495	FLOQUE	FLOQUET ANALYSIS FLAG 0=OFF,1=ON	0.0	0.0
1496	AZFL	INCREMENT FOR FLOQUET ANALYSIS	0.0	0.0
1497	TORFLG	TORSION FLAG	1.0000E 00	0.0
1498	TSTOP	MAX. FLY TIME	2.7000E 00	4.2500E 00
1499	IDECUP	DECOUPLER FLAG	0.0	0.0
1500	IUN	FLAG FOR RA(1501-1660)	0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1501	TTB(20)	THETA TABLE - USE IN CONJUNCTION WITH PT(20)	0.0	0.0
1502			0.0	0.0
1503			0.0	0.0
1504			0.0	0.0
1505			0.0	0.0
1506			0.0	0.0
1507			0.0	0.0
1508			0.0	0.0
1509			0.0	0.0
1510			0.0	0.0
1511			0.0	0.0
1512			0.0	0.0
1513			0.0	0.0
1514			0.0	0.0
1515			0.0	0.0
1516			0.0	0.0
1517			0.0	0.0
1518			0.0	0.0
1519			0.0	0.0
1520			0.0	0.0
1521	OPEN(140)	OPEN	0.0	0.0
1522			0.0	0.0
1523			0.0	0.0
1524			0.0	0.0
1525			0.0	0.0
1526			0.0	0.0
1527			0.0	0.0
1528			0.0	0.0
1529			0.0	0.0
1530			0.0	0.0
1531			0.0	0.0
1532			0.0	0.0
1533			0.0	0.0
1534			0.0	0.0
1535			0.0	0.0

REXOR DATA PAGE 55

R/A PFG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1536		0.0	0.0
1537		0.0	0.0
1538		0.0	0.0
1539		0.0	0.0
1540		0.0	0.0
1541		0.0	0.0
1542		0.0	0.0
1543		0.0	0.0
1544		0.0	0.0
1545		0.0	0.0
1546		0.0	0.0
1547		0.0	0.0
1548		0.0	0.0
1549		0.0	0.0
1550		0.0	0.0
1551		0.0	0.0
1552		0.0	0.0
1553		0.0	0.0
1554		0.0	0.0
1555		0.0	0.0
1556		0.0	0.0
1557		0.0	0.0
1558		0.0	0.0
1559		0.0	0.0
1560		0.0	0.0
1561		0.0	0.0
1562		0.0	0.0
1563		0.0	0.0
1564		0.0	0.0
1565		0.0	0.0
1566		0.0	0.0
1567		0.0	0.0
1568		0.0	0.0
1569		0.0	0.0
1570		0.0	0.0
1571		0.0	0.0
1572		0.0	0.0

REXOR DATA PAGE 56

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1573		0.0	0.0
1574		0.0	0.0
1575		0.0	0.0
1576		0.0	0.0
1577		0.0	0.0
1578		0.0	0.0
1579		0.0	0.0
1580		0.0	0.0
1581		0.0	0.0
1582		0.0	0.0
1583		0.0	0.0
1584		0.0	0.0
1585		0.0	0.0
1586		0.0	0.0
1587		0.0	0.0
1588		0.0	0.0
1589		0.0	0.0
1590		0.0	0.0
1591		0.0	0.0
1592		0.0	0.0
1593		0.0	0.0
1594		0.0	0.0
1595		0.0	0.0
1596		0.0	0.0
1597		0.0	0.0
1598		0.0	0.0
1599		0.0	0.0
1600		0.0	0.0
1601		0.0	0.0
1602		0.0	0.0
1603		0.0	0.0
1604		0.0	0.0
1605		0.0	0.0
1606		0.0	0.0
1607		0.0	0.0
1608		0.0	0.0
1609		0.0	0.0

REXOR DATA PAGE 57

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1610		0.0	0.0
1611		0.0	0.0
1612		0.0	0.0
1613		0.0	0.0
1614		0.0	0.0
1615		0.0	0.0
1616		0.0	0.0
1617		0.0	0.0
1618		0.0	0.0
1619		0.0	0.0
1620		0.0	0.0
1621		0.0	0.0
1622		0.0	0.0
1623		0.0	0.0
1624		0.0	0.0
1625		0.0	0.0
1626		0.0	0.0
1627		0.0	0.0
1628		0.0	0.0
1629		0.0	0.0
1630		0.0	0.0
1631		0.0	0.0
1632		0.0	0.0
1633		0.0	0.0
1634		0.0	0.0
1635		0.0	0.0
1636		0.0	0.0
1637		0.0	0.0
1638		0.0	0.0
1639		0.0	0.0
1640		0.0	0.0
1641		0.0	0.0
1642		0.0	0.0
1643		0.0	0.0
1644		0.0	0.0
1645		0.0	0.0
1646		0.0	0.0

REXOR DATA PAGE 58

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1647			0.0	0.0
1648			0.0	0.0
1649			0.0	0.0
1650			0.0	0.0
1651			0.0	0.0
1652			0.0	0.0
1653			0.0	0.0
1654			0.0	0.0
1655			0.0	0.0
1656			0.0	0.0
1657			0.0	0.0
1658			0.0	0.0
1659			0.0	0.0
1660			0.0	0.0
1661	Y(30)	DISPL. EACH D.O.F.	0.0	3.9043E-02
1662			0.0	1.3719E-01
1663			0.0	2.8601E-02
1664			0.0	0.0
1665			0.0	-2.0854E-03
1666			0.0	4.0150E-01
1667			0.0	1.0647E-01
1668			0.0	0.0
1669			0.0	3.4854E-02
1670			0.0	7.3920E-01
1671			0.0	4.4026E-02
1672			0.0	0.0
1673			0.0	8.6136E-02
1674			0.0	3.1388E-01
1675			0.0	9.2961E-03
1676			0.0	0.0
1677			0.0	8.5754E-03
1678			0.0	-6.0389E-02
1679			0.0	5.8420E-03
1680			0.0	0.0
1681			0.0	2.4751E 02
1682			0.0	0.0

REXOR DATA PAGE 59

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1683			0.0	1.5624E 01
1684			0.0	0.0
1685			0.0	0.0
1686			0.0	0.0
1687			0.0	-1.1973E-02
1688			0.0	6.3036E-02
1689			0.0	0.0
1690			0.0	0.0
1691	YD(30)	VEL. EACH D.O.F.	0.0	-1.9171E 00
1692			0.0	3.2421E 00
1693			0.0	-7.6593E-01
1694			0.0	0.0
1695			0.0	5.2080E-01
1696			0.0	9.7551E 00
1697			0.0	1.0371E 00
1698			0.0	0.0
1699			0.0	1.3351E 00
1700			0.0	-1.0569E 00
1701			0.0	-2.4338E 00
1702			0.0	0.0
1703			0.0	1.6908E-01
1704			0.0	-1.2079E 01
1705			0.0	2.0085E 00
1706			0.0	0.0
1707			0.0	0.0
1708			0.0	0.0
1709			0.0	0.0
1710			0.0	3.6740E 01
1711			0.0	-2.0463E-01
1712			0.0	-1.9085E-01
1713			0.0	-1.0500E-01
1714			0.0	-1.1011E-01
1715			0.0	3.5384E-02
1716			0.0	-2.0891E-02
1717			0.0	0.0
1718			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1719			0.0	0.0
1720			0.0	0.0
1721	YDD(30)	ACC. EACH D.O.F.	0.0	-1.7476E 01
1722			0.0	2.2154E 02
1723			0.0	1.0472E 02
1724			0.0	0.0
1725			0.0	4.5140E 01
1726			0.0	2.0793E 02
1727			0.0	-1.9724E 02
1728			0.0	0.0
1729			0.0	2.7472E 01
1730			0.0	-6.3628E 02
1731			0.0	-1.5304E 00
1732			0.0	0.0
1733			0.0	-8.4752E 01
1734			0.0	2.1893E 02
1735			0.0	8.4705E 01
1736			0.0	0.0
1737			0.0	2.4137E 00
1738			0.0	-4.1303E-02
1739			0.0	2.0484E 00
1740			0.0	0.0
1741			0.0	1.8238E 00
1742			0.0	1.9389E-01
1743			0.0	-3.2239E 01
1744			0.0	-1.1011E-01
1745			0.0	3.5384E-02
1746			0.0	-2.0891E-02
1747			0.0	0.0
1748			0.0	0.0
1749			0.0	0.0
1750			0.0	0.0
1751	FXTN(25,2)	AERODYNAMIC INTERFERENCE FACTR MAINROTOR-TO-FIXED SURFACES	1.8000E 01	1.8000E 01
1752			-1.8000E 02	-1.8000E 02

PEXOR DATA PAGE 61

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1753			6.2300E-01	6.2300E-01
1754			0.0	0.0
1755			6.2300E-01	6.2300E-01
1756			4.0000E 01	4.0000E 01
1757			7.4000E-01	7.4000E-01
1758			7.0000E 01	7.0000E 01
1759			8.8000E-01	8.8000E-01
1760			8.0000E 01	8.0000E 01
1761			8.6000E-01	8.6000E-01
1762			9.0000E 01	9.0000E 01
1763			8.4000E-01	8.4000E-01
1764			1.0000E 02	1.0000E 02
1765			5.6000E-01	5.6000E-01
1766			1.1000E 02	1.1000E 02
1767			3.8300E-01	3.8300E-01
1768			1.8000E 02	1.8000E 02
1769			3.8300E-01	3.8300E-01
1770			0.0	0.0
1771			0.0	0.0
1772			0.0	0.0
1773			0.0	0.0
1774			0.0	0.0
1775			0.0	0.0
1776			2.2000E 01	1.4000E 01
1777			-1.8000E 02	-1.8000E 02
1778			0.0	4.0000E-01
1779			2.0000E 01	-5.0000E 00
1780			0.0	4.0000E-01
1781			5.0000E 01	0.0
1782			2.0000E 00	5.0000E-01
1783			6.0000E 01	7.0000E 01
1784			1.9200E 00	1.9000E 00
1785			7.4000E 01	9.0000E 01
1786			1.5200E 00	1.0000E 00
1787			8.0000E 01	1.2000E 02
1788			1.3400E 00	4.0000E-01
1789			9.0000E 01	1.8000E 02

REXOR DATA PAGE 62

R/A	PKG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1790			1.1400E 00	4.0000E-01
1791			1.0000E 02	0.0
1792			1.0800E 00	0.0
1793			1.1000E 02	0.0
1794			1.0400E 00	0.0
1795			1.2000E 02	0.0
1796			9.6000E-01	0.0
1797			1.8000E 02	0.0
1798			0.0	0.0
1799			0.0	0.0
1800			0.0	0.0
1801	NVEC2(50)	FLY PLOT CODE TABLE	3.0000E 00	3.0000E 00
1802			1.6000E 01	1.6000E 01
1803			2.1000E 01	2.1000E 01
1804			1.7000E 01	1.7000E 01
1805			2.3000E 01	2.3000E 01
1806			2.4000E 01	2.4000E 01
1807			2.5000E 01	2.5000E 01
1808			3.0000E 01	3.0000E 01
1809			2.9000E 01	2.9000E 01
1810			2.6000E 01	2.6000E 01
1811			2.7000E 01	2.7000E 01
1812			2.8000E 01	2.8000E 01
1813			1.4000E 01	1.4000E 01
1814			1.5000E 01	1.5000E 01
1815			1.9000E 01	1.9000E 01
1816			7.0000E 00	7.0000E 00
1817			5.4000E 01	5.4000E 01
1818			4.0000E 00	4.0000E 00
1819			4.2000E 01	4.2000E 01
1820			4.8000E 01	4.8000E 01
1821			5.1000E 01	5.1000E 01
1822			5.2000E 01	5.2000E 01
1823			4.7000E 01	4.7000E 01
1824			5.6000E 01	5.6000E 01
1825			1.8000E 01	1.8000E 01

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1826			1.0000E 00	1.0000E 00
1827			8.0000E 00	8.0000E 00
1828			9.0000E 00	9.0000E 00
1829			3.1000E 01	1.0000E 01
1830			3.2000E 01	1.1000E 01
1831			3.3000E 01	3.3000E 01
1832			3.4000E 01	3.4000E 01
1833			3.7000E 01	3.7000E 01
1834			3.8000E 01	3.8000E 01
1835			3.9000E 01	3.9000E 01
1836			4.0000E 01	4.0000E 01
1837			4.1000E 01	4.1000E 01
1838			4.3000E 01	4.3000E 01
1839			4.4000E 01	4.4000E 01
1840			4.5000E 01	4.5000E 01
1841			0.0	0.0
1842			0.0	0.0
1843			0.0	0.0
1844			0.0	0.0
1845			0.0	0.0
1846			0.0	0.0
1847			0.0	0.0
1848			0.0	0.0
1849			0.0	0.0
1850			0.0	0.0
1851	SVEC(50)	TABLE OF PLOT SCALE FACTORS	0.0	0.0
1852			0.0	0.0
1853			0.0	0.0
1854			0.0	0.0
1855			0.0	0.0
1856			0.0	0.0
1857			0.0	0.0
1858			0.0	0.0
1859			0.0	0.0
1860			0.0	0.0
1861			0.0	0.0

REXOR DATA PAGE 64

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1862		0.0	0.0
1863		0.0	0.0
1864		0.0	0.0
1865		0.0	0.0
1866		0.0	0.0
1867		0.0	0.0
1868		0.0	0.0
1869		0.0	0.0
1870		0.0	0.0
1871		0.0	0.0
1872		0.0	0.0
1873		0.0	0.0
1874		0.0	0.0
1875		0.0	0.0
1876		0.0	0.0
1877		0.0	0.0
1878		0.0	0.0
1879		0.0	0.0
1880		0.0	0.0
1881		0.0	0.0
1882		0.0	0.0
1883		0.0	0.0
1884		0.0	0.0
1885		0.0	0.0
1886		0.0	0.0
1887		0.0	0.0
1888		0.0	0.0
1889		0.0	0.0
1890		0.0	0.0
1891		0.0	0.0
1892		0.0	0.0
1893		0.0	0.0
1894		0.0	0.0
1895		0.0	0.0
1896		0.0	0.0
1897		0.0	0.0
1898		0.0	0.0

REXOR DATA PAGE 65

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1899			0.0	0.0
1900			0.0	0.0
1901	******(35)	AUTO-PILOT SETTINGS	0.0	0.0
1902			0.0	0.0
1903			0.0	0.0
1904			0.0	0.0
1905			0.0	0.0
1906			0.0	0.0
1907			0.0	0.0
1908			0.0	0.0
1909			0.0	0.0
1910			0.0	0.0
1911			0.0	0.0
1912			0.0	0.0
1913			0.0	0.0
1914			0.0	0.0
1915			0.0	0.0
1916			0.0	0.0
1917			0.0	0.0
1918			0.0	0.0
1919			0.0	0.0
1920			0.0	0.0
1921			0.0	0.0
1922			0.0	0.0
1923			0.0	0.0
1924			0.0	0.0
1925			0.0	0.0
1926			0.0	0.0
1927			0.0	0.0
1928			0.0	0.0
1929			0.0	0.0
1930			0.0	0.0
1931			0.0	0.0
1932			0.0	0.0
1933			0.0	0.0
1934			0.0	0.0

REXOR DATA PAGE 66

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1935			0.0	0.0
1936	HPSET	SET HORSEPOWER IN AUTOPILOT	0.0	0.0
1937	OPEN(2)	OPEN	0.0	0.0
1938			0.0	0.0
1939	TMAUTO	TIME TO START AUTO	0.0	0.0
1940	NPT	NOT USED	0.0	0.0
1941	******(40)	AUTO PILOT INPUTS	0.0	0.0
1942			0.0	0.0
1943			0.0	0.0
1944			0.0	0.0
1945			0.0	0.0
1946			0.0	0.0
1947			0.0	0.0
1948			0.0	0.0
1949			0.0	0.0
1950			0.0	0.0
1951			0.0	0.0
1952			0.0	0.0
1953			0.0	0.0
1954			0.0	0.0
1955			0.0	0.0
1956			0.0	0.0
1957			0.0	0.0
1958			0.0	0.0
1959			0.0	0.0
1960			0.0	0.0
1961			0.0	0.0
1962			0.0	0.0
1963			0.0	0.0
1964			0.0	0.0
1965			0.0	0.0
1966			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
1967			0.0	0.0
1968			0.0	0.0
1969			0.0	0.0
1970			0.0	0.0
1971			0.0	0.0
1972			0.0	0.0
1973			0.0	0.0
1974			0.0	0.0
1975			0.0	0.0
1976			0.0	0.0
1977			0.0	0.0
1978			0.0	0.0
1979			0.0	0.0
1980			0.0	0.0
1981	GAINT(20)	TRIM GAIN ON BP	1.0000E-02	5.0000E-03
1982		TRIM GAIN ON PHI	1.0000E-02	5.0000E-03
1983		TRIM GAIN ON THO OF ALPHA	-4.0000E-04	-2.0000E-04
1984		TRIM GAIN ON A1S	8.0000E-04	4.0000E-04
1985		TRIM GAIN ON B1S	-5.0000E-03	-1.0000E-03
1986		TRIM GAIN ON THOTR	-5.0000E-02	-1.0000E-02
1987		TRIM GAIN ON GLCON	2.0000E 00	5.0000E-01
1988		TRIM GAIN ON ZG	-2.5000E-04	-1.0000E-04
1989		TRIM GAIN ON ENDMZZ	5.0000E 02	0.0
1990		TRIM GAIN ON GAMMA	-2.5000E-04	0.0
1991		TRIM GAIN ON THO(AUTO ROTATN)	3.0000E 00	0.0
1992		TRIM GAIN ON THO(AWAY FROM POST)	3.0000E-05	0.0
1993			3.3400E-01	0.0
1994		TRIM GAIN ON GMCON	2.0000E 00	5.0000E-01
1995			0.0	0.0
1996			0.0	0.0
1997			0.0	0.0
1998			0.0	0.0
1999			0.0	0.0

REXOR DATA PAGE 68

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2000	TRMUPD	TRIM UPDATE FLAG 0=OFF,1=ON	0.0	C.0
2001	THTORS(40,4)	BLADE TORSION MODE - 4 BLADES DISPLACEMENT	0.0	0.0
2002			0.0	0.0
2003			0.0	0.0
2004			0.0	0.0
2005			0.0	0.0
2006			0.0	0.0
2007			0.0	0.0
2008			0.0	0.0
2009			0.0	0.0
2010			0.0	0.0
2011			0.0	0.0
2012			0.0	0.0
2013			0.0	0.0
2014			0.0	0.0
2015			0.0	0.0
2016			0.0	0.0
2017			0.0	0.0
2018			0.0	0.0
2019			0.0	0.0
2020			0.0	0.0
2021			0.0	0.0
2022			0.0	0.0
2023			0.0	0.0
2024			0.0	0.0
2025			0.0	0.0
2026			0.0	0.0
2027			0.0	0.0
2028			0.0	0.0
2029			0.0	0.0
2030			0.0	0.0
2031			0.0	0.0
2032			0.0	0.0
2033			0.0	C.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2034			0.0	0.0
2035			0.0	0.0
2036			0.0	0.0
2037			0.0	0.0
2038			0.0	0.0
2039			0.0	0.0
2040			0.0	0.0
2041			0.0	0.0
2042			0.0	0.0
2043			0.0	0.0
2044			0.0	0.0
2045			0.0	0.0
2046			0.0	0.0
2047			0.0	0.0
2048			0.0	0.0
2049			0.0	0.0
2050			0.0	0.0
2051			0.0	0.0
2052			0.0	0.0
2053			0.0	0.0
2054			0.0	0.0
2055			0.0	0.0
2056			0.0	0.0
2057			0.0	0.0
2058			0.0	0.0
2059			0.0	0.0
2060			0.0	0.0
2061			0.0	0.0
2062			0.0	0.0
2063			0.0	0.0
2064			0.0	0.0
2065			0.0	0.0
2066			0.0	0.0
2067			0.0	0.0
2068			0.0	0.0
2069			0.0	0.0
2070			0.0	0.0

REXOR DATA PAGE 70

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2071		0.0	0.0
2072		0.0	0.0
2073		0.0	0.0
2074		0.0	0.0
2075		0.0	0.0
2076		0.0	0.0
2077		0.0	0.0
2078		0.0	0.0
2079		0.0	0.0
2080		0.0	0.0
2081		0.0	0.0
2082		0.0	0.0
2083		0.0	0.0
2084		0.0	0.0
2085		0.0	0.0
2086		0.0	0.0
2087		0.0	0.0
2088		0.0	0.0
2089		0.0	0.0
2090		0.0	0.0
2091		0.0	0.0
2092		0.0	0.0
2093		0.0	0.0
2094		0.0	0.0
2095		0.0	0.0
2096		0.0	0.0
2097		0.0	0.0
2098		0.0	0.0
2099		0.0	0.0
2100		0.0	0.0
2101		0.0	0.0
2102		0.0	0.0
2103		0.0	0.0
2104		0.0	0.0
2105		0.0	0.0
2106		0.0	0.0
2107		0.0	0.0

REXOR DATA PAGE 71

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2108		0.0	0.0
2109		0.0	0.0
2110		0.0	0.0
2111		0.0	0.0
2112		0.0	0.0
2113		0.0	0.0
2114		0.0	0.0
2115		0.0	0.0
2116		0.0	0.0
2117		0.0	0.0
2118		0.0	0.0
2119		0.0	0.0
2120		0.0	0.0
2121		0.0	0.0
2122		0.0	0.0
2123		0.0	0.0
2124		0.0	0.0
2125		0.0	0.0
2126		0.0	0.0
2127		0.0	0.0
2128		0.0	0.0
2129		0.0	0.0
2130		0.0	0.0
2131		0.0	0.0
2132		0.0	0.0
2133		0.0	0.0
2134		0.0	0.0
2135		0.0	0.0
2136		0.0	0.0
2137		0.0	0.0
2138		0.0	0.0
2139		0.0	0.0
2140		0.0	0.0
2141		0.0	0.0
2142		0.0	0.0
2143		0.0	0.0
2144		0.0	0.0

REXOR DATA PAGE 72

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2145			0.0	0.0
2146			0.0	0.0
2147			0.0	0.0
2148			0.0	0.0
2149			0.0	0.0
2150			0.0	0.0
2151			0.0	0.0
2152			0.0	0.0
2153			0.0	0.0
2154			0.0	0.0
2155			0.0	0.0
2156			0.0	0.0
2157			0.0	0.0
2158			0.0	0.0
2159			0.0	0.0
2160			0.0	0.0
2161	THTRD(40,4)	BLADE TORSION MODE - 4 BLADES VELOCITY	0.0	0.0
2162			0.0	0.0
2163			0.0	0.0
2164			0.0	0.0
2165			0.0	0.0
2166			0.0	0.0
2167			0.0	0.0
2168			0.0	0.0
2169			0.0	0.0
2170			0.0	0.0
2171			0.0	0.0
2172			0.0	0.0
2173			0.0	0.0
2174			0.0	0.0
2175			0.0	0.0
2176			0.0	0.0
2177			0.0	0.0
2178			0.0	0.0
2179			0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2180		0.0	0.0
2181		0.0	0.0
2182		0.0	0.0
2183		0.0	0.0
2184		0.0	0.0
2185		0.0	0.0
2186		0.0	0.0
2187		0.0	0.0
2188		0.0	0.0
2189		0.0	0.0
2190		0.0	0.0
2191		0.0	0.0
2192		0.0	0.0
2193		0.0	0.0
2194		0.0	0.0
2195		0.0	0.0
2196		0.0	0.0
2197		0.0	0.0
2198		0.0	0.0
2199		0.0	0.0
2200		0.0	0.0
2201		0.0	0.0
2202		0.0	0.0
2203		0.0	0.0
2204		0.0	0.0
2205		0.0	0.0
2206		0.0	0.0
2207		0.0	0.0
2208		0.0	0.0
2209		0.0	0.0
2210		0.0	0.0
2211		0.0	0.0
2212		0.0	0.0
2213		0.0	0.0
2214		0.0	0.0
2215		0.0	0.0
2216		0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2217		0.0	0.0
2218		0.0	0.0
2219		0.0	0.0
2220		0.0	0.0
2221		0.0	0.0
2222		0.0	0.0
2223		0.0	0.0
2224		0.0	0.0
2225		0.0	0.0
2226		0.0	0.0
2227		0.0	0.0
2228		0.0	0.0
2229		0.0	0.0
2230		0.0	0.0
2231		0.0	0.0
2232		0.0	0.0
2233		0.0	0.0
2234		0.0	0.0
2235		0.0	0.0
2236		0.0	0.0
2237		0.0	0.0
2238		0.0	0.0
2239		0.0	0.0
2240		0.0	0.0
2241		0.0	0.0
2242		0.0	0.0
2243		0.0	0.0
2244		0.0	0.0
2245		0.0	0.0
2246		0.0	0.0
2247		0.0	0.0
2248		0.0	0.0
2249		0.0	0.0
2250		0.0	0.0
2251		0.0	0.0
2252		0.0	0.0
2253		0.0	0.0

REXOR DATA PAGE 75

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2254		0.0	0.0
2255		0.0	0.0
2256		0.0	0.0
2257		0.0	0.0
2258		0.0	0.0
2259		0.0	0.0
2260		0.0	0.0
2261		0.0	0.0
2262		0.0	0.0
2263		0.0	0.0
2264		0.0	0.0
2265		0.0	0.0
2266		0.0	0.0
2267		0.0	0.0
2268		0.0	0.0
2269		0.0	0.0
2270		0.0	0.0
2271		0.0	0.0
2272		0.0	0.0
2273		0.0	0.0
2274		0.0	0.0
2275		0.0	0.0
2276		0.0	0.0
2277		0.0	0.0
2278		0.0	0.0
2279		0.0	0.0
2280		0.0	0.0
2281		0.0	0.0
2282		0.0	0.0
2283		0.0	0.0
2284		0.0	0.0
2285		0.0	0.0
2286		0.0	0.0
2287		0.0	0.0
2288		0.0	0.0
2289		0.0	0.0
2290		0.0	0.0

REXOR DATA PAGE 76

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2291			0.0	0.0
2292			0.0	0.0
2293			0.0	0.0
2294			0.0	0.0
2295			0.0	0.0
2296			0.0	0.0
2297			0.0	0.0
2298			0.0	0.0
2299			0.0	0.0
2300			0.0	0.0
2301			0.0	0.0
2302			0.0	0.0
2303			0.0	0.0
2304			0.0	0.0
2305			0.0	0.0
2306			0.0	0.0
2307			0.0	0.0
2308			0.0	0.0
2309			0.0	0.0
2310			0.0	0.0
2311			0.0	0.0
2312			0.0	0.0
2313			0.0	0.0
2314			0.0	0.0
2315			0.0	0.0
2316			0.0	0.0
2317			0.0	0.0
2318			0.0	0.0
2319			0.0	0.0
2320			0.0	0.0
2321	THG1(40,4)	BLADE TORSION MODE - 4 BLADES ACCELERATION	0.0	0.0
2322			0.0	0.0
2323			0.0	0.0
2324			0.0	0.0
2325			0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2326		0.0	0.0
2327		0.0	0.0
2328		0.0	0.0
2329		0.0	0.0
2330		0.0	0.0
2331		0.0	0.0
2332		0.0	0.0
2333		0.0	0.0
2334		0.0	0.0
2335		0.0	0.0
2336		0.0	0.0
2337		0.0	0.0
2338		0.0	0.0
2339		0.0	0.0
2340		0.0	0.0
2341		0.0	0.0
2342		0.0	0.0
2343		0.0	0.0
2344		0.0	0.0
2345		0.0	0.0
2346		0.0	0.0
2347		0.0	0.0
2348		0.0	0.0
2349		0.0	0.0
2350		0.0	0.0
2351		0.0	0.0
2352		0.0	0.0
2353		0.0	0.0
2354		0.0	0.0
2355		0.0	0.0
2356		0.0	0.0
2357		0.0	0.0
2358		0.0	0.0
2359		0.0	0.0
2360		0.0	0.0
2361		0.0	0.0
2362		0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AM-56A	XM-51A
2363		0.0	0.0
2364		0.0	0.0
2365		0.0	0.0
2366		0.0	0.0
2367		0.0	0.0
2368		0.0	0.0
2369		0.0	0.0
2370		0.0	0.0
2371		0.0	0.0
2372		0.0	0.0
2373		0.0	0.0
2374		0.0	0.0
2375		0.0	0.0
2376		0.0	0.0
2377		0.0	0.0
2378		0.0	0.0
2379		0.0	0.0
2380		0.0	0.0
2381		0.0	0.0
2382		0.0	0.0
2383		0.0	0.0
2384		0.0	0.0
2385		0.0	0.0
2386		0.0	0.0
2387		0.0	0.0
2388		0.0	0.0
2389		0.0	0.0
2390		0.0	0.0
2391		0.0	0.0
2392		0.0	0.0
2393		0.0	0.0
2394		0.0	0.0
2395		0.0	0.0
2396		0.0	0.0
2397		0.0	0.0
2398		0.0	0.0
2399		0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2400		0.0	0.0
2401		0.0	0.0
2402		0.0	0.0
2403		0.0	0.0
2404		0.0	0.0
2405		0.0	0.0
2406		0.0	0.0
2407		0.0	0.0
2408		0.0	0.0
2409		0.0	0.0
2410		0.0	0.0
2411		0.0	0.0
2412		0.0	0.0
2413		0.0	0.0
2414		0.0	0.0
2415		0.0	0.0
2416		0.0	0.0
2417		0.0	0.0
2418		0.0	0.0
2419		0.0	0.0
2420		0.0	0.0
2421		0.0	0.0
2422		0.0	0.0
2423		0.0	0.0
2424		0.0	0.0
2425		0.0	0.0
2426		0.0	0.0
2427		0.0	0.0
2428		0.0	0.0
2429		0.0	0.0
2430		0.0	0.0
2431		0.0	0.0
2432		0.0	0.0
2433		0.0	0.0
2434		0.0	0.0
2435		0.0	0.0
2436		0.0	0.0

REXOR DATA PAGE 80

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2437		0.0	0.0
2438		0.0	0.0
2439		0.0	0.0
2440		0.0	0.0
2441		0.0	0.0
2442		0.0	0.0
2443		0.0	0.0
2444		0.0	0.0
2445		0.0	0.0
2446		0.0	0.0
2447		0.0	0.0
2448		0.0	0.0
2449		0.0	0.0
2450		0.0	0.0
2451		0.0	0.0
2452		0.0	0.0
2453		0.0	0.0
2454		0.0	0.0
2455		0.0	0.0
2456		0.0	0.0
2457		0.0	0.0
2458		0.0	0.0
2459		0.0	0.0
2460		0.0	0.0
2461		0.0	0.0
2462		0.0	0.0
2463		0.0	0.0
2464		0.0	0.0
2465		0.0	0.0
2466		0.0	0.0
2467		0.0	0.0
2468		0.0	0.0
2469		0.0	0.0
2470		0.0	0.0
2471		0.0	0.0
2472		0.0	0.0
2473		0.0	0.0

R/A	PFG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2474			0.0	0.0
2475			0.0	0.0
2476			0.0	0.0
2477			0.0	0.0
2478			0.0	0.0
2479			0.0	0.0
2480			0.0	0.0
2481	OPEN(11)	OPEN	0.0	0.0
2482			0.0	0.0
2483			0.0	0.0
2484			0.0	0.0
2485			0.0	0.0
2486			0.0	0.0
2487			0.0	0.0
2488			0.0	0.0
2489			0.0	0.0
2490			0.0	0.0
2491			0.0	0.0
2492	LFB	ROTOR HEIGHT ABOVE GYRO,AMCS	0.0	0.0
2493	OPEN(21)	OPEN	0.0	0.0
2494			0.0	0.0
2495			0.0	0.0
2496			0.0	0.0
2497			0.0	0.0
2498			0.0	0.0
2499			0.0	0.0
2500			0.0	0.0
2501			0.0	0.0
2502			0.0	0.0
2503			0.0	0.0
2504			0.0	0.0
2505			0.0	0.0
2506			0.0	0.0
2507			0.0	0.0

REXOR DATA PAGE 32

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2508			0.0	0.0
2509			0.0	0.0
2510			0.0	0.0
2511			0.0	0.0
2512			0.0	0.0
2513			0.0	0.0
2514	XSTDIF	FEEDBACK ARM LENGTH,SPAN,AMCS	0.0	0.0
2515	FLAP2	.NE.0,NO 2ND. FLAP MODE	0.0	0.0
2516	PSIFB	FEEDBACK PHASE ANGLE,AMCS	0.0	0.0
2517	OPEN(2)	OPEN	0.0	0.0
2518			0.0	0.0
2519	YRMI(3)	LATERAL DISPL. OF FDBK MOUNT, EACH BLADE MODE	0.0	0.0
2520			0.0	0.0
2521			0.0	0.0
2522	ZRMI(3)	VERT. DISPL. OF FDBK. MOUNT, EACH BLADE MODE	0.0	0.0
2523			0.0	0.0
2524			0.0	0.0
2525	YRMPI(3)	LATERAL SLOPE OF FDBK. MOUNT, EACH BLADE MODE	9.5580E-10	3.9810E-10
2526			0.0	0.0
2527			0.0	0.0
2528	ZRMPI(3)	VERT. SLOPE OF FDBK. MOUNT, EACH BLADE MODE	0.0	0.0
2529			-3.3260E-06	-3.7660E-08
2530			-5.8120E-07	3.2900E-11

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2531	YRMST	LATERAL SLOPE OF FDBK. MOUNT, GEOMETRY,AMCS	0.0	0.0
2532	ZRMST	VERT. SLOPE OF FDBK. MOUNT, GEOMETRY,AMCS	0.0	0.0
2533	OPEN(12)	OPEN	0.0	0.0
2534			0.0	0.0
2535			0.0	0.0
2536			0.0	0.0
2537			0.0	0.0
2538			0.0	0.0
2539			0.0	0.0
2540			0.0	0.0
2541			0.0	0.0
2542			0.0	0.0
2543			0.0	0.0
2544			0.0	0.0
2545	KF3G	FEEDBACK SPRING,AMCS	0.0	0.0
2546	ZJLIM	FEEDBACK ARM SLOPE LIMIT,AMCS	0.0	0.0
2547	RFB	GYRO FEEDBACK ARM RADIUS,AMCS	0.0	0.0
2548	ZOG	GYRO DEPTH BELOW FUSELAGE REF. AMCS	0.0	0.0
2549	DPHIS	SHAFT ROLL TILT DAMPING	0.0	0.0
2550	DTHTS	SHAFT PITCH TILT DAMPING	0.0	0.0
2551	PSLOPL	SLOPE LIMIT ON PHI. (SWP.)	8.2500E-02	0.0
2552	TSLOPL	SLOPE LIMIT ON THETA (SWP.)	8.2500E-02	0.0

REXOR DATA PAGE 84

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2553	TCUTO	NO. ADDITIONAL CYCLES,4 BLADE TRIM	8.0000E 00	8.0000E 00
2554	TCUT3	NO. ADDITIONAL CYCLES,INT. TRIM	0.0	0.0
2555	ISTALL	0.=CALL AERQ,1.=CALL STALL	0.0	0.0
2556	IHOLD	=0. NORMAL=1.	0.0	0.0
2557	QCMCON	NOT USED	0.0	0.0
2558	QSMCON	NOT USED	0.0	0.0
2559	FACTM	FACTOR IN STALL ROUTINE	5.0000E-01	5.0000E-01
2560	IHA	NO. HARMONICS+1 IN SINGLE BLDE TRIM	2.0000E 00	0.0
2561	QMCON(6)		7.0000E-01	0.0
2562			7.0000E-01	0.0
2563			5.5000E-01	0.0
2564			4.0000E-01	0.0
2565			0.0	0.0
2566			0.0	0.0
2567	OPEN(3)	OPEN	0.0	0.0
2568			0.0	0.0
2569			0.0	0.0
2570	STA70	STATION WHERE SWEEP AND DROOP BEGIN	5.8330E 00	2.3300E 00
2571	GAIN1(19)	SINGLE BLADE TRIM GAIN-BP	5.0000E-01	5.0000E-01
2572		SINGLE BLADE TRIM GAIN-PHI	5.0000E-01	5.0000E-01
2573		SINGLE BLADE TRIM GAIN-THO OR ALPHA	5.0000E-01	5.0000E-01

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2574		SINGLE BLADE TRIM GAIN-A1S	5.0000E-01	5.0000E-01
2575		SINGLE BLADE TRIM GAIN-B1S	5.0000E-01	5.0000E-01
2576		SINGLE BLADE TRIM GAIN-THOTR	5.0000E-01	5.0000E-01
2577		SINGLE BLADE TRIM GAIN-GLCON AND GMCON	5.0000E-01	5.0000E-01
2578			5.0000E-01	5.0000E-01
2579			5.0000E-01	5.0000E-01
2580			5.0000E-01	5.0000E-01
2581			5.0000E-01	5.0000E-01
2582			5.0000E-01	5.0000E-01
2583			5.0000E-01	5.0000E-01
2584			0.0	0.0
2585			0.0	0.0
2586			0.0	0.0
2587			0.0	0.0
2588			0.0	0.0
2589			0.0	0.0
2590	OPEN(11)	OPEN	0.0	0.0
2591			0.0	0.0
2592			0.0	0.0
2593			0.0	0.0
2594			0.0	0.0
2595			0.0	0.0
2596			0.0	0.0
2597			0.0	0.0
2598			0.0	0.0
2599			0.0	0.0
2600			0.0	0.0
2601	ALFA(20)	AIR FRAME AERO.DATA - TABLES ARGUMENT	-1.8000E 02	-1.8000E 02
2602			-9.0000E 01	-1.4100E 02
2603			-2.5000E 01	-9.6000E 01
2604			-6.0000E 00	-5.1000E 01
2605			-4.0000E 00	-1.9500E 01
2606			-2.0000E 00	-1.8000E 01

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2607			0.0	-1.4000E 01
2608			2.0000E 00	-1.0000E 01
2609			4.0000E 00	-6.0000E 00
2610			6.0000E 00	-2.0000E 00
2611			7.0000E 00	2.0000E 00
2612			8.0000E 00	6.0000E 00
2613			9.0000E 00	8.0000E 00
2614			1.0000E 01	8.5000E 00
2615			1.2000E 01	1.0500E 01
2616			1.4000E 01	3.9000E 01
2617			1.6000E 01	8.4000E 01
2618			1.8000E 01	1.2900E 02
2619			9.0000E 01	1.7900E 02
2620			1.8000E 02	1.8000E 02
2621	CL(20)	LIFT COEFF.	0.0	0.0
2622			0.0	1.6500E 00
2623			-1.2307E 00	0.0
2624			9.6361E-02	-1.6500E 00
2625			2.5350E-01	-1.0150E 00
2626			4.1600E-01	-9.3500E-01
2627			5.7350E-01	-6.3500E-01
2628			7.3000E-01	-3.3500E-01
2629			8.8750E-01	-3.5000E-02
2630			1.0425E 00	2.6500E-01
2631			1.1178E 00	5.6500E-01
2632			1.1965E 00	8.6500E-01
2633			1.2485E 00	1.0000E 00
2634			1.2168E 00	1.0150E 00
2635			1.0650E 00	9.5000E-01
2636			9.4500E-01	1.6500E 00
2637			9.0000E-01	0.0
2638			9.0000E-01	-1.6500E 00
2639			1.2540E-02	0.0
2640			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2641	CM(20)	PITCHING MOMENT COEFF.	-4.1400E-02	0.0
2642			4.5860E-01	0.0
2643			-1.5165E-02	0.0
2644			-6.4656E-03	0.0
2645			2.1072E-02	0.0
2646			2.4026E-02	0.0
2647			3.6134E-03	0.0
2648			-3.0658E-03	-6.5000E-02
2649			-8.2950E-03	-4.0000E-02
2650			-1.3295E-02	0.0
2651			-1.7321E-02	4.0000E-02
2652			-2.2498E-02	8.0000E-02
2653			-4.6102E-02	7.0000E-02
2654			-7.8441E-02	6.0000E-02
2655			-1.1828E-01	-3.0000E-02
2656			-1.3952E-01	0.0
2657			-1.6640E-01	0.0
2658			-2.0140E-01	0.0
2659			-5.4255E-01	0.0
2660			-4.1400E-02	0.0
2661	CD(20)	AIR FRAME AERO.DATA - TABLES DRAG COEFFICIENT	2.0000E-01	1.0000E-01
2662			2.0000E 00	1.0500E 00
2663			1.3953E-01	1.5000E 00
2664			1.1410E-01	1.0500E 00
2665			1.1151E-01	2.4800E-01
2666			1.1308E-01	1.4000E-01
2667			1.2724E-01	8.2000E-02
2668			1.4247E-01	5.0000E-02
2669			1.7356E-01	3.8000E-02
2670			2.0131E-01	4.5000E-02
2671			2.2128E-01	7.1000E-02
2672			2.4975E-01	1.1900E-01
2673			2.9181E-01	1.6800E-01
2674			3.2494E-01	1.8500E-01

REXOR DATA PAGE 88

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2675			3.7143E-01	2.4800E-01
2676			4.2477E-01	1.0500E 00
2677			4.8000E-01	1.5000E 00
2678			5.3500E-01	1.0500E 00
2679			2.0000E 00	1.0000E-01
2680			2.0000E-01	1.0000E-01
2681	AWING	WING AREA FT.**2	1.9500E 02	7.0000E 01
2682	CWING	WING CHORD FT.	7.4500E 00	4.3100E 00
2683	AOTR	TAIL ROTOR BLADE AREA FT.**2	2.3300E 01	4.2500E 00
2684	RTR	TAIL ROTOR RADIUS FT.	5.0000E 00	3.0000E 00
2685	A		5.7300E 00	5.7300E 00
2686	B		9.7000E-01	9.7000E-01
2687	OPEN	OPEN	0.0	0.0
2688	CUTOUT	BLADE ROOT AERO CUTOUT	6.0000E 00	2.3300E 00
2689	ILOOK	SPECIAL TABLE LOOKUP FLAG	0.0	1.0000E 00
2690	IFOIL	CAMBERED AIRFOIL FLAG	0.0	1.0000E 00
2691	XNTAB(5)	NORMALIZED BLADE LOCATION	0.0	0.0
2692			0.0	1.0000E 00
2693			0.0	0.0
2694			0.0	0.0
2695			0.0	0.0
2696	TCTAB(5)	THICKNESS RATIO	0.0	1.2000E-01
2697			0.0	1.2000E-01
2698			0.0	0.0
2699			0.0	0.0

REXOR DATA PAGE 89

P/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2700			0.0	0.0
2701	CLTAB(5)	DESIGN LIFT COEFFICIENT	0.0	0.0
2702			0.0	0.0
2703			0.0	0.0
2704			0.0	0.0
2705			0.0	0.0
2706	OPEN(95)	OPEN	0.0	0.0
2707			0.0	0.0
2708			0.0	0.0
2709			0.0	0.0
2710			0.0	0.0
2711			0.0	0.0
2712			0.0	0.0
2713			0.0	0.0
2714			0.0	0.0
2715			0.0	0.0
2716			0.0	0.0
2717			0.0	0.0
2718			0.0	0.0
2719			0.0	0.0
2720			0.0	0.0
2721			0.0	0.0
2722			0.0	0.0
2723			0.0	0.0
2724			0.0	0.0
2725			0.0	0.0
2726			0.0	0.0
2727			0.0	0.0
2728			0.0	0.0
2729			0.0	0.0
2730			0.0	0.0
2731			0.0	0.0
2732			0.0	0.0
2733			0.0	0.0
2734			0.0	0.0

REXOR DATA PAGE 90

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2735		0.0	0.0
2736		0.0	0.0
2737		0.0	0.0
2738		0.0	0.0
2739		0.0	0.0
2740		0.0	0.0
2741		0.0	0.0
2742		0.0	0.0
2743		0.0	0.0
2744		0.0	0.0
2745		0.0	0.0
2746		0.0	0.0
2747		0.0	0.0
2748		0.0	0.0
2749		0.0	0.0
2750		0.0	0.0
2751		0.0	0.0
2752		0.0	0.0
2753		0.0	0.0
2754		0.0	0.0
2755		0.0	0.0
2756		0.0	0.0
2757		0.0	0.0
2758		0.0	0.0
2759		0.0	0.0
2760		0.0	0.0
2761		0.0	0.0
2762		0.0	0.0
2763		0.0	0.0
2764		0.0	0.0
2765		0.0	0.0
2766		0.0	0.0
2767		0.0	0.0
2768		0.0	0.0
2769		0.0	0.0
2770		0.0	0.0
2771		0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2772			0.0	0.0
2773			0.0	0.0
2774			0.0	0.0
2775			0.0	0.0
2776			0.0	0.0
2777			0.0	0.0
2778			0.0	0.0
2779			0.0	0.0
2780			0.0	0.0
2781			0.0	0.0
2782			0.0	0.0
2783			0.0	0.0
2784			0.0	0.0
2785			0.0	0.0
2786			0.0	0.0
2787			0.0	0.0
2788			0.0	0.0
2789			0.0	0.0
2790			0.0	0.0
2791			0.0	0.0
2792			0.0	0.0
2793			0.0	0.0
2794			0.0	0.0
2795			0.0	0.0
2796			0.0	0.0
2797			0.0	0.0
2798			0.0	0.0
2799			0.0	0.0
2800			0.0	0.0
2801	DP-(4)	PSEUDO PITCH HORN SAVE DATA DISPLACEMENT	0.0	0.0
2802			0.0	0.0
2803			0.0	0.0
2804			0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2805 DPFD(4)	PSEUDO PITCH HORN SAVE DATA VELOCITY	0.0	0.0
2806		0.0	0.0
2807		0.0	0.0
2808		0.0	0.0
2809 DPF1(4)	PSEUDO PITCH HORN SAVE DATA DISPLACEMENT STA.1	0.0	0.0
2810		0.0	0.0
2811		0.0	0.0
2812		0.0	0.0
2813 DPF2(4)	PSEUDO PITCH HORN SAVE DATA DISPLACEMENT STA.2	0.0	0.0
2814		0.0	0.0
2815		0.0	0.0
2816		0.0	0.0
2817 OPEN(13)	OPEN	0.0	0.0
2818		0.0	0.0
2819		0.0	0.0
2820		0.0	0.0
2821		0.0	0.0
2822		0.0	0.0
2823		0.0	0.0
2824		0.0	0.0
2825		0.0	0.0
2826		0.0	0.0
2827		0.0	0.0
2828		0.0	0.0
2829		0.0	0.0
2830 AKON	NOT USED	5.0000E-01	0.0
2831 TPART(6,6)	6*6 NUMERICAL DERIVATIVES FOR PARTIAL TRIM	1.2500E 04	1.2500E 04
2832		0.0	0.0

REXOR DATA PAGE 93

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2833			0.0	0.0
2834			2.2000E 04	0.0
2835			5.6200E 04	8.5000E 04
2836			0.0	7.0000E 04
2837			0.0	0.0
2838			2.2500E 04	2.2500E 04
2839			0.0	0.0
2840			1.1000E 05	1.1000E 05
2841			0.0	0.0
2842			0.0	0.0
2843			0.0	0.0
2844			0.0	0.0
2845			-1.8800E 05	-1.8800E 05
2846			-9.3000E 04	-9.3000E 04
2847			4.3000E 04	4.3000E 04
2848			-1.5600E 05	-1.5600E 05
2849			0.0	0.0
2850			0.0	0.0
2851			-3.1000E 04	-3.1000E 04
2852			1.1340E 06	1.1340E 06
2853			6.8000E 05	6.8000E 05
2854			0.0	0.0
2855			0.0	0.0
2856			0.0	0.0
2857			1.1000E 05	1.1000E 05
2858			4.3100E 05	4.3100E 05
2859			-6.5200E 05	-6.5200E 05
2860			0.0	0.0
2861			0.0	0.0
2862			1.0000E 00	1.0000E 00
2863			0.0	0.0
2864			-5.4500E 00	0.0
2865			0.0	0.0
2866			-2.9900E 01	-2.9900E 01
2867	******	1.	1.0000E 00	0.0

REXOR DATA PAGE 94

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2868	******(2)	BILLS - TEMPORARY	0.0	0.0
2869			0.0	0.0
2870	IDYN	DYNAMIC TORS. FLAG..NE.0=ON	0.0	0.0
2871	PPTOR(20)	DYNAMIC TORSION TABLE	0.0	0.0
2872			0.0	0.0
2873			3.7300E-03	3.7300E-03
2874			5.2200E-02	5.2200E-02
2875			1.2700E-01	1.2700E-01
2876			2.3900E-01	0.0
2877			3.7300E-01	0.0
2878			5.0000E-01	0.0
2879			6.3900E-01	0.0
2880			7.6100E-01	0.0
2881			8.8700E-01	0.0
2882			9.6600E-01	0.0
2883			1.0000E 00	0.0
2884			0.0	0.0
2885			0.0	0.0
2886			0.0	0.0
2887			0.0	0.0
2888			0.0	0.0
2889			0.0	0.0
2890			0.0	0.0
2891	OPEN(110)	OPEN	0.0	0.0
2892			0.0	0.0
2893			0.0	0.0
2894			0.0	0.0
2895			0.0	0.0
2896			0.0	0.0
2897			0.0	0.0
2898			0.0	0.0
2899			0.0	0.0
2900			0.0	0.0
2901			0.0	0.0

R/A	PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2902			0.0	0.0
2903			0.0	0.0
2904			0.0	0.0
2905			0.0	0.0
2906			0.0	0.0
2907			0.0	0.0
2908			0.0	0.0
2909			0.0	0.0
2910			0.0	0.0
2911			0.0	0.0
2912			0.0	0.0
2913			0.0	0.0
2914			0.0	0.0
2915			0.0	0.0
2916			0.0	0.0
2917			0.0	0.0
2918			0.0	0.0
2919			0.0	0.0
2920			0.0	0.0
2921			0.0	0.0
2922			0.0	0.0
2923			0.0	0.0
2924			0.0	0.0
2925			0.0	0.0
2926			0.0	0.0
2927			0.0	0.0
2928			0.0	0.0
2929			0.0	0.0
2930			0.0	0.0
2931			0.0	0.0
2932			0.0	0.0
2933			0.0	0.0
2934			0.0	0.0
2935			0.0	0.0
2936			0.0	0.0
2937			0.0	0.0
2938			0.0	0.0

REXOR DATA PAGE 96

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2939		0.0	0.0
2940		0.0	0.0
2941		0.0	0.0
2942		0.0	0.0
2943		0.0	0.0
2944		0.0	0.0
2945		0.0	0.0
2946		0.0	0.0
2947		0.0	0.0
2948		0.0	0.0
2949		0.0	0.0
2950		0.0	0.0
2951		0.0	0.0
2952		0.0	0.0
2953		0.0	0.0
2954		0.0	0.0
2955		0.0	0.0
2956		0.0	0.0
2957		0.0	0.0
2958		0.0	0.0
2959		0.0	0.0
2960		0.0	0.0
2961		0.0	0.0
2962		0.0	0.0
2963		0.0	0.0
2964		0.0	0.0
2965		0.0	0.0
2966		0.0	0.0
2967		0.0	0.0
2968		0.0	0.0
2969		0.0	0.0
2970		0.0	0.0
2971		0.0	0.0
2972		0.0	0.0
2973		0.0	0.0
2974		0.0	0.0
2975		0.0	0.0

R/A PRG.SYMBOL	DESCRIPTION	AH-56A	XH-51A
2976		0.0	0.0
2977		0.0	0.0
2978		0.0	0.0
2979		0.0	0.0
2980		0.0	0.0
2981		0.0	0.0
2982		0.0	0.0
2983		0.0	0.0
2984		0.0	0.0
2985		0.0	0.0
2986		0.0	0.0
2987		0.0	0.0
2988		0.0	0.0
2989		0.0	0.0
2990		0.0	0.0
2991		0.0	0.0
2992		0.0	0.0
2993		0.0	0.0
2994		0.0	0.0
2995		0.0	0.0
2996		0.0	0.0
2997		0.0	0.0
2998		0.0	0.0
2999		0.0	0.0
3000		0.0	0.0

APPENDIX IV

COMPARISON OF THE C-81 PROGRAM WITH REXOR

As an added task under contract DAAJ02-72-C-0100, it was agreed to provide a preliminary comparison of the U.S. Army's C-81 Program and the REXOR program. The C-81 program was provided through the Eustis Directorate, USAAMRDL, making it possible to study the program, to determine its limitations with respect to analysis of gyro-controlled rigid rotors with flapping feedback, and to incorporate modifications necessary to provide capability to analyze these rotor systems. C-81 and REXOR are similar programs in that level flight or maneuver conditions are calculated on a real-time basis using finite time intervals.

The comparison between C-81 and REXOR was carried out for a 16,000-pound-class attack helicopter configuration with a Lockheed Advanced Mechanical Control System (AMCS). The C-81 program, as provided, is not adequate for analysis of a gyro-controlled rigid rotor with flapping feedback. This made it necessary to modify the C-81 so that the Lockheed rigid rotor and associated AMCS control system could be modeled. Modifications were made to the program so that, by option, it could be implemented either in its conventional mode (i.e., with a hard swashplate), or for a gyro-controlled rigid rotor with flapping feedback. The modifications were made by removing subroutines of C-81 that were incorporated for modelling the control system between the pilot's stick and the rotor system itself. This was accomplished by replacing the existing subroutine (SCASIT) with a completely new subroutine of the same name that models the AMCS control system. Also, subroutines SWAS and VARI were modified to allow for AMCS operation during maneuvers. A variable, IAMCS, was provided in common for the above three subroutines, and this was set to zero in block data as part of the job setup. IAMCS is set to 1 after trim to activate the modifications in SWAS and VARI. All other AMCS input data were built into the revised subroutine SCASIT. No additions were made to the original C-81 input format.

With these modifications, it is possible to operate the program either with or without the AMCS control system incorporated. The program is operated in the direct C-81 mode (conventional swashplate) by replacing the new SCASIT with the original SCASIT. The variable IAMCS remains at zero and does not change to 1 for maneuvers as it does when AMCS is operating. These changes result in some limitations in operating the program: multiple cases are not possible, and the small perturbation analysis (STAB) cannot be performed.

In operating the program, stick aft or right is positive for the AMCS modified program once the maneuver begins. In trim, the original C-81 "hard swashplate" stick is still used. The positive direction for the longitudinal stick in trim is opposite to that for the AMCS longitudinal stick in a maneuver. To output the correct AMCS trim stick position, the program must be operated at least one time point into a maneuver.

INITIAL RESULTS WITH THE C-81 PROGRAM

In initially implementing the C-81 program and comparing it with REXOR and other analyses, certain problems were encountered. These resulted in differences between C-81 and REXOR which were later largely eliminated by findings of the comparison. For completeness of this report, the results of the initial comparison will be discussed. Discrepancies between REXOR and C-81 noted in this initial phase were later greatly improved by two principle modifications.

The AMCS modified C-81 program initially provided results that agreed reasonably well with those from REXOR for maneuvers below 1.5 g. This is shown by Figure 70, where pitch rate and vertical load factors are seen to agree closely between the two programs for a given longitudinal stick input. Roll rate cross-coupling effects are small for both programs. Part of the difference between the roll rate response as shown is due to the REXOR case entering the maneuver condition slightly out of trim. Figure 70 shows that C-81 indicated higher rotor power than REXOR. This rotor power was higher than that predicted by other performance methods as well. It will be shown later that this difference is primarily due to implementation of blade section data in the C-81 for the lift and drag coefficients.

As a maneuver calculation was carried out following trim, the C-81 program was noted to suffer some deterioration when time variant solutions for hingless blade modes were added. For a typical example, if rigid blades were modelled, the quasi-static trim results gave total body loads that were quite small, all less than 10 pounds or 10 foot-pounds. But with blade modes introduced, the error became 2345 foot-pounds in roll moment and 2703 foot-pounds in pitch moment after five rotor revolutions due to changes caused by the blade modes. This meant that following trim, when the blade modes were activated, the aircraft would enter a maneuver with roll and pitch accelerations that were significant.

Initially, difficulty was also experienced with C-81, but not with REXOR, in obtaining high load factors for a pull-up maneuver as shown in Figure 71. For similar stick inputs, REXOR showed that the aircraft achieved a sustained 2 g load factor for 3 seconds, whereas C-81 results showed 1.75 g for the same period of time. Drop-off in airspeed was similar for the two programs but there were differences in both roll and yaw attitudes. More significantly, with respect to rotor power, initial C-81 results indicated an increase in rotor power following entry into the maneuver, whereas REXOR showed power dropping off. In a pull-up maneuver, the rotor will tend to windmill to some extent and the REXOR results, in Figure 71 showing an initial power reduction, are believed to be more consistent with what would occur in an actual flight case.

Another significant limitation determined from the initial comparison is that the C-81 program is satisfactory for study of steady-state level flight and maneuver conditions, but cannot be used for evaluating rigid-rotor stability. The program lacks provisions for modelling blade sweep, blade droop, and cyclic and collective control system stiffness - - all of which are significant parameters in determining rigid-rotor stability.

REXOR VS. C-81 AND MODIFICATIONS INCORPORATED

Detailed comparison of REXOR and C-81 revealed differences in three major areas: (1) Induced flow calculations; (2) Tip loss; and (3) Dynamic stall calculations.

In the area of induced flow calculations, C-81 introduces tip loss into its uniform inflow calculation, whereas REXOR does not. In addition, C-81 ignores the inner 8 feet of the blade radius when applying inflow, whereas REXOR does not. Although both programs assume a triangular distribution of downwash, the downwash factors in each program are different. Tip loss in REXOR is accounted for by setting the aerodynamic lift and moment equal to zero at the tip station, as well as adjusting the integration interval at the blade tip. With respect to drag, REXOR calculates in a conventional manner the profile drag at the blade tip. Study of C-81 indicated that no tip loss is accounted for in the lift coefficients at the blade tip.

Dynamic stall is included in both programs in a similar manner based upon the formulation of Reference 8, but significant differences were noted between the two programs. Both programs account for spanwise flow in their calculations but treat spanwise flow differently in their dynamic angle-of-attack calculations. As might be expected, neither program includes spanwise flow in determining the dynamic angle of attack with respect to profile drag. REXOR, also, does not include it in determining the dynamic angle-of-attack due to lift, but C-81 does. In addition, C-81 puts a 20% limit on the angle-of-attack overshoot in obtaining the dynamic maximum lift coefficint, whereas REXOR has no limit. This point alone could be significant in the load factors that can be achieved with each program. Further, for dynamic stall, REXOR places a limit on the lift curve slope where C-81 has no restriction. The correctness of the treatment of dynamic stall in either program is difficult to assess since the concensus of researchers in this area is that current methods are empirical at best, and much research still remains to be done in this area.

The initial results with the C-81 program when implemented for both level flight and high load factor maneuvers gave higher rotor power required compared to the REXOR program. Study of these differences indicated that the problem was due primarily to differences in implementation of the data for C_l and C_d, the coefficients of lift and drag, in the two programs. A comparison of blade section data was made as shown in Figures 72 and 73 where C_l and C_d vs. angle of attack is presented for NACA 0012 airfoils at Mach numbers of 0.3 and 0.7. Note that three curves are shown. One curve represents NACA 0012 airfoil data provided with the C-81 program. The second curve represents NASA's NACA 0012 airfoil data published in Reference 11. The third curve shows airfoil characteristics for the C-81 0012 data as corrected for the camber used on the example helicopter rotor blades. It is evident in Figure 72 that the C-81 0012 data shows considerably higher values for maximum lift coefficient than the NASA-furnished 0012 data at both Mach numbers. The variations between the two sets of data appear to be due to the fact that a different airfoil section data base has been used in development and correlation of the C-81 program. To account for these differences and place the two programs on a comparative basis, C-81 was implemented using the NACA 0012 data provided with the program rather than the NASA supplied 0012 data. Results (circular symbols on Figure 74) showed that closer agreement was achieved between C-81 and REXOR. Agreement between the programs was further improved by modifying the C-81 NACA 0012 airfoil data to account for the effect of camber. These results are indicated in Figure 74 by the triangular symbols. The method of introducing the example helicopter blade camber into the C-81 0012 airfoil data was very simple. The C-81 NACA 0012 data was modified for camber using the same increments to the data that were used in modifying the NASA-furnished 0012 data for camber.

The primary lack of agreement between the two analyses is in maximum load factor achieved for a given stick input and in power required for level flight and maneuvers. The modifications made to the blade section airfoil data improve correlation in both these areas. The power requirements are in much closer agreement, and the load factor achieved in C-81 is up from 1.75 to 1.80 g. In order to determine the impact of control input variation on maximum load factor, a gradual pull-up maneuver was made with C-81. The results presented in Figure 75 show that by proper adjustment of input time history, load factors in excess of 2 g can be obtained for the example helicopter configuration using C-81. However, the power required in this maneuver is still higher than that obtained from REXOR.

Additional improvement in correlation between C-81 and REXOR was achieved by introduction of improved fuselage and stabilizer aerodynamic data consistent with both programs. A different format is required for the data in each program, and close examination of the input data revealed that corrections should be made to the C-81 data in this area. Figure 76 shows the effect of this corrected data on forward flight performance. Note that these corrections bring the C-81 performance calculations for the example helicopter into closer agreement with performance results from Lockheed's performance program and the charts of Reference 12. Figure 77 shows the effect of this corrected fuselage and stabilizer data on the high load factor pull-up maneuver at 150 knots previously described.

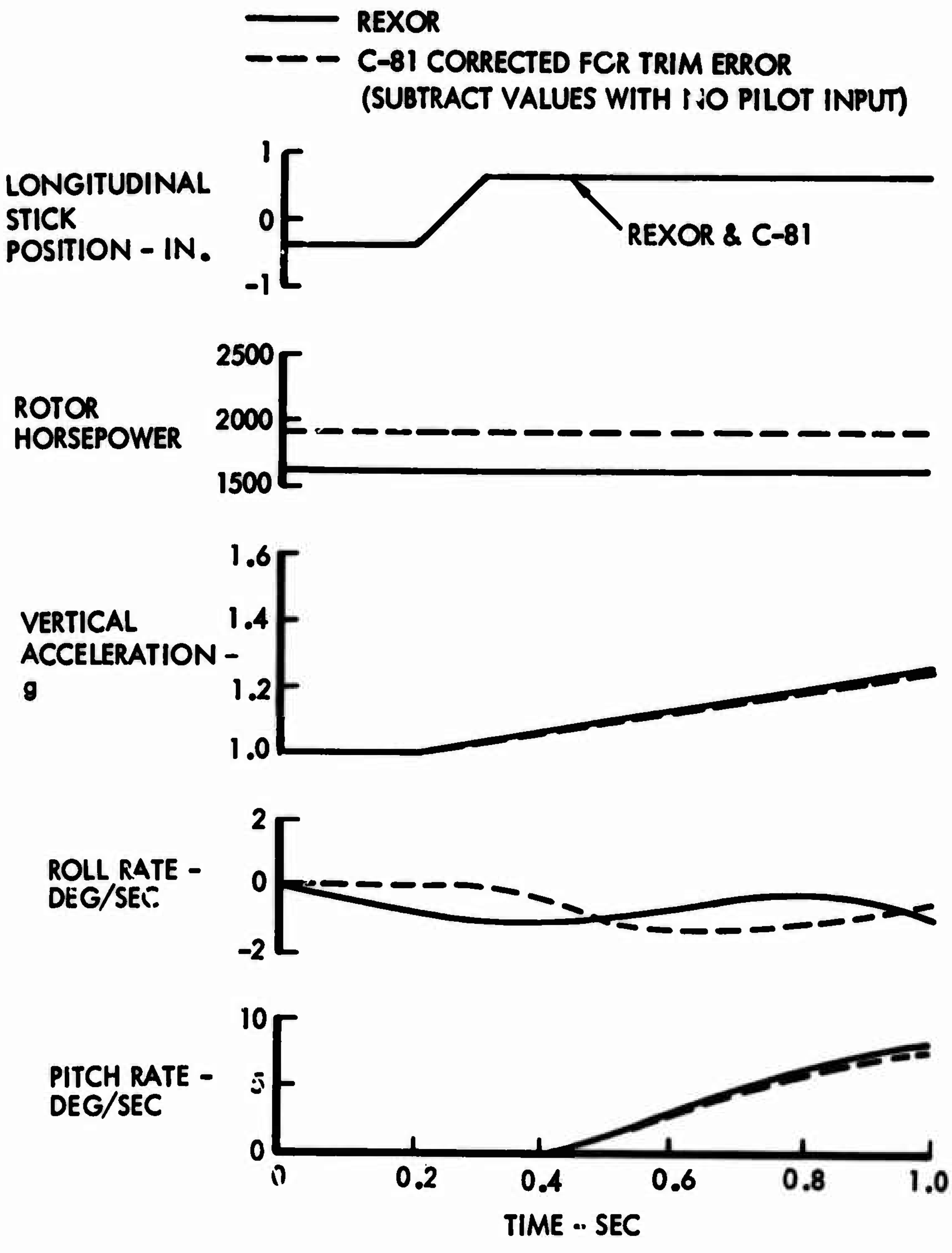


Figure 70. Longitudinal Response 1-Inch Longitudinal Control Input, 150 Knots.

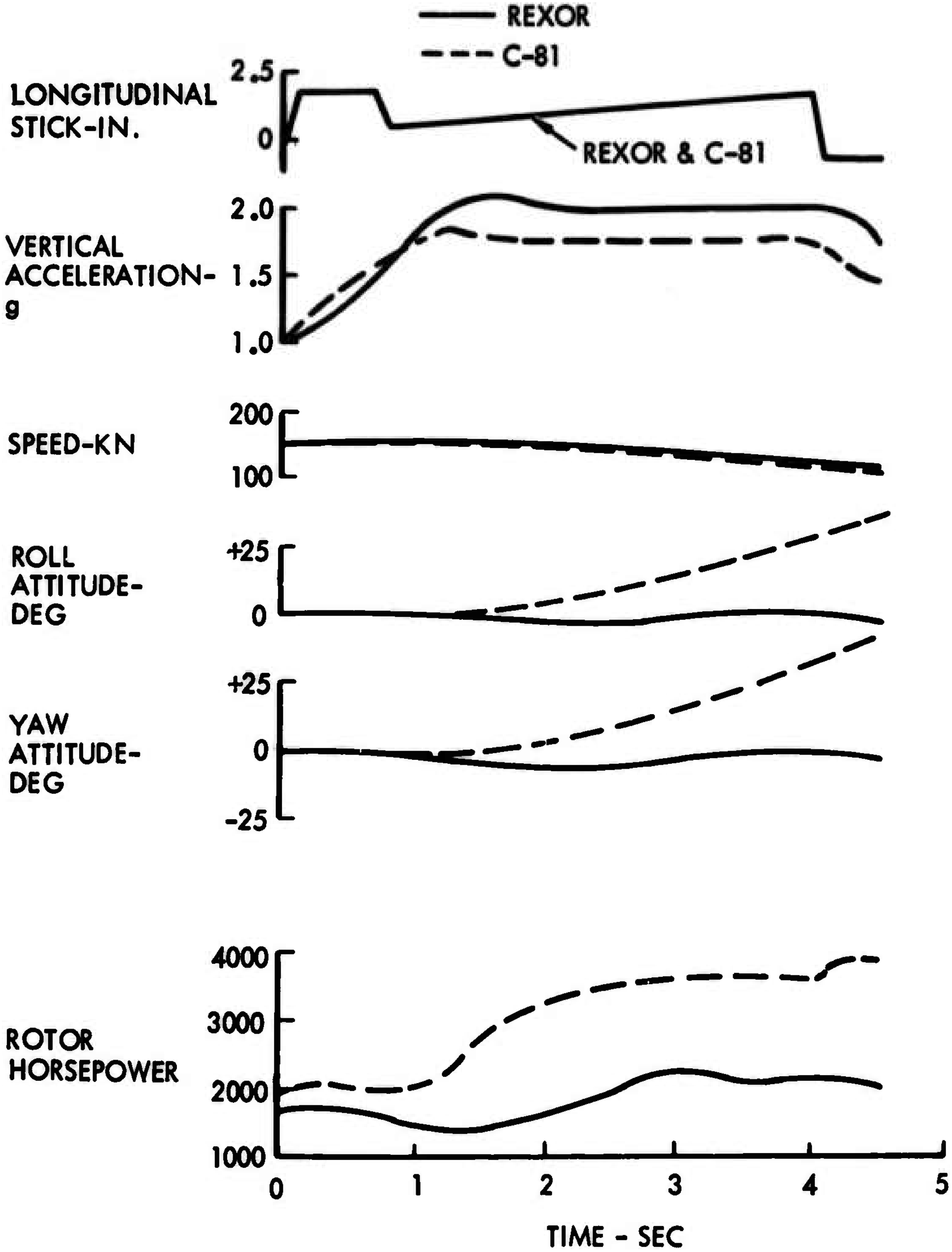


Figure 71. Pullup Maneuver to High Load Factors, 150 Knots.

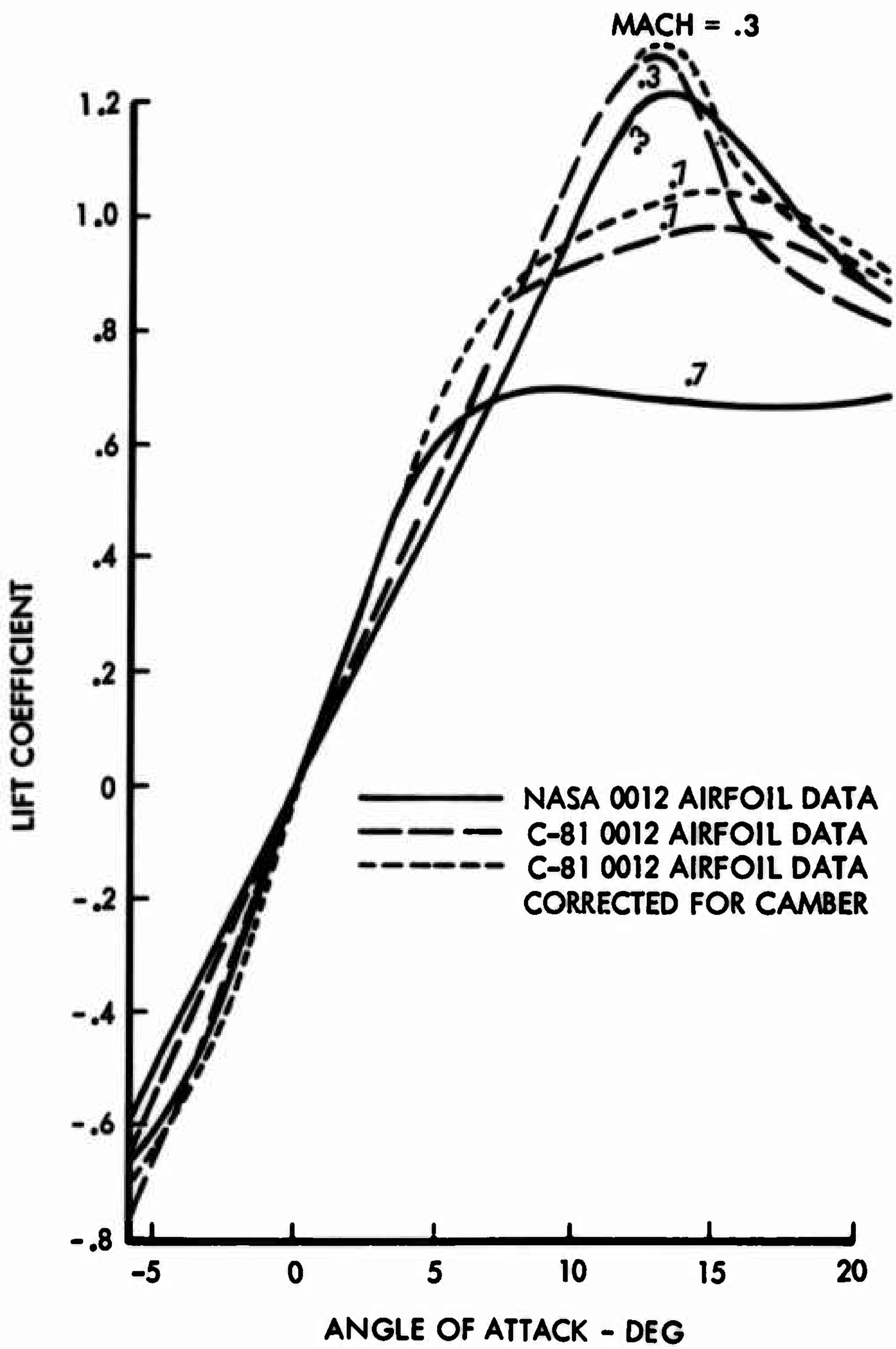


Figure 72. 0012 Airfoil Section Data, Lift Coefficient.

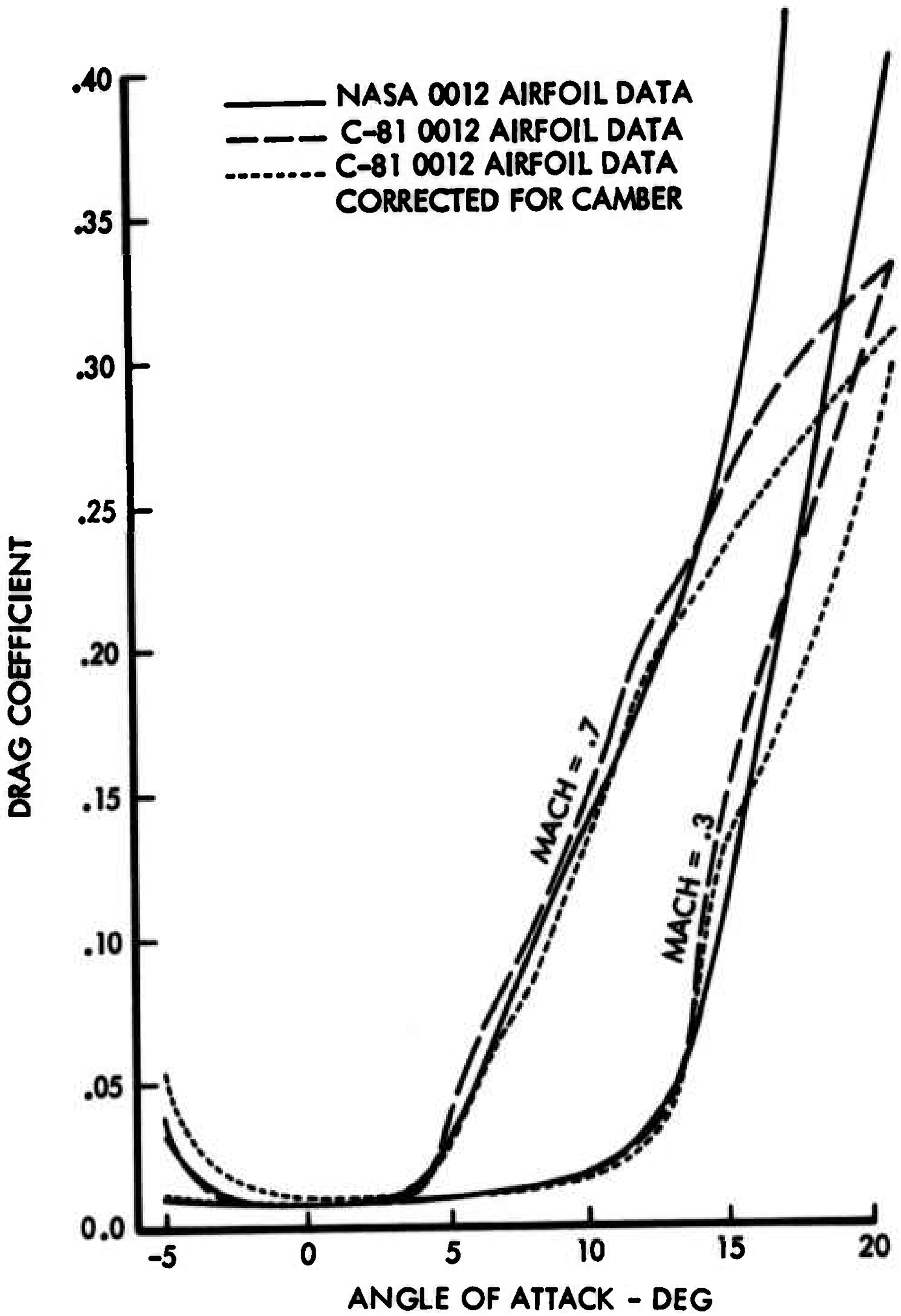


Figure 73. 0012 Airfoil Section Data, Drag Coefficient.

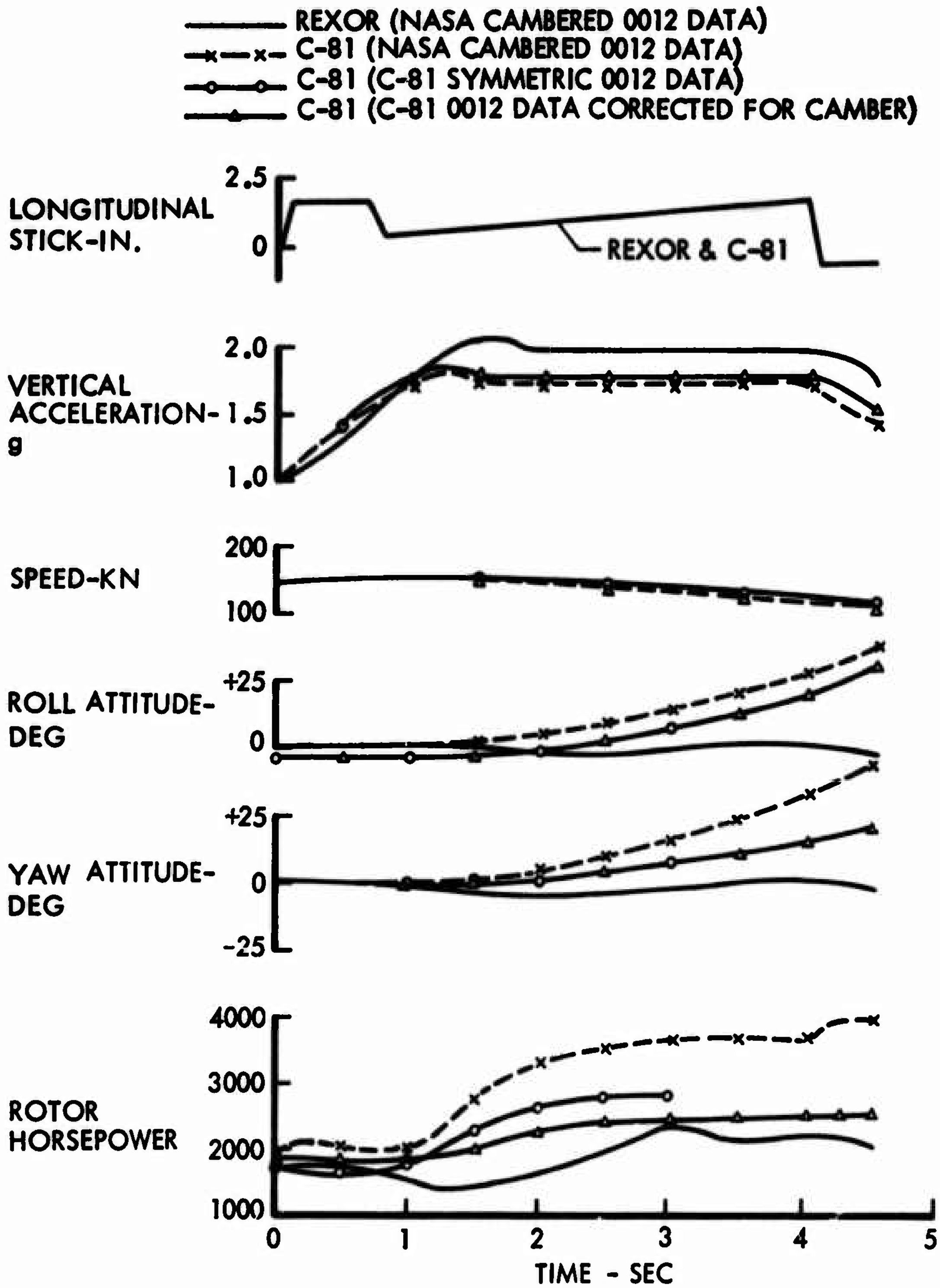


Figure 74. Pullup Maneuver to High Load Factors, Modified Airfoil Data, 150 Knots.

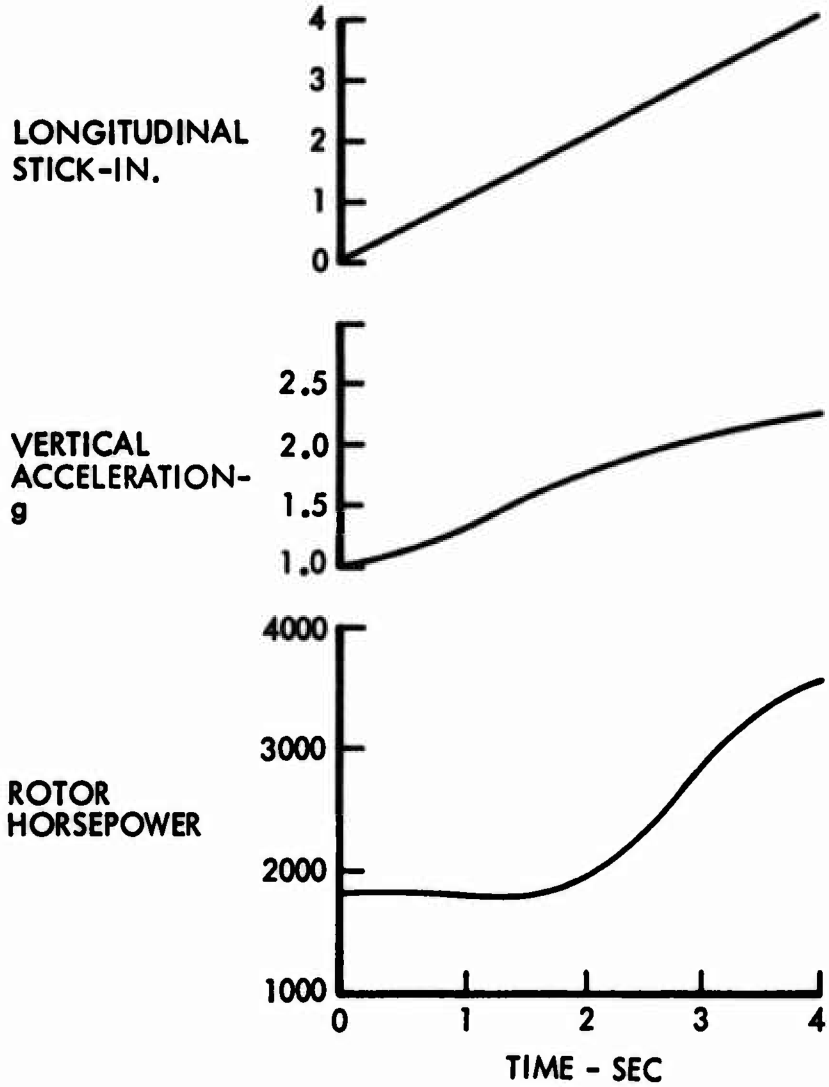


Figure 75. Gradual Pullup Manuever, 150 Knots, C-81 Program.

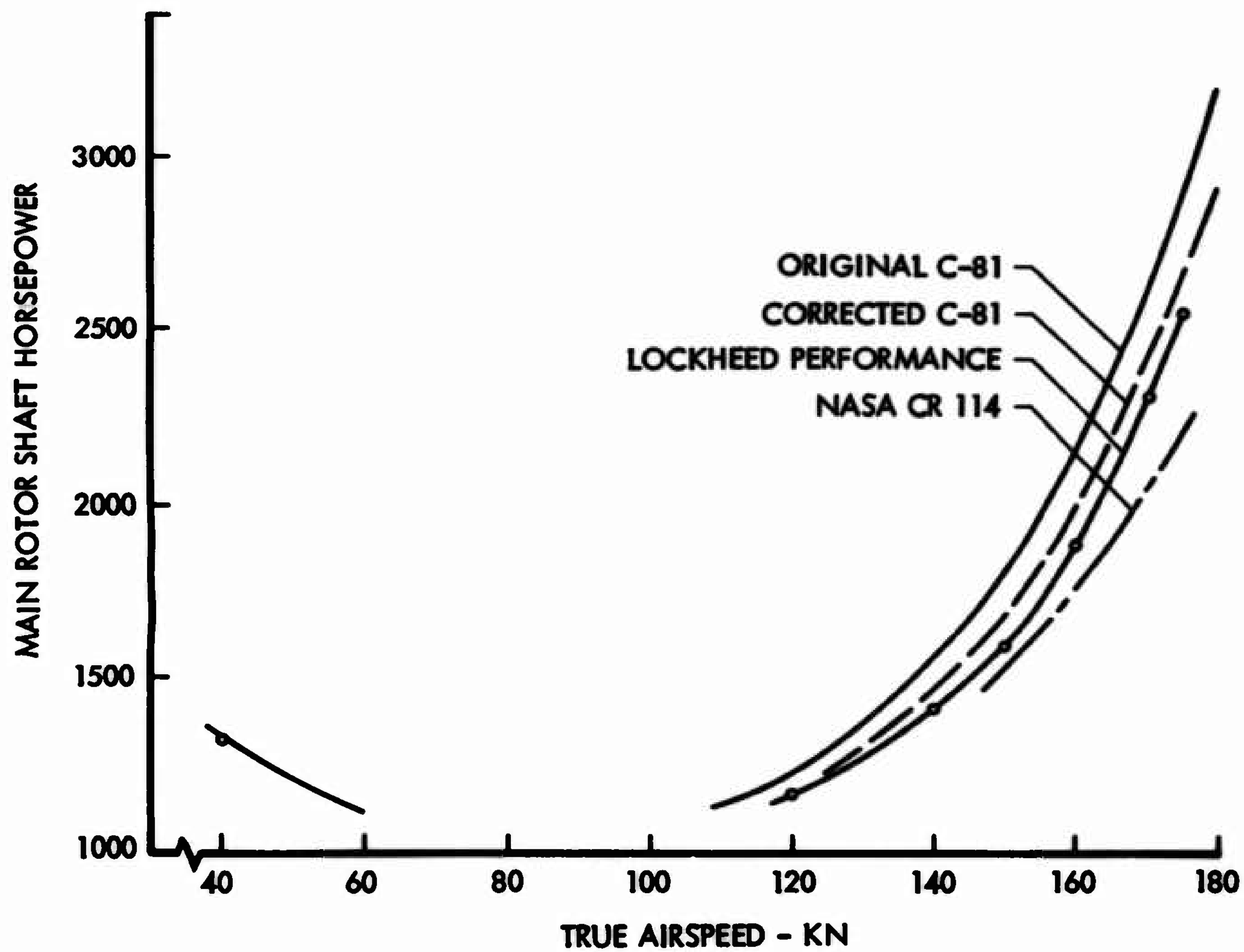


Figure 76. Forward Flight Performance.

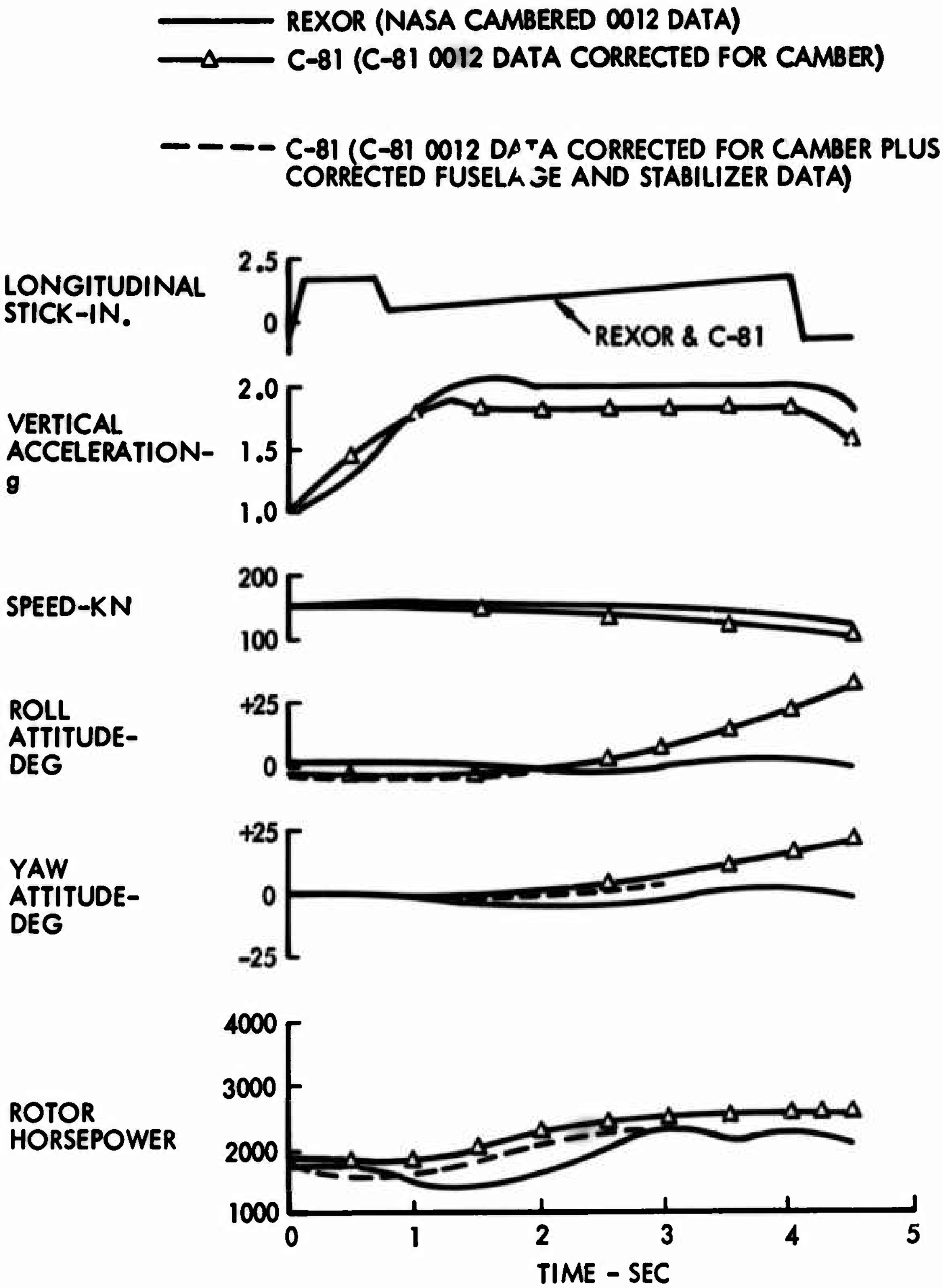


Figure 77. Pullup Maneuver To High Load Factors, Corrected Fuselage And Stabilizer Data, 150 Knots.