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### AUTHORITY

affdl ltr, 31 may 1973
KC-135 POWER SPECTRAL
VERTICAL GUST LOAD
ANALYSIS

SUPPLEMENT RESULTS VOLUME II

ROBERT N. LATZ
THE BOEING COMPANY

TECHNICAL REPORT AFFDL-TR-66-57, VOLUME II
JULY, 1966

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VERTICAL GUST LOAD
ANALYSIS

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AIR FORCE FLIGHT DYNAMICS LABORATORY
RESEARCH AND TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO
FOREWORD

The program described in this report was conducted by the Structural Dynamics Unit, Structures Staff, Commercial Airplane Division, The Boeing Company, Renton, Washington. The program was monitored by Mr. Paul Hasty (FDTR), Air Force Flight Dynamics Laboratory, Research and Technology Division, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio, under contract number AF33(615)-2454, "Investigation to Obtain Specific Design Calculations on Proven Transport Aircraft for the Verification of a Gust Design Procedure Based on Proven Spectral Techniques." The program was accomplished under system number 5(61367 62405334), project number 1367, "Structural Design Criteria", task number 136702, "Aerospace Vehicle Structural Loads Criteria." The time period covered by this final technical report is 1 July 1965 to 1 June 1966. The manuscript was released by the author on 1 April 1966 for publication as an RTD technical report.

Supervising consultant was Dr. John C. Houbolt of Aeronautical Research Associates of Princeton. Robert N. Latz conducted the analysis under the supervision of Arthur J. Kamm, Supervisor of the Structural Dynamics Unit.

This report has been given The Boeing Company document number D6-18252.

This technical report has been reviewed and is approved.

FRANCIS J. JANIK, JR.  
Chief, Theoretical Mechanics Branch  
Structures Division
ABSTRACT

This document presents frequency response functions, power spectra, and response parameters of bending moments, shears, and torsions at two wing stations and two body stations for five conditions of speed, gross weight, and altitude. Volume I presents frequency response functions and response parameters for stresses at the same wing and body stations. Also presented in volume I are ratios of incremental allowable limit stress to stress response parameter.
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<td>Analysis Condition 5</td>
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</table>

ABBREVIATIONS AND SYMBOLS

A

Load response parameter (rms value of incremental load for a 1 fps rms random gust)

$N_0$

Zero-crossing rate (average number of times per second that the incremental load crosses the $1g$ mean value with positive slope)

LB** 2/CPS

Pounds squared per cycle per second

(IN-LB)** 2/CPS

Inch-pounds squared per cycle per second

(LB-IN)** 2/CPS

Pound-inches squared per cycle per second

KTAS

Knots true airspeed
SECTION I

INTRODUCTION

This document presents frequency response functions, power spectra, and response parameters of bending moment, shear, and torsion at two wing stations and two body stations. Five speed, altitude, and gross weight conditions were investigated.

Figure 1 shows the locations on the airplane where the loads are measured. The wing loads are about wing stations normal to the elastic axis as shown by sections A-A and B-B in the figure. Tables I and II summarize the analysis and weight conditions of the airplane.

Figure 1. Locations at Which Stresses Are Obtained
### Table I. Summary of Analysis Conditions

<table>
<thead>
<tr>
<th>Analysis condition number</th>
<th>Weight condition</th>
<th>Gross weight (lb)</th>
<th>Altitude (ft)</th>
<th>Equivalent airspeed (kn)</th>
<th>Mach number</th>
<th>Body fuel (lb)</th>
<th>Wing fuel (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>297,000</td>
<td>24,000</td>
<td>350</td>
<td>0.85</td>
<td>83,328</td>
<td>109,512</td>
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<tr>
<td>2</td>
<td>B</td>
<td>268,000</td>
<td>24,000</td>
<td>350</td>
<td>0.85</td>
<td>87,927</td>
<td>75,913</td>
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<tr>
<td>3</td>
<td>C</td>
<td>190,590</td>
<td>24,000</td>
<td>350</td>
<td>0.85</td>
<td>83,323</td>
<td>3,100</td>
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<tr>
<td>4</td>
<td>D</td>
<td>107,260</td>
<td>24,000</td>
<td>350</td>
<td>0.85</td>
<td>0</td>
<td>3,100</td>
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<tr>
<td>5</td>
<td>A</td>
<td>297,000</td>
<td>24,000</td>
<td>207</td>
<td>0.50</td>
<td>83,328</td>
<td>109,512</td>
</tr>
</tbody>
</table>

### Table II. Summary of Weight Conditions

<table>
<thead>
<tr>
<th>Weight condition</th>
<th>Gross weight (lb)</th>
<th>CG (percent mac)</th>
<th>Fuel (lb)</th>
<th>Wing</th>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Outboard mains 1 &amp; 4</td>
<td>Inboard mains 2 &amp; 3</td>
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<td></td>
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<td></td>
<td></td>
<td>5,642</td>
<td>37,700</td>
</tr>
<tr>
<td>B</td>
<td>268,000</td>
<td>23.0</td>
<td>14,212</td>
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<td>47,489</td>
</tr>
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<td></td>
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<td></td>
<td>37,700</td>
<td>41,457</td>
</tr>
<tr>
<td>C</td>
<td>190,590</td>
<td>28.3</td>
<td>1,550</td>
<td>1,550</td>
<td>1550</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>37,700</td>
<td>41,457</td>
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<tr>
<td>D</td>
<td>107,260</td>
<td>35.1</td>
<td>1,550</td>
<td>1,550</td>
<td>1,550</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37,700</td>
<td>41,457</td>
</tr>
</tbody>
</table>

*Capacity of tanks: 26,806, 29,575, 47,489, 5,642, 37,700, 41,457, 14,131*

**Note:** Fuel density at 6.5 pounds per gallon.
SECTION II

LOAD FREQUENCY RESPONSE FUNCTIONS

ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMISSPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISpan
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING TORQUE RESPONSE, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)
WING TORQUE RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)

BODY SHEAR RESPONSE;
BODY BALANCE STATION: 820
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 820

FREQUENCY (CPS)

LB-IN/FT PER SEC

0 1 2 3 4 5 6 7 8 9 10

1.00 x 10^{-10}

2.00 x 10^{-9}

0
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

WING SHEAR RESPONSE, 40.06 PERCENT SEMI SPAN
GROSS WEIGHT: 297,000 LB
ALITUDE: 24,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI-SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING TORQUE RESPONSE, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

18
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE,
BODY BALANCE STATION 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION 820

FREQUENCY (CPS)

LB-IN/FT PER SEC

1.00×10^06
8.00×10^05

22
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 24,000 lb
ALTITUDE: 24,000 ft
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS

WING SHEAR RESPONSE, 40.06 PERCENT SEMI SPAN

24
ANALYSIS CONDITION 1
WEIGHT CONDITION A
GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 20 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 20 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

IN-LB/FT PER SEC

FREQUENCY (CPS)

WING TORQUE RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 20 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 820

30
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 540

FREQUENCY (CPS)

LB IN/FT PER SEC
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 820

FREQUENCY (CPS)

LB-IN/FT PER SEC
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMI SPAN

FREQUENCY (CPS)

0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

FREQUENCY (CPS)

0 400 800 1200 1600 2000 2400 2800 3200 3600

LB/FT PER SEC
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B
GROSS WEIGHT: 266,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMI SPAN

![Graph showing wing bending moment response](image-url)
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI-Span
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)
IN.-LB/FT PER SEC
WING TORQUE RESPONSE, 27 PERCENT SEMI SPAN

37
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING TORQUE RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.83

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE
BODY BALANCE STATION: 820
ANALYSIS CONDITION 2
WEIGHT CONDITION B
GROSS WEIGHT: 268,000 lb
ALTITUDE: 24,000 ft
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE.
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 768,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 820

42
ANALYSIS CONDITION 3
WEIGHT CONDITION C
GROSS WEIGHT: 190,500 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMISPAN
## Analysis Condition 3

**Weight Condition C**

- **Gross Weight:** 190.590 LB
- **Altitude:** 24,000 FT
- **Mach Number:** 0.85

<table>
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<tr>
<th>Frequency (CPS)</th>
<th>LBF/FSR Per Sec</th>
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</thead>
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<tr>
<td>2.00</td>
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<tr>
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<td>2000</td>
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<td>2400</td>
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<tr>
<td>8.00</td>
<td>3200</td>
</tr>
<tr>
<td>10.00</td>
<td>3000</td>
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</tbody>
</table>

**Wing Shear Response:** 40.06 Percent Semi Span

44
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMI SPAN

45
ANALYSIS CONDITION 3
WEIGHT CONDITION C
GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI SPAN
GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

ANALYSIS CONDITION 3
WEIGHT CONDITION C

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)
WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

47
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,500 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING TORQUE RESPONSE, 40.06 PERCENT SEMI SPAN

48
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.45

BODY SHEAR RESPONSE
BODY BALANCE STATION: 540
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)

BODY SHEAR RESPONSE
BODY BALANCE STATION (B20)
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION 540
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,500 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION 820
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

WING SHEAR RESPONSE, 27 PERCENT SEMISSPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 lb
ALTIMETER: 24,000 ft
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

LB/FT PER SEC

FREQUENCY (CPS)

WING SHEAR RESPONSE, 40.06 PERCENT SEMISpan
ANALYSIS CONDITION 4
WEIGHT CONDITION D
GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT RESPONSE, 27 PERCENT SEMI SPAN

55
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  MACH NUMBER: 0.85

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI-SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION 0

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

IN-LB/FT PER SEC

WING TORQUE RESPONSE, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D
GROSS WEIGHT: 107,260 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  MACH NUMBER: 0.85

WING TORQUE RESPONSE, 40.06 PERCENT SEMISSPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

CROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

BODY SHEAR RESPONSE,
BODY BALANCE STATION: 820

FREQUENCY (CPS)
LB/FT PER SEC
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS

LB-IN/FT PER SEC

FREQUENCY (CPS)

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION 540

61
ANALYSIS CONDITION 4
WEIGHT CONDITION 0

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.35

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 5
WEIGHT CONDITION 4

GROSS WEIGHT: 297,000 LB
ALTITUDE: 34,000 FT
MACH NUMBER: 0.50

GPS

WING SHEAR RESPONSE, 27 PERCENT SEMISpan

FREQUENCY (CPS)

LB/FT PER SEC
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
CUTOFF FREQUENCY: 10 CPS

WEIGHT: 297,000 LB
CUTOFF FREQUENCY: 10 CPS

ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

WING TORQUE RESPONSE, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.90

FREQUENCY (CPS)
IN-LB/FT PER SEC
WING TORQUE RESPONSE, 40.06 PERCENT SEMI SPAN

68
ANALYSIS CONDITION 3
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS

GRAPHICAL DATA:

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE
BODY BALANCE STATION: 540
ANALYSIS CONDITION S
WEIGHT CONDITION A.

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

FREQUENCY (CPS)

LB/FT PER SEC

BODY SHEAR RESPONSE
BODY BALANCE STATION 820
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS

FREQUENCY (CPS)

LB-IN/FT PER SEC

BODY BENDING MOMENT RESPONSE,
BODY BALANCE STATION: 820

72
SECTION III
LOAD POWER SPECTRA

ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1.000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI-SPAN

74
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)
BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

79
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM
BODY BALANCE STATION: 820

80
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)
BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 540

81
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820
Analysis condition 1
Weight condition A

Gross weight: 297,000 LB
Altitude: 20,000 FT
Mach number: 0.85

Cutoff frequency: 10 CPS
Scale of turbulence: 3,000 FT

Wing shear spectrum, 27 percent semispan
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALITUDE: 24,000 FT  SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.05

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISSPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMISpan
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI-Span
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 540

89
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  
ALTITUDE: 24,000 FT  
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS  
SCALE OF TURBULENCE: 3,000 FT

BODY SHEAR SPECTRUM,  
BODY BALANCE STATION: 820

FREQUENCY (CPS)
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.85

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

91
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION K/0

92
ANALYSIS CONDITION 1
WEIGHT CONDITION A

CROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 5,000 FT
MACH NUMBER: 0.85

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1

WEIGHT CONDITION A

GROSS WEIGHT: 297,000 lb
ALTITUDE: 24,000 ft
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 ft

WING BENDING MOMENT SPECTRUM, 40.00 PERCENT SEMISSPAN

94
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALITUDE: 24,000 FT
MACY NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

LB**2/CPS

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: R20
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.65

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

101
ANALYSIS CONDITION 1

WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.89

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION: 820
ANALYSIS CONDITION:
WEIGHT CONDITION: A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1

WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 28,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A
GROSS WEIGHT: 207,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540

109
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 820
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
CUTOFF FREQUENCY: 15 CPS
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 15 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: B20
ANALYSIS CONDITION

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.35

WEIGHT CONDITION A

CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMISSPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN

115
GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.25

CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

CROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 1
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 20 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

(1B-N) x 10^2/CPS

FREQUENCY (CPS)
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

WING SHEAR SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 2

WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI-SPAN

124
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN
GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

ANALYSIS CONDITION 2
WEIGHT CONDITION B

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 260,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

128
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540

129
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM
BODY BALANCE STATION: 820
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

132
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

WING SHEAR SPECTRUM, 27 PERCENT SEMISpan
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN

135
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

136
ANALYSIS CONDITION 2  
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB  
ALTITUDE: 24,000 FT  
MACH NUMBER: 0.85  
CUTOFF FREQUENCY: 10 CPS  
SCALE OF TURBULENCE: 3,000

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

WING TORQUE SPECTRUM, 40.06 FT CHSSPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

BODY SHEAR SPECTRUM
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 LB
CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 3,000
MACH NUMBER: 0.85

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION: 820
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT
MACH NUMBER: 0.85

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI-Span
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 5,000 FT
MACH NUMBER: 0.85

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI SPAN

145
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMI-SPAN

146
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Weight</td>
<td>268,000 FT</td>
</tr>
<tr>
<td>Altitude</td>
<td>24,000 FT</td>
</tr>
<tr>
<td>Mach Number</td>
<td>0.65</td>
</tr>
<tr>
<td>Cutoff Frequency</td>
<td>10 CPS</td>
</tr>
<tr>
<td>Scale of Turbulence</td>
<td>5,000 FT</td>
</tr>
</tbody>
</table>

**Graph Description:**

- **Graph Title:** Wing Torque Spectrum, 27 Percent Semi-Span
- **X-axis:** Frequency (CPS)
- **Y-axis:** \((IN-LB) \cdot 2/CPS\)

The graph illustrates the spectral distribution of wing torques under the specified analytical and weight conditions.
ANALYSIS CONDITION 2
WEIGHT CONDITION B
GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN

148
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 5,000 FT
MACH NUMBER: 0.85

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: 268,000 FT
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

152
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,900 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI-SPAN

154
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,990 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.10

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.39

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)

LB^2/CPS

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,940 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 820

160
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 390,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 1,000 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 540

161
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

162
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.65

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN

163
ANALYSIS CONDITION 3
WEIGHT CONDITION C
GROSS WEIGHT: 290,590 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.85

WING SHEAR SPECTRUM, 40.08 PERCENT SEMI-SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN

165
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,500 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN

167
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,990 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN
<table>
<thead>
<tr>
<th>Analysis Condition 3</th>
<th>Weight Condition C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Weight: 190,590 lb</td>
<td>Cutoff Frequency: 10 CPS</td>
</tr>
<tr>
<td>Altitude: 24,000 ft</td>
<td>Scale of Turbulence: 3,000 ft</td>
</tr>
<tr>
<td>Mach Number: 0.85</td>
<td></td>
</tr>
</tbody>
</table>

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**Graph:**

Frequency (CPS) vs. Body Shear Spectrum

Body Balance Station: 540

---

169
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190, 590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 820

170
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,560 LB
ALTITUDE: 20,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 540
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190.900 LB
ALTITUDE: 24,000 FT
MACK NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION 820
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,500 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 5,000 FT
CUTOFF FREQUENCY: 10 CPS
MACH NUMBER: 0.85

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.15

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,990 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
MACH NUMBER: 0.85
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

176
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 1,900 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.83
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI-SPAN
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
SCALC OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)
BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 820

FREQUENCY (CPS)

0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

LB/2/CPS

1.0x10^-01 1.0x10^-02 2.0x10^-02 3.0x10^-02 4.0x10^-02 5.0x10^-02 6.0x10^-02 7.0x10^-02 8.0x10^-02 9.0x10^-02 1.0x10^-01

180
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,540 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.25

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)
BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

181
ANALYSIS CONDITION 3
WEIGHT CONDITION C

GROSS WEIGHT: 190,590 LB
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 5,000 FT
MACH NUMBER: 0.85

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

182
ANALYSIS CONDITION 4
WEIGHT CONDITION D

CROSS WEIGHT: 107,200 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
MACH NUMBER: 0.85
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

184
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN

185
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,200 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.05

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI-SPAN

187
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 103,240 LB
ALTITUDE: 24,000 FT

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT
MACH NUMBER: 0.85

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

191
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 320

192
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN

193
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN

194
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

SCALE OF TURBULENCE: 3,000 FT
CUTOFF FREQUENCY: 10 CPS
HEIGHT CONDITION: 0

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI SPAN

195
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

196
ANALYSIS CONDITION 4
WEIGHT CONDITION 0

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.05

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI-SPAN

197
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,200 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820

200
ANALYSIS CONDITION: 4
WEIGHT CONDITION: D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION: 540

201
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION: 820

202
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 307,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN

FREQUENCY (CPS)

FREQUENCY (CPS)
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,200 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D
GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
CUTOFF FREQUENCY: 10 CPS
MACH NUMBER: 0.85
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 407,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI-Span
Analysis Condition 4
Weight Condition D

Gross Weight: 107,260 lb
Altitude: 24,000 ft
Cutoff Frequency: 10 CPS
Scale of Turbulence: 5,000 ft
Mach Number: 0.35

Wing Torque Spectrum, 40.06 percent semi-span
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540
Analysis Condition 4
Weight Condition D

Gross Weight: 107,260 lb
Altitude: 24,000 ft
Cutoff Frequency: 10 CPS
Scale of Turbulence: 5,000 ft

Mach Number: 0.45

Body Shear Spectrum,
Body Balance Station: 820

Frequency (CPS)

210
ANALYSIS CONDITION 4
HEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

LB-INS*2/CPS

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 540
ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107,260 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.85

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 2,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

212
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.90
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 3
HEIGHT CONDITION A

CROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 14,000 FT  SCALE OF TURBULENCE: 1,000 FT
NACH NUMBER: 0.96

WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN.
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISpan
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.30

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI SPAN

217
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

FREQUENCY (CPS)
BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 540

219
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.90

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820

220
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 1,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

221
ANALYSIS CONDITION 3
HEIGHT CONDITION A

GROSS WEIGHT: 297,000 lb
CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 26,000 ft
SCALE OF TURBULENCE: 1,000 ft
MACH NUMBER: 0.50

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 820

222
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 5

WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB  CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT  SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.30

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI SPAN

224
ANALYSIS CONDITION: 5
WEIGHT CONDITION: A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A
GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.50

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMI-SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMI SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY SHEAR SPECTRUM,
BODY BALANCE STATION: 820
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 3,000 FT

BODY BENDING MOMENT SPECTRUM
BODY BALANCE STATION: 820

232
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 27 PERCENT SEMI SPAN

233
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING SHEAR SPECTRUM, 40.06 PERCENT SEMI-SPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISSPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50
CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

238
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 540
ANALYSIS CONDITION 5
WEIGHT CONDITION A

CROSS WEIGHT: 297,000 LB
ATTITUDE: 24,000 FT
NUMBER: 0.90

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

BODY SHEAR SPECTRUM,
BODY BALANCE STATION 820

240
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 200,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.30

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION: 540

241
ANALYSIS CONDITION 5
WEIGHT CONDITION A

GROSS WEIGHT: 297,000 LB
ALTITUDE: 24,000 FT
MACH NUMBER: 0.50

CUTOFF FREQUENCY: 10 CPS
SCALE OF TURBULENCE: 5,000 FT

FREQUENCY (CPS)

BODY BENDING MOMENT SPECTRUM,
BODY BALANCE STATION 920
SECTION IV
LOAD RESPONSE PARAMETERS AND ZERO-
CROSSING RATES

Analysis Condition 1
(Gross Weight: 293,000 Pounds; Mach Number: 0.85; Altitude: 24,000 Feet)

<table>
<thead>
<tr>
<th>Location</th>
<th>Shear</th>
<th>Bending moment</th>
<th>Torsion</th>
</tr>
</thead>
<tbody>
<tr>
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<td>(A) (lb)</td>
<td>(N_o) (Zero crossings per second)</td>
<td>(A) ((10^3) in.-lb)</td>
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<tr>
<td>Body station</td>
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<td>551</td>
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SCALE OF TURBULENCE: 1,000 FT
CUTOFF FREQUENCY: 10 CPS

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<th>Torsion</th>
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<td>(A) (lb)</td>
<td>(N_o) (Zero crossings per second)</td>
<td>(A) ((10^3) in.-lb)</td>
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<td>393</td>
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SCALE OF TURBULENCE: 3,000 FT
CUTOFF FREQUENCY: 10 CPS

<table>
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<td>(N_o) (Zero crossings per second)</td>
<td>(A) ((10^3) in.-lb)</td>
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<td>27</td>
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<tr>
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<td>---</td>
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SCALE OF TURBULENCE: 5,000 FT
CUTOFF FREQUENCY: 10 CPS

243
Analysis Condition 1 — — Concluded
(Gross Weight: 293,000 Pounds; Mach Number: 0.85; Altitude 24,000 Feet)

<table>
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<th>Bending moment</th>
<th>Torsion</th>
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<tr>
<td>Body</td>
<td>Percent</td>
<td>Shear A (lb)</td>
<td>Shear N₀ (Zero</td>
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<td>semispan</td>
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<td>crossings per</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>second)</td>
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</tr>
<tr>
<td>820</td>
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<td>1,390</td>
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SCALE OF TURBULENCE: 1,000 FT
CUTOFF FREQUENCY: 15 CPS

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<td>Percent</td>
<td>Shear A (lb)</td>
<td>Shear N₀ (Zero</td>
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<td>semispan</td>
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<td>crossings per</td>
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<td></td>
<td></td>
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<td>second)</td>
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</tr>
<tr>
<td>820</td>
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<td>1,390</td>
<td>1.11</td>
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SCALE OF TURBULENCE: 1,000 FT
CUTOFF FREQUENCY: 20 CPS
### Analysis Condition 2

(Gross Weight: 268,000 Pounds; Mach Number: 0.85 Altitude: 24,000 Feet)

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<tr>
<td>Body station</td>
<td>Percent semispan</td>
<td>A (lb)</td>
<td>( N_o ) (Zero crossings per second)</td>
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<td>27</td>
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<td>40.06</td>
<td>874</td>
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<td>1,471</td>
<td>1.72</td>
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**Scale of Turbulence: 1,000 ft**  
**Cutoff Frequency: 10 CPS**

| --- | 27 | 781 | 1.66 | 223 | 1.12 | 37 | 3.08 |
| --- | 40.06 | 630 | 1.66 | 148 | 1.11 | 38.7 | 2.73 |
| 540 | --- | 576 | 3.06 | 77.2 | 3.54 | --- | --- |
| 820 | --- | 1,074 | 1.64 | 388 | 2.12 | --- | --- |

**Scale of Turbulence: 3,000 ft**  
**Cutoff Frequency: 10 CPS**

| --- | 27 | 662 | 1.65 | 190 | 1.12 | 31.2 | 3.08 |
| --- | 40.06 | 534 | 1.65 | 126 | 1.11 | 32.6 | 2.73 |
| 540 | --- | 487 | 3.06 | 65.1 | 3.54 | --- | --- |
| 820 | --- | 912 | 1.63 | 329 | 2.10 | --- | --- |
**Analysis Condition 3**
*(Gross Weight: 190,500 Pounds; Mach Number: 0.85 Altitude: 24,000 Feet)*

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</tr>
<tr>
<td>Body station</td>
<td>Percent semispan</td>
<td>$N_o$ (Zero crossings per second)</td>
<td>$A$ ($10^3$ in-lb)</td>
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<tr>
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**SCALE OF TURBULENCE: 1,000 FT**
**CUTOFF FREQUENCY: 10 CPS**

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<th>Location</th>
<th>Shear</th>
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<th>Torsion</th>
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<tr>
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<td>Percent semispan</td>
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<td>$A$ ($10^3$ in-lb)</td>
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<tr>
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**SCALE OF TURBULENCE: 3,000 FT**
**CUTOFF FREQUENCY: 10 CPS**

<table>
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<th>Location</th>
<th>Shear</th>
<th>Bending moment</th>
<th>Torsion</th>
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<td></td>
</tr>
<tr>
<td>Body station</td>
<td>Percent semispan</td>
<td>$N_o$ (Zero crossings per second)</td>
<td>$A$ ($10^3$ in-lb)</td>
</tr>
<tr>
<td>27</td>
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<td>40.06</td>
<td>444</td>
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**SCALE OF TURBULENCE: 5,000 FT**
**CUTOFF FREQUENCY: 10 CPS**
### Analysis Condition 4

*(Gross Weight: 107,260 Pounds; Mach Number: 0.85; Altitude: 24,000 Feet)*

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<th>Location</th>
<th>Percent semispan</th>
<th>Shear $A$ (lb)</th>
<th>$N_o$ (Zero crossings per second)</th>
<th>Bending moment $A$ (10^-3 in.*lb)</th>
<th>$N_o$ (Zero crossings per second)</th>
<th>Torsion $A$ (10^-3 in.*lb)</th>
<th>$N_o$ (Zero crossings per second)</th>
</tr>
</thead>
<tbody>
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<td>Body station</td>
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<td></td>
<td></td>
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<td>---</td>
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**SCALE OF TURBULENCE: 1,000 FT**

**CUTOFF FREQUENCY: 10 CPS**

| --- | 27 | 403 | 2.44 | 117 | 1.36 | 46.8 | 2.88 |
| --- | 40.06 | 314 | 2.80 | 94.1 | 1.61 | 44.5 | 2.76 |
| 540 | --- | 435 | 3.40 | 90.1 | 3.65 | --- | --- |
| 820 | --- | 669 | 1.46 | 278 | 2.86 | --- | --- |

**SCALE OF TURBULENCE: 3,000 FT**

**CUTOFF FREQUENCY: 10 CPS**

| --- | 27 | 342 | 2.43 | 99.9 | 1.35 | 39.6 | 2.87 |
| --- | 40.06 | 266 | 2.79 | 80 | 1.59 | 37.7 | 2.75 |
| 540 | --- | 368 | 3.39 | 76.1 | 3.64 | --- | --- |
| 820 | --- | 572 | 1.44 | 236 | 2.85 | --- | --- |
Analysis Condition 5
(Gross Weight: 297,000 Pounds; Mach Number: 0.50; Altitude: 24,000 Feet)

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<th>Shear</th>
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<th>Torsion</th>
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</thead>
<tbody>
<tr>
<td>Body station</td>
<td>Percent</td>
<td>A (lb)</td>
<td>N₀ (Zero crossings per second)</td>
</tr>
<tr>
<td>semispan</td>
<td></td>
<td></td>
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<tr>
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SCALE OF TURBULENCE: 1,000 FT
CUTOFF FREQUENCY: 10 CPS

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<th>Bending moment</th>
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<td>Body station</td>
<td>Percent</td>
<td>A (lb)</td>
<td>N₀ (Zero crossings per second)</td>
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SCALE OF TURBULENCE: 3,000 FT
CUTOFF FREQUENCY: 10 CPS

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This document presents frequency response functions, power spectra, and response parameters of bending moments, shears, and torsions at two wing stations and two body stations for five conditions of speed, gross weight, and altitude. Volume I presents frequency response functions and response parameters for stresses at the same wing and body stations. Also presented in volume I are ratios of incremental allowable limit stress to stress response parameter.
INSTRUCTIONS

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