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Analysis of Unswept and Swept Wing
Chordwise Pressure Data from an
Oscillating NACA 0012 Airfoil Experiment
Vol. II Data Report

A.O. St. Hilaire
F.O. Carta

UNITED TECHNOLOGIES RESEARCH CENTER
East Hartford, CT 06108

NASA Contract NAS1-16041

January 1983

NASA

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23665

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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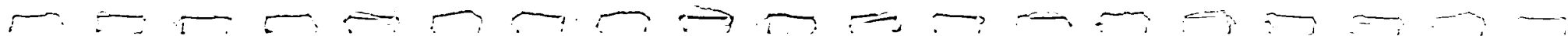


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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

SUMMARY

An experimental investigation was conducted in 1976 and 1977 to determine the effects of sweep, Mach number, mean angle of attack, pitching frequency, and pitching amplitude on the dynamic response of the NACA 0012 airfoil. A complete description of the experimental program and a discussion of the unsteady integrated load components (normal force, chord force, lift force, drag force, and moment) have already been reported in Ref. 1. A data report displaying the integrated loads in hysteresis loop format was also reported in an accompanying data volume (Ref. 2).

The analysis of the chordwise load distribution and its sensitivity to the various system parameters represents the next phase of the overall study and is the subject of the present two volume report. The first volume (Ref. 3) discusses the key features and trends from sample cases. The present volume is a compilation of all of the time history response data obtained during the test program previously described in Ref. 1. The data have been tabulated in the form of Fourier coefficients for reasons of compactness and for ease by the user to reproduce the unsteady component of the individual pressures and the complete (unsteady plus steady state components) integrated load results.

This data volume contains the individual pressure response time histories along the chord followed by the corresponding integrated load results. A further description of these data tables can be found in the text that follows.

LIST OF SYMBOLS

Note: In this tabulation, the first column of symbols is from the computer listings contained herein, and the second column is the equivalent physical symbol defined in the text (and in Refs. 1 and 3). The symbols are alphabetically arranged along the first column, and an asterisk (*) in either column indicates no equivalent symbol.

<u>Symbol in Tables</u>	<u>Symbol in Text</u>	<u>Description</u>
A	a_n	Cosine Fourier coefficient (Eq. 2)
*	a_∞	Sound speed, m/sec
B	b_n	Sine Fourier coefficient (Eq. 2)
*	c	Chord
C	c_n	Amplitude Fourier coefficient (Eq. 6)
CD	C_D	Drag force coefficient (Eq. 5)
CL	C_L	Lift force coefficient (Eq. 4)
CM	C_M	Moment coefficient
CN	C_N	Normal force coefficient
CS	C_c	Chord force coefficient
*	f	Airfoil pitching frequency, Hz
H	n	Harmonic number
K	k_c	Chordwise reduced frequency ($=\pi cf/a_\infty M_c$)
MACH	M_c	Chordwise Mach number ($=M_\infty \cos \Lambda$)
*	M_∞	Freestream Mach number
*	$p(x,t)$	Chordwise pressure distribution, newton/m ²
P	ϕ_n	Phase angle Fourier coefficient (Eq. 6)

<u>Symbol in Tables</u>	<u>Symbol in Text</u>	<u>Description</u>
PJL	$C_p(x,t)$	Lower surface dimensionless pressure distribution (Tables 3-6); J = 1 to 8
PJU	$C_p(x,t)$	Upper surface dimensionless pressure distribution (Tables 3-6); J = 1 to 13
*	q	Freestream dynamic pressure, newton/m ²
*	t	Time, sec
*	α	Airfoil angle of attack, deg (Eq. 3)
*	$\bar{\alpha}$	Pitching amplitude, deg
*	α_M	Mean incidence angle, deg
*	Λ	Sweep angle, deg
*	x	Distance from leading edge per unit chord
*	ω	Pitching frequency, rad (=2 π f)

DESCRIPTION OF THE DATA BASE

The data base for the present study was obtained from aerodynamic experiments (Ref. 1) performed on an oscillating NACA 0012 airfoil in both unswept and 30 deg swept configurations in the United Technologies Research Center Main Wind Tunnel. The unsteady data acquisition points that were used are schematically depicted in Fig. 1 and the test program was conducted for the matrix of parameters shown in Table 1. These parameters were the sweep angle, Λ , the amplitude of the motion, $\bar{\alpha}$, the mean incidence angle, α_M , the pitching frequency, f , and the approach Mach number, M_c . In this study, M_∞ was chosen on the basis that the unswept and swept results would be compared at equal values of $M_c = M_\infty \cos \Lambda$ where M_c is the chordwise component of the Mach number.

Two values of M_c (0.30 and 0.40) were tested for each value of Λ (0 deg and 30 deg). This was accomplished by testing the 30 deg swept configuration at a higher freestream velocity as noted in Table 1. In most cases, measurements were made for two values of $\bar{\alpha}$ (8 deg and 10 deg) at four mean incidence angles (0 deg, 9 deg, 12 deg, and 15 deg). The choice of frequencies used during the test program was predetermined utilizing Table 2 which lists the nominal values of chordwise reduced frequency defined by $k_c = \pi c f / a_\infty M_c$ (a_∞ = speed of sound).

DATA REDUCTION PROCESS

All pressure data obtained in this test program were normalized with respect to the velocity component normal to the span (to account for sweep) and then cycle-averaged over 5 cycles of the airfoil pitching motion. The resulting expression for the individual pressure responses is given by

$$C_p(\chi, t) = -p(\chi, t)/q \cos^2 \Lambda \quad (1)$$

where χ is the dimensionless position along the chord and t is time. Note that in this report the pressure coefficient is defined as the negative of the normalized pressure. This is convenient for relating positive integrated lift to a positive value of C_p .

The single-cycle time histories of Eq. (1) were then Fourier analyzed and thus reduced to the form

$$C_p(\chi, t) = a_0 + \sum_n a_n \cos n\omega t + \sum_n b_n \sin n\omega t \quad (2)$$

where a_0 is the residual zeroth harmonic term (see next section) and ω is the pitching frequency of the airfoil. The Fourier coefficients, a_n and b_n , appearing within the summations are respectively associated with the out-of-phase and in-phase parts of the response relative to the airfoil motion given by:

$$\alpha(t) = \alpha_M + \bar{\alpha} \sin \omega t. \quad (3)$$

The harmonic components of the Fourier series expression for the chordwise load distribution (cf., Eq. (2)) were then individually integrated by trapezoidal rule along the chord to produce Fourier series representations of the normal force, $C_N(t)$, chord force, $C_C(t)$, and moment $C_M(t)$ responses. The normal force and chord force Fourier series expansions were then converted to time histories and substituted into

$$C_L(t) = C_N(t) \cos \alpha(t) + C_C(t) \sin \alpha(t), \quad (4)$$

and

$$C_D(t) = C_N(t) \sin \alpha(t) - C_C(t) \cos \alpha(t), \quad (5)$$

where $\alpha(t)$ is given by Eq. (3). These equations thus produced the corresponding time histories for lift and drag. Finally, the lift and drag results were Fourier analyzed to complete the data reduction process.

TABLE DESCRIPTION AND USAGE

All of the unsteady data obtained in this experimental program are contained in Tables 3 through 10 in the form of Fourier coefficients. These tabulations consist of both the individual pressure time histories (Tables 3 through 6), and the integrated load time histories (Tables 7 through 10). The tabulated responses for each case listed herein are limited to the first ten harmonic components. This provides sufficiently high accuracy for reproducing the measured results. Two different sets of Fourier coefficients are listed in these tables for each case. These correspond to two alternate expressions for the Fourier expansion of $C_p(\chi, t)$. The first set of tabulations are the a_n and b_n coefficients from Eq. (2). The second set is from the alternate expression given by

$$C_p(\chi, t) = c_0 + \sum_n c_n \sin(n\omega t + \varphi_n) \quad (6)$$

where the tabulated quantities, c_n and φ_n are the amplitude and phase angle coefficients of the individual harmonic components. These are related to a_n and b_n by the simple expressions

$$c_n = \sqrt{a_n^2 + b_n^2} \quad (7)$$

and

$$\varphi_n = \tan^{-1} \left(\frac{a_n}{b_n} \right) \quad (8)$$

The quantity, c_0 , appearing in Eq. (6) represents the residual zeroth harmonic term and is identically equal to a_0 of Eq. (2).

The actual steady state part of the chordwise pressure distribution was obtained with separate instrumentation during testing and integrated on site to yield steady values of C_N , C_C , and C_M . Since the scope of the original load analysis of Ref. 1 was limited to the integrated loads, the individual steady state pressures were not retrieved from the steady state data tapes. However, the steady state pressure integrations are included as part of the steady component of the integrated results (Tables 7 through 10).

The unsteady pressure response data listings for each test case in Tables 3 through 6 consist of the 13 upper surface (top 2 rows) and 8 lower surface (bottom row) responses. Included at the top of each listing are the corresponding test parameter settings for identifying the particular test

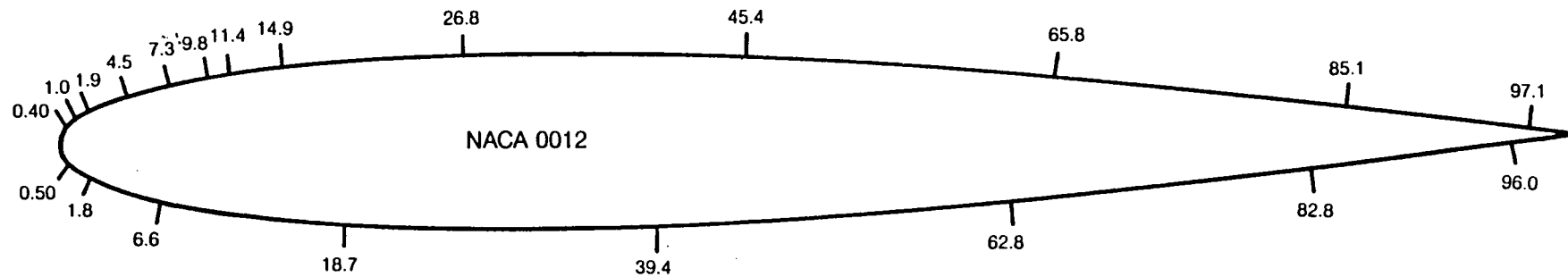
case. These parameters include Λ , M , α_M , f , and $\bar{\alpha}$. Each test case appearing in Tables 3 through 6 consists of two self-contained listings. One is in terms of the a_n and b_n coefficients (where Eq. (2) reconstructs the time histories) and the other is in terms of the c_n and φ_n coefficients (where Eq. (6) reconstructs the time histories). In addition, the data are grouped to highlight the effects of sweep. This is achieved by placing the swept wing counterpart result adjacent to the companion unswept result on facing pages. This is done for all cases wherever possible. Appropriate messages are supplied whenever the counterpart result is missing.

The integrated load response data listings for each test case are contained in Tables 7 through 10. The arrangement of the test case results therein is the same as in Tables 3 through 6 except that both the unswept and swept counterparts appear on the same page (with appropriate messages supplied whenever one of the counterparts is missing). As in Tables 3 through 6, the data are listed both in terms of the cosine-sine (a_n and b_n) and the amplitude-phase (c_n and φ_n) Fourier coefficients and are set up on facing pages.

Each of the integrated load components (C_N , C_C , C_L , C_D , and C_M) are listed in terms of the first eleven harmonic components (0 through 10) including the zeroth harmonic term. In these listings, the zeroth harmonic term consists of the integrated result from the zeroth term of the individual unsteady pressures plus the steady state component which was measured separately from the unsteady response.

REFERENCES

1. St. Hilaire, A. O., F. O. Carta, M. R. Fink and W. D. Jepson: The Influence of Sweep on the Aerodynamic Loading of an Oscillating NACA 0012 Airfoil. Volume I - Technical Report. NASA CR-3092, 1979.
2. St. Hilaire, A. O. and F. O. Carta: The Influence of Sweep on the Aerodynamic Loading of an Oscillating NACA 0012 Airfoil. Volume II - Data Report. NASA CR-145350, 1979.
3. St. Hilaire, A. O. and F. O. Carta: Analysis of Unswept and Swept Wing Chordwise Pressure Data From an Oscillating NACA 0012 Airfoil Experiment. Volume I - Technical Report. NASA CR-3567, 1983.



6

TIC MARKS AND NUMBERS INDICATE PRESSURE MEASURING STATIONS ALONG REFERENCE LINE, PERCENT CHORD

Fig. 1 Airfoil Cross Section Showing Chordwise Measuring Stations Along Reference Line

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

TABLE 1

UNSTEADY TEST MATRIX FOR NACA0012 AIRFOIL

Airfoil	Λ (deg)	$\bar{\alpha}$ (deg)	α_M (deg)	M_∞	M_C	f(cps)						
						4	5.33	6	8	10	10.67	
NACA0012 ↓	0 ↓	8 ↓	0	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			9	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			12	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			15	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			10	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			9	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
			12	.3	.3	X			X	X		
			"	.4	.4	X			X	X		
NACA0012 ↓	30 ↓	8 ↓	0	.346	.3	X		X	X	X		
			"	.462	.4	X	X	X	X	X	X	
			9	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
			12	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
			15	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
			10	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
			9	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
			12	.346	.3	X		X	X	X	X	
			"	.462	.4	X	X	X	X	X	X	X
15	.346	.3	X		X	X	X	X				
"	.462	.4	X	X	X	X	X	X	X			

TABLE 2

NOMINAL VALUES OF k_c FOR BASIC TEST PROGRAM

$M_c =$ f (cps)	0.3	0.4
	VALUES OF k_c	
4	.051	.038
5.33	.067	.051
6	.076	
8	.102	.076
10	.127	.095
10.67		.102

Notes:

1. All values displayed were run at least once.
2. Horizontal arrows on right column denote nominal values used for unswept runs.
3. Boxed numbers denote nominal values used for swept runs.
4. Diagonal arrows indicate matched values of k_c .

TABLE 3
(Notes 1 and 2)

CHORDWISE PRESSURES: $M_c=0.30$, $\bar{\alpha}=8$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.050	8	14-17
0	.100	10	18-21
0	.124	12	22-25
9	.050	14	26-29
9	.100	16	30-33
9	.124	18	34-37
12	.050	20	38-41
12	.100	22	42-45
12	.124	24	46-49
15	.050	26	50-53
15	.100	28	54-57
15	.124	30	58-61

Notes:

1. Unswept and swept counterparts appear on facing pages (A,B coefficients on first page pair and C,P coefficients on second page pair).
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0501) FITCHING AMPLITUDE = 8.0 DEG

FILE: 19 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2457	2.3307	-.3560	2.4321	-.2247	2.0628	-.2202	1.5224	-.1174	1.2140	-.1332	1.0599	-.0805	1.0267
2	-1.0004	-.2351	-.7266	-.2225	-.4207	-.0867	-.2049	-.0537	-.1107	-.0146	-.0894	-.0172	-.0406	-.0019
3	.0025	-.0964	-.0048	-.0503	-.0221	-.0043	-.0134	-.0024	-.0116	-.0022	-.0091	-.0010	-.0078	-.0019
4	.0244	-.0064	-.0100	-.0048	-.0039	-.0040	-.0056	-.0004	-.0047	-.0008	-.0008	-.0006	-.0014	-.0001
5	-.0026	-.0047	-.0001	-.0046	-.0004	-.0054	-.0018	-.0003	-.0008	-.0026	-.0023	-.0027	-.0015	-.0028
6	-.0006	-.0037	-.0001	-.0013	-.0003	-.0044	-.0013	-.0002	-.0008	-.0014	-.0006	-.0015	-.0002	-.0020
7	-.0043	-.0052	-.0012	-.0040	-.0027	-.0060	-.0002	-.0015	-.0013	-.0019	-.0008	-.0015	-.0004	-.0016
8	-.0002	-.0016	-.0002	-.0009	-.0021	-.0002	-.0005	-.0001	-.0010	-.0001	-.0003	-.0003	-.0000	-.0002
9	-.0012	-.0017	-.0003	-.0006	-.0007	-.0007	-.0005	-.0021	-.0009	-.0007	-.0009	-.0007	-.0009	-.0007
10	.0040	.0101	.0011	.0049	.0021	.0050	.0008	.0025	.0017	.0030	.0007	.0015	.0010	.0019

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1004	.8117	-.0319	.5301	-.0134	.3454	.0052	.1608	.0040	.0570	.0024	-.0074
2	-.0395	-.0044	-.0090	.0028	-.0003	.0024	-.0096	.0019	-.0103	.0022	-.0063	-.0011
3	-.0070	.0008	-.0038	.0018	-.0035	.0024	-.0031	.0030	-.0020	.0012	-.0007	-.0018
4	.0020	-.0006	.0008	-.0005	.0014	-.0007	-.0019	.0008	.0025	.0016	.0030	.0009
5	.0019	-.0017	-.0020	-.0014	.0007	-.0005	-.0005	.0006	-.0005	.0000	.0005	.0000
6	.0002	-.0012	-.0002	-.0014	.0000	-.0004	-.0003	-.0007	-.0001	-.0001	-.0001	-.0005
7	-.0007	-.0012	-.0006	-.0011	.0001	-.0009	-.0004	-.0007	-.0002	-.0001	-.0001	-.0004
8	-.0002	-.0003	-.0004	-.0011	-.0004	-.0002	-.0004	-.0007	.0001	-.0002	.0001	.0001
9	.0005	.0004	-.0001	.0001	.0002	-.0000	-.0005	-.0001	.0002	.0001	.0002	-.0005
10	.0005	.0015	.0007	.0006	.0003	.0010	-.0002	.0014	.0000	.0010	.0003	.0007

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2749	-2.0962	.3478	-2.1661	.2394	-2.3151	.0855	-.6982	.0186	-.3819	.0044	-.1850	-.0077	-.0691	-.0047	.0069
2	-.8910	-.2727	-.5108	-.2080	-.2867	-.1099	-.0358	-.0223	-.0033	-.0064	.0072	-.0013	.0079	.0002	-.0041	-.0009
3	-.0337	.0598	-.0136	.0246	.0092	-.0045	.0032	.0001	.0039	-.0028	.0026	-.0015	.0018	-.0012	-.0008	.0014
4	-.0010	-.0012	.0093	-.0050	.0091	.0039	.0015	.0002	-.0015	.0008	-.0007	.0011	-.0007	.0010	-.0003	.0023
5	-.0030	-.0035	-.0001	-.0040	-.0037	-.0038	-.0017	.0008	-.0006	.0008	-.0002	.0001	-.0003	.0000	-.0003	-.0003
6	-.0030	-.0010	-.0009	.0027	-.0013	.0020	-.0001	.0002	.0004	.0002	-.0001	.0001	-.0001	-.0000	-.0002	-.0003
7	-.0009	.0013	-.0023	-.0012	-.0048	.0000	-.0005	-.0003	.0003	.0003	-.0003	-.0000	-.0000	-.0001	-.0001	-.0000
8	-.0004	-.0029	-.0003	-.0020	-.0030	-.0065	-.0004	-.0006	-.0003	-.0004	-.0006	-.0004	-.0007	-.0001	-.0011	.0001
9	-.0010	.0030	-.0008	-.0015	-.0030	.0001	-.0004	-.0004	-.0003	-.0000	-.0001	-.0000	-.0001	.0001	-.0000	.0003
10	-.0019	.0075	-.0027	.0034	-.0007	.0047	-.0003	.0007	.0002	.0010	-.0005	.0011	-.0002	.0009	-.0003	.0009

71

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0501) PITCHING AMPLITUDE = 8.0 DEG
FILE: 43 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

Order	Mode	Coefficient	Order	Mode	Coefficient
1	A	2.4693	1	A	2.4693
1	B	-.2126	1	B	-.2126
2	A	-.9908	2	A	-.9908
2	B	-.1977	2	B	-.1977
3	A	-.0091	3	A	-.0091
3	B	-.0862	3	B	-.0862
4	A	-.0082	4	A	-.0082
4	B	-.0034	4	B	-.0034
5	A	-.0026	5	A	-.0026
5	B	-.0035	5	B	-.0035
6	A	-.0018	6	A	-.0018
6	B	-.0054	6	B	-.0054
7	A	-.0006	7	A	-.0006
7	B	-.0032	7	B	-.0032
8	A	-.0054	8	A	-.0054
8	B	-.0018	8	B	-.0018
9	A	-.0008	9	A	-.0008
9	B	-.0018	9	B	-.0018
10	A	.0006	10	A	.0006
10	B	-.0011	10	B	-.0011
1	A	-.0214	1	A	-.0214
1	B	.8156	1	B	.8156
2	A	-.0039	2	A	-.0039
2	B	-.0030	2	B	-.0030
3	A	-.0284	3	A	-.0284
3	B	-.0027	3	B	-.0027
4	A	-.0013	4	A	-.0013
4	B	-.0026	4	B	-.0026
5	A	-.0007	5	A	-.0007
5	B	-.0013	5	B	-.0013
6	A	-.0013	6	A	-.0013
6	B	-.0005	6	B	-.0005
7	A	-.0012	7	A	-.0012
7	B	-.0005	7	B	-.0005
8	A	-.0009	8	A	-.0009
8	B	-.0004	8	B	-.0004
9	A	-.0004	9	A	-.0004
9	B	-.0003	9	B	-.0003
10	A	-.0004	10	A	-.0004
10	B	-.0004	10	B	-.0004
1	A	-.0057	1	A	-.0057
1	B	.3584	1	B	.3584
2	A	-.0134	2	A	-.0134
2	B	-.0025	2	B	-.0025
3	A	-.0100	3	A	-.0100
3	B	.1727	3	B	.1727
4	A	-.0007	4	A	-.0007
4	B	-.0001	4	B	-.0001
5	A	-.0001	5	A	-.0001
5	B	-.0001	5	B	-.0001
6	A	-.0004	6	A	-.0004
6	B	-.0008	6	B	-.0008
7	A	-.0004	7	A	-.0004
7	B	-.0001	7	B	-.0001
8	A	-.0001	8	A	-.0001
8	B	-.0001	8	B	-.0001
9	A	-.0001	9	A	-.0001
9	B	-.0001	9	B	-.0001
10	A	-.0001	10	A	-.0001
10	B	-.0001	10	B	-.0001
1	A	-.0079	1	A	-.0079
1	B	.3759	1	B	.3759
2	A	-.0003	2	A	-.0003
2	B	-.0050	2	B	-.0050
3	A	-.0029	3	A	-.0029
3	B	-.0031	3	B	-.0031
4	A	-.0006	4	A	-.0006
4	B	-.0008	4	B	-.0008
5	A	-.0003	5	A	-.0003
5	B	-.0012	5	B	-.0012
6	A	-.0004	6	A	-.0004
6	B	-.0003	6	B	-.0003
7	A	-.0001	7	A	-.0001
7	B	-.0005	7	B	-.0005
8	A	-.0001	8	A	-.0001
8	B	-.0001	8	B	-.0001
9	A	-.0001	9	A	-.0001
9	B	-.0001	9	B	-.0001
10	A	-.0001	10	A	-.0001
10	B	-.0001	10	B	-.0001
1	A	-.0125	1	A	-.0125
1	B	.6225	1	B	.6225
2	A	-.0002	2	A	-.0002
2	B	-.0000	2	B	-.0000
3	A	-.0001	3	A	-.0001
3	B	-.0002	3	B	-.0002
4	A	-.0001	4	A	-.0001
4	B	-.0001	4	B	-.0001
5	A	-.0001	5	A	-.0001
5	B	-.0001	5	B	-.0001
6	A	-.0001	6	A	-.0001
6	B	-.0001	6	B	-.0001
7	A	-.0001	7	A	-.0001
7	B	-.0001	7	B	-.0001
8	A	-.0001	8	A	-.0001
8	B	-.0001	8	B	-.0001
9	A	-.0001	9	A	-.0001
9	B	-.0001	9	B	-.0001
10	A	-.0001	10	A	-.0001
10	B	-.0001	10	B	-.0001

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0501) PITCHING AMPLITUDE = 8.0 DEG

FILE: 19 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.3436	354.0	2.4580	351.7	2.0750	353.8	1.5383	351.8	1.2196	354.5	1.0682	352.8	1.0298	355.5
2	1.0277	256.8	.7599	253.0	.4296	258.3	.2118	255.3	.1117	262.5	.0911	259.1	.0606	268.2
3	.0944	178.3	.0505	183.4	.0225	258.9	.0136	259.9	.0118	280.8	.0092	263.8	.0080	283.4
4	.0253	104.7	.0111	115.7	.0056	136.0	.0056	93.8	.0047	80.1	.0010	52.5	.0014	86.8
5	.0054	209.2	.0046	190.8	.0054	184.1	.0019	241.9	.0027	143.1	.0035	140.2	.0030	149.8
6	.0027	194.0	.0013	174.8	.0044	184.4	.0015	243.1	.0014	148.4	.0014	158.1	.0021	175.5
7	.0048	219.6	.0042	143.0	.0065	204.2	.0014	171.1	.0023	215.3	.0017	151.4	.0016	192.4
8	.0014	7.7	.0009	348.0	.0021	274.2	.0005	103.4	.0010	266.8	.0004	320.8	.0002	348.1
9	.0021	325.7	.0007	331.5	.0011	134.9	.0022	12.7	.0011	51.5	.0011	53.0	.0012	51.1
10	.0109	21.6	.0050	12.2	.0054	23.0	.0024	18.7	.0035	29.5	.0016	25.4	.0022	26.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8178	352.9	.5310	356.6	.3457	357.8	.1609	1.8	.0572	4.0	.0078	141.9
2	.0398	263.7	.0094	287.3	.0024	7.0	.0098	78.6	.0106	77.8	.0064	240.5
3	.0071	276.7	.0042	294.6	.0042	304.5	.0043	314.2	.0023	301.1	.0020	199.6
4	.0020	73.9	.0010	59.0	.0015	63.7	.0020	66.0	.0029	57.9	.0031	74.2
5	.0025	132.1	.0025	127.9	.0009	123.2	.0008	318.3	.0005	89.4	.0005	87.2
6	.0012	170.9	.0014	189.4	.0004	175.3	.0007	24.3	.0001	325.2	.0005	170.1
7	.0014	150.5	.0012	152.1	.0009	175.2	.0008	211.0	.0002	121.5	.0004	192.3
8	.0004	216.6	.0011	200.1	.0004	246.6	.0008	332.2	.0002	157.8	.0002	52.8
9	.0008	42.7	.0001	318.0	.0002	96.7	.0005	105.4	.0002	69.3	.0006	160.8
10	.0016	18.3	.0009	53.0	.0010	15.6	.0014	352.5	.0010	1.7	.0007	25.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.1142	172.5	2.1939	170.9	2.3274	174.1	.7034	173.0	.3823	177.2	.1851	178.6	.0695	186.4	.0083	325.8
2	.9318	253.0	.5514	247.8	.3071	249.0	.0422	238.1	.0072	207.8	.0073	100.2	.0079	88.3	.0042	257.3
3	.0686	330.6	.0281	331.1	.0103	115.8	.0032	88.1	.0048	125.7	.0030	119.3	.0021	123.3	.0016	330.7
4	.0016	139.3	.0105	41.7	.0099	47.0	.0015	83.5	.0017	63.2	.0013	31.9	.0012	34.0	.0023	7.7
5	.0061	235.5	.0040	178.2	.0053	135.3	.0019	295.4	.0010	319.7	.0002	286.3	.0003	270.4	.0005	222.6
6	.0032	289.0	.0028	340.9	.0024	325.9	.0003	334.7	.0004	60.3	.0001	334.4	.0001	248.9	.0004	215.9
7	.0070	100.8	.0028	64.4	.0048	89.9	.0006	300.4	.0004	47.5	.0003	92.6	.0001	166.7	.0001	249.2
8	.0029	186.0	.0020	185.9	.0072	205.0	.0007	212.1	.0007	233.6	.0007	233.7	.0007	259.2	.0011	274.3
9	.0032	161.2	.0017	152.0	.0030	272.5	.0005	221.5	.0003	90.3	.0001	107.1	.0003	295.4	.0003	355.7
10	.0078	346.0	.0044	321.3	.0047	351.9	.0008	337.5	.0010	12.2	.0012	336.8	.0009	348.6	.0009	342.1

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0501) PITCHING AMPLITUDE = 8.0 DEG

FILE: 43 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.4785	355.1	2.5822	353.1	2.1678	354.9	1.4171	353.2	1.1894	355.4	1.1193	353.7	1.0313	356.3
2	1.0103	258.7	.7484	255.7	.4069	260.5	.2002	257.9	.0929	263.9	.0812	261.5	.0497	271.2
3	.0867	174.0	.0464	174.7	.0093	290.9	.0117	297.1	.0085	313.6	.0049	290.9	.0035	341.4
4	.0089	247.8	.0183	248.2	.0233	262.3	.0064	244.2	.0036	280.2	.0036	282.3	.0084	273.8
5	.0044	144.3	.0025	115.6	.0021	141.4	.0037	9.2	.0016	21.6	.0018	154.2	.0027	143.3
6	.0057	18.2	.0041	53.9	.0026	34.8	.0025	234.8	.0028	102.8	.0039	39.7	.0044	63.3
7	.0033	191.0	.0039	256.6	.0011	277.9	.0010	88.3	.0038	342.7	.0026	252.9	.0015	287.4
8	.0065	35.1	.0056	18.3	.0070	26.8	.0041	312.0	.0018	343.3	.0026	23.6	.0036	25.1
9	.0020	24.3	.0018	295.3	.0017	353.7	.0026	148.3	.0022	23.9	.0031	280.2	.0015	306.9
10	.0013	153.5	.0030	124.3	.0024	151.1	.0012	16.9	.0029	260.5	.0013	147.0	.0011	181.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8197	354.2	.5445	357.7	.3584	359.1	.1730	3.3	.0467	11.3	.0143	164.8
2	.0284	268.5	.0051	310.7	.0054	62.4	.0135	83.1	.0119	82.2	.0135	255.0
3	.0051	306.3	.0044	328.2	.0039	337.3	.0036	348.6	.0029	330.5	.0010	236.3
4	.0027	344.1	.0033	279.5	.0037	275.9	.0040	273.0	.0012	321.9	.0023	33.6
5	.0019	135.5	.0009	136.6	.0005	145.6	.0002	213.3	.0006	163.7	.0001	30.1
6	.0056	39.6	.0004	53.6	.0004	75.3	.0005	93.0	.0003	97.6	.0001	77.0
7	.0013	246.8	.0004	265.5	.0004	258.6	.0004	251.1	.0006	322.9	.0002	329.1
8	.0037	13.8	.0005	41.8	.0006	20.7	.0008	7.3	.0001	298.9	.0004	33.0
9	.0019	288.2	.0004	78.7	.0003	71.5	.0001	47.0	.0002	253.4	.0002	221.3
10	.0017	154.9	.0004	153.0	.0006	174.0	.0007	185.9	.0002	24.2	.0001	328.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0382	174.2	2.0033	172.6	1.1670	171.5	.7192	174.8	.3740	178.8	.1795	181.3	.0438	191.3	.0194	336.3
2	.8669	255.8	.4837	251.1	.1374	247.0	.0395	242.2	.0050	182.9	.0091	96.1	.0097	92.8	.0135	246.4
3	.0629	332.8	.0194	330.0	.0034	52.2	.0045	124.0	.0042	136.5	.0038	122.6	.0035	132.2	.0020	23.7
4	.0054	144.7	.0124	105.4	.0089	101.5	.0032	114.3	.0010	142.3	.0013	118.5	.0006	145.7	.0033	49.9
5	.0073	335.0	.0049	339.9	.0039	335.0	.0013	347.1	.0012	344.9	.0008	333.8	.0005	333.8	.0009	92.2
6	.0043	335.2	.0044	279.3	.0032	245.2	.0004	233.4	.0005	133.9	.0008	243.4	.0005	260.4	.0006	213.3
7	.0044	43.4	.0059	353.9	.0008	45.4	.0014	355.5	.0009	23.0	.0004	62.9	.0001	254.0	.0002	171.9
8	.0041	146.1	.0038	149.2	.0024	193.8	.0018	207.9	.0005	191.8	.0006	201.0	.0003	258.8	.0002	200.0
9	.0008	337.3	.0013	175.8	.0007	149.4	.0002	146.2	.0002	323.9	.0001	79.9	.0004	219.4	.0003	186.1
10	.0015	147.8	.0038	137.2	.0017	164.3	.0012	107.1	.0009	72.0	.0005	107.9	.0003	67.8	.0003	358.7

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 20 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.4754	2.2611	-.6676	2.3292	-.4100	2.0049	-.4033	1.4638	-.2078	1.1797	-.2441	1.0121	-.1495	.9937
2	-.9094	-.3766	-.6275	-.3792	-.3841	-.1540	-.1777	-.0979	-.0996	-.0323	-.0754	-.0399	-.0567	-.0151
3	.0298	-.0874	.0124	-.0451	-.0214	-.0113	-.0185	-.0101	-.0148	-.0021	-.0135	-.0081	-.0101	.0016
4	.0106	-.0117	.0039	-.0075	-.0058	-.0057	.0017	-.0015	-.0015	-.0022	-.0008	-.0006	-.0022	.0019
5	.0017	-.0105	.0089	-.0048	.0040	-.0046	-.0004	-.0047	.0012	-.0034	.0043	-.0011	-.0029	-.0034
6	-.0030	.0032	-.0055	.0058	.0025	-.0049	-.0021	-.0006	-.0001	.0037	-.0006	.0013	-.0000	.0022
7	-.0039	-.0026	.0016	-.0014	.0010	-.0025	-.0006	.0028	.0006	.0006	.0004	.0018	.0025	.0015
8	-.0053	.0070	-.0077	.0021	-.0049	-.0033	-.0023	.0026	-.0012	.0032	-.0017	.0021	-.0005	.0024
9	-.0045	-.0020	-.0012	-.0028	-.0001	-.0012	-.0030	.0011	-.0007	.0007	-.0013	.0003	-.0003	.0005
10	-.0008	.0025	-.0023	.0013	-.0020	.0012	-.0009	.0015	-.0003	.0009	-.0012	.0008	-.0004	.0006

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1777	.7794	-.0476	.5133	-.0154	.3328	.0168	.1524	.0122	.0523	.0050	-.0099
2	-.0325	-.0158	-.0069	-.0025	.0020	-.0013	.0108	.0000	.0113	.0027	-.0037	-.0007
3	-.0093	-.0020	-.0056	.0022	-.0052	.0022	-.0048	.0022	-.0016	.0018	.0008	-.0018
4	-.0020	.0010	-.0007	.0018	-.0002	.0017	-.0003	.0016	.0001	.0028	.0006	.0014
5	.0032	-.0014	.0020	-.0010	.0001	-.0010	-.0018	-.0009	.0000	-.0008	-.0008	-.0004
6	-.0002	.0015	.0013	.0007	.0009	.0003	.0006	.0000	.0007	.0001	.0007	-.0001
7	.0010	.0013	.0016	.0007	.0010	.0001	.0003	-.0006	.0002	-.0000	.0002	-.0000
8	-.0009	.0019	.0016	.0005	.0006	-.0002	-.0003	-.0010	.0004	.0001	-.0001	.0004
9	-.0007	.0002	-.0005	.0002	-.0002	.0001	.0001	.0000	.0000	-.0000	.0001	-.0000
10	-.0003	.0003	.0001	.0004	.0000	-.0003	-.0001	-.0009	-.0002	.0002	.0003	.0001

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.4457	-2.0172	.5939	-2.0673	.4056	-2.2754	.1444	-.6716	.0204	-.3729	-.0003	-.1790	-.0186	-.0678	-.0103	-.0067
2	-.7960	-.3907	-.4291	-.2964	-.2450	-.1449	-.0258	-.0261	.0013	-.0085	.0108	-.0022	.0112	-.0028	-.0007	-.0039
3	-.0154	.0567	.0024	.0307	.0389	.0077	.0070	.0014	.0077	.0028	.0038	-.0021	.0024	-.0024	-.0008	.0002
4	.0190	-.0293	.0230	-.0073	.0087	-.0080	.0041	-.0033	.0014	-.0009	.0006	-.0009	.0001	-.0002	.0004	-.0002
5	-.0034	-.0127	.0021	-.0103	-.0036	-.0074	-.0024	-.0014	-.0004	-.0004	.0001	-.0005	.0005	-.0007	.0002	-.0017
6	.0018	-.0033	.0028	-.0025	-.0048	-.0075	-.0006	-.0013	-.0006	-.0005	-.0010	-.0004	-.0002	-.0005	-.0004	-.0006
7	.0032	-.0046	.0020	-.0042	-.0153	-.0154	-.0006	-.0020	-.0008	-.0000	-.0010	-.0001	.0017	.0013	-.0000	-.0002
8	-.0006	-.0024	.0025	-.0026	.0163	.0023	.0001	-.0014	-.0012	-.0001	-.0012	-.0001	-.0024	-.0008	-.0003	.0001
9	-.0005	.0013	.0007	-.0012	.0050	.0007	.0000	-.0009	-.0005	-.0006	-.0001	-.0002	-.0010	-.0004	-.0002	-.0002
10	.0011	.0003	.0018	-.0001	.0045	.0009	.0003	-.0009	-.0003	-.0002	-.0001	-.0002	-.0006	-.0003	-.0002	-.0003

MACH NUMBER = .30 MEAN INCIDENCE = 0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=1002) PITCHING AMPLITUDE = 8.0 DEG
 FILE: 45 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

Mode	Order	Label	Value
H	1	A	-4497 2.4723
		B	-7583 .3813
H	2	A	-0.329 -.0773
		B	-0.039 -.0132
H	3	A	-0.129 .0019
		B	-0.083 .0188
H	4	A	-0.028 -.0051
		B	-0.014 -.0057
H	5	A	-0.004 .0014
		B	-0.007 .0040
H	6	A	-0.001 .0001
		B	-0.007 .0004
H	7	A	-0.001 .0001
		B	-0.001 .0001
H	8	A	-0.001 .0001
		B	-0.001 .0001
H	9	A	-0.001 .0001
		B	-0.001 .0001
H	10	A	-0.001 .0001
		B	-0.001 .0001
H	1	A	-1519 .8116
		B	-0.007 .0017
H	2	A	-0.216 -.0107
		B	-0.039 -.0039
H	3	A	-0.020 .0054
		B	-0.008 .0008
H	4	A	-0.0027 .0078
		B	-0.001 .0010
H	5	A	-0.001 .0001
		B	-0.002 .0002
H	6	A	-0.001 .0001
		B	-0.001 .0001
H	7	A	-0.001 .0001
		B	-0.001 .0001
H	8	A	-0.001 .0001
		B	-0.001 .0001
H	9	A	-0.001 .0001
		B	-0.001 .0001
H	10	A	-0.001 .0001
		B	-0.001 .0001
H	1	A	-0.315 .5457
		B	-0.006 .0017
H	2	A	-0.110 -.0003
		B	-0.037 .0041
H	3	A	-0.013 .0013
		B	-0.002 .0014
H	4	A	-0.002 .0010
		B	-0.000 .0000
H	5	A	-0.001 .0001
		B	-0.001 .0001
H	6	A	-0.001 .0001
		B	-0.001 .0001
H	7	A	-0.001 .0001
		B	-0.001 .0001
H	8	A	-0.001 .0001
		B	-0.001 .0001
H	9	A	-0.001 .0001
		B	-0.001 .0001
H	10	A	-0.001 .0001
		B	-0.001 .0001
H	1	A	-0.284 .7137
		B	-0.006 .0006
H	2	A	-0.028 -.0228
		B	-0.037 .0016
H	3	A	-0.003 .0033
		B	-0.016 .0016
H	4	A	-0.003 .0003
		B	-0.003 .0003
H	5	A	-0.003 .0003
		B	-0.003 .0003
H	6	A	-0.003 .0003
		B	-0.003 .0003
H	7	A	-0.003 .0003
		B	-0.003 .0003
H	8	A	-0.003 .0003
		B	-0.003 .0003
H	9	A	-0.003 .0003
		B	-0.003 .0003
H	10	A	-0.003 .0003
		B	-0.003 .0003
H	1	A	-0.105 .1804
		B	-0.004 .0004
H	2	A	-0.013 .0035
		B	-0.003 .0003
H	3	A	-0.003 .0003
		B	-0.003 .0003
H	4	A	-0.003 .0003
		B	-0.003 .0003
H	5	A	-0.003 .0003
		B	-0.003 .0003
H	6	A	-0.003 .0003
		B	-0.003 .0003
H	7	A	-0.003 .0003
		B	-0.003 .0003
H	8	A	-0.003 .0003
		B	-0.003 .0003
H	9	A	-0.003 .0003
		B	-0.003 .0003
H	10	A	-0.003 .0003
		B	-0.003 .0003
H	1	A	-0.247 .0640
		B	-0.000 .0000
H	2	A	-0.013 .0035
		B	-0.000 .0000
H	3	A	-0.003 .0003
		B	-0.000 .0000
H	4	A	-0.003 .0003
		B	-0.000 .0000
H	5	A	-0.003 .0003
		B	-0.000 .0000
H	6	A	-0.003 .0003
		B	-0.000 .0000
H	7	A	-0.003 .0003
		B	-0.000 .0000
H	8	A	-0.003 .0003
		B	-0.000 .0000
H	9	A	-0.003 .0003
		B	-0.000 .0000
H	10	A	-0.003 .0003
		B	-0.000 .0000
H	1	A	-0.144 .0170
		B	-0.000 .0000
H	2	A	-0.055 .0076
		B	-0.000 .0000
H	3	A	-0.017 .0018
		B	-0.000 .0000
H	4	A	-0.010 .0010
		B	-0.000 .0000
H	5	A	-0.007 .0007
		B	-0.000 .0000
H	6	A	-0.008 .0008
		B	-0.000 .0000
H	7	A	-0.007 .0007
		B	-0.000 .0000
H	8	A	-0.007 .0007
		B	-0.000 .0000
H	9	A	-0.007 .0007
		B	-0.000 .0000
H	10	A	-0.007 .0007
		B	-0.000 .0000

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 20 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.3105	348.1	2.4230	344.0	2.0464	348.4	1.5183	344.6	1.1979	350.0	1.0412	346.4	1.0048	351.4
2	.9843	247.5	.7331	238.9	.4139	248.2	.2029	241.2	.1047	252.0	.0853	242.1	.0586	255.1
3	.0923	161.2	.0468	164.6	.0242	242.2	.0211	241.4	.0149	262.0	.0157	239.1	.0103	279.2
4	.0157	137.8	.0085	152.5	.0082	225.6	.0023	132.2	.0026	325.6	.0010	234.4	.0029	311.4
5	.0107	170.6	.0101	118.1	.0061	139.1	.0047	184.3	.0036	160.6	.0044	104.5	.0045	139.7
6	.0044	317.0	.0080	316.5	.0055	332.3	.0022	253.0	.0037	358.3	.0015	335.9	.0022	358.8
7	.0047	236.0	.0021	129.9	.0027	157.6	.0028	347.4	.0008	45.3	.0018	13.7	.0029	59.0
8	.0087	323.0	.0080	285.2	.0058	303.9	.0035	317.8	.0034	339.9	.0027	321.5	.0024	348.6
9	.0049	245.7	.0030	202.1	.0012	173.8	.0032	290.6	.0010	317.8	.0013	282.2	.0006	328.0
10	.0028	342.6	.0027	298.7	.0024	301.2	.0018	331.0	.0010	341.6	.0014	302.9	.0007	324.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7994	347.2	.5155	354.7	.3332	357.4	.1533	6.3	.0537	13.2	.0111	153.4
2	.0362	244.1	.0074	250.0	.0023	122.7	.0108	90.0	.0117	76.4	.0038	259.8
3	.0096	258.2	.0060	291.1	.0056	292.7	.0053	294.5	.0024	317.8	.0020	154.4
4	.0023	297.1	.0019	338.7	.0017	352.9	.0017	9.4	.0028	2.4	.0015	23.1
5	.0035	113.0	.0022	117.5	.0010	175.9	.0020	243.4	.0008	176.4	.0009	242.4
6	.0015	350.7	.0015	63.2	.0010	69.7	.0006	86.8	.0007	85.4	.0007	97.4
7	.0016	38.1	.0018	65.4	.0010	86.5	.0007	154.2	.0002	91.6	.0002	97.2
8	.0021	335.8	.0016	72.5	.0007	110.8	.0010	196.3	.0004	68.0	.0004	340.4
9	.0008	283.4	.0005	290.4	.0002	297.6	.0001	65.5	.0001	128.7	.0001	98.2
10	.0004	309.3	.0004	20.7	.0003	171.1	.0009	183.7	.0003	320.2	.0003	65.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0659	167.5	2.1515	163.9	2.3113	169.9	.6870	167.9	.3734	176.9	.1790	180.1	.0703	195.4	.0124	302.5
2	.8867	243.9	.5215	235.4	.2846	239.4	.0367	224.7	.0086	171.5	.0111	101.7	.0116	104.1	.0039	189.7
3	.0588	344.8	.0308	4.4	.0397	78.8	.0072	78.4	.0082	109.8	.0043	118.4	.0034	133.9	.0008	280.4
4	.0349	147.1	.0342	107.7	.0119	132.6	.0053	128.7	.0016	122.7	.0011	145.1	.0002	149.6	.0005	63.5
5	.0132	194.9	.0105	168.5	.0101	200.7	.0027	240.1	.0006	270.7	.0005	168.7	.0008	143.6	.0017	172.3
6	.0038	151.4	.0038	131.8	.0089	212.5	.0015	155.0	.0007	230.3	.0011	249.4	.0005	341.5	.0009	226.2
7	.0054	145.5	.0047	154.3	.0217	224.7	.0020	195.8	.0008	249.7	.0005	259.0	.0021	52.9	.0002	180.4
8	.0025	193.0	.0036	136.1	.0165	81.8	.0014	175.5	.0012	245.5	.0012	265.6	.0028	253.1	.0003	284.4
9	.0014	197.1	.0014	149.2	.0050	82.5	.0009	179.6	.0008	139.8	.0002	204.4	.0011	246.3	.0003	323.6
10	.0012	77.2	.0018	92.2	.0046	79.2	.0009	159.3	.0004	236.9	.0002	197.1	.0007	246.5	.0004	217.1

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 45 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.5128	349.7	2.6119	346.2	2.1915	350.1	1.6379	346.9	1.2013	351.6	1.1320	348.0	1.0348	352.8
2	1.0313	248.3	.7552	241.4	.3964	248.7	.2029	242.0	.0905	250.6	.0815	244.6	.0430	254.5
3	.0840	154.9	.0399	154.8	.0159	289.8	.0168	278.7	.0116	287.7	.0094	274.5	.0087	310.2
4	.0138	196.6	.0163	223.8	.0151	257.4	.0067	211.4	.0032	328.9	.0031	304.0	.0066	316.5
5	.0131	81.8	.0093	58.8	.0064	42.4	.0074	13.0	.0028	59.4	.0025	77.0	.0027	87.4
6	.0188	333.6	.0203	316.5	.0146	331.7	.0057	285.1	.0066	8.2	.0069	339.6	.0078	.4
7	.0058	208.6	.0059	193.6	.0035	199.6	.0016	.3	.0037	301.2	.0021	233.9	.0015	243.6
8	.0019	77.2	.0057	86.1	.0037	89.7	.0026	210.7	.0017	112.3	.0018	5.1	.0016	43.8
9	.0030	60.7	.0077	89.3	.0043	112.8	.0060	92.7	.0005	317.4	.0021	180.2	.0022	140.6
10	.0025	278.7	.0013	236.2	.0014	281.8	.0037	274.7	.0011	236.3	.0003	306.0	.0005	67.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8256	349.4	.5466	356.7	.3567	359.9	.1704	10.3	.0514	27.5	.0187	148.9
2	.0241	243.7	.0019	159.1	.0110	91.7	.0213	87.1	.0145	80.4	.0097	232.7
3	.0087	296.4	.0070	312.1	.0055	317.6	.0042	327.0	.0029	293.7	.0017	207.3
4	.0057	339.4	.0025	304.4	.0018	313.3	.0012	331.2	.0007	233.9	.0022	31.0
5	.0029	73.5	.0022	116.4	.0005	161.7	.0017	272.6	.0008	153.5	.0006	256.4
6	.0082	340.6	.0022	.9	.0017	19.0	.0015	44.9	.0004	352.0	.0005	205.6
7	.0011	251.7	.0003	252.4	.0002	299.3	.0003	353.0	.0004	252.9	.0007	.5
8	.0025	325.6	.0002	73.9	.0004	51.3	.0007	44.8	.0004	39.1	.0007	38.4
9	.0030	166.1	.0011	124.9	.0009	112.7	.0008	94.5	.0002	117.2	.0005	114.8
10	.0006	90.1	.0006	70.6	.0005	123.4	.0008	154.7	.0004	94.8	.0004	158.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0868	169.6	2.0356	166.4	1.1292	167.5	.7240	170.3	.3805	179.1	.1809	183.3	.0686	201.1	.0223	319.8
2	.8861	247.5	.4932	239.8	.1395	240.8	.0364	231.2	.0070	130.8	.0126	90.7	.0135	92.4	.0094	215.8
3	.0535	333.4	.0128	342.3	.0067	116.7	.0090	126.2	.0072	140.5	.0049	136.0	.0043	130.2	.0024	42.9
4	.0229	146.8	.0164	109.1	.0110	97.0	.0039	114.1	.0011	113.6	.0013	112.9	.0006	99.6	.0026	24.5
5	.0112	229.4	.0099	224.0	.0087	262.3	.0037	271.1	.0009	22.5	.0014	330.5	.0011	24.8	.0011	75.2
6	.0049	354.7	.0010	23.5	.0028	144.9	.0020	125.5	.0009	193.1	.0012	166.1	.0007	179.4	.0007	167.0
7	.0034	176.0	.0026	213.1	.0008	158.8	.0005	214.0	.0006	200.7	.0006	191.0	.0006	224.8	.0008	292.9
8	.0016	285.7	.0027	14.7	.0020	30.6	.0009	76.6	.0001	261.2	.0004	296.2	.0001	4.3	.0012	323.3
9	.0025	61.1	.0021	52.9	.0012	333.1	.0006	310.2	.0001	119.7	.0002	120.5	.0001	256.6	.0005	17.0
10	.0014	155.8	.0007	85.9	.0008	279.6	.0010	217.5	.0006	42.0	.0006	308.7	.0006	356.1	.0003	179.5

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY =10.00 HZ (K=.1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 21 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.5526	2.2270	-.7858	2.2786	-.4695	1.9867	-.4718	1.4343	-.2333	1.1707	-.2827	1.0026	-.1648	.9827
2	-.8770	-.4611	-.5771	-.4545	-.3701	-.1878	-.1658	-.1243	-.0970	-.0433	-.0693	-.0479	-.0573	-.0209
3	.0461	-.0746	.0232	-.0350	-.0139	-.0092	-.0120	-.0064	-.0115	-.0009	-.0056	-.0067	-.0118	.0045
4	.0113	-.0192	.0072	-.0107	-.0043	-.0105	.0005	-.0032	-.0019	-.0005	-.0027	-.0016	-.0039	-.0009
5	.0114	.0013	.0109	.0066	-.0089	-.0006	-.0043	-.0045	.0063	-.0006	-.0006	.0070	.0020	.0068
6	.0019	.0054	-.0055	.0103	-.0004	.0053	-.0024	.0038	.0003	.0052	-.0012	.0032	-.0004	.0056
7	-.0035	.0005	-.0011	-.0004	.0001	.0013	-.0015	.0020	.0009	.0031	-.0008	.0024	.0013	.0013
8	-.0039	.0013	-.0025	-.0012	-.0015	.0023	-.0017	-.0019	-.0004	.0020	-.0009	.0002	-.0003	.0014
9	.0002	-.0020	.0017	-.0024	.0003	-.0035	.0010	.0017	-.0004	.0001	-.0009	-.0013	-.0002	-.0002
10	.0003	.0018	-.0004	.0016	.0009	-.0013	-.0021	.0023	.0002	.0005	-.0011	.0011	.0001	.0005

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2028	.7689	-.0448	.5088	-.0091	.3293	.0267	.1498	.0180	.0508	.0065	-.0109
2	-.0303	-.0211	-.0048	-.0026	.0022	-.0010	.0112	.0007	.0109	.0039	-.0034	.0004
3	-.0077	-.0006	-.0047	.0034	-.0032	.0026	-.0017	.0018	-.0035	.0025	-.0002	-.0006
4	-.0021	.0002	-.0010	.0024	.0002	.0016	.0014	.0009	-.0002	.0023	.0001	.0009
5	.0053	.0023	.0040	-.0007	.0009	-.0009	-.0023	-.0012	.0002	-.0003	-.0004	.0005
6	-.0002	.0026	.0013	.0012	.0013	.0016	.0013	.0021	.0012	.0014	.0017	.0032
7	-.0000	.0024	.0020	.0014	.0014	.0000	.0007	-.0014	.0004	-.0001	.0001	.0000
8	-.0003	.0012	.0012	.0006	.0007	.0001	.0002	-.0003	-.0001	.0004	.0002	.0008
9	-.0001	.0007	-.0003	.0001	-.0000	-.0004	.0003	.0007	-.0001	-.0000	.0001	.0002
10	-.0008	.0008	.0005	.0002	.0007	-.0005	.0009	-.0011	.0001	-.0001	.0001	-.0001

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5104	-2.0127	.6989	-2.0383	.4630	-2.2846	.1652	-.6612	.0140	-.3709	-.0059	-.1764	-.0260	-.0672	-.0130	.0073
2	-.7752	-.4307	-.4016	-.3304	-.2374	-.1417	-.0252	-.0234	.0007	-.0033	.0094	.0032	.0104	.0019	-.0015	.0007
3	-.0238	.0539	-.0062	.0281	.0226	.0126	.0071	.0008	.0047	-.0015	.0035	-.0013	.0017	-.0018	.0002	.0003
4	-.0269	-.0219	.0266	.0023	.0215	-.0022	.0045	-.0010	.0018	-.0002	.0006	.0001	.0009	.0003	.0002	.0011
5	-.0077	-.0123	-.0002	-.0116	-.0040	-.0035	-.0049	-.0020	-.0012	-.0015	-.0007	.0013	.0002	.0009	.0009	-.0001
6	-.0011	.0092	.0026	-.0007	.0988	-.1854	.0012	-.0011	-.0001	-.0020	.0000	-.0016	-.0078	.0182	.0009	-.0003
7	.0052	-.0045	.0037	-.0029	.0039	-.0077	-.0001	-.0021	-.0016	-.0006	-.0009	-.0004	-.0004	.0001	.0002	-.0002
8	-.0034	-.0030	.0004	-.0024	.0012	-.0043	-.0001	-.0010	-.0006	-.0002	-.0005	-.0004	-.0007	.0003	-.0002	-.0003
9	-.0003	.0005	-.0009	-.0001	-.0004	-.0038	-.0000	-.0001	.0003	-.0000	.0001	.0001	.0002	.0001	.0002	-.0002
10	-.0003	.0025	.0008	.0005	.0027	-.0022	.0006	-.0001	-.0006	-.0005	-.0003	-.0006	-.0004	-.0004	.0003	-.0002

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 46 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

Order	Label	Value
1	P 1U	-5306 2.5468
1	B	-1.0072
2	A	-2553
2	B	-7101
3	A	-4183
3	B	-2531 2.5907
4	P 2U	-4519 2.2086
4	B	-4278
5	A	-1558
5	B	-4278
6	P 3U	-4530 1.6208
6	B	-1124
7	A	-1077
7	B	-1077
8	P 4U	-2109 1.2151
8	B	-2666
9	A	-2871 1.1215
9	B	-2871 1.1215
10	P 5U	-2109 1.2151
10	B	-2666
11	A	-2871 1.1215
11	B	-2871 1.1215
12	P 6U	-2871 1.1215
12	B	-2871 1.1215
13	A	-2871 1.1215
13	B	-2871 1.1215
14	P 7U	-2871 1.1215
14	B	-2871 1.1215
15	P 8U	-1831
15	B	-8201
16	A	-0092
16	B	-0092
17	P 9U	-0034
17	B	-5598
18	A	-0025
18	B	-0025
19	P 10U	-0432
19	B	-3611
20	A	-0432
20	B	-3611
21	P 11U	-0432
21	B	-3611
22	A	-0432
22	B	-3611
23	P 12U	-0282
23	B	-1624
24	A	-0282
24	B	-1624
25	P 13U	-0282
25	B	-1624
26	A	-0282
26	B	-1624
27	P 14U	-0282
27	B	-1624
28	A	-0282
28	B	-1624
29	P 15U	-0282
29	B	-1624
30	A	-0282
30	B	-1624
31	P 16U	-0282
31	B	-1624
32	A	-0282
32	B	-1624
33	P 17U	-0282
33	B	-1624
34	A	-0282
34	B	-1624
35	P 18U	-0282
35	B	-1624
36	A	-0282
36	B	-1624
37	P 19U	-0282
37	B	-1624
38	A	-0282
38	B	-1624
39	P 20U	-0282
39	B	-1624
40	A	-0282
40	B	-1624
41	P 21U	-0282
41	B	-1624
42	A	-0282
42	B	-1624
43	P 22U	-0282
43	B	-1624
44	A	-0282
44	B	-1624
45	P 23U	-0282
45	B	-1624
46	A	-0282
46	B	-1624
47	P 24U	-0282
47	B	-1624
48	A	-0282
48	B	-1624
49	P 25U	-0282
49	B	-1624
50	A	-0282
50	B	-1624
51	P 26U	-0282
51	B	-1624
52	A	-0282
52	B	-1624
53	P 27U	-0282
53	B	-1624
54	A	-0282
54	B	-1624
55	P 28U	-0282
55	B	-1624
56	A	-0282
56	B	-1624
57	P 29U	-0282
57	B	-1624
58	A	-0282
58	B	-1624
59	P 30U	-0282
59	B	-1624
60	A	-0282
60	B	-1624
61	P 31U	-0282
61	B	-1624
62	A	-0282
62	B	-1624
63	P 32U	-0282
63	B	-1624
64	A	-0282
64	B	-1624
65	P 33U	-0282
65	B	-1624
66	A	-0282
66	B	-1624
67	P 34U	-0282
67	B	-1624
68	A	-0282
68	B	-1624
69	P 35U	-0282
69	B	-1624
70	A	-0282
70	B	-1624
71	P 36U	-0282
71	B	-1624
72	A	-0282
72	B	-1624
73	P 37U	-0282
73	B	-1624
74	A	-0282
74	B	-1624
75	P 38U	-0282
75	B	-1624
76	A	-0282
76	B	-1624
77	P 39U	-0282
77	B	-1624
78	A	-0282
78	B	-1624
79	P 40U	-0282
79	B	-1624
80	A	-0282
80	B	-1624
81	P 41U	-0282
81	B	-1624
82	A	-0282
82	B	-1624
83	P 42U	-0282
83	B	-1624
84	A	-0282
84	B	-1624
85	P 43U	-0282
85	B	-1624
86	A	-0282
86	B	-1624
87	P 44U	-0282
87	B	-1624
88	A	-0282
88	B	-1624
89	P 45U	-0282
89	B	-1624
90	A	-0282
90	B	-1624
91	P 46U	-0282
91	B	-1624
92	A	-0282
92	B	-1624
93	P 47U	-0282
93	B	-1624
94	A	-0282
94	B	-1624
95	P 48U	-0282
95	B	-1624
96	A	-0282
96	B	-1624
97	P 49U	-0282
97	B	-1624
98	A	-0282
98	B	-1624
99	P 50U	-0282
99	B	-1624
100	A	-0282
100	B	-1624

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 21 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2945	344.1	2.4102	341.0	2.0415	344.7	1.5100	341.8	1.1937	348.7	1.0417	344.3	.9944	350.5
2	.9908	242.3	.7344	231.8	.4150	243.1	.2072	233.1	.1042	245.9	.0842	235.3	.0610	250.0
3	.0877	148.2	.0420	146.5	.0167	236.5	.0136	241.9	.0115	265.8	.0087	219.7	.0124	291.0
4	.0223	149.4	.0129	146.1	.0114	202.3	.0032	171.2	.0019	284.0	.0031	239.9	.0040	282.8
5	.0115	83.4	.0127	58.6	.0089	93.9	.0042	43.5	.0043	95.1	.0073	74.1	.0070	102.6
6	.0059	19.3	.0117	332.1	.0054	355.5	.0045	327.6	.0052	3.5	.0034	339.3	.0086	357.0
7	.0035	277.6	.0013	298.1	.0013	4.4	.0025	324.2	.0032	15.8	.0025	342.5	.0018	44.1
8	.0041	287.9	.0027	244.2	.0028	325.9	.0025	222.2	.0020	348.2	.0009	283.0	.0017	349.8
9	.0020	175.4	.0029	144.6	.0035	174.9	.0020	30.1	.0004	286.8	.0015	214.1	.0003	225.4
10	.0018	8.6	.0016	344.2	.0016	146.7	.0031	317.1	.0006	26.4	.0015	313.3	.0005	14.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7952	345.2	.5107	355.0	.3294	358.4	.1521	10.1	.0539	19.5	.0127	149.4
2	.0369	235.1	.0073	248.8	.0024	113.8	.0112	86.4	.0116	70.3	.0035	277.1
3	.0077	265.5	.0058	305.8	.0041	309.0	.0025	316.5	.0043	306.2	.0006	197.7
4	.0022	276.2	.0026	336.8	.0017	6.8	.0017	57.3	.0024	354.0	.0009	5.3
5	.0058	66.8	.0040	99.3	.0013	137.1	.0026	242.7	.0003	151.1	.0007	321.2
6	.0026	355.0	.0018	48.3	.0021	38.7	.0024	31.8	.0018	40.3	.0037	28.1
7	.0024	359.9	.0025	55.4	.0014	89.3	.0016	151.2	.0004	111.2	.0001	75.3
8	.0013	345.5	.0013	64.3	.0007	78.3	.0003	141.0	.0004	344.9	.0008	13.8
9	.0007	9.9	.0003	283.0	.0004	356.5	.0008	19.9	.0001	264.0	.0003	29.2
10	.0011	314.6	.0005	68.5	.0008	124.6	.0014	141.6	.0001	152.3	.0001	123.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0744	165.8	2.1548	161.1	2.3330	168.6	.6815	166.0	.3712	177.8	.1765	181.9	.0720	201.2	.0149	299.2
2	.8869	240.9	.5200	230.5	.2765	239.2	.0344	227.1	.0034	168.2	.0099	71.3	.0106	79.4	.0017	294.0
3	.0589	336.2	.0287	347.6	.0259	60.9	.0072	83.3	.0049	107.5	.0038	109.7	.0025	136.2	.0003	28.8
4	.0347	129.1	.0267	85.1	.0216	95.7	.0046	102.0	.0018	96.2	.0006	81.1	.0009	70.0	.0011	9.3
5	.0145	211.8	.0116	180.8	.0054	228.5	.0052	248.0	.0019	320.8	.0015	330.7	.0010	10.2	.0009	98.8
6	.0092	353.1	.0027	105.5	.2101	152.0	.0016	132.3	.0020	183.0	.0016	179.2	.0198	336.8	.0009	107.7
7	.0069	130.5	.0047	128.2	.0086	153.2	.0021	181.5	.0017	247.5	.0010	249.3	.0004	282.5	.0003	133.6
8	.0045	229.4	.0024	170.6	.0045	164.3	.0010	185.6	.0006	252.6	.0007	235.4	.0007	292.1	.0003	215.9
9	.0006	323.2	.0009	260.5	.0038	186.5	.0001	209.8	.0003	96.4	.0001	48.3	.0002	72.3	.0002	135.8
10	.0026	352.7	.0010	57.4	.0035	128.6	.0006	99.4	.0008	226.8	.0007	202.4	.0005	228.7	.0004	126.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 46 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.6014	348.2	2.6980	343.8	2.2544	348.4	1.6829	344.4	1.2333	350.2	1.1577	345.6	.9989	346.4
2	1.0933	247.1	.8242	239.5	.4553	250.0	.2336	241.2	.1129	256.4	.1035	245.6	.0710	248.8
3	.0959	177.8	.0595	185.2	.0428	260.6	.0340	254.2	.0233	271.8	.0172	247.1	.0159	259.8
4	.0458	161.2	.0369	150.2	.0224	180.8	.0130	155.4	.0036	166.1	.0049	101.8	.0024	63.3
5	.0215	76.8	.0192	46.2	.0102	61.7	.0099	8.6	.0045	56.5	.0075	72.2	.0043	65.3
6	.0140	332.1	.0173	7.9	.0061	355.3	.0014	25.2	.0066	29.8	.0073	346.4	.0048	348.2
7	.0015	198.3	.0022	189.0	.0008	23.8	.0033	351.2	.0015	336.0	.0011	85.9	.0007	75.6
8	.0008	110.6	.0027	112.0	.0017	59.7	.0033	180.6	.0021	94.7	.0034	33.2	.0018	359.4
9	.0053	30.8	.0056	6.1	.0037	16.5	.0038	30.6	.0020	338.4	.0017	160.0	.0012	151.7
10	.0051	303.3	.0061	278.3	.0010	40.9	.0035	268.2	.0004	231.6	.0007	309.4	.0009	305.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8403	347.4	.5609	356.3	.3611	.5	.1681	14.9	.0540	31.4	.0194	150.2
2	.0392	257.1	.0103	296.8	.0070	21.1	.0165	59.4	.0136	55.3	.0085	240.8
3	.0154	273.9	.0128	302.4	.0094	309.2	.0063	323.2	.0047	309.9	.0017	240.6
4	.0032	351.7	.0029	289.2	.0013	304.9	.0008	55.8	.0019	334.7	.0019	357.4
5	.0053	55.5	.0024	89.7	.0016	145.5	.0027	192.5	.0012	148.0	.0007	248.4
6	.0064	350.3	.0018	64.7	.0021	113.2	.0033	136.8	.0021	74.1	.0007	54.3
7	.0003	32.4	.0011	106.6	.0003	97.9	.0005	298.6	.0004	324.2	.0003	336.5
8	.0021	294.4	.0010	242.5	.0021	267.5	.0032	275.4	.0009	231.8	.0008	347.7
9	.0007	131.4	.0012	105.2	.0005	84.2	.0005	343.0	.0006	62.5	.0003	150.4
10	.0011	303.7	.0007	58.3	.0007	81.1	.0009	100.0	.0003	20.8	.0004	198.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.1347	167.6	2.0844	163.8	1.1300	166.7	.7368	169.1	.3858	181.1	.1842	186.9	.0746	209.3	.0299	307.8
2	.8983	244.5	.4958	235.0	.1555	228.0	.0357	227.3	.0045	124.4	.0112	74.4	.0132	69.1	.0076	257.0
3	.0470	347.1	.0236	37.3	.0237	91.6	.0159	105.6	.0110	118.7	.0076	121.5	.0052	126.1	.0018	49.8
4	.0419	150.2	.0258	118.7	.0204	102.1	.0058	123.6	.0031	193.1	.0024	152.0	.0015	179.2	.0023	340.6
5	.0219	182.8	.0159	145.1	.0089	158.9	.0053	227.9	.0035	308.7	.0020	287.3	.0011	338.4	.0021	18.3
6	.0134	210.9	.0139	189.4	.0047	196.3	.0024	192.7	.0012	192.9	.0008	206.1	.0010	216.3	.0013	295.0
7	.0087	280.7	.0039	291.8	.0002	149.0	.0013	353.9	.0010	14.7	.0013	9.7	.0006	10.3	.0003	355.0
8	.0036	323.4	.0036	323.3	.0075	77.7	.0012	15.8	.0019	353.9	.0008	20.7	.0005	324.5	.0015	4.0
9	.0022	233.7	.0001	154.3	.0013	280.1	.0015	218.0	.0004	18.2	.0004	281.6	.0004	356.6	.0012	83.4
10	.0019	.8	.0027	228.2	.0028	300.3	.0009	113.0	.0003	73.8	.0004	226.1	.0001	316.6	.0011	93.1

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 1 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.1146	2.9228	.8882	1.9101	.4748	1.0152	.4156	.7298	.3693	.5220	.3446	.4918	.3283	.4324
2	1.5176	1.8605	1.4770	1.6879	1.1482	.8740	.6577	.7770	.4399	.5659	.3024	.5406	.2999	.4562
3	-.7883	1.3554	-.7200	1.0603	-.3044	.5654	-.3212	.2846	-.2335	.1358	-.2175	.0631	-.1796	.0611
4	-.7787	.3612	-.6875	.2856	-.2599	.1768	-.1823	.0598	-.0865	.0417	-.0770	.0317	-.0614	.0353
5	-.6311	-.4117	-.5397	-.4550	-.2507	-.1665	-.1307	-.1775	-.0989	-.1205	-.0602	-.1360	-.0666	-.1154
6	-.0074	-.4109	.0580	-.4229	.0183	-.1547	.0822	-.0850	.0806	-.0567	.0940	-.0255	.0829	-.0307
7	.2059	-.3277	.3044	-.2876	.1020	-.1394	.0731	-.0235	.0407	.0019	.0343	.0201	.0308	.0132
8	.3746	.0881	.3733	.1923	.1767	.0752	.0645	.0837	.0394	.0517	.0118	.0641	.0228	.0552
9	.0165	.2332	-.0272	.2702	-.0196	.1180	-.0584	.0524	-.0436	.0392	-.0608	.0121	-.0550	.0232
10	-.0739	.1169	-.1371	.1331	-.0479	.0504	-.0344	-.0047	-.0300	-.0127	-.0192	-.0320	-.0225	-.0273

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2474	.3691	.1647	.3173	.0621	.3125	-.0405	.3076	-.0955	.3006	-.1003	.3325
2	.1898	.3820	.0649	.2103	-.0162	.0706	-.0973	-.0691	-.1164	-.1075	-.1291	-.1009
3	-.1563	.0239	-.0962	-.0139	-.0317	-.0225	.0327	-.0312	.0200	-.0303	.0124	-.0187
4	-.0578	-.0051	-.0234	-.0307	-.0129	-.0311	-.0023	-.0315	.0276	-.0535	.0193	-.0461
5	-.0033	-.1033	.0346	-.0557	.0462	-.0244	.0578	.0068	.0513	.0468	.0359	.0364
6	.0692	.0135	.0402	.0360	.0148	.0368	-.0106	.0376	-.0294	.0211	-.0201	.0095
7	.0115	.0211	-.0087	.0216	-.0094	.0174	-.0100	.0133	-.0145	.0084	-.0058	.0100
8	-.0073	.0447	-.0181	.0187	-.0270	.0080	-.0359	-.0027	-.0250	-.0285	-.0228	-.0186
9	-.0469	-.0086	-.0259	-.0150	-.0109	-.0278	.0041	-.0407	.0366	-.0203	.0281	-.0191
10	-.0026	-.0291	.0031	-.0242	.0194	-.0110	.0358	.0021	.0134	.0317	.0119	.0271

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1753	.3567	.0626	-.3505	-.0337	-.9121	-.0323	-.3978	-.0598	-.2276	-.0624	-.0804	-.0733	-.0501	-.0964	-.2093
2	-.1080	.2141	-.2179	-.0443	-.2549	-.1644	-.0704	-.0903	-.0472	-.0690	-.0349	-.0637	-.0484	-.0671	-.0678	-.0894
3	-.1697	.1993	-.0671	.0822	.0104	.0371	.0184	.0030	-.0193	-.0012	.0187	-.0029	.0205	-.0083	.0220	-.0114
4	-.0780	.0112	-.0157	-.0076	.0129	-.0164	.0088	-.0041	.0074	-.0035	.0083	-.0037	.0110	-.0075	.0208	-.0148
5	-.0560	-.0638	-.0144	-.0130	-.0025	.0185	-.0008	.0174	-.0024	.0113	.0013	.0114	.0058	.0158	.0076	.0178
6	.0207	-.0395	.0066	-.0116	-.0091	-.0012	-.0064	-.0010	-.0063	.0000	-.0059	-.0019	-.0089	.0003	-.0139	-.0019
7	.0219	-.0116	.0078	.0017	-.0019	.0004	-.0019	.0000	-.0014	.0001	-.0013	.0002	-.0024	.0008	-.0044	.0022
8	.0272	.0191	.0051	.0042	-.0004	-.0073	.0005	-.0043	-.0003	-.0035	.0007	-.0041	-.0020	-.0065	-.0034	-.0138
9	-.0101	.0204	-.0009	.0058	.0086	.0012	.0039	.0020	.0044	.0010	.0050	.0030	.0087	-.0002	.0179	.0011
10	-.0092	.0062	-.0039	.0031	.0011	.0052	-.0015	.0024	-.0009	.0035	-.0026	.0043	-.0008	.0081	-.0055	.0158

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 54 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0660	5.7323	-.0568	4.6390	-.0275	2.4886	-.0169	1.7119	.0369	1.1568	-.0162	1.1275	.0294	.9857
2	.3847	.6677	.4265	.8179	.6096	.3917	.3785	.3554	.2211	.2141	.1393	.1836	.1221	.1462
3	-.7478	1.1814	-.9110	.8772	-.3535	.5177	-.3367	.3098	-.1897	.1555	-.1632	.1003	-.1240	.0704
4	-.5718	-.3453	-.4494	-.5207	-.1938	-.1793	-.1324	-.2092	-.0591	-.1177	-.0273	-.0997	-.0119	-.0774
5	.0007	-.1361	.1391	-.1719	.0660	-.0902	.0956	-.0653	.0554	-.0297	.0594	-.0204	.0457	-.0110
6	-.0970	-.1798	.0199	-.1260	.0379	-.0096	.0532	.0169	.0297	.0192	.0301	.0403	.0191	.0256
7	.1898	-.1612	.2191	-.0367	.0540	-.0016	.0150	.0585	-.0001	.0348	-.0226	.0308	-.0082	.0232
8	.1417	.1121	.0433	.1887	-.0209	.0717	-.0543	.0374	-.0312	.0119	-.0286	-.0117	-.0247	.0022
9	-.0009	.0849	-.0877	.0406	-.0406	.0050	-.0354	-.0419	-.0067	-.0239	.0096	-.0240	-.0043	-.0245
10	-.0497	.0830	-.0510	.0041	-.0001	.0071	.0232	-.0242	.0146	-.0066	.0176	-.0051	.0174	-.0105

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0104	.8112	.0161	.5672	.0101	.3821	.0040	.1971	-.0129	.1403	-.0150	.1509
2	.0414	.1025	-.0338	.0417	-.0441	.0095	-.0544	-.0226	-.0722	-.0392	-.0458	-.0247
3	-.0828	.0120	-.0205	-.0598	.0060	-.0570	.0326	-.0542	.0311	-.0306	.0134	-.0085
4	.0159	-.0472	.0577	-.0052	.0431	.0117	.0285	.0287	-.0009	.0115	-.0063	.0081
5	.0318	.0069	.0051	.0366	-.0050	.0216	-.0151	.0067	.0051	-.0096	-.0038	-.0072
6	.0066	.0251	-.0207	.0087	-.0103	.0019	.0001	-.0049	.0042	.0086	.0037	-.0008
7	-.0151	.0117	-.0162	-.0093	-.0073	-.0045	.0015	.0004	-.0035	.0001	-.0001	.0011
8	-.0167	-.0133	.0063	-.0183	.0048	-.0071	.0033	.0042	.0006	.0045	-.0003	.0014
9	.0095	-.0165	.0177	.0056	.0056	.0051	-.0064	.0047	-.0082	-.0036	-.0034	-.0026
10	.0138	.0029	-.0066	.0130	-.0056	.0036	-.0047	-.0057	.0067	-.0082	.0033	-.0036

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0140	.6953	.0451	-.3123	.0487	-.4835	.0172	-.5007	-.0072	-.3094	-.0225	-.1626	-.0276	-.0477	-.0238	.0727
2	-.3228	.0313	-.2654	-.0598	-.1075	-.0485	-.0559	-.0425	-.0308	-.0278	-.0170	-.0252	-.0176	-.0217	-.0203	-.0216
3	-.1328	.1576	-.0453	.0571	.0031	.0072	.0143	.0062	.0118	-.0081	.0125	-.0045	.0126	-.0064	.0131	-.0022
4	-.0421	-.0562	-.0044	-.0149	.0030	-.0010	-.0005	-.0041	-.0002	.0059	-.0016	.0056	-.0014	.0078	-.0039	.0087
5	.0135	-.0131	-.0014	-.0003	-.0016	-.0013	-.0028	-.0011	-.0018	.0001	-.0031	-.0013	-.0043	-.0019	-.0061	-.0047
6	.0005	-.0086	.0030	-.0021	.0008	-.0026	-.0001	-.0014	-.0005	.0001	.0008	-.0006	.0013	-.0015	.0037	-.0023
7	.0109	-.0032	.0039	-.0011	-.0006	-.0011	-.0016	.0001	-.0002	.0001	-.0003	-.0002	-.0000	.0001	-.0002	.0009
8	.0008	.0079	.0004	.0032	.0016	-.0005	.0010	.0004	.0003	-.0007	.0002	-.0002	-.0000	.0001	-.0008	-.0004
9	-.0051	.0013	-.0014	-.0006	-.0001	-.0004	-.0001	.0004	-.0004	.0008	-.0003	-.0001	-.0005	-.0000	-.0003	-.0007
10	-.0041	.0004	-.0033	-.0010	-.0022	.0010	-.0014	.0001	-.0003	.0005	-.0002	-.0002	.0002	-.0006	.0009	-.0008

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 1 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.1281	20.9	2.1065	24.9	1.1207	25.1	.8399	29.7	.6394	35.3	.6005	35.0	.5429	37.2
2	2.4010	39.2	2.2429	41.2	1.4430	52.7	1.0180	40.2	.7167	37.9	.6195	29.2	.5459	33.3
3	1.5679	329.8	1.2816	325.8	.6422	331.7	.4292	311.5	.2701	300.2	.2265	286.2	.1898	288.8
4	.8584	294.9	.7445	292.6	.3143	304.2	.1919	288.2	.0960	295.7	.0833	292.4	.0709	299.9
5	.7535	234.9	.7059	229.9	.3009	236.4	.2204	216.4	.1559	219.4	.1488	203.9	.1333	210.0
6	.4109	181.0	.4269	172.2	.1558	173.3	.1183	136.0	.0985	125.1	.0974	105.2	.0884	110.3
7	.3870	147.9	.4188	133.4	.1727	143.8	.0767	107.8	.0408	87.3	.0398	59.6	.0335	66.8
8	.3848	76.8	.4200	62.7	.1921	66.9	.1057	37.6	.0650	37.3	.0651	10.4	.0597	22.4
9	.2338	4.0	.2715	354.2	.1196	350.6	.0784	311.9	.0586	311.9	.0620	281.3	.0597	292.8
10	.1383	327.7	.1910	314.2	.0695	316.4	.0347	262.1	.0326	247.1	.0374	211.0	.0354	219.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4443	33.8	.3575	27.4	.3186	11.2	.3103	352.5	.3154	342.4	.3473	343.2
2	.4265	26.4	.2201	17.1	.0724	347.1	.1194	234.6	.1584	227.3	.1638	232.0
3	.1581	278.7	.0972	261.8	.0389	234.6	.0452	133.7	.0363	146.6	.0224	146.6
4	.0580	264.9	.0386	217.3	.0337	202.5	.0316	184.1	.0602	152.7	.0500	157.3
5	.1034	181.8	.0456	148.2	.0523	117.9	.0582	83.3	.0695	47.6	.0512	44.6
6	.0704	79.0	.0540	48.1	.0397	31.9	.0390	344.2	.0342	305.8	.0222	295.2
7	.0241	28.5	.0233	338.0	.0198	331.7	.0166	322.8	.0168	299.9	.0114	330.2
8	.0453	350.7	.0261	316.0	.0282	284.6	.0360	265.7	.0379	221.3	.0294	230.7
9	.0477	259.6	.0299	239.9	.0299	201.3	.0409	174.2	.0418	119.1	.0340	124.2
10	.0292	185.2	.0244	172.8	.0224	119.6	.0359	86.7	.0344	23.0	.0296	23.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3975	26.2	.3560	169.9	.9127	182.1	.3991	184.6	.2353	194.7	.1018	217.8	.0888	304.4	.2304	335.3
2	.2398	333.2	.2223	258.5	.3034	237.2	.1145	217.9	.0836	214.4	.0726	208.7	.0827	215.8	.1122	217.2
3	.2618	319.6	.1061	320.8	.0385	15.7	.0186	80.7	.0193	93.5	.0189	98.9	.0221	112.1	.0248	117.4
4	.0788	278.2	.0174	244.2	.0209	141.8	.0097	115.3	.0082	115.1	.0091	113.9	.0133	124.4	.0255	125.4
5	.0849	221.3	.0194	227.9	.0187	7.6	.0125	3.5	.0115	12.1	.0115	6.6	.0169	20.1	.0288	15.2
6	.0446	152.3	.0133	150.3	.0091	262.6	.0064	261.3	.0063	270.2	.0062	252.2	.0089	272.1	.0141	262.2
7	.0247	117.9	.0080	77.5	.0019	282.6	.0019	271.2	.0016	275.2	.0013	279.1	.0025	288.0	.0049	296.1
8	.0332	54.8	.0066	50.3	.0073	183.4	.0044	173.3	.0035	185.0	.0042	170.4	.0068	197.4	.0143	194.0
9	.0228	333.7	.0058	351.6	.0087	81.9	.0044	62.4	.0045	76.8	.0058	59.2	.0087	91.1	.0179	86.4
10	.0111	303.8	.0050	308.4	.0053	12.2	.0029	327.5	.0036	346.3	.0050	328.7	.0082	354.5	.0168	340.7

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 54 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	5.7327	359.3	4.6393	359.3	2.4887	359.4	1.7120	359.4	1.1574	1.8	1.1276	359.2	.9861	1.7
2	.7706	29.9	.9225	27.5	.7246	57.3	.5192	46.8	.3077	45.9	.2304	37.2	.1905	39.9
3	1.3982	327.7	1.2647	313.9	.8269	325.7	.4575	312.6	.2453	309.4	.1916	301.6	.1426	299.6
4	.6680	238.9	.6678	220.8	.2640	227.2	.2476	212.3	.1317	206.7	.1034	195.3	.0783	188.8
5	.1361	179.7	.2211	141.0	.1118	143.8	.1158	124.3	.0629	118.2	.0628	109.0	.0470	103.5
6	.2042	208.3	.1275	171.0	.0391	104.2	.0558	72.4	.0354	57.1	.0503	36.8	.0319	36.7
7	.2490	130.3	.2221	99.5	.0540	91.7	.0604	14.4	.0348	39.9	.0381	32.7	.0246	340.5
8	.1807	51.7	.1936	12.9	.0746	16.2	.0459	304.6	.0334	290.9	.0309	247.8	.0248	275.1
9	.0849	359.4	.0946	294.9	.0409	277.0	.0549	220.2	.0248	195.7	.0259	158.3	.0249	189.9
10	.0968	329.1	.0512	274.6	.0071	359.0	.0335	136.1	.0160	114.3	.0184	106.1	.0203	121.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8112	359.3	.5674	1.6	.3823	1.5	.1971	1.2	.1409	354.7	.1517	354.3
2	.1106	22.0	.0537	320.9	.0451	282.2	.0589	247.4	.0821	241.5	.0703	249.4
3	.0837	278.3	.0632	199.0	.0573	174.0	.0633	149.0	.0436	134.5	.0159	122.3
4	.0498	161.4	.0580	95.2	.0447	74.8	.0404	44.7	.0115	355.4	.0103	322.1
5	.0325	77.7	.0369	7.9	.0222	347.0	.0165	294.0	.0108	152.1	.0082	207.6
6	.0259	14.7	.0224	292.8	.0105	280.6	.0049	178.4	.0095	25.8	.0038	102.5
7	.0191	307.6	.0187	240.1	.0086	238.7	.0015	75.0	.0035	271.6	.0011	355.0
8	.0214	231.6	.0194	161.0	.0085	145.8	.0053	37.8	.0045	7.1	.0014	346.2
9	.0190	150.1	.0185	72.5	.0076	47.7	.0079	306.0	.0089	246.5	.0042	232.9
10	.0141	78.1	.0146	333.2	.0067	302.8	.0074	219.4	.0106	140.7	.0049	137.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.6954	1.2	.3156	171.8	.4860	174.2	.5009	178.0	.3094	181.3	.1641	187.9	.0552	210.1	.0765	341.9
2	.3243	275.5	.2720	257.3	.1179	245.7	.0702	232.7	.0415	227.8	.0304	214.0	.0280	219.1	.0296	223.3
3	.2061	319.9	.0729	321.6	.0078	23.4	.0156	113.4	.0143	124.4	.0133	109.9	.0142	117.0	.0132	99.7
4	.0702	216.9	.0156	196.4	.0032	108.9	.0042	353.3	.0059	358.5	.0058	344.3	.0080	349.5	.0096	335.9
5	.0188	134.1	.0014	256.8	.0021	308.5	.0030	249.3	.0018	273.3	.0034	246.9	.0047	245.7	.0077	232.4
6	.0086	176.5	.0037	125.7	.0027	163.0	.0014	185.0	.0005	276.2	.0010	126.7	.0020	139.4	.0043	122.2
7	.0114	106.4	.0039	91.1	.0013	209.2	.0016	274.1	.0003	296.9	.0004	229.5	.0001	354.7	.0009	11.3
8	.0079	6.1	.0033	10.0	.0017	107.3	.0011	65.3	.0007	153.0	.0003	140.6	.0001	196.1	.0009	242.7
9	.0053	284.1	.0017	291.8	.0004	344.7	.0005	343.1	.0009	332.3	.0003	245.2	.0005	265.9	.0008	205.0
10	.0041	276.1	.0034	252.3	.0024	294.1	.0014	274.3	.0006	331.9	.0003	221.0	.0006	160.9	.0012	132.2

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 2 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.0567	3.3327	.6388	2.2265	.4914	1.2458	.4179	.9481	.4141	.6856	.3627	.6836	.3805	.5939
2	.9742	1.7778	1.0512	1.5366	.8955	.8558	.3700	.8208	.2759	.5830	.0829	.5569	.1293	.4674
3	-.8962	1.4102	-.8622	1.1649	-.3418	.6666	-.4520	.2662	-.2963	.1548	-.2903	.0144	-.2215	.0407
4	-1.1696	-.0393	-1.0269	-.2100	-.5009	.0074	-.2810	-.2008	-.1717	-.1046	-.0854	-.1444	-.1024	-.0848
5	-.2064	-.7385	-.0317	-.6991	-.0667	-.3501	-.1320	-.2373	.0616	-.1719	.1344	-.1093	.0727	-.1349
6	.2949	-.2382	.3334	-.1741	.1864	-.0891	.1639	.0589	.1228	.0235	.0829	.0967	.1024	.0513
7	.2709	.0692	.2184	.1083	.1155	.0841	.0193	.1373	.0413	.0894	-.0324	.0843	.0094	.0775
8	.0308	.1220	.0504	.1522	-.0030	.0955	-.1113	.0407	-.0441	.0798	-.0942	.0044	-.0448	.0530
9	-.0007	.0529	-.0293	.1445	-.0303	.0371	-.0488	-.0708	-.0802	-.0457	-.0149	-.0943	-.0420	-.0403
10	-.0447	.0536	-.1607	.0499	-.0585	.0103	.0309	-.0660	.0182	-.0714	.0742	-.0249	.0361	-.0581

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2652	.5314	.2075	.4134	.1004	.3583	-.0068	.3033	-.1226	.2629	-.1391	.2838
2	-.0021	.3649	-.0536	.1843	-.0933	.0531	-.1329	-.0782	-.0840	-.1659	-.0896	-.1455
3	-.1589	-.0361	-.0711	-.0483	-.0110	-.0635	.0490	-.0787	.0792	-.0228	.0518	-.0204
4	-.0472	-.0911	-.0239	-.0610	.0202	-.0350	.0643	-.0089	.0424	.0235	.0388	.0162
5	.1139	-.0623	.0947	-.0343	.0584	.0220	.0221	.0783	-.0383	.0530	-.0364	.0415
6	.0342	.0894	.0119	.0769	-.0279	.0454	-.0676	.0138	-.0353	-.0405	-.0221	-.0349
7	-.0347	.0476	-.0261	.0254	-.0226	-.0085	-.0190	-.0425	.0304	-.0290	.0244	-.0188
8	-.0718	-.0103	-.0548	-.0082	.0120	-.0203	.0309	-.0325	.0305	.0314	.0230	.0249
9	.0118	-.0759	.0123	-.0608	.0211	-.0175	.0300	.0258	-.0317	.0187	-.0275	.0164
10	.0581	.0024	.0410	.0054	.0147	.0152	-.0115	.0250	-.0136	-.0191	-.0081	-.0184

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1706	.4128	.0753	-.3706	-.0491	-1.0080	-.0394	-.4514	-.1022	-.2680	-.1022	-.1199	-.1166	.0146	-.1426	.1638
2	-.2066	.1884	-.2027	-.0705	-.1793	-.1715	-.0123	-.0937	-.0025	-.0809	.0112	-.0781	-.0112	-.0914	-.0168	-.1231
3	-.1992	.1529	-.0809	.0457	.0126	.0197	.0200	.0087	.0203	.0045	.0198	.0085	.0299	.0005	.0417	.0041
4	-.1033	-.0516	-.0147	-.0226	.0059	.0070	.0031	.0075	.0038	.0061	.0031	.0079	.0092	.0119	.0133	.0249
5	.0145	-.0821	.0001	-.0240	-.0272	.0038	-.0152	-.0024	-.0140	.0045	-.0151	.0009	-.0194	.0087	-.0350	.0048
6	.0400	-.0008	.0159	.0012	.0047	-.0069	.0061	-.0074	.0015	-.0099	.0055	-.0105	-.0023	-.0175	.0054	-.0274
7	.0084	.0177	.0024	.0055	-.0012	.0263	.0012	.0022	.0040	.0025	.0054	.0054	.0122	-.0031	.0218	.0045
8	-.0084	.0096	-.0054	.0021	-.0014	-.0277	-.0034	-.0002	-.0028	.0046	-.0057	.0056	.0011	.0148	-.0084	.0213
9	-.0093	.0004	-.0044	-.0030	-.0035	.0128	-.0007	-.0031	-.0044	-.0019	-.0049	-.0057	-.0118	.0009	-.0181	-.0121
10	-.0022	-.0001	-.0008	.0013	.0025	-.0052	.0021	.0015	.0030	-.0019	.0052	-.0015	.0020	-.0082	.0113	-.0119

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 56 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0028	5.0914	-.0585	4.0236	.0290	2.3124	-.0365	1.8171	.0440	1.2614	-.0514	1.2148	.0350	1.0555
2	.3117	1.1148	.2858	1.2811	.4684	.4677	.0484	.5059	.0168	.2717	-.0417	.2182	-.0293	.1821
3	-1.0773	.9266	-1.2432	.4852	-.5421	.3363	-.4032	-.0015	-.1882	-.0094	-.1407	-.0665	-.1130	-.0475
4	-.4459	-.3514	-.2110	-.5242	-.0852	-.1924	.0443	-.1835	.0220	-.0729	.0551	-.0429	.0488	-.0386
5	-.1534	-.1696	.0029	-.1517	.0175	-.0409	.0872	.0059	.0390	-.0145	.0372	.0172	.0348	.0140
6	.0553	-.3805	.1931	-.2517	.0667	-.0557	.0419	.0710	.0414	.0495	-.0067	.0623	.0047	.0484
7	.3823	.0226	.2912	.2048	.0827	.0695	-.0781	.0502	-.0560	.0387	-.0554	-.0145	-.0436	.0030
8	.0100	.2594	-.1452	.2243	-.0453	.0827	-.0333	-.0544	-.0192	-.0374	.0149	-.0321	-.0016	-.0293
9	-.1038	.0361	-.1208	-.0659	-.0501	-.0351	.0262	-.0231	.0185	-.0075	.0191	.0061	.0186	-.0073
10	-.0608	.0056	-.0043	-.0405	.0208	-.0051	.0148	.0033	.0076	.0007	.0120	.0095	.0156	.0041

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0340	.8514	.0245	.5700	.0178	.3786	.0110	.1871	-.0335	.1302	-.0410	.1429
2	-.0638	.1121	-.0639	.0353	-.0533	-.0035	-.0426	-.0423	-.0385	-.0661	-.0416	-.0448
3	-.0539	-.0624	.0161	-.0660	.0386	-.0457	.0611	-.0255	.0392	.0032	.0171	.0129
4	.0457	-.0055	.0445	.0333	.0242	.0359	.0039	.0385	-.0048	-.0028	-.0112	-.0104
5	.0180	.0206	-.0119	.0183	-.0131	.0062	-.0143	-.0059	.0120	.0046	.0122	-.0003
6	-.0162	-.0362	-.0158	.0074	-.0072	.0012	.0014	-.0051	-.0049	.0059	-.0045	.0067
7	-.0294	-.0161	-.0138	-.0204	-.0027	-.0092	-.0084	.0019	-.0071	.0023	-.0035	-.0031
8	.0138	-.0220	.0213	-.0103	.0068	-.0007	-.0076	.0090	.0008	-.0111	.0044	-.0001
9	.0183	.0065	.0070	.0162	-.0018	.0038	-.0033	-.0085	-.0061	.0069	-.0032	.0018
10	.0020	.0127	-.0102	.0049	-.0042	.0011	.0019	-.0026	-.0018	-.0045	.0051	-.0051

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0076	.6888	.0757	-.3213	.0639	-.4846	.0287	-.5189	-.0320	-.3337	-.0504	-.1794	-.0617	-.0607	-.0524	.0619
2	-.3935	.0319	-.2651	-.0842	-.0871	-.0450	-.0207	-.0387	-.0008	-.0277	.0113	-.0244	.0082	-.0283	.0046	-.0299
3	-.1479	.0782	-.0545	.0281	-.0021	.0080	.0092	.0061	.0132	.0049	.0097	.0096	.0137	.0105	.0094	.0166
4	-.0200	-.0475	-.0023	-.0193	.0002	.0050	-.0002	-.0034	-.0030	.0009	-.0030	-.0018	-.0049	-.0007	-.0064	-.0049
5	.0034	-.0156	.0004	-.0050	-.0021	-.0023	-.0013	-.0005	.0017	.0018	.0002	.0013	.0023	.0006	.0053	.0012
6	.0052	-.0116	.0024	-.0012	.0015	-.0014	.0001	-.0035	-.0043	-.0025	-.0016	-.0018	-.0027	.0007	-.0038	.0005
7	.0133	.0038	.0013	.0018	-.0011	-.0008	-.0010	-.0004	.0018	-.0018	.0017	-.0009	.0011	-.0020	.0019	-.0031
8	-.0056	.0089	-.0034	.0036	.0002	.0008	-.0006	.0014	.0008	.0002	-.0001	.0014	.0014	.0018	.0018	.0036
9	-.0038	-.0021	-.0012	-.0013	.0009	.0005	-.0000	.0002	-.0002	.0005	-.0004	-.0004	-.0014	.0003	-.0034	-.0014
10	-.0006	-.0026	-.0017	-.0016	-.0012	.0004	-.0001	-.0002	.0011	-.0009	.0008	.0005	.0020	-.0006	.0040	.0001

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 2 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.4962	17.6	2.3164	16.0	1.3393	21.5	1.0545	23.4	.8009	31.1	.7738	28.0	.7053	32.6
2	2.0273	28.7	1.8618	34.4	1.2387	46.3	.9003	24.3	.6450	25.3	.5630	8.5	.4849	15.5
3	1.6709	327.6	1.4493	323.5	.7491	332.9	.5246	300.5	.3343	297.6	.2907	272.8	.2252	280.4
4	1.1703	268.1	1.0481	258.4	.5010	270.9	.3453	234.4	.2021	238.2	.1677	210.6	.1330	230.4
5	.7668	195.6	.6999	182.6	.3564	190.8	.2716	150.9	.1826	160.3	.1732	129.1	.1532	151.7
6	.3791	128.9	.3763	117.6	.2066	115.5	.1742	70.2	.1250	79.2	.1274	40.6	.1147	63.4
7	.2315	72.6	.2439	63.6	.1429	53.9	.1387	8.0	.0985	24.8	.0922	339.3	.0781	6.9
8	.1258	14.2	.1403	18.3	.0955	358.2	.1268	298.6	.1023	321.2	.0964	273.9	.0853	308.4
9	.0529	359.3	.1475	348.5	.0479	320.8	.0987	224.2	.0923	240.3	.0954	189.0	.0864	225.8
10	.0698	320.2	.1682	287.3	.0594	280.0	.0728	154.9	.0737	165.7	.0782	108.5	.0684	148.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.5940	26.5	.4625	26.7	.3721	15.6	.3034	358.7	.2901	335.0	.3161	333.9
2		.3649	359.7	.1920	343.8	.1073	299.6	.1542	239.5	.1859	206.9	.1709	211.6
3		.1630	257.2	.0859	235.8	.0644	189.9	.0927	148.1	.0825	106.1	.0556	111.5
4		.1026	207.4	.0653	201.4	.0404	150.0	.0649	97.9	.0484	61.0	.0420	67.4
5		.1298	118.7	.1007	109.9	.0624	89.4	.0813	15.7	.0654	324.1	.0552	318.7
6		.0957	70.9	.0778	58.8	.0532	328.4	.0690	281.6	.0537	221.0	.0413	212.4
7		.0589	323.9	.0364	314.2	.0241	249.3	.0466	204.1	.0420	133.6	.0308	127.5
8		.0726	261.8	.0554	261.5	.0336	210.4	.0448	136.5	.0438	44.2	.0339	42.8
9		.0768	171.2	.0621	188.6	.0275	129.7	.0394	49.3	.0368	300.5	.0321	300.8
10		.0582	87.7	.0413	82.5	.0211	44.2	.0275	335.2	.0235	215.5	.0201	203.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4467	22.5	.3782	168.5	1.0092	182.8	.4531	185.0	.2868	200.9	.1576	220.5	.1175	277.1	.2172	319.0
2	.2796	312.4	.2146	250.8	.2481	226.3	.0945	187.5	.0809	181.8	.0789	171.9	.0920	187.0	.1243	187.8
3	.2511	307.5	.0929	299.4	.0233	32.6	.0218	66.4	.0213	72.2	.0215	66.7	.0299	89.0	.0419	84.4
4	.1155	243.4	.0270	213.0	.0092	39.9	.0081	22.5	.0072	32.2	.0085	21.2	.0150	37.7	.0282	28.2
5	.0834	170.0	.0240	179.7	.0274	277.9	.0154	260.9	.0147	287.9	.0152	266.7	.0212	294.2	.0353	277.8
6	.0401	91.2	.0160	85.6	.0084	145.6	.0096	140.5	.0101	171.4	.0119	152.4	.0177	187.5	.0279	168.8
7	.0196	25.3	.0060	23.8	.0264	357.3	.0025	28.3	.0047	57.3	.0077	44.9	.0126	104.4	.0228	73.5
8	.0127	318.8	.0058	291.5	.0277	182.9	.0034	265.9	.0054	329.1	.0080	314.6	.0148	4.1	.0229	338.4
9	.0094	272.5	.0053	235.5	.0133	195.2	.0032	192.9	.0048	246.4	.0075	220.9	.0118	274.5	.0218	236.3
10	.0022	268.1	.0015	328.6	.0057	154.6	.0026	55.0	.0035	122.5	.0054	105.9	.0085	166.3	.0164	136.4

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 56 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	5.0914	360.0	4.0240	359.2	2.3126	.7	1.8175	358.8	1.2622	2.0	1.2178	357.6	1.0561	1.9
2	1.1575	15.6	1.3126	12.6	.8157	35.1	.5082	5.5	.2722	3.5	.2268	344.2	.1845	350.9
3	1.4209	310.7	1.3346	291.3	.6379	301.8	.4032	269.8	.1885	267.1	.1556	244.7	.1226	247.2
4	.5836	233.0	.5651	201.9	.2104	203.9	.1888	166.4	.0761	163.2	.0698	127.9	.0622	128.3
5	.2287	222.1	.1518	178.9	.0444	156.8	.0874	86.2	.0416	110.4	.0410	65.2	.0375	68.1
6	.3845	171.7	.3172	142.5	.0869	129.8	.0824	30.5	.0447	40.0	.0627	353.9	.0486	5.5
7	.3830	86.6	.3559	54.9	.1081	50.0	.0928	302.7	.0681	304.6	.0573	355.3	.0437	274.0
8	.2596	2.2	.2672	327.1	.0943	331.3	.0438	211.4	.0420	207.2	.0353	155.1	.0293	183.1
9	.1099	289.2	.1376	241.4	.0612	235.0	.0349	131.3	.0200	112.1	.0200	72.4	.0200	111.5
10	.0610	275.3	.0407	186.1	.0214	103.8	.0152	77.4	.0076	84.8	.0153	51.4	.0162	75.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8520	357.7	.5705	2.5	.3790	2.7	.1875	3.4	.1344	345.6	.1486	344.0
2	.1290	330.3	.0730	298.9	.0534	266.2	.0601	225.2	.0765	210.2	.0612	222.9
3	.0824	220.8	.0679	166.3	.0599	139.8	.0662	112.7	.0393	85.3	.0214	52.9
4	.0460	96.9	.0556	53.2	.0433	33.9	.0387	5.7	.0056	240.1	.0152	227.2
5	.0274	41.2	.0218	326.9	.0145	295.3	.0155	247.6	.0128	69.2	.0122	91.6
6	.0397	335.8	.0175	295.2	.0073	279.3	.0053	164.9	.0076	320.4	.0080	326.3
7	.0335	241.3	.0246	214.1	.0096	196.3	.0087	77.0	.0074	288.0	.0047	228.6
8	.0260	147.9	.0237	115.7	.0069	95.5	.0118	319.6	.0111	175.7	.0044	91.9
9	.0194	70.5	.0176	23.4	.0042	25.5	.0091	201.3	.0092	41.5	.0037	298.7
10	.0129	9.1	.0113	295.5	.0043	285.1	.0032	144.5	.0048	201.5	.0072	135.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4888	.6	.3301	166.7	.4888	172.5	.5197	176.8	.3353	185.5	.1863	195.7	.0866	225.5	.0811	319.8
2	.3948	274.6	.2781	252.4	.0981	242.7	.0439	208.2	.0277	181.7	.0249	155.3	.0294	143.9	.0303	171.3
3	.1673	297.9	.0413	297.3	.0083	345.3	.0111	56.7	.0141	69.7	.0137	45.3	.0173	52.5	.0191	29.4
4	.0516	202.8	.0194	186.8	.0050	177.6	.0034	184.0	.0032	287.3	.0035	239.9	.0050	261.5	.0080	232.5
5	.0160	147.8	.0051	173.6	.0031	222.8	.0014	249.1	.0024	43.5	.0013	10.5	.0024	74.2	.0054	76.8
6	.0127	155.9	.0027	117.5	.0021	131.7	.0035	178.6	.0050	240.1	.0024	221.0	.0028	284.0	.0039	277.5
7	.0138	73.8	.0022	142.9	.0013	234.7	.0011	249.8	.0025	134.8	.0020	117.5	.0023	150.7	.0037	148.1
8	.0105	328.0	.0050	317.1	.0009	15.3	.0015	335.3	.0008	77.0	.0014	353.7	.0023	37.1	.0040	26.8
9	.0044	241.0	.0017	222.8	.0010	62.7	.0002	349.8	.0006	338.9	.0006	221.8	.0014	283.3	.0037	247.7
10	.0026	193.2	.0023	227.1	.0013	287.9	.0002	199.0	.0014	129.3	.0010	59.8	.0021	108.1	.0040	89.1

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 3 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.2120	3.4554	.7604	2.2780	.6119	1.3326	.4783	1.0897	.4863	.7856	.4050	.8099	.4437	.6954
2	.6775	1.8823	.8133	1.6629	.7475	.9362	.1623	.8643	.1251	.6241	-.0995	.5649	-.0170	.5031
3	-1.0836	1.2598	-1.0840	1.0239	-.4498	.6213	-.5026	.1456	-.3224	.0749	-.2768	-.0986	-.2394	-.0330
4	-1.0761	-.3036	-.9076	-.4992	-.4907	-.1397	-.1992	-.2910	-.1325	-.1566	-.0130	-.1738	-.0594	-.1321
5	.0181	-.6138	.1759	-.5611	.0627	-.3065	.2250	-.1567	.1240	-.1401	.1813	-.0258	.1457	-.0911
6	.1887	-.1355	.2507	-.0939	.1457	-.0206	.1175	.1210	.1151	.0673	.0211	.1363	.0680	.1138
7	.1482	-.0294	.2250	.0557	.0795	.0436	-.0477	.1213	-.0068	.1074	-.0914	.0477	-.0467	.0731
8	.1152	.0882	.0706	.2337	.0180	.0966	-.1123	-.0091	-.0980	.0259	-.0688	-.0703	-.0844	-.0065
9	-.0290	.1428	-.1886	.1434	-.0775	.0713	-.0304	-.0796	-.0367	-.0641	.0492	-.0627	-.0099	-.0719
10	-.1146	.0043	-.1430	-.1176	-.0909	-.0481	.0446	-.0623	.0212	-.0447	.0529	.0187	.0440	-.0211

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2986	.6315	.2390	.4578	.0981	.3875	-.0428	.3173	-.1754	.2595	-.2020	.2859
2	-.1497	.3690	-.1232	.2080	-.1301	.0462	-.1369	.1157	-.0672	-.1894	-.0769	-.1651
3	-.1560	-.1187	-.0962	-.0881	.0008	-.0804	.0978	-.0728	.1134	-.0035	.0914	-.0137
4	.0303	-.1276	.0386	-.1077	.0554	-.0300	.0721	.0477	.0195	.0861	.0192	.0732
5	.1540	.0426	.1253	.0483	.0371	.0597	-.0511	.0711	-.0844	-.0090	-.0682	-.0082
6	-.0527	.1046	-.0461	.0819	-.0448	.0178	-.0436	-.0462	.0289	-.0539	.0195	-.0421
7	-.0638	-.0101	-.0500	-.0027	-.0129	-.0163	-.0300	.0369	.0216	.0340	.0216	.0143
8	-.0275	-.0613	-.0268	-.0459	.0001	-.0190	.0269	.0079	-.0179	.0292	-.0143	.0269
9	.0598	-.0304	.0371	-.0318	.0218	-.0029	.0065	.0259	-.0278	-.0080	-.0212	-.0041
10	.0267	.0417	.0371	.0210	.0033	.0179	-.0306	.0148	.0109	-.0389	-.0019	-.0296

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1487	.4317	.0550	-.4030	-.0999	-1.0935	-.0623	-.4970	-.1461	-.2990	-.1445	-.1476	-.1658	-.0057	-.2008	.1411
2	-.2773	.2165	-.2158	-.0544	-.1501	-.1221	.0061	-.0654	.0161	-.0589	.0298	-.0575	.0108	-.0799	.0149	-.1175
3	-.2061	.1047	-.0753	.0325	.0124	.0543	.0163	.0262	.0249	.0186	.0239	.0211	.0390	.0142	.0550	.0262
4	-.0480	-.0716	-.0049	-.0206	.0008	.0126	-.0048	-.0078	-.0049	.0111	-.0107	.0119	-.0052	.0241	-.0198	.0426
5	.0351	-.0532	.0092	-.0191	-.0199	-.0132	-.0060	-.0095	-.0094	-.0058	-.0061	-.0120	-.0188	-.0110	-.0255	-.0334
6	.0195	.0106	.0122	.0109	-.1306	-.1756	.0076	.0028	.0084	-.0025	.0117	.0017	.0287	.0043	.0323	-.0052
7	-.0017	.0079	-.0031	.0040	-.0014	.0027	-.0032	.0007	-.0019	.0047	-.0048	.0060	.0044	.0113	-.0030	.0242
8	-.0007	.0051	.0002	.0013	.0029	-.0013	.0019	-.0019	-.0025	-.0024	-.0030	-.0043	-.0087	.0025	-.0182	-.0049
9	-.0096	.0053	-.0005	-.0002	.0033	-.0028	.0025	-.0003	.0003	-.0031	.0029	-.0041	-.0042	-.0076	.0031	-.0173
10	-.0095	-.0084	-.0024	-.0038	.0026	.0042	.0005	.0027	.0030	-.0004	.0040	.0029	.0083	-.0056	.0187	.0051

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 57 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1730	5.1791	-.3020	4.2588	-.0064	2.4217	-.0405	1.8879	.0780	1.2644	-.0372	1.2303	.0688	1.0603
2	-.1970	1.0347	-.0596	1.1330	.3571	.6971	-.0818	.5672	-.0406	.3290	-.1398	.2524	-.0879	-.2216
3	-1.0351	.8862	-1.1433	.3906	-.5618	.2731	-.4406	-.1157	-.2133	-.0699	-.1269	-.1446	-.1132	-.0967
4	-.5574	-.3622	-.3072	-.5574	-.1186	-.2344	.0754	-.2230	.0346	-.0708	.0715	-.0146	.0523	-.0187
5	-.0930	-.2282	.1593	-.4221	.0823	-.0622	.1325	.0178	.0261	-.0150	.0172	.0141	.0173	.0075
6	.0349	-.2910	.2021	-.0205	.0672	.0304	-.0356	.1234	.0530	.0402	.0010	-.0524	.0194	.0410
7	.3154	-.0741	.1211	.1049	.0144	.0329	-.1104	.0293	-.0423	.0487	-.0479	-.0102	-.0373	.0120
8	.1247	.2313	-.0121	.1463	.0007	.0463	-.0223	-.0425	-.0314	-.0224	.0113	-.0292	-.0094	-.0228
9	-.1093	.1302	-.1304	.0468	-.0474	.0161	.0141	-.0325	.0005	-.0168	.0189	.0074	.0109	-.0129
10	-.0932	.0070	-.0625	-.0721	-.0156	-.0128	.0436	-.0055	.0184	-.0161	.0070	.0134	.0244	-.0002

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0278	.8650	.0325	.6038	.0175	.4001	.0025	.1963	-.0553	.1235	-.0733	.1415
2	-.1218	.1161	-.1154	.0225	-.0865	-.0215	-.0575	-.0654	-.0318	-.0809	-.0388	-.0582
3	-.0322	-.0948	.0392	-.0794	.0552	-.0425	.0712	-.0056	.0306	.0174	.0108	.0221
4	.0300	.0128	.0240	.0439	.0062	.0390	-.0117	.0340	-.0003	-.0045	-.0082	-.0124
5	.0154	.0080	-.0024	.0092	-.0053	.0003	-.0082	-.0087	.0046	.0073	.0050	.0009
6	-.0147	-.0395	-.0212	.0121	-.0083	.0027	.0047	-.0067	.0021	.0053	.0039	.0068
7	-.0227	-.0206	-.0006	-.0271	.0020	-.0120	.0045	.0030	-.0098	-.0019	-.0001	.0012
8	.0101	-.0117	.0111	.0064	.0049	.0048	-.0013	.0032	.0054	-.0051	-.0062	-.0001
9	.0125	-.0001	.0030	-.0035	-.0032	-.0011	-.0094	.0013	.0021	-.0008	.0055	-.0077
10	.0089	.0186	.0035	.0131	.0045	-.0006	.0055	-.0143	.0041	.0074	.0015	.0088

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0168	.6889	.0843	-.3527	.0638	-.5099	.0254	-.5571	-.0690	-.3611	-.0762	-.2037	-.0917	-.0775	-.0797	.0515
2	-.4420	.0040	-.2752	-.1099	-.0832	-.0577	-.0172	-.0426	.0027	-.0321	.0133	-.0284	.0081	-.0310	.0080	-.0368
3	-.1487	.0684	-.0533	.0324	.0034	.0120	.0082	.0090	.0128	.0086	.0055	.0111	.0067	.0132	-.0004	.0176
4	-.0150	-.0531	.0105	-.0190	.0108	-.0043	.0046	-.0044	-.0035	-.0036	-.0015	-.0048	-.0046	-.0042	-.0024	-.0061
5	.0014	-.0240	.0047	-.0103	.0034	-.0060	-.0025	-.0038	-.0052	.0028	-.0026	.0003	-.0010	.0014	.0000	.0005
6	.0073	.0004	.0042	.0157	.0026	.0038	.0020	.0012	-.0013	.0004	-.0002	.0002	-.0007	.0005	-.0003	.0008
7	.0102	.0011	.0002	.0010	.0010	.0003	-.0008	-.0002	.0013	.0013	.0010	.0002	.0009	-.0004	.0011	.0004
8	.0018	.0090	-.0002	.0031	.0020	.0011	-.0009	.0009	-.0012	.0009	-.0010	.0004	-.0022	.0005	-.0017	-.0009
9	-.0074	.0028	-.0004	-.0037	-.0006	.0004	-.0006	-.0012	-.0012	-.0010	.0001	-.0006	.0005	.0010	.0029	.0003
10	-.0018	-.0038	-.0002	-.0024	-.0014	.0002	.0006	.0006	.0004	-.0001	-.0004	.0002	-.0006	.0005	-.0029	.0002

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 3 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.6618	19.3	2.4016	18.5	1.4664	24.7	1.1900	23.7	.9239	31.8	.9055	26.6	.8248	32.5
2	2.0005	19.8	1.8511	26.1	1.1980	38.6	.8794	10.6	.6365	11.3	.5736	350.0	.5034	358.1
3	1.6617	319.3	1.4911	313.4	.7670	324.1	.5232	286.2	.3310	283.1	.2938	250.4	.2416	262.2
4	1.1181	254.2	1.0359	241.2	.5102	254.1	.3526	214.4	.2051	220.2	.1743	184.3	.1449	204.2
5	.6140	178.3	.5881	162.6	.3128	168.4	.2741	124.9	.1871	138.3	.1831	98.1	.1718	122.0
6	.2323	125.7	.2677	110.5	.1472	98.1	.1487	44.2	.1333	59.7	.1379	8.8	.1326	30.9
7	.1511	101.2	.2318	76.1	.0906	61.3	.1303	338.5	.1076	356.4	.1031	297.6	.0867	327.5
8	.1451	52.6	.2441	16.8	.0982	10.5	.1127	265.4	.1014	284.8	.0983	224.4	.0846	265.6
9	.1457	348.3	.2349	307.2	.1053	312.6	.0852	200.9	.0738	209.8	.0797	141.9	.0726	187.8
10	.1147	272.1	.1852	230.6	.1028	242.1	.0766	144.4	.0495	154.6	.0561	70.5	.0488	115.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.6985	25.3	.5164	27.6	.3998	14.2	.3202	352.3	.3132	325.9	.3501	324.8
2		.3982	337.9	.2418	329.4	.1380	289.5	.1793	229.8	.2010	199.5	.1821	205.0
3		.1961	232.7	.1304	227.5	.0804	179.4	.1219	126.7	.1134	91.8	.0926	98.5
4		.1311	166.6	.1144	160.3	.0630	118.5	.0845	56.6	.0883	12.7	.0757	14.7
5		.1598	74.5	.1343	68.9	.0703	31.8	.0875	324.3	.0849	263.9	.0687	263.2
6		.1171	333.3	.0940	330.6	.0482	291.7	.0635	223.3	.0612	151.8	.0464	155.1
7		.0646	261.0	.0501	266.9	.0208	218.4	.0385	141.1	.0428	59.7	.0369	67.3
8		.0672	204.1	.0532	210.3	.0190	179.8	.0281	73.6	.0342	328.5	.0304	331.9
9		.0671	116.9	.0489	130.6	.0220	97.7	.0267	14.0	.0290	253.9	.0216	259.0
10		.0495	32.6	.0426	60.5	.0182	10.3	.0340	295.9	.0404	164.3	.0297	183.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4566	19.0	.4068	172.2	1.0980	185.2	.5009	187.1	.3327	206.0	.2065	224.4	.1659	268.0	.2454	305.1
2	.3518	308.0	.2225	255.9	.1935	230.9	.0459	174.7	.0611	164.7	.0448	152.6	.0806	172.3	.1184	172.8
3	.2312	296.9	.0821	293.4	.0557	12.8	.0308	32.0	.0311	53.3	.0319	48.6	.0415	70.0	.0609	44.6
4	.0988	223.5	.0217	198.4	.0126	3.6	.0091	328.6	.0121	336.1	.0160	317.9	.0247	347.7	.0470	335.1
5	.0638	146.6	.0212	154.2	.0239	236.4	.0112	212.0	.0110	238.4	.0135	207.1	.0218	239.8	.0420	217.3
6	.0221	61.4	.0163	48.4	.2188	216.6	.0081	69.7	.0088	106.7	.0118	81.6	.0291	81.5	.0327	99.1
7	.0081	12.2	.0051	322.2	.0031	333.1	.0033	283.3	.0051	338.3	.0077	321.2	.0121	21.4	.0244	353.0
8	.0052	351.7	.0013	6.8	.0032	113.2	.0027	135.9	.0034	225.9	.0052	215.1	.0090	285.9	.0188	254.9
9	.0110	298.7	.0005	250.0	.0043	130.3	.0026	96.6	.0031	175.0	.0050	144.6	.0087	208.9	.0176	169.8
10	.0126	228.4	.0045	212.1	.0049	32.0	.0027	11.3	.0030	97.1	.0050	54.3	.0101	124.1	.0194	74.9

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 57 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	5.1820	358.1	4.2695	355.9	2.4217	359.8	1.8883	358.8	1.2668	3.5	1.2309	358.3	1.0625	3.7
2	1.0533	10.8	1.1346	3.0	.7832	27.1	.5731	351.8	.3315	353.0	.2885	331.0	.2384	338.4
3	1.3426	310.6	1.2082	288.9	.6247	295.9	.4556	255.3	.2244	251.9	.1924	221.3	.1489	229.5
4	.4447	237.0	.6344	208.9	.2426	204.8	.2354	161.3	.0788	153.9	.0730	101.5	.0554	109.6
5	.2464	202.2	.2898	146.7	.1032	127.1	.1336	82.4	.0301	119.9	.0223	50.7	.0188	46.4
6	.2933	172.8	.2031	95.8	.0737	65.7	.1285	16.1	.0465	52.8	.0524	1.1	.0455	25.5
7	.3240	103.2	.1615	48.6	.0360	23.7	.1142	284.8	.0645	319.0	.0490	257.9	.0392	287.8
8	.2428	28.3	.1468	355.3	.0463	.9	.0663	199.4	.0385	234.5	.0313	158.9	.0247	202.9
9	.1700	320.0	.1386	289.7	.0502	288.6	.0355	156.6	.0168	178.2	.0203	68.5	.0169	139.8
10	.0935	274.3	.0954	220.9	.0202	230.7	.0439	97.1	.0245	131.2	.0151	27.5	.0244	90.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8654	358.2	.6047	3.1	.4004	2.5	.1963	.7	.1353	335.9	.1593	332.6
2	.1683	313.6	.1176	281.0	.0891	256.1	.0871	221.3	.0869	201.5	.0700	213.7
3	.1001	198.8	.0886	153.8	.0696	127.6	.0714	94.5	.0352	60.4	.0246	26.1
4	.0326	66.9	.0500	28.7	.0394	9.0	.0360	341.1	.0065	182.5	.0149	213.5
5	.0174	62.5	.0095	345.1	.0053	272.7	.0119	223.3	.0086	32.2	.0051	79.8
6	.0421	339.6	.0245	299.8	.0087	288.1	.0082	145.0	.0057	22.0	.0079	29.6
7	.0307	227.8	.0271	181.2	.0122	170.7	.0054	56.3	.0100	259.2	.0012	353.2
8	.0155	139.1	.0128	60.2	.0069	45.8	.0034	337.7	.0074	133.3	.0062	268.6
9	.0125	90.6	.0046	139.7	.0034	250.9	.0095	277.7	.0023	109.8	.0095	144.5
10	.0206	25.7	.0135	15.0	.0046	97.9	.0154	158.8	.0084	29.0	.0089	9.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.6891	358.6	.3627	166.6	.5138	172.9	.5576	177.4	.3676	190.8	.2175	200.5	.1201	229.8	.0949	302.9
2	.4421	270.5	.2963	248.2	.1013	235.3	.0459	202.0	.0322	175.1	.0313	154.9	.0320	165.3	.0377	167.7
3	.1637	294.7	.0624	301.3	.0125	15.6	.0121	42.5	.0154	56.0	.0124	26.2	.0148	26.8	.0176	358.8
4	.0552	195.8	.0217	151.1	.0117	111.8	.0064	133.8	.0050	224.8	.0050	196.9	.0062	227.1	.0066	201.7
5	.0266	154.5	.0113	155.2	.0069	150.2	.0045	213.0	.0059	298.2	.0026	275.9	.0017	323.1	.0005	.6
6	.0073	87.2	.0163	15.1	.0045	34.2	.0023	121.4	.0014	286.7	.0003	309.4	.0009	302.9	.0008	340.0
7	.0102	83.9	.0011	9.8	.0010	74.0	.0009	255.7	.0019	44.9	.0010	78.1	.0010	117.3	.0012	71.4
8	.0092	11.4	.0031	357.1	.0023	60.4	.0012	313.0	.0015	306.1	.0011	289.9	.0022	283.4	.0019	241.7
9	.0079	290.5	.0038	185.8	.0007	302.9	.0013	206.3	.0015	230.8	.0006	173.4	.0011	153.8	.0030	84.6
10	.0042	205.5	.0024	184.5	.0014	276.6	.0008	44.5	.0004	106.6	.0004	295.8	.0008	311.7	.0029	274.1

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 13 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.7860	1.3701	.7186	.4690	.2537	.0416	.2921	.0842	.2749	.1278	.2797	.1842	.2607	.1783
2	2.3714	.6913	2.1680	.8323	1.3186	.2471	.8504	.3192	.5575	.2319	.4288	.2664	.3687	.2046
3	.6431	.4447	.4538	.4241	.3042	.0419	.2088	.0813	.1373	.0414	.1145	.0514	.1023	.0205
4	.6507	.5187	.4925	.5316	.3306	.1630	.1928	.2269	.1174	.1549	.0619	.1626	.0671	.1253
5	.4379	.5527	.2237	.5609	.2128	.2275	.0285	.2093	.0112	.1375	-.0261	.1163	.0004	.0973
6	.0885	.7409	-.0841	.4516	-.0365	.2991	-.0749	.1742	-.0540	.1177	-.0895	.0831	-.0634	.0880
7	-.3441	.5641	-.5029	.4348	-.1464	.2337	-.1602	.0876	-.1173	.0828	-.1193	.0006	-.0944	.0199
8	-.4708	.1987	-.5371	-.0061	-.2114	.0751	-.1442	-.0414	-.1124	-.0286	-.0765	-.0698	-.0749	-.0345
9	-.4323	-.0685	-.1927	-.2495	-.1931	-.0448	-.0934	-.0909	-.0725	-.0679	-.0254	-.0887	-.0482	-.0637
10	-.1782	-.2505	-.0436	-.3672	-.0692	-.1269	.0008	-.1231	-.0092	-.1016	.0449	-.0853	.0123	-.0837

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.2127	.2122	.1689	.2466	.1091	.2957	.0494	.3447	-.0412	.4127	-.0521	.4620
2		.2340	.1865	.0833	.1037	-.0107	.0720	-.1048	.0403	-.1441	-.0124	-.1473	-.0161
3		.0844	.0306	.0659	.0361	-.0118	.0258	-.0422	.0155	-.0689	.0058	-.0553	.0097
4		.0092	.1134	-.0540	.0802	-.0608	.0266	-.0676	-.0249	-.0436	-.0726	-.0389	-.0539
5		-.0280	.0644	-.0323	-.0014	-.0286	-.0247	-.0250	-.0479	.0095	-.0453	.0080	-.0366
6		-.0786	.0367	-.0489	.0020	-.0202	-.0232	.0084	-.0483	.0316	-.0258	.0204	-.0174
7		-.0630	-.0299	-.0291	-.0431	-.0011	-.0366	.0269	-.0301	.0321	-.0024	.0268	-.0054
8		-.0308	-.0464	.0068	-.0435	.0214	-.0236	.0360	-.0037	.0204	.0246	.0133	.0215
9		-.0037	-.0578	.0256	-.0222	.0256	-.0076	.0255	.0070	-.0033	.0163	.0002	.0125
10		.0419	-.0418	.0303	-.0030	.0278	.0148	.0254	.0325	-.0075	.0196	-.0099	.0226

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1573	.4422	-.0285	-.0931	-.0805	-.5550	-.0671	-.2678	-.0836	-.1312	-.0799	-.0034	-.0766	.1254	-.0806	.2970
2	.1479	.1483	-.0756	-.0084	-.1968	-.1160	-.0759	-.0790	-.0594	-.0630	-.0523	-.0558	-.0664	-.0469	-.0936	-.0448
3	.0363	.1133	-.0221	.0627	-.0376	.0370	-.0149	.0022	-.0093	-.0003	-.0101	-.0033	-.0143	-.0034	-.0265	-.0073
4	.0507	.1034	-.0102	.0281	.0013	-.0227	.0068	-.0219	.0032	-.0218	.0033	-.0223	-.0043	-.0267	-.0088	-.0378
5	.0148	.0592	-.0041	.0140	-.0016	-.0038	.0042	-.0010	.0059	-.0016	.0073	-.0017	.0080	-.0079	.0142	-.0174
6	-.0111	.0702	-.0049	.0137	.0057	-.0066	.0054	-.0012	.0053	-.0017	.0062	.0001	.0089	-.0035	.0159	-.0034
7	-.0442	.0378	-.0089	.0042	.0176	.0027	.0056	.0007	.0060	.0003	.0051	.0018	.0092	.0009	.0155	.0051
8	-.0487	.0000	-.0117	-.0019	.0004	.0081	.0001	.0041	.0003	.0046	-.0012	.0054	.0022	.0084	.0014	.0150
9	-.0350	-.0200	-.0068	-.0055	.0005	.0062	-.0015	.0027	-.0015	.0029	-.0033	.0023	-.0029	.0064	-.0071	.0102
10	-.0098	-.0289	-.0052	-.0064	-.0110	.0066	-.0057	.0009	-.0054	.0021	-.0070	-.0005	-.0093	.0038	-.0171	.0025

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 71 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.4923	2.2725	.3979	1.1284	.2345	.6710	.1957	.8528	.1557	.7482	.1226	.8249	.1314	.7436
2	3.1670	1.0388	2.7024	1.0031	1.5683	.4897	.8894	.4589	.4890	.2566	.3742	.2773	.2948	.1942
3	.0841	1.2011	.1048	.8416	.0672	.3682	-.0584	.3625	-.0266	.2378	-.0654	.2174	-.0272	.1684
4	-.5847	.9107	-.4529	.8874	-.2202	.3817	-.0331	.2527	-.0762	.1423	-.1327	.0940	-.1053	.0898
5	-.5311	.4137	-.5180	.4841	-.2294	.1554	-.2424	-.0040	-.1565	-.0337	-.1366	-.0844	-.1199	-.0484
6	-.0877	.1575	-.1232	.2003	-.0415	.0047	-.0181	-.0940	-.0189	-.1043	.0142	-.1205	.0058	-.0986
7	-.4100	.2462	-.5110	.1632	-.1304	.0429	-.0313	.0389	.0110	-.0422	.0519	-.0406	.0400	-.0379
8	-.2560	-.1018	-.2602	-.2172	-.0623	-.0600	.0462	-.0591	.0477	-.0369	.0653	-.0008	.0523	-.0114
9	-.2144	-.1097	-.1601	-.1991	-.0501	-.0273	.0255	-.0160	.0383	.0308	.0313	.0519	.0401	.0383
10	-.0082	-.2470	.0523	-.2709	.0014	-.1071	.0300	-.0363	-.0022	-.0108	-.0078	.0017	-.0095	.0116

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0709	.6270	.0817	.5108	.0431	.4444	.0046	.3779	-.0401	.3108	-.0332	.3112
2	.1663	.1454	-.0055	.0792	-.0780	.0295	-.1504	-.0203	-.1335	-.0563	-.1114	-.0356
3	-.0219	.1051	-.0057	-.0048	-.0067	-.0271	-.0076	-.0493	.0093	-.0285	.0064	-.0225
4	-.0933	.0527	-.0363	.0245	-.0221	-.0113	-.0079	-.0471	.0058	-.0173	.0108	-.0102
5	-.0674	-.0781	-.0204	-.0613	.0154	-.0382	.0512	-.0151	.0071	.0096	.0173	.0050
6	.0286	-.0644	.0366	-.0221	.0190	-.0006	.0014	.0210	-.0074	-.0075	-.0022	.0157
7	.0407	-.0134	.0259	.0054	.0153	.0025	.0046	-.0004	.0067	-.0013	-.0088	.0026
8	.0343	.0133	.0145	.0249	.0058	.0178	-.0028	.0107	-.0039	.0006	-.0115	-.0010
9	.0117	.0333	-.0099	.0187	-.0072	.0061	-.0045	-.0065	.0071	-.0113	.0011	-.0201
10	-.0121	.0079	-.0147	-.0036	-.0056	-.0035	.0036	-.0034	.0121	.0120	.0198	.0066

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0750	.7954	.0240	-.0367	.0174	-.3745	-.0131	-.3909	-.0282	-.2371	-.0425	-.1037	-.0450	.0183	-.0434	.1651
2	.0897	.1318	-.1109	-.0074	-.1020	-.0519	-.0675	-.0511	-.0410	-.0347	-.0328	-.0352	-.0432	-.0319	-.0581	-.0349
3	-.0410	.2068	-.0285	.0716	-.0048	.0107	.0044	-.0063	.0040	-.0086	.0070	-.0095	.0070	-.0153	.0115	-.0240
4	-.0159	.0958	-.0185	.0275	-.0052	.0030	.0026	-.0032	.0019	-.0039	.0053	-.0035	.0078	-.0059	.0139	-.0040
5	-.0691	.0167	-.0230	.0032	-.0006	.0035	.0028	.0056	.0056	.0033	.0057	.0064	.0103	.0058	.0132	.0101
6	.0022	-.0141	-.0022	.0000	-.0030	.0026	-.0020	.0030	.0011	.0042	-.0027	.0035	-.0036	.0062	-.0084	.0112
7	-.0103	.0088	-.0033	.0016	-.0010	-.0006	-.0000	-.0011	.0001	-.0007	-.0012	-.0014	-.0029	-.0012	-.0059	-.0037
8	-.0035	-.0109	-.0025	-.0049	-.0004	-.0032	-.0014	-.0019	-.0002	-.0007	-.0008	-.0019	-.0022	-.0019	-.0033	-.0046
9	-.0050	-.0036	-.0016	-.0022	-.0005	-.0020	.0010	-.0017	.0004	.0011	.0013	-.0007	.0016	-.0028	.0055	-.0060
10	.0055	-.0174	.0032	-.0028	.0014	.0018	.0004	.0018	.0005	.0016	.0003	.0019	.0021	.0028	.0038	-.0078

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 13 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.5795	29.8	.8581	56.9	.2571	80.7	.3040	73.9	.3032	65.1	.3349	56.6	.3158	55.6
2	2.4701	73.7	2.3223	69.0	1.3416	79.4	.9083	69.4	.6038	67.4	.5048	58.2	.4216	61.0
3	.7818	55.3	.6211	46.9	.3071	82.2	.2240	68.7	.1434	73.2	.1255	65.8	.1044	78.7
4	.8321	51.4	.7246	42.8	.3686	63.8	.2978	40.4	.1960	36.8	.1740	20.8	.1421	28.2
5	.7052	38.4	.6038	21.7	.3115	43.1	.2112	7.7	.1380	4.7	.1192	347.3	.0973	.3
6	.7462	6.8	.6570	352.6	.3013	7.0	.1896	336.7	.1295	335.4	.1221	312.9	.1084	324.2
7	.6608	328.6	.6648	310.8	.2758	327.9	.1826	298.7	.1331	298.2	.1193	270.3	.0965	281.9
8	.5110	292.9	.5371	269.4	.2243	289.5	.1500	254.0	.1160	255.7	.1036	227.6	.0825	245.3
9	.4377	261.0	.4763	235.5	.1982	256.9	.1303	225.8	.0993	226.9	.0923	196.0	.0799	217.1
10	.3074	215.4	.3697	186.8	.1446	208.6	.1231	179.6	.1020	185.2	.0964	152.2	.0846	171.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3004	45.1	.2989	34.4	.3152	20.3	.3482	8.2	.4147	354.3	.4649	353.6
2	.2993	51.4	.1330	38.8	.0728	351.5	.1123	291.0	.1447	265.1	.1482	265.7
3	.0898	70.1	.0751	61.5	.0284	24.7	.0450	290.2	.0691	274.8	.0561	279.9
4	.1138	29.6	.0967	326.0	.0644	293.7	.0728	248.3	.0847	211.0	.0665	215.9
5	.0702	336.6	.0323	267.4	.0378	229.3	.0540	207.5	.0463	168.1	.0374	147.7
6	.0868	295.0	.0490	272.3	.0308	221.1	.0491	170.1	.0408	129.2	.0267	130.5
7	.0697	244.6	.0519	214.0	.0366	181.7	.0404	138.3	.0322	94.5	.0274	101.4
8	.0557	213.6	.0440	171.1	.0319	137.8	.0362	95.9	.0320	39.7	.0252	31.7
9	.0579	183.7	.0339	130.9	.0267	106.5	.0265	74.6	.0166	348.4	.0125	1.1
10	.0592	134.9	.0305	95.6	.0315	62.0	.0412	38.0	.0210	339.1	.0247	336.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4693	19.6	.0974	163.0	.5608	188.2	.2761	194.1	.1555	212.5	.0800	267.6	.1470	328.6	.3077	344.8
2	.2094	44.9	.0761	263.7	.2284	239.5	.1095	223.8	.0865	223.3	.0765	223.2	.0813	234.8	.1037	244.4
3	.1189	17.8	.0665	340.6	.0527	314.5	.0150	278.4	.0093	268.1	.0106	252.0	.0147	256.7	.0275	256.6
4	.1152	26.1	.0299	19.9	.0227	176.7	.0230	162.7	.0221	171.6	.0226	171.6	.0270	189.1	.0389	193.1
5	.0610	14.0	.0146	343.7	.0041	202.5	.0043	102.9	.0061	104.8	.0075	102.9	.0113	134.7	.0225	140.8
6	.0711	351.0	.0154	333.2	.0087	139.2	.0055	102.5	.0056	107.7	.0063	89.4	.0096	111.5	.0162	102.2
7	.0582	310.5	.0099	295.0	.0178	81.2	.0057	82.6	.0040	86.7	.0055	70.5	.0093	84.2	.0163	71.9
8	.0487	270.0	.0119	260.7	.0081	81.9	.0041	2.0	.0046	3.5	.0055	347.7	.0087	14.4	.0151	5.3
9	.0403	240.3	.0087	231.2	.0062	4.3	.0031	331.4	.0032	332.4	.0042	307.0	.0070	335.3	.0124	325.3
10	.0305	198.7	.0083	218.9	.0129	301.0	.0058	279.2	.0058	291.6	.0070	265.9	.0101	292.2	.0173	278.4

07

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG
 FILE: 71 (SWEEP = 30.0)
 FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

Order	Amplitude (C)	Phase Angle (P)	Order	Amplitude (C)	Phase Angle (P)
1	2.3252	12.2	10	1.1965	19.4
2	1.3040	71.8	11	1.1803	130.9
3	1.0822	4.0	12	1.1816	317.1
4	1.3530	11.8	13	1.1803	130.9
5	1.3040	71.8	14	1.1816	317.1
6	1.0822	4.0	15	1.1803	130.9
7	1.3530	11.8	16	1.1816	317.1
8	1.3040	71.8	17	1.1803	130.9
9	1.0822	4.0	18	1.1816	317.1
10	1.3530	11.8	19	1.1803	130.9
11	1.3040	71.8	20	1.1816	317.1
12	1.0822	4.0	21	1.1803	130.9
13	1.3530	11.8	22	1.1816	317.1
14	1.3040	71.8	23	1.1803	130.9
15	1.0822	4.0	24	1.1816	317.1
16	1.3530	11.8	25	1.1803	130.9
17	1.3040	71.8	26	1.1816	317.1
18	1.0822	4.0	27	1.1803	130.9
19	1.3530	11.8	28	1.1816	317.1
20	1.3040	71.8	29	1.1803	130.9
21	1.0822	4.0	30	1.1816	317.1
22	1.3530	11.8	31	1.1803	130.9
23	1.3040	71.8	32	1.1816	317.1
24	1.0822	4.0	33	1.1803	130.9
25	1.3530	11.8	34	1.1816	317.1
26	1.3040	71.8	35	1.1803	130.9
27	1.0822	4.0	36	1.1816	317.1
28	1.3530	11.8	37	1.1803	130.9
29	1.3040	71.8	38	1.1816	317.1
30	1.0822	4.0	39	1.1803	130.9
31	1.3530	11.8	40	1.1816	317.1
32	1.3040	71.8	41	1.1803	130.9
33	1.0822	4.0	42	1.1816	317.1
34	1.3530	11.8	43	1.1803	130.9
35	1.3040	71.8	44	1.1816	317.1
36	1.0822	4.0	45	1.1803	130.9
37	1.3530	11.8	46	1.1816	317.1
38	1.3040	71.8	47	1.1803	130.9
39	1.0822	4.0	48	1.1816	317.1
40	1.3530	11.8	49	1.1803	130.9
41	1.3040	71.8	50	1.1816	317.1
42	1.0822	4.0	51	1.1803	130.9
43	1.3530	11.8	52	1.1816	317.1
44	1.3040	71.8	53	1.1803	130.9
45	1.0822	4.0	54	1.1816	317.1
46	1.3530	11.8	55	1.1803	130.9
47	1.3040	71.8	56	1.1816	317.1
48	1.0822	4.0	57	1.1803	130.9
49	1.3530	11.8	58	1.1816	317.1
50	1.3040	71.8	59	1.1803	130.9
51	1.0822	4.0	60	1.1816	317.1
52	1.3530	11.8	61	1.1803	130.9
53	1.3040	71.8	62	1.1816	317.1
54	1.0822	4.0	63	1.1803	130.9
55	1.3530	11.8	64	1.1816	317.1
56	1.3040	71.8	65	1.1803	130.9
57	1.0822	4.0	66	1.1816	317.1
58	1.3530	11.8	67	1.1803	130.9
59	1.3040	71.8	68	1.1816	317.1
60	1.0822	4.0	69	1.1803	130.9
61	1.3530	11.8	70	1.1816	317.1
62	1.3040	71.8	71	1.1803	130.9
63	1.0822	4.0	72	1.1816	317.1
64	1.3530	11.8	73	1.1803	130.9
65	1.3040	71.8	74	1.1816	317.1
66	1.0822	4.0	75	1.1803	130.9
67	1.3530	11.8	76	1.1816	317.1
68	1.3040	71.8	77	1.1803	130.9
69	1.0822	4.0	78	1.1816	317.1
70	1.3530	11.8	79	1.1803	130.9
71	1.3040	71.8	80	1.1816	317.1
72	1.0822	4.0	81	1.1803	130.9
73	1.3530	11.8	82	1.1816	317.1
74	1.3040	71.8	83	1.1803	130.9
75	1.0822	4.0	84	1.1816	317.1
76	1.3530	11.8	85	1.1803	130.9
77	1.3040	71.8	86	1.1816	317.1
78	1.0822	4.0	87	1.1803	130.9
79	1.3530	11.8	88	1.1816	317.1
80	1.3040	71.8	89	1.1803	130.9
81	1.0822	4.0	90	1.1816	317.1
82	1.3530	11.8	91	1.1803	130.9
83	1.3040	71.8	92	1.1816	317.1
84	1.0822	4.0	93	1.1803	130.9
85	1.3530	11.8	94	1.1816	317.1
86	1.3040	71.8	95	1.1803	130.9
87	1.0822	4.0	96	1.1816	317.1
88	1.3530	11.8	97	1.1803	130.9
89	1.3040	71.8	98	1.1816	317.1
90	1.0822	4.0	99	1.1803	130.9
91	1.3530	11.8	100	1.1816	317.1

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 14 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.2954	1.9559	.8259	1.3181	.6126	.2994	.6495	.1746	.5774	.1206	.5669	.2042	.5322	.1394
2	1.7277	.6699	1.3922	.5484	1.1330	.2941	.7582	.5656	.5355	.3982	.3571	.4629	.3572	.3491
3	.9712	.8075	.8849	.6932	.4631	.3519	.0957	.4054	.0907	.2525	-.0000	.2443	.0437	.1991
4	.2395	1.1378	.0819	1.1647	.0804	.4946	-.1885	.2935	-.1181	.2477	-.2209	.1576	-.1528	.2044
5	-.4241	.7271	-.7138	.6342	-.2058	.2875	-.2375	.0433	-.1907	.0367	-.1676	-.0897	-.1779	-.0294
6	-.5034	.1009	-.6163	-.1850	-.2507	.0268	-.1423	-.1137	-.1182	-.0813	-.0290	-.1390	-.0740	-.1118
7	-.1894	-.0635	-.1343	-.2575	-.1272	-.0799	-.0161	-.1377	-.0277	-.1079	.0704	-.0894	.0267	-.1043
8	-.1236	-.0181	-.0432	-.1348	-.0475	-.0945	.0720	-.0931	.0462	-.0831	.0948	-.0003	.0752	-.0407
9	-.1144	-.0559	-.0131	-.1381	.0079	-.0894	.1004	-.0083	.0707	-.0250	.0504	.0489	.0628	.0130
10	-.0594	-.0703	.0588	-.1040	.0583	-.0382	.0644	.0641	.0668	.0221	.0088	.0655	.0377	.0398

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.4418	.1861	.3485	.2224	.2114	.3227	.0743	.4230	-.0997	.4090	-.1210	.4456
2		.1929	.3376	.0511	.2134	-.0782	.1184	-.2075	.0233	-.1836	-.1027	-.1704	-.0861
3		-.0133	.1637	-.0217	.0877	-.0555	.0104	-.0894	-.0669	-.0241	-.0947	-.0390	-.0751
4		-.1903	.0829	-.1339	.0402	-.0694	-.0407	-.0054	-.1216	.0741	-.0643	.0584	-.0475
5		-.1064	-.0995	-.0703	-.0702	.0023	-.0566	.0750	-.0430	.0570	.0320	.0634	.0263
6		.0113	-.1209	-.0010	-.0967	.0369	-.0384	.0747	.0199	.0113	.0634	.0134	.0640
7		.0912	-.0391	.0715	-.0464	.0449	.0078	.0182	.0621	-.0638	.0264	-.0676	.0352
8		.0597	.0334	.0643	.0156	.0143	.0294	-.0357	.0431	-.0271	-.0537	-.0372	-.0584
9		.0164	.0499	.0299	.0440	-.0016	.0192	-.0332	-.0055	.0278	-.0170	.0297	-.0332
10		-.0190	.0381	-.0031	.0483	-.0168	.0159	-.0306	-.0166	.0211	-.0049	.0381	-.0038

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2443	.5218	-.0316	-.1220	-.1512	-.6946	-.1094	-.3535	-.1508	-.2024	-.1450	-.0677	-.1456	.0764	-.1619	.2519
2	.0338	.1932	-.0843	.0031	-.1242	-.1077	-.0122	-.0883	-.0102	-.0819	-.0042	-.0826	-.0357	-.0863	-.0643	-.1047
3	-.0259	.1605	-.0342	.0551	-.0209	.0056	-.0026	-.0083	.0017	-.0097	.0051	-.0124	-.0004	-.0201	-.0008	-.0414
4	-.0230	.1319	-.0062	.0298	.0344	-.0062	.0196	-.0032	.0183	-.0070	.0193	-.0026	.0219	-.0153	.0439	-.0196
5	-.0814	.0474	-.0227	.0040	.0091	.0113	.0021	.0077	.0053	.0088	-.0023	.0115	.0148	.0123	.0238	.0315
6	-.0545	-.0261	-.0132	-.0094	.0043	.0193	-.0048	.0067	.0015	.0091	-.0063	.0092	-.0009	.0178	-.0168	.0319
7	-.0011	-.0264	-.0008	-.0116	.0057	.0080	-.0044	-.0067	-.0110	-.0012	-.0124	-.0068	-.0233	.0039	-.0399	-.0114
8	.0061	-.0056	.0045	-.0031	-.0192	.0236	.0035	-.0040	-.0001	-.0071	.0044	-.0094	-.0039	-.0158	.0101	-.0355
9	.0036	-.0024	.0035	.0009	-.0003	-.0050	.0027	.0027	.0058	-.0013	.0084	.0025	.0115	-.0073	.0256	.0017
10	-.0003	-.0007	-.0006	-.0004	-.0060	-.0043	-.0018	.0003	.0001	.0033	-.0008	.0058	.0100	.0045	.0122	.0200

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 51 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.2935	1.9271	1.1033	.8534	.4521	.4780	.4634	.7578	.3148	.6681	.2363	.7927	.2409	.7049
2	2.7287	1.9993	2.2616	1.9540	1.4595	.9861	.7665	.8562	.4717	.4595	.3050	.4820	.2875	.3399
3	-.2732	1.0976	-.2170	.7992	-.1022	.3637	-.2916	.3564	-.1898	.2815	-.2717	.2252	-.1731	.2133
4	-.1326	.9930	-.0981	1.0166	-.0114	.4349	-.2148	.1171	-.1858	.0101	-.1978	-.1190	-.1928	-.0675
5	-.6268	.2853	-.6965	.0758	-.2745	.0058	-.1574	-.1192	-.0645	-.0913	.0181	-.1257	.0002	-.1107
6	-.1272	.1883	-.2428	.0904	-.0429	.0307	.0001	-.0832	.0044	-.0893	.0651	-.0819	.0314	-.0711
7	-.5036	-.0131	-.4423	-.3142	-.1674	-.0868	.0190	-.0818	.0559	-.0310	.0800	.0329	.0750	.0003
8	-.0626	-.1919	-.0941	-.2375	.0265	-.0993	.0805	-.0387	.0296	-.0115	.0174	.0285	.0182	.0161
9	-.1437	-.1714	-.0137	-.2449	.0010	-.0791	.0834	.0310	-.0617	.0158	.0319	.0740	.0530	.0332
10	.1460	-.2045	.2983	-.0720	.0895	-.0381	.0043	.0703	-.0093	.0633	-.0786	.0316	-.0388	.0613

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.1325	.6707	.1291	.6118	.0567	.5140	-.0156	.4162	-.0930	.2997	-.1009	.2920
2		.1085	.2535	-.1032	.0953	-.1489	.0086	-.1947	-.0782	-.1078	-.1120	-.0692	-.0872
3		-.1501	.1102	-.0396	-.0329	-.0052	-.0752	.0291	-.1175	.0363	-.0421	.0191	-.0174
4		-.1289	-.1181	-.0492	-.0751	.0129	-.0481	.0750	-.0210	.0260	.0118	.0279	.0096
5		.0656	-.0719	.0993	-.0374	.0566	.0065	.0139	.0503	-.0259	.0117	-.0254	.0265
6		.0382	-.0193	.0085	.0516	-.0007	.0311	-.0100	.0106	-.0032	-.0242	-.0110	-.0194
7		.0517	.0347	.0054	.0137	-.0097	.0092	-.0247	.0048	.0210	-.0050	.0037	-.0041
8		-.0126	.0198	-.0272	.0191	-.0135	-.0006	.0003	-.0203	.0048	.0117	.0094	-.0084
9		.0129	.0311	.0014	-.0203	.0050	-.0144	.0087	-.0085	-.0003	.0130	.0063	.0203
10		-.0510	.0124	-.0077	.0164	.0013	.0131	.0103	.0097	-.0163	-.0081	-.0179	-.0119

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1477	.7704	-.0454	-.0773	-.0070	-.4037	-.0259	-.4484	-.0745	-.2907	-.0909	-.1458	-.1047	-.0114	-.1115	-.1407
2	.0015	.2328	-.1171	-.0150	-.0710	-.0676	-.0213	-.0686	-.0057	-.0519	.0067	-.0555	-.0087	-.0632	-.0116	-.0784
3	-.1420	.1799	-.0596	.0525	-.0026	.0091	.0112	-.0030	.0138	-.0100	.0153	-.0050	.0195	-.0091	.0279	-.0062
4	-.0543	.0225	-.0128	-.0059	-.0028	.0040	.0050	-.0013	.0057	-.0003	.0043	.0025	.0068	.0051	.0093	.0153
5	-.0353	-.0090	-.0081	-.0072	-.0064	-.0008	-.0083	.0013	-.0044	.0056	-.0089	.0038	-.0097	.0087	-.0193	.0073
6	-.0037	.0027	-.0022	.0025	-.0008	.0008	.0017	-.0004	-.0007	-.0006	-.0007	-.0013	-.0013	-.0050	-.0007	-.0114
7	-.0191	.0004	-.0035	.0001	-.0002	.0010	-.0008	.0000	-.0011	-.0004	-.0000	.0001	.0007	.0000	.0034	.0004
8	.0002	-.0159	.0011	-.0061	.0011	-.0002	.0008	.0001	-.0004	-.0010	.0012	.0006	.0022	-.0008	.0052	.0009
9	.0050	-.0051	.0027	-.0004	-.0011	-.0000	-.0020	-.0006	-.0018	.0015	-.0035	.0012	-.0022	.0059	-.0093	.0049
10	.0053	-.0006	-.0014	-.0001	.0007	-.0004	.0021	-.0003	.0015	-.0028	.0031	-.0033	-.0016	-.0075	.0063	-.0130

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 14 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.3459	31.5	1.5555	32.1	.6820	63.9	.6726	75.0	.5898	78.2	.6025	70.2	.5501	75.3
2	1.8530	68.8	1.4943	68.5	1.1706	75.5	.9459	53.3	.6474	53.4	.5847	37.6	.4994	45.7
3	1.2430	50.3	1.1241	51.9	.5816	52.8	.4166	13.3	.2684	19.8	.2443	360.0	.2090	17.7
4	1.1627	11.9	1.1676	4.0	.5011	9.2	.3489	327.3	.2744	334.5	.2714	305.5	.2552	323.2
5	.8417	229.7	.7548	311.6	.3536	324.4	.2414	280.3	.1943	280.9	.1901	241.9	.1803	240.8
6	.5135	281.3	.6435	253.3	.2531	226.1	.1821	231.4	.1435	235.5	.1420	191.8	.1341	213.5
7	.1998	251.3	.2905	207.5	.1502	237.9	.1386	186.7	.1114	194.4	.1138	141.8	.1077	145.6
8	.1249	261.7	.1416	197.8	.1058	206.7	.1177	142.3	.0951	150.9	.0948	90.2	.0853	118.4
9	.1273	244.0	.1388	185.4	.0898	175.0	.1007	94.7	.0750	109.5	.0702	45.9	.0641	78.3
10	.0920	220.2	.1195	150.5	.0699	123.3	.0909	45.1	.0704	71.7	.0661	7.7	.0548	43.4

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4794	67.2	.4135	57.5	.3858	33.2	.4295	10.0	.4210	346.3	.4617	344.8
2	.3888	29.7	.2194	13.5	.1419	326.5	.2088	276.4	.2104	240.8	.1911	243.2
3	.1643	355.3	.0903	346.1	.0565	280.6	.1116	233.2	.0983	195.4	.0846	207.4
4	.2076	293.5	.1398	286.7	.0807	239.7	.1217	182.5	.0981	131.0	.0893	139.1
5	.1457	226.9	.0994	225.1	.0566	177.6	.0865	119.8	.0453	60.7	.0687	67.5
6	.1214	174.7	.0967	180.6	.0532	136.2	.0773	75.1	.0444	10.1	.0654	11.8
7	.0992	113.2	.0852	123.0	.0455	80.1	.0647	16.4	.0490	292.5	.0762	297.5
8	.0684	60.7	.0662	76.3	.0327	26.0	.0560	320.4	.0601	206.7	.0692	212.5
9	.0526	18.2	.0532	34.2	.0193	355.1	.0337	260.6	.0325	121.4	.0446	138.2
10	.0426	333.4	.0484	356.4	.0231	313.3	.0348	241.6	.0217	103.1	.0383	95.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5742	25.1	.1261	165.5	.7128	192.2	.3700	197.2	.2524	216.7	.1600	245.0	.1645	297.7	.2994	327.3
2	.1942	9.9	.0844	272.1	.1644	229.1	.0891	187.9	.0825	187.1	.0827	182.9	.0934	202.4	.1229	211.6
3	.1626	9.2	.0649	328.2	.0217	285.0	.0087	197.1	.0098	170.3	.0134	157.8	.0201	181.1	.0414	181.2
4	.1338	350.1	.0304	348.3	.0350	100.2	.0198	99.2	.0195	110.9	.0195	97.5	.0267	125.0	.0481	114.1
5	.0943	300.2	.0231	279.9	.0145	39.0	.0080	15.5	.0103	31.0	.0119	13.6	.0193	50.2	.0395	37.1
6	.0605	244.4	.0162	234.5	.0197	12.6	.0082	324.5	.0092	350.7	.0112	325.6	.0178	357.2	.0361	332.3
7	.0266	182.4	.0117	184.1	.0098	35.2	.0092	223.5	.0110	263.6	.0141	241.1	.0237	279.6	.0415	254.0
8	.0083	132.4	.0054	124.1	.0305	219.1	.0053	139.3	.0071	180.8	.0104	154.7	.0163	193.8	.0369	164.1
9	.0044	124.0	.0036	75.0	.0050	183.8	.0038	45.4	.0060	102.5	.0088	73.4	.0136	122.4	.0257	86.3
10	.0007	202.5	.0007	232.1	.0074	234.2	.0018	279.1	.0033	1.3	.0059	351.9	.0110	65.6	.0234	31.4

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NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 51 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.3210	33.9	1.3948	52.3	.8085	53.8	.8883	31.4	.7386	25.2	.8272	16.6	.7450	18.9
2	3.3827	53.8	2.9888	49.2	1.7615	56.0	1.1491	41.8	.6385	45.7	.5704	32.3	.4452	40.2
3	1.1310	346.0	.8281	344.8	.3777	344.3	.4605	320.7	.3395	326.0	.3529	309.6	.2748	320.9
4	1.0018	7.6	1.0213	354.5	.4351	1.5	.2446	298.4	.1861	273.1	.2308	239.0	.2043	250.7
5	.6887	294.5	.7006	276.2	.2745	271.2	.1975	235.9	.1118	215.2	.1270	171.8	.1107	179.9
6	.2272	326.0	.2591	290.4	.0528	305.4	.0832	179.9	.0884	177.1	.1046	141.5	.0777	156.2
7	.5038	248.5	.5425	234.6	.1885	242.6	.0840	166.9	.0439	119.0	.0845	67.7	.0750	89.7
8	.2018	198.1	.2555	158.4	.1027	165.1	.0893	115.7	.0317	111.3	.0333	31.4	.0243	48.6
9	.2370	223.7	.2452	183.2	.0791	179.3	.0890	69.4	.0437	75.7	.0806	23.3	.0425	37.9
10	.2513	144.5	.3069	103.6	.0973	113.1	.0704	3.5	.0640	351.6	.0847	291.9	.0726	327.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6836	11.2	.6252	11.9	.5171	6.3	.4165	357.9	.3138	342.8	.3090	340.9
2	.2757	23.2	.1405	312.7	.1492	273.3	.2098	248.1	.1555	223.9	.1114	218.4
3	.1862	306.3	.0514	230.3	.0754	184.0	.1211	166.1	.0556	139.2	.0258	132.4
4	.1748	227.5	.0898	213.2	.0498	164.9	.0779	105.6	.0285	65.5	.0295	70.9
5	.0973	137.6	.1061	110.6	.0570	83.5	.0521	15.4	.0284	294.3	.0367	316.2
6	.0428	116.9	.0523	9.4	.0311	358.7	.0146	316.8	.0244	187.4	.0225	209.3
7	.0623	56.1	.0147	21.4	.0133	313.6	.0251	280.9	.0216	103.5	.0055	137.9
8	.0234	327.5	.0332	305.1	.0135	267.4	.0203	179.3	.0126	22.2	.0126	132.0
9	.0316	22.5	.0204	176.1	.0153	160.8	.0122	134.5	.0130	358.7	.0212	17.2
10	.0525	283.7	.0181	334.9	.0131	5.7	.0141	46.6	.0183	243.5	.0215	236.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7847	10.9	.0898	149.4	.4038	179.0	.4491	183.3	.3001	194.4	.1718	211.9	.1054	263.8	.1795	321.6
2	.2325	.4	.1180	262.7	.0981	226.4	.0718	197.2	.0522	186.2	.0559	173.1	.0638	187.8	.0793	188.4
3	.2292	321.7	.0795	311.4	.0095	344.3	.0116	105.2	.0170	126.1	.0161	108.2	.0215	115.1	.0286	102.5
4	.0588	292.5	.0141	245.2	.0049	145.0	.0052	104.4	.0057	93.2	.0050	59.6	.0085	53.2	.0179	31.3
5	.0363	255.6	.0108	228.4	.0064	263.2	.0084	279.2	.0072	321.8	.0097	293.1	.0130	312.0	.0207	290.7
6	.0046	306.6	.0034	318.6	.0011	43.5	.0018	109.8	.0010	229.2	.0024	163.2	.0052	195.0	.0114	183.7
7	.0191	271.1	.0035	271.7	.0010	348.1	.0008	271.3	.0013	243.2	.0001	328.4	.0007	89.1	.0034	83.8
8	.0159	179.3	.0062	169.8	.0011	98.7	.0008	79.2	.0011	204.7	.0014	66.0	.0024	110.6	.0053	79.8
9	.0071	135.7	.0028	98.9	.0011	268.9	.0021	252.4	.0024	308.5	.0037	289.2	.0063	339.7	.0116	306.6
10	.0056	96.4	.0014	267.1	.0008	116.9	.0022	98.4	.0032	152.7	.0045	136.5	.0077	192.0	.0145	154.1

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 15 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.5146	2.1045	1.1205	1.0300	.7459	.4033	.6818	.4452	.5880	.3588	.5425	.4594	.5400	.3426
2	1.4337	.9350	1.4729	.9185	1.0416	.4333	.5452	.6044	.3928	.3949	.2128	.4454	.2371	.3537
3	.7580	1.1565	.5987	1.0097	.4063	.4398	.0468	.4613	.0921	.3092	-.0438	.2972	.0418	.2458
4	-.2433	1.1818	-.4033	1.1181	-.0547	.5814	-.3406	.2631	-.2415	.2417	-.3419	.0555	-.2819	.1592
5	-.4888	.1802	-.8295	.0494	-.1907	.1444	-.2729	-.1242	-.2173	-.0805	-.0923	-.2200	-.1674	-.1579
6	-.1495	-.1484	-.1266	-.2399	-.1092	-.1443	-.0210	-.1942	-.0502	-.1519	.0937	-.1404	.0177	-.1739
7	-.1294	-.1738	-.2542	-.0007	-.0427	-.0053	.0724	-.1086	.0505	-.1035	.1293	-.0022	.1109	-.0454
8	-.2527	-.0404	-.1237	-.3140	-.0382	-.1040	.1204	.0060	.0960	-.0200	.0560	.0918	.0944	.0383
9	-.0971	-.1630	.1378	-.2078	.0227	-.0684	.0466	.0438	.0425	.0195	-.0199	.0525	.0215	.0544
10	.0102	-.1560	.1674	-.0597	.0488	-.0635	.0352	.0563	.0455	.0336	-.0354	.0401	-.0029	.0507

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4135	.3790	.3526	.3431	.1792	.3807	.0059	.4182	-.2039	.3788	-.2206	.4313
2	.0757	.3091	-.0458	.2119	-.1239	.0983	-.2019	-.0153	-.1353	-.1390	-.1443	-.1022
3	-.0389	.2032	-.0278	.0891	-.0514	-.0007	-.0749	-.0905	.0031	-.0949	-.0211	-.0966
4	-.2710	-.0068	-.1749	-.0079	-.0555	-.0684	.0640	-.1289	.1085	-.0154	.1032	-.0399
5	-.0276	-.1944	-.0308	-.1379	.0321	-.0659	.0951	.0060	-.0242	.0666	.0471	.0789
6	.1142	-.0905	.0846	-.0895	.0472	-.0071	.0497	.0753	-.0572	.0396	-.0718	.0466
7	.1037	.0473	.0892	.0329	.0229	.0459	-.0435	.0589	-.0283	-.0319	-.0414	-.0451
8	-.0167	.0816	.0293	.0471	-.0151	.0249	-.0594	.0027	.0005	-.0384	.0202	-.0494
9	-.0336	.0478	-.0092	.0582	-.0227	.0042	-.0361	-.0499	.0429	-.0139	.0443	.0085
10	-.0547	.0074	-.0466	.0190	-.0110	-.0171	.0246	-.0531	.0272	.0371	.0103	.0269

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2145	.5830	-.0100	-.1458	-.2286	-.8010	-.1490	-.4102	-.2111	-.2459	-.2043	-.1114	-.2121	.0442	-.2397	.2177
2	-.0073	.2229	-.0989	.0276	-.1090	-.0554	.0017	-.0586	.0079	-.0567	.0153	-.0591	-.0131	-.0714	-.0383	-.1017
3	.0066	.1842	-.0366	.0466	-.0157	-.0042	.0082	-.0188	.0059	-.0175	.0124	-.0186	.0050	-.0298	.0193	-.0523
4	-.0881	.1230	-.0181	.0279	.0449	.0070	.0269	.0106	.0278	.0008	.0240	.0106	.0380	-.0051	.0629	.0116
5	-.0872	-.0239	-.0217	-.0172	-.0134	.0182	-.0113	.0077	-.0043	.0154	-.0095	.0161	.0065	-.0276	-.0077	.0553
6	.0016	-.0372	-.0041	-.0094	-.0088	.2263	-.0073	-.0059	-.0127	-.0009	-.0166	-.0079	-.0298	-.0133	-.0525	-.0098
7	.0104	.0082	.0080	-.0002	.0079	-.0194	.0076	-.0041	.0010	-.0106	.0082	-.0127	-.0081	-.0222	.0094	-.0435
8	-.0104	.0010	-.0025	.0018	.0007	.0003	-.0005	.0029	.0050	.0022	.0049	.0060	.0152	-.0066	.0361	.0068
9	-.0063	-.0119	-.0014	-.0028	-.0031	.0028	-.0040	.0021	-.0013	.0048	-.0033	.0072	-.0098	.0107	-.0019	.0281
10	.0061	-.0115	.0048	-.0005	-.0046	-.0012	-.0010	-.0025	-.0043	.0011	-.0059	-.0021	-.0070	.0087	-.0200	.0031

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 52 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.2139	2.4185	.9473	1.2880	.6517	.7203	.5103	.9074	.4021	.7454	.3165	.8781	.3493	.7475
2	2.2992	2.1091	1.8903	2.0119	1.2421	1.0659	.4909	.9633	.2876	.5731	.0652	.5713	.1087	.4642
3	-.5922	1.1747	-.5287	.8557	-.2534	.3863	-.4001	.2328	-.2624	.1802	-.3139	.0699	-.2377	.1110
4	-.0090	.7784	-.2459	.7549	-.0222	.3241	-.1930	.0455	-.1493	-.0174	-.1292	-.1380	-.1485	-.0911
5	-.7105	.3182	-.7278	.0187	-.2778	.0247	-.1370	-.1596	-.0562	-.1153	.0710	-.1364	.0292	-.1291
6	-.2052	-.0068	-.2054	-.1155	-.0217	-.0347	.0756	-.0790	.0591	-.0770	.1045	-.0195	.0637	-.0476
7	-.3956	-.1100	-.2623	-.3450	-.1070	-.0816	.0468	-.0418	.0594	-.0061	.0579	.0605	.0761	.0063
8	-.0240	-.2288	.1473	-.2268	.0409	-.0820	.0749	.0234	.0345	.0198	-.0184	.0659	.0308	.0711
9	-.0737	-.1763	.1073	-.1740	.0143	-.0507	-.0237	.0497	-.0203	.0286	-.0326	.0305	-.0123	.0381
10	.2192	-.1708	.3028	.0466	.0749	-.0329	-.0142	.0391	-.0206	.0403	-.0581	-.0156	-.0422	.0218

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2222	.6684	.1856	.5257	.0742	.4656	-.0372	.4055	-.1593	.2962	-.1680	.2933
2	-.0272	.3538	-.1215	.1622	-.1681	.0323	-.2148	-.0975	-.1101	-.1437	-.0760	-.1033
3	-.2006	.0176	-.0777	-.0549	-.0106	-.0816	.0565	-.1083	.0693	-.0317	.0503	-.0120
4	-.0779	-.1474	.0023	-.0874	.0467	-.0442	.0911	-.0010	.0155	.0411	.0050	.0342
5	.1025	-.0530	.0894	.0047	.0432	.0315	-.0029	.0583	-.0249	-.0070	-.0182	.0039
6	.0332	.0158	-.0023	.0421	-.0116	.0239	-.0209	.0058	-.0001	-.0222	-.0099	-.0224
7	.0495	.0274	-.0067	.0084	-.0126	-.0059	-.0186	-.0204	.0340	.0053	.0259	-.0055
8	-.0244	.0588	-.0144	.0084	.0007	.0012	.0157	-.0041	-.0169	.0215	.0024	.0139
9	-.0331	.0041	-.0081	-.0075	-.0034	-.0019	.0013	.0037	-.0056	-.0109	-.0121	.0011
10	-.0293	-.0189	-.0049	-.0069	-.0010	-.0082	.0030	-.0096	.0038	.0089	.0112	-.0044

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1314	.8083	.0265	-.0985	-.0218	-.4282	-.0559	-.4867	-.1347	-.3184	-.1409	-.1739	-.1626	-.0278	-.1740	.1276
2	-.0941	.2685	-.1547	-.0003	-.0760	-.0627	-.0195	-.0604	.0000	-.0475	.0081	-.0530	-.0079	-.0638	-.0065	-.0902
3	-.1730	.1475	-.0600	.0429	.0084	.0103	.0227	.0050	.0268	-.0041	.0259	.0041	.0323	-.0023	.0438	.0120
4	-.0316	.0011	-.0039	-.0083	.0093	-.0007	.0015	.0035	-.0015	.0066	-.0036	.0076	-.0021	.0138	-.0138	.0209
5	-.0384	-.0021	-.0051	-.0073	.0054	-.0098	-.0032	-.0044	-.0038	.0035	-.0044	-.0023	-.0051	-.0010	-.0074	-.0051
6	-.0058	-.0138	-.0085	-.0165	.0005	-.0039	.0008	-.0025	-.0000	.0007	.0013	-.0019	-.0010	-.0047	.0029	-.0124
7	-.0135	-.0006	-.0015	-.0003	.0012	.0016	-.0003	.0003	.0009	.0018	.0002	.0027	.0046	.0024	.0070	.0104
8	.0075	-.0085	.0024	-.0023	.0029	-.0002	.0009	-.0003	-.0019	.0006	-.0013	-.0010	-.0031	.0014	-.0060	-.0003
9	-.0020	-.0044	.0002	.0001	-.0019	.0012	-.0001	-.0001	-.0003	-.0002	.0011	.0002	.0005	-.0023	.0022	-.0051
10	.0076	-.0063	.0037	-.0004	-.0006	.0007	-.0007	-.0006	-.0006	-.0004	-.0014	.0001	.0006	.0017	.0000	.0056

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NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 15 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.5929	35.7	1.5220	47.4	.8656	62.2	.8143	56.9	.6888	58.6	.7110	49.7	.6504	56.1
2	1.8823	40.2	1.7358	58.1	1.1282	67.4	.8275	43.1	.5570	44.8	.4938	25.5	.4258	33.8
3	1.3828	33.2	1.1738	30.7	.5988	42.7	.4637	5.8	.3226	16.6	.3004	351.6	.2691	8.9
4	1.2066	348.4	1.1886	340.2	.5841	354.6	.4304	307.7	.3417	315.0	.3464	279.2	.3238	299.5
5	.7436	292.1	.8324	274.8	.4165	290.3	.3007	245.2	.2317	249.7	.2386	202.8	.2303	226.7
6	.2106	225.2	.2713	207.8	.1826	216.7	.1953	186.2	.1600	198.3	.1690	146.3	.1748	174.2
7	.2168	323.3	.2542	269.9	.0630	265.1	.1305	146.3	.1151	154.0	.1293	91.0	.1288	120.5
8	.2599	256.6	.3375	201.5	.1127	199.8	.1205	87.1	.0980	101.8	.1075	31.4	.1021	68.0
9	.1898	210.8	.2493	146.5	.0721	161.7	.0640	46.8	.0468	65.4	.0561	339.2	.0584	21.6
10	.1564	176.2	.1777	109.6	.0801	142.5	.0664	32.0	.0566	53.5	.0535	318.6	.0508	356.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5609	47.5	.4920	45.8	.4207	25.2	.4182	.8	.4302	331.7	.4844	332.9
2	.3183	13.8	.2168	347.8	.1581	308.4	.2025	265.7	.1940	224.2	.1768	234.7
3	.2068	349.2	.0933	342.7	.0514	269.2	.1175	219.6	.0950	178.1	.0988	192.3
4	.2711	268.6	.1751	267.4	.0881	219.0	.1439	153.6	.1096	98.1	.1107	111.2
5	.1963	188.1	.1413	192.6	.0734	154.0	.0953	86.4	.0716	21.5	.0919	36.8
6	.1457	128.4	.1331	136.6	.0675	96.0	.0903	33.4	.0696	304.7	.0856	303.0
7	.1139	85.3	.0851	69.7	.0513	26.3	.0732	323.6	.0426	221.5	.0613	222.6
8	.0833	11.6	.0554	31.8	.0291	328.8	.0594	272.6	.0384	179.3	.0534	157.8
9	.0584	324.9	.0590	351.0	.0231	280.5	.0616	215.9	.0451	107.9	.0451	79.2
10	.0552	277.7	.0503	292.2	.0203	212.8	.0585	155.2	.0460	36.2	.0288	21.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.6212	20.2	.1461	183.9	.8329	195.9	.4364	200.0	.3241	220.6	.2327	241.4	.2167	281.8	.3238	312.2
2	.2230	358.1	.1027	285.6	.1223	243.1	.0586	178.4	.0573	172.1	.0611	165.5	.0726	190.4	.1087	200.6
3	.1843	2.1	.0592	321.8	.0162	255.0	.0205	156.4	.0185	161.4	.0224	146.4	.0302	170.4	.0558	159.8
4	.1513	324.4	.0333	327.1	.0455	81.2	.0289	68.6	.0278	88.4	.0280	67.9	.0383	97.7	.0640	79.6
5	.0904	254.6	.0277	231.6	.0226	323.5	.0137	304.2	.0160	344.3	.0187	329.3	.0284	13.3	.0558	352.1
6	.0373	177.5	.0103	203.7	.2265	357.8	.0094	230.9	.0128	266.1	.0184	244.4	.0326	246.0	.0534	259.4
7	.0134	57.1	.0080	91.4	.0209	157.7	.0087	118.3	.0106	174.6	.0151	147.0	.0236	200.0	.0445	167.8
8	.0105	275.6	.0030	233.6	.0007	69.8	.0029	350.9	.0055	66.2	.0092	48.7	.0166	113.4	.0367	79.3
9	.0136	208.4	.0031	206.2	.0042	47.3	.0045	298.0	.0050	15.3	.0079	335.6	.0145	42.4	.0282	356.1
10	.0136	152.2	.0048	96.4	.0048	255.9	.0028	202.2	.0044	284.8	.0063	250.2	.0112	320.9	.0203	278.8

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NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 52 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7061	26.7	1.5989	36.3	.9713	42.1	1.0412	29.3	.8469	28.3	.9334	19.8	.8251	25.0
2	3.1200	47.5	2.7606	43.2	1.6367	49.4	1.0812	27.0	.6412	26.7	.5750	6.5	.4767	13.2
3	1.3156	333.2	1.0058	328.3	.4620	326.7	.4629	300.2	.3183	304.5	.3216	282.6	.2623	295.0
4	.7784	359.3	.7940	342.0	.3249	356.1	.1983	283.3	.1503	263.4	.1891	223.1	.1742	238.5
5	.7785	294.1	.7280	271.5	.2789	275.1	.2103	220.6	.1282	206.0	.1538	152.5	.1324	167.3
6	.2054	268.1	.2357	240.6	.0409	212.1	.1094	136.3	.0970	142.5	.1063	100.6	.0796	126.8
7	.4106	254.3	.4334	217.3	.1346	232.7	.0627	131.8	.0597	95.9	.0837	43.8	.0764	83.3
8	.2301	186.0	.2704	147.0	.0916	153.5	.0785	72.6	.0398	60.1	.0684	34.4	.0774	23.4
9	.2093	200.3	.2217	151.1	.0527	164.3	.0551	25.5	.0351	35.4	.0447	313.1	.0401	342.1
10	.2778	127.9	.3064	81.2	.0818	113.7	.0416	340.0	.0452	332.9	.0601	254.9	.0475	297.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7044	18.4	.5575	19.4	.4715	9.1	.4072	354.8	.3364	331.7	.3380	330.2
2	.3549	355.6	.2026	323.2	.1712	280.9	.2359	245.6	.1810	217.5	.1282	216.3
3	.2014	275.0	.0952	234.8	.0823	187.4	.1222	152.4	.0762	114.6	.0517	103.4
4	.1667	207.8	.0874	178.5	.0643	133.4	.0911	90.6	.0439	20.7	.0345	8.3
5	.1154	117.4	.0895	87.0	.0535	53.9	.0584	357.2	.0258	254.3	.0187	282.1
6	.0368	64.5	.0422	356.9	.0266	334.2	.0216	285.4	.0222	180.8	.0245	203.8
7	.0566	61.1	.0109	321.9	.0140	244.8	.0276	222.3	.0344	81.2	.0264	102.1
8	.0637	337.5	.0167	300.4	.0013	29.9	.0169	111.3	.0273	321.8	.0142	9.9
9	.0333	277.0	.0110	227.0	.0039	240.5	.0039	18.9	.0123	207.2	.0122	275.3
10	.0349	237.2	.0084	215.4	.0083	186.7	.0100	162.9	.0097	23.3	.0120	111.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.8190	9.2	.1020	164.9	.4288	182.9	.4898	186.5	.3457	202.9	.2238	219.0	.1649	260.3	.2158	306.2
2	.2845	340.7	.1547	269.9	.0984	230.5	.0635	197.8	.0475	180.0	.0536	171.3	.0443	187.1	.0904	184.1
3	.2274	310.4	.0738	305.6	.0133	39.4	.0232	77.5	.0271	98.8	.0262	80.9	.0324	94.1	.0454	74.4
4	.0314	272.0	.0092	205.4	.0093	94.5	.0038	23.6	.0068	347.0	.0084	334.4	.0139	351.2	.0250	326.4
5	.0384	273.1	.0089	214.9	.0112	151.3	.0054	215.9	.0052	312.8	.0050	242.5	.0052	258.7	.0090	235.4
6	.0150	202.9	.0186	152.6	.0040	173.2	.0027	142.1	.0007	357.7	.0023	144.0	.0048	192.1	.0128	166.9
7	.0136	272.3	.0015	257.0	.0020	38.0	.0004	312.9	.0020	27.5	.0027	4.7	.0052	62.2	.0125	33.9
8	.0088	164.2	.0033	134.1	.0029	94.3	.0010	108.7	.0020	287.9	.0016	231.6	.0034	294.5	.0060	272.9
9	.0048	205.0	.0002	64.3	.0023	58.4	.0001	204.9	.0004	122.8	.0011	77.0	.0024	168.2	.0055	156.4
10	.0099	129.8	.0037	95.5	.0009	322.9	.0007	194.7	.0008	235.4	.0014	274.3	.0018	19.4	.0056	.4

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 7 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.7124	-.9313	.6296	-1.6488	.1577	-1.2032	.1683	-.6794	.1273	-.3600	.1801	-.2511	.1666	-.2020
2	.0173	-.3183	.6819	-.0655	.8789	-.2081	.6386	-.1901	.4001	-.1883	.3484	-.1248	.2751	-.1212
3	.8781	-1.1181	.6880	-1.0155	.3366	-.6389	.4190	-.3398	.3130	-.2023	.3187	-.1194	.2658	-.1347
4	.8521	-.3669	.7941	-.4384	.3640	-.2613	.2906	-.1045	.1645	-.0851	.1528	-.0271	.1261	-.0352
5	.5627	-.3723	.5351	-.3604	.4154	-.1720	.2178	-.0122	.2019	.0009	.1766	.0403	.1554	.0359
6	.6418	-.3484	.7233	-.2025	.4114	-.1310	.1979	.0084	.1086	.0183	.0819	.0514	.0679	.0314
7	.3081	-.0597	.3218	-.0177	.1208	-.0068	.1131	.0553	.0977	.0363	.0692	.0790	.0713	.0508
8	.3928	-.1967	.4954	-.0835	.1991	-.0771	.1211	.0492	.0714	.0513	.0246	.0494	.0325	.0540
9	.2407	.0122	.2561	.0912	.1173	.0270	.0592	.0736	.0442	.0472	.0214	.0561	.0284	.0411
10	.2608	-.0821	.3335	.0117	.1348	-.0305	.0643	.0614	.0373	.0485	-.0021	.0624	.0141	.0501

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1835	-.0934	.2062	.0952	.1469	.2268	.0876	.3584	.0062	.4521	-.0007	.5145
2	.1975	-.0514	.0859	.0197	.0210	.0320	-.0438	.0443	-.0702	.0432	-.0693	.0503
3	.2309	-.0650	.1346	.0100	.0659	.0433	-.0029	.0767	-.0536	.0665	-.0498	.0538
4	.0921	.0131	.0225	.0332	-.0017	.0283	-.0259	.0233	-.0249	.0166	-.0234	.0113
5	.0996	.0620	.0398	.0574	.0104	.0483	-.0190	.0392	-.0402	.0193	-.0227	.0047
6	.0394	.0414	-.0004	.0312	-.0104	.0343	-.0213	.0374	-.0315	.0139	-.0171	.0153
7	.0313	.0600	-.0032	.0360	-.0245	.0269	-.0459	.0158	-.0333	-.0118	-.0236	-.0053
8	.0070	.0485	-.0009	.0219	-.0134	.0196	-.0259	.0174	-.0278	-.0065	-.0170	-.0040
9	-.0008	.0458	-.0092	.0273	-.0283	.0118	-.0473	-.0038	-.0129	-.0288	-.0103	-.0135
10	-.0140	.0322	-.0056	.0160	-.0164	-.0014	-.0273	-.0188	-.0046	-.0205	-.0106	-.0161

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1570	.3241	.0117	.0261	-.1158	-.2942	-.0888	-.1628	-.0983	-.0598	-.0890	.0582	-.0726	.1848	-.0581	.3569
2	.1998	-.0009	.0010	-.0035	-.1045	-.0255	-.0482	-.0222	-.0357	-.0164	-.0332	-.0124	-.0382	.0003	-.0545	.0173
3	.1631	-.0760	.0236	.0049	-.0586	.0366	-.0442	.0097	-.0389	.0113	-.0376	.0101	-.0407	.0218	-.0507	.0277
4	.1149	-.0196	.0337	.0063	.0046	.0016	-.0034	-.0056	-.0043	-.0081	-.0043	-.0079	-.0108	-.0074	-.0191	-.0050
5	.0815	-.0075	.0208	-.0017	-.0131	-.0089	-.0089	-.0096	-.0102	-.0071	-.0092	-.0081	-.0133	-.0050	-.0159	-.0069
6	.0632	-.0107	.0119	.0024	-.0136	.0036	-.0045	-.0015	-.0033	-.0014	-.0029	-.0020	-.0067	-.0016	-.0127	-.0003
7	.0387	.0190	.0103	.0050	-.0039	-.0138	-.0012	-.0061	-.0035	-.0052	-.0028	-.0056	-.0067	-.0058	-.0107	-.0104
8	.0337	.0023	.0069	.0027	-.0033	-.0041	-.0006	-.0025	-.0006	-.0027	.0003	-.0039	-.0025	-.0056	-.0029	-.0099
9	.0189	.0156	.0054	.0037	.0027	.0067	.0028	.0036	.0015	-.0044	.0031	-.0038	.0007	-.0063	.0006	-.0086
10	.0161	.0005	.0050	-.0008	.0015	-.0091	.0030	-.0031	.0021	-.0048	.0037	-.0043	.0012	-.0078	.0031	-.0123

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 63 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

Order	Harmonic	Coefficient Type	Value
1	P 1U	A	1.654
		B	-.0498
	P 2U	A	2.2675
		B	-.0856
	P 3U	A	1.3019
		B	-.4419
	P 4U	A	.8257
		B	-.3117
	P 5U	A	.4406
		B	-.1793
P 6U	A	.4734	
	B	-.0937	
P 7U	A	.4228	
	B	-.1003	
2	P 1U	A	2.7607
		B	-.0646
	P 2U	A	1.8490
		B	-.7197
	P 3U	A	1.3640
		B	-.4419
	P 4U	A	.8257
		B	-.3117
	P 5U	A	.4406
		B	-.1793
P 6U	A	.4734	
	B	-.0937	
P 7U	A	.4228	
	B	-.1003	
3	P 1U	A	3.721
		B	-.0830
	P 2U	A	2.246
		B	-.2368
	P 3U	A	1.605
		B	-.4880
	P 4U	A	1.036
		B	-.3530
	P 5U	A	.652
		B	-.1488
P 6U	A	.441	
	B	-.0408	
P 7U	A	.2781	
	B	-.2202	
4	P 1U	A	4.844
		B	-.0458
	P 2U	A	2.959
		B	-.4380
	P 3U	A	1.759
		B	-.2430
	P 4U	A	1.036
		B	-.3530
	P 5U	A	.652
		B	-.1488
P 6U	A	.441	
	B	-.0408	
P 7U	A	.2781	
	B	-.2202	
5	P 1U	A	6.078
		B	-.0134
	P 2U	A	3.721
		B	-.0830
	P 3U	A	2.246
		B	-.2368
	P 4U	A	1.605
		B	-.4880
	P 5U	A	1.036
		B	-.3530
P 6U	A	.652	
	B	-.1488	
P 7U	A	.441	
	B	-.0408	
6	P 1U	A	8.282
		B	-.0018
	P 2U	A	4.844
		B	-.0458
	P 3U	A	2.959
		B	-.4380
	P 4U	A	1.759
		B	-.2430
	P 5U	A	1.036
		B	-.3530
P 6U	A	.652	
	B	-.1488	
P 7U	A	.441	
	B	-.0408	
7	P 1U	A	11.528
		B	-.0004
	P 2U	A	6.078
		B	-.0134
	P 3U	A	3.721
		B	-.0830
	P 4U	A	2.246
		B	-.2368
	P 5U	A	1.605
		B	-.4880
P 6U	A	1.036	
	B	-.3530	
P 7U	A	.652	
	B	-.1488	
8	P 1U	A	17.712
		B	-.0001
	P 2U	A	9.618
		B	-.0068
	P 3U	A	5.844
		B	-.0044
	P 4U	A	3.530
		B	-.0027
	P 5U	A	2.202
		B	-.0016
P 6U	A	1.488	
	B	-.0009	
P 7U	A	.9618	
	B	-.0005	
9	P 1U	A	28.823
		B	-.0003
	P 2U	A	15.282
		B	-.0002
	P 3U	A	9.618
		B	-.0001
	P 4U	A	6.078
		B	-.0001
	P 5U	A	4.048
		B	-.0001
P 6U	A	2.682	
	B	-.0001	
P 7U	A	1.772	
	B	-.0001	
10	P 1U	A	43.823
		B	-.0001
	P 2U	A	23.682
		B	-.0001
	P 3U	A	14.882
		B	-.0001
	P 4U	A	9.618
		B	-.0001
	P 5U	A	6.078
		B	-.0001
P 6U	A	4.048	
	B	-.0001	
P 7U	A	2.682	
	B	-.0001	
P 8U	A	1.772	
	B	-.0001	
P 9U	A	1.152	
	B	-.0001	

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 7 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.1725	142.6	1.7649	159.1	1.2135	172.5	.7000	166.1	.3818	160.5	.3090	144.3	.2618	140.5
2	2.0422	99.0	1.6831	92.2	.9032	103.3	.6663	106.6	.4422	115.2	.3701	109.7	.3007	113.8
3	1.4217	141.9	1.2266	145.9	.7221	152.2	.5395	129.0	.3727	122.9	.3404	110.5	.2980	116.9
4	1.0234	123.6	.9071	118.9	.4481	125.7	.3088	109.8	.1852	117.3	.1552	100.0	.1309	105.6
5	.6747	123.5	.6451	124.0	.2757	128.6	.2381	92.9	.2019	89.8	.1866	71.1	.1593	77.0
6	.7303	118.5	.7512	105.6	.3379	112.8	.1980	87.6	.1101	80.4	.0967	57.9	.0748	65.1
7	.3138	101.0	.3223	93.2	.1210	93.2	.1259	63.9	.1042	69.6	.1050	41.2	.0875	54.5
8	.4393	116.6	.5024	99.6	.2135	111.2	.1307	67.9	.0880	54.4	.0736	19.5	.0630	31.1
9	.2410	87.1	.2718	70.4	.1203	77.0	.0944	38.8	.0647	43.1	.0601	20.8	.0499	34.6
10	.2734	107.5	.3337	88.0	.1382	102.7	.0889	46.3	.0612	37.6	.0624	358.0	.0520	15.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.2059	117.0	.2271	65.2	.2702	32.9	.3689	13.7	.4521	.8	.5145	359.9
2	.2040	104.6	.0881	77.1	.0383	33.3	.0624	315.3	.0824	301.6	.0856	306.0
3	.2398	105.7	.1350	85.8	.0788	56.7	.0748	357.8	.0854	321.1	.0733	317.2
4	.0931	81.9	.0401	34.1	.0283	356.5	.0349	311.9	.0299	303.8	.0240	295.8
5	.1173	58.1	.0498	34.7	.0494	12.2	.0435	334.1	.0446	295.6	.0232	281.7
6	.0572	43.6	.0312	.8	.0358	343.1	.0430	330.3	.0344	293.7	.0229	311.9
7	.0677	27.5	.0381	355.2	.0364	317.6	.0485	289.0	.0353	250.4	.0242	257.3
8	.0490	8.2	.0219	357.7	.0238	325.7	.0312	303.9	.0286	256.8	.0174	256.8
9	.0458	359.0	.0288	341.4	.0306	292.6	.0474	265.4	.0316	204.1	.0169	217.5
10	.0351	336.6	.0169	340.8	.0165	265.1	.0331	235.4	.0211	192.7	.0193	213.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3601	25.8	.0287	24.2	.3161	201.5	.1855	208.6	.1150	238.7	.1063	303.2	.1986	338.6	.3616	350.8
2	.1998	90.3	.0037	164.0	.1075	256.3	.0530	245.3	.0393	245.3	.0354	249.6	.0382	270.4	.0572	287.6
3	.1800	115.0	.0241	78.3	.0691	302.0	.0453	282.4	.0405	286.2	.0389	285.0	.0462	298.1	.0577	298.7
4	.1165	99.7	.0343	79.4	.0049	70.3	.0065	211.4	.0092	208.0	.0090	208.5	.0131	235.8	.0198	255.3
5	.0818	95.3	.0208	94.7	.0159	235.8	.0131	223.0	.0125	235.2	.0122	228.9	.0142	249.5	.0173	248.7
6	.0642	99.6	.0121	78.7	.0140	284.9	.0047	251.3	.0036	247.5	.0035	235.3	.0069	256.3	.0127	248.6
7	.0431	63.9	.0115	68.1	.0144	195.7	.0062	190.9	.0043	214.0	.0033	206.8	.0088	229.1	.0149	225.6
8	.0337	86.1	.0074	68.6	.0052	219.2	.0025	194.5	.0028	192.6	.0039	175.4	.0061	203.6	.0103	194.4
9	.0245	50.5	.0065	55.8	.0072	157.9	.0046	142.1	.0046	160.8	.0049	141.1	.0063	174.0	.0084	174.3
10	.0161	88.3	.0050	99.3	.0092	170.4	.0043	135.4	.0053	157.1	.0057	138.8	.0078	171.3	.0127	165.8

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 63 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1728	106.7	.6793	173.5	.7283	168.0	.5572	126.2	.4757	112.1	.4825	101.2	.4344	103.3
2	2.7615	91.4	2.2692	92.2	1.3025	88.3	.8824	69.3	.5712	60.4	.5448	52.5	.4980	56.0
3	1.1590	131.8	1.1130	130.3	.5725	140.5	.4308	125.8	.2594	121.9	.2186	101.8	.1545	92.1
4	1.1780	83.0	1.0392	82.2	.4911	81.4	.4232	44.1	.2814	34.2	.2612	14.4	.1994	14.7
5	.5599	86.4	.5932	83.5	.2231	73.7	.1178	41.5	.0438	30.0	.0722	6.8	.0695	10.4
6	.4222	76.9	.4675	49.5	.1882	70.6	.1674	25.3	.1255	5.5	.1308	331.7	.1090	330.8
7	.3769	78.6	.4179	66.9	.1540	52.6	.1143	354.7	.0647	324.0	.0632	289.1	.0491	301.3
8	.2454	47.8	.3082	40.9	.1114	32.4	.0767	328.4	.0517	315.3	.0644	276.1	.0645	285.2
9	.1609	78.7	.2169	53.7	.0482	47.4	.0544	336.9	.0346	316.4	.0306	257.9	.0306	254.8
10	.1931	60.7	.2339	40.2	.0877	26.8	.0446	305.5	.0531	288.8	.0494	250.1	.0379	257.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3812	102.6	.2998	80.8	.3000	35.9	.4415	7.3	.4865	354.6	.5098	351.5
2	.4661	51.6	.3264	43.5	.1676	21.2	.1284	306.2	.1389	267.7	.1236	256.3
3	.1103	42.3	.1208	355.3	.0981	327.6	.1054	295.4	.0655	279.4	.0449	271.6
4	.1523	356.3	.1222	329.6	.0708	302.9	.0638	243.4	.0440	202.9	.0408	195.7
5	.0824	324.7	.1109	285.1	.0766	269.9	.0546	237.7	.0152	154.8	.0265	150.1
6	.0761	287.4	.0738	230.5	.0521	209.9	.0437	173.5	.0092	110.0	.0158	103.1
7	.0411	274.0	.0466	242.9	.0296	216.4	.0272	166.5	.0097	67.7	.0140	103.2
8	.0514	242.1	.0670	186.5	.0370	165.3	.0292	100.6	.0050	322.0	.0140	40.5
9	.0218	221.0	.0232	153.1	.0126	126.9	.0111	60.2	.0107	11.9	.0129	5.2
10	.0296	211.9	.0408	146.6	.0186	126.3	.0142	32.0	.0125	264.3	.0134	302.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5976	12.8	.0809	9.5	.1758	189.9	.2605	193.7	.1625	203.6	.0806	255.5	.1449	325.9	.3091	342.9
2	.3028	47.7	.0121	342.6	.0735	241.1	.0866	232.0	.0603	228.0	.0601	227.3	.0724	236.2	.0947	238.2
3	.0942	78.8	.0380	12.5	.0176	327.2	.0157	289.8	.0123	285.1	.0129	268.1	.0152	268.6	.0216	252.0
4	.1564	52.2	.0471	39.3	.0070	94.2	.0126	165.4	.0119	178.2	.0168	176.0	.0237	189.8	.0353	185.4
5	.0444	32.0	.0096	348.9	.0008	174.4	.0020	150.2	.0001	199.6	.0059	126.3	.0102	129.2	.0199	119.7
6	.0331	23.5	.0096	359.5	.0009	52.7	.0025	135.1	.0039	140.4	.0030	109.6	.0057	113.1	.0089	92.6
7	.0169	16.1	.0050	309.6	.0005	222.6	.0019	70.9	.0019	98.9	.0027	88.9	.0046	94.6	.0085	73.3
8	.0125	340.9	.0005	233.8	.0019	212.1	.0006	349.8	.0015	8.3	.0020	20.8	.0039	34.5	.0076	25.7
9	.0021	97.1	.0013	91.7	.0011	44.9	.0010	347.4	.0009	339.1	.0015	317.0	.0034	346.1	.0072	331.4
10	.0086	45.3	.0025	128.6	.0019	147.1	.0008	171.4	.0008	254.2	.0009	240.4	.0019	272.7	.0047	256.1

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 8 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	2.0879	-.3418	1.6886	-1.0240	.9404	-.9211	.8812	-.4290	.6688	-.2643	.6558	-.1059	.5816	-.1253
2	1.8062	.0643	1.3684	.1847	.8138	-.0165	.6047	-.1226	.4260	-.0529	.3665	.1105	.3184	.0427
3	1.0405	-.5610	.9583	-.6042	.4994	-.4345	.4853	-.0386	.3265	-.0124	.2831	.1230	.2660	.0673
4	.9565	-.0717	.9122	.0642	.4523	-.0027	.2675	.1900	.1885	.0990	.0976	.1497	.1143	.0950
5	.6979	.0586	.7033	.2173	.3456	.0413	.1824	.2284	.1585	.1546	.0481	.2043	.1027	.1580
6	.4394	.1244	.3253	.4858	.2106	.2179	.0001	.2645	.0436	.1926	-.0705	.1698	-.0066	.1578
7	.1188	.1922	.0902	.2482	.0785	.1327	-.0910	.1574	-.0508	.1617	-.1548	.0952	-.0804	.1479
8	.0426	.1088	.0253	.1816	.0290	.1502	-.1242	.0930	-.0984	.0880	-.1324	-.0174	-.1126	.0483
9	.0853	-.0094	.1155	.0931	-.0029	.3642	-.1048	.0112	-.0840	.0257	-.0793	-.0509	-.0855	.0026
10	.0887	.0833	.0363	.1802	-.0151	.0619	-.0887	-.0164	-.0646	.0101	-.0433	-.0560	-.0583	-.0129

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4867	.0094	.4077	.1606	.2766	.2908	.1455	.4211	-.0528	.4889	-.0765	.5271
2	.2286	.0822	.0918	.0918	-.0033	.1105	-.0984	.1293	-.1525	.0539	-.1217	.0720
3	.1665	.1401	.0627	.1322	-.0417	.0964	-.1461	.0606	-.1415	-.0436	-.1369	-.0222
4	.0491	.0951	.0045	.0441	-.0325	.0169	-.0695	-.0102	-.0248	-.0402	-.0343	-.0386
5	-.0088	.1622	-.0225	.1111	-.0512	.0289	-.0799	-.0534	.0006	-.0712	-.0044	-.0649
6	-.0737	.0942	-.0518	.0567	-.0394	.0053	-.0270	-.0461	.0153	-.0347	.0131	-.0390
7	-.1339	.0389	-.1017	.0239	-.0511	-.0256	-.0005	-.0751	.0594	-.0164	.0578	-.0272
8	-.0820	-.0447	-.0539	-.0277	-.0115	-.0328	.0309	-.0380	.0354	.0274	.0476	.0273
9	-.0468	-.0588	-.0444	-.0383	-.0006	-.0305	.0432	-.0226	.0003	.0457	-.0126	.0581
10	-.0078	-.0438	-.0174	-.0321	.0081	-.0136	.0337	.0049	-.0208	.0165	-.0342	.0264

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3737	.4274	.0263	-.0039	-.2251	-.4702	-.1611	-.2701	-.1924	-.1445	-.1827	-.0193	-.1692	.1318	-.1683	.3192
2	.1708	.1225	-.0029	.0321	-.0719	-.0254	-.0210	-.0457	-.0153	-.0459	-.0141	-.0454	-.0354	-.0348	-.0473	-.0141
3	.1202	.0252	.0127	.0257	-.0318	.0197	-.0181	-.0180	-.0215	-.0166	-.0217	-.0231	-.0414	-.0170	-.0679	-.0407
4	.0961	.0363	.0204	.0197	.0042	-.0035	.0045	-.0063	.0034	-.0096	.0049	-.0103	-.0034	-.0184	-.0062	-.0327
5	.0649	.0475	.0151	.0124	.0040	-.0167	.0063	-.0114	.0029	-.0126	.0085	-.0114	.0030	-.0202	.0168	-.0336
6	.0157	.0612	-.0010	.0155	.0081	-.0004	.0097	-.0024	.0077	-.0069	.0113	-.0038	.0102	-.0152	.0265	-.0160
7	-.0159	.0341	-.0061	.0099	.0044	.0261	.0048	.0066	.0093	.0043	.0089	.0105	.0219	-.0006	.0370	.0185
8	-.0130	.0084	-.0067	.0012	.0052	-.0178	-.0036	.0024	-.0006	.0065	-.0043	.0090	.0071	.0173	-.0013	.0340
9	-.0012	.0024	-.0030	.0010	-.0019	-.0041	-.0045	-.0017	-.0054	.0039	-.0101	.0022	-.0063	.0169	-.0271	.0221
10	-.0011	.0081	-.0004	.0014	.0021	-.0082	.0020	-.0031	-.0033	-.0033	-.0038	-.0063	-.0131	.0020	-.0242	-.0141

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 65 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.9183	-.0330	.7668	-.6925	.5851	-.6033	.7440	-.1399	.6243	.0109	.6495	.1690	.6000	.1428
2	.8658	.3539	2.4473	.4304	1.3198	.2514	.7628	.5033	.4065	.3472	.2791	.4113	.2516	.3403
3	.9475	.1755	.9097	.2063	.4689	-.0457	.3839	.1239	.2624	.0589	-.2088	.1611	-.1797	.1072
4	.6632	.3449	.5910	.4106	.2518	.2371	-.0275	.3812	-.0623	.2929	-.1942	.2402	-.1230	.2289
5	.5554	.2193	.5171	.4171	.1890	.1292	-.0092	.0670	-.0254	.0022	-.0468	-.0044	-.0480	.0198
6	.2205	.3319	.1054	.4514	.0578	.1782	-.0789	.1828	-.0554	.1049	-.1287	.0392	-.1084	.0512
7	.2828	.1670	.1645	.3281	.0462	.1197	-.0894	.0280	-.0524	-.0107	-.0337	-.0587	-.0425	-.0400
8	.0249	.3113	-.1315	.3704	-.0318	.1512	-.1043	.0277	-.0498	.0210	-.0714	-.0402	-.0738	-.0117
9	.0914	.0484	-.0514	.1675	-.0270	.0339	-.0374	-.0367	-.0177	-.0587	.0295	-.0777	-.0078	-.0734
10	.0460	.2193	-.1529	.2062	-.0073	.0910	-.0564	-.0042	-.0103	.0098	.0099	-.0177	-.0040	-.0209

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.5071	.2238	.4103	.3531	.2199	.4145	.0294	.4758	-.1260	.4256	-.1375	.4219
2	.1296	.3376	-.0375	.2917	-.1091	.1584	-.1806	.0252	-.1160	-.0695	-.0802	-.0744
3	.0633	.1345	-.0741	.0487	-.0864	.0043	-.0986	-.0401	-.0378	-.0271	-.0223	-.0153
4	-.1591	.1090	-.1147	.0140	-.0701	-.0327	-.0255	-.0794	.0050	-.0442	.0128	-.0352
5	-.0544	.0046	-.0531	-.0481	-.0138	-.0518	.0255	-.0555	.0312	.0101	.0245	.0150
6	-.1003	-.0290	-.0262	-.0414	.0109	.0211	.0480	-.0009	-.0090	.0100	-.0008	.0025
7	-.0124	-.0566	-.0059	-.0673	.0093	-.0194	.0245	.0284	-.0104	.0137	.0001	.0139
8	-.0185	-.0556	.0364	-.0365	.0050	-.0113	-.0245	.0140	-.0107	-.0225	-.0105	-.0013
9	.0431	-.0362	.0506	-.0267	.0314	-.0153	.0122	-.0038	.0094	.0046	-.0004	-.0009
10	.0144	-.0061	.0462	.0417	.0198	.0326	-.0066	.0235	-.0213	-.0018	-.0178	.0011

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2387	.6883	.0350	.0666	-.0406	-.2243	-.0899	-.3426	-.1235	-.2249	-.1386	-.0932	-.1506	.0529	-.1626	.2211
2	.1942	.2006	-.0245	.0368	-.0425	-.0321	-.0197	-.0548	-.0058	-.0467	-.0002	-.0535	-.0179	-.0635	-.0285	-.0848
3	.0462	.1280	-.0160	.0495	-.0099	.0048	-.0072	-.0094	-.0078	-.0126	-.0034	-.0140	-.0063	-.0155	-.0029	-.0190
4	.0042	.0809	-.0059	.0171	-.0024	-.0056	-.0069	-.0090	.0022	-.0097	.0085	-.0092	.0093	-.0150	.0230	-.0185
5	.0147	.0199	-.0046	.0066	-.0036	.0047	-.0019	.0031	.0033	.0012	.0025	.0063	.0075	.0081	.0068	.0197
6	-.0030	.0314	-.0006	.0056	.0035	.0005	.0026	-.0007	-.0003	-.0037	.0011	-.0005	.0003	-.0005	-.0009	.0002
7	.0069	.0101	-.0024	.0025	-.0021	.0026	-.0029	.0014	-.0007	.0029	-.0021	.0026	-.0012	.0046	-.0066	.0044
8	-.0159	.0154	-.0059	.0006	.0005	-.0006	.0022	.0008	.0022	-.0017	-.0022	-.0016	.0007	-.0039	.0012	-.0034
9	.0061	-.0116	-.0022	-.0022	-.0028	.0021	-.0054	.0010	-.0029	.0035	-.0041	.0027	-.0011	.0055	-.0029	.0018
10	.0010	.0184	-.0006	.0038	.0018	-.0014	.0027	-.0020	.0002	-.0038	.0024	-.0048	-.0044	-.0063	-.0031	-.0101

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 8 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.1157	99.3	1.9749	121.2	1.3307	133.8	.9801	116.0	.7191	111.6	.6643	99.2	.5950	102.2
2	1.8074	88.0	1.3811	82.2	.8140	91.2	.6170	78.5	.4293	82.9	.3828	73.2	.3212	82.4
3	1.1821	118.3	1.1329	122.2	.6620	131.0	.4868	94.5	.3268	92.2	.3087	66.5	.2743	75.8
4	.9591	94.3	.9145	86.0	.4523	90.3	.3281	54.6	.2129	42.3	.1788	33.1	.1486	50.3
5	.7012	84.4	.7146	73.2	.3481	83.2	.2923	38.6	.2214	45.7	.2099	13.2	.1884	33.0
6	.5463	53.6	.5846	33.8	.3030	44.0	.2645	.0	.1975	12.7	.1838	337.5	.1579	2.4
7	.2260	31.7	.2641	20.0	.1542	30.6	.1818	330.0	.1695	342.6	.1817	301.6	.1483	331.5
8	.1255	29.9	.1834	7.9	.1529	10.9	.1567	306.4	.1321	311.7	.1336	262.5	.1225	293.2
9	.0858	96.3	.1483	51.1	.0643	357.4	.1074	276.0	.0879	287.0	.0943	237.3	.0856	271.7
10	.1217	46.8	.1838	11.4	.0832	349.3	.0903	259.5	.0654	278.9	.0708	217.7	.0597	257.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4868	88.9	.4382	68.5	.4014	43.6	.4455	19.1	.4917	353.8	.5327	351.7
2	.2429	70.2	.1298	45.0	.1106	358.3	.1625	322.7	.1617	289.5	.1414	300.6
3	.2176	49.9	.1463	25.4	.1050	336.6	.1581	292.5	.1481	252.9	.1387	260.8
4	.1070	27.3	.0443	5.8	.0367	261.7	.0703	261.7	.0473	211.7	.0516	221.7
5	.1625	356.9	.1134	348.6	.0588	299.4	.0941	236.3	.0712	179.5	.0651	183.9
6	.1196	325.0	.0768	317.6	.0397	277.7	.0534	210.3	.0379	156.2	.0411	161.3
7	.1596	383.2	.1045	283.2	.0571	243.4	.0731	180.3	.0616	105.4	.0636	113.2
8	.0934	241.4	.0406	242.8	.0348	199.3	.0489	140.9	.0448	52.2	.0549	60.1
9	.0752	218.5	.0584	229.2	.0305	181.1	.0488	117.6	.0457	.4	.0594	12.2
10	.0445	190.1	.0365	208.5	.0158	149.1	.0340	81.6	.0265	308.5	.0432	307.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5677	41.2	.0266	98.4	.5213	205.6	.3145	210.8	.2406	233.1	.1837	264.0	.2145	307.9	.3608	332.2
2	.2102	54.3	.0322	354.8	.0762	250.5	.0503	204.6	.0484	198.5	.0475	197.3	.0496	225.4	.0688	258.1
3	.1228	78.2	.0286	26.3	.0374	301.7	.0255	225.0	.0272	232.4	.0317	223.2	.0447	247.7	.0791	239.1
4	.1027	69.3	.0283	45.9	.0055	130.4	.0077	144.7	.0102	160.8	.0113	154.6	.0187	190.5	.0333	190.8
5	.0804	53.8	.0195	50.6	.0172	166.6	.0130	151.0	.0129	167.1	.0142	143.5	.0205	171.5	.0376	153.4
6	.0631	14.4	.0155	356.3	.0081	92.9	.0099	103.8	.0104	131.7	.0120	108.7	.0182	146.2	.0309	121.1
7	.0376	335.0	.0117	328.6	.0265	9.5	.0082	36.3	.0103	65.1	.0138	40.4	.0219	91.7	.0414	63.4
8	.0155	303.0	.0068	280.2	.0186	163.9	.0043	304.1	.0066	354.8	.0100	334.3	.0187	24.3	.0340	357.7
9	.0027	332.4	.0032	288.2	.0064	197.0	.0048	249.6	.0066	305.8	.0103	282.2	.0180	339.6	.0349	309.2
10	.0082	352.1	.0015	344.3	.0085	166.0	.0037	147.2	.0047	224.9	.0074	211.2	.0132	278.6	.0280	239.9

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 65 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.9189	92.1	1.0332	132.1	.8404	135.9	.7767	100.4	.6244	89.0	.6712	75.4	.6168	76.6
2	2.8875	83.0	2.4848	80.0	1.3435	79.2	.9139	56.6	.5346	49.5	.4971	34.2	.4232	36.5
3	.9436	79.5	.9328	77.2	.4712	95.6	.4034	72.1	.2689	77.3	.2637	52.3	.2092	59.2
4	.7475	62.5	.7196	55.2	.3391	48.0	.3822	355.9	.2994	348.0	.3102	320.7	.2598	331.7
5	.5971	68.5	.6643	51.1	.2289	55.7	.0676	7.8	.0265	274.9	.0450	264.4	.0519	292.4
6	.3985	33.6	.4636	13.2	.1873	18.0	.1991	336.7	.1204	332.6	.1345	286.9	.1201	295.3
7	.3284	59.4	.3679	26.9	.1283	21.1	.0939	287.3	.0535	258.4	.0677	209.9	.0583	226.7
8	.3123	4.6	.3931	340.5	.1545	348.1	.1079	284.9	.0729	286.8	.0821	240.7	.0747	261.0
9	.1142	53.2	.1752	342.9	.0433	321.4	.0525	225.6	.0613	196.8	.0831	159.2	.0738	186.0
10	.2241	11.8	.2567	323.4	.0913	355.4	.0565	265.8	.0142	313.6	.0202	150.7	.0212	190.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5543	66.2	.5413	49.3	.4692	28.0	.4767	3.6	.4438	343.5	.4437	341.9
2	.3617	21.0	.2941	352.7	.1924	325.5	.1823	277.9	.1352	239.1	.1094	227.1
3	.1484	25.2	.0887	303.3	.0845	272.9	.1045	247.9	.0465	234.4	.0270	235.5
4	.1928	304.4	.1155	277.0	.0773	245.0	.0814	197.8	.0445	173.5	.0374	160.0
5	.0546	274.8	.0717	227.8	.0534	195.0	.0610	155.3	.0328	72.0	.0287	58.6
6	.1044	253.9	.0489	212.3	.0238	152.6	.0480	91.0	.0135	318.0	.0024	342.5
7	.0580	192.3	.0675	185.0	.0215	154.4	.0375	40.7	.0172	322.8	.0139	.3
8	.0584	198.4	.0514	135.0	.0123	156.1	.0299	297.8	.0249	205.4	.0104	263.1
9	.0563	130.0	.0572	117.8	.0349	115.9	.0127	107.3	.0104	64.6	.0010	201.7
10	.0157	112.9	.0622	47.9	.0381	31.3	.0244	344.3	.0214	265.2	.0178	273.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7285	19.1	.0752	27.7	.2299	190.2	.3542	194.7	.2583	208.6	.1670	236.1	.1596	289.3	.2744	323.7
2	.2792	44.1	.0442	326.3	.0532	232.9	.0582	199.8	.0470	187.1	.0535	180.3	.0660	195.7	.0894	198.6
3	.1361	19.9	.0520	342.0	.0120	304.6	.0119	217.3	.0148	211.8	.0144	193.6	.0167	202.1	.0192	188.6
4	.0810	3.0	.0181	341.0	.0061	155.3	.0114	142.5	.0099	167.3	.0126	137.2	.0176	148.1	.0295	128.8
5	.0748	36.6	.0081	325.1	.0059	322.6	.0036	327.6	.0035	70.0	.0068	21.3	.0110	42.8	.0208	19.0
6	.0316	354.6	.0056	354.1	.0035	82.5	.0027	105.3	.0037	184.8	.0012	113.8	.0006	145.5	.0010	281.0
7	.0123	34.5	.0035	316.1	.0033	321.7	.0032	296.3	.0030	345.7	.0034	321.6	.0048	345.6	.0079	303.6
8	.0223	314.5	.0060	275.3	.0008	142.9	.0023	69.1	.0028	126.9	.0027	126.8	.0039	169.9	.0034	160.5
9	.0131	152.0	.0031	224.3	.0036	307.0	.0055	280.7	.0046	320.2	.0049	303.4	.0056	348.9	.0034	302.7
10	.0184	3.3	.0038	351.3	.0023	128.4	.0034	127.6	.0039	176.8	.0054	153.6	.0078	214.7	.0105	197.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 9 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	2.0472	.2505	1.5867	-.3802	.9508	-.6437	.9477	-.2772	.7453	-.2269	.7385	-.0487	.6662	-.1309
2	1.7677	-.1017	1.3765	.0449	.8756	-.0980	.8454	.1712	.4654	.0797	.3922	.1690	.3568	.0855
3	1.2380	-.3806	1.1693	-.3293	.6045	-.2892	.5296	.1222	.4024	.0761	.3116	.2513	.3269	.1513
4	1.1937	.1197	1.1062	.4125	.5547	.1156	.2307	.3438	.1778	.2112	.0214	.2474	.0844	.1939
5	.5269	.5163	.3770	.6982	.2207	.2634	-.0230	.3087	-.0555	.7510	-.1076	.2313	.0031	.7381
6	.1781	.2011	-.0337	.4161	.1129	.1734	-.1018	.1712	-.0751	.1462	-.1461	.0368	-.1264	.1055
7	.0775	.0324	-.0194	.1293	-.0125	.1434	-.1528	.0403	-.0831	.0843	-.1214	-.0202	-.0992	.0440
8	.2434	-.0049	.1423	.2119	.0374	.0798	-.0947	.0107	-.0765	.0461	-.0731	-.0567	-.0808	-.0000
9	.1670	.1905	-.0742	.2504	-.0123	.1111	-.1088	-.0150	-.0746	.0211	-.0412	-.0411	-.0402	-.0118
10	.0949	.0849	-.0533	.1373	-.0114	.0498	-.0569	-.0526	-.0612	-.0030	-.0143	-.0615	-.0470	-.0211

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.5789	.0204	.4338	.1702	.2683	.3445	.1029	.5188	-.1644	.5210	-.1959	.5377
2	.2524	.1570	.1111	.1240	-.0326	.1262	-.1764	.1284	-.1776	-.0002	-.1382	.0108
3	.1772	.2466	.0763	.1738	-.0409	.0948	-.1980	.0159	-.1372	-.0944	-.1217	-.0681
4	-.0333	.1676	-.0194	.0944	-.0452	.0037	-.0710	-.0871	.0113	-.0822	.0150	-.0732
5	-.1429	.1692	-.0956	.1368	-.0753	.0150	-.0550	-.1069	.0549	-.0742	.0384	-.0522
6	-.1468	-.0303	-.1193	.0000	-.0353	-.0436	.0488	-.0872	.0804	.0137	.0752	.0187
7	-.0921	-.0569	-.0919	-.0380	-.0101	-.0364	.0717	-.0349	.0291	.0756	.0168	.0640
8	-.0316	-.0719	-.0416	-.0526	.0070	-.0172	.0555	.0181	-.0493	.0376	-.0547	.0441
9	-.0067	-.0656	-.0151	-.0625	.0066	-.0206	.0285	.0212	-.0217	-.0081	-.0285	-.0259
10	.0170	-.0491	-.0033	-.0427	.0149	-.0065	.0330	.0296	-.0212	-.0017	-.0081	-.0201

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3270	.5109	-.0357	-.0214	-.3365	-.5782	-.2260	-.3371	-.2763	-.1908	-.2647	-.0647	-.2586	.1057	-.2750	.2930
2	.1469	.1228	-.0123	.0493	-.0620	.0170	-.0111	-.0261	.0003	-.0318	.0015	-.0367	-.0218	-.0364	-.0548	-.0399
3	.1319	.0449	.0048	.0186	-.0514	-.0321	-.0166	-.0382	-.0274	-.0335	-.0209	-.0412	-.0440	-.0378	-.0539	-.0717
4	.1131	.0684	.0220	.0251	.0078	-.0173	.0101	-.0102	.0091	-.0136	.0154	-.0105	.0122	-.0262	.0332	-.0362
5	-.0215	.1015	-.0006	.0244	.0152	-.0110	.0108	-.0042	.0096	-.0084	.0149	-.0042	.0151	-.0176	.0372	-.0127
6	-.0331	.0302	-.0137	.0034	-.1930	.0073	.0019	.0098	.0105	.0079	.0078	.0162	.0485	.0078	.0292	.0409
7	-.0160	-.0008	-.0062	-.0009	-.0020	.0034	-.0073	.0009	-.0055	.0095	-.0129	.0091	.0000	.0241	-.0255	.0344
8	.0076	-.0051	.0009	-.0014	-.0008	-.0010	.0004	-.0062	-.0082	-.0041	-.0095	-.0109	-.0235	.0072	-.0431	-.0172
9	-.0084	.0151	.0000	.0026	-.0030	-.0069	.0014	-.0029	-.0026	-.0029	.0006	-.0064	-.0087	-.0085	.0049	-.0243
10	-.0007	.0083	-.0023	.0004	.0025	-.0001	.0030	.0000	.0007	-.0037	.0054	-.0045	-.0025	-.0106	.0149	-.0133

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 66 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.4228	.1329	1.1932	-.5601	.8195	-.4974	.8700	.0431	.6679	.1555	.6923	.3130	.6595	.2363
2	2.7794	.8405	2.2803	.8910	1.2943	.4741	.7110	.6324	.3872	.3894	.2441	.4676	.2408	.3958
3	.6529	.2135	.6698	.1519	.3287	.0013	.2112	.2330	.1696	.1644	.0790	.2603	.0949	.2222
4	.7948	.5025	.6970	.6467	.2782	.2781	-.0736	.3092	-.1034	.2206	-.2437	.1348	-.1993	.1541
5	.2116	.3127	.1306	.4507	.0558	.1340	-.0466	.0712	-.0331	.0222	-.0452	-.0105	-.0366	-.0096
6	.3178	.3023	.1586	.4600	.0903	.1736	-.1093	.1298	-.0779	.0848	-.1331	.0046	-.0990	.0521
7	.0555	.2786	-.1194	.3590	-.0555	.1430	-.0994	-.0197	-.0718	-.0323	-.0408	-.1039	-.0909	-.0649
8	.1042	.2080	-.0892	.2587	.0099	.0940	-.0682	.0300	-.0262	.0053	.0028	-.0441	-.0013	-.0519
9	-.0566	.1921	-.2327	.1597	-.1050	.0908	-.0873	-.0737	-.0598	-.0369	.0053	-.0758	-.0391	-.0421
10	.0081	.1094	-.1439	.0682	-.0226	.0178	-.0164	-.0562	-.0078	-.0382	.0592	-.0298	.0278	-.0708

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.5755	.3038	.4189	.3952	.1983	.4516	-.0222	.5081	-.1843	.4164	-.1907	.3954
2	.0838	.4045	-.0700	.3138	-.1561	.1487	-.2422	-.0164	-.1428	-.1171	-.0909	-.0874
3	-.0389	.2020	-.1486	.0761	-.1067	-.0100	-.0648	-.0962	.0167	-.0419	.0162	-.0304
4	-.2214	.0231	-.1368	-.0759	-.0494	-.0777	.0379	-.0796	.0244	-.0029	.0175	.0027
5	-.0327	-.0551	-.0143	-.1043	.0307	-.0563	.0758	-.0083	.0148	.0241	.0107	.0054
6	-.0589	-.0129	.0562	-.0446	.0185	.0058	-.0191	.0562	-.0352	.0035	-.0090	.0153
7	-.0459	-.1012	.0051	-.0257	.0108	-.0281	.0166	-.0306	.0104	-.0128	-.0005	-.0034
8	.0709	-.0435	.0754	-.0092	.0360	.0235	-.0034	.0561	-.0220	.0005	-.0132	.0032
9	.0018	-.0279	.0013	.0301	-.0286	.0008	-.0585	-.0285	.0273	-.0373	.0107	-.0226
10	.0707	-.0143	.0319	.0130	.0346	-.0086	.0374	-.0303	.0082	.0364	.0073	.0199

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2659	.7504	.0212	.0519	-.0646	-.2614	-.1203	-.4029	-.1817	-.2714	-.1865	-.1401	-.2031	.0149	-.2127	.1813
2	.1384	.2767	-.0513	.0592	-.0416	-.0307	-.0194	-.0497	-.0012	-.0452	.0015	-.0517	-.0172	-.0630	-.0217	-.0895
3	-.0299	.1361	-.0316	.0464	.0009	.0029	.0100	-.0106	.0096	-.0164	.0131	-.0150	.0114	-.0191	.0217	-.0186
4	.0021	.0608	-.0035	.0162	.0107	.0034	.0123	.0032	.0105	.0016	.0124	.0030	.0154	-.0011	.0183	.0093
5	-.0009	.0126	-.0020	.0013	-.0009	-.0003	-.0032	.0021	-.0007	.0054	-.0016	.0073	-.0023	.0095	-.0026	.0099
6	-.0102	.0294	-.0102	.0120	.0029	-.0019	.0009	-.0029	-.0020	.0013	-.0020	-.0031	-.0049	-.0007	-.0053	-.0007
7	-.0129	.0094	-.0044	.0031	.0018	.0011	-.0006	.0018	-.0007	.0020	-.0005	.0022	.0018	.0006	.0015	.0011
8	-.0010	.0104	-.0028	.0005	-.0004	.0025	-.0004	-.0015	-.0015	-.0028	-.0005	-.0023	-.0038	-.0012	-.0078	-.0045
9	-.0148	.0031	-.0041	-.0004	.0012	-.0025	-.0011	.0026	-.0015	.0026	-.0020	.0037	-.0069	.0011	-.0119	.0019
10	.0029	-.0016	.0008	.0003	-.0006	-.0002	-.0030	-.0009	-.0027	.0023	-.0050	.0002	-.0045	.0066	-.0122	.0042

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 9 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0625	83.0	1.6316	103.5	1.1482	124.1	.9874	106.3	.7790	106.9	.7417	95.3	.6789	101.1
2	1.7706	93.3	1.3772	88.1	.8810	96.4	.6678	75.1	.4721	80.3	.4271	66.7	.3669	76.5
3	1.2952	107.1	1.2148	105.7	.6701	115.6	.5435	77.0	.4095	79.3	.4003	51.1	.3602	45.2
4	1.1997	84.3	1.1806	49.6	.5666	78.2	.4141	33.9	.2760	40.1	.2484	4.9	.2115	23.5
5	.7377	45.6	.7935	28.4	.3429	40.1	.3096	355.7	.2571	12.5	.2559	334.6	.2381	.7
6	.2686	41.5	.4173	4.6	.2069	33.1	.1992	329.3	.1644	332.8	.1701	282.5	.1646	309.8
7	.0840	67.3	.1308	351.4	.1441	355.0	.1643	291.5	.1184	315.4	.1231	260.6	.1093	294.9
8	.2637	91.1	.2553	33.9	.0882	25.1	.0973	276.3	.0893	301.1	.0925	232.2	.0808	270.0
9	.2533	41.2	.2613	343.5	.1118	353.7	.1098	262.1	.0775	285.8	.0737	214.0	.0614	258.9
10	.1273	48.2	.1473	338.8	.0511	347.1	.0775	227.2	.0612	267.2	.0631	193.1	.0515	245.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5793	88.0	.4660	48.6	.4366	37.9	.5289	11.2	.5464	342.5	.5723	340.0
2	.2973	58.1	.1865	41.9	.1303	345.5	.2182	306.1	.1776	269.9	.1386	274.5
3	.3037	35.7	.1898	23.7	.1127	327.3	.1986	274.6	.1666	235.5	.1394	240.8
4	.1709	348.8	.0964	348.4	.0453	274.6	.1124	219.2	.0830	172.2	.0747	168.4
5	.2215	319.8	.1669	325.0	.0748	281.2	.1202	207.2	.0923	143.5	.0648	143.7
6	.1499	358.4	.1193	270.0	.0561	219.0	.0999	150.8	.0818	80.4	.0775	74.0
7	.1083	238.3	.0994	247.5	.0378	195.4	.0798	115.9	.0810	21.1	.0662	14.7
8	.0785	203.7	.0670	218.3	.0186	158.0	.0584	72.0	.0620	307.3	.0703	308.9
9	.0660	185.8	.0643	193.8	.0217	142.3	.0355	53.3	.0231	249.5	.0385	227.8
10	.0520	160.9	.0428	184.4	.0162	113.7	.0443	48.0	.0213	265.4	.0216	201.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.6066	32.6	.0416	239.1	.6690	210.2	.4058	213.8	.3358	235.4	.2725	256.3	.2794	292.2	.4018	316.8
2	.1914	50.1	.0509	346.0	.0643	285.3	.0284	203.0	.0318	179.4	.0367	177.7	.0424	210.9	.0678	233.9
3	.1393	71.2	.0198	20.0	.0606	288.0	.0416	203.5	.0433	219.3	.0461	206.9	.0595	230.6	.0897	216.9
4	.1322	58.8	.0333	41.2	.0190	155.7	.0143	135.5	.0164	146.3	.0186	124.2	.0289	155.1	.0491	137.5
5	.1038	12.0	.0244	358.7	.0187	126.0	.0116	111.3	.0127	131.1	.0155	105.9	.0232	139.3	.0393	108.9
6	.0448	312.4	.0141	284.0	.1932	272.2	.0100	11.1	.0132	53.0	.0180	25.8	.0492	80.9	.0503	35.5
7	.0180	267.1	.0063	261.3	.0039	329.8	.0074	276.9	.0110	329.8	.0158	305.3	.0241	.1	.0428	323.4
8	.0092	124.2	.0016	146.3	.0013	218.7	.0062	176.4	.0092	243.4	.0144	221.0	.0246	287.0	.0464	248.2
9	.0173	79.0	.0026	1.0	.0029	203.8	.0032	184.1	.0039	222.1	.0064	174.2	.0127	225.7	.0248	168.5
10	.0083	355.5	.0023	280.8	.0025	92.6	.0030	90.0	.0038	168.8	.0070	129.5	.0109	193.5	.0200	131.8

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 66 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.4290	84.7	1.3181	115.1	.9587	121.3	.8710	87.2	.6858	76.9	.7598	65.7	.7006	70.3
2	2.9037	73.2	2.4482	68.7	1.3784	69.9	.9516	48.3	.5492	44.8	.5274	27.6	.4633	31.3
3	.6869	71.9	.6868	77.2	.3287	89.8	.3144	42.2	.2362	45.9	.2720	16.9	.2416	23.1
4	.9420	57.8	.9508	47.1	.3933	45.0	.3179	346.6	.2437	334.9	.2785	298.9	.2520	307.7
5	.3776	34.1	.4492	16.2	.1431	22.6	.0851	326.8	.0398	303.8	.0464	256.9	.0378	255.4
6	.4384	46.4	.4864	19.0	.1957	27.5	.1497	319.9	.1151	317.4	.1332	272.0	.1119	297.7
7	.2841	11.3	.3783	341.6	.1534	338.8	.1013	258.8	.0787	245.8	.1117	201.4	.1117	234.5
8	.2324	26.6	.2736	341.0	.0944	6.0	.0745	293.8	.0247	281.5	.0442	174.3	.0519	181.4
9	.2003	343.6	.2822	304.5	.1388	310.8	.1142	229.8	.0703	238.3	.0760	174.0	.0574	222.9
10	.1097	4.3	.1593	295.3	.0288	308.2	.0585	196.2	.0390	191.6	.0663	116.8	.0760	158.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6508	62.2	.5759	46.7	.4933	23.7	.5086	357.5	.4554	336.1	.4389	334.3
2	.4150	11.7	.3215	347.4	.2156	313.6	.2428	266.1	.1847	230.6	.1261	226.1
3	.2057	349.1	.1669	297.1	.1072	264.6	.1160	214.0	.0451	158.3	.0344	152.0
4	.2226	276.0	.1564	241.0	.0921	212.5	.0882	154.5	.0245	96.8	.0177	81.2
5	.0640	210.7	.1053	187.8	.0641	151.4	.0762	96.2	.0283	31.5	.0120	63.5
6	.0603	257.7	.0717	128.4	.0194	72.6	.0594	341.2	.0354	275.7	.0177	329.4
7	.1112	204.4	.0262	168.8	.0301	158.9	.0348	151.5	.0165	141.0	.0034	189.2
8	.0832	121.5	.0760	97.0	.0430	56.9	.0562	356.6	.0220	271.3	.0135	283.6
9	.0280	176.4	.0301	2.4	.0286	271.6	.0651	244.1	.0463	143.8	.0250	154.6
10	.0721	101.5	.0344	67.8	.0357	104.0	.0481	129.0	.0373	12.7	.0212	20.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7961	19.5	.0561	22.2	.2692	193.9	.4205	196.6	.3266	213.8	.2332	233.1	.2036	274.2	.2794	310.4
2	.3094	26.6	.0784	319.1	.0517	233.6	.0533	201.4	.0453	181.6	.0518	178.4	.0654	195.3	.0921	193.7
3	.1394	347.6	.0561	325.7	.0031	16.5	.0145	136.7	.0190	149.8	.0199	138.8	.0223	149.2	.0286	130.7
4	.0608	2.0	.0166	347.9	.0112	72.4	.0127	75.3	.0106	81.4	.0128	76.3	.0155	94.2	.0205	43.0
5	.0127	355.8	.0024	302.4	.0009	289.5	.0038	303.5	.0055	352.4	.0074	347.8	.0098	13.6	.0103	345.5
6	.0311	19.2	.0158	40.3	.0034	122.9	.0030	163.4	.0024	235.4	.0037	212.8	.0049	261.8	.0054	262.8
7	.0160	306.2	.0054	304.6	.0021	58.2	.0019	341.1	.0022	19.3	.0022	348.0	.0019	70.6	.0019	54.7
8	.0107	354.4	.0029	280.9	.0025	350.7	.0016	194.1	.0032	208.3	.0023	191.8	.0040	252.7	.0090	240.1
9	.0151	281.8	.0041	265.0	.0027	25.7	.0029	336.4	.0031	30.1	.0042	28.0	.0070	98.9	.0121	81.0
10	.0033	118.8	.0009	71.5	.0007	251.0	.0031	252.9	.0036	310.4	.0050	272.6	.0079	325.7	.0129	288.8

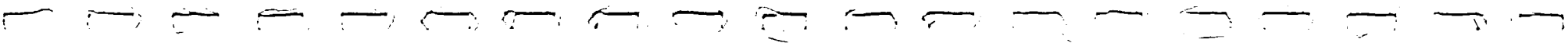


TABLE 4
(Notes 1 and 2)

CHORDWISE PRESSURES: $M_c=0.30$, $\bar{\alpha}=10$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.050	9	64-67
0	.100	11	68-71
0	.124	13	72-75
9	.050	15	76-79
9	.100	17	80-83
9	.124	19	84-87
12	.050	21	88-91
12	.100	23	92-95
12	.124	25	96-99
15	.050	27	100-103
15	.100	29	104-107
15	.124	31	108-111

Notes:

1. Unswept and swept counterparts appear on facing pages (A,B coefficients on first page pair and C,P coefficients on second page pair).
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\begin{aligned} \text{PAGE } C_c &= \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100 \\ \text{PAGE } C_D &= \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200 \end{aligned}$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG

FILE: 25 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.3305	3.2186	-.4488	3.2098	-.2827	2.5890	-.2758	1.9077	-.1474	1.5128	-.1745	1.3154	-.1048	1.2763
2	-1.6407	-.3744	-1.1555	-.3474	-.6305	-.1278	-.3204	-.0833	-.1721	-.0229	-.1358	-.0272	-.0916	-.0034
3	.0123	-.2085	-.0024	-.1088	-.0422	.0089	-.0255	-.0052	-.0212	-.0063	-.0177	.0016	-.0161	.0077
4	.0426	-.0314	.0096	-.0253	-.0212	-.0264	.0014	-.0098	-.0006	-.0064	-.0037	-.0050	-.0038	-.0034
5	.0044	-.0052	-.0022	-.0065	.0056	-.0181	.0032	-.0027	.0012	-.0050	.0030	-.0036	.0022	-.0031
6	-.0044	-.0009	-.0017	-.0008	.0035	.0040	.0019	-.0003	-.0003	.0002	-.0001	-.0005	-.0003	-.0002
7	-.0016	-.0041	.0014	-.0020	-.0034	.0041	-.0020	-.0027	-.0001	-.0010	.0010	-.0007	-.0006	-.0005
8	.0113	-.0028	.0070	.0057	.0013	-.0020	.0047	-.0012	.0032	-.0004	.0018	.0007	.0021	-.0008
9	-.0081	-.0038	-.0033	.0013	-.0019	-.0010	-.0012	-.0001	-.0003	.0011	-.0001	-.0005	-.0003	-.0007
10	-.0070	-.0120	-.0024	-.0076	-.0045	-.0066	-.0023	-.0050	-.0029	-.0038	-.0011	-.0018	-.0019	-.0014

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1252	1.0074	-.0384	.6572	-.0154	.4266	.0076	.1959	.0056	.0690	.0027	-.0034
2	-.0598	-.0077	-.0129	.0035	.0017	.0029	.0163	.0023	.0150	.0019	-.0119	-.0032
3	-.0137	.0041	-.0078	.0041	-.0060	.0040	-.0042	.0038	-.0029	.0017	-.0002	-.0053
4	-.0011	-.0036	-.0017	-.0014	-.0011	-.0015	-.0004	-.0015	.0018	.0004	.0022	-.0005
5	.0028	-.0025	.0021	-.0018	-.0008	-.0008	-.0005	.0002	.0003	.0004	.0002	.0001
6	-.0001	-.0003	-.0004	-.0004	-.0003	-.0002	-.0002	.0002	-.0001	.0006	-.0003	.0001
7	.0004	-.0004	.0005	-.0003	-.0004	-.0000	-.0013	.0003	-.0001	.0005	-.0003	.0005
8	.0021	.0000	.0010	-.0008	.0004	-.0003	.0002	.0002	.0003	-.0002	.0002	-.0005
9	-.0006	-.0009	.0010	.0007	-.0006	.0003	.0002	-.0002	.0004	.0002	-.0002	-.0004
10	-.0009	-.0022	-.0007	-.0012	-.0010	-.0005	-.0013	.0001	-.0004	-.0011	-.0006	-.0007

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3658	-2.7109	.4496	-2.7539	.3210	-2.8703	.1070	-.8670	.0217	-.4682	.0028	-.2263	-.0116	-.0837	-.0066	.0036
2	-1.3740	-.4126	-.8070	-.3201	-.4350	-.1574	-.0538	-.0326	-.0030	-.0090	.0117	-.0015	.0112	-.0005	-.0116	-.0040
3	-.0596	.1083	-.0308	.0603	.0176	-.0111	.0089	-.0031	.0075	-.0058	.0057	-.0039	.0030	-.0028	-.0022	.0039
4	.0228	-.0243	.0335	-.0015	.0212	-.0114	.0036	-.0037	.0031	-.0017	.0027	-.0003	.0025	.0002	.0034	.0033
5	-.0104	-.0074	-.0007	-.0104	-.0019	-.0020	-.0023	.0009	-.0006	.0006	-.0004	.0005	-.0001	.0002	.0003	-.0003
6	-.0058	.0039	-.0027	.0051	.0029	.0069	-.0003	.0001	.0002	.0010	.0002	.0002	.0001	-.0001	.0001	-.0005
7	.0036	.0005	.0039	.0015	.0065	-.0014	.0004	-.0008	.0001	.0004	.0008	.0001	.0005	-.0003	.0004	-.0003
8	.0000	.0005	-.0004	-.0001	.0008	-.0003	-.0005	-.0000	-.0002	.0004	-.0003	.0004	-.0002	.0004	-.0005	.0002
9	-.0029	-.0010	-.0010	.0012	.0037	-.0007	.0000	-.0007	-.0004	-.0001	-.0002	-.0003	-.0004	-.0001	-.0003	-.0002
10	-.0013	-.0049	.0001	-.0012	-.0005	-.0086	.0003	-.0009	-.0001	-.0007	.0001	-.0006	-.0005	-.0003	.0000	-.0006

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG

FILE: 25 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.2355	354.1	3.2439	351.7	2.6044	353.8	1.9276	351.8	1.5200	354.4	1.3269	352.4	1.2806	355.3
2	1.6829	257.1	1.2066	253.3	.6433	258.5	.3313	255.4	.1737	262.4	.1385	258.7	.0917	267.9
3	.2089	176.6	.1088	181.3	.0431	281.9	.0260	258.5	.0221	286.5	.0178	275.1	.0178	295.6
4	.0529	126.4	.0272	159.4	.0339	218.8	.0099	172.0	.0064	185.6	.0043	216.5	.0051	228.6
5	.0068	139.3	.0069	161.8	.0190	162.8	.0042	130.4	.0051	166.6	.0047	140.3	.0038	144.3
6	.0059	261.3	.0018	294.7	.0053	41.1	.0019	99.2	.0003	55.3	.0005	192.8	.0004	232.5
7	.0044	200.9	.0025	144.1	.0053	320.7	.0034	216.5	.0010	188.1	.0012	126.2	.0011	213.5
8	.0116	103.8	.0090	51.1	.0023	147.5	.0048	104.2	.0032	97.8	.0019	70.4	.0022	109.9
9	.0089	295.3	.0035	291.6	.0021	297.9	.0012	265.7	.0011	345.3	.0005	111.9	.0008	20.6
10	.0139	210.4	.0080	197.5	.0080	214.6	.0055	204.9	.0048	217.5	.0021	211.0	.0023	233.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0151	352.9	.6583	356.7	.4268	357.9	.1941	2.2	.0492	4.4	.0043	141.2
2	.0403	262.7	.0134	285.3	.0033	29.8	.0164	82.0	.0151	82.7	.0123	254.9
3	.0144	286.8	.0089	297.8	.0072	303.3	.0056	311.9	.0033	300.3	.0053	181.9
4	.0038	197.6	.0023	230.4	.0018	214.3	.0016	195.8	.0019	76.5	.0023	102.3
5	.0038	132.3	.0027	130.7	.0011	134.6	.0005	292.8	.0005	43.1	.0002	68.4
6	.0003	204.6	.0007	213.3	.0004	232.7	.0002	315.7	.0006	348.9	.0003	76.6
7	.0007	120.9	.0006	122.5	.0004	270.6	.0013	284.0	.0005	349.3	.0006	327.5
8	.0021	89.2	.0013	128.5	.0007	115.3	.0003	50.9	.0004	116.2	.0005	157.6
9	.0011	31.0	.0012	52.0	.0007	64.2	.0003	128.5	.0005	61.7	.0004	152.4
10	.0024	201.5	.0014	210.9	.0012	242.2	.0013	275.2	.0012	198.8	.0009	219.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7354	172.3	2.7904	170.7	2.8882	173.6	.8735	173.0	.4687	177.4	.2263	179.3	.0845	187.9	.0075	298.9
2	1.4346	253.3	.8681	248.4	.4626	250.1	.0629	238.8	.0095	198.6	.0118	97.4	.0112	92.3	.0123	250.8
3	.1236	331.2	.0677	332.9	.0208	122.2	.0094	109.0	.0094	127.8	.0069	124.3	.0041	133.2	.0044	330.7
4	.0334	136.8	.0335	92.5	.0240	118.3	.0052	135.6	.0035	118.5	.0027	96.9	.0025	84.4	.0047	46.3
5	.0128	234.5	.0104	183.7	.0027	22.8	.0025	22.0	.0008	318.3	.0007	317.8	.0002	330.1	.0004	127.6
6	.0070	303.8	.0058	332.2	.0075	22.7	.0003	286.8	.0010	13.1	.0003	43.0	.0002	139.7	.0005	173.1
7	.0036	81.7	.0042	48.5	.0047	102.1	.0009	24.4	.0004	8.2	.0008	79.6	.0005	119.7	.0005	112.5
8	.0004	1.2	.0004	252.8	.0009	107.2	.0005	244.7	.0005	333.2	.0005	330.0	.0004	334.0	.0005	287.6
9	.0031	108.1	.0015	321.5	.0038	100.6	.0007	179.5	.0004	254.7	.0004	220.7	.0004	257.8	.0004	242.4
10	.0051	195.1	.0012	174.7	.0087	183.0	.0010	164.6	.0007	189.2	.0006	173.2	.0006	240.7	.0006	176.4

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG
NACA 0012 AIRFOIL

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0998) PITCHING AMPLITUDE = 10.0 DEG

FILE: 26 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.6514	3.1819	-.8864	3.1357	-.5137	2.5643	-.5068	1.8667	-.2589	1.4992	-.3185	1.2994	-.1887	1.2569
2	-1.5575	-.4591	-1.0372	-.6283	-.5997	-.2446	-.2904	-.1681	-.1444	-.0408	-.1225	-.0678	-.0917	-.0283
3	.0771	-.1944	.0401	-.0993	-.0441	-.0010	-.0266	-.0175	-.0024	-.0002	-.0247	-.0093	-.0192	-.0064
4	.0345	-.0146	.0179	-.0201	-.0121	-.0243	.0017	-.0047	-.0021	-.0007	.0003	-.0042	-.0007	-.0001
5	.0203	-.0224	.0242	-.0072	.0258	-.0194	.0130	-.0058	.0117	-.0092	.0103	-.0042	.0007	-.0074
6	-.0004	.0158	-.0024	.0122	.0048	.0111	-.0003	.0065	.0017	.0033	-.0002	.0017	.0007	-.0003
7	.0034	.0049	.0021	.0041	-.0015	.0017	.0011	.0016	.0033	.0005	.0035	.0014	.0041	-.0008
8	-.0030	.0026	-.0065	.0031	-.0023	-.0006	-.0005	.0010	.0008	.0025	-.0008	.0018	-.0005	.0009
9	-.0060	-.0048	-.0006	-.0023	-.0009	-.0007	.0002	-.0018	-.0000	-.0010	-.0001	-.0004	-.0009	-.0002
10	.0026	.0019	.0013	.0018	.0009	-.0023	.0029	.0021	.0002	-.0014	.0010	-.0004	.0005	.0002

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2204	.9865	-.0555	.6487	-.0150	.4197	.0254	-.1908	.0188	.0646	.0074	-.0080
2	-.0530	-.0303	-.0118	-.0064	-.0022	-.0043	.0162	-.0021	.0149	.0002	-.0106	-.0062
3	-.0178	-.0015	-.0108	.0037	-.0088	.0030	-.0068	.0022	-.0030	.0016	.0007	-.0047
4	-.0016	.0004	-.0005	.0015	-.0003	.0010	-.0000	.0006	.0005	-.0033	-.0000	.0025
5	.0097	-.0025	.0046	-.0040	.0012	-.0029	-.0021	-.0019	-.0000	-.0017	-.0003	-.0009
6	.0020	.0014	.0000	.0008	-.0008	-.0001	-.0016	.0004	-.0013	.0001	-.0001	.0013
7	.0001	.0013	.0012	.0003	.0002	-.0000	-.0008	-.0003	.0002	-.0005	-.0006	.0004
8	.0000	.0004	-.0001	.0002	-.0001	.0004	-.0011	.0004	-.0003	-.0004	-.0004	-.0005
9	.0005	.0002	.0006	-.0002	.0000	-.0000	-.0005	.0001	-.0000	.0004	-.0001	.0003

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5769	-2.6760	.7560	-2.6907	.5310	-2.8722	.1791	-.8499	.0224	-.4667	-.0026	-.2248	-.0254	-.0852	-.0122	.0029
2	-1.2854	-.5797	-.7194	-.4558	-.3964	-.1963	-.0445	-.0369	-.0006	-.0085	.0140	.0002	.0132	-.0013	-.0070	-.0058
3	-.0441	.1033	-.0212	.0643	.0550	.0077	.0121	-.0004	.0115	-.0037	.0065	-.0024	.0033	-.0019	-.0026	.0027
4	-.0215	-.0562	.0359	-.0176	.0110	-.0220	.0031	-.0068	.0007	-.0015	.0001	-.0005	-.0001	.0012	.0000	.0022
5	-.0249	-.0197	-.0086	-.0214	-.0045	-.0071	-.0060	.0011	.0002	.0019	.0009	.0018	.0014	.0005	.0017	-.0003
6	-.0119	.0147	-.0131	.0082	.0025	.0053	-.0017	.0009	.0003	.0017	.0001	.0009	-.0001	.0008	.0003	.0001
7	.0025	.0061	.0004	.0046	.0213	-.0171	-.0014	.0002	.0009	.0005	-.0000	.0005	-.0008	.0021	.0004	-.0002
8	-.0016	-.0069	.0022	-.0078	-.0185	.0163	.0001	-.0017	-.0005	.0004	-.0004	.0001	.0007	-.0016	.0005	-.0003
9	-.0040	.0017	-.0056	-.0022	-.0051	.0105	-.0007	.0010	-.0002	-.0003	.0005	.0006	.0008	-.0007	.0006	-.0000
10	-.0008	.0045	-.0025	.0033	-.0001	.0075	.0002	.0007	.0007	.0009	.0001	.0005	.0005	-.0002	.0001	.0001

30 DEGREE SWEEP DATA WERE NOT OBTAINED

MACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0948) PITCHING AMPLITUDE = 10.0 DEG

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0998) PITCHING AMPLITUDE = 10.0 DEG

FILE: 26 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.2479	348.4	3.2586	344.2	2.6152	348.7	1.9343	344.8	1.5214	350.2	1.3379	346.2	1.2710	351.5
2	1.6912	247.1	1.2127	238.8	.6476	247.8	.3355	239.9	.1752	249.7	.1400	241.0	.0940	252.9
3	.2091	158.4	.1071	158.0	.0441	208.8	.0319	236.6	.0264	270.4	.0264	249.5	.0202	288.3
4	.0375	113.0	.0249	138.4	.0290	204.7	.0069	145.6	.0022	288.2	.0042	175.7	.0007	240.0
5	.0304	138.2	.0253	106.5	.0324	127.2	.0143	113.9	.0149	128.2	.0108	103.3	.0123	124.9
6	.0158	357.7	.0124	348.7	.0121	23.3	.0065	357.7	.0037	27.0	.0012	352.6	.0007	45.3
7	.0060	34.7	.0047	27.4	.0023	319.4	.0020	34.2	.0033	81.4	.0038	68.0	.0041	100.9
8	.0040	311.0	.0072	295.4	.0024	256.2	.0011	332.5	.0026	18.2	.0020	337.7	.0010	334.0
9	.0077	231.2	.0024	193.9	.0012	231.6	.0018	172.0	.0010	182.5	.0004	187.8	.0009	257.5
10	.0033	53.4	.0022	37.0	.0025	159.1	.0036	53.5	.0014	173.3	.0010	113.0	.0005	69.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0109	347.4	.6511	355.1	.4200	357.9	.1925	7.6	.0673	16.2	.0109	137.2
2	.0611	240.2	.0134	241.3	.0048	152.5	.0164	97.2	.0149	89.4	.0123	239.8
3	.0178	265.3	.0114	288.9	.0093	288.6	.0071	288.2	.0034	298.0	.0048	171.5
4	.0017	285.4	.0016	341.8	.0011	346.3	.0008	358.3	.0033	9.1	.0025	359.7
5	.0100	104.8	.0061	130.7	.0032	156.8	.0028	228.8	.0017	180.9	.0010	200.6
6	.0004	42.6	.0008	177.5	.0008	244.3	.0017	291.9	.0013	274.4	.0013	356.4
7	.0026	51.3	.0013	78.5	.0002	99.8	.0009	248.7	.0006	20.7	.0007	52.1
8	.0013	5.7	.0014	94.5	.0003	150.5	.0012	246.0	.0005	140.0	.0004	219.2
9	.0004	4.2	.0002	340.9	.0004	344.7	.0006	349.0	.0003	229.8	.0001	351.1
10	.0005	64.8	.0006	105.1	.0000	111.5	.0005	284.5	.0004	355.4	.0003	341.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7375	167.8	2.7949	164.3	2.9209	169.5	.8686	168.1	.4672	177.3	.2248	180.7	.0889	196.6	.0125	283.4
2	1.4100	245.7	.8517	237.6	.4423	243.7	.0578	230.3	.0086	184.0	.0140	89.2	.0133	95.4	.0091	230.3
3	.1124	336.9	.0677	341.8	.0556	82.0	.0121	92.1	.0121	107.7	.0069	110.5	.0038	120.0	.0037	316.8
4	.0601	159.1	.0400	116.1	.0246	153.4	.0075	155.8	.0016	156.3	.0006	167.1	.0012	355.4	.0022	101.8
5	.0318	231.6	.0231	201.8	.0084	212.3	.0061	280.7	.0019	5.6	.0021	27.1	.0017	73.9	.0017	101.6
6	.0189	321.1	.0155	301.8	.0059	25.4	.0019	296.8	.0017	11.2	.0009	6.0	.0008	351.7	.0003	78.9
7	.0066	22.6	.0046	4.7	.0273	128.8	.0014	278.2	.0010	63.9	.0005	355.1	.0023	338.7	.0004	117.8
8	.0070	192.9	.0081	164.7	.0247	311.4	.0017	176.6	.0008	318.8	.0004	287.7	.0018	155.6	.0006	120.6
9	.0044	293.3	.0061	248.4	.0117	333.7	.0012	326.2	.0003	214.8	.0008	40.3	.0011	131.8	.0006	92.3
10	.0045	350.2	.0042	323.0	.0075	359.3	.0007	15.3	.0011	38.0	.0005	9.1	.0005	107.2	.0001	69.6

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0998) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 10.0 DEG

FILE: 27 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.7423	3.0907	-1.0225	3.0313	-.5854	2.5066	-.5822	1.8105	-.2912	1.4671	-.3628	1.2660	-.2112	1.2264
2	-1.4652	-.7412	-.9406	-.7109	-.5658	-.2754	-.2638	-.1852	-.1511	-.0625	-.1089	-.0711	-.0871	-.0280
3	.1044	-.1597	.0591	-.0709	-.0326	.0026	-.0161	-.0124	-.0198	.0028	-.0125	-.0070	-.0182	.0104
4	.0113	-.0244	.0031	-.0274	-.0214	-.0295	-.0062	-.0069	-.0086	-.0002	-.0080	-.0028	-.0088	.0046
5	.0349	-.0198	.0361	.0007	.0337	-.0116	.0154	.0011	.0152	-.0045	.0130	.0015	.0129	-.0051
6	-.0002	.0247	-.0083	.0172	.0032	.0151	.0001	.0049	.0020	.0015	.0012	.0016	.0031	-.0072
7	-.0042	.0096	-.0060	.0064	-.0026	.0050	.0008	.0034	.0032	.0032	.0019	.0048	.0044	.0010
8	-.0076	.0009	-.0082	.0003	-.0003	.0025	-.0021	.0010	.0002	.0033	-.0015	.0022	.0005	.0028
9	-.0035	-.0062	.0008	-.0051	-.0015	-.0024	-.0023	-.0008	-.0001	-.0005	.0003	-.0016	-.0004	.0000
10	.0037	.0004	.0011	.0031	.0041	-.0008	.0000	-.0002	.0003	.0003	.0001	.0001	-.0003	.0002

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2499	.9595	-.0552	.6339	-.0090	.4094	.0372	.1849	.0264	.0610	.0094	-.0109
2	-.0459	-.0285	-.0086	-.0027	-.0058	-.0003	.0202	.0032	.0170	.0053	-.0059	-.0018
3	-.0137	.0001	-.0082	.0044	-.0053	.0028	-.0025	.0012	-.0045	.0021	-.0008	-.0036
4	-.0061	.0010	-.0024	.0042	-.0001	.0018	-.0021	-.0007	-.0005	.0033	-.0012	.0016
5	.0107	.0015	.0053	-.0041	.0004	-.0034	-.0040	-.0027	-.0005	-.0018	-.0013	-.0002
6	.0015	.0003	.0013	-.0025	-.0003	-.0027	-.0018	-.0028	-.0004	-.0023	.0002	-.0044
7	.0017	.0038	.0026	.0002	.0009	-.0013	-.0007	-.0027	.0004	-.0004	.0002	-.0004
8	-.0001	.0023	.0020	.0003	.0005	-.0004	-.0009	-.0011	.0004	-.0002	-.0003	.0001
9	-.0015	.0002	-.0005	.0010	.0000	.0010	.0006	.0011	-.0003	.0004	.0002	.0003
10	.0001	.0004	.0006	-.0000	.0002	-.0004	-.0002	-.0008	-.0003	-.0002	-.0005	-.0003

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.6682	-2.6225	.8800	-2.6143	.5990	-2.8422	.2002	-.8261	.0135	-.4589	-.0118	-.2196	-.0355	-.0840	-.0144	.0033
2	-1.2222	-.6747	-.6547	-.5248	-.3726	-.2229	-.0391	-.0376	-.0001	-.0057	.0145	.0041	.0152	.0019	-.0049	-.0029
3	-.0542	.1011	-.0311	.0602	.0324	.0154	.0131	.0001	.0070	-.0006	.0057	-.0010	.0033	-.0011	-.0020	.0026
4	.0386	-.0586	.0491	-.0101	-.0237	-.0253	-.0072	-.0066	-.0004	-.0026	-.0002	-.0017	.0001	-.0005	-.0014	.0022
5	-.0265	.0337	-.0079	.0319	-.0239	-.0061	-.0102	-.0014	-.0011	.0053	-.0017	.0042	.0017	.0027	.0007	.0013
6	-.0094	.0031	-.0106	-.0044	-.2079	.0620	-.0016	-.0021	-.0005	.0006	-.0017	.0000	.0154	-.0065	.0020	-.0006
7	-.0030	-.0005	.0012	-.0011	-.0007	-.0046	-.0016	-.0025	-.0004	-.0006	-.0011	.0004	-.0006	.0007	.0004	-.0002
8	-.0056	-.0054	-.0005	-.0076	-.0034	-.0048	-.0009	-.0016	-.0017	.0010	-.0008	.0004	-.0002	.0004	-.0000	.0006
9	-.0038	.0047	-.0055	-.0016	.0027	.0052	-.0001	.0016	-.0012	.0004	-.0009	.0003	.0009	-.0003	.0007	.0004
10	.0038	.0041	-.0021	.0040	.0054	-.0021	.0008	.0000	-.0005	.0007	-.0003	-.0003	-.0001	.0001	.0001	-.0002

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 10.0 DEG

FILE: 27 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.1784	344.5	3.1991	341.4	2.5740	344.9	1.9018	342.2	1.4957	348.8	1.3170	344.0	1.2444	350.2
2	1.4420	243.2	1.1790	232.9	.6293	244.0	.3223	234.9	.1635	247.5	.1301	236.9	.0915	252.2
3	.1908	146.8	.0923	140.2	.0327	274.4	.0203	232.5	.0200	278.0	.0143	240.8	.0210	299.7
4	.0249	155.2	.0274	173.4	.0344	215.9	.0093	221.9	.0084	271.5	.0085	250.8	.0099	297.7
5	.0402	119.4	.0361	88.9	.0357	109.0	.0155	86.1	.0159	104.4	.0131	83.4	.0139	111.7
6	.0247	359.4	.0191	334.2	.0154	12.1	.0049	1.0	.0025	52.3	.0020	38.0	.0078	154.4
7	.0104	336.2	.0087	316.9	.0056	333.0	.0035	13.5	.0045	45.0	.0052	21.4	.0045	77.7
8	.0077	276.7	.0082	272.2	.0025	353.2	.0023	294.7	.0033	2.9	.0027	326.1	.0029	10.7
9	.0071	209.8	.0051	171.1	.0030	209.6	.0024	250.4	.0005	195.4	.0014	170.7	.0004	272.2
10	.0038	83.3	.0033	19.8	.0042	101.0	.0002	178.7	.0004	45.2	.0001	51.7	.0004	306.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.9915	345.4	.6363	355.0	.4095	358.7	.1886	11.4	.0465	23.4	.0145	138.7
2	.0540	238.2	.0090	252.6	.0058	92.6	.0203	83.9	.0178	72.8	.0062	253.1
3	.0137	270.4	.0093	298.4	.0060	297.8	.0028	293.7	.0050	295.1	.0037	167.8
4	.0062	279.6	.0048	330.3	.0018	355.4	.0022	108.2	.0034	351.2	.0020	323.6
5	.0108	82.6	.0067	127.9	.0035	169.3	.0048	236.3	.0019	194.6	.0013	277.1
6	.0016	78.6	.0028	152.8	.0027	185.7	.0034	212.1	.0033	189.8	.0044	177.6
7	.0042	23.9	.0026	86.4	.0016	143.2	.0028	195.4	.0005	136.8	.0006	162.3
8	.0023	354.8	.0020	82.8	.0007	128.4	.0015	219.4	.0005	117.1	.0003	297.7
9	.0014	278.3	.0011	332.4	.0010	1.7	.0012	27.7	.0005	324.6	.0004	35.5
10	.0004	16.0	.0006	92.0	.0004	157.7	.0008	197.4	.0003	228.2	.0006	239.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7063	165.7	2.7585	161.4	2.9047	168.1	.8500	166.4	.4591	178.3	.2199	183.1	.0912	202.9	.0168	281.4
2	1.3960	241.1	.8390	231.3	.4342	239.1	.0543	226.2	.0057	180.9	.0151	74.0	.0153	83.0	.0057	239.1
3	.1147	331.8	.0677	332.6	.0359	64.6	.0131	89.6	.0071	95.1	.0058	100.2	.0034	107.9	.0033	321.9
4	.0702	146.6	.0501	101.6	.0346	136.8	.0097	132.4	.0027	171.0	.0017	173.1	.0006	168.5	.0024	327.1
5	.0428	218.2	.0329	194.0	.0237	255.2	.0103	262.3	.0054	348.1	.0045	338.3	.0032	31.3	.0014	29.4
6	.0099	288.5	.0114	247.5	.0169	286.6	.0026	216.5	.0008	321.7	.0007	86.2	.0168	113.0	.0021	106.5
7	.0030	260.6	.0016	131.3	.0047	188.1	.0029	213.3	.0014	268.5	.0012	288.5	.0009	321.8	.0005	111.2
8	.0078	226.4	.0077	184.0	.0059	215.4	.0016	181.0	.0020	302.3	.0008	296.1	.0006	345.4	.0006	358.6
9	.0054	329.3	.0058	254.0	.0058	27.6	.0013	357.0	.0013	71.3	.0009	70.7	.0010	110.2	.0008	61.9
10	.0056	43.3	.0045	332.7	.0058	111.1	.0008	89.7	.0009	323.3	.0004	224.3	.0001	330.3	.0003	163.8

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=1249) PITCHING AMPLITUDE = 10.0 DEG

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 37 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.7056	3.3204	.2088	1.2855	.1002	.6925	.2338	.8543	.2571	.6021	.1242	.2796	.2513	.5216
2	1.3913	1.0018	.6357	.4870	.5489	.2395	.7908	.5160	.5863	.4020	.2270	.2129	.4159	.3483
3	.1506	.8946	.0410	.3499	.0726	.1707	.0155	.3202	-.0156	.2089	-.0245	.0847	-.0198	.1288
4	.1031	.9134	.0333	.4377	.0751	.2336	-.0422	.3447	-.0436	.2232	-.0456	.0929	-.0600	.1740
5	-.6233	.4975	-.3173	.2326	-.1258	.1343	-.2473	.0557	-.1856	.0203	-.0799	-.0246	-.1383	-.0375
6	-.6793	.0687	-.3248	-.0210	-.1358	.0303	-.1606	-.0801	-.0983	-.0559	-.0263	-.0335	-.0419	-.0371
7	-.5409	-.4325	-.1821	-.2507	-.1023	-.0860	-.0430	-.1784	-.0308	-.1317	.0071	-.0605	-.0196	-.1023
8	-.0953	-.3068	.0452	-.2563	-.0107	-.1049	.0885	-.1077	.0746	-.0768	.0486	-.0159	.0790	-.0446
9	.2247	-.3505	.2041	-.1285	.0455	-.0778	.1309	-.0149	.0875	-.0073	.0326	.0176	.0564	.0176
10	.3254	.0143	.1878	.0811	.0846	.0162	.0725	.1008	.0588	.0685	.0075	.0383	.0314	.0546

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1883	.4360	.1508	.3425	.0817	.3544	.0126	.3664	-.0625	.3769	-.0756	.4074
2	.2935	.2973	.1535	.1786	.0297	.0958	-.0941	.0130	-.1530	-.0555	-.1722	-.0596
3	-.0213	.1086	-.0219	.0669	-.0336	.0278	-.0452	-.0112	-.0291	-.0444	-.0284	-.0339
4	-.0955	.1216	-.0814	.0536	-.0608	-.0125	-.0402	-.0806	.0128	-.0814	.0128	-.0666
5	-.0840	-.0740	-.0422	-.0728	.0074	-.0581	.0570	-.0433	.0508	.0009	.0319	-.0644
6	-.0217	.0352	.0069	-.0306	.0227	-.0170	.0386	-.0034	.0303	.0055	.0234	-.0030
7	.0100	-.0925	.0351	-.0397	.0409	-.0024	.0466	.0348	.0120	.0478	.0127	.0360
8	.0845	-.0065	.0402	.0196	.0149	.0345	-.0104	.0494	-.0289	.0197	-.0214	.0160
9	.0333	.0420	.0189	.0269	-.0123	.0273	-.0435	.0277	-.0397	-.0056	-.0304	-.0044
10	-.0081	.0577	-.0191	.0459	-.0325	.0052	-.0458	-.0355	-.0013	-.0469	-.0008	-.0344

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2245	.2057	.0478	-.2822	.0052	-1.1898	-.0148	-.2411	-.0630	-.2590	-.0722	-.0802	-.0753	.0807	-.0864	.2699
2	-.1876	.0864	-.1672	-.0506	-.3891	-.2049	-.0524	-.0545	-.0718	-.0793	-.0566	-.0715	-.0739	-.0616	-.1033	-.0680
3	-.0830	.2235	-.0432	.0623	-.0357	.0608	.0033	-.0008	.0101	-.0056	.0116	-.0107	.0062	-.0182	-.0023	-.0291
4	.0021	.0844	-.0074	.0097	.0062	-.0317	.0047	-.0098	.0066	-.0160	.0105	-.0158	.0096	-.0224	.0207	-.0338
5	-.0888	-.0161	-.0157	.0018	.0096	.0074	.0039	.0051	.0094	.0079	.0105	.0096	.0157	.0069	.0202	.0114
6	-.0665	-.0531	-.0064	-.0048	.0081	.0065	.0001	.0018	.0011	.0045	.0004	.0054	.0045	.0064	.0099	.0085
7	-.0428	-.0835	-.0027	-.0042	-.0038	.0184	-.0005	.0042	-.0013	.0076	-.0024	.0069	-.0012	.0109	-.0048	.0194
8	.0060	-.0653	.0037	-.0043	-.0086	-.0037	-.0028	-.0002	-.0059	-.0002	-.0057	-.0013	-.0078	.0014	-.0140	.0007
9	.0159	-.0258	.0036	-.0014	-.0040	-.0074	-.0009	-.0025	-.0035	-.0046	-.0027	-.0060	-.0078	-.0055	-.0117	-.0119
10	.0167	.0089	.0065	.0023	.0106	-.0095	.0025	-.0016	.0036	-.0046	.0060	-.0044	.0041	-.0098	.0109	-.0153

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 80 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0722	3.9645	-.0668	2.9849	.0149	1.9029	.0096	1.7330	.0385	1.2915	-.0088	1.3299	.0364	1.1629
2	1.9939	.8494	1.9971	.7684	1.2883	.4608	.6671	.4235	.3467	.2313	.2309	.2303	.1894	.1699
3	-.5134	1.8310	-.4048	1.5642	-.1890	.7132	-.2535	.4451	-.1334	.2300	-.1560	.1808	-.1071	.1402
4	-.2972	.3736	-.3326	.4230	-.0704	.2047	-.1618	.0258	-.1036	-.0037	-.1141	-.0482	-.1014	-.0300
5	-.6695	.4536	-.7061	.2945	-.2929	.1499	-.1588	-.0217	-.0569	-.0343	-.0135	-.0494	-.0096	-.0686
6	-.4699	-.3618	-.4351	-.4391	-.1485	-.1646	-.0265	-.1577	.0015	-.0641	.0390	-.0410	.0394	-.0338
7	-.1194	-.2242	-.0114	-.3503	-.0197	-.1149	.0770	-.0526	.0424	-.0225	.0549	.0058	.0480	.0066
8	-.0019	-.3586	.1674	-.2831	.0723	-.1157	.0747	.0129	.0343	.0227	.0148	.0584	.0149	.0497
9	.3074	-.1153	.3021	-.0379	.1409	.0062	-.0400	.0719	-.0136	.0282	-.0197	.0260	-.0157	.0163
10	.1421	.0644	.1990	.1341	.0490	.0813	-.0437	.0596	-.0141	.0363	-.0324	.0128	-.0158	.0148

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0133	.9864	.0100	.7836	.0104	.5625	.0107	.3415	-.0082	.2069	-.0096	.2078
2	.0791	.1182	-.0678	.0345	-.0932	.0113	-.1185	-.0119	-.0941	-.0275	-.0924	-.0153
3	-.0718	.0716	-.0037	-.0494	.0059	-.0692	.0154	-.0891	.0140	-.0429	.0054	-.0271
4	-.0752	-.0274	-.0043	-.0019	.0113	-.0030	.0288	-.0041	.0062	-.0058	.0103	.0022
5	.0080	-.0677	.0255	-.0386	.0253	-.0203	.0251	-.0019	.0099	.0020	-.0011	.0094
6	.0483	-.0082	.0379	.0333	.0223	.0301	.0068	.0269	-.0063	-.0002	-.0097	.0029
7	.0334	.0213	-.0192	.0213	-.0177	.0146	-.0162	.0079	.0074	-.0041	-.0040	-.0079
8	-.0047	.0474	-.0069	.0084	-.0073	.0014	-.0076	-.0055	.0004	.0077	.0076	-.0030
9	-.0249	.0023	-.0223	-.0015	-.0085	-.0050	.0052	-.0085	-.0028	.0013	.0030	.0057
10	-.0088	.0001	-.0026	-.0194	.0004	-.0049	.0033	.0055	-.0008	.0010	-.0042	.0026

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0586	.4994	.0728	-.5047	.0677	-.4446	.0167	-.6137	-.0051	-.3764	-.0305	-.1839	-.0358	-.0406	-.0246	.1046
2	-.3601	.0391	-.3651	-.0839	-.1664	-.0710	-.0866	-.0588	-.0406	-.0353	-.0237	-.0316	-.0269	-.0256	-.0345	-.0201
3	-.1515	.2947	-.0683	.1096	-.0019	.0136	.0129	-.0071	.0102	-.0108	.0133	-.0094	.0120	-.0147	.0112	-.0167
4	-.0452	.0233	-.0084	.0111	.0056	.0064	.0049	.0020	.0042	.0029	.0055	.0039	.0072	.0035	.0113	.0095
5	-.0521	-.0046	-.0115	-.0043	-.0003	-.0004	.0016	.0043	.0039	.0006	-.0024	.0032	.0022	.0034	-.0027	.0045
6	-.0186	-.0362	-.0015	-.0088	-.0008	.0005	-.0012	.0043	-.0023	.0036	-.0035	.0025	-.0036	.0041	-.0057	.0021
7	.0065	-.0169	-.0000	-.0017	-.0006	.0005	.0012	-.0001	.0007	.0001	-.0001	-.0013	-.0016	-.0029	-.0018	-.0054
8	.0084	-.0153	.0008	-.0016	-.0030	.0011	-.0019	-.0014	-.0011	.0006	-.0006	.0008	.0011	.0005	.0044	.0037
9	.0185	.0019	.0041	-.0002	-.0005	-.0016	-.0006	-.0012	-.0004	-.0007	-.0008	-.0013	.0002	-.0005	-.0004	.0021
10	.0011	.0114	-.0017	.0043	-.0018	.0005	-.0005	.0014	-.0008	-.0003	-.0001	.0004	.0001	.0006	-.0014	-.0004

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 37 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.3946	12.0	1.3023	9.2	.6998	8.2	.8857	15.3	.6547	23.1	.3059	24.0	.5790	25.7
2	1.7144	54.2	.8008	52.5	.5989	66.4	.9443	56.9	.7109	55.6	.3112	46.8	.5425	50.1
3	.9071	9.6	.3523	6.7	.1855	23.0	.3206	2.8	.2095	355.7	.0881	343.9	.1303	351.3
4	.9192	6.4	.4389	4.4	.2454	17.8	.3502	349.8	.2274	348.9	.1035	333.9	.1841	341.0
5	.7975	308.6	.3934	306.2	.1840	316.9	.2730	281.8	.1867	276.2	.0836	252.9	.1433	254.8
6	.6827	275.8	.3255	266.3	.1392	282.6	.1795	243.5	.1131	240.4	.0426	218.1	.0559	228.5
7	.6925	231.4	.3098	216.0	.1336	229.9	.1835	193.5	.1353	193.2	.0610	173.3	.1042	170.8
8	.5156	190.7	.2603	170.0	.1075	185.7	.1394	140.6	.1071	135.8	.0511	108.1	.0907	119.4
9	.4164	147.3	.2412	122.2	.1017	139.9	.1318	96.5	.0878	94.8	.0371	61.6	.0591	72.6
10	.3257	87.5	.2046	66.7	.0861	79.2	.1242	35.7	.0903	40.6	.0390	11.0	.0630	29.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.4749	23.4	.3742	23.8	.3637	13.0	.3666	2.0	.3821	350.6	.4143	349.5
2		.4178	44.6	.2355	40.7	.1003	17.2	.0950	277.9	.1628	250.0	.1822	250.9
3		.1110	347.9	.0703	341.9	.0436	309.7	.0466	256.1	.0530	213.2	.0443	219.9
4		.1546	321.9	.0985	304.3	.0421	258.3	.0901	206.5	.0824	171.0	.0678	169.1
5		.1119	228.6	.0841	210.1	.0585	172.7	.0716	127.2	.0508	89.0	.0322	82.2
6		.0333	220.7	.0313	167.3	.0284	126.8	.0388	95.1	.0308	79.7	.0236	97.3
7		.0927	173.8	.0530	138.5	.0409	93.4	.0582	53.3	.0493	14.1	.0381	19.5
8		.0848	94.4	.0447	64.0	.0375	23.3	.0505	348.1	.0350	304.3	.0267	306.8
9		.0548	40.0	.0329	35.0	.0300	335.8	.0515	302.5	.0401	261.9	.0307	261.7
10		.0583	352.0	.0498	337.4	.0329	279.1	.0580	232.3	.0469	181.6	.0344	181.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L		
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	
1		.3045	47.5	.2862	170.4	1.1899	179.8	.2415	183.5	.2666	193.7	.1079	222.0	.1104	317.0	.2834	342.2
2		.2065	294.7	.1747	253.2	.4398	242.2	.0756	223.9	.1049	222.2	.0912	218.4	.0962	230.2	.1237	234.6
3		.2384	339.6	.0759	325.3	.0705	329.4	.0034	103.9	.0116	119.0	.0158	132.6	.0192	161.2	.0392	184.6
4		.0844	1.5	.0122	323.0	.0323	169.0	.0108	154.1	.0173	157.7	.0190	146.3	.0244	156.8	.0394	148.6
5		.0902	259.7	.0158	274.7	.0121	52.2	.0044	37.5	.0123	49.7	.0142	47.7	.0172	66.2	.0232	60.6
6		.0851	231.4	.0080	233.3	.0104	51.0	.0018	2.8	.0046	13.7	.0054	4.3	.0078	34.8	.0131	49.5
7		.0938	207.1	.0050	213.0	.0188	348.4	.0042	353.4	.0077	350.5	.0073	341.2	.0110	353.8	.0200	346.3
8		.0656	174.8	.0057	138.9	.0094	246.5	.0028	266.9	.0059	267.9	.0058	257.3	.0079	279.9	.0140	273.0
9		.0303	148.4	.0039	111.3	.0084	208.5	.0027	199.4	.0058	217.6	.0066	204.2	.0094	234.8	.0167	224.5
10		.0189	61.9	.0069	70.1	.0142	131.8	.0030	122.1	.0058	142.0	.0074	126.1	.0106	157.2	.0187	144.6

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NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 80 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.9651	1.0	2.9856	358.7	1.9030	.4	1.7330	.3	1.2920	1.7	1.3299	359.6	1.1635	1.8
2	2.1673	66.9	2.1398	69.0	1.3682	70.3	.7902	57.6	.4167	56.3	.3281	45.1	.2545	45.1
3	1.9016	344.3	1.6157	345.3	.7378	345.2	.5122	330.3	.2659	329.9	.2388	319.2	.1765	322.6
4	.4774	321.5	.5380	321.8	.2164	341.0	.1638	279.1	.1037	268.0	.1239	247.1	.1057	253.5
5	.8087	304.1	.7650	292.6	.3290	297.1	.1803	282.2	.0664	238.9	.0707	171.0	.0693	187.9
6	.5930	232.4	.6182	224.7	.2216	222.1	.1599	189.5	.0641	178.7	.0566	136.4	.0519	130.6
7	.2540	208.0	.3505	181.9	.1166	189.7	.0932	124.4	.0480	117.9	.0552	84.0	.0484	82.2
8	.3586	180.3	.3289	149.4	.1364	148.0	.0758	80.2	.0411	56.5	.0602	14.3	.0519	16.7
9	.3283	110.6	.3045	97.2	.1410	87.5	.0823	39.1	.0313	25.8	.0327	322.9	.0226	316.0
10	.1560	65.6	.2400	56.0	.0950	31.1	.0739	323.7	.0389	338.8	.0348	291.6	.0217	313.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.9865	359.2	.7837	.7	.5626	1.1	.3416	1.8	.2071	357.7	.2080	357.4
2	.1422	33.8	.0761	296.9	.0938	276.9	.1191	264.3	.0981	253.7	.0937	260.6
3	.1014	314.9	.0496	184.2	.0695	175.2	.0904	170.2	.0451	161.9	.0277	168.8
4	.0801	250.0	.0065	253.5	.0117	104.9	.0291	98.2	.0085	133.1	.0105	78.2
5	.0682	173.3	.0463	146.5	.0325	128.7	.0252	94.4	.0101	78.8	.0094	353.0
6	.0490	99.7	.0505	48.6	.0375	36.5	.0278	14.2	.0063	268.5	.0101	286.5
7	.0396	57.5	.0287	318.0	.0229	309.6	.0180	296.1	.0085	119.0	.0088	206.7
8	.0476	354.3	.0109	320.5	.0074	281.3	.0094	234.1	.0077	3.2	.0082	111.4
9	.0250	275.3	.0223	266.0	.0099	239.5	.0100	148.5	.0031	294.7	.0064	28.2
10	.0088	270.4	.0195	187.6	.0069	176.8	.0064	31.3	.0013	320.4	.0050	302.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5028	6.7	.5099	171.8	.6482	174.0	.6140	178.4	.3765	180.8	.1864	189.4	.0541	221.4	.1075	346.8
2	.3622	276.2	.3746	257.1	.1809	246.9	.1047	235.8	.0538	229.0	.0395	216.9	.0371	226.4	.0400	239.8
3	.3314	332.8	.1291	328.1	.0137	352.2	.0148	119.0	.0148	136.7	.0164	125.7	.0190	140.7	.0201	146.3
4	.0509	297.3	.0139	322.7	.0085	40.9	.0053	67.7	.0051	81.5	.0068	54.6	.0080	46.2	.0148	50.1
5	.0523	265.0	.0133	249.7	.0005	147.5	.0046	30.8	.0039	81.4	.0040	37.7	.0040	37.8	.0070	337.8
6	.0407	207.2	.0089	189.8	.0009	305.1	.0045	343.9	.0043	324.9	.0043	305.6	.0055	318.3	.0061	290.6
7	.0181	158.8	.0017	180.9	.0008	312.6	.0012	94.3	.0007	82.9	.0013	184.0	.0033	208.2	.0057	198.4
8	.0175	151.2	.0018	151.9	.0032	290.2	.0023	232.7	.0013	298.3	.0010	320.9	.0012	65.3	.0044	81.0
9	.0184	84.0	.0041	92.4	.0017	164.3	.0014	205.7	.0008	148.5	.0015	149.2	.0006	163.2	.0023	351.2
10	.0114	5.3	.0046	337.8	.0019	284.0	.0015	339.9	.0009	247.5	.0005	346.6	.0006	7.3	.0014	251.9

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: JB (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.9356	3.0932	.2495	1.1096	.2266	.6153	.4631	.8677	.4616	.6474	.2084	.3318	.4403	.5730
2	1.1825	1.3635	.6061	.5701	.5342	.3595	.6019	.8429	.4447	.6019	.1211	.3113	.2817	.5191
3	-.1720	1.3916	-.0626	.5976	-.0159	.3390	-.3115	.4060	-.1997	.2613	-.1282	.0811	-.1756	.1627
4	-.7159	.8144	-.3933	.3618	-.1479	.1992	-.3141	.0766	-.2007	.0871	-.1092	-.0059	-.1894	.0447
5	-.7857	-.1040	-.3841	-.1540	-.1686	-.0267	-.1644	-.1956	-.1434	-.1439	-.0173	-.1088	-.0864	-.1857
6	-.2540	-.4368	-.0287	-.2824	-.0463	-.1174	.0734	-.1970	.0536	-.1590	.0751	-.0405	.1056	-.1115
7	.0918	-.2798	.1275	-.1011	.0553	-.0705	.1812	-.0157	.1377	-.0265	.0582	.0366	.1194	.0180
8	.0876	-.1242	.0785	-.0254	.0456	-.0029	.0686	.1111	.0464	.0764	-.0033	.0529	.0376	.0893
9	.1598	-.1232	.1049	.0143	.0370	.0103	-.0239	.0889	-.0010	.0700	-.0324	.0222	-.0348	.0584
10	.1981	.0509	.0490	.0936	.0143	.0362	-.0897	.0347	-.0428	.0522	-.0403	-.0133	-.0658	.0218

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3413	.5248	.2782	.4298	.1605	.4121	.0428	.3944	-.0972	.3345	-.1346	.3542
2	.1113	.4503	.0045	.2531	-.0909	.1102	-.1864	-.0327	-.1430	-.1469	-.1407	-.1357
3	-.1796	.0775	-.0984	.0159	-.0311	-.0451	-.0039	-.1061	.0543	-.0714	.0257	-.0544
4	-.1671	-.0434	-.0970	-.0445	-.0186	-.0579	.0597	-.0713	.0697	-.0103	.0551	-.0184
5	.0365	-.1765	.0480	-.1108	.0659	-.0330	-.0837	.0449	-.0164	.0646	.0234	.0496
6	.1259	-.0169	.0738	.0054	.0348	.0327	-.0043	.0708	-.0468	.0335	-.0414	.0388
7	.0775	.0818	.0572	.0559	-.0086	.0423	-.0743	.0287	-.0447	-.0551	-.0401	-.0517
8	-.0502	.0934	-.0406	.0643	-.0332	-.0003	-.0259	-.0649	.0540	-.0270	.0478	-.0253
9	-.0457	-.0122	-.0403	-.0042	-.0076	-.0122	.0250	-.0203	.0167	.0282	.0210	.0284
10	-.0371	-.0362	-.0415	-.0188	-.0050	-.0118	.0314	-.0047	-.0101	.0260	-.0144	.0265

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2208	.2435	.0606	-.2944	-.0224	-1.3152	-.0245	-.2730	-.1186	-.3199	-.1284	-.1381	-.1398	.0317	-.1589	.2139
2	-.3179	.1514	-.1543	-.0664	-.2833	-.2296	-.0123	-.0628	-.0145	-.1012	.0051	-.1008	-.0282	-.1077	-.0455	-.1322
3	-.1905	.2293	-.0536	.0371	-.0055	.0216	.0064	.0021	.0201	.0029	.0224	.0008	.0265	-.0130	.0359	-.0219
4	-.1011	.0388	-.0096	-.0068	.0262	-.0150	.0071	-.0019	.0101	-.0016	.0118	.0034	.0185	.0007	.0350	.0094
5	-.0797	-.0605	-.0144	-.0093	-.0143	.0269	-.0063	.0076	-.0037	.0166	-.0075	.0176	.0017	.0237	-.0052	.0364
6	.0100	-.0470	.0008	-.0057	-.0095	.0021	-.0050	-.0027	-.0119	-.0001	-.0133	-.0043	-.0213	.0066	-.0403	-.0004
7	.0301	-.0048	.0040	.0011	.0300	.0012	.0019	-.0028	.0014	-.0104	.0067	-.0118	-.0065	-.0225	.0105	-.0410
8	.0045	.0050	.0013	.0027	-.0207	-.0099	.0008	.0023	.0066	.0033	.0072	.0074	.0188	-.0003	.0284	.0132
9	.0032	.0010	-.0020	.0023	-.0144	.0051	-.0018	.0015	-.0027	.0059	-.0039	.0068	.0050	.0124	-.0059	-.0222
10	.0095	.0068	.0013	.0021	-.0010	-.0013	.0002	-.0010	-.0010	-.0014	-.0039	-.0030	-.0077	.0052	-.0197	-.0004

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NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: 82 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2184	4.0162	.0155	2.9150	.1178	1.9306	.0465	1.7691	.1112	1.3205	.0266	1.3556	.1043	1.1585
2	1.4526	1.3813	1.6047	1.3789	1.0745	.7945	.4314	.6870	.2244	.4004	.0731	.3963	.0912	.3033
3	-.9793	1.5675	-1.0079	1.3841	-.4489	.6615	-.4737	.2924	-.2765	.1556	-.2948	.0455	-.2140	.0554
4	-.5235	.1160	-.6009	.0183	-.2074	.0661	-.1752	-.1380	-.1094	-.1161	-.0504	-.1694	-.0424	-.1200
5	-.3702	.0373	-.5108	-.1604	-.2371	-.0549	-.0261	-.1343	.0236	-.0898	.0902	-.0690	.0458	-.0741
6	-.2012	-.4031	-.0893	-.4859	.0002	-.1786	.1061	-.0794	.0757	-.0300	.0789	.0345	.0498	.0174
7	-.0026	-.1989	.2062	-.2543	.0442	-.0610	.0585	.0511	.0490	.0556	.0069	.0821	.0222	.0603
8	.1465	-.2569	.3202	-.0469	.1193	-.0401	.0205	.0398	-.0237	.0476	-.0686	.0253	-.0414	.0387
9	.2086	.0709	.1436	.2206	.0532	.0998	-.0327	.0544	-.0296	.0084	-.0293	-.0298	-.0333	-.0109
10	.0954	.0276	-.0041	.1561	-.0088	.0460	-.0507	-.0002	-.0291	-.0049	-.0121	-.0289	-.0200	-.0158

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0238	.9704	.0795	.6958	.0448	.5259	.0101	.3559	-.0556	.2400	-.0408	.2298
2	-.0047	.2202	-.0658	.1057	-.1021	.0186	-.1383	-.0485	-.0911	-.1099	-.0873	-.0857
3	-.1553	-.0155	-.0492	-.0872	.0152	-.0987	.0796	-.1103	.0820	-.0342	.0591	-.0194
4	-.0158	-.1106	.0458	-.0371	.0514	.0005	.0570	.0382	-.0015	.0284	-.0064	.0287
5	.0893	-.0311	.0551	.0179	.0207	.0303	-.0137	.0427	-.0149	-.0067	-.0201	-.0080
6	.0347	.0610	-.0132	.0599	-.0252	.0253	-.0371	-.0092	.0112	-.0116	.0056	-.0107
7	-.0238	.0399	-.0493	-.0071	-.0188	-.0147	.0117	-.0223	.0059	.0139	.0084	.0012
8	-.0401	.0009	-.0004	-.0333	.0043	-.0120	.0091	.0093	-.0080	.0050	-.0020	.0103
9	-.0104	-.0226	.0150	-.0040	.0045	.0015	-.0061	.0070	-.0059	-.0035	-.0080	-.0039
10	-.0014	-.0177	.0067	.0048	.0032	-.0007	-.0004	-.0063	.0020	-.0014	.0052	-.0015

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0947	.4874	.1308	-.5379	.0822	-.6621	.0242	-.6487	-.0533	-.4157	-.0717	-.2099	-.0853	-.0551	-.0716	.1051
2	-.4520	.0430	-.3535	-.1373	-.1294	-.0935	-.0344	-.0761	.0005	-.0578	.0154	-.0519	.0025	-.0581	-.0106	-.0668
3	-.2237	.2120	-.0887	.0679	.0016	.0100	.0217	.0013	.0246	-.0053	.0254	.0008	.0318	-.0052	.0414	.0010
4	-.0609	-.0549	-.0091	-.0304	-.0019	-.0093	-.0009	-.0046	.0009	.0021	-.0024	.0035	-.0030	.0089	-.0106	.0171
5	-.0163	-.0319	-.0086	-.0133	-.0098	-.0030	-.0110	-.0016	-.0011	.0030	-.0063	.0003	-.0069	-.0000	-.0082	-.0094
6	.0022	-.0158	.0024	.0007	.0005	-.0019	.0005	-.0001	.0001	-.0009	.0009	-.0014	.0013	-.0016	.0046	-.0005
7	.0087	-.0019	.0007	-.0016	-.0015	-.0002	.0014	-.0003	.0003	.0016	.0001	.0003	.0005	.0004	.0015	.0012
8	.0044	-.0065	.0006	-.0009	-.0008	-.0008	-.0003	-.0005	.0013	-.0011	.0002	-.0006	-.0005	.0001	-.0030	.0005
9	.0070	.0058	.0007	.0029	-.0000	-.0010	.0003	.0012	.0017	-.0007	.0016	-.0005	.0009	-.0015	.0018	-.0021
10	.0028	-.0021	.0028	.0004	-.0004	.0002	-.0002	.0002	.0003	-.0005	-.0004	.0011	.0006	.0021	-.0013	.0035

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: 38 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.2316	16.8	1.1373	12.7	.6558	20.2	.9835	28.1	.7951	35.5	.3919	32.1	.7224	37.5
2	1.8048	40.9	.8321	46.8	.6439	56.1	1.0358	35.5	.7483	36.5	.3340	21.3	.5904	28.5
3	1.4021	353.0	.6009	354.0	.3393	357.3	.5117	322.5	.3289	322.6	.1518	302.3	.2394	312.8
4	1.0858	318.8	.5344	312.6	.2481	323.4	.3234	283.7	.2188	293.5	.1093	266.9	.1951	283.9
5	.7928	262.3	.4138	248.1	.1707	261.0	.2555	220.1	.2032	224.9	.1102	189.1	.2049	204.9
6	.5053	210.2	.2839	185.8	.1262	201.5	.2103	159.6	.1678	161.4	.0853	118.3	.1535	136.4
7	.2945	161.8	.1627	128.4	.0896	141.9	.1819	94.9	.1402	100.9	.0688	57.8	.1207	81.4
8	.1519	144.8	.0825	107.9	.0457	93.6	.1306	31.7	.1012	41.0	.0530	356.4	.0969	22.8
9	.2018	127.6	.1079	82.4	.0384	74.4	.0920	344.9	.0700	359.2	.0393	304.4	.0480	329.3
10	.2045	75.6	.1057	27.6	.0389	21.5	.0962	291.1	.0817	309.7	.0425	251.8	.0493	288.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6260	33.0	.5120	32.9	.4423	21.3	.3967	6.2	.3484	343.8	.3789	339.2
2	.4639	13.9	.2531	1.0	.1429	320.5	.1892	260.0	.2050	224.2	.1955	226.0
3	.1936	293.4	.0997	279.2	.0682	228.6	.1062	182.1	.0897	142.8	.0602	154.7
4	.1727	255.4	.1067	245.4	.0608	177.9	.0930	140.0	.0705	98.4	.0581	108.5
5	.1802	168.3	.1208	156.6	.0736	116.6	.0950	61.8	.0667	14.2	.0549	25.2
6	.1270	97.7	.0740	94.2	.0477	46.8	.0709	356.5	.0575	305.6	.0527	313.1
7	.1127	43.5	.0799	45.7	.0432	348.4	.0797	291.2	.0709	219.0	.0462	217.3
8	.1053	331.5	.0761	327.8	.0332	249.5	.0699	201.7	.0604	116.5	.0541	117.9
9	.0648	259.5	.0405	244.1	.0144	211.9	.0322	129.0	.0328	30.6	.0354	36.5
10	.0518	225.7	.0456	245.6	.0128	203.2	.0318	98.5	.0279	338.7	.0302	331.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3287	42.2	.3006	168.4	1.3154	181.0	.2741	185.1	.3412	200.3	.1885	222.9	.1433	282.8	.2644	323.4
2	.3521	295.5	.1679	246.7	.3647	231.0	.0640	191.0	.1022	188.1	.1009	177.1	.1113	194.7	.1398	199.0
3	.2981	320.3	.0652	304.7	.0223	345.8	.0068	71.6	.0203	98.2	.0225	88.0	.0295	116.2	.0420	121.4
4	.1083	291.0	.0118	234.6	.0302	119.8	.0073	104.8	.0102	99.1	.0123	73.9	.0185	87.9	.0362	75.0
5	.1001	232.8	.0172	237.3	.0305	331.9	.0099	320.3	.0170	347.3	.0191	336.9	.0237	4.0	.0367	351.9
6	.0481	168.0	.0058	171.8	.0097	282.8	.0057	241.7	.0119	269.3	.0139	252.2	.0223	287.1	.0403	269.5
7	.0305	99.1	.0042	75.2	.0300	87.7	.0034	145.7	.0105	172.3	.0136	150.3	.0235	196.1	.0423	165.6
8	.0067	41.6	.0030	25.0	.0229	244.5	.0024	19.8	.0073	63.5	.0103	44.1	.0188	90.9	.0313	65.1
9	.0033	73.0	.0030	318.3	.0153	289.5	.0023	309.5	.0065	335.3	.0078	330.1	.0133	22.0	.0230	345.2
10	.0117	54.6	.0025	30.3	.0016	216.8	.0010	169.4	.0017	215.8	.0050	232.4	.0093	304.2	.0197	268.7

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: 82 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	4.0222	3.1	2.9150	.3	1.9341	3.5	1.7497	1.5	1.3252	4.8	1.3559	1.1	1.1434	5.2
2	2.0045	42.4	2.1158	49.3	1.3363	53.5	.8112	32.1	.4590	29.3	.4030	10.5	.3147	14.7
3	1.8483	328.0	1.7122	323.9	.7994	325.8	.5567	301.7	.3173	299.4	.2983	278.8	.2211	284.5
4	.5362	282.5	.6012	271.7	.2177	287.7	.2230	231.8	.1595	223.3	.1768	194.6	.1353	207.5
5	.5714	273.7	.5354	252.4	.2433	257.0	.1349	191.0	.0928	165.2	.1135	127.4	.0992	138.4
6	.4505	206.5	.4941	190.4	.1786	179.9	.1325	126.8	.0815	111.6	.0861	66.3	.0719	74.0
7	.1990	180.7	.3274	141.0	.0753	144.0	.0777	48.9	.0741	41.4	.0824	4.8	.0643	20.2
8	.3061	147.1	.3236	98.3	.1258	108.6	.0448	27.3	.0532	333.6	.0731	290.3	.0567	313.1
9	.2203	71.2	.2632	33.1	.1131	28.1	.0635	329.0	.0308	285.9	.0418	224.6	.0351	251.8
10	.0993	73.9	.1562	358.5	.0468	349.2	.0507	269.8	.0295	260.5	.0314	202.8	.0255	231.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.9707	1.4	.7003	6.5	.5278	4.9	.3561	1.6	.2464	347.0	.2377	345.2
2		.2203	358.8	.1245	328.1	.1037	280.3	.1544	243.6	.1428	219.6	.1223	225.5
3		.1560	264.3	.1001	209.4	.0999	171.2	.1360	144.2	.0889	112.6	.0623	108.4
4		.1117	188.1	.0590	129.0	.0514	89.4	.0686	56.2	.0287	357.0	.0294	347.4
5		.0946	109.2	.0579	72.0	.0367	34.4	.0448	342.2	.0163	245.8	.0216	248.4
6		.0702	79.6	.0613	347.5	.0357	315.2	.0383	256.1	.0161	136.0	.0120	152.2
7		.0464	329.1	.0498	261.8	.0239	231.9	.0252	152.3	.0142	74.6	.0085	81.9
8		.0401	271.3	.0333	180.8	.0127	160.2	.0130	44.4	.0094	301.6	.0105	348.9
9		.0249	204.7	.0156	105.1	.0047	71.8	.0093	318.9	.0069	239.4	.0089	243.8
10		.0178	184.6	.0083	54.3	.0033	102.8	.0063	183.4	.0024	125.2	.0054	105.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4965	11.0	.5536	166.3	.6671	172.9	.6491	177.9	.4191	187.3	.2218	198.9	.1015	237.1	.1272	325.8
2	.4540	275.4	.3793	248.8	.1596	234.1	.0835	204.3	.0578	179.5	.0542	163.5	.0581	177.5	.0676	189.0
3	.3082	313.5	.1117	307.4	.0101	9.2	.0218	86.7	.0252	102.1	.0254	88.1	.0322	99.3	.0414	88.6
4	.0820	228.0	.0318	196.7	.0095	191.3	.0046	191.8	.0023	22.2	.0042	325.9	.0094	341.5	.0202	328.1
5	.0358	207.0	.0158	212.8	.0102	253.0	.0111	278.5	.0032	339.4	.0063	272.8	.0069	269.7	.0124	221.2
6	.0159	172.0	.0025	73.5	.0019	172.7	.0005	100.9	.0010	172.3	.0017	147.9	.0021	142.0	.0046	95.7
7	.0089	102.3	.0018	22.5	.0016	261.3	.0014	101.6	.0016	11.6	.0003	19.5	.0006	46.5	.0019	51.4
8	.0079	145.6	.0011	145.1	.0011	324.6	.0006	215.3	.0017	131.2	.0006	157.7	.0005	275.8	.0030	279.6
9	.0090	50.3	.0030	14.2	.0010	182.0	.0012	13.7	.0018	113.5	.0016	106.3	.0018	147.4	.0027	140.1
10	.0035	127.0	.0028	82.2	.0005	291.2	.0002	317.8	.0005	152.5	.0012	341.4	.0022	15.4	.0038	339.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 39 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.0674	3.1249	.3575	1.0305	.2939	.6317	.4972	1.0369	.4994	.7799	.2072	.4086	.4584	.6985
2	.9645	1.5602	.5372	.7439	.4644	.4425	.3595	.8832	.2823	.6300	.0309	.3047	.1392	.5281
3	-.4343	1.4643	-.2649	.6144	-.0829	.3514	-.3313	.7449	-.1864	.2312	-.1165	.0552	-.1596	.1400
4	-1.0083	.4931	-.4982	.1402	-.2203	.1415	-.4184	-.0042	-.2878	.0498	-.1363	-.0380	-.2392	.0194
5	-.3303	-.3575	-.2153	-.2479	-.1340	-.0995	-.0451	-.3329	-.0908	-.2449	-.0468	-.1343	-.0077	-.2400
6	-.1047	-.3062	.0324	-.1912	.0113	-.1004	.2155	-.0888	-.1690	-.1036	.0945	.0202	.1762	-.0427
7	.0539	-.2297	.1074	-.0838	.0595	-.0329	.1144	.1072	.1127	.0514	.0212	.0598	.0880	.0643
8	.1525	-.1312	.1138	.0111	.0450	.0158	-.0175	.1204	.0384	.0999	-.0331	.0513	.0049	.1098
9	.2308	-.0127	.0802	.0872	.0316	.0228	-.0743	.0565	-.0513	.0714	-.0500	-.0105	-.0772	.0411
10	.1198	.1855	-.0376	.1056	-.0046	.0463	-.0890	-.0294	-.0740	-.0017	-.0123	-.0396	-.0628	-.0291

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3201	.6593	.2571	.5224	.1213	.4690	-.0145	.4157	-.1642	.3255	-.1990	.3362
2	-.0310	.4250	-.0764	.2364	-.1397	.0755	-.2030	-.0854	-.1219	-.1890	-.1180	-.1662
3	-.1632	.0435	-.0910	-.0059	-.0111	-.0633	.0687	-.1211	.1078	-.0371	.0805	-.0286
4	-.1775	-.1107	-.0826	-.0887	.0051	-.0537	.0928	-.0187	.0629	.0396	.0467	.0285
5	.1473	-.1607	.1159	-.0891	.0787	-.0007	.0416	.0876	-.0445	.0676	-.0391	.0494
6	.1218	.0830	.0624	.0532	-.0030	.0462	-.0684	.0391	-.0510	-.0498	-.0352	-.0464
7	-.0014	.1053	.0099	.0644	-.0199	.0124	-.0497	-.0396	.0408	-.0412	.0374	-.0276
8	-.0904	.0454	-.0562	.0370	-.0203	-.0079	.0157	-.0527	.0323	.0324	.0236	.0307
9	-.0495	-.0543	-.0465	-.0319	.0017	-.0199	.0499	-.0079	-.0208	.0297	-.0217	.0229
10	.0075	-.0537	.0013	-.0522	.0118	-.0029	.0223	.0464	-.0304	-.0168	-.0213	-.0170

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1841	.2661	.0456	-.3127	-.0986	-1.4301	-.0430	-.2977	-.1792	-.3595	-.1865	-.1773	-.2029	.0014	-.2235	.1791
2	-.3844	.1811	-.1551	-.0525	-.2457	-.1609	.0013	-.0439	.0126	-.0711	.0333	-.0736	.0040	-.0958	-.0046	-.1343
3	-.1998	.2085	-.0524	.0288	-.0113	.0524	.0103	.0020	.0237	.0101	.0265	.0113	.0377	.0012	.0560	.0103
4	-.0996	.0031	-.0004	-.0032	.0424	-.0017	.0093	.0049	.0120	.0078	.0091	.0128	.0178	.0119	.0182	.0339
5	-.0337	-.0939	-.0047	-.0211	-.0398	-.0047	-.0102	-.0019	-.0151	.0097	-.0198	.0045	-.0196	.0189	-.0413	.0123
6	.0240	-.0252	.0038	-.0002	-.1561	.1682	.0011	-.0045	-.0048	-.0086	.0012	-.0121	-.0006	-.0339	.0016	-.0391
7	.0161	-.0005	.0025	-.0029	.0067	-.0063	.0002	.0016	.0057	-.0015	.0083	.0054	.0162	-.0060	.0315	.0087
8	.0058	-.0017	.0006	-.0018	-.0078	.0067	-.0031	-.0015	-.0049	.0064	-.0088	.0071	.0043	.0145	-.0099	.0281
9	-.0054	.0085	-.0014	.0011	-.0061	.0016	-.0007	.0019	.0004	-.0006	-.0054	-.0059	-.0136	.0047	-.0255	-.0115
10	-.0041	.0160	-.0010	.0013	.0011	-.0026	.0019	.0003	-.0001	-.0018	.0047	-.0040	-.0033	-.0108	.0132	-.0182

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 83 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0845	4.1019	-.0631	3.0178	.1061	1.9976	.0780	1.7599	.1928	1.2891	.1103	1.3436	.2073	1.1414
2	1.2190	1.3552	1.2881	1.4544	.9172	.8589	.2532	.7844	.0949	.5190	-.1149	.5078	-.0544	-.4299
3	-1.1264	1.5168	-1.1892	1.2131	-.5539	.6134	-.5304	.1485	-.3240	.0267	-.2987	-.1450	-.2524	-.0828
4	-.5603	-.1172	-.5997	-.1734	-.2075	-.0524	-.1130	-.1575	-.0338	-.1005	.0455	-.1082	.0183	-.0955
5	-.4399	.0524	-.4319	-.2510	-.1802	-.0439	-.0279	-.1451	-.0091	-.0780	.0419	-.0632	.0422	-.0471
6	-.2663	-.4496	.0509	-.5339	-.0048	-.1952	.1624	-.0737	.1032	-.0373	.1033	.0679	.1024	.0341
7	.1755	-.2355	.3604	-.0945	.1198	-.0389	.0603	.1070	.0372	.0747	-.0479	.0808	-.0160	.0773
8	.1390	-.1367	.2195	.0886	.0735	.0249	-.0170	.0513	-.0210	.0362	-.0472	.0022	-.0322	.0134
9	.2583	.0287	.1003	.2462	.0555	.0697	-.0513	.0427	-.0375	.0204	-.0403	-.0293	-.0394	-.0026
10	.0782	.1948	-.1581	.1698	-.0317	.0892	-.0614	-.0293	-.0341	-.0280	.0201	-.0524	-.0118	-.0420

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1036	.9554	-.1029	.7179	.0431	.5282	-.0168	.3386	-.0974	.2055	-.1027	.2134
2	-.1552	.3141	-.1551	.1298	-.1435	.0199	-.1320	-.0900	-.0622	-.1223	-.0779	-.0849
3	-.1586	-.1544	-.0338	-.1390	.0312	-.0974	.0963	-.0558	.0752	.0252	.0574	.0172
4	.0604	-.0681	.0818	-.0092	.0576	.0112	.0335	.0316	-.0261	.0074	-.0294	.0126
5	.0677	-.0109	.0245	.0434	.0084	.0430	-.0077	.0427	.0076	-.0155	.0001	-.0239
6	.0314	.0779	-.0237	.0232	-.0314	.0017	-.0392	-.0198	.0156	.0096	.0136	.0117
7	-.0528	.0240	-.0173	-.0040	.0039	-.0110	.0251	-.0180	-.0091	.0146	-.0006	.0087
8	-.0245	-.0141	-.0148	-.0194	-.0072	-.0022	.0004	.0150	-.0126	-.0129	-.0119	.0002
9	-.0044	-.0273	.0213	-.0187	.0084	-.0131	-.0046	-.0075	.0148	-.0057	.0037	-.0114
10	.0204	-.0103	.0096	.0189	.0069	.0130	.0042	.0072	-.0084	.0096	.0046	.0064

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0745	.4839	.1311	-.5585	.0725	-.6761	-.0152	-.5516	-.1029	-.4272	-.1119	-.2329	-.1310	-.0728	-.1148	.0891
2	-.5424	.0579	-.3877	-.1342	-.1320	-.0779	-.0655	-.0597	.0010	-.0416	.0142	-.0415	.0022	-.0502	-.0030	-.0672
3	-.2445	.1742	-.0935	.0590	.0051	.0202	.0177	.0133	.0303	.0065	.0259	.0156	.0338	.0118	.0352	.0287
4	-.0303	-.0691	.0072	-.0290	.0048	-.0054	.0007	-.0021	-.0035	.0011	-.0050	.0002	-.0099	.0043	-.0216	.0011
5	-.0043	-.0287	.0024	-.0145	.0005	-.0089	-.0024	-.0016	-.0054	.0057	-.0012	-.0019	.0000	-.0043	.0084	-.0102
6	-.0059	-.0236	-.0102	.0015	-.0013	.0018	-.0018	.0017	-.0022	.0015	-.0005	.0024	.0020	.0045	.0008	.0091
7	.0158	-.0049	-.0018	-.0022	-.0021	-.0009	-.0015	-.0011	-.0009	-.0014	-.0034	-.0022	-.0044	-.0005	-.0047	-.0005
8	.0004	-.0021	-.0012	-.0002	.0013	.0016	-.0002	.0008	-.0010	.0001	.0019	.0006	.0010	-.0021	.0008	-.0037
9	.0117	.0040	-.0013	.0018	.0005	.0016	-.0004	.0018	-.0014	.0019	-.0004	.0011	.0016	.0004	.0030	.0013
10	.0002	.0099	-.0014	.0010	.0011	.0008	-.0002	-.0000	-.0014	-.0008	.0002	-.0014	-.0009	-.0003	-.0024	-.0006

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 39 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.3022	18.9	1.0908	19.1	.6947	25.0	1.1500	25.6	.9261	32.6	.4582	26.9	.8355	33.3
2	1.8343	31.7	.9174	35.8	.6429	46.5	.9535	22.1	.6903	24.1	.3083	5.8	.5461	14.8
3	1.5274	343.5	.4691	336.7	.3611	346.7	.4783	316.2	.2970	321.1	.1289	295.3	.2123	311.3
4	1.1224	294.1	.5177	285.8	.2618	302.7	.4184	269.4	.2941	283.6	.1415	254.4	.2510	274.4
5	.4394	236.0	.3284	221.0	.1670	233.4	.3360	187.7	.2800	198.9	.1422	160.8	.2401	181.7
6	.3236	198.9	.1940	170.3	.1010	173.6	.2331	112.4	.1982	121.5	.0986	78.2	.1813	103.6
7	.2360	146.8	.1364	127.9	.0680	119.0	.1582	47.4	.1239	45.5	.0635	19.5	.1102	53.0
8	.2012	130.7	.1144	84.4	.0477	70.6	.1217	351.7	.1070	21.1	.0610	327.2	.1100	3.6
9	.2311	93.2	.1185	42.6	.0390	54.2	.0949	306.5	.0879	324.3	.0511	258.2	.0875	298.0
10	.2209	32.9	.1121	340.4	.0465	354.3	.0937	251.7	.0740	268.7	.0414	197.3	.0692	245.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7329	25.9	.5822	26.2	.4845	14.5	.4159	358.0	.3646	333.2	.3906	329.4
2	.4261	355.8	.2484	342.1	.1588	298.4	.2203	247.2	.2249	212.8	.2038	215.4
3	.1689	284.9	.0912	266.3	.0645	190.0	.1393	150.4	.1140	109.0	.0855	109.6
4	.2092	238.0	.1212	222.9	.0540	174.5	.0947	101.4	.0744	57.8	.0547	58.6
5	.2240	138.9	.1462	127.6	.0787	90.5	.0970	75.4	.0810	326.7	.0630	321.7
6	.1474	55.7	.0820	49.6	.0463	356.3	.0798	299.8	.0712	225.7	.0583	217.2
7	.1053	.8	.0651	8.7	.0235	301.9	.0635	231.5	.0580	135.3	.0465	126.4
8	.1012	294.7	.0473	303.3	.0217	248.8	.0550	143.4	.0458	44.9	.0387	37.4
9	.0735	222.4	.0564	235.6	.0200	175.1	.0505	99.0	.0343	325.0	.0315	316.5
10	.0562	172.4	.0522	178.5	.0122	103.9	.0514	25.6	.0347	241.1	.0273	231.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3235	34.7	.3160	171.7	1.4335	183.9	.3008	188.2	.4017	206.5	.2573	226.4	.2029	270.4	.2864	308.7
2	.4249	295.2	.1638	251.3	.2937	236.8	.0439	178.3	.0722	169.9	.0808	155.6	.0959	177.6	.1344	182.0
3	.2888	316.2	.0597	298.8	.0536	347.8	.0105	79.2	.0258	66.9	.0288	66.9	.0377	88.2	.0570	79.6
4	.0997	271.8	.0032	173.0	.0424	92.3	.0105	62.4	.0143	57.1	.0157	35.4	.0214	56.3	.0385	28.3
5	.0997	199.8	.0216	192.5	.0401	263.3	.0104	259.6	.0179	302.8	.0203	282.9	.0272	314.0	.0431	286.6
6	.0348	136.5	.0039	92.8	.2294	317.1	.0046	166.7	.0099	209.4	.0121	174.4	.0339	181.1	.0391	177.7
7	.0161	91.6	.0038	40.7	.0092	133.0	.0016	7.3	.0058	104.4	.0100	56.9	.0173	110.5	.0327	74.5
8	.0060	106.4	.0019	162.7	.0103	229.7	.0035	244.0	.0081	322.4	.0113	308.9	.0171	14.7	.0298	340.5
9	.0101	32.5	.0018	306.3	.0063	285.0	.0020	199.5	.0047	263.0	.0080	222.3	.0144	289.2	.0280	245.7
10	.0165	345.8	.0017	323.0	.0028	156.5	.0019	82.1	.0018	183.4	.0062	130.1	.0113	196.9	.0225	144.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 83 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	4.1028	1.2	3.0184	358.8	2.0004	3.0	1.7616	2.5	1.3034	8.5	1.3481	4.7	1.1601	10.3
2	1.8227	42.0	1.9428	41.5	1.2566	46.9	.8243	17.9	.5280	10.6	.5211	347.0	.4334	352.8
3	1.8893	323.4	1.6987	315.6	.8265	317.9	.5508	285.6	.3251	274.7	.3320	244.1	.2656	251.8
4	.5725	258.2	.6242	253.9	.2140	255.8	.1938	215.6	.1060	198.6	.1174	157.2	.0972	169.2
5	.4431	276.8	.4996	239.8	.1855	256.3	.1478	190.9	.0785	186.7	.0885	135.6	.0792	147.8
6	.5226	210.6	.5363	174.6	.1953	181.4	.1783	114.4	.1098	109.9	.1236	56.7	.1079	71.6
7	.2938	143.3	.3726	104.7	.1259	108.0	.1228	29.4	.0835	26.5	.0939	329.3	.0790	348.3
8	.1950	134.5	.2367	68.0	.0776	71.3	.0541	341.6	.0418	329.9	.0472	272.7	.0349	292.6
9	.2599	83.7	.2658	22.2	.0891	38.5	.0668	309.8	.0427	298.5	.0498	234.0	.0395	266.2
10	.2099	21.9	.2320	317.0	.0947	340.4	.0680	244.5	.0441	230.6	.0561	159.0	.0436	195.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.9610	6.2	.7253	8.2	.5300	4.7	.3390	357.2	.2275	334.6	.2369	334.3
2		.3504	333.7	.2023	309.9	.1449	277.9	.1597	235.7	.1372	207.0	.1152	222.5
3		.2213	225.8	.1431	193.7	.1023	162.2	.1113	120.1	.0794	71.4	.0599	73.3
4		.0910	138.4	.0823	96.4	.0587	79.0	.0460	46.7	.0271	285.9	.0320	293.3
5		.0685	99.1	.0498	29.4	.0439	11.0	.0434	349.8	.0173	153.8	.0239	179.7
6		.0840	22.0	.0332	314.4	.0315	273.1	.0439	243.2	.0183	58.4	.0180	49.2
7		.0580	294.5	.0178	257.0	.0116	160.6	.0308	125.6	.0171	328.1	.0087	356.2
8		.0282	240.2	.0245	217.3	.0076	252.8	.0150	1.5	.0180	224.5	.0119	270.8
9		.0280	193.1	.0283	131.3	.0154	147.5	.0088	211.2	.0159	111.1	.0120	162.2
10		.0229	116.8	.0212	27.0	.0147	27.8	.0083	29.9	.0127	318.7	.0079	35.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4894	8.8	.5736	166.8	.6800	173.9	.5519	181.6	.4394	193.5	.2584	205.7	.1498	240.9	.1454	307.8
2	.5455	276.1	.4102	250.9	.1532	239.5	.0886	227.6	.0416	178.6	.0438	161.1	.0502	177.4	.0672	182.5
3	.3002	305.5	.1106	302.3	.0208	14.2	.0222	53.0	.0310	77.9	.0302	58.9	.0358	70.8	.0455	50.8
4	.0754	203.7	.0298	166.1	.0072	138.3	.0022	162.7	.0036	287.8	.0050	272.7	.0108	293.4	.0217	272.9
5	.0290	188.4	.0147	170.4	.0089	176.9	.0029	236.7	.0078	316.7	.0023	212.3	.0043	179.8	.0132	140.8
6	.0243	194.1	.0103	278.6	.0022	325.4	.0024	313.4	.0027	303.5	.0024	348.8	.0049	24.0	.0092	4.8
7	.0166	107.1	.0029	218.7	.0022	247.5	.0019	233.4	.0016	214.0	.0040	237.6	.0044	263.0	.0047	263.4
8	.0022	170.3	.0012	258.7	.0021	40.2	.0008	12.1	.0010	273.8	.0019	73.4	.0023	155.2	.0038	168.4
9	.0123	71.2	.0023	36.4	.0017	17.7	.0018	346.3	.0024	324.2	.0011	337.1	.0016	76.7	.0033	66.7
10	.0099	1.2	.0017	306.9	.0013	54.9	.0002	262.9	.0016	240.3	.0014	173.8	.0010	252.4	.0024	255.5

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 10.0 DEG

FILE: 31 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.8462	1.8287	.3301	.5183	.1599	.1580	.3467	.1393	.3265	.1170	.1636	.0738	.3052	.1433
2	2.1151	.7439	.9341	.3694	.6361	.1598	.9034	.3579	.6323	.2612	.2601	.1461	.4430	.2167
3	.8136	.1899	.3596	.0437	.2236	-.0720	.3335	.0272	.2420	-.0040	.1119	.0235	.2153	.0184
4	.8213	.7104	.3431	.3342	.2162	.1522	.2127	.3246	.1485	.2393	.0289	.1215	.0549	.2100
5	.4800	.4419	.2031	.2357	.1155	.0655	.0637	.1803	.0366	.1215	.0018	.0517	.0139	.0739
6	.2355	.7370	.0447	.3845	.0465	.1517	-.0551	.2007	-.0470	.1439	-.0451	.0564	-.0619	.1073
7	-.1172	.5810	-.1574	.2739	-.0180	.1181	-.0890	.1040	-.0671	.0655	-.0431	.0108	-.0639	.0260
8	-.3387	.4206	-.2539	.1438	-.0692	.0977	-.1500	.0685	-.1047	.0509	-.0530	-.0044	-.0835	.0114
9	-.4007	.1441	-.2374	-.0290	-.0952	.0331	-.1434	-.0403	-.1043	-.0205	-.0322	-.0311	-.0625	-.0296
10	-.3248	-.0374	-.1505	-.0997	-.0794	-.0111	-.0743	-.1020	-.0698	-.0727	-.0103	-.0435	-.0460	-.0682

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2534	.1291	.2017	.1399	.1228	.2546	.0439	.3692	-.0469	.4461	-.0667	.5107
2	.3568	.2059	.2181	.1440	.0806	.0966	-.0528	.0493	-.1331	-.0114	-.1484	-.0196
3	-.1606	.0672	.0687	.0710	.0045	.0598	-.0557	.0487	-.0668	.0207	-.0567	.0215
4	-.0088	.1617	-.0300	.0832	-.0452	.0283	-.0603	-.0266	-.0431	-.0565	-.0311	-.0413
5	-.0040	.0671	-.0179	.0440	-.0333	.0111	-.0487	-.0217	-.0229	-.0392	-.0238	-.0275
6	-.0890	.0594	-.0741	.0192	-.0419	-.0223	-.0094	.0638	.0268	-.0467	.0192	-.0391
7	-.0602	-.0035	-.0437	-.0200	-.0174	-.0293	.0090	-.0386	.0214	-.0130	.0181	-.0089
8	-.0698	-.0366	-.0399	-.0435	-.0004	-.0358	.0390	-.0281	.0327	-.0001	.0246	-.0013
9	-.0204	-.0497	.0012	-.0456	.0161	-.0244	.0311	-.0033	.0201	.0171	.0190	.0229
10	.0038	-.0709	.0242	-.0452	.0349	-.0108	.0455	.0235	.0079	.0330	-.0082	.0244

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1741	.4253	.0213	-.1127	-.0643	-.7762	-.0318	-.1770	-.0850	-.1770	-.0898	-.0166	-.0848	.1443	-.0938	.3465
2	.0680	.1369	-.0819	-.0198	-.2931	-.1406	-.0518	-.0433	-.0740	-.0627	-.0638	-.0566	-.0762	-.0423	-.0996	-.0413
3	.0439	.1515	-.0198	.0487	-.0629	.0654	-.0118	.0011	-.0150	-.0003	-.0152	-.0050	-.0215	-.0025	-.0364	-.0031
4	.0861	.1321	.0180	.0190	.0184	-.0294	.0057	-.0137	.0046	-.0277	.0055	-.0284	-.0042	-.0311	-.0077	-.0377
5	-.0203	.0583	-.0031	.0066	-.0120	-.0003	.0001	-.0016	.0015	-.0031	.0036	-.0059	.0001	-.0114	-.0027	-.0230
6	-.0082	.0798	-.0025	.0087	.0076	-.0110	.0051	-.0021	.0082	-.0063	.0109	-.0056	.0119	-.0114	.0217	-.0154
7	-.0309	.0425	-.0044	.0032	.0133	.0016	.0017	-.0002	.0062	.0004	.0058	.0010	.0088	-.0015	.0131	-.0009
8	-.0442	.0269	-.0049	.0018	.0080	.0071	.0019	.0016	.0043	.0036	.0034	.0047	.0076	.0048	.0134	.0096
9	-.0382	-.0050	-.0044	-.0004	-.0005	.0143	-.0004	.0034	.0013	.0072	-.0009	.0082	.0034	.0105	.0015	.0182
10	-.0247	-.0153	-.0051	-.0002	-.0066	.0121	-.0024	.0019	-.0039	.0046	-.0064	.0042	-.0053	.0084	-.0128	.0106

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 10.0 DEG

FILE: 31 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0150	24.8	.6145	32.5	-.2248	45.4	.3737	68.1	.3448	70.3	.1794	45.7	.3372	44.8
2	2.2421	70.6	1.0045	48.4	-.5558	75.9	.9717	48.4	.4841	47.4	.2983	40.7	.5112	64.9
3	.8354	74.9	.3622	83.1	-.2349	107.8	.3346	85.3	.2420	90.9	.1144	78.2	.2161	83.1
4	1.0859	49.1	.4790	45.7	-.2444	54.8	.3880	33.2	.2814	31.8	.1249	13.4	.2170	14.7
5	.6524	47.4	.3112	40.7	-.1328	40.4	.1912	19.5	.1249	14.8	.0517	2.0	.0752	10.4
6	.7737	17.7	.3870	6.6	-.1656	23.7	.2081	344.7	.1514	341.9	.0722	321.4	.1239	330.0
7	.5927	348.6	.3159	330.1	-.1195	351.4	.1369	319.4	.0938	314.3	.0444	284.1	.0690	292.2
8	.5400	321.2	.2918	299.5	-.1198	324.7	.1649	294.6	.1164	295.9	.0532	245.2	.0842	277.8
9	.4258	289.8	.2392	243.0	-.1008	289.2	.1489	254.3	.1043	258.9	.0448	225.9	.0692	244.6
10	.3270	263.4	.1805	236.5	-.0802	262.0	.1262	216.1	.1008	223.8	.0447	193.3	.0823	214.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.2844	63.0	.2454	55.3	.2826	25.7	.3718	6.8	.4485	354.0	.5151	352.6
2	.4120	60.0	.2613	56.6	.1259	39.8	.0752	311.0	.1336	265.1	.1497	262.5
3	.1741	67.3	.0988	44.1	.0602	6.2	.0740	311.1	.0699	287.2	.0606	290.8
4	.1620	356.9	.0884	340.2	.0533	302.1	.0659	246.2	.0711	217.3	.0517	216.9
5	.0672	356.6	.0475	337.8	.0351	288.5	.0533	245.9	.0454	210.3	.0364	210.9
6	.1070	303.7	.0766	284.5	.0474	242.0	.0445	188.6	.0539	150.2	.0435	153.8
7	.0603	266.6	.0481	245.4	.0341	210.7	.0396	166.9	.0251	121.3	.0202	116.2
8	.0788	242.3	.0590	222.5	.0358	180.7	.0481	125.7	.0327	90.1	.0247	93.0
9	.0537	202.3	.0456	178.5	.0293	146.6	.0312	94.0	.0244	49.5	.0298	39.7
10	.0710	176.9	.0512	151.8	.0365	107.2	.0512	62.7	.0339	13.4	.0257	341.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4595	22.3	.1147	169.3	.7789	184.7	.1798	190.2	.1963	205.7	.0913	259.5	.1673	329.6	.3590	344.8
2	.1528	26.4	.0842	256.4	.3251	244.4	.0675	230.1	.0970	229.7	.0853	228.4	.0872	241.0	.1078	247.5
3	.1577	16.2	.0525	337.9	.0907	316.1	.0119	275.4	.0150	269.0	.0160	251.7	.0217	263.4	.0365	265.2
4	.1577	33.1	.0262	43.4	.0347	147.9	.0148	152.3	.0280	170.6	.0290	169.1	.0314	187.7	.0384	191.5
5	.0617	19.2	.0073	334.7	.0120	268.7	.0016	175.8	.0035	155.0	.0069	148.3	.0116	179.3	.0232	186.7
6	.0803	354.2	.0091	344.1	.0133	145.3	.0055	111.9	.0103	127.6	.0122	117.4	.0166	134.5	.0266	125.4
7	.0525	324.0	.0055	305.6	.0134	83.3	.0017	97.0	.0062	86.3	.0058	80.1	.0089	99.7	.0131	94.0
8	.0518	301.3	.0052	290.6	.0107	48.5	.0024	49.3	.0056	50.3	.0058	35.6	.0089	57.9	.0165	54.5
9	.0385	262.5	.0044	245.0	.0143	7.1	.0034	352.4	.0074	10.4	.0083	353.5	.0111	18.1	.0183	4.6
10	.0291	238.1	.0051	267.4	.0138	331.5	.0031	309.0	.0060	320.1	.0076	303.3	.0100	327.9	.0166	309.7

06

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 10.0 DEG

FILE: B9 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2913	351.7	1.4986	344.0	.7137	354.2	.7370	11.3	.6079	19.7	.6459	18.6	.5618	22.1
2	3.2211	86.2	2.9604	87.0	1.7573	82.8	1.1420	69.3	.7074	63.4	.6426	56.5	.5526	58.6
3	1.1978	14.5	1.0243	19.4	.3969	25.6	.2663	10.0	.1646	4.0	.1696	359.4	.1618	358.1
4	.8365	65.0	.7865	62.1	.4292	62.6	.3061	35.6	.1936	19.7	.1864	355.5	.1448	343.0
5	.8363	15.8	.8613	11.8	.3485	12.6	.2418	334.6	.1438	312.8	.1111	280.3	.0837	282.1
6	.4306	340.7	.4629	328.2	.2005	327.8	.1402	299.8	.0904	285.4	.0710	274.7	.0419	283.6
7	.3449	338.4	.3848	332.7	.1395	319.3	.1383	263.5	.1030	239.3	.1140	222.1	.0883	230.3
8	.2816	291.0	.4128	278.7	.1493	261.9	.1183	205.5	.0890	177.7	.0974	155.7	.0785	167.4
9	.0698	323.7	.0935	239.2	.0185	215.2	.0473	146.8	.0353	125.9	.0390	107.8	.0453	121.8
10	.2763	305.9	.2805	286.8	.0978	275.8	.0273	212.7	.0278	155.7	.0343	117.0	.0368	100.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4665	23.2	.3816	22.5	.3907	12.3	.4114	2.8	.4190	353.5	.4408	352.4
2	.4548	52.7	.2588	50.6	.1036	23.0	.1219	282.5	.1685	256.2	.1604	256.3
3	.1709	345.2	.1467	346.3	.0779	322.9	.0619	252.9	.0516	217.5	.0446	214.0
4	.1266	307.6	.1448	278.6	.0896	254.6	.0753	203.0	.0567	157.8	.0450	141.5
5	.0666	220.7	.0934	197.5	.0621	179.7	.0453	140.8	.0222	50.9	.0119	89.3
6	.0343	265.7	.0499	186.9	.0330	165.3	.0270	122.2	.0112	149.2	.0310	85.4
7	.0709	202.2	.0812	131.3	.0482	121.4	.0215	81.1	.0168	28.1	.0295	350.1
8	.0486	142.1	.0509	56.6	.0370	53.9	.0233	48.2	.0143	293.6	.0078	305.6
9	.0327	119.9	.0301	33.8	.0237	1.0	.0274	324.5	.0151	229.6	.0213	272.9
10	.0281	86.9	.0342	329.2	.0186	306.8	.0142	240.0	.0080	162.4	.0186	157.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7116	3.9	.1447	168.0	.4100	177.6	.4541	182.7	.2724	187.6	.1113	210.7	.0911	317.1	.2569	345.0
2	.1307	47.7	.1707	259.8	.1501	246.8	.1223	239.1	.0789	237.1	.0691	233.4	.0822	242.5	.1022	242.9
3	.2888	352.3	.1210	339.6	.0149	324.7	.0110	181.2	.0152	183.1	.0207	171.7	.0287	180.2	.0364	178.8
4	.0806	8.9	.0274	349.5	.0040	310.5	.0090	124.4	.0083	141.1	.0127	126.3	.0178	134.3	.0264	129.2
5	.0650	345.2	.0147	302.9	.0068	246.9	.0021	187.3	.0024	168.8	.0042	89.8	.0065	79.7	.0131	88.0
6	.0515	306.1	.0125	312.0	.0036	44.1	.0070	68.5	.0076	84.6	.0087	68.2	.0127	79.7	.0201	60.1
7	.0233	265.4	.0066	227.0	.0023	2.7	.0038	342.3	.0063	1.1	.0068	338.7	.0117	349.3	.0180	335.1
8	.0124	243.0	.0020	317.0	.0020	6.0	.0006	5.3	.0011	215.5	.0024	233.4	.0049	233.0	.0076	258.8
9	.0038	135.2	.0020	188.0	.0031	280.4	.0018	248.2	.0023	289.7	.0021	240.5	.0041	245.2	.0085	234.8
10	.0116	317.2	.0008	311.1	.0020	139.6	.0021	123.2	.0015	150.0	.0032	130.9	.0050	165.6	.0084	127.0

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=1.006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 32 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.4617	2.0252	.5477	.5476	.3762	.2052	.6612	.3622	.5520	.2972	.2560	.1852	.5002	.3055
2	1.7986	1.1202	.7744	.5176	.6156	.2861	.7587	.6353	.5568	.3955	.2021	.2215	.3958	.3339
3	.7403	1.7472	.3497	.2588	.1988	.1210	.1701	.3349	.1660	.2208	.0388	.1284	.1221	.2030
4	.4498	1.1375	.1680	.6015	.1280	.2741	-.0916	.4204	-.0472	.3164	-.0896	.1178	-.1120	.2419
5	-.3715	.8721	-.3103	.3646	-.1007	.1974	-.2827	.1353	-.1892	.1263	-.1019	.0070	-.1401	.0555
6	-.4580	.2061	-.2489	.0204	-.1007	.0439	-.2059	-.0822	-.1814	-.0429	-.0459	-.0711	-.1586	-.0769
7	-.3795	.0272	-.1564	-.0602	-.1015	-.0259	-.0813	-.1798	-.0782	-.1331	.0183	-.0759	-.0224	-.1430
8	-.1277	-.0354	-.0555	-.0466	-.0139	-.0657	.0996	-.1278	.0413	-.1187	.0539	-.0293	.0401	-.0897
9	-.1817	-.0113	-.0713	-.0819	-.0054	-.0191	.0755	-.0094	.0649	-.0355	.0431	.0134	.0835	-.0214
10	-.1288	-.1487	.0315	-.1006	.0057	-.0382	.0777	-.0012	.0577	-.0205	.0234	.0252	.0627	.0204

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4009	.3401	.3454	.3562	.2226	.4154	.0997	.4746	-.0940	.4563	-.1266	.4819
2	.2224	.3130	.0519	.2102	-.0824	.1301	-.2166	.0500	-.1990	-.0987	-.1838	-.0847
3	.0422	.1886	-.0014	.1080	-.0548	.0235	-.1083	-.0609	-.0433	-.0849	-.0491	-.0652
4	-.1820	.1247	-.1515	.0441	-.0877	-.0424	-.0239	-.1289	.0597	-.0855	.0443	-.0774
5	-.1225	-.0327	-.0559	-.0489	-.0011	-.0526	.0537	-.0563	.0517	.0123	.0599	.0171
6	-.0753	-.1342	-.0520	-.0902	.0171	-.0572	.0862	-.0241	-.0428	.0399	.0184	.0444
7	.0809	-.1043	.0546	-.0877	.0565	-.0099	.0584	.0678	-.0295	.0564	-.0310	.0391
8	.0909	-.0085	.0865	-.0226	.0329	.0253	-.0207	.0732	-.0574	-.0072	-.0467	-.0130
9	.0600	.0486	.0599	.0513	.0007	.0327	-.0586	.0140	-.0085	-.0489	-.0080	-.0482
10	.0102	.0577	.0143	.0448	-.0101	.0133	-.0345	-.0183	.0325	-.0219	.0440	-.0211

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2643	.5124	.0211	-.1327	-.1501	-.9621	-.0614	-.2281	-.1729	-.2668	-.1779	-.1000	-.1756	.0777	-.1836	.2804
2	-.0501	.2049	-.0818	-.0211	-.1971	-.1567	-.0103	-.0561	-.0119	-.0965	.0017	-.1002	-.0338	-.1021	-.0657	-.1171
3	-.0110	.1971	-.0313	.0395	-.0442	.0166	-.0043	-.0058	-.0031	-.0111	-.0011	-.0139	-.0068	-.0185	-.0106	-.0379
4	-.0056	.1502	-.0027	.0174	.0288	-.0139	.0099	-.0041	.0192	-.0105	.0219	-.0086	.0214	-.0218	.0403	-.0311
5	-.0850	-.0733	-.0166	-.0027	-.0036	-.0009	-.0003	.0030	.0055	-.0088	.0053	.0125	.0171	.0113	.0294	.0253
6	-.0719	-.0147	-.0098	-.0020	-.0026	.0163	-.0011	.0068	.0045	.0116	.0002	.0140	.0086	.0172	-.0026	.0303
7	-.0095	-.0274	-.0010	-.0054	-.0319	-.0242	-.0055	-.0012	-.0112	.0058	-.0158	.0008	-.0154	.0165	-.0347	.0108
8	.0124	-.0111	.0020	-.0017	.0080	.0199	-.0000	-.0036	-.0059	-.0060	-.0025	-.0107	-.0167	-.0122	-.0162	-.0310
9	.0002	.0009	.0017	-.0007	.0098	.0039	.0027	.0001	.0044	-.0061	.0103	-.0052	.0032	-.0186	.0237	-.0249
10	-.0030	-.0041	-.0010	-.0001	.0028	.0133	-.0017	.0020	.0053	.0053	.0042	.0092	.0169	.0001	.0286	.0195

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 91 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5854	2.4819	.4245	1.5440	.4000	.8563	.5051	.8929	.4906	.7171	.4782	.7947	.4781	.6444
2	2.3639	1.1820	2.1844	1.1515	1.3643	.7092	.6616	.8034	.3330	.5724	.1748	.6270	.2084	.5229
3	.1236	1.1270	.1655	.9554	.1103	.3682	-.0287	.2415	-.0310	.0870	-.0798	.0824	-.0475	.0837
4	-.1364	.7348	-.0339	.7782	-.0741	.4053	-.1489	.3392	-.1069	.2331	-.2203	.1466	-.1800	.1399
5	-.1775	.4958	-.2784	.4744	-.1284	.1747	-.2266	-.0342	-.1596	-.0770	-.0866	-.1745	-.0930	-.1420
6	-.2483	.3004	-.4106	.2440	-.1266	.0967	-.0749	-.0375	-.0170	-.0364	.0167	-.0477	.0049	-.0415
7	-.2701	.0803	-.3479	-.0837	-.1248	-.0293	-.0491	-.1158	-.0161	-.0843	.0595	-.0801	.0292	-.0829
8	-.2031	.0045	-.1961	-.1345	-.0655	-.0595	.0517	-.0665	.0476	-.0347	.0621	.0129	.0533	-.0021
9	-.1618	-.0933	-.1021	-.2249	-.0074	-.0753	.0579	-.0278	.0411	-.0223	.0568	.0113	.0480	-.0128
10	-.1697	-.1152	.0251	-.2101	-.0217	-.0562	.0411	-.0008	.0376	.0207	.0006	.0707	.0301	.0562

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3849	.5337	.3001	.4275	.1591	.4391	.0181	.4508	-.1142	.3850	-.1352	.4001
2	.1234	.4594	.0035	.2805	-.0877	.1280	-.1788	-.0244	-.1378	-.1115	-.1179	-.1099
3	-.1139	.0848	-.0955	-.0163	-.0643	-.0497	-.0331	-.0832	.0132	-.0651	.0158	-.0388
4	-.1856	.0231	-.0690	-.0291	-.0232	-.0574	.0227	-.0856	.0431	-.0221	.0331	-.0141
5	-.0236	-.1336	.0061	-.0708	.0349	-.0336	.0637	.0036	.0179	.0292	.0171	.0318
6	.0294	-.0656	.0515	-.0387	.0385	-.0001	.0254	.0384	-.0232	.0212	-.0214	-.0228
7	.0828	-.0198	.0547	.0335	.0160	.0300	-.0227	.0265	-.0147	-.0196	-.0216	-.0114
8	.0182	.0243	-.0108	.0322	-.0168	.0184	-.0229	.0046	.0022	-.0177	.0027	-.0219
9	.0432	.0184	-.0046	.0170	-.0103	-.0046	-.0160	-.0262	.0236	-.0016	.0175	.0016
10	-.0209	.0486	-.0268	.0052	-.0026	-.0039	.0216	-.0130	.0131	.0137	.0079	.0046

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1764	.7721	.0482	-.1727	.0057	-.4495	-.0438	-.5302	-.1024	-.3389	-.1225	-.1557	-.1412	.0195	-.1483	.2067
2	-.1109	.2204	-.2083	-.0239	-.1021	-.0655	-.0368	-.0824	-.0087	-.0429	.0028	-.0492	-.0191	-.0814	-.0342	-.1034
3	-.1190	.2279	-.0775	.0847	-.0092	-.0161	.0055	-.0032	.0075	-.0106	.0137	-.0105	.0150	-.0181	.0245	-.0206
4	-.0523	.0589	-.0149	-.0002	.0031	-.0106	.0103	-.0066	.0092	-.0068	.0123	-.0031	.0159	-.0064	.0267	.0002
5	-.0393	-.0007	-.0155	-.0030	-.0060	.0049	-.0072	.0087	.0014	.0101	-.0049	.0145	.0024	.0193	-.0034	.0298
6	-.0080	.0121	-.0027	-.0026	-.0023	.0015	-.0035	-.0007	-.0028	.0007	-.0058	-.0005	-.0096	.0032	-.0177	-.0011
7	-.0216	.0028	-.0066	-.0028	-.0007	-.0017	-.0002	-.0011	-.0002	.0004	.0001	-.0026	-.0025	-.0036	-.0033	-.0091
8	-.0097	-.0062	.0000	-.0019	-.0009	.0007	.0005	.0003	.0018	.0005	.0016	-.0005	.0017	-.0040	.0088	-.0069
9	-.0006	-.0078	.0021	-.0002	.0008	.0014	.0009	.0011	.0011	.0009	.0015	.0026	.0039	.0020	.0036	.0068
10	.0006	-.0013	.0025	-.0002	-.0008	-.0006	.0008	-.0016	-.0009	-.0012	-.0019	-.0005	-.0008	.0015	.0004	.0035

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 32 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.4976	35.8	.7745	45.0	.4286	61.4	.7539	61.3	.4269	61.7	.3160	54.1	.5841	58.6
2	2.1189	58.1	.9315	56.2	.6788	45.1	.9896	50.1	.6830	54.6	.2998	42.4	.5178	49.9
3	1.0641	44.0	.4351	53.5	.2328	58.7	.3756	26.9	.2763	36.9	.1342	16.8	.2386	30.8
4	1.2232	21.6	.6245	15.6	.3025	35.0	.4303	347.7	.3199	351.5	.1481	322.7	.2645	335.2
5	.9480	336.9	.4787	319.6	.2216	333.0	.3135	295.6	.2275	303.7	.1022	273.9	.1695	289.1
6	.5022	294.2	.2498	274.7	.1191	291.6	.2217	248.2	.1864	256.7	.0969	222.8	.1763	244.1
7	.2808	275.6	.1678	249.0	.1047	255.7	.1973	204.3	.1544	210.4	.0781	166.4	.1447	188.9
8	.1325	254.5	.0867	219.8	.0671	192.0	.1620	142.1	.1257	160.8	.0614	118.5	.1080	146.2
9	.1820	273.6	.1086	221.0	.0198	195.8	.0761	97.1	.0740	118.7	.0452	72.8	.0867	105.7
10	.1967	220.9	.1054	162.6	.0386	171.4	.0777	90.9	.0613	109.6	.0343	42.9	.0659	72.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5257	49.7	.4962	44.1	.4713	28.2	.4849	11.9	.4659	348.4	.4982	345.3
2	.3839	35.4	.2145	13.9	.1540	327.7	.2223	283.0	.2221	243.6	.2024	245.3
3	.1933	12.6	.1080	359.2	.0597	293.2	.1242	240.6	.0954	207.0	.0816	217.0
4	.2206	304.4	.1378	286.2	.0974	244.2	.1311	190.5	.1043	145.1	.0892	150.2
5	.1268	255.1	.0742	228.8	.0526	181.5	.0778	136.4	.0532	76.6	.0623	74.1
6	.1319	209.3	.1041	209.9	.0597	143.3	.0895	105.6	.0585	47.0	.0481	22.5
7	.1320	142.2	.1033	148.1	.0573	100.0	.0895	40.7	.0436	332.3	.0499	321.6
8	.0913	95.4	.0894	104.7	.0415	52.4	.0760	344.2	.0579	262.9	.0485	254.4
9	.0772	51.0	.0789	49.4	.0327	1.2	.0603	283.4	.0497	189.9	.0488	189.4
10	.0586	10.1	.0471	17.7	.0167	322.7	.0391	242.1	.0392	124.0	.0488	115.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5766	27.3	.1344	171.0	.9738	188.9	.2362	195.1	.3179	213.0	.2041	240.7	.1920	293.9	.3351	326.8
2	.2109	346.2	.0845	255.5	.2518	231.5	.0570	190.4	.0973	187.0	.1002	179.0	.1075	198.3	.1343	209.3
3	.1974	356.8	.0504	321.6	.0472	290.6	.0072	216.5	.0115	195.4	.0140	184.6	.0197	200.1	.0393	195.6
4	.1503	357.9	.0176	351.2	.0320	115.7	.0107	112.8	.0219	118.6	.0235	111.4	.0306	135.5	.0509	127.7
5	.1122	310.8	.0168	279.1	.0038	255.7	.0031	353.4	.0103	32.2	.0136	23.1	.0205	56.4	.0388	49.4
6	.0734	258.5	.0100	258.6	.0145	351.1	.0069	350.6	.0124	21.1	.0140	17.7	.0192	26.6	.0304	355.1
7	.0290	199.1	.0055	191.0	.0400	232.7	.0056	257.2	.0126	297.4	.0158	272.8	.0226	317.0	.0363	287.3
8	.0166	131.8	.0026	129.9	.0214	21.8	.0036	180.2	.0084	224.8	.0110	193.3	.0207	233.8	.0350	207.6
9	.0010	12.9	.0018	110.9	.0105	68.3	.0027	87.0	.0076	144.4	.0115	117.0	.0189	170.1	.0344	136.5
10	.0050	216.1	.0010	265.9	.0136	11.7	.0026	319.0	.0075	45.2	.0102	24.4	.0169	89.8	.0346	55.8

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.1006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 91 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.5500	13.3	1.4013	15.4	.9451	25.0	1.0259	29.5	.8689	34.4	.9274	31.0	.8023	36.6
2	2.4429	43.4	2.4712	62.2	1.5376	62.5	1.0408	39.5	.6622	30.2	.4509	15.6	.5629	21.7
3	1.1338	6.3	.9497	9.8	.3844	16.7	.2432	353.2	.0924	340.4	.1147	315.9	.1075	321.1
4	.7473	10.5	.7789	2.5	.4121	10.4	.3705	336.3	.2564	335.4	.2646	303.6	.2280	307.9
5	.5264	340.3	.5518	329.7	.2169	323.6	.2292	261.4	.1772	244.3	.1948	206.4	.1697	213.2
6	.3899	320.4	.4786	300.9	.1593	307.4	.0838	243.4	.0402	205.1	.0505	160.6	.0418	173.2
7	.2818	286.6	.3578	256.5	.1282	256.8	.1258	203.0	.0859	190.8	.0998	143.4	.0879	160.6
8	.2032	271.3	.2378	235.6	.0885	227.8	.0842	142.2	.0589	126.1	.0634	78.2	.0534	92.3
9	.1867	240.0	.2470	204.4	.0757	185.6	.0642	115.6	.0468	118.4	.0579	78.7	.0497	105.0
10	.1591	223.6	.2116	173.2	.0602	201.1	.0411	91.1	.0430	61.1	.0707	.5	.0638	28.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6580	35.8	.5223	35.1	.4671	19.9	.4512	2.3	.4016	343.5	.4224	341.3
2	.4757	15.0	.2805	7	.1552	325.6	.1804	262.2	.1772	231.0	.1611	227.0
3	.1420	306.6	.0969	260.3	.0813	232.3	.0895	201.7	.0664	168.5	.0419	157.8
4	.1871	277.1	.0749	247.1	.0619	202.0	.0886	165.2	.0484	117.2	.0360	113.0
5	.1356	190.0	.0711	175.1	.0485	133.9	.0638	86.8	.0343	31.5	.0361	28.3
6	.0719	155.9	.0645	126.9	.0385	90.2	.0461	33.5	.0314	312.4	.0313	316.8
7	.0851	103.3	.0441	58.3	.0340	28.1	.0349	319.4	.0245	216.8	.0244	242.2
8	.0304	36.9	.0339	341.5	.0250	317.6	.0234	281.5	.0179	172.8	.0221	172.9
9	.0469	66.9	.0176	345.0	.0113	246.0	.0307	211.5	.0237	93.8	.0176	84.8
10	.0530	336.7	.0273	281.0	.0047	213.7	.0252	121.0	.0189	43.7	.0091	59.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7920	12.9	.1857	158.5	.4495	179.3	.5320	184.7	.3540	196.8	.1981	218.2	.1426	277.9	.2544	324.4
2	.2468	333.3	.2097	263.5	.1213	237.3	.0902	204.1	.0635	187.8	.0693	177.7	.0836	193.2	.1090	198.3
3	.2571	332.4	.1149	317.5	.0186	330.2	.0063	119.9	.0130	144.9	.0172	127.6	.0235	140.3	.0320	130.0
4	.0788	318.4	.0149	269.1	.0110	163.7	.0122	122.6	.0115	126.2	.0127	104.1	.0171	111.8	.0267	89.6
5	.0393	268.9	.0158	259.1	.0077	308.9	.0113	320.6	.0102	7.7	.0153	341.4	.0195	7.2	.0300	353.5
6	.0146	326.5	.0038	313.9	.0027	302.5	.0035	258.9	.0029	285.0	.0058	265.1	.0101	288.3	.0177	266.3
7	.0218	277.4	.0072	246.8	.0018	201.6	.0012	189.1	.0004	334.0	.0026	178.8	.0043	214.8	.0096	200.1
8	.0115	237.6	.0019	179.8	.0011	308.2	.0006	53.2	.0019	73.1	.0016	107.3	.0043	157.2	.0112	128.2
9	.0079	184.4	.0021	83.4	.0016	30.3	.0014	40.4	.0014	50.5	.0030	30.0	.0044	63.6	.0077	27.6
10	.0014	154.3	.0025	94.0	.0010	233.0	.0018	154.4	.0015	216.3	.0019	255.7	.0017	331.8	.0035	5.9

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 33 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.3307	2.5396	.4015	.7447	.3458	.3138	.6727	.5219	.6071	.4102	.2744	.2584	.5456	.4161
2	1.8048	.9705	.7758	.4115	.6309	.2572	.7352	.7245	.5524	.4787	.1773	.2732	.3788	.4134
3	.8838	1.1622	.4118	.4412	.2278	.2206	.1096	.4614	.1439	.3078	.0052	.1662	.0948	.2810
4	.0209	1.3371	-.0561	.4550	.0312	.3046	-.2496	.4043	-.1523	.3545	-.1624	.1020	-.2193	.2638
5	-.5208	.5686	-.3527	.2019	-.1131	.1348	-.3010	.0030	-.2441	.0242	-.1012	.0691	-.2050	-.0490
6	-.3027	.1173	-.1675	-.0222	-.0911	.0289	-.1503	-.1431	-.1338	-.0986	-.0106	-.0919	-.1039	-.1372
7	-.1747	.0878	-.0912	-.0099	-.0597	-.0349	.0093	-.1612	-.0180	-.1319	.0593	-.0466	.0525	-.1301
8	-.1894	.0968	-.1192	-.0323	-.0148	-.0296	.0810	-.0412	.0470	-.0759	.0464	.0048	.0680	-.0385
9	-.2485	-.0987	-.0429	-.1371	-.0158	-.0417	.0934	-.0295	.0599	-.0535	.0344	.0192	.0680	-.0189
10	-.0860	-.1543	.0355	-.0717	.0118	-.0269	.0716	.0419	.0701	-.0008	.0081	.0362	.0586	.0329

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4229	.4569	.3553	.4296	.2017	.4992	.0481	.5687	-.1824	.4900	-.2052	.5079
2	.1777	.3923	.0141	.2519	-.1430	.1340	-.3000	.0161	-.2236	-.1613	-.2103	-.1217
3	-.0260	.2409	-.0209	.1024	-.0464	-.0099	-.0720	-.1222	.0243	-.0962	.0080	-.0900
4	-.2698	.0753	-.1557	.0457	-.0661	-.0509	.0234	-.1474	.0887	-.0606	.0766	-.0506
5	-.1126	-.1383	-.0898	-.0923	.0095	-.0692	.1088	-.0461	.0701	.0531	.0551	.0522
6	.0263	-.1685	.0146	-.1399	.0540	-.0407	.0935	.0584	-.0290	.0822	-.0320	.0707
7	.1380	-.0300	.1047	-.0296	-.0456	.0321	-.0136	.0937	-.0717	-.0213	-.0751	-.0219
8	.0646	.0372	.0539	.0160	-.0049	.0210	-.0436	.0260	.0070	-.0493	.0169	-.0631
9	.0418	.0607	-.0392	.0435	-.0032	.0131	-.0457	-.0173	.0195	-.0097	.0320	.0023
10	-.0195	.0634	-.0003	.0554	-.0132	.0083	-.0262	-.0388	.0263	-.0011	.0197	.0139

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2000	.5744	.0023	-.1613	-.2206	-1.1440	-.0828	-.2698	-.2448	-.3286	-.2486	-.1487	-.2501	.0547	-.2641	.2720
2	-.1130	.2233	-.1008	-.0080	-.2141	-.0910	-.0068	-.0424	-.0025	-.0714	.0119	-.0798	-.0281	-.0924	-.0641	-.1275
3	-.0106	.2247	-.0315	.0348	-.0392	.0142	.0029	-.0108	.0048	-.0151	.0130	-.0187	.0094	-.0286	.0250	-.0480
4	-.0590	.1447	-.0006	.0098	.0544	-.0308	.0175	-.0034	.0281	-.0114	.0321	-.0031	.0346	-.0200	.0603	-.0075
5	-.1029	-.0010	-.0153	-.0093	-.0109	.0111	-.0043	.0055	-.0043	.0186	-.0007	.0223	.0172	.0244	.0141	.0499
6	-.0280	-.0217	-.0059	.0010	.1523	-.1556	-.0075	.0014	-.0137	.0123	-.0195	.0082	-.0279	.0411	-.0457	.0229
7	.0099	-.0022	.0043	.0022	-.0008	-.0232	.0015	-.0048	-.0073	-.0137	-.0031	-.0175	-.0246	-.0139	-.0246	-.0468
8	-.0036	.0109	-.0019	-.0005	-.0078	-.0051	-.0001	.0007	.0026	-.0004	.0096	.0018	.0120	-.0166	.0435	-.0145
9	-.0162	.0002	-.0032	-.0006	-.0063	.0096	-.0007	.0024	-.0060	.0027	.0030	.0074	.0140	.0029	.0118	.0231
10	.0008	-.0108	-.0003	-.0006	-.0055	.0063	-.0009	.0000	-.0012	.0076	-.0054	.0049	.0041	.0120	-.0108	.0209

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 92 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.7622	2.6948	.5894	1.7219	.5260	.9998	.5396	1.0761	.5042	.8644	.4813	.9326	.5056	.7334
2	2.0349	1.3587	1.8714	1.3544	1.1949	.8084	.4883	.8317	.2094	.5704	.0589	.6273	.1292	.5163
3	-.0971	1.0898	-.0535	.9075	-.0050	.3706	-.1243	.2287	-.0898	.0972	-.1747	.0898	-.1504	.1306
4	.0734	.6632	-.0439	.7352	.0425	.3528	-.1820	.2142	-.1250	.1264	-.2108	-.0084	-.2141	-.0057
5	-.2933	.4494	-.4418	.3848	-.1671	.1515	-.1759	-.0494	-.0942	-.0557	-.0120	-.1329	.0028	-.1413
6	-.2594	.2480	-.3998	.1094	-.1199	.0658	-.0738	-.0679	-.0543	-.0331	-.0138	-.0442	.0107	-.0234
7	-.3936	-.0257	-.3799	-.1948	-.1494	-.0453	-.0079	-.1203	.0072	-.1048	.0795	-.0675	.0355	-.0583
8	-.1791	-.1851	-.0883	-.2815	-.0598	-.1132	.0638	-.0632	.0668	-.0384	.0784	.0134	.0400	-.0241
9	-.0428	-.1175	.0400	-.2055	.0467	-.0978	.0953	-.0017	.0725	.0078	.0633	.0760	.0903	.0091
10	-.0441	-.0986	.1154	-.1456	.0408	-.0273	.0378	.0578	.0206	.0538	-.0528	.0820	.0167	.0915

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4038	.5945	.3058	.4521	.1458	.4527	-.0141	.4533	-.1581	.3648	-.1861	.3802
2	.0449	.4732	-.0237	.2736	-.1210	.1100	-.2183	-.0536	-.1453	-.1443	-.1231	-.1192
3	-.2001	.1027	-.1358	.0346	-.0746	-.0395	-.0135	-.1136	.0334	-.0538	.0265	-.0391
4	-.1869	-.1213	-.0930	-.1197	-.0045	-.0924	.0841	-.0651	.0687	.0009	.0587	.0057
5	.0908	-.1173	.0857	-.0688	.0788	-.0163	.0720	.0361	-.0116	.0531	-.0125	.0492
6	.0429	-.0151	.0607	.0036	.0248	.0471	-.0112	.0906	-.0404	-.0078	-.0315	-.0069
7	.0584	.0173	.0238	.0663	-.0308	.0184	-.0853	-.0294	.0068	-.0513	-.0016	-.0298
8	.0111	.0067	-.0366	.0018	-.0046	-.0222	.0274	-.0461	.0540	.0073	.0319	-.0109
9	.0447	.0478	-.0135	.0043	.0217	.0050	.0299	.0056	-.0157	.0524	.0062	.0351
10	-.0517	.0604	-.0155	.0177	-.0106	.0222	-.0057	.0266	-.0356	-.0277	-.0299	-.0079

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1552	.7980	.0512	-.2182	-.0095	-.4946	-.0681	-.5905	-.1567	-.3814	-.1673	-.2008	-.1914	-.0193	-.1921	.1705
2	-.2025	.2491	-.2391	-.0126	-.0994	-.0531	-.0398	-.0672	-.0170	-.0464	.0019	-.0574	-.0219	-.0745	-.0284	-.1039
3	-.1689	.2108	-.0897	.0761	-.0023	.0185	.0181	.0011	.0222	-.0057	.0272	-.0049	.0293	-.0151	.0395	-.0137
4	-.0454	.0186	-.0074	.0023	.0069	.0061	.0110	.0125	.0116	.0077	.0112	.0147	.0213	.0131	.0254	.0275
5	-.0159	-.0061	-.0017	-.0104	-.0033	-.0064	-.0094	-.0005	-.0056	.0112	-.0114	.0070	-.0109	.0150	-.0237	.0169
6	-.0185	.0194	-.0169	.0108	-.0018	.0016	-.0023	.0032	-.0060	-.0022	-.0051	-.0068	-.0105	-.0065	-.0093	-.0188
7	-.0292	-.0007	-.0034	-.0020	.0032	.0021	.0038	.0024	.0033	.0010	.0065	.0010	.0073	-.0061	.0141	-.0066
8	-.0045	-.0245	.0017	-.0045	-.0017	.0009	-.0022	-.0005	-.0002	.0023	-.0018	.0040	.0052	.0058	.0083	.0139
9	.0118	-.0031	.0028	.0007	-.0004	-.0024	-.0008	-.0006	-.0015	.0003	-.0032	-.0019	-.0056	.0032	-.0151	.0031
10	-.0019	.0074	-.0029	.0023	-.0001	.0010	.0006	.0002	.0003	-.0027	.0026	-.0020	-.0020	-.0063	.0019	-.0132

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 33 (SMEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.8671	27.7	.8460	28.3	.4669	47.8	.8514	52.2	.7327	56.0	.3769	46.7	.6861	52.7
2	2.0492	61.7	.8782	62.1	.6813	67.8	1.0322	45.4	.7309	49.1	.3257	33.0	.5607	42.5
3	1.4601	37.3	.6036	43.0	.3171	45.9	.4742	13.4	.3397	25.1	.1663	1.8	.2966	18.6
4	1.3372	.9	.6574	355.1	.3082	5.8	.4878	326.4	.3887	335.8	.1917	302.1	.3431	320.3
5	.7711	317.5	.4064	299.8	.1760	320.0	.3010	270.4	.2453	275.7	.1225	235.7	.2107	256.6
6	.3246	291.5	.1689	247.5	.0956	287.6	.2076	226.4	.1463	233.6	.0925	186.6	.1721	217.1
7	.1935	296.7	.0917	243.8	.0691	239.7	.1615	176.7	.1332	187.8	.0754	128.2	.1403	158.0
8	.2129	297.0	.1235	194.8	.0331	206.5	.1015	127.1	.0892	148.2	.0466	84.1	.0782	119.5
9	.2674	248.3	.1436	197.4	.0446	200.8	.0980	107.5	.0803	131.8	.0394	60.9	.0706	105.5
10	.1767	209.1	.0800	153.6	.0294	156.3	.0829	59.6	.0701	90.7	.0371	12.6	.0672	60.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6226	42.8	.5575	39.6	.5384	22.0	.5707	4.8	.5229	339.6	.5478	338.0
2	.4307	24.4	.2523	3.2	.1960	313.1	.3005	273.1	.2757	234.2	.2430	240.0
3	.2423	353.8	.1045	348.5	.0475	258.0	.1418	210.5	.0992	165.8	.0904	174.9
4	.2801	285.6	.1622	286.4	.0834	232.4	.1492	171.0	.1074	124.3	.0918	123.4
5	.1783	219.2	.1288	224.2	.0698	172.2	.1182	113.0	.0879	52.8	.0759	46.6
6	.1706	171.1	.1406	174.1	.0677	122.0	.1102	58.0	.0872	340.6	.0776	335.7
7	.1412	102.3	.1088	105.8	.0557	54.9	.0947	351.8	.0748	253.4	.0782	253.8
8	.0746	60.1	.0562	73.5	.0216	347.0	.0687	292.2	.0498	171.9	.0653	165.0
9	.0737	34.6	.0586	42.0	.0135	346.2	.0488	249.3	.0218	116.6	.0321	85.9
10	.0663	342.9	.0554	359.7	.0156	302.1	.0468	214.0	.0264	92.3	.0242	54.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.6083	19.2	.1613	179.2	1.1651	190.9	.2822	197.1	.4098	216.7	.2897	239.1	.2560	282.3	.3791	315.8
2	.2503	333.2	.1012	245.5	.2327	247.0	.0430	189.1	.0714	182.0	.0807	171.5	.0966	196.9	.1427	206.7
3	.2249	357.3	.0470	317.9	.0416	289.9	.0111	165.2	.0159	162.5	.0228	145.2	.0301	161.7	.0541	152.5
4	.1562	337.8	.0099	356.3	.0625	119.5	.0179	101.1	.0303	112.1	.0323	95.5	.0400	120.0	.0608	97.1
5	.1029	269.4	.0179	238.8	.0155	315.5	.0070	321.7	.0191	12.9	.0223	358.2	.0298	35.2	.0518	15.8
6	.0354	232.3	.0059	279.5	.2177	135.6	.0074	280.9	.0184	311.8	.0211	292.8	.0496	325.8	.0511	296.6
7	.0102	102.4	.0048	117.0	.0233	181.9	.0050	162.9	.0156	208.2	.0178	190.1	.0283	240.6	.0529	207.7
8	.0115	341.8	.0020	254.2	.0093	237.2	.0007	348.3	.0026	99.7	.0098	79.6	.0205	144.3	.0459	108.4
9	.0162	270.6	.0032	281.4	.0115	33.2	.0025	344.0	.0066	65.9	.0080	22.2	.0144	78.2	.0260	27.1
10	.0108	175.6	.0007	207.4	.0084	318.7	.0009	273.2	.0077	350.7	.0073	312.2	.0127	18.6	.0235	332.7

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=1.265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 92 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.8005	15.8	1.8200	18.9	1.1297	27.7	1.2038	24.6	1.0007	30.3	1.0494	27.3	.8908	34.6
2	2.4468	56.3	2.3100	54.1	1.4428	55.9	.9445	30.4	.6077	20.2	.4301	5.4	.3517	13.5
3	1.0942	354.9	.9091	356.6	.3707	359.2	.2613	331.1	.1323	317.3	.1982	296.9	.1992	311.0
4	.6672	6.3	.7364	356.6	.3553	6.9	.2811	319.7	.1779	315.4	.2110	267.7	.2142	271.5
5	.3367	326.9	.5858	311.1	.2255	312.2	.1827	254.3	.1094	239.4	.1334	174.9	.1413	178.9
6	.3589	313.7	.4145	285.3	.1368	298.7	.1003	227.4	.0636	238.7	.0463	197.3	.0257	155.4
7	.3945	273.7	.4269	242.9	.1543	253.1	.1205	183.8	.1051	176.1	.1043	130.4	.0683	148.6
8	.2574	224.1	.2950	197.4	.1280	207.8	.0898	134.8	.0771	119.9	.0798	80.2	.0467	121.1
9	.1251	200.0	.2093	169.0	.1084	154.4	.0953	91.0	.0729	83.8	.0989	39.8	.0907	84.2
10	.1080	204.1	.1858	141.6	.0491	123.8	.0691	33.2	.0576	20.9	.0975	327.2	.0930	10.4

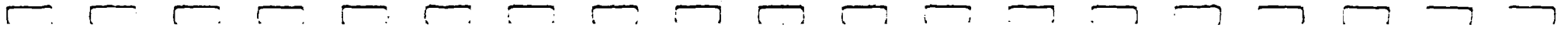
H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7187	34.2	.5438	34.1	.4756	17.9	.4535	358.2	.3976	336.6	.4233	333.9
2	.4753	5.4	.2746	355.0	.1635	312.3	.2248	256.2	.2048	225.2	.1713	225.9
3	.2249	297.2	.1402	284.3	.0845	242.1	.1144	186.8	.0633	148.2	.0473	145.8
4	.2228	237.0	.1316	217.9	.0925	182.8	.1063	127.8	.0687	89.3	.0590	84.4
5	.1483	142.3	.1099	128.8	.0805	101.7	.0806	63.4	.0544	347.6	.0508	345.7
6	.0454	109.4	.0608	86.6	.0532	27.7	.0912	353.0	.0411	259.1	.0322	257.6
7	.0609	73.5	.0704	19.7	.0359	300.9	.0903	251.0	.0517	172.5	.0298	183.0
8	.0129	58.9	.0367	272.8	.0227	191.8	.0536	149.3	.0545	82.3	.0337	108.8
9	.0655	43.1	.0141	72.2	.0222	77.1	.0304	79.4	.0547	343.3	.0356	10.0
10	.0795	319.4	.0236	318.8	.0246	334.4	.0272	348.0	.0451	232.2	.0310	255.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.8129	11.0	.2241	166.8	.4947	181.1	.5944	186.6	.4123	202.3	.2613	219.8	.1924	264.2	.2569	311.6
2	.3211	320.9	.2395	267.0	.1129	242.0	.0781	210.6	.0494	200.1	.0574	178.1	.0776	196.4	.1077	195.3
3	.2701	321.3	.1176	310.3	.0187	352.9	.0181	86.6	.0229	104.3	.0277	100.3	.0329	117.2	.0418	109.2
4	.0491	292.2	.0079	286.9	.0092	48.6	.0166	41.2	.0139	56.3	.0184	37.2	.0250	58.3	.0374	42.6
5	.0170	249.1	.0105	189.5	.0072	207.5	.0094	267.3	.0125	333.2	.0134	301.4	.0185	323.9	.0291	305.6
6	.0268	316.3	.0200	302.6	.0025	311.5	.0040	216.1	.0064	249.5	.0085	216.9	.0124	238.1	.0210	206.4
7	.0292	268.7	.0039	239.7	.0038	57.1	.0045	57.1	.0034	73.8	.0066	81.0	.0095	129.7	.0156	115.0
8	.0249	190.5	.0048	159.2	.0020	297.9	.0023	257.4	.0023	355.5	.0044	335.6	.0078	42.0	.0162	30.7
9	.0122	104.9	.0029	76.1	.0024	189.4	.0010	230.3	.0015	281.1	.0038	239.2	.0064	300.0	.0155	281.5
10	.0076	345.4	.0037	308.5	.0010	355.7	.0006	75.7	.0027	173.9	.0033	128.1	.0066	197.6	.0134	171.8

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED



NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 98 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0721	.7172	-.0257	-.0290	.1076	-.1724	.3276	.2018	.3405	.3056	.3561	.2974	.3371	.2101
2	2.9671	.1341	2.5362	.1291	1.4165	-.1063	.8641	-.2466	.4662	-.2089	.4706	.2436	.4402	.1936
3	.8188	-.4091	.5714	-.5247	.3307	-.3498	.3634	-.1423	.2511	-.0920	.2661	.0380	.2211	.0551
4	1.0954	.0947	1.0549	.0596	.4454	.0552	.2602	.7522	.1152	.1909	.0042	.2196	-.0054	.1889
5	.4318	.0821	.4392	.0962	.1982	.0497	.1282	.1006	.0901	.0544	.0729	.0662	-.0524	.0485
6	.4004	.0306	.4733	.0477	.1381	.0488	.0035	.1624	-.0194	.1671	-.0903	.1724	-.0573	.1446
7	.2823	.0435	.3187	.1408	.0843	.0397	.0082	.0142	-.0409	-.0000	-.0483	-.0303	-.0584	-.0046
8	.2049	.0507	.2440	.1006	.0777	.0520	-.0217	.1138	-.0217	.0784	-.0496	.0467	-.0456	.0482
9	.1804	-.0087	.2365	.0977	.0398	.0183	-.0518	-.0132	-.0583	-.0266	-.0486	-.0453	-.0507	-.0251
10	.2237	.0381	.2155	.1599	.1009	.0508	.0328	.0481	.0209	.0192	.0033	.0167	-.0097	.0133

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2691	.1436	.1970	.2278	.1284	.3525	.0599	.4772	-.0426	.5052	-.0645	.5253
2	.3691	.1680	.1793	.1001	.0423	.0835	-.0947	.0669	-.1318	.0068	-.1144	-.0041
3	.1703	.0979	.0796	.0953	.0048	.0754	-.0700	.0554	-.0830	.0180	-.0716	.0089
4	-.0255	.1458	-.0514	.0723	-.0550	.0308	-.0586	-.0106	-.0206	-.0445	-.0064	-.0433
5	-.0235	.0754	-.0145	.0542	-.0374	.0241	-.0602	-.0060	-.0151	-.0167	-.0092	-.0225
6	-.0916	.0857	-.0840	.0134	-.0521	-.0182	-.0203	-.0497	.0124	-.0196	.0228	-.0188
7	-.0482	-.0105	-.0429	-.0336	-.0241	-.0294	-.0054	-.0252	.0129	-.0074	.0136	-.0016
8	-.0545	.0091	-.0106	-.0407	-.0024	-.0356	.0059	-.0304	.0136	.0106	.0098	.0124
9	-.0301	-.0313	.0012	-.0151	.0152	-.0142	.0292	-.0132	-.0004	.0216	-.0017	.0076
10	-.0165	-.0088	.0079	-.0199	.0102	-.0058	.0124	.0083	-.0147	-.0006	-.0022	.0025

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1061	.7879	.0113	-.0631	-.0201	-.2613	-.0539	-.3516	-.0624	-.2127	-.0765	-.0514	-.0781	.1146	-.0744	.3026
2	.2327	.0881	-.0595	-.0012	-.0935	-.0387	-.0831	-.0512	-.0532	-.0380	-.0452	-.0345	-.0591	-.0291	-.0743	-.0263
3	.0854	.0926	-.0031	.0646	-.0184	.0215	-.0207	-.0035	-.0190	.0043	-.0191	-.0009	-.0255	-.0001	-.0377	-.0059
4	.1240	.0919	.0360	.0415	.0077	.0239	-.0028	-.0097	-.0003	-.0120	.0006	-.0153	-.0046	-.0229	-.0033	-.0340
5	.0371	.0547	.0037	.0183	-.0040	-.0016	-.0027	-.0062	-.0075	-.0058	-.0027	-.0075	-.0033	-.0105	.0026	-.0161
6	.0016	.0353	-.0022	.0111	.0015	-.0007	.0044	-.0030	.0054	-.0059	.0078	-.0049	.0100	-.0096	.0172	-.0110
7	.0047	.0075	-.0003	.0020	.0020	-.0004	.0006	-.0003	.0005	.0014	.0022	.0007	.0050	.0004	.0101	.0038
8	-.0007	.0058	-.0002	.0031	-.0002	.0013	-.0003	.0014	.0021	.0014	.0022	.0023	.0046	.0026	.0044	.0070
9	.0027	-.0041	.0013	.0007	.0010	.0006	.0010	.0016	-.0002	.0005	-.0001	.0016	.0003	.0039	-.0023	.0071
10	.0196	-.0012	.0058	.0016	.0008	-.0010	-.0004	.0012	-.0003	.0017	-.0008	.0017	-.0012	.0021	-.0034	.0003

101

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 98 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7208	5.7	.0387	221.6	.2033	148.0	.3848	58.4	.4575	48.1	.4640	50.1	.3972	58.1
2	2.9701	87.4	2.5395	87.1	1.4205	85.7	.8986	74.1	.5108	65.9	.5299	62.6	.4809	66.3
3	.7418	123.5	.7758	132.6	.4813	136.6	.3903	111.4	.2674	110.1	.2688	81.9	.2278	76.0
4	1.0995	85.1	1.0566	86.8	.4488	82.9	.3652	45.5	.2229	31.1	.2197	1.1	.1890	358.4
5	.4395	79.2	.4496	77.6	.2043	75.9	.1629	51.9	.1053	58.8	.0984	47.7	.0741	49.1
6	.4016	85.6	.4756	84.2	.1465	70.6	.1625	1.2	.1682	353.4	.1946	332.3	.1556	338.4
7	.2856	81.2	.3485	66.2	.0932	64.8	.0164	29.8	.0409	270.0	.0747	246.1	.0586	265.5
8	.2110	76.1	.2640	67.6	.0935	56.2	.1159	349.2	.0814	344.6	.0681	313.3	.0663	316.6
9	.1806	92.8	.2559	67.6	.0438	65.3	.0534	255.7	.0641	245.5	.0665	227.0	.0565	243.7
10	.2269	80.3	.2683	53.4	.1129	63.3	.0582	34.3	.0284	47.5	.0170	11.1	.0165	323.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3050	41.9	.3012	40.9	.3752	20.0	.4809	7.2	.5070	355.2	.5292	353.0
2	.4056	65.5	.2053	40.8	.0936	26.9	.1159	305.2	.1320	373.0	.1144	268.0
3	.1966	40.1	.1242	39.8	.0755	3.6	.0893	308.3	.0849	282.2	.0721	377.1
4	.1480	350.1	.0887	324.6	.0631	299.3	.0594	259.8	.0490	204.8	.0438	188.4
5	.0790	17.3	.0542	345.0	.0445	302.8	.0405	264.3	.0225	222.0	.0243	202.3
6	.1254	313.1	.0850	279.1	.0552	250.8	.0537	202.2	.0232	147.6	.0296	129.5
7	.0493	257.7	.0545	232.0	.0380	219.4	.0257	192.1	.0149	119.7	.0137	96.5
8	.0553	279.5	.0421	194.6	.0356	183.8	.0310	169.1	.0173	52.0	.0158	38.1
9	.0434	223.9	.0151	175.5	.0208	133.0	.0321	114.4	.0216	359.0	.0078	347.4
10	.0187	242.0	.0214	158.3	.0117	119.8	.0149	56.4	.0147	267.8	.0033	318.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7950	7.7	.0641	10.2	.2620	184.4	.3557	188.7	.2216	196.4	.0921	236.1	.1387	325.7	.3121	345.8
2	.2488	69.3	.0595	268.8	.1012	247.5	.0976	238.4	.0653	234.5	.0569	232.6	.0659	243.8	.0807	251.0
3	.1240	42.7	.0647	357.2	.0283	319.4	.0210	279.6	.0195	282.6	.0191	267.3	.0255	269.8	.0381	261.0
4	.1560	53.9	.0549	41.0	.0087	63.2	.0097	163.1	.0120	178.4	.0153	177.6	.0233	191.5	.0341	185.6
5	.0677	33.2	.0186	11.4	.0043	248.5	.0068	203.8	.0095	232.1	.0078	196.4	.0110	197.3	.0163	170.8
6	.0353	2.6	.0113	349.0	.0016	114.3	.0053	124.3	.0080	137.9	.0092	122.1	.0138	133.9	.0204	122.6
7	.0088	32.1	.0020	331.2	.0020	100.6	.0007	116.7	.0014	19.7	.0023	71.4	.0050	83.6	.0108	69.1
8	.0059	353.0	.0031	355.4	.0013	349.4	.0015	349.5	.0025	56.6	.0032	43.6	.0053	60.0	.0083	31.9
9	.0049	147.1	.0015	62.4	.0012	58.6	.0019	31.8	.0005	338.7	.0016	355.6	.0039	5.1	.0075	342.1
10	.0197	93.6	.0060	74.3	.0013	140.7	.0013	340.5	.0018	349.7	.0019	335.5	.0024	330.2	.0034	275.2

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

FILE: 100 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.7187	.8772	.6024	.0606	.4295	-.0325	.4944	.3431	.4328	.4333	.4576	.5538	.4478	.4462
2	2.9464	.4357	2.4921	.5524	1.4438	.2153	.9294	.3144	.5090	.1845	.4004	.2611	.3449	.2016
3	.7195	.2552	.6775	.0313	.4078	-.0202	.3294	.2716	.2543	.1943	.2194	.2870	.2242	.2214
4	.8260	.3552	.8218	.4082	.3023	.1768	.0192	.2358	-.0745	.1494	-.1975	.1400	-.1676	.1705
5	.3694	.2530	.3575	.3189	.1854	.1034	.0917	.1849	.1013	.0918	.0337	.0948	.0277	.0564
6	.3857	.2720	.3608	.4029	.1035	.1410	-.1206	.1314	-.1284	.1196	-.1950	.0353	-.1534	.0623
7	.1717	.2049	.0816	.3190	.0632	.0926	.0123	.0478	.0042	-.0121	.0140	-.0442	.0000	-.0533
8	.1349	.2483	.0593	.3037	-.0018	.1389	-.1563	.0768	-.0988	.0781	-.1201	.0039	-.0788	.0408
9	.0155	.1471	-.0616	.2344	-.0413	.0702	-.0466	-.0497	-.0378	-.0556	-.0028	-.0834	-.0370	-.0547
10	.0367	.1041	-.0650	.1529	-.0314	.0385	-.0766	-.0147	-.0536	-.0084	-.0233	-.0513	-.0378	-.0310

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4060	.4059	.3009	.4523	.1593	.4789	.0177	.5056	-.1149	.4861	-.1258	.4831
2	.2404	.2204	.0619	.1250	-.0324	.0765	-.1267	.0280	-.1355	-.0418	-.1016	-.0332
3	.1354	.2410	.0447	.1469	-.0366	.0685	-.1178	-.0100	-.0845	-.0488	-.0709	-.0412
4	-.2052	.1259	-.1507	.0738	-.0991	.0053	-.0476	-.0632	.0075	-.0538	.0193	-.0415
5	-.0510	.0221	-.0950	-.0311	-.0310	-.0570	-.0070	-.0829	.0327	-.0303	.0336	-.0120
6	-.1171	-.0448	-.0299	-.0819	.0162	-.0553	.0623	-.0288	.0341	.0183	.0155	.0180
7	-.0230	-.0432	.0018	-.0502	.0262	.0172	.0507	.0159	.0072	.0426	.0093	.0175
8	-.0483	-.0150	.0387	-.0393	.0158	.0106	-.0071	.0604	-.0516	.0173	-.0201	.0217
9	-.0018	-.0380	.0222	-.0085	-.0096	-.0024	-.0414	-.0132	-.0131	-.0430	-.0142	-.0132
10	-.0066	-.0478	.0087	-.0094	.0170	-.0113	.0254	-.0132	.0155	.0124	-.0053	.0091

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1823	.8825	.0224	.0443	-.0331	-.2068	-.0886	-.4580	-.1331	-.3013	-.1515	-.1284	-.1627	.0537	-.1586	.2503
2	.1638	.1542	-.0732	.0172	-.0554	-.0184	-.0376	-.0541	-.0091	-.0423	-.0023	-.0486	-.0222	-.0527	-.0429	-.0586
3	.0395	.2238	-.0232	.0854	-.0169	.0318	-.0106	-.0218	-.0155	-.0227	-.0135	-.0277	-.0262	-.0303	-.0273	-.0458
4	-.0003	.0816	-.0067	.0245	.0006	.0116	.0079	-.0012	.0069	-.0069	.0127	-.0081	.0138	-.0170	.0272	-.0199
5	-.0107	.0312	-.0000	.0025	.0023	.0016	.0046	.0007	.0084	-.0018	.0096	.0036	.0154	-.0007	.0236	.0066
6	-.0018	.0137	-.0042	-.0013	-.0036	.0003	-.0029	.0019	.0016	.0024	-.0010	.0070	.0035	.0107	.0011	.0177
7	-.0213	.0083	.0056	.0028	.0015	.0023	-.0026	.0019	-.0009	.0042	-.0030	.0034	-.0023	.0063	-.0068	.0068
8	-.0037	.0316	-.0052	.0062	-.0018	.0010	.0015	-.0041	-.0009	-.0040	-.0022	-.0053	-.0075	-.0025	-.0114	-.0040
9	-.0075	.0010	.0020	-.0033	.0022	-.0004	.0023	.0040	.0035	.0018	.0048	.0026	.0059	-.0022	-.0071	-.0047
10	.0008	.0046	.0014	.0015	.0002	-.0002	-.0009	-.0018	-.0023	-.0007	-.0034	-.0014	-.0054	.0035	-.0105	.0020

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

FILE: 100 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.1341	39.3	.6056	84.3	.4308	94.3	.6018	55.2	.6124	45.0	.7184	39.6	.6465	46.4
2	2.9784	81.6	2.5526	77.5	1.4598	81.5	.9811	71.3	.5414	70.1	.4782	56.9	.3995	59.7
3	.7434	70.5	.4782	87.4	.4083	92.8	.4271	50.5	.3200	52.6	.3612	37.4	.3151	45.4
4	.8991	66.7	.9176	63.6	.3502	59.7	.2366	4.6	.1669	333.5	.2421	305.3	.2391	315.5
5	.4477	55.6	.4790	48.3	.2124	60.8	.2044	26.4	.1367	47.8	.1025	19.2	.0429	26.2
6	.4720	54.8	.5408	41.8	.1749	36.3	.1783	317.5	.1754	313.0	.1982	280.3	.1658	292.1
7	.2673	40.0	.3293	14.3	.1121	34.3	.0494	14.5	.0128	161.0	.0463	162.4	.0533	179.9
8	.2826	28.5	.3094	11.1	.1389	359.3	.1742	296.2	.1259	308.3	.1202	271.9	.0887	297.4
9	.1479	6.0	.2424	345.3	.0814	329.5	.0681	223.2	.0672	214.2	.0837	181.9	.0661	214.1
10	.1104	19.4	.1661	337.0	.0496	320.8	.0780	259.2	.0542	261.1	.0564	204.4	.0489	230.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5741	45.0	.5432	33.6	.5047	18.4	.5059	2.0	.4995	346.7	.4992	345.4
2	.3261	47.5	.1395	26.3	.0831	337.0	.1297	282.5	.1418	252.9	.1069	251.9
3	.2765	29.3	.1536	16.9	.0776	331.9	.1183	245.1	.0976	240.0	.0820	239.8
4	.2407	301.5	.1678	296.1	.0993	273.1	.0791	217.0	.0543	172.0	.0458	155.1
5	.0556	293.5	.0999	251.8	.0745	221.8	.0832	184.8	.0446	132.8	.0356	109.6
6	.1253	249.0	.0871	200.0	.0577	163.6	.0687	114.8	.0387	61.8	.0237	40.7
7	.0489	152.0	.0502	178.0	.0314	123.2	.0531	72.6	.0432	9.6	.0198	28.0
8	.0506	252.7	.0551	135.5	.0190	56.2	.0609	353.3	.0544	288.5	.0296	317.1
9	.0381	182.7	.0238	69.0	.0099	256.3	.0435	252.3	.0449	197.0	.0193	227.0
10	.0482	187.8	.0128	137.1	.0204	123.5	.0286	117.5	.0198	51.4	.0105	330.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.9011	11.7	.0497	26.8	.2095	189.1	.4665	191.0	.3294	203.8	.1987	229.7	.1713	288.3	.2963	327.6
2	.2250	46.7	.0752	283.2	.0584	251.6	.0658	214.8	.0432	192.1	.0487	182.7	.0571	202.8	.0727	216.2
3	.2273	10.0	.0885	344.8	.0361	332.0	.0242	206.0	.0275	214.4	.0308	206.0	.0401	220.9	.0533	210.8
4	.0814	359.8	.0254	344.7	.0116	3.0	.0080	98.8	.0097	135.1	.0151	122.7	.0219	141.0	.0337	126.1
5	.0330	18.9	.0025	359.4	.0028	54.9	.0046	81.6	.0086	102.3	.0103	69.3	.0154	92.5	.0245	74.3
6	.0138	352.3	.0044	253.1	.0036	275.2	.0035	303.3	.0029	34.2	.0070	352.0	.0113	18.3	.0178	3.7
7	.0229	68.8	.0062	63.6	.0027	32.3	.0032	305.4	.0043	347.2	.0045	318.2	.0067	339.9	.0095	315.0
8	.0318	353.3	.0081	319.9	.0021	298.8	.0044	160.1	.0041	192.3	.0057	202.6	.0079	251.4	.0121	250.9
9	.0075	277.3	.0039	148.4	.0022	80.5	.0046	39.2	.0039	63.0	.0055	61.8	.0063	110.7	.0085	123.9
10	.0047	10.2	.0020	43.2	.0003	127.7	.0020	206.6	.0024	254.3	.0037	247.5	.0064	302.5	.0107	280.7

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

FILE: 101 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	1.4153	1.1112	1.1830	.3942	.8302	.0995	.8280	.5278	.6789	.5150	.6972	.5789	.6725	.3973
2	2.5918	.9335	2.0656	.9522	1.2655	.5019	.6822	.6073	.3724	.3899	.3205	.4854	.3222	.3704
3	.6618	.3998	.6601	.1759	.3580	.0509	.2003	.2741	.1438	.2368	.0542	.3867	.1214	.3309
4	.6545	.4231	.6364	.4807	.2469	.1836	-.0001	.1733	-.1142	.0795	-.2683	.0213	-.2384	.0950
5	.3422	.2821	.3128	.4023	.1458	.1327	.0238	.2194	.0570	.1038	-.0384	.0567	-.0480	.0537
6	.3374	.4094	.1703	.5058	.0755	.1619	-.1300	.0969	-.0990	.0384	-.0825	-.0929	-.1112	-.0776
7	-.0291	.3393	-.1143	.3405	-.0186	.1533	-.1051	.0574	-.0299	.0756	-.0129	.0559	-.0317	.0335
8	.0227	.1831	-.0500	.2476	-.0504	.0717	-.1006	-.0766	-.1351	-.0317	-.1008	-.0898	-.0944	-.0119
9	-.0853	.1181	-.1654	.1462	-.0634	.0567	-.0159	-.0224	-.0162	-.0512	.0114	-.0784	-.0453	-.0400
10	.0805	.0680	-.0497	.1439	-.0196	-.0023	-.0247	-.0400	-.0230	-.0674	.0597	-.0986	-.0271	-.1039

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.5551	.3583	.3880	.3692	.1805	.4663	-.0271	.5634	-.2000	.4579	-.2199	.4834
2	.2123	.3515	.0738	.2176	-.0660	.1170	-.2057	.0143	-.1261	-.0674	-.1356	-.0589
3	.0110	.3171	-.0387	.2090	-.0897	.0770	-.1407	-.0549	-.0576	-.0896	-.0334	-.0783
4	-.2348	.0120	-.1940	-.0071	-.1008	-.0657	-.0075	-.1244	.0591	-.0467	.0629	.0299
5	-.0897	-.0034	-.0893	-.0868	-.0087	-.0913	.0720	-.0959	.0492	.0209	.0314	.0337
6	-.0224	-.1204	.0418	-.1195	.0689	-.0345	.0941	.0504	-.0137	.0508	-.0217	.0338
7	.0124	-.0278	.0555	-.0085	.0235	.0288	-.0085	.0441	-.0523	-.0035	-.0292	-.0113
8	-.0316	-.0383	.0437	.0238	.0001	.0193	-.0434	.0148	-.0039	-.0319	.0031	-.0034
9	-.0227	-.0489	-.0339	.0167	-.0309	-.0052	-.0280	-.0271	.0126	-.0305	-.0080	-.0161
10	.0512	-.0740	.0120	-.0398	.0235	-.0305	.0350	-.0211	.0315	.0079	.0119	-.0065

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2483	.8930	.0114	-.0178	-.0624	-.2764	-.1362	-.5350	-.2126	-.3587	-.2201	-.1904	-.2458	.0077	-.2463	.2134
2	.0681	.2706	-.1258	.0536	-.0867	.0064	-.0476	-.0409	-.0252	-.0250	-.0067	-.0360	-.0286	-.0471	-.0410	-.0689
3	-.0285	.2181	-.0496	.0764	-.0205	.0255	.0086	-.0255	.0013	-.0327	.0108	-.0364	-.0053	-.0467	.0045	-.0603
4	-.0185	.0487	-.0057	.0149	.0063	.0111	.0182	.0073	.0157	-.0019	.0218	.0030	.0315	-.0077	.0484	.0023
5	.0118	.0074	.0010	-.0040	.0007	-.0005	.0005	.0031	.0041	.0082	.0035	.0123	.0113	.0136	.0055	.0263
6	.0285	.0328	.0095	.0234	.0012	.0119	-.0070	.0003	-.0079	.0050	-.0111	.0049	-.0094	.0148	-.0193	.0131
7	-.0058	.0400	-.0059	.0083	-.0018	.0029	.0023	-.0024	-.0027	-.0026	-.0011	-.0072	-.0095	-.0079	-.0061	-.0199
8	-.0194	.0094	-.0033	.0008	-.0010	.0000	.0013	.0008	.0033	-.0008	.0041	.0004	.0041	-.0030	.0059	.0003
9	-.0120	-.0059	-.0014	-.0033	-.0012	-.0008	-.0010	.0016	.0025	.0026	-.0009	.0025	.0032	-.0013	.0071	-.0013
10	.0082	-.0125	.0051	-.0024	.0014	-.0010	-.0024	.0005	.0007	.0010	-.0003	.0017	.0019	.0023	.0012	.0033

NACA 0012 AIRFOIL
MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

FILE: .101 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.7994	51.9	1.2469	71.6	.8361	83.2	.9819	57.5	.8521	52.8	.9042	50.3	.7811	59.4
2	2.7548	70.2	2.2745	65.3	1.3614	68.4	.9134	48.3	.5392	43.7	.5816	33.4	.4909	41.0
3	.7732	58.9	.6831	75.1	.3616	81.9	.3395	36.2	.2770	31.3	.3905	8.0	.3524	20.1
4	.7810	57.2	.7975	52.9	.3077	53.4	.1733	360.0	.1391	304.8	.2692	274.5	.2566	291.7
5	.4435	50.5	.5096	37.9	.1971	47.7	.2207	6.2	.1184	28.8	.0685	325.9	.0720	318.3
6	.5305	39.5	.5337	18.6	.1786	25.0	.1621	306.7	.1062	291.2	.1242	221.6	.1355	235.1
7	.3405	355.1	.3592	341.4	.1544	353.1	.1198	298.6	.0813	338.4	.0574	347.0	.0461	43.4
8	.1845	7.1	.2526	348.6	.0876	324.9	.1264	232.7	.1388	256.8	.1350	228.3	.0951	262.8
9	.1458	324.1	.2208	311.5	.0850	311.8	.0274	215.4	.0537	197.6	.0792	171.7	.0605	228.6
10	.1054	49.8	.1523	340.9	.0198	263.5	.0470	211.7	.0712	198.9	.1153	148.8	.1074	194.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.6607	57.2	.5356	46.4	.5000	21.2	.5641	357.2	.4996	336.4	.5311	335.5
2	.4107	31.1	.2298	18.7	.1343	330.6	.2063	274.5	.1701	246.6	.1470	247.2
3	.3173	2.0	.2125	349.5	.1182	310.7	.1510	248.7	.1065	212.8	.0852	203.1
4	.2351	272.9	.1941	247.9	.1203	236.9	.1246	183.5	.0754	128.3	.0496	115.4
5	.0898	267.8	.1246	225.8	.0918	185.4	.1199	143.1	.0534	67.0	.0460	43.0
6	.1725	190.6	.1266	160.7	.0771	116.6	.1085	62.3	.0526	344.9	.0401	327.6
7	.0306	24.3	.0581	98.7	.0371	39.2	.0666	352.6	.0524	266.2	.0313	248.9
8	.0497	219.5	.0497	41.4	.0193	.4	.0459	288.9	.0322	187.0	.0044	137.7
9	.0539	204.9	.0378	294.2	.0314	260.4	.0390	225.9	.0330	157.5	.0180	206.4
10	.0900	145.3	.0415	163.2	.0385	142.4	.0409	121.1	.0324	76.0	.0135	118.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.9268	15.5	.0211	147.5	.2834	192.7	.5521	194.3	.4170	210.7	.2911	229.1	.2459	271.8	.3259	310.9
2	.2791	14.1	.1367	293.1	.0869	274.2	.0627	229.3	.0355	225.2	.0367	190.6	.0551	211.2	.0802	210.8
3	.2200	352.6	.0911	327.0	.0327	321.2	.0269	161.4	.0327	177.7	.0380	163.5	.0470	186.4	.0605	175.8
4	.0521	339.2	.0159	339.1	.0127	29.4	.0196	68.0	.0158	97.1	.0220	82.2	.0324	103.8	.0484	87.3
5	.0139	57.8	.0041	166.7	.0009	122.7	.0031	9.9	.0092	26.6	.0128	15.7	.0177	39.7	.0249	11.8
6	.0435	41.0	.0253	22.0	.0119	5.9	.0070	272.3	.0094	302.3	.0122	294.0	.0175	327.5	.0234	304.2
7	.0405	351.7	.0102	324.3	.0035	328.3	.0033	135.8	.0037	225.6	.0073	188.6	.0124	230.2	.0208	197.0
8	.0215	295.8	.0034	257.1	.0010	272.0	.0015	57.0	.0034	103.8	.0041	83.9	.0051	125.9	.0059	86.9
9	.0134	243.7	.0036	203.0	.0015	235.2	.0019	327.7	.0036	43.9	.0026	19.5	.0034	111.3	.0072	100.5
10	.0150	146.7	.0056	114.9	.0017	124.6	.0024	281.4	.0012	32.4	.0017	349.4	.0030	39.0	.0035	19.5

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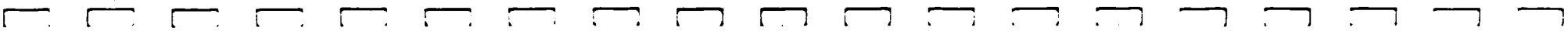


TABLE 5
(Notes 1 and 2)

CHORDWISE PRESSURES: $M_c=0.40$, $\bar{\alpha}=8$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.037	32	114-117
0	.075	34	118-121
0	.093	36	122-125
9	.037	38	126-129
9	.075	40	130-133
9	.093	42	134-137
12	.037	44	138-141
12	.075	46	142-145
12	.093	48	146-149
15	.037	50	150-153
15	.075	52	154-157
15	.093	54	158-161

Notes:

1. Unswept and swept counterparts appear on facing pages (A,B coefficients on first page pair and C,P coefficients on second page pair).
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 22 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2502	2.6286	-.3867	2.8428	-.2225	2.2652	-.2324	1.7220	-.1159	1.3154	-.1438	1.1940	-.0794	1.0763
2	-1.1738	-.2501	-.9569	-.2738	-.5189	-.0986	-.2754	-.0708	-.1407	-.0194	-.1247	-.0256	-.0746	-.0038
3	.0258	-.1781	.0328	-.1385	-.0131	-.0350	-.0143	-.0088	-.0139	-.0041	-.0111	-.0006	-.0105	.0057
4	.0119	-.0087	.0187	.0029	-.0010	-.0031	-.0064	-.0054	-.0083	-.0016	-.0068	-.0027	-.0070	-.0009
5	.0006	.0015	-.0028	.0053	.0002	.0021	.0012	-.0003	.0010	-.0013	.0021	-.0009	.0013	-.0005
6	-.0022	-.0002	-.0026	-.0016	-.0029	-.0023	-.0010	-.0003	.0000	-.0014	-.0003	-.0014	-.0008	-.0019
7	-.0019	-.0017	.0039	-.0039	.0017	-.0036	.0012	-.0017	-.0004	-.0015	.0004	-.0010	-.0005	-.0012
8	.0002	.0018	.0008	.0023	.0005	.0013	-.0009	.0001	-.0004	-.0002	.0002	.0002	-.0002	.0003
9	-.0001	.0027	-.0013	.0011	.0004	.0009	.0007	.0002	-.0004	.0013	-.0004	.0004	-.0004	.0004
10	.0047	.0065	.0013	.0026	.0023	.0019	.0007	.0016	.0016	.0011	.0003	.0013	.0011	.0012

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1024	.8737	-.0326	.5811	-.0145	.3766	.0035	.1720	.0020	.0612	.0018	-.0073
2	-.0505	-.0079	-.0151	.0010	-.0022	.0012	.0107	.0015	.0125	.0025	-.0084	-.0015
3	-.0100	.0043	-.0071	.0063	-.0053	.0052	-.0035	.0042	-.0013	.0015	-.0006	-.0014
4	-.0059	-.0020	-.0027	.0002	-.0017	.0007	-.0007	.0013	-.0007	.0004	.0007	.0013
5	.0008	.0002	.0003	.0005	.0002	.0003	.0001	.0001	.0001	.0003	-.0001	-.0000
6	-.0008	-.0011	-.0002	-.0002	-.0002	-.0004	-.0002	-.0005	-.0001	-.0001	-.0002	-.0000
7	-.0002	-.0009	-.0005	-.0010	-.0006	-.0006	-.0007	-.0003	-.0001	-.0003	-.0001	-.0001
8	-.0002	.0002	-.0002	-.0001	-.0002	-.0002	-.0002	-.0004	-.0002	.0001	-.0002	.0001
9	-.0007	.0003	.0004	.0002	.0002	.0001	.0000	-.0000	.0002	.0001	-.0002	.0001
10	.0005	.0014	.0004	.0000	.0005	.0001	.0005	.0002	.0004	.0006	.0007	.0002

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2523	-2.1875	.3454	-2.3457	.2466	-2.5386	.0889	-.7638	.0204	-.4162	.0075	-.1958	-.0055	-.0707	-.0037	.0087
2	-.9287	-.2529	-.6060	-.2218	-.3625	-.1200	-.0460	-.0236	-.0037	-.0058	.0083	-.0007	.0090	.0001	-.0053	-.0015
3	-.0368	-.0824	-.0283	.0406	.0079	.0025	.0045	-.0022	.0051	-.0040	.0038	-.0025	.0022	-.0022	-.0001	.0019
4	-.0062	-.0109	.0266	.0078	.0088	-.0058	.0004	-.0023	.0013	.0000	.0011	.0005	.0010	.0009	.0015	.0019
5	-.0080	-.0052	-.0033	-.0122	-.0073	.0014	-.0018	-.0001	-.0012	.0004	-.0008	.0003	-.0006	.0003	-.0004	-.0001
6	-.0038	-.0035	-.0053	-.0012	.0043	.0091	-.0003	-.0003	-.0004	.0004	-.0003	.0003	-.0002	-.0001	-.0000	-.0002
7	-.0051	-.0008	-.0021	.0041	.0034	.0001	.0004	.0004	-.0001	.0004	-.0002	.0003	-.0002	.0001	-.0001	.0001
8	-.0019	.0000	-.0006	.0017	-.0008	.0017	-.0008	-.0006	-.0005	.0001	-.0003	.0000	-.0003	.0002	-.0003	.0003
9	.0009	.0015	.0021	.0004	.0030	.0003	.0010	.0002	.0003	-.0001	-.0000	-.0000	-.0001	-.0000	.0001	-.0002
10	.0032	.0042	.0012	.0015	.0027	.0037	.0003	.0005	.0005	.0006	.0002	.0005	.0003	.0003	.0000	.0005

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 47 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1989	2.7283	-.3145	2.9810	-.1742	2.3435	-.1914	1.8227	-.0817	1.2715	-.1199	1.2660	-.0980	1.0677
2	-1.1229	-.1924	-.9446	-.2151	-.4816	-.0716	-.2442	-.0539	-.1197	-.0114	-.1163	-.0187	-.0770	-.0111
3	.0155	-.1494	.0255	-.1295	-.0093	-.0227	-.0105	-.0076	-.0075	-.0019	-.0051	-.0037	-.0055	-.0005
4	.0134	-.0006	.0131	.0125	-.0013	.0114	.0004	-.0013	-.0009	.0043	-.0055	.0002	-.0020	.0022
5	.0089	-.0042	.0091	.0015	.0050	.0026	.0058	.0032	.0039	-.0046	.0060	-.0044	.0049	-.0034
6	.0054	.0099	.0009	.0064	.0001	.0032	.0008	-.0008	.0028	.0005	.0000	-.0007	.0021	.0014
7	-.0023	-.0024	-.0005	-.0054	-.0024	-.0036	.0029	.0005	-.0006	-.0019	-.0001	-.0019	-.0001	-.0016
8	.0046	-.0029	.0080	-.0038	.0048	-.0072	-.0002	-.0005	.0029	-.0025	.0012	-.0023	.0020	-.0004
9	.0019	.0001	-.0000	.0028	.0009	.0016	.0022	-.0005	.0014	.0007	-.0010	.0011	-.0004	.0010
10	.0028	.0034	.0017	.0034	.0026	.0030	.0000	.0041	.0009	.0005	.0005	-.0002	.0008	.0012

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0760	.8693	-.0185	.5926	-.0048	.3923	.0089	.1920	.0076	.0446	.0035	-.0184
2	-.0378	-.0035	-.0057	.0018	.0043	.0008	.0142	-.0002	.0109	-.0003	-.0179	-.0045
3	-.0059	.0028	-.0049	.0035	-.0039	.0030	-.0030	.0024	-.0023	.0011	-.0017	-.0010
4	.0015	.0041	-.0004	.0014	-.0003	.0015	-.0002	.0017	.0011	.0008	.0028	.0015
5	.0037	-.0024	.0015	-.0011	.0009	-.0006	.0002	-.0001	.0001	-.0000	.0001	-.0001
6	.0042	.0035	.0005	-.0003	.0004	-.0001	.0004	.0001	-.0002	-.0006	.0002	-.0003
7	.0000	-.0014	-.0001	-.0005	-.0004	-.0003	-.0012	-.0000	-.0005	-.0001	-.0005	-.0001
8	.0028	.0016	.0003	-.0008	.0003	-.0011	.0003	-.0014	-.0002	.0000	-.0002	.0005
9	.0001	.0008	.0007	-.0003	.0005	.0000	.0004	.0003	.0002	.0000	.0001	-.0002
10	.0010	.0027	.0005	.0003	.0006	.0001	.0008	-.0000	.0001	.0001	.0005	.0000

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1796	-2.0607	.2409	-2.0943	.1745	-1.2107	.0653	-.7765	.0090	-.4091	-.0015	-.1869	-.0105	-.0605	-.0067	.0212
2	-.8497	-.1916	-.5219	-.1598	-.1468	-.0555	-.0421	-.0195	.0002	-.0050	.0114	-.0008	.0121	-.0008	-.0168	-.0066
3	-.0364	.0728	-.0249	.0414	-.0007	-.0001	.0029	-.0055	.0022	-.0056	.0025	-.0044	.0015	-.0043	-.0014	.0018
4	.0080	-.0106	.0160	-.0046	.0039	-.0063	.0022	-.0026	.0009	-.0018	.0009	-.0012	.0004	-.0009	.0038	.0022
5	-.0052	.0001	-.0041	.0006	-.0038	.0035	-.0025	.0017	-.0009	.0013	-.0015	.0005	-.0007	.0002	.0015	-.0014
6	.0001	-.0038	-.0022	.0002	-.0002	.0006	.0002	.0004	-.0002	.0002	.0001	.0003	-.0002	-.0001	-.0001	-.0014
7	.0015	-.0004	-.0001	.0025	-.0012	-.0018	.0007	.0006	.0005	.0002	.0009	.0004	.0007	.0002	.0000	.0002
8	.0007	-.0002	-.0003	.0008	-.0003	.0005	-.0005	-.0003	.0001	-.0001	-.0001	.0001	.0002	.0001	-.0002	.0008
9	-.0017	.0005	-.0005	-.0006	.0005	-.0006	-.0003	-.0003	-.0000	-.0004	-.0000	-.0002	-.0000	-.0003	-.0000	-.0001
10	-.0000	.0014	-.0010	.0004	.0001	.0003	-.0001	.0002	.0001	.0002	-.0002	.0003	.0002	.0001	.0003	.0000

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 22 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.4405	354.4	2.8489	352.3	2.2741	354.4	1.7374	352.3	1.3205	355.0	1.2026	353.1	1.0992	355.9
2	1.2001	258.0	.9753	254.0	.5282	259.2	.2844	255.6	.1421	242.2	.1273	258.4	.0747	247.1
3	.1799	171.7	.1424	166.7	.0374	200.6	.0168	238.3	.0145	286.5	.0112	266.9	.0120	298.7
4	.0148	126.0	.0189	81.1	.0032	197.9	.0084	229.9	.0085	259.2	.0073	248.3	.0070	262.7
5	.0016	258.3	.0040	331.9	.0017	4.3	.0017	73.0	.0017	143.7	.0023	114.1	.0014	109.5
6	.0024	258.4	.0031	438.3	.0033	232.0	.0011	253.0	.0014	179.1	.0015	191.7	.0020	204.1
7	.0026	228.4	.0055	134.7	.0040	155.1	.0021	144.8	.0014	201.3	.0011	155.9	.0013	202.3
8	.0018	5.4	.0024	18.2	.0014	21.5	.0009	273.7	.0004	250.3	.0003	41.3	.0004	334.9
9	.0027	357.4	.0017	311.2	.0010	21.2	.0007	74.7	.0014	335.0	.0006	311.9	.0004	314.3
10	.0081	36.0	.0029	26.5	.0030	50.9	.0017	23.6	.0020	55.1	.0014	13.2	.0016	43.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8796	353.3	.5820	356.8	.3768	357.8	.1721	1.2	.0412	1.9	.0075	166.3
2	.0512	261.1	.0151	273.9	.0025	300.0	.0108	82.3	.0128	78.8	.0085	260.0
3	.0108	293.2	.0095	311.5	.0075	314.5	.0055	319.9	.0020	317.4	.0015	201.6
4	.0063	251.3	.0027	274.1	.0019	293.2	.0015	330.2	.0008	297.7	.0014	27.9
5	.0009	79.5	.0006	27.0	.0004	28.5	.0001	35.2	.0004	24.5	.0001	250.2
6	.0014	217.0	.0003	306.4	.0004	330.3	.0005	342.9	.0002	250.8	.0002	283.6
7	.0010	190.8	.0011	153.2	.0009	136.1	.0008	109.8	.0003	197.3	.0002	120.4
8	.0003	315.0	.0002	246.1	.0003	224.7	.0004	213.5	.0003	290.8	.0002	285.9
9	.0007	294.8	.0005	38.9	.0002	63.6	.0000	170.7	.0002	67.4	.0001	49.9
10	.0015	21.5	.0004	87.4	.0005	78.9	.0005	72.5	.0007	35.7	.0007	72.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2020	173.4	2.3710	171.6	2.5506	174.5	.7689	173.4	.4167	177.2	.1959	177.8	.0709	184.4	.0094	337.1
2	.9426	254.8	.6453	249.9	.3818	251.7	.0518	242.8	.0069	212.5	.0083	94.9	.0090	89.4	.0055	253.8
3	.0903	336.0	.0669	335.0	.0083	72.2	.0068	108.9	.0065	128.3	.0046	123.6	.0031	134.6	.0019	355.5
4	.0126	150.5	.0277	73.6	.0105	123.7	.0023	169.3	.0013	88.4	.0012	65.4	.0013	48.9	.0024	38.3
5	.0095	237.3	.0126	164.7	.0074	281.0	.0018	271.6	.0012	286.9	.0009	287.3	.0006	295.9	.0004	252.5
6	.0052	312.4	.0055	256.9	.0101	25.0	.0004	224.3	.0006	44.5	.0004	44.6	.0002	132.1	.0002	188.3
7	.0051	99.1	.0046	333.1	.0034	88.6	.0006	46.3	.0004	339.5	.0003	327.6	.0002	293.9	.0001	297.5
8	.0019	271.4	.0018	340.3	.0019	335.0	.0010	231.5	.0005	284.6	.0003	279.7	.0004	300.0	.0005	313.7
9	.0017	32.6	.0021	78.3	.0030	84.0	.0010	77.6	.0003	100.8	.0001	136.9	.0001	108.3	.0002	166.2
10	.0053	37.3	.0019	38.0	.0046	36.1	.0006	30.6	.0008	35.7	.0006	19.8	.0004	49.3	.0005	5.1

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 47 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7356	355.8	2.9975	354.0	2.3500	355.7	1.8327	354.0	1.2741	356.3	1.2717	354.6	1.0722	354.8
2	1.1392	260.3	.9488	257.2	.4869	261.5	.2697	258.5	.1203	264.5	.1178	260.9	.0778	261.8
3	.1502	174.1	.1320	168.9	.0245	202.3	.0130	214.3	.0078	255.6	.0043	234.3	.0055	245.2
4	.0134	87.5	.0181	46.4	.0115	353.5	.0013	160.4	.0044	348.5	.0055	272.5	.0030	317.3
5	.0098	115.5	.0093	80.7	.0057	62.9	.0046	61.4	.0061	139.9	.0075	126.3	.0059	125.1
6	.0112	28.5	.0065	7.7	.0032	1.3	.0011	133.7	.0029	80.9	.0007	177.6	.0025	56.7
7	.0033	224.6	.0054	185.7	.0044	213.8	.0029	80.6	.0020	199.2	.0019	183.2	.0016	181.8
8	.0054	122.2	.0089	115.7	.0086	146.3	.0003	234.2	.0038	130.1	.0026	152.4	.0020	100.2
9	.0019	87.6	.0028	359.4	.0019	30.3	.0023	103.5	.0016	62.9	.0015	320.2	.0011	335.6
10	.0043	37.1	.0038	26.0	.0040	40.1	.0041	.5	.0010	61.1	.0006	114.3	.0014	32.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8726	355.0	.5929	358.2	.3923	359.3	.1922	2.6	.0453	9.7	.0187	169.4
2	.0379	264.6	.0060	287.6	.0043	79.2	.0142	90.8	.0109	91.4	.0184	255.9
3	.0065	295.1	.0060	305.9	.0049	307.3	.0038	309.4	.0026	295.3	.0020	241.3
4	.0044	20.4	.0014	344.7	.0015	349.6	.0017	353.7	.0013	51.1	.0032	61.5
5	.0044	122.9	.0019	125.2	.0011	124.3	.0003	117.4	.0001	108.2	.0001	46.2
6	.0055	50.1	.0006	120.2	.0004	103.0	.0004	75.3	.0006	201.1	.0004	150.2
7	.0014	179.8	.0005	189.3	.0007	246.7	.0012	268.4	.0005	257.9	.0006	262.3
8	.0032	60.6	.0008	156.0	.0011	162.5	.0014	166.3	.0002	281.8	.0006	336.1
9	.0008	5.0	.0008	111.0	.0005	87.2	.0005	48.1	.0002	79.7	.0002	157.0
10	.0028	20.9	.0006	58.2	.0006	77.9	.0008	92.3	.0002	44.1	.0005	88.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.0685	175.0	2.1081	173.4	1.2232	171.8	.7793	175.2	.4092	178.7	.1869	180.5	.0614	189.8	.0222	342.5
2	.8710	257.3	.5458	253.0	.1570	249.3	.0464	245.1	.0050	178.2	.0114	93.9	.0121	93.6	.0180	248.6
3	.0814	333.4	.0483	329.0	.0007	262.4	.0062	151.9	.0060	158.3	.0051	150.9	.0046	160.7	.0023	322.0
4	.0122	150.7	.0167	106.2	.0074	148.5	.0034	139.8	.0020	152.2	.0015	145.0	.0010	154.6	.0044	59.8
5	.0052	270.8	.0041	278.0	.0052	313.0	.0030	303.7	.0016	325.7	.0016	290.1	.0008	288.2	.0022	138.3
6	.0038	.9	.0022	276.4	.0007	339.9	.0005	28.2	.0003	312.5	.0003	10.8	.0003	235.3	.0014	183.0
7	.0015	104.6	.0025	357.2	.0021	146.1	.0009	51.1	.0006	66.9	.0010	64.9	.0007	71.3	.0002	.6
8	.0008	101.7	.0009	325.5	.0006	326.7	.0006	244.4	.0001	131.8	.0002	334.4	.0002	58.1	.0008	342.8
9	.0017	254.4	.0008	218.8	.0008	138.1	.0004	233.6	.0004	181.8	.0002	185.9	.0003	186.0	.0001	196.2
10	.0014	359.6	.0011	289.8	.0004	20.7	.0002	328.7	.0003	18.6	.0003	329.8	.0003	65.4	.0003	80.5

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 23 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.5211	2.6113	-.7798	2.7805	-.4395	2.2471	-.4576	1.6838	-.2195	1.3041	-.2878	1.1874	-.1400	1.0848
2	-1.1121	-.4582	-.8519	-.5209	-.4873	-.2006	-.2441	-.1481	-.1260	-.0499	-.1070	-.0646	-.0667	-.0256
3	.0757	-.1636	.0819	-.1156	-.0079	-.0387	-.0123	-.0199	-.0164	-.0011	-.0140	-.0082	-.0136	-.0022
4	.0220	-.0100	.0181	-.0054	.0014	-.0082	-.0046	-.0087	-.0048	-.0031	-.0036	-.0053	-.0055	-.0011
5	-.0099	.0040	-.0041	.0052	.0030	.0017	.0030	.0008	.0053	.0020	.0045	.0017	.0050	.0011
6	-.0056	.0058	-.0072	.0038	-.0067	.0018	-.0035	.0004	-.0005	.0044	-.0018	.0017	.0001	.0027
7	-.0038	.0022	-.0014	.0025	-.0013	.0015	-.0010	-.0014	.0015	.0032	-.0000	.0019	.0015	.0021
8	-.0055	.0059	-.0067	.0018	-.0024	.0025	-.0029	.0010	.0003	.0050	-.0017	.0029	.0007	.0040
9	-.0044	-.0037	-.0013	-.0045	-.0029	-.0024	.0004	-.0019	-.0008	.0029	-.0008	-.0003	-.0008	.0010
10	-.0010	.0021	-.0009	-.0002	-.0011	-.0004	.0003	-.0014	-.0008	.0035	-.0014	.0009	.0003	.0022

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1958	.8556	-.0584	.5738	-.0246	.3704	.0092	.1671	.0084	.0587	.0095	-.0093
2	-.0198	-.0264	-.0103	-.0090	-.0011	-.0062	-.0127	-.0034	-.0168	.0014	.0006	-.0033
3	-.0139	-.0021	-.0105	.0017	-.0086	.0020	-.0067	.0022	-.0013	.0012	.0042	.0001
4	-.0044	-.0038	-.0044	-.0015	-.0030	-.0007	-.0016	.0000	.0007	.0020	.0044	.0039
5	.0016	.0015	.0002	-.0000	-.0008	.0002	-.0017	.0004	.0005	.0018	.0033	.0039
6	-.0014	.0002	-.0007	-.0003	-.0008	-.0000	-.0008	.0003	.0004	.0009	.0025	.0035
7	-.0004	.0006	-.0006	-.0006	-.0006	-.0008	-.0005	-.0010	.0001	.0010	.0018	.0041
8	-.0009	.0016	.0004	.0005	.0001	-.0002	-.0003	-.0009	.0002	.0013	.0009	.0044
9	-.0007	-.0004	-.0006	-.0008	-.0001	-.0003	.0004	-.0002	-.0004	.0010	-.0004	.0043
10	-.0005	.0007	-.0002	-.0001	.0003	-.0007	.0009	-.0013	-.0003	.0007	-.0002	.0043

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.4381	-2.1566	.6338	-2.2820	.4404	-2.5253	.1603	-.7507	.0306	-.4139	.0151	-.1928	-.0139	-.0718	-.0080	.0076
2	-.8743	-.3680	-.5300	-.3203	-.3284	-.1550	-.0371	-.0310	.0023	-.0072	.0172	.0017	.0116	-.0029	-.0014	-.0048
3	-.0211	.1013	-.0172	.0854	.0339	.0200	.0095	.0016	.0083	-.0020	.0082	.0026	.0016	-.0023	-.0011	.0012
4	.0343	-.0160	.0432	.0286	.0202	-.0088	.0032	-.0048	.0014	-.0004	.0027	.0046	-.0010	-.0003	-.0005	.0013
5	.0041	-.0006	-.0111	-.0087	-.0015	.0021	-.0025	-.0012	-.0012	-.0020	-.0009	.0061	-.0015	-.0005	-.0008	-.0001
6	.0055	.0052	-.0028	.0092	.0097	.0041	.0009	-.0038	-.0014	-.0002	-.0017	.0046	-.0018	-.0006	-.0003	-.0005
7	-.0058	.0032	-.0115	.0104	-.0166	-.0019	.0003	-.0024	-.0019	.0006	-.0031	.0041	-.0026	-.0007	-.0003	-.0004
8	-.0014	.0055	-.0126	.0087	-.0133	-.0052	.0010	-.0032	-.0021	-.0002	-.0047	.0029	.0006	-.0004	-.0003	-.0007
9	-.0027	.0078	-.0152	.0046	-.0028	.0013	.0006	-.0007	-.0014	-.0001	-.0046	.0020	.0002	-.0008	.0001	-.0004
10	-.0044	.0083	-.0146	-.0013	-.0013	.0002	.0014	-.0014	-.0018	-.0003	-.0050	.0006	-.0002	-.0006	.0002	-.0002

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 49 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.4458	2.7825	-.6747	3.0053	-.3704	2.3778	-.3969	1.8318	-.1721	1.2886	-.2514	1.2718	-.2043	1.0686
2	-1.1349	-.3844	-.9149	-.4391	-.4850	-.1572	-.2578	-.1195	-.1182	-.0322	-.1119	-.0461	-.0732	-.0292
3	.0601	-.1439	.0690	-.1141	-.0051	-.0221	-.0139	-.0085	-.0121	-.0005	-.0076	-.0016	-.0101	-.0010
4	.0084	-.0134	.0062	-.0070	-.0091	-.0071	-.0028	-.0108	-.0059	-.0020	-.0078	-.0067	-.0052	-.0026
5	.0181	.0043	.0142	.0099	.0055	.0073	.0049	.0042	.0044	-.0028	.0094	.0000	.0076	-.0001
6	-.0115	.0198	-.0178	.0111	-.0119	.0082	-.0044	.0013	-.0001	.0052	-.0029	.0010	-.0023	.0035
7	-.0056	-.0059	-.0016	-.0038	-.0008	-.0026	-.0003	.0029	-.0001	-.0005	.0006	.0007	-.0005	.0008
8	.0015	-.0011	-.0004	-.0001	.0006	.0005	-.0024	-.0011	.0012	.0008	.0000	-.0007	-.0008	.0017
9	.0036	.0006	-.0000	-.0010	.0011	.0006	-.0033	.0011	.0004	.0001	-.0003	-.0010	-.0002	-.0007
10	-.0016	.0012	-.0010	-.0008	-.0003	-.0003	-.0026	.0007	.0012	.0002	.0009	-.0004	-.0005	.0004

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1571	.8655	-.0382	.6006	-.0075	.3949	.0233	.1893	.0189	.0449	.0097	-.0195
2	-.0345	-.0123	-.0034	.0014	.0085	.0031	.0204	.0047	.0144	.0047	-.0138	-.0032
3	-.0106	.0036	-.0077	.0062	-.0058	.0051	-.0039	.0041	-.0036	.0010	-.0023	-.0020
4	-.0027	.0015	-.0031	.0011	-.0026	.0008	-.0020	.0006	-.0004	.0009	.0021	.0022
5	.0059	-.0003	.0025	-.0016	.0006	-.0018	-.0012	-.0020	.0003	-.0018	.0008	.0001
6	-.0016	.0061	.0000	.0015	.0005	.0011	.0011	.0007	.0008	.0000	-.0004	.0003
7	.0004	.0009	.0005	.0003	.0001	.0005	-.0003	.0007	-.0000	.0001	-.0010	-.0010
8	-.0017	.0040	.0001	.0007	-.0001	.0008	-.0004	.0008	-.0006	.0004	.0000	.0005
9	-.0001	-.0004	.0007	-.0002	.0005	-.0003	.0003	-.0005	.0006	-.0002	.0008	.0002
10	-.0018	.0012	.0002	-.0004	.0001	-.0004	.0000	-.0005	.0004	-.0001	-.0000	.0001

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3499	-2.1088	.4873	-2.1187	.2571	-1.1780	.1366	-.7837	.0148	-.4158	-.0014	-.1908	-.0189	-.0629	-.0112	.0212
2	-.8379	-.3043	-.4897	-.2595	-.1288	-.0669	-.0321	-.0184	.0070	.0009	.0166	.0044	.0163	.0046	-.0118	-.0045
3	-.0264	.0699	-.0202	.0406	.0077	-.0005	.0094	-.0041	.0055	-.0055	.0045	-.0030	.0034	-.0030	-.0013	.0032
4	.0129	-.0227	.0212	-.0033	.0044	-.0051	.0030	-.0025	.0010	-.0016	.0009	-.0009	.0008	-.0005	.0024	.0037
5	-.0096	-.0121	-.0021	-.0150	-.0064	-.0036	-.0030	-.0018	-.0010	.0003	-.0007	-.0003	.0003	.0003	.0029	.0037
6	-.0046	.0077	-.0056	-.0012	.0002	.0001	.0000	-.0005	-.0009	-.0001	-.0007	-.0003	-.0010	.0003	-.0014	-.0008
7	.0026	-.0020	-.0024	-.0002	.0013	-.0006	.0007	-.0003	.0004	-.0005	.0004	.0003	.0002	.0002	-.0004	-.0012
8	.0029	-.0007	.0033	.0025	.0013	-.0001	.0009	.0002	.0005	.0001	.0009	.0003	.0011	-.0003	.0006	.0008
9	-.0001	-.0014	.0028	-.0002	.0013	-.0000	.0004	-.0006	-.0002	-.0005	.0002	-.0005	-.0001	-.0004	-.0000	.0009
10	-.0007	-.0015	.0000	-.0029	.0000	.0003	-.0003	-.0003	-.0000	-.0001	-.0002	-.0000	-.0002	.0001	.0006	.0009

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 23 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.4629	348.7	2.8878	344.3	2.2894	348.9	1.7449	344.8	1.3224	350.4	1.2218	346.4	1.0965	351.6
2	1.2028	247.6	.9985	238.6	.5270	247.6	.2856	238.8	.1355	248.4	.1250	238.9	.0715	249.0
3	.1802	155.2	.1417	144.7	.0395	191.5	.0234	211.7	.0164	266.1	.0162	239.4	.0138	279.3
4	.0242	114.3	.0189	73.3	.0083	170.4	.0098	208.1	.0057	236.5	.0064	214.1	.0056	258.7
5	.0107	67.9	.0066	38.0	.0034	59.5	.0031	75.7	.0057	68.8	.0048	69.3	.0051	77.9
6	.0080	316.0	.0082	297.7	.0070	284.7	.0035	275.8	.0044	354.0	.0025	312.8	.0027	31.1
7	.0043	300.2	.0028	28.8	.0020	40.9	.0017	216.5	.0036	24.8	.0019	359.2	.0026	34.8
8	.0081	317.0	.0069	284.7	.0035	315.2	.0031	288.5	.0050	3.0	.0034	329.7	.0041	9.6
9	.0058	230.5	.0047	195.5	.0037	229.8	.0020	169.2	.0030	345.2	.0009	251.3	.0012	321.4
10	.0023	334.4	.0010	255.8	.0012	250.7	.0015	162.2	.0036	12.3	.0016	302.6	.0022	6.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8777	347.1	.5767	354.2	.3712	356.2	.1673	3.2	.0593	8.2	.0133	134.5
2	.0478	236.5	.0138	229.6	.0063	169.9	.0132	104.9	.0169	85.2	.0033	168.9
3	.0141	261.4	.0107	279.2	.0088	282.8	.0071	288.2	.0017	312.0	.0042	88.6
4	.0058	228.7	.0046	251.5	.0031	256.3	.0016	270.3	.0021	18.7	.0059	48.5
5	.0022	47.8	.0002	101.1	.0008	282.4	.0018	282.3	.0018	15.4	.0051	40.4
6	.0014	279.8	.0007	244.5	.0008	268.0	.0009	287.0	.0010	25.1	.0043	35.5
7	.0008	325.1	.0009	225.7	.0010	215.1	.0011	204.7	.0010	6.7	.0045	23.0
8	.0019	331.2	.0007	36.8	.0002	158.7	.0009	197.0	.0013	10.2	.0045	11.1
9	.0008	239.5	.0010	214.7	.0005	189.2	.0005	121.1	.0011	337.9	.0043	5.0
10	.0009	323.8	.0002	241.1	.0008	153.6	.0015	145.9	.0008	334.8	.0043	357.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2007	168.5	2.3683	164.5	2.5634	170.1	.7676	167.9	.4151	175.8	.1934	175.5	.0732	190.9	.0110	313.7
2	.9486	247.2	.6193	238.8	.3632	244.7	.0484	230.1	.0076	162.3	.0173	84.4	.0120	103.9	.0050	196.0
3	.1034	148.2	.0871	148.6	.0393	59.5	.0096	80.3	.0086	103.8	.0086	72.6	.0028	145.3	.0017	317.8
4	.0378	115.0	.0518	56.5	.0220	113.6	.0058	146.3	.0015	105.6	.0053	36.2	.0010	154.9	.0014	337.3
5	.0041	99.0	.0141	51.9	.0025	324.6	.0028	244.4	.0023	328.3	.0062	352.0	.0016	187.4	.0008	278.1
6	.0076	46.4	.0094	343.0	.0104	47.0	.0039	166.8	.0015	241.7	.0049	340.2	.0019	351.2	.0006	213.4
7	.0064	61.4	.0155	312.1	.0167	96.5	.0024	173.6	.0020	287.5	.0051	323.1	.0026	255.7	.0005	214.6
8	.0057	345.6	.0153	304.7	.0143	248.7	.0033	163.2	.0021	245.3	.0055	301.6	.0007	127.3	.0007	205.6
9	.0083	340.7	.0159	286.8	.0031	294.3	.0009	138.8	.0014	245.5	.0050	293.8	.0008	168.8	.0004	168.3
10	.0094	331.9	.0147	264.9	.0013	277.9	.0020	134.0	.0018	261.3	.0050	276.6	.0007	193.3	.0003	135.4

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 49 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.8179	350.9	3.0802	347.3	2.4065	351.1	1.8743	347.8	1.3001	352.4	1.2964	348.8	1.0880	349.2
2	1.1989	251.2	1.0149	244.4	.5098	252.0	.2841	245.1	.1225	254.8	.1211	247.6	.0788	248.2
3	.1560	157.3	.1333	148.8	.0227	193.1	.0163	238.6	.0121	272.4	.0097	260.8	.0102	275.9
4	.0158	147.9	.0094	138.2	.0115	232.2	.0112	194.5	.0063	251.5	.0103	229.2	.0058	243.6
5	.0186	76.7	.0173	55.1	.0091	36.9	.0093	48.4	.0069	113.6	.0094	89.8	.0076	90.9
6	.0229	330.0	.0210	302.0	.0144	304.5	.0046	286.2	.0052	358.6	.0031	289.4	.0042	327.4
7	.0081	223.5	.0041	203.2	.0027	197.4	.0029	5.2	.0006	193.3	.0009	37.3	.0009	29.9
8	.0018	128.3	.0004	257.1	.0008	51.0	.0026	244.4	.0015	56.5	.0007	179.8	.0018	333.3
9	.0037	80.3	.0010	181.7	.0013	62.1	.0034	71.1	.0004	83.4	.0010	195.1	.0007	196.4
10	.0021	307.5	.0013	232.0	.0004	224.3	.0027	285.4	.0012	79.2	.0010	115.7	.0006	308.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.8796	349.7	.6018	356.4	.3950	358.9	.1907	7.0	.0487	22.9	.0217	153.6
2		.0366	250.4	.0037	292.4	.0090	70.2	.0210	77.1	.0152	71.8	.0142	256.8
3		.0113	288.9	.0099	308.7	.0078	311.4	.0056	316.1	.0038	285.9	.0031	228.6
4		.0031	300.0	.0032	289.0	.0027	287.9	.0021	286.3	.0010	337.7	.0031	44.7
5		.0059	92.5	.0029	122.9	.0019	160.2	.0023	210.4	.0018	169.0	.0008	79.1
6		.0043	345.1	.0015	.2	.0012	26.5	.0013	58.5	.0008	89.0	.0005	303.2
7		.0010	22.8	.0004	56.0	.0005	8.8	.0008	334.8	.0001	341.1	.0014	224.6
8		.0043	337.3	.0007	6.1	.0008	349.9	.0009	336.9	.0007	307.4	.0005	3.9
9		.0005	199.2	.0007	107.5	.0004	124.0	.0004	144.4	.0004	105.6	.0008	74.1
10		.0022	302.7	.0004	148.8	.0005	162.8	.0005	174.7	.0004	97.7	.0001	353.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.1377	170.6	2.1740	167.0	1.2057	167.7	.7955	170.1	.4161	178.0	.1908	180.4	.0657	196.7	.0240	332.1
2	.8914	250.0	.5542	242.1	.1452	242.6	.0370	240.2	.0070	82.7	.0178	68.8	.0170	74.3	.0125	250.0
3	.0748	339.3	.0454	333.5	.0077	93.4	.0102	113.4	.0078	134.8	.0054	124.3	.0045	131.3	.0035	337.8
4	.0261	150.4	.0214	98.8	.0068	139.1	.0039	129.7	.0019	146.0	.0013	135.6	.0009	119.0	.0044	32.4
5	.0155	218.2	.0153	188.0	.0074	241.0	.0035	239.4	.0010	285.6	.0008	292.7	.0005	44.3	.0031	68.1
6	.0090	329.1	.0057	257.8	.0002	53.6	.0005	175.6	.0009	262.9	.0007	243.8	.0010	285.0	.0016	240.2
7	.0033	127.0	.0024	264.6	.0014	117.0	.0008	116.6	.0007	138.2	.0005	55.4	.0003	41.2	.0012	197.9
8	.0030	103.2	.0042	53.3	.0013	94.4	.0010	75.7	.0006	76.6	.0009	73.6	.0011	106.0	.0010	37.9
9	.0014	184.2	.0028	94.7	.0013	91.8	.0007	150.1	.0005	204.4	.0005	158.7	.0006	188.7	.0009	358.0
10	.0016	204.3	.0029	179.6	.0003	4.3	.0004	222.1	.0001	181.6	.0002	262.5	.0002	309.0	.0011	31.9

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 24 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.6174	2.5947	-.9394	2.7368	-.5176	2.2327	-.5460	1.6647	-.2401	1.2984	-.3456	1.1710	-.1888	1.0775
2	-1.0902	-.5504	-.7981	-.6222	-.4828	-.2381	-.2333	-.1736	-.1311	-.0574	-.1054	-.0739	-.0724	-.0268
3	.0991	-.1474	.1041	-.0921	.0024	-.0334	-.0077	-.0150	-.0161	-.0004	-.0112	-.0069	-.0152	-.0041
4	.0135	-.0119	.0132	.0029	-.0010	-.0094	-.0020	-.0092	-.0076	-.0054	-.0038	-.0079	-.0071	-.0036
5	.0207	.0068	.0113	.0155	-.0136	.0059	-.0066	.0069	-.0087	.0001	-.0084	-.0036	.0080	-.0007
6	-.0134	.0167	-.0158	.0030	-.0076	.0061	-.0072	.0004	-.0017	.0030	-.0026	-.0004	.0021	-.0006
7	-.0098	-.0045	-.0016	-.0034	-.0018	.0006	-.0013	.0004	-.0008	.0012	-.0012	-.0006	-.0003	.0011
8	-.0023	-.0047	.0007	-.0030	-.0019	.0002	-.0004	-.0025	.0002	-.0003	-.0004	-.0004	-.0008	.0004
9	.0035	-.0004	.0022	.0011	.0026	-.0011	-.0003	.0017	-.0004	-.0005	-.0007	-.0009	-.0000	-.0011
10	-.0040	.0041	-.0044	.0008	-.0013	.0015	-.0007	.0002	.0002	.0006	-.0011	.0004	-.0007	.0002

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2333	.8467	-.0643	.5735	-.0245	.3704	.0152	.1674	.0093	.0587	.0043	-.0098
2	-.0416	-.0285	-.0125	-.0055	-.0003	-.0018	-.0119	.0018	-.0128	.0061	-.0055	-.0003
3	-.0126	-.0016	-.0091	.0032	-.0067	.0027	-.0042	.0022	-.0025	.0004	-.0004	-.0021
4	-.0042	-.0049	-.0034	-.0013	-.0019	-.0003	-.0005	.0006	-.0007	.0007	-.0004	.0006
5	.0049	.0024	.0024	-.0010	.0007	-.0010	-.0011	-.0009	.0006	-.0005	-.0001	-.0009
6	-.0018	.0004	-.0002	.0014	.0003	.0013	.0009	.0012	.0002	.0005	.0009	-.0004
7	-.0009	.0009	-.0003	.0002	.0003	-.0000	.0005	-.0002	.0004	-.0000	-.0000	-.0005
8	-.0001	-.0001	-.0003	.0007	-.0001	.0005	.0001	.0003	.0003	.0003	.0002	-.0001
9	-.0004	-.0007	-.0002	-.0003	-.0000	.0003	.0001	.0009	-.0001	-.0004	-.0004	-.0002
10	-.0004	.0003	-.0004	.0002	.0001	.0000	.0006	-.0001	.0002	-.0001	-.0001	-.0002

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5214	-2.1627	.7503	-2.2661	.5233	-2.5260	.1908	-.7401	.0290	-.4106	.0065	-.1910	-.0195	-.0696	-.0114	.0090
2	-.8561	-.4539	-.5077	-.3991	-.3203	-.1749	-.0351	-.0306	.0007	-.0031	.0106	.0035	.0117	-.0022	-.0028	-.0004
3	-.0445	-.0790	-.0422	.0541	.0206	.0153	.0093	.0017	.0066	-.0024	.0042	-.0013	-.0020	-.0018	-.0011	.0014
4	.0169	-.0290	.0283	.0100	.0122	-.0134	.0037	-.0045	.0006	-.0020	.0003	-.0014	-.0004	-.0007	-.0010	.0005
5	-.0085	-.0108	.0074	-.0114	-.0139	-.0034	-.0040	-.0017	-.0020	.0012	-.0014	.0009	-.0004	.0009	-.0004	.0006
6	-.0008	.0034	.0022	-.0004	.0909	.0952	.0026	-.0012	-.0003	-.0012	-.0005	-.0006	-.0007	-.0076	-.0011	.0002
7	.0057	-.0042	.0019	-.0050	.0028	-.0072	.0007	-.0009	-.0013	-.0008	-.0005	-.0004	-.0003	.0002	-.0001	.0000
8	-.0017	-.0030	-.0010	-.0000	-.0012	.0005	.0009	-.0006	-.0000	-.0001	-.0001	-.0002	-.0001	.0002	-.0001	.0000
9	.0004	-.0001	.0002	.0011	.0008	.0014	-.0003	.0006	.0001	.0001	-.0000	.0001	.0000	.0001	-.0002	.0001
10	-.0009	.0021	.0006	.0013	.0007	-.0017	.0006	-.0000	-.0003	-.0005	-.0002	-.0002	-.0003	-.0000	-.0003	.0002

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 69 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.5531	2.8720	-.8575	3.0890	-.4616	2.4419	-.5037	1.8648	-.2157	1.3224	-.3178	1.2930	-.2574	1.0849
2	-1.1880	-.4648	-.9505	-.5526	-.5271	-.1942	-.2740	-.1548	-.1350	-.0402	-.1248	-.0441	-.0845	-.0417
3	.0494	-.1621	.0724	-.1328	-.0195	-.0354	-.0244	-.0191	-.0212	-.0019	-.0175	-.0048	-.0172	-.0026
4	.0228	-.0333	.0273	-.0148	.0023	-.0171	.0038	-.0170	-.0059	-.0074	-.0020	-.0105	-.0024	-.0040
5	.0222	.0090	.0095	.0226	.0037	.0159	.0027	.0100	.0045	.0019	.0105	.0057	.0077	.0050
6	-.0097	.0108	-.0115	-.0094	-.0123	-.0031	-.0034	-.0008	-.0001	.0033	-.0019	-.0004	-.0019	.0023
7	-.0019	-.0046	.0021	-.0046	.0026	-.0046	-.0004	.0022	.0011	-.0015	.0014	.0005	.0013	.0006
8	.0006	.0004	.0009	.0009	.0034	-.0003	.0004	-.0021	.0020	.0002	.0018	.0001	-.0000	.0011
9	.0023	.0025	-.0012	.0014	.0008	.0016	.0012	.0036	.0007	-.0003	.0004	.0002	.0003	.0004
10	-.0030	.0017	-.0019	-.0030	-.0014	.0019	-.0031	-.0009	.0004	.0015	-.0000	.0001	-.0015	.0006

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1970	.8768	-.0484	.6168	-.0084	.4038	.0315	.1908	.0223	.0452	.0091	-.0213
2	-.0442	-.0193	-.0115	.0007	.0020	.0029	.0154	.0051	.0101	.0044	-.0174	-.0056
3	-.0169	.0015	-.0122	.0068	-.0086	.0059	-.0050	.0050	-.0043	.0017	-.0021	-.0017
4	-.0028	-.0015	-.0033	-.0004	-.0020	-.0002	-.0007	.0000	-.0001	.0012	.0010	.0024
5	.0048	.0043	.0032	.0012	.0018	.0004	.0005	-.0004	.0002	.0008	-.0008	.0005
6	-.0018	.0050	.0003	.0013	.0006	-.0000	.0009	-.0013	.0004	.0004	.0007	.0005
7	.0012	.0008	.0007	-.0003	.0002	-.0002	-.0002	-.0001	.0003	.0000	.0010	.0002
8	-.0018	.0021	-.0002	-.0003	-.0008	-.0004	-.0014	-.0005	-.0002	-.0005	-.0001	-.0002
9	.0001	.0006	.0008	-.0005	.0001	-.0007	-.0005	-.0010	.0004	-.0005	-.0004	-.0003
10	-.0029	.0010	.0004	.0006	.0005	.0004	.0005	.0003	-.0002	.0001	-.0005	-.0001

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.4408	-2.1725	.6145	-2.1714	.2885	-1.1853	.1654	-.7990	.0082	-.4266	-.0079	-.1962	-.0290	-.0654	-.0193	.0192
2	-.8406	-.3749	-.4974	-.3274	-.1359	-.0922	-.0360	-.0276	.0026	-.0022	.0117	.0045	.0124	.0048	-.0170	-.0081
3	-.0288	.0761	-.0232	.0531	.0157	.0017	.0152	-.0022	.0098	-.0056	.0068	-.0029	.0051	-.0029	-.0005	.0039
4	.0254	-.0234	.0327	.0077	.0128	-.0051	.0058	.0015	.0012	-.0014	.0017	-.0010	.0005	-.0007	.0001	.0042
5	.0025	-.0215	.0167	-.0201	.0017	-.0064	-.0011	-.0037	-.0021	.0008	-.0008	.0003	.0003	.0005	.0014	.0015
6	-.0115	-.0066	-.0129	-.0227	-.0036	-.0025	-.0014	-.0026	-.0011	-.0010	-.0008	-.0012	-.0004	-.0012	.0001	.0014
7	-.0033	-.0029	-.0081	-.0042	-.0008	-.0011	-.0009	-.0009	-.0005	.0003	-.0003	.0000	-.0004	.0002	.0003	.0009
8	-.0027	-.0009	-.0031	.0015	.0010	-.0008	-.0002	-.0007	-.0013	.0006	-.0009	-.0003	-.0012	.0003	.0003	.0002
9	-.0017	.0005	.0027	.0006	.0000	.0016	-.0011	-.0002	-.0004	.0009	-.0006	.0007	-.0002	.0007	.0000	-.0005
10	-.0001	.0003	.0016	-.0025	.0003	-.0000	.0009	-.0000	.0005	-.0003	.0004	.0001	.0001	-.0001	.0001	-.0003

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 24 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.6671	346.6	2.8936	341.1	2.2919	346.9	1.7520	341.8	1.3242	348.7	1.2209	343.6	1.0940	350.1
2	1.2213	243.2	1.0120	232.1	.5383	243.8	.2908	233.4	.1431	246.3	.1287	235.0	.0774	249.7
3	.1778	146.1	.1390	131.5	.0335	175.9	.0169	207.3	.0161	268.7	.0132	238.5	.0157	285.0
4	.0180	131.3	.0135	77.7	.0095	186.0	.0094	192.3	.0094	234.7	.0088	205.9	.0080	243.5
5	.0218	71.7	.0192	36.0	.0148	66.5	.0095	43.7	.0087	89.3	.0092	67.0	.0080	95.1
6	.0214	321.2	.0161	280.6	.0097	308.9	.0072	273.4	.0035	330.3	.0026	260.2	.0022	106.0
7	.0108	245.6	.0038	204.9	.0019	288.5	.0014	285.4	.0015	325.1	.0013	296.4	.0011	344.1
8	.0052	206.0	.0031	166.2	.0019	275.1	.0025	189.4	.0004	155.4	.0006	221.2	.0009	298.6
9	.0035	97.3	.0024	64.2	.0028	112.9	.0018	8.3	.0006	213.9	.0011	142.2	.0011	177.9
10	.0057	315.9	.0045	280.6	.0020	318.7	.0008	287.5	.0006	19.8	.0012	289.8	.0007	287.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8783	344.4	.5771	353.4	.3713	356.2	.1681	5.2	.0595	9.0	.0107	156.2
2	.0504	235.6	.0136	246.2	.0019	188.1	.0121	81.4	.0142	44.6	.0055	266.7
3	.0127	242.4	.0097	289.5	.0072	292.2	.0047	297.7	.0025	280.2	.0021	191.4
4	.0065	220.4	.0036	249.4	.0020	260.4	.0008	323.9	.0010	314.0	.0007	329.5
5	.0054	64.2	.0026	113.0	.0012	146.1	.0014	231.2	.0008	128.4	.0009	189.1
6	.0018	281.2	.0014	352.0	.0013	14.7	.0015	35.6	.0005	18.2	.0010	116.5
7	.0012	315.4	.0003	26.6	.0003	90.8	.0005	115.1	.0004	95.9	.0005	180.4
8	.0001	247.9	.0007	336.2	.0005	350.3	.0004	21.0	.0004	46.1	.0002	132.3
9	.0008	154.3	.0003	209.4	.0003	356.9	.0009	8.6	.0004	191.7	.0004	247.6
10	.0004	307.7	.0004	296.0	.0001	76.5	.0006	103.3	.0003	120.1	.0002	199.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2247	166.4	2.3871	161.7	2.5797	168.3	.7643	165.5	.4117	176.0	.1911	178.1	.0723	195.6	.0145	308.3
2	.9690	242.1	.6457	231.8	.3660	241.1	.0465	229.0	.0032	167.3	.0112	72.0	.0119	79.4	.0028	262.3
3	.0907	330.6	.0686	322.0	.0256	53.3	.0095	79.7	.0071	111.4	.0044	106.5	.0027	131.6	.0018	322.7
4	.0336	149.7	.0300	70.6	.0181	137.7	.0058	140.9	.0021	167.7	.0014	149.2	.0008	308.0	.0011	393.6
5	.0138	118.4	.0139	146.9	.0143	256.1	.0043	247.6	.0023	301.0	.0017	303.6	.0010	337.8	.0007	324.6
6	.0035	347.1	.0023	74.6	.1316	43.7	.0028	114.8	.0013	195.0	.0007	219.5	.0124	332.0	.0011	382.6
7	.0085	137.2	.0053	159.5	.0077	158.7	.0011	142.3	.0015	237.5	.0006	237.1	.0004	300.9	.0001	395.9
8	.0035	208.7	.0010	267.3	.0013	291.6	.0011	121.4	.0001	198.4	.0003	207.0	.0003	343.9	.0001	393.2
9	.0005	104.3	.0011	11.6	.0016	28.2	.0006	333.4	.0001	41.7	.0001	345.2	.0001	4.6	.0002	310.5
10	.0023	337.4	.0014	23.4	.0019	158.4	.0006	92.7	.0005	213.9	.0003	218.0	.0003	268.7	.0003	304.3

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 69 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9247	349.1	3.2058	344.5	2.4851	349.3	1.9317	344.9	1.3399	350.7	1.3315	346.2	1.1150	346.7
2	1.2757	248.6	1.0995	239.8	.5617	249.8	.3147	240.5	.1408	253.4	.1403	242.8	.0943	243.7
3	.1694	163.1	.1513	151.4	.0404	208.8	.0310	231.9	.0213	245.0	.0187	248.8	.0174	241.4
4	.0396	144.8	.0311	118.5	.0172	172.4	.0174	167.5	.0095	218.6	.0107	190.9	.0065	202.0
5	.0239	68.0	.0245	22.9	.0163	13.2	.0103	14.9	.0068	73.7	.0119	61.7	.0091	57.1
6	.0145	318.1	.0149	230.7	.0127	255.6	.0035	256.0	.0033	358.6	.0020	259.8	.0030	320.7
7	.0049	202.1	.0051	155.1	.0053	150.4	.0022	350.2	.0018	144.7	.0015	69.7	.0014	63.0
8	.0007	55.4	.0013	42.0	.0034	95.7	.0022	168.8	.0020	83.4	.0018	85.5	.0011	358.3
9	.0034	43.0	.0019	318.7	.0018	26.3	.0038	18.8	.0008	112.1	.0005	67.4	.0005	33.4
10	.0035	299.2	.0035	211.9	.0023	324.2	.0032	253.3	.0016	16.4	.0001	356.3	.0016	291.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8986	347.3	.6187	355.5	.4039	358.8	.1934	9.4	.0504	26.3	.0232	156.9
2	.0483	246.4	.0115	273.7	.0035	33.9	.0162	71.7	.0110	66.5	.0183	252.3
3	.0170	275.2	.0139	299.1	.0104	304.4	.0070	315.0	.0047	291.7	.0027	230.5
4	.0032	241.7	.0033	263.9	.0020	265.0	.0007	270.2	.0012	354.3	.0026	23.2
5	.0064	48.4	.0035	69.3	.0019	78.0	.0004	133.9	.0008	14.0	.0009	300.8
6	.0053	339.7	.0014	14.5	.0006	90.1	.0016	146.8	.0006	48.0	.0008	54.2
7	.0014	56.0	.0007	111.3	.0003	130.3	.0003	242.5	.0003	89.7	.0010	78.7
8	.0028	318.7	.0004	212.3	.0009	242.2	.0015	249.9	.0006	205.3	.0002	219.2
9	.0006	7.1	.0009	121.9	.0007	169.4	.0011	206.0	.0007	139.6	.0005	228.3
10	.0031	288.8	.0007	38.3	.0006	49.7	.0006	63.0	.0002	298.9	.0005	263.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.2168	168.5	2.2567	164.2	1.2199	166.3	.8160	168.3	.4267	178.9	.1963	182.3	.0715	203.9	.0273	314.9
2	.9387	246.5	.5955	236.6	.1642	235.9	.0453	232.5	.0034	130.9	.0125	69.1	.0133	68.7	.0188	244.5
3	.0814	339.3	.0579	336.4	.0158	83.7	.0154	98.1	.0112	119.7	.0074	113.3	.0058	119.5	.0039	353.1
4	.0346	132.7	.0336	76.7	.0138	111.9	.0060	104.1	.0019	139.7	.0020	119.9	.0009	141.7	.0042	1.3
5	.0217	173.4	.0261	140.2	.0066	165.3	.0039	196.5	.0022	289.7	.0008	289.4	.0006	30.5	.0021	43.3
6	.0132	240.1	.0261	209.8	.0044	234.5	.0029	209.6	.0014	227.0	.0015	211.8	.0013	197.8	.0014	5.7
7	.0044	229.3	.0091	242.3	.0014	216.5	.0013	225.0	.0005	300.6	.0003	273.6	.0005	293.7	.0009	16.3
8	.0028	251.1	.0034	296.5	.0012	128.9	.0007	191.8	.0014	295.1	.0010	250.1	.0012	284.2	.0004	62.8
9	.0018	284.9	.0028	77.0	.0016	77.5	.0011	261.3	.0010	333.3	.0009	317.5	.0007	340.9	.0005	179.8
10	.0003	338.7	.0030	147.2	.0003	94.8	.0009	90.5	.0005	118.2	.0004	69.4	.0001	120.8	.0003	168.5

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 4 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0991	2.4842	-.0741	1.6297	.1175	.8139	.1035	.4132	.1217	.2208	.1444	.2300	.1440	.2118
2	1.5445	.4544	1.7091	.4213	1.3635	.4041	.9531	.3757	.6674	.2215	.5805	.2814	.4739	.2049
3	-.0877	.4773	-.0481	.2437	.0599	.2102	.0525	.1299	.0595	.0658	.0481	.0624	.0382	.0294
4	.4614	.4349	.5870	.4319	.4348	.3083	.2131	.2950	.1887	.1975	.1155	.2292	.1130	.1679
5	-.2024	.2488	-.1339	.2524	-.0702	.2493	-.1229	.1398	-.0821	.1117	-.1142	.0724	-.0881	.0448
6	.0609	.1677	.1305	.2303	.0870	.1893	-.0167	.1228	-.0064	.0857	-.0244	.0693	-.0047	.0519
7	-.2382	.1056	-.2082	.1284	-.1709	.2016	-.1824	.0336	-.1336	.0454	-.1413	-.0075	-.1103	.0179
8	-.0550	-.0825	-.0086	.0059	-.0796	.0270	-.0566	-.0581	-.0512	-.0487	-.0193	-.0741	-.0261	-.0589
9	-.0345	-.0651	-.0561	-.0036	-.1116	-.0429	-.0557	-.0624	-.0431	-.0353	-.0139	-.0485	-.0153	-.0329
10	.0831	-.0399	.0599	.0392	-.0378	-.0258	.0298	-.0642	.0077	-.0564	.0422	-.0415	.0261	-.0401

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.1261	.2225	.1238	.2247	.0603	.2891	-.0031	.3535	-.0455	.3775	-.0386	-.4034
2		.3375	.2109	.1745	.1427	.0361	.0577	-.1023	-.0272	-.1452	-.0513	-.1473	-.0333
3		.0218	.0398	-.0057	.0250	.0043	.0118	.0144	.0013	-.0110	.0001	-.0210	.0170
4		.0303	.1489	-.0031	.0761	-.0274	.0297	-.0518	-.0147	-.0402	-.0523	-.0382	-.0436
5		-.0868	.0095	-.0593	-.0144	-.0188	-.0239	-.0218	-.0314	.0281	-.0143	-.0134	-.0052
6		-.0130	-.0309	-.0028	.0070	-.0044	-.0037	-.0116	-.0004	-.0095	-.0159	-.0147	-.0178
7		-.0844	-.0294	-.0230	-.0121	-.0034	-.0208	.0157	-.0295	.0306	-.0143	.0209	-.0147
8		.0129	-.0556	.0051	-.0185	.0129	-.0050	.0206	.0085	.0126	.0149	.0080	.0076
9		.0090	-.0254	.0035	-.0114	.0044	-.0017	.0054	.0079	.0026	.0106	.0039	.0021
10		.0417	-.0116	.0141	-.0084	.0073	-.0022	.0005	.0040	-.0033	.0103	.0035	.0092

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0291	.1472	.0422	-.3945	.0197	-.8842	.0026	-.3748	-.0250	-.2042	-.0302	-.0478	-.0343	-.0938	-.0509	.2731
2	-.0715	.0194	-.2152	-.0794	-.3107	-.1237	-.1053	-.0635	-.0793	-.0416	-.0612	-.0367	-.0710	-.0280	-.0937	-.0382
3	-.0388	.1137	-.0407	.0712	-.0261	.0430	-.0036	.0004	-.0023	-.0020	-.0029	-.0031	-.0075	-.0005	-.0165	.0037
4	.0467	.0524	.0076	.0044	-.0089	-.0289	-.0053	-.0210	-.0064	-.0162	-.0044	-.0174	-.0110	-.0209	-.0128	-.0350
5	-.0249	.0267	-.0063	.0067	-.0083	-.0039	.0069	-.0022	.0059	-.0039	.0068	-.0031	-.0068	-.0045	-.0108	-.0014
6	-.0055	.0120	-.0035	.0014	-.0031	-.0046	.0020	-.0023	.0009	-.0034	.0020	-.0042	-.0010	-.0076	-.0027	-.0139
7	-.0227	.0063	-.0005	.0010	-.0190	-.0016	.0088	.0023	.0077	-.0049	.0080	.0013	-.0112	-.0027	.0174	.0019
8	-.0066	-.0116	-.0024	-.0013	-.0033	.0073	-.0021	.0035	-.0003	.0037	.0006	.0043	.0024	.0059	.0025	.0095
9	-.0025	-.0053	-.0001	-.0007	-.0013	.0013	-.0005	.0015	-.0005	.0017	-.0014	.0021	-.0008	.0038	-.0012	.0044
10	.0065	.0003	-.0014	.0008	-.0053	.0038	-.0029	-.0002	-.0027	.0013	-.0033	.0007	-.0033	.0036	-.0053	.0053

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 58 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1959	2.8996	-.2515	1.9909	-.0861	1.4021	-.0545	1.4330	.0118	1.0739	-.0044	1.2028	.0366	.9863
2	1.8598	.3573	2.0970	.4377	1.5205	.2731	.7203	.2475	.3441	.1284	.2318	.1652	.1491	.1169
3	-.2008	.9903	-.1544	.7939	-.1055	.6118	-.0878	.3597	-.0447	.1956	-.0848	.1655	-.0430	.1082
4	-.3031	.1945	-.5127	.3583	-.3645	.1680	-.0123	.0888	-.0524	.0350	-.0856	.0063	-.0666	.0218
5	-.2126	.4736	-.3230	.5401	-.2017	.5212	-.1212	.1142	-.0496	.0131	-.0388	-.0352	-.0374	-.0347
6	-.1507	-.0312	-.0724	.0259	-.1039	-.0168	-.0991	-.0594	-.0418	-.0395	-.0146	-.0492	-.0051	-.0354
7	-.0904	-.0757	-.2423	.1755	-.1638	.2362	-.0097	-.0339	.0221	-.0371	.0518	-.0468	.0276	-.0403
8	-.0800	-.0665	-.1068	-.1599	-.1707	-.1188	-.0154	-.0297	.0168	.0102	.0419	.0310	.0413	.0134
9	-.0077	-.0043	-.0209	.0250	-.0444	.0563	.0185	-.0337	.0065	-.0075	.0086	.0124	.0045	.0128
10	-.0502	-.0813	-.0690	-.1236	-.1425	-.1334	.0094	-.0244	.0133	.0079	.0080	.0282	.0114	.0129

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0176	.8282	.0533	.5219	.0318	.4010	.0102	.2801	-.0153	.2488	-.0124	.2586
2	.0869	.1138	.0432	.0817	-.0202	.0332	-.0836	-.0153	-.1285	-.0430	-.1189	-.0223
3	-.0573	.0689	-.0446	.0043	-.0145	-.0211	.0157	-.0466	.0258	-.0468	.0036	-.0256
4	-.0596	.0001	-.0139	-.0118	-.0073	-.0052	-.0007	.0015	-.0038	.0011	.0003	-.0035
5	-.0168	-.0478	.0014	-.0233	.0069	-.0204	.0124	-.0176	.0117	-.0127	.0067	.0005
6	.0115	-.0259	.0140	-.0048	.0136	.0040	.0133	.0129	.0078	.0109	-.0022	.0075
7	.0318	-.0249	.0060	-.0037	.0001	.0018	-.0058	.0073	-.0083	.0063	-.0071	.0015
8	-.0018	.0159	.0041	.0181	.0094	.0025	-.0028	.0005	-.0065	-.0044	-.0052	-.0038
9	.0021	.0135	-.0077	.0139	-.0028	.0062	-.0019	-.0026	-.0001	-.0072	-.0006	-.0064
10							.0020	-.0016	.0074	-.0025	.0031	-.0061

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0015	.2991	.0358	-.3898	.0443	-.4792	.0157	-.4862	-.0081	-.2977	-.0201	-.1307	-.0237	.0017	-.0231	.1483
2	-.1763	-.0069	-.2293	-.0646	-.1178	-.0511	-.0804	-.0462	-.0482	-.0298	-.0346	-.0245	-.0411	-.0209	-.0551	-.0209
3	-.0578	.1401	-.0326	.0604	-.0041	.0083	.0050	-.0061	.0048	-.0073	.0061	-.0082	.0050	-.0121	.0038	-.0146
4	-.0005	.0198	-.0110	.0059	-.0074	.0008	-.0042	-.0018	-.0028	-.0007	-.0013	-.0003	.0003	-.0004	.0022	.0003
5	-.0179	.0147	-.0044	.0015	.0012	-.0006	.0044	-.0020	.0028	-.0016	.0034	-.0005	.0036	-.0009	.0031	.0015
6	-.0059	-.0076	-.0003	-.0007	-.0004	.0005	-.0021	-.0003	.0005	.0015	-.0004	.0017	.0001	.0025	-.0018	.0032
7	-.0003	.0001	.0005	-.0024	-.0015	-.0004	-.0006	.0004	.0001	-.0002	-.0007	-.0002	-.0014	.0002	-.0027	-.0006
8	-.0001	-.0026	.0024	.0003	.0007	-.0005	-.0010	-.0005	-.0002	-.0000	-.0008	.0001	-.0010	.0004	-.0019	-.0017
9	-.0020	.0027	-.0013	-.0004	-.0003	-.0009	-.0011	-.0007	-.0005	-.0009	.0002	-.0016	-.0009	-.0023	.0006	-.0034
10	-.0041	-.0036	-.0000	.0001	.0011	.0008	.0014	.0012	.0011	-.0000	.0016	-.0002	.0018	-.0013	.0033	-.0017

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 4 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.6880	2.1	1.6314	357.4	.8224	8.2	.4260	14.1	.2521	28.9	.2716	32.1	.2541	34.2
2	1.4958	47.3	1.8185	70.0	1.4221	73.5	1.0244	48.5	.7032	71.4	.4451	44.1	.5143	44.6
3	.4853	349.4	.2484	348.8	.2185	15.9	.1401	22.0	.0887	42.1	.0788	37.7	.0483	52.2
4	.6342	46.7	.7287	53.7	.5330	54.7	.3639	35.8	.2598	40.5	.2544	26.7	.2024	34.0
5	.3347	323.0	.2859	332.1	.2783	345.4	.1861	318.7	.1384	323.7	.1370	302.0	.1094	304.3
6	.1784	20.0	.2447	29.5	.2083	24.7	.1239	352.3	.0860	355.7	.0735	340.5	.0521	354.8
7	.2605	293.9	.2444	301.7	.2643	319.7	.1854	280.4	.1411	288.8	.1415	267.0	.1117	279.2
8	.0992	213.7	.0104	304.3	.0840	288.7	.0811	224.2	.0707	224.4	.0744	194.4	.0444	203.9
9	.0737	207.9	.0562	246.3	.1195	291.0	.0834	221.8	.0557	230.7	.0504	194.0	.0343	204.9
10	.0922	115.6	.0716	56.8	.0457	235.7	.0708	155.1	.0549	172.2	.0592	134.5	.0478	146.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.2557	29.5	.2565	28.8	.2953	11.8	.3536	359.5	.3803	353.1	.4052	354.5
2	.3980	58.0	.2254	50.7	.0681	32.0	.1058	255.1	.1540	250.5	.1511	257.3
3	.0454	28.7	.0257	347.2	.0126	20.1	.0144	95.3	.0110	270.6	.0286	306.5
4	.1520	11.5	.0761	357.7	.0404	317.3	.0544	252.1	.0659	217.6	.0580	221.2
5	.0873	276.2	.0611	256.3	.0296	219.3	.0382	145.3	.0316	117.4	.0144	111.3
6	.0333	37.1	.0075	158.3	.0059	230.3	.0117	268.1	.0186	210.9	.0230	219.6
7	.0894	250.8	.0260	242.2	.0211	189.9	.0334	152.0	.0338	115.1	.0255	125.2
8	.0571	167.8	.0192	144.6	.0138	111.2	.0223	67.6	.0195	40.2	.0110	46.5
9	.0249	160.4	.0119	143.0	.0048	111.4	.0096	34.2	.0109	13.7	.0044	62.0
10	.0433	105.3	.0145	120.8	.0077	106.7	.0040	7.5	.0108	342.3	.0099	20.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1501	11.2	.3967	173.9	.8844	178.7	.3748	179.6	.2057	187.0	.0566	212.2	.0999	339.9	.2778	349.4
2	.0741	285.2	.2294	249.7	.3344	248.3	.1230	238.9	.0896	242.3	.0713	239.0	.0763	248.4	.1012	247.8
3	.1202	341.2	.0820	330.2	.0503	328.8	.0036	275.8	.0030	229.1	.0042	222.9	.0075	265.8	.0169	282.6
4	.0702	41.7	.0088	59.9	.0303	197.1	.0216	194.3	.0174	201.6	.0179	194.1	.0236	207.8	.0372	200.1
5	.0345	317.0	.0092	316.8	.0092	115.0	.0073	107.9	.0070	123.3	.0074	114.8	.0081	123.5	.0109	97.2
6	.0137	331.5	.0037	291.3	.0056	213.8	.0028	135.1	.0035	164.5	.0047	154.5	.0076	187.2	.0141	191.0
7	.0236	285.5	.0011	25.7	.0191	94.9	.0091	75.1	.0077	93.3	.0081	80.7	.0116	103.7	.0177	96.0
8	.0134	209.5	.0029	243.9	.0080	335.7	.0040	328.9	.0037	356.0	.0044	352.0	.0064	233.5	.0098	150.9
9	.0059	205.4	.0007	188.6	.0019	317.6	.0016	341.0	.0017	343.7	.0025	326.3	.0038	354.6	.0046	344.3
10	.0065	87.2	.0016	300.1	.0045	305.4	.0029	265.7	.0030	295.5	.0034	281.7	.0049	317.0	.0076	315.8

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 58 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9062	356.1	2.0068	352.8	1.4048	356.5	1.4341	357.8	1.0740	.6	1.2028	359.8	.9870	2.1
2	1.8938	79.1	2.1422	78.2	1.5449	79.8	.7616	71.0	.3673	69.5	.2846	54.5	.2056	55.3
3	1.0105	348.5	.8087	349.0	.6208	350.2	.3702	346.3	.2007	347.1	.1860	332.9	.1164	338.3
4	.3612	57.1	.6255	55.1	.4032	65.4	.0897	352.1	.0630	303.8	.0858	274.2	.0701	288.1
5	.5191	335.8	.6293	329.1	.5588	338.8	.1665	313.3	.0513	284.8	.0524	227.8	.0510	227.1
6	.1539	258.3	.0769	289.6	.1053	260.8	.1156	239.1	.0575	226.6	.0514	196.5	.0357	188.3
7	.1179	309.9	.2999	305.9	.2875	325.3	.0353	196.0	.0432	149.2	.0698	132.1	.0489	145.6
8	.1040	230.3	.1923	213.7	.2080	235.2	.0335	207.4	.0196	58.8	.0521	53.5	.0435	72.0
9	.0099	230.5	.0326	320.0	.0717	321.8	.0385	151.2	.0099	139.2	.0151	34.8	.0135	19.6
10	.0956	211.7	.1416	209.2	.1951	226.9	.0262	158.9	.0154	59.2	.0293	15.8	.0172	41.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8284	1.2	.5246	5.8	.4023	4.5	.2803	2.1	.2492	356.5	.2589	357.2
2	.1432	37.4	.0924	27.8	.0389	328.7	.0849	259.6	.1355	251.5	.1210	259.4
3	.0896	320.3	.0448	275.5	.0256	214.4	.0492	161.4	.0534	151.1	.0259	171.9
4	.0596	270.1	.0183	229.6	.0089	234.6	.0016	335.5	.0040	286.7	.0035	175.8
5	.0507	199.4	.0233	176.7	.0216	161.3	.0215	144.7	.0173	137.2	.0068	85.5
6	.0284	156.1	.0148	108.9	.0142	73.5	.0185	45.9	.0134	35.5	.0078	343.7
7	.0404	128.1	.0070	121.5	.0018	3.2	.0094	321.6	.0104	307.2	.0072	282.1
8	.0375	57.6	.0201	77.1	.0087	73.4	.0029	280.6	.0079	236.2	.0064	234.1
9	.0160	353.4	.0186	12.8	.0078	8.2	.0032	215.4	.0072	180.7	.0065	185.4
10	.0137	8.8	.0159	331.0	.0068	335.3	.0026	127.9	.0078	108.9	.0068	153.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2991	.3	.3914	174.7	.4813	174.7	.4864	178.2	.2978	181.6	.1322	189.7	.0238	274.1	.1501	351.2
2	.1764	267.8	.2382	254.3	.1284	246.5	.0927	240.1	.0567	238.3	.0436	232.5	.0461	243.0	.0589	249.2
3	.1515	337.6	.0686	331.7	.0092	333.4	.0079	140.6	.0088	146.7	.0102	143.3	.0131	157.7	.0151	165.3
4	.0198	358.5	.0124	298.2	.0075	276.1	.0046	247.0	.0029	255.1	.0013	258.5	.0005	147.2	.0023	81.3
5	.0231	309.3	.0047	289.0	.0014	117.5	.0048	113.9	.0032	119.4	.0034	98.1	.0017	103.8	.0035	63.7
6	.0696	217.8	.0008	205.4	.0006	312.4	.0022	262.5	.0016	17.0	.0017	347.1	.0025	330.0	.0039	330.7
7	.0003	284.2	.0025	169.1	.0015	255.3	.0007	302.9	.0002	150.1	.0007	254.8	.0014	277.6	.0027	258.4
8	.0024	181.4	.0025	83.0	.0009	125.2	.0007	241.5	.0002	264.8	.0008	275.0	.0011	290.0	.0025	227.9
9	.0034	321.1	.0014	254.4	.0010	200.0	.0013	231.4	.0010	207.1	.0014	171.8	.0024	200.8	.0035	170.6
10	.0054	228.6	.0001	348.6	.0014	51.8	.0019	49.4	.0011	92.2	.0016	95.7	.0022	124.6	.0037	117.1

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 5 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1576	3.1208	-.3535	2.1836	-.0778	1.1014	.1153	.6397	.1797	.3476	.1971	.3423	.2064	.2748
2	1.1497	.4085	1.3287	.5241	1.1661	.3704	.8496	.5183	.6432	.2972	.5145	.4032	.4576	.2673
3	.1847	.4221	.0868	.5776	.2007	.4122	-.0153	.3895	.0461	.2425	-.0184	.2061	.0273	.1521
4	.1059	.5663	.0057	.4812	.0974	.4356	-.1659	.2715	-.0465	.2231	-.1122	.1934	-.0428	.1870
5	-.2058	.2582	-.1597	.1355	-.1359	.2091	-.1947	-.0208	-.1394	.0524	-.1453	-.0262	-.1317	.0150
6	-.1875	.1323	-.0711	.0867	-.0974	.1305	-.0817	-.0585	-.0936	.0009	-.0651	-.0497	-.0634	-.0224
7	-.1572	-.0601	-.0278	.0405	-.1104	.0363	-.0077	-.0886	-.0720	-.0655	-.0094	-.0929	-.0429	-.0691
8	-.0275	-.0639	-.0464	.0991	-.0521	.0398	.0369	-.0174	.0007	-.0626	.0531	-.0343	.0292	-.0513
9	.0120	-.0705	-.0858	.0402	-.0886	.0195	.0118	-.0153	.0146	-.0467	.0408	-.0081	.0253	-.0230
10	.0468	-.0042	-.1000	.0194	-.0619	-.0031	.0160	-.0047	.0392	-.0248	.0369	.0254	.0399	-.0036

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1718	.2843	.1695	.2844	.0992	.3099	.0289	.3354	-.0607	.3423	-.0672	.3610
2	.2825	.2849	.1290	.1656	.0120	.0825	-.1050	-.0006	-.1378	-.0630	-.1347	-.0489
3	-.0132	.1153	-.0090	.0587	-.0188	.0225	-.0287	-.0138	-.0297	-.0417	-.0400	-.0185
4	-.1086	.1222	-.0811	.0685	-.0597	.0037	-.0382	-.0611	.0211	-.0737	.0026	-.0585
5	-.0924	-.0617	-.0540	-.0608	-.0066	-.0446	.0408	-.0283	.0381	-.0104	.0179	-.0031
6	-.0270	-.0394	.0011	-.0309	.0089	-.0223	.0166	-.0137	.0261	-.0021	.0235	-.0129
7	.0148	-.0786	.0210	-.0396	.0294	-.0139	.0379	.0117	.0110	.0408	.0176	.0248
8	.0450	-.0008	.0375	.0085	.0204	.0155	.0033	.0224	-.0255	.0141	-.0119	.0194
9	.0191	.0188	.0040	.0142	-.0000	.0184	-.0040	.0226	-.0194	-.0088	-.0184	-.0034
10	.0128	.0245	.0014	.0047	-.0086	.0054	-.0186	.0061	-.0045	-.0121	-.0036	-.0042

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0489	.1591	.0659	-.4270	-.0032	-.9695	-.0153	-.4208	-.0745	-.2391	-.0775	-.0792	-.0826	.0693	-.0999	.2390
2	-.0980	.0228	-.1822	-.1153	-.2387	-.1757	-.0548	-.0976	-.0454	-.0743	-.0280	-.0694	-.0526	-.0599	-.0723	-.0711
3	-.0625	.1234	-.0529	.0559	-.0199	.0307	.0085	.0030	.0081	-.0083	.0082	.0108	-.0020	-.0173	-.0121	-.0262
4	-.0095	.0428	.0043	.0023	.0192	-.0255	.0147	-.0118	.0096	-.0133	.0133	-.0110	.0107	-.0210	.0238	-.0290
5	-.0235	-.0019	-.0071	-.0025	.0018	.0025	.0022	.0067	.0067	.0053	.0041	.0077	.0119	.0047	.0139	.0094
6	-.0113	-.0019	-.0005	-.0005	.0018	-.0004	.0008	.0030	.0019	.0028	.0013	.0045	.0066	.0037	.0104	.0073
7	-.0045	-.0063	-.0011	-.0023	-.0195	-.0045	-.0042	-.0001	-.0038	.0034	-.0056	.0029	-.0010	.0090	-.0069	.0137
8	-.0009	-.0023	-.0003	-.0031	.0098	.0000	-.0006	-.0037	-.0034	-.0021	-.0030	-.0034	-.0077	.0004	-.0122	-.0017
9	-.0013	-.0006	.0004	-.0004	.0059	.0019	.0015	-.0000	.0005	-.0020	.0013	-.0026	-.0031	-.0040	-.0005	-.0099
10	.0018	.0026	.0004	-.0002	.0011	-.0017	.0012	-.0015	-.0000	-.0012	.0016	-.0011	-.0005	-.0031	.0016	-.0032

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 60 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.4176	3.0748	-.5124	2.1615	-.1916	1.4892	-.1202	1.4861	.0235	1.0799	-.0074	1.1760	.0793	.9328
2	1.7607	.5963	1.9835	.7751	1.4584	.4601	.6297	.4705	.3040	.2716	.1545	.3450	.1402	.2714
3	-.4391	1.1731	-.4672	.9810	-.2480	.7335	-.2507	.3900	-.1279	.2008	-.1926	.1060	-.1390	-.0746
4	-.0139	.1721	-.1285	.3440	-.1452	.1774	-.1582	.0424	-.1099	.0242	-.1024	-.0272	-.0629	-.0082
5	-.2525	.2779	-.4250	.3183	-.2697	.3796	-.1124	-.0382	-.0516	-.0686	-.0103	-.1133	-.0298	-.0769
6	-.1581	-.0702	-.1420	-.0829	-.1372	-.0737	-.0394	-.0733	.0138	-.0312	.0689	-.0090	.0499	-.0272
7	-.0612	-.0006	-.1624	-.0073	-.1550	.1310	.0144	-.0696	.0067	-.0238	.0243	.0061	.0206	-.0023
8	-.0754	-.0960	-.0684	-.1639	-.1578	-.1625	.0380	-.0245	.0252	-.0050	.0260	.0259	.0312	.0108
9	.0823	-.0722	.0722	-.0734	-.0115	-.0356	.0518	-.0134	.0127	-.0003	-.0042	.0239	.0026	.0248
10	.0239	.0304	.0469	.0017	-.0493	-.0912	.0369	.0352	.0233	.0072	-.0013	.0163	-.0008	.0078

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0515	.7725	.0965	.5199	.0465	.4181	-.0036	.3162	-.0577	.2488	-.0517	.2511
2	.0348	.2681	-.0033	.1816	-.0591	.0780	-.1148	-.0255	-.1199	-.0803	-.1087	-.0460
3	-.1530	-.0022	-.1098	-.0533	-.0381	-.0598	.0336	-.0663	.0600	-.0363	.0292	-.0170
4	-.0263	-.0405	.0397	-.0512	.0308	-.0277	.0219	-.0041	.0038	.0129	-.0033	.0080
5	.0106	-.0580	.0269	.0120	.0276	.0107	.0283	.0093	-.0010	.0053	-.0095	.0036
6	.0406	.0025	-.0068	.0079	-.0110	.0177	-.0153	.0274	-.0107	.0072	-.0107	-.0133
7	.0177	.0013	.0084	-.0120	-.0025	-.0138	-.0133	-.0156	.0101	-.0065	.0113	-.0089
8	.0224	.0224	.0159	.0184	.0125	.0082	.0092	-.0020	-.0004	.0055	.0028	.0059
9	-.0139	.0204	-.0135	.0142	-.0067	.0110	.0001	.0057	.0022	-.0039	-.0010	-.0024
10	-.0077	.0045	-.0171	-.0035	-.0119	-.0022	-.0067	-.0009	.0046	.0066	.0070	.0005

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0013	.2934	-.0734	-.4287	.0575	-.5047	.0227	-.5302	-.0428	-.3348	-.0538	-.1607	-.0659	-.0186	-.0676	.1346
2	-.2042	.0075	-.2165	-.0849	-.0947	-.0565	-.0503	-.0511	-.0250	-.0307	-.0132	-.0299	-.0251	-.0299	-.0386	-.0411
3	-.0928	.1211	-.0439	.0452	.0008	.0079	.0135	-.0011	.0136	-.0049	.0148	-.0021	.0187	-.0069	.0242	-.0030
4	-.0082	-.0024	-.0004	-.0091	.0020	-.0039	.0013	-.0045	-.0010	-.0029	-.0013	.0000	-.0026	.0043	-.0072	.0090
5	-.0152	-.0013	-.0072	-.0039	-.0044	-.0006	-.0005	-.0006	.0003	.0012	-.0010	-.0002	-.0028	-.0015	-.0061	-.0064
6	-.0039	-.0028	.0001	-.0013	.0002	-.0007	-.0002	-.0042	-.0009	-.0013	.0007	-.0022	.0005	-.0034	.0048	-.0069
7	.0011	.0001	.0018	.0004	-.0006	.0004	-.0008	.0007	.0004	.0011	.0005	.0014	.0025	.0015	.0040	.0045
8	-.0044	-.0021	-.0016	.0009	-.0002	.0014	-.0004	-.0008	-.0005	.0002	-.0007	.0004	-.0008	.0012	-.0023	.0008
9	.0038	-.0050	-.0012	-.0035	-.0018	-.0009	-.0014	-.0013	.0003	.0006	.0001	-.0002	.0003	-.0008	.0007	-.0013
10	.0008	-.0003	-.0010	.0004	-.0006	.0013	-.0015	.0008	.0001	.0004	-.0002	.0009	.0014	.0008	.0018	.0025

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 5 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1247	357.1	2.2121	350.8	1.1042	4.0	.6500	10.2	.3914	27.3	.3950	29.9	.3437	36.9
2	1.2201	70.4	1.4284	68.5	1.2236	72.4	.9953	58.6	.7086	45.2	.6537	51.9	.5300	59.7
3	.6490	16.5	.5841	8.5	.4585	26.0	.3898	357.7	.2469	10.8	.2069	354.9	.1545	10.2
4	.5762	10.6	.4812	.7	.4464	12.6	.3182	328.6	.2279	348.2	.2236	329.9	.1918	347.1
5	.3302	321.4	.2095	310.3	.2493	327.0	.1958	263.9	.1490	290.6	.1476	259.8	.1325	276.5
6	.2295	305.2	.1122	320.7	.1428	323.3	.1005	234.4	.0936	270.6	.0819	232.6	.0673	250.6
7	.1683	249.1	.0491	325.5	.1162	288.2	.0889	184.9	.0973	227.7	.0933	185.8	.0813	211.9
8	.0696	203.3	.1094	334.9	.0656	307.4	.0408	115.2	.0626	179.4	.0632	122.9	.0591	150.3
9	.0715	170.3	.0947	295.1	.0907	282.4	.0193	142.5	.0490	162.6	.0416	101.2	.0342	132.3
10	.0670	93.6	.1019	281.0	.0620	267.1	.0166	106.3	.0464	122.3	.0448	55.4	.0400	95.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3321	31.1	.3311	30.8	.3254	17.7	.3366	4.9	.3476	349.9	.3672	349.5
2	.4024	44.6	.2099	37.9	.0834	18.3	.1050	249.7	.1515	245.4	.1433	250.1
3	.1160	353.5	.0594	351.3	.0293	320.0	.0318	244.3	.0512	215.4	.0440	245.1
4	.1635	318.4	.1062	310.2	.0598	273.6	.0720	212.1	.0767	164.0	.0585	177.5
5	.1111	236.3	.0813	221.6	.0451	188.4	.0497	124.7	.0395	74.7	.0182	99.9
6	.0478	214.4	.0309	177.9	.0240	158.3	.0215	129.5	.0261	94.7	.0268	118.9
7	.0800	149.3	.0448	152.1	.0326	115.3	.0396	72.8	.0422	15.1	.0304	35.3
8	.0450	90.7	.0385	77.2	.0256	52.9	.0227	8.4	.0292	298.8	.0228	328.4
9	.0268	45.5	.0147	15.6	.0184	359.9	.0230	349.9	.0213	245.5	.0187	259.7
10	.0274	27.6	.0049	16.2	.0102	302.2	.0196	288.2	.0129	200.2	.0056	221.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1665	17.1	.4320	171.2	.9695	180.2	.4211	182.1	.2505	197.3	.1109	224.4	.1079	310.0	.2591	337.3
2	.1006	283.1	.2156	237.7	.2964	233.7	.1120	209.3	.0870	211.4	.0748	202.0	.0797	221.3	.1014	225.5
3	.1383	333.1	.0769	316.6	.0366	327.0	.0090	109.6	.0116	135.5	.0136	142.8	.0174	186.6	.0289	204.7
4	.0439	347.5	.0048	62.2	.0319	143.0	.0188	128.7	.0164	144.1	.0172	129.7	.0236	152.9	.0375	140.6
5	.0236	262.3	.0075	250.7	.0031	36.0	.0071	18.1	.0085	51.5	.0098	38.4	.0127	68.3	.0140	51.9
6	.0117	255.6	.0008	255.4	.0019	257.5	.0034	15.5	.0034	35.1	.0046	15.7	.0076	60.7	.0129	55.3
7	.0077	159.3	.0025	204.9	.0200	257.1	.0042	249.3	.0051	311.5	.0063	297.4	.0091	353.8	.0153	333.4
8	.0024	189.3	.0031	185.3	.0098	90.0	.0038	189.2	.0040	238.0	.0044	221.2	.0077	273.1	.0123	241.9
9	.0014	243.3	.0007	146.7	.0042	72.6	.0015	89.1	.0021	145.6	.0029	153.6	.0051	217.5	.0099	183.1
10	.0032	34.9	.0005	109.5	.0020	147.4	.0019	142.5	.0012	180.6	.0019	123.9	.0032	189.0	.0036	153.1

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 60 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.1030	352.3	2.2214	346.7	1.5015	352.7	1.4910	355.4	1.0802	1.2	1.1760	359.6	.9361	4.9
2	1.8589	71.3	2.1294	68.7	1.5293	72.5	.7860	53.2	.4077	48.2	.3780	24.1	.3054	27.3
3	1.2524	339.5	1.0866	334.5	.7743	341.3	.4636	327.3	.2381	327.5	.2198	298.8	.1578	298.2
4	.1727	355.4	.3672	20.5	.2293	39.3	.1638	285.0	.1125	282.4	.1059	255.1	.0634	262.6
5	.3755	317.7	.5310	306.8	.4656	324.6	.1187	251.2	.0859	217.0	.1138	185.2	.0824	201.2
6	.1730	246.1	.1644	239.7	.1557	241.8	.0832	208.2	.0342	156.1	.0695	97.5	.0568	118.6
7	.0612	270.6	.1625	272.6	.2029	310.2	.0710	168.3	.0248	164.3	.0251	75.9	.0207	96.4
8	.1220	218.1	.1776	202.7	.2265	224.2	.0452	122.9	.0257	101.1	.0367	45.2	.0330	70.9
9	.1094	131.2	.1030	135.5	.0374	162.1	.0535	104.5	.0127	91.2	.0243	350.1	.0249	6.0
10	.0387	38.2	.0470	87.9	.1037	208.4	.0510	46.4	.0244	72.9	.0164	355.3	.0078	354.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.7742	3.8	.5288	10.5	.4206	6.3	.3163	359.3	.2554	346.9	.2564	348.4
2	.2703	7.4	.1816	358.9	.0979	322.9	.1176	257.5	.1443	236.2	.1180	247.1
3	.1530	269.2	.1220	244.1	.0709	212.5	.0743	153.1	.0701	121.2	.0338	120.2
4	.0483	213.0	.0648	142.3	.0414	132.0	.0223	100.7	.0134	16.6	.0087	337.7
5	.0590	169.6	.0294	65.9	.0296	68.8	.0298	71.7	.0054	349.1	.0101	290.9
6	.0407	86.5	.0104	319.4	.0208	328.0	.0314	330.9	.0129	236.2	.0171	218.9
7	.0178	85.7	.0146	145.0	.0140	190.2	.0205	220.4	.0120	122.9	.0143	128.2
8	.0317	44.9	.0243	40.7	.0150	56.8	.0094	102.5	.0055	355.3	.0065	25.9
9	.0241	327.6	.0211	320.1	.0129	328.5	.0057	1.0	.0045	150.3	.0026	203.5
10	.0090	300.5	.0174	258.5	.0121	259.5	.0068	262.1	.0081	34.6	.0070	85.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2934	.3	.4350	170.3	.5079	173.5	.5307	177.6	.3376	187.3	.1695	198.5	.0685	254.2	.1506	333.4
2	.2044	272.1	.2325	248.6	.1103	239.2	.0717	224.5	.0396	219.2	.0326	203.8	.0391	220.1	.0564	223.2
3	.1526	322.5	.0630	315.8	.0079	5.6	.0135	94.9	.0144	110.0	.0149	98.2	.0199	110.3	.0244	97.0
4	.0085	254.0	.0091	182.3	.0044	152.8	.0046	164.3	.0031	198.9	.0013	271.8	.0050	328.3	.0115	321.3
5	.0152	265.0	.0082	241.8	.0045	262.3	.0008	224.4	.0013	14.5	.0011	260.6	.0032	241.7	.0089	223.8
6	.0048	234.9	.0013	174.1	.0007	165.1	.0042	183.1	.0016	214.7	.0023	162.0	.0034	170.8	.0084	145.1
7	.0011	82.5	.0019	77.6	.0007	300.6	.0011	313.2	.0011	19.0	.0015	20.5	.0029	59.3	.0060	41.9
8	.0049	244.2	.0019	299.0	.0014	353.0	.0009	207.2	.0006	295.1	.0008	299.2	.0014	326.9	.0025	288.8
9	.0063	142.9	.0037	199.4	.0020	243.4	.0019	225.8	.0007	23.7	.0003	149.8	.0009	157.0	.0014	152.5
10	.0009	111.1	.0011	293.0	.0014	336.6	.0017	299.2	.0004	11.2	.0009	349.4	.0016	60.1	.0031	35.9

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 6 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0248	2.9490	-.1902	1.9586	.1837	1.0488	.1919	.7555	.2480	.4488	.2242	.4497	.2387	.3479
2	1.2010	.5926	1.3075	.8291	1.1531	.5385	.6830	.6943	.5509	.4163	.3947	.4984	.3793	.3372
3	.0536	.8455	-.1198	.6852	.0738	.5131	-.1741	.3617	-.0518	.2614	-.1185	.2065	-.0337	.1761
4	-.1043	.5298	-.1365	.4440	.0080	.3984	-.2125	.1806	-.0977	.1729	-.1619	.1118	-.0949	.1404
5	-.2895	.1680	-.2646	.0490	-.1910	.1736	-.1994	-.0802	-.1521	.0115	-.1181	-.0844	-.1222	-.0291
6	-.1382	-.0103	.0027	-.0133	-.0858	.0349	-.0143	-.1273	-.0745	-.0639	-.0104	-.0873	-.0458	-.0605
7	-.1092	-.0319	-.0648	.0886	-.0974	.0455	.0346	-.0537	-.0237	-.0650	.0351	-.0624	-.0096	-.0447
8	.0270	-.0979	-.0472	.0601	-.0644	.0085	.0586	-.0033	.0251	-.0545	.0680	-.0008	.0475	-.0446
9	.0494	.0283	-.1504	.0512	-.0852	.0300	.0137	.0201	.0294	-.0258	.0272	.0299	.0390	.0006
10	-.0258	.0078	-.1286	-.1269	-.1164	-.0439	.0119	-.0011	.0376	-.0156	.0066	.0287	.0269	.0139

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.1667	.3791	.1604	.3566	.0882	.3367	.0161	.3167	-.1049	.3214	-.1113	.3499
2		.1874	.3226	.0597	.1736	-.0349	.0940	-.1295	.0145	-.1570	-.0801	-.1580	-.0524
3		-.0674	.1154	-.0212	.0613	-.0246	.0142	-.0281	-.0329	.0040	-.0623	-.0182	-.0442
4		-.1378	.0513	-.1000	.0285	-.0632	-.0163	-.0264	-.0611	.0349	-.0470	.0149	-.0476
5		-.0481	-.0895	-.0174	-.0676	.0133	-.0569	.0439	-.0462	.0517	.0059	.0351	-.0092
6		.0052	-.0512	-.0037	-.0310	.0243	-.0137	.0522	.0035	.0113	.0513	.0186	.0280
7		.0453	-.0447	.0396	-.0351	.0313	.0046	.0229	.0442	-.0322	.0096	-.0139	.0121
8		.0567	.0258	.0357	.0150	.0104	.0230	-.0150	.0310	-.0151	.0016	-.0060	.0097
9		.0073	.0359	.0160	.0255	-.0094	.0202	-.0347	.0149	-.0200	-.0336	-.0281	-.0072
10		-.0147	.0256	-.0186	.0276	-.0245	.0003	-.0304	-.0269	.0391	-.0170	.0092	-.0332

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0328	.1518	.0525	-.4729	-.0507	-1.0717	-.0425	-.4774	-.1237	-.2857	-.1229	-.1228	-.1336	.0366	-.1511	.2089
2	-.1374	.0476	-.1889	-.1131	-.2252	-.1591	-.0418	-.0894	-.0363	-.0668	-.0203	-.0649	-.0506	-.0583	-.0740	-.0795
3	-.0785	.1161	-.0537	.0419	-.0055	.0156	.0146	-.0041	.0134	-.0096	.0155	-.0095	.0087	-.0214	.0111	-.0341
4	-.0259	.0237	.0032	-.0035	.0243	-.0207	.0179	-.0051	.0135	-.0093	.0167	-.0040	.0168	-.0150	.0315	-.0135
5	-.0239	-.0104	-.0110	-.0061	-.0054	.0110	-.0056	-.0085	.0027	.0107	.0008	.0124	.0124	.0096	.0162	.0181
6	-.0067	-.0052	-.0038	-.0010	.0792	.0926	-.0037	-.0005	-.0043	.0024	-.0069	.0018	-.0121	.0028	-.0121	.0175
7	.0003	-.0035	.0046	-.0032	.0015	-.0094	.0020	-.0046	-.0036	-.0043	-.0030	-.0060	-.0094	-.0008	-.0124	-.0065
8	.0008	-.0044	-.0000	-.0032	-.0056	-.0022	-.0014	-.0010	-.0001	-.0005	.0010	-.0016	-.0023	-.0036	-.0023	-.0079
9	-.0028	.0063	-.0014	.0015	.0003	-.0017	.0009	.0008	.0013	-.0008	.0022	-.0000	.0008	-.0047	.0042	-.0087
10	-.0039	-.0006	-.0006	-.0002	.0041	.0006	.0009	.0019	.0024	.0005	.0021	.0025	.0063	-.0024	.0145	.0039

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 61 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.3587	3.0219	-.4207	2.0607	-.0681	1.4524	-.1083	1.4705	.0259	1.0855	-.0296	1.2108	.0840	.9790
2	1.5978	.7934	1.7933	1.0547	1.3233	.6328	.5468	.5408	.2700	.2760	.1014	.3289	.0923	.2570
3	-.5822	1.0728	-.6312	.8442	-.3024	.6593	-.3174	.3491	-.1440	.2117	-.2064	.1160	-.1351	.0922
4	-.0806	.2095	.0139	.3710	.0457	.2609	-.2080	-.0054	-.1610	.0039	-.1623	-.0752	-.1272	-.0142
5	-.3714	.1937	-.5181	.1564	-.3647	.2708	-.0915	-.0847	-.0296	-.0940	.0437	-.1361	-.0101	-.1122
6	-.0905	-.1315	-.0627	-.0981	-.1053	-.0903	-.0054	-.0724	.0200	-.0261	.0684	.0070	.0547	-.0220
7	-.0936	-.0371	-.2518	-.0105	-.2038	.0857	.0308	-.0406	.0292	-.0236	.0529	.0221	.0452	-.0090
8	-.0431	-.1507	.0268	-.2466	-.0941	-.2134	.0255	-.0051	.0285	.0222	-.0020	.0702	.0377	.0474
9	.0852	-.0171	.0659	-.0121	.0000	-.0303	.0400	-.0130	-.0027	.0058	-.0344	.0042	-.0241	.0253
10	.0305	-.0158	.0896	-.0556	.0126	-.1552	.0406	.0384	.0199	.0103	-.0017	.0091	.0048	.0035

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.0396	.8329	.1279	.5528	.0717	.4194	.0155	.2859	-.0615	.2343	-.0650	.2468
2		-.0356	.2394	-.0764	.1824	-.1005	.0739	-.1247	-.0345	-.1266	-.1088	-.1236	-.0722
3		-.1384	-.0171	-.1072	-.0997	-.0395	-.0828	.0282	-.0640	.0663	-.0329	.0360	-.0137
4		-.0557	-.0514	.0577	-.0475	.0458	-.0280	.0339	-.0084	.0091	.0175	-.0074	.0100
5		.0341	-.0694	.0367	.0293	.0309	.0309	.0250	.0324	-.0109	.0106	-.0112	-.0053
6		.0404	.0084	-.0206	.0180	-.0250	.0133	-.0295	.0085	-.0026	-.0164	.0053	-.0150
7		.0422	.0127	.0092	-.0153	.0067	-.0132	.0041	-.0112	.0072	.0039	.0046	.0074
8		.0001	.0583	.0059	.0216	.0007	.0113	-.0044	.0010	.0012	-.0016	-.0035	-.0047
9		-.0362	-.0025	-.0134	-.0032	-.0059	-.0034	.0016	-.0035	.0013	.0044	.0047	.0010
10		.0048	.0016	.0037	.0013	.0016	.0007	-.0004	.0000	-.0022	.0018	-.0007	.0042

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
1		.0054	.2702	.0953	-.4627	.0668	-.5278	.0361	-.5700	-.0532	-.3710	-.0614	-.1906	-.0795	-.0416	-.0802	.1180
2		-.2492	-.0049	-.2328	-.1137	-.0983	-.0720	-.0462	-.0703	-.0248	-.0488	-.0130	-.0490	-.0297	-.0487	-.0408	-.0647
3		-.1052	.1192	-.0476	.0480	.0055	.0124	.0177	.0044	.0192	-.0004	.0192	.0025	.0230	-.0033	.0279	.0047
4		-.0091	-.0085	.0040	-.0103	.0061	-.0044	.0041	-.0028	-.0013	-.0023	-.0019	.0001	-.0041	.0047	-.0111	.0071
5		-.0113	-.0089	-.0019	-.0088	-.0006	-.0048	-.0017	-.0031	-.0043	.0012	-.0033	-.0014	-.0043	-.0025	-.0030	-.0106
6		-.0033	-.0002	-.0021	.0069	.0004	.0013	.0014	-.0025	.0003	-.0005	.0017	.0005	.0040	-.0011	.0091	.0024
7		-.0000	.0036	-.0001	-.0013	.0005	-.0002	-.0010	-.0002	-.0012	.0015	-.0014	.0006	-.0010	.0028	-.0033	.0036
8		-.0051	-.0029	-.0011	.0015	.0011	.0004	.0013	-.0008	-.0002	-.0007	-.0003	-.0004	-.0008	-.0014	.0008	-.0021
9		-.0010	-.0015	-.0004	-.0005	.0009	-.0002	-.0008	-.0005	.0001	.0013	-.0001	.0009	.0012	.0006	.0011	.0025
10		.0015	-.0033	.0016	.0005	-.0002	.0006	-.0007	.0001	.0003	.0001	-.0006	.0002	-.0005	.0010	-.0018	.0005

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 6 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9491	359.5	1.9678	354.5	1.0648	9.9	.7795	14.3	.5128	28.9	.5034	26.7	.4385	33.0
2	1.3393	63.7	1.5483	57.6	1.2726	45.0	.9753	44.4	.6905	52.9	.6158	38.4	.5075	48.4
3	.8472	3.6	.6956	350.1	.5183	8.2	.4014	334.3	.2665	348.8	.2381	330.2	.1795	349.2
4	.5400	348.9	.4645	342.9	.3984	1.2	.2789	310.4	.1984	330.5	.1967	304.6	.1495	325.9
5	.3747	300.3	.2691	280.5	.2582	312.3	.2149	248.1	.1525	274.3	.1452	214.6	.1254	256.4
6	.1386	245.3	.0136	148.4	.0935	293.3	.1281	184.4	.0997	230.1	.0879	184.8	.0759	217.1
7	.1138	253.7	.1098	323.8	.1174	303.9	.0454	148.2	.0492	200.1	.0715	150.6	.0654	188.5
8	.1014	144.6	.0744	321.8	.0650	277.5	.0587	93.2	.0400	155.2	.0480	90.7	.0452	133.2
9	.0571	40.2	.1589	288.8	.0903	289.4	.0243	34.2	.0391	131.3	.0404	42.2	.0390	89.2
10	.0270	286.8	.1807	225.4	.1244	249.3	.0119	95.5	.0407	112.5	.0295	13.0	.0303	62.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4141	23.7	.3910	24.2	.3481	14.7	.3171	2.9	.3381	341.9	.3672	342.4
2	.3731	30.1	.1835	19.0	.1003	339.7	.1303	276.4	.1763	243.0	.1664	251.7
3	.1337	329.7	.0648	340.9	.0284	300.0	.0432	220.5	.0426	174.5	.0478	202.4
4	.1471	290.4	.1040	285.9	.0653	255.5	.0666	203.4	.0585	143.4	.0499	162.6
5	.1016	208.3	.0698	194.4	.0585	166.9	.0638	136.5	.0521	83.5	.0363	104.6
6	.0514	174.2	.0315	186.8	.0279	119.5	.0524	86.2	.0355	12.5	.0337	33.6
7	.0837	134.6	.0525	131.5	.0316	81.7	.0498	27.4	.0336	286.6	.0184	311.2
8	.0623	65.6	.0388	67.3	.0252	24.2	.0345	334.1	.0152	275.9	.0114	328.4
9	.0366	11.5	.0300	32.1	.0222	35.1	.0378	293.2	.0391	210.8	.0289	255.7
10	.0295	330.1	.0333	326.0	.0245	270.8	.0406	228.5	.0427	113.5	.0345	164.6

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1553	12.2	.4759	173.7	1.0729	182.7	.4793	185.1	.3113	203.4	.1738	225.0	.1385	285.3	.2578	324.1
2	.1456	289.1	.2202	239.1	.2757	234.8	.0987	205.1	.0761	208.5	.0480	197.4	.0772	220.9	.1100	223.7
3	.1401	325.9	.0681	307.9	.0165	340.4	.0151	105.7	.0165	125.5	.0181	121.5	.0231	157.9	.0358	161.9
4	.0351	312.4	.0047	137.1	.0319	130.5	.0186	106.1	.0164	124.6	.0172	103.5	.0225	131.7	.0343	113.2
5	.0261	246.5	.0124	241.0	.0123	333.8	.0102	326.6	.0110	14.0	.0124	3.8	.0157	52.2	.0243	41.7
6	.0085	231.9	.0039	254.8	.1218	40.5	.0037	262.6	.0049	299.0	.0071	284.9	.0124	282.8	.0213	325.4
7	.0035	175.7	.0056	124.6	.0095	171.0	.0050	156.5	.0056	219.7	.0067	206.8	.0094	265.3	.0140	242.2
8	.0045	169.5	.0032	180.4	.0060	248.1	.0017	232.4	.0005	197.4	.0019	147.1	.0043	212.8	.0083	195.8
9	.0059	336.2	.0020	317.5	.0017	170.8	.0013	47.2	.0015	122.2	.0022	0	.0048	169.9	.0107	144.7
10	.0040	262.0	.0008	252.1	.0041	81.8	.0021	25.4	.0024	77.1	.0032	39.9	.0067	111.0	.0151	75.0

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 61 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.0431	353.2	2.1033	348.5	1.4540	357.3	1.4745	355.8	1.0858	1.4	1.2111	358.6	.9826	4.9
2	1.7840	63.6	2.0805	59.5	1.4668	64.4	.7691	45.3	.3861	44.4	.3442	17.1	.2731	19.8
3	1.2206	331.5	1.0541	323.2	.7254	335.4	.4718	317.7	.2560	325.8	.2367	299.3	.1635	304.3
4	.2245	339.0	.3712	2.2	.2648	9.9	.2080	268.5	.1610	271.4	.1788	245.1	.1280	263.6
5	.4188	297.5	.5412	286.8	.4543	306.6	.1247	227.2	.0986	197.5	.1430	162.2	.1127	185.2
6	.1597	214.5	.1164	212.6	.1387	229.4	.0726	184.3	.0329	142.6	.0688	84.1	.0590	111.9
7	.1006	291.6	.2520	267.6	.2211	292.8	.0510	142.8	.0375	128.9	.0573	67.3	.0461	101.6
8	.1567	196.0	.2480	173.8	.2341	204.2	.0260	101.3	.0361	52.1	.0702	358.4	.0606	38.5
9	.0869	101.3	.0670	100.4	.0303	180.0	.0420	108.0	.0064	335.0	.0347	276.9	.0350	316.3
10	.0343	117.4	.1055	121.8	.1557	175.4	.0559	46.6	.0224	62.6	.0093	349.6	.0060	53.4

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8338	2.7	.5674	13.0	.4254	9.7	.2864	3.1	.2423	345.3	.2552	345.2
2	.2421	351.5	.1977	337.3	.1248	306.3	.1293	254.5	.1669	229.3	.1432	239.7
3	.1394	263.0	.1444	227.1	.0918	205.5	.0718	156.8	.0740	116.4	.0385	110.9
4	.0758	227.3	.0748	129.4	.0537	121.4	.0349	103.9	.0197	27.5	.0124	323.5
5	.0774	153.8	.0470	51.4	.0437	45.0	.0411	37.5	.0152	314.1	.0124	244.6
6	.0413	78.2	.0273	311.0	.0283	297.9	.0307	286.2	.0166	189.1	.0159	160.5
7	.0441	73.3	.0179	149.1	.0148	153.3	.0119	159.4	.0082	61.3	.0089	31.2
8	.0583	.1	.0224	15.2	.0113	3.7	.0045	283.0	.0020	143.9	.0059	216.9
9	.0363	266.0	.0138	256.5	.0068	240.4	.0038	156.2	.0046	16.1	.0068	81.9
10	.0051	71.8	.0039	70.4	.0018	67.5	.0004	274.1	.0028	309.4	.0043	350.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2702	1.1	.4724	168.4	.5320	172.8	.5711	176.4	.3748	188.2	.2002	197.8	.0897	242.4	.1427	325.8
2	.2493	268.9	.2591	244.0	.1219	233.8	.0841	213.3	.0547	206.9	.0507	194.9	.0570	211.4	.0765	212.2
3	.1590	318.6	.0676	315.2	.0136	24.0	.0182	76.1	.0192	91.1	.0194	82.7	.0232	98.2	.0283	80.5
4	.0124	226.8	.0111	158.8	.0075	126.3	.0049	124.0	.0026	209.1	.0019	272.8	.0062	318.6	.0132	302.4
5	.0144	231.9	.0090	192.3	.0048	187.5	.0036	209.4	.0045	285.9	.0036	247.7	.0050	239.6	.0110	195.6
6	.0033	265.9	.0073	342.8	.0014	17.4	.0028	150.5	.0006	153.2	.0017	72.2	.0041	105.0	.0094	75.1
7	.0036	359.7	.0013	185.0	.0005	115.9	.0010	257.8	.0019	320.4	.0016	293.2	.0030	340.1	.0049	317.4
8	.0059	240.4	.0018	323.0	.0012	71.9	.0015	121.7	.0008	197.0	.0005	146.5	.0016	210.0	.0023	159.0
9	.0018	214.5	.0006	217.3	.0009	101.1	.0009	237.1	.0013	5.6	.0009	354.3	.0013	61.6	.0028	23.0
10	.0037	156.0	.0016	71.3	.0007	345.5	.0007	281.3	.0004	68.2	.0006	288.7	.0011	332.6	.0019	284.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 16 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0542	1.7053	-.1829	.7486	.0599	-.0438	.1320	-.2544	.1709	-.2181	.2320	-.1627	.2016	-.0957
2	1.3594	-.0673	1.1679	-.0823	.9528	-.0384	.6617	-.0628	.4039	-.0343	.3410	-.0751	.2465	-.0442
3	.4624	-.4762	.4201	-.7006	.3852	-.4977	.3426	-.3178	.2456	-.2791	.2991	-.2269	.2227	-.2175
4	.2744	-.0261	.2303	-.0954	.2215	-.0805	.1981	-.0296	.1590	-.0220	.1343	-.0634	.1069	-.0390
5	.3162	-.3129	.3510	-.3751	.2794	-.2731	.2301	-.0435	.1712	-.0378	.1841	-.0169	.1475	-.0140
6	.1962	-.0834	.1708	-.1754	.1417	-.1217	.0853	.0145	.0670	.0238	.0411	.0605	.0412	.0454
7	.2833	.0085	.2983	-.0254	.2267	-.1021	.1516	.0399	.1118	.0216	.0934	.0616	.0815	.0338
8	.0352	.0589	.0024	-.0445	.0554	-.0659	.0367	.0295	.0307	.0287	.0092	.0485	.0142	.0408
9	.0800	.0454	-.0897	-.0112	.1133	-.0542	.0714	.0628	.0427	.0452	-.0259	.0738	-.0329	.0534
10	.0288	.0202	-.0090	-.0455	.0370	-.0622	.0168	.0236	.0092	.0200	-.0143	.0236	-.0085	.0234

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1600	-.0856	.1008	-.0796	.0614	.2379	.0219	.3962	-.0307	.4566	-.0186	.4881
2	.2399	-.0271	.1416	-.0043	.0598	.0147	-.0220	.0338	-.0642	.0230	-.0609	.0404
3	.2245	-.0895	.1230	-.0244	.0342	.0278	-.0546	.0801	-.0719	.0633	-.0638	.0531
4	.0643	.0610	.0472	.0377	.0090	.0122	-.0292	-.0133	-.0220	.0004	-.0017	.0137
5	.1131	.0403	.0391	.0499	-.0003	.0336	-.0398	.0173	-.0517	-.0007	-.0411	.0043
6	.0044	.0566	.0046	.0249	.0002	.0068	-.0042	-.0113	-.0022	-.0018	.0014	.0089
7	.0324	.0503	-.0045	.0450	-.0151	.0223	-.0257	-.0004	-.0283	-.0148	-.0235	-.0056
8	-.0084	.0285	-.0054	.0051	.0002	.0021	.0059	-.0009	.0022	.0021	-.0035	-.0002
9	-.0038	.0477	-.0176	.0338	-.0185	.0162	-.0194	-.0013	-.0181	-.0131	-.0039	-.0095
10	-.0140	.0112	-.0065	-.0047	-.0013	-.0013	.0039	.0020	.0011	-.0057	.0002	.0022

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0216	.2897	.0002	-.1262	-.0354	-.5208	-.0293	-.2493	-.0432	-.1144	-.0429	.0180	-.0356	.1541	-.0418	.3361
2	.0402	.0220	-.0903	-.0309	-.1871	-.0678	-.0760	-.0447	-.0570	-.0294	-.0432	-.0216	-.0440	-.0051	-.0503	.0127
3	.0319	-.0078	-.0235	.0412	-.0504	.0729	-.0253	.0257	-.0158	.0222	-.0172	.0179	-.0207	.0235	-.0424	.0268
4	.0538	.0252	.0166	.0119	-.0067	-.0047	-.0089	-.0090	-.0105	-.0058	-.0104	-.0044	-.0114	.0014	-.0104	.0059
5	.0324	-.0100	.0014	-.0000	-.0187	.0044	-.0105	-.0006	-.0083	.0005	-.0092	-.0016	-.0140	.0003	-.0234	-.0050
6	.0179	.0105	.0018	.0040	-.0052	.0000	-.0032	-.0034	-.0037	-.0014	-.0043	-.0018	-.0050	.0008	-.0049	.0028
7	.0213	.0044	.0011	.0010	-.0158	.0007	-.0027	-.0034	-.0036	.0017	-.0028	-.0036	-.0062	-.0036	-.0093	-.0078
8	.0057	.0106	.0016	.0031	.0006	-.0052	.0003	-.0032	-.0016	-.0026	-.0018	-.0030	-.0040	-.0020	-.0050	-.0027
9	.0047	.0073	.0015	.0005	.0012	-.0061	.0023	-.0029	.0012	-.0041	.0024	-.0041	-.0000	-.0061	.0010	-.0083
10	-.0007	.0051	.0013	.0019	.0057	-.0020	.0033	-.0005	.0024	-.0018	.0025	-.0013	.0011	-.0028	.0013	-.0027

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 73 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3373	1.2126	.4007	.1834	.3016	.0273	.2502	.4755	.1583	.4837	.1347	.4537	.1186	.5322
2	2.3911	-.8436	2.0952	-.9138	1.5529	-.4513	1.0181	-.4610	-.6062	-.2482	-.5890	-.2920	-.4303	-.1708
3	.0495	-.3547	.1910	-.6494	.1544	-.4019	-.0006	-.0373	-.0434	.1125	-.0794	.1729	-.0307	.1426
4	.6818	-.3316	.5532	-.3481	.5347	-.2490	-.1842	-.1509	-.0709	.0494	-.0232	.0509	-.0175	.0414
5	.1276	-.3380	.3140	-.5225	.1787	-.3237	.0315	-.0377	-.0289	.0194	-.0446	.0394	-.0451	.0526
6	.3417	-.1567	.3788	-.2169	.3563	-.1819	.1310	-.0786	-.0408	-.0094	-.0094	-.0325	-.0163	-.0272
7	.0874	-.0808	.2533	-.1089	.1717	-.1286	.0129	.0620	-.0019	.0433	-.0233	.0451	-.0044	.0332
8	.1356	.1440	.0932	.2470	.1728	.2106	.0218	.0758	.0013	.0181	-.0249	-.0127	-.0290	-.0009
9	.0454	.0162	.1039	-.0313	.1092	-.0473	-.0247	.0544	-.0166	.0313	-.0241	.0151	-.0194	.0139
10	.0292	.1576	-.0059	.1764	.0615	.1834	-.0210	.0611	-.0101	.0137	-.0257	-.0158	-.0254	-.0098

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0513	.4512	.0333	.3453	.0384	.4332	.0436	.5011	-.0203	.4573	-.0111	.4371
2	.3239	.1096	.1589	.0117	.0015	.0195	-.1560	.0273	-.1784	-.0278	-.1413	-.0123
3	.0049	.1228	.0359	.0671	.0003	.0356	-.0353	.0041	-.0112	-.0212	-.0013	-.0104
4	.0144	.0515	.0076	.0215	-.0275	-.0059	-.0625	-.0334	-.0117	-.0199	-.0050	.0003
5	-.0451	.0735	.0002	.0624	.0043	.0117	.0084	-.0390	.0081	-.0095	.0055	-.0120
6	-.0492	-.0202	-.0642	-.0006	-.0304	-.0069	.0034	-.0133	.0141	.0041	.0158	.0121
7	-.0196	.0072	-.0092	-.0152	-.0017	-.0141	.0058	-.0129	-.0035	.0095	-.0035	.0071
8	-.0217	-.0177	-.0190	-.0173	-.0023	-.0133	.0144	-.0093	.0010	.0014	.0006	.0120
9	-.0152	.0050	-.0086	-.0026	-.0101	.0038	.0116	.0102	-.0019	.0037	-.0111	.0008
10	-.0173	-.0250	-.0277	-.0110	-.0170	-.0035	-.0062	.0040	-.0007	.0008	.0015	-.0005

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0264	.4901	.0092	-.1209	-.0158	-.3718	-.0065	-.3853	-.0216	-.2312	-.0307	-.0764	-.0304	.0680	-.0301	.2496
2	.0308	.0603	-.1138	-.0287	-.1077	-.0497	-.0819	-.0453	-.0510	-.0295	-.0432	-.0272	-.0542	-.0208	-.0769	-.0221
3	-.0260	.0708	-.0211	.0479	-.0076	.0165	-.0031	.0045	-.0002	-.0004	.0014	-.0035	.0025	-.0072	.0061	-.0107
4	.0381	.0200	.0105	-.0006	.0016	-.0088	-.0028	-.0077	-.0036	-.0044	-.0023	-.0044	-.0042	-.0021	-.0063	.0005
5	-.0013	-.0031	-.0008	.0061	-.0003	.0020	-.0005	.0018	-.0003	.0009	.0010	-.0010	.0017	-.0040	.0043	-.0094
6	.0138	.0054	.0006	.0023	-.0001	.0011	.0010	.0005	.0017	-.0006	.0020	.0008	.0032	.0011	.0055	.0066
7	.0048	.0002	.0012	.0015	.0014	.0006	.0002	.0013	.0011	.0008	.0005	.0012	.0007	.0012	-.0006	.0020
8	.0053	.0071	-.0003	.0007	-.0008	-.0014	-.0004	-.0011	-.0012	-.0005	-.0013	.0008	-.0014	.0030	-.0027	.0066
9	.0006	.0003	-.0011	-.0007	-.0010	-.0014	-.0004	-.0005	-.0004	.0001	-.0004	-.0009	-.0016	-.0012	-.0042	-.0023
10	-.0005	.0062	-.0026	.0010	-.0006	-.0004	-.0003	-.0001	-.0003	.0000	-.0002	.0002	.0004	.0008	-.0006	.0002

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 16 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.7062	358.1	.7706	346.3	.0742	126.2	.2866	152.4	.2770	141.9	.2833	125.0	.2232	115.4
2	1.3611	87.2	1.1708	86.0	.9535	92.3	.6647	84.6	.4053	85.1	.3492	77.6	.2504	79.8
3	.6637	135.8	.8149	149.1	.6294	142.3	.4673	132.9	.3718	138.7	.3755	127.2	.3113	134.3
4	.2776	84.6	.2493	112.5	.2357	110.0	.2003	81.5	.1605	82.1	.1486	64.7	.1138	70.0
5	.4448	134.7	.5137	136.9	.3907	134.4	.2342	100.7	.1753	102.4	.1849	84.8	.1482	95.4
6	.2151	112.8	.2449	135.8	.1868	130.6	.0865	80.4	.0711	70.4	.0732	34.2	.0613	42.2
7	.2834	88.7	.2993	94.9	.2487	114.2	.1568	75.3	.1138	79.1	.1119	56.4	.0882	67.5
8	.0686	30.9	.0446	176.9	.0861	139.9	.0471	51.2	.0420	46.9	.0494	10.7	.0432	19.2
9	.0920	60.4	.0904	82.9	.1256	115.6	.0950	48.7	.0773	54.2	.0782	19.3	.0627	31.6
10	.0352	55.0	.0464	191.2	.0723	149.3	.0289	35.5	.0220	24.7	.0276	328.8	.0249	340.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.1815	118.2	.1284	51.7	.2457	14.5	.3948	3.2	.4576	356.2	.4884	357.8
2	.2414	83.6	.1417	91.7	.0616	76.2	.0403	328.9	.0701	289.1	.0731	303.5
3	.2417	111.7	.1254	101.2	.0441	50.9	.0949	325.7	.0958	311.4	.0830	309.8
4	.0884	46.5	.0405	51.4	.0152	36.4	.0321	245.5	.0220	271.1	.0138	352.8
5	.1201	70.4	.0634	38.1	.0336	359.5	.0433	293.5	.0517	269.2	.0414	275.9
6	.0548	74.5	.0253	10.5	.0068	1.4	.0120	200.5	.0028	230.8	.0090	8.8
7	.0599	32.9	.0453	354.1	.0270	325.9	.0257	269.2	.0320	242.5	.0242	256.5
8	.0298	343.5	.0074	313.2	.0021	6.5	.0059	98.4	.0030	45.5	.0035	266.3
9	.0479	355.4	.0381	332.4	.0246	311.2	.0195	266.0	.0224	234.2	.0103	202.3
10	.0179	308.5	.0080	234.1	.0019	223.9	.0044	62.6	.0058	169.1	.0022	6.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2905	4.3	.1262	179.9	.5220	183.9	.2510	186.7	.1222	200.7	.0465	292.8	.1582	347.0	.3386	352.9
2	.0459	61.3	.0954	251.1	.1990	250.1	.0881	239.5	.0641	242.7	.0483	243.5	.0443	263.3	.0519	284.2
3	.0329	103.7	.0474	330.4	.0886	325.3	.0361	315.5	.0273	324.6	.0248	316.2	.0313	318.6	.0501	302.3
4	.0595	164.9	.0204	54.1	.0083	283.2	.0126	224.5	.0120	241.0	.0113	247.0	.0115	277.1	.0120	299.4
5	.0339	107.7	.0014	92.1	.0192	270.0	.0105	266.7	.0083	273.1	.0093	260.0	.0140	271.4	.0240	297.4
6	.0207	59.5	.0044	24.2	.0523	270.0	.0047	223.7	.0040	249.4	.0047	247.4	.0051	279.5	.0054	300.1
7	.0217	78.3	.0013	46.6	.0158	267.9	.0044	178.9	.0040	244.9	.0047	247.3	.0071	279.5	.0121	300.0
8	.0131	28.3	.0035	27.3	.0052	173.1	.0032	174.0	.0030	211.1	.0035	210.3	.0045	242.8	.0057	241.6
9	.0087	12.6	.0015	71.3	.0042	149.1	.0037	140.9	.0042	143.3	.0048	149.6	.0041	180.0	.0084	173.2
10	.0051	351.9	.0023	34.4	.0060	109.2	.0033	98.0	.0030	126.5	.0029	116.9	.0030	159.5	.0030	154.3

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 73 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.2587	15.5	.4407	65.4	.3028	84.8	.5373	27.8	.5089	18.1	.6674	11.6	.5453	12.6
2	2.5356	70.6	2.2858	66.4	1.6288	72.4	1.1177	65.6	.6551	67.7	.6396	62.8	.4630	68.3
3	.3581	172.1	.6769	163.6	.4305	159.0	.0373	359.0	.1206	338.9	.1903	335.3	.1459	347.8
4	.7582	64.1	.6536	57.8	.5898	65.0	.2382	50.7	.0864	55.1	.0559	24.5	.0449	22.9
5	.3613	159.3	.6096	149.0	.3698	151.1	.0491	140.2	.0350	304.2	.0774	300.6	.0693	319.4
6	.3759	65.4	.4365	60.2	.4000	63.0	.1528	59.0	.0419	103.0	.0338	163.9	.0317	211.0
7	.1191	132.7	.2757	113.3	.2145	126.8	.0634	11.7	.0433	357.4	.0508	332.7	.0338	349.1
8	.1979	43.3	.2640	20.7	.2725	39.4	.0789	16.1	.0181	4.3	.0279	243.1	.0290	268.1
9	.0482	70.4	.1085	106.7	.1190	113.4	.0597	335.6	.0354	332.0	.0284	302.1	.0239	305.6
10	.1603	10.5	.1765	358.1	.1934	18.5	.0646	341.0	.0170	323.6	.0302	238.3	.0272	248.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.4541	6.5	.3668	5.2	.4349	5.1	.5030	5.0	.4578	357.5	.4372	358.5
2		.3419	71.3	.1593	85.8	.0196	4.3	.1583	279.9	.1805	261.1	.1419	265.0
3		.1229	2.3	.0761	28.2	.0356	5.5	.0355	276.7	.0240	207.9	.0105	187.1
4		.0535	15.6	.0228	19.5	.0281	257.8	.0709	241.9	.0231	210.4	.0050	273.9
5		.0842	328.4	.0624	17.2	.0125	20.3	.0399	167.8	.0125	139.6	.0132	155.2
6		.0532	247.7	.0642	269.5	.0312	257.2	.0137	165.8	.0147	74.0	.0199	52.6
7		.0209	290.3	.0178	211.2	.0142	187.0	.0141	156.0	.0101	339.8	.0079	333.7
8		.0280	230.9	.0257	227.5	.0135	189.8	.0171	122.9	.0017	36.1	.0120	2.7
9		.0160	288.3	.0090	106.9	.0108	49.5	.0154	48.6	.0041	333.0	.0112	274.0
10		.0305	214.7	.0298	248.4	.0173	258.3	.0074	302.6	.0011	317.8	.0016	108.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4908	3.1	.1212	175.6	.3721	177.6	.3854	181.0	.2323	185.3	.0824	201.9	.0745	335.9	.2514	353.1
2	.0677	27.1	.1173	255.9	.1186	245.2	.0936	241.0	.0589	240.0	.0510	237.8	.0600	249.7	.0800	254.0
3	.0755	339.9	.0524	336.2	.0182	335.3	.0055	325.0	.0007	198.3	.0037	157.9	.0077	160.7	.0123	150.4
4	.0430	62.3	.0105	93.1	.0090	169.6	.0082	200.0	.0057	219.9	.0050	207.7	.0047	244.1	.0063	275.0
5	.0034	203.1	.0061	352.2	.0020	351.1	.0019	344.8	.0009	340.7	.0014	134.4	.0043	156.9	.0104	154.6
6	.0148	68.6	.0024	15.1	.0011	352.5	.0011	65.9	.0018	108.7	.0022	69.2	.0034	70.3	.0086	39.8
7	.0048	87.9	.0019	38.2	.0015	67.4	.0013	8.4	.0014	55.8	.0013	22.8	.0014	30.6	.0021	343.1
8	.0089	36.9	.0008	337.9	.0016	208.7	.0012	198.6	.0013	248.1	.0015	302.0	.0033	335.1	.0071	337.7
9	.0007	61.5	.0013	238.9	.0017	214.8	.0006	221.0	.0004	286.5	.0010	204.3	.0020	233.6	.0048	241.1
10	.0063	355.2	.0027	290.5	.0007	236.8	.0003	251.2	.0003	271.4	.0003	313.9	.0009	28.8	.0006	287.6

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 17 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0690	1.6945	-.1633	.9218	.2148	.1496	.2511	.1065	.2307	.0265	.2568	.0763	.2260	.0445
2	1.4910	.1936	1.4671	.1951	1.0344	.0998	.7194	.2265	.4909	.0802	.4118	.1502	.3397	.0564
3	.4336	-.1879	.5174	-.1288	.4090	-.3193	.3650	-.0426	.2559	-.0792	.2644	-.0132	.2276	-.0531
4	.4830	.0688	.3508	.1262	.4531	.0595	.2508	.2537	.1873	.1213	.1179	.1694	.1130	.1161
5	.3600	.0806	.2933	.1013	.2785	.0807	.0599	.2156	.1068	.1248	.0559	.1572	.0836	.0924
6	.1959	.1311	.0924	.0938	.1476	.0731	-.0286	.1292	.0208	.0991	-.0471	.0998	-.0047	.0917
7	.0869	.2420	-.0083	.1273	.0945	.1052	-.0808	.1250	.0094	.1060	-.0489	.0820	-.0004	.0685
8	-.0756	.0601	-.0591	-.0874	-.0017	-.0070	-.0885	-.0231	-.0477	.0467	-.0698	.0172	-.0362	.0493
9	.0121	.0990	.0041	-.0142	.0715	-.0023	-.0088	.0269	.0041	.0403	-.0424	.0241	-.0224	.0364
10	-.1315	.0074	-.0313	-.1817	-.0045	-.0335	-.0612	-.0185	-.0459	.0348	-.0573	-.0251	-.0478	.0142

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2211	.0250	.2286	.0948	.1595	.2195	.0904	.3423	-.0334	.4237	-.0423	.4703
2	.2953	.1127	.1559	.0839	.0482	.0713	-.0594	.0587	-.1115	.0119	-.1030	.0215
3	.1859	.0705	.1134	.0557	.0271	.0579	-.0592	.0601	-.0920	.0708	-.0810	.0315
4	.0039	.1279	-.0189	.0951	-.0359	.0412	-.0528	-.0126	-.0379	-.0385	-.0341	-.0178
5	.0144	.0979	-.0071	.0591	-.0280	.0276	-.0489	-.0038	-.0288	-.0417	-.0273	-.0255
6	-.0721	.0566	-.0598	.0248	-.0338	-.0031	-.0078	-.0310	.0078	-.0250	-.0076	-.0155
7	-.0429	.0239	-.0263	.0032	-.0288	-.0044	-.0313	-.0121	.0079	-.0366	-.0000	-.0313
8	-.0524	-.0056	-.0247	-.0085	-.0105	-.0212	-.0038	-.0339	.0251	-.0054	.0181	-.0084
9	-.0282	-.0094	-.0153	-.0018	-.0108	-.0094	-.0064	-.0206	.0259	-.0072	.0109	-.0045
10	-.0251	-.0279	-.0211	-.0145	.0007	-.0209	.0225	-.0273	.0171	.0248	.0151	.0031

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0523	.3284	.0025	-.1619	-.0811	-.6400	-.0654	-.3185	-.1060	-.1714	-.1047	-.0325	-.0976	.1198	-.1057	.3062
2	.0344	.0431	-.0737	-.0461	-.1370	-.1045	-.0400	-.0736	-.0316	-.0584	-.0209	-.0532	-.0415	-.0388	-.0643	-.0301
3	.0240	.0402	-.0268	.0364	-.0369	.0444	-.0212	-.0005	-.0164	.0016	-.0183	.0048	-.0274	.0022	-.0477	-.0075
4	.0399	.0448	.0117	.0156	.0089	-.0209	.0070	-.0140	-.0008	-.0153	.0001	-.0150	-.0110	-.0149	-.0124	-.0215
5	.0146	.0218	.0010	.0000	-.0012	-.0151	.0012	-.0091	-.0008	-.0087	.0031	-.0102	-.0036	-.0144	.0018	-.0227
6	-.0034	.0178	-.0019	.0041	.0147	-.0040	.0082	-.0012	.0054	-.0055	.0067	-.0041	.0017	-.0090	.0048	-.0111
7	.0004	.0112	.0009	.0011	.0220	-.0047	.0043	.0012	.0053	-.0007	.0076	.0014	.0081	-.0069	.0188	-.0064
8	-.0111	.0015	-.0026	.0010	-.0131	.0035	-.0002	.0031	.0018	.0030	.0006	.0053	.0082	.0040	.0093	.0100
9	-.0012	.0019	-.0018	.0000	-.0065	.0024	-.0022	.0001	-.0005	.0026	-.0016	.0028	.0032	.0040	.0014	.0081
10	-.0094	-.0035	-.0011	.0004	.0020	.0032	.0003	.0020	.0003	.0014	-.0020	.0024	.0018	.0053	-.0023	.0087

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 75 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3777	1.2991	.3888	.3811	.3768	.1555	.4051	.5357	.3033	.4749	.3125	.6334	.2731	.4743
2	2.3995	1.2806	2.0103	1.4482	1.5578	.8123	.8673	.8224	.5381	.4554	.4378	.5721	.3879	.3723
3	-.1229	-.0801	-.0280	-.4365	-.0097	-.1966	-.1282	.0785	-.1130	.1357	-.1855	.1671	-.0993	.1624
4	.6927	.4515	.6300	.4521	.5429	.2898	.1126	.1517	.0003	.0373	-.0788	.0176	-.0684	.0405
5	.0944	.0097	.3313	-.0888	.1562	-.0761	.0603	.0763	.0229	.0227	-.0175	.0099	-.0298	.0128
6	.1991	.2955	.2345	.4828	.3280	.3259	-.0102	.1696	-.0033	.0561	-.0491	.0110	-.0436	.0045
7	-.0529	-.0039	-.0025	.0663	.0109	.0490	-.0820	.0662	-.0332	.0384	-.0479	-.0105	-.0306	-.0031
8	-.0977	.1247	-.0064	.2278	.1147	.2332	-.0851	.0219	-.0504	.0125	-.0380	-.0524	-.0404	-.0237
9	-.0613	.0308	-.0513	-.0038	-.0344	.0161	-.0587	-.0253	-.0310	-.0135	.0113	-.0399	-.0083	-.0301
10	.0405	.1033	-.0219	.1352	.0606	.1637	-.0279	-.0133	-.0123	-.0178	.0218	-.0290	-.0015	-.0310

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1858	.3937	.1236	.3417	.0825	.4063	-.0414	.4710	-.0723	.4081	-.0600	.4030
2	.2755	.3069	.1340	.1134	-.0145	.0754	-.1450	.0377	-.1445	-.0494	-.1391	-.0511
3	-.0488	.1460	-.0011	.0874	-.0406	.0284	-.0801	-.0306	-.0059	-.0494	.0096	-.0252
4	-.0898	.0533	-.0688	.0293	-.0478	-.0377	-.0268	-.1048	.0307	-.0353	.0089	-.0083
5	-.0698	-.0000	-.0253	-.0109	.0180	-.0161	.0612	-.0212	.0171	.0265	.0104	.0143
6	-.0474	-.0471	-.0275	-.0255	-.0020	-.0072	.0235	.0112	-.0084	.0161	-.0069	.0140
7	-.0065	-.0304	.0073	-.0188	.0048	.0042	.0024	.0273	-.0206	-.0008	-.0115	.0036
8	-.0024	-.0386	-.0029	-.0157	-.0115	-.0087	-.0202	-.0014	-.0009	-.0140	-.0092	-.0032
9	.0166	-.0149	.0122	-.0103	.0074	-.0124	.0025	-.0145	-.0101	.0013	.0004	-.0061
10	.0181	-.0188	.0140	-.0148	.0145	-.0079	.0150	-.0010	-.0086	.0077	-.0007	.0041

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0481	.4740	-.0259	-.1610	.0116	-.4045	-.0149	-.4314	-.0638	-.2778	-.0731	-.1193	-.0823	.0352	-.0903	.2218
2	.0104	.1214	-.1017	-.0223	-.0784	-.0561	-.0424	-.0570	-.0232	-.0406	-.0173	-.0429	-.0403	-.0455	-.0636	-.0641
3	-.0673	.0832	-.0370	.0435	-.0031	.0130	.0023	-.0039	.0021	-.0076	.0072	-.0082	.0098	-.0140	.0219	-.0148
4	.0138	.0176	-.0022	.0031	-.0035	-.0029	.0024	-.0065	.0003	-.0048	.0032	-.0046	.0021	-.0040	.0020	-.0010
5	.0030	.0026	-.0062	.0005	-.0046	.0007	-.0052	.0015	-.0025	-.0028	-.0027	.0036	.0010	.0055	.0024	.0083
6	-.0055	.0167	-.0017	.0039	.0011	.0010	.0013	-.0003	-.0004	-.0026	-.0004	-.0014	-.0034	-.0001	-.0089	.0009
7	-.0044	.0038	-.0013	.0010	.0002	.0009	.0005	.0009	-.0005	-.0011	-.0003	-.0005	-.0012	-.0013	-.0010	-.0037
8	-.0018	.0021	.0013	-.0013	-.0005	-.0008	.0022	-.0006	-.0005	-.0008	.0002	-.0005	-.0007	-.0010	-.0021	-.0030
9	-.0014	-.0007	.0011	-.0013	-.0000	-.0007	-.0004	-.0021	-.0006	.0001	-.0001	-.0005	-.0002	-.0008	-.0036	-.0022
10	.0026	.0020	-.0006	-.0007	-.0009	.0002	-.0006	-.0004	-.0002	.0000	-.0001	.0002	-.0003	.0002	-.0007	.0014

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 17 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.6959	2.3	.9362	350.0	.2618	55.1	.2728	67.0	.2322	83.4	.2679	73.5	.2303	78.8
2	1.5036	82.6	1.4800	82.4	1.0392	84.5	.7542	72.5	.4974	80.7	.4383	70.0	.3443	80.6
3	.4726	113.4	.5332	104.0	.5189	128.0	.3675	96.6	.2678	107.2	.2667	92.8	.2338	103.1
4	.4879	81.9	.3728	70.2	.4570	82.5	.3429	42.3	.2231	57.1	.2064	34.8	.1620	44.2
5	.3489	77.4	.3103	70.9	.2899	73.8	.2238	15.3	.1643	40.6	.1668	19.6	.1246	42.2
6	.2358	56.2	.1317	44.5	.1647	63.7	.1324	347.5	.1013	11.9	.1104	334.7	.0919	357.0
7	.2571	19.8	.1275	356.3	.1414	41.9	.1489	327.1	.1064	5.1	.0955	329.2	.0685	359.7
8	.0966	308.5	.1056	214.1	.0072	193.8	.0914	255.3	.0668	314.3	.0719	283.9	.0611	323.7
9	.0997	7.0	.0148	184.1	.0716	91.9	.0283	341.9	.0405	5.8	.0488	299.6	.0427	328.4
10	.1317	273.2	.1843	189.8	.0338	187.6	.0639	253.2	.0576	307.2	.0626	246.4	.0499	286.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.2225	83.5	.2483	67.1	.2714	36.0	.3541	14.8	.4250	355.5	.4722	354.9
2	.3161	69.1	.1770	61.7	.0861	34.1	.0835	314.6	.1121	276.1	.1053	281.8
3	.1989	69.2	.1263	63.8	.0639	25.1	.0844	315.4	.0943	282.7	.0869	291.2
4	.1280	1.8	.0969	348.7	.0546	319.0	.0543	256.5	.0540	224.6	.0385	242.4
5	.0993	9.5	.0595	353.1	.0394	314.6	.0491	265.5	.0506	214.6	.0373	226.9
6	.0917	308.1	.0447	292.5	.0339	264.7	.0320	194.2	.0262	162.7	.0173	206.1
7	.0491	299.1	.0265	277.0	.0292	261.3	.0336	248.9	.0375	167.9	.0313	180.0
8	.0527	263.8	.0262	250.9	.0236	206.3	.0341	173.6	.0257	102.7	.0200	114.8
9	.0297	251.7	.0154	276.7	.0144	229.0	.0216	197.1	.0269	105.5	.0118	112.3
10	.0376	221.9	.0256	235.4	.0209	178.1	.0354	140.4	.0301	34.5	.0154	78.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3325	9.0	.1619	179.1	.4451	187.2	.3252	191.6	.2016	211.7	.1096	252.8	.1546	320.8	.3239	341.0
2	.0552	38.6	.0869	238.0	.1723	232.7	.0838	208.5	.0644	208.5	.0572	201.5	.0568	227.0	.0710	244.9
3	.0468	30.9	.0452	323.7	.0578	320.3	.0212	268.6	.0143	275.7	.0189	255.3	.0275	274.6	.0483	261.0
4	.0600	41.7	.0195	34.8	.0227	157.0	.0157	153.5	.0154	183.0	.0150	179.7	.0185	216.4	.0248	210.0
5	.0243	33.7	.0010	88.3	.0151	184.7	.0091	172.5	.0087	185.5	.0107	163.1	.0149	194.2	.0327	175.5
6	.0181	349.2	.0045	334.4	.0152	105.3	.0083	98.6	.0077	135.8	.0078	121.5	.0091	169.4	.0120	154.8
7	.0112	2.1	.0014	39.0	.0225	102.0	.0044	74.2	.0053	98.0	.0077	79.2	.0106	130.5	.0198	108.7
8	.0112	277.7	.0028	291.5	.0136	284.8	.0031	355.5	.0035	30.3	.0053	6.2	.0091	63.9	.0130	39.5
9	.0022	327.7	.0018	270.8	.0069	290.0	.0022	275.0	.0026	348.6	.0033	329.9	.0051	39.3	.0083	9.9
10	.0101	249.6	.0011	288.9	.0038	31.5	.0021	8.1	.0014	12.8	.0031	320.5	.0056	18.5	.0090	345.1

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 75 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.3529	16.2	.5444	45.6	.4076	67.6	.6717	37.1	.5635	32.6	.7063	26.3	.5473	29.9
2	2.7198	81.9	2.4776	54.2	1.7568	62.5	1.1952	46.5	.7050	49.8	.7244	37.2	.5376	46.2
3	.1467	236.9	.4374	183.7	.1769	182.8	.1504	301.5	.1766	320.2	.2497	312.0	.1904	328.6
4	.8268	56.9	.7754	54.3	.6154	61.9	.1899	36.6	.0373	45.5	.0808	282.6	.0725	300.6
5	.0949	84.1	.3430	105.0	.1737	116.0	.0972	38.3	.0322	45.2	.0201	282.6	.0325	293.3
6	.3563	34.0	.5367	35.9	.4624	45.2	.1699	356.5	.0565	356.7	.0503	282.6	.0439	275.9
7	.0531	265.8	.0464	357.8	.0502	12.6	.1054	308.9	.0507	319.2	.0490	357.7	.0307	344.2
8	.1584	38.1	.2279	358.4	.2599	24.2	.0879	284.4	.0519	283.9	.0448	216.0	.0468	239.6
9	.0488	296.6	.0514	245.8	.0380	295.1	.0440	246.7	.0338	244.5	.0415	144.1	.0312	195.5
10	.1110	21.4	.1370	350.8	.1746	20.3	.0309	244.6	.0216	214.7	.0363	143.1	.0310	182.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4353	25.3	.3633	19.9	.4146	11.5	.4729	5.0	.4145	350.0	.4075	351.5
2	.4124	41.9	.1772	50.1	.0770	349.1	.1693	282.9	.1785	247.1	.1482	249.8
3	.1614	334.8	.0874	359.3	.0496	305.0	.0858	249.1	.0500	186.8	.0269	159.1
4	.1045	300.7	.0748	293.1	.0609	231.7	.1082	194.4	.0468	139.0	.0122	133.0
5	.0698	270.0	.0276	246.6	.0241	131.9	.0648	109.1	.0316	32.9	.0177	35.8
6	.0668	225.2	.0375	227.1	.0075	195.8	.0260	64.5	.0182	332.0	.0156	333.9
7	.0311	192.0	.0202	158.8	.0064	48.8	.0274	5.0	.0206	267.7	.0120	287.5
8	.0386	183.9	.0160	190.3	.0144	233.1	.0203	245.5	.0141	183.5	.0098	250.8
9	.0223	131.9	.0160	130.2	.0144	149.4	.0147	170.4	.0102	82.5	.0061	176.0
10	.0261	136.1	.0204	136.5	.0165	118.6	.0150	93.8	.0115	312.1	.0042	350.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4764	5.8	.1631	170.9	.4047	178.4	.4316	182.0	.2850	192.9	.1399	211.5	.0895	293.2	.2395	337.8
2	.1218	4.9	.1042	257.6	.0964	234.4	.0710	216.7	.0467	209.7	.0463	202.0	.0608	221.5	.0903	224.8
3	.1070	321.0	.0571	319.6	.0134	346.6	.0045	150.0	.0079	144.7	.0109	138.4	.0171	144.9	.0264	124.0
4	.0224	38.0	.0038	35.7	.0045	129.6	.0069	159.5	.0068	177.9	.0056	144.9	.0045	151.7	.0022	116.0
5	.0040	49.3	.0063	274.1	.0047	278.9	.0054	286.1	.0037	318.4	.0045	323.0	.0054	10.8	.0086	16.1
6	.0175	18.2	.0043	336.6	.0014	48.9	.0013	101.1	.0026	188.7	.0015	195.6	.0034	268.1	.0090	275.8
7	.0075	300.4	.0017	308.0	.0009	15.2	.0010	30.7	.0012	202.9	.0006	212.3	.0017	222.9	.0038	195.8
8	.0028	39.7	.0018	134.4	.0009	209.2	.0022	104.8	.0010	151.6	.0006	155.7	.0012	213.9	.0037	215.0
9	.0017	246.4	.0017	138.8	.0007	180.3	.0021	189.9	.0006	275.4	.0005	185.5	.0008	165.2	.0042	121.0
10	.0033	51.6	.0009	219.7	.0010	283.6	.0007	233.7	.0002	277.8	.0002	318.3	.0004	305.3	.0015	333.2

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 18 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1568	1.7747	-.0901	.7627	.2561	.2375	.3846	.1839	.3982	.0386	.4352	.1037	.3799	.0329
2	1.3582	.0248	1.3479	.1068	.9347	.0475	.6113	.3462	.4727	.2274	.3569	.3325	.3447	.1968
3	.4410	.0396	.4447	.0675	.4405	-.1653	.3178	.0770	.2270	.0157	.2054	.0974	.2085	.0390
4	.4884	.1168	.3647	.1908	.3889	.0730	.1425	.2588	.1379	.1728	.0136	.2174	.0640	.1804
5	.3835	.3770	.2333	.2923	.2698	.1583	-.0057	.2340	.0444	.1502	-.0549	.1336	.0139	.1118
6	-.0875	.1942	-.0354	.0869	.0479	.1004	-.1053	.0826	-.0352	.0881	-.0977	.0306	-.0481	.0849
7	-.0028	.0624	.0084	-.0032	.0587	.0148	-.0650	.0316	-.0173	.0585	-.0553	.0064	-.0403	.0479
8	-.0421	.0208	.0463	-.0579	.0568	.0002	-.0472	-.0103	-.0335	.0384	-.0467	-.0222	-.0589	.0174
9	.0060	-.0102	.1039	.0052	.0705	-.0101	-.0139	.0005	-.0148	.0271	-.0164	-.0129	-.0230	-.0055
10	.0319	.0253	.0870	.0397	.0843	.0048	-.0116	.0072	-.0247	.0248	-.0170	-.0178	-.0205	.0025

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3272	.0142	.2668	.0503	.1701	.1993	-.0734	.3483	-.0918	.4136	-.1127	.4726
2	.2836	.2223	.1588	.1285	.0371	.1052	-.0847	.0819	-.1259	-.0025	-.1209	-.0062
3	.1455	.1682	.0970	.0996	-.0066	.0821	-.0839	.0445	-.1030	.0133	-.0761	.0306
4	-.0833	.1497	-.0478	.0827	-.0615	.0212	-.0753	-.0403	-.0346	-.0717	-.0386	-.0437
5	-.0508	.0894	-.0134	.0591	-.0298	.0149	-.0462	-.0292	-.0125	-.0530	-.0211	-.0314
6	-.0947	.0040	-.0765	.0067	-.0439	-.0232	-.0114	-.0510	.0350	-.0446	.0119	-.0403
7	-.0391	-.0189	-.0170	-.0088	-.0053	-.0258	.0064	.0429	.0471	-.0028	.0341	.0099
8	-.0318	-.0350	-.0279	-.0181	.0014	-.0194	.0307	-.0207	.0212	.0222	.0181	.0097
9	.0009	-.0219	-.0051	-.0112	.0152	-.0102	.0254	-.0092	.0066	.0262	.0123	.0166
10	-.0006	-.0167	-.0082	.0012	.0054	.0070	.0191	.0127	-.0103	.0112	-.0066	.0124

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0433	.3264	-.0306	-.2025	-.1703	-.7369	-.1121	-.3749	-.1699	-.2172	-.1648	-.0777	-.1642	.0902	-.1841	.2833
2	.0030	.0678	-.0858	-.0295	-.1355	-.0659	-.0330	-.0619	-.0255	-.0474	-.0154	-.0472	-.0395	-.0398	-.0628	-.0523
3	.0223	.0573	-.0338	.0255	-.0659	.0076	-.0192	-.0151	-.0208	.0079	-.0194	-.0135	-.0302	-.0039	-.0438	-.0109
4	.0225	.0396	-.0102	.0097	.0139	-.0239	.0150	-.0124	.0075	-.0194	.0119	-.0183	-.0019	-.0270	.0020	-.0397
5	-.0034	.0327	-.0020	-.0005	-.0051	-.0154	.0035	-.0080	.0016	-.0073	.0064	-.0068	.0025	-.0138	.0122	-.0198
6	-.0170	.0126	-.0062	.0047	.0660	.1268	.0053	.0087	.0108	.0020	.0105	.0061	.0091	-.0161	.0252	-.0028
7	-.0048	.0011	-.0034	-.0018	-.0056	.0004	-.0024	-.0015	-.0025	.0036	-.0033	.0049	.0067	.0074	.0085	.0189
8	-.0059	-.0035	.0001	-.0014	.0041	.0008	-.0002	.0012	.0004	.0010	-.0015	.0016	.0016	.0052	-.0050	.0111
9	.0032	-.0048	.0010	-.0026	-.0035	-.0010	-.0008	-.0022	-.0022	.0006	-.0036	-.0009	-.0032	.0060	-.0118	.0054
10	.0037	.0002	.0029	.0011	-.0008	-.0020	.0014	-.0014	-.0009	-.0014	-.0003	-.0026	-.0043	.0001	-.0070	-.0061

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 53 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1389	1.2475	.1336	.1937	.2612	.0680	.2736	.4179	.2245	.3742	.2479	.5157	.2485	.3911
2	.5162	1.0712	.2635	1.2174	1.6429	.6442	.9830	.6896	.6017	.3361	.4953	.4961	.4112	.3184
3	.0830	.2283	.2945	.0251	.2099	.0289	.0148	.3080	.0380	.2316	-.0695	.2818	-.0081	.2145
4	.4649	.6030	.2863	.7299	.3620	.4568	-.0900	.2948	-.0658	.1749	-.1855	.1313	-.1133	.1297
5	.0345	.0419	.1440	-.0239	.0727	-.0042	-.0451	.0537	-.0637	.0442	-.1168	-.0131	-.0805	.0176
6	.1158	.3133	.0508	-.3975	.1982	.2990	-.0879	.0896	-.0604	.0283	-.0789	-.0579	-.0706	-.0092
7	-.0566	.0533	.0125	.0444	.0256	.0507	-.0606	.0144	-.0477	.0017	-.0334	-.0565	-.0455	-.0215
8	-.0204	.1380	-.0415	.2344	.0442	.2344	-.0873	-.0056	-.0486	-.0245	.0048	-.0870	-.0415	-.0545
9	-.0530	-.0122	-.0149	.0182	-.0251	.0277	-.0255	-.0526	-.0047	-.0354	.0586	-.0250	.0189	-.0483
10	-.0143	.0605	-.1162	.0989	-.0075	.1587	-.0273	-.0304	-.0030	-.0144	.0309	-.0080	.0137	-.0244

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2097	.3901	.2132	.3963	.1301	.4229	.0469	.4495	-.1173	.3815	-.1141	.3827
2	.2265	.3485	.0340	.2443	-.0947	.1546	-.2234	.0649	-.1857	-.1022	-.1497	-.0754
3	-.0932	.1527	-.1129	.0485	-.1072	-.0181	-.1015	-.0847	.0204	-.0675	.0264	-.0276
4	-.1281	.0318	-.0849	-.0456	-.0283	-.0778	.0283	-.1099	.0573	.0023	.0240	.0127
5	-.0579	-.0224	.0196	-.0609	.0394	-.0296	.0593	.0017	-.0164	.0374	-.0126	.0267
6	-.0361	-.0480	.0360	-.0077	.0305	.0016	.0249	.0109	-.0155	-.0036	-.0219	-.0008
7	-.0113	-.0269	-.0021	-.0274	-.0012	.0278	-.0003	.0283	-.0100	-.0102	-.0072	-.0102
8	.0071	-.0636	-.0121	-.0302	-.0107	-.0148	-.0094	.0007	.0060	-.0069	.0016	-.0052
9	.0475	-.0049	-.0253	.0035	.0117	.0031	-.0020	.0027	-.0001	.0022	-.0015	-.0008
10	.0149	-.0040	-.0040	-.0013	-.0023	.0031	-.0007	.0076	-.0055	.0010	.0016	-.0025

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0163	.4500	.0144	-.2057	-.0055	-.4479	-.0353	-.4897	-.1119	-.3285	-.1142	-.1662	-.1329	.0004	-.1428	.1860
2	-.0201	.1045	-.1290	-.0359	-.0930	-.0635	-.0489	-.0651	-.0304	-.0479	-.0217	-.0532	-.0469	-.0568	-.0590	-.0836
3	-.0580	.1050	-.0399	.0433	-.0001	.0010	.0083	-.0024	.0093	-.0063	.0137	-.0051	.0173	-.0110	.0273	-.0029
4	-.0069	.0289	.0014	-.0048	.0113	-.0023	.0094	-.0008	.0052	-.0030	.0065	.0002	.0085	.0006	.0041	.0041
5	-.0070	-.0039	-.0036	-.0050	-.0003	-.0034	-.0039	-.0015	-.0050	-.0025	-.0049	.0027	-.0039	.0073	-.0041	.0106
6	-.0050	.0103	.0091	-.0022	.0024	-.0022	.0018	-.0031	.0003	-.0019	-.0041	-.0026	-.0055	-.0024	-.0115	-.0058
7	-.0082	.0041	-.0022	-.0005	.0015	-.0016	.0001	-.0008	.0003	-.0019	.0011	-.0020	.0004	-.0044	.0041	-.0096
8	-.0031	.0001	-.0004	-.0027	-.0006	-.0013	.0005	.0000	.0006	.0007	.0004	-.0013	.0025	.0006	.0058	.0019
9	.0004	-.0036	-.0003	-.0003	.0013	-.0011	-.0016	-.0012	-.0007	.0014	-.0003	.0002	-.0003	.0010	-.0006	.0027
10	.0037	.0024	.0011	.0008	-.0002	-.0002	.0005	.0002	.0006	.0000	-.0003	.0005	.0004	.0009	-.0008	.0013

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 18 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.7816	5.0	.7680	353.3	.3493	47.2	.4263	64.4	.4001	84.5	.4474	76.6	.3813	85.0
2	1.3584	89.0	1.3720	85.5	.9359	87.1	.7025	60.5	.5246	64.3	.4878	47.0	.3969	60.3
3	.6422	86.5	.6483	84.0	.4892	109.7	.3270	76.4	.2275	86.0	.2274	64.6	.2122	79.4
4	.5024	76.6	.4116	62.4	.3957	79.4	.2954	28.8	.2211	38.6	.2178	3.6	.1914	19.5
5	.5378	45.5	.3740	38.6	.3128	59.6	.2340	358.6	.1567	16.5	.1445	337.7	.1127	7.1
6	.2148	336.0	.0938	337.8	.1112	25.5	.1338	308.1	.0948	338.2	.1024	287.4	.0976	330.5
7	.0627	357.4	.0090	110.9	.0606	75.8	.0723	295.9	.0610	343.5	.0557	276.6	.0626	319.9
8	.0470	296.3	.0880	131.1	.0568	89.8	.0483	257.8	.0510	318.9	.0517	244.5	.0614	286.4
9	.0118	149.7	.1040	87.1	.0712	98.2	.0139	272.1	.0309	331.4	.0208	231.7	.0236	256.6
10	.0407	51.6	.0956	65.4	.0845	86.7	.0137	301.7	.0350	315.0	.0246	223.6	.0206	277.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3276	87.2	.2715	79.3	.2620	40.5	.3560	11.9	.4237	347.5	.4858	346.6
2	.3604	51.9	.2043	51.0	.1115	19.4	.1178	314.0	.1259	268.8	.1211	267.1
3	.2225	40.9	.1390	44.2	.0823	4.6	.1058	307.6	.1038	277.4	.0820	291.9
4	.1713	330.9	.0955	330.0	.0651	289.0	.0854	241.8	.0796	205.8	.0583	221.4
5	.0840	323.8	.0606	347.2	.0333	296.6	.0546	237.7	.0545	193.2	.0379	213.9
6	.0948	272.4	.0768	275.0	.0497	242.2	.0543	192.1	.0567	141.9	.0420	163.5
7	.0434	244.2	.0191	242.8	.0264	191.6	.0434	171.4	.0472	93.4	.0355	106.2
8	.0473	222.2	.0332	237.0	.0194	175.9	.0370	124.0	.0307	43.6	.0205	61.8
9	.0219	177.7	.0123	155.5	.0183	123.8	.0270	110.0	.0271	14.0	.0207	36.5
10	.0168	182.1	.0083	278.6	.0088	38.1	.0229	56.4	.0152	317.4	.0140	332.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3293	7.6	.2048	188.6	.7563	193.0	.3913	196.6	.2758	218.0	.1822	244.7	.1874	298.8	.3379	327.0
2	.0479	2.5	.0907	251.0	.1507	244.1	.0701	208.0	.0538	208.3	.0494	198.1	.0561	224.8	.0817	230.2
3	.0415	21.3	.0423	307.0	.0663	276.6	.0244	231.8	.0223	249.3	.0236	335.2	.0305	262.7	.0451	256.0
4	.0454	29.6	.0141	46.4	.0276	149.8	.0195	129.6	.0208	158.9	.0219	146.9	.0271	184.0	.0397	177.2
5	.0129	6.0	.0021	256.6	.0162	198.3	.0087	156.6	.0075	167.5	.0093	136.8	.0140	169.8	.0232	148.2
6	.0212	306.7	.0078	307.2	.1430	27.5	.0102	31.2	.0110	79.3	.0121	60.0	.0185	150.6	.0254	96.3
7	.0049	283.4	.0038	241.3	.0056	274.5	.0029	238.1	.0044	325.4	.0059	325.5	.0100	42.4	.0207	24.3
8	.0069	339.3	.0014	178.0	.0042	78.8	.0013	348.7	.0011	21.2	.0022	317.4	.0055	17.4	.0122	335.9
9	.0058	146.3	.0028	159.4	.0037	254.0	.0023	201.2	.0022	284.5	.0037	255.3	.0068	331.6	.0130	294.7
10	.0038	86.3	.0031	69.8	.0022	202.3	.0020	135.1	.0016	211.6	.0026	186.2	.0043	271.8	.0093	228.8

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 53 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.2552	6.4	.2353	34.6	.2700	75.4	.4995	33.2	.4363	31.0	.5722	25.7	.4634	32.4
2	2.7347	46.9	2.5701	61.7	1.7446	68.6	1.2007	55.0	.6892	40.8	.7010	45.0	.5200	52.2
3	.7411	20.1	.2956	85.1	.2119	82.2	.3100	6.5	.2347	9.3	.2902	346.2	.2147	357.8
4	.7414	37.6	.7840	21.4	.5829	38.4	.3083	343.0	.1868	339.4	.2273	305.3	.1722	318.9
5	.0709	29.1	.1460	99.4	.0728	93.3	.0844	309.5	.0775	304.7	.1175	263.6	.0824	282.3
6	.3340	20.3	.4008	7.3	.3587	33.5	.1255	315.5	.0667	295.1	.0978	233.7	.0712	262.6
7	.0777	313.3	.0552	36.1	.0568	26.8	.0678	285.1	.0477	272.1	.0656	210.6	.0503	244.7
8	.1395	351.6	.2425	345.3	.2433	15.3	.0875	266.3	.0544	243.2	.0871	176.8	.0701	216.3
9	.0620	238.7	.0393	297.5	.0374	317.8	.0585	205.9	.0357	187.5	.0637	113.1	.0519	158.6
10	.0622	346.7	.1526	310.4	.1589	357.3	.0408	221.9	.0147	191.9	.0319	104.5	.0280	150.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4429	28.3	.4500	28.3	.4424	17.1	.4519	6.0	.3991	342.9	.3993	343.4
2	.4156	33.0	.2466	7.9	.1813	328.5	.2326	286.2	.2119	241.2	.1676	243.3
3	.1789	328.6	.1229	293.3	.1087	260.4	.1322	230.1	.0705	163.2	.0382	136.3
4	.1320	284.0	.0964	241.7	.0828	200.0	.1135	165.6	.0574	87.7	.0272	62.0
5	.0621	248.8	.0640	162.2	.0493	126.9	.0593	88.3	.0409	336.3	.0295	334.7
6	.0600	216.9	.0369	102.1	.0305	87.0	.0273	66.3	.0159	256.8	.0219	267.9
7	.0292	202.9	.0275	355.7	.0279	357.5	.0283	359.3	.0143	224.5	.0125	215.3
8	.0640	173.6	.0325	201.8	.0183	216.0	.0094	274.1	.0091	139.0	.0055	163.2
9	.0477	93.8	.0256	82.1	.0121	75.1	.0034	322.9	.0022	357.3	.0017	242.8
10	.0154	105.0	.0042	251.8	.0039	323.0	.0076	354.9	.0055	280.0	.0030	147.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4503	2.1	.2062	176.0	.4479	180.7	.4910	184.1	.3470	198.8	.2017	214.5	.1329	270.2	.2345	322.5
2	.1064	349.1	.1339	254.4	.1126	235.7	.0814	216.9	.0569	212.6	.0574	202.2	.0736	219.5	.1023	215.2
3	.1199	331.1	.0589	317.4	.0110	359.5	.0087	106.3	.0112	124.0	.0146	110.5	.0205	122.4	.0275	96.1
4	.0298	346.6	.0050	16.0	.0115	101.3	.0095	94.8	.0060	119.7	.0065	88.0	.0065	88.0	.0058	44.6
5	.0080	240.8	.0062	216.0	.0034	184.5	.0042	248.3	.0056	296.6	.0052	301.2	.0079	338.5	.0114	339.0
6	.0114	25.8	.0094	103.4	.0032	132.7	.0036	149.1	.0019	171.6	.0027	195.6	.0060	246.4	.0129	243.3
7	.0092	296.8	.0023	258.1	.0022	136.4	.0008	172.6	.0019	172.5	.0023	151.2	.0046	174.8	.0105	156.8
8	.0031	271.9	.0028	188.0	.0014	204.7	.0005	87.1	.0010	41.4	.0014	16.1	.0026	76.1	.0061	72.3
9	.0036	174.1	.0004	219.3	.0017	129.2	.0020	232.4	.0016	334.2	.0004	303.1	.0010	342.2	.0028	347.6
10	.0044	57.5	.0013	51.8	.0003	219.4	.0005	72.1	.0006	86.1	.0006	330.1	.0010	26.3	.0015	326.5

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 10 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5563	-.9383	.4174	-1.7469	.3335	-1.3312	.2871	-.8461	.2295	-.5793	.2952	-.5073	.2403	-.4438
2	1.1394	.1290	.7710	.1240	.2694	-.0678	-.0268	-.0435	-.0915	-.0515	-.0765	-.0744	-.0344	-.0630
3	.2963	-.4537	.2447	-.5021	.1002	-.5906	.0931	-.3955	.0617	-.2698	.1169	-.2093	.0853	-.1412
4	-.1990	-.2100	-.3090	-.2479	-.3512	-.2655	-.2113	-.2512	-.1814	-.1581	-.1438	-.2022	-.1465	-.1544
5	-.0425	.0721	-.1528	.2209	-.1519	-.0068	-.0854	-.1014	-.0758	-.0506	-.0372	-.0589	-.0233	-.0338
6	-.1585	-.1128	-.1619	-.0895	-.2005	-.0905	-.0699	-.1517	-.0867	-.1205	-.0280	-.1345	-.0482	-.1029
7	-.1500	-.0069	-.1800	.0930	-.2077	.1235	-.1319	-.0438	-.0955	-.0175	-.0872	-.0375	-.0683	-.0154
8	-.0403	-.0273	-.0382	.0551	-.0229	.0721	-.0351	-.0305	-.0234	-.0273	-.0101	-.0477	-.0217	-.0342
9	-.1131	-.0923	-.0437	-.1103	-.1003	.0352	-.0930	-.0203	-.0667	.0090	-.0532	-.0324	-.0508	-.0236
10	.0179	-.0014	.0278	.0378	.0585	.0912	-.0412	.0289	-.0299	.0298	-.0315	.0111	-.0201	.0160

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2205	-.3662	.1660	-.1281	.0969	.1194	.0277	.3668	-.0185	.4905	-.0108	.5329
2	.0147	-.0648	.0500	-.0354	.0647	-.0037	.0794	.0429	-.0553	.0735	.0496	.0759
3	.0904	-.1144	.0635	-.0699	.0188	-.0042	-.0258	.0615	-.0395	.0573	-.0212	.0436
4	-.0397	-.1501	.0145	-.0752	.0291	-.0212	.0437	.0327	.0223	.0484	.0266	.0502
5	-.0048	-.0332	.0146	-.0314	.0120	-.0193	.0095	-.0072	.0205	-.0003	.0207	-.0026
6	-.0215	-.0940	.0337	-.0458	.0310	-.0029	.0283	.0400	-.0046	.0247	-.0097	.0242
7	-.0344	-.0315	.0043	-.0320	.0136	-.0185	.0228	-.0051	.0334	.0101	.0204	-.0011
8	-.0108	-.0335	.0168	-.0127	.0078	-.0008	-.0013	.0143	-.0057	-.0038	-.0068	-.0088
9	-.0216	-.0370	.0020	-.0272	.0142	-.0149	.0264	-.0026	.0195	.0210	.0198	.0106
10	-.0169	-.0057	-.0047	-.0116	-.0044	-.0050	-.0040	.0015	-.0031	-.0144	-.0057	-.0177

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0590	.2461	-.0174	.0019	-.0789	-.2858	-.0548	-.1568	-.0589	-.0539	-.0560	.0627	-.0434	.1971	-.0458	.3778
2	.0284	.0212	-.0226	-.0021	-.0539	-.0129	-.0203	-.0114	-.0081	-.0067	.0001	-.0005	.0099	.0110	-.0289	.0395
3	.0283	-.0582	-.0058	.0035	-.0294	.0500	-.0202	.0273	-.0123	.0264	-.0111	.0236	-.0065	.0266	-.0127	.0311
4	-.0157	-.0306	.0081	.0009	.0228	.0169	.0067	.0115	-.0058	.0084	.0040	.0104	.0075	.0155	.0078	.0303
5	-.0011	-.0134	.0029	-.0047	-.0004	.0025	-.0022	.0042	-.0003	.0053	.0001	.0062	.0048	.0062	.0097	.0078
6	-.0113	-.0168	-.0008	-.0019	.0048	.0084	.0004	.0052	.0006	.0032	-.0006	.0036	-.0010	.0050	-.0066	.0082
7	-.0107	-.0034	-.0009	-.0008	.0113	.0002	.0021	.0032	.0028	.0029	.0024	.0041	.0061	.0043	.0080	.0080
8	-.0038	-.0056	-.0015	-.0013	-.0002	.0028	-.0001	.0018	.0006	.0015	.0005	.0006	.0010	-.0004	.0009	-.0038
9	-.0092	-.0054	-.0010	-.0006	-.0030	.0058	-.0002	.0039	-.0009	.0039	-.0006	.0046	.0041	.0051	.0046	.0098
10	-.0014	-.0011	-.0017	-.0013	-.0031	.0005	-.0011	.0004	-.0006	.0011	-.0004	.0012	.0007	.0006	.0026	-.0040

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 67 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0789	-.7820	.0822	-1.5958	.0793	-1.2374	.1546	-.4805	.1233	-.0956	.1613	.0270	.1424	.0383
2	1.6944	.1845	1.1867	.1353	.9480	.0970	.9354	.0955	.6289	.0175	.6756	.0741	.5132	.0477
3	.2994	-.7785	.3736	-.9358	.2156	-.8378	.2019	-.2221	.1255	-.0172	.1268	.0797	.0930	.0654
4	-.2325	.0310	-.4536	-.0608	-.3145	-.0333	.0592	.0360	.0833	.0208	.0987	.0342	.0819	.0038
5	.0750	-.2224	.0259	-.2433	.0686	-.2902	.0469	-.1101	.0398	-.0019	.0476	.0483	.0557	.0489
6	-.2943	.0035	-.3982	-.1159	-.4019	-.1006	-.0232	.0010	.0200	.0263	.0403	.0417	.0376	.0263
7	-.0839	-.0351	-.1674	-.0456	-.0816	-.0384	-.0312	-.0675	-.0214	-.0083	-.0105	.0105	.0021	.0199
8	-.2398	-.0401	-.2601	-.1336	-.2707	-.0939	-.1037	-.0637	-.0281	.0023	.0018	.0132	.0036	.0099
9	-.0845	-.0728	-.1162	-.1024	-.1121	-.0604	-.0282	-.1105	-.0353	-.0617	-.0132	-.0542	-.0151	-.0392
10	-.0732	-.0866	-.0473	-.1219	-.0446	-.0549	-.0452	-.0826	.0157	-.0292	.0451	-.0224	.0318	-.0232

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1844	.0315	.1782	.0655	.1307	.2737	.0832	.4818	-.0088	.5453	-.0085	.5414
2	.3985	.1079	.1774	.1025	.0709	.0860	-.0356	.0496	-.1078	.0145	-.0831	.0018
3	.0503	.0444	.0039	.0088	-.0235	.0446	-.0509	.0805	-.0543	.0368	-.0156	.0381
4	.0841	-.0042	.0249	-.0094	.0128	-.0057	.0007	-.0020	-.0003	-.0218	-.0143	-.0142
5	.0480	.0408	.0120	.0124	-.0098	.0321	-.0316	.0518	-.0145	.0175	.0019	.0080
6	.0549	.0093	.0340	-.0220	.0089	-.0141	-.0161	-.0042	-.0047	-.0060	-.0118	-.0010
7	.0288	.0391	.0394	.0291	.0113	.0203	-.0319	.0115	-.0136	.0031	-.0060	.0022
8	.0063	.0207	.0198	.0265	.0069	.0078	-.0061	-.0108	-.0036	-.0140	-.0058	-.0083
9	.0073	-.0144	.0034	.0346	.0020	.0188	.0007	.0031	-.0052	.0005	-.0048	-.0002
10	.0184	.0008	-.0187	.0238	-.0112	.0081	-.0038	-.0076	-.0001	-.0144	-.0037	-.0143

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0434	.4367	-.0108	-.0255	-.0149	-.1900	-.0311	-.2579	-.0373	-.1503	-.0430	-.0090	-.0368	.1415	-.0364	.3333
2	.1553	.0328	-.0294	-.0022	-.0652	-.0209	-.0638	-.0255	-.0406	-.0191	-.0370	-.0171	-.0470	-.0127	-.0648	-.0146
3	.0397	-.0007	-.0034	.0237	-.0083	.0139	-.0111	.0148	-.0072	.0120	-.0079	.0122	-.0058	.0159	-.0080	.0186
4	.0244	.0076	.0105	.0161	.0022	.0062	.0021	.0013	-.0015	-.0027	-.0035	-.0032	-.0075	-.0048	-.0128	-.0109
5	.0207	-.0213	.0015	.0003	-.0028	.0001	-.0023	-.0003	-.0024	.0006	-.0019	-.0002	-.0022	.0001	-.0005	.0004
6	.0011	-.0164	.0023	.0004	.0016	-.0005	-.0003	.0018	-.0002	.0019	-.0004	.0009	-.0013	-.0001	-.0040	-.0004
7	.0031	-.0114	-.0023	.0008	.0000	-.0014	-.0006	-.0014	-.0019	-.0016	-.0018	-.0027	-.0030	-.0025	-.0031	-.0034
8	-.0127	-.0174	-.0043	-.0027	-.0002	-.0017	-.0002	-.0014	-.0016	-.0016	-.0018	-.0027	-.0030	-.0025	-.0029	-.0023
9	-.0071	-.0204	-.0004	-.0010	.0002	.0005	.0003	-.0002	-.0000	-.0007	-.0002	-.0005	-.0020	-.0001	-.0010	-.0004
10	-.0037	-.0186	-.0006	.0005	.0004	.0011	.0008	.0009	.0015	-.0001	.0021	-.0006	.0021	-.0034	.0043	-.0073

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 10 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0908	149.3	1.7961	166.6	1.3723	165.9	.8934	161.3	.6231	158.4	.5869	149.8	.5047	151.6
2	1.1466	83.5	.7809	80.9	.2778	104.1	.0511	211.6	.1050	240.6	.1067	225.8	.0718	208.6
3	.5419	146.9	.5584	154.0	.5991	170.4	.4063	166.8	.2768	167.1	.2397	150.8	.1450	148.9
4	.3893	223.5	.3962	231.3	.4403	232.9	.3283	220.1	.2406	228.9	.2481	215.4	.2128	223.5
5	.0837	339.5	.2484	325.3	.1521	272.5	.1326	220.1	.0911	236.2	.0697	212.3	.0411	214.6
6	.1946	236.6	.1850	241.1	.2200	245.7	.1671	204.7	.1485	215.7	.1374	191.8	.1132	205.1
7	.1502	267.4	.2026	297.3	.2416	300.7	.1389	251.6	.0971	259.6	.0950	244.7	.0700	257.3
8	.0661	245.7	.0670	325.3	.0752	342.4	.0465	229.0	.0360	220.5	.0488	192.0	.0405	212.4
9	.1459	230.8	.1186	201.6	.1063	289.4	.0951	257.7	.0673	277.7	.0623	238.7	.0560	245.1
10	.0179	94.4	.0470	36.3	.1084	32.7	.0503	305.1	.0422	315.0	.0334	289.4	.0257	308.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4275	148.9	.2097	127.6	.1537	39.1	.3678	4.3	.4909	357.8	.5330	358.8
2	.0664	167.2	.0613	125.3	.0648	86.7	.0902	61.6	.0919	37.0	.1030	42.5
3	.1474	142.2	.0945	137.8	.0193	102.7	.0667	337.2	.0696	325.4	.0485	334.0
4	.1553	194.8	.0766	169.0	.0361	126.1	.0546	53.2	.0533	24.7	.0569	27.9
5	.0336	189.2	.0346	155.1	.0227	148.1	.0119	127.3	.0205	90.8	.0209	97.2
6	.0964	167.1	.0589	143.6	.0312	95.3	.0490	35.3	.0251	349.5	.0260	338.1
7	.0483	229.3	.0323	172.3	.0230	143.8	.0234	102.5	.0349	73.2	.0204	93.1
8	.0352	162.1	.0210	127.0	.0078	84.1	.0143	354.9	.0068	236.7	.0111	217.5
9	.0428	210.3	.0273	175.9	.0204	116.4	.0265	95.5	.0286	42.8	.0225	61.9
10	.0178	251.3	.0125	202.0	.0067	220.8	.0043	290.3	.0147	192.0	.0186	197.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2530	13.5	.0175	276.1	.2965	195.4	.1661	199.2	.0798	227.6	.0841	318.3	.2018	347.6	.3806	353.1
2	.0354	53.3	.0227	264.8	.0555	256.5	.0232	240.6	.0105	230.3	.0005	166.5	.0148	42.2	.0490	36.2
3	.0647	154.1	.0068	301.3	.0580	329.4	.0339	323.5	.0291	335.1	.0261	334.8	.0274	346.2	.0336	337.8
4	.0344	207.1	.0082	83.4	.0284	53.5	.0133	30.3	.0102	34.5	.0112	21.1	.0172	25.9	.0313	14.4
5	.0134	184.6	.0055	148.4	.0025	351.0	.0047	332.6	.0054	356.5	.0062	1.2	.0078	37.7	.0125	51.5
6	.0220	210.9	.0021	203.5	.0097	29.8	.0053	4.1	.0033	10.9	.0036	350.0	.0050	349.1	.0105	320.9
7	.0112	252.1	.0012	131.6	.0113	88.9	.0038	32.5	.0041	43.4	.0048	29.7	.0075	54.7	.0113	45.2
8	.0068	213.9	.0020	228.1	.0028	356.0	.0018	355.3	.0016	22.2	.0008	40.0	.0011	110.5	.0040	166.2
9	.0108	239.4	.0011	300.4	.0062	28.5	.0039	357.9	.0040	12.7	.0046	7.0	.0065	38.6	.0108	25.4
10	.0018	232.4	.0022	231.6	.0031	279.2	.0012	288.7	.0013	331.4	.0012	342.4	.0009	51.5	.0048	146.6

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 67 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.7859	174.2	1.5979	177.1	1.2400	176.3	.5048	162.2	.1560	127.8	.1635	80.5	.1669	76.7
2	1.7047	83.7	1.1944	83.5	.9529	84.2	.9403	84.2	.6292	88.4	.6798	83.6	.5154	84.7
3	.8341	159.0	1.0076	158.2	.8650	165.6	.3001	137.7	.1267	97.8	.1498	57.8	.1137	54.9
4	.2345	277.6	.4577	262.4	.3162	264.0	.0692	58.7	.0858	76.0	.1045	70.9	.0820	87.3
5	.2347	161.4	.2446	173.9	.2982	166.7	.1196	156.9	.0398	92.7	.0678	44.6	.0741	48.7
6	.2943	269.3	.4147	253.8	.4143	255.9	.0232	272.4	.0330	37.2	.0579	44.0	.0459	55.1
7	.0910	247.3	.1735	254.8	.0902	295.2	.0744	204.8	.0229	248.7	.0148	315.2	.0200	6.1
8	.2431	260.5	.2924	242.8	.2865	250.9	.1217	238.4	.0282	274.6	.0133	7.7	.0105	20.2
9	.1115	229.3	.1549	228.6	.1273	298.3	.1142	194.6	.0711	209.7	.0557	193.7	.0419	201.0
10	.1134	220.2	.1307	201.2	.0707	219.1	.0942	208.7	.0331	151.7	.0503	116.4	.0394	126.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.1871	80.3	.1899	69.8	.3033	25.5	.4889	9.8	.5454	359.1	.5414	359.1
2		.4129	74.9	.2049	60.0	.1115	39.5	.0781	332.9	.1090	278.7	.0831	271.2
3		.0885	47.3	.0094	24.1	.0504	332.3	.0952	327.7	.0656	304.1	.0412	337.7
4		.0842	92.9	.0266	110.7	.0140	114.0	.0021	160.3	.0218	180.7	.0202	225.3
5		.0430	49.6	.0173	44.1	.0336	343.1	.0607	328.7	.0227	320.3	.0082	13.1
6		.0557	80.4	.0405	122.9	.0167	147.7	.0173	249.0	.0077	218.1	.0118	265.1
7		.0486	36.4	.0490	53.6	.0232	29.0	.0204	304.3	.0140	282.7	.0063	250.0
8		.0216	16.9	.0331	36.9	.0104	41.3	.0124	209.4	.0145	194.5	.0102	214.9
9		.0161	153.1	.0347	5.6	.0189	6.1	.0032	11.9	.0053	275.1	.0048	268.1
10		.0184	87.6	.0303	321.9	.0138	305.8	.0085	206.2	.0144	180.2	.0147	194.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4390	5.9	.0277	337.0	.1906	184.5	.2598	186.9	.1548	194.0	.0440	258.2	.1462	345.4	.3352	353.8
2	.1587	78.1	.0294	265.7	.0684	252.2	.0687	248.2	.0449	244.8	.0408	245.3	.0487	254.9	.0664	257.3
3	.0397	91.1	.0240	351.9	.0162	329.0	.0185	323.0	.0140	328.9	.0145	327.1	.0169	339.9	.0202	336.7
4	.0256	72.7	.0192	33.1	.0065	19.6	.0025	59.1	.0031	208.5	.0047	227.5	.0089	237.5	.0168	229.6
5	.0297	135.9	.0015	80.0	.0028	272.2	.0023	262.0	.0024	283.1	.0020	263.4	.0022	272.7	.0006	48.6
6	.0165	176.0	.0023	81.0	.0016	71.9	.0019	351.1	.0019	5.6	.0010	333.7	.0013	266.4	.0053	229.2
7	.0118	163.0	.0008	344.0	.0014	179.4	.0015	202.6	.0025	230.5	.0032	213.7	.0040	230.2	.0047	220.8
8	.0217	215.9	.0051	237.6	.0017	186.9	.0011	102.3	.0017	111.3	.0022	119.7	.0036	146.0	.0078	158.5
9	.0218	199.0	.0011	200.3	.0006	25.1	.0003	91.2	.0007	180.4	.0006	201.9	.0007	264.4	.0011	247.3
10	.0190	191.3	.0008	307.7	.0011	19.3	.0012	41.2	.0015	93.9	.0021	106.9	.0040	147.9	.0084	149.4

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 11 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.6160	-.8916	.5500	-1.6028	.4745	-1.2041	.5648	-.7124	.4391	-.4841	.4928	-.4220	.3808	-.4270
2	.9804	.0245	.7044	.0425	.3716	-.1344	.2223	-.0276	.0700	-.0544	.0920	-.0404	.1059	-.0781
3	.1528	-.8847	.2995	-.8634	.0789	-.7574	.3267	-.4517	.2066	-.3712	.2873	-.2386	.2059	-.2030
4	.0151	-.3839	-.0724	-.3755	-.1162	-.3722	.0880	-.2315	.0223	-.1679	.0529	-.1404	-.0026	-.1124
5	.0443	-.1991	.0804	-.0877	-.0280	-.2101	.2038	-.0957	.1238	-.0973	.1548	-.0344	.1137	-.0593
6	.0355	-.2944	.0245	-.1447	-.0721	-.1694	.1002	-.1311	-.0077	-.1235	.0783	-.1042	.0224	-.1044
7	-.0190	-.0174	-.0151	.0874	-.0733	.0250	.0817	-.0249	.0344	-.0494	.0574	-.0084	.0403	-.0221
8	.0532	-.1901	.1124	.0314	-.0041	-.0103	.0795	-.0485	.0250	-.0964	.0777	-.0541	.0305	-.0778
9	-.0131	-.0013	-.0045	.1050	-.0225	.0944	.0138	-.0111	.0155	-.0253	.0192	-.0122	.0109	-.0220
10	.0539	-.1249	.1194	.0933	.0427	.0271	.0424	-.0123	.0134	-.0342	.0538	-.0213	.0365	-.0498

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3604	-.3133	.2795	-.0811	.1894	.1456	.0993	.3723	-.0269	.4914	-.0346	.5293
2	.1346	-.0548	.0860	-.0343	.0618	.0092	.0376	.0527	-.0013	.0701	-.0187	.0495
3	.2183	-.0816	.1207	-.0212	.0424	.0394	-.0358	.0999	-.0816	.0433	-.0477	.0645
4	.0686	-.0874	.0378	-.0550	.0297	-.0119	.0217	.0312	-.0050	.0509	-.0139	.0358
5	.0987	-.0300	.0580	-.0127	.0205	.0246	-.0170	.0364	-.0324	.0238	-.0125	.0282
6	.0732	-.0502	.0611	-.0343	.0376	.0041	-.0142	.0424	-.0346	.0317	-.0136	.0359
7	.0343	-.0210	.0317	-.0138	.0141	.0176	-.0014	.0215	-.0133	.0104	-.0090	.0194
8	.0613	-.0142	.0521	-.0072	.0340	.0143	-.0001	.0358	-.0350	.0079	-.0231	.0118
9	.0190	-.0090	.0203	.0014	.0090	.0080	-.0023	.0146	-.0082	.0064	-.0015	.0091
10	.0583	.0114	.0414	.0115	.0230	.0199	.0045	.0284	-.0306	.0018	-.0220	.0134

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1066	.2666	-.0263	-.0358	-.1575	-.4015	-.1118	-.2273	-.1374	-.1088	-.1328	.0137	-.1150	.1671	-.1189	.3557
2	.0525	.0198	-.0110	-.0133	-.0401	-.0414	-.0075	-.0314	.0012	-.0307	.0075	-.0251	.0032	-.0156	.0038	.0089
3	.0418	-.0511	-.0044	.0039	-.0244	.0396	-.0291	.0073	-.0235	.0121	-.0277	.0073	-.0275	.0228	-.0451	.0266
4	.0164	-.0251	.0087	.0046	.0040	.0172	-.0024	.0085	-.0002	.0067	-.0037	.0070	-.0025	.0124	-.0092	.0200
5	.0243	-.0093	.0016	-.0054	-.0269	-.0067	-.0141	-.0095	-.0158	-.0009	-.0152	-.0041	-.0157	.0064	-.0193	.0054
6	.0077	-.0118	.0003	.0007	-.0058	.0014	-.0026	-.0000	-.0034	-.0000	-.0050	-.0018	-.0080	.0037	-.0169	.0034
7	.0038	.0042	.0007	-.0028	-.0123	-.0219	-.0002	-.0082	-.0064	-.0052	-.0057	-.0069	-.0097	.0009	-.0145	-.0024
8	.0036	-.0053	-.0004	-.0007	.0030	.0095	.0004	-.0010	-.0004	-.0024	.0000	-.0038	-.0049	-.0039	-.0104	-.0094
9	.0080	-.0005	.0019	-.0014	.0031	-.0025	.0025	-.0020	-.0003	-.0032	.0007	-.0035	-.0041	-.0024	-.0048	-.0027
10	.0054	-.0025	.0002	-.0002	-.0016	.0016	-.0005	-.0015	-.0015	-.0007	-.0010	-.0028	-.0061	-.0021	-.0089	-.0118

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 77 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.2914	-1.0515	.3686	-1.8151	.2909	-1.3569	.5047	-.6732	.3648	-.3041	.4587	-.1731	.3591	-.1340
2	2.0384	.4059	1.6553	-.5421	1.2259	-.2515	1.0100	.3500	.6764	.1636	.6720	.3014	.5360	.1600
3	.3081	-.8235	.4742	-.9077	.2707	-.7818	.3208	-.1026	.1999	.0254	.1995	.1694	.1749	.1202
4	.2055	.0983	.0309	.0688	.0161	-.0566	.1557	.1223	.1100	.0833	.0562	.1469	.0553	.0960
5	.0547	-.2685	.0897	-.2498	.0785	-.3242	.0637	-.0376	.0419	.0843	-.0095	.1522	.0319	.1178
6	-.0578	-.0337	-.1674	-.1196	-.2594	-.0747	.0057	-.0239	-.0167	.0016	-.0420	.0086	-.0283	.0124
7	-.0385	-.2092	-.0379	-.2266	-.0389	-.1646	.0366	-.0628	-.0025	-.0022	-.0141	.0291	.0132	.0326
8	.0142	-.0681	-.0066	-.1252	-.1849	-.1256	.0648	-.0783	-.0002	-.0581	.0179	-.0328	-.0003	-.0178
9	.0119	-.0857	.0072	-.1015	-.0144	-.0264	.0807	-.0185	.0449	-.0063	.0297	.0471	.0368	.0240
10	-.0363	-.0403	.0129	-.0756	-.1159	-.0503	.0171	-.0622	-.0267	-.0248	-.0139	-.0184	-.0183	-.0013

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3231	-.0289	.2926	.1129	.1888	.3220	.0850	.5310	-.0910	.5346	-.0789	.5112
2	.3780	.2005	.1710	.1835	-.0336	.1474	-.1037	.1114	-.1254	-.0107	-.0805	-.0148
3	.1089	.1336	.0113	.0850	-.0445	.0481	-.1004	.0512	-.0665	.0044	-.0348	.0212
4	.0145	.0749	-.0313	.0284	-.0396	.0097	-.0479	-.0090	-.0205	-.0345	-.0174	-.0228
5	.0011	.0850	-.0195	.0287	-.0343	.0047	-.0490	-.0194	.0072	-.0263	.0078	-.0223
6	-.0013	.0033	-.0077	-.0215	-.0047	-.0195	-.0016	-.0175	.0100	-.0049	.0119	-.0046
7	.0102	.0352	.0090	.0034	.0016	-.0102	-.0059	-.0238	.0146	-.0056	.0113	-.0044
8	.0199	.0151	.0257	.0088	.0213	.0084	.0169	.0084	.0070	.0031	.0078	.0033
9	-.0030	.0405	-.0086	.0290	-.0118	.0178	-.0151	.0045	-.0000	-.0027	.0048	-.0031
10	-.0089	-.0011	-.0072	-.0049	-.0061	-.0051	-.0050	-.0053	.0206	-.0029	.0124	-.0006

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0783	.4047	-.0028	-.0246	-.0338	-.2329	-.0672	-.3339	-.1055	-.2194	-.1117	-.0733	-.1155	-.0905	-.1234	-.2859
2	.1374	.1059	-.0305	.0177	-.0524	-.0191	-.0392	-.0301	-.0168	-.0240	-.0131	-.0249	-.0283	-.0275	-.0465	-.0380
3	.0204	.0389	-.0113	.0290	-.0100	.0061	-.0136	-.0005	-.0109	-.0008	-.0125	-.0023	-.0157	.0028	-.0210	.0021
4	.0163	.0327	.0033	.0106	.0010	-.0033	.0022	-.0046	.0001	-.0053	.0010	-.0085	-.0031	-.0132	.0004	-.0240
5	.0010	-.0070	.0006	.0023	.0013	-.0033	.0012	-.0043	.0004	-.0029	.0017	-.0030	.0027	-.0042	.0099	-.0044
6	-.0118	-.0031	-.0020	-.0001	.0031	.0022	.0013	.0018	.0011	.0007	.0031	.0014	.0053	-.0003	.0098	.0028
7	-.0014	-.0076	-.0007	.0005	-.0005	.0016	-.0005	.0007	-.0007	.0012	-.0001	.0016	.0016	.0021	.0021	.0046
8	.0039	-.0048	.0021	.0006	-.0001	.0014	-.0004	.0001	.0001	-.0003	.0000	.0003	.0006	.0006	.0009	.0030
9	.0003	.0036	-.0004	.0012	.0010	-.0008	.0009	.0003	.0011	-.0008	.0014	.0002	.0018	-.0007	.0026	.0010
10	-.0062	-.0047	-.0003	-.0002	.0007	.0015	.0004	.0020	.0010	.0014	.0005	.0025	.0035	.0022	.0025	.0072

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 11 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0837	145.4	1.6945	161.1	1.2961	158.5	.9092	141.6	.6536	137.8	.6488	130.6	.5721	138.3
2	.9809	88.6	.7057	86.5	.3958	110.2	.2240	97.1	.0887	128.0	.1101	123.3	.1316	126.4
3	.8998	170.2	.9141	160.9	.7617	174.1	.5575	144.1	.4248	150.9	.3735	129.7	.2891	134.6
4	.3842	177.7	.3825	190.9	.3899	197.3	.2476	159.2	.1694	172.4	.1689	161.8	.1324	181.1
5	.2040	167.4	.1190	137.5	.2119	187.6	.2251	115.1	.1575	128.2	.1585	102.5	.1282	117.5
6	.2967	173.1	.1485	171.7	.1841	203.0	.1651	142.6	.1237	183.6	.1320	143.6	.1068	167.8
7	.0258	227.5	.0888	350.2	.0774	288.8	.0854	107.0	.0776	153.7	.0582	98.5	.0460	118.8
8	.1974	164.4	.1167	74.4	.0111	201.8	.0931	121.4	.0959	165.5	.0959	125.8	.0836	158.6
9	.0132	264.5	.1051	357.6	.0971	346.6	.0177	128.9	.0297	148.5	.0228	122.4	.0245	153.5
10	.1360	156.7	.1515	52.0	.0506	57.6	.0443	106.1	.0368	158.3	.0579	111.6	.0617	143.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4776	131.0	.2910	104.2	.2389	52.5	.3853	14.9	.4921	356.9	.5304	356.3
2	.1453	112.2	.0924	111.7	.0625	81.5	.0648	35.5	.0701	359.0	.0530	20.7
3	.2312	110.7	.1225	99.9	.0579	47.2	.1041	340.3	.1033	307.8	.0818	324.4
4	.1111	141.9	.0467	145.5	.0320	111.8	.0380	34.8	.0511	5.4	.0384	21.1
5	.1032	73.1	.0594	77.4	.0320	39.8	.0402	335.0	.0401	306.3	.0308	336.1
6	.0887	124.4	.0701	119.3	.0379	83.8	.0447	18.5	.0469	312.5	.0292	332.3
7	.0419	60.0	.0345	66.5	.0224	38.7	.0217	351.0	.0170	308.5	.0215	335.4
8	.0629	103.0	.0524	97.9	.0297	61.2	.0358	359.9	.0359	282.7	.0260	297.1
9	.0210	115.3	.0204	86.0	.0121	48.3	.0148	351.2	.0104	308.0	.0092	350.4
10	.0594	79.0	.0430	74.5	.0304	49.0	.0287	9.0	.0306	273.4	.0258	301.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2871	21.8	.0444	216.3	.4313	201.4	.2533	206.2	.1754	231.7	.1335	275.9	.2029	325.5	.3750	341.5
2	.0561	69.3	.0173	219.7	.0576	224.1	.0323	193.4	.0307	177.7	.0262	163.3	.0159	168.4	.0097	22.9
3	.0660	140.7	.0059	311.3	.0465	328.3	.0300	264.2	.0264	297.3	.0287	284.7	.0357	309.7	.0524	300.5
4	.0301	146.6	.0099	62.1	.0177	13.2	.0088	344.0	.0067	357.9	.0079	331.8	.0127	348.6	.0220	335.2
5	.0260	111.0	.0056	163.5	.0277	256.1	.0170	236.1	.0158	266.9	.0157	255.0	.0169	292.1	.0200	285.8
6	.0141	146.9	.0007	23.8	.0059	283.6	.0026	269.7	.0034	269.2	.0053	250.6	.0088	294.7	.0173	281.4
7	.0054	42.2	.0039	145.9	.0251	209.3	.0092	151.5	.0084	241.7	.0089	219.6	.0088	275.5	.0147	259.4
8	.0064	146.0	.0008	213.9	.0100	17.4	.0011	156.5	.0025	194.2	.0038	179.4	.0079	240.5	.0140	228.0
9	.0003	115.0	.0023	124.7	.0040	128.7	.0031	128.5	.0033	185.8	.0034	169.2	.0047	239.1	.0055	241.0
10	.0060	115.0	.0003	137.2	.0023	315.4	.0016	200.1	.0017	245.0	.0029	199.1	.0065	251.3	.0148	216.9

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 77 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0912	164.5	1.8521	168.5	1.3878	167.9	.8414	143.1	.4749	129.8	.4903	110.7	.3833	110.5
2	2.0785	78.7	1.7418	71.9	1.2515	78.4	1.0689	70.9	.6959	76.4	.7365	65.8	.5594	73.4
3	.8792	159.5	1.0241	152.4	.8273	160.9	.3369	107.7	.2015	82.7	.2617	49.7	.2122	55.5
4	.2278	64.4	.0755	24.2	.0588	15.9	.1980	51.9	.1380	52.9	.1573	20.9	.1108	30.0
5	.2744	168.1	.2654	160.3	.3336	166.4	.0740	59.4	.0942	26.4	.1525	356.4	.1221	15.2
6	.0669	239.8	.2057	234.5	.2699	253.9	.0246	166.5	.0168	275.3	.0428	281.5	.0309	293.7
7	.2127	190.4	.2297	189.5	.1691	173.3	.0727	149.8	.0034	229.4	.0323	334.2	.0352	22.1
8	.0696	168.2	.1254	183.0	.2235	235.8	.1016	140.4	.0581	180.2	.0374	151.4	.0178	181.1
9	.0845	172.1	.1018	175.9	.0301	208.7	.0828	102.9	.0454	98.0	.0557	32.3	.0439	56.9
10	.0543	222.0	.0767	170.3	.1264	246.6	.0646	164.6	.0365	227.1	.0230	217.0	.0183	266.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3244	95.1	.3136	68.9	.3732	30.4	.5378	9.1	.5423	350.3	.5173	351.2
2	.4279	42.1	.2508	43.0	.1512	12.8	.1522	317.0	.1259	265.1	.0818	259.6
3	.1724	39.2	.0857	7.6	.0814	326.8	.1127	297.0	.0468	275.5	.0407	301.4
4	.0763	10.9	.0423	312.2	.0408	283.7	.0488	259.3	.0402	210.7	.0287	217.4
5	.0850	.8	.0347	325.9	.0346	277.8	.0527	248.5	.0273	164.8	.0237	160.6
6	.0036	338.0	.0228	199.9	.0201	193.5	.0176	185.3	.0112	116.2	.0128	111.3
7	.0367	16.1	.0096	49.2	.0103	171.2	.0245	193.8	.0156	111.0	.0129	119.5
8	.0250	52.8	.0272	71.2	.0230	68.1	.0189	63.7	.0077	66.2	.0085	67.0
9	.0406	355.8	.0302	343.6	.0214	326.4	.0165	293.4	.0027	180.8	.0057	123.4
10	.0090	262.9	.0087	235.7	.0080	230.0	.0073	223.3	.0208	98.1	.0124	92.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4122	11.0	.0248	186.4	.2354	188.3	.3406	191.4	.2435	205.7	.1336	236.7	.1447	308.1	.3114	336.6
2	.1735	52.4	.0352	300.1	.0557	250.0	.0494	232.5	.0293	214.9	.0281	207.8	.0394	225.8	.0600	230.7
3	.0440	27.7	.0311	338.7	.0117	301.5	.0136	267.8	.0109	265.7	.0127	259.7	.0159	280.1	.0211	275.7
4	.0365	26.5	.0111	17.3	.0035	164.0	.0051	154.2	.0053	178.9	.0085	173.4	.0136	193.1	.0240	179.0
5	.0070	8.0	.0024	15.5	.0018	158.0	.0045	164.7	.0029	172.0	.0035	149.9	.0050	147.1	.0109	114.0
6	.0122	255.5	.0020	267.6	.0038	34.7	.0026	35.8	.0014	57.7	.0034	66.3	.0054	93.5	.0102	74.4
7	.0078	190.7	.0009	302.1	.0017	16.7	.0009	322.6	.0014	359.6	.0016	356.7	.0028	36.6	.0051	24.6
8	.0062	141.3	.0022	75.0	.0014	356.2	.0005	280.3	.0003	156.1	.0003	156.1	.0008	40.8	.0031	17.6
9	.0036	5.3	.0012	339.9	.0012	129.1	.0009	74.2	.0013	126.0	.0014	81.1	.0020	111.8	.0028	48.2
10	.0078	232.5	.0004	236.0	.0017	26.1	.0021	10.5	.0017	33.5	.0025	12.2	.0041	57.5	.0077	19.2

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 12 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1														
2	.3108	-.3884	.3434	-1.1986	.3944	-.9529	.4465	-.5449	.3268	-.3218	.3824	-.2617	.2893	-.2910
3	1.1867	-.2693	1.0280	-1.086	.5700	-.2330	.4388	-.0804	.2349	-.1087	.2579	-.0655	.2242	-.1108
4	.1337	-.6586	.2775	-.7030	.1520	-.6652	.3894	-.3003	.2123	-.2437	.2854	-.0959	.2179	-.1066
5	.2002	-.5730	.2504	-.4607	.0499	-.4178	.2344	-.1409	.1072	-.1549	.1261	-.0845	.0609	-.0970
6	.1729	-.2302	.2296	-.1417	.0862	-.2842	.2269	-.0501	.1276	-.0897	.1479	-.0006	.1253	-.0390
7	.1991	-.2063	.1834	.0331	.0663	-.1266	.1672	-.0020	.0812	-.0925	.1088	-.0196	.0549	-.0441
8	.0734	-.0401	-.0168	.1017	-.0181	-.0221	.1019	-.0040	.0693	-.0507	.0734	.0164	.0503	-.0245
9	.1340	.0098	-.0253	.2514	.0287	.0718	.0969	.0476	.0526	-.0350	.0676	.0084	.0472	-.0325
10	.0079	-.0171	-.0950	.1000	-.0183	.0951	.0286	.0243	-.0187	-.0244	.0372	.0211	.0366	-.0100
	.0222	.0218	-.0903	.1724	-.0100	.1134	.0077	.0168	-.0001	-.0203	.0112	-.0026	.0115	-.0052

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1												
2	.3044	-.1955	.2756	-.0372	.2006	.1644	.1256	.3700	-.0582	.4628	-.0923	.5076
3	.2257	-.0356	.1216	-.0225	.0589	.0345	-.0038	.0915	-.0451	.0743	-.0244	.0509
4	.2067	.0172	.1429	.0469	.0605	.0770	-.0219	.1071	-.0735	.0774	-.0310	.0681
5	.1008	-.0423	.0371	-.0358	.0242	.0078	.0112	.0514	-.0472	.0416	-.0217	.0375
6	.1083	.0734	.0758	.0454	.0215	.0570	-.0327	.0686	-.0527	.0163	-.0243	.0350
7	.0563	.0136	.0351	-.0069	.0074	.0158	-.0204	.0385	-.0509	-.0033	-.0391	.0094
8	.0444	.0476	.0454	.0181	.0096	.0284	-.0262	.0387	-.0330	-.0187	-.0307	-.0068
9	.0329	.0273	.0446	.0143	.0097	.0147	-.0252	.0151	-.0216	-.0196	-.0168	-.0029
10	.0178	.0321	.0239	.0172	.0021	.0224	-.0197	.0276	-.0091	-.0330	-.0180	-.0190
	.0062	.0155	.0305	.0225	.0009	.0144	-.0286	.0064	-.0014	-.0198	-.0132	-.0064

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1																
2	.0604	.3155	-.0714	-.0739	-.2452	-.5295	-.1653	-.3098	-.2121	-.1789	-.2002	-.0556	-.1863	.1145	-.1891	.3078
3	.0470	.0223	-.0279	.0046	-.0580	.0089	-.0183	-.0114	-.0037	-.0120	.0005	-.0114	-.0068	-.0054	-.0194	.0052
4	.0415	-.0173	-.0118	.0055	-.0670	.0227	-.0313	-.0081	-.0318	.0038	-.0306	-.0014	-.0321	.0186	-.0421	.0244
5	.0239	-.0260	.0058	.0036	-.0085	.0145	-.0070	.0032	-.0044	.0032	-.0072	.0005	-.0105	.0051	-.0219	.0035
6	.0308	-.0070	.0055	-.0040	-.0160	-.0112	-.0071	-.0122	-.0131	-.0051	-.0117	-.0088	-.0178	.0028	-.0278	.0019
7	.0169	-.0020	-.0011	-.0015	-.1203	.0759	-.0018	-.0028	-.0030	-.0031	-.0025	-.0060	-.0007	-.0113	-.0142	-.0157
8	.0064	.0029	.0048	.0009	.0084	-.0103	.0055	-.0037	-.0002	-.0078	.0035	-.0088	-.0081	-.0106	-.0046	-.0222
9	.0134	.0062	.0011	-.0002	-.0051	-.0031	-.0006	-.0025	-.0009	-.0010	.0008	-.0021	-.0024	-.0040	.0023	-.0086
10	-.0001	.0085	-.0003	.0038	.0018	-.0042	.0029	.0003	.0021	-.0025	.0048	-.0010	.0001	-.0092	.0099	-.0134
	-.0005	.0037	-.0015	.0020	.0032	-.0022	.0012	.0013	.0017	-.0013	.0033	.0002	.0010	-.0049	.0071	-.0060

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 78 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0303	-.4726	.0025	-1.3227	.3167	-1.0608	.5348	-.4309	.4485	-.1548	.5776	-.0370	.4943	-.0834
2	2.1557	-.1844	1.8780	-.2431	1.2000	-.0512	.8427	-.2416	.4620	-.1258	.4258	-.2434	.3468	-.1842
3	.3523	-.5387	.5298	-.6593	.3982	-.6077	.4498	-.0050	.3032	.0001	.2906	.1853	.2224	.1223
4	.3494	.0085	.3218	-.0252	.1590	-.0609	.1127	.1250	.0445	.1151	-.0652	.1290	-.0450	.0952
5	.0738	-.1448	.1273	-.1555	.1273	-.2724	.1316	.0645	.0781	.0455	.0626	.1090	-.0865	.0595
6	.1292	-.0837	.1209	-.1288	-.0383	-.1575	.0774	.0079	.0013	.0016	-.0451	.0298	-.0263	.0417
7	.0928	-.0732	.0835	-.0379	.0712	-.1371	.1245	.0806	.0923	.0169	.0468	.0776	-.0659	.0365
8	.0754	.0678	.0271	-.0230	-.0626	-.0685	.0221	.0575	-.0065	.0445	-.0596	.0490	-.0135	.0496
9	-.0577	-.0605	.0225	-.0614	-.0442	-.0654	.0649	.0083	.0183	-.0306	-.0036	-.0012	-.0169	.0122
10	.0815	-.0331	.0712	-.0002	-.0165	-.0577	.0603	.0452	.0483	.0075	.0128	.0363	.0216	.0009

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.4968	-.0216	.4725	.1005	.2913	.3134	.1100	.5263	-.1275	.4878	-.1277	.4842
2	.2753	.2879	.1468	.3096	-.0199	.2219	-.2066	.1341	-.1766	-.0378	-.1280	-.0413
3	.0888	.1837	-.0298	.1855	-.0877	.0800	-.1456	-.0255	-.0495	-.0655	-.0160	-.0396
4	-.0711	.0527	-.1171	.0627	-.0715	.0050	-.0258	-.0527	.0247	-.0282	.0243	-.0120
5	.0153	.0662	-.0799	-.0122	-.0459	-.0344	-.0118	-.0566	.0353	-.0072	.0304	.0051
6	-.0004	.0111	.0237	-.0435	.0311	-.0205	.0385	.0025	.0077	.0275	-.0027	.0222
7	.0082	.0846	.0104	.0436	.0004	.0285	-.0096	.0134	-.0132	.0146	-.0022	.0011
8	-.0495	.0355	-.0240	.0317	-.0239	.0083	-.0239	-.0152	-.0071	-.0178	.0036	-.0024
9	-.0343	.0003	-.0362	-.0086	-.0097	-.0196	.0168	-.0306	.0170	-.0016	-.0038	.0024
10	.0084	.0037	.0005	.0009	.0127	.0058	.0250	.0107	-.0034	.0143	-.0017	.0089

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0766	.4544	-.0069	-.0577	-.0469	-.2813	-.0781	-.4095	-.1431	-.2834	-.1405	-.1376	-.1551	-.0365	-.1684	.2380
2	.0947	.0973	-.0461	.0045	-.0518	-.0351	-.0380	.0489	-.0213	-.0395	-.0147	-.0423	-.0350	-.0454	-.0546	-.0676
3	.0137	.0557	-.0164	.0276	-.0059	-.0017	-.0072	-.0103	-.0078	-.0094	-.0050	-.0144	-.0101	-.0151	-.0003	-.0266
4	-.0026	.0257	-.0005	.0125	.0103	.0008	.0108	.0039	.0109	-.0014	.0117	-.0005	.0137	-.0074	.0220	-.0029
5	.0014	-.0058	-.0007	-.0032	.0021	-.0023	-.0019	-.0014	-.0018	.0027	.0005	.0035	.0044	.0055	.0094	.0172
6	.0067	-.0025	.0087	.0076	.0042	.0051	-.0005	.0005	-.0009	.0020	-.0023	.0020	-.0027	.0052	-.0094	.0057
7	.0133	.0021	.0006	.0003	-.0015	-.0011	-.0011	-.0035	-.0034	-.0009	-.0021	-.0022	-.0038	-.0009	-.0047	-.0025
8	-.0029	.0114	-.0020	.0013	-.0000	.0010	.0019	-.0004	.0019	-.0011	.0017	.0004	.0019	-.0016	.0045	-.0001
9	-.0068	-.0062	-.0015	-.0022	-.0004	.0015	-.0037	.0017	.0002	.0025	-.0008	.0031	.0035	.0029	-.0005	.0058
10	.0066	-.0012	-.0000	-.0009	-.0009	.0006	-.0012	-.0023	-.0025	-.0003	-.0029	-.0021	-.0040	.0033	-.0085	.0005

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 12 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4975	141.3	1.2468	164.0	1.0313	157.5	.7045	140.7	.4586	134.6	.4633	124.4	.4103	135.2
2	1.2169	102.8	1.0337	96.0	.6158	112.2	.4461	100.4	.2588	114.8	.2661	104.3	.2501	116.3
3	.6720	168.5	.7558	158.5	.6823	167.1	.4917	127.6	.3232	138.9	.3011	108.6	.2426	116.1
4	.6070	160.7	.5243	151.5	.4207	173.2	.2735	121.0	.1884	145.3	.1518	123.8	.1145	147.9
5	.2879	143.1	.2698	121.7	.2970	163.1	.2324	102.4	.1560	125.1	.1479	89.8	.1312	107.3
6	.2867	136.0	.1864	79.8	.1447	152.7	.1672	90.7	.1231	138.7	.1106	100.2	.0704	128.8
7	.0948	129.3	.1031	9.4	.0286	219.4	.1020	92.2	.0858	126.2	.0752	77.4	.0559	116.0
8	.1343	85.8	.2528	354.3	.0773	21.8	.1080	63.9	.0632	123.6	.0681	82.9	.0573	124.5
9	.0188	155.2	.1379	316.5	.1025	338.0	.0375	49.7	.0307	142.5	.0428	60.4	.0379	105.4
10	.0311	45.5	.1946	332.3	.1138	354.9	.0185	24.5	.0205	180.4	.0115	103.1	.0126	114.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3417	122.7	.2781	97.7	.2607	50.3	.3907	18.7	.4664	352.8	.5140	349.7
2	.2285	99.0	.1237	100.5	.0483	59.7	.0915	357.4	.0869	328.7	.0524	334.4
3	.2674	85.2	.1504	71.8	.0979	38.2	.1093	348.4	.1067	316.5	.0748	335.3
4	.1093	112.8	.0515	133.9	.0254	72.1	.0526	12.3	.0429	311.4	.0433	339.9
5	.1308	55.9	.0883	59.1	.0609	20.7	.0760	334.5	.0552	287.2	.0474	325.3
6	.0579	76.4	.0358	101.2	.0174	25.0	.0434	332.1	.0510	266.3	.0402	283.5
7	.0451	43.0	.0489	68.3	.0300	18.7	.0467	326.0	.0380	240.4	.0315	337.5
8	.0428	50.3	.0468	72.2	.0176	33.4	.0294	301.0	.0291	227.8	.0171	260.1
9	.0367	29.0	.0294	54.3	.0225	5.4	.0339	324.5	.0342	195.4	.0261	223.4
10	.0167	21.8	.0379	53.6	.0145	3.7	.0293	282.6	.0198	183.9	.0146	244.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3212	10.8	.1027	224.0	.5835	204.8	.3511	208.1	.2775	229.8	.2077	254.3	.2187	301.6	.3612	328.4
2	.0520	64.6	.0282	279.3	.0586	278.7	.0216	238.2	.0126	197.1	.0117	177.6	.0087	231.3	.0201	285.1
3	.0450	112.6	.0130	294.8	.0707	288.7	.0323	255.6	.0320	276.8	.0307	267.3	.0371	300.1	.0497	302.1
4	.0353	137.3	.0069	58.6	.0168	329.6	.0077	294.4	.0055	305.8	.0073	274.3	.0117	296.0	.0221	329.2
5	.0316	102.7	.0068	125.6	.0195	234.9	.0141	210.1	.0141	248.7	.0146	233.0	.0180	278.9	.0279	323.9
6	.0170	96.9	.0019	216.7	.1422	302.2	.0033	212.9	.0043	224.7	.0065	202.3	.0114	183.7	.0212	322.0
7	.0070	65.7	.0049	80.0	.0133	140.9	.0067	124.0	.0078	181.4	.0095	158.2	.0134	217.4	.0227	191.7
8	.0147	65.3	.0012	101.0	.0040	148.8	.0026	193.9	.0013	142.2	.0023	158.4	.0037	211.4	.0089	165.3
9	.0085	359.4	.0038	355.8	.0046	157.1	.0029	84.2	.0033	140.0	.0049	102.1	.0092	179.5	.0147	143.4
10	.0037	331.9	.0025	323.0	.0038	124.6	.0018	44.7	.0021	128.3	.0033	86.7	.0050	168.3	.0092	130.3

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 78 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4734	176.3	1.3227	179.9	1.1070	163.4	.4868	128.9	.4745	109.0	.5788	93.7	.5013	99.6
2	2.1636	85.1	1.8936	82.6	1.2011	87.6	.8766	74.0	.4788	74.8	.5007	58.3	.4113	63.1
3	.6437	146.8	.8458	141.2	.7266	146.8	.4499	90.6	.3032	90.0	.3446	57.5	.2538	61.2
4	.3497	88.6	.3228	94.5	.1703	111.0	.1683	42.0	.1241	22.0	.1445	333.2	.1053	334.7
5	.1824	156.1	.2010	140.7	.3007	154.9	.1466	63.9	.0904	59.8	.1257	29.9	.1050	55.5
6	.1540	122.9	.1766	136.8	.1620	193.7	.0780	84.2	.0021	37.7	.0541	303.4	.0492	327.8
7	.1182	128.2	.0917	114.4	.1545	152.6	.1500	57.5	.0938	79.6	.0906	31.1	.0753	61.0
8	.1014	48.0	.0355	130.3	.0928	222.4	.0616	21.0	.0449	351.7	.0771	309.4	.0709	349.0
9	.0836	223.6	.0654	159.9	.0789	214.0	.0654	82.8	.0357	149.1	.0038	251.1	.0209	305.7
10	.0880	112.1	.0712	90.1	.0600	195.9	.0754	53.1	.0488	81.2	.0385	19.5	.0216	87.5

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4972	92.5	.4831	78.0	.4279	42.9	.5377	11.8	.5042	345.4	.5007	345.2
2	.3984	43.7	.3517	28.3	.2227	354.9	.2463	303.0	.1806	257.9	.1345	252.1
3	.2040	25.8	.1878	350.9	.1187	312.4	.1478	260.1	.0822	217.1	.0427	202.0
4	.0885	306.6	.1328	298.1	.0716	274.0	.0586	206.1	.0375	138.8	.0271	116.4
5	.0679	13.0	.0808	261.3	.0573	233.1	.0588	191.8	.0360	101.6	.0308	80.4
6	.0111	358.2	.0496	151.5	.0373	123.4	.0386	84.3	.0386	15.7	.0274	353.2
7	.0849	5.5	.0448	13.4	.0285	.8	.0165	324.5	.0197	317.8	.0025	294.8
8	.0609	305.7	.0397	322.9	.0253	289.1	.0283	237.6	.0192	201.7	.0044	123.3
9	.0343	270.4	.0372	256.7	.0218	202.2	.0150	151.2	.0171	95.5	.0045	58.1
10	.0092	66.5	.0010	27.1	.0140	65.5	.0272	66.8	.0147	346.7	.0091	348.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4608	9.6	.0581	186.8	.2852	189.5	.4169	190.8	.3175	206.8	.1966	225.6	.1594	283.2	.2917	324.7
2	.1358	44.2	.0465	278.1	.0626	235.9	.0620	217.8	.0449	208.3	.0447	199.2	.0573	217.7	.0869	218.9
3	.0573	13.8	.0321	329.3	.0061	253.6	.0126	214.9	.0122	219.7	.0153	199.0	.0182	213.7	.0266	179.3
4	.0258	354.2	.0125	357.5	.0103	85.4	.0115	70.1	.0110	97.3	.0117	92.6	.0156	118.3	.0222	97.6
5	.0040	166.7	.0033	192.8	.0031	137.2	.0024	232.9	.0033	326.4	.0035	7.9	.0084	49.5	.0197	29.2
6	.0071	110.2	.0116	49.0	.0066	39.4	.0007	315.3	.0022	335.2	.0030	310.7	.0059	332.4	.0110	301.5
7	.0135	81.3	.0007	66.1	.0018	233.9	.0037	197.5	.0035	255.5	.0030	224.1	.0039	256.8	.0053	242.1
8	.0118	345.7	.0024	303.0	.0010	181.5	.0019	102.3	.0022	121.3	.0018	76.6	.0025	129.9	.0045	91.4
9	.0092	227.4	.0027	214.4	.0016	345.2	.0041	294.9	.0025	5.5	.0032	345.1	.0045	50.3	.0058	355.5
10	.0067	100.4	.0009	180.2	.0011	304.1	.0026	207.3	.0026	262.7	.0036	234.6	.0052	309.6	.0085	273.5

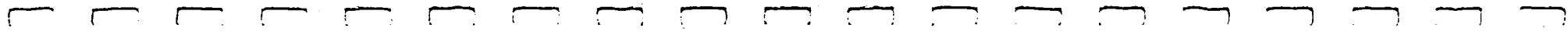


TABLE 6
(Notes 1 and 2)

CHORDWISE PRESSURES: $M_c=0.40$, $\bar{\alpha}=10$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.037	33	164-167
0	.075	35	168-171
0	.093	37	172-175
9	.037	39	176-179
9	.075	41	180-183
9	.093	43	184-187
12	.037	45	188-191
12	.075	47	192-195
12	.093	49	196-199
15	.037	51	200-203
15	.075	53	204-207
15	.093	55	208-211

Notes:

1. Unswept and swept counterparts appear on facing pages (A,B coefficients on first page pair and C,P coefficients on second page pair).
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\begin{aligned} \text{PAGE } C_c &= \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100 \\ \text{PAGE } C_D &= \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200 \end{aligned}$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

FILE: 28 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.3228	3.5642	-.3115	3.8610	-.2849	3.0635	-.2828	2.1237	-.1413	1.6137	-.1811	1.4676	-.0989	1.3374
2	-1.7256	-.3352	-1.4839	-.3936	-.9306	-.1495	-.3846	-.0864	-.1946	-.0202	-.1731	-.0299	-.0991	-.0017
3	-.0232	-.1966	.0005	-.2073	-.0341	-.1613	-.0547	-.0173	-.0427	.0267	-.0406	.0165	-.0346	.0264
4	-.0821	-.0959	-.0207	-.0721	.0708	-.0158	-.0334	-.0329	-.0229	-.0138	-.0180	-.0173	-.0179	-.0082
5	.0624	-.0820	.0554	-.0390	-.0027	.0506	.0219	-.0169	.0112	-.0089	.0125	-.0051	.0097	-.0051
6	.0418	.0386	-.0279	.0426	-.0290	.0007	.0082	.0113	.0028	.0031	.0011	.0028	.0015	.0018
7	-.0130	.0159	-.0244	.0158	-.0040	-.0088	-.0063	.0035	-.0039	.0005	-.0031	-.0001	-.0036	.0003
8	-.0115	.0025	-.0001	-.0060	.0013	-.0052	.0019	-.0030	.0032	-.0020	.0020	-.0013	.0017	-.0023
9	-.0150	-.0104	.0000	-.0021	.0092	-.0119	-.0008	-.0001	-.0010	.0003	-.0003	-.0005	-.0000	.0008
10	-.0120	-.0088	.0010	-.0037	.0145	.0123	-.0005	-.0019	-.0019	.0004	-.0007	-.0002	-.0010	.0004

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1236	1.0629	-.0390	.7033	-.0161	.4502	.0068	.1971	.0054	.0665	.0020	.0011
2	-.0640	-.0051	-.0113	.0061	.0058	.0051	-.0230	.0040	.0093	-.0006	-.0417	-.0134
3	-.0316	.0185	-.0211	.0170	-.0163	.0148	-.0115	.0125	-.0082	.0041	.0001	-.0093
4	-.0132	-.0095	-.0110	-.0048	-.0078	-.0036	-.0047	-.0025	.0046	.0059	.0155	.0144
5	.0078	-.0026	.0055	-.0021	.0050	-.0019	.0045	-.0017	.0028	.0021	-.0012	.0036
6	.0007	.0012	.0007	.0015	.0007	.0017	.0007	.0019	-.0021	-.0039	-.0047	-.0094
7	-.0029	-.0003	-.0031	.0013	-.0032	.0008	-.0034	.0003	.0001	-.0018	.0005	-.0011
8	.0015	-.0013	.0005	-.0013	.0004	-.0004	.0004	.0004	.0008	.0021	.0006	.0040
9	-.0003	.0001	.0006	.0005	.0012	.0004	.0018	.0004	-.0010	.0003	.0001	-.0002
10	-.0010	-.0002	-.0001	.0003	-.0005	.0004	-.0009	.0005	-.0006	-.0009	.0002	.0000

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.3189	-2.7482	.4496	-3.0728	.3027	-3.0756	.1050	-.9298	.0197	-.4950	.0034	-.2275	-.0106	-.0770	-.0052	.0093
2	-1.3170	-.3368	-1.0003	-.3431	-.4927	-.1508	-.0586	-.0302	.0005	-.0066	.0150	-.0004	.0074	-.0025	-.0323	-.0149
3	-.0247	.0969	-.0492	.1538	.0534	-.0422	.0246	-.0150	.0171	-.0149	.0143	-.0107	.0082	-.0079	-.0013	.0027
4	-.0344	-.0780	-.0578	-.0088	-.0174	-.0466	-.0243	-.0109	-.0001	-.0054	.0012	-.0031	.0051	.0018	.0123	.0154
5	-.0377	.0143	-.0121	-.0183	-.0287	.0152	-.0084	.0016	-.0065	.0024	-.0061	.0009	-.0032	.0009	.0008	-.0006
6	.0112	.0272	.0050	.0291	.0124	.0219	.0005	.0035	.0005	.0030	-.0004	.0016	-.0018	-.0018	-.0012	-.0088
7	.0143	-.0084	.0326	-.0081	.0086	-.0055	.0045	.0007	.0026	.0003	.0025	.0019	.0011	.0007	-.0007	-.0003
8	-.0040	-.0055	-.0074	-.0274	-.0010	-.0008	-.0010	-.0018	.0003	-.0010	.0009	-.0000	.0008	.0015	-.0012	.0037
9	.0018	.0013	-.0202	.0032	.0031	-.0004	-.0003	-.0002	-.0008	-.0009	-.0005	-.0013	.0003	-.0003	.0007	.0007
10	-.0028	-.0022	-.0016	.0104	-.0024	.0023	-.0005	.0013	-.0011	.0007	-.0013	-.0001	-.0006	-.0003	.0001	-.0005

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

FILE: 28 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.5787	354.8	3.8947	352.5	3.0767	354.7	2.1425	352.4	1.6199	355.0	1.4787	353.0	1.3410	355.8
2	1.7579	259.0	1.5352	255.1	.9425	260.9	.3942	257.3	.1957	264.1	.1757	260.2	.0991	269.0
3	.1979	186.7	.2073	179.9	.1649	191.9	.0574	287.5	.0504	302.0	.0438	292.1	.0435	307.3
4	.1263	220.6	.0750	196.0	.0725	102.6	.0469	225.4	.0267	239.0	.0249	226.2	.0197	245.3
5	.1030	142.7	.0678	125.2	.0507	273.1	.0277	127.7	.0143	128.4	.0135	112.4	.0109	117.6
6	.0569	47.3	.0510	33.2	.0290	271.4	.0139	35.9	.0042	42.1	.0031	22.0	.0024	40.4
7	.0206	320.7	.0291	302.9	.0097	204.2	.0072	299.1	.0039	276.9	.0031	268.8	.0036	274.2
8	.0117	77.7	.0060	181.1	.0053	166.0	.0036	147.0	.0038	121.9	.0024	123.7	.0029	144.7
9	.0182	304.6	.0021	179.9	.0150	142.3	.0008	261.2	.0011	288.3	.0006	333.9	.0008	359.3
10	.0148	233.7	.0039	164.4	.0190	49.9	.0020	195.0	.0020	283.1	.0008	251.3	.0011	292.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0701	353.4	.7044	356.8	.4505	358.0	.1973	2.0	.0667	4.6	.0023	60.6
2	.0643	263.4	.0129	298.4	.0077	49.0	.0233	80.1	.0094	93.5	.0438	252.2
3	.0366	300.4	.0271	308.9	.0220	312.2	.0170	317.4	.0091	296.4	.0094	179.4
4	.0162	234.2	.0120	246.5	.0086	245.2	.0053	242.5	.0075	37.8	.0212	47.1
5	.0082	108.1	.0059	110.5	.0054	110.5	.0048	110.5	.0035	53.8	.0038	341.9
6	.0014	30.0	.0016	26.4	.0019	23.3	.0021	20.9	.0044	207.8	.0107	205.9
7	.0029	263.6	.0034	293.1	.0033	284.1	.0034	275.2	.0018	178.1	.0012	154.5
8	.0020	132.4	.0014	159.9	.0006	134.8	.0006	40.8	.0023	20.9	.0040	9.2
9	.0003	281.7	.0008	52.8	.0013	70.0	.0019	76.9	.0010	285.8	.0002	149.2
10	.0010	258.2	.0004	345.1	.0007	310.9	.0011	299.9	.0011	216.2	.0002	87.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.7667	173.4	3.1055	171.7	3.0905	174.4	.9357	173.6	.4954	177.7	.2275	179.1	.0778	187.8	.0106	330.4
2	1.3594	255.7	1.0575	251.1	.5152	253.0	.0459	242.8	.0067	175.8	.0150	91.5	.0079	108.8	.0356	245.2
3	.1000	345.7	.1615	342.3	.0681	128.3	.0288	121.4	.0227	131.0	.0179	126.8	.0114	134.2	.0030	333.6
4	.0853	203.8	.0585	98.7	.0497	200.5	.0112	191.7	.0056	181.5	.0033	159.2	.0054	70.1	.0197	38.7
5	.0403	290.8	.0280	213.5	.0322	297.8	.0085	280.7	.0049	290.2	.0042	278.2	.0033	285.2	.0010	54.3
6	.0294	22.3	.0295	29.7	.0252	29.6	.0035	8.8	.0011	10.2	.0016	345.0	.0025	226.3	.0089	187.8
7	.0166	120.4	.0336	104.0	.0102	122.5	.0046	81.8	.0027	83.3	.0031	53.8	.0013	56.2	.0008	247.4
8	.0048	216.0	.0284	195.1	.0013	310.7	.0020	209.4	.0010	144.4	.0009	91.5	.0017	27.9	.0039	341.8
9	.0022	53.3	.0204	278.9	.0031	94.8	.0004	230.3	.0013	221.8	.0014	201.2	.0004	143.3	.0010	47.4
10	.0035	231.8	.0105	351.1	.0033	314.3	.0013	339.2	.0013	303.5	.0013	267.0	.0006	239.2	.0005	171.6

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

FILE: 29 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.6644	3.5545	-1.0150	3.8003	-.5584	3.0489	-.5378	2.0986	-.2578	1.6125	-.3427	1.4539	-.1873	1.3356
2	-1.6817	-.6560	-1.3630	-.7813	-.9135	-.3352	-.3501	-.1943	-.1848	-.0675	-.1553	-.0840	-.0939	-.0323
3	-.0518	-.2136	.1040	-.2046	.0272	-.1864	-.0514	-.0173	-.0466	-.0052	-.0400	-.0085	-.0397	-.0084
4	-.0190	-.1140	.0292	-.0581	.0925	.0174	-.0020	-.0397	-.0070	-.0201	.0000	-.0191	-.0062	-.0128
5	.0790	-.0594	.0655	-.0130	-.0272	.0382	.0260	-.0021	.0114	-.0064	.0116	.0009	.0099	-.0033
6	.0312	.0598	-.0026	.0601	-.0141	-.0136	.0019	.0159	.0033	.0044	.0002	.0032	.0013	.0010
7	-.0144	.0176	-.0291	.0039	-.0080	.0006	-.0035	.0029	.0018	.0005	.0027	.0006	.0016	-.0012
8	-.0101	-.0069	-.0033	-.0134	-.0079	-.0070	-.0005	-.0012	.0004	.0012	.0002	.0013	-.0022	-.0004
9	-.0149	-.0085	-.0104	-.0004	.0223	-.0095	.0012	-.0026	-.0002	-.0021	.0009	-.0020	-.0003	-.0025
10	.0049	-.0084	-.0022	.0044	.0024	.0245	.0025	.0004	.0008	-.0009	.0004	-.0002	.0002	-.0007

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2269	1.0528	-.0608	.7049	-.0196	.4513	.0216	.1977	.0152	.0669	.0030	-.0008
2	-.0533	-.0321	-.0072	-.0066	.0091	-.0044	.0254	-.0022	.0152	-.0089	-.0325	-.0314
3	-.0347	-.0018	-.0254	.0052	-.0206	.0044	-.0158	.0036	-.0092	-.0026	.0033	-.0072
4	-.0012	-.0118	-.0029	-.0073	-.0005	-.0059	.0018	-.0045	.0019	.0089	.0028	.0212
5	.0072	.0008	.0047	.0007	.0033	.0024	.0018	.0042	-.0018	.0030	-.0036	-.0005
6	.0004	.0011	-.0010	.0005	-.0020	.0002	-.0030	-.0001	.0028	-.0038	.0066	-.0074
7	.0013	-.0002	-.0004	-.0017	-.0004	-.0025	-.0003	-.0032	.0021	-.0008	-.0002	.0010
8	.0011	.0005	.0017	.0002	.0009	.0005	.0000	.0008	-.0015	-.0006	-.0032	-.0006
9	.0004	-.0019	-.0008	-.0006	-.0011	.0000	-.0013	.0007	.0004	-.0014	.0003	.0005
10	.0005	-.0003	.0001	.0003	.0001	.0005	.0000	.0007	-.0003	.0008	-.0006	.0004

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.5501	-2.7521	.8058	-3.0443	.5396	-3.0851	.1891	-.9207	.0262	-.4948	.0007	-.2270	-.0239	-.0778	-.0116	.0084
2	-1.2891	-.5463	-.9380	-.5582	-.4670	-.2220	-.0510	-.0438	.0044	-.0113	.0194	-.0032	.0122	-.0108	-.0197	-.0322
3	-.0321	-.1198	-.0908	.1673	-.0788	-.0066	.0282	.0032	.0220	-.0049	.0182	.0003	.0118	-.0015	-.0003	.0062
4	-.0006	-.0910	.0671	.0110	-.0044	-.0538	.0034	-.0119	.0010	-.0051	.0022	-.0019	.0018	.0049	-.0051	.0190
5	-.0525	-.0044	-.0115	-.0291	-.0374	.0023	-.0080	-.0033	-.0057	-.0019	-.0024	-.0044	-.0012	-.0034	.0026	-.0009
6	-.0008	.0299	-.0149	.0270	.0051	.0226	-.0038	.0013	-.0025	.0024	-.0020	.0002	-.0001	-.0021	.0079	-.0022
7	.0125	-.0016	.0284	.0094	.0196	-.0046	-.0010	.0020	-.0006	.0029	-.0027	.0024	-.0033	.0023	-.0012	-.0014
8	-.0086	-.0089	.0089	-.0318	-.0193	.0019	.0002	-.0013	.0011	.0001	.0001	.0012	.0003	.0005	-.0022	-.0016
9	-.0063	.0072	-.0248	-.0113	-.0057	.0081	-.0006	.0019	.0009	-.0002	.0014	.0008	.0013	.0003	-.0007	.0010
10	.0045	.0049	-.0081	.0114	.0002	.0045	.0000	.0007	.0004	-.0001	.0005	-.0003	.0004	-.0003	.0001	-.0000

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

FILE: 29 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.6160	349.4	3.9335	345.0	3.1192	349.7	2.1664	345.6	1.6330	350.9	1.4937	346.7	1.3487	352.0
2	1.8051	248.7	.9731	240.2	.9731	249.9	.4014	240.7	.1967	249.9	.1768	241.6	.0993	251.0
3	.2197	166.4	.2295	153.1	.1884	171.7	.0543	251.4	.0469	276.4	.0409	258.0	.0406	282.1
4	.1155	189.5	.0450	153.3	.0942	79.3	.0397	182.9	.0213	199.3	.0191	180.0	.0143	205.8
5	.0988	126.9	.0668	101.2	.0469	324.5	.0261	94.6	.0131	119.4	.0117	85.6	.0105	108.3
6	.0675	27.6	.0601	2.5	.0196	226.1	.0160	6.9	.0055	37.0	.0032	3.1	.0016	51.9
7	.0227	320.7	.0293	277.6	.0080	86.0	.0045	310.1	.0019	75.2	.0028	76.9	.0020	125.3
8	.0122	304.5	.0138	193.8	.0105	228.4	.0013	203.9	.0013	16.6	.0014	8.0	.0022	100.5
9	.0172	240.3	.0104	92.4	.0242	113.1	.0029	154.4	.0021	184.4	.0022	155.0	.0025	187.5
10	.0097	149.7	.0049	333.3	.0246	5.7	.0025	81.9	.0012	140.0	.0005	118.5	.0007	164.9

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0770	347.8	.7076	355.1	.4517	357.5	.1988	6.2	.0686	12.8	.0031	104.5
2	.0622	238.9	.0098	227.6	.0101	115.8	.0255	95.0	.0177	120.3	.0452	226.0
3	.0347	267.0	.0259	281.5	.0211	282.0	.0162	282.9	.0096	254.2	.0079	155.2
4	.0119	185.8	.0079	201.8	.0060	185.3	.0049	157.8	.0091	11.9	.0214	7.6
5	.0073	83.4	.0047	81.8	.0041	53.4	.0045	23.8	.0034	329.1	.0037	261.9
6	.0012	21.2	.0011	297.2	.0020	275.3	.0030	267.6	.0047	143.7	.0100	138.2
7	.0013	97.6	.0017	193.9	.0025	188.5	.0032	185.6	.0022	69.9	.0010	347.7
8	.0012	65.9	.0018	81.8	.0010	59.5	.0008	.3	.0016	249.7	.0033	258.7
9	.0019	167.3	.0010	236.2	.0011	272.5	.0015	296.1	.0014	165.1	.0005	30.8
10	.0006	124.9	.0003	21.2	.0005	6.6	.0007	1.1	.0009	343.1	.0007	306.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.8066	168.7	3.1491	165.2	3.1319	170.1	.9399	168.4	.4955	177.0	.2270	179.8	.0814	197.1	.0143	306.1
2	1.4001	247.0	1.0916	239.2	.5171	244.6	.0672	229.3	.0121	158.8	.0196	99.5	.0163	131.4	.0377	211.5
3	.1240	345.0	.1904	331.5	.0791	94.8	.0284	83.6	.0226	102.5	.0182	89.1	.0119	97.0	.0062	356.9
4	.0910	180.4	.0480	80.7	.0540	184.7	.0124	144.1	.0052	169.4	.0029	131.0	.0053	70.5	.0197	344.8
5	.0527	265.2	.0313	201.6	.0375	273.4	.0087	208.3	.0060	251.4	.0049	208.4	.0036	198.6	.0027	108.9
6	.0299	358.4	.0309	311.1	.0232	12.8	.0040	288.9	.0034	314.5	.0020	276.3	.0021	182.3	.0082	105.8
7	.0126	97.2	.0299	71.7	.0201	103.2	.0022	332.2	.0030	349.0	.0036	311.8	.0040	304.0	.0018	221.5
8	.0124	224.0	.0330	164.3	.0194	375.6	.0013	170.6	.0011	83.6	.0012	3.3	.0006	29.4	.0027	333.8
9	.0096	318.0	.0273	245.6	.0099	324.9	.0020	343.4	.0009	101.5	.0016	61.5	.0014	76.6	.0012	326.8
10	.0066	42.2	.0140	324.4	.0045	2.9	.0007	1.5	.0004	108.0	.0006	116.0	.0005	126.4	.0001	100.8

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 30 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1														
2	-.7908	3.5761	-1.2146	3.7864	-.6647	3.0842	-.6402	2.0865	-.2996	1.6131	-.4113	1.4665	-.2168	1.3312
3	-1.6594	-.7594	-1.2986	-.9130	-.9119	-.3884	-.3401	-.2185	-.1854	-.0644	-.1562	-.0877	-.0980	-.0246
4	.0839	-.1909	.1421	-.1664	.0595	-.1747	-.0461	-.0192	-.0427	-.0042	-.0363	-.0127	-.0376	.0084
5	-.0313	-.1217	.0138	-.0641	.0700	.0327	-.0034	-.0394	-.0109	-.0173	-.0028	-.0174	-.0098	-.0089
6	.1203	-.0553	-.0975	.0062	-.0110	.0263	-.0354	.0079	.0216	-.0040	.0181	.0067	-.0168	-.0015
7	.0253	.0846	-.0232	.0813	-.0037	.0039	-.0037	.0205	.0033	.0087	-.0009	.0072	-.0008	.0052
8	-.0269	.0156	-.0371	-.0110	-.0061	.0102	-.0057	.0027	.0027	.0028	.0010	.0044	.0031	.0013
9	-.0127	.0037	.0047	-.0137	-.0069	-.0200	-.0002	-.0022	-.0010	.0003	-.0002	.0001	.0002	.0005
10	-.0177	-.0103	.0036	.0024	-.0281	.0012	.0003	-.0024	-.0004	-.0010	.0009	-.0010	-.0003	-.0016
	.0081	-.0120	.0005	.0005	-.0076	.0266	.0019	-.0003	.0008	-.0004	.0004	-.0001	-.0002	.0006

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1												
2	-.2674	1.0453	-.0647	.7038	-.0162	.4498	.0323	.1957	.0229	.0645	.0066	-.0047
3	-.0557	-.0256	-.0091	.0043	.0076	.0065	.0243	.0087	.0140	.0013	-.0276	-.0247
4	-.0317	-.0052	-.0239	.0035	-.0194	.0016	-.0148	-.0002	-.0081	-.0047	.0028	-.0063
5	-.0028	-.0097	-.0027	-.0042	.0009	-.0033	.0044	-.0023	-.0012	.0095	-.0042	.0193
6	.0113	.0050	.0063	.0001	.0028	.0018	-.0007	.0034	-.0025	.0016	-.0014	-.0008
7	.0010	.0036	.0010	.0002	-.0007	-.0009	.0024	-.0019	.0042	-.0013	.0063	-.0015
8	.0015	.0024	.0017	-.0010	.0016	-.0021	.0016	-.0033	.0020	-.0012	-.0006	-.0009
9	.0006	.0001	.0006	.0003	-.0006	.0001	-.0016	-.0000	-.0004	-.0018	-.0016	-.0014
10	.0002	-.0010	-.0005	-.0002	-.0004	.0001	-.0003	.0004	.0004	-.0000	-.0003	.0007
	-.0001	.0002	-.0001	.0009	.0000	.0008	.0001	.0007	-.0005	-.0001	-.0003	-.0008

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1																
2	.6522	-2.7508	.9652	-3.0245	.6284	-3.1004	.2230	-.9179	.0253	-.4991	-.0025	-.2299	-.0303	-.0812	-.0133	.0063
3	-1.2614	-.6323	-.8882	-.6513	-.4565	-.2403	-.0509	-.0406	.0022	-.0010	.0153	.0079	.0120	-.0013	-.0165	-.0259
4	-.0458	-.1123	-.1170	.1486	.0762	.0010	.0266	.0056	.0219	-.0015	.0165	.0044	.0114	.0013	-.0015	.0041
5	-.0156	-.1021	.0750	.0179	.0107	-.0657	.0107	-.0127	.0031	-.0078	.0038	-.0025	.0006	.0037	-.0122	.0137
6	-.0516	-.0235	-.0042	-.0399	-.0482	-.0071	-.0085	-.0063	-.0045	-.0011	-.0006	-.0027	.0023	-.0024	.0035	.0018
7	-.0138	.0322	-.0244	.0187	.1027	-.0244	-.0053	-.0024	-.0056	.0021	-.0037	-.0011	-.0084	.0036	.0058	.0032
8	.0067	-.0054	.0219	.0085	-.0003	-.0082	-.0018	-.0005	-.0029	.0018	-.0038	-.0003	-.0029	.0000	.0004	-.0025
9	-.0117	-.0096	.0136	-.0261	-.0084	-.0028	.0001	-.0006	.0000	.0013	-.0011	.0014	-.0011	.0005	-.0000	-.0015
10	-.0055	.0060	-.0162	-.0147	-.0001	.0054	-.0002	.0017	.0009	.0000	.0008	.0010	.0001	.0007	-.0008	.0002
	.0037	.0047	-.0095	.0081	.0015	.0010	.0002	.0001	.0001	.0001	.0005	-.0004	.0001	.0002	.0005	-.0005

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 30 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.4625	347.5	3.9765	342.2	3.1550	347.8	2.1825	342.9	1.6407	349.5	1.5231	344.3	1.3487	350.8
2	1.8249	245.4	1.5874	234.9	.9912	246.9	.4042	237.3	.1963	250.9	.1792	240.7	.1011	255.9
3	.2085	156.3	.2188	139.5	.1864	161.4	.0499	247.4	.0429	275.6	.0385	250.7	.0385	282.7
4	.1256	194.4	.0656	147.9	.0773	65.0	.0395	184.9	.0205	212.2	.0174	189.1	.0132	228.0
5	.1326	114.6	.0976	86.4	.0285	337.2	.0362	77.4	.0219	100.5	.0193	69.7	.0149	95.2
6	.0883	16.7	.0845	344.1	.0054	316.7	.0208	349.9	.0093	20.5	.0073	353.0	.0053	350.9
7	.0311	300.1	.0386	253.5	.0119	329.0	.0063	295.1	.0039	44.2	.0045	13.4	.0033	67.5
8	.0132	286.2	.0145	161.2	.0212	198.9	.0022	186.2	.0010	287.0	.0003	298.9	.0006	22.9
9	.0205	239.8	.0044	55.8	.0281	87.6	.0024	172.9	.0011	202.8	.0013	139.1	.0016	190.8
10	.0145	146.1	.0008	45.2	.0276	344.1	.0019	99.8	.0009	118.8	.0004	74.8	.0006	339.4

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	1.0789	345.7	.7068	354.8	.4501	357.9	.1984	9.4	.0685	19.5	.0081	125.4
2	.0613	245.3	.0100	295.3	.0100	49.6	.0258	70.3	.0141	84.8	.0371	228.2
3	.0321	260.7	.0242	278.2	.0194	274.8	.0148	269.1	.0094	239.9	.0069	156.5
4	.0101	176.0	.0050	212.4	.0034	165.3	.0050	117.5	.0026	352.9	.0198	347.7
5	.0123	66.0	.0063	89.0	.0033	57.7	.0035	347.8	.0029	302.9	.0016	240.4
6	.0037	14.9	.0010	81.0	.0011	217.0	.0030	230.8	.0044	107.3	.0045	101.8
7	.0028	31.6	.0019	120.0	.0027	142.1	.0037	153.3	.0023	59.9	.0011	212.5
8	.0006	75.4	.0005	57.5	.0006	281.3	.0016	268.7	.0018	192.6	.0021	230.0
9	.0010	166.6	.0005	246.7	.0004	283.5	.0005	321.2	.0004	88.5	.0007	337.4
10	.0002	346.5	.0009	355.1	.0008	1.3	.0007	8.8	.0005	261.3	.0008	201.5

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.8271	166.7	3.1748	162.3	3.1634	168.5	.9446	166.3	.4997	177.1	.2299	180.6	.0867	200.5	.0147	295.4
2	1.4110	243.4	1.1014	233.7	.5159	242.2	.0651	231.4	.0024	114.7	.0172	62.7	.0121	94.4	.0308	212.5
3	.1213	337.8	.1891	321.8	.0762	89.3	.0272	78.1	.0220	93.9	.0171	75.0	.0115	83.7	.0063	346.2
4	.1033	171.3	.0771	76.6	.0665	170.7	.0166	140.0	.0084	158.6	.0046	123.5	.0038	9.4	.0184	318.3
5	.0567	245.6	.0401	186.0	.0487	261.7	.0106	233.2	.0046	255.9	.0028	166.8	.0033	136.3	.0039	63.3
6	.0346	338.3	.0307	307.6	.1055	103.3	.0058	245.9	.0060	290.9	.0039	253.2	.0091	293.4	.0066	61.2
7	.0086	128.5	.0236	68.7	.0082	182.1	.0018	254.1	.0034	300.8	.0038	266.0	.0029	270.2	.0025	171.1
8	.0151	230.7	.0295	152.6	.0091	251.9	.0007	174.3	.0013	88.8	.0017	322.6	.0012	295.7	.0015	181.5
9	.0081	317.8	.0219	227.8	.0054	358.9	.0017	352.4	.0009	88.5	.0013	37.8	.0007	6.7	.0009	280.7
10	.0060	38.0	.0125	310.6	.0018	56.1	.0003	68.0	.0001	46.2	.0007	123.6	.0002	15.8	.0007	135.6

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 40 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0579	2.4767	-.0917	.7063	.0013	.3921	.0654	.4566	.1124	.3140	.0641	.1587	.1240	.2929
2	1.7094	.4306	.9531	.2427	.7287	.1354	1.0292	.3353	.7120	.2108	.3124	.1321	.5171	.1771
3	.1248	.5418	.0545	.1413	.1075	.0775	.1485	.0865	.1239	.0189	.0604	.0183	.1062	-.0052
4	.5102	.5094	.3007	.2385	.2267	.1633	.2819	.3170	.2144	.2133	.0720	.1235	.1390	.1797
5	-.0761	.2667	-.0113	.1034	.0266	.1039	-.0267	.1753	-.0114	.1256	-.0222	.0484	-.0197	.0728
6	-.0993	.2389	.0916	.1228	.0569	.1060	-.0194	.1915	-.0015	.1382	-.0177	.0626	-.0069	.1050
7	-.0831	.1553	-.0138	.0857	-.0059	.0823	-.1235	.0722	-.0873	.0637	-.0503	.0115	-.0749	.0282
8	-.0849	.1199	-.0189	.0753	-.0220	.0778	-.0955	.0336	-.0679	.0397	-.0342	.0039	-.0435	.0188
9	-.0964	-.0292	-.0180	.0083	-.0284	.0298	-.0870	-.0390	-.0835	-.0155	-.0321	-.0228	-.0596	-.0191
10	-.0150	.0132	.0011	.0446	-.0273	.0441	-.0468	-.0328	-.0444	-.0314	-.0113	-.0232	-.0266	-.0306

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1031	.2741	.1158	.3039	.0699	.3442	.0239	.3844	-.0252	.4035	-.0280	.4211
2	.3833	.1749	.1957	.1199	.0601	.0685	-.0756	.0170	-.1237	-.0115	-.1290	-.0044
3	.0997	.0193	.0466	.0246	.0107	.0179	-.0252	.0113	-.0465	.0149	-.0530	-.0337
4	.0542	.1781	-.0065	.0978	-.0249	.0313	-.0433	-.0353	-.0392	-.0526	-.0365	-.0414
5	-.0454	.0347	-.0310	.0020	-.0086	-.0034	.0138	-.0049	-.0051	.0070	-.0167	-.0009
6	-.0289	-.0656	-.0233	.0301	-.0252	.0077	-.0272	.0148	-.0075	-.0388	-.0076	-.0340
7	-.0569	-.0068	-.0334	.0217	-.0104	-.0216	.0125	-.0196	.0154	-.0098	.0049	-.0089
8	-.0339	.0004	-.0076	.0137	-.0053	.0126	-.0030	-.0115	.0111	-.0182	.0104	-.0165
9	-.0327	-.0368	-.0014	-.0218	.0069	-.0170	.0152	-.0122	.0199	.0013	.0099	.0014
10	-.0011	-.0308	.0072	-.0097	.0104	-.0082	.0135	-.0068	.0197	.0047	.0138	-.0020

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0515	.0079	.0365	-.3046	.0444	-1.1919	.0028	-.2409	-.0300	-.2556	-.0392	-.0623	-.0417	.1068	-.0524	.3023
2	-.2032	-.0209	-.1710	-.0637	-.4440	-.1708	-.0669	-.0413	-.0897	-.0521	-.0669	-.0427	-.0722	-.0277	-.0881	-.0251
3	-.0591	.1816	-.0364	.0568	-.0583	.0829	-.0073	.0032	-.0085	.0011	-.0095	-.0013	-.0162	.0035	-.0342	.0103
4	.0708	.0747	.0095	.0064	-.0050	-.0289	-.0021	-.0112	-.0090	-.0180	-.0070	-.0193	-.0137	-.0202	-.0143	-.0320
5	-.0135	.0303	-.0052	.0035	-.0043	.0040	.0011	.0032	-.0003	-.0057	-.0005	-.0061	-.0050	-.0057	-.0098	-.0062
6	-.0079	.0268	-.0020	.0022	-.0015	-.0083	.0023	-.0035	.0031	-.0065	.0055	-.0082	.0022	-.0143	.0060	-.0231
7	-.0161	.0116	-.0005	.0014	.0097	-.0045	.0028	.0005	.0050	-.0023	.0055	-.0010	.0057	-.0038	.0080	-.0034
8	-.0138	.0022	-.0005	-.0002	.0076	-.0016	.0020	.0007	.0048	-.0007	.0058	.0001	.0075	-.0038	.0122	-.0044
9	-.0116	-.0054	-.0007	-.0008	-.0027	.0091	-.0002	.0025	-.0020	.0048	.0015	.0055	.0050	.0051	.0054	.0081
10	-.0008	-.0060	.0006	-.0015	-.0033	.0015	-.0010	.0005	-.0013	.0024	-.0014	.0030	.0014	.0044	.0026	.0064

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 84 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.3101	3.1248	-.3315	2.6186	-.1696	1.7481	-.0837	1.8454	.0143	1.3524	-.0049	1.5291	.0491	1.1624
2	1.8398	.3189	1.7147	.4494	1.3538	.2483	.6837	.2677	.3147	.1567	.2255	.1920	.2079	.1369
3	-.1984	.7734	-.2125	.3104	-.1051	.2726	-.0822	.2113	-.0443	.1239	-.0587	.1347	-.0287	.1104
4	-.6740	.2129	-.8883	.2644	-.6141	.1317	-.1863	.0891	.0490	.0284	-.0127	.0395	-.0289	.0392
5	-.1123	.5275	-.0823	.4905	-.0719	.4182	-.0438	.2279	.0049	.0989	-.0185	.0695	-.0129	.0333
6	-.0773	.1601	-.1841	.2697	-.1584	.1363	-.1109	.0612	-.0793	.0583	-.1104	.0392	-.0702	.0417
7	-.1595	.2353	-.2137	.2819	-.1728	.3039	-.0760	-.0044	-.0538	-.0370	-.0447	-.0965	-.0570	-.0660
8	-.0585	.0162	-.0373	.0894	-.0174	.0151	-.0471	-.0059	-.0210	-.0140	.0104	-.0312	.0044	-.0380
9	-.1153	.1093	-.2278	.1308	-.1418	.2114	-.0551	-.0344	-.0144	-.0428	.0208	-.0568	.0153	-.0455
10	-.1017	-.0834	-.0937	-.1272	-.1141	-.0962	.0011	-.0611	.0209	-.0219	.0507	-.0001	.0392	-.0058

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.0138	.8621	.0676	.6124	.0432	.5268	.0188	.4412	-.0195	.2949	-.0163	.3000
2		.2102	.1180	.0747	.1016	-.0305	.0488	-.1357	-.0040	-.1171	-.0432	-.1162	-.0259
3		-.0164	.1363	-.0312	.0063	-.0113	-.0219	.0086	-.0500	.0235	-.0173	.0101	-.0030
4		-.0712	.0513	-.0010	.0165	-.0150	.0062	-.0290	-.0041	-.0327	-.0046	-.0210	.0018
5		-.0432	-.0025	-.0199	-.0025	-.0062	-.0246	.0076	-.0467	.0101	-.0308	-.0006	-.0138
6		-.0520	-.0038	-.0118	-.0083	.0086	-.0079	.0289	-.0075	.0180	.0025	.0073	.0010
7		-.0183	-.0657	.0005	-.0263	.0104	-.0091	.0208	.0081	.0030	.0115	-.0038	.0059
8		.0198	-.0327	.0170	-.0052	.0091	.0069	.0012	.0191	-.0084	.0027	-.0040	-.0036
9		.0417	-.0274	.0105	-.0022	.0019	.0016	-.0067	.0053	-.0029	-.0031	-.0010	-.0039
10		.0323	.0266	.0101	.0110	.0019	.0073	-.0063	.0037	-.0004	-.0054	.0030	-.0060

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0290	.2143	.0618	-.5733	.0678	-.6491	.0223	-.6065	-.0066	-.3702	-.0209	-.1608	-.0260	-.0005	-.0241	.1684
2	-.3189	-.0217	-.3461	-.0888	-.1749	-.0682	-.1052	-.0533	-.0564	-.0320	-.0362	-.0265	-.0408	-.0201	-.0531	-.0210
3	-.0727	.1879	-.0494	.0991	-.0088	.0215	.0044	-.0033	.0054	-.0060	.0070	-.0066	.0069	-.0089	.0079	-.0067
4	.0495	.0210	.0106	.0021	.0002	-.0080	-.0049	-.0088	-.0031	-.0039	-.0031	-.0028	-.0051	-.0002	-.0057	.0028
5	-.0112	.0267	-.0070	.0061	.0023	-.0014	.0040	-.0027	.0039	-.0039	.0040	-.0044	.0020	-.0065	.0001	-.0075
6	-.0041	.0047	-.0041	.0004	.0011	.0001	.0005	-.0010	.0014	.0003	.0026	.0007	.0037	.0000	.0050	.0006
7	-.0039	-.0000	-.0014	.0024	.0017	.0015	.0007	.0022	.0022	.0010	.0012	.0012	.0011	.0010	-.0013	.0027
8	.0062	-.0068	.0011	-.0012	.0013	-.0001	-.0000	.0007	-.0003	.0006	-.0002	.0001	-.0008	.0003	-.0016	-.0020
9	.0009	-.0020	-.0010	-.0007	.0004	-.0002	.0002	-.0000	.0002	.0004	-.0006	-.0002	-.0008	-.0007	.0006	-.0024
10	.0023	-.0074	.0024	-.0014	.0008	-.0007	.0001	-.0017	-.0001	-.0006	.0008	-.0009	.0009	-.0014	.0028	-.0014

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 40 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.4773	358.7	.7122	352.6	.3921	.2	.4613	8.1	.3336	19.7	.1711	22.0	.3181	22.9
2	1.7430	75.9	.9835	75.7	.7412	79.5	1.0824	72.0	.7426	73.5	.3392	67.1	.5466	71.1
3	.5540	13.0	.1515	21.1	.1325	54.2	.1719	59.8	.1253	81.3	.0631	73.1	.1063	92.8
4	.7210	45.0	.3838	51.4	.2794	54.2	.4242	41.4	.3024	45.2	.1429	30.2	.2272	37.7
5	.2774	344.1	.1040	353.8	.1073	14.4	.1773	351.3	.1261	354.8	.0332	335.4	.0754	344.9
6	.2587	22.6	.1532	34.7	.1203	28.2	.1925	354.2	.1382	359.4	.0650	344.2	.1053	354.2
7	.1741	331.9	.0849	350.8	.0826	355.9	.1431	300.3	.1081	306.1	.0516	282.8	.0801	290.4
8	.1469	324.7	.0774	345.9	.0808	344.2	.1012	289.4	.0786	300.3	.0344	276.6	.0474	293.4
9	.1007	253.2	.0198	294.8	.0412	316.4	.0954	245.9	.0849	259.5	.0393	234.7	.0626	252.2
10	.0199	311.4	.0446	1.4	.0519	328.3	.0571	235.0	.0544	234.7	.0258	206.1	.0405	221.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.2928	20.6	.3253	20.9	.3512	11.5	.3851	3.6	.4043	356.4	.4220	356.2
2		.4213	65.5	.2296	58.5	.0911	41.3	.0775	282.7	.1243	264.7	.1291	248.0
3		.1016	79.1	.0527	62.2	.0209	30.9	.0276	294.1	.0488	287.7	.0628	302.5
4		.1842	16.9	.0981	356.2	.0400	321.5	.0559	230.9	.0656	216.7	.0552	221.5
5		.0572	307.4	.0310	266.3	.0092	248.1	.0147	109.5	.0086	215.9	.0167	266.7
6		.0717	336.6	.0381	323.3	.0244	288.9	.0310	241.5	.0395	191.0	.0348	197.7
7		.0573	263.2	.0409	344.7	.0240	205.7	.0232	147.4	.0183	122.6	.0101	157.0
8		.0339	271.0	.0156	209.2	.0137	202.8	.0119	194.5	.0213	148.7	.0195	147.9
9		.0493	221.6	.0218	183.7	.0183	157.8	.0195	128.4	.0200	86.4	.0100	82.0
10		.0308	182.0	.0121	143.5	.0132	128.5	.0151	116.5	.0203	76.6	.0140	98.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.0521	81.3	.3068	173.2	1.1927	177.9	.2409	179.3	.2574	186.7	.0736	212.2	.1147	338.7	.3068	350.2
2	.2043	264.1	.1825	249.6	.4758	249.0	.0787	238.3	.1037	239.9	.0793	237.5	.0773	249.0	.0916	254.1
3	.1910	342.0	.0675	327.3	.1014	324.9	.0080	294.0	.0085	277.6	.0096	262.3	.0165	282.3	.0357	286.7
4	.1029	43.5	.0115	55.8	.0293	189.7	.0114	190.8	.0201	206.5	.0205	200.0	.0244	214.1	.0351	204.1
5	.0131	336.0	.0063	304.1	.0059	227.4	.0034	160.5	.0057	182.6	.0061	184.5	.0075	221.2	.0116	237.5
6	.0279	343.5	.0030	318.3	.0084	190.3	.0042	146.2	.0072	154.2	.0098	146.3	.0145	171.3	.0239	145.4
7	.0198	305.9	.0015	338.4	.0107	114.7	.0029	79.1	.0055	115.0	.0056	100.0	.0068	123.5	.0086	113.1
8	.0140	279.2	.0005	246.2	.0077	101.6	.0021	71.8	.0048	97.8	.0058	88.6	.0084	116.8	.0129	109.7
9	.0128	244.8	.0011	317.4	.0093	43.4	.0025	3.8	.0052	22.6	.0057	14.9	.0072	44.7	.0097	33.4
10	.0060	187.3	.0016	157.4	.0036	293.9	.0011	298.5	.0027	330.7	.0033	335.2	.0046	18.2	.0069	22.4

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 84 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.1401	354.3	2.6395	352.8	1.7563	354.5	1.8473	357.4	1.3525	.6	1.5291	359.8	1.1634	2.4
2	1.8672	80.2	1.7726	75.3	1.3764	79.6	.7156	68.0	.3516	63.5	.2962	49.6	.2489	56.6
3	.7984	345.6	.3762	325.6	.2922	338.9	.2267	338.8	.1316	340.4	.1469	336.4	.1136	346.4
4	.7068	72.5	.9268	73.4	.6281	77.9	.2065	64.4	.0567	59.9	.0411	342.0	.0487	323.5
5	.5393	348.0	.4973	350.5	.4244	350.2	.2319	349.4	.0972	4.1	.0720	345.1	.0357	338.9
6	.1778	25.8	.3266	34.3	.2091	49.3	.1267	298.9	.0984	306.3	.1172	289.6	.0816	300.7
7	.2843	325.9	.3537	322.8	.3496	330.4	.0761	266.5	.0653	235.5	.1072	205.8	.0872	220.8
8	.0607	285.5	.0970	337.4	.0230	311.1	.0474	262.8	.0252	236.3	.0329	161.2	.0385	170.2
9	.1589	313.5	.2626	299.9	.2664	322.6	.0651	237.9	.0451	198.6	.0605	159.9	.0480	161.4
10	.1316	230.6	.1580	216.4	.1492	229.9	.0612	178.9	.0302	136.4	.0507	90.2	.0396	98.4

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.8622	.9	.6161	6.3	.5285	4.7	.4416	2.4	.2955	356.2	.3005	356.9
2	.2410	60.7	.1261	36.3	.0576	328.0	.1357	268.3	.1248	249.8	.1190	257.5
3	.1372	353.1	.0318	281.3	.0246	207.4	.0508	170.3	.0292	126.5	.0106	106.7
4	.0878	305.8	.0165	356.5	.0162	292.4	.0293	262.0	.0331	261.9	.0211	274.9
5	.0433	266.7	.0201	262.8	.0254	194.0	.0474	170.8	.0325	161.8	.0138	182.6
6	.0521	245.8	.0144	234.7	.0117	133.7	.0299	104.5	.0182	82.1	.0074	82.2
7	.0482	195.6	.0263	178.9	.0140	130.6	.0223	68.8	.0119	14.5	.0070	326.8
8	.0382	148.9	.0177	107.0	.0114	52.7	.0191	3.7	.0088	287.8	.0070	238.6
9	.0499	123.3	.0107	101.6	.0025	50.8	.0085	308.5	.0042	223.0	.0041	194.2
10	.0418	50.5	.0149	42.7	.0076	14.6	.0073	300.5	.0054	183.9	.0067	153.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2163	7.7	.5766	173.8	.6526	174.0	.6069	177.9	.3703	181.0	.1622	187.4	.0260	268.9	.1703	351.9
2	.3197	266.1	.3573	255.6	.1877	248.7	.1180	243.1	.0648	240.5	.0449	233.8	.0455	243.8	.0571	248.4
3	.2014	338.8	.1107	333.5	.0232	337.7	.0055	127.1	.0081	137.8	.0096	133.7	.0112	142.0	.0103	130.6
4	.0537	67.0	.0108	78.9	.0080	178.9	.0101	208.9	.0050	218.1	.0042	227.0	.0051	267.5	.0063	296.0
5	.0290	337.3	.0093	311.0	.0027	121.0	.0048	124.2	.0055	134.7	.0059	137.8	.0068	163.0	.0075	179.4
6	.0063	318.7	.0041	276.1	.0011	83.5	.0011	153.3	.0014	79.8	.0026	74.9	.0037	89.7	.0050	83.4
7	.0039	269.9	.0028	329.1	.0012	48.4	.0023	18.2	.0024	65.3	.0017	45.8	.0015	48.5	.0030	333.9
8	.0092	137.7	.0016	137.3	.0013	95.4	.0007	358.2	.0006	334.7	.0002	306.4	.0009	289.8	.0025	218.4
9	.0021	156.4	.0012	233.0	.0005	118.4	.0002	97.0	.0005	27.5	.0006	253.2	.0011	232.1	.0023	165.1
10	.0077	162.8	.0027	119.9	.0011	128.6	.0017	177.6	.0006	185.2	.0012	139.6	.0017	146.9	.0033	119.2

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 41 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2177	2.9480	-.2212	1.1095	.0145	.6166	.1108	.8636	.2238	.5871	.1146	.2948	.2504	.4816
2	1.2292	.3606	.6492	.2223	.5592	.1979	.7368	.5520	.5612	.3854	.2148	.2374	.4084	.3438
3	.2454	.6389	.1078	.2126	.0983	.1191	.0346	.1940	.0338	.1247	-.0001	.0611	.0249	.0803
4	.2830	.7047	.1547	.3253	.1705	.2155	.0629	.3677	.0761	.2531	-.0200	.1323	.0241	.2191
5	-.2175	.4078	-.0778	.2058	-.0251	.1797	-.1969	.1636	-.1290	.1319	-.0863	.0169	-.1253	.0592
6	-.1909	.1777	-.1064	.1066	-.0592	.1041	-.1652	.0034	-.1140	.0234	-.0513	-.0180	-.0848	.0040
7	-.1752	.0061	-.0806	-.0076	-.0753	.0321	-.0936	-.0972	-.0882	-.0479	-.0215	-.0520	-.0723	-.0692
8	-.0886	-.0222	-.0221	-.0018	-.0356	.0126	-.0099	-.0806	-.0324	-.0489	.0123	-.0288	.0072	-.0551
9	-.0453	-.0874	-.0050	-.0007	-.0380	.0037	.0334	-.0750	-.0231	-.0703	.0169	-.0310	-.0010	-.0510
10	.0280	-.0632	-.0151	.0367	-.0235	.0035	.0603	-.0073	.0394	-.0570	.0386	-.0020	.0511	-.0357

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2003	.3966	.2022	.3102	.1323	.3439	.0624	.3776	-.0599	.4048	-.0846	.4406
2	.2850	.3393	.1498	.1997	.0218	.1154	-.1062	.0310	-.1541	-.0602	-.1662	-.0644
3	-.0012	.0974	.0023	.0318	-.0207	.0154	-.0436	-.0011	-.0390	-.0310	-.0411	-.0116
4	-.0907	.1636	-.0363	.0928	-.0504	.0162	-.0644	-.0603	-.0086	-.0837	-.0174	-.0667
5	-.1044	-.0384	-.0530	-.0079	-.0125	-.0280	.0279	-.0480	.0457	-.0242	.0244	-.0215
6	-.0478	-.0369	-.0519	-.0213	-.0158	-.0284	.0203	-.0356	.0475	.0047	.0345	-.0083
7	-.0005	-.0871	.0045	-.0680	.0280	-.0310	.0514	.0041	.0062	.0340	.0117	.0228
8	.0462	-.0209	.0294	-.0138	.0231	.0030	.0168	.0198	.0015	.0224	.0034	.0136
9	.0356	-.0175	.0285	-.0134	-.0179	.0113	-.0072	.0360	-.0336	.0135	-.0161	.0150
10	.0408	.0298	.0231	.0231	-.0016	.0187	-.0262	.0142	-.0129	-.0170	-.0129	-.0066

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0874	.0453	.0591	-.3218	.0463	-1.3113	-.0037	-.2701	-.0813	-.3080	-.0926	-.1099	-.1010	.0728	-.1235	.2828
2	-.2554	-.0074	-.1497	-.0879	-.3453	-.2335	-.0344	-.0617	-.0457	-.0892	-.0255	-.0836	-.0531	-.0743	-.0790	-.0894
3	-.1000	.1620	-.0444	.0409	-.0436	.0641	.0001	.0011	.0047	-.0029	.0048	-.0062	-.0034	-.0097	-.0146	-.0161
4	.0210	.0622	.0044	-.0009	.0144	-.0474	.0071	-.0108	.0051	-.0225	.0092	-.0203	.0001	-.0279	.0107	-.0401
5	-.0388	.0186	-.0094	-.0003	.0034	.0037	.0024	.0033	.0103	.0047	.0110	.0076	.0140	-.0014	.0227	-.0018
6	-.0254	.0056	-.0045	.0020	.0052	.0097	.0001	.0029	.0044	.0050	.0041	.0078	.0116	.0048	.0185	.0126
7	-.0059	-.0068	-.0019	.0004	.0057	.0041	-.0029	.0021	-.0010	.0070	-.0053	.0063	-.0000	.0112	-.0053	.0156
8	.0011	-.0081	.0008	-.0026	-.0156	-.0001	-.0012	-.0020	-.0056	.0004	-.0050	-.0010	-.0041	.0049	-.0091	.0070
9	-.0015	-.0060	.0001	-.0009	-.0026	.0007	.0006	-.0003	-.0013	-.0027	-.0004	-.0041	-.0066	-.0018	-.0122	-.0071
10	.0052	-.0010	-.0001	-.0002	-.0034	.0022	-.0005	-.0003	.0011	-.0007	.0015	-.0017	-.0019	-.0047	.0020	-.0112

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 86 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.3505	2.9215	-.4677	2.0702	-.1431	1.4753	-.0923	1.4733	.0303	1.1052	-.0147	1.2868	.0773	1.0277
2	1.9301	.6815	2.1285	.8975	1.5697	.5252	.8814	.5593	.4922	.2786	.3630	.3726	.2916	.2532
3	-.4015	.9952	-.4481	.8124	-.1890	.5688	-.1987	.4336	-.0635	.2805	-.1439	.2722	-.0687	.1959
4	-.4028	.3850	-.3492	.4914	-.3070	.2957	-.1075	.1837	-.1177	.1144	-.1473	.0538	-.1514	.0739
5	-.3404	.4953	-.3650	.3085	-.2394	.3250	-.1677	.0234	-.0881	-.0234	-.0414	.1219	-.0717	-.0881
6	-.0780	.0347	-.0328	.1524	-.0549	.0429	-.0621	-.0251	-.0367	-.0111	-.0021	-.0323	.0027	-.0298
7	-.1849	.1521	-.3038	.1445	-.2226	.2368	-.0660	-.0567	-.0319	-.0545	.0202	-.0748	-.0047	-.0532
8	-.1247	-.0967	-.0921	-.0842	-.0990	-.0767	.0045	-.0409	.0170	-.0298	.0535	.0011	.0351	-.0189
9	-.0480	-.0030	-.1274	-.0199	-.1399	.0839	.0197	-.0470	.0081	-.0292	.0329	-.0085	.0228	-.0147
10	-.0812	-.1092	-.0305	-.1500	-.1120	-.1434	.0328	-.0196	.0289	-.0699	.0373	.0341	.0365	.0115

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0313	.9077	.0464	.7668	.0395	.6010	.0327	.4352	-.0357	.2410	-.0312	.2620
2	.1377	.2561	-.0187	.0903	-.0788	.0544	-.1388	.0185	-.0761	-.0445	-.0928	-.0234
3	-.1066	.1144	.0016	-.0179	-.0066	-.0492	-.0149	-.0804	.0222	-.0185	.0110	-.0102
4	-.1404	.0027	-.0354	.0352	-.0130	-.0065	.0094	-.0482	-.0078	-.0199	-.0121	-.0082
5	-.0211	-.1032	-.0175	-.0397	.0165	-.0249	.0505	-.0100	.0144	-.0020	.0059	-.0013
6	.0248	-.0221	-.0002	-.0178	.0065	.0030	.0133	.0239	.0058	.0003	-.0041	.0025
7	.0236	-.0340	.0274	-.0364	.0137	-.0095	.0000	.0173	-.0004	.0105	-.0005	-.0039
8	.0337	.0040	.0356	.0238	.0082	.0138	-.0192	.0039	-.0087	-.0050	-.0027	.0054
9	.0300	.0070	-.0050	.0139	-.0021	.0035	-.0008	-.0068	.0003	-.0031	-.0085	-.0094
10	.0104	.0349	.0022	.0173	-.0012	.0100	-.0045	.0027	.0043	-.0046	.0147	-.0067

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0393	.1430	.1208	-.6386	.0909	-.6901	.0387	-.6658	-.0429	-.4199	-.0540	-.2035	-.0459	-.0353	-.0549	.1390
2	-.3456	-.0241	-.3325	-.1299	-.1490	-.0774	-.0613	-.0607	-.0172	-.0342	.0009	-.0273	-.0093	-.0253	-.0285	-.0256
3	-.1136	.1912	-.0689	.0838	-.0077	.0172	.0106	-.0017	.0115	-.0052	.0115	-.0033	.0118	-.0076	.0125	-.0059
4	.0021	.0234	.0042	-.0069	.0051	-.0132	.0061	-.0153	.0022	-.0119	.0024	-.0095	-.0029	-.0088	-.0025	-.0055
5	-.0354	-.0040	-.0167	-.0066	-.0068	.0024	-.0033	-.0068	.0047	.0070	.0023	.0070	.0043	.0036	.0051	.0024
6	-.0029	.0004	-.0039	-.0011	-.0032	-.0015	-.0029	-.0038	-.0014	-.0017	-.0026	-.0010	-.0031	.0015	-.0049	.0012
7	-.0019	-.0014	.0029	-.0018	.0012	-.0022	-.0003	.0004	.0010	.0013	.0011	.0005	.0014	-.0011	.0025	-.0028
8	-.0038	-.0034	-.0042	-.0014	-.0013	-.0015	-.0026	-.0007	-.0030	.0021	-.0025	.0000	-.0021	.0021	-.0028	.0020
9	-.0006	.0023	-.0015	.0031	.0012	.0013	.0017	.0021	.0018	-.0006	.0025	-.0009	.0002	-.0036	.0017	-.0041
10	-.0006	-.0017	.0001	.0014	.0005	.0008	.0005	-.0000	.0012	.0004	.0012	.0013	.0033	.0005	.0051	.0059

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 41 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9560	355.8	1.1313	348.7	.6168	1.4	.8707	7.3	.6284	20.9	.3163	21.2	.5428	27.5
2	1.2810	73.7	.6862	71.1	.5932	70.5	.9206	53.2	.6809	55.5	.3202	42.1	.5338	49.9
3	.6918	22.6	.2384	26.9	.1545	39.5	.1971	10.1	.1292	15.2	.0611	359.9	.0841	17.2
4	.7595	21.9	.3602	25.4	.2748	38.4	.3731	9.7	.2643	16.7	.1338	351.4	.2205	6.3
5	.4622	331.9	.2201	339.3	.1815	352.1	.2560	309.7	.1845	315.6	.0879	281.1	.1386	295.3
6	.2608	313.0	.1506	315.0	.1198	330.4	.1653	271.2	.1163	281.6	.0544	250.7	.0849	272.7
7	.1754	272.0	.0810	264.6	.0818	293.1	.1350	223.9	.1004	241.5	.0563	202.5	.1000	226.3
8	.0913	255.9	.0222	265.3	.0378	289.4	.0812	187.0	.0587	213.6	.0314	156.8	.0556	172.5
9	.1091	216.8	.0051	262.4	.0382	275.6	.0821	156.0	.0740	198.2	.0353	151.4	.0510	181.1
10	.0691	156.1	.0397	337.7	.0238	278.5	.0607	96.9	.0692	145.4	.0387	93.0	.0623	125.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4443	26.8	.3703	33.1	.3685	21.0	.3827	9.4	.4093	351.6	.4487	349.1
2	.4431	40.0	.2497	36.9	.1174	10.7	.1106	286.3	.1654	248.6	.1782	248.8
3	.0974	359.3	.0319	4.1	.0258	306.7	.0436	268.6	.0499	231.5	.0427	254.3
4	.1871	331.0	.0994	338.7	.0529	287.9	.0883	226.9	.0841	185.9	.0690	194.6
5	.1112	249.8	.0534	241.5	.0306	204.1	.0555	149.8	.0517	118.0	.0325	131.4
6	.0604	232.4	.0561	247.7	.0325	209.1	.0410	150.3	.0477	84.3	.0354	103.6
7	.0871	180.3	.0682	176.2	.0417	137.9	.0518	83.2	.0346	10.3	.0256	27.2
8	.0507	114.4	.0325	115.1	.0233	82.7	.0260	40.4	.0224	3.7	.0140	13.9
9	.0396	116.2	.0315	115.2	.0211	57.7	.0367	11.3	.0362	291.9	.0220	313.0
10	.0505	53.9	.0327	44.9	.0187	355.2	.0298	298.5	.0213	217.3	.0145	242.7

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.0988	62.6	.3271	169.6	1.3121	178.0	.2701	180.8	.3185	194.8	.1437	220.1	.1245	305.8	.3086	336.4
2	.2557	268.3	.1736	239.6	.4169	235.9	.0706	209.1	.1002	207.1	.0875	197.0	.0913	215.6	.1193	221.4
3	.1904	328.3	.0604	312.6	.0775	325.8	.0011	6.3	.0056	121.7	.0079	142.4	.0103	199.5	.0218	222.2
4	.0457	18.6	.0045	101.6	.0502	161.0	.0129	146.9	.0231	167.3	.0223	155.7	.0279	179.9	.0415	165.1
5	.0430	295.6	.0094	268.3	.0050	43.0	.0041	36.3	.0113	65.5	.0134	55.2	.0141	95.1	.0228	94.6
6	.0260	282.5	.0050	294.1	.0110	28.3	.0029	1.1	.0066	41.3	.0088	28.1	.0126	67.5	.0224	55.8
7	.0090	221.2	.0020	283.0	.0070	54.3	.0036	306.3	.0071	352.2	.0082	319.9	.0112	359.8	.0165	341.4
8	.0081	172.3	.0027	163.4	.0156	269.5	.0023	209.8	.0057	274.5	.0051	258.4	.0064	319.7	.0115	307.4
9	.0062	194.2	.0009	171.0	.0027	284.9	.0006	118.2	.0030	206.0	.0041	185.9	.0068	254.7	.0141	239.6
10	.0053	100.5	.0002	206.1	.0040	303.5	.0006	242.2	.0013	121.0	.0022	139.0	.0051	202.1	.0113	169.8

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 86 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9425	353.2	2.1224	347.3	1.4822	354.5	1.4762	356.4	1.1057	1.6	1.2869	359.3	1.0306	4.3
2	2.0469	70.6	2.3081	67.1	1.6552	71.5	1.0439	57.6	.5656	60.5	.5202	44.3	.3861	49.0
3	1.0731	338.0	.9277	331.1	.5994	341.6	.4749	335.4	.2876	347.2	.3079	332.1	.2075	340.7
4	.5558	46.4	.6028	35.4	.4262	46.1	.2129	329.7	.1641	314.2	.2239	283.9	.1685	296.0
5	.6010	325.5	.4779	310.2	.4037	323.6	.1694	277.9	.0911	255.1	.1374	207.5	.1136	219.1
6	.0853	294.0	.1558	12.2	.0848	42.1	.0670	248.0	.0383	253.1	.0324	183.7	.0299	174.9
7	.2394	309.4	.3365	295.4	.3250	316.8	.0870	229.4	.0631	210.4	.0794	165.3	.0535	185.0
8	.1594	232.6	.1248	227.6	.1252	232.2	.0610	175.8	.0343	150.3	.0535	88.9	.0399	118.3
9	.0481	266.4	.1292	261.1	.1631	301.0	.0510	157.3	.0303	164.6	.0340	104.5	.0283	126.3
10	.1361	216.6	.1530	191.5	.1620	218.0	.0382	120.8	.0305	109.0	.0505	47.6	.0383	72.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	C	P	C	P	C	P	C	P	C	P	C	P	
1		.9083	2.0	.7682	3.5	.6023	3.8	.4364	4.3	.2436	351.6	.2639	353.2
2		.2908	28.3	.0922	348.3	.0957	304.6	.1401	277.6	.0882	239.7	.0957	255.8
3		.1563	317.0	.0180	174.8	.0496	187.7	.0818	190.5	.0289	129.9	.0150	132.7
4		.1404	271.1	.0499	314.8	.0146	243.4	.0491	169.0	.0213	201.5	.0147	235.8
5		.1053	191.6	.0434	203.7	.0299	146.4	.0515	101.2	.0146	98.0	.0060	102.5
6		.0332	131.7	.0178	180.7	.0072	65.1	.0273	29.2	.0059	86.9	.0048	301.3
7		.0414	145.2	.0456	143.0	.0167	124.8	.0173	.0	.0105	357.9	.0039	172.6
8		.0339	83.3	.0429	56.2	.0161	30.7	.0196	281.3	.0100	240.1	.0061	333.6
9		.0308	76.9	.0148	340.2	.0041	329.3	.0069	173.3	.0031	175.3	.0127	221.9
10		.0364	16.5	.0174	7.4	.0100	353.4	.0053	300.3	.0063	136.6	.0161	114.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1483	15.4	.6499	169.3	.6960	172.5	.6669	176.7	.4221	185.8	.2106	194.9	.0748	241.9	.1495	338.4
2	.3464	246.0	.3570	248.7	.1680	242.5	.0863	225.3	.0383	206.7	.0273	178.0	.0270	200.1	.0383	228.1
3	.2225	329.3	.1085	320.6	.0189	335.9	.0108	98.9	.0126	114.1	.0119	106.0	.0141	122.7	.0138	115.5
4	.0235	5.0	.0081	148.8	.0141	158.6	.0165	158.3	.0121	169.5	.0098	165.8	.0093	198.4	.0061	204.8
5	.0356	263.6	.0179	248.4	.0073	189.5	.0075	334.0	.0084	33.6	.0074	17.8	.0072	59.8	.0056	65.1
6	.0030	577.1	.0041	254.0	.0035	245.8	.0047	217.6	.0023	218.3	.0028	248.3	.0034	294.8	.0050	283.9
7	.0023	233.7	.0035	122.0	.0025	150.6	.0005	328.1	.0017	38.8	.0012	65.8	.0018	127.7	.0037	137.5
8	.0051	228.0	.0044	251.2	.0020	220.8	.0027	254.8	.0037	305.2	.0025	270.5	.0030	315.0	.0035	305.7
9	.0023	344.0	.0034	334.1	.0018	41.8	.0027	37.8	.0020	109.1	.0024	109.2	.0036	174.3	.0063	144.3
10	.0018	198.3	.0014	3.8	.0009	30.7	.0005	95.3	.0013	70.9	.0017	42.5	.0033	82.2	.0078	41.1

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 42 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1081	.0137	-.1463	1.0387	.0581	.6387	.1855	.9094	.2895	.5957	.1346	.1081	.2892	.4874
2	1.0634	.4107	.6568	.3035	.5348	.2294	.6397	.6717	.5119	.4704	.1899	.2788	.3572	.4002
3	.3103	.7954	.0933	.3805	.1163	.2073	-.0410	.2855	-.0134	.1771	-.0355	.0705	-.0076	.1126
4	.0603	.7685	-.0382	.3836	.0842	.2721	-.0808	.3568	-.0137	.2490	-.0508	.1089	-.0280	.2035
5	-.3171	.3976	-.2226	-.1404	-.1022	.1887	-.2978	.1051	-.1741	.1256	-.0954	-.0031	-.1456	.0347
6	-.3054	.0667	-.1289	-.0520	-.1270	.0339	-.1810	-.1584	-.1554	-.0536	-.0411	-.0580	-.0871	-.0584
7	.1721	-.1005	-.0105	-.0449	-.0645	-.0368	.0238	-.1429	-.0479	-.1043	.0151	-.0572	-.0219	-.0850
8	.0124	-.1519	.0654	-.0072	.0034	-.0344	.1090	-.0582	.0248	-.0848	.0455	-.0184	.0405	-.0594
9	.0944	-.0140	-.0137	.0880	-.0096	.0150	.0785	.0315	.0553	-.0385	.0308	.0138	.0438	-.0157
10	.0015	.0512	-.0887	.0382	-.0261	.0223	.0056	.0494	.0401	.0055	.0080	.0188	.0312	.0102

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2249	.3973	.2256	.3016	.1450	.3436	.0643	.3857	-.0933	.3936	-.1224	.4217
2	.2332	.3909	.1173	.2327	-.0197	.1450	-.1567	.0572	-.1879	-.0691	-.1885	-.0589
3	-.0502	.1310	-.0082	.0595	-.0321	.0144	-.0559	-.0306	-.0243	-.0611	-.0376	-.0378
4	-.1525	.1091	-.0894	.0809	-.0702	.0008	-.0510	-.0792	.0245	-.0875	.0051	-.0794
5	-.0811	-.0878	-.0521	-.0618	-.0021	-.0652	.0480	-.0686	.0720	-.0093	.0518	-.0227
6	-.0058	-.0635	-.0123	-.0459	.0220	-.0283	.0562	-.0106	.0460	.0501	.0479	.0284
7	.0459	-.0598	.0399	-.0486	.0381	-.0061	.0363	.0363	-.0355	.0493	-.0145	.0505
8	.0597	.0121	.0369	.0085	.0172	.0191	-.0024	.0297	-.0345	-.0087	-.0379	.0009
9	-.0202	.0262	.0223	.0143	.0028	.0199	-.0168	.0254	-.0153	-.0248	-.0124	-.0206
10	-.0031	.0262	-.0066	.0320	-.0149	.0195	-.0232	.0070	.0097	-.0175	.0030	-.0165

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0744	.0260	.0539	-.3467	-.0079	-1.4208	-.0197	-.2979	-.1337	-.3550	-.1436	-.1555	-.1554	-.0389	-.1740	.2493
2	-.2909	.0047	-.1478	-.0881	-.3287	-.2062	-.0259	-.0574	-.0347	-.0749	-.0154	-.0771	-.0494	-.0704	-.0811	-.0924
3	-.1020	.1621	-.0451	.0329	-.0414	.0422	.0013	-.0018	.0061	-.0049	.0082	-.0090	.0008	-.0155	-.0043	-.0272
4	.0025	.0545	.0081	-.0014	.0371	-.0442	.0138	-.0072	.0168	-.0204	.0218	-.0152	.0134	-.0301	.0327	-.0388
5	-.0472	-.0007	-.0098	-.0079	-.0100	-.0010	-.0009	.0038	.0071	.0110	.0070	.0149	.0211	.0063	.0350	.0154
6	-.0301	-.0034	-.0060	.0005	.1174	-.0275	-.0037	-.0022	-.0030	.0097	-.0066	.0106	-.0053	.0216	-.0006	.0331
7	-.0021	-.0153	-.0002	-.0028	-.0108	-.0040	-.0019	-.0017	-.0075	.0014	-.0087	-.0008	-.0090	.0103	-.0266	.0101
8	.0072	-.0104	-.0009	-.0017	-.0140	-.0010	-.0016	-.0017	-.0041	-.0005	-.0030	-.0053	-.0121	-.0025	-.0148	-.0224
9	.0092	.0111	-.0008	.0025	-.0015	-.0013	.0014	-.0003	.0007	-.0035	.0052	-.0030	-.0005	-.0104	.0133	.0132
10	-.0017	.0092	-.0001	.0022	.0060	.0042	.0010	.0012	.0044	.0006	.0050	.0023	.0066	-.0059	.0147	-.0009

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 87 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1755	2.9304	-.3136	1.9884	-.0327	1.4284	-.0535	1.4728	.0653	1.0948	-.0039	1.2780	.0850	1.0119
2	1.6581	1.0289	1.8630	1.2162	1.3808	.7058	.7340	.6972	.4191	.3743	.2713	.4584	.2353	.3037
3	-.6425	.9070	-.6299	.7163	-.2614	.5225	-.3260	.3898	-.1621	.2744	-.2705	.2442	-.1451	.2049
4	.3128	.3663	.2217	.4937	.1997	.3117	-.1448	.1129	-.1464	.0457	-.2169	-.0665	-.1742	-.0057
5	-.4646	-.4195	-.4604	.2049	-.2753	.2599	-.1778	-.0077	-.0740	-.0348	-.0116	-.1120	-.0268	-.0894
6	-.0694	-.0334	-.0100	.1115	-.0049	.0637	-.0608	-.0716	-.0399	-.0375	.0030	-.0574	-.0076	-.0365
7	-.2186	-.1168	-.3109	.0154	-.2330	.1272	-.0235	-.0806	.0081	-.0650	.0829	-.0536	.0392	-.0655
8	-.0763	-.1460	-.0073	-.0749	-.0527	-.0764	.0396	-.0432	.0337	-.0080	.0472	.0541	.0567	.0202
9	-.0513	-.0065	-.1725	-.0660	-.1563	-.0358	.0227	-.0287	.0085	-.0087	.0043	.0209	.0091	.0134
10	-.0043	-.1412	-.0959	-.1712	-.0402	-.1655	.0554	-.0162	.0217	-.0099	.0068	.0206	.0140	.0121

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.0144	.9076	-.0307	.7831	-.0255	.6014	.0202	.4197	-.0674	.2253	-.0619	.2438
2	.0674	.2675	-.0971	.0755	-.1426	.0403	-.1880	.0051	-.1060	-.0781	-.1228	-.0401
3	-.1514	.0979	.0016	-.0441	-.0065	-.0703	-.0146	-.0964	.0362	-.0168	.0194	-.0121
4	-.1381	-.0635	-.0223	.0169	.0077	-.0194	.0377	-.0556	-.0018	-.0096	-.0075	-.0025
5	.0253	-.0914	.0116	-.0254	.0389	-.0021	.0661	.0211	.0155	.0008	-.0071	-.0064
6	.0184	-.0224	-.0025	.0032	-.0067	.0196	-.0108	.0360	.0017	.0102	.0076	-.0070
7	.0609	-.0258	.0177	-.0180	-.0039	-.0073	-.0099	.0035	-.0057	-.0021	-.0059	.0040
8	.0296	.0487	.0103	.0142	-.0003	.0061	-.0108	-.0020	.0013	.0008	-.0046	.0023
9	-.0025	.0231	.0078	.0018	.0008	-.0004	-.0062	-.0027	-.0074	-.0097	.0015	-.0074
10	-.0093	.0219	-.0018	.0235	-.0029	.0044	-.0039	-.0147	.0181	-.0003	.0085	.0061

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0446	.1192	.1380	-.6846	.0882	-.7315	.0334	-.7153	-.0788	-.4595	-.0853	-.2405	-.1041	-.0640	-.0877	.1177
2	-.4079	-.0258	-.3542	-.1658	-.1547	-.0954	-.0679	-.0774	-.0289	-.0454	-.0125	-.0423	-.0294	-.0383	-.0483	-.0467
3	-.1515	.1819	-.0819	.0755	-.0028	.0186	.0147	.0005	.0152	-.0037	.0156	-.0019	.0153	-.0081	.0196	-.0054
4	-.0029	.0049	.0054	-.0067	.0081	-.0041	.0106	-.0043	.0069	-.0054	.0069	-.0028	.0041	-.0038	.0001	.0012
5	-.0196	-.0128	-.0064	-.0137	-.0036	-.0047	-.0051	.0015	-.0012	.0085	-.0016	.0064	.0024	.0046	.0020	-.0010
6	-.0037	-.0005	.0001	-.0053	.0009	-.0005	-.0002	-.0046	-.0011	.0003	-.0007	-.0001	.0009	.0004	.0035	.0024
7	-.0012	.0013	.0011	-.0009	.0018	-.0011	-.0010	.0000	-.0003	.0018	-.0013	.0008	-.0008	.0024	-.0009	.0039
8	-.0010	-.0006	-.0013	-.0011	.0008	-.0001	-.0003	.0010	-.0025	-.0002	-.0006	-.0008	-.0015	-.0006	-.0019	-.0023
9	-.0035	.0036	-.0012	-.0007	.0022	.0016	-.0004	.0017	-.0006	.0020	-.0002	.0017	.0016	.0000	.0035	.0007
10	-.0020	-.0053	-.0008	-.0002	.0008	.0015	-.0001	-.0005	-.0008	.0008	-.0004	.0002	.0007	.0015	-.0036	.0044

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 42 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	3.0157	357.9	1.0490	352.0	.6414	5.2	.9283	11.5	.6624	25.9	.3371	23.9	.5687	30.6
2	1.1399	68.9	.7236	65.2	.5819	66.8	.9276	43.6	.6967	47.5	.3254	31.1	.5364	41.7
3	.8538	21.3	.3918	13.8	.2378	29.3	.2884	351.8	.1776	355.7	.0789	333.2	.1129	356.2
4	.7708	4.5	.3855	354.3	.2848	17.2	.3658	347.2	.2493	3.1	.1201	335.0	.2052	352.7
5	.5098	321.3	.2632	302.2	.2147	331.6	.3158	289.4	.2147	305.8	.0954	268.1	.1497	283.4
6	.3126	282.3	.1399	248.2	.1314	284.9	.2405	228.8	.1643	251.0	.0711	215.3	.1049	236.1
7	.1992	239.7	.0658	189.2	.0743	240.3	.1646	171.7	.1166	204.2	.0591	165.2	.0878	194.5
8	.1524	175.3	.0660	96.3	.0346	174.4	.1236	118.1	.0908	182.8	.0491	112.2	.0720	145.8
9	.0979	99.4	.0890	8.9	.0178	32.6	.0846	68.1	.0674	124.8	.0337	65.9	.0463	109.8
10	.0512	1.6	.0966	293.3	.0343	310.4	.0497	6.5	.0405	82.2	.0204	23.0	.0328	71.8

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4565	29.5	.3766	36.8	.3729	22.9	.3910	9.5	.4045	346.7	.4391	343.8
2	.4552	30.8	.2606	26.7	.1463	352.3	.1668	290.1	.2002	249.8	.1975	252.6
3	.1403	339.0	.0601	352.1	.0352	294.2	.0637	241.3	.0658	201.7	.0533	224.9
4	.1875	305.6	.1205	312.1	.0702	270.7	.0942	212.8	.0915	163.2	.0796	176.3
5	.1196	222.7	.0809	220.1	.0653	181.8	.0838	145.0	.0726	97.3	.0566	113.7
6	.0638	185.2	.0475	195.0	.0358	142.2	.0572	100.7	.0680	42.6	.0557	59.3
7	.0754	142.5	.0629	140.6	.0386	99.2	.0514	45.0	.0608	324.2	.0525	344.0
8	.0609	78.6	.0378	77.1	.0257	42.1	.0298	355.5	.0356	255.8	.0380	271.4
9	.0331	37.6	.0245	57.3	.0201	8.0	.0305	326.6	.0292	211.6	.0241	211.0
10	.0264	353.3	.0327	348.3	.0246	322.6	.0243	286.8	.0201	151.0	.0168	169.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.0789	70.8	.3509	171.2	1.4208	180.3	.2985	183.8	.3794	200.6	.2117	222.7	.1402	284.0	.3040	325.1
2	.2910	270.9	.1721	239.2	.3880	237.9	.0630	204.2	.0844	204.3	.0786	191.3	.0843	215.1	.1229	221.2
3	.1915	327.8	.0558	306.1	.0591	315.5	.0022	144.6	.0092	138.6	.0121	137.7	.0155	176.9	.0275	189.1
4	.0546	2.6	.0083	99.4	.0577	140.0	.0154	117.4	.0264	140.6	.0264	124.9	.0310	155.6	.0507	139.9
5	.0472	269.1	.0126	231.1	.0101	264.4	.0039	344.2	.0131	32.8	.0164	25.2	.0220	73.5	.0383	46.2
6	.0302	263.6	.0060	274.6	.1206	103.2	.0043	300.5	.0102	342.9	.0125	328.2	.0223	346.3	.0331	358.9
7	.0155	187.7	.0028	185.0	.0115	249.5	.0026	228.9	.0076	280.7	.0087	264.3	.0137	318.8	.0285	290.8
8	.0127	145.5	.0019	209.3	.0141	265.9	.0024	223.8	.0041	263.0	.0061	209.3	.0124	258.2	.0269	213.6
9	.0144	39.8	.0026	343.3	.0019	229.0	.0014	102.2	.0035	168.7	.0060	120.4	.0104	182.6	.0188	134.8
10	.0093	349.7	.0022	357.2	.0073	55.2	.0016	38.0	.0045	82.4	.0055	65.6	.0088	131.8	.0147	93.5

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 87 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	2.9357	356.6	2.0130	351.0	1.4287	358.7	1.4738	357.9	1.0968	3.4	1.2780	359.8	1.0155	4.8
2	1.9514	58.2	2.2248	56.9	1.5508	62.9	1.0123	46.5	.5619	48.2	.5329	30.6	.3842	37.8
3	1.1115	324.7	.9539	318.7	.5843	333.4	.5082	320.1	.3204	329.6	.3657	312.3	.2510	324.7
4	.4817	40.5	.5412	24.2	.3702	32.7	.1836	307.9	.1334	287.3	.2267	253.0	.1763	268.2
5	.6260	312.1	.5047	294.2	.3786	313.4	.1779	267.5	.0818	244.8	.1156	183.9	.0534	196.7
6	.0770	244.3	.1120	354.9	.0639	355.6	.0940	220.4	.0548	226.8	.0578	177.0	.0373	191.7
7	.2478	298.1	.3113	272.8	.2635	298.6	.0839	196.2	.0655	172.9	.0987	142.9	.0743	149.1
8	.1647	207.6	.0752	185.5	.0928	214.6	.0584	137.5	.0347	103.4	.0718	41.1	.0403	70.4
9	.0519	262.8	.1847	149.1	.1403	282.9	.0345	141.7	.0122	135.9	.0214	11.4	.0142	34.0
10	.1413	181.7	.1962	150.8	.1704	193.6	.0577	106.3	.0238	114.5	.0217	18.3	.0185	49.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.9077	.9	.7837	2.2	.6020	2.4	.4202	2.8	.2351	343.3	.2515	345.8
2	.2759	14.2	.1230	307.9	.1482	285.8	.1881	271.6	.1317	233.6	.1292	251.9
3	.1803	302.9	.0442	178.0	.0706	185.3	.0975	188.6	.0400	114.9	.0229	121.9
4	.1520	245.3	.0280	307.1	.0208	158.3	.0672	145.8	.0097	190.8	.0079	288.5
5	.0948	164.5	.0279	155.4	.0389	93.2	.0694	72.3	.0156	87.0	.0095	227.8
6	.0290	140.5	.0040	321.9	.0207	341.2	.0376	343.3	.0104	9.7	.0103	133.0
7	.0661	113.0	.0252	135.6	.0082	151.8	.0105	289.5	.0061	250.0	.0071	55.6
8	.0570	31.3	.0175	35.9	.0061	357.3	.0110	259.8	.0015	58.7	.0051	296.2
9	.0232	353.7	.0080	77.0	.0009	118.8	.0048	246.5	.0122	217.1	.0075	168.8
10	.0238	337.0	.0236	355.6	.0053	327.1	.0152	194.8	.0181	90.8	.0105	54.2

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1273	20.5	.6983	168.6	.7368	173.1	.7161	177.3	.4662	189.7	.2551	199.5	.1222	238.4	.1468	323.3
2	.4087	266.4	.3911	244.9	.1817	238.3	.1030	221.3	.0539	212.5	.0441	196.5	.0483	217.4	.0472	224.0
3	.2367	320.2	.1114	312.7	.0189	351.4	.0147	88.2	.0156	103.7	.0157	97.0	.0173	117.9	.0204	105.4
4	.0057	329.3	.0086	141.5	.0090	116.8	.0115	112.2	.0088	128.1	.0075	111.4	.0054	133.1	.0012	4.9
5	.0234	236.8	.0151	205.3	.0059	217.6	.0053	284.0	.0086	352.0	.0064	345.7	.0052	27.8	.0022	117.2
6	.0037	242.5	.0053	1.4	.0010	121.5	.0046	183.1	.0011	283.3	.0007	261.9	.0010	65.2	.0042	55.3
7	.0017	317.8	.0014	130.4	.0021	121.4	.0010	272.1	.0019	351.1	.0015	302.3	.0025	342.5	.0040	346.6
8	.0012	239.7	.0017	229.1	.0008	95.6	.0011	194.2	.0025	246.1	.0010	216.1	.0014	248.9	.0029	219.5
9	.0050	315.6	.0014	302.8	.0027	53.3	.0018	345.3	.0021	342.9	.0017	354.4	.0017	88.4	.0036	78.7
10	.0056	200.7	.0008	254.9	.0017	27.6	.0005	193.9	.0011	315.9	.0005	294.7	.0016	23.6	.0057	321.2

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 34 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.4504	1.3025	.1534	.0985	.1513	-.0528	.2784	-.1189	.2597	-.0786	.1427	-.0210	.2321	-.0437
2	1.9954	.5686	.8815	.2748	.6062	.1212	.7196	.2316	.4617	.1391	.2100	.0818	.3458	.1004
3	.4996	-.1796	.2523	-.2432	.2045	-.2415	.3652	-.4031	.2539	-.3120	.1524	-.1253	.2243	-.2187
4	.3348	.3153	.1146	.0999	.1425	.0318	.2317	.0721	.1638	.0475	.0733	.0421	.1015	.0520
5	.3588	-.2660	.2144	-.1935	.1693	-.1356	.3019	-.1023	.2039	-.0914	.1077	-.0130	.1528	-.0565
6	.0946	.0915	.0328	.0076	.0660	-.0012	.1426	.0607	.1128	.0417	.0417	.0375	.0710	.0366
7	.2564	-.1341	.1483	-.0917	.1227	-.0685	.2064	.0534	.1434	.0238	.0643	.0353	.1065	.0288
8	.0992	.0991	.0291	.0103	.0502	.0039	.0593	.0954	.0609	.0627	.0145	.0455	.0366	.0575
9	.0653	.0503	.0385	-.0082	.0595	-.0223	.0710	.0896	.0642	.0589	.0138	.0393	.0363	.0519
10	-.0210	.0421	-.0292	-.0305	.0132	-.0112	.0117	.0581	.0292	.0431	.0024	.0287	.0180	.0348

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.1980	-.0097	.1664	.1418	.0927	.2847	.0190	.4277	-.0328	.5012	-.0275	.5403
2		.2758	.0995	.1726	.0713	.0804	.0444	-.0118	.0214	-.0735	.0090	-.0755	.0250
3		.2013	-.1234	.1092	-.0216	.0319	.0350	-.0454	.0916	-.0635	.0781	-.0591	.0773
4		.0649	.0539	.0253	.0441	-.0029	.0102	-.0312	-.0238	-.0254	-.0103	-.0155	.0089
5		.1258	-.0010	.0490	.0298	.0086	.0309	-.0318	.0320	-.0466	.0170	-.0449	.0107
6		.0348	.0447	-.0030	.0301	-.0066	.0030	-.0102	-.0241	-.0103	-.0079	-.0024	.0004
7		.0646	.0478	.0093	.0330	-.0016	.0262	-.0124	.0194	-.0277	-.0013	-.0193	.0002
8		.0106	.0495	-.0120	.0197	-.0129	.0109	-.0138	.0021	-.0123	-.0034	-.0062	.0038
9		.0045	.0524	-.0155	.0191	-.0207	.0087	-.0259	-.0017	-.0133	-.0147	-.0095	-.0021
10		-.0021	.0310	-.0025	.0019	-.0068	-.0022	-.0111	-.0063	-.0098	-.0030	-.0149	-.0012

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.0567	.2798	.0074	-.1292	-.0288	-.7760	-.0148	-.1789	-.0506	-.1781	-.0549	-.0047	-.0496	.1645	-.0580	.3777
2	-.0189	.0377	-.0914	-.0311	-.2951	-.1129	-.0523	-.0320	-.0724	-.0420	-.0530	-.0337	-.0538	-.0174	-.0580	-.0044
3	.0148	.0512	-.0225	.0416	-.0694	.1078	-.0156	.0164	-.0191	.0277	-.0193	.0237	-.0203	.0307	-.0392	.0400
4	.0713	.0385	.0173	.0045	.0074	.0190	-.0024	-.0088	-.0091	-.0131	-.0089	-.0116	-.0120	-.0046	-.0131	.0008
5	.0357	-.0150	.0001	-.0001	-.0218	.0075	-.0066	.0066	-.0107	.0028	-.0112	.0001	-.0157	.0027	-.0273	.0014
6	.0204	.0103	.0024	.0036	-.0018	.0030	-.0013	.0033	-.0043	-.0044	-.0046	-.0044	-.0068	-.0027	-.0074	.0000
7	.0205	.0050	.0009	.0015	-.0149	-.0009	.0015	.0011	-.0043	-.0020	-.0031	-.0043	-.0073	-.0047	-.0094	.0081
8	.0095	.0169	.0013	.0011	.0003	.0075	.0003	.0022	-.0016	-.0038	-.0011	-.0035	-.0015	.0024	-.0058	.0018
9	.0013	.0055	.0006	.0003	.0030	.0028	.0016	.0004	.0024	.0020	.0031	.0020	.0014	.0042	-.0008	.0049
10	-.0029	.0041	-.0013	-.0011	-.0015	-.0034	-.0000	-.0011	-.0014	-.0014	-.0016	-.0017	-.0043	-.0007	-.0088	-.0039

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 4Z (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 93 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.2133	1.5096	-.2195	.8765	-.0605	.4291	-.0384	.6995	.0878	.6215	.1124	.7019	.1263	.5078
2	2.3491	-.3218	2.1806	-.4086	1.6110	-.2492	1.0831	-.2356	.6662	.1240	.6729	.1941	.5408	.1286
3	.1377	-.1726	.1904	-.4496	.1209	-.3327	.1328	-.0588	.1015	.1254	.0837	.2213	-.0744	.1656
4	.7192	-.2527	.6037	-.3080	.5232	-.2040	.2030	.1865	.0725	.1106	.0083	.1135	-.0007	.0803
5	.0821	-.1529	.0792	-.3665	.0410	-.2771	-.0124	.0235	-.0070	.0592	-.0267	.0681	-.0307	.0413
6	.2717	-.0638	.2673	-.0105	.2959	-.0580	.0713	.0326	-.0008	.0351	-.0308	.0613	-.0089	.0531
7	.1533	-.1077	.2062	-.2600	.1147	-.2396	.0384	.0040	-.0081	.0255	-.0103	.0477	-.0048	.0542
8	.1634	-.0769	.2417	-.0120	.2335	-.0518	.0658	.0298	-.0117	.0135	-.0533	.0188	-.0625	.0198
9	.0220	-.0287	.1489	-.0514	.1227	-.1306	.0241	.0394	-.0060	.0127	-.0117	.0148	-.0015	-.0020
10	.1094	.0268	.1434	.0184	.1540	.0528	.0338	.0275	-.0032	.0119	-.0326	.0174	-.0207	.0230

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1339	.3109	.1538	.2321	.1012	.3603	.0486	.4885	-.0240	.5083	-.0254	.5158
2	.4556	.1704	.2119	.1367	.0482	.0863	-.1155	.0359	-.1817	-.0254	-.1494	-.0171
3	.0283	.1259	.0120	.0112	-.0117	.0109	-.0354	.0106	-.0249	-.0048	-.0202	.0173
4	.0230	.0612	.0118	.0552	-.0109	.0181	-.0337	-.0190	-.0277	-.0299	-.0236	-.0186
5	.0284	.0523	-.0102	.0011	-.0113	.0058	-.0124	.0106	-.0017	-.0078	-.0028	-.0047
6	-.0003	.0592	.0136	.0256	-.0046	.0068	-.0227	-.0120	.0011	-.0113	-.0002	-.0137
7	-.0264	.0804	-.0231	.0351	-.0216	.0141	-.0201	-.0068	.0003	-.0088	.0105	-.0077
8	-.0837	.0071	-.0437	-.0074	-.0245	-.0209	-.0053	-.0344	.0161	-.0026	.0142	.0045
9	-.0137	-.0070	-.0073	-.0166	.0016	-.0125	.0105	-.0084	-.0006	.0086	-.0000	.0080
10	-.0361	.0084	-.0111	-.0119	.0007	-.0127	.0126	-.0135	.0059	.0014	.0058	.0040

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0159	.4685	.0152	-.2191	.0215	-.4091	-.0099	-.4599	-.0305	-.2714	-.0402	-.0789	-.0405	-.1006	-.0413	-.3065
2	-.0184	.0326	-.1850	-.0437	-.1346	-.0510	-.1098	-.0538	-.0658	-.0357	-.0512	-.0313	-.0649	-.0249	-.0865	-.0258
3	-.0189	.1249	-.0332	.0839	-.0154	.0270	-.0111	.0130	-.0070	.0076	-.0054	.0042	-.0059	-.0044	-.0092	-.0028
4	.0605	.0449	.0278	.0146	.0068	-.0060	-.0019	-.0108	-.0058	-.0095	-.0069	-.0113	-.0134	-.0120	-.0140	-.0171
5	-.0031	.0012	-.0069	.0034	-.0035	.0022	-.0038	.0021	-.0011	.0006	.0008	-.0144	.0017	-.0120	.0052	-.0066
6	.0080	.0091	-.0008	.0024	-.0007	-.0014	-.0006	-.0032	-.0008	-.0040	.0000	-.0042	-.0005	-.0054	.0011	-.0066
7	-.0011	-.0023	-.0009	.0004	.0004	-.0004	.0021	.0004	.0022	-.0006	.0040	-.0008	.0055	-.0033	.0086	-.0039
8	.0030	.0018	.0002	.0012	.0007	.0008	.0017	.0015	.0024	.0005	.0033	.0019	.0042	.0021	.0040	.0051
9	.0016	-.0033	-.0012	.0002	-.0010	.0009	-.0014	.0014	-.0006	.0021	-.0011	.0024	.0001	.0034	-.0003	.0047
10	.0065	.0017	.0017	-.0007	.0005	-.0011	.0006	-.0008	-.0008	.0005	-.0001	.0003	-.0003	.0018	-.0003	.0031

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 34 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.3782	19.1	.1823	57.3	.1603	109.3	.3028	113.1	.2713	104.8	.1442	98.4	.2362	100.7
2	.0748	74.1	.9233	72.7	.4181	78.7	.7559	72.2	.4822	73.2	.2254	48.7	.3401	73.8
3	.5309	109.8	.3504	133.9	.3145	139.7	.5439	137.8	.4023	140.9	.1973	129.4	.3133	134.3
4	.4599	46.7	.1521	48.9	.1440	77.4	.2424	72.7	.1704	73.8	.0844	40.1	.1141	62.9
5	.4444	124.4	.2889	132.1	.2149	128.7	.3188	108.7	.2234	114.1	.1085	94.9	.1429	110.3
6	.1314	45.9	.0337	74.9	.0440	91.0	.1550	67.0	.1203	49.7	.0541	48.0	.0799	62.7
7	.2894	117.4	.1744	121.7	.1405	119.2	.2132	75.5	.1454	80.4	.0733	61.3	.1103	74.9
8	.1402	45.0	.0309	70.4	.0503	85.4	.1124	31.9	.0874	44.2	.0477	17.4	.0482	32.5
9	.0825	52.4	.0393	102.0	.0635	110.4	.1143	38.4	.0872	47.5	.0416	19.4	.0433	34.9
10	.0471	333.5	.0422	223.8	.0173	130.2	.0593	11.4	.0521	34.1	.0288	4.8	.0392	27.3

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.1983	92.8	.2186	49.4	.2994	18.0	.4281	2.5	.3023	356.3	.5410	357.1
2	.2932	70.2	.1847	67.5	.0928	40.0	.0244	331.2	.0741	277.0	.0795	288.3
3	.2341	121.5	.1113	101.2	.0474	42.4	.1022	333.6	.1007	320.9	.0973	322.6
4	.0844	50.3	.0509	29.8	.0104	343.9	.0393	232.6	.0274	248.0	.0178	299.8
5	.1258	90.5	.0574	58.7	.0321	15.5	.0451	315.1	.0496	290.0	.0461	283.4
6	.0566	37.9	.0303	354.3	.0073	294.7	.0241	202.9	.0130	232.3	.0024	279.8
7	.0804	53.5	.0343	15.7	.0243	356.6	.0230	327.4	.0277	247.2	.0193	270.3
8	.0504	12.0	.0230	328.5	.0149	310.1	.0139	278.5	.0128	254.4	.0073	301.5
9	.0524	4.9	.0244	321.0	.0225	292.7	.0240	244.2	.0198	222.2	.0097	257.8
10	.0310	356.1	.0031	306.9	.0072	252.0	.0128	240.4	.0103	253.0	.0150	265.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2855	11.5	.1294	176.7	.7766	182.1	.1795	184.7	.1851	195.9	.0551	265.1	.1719	343.2	.3822	351.3
2	.0422	333.4	.0966	251.2	.3159	249.1	.0613	238.5	.0837	239.8	.0628	237.5	.0566	252.1	.0582	265.7
3	.0533	14.1	.0473	331.4	.1282	327.2	.0224	316.4	.0336	325.4	.0306	320.9	.0368	326.5	.0560	315.6
4	.0810	41.4	.0179	75.5	.0204	158.4	.0092	195.5	.0160	214.8	.0146	217.6	.0128	249.2	.0131	273.6
5	.0382	113.1	.0001	128.9	.0228	289.1	.0066	275.3	.0105	285.3	.0112	270.6	.0160	279.8	.0273	267.0
6	.0287	44.9	.0044	33.6	.0035	210.9	.0036	202.1	.0042	224.6	.0064	225.8	.0069	263.8	.0074	269.7
7	.0211	76.3	.0018	29.2	.0149	266.7	.0019	234.0	.0047	244.6	.0053	215.3	.0087	237.2	.0126	229.8
8	.0194	29.4	.0017	50.4	.0075	177.7	.0022	172.5	.0041	203.0	.0036	197.4	.0042	235.8	.0041	253.2
9	.0065	71.0	.0007	44.1	.0041	133.0	.0017	104.8	.0033	128.2	.0037	122.8	.0044	160.9	.0049	170.8
10	.0051	324.4	.0017	230.1	.0037	204.2	.0011	181.8	.0019	225.6	.0023	224.0	.0043	260.1	.0096	245.8

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 93 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.5246	352.0	.9036	345.9	.4333	352.0	.7006	3.1	.6277	8.0	.7109	9.1	.5232	14.0
2	2.3710	82.2	2.1989	79.3	1.6302	81.2	1.1084	77.7	.6776	79.5	.7003	73.9	.5559	76.6
3	.2208	141.4	.4882	157.0	.3540	160.0	.1452	66.1	.1613	39.0	.2366	20.7	.1815	24.2
4	.7624	70.6	.6777	63.0	.5616	68.7	.2757	47.4	.1323	33.2	.1138	4.2	.0803	359.5
5	.1736	151.8	.3749	167.8	.2801	171.6	.0265	332.2	.0596	6.7	.0731	21.4	.0515	36.6
6	.2791	76.8	.2675	92.2	.3015	78.9	.0784	65.4	.0351	358.7	.0685	333.3	.0538	350.5
7	.1578	133.0	.3318	141.6	.2656	154.4	.0386	84.0	.0268	17.7	.0488	347.9	.0544	355.0
8	.1806	64.8	.2420	87.2	.2391	77.5	.0722	65.7	.0179	319.3	.0565	389.4	.0655	287.6
9	.0370	143.5	.1576	109.1	.1792	136.8	.0462	31.4	.0140	25.3	.0189	321.6	.0025	217.7
10	.1126	76.2	.1445	82.7	.1628	71.1	.0436	50.9	.0124	344.9	.0370	298.0	.0309	318.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3386	23.3	.2784	33.5	.3742	15.7	.4909	5.7	.5089	357.3	.5164	357.2
2	.4844	49.5	.2522	57.2	.0988	29.2	.1210	287.3	.1835	262.1	.1504	263.5
3	.1290	12.7	.0165	46.9	.0160	313.0	.0370	284.6	.0254	259.1	.0266	310.6
4	.0654	20.6	.0565	12.1	.0211	328.9	.0387	240.5	.0407	222.9	.0301	231.8
5	.0595	28.5	.0103	275.9	.0127	297.2	.0163	310.4	.0080	192.3	.0055	210.3
6	.0592	359.7	.0289	28.0	.0082	326.2	.0256	242.2	.0113	174.4	.0137	180.6
7	.0847	341.8	.0420	326.7	.0258	303.3	.0212	251.2	.0088	177.7	.0130	126.3
8	.0840	274.8	.0443	260.4	.0322	229.6	.0348	188.8	.0164	99.2	.0149	72.5
9	.0154	242.9	.0181	203.7	.0126	172.6	.0134	128.5	.0086	355.8	.0080	359.9
10	.0371	283.1	.0163	223.0	.0128	176.7	.0185	137.0	.0061	76.6	.0071	55.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4688	1.9	.2196	176.0	.4097	177.0	.4600	181.2	.2731	186.4	.0885	207.0	.1084	338.1	.3093	352.3
2	.0374	330.6	.1901	256.7	.1439	249.2	.1223	243.9	.0749	241.5	.0600	238.6	.0695	249.0	.0902	253.4
3	.1263	331.4	.0902	338.4	.0311	330.2	.0171	319.4	.0103	317.3	.0068	307.8	.0074	306.4	.0096	287.0
4	.0765	52.2	.0314	62.3	.0091	131.4	.0110	189.9	.0111	211.4	.0132	211.3	.0180	228.3	.0221	219.2
5	.0033	290.9	.0077	296.3	.0041	301.4	.0043	299.1	.0012	301.0	.0017	149.3	.0043	156.0	.0084	142.0
6	.0121	41.1	.0025	341.4	.0015	205.6	.0032	190.7	.0041	191.0	.0042	179.9	.0056	185.1	.0066	170.6
7	.0025	204.7	.0010	294.9	.0006	135.3	.0022	79.2	.0023	104.7	.0040	101.9	.0045	121.2	.0095	114.1
8	.0035	59.2	.0012	8.7	.0011	39.1	.0023	49.8	.0024	78.6	.0030	49.5	.0047	63.1	.0079	49.8
9	.0037	153.8	.0012	281.4	.0013	310.8	.0021	319.3	.0021	343.6	.0026	334.1	.0034	351.7	.0047	356.7
10	.0067	75.5	.0018	113.3	.0013	155.5	.0010	144.2	.0010	300.3	.0003	345.1	.0018	351.3	.0051	356.8

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 8.00 MZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 35 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1010	1.6514	-.1868	.3264	.0175	.1222	.2084	.2670	.2905	.2197	.1742	.1315	.3160	.1832
2	1.8614	.1804	.8467	.0691	.5890	.0409	.7358	.2967	.5024	.1941	.2225	.1508	.4018	.1860
3	.5091	-.0318	.3105	-.1385	.1974	-.1811	.3669	-.1589	.2471	-.1413	.1370	-.0120	.2207	-.0461
4	.6015	.1609	.2626	.0838	.2403	.0206	.2687	.2285	.2066	.1505	.0510	.1219	.0945	.1767
5	.5570	.1151	.3060	.0256	.2076	-.0101	.2291	.1423	.1720	.0704	.0465	.0677	.0878	.0571
6	.1926	.3023	.1071	.1670	.1268	.0808	.0529	.2624	.0742	.1848	-.0250	.0901	.0168	.1304
7	.1471	.1527	.0465	.0706	.0736	.0516	-.0568	.1555	-.0036	.1213	-.0341	.0505	-.0068	.0855
8	.0001	.1613	.0164	.0196	.0314	.0319	-.0908	.0667	-.0426	.0982	-.0617	.0272	-.0609	.0846
9	-.0135	.0634	.0473	.0244	.0500	.0104	-.0472	.0302	-.0435	.0515	-.0409	-.0050	-.0559	.0262
10	-.0101	.0081	.0252	-.0005	.0348	.0105	-.0440	.0072	-.0488	.0303	-.0330	-.0159	-.0580	.0107

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2762	.1752	.2135	.1997	.1550	.2913	.0965	.3829	-.0320	.4672	-.0532	.5274
2	.3028	.2100	.1732	.0901	.0610	.0696	-.0512	.0491	-.1161	-.0098	-.1293	-.0163
3	.1791	.0433	.1103	.0275	.0310	.0531	-.0482	.0786	-.0855	.0456	-.0639	.0509
4	.0004	.1669	.0099	.0970	-.0345	.0434	-.0789	-.0102	-.0584	-.0446	-.0515	-.0167
5	.0240	.0822	.0117	.0654	-.0178	.0325	-.0474	-.0003	-.0459	.0410	-.0462	-.0286
6	-.0470	.0780	-.0569	.0458	-.0496	-.0015	-.0423	-.0488	.0094	-.0588	-.0035	-.0396
7	-.0453	.0388	-.0331	.0139	-.0202	-.0081	-.0072	-.0301	.0177	-.0264	.0091	-.0280
8	-.0817	.0030	-.0431	-.0015	-.0221	-.0178	-.0010	-.0341	.0259	-.0190	.0182	-.0117
9	-.0382	-.0213	-.0252	-.0101	-.0073	-.0200	.0105	-.0298	.0389	-.0016	.0223	-.0088
10	-.0361	-.0353	-.0228	-.0188	.0015	-.0177	.0259	-.0165	.0161	.0254	.0223	.0140

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0450	.3175	.0143	-.1510	-.0450	-.9117	-.0319	-.2148	-.1179	-.2387	-.1224	-.0609	-.1152	.1254	-.1234	.3477
2	-.0483	.0340	-.0815	-.0508	-.2404	-.1755	-.0289	-.0552	-.0421	-.0859	-.0261	-.0810	-.0519	-.0459	-.0738	-.0640
3	-.0013	.0799	-.0291	.0326	-.0634	.0683	-.0130	.0002	-.0175	.0040	-.0196	.0021	-.0258	.0080	-.0447	.0093
4	.0532	.0572	-.0103	.0084	-.0103	-.0325	.0045	-.0096	.0008	-.0202	.0034	-.0202	-.0117	-.0208	-.0193	-.0278
5	.0197	.0147	-.0050	-.0048	-.0310	-.0194	-.0044	-.0041	-.0075	-.0048	-.0036	-.0101	-.0099	-.0125	-.0095	-.0297
6	-.0004	.0356	-.0018	.0046	.0019	-.0080	.0043	-.0009	.0077	-.0070	.0110	-.0055	.0075	-.0147	.0172	-.0194
7	-.0036	.0181	-.0012	.0024	-.0141	-.0035	.0007	.0014	.0051	.0021	.0056	.0034	.0105	-.0032	.0178	-.0033
8	-.0101	.0076	-.0016	.0011	.0202	.0108	.0003	.0022	.0030	.0035	.0022	.0054	.0065	.0017	.0109	.0082
9	-.0038	.0000	-.0017	-.0003	-.0017	.0064	-.0018	.0005	-.0022	.0043	-.0025	.0041	.0038	.0049	.0066	.0100
10	-.0038	-.0017	-.0009	.0005	.0041	.0056	-.0005	.0007	.0003	.0014	-.0021	.0021	.0013	.0059	-.0040	.0141

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 95 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	-.1608	1.4437	-.2072	.5821	.0660	.2713	.1986	.4866	.2337	.4568	.2936	.5745	.2994	.4436
2	2.3400	.6508	2.3932	.8073	1.8637	.4600	1.1046	.5313	.6833	.3055	.6028	.4578	.4903	.3306
3	.1363	.1208	.2259	-.0021	.2179	-.0599	.1669	.2400	.1479	.2023	.0920	.2921	.0893	.2041
4	.4858	.4613	.5458	.5707	.4622	.3558	.0618	.3397	-.0095	.2516	-.1491	.2668	-.0780	.2154
5	.0242	.0462	.0445	-.0258	.0488	-.0375	-.0472	.0884	-.0701	.0613	-.1139	.0207	-.0786	.0422
6	.3179	.1256	.2500	.1261	.2485	.1149	-.0202	.0586	-.0474	.0281	-.0983	-.0068	-.0929	.0157
7	.0365	.1683	.1094	.0623	.0953	-.0144	-.0090	.0443	-.0148	.0172	-.0314	-.0303	-.0293	-.0268
8	.0894	.0483	.1183	.0554	.1660	.0923	-.0187	.0243	-.0387	.0022	-.0388	-.0405	-.0458	-.0162
9	.0105	.1477	.1084	.1004	.0951	.0225	-.0055	.0459	.0044	-.0041	.0066	-.0233	-.0029	-.0284
10	-.0429	.0315	.0352	.0943	.1026	.1074	-.0402	.0307	-.0188	.0230	-.0274	-.0066	-.0197	.0082

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.3040	.4027	.2555	.4030	.1566	.4531	.0577	.5032	-.0967	.4372	-.1021	.4484
2		.3160	.3913	.0819	.2642	-.0298	.1694	-.1415	.0746	-.1563	-.0702	-.1269	-.0639
3		-.0084	.1585	-.0610	.0154	-.0723	.0062	-.0835	-.0031	-.0128	-.0392	-.0089	-.0077
4		-.0989	.1404	-.0469	.0049	-.0523	-.0235	-.0576	-.0520	.0106	-.0343	.0063	-.0280
5		-.0853	.0250	-.0066	-.0090	-.0152	-.0315	-.0237	-.0539	.0131	-.0111	.0170	.0046
6		-.0913	-.0405	-.0250	-.0297	.0080	-.0389	.0410	-.0481	.0248	.0218	.0122	.0172
7		-.0009	-.0387	.0304	-.0162	.0268	-.0042	.0231	.0077	-.0185	.0102	-.0074	.0124
8		-.0249	-.0315	.0077	.0086	.0127	.0083	.0178	.0079	-.0102	.0041	-.0120	.0112
9		-.0123	-.0199	-.0070	.0206	-.0067	.0158	-.0065	.0111	-.0064	-.0174	-.0158	-.0122
10		-.0174	-.0049	-.0199	-.0129	-.0079	-.0088	.0041	-.0047	.0128	.0038	.0110	-.0051

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0511	.4337	-.0465	-.2789	.0207	-.4598	-.0223	-.5399	-.0863	-.3427	-.0983	-.1453	-.1125	-.0438	-.1203	.2485
2	-.0575	.0782	-.1852	-.0549	-.1113	-.0591	-.0483	-.0466	-.0300	-.0435	-.0164	-.0460	-.0356	-.0495	-.0543	-.0480
3	-.0512	.1474	-.0574	.0752	-.0167	.0173	-.0077	-.0002	-.0033	-.0044	-.0005	-.0062	-.0006	-.0079	.0025	-.0091
4	.0118	.0572	.0028	.0113	.0029	-.0094	.0052	-.0158	.0009	-.0150	.0048	-.0146	.0011	-.0178	.0089	-.0194
5	-.0208	.0011	-.0118	-.0030	-.0039	.0003	-.0045	.0036	.0014	.0040	.0019	.0064	.0082	.0054	.0130	.0109
6	-.0004	.0007	-.0050	.0022	-.0018	.0030	-.0002	.0029	.0010	.0009	.0000	.0032	.0015	.0057	-.0023	.0108
7	.0029	.0047	-.0021	.0023	-.0028	.0002	-.0028	-.0007	-.0017	.0008	-.0030	-.0002	-.0039	.0020	-.0048	.0032
8	.0017	.0003	.0005	-.0003	-.0003	-.0002	.0005	.0001	.0009	.0000	-.0005	-.0001	-.0021	.0009	-.0088	-.0019
9	.0037	.0054	.0025	-.0002	.0003	-.0007	-.0001	-.0009	-.0004	-.0001	.0000	-.0018	-.0025	-.0035	.0005	-.0109
10	-.0015	.0031	-.0008	-.0003	.0000	-.0005	.0002	.0006	.0002	-.0002	.0002	.0007	.0023	-.0003	.0056	.0010

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 35 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.6545	356.5	.3761	330.2	.1235	8.2	.3387	38.0	.3636	53.0	.2183	53.0	.3653	59.9
2	1.8701	84.5	.8495	85.3	.5904	86.0	.7934	48.0	.5386	48.9	.2688	55.9	.4428	65.2
3	.5101	93.6	.3400	114.0	.2694	132.3	.3998	113.4	.2846	119.8	.1375	95.0	.2255	101.8
4	.6226	75.0	.2757	72.3	.2412	85.1	.3527	49.6	.2556	53.9	.1321	22.7	.2004	28.1
5	.5687	78.3	.3071	85.2	.2078	92.8	.2697	58.1	.1859	67.7	.0838	33.7	.1048	57.0
6	.3584	32.5	.1984	32.7	.1504	57.5	.2677	11.4	.1992	21.9	.0935	344.5	.1314	7.3
7	.2121	43.9	.0845	33.4	.0899	55.0	.1656	339.9	.1214	358.3	.0609	324.0	.0858	355.6
8	.1613	.0	.0256	40.0	.0448	44.6	.1127	306.3	.1071	336.6	.0675	293.8	.1042	324.2
9	.0648	348.0	.0532	62.7	.0510	78.3	.0560	302.6	.0674	319.8	.0412	263.0	.0617	295.1
10	.0129	308.6	.0252	91.2	.0363	73.2	.0446	279.3	.0574	301.9	.0367	244.3	.0590	280.4

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3270	57.6	.2924	46.9	.3300	28.0	.3948	14.2	.4683	356.1	.5301	354.2
2	.3684	55.3	.1952	62.5	.0925	41.2	.0710	313.8	.1165	265.2	.1303	262.8
3	.1843	76.4	.1136	76.0	.0615	30.3	.0922	328.5	.0969	298.1	.0817	308.5
4	.1669	.1	.0975	5.8	.0555	321.5	.0796	242.6	.0735	232.7	.0542	252.1
5	.0856	16.3	.0644	10.2	.0371	331.3	.0474	269.6	.0615	228.3	.0543	238.3
6	.1029	319.3	.0731	308.8	.0496	268.3	.0646	220.9	.0596	170.9	.0397	185.1
7	.0596	310.6	.0359	392.8	.0217	248.2	.0309	193.5	.0317	146.2	.0295	162.1
8	.0817	272.1	.0431	268.1	.0283	231.2	.0341	181.7	.0321	126.3	.0216	122.7
9	.0437	240.9	.0271	248.1	.0213	200.2	.0316	160.6	.0389	92.4	.0240	111.5
10	.0505	225.6	.0296	230.5	.0177	175.1	.0307	122.6	.0301	32.3	.0263	58.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3241	11.6	.1517	174.6	.9140	184.1	.2171	188.4	.2662	206.3	.1367	243.5	.1703	317.4	.3689	340.5
2	.0591	305.1	.0960	238.1	.2977	233.9	.0623	207.6	.0956	206.1	.0851	197.9	.0839	218.2	.0977	229.1
3	.0799	359.1	.0437	318.3	.0932	317.1	.0130	271.0	.0179	282.8	.0197	263.9	.0270	287.2	.0456	281.7
4	.0781	42.9	.0133	50.7	.0341	162.4	.0106	154.8	.0202	177.7	.0203	173.1	.0239	209.3	.0339	214.8
5	.0246	53.2	.0069	226.3	.0367	237.7	.0075	216.1	.0101	227.6	.0107	199.7	.0160	218.4	.0312	197.8
6	.0356	359.1	.0049	338.7	.0082	166.6	.0044	102.4	.0104	132.4	.0123	116.6	.0165	152.9	.0259	138.3
7	.0184	348.8	.0026	333.6	.0145	256.1	.0016	25.1	.0055	67.7	.0066	56.8	.0109	107.1	.0181	100.5
8	.0126	307.2	.0020	305.2	.0229	61.8	.0022	6.7	.0046	40.7	.0058	21.9	.0067	75.0	.0136	53.0
9	.0038	370.6	.0017	269.6	.0067	345.3	.0018	285.5	.0048	333.0	.0048	359.0	.0062	37.4	.0120	33.5
10	.0041	245.6	.0011	299.9	.0070	35.9	.0009	326.7	.0014	13.4	.0030	315.6	.0061	12.6	.0147	344.4

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NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 95 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.4527	353.6	.6178	340.4	.2792	13.7	.5255	22.2	.5131	27.1	.6452	27.1	.5352	34.0
2	2.4481	74.6	2.5257	71.4	1.7261	74.5	1.2275	64.4	.7485	65.9	.7569	52.8	.5913	56.0
3	.1821	48.4	.2260	90.5	.2260	105.4	.2923	34.8	.2506	36.2	.3062	17.5	.2228	23.4
4	.8265	56.1	.7897	43.7	.5833	52.4	.3453	10.3	.2518	357.8	.3056	330.8	.2291	340.1
5	.0705	20.1	.0514	120.1	.0616	127.6	.1112	322.8	.0931	311.1	.1157	280.3	.0901	298.0
6	.3418	68.4	.2800	63.2	.2738	65.2	.0620	341.0	.0553	300.6	.0985	266.0	.0940	279.6
7	.1722	12.2	.1258	60.3	.0964	98.7	.0452	348.5	.0227	319.3	.0436	226.0	.0397	227.5
8	.1018	61.7	.1307	64.9	.1899	60.9	.0307	322.5	.0388	273.3	.0561	223.8	.0486	250.6
9	.1481	4.0	.1479	47.3	.0977	76.7	.0462	353.2	.0061	131.4	.0242	164.1	.0286	185.8
10	.0532	306.3	.1007	20.5	.1486	43.7	.0506	307.4	.0297	320.7	.0281	256.5	.0214	292.6

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5046	37.1	.4772	32.4	.4794	19.1	.5065	6.5	.4477	347.5	.4599	347.2
2	.5030	38.9	.2766	17.2	.1720	350.0	.1599	297.8	.1713	245.8	.1421	243.3
3	.1587	357.0	.0629	284.2	.0725	274.9	.0836	267.9	.0412	198.0	.0118	229.0
4	.1717	324.8	.0472	276.0	.0573	245.8	.0776	227.9	.0359	162.8	.0287	167.4
5	.0889	286.4	.0112	216.3	.0349	205.7	.0589	203.7	.0172	130.5	.0176	74.8
6	.0999	246.1	.0388	220.1	.0397	168.4	.0632	139.5	.0330	48.7	.0210	35.4
7	.0387	181.3	.0345	118.0	.0271	99.0	.0243	71.5	.0211	298.8	.0145	329.3
8	.0401	218.3	.0115	41.9	.0152	57.1	.0195	64.0	.0110	291.7	.0164	313.2
9	.0234	148.2	.0218	341.3	.0172	337.0	.0128	329.7	.0185	200.4	.0200	232.5
10	.0181	254.1	.0238	237.1	.0118	221.8	.0063	138.9	.0134	73.5	.0122	114.8

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4367	6.7	.2828	170.5	.4602	177.4	.5403	182.4	.3534	194.1	.1755	214.1	.1208	291.3	.2761	334.2
2	.0971	323.7	.1932	253.5	.1260	242.0	.0954	225.7	.0529	214.6	.0488	199.7	.0610	215.7	.0870	218.6
3	.1561	340.9	.0946	322.7	.0240	316.0	.0077	268.4	.0055	217.4	.0062	184.7	.0079	184.5	.0095	164.5
4	.0584	11.6	.0117	13.9	.0098	162.6	.0166	161.6	.0151	176.7	.0154	161.8	.0179	176.5	.0214	155.5
5	.0208	273.1	.0121	255.9	.0040	274.6	.0057	308.8	.0042	18.8	.0067	16.7	.0099	55.3	.0169	50.1
6	.0009	328.4	.0055	293.4	.0035	328.8	.0029	356.2	.0014	48.9	.0032	.1	.0059	14.5	.0111	348.2
7	.0056	31.9	.0032	317.4	.0028	273.3	.0028	256.5	.0019	296.5	.0030	265.3	.0044	297.2	.0075	295.4
8	.0017	80.2	.0006	119.6	.0003	241.3	.0005	82.9	.0009	86.5	.0005	256.2	.0023	292.6	.0090	258.0
9	.0065	34.7	.0026	94.9	.0008	155.9	.0009	188.2	.0005	251.5	.0018	179.0	.0043	215.9	.0109	177.4
10	.0035	333.6	.0009	252.1	.0005	177.2	.0006	18.6	.0003	140.3	.0008	19.2	.0024	97.0	.0057	79.5

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 36 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1148	1.9697	-.0996	.4859	.0773	.2557	.3043	.4522	.3861	.3022	.2054	.1576	.3635	.1547
2	1.7230	.2619	.7811	.1392	.5382	.0849	.6400	.4408	.4680	.3321	.2042	.2160	.4417	.2717
3	.5412	.2436	.2897	-.0151	.1928	-.1149	.3177	-.0591	.2008	-.0839	.1141	.0320	.2102	.0443
4	.5609	.2442	.2824	.1330	.2636	.0366	.2714	.3128	.2355	.2110	.0278	.1607	.0847	.2435
5	.4679	.3204	.2335	.1606	.1989	.0697	.0771	.2602	.0666	.1620	-.0266	.0778	-.0022	.1050
6	-.0695	.3716	.0192	.1903	.0987	.1175	-.0701	.2247	.0074	.1539	-.0564	.0581	-.0377	.1145
7	-.0572	.1264	-.0233	.0255	.0172	.0608	-.1354	.0714	-.0424	.1014	-.0601	.0039	-.0814	.0446
8	-.0235	.0263	.0345	.0085	.0215	.0205	-.0938	.0053	-.0498	.0604	-.0448	-.0097	-.0571	.0202
9	.0128	.0082	.0406	.0137	.0349	.0024	-.0515	-.0417	-.0784	.0035	-.0247	-.0326	-.0548	-.0082
10	.0219	.0203	.0514	.0330	.0498	.0199	-.0017	-.0061	-.0236	-.0111	-.0067	-.0172	-.0283	-.0049

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.3091	.1161	.2626	.1346	.1796	.2641	.0966	.3935	-.0809	.4579	-.1131	.3161
2	.3361	.3074	.1920	.1888	.0372	.1463	-.1175	.1038	-.1752	-.0017	-.1705	-.0024
3	.1284	.1351	.0750	.0789	.0067	.0625	-.0616	.0460	-.0802	.0009	-.0664	.0148
4	-.0511	.1853	-.0316	.1015	-.0621	.0370	-.0926	-.0274	-.0475	-.0736	-.0483	-.0461
5	-.0462	.0750	-.0194	.0502	-.0313	.0084	-.0433	-.0334	-.0135	-.0587	-.0183	-.0415
6	-.1037	.0374	-.0731	.0254	-.0520	-.0188	-.0309	-.0629	.0388	-.0593	.0143	-.0411
7	-.0566	-.0363	-.0419	-.0179	-.0128	-.0375	.0163	-.0571	.0623	-.0087	.0340	-.0207
8	-.0381	-.0268	-.0331	-.0277	.0038	-.0273	.0407	-.0269	.0356	.0407	.0329	.0167
9	-.0120	-.0437	-.0030	-.0296	.0161	-.0154	.0353	-.0011	-.0022	.0382	.0065	.0236
10	-.0009	-.0238	.0005	-.0196	.0121	.0006	.0236	.0207	-.0276	.0201	-.0071	.0184

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0399	.3217	-.0078	-.1797	-.1704	-.0488	-.0639	-.2519	-.2041	-.3010	-.2040	-.1221	-.2013	.0829	-.2058	.3101
2	-.0843	.0810	-.0862	-.0366	-.2225	-.1138	-.0217	-.0448	-.0282	-.0635	-.0150	-.0657	-.0477	-.0562	-.0834	-.0651
3	-.0190	.0952	-.0324	.0258	-.0741	.0357	-.0097	-.0055	-.0184	-.0064	-.0156	-.0123	-.0248	-.0055	-.0382	-.0138
4	.0373	.0498	.0080	.0038	.0184	-.0393	.0088	-.0107	.0068	-.0249	.0132	-.0243	-.0038	-.0331	-.0007	-.0466
5	.0094	.0302	-.0038	-.0014	-.0188	-.0154	-.0023	-.0036	-.0015	-.0013	.0025	-.0018	.0024	-.0086	.0136	-.0198
6	-.0191	.0349	-.0035	.0064	.1180	-.0843	.0031	.0027	.0093	-.0007	.0118	.0031	.0047	-.0013	.0252	-.0066
7	-.0155	.0121	-.0035	.0014	-.0049	.0068	-.0026	.0016	-.0000	.0071	-.0010	.0094	.0121	.0070	.0191	.0177
8	-.0097	-.0049	-.0010	-.0014	-.0015	-.0007	-.0007	.0002	-.0016	.0012	-.0034	.0026	.0023	.0084	-.0047	.0206
9	.0017	-.0089	.0007	-.0011	-.0051	-.0013	-.0017	-.0012	-.0038	.0018	-.0063	-.0005	-.0048	.0096	-.0175	.0080
10	.0071	-.0005	.0021	-.0004	-.0007	-.0031	.0008	-.0015	-.0041	-.0021	-.0020	-.0051	-.0088	.0008	-.0130	-.0081

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 96 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0510	1.5784	.0205	.6483	.2438	.3424	.3180	.5530	.3068	.5002	.3389	.6510	.3314	.5000
2	2.2442	.8278	2.2794	1.0444	1.6044	.5585	1.0457	.6658	.6434	.3621	.5517	.5087	.4667	.3362
3	.0955	.2203	.1551	.0782	.2254	.0409	.1143	.2974	.1097	.2458	.0283	.3404	.0774	.2749
4	.5916	.4932	.4978	.5747	.3779	.3507	-.0354	.3284	-.0669	.2265	-.2444	.2108	-.1641	.2097
5	-.0553	.1287	-.0203	.0884	.0403	.0530	-.1089	.0910	-.0670	.0744	-.1237	.0063	-.0945	.0174
6	.2539	.1064	.1838	.1185	.1778	.1022	-.0766	.0144	-.1117	.0202	-.1460	-.0701	-.1133	-.0056
7	.0205	.1322	.1088	.0624	.0952	.0045	.0201	-.0032	-.0005	-.0522	.0352	-.0870	-.0145	-.0713
8	.1252	.1263	.1189	.1760	.1768	.1387	-.0316	.0699	.0014	.0415	-.0175	.0103	-.0128	.0034
9	-.0875	.1608	-.0105	.1146	.0326	.0726	-.0473	.0057	-.0385	-.0046	-.0132	-.0577	-.0292	-.0372
10	-.0394	.0035	.0018	.0991	.0939	.1029	-.0291	.0075	-.0080	-.0018	.0181	-.0072	.0087	-.0133

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.2873	.4569	.2405	.4370	.1472	.4643	.0539	.4916	-.1158	.4093	-.1210	.4112
2		.2808	.3536	.0462	.1986	-.0811	.1305	-.2084	.0623	-.1816	-.0827	-.1432	-.0575
3		.0003	.2290	-.0032	.0664	-.0557	.0048	-.1082	-.0568	-.0301	-.0614	-.0267	-.0200
4		-.2158	.1263	-.1450	.0505	-.0794	-.0254	-.0137	-.1012	.0420	-.0549	.0230	-.0333
5		-.0846	-.0682	-.0391	-.1103	.0039	-.0782	.0470	-.0462	.0415	.0191	.0229	.0128
6		-.0377	-.0467	.0521	-.0477	.0550	-.0164	.0578	.0149	-.0011	.0384	.0006	.0278
7		.0028	-.0411	.0329	.0076	.0108	.0186	-.0114	.0297	-.0238	-.0014	-.0177	-.0033
8		-.0001	-.0180	.0245	.0192	.0099	.0109	-.0047	.0025	-.0161	-.0116	-.0017	.0045
9		-.0079	-.0288	-.0319	.0261	-.0191	.0095	-.0043	-.0072	.0118	-.0158	-.0118	-.0048
10		.0148	-.0230	-.0010	-.0377	.0058	-.0197	.0126	-.0018	.0097	.0085	.0021	-.0055

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0458	.4195	.0463	-.3418	.0136	-.5122	-.0334	-.6118	-.1247	-.4040	-.1307	-.2034	-.1523	-.0050	-.1511	.2066
2	-.1197	.0869	-.2143	-.0715	-.1214	-.0660	-.0701	-.0788	-.0401	-.0511	-.0191	-.0566	-.0445	-.0594	-.0597	-.0766
3	-.0722	.1562	-.0749	.0725	-.0195	.0172	-.0062	-.0044	-.0027	-.0052	.0018	-.0094	-.0024	-.0123	-.0007	-.0186
4	-.0047	.0559	.0013	.0150	.0115	-.0003	.0155	-.0016	.0123	-.0074	.0152	-.0060	.0148	-.0149	.0239	-.0122
5	-.0163	-.0118	-.0104	-.0082	-.0011	-.0012	-.0056	.0036	.0015	.0092	.0012	.0093	.0071	.0110	.0085	.0191
6	.0013	-.0091	-.0003	-.0097	-.0004	-.0003	-.0021	.0004	-.0010	.0011	-.0030	.0018	-.0032	.0057	-.0110	.0073
7	.0085	-.0019	-.0026	-.0012	-.0036	-.0017	-.0023	-.0028	-.0029	-.0001	-.0033	-.0030	-.0050	-.0009	-.0065	-.0045
8	.0065	.0083	.0029	.0018	-.0008	-.0013	-.0000	.0010	-.0006	-.0009	-.0002	-.0015	-.0024	-.0013	-.0021	-.0041
9	-.0067	.0056	-.0015	.0039	-.0022	-.0005	.0005	.0008	.0016	-.0002	.0025	-.0005	.0015	-.0041	.0029	-.0049
10	.0018	-.0017	-.0006	.0019	-.0005	.0009	-.0015	.0007	-.0003	.0010	-.0008	.0011	.0008	.0013	.0018	.0005

197

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 36 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.9730	3.3	.4960	348.4	.2672	16.8	.5451	33.9	.4903	51.9	.2589	52.5	.3951	67.0
2	1.7428	81.4	.7934	79.9	.5448	81.0	.7771	55.4	.5739	54.6	.2973	43.4	.5186	58.4
3	.5935	65.8	.2901	93.0	.2244	120.8	.3231	100.3	.2176	112.7	.1185	74.3	.2148	78.1
4	.8117	66.5	.3121	64.8	.2661	82.1	.4141	40.9	.3162	48.1	.1431	9.8	.2578	19.2
5	.3671	55.6	.2834	55.5	.2107	70.7	.2714	16.5	.1752	22.3	.0822	341.1	.1050	358.8
6	.3780	10.6	.1912	5.8	.1534	40.0	.2355	342.6	.1541	2.8	.0810	315.8	.1205	341.8
7	.1387	335.7	.0345	317.6	.0632	15.7	.1531	297.8	.1190	328.4	.0602	273.7	.0928	298.7
8	.0353	318.2	.0375	76.9	.0297	46.5	.0940	273.3	.0924	311.0	.0459	257.8	.0605	289.5
9	.0152	57.3	.0428	71.3	.0350	84.0	.0663	231.0	.0784	272.3	.0409	217.2	.0554	241.5
10	.0298	47.2	.0611	57.3	.0536	68.3	.0064	195.2	.0261	244.8	.0185	201.4	.0287	260.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3302	69.4	.2951	62.9	.3194	34.2	.4052	13.8	.4650	350.0	.5284	347.6
2	.4555	47.6	.2692	45.5	.1510	14.3	.1568	311.5	.1752	269.4	.1706	269.2
3	.1865	43.6	.1089	43.5	.0628	6.1	.0769	306.7	.0802	270.7	.0680	282.6
4	.1922	344.6	.1063	342.7	.0723	300.8	.0966	253.5	.0876	212.8	.0668	226.3
5	.0881	328.4	.0518	338.9	.0325	285.0	.0546	232.4	.0602	192.9	.0454	203.7
6	.1102	289.9	.0774	289.1	.0553	250.1	.0701	206.1	.0709	146.8	.0435	160.8
7	.0673	237.3	.0455	246.8	.0396	198.8	.0593	164.1	.0629	98.0	.0398	121.3
8	.0466	234.9	.0432	230.0	.0276	172.0	.0488	123.5	.0541	41.2	.0349	63.1
9	.0453	195.3	.0297	185.8	.0223	133.6	.0353	91.8	.0383	356.7	.0245	15.5
10	.0238	182.1	.0196	178.4	.0121	87.3	.0314	48.7	.0342	306.0	.0197	338.9

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.3241	7.1	.1799	182.5	1.0625	189.2	.2598	194.2	.3636	214.1	.2377	239.1	.2177	292.4	.3722	326.4
2	.1169	313.9	.0937	247.0	.2499	242.9	.0498	205.8	.0694	203.9	.0674	192.9	.0737	220.3	.1058	232.0
3	.0970	348.7	.0416	308.4	.0822	295.8	.0111	240.5	.0194	250.7	.0198	231.8	.0254	257.6	.0406	250.1
4	.0622	36.8	.0089	64.9	.0434	154.9	.0138	140.6	.0259	164.7	.0276	151.5	.0334	186.5	.0466	180.9
5	.0316	17.2	.0040	250.0	.0243	230.6	.0042	212.8	.0019	228.8	.0031	126.1	.0089	164.6	.0240	145.5
6	.0398	331.2	.0072	331.5	.1450	125.5	.0041	49.0	.0093	94.2	.0122	75.4	.0049	105.4	.0261	104.7
7	.0197	308.1	.0037	292.2	.0084	324.7	.0030	301.9	.0071	359.7	.0095	353.8	.0140	59.9	.0260	47.1
8	.0108	243.3	.0018	214.8	.0017	245.5	.0008	284.2	.0020	306.1	.0043	307.7	.0087	15.6	.0212	347.2
9	.0091	169.1	.0013	148.2	.0052	284.1	.0020	234.2	.0042	294.7	.0063	265.1	.0107	333.6	.0193	294.5
10	.0071	93.8	.0022	100.1	.0032	193.3	.0017	150.2	.0046	243.3	.0055	201.1	.0088	275.2	.0153	237.9

86T

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 96 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	1.5794	1.8	.6484	1.8	.4205	35.4	.6379	29.9	.5868	31.5	.7339	27.5	.5999	33.5
2	2.4108	49.9	2.5075	65.4	1.6988	70.8	1.2397	57.5	.7383	60.6	.7504	47.3	.5751	54.2
3	.2401	23.4	.1737	63.2	.2290	79.7	.3186	21.0	.2691	24.1	.3617	4.5	.2875	15.6
4	.7702	50.2	.7618	40.8	.5155	47.1	.3305	353.8	.2362	343.5	.3227	310.8	.2676	321.6
5	.1401	336.8	.0909	347.1	.0666	37.2	.1419	309.9	.1001	318.0	.1239	272.9	.0962	280.5
6	.2753	67.3	.2187	57.2	.2050	60.1	.0780	280.7	.1135	280.3	.1619	244.4	.1134	267.2
7	.1338	8.8	.1254	60.2	.0953	87.3	.0204	99.2	.0522	180.6	.0938	158.0	.0728	191.5
8	.1779	44.7	.2124	34.0	.2247	51.9	.0767	335.7	.0456	300.6	.0203	300.6	.0132	284.9
9	.1831	331.4	.1151	354.8	.0794	24.2	.0477	274.8	.0388	241.2	.0592	192.9	.0472	218.1
10	.0396	275.1	.0991	1.1	.1394	42.4	.0301	284.5	.0082	257.6	.0195	111.6	.0159	146.7

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.5397	32.2	.4988	28.8	.4871	17.6	.4946	6.3	.4254	344.2	.4286	343.6
2	.4515	38.5	.2039	13.1	.1536	328.1	.2175	286.7	.1995	245.5	.1543	248.1
3	.2290	.1	.0665	357.2	.0559	274.9	.1222	242.3	.0684	206.1	.0334	233.2
4	.2501	300.3	.1535	289.2	.0833	252.3	.1021	187.7	.0691	142.6	.0405	145.4
5	.1087	231.1	.1170	199.5	.0783	177.1	.0659	134.5	.0457	65.4	.0263	60.9
6	.0400	218.9	.0707	132.5	.0574	106.6	.0597	75.5	.0384	358.4	.0278	1.3
7	.0412	176.1	.0338	77.0	.0215	30.0	.0318	338.9	.0239	273.4	.0180	259.5
8	.0180	179.8	.0311	51.9	.0147	42.2	.0054	298.3	.0198	234.2	.0048	339.4
9	.0298	195.4	.0413	309.3	.0213	296.3	.0096	221.1	.0198	143.3	.0136	240.2
10	.0274	147.2	.0377	181.5	.0206	163.6	.0128	98.0	.0129	48.9	.0059	159.3

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.4220	6.2	.3449	172.3	.5124	178.5	.6127	183.1	.4228	197.2	.2417	212.7	.1524	268.1	.2559	323.8
2	.1480	306.0	.2259	251.6	.1382	241.4	.1055	221.6	.0650	218.1	.0597	198.7	.0742	216.9	.0971	217.9
3	.1721	335.2	.1042	314.1	.0240	311.4	.0076	234.9	.0059	207.3	.0095	168.9	.0126	191.1	.0187	182.3
4	.0541	355.3	.0150	5.0	.0115	91.7	.0156	95.8	.0143	121.1	.0163	111.4	.0210	135.2	.0368	117.0
5	.0201	234.2	.0132	231.7	.0016	222.4	.0067	303.1	.0094	350.8	.0094	352.7	.0131	35.7	.0209	24.0
6	.0092	171.6	.0097	181.6	.0005	235.7	.0021	282.2	.0015	316.8	.0035	301.7	.0065	331.1	.0132	303.7
7	.0087	102.8	.0029	245.8	.0040	244.3	.0036	220.0	.0029	247.7	.0045	228.0	.0051	260.0	.0079	235.3
8	.0105	37.9	.0034	58.2	.0016	211.0	.0010	182.5	.0010	213.2	.0015	188.4	.0027	241.5	.0046	207.1
9	.0088	309.8	.0042	338.5	.0023	103.3	.0010	33.6	.0016	97.3	.0025	102.0	.0043	160.2	.0057	148.9
10	.0025	132.7	.0020	343.2	.0010	331.1	.0017	294.6	.0011	341.4	.0014	322.6	.0016	32.5	.0019	74.4

661

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 102 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0319	.1201	.0415	-.6353	.0632	-.6099	.1478	-.0395	.1286	-.1966	.1568	.2685	.1390	.1845
2	1.8975	.2105	1.5873	.2371	1.1291	-.1027	.9393	-.0745	.6029	-.0007	.6858	.0338	.5242	-.0076
3	.4053	-.9814	.4645	-1.0147	.2940	-.8294	.2997	-.2749	.2022	-.1057	.2351	.0134	.1763	-.0036
4	.2443	-.1057	-.0889	-.0500	-.0127	-.0321	.1946	-.0780	.1761	-.0275	.1666	.0531	.1178	.0181
5	.1845	-.2531	-.1939	-.2448	-.1439	-.3288	.1370	-.0101	.1043	-.0563	.1102	.0838	.0874	.0368
6	-.1458	.0440	-.4216	-.0025	-.3178	-.0174	-.0378	-.0645	-.0137	-.0429	-.0463	.0701	.0462	.0294
7	-.0203	-.0921	-.1054	-.1186	-.0199	-.1145	-.0147	-.0748	-.0075	-.0069	-.0033	.0241	.0086	.0344
8	-.1108	.0205	-.2491	-.0256	-.2593	-.0767	-.0145	-.0233	.0205	-.0189	.0411	.0050	.0386	-.0196
9	-.1013	-.0059	-.2309	-.0411	-.1229	-.0356	-.0775	-.0606	-.0419	-.0111	.0071	-.0032	.0235	.0035
10	-.1118	-.0418	-.1133	-.1148	-.1463	-.1050	-.0073	-.0736	.0020	-.0387	.0420	-.0062	.0377	-.0131

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.1205	.1053	.1639	.2112	.1263	.3585	.0886	.5059	.0106	.5701	.0010	.5728
2	.3434	.0287	.0830	.0531	.0098	.0554	-.0635	.0576	-.0943	.0408	-.0622	.0283
3	.1218	-.0816	.0739	-.0791	.0235	-.0116	-.0268	.0559	-.0621	.0684	-.0341	.0642
4	.1208	.0178	.0331	.0240	.0140	.0174	-.0051	.0108	-.0263	.0038	-.0142	.0130
5	.0344	-.0078	.0170	-.0199	-.0002	.0055	-.0174	.0308	-.0340	-.0002	-.0271	.0032
6	.1083	-.0220	.0465	-.0053	.0227	.0094	-.0011	.0241	-.0088	.0009	-.0072	-.0003
7	.0282	.0317	.0118	.0149	-.0096	.0143	-.0309	.0138	-.0076	-.0127	-.0087	-.0052
8	.0845	-.0280	.0478	-.0079	.0240	-.0004	.0002	.0072	-.0028	.0112	-.0077	.0021
9	.0502	.0512	.0261	.0393	.0043	.0248	-.0135	.0102	-.0137	-.0040	-.0092	-.0064
10	.0382	.0094	.0242	.0250	.0054	.0203	-.0135	.0155	-.0151	-.0071	-.0105	-.0090

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0230	.5700	-.0089	-.0080	-.0199	-.1819	-.0310	-.3557	-.0411	-.2127	-.0473	-.0408	-.0423	.1387	-.0372	.3454
2	.0808	.0264	-.0837	-.0156	-.0801	-.0245	-.0764	-.0333	-.0416	-.0231	-.0281	-.0189	-.0322	-.0116	-.0413	-.0021
3	.0389	.0036	-.0116	.0402	-.0173	.0344	-.0230	.0286	-.0157	.0253	-.0163	.0247	-.0160	.0340	-.0246	.0381
4	.0418	.0323	.0315	.0208	.0161	.0093	.0008	-.0023	-.0030	-.0035	-.0062	-.0042	-.0119	-.0034	-.0155	-.0022
5	.0227	-.0005	.0051	-.0001	-.0005	.0005	-.0060	.0012	-.0069	.0037	-.0070	.0020	-.0093	.0045	-.0135	.0019
6	-.0040	.0111	-.0006	.0047	-.0010	.0024	-.0014	.0001	-.0039	-.0003	-.0038	-.0010	-.0063	-.0013	-.0076	-.0046
7	-.0011	-.0025	-.0005	.0010	-.0001	.0002	-.0002	-.0006	-.0016	-.0010	-.0015	-.0011	-.0031	-.0014	-.0028	-.0041
8	-.0007	.0013	-.0005	.0018	-.0014	.0007	-.0023	-.0004	-.0014	.0004	-.0026	-.0007	-.0037	-.0009	-.0045	-.0030
9	-.0080	.0030	-.0025	.0010	-.0013	.0002	-.0002	-.0006	-.0001	.0015	-.0003	-.0023	-.0012	-.0033	-.0010	-.0056
10	-.0015	-.0063	.0015	-.0003	.0009	-.0007	.0004	-.0010	-.0011	-.0008	-.0007	-.0020	-.0028	-.0036	-.0023	-.0066

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 102 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.1243	14.9	.4366	176.3	.6132	174.1	.1530	105.0	.2350	33.2	.3110	30.3	.2310	37.0
2	1.9091	83.7	1.6049	81.5	1.1338	84.8	.9424	85.5	.6029	90.1	.6866	87.2	.5243	90.8
3	1.0618	157.6	1.1168	155.3	.8806	160.4	.4067	132.5	.2281	117.6	.2355	86.7	.1764	88.8
4	.2649	67.2	.1020	299.3	.0345	338.5	.2097	68.2	.1782	81.1	.1748	72.3	.1192	81.2
5	.3132	143.9	.3123	141.6	.3674	153.5	.1374	94.2	.1185	61.6	.1385	52.7	.0950	67.2
6	.1715	284.9	.4216	269.7	.3183	266.9	.0747	329.6	.0644	12.3	.0840	33.5	.0724	66.0
7	.0944	192.4	.1587	221.6	.1182	189.7	.0262	191.1	.0107	227.5	.0263	352.8	.0367	14.0
8	.1127	280.5	.2504	264.1	.2704	253.5	.0274	328.2	.0279	47.5	.0415	83.0	.0433	116.9
9	.1015	273.3	.2388	255.2	.1280	286.1	.0984	232.0	.0433	255.2	.0078	114.2	.0237	81.5
10	.1194	249.5	.1613	224.6	.1800	234.3	.0740	185.7	.0388	177.0	.0424	98.4	.0399	109.1

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.1600	48.8	.2674	37.8	.3801	19.4	.5136	9.9	.5702	1.1	.5728	.1
2	.3446	85.2	.0986	57.4	.0562	10.0	.0857	312.2	.1028	293.4	.0683	294.5
3	.1466	123.8	.1083	137.0	.0262	116.3	.0620	334.4	.0924	317.7	.0727	332.0
4	.1221	81.6	.0409	54.0	.0223	38.8	.0119	334.6	.0266	278.1	.0193	312.4
5	.0353	102.8	.0261	139.4	.0055	358.1	.0354	330.6	.0340	269.6	.0273	276.7
6	.1105	101.5	.0468	96.5	.0246	67.6	.0241	357.4	.0089	275.6	.0072	267.4
7	.0424	41.6	.0190	38.4	.0172	326.3	.0339	294.1	.0148	210.8	.0101	239.2
8	.0890	108.3	.0485	99.4	.0240	90.8	.0072	1.8	.0116	346.1	.0080	285.3
9	.0717	44.4	.0472	33.5	.0256	14.2	.0170	307.1	.0143	253.7	.0112	235.0
10	.0394	76.2	.0348	44.1	.0210	14.8	.0206	319.1	.0166	244.9	.0138	229.4

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5704	2.3	.0120	227.8	.1830	186.3	.3571	185.0	.2166	190.9	.0625	229.2	.1450	343.0	.3474	353.9
2	.0850	71.9	.0851	259.5	.0837	253.0	.0834	246.4	.0474	240.9	.0338	236.0	.0342	250.2	.0414	267.0
3	.0390	84.7	.0418	343.9	.0185	333.3	.0367	321.2	.0298	328.1	.0294	324.6	.0376	334.8	.0454	327.1
4	.0697	62.4	.0378	56.6	.0186	60.2	.0024	161.3	.0046	270.5	.0075	235.7	.0123	254.1	.0157	262.0
5	.0227	91.3	.0051	91.3	.0007	319.4	.0062	281.3	.0078	298.4	.0073	285.7	.0103	295.6	.0136	278.0
6	.0118	340.3	.0047	352.7	.0026	337.6	.0014	274.3	.0039	245.7	.0040	254.8	.0045	258.1	.0089	239.2
7	.0027	203.2	.0011	26.6	.0003	33.9	.0006	200.5	.0019	237.7	.0019	235.7	.0034	246.1	.0050	214.7
8	.0015	331.0	.0019	343.8	.0016	296.8	.0023	260.5	.0014	286.3	.0026	255.0	.0038	256.0	.0054	236.9
9	.0086	290.6	.0027	291.9	.0013	279.0	.0006	198.1	.0015	182.1	.0023	173.1	.0035	199.9	.0057	190.0
10	.0064	193.8	.0015	103.0	.0011	125.1	.0011	157.6	.0014	234.7	.0021	200.0	.0046	218.4	.0070	199.5

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

FILE: 106 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1778	.1493	.3070	-.6605	.2982	-.5747	.4073	-.0566	.3374	.1668	.4398	.2696	.3534	.1648
2	1.9451	-.4208	1.8160	.6224	1.2261	.2786	.9893	.3290	.6179	.1560	.6608	.2940	.5039	.1622
3	.3122	-.9180	.6493	-.8789	.3917	-.6755	.3862	-.1146	.2750	-.0226	.2898	.1156	.2105	.0403
4	.3428	-.1988	.0760	-.2743	.1469	-.1511	.1695	.2502	.1523	.1973	.1119	.2651	.1306	.1513
5	.2722	-.3507	-.1764	-.2949	-.1473	-.2948	-.0368	.0577	-.0039	.1061	-.0328	.1694	-.0310	.1345
6	-.0150	.0078	-.2523	-.1662	-.1752	-.0644	-.0205	-.0113	-.0166	.0199	-.0378	.0554	-.0038	.0567
7	.1145	-.2450	-.0439	-.2907	-.0451	-.2550	.0205	-.0550	-.0207	-.0139	-.0382	.0104	-.0216	-.0361
8	.0017	-.0357	-.0634	-.2243	-.1402	-.1420	.0713	-.0539	.0380	-.0380	.0419	-.0048	.0247	-.0123
9	.0723	-.1079	.0628	-.1606	.0300	-.1329	.0527	-.0528	.0206	-.0229	.0214	-.0124	.0214	.0215
10	-.0411	.0085	-.0045	-.1330	-.1025	-.1222	.0744	-.0022	.0535	-.0150	.0443	.0372	.0249	.0187

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	A	B	A	B	A	B	A	B	A	B	A	B
1	.2822	.1447	.1886	.2955	.1245	.4770	.0604	.6585	-.0736	.5613	-.0383	.5340
2	.3620	.1702	.1447	.1034	.0059	.0720	-.1329	.0405	-.1261	-.0415	-.1025	-.0239
3	.1405	.0291	-.0017	.0043	-.0354	.0410	-.0690	.0778	-.0572	.0462	-.0289	.0420
4	.0951	.1072	.0506	.0112	-.0116	.0062	-.0739	.0013	-.0574	-.0242	-.0307	-.0239
5	.0209	.1035	.0048	.0475	-.0247	.0187	-.0541	-.0102	-.0141	-.0387	.0034	-.0080
6	.0157	.0616	.0148	.0350	-.0039	.0115	-.0226	-.0121	.0093	-.0287	-.0011	-.0152
7	-.0353	.0455	-.0510	.0245	-.0447	-.0036	-.0383	-.0314	.0302	-.0045	.0156	-.0055
8	.0302	.0121	.0086	-.0119	.0126	-.0221	.0165	-.0322	.0079	.0042	.0130	.0012
9	-.0092	.0508	-.0100	.0131	-.0036	.0073	.0028	.0016	.0096	.0089	.0012	-.0152
10	-.0168	.0251	-.0137	.0191	-.0113	.0016	-.0088	-.0160	-.0018	-.0044	-.0110	-.0136

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0657	.5798	.0105	-.0673	-.0070	-.3851	-.0000	-.0001	-.0940	-.3119	-.0990	-.1347	-.1037	.0533	-.0002	-.0000
2	.0638	.0798	-.0750	-.0119	-.0721	-.0390	.0016	.0012	-.0085	-.0377	.0022	-.0366	-.0141	-.0392	-.0007	-.0003
3	.0294	.0395	-.0242	.0429	-.0250	.0176	.0002	-.0003	-.0243	.0036	-.0244	.0024	-.0247	.0150	.0001	-.0000
4	.0456	.0597	.0156	.0251	.0040	-.0011	-.0002	.0006	-.0028	-.0084	-.0019	-.0119	-.0117	-.0163	.0002	-.0001
5	.0039	.0133	-.0039	.0020	-.0046	-.0039	-.0005	.0002	-.0036	-.0027	-.0019	-.0040	-.0010	-.0043	-.0002	-.0002
6	-.0107	.0117	-.0028	.0038	.0009	-.0005	.0002	-.0000	.0000	-.0021	.0019	-.0033	.0004	-.0067	-.0000	-.0003
7	-.0062	-.0107	-.0007	.0006	.0014	.0028	-.0000	.0001	.0048	.0016	.0056	.0031	.0088	.0003	-.0000	.0001
8	.0022	-.0097	-.0007	-.0020	-.0018	.0016	-.0002	-.0003	-.0013	.0021	-.0017	.0022	.0004	.0035	.0001	-.0003
9	.0055	-.0054	.0005	.0008	-.0006	.0011	-.0002	.0001	.0002	.0011	-.0000	.0020	.0015	.0033	-.0000	.0001
10	-.0024	.0024	-.0014	.0008	-.0004	.0004	-.0004	-.0000	-.0009	-.0018	-.0001	-.0022	-.0030	-.0023	.0001	.0001

NACA 0012 AIRFDIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

FILE: 106 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2322	50.0	.7283	155.1	.6474	152.6	.4112	97.9	.3764	63.7	.5158	58.5	.3900	65.0
2	1.9901	77.8	1.9197	71.1	1.2574	77.2	1.0426	71.6	.6373	75.8	.7232	66.0	.5294	72.2
3	1.0512	150.8	1.0927	143.5	.7808	149.9	.4028	106.5	.2760	94.7	.3120	68.3	.2143	79.2
4	.3963	59.9	.2847	15.5	.2107	44.2	.3022	34.1	.2493	37.7	.2878	22.9	.1998	40.8
5	.4440	142.2	.3453	149.3	.3295	153.4	.0684	32.5	.1062	357.9	.1725	349.1	.1381	13.0
6	.0359	282.6	.3021	236.6	.1867	249.8	.0235	241.1	.0259	320.2	.0671	325.7	.0568	356.1
7	.2705	155.0	.2976	167.6	.2589	170.0	.0874	166.5	.0250	236.1	.0396	285.2	.0420	329.1
8	.0359	174.1	.2330	195.8	.2142	220.9	.0894	127.1	.0538	135.0	.0421	96.5	.0294	114.8
9	.1299	146.2	.1724	158.6	.1363	167.3	.0746	135.1	.0308	138.0	.0247	59.9	.0303	44.8
10	.0419	281.7	.1331	181.9	.1595	220.0	.0745	91.7	.0555	105.7	.0579	50.0	.0312	53.0

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.3171	62.8	.3505	32.5	.4930	14.6	.6612	5.2	.5661	352.5	.5354	355.9
2	.4000	64.8	.1778	54.4	.0722	4.7	.1389	287.0	.1328	251.8	.1053	256.9
3	.1434	78.3	.0046	337.9	.0542	319.2	.1040	318.4	.0735	308.9	.0509	325.5
4	.1433	41.6	.0519	77.5	.0132	298.1	.0739	271.0	.0423	247.2	.0389	232.1
5	.1056	11.4	.0478	5.8	.0309	307.1	.0551	259.3	.0412	200.0	.0087	157.3
6	.0635	14.3	.0380	23.0	.0121	341.3	.0254	241.8	.0301	162.1	.0153	184.1
7	.0576	322.2	.0566	295.4	.0448	265.5	.0494	230.5	.0306	98.4	.0166	109.4
8	.0325	68.1	.0147	144.0	.0254	150.3	.0362	152.8	.0090	62.2	.0131	84.6
9	.0517	349.8	.0165	322.5	.0082	333.9	.0033	60.9	.0131	47.0	.0152	4.5
10	.0302	326.2	.0236	324.3	.0114	277.8	.0183	208.7	.0048	201.7	.0175	219.0

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5835	6.5	.0682	171.2	.3852	181.0	.0001	215.6	.3257	196.8	.1672	216.3	.1166	297.2	.0002	265.3
2	.1022	38.6	.0760	261.0	.0820	241.6	.0020	53.7	.0386	192.8	.0367	176.5	.0417	199.8	.0008	65.2
3	.0492	36.7	.0493	330.6	.0306	305.1	.0004	149.8	.0246	278.5	.0245	275.6	.0289	301.3	.0001	106.6
4	.0751	37.4	.0295	31.9	.0042	104.8	.0006	340.3	.0088	198.4	.0121	189.0	.0200	215.7	.0002	53.5
5	.0138	16.3	.0644	297.5	.0060	229.9	.0006	287.7	.0045	233.0	.0044	205.8	.0044	192.7	.0003	225.4
6	.0158	317.6	.0048	323.8	.0011	119.7	.0002	101.2	.0021	178.7	.0038	150.5	.0067	176.6	.0003	176.4
7	.0123	210.0	.0009	310.4	.0031	26.2	.0001	356.6	.0050	71.0	.0064	61.3	.0088	88.0	.0001	338.1
8	.0059	166.9	.0021	200.2	.0024	312.9	.0004	211.9	.0025	327.5	.0028	321.0	.0036	5.8	.0003	158.4
9	.0077	134.4	.0010	33.0	.0012	329.4	.0002	391.8	.0011	12.6	.0020	359.0	.0036	24.0	.0001	352.4
10	.0034	315.1	.0016	299.5	.0006	315.7	.0004	263.8	.0020	205.7	.0022	183.2	.0037	232.7	.0001	36.7

NACA 0012 AIRFOIL
MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0934) FITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 104 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.1634	.2163	.2044	-.6816	.3352	-.5962	.4845	-.1431	.3939	.0546	.4965	.1881	.4253	.1259
2	2.2535	.4938	2.0195	.6693	1.3633	.2560	1.0310	.3592	.6586	.1490	.6711	.3031	.5236	.1637
3	.4012	-.6050	.5411	-.7591	.3808	-.5463	.4056	-.0089	.3033	.0675	.2876	.2615	.2483	.1718
4	.4963	.1860	.3896	.2363	.2812	-.0578	.1869	.1862	.1125	.1219	.0268	.1609	.0292	.1065
5	.0822	-.2749	.1138	-.2749	.1122	-.2461	.0671	.1225	-.0686	.1364	-.0081	.2248	.0674	.1611
6	.1822	-.0442	.0423	-.0533	.0017	-.0855	.0205	-.0118	-.0222	.0035	-.0611	.0037	-.0579	.0201
7	.0970	-.1685	.0529	-.2353	.0574	-.2291	.0812	.0371	.0695	.0525	.0274	.1123	.0665	.0638
8	.1095	.0761	-.0008	-.0484	-.0484	-.0667	.0012	.0066	-.0295	.0336	-.0742	.0223	-.0314	.0515
9	-.0054	-.0902	.0312	-.2227	-.0157	-.1740	.0465	-.0133	.0179	-.0029	-.0148	.0260	-.0023	.0394
10	.0283	.0267	.0470	-.0782	-.0787	-.1034	.0187	-.0303	-.0155	-.0118	-.0227	-.0348	-.0402	-.0013

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U		
	A	B	A	B	A	B	A	B	A	B	A	B	
1		.3962	.1830	.3562	.3235	.2253	.4459	.0945	.5684	-.1244	.4736	-.1240	.4486
2		.3406	.2255	.0884	.1791	-.0371	.1420	-.1627	.1048	-.1540	-.0391	-.1038	-.0234
3		.1472	.1805	.0487	.1197	-.0443	.0878	-.1373	.0560	-.0711	-.0279	-.0504	-.0035
4		-.0257	.0844	-.0922	.0548	-.0835	-.0113	-.0748	-.0774	.0118	-.0443	.0165	-.0241
5		-.0039	.1195	-.0530	.0108	-.0242	-.0112	-.0004	-.0331	.0195	.0002	.0113	.0045
6		-.0307	-.0089	-.0193	-.0544	-.0123	-.0444	-.0054	-.0323	.0010	-.0021	-.0034	.0047
7		.0243	.0743	.0350	-.0108	.0370	-.0020	.0390	.0067	-.0028	.0282	-.0038	.0130
8		-.0327	.0387	.0301	.0313	-.0074	.0235	-.0453	.0158	-.0169	-.0374	-.0092	-.0278
9		-.0313	.0414	-.0147	.0388	-.0084	.0029	-.0021	-.0331	.0151	.0006	.0233	.0089
10		-.0335	-.0101	-.0374	.0155	-.0167	-.0061	.0040	-.0278	.0305	-.0139	.0024	-.0106

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	.0743	.5506	.0071	-.1356	-.0314	-.3431	-.0699	-.5506	-.1506	-.3819	-.1502	-.2020	-.1708	-.0007	-.1677	.2214
2	.0313	.1161	-.1251	-.0015	-.0953	-.0254	-.0656	-.0494	-.0349	-.0306	-.0139	-.0344	-.0293	-.0368	-.0405	-.0465
3	.0020	.0805	-.0421	.0485	-.0320	.0212	-.0219	-.0061	-.0186	.0057	-.0159	-.0124	-.0254	-.0080	-.0296	-.0199
4	.0262	.0429	.0102	.0225	.0107	.0127	.0111	.0028	.0091	-.0038	.0113	-.0035	.0122	-.0117	.0216	-.0138
5	-.0015	.0055	-.0001	-.0028	-.0003	-.0037	-.0005	-.0046	-.0042	.0003	-.0013	-.0011	.0005	-.0003	.0053	.0042
6	.0012	-.0083	.0075	-.0018	.0044	.0013	.0012	.0044	.0010	.0028	.0011	.0042	.0034	.0047	.0008	.0077
7	.0128	-.0037	.0015	.0014	-.0003	-.0001	-.0022	-.0017	-.0040	.0012	-.0047	-.0014	-.0059	.0034	-.0120	-.0002
8	-.0007	.0105	-.0012	.0002	.0003	-.0008	.0019	-.0018	.0003	-.0033	.0028	-.0032	-.0004	-.0082	.0094	-.0119
9	-.0052	-.0024	-.0017	.0009	-.0010	.0015	-.0002	.0022	.0020	.0015	.0015	.0029	.0056	.0015	.0037	.0103
10	-.0059	-.0018	-.0003	-.0007	.0001	-.0001	.0005	.0005	.0014	.0004	.0014	.0016	.0039	-.0012	.0061	.0033

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 104 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	P 1U		P 2U		P 3U		P 4U		P 5U		P 6U		P 7U	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.2710	37.1	.7122	143.1	.6840	150.7	.5052	106.5	.3976	82.1	.5309	69.2	.4435	73.5
2	2.3069	77.6	2.1276	71.7	1.3871	79.4	1.0918	70.8	.6752	77.3	.7363	65.7	.5486	72.6
3	.7259	146.4	.9322	144.5	.6660	145.1	.4057	91.3	.3107	77.5	.3888	47.7	.3020	55.3
4	.5301	69.5	.4556	58.8	.2871	78.4	.2638	45.1	.1659	42.7	.1631	9.5	.1104	15.3
5	.2889	163.5	.2994	157.7	.2705	155.5	.1397	28.7	.1527	26.7	.2249	2.1	.1747	22.7
6	.1875	103.6	.0680	141.6	.0855	178.9	.0236	120.0	.0224	278.9	.0613	273.4	.0613	289.2
7	.1944	150.1	.2412	167.0	.2352	165.9	.0893	65.4	.0871	52.9	.1156	13.7	.0921	46.2
8	.1333	55.2	.0484	181.0	.0824	116.0	.0067	10.6	.0447	318.8	.0775	286.8	.0603	328.6
9	.0904	183.4	.2248	172.0	.1747	185.1	.0484	106.0	.0182	99.2	.0299	330.4	.0394	3.4
10	.0389	46.7	.0912	149.0	.1299	217.3	.0356	148.3	.0194	232.8	.0415	213.1	.0402	268.2

H	P 8U		P 9U		P 10U		P 11U		P 12U		P 13U	
	C	P	C	P	C	P	C	P	C	P	C	P
1	.4364	65.2	.4811	47.8	.4996	26.8	.3762	9.4	.4897	345.3	.4847	345.2
2	.4084	56.5	.1997	26.3	.1467	345.3	.1935	302.8	.1588	255.8	.1044	257.3
3	.2329	39.2	.1292	22.1	.0984	333.2	.1483	292.2	.0764	248.6	.0506	246.0
4	.0884	343.1	.1073	300.7	.0843	262.3	.1076	224.0	.0458	165.0	.0292	145.7
5	.1195	358.1	.0531	281.7	.0285	246.9	.0332	180.7	.0195	89.4	.0122	68.1
6	.0320	253.8	.0596	198.9	.0460	195.5	.0328	189.4	.0023	155.9	.0059	322.6
7	.0782	18.1	.0366	107.1	.0371	93.2	.0396	80.3	.0283	354.4	.0136	343.6
8	.0506	319.8	.0434	43.9	.0247	342.1	.0480	289.2	.0411	204.3	.0293	198.3
9	.0519	322.9	.0415	339.3	.0088	288.9	.0331	183.6	.0151	87.6	.0249	69.1
10	.0350	253.2	.0405	292.4	.0178	249.8	.0280	171.7	.0336	114.6	.0109	167.1

H	P 1L		P 2L		P 3L		P 4L		P 5L		P 6L		P 7L		P 8L	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
1	.5556	7.7	.1358	177.0	.3446	185.2	.5551	187.2	.4105	201.5	.2518	216.6	.1708	269.8	.2778	322.9
2	.1203	15.1	.1251	249.3	.0987	255.1	.0821	233.0	.0464	228.8	.0371	202.0	.0471	218.5	.0617	221.1
3	.0805	1.4	.0642	319.0	.0384	303.5	.0227	254.4	.0195	252.9	.0202	232.1	.0266	252.5	.0357	236.1
4	.0503	31.4	.0247	34.4	.0166	40.1	.0115	75.8	.0099	112.9	.0118	107.2	.0169	133.9	.0257	122.6
5	.0057	344.7	.0028	183.0	.0037	184.7	.0046	185.7	.0042	174.3	.0017	107.2	.0006	126.0	.0047	51.6
6	.0084	171.9	.0077	103.2	.0045	73.4	.0045	15.7	.0036	19.2	.0044	14.6	.0058	36.4	.0077	6.3
7	.0133	106.2	.0021	46.2	.0004	250.1	.0028	232.4	.0042	286.2	.0049	253.4	.0068	300.0	.0120	268.9
8	.0105	356.4	.0012	277.5	.0009	157.6	.0027	133.8	.0033	175.4	.0043	138.9	.0082	182.6	.0152	141.8
9	.0057	245.5	.0019	296.3	.0018	327.8	.0022	355.4	.0025	55.4	.0032	27.0	.0058	74.4	.0111	19.4
10	.0062	252.9	.0007	203.4	.0001	130.3	.0007	42.2	.0014	75.1	.0021	41.0	.0040	107.6	.0069	61.4

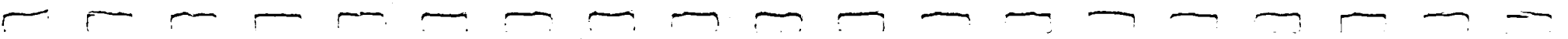


TABLE 7
(Notes 1 and 2)

INTEGRATED LOADS: $M_c=0.30$, $\bar{\alpha}=8$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.050	8	214-215
0	.100	10	216-217
0	.124	12	218-219
9	.050	14	220-221
9	.100	16	222-223
9	.124	18	224-225
12	.050	20	226-227
12	.100	22	228-229
12	.124	24	230-231
15	.050	26	232-233
15	.100	28	234-235
15	.124	30	236-237

Notes:

1. The unswept and swept counterparts are on the same page with the A,B and C,P coefficients appearing on opposite pages.
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0501) PITCHING AMPLITUDE = 8.0 DEG

FILE: 19 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0880	.0000	.0927	.0000	.0864	.0000	.0448	.0000	-.0068	.0000
1	-.0858	.9688	.0024	-.0089	-.0867	.9718	-.0005	.0127	-.0132	.0395
2	.0214	.0182	-.0531	-.0156	.0221	.0183	-.0147	.0102	.0034	.0018
3	-.0065	.0006	-.0010	-.0004	-.0055	-.0008	-.0012	.0029	.0007	-.0011
4	.0002	-.0007	.0007	-.0002	.0003	-.0007	-.0021	-.0009	-.0005	-.0000
5	.0009	-.0005	-.0000	-.0004	.0009	-.0004	.0002	.0004	-.0002	-.0000
6	.0002	-.0008	-.0001	-.0000	.0002	-.0008	.0005	.0005	-.0000	-.0001
7	-.0006	-.0011	.0002	-.0002	-.0006	-.0011	-.0000	-.0001	-.0001	.0000
8	.0005	.0009	-.0000	-.0002	.0005	.0009	.0004	-.0001	-.0001	.0000
9	.0005	.0002	-.0000	-.0000	.0006	.0002	-.0001	.0007	-.0000	.0001
10	.0007	-.0001	.0000	.0004	.0007	-.0001	-.0003	-.0003	-.0000	-.0001

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FILE: 43 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.1208	.0000	.0909	.0000	.1227	.0000	.0320	.0000	.0083	.0000
1	-.0589	.8738	.0004	.0183	-.0596	.8771	.0008	-.0094	-.0134	.0233
2	.0096	.0123	-.0481	-.0117	.0085	.0123	-.0130	.0079	.0004	.0006
3	-.0042	.0028	-.0007	-.0002	-.0035	.0016	-.0005	.0019	.0009	-.0014
4	-.0054	.0013	-.0001	-.0004	-.0053	.0013	-.0005	.0001	.0002	-.0002
5	.0007	-.0016	-.0001	.0001	.0008	-.0016	-.0000	-.0009	.0001	.0001
6	.0015	.0007	-.0000	.0002	.0015	.0007	.0004	-.0002	-.0001	-.0000
7	-.0007	-.0006	-.0000	.0001	-.0007	-.0006	.0001	-.0001	.0001	-.0001
8	.0005	.0019	.0001	.0001	.0005	.0019	-.0001	-.0000	-.0001	.0000
9	-.0001	.0003	-.0000	.0000	-.0001	.0003	-.0001	.0001	-.0000	-.0000
10	-.0006	-.0003	.0001	-.0001	-.0006	-.0003	-.0000	.0002	.0001	.0001

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0501) PITCHING AMPLITUDE = 8.0 DEG

FILE: 19 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0880	.0	.0927	.0	.0864	.0	.0448	.0	.0068	.0
1	.9726	354.9	.0092	165.0	.9757	354.9	.0127	357.8	.0416	341.6
2	.0281	49.7	.0553	253.6	.0287	50.4	.0179	305.0	.0038	62.3
3	.0065	275.6	.0011	247.1	.0056	261.8	.0031	337.4	.0013	144.8
4	.0007	165.9	.0007	103.2	.0007	158.3	.0023	246.9	.0005	264.8
5	.0010	118.8	.0004	187.1	.0010	114.8	.0004	29.3	.0002	266.1
6	.0008	168.2	.0001	254.1	.0009	167.1	.0007	40.0	.0001	181.1
7	.0012	208.5	.0002	138.2	.0012	208.5	.0001	211.4	.0001	300.5
8	.0010	31.6	.0002	192.0	.0010	31.1	.0005	106.7	.0001	287.5
9	.0006	69.6	.0000	244.9	.0006	73.4	.0007	353.8	.0001	348.9
10	.0007	95.7	.0004	5.0	.0007	95.6	.0004	217.6	.0001	187.7

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FILE: 43 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.1208	.0	.0909	.0	.1227	.0	.0320	.0	.0083	.0
1	.8758	356.1	.0183	1.2	.8791	356.1	.0094	174.9	.0269	330.2
2	.0156	37.9	.0495	256.4	.0149	34.7	.0152	301.4	.0007	30.7
3	.0050	304.4	.0008	255.4	.0039	294.8	.0020	345.5	.0016	147.7
4	.0055	283.5	.0004	191.3	.0054	283.5	.0005	280.5	.0003	130.3
5	.0017	155.1	.0001	324.1	.0017	154.0	.0009	182.2	.0001	43.4
6	.0017	63.8	.0002	349.3	.0017	63.4	.0004	112.0	.0001	243.7
7	.0009	229.1	.0001	359.6	.0009	228.7	.0001	118.1	.0001	133.1
8	.0019	13.7	.0002	70.6	.0019	13.5	.0001	263.9	.0001	276.6
9	.0003	337.6	.0000	311.8	.0003	335.5	.0001	291.9	.0000	267.8
10	.0006	244.8	.0002	152.3	.0006	245.4	.0002	357.5	.0001	28.7

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 20 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0956	.0000	.0952	.0000	.0940	.0000	.0368	.0000	-.0102	.0000
1	-.1387	.9373	.0019	-.0085	-.1401	.9404	-.0005	.0145	-.0262	.0389
2	.0152	.0188	-.0472	-.0235	.0159	.0188	-.0177	.0153	.0032	.0016
3	-.0125	-.0011	.0004	-.0002	-.0112	-.0022	-.0016	.0021	.0004	-.0016
4	-.0031	.0035	.0009	-.0011	-.0030	.0036	-.0020	-.0010	-.0003	-.0004
5	.0011	.0006	.0001	-.0007	.0011	.0008	-.0001	.0004	.0004	.0001
6	.0011	.0017	-.0001	-.0001	.0011	.0017	.0004	.0005	-.0003	.0002
7	.0020	.0018	-.0002	-.0004	.0020	.0018	.0001	.0002	.0002	.0005
8	-.0005	.0007	.0002	.0002	-.0005	.0007	.0001	-.0003	-.0008	.0001
9	-.0007	.0005	-.0000	-.0001	-.0007	.0005	.0000	.0005	-.0002	-.0001
10	-.0004	.0003	.0001	.0001	-.0004	.0002	-.0004	.0001	-.0002	.0000

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FILE: 45 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0921	.0000	.0830	.0000	.0943	.0000	.0400	.0000	.0134	.0000
1	-.0949	.8684	-.0023	.0189	-.0962	.8710	.0030	-.0127	-.0268	.0225
2	.0107	.0095	-.0463	-.0204	.0095	.0093	-.0146	.0144	.0003	.0005
3	-.0079	.0050	-.0003	-.0002	-.0067	.0038	-.0003	.0014	.0011	-.0012
4	-.0042	.0019	.0003	-.0008	-.0041	.0019	-.0010	-.0004	-.0002	-.0001
5	.0022	-.0002	-.0001	-.0001	.0023	-.0001	.0002	-.0003	.0005	.0005
6	-.0008	.0034	-.0003	.0006	-.0008	.0034	.0005	-.0003	-.0002	-.0001
7	-.0001	.0005	-.0001	-.0002	-.0002	.0005	-.0003	.0001	-.0001	-.0001
8	.0002	-.0000	.0001	.0000	.0003	-.0000	-.0003	.0000	-.0002	-.0001
9	.0009	-.0008	.0002	.0000	.0009	-.0007	-.0002	-.0001	-.0000	-.0000
10	.0003	-.0003	-.0001	-.0000	.0003	-.0003	.0002	.0001	-.0001	.0002

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 20 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	F	C	F	C	F	C	F	C	F
0	.0956	.0	.0952	.0	.0940	.0	.0368	.0	.0102	.0
1	.9475	351.6	.0087	167.4	.9508	351.5	.0145	358.2	.0469	326.1
2	.0242	39.0	.0527	243.5	.0246	40.3	.0234	310.7	.0036	62.9
3	.0126	264.9	.0004	114.8	.0114	258.7	.0027	322.4	.0017	164.8
4	.0046	318.9	.0014	140.9	.0047	319.8	.0022	242.4	.0005	219.8
5	.0013	59.3	.0008	172.9	.0013	56.0	.0004	342.3	.0004	71.1
6	.0020	32.2	.0001	244.8	.0021	32.2	.0006	34.4	.0004	296.4
7	.0027	47.9	.0005	207.9	.0027	48.4	.0002	22.4	.0005	26.8
8	.0009	323.7	.0003	44.2	.0009	324.0	.0003	165.2	.0008	274.4
9	.0008	306.7	.0001	189.2	.0008	305.8	.0005	.2	.0002	249.8
10	.0005	300.8	.0001	35.3	.0005	300.1	.0004	287.3	.0002	273.7

FILE: 45 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	F	C	F	C	F	C	F	C	F
0	.0921	.0	.0830	.0	.0943	.0	.0400	.0	.0134	.0
1	.8736	353.8	.0191	353.1	.8763	353.7	.0131	166.7	.0350	310.0
2	.0143	48.2	.0506	246.2	.0133	45.4	.0205	314.7	.0006	31.2
3	.0093	302.1	.0003	226.6	.0077	299.6	.0015	348.4	.0017	137.5
4	.0046	294.7	.0008	162.1	.0045	295.0	.0010	249.0	.0002	244.7
5	.0022	94.7	.0001	212.3	.0023	92.8	.0004	139.2	.0007	46.7
6	.0035	347.2	.0007	333.8	.0035	347.0	.0006	120.8	.0003	237.9
7	.0005	344.5	.0002	200.0	.0005	338.6	.0003	289.2	.0001	219.9
8	.0002	95.0	.0001	68.5	.0003	95.6	.0003	278.1	.0002	252.2
9	.0012	129.9	.0002	79.1	.0012	129.3	.0003	234.3	.0001	258.4
10	.0005	135.9	.0001	260.5	.0005	136.0	.0002	77.7	.0002	324.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 21 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0558	.0000	.0838	.0000	.0542	.0000	.0477	.0000	-.0085	.0000
1	-.1500	.9291	.0021	-.0095	-.1516	.9312	-.0014	.0139	-.0328	.0391
2	.0157	.0131	-.0452	-.0272	.0164	.0131	-.0191	.0176	.0028	.0023
3	-.0085	-.0010	.0003	.0001	-.0069	-.0020	-.0012	.0021	.0007	-.0015
4	-.0045	.0012	.0013	-.0009	-.0045	.0013	-.0029	-.0010	-.0006	-.0003
5	.0032	.0001	.0003	-.0004	.0030	.0002	.0008	.0005	.0005	.0006
6	-.0065	.0159	.0017	-.0031	-.0065	.0158	-.0015	.0039	-.0027	.0040
7	.0009	.0017	.0002	-.0001	.0011	.0018	-.0012	-.0007	-.0004	.0003
8	.0005	.0011	-.0001	-.0001	.0005	.0011	.0004	-.0000	-.0002	.0000
9	-.0000	.0006	-.0000	-.0001	-.0000	.0005	-.0002	.0005	.0001	-.0000
10	.0001	.0004	.0000	.0001	.0001	.0004	-.0003	.0002	-.0002	.0001

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FILE: 46 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0900	.0000	.0908	.0000	.0925	.0000	.0340	.0000	.0052	.0000
1	-.1033	.8770	-.0031	.0203	-.1049	.8802	.0030	-.0142	-.0348	.0232
2	-.0002	.0152	-.0476	-.0242	-.0015	.0150	-.0141	.0183	-.0000	.0007
3	-.0179	.0044	-.0006	-.0009	-.0164	.0031	.0010	.0011	.0011	-.0021
4	-.0035	.0026	.0014	-.0020	-.0035	.0025	-.0022	.0001	-.0004	-.0006
5	.0029	.0009	.0007	-.0004	.0030	.0011	-.0001	-.0001	-.0001	.0012
6	.0021	.0029	-.0003	-.0001	.0021	.0030	.0005	.0001	-.0006	.0005
7	.0002	-.0007	-.0002	.0000	.0002	-.0007	-.0007	.0000	.0001	.0002
8	-.0019	-.0012	.0002	.0000	-.0019	-.0012	-.0004	.0001	.0003	.0002
9	.0008	.0002	-.0000	.0001	.0008	.0003	.0001	-.0001	.0000	.0001
10	.0002	.0002	-.0002	.0001	.0002	.0002	.0005	-.0001	-.0001	-.0000

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1247) PITCHING AMPLITUDE = 8.0 DEG

FILE: 21 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0558	.0	.0838	.0	.0542	.0	.0477	.0	.0085	.0
1	.9411	350.8	.0097	167.5	.9435	350.8	.0139	354.1	.0511	320.0
2	.0204	50.0	.0528	239.0	.0210	51.2	.0259	312.7	.0037	50.4
3	.0085	263.3	.0003	73.6	.0072	253.6	.0024	331.2	.0017	155.4
4	.0047	285.1	.0016	125.8	.0046	286.1	.0030	250.6	.0007	239.4
5	.0032	87.5	.0005	142.5	.0030	87.0	.0010	61.0	.0008	37.0
6	.0172	337.7	.0035	150.8	.0171	337.7	.0041	338.9	.0048	326.8
7	.0019	27.4	.0002	130.9	.0021	30.9	.0014	239.2	.0005	305.7
8	.0012	24.6	.0002	221.9	.0012	22.4	.0004	97.2	.0002	279.1
9	.0006	355.5	.0001	189.4	.0005	356.6	.0005	334.7	.0001	124.0
10	.0004	21.0	.0001	14.2	.0004	22.3	.0004	298.0	.0002	282.8

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FILE: 46 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0900	.0	.0908	.0	.0925	.0	.0340	.0	.0052	.0
1	.8831	353.3	.0206	351.4	.8864	353.2	.0145	168.1	.0418	303.6
2	.0152	359.3	.0534	243.1	.0151	354.4	.0231	322.4	.0007	356.9
3	.0184	283.9	.0010	211.6	.0167	280.8	.0015	43.0	.0024	153.1
4	.0043	306.1	.0025	144.3	.0043	305.3	.0022	271.8	.0007	212.4
5	.0030	72.4	.0008	121.3	.0032	70.2	.0002	221.4	.0012	354.5
6	.0036	35.3	.0003	254.6	.0036	35.2	.0005	73.9	.0008	310.6
7	.0007	163.9	.0002	272.9	.0008	164.8	.0007	272.5	.0002	37.5
8	.0022	237.1	.0002	76.4	.0022	237.1	.0004	286.1	.0004	59.5
9	.0008	72.5	.0001	355.7	.0008	70.1	.0002	126.1	.0001	26.3
10	.0003	50.4	.0002	291.5	.0002	51.4	.0005	102.4	.0001	258.4

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 1 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5576	.0000	.1222	.0000	1.5446	.0000	.1998	.0000	-.0399	.0000
1	.1349	.5609	.0460	.0420	.1422	.5463	-.0090	.1430	.0074	-.0360
2	.1291	.2093	.0509	.0684	.1441	.2191	-.0659	-.0184	.0374	.0234
3	-.0748	.0169	-.0306	.0413	-.0792	.0274	.0019	-.0257	-.0065	.0125
4	-.0375	-.0115	-.0230	.0117	-.0434	-.0085	.0114	-.0196	-.0051	.0119
5	.0137	-.0446	-.0205	-.0171	.0081	-.0477	.0239	.0050	-.0163	-.0065
6	.0221	.0137	.0044	-.0130	.0224	.0093	.0027	.0154	.0038	-.0098
7	.0041	.0066	.0080	-.0083	.0067	.0042	-.0071	.0113	.0043	-.0042
8	-.0098	.0161	.0121	.0063	-.0064	.0175	-.0146	-.0027	.0095	.0038
9	-.0133	-.0142	-.0032	.0086	-.0138	-.0115	-.0002	-.0111	-.0037	.0093
10	.0109	-.0056	-.0042	.0013	.0094	-.0051	.0058	-.0029	-.0072	-.0019

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FILE: 54 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.6154	.0000	.2291	.0000	1.6283	.0000	.1397	.0000	.0262	.0000
1	.0058	.7574	.0020	.1563	.0068	.7645	.0048	.0775	-.0065	-.0101
2	.0449	.0725	.0122	.0255	.0501	.0768	-.0570	-.0089	.0240	.0102
3	-.0419	.0034	-.0297	.0364	-.0477	.0124	.0154	-.0313	-.0109	.0161
4	.0093	-.0198	-.0152	-.0156	.0041	-.0235	.0151	.0085	-.0075	-.0069
5	.0113	.0041	.0039	-.0046	.0122	.0022	-.0004	.0047	.0020	-.0022
6	-.0008	.0056	-.0002	-.0029	-.0006	.0048	.0004	.0045	.0010	-.0006
7	-.0019	.0015	.0047	-.0016	-.0006	.0010	-.0050	.0020	.0012	.0007
8	-.0012	.0009	.0014	.0037	-.0007	.0018	-.0020	-.0034	-.0010	.0003
9	-.0004	-.0015	-.0010	.0007	-.0006	-.0012	.0007	-.0013	.0007	-.0006
10	.0011	-.0004	-.0007	.0013	.0008	-.0001	.0012	-.0014	.0002	.0011

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0498) PITCHING AMPLITUDE = 8.0 DEG

FILE: 1 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5576	.0	.1222	.0	1.5446	.0	.1998	.0	.0399	.0
1	.5769	13.5	.0623	47.6	.5645	14.6	.1433	356.4	.0367	168.4
2	.2459	31.7	.0853	36.7	.2623	33.3	.0684	254.4	.0441	58.0
3	.0766	282.7	.0514	323.4	.0838	289.1	.0257	175.7	.0140	332.4
4	.0393	253.0	.0258	297.0	.0442	258.8	.0226	149.9	.0129	336.8
5	.0467	162.9	.0267	230.2	.0483	170.4	.0244	78.2	.0175	248.2
6	.0260	58.3	.0138	161.2	.0242	67.4	.0157	9.9	.0105	159.0
7	.0078	31.9	.0115	136.1	.0079	57.9	.0134	328.1	.0060	134.6
8	.0189	328.6	.0136	62.6	.0187	339.9	.0148	259.6	.0103	68.1
9	.0195	223.1	.0092	339.7	.0179	230.3	.0111	181.1	.0100	338.1
10	.0123	117.0	.0044	286.6	.0107	118.7	.0065	116.2	.0074	255.5

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FILE: 54 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.6154	.0	.2291	.0	1.6283	.0	.1397	.0	.0262	.0
1	.7575	.4	.1563	.7	.7645	.5	.0776	3.5	.0120	212.9
2	.0852	31.8	.0282	25.7	.0917	33.1	.0577	261.2	.0260	67.0
3	.0421	274.7	.0470	320.8	.0492	284.6	.0349	153.8	.0195	325.9
4	.0219	154.9	.0218	224.1	.0238	170.2	.0173	60.5	.0102	227.5
5	.0120	70.3	.0060	139.4	.0124	79.6	.0047	355.5	.0029	138.2
6	.0056	352.2	.0029	183.1	.0048	352.8	.0046	4.5	.0012	122.2
7	.0024	308.4	.0049	108.7	.0012	331.1	.0054	292.0	.0014	60.7
8	.0015	306.2	.0039	21.3	.0020	339.3	.0039	210.0	.0010	285.9
9	.0016	192.9	.0012	306.4	.0013	208.8	.0014	149.9	.0009	133.5
10	.0011	110.8	.0015	330.1	.0008	97.4	.0018	138.1	.0011	11.8

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 2 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5598	.0000	.1281	.0000	1.5475	.0000	.2078	.0000	-.0357	.0000
1	.1824	.6584	.0469	.0592	.1893	.6451	-.0031	.1487	-.0037	-.0339
2	.0049	.2018	.0300	.0688	.0189	.2119	-.0725	-.0175	.0414	.0268
3	-.0653	-.0130	-.0383	.0417	-.0719	-.0006	.0092	-.0407	-.0159	.0210
4	-.0236	-.0430	-.0364	-.0078	-.0336	-.0441	.0314	-.0076	-.0182	-.0006
5	.0551	-.0116	.0009	-.0272	.0536	-.0190	.0132	.0235	-.0021	-.0197
6	-.0062	.0344	.0142	-.0018	-.0016	.0324	-.0145	.0117	.0154	-.0013
7	-.0087	-.0007	.0047	.0074	-.0068	.0017	-.0085	-.0076	.0026	.0102
8	-.0082	-.0015	-.0033	.0036	-.0093	-.0001	.0019	-.0049	-.0087	.0046
9	.0055	-.0096	-.0013	-.0011	.0048	-.0099	.0028	-.0001	-.0027	-.0060
10	.0062	.0031	-.0007	.0001	.0061	.0028	.0014	.0012	.0038	-.0023

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FILE: 56 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.6079	.0000	.2235	.0000	1.6182	.0000	.1411	.0000	.0144	.0000
1	.0190	.7701	.0059	.1454	.0215	.7752	.0032	.0916	-.0129	-.0123
2	-.0125	.0793	-.0002	.0401	-.0083	.0868	-.0575	-.0232	.0202	.0188
3	-.0268	-.0260	-.0396	.0195	-.0354	-.0198	.0288	-.0252	-.0174	.0079
4	.0161	.0031	-.0073	-.0140	.0127	-.0013	.0114	.0122	-.0017	-.0078
5	.0006	.0026	-.0007	-.0038	.0009	.0010	.0013	.0048	.0016	-.0002
6	.0011	.0072	.0035	-.0061	.0021	.0056	-.0033	.0077	.0011	-.0005
7	-.0060	.0008	.0063	.0029	-.0040	.0016	-.0078	-.0027	.0008	.0007
8	.0013	-.0043	-.0016	.0047	.0008	-.0028	.0016	-.0058	-.0003	.0010
9	.0033	.0014	-.0020	-.0004	.0026	.0012	.0027	.0006	-.0007	-.0007
10	-.0014	.0006	-.0006	.0001	-.0015	.0006	.0003	-.0000	.0008	.0009

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0993) PITCHING AMPLITUDE = 8.0 DEG

FILE: 2 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5598	.0	.1281	.0	1.5475	.0	.2078	.0	.0357	.0
1	.6832	15.5	.0755	38.4	.6723	16.3	.1487	358.8	.0341	186.3
2	.2018	1.4	.0750	23.6	.2127	5.1	.0746	256.4	.0493	57.0
3	.0666	258.8	.0566	317.4	.0719	269.5	.0417	167.2	.0263	322.8
4	.0491	208.8	.0373	257.9	.0555	217.3	.0323	103.6	.0182	268.2
5	.0563	101.9	.0272	178.2	.0569	109.5	.0270	29.3	.0198	186.0
6	.0350	349.8	.0143	97.3	.0324	357.1	.0186	308.9	.0154	94.7
7	.0087	265.2	.0088	32.4	.0070	284.2	.0114	228.1	.0106	14.1
8	.0083	259.9	.0048	317.7	.0093	269.3	.0053	158.7	.0099	298.0
9	.0111	150.0	.0017	229.5	.0110	153.9	.0028	93.0	.0066	204.3
10	.0069	63.7	.0007	278.6	.0067	65.3	.0018	51.0	.0045	121.4

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FILE: 56 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.6079	.0	.2235	.0	1.6182	.0	.1411	.0	.0144	.0
1	.7703	1.4	.1455	2.3	.7755	1.6	.0916	2.0	.0178	226.5
2	.0802	351.0	.0401	359.7	.0872	354.6	.0620	248.0	.0275	47.1
3	.0374	225.9	.0441	296.3	.0406	240.8	.0382	131.2	.0192	294.5
4	.0164	79.2	.0158	207.5	.0128	96.0	.0167	43.1	.0080	192.6
5	.0027	13.8	.0039	190.5	.0014	42.7	.0050	14.8	.0016	98.6
6	.0073	8.4	.0070	149.9	.0060	20.7	.0084	336.6	.0012	112.7
7	.0060	277.6	.0070	65.8	.0043	291.5	.0083	251.1	.0011	48.9
8	.0045	163.6	.0050	341.9	.0029	164.4	.0061	164.5	.0011	344.8
9	.0036	67.0	.0021	258.4	.0029	64.3	.0028	76.9	.0009	225.0
10	.0015	294.7	.0007	277.0	.0016	290.7	.0003	96.2	.0012	40.8

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 3 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5502	.0000	.1301	.0000	1.5370	.0000	.2155	.0000	-.0384	.0000
1	.2202	.7283	.0559	.0642	.2287	.7147	-.0073	.1593	-.0025	-.0375
2	-.0635	.1768	.0159	.0750	-.0502	.1892	-.0763	-.0253	.0415	.0372
3	-.0595	-.0507	-.0466	.0340	-.0689	-.0390	.0197	-.0457	-.0248	.0198
4	.0141	-.0444	-.0304	-.0200	.0046	-.0489	.0361	.0049	-.0202	-.0141
5	.0401	.0235	.0115	-.0190	.0414	.0173	.0006	.0241	.0145	-.0153
6	-.0115	.0263	.0046	.0002	-.0088	.0258	-.0087	.0072	.0119	.0150
7	-.0010	-.0028	.0012	.0022	-.0001	-.0019	-.0038	-.0034	-.0070	.0052
8	-.0088	-.0028	.0003	.0021	-.0088	-.0019	-.0012	-.0035	-.0035	-.0041
9	.0051	-.0035	-.0018	.0018	.0043	-.0031	.0033	-.0018	.0018	-.0039
10	-.0002	-.0008	-.0023	-.0011	-.0006	-.0012	.0017	.0015	.0038	.0025

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FILE: 57 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5630	.0000	.2108	.0000	1.5713	.0000	.1555	.0000	.0222	.0000
1	.0335	.8120	.0044	.1496	.0356	.8166	.0060	.0944	-.0168	-.0158
2	-.0470	.0758	-.0074	.0396	-.0435	.0833	-.0588	-.0243	.0197	.0234
3	-.0163	-.0352	-.0384	.0148	-.0250	-.0296	.0302	-.0226	-.0195	.0028
4	.0032	.0066	-.0085	-.0146	-.0000	.0018	.0102	.0132	-.0005	-.0081
5	.0083	-.0012	.0025	-.0057	.0094	-.0029	-.0014	.0048	.0012	-.0003
6	.0011	.0101	.0031	-.0017	.0020	.0095	-.0029	.0034	.0004	.0008
7	-.0063	-.0048	.0037	.0004	-.0051	-.0045	-.0049	-.0012	.0001	.0009
8	.0036	-.0003	.0015	.0038	.0039	.0008	-.0007	-.0040	-.0008	.0000
9	-.0015	-.0007	-.0025	.0019	-.0022	-.0001	.0023	-.0024	.0004	.0003
10	.0056	.0011	-.0014	-.0005	.0050	.0009	.0027	.0009	-.0011	-.0000

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1245) PITCHING AMPLITUDE = 8.0 DEG

FILE: 3 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5502	.0	.1301	.0	1.5370	.0	.2155	.0	.0384	.0
1	.7608	16.8	.0851	41.1	.7504	17.7	.1595	357.4	.0376	183.7
2	.1878	340.3	.0766	12.0	.1957	345.1	.0804	251.6	.0558	48.1
3	.0782	229.5	.0576	306.1	.0792	240.5	.0498	156.7	.0317	308.6
4	.0466	162.4	.0364	236.6	.0491	174.7	.0364	82.3	.0246	235.1
5	.0464	59.6	.0222	149.0	.0449	67.4	.0241	1.3	.0211	136.6
6	.0287	336.3	.0046	87.1	.0273	341.2	.0113	309.8	.0192	38.4
7	.0030	200.1	.0025	29.0	.0019	182.7	.0050	228.3	.0087	306.6
8	.0092	252.4	.0022	6.8	.0090	257.8	.0037	198.3	.0054	220.7
9	.0061	124.6	.0026	315.3	.0053	125.6	.0037	119.6	.0042	155.4
10	.0008	191.3	.0026	244.1	.0014	206.8	.0022	47.9	.0046	56.6

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FILE: 57 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5630	.0	.2108	.0	1.5713	.0	.1555	.0	.0222	.0
1	.8127	2.4	.1497	1.7	.8174	2.5	.0946	3.6	.0231	226.8
2	.0892	328.2	.0403	349.4	.0939	332.4	.0637	247.5	.0306	40.1
3	.0387	204.8	.0412	291.1	.0388	220.2	.0377	126.9	.0197	278.2
4	.0073	25.6	.0168	210.2	.0018	359.8	.0167	37.6	.0081	183.3
5	.0084	98.2	.0062	156.7	.0098	107.1	.0050	344.3	.0013	105.2
6	.0101	6.4	.0035	119.2	.0097	12.1	.0045	319.5	.0009	30.0
7	.0079	232.8	.0037	84.5	.0068	228.5	.0050	256.1	.0009	7.0
8	.0036	94.9	.0041	21.3	.0040	78.6	.0041	190.4	.0008	270.8
9	.0017	245.3	.0032	307.2	.0022	266.8	.0033	135.3	.0005	49.0
10	.0057	79.2	.0014	250.3	.0051	80.3	.0028	71.6	.0011	269.7

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 13 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.8969	.0000	.1705	.0000	1.8714	.0000	.2781	.0000	-.0436	.0000
1	.1754	.3745	.0310	-.0051	.1772	.3439	.0165	.1993	-.0129	-.0590
2	.1552	.1479	.0812	.0262	.1786	.1480	-.0694	.0156	.0393	-.0068
3	.0367	.0241	.0216	.0137	.0419	.0287	-.0204	.0038	.0147	-.0032
4	-.0205	.0529	.0219	.0223	-.0145	.0567	-.0264	-.0074	.0184	.0092
5	-.0136	.0088	.0093	.0209	-.0106	.0143	-.0146	-.0169	.0061	.0144
6	-.0223	.0101	-.0027	.0232	-.0222	.0162	-.0039	-.0194	-.0030	.0130
7	-.0246	-.0101	-.0151	.0150	-.0282	-.0053	.0074	-.0187	-.0087	.0080
8	-.0058	-.0183	-.0168	.0012	-.0104	-.0174	.0141	-.0068	-.0105	-.0004
9	.0015	-.0191	-.0127	-.0064	-.0023	-.0203	.0135	-.0004	-.0069	-.0034
10	.0230	-.0072	-.0032	-.0114	.0212	-.0103	.0101	.0087	-.0046	-.0092

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FILE: 71 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0221	.0000	.2046	.0000	2.0000	.0000	.3078	.0000	-.0261	.0000
1	.0693	.6151	.0206	.0525	.0729	.5874	.0024	.2102	-.0033	-.0648
2	.1040	.1000	.0960	.0378	.1335	.1054	-.1097	-.0092	.0503	.0107
3	-.0090	.0344	-.0004	.0393	-.0082	.0470	-.0066	-.0197	.0018	.0135
4	-.0185	.0269	.0096	.0294	-.0166	.0336	-.0180	-.0214	.0032	.0120
5	-.0242	-.0246	-.0205	.0118	-.0292	-.0200	.0113	-.0186	-.0094	.0043
6	.0101	-.0165	-.0021	-.0002	.0084	-.0162	.0057	-.0060	-.0015	-.0017
7	.0063	.0005	-.0099	.0044	.0033	.0014	.0128	-.0037	-.0034	-.0006
8	.0061	.0065	-.0041	-.0045	.0046	.0047	.0056	.0063	.0006	-.0034
9	-.0026	.0043	-.0039	-.0016	-.0033	.0035	.0023	.0029	.0005	.0019
10	-.0007	-.0071	-.0001	-.0071	-.0007	-.0088	.0002	.0048	-.0017	-.0014

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 13 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.8969	.0	.1705	.0	1.8714	.0	.2781	.0	.0436	.0
1	.4135	25.1	.0315	99.3	.3869	27.3	.2000	4.7	.0604	192.3
2	.2144	46.4	.0853	72.1	.2320	50.4	.0712	282.7	.0398	99.8
3	.0439	56.7	.0256	57.6	.0508	55.6	.0207	280.5	.0151	102.3
4	.0567	338.8	.0312	44.4	.0586	345.6	.0274	254.3	.0206	63.3
5	.0162	303.0	.0229	24.1	.0179	323.4	.0224	220.8	.0156	22.8
6	.0245	294.4	.0233	353.4	.0275	306.2	.0198	191.3	.0134	347.1
7	.0266	247.8	.0213	315.0	.0287	259.3	.0201	158.4	.0118	312.4
8	.0192	197.5	.0168	274.1	.0203	211.0	.0157	115.9	.0105	267.7
9	.0192	175.6	.0142	243.3	.0205	186.4	.0135	91.8	.0077	243.8
10	.0241	107.5	.0118	195.5	.0235	116.0	.0133	49.2	.0103	206.3

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FILE: 71 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0221	.0	.2046	.0	2.0000	.0	.3078	.0	.0261	.0
1	.6190	6.4	.0564	21.4	.5919	7.1	.2102	.6	.0649	182.9
2	.1443	46.1	.1032	68.5	.1701	51.7	.1101	265.2	.0515	78.0
3	.0356	345.3	.0393	359.4	.0477	350.1	.0208	198.5	.0136	7.4
4	.0326	325.4	.0309	18.1	.0375	333.8	.0280	220.0	.0124	15.0
5	.0345	224.6	.0237	299.8	.0354	235.6	.0217	148.7	.0104	294.7
6	.0194	148.6	.0021	263.5	.0183	152.5	.0083	136.2	.0023	222.4
7	.0063	85.2	.0108	293.8	.0036	66.2	.0133	106.1	.0034	260.3
8	.0089	43.1	.0061	222.7	.0066	44.4	.0085	41.3	.0034	170.7
9	.0050	329.2	.0042	248.0	.0048	317.3	.0037	38.2	.0020	14.3
10	.0072	185.5	.0071	180.9	.0088	184.6	.0048	3.0	.0022	229.7

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 14 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.8574	.0000	.1495	.0000	1.8266	.0000	.3069	.0000	-.0610	.0000
1	.3307	.4714	.0556	.0107	.3336	.4394	.0293	.2111	-.0191	-.0736
2	.0444	.2020	.0651	.0359	.0688	.2009	-.0815	.0313	.0600	-.0020
3	-.0121	.0470	.0270	.0352	-.0021	.0571	-.0426	-.0156	.0206	.0207
4	-.0689	.0166	-.0035	.0412	-.0677	.0285	-.0173	-.0347	-.0036	.0275
5	-.0266	-.0303	-.0230	.0164	-.0332	-.0238	.0126	-.0265	-.0179	.0080
6	.0092	-.0365	-.0181	-.0062	.0030	-.0375	.0210	-.0052	-.0151	-.0075
7	.0254	-.0012	-.0012	-.0087	.0240	-.0043	.0097	.0077	-.0003	-.0135
8	.0081	.0103	.0010	-.0021	.0086	.0092	.0011	.0058	.0087	-.0024
9	.0042	.0065	-.0005	-.0013	.0042	.0061	.0014	.0025	.0033	.0022
10	-.0012	.0077	.0005	-.0007	-.0011	.0073	-.0005	.0024	.0020	.0043

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FILE: 51 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0197	.0000	.1808	.0000	1.9892	.0000	.3379	.0000	-.0384	.0000
1	.1381	.6799	.0510	.0426	.1481	.6465	-.0095	.2382	-.0020	-.0795
2	.0208	.1481	.0815	.0739	.0516	.1613	-.1203	-.0268	.0591	.0263
3	-.0439	.0042	-.0181	.0384	-.0470	.0191	-.0044	-.0316	-.0047	.0244
4	-.0178	-.0143	-.0078	.0237	-.0212	-.0077	.0016	-.0304	-.0128	.0079
5	.0181	-.0093	-.0166	-.0007	.0122	-.0091	.0210	-.0031	-.0063	-.0068
6	-.0001	.0058	-.0027	.0023	-.0011	.0054	.0032	.0000	.0014	-.0014
7	-.0013	.0000	-.0101	-.0035	-.0038	-.0010	.0092	.0036	-.0003	-.0013
8	-.0028	-.0028	.0006	-.0052	-.0026	-.0043	-.0016	.0036	.0011	-.0000
9	.0120	-.0042	-.0008	-.0043	.0116	-.0053	.0042	.0034	-.0014	.0001
10	-.0065	.0132	.0042	-.0017	-.0052	.0123	-.0058	.0055	.0024	-.0013

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1001) PITCHING AMPLITUDE = 8.0 DEG

FILE: 14 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.8574	.0	.1495	.0	1.8266	.0	.3069	.0	.0610	.0
1	.5758	35.1	.0566	79.2	.5517	37.2	.2131	7.9	.0761	194.5
2	.2068	12.4	.0743	61.2	.2124	18.9	.0873	291.0	.0600	91.9
3	.0485	345.6	.0443	37.5	.0571	357.9	.0453	249.9	.0292	44.8
4	.0708	283.6	.0413	355.2	.0735	292.8	.0388	206.6	.0277	352.6
5	.0403	221.4	.0283	305.5	.0409	234.3	.0294	154.5	.0196	294.1
6	.0376	165.9	.0191	251.0	.0376	175.5	.0216	103.9	.0169	243.8
7	.0254	92.6	.0087	187.8	.0244	100.2	.0124	51.5	.0135	181.2
8	.0132	38.2	.0024	155.5	.0126	43.2	.0059	11.0	.0090	105.5
9	.0077	33.1	.0014	199.0	.0074	34.7	.0028	28.7	.0040	56.3
10	.0078	351.3	.0009	144.0	.0074	351.2	.0024	347.8	.0047	24.6

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FILE: 51 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0197	.0	.1808	.0	1.9892	.0	.3379	.0	.0384	.0
1	.6938	11.5	.0664	50.1	.6632	12.9	.2384	357.7	.0796	181.4
2	.1495	8.0	.1100	47.8	.1694	17.7	.1233	257.4	.0647	66.0
3	.0441	275.5	.0424	334.8	.0507	292.1	.0320	188.0	.0253	344.6
4	.0229	231.2	.0249	341.8	.0226	250.1	.0305	177.1	.0150	301.6
5	.0203	117.2	.0166	267.5	.0153	126.8	.0212	98.5	.0093	223.0
6	.0058	359.2	.0035	310.4	.0055	348.6	.0032	89.7	.0020	135.5
7	.0013	271.4	.0107	251.0	.0039	254.5	.0099	68.5	.0013	191.8
8	.0040	225.1	.0052	172.9	.0050	211.1	.0039	335.8	.0011	90.8
9	.0127	109.3	.0044	190.0	.0127	114.5	.0054	50.9	.0014	273.6
10	.0148	333.8	.0045	112.2	.0133	337.1	.0080	313.3	.0027	118.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 15 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.8678	.0000	.1379	.0000	1.8319	.0000	.3362	.0000	-.0680	.0000
1	.3514	.5798	.0675	.0199	.3574	.5452	.0199	.2299	-.0120	-.0745
2	-.0111	.1647	.0562	.0460	.0144	.1675	-.0909	.0161	.0577	.0107
3	-.0195	.0615	.0192	.0456	-.0118	.0747	-.0359	-.0247	.0163	.0247
4	-.0867	-.0099	-.0223	.0391	-.0903	.0026	-.0064	-.0407	-.0165	.0262
5	-.0028	-.0597	-.0281	-.0028	-.0118	-.0579	.0252	-.0185	-.0214	-.0029
6	.0455	-.0317	-.0011	-.0086	.0427	-.0346	.0171	.0006	-.0055	-.0223
7	.0113	.0293	.0008	.0016	.0111	.0278	.0042	.0084	.0088	-.0081
8	-.0091	.0054	-.0023	-.0017	-.0088	.0047	-.0025	.0037	.0098	.0051
9	-.0027	-.0048	-.0005	-.0026	-.0026	-.0049	-.0005	-.0005	-.0014	.0083
10	.0055	-.0013	.0012	-.0022	.0054	-.0017	.0015	.0011	-.0067	.0013

FILE: 52 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.9811	.0000	.1803	.0000	1.9530	.0000	.3314	.0000	-.0405	.0000
1	.1913	.6981	.0555	.0575	.2013	.6684	-.0018	.2277	-.0044	-.0770
2	-.0314	.1710	.0636	.0817	-.0038	.1856	-.1170	-.0260	.0565	.0330
3	-.0670	-.0212	-.0304	.0352	-.0727	-.0063	.0012	-.0391	-.0133	.0230
4	.0085	-.0214	-.0085	.0151	.0039	-.0170	.0102	-.0245	-.0163	.0018
5	.0113	.0043	-.0171	-.0001	.0056	.0035	.0203	.0017	-.0030	-.0080
6	-.0013	.0046	-.0019	-.0022	-.0016	.0031	-.0003	.0040	.0036	-.0007
7	.0025	-.0084	-.0074	-.0042	.0007	-.0091	.0079	.0019	-.0016	.0019
8	.0031	.0093	-.0020	-.0048	.0033	.0074	-.0009	.0070	.0001	-.0021
9	-.0057	-.0009	-.0000	-.0033	-.0052	-.0018	-.0021	.0031	.0015	.0001
10	.0005	-.0042	.0047	-.0019	.0017	-.0045	-.0041	.0004	-.0008	.0011

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 8.0 DEG

FILE: 15 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.8678	.0	.1379	.0	1.8319	.0	.3362	.0	.0680	.0
1	.6779	31.2	.0704	73.6	.6520	33.2	.2307	4.9	.0755	189.2
2	.1651	356.1	.0726	50.7	.1681	4.9	.0923	280.0	.0586	79.5
3	.0646	342.4	.0494	22.8	.0757	351.0	.0436	235.5	.0296	33.4
4	.0873	263.5	.0450	330.2	.0904	271.6	.0412	189.0	.0309	327.8
5	.0598	182.7	.0283	264.4	.0591	191.5	.0312	126.3	.0216	262.4
6	.0555	124.9	.0087	187.1	.0550	129.0	.0171	87.9	.0230	193.9
7	.0314	21.1	.0018	27.4	.0300	21.8	.0094	26.3	.0119	132.6
8	.0106	300.9	.0029	233.3	.0100	298.3	.0044	325.7	.0111	62.7
9	.0055	209.0	.0027	189.8	.0056	207.7	.0007	220.3	.0085	350.3
10	.0057	103.3	.0025	150.0	.0056	108.0	.0019	53.7	.0068	281.0

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FILE: 52 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.9811	.0	.1803	.0	1.9530	.0	.3314	.0	.0405	.0
1	.7239	15.3	.0799	43.9	.6981	16.8	.2277	359.6	.0772	183.2
2	.1739	349.6	.1036	37.9	.1856	358.8	.1198	257.5	.0654	59.7
3	.0702	252.5	.0465	319.1	.0730	265.1	.0391	178.2	.0266	330.1
4	.0230	158.3	.0173	330.7	.0174	167.2	.0265	157.4	.0164	276.4
5	.0120	69.3	.0171	269.7	.0066	58.5	.0203	85.1	.0085	200.6
6	.0047	344.6	.0029	220.7	.0035	333.1	.0040	356.0	.0037	100.7
7	.0087	163.2	.0085	240.4	.0092	175.6	.0081	76.4	.0024	320.2
8	.0098	18.2	.0051	157.5	.0081	24.1	.0070	352.3	.0021	176.1
9	.0058	260.8	.0033	180.8	.0055	250.7	.0038	325.9	.0015	85.6
10	.0042	173.1	.0051	112.0	.0048	158.8	.0042	275.9	.0014	322.0

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 7 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.1153	.0000	.1849	.0000	2.0677	.0000	.3794	.0000	-.0539	.0000
1	.2001	.1400	.0223	-.0758	.1976	.0881	.0306	.2415	-.0261	-.0755
2	.1286	.0137	.0643	-.0136	.1504	.0074	-.0376	.0222	.0213	-.0158
3	.1248	-.0250	.0343	-.0381	.1295	-.0328	-.0020	.0370	.0054	-.0224
4	.0379	.0084	.0294	-.0153	.0450	.0038	-.0138	.0224	.0103	-.0107
5	.0430	.0356	.0217	-.0096	.0473	.0315	-.0084	.0210	.0092	-.0099
6	.0209	.0234	.0219	-.0078	.0272	.0203	-.0177	.0168	.0100	-.0076
7	-.0007	.0275	.0126	.0010	.0032	.0275	-.0130	.0067	.0105	-.0015
8	.0033	.0195	.0140	-.0023	.0069	.0184	-.0123	.0084	.0091	-.0023
9	-.0122	.0149	.0087	.0038	-.0092	.0155	-.0122	.0013	.0089	.0033
10	-.0055	.0069	.0087	.0013	-.0029	.0072	-.0099	.0004	.0063	.0034

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FILE: 63 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0898	.0000	.2231	.0000	2.0524	.0000	.3585	.0000	-.0289	.0000
1	.2188	.2506	.0227	-.0397	.2142	.2043	.0467	.2339	-.0141	-.0977
2	.1819	.1696	.0919	.0095	.2088	.1612	-.0544	.0489	.0350	-.0146
3	.0141	.0198	.0328	-.0219	.0248	.0142	-.0343	.0404	.0229	-.0149
4	-.0022	.0609	.0354	.0152	.0096	.0631	-.0345	.0050	.0162	.0059
5	-.0320	.0112	.0146	.0057	-.0261	.0139	-.0271	-.0014	.0109	.0053
6	-.0112	-.0076	.0094	.0077	-.0081	-.0043	-.0130	-.0106	.0020	.0083
7	-.0087	-.0042	.0070	.0053	-.0066	-.0020	-.0094	-.0064	.0007	.0048
8	.0005	-.0130	.0021	.0052	.0007	-.0106	-.0019	-.0093	-.0027	.0035
9	.0061	-.0007	.0031	.0013	.0063	-.0003	-.0008	-.0017	-.0017	-.0003
10	.0027	-.0020	.0029	.0031	.0033	-.0011	-.0016	-.0034	-.0004	-.0000

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 8.0 DEG

FILE: 7 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.1153	.0	.1849	.0	2.0677	.0	.3794	.0	.0539	.0
1	.2442	55.0	.0790	163.6	.2164	66.0	.2434	7.2	.0798	199.1
2	.1293	83.9	.0657	102.0	.1505	87.2	.0436	300.5	.0265	126.5
3	.1273	101.3	.0512	138.0	.1336	104.2	.0371	357.0	.0231	166.5
4	.0389	77.5	.0332	117.4	.0451	85.2	.0263	328.5	.0149	136.2
5	.0558	50.4	.0237	113.8	.0568	56.4	.0226	338.3	.0135	137.0
6	.0314	41.7	.0233	109.5	.0339	53.2	.0244	313.6	.0125	127.2
7	.0275	358.6	.0126	85.7	.0277	6.6	.0147	297.2	.0106	97.9
8	.0198	9.6	.0142	99.4	.0196	20.5	.0149	304.1	.0094	104.5
9	.0193	320.6	.0095	66.5	.0180	329.4	.0123	275.9	.0095	69.9
10	.0088	321.3	.0088	81.3	.0078	338.0	.0099	272.4	.0072	61.5

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FILE: 63 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0898	.0	.2231	.0	2.0524	.0	.3585	.0	.0289	.0
1	.3327	41.1	.0458	150.2	.2960	46.4	.2385	11.3	.0987	188.2
2	.2487	47.0	.0924	84.1	.2638	52.3	.0731	311.9	.0379	112.7
3	.0243	35.5	.0394	123.7	.0286	60.2	.0530	319.7	.0273	123.1
4	.0609	358.0	.0386	66.7	.0638	8.7	.0349	278.3	.0172	70.1
5	.0339	289.4	.0157	68.8	.0296	298.0	.0271	267.0	.0121	64.2
6	.0135	235.7	.0122	50.6	.0091	241.9	.0168	230.8	.0086	13.6
7	.0097	244.2	.0087	52.9	.0069	253.2	.0114	235.7	.0049	8.6
8	.0130	177.9	.0056	22.0	.0107	176.0	.0095	191.7	.0044	322.5
9	.0061	96.6	.0034	66.7	.0063	92.5	.0019	204.8	.0017	258.8
10	.0033	125.8	.0042	43.6	.0035	108.1	.0037	205.4	.0004	269.8

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 8 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0312	.0000	.1296	.0000	1.9693	.0000	.4304	.0000	-.0716	.0000
1	.4443	.2964	.0774	-.0583	.4463	.2398	.0471	.2623	-.0335	-.0937
2	.0815	.1252	.0622	.0034	.1065	.1161	-.0541	.0568	.0374	-.0305
3	.0351	.0567	.0452	-.0122	.0485	.0532	-.0423	.0314	.0356	-.0129
4	.0112	.0303	.0320	.0064	.0206	.0321	-.0278	.0048	.0184	.0038
5	-.0096	.0439	.0230	.0129	-.0028	.0459	-.0239	.0032	.0162	.0128
6	-.0257	.0341	.0094	.0187	-.0209	.0386	-.0209	-.0064	.0067	.0118
7	-.0406	-.0071	-.0030	.0120	-.0398	-.0021	-.0114	-.0147	-.0027	.0154
8	-.0118	-.0134	-.0040	.0041	-.0134	-.0111	.0009	-.0102	-.0098	.0072
9	-.0008	-.0130	-.0010	-.0010	-.0016	-.0129	.0019	-.0033	-.0089	-.0007
10	-.0013	.0002	.0004	.0020	-.0016	.0006	.0006	-.0018	-.0036	-.0037

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FILE: 65 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0864	.0000	.1988	.0000	2.0365	.0000	.4074	.0000	-.0472	.0000
1	.3186	.4395	.0555	-.0269	.3198	.3843	.0427	.2812	-.0125	-.1102
2	.0346	.1881	.0884	.0293	.0711	.1839	-.1017	.0428	.0530	-.0040
3	.0013	.0262	.0335	.0119	.0132	.0325	-.0434	.0043	.0251	.0047
4	-.0514	.0254	.0121	.0221	-.0451	.0322	-.0292	-.0136	.0072	.0178
5	-.0015	-.0227	.0102	.0083	-.0039	-.0178	-.0112	-.0170	-.0025	.0094
6	-.0085	.0076	.0008	.0119	-.0087	.0110	-.0022	-.0097	-.0050	.0032
7	.0031	-.0089	.0037	.0039	.0039	-.0075	-.0035	-.0058	-.0023	-.0018
8	-.0133	-.0043	-.0023	.0083	-.0135	-.0013	-.0018	-.0104	.0020	.0021
9	.0226	-.0164	.0003	.0005	.0210	-.0154	.0075	-.0061	-.0039	.0008
10	.0031	.0242	.0000	.0052	.0028	.0240	.0017	.0039	.0016	-.0041

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1002) PITCHING AMPLITUDE = 8.0 DEG

FILE: 8 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0312	.0	.1296	.0	1.9693	.0	.4304	.0	.0716	.0
1	.5341	56.3	.0969	127.0	.5066	61.8	.2665	10.2	.0995	199.7
2	.1494	33.1	.0623	86.9	.1576	42.5	.0784	316.4	.0483	129.2
3	.0667	31.7	.0469	105.1	.0720	42.4	.0527	306.6	.0379	109.9
4	.0323	20.3	.0326	78.7	.0382	32.7	.0282	279.7	.0188	78.3
5	.0449	347.6	.0264	60.8	.0460	356.5	.0241	277.5	.0206	51.7
6	.0427	322.9	.0209	26.6	.0439	331.6	.0218	253.1	.0136	29.8
7	.0412	260.1	.0123	346.0	.0399	267.0	.0186	217.9	.0157	350.0
8	.0178	221.4	.0058	315.6	.0174	230.6	.0102	174.8	.0122	306.4
9	.0131	183.4	.0014	226.6	.0130	187.0	.0038	149.4	.0089	265.3
10	.0013	280.2	.0020	11.9	.0017	292.7	.0019	161.3	.0052	224.3

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FILE: 65 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0864	.0	.1988	.0	2.0365	.0	.4074	.0	.0472	.0
1	.5428	35.9	.0617	115.9	.5000	39.8	.2844	8.6	.1109	186.5
2	.1912	10.4	.0931	71.7	.1972	21.1	.1104	292.8	.0532	94.3
3	.0262	2.8	.0355	70.5	.0350	22.2	.0436	275.7	.0255	79.4
4	.0573	296.3	.0252	28.8	.0554	305.5	.0322	245.0	.0192	22.1
5	.0227	176.1	.0132	50.9	.0183	167.7	.0204	213.3	.0097	345.1
6	.0113	311.8	.0120	4.0	.0140	321.7	.0099	192.7	.0059	302.6
7	.0094	160.9	.0054	43.2	.0085	152.5	.0067	211.0	.0029	232.0
8	.0140	252.1	.0086	344.8	.0136	264.5	.0106	190.0	.0029	43.2
9	.0279	125.9	.0006	31.2	.0261	126.2	.0096	128.9	.0040	282.3
10	.0244	7.4	.0052	.2	.0242	6.7	.0042	24.1	.0044	159.0

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 9 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0794	.0000	.1352	.0000	2.0150	.0000	.4511	.0000	-.0880	.0000
1	.5088	.3992	.0837	-.0440	.5102	.3408	.0569	.2815	-.0332	-.1102
2	.0524	.1171	.0646	.0038	.0804	.1072	-.0686	.0591	.0528	-.0240
3	.0375	.0893	.0521	-.0005	.0533	.0880	-.0472	.0284	.0420	-.0030
4	-.0026	.0378	.0343	.0189	.0087	.0431	-.0354	-.0020	.0178	.0191
5	-.0463	.0451	.0099	.0276	-.0417	.0527	-.0247	-.0119	.0064	.0228
6	-.0148	-.0184	-.0086	.0109	-.0166	-.0133	-.0019	-.0170	-.0054	.0148
7	-.0064	-.0110	-.0046	.0009	-.0084	-.0104	.0036	-.0056	-.0141	.0007
8	-.0017	.0039	.0044	.0003	-.0005	.0036	-.0037	.0005	-.0042	-.0075
9	-.0073	-.0077	.0001	.0053	-.0068	-.0055	-.0021	-.0076	-.0009	-.0011
10	-.0013	-.0037	-.0007	.0016	-.0023	-.0029	.0016	-.0032	-.0004	-.0036

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FILE: 66 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.1495	.0000	.1993	.0000	2.0956	.0000	.4347	.0000	-.0672	.0000
1	.3574	.5228	.0745	-.0171	.3633	.4652	.0346	.2992	-.0085	-.1186
2	-.0062	.1924	.0854	.0466	.0322	.1937	-.1146	.0312	.0628	.0085
3	-.0366	.0317	.0187	.0171	-.0275	.0399	-.0421	-.0028	.0171	.0139
4	-.0478	-.0114	.0116	.0217	-.0421	-.0027	-.0289	-.0270	-.0010	.0171
5	.0194	-.0250	.0010	.0082	.0176	-.0206	.0054	-.0174	-.0095	.0046
6	-.0070	.0225	.0053	.0096	-.0055	.0241	-.0074	-.0023	.0021	-.0032
7	-.0054	-.0258	-.0034	.0069	-.0065	-.0223	.0015	-.0152	-.0045	.0053
8	.0183	.0162	.0013	.0041	.0176	.0164	.0042	.0015	.0005	-.0058
9	-.0232	-.0145	-.0044	.0045	-.0233	-.0123	-.0034	-.0091	.0026	.0069
10	.0301	-.0051	-.0012	.0005	.0278	-.0047	.0108	-.0030	-.0070	-.0013

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1248) PITCHING AMPLITUDE = 8.0 DEG

FILE: 9 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0794	.0	.1352	.0	2.0150	.0	.4511	.0	.0880	.0
1	.6467	51.9	.0946	117.7	.6135	56.3	.2872	11.4	.1151	196.8
2	.1283	24.1	.0647	86.6	.1340	36.9	.0906	310.7	.0580	114.4
3	.0969	22.8	.0521	90.5	.1029	31.2	.0550	301.0	.0421	94.1
4	.0379	356.1	.0392	61.1	.0439	11.4	.0355	266.7	.0261	43.0
5	.0646	314.2	.0294	19.7	.0672	321.6	.0274	244.3	.0237	15.6
6	.0236	218.9	.0139	321.9	.0212	231.3	.0171	186.2	.0157	340.0
7	.0127	210.0	.0047	281.4	.0134	218.7	.0066	146.9	.0141	272.8
8	.0043	336.2	.0044	86.3	.0036	352.3	.0037	277.2	.0086	209.0
9	.0106	223.4	.0053	1.6	.0087	231.3	.0079	195.6	.0014	218.5
10	.0039	200.1	.0017	337.6	.0037	219.0	.0036	152.6	.0036	186.9

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FILE: 66 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.1495	.0	.1993	.0	2.0956	.0	.4347	.0	.0672	.0
1	.6332	34.4	.0764	102.9	.5903	38.0	.3012	6.6	.1189	184.1
2	.1925	358.2	.0973	61.4	.1964	9.5	.1187	285.2	.0633	82.3
3	.0484	310.9	.0254	47.7	.0484	325.4	.0422	266.2	.0220	50.8
4	.0491	256.5	.0246	28.1	.0422	266.3	.0396	226.9	.0171	356.8
5	.0317	142.1	.0082	6.8	.0270	139.5	.0182	162.9	.0106	295.9
6	.0235	342.8	.0109	28.8	.0247	347.3	.0078	252.7	.0038	146.4
7	.0264	191.9	.0077	333.9	.0232	196.2	.0153	174.3	.0070	319.6
8	.0245	48.4	.0043	18.1	.0241	47.1	.0044	70.8	.0058	174.8
9	.0273	238.1	.0063	316.2	.0263	242.1	.0097	200.8	.0074	20.9
10	.0305	99.7	.0013	292.9	.0282	99.5	.0112	105.3	.0071	259.3

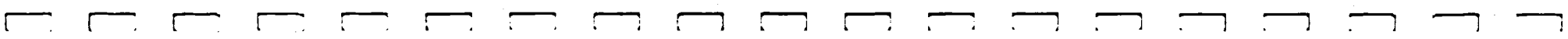


TABLE 8
(Notes 1 and 2)

INTEGRATED LOADS: $M_c=0.30$, $\bar{\alpha}=10$ deg

α M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.050	9	240-241
0	.100	11	242-243
0	.124	13	244-245
9	.050	15	246-247
9	.100	17	248-249
9	.124	19	250-251
12	.050	21	252-253
12	.100	23	254-255
12	.124	25	256-257
15	.050	27	258-259
15	.100	29	260-261
15	.124	31	262-263

Notes:

1. The unswept and swept counterparts are on the same page with the A,B and C,P coefficients appearing on opposite pages.
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG

FILE: 25 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0708	.0000	.1438	.0000	.0690	.0000	.0669	.0000	-.0051	.0000
1	-.1083	1.2064	.0034	-.0075	-.1100	1.2124	-.0003	.0121	-.0178	.0513
2	-.0327	.0258	-.0834	-.0237	.0333	.0260	-.0216	.0162	.0048	.0026
3	-.0121	.0018	-.0019	-.0010	-.0104	-.0010	-.0019	.0057	.0011	-.0017
4	-.0061	-.0005	.0015	-.0017	-.0058	-.0006	-.0011	-.0007	-.0001	.0003
5	.0019	-.0011	-.0000	-.0007	.0020	-.0010	-.0000	.0005	.0001	-.0000
6	-.0003	-.0010	-.0001	.0003	-.0002	-.0010	-.0005	.0004	.0001	-.0002
7	-.0014	-.0001	.0002	-.0001	-.0014	-.0001	-.0001	-.0008	.0001	-.0001
8	.0012	-.0005	.0003	-.0000	.0012	-.0005	-.0003	-.0005	-.0001	.0001
9	.0002	.0006	-.0001	.0001	.0002	.0006	-.0001	.0005	-.0003	-.0000
10	-.0010	.0001	-.0002	-.0006	-.0010	.0001	.0007	.0008	.0001	.0001

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0502) PITCHING AMPLITUDE = 10.0 DEG

FILE: 25 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0708	.0	.1438	.0	.0690	.0	.0669	.0	.0051	.0
1	1.2113	354.9	.0083	155.4	1.2174	354.8	.0121	358.6	.0543	340.9
2	.0417	51.7	.0867	254.1	.0422	52.0	.0270	306.9	.0055	61.4
3	.0122	278.5	.0021	242.9	.0105	264.4	.0060	341.2	.0020	147.0
4	.0061	265.1	.0022	138.4	.0059	264.4	.0013	238.8	.0003	333.5
5	.0022	120.6	.0007	182.5	.0022	116.9	.0005	357.0	.0001	101.6
6	.0010	196.0	.0003	331.4	.0010	191.6	.0008	319.8	.0002	161.2
7	.0014	265.6	.0002	113.7	.0014	264.6	.0008	184.7	.0002	141.3
8	.0013	112.3	.0003	98.5	.0012	111.6	.0006	213.8	.0001	331.5
9	.0006	21.4	.0001	326.9	.0007	13.7	.0005	351.3	.0003	268.3
10	.0010	277.1	.0006	197.8	.0010	276.7	.0010	40.1	.0001	58.3

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0998) PITCHING AMPLITUDE = 10.0 DEG

FILE: 26 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0184	.0000	.1498	.0000	.0169	.0000	.0591	.0000	-.0114	.0000
1	-.1723	1.1915	.0020	-.0076	-.1750	1.1976	-.0008	.0102	-.0348	.0511
2	.0267	.0190	-.0775	-.0371	.0272	.0189	-.0268	.0247	.0047	.0032
3	-.0189	-.0029	.0003	-.0007	-.0163	-.0052	-.0019	.0046	.0009	-.0019
4	-.0030	.0044	.0015	-.0024	-.0029	.0044	-.0014	-.0013	-.0005	.0001
5	.0043	-.0028	.0003	-.0014	.0044	-.0026	-.0014	.0013	.0012	.0008
6	-.0001	-.0009	-.0003	.0009	.0001	-.0009	.0005	.0003	.0004	.0000
7	-.0011	.0010	.0005	-.0000	-.0011	.0010	-.0000	-.0002	-.0003	.0005
8	.0015	-.0007	-.0004	.0002	.0015	-.0006	-.0004	-.0004	.0004	-.0002
9	.0003	-.0009	-.0004	.0001	.0003	-.0009	-.0000	-.0001	.0003	-.0003
10	-.0000	-.0011	.0000	.0003	-.0001	-.0011	.0007	.0000	.0002	-.0002

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0998) PITCHING AMPLITUDE = 10.0 DEG

FILE: 26 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0184	.0	.1498	.0	.0169	.0	.0591	.0	.0114	.0
1	1.2039	351.8	.0078	165.5	1.2103	351.7	.0102	355.2	.0618	325.7
2	.0328	54.5	.0859	244.5	.0331	55.2	.0365	312.7	.0057	55.8
3	.0191	261.4	.0007	160.4	.0171	252.2	.0050	337.9	.0021	153.7
4	.0053	326.0	.0028	147.1	.0053	327.0	.0019	225.9	.0005	280.0
5	.0051	123.4	.0014	168.3	.0052	120.9	.0019	314.1	.0014	56.8
6	.0009	184.6	.0009	342.4	.0009	176.3	.0006	61.0	.0004	84.5
7	.0015	312.8	.0005	94.4	.0015	311.8	.0002	181.1	.0005	328.7
8	.0016	113.8	.0004	294.1	.0016	111.6	.0005	223.6	.0004	112.7
9	.0009	158.4	.0004	280.9	.0009	158.8	.0001	198.4	.0004	130.9
10	.0011	181.8	.0003	7.9	.0011	183.1	.0007	88.4	.0002	129.8

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 10.0 DEG

FILE: 27 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0891	.0000	.1389	.0000	.0868	.0000	.0660	.0000	-.0134	.0000
1	-.1846	1.1648	.0026	-.0084	-.1877	1.1698	-.0013	.0186	-.0431	.0505
2	.0269	.0234	-.0727	-.0426	.0278	.0233	-.0289	.0284	.0039	.0035
3	-.0124	-.0036	.0003	.0001	-.0094	-.0057	-.0022	.0049	.0011	-.0015
4	-.0068	.0055	.0016	-.0025	-.0066	.0055	-.0018	-.0011	-.0012	-.0001
5	.0076	-.0031	.0005	-.0016	.0078	-.0025	-.0019	-.0009	.0016	.0017
6	.0155	-.0054	-.0041	.0019	.0155	-.0053	.0043	-.0004	.0052	-.0006
7	.0017	.0006	-.0001	.0002	.0016	.0002	.0008	.0013	-.0001	.0007
8	.0010	.0007	-.0003	-.0002	.0011	.0006	-.0000	.0003	-.0001	.0005
9	-.0009	-.0003	-.0002	-.0000	-.0009	-.0003	-.0004	-.0003	.0002	-.0003
10	-.0003	-.0003	.0003	.0001	-.0003	-.0003	-.0001	-.0000	-.0000	.0001

244

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1249) PITCHING AMPLITUDE = 10.0 DEG

FILE: 27 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0891	.0	.1389	.0	.0868	.0	.0660	.0	.0134	.0
1	1.1793	351.0	.0088	162.8	1.1847	350.9	.0186	356.0	.0664	319.5
2	.0357	49.0	.0843	239.7	.0363	50.1	.0405	314.5	.0053	47.9
3	.0129	253.7	.0004	80.6	.0110	238.8	.0054	335.8	.0019	144.0
4	.0087	309.2	.0029	147.3	.0086	309.8	.0021	240.2	.0012	264.8
5	.0082	112.1	.0017	163.8	.0083	108.0	.0021	244.5	.0023	42.7
6	.0164	109.1	.0045	295.0	.0164	108.7	.0043	95.9	.0053	97.0
7	.0018	71.2	.0003	342.8	.0016	82.8	.0015	30.5	.0007	348.1
8	.0012	57.2	.0004	235.3	.0012	59.5	.0003	351.2	.0005	351.1
9	.0009	251.9	.0002	259.9	.0009	249.4	.0005	233.0	.0003	148.1
10	.0004	220.5	.0003	61.8	.0004	223.7	.0001	241.6	.0001	339.6

245

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 37 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.3665	.0000	.0990	.0000	1.3459	.0000	.2191	.0000	-.0485	.0000
1	.1176	.5954	.0285	.0327	.1201	.5756	.0071	.1621	-.0095	-.0459
2	.1678	.1851	.0415	.0320	.1828	.1866	-.0591	.0120	.0335	.0002
3	-.0270	.0416	.0016	.0297	-.0237	.0478	-.0199	-.0031	.0122	.0057
4	-.0482	.0320	.0004	.0298	-.0470	.0388	-.0153	-.0241	.0061	.0198
5	-.0236	-.0366	-.0214	.0098	-.0286	-.0320	.0128	-.0195	-.0127	.0091
6	-.0005	-.0187	-.0180	-.0016	-.0057	-.0187	.0179	-.0052	-.0106	.0015
7	.0204	-.0223	-.0122	-.0157	.0166	-.0257	.0175	.0092	-.0095	-.0102
8	.0206	.0118	.0025	-.0141	.0204	.0072	.0052	.0167	.0037	-.0105
9	.0018	.0188	.0099	-.0068	.0050	.0159	-.0089	.0137	.0101	-.0050
10	-.0157	.0091	.0088	.0054	-.0123	.0103	-.0139	-.0024	.0084	.0083

246

FILE: 80 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5313	.0000	.1917	.0000	1.5237	.0000	.2184	.0000	.0178	.0000
1	.0094	.9191	.0059	.1053	.0111	.9053	.0048	.1691	-.0093	-.0385
2	.0810	.0919	.0539	.0282	.1020	.0961	-.1156	-.0079	.0445	.0085
3	-.0310	.0189	-.0205	.0588	-.0338	.0353	.0061	-.0426	-.0046	.0234
4	-.0193	-.0015	-.0122	.0099	-.0240	.0009	.0039	-.0118	-.0058	.0037
5	-.0051	-.0146	-.0199	.0077	-.0102	-.0124	.0178	-.0135	-.0079	.0018
6	.0094	-.0021	-.0103	-.0128	.0058	-.0057	.0132	.0111	-.0029	-.0060
7	-.0015	.0020	.0001	-.0069	-.0011	-.0005	.0005	.0075	.0023	-.0027
8	.0027	.0025	.0027	-.0071	.0037	.0006	-.0022	.0072	.0021	-.0005
9	.0002	.0014	.0078	-.0007	.0024	.0013	-.0075	.0010	.0015	.0010
10	.0003	.0025	.0029	.0034	.0011	.0035	-.0028	-.0024	.0001	.0009

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

FILE: 37 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.3665	.0	.0990	.0	1.3459	.0	.2191	.0	.0485	.0
1	.6069	11.2	.0434	41.1	.5880	11.8	.1622	2.5	.0469	191.6
2	.2498	42.2	.0524	52.3	.2612	44.4	.0603	281.5	.0335	89.6
3	.0496	327.0	.0297	3.2	.0534	333.7	.0201	261.1	.0135	65.1
4	.0578	303.6	.0298	.8	.0610	309.5	.0286	212.4	.0207	17.0
5	.0435	212.8	.0236	294.6	.0429	221.7	.0233	146.7	.0157	305.7
6	.0187	181.6	.0181	265.0	.0195	197.0	.0187	106.1	.0107	277.9
7	.0302	137.5	.0198	217.8	.0305	147.2	.0198	62.3	.0139	223.0
8	.0237	60.3	.0143	169.8	.0217	70.6	.0175	17.4	.0111	160.8
9	.0189	5.5	.0120	124.6	.0167	17.3	.0164	326.9	.0112	116.4
10	.0182	300.1	.0103	58.5	.0160	310.1	.0141	260.1	.0119	45.4

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FILE: 80 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5313	.0	.1917	.0	1.5237	.0	.2184	.0	.0178	.0
1	.9191	.6	.1055	3.2	.9054	.7	.1692	1.6	.0397	193.6
2	.1225	41.4	.0608	62.3	.1401	46.7	.1158	266.1	.0453	79.2
3	.0363	301.4	.0623	340.8	.0489	316.2	.0430	171.9	.0239	348.8
4	.0193	265.7	.0157	309.2	.0241	272.1	.0125	161.7	.0069	302.5
5	.0154	199.1	.0213	291.2	.0161	219.4	.0223	127.1	.0081	283.1
6	.0096	102.7	.0164	218.6	.0081	134.6	.0173	49.8	.0067	205.5
7	.0025	323.2	.0069	179.5	.0012	246.3	.0076	3.4	.0036	140.0
8	.0037	47.0	.0076	159.0	.0038	80.6	.0076	343.1	.0021	103.3
9	.0015	8.4	.0078	95.0	.0027	61.6	.0075	277.8	.0018	57.1
10	.0025	6.2	.0045	40.6	.0037	17.8	.0037	229.7	.0009	9.3

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: 38 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4016	.0000	.0886	.0000	1.3750	.0000	.2482	.0000	-.0537	.0000
1	.2274	.6770	.0421	.0311	.2310	.6524	.0154	.1920	-.0206	-.0562
2	.0237	.2349	.0322	.0510	.0430	.2388	-.0829	.0140	.0524	.0104
3	-.0657	.0033	-.0158	.0421	-.0648	.0158	-.0187	-.0331	-.0012	.0250
4	-.0475	-.0229	-.0254	.0185	-.0540	-.0166	.0117	-.0302	-.0153	.0143
5	.0295	-.0498	-.0214	-.0121	.0219	-.0516	.0281	-.0041	-.0166	-.0091
6	.0361	.0076	.0009	-.0158	.0351	.0017	.0112	.0190	.0011	-.0158
7	-.0014	.0257	.0100	-.0026	.0021	.0241	-.0102	.0101	.0160	-.0025
8	-.0106	.0024	.0009	.0025	-.0097	.0036	-.0041	-.0023	.0015	.0125
9	-.0009	-.0032	.0011	-.0010	-.0009	-.0034	-.0009	.0011	-.0047	.0022
10	-.0075	.0016	.0017	.0015	-.0067	.0017	-.0037	-.0004	-.0040	-.0022

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FILE: B2 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4482	.0000	.1605	.0000	1.4369	.0000	.2333	.0000	.0187	.0000
1	.0543	.9342	.0166	.1049	.0582	.9193	.0052	.1683	-.0152	-.0458
2	.0097	.1394	.0359	.0516	.0288	.1482	-.1156	-.0178	.0482	.0236
3	-.0542	-.0218	-.0430	.0481	-.0623	-.0058	.0192	-.0490	-.0199	.0253
4	.0084	-.0127	-.0177	-.0051	.0007	-.0144	.0194	-.0033	-.0117	-.0071
5	.0121	.0026	-.0117	-.0048	.0090	.0002	.0149	.0048	-.0002	-.0063
6	-.0039	.0049	-.0006	-.0102	-.0038	.0018	.0003	.0121	.0045	-.0011
7	-.0037	-.0017	.0021	-.0031	-.0027	-.0026	-.0027	.0025	.0001	.0017
8	.0010	-.0018	.0048	-.0039	.0023	-.0026	-.0042	.0038	.0004	-.0011
9	-.0016	.0035	.0039	.0037	-.0004	.0044	-.0043	-.0029	.0017	.0005
10	-.0005	-.0022	.0004	.0015	-.0004	-.0014	-.0006	-.0023	-.0011	.0014

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0997) PITCHING AMPLITUDE = 10.0 DEG

FILE: 38 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4016	.0	.0886	.0	1.3750	.0	.2482	.0	.0537	.0
1	.7142	18.6	.0523	53.6	.6921	19.5	.1926	4.6	.0599	200.1
2	.2361	5.8	.0603	32.3	.2427	10.2	.0841	279.6	.0535	78.7
3	.0657	272.8	.0450	339.5	.0667	283.7	.0380	209.4	.0251	357.4
4	.0527	244.3	.0315	306.0	.0565	252.9	.0324	158.9	.0209	313.0
5	.0579	149.3	.0246	240.4	.0561	157.1	.0284	98.4	.0189	241.3
6	.0369	78.1	.0158	176.6	.0352	87.2	.0221	30.4	.0158	175.9
7	.0258	357.0	.0103	104.6	.0242	4.9	.0143	314.6	.0161	98.9
8	.0108	282.6	.0026	19.2	.0104	290.4	.0047	240.4	.0126	6.9
9	.0033	195.8	.0015	131.6	.0035	195.1	.0014	321.2	.0051	294.9
10	.0077	281.9	.0022	47.9	.0069	284.1	.0037	263.5	.0045	241.3

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FILE: B2 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4482	.0	.1605	.0	1.4369	.0	.2333	.0	.0187	.0
1	.9358	3.3	.1062	9.0	.9212	3.6	.1684	1.8	.0483	198.4
2	.1398	4.0	.0629	34.9	.1510	11.0	.1170	261.3	.0536	63.9
3	.0584	248.1	.0645	318.2	.0626	264.7	.0526	158.6	.0322	321.8
4	.0152	146.5	.0184	254.0	.0144	177.0	.0197	99.7	.0137	239.0
5	.0123	78.0	.0126	247.5	.0090	88.9	.0157	72.0	.0063	181.7
6	.0063	321.8	.0103	183.6	.0042	295.1	.0121	1.3	.0046	103.5
7	.0041	245.9	.0038	146.4	.0037	225.8	.0037	312.5	.0017	3.8
8	.0021	152.0	.0062	128.6	.0034	138.7	.0057	312.1	.0011	160.6
9	.0039	335.4	.0053	46.6	.0044	354.5	.0052	235.4	.0018	74.3
10	.0022	193.1	.0016	16.3	.0014	195.7	.0023	194.3	.0018	322.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 39 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4146	.0000	.0905	.0000	1.3856	.0000	.2641	.0000	-.0662	.0000
1	.2458	.7662	.0501	.0349	.2519	.7398	.0067	.2105	-.0191	-.0629
2	-.0524	.1862	.0208	.0593	-.0322	.1939	-.0935	-.0023	.0564	.0255
3	-.0377	-.0174	-.0252	.0407	-.0409	-.0037	-.0017	-.0410	-.0144	.0261
4	-.0474	-.0308	-.0324	.0070	-.0565	-.0280	.0213	-.0205	-.0217	.0041
5	.0536	-.0310	-.0095	-.0208	.0491	-.0357	.0221	.0083	-.0073	-.0190
6	.0244	.0100	.0042	-.0030	.0257	.0070	.0031	.0099	.0183	-.0091
7	-.0015	.0084	.0036	.0001	-.0002	.0082	-.0044	.0030	.0053	.0098
8	-.0029	.0066	.0017	.0002	-.0025	.0068	-.0021	.0005	-.0057	.0061
9	-.0023	-.0012	.0024	.0011	-.0016	-.0011	-.0032	-.0001	-.0053	-.0027
10	-.0068	-.0027	-.0001	.0030	-.0065	-.0018	-.0019	-.0033	.0016	-.0039

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FILE: 83 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4567	.0000	.1579	.0000	1.4446	.0000	.2415	.0000	-.0104	.0000
1	.0932	.9253	.0195	.1094	.0973	.9110	.0085	.1699	-.0169	-.0459
2	-.0325	.1460	.0217	.0562	-.0156	.1559	-.1087	-.0188	.0422	.0309
3	-.0551	-.0478	-.0487	.0376	-.0649	-.0337	.0248	-.0465	-.0227	.0142
4	.0204	-.0093	-.0136	-.0091	.0136	-.0125	.0200	.0016	-.0069	-.0065
5	.0041	.0096	-.0100	-.0046	.0019	.0074	.0105	.0060	-.0016	-.0056
6	.0002	-.0047	-.0002	-.0118	.0001	-.0079	.0013	.0099	.0047	-.0007
7	.0069	.0057	.0060	-.0021	.0086	.0046	-.0038	.0045	-.0010	.0009
8	-.0080	.0000	.0035	-.0005	-.0064	.0001	-.0064	.0009	.0026	.0002
9	.0046	-.0078	.0036	.0033	.0053	-.0065	-.0021	-.0055	-.0015	.0033
10	.0010	.0085	-.0008	.0035	.0005	.0092	.0014	-.0011	-.0010	-.0024

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1250) PITCHING AMPLITUDE = 10.0 DEG

FILE: 39 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4146	.0	.0905	.0	1.3856	.0	.2641	.0	.0662	.0
1	.8047	17.8	.0611	55.2	.7816	18.8	.2106	1.8	.0657	196.9
2	.1934	344.3	.0629	19.4	.1965	350.6	.0935	268.6	.0619	65.7
3	.0415	245.2	.0479	328.3	.0410	264.8	.0410	182.4	.0298	331.0
4	.0565	237.0	.0332	282.2	.0631	243.7	.0296	133.9	.0221	280.6
5	.0619	120.1	.0229	204.6	.0607	126.0	.0236	69.5	.0204	201.1
6	.0264	67.7	.0052	125.5	.0266	74.6	.0103	17.2	.0204	116.5
7	.0086	349.8	.0036	87.7	.0082	358.8	.0053	304.5	.0112	28.5
8	.0072	336.3	.0017	84.5	.0072	339.6	.0021	283.2	.0083	317.1
9	.0026	242.3	.0026	66.0	.0019	235.5	.0032	268.2	.0059	242.8
10	.0073	248.5	.0030	358.3	.0068	254.4	.0038	209.7	.0042	157.8

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FILE: 83 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4567	.0	.1579	.0	1.4446	.0	.2415	.0	.0104	.0
1	.9300	5.8	.1111	10.1	.9162	6.1	.1701	2.9	.0489	200.2
2	.1495	347.4	.0602	21.1	.1567	354.3	.1103	260.2	.0523	53.8
3	.0729	229.1	.0615	307.7	.0732	242.5	.0527	151.9	.0268	301.9
4	.0224	114.4	.0164	236.2	.0185	132.6	.0201	85.6	.0095	226.4
5	.0104	23.1	.0110	245.3	.0077	14.6	.0121	60.2	.0058	195.9
6	.0048	177.8	.0118	181.1	.0079	178.9	.0100	7.6	.0047	98.8
7	.0090	50.5	.0063	109.0	.0097	62.0	.0059	319.8	.0013	311.0
8	.0080	270.2	.0036	97.9	.0064	270.9	.0064	278.4	.0026	85.1
9	.0090	149.7	.0049	47.9	.0083	140.7	.0059	200.9	.0036	336.2
10	.0086	6.4	.0036	347.7	.0092	3.4	.0018	127.2	.0026	202.6

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 10.0 DEG

FILE: 31 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7025	.0000	.1249	.0000	1.6648	.0000	.2992	.0000	-.0526	.0000
1	.1782	.3700	.0311	-.0036	.1791	.3348	.0211	.2097	-.0153	-.0594
2	.2069	.1526	.0619	.0228	.2266	.1507	-.0427	.0225	.0252	-.0088
3	.0530	.0369	.0257	.0059	.0596	.0370	-.0221	.0240	.0162	-.0113
4	-.0178	.0687	.0231	.0255	-.0101	.0727	-.0291	-.0040	.0160	.0072
5	-.0156	.0231	.0116	.0146	-.0118	.0276	-.0198	-.0086	.0110	.0067
6	-.0347	.0087	.0012	.0221	-.0332	.0147	-.0110	-.0187	.0017	.0146
7	-.0232	-.0076	-.0064	.0142	-.0245	-.0030	-.0016	-.0166	-.0028	.0084
8	-.0162	-.0185	-.0126	.0092	-.0194	-.0151	.0071	-.0150	-.0089	.0068
9	-.0021	-.0223	-.0123	.0001	-.0060	-.0214	.0116	-.0078	-.0086	.0007
10	.0168	-.0168	-.0087	-.0053	.0136	-.0179	.0134	-.0002	-.0091	-.0060

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FILE: 89 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7926	.0000	.1915	.0000	1.7663	.0000	.2905	.0000	-.0059	.0000
1	.0951	.5878	.0031	.0397	.0919	.5554	.0302	.2191	-.0111	-.0731
2	.2226	.1452	.1050	.0178	.2537	.1418	-.0958	.0242	.0469	-.0010
3	-.0259	.0825	.0087	.0404	-.0205	.0930	-.0249	.0029	.0134	.0048
4	-.0344	.0125	.0187	.0192	-.0282	.0177	-.0337	-.0166	.0103	.0156
5	-.0067	-.0092	.0004	.0234	-.0066	-.0010	-.0042	-.0257	-.0036	.0091
6	-.0144	-.0107	-.0091	.0113	-.0173	-.0069	.0043	-.0146	-.0038	.0067
7	.0096	-.0188	-.0069	.0048	.0066	-.0168	.0095	-.0108	-.0075	.0009
8	.0107	.0021	-.0076	-.0012	.0077	.0010	.0117	.0017	-.0037	-.0051
9	.0033	.0079	.0007	-.0006	.0036	.0070	.0004	.0039	.0029	-.0030
10	-.0101	.0049	-.0054	.0032	-.0110	.0058	.0021	-.0016	.0011	.0007

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0497) PITCHING AMPLITUDE = 10.0 DEG

FILE: 31 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7025	.0	.1249	.0	1.6648	.0	.2992	.0	.0526	.0
1	.4107	25.7	.0313	96.7	.3797	28.1	.2108	5.8	.0613	194.4
2	.2571	53.6	.0659	69.8	.2722	56.4	.0482	297.8	.0267	109.2
3	.0646	55.2	.0264	77.2	.0701	58.2	.0326	317.5	.0197	125.1
4	.0710	345.5	.0344	42.1	.0734	352.1	.0294	262.2	.0175	65.8
5	.0279	326.0	.0186	38.4	.0300	336.9	.0216	246.5	.0129	58.6
6	.0357	284.1	.0221	3.0	.0363	293.9	.0217	210.5	.0147	6.7
7	.0245	251.8	.0156	335.9	.0247	263.1	.0167	185.6	.0089	341.7
8	.0246	221.2	.0156	306.2	.0245	232.2	.0166	154.6	.0111	307.3
9	.0224	185.3	.0123	270.5	.0222	195.7	.0140	123.9	.0086	274.8
10	.0237	135.0	.0101	238.6	.0225	142.9	.0134	91.0	.0109	236.4

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FILE: 89 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7926	.0	.1915	.0	1.7663	.0	.2905	.0	.0059	.0
1	.5955	9.2	.0398	4.4	.5630	9.4	.2211	7.8	.0739	188.6
2	.2658	56.9	.1065	80.4	.2906	60.8	.0988	284.2	.0469	91.2
3	.0864	342.5	.0413	12.2	.0952	347.6	.0251	276.6	.0142	70.2
4	.0366	290.1	.0268	44.4	.0333	302.1	.0376	243.8	.0187	33.3
5	.0113	216.0	.0234	.9	.0067	261.6	.0261	189.2	.0098	338.5
6	.0179	233.4	.0145	321.2	.0186	248.2	.0152	163.7	.0077	330.3
7	.0211	152.9	.0084	305.0	.0181	158.7	.0144	138.6	.0076	276.9
8	.0109	79.0	.0077	261.3	.0078	82.3	.0118	81.8	.0063	216.2
9	.0086	22.3	.0009	134.0	.0078	27.2	.0039	6.5	.0042	135.7
10	.0113	296.0	.0063	300.8	.0124	297.7	.0027	126.6	.0013	55.3

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 32 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7551	.0000	.0972	.0000	1.7027	.0000	.3723	.0000	-.0821	.0000
1	.3329	.5690	.0542	.0047	.3346	.5227	.0374	.2618	-.0327	-.0862
2	.0312	.2163	.0555	.0409	.0596	.2145	-.0889	.0374	.0616	-.0089
3	-.0085	.0443	.0202	.0289	.0013	.0530	-.0404	-.0067	.0219	.0158
4	-.0692	.0170	.0034	.0385	-.0651	.0287	-.0260	-.0320	.0029	.0283
5	-.0260	-.0193	-.0188	.0194	-.0313	-.0109	.0068	-.0296	-.0133	.0123
6	-.0078	-.0489	-.0175	-.0007	-.0143	-.0473	.0160	-.0157	-.0162	.0015
7	.0368	-.0151	-.0066	-.0085	.0327	-.0178	.0193	.0025	-.0087	-.0125
8	.0205	.0095	.0029	-.0042	.0206	.0068	.0047	.0092	.0063	-.0121
9	-.0016	.0146	.0001	.0014	-.0010	.0141	-.0010	.0043	.0096	.0004
10	.0005	-.0027	-.0013	-.0019	.0005	-.0032	.0001	.0016	.0028	.0059

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FILE: 91 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7478	.0000	.1729	.0000	1.7151	.0000	.3190	.0000	-.0342	.0000
1	.2328	.6946	.0420	.0511	.2360	.6593	.0290	.2430	-.0133	-.0823
2	.0443	.2320	.0703	.0574	.0756	.2358	-.1162	.0173	.0564	.0126
3	-.0463	.0005	-.0017	.0382	-.0428	.0155	-.0278	-.0267	.0079	.0188
4	-.0402	.0077	-.0053	.0277	-.0415	.0160	-.0077	-.0291	-.0055	.0192
5	.0061	-.0342	-.0121	.0067	.0013	-.0302	.0119	-.0192	-.0131	.0015
6	.0149	.0019	-.0073	.0040	.0111	.0023	.0137	-.0037	-.0047	-.0060
7	.0048	.0032	-.0061	-.0019	.0028	.0016	.0074	.0048	.0023	-.0040
8	-.0075	.0036	-.0033	-.0014	-.0077	.0028	.0002	.0023	.0033	-.0000
9	.0039	-.0091	-.0019	-.0033	.0034	-.0094	.0025	.0003	.0001	.0022
10	.0035	.0041	-.0017	-.0027	.0026	.0032	.0037	.0031	-.0033	.0001

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.1006) PITCHING AMPLITUDE = 10.0 DEG

FILE: 32 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7551	.0	.0972	.0	1.7027	.0	.3723	.0	.0821	.0
1	.6592	30.3	.0544	85.0	.6207	32.6	.2645	8.1	.0922	200.8
2	.2186	8.2	.0689	53.6	.2226	15.5	.0965	292.8	.0623	98.2
3	.0451	349.2	.0353	35.0	.0530	1.4	.0410	260.6	.0270	54.2
4	.0713	283.8	.0387	5.0	.0712	293.7	.0412	219.1	.0284	5.9
5	.0324	233.3	.0270	315.9	.0331	250.7	.0304	167.0	.0181	312.8
6	.0495	189.1	.0176	267.8	.0494	196.9	.0224	134.5	.0162	275.2
7	.0398	112.2	.0108	217.6	.0372	118.5	.0194	82.7	.0153	214.8
8	.0226	65.2	.0051	145.7	.0217	71.7	.0103	26.9	.0137	152.6
9	.0147	353.8	.0014	2.5	.0141	355.8	.0044	346.7	.0096	87.8
10	.0028	170.0	.0023	213.4	.0032	171.0	.0016	2.0	.0065	25.2

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FILE: 91 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7478	.0	.1729	.0	1.7151	.0	.3190	.0	.0342	.0
1	.7325	18.5	.0661	39.4	.7002	19.7	.2447	6.8	.0833	189.2
2	.2362	10.8	.0907	50.8	.2476	17.8	.1174	278.5	.0578	77.4
3	.0463	270.6	.0382	357.4	.0456	289.9	.0385	226.1	.0204	22.8
4	.0409	280.9	.0282	349.1	.0445	291.1	.0302	194.8	.0199	344.1
5	.0347	169.9	.0138	299.1	.0303	177.4	.0226	148.2	.0132	276.5
6	.0150	82.7	.0083	298.8	.0113	78.2	.0142	105.2	.0076	217.9
7	.0057	56.4	.0064	253.2	.0032	60.1	.0088	56.9	.0046	149.6
8	.0084	295.7	.0036	246.6	.0082	289.9	.0023	4.7	.0033	90.3
9	.0099	156.5	.0039	210.0	.0100	160.0	.0025	82.7	.0022	2.8
10	.0054	40.4	.0031	212.0	.0041	38.7	.0048	50.5	.0033	272.1

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 33 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7488	.0000	.0980	.0000	1.6921	.0000	.3963	.0000	-.0802	.0000
1	.3646	.7001	.0572	.0136	.3667	.6498	.0406	.2869	-.0339	-.1029
2	-.0169	.1970	.0558	.0436	.0158	.1962	-.1103	.0342	.0763	.0043
3	-.0074	.0441	.0179	.0414	.0016	.0573	-.0362	-.0197	.0137	.0254
4	-.0847	.0149	-.0113	.0405	-.0845	.0274	-.0194	-.0345	-.0069	.0290
5	-.0148	-.0497	-.0234	.0072	-.0229	-.0439	.0155	-.0286	-.0216	.0070
6	.0165	-.0238	-.0061	-.0099	.0116	-.0265	.0160	.0003	-.0179	-.0083
7	.0241	.0169	.0012	-.0029	.0240	.0147	.0065	.0080	.0060	-.0138
8	-.0018	.0014	-.0018	.0015	-.0018	.0015	.0003	.0006	.0097	.0020
9	.0041	-.0015	-.0024	-.0026	.0033	-.0023	.0033	.0028	.0038	.0033
10	.0041	.0020	.0003	-.0018	.0044	.0011	.0003	.0026	-.0007	.0056

FILE: 92 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7227	.0000	.1589	.0000	1.6860	.0000	.3449	.0000	-.0176	.0000
1	.2618	.7640	.0509	.0615	.2668	.7277	.0260	.2500	-.0142	-.0855
2	.0029	.2106	.0579	.0642	.0330	.2166	-.1166	.0131	.0577	.0222
3	-.0780	.0042	-.0120	.0375	-.0760	.0193	-.0278	-.0286	.0050	.0212
4	-.0275	-.0463	-.0094	.0199	-.0305	-.0376	-.0005	-.0389	-.0153	.0174
5	.0420	-.0121	-.0108	.0041	.0354	-.0100	.0245	-.0106	-.0134	-.0065
6	.0030	.0284	-.0067	.0027	.0005	.0267	.0082	.0078	.0013	-.0108
7	-.0239	-.0114	-.0075	-.0013	-.0245	-.0116	-.0016	-.0015	.0088	.0050
8	.0135	-.0236	-.0043	-.0059	.0114	-.0240	.0090	-.0033	-.0072	.0047
9	.0259	.0151	.0023	-.0048	.0252	.0126	.0067	.0101	-.0021	-.0072
10	-.0154	.0200	.0015	-.0002	-.0138	.0188	-.0067	.0077	.0061	-.0007

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1265) PITCHING AMPLITUDE = 10.0 DEG

FILE: 33 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7488	.0	.0980	.0	1.6921	.0	.3963	.0	.0802	.0
1	.7893	27.5	.0588	76.6	.7462	29.4	.2897	8.0	.1083	198.2
2	.1977	355.1	.0708	52.0	.1968	4.6	.1155	287.2	.0765	86.8
3	.0447	350.5	.0451	23.4	.0574	1.6	.0412	241.4	.0289	28.3
4	.0860	280.0	.0421	344.4	.0888	288.0	.0395	209.3	.0298	346.5
5	.0518	196.6	.0245	287.0	.0496	207.5	.0325	151.6	.0228	288.0
6	.0290	145.4	.0116	211.9	.0289	156.3	.0160	89.0	.0197	245.0
7	.0294	54.9	.0032	156.7	.0281	58.5	.0103	39.0	.0150	156.7
8	.0023	308.6	.0024	310.4	.0024	309.2	.0007	27.6	.0097	78.4
9	.0043	109.9	.0036	222.7	.0040	125.4	.0044	49.9	.0050	48.5
10	.0046	64.4	.0019	169.4	.0046	75.5	.0027	6.9	.0057	352.7

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FILE: 92 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7227	.0	.1589	.0	1.6860	.0	.3449	.0	.0176	.0
1	.8077	18.9	.0798	39.6	.7751	20.1	.2514	5.9	.0867	189.5
2	.2107	.8	.0864	42.1	.2191	8.7	.1174	276.4	.0619	68.9
3	.0781	273.0	.0394	342.2	.0784	284.2	.0399	224.2	.0218	13.3
4	.0538	210.7	.0220	334.7	.0484	219.1	.0389	180.7	.0232	318.8
5	.0437	106.0	.0116	290.7	.0368	105.8	.0267	113.4	.0149	244.1
6	.0286	5.9	.0073	292.0	.0267	1.1	.0113	46.4	.0109	173.0
7	.0265	244.4	.0076	260.5	.0271	244.7	.0022	227.7	.0101	60.6
8	.0272	150.3	.0073	215.8	.0266	154.6	.0096	110.3	.0086	303.0
9	.0300	59.8	.0053	154.1	.0282	63.6	.0122	33.7	.0075	195.8
10	.0252	322.4	.0015	97.3	.0233	323.6	.0102	318.9	.0062	96.4

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

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FILE: 98 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0580	.0000	.2067	.0000	2.0057	.0000	.4081	.0000	-.0376	.0000
1	.1715	.4338	.0165	-.0083	.1675	.3791	.0392	.2787	-.0149	-.0979
2	.1904	.1181	.0953	.0103	.2233	.1122	-.0728	.0308	.0368	-.0111
3	.0549	.0296	.0289	-.0117	.0624	.0274	-.0182	.0380	.0193	-.0143
4	-.0073	.0511	.0332	.0129	.0040	.0525	-.0338	.0066	.0149	.0046
5	-.0023	.0283	.0152	.0067	.0024	.0304	-.0181	.0040	.0116	.0014
6	-.0331	.0130	.0080	.0081	-.0290	.0152	-.0202	-.0029	.0050	.0089
7	-.0141	-.0172	.0053	.0025	-.0119	-.0148	-.0108	-.0089	.0012	.0048
8	-.0034	-.0090	.0034	.0040	-.0028	-.0069	-.0037	-.0077	-.0011	.0050
9	.0045	-.0098	.0025	-.0005	.0046	-.0095	-.0007	-.0033	-.0033	-.0002
10	.0080	.0004	.0062	.0023	.0093	.0009	-.0029	-.0021	.0008	.0009

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0499) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 98 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0580	.0	.2067	.0	2.0057	.0	.4081	.0	.0376	.0
1	.4665	21.6	.0185	116.6	.4145	23.8	.2815	8.0	.0990	188.7
2	.2240	58.2	.0958	83.9	.2499	63.3	.0790	293.0	.0384	106.8
3	.0624	61.6	.0311	112.1	.0682	66.3	.0421	334.4	.0240	126.4
4	.0516	351.9	.0356	68.8	.0527	4.3	.0345	281.0	.0156	72.7
5	.0283	355.4	.0166	66.2	.0305	4.5	.0185	282.5	.0116	83.3
6	.0356	291.5	.0114	44.5	.0327	297.7	.0204	261.8	.0102	29.5
7	.0223	219.3	.0059	64.5	.0190	218.9	.0140	230.3	.0050	13.8
8	.0096	200.7	.0052	40.0	.0074	202.2	.0085	205.9	.0052	347.4
9	.0108	155.4	.0025	100.6	.0105	154.1	.0034	192.2	.0033	266.2
10	.0080	87.1	.0066	69.6	.0093	84.5	.0036	234.0	.0012	40.8

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 100 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0604	.0000	.1689	.0000	1.9922	.0000	.4725	.0000	-.0115	.0000
1	.2646	.5984	.0443	.0065	.2655	.5348	.0367	.3155	-.0181	-.1140
2	.1033	.1238	.0926	.0238	.1430	.1210	-.1030	.0279	.0511	-.0055
3	.0266	.0831	.0308	.0192	.0359	.0888	-.0303	.0213	.0264	.0005
4	-.0694	.0290	.0162	.0195	-.0596	.0340	-.0436	-.0066	.0114	.0135
5	-.0175	-.0214	.0089	.0123	-.0140	-.0140	-.0174	-.0232	.0046	.0164
6	.0004	-.0182	.0023	.0093	-.0006	-.0134	-.0006	-.0170	-.0109	.0078
7	.0241	-.0034	.0030	.0040	.0225	-.0026	.0070	-.0034	-.0064	-.0033
8	-.0129	.0253	.0007	.0067	-.0119	.0252	-.0049	.0038	.0021	-.0069
9	-.0183	-.0154	-.0004	.0039	-.0172	-.0130	-.0074	-.0095	.0063	.0052
10	.0086	-.0075	-.0019	.0020	.0072	-.0065	.0059	-.0048	-.0066	.0000

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0995) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 100 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0604	.0	.1689	.0	1.9922	.0	.4725	.0	.0115	.0
1	.6543	23.9	.0448	81.7	.5971	26.4	.3176	6.6	.1154	189.0
2	.1612	39.8	.0956	75.6	.1874	49.8	.1067	285.2	.0514	96.1
3	.0872	17.7	.0363	58.1	.0958	22.0	.0370	305.1	.0264	89.0
4	.0752	292.7	.0253	39.8	.0686	299.7	.0441	261.4	.0177	40.3
5	.0277	219.3	.0152	36.0	.0198	224.9	.0290	216.9	.0171	15.5
6	.0182	178.8	.0096	13.7	.0134	182.5	.0170	181.9	.0134	305.4
7	.0243	98.2	.0050	36.7	.0226	96.7	.0078	116.4	.0072	242.8
8	.0284	333.0	.0067	5.9	.0278	334.8	.0062	307.7	.0072	163.3
9	.0239	230.0	.0039	354.7	.0215	232.9	.0121	218.0	.0081	50.2
10	.0114	131.2	.0027	316.6	.0097	132.2	.0076	129.1	.0066	270.2

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

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FILE: 101 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0623	.0000	.1668	.0000	1.9901	.0000	.4933	.0000	-.0548	.0000
1	.3688	.6564	.0763	.0143	.3742	.5914	.0398	.3287	-.0143	-.1243
2	.0666	.1675	.0797	.0455	.1051	.1672	-.1002	.0364	.0579	.0050
3	-.0341	.1008	.0227	.0267	-.0229	.1073	-.0482	.0182	.0295	.0082
4	-.0782	-.0308	.0078	.0183	-.0696	-.0218	-.0423	-.0279	.0034	.0217
5	.0045	-.0362	.0047	.0111	.0046	-.0278	-.0036	-.0304	-.0087	.0158
6	.0349	-.0132	.0034	.0082	.0322	-.0098	.0112	-.0122	-.0126	-.0053
7	.0005	.0354	-.0007	.0097	-.0007	.0356	.0021	.0043	.0038	-.0056
8	-.0194	.0014	-.0027	.0037	-.0185	.0019	-.0068	-.0015	.0025	.0006
9	-.0231	-.0163	-.0032	.0030	-.0226	-.0138	-.0055	-.0107	.0027	.0057
10	.0215	-.0283	-.0006	-.0001	.0196	-.0263	.0087	-.0110	-.0070	.0018

NACA 0012 AIRFOIL

MACH NUMBER = .30 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.1239) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 101 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0623	.0	.1668	.0	1.9901	.0	.4933	.0	.0548	.0
1	.7529	29.3	.0776	79.4	.6998	32.3	.3311	6.9	.1251	186.6
2	.1803	21.7	.0918	60.3	.1975	32.1	.1066	290.0	.0581	85.1
3	.1064	341.3	.0351	40.4	.1097	348.0	.0515	290.7	.0306	74.4
4	.0841	248.5	.0199	23.2	.0729	252.6	.0507	236.6	.0220	8.9
5	.0365	172.9	.0121	22.9	.0282	170.6	.0306	186.8	.0181	331.1
6	.0374	110.8	.0088	22.7	.0336	107.0	.0166	137.5	.0137	247.3
7	.0354	.9	.0098	355.7	.0356	358.9	.0048	25.6	.0068	146.3
8	.0194	274.3	.0046	324.0	.0186	275.8	.0070	257.9	.0026	75.8
9	.0283	234.9	.0044	313.0	.0265	238.5	.0120	207.0	.0063	25.1
10	.0356	142.8	.0006	264.4	.0328	143.3	.0140	141.5	.0073	284.6

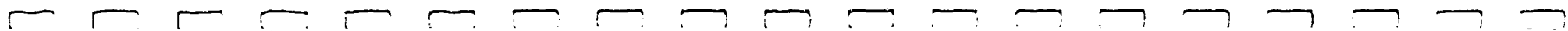


TABLE 9
(Notes 1 and 2)

INTEGRATED LOADS: $M_c=0.40$, $\bar{\alpha}=8$ deg

α_M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.037	32	266-267
0	.075	34	268-269
0	.093	36	270-271
9	.037	38	272-273
9	.075	40	274-275
9	.093	42	276-277
12	.037	44	278-279
12	.075	46	280-281
12	.093	48	282-283
15	.037	50	284-285
15	.075	52	286-287
15	.093	54	288-289

Notes:

1. The unswept and swept counterparts are on the same page with the A,B and C,P coefficients appearing on opposite pages.
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 22 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0735	.0000	.0997	.0000	.0725	.0000	.0506	.0000	-.0057	.0000
1	-.0901	1.0570	.0017	-.0051	-.0911	1.0605	.0000	.0086	-.0124	.0451
2	.0226	.0170	-.0622	-.0165	.0229	.0170	-.0117	.0109	.0037	.0018
3	-.0078	-.0001	-.0008	-.0014	-.0068	-.0019	-.0013	.0045	.0012	-.0023
4	-.0044	.0004	.0007	-.0005	-.0042	.0004	-.0023	-.0008	.0000	.0000
5	.0017	.0004	-.0002	-.0002	.0018	.0005	.0002	-.0002	-.0001	.0001
6	-.0006	-.0009	-.0002	.0001	-.0006	-.0009	.0005	.0004	.0000	-.0002
7	.0001	-.0011	.0001	-.0001	.0001	-.0011	.0000	-.0003	-.0002	.0000
8	.0003	-.0002	-.0000	.0001	.0003	-.0002	.0004	-.0002	-.0000	.0001
9	-.0005	.0001	.0001	.0001	-.0005	.0001	-.0002	.0007	-.0001	-.0000
10	.0000	-.0003	.0002	.0003	.0001	-.0003	-.0004	-.0003	-.0001	.0000

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FILE: 47 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.1030	.0000	.0773	.0000	.1061	.0000	.0555	.0000	.0089	.0000
1	-.0589	.9418	.0001	.0261	-.0596	.9441	.0010	-.0182	-.0124	.0261
2	.0048	.0100	-.0545	-.0117	.0031	.0100	-.0116	.0077	-.0000	.0008
3	-.0041	.0012	-.0008	-.0013	-.0035	-.0003	.0001	.0025	.0011	-.0022
4	-.0017	.0036	.0005	-.0002	-.0016	.0036	-.0010	-.0001	-.0000	-.0002
5	.0029	-.0016	.0001	.0000	.0029	-.0015	-.0006	-.0004	.0001	-.0001
6	.0008	.0001	.0001	.0003	.0008	.0002	.0003	-.0001	.0000	.0000
7	-.0011	-.0007	.0000	-.0001	-.0012	-.0007	-.0001	.0001	.0003	.0001
8	.0008	-.0009	.0002	-.0001	.0008	-.0009	-.0003	.0000	.0001	.0001
9	.0005	.0005	.0000	.0000	.0005	.0005	.0000	-.0000	-.0001	-.0000
10	.0006	.0003	.0000	.0002	.0006	.0003	.0001	-.0001	-.0001	.0001

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0378) PITCHING AMPLITUDE = 8.0 DEG

FILE: 22 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0735	.0	.0997	.0	.0725	.0	.0506	.0	.0057	.0
1	1.0609	355.1	.0054	161.7	1.0644	355.1	.0086	.2	.0468	344.6
2	.0283	53.1	.0644	255.1	.0285	53.3	.0160	313.1	.0041	64.3
3	.0078	269.5	.0016	207.9	.0071	254.1	.0047	344.1	.0026	152.4
4	.0044	275.2	.0008	127.5	.0042	275.5	.0024	249.8	.0000	65.3
5	.0018	78.1	.0002	221.8	.0018	75.3	.0003	144.8	.0001	329.3
6	.0011	215.4	.0002	307.3	.0011	214.9	.0006	48.3	.0002	168.6
7	.0011	171.9	.0001	117.1	.0011	172.0	.0003	173.9	.0002	284.2
8	.0004	130.9	.0001	341.6	.0004	132.6	.0005	116.9	.0001	353.1
9	.0005	285.6	.0001	37.8	.0005	281.9	.0007	341.4	.0001	253.0
10	.0004	173.7	.0003	35.2	.0003	170.0	.0005	238.8	.0001	273.4

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FILE: 47 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.1030	.0	.0773	.0	.1061	.0	.0555	.0	.0089	.0
1	.9436	356.4	.0261	.1	.9459	356.4	.0182	176.9	.0289	334.6
2	.0111	25.4	.0558	257.9	.0105	17.0	.0139	303.8	.0008	359.8
3	.0043	286.2	.0015	211.4	.0035	264.3	.0025	1.6	.0024	152.3
4	.0040	334.6	.0005	110.5	.0039	335.9	.0010	265.8	.0002	188.7
5	.0033	118.5	.0001	83.4	.0033	117.6	.0008	235.5	.0001	131.3
6	.0009	80.8	.0003	17.4	.0008	79.3	.0004	106.7	.0000	24.4
7	.0013	238.2	.0001	169.5	.0014	238.0	.0001	318.4	.0003	80.6
8	.0012	137.9	.0002	122.5	.0012	137.6	.0003	270.2	.0002	30.7
9	.0007	43.4	.0000	37.4	.0007	43.5	.0000	93.2	.0001	230.3
10	.0007	61.9	.0002	13.0	.0007	61.9	.0001	139.6	.0001	328.6

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 23 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0377	.0000	.0963	.0000	.0369	.0000	.0510	.0000	-.0061	.0000
1	-.1631	1.0428	.0003	-.0046	-.1647	1.0458	.0005	.0060	-.0249	.0447
2	.0187	.0112	-.0578	-.0268	.0190	.0111	-.0151	.0168	.0034	.0019
3	-.0136	-.0072	.0011	-.0004	-.0121	-.0089	-.0020	.0029	.0012	-.0022
4	-.0062	-.0008	.0018	-.0006	-.0061	-.0008	-.0029	-.0017	-.0007	-.0001
5	.0015	-.0011	.0005	.0001	.0015	-.0009	-.0003	-.0005	-.0003	.0002
6	-.0005	-.0001	.0001	.0003	-.0005	-.0001	.0004	.0002	-.0007	-.0000
7	.0003	-.0004	.0003	.0001	.0003	-.0004	-.0004	-.0007	-.0008	.0001
8	.0026	.0011	-.0005	.0002	.0026	.0011	.0008	-.0004	-.0002	.0000
9	.0017	-.0003	-.0003	.0000	.0016	-.0004	.0003	.0006	-.0003	-.0003
10	.0019	.0005	-.0002	.0001	.0019	.0004	.0001	.0001	-.0004	-.0002

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FILE: 49 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.1334	.0000	.0812	.0000	.1366	.0000	.0535	.0000	.0009	.0000
1	-.1116	.9468	-.0032	.0271	-.1128	.9492	.0037	-.0176	-.0246	.0257
2	.0007	.0050	-.0539	-.0214	-.0009	.0047	-.0131	.0142	-.0004	.0006
3	-.0090	.0018	.0004	-.0012	-.0078	.0003	-.0006	.0015	.0017	-.0019
4	-.0045	.0015	.0005	-.0010	-.0044	.0015	-.0012	-.0001	.0001	-.0002
5	.0031	-.0001	.0002	-.0002	.0032	.0000	-.0003	-.0002	.0005	.0008
6	.0005	.0018	-.0006	.0006	.0005	.0018	.0010	-.0003	-.0005	-.0000
7	-.0004	.0006	-.0000	-.0001	-.0004	.0005	-.0001	.0002	.0001	-.0001
8	-.0013	.0007	.0001	-.0000	-.0013	.0007	-.0004	.0002	.0002	-.0001
9	.0003	.0001	.0001	-.0000	.0003	.0001	-.0002	-.0002	-.0002	.0000
10	.0000	-.0001	-.0001	-.0000	.0000	-.0001	.0003	-.0000	-.0001	.0002

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0756) PITCHING AMPLITUDE = 8.0 DEG

FILE: 23 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0377	.0	.0963	.0	.0369	.0	.0510	.0	.0061	.0
1	1.0555	351.1	.0046	176.7	1.0587	351.1	.0060	4.7	.0512	330.9
2	.0218	59.0	.0637	245.1	.0220	59.7	.0226	318.2	.0039	61.2
3	.0154	242.1	.0011	110.0	.0150	233.7	.0035	325.1	.0026	150.8
4	.0063	262.4	.0019	107.2	.0061	262.8	.0034	238.9	.0007	265.1
5	.0018	126.4	.0005	83.9	.0018	121.9	.0006	212.1	.0003	304.8
6	.0006	255.8	.0003	10.5	.0006	257.6	.0004	58.1	.0007	266.4
7	.0005	149.5	.0003	67.9	.0005	148.0	.0008	205.5	.0008	276.7
8	.0028	67.1	.0005	291.0	.0028	66.2	.0009	118.5	.0002	270.1
9	.0017	101.9	.0003	274.9	.0017	103.2	.0007	24.6	.0004	224.3
10	.0020	76.8	.0003	299.6	.0020	77.3	.0002	23.8	.0004	246.6

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FILE: 49 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.1334	.0	.0812	.0	.1366	.0	.0535	.0	.0009	.0
1	.9534	353.3	.0273	353.3	.9559	353.2	.0180	168.3	.0355	316.3
2	.0051	8.4	.0580	248.4	.0048	348.8	.0193	317.4	.0007	330.5
3	.0092	281.2	.0013	162.3	.0078	272.1	.0016	338.8	.0026	138.7
4	.0047	288.5	.0012	153.4	.0046	289.0	.0012	263.4	.0002	142.3
5	.0031	91.6	.0003	132.5	.0032	89.6	.0003	232.2	.0010	32.7
6	.0019	14.4	.0008	317.0	.0019	14.3	.0010	106.8	.0005	269.3
7	.0007	325.6	.0001	194.6	.0007	319.5	.0003	348.2	.0001	127.7
8	.0014	297.3	.0001	97.7	.0014	297.3	.0004	291.5	.0003	114.2
9	.0003	70.6	.0001	91.6	.0003	67.2	.0003	234.4	.0002	276.6
10	.0001	166.7	.0001	240.7	.0001	167.4	.0003	92.1	.0002	336.9

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY =10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 24 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0907	.0000	.0922	.0000	.0895	.0000	.0546	.0000	-.0105	.0000
1	-.1873	1.0366	.0006	-.0055	-.1892	1.0392	.0000	.0128	-.0313	.0446
2	.0175	-.0139	-.0560	-.0327	.0179	-.0137	-.0160	.0205	.0034	.0022
3	-.0090	-.0041	.0008	-.0007	-.0072	-.0056	-.0017	-.0029	.0016	-.0019
4	-.0045	.0015	.0011	-.0010	-.0044	.0015	-.0025	-.0013	-.0004	-.0003
5	.0045	.0004	.0004	-.0001	.0047	.0004	-.0012	.0001	.0003	.0007
6	-.0067	-.0052	.0013	.0021	-.0067	-.0052	-.0011	-.0011	-.0028	-.0024
7	-.0000	.0012	-.0000	-.0003	-.0002	.0013	.0006	-.0002	-.0003	.0002
8	-.0000	.0003	-.0001	-.0002	-.0000	.0003	.0003	-.0001	-.0001	-.0001
9	.0001	-.0003	.0001	.0000	.0001	-.0003	-.0003	.0003	.0000	-.0001
10	-.0000	.0003	-.0001	.0001	-.0000	.0003	-.0002	.0002	-.0002	.0000

FILE: 69 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.1063	.0000	.0831	.0000	.1098	.0000	.0547	.0000	.0020	.0000
1	-.1313	.9664	-.0042	.0283	-.1330	.9689	.0037	-.0207	-.0319	.0260
2	-.0023	.0082	-.0558	-.0265	-.0041	.0080	-.0126	.0185	-.0007	.0006
3	-.0155	.0002	-.0001	-.0016	-.0139	-.0015	.0008	.0017	.0021	-.0024
4	-.0050	-.0005	.0016	-.0014	-.0049	-.0006	-.0020	-.0002	-.0002	-.0004
5	.0021	.0032	.0009	-.0003	.0022	.0034	-.0003	-.0005	-.0000	.0007
6	.0013	.0024	-.0008	-.0003	.0013	.0024	.0011	.0002	-.0002	.0002
7	.0012	.0001	-.0002	-.0003	.0012	.0000	-.0006	.0003	-.0000	.0001
8	.0002	-.0002	.0001	.0000	.0002	-.0002	-.0006	.0002	.0000	.0002
9	.0005	-.0009	.0001	.0001	.0006	-.0008	.0001	.0001	-.0001	.0003
10	-.0006	.0005	-.0001	-.0000	-.0006	.0005	.0004	-.0000	-.0000	-.0000

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0941) PITCHING AMPLITUDE = 8.0 DEG

FILE: 24 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0907	.0	.0922	.0	.0895	.0	.0546	.0	.0105	.0
1	1.0533	349.8	.0055	173.8	1.0563	349.7	.0128	.1	.0545	325.0
2	.0223	51.5	.0649	239.7	.0226	52.5	.0260	322.0	.0040	57.5
3	.0099	245.5	.0011	130.7	.0091	231.8	.0034	329.1	.0024	140.5
4	.0047	288.1	.0015	133.1	.0046	289.1	.0028	242.5	.0005	233.4
5	.0045	85.4	.0004	102.4	.0047	85.2	.0012	276.9	.0008	18.9
6	.0085	232.0	.0025	31.8	.0084	232.3	.0015	223.8	.0037	229.4
7	.0012	359.6	.0003	180.8	.0013	353.1	.0006	107.2	.0004	300.5
8	.0003	354.7	.0002	213.0	.0003	354.5	.0003	109.5	.0001	214.9
9	.0003	169.2	.0001	81.1	.0003	168.9	.0004	314.4	.0001	160.7
10	.0003	351.4	.0002	320.8	.0003	352.4	.0002	313.2	.0002	284.7

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FILE: 69 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.1063	.0	.0831	.0	.1098	.0	.0547	.0	.0020	.0
1	.9753	352.3	.0286	351.6	.9780	352.2	.0210	169.8	.0411	309.1
2	.0085	344.3	.0618	244.5	.0090	332.6	.0224	325.6	.0009	309.7
3	.0155	270.6	.0016	182.6	.0140	263.9	.0018	24.7	.0032	139.5
4	.0050	264.2	.0021	131.8	.0050	263.6	.0020	264.1	.0004	202.9
5	.0039	33.5	.0009	107.2	.0041	32.7	.0006	209.5	.0007	356.3
6	.0027	28.1	.0009	247.9	.0027	27.6	.0011	80.9	.0003	304.4
7	.0012	84.7	.0003	211.1	.0012	88.5	.0006	298.2	.0001	351.2
8	.0003	127.8	.0001	83.5	.0003	124.9	.0006	291.5	.0002	.9
9	.0010	147.3	.0002	27.3	.0010	145.8	.0002	37.2	.0003	347.7
10	.0008	309.5	.0001	268.0	.0008	309.2	.0004	91.4	.0001	231.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 4 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5225	.0000	.1140	.0000	1.5073	.0000	.1940	.0000	-.0315	.0000
1	.0630	.4949	.0102	.0187	.0640	.4777	.0087	.1472	-.0032	-.0452
2	.2194	.1236	.0632	.0247	.2339	.1256	-.0589	-.0005	.0399	.0096
3	.0146	.0191	-.0008	.0156	.0148	.0229	-.0015	.0026	.0007	.0006
4	.0133	.0663	-.0213	.0210	.0169	.0690	-.0206	-.0071	.0150	.0091
5	-.0293	.0056	-.0090	.0118	-.0306	.0086	.0008	-.0098	-.0054	.0079
6	-.0049	.0157	.0025	.0087	-.0047	.0170	-.0043	-.0058	.0031	.0037
7	-.0309	-.0098	-.0117	.0057	-.0327	-.0083	.0041	-.0076	-.0067	.0064
8	.0056	-.0138	-.0035	-.0034	.0043	-.0143	.0043	-.0014	-.0043	-.0021
9	-.0013	-.0068	-.0028	-.0024	-.0018	-.0075	.0033	.0015	-.0024	-.0017
10	.0126	-.0068	.0022	-.0023	.0130	-.0072	-.0003	.0007	-.0003	-.0020

FILE: 58 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5969	.0000	.1513	.0000	1.5878	.0000	.2041	.0000	.0131	.0000
1	.0144	.7147	-.0025	.0731	.0140	.7019	.0105	.1442	-.0079	-.0336
2	.1148	.0742	.0619	.0152	.1313	.0753	-.0888	-.0002	.0383	.0063
3	-.0195	.0298	-.0091	.0359	-.0203	.0389	.0011	-.0207	-.0039	.0160
4	.0001	.0082	.0090	.0080	.0009	.0096	-.0114	-.0068	.0024	.0024
5	-.0111	.0013	-.0096	.0159	-.0130	.0050	.0065	-.0158	-.0048	.0071
6	.0027	-.0032	-.0051	-.0025	.0008	-.0038	.0055	.0010	-.0038	-.0030
7	-.0018	.0025	-.0033	.0029	-.0025	.0028	.0033	-.0024	.0006	-.0008
8	.0034	-.0011	-.0025	-.0028	.0028	-.0017	.0029	.0025	-.0000	-.0003
9	.0007	.0054	-.0004	.0008	.0006	.0054	.0006	.0004	.0001	.0005
10	-.0035	.0002	-.0025	-.0028	-.0039	-.0005	.0015	.0031	-.0009	-.0006

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 4 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5225	.0	.1140	.0	1.5073	.0	.1940	.0	.0315	.0
1	.4989	7.3	.0213	28.6	.4820	7.6	.1475	3.4	.0453	184.0
2	.2518	60.6	.0679	68.7	.2655	61.8	.0589	269.6	.0411	76.5
3	.0241	37.3	.0156	356.9	.0273	32.9	.0030	330.5	.0009	49.9
4	.0676	11.3	.0299	45.5	.0710	13.8	.0218	250.9	.0175	58.9
5	.0298	280.8	.0148	322.7	.0317	285.7	.0099	175.2	.0096	325.7
6	.0164	342.7	.0091	15.8	.0176	344.6	.0072	216.6	.0048	40.0
7	.0324	252.4	.0130	296.0	.0337	255.8	.0087	151.5	.0093	313.7
8	.0149	158.1	.0049	225.4	.0149	163.3	.0045	107.9	.0048	244.1
9	.0069	190.4	.0037	229.8	.0077	193.6	.0036	65.7	.0029	235.2
10	.0143	118.3	.0032	136.2	.0149	118.9	.0007	331.9	.0020	189.9

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FILE: 58 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5969	.0	.1513	.0	1.5878	.0	.2041	.0	.0131	.0
1	.7149	1.2	.0732	358.1	.7020	1.1	.1445	4.2	.0345	193.3
2	.1367	57.1	.0638	76.2	.1514	60.2	.0888	269.9	.0388	80.7
3	.0355	326.8	.0370	345.8	.0439	332.4	.0208	176.8	.0164	346.1
4	.0082	.6	.0120	48.5	.0096	5.3	.0132	239.1	.0034	45.9
5	.0111	276.8	.0185	329.0	.0139	291.1	.0171	157.5	.0086	326.2
6	.0042	140.7	.0057	244.1	.0039	167.6	.0056	80.1	.0048	231.7
7	.0031	324.0	.0044	311.2	.0037	318.2	.0041	125.9	.0010	143.7
8	.0036	107.8	.0037	221.2	.0033	121.5	.0038	50.0	.0003	190.2
9	.0054	7.0	.0009	334.4	.0054	6.1	.0007	57.0	.0005	6.3
10	.0035	272.9	.0037	221.1	.0040	262.1	.0034	25.6	.0011	237.4

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 5 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4584	.0000	.1118	.0000	1.4448	.0000	.1945	.0000	-.0326	.0000
1	.1210	.5626	.0085	.0357	.1201	.5478	.0230	.1396	-.0173	-.0398
2	.1568	.1811	.0517	.0233	.1702	.1805	-.0592	.0154	.0416	.0026
3	-.0128	.0556	.0045	.0284	-.0099	.0615	-.0165	-.0044	.0099	.0082
4	-.0563	.0436	-.0007	.0252	-.0557	.0483	-.0141	-.0168	.0051	.0179
5	-.0271	-.0260	-.0120	.0061	-.0294	-.0236	.0031	-.0133	-.0091	.0062
6	-.0045	-.0189	-.0074	.0027	-.0064	-.0180	.0066	-.0086	-.0061	.0042
7	.0196	-.0150	-.0054	-.0044	.0177	-.0157	.0102	.0002	-.0081	-.0050
8	.0150	.0113	.0010	-.0018	.0147	.0103	.0035	.0048	.0005	-.0055
9	-.0037	.0104	.0002	-.0010	-.0034	.0096	-.0010	.0049	.0028	-.0031
10	-.0042	.0041	.0011	.0003	-.0035	.0039	-.0034	.0008	.0029	.0002

FILE: 60 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5434	.0000	.1457	.0000	1.5338	.0000	.2054	.0000	.0201	.0000
1	.0315	.7534	-.0037	.0765	.0308	.7402	.0179	.1463	-.0138	-.0416
2	.0628	.1308	.0572	.0288	.0802	.1333	-.0975	-.0011	.0435	.0135
3	-.0549	.0057	-.0215	.0395	-.0593	.0171	.0019	-.0328	-.0094	.0201
4	.0086	-.0065	-.0014	.0056	.0063	-.0052	.0017	-.0108	-.0055	.0025
5	.0025	.0065	-.0107	.0070	-.0001	.0076	.0115	-.0056	-.0065	-.0015
6	-.0082	.0050	-.0034	-.0033	-.0089	.0038	.0010	.0042	.0032	-.0037
7	-.0016	-.0106	-.0029	.0009	-.0021	-.0102	.0026	-.0038	-.0004	.0035
8	.0087	.0021	-.0023	-.0039	.0078	.0011	.0047	.0042	-.0018	-.0018
9	-.0010	.0064	.0021	-.0018	-.0004	.0056	-.0024	.0035	.0008	-.0007
10	-.0045	-.0004	.0005	-.0000	-.0041	-.0003	-.0019	-.0002	.0007	-.0002

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0742) PITCHING AMPLITUDE = 8.0 DEG

FILE: 5 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4584	.0	.1118	.0	1.4448	.0	.1945	.0	.0326	.0
1	.5755	12.1	.0367	13.3	.5608	12.4	.1415	9.4	.0434	203.5
2	.2395	40.9	.0567	65.7	.2481	43.3	.0611	284.6	.0417	86.4
3	.0571	347.1	.0287	9.0	.0623	350.9	.0171	255.1	.0128	50.5
4	.0712	307.8	.0252	358.4	.0737	310.9	.0220	219.9	.0186	15.9
5	.0375	226.2	.0134	296.9	.0376	231.2	.0136	166.8	.0110	304.0
6	.0194	193.3	.0079	289.7	.0191	199.6	.0108	142.7	.0074	304.4
7	.0246	127.5	.0070	230.5	.0237	131.5	.0102	88.8	.0095	238.2
8	.0188	52.9	.0020	151.6	.0179	55.0	.0060	35.9	.0056	175.1
9	.0110	340.6	.0010	169.2	.0102	340.6	.0050	348.3	.0042	138.2
10	.0058	314.3	.0011	73.9	.0053	318.5	.0035	283.7	.0029	86.5

FILE: 60 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5434	.0	.1457	.0	1.5338	.0	.2054	.0	.0201	.0
1	.7540	2.4	.0766	357.2	.7409	2.4	.1474	7.0	.0439	198.4
2	.1451	25.7	.0641	63.3	.1555	31.0	.0975	269.3	.0456	72.8
3	.0572	275.8	.0450	331.4	.0617	286.1	.0328	176.7	.0222	335.0
4	.0108	126.9	.0057	345.6	.0082	129.5	.0110	170.9	.0060	294.3
5	.0070	21.1	.0128	303.2	.0076	359.0	.0128	115.7	.0067	256.7
6	.0096	301.5	.0048	225.3	.0097	293.4	.0043	14.0	.0049	139.0
7	.0107	188.7	.0030	286.9	.0104	191.5	.0045	145.6	.0036	353.2
8	.0089	76.7	.0045	210.0	.0079	82.3	.0063	48.2	.0025	225.6
9	.0064	350.7	.0028	129.7	.0056	356.2	.0043	325.6	.0010	130.0
10	.0045	265.2	.0005	90.7	.0041	266.3	.0019	264.7	.0007	104.2

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 6 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4872	.0000	.1088	.0000	1.4704	.0000	.2141	.0000	-.0230	.0000
1	.1563	.6325	.0164	.0345	.1564	.6150	.0224	.1584	-.0198	-.0429
2	.1022	.2001	.0493	.0331	.1176	.2011	-.0696	.0130	.0466	.0063
3	-.0362	.0529	-.0042	.0336	-.0346	.0605	-.0147	-.0124	.0053	.0137
4	-.0694	.0195	-.0077	.0208	-.0700	.0240	-.0109	-.0193	.0019	.0159
5	-.0084	-.0476	-.0147	.0028	-.0119	-.0457	.0107	-.0158	-.0127	.0089
6	.0118	-.0192	-.0033	-.0025	.0101	-.0199	.0080	-.0017	-.0121	-.0075
7	.0157	.0034	-.0015	-.0023	.0149	.0027	.0058	.0026	-.0017	-.0071
8	.0106	.0156	.0016	-.0021	.0108	.0146	.0008	.0060	.0032	-.0052
9	-.0122	.0109	.0009	.0020	-.0115	.0109	-.0039	.0021	.0071	.0010
10	-.0128	-.0063	-.0023	.0004	-.0127	-.0060	-.0021	-.0021	.0005	.0055

FILE: 61 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5458	.0000	.1410	.0000	1.5344	.0000	.2152	.0000	.0027	.0000
1	.0493	.7841	-.0002	.0762	.0493	.7700	.0182	.1544	-.0183	-.0432
2	.0255	.1460	.0505	.0363	.0427	.1497	-.0999	-.0045	.0447	.0152
3	-.0647	-.0137	-.0262	.0360	-.0679	-.0024	.0042	-.0344	-.0098	.0210
4	.0063	-.0081	-.0054	.0060	.0030	-.0069	.0065	-.0121	-.0098	.0021
5	.0051	.0120	-.0125	.0024	.0023	.0118	.0127	-.0000	-.0058	-.0061
6	-.0124	-.0019	-.0015	-.0037	-.0124	-.0029	-.0015	.0021	.0047	-.0001
7	.0073	-.0061	-.0038	.0008	.0063	-.0058	.0061	-.0026	-.0024	.0015
8	.0006	.0071	-.0007	-.0045	.0004	.0057	.0010	.0065	.0004	-.0011
9	-.0046	-.0021	.0013	.0007	-.0040	-.0023	-.0026	-.0000	-.0002	-.0002
10	.0039	-.0009	.0018	-.0016	.0042	-.0012	-.0006	.0012	.0006	-.0007

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0929) PITCHING AMPLITUDE = 8.0 DEG

FILE: 6 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4872	.0	.1088	.0	1.4704	.0	.2141	.0	.0230	.0
1	.6516	13.9	.0382	25.5	.6346	14.3	.1599	8.0	.0472	204.8
2	.2247	27.1	.0594	56.1	.2330	30.3	.0708	280.6	.0470	82.3
3	.0641	325.6	.0339	352.9	.0697	330.2	.0192	229.8	.0147	21.2
4	.0721	285.7	.0222	339.7	.0740	288.9	.0221	209.4	.0160	6.7
5	.0484	190.0	.0150	280.9	.0472	194.6	.0191	145.8	.0155	305.0
6	.0225	148.5	.0041	233.1	.0223	153.2	.0082	102.3	.0142	238.1
7	.0161	77.6	.0027	212.6	.0152	79.8	.0064	65.9	.0073	193.6
8	.0189	34.2	.0026	142.6	.0181	36.4	.0060	7.6	.0061	148.5
9	.0163	311.9	.0021	23.7	.0158	313.4	.0044	298.6	.0072	81.6
10	.0142	243.6	.0023	279.7	.0141	244.9	.0030	224.6	.0055	5.6

FILE: 61 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5458	.0	.1410	.0	1.5344	.0	.2152	.0	.0027	.0
1	.7857	3.6	.0762	359.9	.7716	3.7	.1555	6.7	.0469	202.9
2	.1482	9.9	.0622	54.3	.1557	15.9	.1000	267.4	.0472	71.3
3	.0661	258.0	.0445	324.0	.0680	268.0	.0346	173.0	.0231	335.1
4	.0103	142.1	.0081	318.4	.0075	156.3	.0138	151.9	.0100	281.9
5	.0130	23.1	.0127	280.6	.0120	10.9	.0127	90.2	.0085	223.5
6	.0126	261.1	.0040	201.9	.0128	256.8	.0026	322.9	.0047	91.6
7	.0095	129.9	.0038	281.6	.0085	132.8	.0067	113.1	.0029	301.3
8	.0071	4.9	.0046	188.2	.0057	3.8	.0065	8.5	.0012	161.2
9	.0051	245.2	.0015	117.2	.0046	239.8	.0026	269.6	.0003	315.8
10	.0040	103.5	.0024	131.6	.0044	105.3	.0014	331.4	.0009	139.2

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) FITCHING AMPLITUDE = 8.0 DEG

FILE: 16 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7739	.0000	.1209	.0000	1.7427	.0000	.2878	.0000	-.0548	.0000
1	.0913	.2836	.0054	-.0147	.0896	.2544	.0169	.1807	-.0067	-.0658
2	.1708	.0477	.0471	-.0003	.1842	.0449	-.0317	.0115	.0168	-.0071
3	.0789	-.0447	.0239	-.0249	.0827	-.0477	-.0094	.0244	.0167	-.0209
4	.0349	.0156	.0138	.0008	.0373	.0154	-.0022	.0057	.0058	.0003
5	.0342	.0100	.0172	-.0099	.0370	.0075	-.0099	.0143	.0128	-.0057
6	.0145	.0078	.0071	-.0020	.0165	.0072	-.0039	.0052	.0015	.0004
7	.0111	.0171	.0124	.0008	.0136	.0173	-.0096	.0028	.0093	.0001
8	.0050	.0085	.0017	.0011	.0053	.0088	-.0004	.0020	-.0008	-.0003
9	-.0070	.0186	.0047	.0025	-.0058	.0187	-.0064	.0015	.0061	.0008
10	-.0029	.0020	.0006	.0002	-.0026	.0021	-.0014	.0003	.0001	-.0001

FILE: 73 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0203	.0000	.1494	.0000	1.9814	.0000	.3543	.0000	-.0426	.0000
1	.0662	.5654	.0162	.0032	.0687	.5264	.0052	.2435	-.0053	-.0920
2	.1635	.0929	.0861	.0305	.1891	.0968	-.0848	-.0050	.0512	.0057
3	-.0013	.0196	.0025	-.0067	-.0009	.0208	-.0073	.0238	.0055	-.0024
4	.0091	.0165	.0226	.0126	.0144	.0186	-.0219	-.0079	.0118	.0081
5	.0038	-.0014	.0042	-.0087	.0045	-.0024	-.0050	.0088	-.0006	.0010
6	-.0025	.0009	.0109	.0055	.0004	-.0021	-.0115	-.0051	.0028	.0022
7	.0015	-.0051	.0042	-.0017	.0024	-.0047	-.0039	.0005	.0013	.0008
8	.0029	.0002	.0037	.0060	.0035	.0017	-.0022	-.0061	-.0008	.0032
9	.0052	.0061	.0016	.0002	.0053	.0060	-.0003	.0021	-.0008	-.0013
10	-.0107	.0031	.0004	.0053	-.0101	.0043	-.0035	-.0040	.0011	.0013

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 8.0 DEG

FILE: 16 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7739	.0	.1209	.0	1.7427	.0	.2878	.0	.0548	.0
1	.2979	17.8	.0156	159.7	.2698	19.4	.1815	5.3	.0662	185.8
2	.1774	74.4	.0471	90.3	.1896	76.3	.0337	289.9	.0182	112.8
3	.0907	119.5	.0346	136.2	.0955	120.0	.0261	338.9	.0268	141.3
4	.0382	65.9	.0139	86.9	.0404	67.6	.0061	339.0	.0058	86.7
5	.0356	73.7	.0199	119.8	.0378	78.5	.0174	325.3	.0140	114.1
6	.0164	61.7	.0074	105.4	.0180	66.5	.0064	323.3	.0015	74.6
7	.0204	32.9	.0124	86.2	.0220	38.3	.0100	286.1	.0093	89.3
8	.0098	30.4	.0021	56.8	.0102	31.1	.0021	347.6	.0009	248.5
9	.0198	339.3	.0054	61.9	.0196	342.7	.0065	283.5	.0061	82.3
10	.0035	304.4	.0007	68.4	.0034	308.8	.0014	284.2	.0001	141.8

FILE: 73 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0203	.0	.1494	.0	1.9814	.0	.3543	.0	.0426	.0
1	.5692	6.7	.0166	78.7	.5309	7.4	.2436	1.2	.0922	183.3
2	.1881	60.4	.0914	70.5	.2124	62.9	.0850	266.6	.0516	83.7
3	.0197	356.2	.0071	159.2	.0208	357.6	.0249	342.9	.0060	113.5
4	.0188	28.8	.0258	60.9	.0235	37.7	.0233	250.1	.0143	55.7
5	.0040	110.3	.0097	154.3	.0051	118.2	.0101	330.6	.0012	330.0
6	.0026	289.2	.0122	63.0	.0021	11.9	.0126	246.0	.0036	51.8
7	.0053	163.8	.0046	112.3	.0053	152.9	.0039	276.7	.0015	59.3
8	.0029	86.0	.0070	31.4	.0039	64.0	.0064	199.8	.0032	346.1
9	.0080	40.1	.0017	83.6	.0080	41.1	.0021	352.1	.0016	213.0
10	.0111	286.3	.0053	4.6	.0110	292.9	.0053	221.2	.0016	40.0

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 9.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 17 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.8071	.0000	.1310	.0000	1.7762	.0000	.2967	.0000	-.0517	.0000
1	.2081	.3574	.0125	-.0034	.2044	.3277	.0394	.1888	-.0287	-.0588
2	.1493	.1228	.0565	.0071	.1659	.1181	-.0458	.0282	.0302	-.0151
3	.0695	.0261	.0253	-.0069	.0748	.0253	-.0159	.0219	.0189	-.0146
4	-.0014	.0556	.0206	.0097	.0067	.0563	-.0192	.0072	.0148	.0039
5	-.0052	.0412	.0132	.0086	-.0019	.0425	-.0164	.0035	.0127	.0046
6	-.0251	.0143	.0039	.0079	-.0229	.0160	-.0119	-.0029	.0029	.0065
7	-.0273	.0063	.0013	.0091	-.0263	.0089	-.0092	-.0087	.0050	.0081
8	-.0120	-.0166	-.0047	.0012	-.0129	-.0154	.0008	-.0063	-.0031	.0062
9	-.0025	-.0071	-.0003	.0024	-.0028	-.0061	.0000	-.0052	-.0018	.0047
10	-.0028	-.0145	-.0045	-.0016	-.0042	-.0144	.0044	-.0024	-.0056	.0012

FILE: 75 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.9278	.0000	.1451	.0000	1.8907	.0000	.3399	.0000	-.0315	.0000
1	.1374	.5788	.0265	.0089	.1405	.5413	.0161	.2376	-.0093	-.0901
2	.1188	.1807	.0825	.0534	.1451	.1865	-.0923	-.0013	.0535	.0105
3	-.0473	.0251	-.0058	.0027	-.0466	.0285	-.0176	.0145	.0087	.0048
4	-.0115	-.0043	.0184	.0172	-.0065	.0002	-.0235	-.0219	.0050	.0168
5	.0189	-.0060	.0030	-.0005	.0182	-.0047	.0020	-.0017	-.0065	.0007
6	.0018	.0146	.0063	.0113	.0030	.0165	-.0053	-.0063	-.0003	.0004
7	-.0065	.0056	-.0016	.0010	-.0068	.0058	-.0009	.0013	.0010	-.0023
8	-.0110	-.0032	.0016	.0053	-.0101	-.0018	-.0051	-.0065	.0020	.0028
9	.0028	-.0096	-.0024	.0003	.0021	-.0088	.0029	-.0037	-.0019	.0012
10	.0087	-.0019	.0006	.0030	.0082	-.0012	.0024	-.0034	-.0008	.0001

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 8.0 DEG

FILE: 17 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.8071	.0	.1310	.0	1.7762	.0	.2967	.0	.0517	.0
1	.4136	30.2	.0129	105.1	.3863	32.0	.1929	11.8	.0655	206.0
2	.1933	50.6	.0569	82.8	.2036	54.5	.0538	301.7	.0337	116.6
3	.0743	69.4	.0262	105.2	.0790	71.3	.0271	324.0	.0239	127.6
4	.0556	1.4	.0228	64.7	.0567	6.7	.0205	290.5	.0153	75.3
5	.0415	352.8	.0158	56.8	.0425	357.5	.0168	282.0	.0135	70.1
6	.0288	299.7	.0088	26.6	.0279	305.0	.0122	256.5	.0071	23.9
7	.0280	282.9	.0092	7.8	.0278	288.7	.0127	226.7	.0095	31.5
8	.0205	215.8	.0049	284.9	.0201	219.9	.0064	173.0	.0069	333.1
9	.0075	199.3	.0024	352.8	.0067	204.4	.0052	179.6	.0050	339.1
10	.0148	190.9	.0048	250.6	.0150	196.3	.0051	118.8	.0058	281.7

FILE: 75 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.9278	.0	.1451	.0	1.8907	.0	.3399	.0	.0315	.0
1	.5949	13.3	.0280	71.4	.5593	14.5	.2382	3.9	.0905	185.9
2	.2163	33.3	.0983	57.1	.2363	37.9	.0923	269.2	.0545	78.9
3	.0535	297.9	.0064	295.1	.0546	301.4	.0228	309.6	.0099	60.9
4	.0123	249.4	.0252	46.9	.0065	271.9	.0322	227.0	.0176	16.5
5	.0198	107.7	.0030	100.4	.0188	104.5	.0027	130.8	.0066	276.0
6	.0147	7.2	.0130	29.2	.0168	10.2	.0083	219.9	.0005	322.7
7	.0086	310.9	.0018	301.7	.0089	310.4	.0016	323.8	.0025	157.0
8	.0114	253.7	.0056	16.4	.0103	259.8	.0082	218.1	.0035	36.0
9	.0100	163.6	.0024	276.0	.0091	166.7	.0047	142.3	.0023	302.4
10	.0089	102.3	.0030	12.2	.0083	98.2	.0041	144.7	.0008	280.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 18 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7949	.0000	.1320	.0000	1.7632	.0000	.2987	.0000	-.0456	.0000
1	.2853	.3944	.0221	-.0025	.2815	.3639	.0482	.1978	-.0311	-.0640
2	.1270	.1496	.0520	.0092	.1435	.1438	-.0451	.0378	.0342	-.0145
3	.0564	.0713	.0284	.0016	.0633	.0706	-.0236	.0251	.0225	-.0125
4	-.0358	.0494	.0177	.0137	-.0294	.0515	-.0276	.0026	.0184	.0098
5	-.0192	.0330	.0100	.0157	-.0156	.0367	-.0184	-.0061	.0105	.0101
6	-.0448	-.0242	-.0038	.0110	-.0445	-.0201	-.0096	-.0166	-.0003	.0103
7	.0016	-.0177	-.0025	.0023	.0001	-.0161	.0034	-.0091	-.0063	.0084
8	.0011	-.0114	-.0021	-.0005	.0002	-.0112	.0030	-.0028	-.0064	.0010
9	.0144	-.0026	.0005	-.0010	.0138	-.0028	.0039	-.0006	-.0051	-.0014
10	.0032	.0082	.0014	.0002	.0033	.0078	.0003	.0025	-.0011	-.0035

FILE: 53 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.9152	.0000	.1257	.0000	1.8730	.0000	.3595	.0000	-.0527	.0000
1	.1776	.6117	.0216	.0051	.1777	.5706	.0310	.2483	-.0197	-.0976
2	.0854	.2123	.0887	.0458	.1155	.2139	-.1078	.0160	.0656	.0033
3	-.0637	.0154	.0037	.0167	-.0591	.0236	-.0323	-.0028	.0156	.0187
4	-.0186	-.0052	.0062	.0245	-.0170	.0020	-.0133	-.0294	-.0065	.0189
5	.0129	-.0084	-.0009	-.0003	.0111	-.0074	.0037	-.0034	-.0064	-.0016
6	.0078	.0111	.0022	.0100	.0079	.0126	-.0001	-.0058	-.0027	.0010
7	-.0086	.0138	-.0015	.0012	-.0087	.0137	-.0021	.0027	.0010	-.0032
8	-.0094	-.0117	-.0014	.0044	-.0094	-.0102	-.0018	-.0080	.0006	.0023
9	.0097	-.0025	-.0008	-.0013	.0088	-.0026	.0037	.0002	-.0002	-.0008
10	-.0019	.0030	-.0009	.0022	-.0021	.0031	.0008	-.0009	.0004	.0000

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0939) PITCHING AMPLITUDE = 8.0 DEG

FILE: 18 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7949	.0	.1320	.0	1.7632	.0	.2987	.0	.0456	.0
1	.4868	35.9	.0222	96.4	.4601	37.7	.2036	13.7	.0711	205.9
2	.1962	40.3	.0528	80.0	.2031	44.9	.0588	310.0	.0372	113.0
3	.0909	38.3	.0284	86.8	.0949	41.9	.0344	316.8	.0258	119.1
4	.0610	324.1	.0224	52.4	.0593	330.2	.0277	275.4	.0209	62.0
5	.0382	329.8	.0186	32.6	.0399	336.9	.0194	251.8	.0145	46.1
6	.0509	241.6	.0117	341.1	.0488	245.7	.0192	209.9	.0103	358.3
7	.0178	174.8	.0034	312.5	.0161	179.7	.0097	159.4	.0105	323.0
8	.0115	174.3	.0022	256.0	.0113	178.8	.0041	132.7	.0065	279.1
9	.0146	100.2	.0011	154.8	.0141	101.3	.0040	98.6	.0053	255.0
10	.0089	21.5	.0014	82.1	.0085	23.0	.0025	6.3	.0037	198.0

FILE: 53 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.9152	.0	.1257	.0	1.8730	.0	.3595	.0	.0527	.0
1	.6370	16.2	.0222	76.8	.5977	17.3	.2503	7.1	.0995	191.4
2	.2288	21.9	.0998	62.7	.2430	28.4	.1089	278.4	.0657	87.1
3	.0655	283.6	.0171	12.3	.0636	291.8	.0324	265.0	.0243	39.7
4	.0193	254.5	.0253	14.3	.0171	276.6	.0323	204.4	.0200	341.0
5	.0154	123.0	.0009	252.9	.0133	123.7	.0050	132.6	.0065	256.3
6	.0136	35.3	.0102	12.6	.0148	32.1	.0058	181.2	.0029	290.1
7	.0163	328.0	.0019	307.5	.0163	327.7	.0034	322.9	.0034	163.0
8	.0150	218.9	.0046	341.8	.0139	222.7	.0083	192.8	.0024	14.2
9	.0100	104.4	.0015	210.3	.0092	106.1	.0037	86.6	.0008	192.5
10	.0035	327.0	.0023	338.4	.0038	325.8	.0012	141.2	.0004	86.6

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 10 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0408	.0000	.1299	.0000	1.9834	.0000	.3996	.0000	-.0882	.0000
1	.1527	.0419	.0221	-.0871	.1525	-.0095	.0185	.2275	-.0071	-.0790
2	.0670	.0096	.0168	-.0034	.0793	.0068	-.0034	.0140	-.0112	-.0121
3	.0342	-.0646	.0108	-.0260	.0364	-.0682	-.0062	.0146	.0073	-.0153
4	-.0149	-.0485	-.0138	-.0154	-.0170	-.0500	.0133	.0050	-.0124	-.0108
5	-.0002	-.0216	-.0054	.0003	-.0016	-.0214	.0074	-.0066	-.0052	.0025
6	.0060	-.0210	-.0067	-.0085	.0043	-.0225	.0072	.0033	-.0055	-.0089
7	-.0077	-.0138	-.0091	.0003	-.0095	-.0133	.0077	-.0043	-.0087	.0016
8	-.0004	-.0051	-.0017	-.0005	-.0015	-.0051	.0029	-.0012	.0003	-.0010
9	.0003	-.0132	-.0059	-.0029	-.0011	-.0140	.0060	.0003	-.0068	-.0009
10	-.0059	-.0026	.0001	.0019	-.0058	-.0023	-.0007	-.0023	.0010	.0031

FILE: 67 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0811	.0000	.1604	.0000	2.0234	.0000	.4185	.0000	-.0356	.0000
1	.1318	.2696	.0074	-.0666	.1279	.2134	.0329	.2628	-.0167	-.1072
2	.1901	.0837	.0650	.0053	.2118	.0792	-.0289	.0241	.0257	-.0119
3	.0092	-.0044	.0151	-.0283	.0142	-.0096	-.0171	.0398	.0139	-.0167
4	.0121	-.0045	-.0054	.0017	.0116	-.0032	.0104	-.0026	-.0023	.0016
5	.0033	.0162	.0044	-.0095	.0042	.0132	-.0035	.0140	.0054	-.0093
6	-.0030	-.0086	-.0088	-.0012	-.0047	-.0081	.0082	-.0011	-.0006	.0015
7	.0015	.0149	-.0023	-.0011	.0005	.0138	.0034	.0058	.0009	-.0027
8	-.0099	.0002	-.0085	-.0022	-.0116	-.0005	.0047	.0026	-.0010	.0007
9	-.0049	.0022	-.0034	-.0033	-.0056	.0009	.0016	.0033	-.0007	-.0025
10	-.0068	-.0046	-.0017	-.0030	-.0066	-.0052	-.0007	.0011	.0015	.0002

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 8.0 DEG

FILE: 10 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0408	.0	.1299	.0	1.9834	.0	.3996	.0	.0882	.0
1	.1583	74.6	.0898	165.8	.1528	93.5	.2282	4.6	.0793	185.1
2	.0677	81.9	.0171	101.5	.0796	85.1	.0144	346.4	.0165	222.9
3	.0731	152.1	.0282	157.4	.0773	151.9	.0159	337.0	.0169	154.5
4	.0507	197.1	.0207	221.8	.0528	198.7	.0142	69.5	.0165	229.1
5	.0216	180.6	.0054	273.1	.0215	184.4	.0099	131.6	.0058	295.7
6	.0219	164.1	.0108	218.2	.0229	169.1	.0079	65.3	.0104	211.6
7	.0158	209.1	.0091	271.8	.0163	215.5	.0088	119.2	.0089	280.4
8	.0051	184.7	.0018	253.6	.0053	196.4	.0031	112.6	.0011	162.8
9	.0133	178.6	.0066	243.5	.0140	184.7	.0060	86.7	.0068	262.7
10	.0065	246.2	.0019	4.2	.0062	248.3	.0024	196.5	.0033	17.8

FILE: 67 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0811	.0	.1604	.0	2.0234	.0	.4185	.0	.0356	.0
1	.3001	26.1	.0670	173.6	.2488	30.9	.2649	7.1	.1085	188.8
2	.2077	66.2	.0652	85.3	.2262	69.5	.0376	309.9	.0283	114.8
3	.0102	115.8	.0321	151.9	.0172	124.0	.0433	336.8	.0217	140.1
4	.0129	110.6	.0057	287.4	.0120	105.2	.0107	103.9	.0029	304.9
5	.0166	11.5	.0104	155.0	.0139	17.7	.0144	345.9	.0108	150.2
6	.0091	199.2	.0089	262.5	.0094	210.4	.0083	97.7	.0016	338.0
7	.0150	5.6	.0026	244.1	.0138	2.0	.0068	30.6	.0028	161.2
8	.0099	270.9	.0087	255.6	.0116	267.4	.0054	61.4	.0013	303.5
9	.0054	294.0	.0047	225.2	.0056	279.1	.0037	26.4	.0026	194.7
10	.0082	235.9	.0035	209.4	.0085	231.7	.0013	327.2	.0016	82.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 11 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0273	.0000	.1292	.0000	1.9689	.0000	.4043	.0000	-.0748	.0000
1	.3027	.1230	.0328	-.0827	.2976	.0699	.0474	.2412	-.0278	-.0851
2	.0748	.0329	.0238	-.0050	.0887	.0271	-.0137	.0286	.0025	-.0184
3	.0762	-.0380	.0165	-.0379	.0791	-.0449	-.0033	.0298	.0103	-.0267
4	.0261	-.0388	.0002	-.0183	.0260	-.0416	.0110	.0098	-.0048	-.0120
5	.0417	.0113	.0069	-.0089	.0419	.0078	.0064	.0127	.0036	-.0091
6	.0280	-.0109	.0026	-.0117	.0286	-.0137	.0035	.0104	.0001	-.0111
7	.0174	.0182	.0014	-.0013	.0175	.0174	.0039	.0060	-.0001	-.0050
8	.0186	.0042	.0043	-.0049	.0191	.0027	.0009	.0066	.0036	-.0078
9	.0058	.0090	.0005	.0006	.0057	.0088	.0016	.0020	.0002	-.0031
10	.0178	.0134	.0040	-.0020	.0180	.0121	.0015	.0059	.0029	-.0054

286

FILE: 77 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0347	.0000	.1370	.0000	1.9690	.0000	.4354	.0000	-.0386	.0000
1	.2452	.3231	.0279	-.0774	.2422	.2597	.0473	.2863	-.0210	-.1291
2	.1579	.1497	.0768	.0193	.1853	.1455	-.0499	.0351	.0424	-.0130
3	.0137	.0275	.0203	-.0232	.0201	.0224	-.0235	.0437	.0212	-.0132
4	-.0147	.0238	.0078	.0077	-.0100	.0256	-.0121	.0017	.0103	.0039
5	-.0140	.0060	.0037	-.0043	-.0123	.0056	-.0098	.0059	.0065	.0041
6	-.0111	-.0150	-.0051	-.0015	-.0117	-.0141	.0010	-.0034	-.0015	.0026
7	.0040	-.0123	-.0011	-.0054	.0031	-.0131	.0030	.0006	-.0013	.0026
8	.0133	-.0022	-.0012	-.0044	.0123	-.0036	.0060	.0040	-.0034	-.0028
9	-.0030	.0110	.0015	-.0018	-.0022	.0099	-.0028	.0055	.0028	-.0009
10	-.0041	-.0101	-.0022	-.0023	-.0045	-.0102	.0004	-.0013	-.0020	.0009

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0751) PITCHING AMPLITUDE = 8.0 DEG

FILE: 11 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0273	.0	.1292	.0	1.9689	.0	.4043	.0	.0748	.0
1	.3267	67.9	.0889	158.4	.3076	76.9	.2458	11.1	.0895	198.1
2	.0817	66.3	.0243	101.7	.0928	73.0	.0317	334.5	.0185	172.4
3	.0851	116.5	.0414	156.5	.0910	119.6	.0299	353.7	.0286	159.0
4	.0468	146.1	.0183	179.3	.0490	148.0	.0148	48.3	.0129	201.9
5	.0432	74.9	.0113	142.0	.0426	79.4	.0142	26.7	.0098	158.6
6	.0300	111.2	.0120	167.2	.0317	115.5	.0110	18.6	.0111	179.5
7	.0252	43.7	.0018	133.0	.0247	45.1	.0072	33.0	.0050	181.5
8	.0191	77.2	.0065	138.4	.0193	82.0	.0067	7.5	.0085	155.3
9	.0107	32.5	.0008	40.1	.0105	33.0	.0026	38.4	.0031	177.1
10	.0222	53.1	.0045	116.6	.0217	56.0	.0060	14.1	.0061	152.2

FILE: 77 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0347	.0	.1370	.0	1.9690	.0	.4354	.0	.0386	.0
1	.4056	37.2	.0823	160.2	.3551	43.0	.2902	9.4	.1308	189.2
2	.2176	46.5	.0792	75.9	.2356	51.9	.0610	305.2	.0444	107.0
3	.0307	26.5	.0308	138.8	.0301	41.9	.0496	331.7	.0250	122.0
4	.0280	328.4	.0109	45.5	.0274	338.7	.0122	278.0	.0110	69.2
5	.0152	293.3	.0057	139.8	.0135	294.5	.0115	301.0	.0077	58.1
6	.0187	216.4	.0054	253.5	.0184	219.8	.0035	164.0	.0030	329.7
7	.0130	162.0	.0055	191.1	.0135	166.7	.0031	78.9	.0029	333.6
8	.0135	99.3	.0045	195.0	.0129	106.3	.0072	56.3	.0044	230.5
9	.0114	344.6	.0023	139.1	.0102	347.6	.0062	333.2	.0029	107.9
10	.0109	202.3	.0032	223.1	.0111	203.8	.0013	160.6	.0022	294.5

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 12 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0759	.0000	.1432	.0000	2.0175	.0000	.4183	.0000	-.0100	.0000
1	.3481	.2304	.0251	-.0652	.3411	.1769	.0659	.2551	-.0446	-.0891
2	.1022	.0250	.0371	-.0118	.1190	.0170	-.0231	.0350	.0148	-.0232
3	.0978	.0158	.0160	-.0293	.0997	.0090	.0050	.0382	.0073	-.0276
4	.0361	-.0170	.0106	-.0202	.0384	-.0218	.0020	.0188	.0047	-.0152
5	.0403	.0361	.0123	-.0098	.0425	.0317	.0013	.0211	.0077	-.0134
6	.0230	.0033	.0077	-.0037	.0256	.0018	-.0036	.0076	.0118	-.0090
7	.0064	.0234	.0051	-.0004	.0079	.0228	-.0028	.0071	.0070	-.0053
8	.0098	.0126	.0051	.0029	.0109	.0130	-.0023	.0013	.0061	.0001
9	-.0026	.0146	.0006	.0022	-.0023	.0148	-.0013	.0024	.0046	-.0001
10	-.0039	.0098	.0005	.0030	-.0038	.0102	-.0013	-.0001	.0038	.0011

FILE: 78 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0711	.0000	.1511	.0000	2.0075	.0000	.4416	.0000	-.0610	.0000
1	.3353	.3944	.0274	-.0565	.3275	.3325	.0739	.2918	-.0296	-.1309
2	.0931	.1953	.0778	.0125	.1238	.1853	-.0722	.0600	.0553	-.0209
3	-.0017	.0389	.0244	-.0103	.0082	.0374	-.0366	.0322	.0288	-.0001
4	-.0399	.0097	.0079	.0051	-.0340	.0121	-.0229	-.0012	.0070	.0081
5	-.0034	-.0187	.0043	-.0031	-.0020	-.0171	-.0075	-.0060	.0018	.0085
6	.0211	-.0086	.0023	-.0038	.0201	-.0087	.0057	-.0003	-.0058	-.0026
7	.0114	.0275	.0055	-.0012	.0124	.0255	-.0010	.0109	.0033	-.0033
8	-.0211	.0081	.0007	.0025	-.0193	.0086	-.0091	.0006	.0035	.0034
9	-.0025	-.0160	-.0015	-.0015	-.0031	-.0151	.0007	-.0053	-.0025	.0038
10	.0147	.0079	.0023	-.0010	.0144	.0070	.0032	.0039	-.0024	-.0026

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 8.0 DEG

FILE: 12 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0759	.0	.1432	.0	2.0175	.0	.4183	.0	.0100	.0
1	.4175	56.5	.0698	159.0	.3842	62.6	.2634	14.5	.0996	206.6
2	.1052	76.2	.0390	107.6	.1202	81.9	.0420	326.5	.0276	147.5
3	.0991	80.8	.0334	151.4	.1001	84.8	.0385	7.4	.0285	165.2
4	.0399	115.2	.0228	152.3	.0441	119.6	.0189	6.0	.0159	163.0
5	.0541	48.2	.0157	128.7	.0530	53.3	.0211	3.5	.0155	149.9
6	.0233	82.0	.0086	115.3	.0256	86.0	.0084	334.8	.0148	127.2
7	.0243	15.2	.0051	94.3	.0241	19.2	.0076	338.4	.0088	127.3
8	.0159	37.9	.0059	59.9	.0170	40.1	.0027	299.1	.0061	89.4
9	.0148	349.8	.0023	14.3	.0150	351.0	.0027	331.8	.0046	91.4
10	.0105	338.3	.0030	9.9	.0109	339.6	.0013	266.8	.0039	74.5

FILE: 78 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0711	.0	.1511	.0	2.0075	.0	.4416	.0	.0610	.0
1	.5177	40.4	.0628	154.2	.4667	44.6	.3010	14.2	.1342	192.8
2	.2164	25.5	.0788	80.9	.2228	33.8	.0939	309.7	.0591	110.7
3	.0389	357.6	.0265	112.9	.0383	12.3	.0488	311.3	.0288	90.2
4	.0410	283.6	.0094	57.4	.0361	289.6	.0229	267.1	.0107	40.8
5	.0190	190.2	.0053	125.8	.0172	186.8	.0096	231.3	.0087	12.2
6	.0228	112.1	.0044	149.3	.0219	113.4	.0057	93.1	.0064	245.5
7	.0298	22.5	.0056	102.0	.0283	25.8	.0110	354.6	.0047	135.5
8	.0224	290.9	.0026	15.4	.0211	294.2	.0092	273.8	.0049	45.5
9	.0162	189.0	.0021	225.8	.0154	191.6	.0053	172.6	.0045	326.9
10	.0167	61.8	.0025	113.1	.0160	63.9	.0050	39.4	.0035	223.8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

TABLE 10
(Notes 1 and 2)

INTEGRATED LOADS: $M_c=0.40$, $\bar{\alpha}=10$ deg

M	k_c (Note 3)	Page in Ref. 2 (Note 4)	Pages
0	.037	33	292-293
0	.075	35	294-295
0	.093	37	296-297
9	.037	39	298-299
9	.075	41	300-301
9	.093	43	302-303
12	.037	45	304-305
12	.075	47	306-307
12	.093	49	308-309
15	.037	51	310-311
15	.075	53	312-313
15	.093	55	314-315

Notes:

1. The unswept and swept counterparts are on the same page with the A,B and C,P coefficients appearing on opposite pages.
2. The file numbers appearing in these listings refer to their location on the data tape in NASA's possession. The file numbering system of Ref. 2 is obsolete and cross-referencing between this document and Ref. 2 is indicated above via the page numbers.
3. Nominal values
4. Pages here refer to the C_N loops of Ref. 2. To obtain corresponding C_c , C_L , C_D and C_M paging use:

$$\text{PAGE } C_c = \text{PAGE } C_N + 50; \text{ PAGE } C_L = \text{PAGE } C_N + 100$$

$$\text{PAGE } C_D = \text{PAGE } C_N + 150; \text{ PAGE } C_M = \text{PAGE } C_N + 200$$

Example: If C_N is on page 8 of Ref. 2, then C_c is on page 58, C_L is on page 108, and so on.

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

FILE: 28 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0893	.0000	.1152	.0000	.0887	.0000	.1108	.0000	-.0127	.0000
1	-.1067	1.2929	.0021	.0000	-.1083	1.2963	.0012	.0058	-.0171	.0627
2	.0324	.0251	-.0923	-.0223	.0322	.0251	-.0193	.0167	.0045	.0022
3	-.0324	.0134	-.0019	-.0017	-.0309	.0103	-.0016	.0064	.0030	-.0047
4	-.0067	.0032	-.0019	-.0051	-.0064	.0030	.0010	.0001	.0005	.0002
5	.0136	-.0034	.0003	-.0011	.0140	-.0036	-.0009	.0011	-.0005	-.0002
6	-.0010	-.0027	.0012	.0025	-.0008	-.0027	-.0016	-.0003	-.0001	-.0003
7	-.0065	.0003	.0004	-.0001	-.0067	.0004	-.0000	-.0010	.0001	.0006
8	.0010	.0007	-.0000	-.0007	.0010	.0008	-.0002	-.0002	.0001	.0001
9	.0011	.0006	-.0004	.0001	.0011	.0006	-.0000	.0004	-.0000	-.0003
10	.0006	-.0005	-.0001	.0001	.0006	-.0005	.0008	.0003	.0000	-.0001

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0373) PITCHING AMPLITUDE = 10.0 DEG

FILE: 28 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (F)

H	CN		CS		CL		CD		CM	
	C	F	C	F	C	F	C	F	C	F
0	.0893	.0	.1152	.0	.0887	.0	.1108	.0	.0127	.0
1	1.2973	355.3	.0021	88.9	1.3008	355.2	.0059	11.7	.0649	344.7
2	.0409	52.2	.0949	256.4	.0408	52.0	.0255	310.9	.0050	64.2
3	.0350	292.4	.0026	227.7	.0326	288.4	.0066	345.9	.0056	147.9
4	.0074	295.2	.0055	199.8	.0071	295.1	.0010	85.6	.0005	71.9
5	.0140	104.0	.0011	162.0	.0144	104.5	.0014	319.8	.0006	249.5
6	.0029	199.2	.0027	26.2	.0028	196.9	.0017	260.9	.0003	204.6
7	.0065	272.7	.0004	99.9	.0067	273.7	.0010	181.0	.0006	11.0
8	.0013	54.8	.0007	181.0	.0013	52.3	.0002	219.1	.0001	55.3
9	.0013	62.5	.0004	286.2	.0013	61.3	.0004	355.3	.0003	182.1
10	.0008	131.8	.0002	316.7	.0008	131.9	.0009	73.1	.0001	161.9

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

FILE: 29 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.0391	.0000	.1290	.0000	.0386	.0000	.0976	.0000	-.0091	.0000
1	-.1848	1.2897	.0007	-.0005	-.1877	1.2938	.0010	.0045	-.0344	.0620
2	.0303	.0229	-.0890	-.0394	.0301	.0226	-.0245	.0278	.0046	.0026
3	-.0368	-.0103	-.0001	-.0017	-.0341	-.0132	-.0026	.0057	.0047	-.0026
4	-.0012	.0019	.0014	-.0055	-.0009	.0019	-.0002	-.0009	-.0005	.0005
5	.0107	.0052	.0001	-.0011	.0111	.0052	-.0011	.0012	.0010	-.0013
6	.0008	-.0031	.0001	.0028	.0010	-.0031	-.0006	-.0010	.0001	.0001
7	-.0010	-.0026	.0007	.0003	-.0012	-.0026	.0002	-.0005	-.0013	.0007
8	.0012	.0009	-.0005	-.0006	.0011	.0009	-.0003	.0004	.0004	.0002
9	.0007	-.0017	-.0005	-.0002	.0007	-.0017	-.0000	.0002	.0007	.0000
10	.0000	.0001	.0001	.0004	.0000	.0000	.0008	-.0000	.0002	-.0003

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0747) PITCHING AMPLITUDE = 10.0 DEG

FILE: 29 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.0391	.0	.1290	.0	.0386	.0	.0976	.0	.0091	.0
1	1.3029	351.8	.0009	124.3	1.3074	351.7	.0046	13.0	.0709	331.0
2	.0380	53.0	.0974	246.1	.0377	53.1	.0370	318.7	.0053	60.5
3	.0382	254.4	.0017	182.6	.0366	248.9	.0062	335.6	.0053	118.9
4	.0022	328.0	.0056	165.7	.0021	333.3	.0009	190.3	.0007	314.3
5	.0119	64.1	.0011	176.6	.0123	64.8	.0016	318.3	.0016	140.5
6	.0032	164.9	.0028	1.8	.0032	162.3	.0012	213.3	.0001	25.4
7	.0028	200.5	.0008	67.0	.0028	204.8	.0005	161.8	.0015	297.5
8	.0015	53.7	.0008	217.5	.0015	50.4	.0005	329.6	.0005	60.2
9	.0018	158.3	.0005	251.2	.0019	156.4	.0002	350.6	.0007	88.5
10	.0001	40.7	.0004	8.8	.0001	46.9	.0008	92.0	.0004	144.0

30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 30 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	.1106	.0000	.1240	.0000	.1094	.0000	.1025	.0000	-.0107	.0000
1	-.2110	1.2903	.0006	.0001	-.2144	1.2938	.0006	.0136	-.0427	.0619
2	.0287	.0264	-.0869	-.0463	.0288	.0260	-.0263	.0320	.0040	.0030
3	-.0324	-.0144	.0004	-.0014	-.0293	-.0172	-.0025	-.0066	.0048	-.0012
4	-.0052	.0063	.0017	-.0056	-.0049	.0062	-.0002	-.0003	-.0011	-.0001
5	.0114	.0062	.0010	-.0016	.0119	.0062	-.0022	.0003	.0023	-.0002
6	-.0035	.0021	.0014	.0024	-.0034	.0022	-.0021	-.0005	-.0028	.0016
7	.0023	-.0000	-.0002	.0003	.0021	.0001	.0005	.0002	-.0013	.0004
8	.0001	-.0001	-.0003	-.0008	.0002	-.0001	-.0002	.0007	.0001	.0005
9	.0006	-.0008	-.0003	-.0002	.0006	-.0008	-.0004	-.0003	.0003	.0000
10	-.0002	.0005	.0000	.0003	-.0002	.0005	.0002	.0000	.0002	-.0001

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30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = .0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 30 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	.1106	.0	.1240	.0	.1094	.0	.1025	.0	.0107	.0
1	1.3074	350.7	.0006	81.3	1.3114	350.6	.0136	2.5	.0752	325.4
2	.0390	47.4	.0984	241.9	.0387	47.9	.0414	320.5	.0050	53.4
3	.0355	246.0	.0014	165.4	.0339	239.6	.0070	338.9	.0050	104.1
4	.0081	320.5	.0059	163.0	.0079	321.5	.0004	221.1	.0011	264.1
5	.0130	61.5	.0019	146.3	.0134	62.5	.0023	278.6	.0024	94.4
6	.0041	300.4	.0027	30.3	.0040	303.4	.0021	257.7	.0032	299.8
7	.0023	90.4	.0003	324.3	.0021	86.6	.0006	66.9	.0013	285.6
8	.0002	122.7	.0008	198.6	.0002	127.6	.0007	347.5	.0005	12.4
9	.0010	145.1	.0004	235.9	.0010	141.5	.0005	227.7	.0003	82.5
10	.0005	335.3	.0003	4.6	.0005	333.1	.0002	79.9	.0002	113.4

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30 DEGREE SWEEP DATA WERE NOT OBTAINED

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 40 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.3713	.0000	.0811	.0000	1.3445	.0000	.2268	.0000	-.0597	.0000
1	.0671	.5343	.0060	.0013	.0662	.5093	.0158	.1782	-.0117	-.0525
2	.2314	.1254	.0508	.0125	.2478	.1242	-.0554	.0120	.0314	-.0022
3	.0323	.0113	.0067	.0143	.0348	.0147	-.0077	.0074	.0086	-.0041
4	.0148	.0626	.0198	.0205	.0181	.0655	-.0171	-.0065	.0126	.0095
5	-.0087	.0189	-.0018	.0093	-.0092	.0210	-.0026	-.0034	-.0011	.0028
6	-.0197	.0250	.0024	.0111	-.0188	.0265	-.0080	-.0054	.0056	.0063
7	-.0205	-.0052	-.0048	.0056	-.0209	-.0034	-.0015	-.0070	-.0028	.0046
8	-.0155	-.0047	-.0040	.0044	-.0165	-.0035	.0009	-.0067	-.0007	.0044
9	-.0045	-.0185	-.0047	-.0009	-.0056	-.0184	.0035	-.0032	-.0046	.0024
10	.0065	-.0106	-.0022	-.0003	.0058	-.0105	.0037	-.0024	-.0046	.0012

FILE: 84 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5265	.0000	.1390	.0000	1.5071	.0000	.2639	.0000	.0001	.0000
1	.0125	.9011	-.0042	.0788	.0115	.8800	.0145	.1860	-.0103	-.0484
2	.1269	.0882	.0536	.0140	.1461	.0887	-.1062	.0034	.0429	.0058
3	-.0142	.0184	-.0096	.0261	-.0150	.0261	-.0013	-.0096	-.0025	.0094
4	.0078	.0197	.0243	.0077	.0119	.0203	-.0244	-.0036	.0112	.0029
5	-.0112	.0077	-.0041	.0196	-.0115	.0129	.0004	-.0172	-.0018	.0120
6	-.0015	.0060	-.0002	.0065	-.0025	.0074	-.0015	-.0058	-.0047	.0028
7	-.0072	-.0046	-.0071	.0060	-.0088	-.0034	.0053	-.0071	-.0045	-.0005
8	.0023	.0009	-.0012	-.0002	.0017	.0007	.0016	-.0001	-.0000	-.0023
9	-.0027	-.0007	-.0044	.0030	-.0037	-.0001	.0038	-.0034	-.0005	.0001
10	.0020	.0003	-.0022	-.0034	.0014	-.0005	.0027	.0031	.0005	-.0011

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

FILE: 40 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.3713	.0	.0811	.0	1.3445	.0	.2268	.0	.0597	.0
1	.5385	7.2	.0062	77.9	.5136	7.4	.1789	5.1	.0538	192.6
2	.2632	61.6	.0524	76.2	.2772	63.4	.0566	282.2	.0315	94.0
3	.0343	70.7	.0158	25.3	.0378	67.0	.0106	313.8	.0095	115.4
4	.0643	13.3	.0285	44.0	.0679	15.4	.0183	249.1	.0158	53.0
5	.0208	335.1	.0095	349.2	.0230	336.4	.0043	217.1	.0030	338.8
6	.0318	321.8	.0113	12.3	.0325	324.6	.0097	235.8	.0085	41.9
7	.0211	255.7	.0073	319.3	.0212	260.7	.0072	192.1	.0054	328.9
8	.0162	253.2	.0059	317.2	.0168	258.0	.0067	172.0	.0045	351.3
9	.0191	193.6	.0048	258.9	.0192	196.8	.0047	132.4	.0052	297.2
10	.0124	148.5	.0022	263.5	.0120	151.2	.0044	123.0	.0048	285.0

FILE: 84 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5265	.0	.1390	.0	1.5071	.0	.2639	.0	.0001	.0
1	.9012	.8	.0789	356.9	.8801	.7	.1865	4.5	.0494	192.0
2	.1546	55.2	.0554	75.4	.1709	58.7	.1063	271.8	.0433	82.4
3	.0232	322.5	.0278	339.8	.0301	330.1	.0097	172.5	.0098	345.2
4	.0212	21.7	.0255	72.5	.0236	30.4	.0247	261.6	.0116	75.6
5	.0136	304.7	.0200	348.2	.0173	318.3	.0173	178.6	.0121	351.4
6	.0062	345.6	.0065	358.2	.0078	341.4	.0060	194.7	.0055	301.1
7	.0086	237.4	.0093	310.0	.0094	249.0	.0089	143.6	.0045	263.7
8	.0024	68.9	.0012	261.4	.0019	67.9	.0016	92.2	.0023	180.3
9	.0028	256.2	.0054	304.4	.0037	269.1	.0051	131.5	.0005	280.0
10	.0020	80.7	.0040	213.2	.0015	111.8	.0041	40.3	.0012	155.6

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 41 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.3332	.0000	.0851	.0000	1.3080	.0000	.2305	.0000	-.0489	.0000
1	.1440	.6242	.0101	.0197	.1420	.6010	.0305	.1787	-.0260	-.0532
2	.1352	.2075	.0374	.0196	.1510	.2048	-.0642	.0274	.0400	-.0051
3	-.0095	.0247	.0051	.0204	-.0053	.0295	-.0201	-.0007	.0120	.0032
4	-.0352	.0573	.0091	.0261	-.0327	.0622	-.0180	-.0149	.0115	.0164
5	-.0292	-.0114	-.0110	.0129	-.0312	-.0074	-.0003	-.0160	-.0066	.0119
6	-.0197	-.0207	-.0095	.0046	-.0219	-.0193	.0040	-.0108	-.0073	.0065
7	.0102	-.0279	-.0066	-.0034	.0080	-.0278	.0095	-.0053	-.0092	-.0025
8	.0198	-.0009	-.0020	-.0030	.0182	-.0019	.0088	.0025	-.0041	-.0047
9	.0079	.0055	.0000	-.0038	.0077	.0038	.0025	.0068	.0014	-.0076
10	.0025	.0087	.0024	-.0006	.0034	.0081	-.0027	.0036	.0052	-.0016

FILE: 86 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4618	.0000	.1195	.0000	1.4368	.0000	.2793	.0000	-.0198	.0000
1	.0270	.9397	-.0016	.0645	.0267	.9134	.0179	.2035	-.0195	-.0591
2	.0945	.1356	.0606	.0283	.1179	.1379	-.1216	-.0004	.0522	.0099
3	-.0344	.0256	-.0173	.0390	-.0359	.0373	-.0017	-.0209	-.0022	.0191
4	-.0252	.0230	.0069	.0158	-.0246	.0256	-.0165	-.0136	-.0002	.0089
5	-.0080	-.0206	-.0144	.0103	-.0112	-.0169	.0103	-.0175	-.0088	.0044
6	.0074	.0022	-.0014	.0007	.0058	.0019	.0045	-.0011	-.0025	-.0020
7	-.0019	-.0049	-.0071	.0029	-.0034	-.0045	.0068	-.0034	-.0022	-.0017
8	.0063	.0010	-.0019	-.0036	.0057	-.0001	.0032	.0039	.0014	-.0014
9	-.0024	.0004	-.0021	.0005	-.0026	.0004	.0015	-.0000	.0005	.0001
10	.0009	.0016	-.0018	-.0036	.0004	.0007	.0021	.0035	.0001	-.0001

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0746) PITCHING AMPLITUDE = 10.0 DEG

FILE: 41 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.3332	.0	.0851	.0	1.3080	.0	.2305	.0	.0489	.0
1	.6406	13.0	.0221	27.2	.6175	13.3	.1812	9.7	.0592	206.0
2	.2476	33.1	.0422	62.4	.2544	36.4	.0698	293.1	.0404	97.3
3	.0264	338.9	.0210	13.9	.0299	349.7	.0201	268.0	.0124	75.1
4	.0673	328.4	.0277	19.2	.0703	332.3	.0233	230.3	.0200	35.2
5	.0313	248.7	.0169	319.7	.0321	256.7	.0160	181.2	.0136	330.9
6	.0286	223.5	.0106	296.0	.0292	228.6	.0115	159.4	.0098	311.8
7	.0297	160.0	.0074	242.6	.0289	163.9	.0109	119.2	.0095	255.1
8	.0198	92.6	.0036	213.2	.0183	95.8	.0092	74.5	.0062	220.9
9	.0096	55.2	.0038	179.7	.0086	63.5	.0073	20.2	.0078	170.0
10	.0090	15.8	.0025	105.1	.0087	22.8	.0045	322.3	.0054	106.7

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FILE: 86 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4618	.0	.1195	.0	1.4368	.0	.2793	.0	.0198	.0
1	.9401	1.6	.0646	358.6	.9138	1.7	.2043	5.0	.0622	198.2
2	.1653	34.9	.0669	65.0	.1815	40.5	.1216	269.8	.0531	79.2
3	.0428	306.6	.0427	336.0	.0518	316.1	.0210	175.3	.0192	353.5
4	.0341	312.3	.0172	23.7	.0355	316.2	.0214	230.5	.0089	358.5
5	.0221	201.2	.0177	305.4	.0203	213.6	.0203	149.5	.0098	296.6
6	.0077	73.3	.0016	296.0	.0062	71.7	.0047	103.2	.0032	231.8
7	.0052	200.7	.0076	292.7	.0057	217.2	.0076	116.8	.0028	231.5
8	.0064	81.2	.0040	208.4	.0057	91.1	.0051	39.3	.0020	133.8
9	.0024	278.8	.0021	283.7	.0026	278.0	.0015	90.9	.0005	75.6
10	.0018	28.7	.0040	206.5	.0008	27.5	.0041	31.4	.0001	151.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 42 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.3459	.0000	.0809	.0000	1.3176	.0000	.2478	.0000	-.0557	.0000
1	.1950	.6671	.0166	.0206	.1930	.6414	.0348	.1922	-.0333	-.0598
2	.0864	.2280	.0346	.0233	.1039	.2251	-.0722	.0336	.0495	-.0053
3	-.0244	.0332	.0039	.0272	-.0195	.0397	-.0245	-.0067	.0121	-.0105
4	-.0660	.0414	-.0002	.0278	-.0645	.0477	-.0179	-.0205	.0078	.0196
5	-.0213	-.0407	-.0169	.0106	-.0254	-.0362	.0071	-.0232	-.0128	.0156
6	.0012	-.0265	-.0103	-.0043	-.0026	-.0271	.0122	-.0040	-.0184	-.0002
7	.0234	-.0087	-.0023	-.0081	.0221	-.0107	.0091	.0042	-.0040	-.0108
8	.0175	.0076	.0039	-.0040	.0180	.0060	.0016	.0066	.0040	-.0057
9	.0024	.0126	.0036	.0014	.0034	.0123	-.0026	.0038	.0058	-.0013
10	-.0111	.0109	-.0004	.0026	-.0106	.0113	-.0037	.0006	.0035	.0014

FILE: 87 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.4996	.0000	.1119	.0000	1.4710	.0000	.2992	.0000	-.0158	.0000
1	.0417	.9698	.0067	.0640	.0432	.9414	.0130	.2169	-.0215	-.0628
2	.0456	.1540	.0523	.0401	.0693	.1590	-.1244	-.0068	.0553	.0157
3	-.0526	.0089	-.0265	.0363	-.0558	.0210	-.0038	-.0247	-.0057	.0205
4	-.0222	-.0012	.0023	.0130	-.0230	.0014	-.0093	-.0187	-.0041	.0082
5	.0097	-.0083	-.0160	.0067	.0055	-.0061	.0169	-.0105	-.0114	.0004
6	-.0050	.0080	-.0018	-.0015	-.0058	.0068	.0008	.0020	.0003	-.0047
7	.0010	-.0105	-.0061	-.0008	-.0003	-.0102	.0067	-.0035	-.0004	-.0000
8	.0057	.0054	-.0001	-.0030	.0054	.0043	.0016	.0045	.0012	-.0008
9	-.0047	-.0021	-.0027	.0001	-.0050	-.0021	.0013	-.0004	.0006	.0018
10	.0042	-.0021	.0006	-.0043	.0040	-.0030	.0009	.0034	-.0015	.0001

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NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 9.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

FILE: 42 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.3459	.0	.0809	.0	1.3176	.0	.2478	.0	.0557	.0
1	.6950	16.3	.0264	38.8	.6699	16.7	.1953	10.3	.0684	209.1
2	.2438	20.7	.0417	56.0	.2479	24.8	.0797	294.9	.0498	96.1
3	.0412	323.7	.0275	8.2	.0442	333.9	.0254	254.8	.0160	48.9
4	.0779	302.1	.0278	359.6	.0802	306.5	.0272	221.0	.0212	21.8
5	.0460	207.6	.0200	301.9	.0443	215.0	.0243	162.9	.0202	320.6
6	.0265	177.4	.0111	247.4	.0272	185.5	.0128	108.0	.0184	269.4
7	.0250	110.4	.0085	196.1	.0245	115.9	.0101	65.2	.0115	200.4
8	.0191	66.6	.0056	135.8	.0190	71.7	.0068	13.7	.0069	145.0
9	.0129	10.7	.0039	68.5	.0128	15.6	.0046	325.3	.0059	102.8
10	.0156	314.6	.0026	351.3	.0155	317.0	.0037	279.7	.0037	68.8

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FILE: 87 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.4996	.0	.1119	.0	1.4710	.0	.2992	.0	.0158	.0
1	.9707	2.5	.0644	6.0	.9424	2.6	.2173	3.4	.0663	198.9
2	.1606	16.5	.0658	52.5	.1734	23.6	.1246	266.9	.0575	74.2
3	.0533	279.6	.0449	323.8	.0596	290.6	.0250	171.2	.0213	344.3
4	.0222	266.9	.0132	10.1	.0230	273.5	.0209	206.3	.0092	333.3
5	.0128	130.5	.0173	292.7	.0082	138.1	.0199	121.8	.0114	271.9
6	.0094	327.9	.0023	230.1	.0090	319.6	.0022	22.0	.0047	176.4
7	.0105	174.5	.0061	278.0	.0102	181.7	.0076	117.5	.0004	269.7
8	.0078	46.5	.0030	181.9	.0069	51.5	.0047	19.5	.0015	124.3
9	.0052	245.8	.0027	272.2	.0055	247.3	.0013	109.6	.0019	17.8
10	.0047	116.6	.0044	172.6	.0050	126.7	.0035	14.8	.0015	274.4

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 34 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5504	.0000	.0233	.0000	1.4927	.0000	.3616	.0000	-.0894	.0000
1	.1250	.3533	.0191	-.0270	.1253	.3084	.0159	.2152	-.0083	-.0733
2	.1934	.0913	.0501	.0132	.2118	.0901	-.0389	.0118	.0150	-.0048
3	.0726	-.0377	.0205	-.0163	.0765	-.0393	-.0112	.0250	.0138	-.0215
4	.0223	.0240	.0142	.0082	.0257	.0252	-.0065	.0002	.0067	.0025
5	.0402	.0067	.0166	-.0091	.0427	.0055	-.0087	.0105	.0106	-.0083
6	.0123	.0101	.0058	.0037	.0134	.0108	-.0014	.0005	.0029	.0031
7	.0207	.0215	.0107	-.0019	.0225	.0202	-.0057	.0083	.0071	-.0036
8	-.0012	.0192	.0041	.0037	.0004	.0196	-.0052	.0030	.0035	.0005
9	-.0096	.0140	.0038	.0028	-.0085	.0145	-.0070	.0007	.0065	.0018
10	-.0028	.0060	.0007	.0018	-.0023	.0065	-.0021	-.0003	.0020	.0014

FILE: 93 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7310	.0000	.1468	.0000	1.6924	.0000	.3205	.0000	.0086	.0000
1	.0877	.5725	.0003	.0118	.0846	.5332	.0285	.2375	-.0144	-.0851
2	.2242	.1139	.0862	.0143	.2510	.1116	-.0814	.0166	.0481	-.0032
3	.0123	.0080	.0074	-.0015	.0150	.0106	-.0104	.0233	.0085	-.0012
4	.0180	.0358	.0243	.0133	.0236	.0380	-.0208	-.0031	.0093	.0053
5	-.0012	.0029	.0023	-.0053	-.0009	.0029	-.0046	.0066	.0032	-.0019
6	.0066	.0141	.0091	.0036	.0083	.0142	-.0069	.0004	.0041	.0024
7	-.0113	.0086	.0041	-.0037	-.0096	.0074	-.0085	.0077	.0044	.0000
8	-.0125	-.0099	.0050	.0028	-.0104	-.0085	-.0095	-.0062	.0011	.0050
9	.0048	-.0087	.0022	-.0017	.0049	-.0082	-.0007	-.0018	-.0001	.0005
10	.0035	-.0033	.0033	.0016	.0039	-.0030	-.0014	-.0021	-.0013	.0025

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0376) PITCHING AMPLITUDE = 10.0 DEG

FILE: 34 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5504	.0	.0233	.0	1.4927	.0	.3616	.0	.0894	.0
1	.3748	19.5	.0331	144.7	.3329	22.1	.2158	4.2	.0738	186.5
2	.2139	64.7	.0518	75.2	.2301	67.0	.0407	286.9	.0157	107.6
3	.0818	117.4	.0262	128.5	.0860	117.2	.0273	335.9	.0255	147.3
4	.0327	42.9	.0164	60.1	.0360	45.6	.0065	272.1	.0071	69.8
5	.0408	80.5	.0190	118.8	.0430	82.7	.0136	320.3	.0135	128.1
6	.0159	50.7	.0069	57.0	.0172	51.1	.0015	288.1	.0043	43.0
7	.0299	43.9	.0109	100.2	.0302	48.0	.0101	325.4	.0080	116.7
8	.0193	356.5	.0055	48.2	.0196	1.3	.0060	299.8	.0035	81.4
9	.0170	325.4	.0048	53.8	.0168	329.7	.0070	275.8	.0067	74.7
10	.0066	334.6	.0019	22.2	.0069	340.5	.0022	261.5	.0025	54.6

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FILE: 93 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7310	.0	.1468	.0	1.6924	.0	.3205	.0	.0086	.0
1	.5792	8.7	.0118	1.6	.5398	9.0	.2392	6.8	.0863	189.6
2	.2514	63.1	.0874	80.6	.2747	66.0	.0831	281.5	.0482	93.8
3	.0147	56.9	.0076	101.2	.0183	54.7	.0255	336.0	.0085	98.2
4	.0400	26.7	.0278	61.3	.0447	31.8	.0210	261.6	.0108	60.3
5	.0031	338.0	.0057	156.9	.0031	342.6	.0081	325.5	.0038	120.2
6	.0156	25.1	.0098	68.2	.0165	30.2	.0069	273.1	.0048	59.5
7	.0142	307.5	.0055	132.1	.0121	307.5	.0115	312.3	.0044	90.0
8	.0159	231.7	.0057	60.6	.0134	230.7	.0114	237.0	.0052	12.7
9	.0099	151.0	.0028	127.1	.0095	149.1	.0019	202.1	.0005	345.9
10	.0048	133.7	.0037	65.0	.0049	127.0	.0025	214.4	.0028	333.6

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 35 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.6302	.0000	.0461	.0000	1.5739	.0000	.3744	.0000	-.0885	.0000
1	.2100	.4485	.0104	-.0094	.2047	.4040	.0475	.2279	-.0344	-.0681
2	.1556	.1519	.0512	.0094	.1754	.1455	-.0507	.0361	.0274	-.0156
3	.0670	.0203	.0212	-.0057	.0724	.0192	-.0151	.0261	.0153	-.0181
4	-.0080	.0631	.0214	.0109	-.0014	.0636	-.0229	.0076	.0185	.0029
5	.0110	.0343	.0178	.0061	.0155	.0360	-.0177	.0028	.0144	.0024
6	-.0311	.0195	.0052	.0145	-.0286	.0230	-.0141	-.0072	.0088	.0128
7	-.0152	.0036	.0009	.0077	-.0146	.0060	-.0069	-.0070	.0021	.0092
8	-.0225	-.0098	-.0024	.0056	-.0226	-.0077	-.0041	-.0089	-.0026	.0085
9	-.0016	-.0146	-.0021	.0023	-.0026	-.0135	.0018	-.0068	-.0055	.0058
10	-.0003	-.0098	-.0020	-.0003	-.0009	-.0096	.0023	-.0023	-.0060	.0005

FILE: 95 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7472	.0000	.1168	.0000	1.6973	.0000	.3663	.0000	-.0174	.0000
1	.1756	.6552	.0136	.0068	.1727	.6079	.0425	.2675	-.0208	-.0981
2	.1484	.2109	.0855	.0322	.1799	.2085	-.1018	.0295	.0577	-.0019
3	-.0189	.0303	.0084	.0123	-.0137	.0364	-.0262	.0130	.0159	.0060
4	-.0259	.0425	.0172	.0241	-.0204	.0477	-.0272	-.0131	.0090	.0141
5	-.0203	-.0175	-.0021	.0029	-.0205	-.0144	-.0082	-.0094	.0008	.0094
6	.0053	-.0176	.0048	.0043	.0056	-.0154	-.0021	-.0112	-.0063	.0050
7	.0146	-.0017	.0017	.0022	.0136	-.0011	.0036	-.0020	-.0016	-.0015
8	.0045	.0053	.0027	.0013	.0050	.0049	-.0012	.0013	-.0009	-.0017
9	-.0019	.0072	.0023	.0035	-.0011	.0080	-.0033	-.0012	.0027	-.0001
10	-.0040	-.0007	-.0009	.0025	-.0043	.0001	-.0004	-.0026	-.0013	.0017

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0749) PITCHING AMPLITUDE = 10.0 DEG

FILE: 35 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.6302	.0	.0461	.0	1.5739	.0	.3744	.0	.0885	.0
1	.4953	25.1	.0141	132.1	.4529	26.9	.2328	11.8	.0763	206.8
2	.2174	45.7	.0520	79.6	.2280	50.3	.0622	305.4	.0315	119.6
3	.0700	73.1	.0219	104.9	.0749	75.2	.0301	329.9	.0237	139.7
4	.0636	352.8	.0240	63.0	.0637	358.8	.0241	288.4	.0187	80.9
5	.0360	17.8	.0188	71.1	.0392	23.3	.0180	279.0	.0146	80.4
6	.0367	302.1	.0154	19.7	.0367	308.7	.0158	243.1	.0155	34.4
7	.0156	283.5	.0077	6.4	.0157	292.3	.0098	224.9	.0094	12.7
8	.0245	246.5	.0061	336.3	.0239	251.2	.0098	205.0	.0089	343.0
9	.0147	186.3	.0031	316.5	.0137	191.0	.0070	165.3	.0080	316.3
10	.0098	181.5	.0020	262.1	.0097	185.4	.0032	134.3	.0060	274.9

FILE: 95 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7472	.0	.1168	.0	1.6973	.0	.3663	.0	.0174	.0
1	.6783	15.0	.0152	63.4	.6319	15.9	.2709	9.0	.1003	191.9
2	.2579	35.1	.0913	69.4	.2754	40.8	.1060	286.2	.0577	91.9
3	.0357	328.1	.0149	34.3	.0389	339.3	.0292	296.4	.0170	69.4
4	.0498	328.6	.0296	35.4	.0519	336.9	.0302	244.3	.0167	32.5
5	.0268	229.3	.0036	324.7	.0250	235.0	.0124	221.2	.0094	4.8
6	.0183	163.3	.0065	48.2	.0164	160.2	.0114	190.6	.0081	308.7
7	.0147	96.5	.0028	37.5	.0137	94.8	.0041	119.2	.0022	226.2
8	.0070	40.4	.0030	64.2	.0070	45.5	.0018	318.3	.0020	208.1
9	.0075	345.2	.0042	33.3	.0080	352.5	.0035	250.4	.0027	92.7
10	.0041	259.7	.0026	340.8	.0043	271.2	.0026	189.5	.0021	321.8

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 36 (SWEEP = .0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.5573	.0000	.0543	.0000	1.5038	.0000	.3604	.0000	-.0744	.0000
1	.2960	.4966	.0200	-.0011	.2898	.4534	.0607	.2284	-.0464	-.0748
2	.1185	.1977	.0500	.0147	.1395	.1899	-.0596	.0502	.0414	-.0202
3	.0467	.0443	.0199	.0041	.0535	.0446	-.0217	.0218	.0171	-.0104
4	-.0317	.0679	.0203	.0156	-.0241	.0696	-.0306	.0049	.0222	.0076
5	-.0138	.0213	.0113	.0135	-.0098	.0254	-.0193	-.0080	.0106	.0122
6	-.0478	.0043	.0012	.0135	-.0462	.0089	-.0155	-.0125	.0009	.0184
7	-.0089	-.0267	-.0060	.0051	-.0109	-.0233	.0023	-.0150	-.0079	.0119
8	.0041	-.0107	-.0038	-.0000	.0019	-.0104	.0062	-.0041	-.0101	.0013
9	.0097	-.0075	-.0010	-.0019	.0088	-.0084	.0046	.0006	-.0065	-.0032
10	.0058	.0063	.0013	-.0006	.0062	.0056	.0003	.0026	-.0013	-.0055

FILE: 96 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	1.7080	.0000	.1022	.0000	1.6534	.0000	.3901	.0000	-.0229	.0000
1	.2051	.7220	.0236	.0129	.2040	.6720	.0400	.2771	-.0241	-.1032
2	.1125	.2066	.0825	.0392	.1451	.2059	-.1090	.0259	.0656	.0013
3	-.0190	.0402	.0070	.0189	-.0141	.0473	-.0264	.0107	.0189	.0139
4	-.0615	.0246	.0097	.0255	-.0558	.0313	-.0319	-.0194	.0033	.0211
5	-.0034	-.0431	-.0060	.0033	-.0061	-.0383	.0016	-.0202	-.0099	.0090
6	.0247	-.0025	.0027	.0009	.0230	-.0025	.0063	-.0024	-.0089	-.0039
7	.0070	.0055	.0033	.0005	.0075	.0048	-.0006	.0024	.0032	-.0045
8	.0058	.0116	.0042	.0052	.0071	.0123	-.0034	-.0008	.0019	.0012
9	-.0142	.0010	-.0020	.0039	-.0141	.0024	-.0031	-.0037	.0008	.0014
10	.0076	-.0095	-.0004	.0013	.0069	-.0087	.0028	-.0044	-.0018	.0012

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 12.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0935) PITCHING AMPLITUDE = 10.0 DEG

FILE: 36 (SWEEP = .0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.5573	.0	.0543	.0	1.5038	.0	.3604	.0	.0744	.0
1	.5781	30.8	.0201	93.1	.5381	32.6	.2364	14.9	.0881	211.8
2	.2305	30.9	.0521	73.7	.2357	36.3	.0779	310.1	.0461	115.9
3	.0644	46.5	.0203	78.3	.0697	50.2	.0308	315.2	.0200	121.4
4	.0749	335.0	.0256	52.3	.0737	340.9	.0310	279.1	.0235	71.0
5	.0254	327.1	.0176	40.1	.0273	338.9	.0209	247.6	.0162	41.1
6	.0480	275.2	.0135	5.0	.0470	280.9	.0199	231.2	.0184	2.9
7	.0281	198.5	.0079	310.6	.0257	205.0	.0151	171.1	.0142	326.5
8	.0115	159.0	.0038	269.8	.0106	169.5	.0074	123.8	.0102	277.4
9	.0123	127.6	.0022	207.8	.0121	133.7	.0046	82.1	.0073	243.7
10	.0086	42.5	.0015	113.8	.0084	47.8	.0026	7.4	.0057	193.5

FILE: 96 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	1.7080	.0	.1022	.0	1.6534	.0	.3901	.0	.0229	.0
1	.7505	15.9	.0269	61.3	.7023	16.9	.2800	8.2	.1060	193.2
2	.2352	28.6	.0913	64.6	.2519	35.2	.1120	283.4	.0656	88.8
3	.0444	334.6	.0201	20.4	.0493	343.4	.0285	292.1	.0234	53.6
4	.0663	291.8	.0273	20.9	.0640	299.3	.0373	238.7	.0214	9.0
5	.0432	184.6	.0068	298.9	.0388	189.0	.0203	175.5	.0134	312.2
6	.0248	95.7	.0028	70.7	.0232	96.3	.0067	110.5	.0097	246.6
7	.0089	51.9	.0033	81.2	.0089	57.6	.0025	346.5	.0055	144.7
8	.0130	26.8	.0067	38.9	.0142	29.9	.0035	257.6	.0022	58.9
9	.0143	274.1	.0044	332.8	.0143	279.6	.0048	220.5	.0016	29.9
10	.0122	141.2	.0014	344.5	.0111	141.8	.0052	147.2	.0021	302.7

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 102 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0375	.0000	.1541	.0000	1.9682	.0000	.4503	.0000	-.0375	.0000
1	.1304	.4111	.0051	-.0343	.1259	.3476	.0351	.2987	-.0209	-.1092
2	.1641	.0671	.0685	.0042	.1931	.0628	-.0589	.0184	.0341	-.0133
3	.0582	-.0598	.0204	-.0342	.0624	-.0632	-.0071	.0309	.0117	-.0152
4	.0298	.0190	.0103	.0040	.0331	.0193	.0029	.0049	.0035	-.0026
5	.0171	-.0036	.0102	-.0081	.0192	-.0045	-.0056	.0079	.0068	-.0035
6	-.0139	.0101	-.0065	.0015	.0117	.0104	.0116	.0034	-.0024	-.0022
7	-.0061	.0048	-.0001	-.0033	-.0057	.0034	-.0023	.0049	.0032	-.0016
8	-.0149	-.0004	-.0043	-.0007	.0134	-.0001	.0090	.0004	-.0020	-.0024
9	-.0028	.0159	-.0040	-.0002	-.0041	.0148	.0035	.0051	.0013	-.0021
10	.0005	.0055	-.0023	-.0032	.0001	.0040	.0020	.0051	.0018	-.0032

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 4.00 HZ (K=.0374) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

311

FILE: 102 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0375	.0	.1541	.0	1.9682	.0	.4503	.0	.0375	.0
1	.4313	17.6	.0347	171.5	.3697	19.9	.3007	6.7	.1112	190.9
2	.1773	67.8	.0687	86.5	.2030	72.0	.0617	287.3	.0366	111.3
3	.0834	135.8	.0398	149.2	.0888	135.4	.0317	347.0	.0191	142.5
4	.0353	57.5	.0111	69.0	.0383	59.7	.0057	30.1	.0044	127.3
5	.0175	101.8	.0130	128.4	.0197	103.1	.0097	324.9	.0077	117.4
6	.0172	53.8	.0066	283.3	.0157	48.1	.0121	73.6	.0033	227.5
7	.0078	308.5	.0033	181.3	.0067	300.5	.0054	335.3	.0035	116.2
8	.0149	91.5	.0044	261.3	.0134	90.5	.0090	87.6	.0032	219.2
9	.0161	350.0	.0040	267.7	.0154	344.4	.0062	34.7	.0024	148.6
10	.0055	5.5	.0039	215.4	.0040	1.3	.0054	21.2	.0037	150.1

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 106 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CH	
	A	B	A	B	A	B	A	B	A	B
0	2.0972	.0000	.1344	.0000	2.0154	.0000	.5038	.0000	-.0807	.0000
1	.1778	.5227	.0231	-.0287	.1769	.4512	.0332	.3312	-.0120	-.1646
2	.1227	.1030	.0736	.0210	.1561	.1014	-.0783	.0164	.0530	-.0006
3	.0395	.0065	.0261	-.0263	.0455	.0030	-.0189	.0402	.0188	-.0188
4	.0076	.0387	.0147	.0140	.0136	.0412	-.0117	.0020	.0160	.0059
5	-.0071	.0147	.0080	-.0050	-.0050	.0141	-.0122	.0101	.0078	.0037
6	-.0079	.0069	-.0038	.0007	-.0082	.0068	-.0003	.0032	-.0001	.0032
7	-.0242	-.0115	.0018	-.0072	-.0224	-.0127	-.0106	.0026	.0028	.0018
8	.0139	-.0199	-.0009	-.0037	.0131	-.0193	.0054	-.0041	-.0030	.0021
9	.0032	.0035	.0022	-.0044	.0034	.0018	.0004	.0064	-.0001	-.0024
10	-.0046	-.0009	.0001	-.0008	-.0038	-.0008	-.0025	.0004	.0019	.0014

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 8.00 HZ (K=.0740) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

FILE: 106 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0972	.0	.1344	.0	2.0154	.0	.5038	.0	.0807	.0
1	.5522	18.8	.0369	141.1	.4847	21.4	.3329	5.7	.1650	184.2
2	.1602	50.0	.0765	74.0	.1861	57.0	.0800	281.8	.0530	90.6
3	.0400	80.7	.0371	135.3	.0456	86.2	.0444	334.8	.0266	135.0
4	.0394	11.1	.0203	46.4	.0434	18.3	.0119	279.5	.0171	69.8
5	.0163	334.3	.0094	122.3	.0150	340.5	.0158	309.6	.0086	64.8
6	.0105	311.2	.0039	279.8	.0107	309.7	.0032	355.1	.0032	358.7
7	.0268	244.7	.0074	166.3	.0257	240.3	.0109	283.9	.0033	57.5
8	.0242	145.1	.0038	193.4	.0233	146.0	.0068	126.9	.0037	304.5
9	.0048	42.6	.0049	153.7	.0038	62.5	.0064	3.4	.0024	182.5
10	.0047	259.2	.0008	176.0	.0039	258.1	.0025	278.9	.0024	54.0

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

314

FILE: 104 (SWEEP = 30.0)

FOURIER COSINE (A) AND SINE (B) COEFFICIENTS

H	CN		CS		CL		CD		CM	
	A	B	A	B	A	B	A	B	A	B
0	2.0282	.0000	.1238	.0000	1.9410	.0000	.5159	.0000	-.0516	.0000
1	.2941	.5878	.0299	-.0317	.2885	.5118	.0639	.3461	-.0300	-.1389
2	.1324	.1550	.0812	.0223	.1680	.1484	-.0802	.0423	.0568	-.0105
3	.0339	.0528	.0255	-.0126	.0427	.0492	-.0273	.0466	.0265	-.0108
4	-.0363	.0087	.0155	.0130	-.0271	.0130	-.0300	-.0055	.0150	.0131
5	-.0000	.0113	.0036	-.0031	-.0012	.0122	-.0081	-.0039	.0006	.0048
6	-.0123	-.0298	.0025	-.0015	-.0114	-.0279	-.0066	-.0092	.0011	.0053
7	.0338	.0099	.0036	-.0050	.0326	.0081	.0088	.0080	-.0044	-.0035
8	-.0169	.0134	.0016	.0021	-.0153	.0128	-.0073	.0044	.0059	.0012
9	-.0030	-.0029	-.0005	-.0034	-.0026	-.0032	-.0023	.0017	-.0010	.0022
10	-.0099	-.0128	-.0013	-.0006	-.0100	-.0119	-.0015	-.0048	-.0023	.0036

NACA 0012 AIRFOIL

MACH NUMBER = .40 MEAN INCIDENCE = 15.0 DEG
 PITCHING FREQUENCY = 10.00 HZ (K=.0934) PITCHING AMPLITUDE = 10.0 DEG

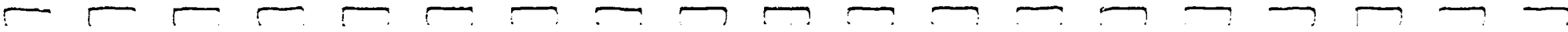
ZERO DEGREE SWEEP DATA WERE NOT OBTAINED

315

FILE: 104 (SWEEP = 30.0)

FOURIER AMPLITUDES (C) AND PHASE ANGLES (P)

H	CN		CS		CL		CD		CM	
	C	P	C	P	C	P	C	P	C	P
0	2.0282	.0	.1238	.0	1.9410	.0	.5159	.0	.0516	.0
1	.6572	26.6	.0436	136.6	.5875	29.4	.3519	10.5	.1421	192.2
2	.2038	40.5	.0842	74.6	.2242	48.6	.0907	297.8	.0578	100.5
3	.0628	32.7	.0285	116.3	.0651	41.0	.0540	329.7	.0286	112.2
4	.0373	283.5	.0203	49.9	.0301	295.5	.0305	259.7	.0199	48.8
5	.0113	359.8	.0047	130.9	.0122	5.8	.0090	296.0	.0048	7.5
6	.0323	202.5	.0029	120.1	.0301	202.2	.0113	215.8	.0054	11.8
7	.0352	73.7	.0062	143.7	.0336	76.0	.0119	47.5	.0056	231.8
8	.0215	308.4	.0027	37.4	.0200	309.9	.0086	301.1	.0061	78.3
9	.0042	226.0	.0035	188.6	.0041	218.9	.0029	306.7	.0025	335.1
10	.0162	217.6	.0014	242.8	.0156	220.1	.0050	198.0	.0043	327.6



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15. Supplementary Notes The technical monitors for this joint Langley-Ames program were Dr. Leroy Presley and Dr. Warren Young, Jr.					
16. Abstract The objective of the present investigation was to study the unsteady chordwise force response on the airfoil surface and to examine its sensitivity to the various system parameters. A further examination of previously reported unsteady aerodynamic data on a tunnel spanning wing (both swept and unswept), obtained in the United Technologies Research Center (UTRC) Main Wind Tunnel, was performed. The main body of this data analysis was carried out by analyzing the propagation speed of pressure disturbances along the chord and by studying the behavior of the unsteady part of the chordwise pressure distribution at various points of the airfoil pitching cycle. It was found that Mach number effects dominate the approach to and the inception of both static and dynamic stall. The stall angle decreases as the Mach number increases. However, sweep dominates the load behavior within the stall regime. Large phase differences between unswept and swept responses, that do not exist at low lift coefficient, appear once the stall boundary has been penetrated. It was also found that reduced frequency is not a reliable indicator of the unsteady aerodynamic response in the high angle of attack regime. In this second volume of a two part report, the results of the investigation are presented in tabular form, consisting of listings of the first ten harmonic components of the individual chordwise pressure responses, and of the integrated loads. A companion technical report (Volume I) contains the analysis and interpretation of the results. It is published separately as NASA CR-3567.					
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