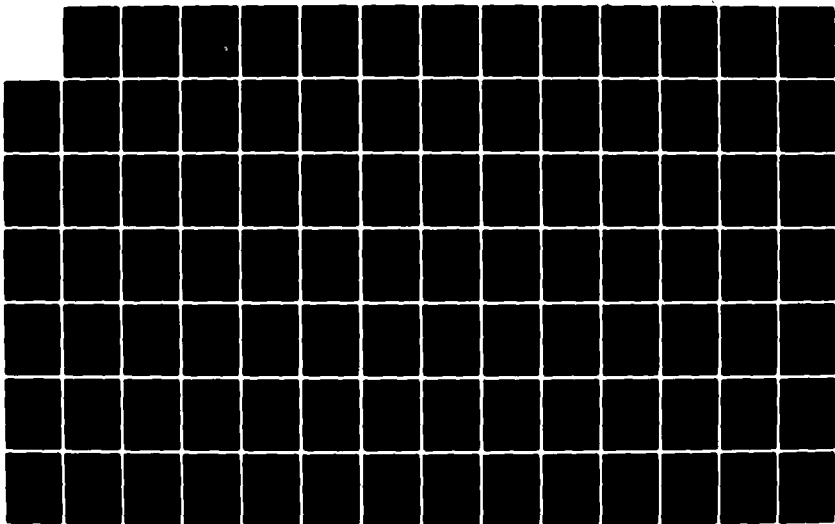


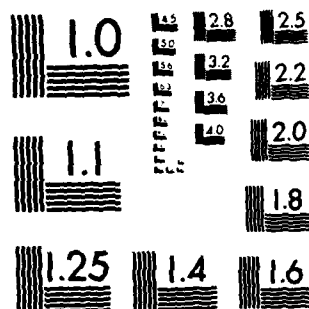
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SPACE ADMINISTRATION MOFFETT FIELD C..

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An Experimental Study of Dynamic Stall on Advanced Airfoil Sections Volume 2. Pressure and Force Data

K. W. McAlister, S. L. Pucci, W. J. McCroskey,
and L. W. Carr

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An Experimental Study of Dynamic Stall on Advanced Airfoil Sections

Volume 2. Pressure and Force Data

K. W. McAlister

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W. J. McCroskey

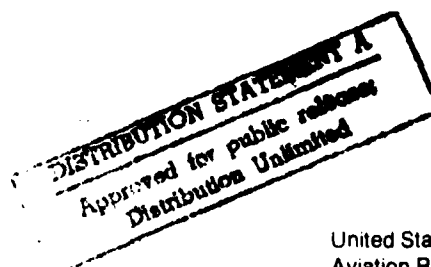
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Space Administration

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St. Louis, Missouri 63166



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SYMBOLS

- c airfoil chord, m
- C_D drag coefficient derived from surface pressures, drag/qcs
- C_L lift coefficient derived from surface pressures, lift/qcs
- C_M moment coefficient derived from surface pressures, moment/qc²s
- C_p pressure coefficient, $(p - p_\infty)/q$
- k reduced frequency, $\omega c/2U_\infty$
- M Mach number
- p surface pressure, N/m²
- p_∞ free-stream static pressure, N/m²
- p_T free-stream total pressure, N/m²
- q free-stream dynamic pressure, N/m²
- Re Reynolds number based on chord and free-stream conditions
- s airfoil span, m
- t time, sec
- U_∞ free-stream velocity, m/sec
- x chordwise coordinate, m
- y normal coordinate, m
- α airfoil incidence, deg
- α_0 mean angle of oscillation, deg
- α_1 amplitude of oscillation, deg
- ζ aerodynamic pitch damping coefficient, $-\frac{1}{4\alpha_1^2} \oint C_M d\alpha$
- ω circular frequency, rad/sec

AN EXPERIMENTAL STUDY OF DYNAMIC STALL ON ADVANCED AIRFOIL SECTIONS

VOLUME 2. PRESSURE AND FORCE DATA

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SUMMARY

Experimentally derived force and moment data are presented for eight airfoil sections that were tested at fixed and varying incidence in a subsonic two-dimensional stream. Airfoil incidence was varied through sinusoidal oscillations in pitch over a wide range of amplitude and frequency. The surface pressure distribution, as well as the lift, drag, and pitching moment derived therefrom, are displayed in a uniform fashion to delineate the static and dynamic characteristics of each airfoil both in and out of stall.

INTRODUCTION

The experiment reported in these volumes was undertaken to investigate the effects of airfoil geometry and free-stream Mach number on the phenomenon of dynamic stall. The experiment and its principal results are summarized in volume 1 (Summary of the Experiment), and boundary-layer transition, flow reversal, and reattachment results are presented in volume 3 (Hot-Wire and Hot-Film Measurements). Pressure, force, and moment data are contained in this volume.

Eight airfoil profiles, consisting of a NACA 0012 section, six rotor-blade sections, and a fixed-wing supercritical section (fig. 1 and tables 1-4), were tested at both fixed incidence and varying incidence, $\alpha = \alpha_0 + \alpha_1 \sin \omega t$, over a range of Mach numbers to 0.30. Because the intention was to fulfill the requirement for a data base applicable to the retreating-blade stall problem on helicopter rotors, most of the unsteady data accumulated can be classified as large amplitude (typically $\alpha_1 = 10^\circ$) and at fundamental reduced frequencies (typically $k \leq 0.20$). Although numerous diagnostic techniques were employed during the course of this study, the purpose of the present volume is to describe the pressure reduction phase of the experiment and to present both steady and unsteady results in a uniform graphical format.

DATA ACQUISITION

Although differential pressure measurements (obtained by referencing the upper surface to the lower surface at the same chord location) would have sufficed for deriving the normal force and pitching moment on the airfoil, single surface-pressure measurements were preferred because (1) they provided a more definitive observation of the formation and passage of the stall vortex over the upper surface of the airfoil and (2) they enabled the calculation of chord force (due to pressure only) and, later, the construction of lift and drag forces. These two considerations, in turn, strongly influenced the distribution of the pressure transducers around the airfoil (fig. 2 and table 5).

In all, 30 quantities were recorded in analog form on magnetic tape. These consisted of (1) airfoil incidence, α , (2) tunnel dynamic pressure, $p_T - p_\infty$, (3) airfoil surface pressures, p_1 through p_{26} , (4) 200/rev pulse train synchronous with ωt , and (5) 1/rev pulse synchronous with the beginning of each cycle of airfoil oscillation. The total pressure, p_T , was essentially invariant during the course of any given test case, and was therefore recorded by hand in the test log. Other quantities that originally appeared in the test log include (1) airfoil designation code; (2) type code for identifying the data as relating to reference voltage, amplifier gain, transducer calibration, reference zero, steady test data, or unsteady test data; (3) frequency, mean angle, and amplitude of oscillation; (4) free-stream and model-core temperatures; and (5) the real time at the beginning of each data frame. This information was later appended to the test data during the analog-to-digital conversion phase of the data reduction.

All analog signals were conditioned by amplifiers and recorded on a 32-channel magnetic tape machine at a tape speed of 0.4 m/sec. Approximately 65 analog tapes were required for the entire experiment. Because of the large quantity of data to be acquired and the impracticality of reviewing a test recording before proceeding to the next case, certain standards were adopted. At the discretion of the test engineer, transducers were mechanically exercised and allowed to reach the mean environmental temperature by operating the tunnel and airfoil at the test condition of interest. This pre-run rehearsal provided an opportunity not only for identifying anomalous transducer responses, but also for adjusting the gains for maximum output voltages in order to maximize the signal-to-noise ratio. The tunnel and airfoil were then brought to rest so that transducer signals could be rebalanced to near-zero output voltage. If the gain of any amplifier needed to be changed, all channels were switched to sense a fixed reference voltage and a brief recording made on analog tape. From this record the corresponding gains could be inferred and properly accounted for during the data-reduction phase.

Another practice, considered of equal importance, was to obtain zero-flow records on a frequent basis. Careful calibrations before the experiment indicated that acceptable transducer drifts due to time and temperature could be bounded by allowing no more than 20 min or a change of 1°F between zero records. Although individual transducer temperatures were not monitored, the model-core temperature was taken to be representative for the purpose of scheduling a zero record.

A standard procedure was also adopted for configuring data on magnetic tape so that each tape could be independently processed as well as reduced in an automatic fashion. These two requirements led to the following test procedures:

1. Initialize each tape with recordings of an electrical short and ± 1 V references
2. Record transducer gain evaluation voltages
3. Record prescribed sequence of pressure transducer calibrations
4. Record transducer gain evaluation voltages (if changed) before test cases
5. Record zero-flow signals before test cases (initial zero)
6. Record test cases
7. Record zero-flow signals following test cases (final zero)

8. Repeat (4) through (7) until near the end of the tape

9. Repeat (2) and (3) at the end of the tape

The technique used for systematically subjecting the transducers to given pressure levels is shown in figure 3. Shop air was used to continuously supply a tank to which six pressure regulators were attached. The regulators were preset to pressures of 0.3, 0.6, 1.0, 2.0, 3.0, and 5.0 psig. These six pressures, along with that from the tunnel pitot probe, were used as the pressure references for the test. By selecting any one of these seven pressure sources, the reference side of all pressure transducers in the model could be simultaneously exposed to either a calibration pressure or to the tunnel total-pressure. By using positive gage pressures for calibration references, the transducer diaphragms were deformed in the same direction as when the airfoil-surface sides of the transducers were exposed to suction during a test run. This procedure eliminated the need for calibrating through zero pressure. A detailed estimation of the uncertainty and accuracy of the pressure measurements is given in volume 1.

DATA REDUCTION

The first step in the data reduction process was the conversion of analog data to digital form. This required that each frame of data be replayed in real time, digitized using the 200/rev and 1/rev synchronizing signals, and stored on a digital tape. It was during this latter step that various test parameters recorded by hand in the log were coded and appended to each corresponding frame of data. A hardware incompatibility prevented the digitizer from responding to the 200/rev signal directly, and a synthetic pulse train based on this signal had to be substituted. Since the computed period for the synthetic signal was dependent on the period of the test data just completed on the analog tape, a slight fluctuation from cycle to cycle during the original recording of unsteady data sometimes resulted in a slightly incorrect synthetic period. As a result, ensemble averages of the digital data would correspond to specific values of ωt only in the mean, and the resulting periods would either fall short or go beyond the correct completion of the cycle. In order to render the data more amenable to analysis, it was decided that the unsteady data would be interpolated and reordered (to begin at mean angle) during the final stage of reduction. As explained in volume 1, the final data appear at convenient increments, but suffer an effective "smearing" that at worst would be equivalent to having sampled at a rate of 100 points per cycle instead of 200 points per cycle.

Once the data were placed on digital tape, they were transferred to a more versatile computer where (1) the unsteady data were ensemble-averaged, (2) the gain factors were divided out, (3) the time-averaged zero-flow values were calculated and subtracted, and (4) the calibrations were applied to scale the data to coefficient form. After imposing a Mach number correction to the pitot-static measurement, the instantaneous value of the dynamic pressure was used to calculate the pressure coefficients.

Airloads were computed using a simple trapezoidal rule integration around the airfoil. Since the pressure was not actually measured at the trailing edge, a value was calculated based on the average between upper and lower surface extrapolations from neighboring points. Curve-fitting the data was not attempted because of the possibility of irregular results as the vortex passed over the rear of the airfoil where transducers were relatively far apart.

The pressure was integrated over x to give the normal force and over y to give the chord force. Given the airfoil incidence, the normal and chord forces were used to calculate the lift and drag forces. Although the chord force contributes little to the pitching moment, its effect was included for completeness. Since viscous forces were not measured, the calculated chord force is incomplete, and hence the lift and drag forces must be regarded as approximate. This approximation is considered good, however, under conditions of unsteady large-amplitude motion where pressure forces are dominant. On the other extreme, the steady-flow drag data at low incidence should be interpreted with caution.

DATA PRESENTATION

Both steady and unsteady data have been graphically displayed (figs. 4-19) in a uniform format to facilitate comparison between cases. The axes scales for the lift, drag, and pitching-moment coefficients have been fixed. All unsteady cases have been plotted against ωt (beginning at minimum incidence) to more clearly show the resulting loads around maximum incidence. The unsteady loops that are created when the data are plotted against α have been divided into two parts, the solid portion corresponding to $\dot{\alpha} > 0$, and the dashed portion corresponding to $\dot{\alpha} < 0$. The dotted line appearing in the lift versus incidence plots represents an approximation of the quasi-static lift behavior at low incidence for the given flow condition (see vol. 1).

To simplify the presentation of pressure, the sign of the coefficient has been changed, the lower-surface values have been suppressed, and the upper-surface values skewed over time in a carpet fashion. The pressures at each x/c have been connected by a straight line and the leading-edge pressure has been identified by a bold-appearing dot. The first curve shows the pressure distribution at minimum incidence, and the succeeding curves correspond to equal increments in time ($\omega t = 18^\circ$) over one full cycle of airfoil oscillation. The scale of the ordinate is either 10 or 20, depending on the range of pressures to be displayed. The symbol $*$ appearing on the ordinate denotes the sonic pressure corresponding to the free-stream Mach number for that test case. A number of quantities characterizing a particular unsteady case have been included on each display. These are

1. Airfoil name and frame number
2. Average Reynolds number
3. Maximum lift force and the angle at which it occurs
4. Angle at which the minimum chord force occurs
5. Mean angle and amplitude of oscillation
6. Minimum value of pitching moment
7. Pitch-damping coefficient
8. Maximum suction detected during the cycle
9. Reduced frequency of oscillation
10. Free-stream Mach number

11. Maximum pressure drag

12. Maximum local Mach number based on minimum pressure, and the angle at which it occurs.

In the case of the steady-data displays, dashed lines denote data points reached from a stalled condition. The pressure distribution covers both upper and lower surface and corresponds to that obtained just before stall. References to the data, either by frame number (ordered according to their position of an archival tape) or test condition, are given in tables 6 to 19. Test cases for numerical analysis are shown in table 20.

All of the data presented in this volume have been archived on magnetic tape, according to airfoil. Although NASA is not responsible for the data, these data can be obtained by submitting a written request to the Computer Documentation Service, Ames Research Center, NASA, Moffett Field, California 94035. Archived data tape numbers for the eight airfoils are shown in table 21. The magnetic tapes were written in a widely compatible format, the attributes for which are given in table 22. The organization and format of the data on magnetic tape are given in the appendix, along with a definition of the argument symbols.

APPENDIX

PROGRAM FOR READING DATA TAPES ON THE CDC 7600 COMPUTER

SUBROUTINE RECALL (FRAME,INIT,LIST,INUNIT,LSUNIT,ID,X,Y,NPTS,TRIP,
1 ALPHA0,ALPHA1,AVEQ,AVEM,REC,RF,FREQ,NPANTS,ALPHA,Q,CP,CL,CD,CM,
2 PT,ERR)

```

C
C
C      Module Name:   RECALL
C      Author:       Ken McAlister
C      Date:         February 1981
C      Modifications: July 1981 by Steve Pucci
C                   December 1981 by Steve Pucci
C
C      Purpose:      This routine was designed to read one data frame
C                   from the data tapes produced from the 1979 oscillating
C                   airfoil experiment.
C
C      Inputs:       FRAME : The identifying number of the frame desired.
C                   If this number is input as zero, the next frame
C                   on the tape will be read.
C                   INIT  : If true, the subroutine will read off the
C                   initial data on the tape. For the normal
C                   airfoil tapes, this should be set to true for
C                   the first frame read from the tape, and false
C                   for all others. For the special tape generated
C                   for the AIAA paper 81-0051, this should be set
C                   to true for all frames.
C                   LIST  : If true, the subroutine will write a summary of
C                   the frame read.
C                   INUNIT: The unit number associated with the tape to be
C                   read.
C                   LSUNIT: The unit number associated with the listing, if
C                   one is desired.
C
C      Outputs:      ID    : The name of the airfoil tested in the data
C                   frame. Note that this, the following two
C                   arrays X and Y, and the value of NPTS are
C                   only changed in the subroutine if the input
C                   parameter INIT has been set to true (see
C                   inputs, above).
C                   X,Y   : The coordinates of the pressure transducers,
C                   normalized by the chord length, where 0,0 is
C                   at the leading edge of the airfoil.
C                   NPTS  : The length of the X,Y arrays, and the number
C                   of pressure transducers.
C                   TRIP  : This parameter is set to true if a boundary
C                   layer trip is present on the airfoil tested.
C                   ALPHA0: The mean angle of attack of the airfoil, in
C                   degrees.
C                   ALPHA1: The amplitude of the angle of attack oscilla-
C                   tion of the airfoil, also in degrees.
C                   AVEQ  : Average free-stream dynamic pressure, in PSI.
C                   AVEM  : Average free-stream Mach number.

```

C REC : Average Reynolds number based on chord.
 C RF : Reduced frequency of oscillation.
 C FREQ : Frequency of oscillation, Hz.
 C NPARTS : Number of time increments describing data.
 C ALPHA : Instantaneous airfoil angle of attack, degrees:
 Vector of length NPARTS.
 C Q : Instantaneous free-stream dynamic pressure, PSI:
 Vector of length NPARTS.
 C CP : Instantaneous surface pressure coefficient:
 Matrix of length (NPARTS,NPTS).
 C CL : Instantaneous lift coefficient;
 Vector of length NPARTS.
 C CD : Instantaneous drag coefficient:
 Vector of length NPARTS.
 C CM : Instantaneous moment coefficient:
 Vector of length NPARTS.
 C PT : Total pressure, PSI.
 C ERR : Returned true if:
 (1) FRAME was input as zero, and there are no
 more frames on the tape, OR
 (2) a specific FRAME was input, and that frame
 was not found on the tape.
 If ERR is returned as true, the tape has been
 rewound (but not yet initialized).
 C FRAME : If a frame has been found, this is its
 identifying number.

LOGICAL TRIP,INIT,ERR,LIST
 INTEGER FRAME

DIMENSION X(28),Y(28),ALPHA(200),Q(200),CP(200,28)
 DIMENSION CL(200),CD(200),CM(200),ID(40),WORDS(80)

DATA ITOTLN /45/

ITOTLN is the total number of lines that will fit on one page of
 output.

1000 FORMAT(1X,I5)
 1001 FORMAT(1X,80A1)
 1002 FORMAT(1X,I5,1X,L1,1X,I5,3(1X,E14.7))
 1003 FORMAT(5E14.7)
 C
 2000 FORMAT(1H1,32H...BRIEF SUMMARY OF DATA TAPE...,/)
 2001 FORMAT(/7H FRAME,1X,4HTWIP,3X,4HTYPE,5X,2HAO,9X,2HA1,8X,1HQ,
 1 10X,1HM,6X,2HRE,8X,1HK,8X,4HFREQ)
 2002 FORMAT(2X,I5,2X,L1,3X,8H STEADY,2X,2(F5.1,4H DEG,2X),F5.3,4H PSI,
 1 2X,F5.3,2X,F8.0,2X,F6.4,2X,F5.2,3H HZ)
 2003 FORMAT(2X,I5,2X,L1,3X,8HUNSTEADY,2X,2(F5.1,4H DEG,2X),F5.3,4H PSI,
 1 2X,F5.3,2X,F8.0,2X,F6.4,2X,F5.2,3H HZ)
 2004 FORMAT(/1X,11HDATA FOR...,80A1)
 2005 FORMAT(/1X,23HTRANSDUCER COORDINATES:/)
 2006 FORMAT(1X,3HNO.,I2,3X,4HX/C=,F10.6,3X,4HY/C=,F10.6)

```

2007 FORMAT(1H1,6H ALPHA,3X,1HQ,3X,13(2X,2HCP,I2,1X),4X,2HCL,
1          5X,2HCD,5X,2HCM)
2008 FORMAT(14X,13(2X,2HCP,I2,1X)/)
2009 FORMAT(2X,F5.1,1X,F5.3,1X,13(F6.2,1X),1X,F6.3,1X,F6.3,2X,F6.4)
2010 FORMAT(14X,13(F6.2,1X)/)
C
3000 FORMAT(///5X,13HFRAME NUMBER ,I6,24H NOT FOUND ON THIS TAPE)
3001 FORMAT (47H END OF PRIVATE DATA TAPE ENCOUNTERED ON UNIT 1)
C
C
C
      IF (.NOT.INIT) GO TO 100
C...The following section initializes the tape by reading off the header info.
      IF (LIST) WRITE (LSUNIT,2000)
      READ(INUNIT,1000) LINES
      IF(EOF(INUNIT).NE.0) GO TO 9000
      DO 10 N=1,LINES
        READ(INUNIT,1000) NUMBER
        READ(INUNIT,1001) (WORDS(I),I=1,NUMBER)
        IF (LIST) WRITE(LSUNIT,1001) (WORDS(I),I=1,NUMBER)
10     CONTINUE
      DO 20 N=1,40
        ID(N)=1H
20     CONTINUE
C...      ( initialize ID array )
      READ(INUNIT,1000) IDLEN
      READ(INUNIT,1001) (ID(I),I=1,IDLEN)
      IF (LIST) WRITE(LSUNIT,2004) (ID(I),I=1,IDLEN)
      READ(INUNIT,1000) NPTS
      READ(INUNIT,1003) (X(I),I=1,NPTS)
      READ(INUNIT,1003) (Y(I),I=1,NPTS)
      IF (LIST) WRITE(LSUNIT,2005)
      IF (LIST) WRITE(LSUNIT,2006) ((I,X(I),Y(I)),I=1,NPTS)
C
100  CONTINUE
C
      READ(INUNIT,1002) NUMBER,TRIP,NPARTS,ALPHA0,ALPHA1,PT
      IF(EOF(INUNIT).NE.0) GO TO 9000
      READ(INUNIT,1003) AVEQ,AVEM,REC,RF,FREQ
      DO 110 J=1,NPARTS
        READ(INUNIT,1003) ALPHA(J),Q(J),(CP(J,K),K=1,NPTS)
        READ(INUNIT,1003) CL(J),CD(J),CM(J)
110  CONTINUE
      IF(NUMBER.NE.FRAME.AND.FRAME.NE.0) GO TO 100
C
      FRAME=NUMBER
      ERR=.FALSE.
C
C
      IF(.NOT.LIST) RETURN
C
      WRITE(LSUNIT,2001)
      IF(NPARTS.EQ.1) WRITE(LSUNIT,2002) FRAME,TRIP,ALPHA0,ALPHA1,

```

```

1  AVEQ,AVEM,REC,RF,FREQ
   IF(NPARTS.NE.1) WRITE(LSUNIT,2003) FRAME,TRIP,ALPHA0,ALPHA1,
1  AVEQ,AVEM,REC,RF,FREQ
   NCOUNT=1
   ITOTCT = ITOTLN/3 - 1
   DO 200 J=1,NPARTS
     IF(NCOUNT.EQ.1) WRITE(LSUNIT,2007) (K,K=1,13)
     IF(NCOUNT.EQ.1) WRITE(LSUNIT,2008) (K,K=14,26)
     WRITE(LSUNIT,2009) ALPHA(J),Q(J),(CP(J,K),K=1,13),CL(J),CD(J),
1   CM(J)
     WRITE(LSUNIT,2010) (CP(J,K),K=14,26)
     NCOUNT=NCOUNT+1
     IF(NCOUNT.GT.ITOTCT) NCOUNT=1
200  CONTINUE
    RETURN
C
C
C...This routine is used when the end of the tape is reached.
9000 CONTINUE
    ERR = .TRUE.
C
    IF (FRAME.EQ.0) GO TO 600
    WRITE(LSUNIT,3000)FRAME
    REWIND INUNIT
    RETURN
C
600  WRITE (LSUNIT,3001)
    RETURN
    END

```

TABLE 1.- AIRFOIL COORDINATES: NACA 0012 AND AMES A-01 AIRFOILS

x/c	NACA 0012, y/c		AMES A-01, y/c	
	upper	lower	upper	lower
0.0000	0.00000	0.00000	0.00000	0.00000
0.0005	0.00395	-0.00395	0.00377	-0.00338
0.0010	0.00556	-0.00556	0.00541	-0.00472
0.0020	0.00781	-0.00781	0.00766	-0.00651
0.0035	0.01027	-0.01027	0.01013	-0.00844
0.0050	0.01221	-0.01221	0.01214	-0.00994
0.0065	0.01386	-0.01386	0.01388	-0.01120
0.0080	0.01531	-0.01531	0.01543	-0.01227
0.0100	0.01704	-0.01704	0.01732	-0.01350
0.0125	0.01894	-0.01894	0.01945	-0.01481
0.0160	0.02127	-0.02127	0.02214	-0.01634
0.0200	0.02360	-0.02360	0.02490	-0.01777
0.0250	0.02615	-0.02615	0.02801	-0.01922
0.0350	0.03043	-0.03043	0.03335	-0.02137
0.0500	0.03555	-0.03555	0.03991	-0.02365
0.0650	0.03966	-0.03966	0.04523	-0.02549
0.0800	0.04307	-0.04307	0.04961	-0.02710
0.1000	0.04683	-0.04683	0.05421	-0.02902
0.1250	0.05055	-0.05055	0.05829	-0.03104
0.1500	0.05345	-0.05345	0.06098	-0.03277
0.2000	0.05737	-0.05737	0.06344	-0.03551
0.2500	0.05941	-0.05941	0.06431	-0.03727
0.3000	0.06002	-0.06002	0.06446	-0.03828
0.3500	0.05949	-0.05949	0.06409	-0.03866
0.4000	0.05803	-0.05803	0.06316	-0.03848
0.4500	0.05581	-0.05581	0.06154	-0.03782
0.5000	0.05294	-0.05294	0.05924	-0.03665
0.5500	0.04952	-0.04952	0.05623	-0.03501
0.6000	0.04563	-0.04563	0.05249	-0.03297
0.6500	0.04132	-0.04132	0.04792	-0.03056
0.7000	0.03664	-0.03664	0.04246	-0.02785
0.7500	0.03160	-0.03160	0.03600	-0.02486
0.8000	0.02623	-0.02623	0.02860	-0.02153
0.8500	0.02053	-0.02053	0.02064	-0.01786
0.9000	0.01448	-0.01448	0.01260	-0.01374
0.9250	0.01132	-0.01132	0.00899	-0.01144
0.9500	0.00807	-0.00807	0.00598	-0.00888
0.9750	0.00472	-0.00472	0.00392	-0.00603
0.9900	0.00265	-0.00265	0.00322	-0.00421
1.0000	0.00126	-0.00126	0.00299	-0.00300
	$r_o/c = 0.0158$		$r_o/c = 0.012$	

TABLE 2.- AIRFOIL COORDINATES: WORTMANN FX-098 AND SIKORSKY SC-1095 AIRFOILS

x/c	WORTMANN FX-098, y/c		SIKORSKY SC-1095, y/c	
	upper	lower	upper	lower
0.0000	0.00000	0.00000	0.00000	0.00000
0.0005	0.00293	-0.00249	0.00307	-0.00257
0.0010	0.00426	-0.00343	0.00443	-0.00368
0.0020	0.00619	-0.00471	0.00640	-0.00535
0.0035	0.00837	-0.00609	0.00865	-0.00724
0.0050	0.01017	-0.00717	0.01054	-0.00880
0.0065	0.01175	-0.00807	0.01221	-0.01016
0.0080	0.01319	-0.00886	0.01374	-0.01138
0.0100	0.01494	-0.00978	0.01560	-0.01285
0.0125	0.01692	-0.01079	0.01771	-0.01450
0.0160	0.01944	-0.01202	0.02041	-0.01657
0.0200	0.02204	-0.01321	0.02320	-0.01865
0.0250	0.02501	-0.01451	0.02635	-0.02092
0.0350	0.03021	-0.01664	0.03140	-0.02454
0.0500	0.03681	-0.01913	0.03677	-0.02842
0.0650	0.04234	-0.02111	0.04070	-0.03108
0.0800	0.04705	-0.02277	0.04374	-0.03295
0.1000	0.05222	-0.02464	0.04680	-0.03464
0.1250	0.05714	-0.02658	0.04963	-0.03619
0.1500	0.06073	-0.02819	0.05174	-0.03739
0.2000	0.06491	-0.03059	0.05447	-0.03884
0.2500	0.06650	-0.03198	0.05548	-0.03933
0.3000	0.06630	-0.03251	0.05524	-0.03918
0.3500	0.06515	-0.03242	0.05437	-0.03858
0.4000	0.06336	-0.03184	0.05299	-0.03760
0.4500	0.06097	-0.03096	0.05105	-0.03622
0.5000	0.05798	-0.02982	0.04854	-0.03446
0.5500	0.05445	-0.02843	0.04555	-0.03234
0.6000	0.05040	-0.02678	0.04212	-0.02985
0.6500	0.04586	-0.02487	0.03819	-0.02702
0.7000	0.04085	-0.02273	0.03375	-0.02384
0.7500	0.03543	-0.02034	0.02887	-0.02034
0.8000	0.02962	-0.01768	0.02362	-0.01658
0.8500	0.02337	-0.01473	0.01808	-0.01265
0.9000	0.01642	-0.01134	0.01235	-0.00865
0.9250	0.01253	-0.00932	0.00943	-0.00664
0.9500	0.00856	-0.00702	0.00642	-0.00454
0.9750	0.00476	-0.00423	0.00328	-0.00233
0.9900	0.00255	-0.00237	0.00132	-0.00093
1.0000	0.00110	-0.00110	0.00000	0.00000
	$r_o/c = 0.007$		$r_o/c = 0.008$	

TABLE 3.- AIRFOIL COORDINATES: HUGHES HH-02 (-5° TAB) AND VERTOL VR-7 (-3° TAB) AIRFOILS

x/c	HUGHES HH-02, y/c		VERTOL VR-7, y/c	
	upper	lower	upper	lower
0.0000	0.00000	0.00000	0.00000	0.00000
0.0005	0.00283	-0.00284	0.00337	-0.00330
0.0010	0.00405	-0.00388	0.00483	-0.00460
0.0020	0.00594	-0.00532	0.00696	-0.00633
0.0035	0.00819	-0.00683	0.00943	-0.00800
0.0050	0.01009	-0.00800	0.01149	-0.00919
0.0065	0.01176	-0.00895	0.01330	-0.01010
0.0080	0.01327	-0.00978	0.01494	-0.01086
0.0100	0.01510	-0.01072	0.01695	-0.01172
0.0125	0.01717	-0.01172	0.01923	-0.01263
0.0160	0.01975	-0.01290	0.02213	-0.01367
0.0200	0.02237	-0.01404	0.02512	-0.01467
0.0250	0.02531	-0.01524	0.02846	-0.01575
0.0350	0.03029	-0.01714	0.03423	-0.01751
0.0500	0.03640	-0.01943	0.04144	-0.01966
0.0650	0.04137	-0.02127	0.04759	-0.02154
0.0800	0.04553	-0.02276	0.05299	-0.02320
0.1000	0.05012	-0.02432	0.05922	-0.02516
0.1250	0.05468	-0.02575	0.06565	-0.02709
0.1500	0.05828	-0.02675	0.07091	-0.02855
0.2000	0.06328	-0.02793	0.07887	-0.03055
0.2500	0.06608	-0.02843	0.08378	-0.03186
0.3000	0.06738	-0.02834	0.08592	-0.03273
0.3500	0.06750	-0.02755	0.08574	-0.03308
0.4000	0.06640	-0.02600	0.08365	-0.03271
0.4500	0.06391	-0.02377	0.07984	-0.03148
0.5000	0.06008	-0.02104	0.07451	-0.02952
0.5500	0.05504	-0.01797	0.06781	-0.02712
0.6000	0.04891	-0.01482	0.05996	-0.02464
0.6500	0.04174	-0.01176	0.05171	-0.02207
0.7000	0.03344	-0.00952	0.04322	-0.01929
0.7500	0.02403	-0.00851	0.03442	-0.01639
0.8000	0.01436	-0.00889	0.02527	-0.01346
0.8500	0.00481	-0.00984	0.01575	-0.01050
0.9000	-0.00431	-0.01041	0.00558	-0.00744
0.9250	-0.00394	-0.00777	0.00117	-0.00609
0.9500	-0.00203	-0.00583	-0.00016	-0.00512
0.9750	-0.00006	-0.00387	0.00115	-0.00380
0.9900	0.00112	-0.00269	0.00194	-0.00300
1.0000	0.00190	-0.00190	0.00247	-0.00247
	$r_o/c = 0.008$		$r_o/c = 0.011$	

TABLE 4.- AIRFOIL COORDINATES: NLR-1 AND NLR-7301 AIRFOILS

x/c	NLR-1, y/c		NLR-7301, y/c	
	upper	lower	upper	lower
0.0000	0.00000	0.00000	0.00000	0.00000
0.0005	0.00359	-0.00288	0.00730	-0.00748
0.0010	0.00499	-0.00388	0.01051	-0.01020
0.0020	0.00687	-0.00518	0.01518	-0.01373
0.0035	0.00890	-0.00643	0.02030	-0.01735
0.0050	0.01053	-0.00730	0.02424	-0.02016
0.0065	0.01194	-0.00799	0.02756	-0.02252
0.0080	0.01321	-0.00858	0.03043	-0.02455
0.0100	0.01475	-0.00929	0.03375	-0.02688
0.0125	0.01648	-0.01006	0.03729	-0.02935
0.0160	0.01868	-0.01101	0.04140	-0.03225
0.0200	0.02097	-0.01196	0.04514	-0.03502
0.0250	0.02358	-0.01301	0.04873	-0.03794
0.0350	0.02799	-0.01477	0.05372	-0.04264
0.0500	0.03328	-0.01688	0.05920	-0.04806
0.0650	0.03750	-0.01859	0.06321	-0.05229
0.0800	0.04093	-0.02007	0.06636	-0.05576
0.1000	0.04435	-0.02179	0.06985	-0.05962
0.1250	0.04701	-0.02363	0.07347	-0.06358
0.1500	0.04905	-0.02522	0.07648	-0.06689
0.2000	0.05200	-0.02775	0.08115	-0.07194
0.2500	0.05386	-0.02958	0.08441	-0.07527
0.3000	0.05489	-0.03082	0.08649	-0.07713
0.3500	0.05528	-0.03154	0.08755	-0.07763
0.4000	0.05511	-0.03185	0.08764	-0.07672
0.4500	0.05443	-0.03176	0.08678	-0.07412
0.5000	0.05327	-0.03126	0.08495	-0.06934
0.5500	0.05164	-0.03025	0.08206	-0.06237
0.6000	0.04948	-0.02882	0.07789	-0.05386
0.6500	0.04677	-0.02707	0.07212	-0.04397
0.7000	0.04348	-0.02503	0.06458	-0.03316
0.7500	0.03892	-0.02276	0.05551	-0.02227
0.8000	0.03172	-0.02028	0.04523	-0.01221
0.8500	0.02368	-0.01756	0.03415	-0.00409
0.9000	0.01562	-0.01427	0.02269	0.00108
0.9250	0.01179	-0.01199	0.01696	0.00228
0.9500	0.00811	-0.00903	0.01129	0.00246
0.9750	0.00454	-0.00511	0.00577	0.00153
0.9900	0.00244	-0.00253	0.00258	0.00042
1.0000	0.00103	-0.00103	0.00055	-0.00055
	$r_o/c = 0.007$		$r_o/c = 0.055$	

TABLE 5.- TRANSDUCER LOCATIONS ON THE AIRFOILS

Transducer Number ^a	Nominal ^b x/c		Actual pressure transducer location							
	Pressure	Hot wire	0012	A-01	FX-098	SC-1095	VR-7	NLR-1	NLR-7301	HH-02
1 LE	0.		0.	0.	0.0002U	0.	0.	0.	0.0015U	0.
2 U	.005 (.004)		.0060	.0054	.0038	.0040	.0044	.0054	.0101	.0050
3	.010 (.010)		.0103	.010	.0067	.0110	.0083	.0108	.0165	.0087
4	.025 (.030)	0.025 (.025)	.0242	.024	.0196	.0275	.0225	.028	.0335	.0326
5	.050 (.06)		.052	.050	.051	.053	.050	.051	.0512	.0581
6	.100 (.12)	.10 (.12)	.102	.100	.101	.1025	.100	.101	.102	.1167
7	.175 (.18)		.176	.175	.177	.178	.175	.177	.177	.183
8	.25 (.25)		.252	.250	.252	.252	.250	.250	.252	.250
9	.325 (.32)		.326	.325	.326	.325	.325	.325	.326	.317
10	.40 (.38)	.40 (.38)	.40	.40	.40	.40	.40	.40	.40	.383
11	.50 (.48)		.50	.50	.50	.50	.50	.50	.50	.472
12	.60 (.56)	.60 (.56)	.60	.60	.60	.60	.60	.60	.60	.561
13	.70 (.65)		.70	.70	.70	.70	.70	.70	.70	.650
14	.80 (.74)	.80 (.74)	.80	.80	.80	.80	.80	.80	.80	.739
15	.90 (.84)		.899	.90	.90	.90	.90	.90	.90	.840
16 U	.98 (.93)		.98	.98	.98	.98	.98	.98	.98	.925
17 L	.98 (.93)		.979	.98	.98	.98	.98	.98	.98	.925
18	.90 (.84)		.90	.90	.90	.90	.90	.90	.90	.840
19	.70 (.65)		.70	.70	.70	.70	.70	.70	.70	.650
20	.50 (.48)		.50	.50	.50	.50	.50	.50	.50	.472
21	.30 (.29)		.30	.30	.30	.30	.30	.30	.30	.294
22	.15 (.16)		.153	.150	.153	.150	.150	.150	.155	.161
23	.05 (.072)		.0504	.050	.051	.052	.050	.051	.0517	.0730
24	.025 (.030)		.023	.026	.027	.028	.0246	.0220	.0194	.0293
25	.010 (.010)		.0093	.0130	.0125	.009	.0094	.0108	.0051	.0081
26 L	.005 (.004)		.0049	.0073	.0061	.005	.0040	.0062	.0021	.0044

^aLE = leading edge; U = upper surface; L = lower surface.^bLocations for HH-02, for which c = 68.6 cm, are shown in parentheses; for all other airfoils shown, c = 61.0 cm.

TABLE 6.- LIST OF DATA FRAMES
(a) NACA 0012 airfoil.

A	FRAME	TRIP	TYPE	AO	A1	Q	M	RE	K	FREQ	B	FRAME
4019	7101	N	US	9.0	5.0	878	301	3909814	1.496	8.10	7102	
4100	7104	N	US	9.0	5.0	878	301	3901954	1.35	1.35	7105	
4102	7105	N	US	8.0	5.0	878	301	3901954	0.850	5.40		
4109	7110	N	US	8.0	5.0	878	301	3912277	1.932	10.80		
4111	7111	N	US	8.0	5.0	878	301	3912277	0.850	1.37		
4113	7112	N	US	10.0	5.0	877	301	3912291	0.850	5.40		
4119	7113	N	US	10.0	5.0	877	301	3912291	1.932	10.80		
4123	7114	N	US	10.0	5.0	877	301	3912291	0.850	1.37		
4203	7117	N	US	11.0	5.0	878	301	3912291	0.850	5.40		
4209	7119	N	US	11.0	5.0	877	301	3912291	1.932	10.80		
4211	7120	N	US	11.0	5.0	877	301	3912291	0.850	1.37		
4213	7121	N	US	12.0	5.0	878	301	3912291	0.850	5.40		
4215	7200	N	US	12.0	5.0	877	301	3912291	1.932	10.80		
4217	7205	N	US	12.0	5.0	877	301	3912291	0.850	1.37		
4219	7207	N	US	12.0	5.0	877	301	3912291	0.850	5.40		
4219	7212	N	US	9.9	5.0	877	301	3912291	1.932	10.80		
4301	7214	N	US	9.9	5.0	877	301	3912291	0.850	1.37		
4301	7316	N	US	8.8	5.0	877	301	3912291	0.850	5.40		
4303	7300	N	US	10.0	5.0	877	301	3912291	1.932	10.80		
4304	7302	N	US	10.0	5.0	877	301	3912291	0.850	1.37		
4410	7305	N	US	12.0	5.0	877	301	3912291	0.850	5.40		
4411	8319	N	US	10.0	10.0	0.13	0.35	4516971	1.515	9.7	8020	
4412	8321	N	US	10.0	10.0	0.13	0.35	4516971	1.515	9.7	8022	
4413	8323	N	US	10.0	10.0	0.13	0.35	4516971	1.515	9.7	8024	
4414	8102	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8103	
4415	8104	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8105	
4416	8106	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8107	
4417	8108	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8109	
4418	8110	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8111	
4419	8112	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8113	
4420	8114	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8115	
4421	8116	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8117	
4422	8118	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8119	
4423	8120	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8121	
4424	8122	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8123	
4425	8124	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8125	
4426	8126	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8127	
4427	8128	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8129	
4428	8130	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8131	
4429	8132	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8133	
4430	8134	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8135	
4431	8136	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8137	
4432	8138	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8139	
4433	8140	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8141	
4434	8142	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8143	
4435	8144	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8145	
4436	8146	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8147	
4437	8148	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8149	
4438	8150	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8151	
4439	8152	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8153	
4440	8154	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8155	
4441	8156	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8157	
4442	8158	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8159	
4443	8160	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8161	
4444	8162	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8163	
4445	8164	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8165	
4446	8166	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8167	
4447	8168	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8169	
4448	8170	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8171	
4449	8172	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8173	
4450	8174	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8175	
4451	8176	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8177	
4452	8178	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8179	
4453	8180	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8181	
4454	8182	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8183	
4455	8184	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8185	
4456	8186	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8187	
4457	8188	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8189	
4458	8190	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8191	
4459	8192	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8193	
4460	8194	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8195	
4461	8196	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8197	
4462	8198	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8199	
4463	8200	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8201	
4464	8202	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8203	
4465	8204	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8205	
4466	8206	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8207	
4467	8208	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8209	
4468	8210	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8211	
4469	8212	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8213	
4470	8214	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8215	
4471	8216	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8217	
4472	8218	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8219	
4473	8220	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8221	
4474	8222	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8223	
4475	8224	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8225	
4476	8226	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8227	
4477	8228	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8229	
4478	8230	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8231	
4479	8232	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8233	
4480	8234	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8235	
4481	8236	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8237	
4482	8238	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8239	
4483	8240	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8241	
4484	8242	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8243	
4485	8244	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8245	
4486	8246	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8247	
4487	8248	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8249	
4488	8250	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8251	
4489	8252	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8253	
4490	8254	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8255	
4491	8256	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8257	
4492	8258	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8259	
4493	8260	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8261	
4494	8262	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8263	
4495	8264	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8265	
4496	8266	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8267	
4497	8268	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8269	
4498	8270	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8271	
4499	8272	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8273	
4500	8274	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8275	
4501	8276	N	US	15.0	10.0	0.13	0.35	4516971	1.515	9.7	8277	
4502	8278	N	US									

TABLE 6.- Continued.
(a) Concluded.

A	FRAME	TRIP	TYPE	AO	A1	Q	N	RE	K	FREQ	B
											FRAME
10105	N	US	12.0	8.0	8.0	.878	.302	3694271.	.0568	5.35	12023
10108	N	US	12.0	8.0	.847	.294	3635589.	1.253	6.81	5.36	12105
10113	N	US	15.0	5.0	.876	.402	3806345.	.0098	1.53	5.36	12112
10114	N	US	15.0	5.0	.841	.295	3591337.	.0252	1.34	5.36	12121
10118	N	US	15.0	5.0	.823	.291	3749526.	.1020	5.36	5.36	12121
10120	N	US	15.0	5.0	.847	.294	3785165.	.1511	8.04	5.36	12121
10123	N	US	15.0	5.0	.832	.293	3758528.	.2024	10.72	5.36	12121
10202	N	US	10.0	5.0	.877	.301	3658103.	.0098	5.36	5.36	12121
10203	N	US	10.0	5.0	.877	.301	3647451.	.0246	1.34	5.36	12121
10204	N	US	10.0	5.0	.870	.300	3924514.	.0493	2.68	5.36	12121
10207	N	US	10.0	5.0	.877	.302	3524529.	.0740	4.02	5.36	12121
10208	N	US	10.0	5.0	.870	.303	3554785.	.0990	5.36	5.36	12121
10211	N	US	10.0	5.0	.870	.300	3563353.	.1486	8.04	5.36	12121
10212	N	US	10.0	5.0	.870	.300	3650737.	.1979	10.72	5.36	12121
10218	N	US	5.0	5.0	.880	.300	3933484.	.0098	5.36	5.36	12121
10221	N	US	5.0	5.0	.878	.301	3925387.	.0993	5.36	5.36	12121
10222	N	US	5.0	5.0	.878	.301	3912114.	.1963	10.72	5.36	12121
10303	N	US	5.0	10.0	.877	.301	3910580.	.0991	5.36	5.36	12121
10305	N	US	5.0	10.0	.877	.301	3911328.	.0991	5.36	5.36	12121
10309	N	US	2.0	10.0	.877	.301	3846261.	.0989	5.36	5.36	12121
12020	N	US	20.0	10.0	.718	.270	349C309.	.0010	.05	5.36	12023
12102	N	US	5.0	10.0	.682	.302	3920000.	.0009	.05	5.36	12105
12109	N	US	5.0	10.0	.756	.279	3465765.	.0010	.05	5.36	12112
12118	N	US	20.0	10.0	.676	.262	3249704.	.0010	.05	5.36	12121
12203	N	US	20.0	10.0	.531	.231	2587477.	.0011	.05	5.36	12121
12208	N	US	7.0	10.0	.587	.244	3269975.	.0010	.05	5.36	12121
12300	N	US	20.0	10.0	.421	.204	2706734.	.0011	.04	5.36	12301
12305	N	US	20.0	10.0	.292	.169	2252844.	.0011	.03	5.36	12306
12310	N	US	7.0	10.0	.350	.186	2459266.	.0010	.03	5.36	13104
13021	N	US	7.0	10.0	.120	.108	1592757.	.0017	.03	5.36	13108
13107	N	US	20.0	10.0	.113	.105	1421201.	.0017	.03	5.36	13116
13115	N	US	20.0	10.0	.048	.068	915163.	.0027	.03	5.36	13202
13120	N	US	5.0	10.0	.053	.072	962303.	.0025	.02	5.36	13213
13205	N	US	5.0	10.0	.014	.036	488772.	.0026	.02	5.36	13213
13217	N	US	20.0	10.0	.013	.036	465631.	.0010	.05	5.36	13104
13222	N	US	20.0	10.0	.749	.276	3656957.	.0010	.05	5.36	13108
13303	N	US	7.0	10.0	.603	.247	3298109.	.0010	.05	5.36	13116
13308	N	US	7.0	10.0	.461	.215	2884310.	.0010	.04	5.36	13202
13310	N	US	7.0	10.0	.466	.216	2884723.	.0010	.04	5.36	13213
13313	Y	US	7.0	10.0	.332	.181	2402990.	.0010	.03	5.36	13316
13321	Y	US	7.0	10.0	.639	.294	374C354.	.0009	.05	5.36	13405
14019	Y	US	15.0	10.0	.339	.183	2453290.	.0499	1.65	5.36	14020
14021	Y	US	15.0	10.0	.336	.182	2434182.	.1001	3.30	5.36	14022
14023	Y	US	15.0	10.0	.335	.182	2426579.	.1504	4.95	5.36	14100
14104	Y	US	15.0	10.0	.338	.183	2443651.	.0499	1.65	5.36	14105
14106	Y	US	15.0	10.0	.340	.184	2449389.	.0994	3.30	5.36	14107
14108	Y	US	15.0	10.0	.339	.183	2443079.	.1493	4.95	5.36	14109
14117	Y	US	15.0	10.0	.837	.293	3843264.	.0257	1.34	5.36	14118
14119	Y	US	15.0	10.0	.836	.293	3815432.	.0509	2.68	5.36	14120
14200	Y	US	15.0	10.0	.643	.294	3822179.	.0253	1.34	5.36	14201
14202	Y	US	15.0	10.0	.839	.293	3792702.	.0506	2.68	5.36	14203
14208	Y	US	15.0	10.0	.828	.291	3764396.	.1019	5.36	5.36	14209
14210	Y	US	15.0	10.0	.832	.292	3760353.	.1014	5.36	5.36	14211
14218	N	US	15.0	10.0	.830	.292	3762748.	.0254	1.34	5.36	14211
14219	N	US	15.0	10.0	.824	.291	3735990.	.0509	2.68	5.36	14221
14220	N	US	15.0	10.0	.805	.287	3683317.	.1031	5.36	5.36	14221
15218	N	US	15.0	10.0	.818	.290	3678973.	.0994	5.24	5.36	14221
10117	N	US	15.0	5.0	.843	.295	3802553.	.0504	2.68	5.36	7201
7202	N	US	12.0	5.0	.877	.302	3861104.	.0496	2.70	5.36	7201
7222	N	US	10.0	5.0	.876	.298	3975490.	.0509	2.70	5.36	7223

TABLE 6.- Continued.
(b) Ames A-01 airfoil.

FRAME	TRIP	TYPE	AO	AI	Q	M	RE	K	FREQ	FRAME	B	FRAME	TRIP	TYPE	AO	AI	Q	M	RE	K	FREQ	FRAME
26020	N	ST	-5.0	0.0	880	301	3921512	0.0000	0.00	26021		27307	N	ST	20.0	0.0	342	184	2418525	0.0000	0.00	27401
26022	N	ST	-2.0	0.0	881	302	3907918	0.0000	0.00	26100		27308	N	ST	16.0	0.0	342	184	2422139	0.0000	0.00	27404
26023	N	ST	0.0	0.0	882	302	3900668	0.0000	0.00			27309	N	ST	14.0	0.0	342	184	2422443	0.0000	0.00	
26101	N	ST	2.0	0.0	878	302	3878703	0.0000	0.00			27310	N	ST	13.0	0.0	343	185	2426821	0.0000	0.00	
26107	N	ST	4.0	0.0	879	302	3839303	0.0000	0.00			27311	N	ST	11.0	0.0	341	184	2422433	0.0000	0.00	
26109	N	ST	8.0	0.0	880	302	3839762	0.0000	0.00			27312	N	ST	5.0	0.0	339	184	2422566	0.0000	0.00	
26114	N	ST	10.0	0.0	879	302	3826626	0.0000	0.00	26113		27318	N	ST	5.0	0.0	342	184	2423094	0.0000	0.00	
26122	N	ST	12.0	0.0	884	303	3832104	0.0000	0.00	26115		27400	N	ST	-5.0	0.0	121	109	1536531	0.0000	0.00	
26200	N	ST	13.5	0.0	857	298	3737465	0.0000	0.00	26123		27402	N	ST	-2.0	0.0	123	110	1530354	0.0000	0.00	
26205	N	ST	14.0	0.0	833	293	3667954	0.0000	0.00	26201		27403	N	ST	0.0	0.0	121	108	1533751	0.0000	0.00	
26207	N	ST	15.0	0.0	857	298	3720572	0.0000	0.00	26206		27406	N	ST	2.0	0.0	122	109	1536087	0.0000	0.00	
26209	N	ST	16.0	0.0	882	302	3754105	0.0000	0.00	26208		27408	N	ST	4.0	0.0	122	109	1536038	0.0000	0.00	
26215	N	ST	18.0	0.0	870	300	3715595	0.0000	0.00	26210		27413	N	ST	8.0	0.0	122	110	1527397	0.0000	0.00	
26216	N	ST	18.0	0.0	815	290	3589962	0.0000	0.00			27414	N	ST	10.0	0.0	121	109	1522167	0.0000	0.00	
26218	N	ST	20.0	0.0	778	282	3497091	0.0000	0.00	26217		27416	N	ST	12.0	0.0	122	110	152614	0.0000	0.00	
26219	N	ST	25.0	0.0	626	262	3124086	0.0000	0.00			28019	N	ST	13.0	0.0	121	109	1431021	0.0000	0.00	
26220	N	ST	20.0	0.0	773	281	3465882	0.0000	0.00	26222		28021	N	ST	14.0	0.0	121	109	1485185	0.0000	0.00	
26300	N	ST	14.0	0.0	832	293	3591634	0.0000	0.00			28023	N	ST	15.0	0.0	122	114	1541856	0.0000	0.00	
26302	N	ST	13.0	0.0	828	302	3703082	0.0000	0.00			28106	N	ST	16.0	0.0	124	112	1526677	0.0000	0.00	
26306	N	ST	11.0	0.0	879	302	3590546	0.0000	0.00			28107	N	ST	18.0	0.0	124	110	1489052	0.0000	0.00	
26307	N	ST	5.0	0.0	883	303	3706075	0.0000	0.00			28109	N	ST	20.0	0.0	124	110	1482163	0.0000	0.00	
26313	N	ST	0.0	0.0	878	302	3693264	0.0000	0.00	26314		28110	N	ST	25.0	0.0	124	109	1479403	0.0000	0.00	
26315	N	ST	5.0	0.0	614	250	3126375	0.0000	0.00			28116	N	ST	20.0	0.0	124	109	1497571	0.0000	0.00	
26318	N	ST	-2.0	0.0	612	250	3113134	0.0000	0.00	26319		28117	N	ST	14.0	0.0	123	110	1474187	0.0000	0.00	
26320	N	ST	0.0	0.0	616	250	3113201	0.0000	0.00			28119	N	ST	13.0	0.0	121	109	1466536	0.0000	0.00	
26321	N	ST	2.0	0.0	614	249	3118900	0.0000	0.00			28120	N	ST	0.0	0.0	123	110	1476232	0.0000	0.00	
26414	N	ST	4.0	0.0	612	250	3118899	0.0000	0.00	26416		28207	N	ST	14.5	0.0	121	108	1459553	0.0000	0.00	
26415	N	ST	8.0	0.0	618	250	3271063	0.0000	0.00	26418		28209	Y	ST	0.0	0.0	341	184	2441332	0.0000	0.00	
26417	N	ST	12.0	0.0	612	249	3345903	0.0000	0.00	26420		28210	Y	ST	5.0	0.0	338	183	2424955	0.0000	0.00	
26419	N	ST	13.0	0.0	614	249	3336283	0.0000	0.00	26421		28211	Y	ST	10.0	0.0	342	184	2439422	0.0000	0.00	
26421	N	ST	14.0	0.0	621	251	3344961	0.0000	0.00	26422		28213	Y	ST	12.0	0.0	343	185	2439577	0.0000	0.00	
26422	N	ST	15.0	0.0	615	249	3327823	0.0000	0.00	26423		28215	Y	ST	13.0	0.0	342	185	2439192	0.0000	0.00	
26423	N	ST	16.0	0.0	617	250	3308153	0.0000	0.00	26424		28217	Y	ST	14.0	0.0	343	184	2432247	0.0000	0.00	
26424	N	ST	18.0	0.0	616	250	3293220	0.0000	0.00	26425		28222	Y	ST	15.0	0.0	341	185	2427824	0.0000	0.00	
26425	N	ST	20.0	0.0	618	250	3281426	0.0000	0.00	26426		28224	Y	ST	20.0	0.0	342	184	2426559	0.0000	0.00	
26426	N	ST	20.0	0.0	613	249	3255106	0.0000	0.00	26427		28226	Y	ST	0.0	0.0	343	184	2426559	0.0000	0.00	
26427	N	ST	20.0	0.0	613	249	3255106	0.0000	0.00	26428		28228	Y	ST	0.0	0.0	343	185	2426275	0.0000	0.00	
26428	N	ST	20.0	0.0	615	249	3255106	0.0000	0.00	26429		28230	Y	ST	0.0	0.0	343	185	2426275	0.0000	0.00	
26429	N	ST	16.0	0.0	615	249	3255106	0.0000	0.00	26430		28232	Y	ST	5.0	0.0	343	185	2426275	0.0000	0.00	
26430	N	ST	14.0	0.0	617	250	3265185	0.0000	0.00	26431		28234	Y	ST	10.0	0.0	343	185	2426275	0.0000	0.00	
26431	N	ST	11.0	0.0	617	249	3249047	0.0000	0.00	26432		28236	Y	ST	12.0	0.0	343	185	2426275	0.0000	0.00	
26432	N	ST	11.0	0.0	612	249	3249047	0.0000	0.00	26433		28238	Y	ST	13.0	0.0	343	185	2426275	0.0000	0.00	
26433	N	ST	5.0	0.0	607	248	3241861	0.0000	0.00	26434		28240	Y	ST	14.0	0.0	343	185	2426275	0.0000	0.00	
26434	N	ST	5.0	0.0	615	249	3258729	0.0000	0.00	26435		28242	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26435	N	ST	-5.0	0.0	344	185	2449549	0.0000	0.00	26436		28244	Y	ST	16.0	0.0	343	185	2426275	0.0000	0.00	
26436	N	ST	-2.0	0.0	343	184	2440864	0.0000	0.00	26437		28246	Y	ST	0.0	0.0	343	185	2426275	0.0000	0.00	
26437	N	ST	0.0	0.0	340	184	2436687	0.0000	0.00	26438		28248	Y	ST	5.0	0.0	343	185	2426275	0.0000	0.00	
26438	N	ST	2.0	0.0	343	185	2436687	0.0000	0.00	26439		28250	Y	ST	10.0	0.0	343	185	2426275	0.0000	0.00	
26439	N	ST	4.0	0.0	343	185	2436687	0.0000	0.00	26440		28252	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26440	N	ST	8.0	0.0	347	185	2460290	0.0000	0.00	26441		28254	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26441	N	ST	10.0	0.0	344	185	2444426	0.0000	0.00	26442		28256	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26442	N	ST	12.0	0.0	345	185	2441417	0.0000	0.00	26443		28258	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26443	N	ST	13.0	0.0	342	184	2429710	0.0000	0.00	26444		28260	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26444	N	ST	14.0	0.0	340	184	2418545	0.0000	0.00	26445		28262	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26445	N	ST	14.9	0.0	347	186	2445054	0.0000	0.00	26446		28264	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26446	N	ST	16.0	0.0	344	185	2441091	0.0000	0.00	26447		28266	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26447	N	ST	18.0	0.0	343	184	2424669	0.0000	0.00	26448		28268	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26448	N	ST	20.0	0.0	343	185	2424669	0.0000	0.00	26449		28270	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26449	N	ST	25.0	0.0	342	184	2422378	0.0000	0.00	26450		28272	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	
26450	N	ST	25.0	0.0	342	184	2422378	0.0000	0.00	26451		28274	Y	ST	15.0	0.0	343	185	2426275	0.0000	0.00	

TABLE 6.- Continued.
(b) Concluded.

A	FRAME	TRIP	TYPE	AJ	Q	M	RE	K	FREQ	FRAME	B
25102	N	US	10.0	10.0	881	302	3831527	0489	2.68	25103	
25104	N	US	10.0	10.0	880	302	3816708	0978	5.36	25108	
25109	N	US	10.0	10.0	879	302	3810775	1468	8.04	25110	
25117	N	US	10.0	5.0	884	303	3829075	0242	1.34		
25118	N	US	10.0	5.0	879	302	3803407	0489	2.68		
25119	N	US	10.0	5.0	883	303	3805390	0975	5.36		
25121	N	US	10.0	5.0	881	302	3813088	1465	8.04		
25122	N	US	10.0	5.0	884	303	3819823	1462	8.04		
25123	N	US	10.0	5.0	885	303	3815827	1947	10.72		
25123	Y	US	15.0	10.0	820	291	3637799	0248	1.31	29100	
29101	Y	US	15.0	10.0	805	298	3634654	0500	2.62	29102	
29106	Y	US	15.0	10.0	806	298	3646183	1001	5.24	29107	
29115	Y	US	15.0	10.0	340	194	2418131	0494	1.65	29116	
29117	Y	US	15.0	10.0	341	194	2418248	0987	3.30	29118	
29119	Y	US	15.0	10.0	341	184	2417060	1481	4.95	29121	
29205	N	US	5.0	10.0	876	301	3947215	0098	5.3	29206	
29207	N	US	5.0	10.0	877	301	3918856	0446	2.68	29210	
29211	N	US	5.0	10.0	877	301	3902857	0901	5.36	29212	
29213	N	US	5.0	10.0	879	301	3816095	1463	8.04	29214	
29215	N	US	5.0	10.0	879	301	3891313	1481	8.04		
29223	N	US	13.5	2.0	876	301	3911977	1965	10.72	29300	
29304	N	US	14.5	2.0	870	300	3772473	1967	10.72	29306	
29309	N	US	14.5	2.0	852	296	3722411	1986	10.72	29310	
29317	N	US	15.0	10.0	013	035	472349	1021	65	29318	
30019	N	US	15.0	10.0	865	298	3856941	0097	5.2	30021	
30020	N	US	15.0	10.0	864	298	3828146	0096	5.2	30021	
30105	N	US	10.0	10.0	880	301	3844592	0097	5.3	30106	
30110	N	US	10.0	5.0	877	301	3217844	0097	5.3	30111	
30119	N	US	10.0	5.0	874	300	3612552	0097	5.3	30120	
30201	N	US	11.0	5.0	877	301	3812196	0099	5.4	30202	
30206	N	US	14.0	2.0	876	301	3812450	0037	5.3	30208	
30215	N	US	7.5	10.0	338	183	2415733	0099	3.3	30216	
31102	N	US	10.0	10.0	877	302	3680208	0247	1.34	31103	
31104	N	US	10.0	10.0	878	302	3654857	0492	2.68	31105	
31110	N	US	10.0	10.0	880	302	3841535	1471	8.04	31111	
31112	N	US	10.0	10.0	860	302	3832051	1469	8.04	31111	
31119	N	US	5.0	10.0	884	303	3850266	1245	1.34	31120	
31121	N	US	5.0	10.0	880	302	3826484	0489	2.68	31122	
31123	N	US	5.0	10.0	884	303	3823741	0975	5.36	31200	
31201	N	US	5.0	10.0	883	303	3816623	1463	8.04	31202	
31209	N	US	15.0	10.0	341	194	2421425	0987	3.30	31210	
31215	N	US	7.5	10.0	341	184	2425489	0494	1.65	31216	
31217	N	US	7.5	10.0	341	185	2423083	1972	6.60	31218	
31302	N	US	14.5	2.0	852	297	3765532	1990	10.72	31304	
31310	N	US	14.5	2.0	854	298	3731489	1485	8.04	31312	
25204	N	US	15.0	5.0	877	301	3973275	0249	1.34		
25205	N	US	15.0	5.0	878	301	3952662	0437	2.68		
25208	N	US	15.0	5.0	878	301	3950602	0994	5.36		
25209	N	US	15.0	5.0	857	298	3697213	1506	8.04		
25210	N	US	15.0	5.0	852	297	3865306	2013	10.72		
25214	N	US	11.0	5.0	880	302	3724436	0455	2.68	25215	
25216	N	US	11.0	5.0	883	302	3409711	0486	5.36	25217	
25301	N	US	5.0	5.0	884	302	3403998	0984	5.36	25302	
25303	N	US	5.0	5.0	865	303	3878688	1962	10.72	25304	
25311	N	US	5.0	10.1	881	302	3852707	0982	5.36	25312	
25319	N	US	5.5	10.0	881	302	3833693	0980	5.36	25320	

TABLE 6.- Continued.
(c) Wortmann FX-098 airfoil.

A	FRAME	TRIP	TYPE	AO	A1	Q	H	RE	K	FREQ	B	FRAME	TRIP	TYPE	AO	A1	Q	H	RE	K	FREQ	B	FRAME	
17208	Y	Y	ST	0.0	0.0	877	301	3925279	0.0000	0.00	19223	N	N	ST	13.0	0.0	340	185	2353097	0.0000	0.00	19223	N	N
17212	Y	Y	ST	5.0	0.0	880	301	3928557	0.0000	0.00	19300	N	N	ST	11.0	0.0	341	185	2354186	0.0000	0.00	19300	N	N
17220	Y	Y	ST	10.0	0.0	879	302	3911481	0.0000	0.00	19305	N	N	ST	5.0	0.0	340	185	2357348	0.0000	0.00	19305	N	N
17303	Y	Y	ST	12.0	0.0	847	296	3802285	0.0000	0.00	19309	N	N	ST	0.0	0.0	340	185	2354786	0.0000	0.00	19315	N	N
17305	Y	Y	ST	13.0	0.0	870	300	3835772	0.0000	0.00	19314	N	N	ST	-5.0	0.0	614	250	3151118	0.0000	0.00	19315	N	N
17310	Y	Y	ST	14.0	0.0	866	299	3820036	0.0000	0.00	19315	N	N	ST	-2.0	0.0	612	250	3138172	0.0000	0.00	19318	N	N
17312	Y	Y	ST	15.0	0.0	866	299	3805980	0.0000	0.00	19317	N	N	ST	0.0	0.0	612	250	3137611	0.0000	0.00	19318	N	N
17314	Y	Y	ST	16.0	0.0	828	292	3710084	0.0000	0.00	19401	N	N	ST	2.0	0.0	616	251	3303956	0.0000	0.00	19401	N	N
18019	Y	Y	ST	0.0	0.0	341	184	2398709	0.0000	0.00	19402	N	N	ST	4.0	0.0	616	251	3270704	0.0000	0.00	19402	N	N
18102	Y	Y	ST	5.0	0.0	343	185	2400750	0.0000	0.00	19405	N	N	ST	8.0	0.0	617	251	3297857	0.0000	0.00	19407	N	N
18106	Y	Y	ST	10.0	0.0	339	184	2378846	0.0000	0.00	19405	N	N	ST	10.0	0.0	614	250	3277308	0.0000	0.00	19412	N	N
18108	Y	Y	ST	12.0	0.0	343	185	2368927	0.0000	0.00	19411	N	N	ST	12.0	0.0	617	251	3278455	0.0000	0.00	19412	N	N
18115	Y	Y	ST	13.0	0.0	346	185	2364744	0.0000	0.00	19413	N	N	ST	13.0	0.0	618	251	3268218	0.0000	0.00	19416	N	N
18117	Y	Y	ST	14.0	0.0	345	185	2368872	0.0000	0.00	19415	N	N	ST	13.5	0.0	620	251	3264994	0.0000	0.00	19416	N	N
18119	Y	Y	ST	15.0	0.0	341	184	2374587	0.0000	0.00	19423	N	N	ST	14.0	0.0	613	250	3235583	0.0000	0.00	19500	N	N
18121	Y	Y	ST	16.0	0.0	340	184	2368089	0.0000	0.00	19504	N	N	ST	15.0	0.0	613	250	3233310	0.0000	0.00	19505	N	N
18123	Y	Y	ST	19.9	0.0	342	184	2370588	0.0000	0.00	19506	N	N	ST	16.0	0.0	613	250	3225426	0.0000	0.00	19507	N	N
18206	Y	Y	ST	0.0	0.0	341	184	2379635	0.0000	0.00	19508	N	N	ST	18.0	0.0	602	248	3194759	0.0000	0.00	19508	N	N
18215	N	N	ST	-5.0	0.0	122	110	1500031	0.0000	0.00	20019	N	N	ST	25.0	0.0	612	249	3162267	0.0000	0.00	20019	N	N
18217	N	N	ST	0.0	0.0	123	110	1502459	0.0000	0.00	20020	N	N	ST	20.0	0.0	612	250	3158666	0.0000	0.00	20020	N	N
18218	N	N	ST	0.0	0.0	121	109	1487642	0.0000	0.00	20021	N	N	ST	16.0	0.0	614	250	3163174	0.0000	0.00	20020	N	N
18220	N	N	ST	2.0	0.0	122	110	1494149	0.0000	0.00	20022	N	N	ST	14.0	0.0	614	250	3163970	0.0000	0.00	20020	N	N
18221	N	N	ST	4.0	0.0	121	109	1486754	0.0000	0.00	20103	N	N	ST	13.0	0.0	610	249	3155282	0.0000	0.00	20020	N	N
18304	N	N	ST	8.0	0.0	121	109	1480425	0.0000	0.00	20104	N	N	ST	11.0	0.0	609	249	3155503	0.0000	0.00	20020	N	N
18305	N	N	ST	10.0	0.0	122	110	1484466	0.0000	0.00	20109	N	N	ST	5.0	0.0	615	250	3152118	0.0000	0.00	20020	N	N
18312	N	N	ST	13.0	0.0	121	109	1471483	0.0000	0.00	20112	N	N	ST	-5.0	0.0	833	304	3774372	0.0000	0.00	20119	N	N
18319	N	N	ST	13.5	0.0	123	109	1467533	0.0000	0.00	20122	N	N	ST	-2.0	0.0	833	303	3776701	0.0000	0.00	20119	N	N
18321	N	N	ST	14.0	0.0	124	110	1474382	0.0000	0.00	20123	N	N	ST	0.0	0.0	877	302	3758789	0.0000	0.00	20119	N	N
18323	N	N	ST	15.0	0.0	122	110	1463922	0.0000	0.00	20203	N	N	ST	2.0	0.0	879	303	3748627	0.0000	0.00	20119	N	N
18401	N	N	ST	16.0	0.0	122	109	1461183	0.0000	0.00	20204	N	N	ST	4.0	0.0	876	302	3741653	0.0000	0.00	20119	N	N
18410	N	N	ST	18.0	0.0	124	111	1459953	0.0000	0.00	20210	N	N	ST	8.0	0.0	878	303	3768915	0.0000	0.00	20119	N	N
18411	N	N	ST	20.0	0.0	123	110	1447617	0.0000	0.00	20211	N	N	ST	10.0	0.0	830	302	3764181	0.0000	0.00	20119	N	N
18413	N	N	ST	25.0	0.0	123	109	1445110	0.0000	0.00	20213	N	N	ST	12.0	0.0	821	291	3920534	0.0000	0.00	20212	N	N
18414	N	N	ST	20.0	0.0	122	110	1436675	0.0000	0.00	20222	N	N	ST	13.5	0.0	841	295	3855559	0.0000	0.00	20212	N	N
18421	N	N	ST	16.0	0.0	123	109	1445948	0.0000	0.00	20300	N	N	ST	14.0	0.0	875	301	3916076	0.0000	0.00	20301	N	N
18422	N	N	ST	14.0	0.0	122	110	1438216	0.0000	0.00	20302	N	N	ST	15.0	0.0	866	299	3903774	0.0000	0.00	20308	N	N
18423	N	N	ST	13.0	0.0	122	109	1434433	0.0000	0.00	20307	N	N	ST	15.0	0.0	877	302	3913381	0.0000	0.00	20310	N	N
18501	N	N	ST	11.0	0.0	122	110	1437504	0.0000	0.00	20309	N	N	ST	16.0	0.0	835	294	3811625	0.0000	0.00	20310	N	N
18502	N	N	ST	5.0	0.0	122	109	1436482	0.0000	0.00	20311	N	N	ST	10.0	0.0	737	275	3577136	0.0000	0.00	20313	N	N
18502	N	N	ST	0.0	0.0	122	110	1434616	0.0000	0.00	20312	N	N	ST	20.0	0.0	658	261	3411407	0.0000	0.00	20313	N	N
18502	N	N	ST	-5.0	0.0	122	110	1434616	0.0000	0.00	20318	N	N	ST	20.0	0.0	740	275	3576432	0.0000	0.00	20313	N	N
18502	N	N	ST	-2.0	0.0	122	110	1434616	0.0000	0.00	20319	N	N	ST	16.0	0.0	881	302	382367	0.0000	0.00	20313	N	N
18502	N	N	ST	0.0	0.0	122	110	1434616	0.0000	0.00	20320	N	N	ST	14.0	0.0	882	302	382367	0.0000	0.00	20313	N	N
18502	N	N	ST	2.0	0.0	122	110	1434616	0.0000	0.00	20321	N	N	ST	13.0	0.0	867	300	3917481	0.0000	0.00	20313	N	N
18502	N	N	ST	4.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	6.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	8.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	10.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	12.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	14.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	16.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.0000	0.00	20313	N	N
18502	N	N	ST	18.0	0.0	122	110	1434616	0.0000	0.00	20322	N	N	ST	11.0	0.0	879	302	3875469	0.00				

TABLE 6. - Continued.

(c) Concluded.

A					B				
FRAME	TRIP	TYPE	AO	A1	Q	M	RE	K	FREQ
17200	N	UN	15.0	10.0	.814	.290	3702477.	.0999	5.24
21100	N	UN	15.0	10.0	.823	.291	3718613.	.0099	5.52
21107	N	UN	10.0	10.0	.867	.299	3792469.	.0098	.53
21200	N	UN	10.0	5.0	.875	.301	3932117.	.0098	.53
21208	N	UN	3.3	10.0	.882	.302	3295549.	.0097	.53
21219	N	UN	6.5	10.0	.339	.184	2455359.	.0098	.33
22023	N	UN	15.0	10.0	.627	.293	3727583.	.0247	1.31
22103	N	UN	15.0	10.0	.837	.294	3749090.	.0492	2.62
22201	N	UN	15.0	10.0	.785	.285	3554419.	.1008	5.24
22206	N	UN	15.0	10.0	.754	.279	3477029.	.1542	7.86
22208	N	UN	15.0	10.0	.763	.281	3483672.	.0969	4.98
22216	N	UN	10.0	10.0	.875	.302	3732111.	.0243	1.34
22217	N	UN	10.0	10.0	.875	.302	3702666.	.0495	2.68
22218	N	UN	10.0	10.0	.862	.300	3694571.	.0977	5.36
22219	N	UN	10.0	10.0	.835	.294	3618509.	.1490	8.04
22307	N	UN	10.0	5.0	.875	.301	3954287.	.0246	1.34
22309	N	UN	10.0	5.0	.880	.303	3857324.	.0491	2.68
22309	N	UN	10.0	5.0	.881	.303	3853461.	.0980	5.36
22311	N	UN	10.0	5.0	.877	.302	3840798.	.1475	8.04
22312	N	UN	10.0	5.0	.882	.303	3829072.	.1957	10.72
23021	N	UN	15.0	5.0	.858	.298	3792196.	.0248	1.34
23022	N	UN	15.0	5.0	.851	.297	3750472.	.0497	2.68
23023	N	UN	15.0	5.0	.840	.295	3716391.	.1000	5.36
23100	N	UN	15.0	5.0	.822	.292	3670134.	.1515	8.04
23107	N	UN	5.0	5.0	.867	.300	3802326.	.0989	5.36
23109	N	UN	5.0	5.0	.847	.300	3782174.	.1970	10.72
23117	N	UN	5.0	10.0	.869	.300	3803440.	.0985	5.36
23201	N	UN	3.8	10.0	.866	.299	3948210.	.1003	5.36
23206	N	UN	3.3	10.0	.866	.299	3924045.	.0500	2.68
23208	N	UN	3.3	10.0	.871	.300	3914485.	.0996	5.36
23211	N	UN	3.3	10.0	.870	.300	3895319.	.1492	8.04
23219	N	UN	12.0	2.0	.854	.299	3855609.	.1994	10.72
23205	N	UN	14.0	2.0	.858	.298	3831711.	.1995	10.72
23310	N	UN	15.0	5.0	.839	.294	3768762.	.2014	10.72
21112	N	UN	15.0	5.0	.873	.301	3940131.	.0099	.53
23101	N	UN	15.0	5.0	.800	.287	3617353.	.2049	10.72

TABLE 6.—Continued.

A	FRAME	TRIP	TYPE	A0	A1	G	H	RE	K	FREQ	B	FRAME	TRIP	TYPE	A0	A1	G	H	RE	K	FREQ	B	FRAME
34022	Y	ST	5	0	0	0	301	3965083	0.0000	0.00	34023	N	ST	16	0	0	0	36118	2432059	0.0000	0.00	36119	
34100	Y	ST	10	0	0	0	880	301	0.0000	0.00	34101	N	ST	5	0	0	0	36120	2424852	0.0000	0.00	36121	
34102	Y	ST	10	0	0	0	874	303	0.0000	0.00	34103	N	ST	5	0	0	0	36202	1457009	0.0000	0.00	36203	
34107	Y	ST	10	0	0	0	833	302	0.0000	0.00	34108	N	ST	5	0	0	0	36204	1461763	0.0000	0.00	36205	
34109	Y	ST	10	0	0	0	866	307	0.0000	0.00	34110	N	ST	5	0	0	0	36209	1455304	0.0000	0.00	36210	
34111	Y	ST	10	0	0	0	866	307	0.0000	0.00	34112	N	ST	5	0	0	0	36210	1429342	0.0000	0.00	36211	
34113	Y	ST	10	0	0	0	830	301	0.0000	0.00	34114	N	ST	5	0	0	0	36211	1420840	0.0000	0.00	36212	
34115	Y	ST	10	0	0	0	342	184	0.0000	0.00	34116	N	ST	5	0	0	0	36212	1420840	0.0000	0.00	36213	
34200	Y	ST	10	0	0	0	342	184	0.0000	0.00	34201	N	ST	5	0	0	0	36216	1421260	0.0000	0.00	36217	
34204	Y	ST	10	0	0	0	342	184	0.0000	0.00	34205	N	ST	5	0	0	0	36216	1425215	0.0000	0.00	36217	
34208	Y	ST	10	0	0	0	342	184	0.0000	0.00	34209	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34210	Y	ST	10	0	0	0	342	184	0.0000	0.00	34211	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34214	Y	ST	10	0	0	0	341	184	0.0000	0.00	34215	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34216	Y	ST	10	0	0	0	341	184	0.0000	0.00	34217	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34218	Y	ST	10	0	0	0	341	184	0.0000	0.00	34219	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34220	Y	ST	10	0	0	0	341	184	0.0000	0.00	34221	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34222	Y	ST	10	0	0	0	341	184	0.0000	0.00	34223	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34224	Y	ST	10	0	0	0	341	184	0.0000	0.00	34225	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34226	Y	ST	10	0	0	0	341	184	0.0000	0.00	34227	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34228	Y	ST	10	0	0	0	341	184	0.0000	0.00	34229	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34230	Y	ST	10	0	0	0	341	184	0.0000	0.00	34231	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34232	Y	ST	10	0	0	0	341	184	0.0000	0.00	34233	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34234	Y	ST	10	0	0	0	341	184	0.0000	0.00	34235	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34236	Y	ST	10	0	0	0	341	184	0.0000	0.00	34237	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34238	Y	ST	10	0	0	0	341	184	0.0000	0.00	34239	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34240	Y	ST	10	0	0	0	341	184	0.0000	0.00	34241	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34242	Y	ST	10	0	0	0	341	184	0.0000	0.00	34243	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34244	Y	ST	10	0	0	0	341	184	0.0000	0.00	34245	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34246	Y	ST	10	0	0	0	341	184	0.0000	0.00	34247	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34248	Y	ST	10	0	0	0	341	184	0.0000	0.00	34249	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34250	Y	ST	10	0	0	0	341	184	0.0000	0.00	34251	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34252	Y	ST	10	0	0	0	341	184	0.0000	0.00	34253	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34254	Y	ST	10	0	0	0	341	184	0.0000	0.00	34255	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34256	Y	ST	10	0	0	0	341	184	0.0000	0.00	34257	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34258	Y	ST	10	0	0	0	341	184	0.0000	0.00	34259	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34260	Y	ST	10	0	0	0	341	184	0.0000	0.00	34261	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34262	Y	ST	10	0	0	0	341	184	0.0000	0.00	34263	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34264	Y	ST	10	0	0	0	341	184	0.0000	0.00	34265	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34266	Y	ST	10	0	0	0	341	184	0.0000	0.00	34267	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34268	Y	ST	10	0	0	0	341	184	0.0000	0.00	34269	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34270	Y	ST	10	0	0	0	341	184	0.0000	0.00	34271	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34272	Y	ST	10	0	0	0	341	184	0.0000	0.00	34273	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34274	Y	ST	10	0	0	0	341	184	0.0000	0.00	34275	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34276	Y	ST	10	0	0	0	341	184	0.0000	0.00	34277	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34278	Y	ST	10	0	0	0	341	184	0.0000	0.00	34279	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34280	Y	ST	10	0	0	0	341	184	0.0000	0.00	34281	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34282	Y	ST	10	0	0	0	341	184	0.0000	0.00	34283	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34284	Y	ST	10	0	0	0	341	184	0.0000	0.00	34285	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34286	Y	ST	10	0	0	0	341	184	0.0000	0.00	34287	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34288	Y	ST	10	0	0	0	341	184	0.0000	0.00	34289	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34290	Y	ST	10	0	0	0	341	184	0.0000	0.00	34291	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34292	Y	ST	10	0	0	0	341	184	0.0000	0.00	34293	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34294	Y	ST	10	0	0	0	341	184	0.0000	0.00	34295	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34296	Y	ST	10	0	0	0	341	184	0.0000	0.00	34297	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34298	Y	ST	10	0	0	0	341	184	0.0000	0.00	34299	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34300	Y	ST	10	0	0	0	341	184	0.0000	0.00	34301	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34302	Y	ST	10	0	0	0	341	184	0.0000	0.00	34303	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34304	Y	ST	10	0	0	0	341	184	0.0000	0.00	34305	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34306	Y	ST	10	0	0	0	341	184	0.0000	0.00	34307	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34308	Y	ST	10	0	0	0	341	184	0.0000	0.00	34309	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34310	Y	ST	10	0	0	0	341	184	0.0000	0.00	34311	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34312	Y	ST	10	0	0	0	341	184	0.0000	0.00	34313	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34314	Y	ST	10	0	0	0	341	184	0.0000	0.00	34315	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34316	Y	ST	10	0	0	0	341	184	0.0000	0.00	34317	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34318	Y	ST	10	0	0	0	341	184	0.0000	0.00	34319	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34320	Y	ST	10	0	0	0	341	184	0.0000	0.00	34321	N	ST	5	0	0	0	36218	1408711	0.0000	0.00	36219	
34322	Y	ST	10	0	0	0	341	184	0.0000	0.00	34323</												

TABLE 6.- Continued.

(d) Concluded.

A					B				
FRAME	TRIP	TYPE	AO	A1	Q	M	RE	K	FREQ
39110	N	UN	11.0	5.0	.869	.299	3896587.	.0099	.53
39115	N	UN	14.0	2.0	.865	.298	3838622.	.0100	.54
38110	N	UN	16.0	2.0	.832	.293	3754517.	.2023	10.72
39107	N	UN	10.0	5.0	.876	.300	3939495.	.0098	.53
									FRAME
									38111

(e) Hughes HH-02 airfoil.

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TABLE 6.- Continued.

(e) Concluded.

(C7) Cont'd.											
A	FRAME	TRIP	TYPE	AO	A1	Q	H	RE	K	FREQ	B
											FRAME
	44112	N	US	10.0	5.0	.880	.303	4003278.	.1989	10.72	44113
	44118	N	US	10.0	5.0	.880	.302	4037890.	.0999	5.36	
	44119	N	US	10.0	5.0	.876	.302	4019097.	.0250	1.34	
	44120	N	US	10.0	5.0	.878	.302	4007236.	.1997	10.72	
	44202	N	US	14.0	2.0	.875	.301	4004232.	.1001	5.36	44203
	44204	N	US	14.0	2.0	.872	.301	3987136.	.2002	10.72	44205
	44209	N	US	17.5	2.0	.773	.282	3756572.	.2132	10.72	
	44212	N	US	15.5	2.0	.854	.297	3951107.	.0102	.54	
	44214	N	US	15.5	2.0	.851	.297	3917470.	.0253	1.34	
	44215	N	US	15.5	2.0	.849	.296	3904494.	.0506	2.68	
	44216	N	US	15.5	2.0	.829	.293	3854681.	.1024	5.36	
	44217	N	US	15.5	2.0	.830	.291	3826794.	.1545	8.04	
	44218	N	US	15.5	2.0	.824	.292	3772243.	.2054	10.72	
	44221	N	US	12.5	2.0	.871	.301	3955505.	.0101	.54	
	44222	N	US	12.5	2.0	.877	.302	3923321.	.0248	1.34	
	44223	N	US	12.5	2.0	.871	.301	3926010.	.0493	2.68	
	44300	N	US	12.5	2.0	.874	.301	3924775.	.0794	5.36	
	44303	N	US	12.5	2.0	.877	.302	3952217.	.1490	8.04	
	44304	N	US	12.5	2.0	.878	.302	3945318.	.1984	10.72	
	43308	N	US	15.0	5.0	.813	.290	3609287.	.1549	8.04	

TABLE 6.- Continued.
(f) Vertol VR-7 airfoil.

FRAME	TRIP	TYPE	A0	A1	G	H	RE	K	FREQ	B	FRAME
46018	N	ST	-5.0	0.0	121	108	15511001	0.0000	0.00	0.00	46018
46019	N	ST	5.0	0.0	121	108	1546371	0.0000	0.00	0.00	46019
46020	N	ST	5.0	0.0	123	109	1557517	0.0000	0.00	0.00	46020
46101	N	ST	10.0	0.0	119	107	1512690	0.0000	0.00	0.00	46101
46102	N	ST	12.0	0.0	122	109	1540366	0.0000	0.00	0.00	46102
46103	N	ST	12.5	0.0	123	109	1547644	0.0000	0.00	0.00	46103
46104	N	ST	13.0	0.0	123	109	1543769	0.0000	0.00	0.00	46104
46105	N	ST	13.5	0.0	123	109	1542955	0.0000	0.00	0.00	46105
46106	N	ST	14.0	0.0	122	109	1531372	0.0000	0.00	0.00	46106
46107	N	ST	15.0	0.0	122	109	1537332	0.0000	0.00	0.00	46107
46108	N	ST	17.0	0.0	123	109	1541148	0.0000	0.00	0.00	46108
46109	N	ST	17.0	0.0	122	109	1534206	0.0000	0.00	0.00	46109
46110	N	ST	20.0	0.0	120	108	1523001	0.0000	0.00	0.00	46110
46116	N	ST	25.0	0.0	131	184	2550698	0.0000	0.00	0.00	46116
46117	N	ST	-5.0	0.0	342	183	2552563	0.0000	0.00	0.00	46117
46119	N	ST	5.0	0.0	341	183	2562369	0.0000	0.00	0.00	46119
46203	N	ST	10.0	0.0	343	184	2562110	0.0000	0.00	0.00	46203
46205	N	ST	12.0	0.0	341	183	2551368	0.0000	0.00	0.00	46205
46207	N	ST	12.5	0.0	342	183	2551262	0.0000	0.00	0.00	46207
46209	N	ST	13.0	0.0	342	184	2553793	0.0000	0.00	0.00	46209
46211	N	ST	13.5	0.0	342	183	2550511	0.0000	0.00	0.00	46211
46217	N	ST	14.0	0.0	342	183	2537541	0.0000	0.00	0.00	46217
46219	N	ST	15.0	0.0	341	183	2630320	0.0000	0.00	0.00	46219
46221	N	ST	15.0	0.0	340	183	2624424	0.0000	0.00	0.00	46221
46223	N	ST	17.0	0.0	340	183	2624591	0.0000	0.00	0.00	46223
46301	N	ST	20.0	0.0	340	183	2614559	0.0000	0.00	0.00	46301
46307	N	ST	25.0	0.0	612	249	3462182	0.0000	0.00	0.00	46307
46308	N	ST	-5.0	0.0	612	249	3476509	0.0000	0.00	0.00	46308
46309	N	ST	5.0	0.0	611	248	3465001	0.0000	0.00	0.00	46309
46310	N	ST	5.0	0.0	611	248	3465144	0.0000	0.00	0.00	46310
46311	N	ST	5.0	0.0	614	248	3462655	0.0000	0.00	0.00	46311
46317	N	ST	8.0	0.0	615	249	3475948	0.0000	0.00	0.00	46317
46318	N	ST	10.0	0.0	611	248	3435015	0.0000	0.00	0.00	46318
46319	N	ST	12.0	0.0	613	248	3433344	0.0000	0.00	0.00	46319
46320	N	ST	12.5	0.0	615	249	3429325	0.0000	0.00	0.00	46320
46321	N	ST	13.0	0.0	612	243	3414299	0.0000	0.00	0.00	46321
46322	N	ST	13.5	0.0	610	249	3403795	0.0000	0.00	0.00	46322
46323	N	ST	14.0	0.0	613	249	3417715	0.0000	0.00	0.00	46323
46403	N	ST	15.0	0.0	613	249	3413349	0.0000	0.00	0.00	46403
46404	N	ST	17.0	0.0	615	249	3427497	0.0000	0.00	0.00	46404
46406	N	ST	20.0	0.0	615	249	3412322	0.0000	0.00	0.00	46406
46408	N	ST	25.0	0.0	614	248	346766	0.0000	0.00	0.00	46408
46409	N	ST	13.0	0.0	613	249	3498737	0.0000	0.00	0.00	46409
46412	N	ST	12.0	0.0	610	248	3341342	0.0000	0.00	0.00	46412
46418	N	ST	-5.0	0.0	614	243	3394265	0.0000	0.00	0.00	46418
46420	N	ST	-2.0	0.0	877	300	3986471	0.0000	0.00	0.00	46420
46423	N	ST	2.0	0.0	875	300	3965594	0.0000	0.00	0.00	46423
46508	N	ST	5.0	0.0	877	300	3965878	0.0000	0.00	0.00	46508
46509	N	ST	8.0	0.0	878	300	4161706	0.0000	0.00	0.00	46509
46511	N	ST	10.0	0.0	870	298	4126333	0.0000	0.00	0.00	46511
46513	N	ST	12.0	0.0	876	299	4119351	0.0000	0.00	0.00	46513
46515	N	ST	12.5	0.0	874	298	4074603	0.0000	0.00	0.00	46515
46517	N	ST	13.0	0.0	877	298	4070723	0.0000	0.00	0.00	46517
46519	N	ST	13.5	0.0	878	299	4037558	0.0000	0.00	0.00	46519
46601	N	ST	14.0	0.0	878	299	4074747	0.0000	0.00	0.00	46601
46602	N	ST	15.0	0.0	873	299	4099463	0.0000	0.00	0.00	46602
46604	N	ST	17.0	0.0	878	300	4078180	0.0000	0.00	0.00	46604
46608	N	ST	20.0	0.0	831	291	3955770	0.0000	0.00	0.00	46608
46609	N	ST	25.0	0.0	690	265	3426593	0.0000	0.00	0.00	46609

FRAME	TRIP	TYPE	A0	A1	G	H	RE	K	FREQ	B	FRAME
46501	N	ST	13.0	0.0	876	299	4071175	0.0000	0.00	0.00	46501
46509	N	ST	12.0	0.0	872	294	4055190	0.0000	0.00	0.00	46509
46511	N	ST	0.0	0.0	881	300	4097411	0.0000	0.00	0.00	46511
46513	N	ST	0.0	0.0	340	183	2522757	0.0000	0.00	0.00	46513
46515	N	ST	0.0	0.0	340	183	2521978	0.0000	0.00	0.00	46515
46517	N	ST	0.0	0.0	340	183	2513421	0.0000	0.00	0.00	46517
46519	N	ST	0.0	0.0	340	183	2514978	0.0000	0.00	0.00	46519
46601	N	ST	0.0	0.0	341	183	2515138	0.0000	0.00	0.00	46601
46602	N	ST	0.0	0.0	340	183	2516104	0.0000	0.00	0.00	46602
46604	N	ST	0.0	0.0	340	183	2501582	0.0000	0.00	0.00	46604
46606	N	ST	0.0	0.0	340	183	2518275	0.0000	0.00	0.00	46606
46608	N	ST	0.0	0.0	341	184	2516975	0.0000	0.00	0.00	46608
46610	N	ST	0.0	0.0	343	184	2517610	0.0000	0.00	0.00	46610
46612	N	ST	0.0	0.0	342	183	2519323	0.0000	0.00	0.00	46612
46614	N	ST	0.0	0.0	881	300	4234772	0.0000	0.00	0.00	46614
46616	N	ST	0.0	0.0	881	300	4155103	0.0000	0.00	0.00	46616
46618	N	ST	0.0	0.0	886	301	4179536	0.0000	0.00	0.00	46618
46620	N	ST	0.0	0.0	882	300	4146330	0.0000	0.00	0.00	46620
46622	N	ST	0.0	0.0	883	301	4139718	0.0000	0.00	0.00	46622
46624	N	ST	0.0	0.0	881	300	4137342	0.0000	0.00	0.00	46624
46626	N	ST	0.0	0.0	877	299	4106130	0.0000	0.00	0.00	46626
46628	N	ST	0.0	0.0	877	299	4091352	0.0000	0.00	0.00	46628
46630	N	ST	0.0	0.0	876	287	3842404	0.0000	0.00	0.00	46630
46632	N	ST	0.0	0.0	881	300	4085157	0.0000	0.00	0.00	46632
46634	N	ST	0.0	0.0	873	300	4062142	0.0000	0.00	0.00	46634
46636	N	ST	0.0	0.0	830	292	3937973	0.0000	0.00	0.00	46636
46638	N	ST	0.0	0.0	835	293	3937973	0.0000	0.00	0.00	46638
46640	N	ST	0.0	0.0	793	285	3524574	0.0000	0.00	0.00	46640
46642	N	ST	0.0	0.0	873	301	4033486	0.0000	0.00	0.00	46642
46644	N	ST	0.0	0.0	875	301	4030314	0.0000	0.00	0.00	46644
46646	N	ST	0.0	0.0	878	301	40310372	0.0000	0.00	0.00	46646
46648	N	ST	0.0	0.0	875	301	4018136	0.0000	0.00	0.00	46648
46650	N	ST	0.0	0.0	879	302	4015256	0.0000	0.00	0.00	46650
46652	N	ST	0.0	0.0	869	300	4015029	0.0000	0.00	0.00	46652
46654	N	ST	0.0	0.0	876	301	4004473	0.0000	0.00	0.00	46654
46656	N	ST	0.0	0.0	877	301	4005939	0.0000	0.00	0.00	46656
46658	N	ST	0.0	0.0	871	300	3954030	0.0000	0.00	0.00	46658
46660	N	ST	0.0	0.0	841	295	3903733	0.0000	0.00	0.00	46660
46662	N	ST	0.0	0.0	878	302	4054475	0.0000	0.00	0.00	46662
46664	N	ST	0.0	0.0	877	301	4032731	0.0000	0.00	0.00	46664
46666	N	ST	0.0	0.0	878	301	4031638	0.0000	0.00	0.00	46666
46668	N	ST	0.0	0.0	879	302	4030474	0.0000	0.00	0.00	46668
46670	N	ST	0.0	0.0	878	301	4025673	0.0000	0.00	0.00	46670
46672	N	ST	0.0	0.0	859	294	4054975	0.0000	0.00	0.00	46672
46674	N	ST	0.0	0.0	820	282	3926381	0.0000	0.00	0.00	46674
46676	N	ST	0.0	0.0	829	184	2979907	0.0000	0.00	0.00	46676
46678	N	ST	0.0	0.0	842	185	2956541	0.0000	0.00	0.00	46678
46680	N	ST	0.0	0.0	832	165	2956542	0.0000	0.00	0.00	46680
46682	N	ST	0.0	0.0	854	073	1059897	0.0000	0.00	0.00	46682
46684	N	ST	0.0	0.0	123	110	1553432	0.0000	0.00	0.00	46684
46686	N	ST	0.0	0.0	340	185	2605965	0.0000	0.00	0.00	46686
46688	N	ST	0.0	0.0	479	221	3037397	0.0000	0.00	0.00	46688
46690	N	ST	0.0	0.0	610	250	3408483	0.0000	0.00	0.00	46690
46692	N	ST	0.0	0.0	760	281	3783711	0.0000	0.00		

TABLE 6.- Continued.

(f) Concluded.

A	FRAME	TRIP	TYPE	AO	A1	Q	M	RE	K	FREQ	B
54216	N	UN	UN	15.0	10.0	.340	.184	2547606.	.1514	4.95	54217
48019	N	UN	UN	4.1	10.0	.874	.299	4215503.	.0103	.54	48020
48023	N	UN	UN	4.1	10.0	.880	.300	4189985.	.0255	1.34	49100
48101	N	UN	UN	4.1	10.0	.877	.299	4160141.	.0509	2.65	48102
48103	N	UN	UN	4.1	10.0	.879	.300	4154411.	.1016	5.36	43104
48116	N	UN	UN	13.0	2.0	.878	.299	4054862.	.0253	1.34	48117
48118	N	UN	UN	13.0	2.0	.878	.299	4059323.	.0504	2.68	48119
48122	N	UN	UN	13.0	2.0	.876	.299	4057706.	.1010	5.35	48123
48209	N	UN	UN	16.0	2.0	.870	.298	4059728.	.2028	10.72	48211
48215	N	UN	UN	14.0	2.0	.877	.300	4057579.	.0504	2.68	
48216	N	UN	UN	14.0	2.0	.879	.300	4047826.	.1005	5.36	
48217	N	UN	UN	14.0	2.0	.879	.300	4035620.	.2039	10.72	49218
48300	N	UN	UN	12.5	2.0	.878	.300	4033369.	.0101	.54	
48301	N	UN	UN	12.5	2.0	.878	.300	4011900.	.0251	1.34	
48302	N	UN	UN	12.5	2.0	.871	.301	4009055.	.0503	2.69	
48303	N	UN	UN	12.5	2.0	.874	.299	3776169.	.1004	5.36	
48304	N	UN	UN	12.5	2.0	.873	.299	3780450.	.1505	8.04	
48308	N	UN	UN	12.5	2.0	.875	.300	3998448.	.2007	10.72	48309
49110	N	UN	UN	15.0	10.0	.333	.184	2634248.	.0257	.83	49111
49117	N	UN	UN	15.0	10.0	.342	.185	2619356.	.0507	1.65	49118
49120	N	UN	UN	15.0	10.0	.340	.185	2599412.	.1014	3.30	49121
49203	N	UN	UN	15.0	10.0	.341	.195	2532737.	.1518	4.95	49204
49206	N	UN	UN	15.0	10.0	.341	.195	2504316.	.2020	6.60	49207
49216	N	UN	UN	4.7	10.0	.340	.184	2550439.	.0254	.83	49217
49300	N	UN	UN	4.7	10.0	.339	.184	2535555.	.1009	3.30	49301
49307	N	UN	UN	4.7	10.0	.342	.185	2548693.	.2035	6.60	49308
49310	N	UN	UN	4.7	10.0	.343	.185	2543519.	.2503	8.25	49311
49323	N	UN	UN	15.0	10.0	.338	.184	2543127.	.0101	.33	49100
50116	N	UN	UN	4.7	10.0	.339	.193	2531156.	.0101	.33	50117
50118	N	UN	UN	15.0	10.0	.340	.184	2555187.	.1516	4.95	57019
58018	N	UN	UN	15.0	10.0	.238	.183	2437793.	.1495	4.95	58019
58102	N	UN	UN	15.0	10.0	.014	.037	495703.	.0983	.65	58103
58111	N	UN	UN	15.0	10.0	.121	.109	1529745.	.1010	1.96	58112
58120	N	UN	UN	15.0	10.0	.340	.184	2536174.	.1511	4.95	
58121	N	UN	UN	15.0	10.0	.340	.184	2532230.	.1007	2.30	
47022	Y	UN	UN	15.0	10.0	.841	.296	3990015.	.0501	2.62	47023
48200	N	UN	UN	13.0	2.0	.884	.301	4062447.	.2036	10.72	48201

TABLE 6.- Continued.
(g) NLR-1 airfoil.

A	FRAME	TRIP	TYPE	AO	AI	Q	H	RE	K	FREQ	FRAME	B
61018	N	N	ST	5.0	0.0	122	109	1524150.	0.0000	0.00	64300	65102
61019	N	N	ST	5.0	0.0	123	110	1534313.	0.0000	0.00	64301	65104
61020	N	N	ST	5.0	0.0	124	111	1529490.	0.0000	0.00	64302	65108
61021	N	N	ST	5.0	0.0	125	112	1537127.	0.0000	0.00	64303	65111
61022	N	N	ST	5.0	0.0	126	113	1517792.	0.0000	0.00	64304	65114
61023	N	N	ST	5.0	0.0	127	114	1517792.	0.0000	0.00	64305	65102
61024	N	N	ST	5.0	0.0	128	115	1522421.	0.0000	0.00	64306	65104
61025	N	N	ST	5.0	0.0	129	116	1517658.	0.0000	0.00	64307	65108
61026	N	N	ST	5.0	0.0	130	117	1511515.	0.0000	0.00	64308	65111
61027	N	N	ST	5.0	0.0	131	118	1511515.	0.0000	0.00	64309	65114
61028	N	N	ST	5.0	0.0	132	119	1532495.	0.0000	0.00	64310	65102
61029	N	N	ST	5.0	0.0	133	120	1502433.	0.0000	0.00	64311	65104
61030	N	N	ST	5.0	0.0	134	121	1502433.	0.0000	0.00	64312	65108
61031	N	N	ST	5.0	0.0	135	122	2465730.	0.0000	0.00	64313	65111
61032	N	N	ST	5.0	0.0	136	123	2465730.	0.0000	0.00	64314	65114
61033	N	N	ST	5.0	0.0	137	124	2465730.	0.0000	0.00	64315	65102
61034	N	N	ST	5.0	0.0	138	125	2465730.	0.0000	0.00	64316	65104
61035	N	N	ST	5.0	0.0	139	126	2465730.	0.0000	0.00	64317	65108
61036	N	N	ST	5.0	0.0	140	127	2465730.	0.0000	0.00	64318	65111
61037	N	N	ST	5.0	0.0	141	128	2465730.	0.0000	0.00	64319	65114
61038	N	N	ST	5.0	0.0	142	129	2465730.	0.0000	0.00	64320	65102
61039	N	N	ST	5.0	0.0	143	130	2465730.	0.0000	0.00	64321	65104
61040	N	N	ST	5.0	0.0	144	131	2465730.	0.0000	0.00	64322	65108
61041	N	N	ST	5.0	0.0	145	132	2465730.	0.0000	0.00	64323	65111
61042	N	N	ST	5.0	0.0	146	133	2465730.	0.0000	0.00	64324	65114
61043	N	N	ST	5.0	0.0	147	134	2465730.	0.0000	0.00	64325	65102
61044	N	N	ST	5.0	0.0	148	135	2465730.	0.0000	0.00	64326	65104
61045	N	N	ST	5.0	0.0	149	136	2465730.	0.0000	0.00	64327	65108
61046	N	N	ST	5.0	0.0	150	137	2465730.	0.0000	0.00	64328	65111
61047	N	N	ST	5.0	0.0	151	138	2465730.	0.0000	0.00	64329	65114
61048	N	N	ST	5.0	0.0	152	139	2465730.	0.0000	0.00	64330	65102
61049	N	N	ST	5.0	0.0	153	140	2465730.	0.0000	0.00	64331	65104
61050	N	N	ST	5.0	0.0	154	141	2465730.	0.0000	0.00	64332	65108
61051	N	N	ST	5.0	0.0	155	142	2465730.	0.0000	0.00	64333	65111
61052	N	N	ST	5.0	0.0	156	143	2465730.	0.0000	0.00	64334	65114
61053	N	N	ST	5.0	0.0	157	144	2465730.	0.0000	0.00	64335	65102
61054	N	N	ST	5.0	0.0	158	145	2465730.	0.0000	0.00	64336	65104
61055	N	N	ST	5.0	0.0	159	146	2465730.	0.0000	0.00	64337	65108
61056	N	N	ST	5.0	0.0	160	147	2465730.	0.0000	0.00	64338	65111
61057	N	N	ST	5.0	0.0	161	148	2465730.	0.0000	0.00	64339	65114
61058	N	N	ST	5.0	0.0	162	149	2465730.	0.0000	0.00	64340	65102
61059	N	N	ST	5.0	0.0	163	150	2465730.	0.0000	0.00	64341	65104
61060	N	N	ST	5.0	0.0	164	151	2465730.	0.0000	0.00	64342	65108
61061	N	N	ST	5.0	0.0	165	152	2465730.	0.0000	0.00	64343	65111
61062	N	N	ST	5.0	0.0	166	153	2465730.	0.0000	0.00	64344	65114
61063	N	N	ST	5.0	0.0	167	154	2465730.	0.0000	0.00	64345	65102
61064	N	N	ST	5.0	0.0	168	155	2465730.	0.0000	0.00	64346	65104
61065	N	N	ST	5.0	0.0	169	156	2465730.	0.0000	0.00	64347	65108
61066	N	N	ST	5.0	0.0	170	157	2465730.	0.0000	0.00	64348	65111
61067	N	N	ST	5.0	0.0	171	158	2465730.	0.0000	0.00	64349	65114
61068	N	N	ST	5.0	0.0	172	159	2465730.	0.0000	0.00	64350	65102
61069	N	N	ST	5.0	0.0	173	160	2465730.	0.0000	0.00	64351	65104
61070	N	N	ST	5.0	0.0	174	161	2465730.	0.0000	0.00	64352	65108
61071	N	N	ST	5.0	0.0	175	162	2465730.	0.0000	0.00	64353	65111
61072	N	N	ST	5.0	0.0	176	163	2465730.	0.0000	0.00	64354	65114
61073	N	N	ST	5.0	0.0	177	164	2465730.	0.0000	0.00	64355	65102
61074	N	N	ST	5.0	0.0	178	165	2465730.	0.0000	0.00	64356	65104
61075	N	N	ST	5.0	0.0	179	166	2465730.	0.0000	0.00	64357	65108
61076	N	N	ST	5.0	0.0	180	167	2465730.	0.0000	0.00	64358	65111
61077	N	N	ST	5.0	0.0	181	168	2465730.	0.0000	0.00	64359	65114
61078	N	N	ST	5.0	0.0	182	169	2465730.	0.0000	0.00	64360	65102
61079	N	N	ST	5.0	0.0	183	170	2465730.	0.0000	0.00	64361	65104
61080	N	N	ST	5.0	0.0	184	171	2465730.	0.0000	0.00	64362	65108
61081	N	N	ST	5.0	0.0	185	172	2465730.	0.0000	0.00	64363	65111
61082	N	N	ST	5.0	0.0	186	173	2465730.	0.0000	0.00	64364	65114
61083	N	N	ST	5.0	0.0	187	174	2465730.	0.0000	0.00	64365	65102
61084	N	N	ST	5.0	0.0	188	175	2465730.	0.0000	0.00	64366	65104
61085	N	N	ST	5.0	0.0	189	176	2465730.	0.0000	0.00	64367	65108
61086	N	N	ST	5.0	0.0	190	177	2465730.	0.0000	0.00	64368	65111
61087	N	N	ST	5.0	0.0	191	178	2465730.	0.0000	0.00	64369	65114
61088	N	N	ST	5.0	0.0	192	179	2465730.	0.0000	0.00	64370	65102
61089	N	N	ST	5.0	0.0	193	180	2465730.	0.0000	0.00	64371	65104
61090	N	N	ST	5.0	0.0	194	181	2465730.	0.0000	0.00	64372	65108
61091	N	N	ST	5.0	0.0	195	182	2465730.	0.0000	0.00	64373	65111
61092	N	N	ST	5.0	0.0	196	183	2465730.	0.0000	0.00	64374	65114
61093	N	N	ST	5.0	0.0	197	184	2465730.	0.0000	0.00	64375	65102
61094	N	N	ST	5.0	0.0	198	185	2465730.	0.0000	0.00	64376	65104
61095	N	N	ST	5.0	0.0	199	186	2465730.	0.0000	0.00	64377	65108
61096	N	N	ST	5.0	0.0	200	187	2465730.	0.0000	0.00	64378	65111
61097	N	N	ST	5.0	0.0	201	188	2465730.	0.0000	0.00	64379	65114
61098	N	N	ST	5.0	0.0	202	189	2465730.	0.0000	0.00	64380	65102
61099	N	N	ST	5.0	0.0	203	190	2465730.	0.0000	0.00	64381	65104
61100	N	N	ST	5.0	0.0	204	191	2465730.	0.0000	0.00	64382	65108
61101	N	N	ST	5.0	0.0	205	192	2465730.	0.0000	0.00	64383	65111
61102	N	N	ST	5.0	0.0	206	193	2465730.	0.0000	0.00	64384	65114
61103	N	N	ST	5.0	0.0	207	194	2465730.	0.0000	0.00	64385	65102
61104	N	N	ST	5.0	0.0	208	195	2465730.	0.0000	0.00	64386	65104
61105	N	N	ST	5.0	0.0	209	196	2465730.	0.0000	0.00	64387	65108
61106	N	N	ST	5.0	0.0	210	197	2465730.	0.0000	0.00	64388	65111
61107	N	N	ST	5.0	0.0	211	198	2465730.	0.0000	0.00	64389	65114
61108	N	N	ST	5.0	0.0	212	199	2465730.	0.0000	0.00	64390	65102
61109	N	N	ST	5.0	0.0	213	200	2465730.	0.0000	0.00	64391	65104
61110	N	N	ST	5.0	0.0	214	201	2465730.	0.0000	0.00	64392	65108
61111	N	N	ST	5.0	0.0	215	202	2465730.	0.0000	0.00	64393	65111
61112	N	N	ST	5.0	0.0	216	203	2465730.	0.0000	0.00	64394	65114
61113	N	N	ST	5.0	0.0	217	204	2465730.	0.0000	0.00	64395	65102
61114	N	N	ST	5.0	0.0	218	205	2465730.	0.0000	0.00	64396	65104
61115	N	N	ST	5.0	0.0	219	206	2465730.	0.0000	0.00	64397	65108
61116	N	N	ST	5.0	0.0	220	207	2465730.	0.0000	0.00	64398	65111
61117	N	N	ST	5.0	0.0	221	208	2465730.	0.0000	0.00	64399	65114
61118	N	N	ST	5.0	0.0	222	209	2465730.	0.0000	0.00	64400	65102
61119	N	N	ST	5.0	0.0	223	210	2465730.	0.0000	0.00	64401	65104
61120	N	N	ST	5.0	0.0	224	211	2465730.	0.0000	0.00	64402	65108
61121	N	N	ST</									

TABLE 6.- Continued.

(g) Concluded.

A	FRAME	TRIP	TYPE	AO	A1	Q	M	SE	K	FREQ	B
63320	N	US	2.5	10.0	.878	.303	3739575.	.0969	5.36	63321	
63323	N	US	2.7	10.0	.880	.303	3746774.	.0969	5.36	63400	
64019	Y	US	15.0	10.0	.844	.296	3865490.	.0247	1.31	64020	
64021	Y	US	15.0	10.0	.840	.295	3813567.	.0493	2.62	64022	
64023	Y	US	15.0	10.0	.821	.292	3752005.	.0997	5.24	64100	
64107	Y	US	15.0	10.0	.840	.185	2448919.	.0496	1.65	64108	
64109	Y	US	15.0	10.0	.840	.184	2435010.	.0991	3.30	64110	
64111	Y	US	15.0	10.0	.841	.185	2439626.	.1281	4.95	64112	
64119	Y	US	2.5	10.0	.876	.302	3823417.	.0099	1.54	64120	
64121	Y	US	2.5	10.0	.875	.302	3755031.	.0244	1.34	64122	
64202	Y	US	2.5	10.0	.879	.303	3794515.	.0737	2.69	64203	
64204	Y	US	2.5	10.0	.878	.302	3774318.	.0974	5.36	64205	
64212	Y	US	-2.0	10.0	.877	.302	3717936.	.0098	1.54		
64213	Y	US	-2.0	10.0	.878	.303	3695424.	.0241	1.34		
64214	Y	US	-2.0	10.0	.878	.302	3685179.	.0482	2.68		
64215	Y	US	-2.0	10.0	.880	.303	3683703.	.0963	5.36		
65121	M	US	-2.0	10.0	.869	.300	3717371.	.0098	1.54		
65122	M	US	-2.0	10.0	.873	.301	3702335.	.0243	1.34		
65123	M	US	-2.0	10.0	.874	.301	3694993.	.0495	2.63		
65200	N	US	-2.0	10.0	.877	.302	3694943.	.0968	5.36		
65207	N	US	15.0	10.0	.895	.199	2641468.	.0997	3.57		
65209	N	US	15.0	10.0	.823	.292	3775170.	.1019	5.36		
65223	N	US	7.0	5.0	.121	.109	1475396.	.0249	3.92		
65300	N	US	7.0	5.0	.121	.109	1472656.	.1996	10.72		
65311	N	US	7.0	5.0	.879	.301	3862901.	.1969	10.72		
65309	N	US	7.0	5.0	.876	.301	3889117.	.0100	54		
63222	M	US	15.0	2.0	.818	.291	3675798.	.2028	10.72	63223	

TABLE 6.- Continued.

(h) NLR-7301.

A		B		C		D		E		F		G		H		I		J		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y		Z		AA		AB		AC		AD		AE		AF		AG		AH		AI		AJ		AK		AL		AM		AN		AO		AP		AQ		AR		AS		AT		AU		AV		AW		AX		AY		AZ		BA		BB		BC		BD		BE		BF		BG		BH		BI		BJ		BK		BL		BM		BN		BO		BP		BQ		BR		BS		BT		BU		BV		BW		BX		BY		BZ		CA		CB		CC		CD		CE		CF		CG		CH		CI		CJ		CK		CL		CM		CN		CO		CP		CQ		CR		CS		CT		CU		CV		CW		CX		CY		CZ		DA		DB		DC		DD		DE		DF		DG		DH		DI		DJ		DK		DL		DM		DN		DO		DP		DQ		DR		DS		DT		DU		DV		DW		DX		DY		DZ		EA		EB		EC		ED		EE		EF		EG		EH		EI		EJ		EK		EL		EM		EN		EO		EP		EQ		ER		ES		ET		EU		EV		EW		EX		EY		EZ		FA		FB		FC		FD		FE		FF		FG		FH		FI		FJ		FK		FL		FM		FN		FO		FP		FQ		FR		FS		FT		FU		FV		FW		FX		FY		FZ		GA		GB		GC		GD		GE		GF		GG		GH		GI		GJ		GK		GL		GM		GN		GO		GP		GQ		GR		GS		GT		GU		GV		GW		GX		GY		GZ		HA		HB		HC		HD		HE		HF		HG		HH		HI		HJ		HK		HL		HM		HN		HO		HP		HQ		HR		HS		HT		HU		HV		HW		HX		HY		HZ		IA		IB		IC		ID		IE		IF		IG		IH		II		IJ		IK		IL		IM		IN		IO		IP		IQ		IR		IS		IT		IU		IV		IW		IX		IY		IZ		JA		JB		JC		JD		JE		JF		JG		JH		JI		JJ		JK		JL		JM		JN		JO		JP		JQ		JR		JS		JT		JU		JV		JW		JX		JY		JZ		KA		KB		KC		KD		KE		KF		KG		KH		KI		KJ		KK		KL		KM		KN		KO		KP		KQ		KR		KS		KT		KU		KV		KW		KX		KY		KZ		LA		LB		LC		LD		LE		LF		LG		LH		LI		LJ		LK		LL		LM		LN		LO		LP		LQ		LR		LS		LT		LU		LV		LW		LX		LY		LZ		MA		MB		MC		MD		ME		MF		MG		MH		MI		MJ		MK		ML		MM		MN		MO		MP		MQ		MR		MS		MT		MU		MV		MW		MX		MY		MZ		NA		NB		NC		ND		NE		NF		NG		NH		NI		NJ		NK		NL		NM		NO		NP		NQ		NR		NS		NT		NU		NV		NW		NX		NY		NZ		OA		OB		OC		OD		OE		OF		OG		OH		OI		OJ		OK		OL		OM		ON		OO		OP		OQ		OR		OS		OT		OU		OV		OW		OX		OY		OZ		PA		PB		PC		PD		PE		PF		PG		PH		PI		PJ		PK		PL		PM		PN		PO		PP		PQ		PR		PS		PT		PU		PV		PW		PX		PY		PZ		QA		QB		QC		QD		QE		QF		QG		QH		QI		QJ		QK		QL		QM		QN		QO		QP		QQ		QR		QS		QT		QU		QV		QW		QX		QY		QZ		RA		RB		RC		RD		RE		RF		RG		RH		RI		RJ		RK		RL		RM		RN		RO		RP		RQ		RR		RS		RT		RU		RV		RW		RX		RY		RZ		SA		SB		SC		SD		SE		SF		SG		SH		SI		SJ		SK		SL		SM		SN		SO		SP		SQ		SR		SS		ST		SU		SV		SW		SX		SY		SZ		TA		TB		TC		TD		TE		TF		TG		TH		TI		TJ		TK		TL		TM		TN		TO		TP		TQ		TR		TS		TT		TU		TV		TW		TX		TY		TZ		UA		UB		UC		UD		UE		UF		UG		UH		UI		UJ		UK		UL		UM		UN		UO		UP		UQ		UR		US		UT		UU		UV		UW		UX		UY		UZ		VA		VB		VC		VD		VE		VF		VG		VH		VI		VJ		VK		VL		VM		VN		VO		VP		VQ		VR		VS		VT		VU		VV		VW		VX		VY		VZ		WA		WB		WC		WD		WE		WF		WG		WH		WI		WJ		WK		WL		WM		WN		WO		WP		WQ		WR		WS		WT		WU		WV		WW		WX		WY		WZ		XA		XB		XC		XD		XE		XF		XG		XH		XI		XJ		XK		XL		XM		XN		XO		XP		XQ		XR		XS		XT		XU		XV		XW		XX		XY		XZ		YA		YB		YC		YD		YE		YF		YG		YH		YI		YJ		YK		YL		YM		YN		YO		YP		YQ		YR		YS		YT		YU		YV		YW		YX		YY		YZ		ZA		ZB		ZC		ZD		ZE		ZF		ZG		ZH		ZI		ZJ		ZK		ZL		ZM		ZN		ZO		ZP		ZQ		ZR		ZS		ZT		ZU		ZV		ZW		ZX		ZY		ZZ		AA		AB		AC		AD		AE		AF		AG		AH		AI		AJ		AK		AL		AM		AN		AO		AP		AQ		AR		AS		AT		AU		AV		AW		AX		AY		AZ		BA		BB		BC		BD		BE		BF		BG		BH		BI		BJ		BK		BL		BM		BN		BO		BP		BQ		BR		BS		BT		BU		BV		BW		BX		BY		BZ		CA		CB		CC		CD		CE		CF		CG		CH		CI		CJ		CK		CL		CM		CN		CO		CP		CQ		CR		CS		CT		CU		CV		CW		CX		CY		CZ		DA		DB		DC		DD		DE		DF		DG		DH		DI		DJ		DK		DL		DM		DN		DO		DP		DQ		DR		DS		DT		DU		DV		DW		DX		DY		DZ		EA		EB		EC		ED		EE		EF		EG		EH		EI		EJ		EK		EL		EM		EN		EO		EP		EQ		ER		ES		ET		EU		EV		EW		EX		EY		EZ		FA		FB		FC		FD		FE		FF		FG		FH		FI		FJ		FK		FL		FM		FN		FO		FP		FQ		FR		FS		FT		FU		FV		FW		FX		FY		FZ		GA		GB		GC		GD		GE		GF		GG		GH		GI		GJ		GK		GL		GM		GN		GO		GP		GQ		GR		GS		GT		GU		GV		GW		GX		GY		GZ		HA		HB		HC		HD		HE		HF		HG		HH		HI		HJ		HK		HL		HM		HN		HO		HP		HQ		HR		HS		HT		HU		HV		HW		HX		HY		HZ		IA		IB		IC		ID		IE		IF		IG		IH		II		IJ		IK		IL		IM		IN		IO		IP		IQ		IR		IS		IT		IU		IV		IW		IX		IY		IZ		JA		JB		JC		JD		JE		JF		JG		JH		JI		JJ		JK		JL		JM		JN		JO		JP		JQ		JR		JS		JT		JU		JV		JW		JX		JY		JZ		KA		KB		KC		KD		KE		KF		KG		KH		KI		KJ		KK		KL		KM		KN		KO		KP		KQ		KR		KS		KT		KU		KV		KW		KX		KY		KZ		LA		LB		LC		LD		LE		LF		LG		LH		LI		LJ		LK		LM		LN		LO		LP		LQ		LR		LS		LT		LU		LV		LW		LX		LY		LZ		MA		MB		MC		MD		ME		MF		MG		MH		MI		MJ		MK		ML		MM		MN		MO		MP		MQ		MR		MS		MT		MU		MV		MW		MX		MY		MZ		NA		NB		NC		ND		NE		NF		NG		NH		NI		NJ		NK		NL		NM		NO		NP		NQ		NR		NS		NT		NU		NV		NW		NX		NY		NZ		OA		OB		OC		OD		OE		OF		OG		OH		OI		OJ		OK		OL		OM		ON		OO		OP		OQ		OR		OS		OT		OU		OV		OW		OX		OY		OZ		PA		PB		PC		PD		PE		PF		PG		PH		PI		PJ		PK		PL		PM		PN		PO		PP		PQ		PR		PS		PT		PU		PV		PW		PX		PY		PZ		QA		QB		QC		QD		QE		QF		QG		QH		QI		QJ		QK		QL		QM		QN		QO		QP		QQ		QR		QS		QT		QU		QV		QW		QX		QY		QZ		RA		RB		RC		RD		RE		RF		RG		RH		RI		RJ		RK		RL		RM		RN		RO		RP		RQ		RR		RS		RT		RU		RV		RW		RX		RY		RZ		SA		SB		SC		SD		SE		SF		SG		SH		SI		SJ		SK		SL		SM		SN		SO		SP		SQ	

TABLE 6.- Concluded.

(h) Concluded.

A										B										
FRAME	TRIP	TYPE	AO	AI	Q	H	RE	K	FREQ	FRAME	TRIP	TYPE	AO	AI	Q	H	RE	K	FREQ	
69100	N	US	10.0	10.0	.873	.300	3918788.	.0249	1.34	69101	N	US	10.0	10.0	.876	.300	3900053.	.0496	2.68	
69102	N	US	10.0	10.0	.876	.300	3900053.	.0496	2.68	69103	N	US	10.0	10.0	.877	.301	3904003.	.0991	5.36	
69105	N	US	10.0	10.0	.877	.301	3904003.	.0991	5.36	69106	N	US	10.0	10.0	.876	.300	3834160.	.1484	8.04	
69107	N	US	10.0	10.0	.876	.300	3834160.	.1484	8.04	69108	N	US	16.8	2.0	.727	.273	3492462.	.0270	1.34	
69119	N	US	16.8	2.0	.727	.273	3492462.	.0270	1.34	69120	N	US	16.8	2.0	.710	.270	3437737.	.0546	2.68	
69121	N	US	16.8	2.0	.710	.270	3437737.	.0546	2.68	69122	N	US	16.8	2.0	.700	.268	3366634.	.1100	5.36	
69123	N	US	16.8	2.0	.700	.268	3366634.	.1100	5.36	69200	N	US	16.8	2.0	.692	.297	3366733.	.2203	10.72	
69201	N	US	16.8	2.0	.692	.297	3366733.	.2203	10.72	69202	N	US	17.2	2.0	.734	.275	3455351.	.0268	1.34	
69206	N	US	17.2	2.0	.734	.275	3455351.	.0268	1.34	69207	N	US	17.2	2.0	.745	.277	3464110.	.0530	2.68	
69208	N	US	17.2	2.0	.745	.277	3464110.	.0530	2.68	69209	N	US	17.2	2.0	.709	.270	3370669.	.1086	5.36	
69211	N	US	17.2	2.0	.709	.270	3370669.	.1086	5.36	69212	N	US	17.2	2.0	.719	.272	3397722.	.1616	8.04	
69213	N	US	17.2	2.0	.719	.272	3397722.	.1616	8.04	69214	N	US	17.2	2.0	.755	.279	3459727.	.2098	10.72	
69215	N	US	17.2	2.0	.755	.279	3459727.	.2098	10.72	69216	N	US	17.5	2.0	.726	.273	3447111.	.0536	2.68	
69221	N	US	17.5	2.0	.726	.273	3447111.	.0536	2.68	69222	N	US	17.5	2.0	.684	.265	3226912.	.2255	10.72	
69223	N	US	17.5	2.0	.684	.265	3226912.	.2255	10.72	69224	N	US	18.5	2.0	.689	.266	3255757.	.0549	2.68	
69224	N	US	18.5	2.0	.689	.266	3255757.	.0549	2.68	69300	N	US	16.5	2.0	.671	.252	3218013.	.0554	2.68	
69300	N	US	16.5	2.0	.671	.252	3218013.	.0554	2.68	69311	N	US	9.4	10.0	.341	.153	2344107.	.0245	.83	
70019	N	US	9.4	10.0	.341	.153	2344107.	.0245	.83	70020	N	US	9.4	10.0	.340	.155	2355519.	.0973	3.30	
70021	N	US	9.4	10.0	.340	.155	2355519.	.0973	3.30	70022	N	US	9.4	10.0	.340	.185	2356677.	.1948	6.60	
70023	N	US	9.4	10.0	.340	.185	2356677.	.1948	6.60	70100	N	US	5.7	10.0	.675	.301	3916444.	.0104	.56	
70107	N	US	5.7	10.0	.675	.301	3916444.	.0104	.56	70108	N	US	5.7	10.0	.676	.301	3876178.	.0247	1.34	
70109	N	US	5.7	10.0	.676	.301	3876178.	.0247	1.34	70110	N	US	5.7	10.0	.672	.300	3851599.	.0495	2.68	
70113	N	US	5.7	10.0	.672	.300	3851599.	.0495	2.68	70114	N	US	5.7	10.0	.675	.301	3854554.	.0936	5.36	
70115	N	US	5.7	10.0	.675	.301	3854554.	.0936	5.36	70116	N	US	5.7	10.0	.674	.301	3943602.	.1479	8.04	
70117	N	US	5.7	10.0	.674	.301	3943602.	.1479	8.04	70118	N	US	5.7	10.0						

TABLE 7.- LIST OF STATIC DATA

Airfoil ^a	M _∞	First frame	Last frame	No. of frames	α _{min}	α _{max}	Figure	Airfoil ^a	M _∞	First frame	Last frame	No. of frames	α _{min}	α _{max}	Figure
N-0012	0.30	04019	04412	24	-5.0	20.0		FX-098T	0.30	17208	17314	8	0.0	20.0	
	.30	11018	11309	33	-5.0	30.0	9, 12, 16	FX-098T	.18	18019	18206	10	0.0	20.0	
	.30	12102	(quasi-steady)		-5.0	15.0	16	SC-1095	.30	35021	35214	17	-5.0	16.0	19
	.28	12109			-4.0	16.0		SC-1095	.25	35220	35401	20	-5.0	25.0	
	.28	13222			10.1	29.9		SC-1095	.18	36019	36120	10	-5.0	20.0	
	.27	12020			10.1	29.9		SC-1095	.11	36202	36218	11	-5.0	20.0	
	.26	12118			10.1	29.9		SC-1095T	.30	34022	34115	8	0.0	16.0	
	.25	12208			-3.0	17.0		SC-1095T	.18	34200	34214	7	0.0	16.0	
	.25	13303			-3.0	17.0		HH-02	.30	40222	41103	20	-5.0	20.0	20
	.23	12203			10.1	29.9		HH-02	.25	41110	41215	20	-5.0	20.0	
	.22	13308			-3.0	17.0		HH-02	.18	40114	40215	10	-5.0	20.0	
	.22	13310			-3.0	17.0		HH-02	.11	40018	40108	11	-5.0	20.0	
	.20	12300			10.1	29.9		HH-02T	.30	41221	41314	8	0.0	16.0	
	.18	12310			-3.0	17.0		HH-02T	.18	41401	41419	10	0.0	16.0	
	.17	12305			10.1	29.9		VR-7	.30	46418	46615	18	-5.0	25.0	11, 21
	.11	13021			-3.0	17.0		VR-7	.25	46307	46412	19	-5.0	25.0	
	.11	13107			10.1	29.9		VR-7	.18	46116	46301	13	-5.0	25.0	
	.07	13120			-3.0	17.0		VR-7	.11	46018	46110	13	-5.0	25.0	
	.07	13115			10.1	29.9		VR-7T	.30	46802	46823	10	0.0	20.0	
	.04	13205			-5.0	15.0		VR-7T	.18	46621	46718	10	0.0	20.0	
	.04	13217			10.1	29.9		NLR-1	.30	61407	61606	19	-5.0	25.0	22
N-0012T	.29	13321			-3.0	17.0		NLR-1	.25	61221	61401	19	-5.0	25.0	
N-0012T	.18	13313			-3.0	17.0		NLR-1	.18	61114	61215	10	-5.0	20.0	
Ames-01	.30	26020	26307	23	-5.0	25.0	17	NLR-1	.11	61018	61108	11	-5.0	20.0	
Ames-01	.25	26313	27117	22	-5.0	25.0		NLR-1T	.30	65019	65115	13	-11.0	16.0	
Ames-01	.18	27123	27318	22	-5.0	25.0		NLR-1T	.18	64221	64311	8	0.0	16.0	
Ames-01	.11	27400	28120	21	-5.0	25.0		NLR-7301	.30	66019	66209	17	-5.0	20.0	23
Ames-01T	.30	28312	28410	9	0.0	16.0		NLR-7301	.25	66214	66314	17	-5.0	25.0	
Ames-01T	.19	28207	28304	10	0.0	20.0		NLR-7301	.18	66320	66511	18	-5.0	25.0	
FX-098	.30	20118	20322	21	-5.0	25.0	18	NLR-7301	.11	66516	66617	17	-5.0	25.0	
FX-098	.25	19314	20112	22	-5.0	25.0		NLR-7301T	.30	66810	66822	6	0.0	13.0	
FX-098	.18	19020	19308	23	-5.0	25.0		NLR-7301T	.18	66623	66802	13	0.0	25.0	
FX-098	.11	18215	18502	23	-5.0	25.0	10								

^aT = trip.

TABLE 8.- MACH NUMBER SWEEP AT $\alpha = 15^\circ + 10^\circ \sin \omega t$, $k = 0.10$

M_∞^α	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301
0.035	8102		16019			58102		
.07	8114	24323	16105	33022	42121	47123	62020	
.11	8214	24314	16114	33106	42321	{47206 58111	62104	67120
.18	8220	{24217 31209	16200	33110	42302	{47213 58121	62112	67220
.18T	{14021 14106	29117	17103	34321	42110	47112	64109	67021
.20							{62114 65207	
.22	9202	24209	16300	33205	42309	47217	62208	
.25	9203	24201	16308	33207	42313	47301	62210	67305
.28	9208	24117	22208	33215	42218	47305	62218	
.29	{9217 14220	24105	22201	33300	42210	45023	{62307 65209	
.29T	{14208 14210	29106	17200	34308	42100	47100	64023	

 α_T = trip.TABLE 9.- FREQUENCY SWEEP AT $M_\infty = 0.29$, $\alpha = 15^\circ + 10^\circ \sin \omega t$

k^α	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301
0.01	9210	{30019 30020	21100	38300				
.025	{9213 14218	24022	22023	33217	42206	45019	62302	
.025T	{14117 14200	29023	17117		42019	47020	64019	
.05	{9214 14219	24100	22103	33222	42208	45021	62304	
.05T	{14119 14202	29101	17119	34306	42021	47022	64021	
.10	{9217 14220	24105	22201	33300	42210	45023	62307 65209	
.10T	{14208 14210	29106	17200	34308	42100	47100	64023	
.15	9218	24109	22206	34409	{42212 42217	45101	62309	

 α_T = trip.

TABLE 10.- FREQUENCY SWEEP AT $M_\infty = 0.30$, $\alpha = 10^\circ + 10^\circ \sin \omega t$

k	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301
0.01	9221	30105	21107	38306	43019	45109	62317	69019
.025	9222	{25022 31102	22216	37023	43106	45111	62320	69100
.05	9223	{25102 31104	22217	37101	43108	45113	62322	69102
.10	9302	25104	22218	37107	43112	45117	62400	69105
.12							62403	
.15	9307	{25109 31110 31112	22219	37109	{43114 43117	45119	62405	69107

TABLE 11.- FREQUENCY SWEEP AT $M_\infty = 0.30$, $\alpha = 15^\circ + 5^\circ \sin \omega t$

k	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301
0.01	10113	30110	21112	39104		45203	63018	68019
.025	10114	25204	23021	38021	43303	45205	63019	68100
.05	10117	25205	23022	38022	43304	45207	63020	68102
.10	10118	25208	23023	38102	43305	45209	63021	68104
.12							63100	
.15	10120	25209	23100	38103	43308	45211	63101	68109
.20	10123	25210	23101	38104	43309	45213	63102	68111

TABLE 12.- FREQUENCY SWEEP AT $M_\infty = 0.30$, $\alpha = 10^\circ + 5^\circ \sin \omega t$

k	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301	NLR-7301T
0.01	10202	30119	21200	39107	44019			68119	
.025	{7112 10203	25117	22307	37207	{44021 44119	45221	63108	68121	67108
.05	{7222 10204	25118	22308	37208	44023	45223		68123	67110
.075	10207								
.10	{7113 10208	25119	22309	37210	{44104 44118	45300	63112	68201	67112
.15	{7300 10211	{25121 25122	22311	37213	44106	45302			
.20	{7114 10212	25123	22312	37215	{44112 44120	45303	63114	68203	

TABLE 13.- STALL ONSET AT $M_\infty = 0.30$, $\alpha = \alpha_0 + 10^\circ \sin \omega t$, $k = 0.10$

NACA 0012, $\alpha_0 = 3.8^\circ$	A-01, $\alpha_0 = 5.5^\circ$	FX-098, $\alpha_0 = 3.8^\circ$	SC-1095, $\alpha_0 = 4.4^\circ$	HH-02, $\alpha_0 = 4.0^\circ$	VR-7, $\alpha_0 = 4.6^\circ$	NLR-1, $\alpha_0 = 2.7^\circ$	NLR-7301, $\alpha_0 = 5.7^\circ$
10305	25319	23201	34418	43219	63323	70115	

TABLE 14.- STALL SUPPRESSION AT $M_\infty = 0.30$, $\alpha = \alpha_0 + 10^\circ \sin \omega t$

k	NACA 0012	A-01, $\alpha_0 = 5.0^\circ$	FX-098, $\alpha_0 = 3.3^\circ$	SC-1095, $\alpha_0 = 4.1^\circ$	HH-02, $\alpha_0 = 3.8^\circ$	VR-7, $\alpha_0 = 4.1^\circ$	NLR-1, $\alpha_0 = 2.5^\circ$	NLR-7301, $\alpha_0 = 5.7^\circ$
0.01		29205	21208	39021	43215	48019	63312	70107
.025		31119			43202	48023	63314	70109
.05		{29207 31121 25311}	23206	37119	43204	48101	63318	70113
.10		{29211 31123 29213}	23208	37121	43206	48103	63320	70115
.15		{29215 31201}	23211	37123	43209			70117

α See table 19.

TABLE 15.- STALL SUPPRESSION AT $M_\infty = 0.18$, $\alpha = \alpha_0 + 10^\circ \sin \omega t$

k	NACA 0012, $\alpha_0 = 8.0^\circ$	A-01, $\alpha_0 = 7.5^\circ$	FX-098, $\alpha_0 = 6.5^\circ$	SC-1095, $\alpha_0 = 6.2^\circ$	HH-02	VR-7, $\alpha_0 = 4.7^\circ$	NLR-1	NLR-7301, $\alpha_0 = 9.4^\circ$
0.01	9110	30215	21219			50116		
.025						49216		70019
.05	9112	{24302 31215}	16213	33118				
.10						49300		70021
.20	9118	{24306 31217}	16215	33121		49307		70023
.25						49310		

TABLE 16.- PITCH DAMPING STUDIES AT $M_\infty = 0.30$, $\alpha = \alpha_0 + 2^\circ \sin \omega t$

NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301 α
$k = 0.01$							
$\alpha_0 = 14.0^\circ$ 30206							
$\alpha_0 = 14.0^\circ$ $\alpha_0 = 12.5^\circ$ $\alpha_0 = 12.5^\circ$ 39115 44221 48300							
$\alpha_0 = 15.5^\circ$ 44212							
$k = 0.025$							
$\alpha_0 = 12.5^\circ$ $\alpha_0 = 12.5^\circ$ $\alpha_0 = 16.8^\circ$ 44222 48301 69119							
$\alpha_0 = 15.5^\circ$ $\alpha_0 = 13.0^\circ$ $\alpha_0 = 17.2^\circ$ 44214 48116 69206							
$k = 0.05$							
$\alpha_0 = 12.5^\circ$ $\alpha_0 = 12.5^\circ$ $\alpha_0 = 11.1^\circ$ $\alpha_0 = 16.5^\circ$ 44223 48302 63302 69310							
$\alpha_0 = 15.5^\circ$ $\alpha_0 = 13.0^\circ$ $\alpha_0 = 15.0^\circ$ $\alpha_0 = 16.8^\circ$ 44215 48118 63220 69121							
$\alpha_0 = 14.0^\circ$ $\alpha_0 = 17.0^\circ$ $\alpha_0 = 17.2^\circ$ 48215 63213 69208							
$\alpha_0 = 17.5^\circ$ 69221							
$\alpha_0 = 18.5^\circ$ 69304							
$k = 0.10$							
$\alpha_0 = 12.5^\circ$ $\alpha_0 = 12.5^\circ$ $\alpha_0 = 16.8^\circ$ 44300 48303 69123							
$\alpha_0 = 14.0^\circ$ $\alpha_0 = 13.0^\circ$ $\alpha_0 = 17.2^\circ$ 44202 48122 69211							
$\alpha_0 = 15.5^\circ$ $\alpha_0 = 14.0^\circ$ 44216 48216							

TABLE 16.- Concluded.

NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301 ^a
$k = 0.15$							
$\alpha_o = 14.5^\circ$ 31310				$\alpha_o = 12.5^\circ$ 44303	$\alpha_o = 12.5^\circ$ 48304		$\alpha_o = 17.2^\circ$ 69213
				$\alpha_o = 15.5^\circ$ 44217			
$k = 0.20$							
$\alpha_o = 13.5^\circ$ 29223	$\alpha_o = 12.0^\circ$ 23219	$\alpha_o = 12.3^\circ$ 38201	$\alpha_o = 12.5^\circ$ 44304	$\alpha_o = 12.5^\circ$ 48308	$\alpha_o = 11.1^\circ$ 63304	$\alpha_o = 16.8^\circ$ 69201	
$\alpha_o = 14.5^\circ$ 29304	$\alpha_o = 14.0^\circ$ 23305	$\alpha_o = 14.0^\circ$ 38119	$\alpha_o = 14.0^\circ$ 44204	$\alpha_o = 13.0^\circ$ 48200	$\alpha_o = 15.0^\circ$ 63222	$\alpha_o = 17.2^\circ$ 69215	
31302	$\alpha_o = 16.0^\circ$ 23310	$\alpha_o = 16.0^\circ$ 38110	$\alpha_o = 15.5^\circ$ 42218	$\alpha_o = 14.0^\circ$ 48217	$\alpha_o = 16.4^\circ$ 63208	$\alpha_o = 17.5^\circ$ 69223	
$\alpha_o = 16.5^\circ$ 29309			$\alpha_o = 17.5^\circ$ 44209	$\alpha_o = 16.0^\circ$ 48209	$\alpha_o = 17.0^\circ$ 63215		

^aSee table 19.

TABLE 17.- NO SEPARATION: $M_\infty = 0.30$, $\alpha = 5^\circ + 5^\circ \sin \omega t$

k	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1 ^a	NLR-7301 ^a
0.01	10218							
.10	10221	25301	23107					
.20	10222	25303	23109					68211

^aSee table 19.

TABLE 18.- DYNAMIC BOUNDARY-LAYER TRIP DATA

M_∞	k	NACA 0012	A-01	FX-098	SC-1095	HH-02	VR-7	NLR-1	NLR-7301
0.18	0.05	{14019 14104	29115	17100	34318	42108	47110	64107	67019
.18	.10	{14021 14106	29117	17103	34321	42110	47112	64109	67021
.18	.15	{14023 14108	29119	17109	34323	42113	47114	64111	
.18	.20								67023
.30	.025	{14117 14200	29023	17117		42019	47020	64019 ^a	(a)
.30	.05	{14119 14202	29101	17119	34306	42021	47022	64021 ^a	(a)
.30	.10	{14208 14210	29106	17200	34308	42100	47100	64023 ^a	(a)

^aSee table 19.

TABLE 19.- MISCELLANEOUS DYNAMIC DATA

Airfoil	Frame	M_∞	α_0	α_1	k	Remarks
N-0012	8019	0.035	10.0	10.0	0.10	Low Reynolds number, 0.5×10^6
	8021	.035	10.0	10.0	.15	
	8023	.035	10.0	10.0	.25	
	8104	.035	15.0	10.0	.15	
	8106	.035	15.0	14.0	.10	
	8116	.07	15.0	10.0	.15	Match reference 3
	8118	.07	15.0	10.0	.25	
	8123	.07	15.0	14.0	.10	Match reference 3
	8203	.07	10.0	10.0	.25	
	8210	.11	10.0	10.0	.25	
	8222	.18	15.0	10.0	.15	Match reference 3
	8306	.18	15.0	14.0	.10	Match reference 3
	9022	.18	15.0	6.0	.24	Match reference 3
	9101	.18	15.0	5.0	.29	
	9106	.18	10.0	10.0	.25	
	7108	.30	8.0	5.0	.025	Variable α_0
	7110		8.0		.10	
	7111		8.0		.20	
	7216		8.8		.05	
	7214		8.8		.10	
	7212		8.8		.15	
	7104		9.0		.025	
	7019		9.0		.05	
	7021		9.0		.10	
	7101		9.0		.15	
	7023		9.0		.20	
			10.0			See table 17
	7117		11.0		.025	
	7118		11.0		.05	
	7119		11.0		.10	
	7120		11.0		.15	
	7121		11.0		.20	
	7200		12.0		.025	
	7202		12.0		.05	
	7205		12.0		.10	
	7305		12.0		.15	
	7207		12.0		.20	
			15.0			See table 16
	10309		2.8	10.0	.10	
	10305		3.8			
	10303		5.0			
	9302		10.0			
	10022		12.0			
	9217	.29	15.0			
	14220	.29	15.0			
	10101	.27	20.0			
	10104	.30	12.0	8.0	.05	Match reference 17
	10105	.30	12.0	8.0	.10	Match reference 17
	10108	.30	12.0	8.0	.13	Match reference 17
	15218	.29	15.0	10.0	.10	Pressure orifices closed

TABLE 19.- Continued.

Airfoil	Frame	M_∞	α_0	α_1	k	Remarks
N-0012	Many	Variable	Variable	10.0	0.001	Quasi-static; see table 12
W-098	23117	0.30	5.0	10.0	.10	
Ames-01	30201	↓	11.0	5.0	.01	
Ames-01	25214		↓	↓	.05	
Ames-01	25216				.10	
SC-1095	39110				.01	
↓	37219				.05	Match reference 18
	37221				.10	
	37304		12.0	8.0	.05	
	37305		12.0	8.0	.10	
	37306		12.0	8.0	.13	
HH-02	43314	↓	11.0	5.0	.025	Match reference 18
HH-02	43315		11.0	5.0	.05	
HH-02	43316		11.0	5.0	.10	
VR-7	54019	.18	10.0	10.0	.025	
↓	54022	10.0	↓	.05		
	54101	10.0		.10		
	54110	10.0		.15		
	54113	10.0		.20		
	54116	10.0		.25		
	49023	15.0		.01		
	49110	↓		.025		
	49117			.05		
	49120			.10		
	58121			.10		
	49203			.15		
	54216			.15		
	57018			.15		
	58018			.15		
	58120			.15		
	49206			.20		
NLR-1	65223	.11	7.0	5.0	.025	No separation
↓	65300	.11	7.0	5.0	.20	No separation
	62114	.20	15.0	10.0	.10	Match reference 19
	65207	.20	15.0	10.0	.10	
	62121	.20	10.0	10.0	.17	
	62202	.20	15.0	5.0	.17	
	62201	.20	15.0	5.0	.28	
	62403	.30	10.0	10.0	.12	No separation
	63100	↓	15.0	5.0	.12	
	63122		12.0	8.0	.12	
	65309		7.0	5.0	.01	
	65311		7.0	5.0	.20	
	65121		-2.0	10.0	.01	Stall at negative α
	65122		↓	↓	.025	Stall at negative α
	65123				.05	Stall at negative α
	65200				.10	Stall at negative α
NLR-1T	64212				.01	Trip; stall at negative α
NLR-1T	64213		↓	↓	.025	Trip; stall at negative α
NLR-1T	64214				.05	Trip; stall at negative α

TABLE 19.- Concluded.

Airfoil	Frame	M_∞	α_0	α_1	k	Remarks
NLR-1T	64215	0.30	-2.0	10.0	0.10	Trip; stall at negative α
NLR-1T	64119	.30	2.5		.01	Trip; stall suppression
NLR-1T	64121	.30	2.5		.025	Trip; stall suppression
NLR-1T	64202	.30	2.5		.05	Trip; stall suppression
NLR-1T	64204	.30	2.5		.10	Trip; stall suppression
NLR-7	67201	.11	10.0		.10	
	67208	.18	10.0		.025	
	67210	.18	10.0		.10	
	67212	.18	10.0		.20	
	67218	.18	15.0		.025	
	67220	.18	15.0		.10	
	67222	.18	15.0		.20	
	67310	.25	10.0		.10	
	68219	.30	12.0	2.0	.05	No separation
	68221	.30	12.0	2.0	.10	No separation
	68304	.30	12.0	2.0	.20	No separation
NLR-7T	67108	.30	10.0	5.0	.025	Trip
NLR-7T	67110	.30	10.0	5.0	.05	Trip
NLR-7T	67112	.30	10.0	5.0	.10	Trip

TABLE 20.- TEST CASES FOR NUMERICAL ANALYSIS (ref. 1)

Case	Frame	Airfoil	α_0	α_1	k	Case	Frame	Airfoil	α_0	α_1	k
1	10222	NACA 0012	5	5	0.20	7	10212	NACA 0012	10	5	0.20
2	68211	NLR-7301	5	↓	↓	8	9302	↓	10	10	.10
3	7111	NACA 0012	8	↓	↓	9	10113	↓	15	5	.01
4	68203	NLR-7301	10	↓	↓	10114	↓	↓	↓	↓	.025
5	7023	NACA 0012	9	↓	↓	10117	↓	↓	↓	↓	.05
6	45221	VR-7	10	↓	.025	10118	↓	↓	↓	↓	.10
↓	45223	↓	↓	↓	.05	10120	↓	↓	↓	↓	.15
↓	45300	↓	↓	↓	.10	10123	↓	↓	↓	↓	.20
↓	45302	↓	↓	↓	.15	10	45203	VR-7	↓	↓	.01
↓	45303	↓	↓	↓	.20	45205	↓	↓	↓	↓	.025
7	10202	NACA 0012	↓	↓	.01	45207	↓	↓	↓	↓	.05
↓	10203	↓	↓	↓	.025	45209	↓	↓	↓	↓	.10
↓	10204	↓	↓	↓	.05	45211	↓	↓	↓	↓	.15
↓	10208	↓	↓	↓	.10	45213	↓	↓	↓	↓	.20
↓	10211	↓	↓	↓	.15						

TABLE 21.- ARCHIVED TAPE ASSIGNMENT

Airfoil	Tape number
NACA 0012	03462B
Ames A-01	C1065C
Wortmann FX 69-H-098	C1064C
Hughes HH-02 (with tab)	C1066C
Sikorsky SC-1095	C1067C
Vertol VR-7 (with tab)	03469B
NLR-1	C1069C
NLR-7301	C1074C

TABLE 22.- MAGNETIC TAPE
ATTRIBUTES

Unlabeled file sequence 2400-ft reel 9 Track 1600 Bits/in. Odd parity EBCDIC mode Blocked (4000 bytes - 50 records) Fixed-length records (80 bytes) Formatted data

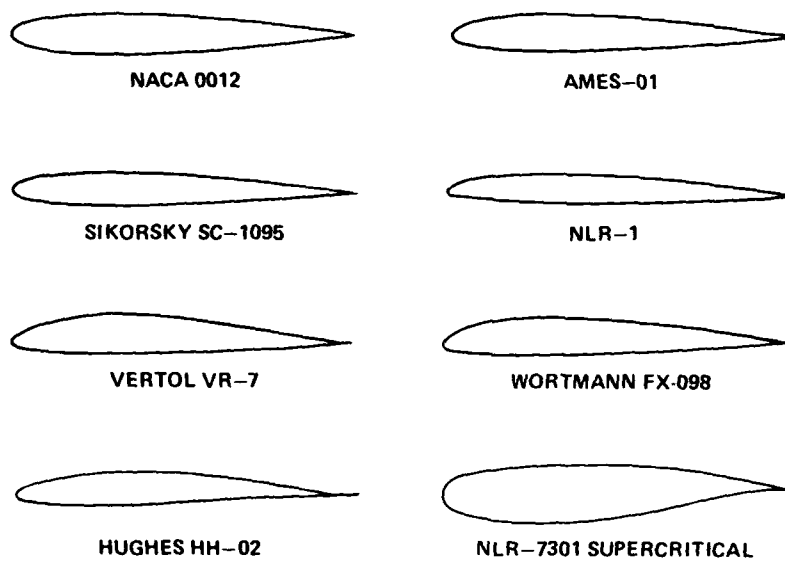
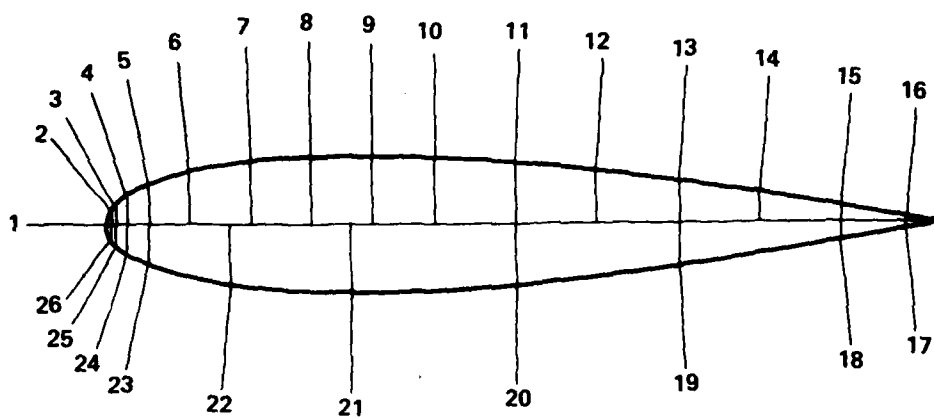


Figure 1.- Airfoil profiles tested.



NOMINAL LOCATIONS OF PRESSURE TRANSDUCERS

1:0.000	5:0.050	9:0.325	13:0.700	17:0.980	21:0.300	25:0.010
2:0.005	6:0.100	10:0.400	14:0.800	18:0.900	22:0.150	26:0.005
3:0.010	7:0.175	11:0.500	15:0.900	19:0.700	23:0.050	
4:0.025	8:0.250	12:0.600	16:0.980	20:0.500	24:0.025	

Figure 2.- Upper and lower surface-pressure transducer locations.

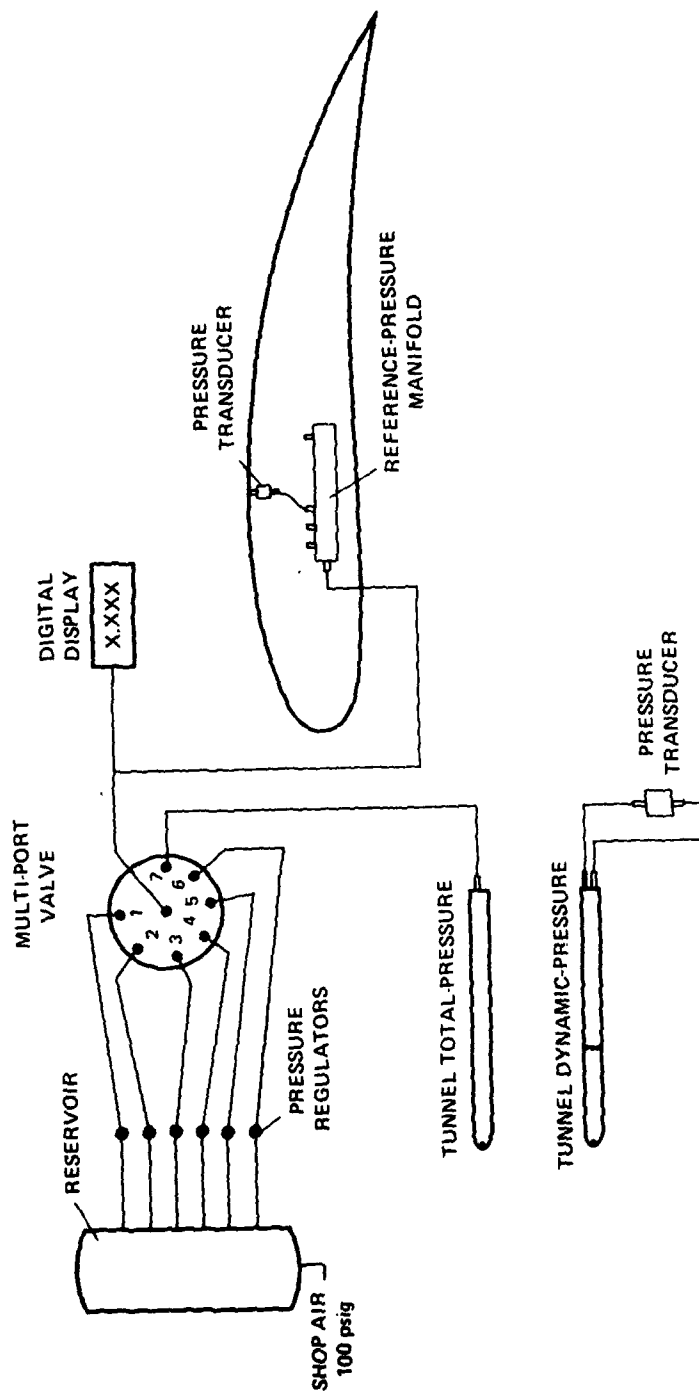


Figure 3.- Plumbing for reference pressures.

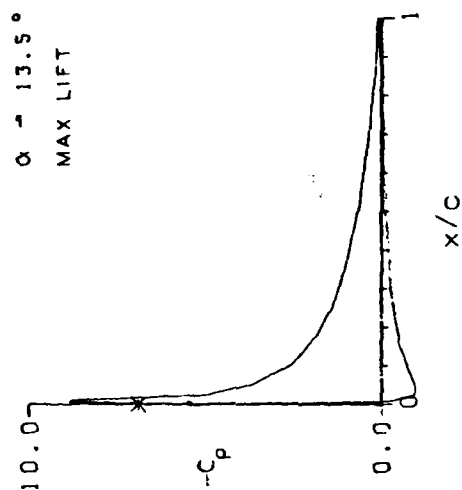
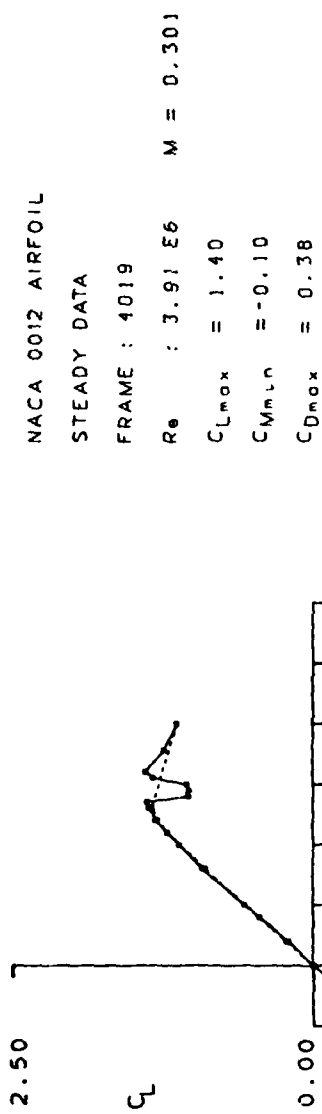


Figure 4.- Static data for NACA 0012 airfoil.

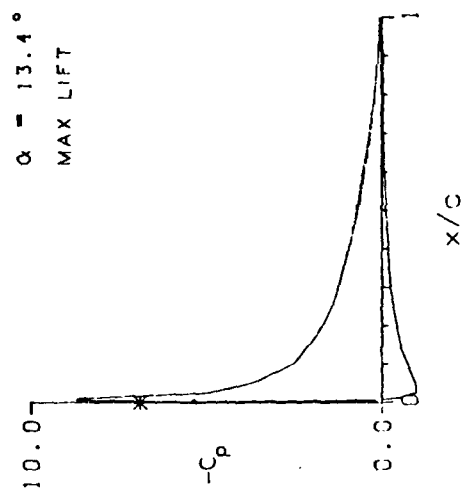
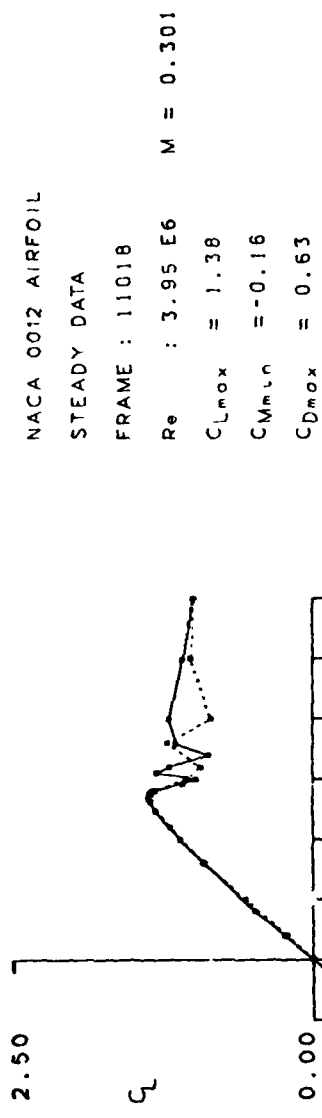


Figure 4.- Concluded.

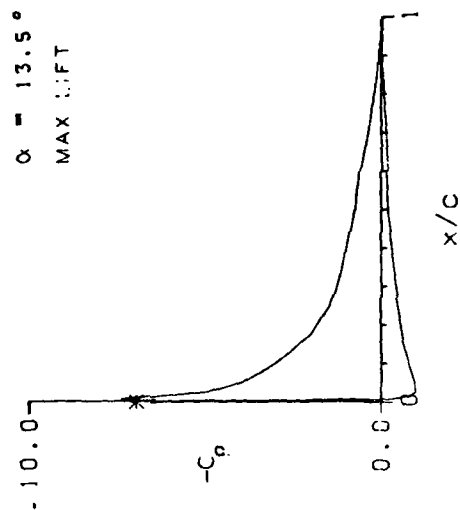


Figure 5.- Static data for Ames A-01 airfoil.

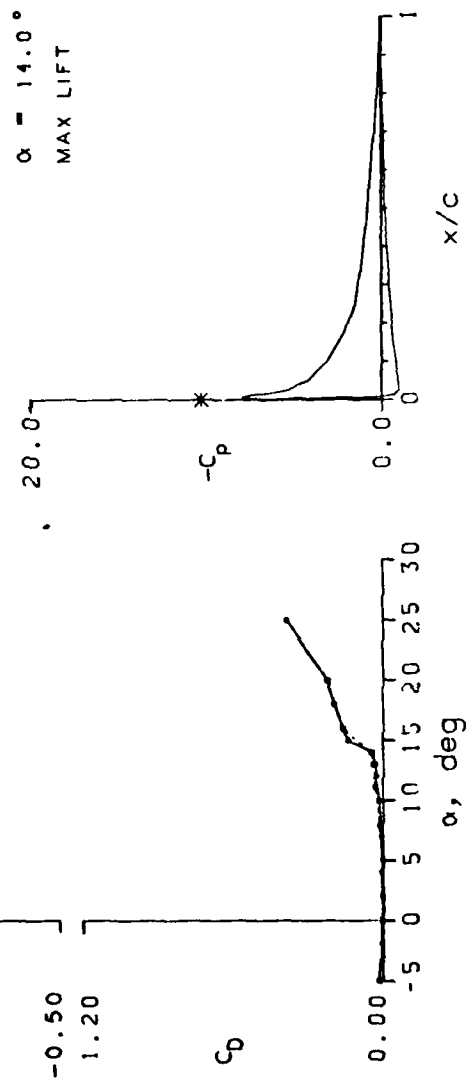
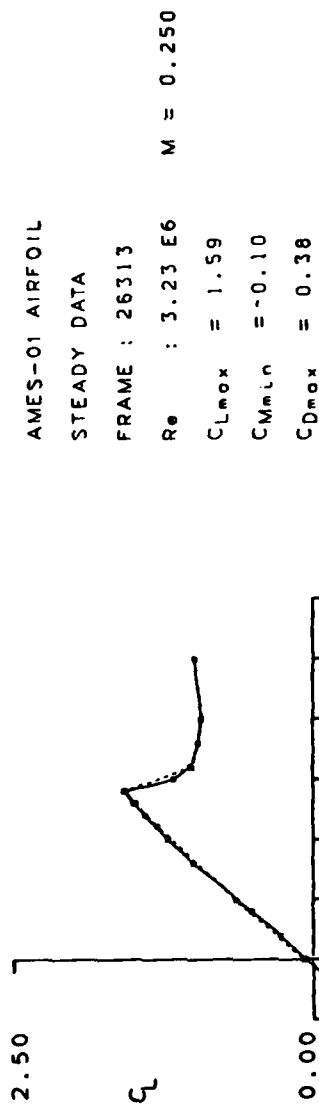


Figure 5.- Continued.

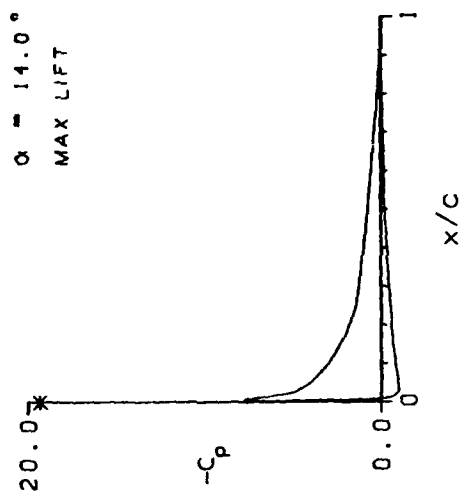


Figure 5.- Continued.

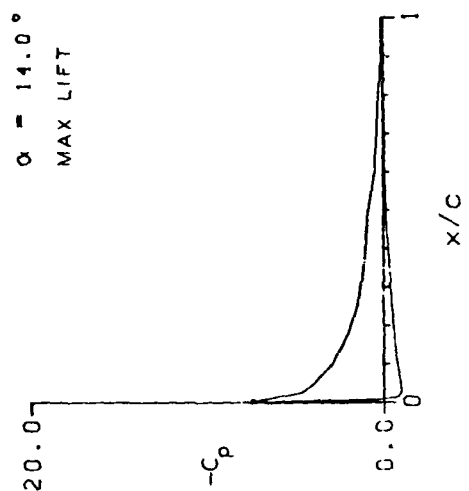
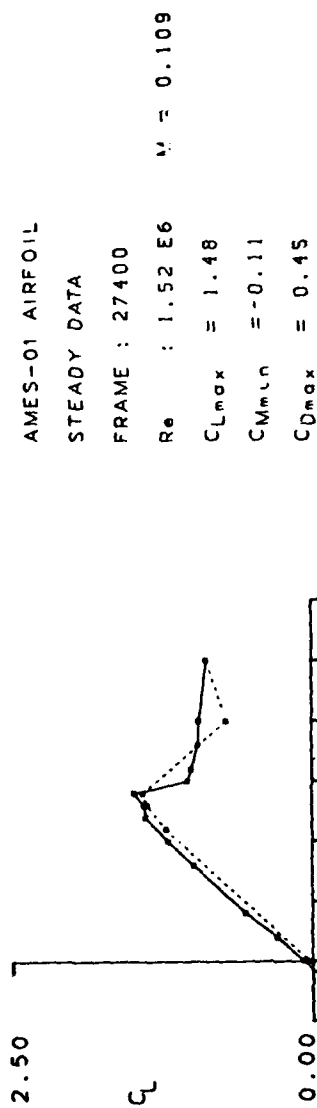


Figure 5.- Continued.

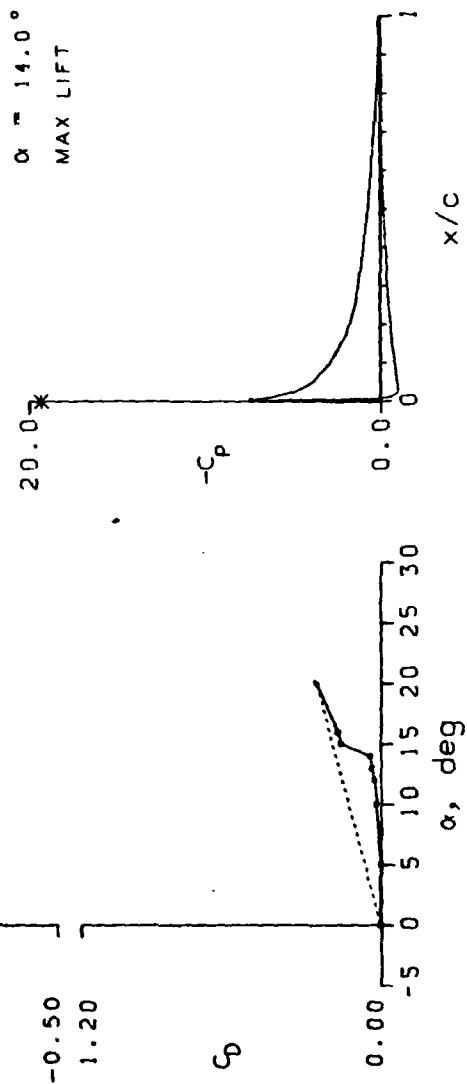


Figure 5.- Continued.

AMES-01 AIRFOIL
STEADY DATA--TRIP

FRAME : 28312

Re : 3.90 E6 M = 0.300

C_{Lmax} = 1.50

C_{Mmin} = -0.08

C_{Dmax} = 0.19

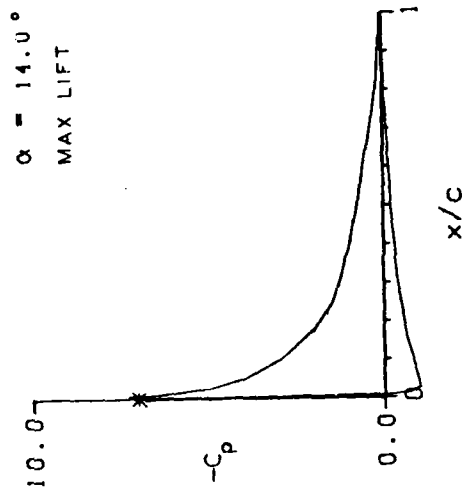
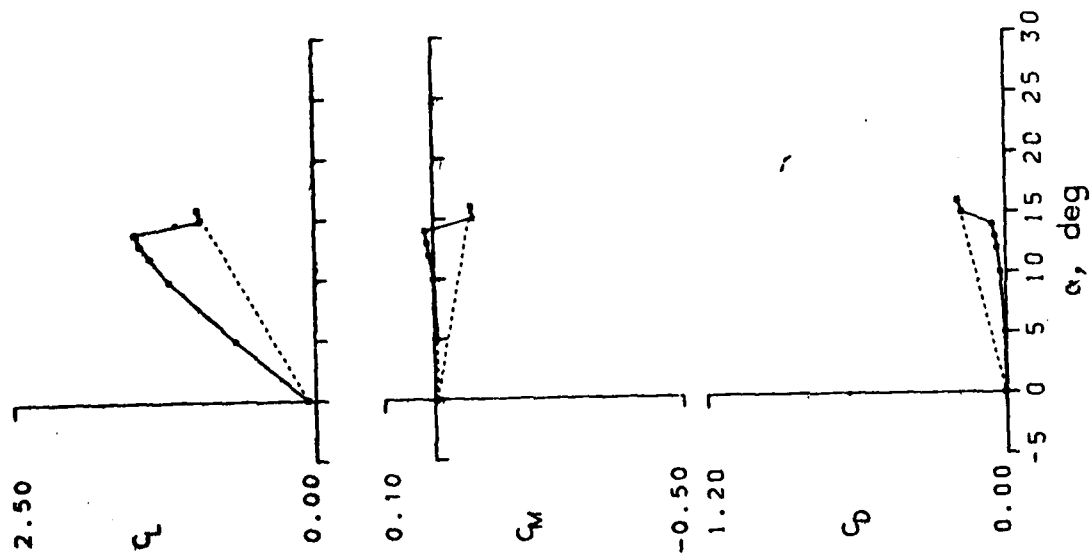


Figure 5.- Concluded.

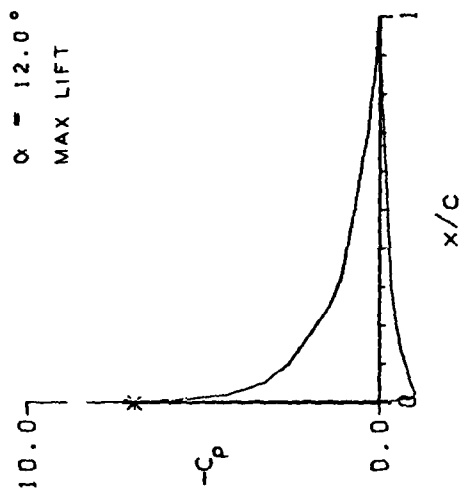
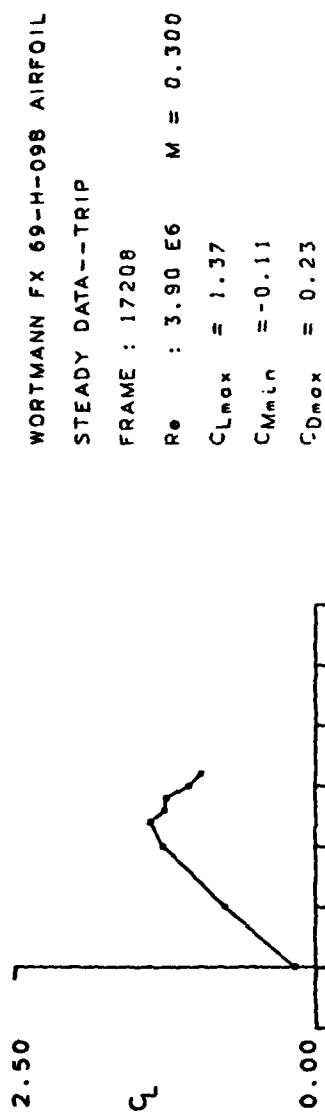


Figure 6.- Static data for Wortmann FX-098 airfoil.

WORTMANN FX 69-H-098 AIRFOIL
 STEADY DATA--TRIP
 FRAME : 18019
 Re : 2.39 E6 M = 0.185
 C_{Lmax} = 1.36
 C_{Mmin} = -0.09
 C_{Dmax} = 0.31

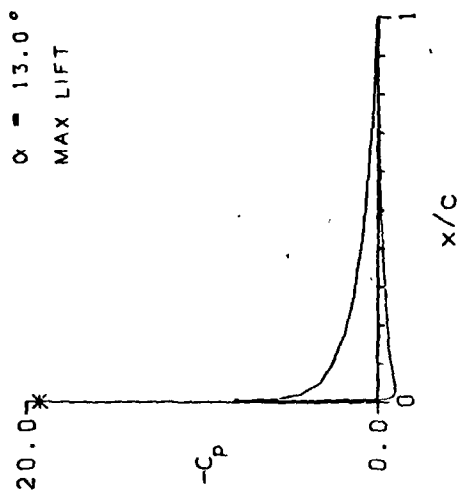
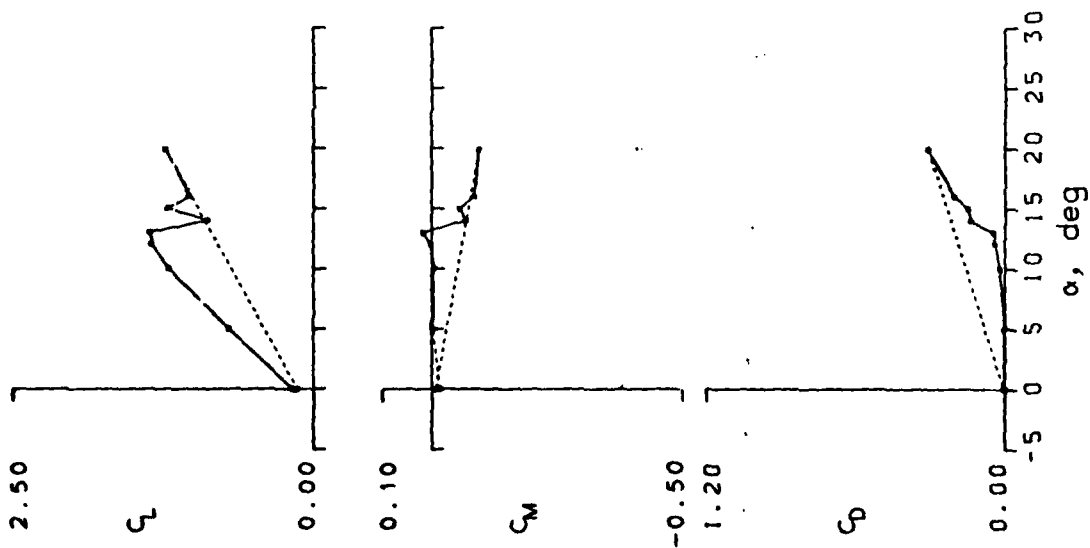


Figure 6.- Continued.

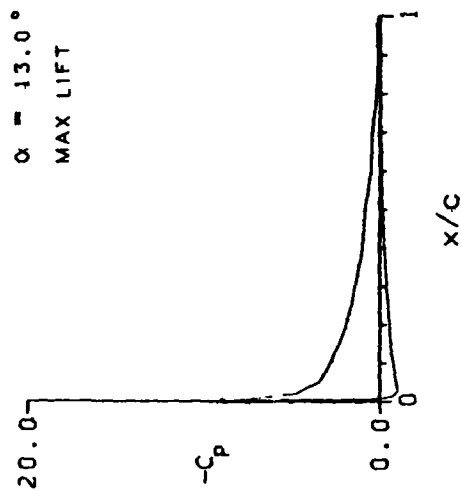
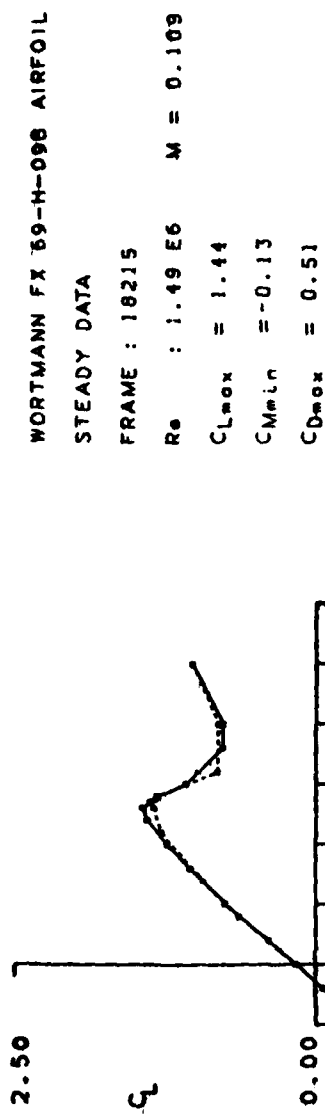


Figure 6.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

STEADY DATA

FRAME : 19020

Re : 2.40 E6 M = 0.185

C_{Lmax} = 1.51

C_{Mmin} = -0.14

C_{Dmax} = 0.49

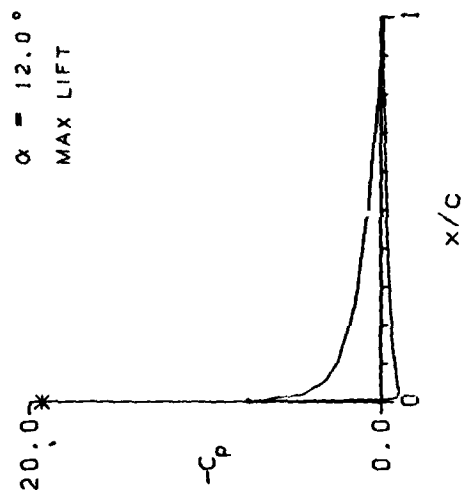
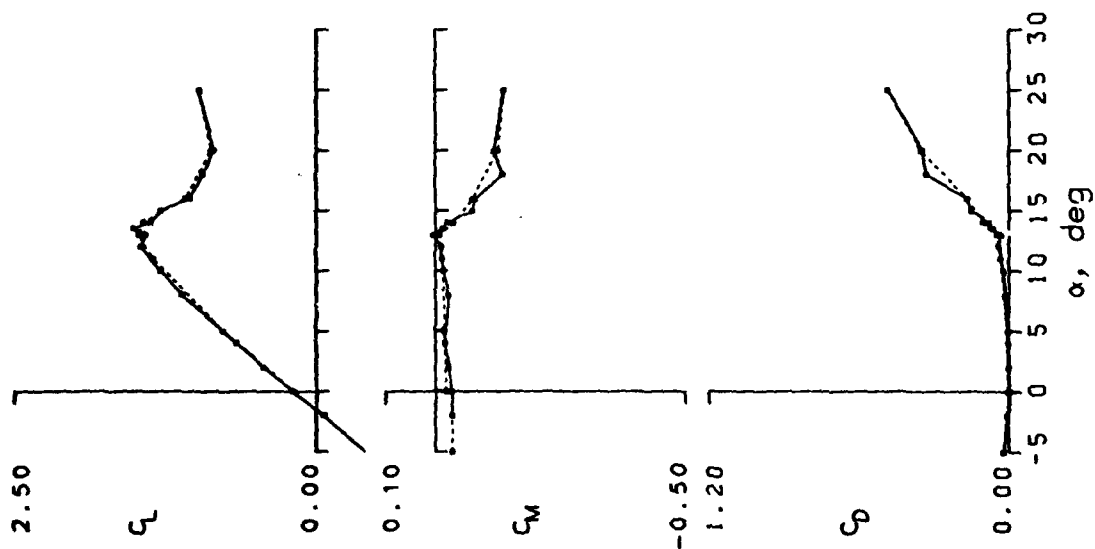


Figure 6.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

STEADY DATA

FRAME : 19314

R_e : 3.24 E6 M = 0.251

C_{Lmax} = 1.50

C_{Mmin} = -0.11

C_{Dmax} = 0.94

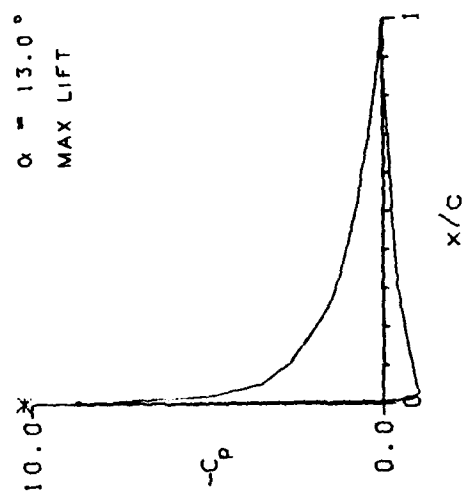
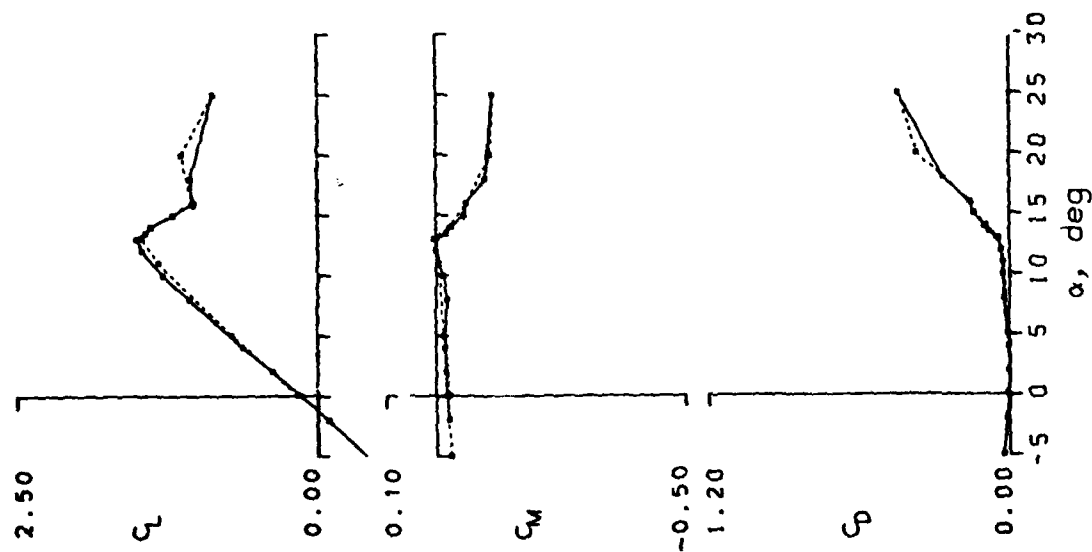


Figure 6.- Continued.

WORTMANN FX 69-M-098 AIRFOIL

STEADY DATA

FRAME : 20118

R_e : 3.76 E6 M = 0.301

C_{Lmax} = 1.49

C_{Mmin} = -0.12

C_{Dmax} = 0.43

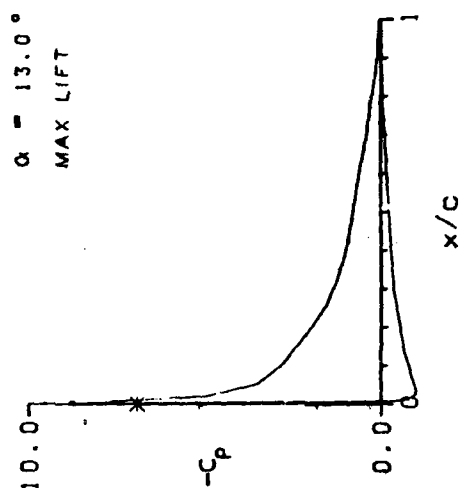
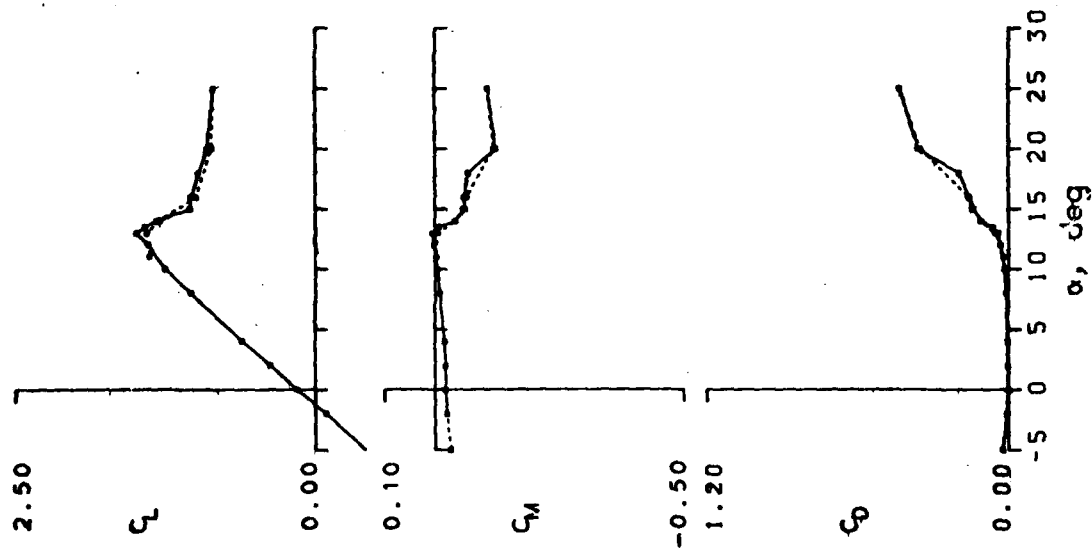


Figure 6.- Concluded.

SIKORSKY SC-1095 AIRFOIL

STEADY DATA--TRIP

FRAME : 34022

Re : 3.97 E6 M = 0.302

$C_{Lmax} = 1.43$

$C_{Mmin} = -0.12$

$C_{Dmax} = 0.25$

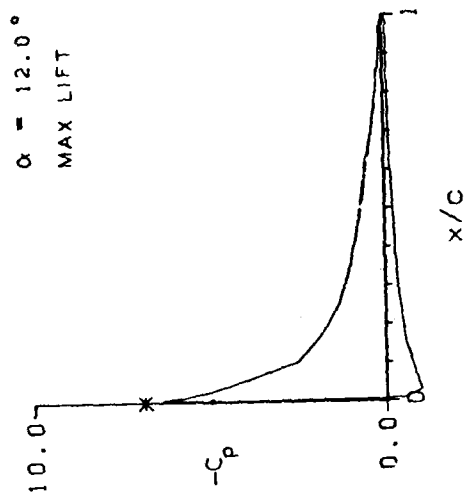
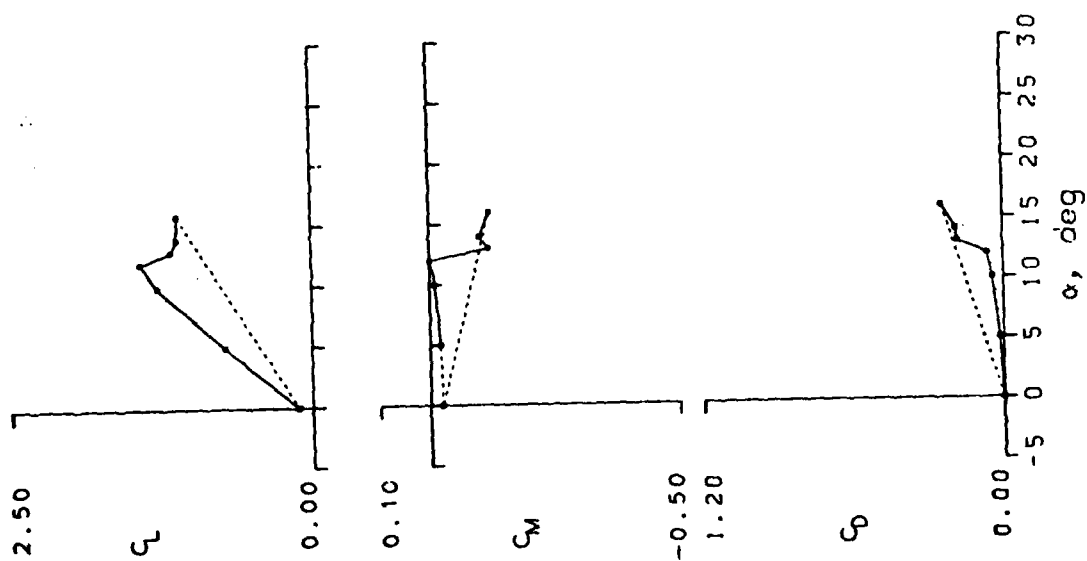


Figure 7.- Static data for Sikorsky SC-1095 airfoil.

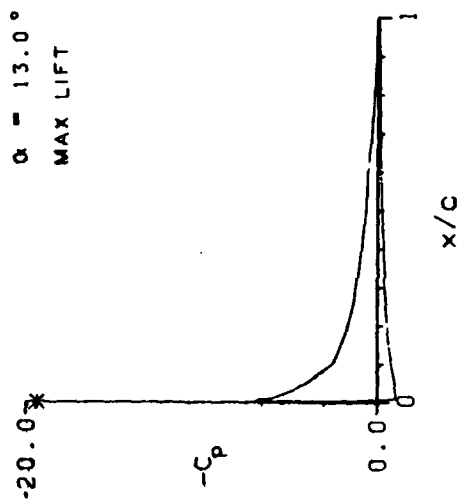
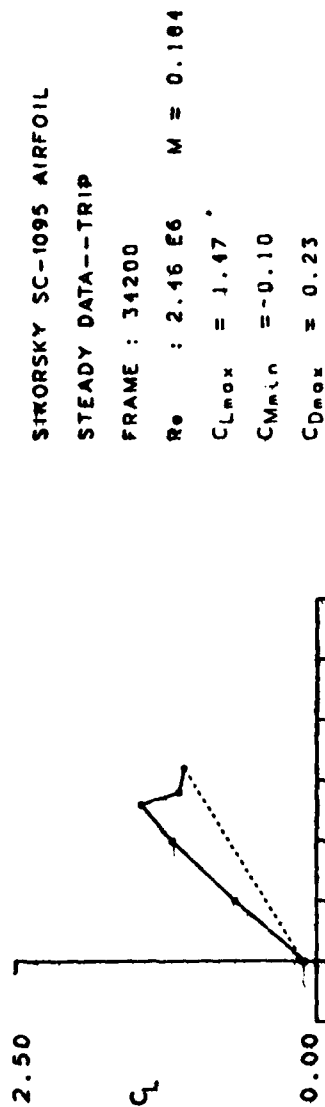


Figure 7.- Continued.

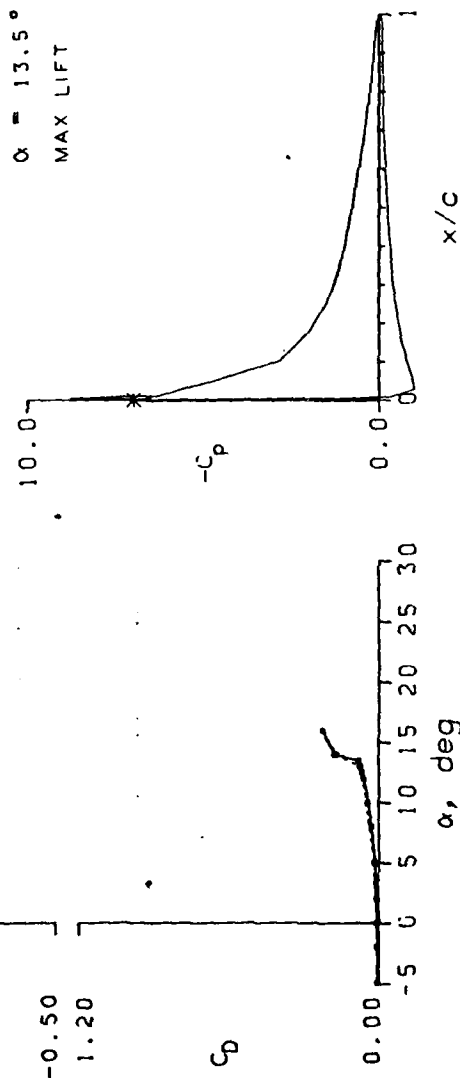
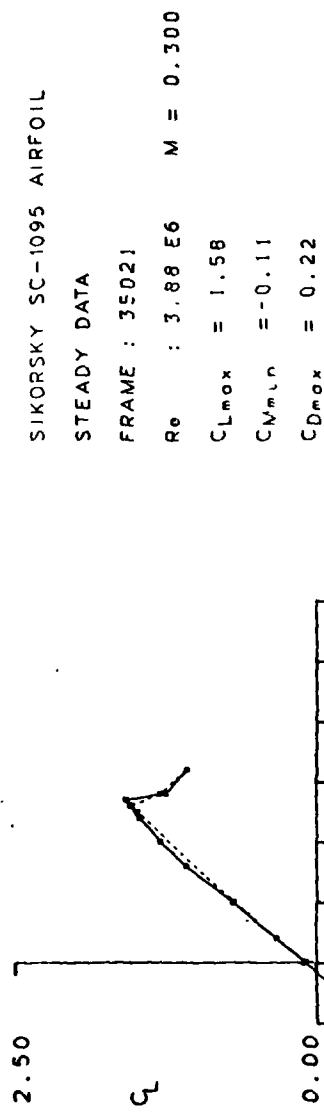


Figure 7.- Continued.

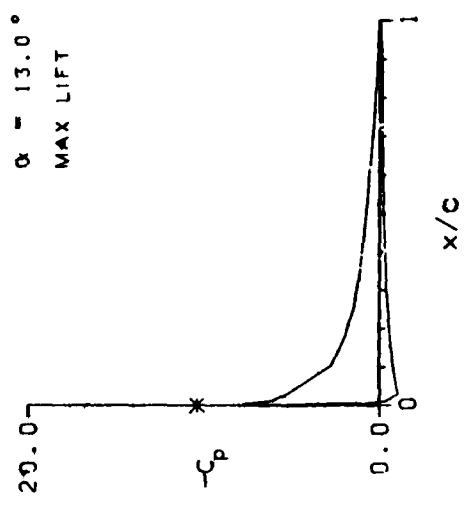
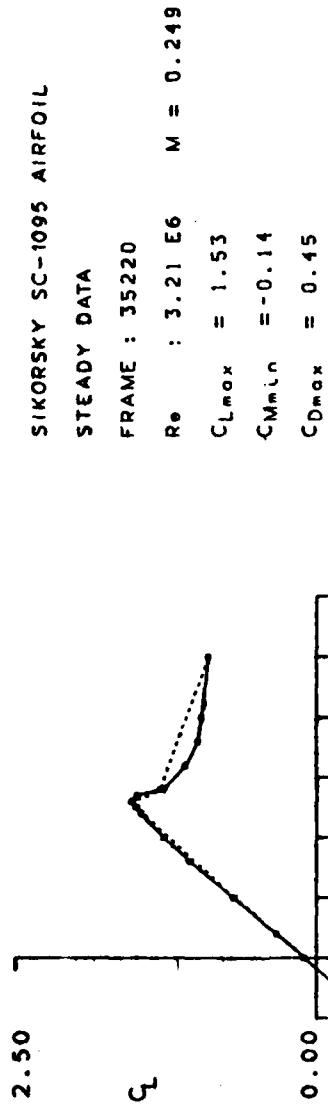


Figure 7.- Continued.

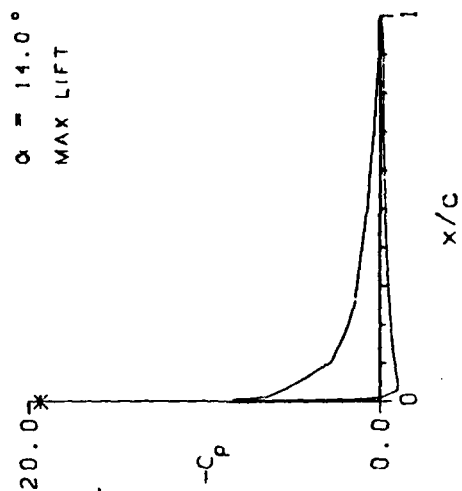
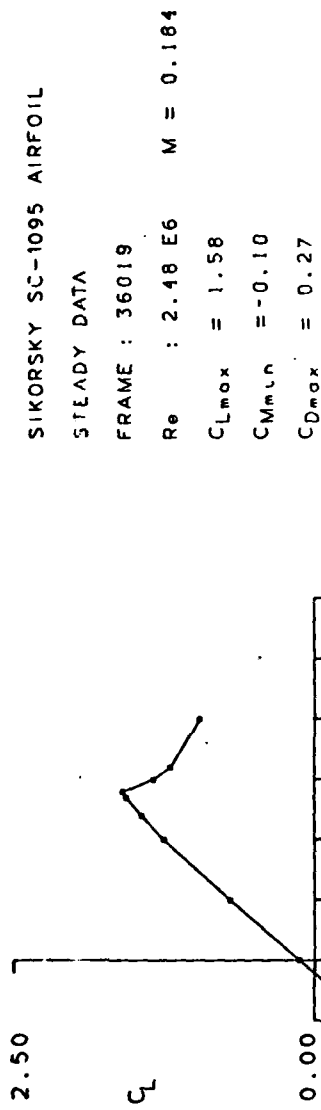


Figure 7.- Continued.

SIKORSKY SC-1093 AIRFOIL

STEADY DATA

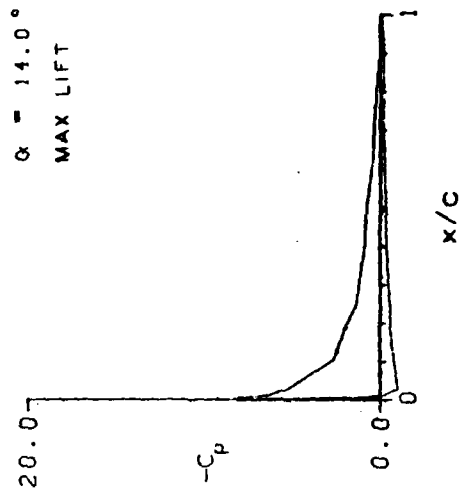
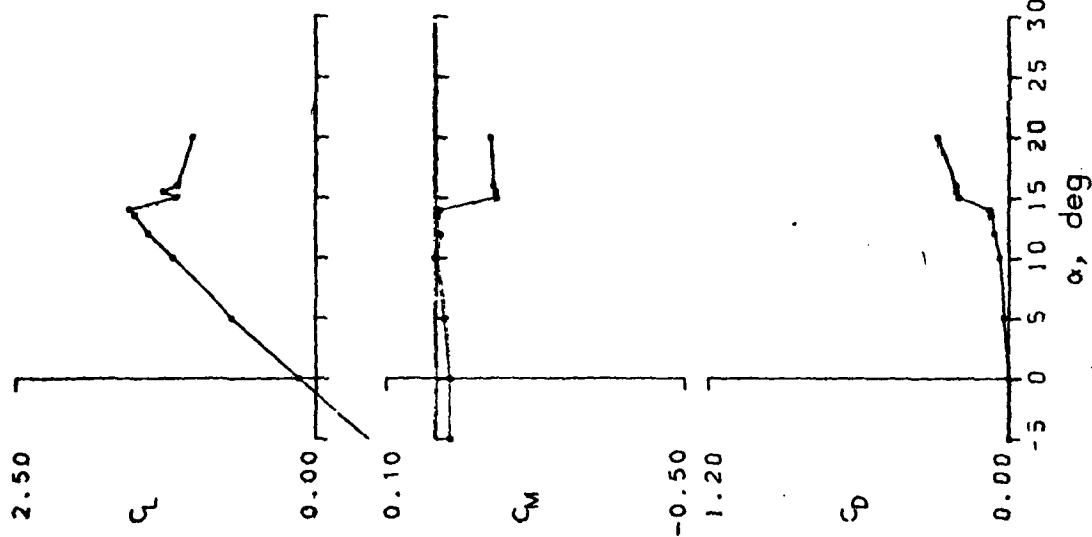
FRAME : 36202

R_e : 1.44 E6 $M = 0.110$

$C_{Lmax} = 3.55$

$C_{Mmin} = -0.13$

$C_{Dmax} = 0.28$



$\alpha = 14.0^\circ$
MAX LIFT

Figure 7.- Concluded.

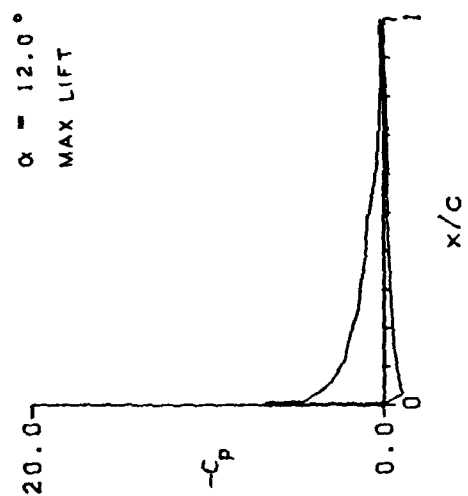
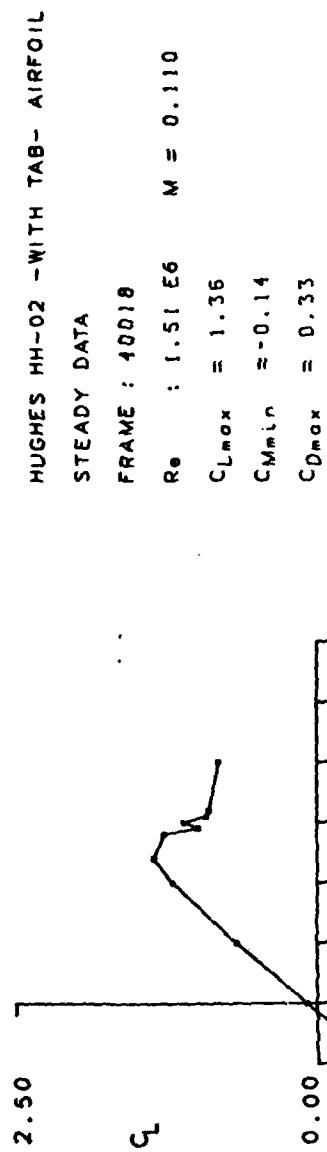


Figure 8.- Static data for Hughes HH-02 airfoil.

HUGHES HH-02 -WITH TAB- AIRFOIL

STEADY DATA

FRAME : 40114

Re : 2.47 E6 M = 0.125

$C_{L,max}$ = 1.48

$C_{M,min}$ = -0.13

$C_{D,max}$ = 0.34

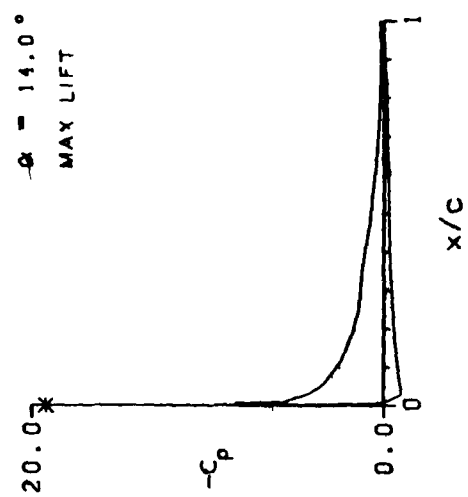
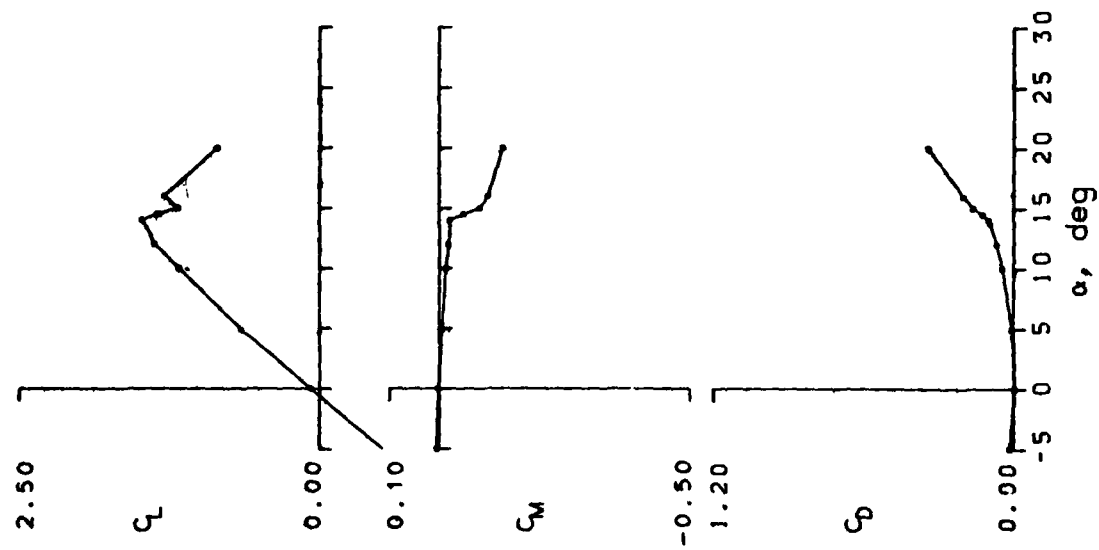


Figure 8.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

STEADY DATA

FRAME : 41019

Re : 4.10 E6 M = 0.300

$C_{Lmax} = 1.47$

$C_{Mmin} = -0.12$

$C_{Dmax} = 0.32$

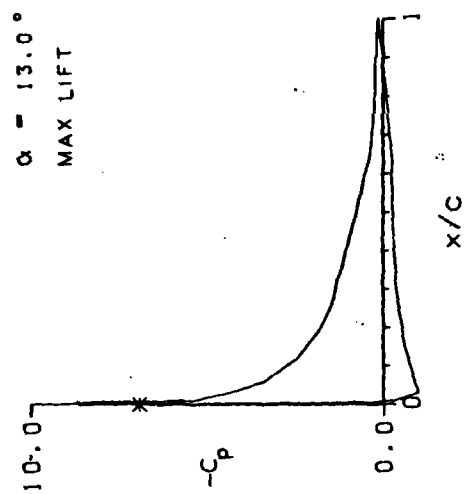
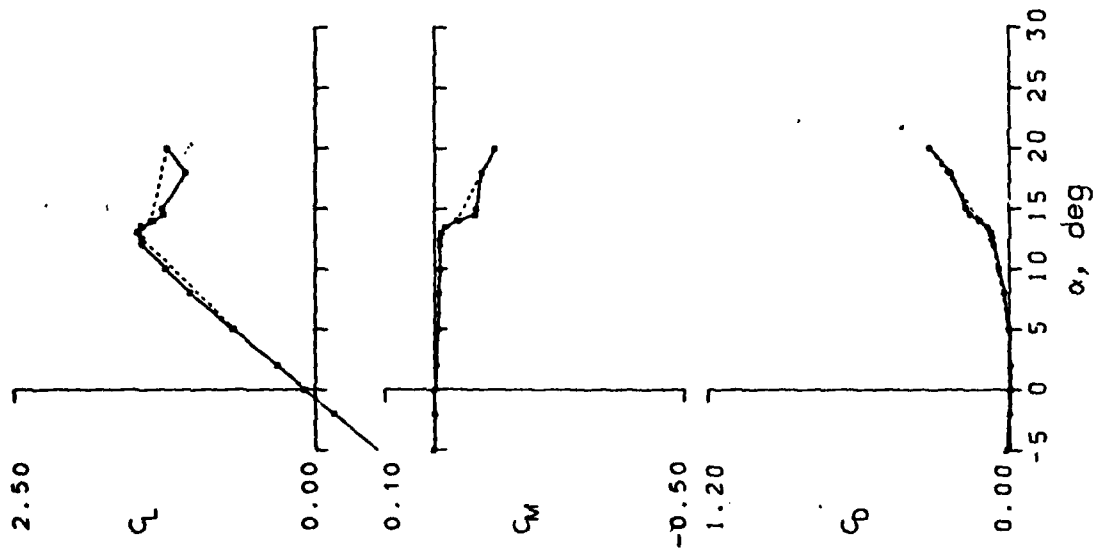


Figure 8.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

STEADY DATA

FRAME : 41110

Re : 3.37 E8 M = 0.248

CLmax = 1.54

CMmin = -0.10

CDmax = 0.28

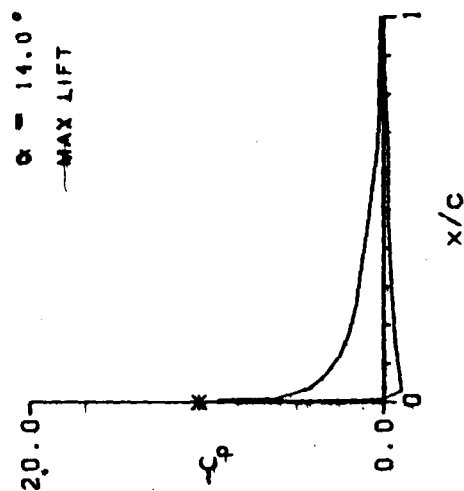
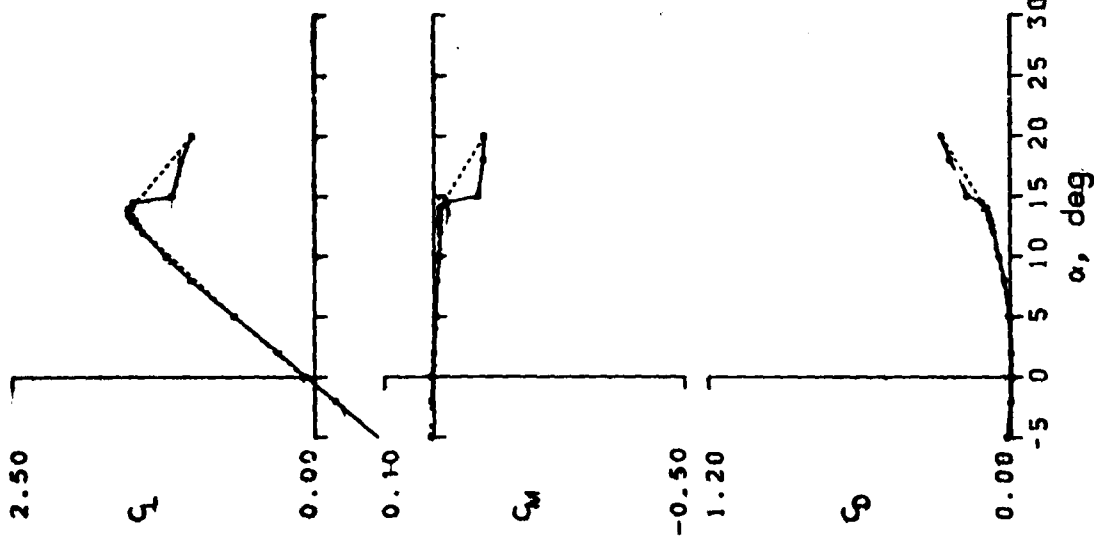


Figure 8.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

STEADY DATA--TRIP

FRAME : 41221

Re : 4.01 E6 M = 0.299

CLmax = 1.42

CMmin = -0.11

CDmax = 0.23

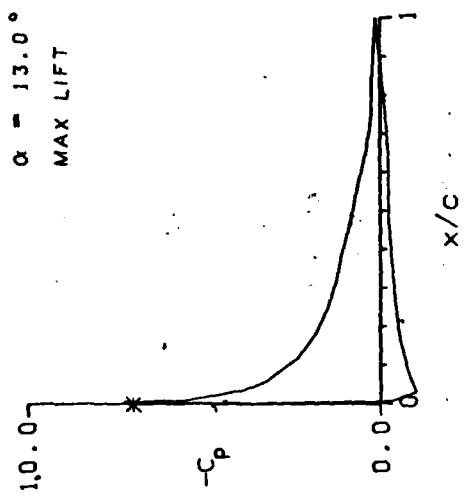
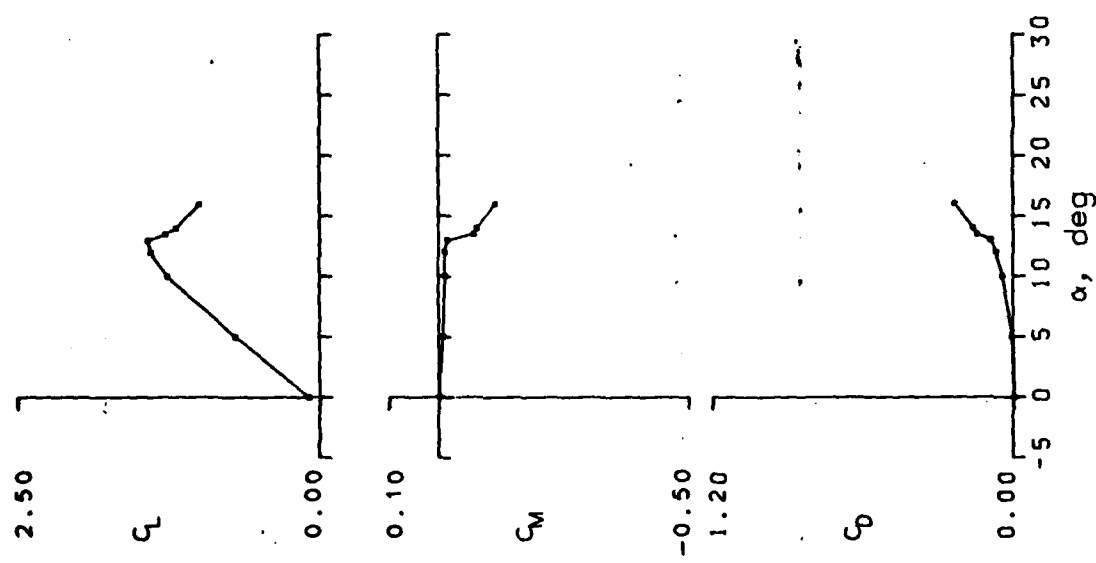


Figure 8.- Continued.

HUGHES MH-02 -WITH TAB- AIRFOIL
 STEADY DATA--TRIP
 FRAME : 41401
 R_0 : 2.50 E6 $M = 0.183$
 $C_{Lmax} = 1.46$
 $C_{Mmin} = -0.12$
 $C_{Dmax} = 0.23$

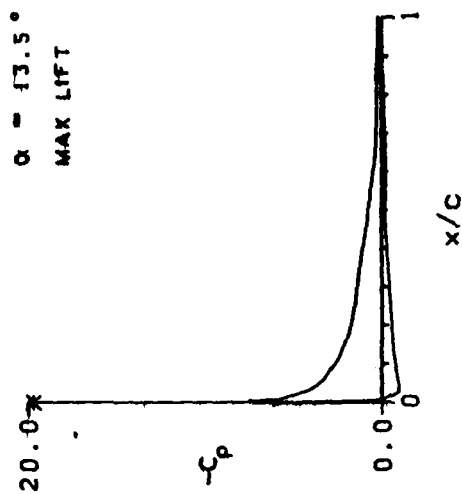
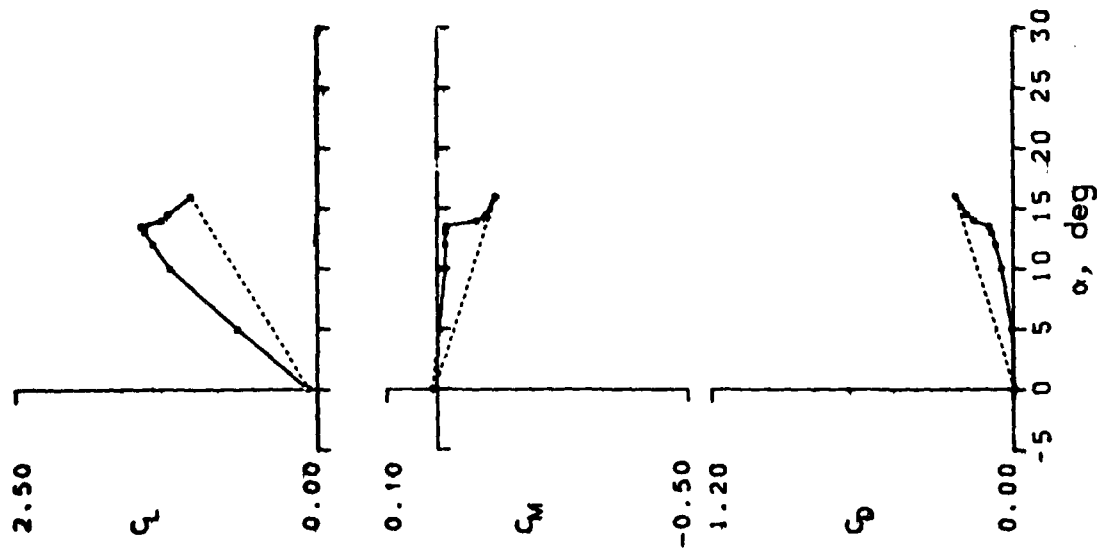


Figure 8.- Concluded.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

STEADY DATA

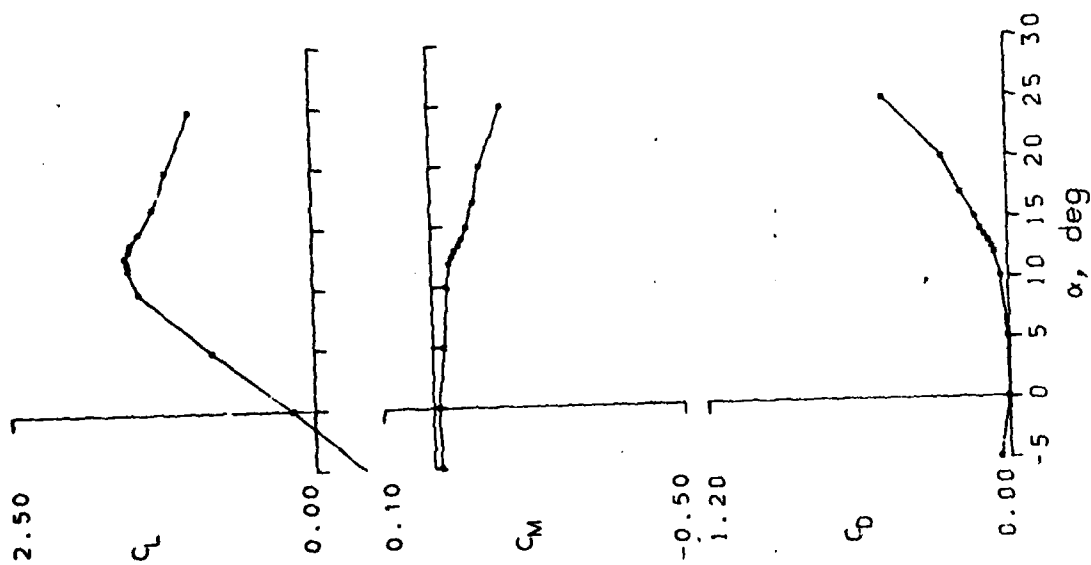
FRAME : 46018

R_e : 1.54 E6 $M = 0.109$

$C_{Lmax} = 1.55$

$C_{Mmin} = -0.15$

$C_{Dmax} = 0.49$



$\alpha = 13.0^\circ$
MAX LIFT

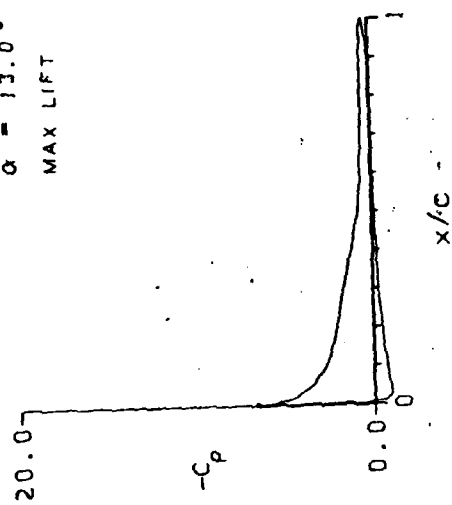


Figure 9.- Static data for Vertol VR-7 airfoil.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

STEADY DATA

FRAME : 46116

Re : 2.56 E6 M = 0.184

CLmax = 1.51

CMmin = -0.13

CDmax = 0.40

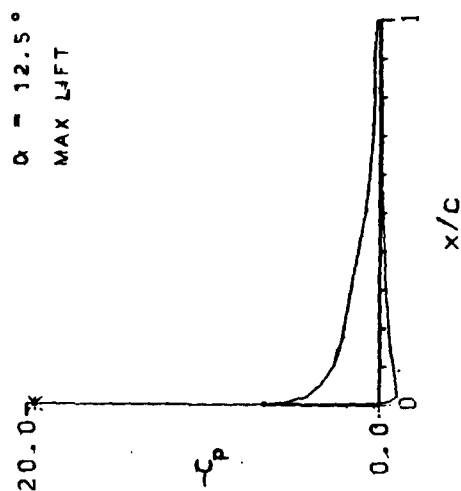
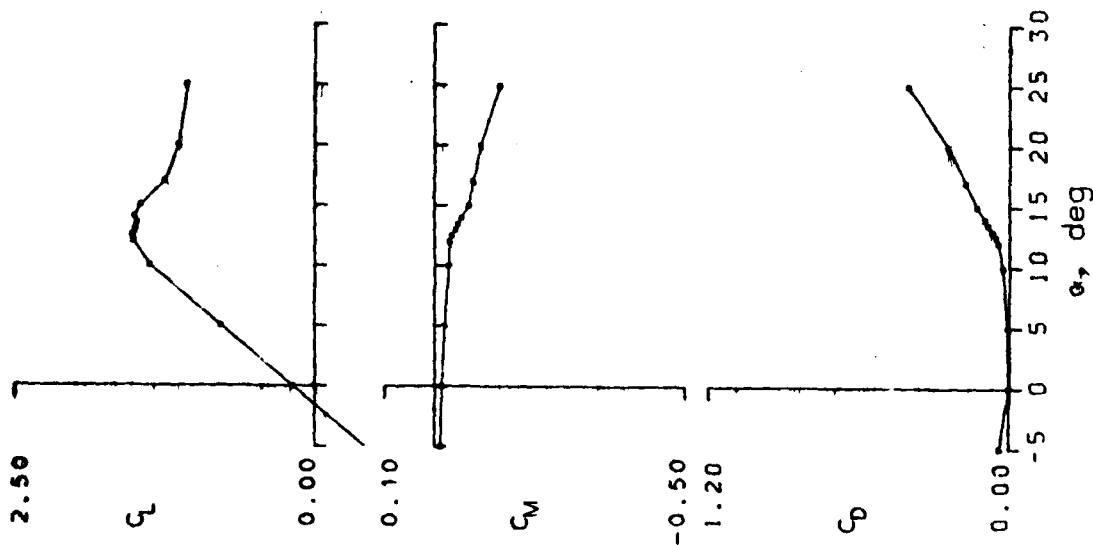


Figure 9.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

STEADY DATA

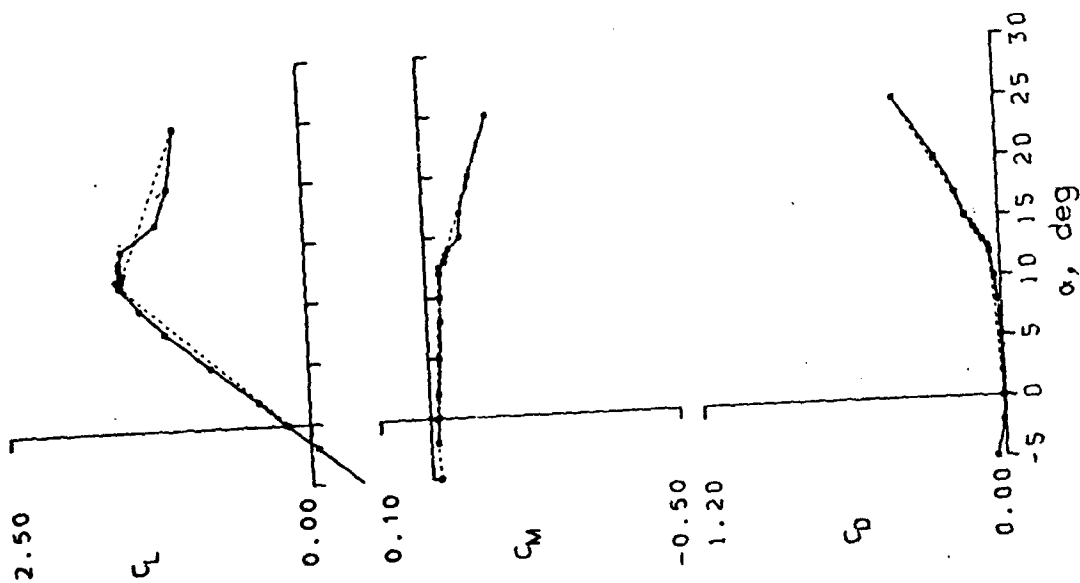
FRAME : 46307

Re : 3.44 E6 M = 0.218

C_{Lmax} = 1.57

C_{Mmin} = -0.14

C_{Dmax} = 0.40



$\alpha = 12.5^\circ$
MAX LIFT

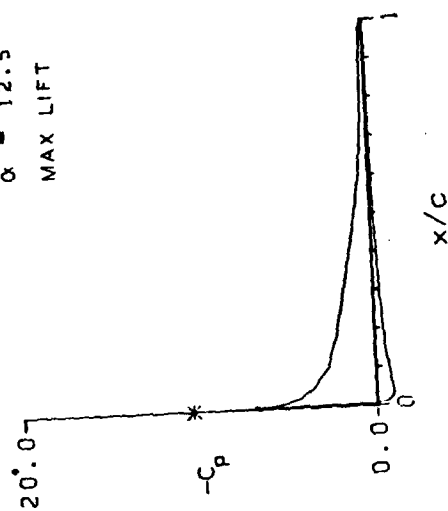


Figure 9.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 STEADY DATA.
 FRAME : 46418
 $R_e : 4.05 \times 10^6$ $M = 0.300$
 $C_{Lmax} = 1.56$
 $C_{Mmin} = -0.13$
 $C_{Dmax} = 0.41$

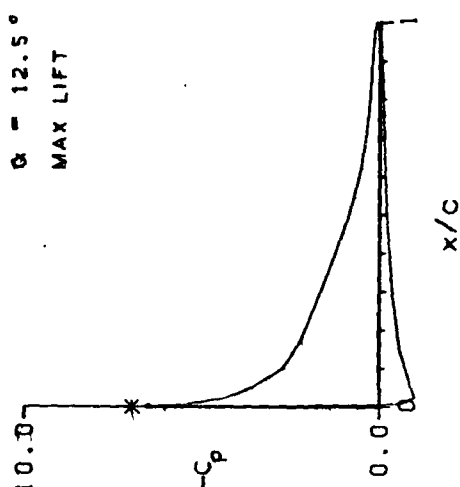
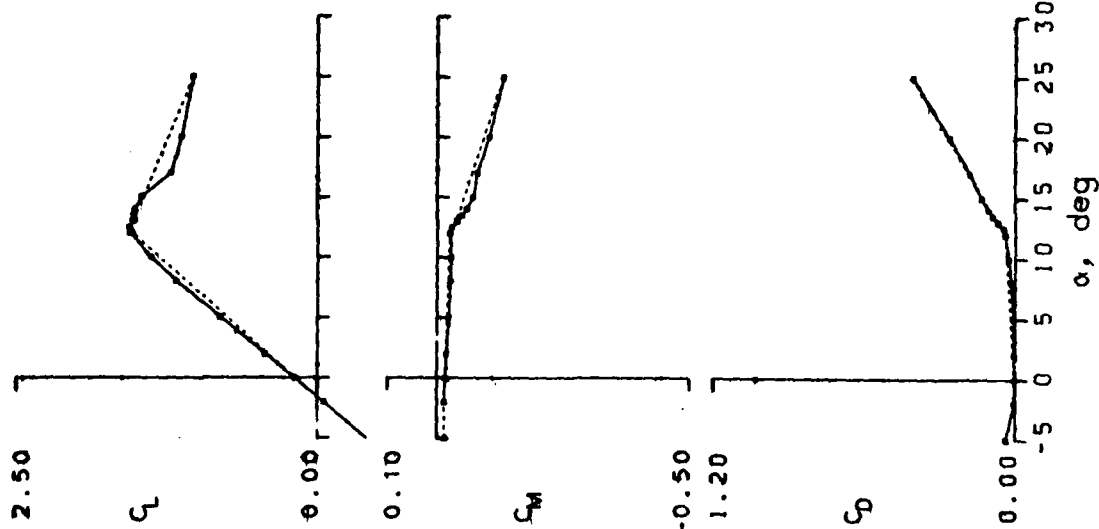


Figure 9.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 STEADY DATA--TRIP
 FRAME : 46621
 $Re : 2.51 E6$ $M = 0.183$
 $C_{Lmax} = 1.38$
 $C_{Mmin} = -0.10$
 $C_{Dmax} = 0.28$

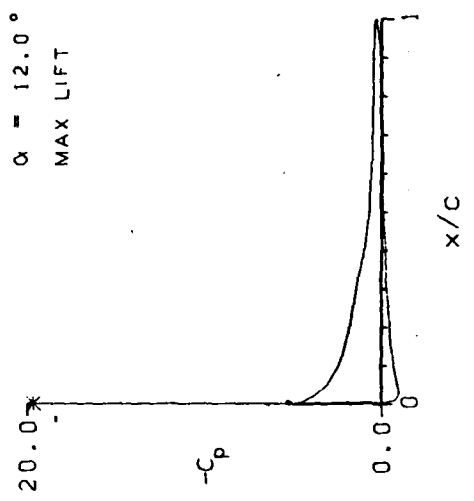
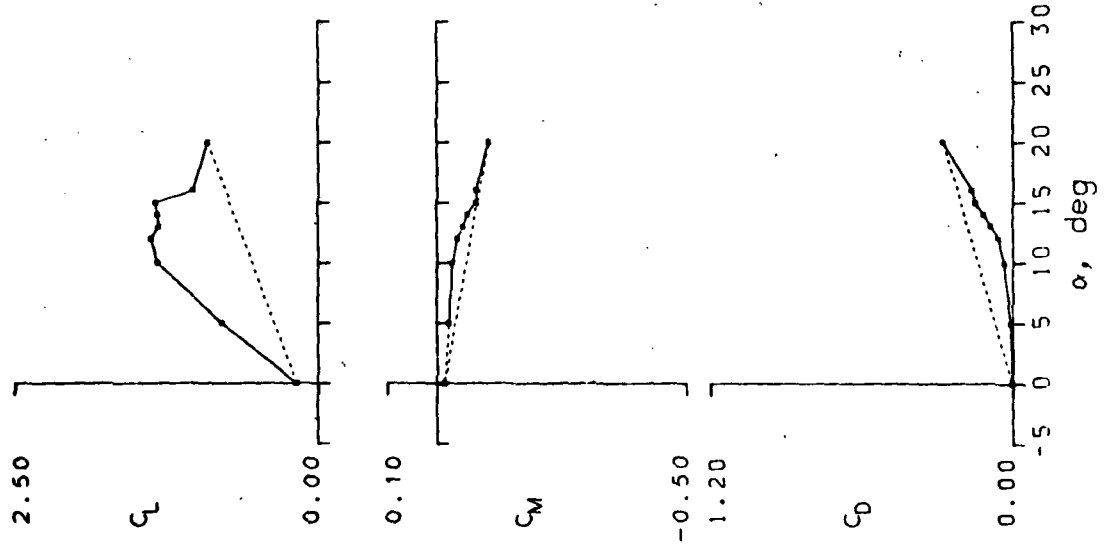


Figure 9.- Continued.

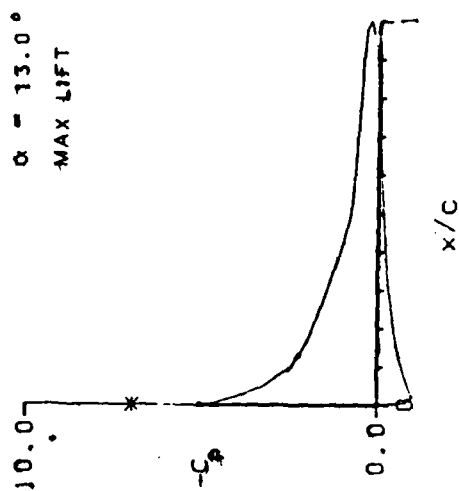
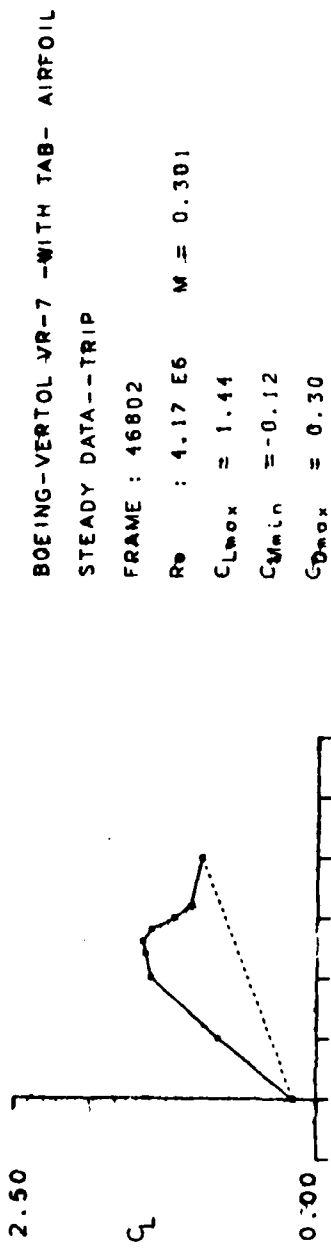


Figure 9.- Concluded.

NLR-1 AIRFOIL
 STEADY DATA
 FRAME : 61018
 $Re : 1.53 E6$ $M = 0.110$
 $C_{Lmax} = 1.41$
 $C_{Mmin} = -0.10$
 $C_{Dmax} = 0.31$

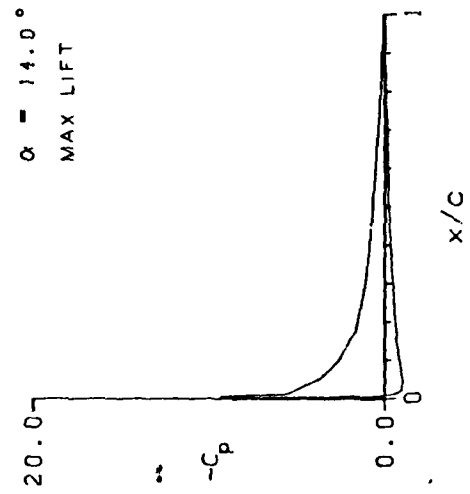
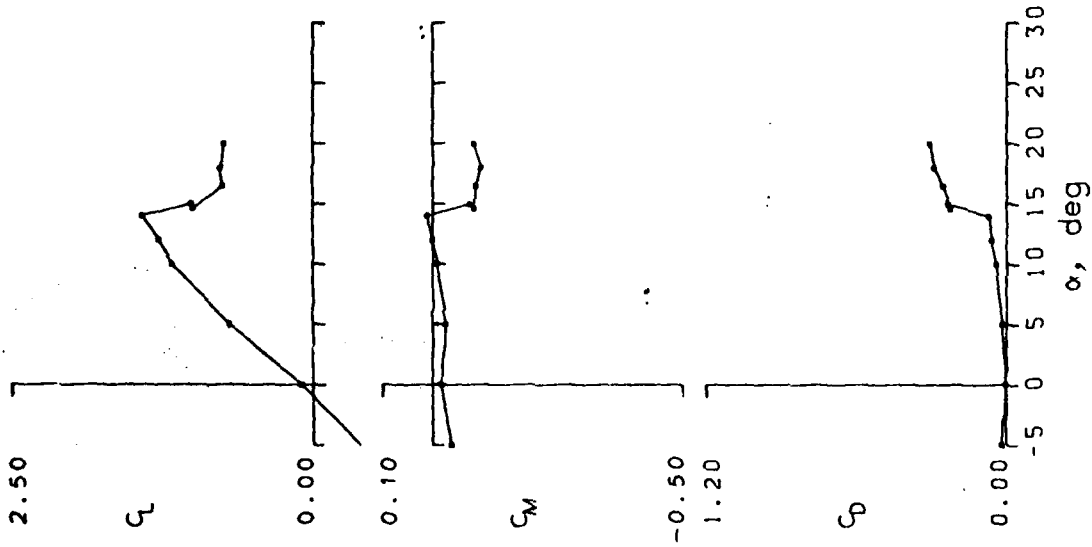


Figure 10.- Static data for NLR-1 airfoil.

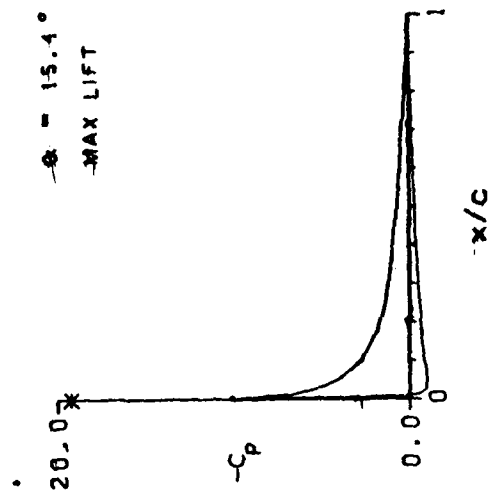
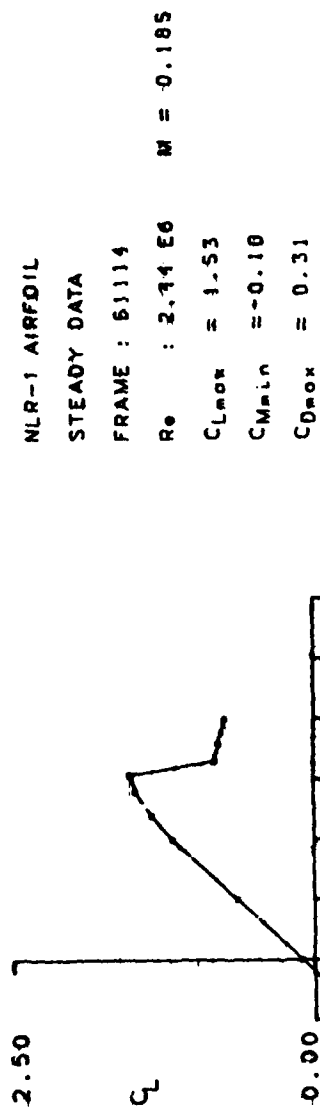


Figure 10.- Continued.

NLR-1 AIRFOIL
 STEADY DATA
 FRAME : 61221
 $Re : 3.29 E6$ $M = 0.250$
 $C_{Lmax} = 1.43$
 $C_{Mmin} = -0.09$
 $C_{Dmax} = 0.42$

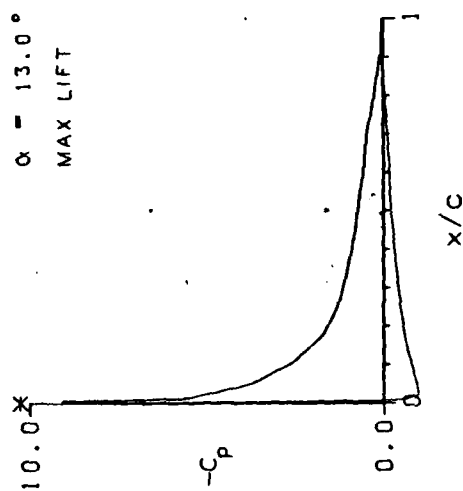
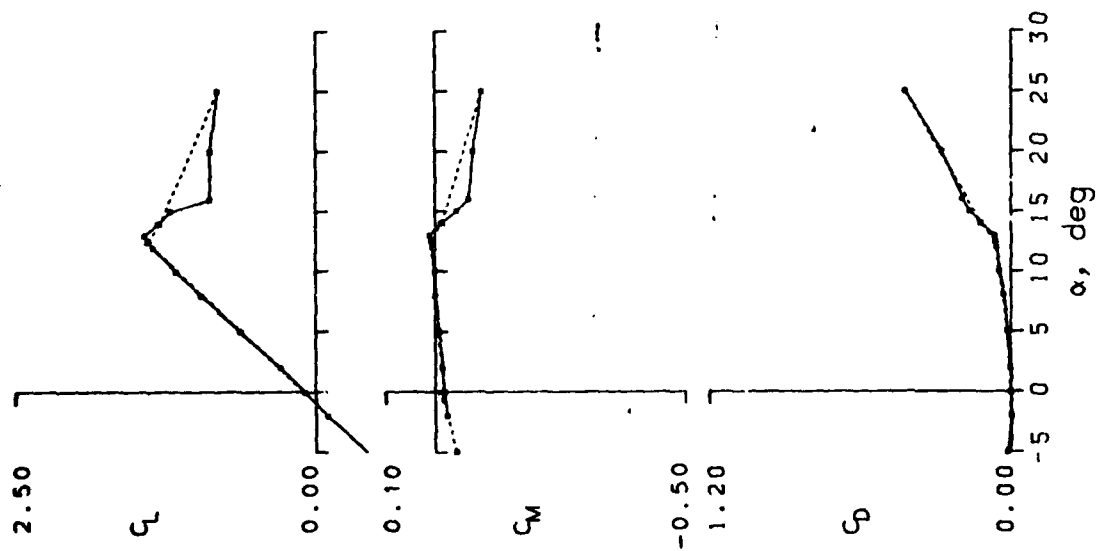
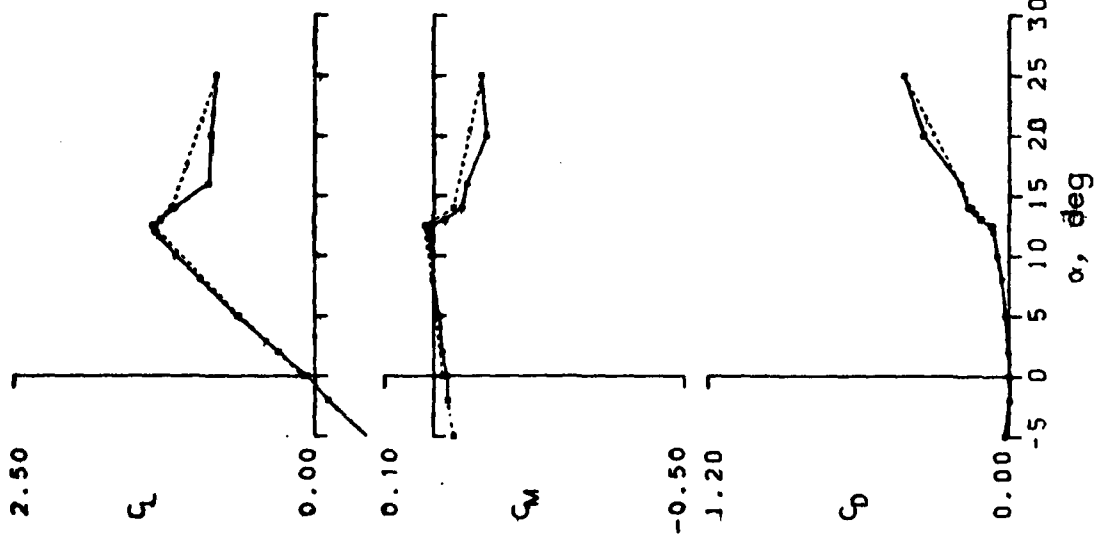


Figure 10.- Continued.



NLR-1 AIRFOIL
STEADY DATA
FRAME : 61407
 Re : 3.91 E6 M = 0.298
 C_{Lmax} = 1.35
 C_{Mmin} = -0.10
 C_{Dmax} = 0.42

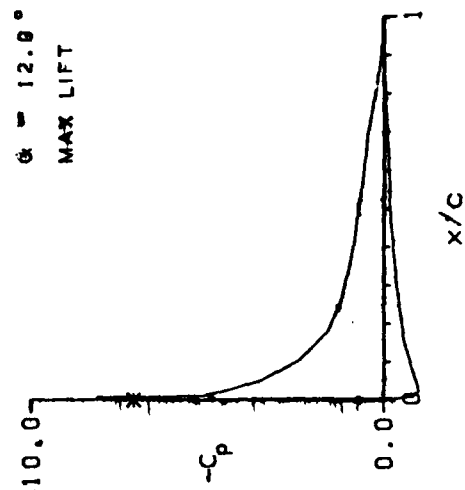


Figure 10.- Continued.

NLR-1 AIRFOIL

STEADY DATA--TRIP

FRAME : 64221

R_e : 2.35 E6 $M = 0.185$

$C_{Lmax} = 1.31$

$C_{Mmin} = -0.08$

$C_{Dmax} = 1.22$

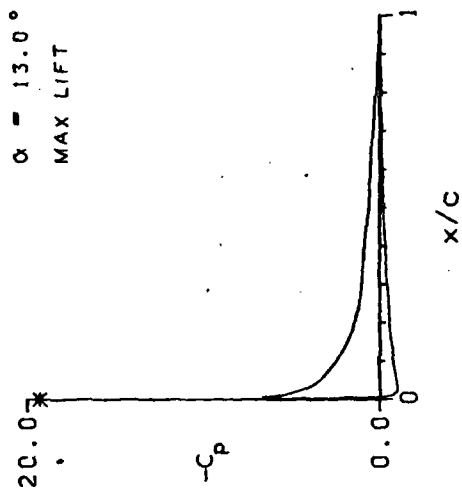
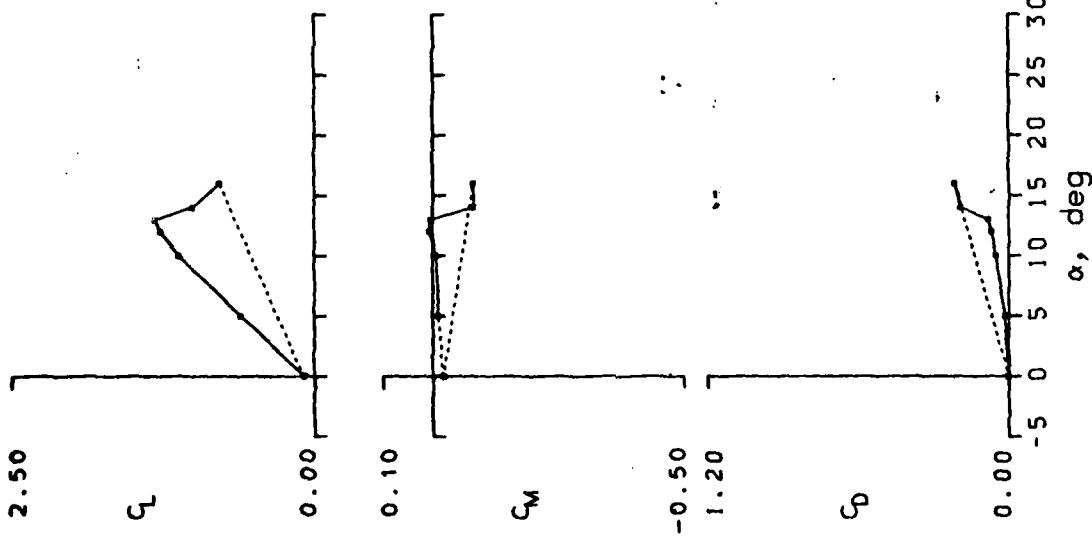


Figure 10.- Continued.

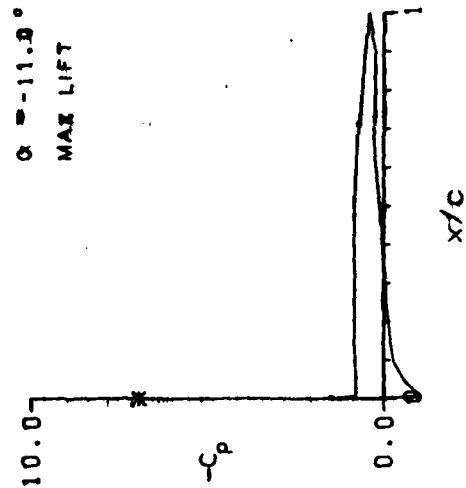
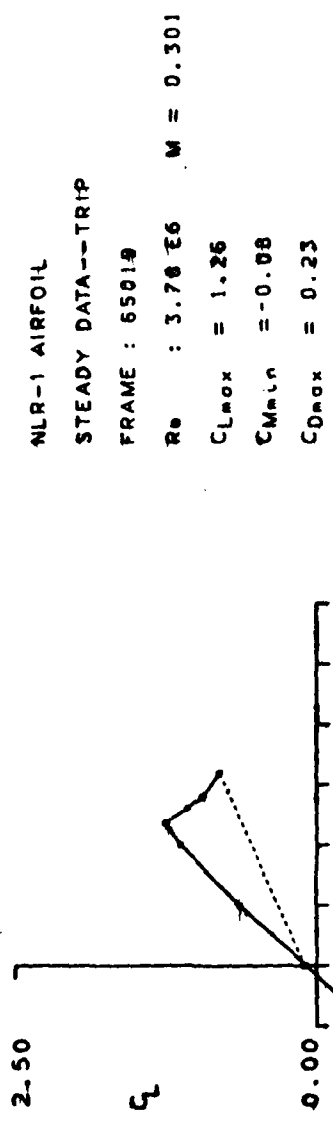


Figure 10.- Concluded.

NLR-7301 AIRFOIL

STEADY DATA

FRAME : 66019

Re : 3.88 E6 M = 0.293

$C_{Lmax} = 1.88$

$C_{Mmin} = -0.10$

$C_{Dmax} = 0.21$

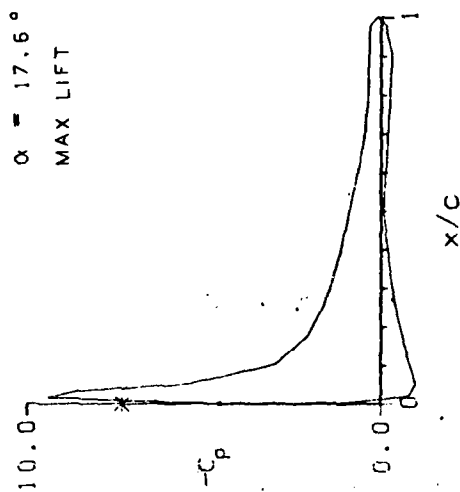
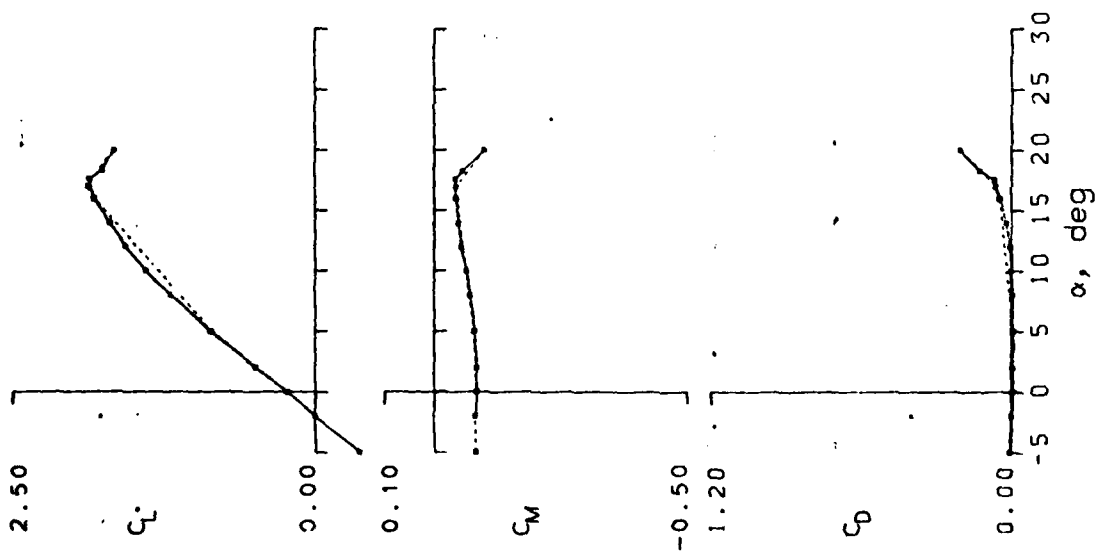


Figure 11.- Static data for NLR-7301 airfoil.

NLR-7301 AIRFOIL
 STEADY DATA
 FRAME : 66214
 Re : 3.26 E6 M = 0.248
 $C_{Lmax} = 1.86$
 $C_{Mmin} = -0.20$
 $C_{Dmax} = 0.48$

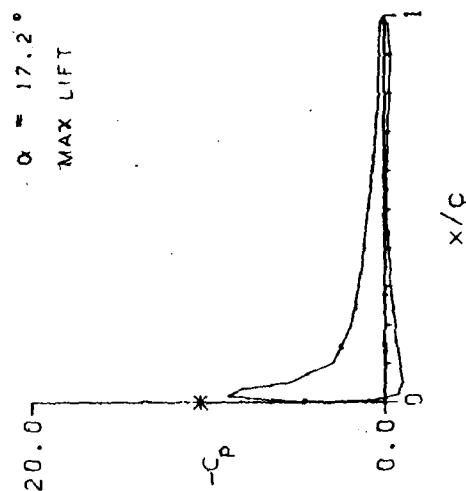
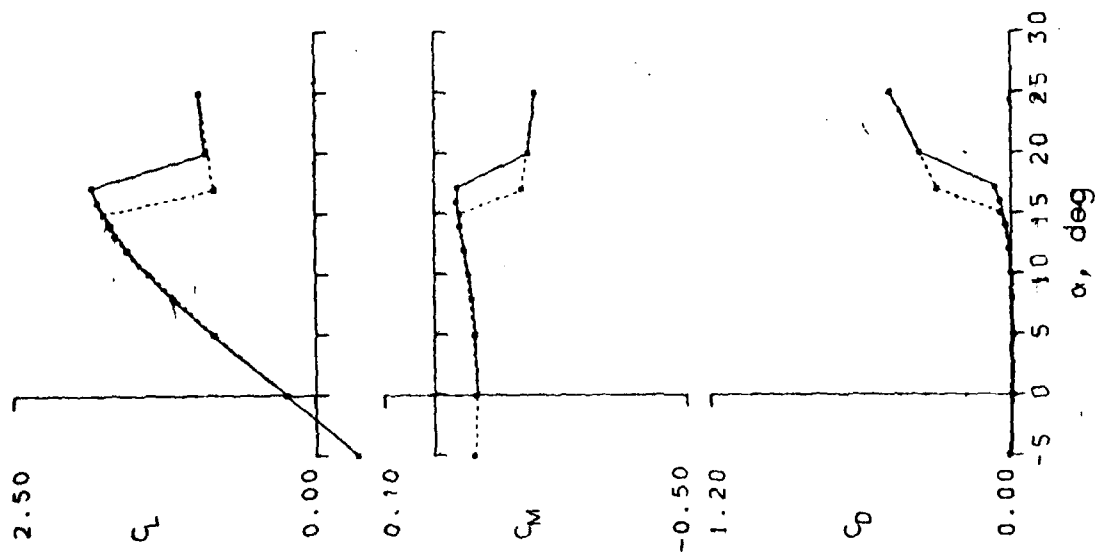


Figure 11.- Continued.

NLR-7301 AIRFOIL
 STEADY DATA
 FRAME 1.66320
 $Re : 2.46 E6$ $M = 0.183$
 $C_{Lmax} = 1.83$
 $C_{Mmin} = -0.17$
 $C_{Dmax} = 0.46$

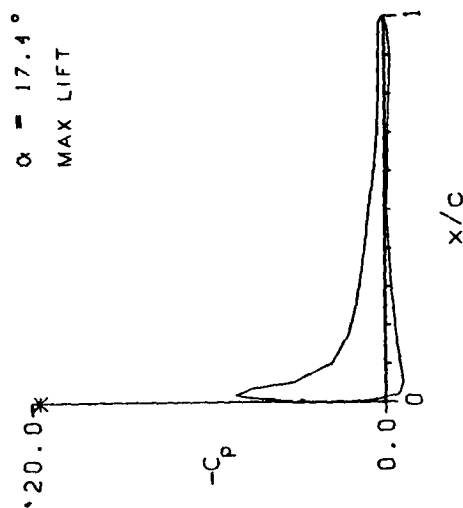
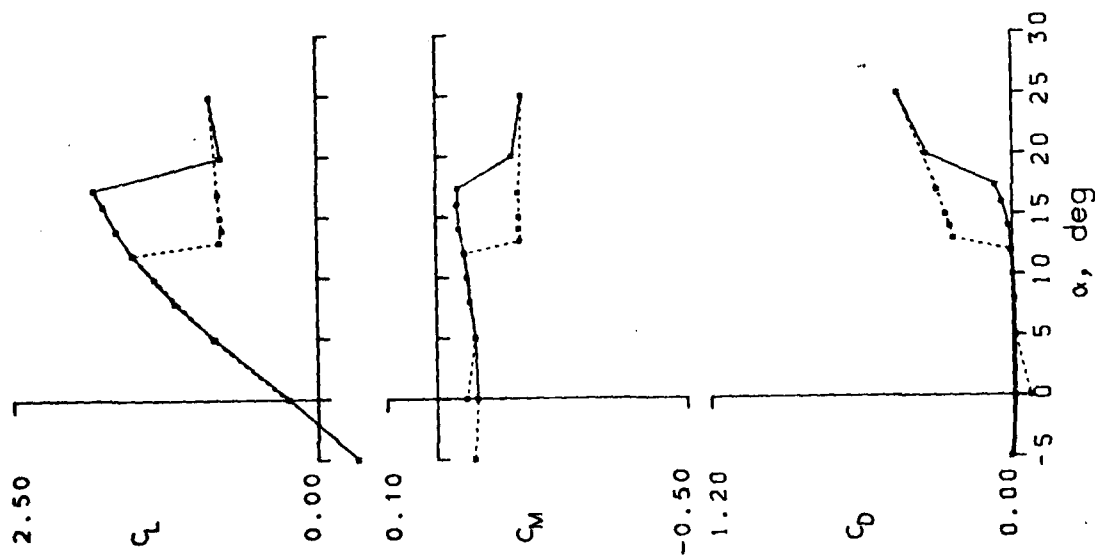


Figure 11.- Continued.

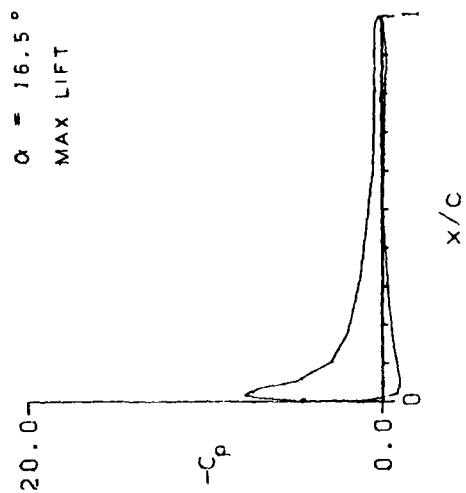
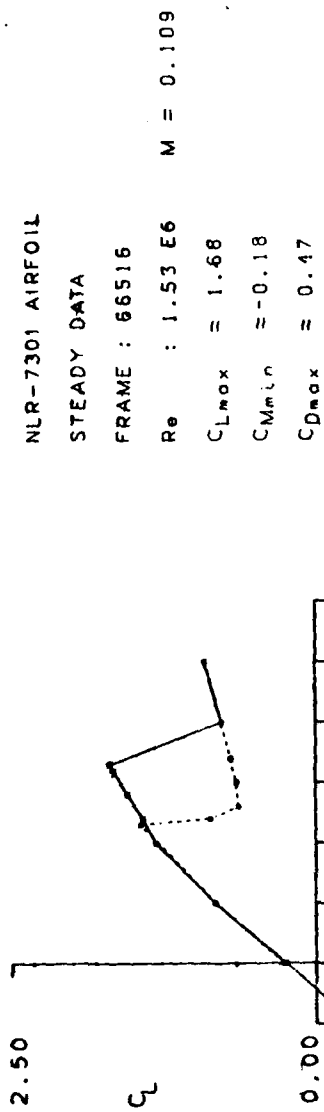


Figure 11.- Continued.

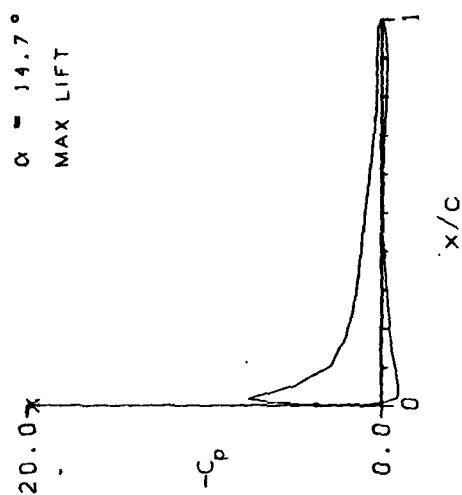
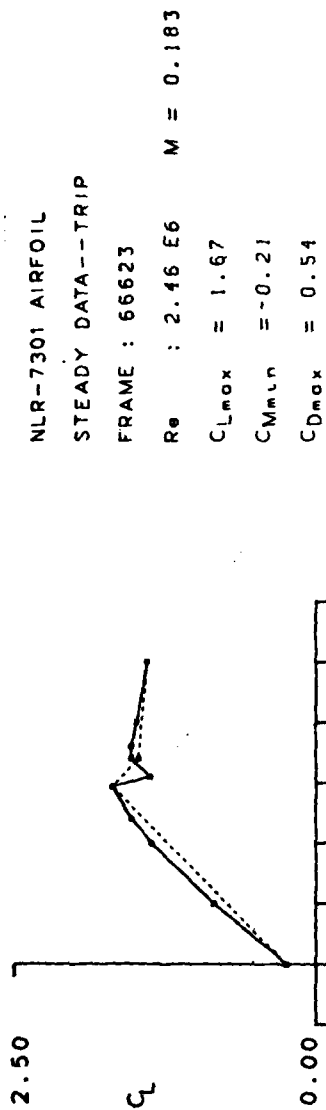


Figure 11.- Continued.

NLR-7301 AIRFOIL
 STEADY DATA--TRIP
 FRAME : 66810
 $Re : 3.91 E6$ $M = 0.297$
 $C_{Lmax} = 1.64$
 $C_{Mmin} = -0.09$
 $C_{Dmax} = 0.02$

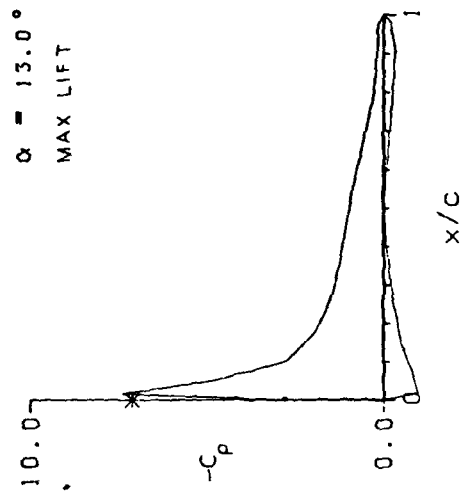
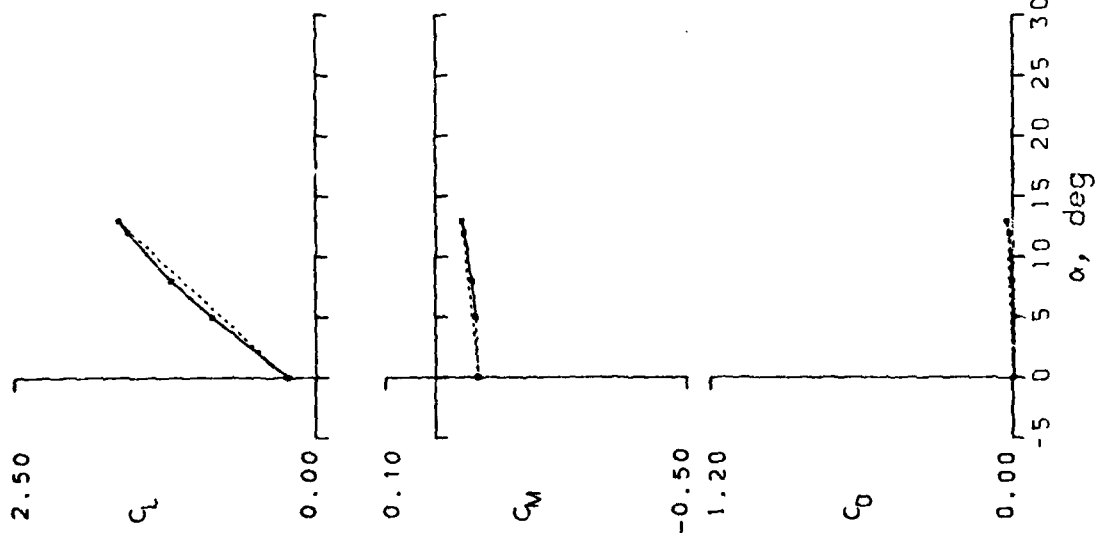


Figure 11.- Concluded.

NACA 0012 AIRFOIL

FRAME : 7019	A0 = 8.99°	k = 0.051
Re = 3.89 E6	A1 = 4.91°	M = 0.297
CLmax = 1.44	CMmin = 0.00	CDmax = 0.07
αLmax = 13.5°	ξ = 0.094	Mmax = 1.234
αCmin = 8.9°	-CDmax = 9.1	αMmax = 13.7°

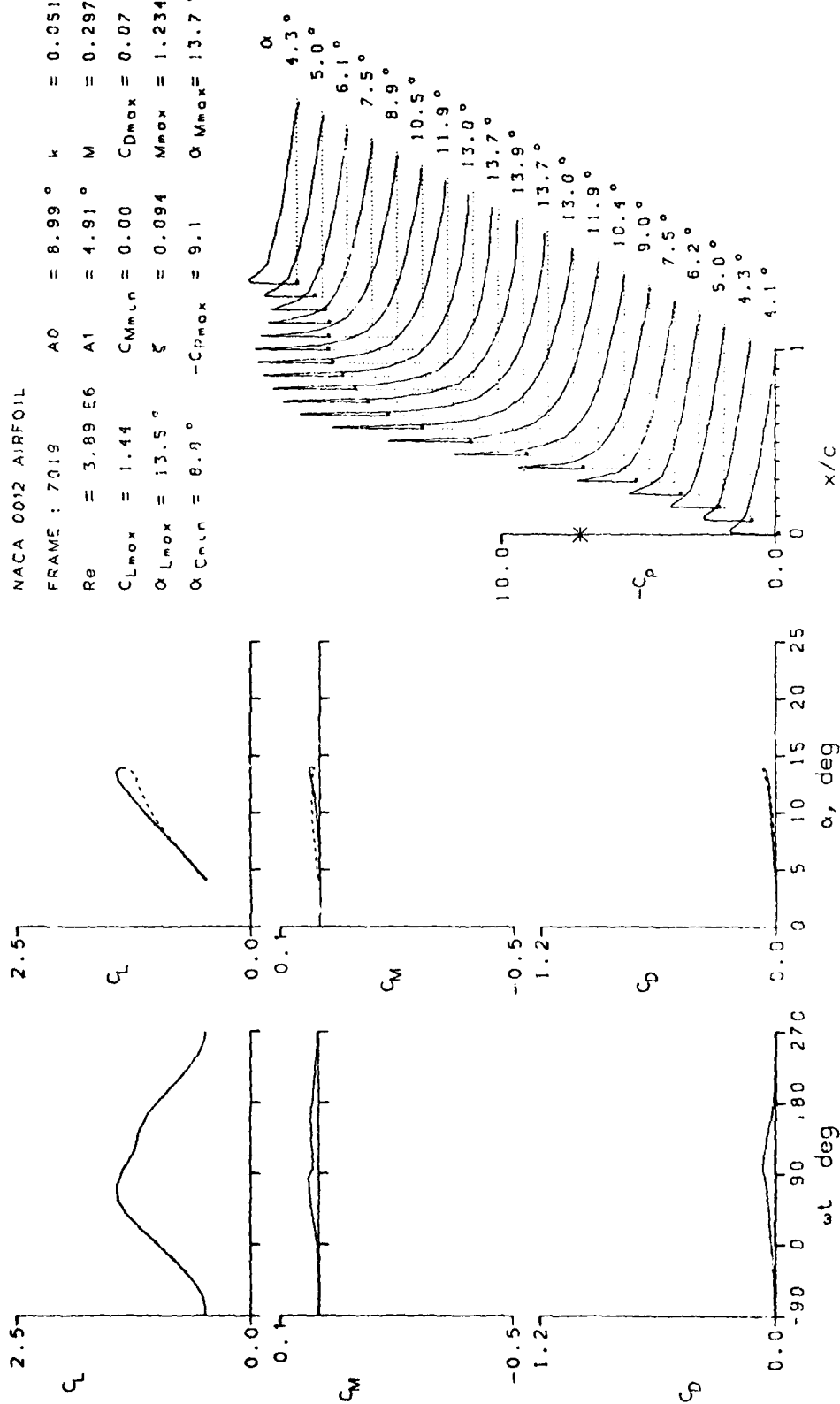


Figure 12.- dynamic data for NACA 0012 airfoil.

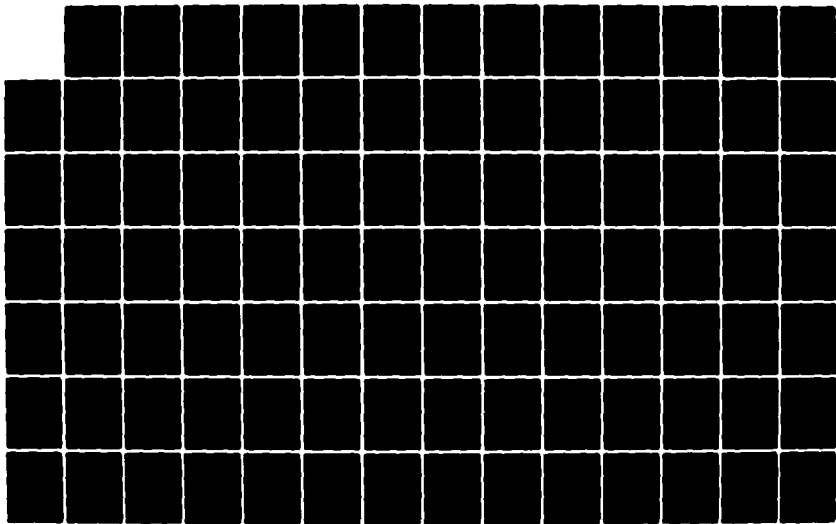
AD-A121 598

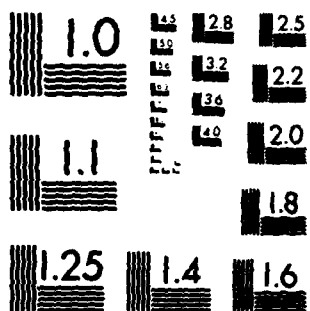
AN EXPERIMENTAL STUDY OF DYNAMIC STALL ON ADVANCED
AIRFOIL SECTIONS VOLUM. (U) NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION MOFFETT FIELD CALIF.

UNCLASSIFIED K W MCALISTER ET AL. SEP 82

F/G 20/4

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

NACA 0012 AIRFOIL
 FRAME : 7021 $A_0 = 8.99^\circ$ $k = 0.100$
 $Re = 3.55 \text{ E}6$ $A_1 = 4.91^\circ$ $M = 0.299$
 $C_{Lmax} = 1.48$ $C_{Mmax} = -0.09$ $C_{Dmax} = 0.16$
 $\alpha_{Lmax} = 13.8^\circ$ $\zeta = -0.193$ $M_{max} = 1.238$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 13.7^\circ$

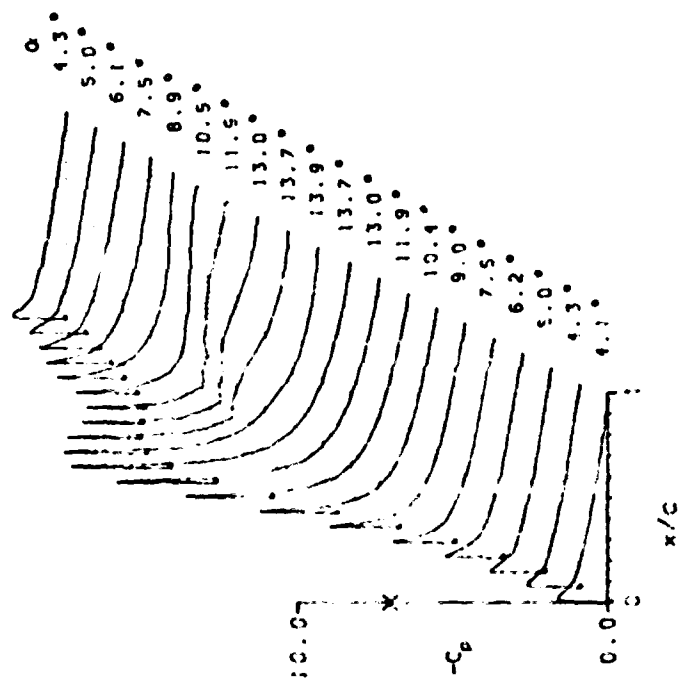
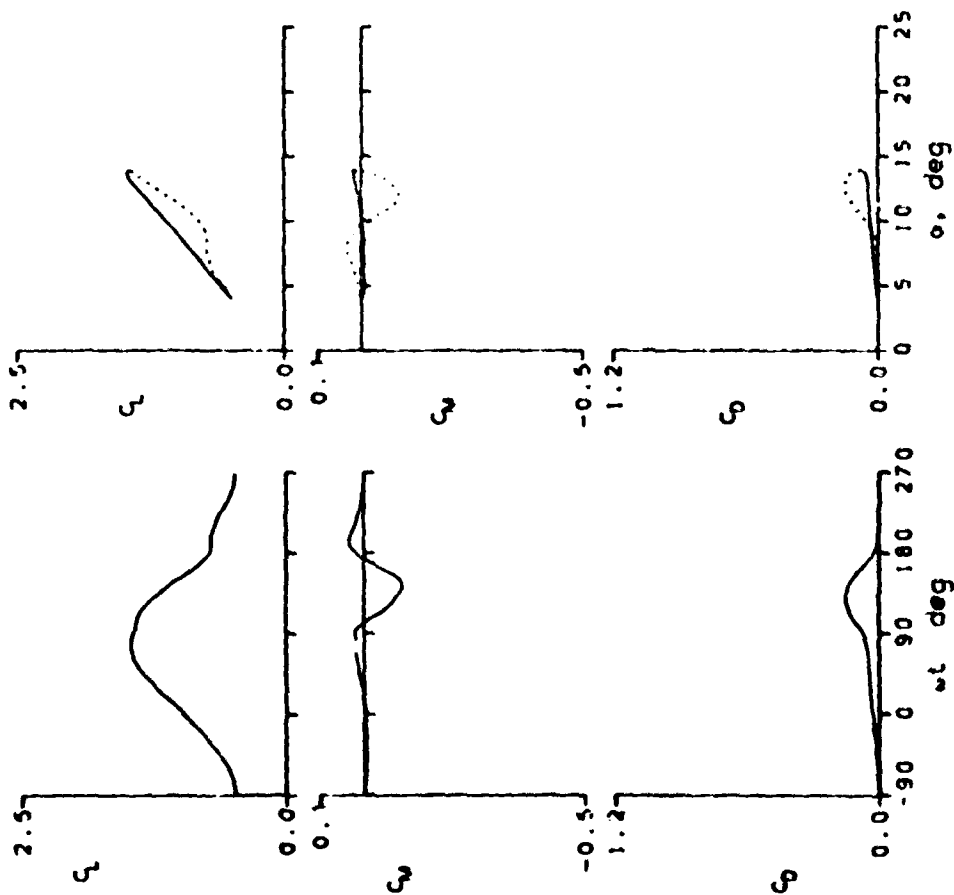


Figure 12.- Continued.

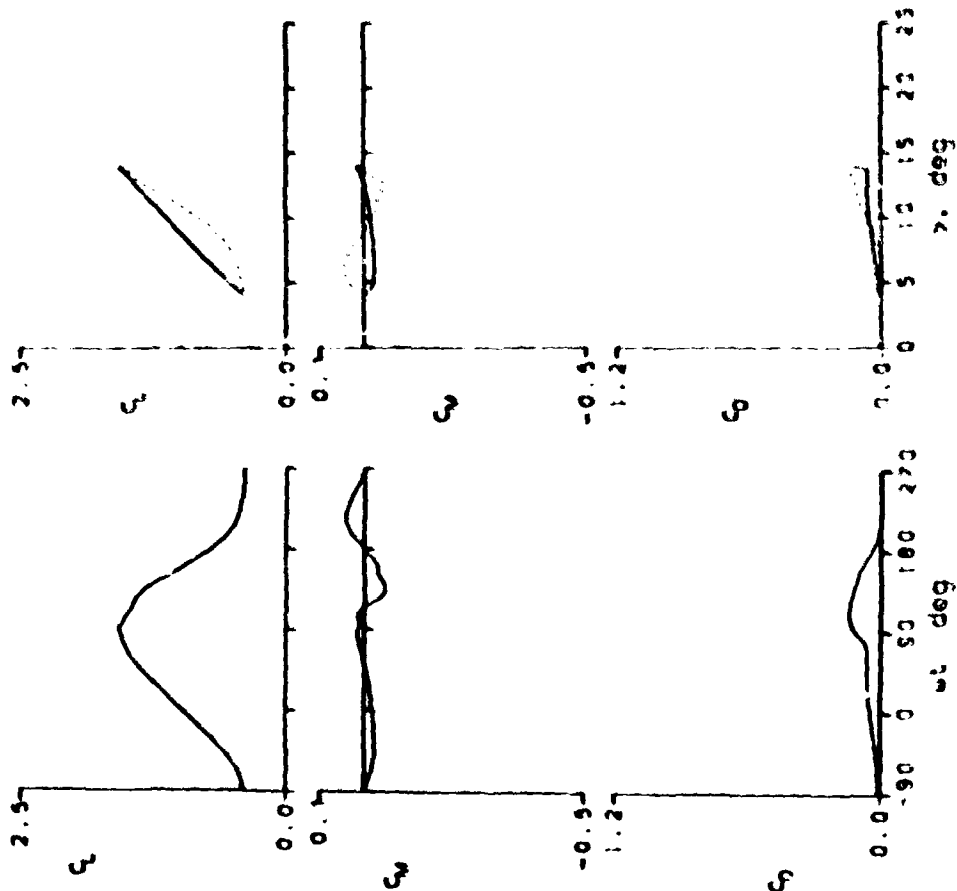


Figure 12.- Continued.

NACA 0012 AIRCRAFT
 FRAME 1212
 $\alpha_0 = 9.9166^\circ$ $A_0 = 0.09^\circ$ $\alpha = 0.150$
 $\Gamma_{max} = 1.12$ $C_{max} = 0.05$ $C_{Dmax} = 0.12$
 $\phi_{max} = 17.9^\circ$ $\rho = 0.076$ $\mu_{max} = 1.245$
 $\phi_{min} = 0.0^\circ$ $\phi_{Dmax} = 0.2$ $\phi_{Dmin} = 13.0^\circ$

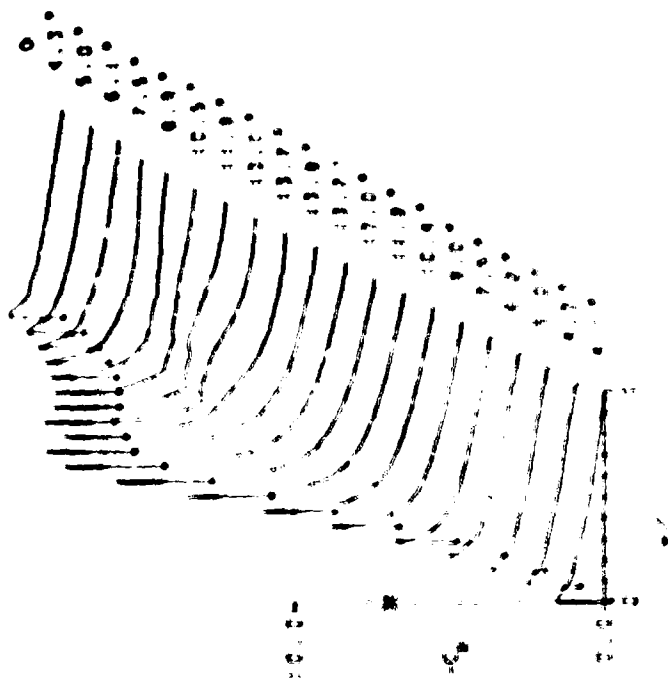
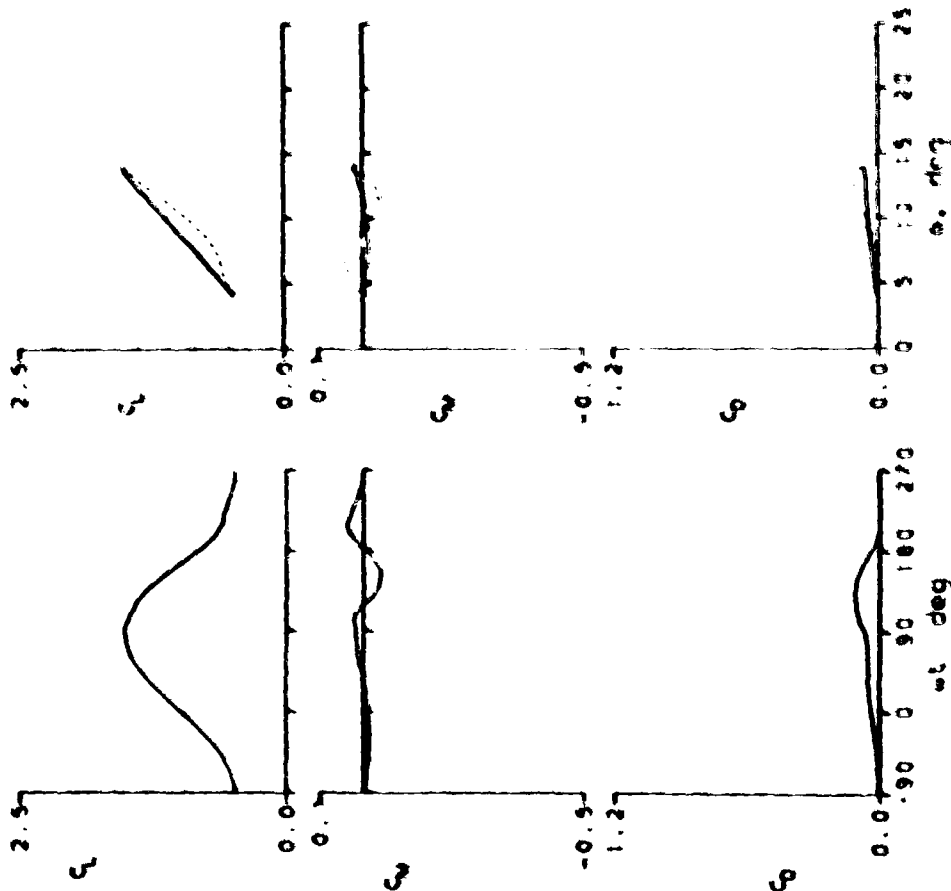


Figure 12.- Continued.

NACA 0012 at 800

Reynolds	7.125	40	± 0.97	± 0.025
Angle	± 3.35 deg	40	± 0.95	± 0.301
Cl	± 0.001	± 0.001	± 0.001	± 0.001
Cd	± 0.001	± 0.001	± 0.001	± 0.001
Cm	± 0.001	± 0.001	± 0.001	± 0.001
Cm	± 0.001	± 0.001	± 0.001	± 0.001
Cm	± 0.001	± 0.001	± 0.001	± 0.001

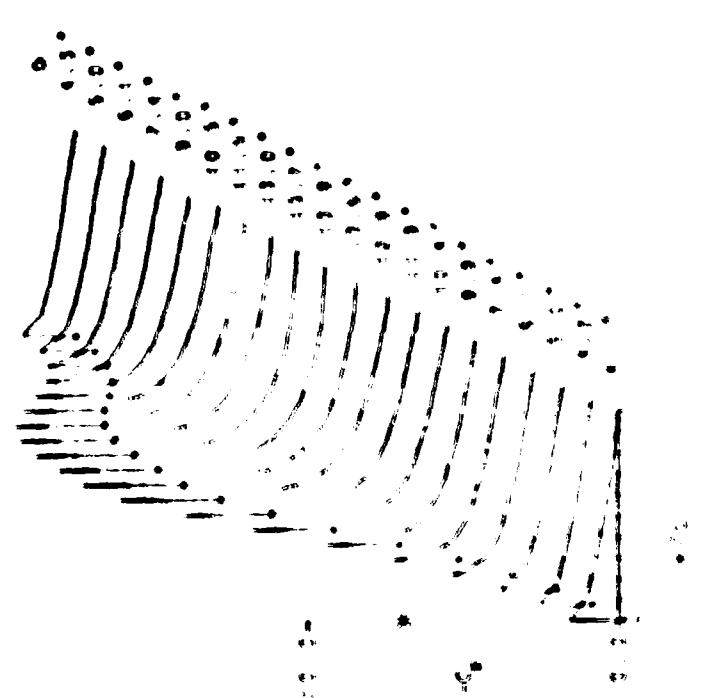
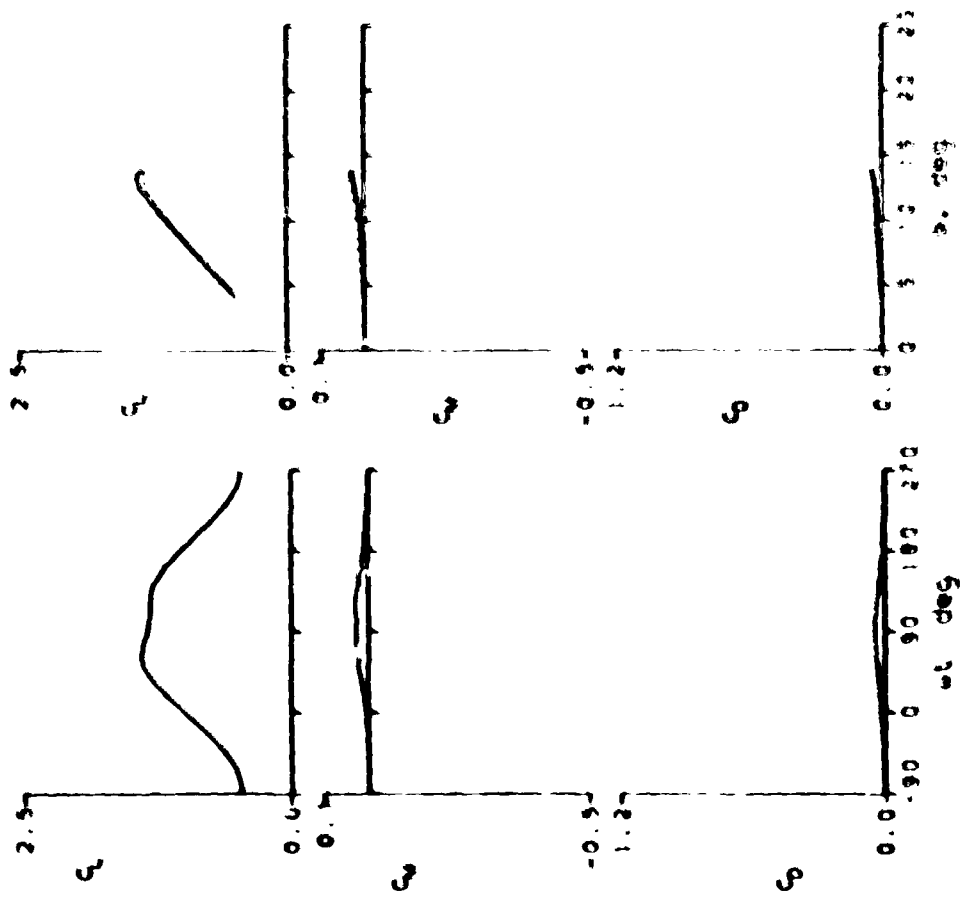


Figure 12.- Continued.

DATA 1222 & 1223

PARAMETER	1222	1223
α	0.005	0.005
β	0.005	0.005
γ	0.005	0.005
δ	0.005	0.005
ϵ	0.005	0.005
ζ	0.005	0.005
η	0.005	0.005
θ	0.005	0.005
ι	0.005	0.005
κ	0.005	0.005
λ	0.005	0.005
μ	0.005	0.005
ν	0.005	0.005
ξ	0.005	0.005
$\omicron$	0.005	0.005
π	0.005	0.005
ρ	0.005	0.005
σ	0.005	0.005
τ	0.005	0.005
υ	0.005	0.005
ϕ	0.005	0.005
χ	0.005	0.005
ψ	0.005	0.005
ω	0.005	0.005
ζ	0.005	0.005
η	0.005	0.005
θ	0.005	0.005
ι	0.005	0.005
κ	0.005	0.005
λ	0.005	0.005
μ	0.005	0.005
ν	0.005	0.005
ξ	0.005	0.005
$\omicron$	0.005	0.005
π	0.005	0.005
ρ	0.005	0.005
σ	0.005	0.005
τ	0.005	0.005
υ	0.005	0.005
ϕ	0.005	0.005
χ	0.005	0.005
ψ	0.005	0.005
ω	0.005	0.005

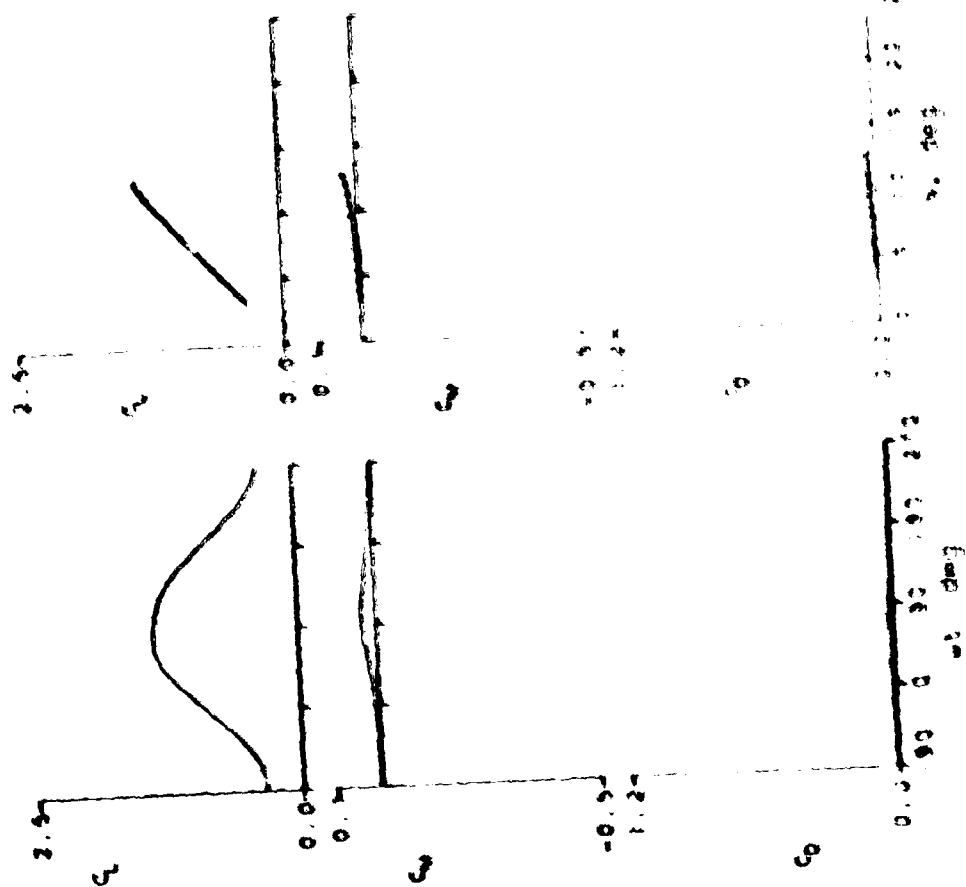


Figure 12. - Continued.

DATA 2012 A 280

64446	2.17	45	7.96	0.100
20	3.31	40	4.82	0.301
6.000	0.0	6.000	0.0	0.00
4.000	12.9	8	0.306	1.200
3.000	7.7	10.000	0.0	0.000

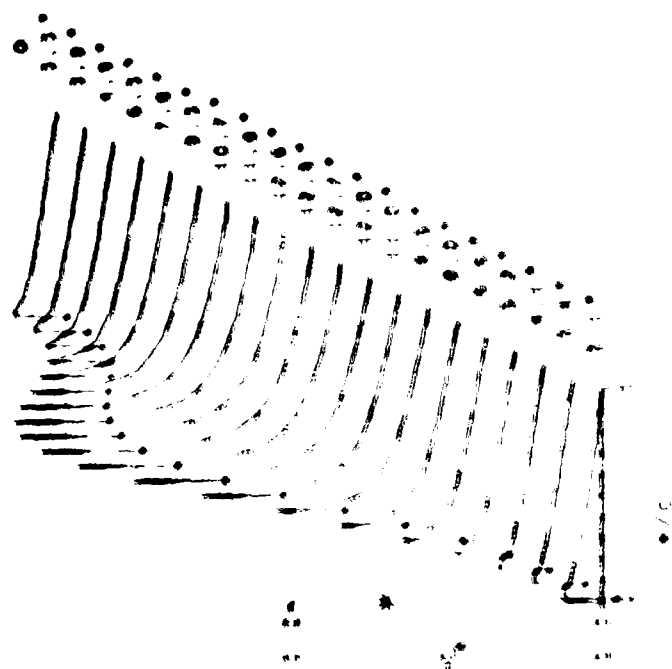
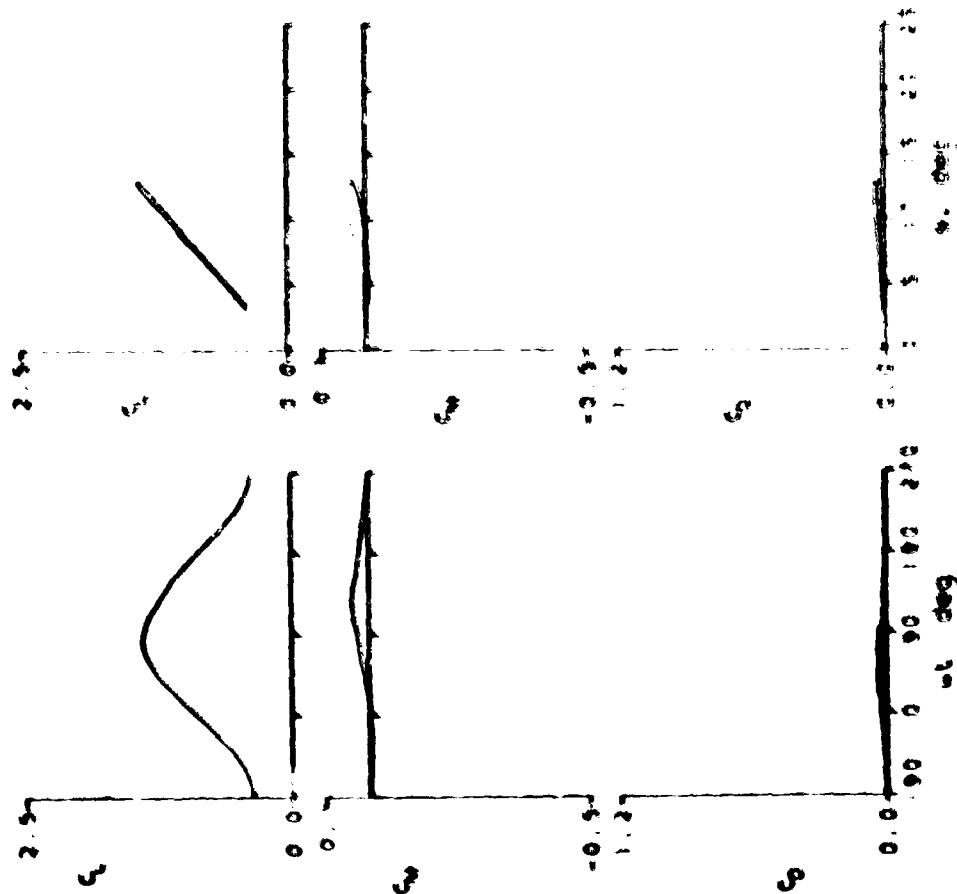
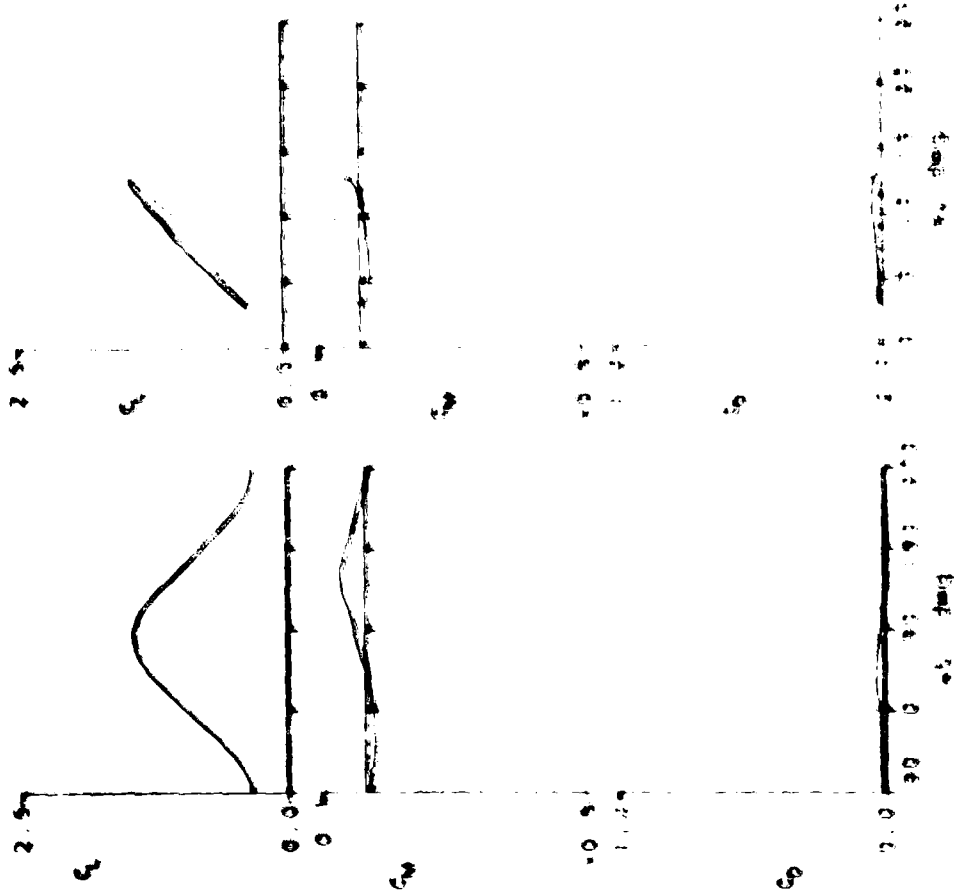
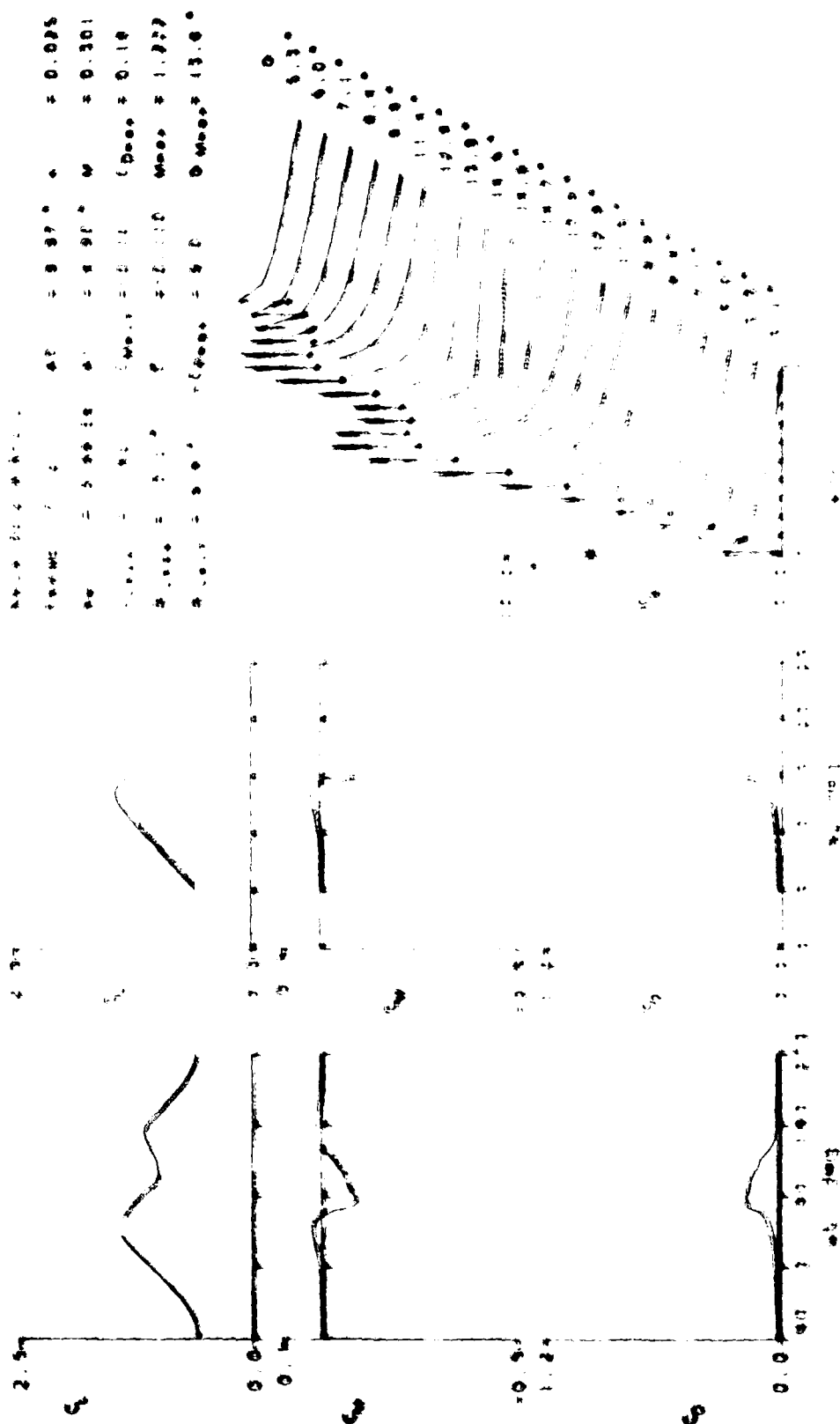


Figure 12. - Contour lines.

6463

[illegible]

THE UNIVERSITY OF CHICAGO



Product Name: [REDACTED]

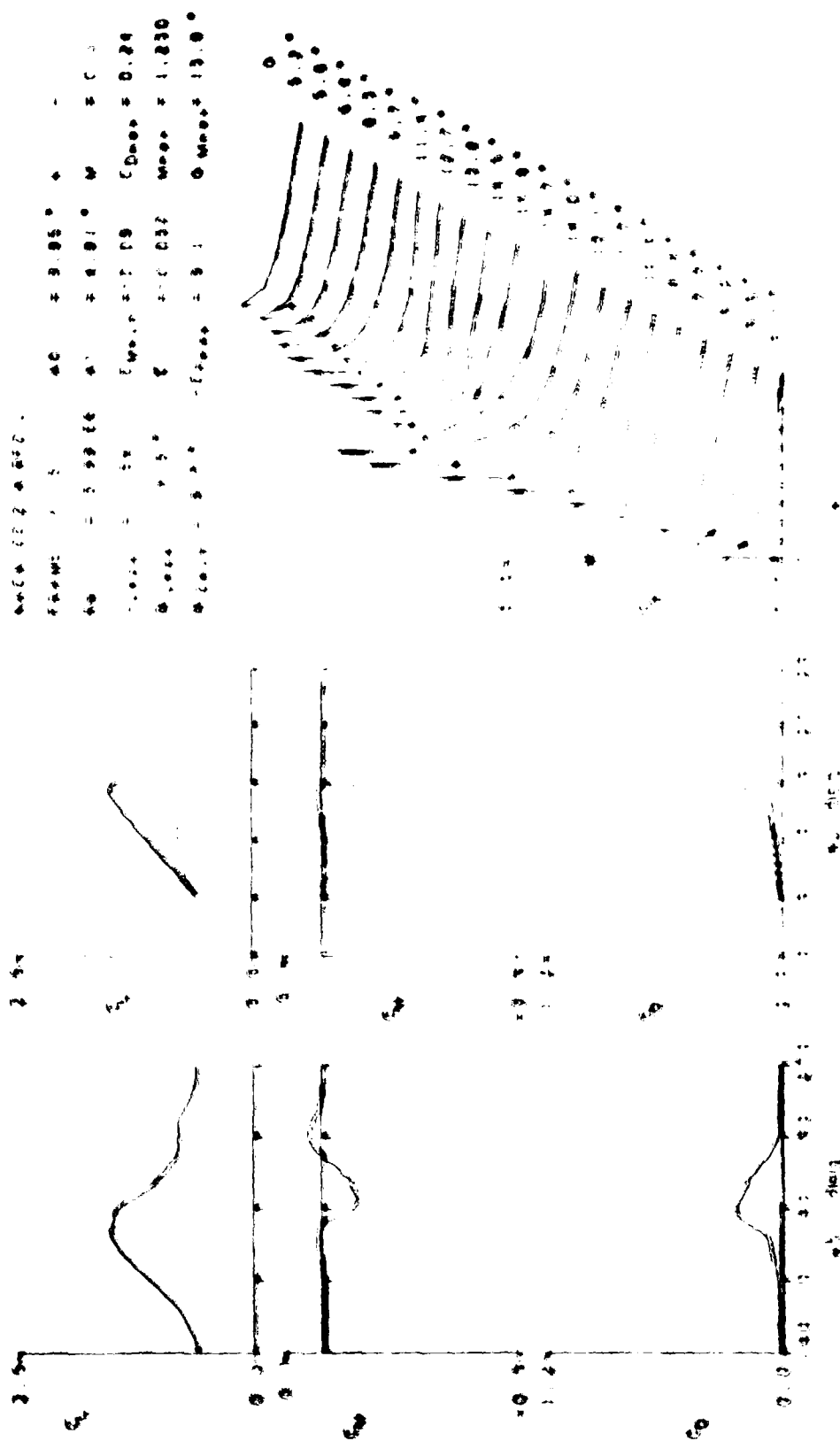


Figure 10-16

1. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 2. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 3. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 4. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 5. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 6. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 7. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 8. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 9. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec
 10. $\mu = 1.0 \times 10^{-4}$ cm²/V-sec

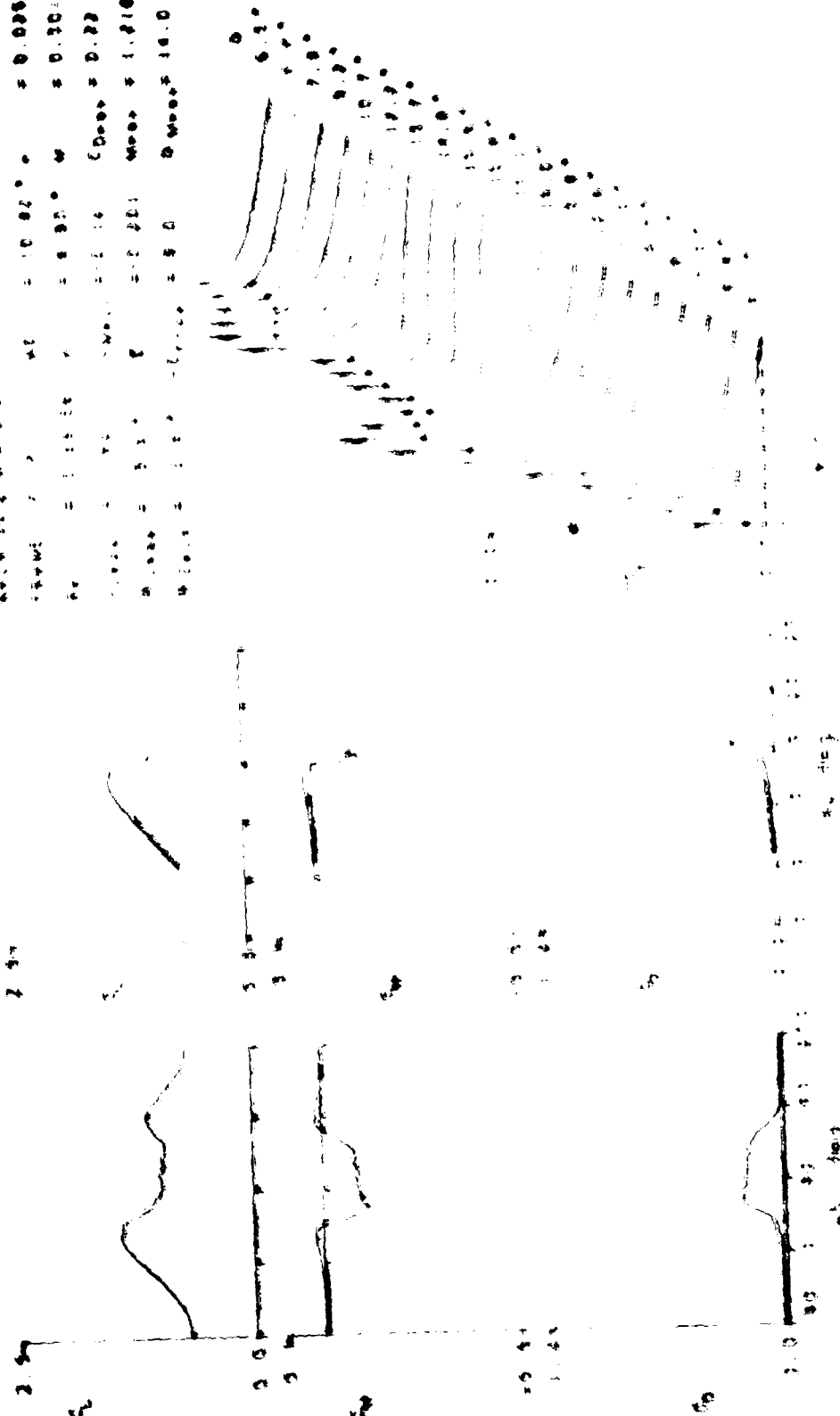


Figure 1. Current density

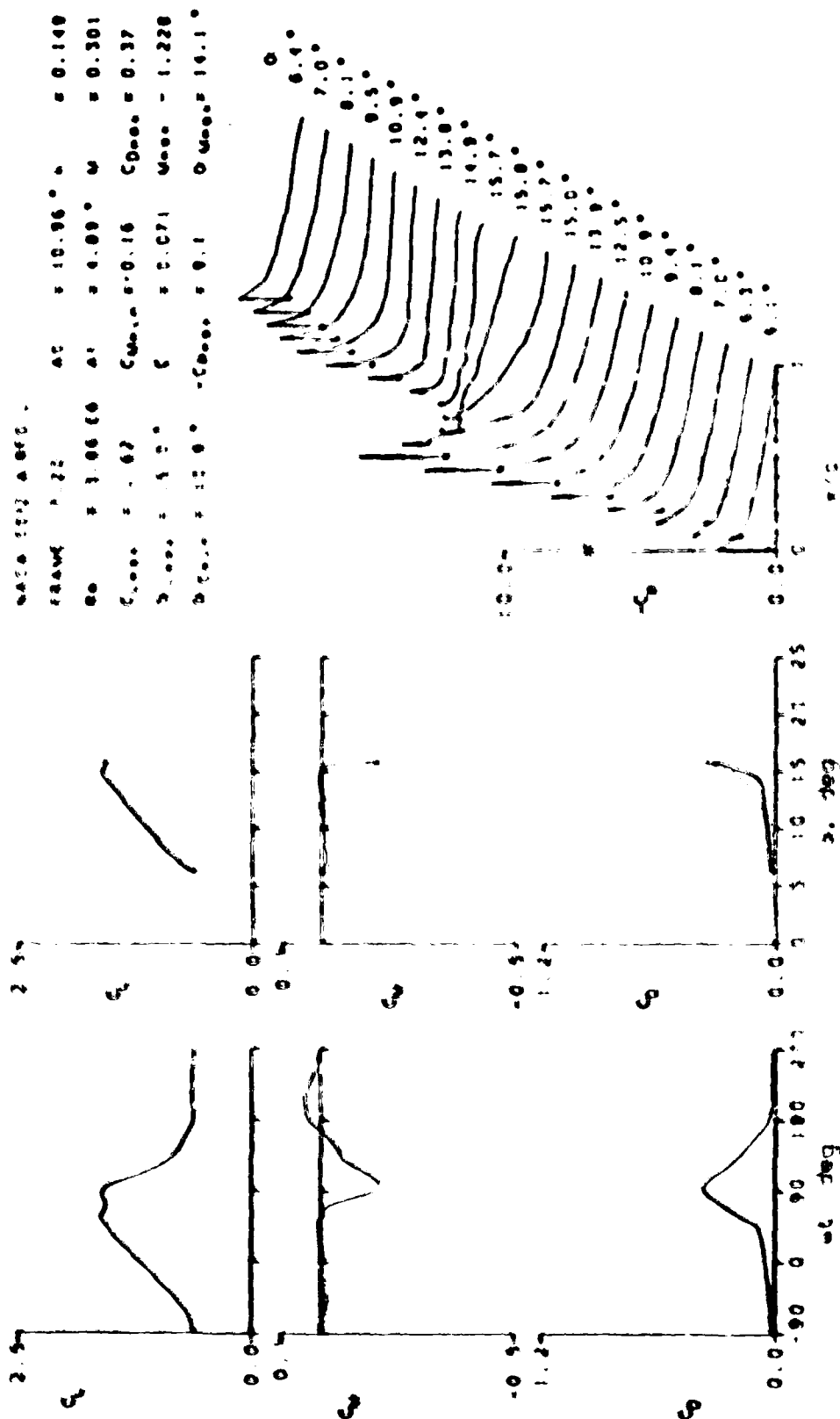


Figure 12.- Continued.

NACA 0012 AERO-L
 FRAME : 7:2:1 $\Delta\theta = 10.00^\circ$ $\alpha = 0.100$
 $B_0 = 3.05 \text{ E6}$ $\Delta\theta = 4.00^\circ$ $\alpha = 0.301$
 $C_{L_{max}} = 1.72$ $C_{M_{max}} = 0.29$ $C_{D_{max}} = 0.43$
 $\alpha_{max} = 15.0^\circ$ $C_L = 0.116$ $M_{max} = 1.218$
 $C_{L_{min}} = 10.5^\circ$ $-C_{D_{max}} = 9.0$ $C_{M_{max}} = 14.1^\circ$

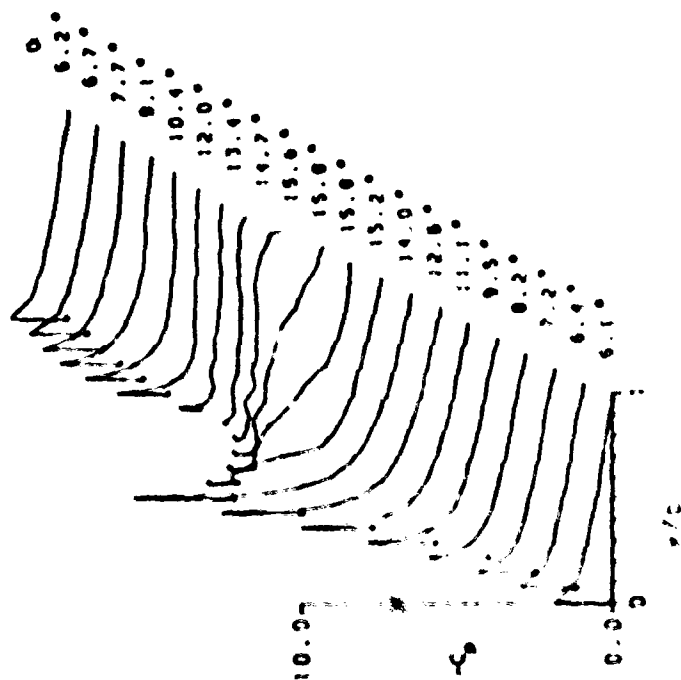
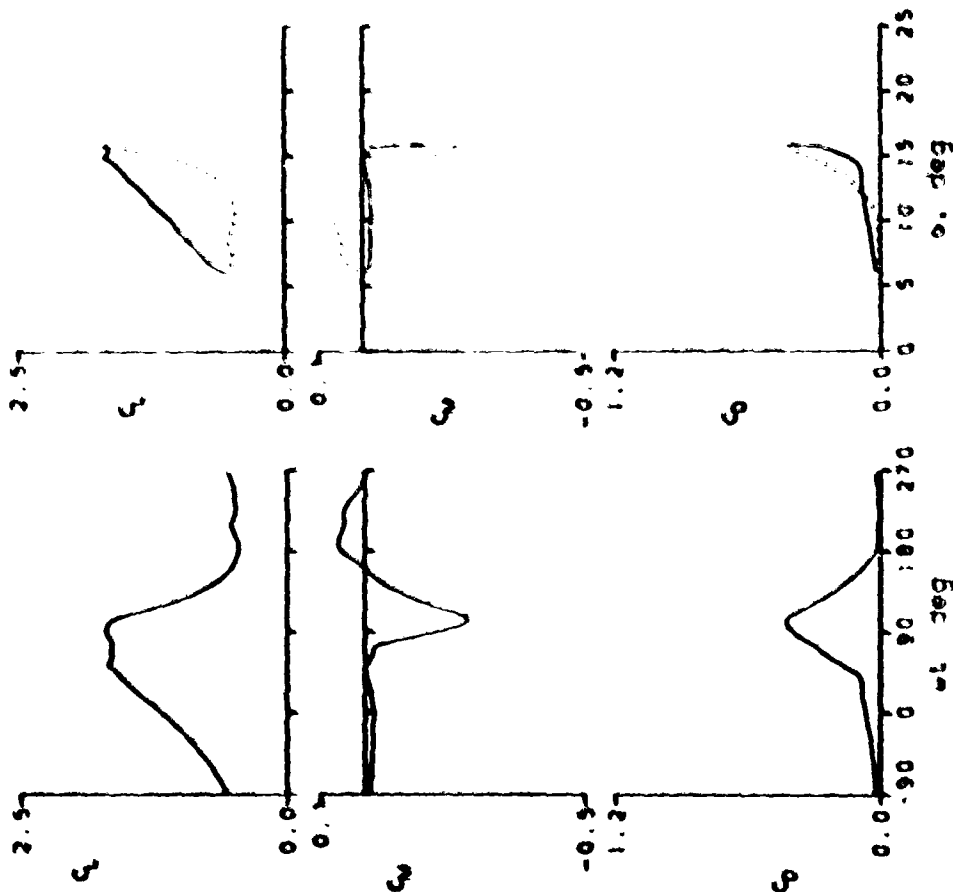


Figure 12.- Continued.

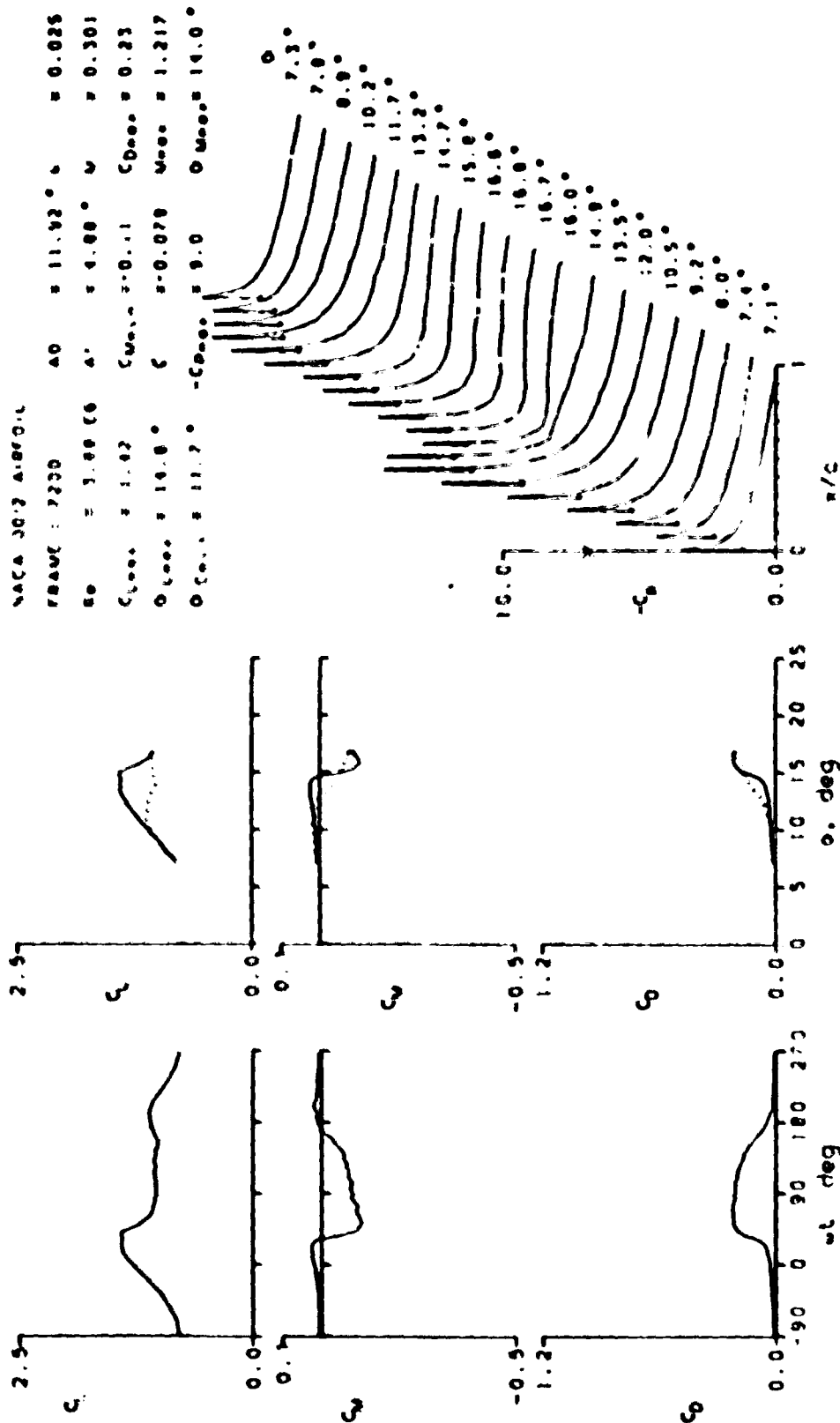


Figure 12.- Continued.

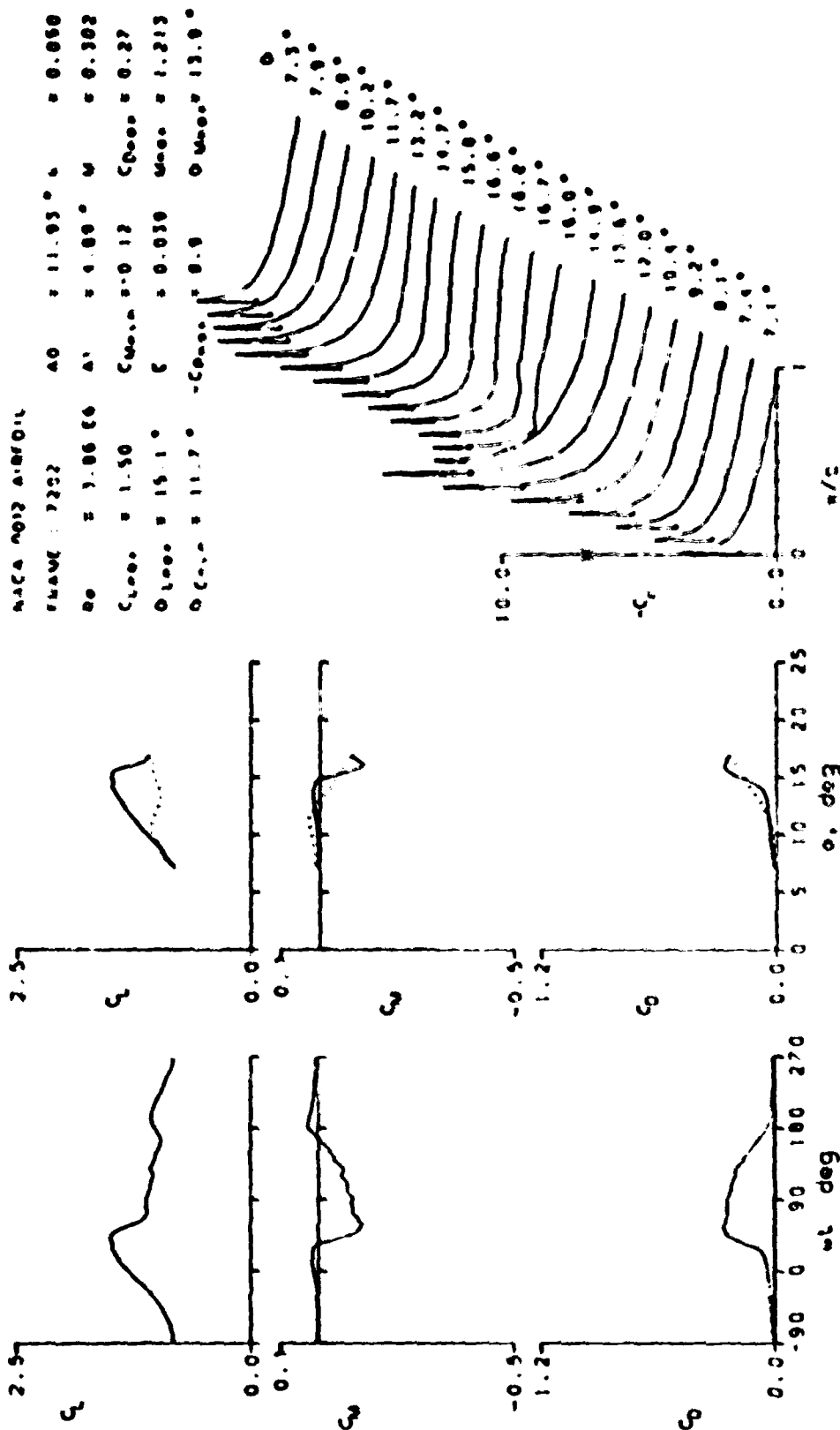


Figure 12.- Continued.

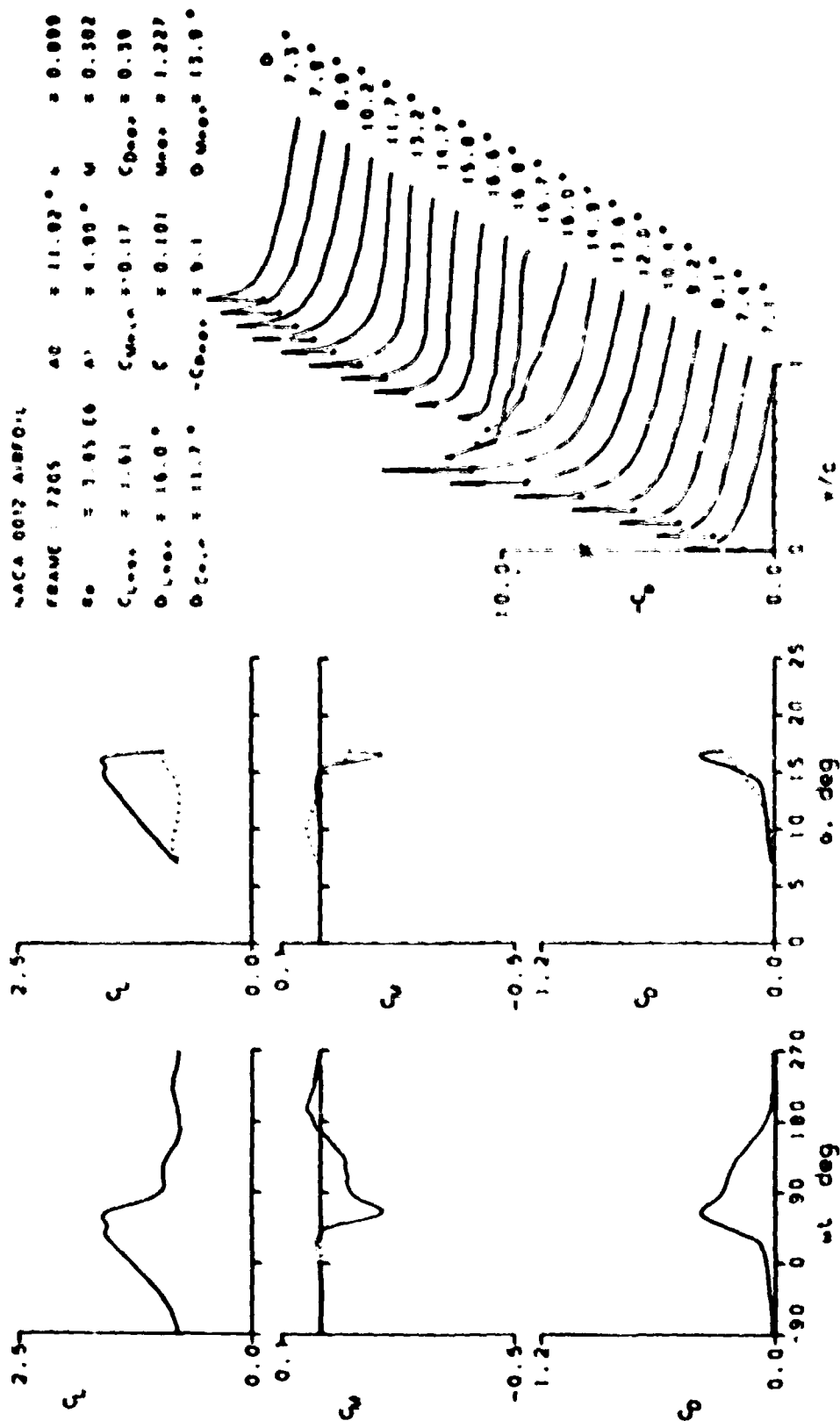


Figure 12.- Continued.

σ_{max}	$= 2.7$	$\Delta \sigma$	$= 11.0$	σ_c	$= 8.3$
σ_0	$= 1.95$	Δ	$= 4.9$	M	$= 0.302$
σ_{min}	$= 1.91$	C_{max}	$= 0.30$	C_{min}	$= 0.30$
O_{max}	$= 16.0$	C	$= 0.30$	M_{max}	$= 1.221$
O_{min}	$= 11.5$	$-C_{\text{max}}$	$= 0$	O_{max}	$= 16.0$

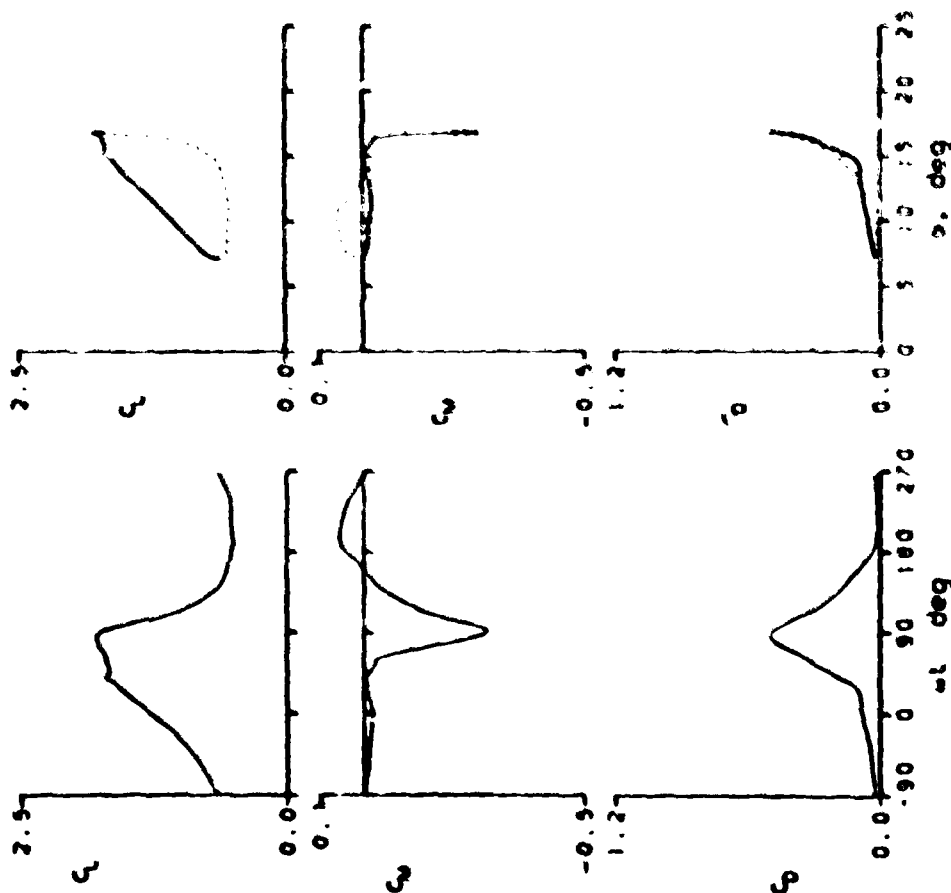


Figure 12. - Continued.

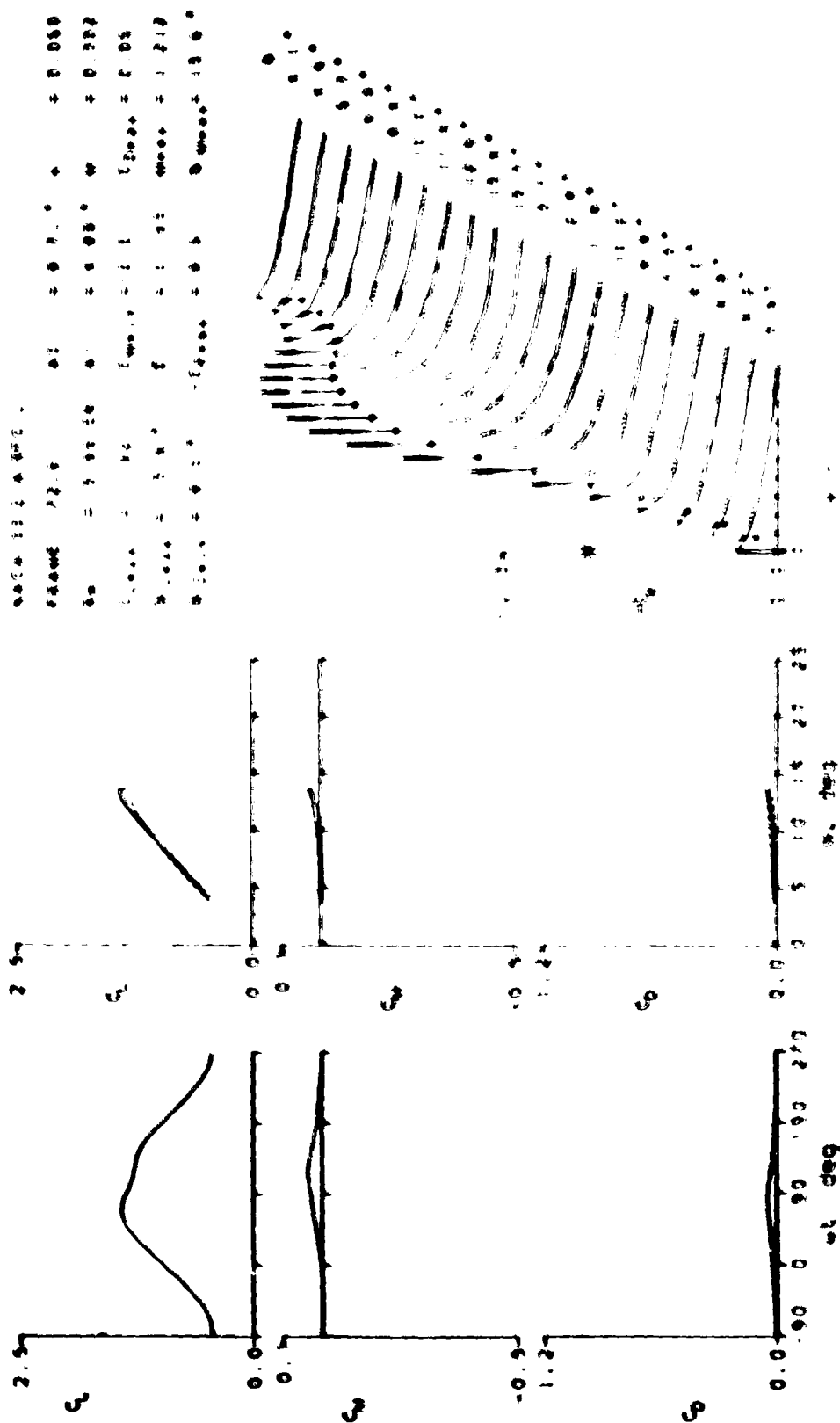
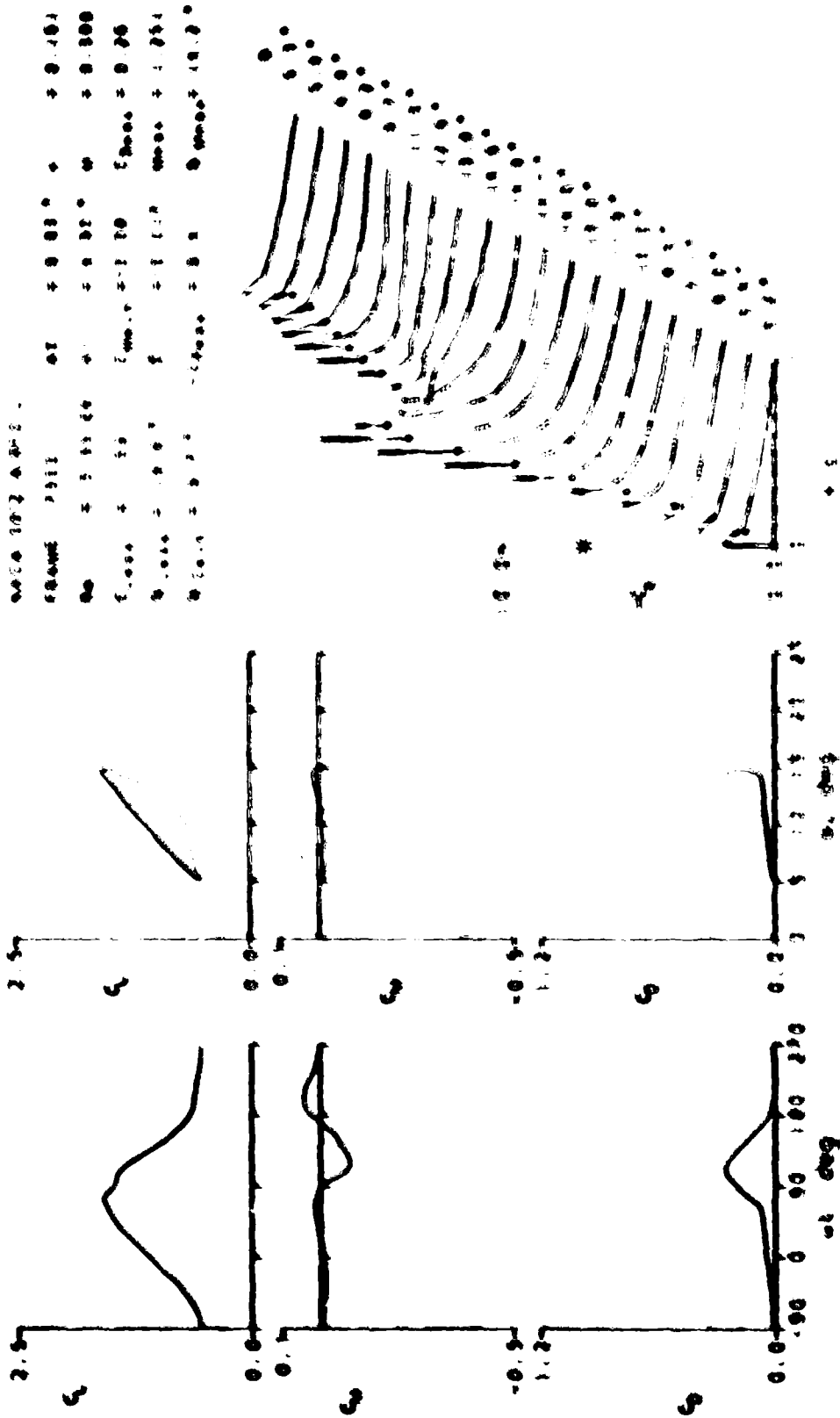
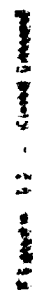
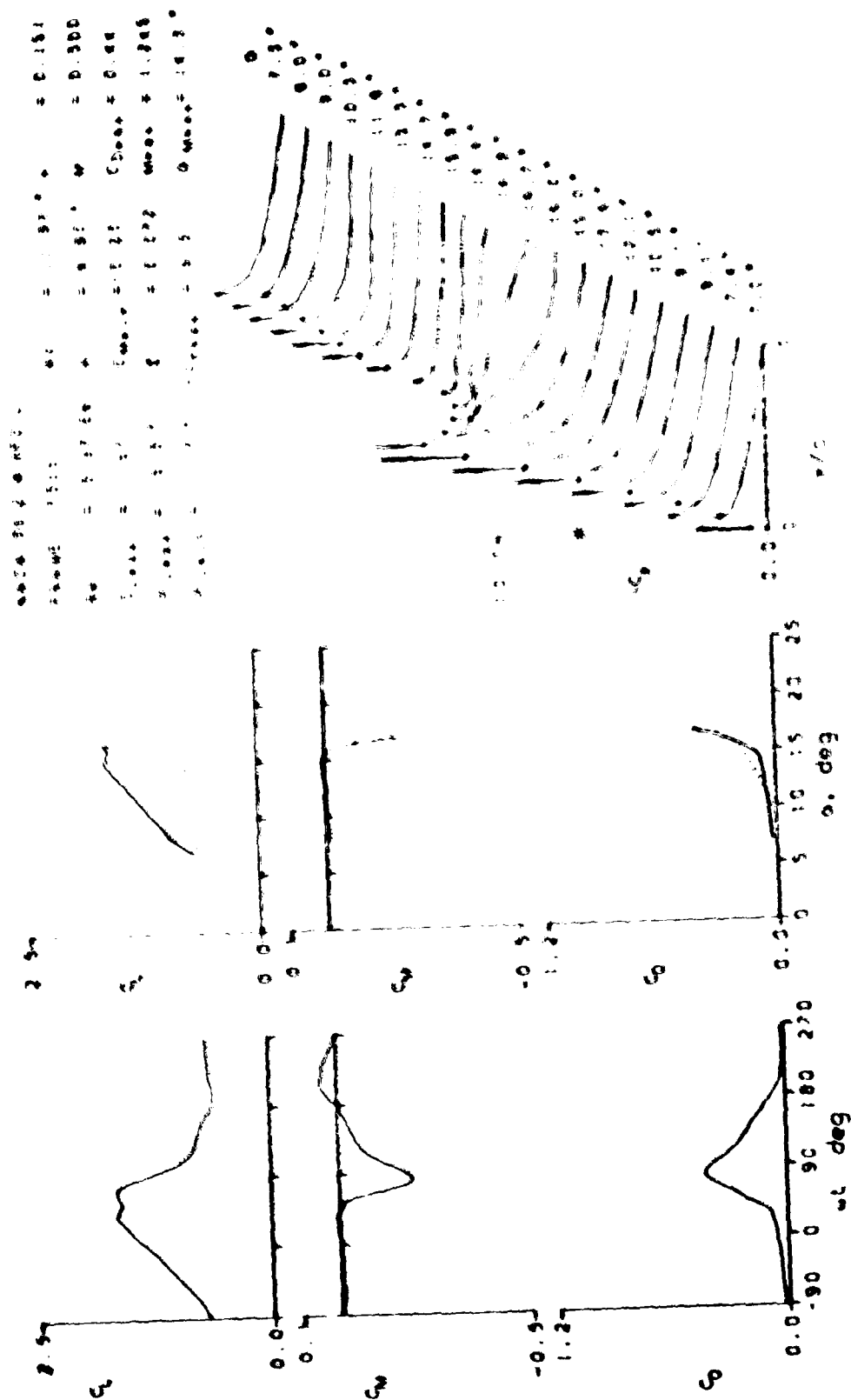


Figure 10 - 11 April 1964







NACA 2012 A 075
 $\alpha_{max} = 21.3^\circ$ $\alpha_c = 9.02^\circ$ $\alpha_{max} = 0.106$
 $\alpha_c = 2.13^\circ$ $\alpha_c = 9.02^\circ$ $\alpha_c = 0.036$
 $\alpha_{max} = 2.13^\circ$ $\alpha_{max} = 9.02^\circ$ $\alpha_{max} = 0.036$
 $\alpha_{max} = 2.13^\circ$ $\alpha_{max} = 9.02^\circ$ $\alpha_{max} = 0.036$
 $\alpha_{max} = 2.13^\circ$ $\alpha_{max} = 9.02^\circ$ $\alpha_{max} = 0.036$
 $\alpha_{max} = 2.13^\circ$ $\alpha_{max} = 9.02^\circ$ $\alpha_{max} = 0.036$

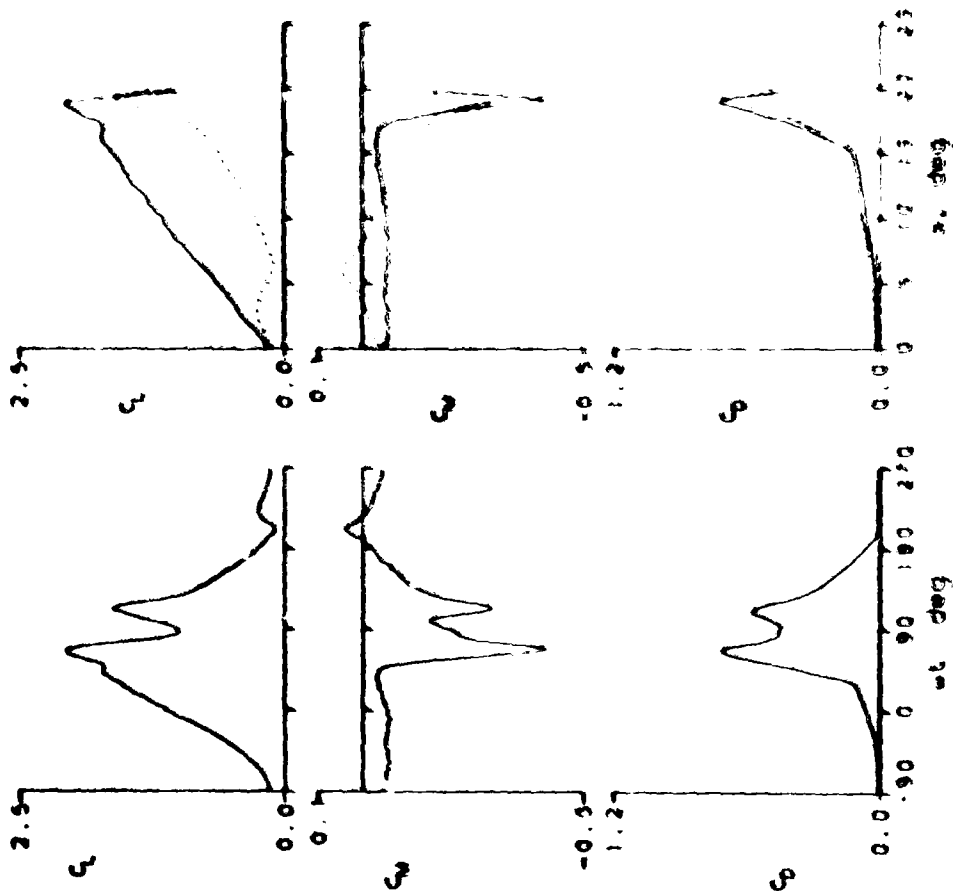
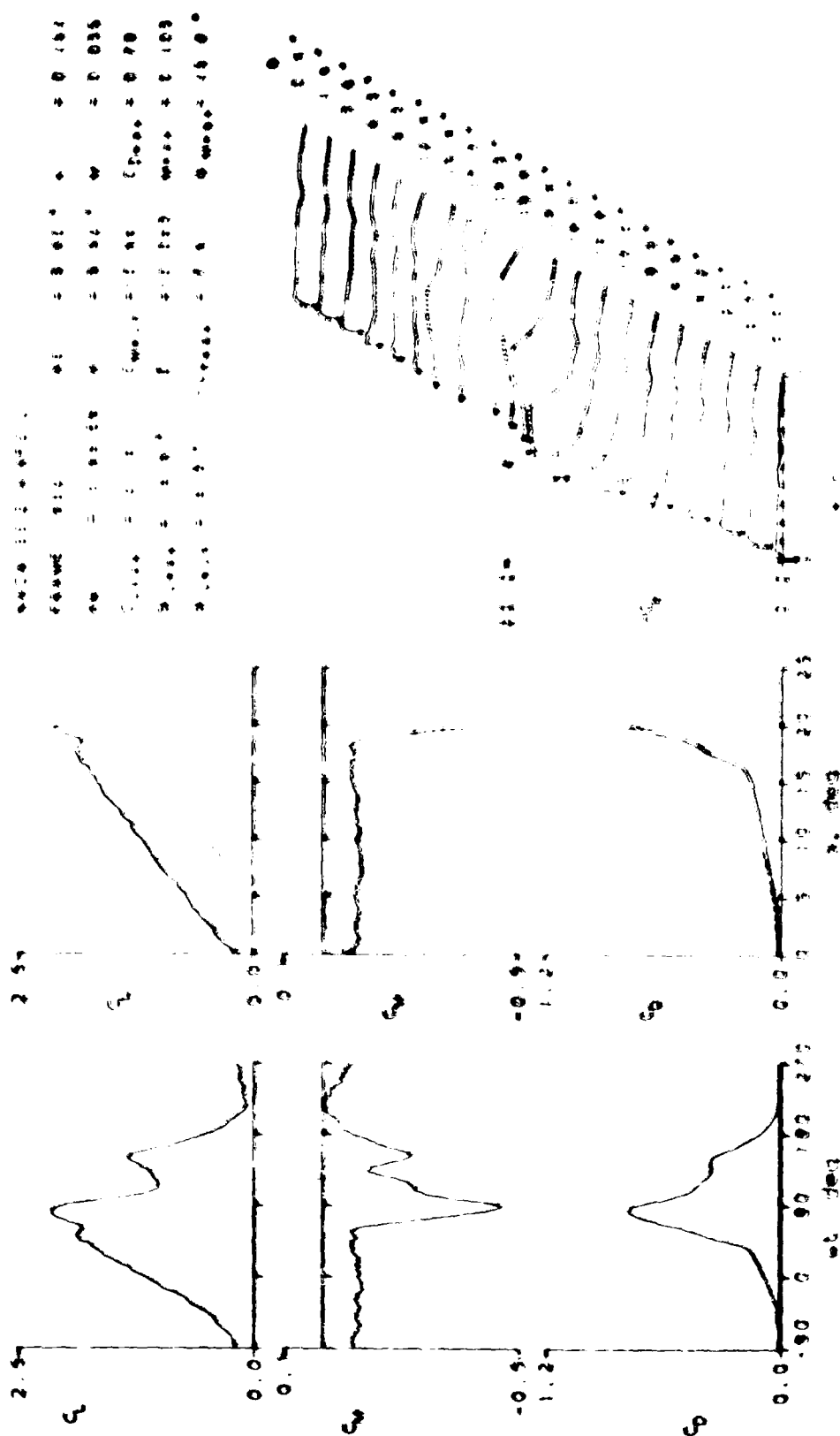


Figure 12. - Good Inset



NACA 2012 A 84

NAME	0121	AS	= 3.70°	α	= 0.253
Re	= 2.0520	Δ	= 3.53°	W	= 0.035
C _{max}	= 2.1	C _{max}	= 1.00	C _{max}	= 0.71
C _{max}	= 1.99	C _{max}	= 1.20	C _{max}	= 0.107
C _{max}	= 0.1	C _{max}	= 0	C _{max}	= 17.2

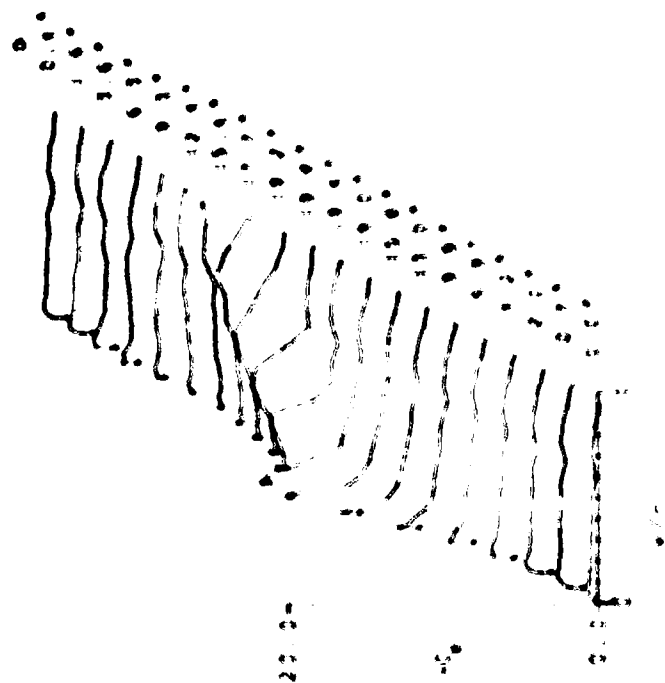
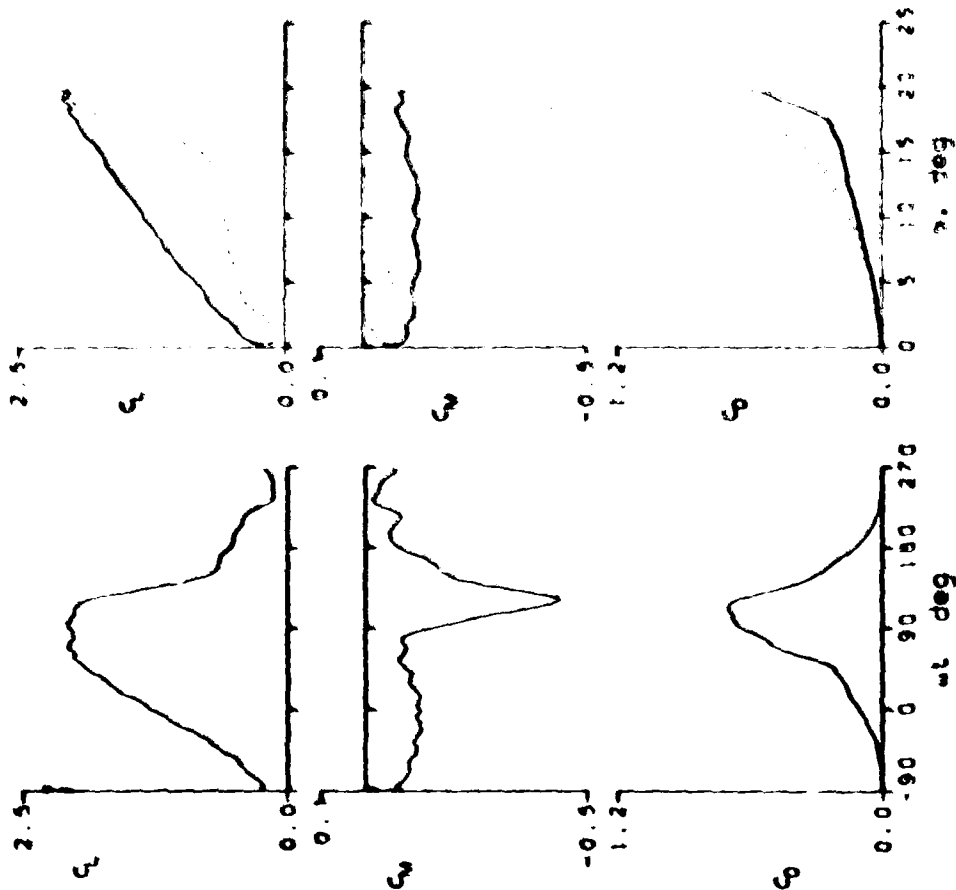


Figure 12.- Continued.

NACA 0012 A 870

FRONT	0.122	AO	= 14.85°	α	= 0.103
BO	= 2.4976	A'	= 9.90°	W	= 0.036
C _{l,000}	= 2.12	C _{m,000}	= -0.42	C _{D,000}	= 0.06
C _{l,000}	= 20.0°	C	= 0.433	M ₀₀₀	= 0.108
C _{l,000}	= 14.4°	-C _{D,000}	= 7.9	Q _{M,000}	= 15.3°

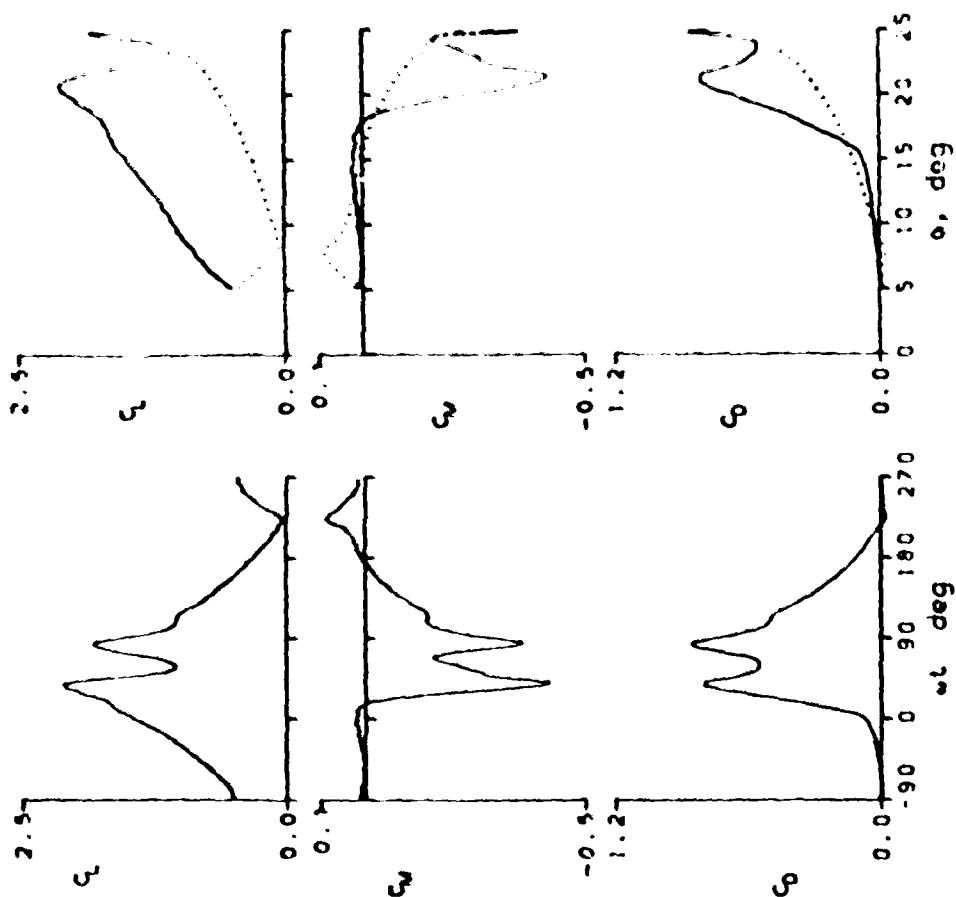


Figure 12.- Continued.

NACA 0012 AIRFOIL

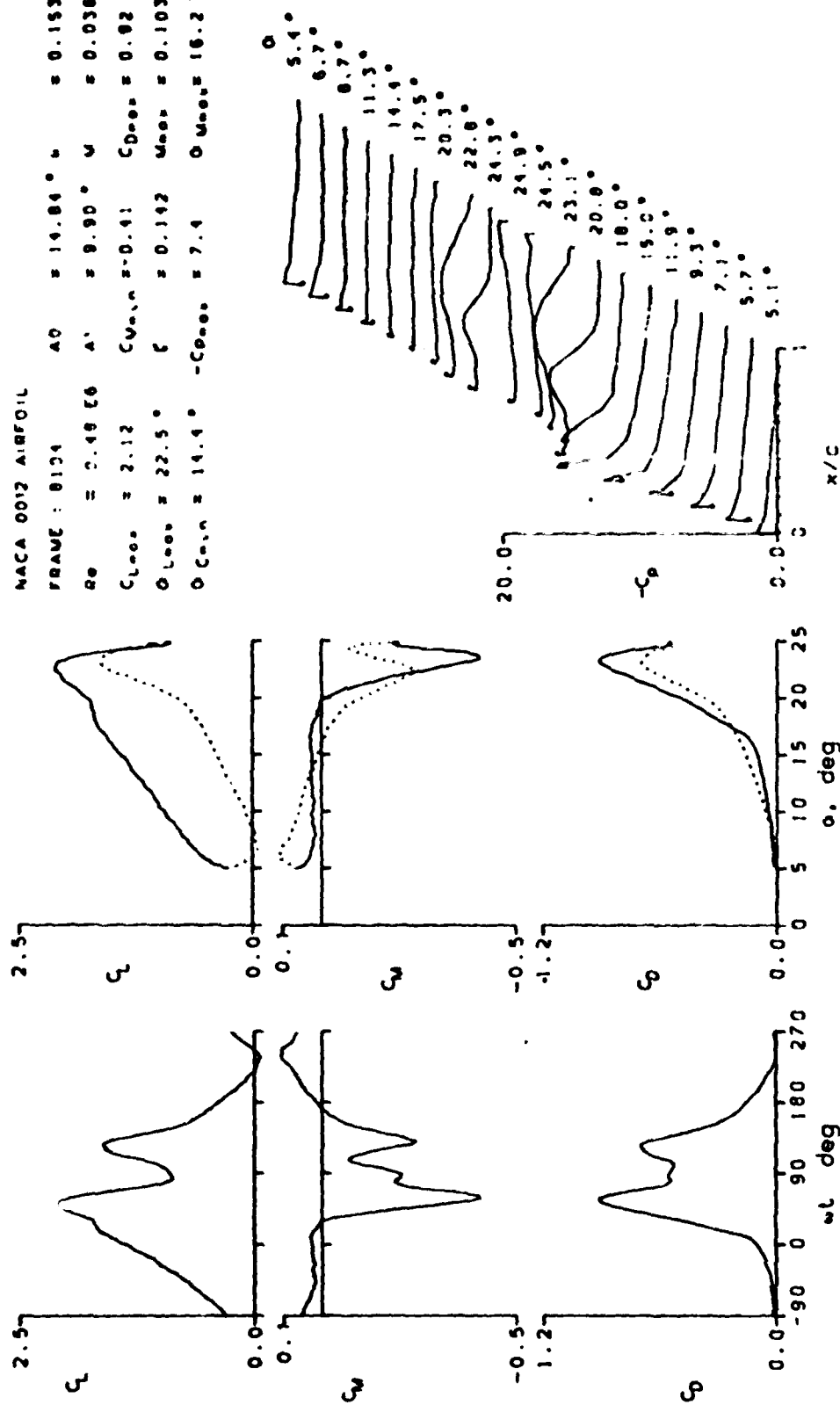
FRAME : 8134 $\alpha_0 = 14.84^\circ$ $\alpha = 0.153$

$Re = 2.48 \times 10^6$ $A' = 9.90^\circ$ $M = 0.036$

$C_{L_{max}} = 2.12$ $C_{D_{max}} = 0.41$ $C_{D_{min}} = 0.02$

$\phi_{L_{max}} = 22.5^\circ$ $\phi = 0.142$ $M_{max} = 0.103$

$\phi_{C_{L_{min}}} = 14.4^\circ$ $-C_{D_{max}} = 7.4$ $\phi_{M_{max}} = 16.2^\circ$



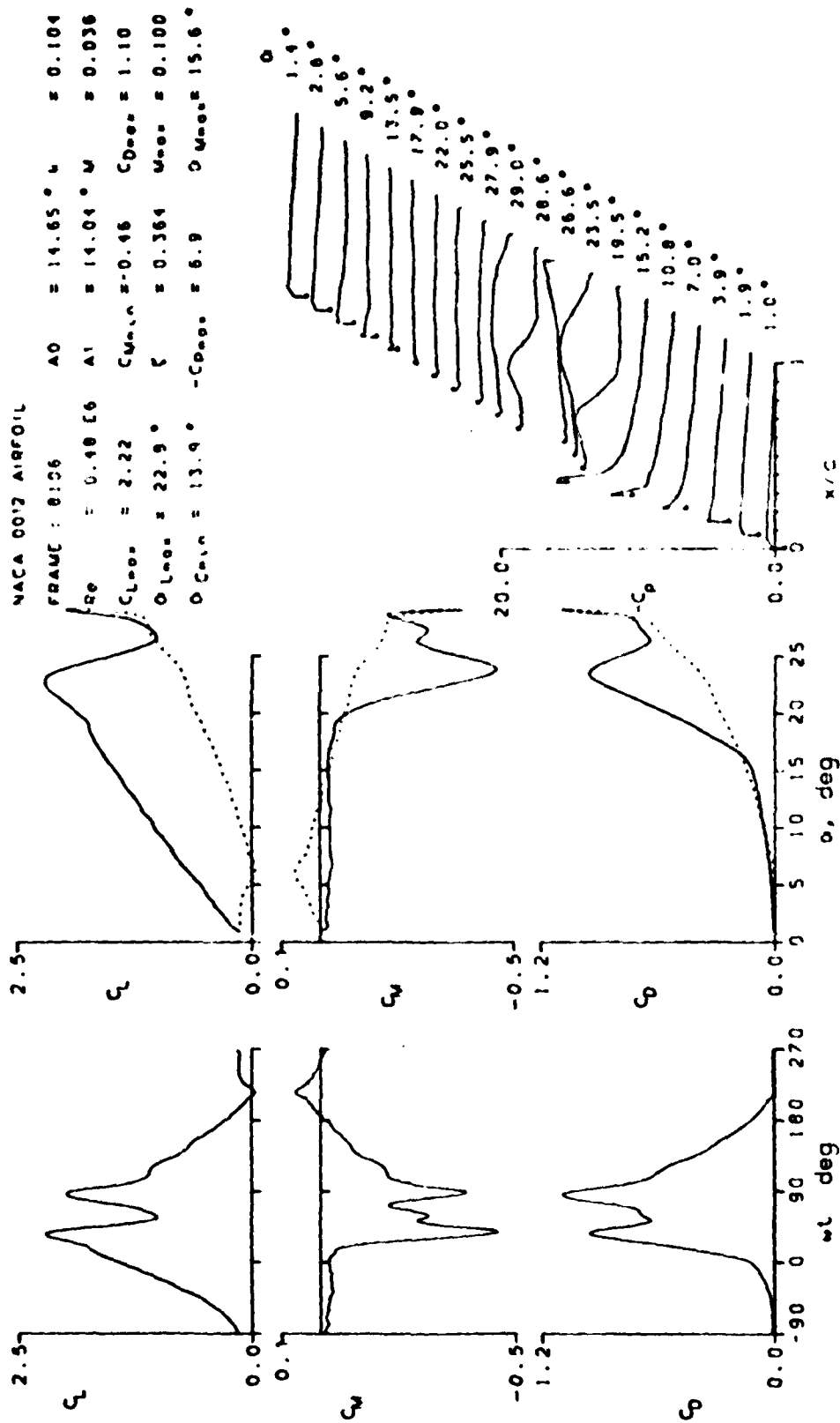


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 0114 AC = 14.80° h = 0.089
 Re = 0.98 CG A1 = 9.94° M = 0.072
 C_{L00} = 2.20 C_{M00} = -0.41 C_{D00} = 0.03
 O_{L00} = 22.2° C = 0.144 M₀₀ = 0.273
 O_{C00} = 14.4° -C_{D00} = 12.8 O_{M00} = 21.3°

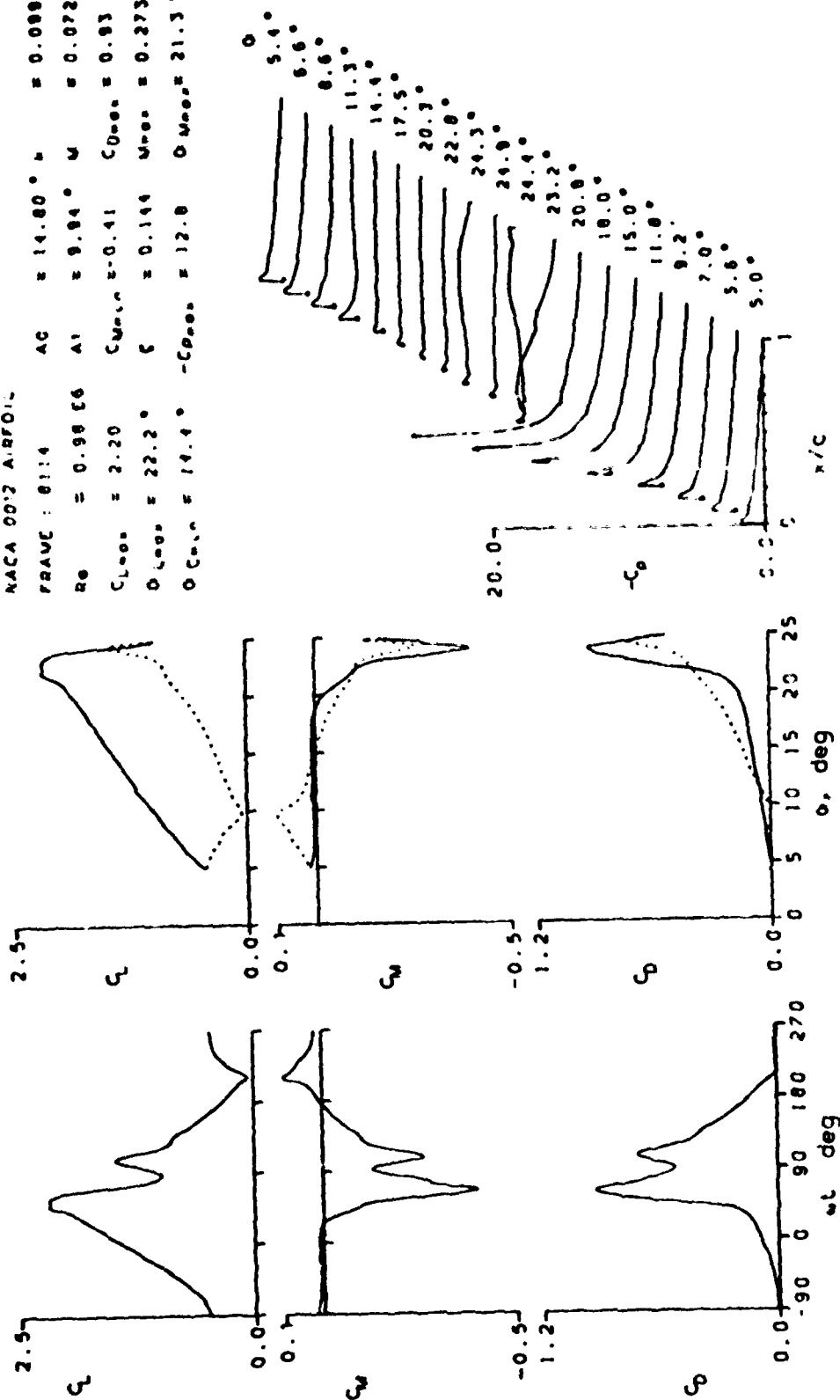


Figure 12.- Continued.

NACA 0012 - 88FO -
 $Re = 8.116 \times 10^6$ $AC = 14.05^\circ$ $\mu = 0.148$
 $Re = 5.98 \times 10^6$ $AC = 9.89^\circ$ $\mu = 0.072$
 $C_{L,0} = 2.35$ $C_{M,0} = 0.45$ $C_{D,0} = 1.06$
 $C_{L,0.05} = 24.5^\circ$ $C = 0.220$ $M_{0.05} = 0.200$
 $C_{L,0.10} = 14.4^\circ$ $-C_{D,0.10} = 14.4$ $C_{M,0.10} = 22.0^\circ$

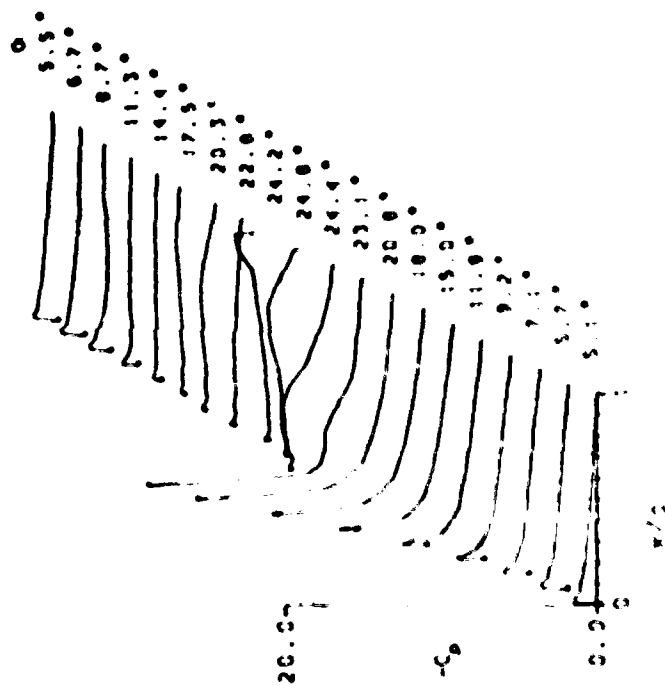
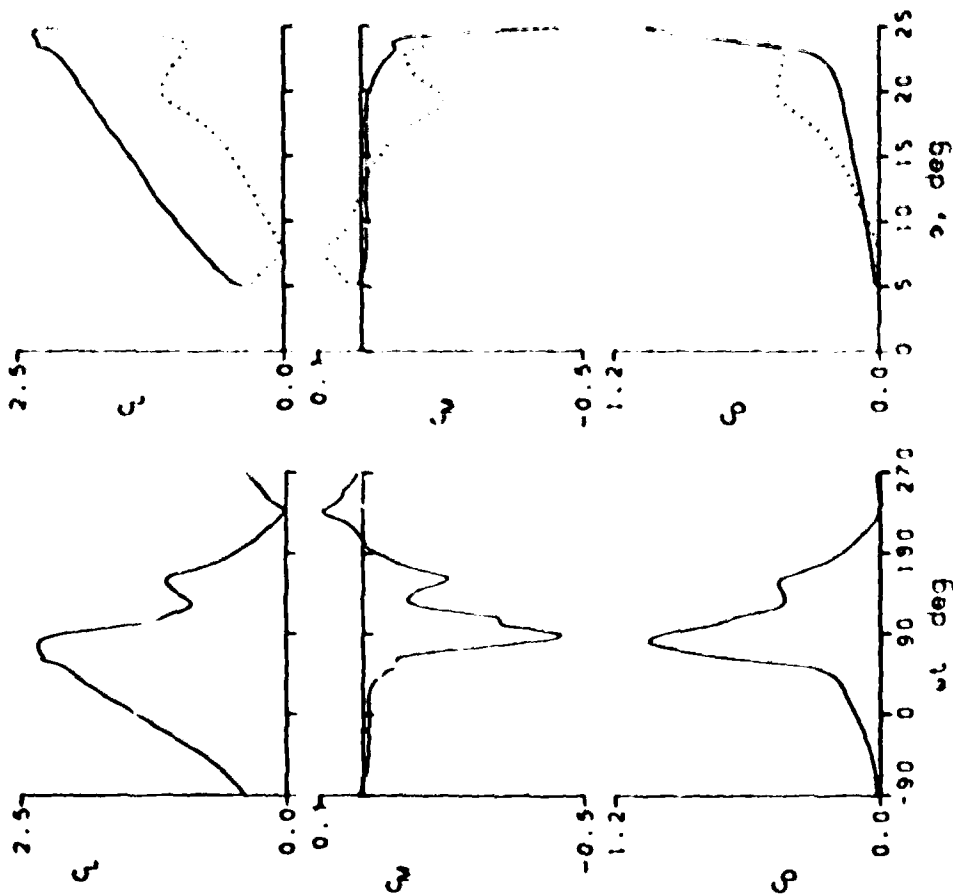


Figure 12.- Continued.

NACA 0012 AEROFOIL
 FRAME : 0110 $\Delta O = 14.84^\circ$ $\alpha = 0.240$
 $R_0 = 0.98$ $\Delta' = 9.89^\circ$ $M = 0.072$
 $C_{L,000} = 2.43$ $C_{M,000} = 2.43$ $C_{D,000} = 0.98$
 $O_{L,000} = 24.0^\circ$ $\xi = 0.607$ $M_{000} = 0.300$
 $O_{C_{L,000}} = 14.4^\circ$ $-C_{D,000} = 16.3$ $O_{M_{000}} = 24.3^\circ$

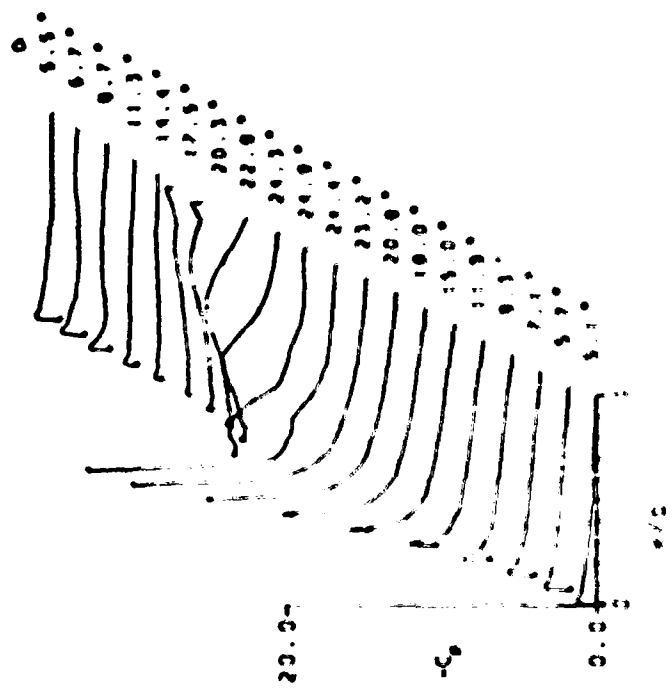
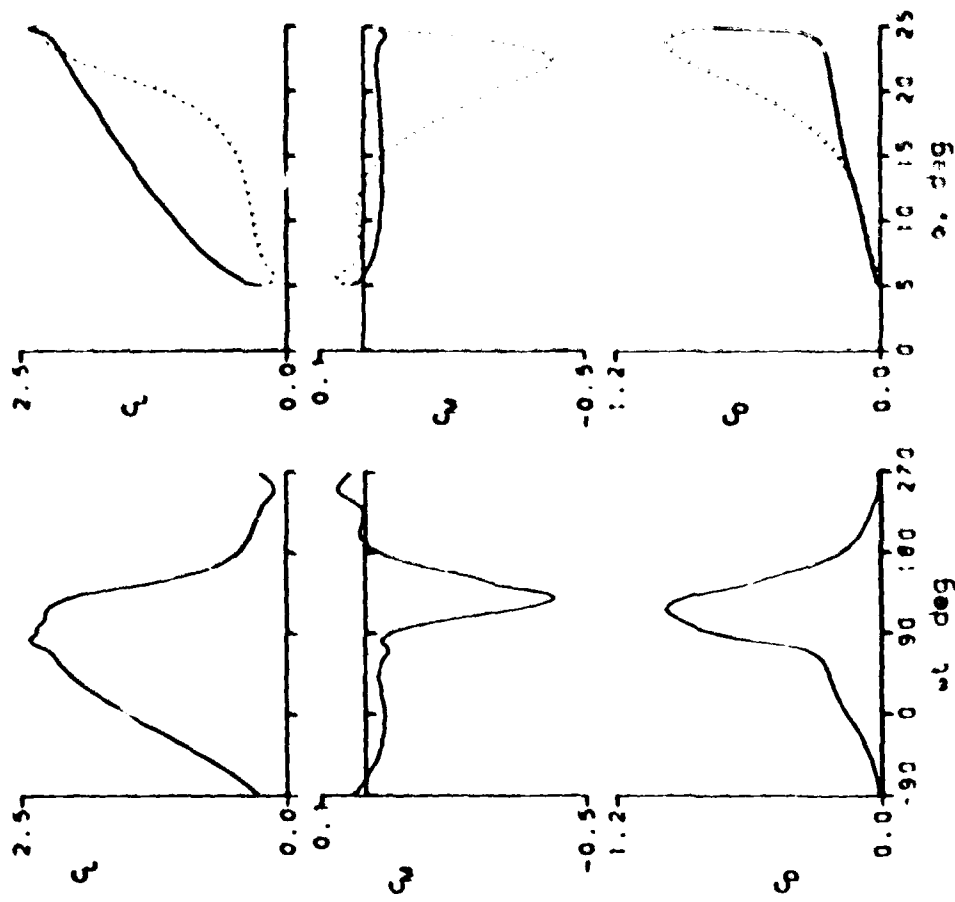


Figure 12.- Continued.

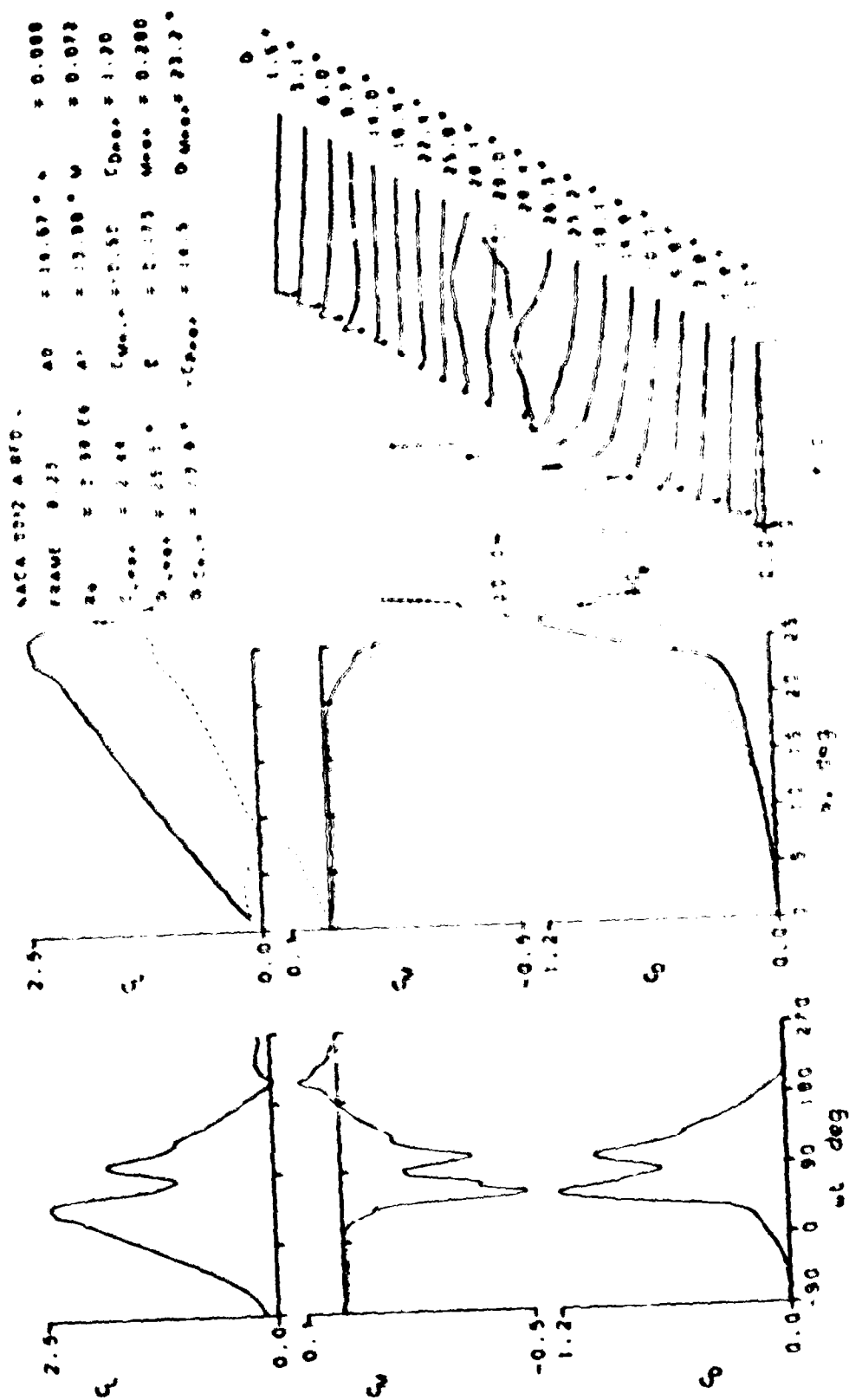


Figure 12.- Continued.

NACA 99-2 A-B-C-D
 RANK 8273 $\alpha_0 = 9.01^\circ$ $\alpha = 0.240$
 $\alpha = 7.3024$ $\alpha = 9.09^\circ$ $\alpha = 0.077$
 $C_{L,000} = 1.1$ $C_{M,000} = 0.07$ $C_{D,000} = 0.16$
 $C_{L,000} = 1.2$ $C_{M,000} = 0.203$ $C_{D,000} = 0.266$
 $C_{L,000} = 0.3$ $C_{M,000} = 12.1$ $C_{D,000} = 10.0$

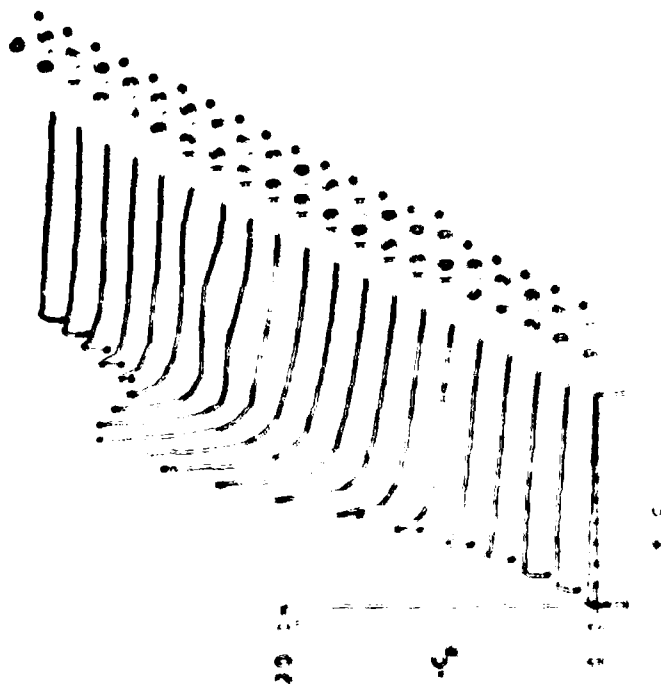
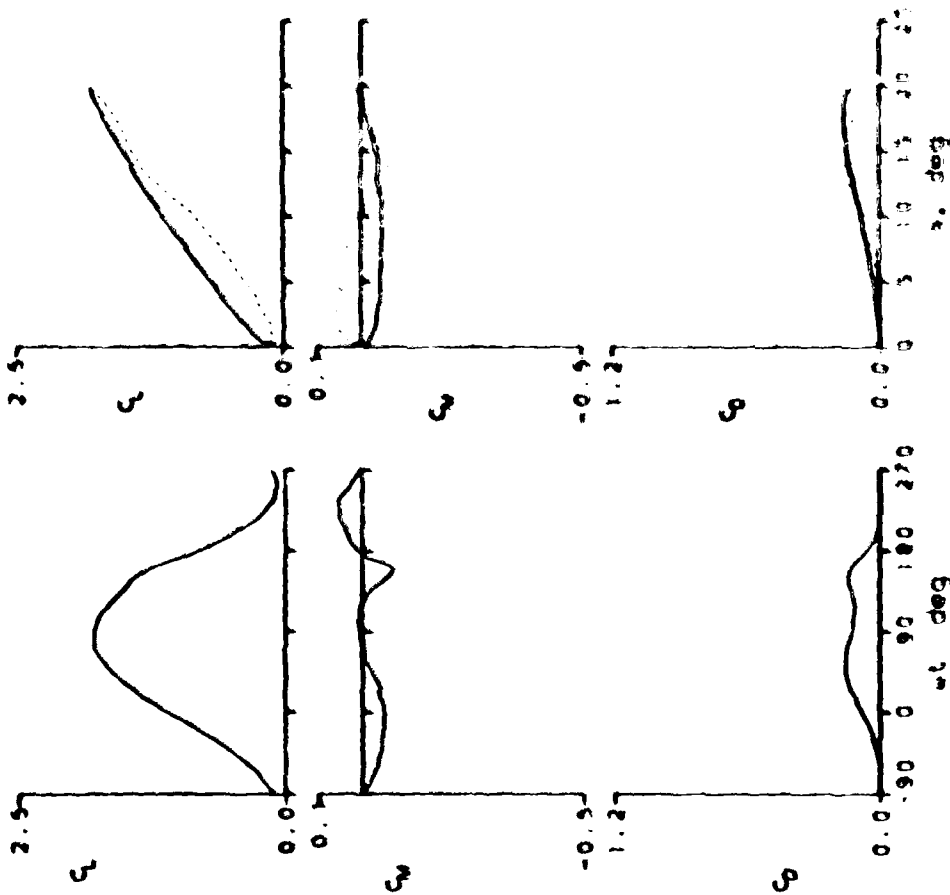


Figure 12.- Continued.

0.020 0.12 0.25
 0.040 0.25 0.50
 0.080 0.50 1.00
 0.160 1.00 2.00
 0.320 2.00 4.00
 0.640 4.00 8.00
 1.280 8.00 16.00

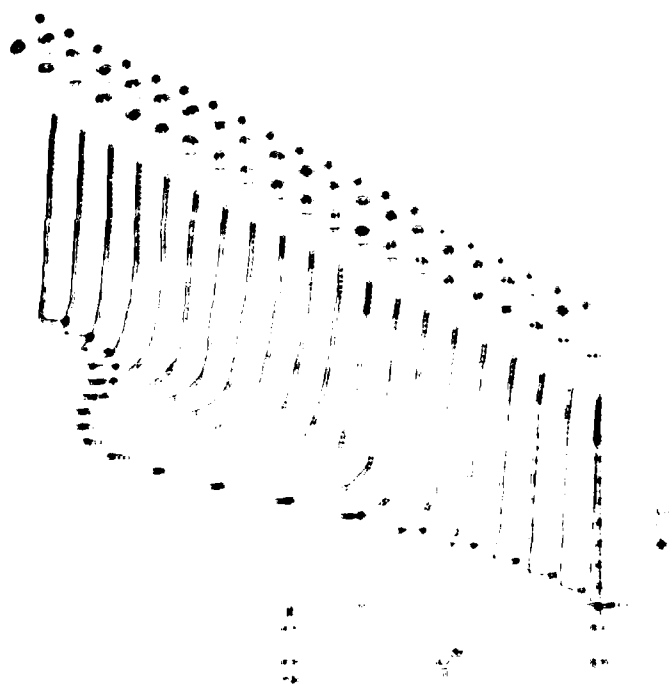
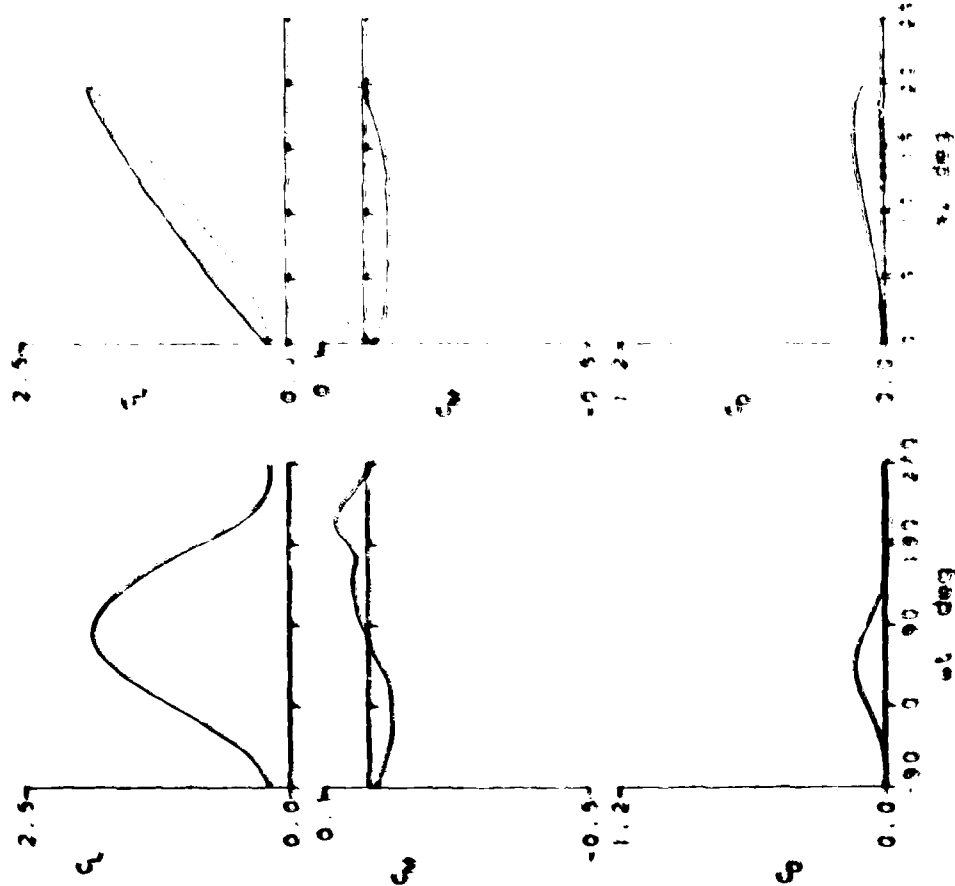
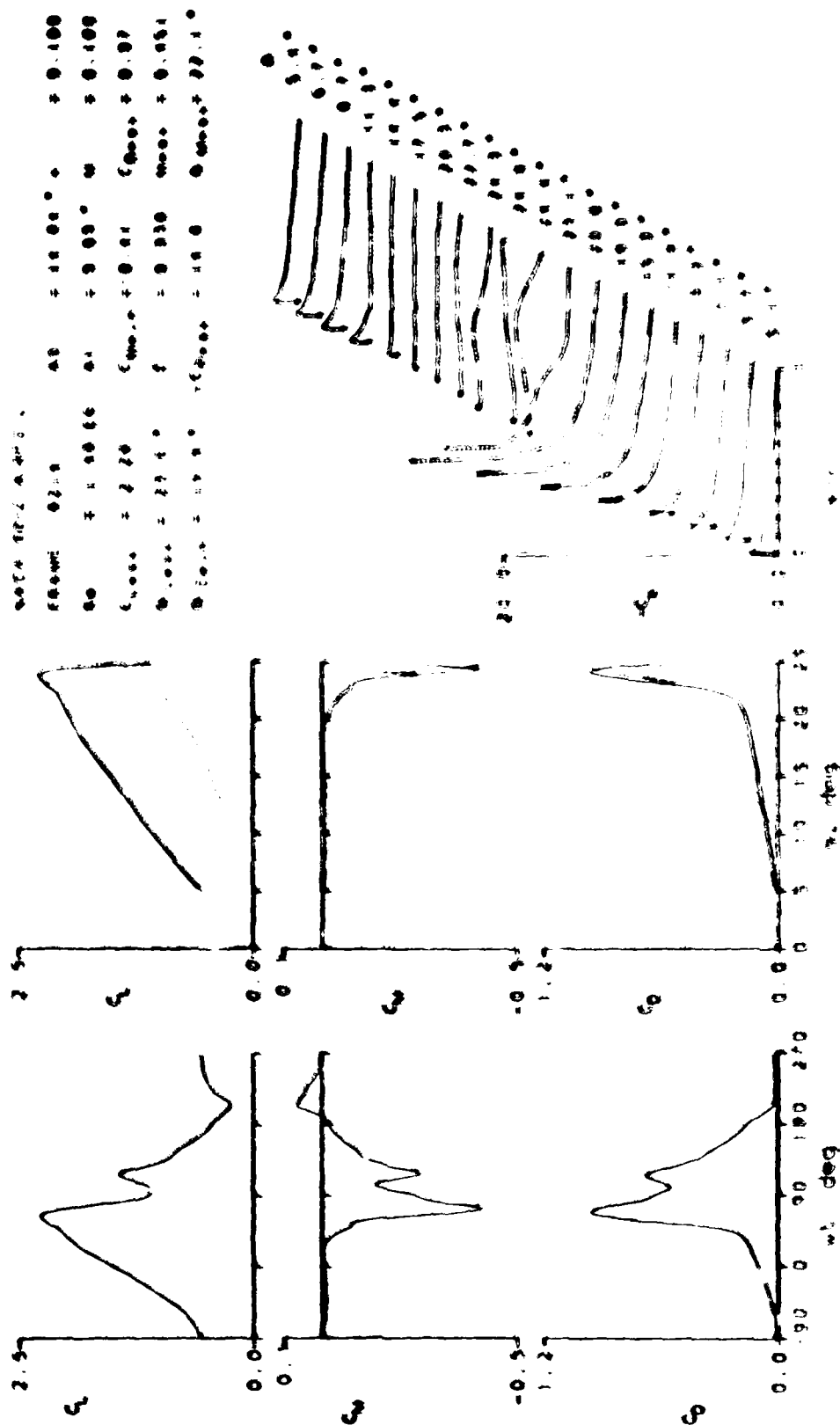
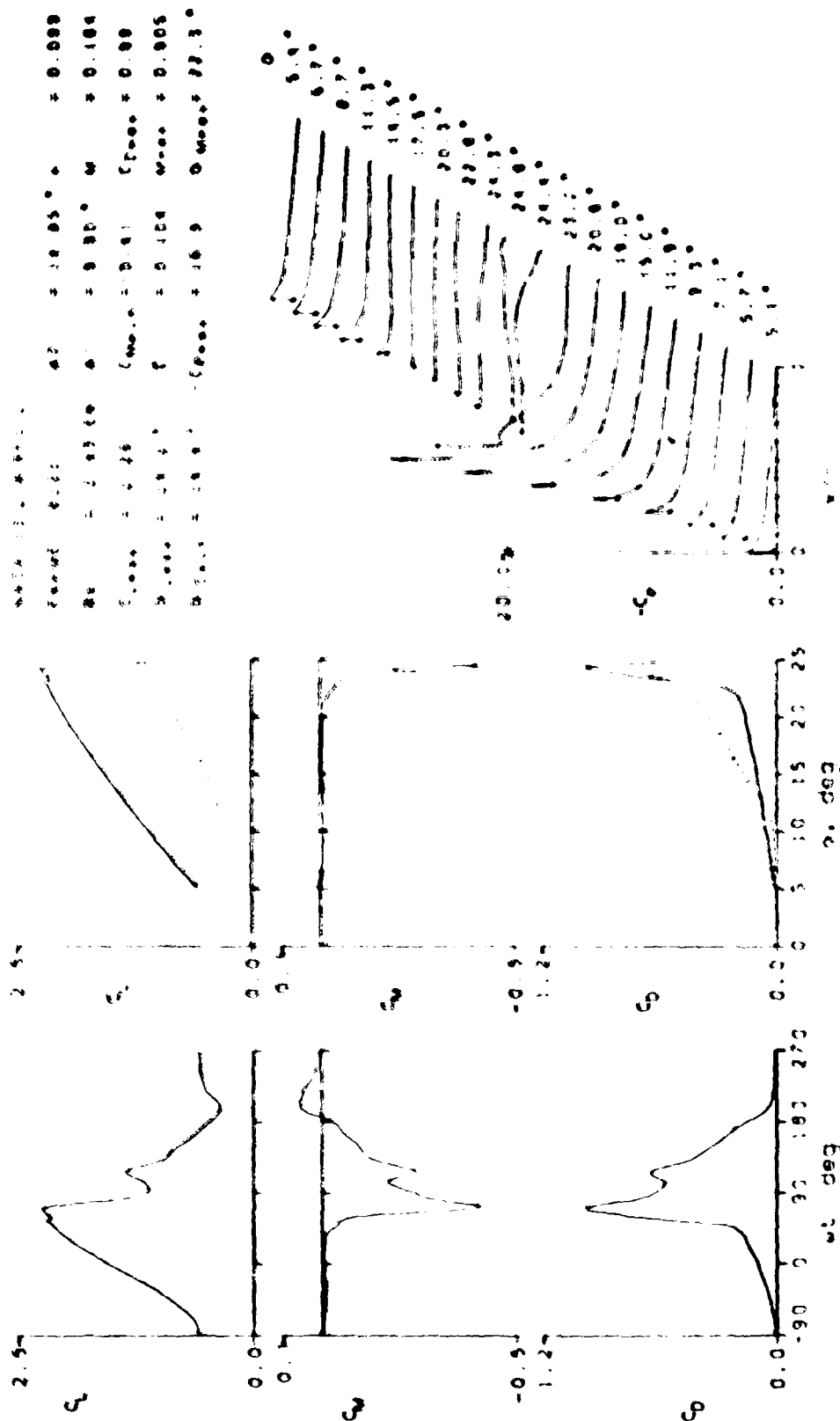


Figure 1 - Zeta potential





NACA 0012 AIRFOIL
 FRAME : 8222 $\alpha_0 = 14.84^\circ$ $z = 0.149$
 $R_0 = 2.42 \text{ (6)}$ $A_1 = 9.90^\circ$ $M = 0.184$
 $C_{L_{max}} = 2.38$ $C_{M_{min}} = -0.47$ $C_{D_{min}} = 1.08$
 $O_{L_{max}} = 24.9^\circ$ $\zeta = -0.350$ $M_{max} = 0.937$
 $O_{C_{min}} = 14.4^\circ$ $-C_{D_{max}} = 17.8$ $O_{M_{max}} = 23.2^\circ$

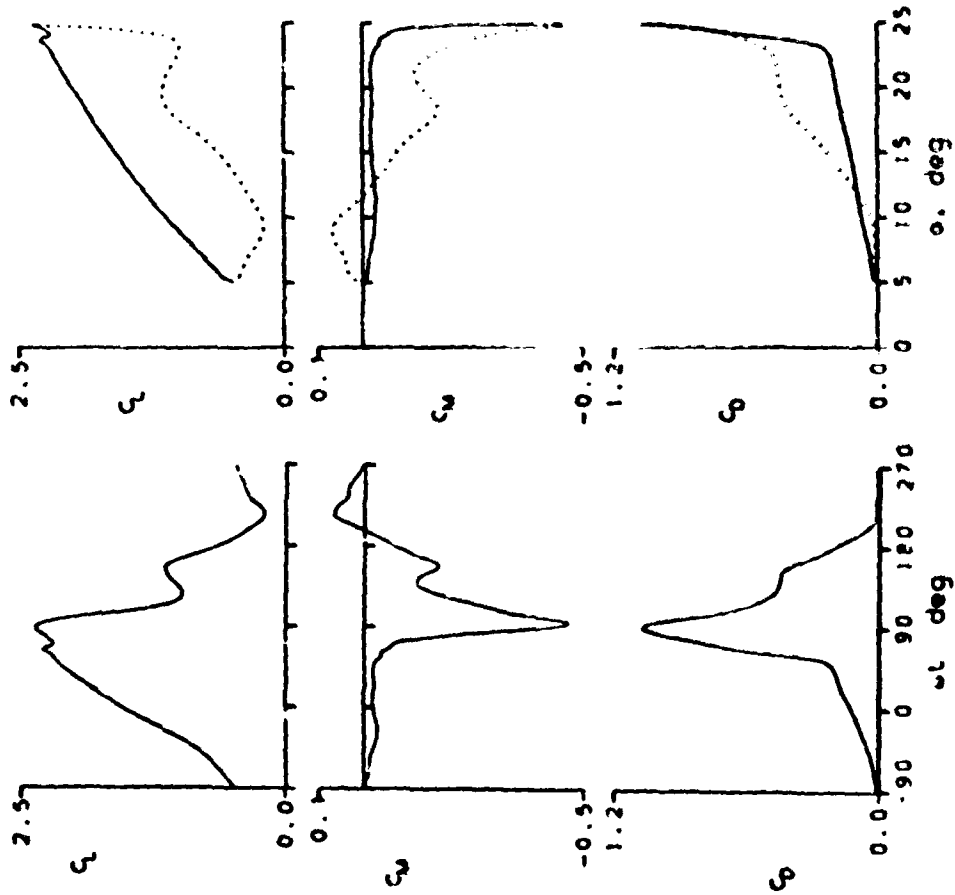
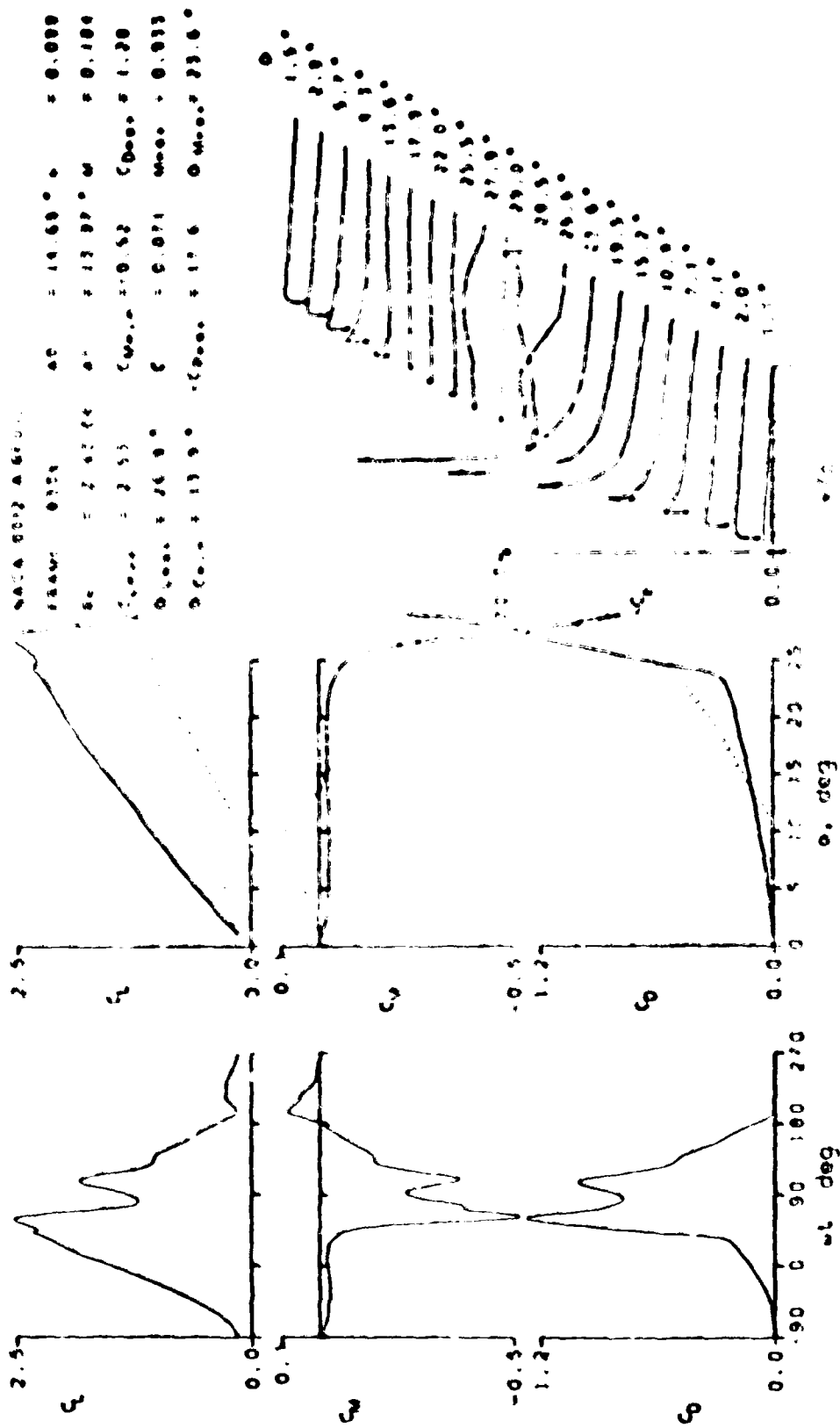


Figure 12.- Continued.



NACA 6012 AIRFOIL

$Re = 9322$ $AO = 14.89^\circ$ $\alpha = 0.235$
 $Re = 2.34 \times 10^6$ $AI = 6.00^\circ$ $M = 0.184$
 $C_{L,000} = 2.06$ $C_{M,000} = 0.20$ $C_{D,000} = 0.50$
 $C_{L,max} = 20.8^\circ$ $C = 1.060$ $Mach = 0.903$
 $C_{L,000} = 14.6^\circ$ $-C_{D,000} = 15.0$ $C_{M,000} = 20.9^\circ$

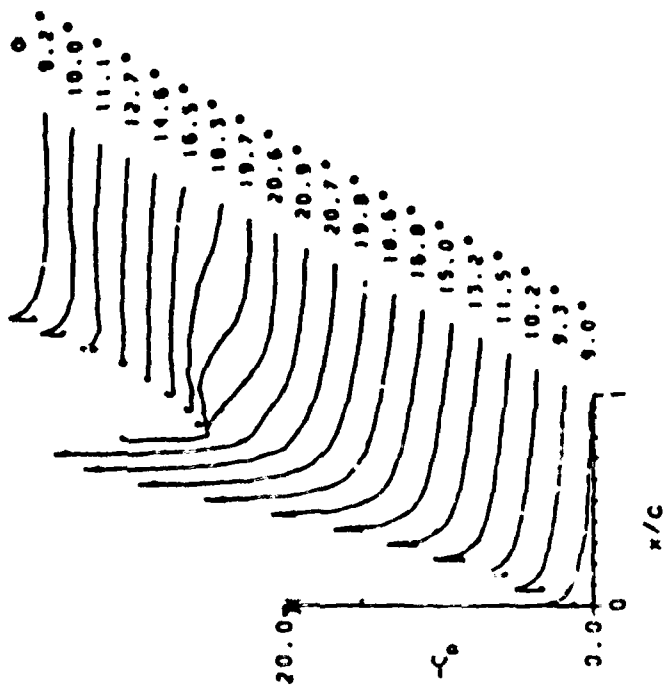
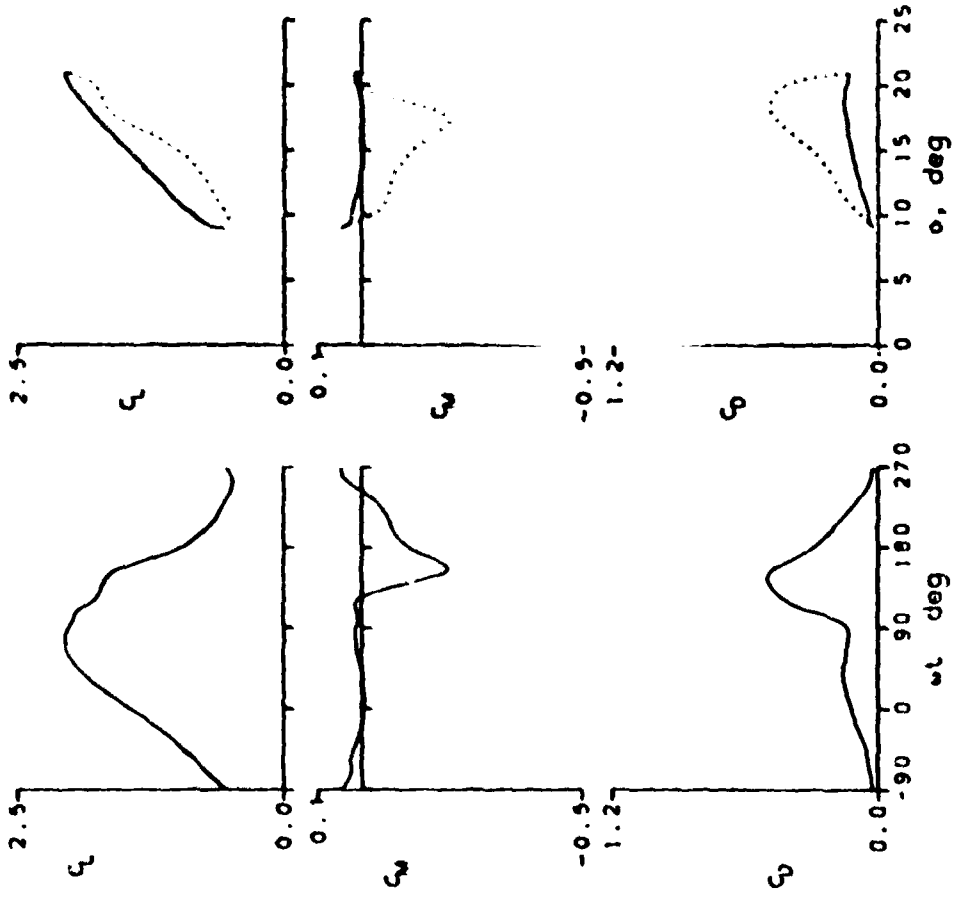


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 9101 $\alpha_0 = 14.98^\circ$ $\mu = 0.284$
 $\rho = 2.36 \times 10^{-3}$ $\mu = 4.89 \times 10^{-4}$ $\nu = 0.04$
 $C_{L,0} = 1.95$ $C_{M,0} = -0.02$ $C_{D,0} = 0.14$
 $C_{L,\infty} = 19.8^\circ$ $C = 0.008$ $M_{\infty} = 0.854$
 $C_{L,\infty} = 14.8^\circ$ $-C_{D,\infty} = 15.4$ $C_{M,\infty} = 19.8^\circ$

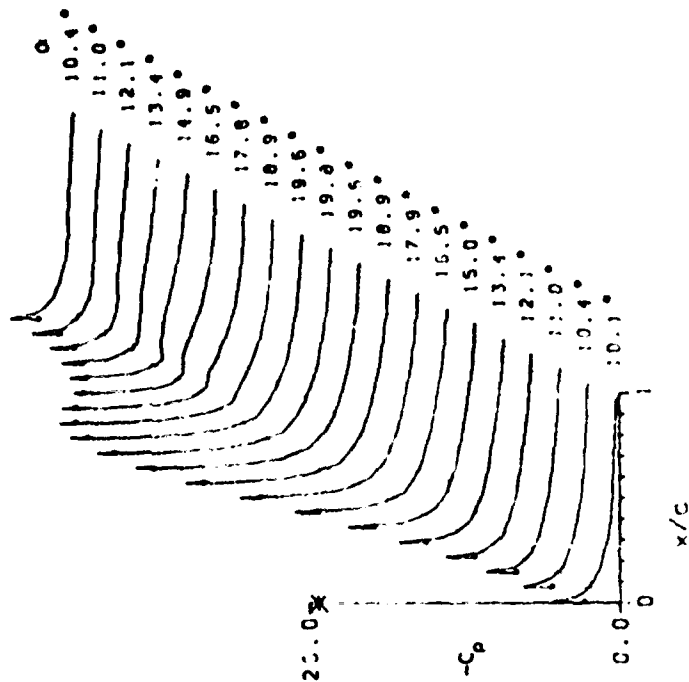
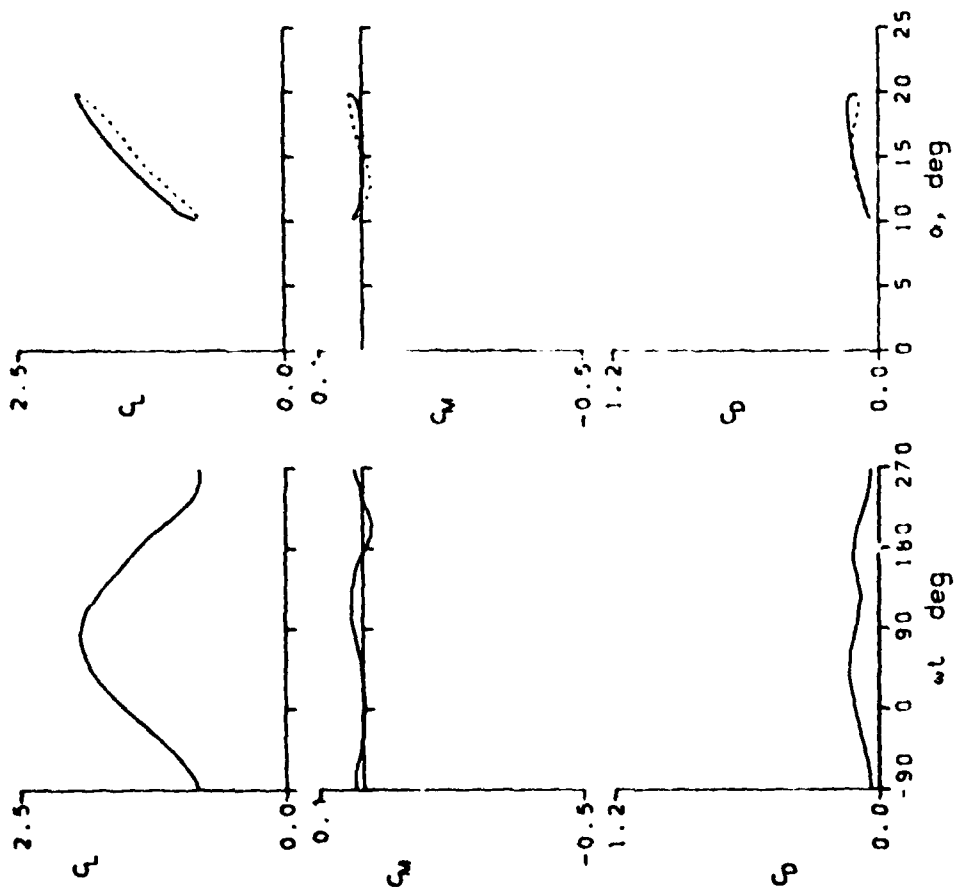


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 9106	A0 = 9.79°	h = 0.245
Re = 2.37 E6	A1 = 9.87°	M = 0.184
CLmax = 2.02	CMmin = -0.05	CDmax = 0.16
αLmax = 19.7°	ξ = 0.585	Mmax = 0.883
αCMmin = 9.4°	-CDmax = 16.2	αMmax = 19.5°

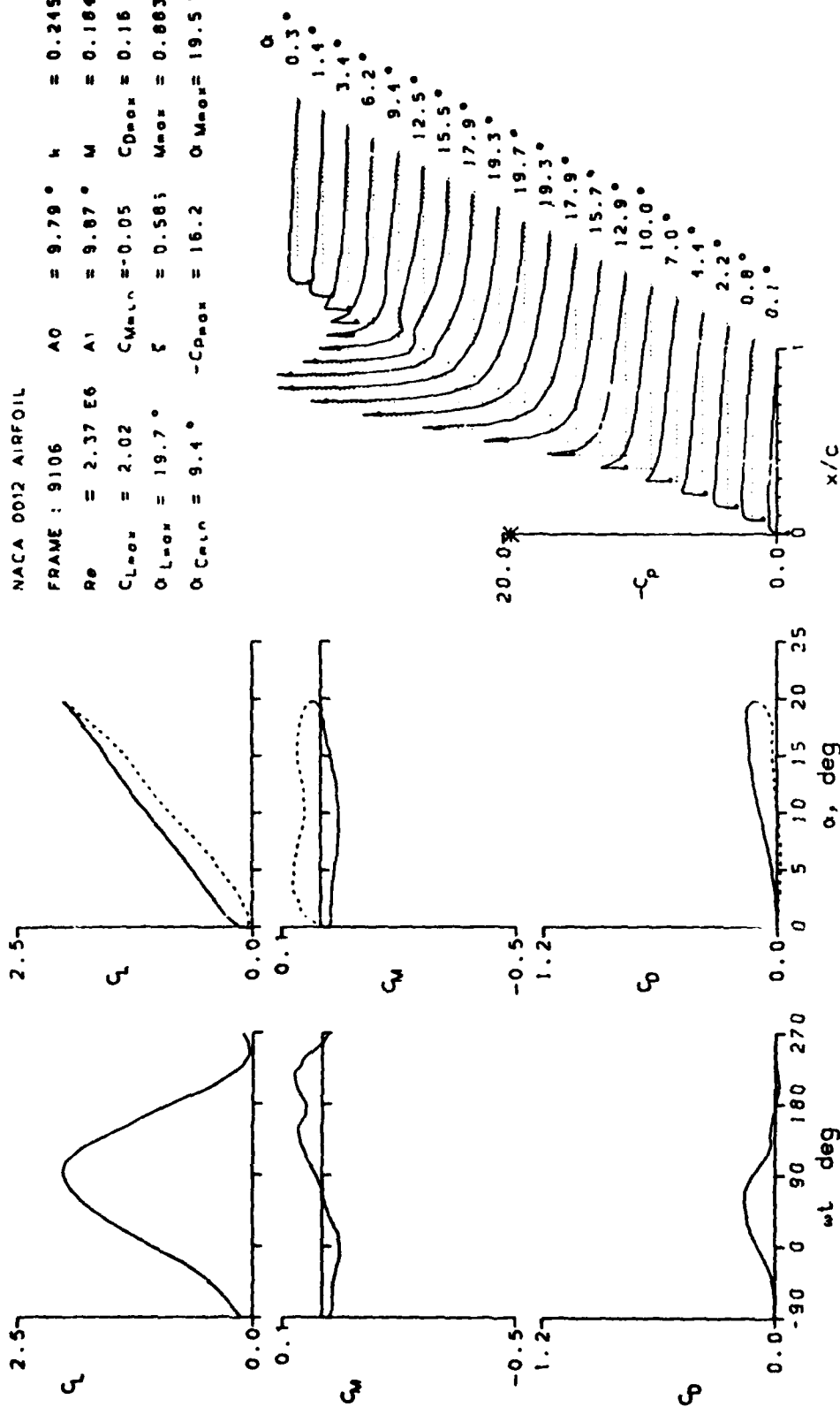


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 9110	A0 = 7.80°	h = 0.010
Re = 2.48 E6	A1 = 9.95°	M = 0.184
CLmax = 1.70	CMmax = 0.18	CDmax = 0.36
αLmax = 16.6°	ξ = -0.130	Mmax = 0.726
αCMmax = 7.3°	-CDmax = 11.8	αVMmax = 17.0°

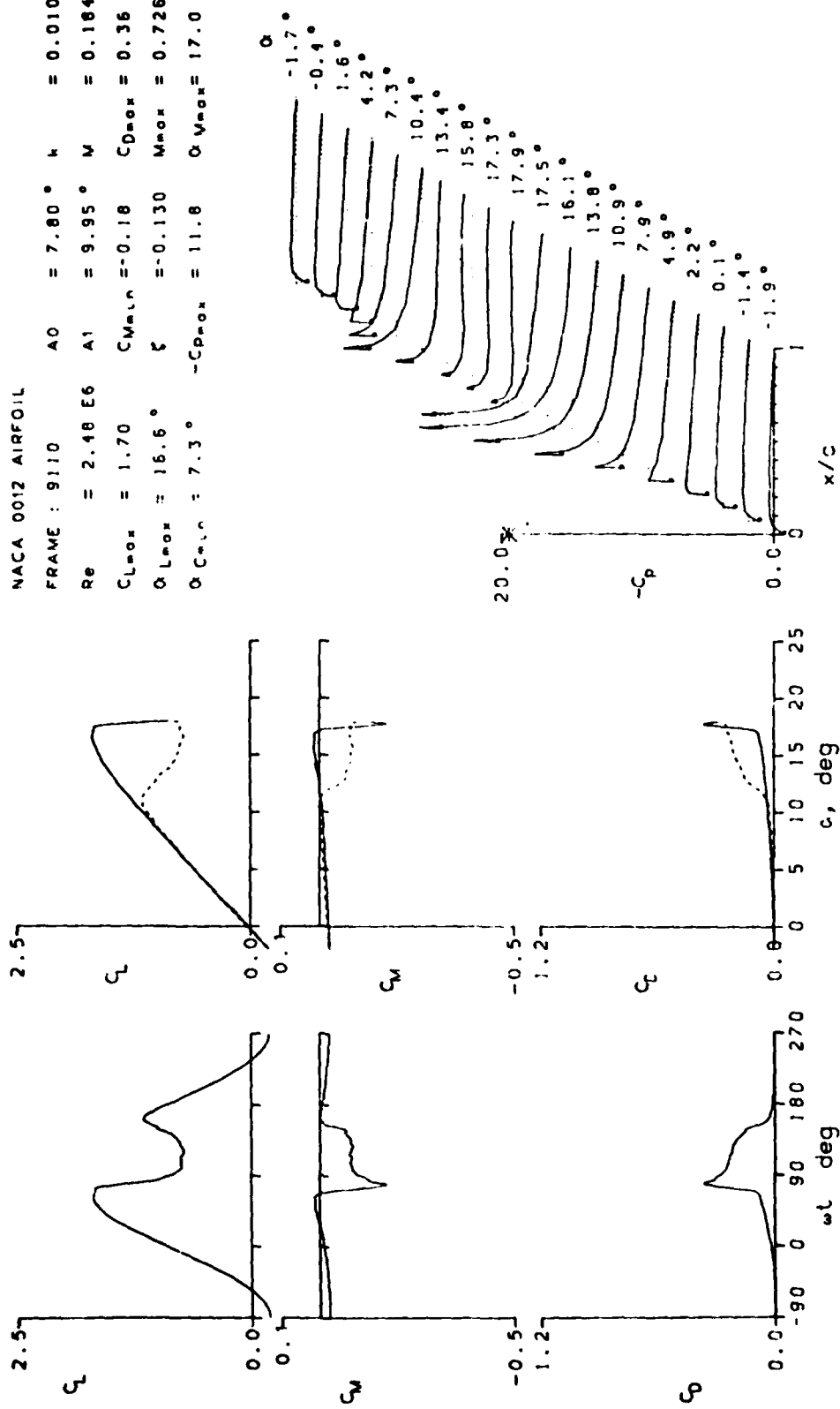


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 3112	A0 = 7.82°	h = 0.050
Re = 2.48 E6	A1 = 9.93°	M = 0.183
C _{Lmax} = 1.76	C _{Mmin} = -0.10	C _{Dmax} = 0.22
α _{Lmax} = 17.6°	ξ = -0.030	M _{max} = 0.763
α _{C_{Lmin}} = 7.3°	-C _{pmax} = 12.8	α _{Mmax} = 17.9°

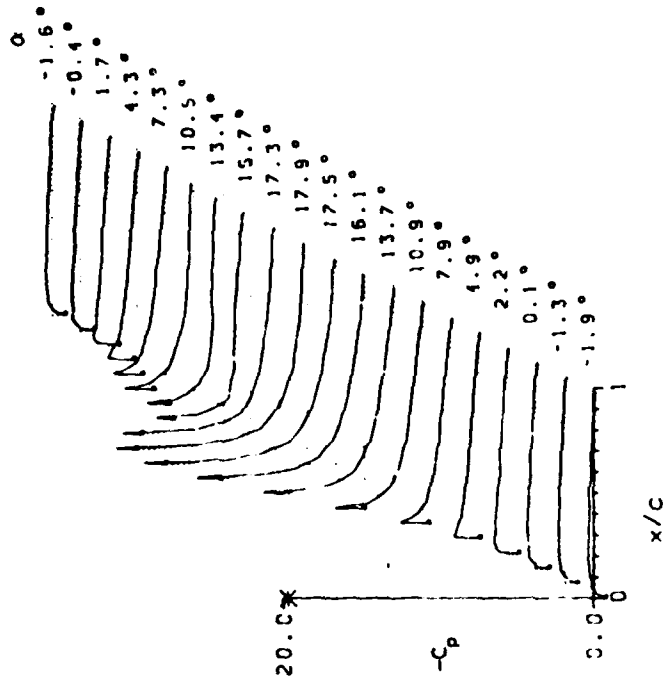
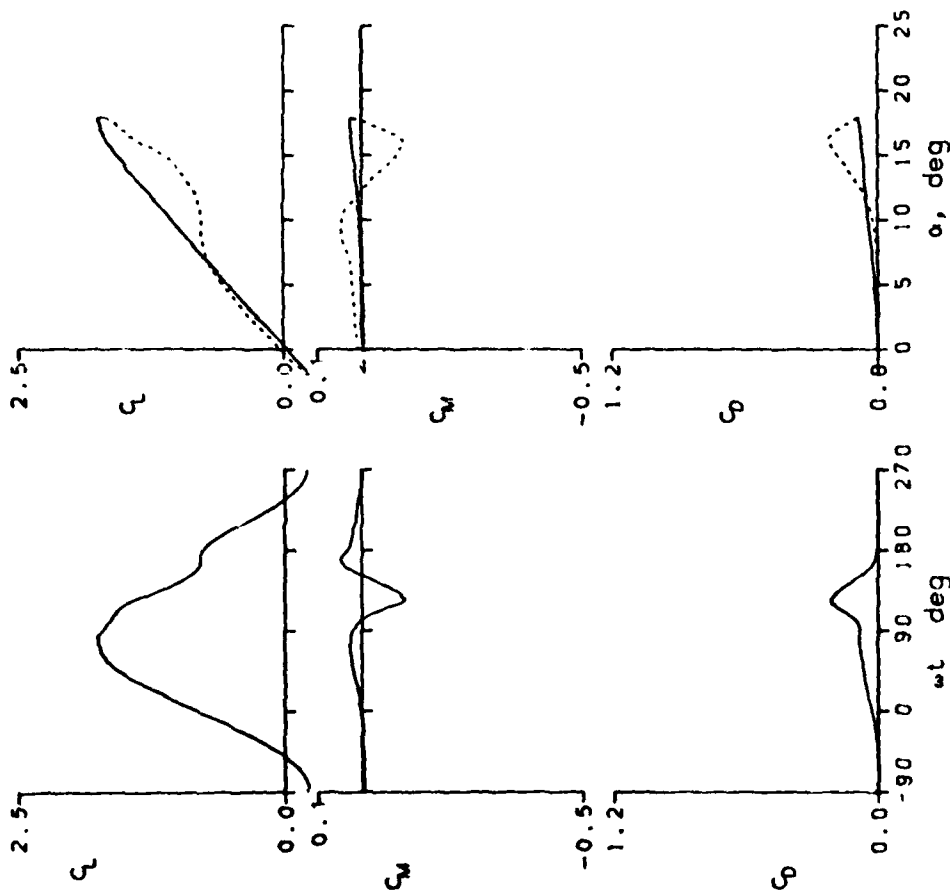


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 9:18 $A_0 = 7.78^\circ$ $\mu = 0.199$
 $R_0 = 2.45 \text{ E6}$ $A_1 = 9.95^\circ$ $M = 0.184$
 $C_{L_{\text{max}}} = 1.78$ $C_{M_{\text{min}}} = -0.04$ $C_{D_{\text{max}}} = 0.12$
 $\alpha_{L_{\text{max}}} = 17.9^\circ$ $\zeta = 0.614$ $M_{\text{max}} = 0.770$
 $\alpha_{C_{M_{\text{min}}}} = 7.2^\circ$ $-C_{D_{\text{max}}} = 13.0$ $\alpha_{M_{\text{max}}} = 17.7^\circ$

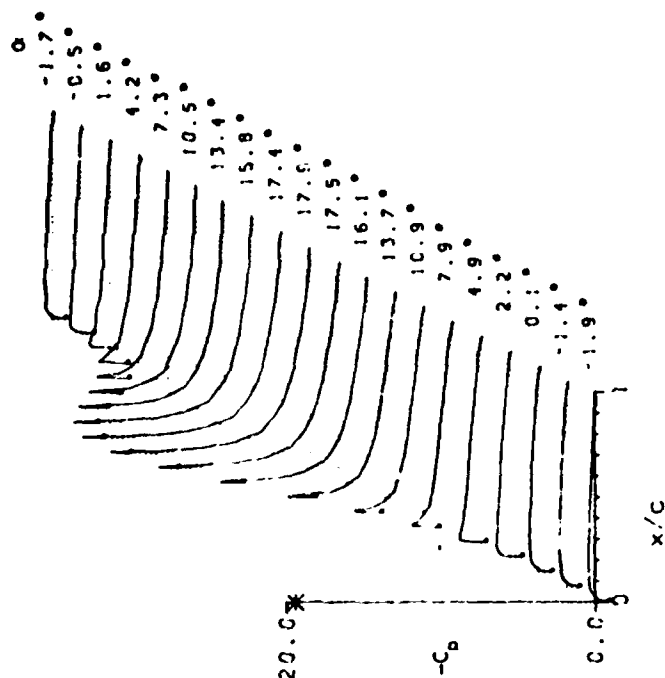
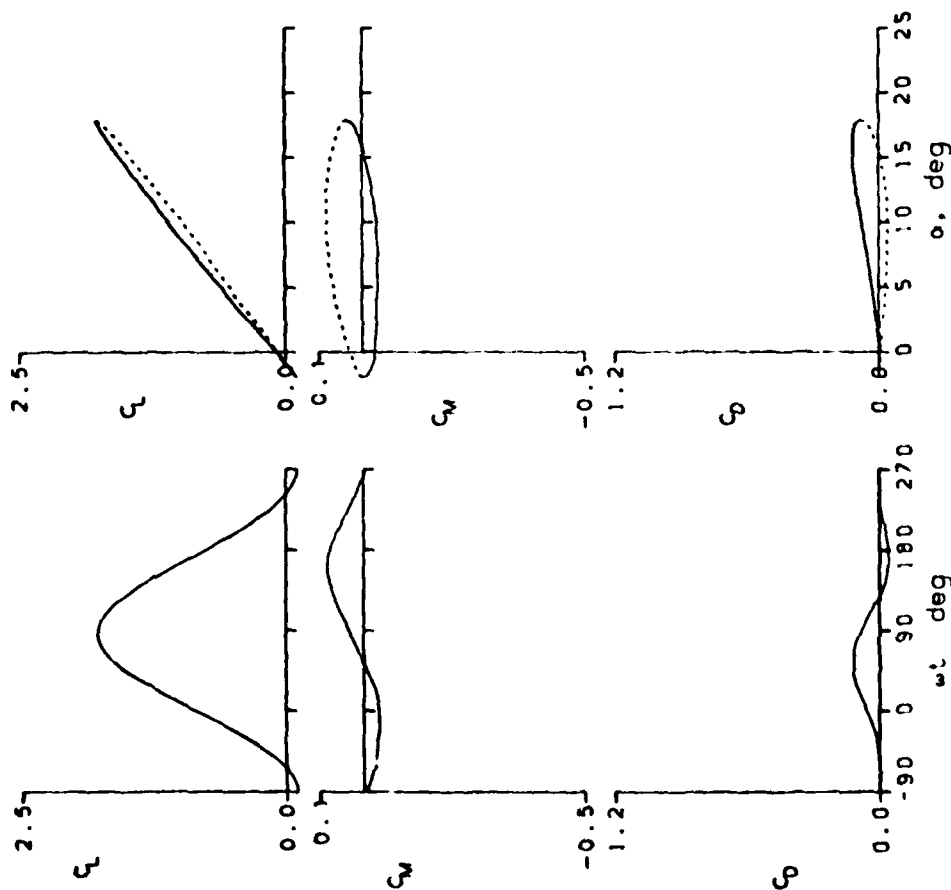


Figure 12.- Continued.

NACA 00'2 AIRFOIL
 FRAME : 9202 $A_0 = 14.83^\circ$ $\mu = 0.098$
 $R_0 = 2.85 E6$ $A_1 = 9.91^\circ$ $M = 0.220$
 $C_{L_{0.0}} = 2.20$ $C_{M_{0.0}} = -0.43$ $C_{D_{0.0}} = 0.96$
 $O_{L_{0.0}} = 23.4^\circ$ $\zeta = 0.078$ $M_{0.0} = 1.106$
 $O_{C_{L_{0.0}}} = 14.5^\circ$ $-C_{D_{0.0}} = 15.4$ $O_{M_{0.0}} = 20.3^\circ$

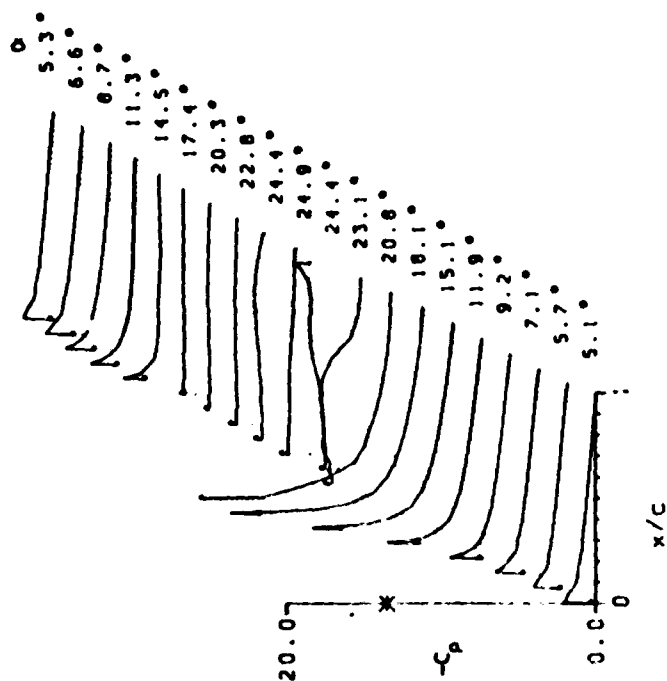
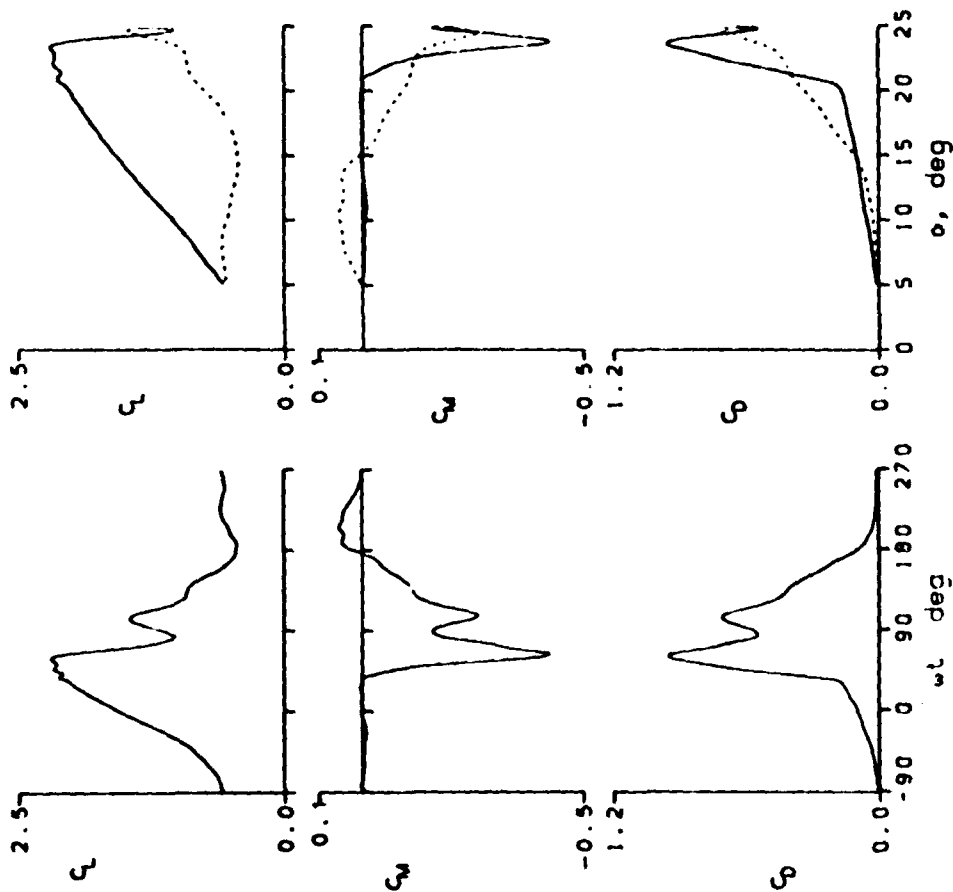


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 3203 $A_0 = 14.85^\circ$ $\alpha = 0.000$
 $R_0 = 3.19 \text{ E6}$ $A_1 = 9.68^\circ$ $M = 0.248$
 $C_{L,0.0} = 2.12$ $C_{M,0.0} = 0.42$ $C_{D,0.0} = 0.07$
 $C_{L,0.0} = 21.9^\circ$ $C = 0.373$ $M_{0.0} = 1.142$
 $C_{L,0.0} = 14.4^\circ$ $-C_{D,0.0} = 12.4$ $C_{M,0.0} = 18.3^\circ$

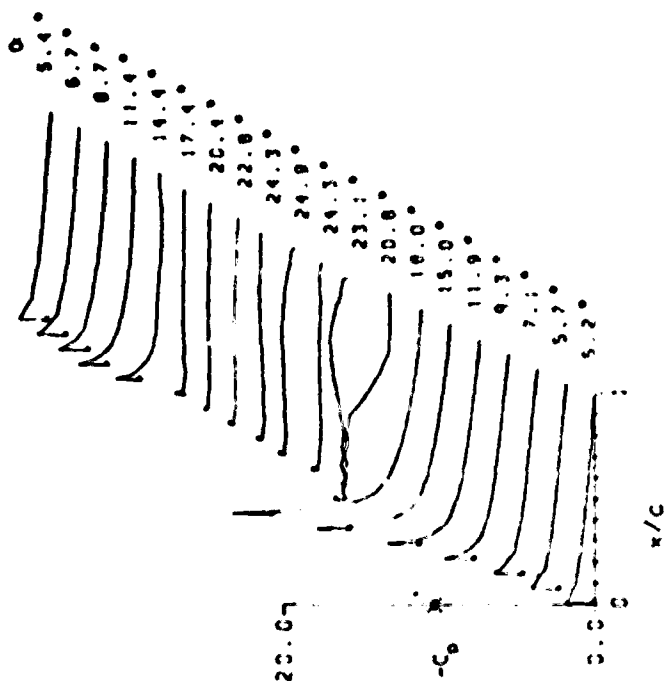
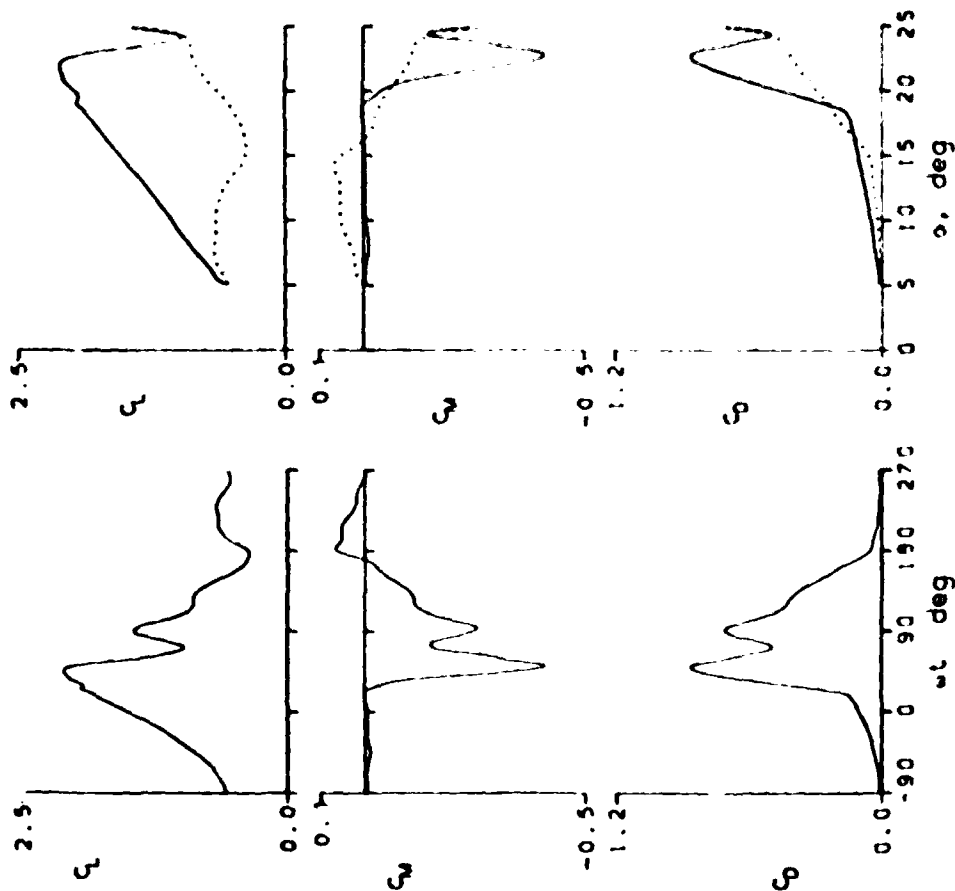


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 9259 $\Delta \theta = 14.04^\circ$ $\mu = 0.097$
 $R_\theta = 3.52 \times 10^6$ $\Delta \theta = 0.07^\circ$ $\mu = 0.200$
 $C_{L,0.0} = 2.01$ $C_{D,0.0} = 0.30$ $C_{D,0.0} = 0.70$
 $C_{L,0.0} = 20.5^\circ$ $C = 0.538$ $M_{0.0} = 1.214$
 $C_{L,0.0} = 14.9^\circ$ $-C_{D,0.0} = 10.5$ $C_{D,0.0} = 16.2^\circ$

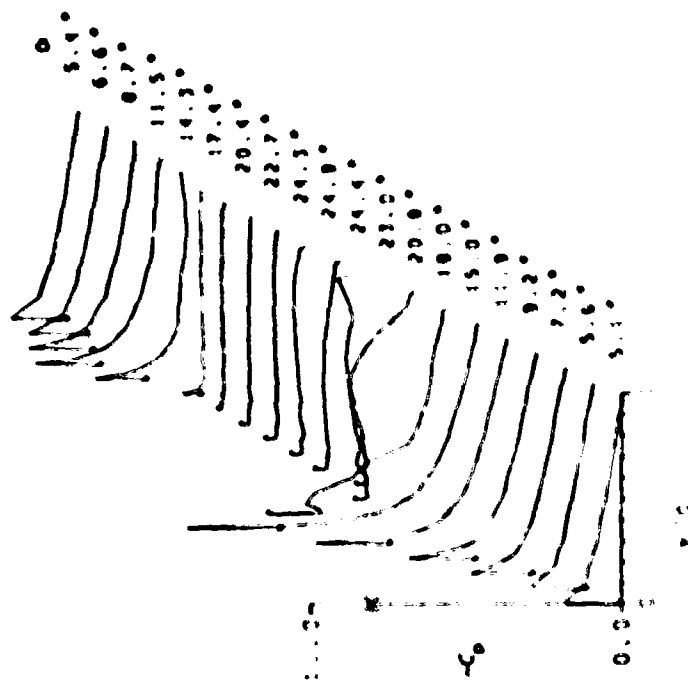
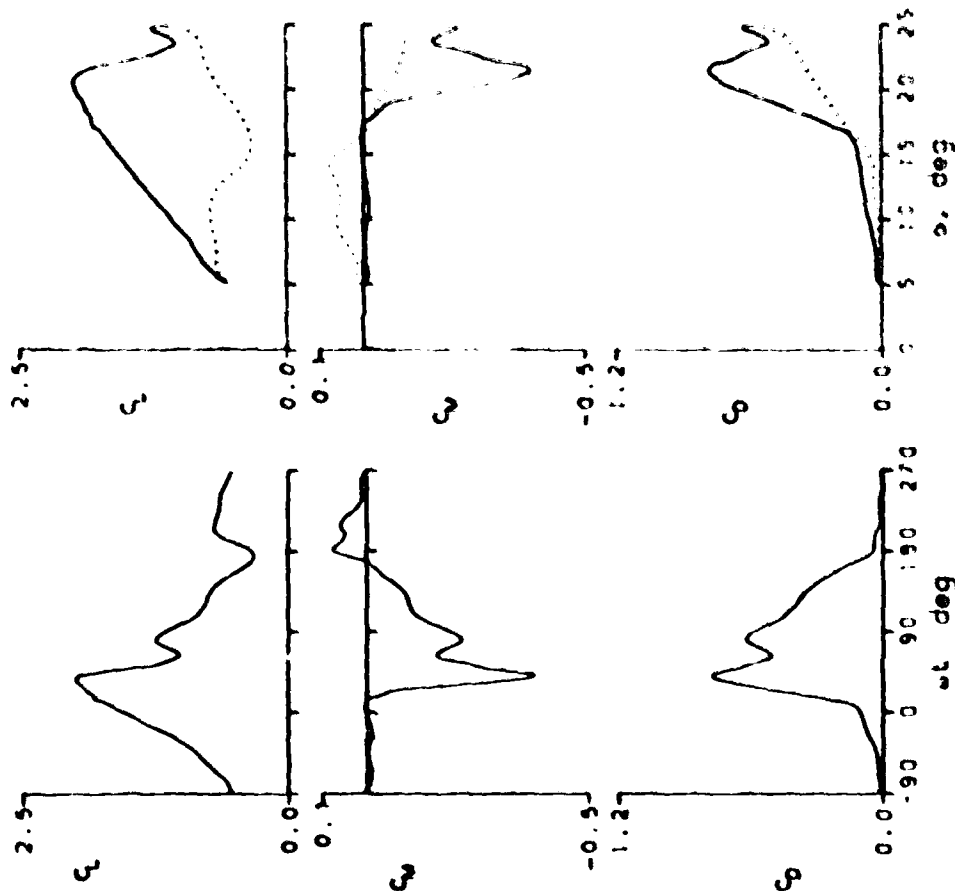
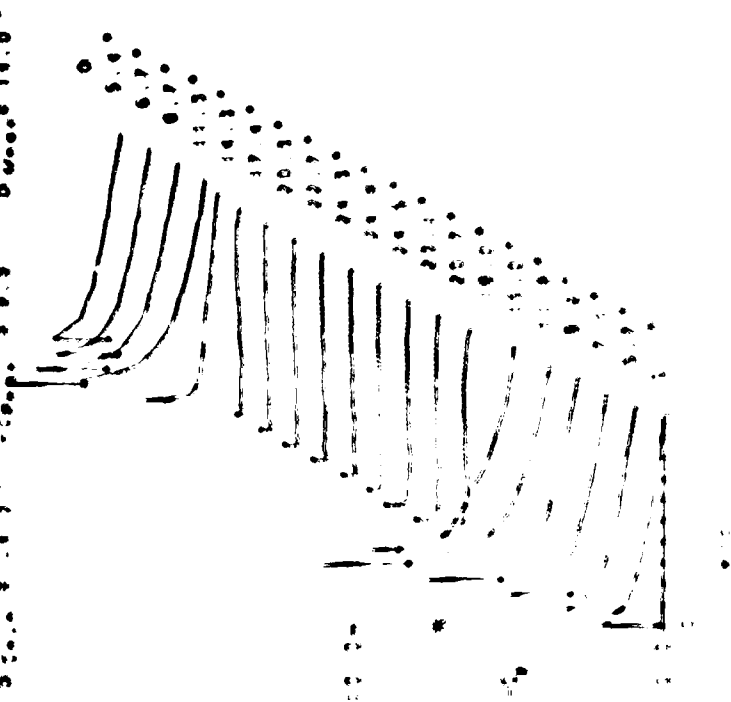
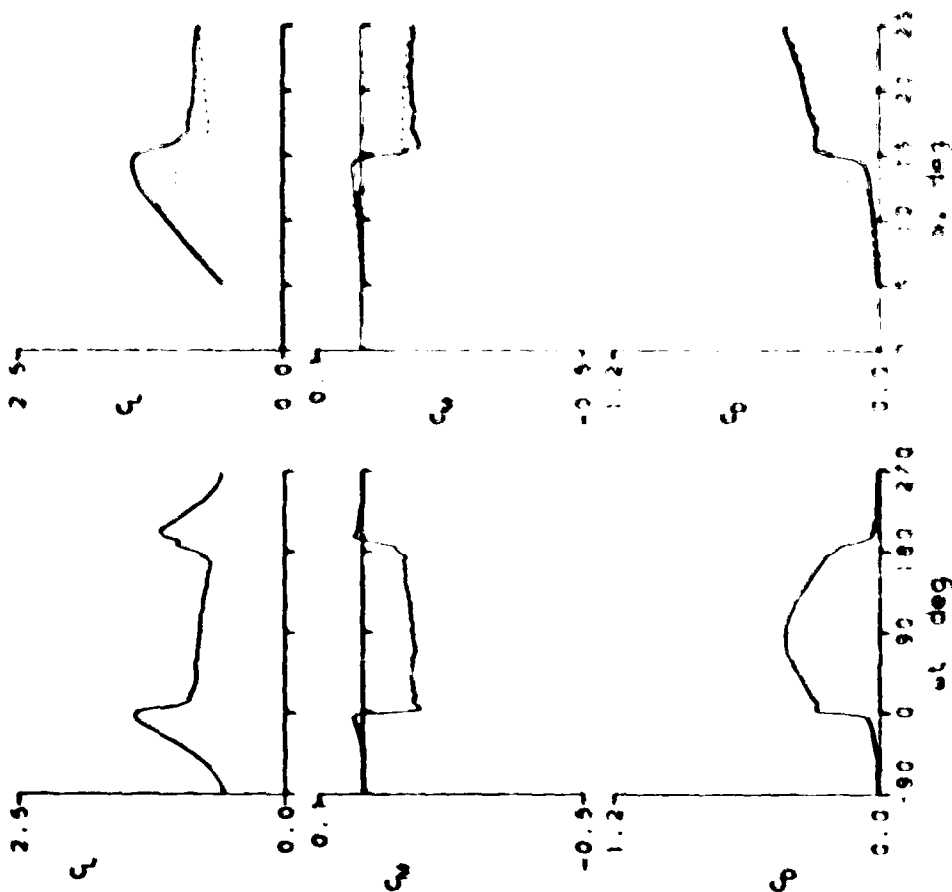


Figure 12.- Continued.

NACA 0012 AIRCRAFT
 REARVIEW 3210
 $\alpha_0 = 3.62^\circ$ $\alpha_1 = 3.90^\circ$ $\alpha_2 = 0.010$
 $C_{L,0.01} = 0.42$ $C_{L,0.02} = 0.14$ $C_{D,0.01} = 0.43$
 $C_{D,0.02} = 0.43$ $C_{D,0.03} = 0.019$ $C_{D,0.04} = 1.160$
 $C_{D,0.05} = 0.43$ $C_{D,0.06} = 0.9$ $C_{D,0.07} = 14.0$



NACA 2302 A 8000

Reynolds	32.3	45	± 10.06°	± 0.024	
α	± 3.45 deg	α	± 3.00°	± 0.204	
C _L	± 0.52	C _M	± 0.25	C _D	± 0.05
C _L	± 10.7°	C	± 2.126	Mach	± 1.100
C _L	± 14.4°	C _D	± 0.3	C _M	± 14.0°

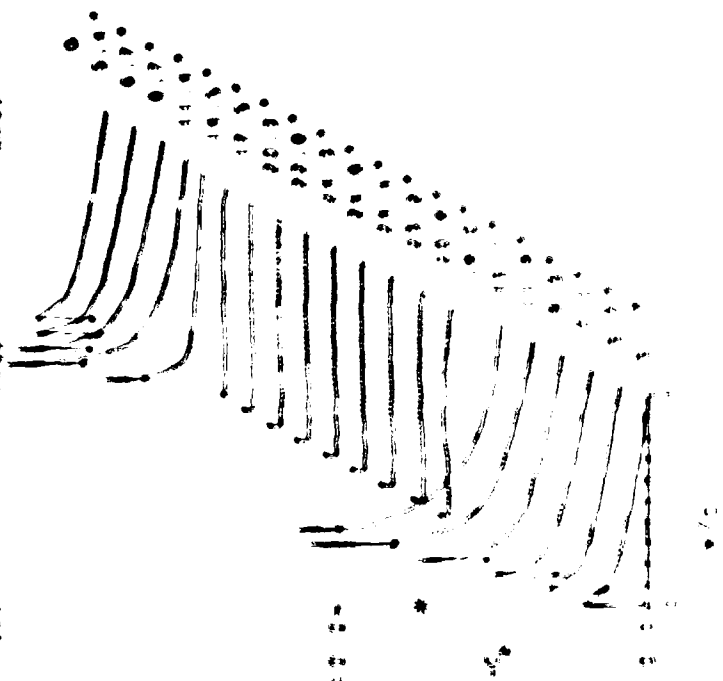
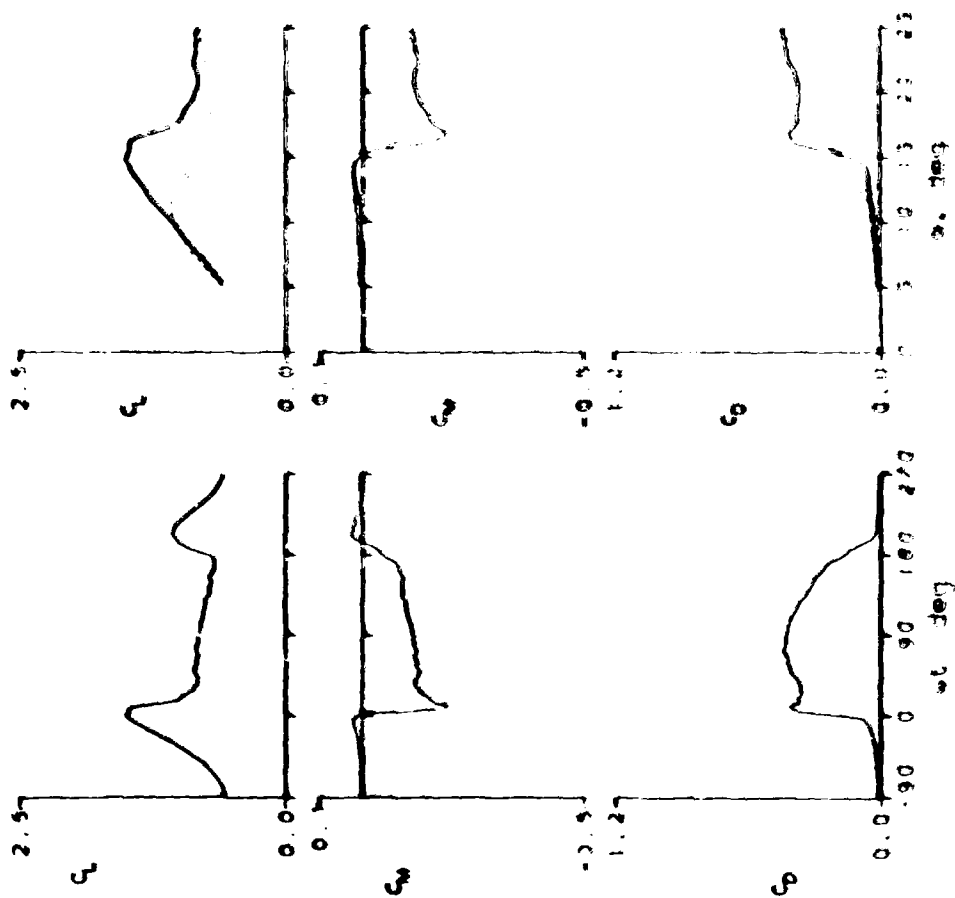


Figure 12. - Continued.

NACA 0012 A.8800

FRAME	32.0	ΔZ	$= -4.04 \times 10^{-4}$	± 0.040
$\Delta \theta$	$= 3.37 \times 10^{-4}$	$\Delta \theta$	$= 3.95 \times 10^{-4}$	± 0.202
C_{Lmax}	$= 1.2$	C_{Lmax}	$= 1.26$	$C_{Dmax} = 0.53$
C_{Lmin}	$= 0.0$	C_{Lmin}	$= 0.0$	$M_{max} = 1.215$
C_{Dmin}	$= 0.0$	C_{Dmin}	$= 0.0$	$C_{Dmax} = 1.070$

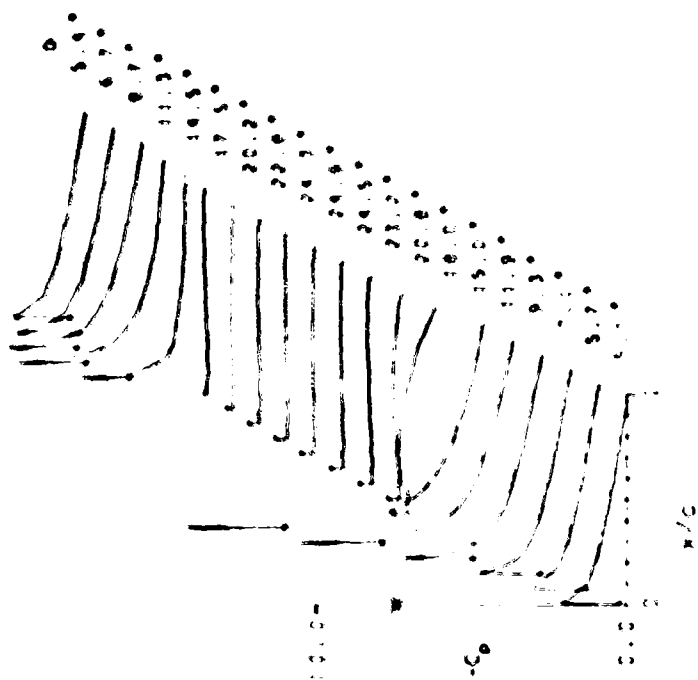
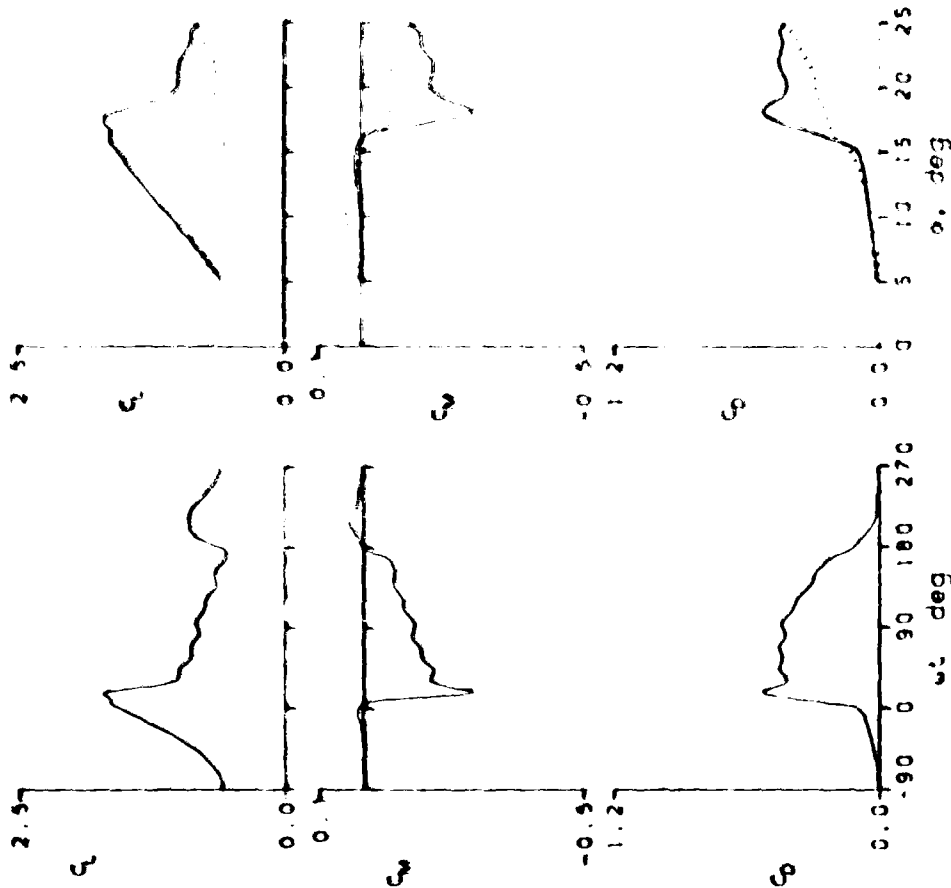


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 9217 $A_0 = 14.84^\circ$ $k = 0.098$
 $Re = 3.55 \times 10^6$ $A_1 = 9.89^\circ$ $M = 0.290$
 $C_{Lmax} = 2.08$ $C_{Mmin} = -0.32$ $C_{Dmax} = 0.67$
 $\alpha_{Lmax} = 19.8^\circ$ $\xi = 0.534$ $\alpha_{max} = 1.232$
 $\alpha_{Caln} = 14.4^\circ$ $-C_{Dmax} = 9.9$ $\alpha_{Mmax} = 15.6^\circ$

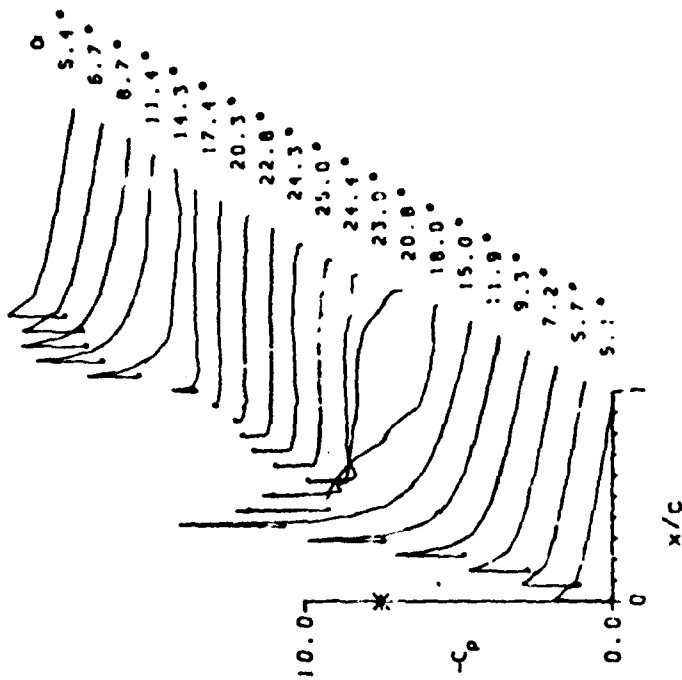
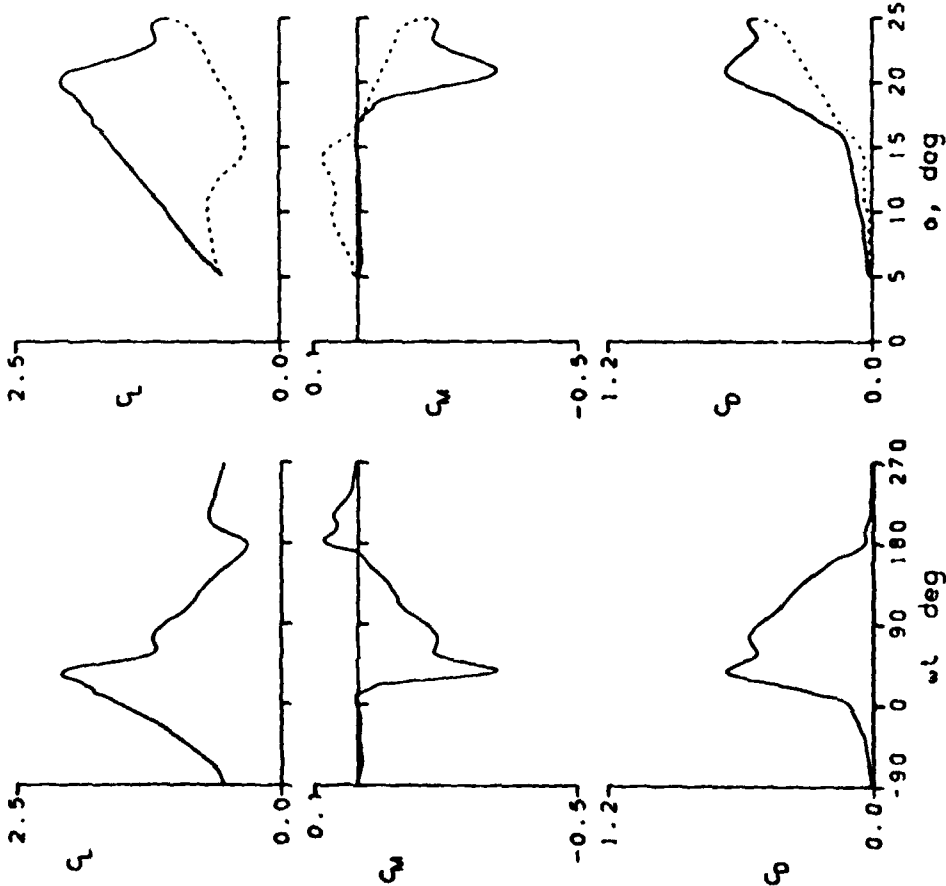


Figure 12.- Continued.

NACA 0012 AIRFOIL
 PRANDTL : 9210 $AC = 14.81^\circ$ $\alpha = 0.151$
 $Re = 2.45 \times 10^6$ $A' = 9.00^\circ$ $M = 0.283$
 $C_{L,0.0} = 2.17$ $C_{M,0.0} = 0.42$ $C_{D,0.0} = 0.09$
 $C_{L,max} = 22.7^\circ$ $C = 0.456$ $Mach = 1.224$
 $C_{L,0.0} = 14.6^\circ$ $-C_{D,0.0} = 10.4$ $C_{M,0.0} = 17.0^\circ$

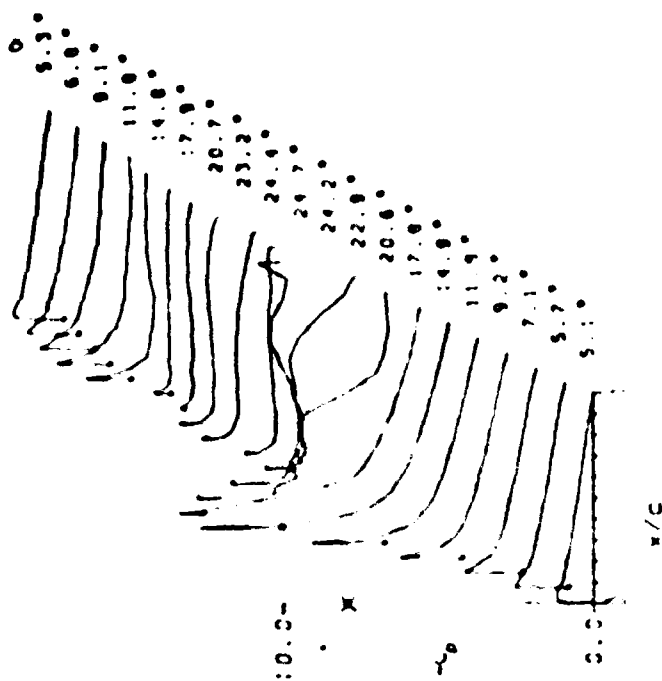
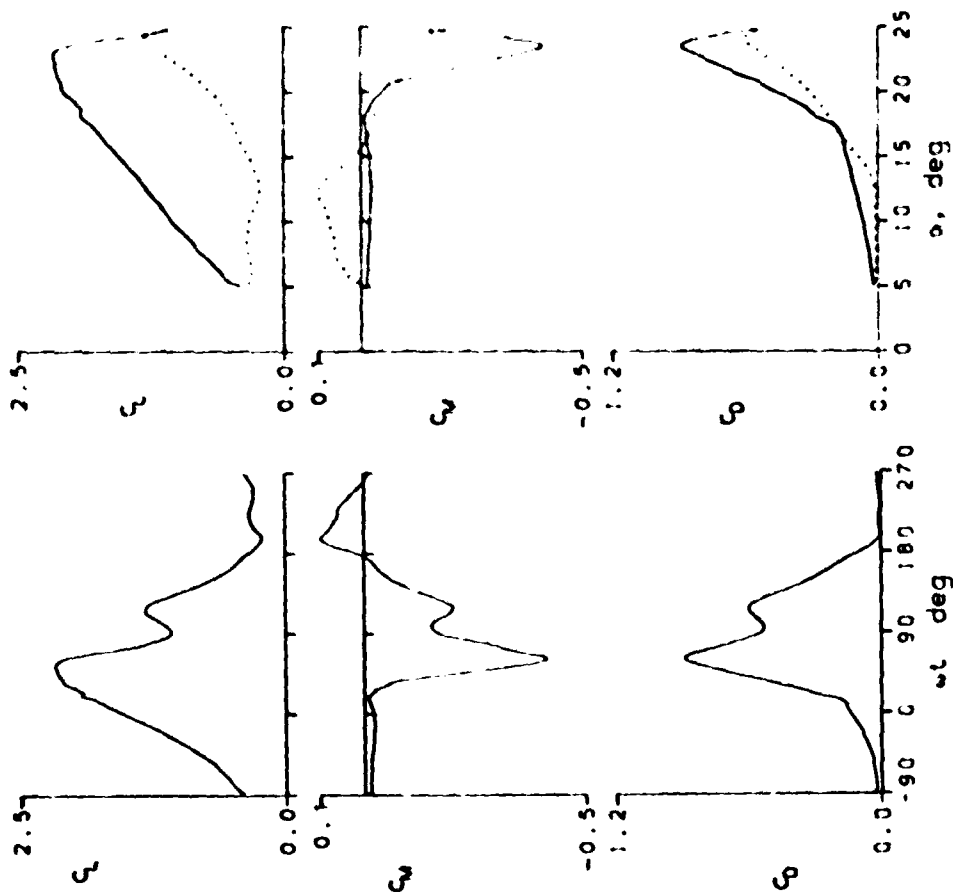


Figure 12.- Continued.

NACA 6512 AIRFOIL
 FRAME : 9221
 $A_0 = 9.86^\circ$ $h = 0.010$
 $R_0 = 3.67 \text{ E6}$ $A_1 = 9.90^\circ$ $W = 0.302$
 $C_{L_{max}} = 1.41$ $C_{M_{min}} = -0.14$ $C_{D_{max}} = 0.34$
 $\alpha_{L_{max}} = 14.0^\circ$ $\zeta = 0.000$ $M_{max} = 1.184$
 $\alpha_{C_{L_{min}}} = 9.5^\circ$ $-C_{D_{min}} = 8.7$ $\alpha_{M_{max}} = 13.3^\circ$

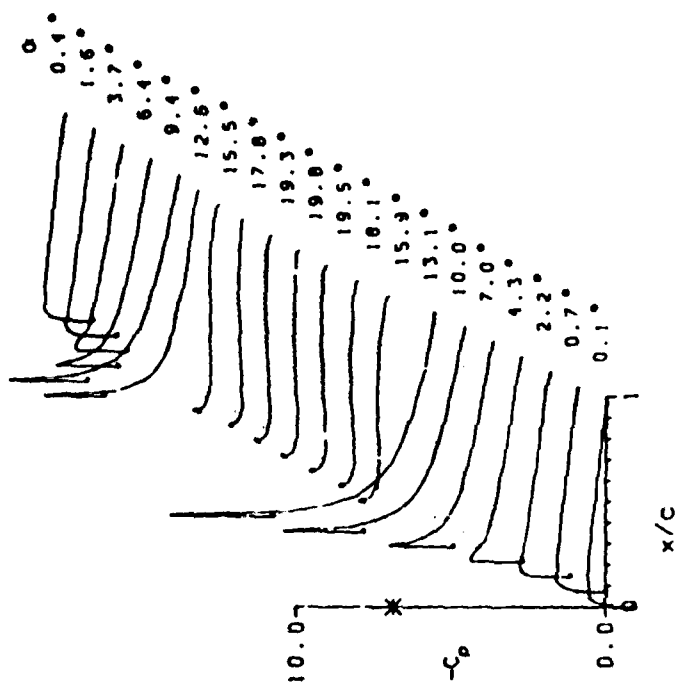
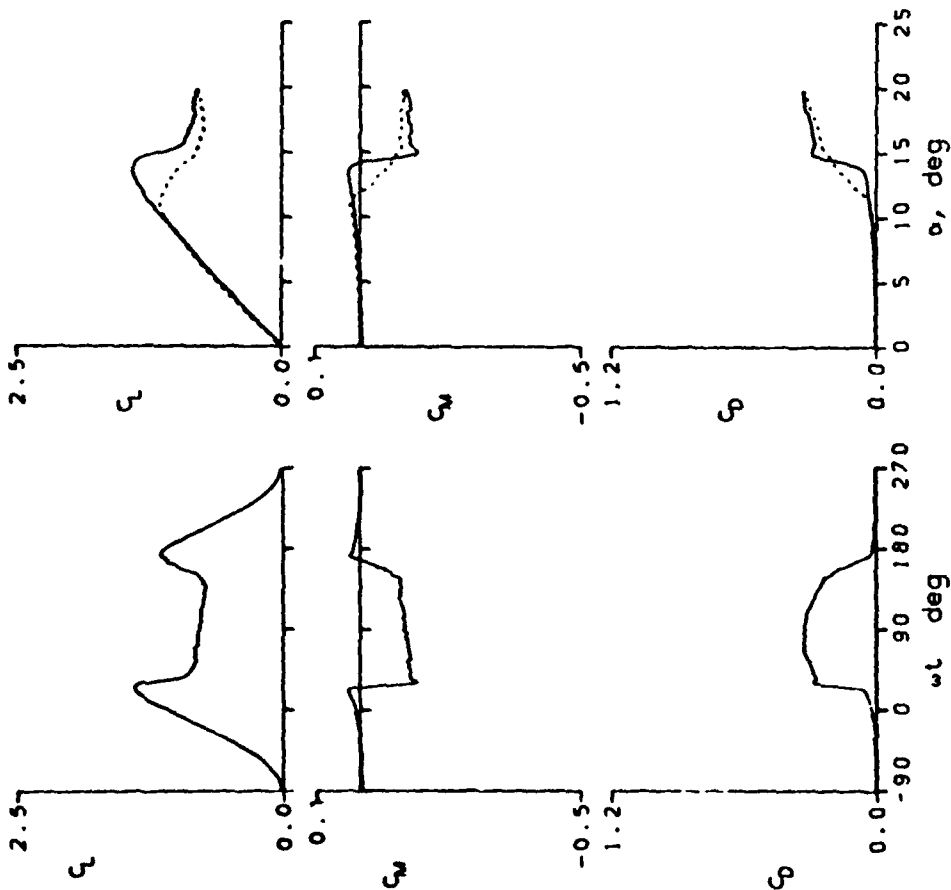


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 9222	AD = 9.84°	h = 0.024
Re = 3.66 E6	A1 = 9.88°	M = 0.302
CLmax = 1.57	CMmin = -0.18	CDmax = 0.39
αLmax = 15.3°	ξ = 0.042	Mmax = 1.220
αCmin = 9.4°	-CDmax = 9.0	αMmax = 13.9°

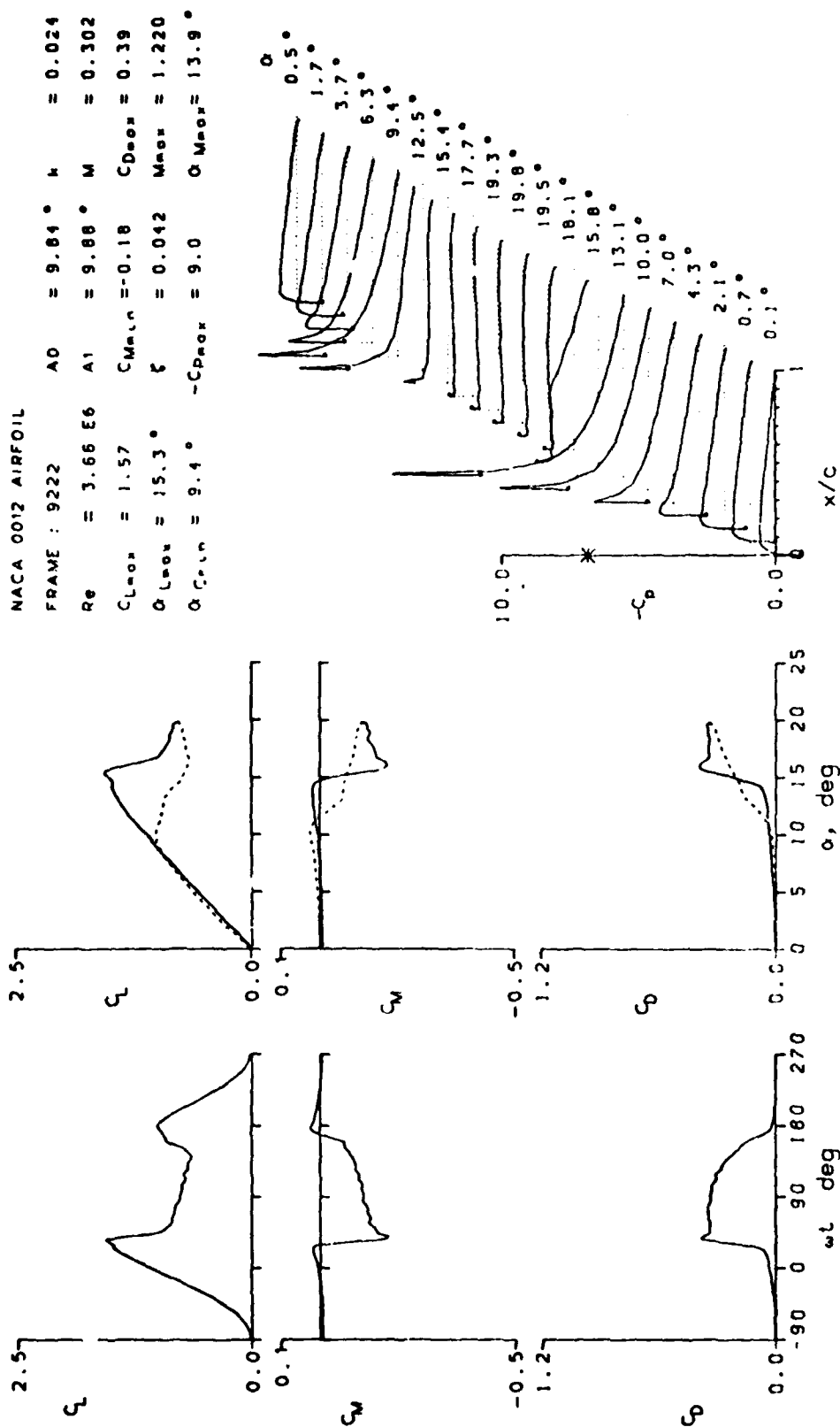


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 9223 $A_0 = 9.83^\circ$ $k = 0.048$
 $Re = 3.65 \times 10^6$ $A' = 9.88^\circ$ $M = 0.302$
 $C_{Lmax} = 1.68$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.44$
 $\alpha_{Lmax} = 16.4^\circ$ $\zeta = 0.146$ $M_{max} = 1.224$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 14.2^\circ$

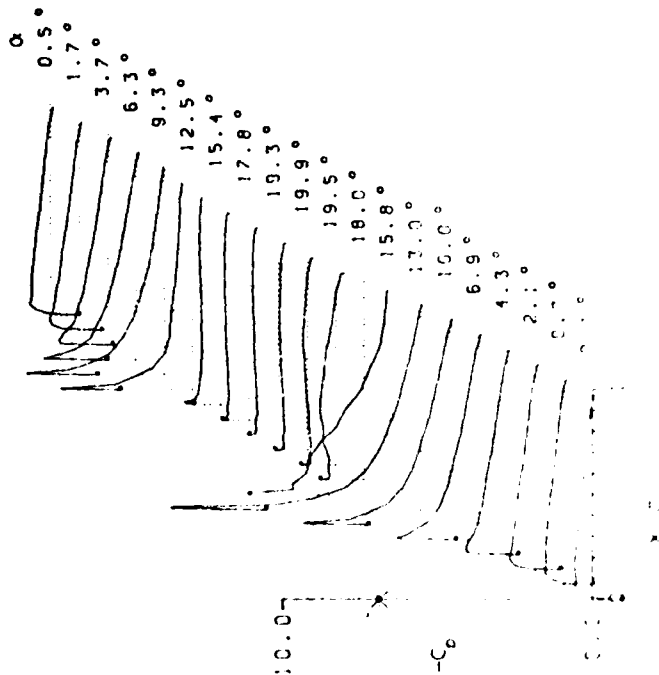
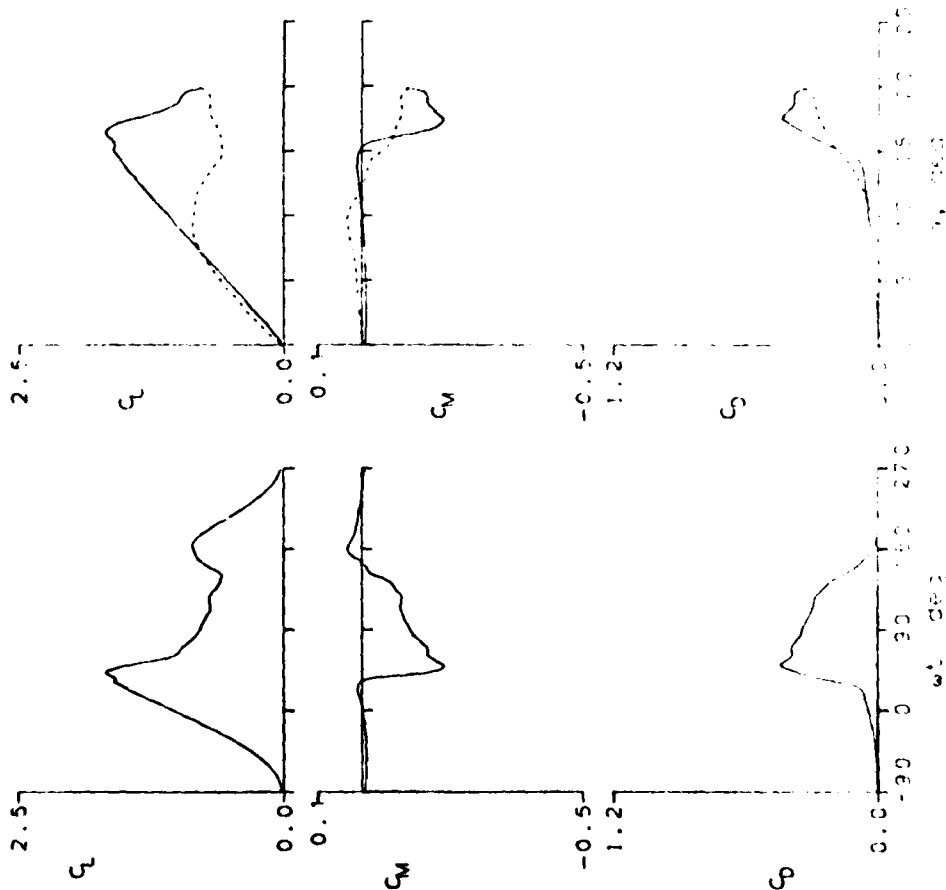


Figure 1. NACA 0012 airfoil.

NACA 0012 AIRFOIL

FRAME : 9307	$A_0 = 9.97^\circ$	$k = 0.145$
$Re = 3.67 \text{ E}6$	$A_1 = 9.88^\circ$	$M = 0.302$
$C_{Lmax} = 1.86$	$C_{Mmin} = -0.30$	$C_{Dmax} = 0.61$
$\alpha_{Lmax} = 19.1^\circ$	$\xi = 0.277$	$M_{max} = 1.238$
$\alpha_{Cmin} = 9.5^\circ$	$-C_{Dmax} = 9.1$	$\alpha_{Mmax} = 15.5^\circ$

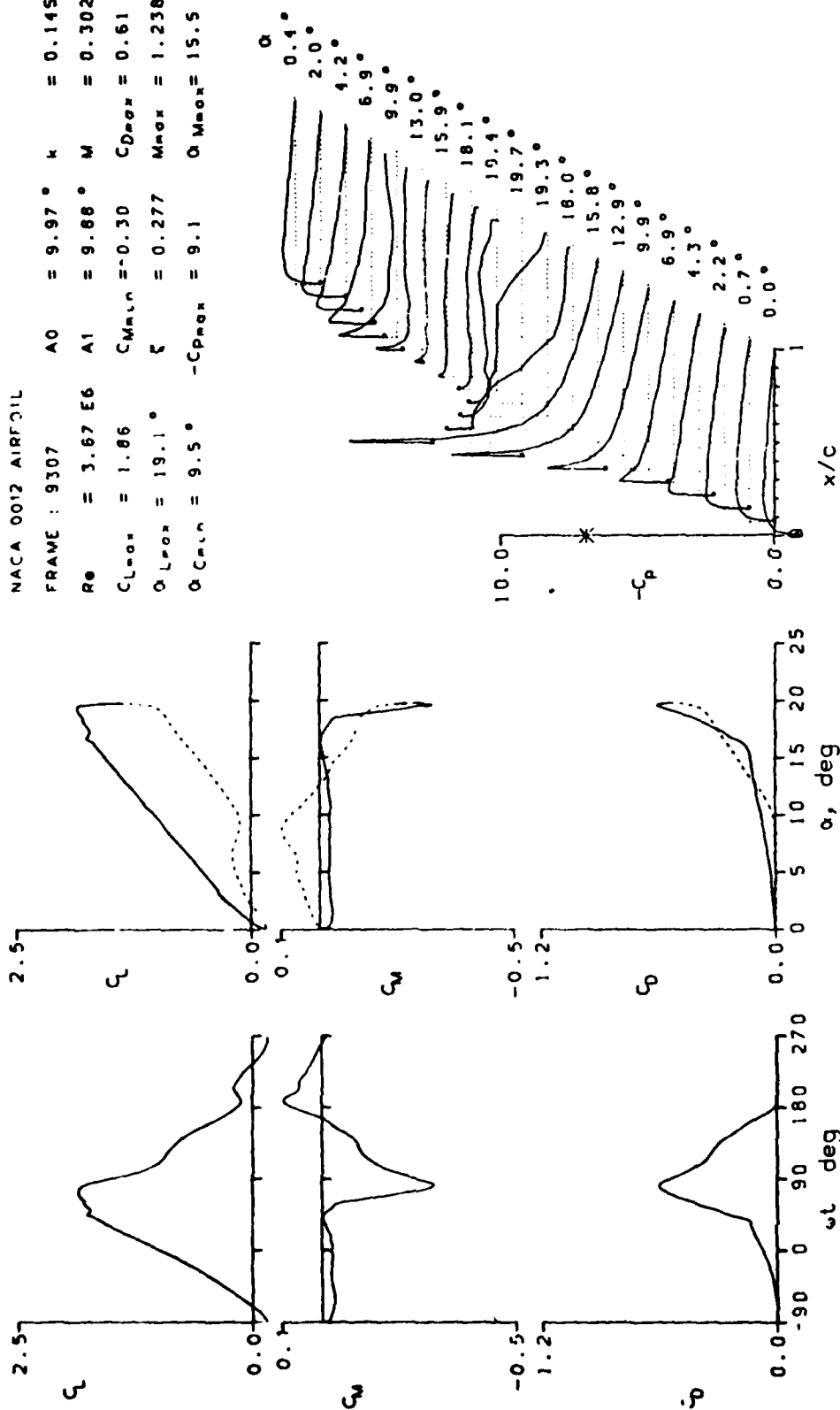
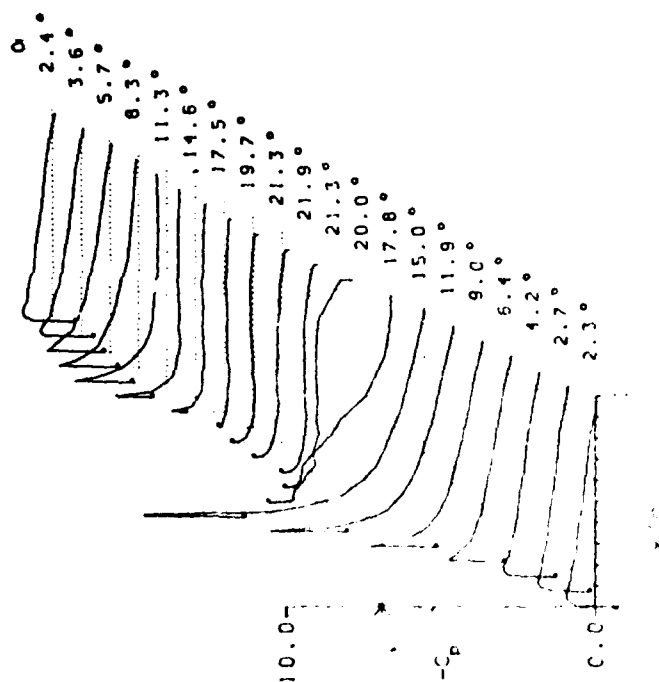
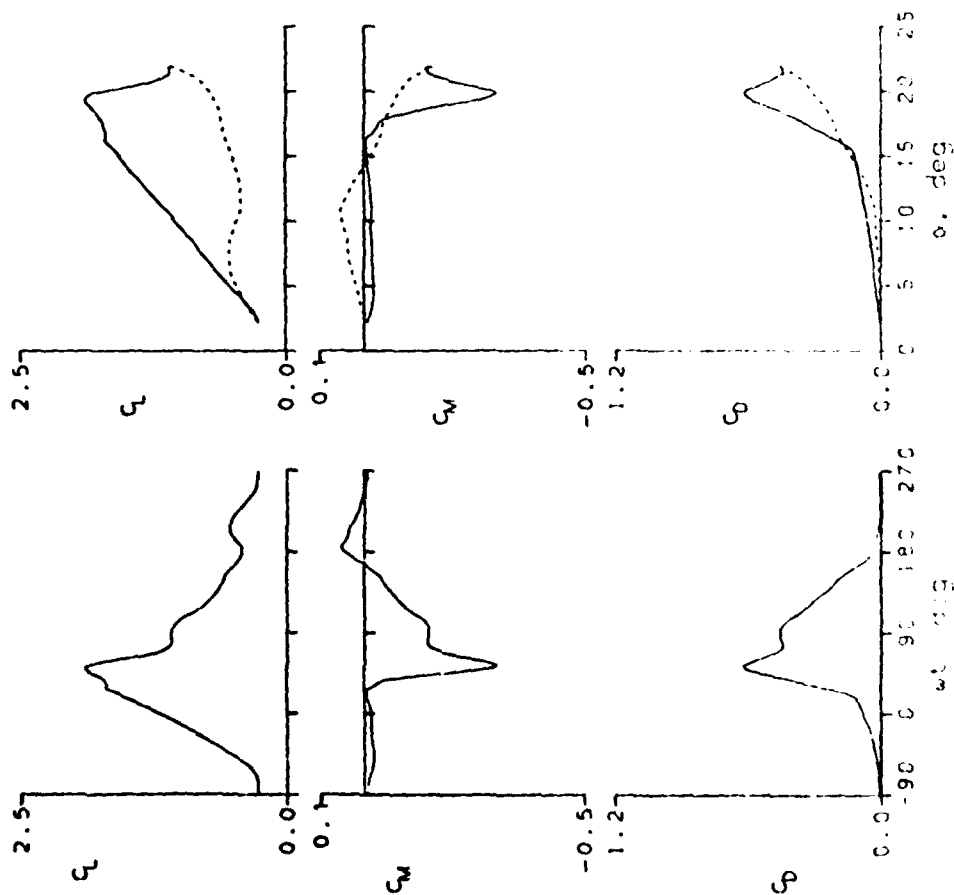


Figure 12.- Continued.

FRAME : 10022 A0 = 11.84 ° k = 0.098
Re = 3.77 E6 A1 = 9.87 ° M = 0.301
CLmax = 1.90 CMmin = -0.30 CDmax = 0.63
OLmax = 19.2 ° ζ = 0.326 Mmax = 1.226
OCAL = 11.4 ° -CDmax = 9.1 αMmax = 15.0 °



1. The first group of students (Group A) was assigned to read the text and identify the main idea of each paragraph. They were then asked to write a short summary of the text in their own words.

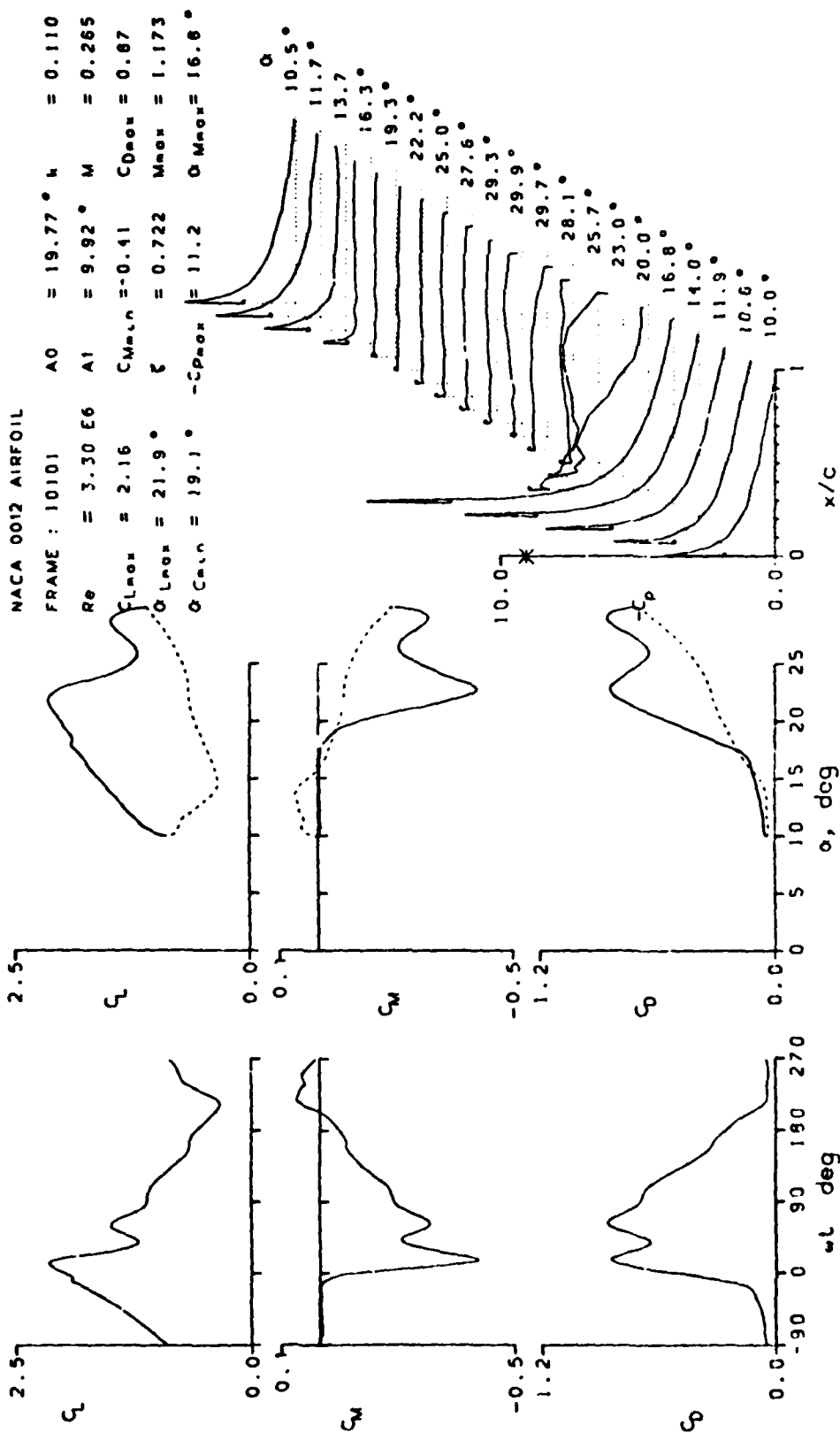


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10104	A0 = 11.90°	h = 0.048
Re = 3.71 E6	A1 = 7.90°	M = 0.302
CLmax = 1.66	CMmax = -0.14	CDmax = 0.40
OLmax = 16.3°	ξ = 0.042	Mmax = 1.217
OCmin = 11.5°	-CDmax = 9.0	QVmax = 14.3°

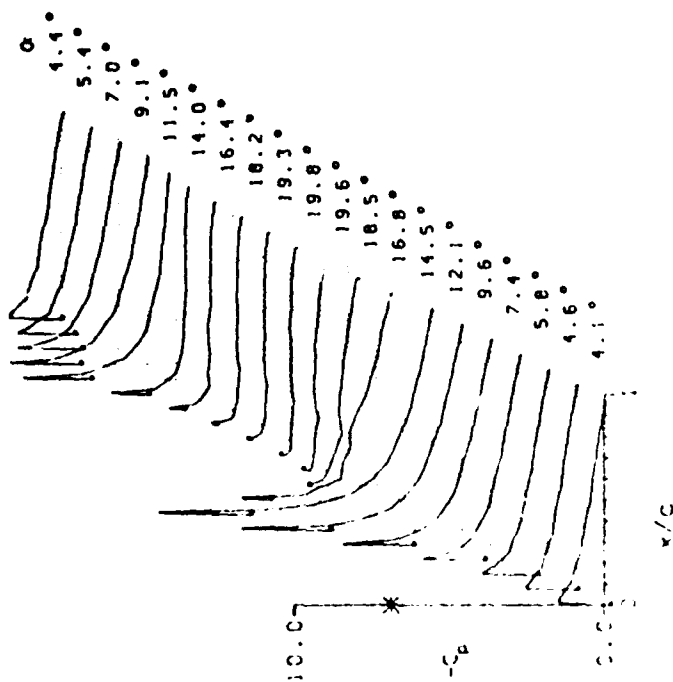
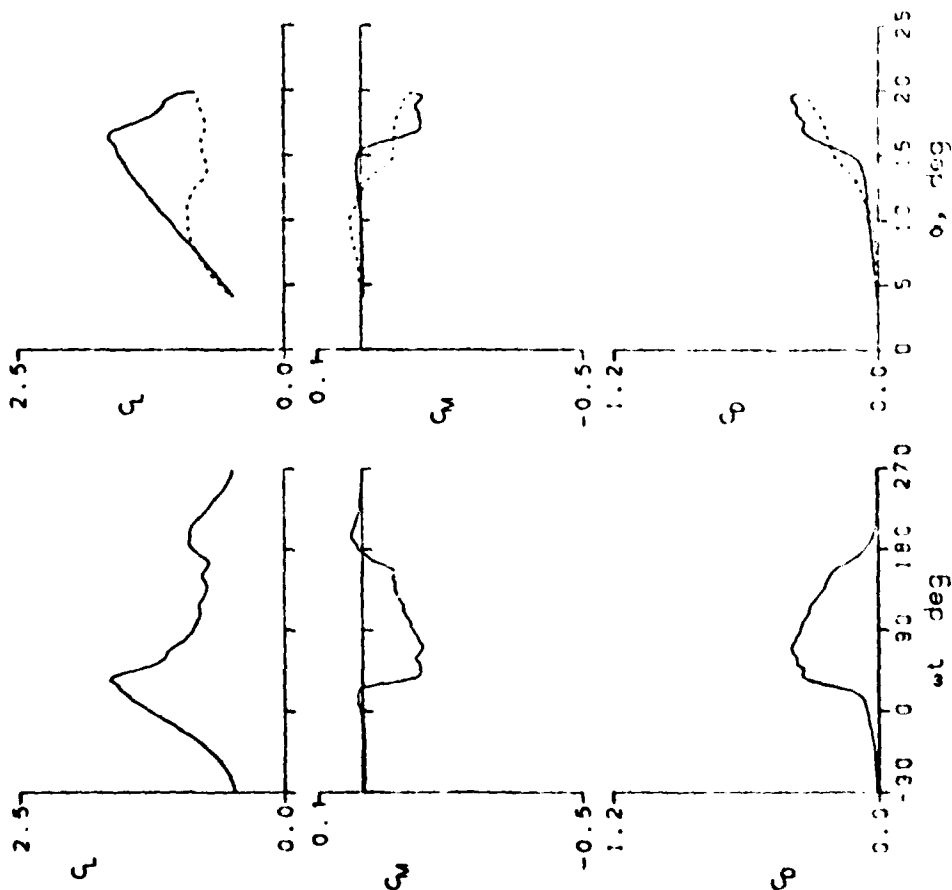


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10105 $\alpha_0 = 11.90^\circ$ $\mu = 0.097$
 $R_0 = 3.8956$ $A = 7.89^\circ$ $M = 0.302$
 $C_{L_{max}} = 1.76$ $C_{D_{min}} = 0.24$ $C_{D_{max}} = 0.53$
 $O_{L_{max}} = 18.0^\circ$ $\xi = 0.234$ $M_{max} = 1.217$
 $O_{C_{L_{min}}} = 11.5^\circ$ $-C_{D_{min}} = 9.0$ $O_{M_{max}} = 14.8^\circ$

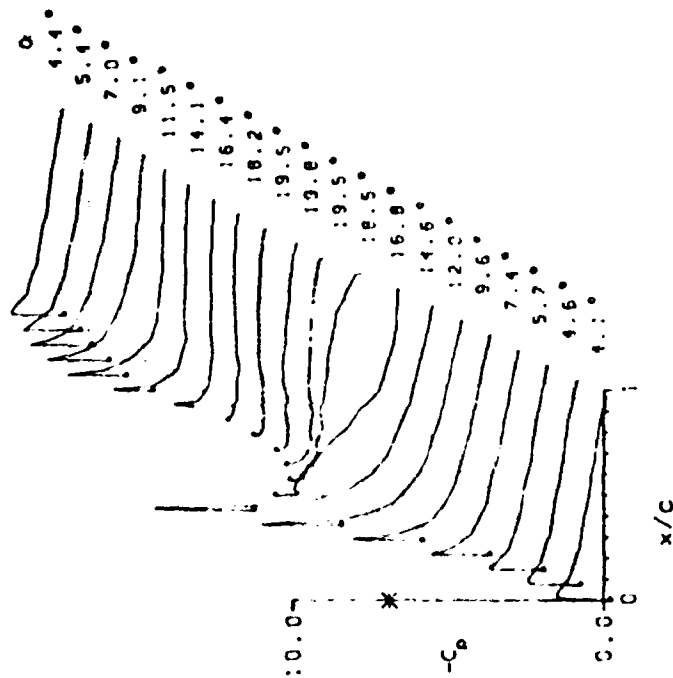
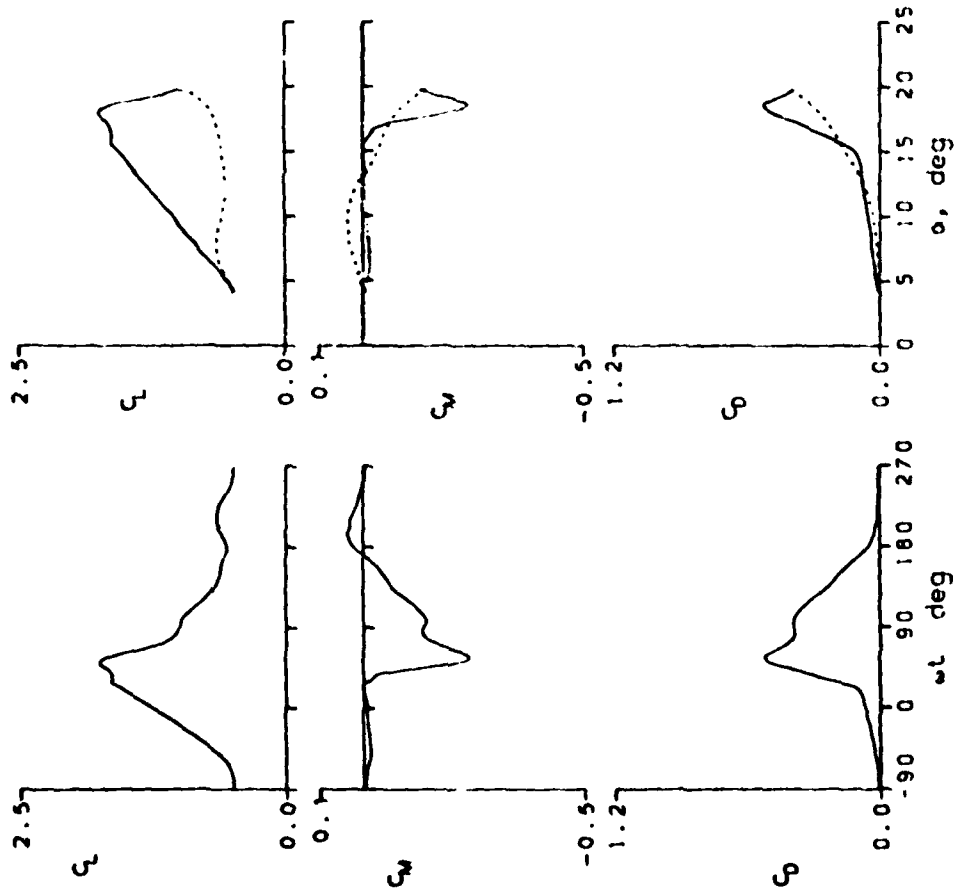


Figure 12.- Continued.

NACA 0012 A SEC -

FRAME = 10108 AC = 11.95" = 0.125
 Re = 3.641A A' = 2.89" V = 0.296
 C_{L0} = 0.97 C_{M0} = 0.23 C_{D0} = 0.64
 O_{L0} = 13.1" C = 0.203 M₀ = 1.214
 O_{C0} = 11.7" -C_{L0} = 9.3 O_{M0} = 15.4"

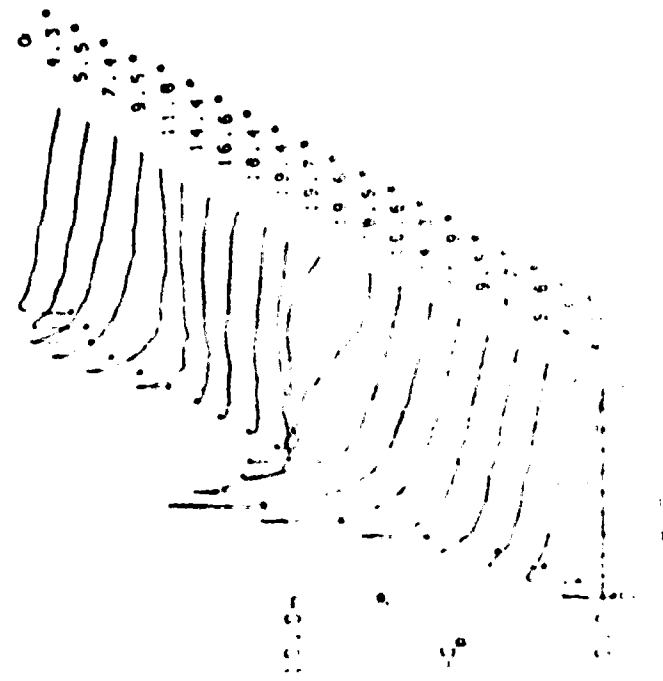
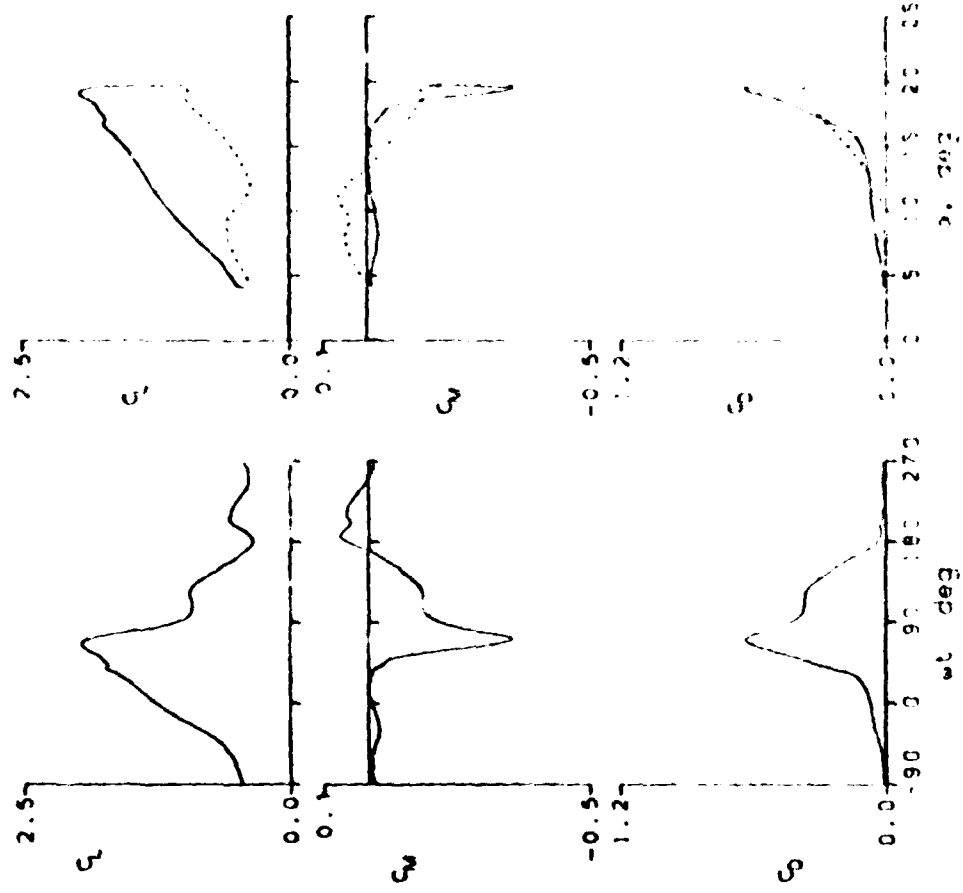


Figure 12.- Continued.

NACA 0012 A 512

RAUC	10.3	AC	14.97°	α	0.010
Re	3.9214	AC	4.91°	α	0.302
C _{mo}	1.29	C _{mo}	0.029	C _{mo}	0.27
C _{mo}	13.5	C	0.048	C _{mo}	1.212
C _{mo}	14.3	C	0.048	C _{mo}	14.0

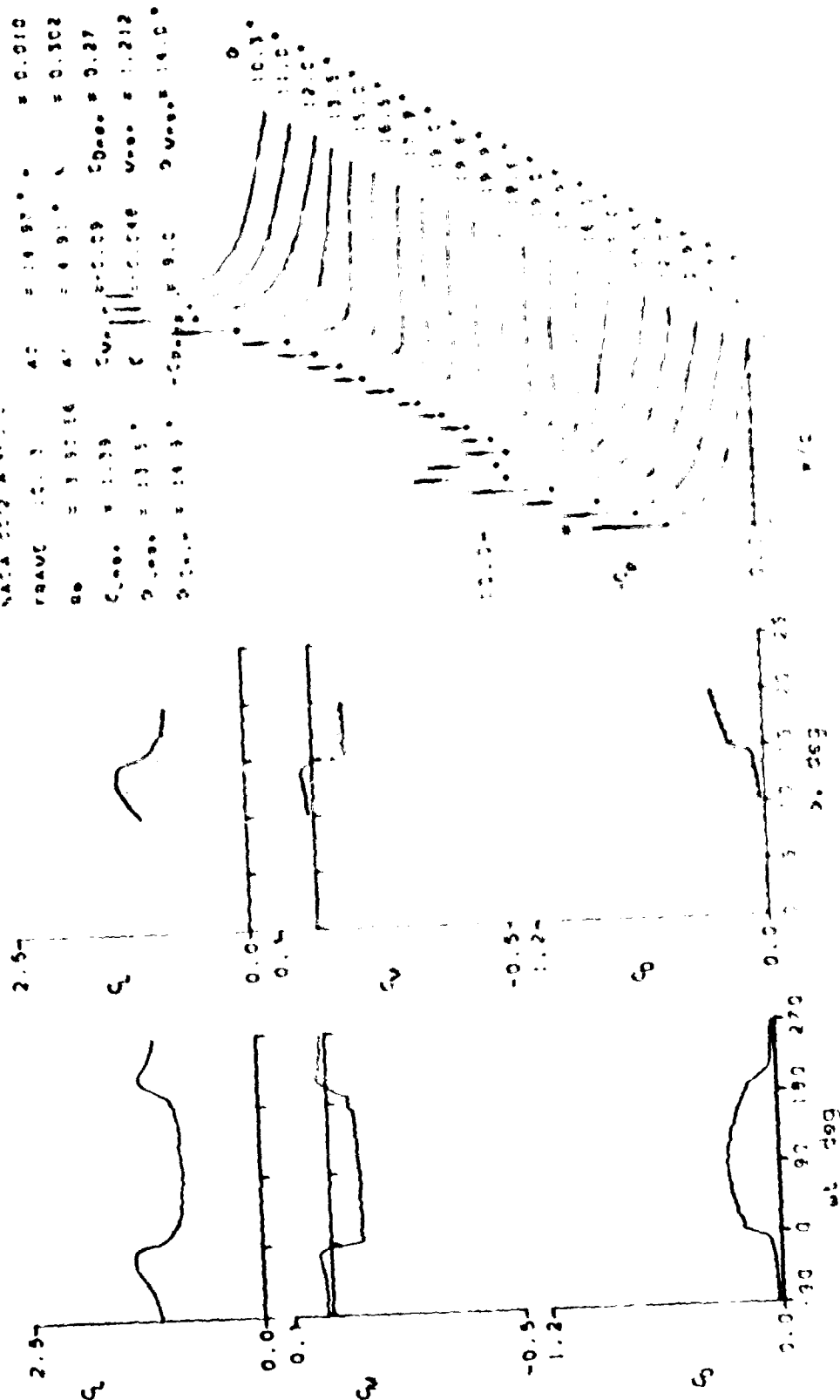
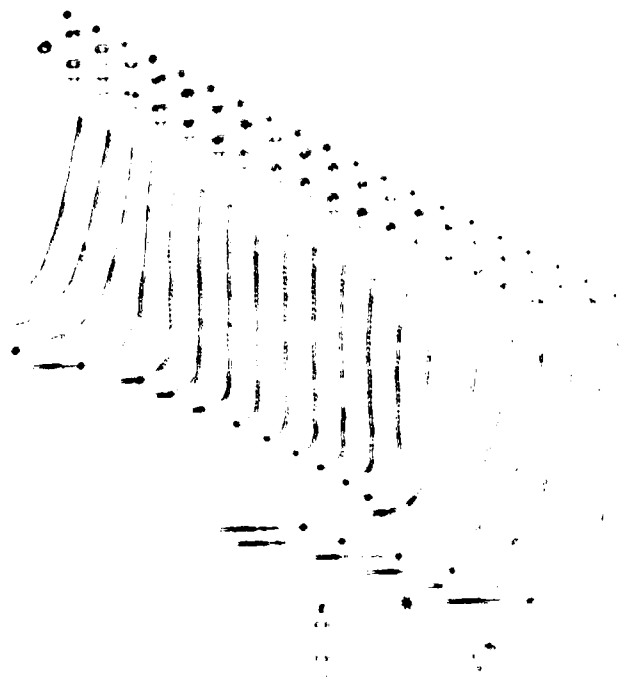
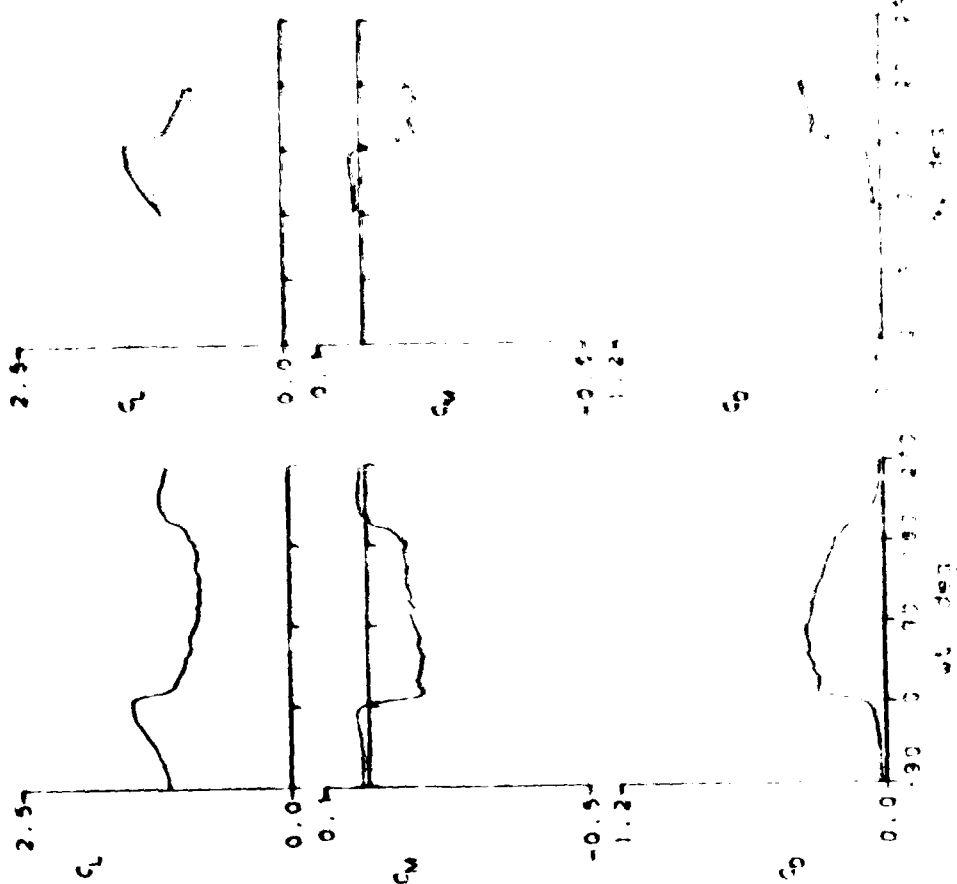


Figure 12- Continued.

100

[illegible]

NACA 2302 A 8100

FRAME	AC	α	α
$\alpha = 3.42$	$\alpha = 10.96$	$\alpha = 0.050$	
$\alpha = 16.5$	$\alpha = 19.0$	$\alpha = 0.295$	
$\alpha = 16.5$	$\alpha = 19.0$	$\alpha = 0.33$	
$\alpha = 16.5$	$\alpha = 19.0$	$\alpha = 1.236$	
$\alpha = 16.5$	$\alpha = 19.0$	$\alpha = 10.0$	

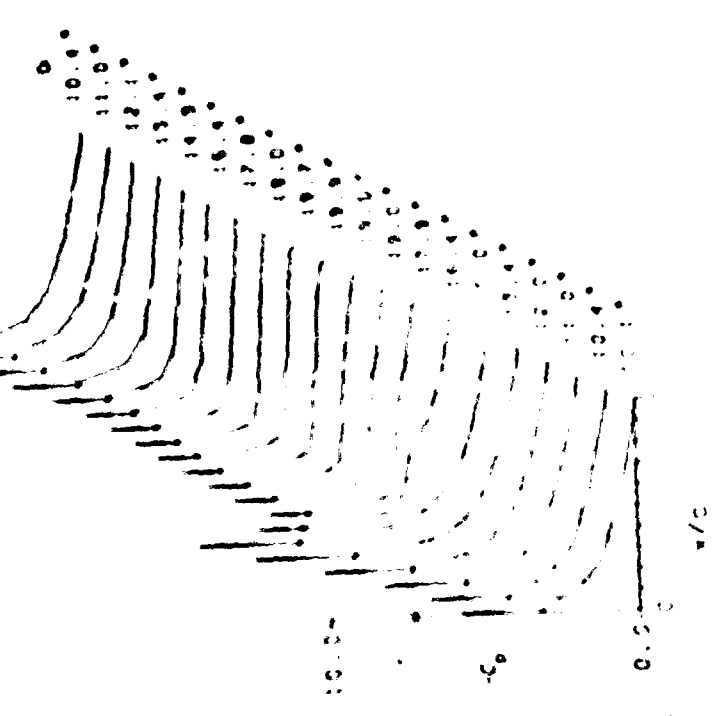
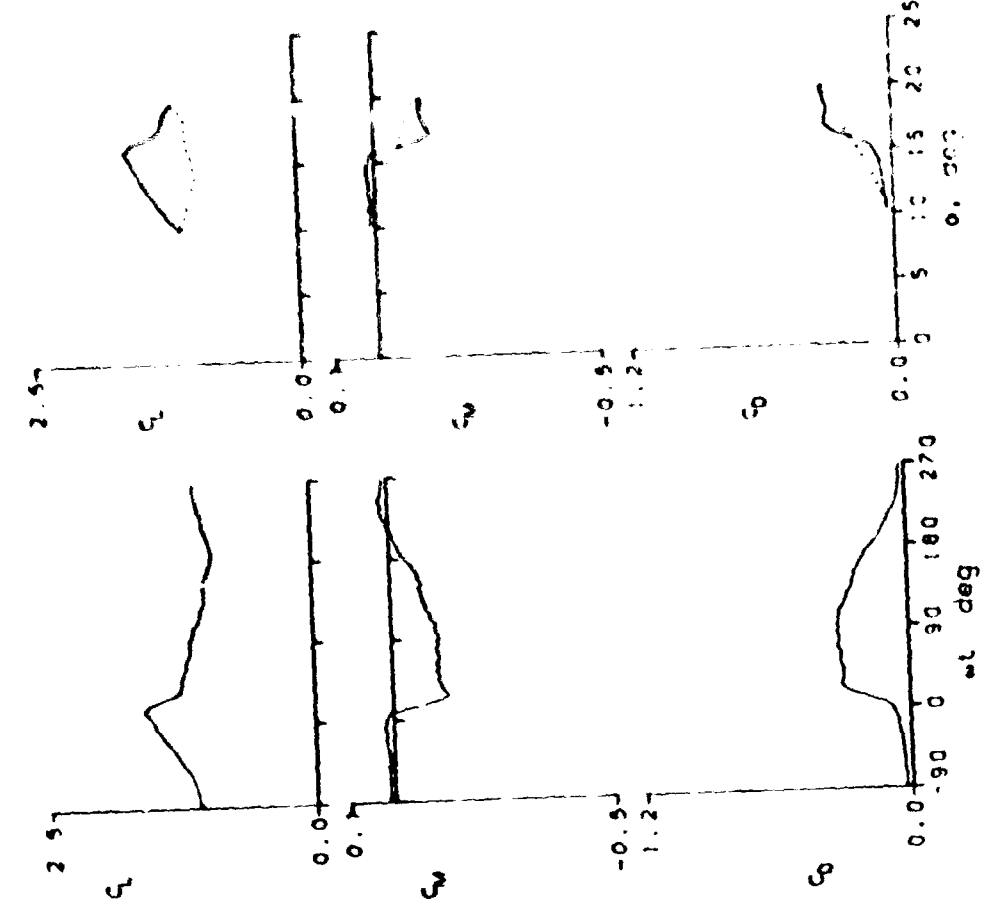


Figure 12.- Cont Inued.

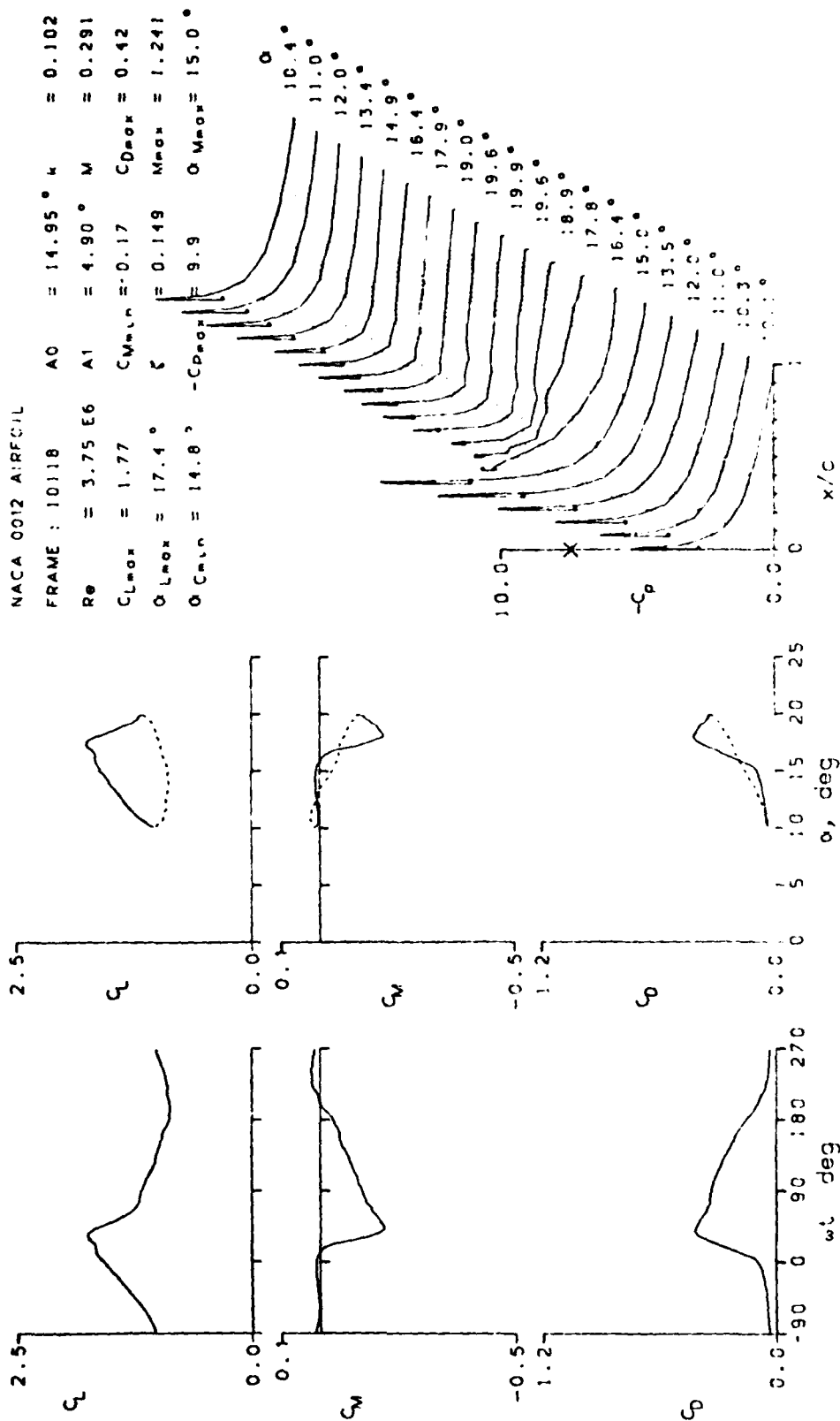


Figure 12.- Continued.

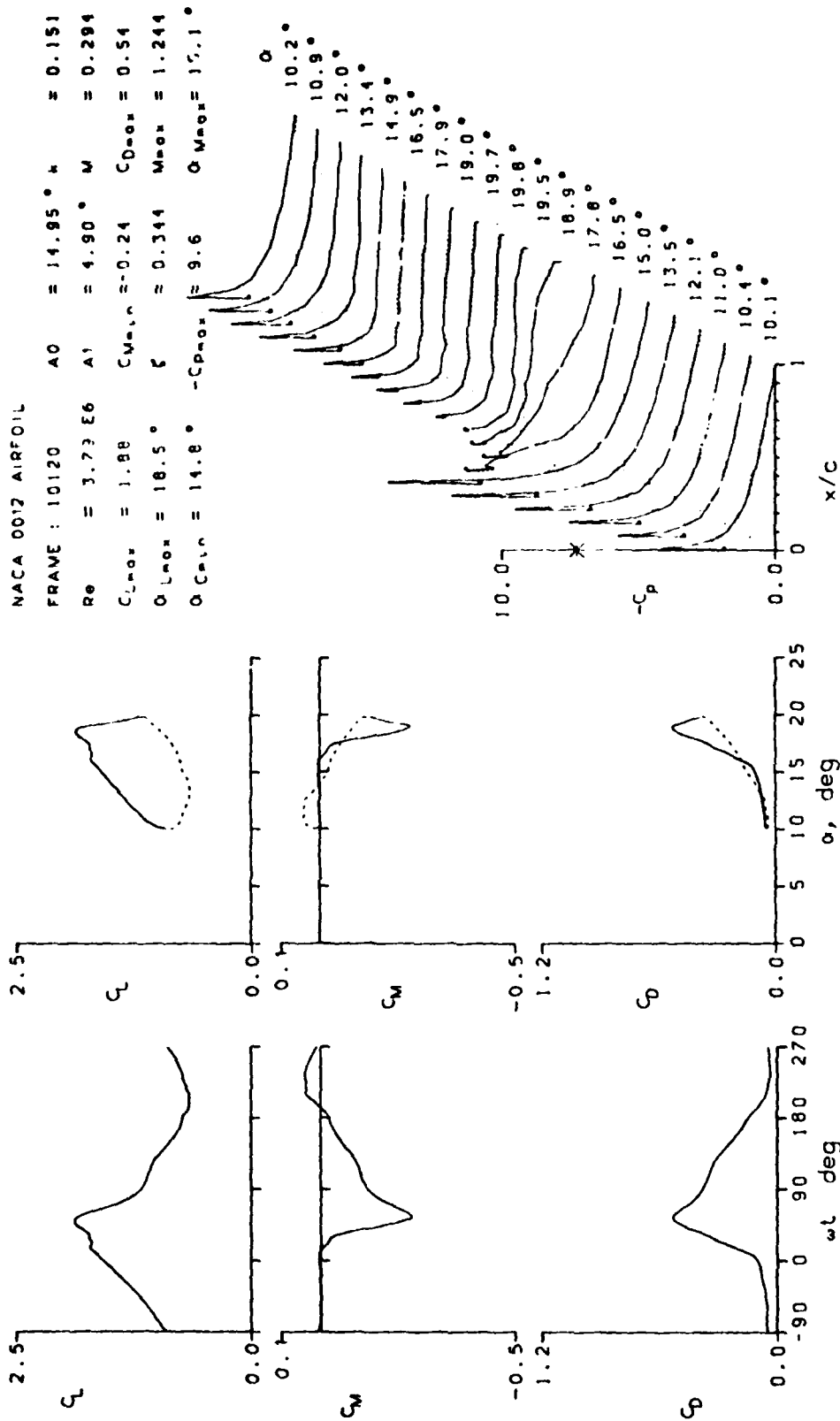


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10123 $A_0 = 14.96^\circ$ $\mu = 0.202$
 $Re = 3.76 E6$ $A_1 = 4.87^\circ$ $M = 0.293$
 $C_{Lmax} = 1.97$ $C_{Mmin} = -0.37$ $C_{Dmax} = 0.68$
 $\alpha_{Lmax} = 19.3^\circ$ $\xi = 0.145$ $M_{max} = 1.251$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 9.8$ $\alpha_{Mmax} = 15.8^\circ$

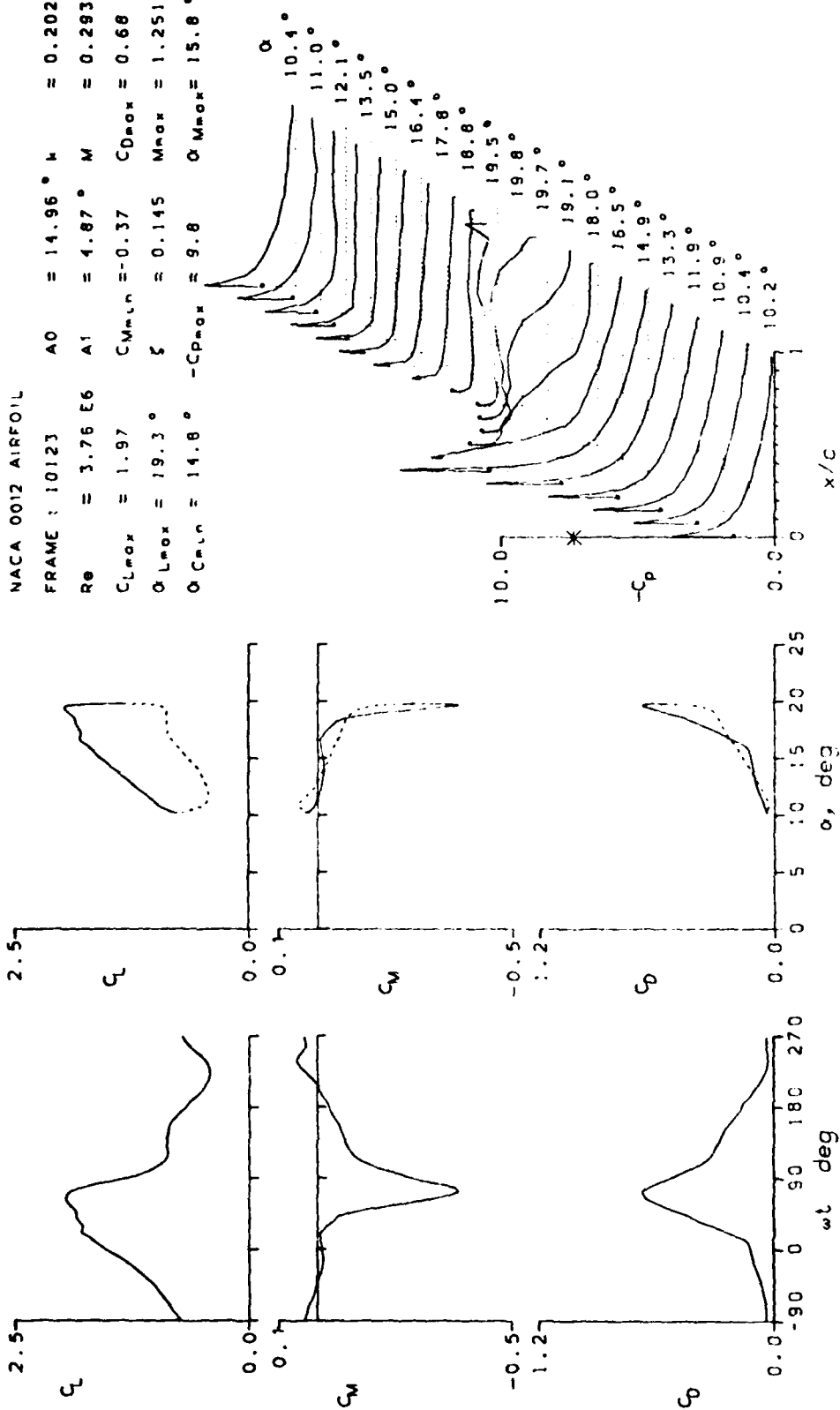


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10202	A0 = 9.95°	k = 0.010
Re = 3.66 E6	A1 = 4.90°	M = 0.301
$C_{Lmax} = 1.37$	$C_{Mmin} = -0.06$	$C_{Dmax} = 0.15$
$\alpha_{Lmax} = 13.6°$	$\zeta = -0.110$	$M_{max} = 1.219$
$\alpha_{Cmin} = 9.8°$	$-C_{pmax} = 9.0$	$\alpha_{Mmax} = 13.7°$

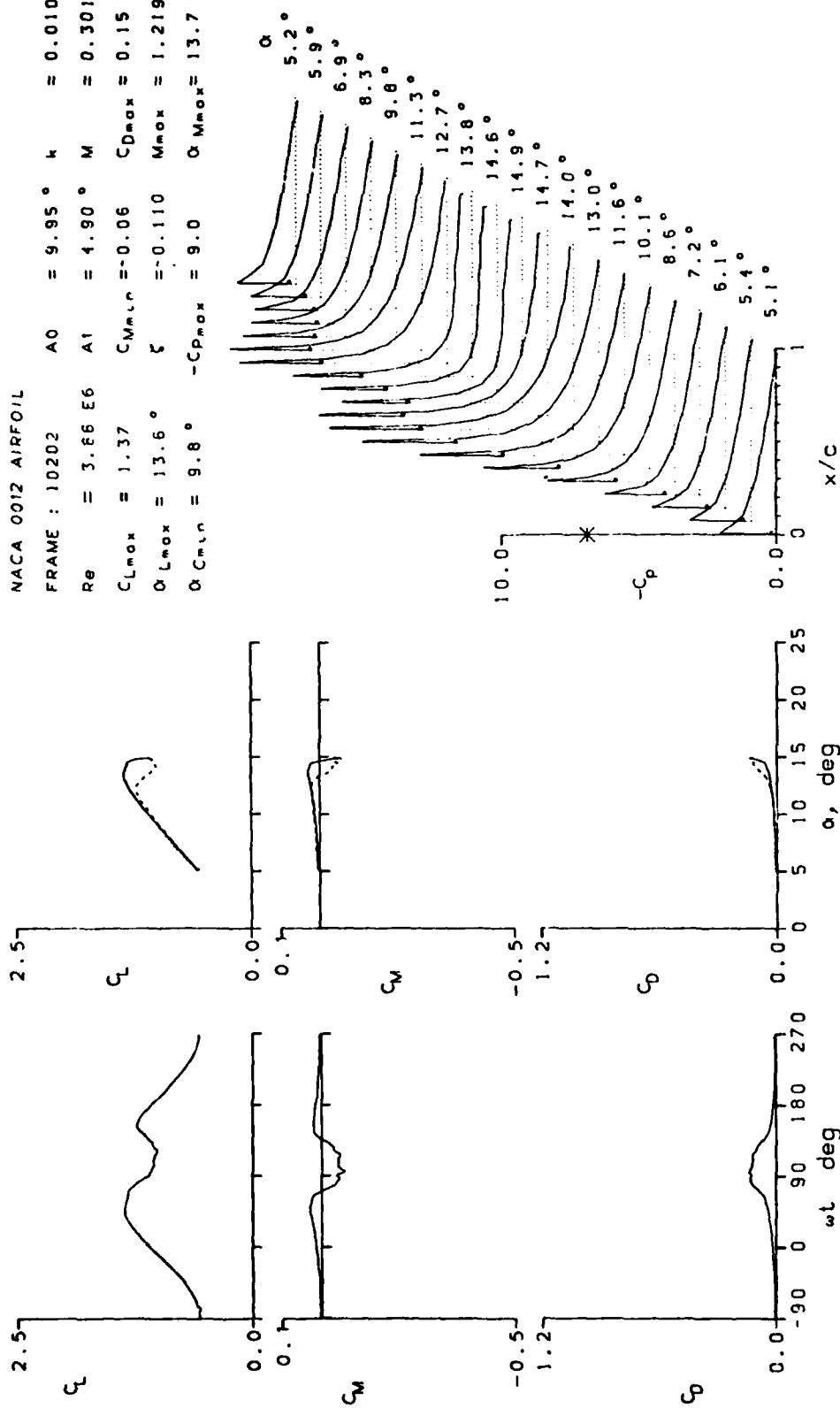


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10203	A0 = 9.95°	k = 0.025
Re = 3.85 E6	A1 = 4.90°	M = 0.301
CLmax = 1.38	CMmin = -0.04	CDmax = 0.13
αLmax = 13.5°	ξ = -0.050	Mmax = 1.227
αCMmin = 9.8°	-CDmax = 9.1	αMmax = 14.1°

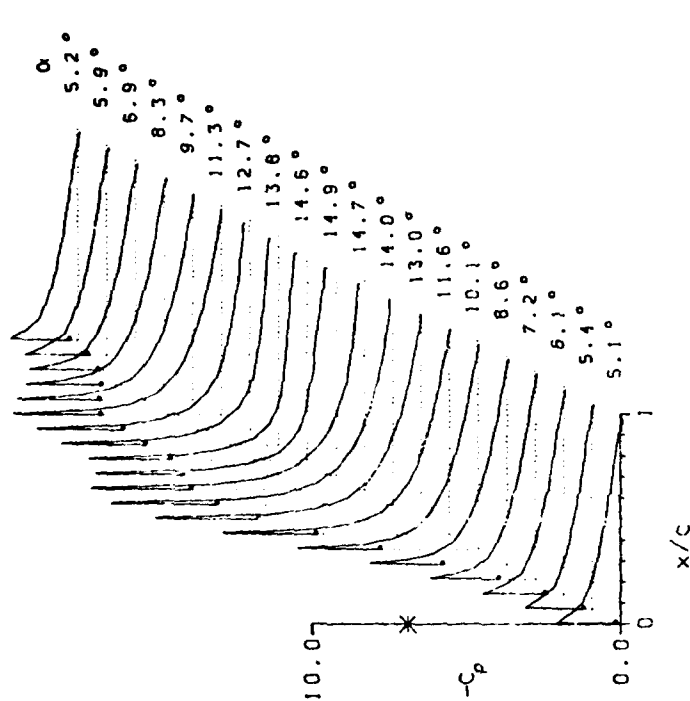
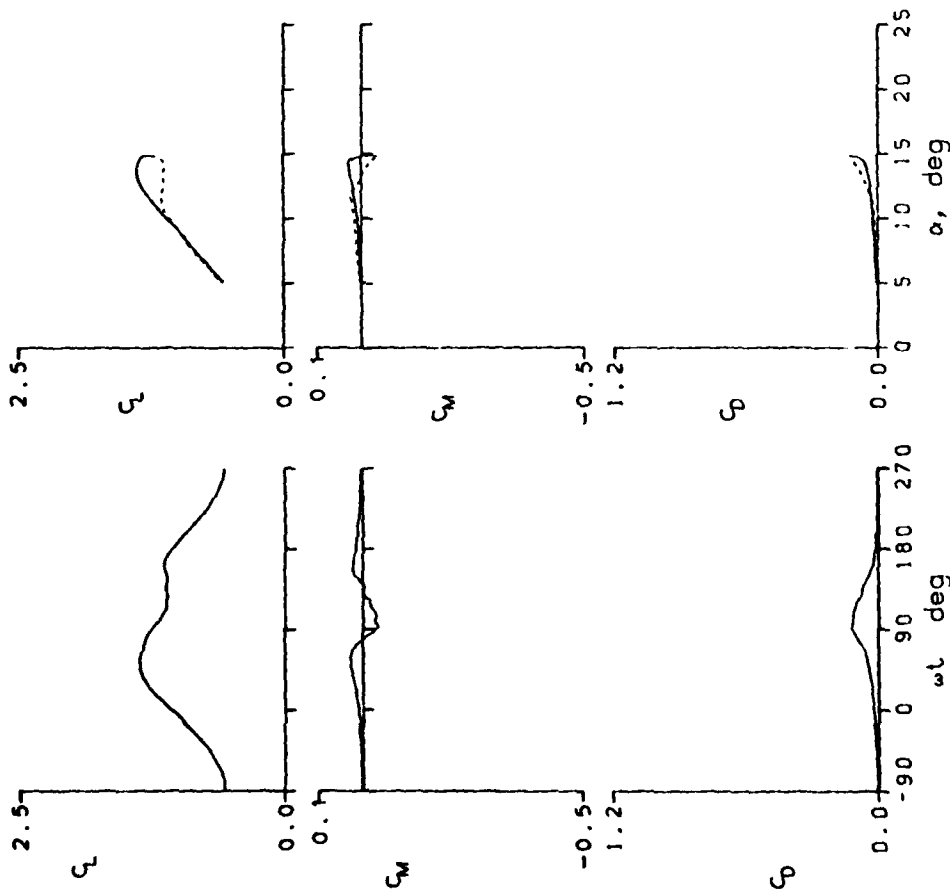


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10204 $A_0 = 9.95^\circ$ $k = 0.049$
 $R_0 = 3.83 \text{ E6}$ $A_1 = 4.90^\circ$ $M = 0.300$
 $C_{L_{max}} = 1.18$ $C_{M_{min}} = -0.10$ $C_{D_{max}} = 0.20$
 $\alpha_{L_{max}} = 14.6^\circ$ $\zeta = -0.226$ $M_{max} = 1.248$
 $\alpha_{C_{min}} = 9.8^\circ$ $-C_{p_{max}} = 9.3$ $\alpha_{M_{max}} = 13.9^\circ$

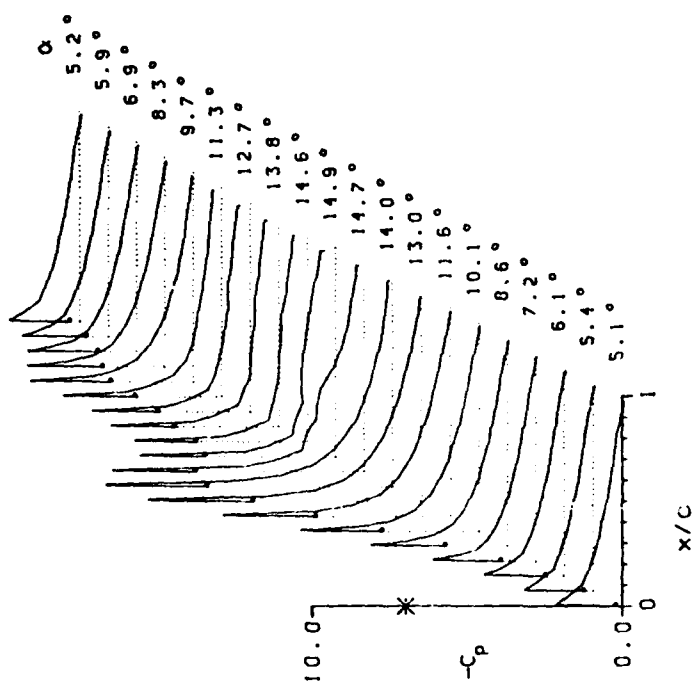
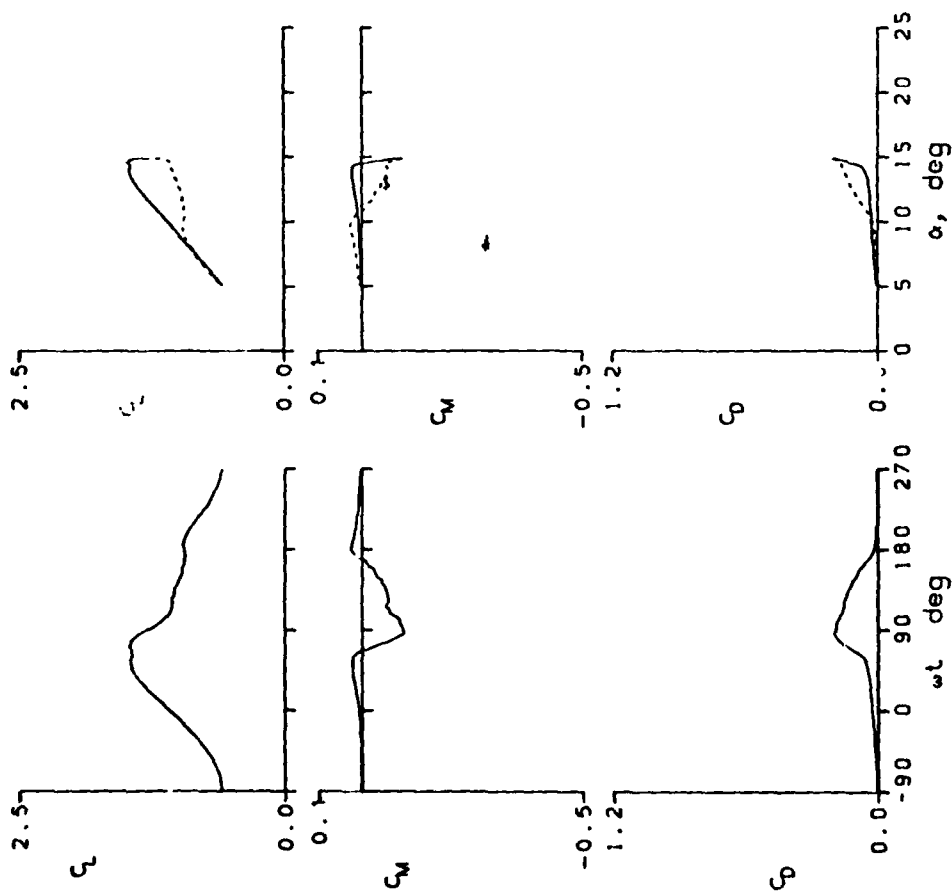


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10207 $A_0 = 9.96^\circ$ $k = 0.074$
 $Re = 3.88 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.51$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.21$
 $\alpha_{Lmax} = 14.9^\circ$ $\xi = -0.086$ $M_{max} = 1.251$
 $\alpha_{Cmin} = 9.9^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 14.0^\circ$

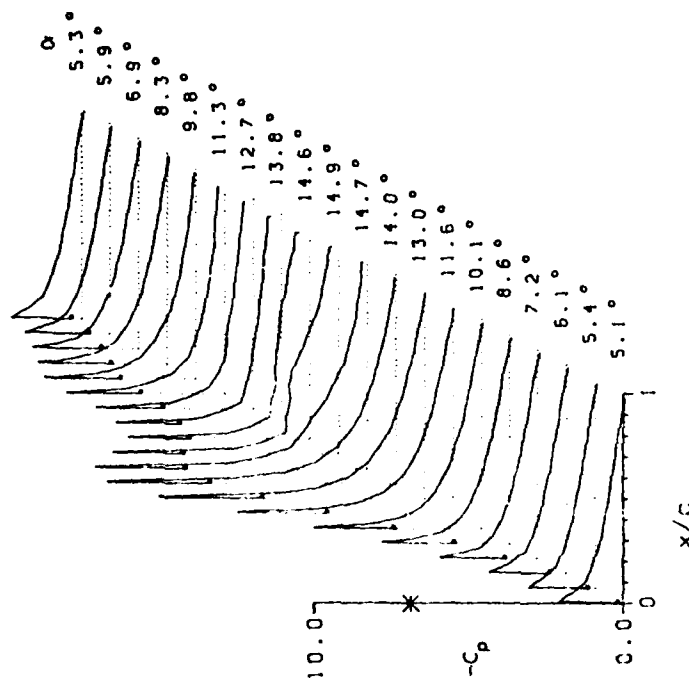
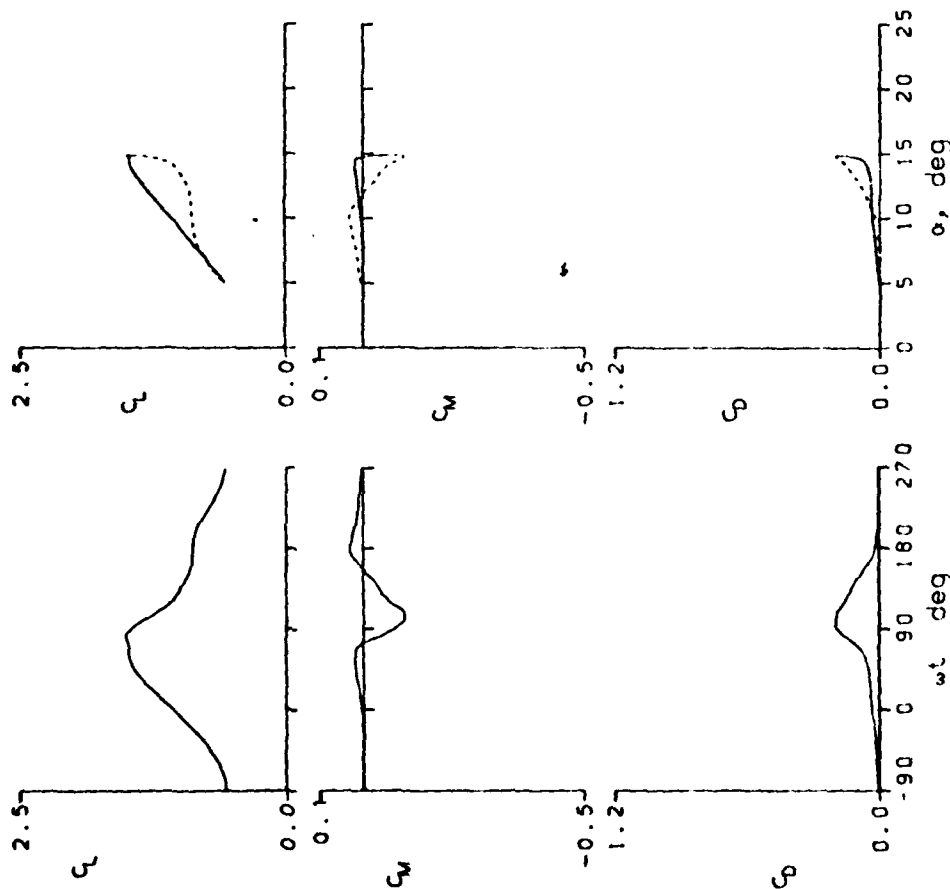


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10208 $A_0 = 9.96^\circ$ $k = 0.099$
 $Re = 3.86 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.300$
 $C_{Lmax} = 1.53$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.20$
 $\alpha_{Lmax} = 14.5^\circ$ $\zeta = -0.080$ $M_{max} = 1.250$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{pmax} = 9.4$ $\alpha_{Mmax} = 14.0^\circ$

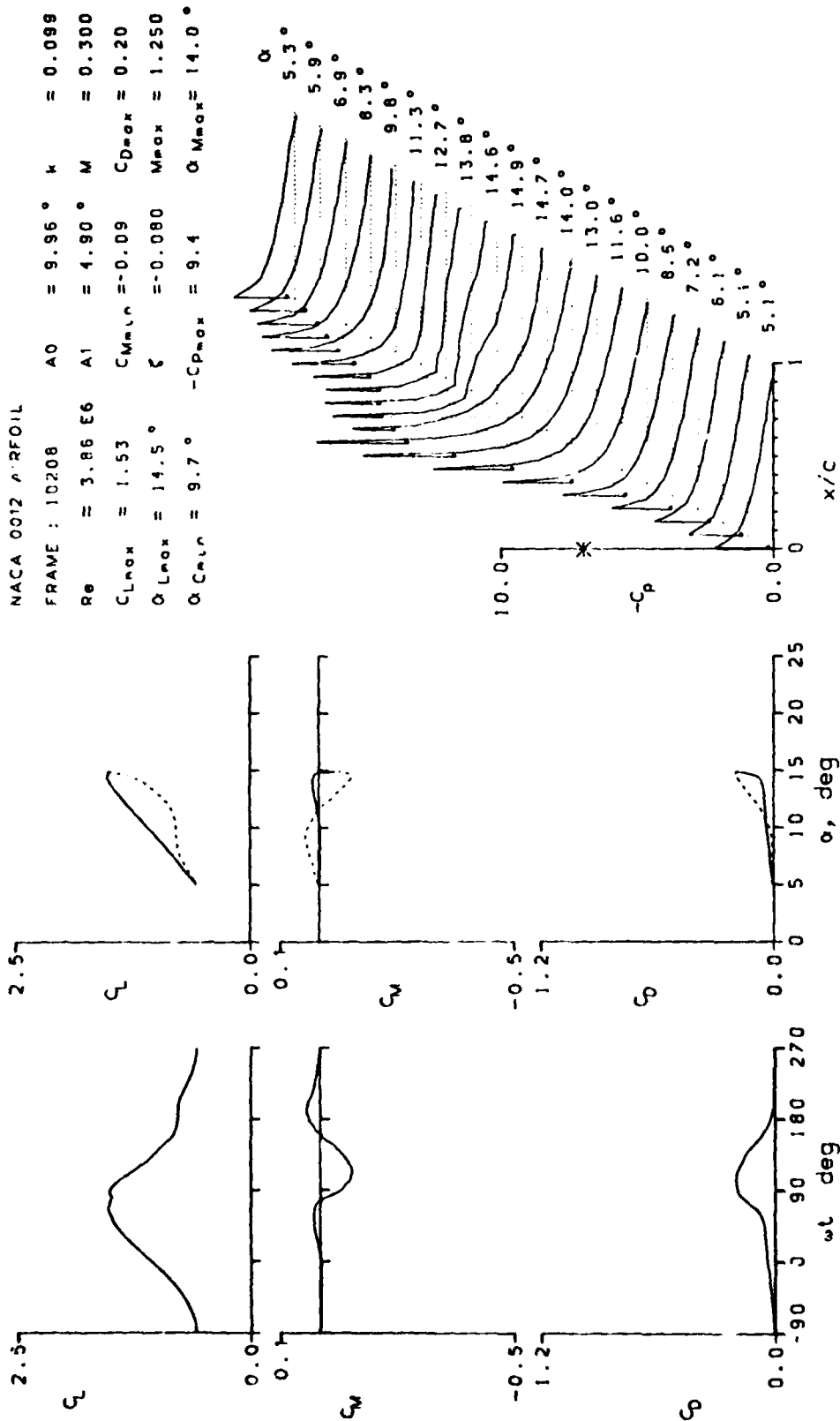


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10211 $A_0 = 9.97^\circ$ $\mu = 0.149$
 $R_0 = 3.96 \text{ E6}$ $A_1 = 4.90^\circ$ $M = 0.300$
 $C_{Lmax} = 1.57$ $C_{Mmax} = -0.07$ $C_{Dmax} = 0.22$
 $\alpha_{Lmax} = 14.7^\circ$ $\zeta = -0.088$ $M_{max} = 1.259$
 $\alpha_{C_{Lmax}} = 9.8^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 14.2^\circ$

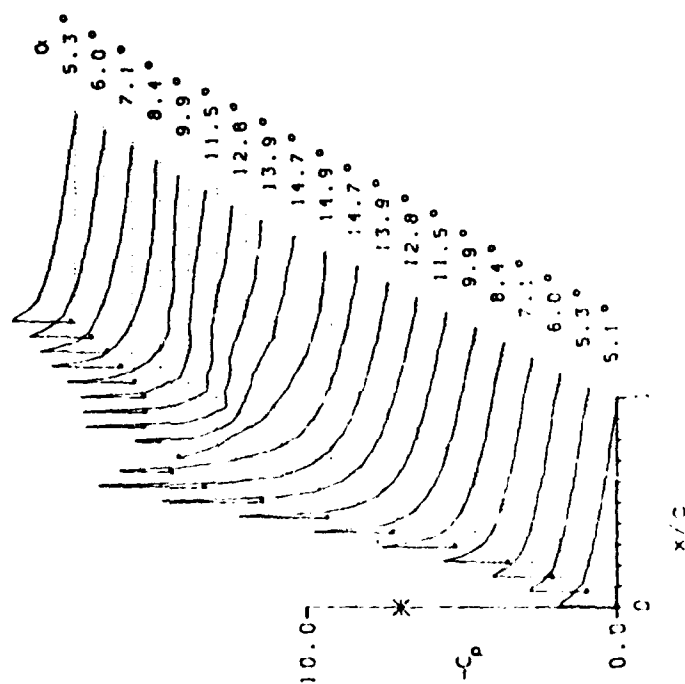
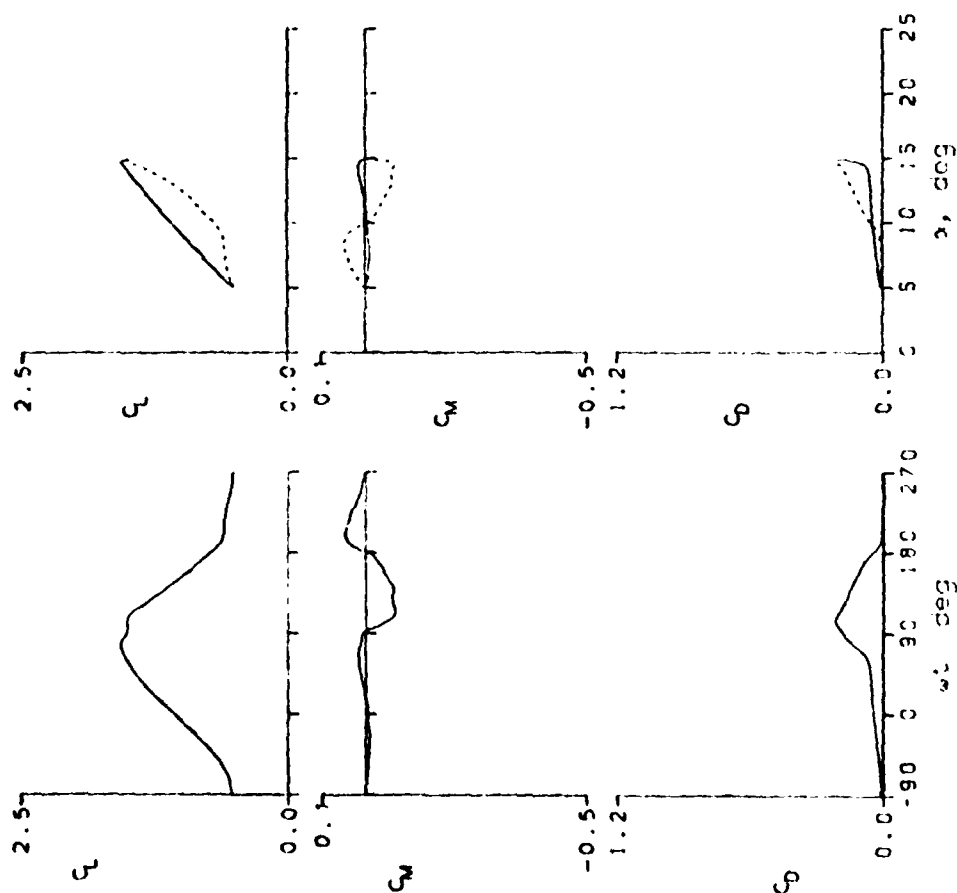


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10212 $A_0 = 9.92^\circ$ $h = 0.198$
 $Re = 3.85 \times 10^6$ $A_1 = 4.91^\circ$ $M = 0.300$
 $C_{Lmax} = 1.64$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.30$
 $\alpha_{Lmax} = 14.6^\circ$ $\xi = -0.025$ $M_{max} = 1.257$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 14.0^\circ$

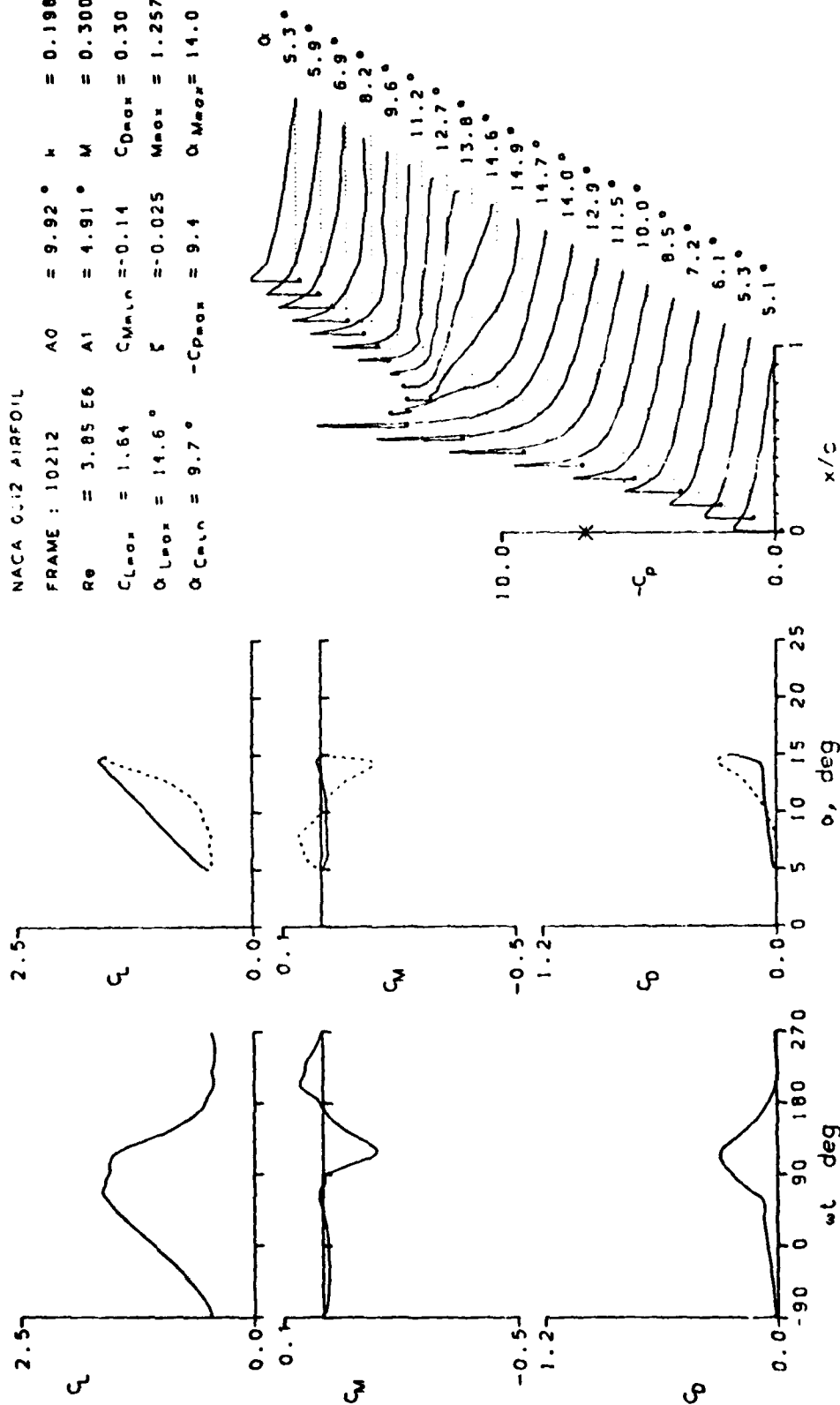


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10218	$\alpha_0 = 4.95^\circ$	$\mu = 0.010$
$R_F = 7.93 \times 10^6$	$\lambda' = 5.00^\circ$	$M = 0.300$
$C_{L_{max}} = 1.13$	$C_{M_{min}} = -0.02$	$C_{D_{max}} = 0.03$
$\alpha_{L_{max}} = 10.0^\circ$	$\xi = 0.029$	$M_{max} = 0.898$
$\phi_{C_{min}} = 4.8^\circ$	$-C_{D_{max}} = 5.8$	$\phi_{M_{max}} = 10.0^\circ$

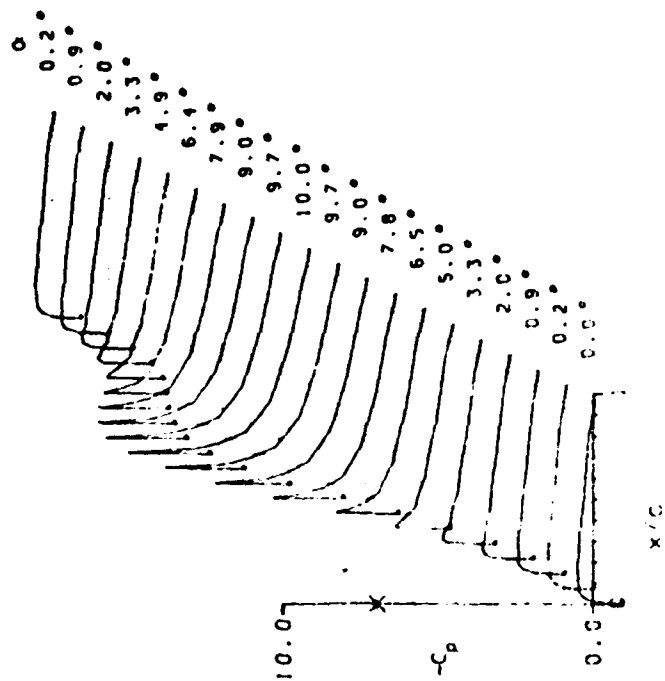
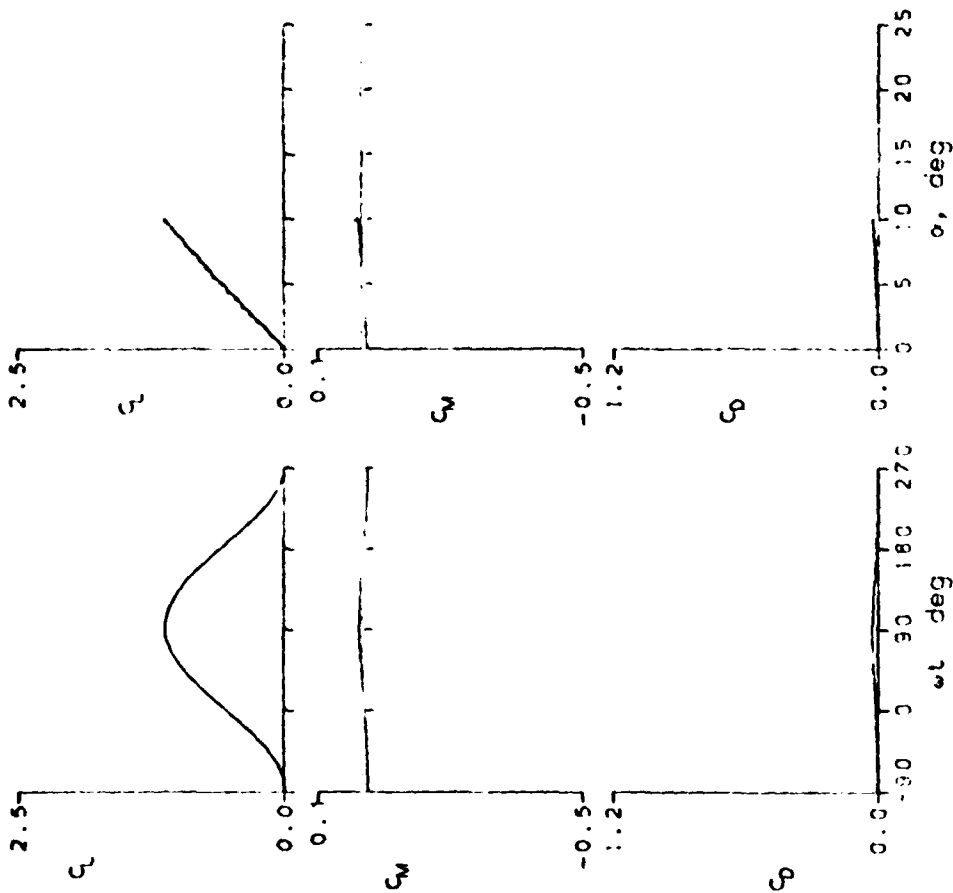


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10221 $AC = 4.94^\circ$ $h = 0.088$
 $Re = 3.93 \times 10^6$ $A' = 5.00^\circ$ $M = 0.301$
 $C_{L,00} = 1.12$ $C_{M,00} = -0.02$ $C_{D,00} = 0.04$
 $\alpha_{L,00} = 10.0^\circ$ $\xi = 0.286$ $M_{acc} = 0.897$
 $\alpha_{C_{L,00}} = 4.8^\circ$ $-C_{D,00} = 5.8$ $\alpha_{M_{acc}} = 9.9^\circ$

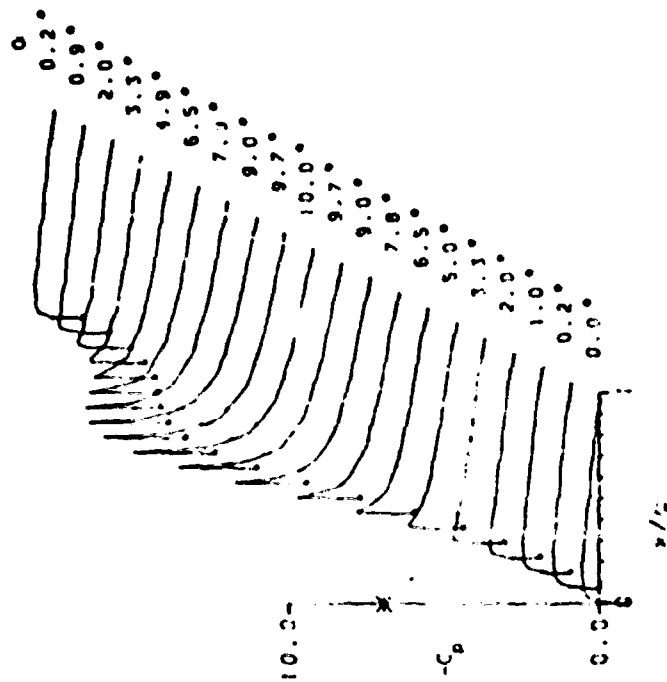
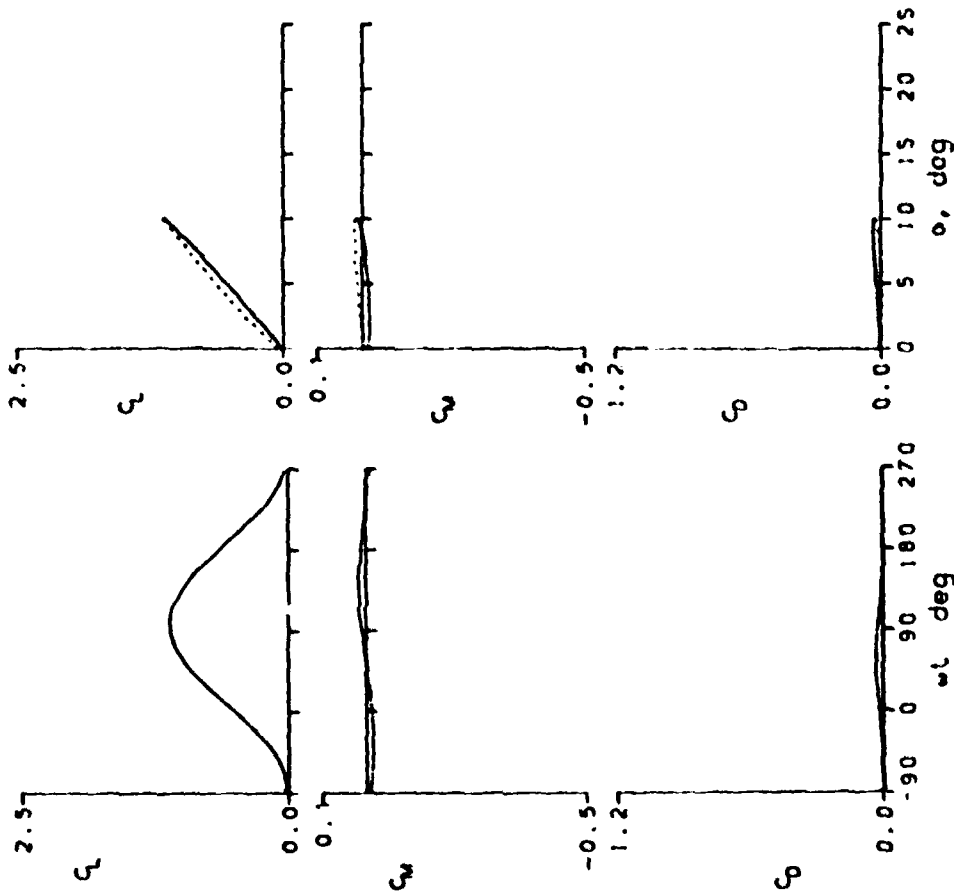


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 12222	$\Delta 0 = 4.93^\circ$	$\Delta = 0.100$
$R_0 = 3.91 f_6$	$\Delta 1 = 4.99^\circ$	$M = 0.301$
$C_{L_{max}} = 1.13$	$C_{M_{max}} = -0.04$	$C_{D_{max}} = 0.05$
$\alpha_{L_{max}} = 10.0^\circ$	$\xi = 0.656$	$M_{max} = 0.922$
$\alpha_{C_{L_{max}}} = 4.7^\circ$	$-C_{D_{max}} = 6.1$	$\alpha_{M_{max}} = 9.9^\circ$

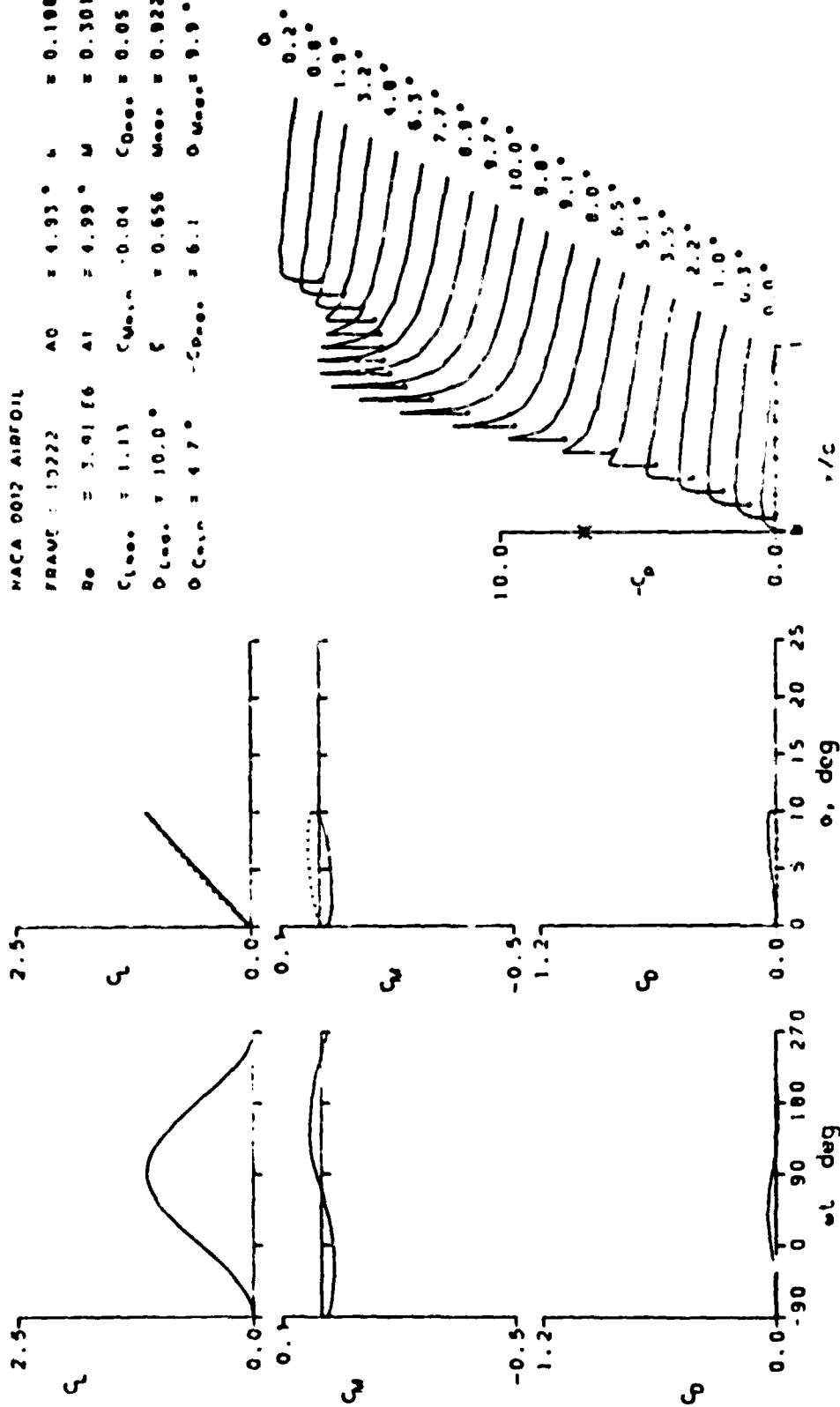


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 10305 $A_0 = 3.64^\circ$ $k = 0.099$
 $Re = 3.91 E6$ $A_1 = 10.11^\circ$ $M = 0.301$
 $C_{Lmax} = 1.49$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.07$
 $\alpha_{Lmax} = 12.9^\circ$ $\xi = 0.255$ $M_{max} = 1.241$
 $\alpha_{Cmin} = 0.0^\circ$ $-C_{pmax} = 3.2$ $\alpha_{Mmax} = 13.9^\circ$

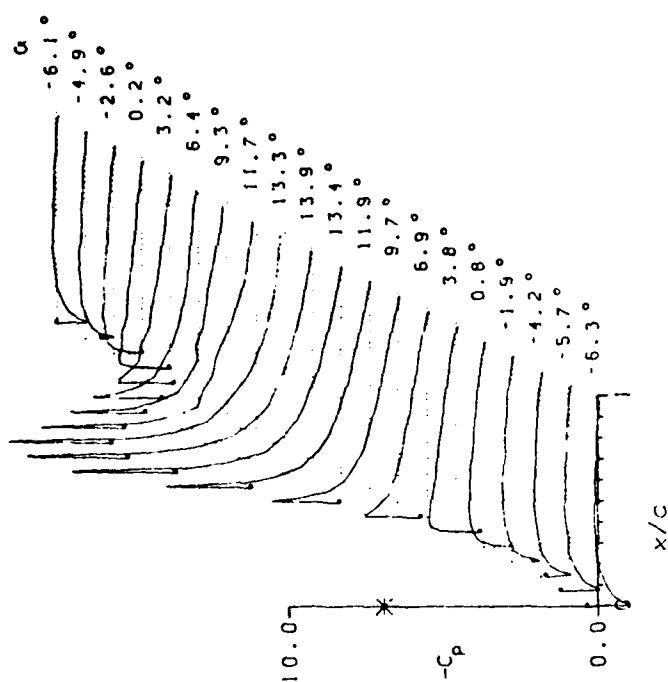
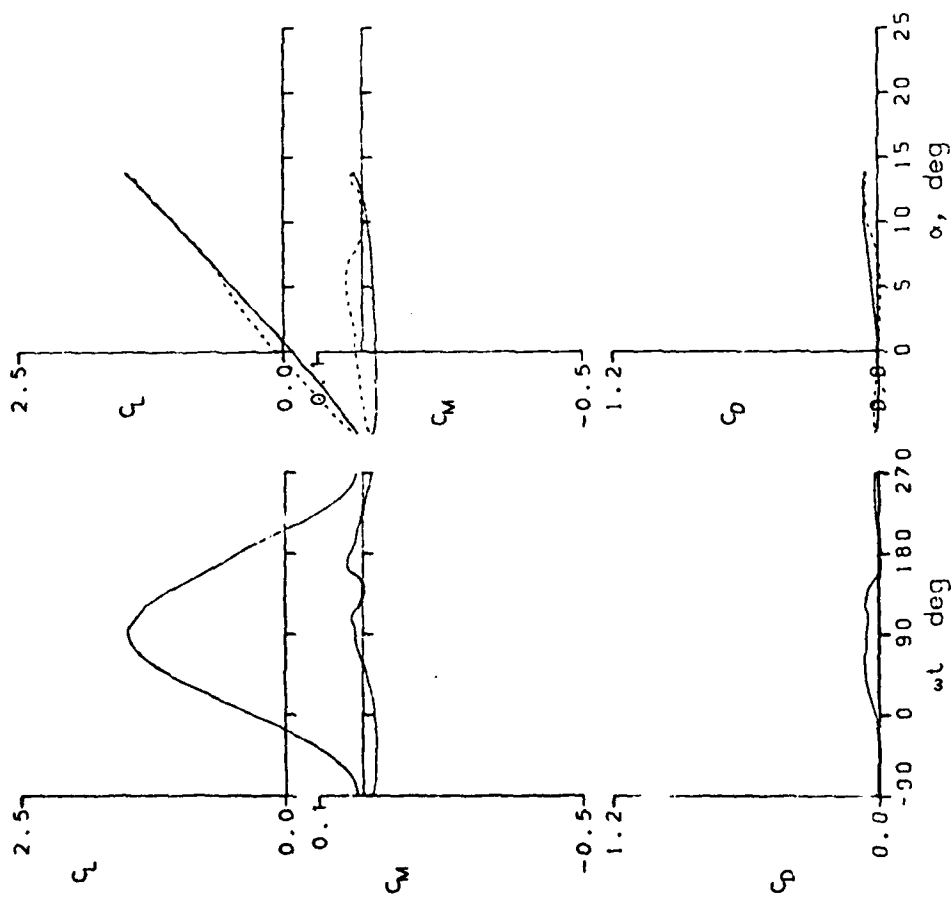


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 10309	A0 = 2.64°	k = 0.099
Re = 3.90 E6	A1 = 10.16°	M = 0.301
CLmax = 1.42	CMmin = -0.04	CDmax = 0.06
αLmax = 12.9°	ξ = 0.309	Mmax = 1.208
αCMmin = -0.2°	-CDmax = 9.9	αMmax = 12.8°

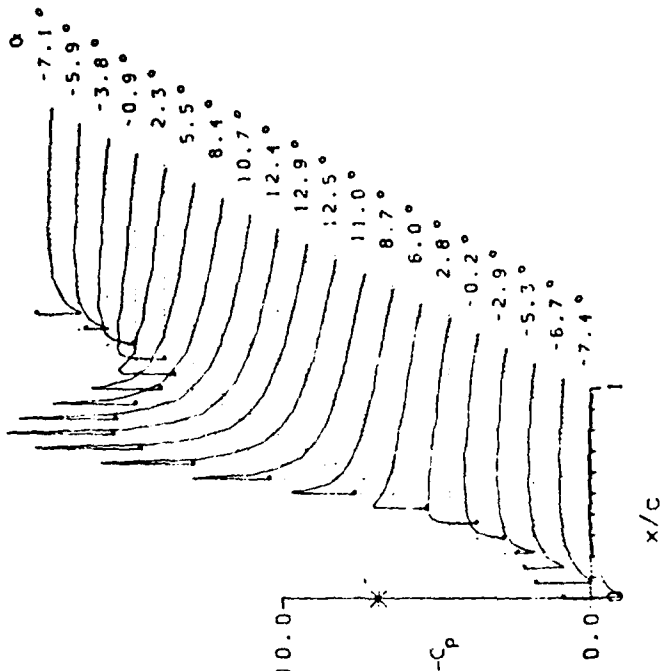
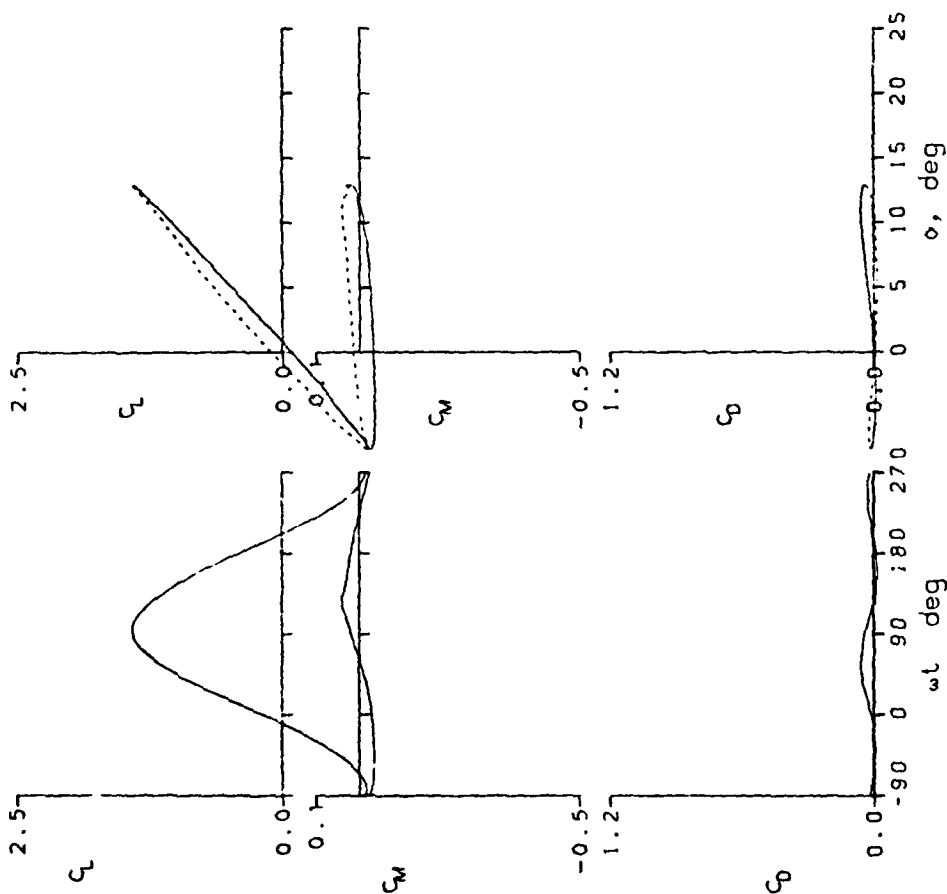


Figure 12.- Continued.

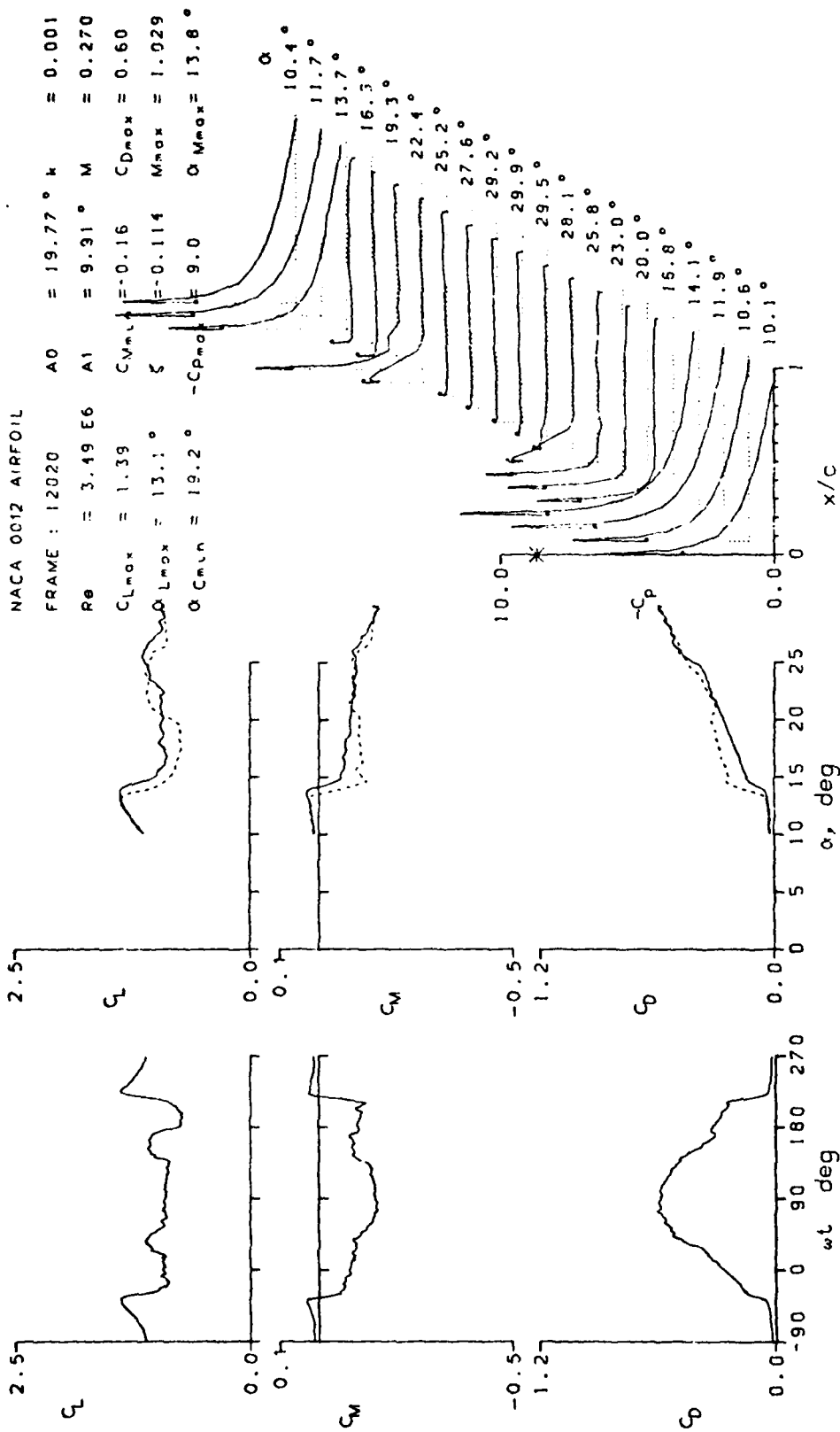


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 12102 $A_0 = 4.86^\circ$ $k = 0.001$
 $Re = 3.82 \text{ E} 6$ $A_1 = 10.06^\circ$ $M = 0.302$
 $C_{Lmax} = 1.38$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.16$
 $\alpha_{Lmax} = 13.4^\circ$ $\xi = 0.002$ $M_{max} = 1.206$
 $\alpha_{Cmin} = 4.3^\circ$ $-C_{pmax} = 8.8$ $\alpha_{Mmax} = 13.6^\circ$

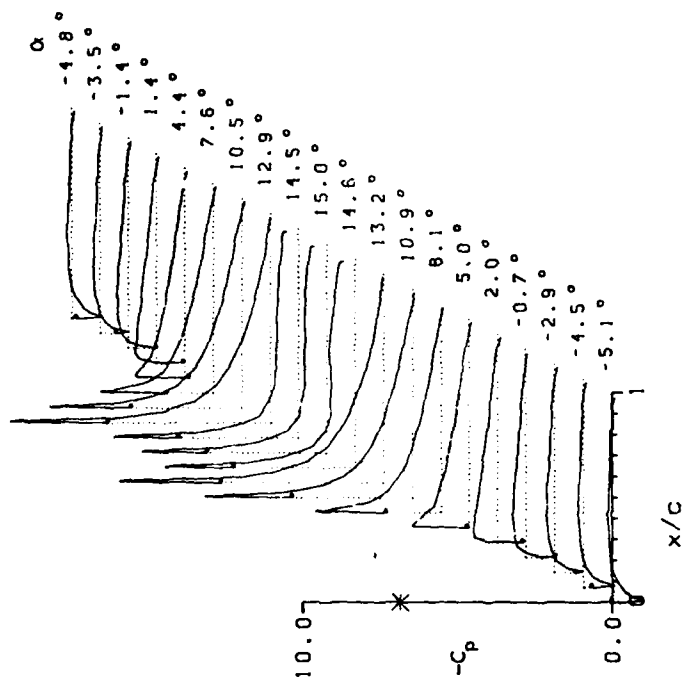
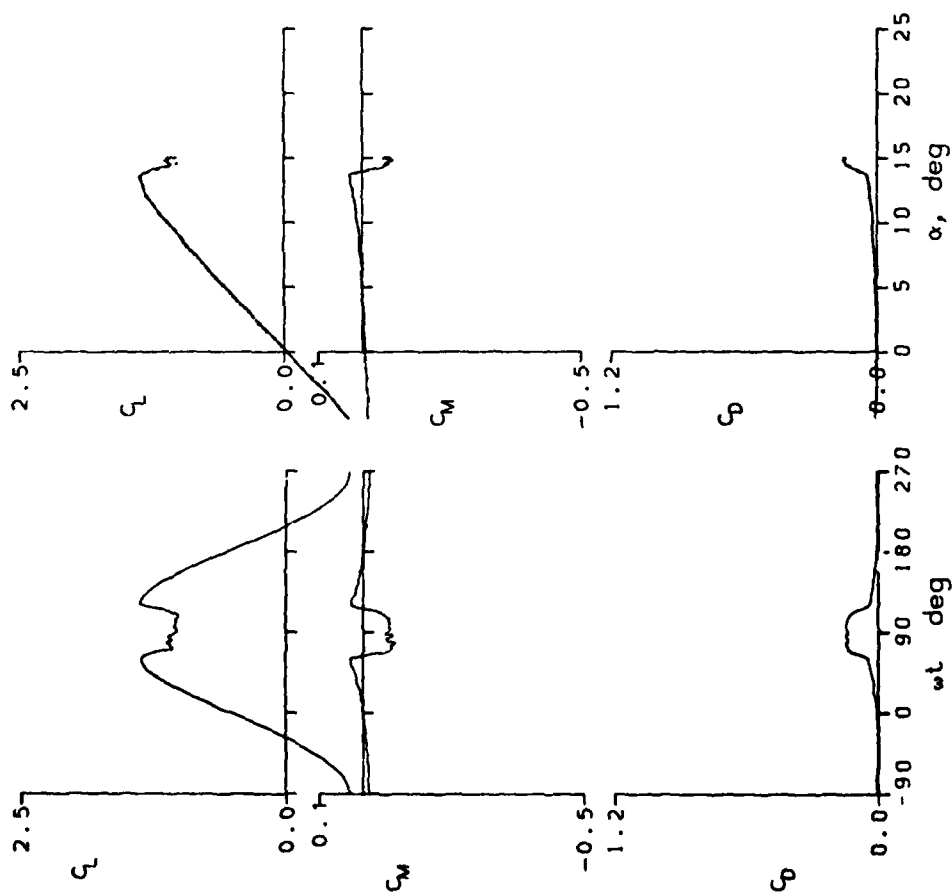


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 12109	A0 = 5.82°	k = 0.001
Re = 3.49 E6	A1 = 10.00°	M = 0.279
C _{Lmax} = 1.43	C _{Mmin} = -0.08	C _{Dmax} = 0.18
α _{Lmax} = 14.3°	ξ = -0.723	M _{max} = 1.114
α _{Cmin} = 5.3°	-C _{pmax} = 9.5	α _{Mmax} = 14.5°

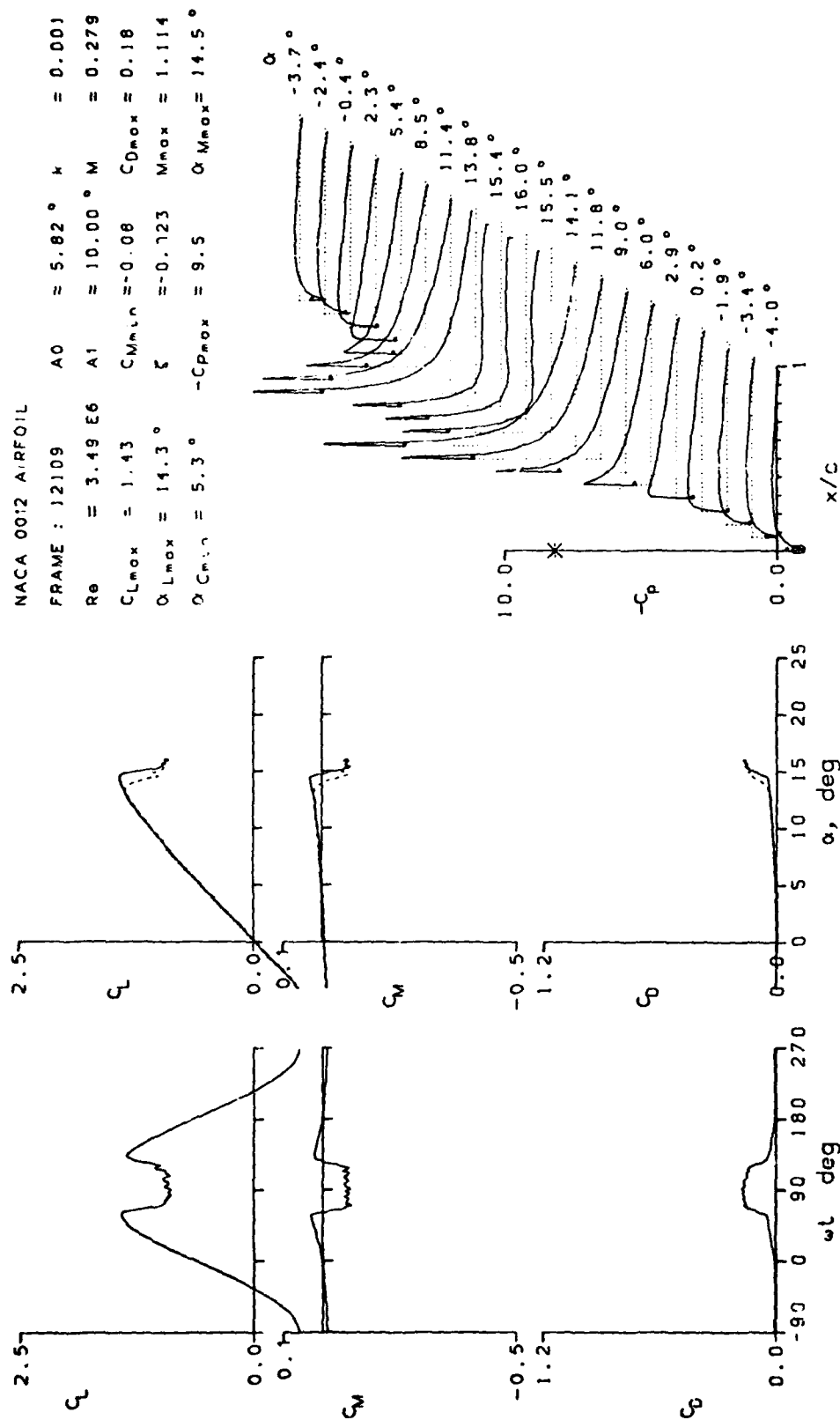


Figure 12.- Continued.

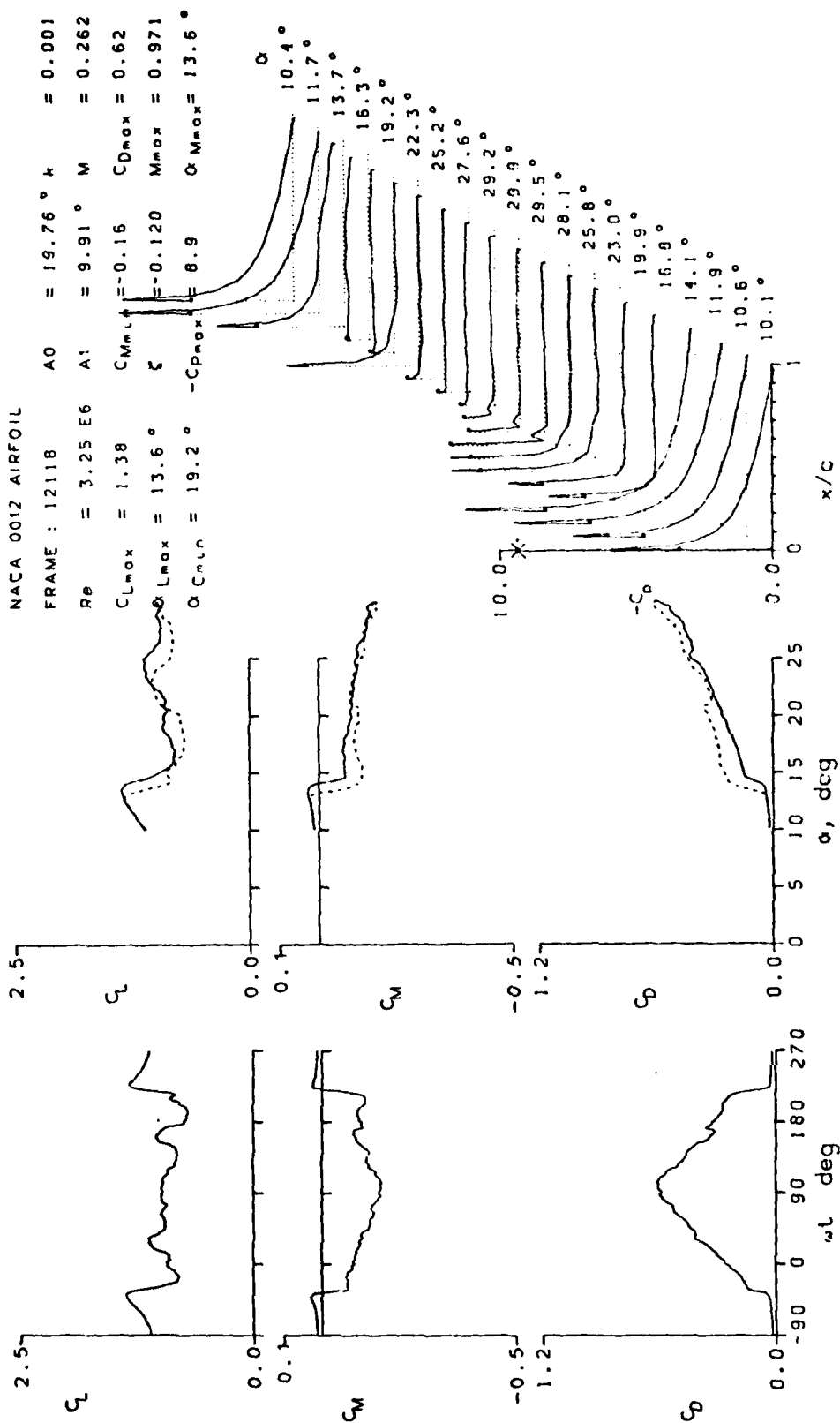


Figure 12.- Continued.

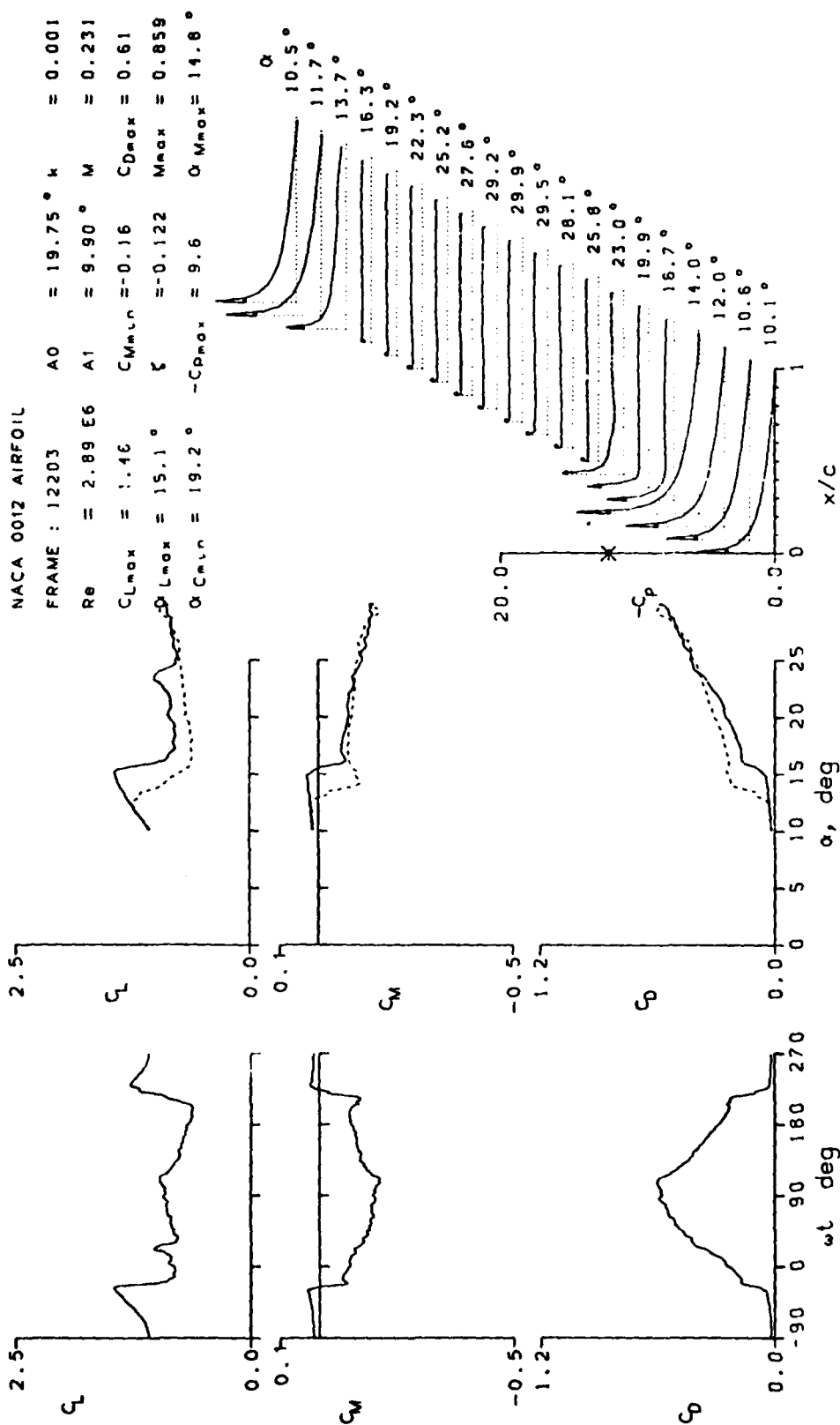


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 122C8 $A_0 = 6.80^\circ$ $h = 0.001$
 $Re = 3.27 E6$ $A' = 10.00^\circ M = 0.244$
 $C_{Lmax} = 1.57$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.19$
 $\alpha_{Lmax} = 16.0^\circ$ $\zeta = -0.069$ $M_{max} = 1.004$
 $\alpha_{Cmin} = 6.3^\circ$ $-C_{pmax} = 10.9$ $\alpha_{Mmax} = 16.1^\circ$

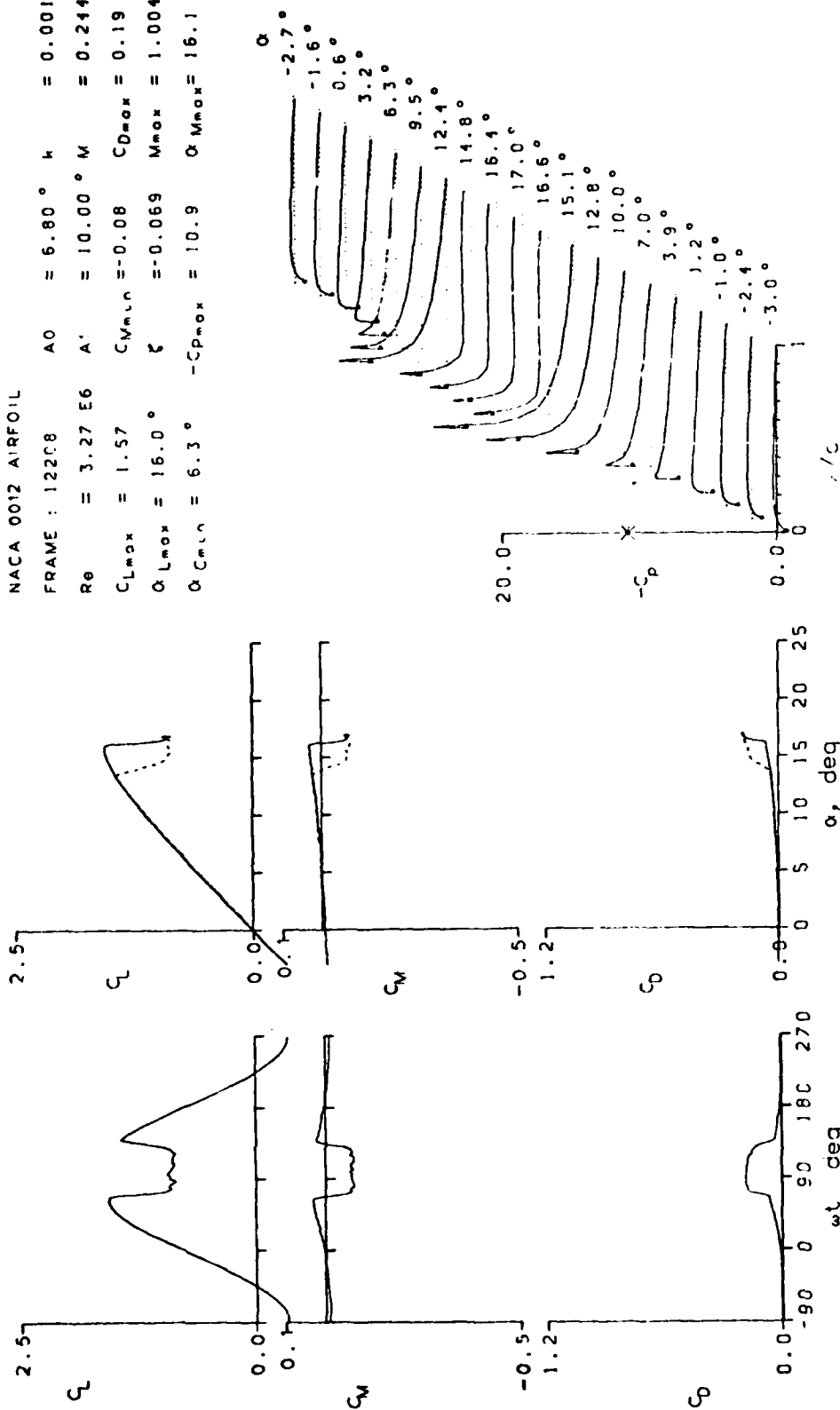


Figure 12.- Continued.

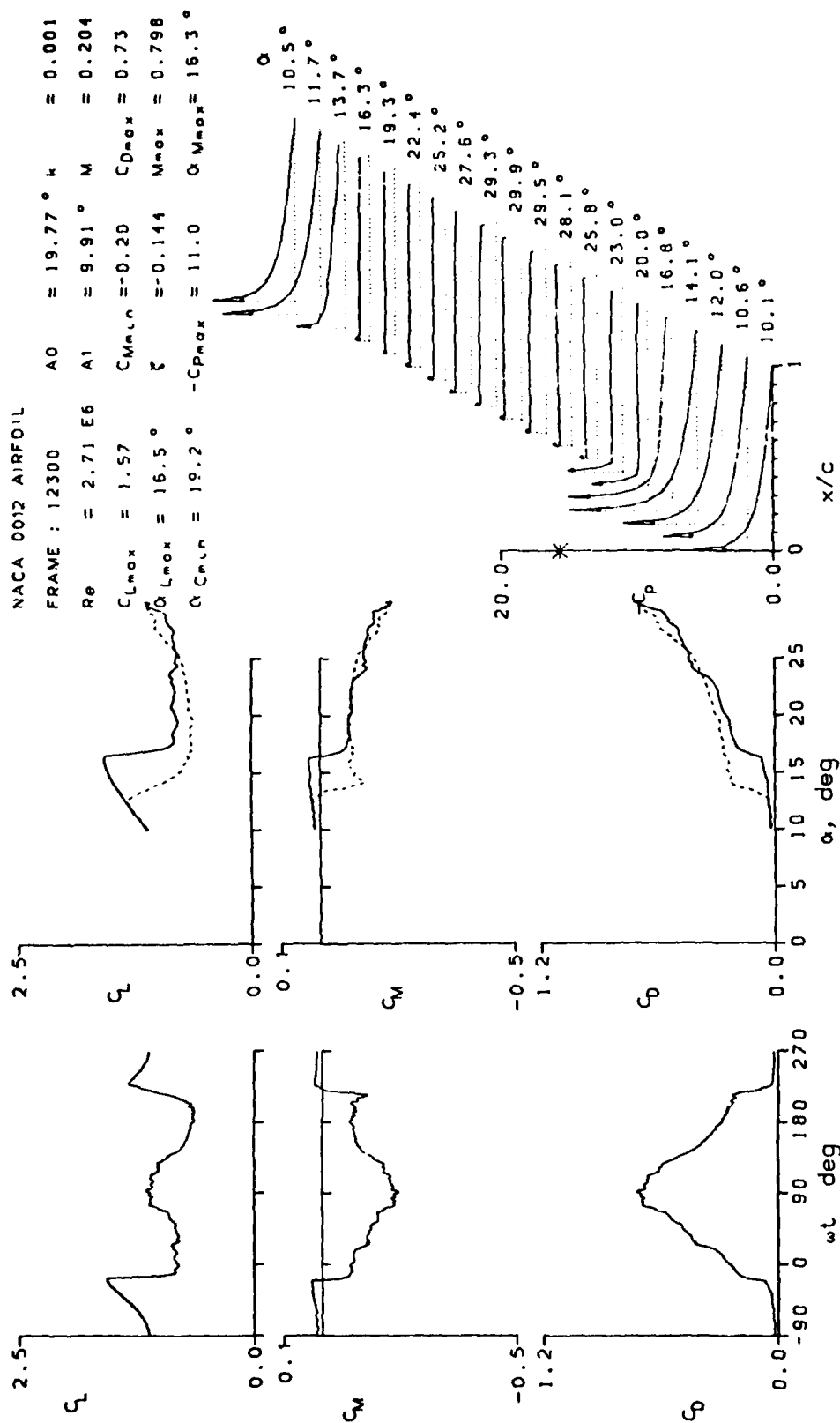


Figure 12.- Continued.

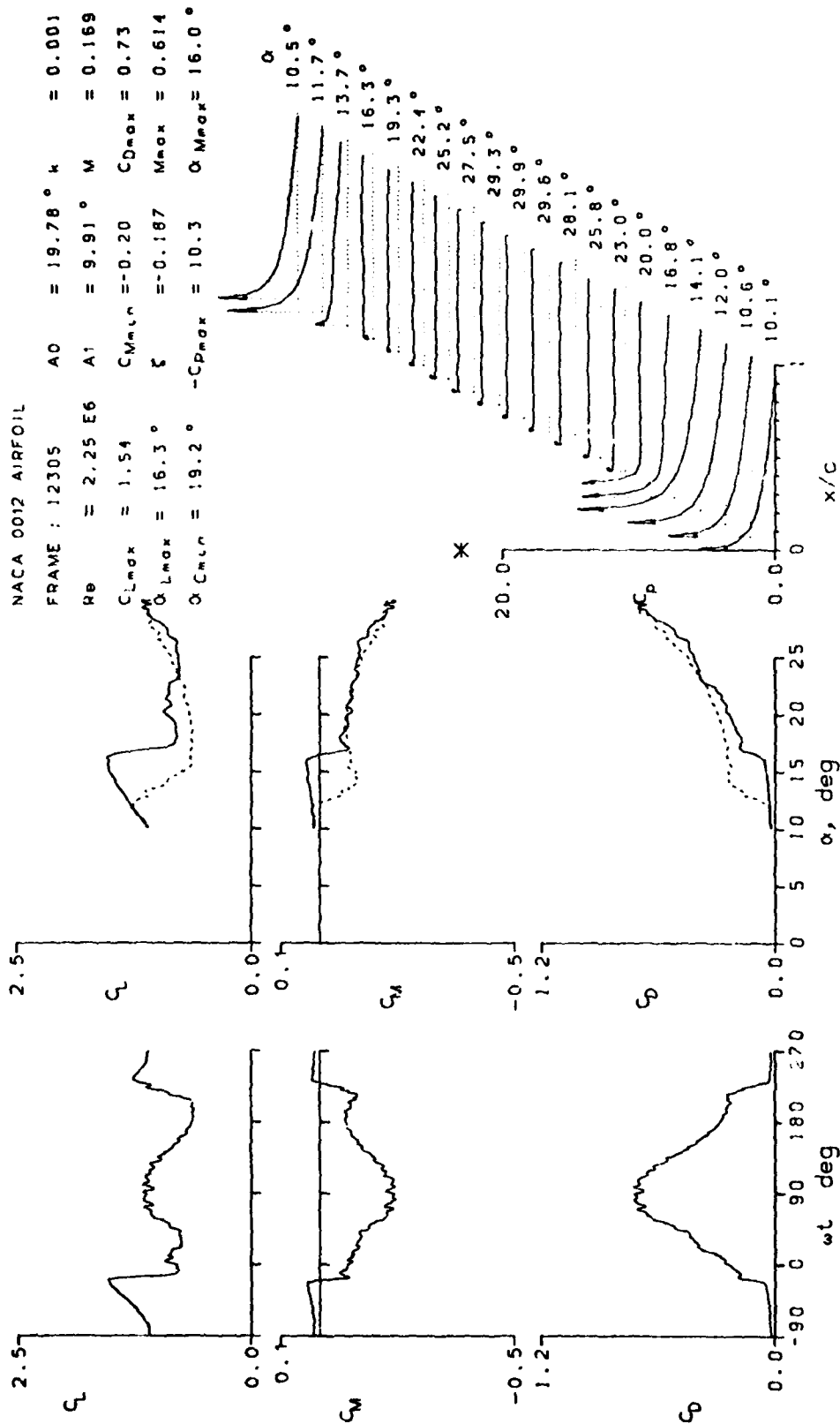


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 12310 $AC = 6.79^\circ$ $\mu = 0.001$
 $Re = 2.47 \text{ E}6$ $At = 10.00^\circ$ $M = 0.186$
 $C_{Lmax} = 1.54$ $C_{Mmin} = -0.03$ $C_{Dmax} = 0.24$
 $\alpha_{Lmax} = 15.9^\circ$ $\xi = -0.106$ $M_{max} = 0.691$
 $\alpha_{Cmin} = 6.3^\circ$ $-C_{Dmax} = 10.5$ $\alpha_{Mmax} = 16.2^\circ$

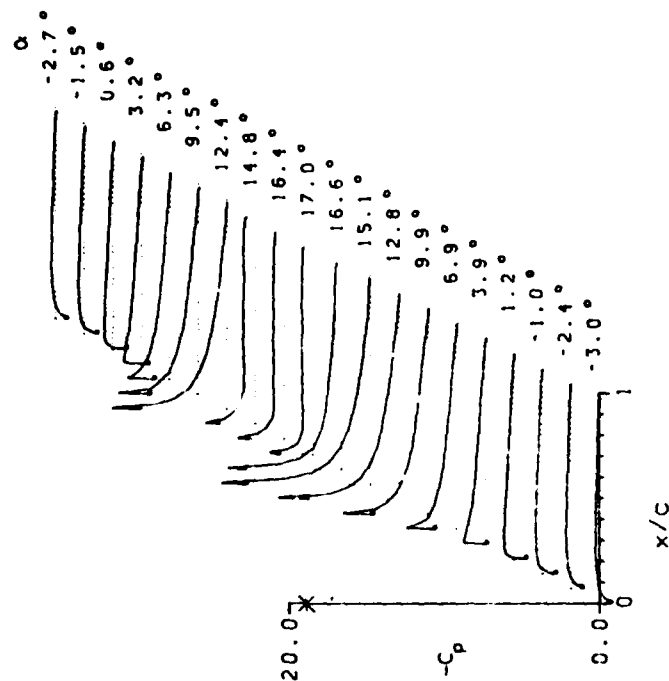
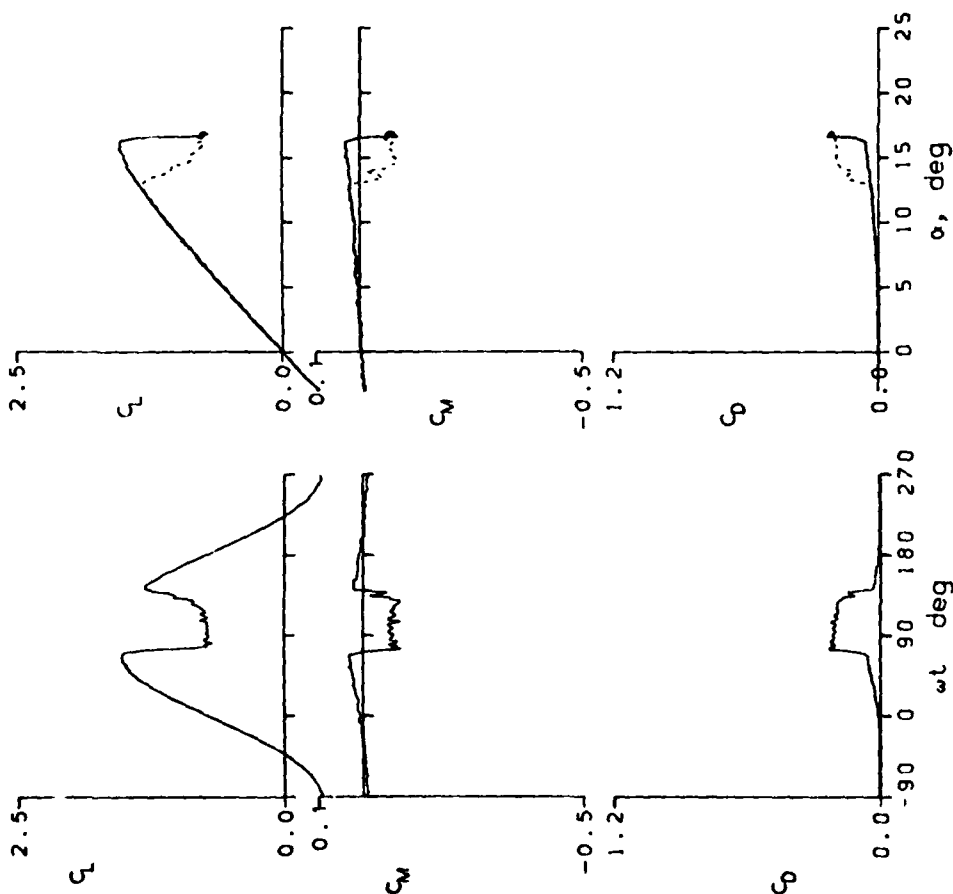


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 13021	$\alpha_0 = 6.79^\circ$	$\mu = 0.002$
$Re = 1.50 E6$	$A' = 10.00^\circ$	$M = 0.100$
$C_{Lmax} = 1.42$	$C_{VMIN} = -0.07$	$C_{Dmax} = 0.20$
$\alpha_{Lmax} = 14.9^\circ$	$\xi = -0.059$	$M_{max} = 0.348$
$\alpha_{CMIN} = 5.3^\circ$	$-C_{Dmax} = 8.9$	$\alpha_{Mmax} = 14.7^\circ$

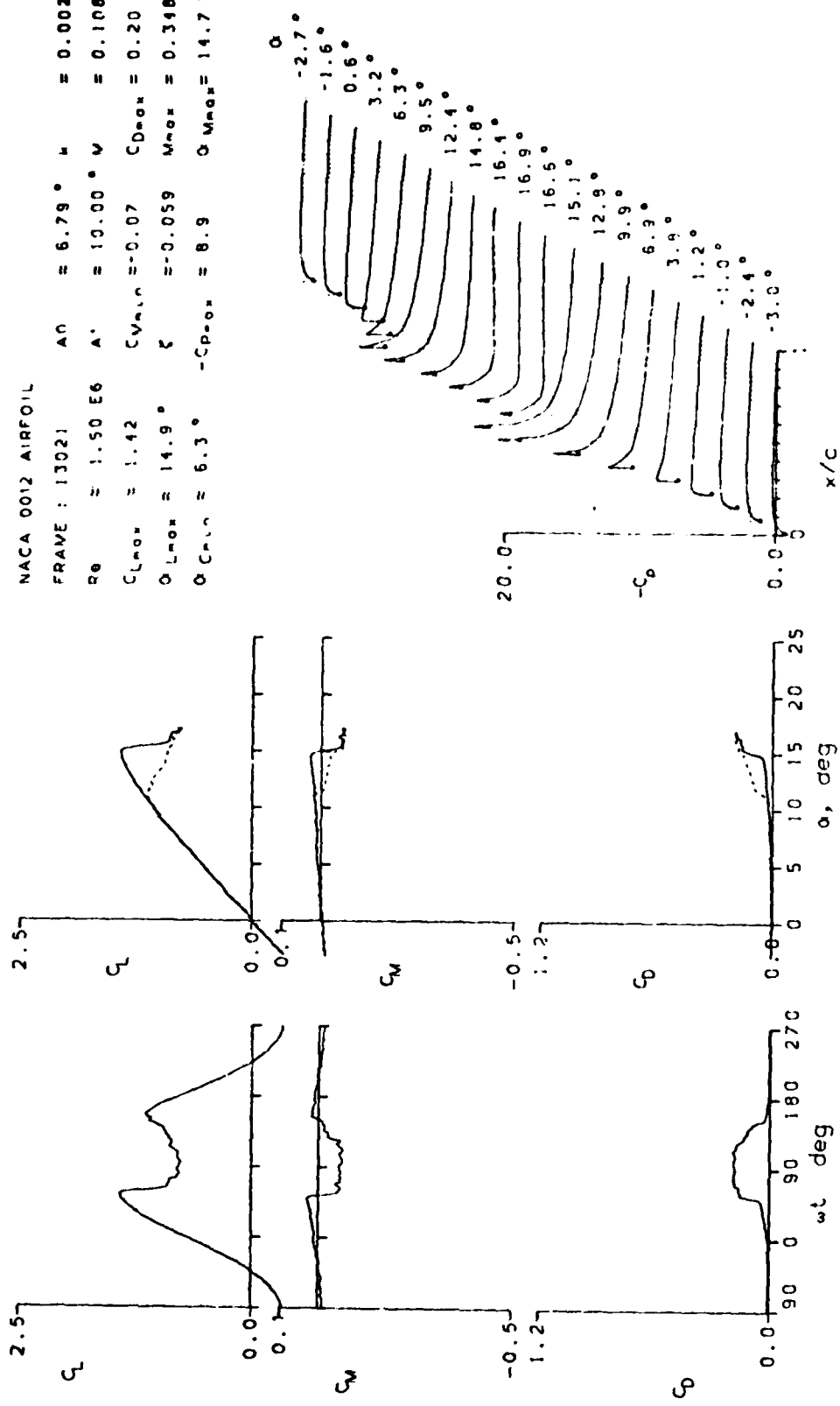


Figure 12.- Continued.

Figure 12.- Continued.

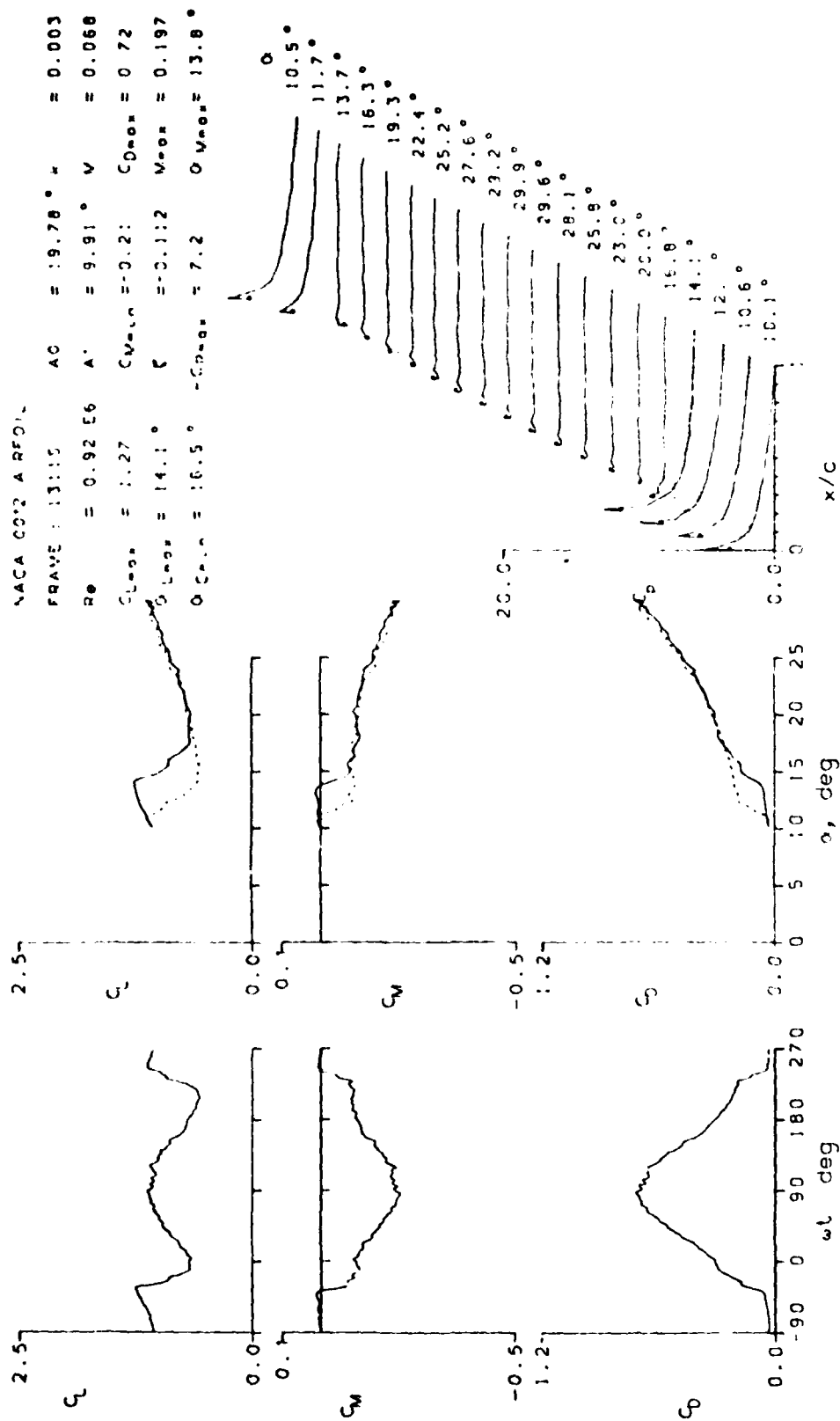


Figure 12.- Continued.

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SPACE ADMINISTRATION MOFFETT FIELD C..

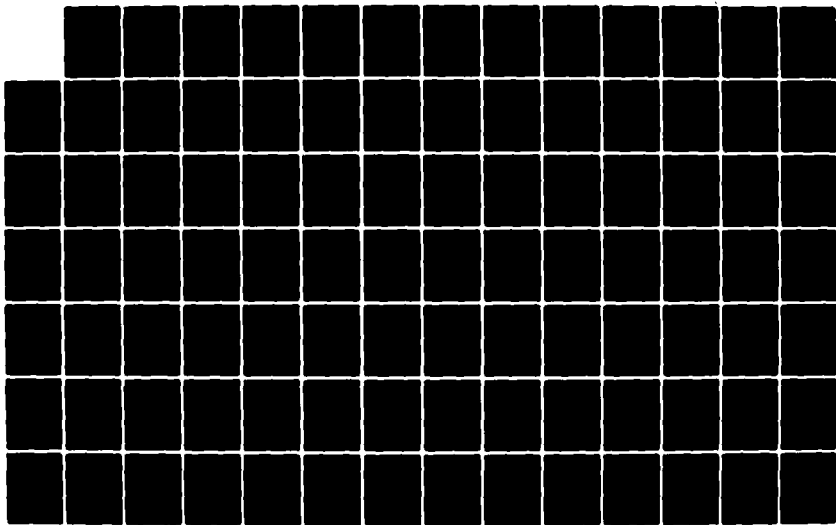
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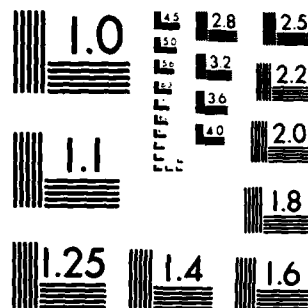
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NACA 0012 AIRFOIL

FRAME : 13120	AC = 4.84°	h = 0.003
Re = 0.98 E6	A* = 10.06°	V = 0.072
CLmax = 1.25	CMmin = -0.06	CDmax = 0.15
αLmax = 13.4°	ξ = -0.016	Vmax = 0.206
αCMmin = 4.3°	-CPmax = 7.1	αMmax = 13.7°

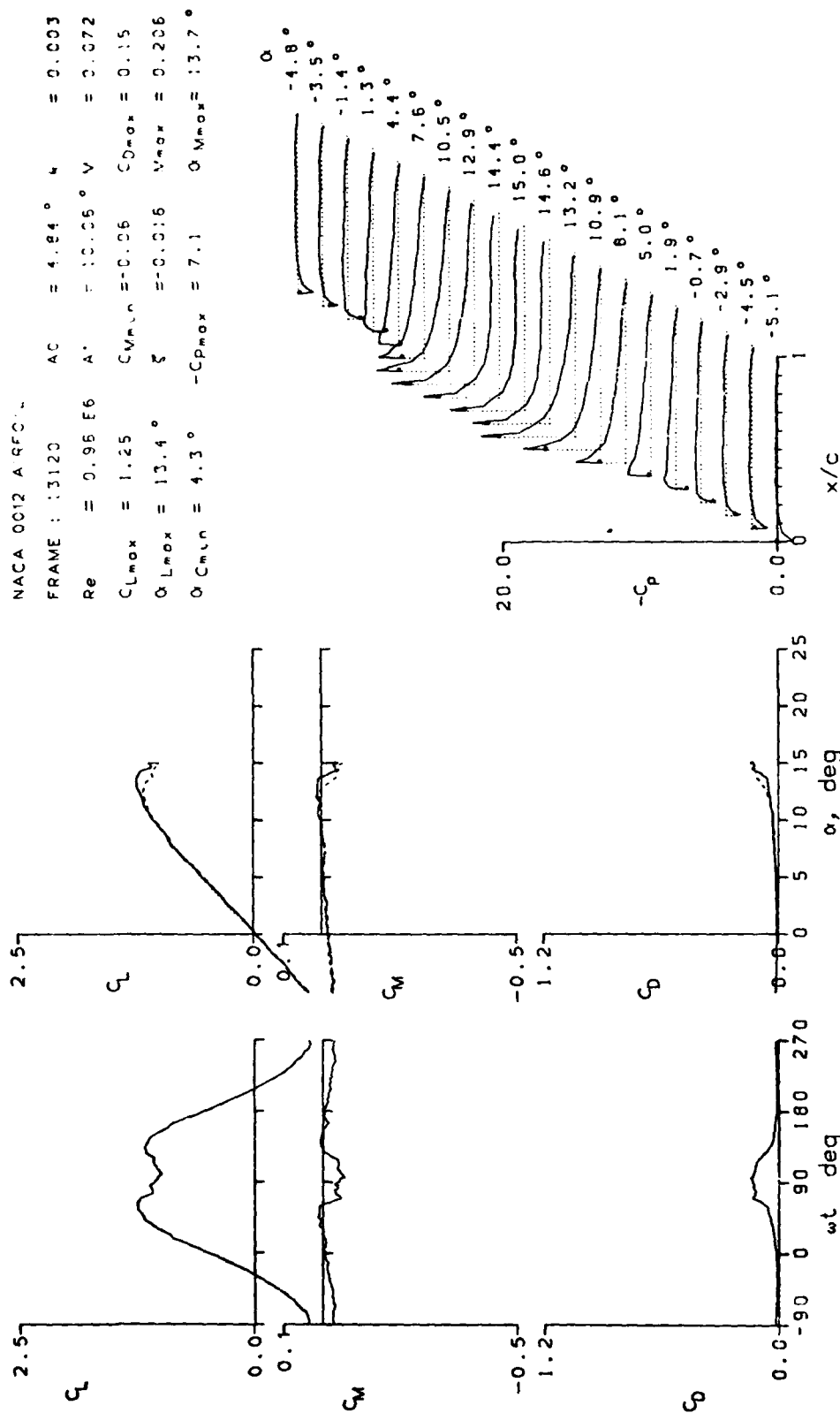


Figure 12.- Continued.

NACA 6012 AIRFOIL
 FRAME : 13205 $A_0 = 4.84^\circ$ $\mu = 0.003$
 $Re = 0.49 E6$ $A^* = 10.06^\circ M = 0.036$
 $C_{Lmax} = 1.13$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.23$
 $\alpha_{Lmax} = 12.6^\circ$ $\xi = -0.009$ $M_{max} = 0.094$
 $\alpha_{Cmin} = 4.3^\circ$ $-C_{Dmax} = 5.6$ $\alpha_{Mmax} = 12.1^\circ$

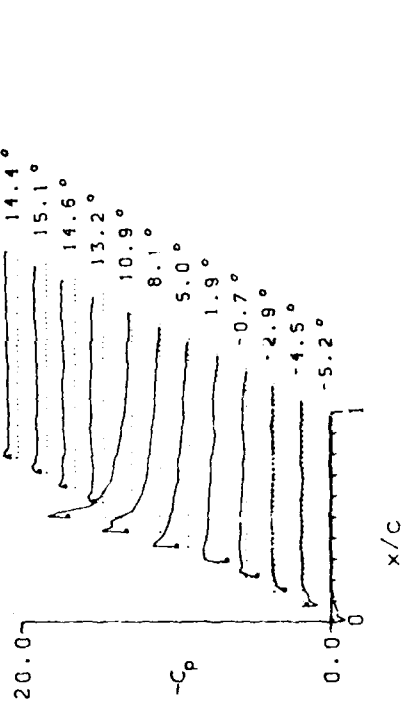
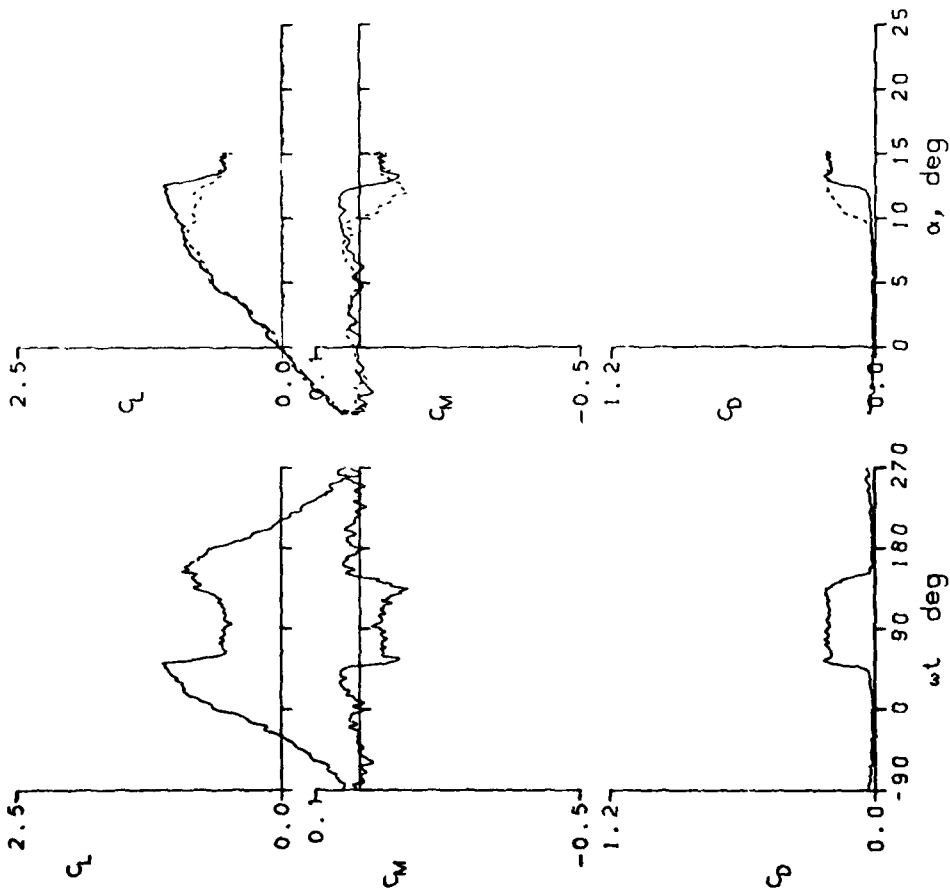


Figure 12.- Continued.

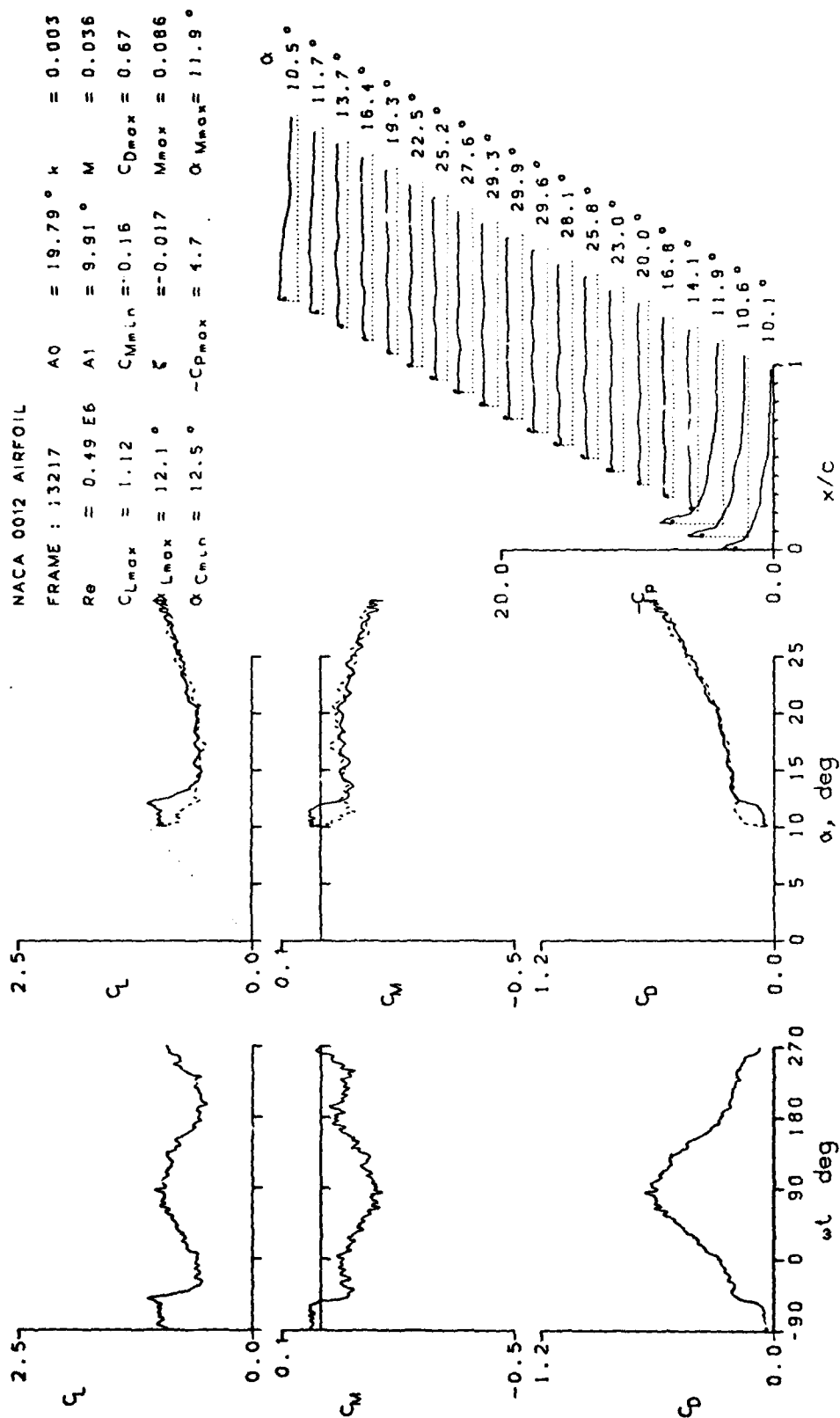


Figure 12.- Continued.

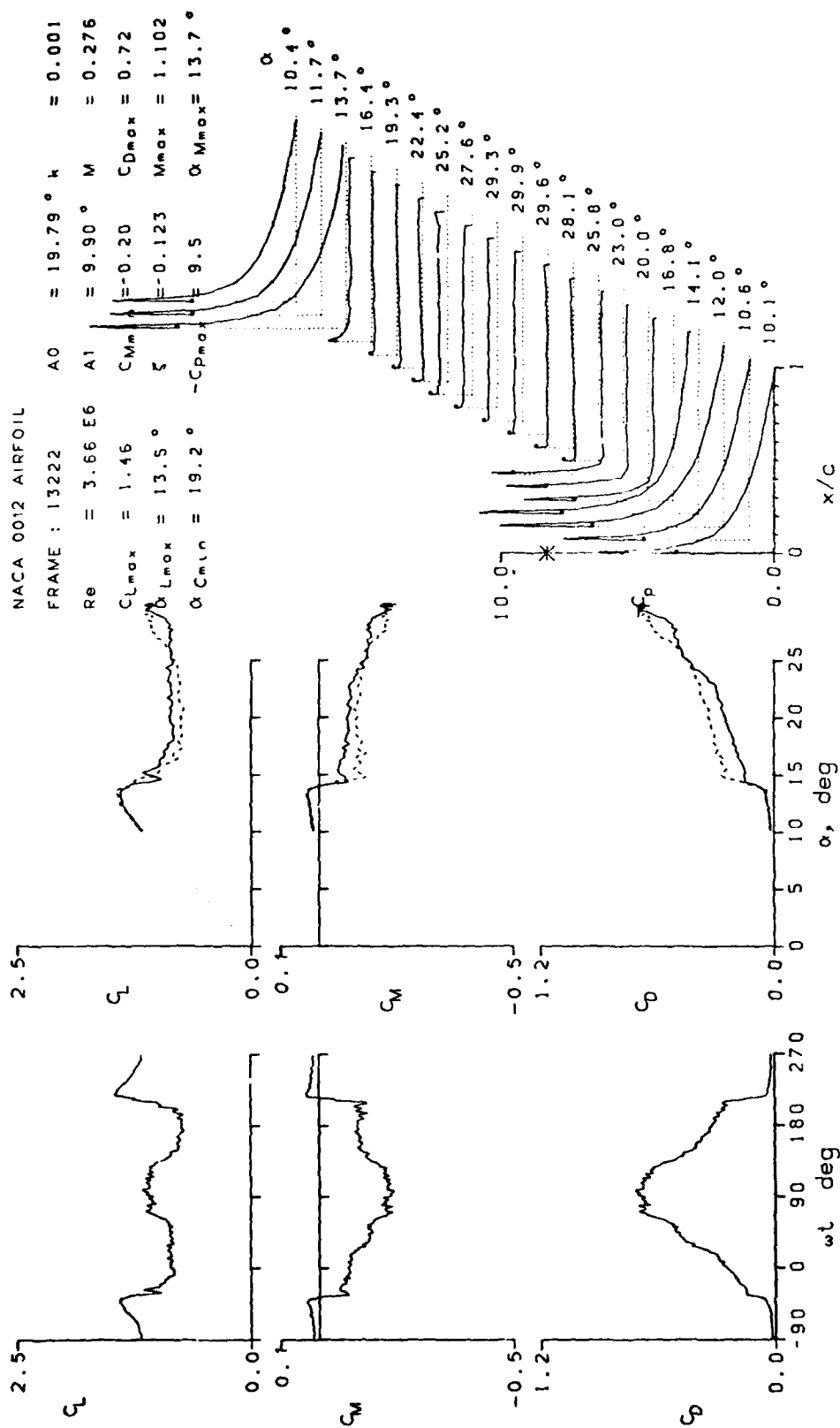


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 13303	A0 = 6.80°	k = 0.001
Re = 3.30 E6	A1 = 10.00°	M = 0.247
C _{Lmax} = 1.57	C _{Mmin} = -0.08	C _{Dmax} = 0.19
α _{Lmax} = 15.5°	ζ = -0.057	M _{max} = 1.033
α _{Cmin} = 6.3°	-C _{pmax} = 11.0	α _{Mmax} = 15.8°

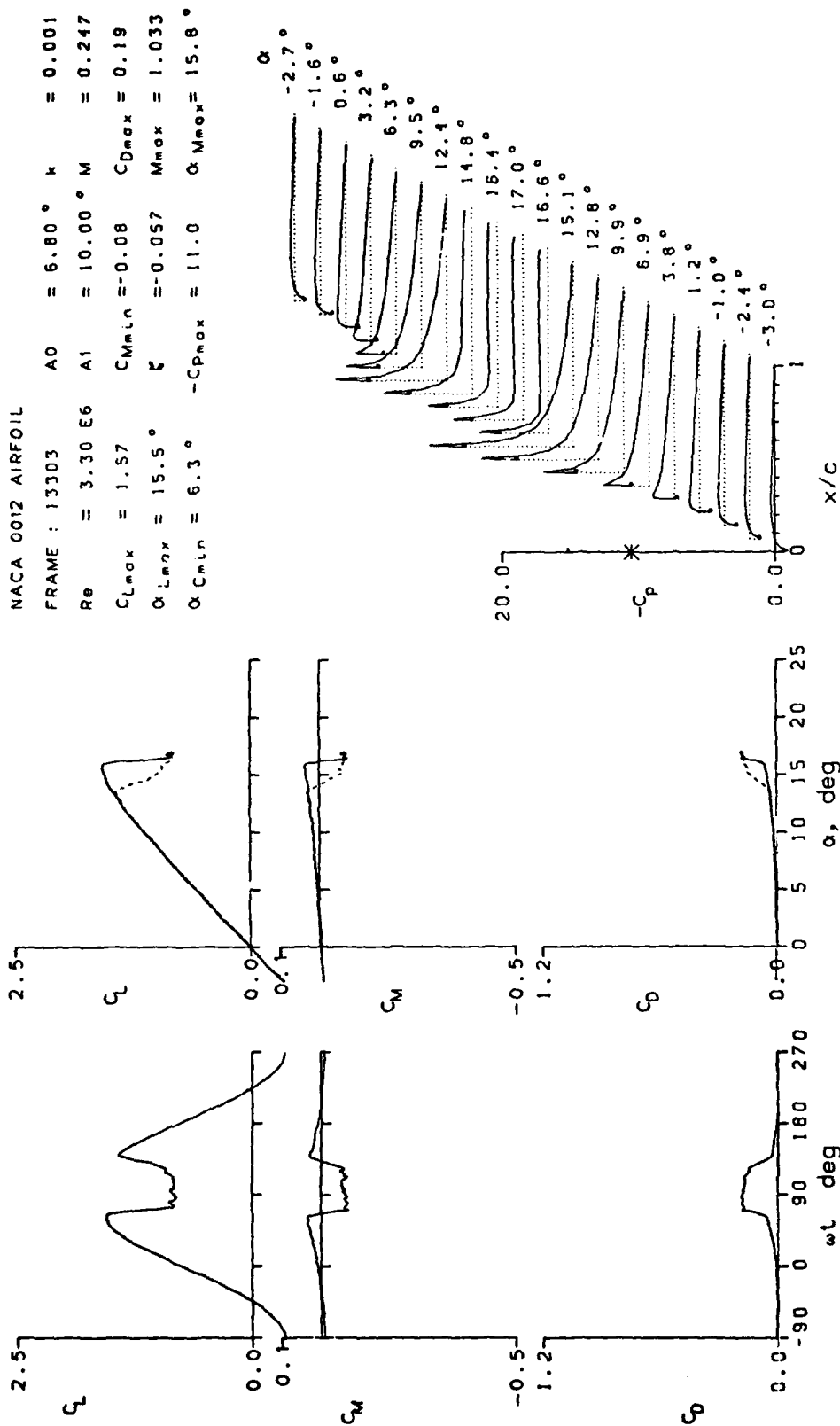


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 13308	A0 = 6.79°	k = 0.001
Re = 2.88 E6	A1 = 10.00°	M = 0.215
C _{Lmax} = 1.64	C _{Mmin} = -0.08	C _{Dmax} = 0.21
α _{Lmax} = 16.2°	ξ = -0.100	M _{max} = 0.874
α _{Cmin} = 6.3°	-C _{Dmax} = 11.5	α _{Mmax} = 16.3°

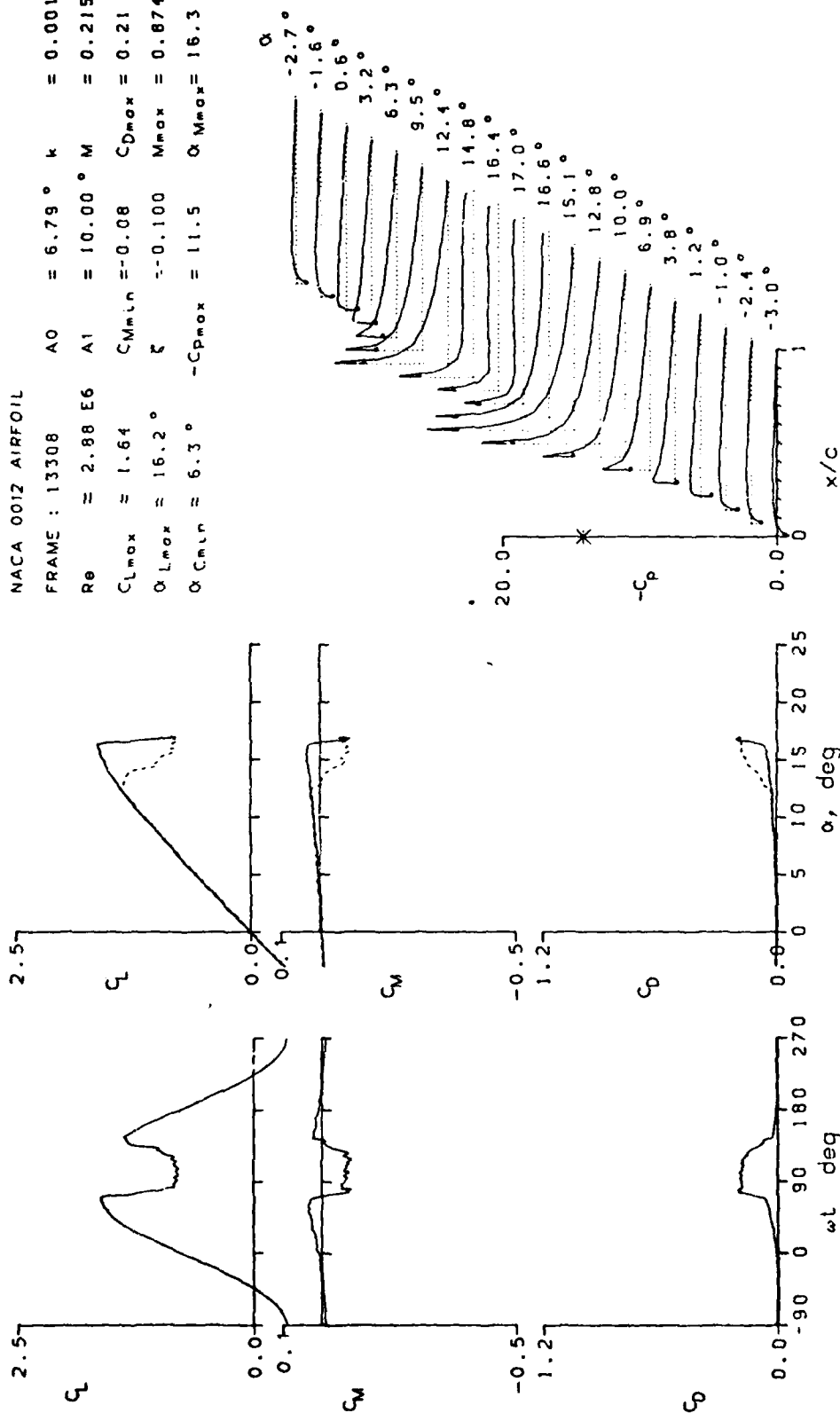


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 13310 $A_0 = 6.79^\circ$ $k = 0.001$
 $R_0 = 2.88 \text{ E6}$ $A_1 = 10.00^\circ$ $M = 0.216$
 $C_{Lmax} = 1.64$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.21$
 $\alpha_{Lmax} = 16.0^\circ$ $\xi = -0.072$ $M_{max} = 0.880$
 $\alpha_{Cmin} = 6.3^\circ$ $-C_{Dmax} = 11.5$ $\alpha_{Mmax} = 16.1^\circ$

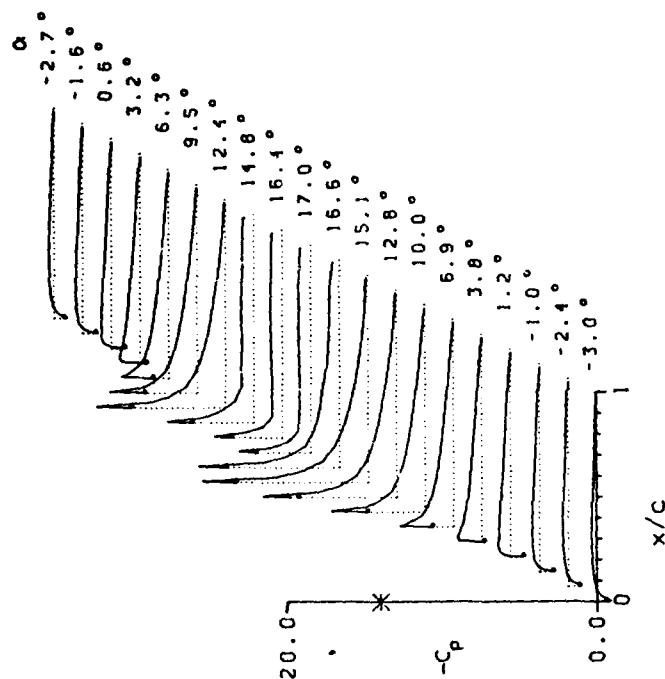
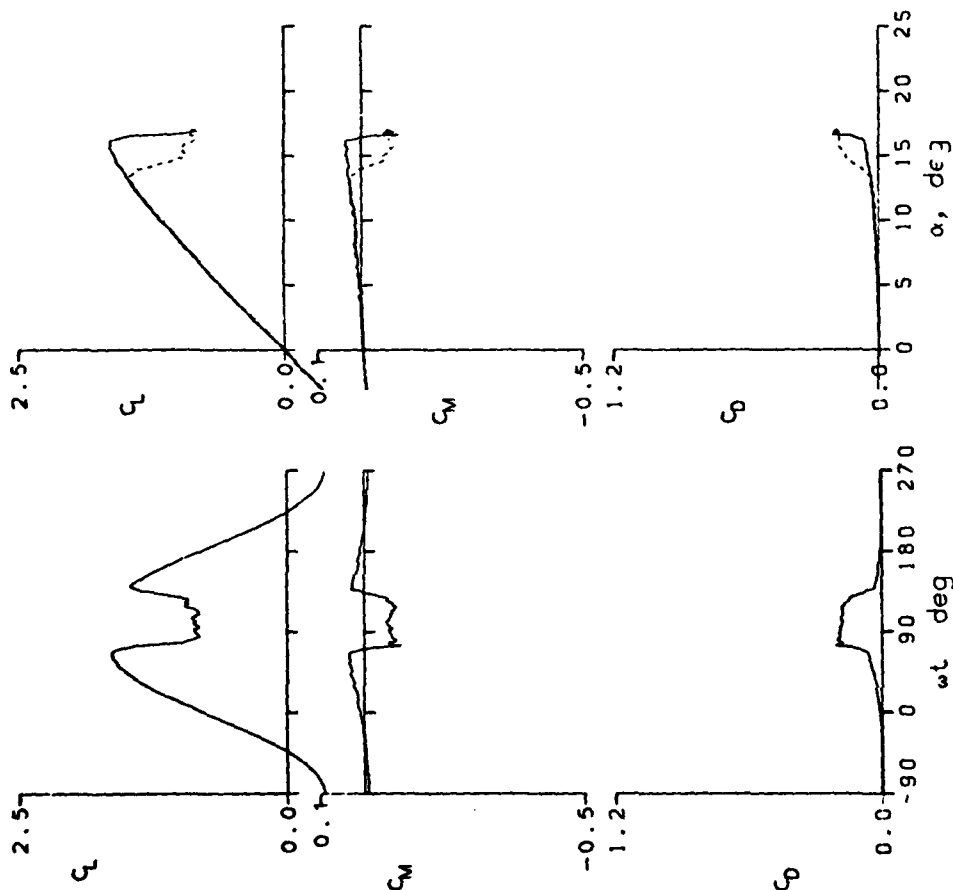


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 17313	A0 = 6.80°	k = 0.001	TRIP
R0 = 2.40 E6	A1 = 10.00°	M = 0.181	
C _{Lmax} = 1.47	C _{Mmin} = -0.11	C _{Dmax} = 0.26	
α _{Lmax} = 15.1°	ξ = -0.135	M _{max} = 0.624	
α _{Cmin} = 6.3°	-C _{Dmax} = 9.2	α _{Mmax} = 15.1°	

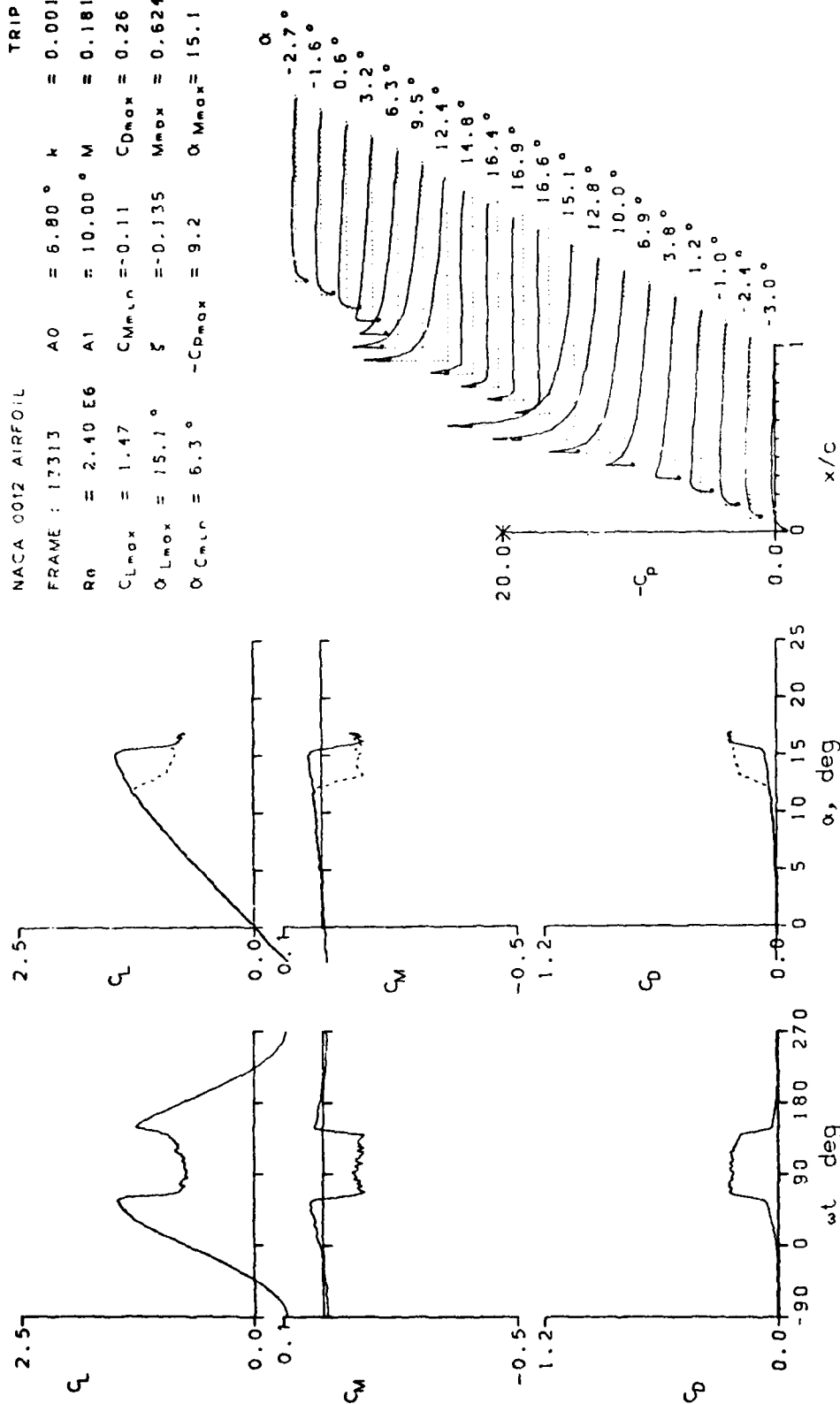


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP

FRAME : 13321 $A_0 = 6.85^\circ$ $k = 0.001$

$Re = 3.74 \text{ E}6$ $A_1 = 9.97^\circ$ $M = 0.294$

$C_{Lmax} = 1.37$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.31$

$\alpha_{Lmax} = 13.1^\circ$ $\xi = -0.081$ $M_{max} = 1.217$

$\alpha_{Cmin} = 6.4^\circ$ $-C_{Dmax} = 9.5$ $\alpha_{Mmax} = 13.1^\circ$

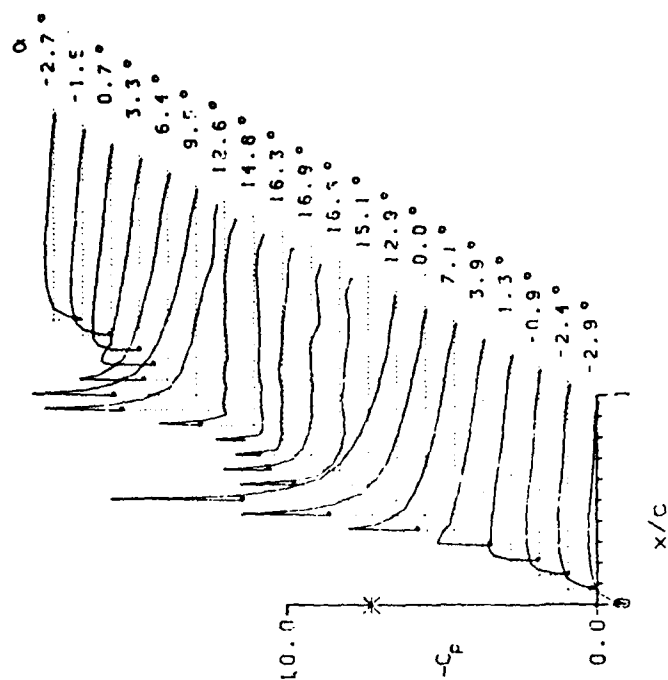
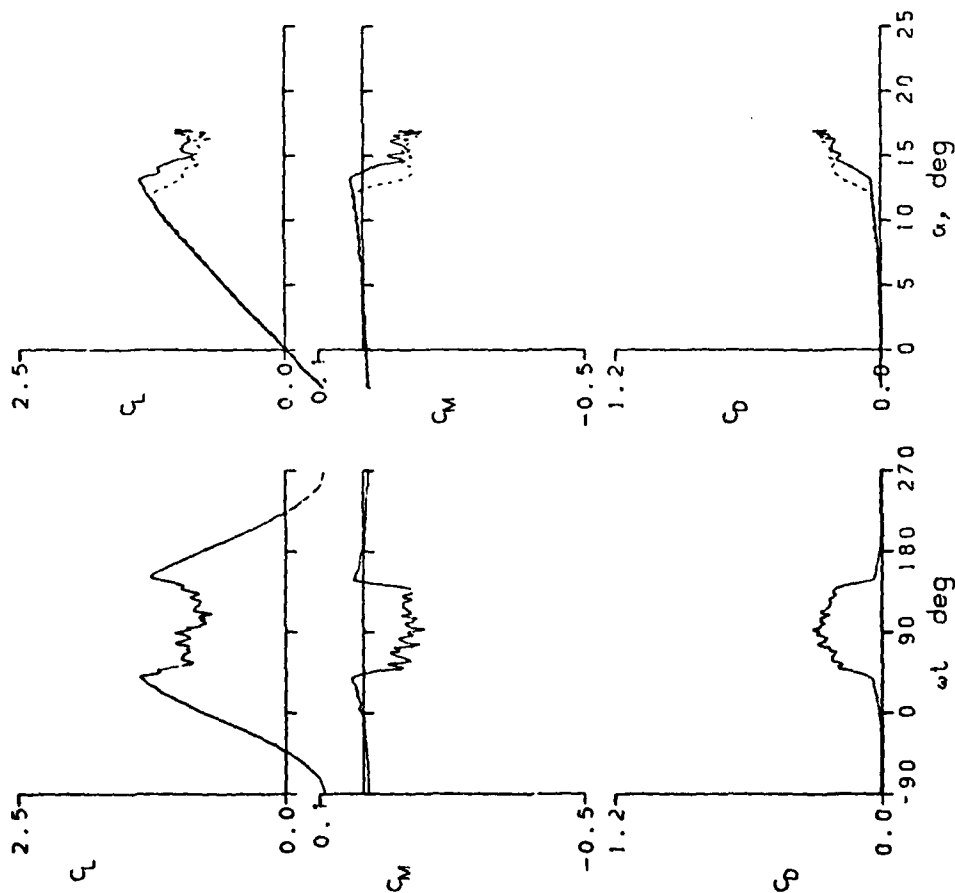


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14019	$A_0 = 14.83^\circ$	$k = 0.050$	TRIP
$Re = 2.45 \times 10^6$	$A' = 9.87^\circ$	$M = 0.183$	
$C_{Lmax} = 1.92$	$C_{Mmin} = -0.35$	$C_{Dmax} = 0.68$	
$\alpha_{Lmax} = 13.8^\circ$	$\xi = 0.253$	$M_{max} = 0.694$	
$\alpha_{Cmin} = 14.4^\circ$	$-C_{pmax} = 11.0$	$\alpha_{Mmax} = 17.7^\circ$	

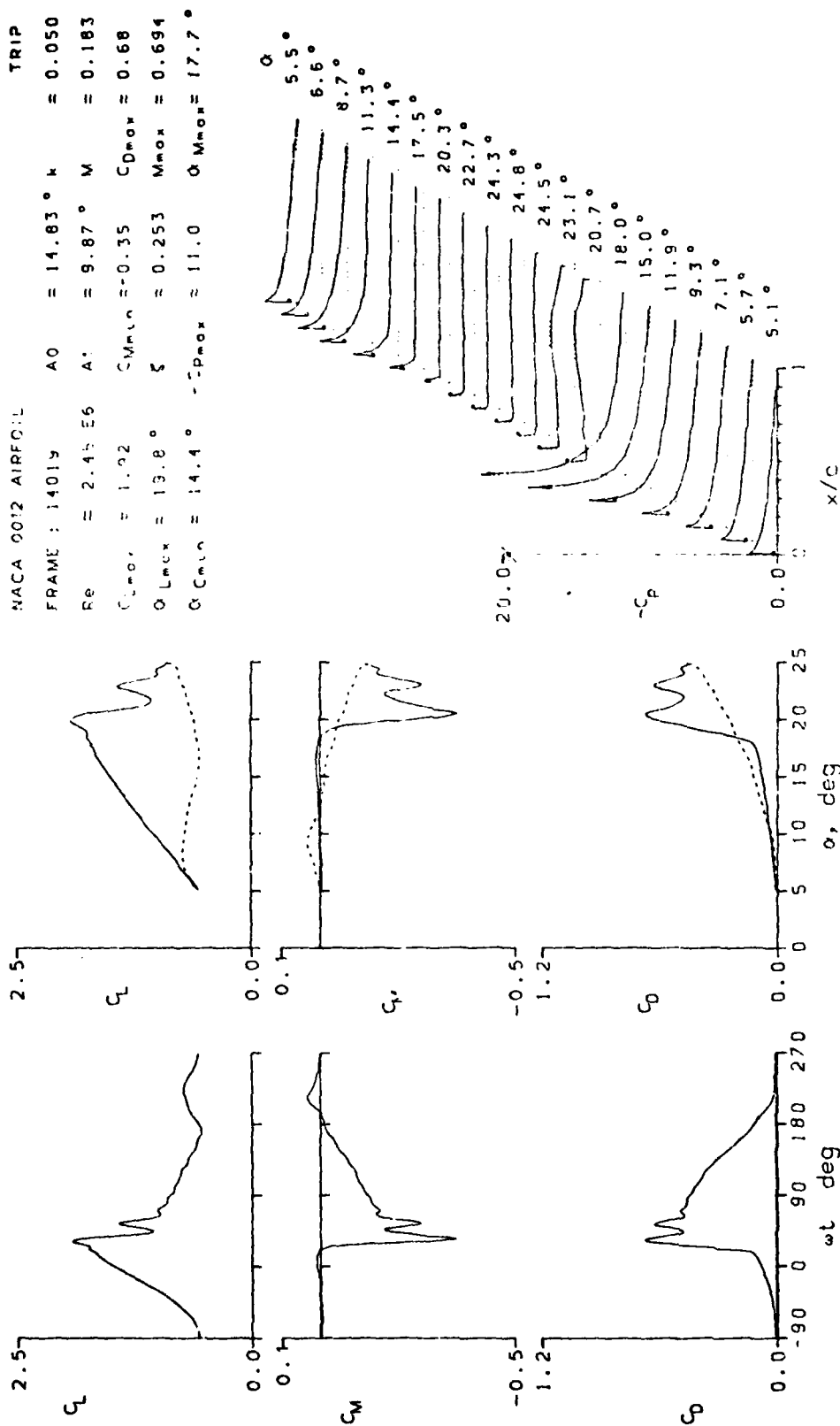


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14021	A0 = 14.83°	k = 0.100
Re = 2.43 EG	A1 = 9.90°	M = 0.182
C _{Lmax} = 2.09	C _{Mmin} = -0.42	C _{Dmax} = 0.87
α _{Lmax} = 21.8°	ξ = 0.257	M _{max} = 0.710
α _{Cmin} = 14.4°	-C _{Dmax} = 11.5	α _{Mmax} = 18.6°

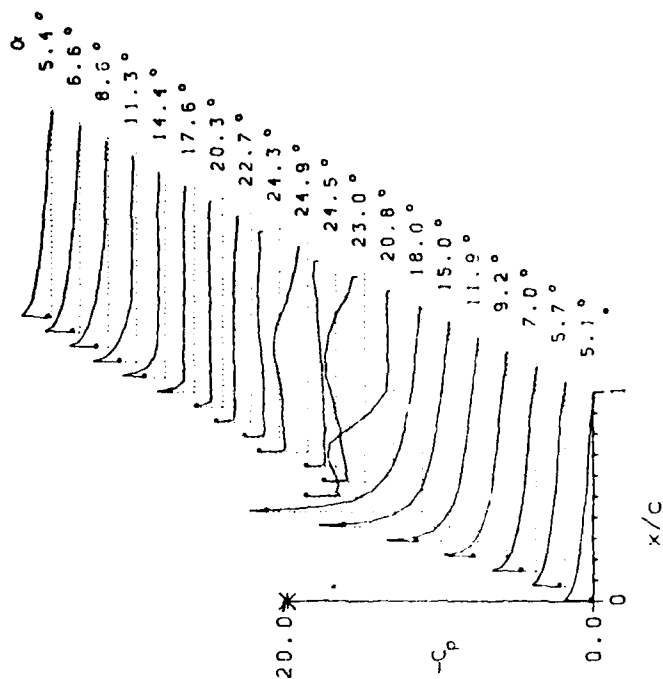
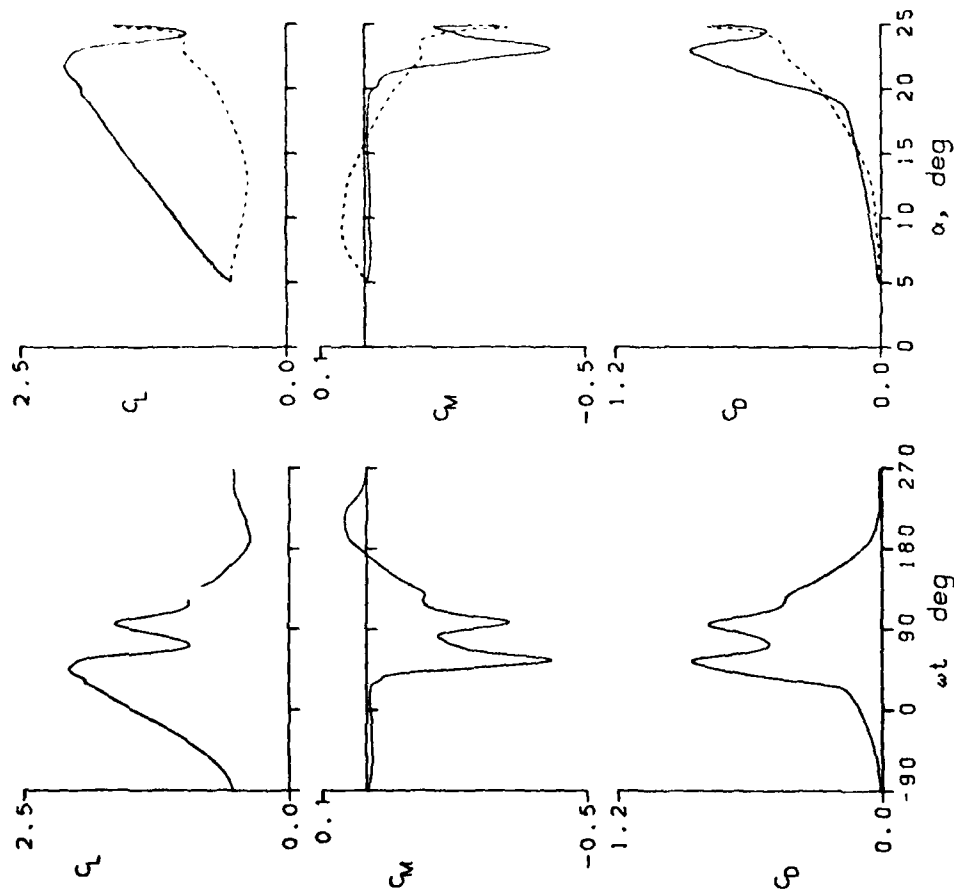


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14023	AO = 14.83°	h = 0.150
Re = 2.43E6	A' = 9.89°	M = 0.182
C _{Lmax} = 2.17	C _{Mmin} = -0.46	C _{Dmax} = 1.00
α _{Lmax} = 23.6°	ξ = 0.011	M _{max} = 0.723
α _{Cmin} = 14.4°	-C _{Dmax} = 12.0	α _{Mmax} = 19.5°

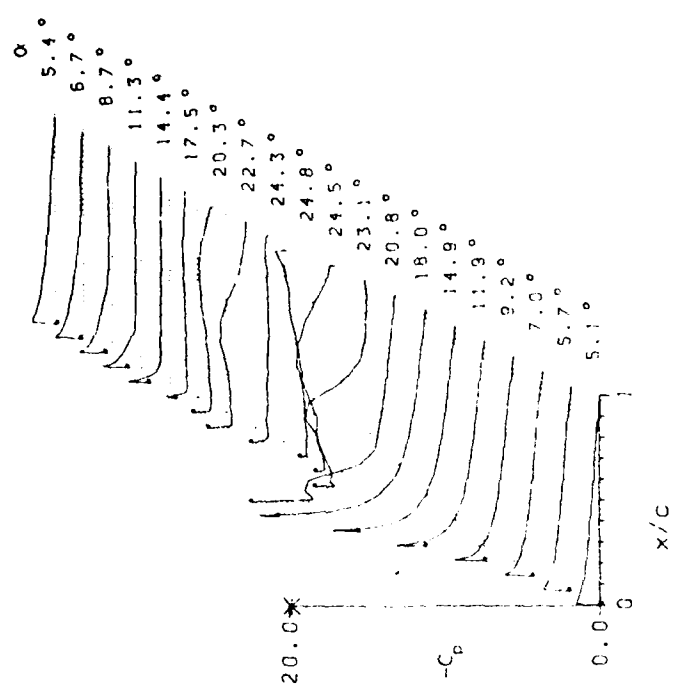
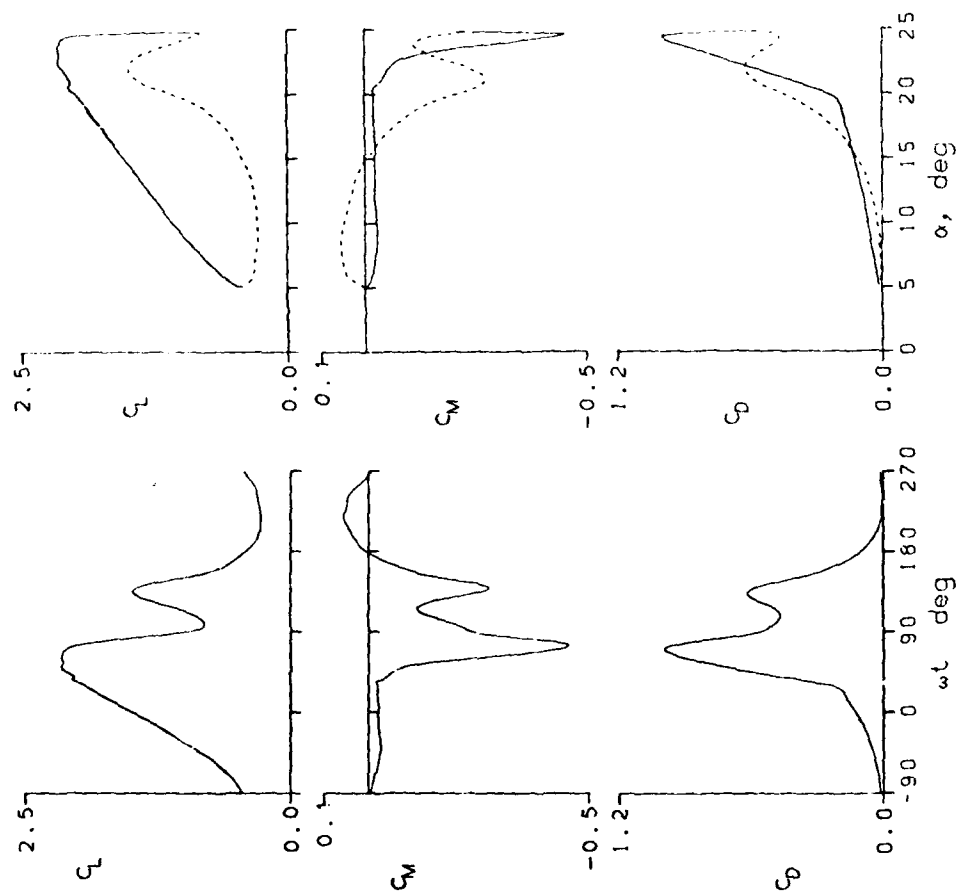


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP

FRAME : 14104 $A_0 = 14.83^\circ$ $k = 0.050$

$Re = 2.45 \times 10^6$ $A_1 = 9.90^\circ$ $M = 0.183$

$C_{Lmax} = 1.9$ $C_{Mmin} = -0.35$ $C_{Dmax} = 0.67$

$\alpha_{Lmax} = 19.8^\circ$ $\zeta = 0.251$ $M_{max} = 0.692$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{pmax} = 10.9$ $\alpha_{Mmax} = 17.8^\circ$

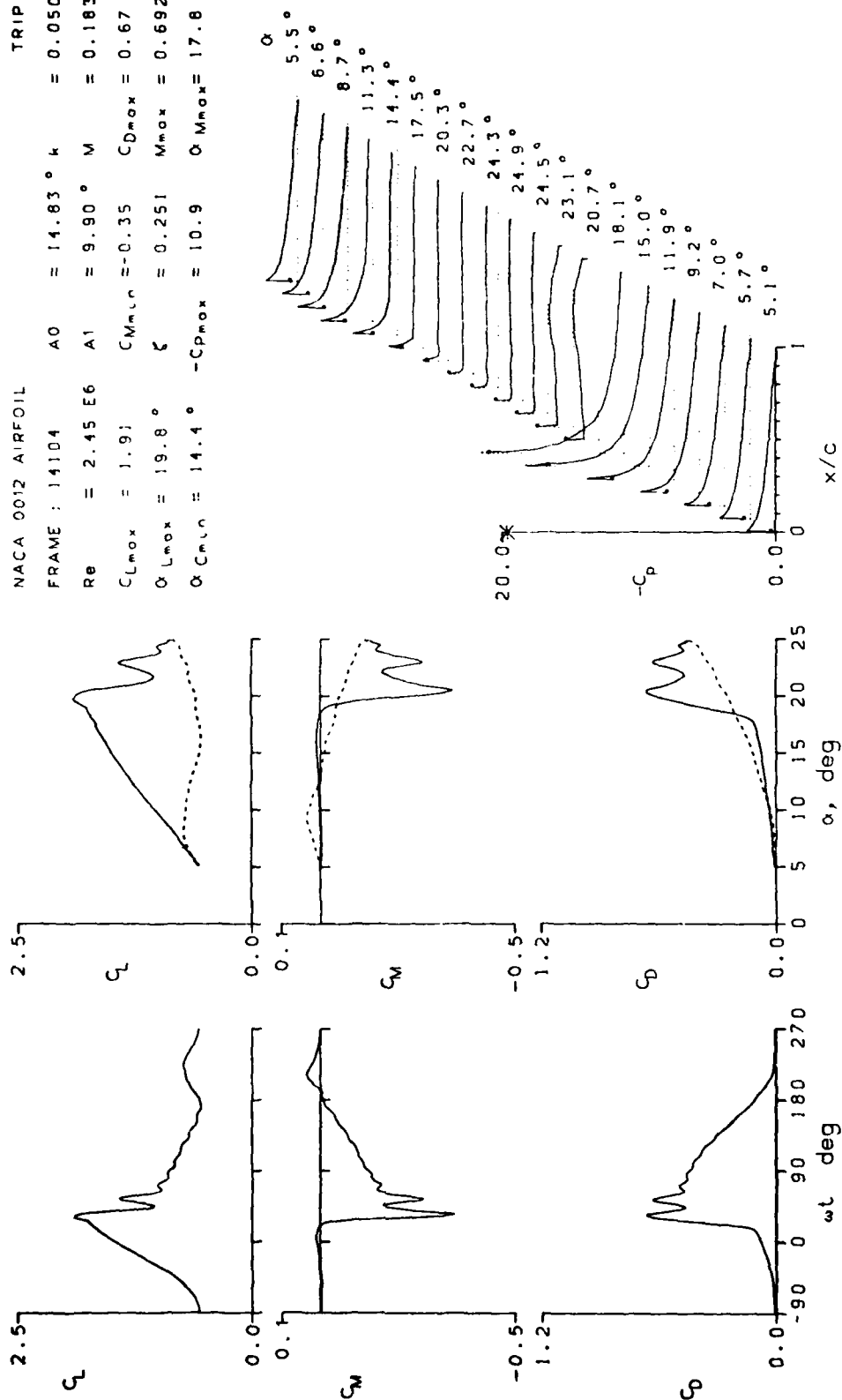


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14:05	$A_0 = 14.83^\circ$	$k = 0.099$	TRIP
$Re = 2.45 \text{ E}6$	$A' = 9.90^\circ$	$M = 0.184$	
$C_{Lmax} = 2.07$	$C_{Mmin} = -0.42$	$C_{Dmax} = 0.86$	
$\alpha_{Lmax} = 21.9^\circ$	$\zeta = 0.269$	$M_{max} = 0.714$	
$\alpha_{Cmin} = 14.4^\circ$	$-C_{Dmax} = 11.5$	$\alpha_{Mmax} = 18.6^\circ$	

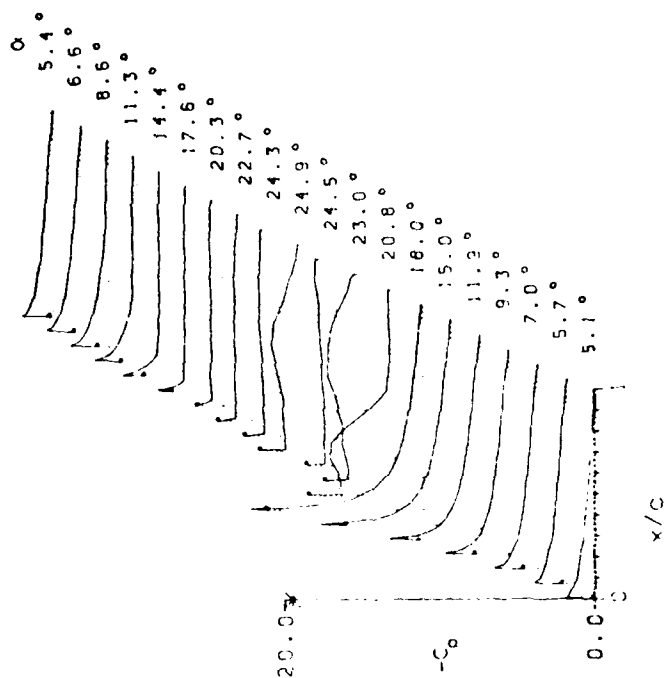
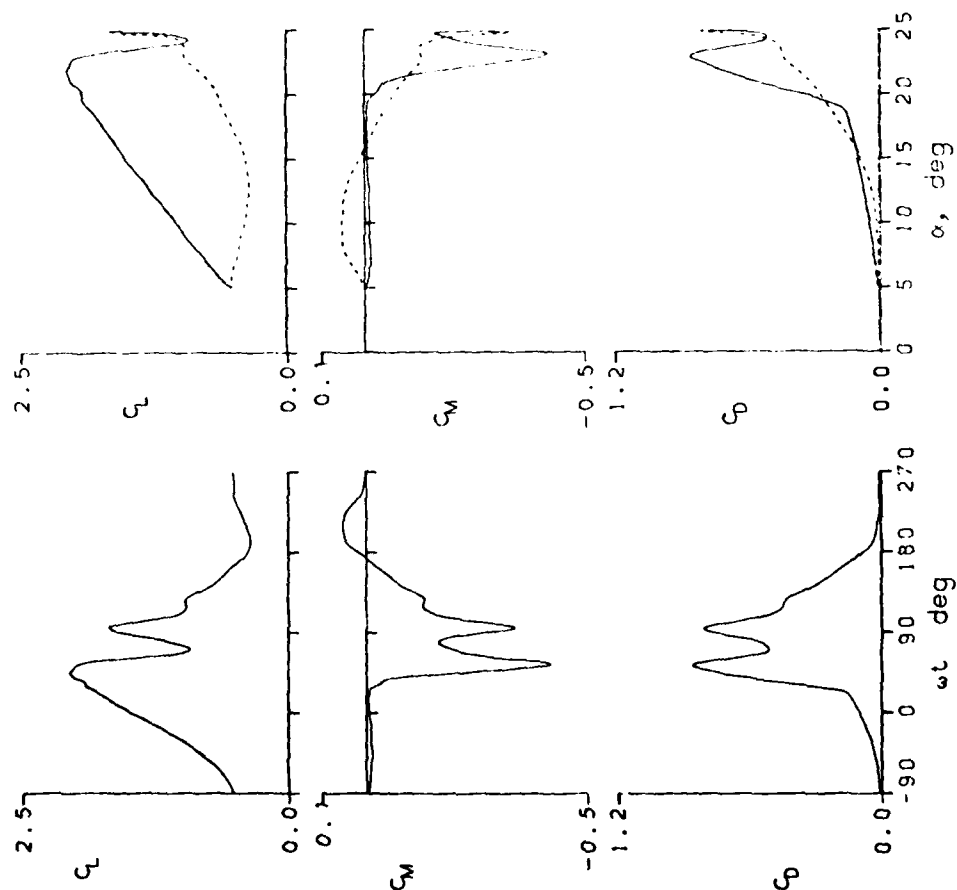


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14108	A0 = 14.82°	k = 0.149	TRIP
Re = 2.44 E6	A1 = 9.89°	M = 0.183	
CLmax = 2.16	CMmin = -0.45	CDmax = 0.99	
αLmax = 22.5°	ξ = 0.029	Mmax = 0.727	
αCMmin = 14.4°	-CDmax = 11.9	αMmax = 19.5°	

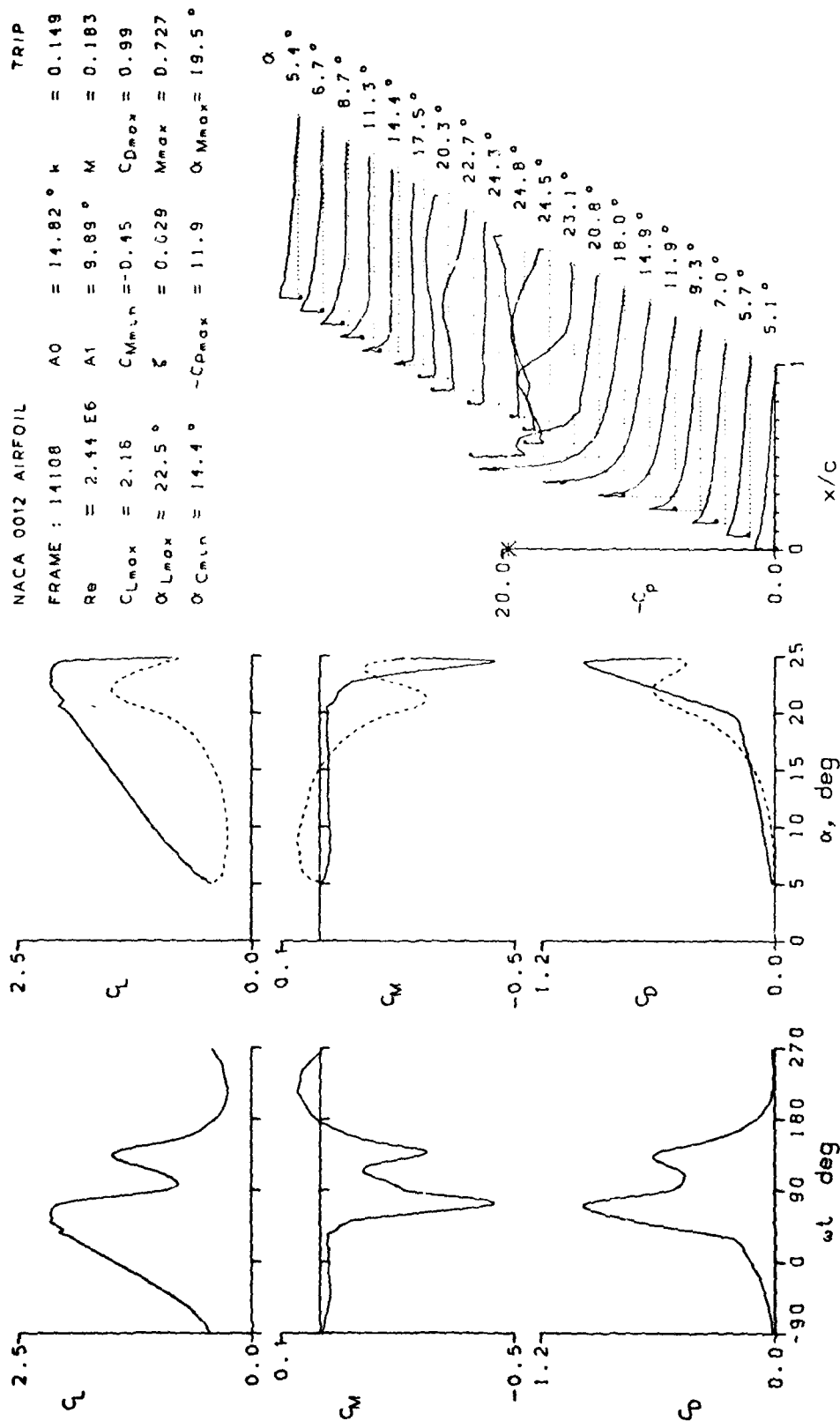


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME: 14117	A0 = 14.85°	k = 0.026	TRIP
Re = 3.84 E6	A1 = 9.90°	M = 0.293	
CLmax = 1.56	CMmin = -0.23	CDmax = 0.46	
αLmax = 15.0°	ξ = 0.088	Mmax = 1.325	
αCmin = 14.4°	-CPmax = 10.5	αMmax = 14.4°	

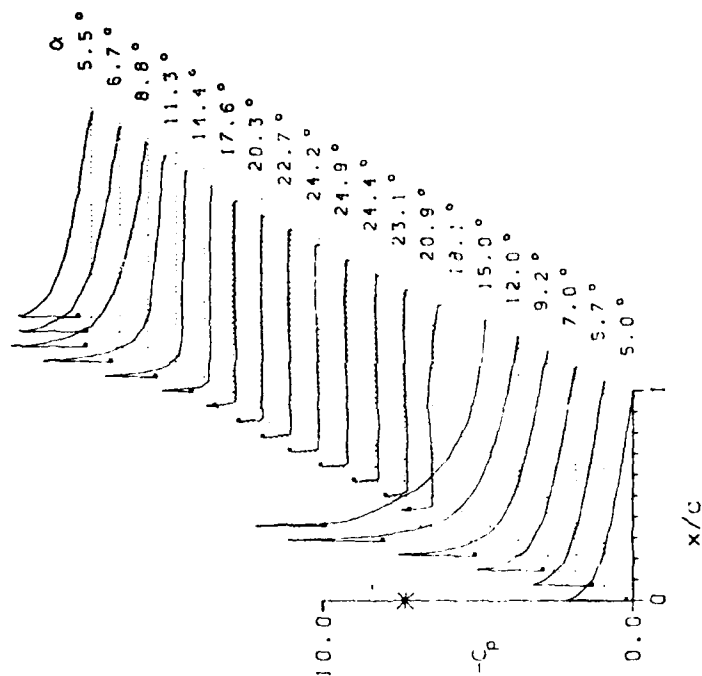
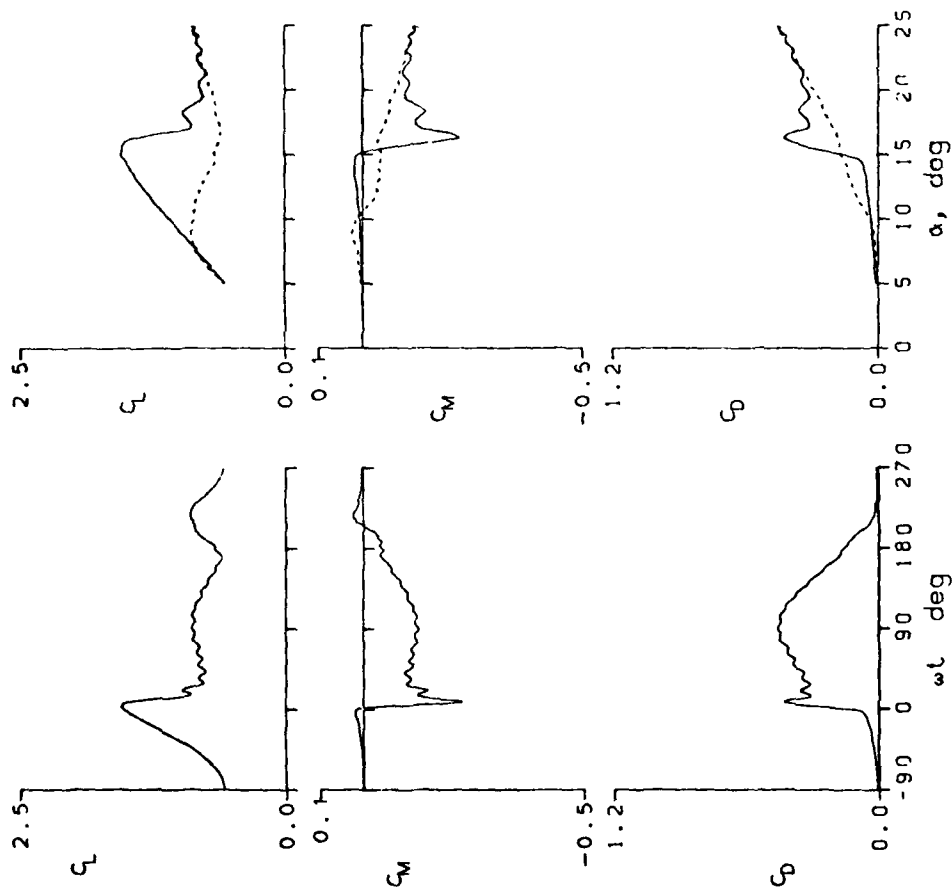


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP

FRAME : 14:19 $A_0 = 14.82^\circ$ $k = 0.051$

$Re = 3.82 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.293$

$C_{Lmax} = 1.71$ $C_{Mmin} = -0.31$ $C_{Dmax} = 0.56$

$\alpha_{Lmax} = 17.5^\circ$ $\zeta = 0.341$ $M_{max} = 1.336$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 10.6$ $\alpha_{Mmax} = 15.0^\circ$

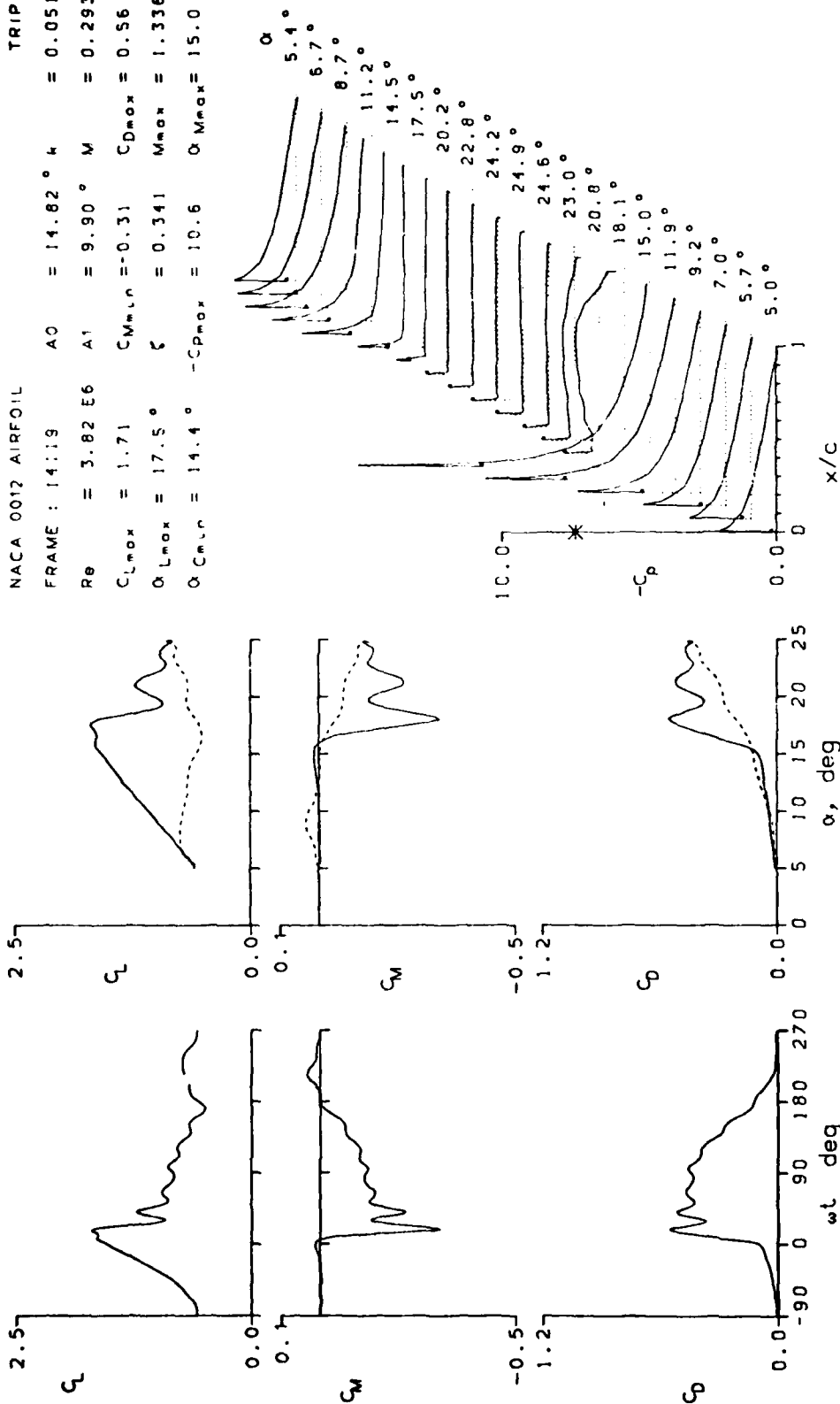


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP
 FRAME : 14200 A0 = 14.83° k = 0.025
 Re = 3.82 E6 A1 = 9.88° M = 0.294
 C_{Lmax} = 1.54 C_{Mmin} = -0.24 C_{Dmax} = 0.46
 α_{Lmax} = 14.7° ζ = 0.055 M_{max} = 1.335
 α_{Cmin} = 14.4° -C_{Dmax} = 10.5 α_{Mmax} = 14.4°

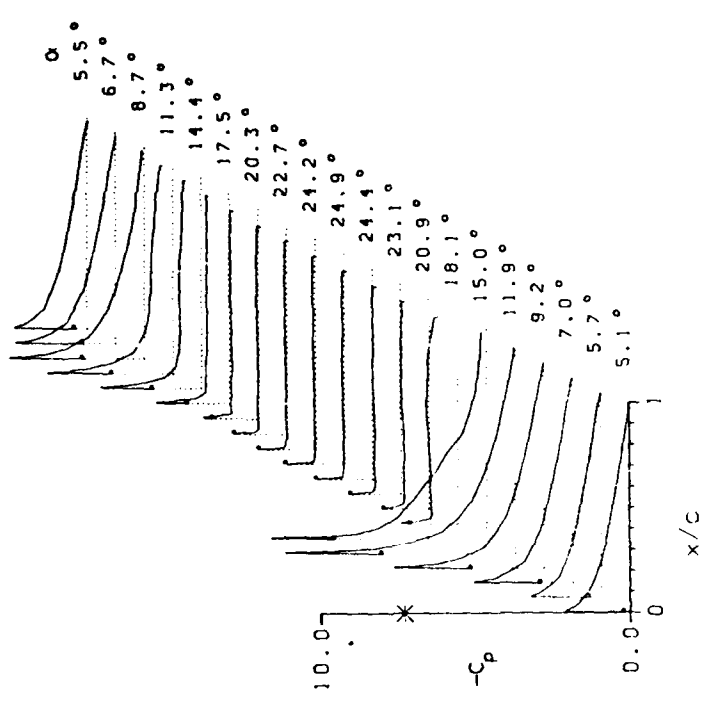
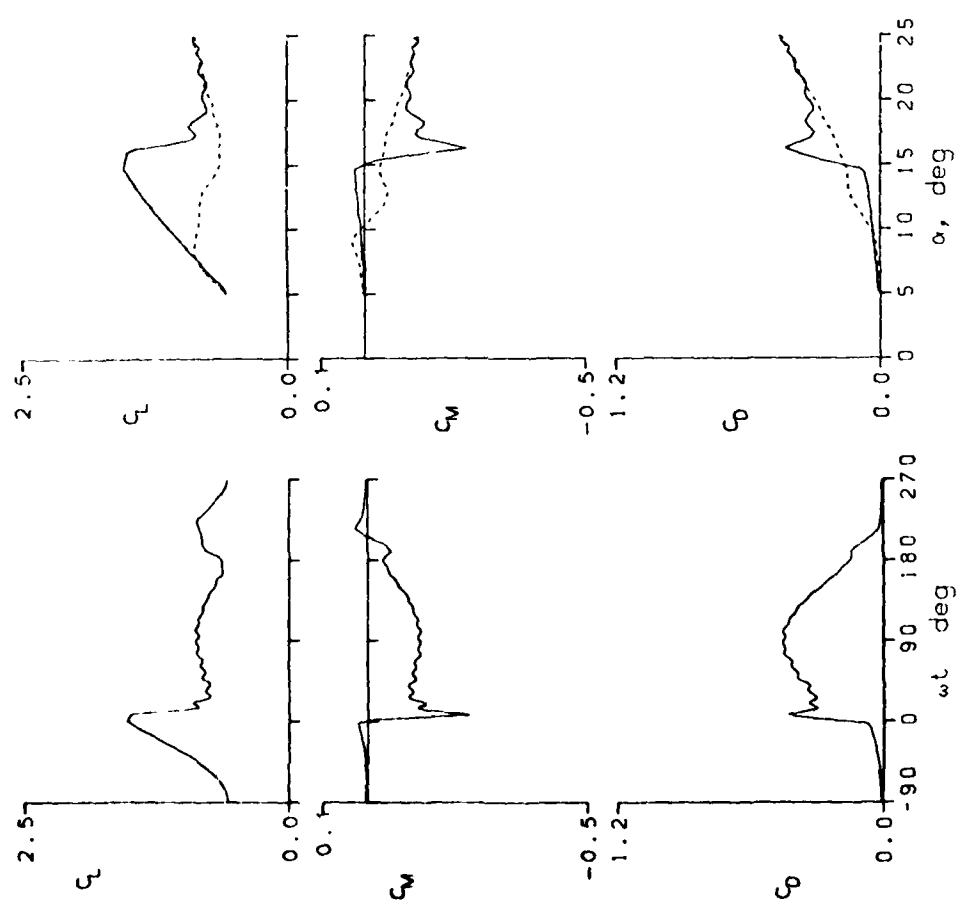


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP
 FRAME : 14202 A0 = 14.81° k = 0.051
 Re = 3.79 E6 A1 = 9.92° M = 0.293
 C_{Lmax} = 1.72 C_{Mmin} = -0.32 C_{Dmax} = 0.57
 α_{Lmax} = 17.8° ζ = 0.336 M_{max} = 1.348
 α_{Cmin} = 14.3° -C_{pmax} = 10.7 α_{Mmax} = 14.9°

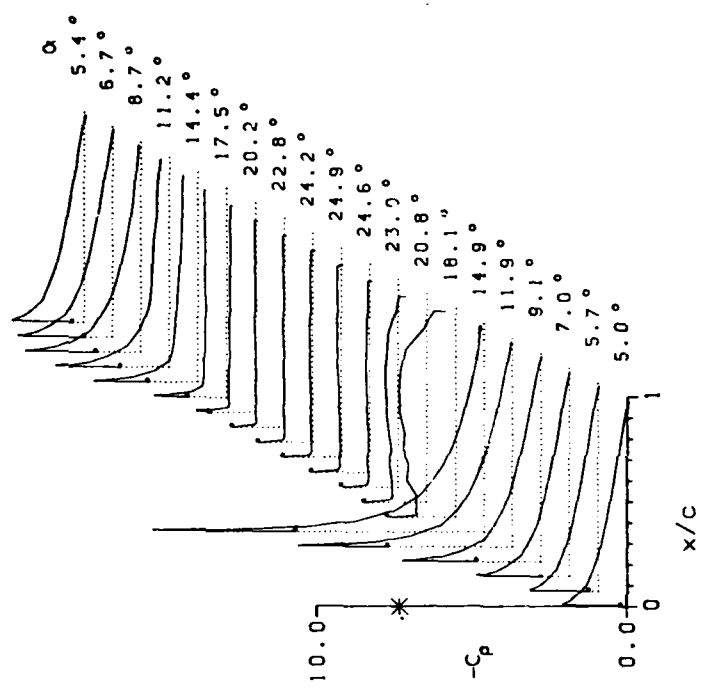
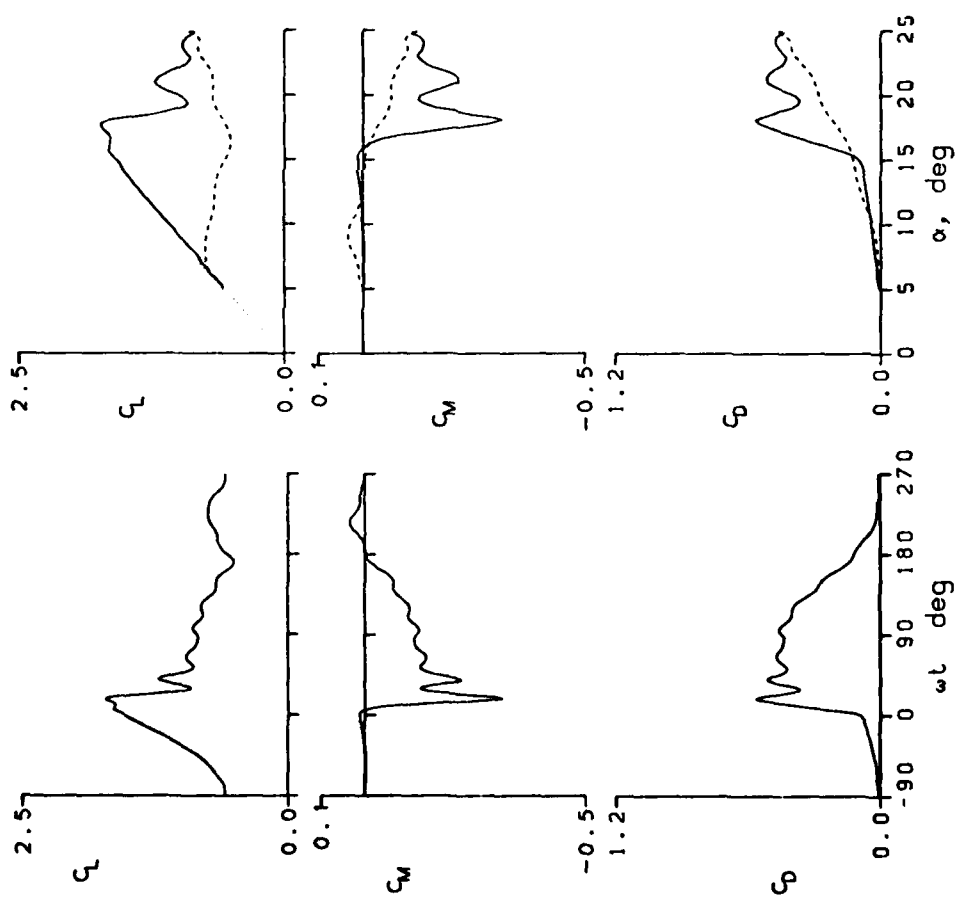


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14208	$A_0 = 14.84^\circ$	$k = 0.102$	TRIP
$Re = 3.76 E6$	$A' = 9.89^\circ$	$M = 0.291$	
$C_{Lmax} = 1.95$	$C_{Mmin} = -0.42$	$C_{Dmax} = 0.77$	
$\alpha_{Lmax} = 20.5^\circ$	$\xi = 0.567$	$N_{max} = 1.366$	
$\alpha_{Cmin} = 14.4^\circ$	$-C_{pmax} = 11.0$	$\alpha_{Mmax} = 16.0^\circ$	

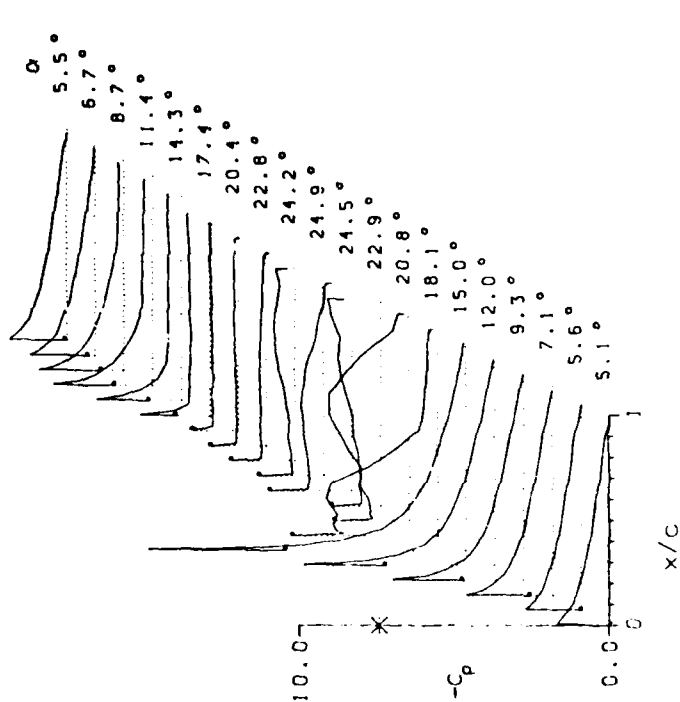
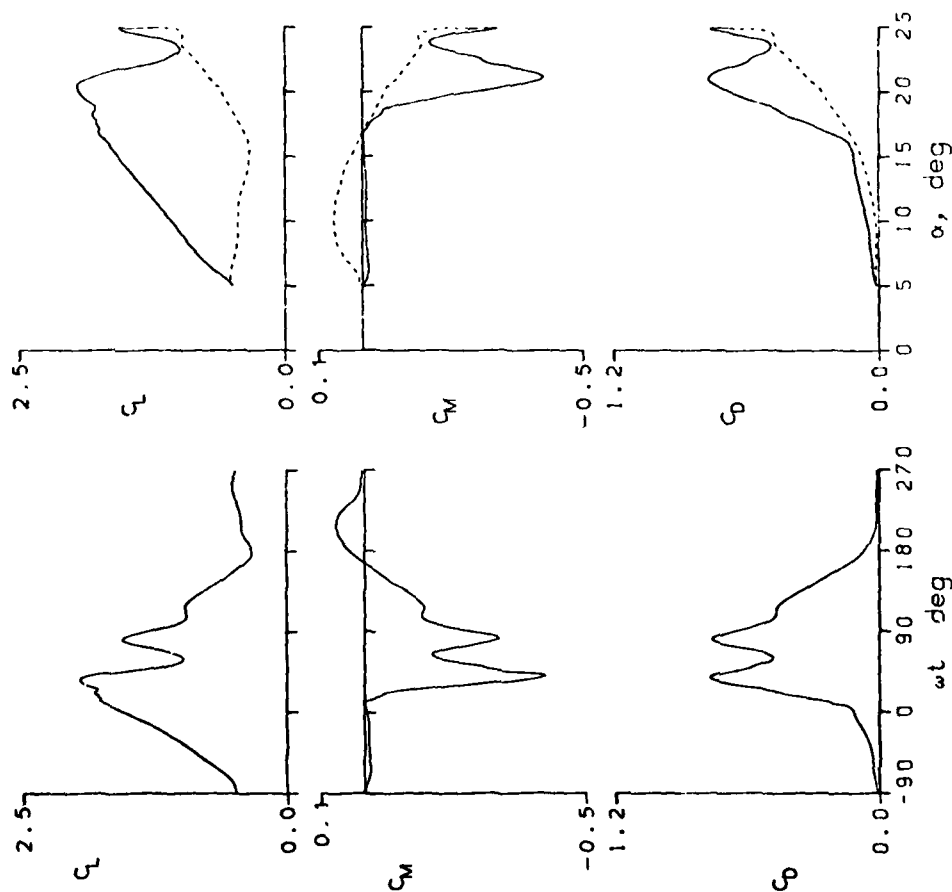


Figure 12.- Continued.

NACA 0012 AIRFOIL TRIP

FRAME : 14210 $A_0 = 14.84^\circ$ $h = 0.101$

$Re = 3.76 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.292$

$C_{Lmax} = 1.95$ $C_{Mmin} = -0.41$ $C_{Dmax} = 0.77$

$\alpha_{Lmax} = 20.5^\circ$ $\xi = 0.549$ $M_{max} = 1.359$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 10.8$ $\alpha_{Mmax} = 16.0^\circ$

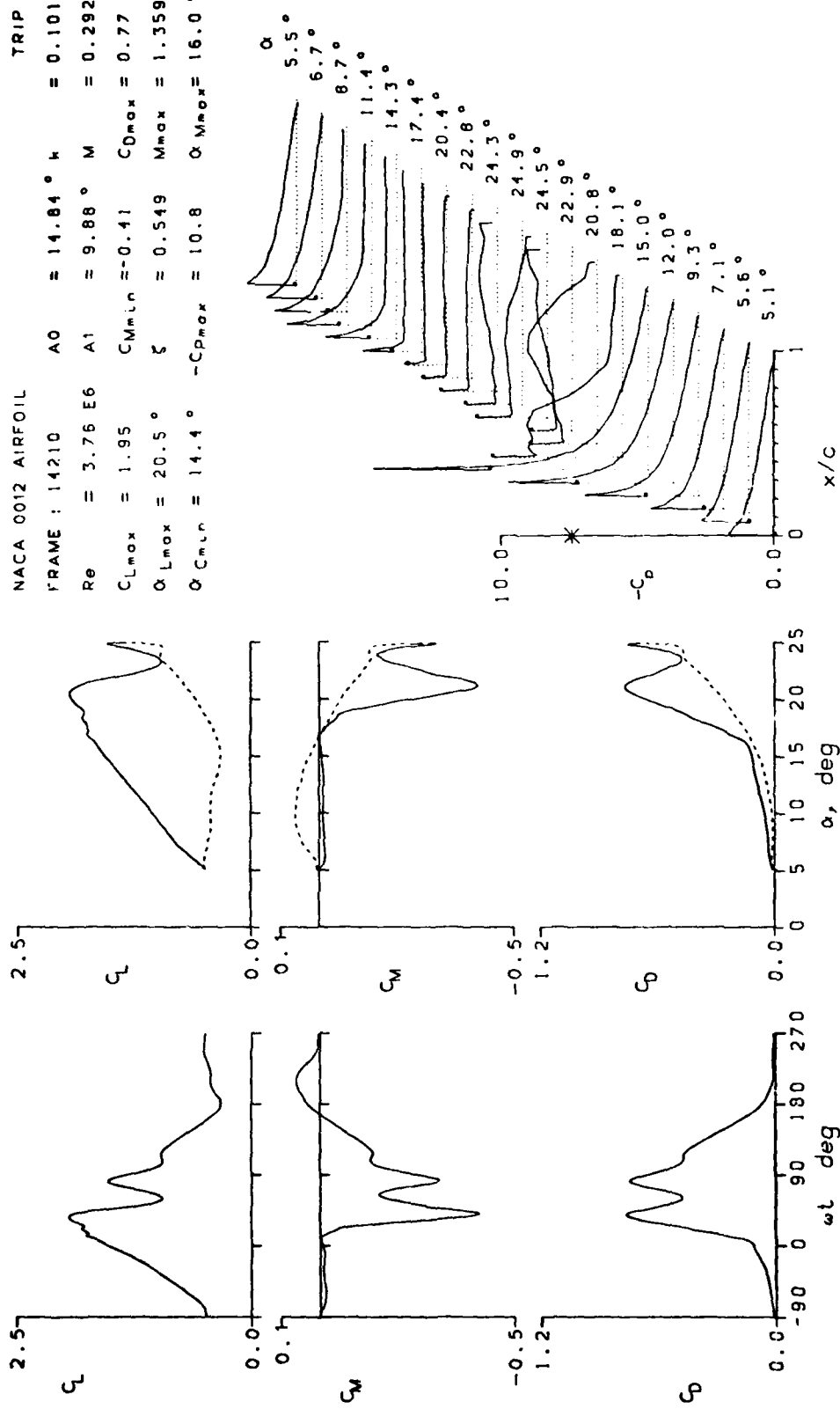


Figure 12.- Continued.

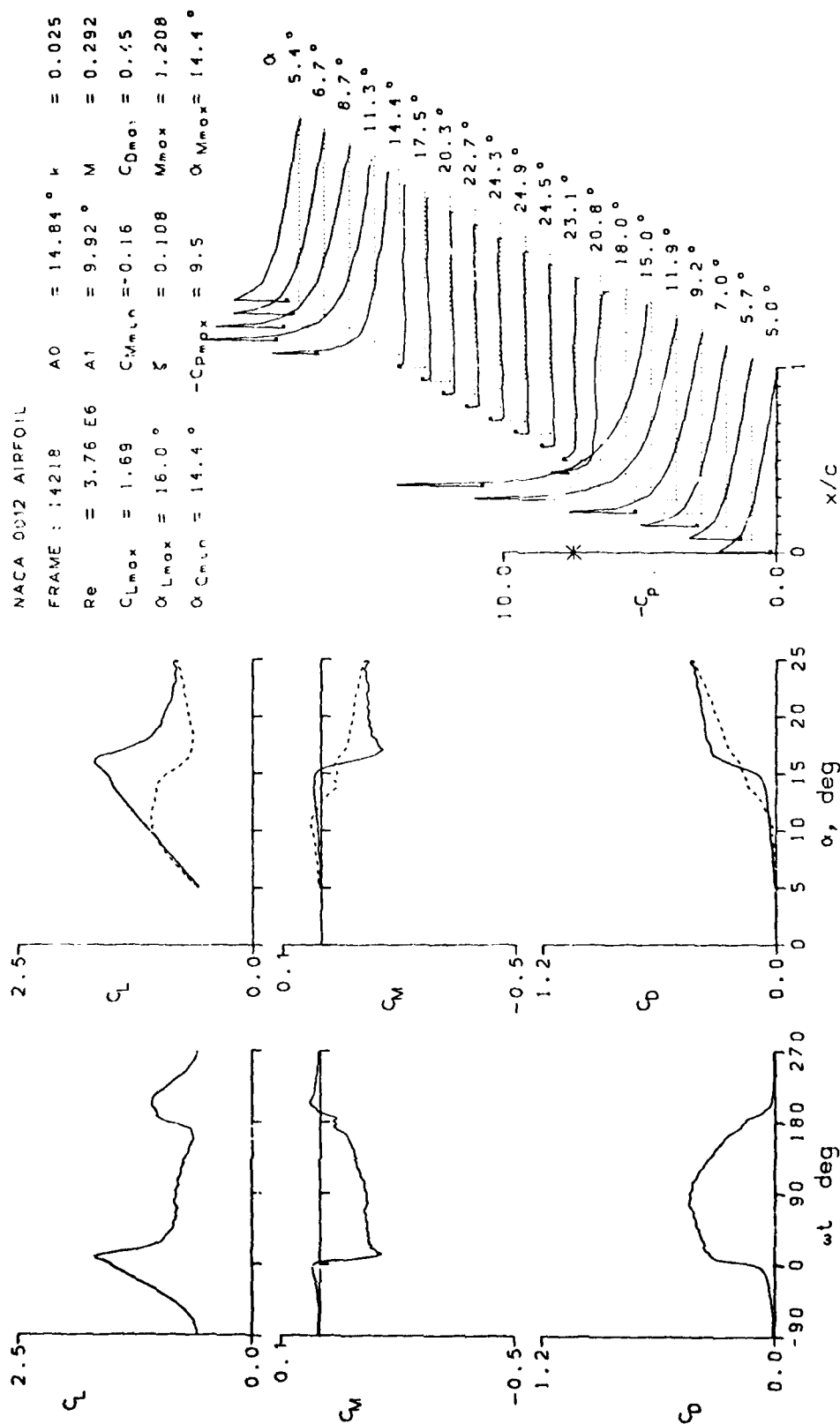


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 14219 $A_0 = 14.82^\circ$ $k = 0.051$
 $Re = 3.74 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.291$
 $C_{Lmax} = 1.82$ $C_{Mmin} = -0.22$ $C_{Dmax} = 0.49$
 $\alpha_{Lmax} = 17.5^\circ$ $\alpha_{C} = 0.304$ $M_{max} = 1.213$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Pmax} = 9.7$ $\alpha_{Mmax} = 14.7^\circ$

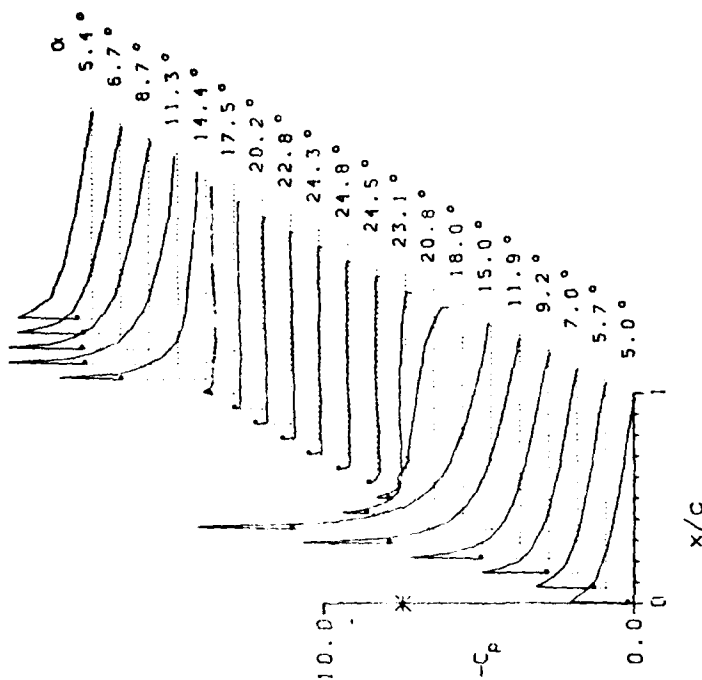
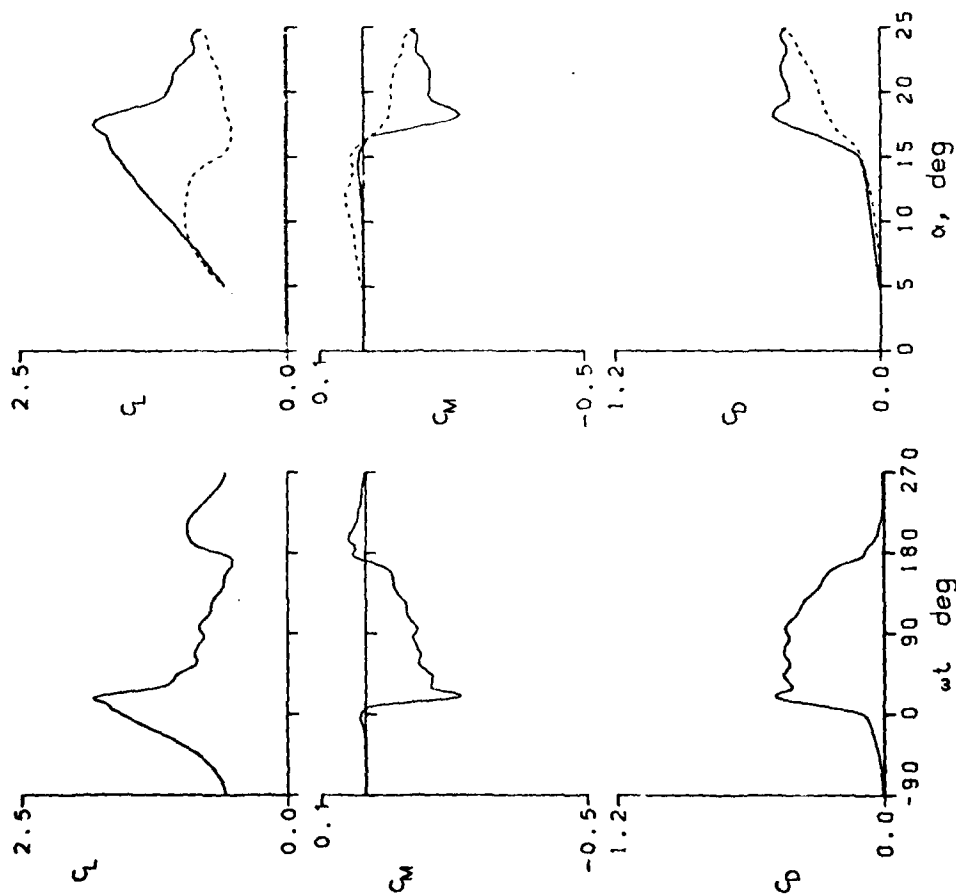


Figure 12.- Continued.

NACA 0012 AIRFOIL

FRAME : 14220	A0 = 14.83°	k = 0.103
Re = 3.68 E6	A1 = 9.90°	M = 0.287
C _{Lmax} = 2.07	C _{Mmin} = -0.39	C _{Dmax} = 0.78
α _{Lmax} = 20.5°	ξ = 0.572	M _{max} = 1.219
α _{Cmin} = 14.4°	-C _{Dmax} = 10.0	α _{Mmax} = 15.6°

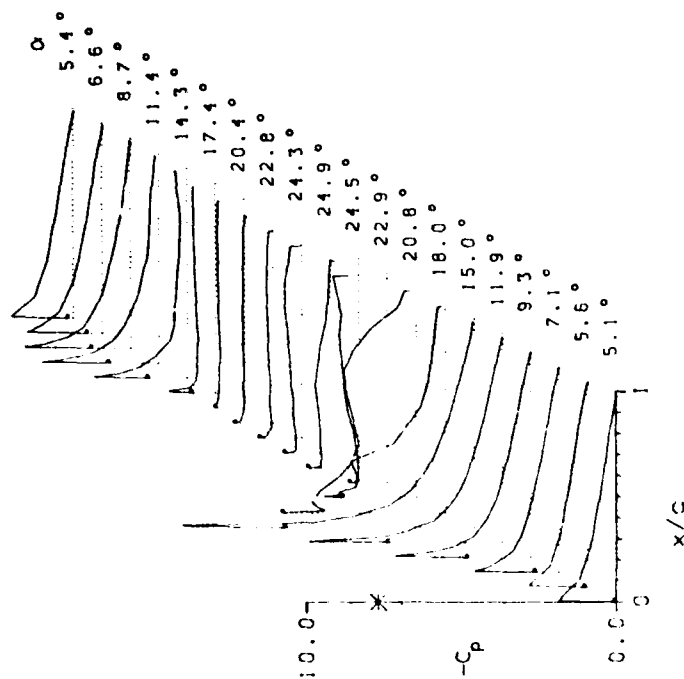
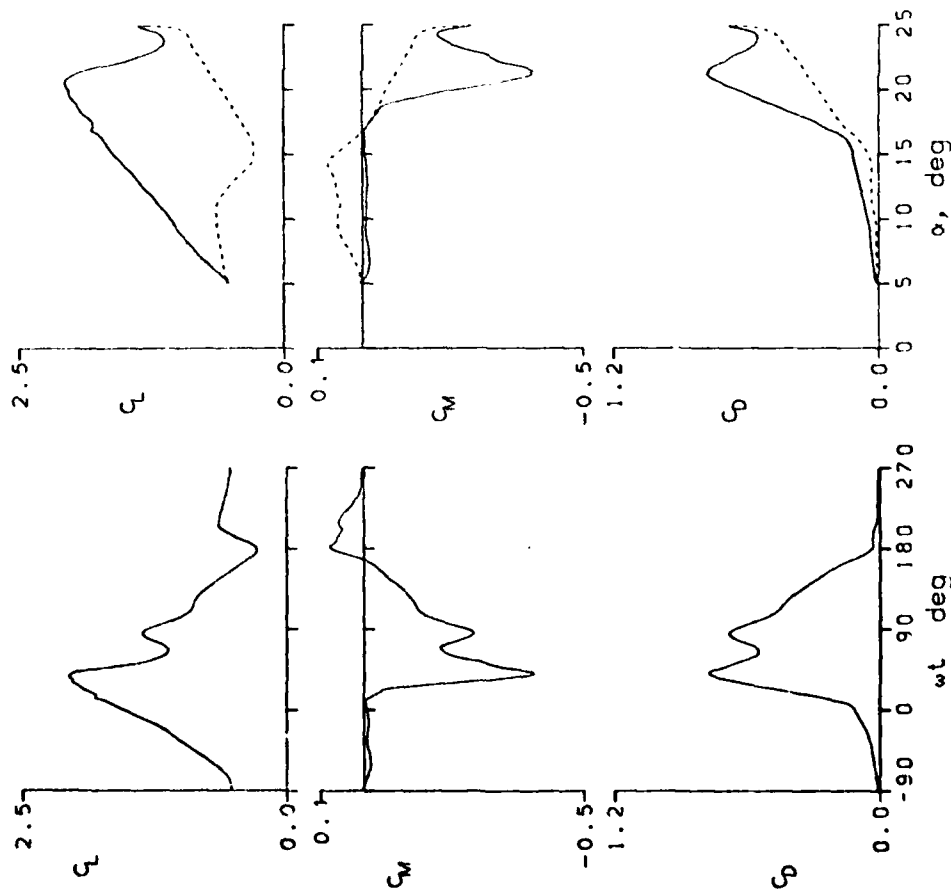


Figure 12.- Continued.

NACA 0012 AIRFOIL
 FRAME : 15218 $A_0 = 14.78^\circ$ $k = 0.099$
 $R_0 = 3.68 E6$ $A_1 = 9.94^\circ$ $M = 0.290$
 $C_{Lmax} = 0.00$ $C_{Mmin} = -0.01$ $C_{Dmax} = 0.00$
 $\alpha_{Lmax} = 24.7^\circ$ $\xi = -0.001$ $M_{max} = 0.090$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Pmax} = -0.9$ $\alpha_{Mmax} = 24.4^\circ$

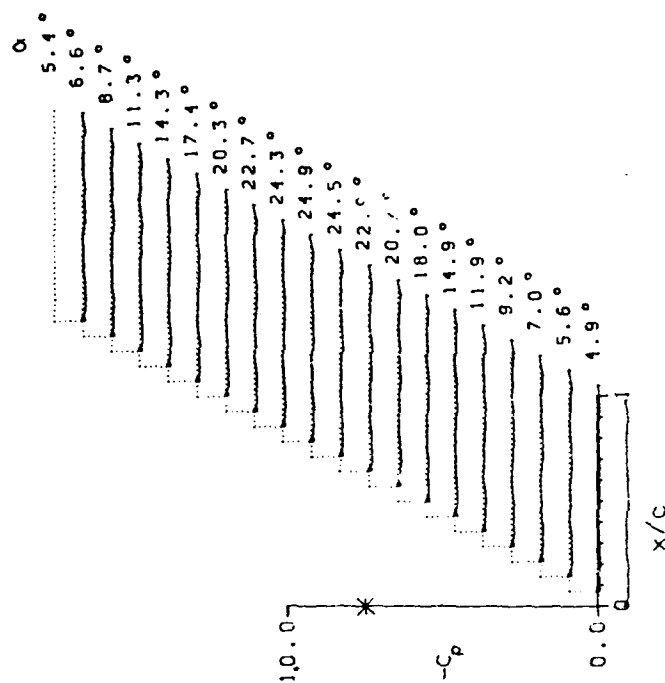
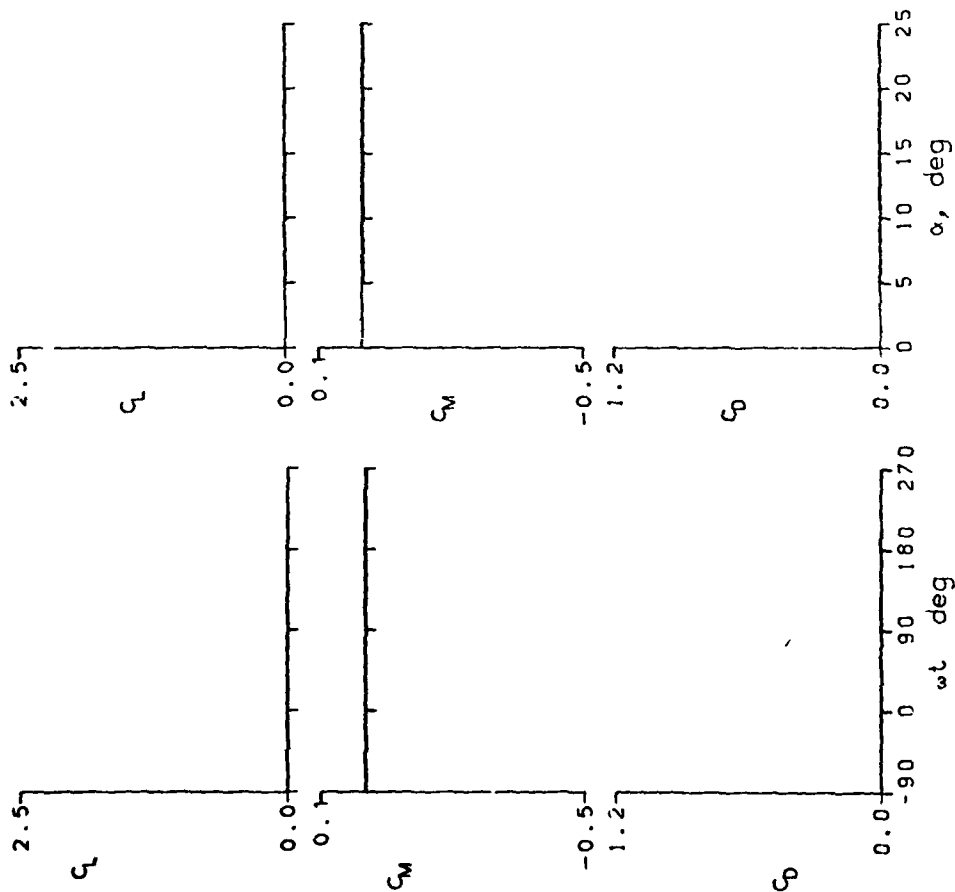


Figure 12.- Concluded.

AMES-01 AIRFOIL
 FRAME : 24022 $A_0 = 14.84^\circ$ $k = 0.025$
 $Re = 3.84 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.296$
 $C_{Lmax} = 1.81$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.41$
 $\alpha_{Lmax} = 17.2^\circ$ $\xi = 0.145$ $M_{max} = 1.262$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dno} = 9.7$ $\alpha_{Mmax} = 16.2^\circ$

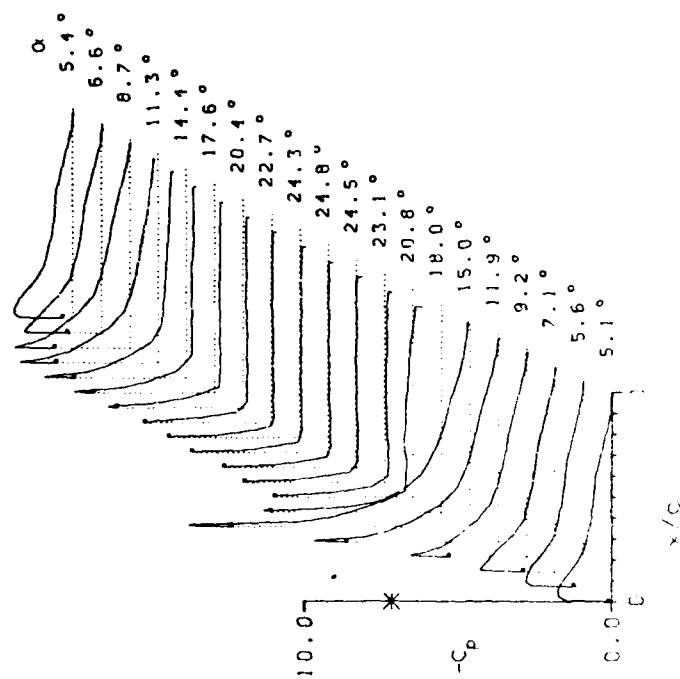
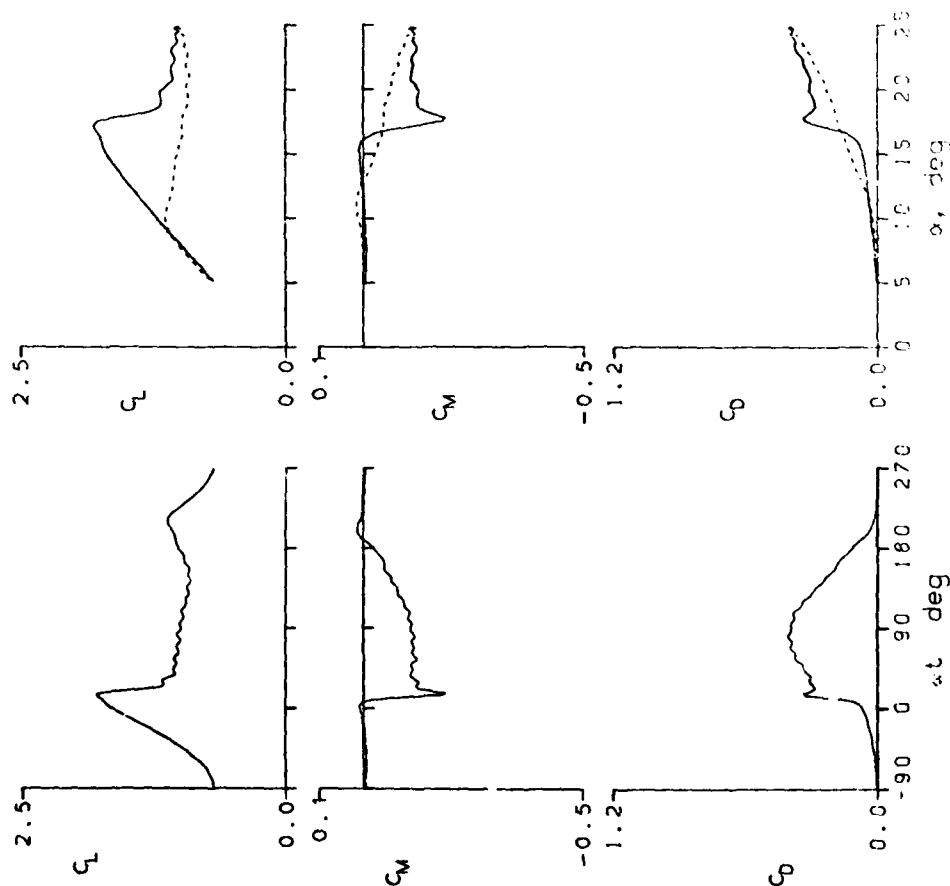


Figure 13.- Dynamic data for Ames A-01 airfoil.

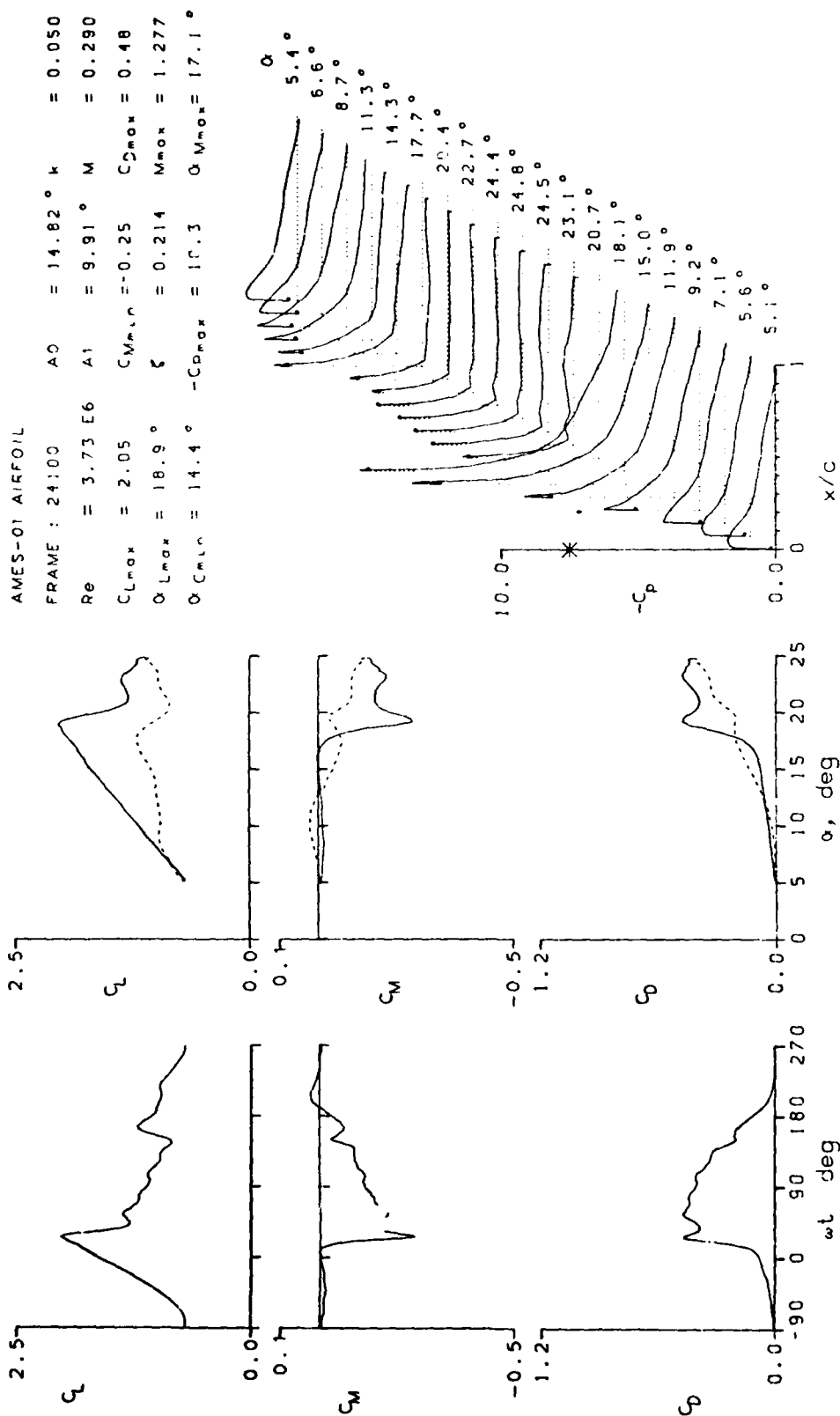


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 24105	$A_0 = 14.83^\circ$	$k = 0.100$
$Re = 3.71 \text{ E}6$	$\Lambda_1 = 9.88^\circ$	$M = 0.289$
$C_{Lmax} = 2.31$	$C_{Mmin} = -0.39$	$C_{Dmax} = 0.76$
$\alpha_{Lmax} = 21.3^\circ$	$\xi = 0.497$	$M_{max} = 1.283$
$\alpha_{Cmin} = 14.5^\circ$	$-C_{Pmax} = 10.4$	$\alpha_{Mmax} = 17.8^\circ$

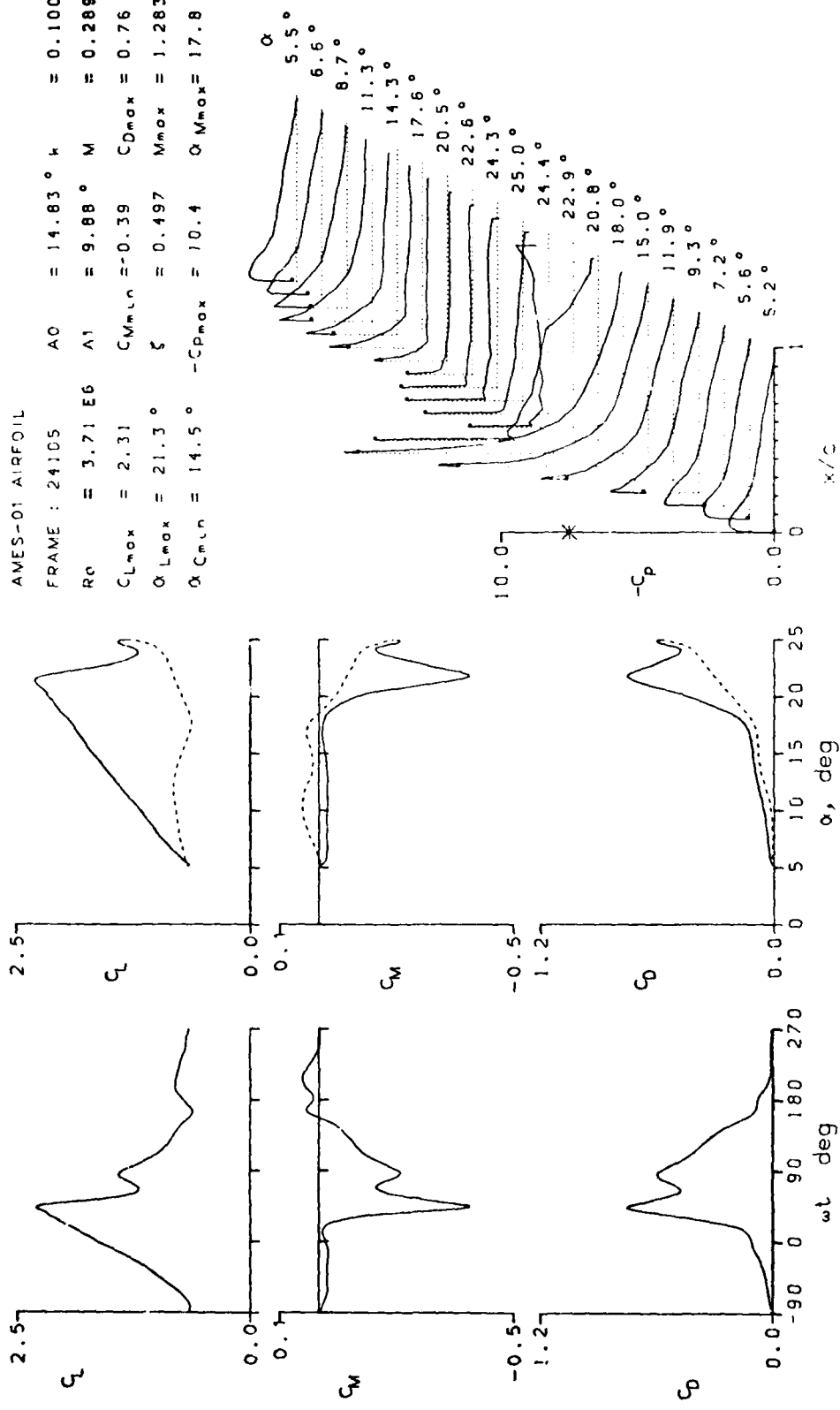


Figure 13.- Continued.

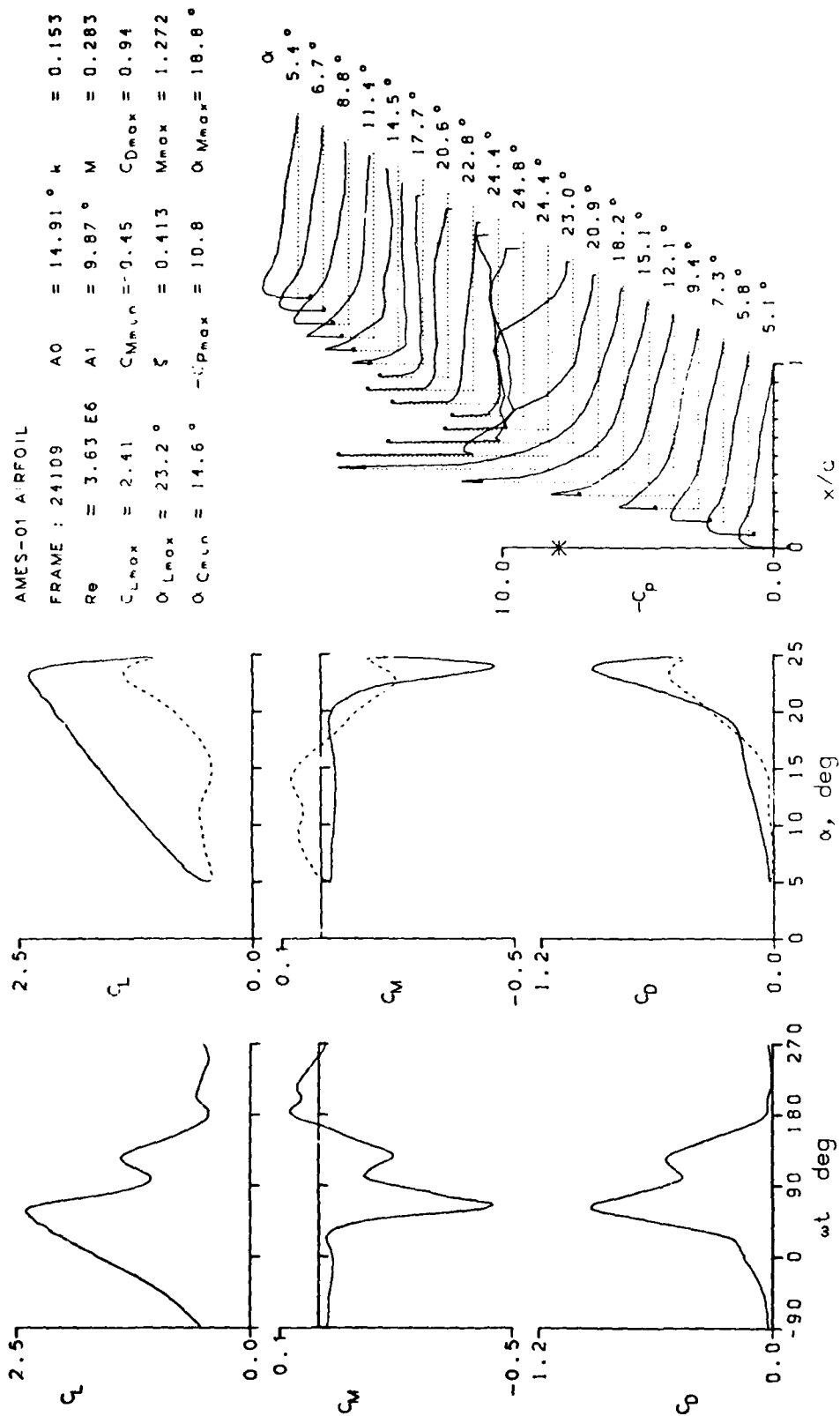


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 24117	A0 = 14.83°	k = 0.098
Re = 3.60 E6	A1 = 9.87°	M = 0.280
C _{Lmax} = 2.40	C _{Mmin} = -0.41	C _{Dmax} = 0.80
α _{Lmax} = 21.8°	ξ = 0.453	M _{max} = 1.261
α _{Cmin} = 14.5°	-C _{pmax} = 10.9	α _{Mmax} = 18.3°

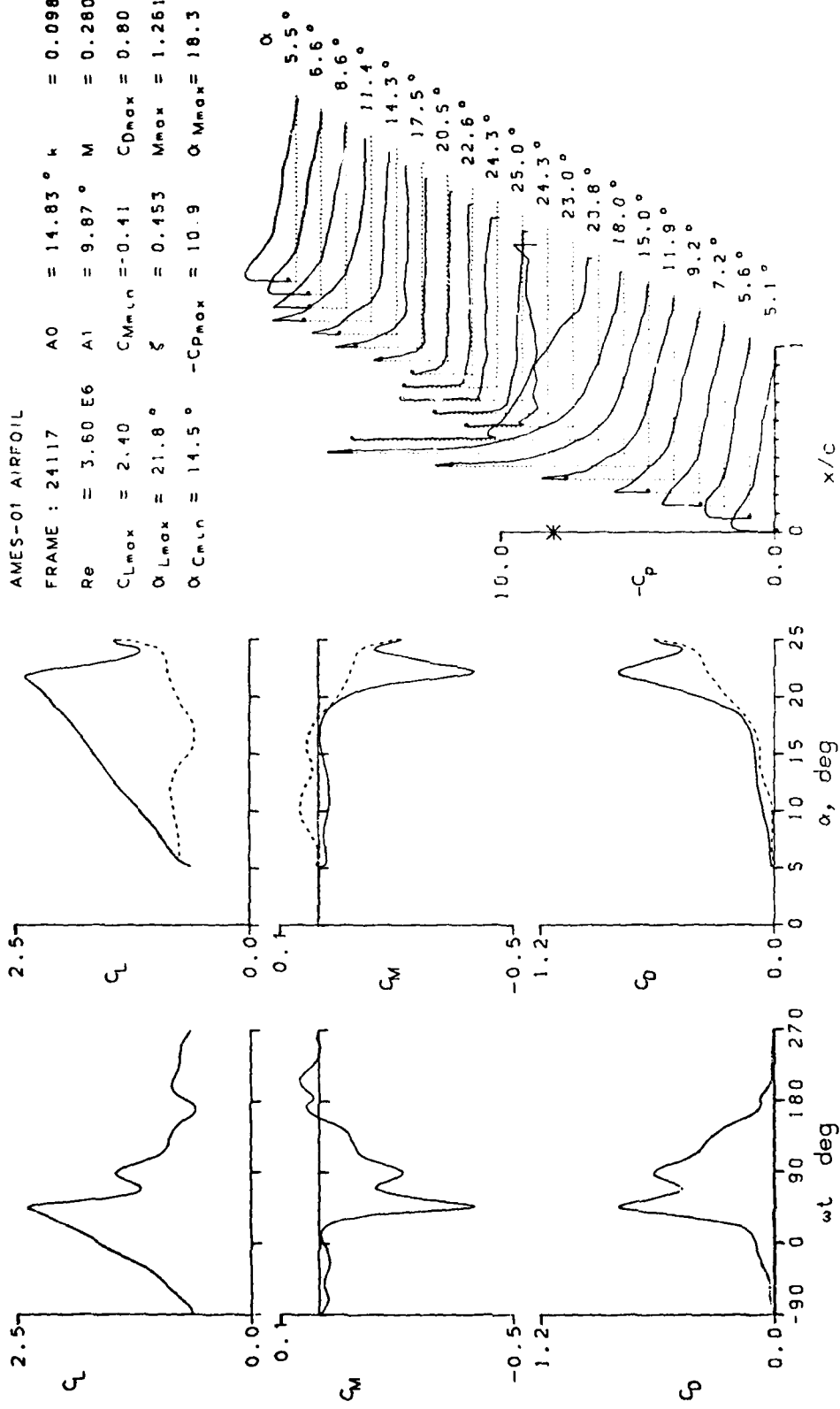


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 24201	A0 = 14.83°	k = 0.099
Re = 3.21 E6	A1 = 9.88°	M = 0.248
CLmax = 2.48	CMmin = -0.39	CDmax = 0.85
αLmax = 22.5°	ξ = 0.395	Mmax = 1.222
αCMmin = 14.4°	-CDmax = 13.5	αMmax = 20.4°

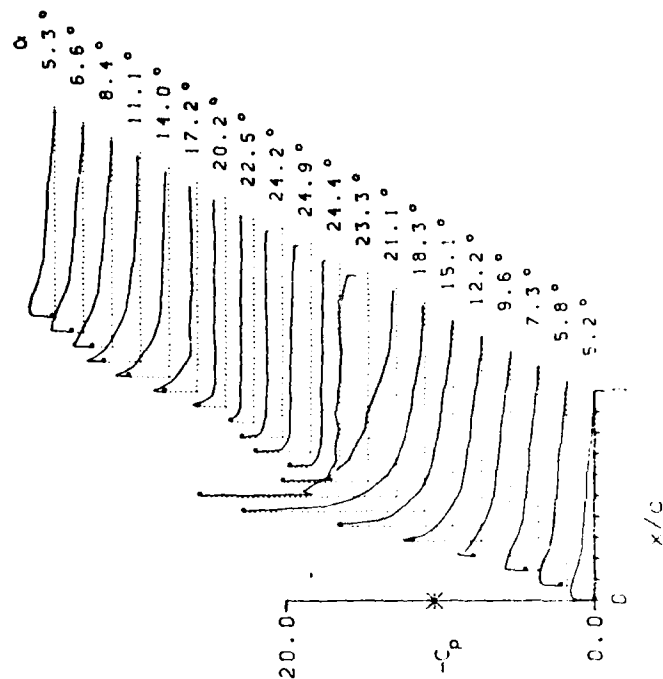
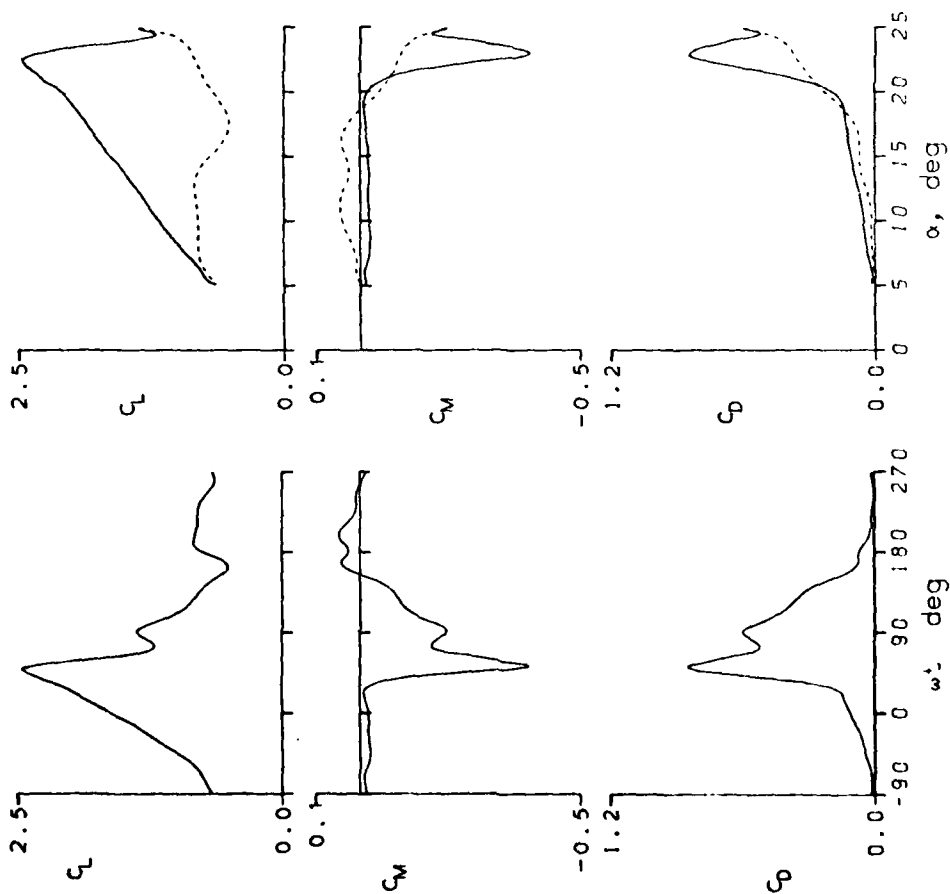


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 24209	A0 = 14.81°	k = 0.098
Re = 2.85 E6	A1 = 9.88°	M = 0.220
CLmax = 2.49	CMmin = -0.38	CDmax = 0.86
αLmax = 23.3°	ξ = 0.281	Mmax = 1.157
αCmin = 14.4°	-CPmax = 16.3	αMmax = 21.5°

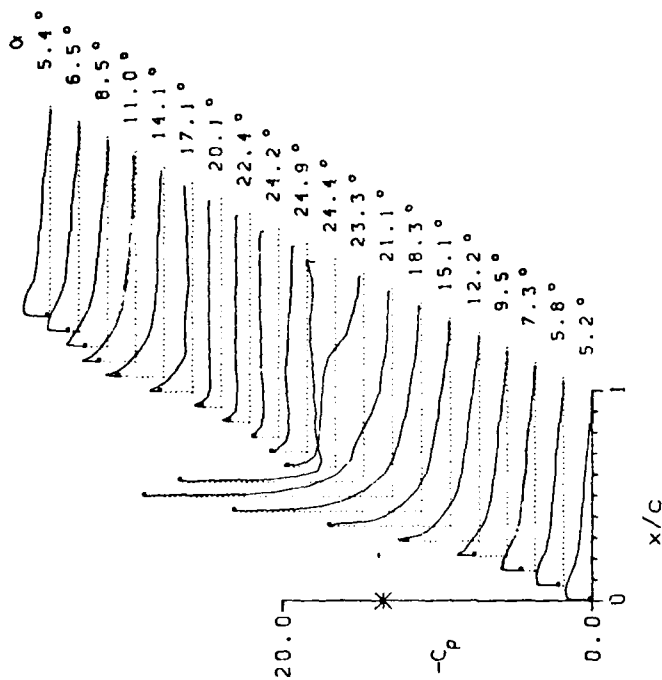
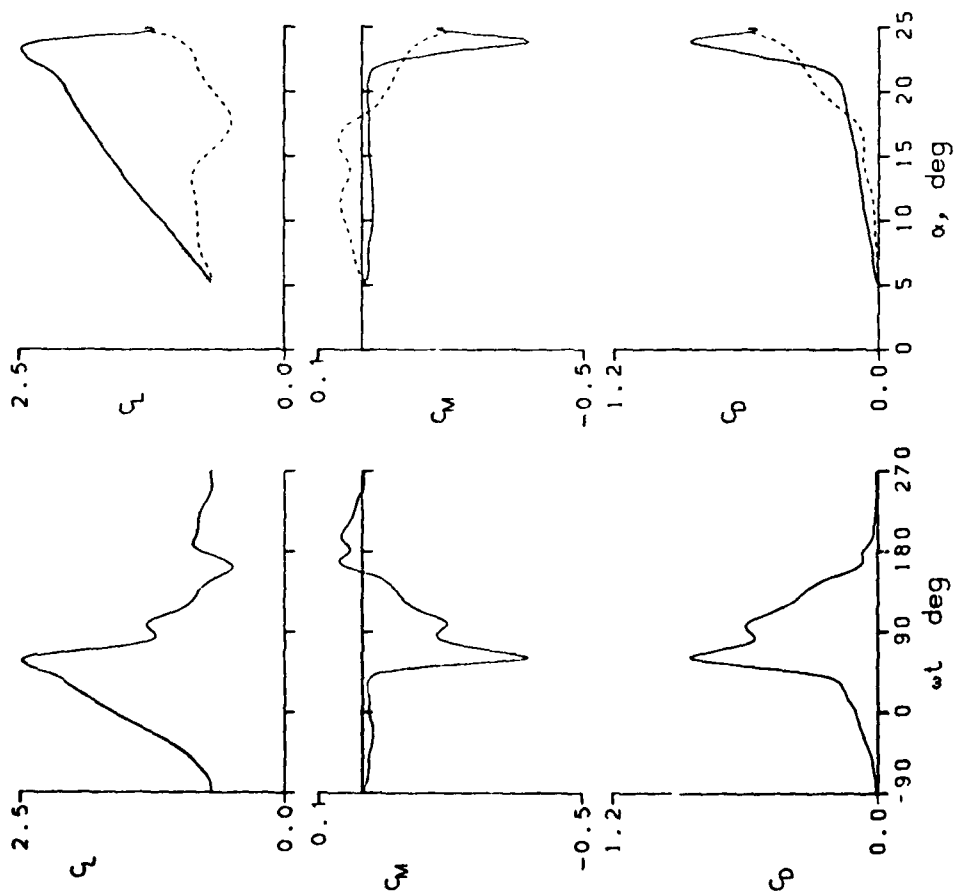


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 24217 $A_0 = 14.80^\circ$ $k = 0.099$
 $Re = 2.40 \text{ E}6$ $A_1 = 9.93^\circ$ $M = 0.184$
 $C_{Lmax} = 2.64$ $C_{Mmin} = -0.37$ $C_{Dmax} = 0.90$
 $\alpha_{Lmax} = 23.8^\circ$ $\xi = 0.189$ $M_{max} = 0.936$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 17.7$ $\alpha_{Mmax} = 22.5^\circ$

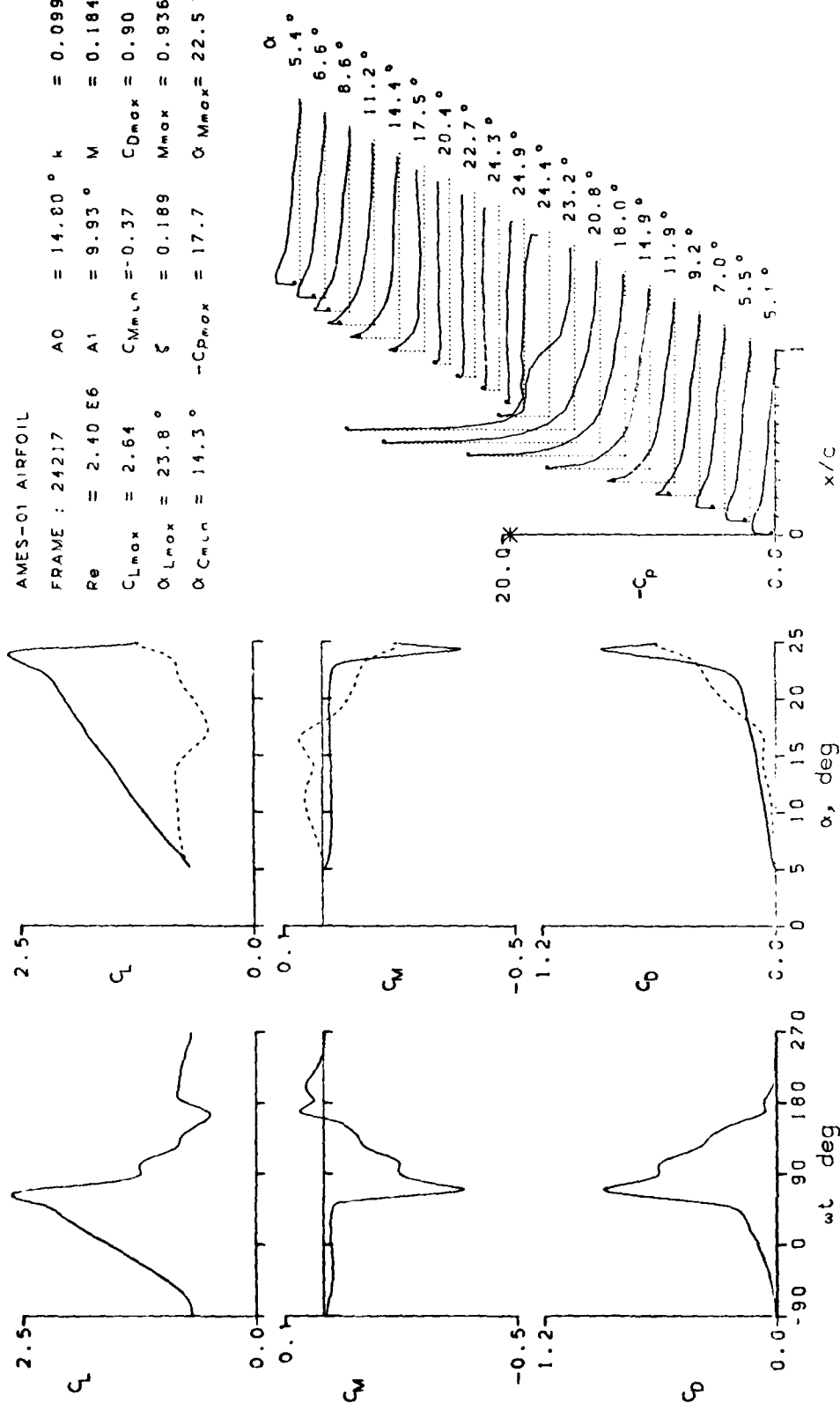


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 24302	A0 = 7.26°	k = 0.049
Re = 2.40 E6	A1 = 10.01°	M = 0.184
C _{Lmax} = 1.76	C _{Mmin} = -0.05	C _{Dmax} = 0.14
α _{Lmax} = 17.2°	ξ = 0.059	M _{max} = 0.713
α _{Cmin} = 6.7°	-C _{Dmax} = 11.4	α _{Mmax} = 17.5°

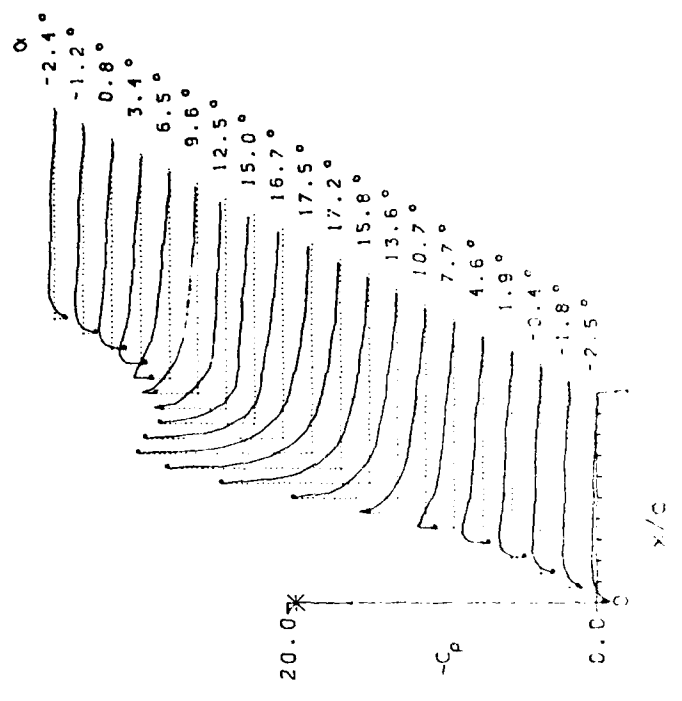
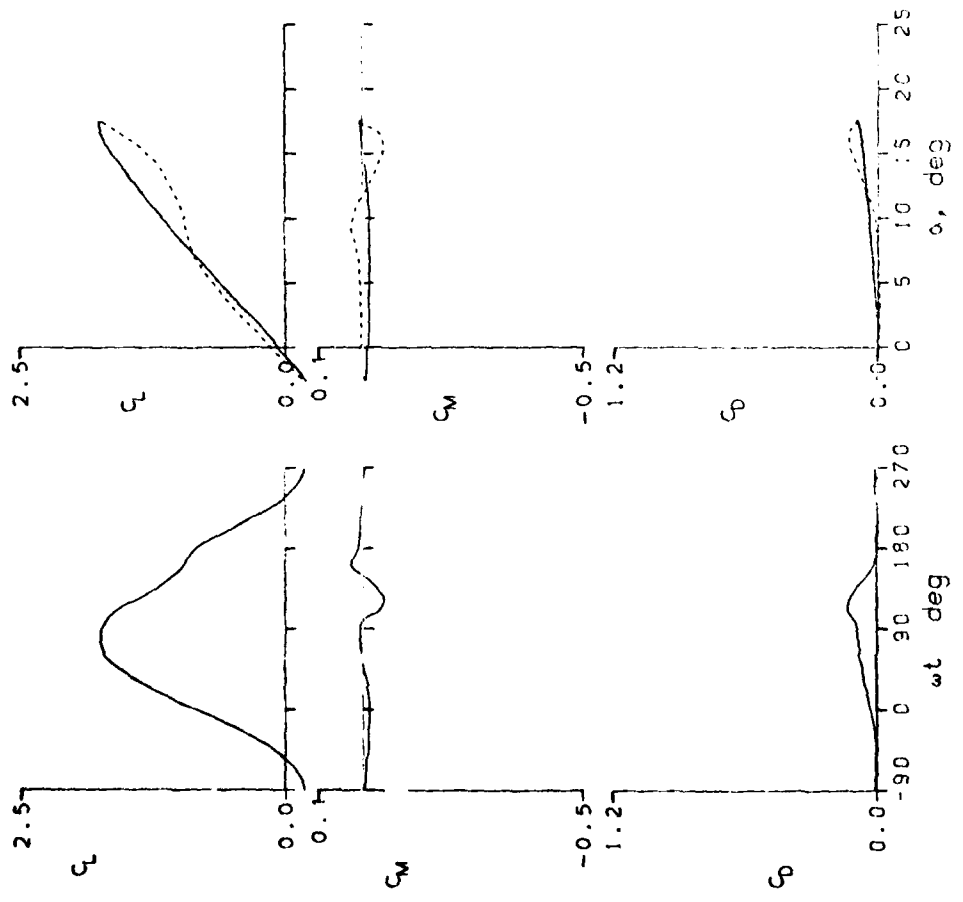


Figure 13.- Cont inued.

AMES-01 AIRFOIL

FRAME : 24306	A0 = 7.28°	k = 0.197
Re = 2.39 E6	A1 = 10.01°	M = 0.184
CLmax = 1.81	CMmin = -0.06	CDmax = 0.13
αLmax = 17.4°	ξ = 0.591	Mmax = 0.729
αCMmin = 6.7°	-CPmax = 11.8	αMmax = 17.4°

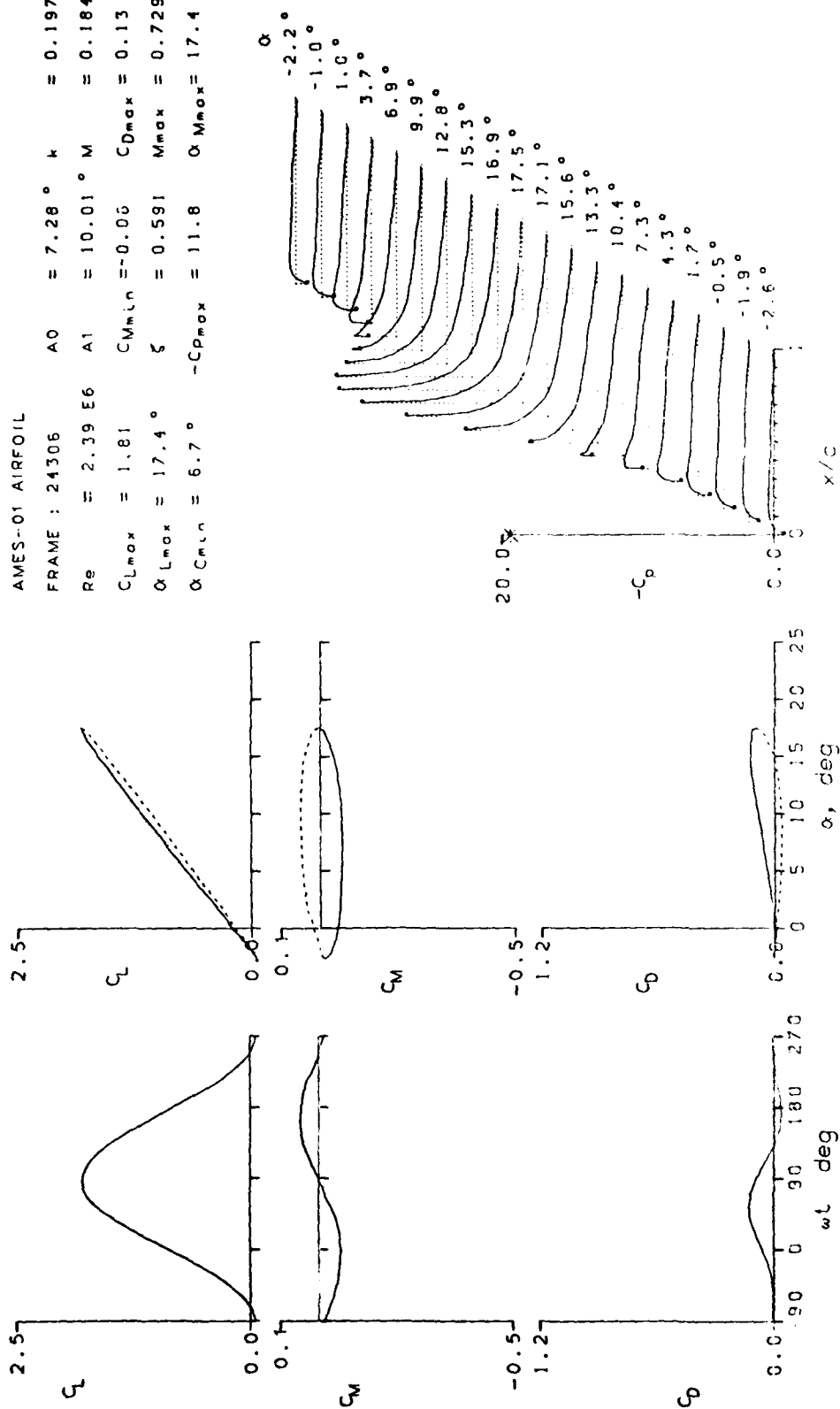


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 24314 $A_0 = 14.82^\circ$ $k = 0.099$
 $Re = 1.50 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.110$
 $C_{L_{max}} = 2.65$ $C_{M_{min}} = -0.44$ $C_{D_{max}} = 1.04$
 $\alpha_{L_{max}} = 23.6^\circ$ $\zeta = 0.133$ $M_{max} = 0.488$
 $\alpha_{C_{min}} = 14.3^\circ$ $-C_{D_{max}} = 16.9$ $\alpha_{M_{max}} = 22.4^\circ$

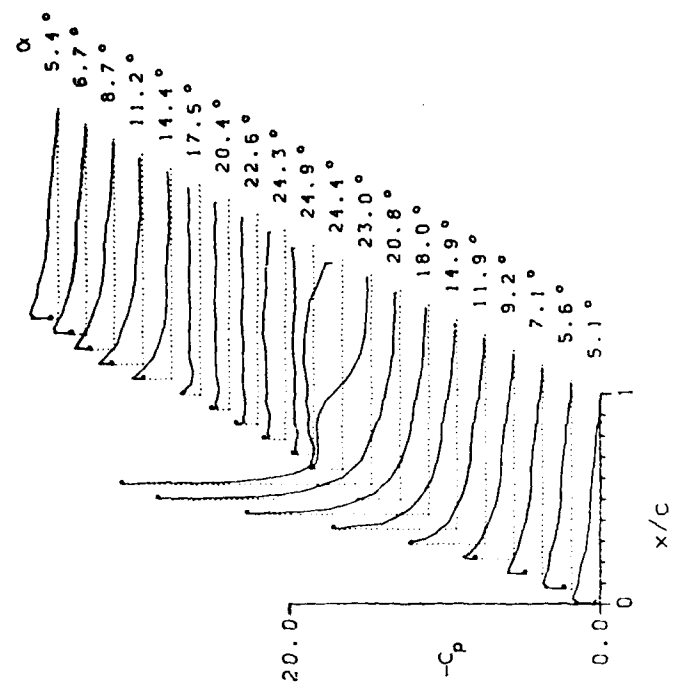
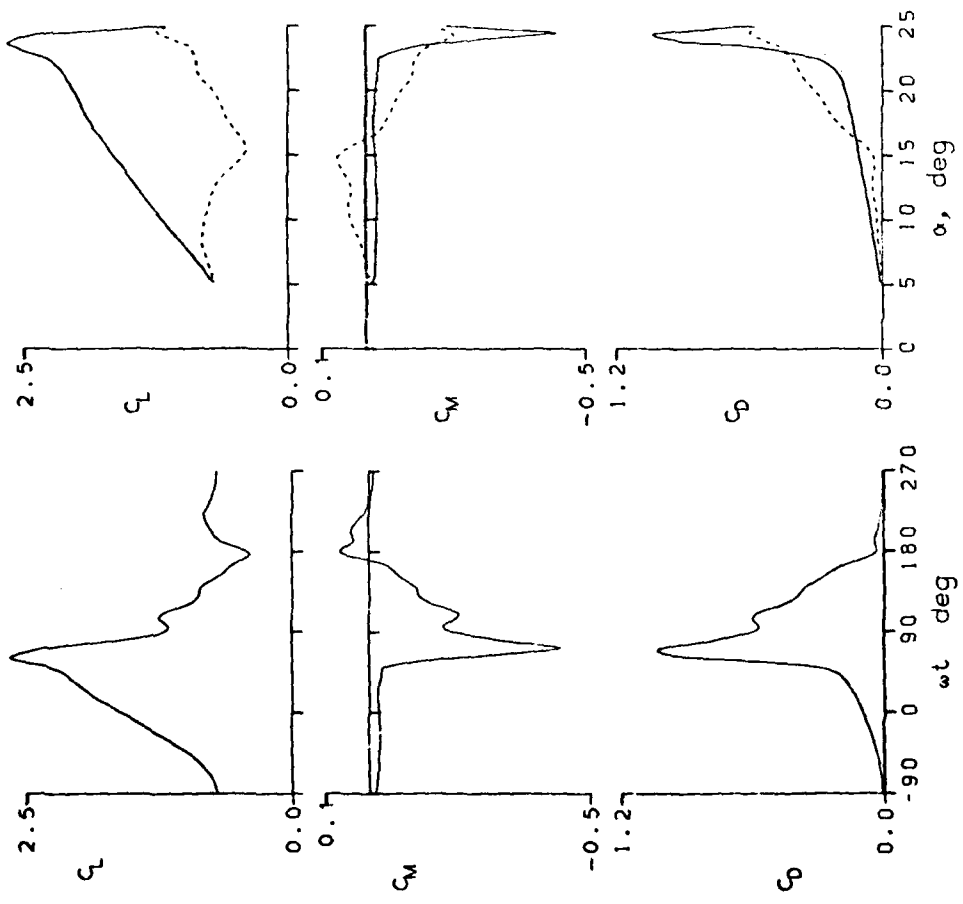


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 24323 $A_0 = 14.81^\circ$ $k = 0.099$
 $Re = 0.99 E6$ $A_1 = 9.91^\circ$ $M = 0.073$
 $C_{Lmax} = 2.57$ $C_{Mmin} = -0.40$ $C_{Dmax} = 1.00$
 $\alpha_{Lmax} = 23.0^\circ$ $\xi = 0.227$ $M_{max} = 0.300$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 15.4$ $\alpha_{Mmax} = 21.7^\circ$

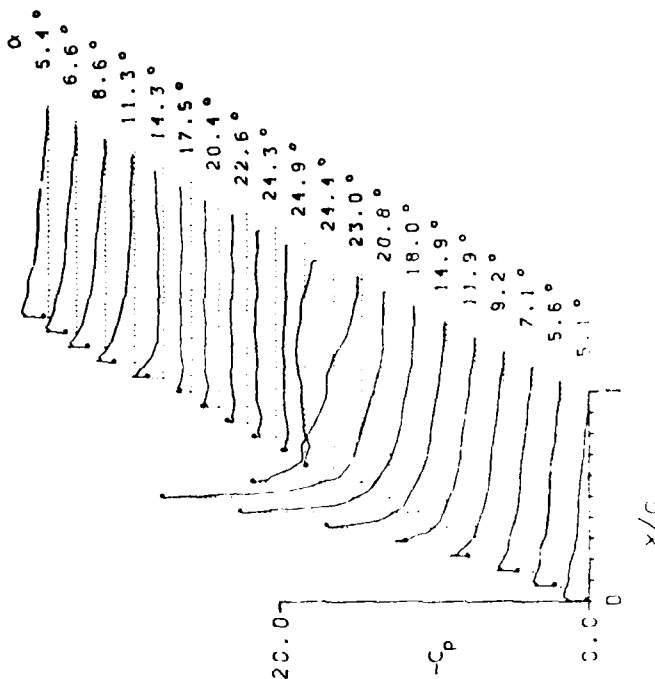
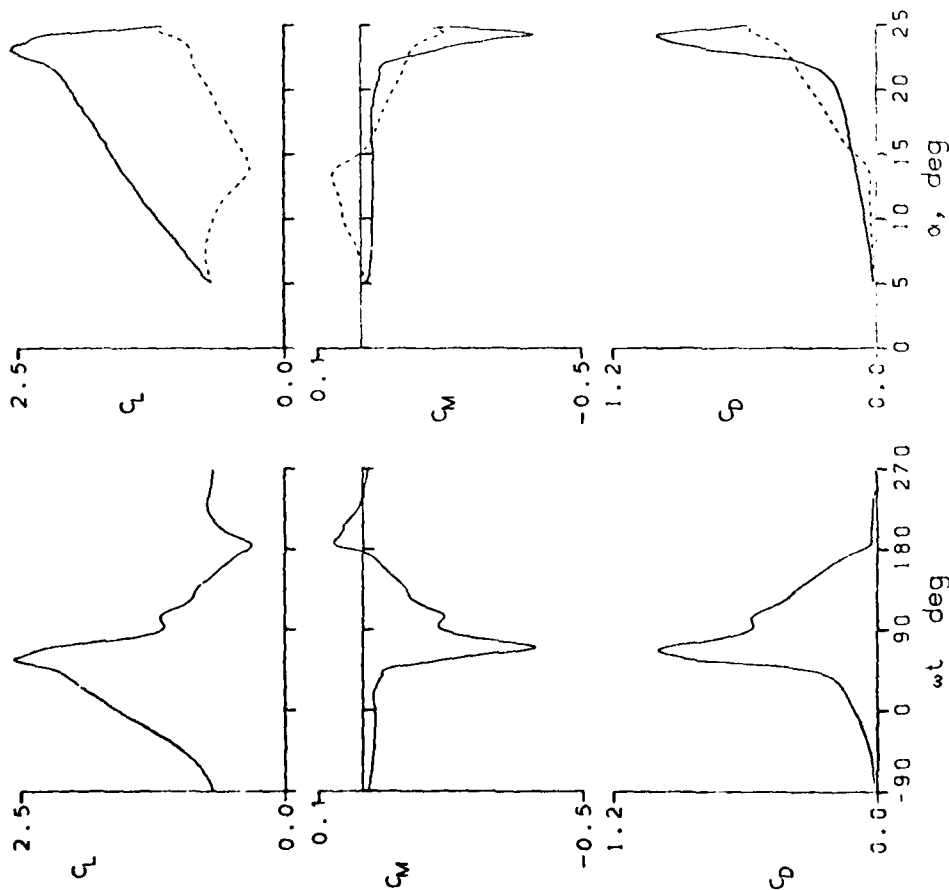


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25022 $A_0 = 9.79^\circ$ $k = 0.025$
 $Re = 3.84 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.79$ $C_{Mmin} = -0.18$ $C_{Dmax} = 0.34$
 $\alpha_{Lmax} = 16.6^\circ$ $\zeta = 0.069$ $M_{max} = 1.296$
 $\alpha_{Cmin} = 2.3^\circ$ $-C_{Dmax} = 9.6$ $\alpha_{Mmax} = 15.8^\circ$

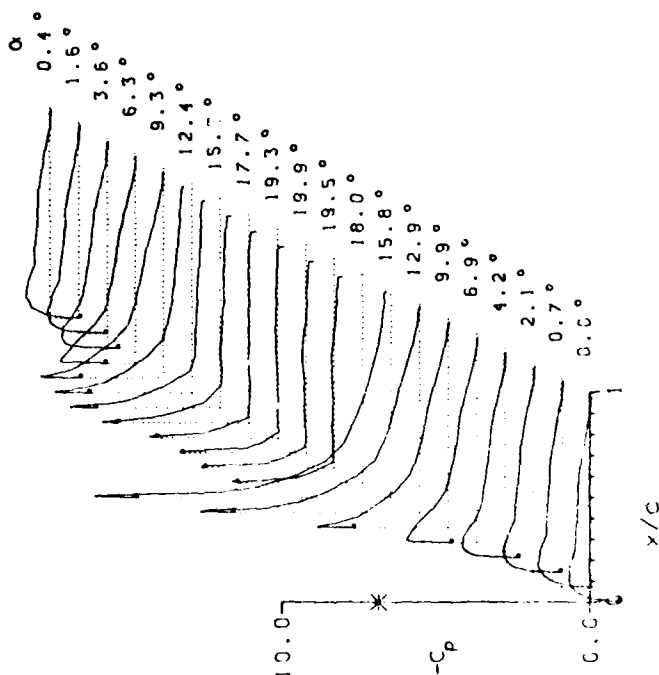
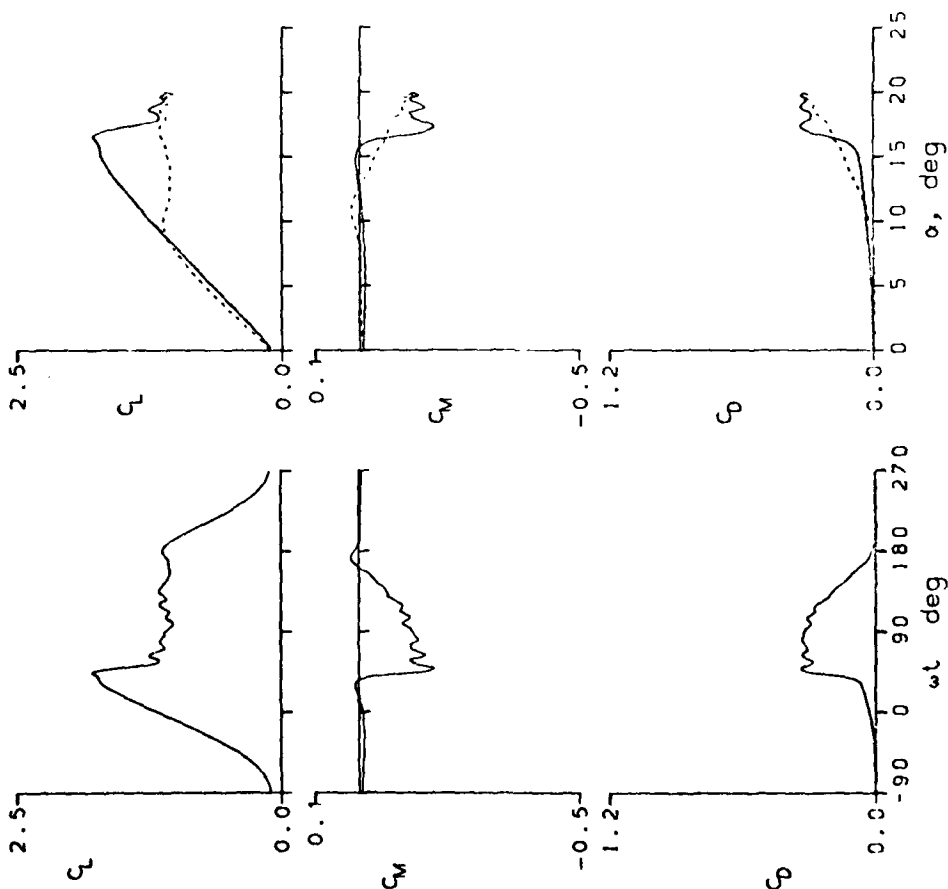


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAVE : 25102	A0 = 9.79°	k = 0.049
Re = 3.83 E6	A1 = 9.91°	M = 0.302
C _{Lmax} = 1.96	C _{Mmin} = -0.19	C _{Dmax} = 0.36
α _{Lmax} = 17.5°	ξ = 0.083	M _{max} = 1.326
α _{Cmin} = 9.2°	-C _{pmax} = 9.9	α _{Mmax} = 16.4°

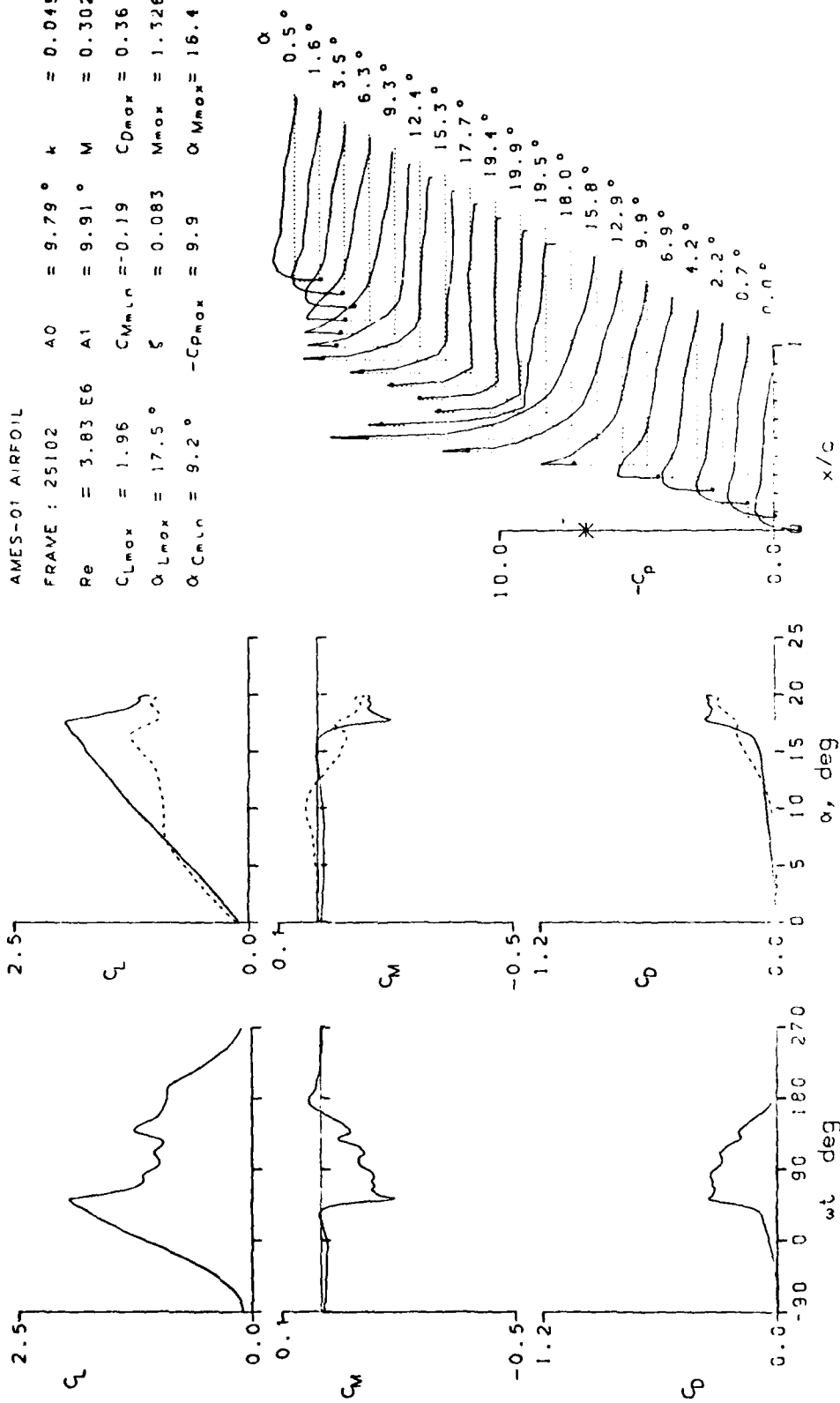


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25104	A0 = 9.80 °	k = 0.098
Re = 3.82 E6	A1 = 9.88 °	M = 0.302
C _{Lmax} = 2.11	C _{Mmin} = -0.30	C _{Dmax} = 0.52
α _{Lmax} = 18.8 °	ξ = 0.258	M _∞ x = 1.333
α _{Cmin} = 9.3 °	-C _{Dmax} = 9.9	α _{Mmax} = 16.6 °

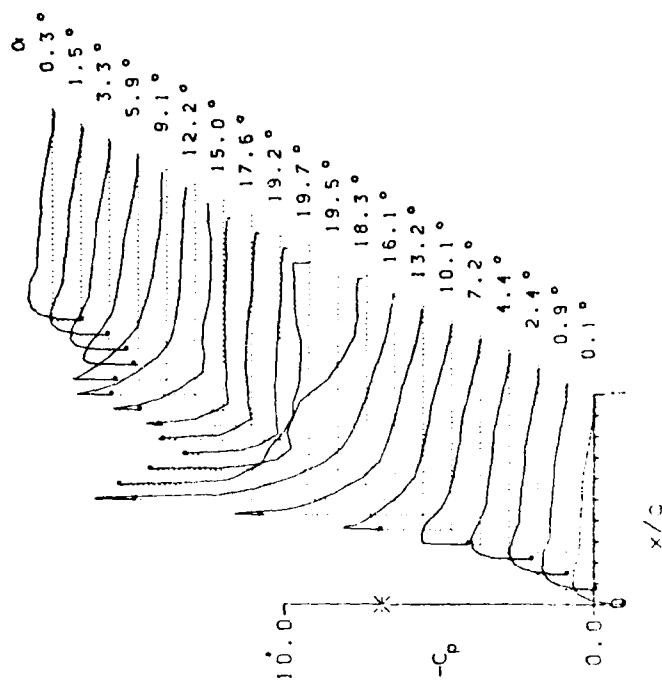
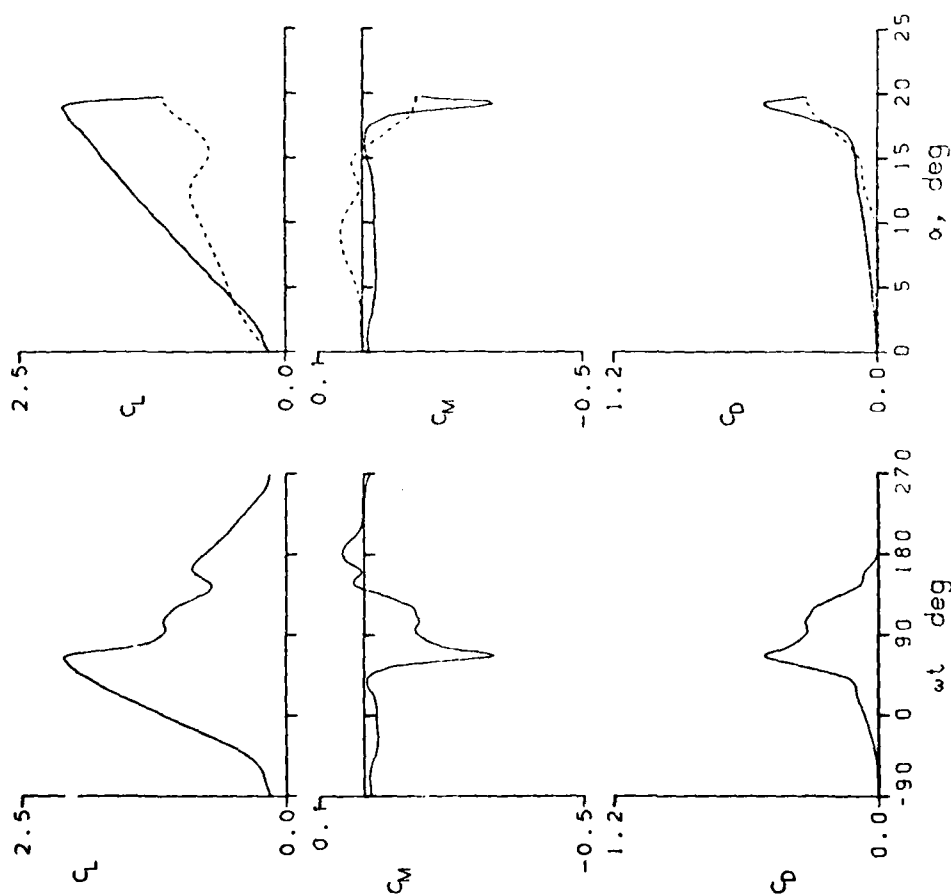


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25109	A0 = 9.92°	k = 0.147
Re = 3.81 E6	A1 = 9.91°	M = 0.302
C _{Lmax} = 2.19	C _{Mmin} = -0.36	C _{Dmax} = 0.61
α _{Lmax} = 19.7°	ξ = 0.263	M _{max} = 1.348
α _{Cmin} = 9.4°	-C _{pmax} = 10.1	α _{Mmax} = 17.5°

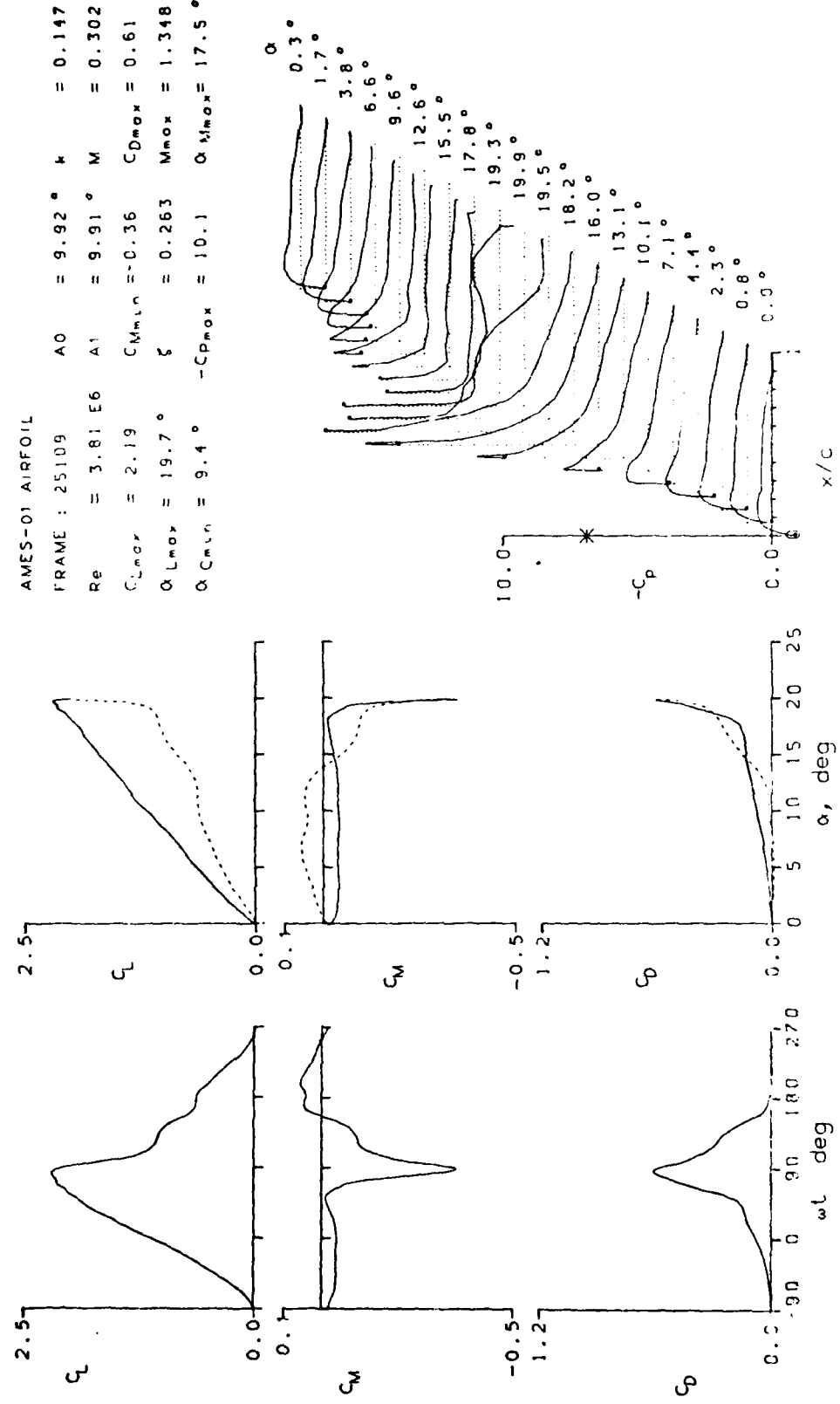


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25117	A0 = 9.94 °	k = 0.024
Re = 3.83 E6	A1 = 4.90 °	M = 0.303
$C_{Lmax} = 1.62$	$C_{Mmin} = -0.04$	$C_{Dmax} = 0.11$
$\alpha_{Lmax} = 14.5 °$	$\xi = -0.055$	$M_{max} = 1.203$
$\alpha_{Cmin} = 9.8 °$	$-C_{Dmax} = 8.8$	$\alpha_{Mmax} = 14.7 °$

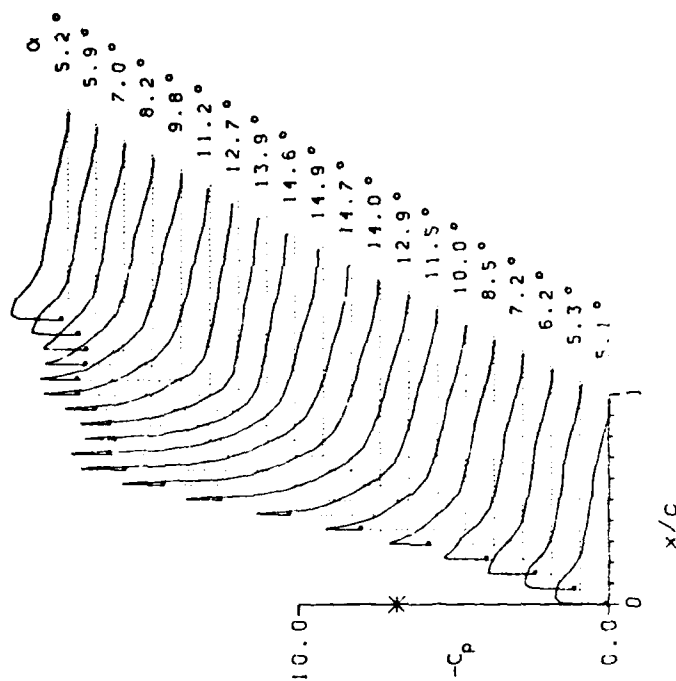
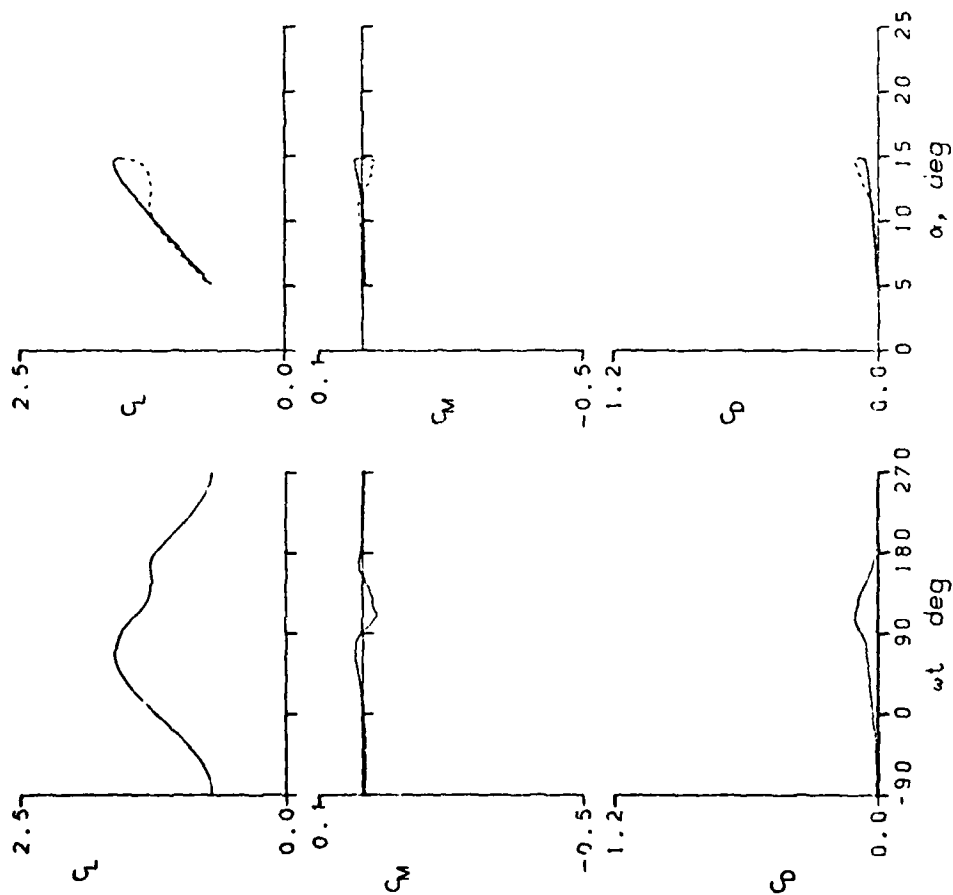


Figure 13.- Cont inued.

AMES-01 AIRFOIL

FRAME : 25118	$A_0 = 9.93^\circ$	$\mu = 0.049$
$Re = 3.80 \times 10^6$	$A_1 = 4.90^\circ$	$M = 0.302$
$C_{Lmax} = 1.65$	$C_{Mmin} = -0.02$	$C_{Dmax} = 0.08$
$\alpha_{Lmax} = 14.6^\circ$	$\xi = 0.072$	$M_{max} = 1.223$
$\alpha_{Cmin} = 9.8^\circ$	$-C_{Dmax} = 9.0$	$\alpha_{Mmax} = 14.7^\circ$

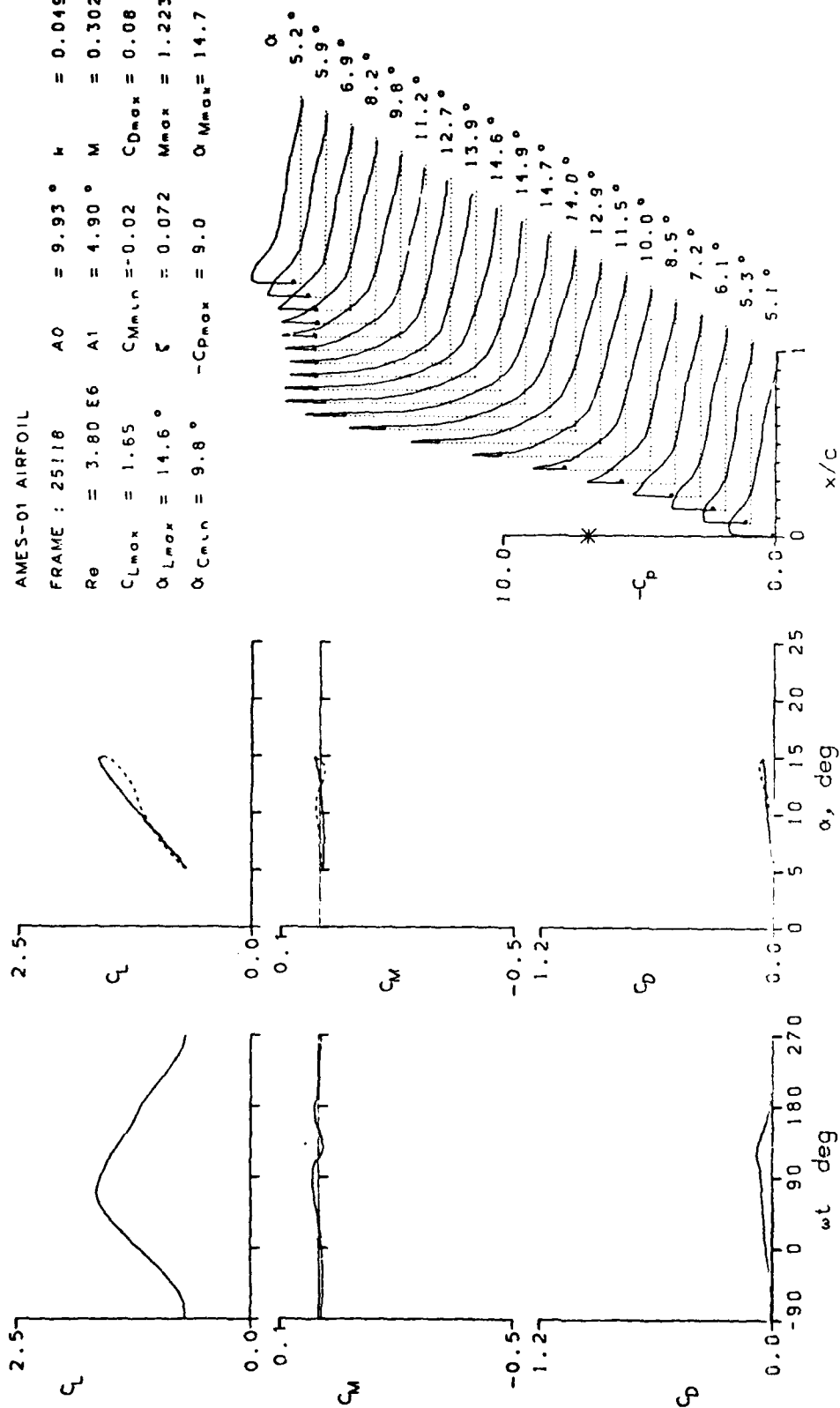


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25119 $A_0 = 9.93^\circ$ $k = 0.097$
 $Re = 3.81 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.303$
 $C_{L_{max}} = 1.70$ $C_{M_{min}} = -0.02$ $C_{D_{max}} = 0.07$
 $\alpha_{L_{max}} = 14.8^\circ$ $\xi = 0.235$ $M_{max} = 1.265$
 $\alpha_{C_{M_{min}}} = 9.8^\circ$ $-C_{D_{max}} = 9.3$ $\alpha_{M_{max}} = 14.9^\circ$

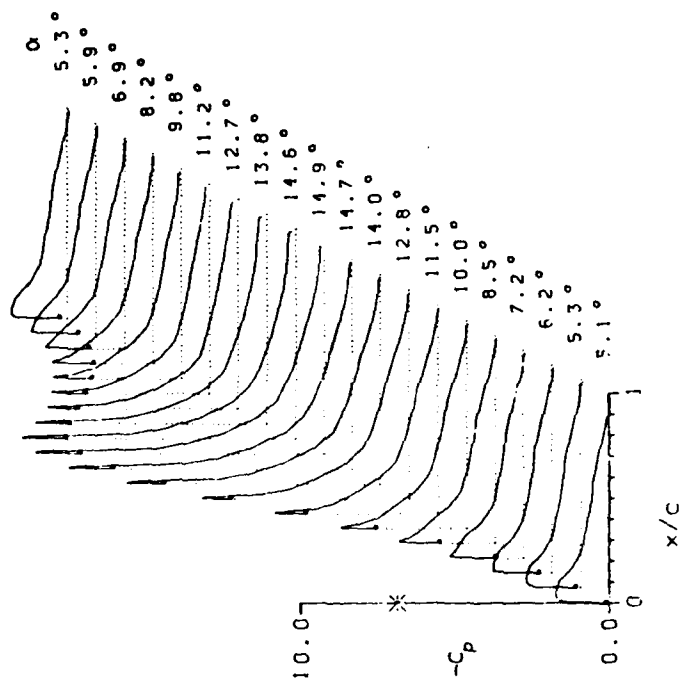
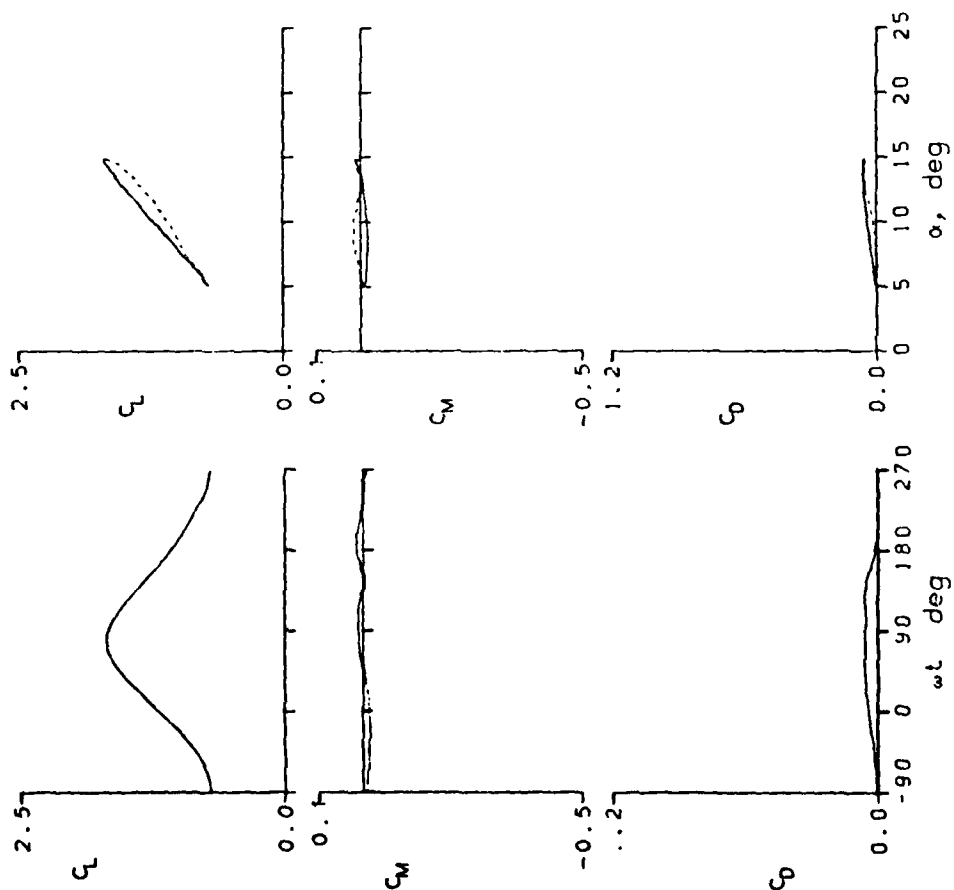


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25121 A0 = 9.94° h = 0.147
 Re = 3.81 E6 A1 = 4.90° M = 0.302
 C_{Lmax} = 1.72 C_{Mmin} = -0.03 C_{Dmax} = 0.07
 α_{Lmax} = 14.9° ζ = 0.407 M_{max} = 1.293
 α_{Cmin} = 9.8° -C_{Dmax} = 9.6 α_{Mmax} = 14.9°

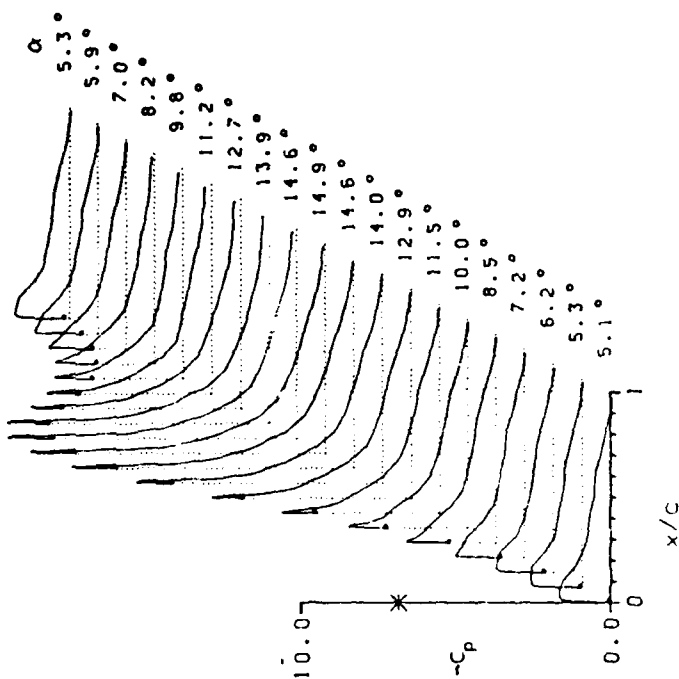
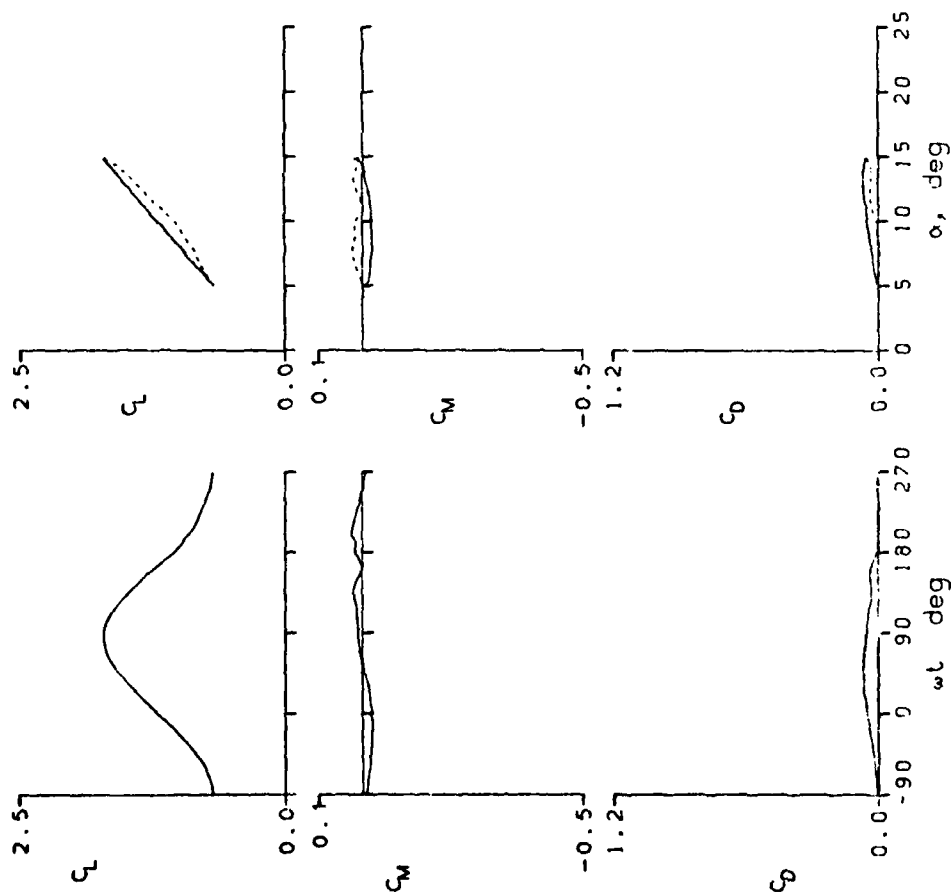


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25122	A0 = 9.94 °	k = 0.146
Re = 3.82 E6	A1 = 4.91 °	M = 0.303
CLmax = 1.73	CMmin = -0.03	CDmax = 0.07
αLmax = 14.9 °	ξ = 0.406	Mmax = 1.300
αCmin = 9.8 °	-CDmax = 9.6	αMmax = 14.9 °

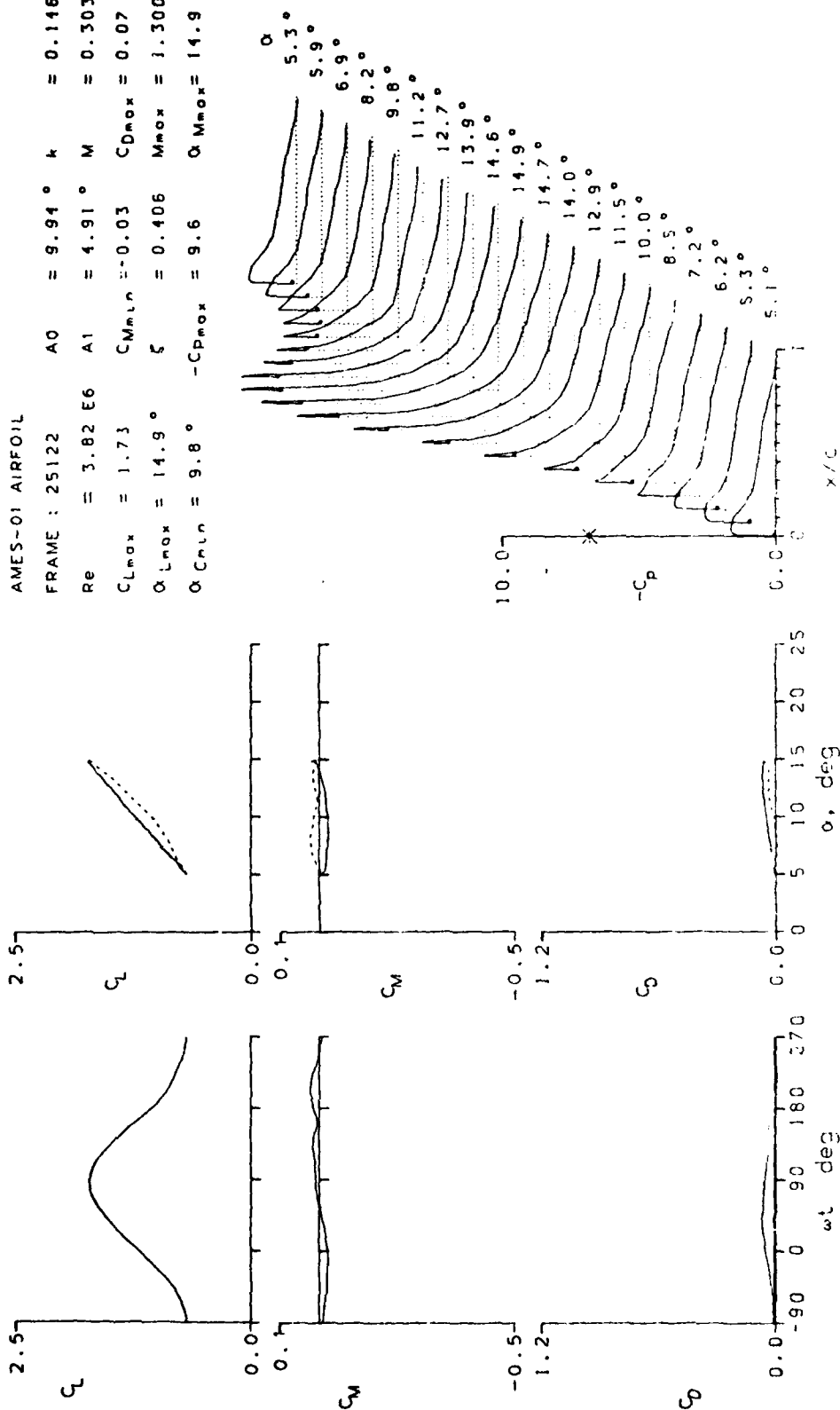


Figure 13.- Continued.

AMES-01 A RFOIL
 FRAME : 25123 $A_0 = 9.92^\circ$ $k = 0.195$
 $Re = 3.82 \times 10^6$ $A_1 = 4.90^\circ$ $M = 0.303$
 $C_{Lmax} = 1.77$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 14.9^\circ$ $\zeta = 0.364$ $M_{max} = 1.326$
 $\alpha_{C_{min}} = 9.8^\circ$ $-C_{pmax} = 9.8$ $\alpha_{Mmax} = 14.9^\circ$

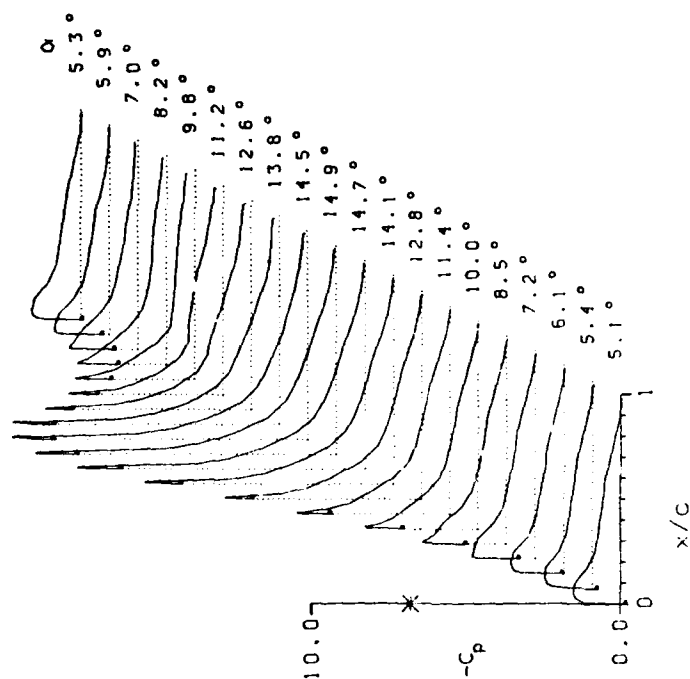
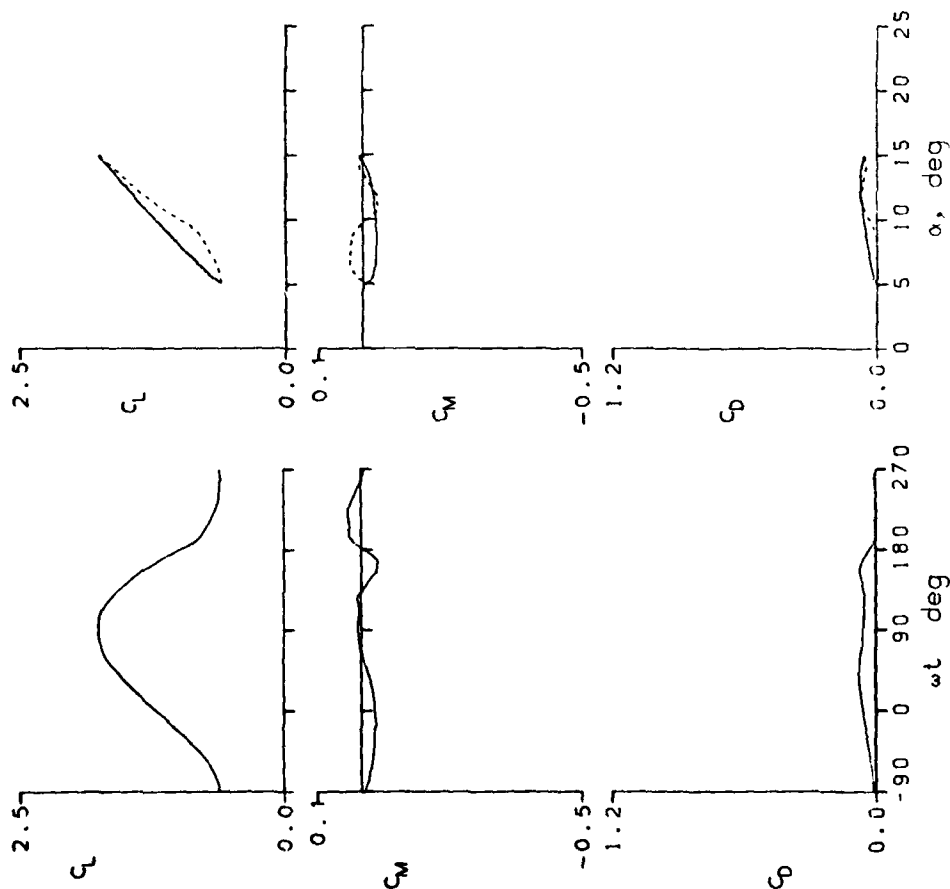


Figure 13.- Continued.

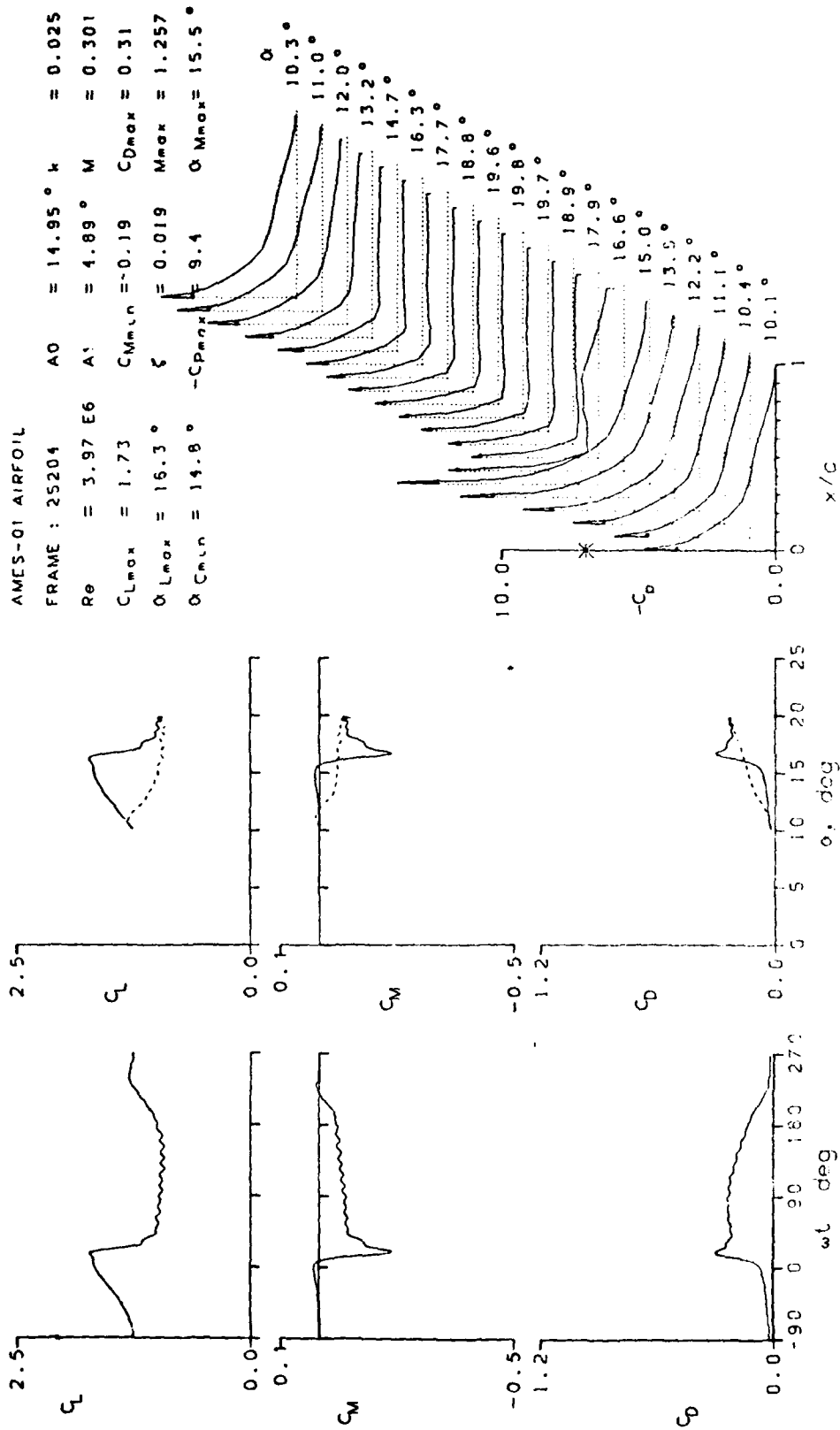


Figure 13.- Continued.

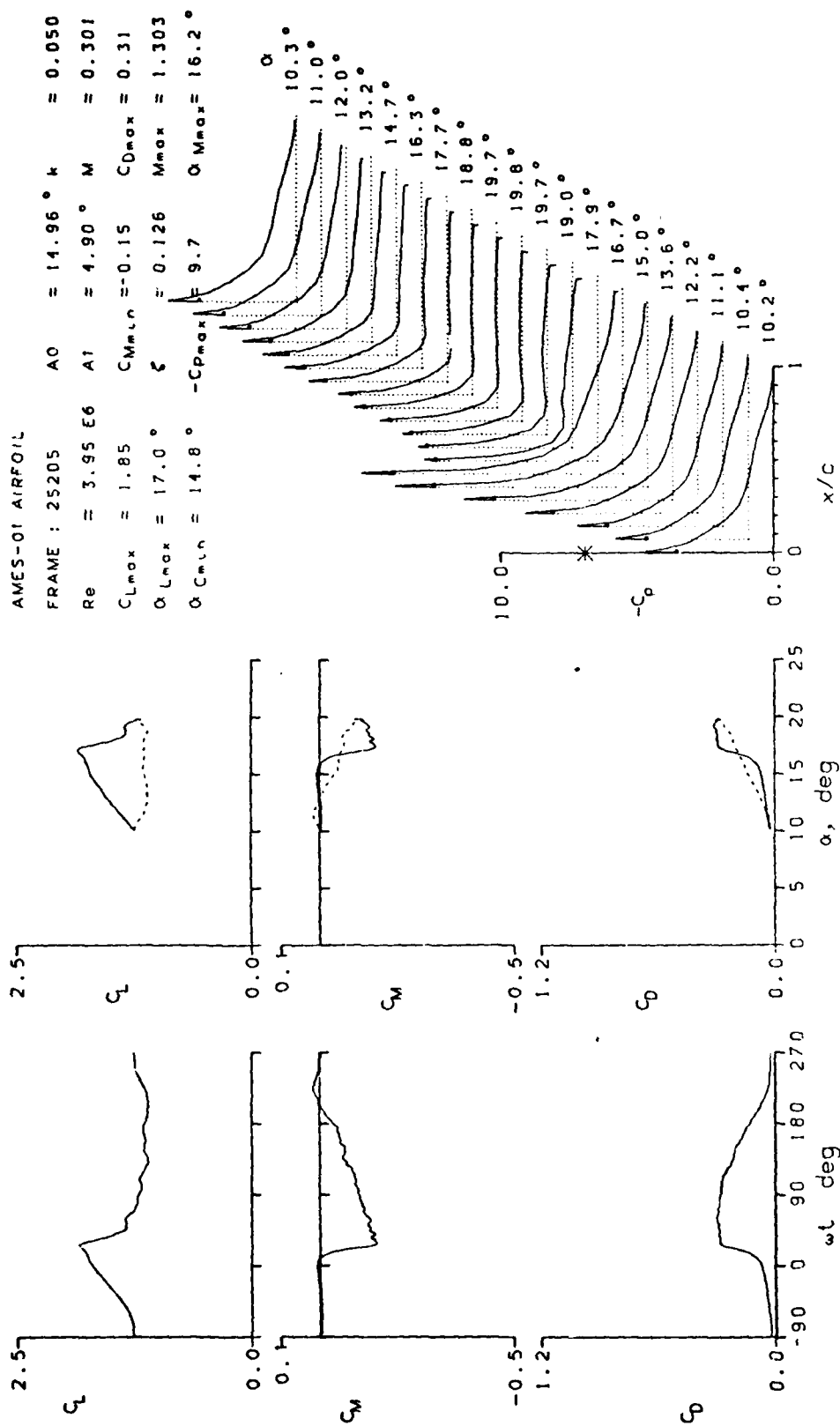


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25208
 $Re = 3.95 \times 10^6$
 $C_{Lmax} = 1.97$
 $\alpha_{Lmax} = 18.0^\circ$
 $\alpha_{Cmin} = 14.8^\circ$
 $A0 = 14.96^\circ$
 $A1 = 4.89^\circ$
 $C_{Mmin} = -0.21$
 $\zeta = 0.133$
 $-C_{Pmax} = 10.0$
 $k = 0.099$
 $M = 0.301$
 $C_{Dmax} = 0.39$
 $M_{max} = 1.341$
 $\alpha_{Mmax} = 16.5^\circ$

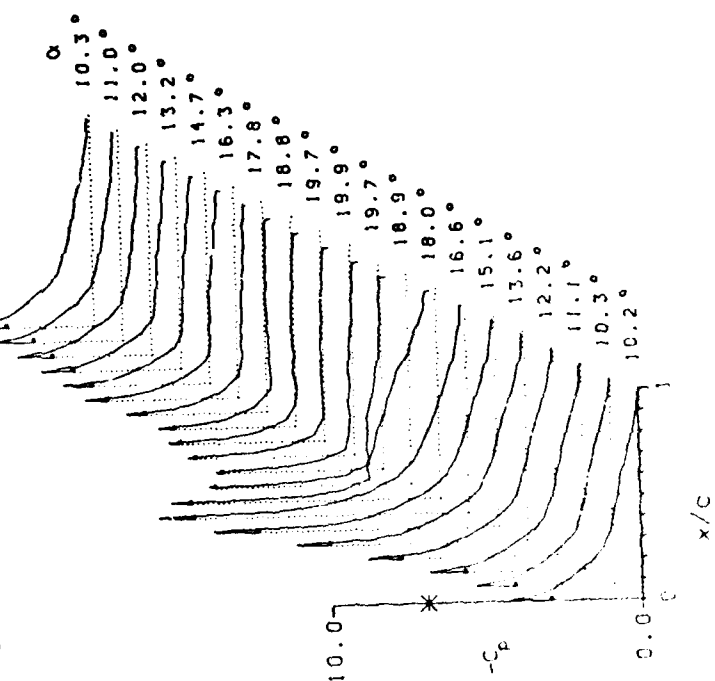
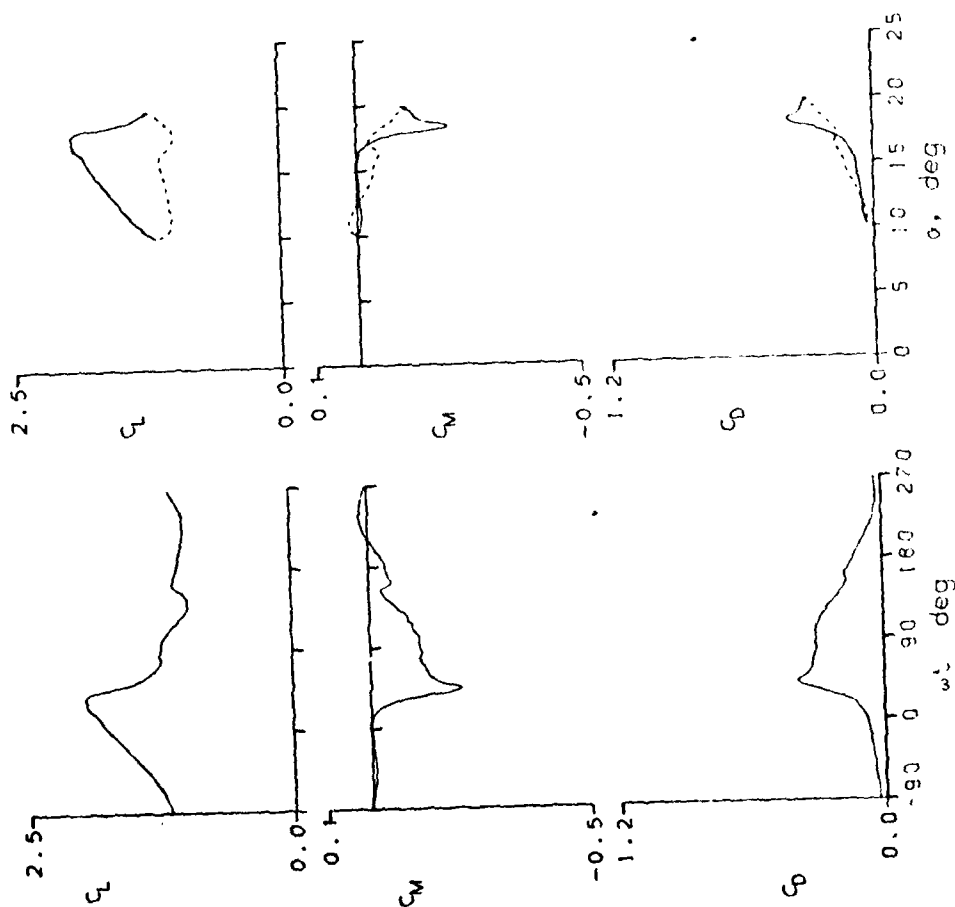


Figure 13.- Continued.

Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25210 $A_0 = 14.94^\circ$ $h = 0.201$
 $Re = 3.87 E6$ $A_1 = 4.89^\circ$ $M = 0.297$
 $C_{Lmax} = 2.24$ $C_{Mmin} = -0.38$ $C_{Dmax} = 0.64$
 $\alpha_{Lmax} = 19.6^\circ$ $\zeta = 0.173$ $M_{max} = 1.323$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Pmax} = 10.2$ $\alpha_{Mmax} = 17.2^\circ$

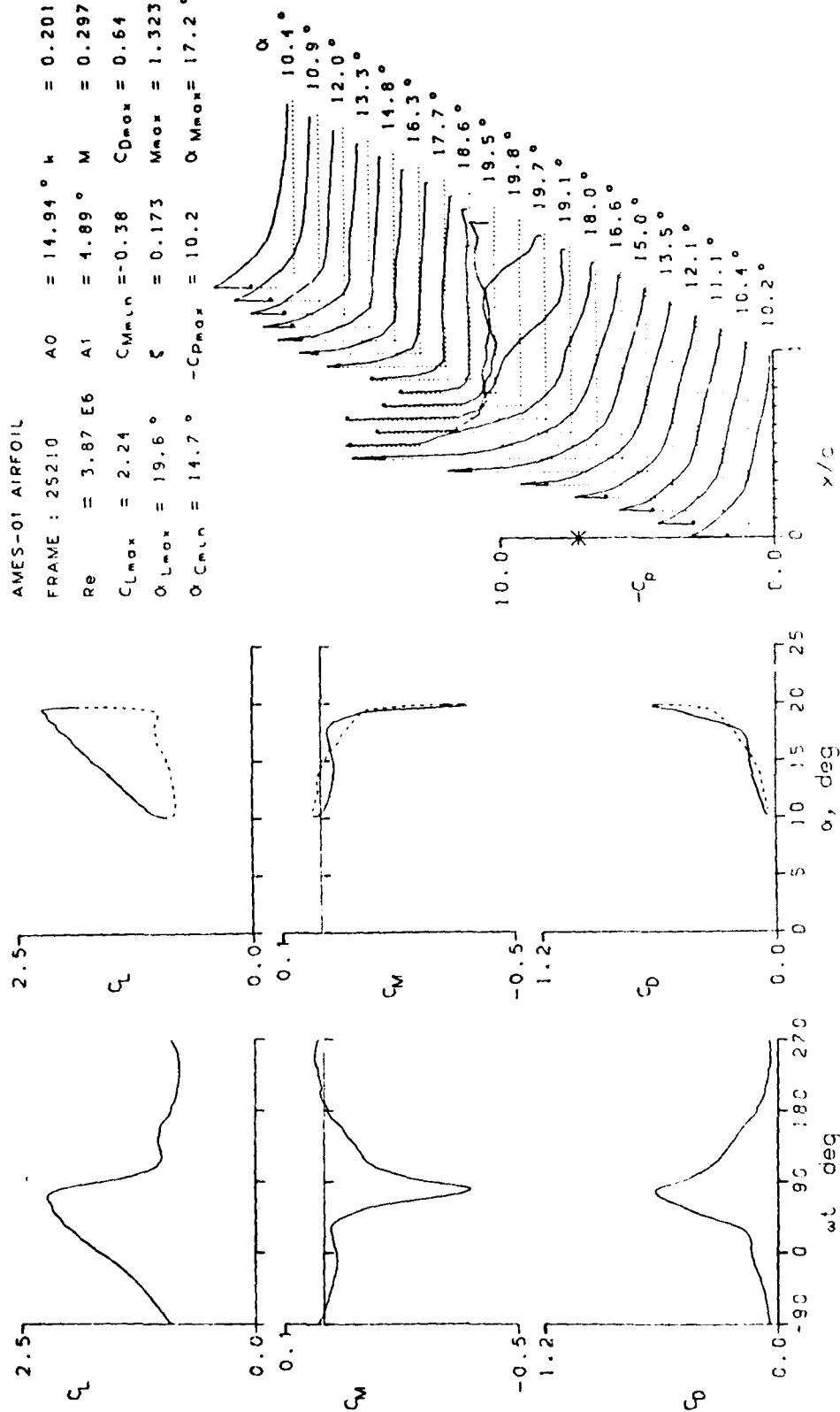
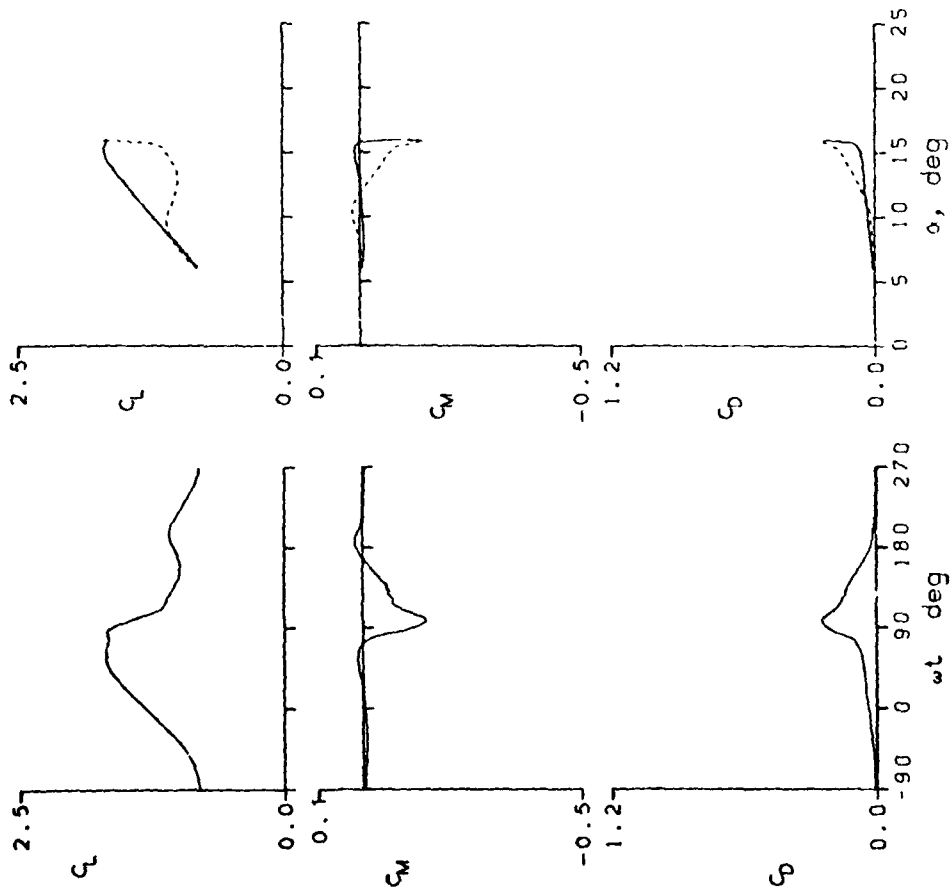


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25214	A0 = 10.90°	h = 0.049
Re = 3.93 E6	A1 = 4.91°	M = 0.302
C _{Lmax} = 1.69	C _{Mmin} = -0.15	C _{Dmax} = 0.25
α _{Lmax} = 15.3°	ξ = -0.199	M _{max} = 1.271
α _{Cmin} = 10.6°	-C _{Dmax} = 9.4	α _{Mmax} = 15.4°



AMES-01 AIRFOIL
 FRAME : 25216 $A_0 = 10.91^\circ$ $k = 0.099$
 $Re = 3.91 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.76$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.19$
 $\alpha_{Lmax} = 15.8^\circ$ $\zeta = -0.007$ $M_{max} = 1.316$
 $\alpha_{Cmin} = 10.5^\circ$ $-C_{Dmax} = 9.8$ $\alpha_{Mmax} = 15.7^\circ$

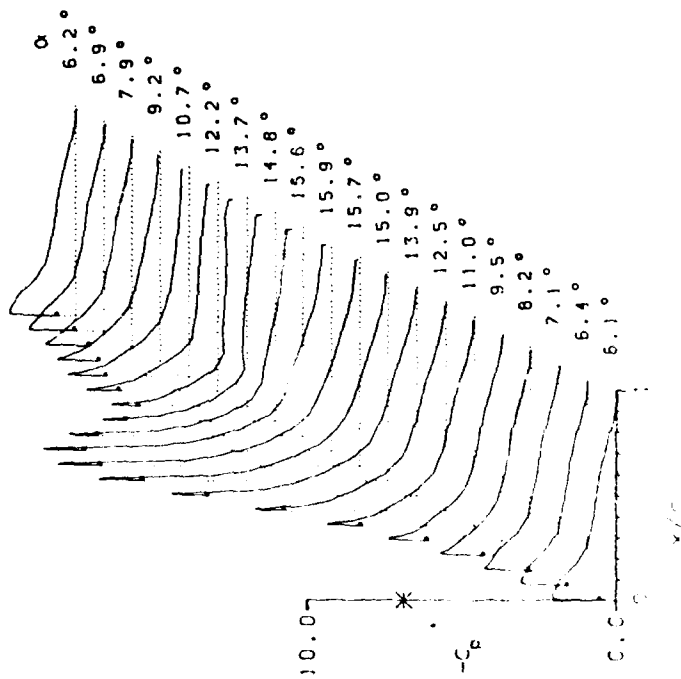
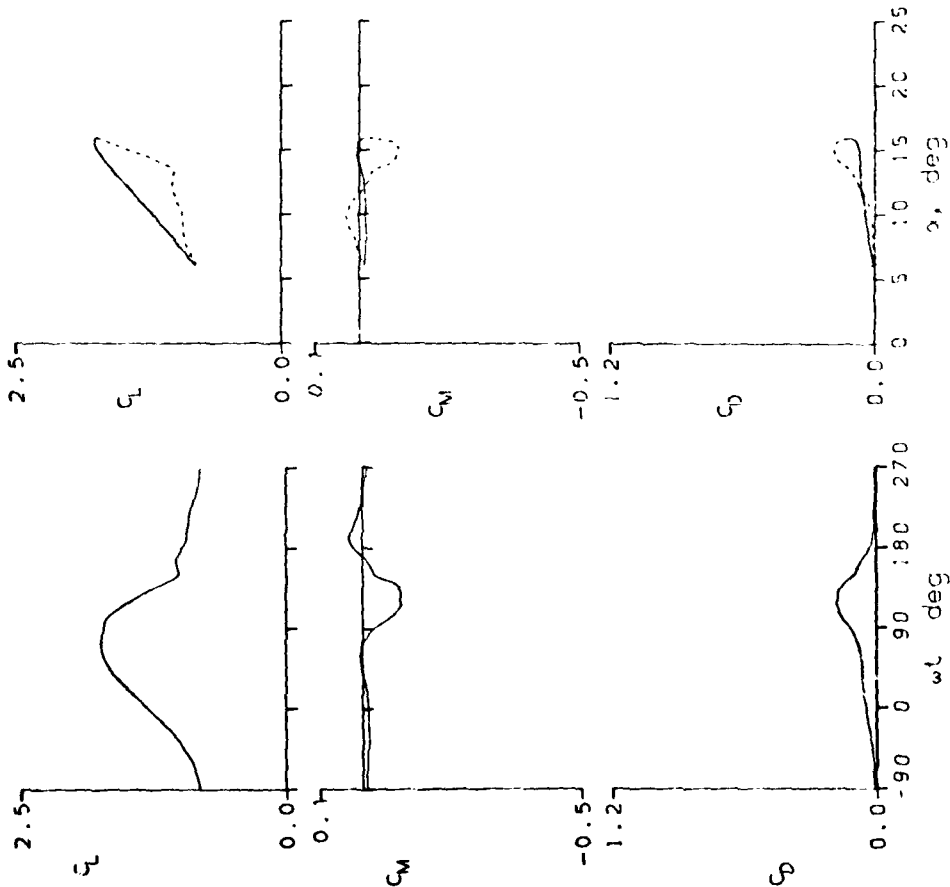


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25301 $A_0 = 4.96^\circ$ $k = 0.098$
 $Re = 3.90 \text{ E}6$ $A_1 = 5.00^\circ$ $M = 0.302$
 $C_{Lmax} = 1.22$ $C_{Mmin} = -0.02$ $C_{Dmax} = 0.04$
 $\alpha_{Lmax} = 9.9^\circ$ $\zeta = 0.287$ $M_{max} = 0.779$
 $\alpha_{Cmin} = 4.7^\circ$ $-C_{Dmax} = 4.5$ $\alpha_{Mmax} = 9.9^\circ$

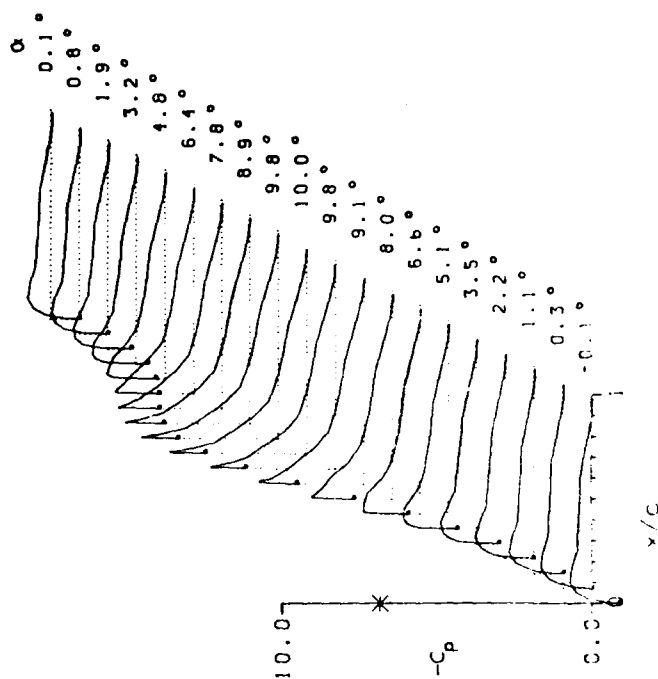
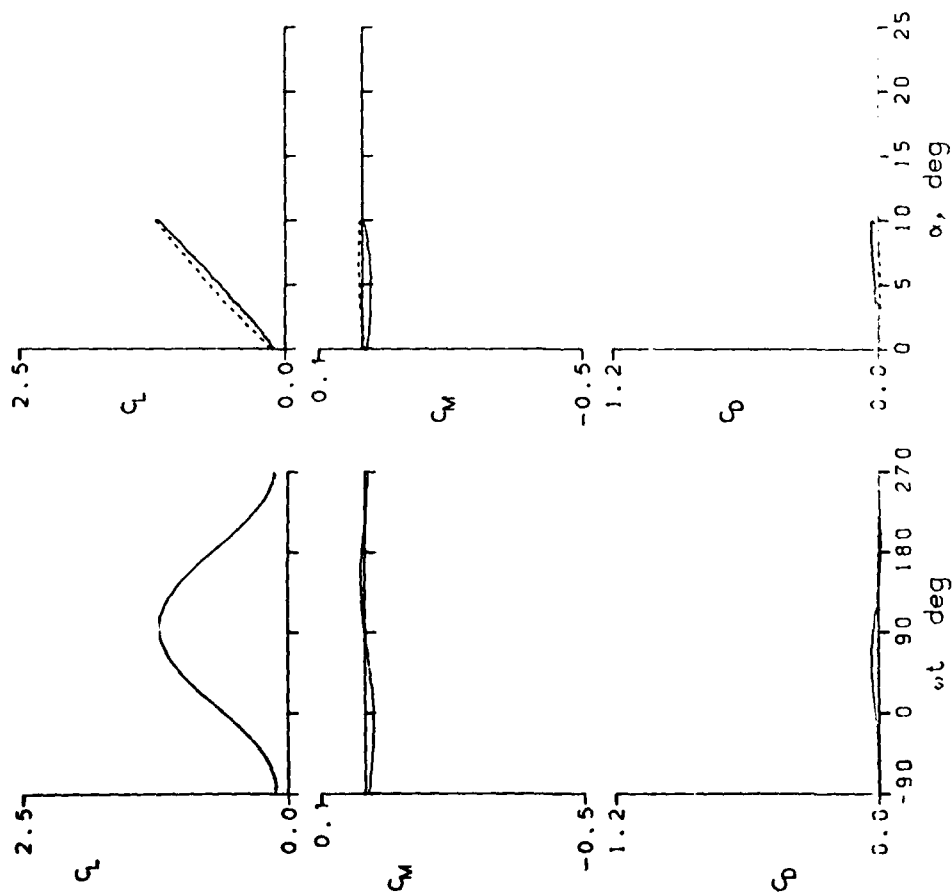


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 25303	A0 = 4.97°	k = 0.196
Re = 3.88 E6	A1 = 5.00°	M = 0.303
CLmax = 1.25	CMmin = -0.04	CDmax = 0.05
αLmax = 10.0°	ξ = 0.680	Mmax = 0.805
αCMln = 4.8°	-CDmax = 4.8	αMmax = 9.9°

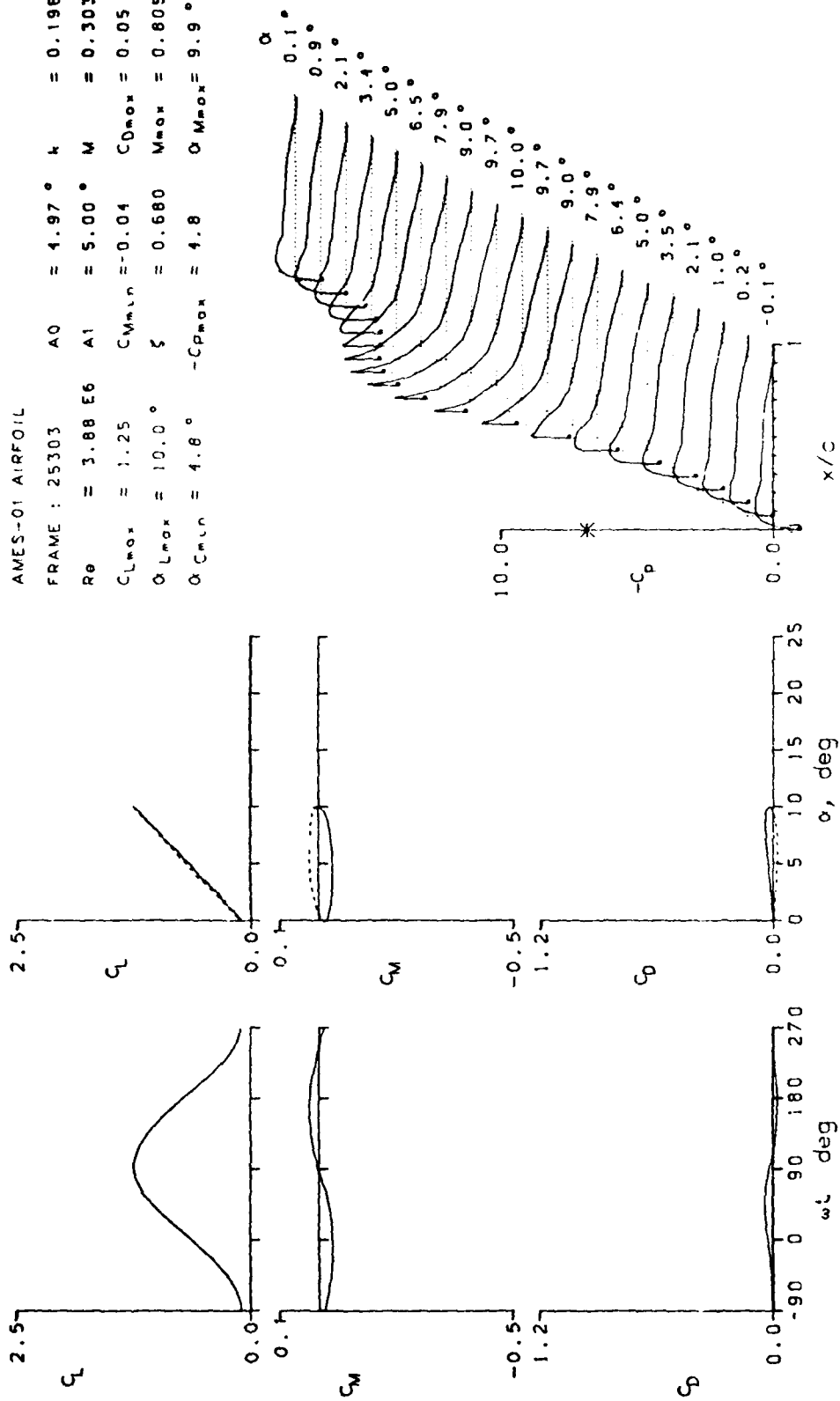


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25311 $A_0 = 4.86^\circ$ $k = 0.098$
 $Re = 3.85 \text{ E}6$ $A_1 = 10.11^\circ$ $M = 0.302$
 $C_{Lmax} = 1.72$ $C_{Mmin} = -0.03$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 15.1^\circ$ $\zeta = 0.297$ $M_{max} = 1.291$
 $\alpha_{Cmin} = 4.4^\circ$ $-C_{Dmax} = 9.6$ $\alpha_{Mmax} = 15.0^\circ$

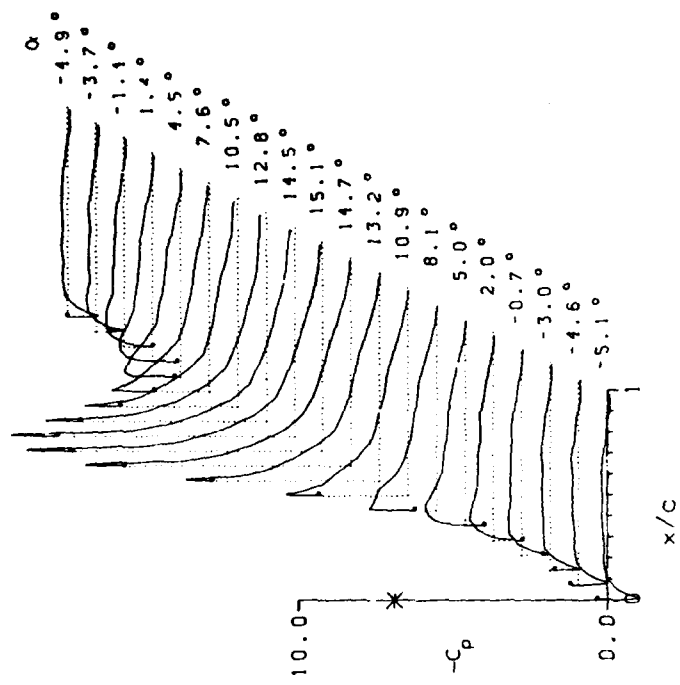
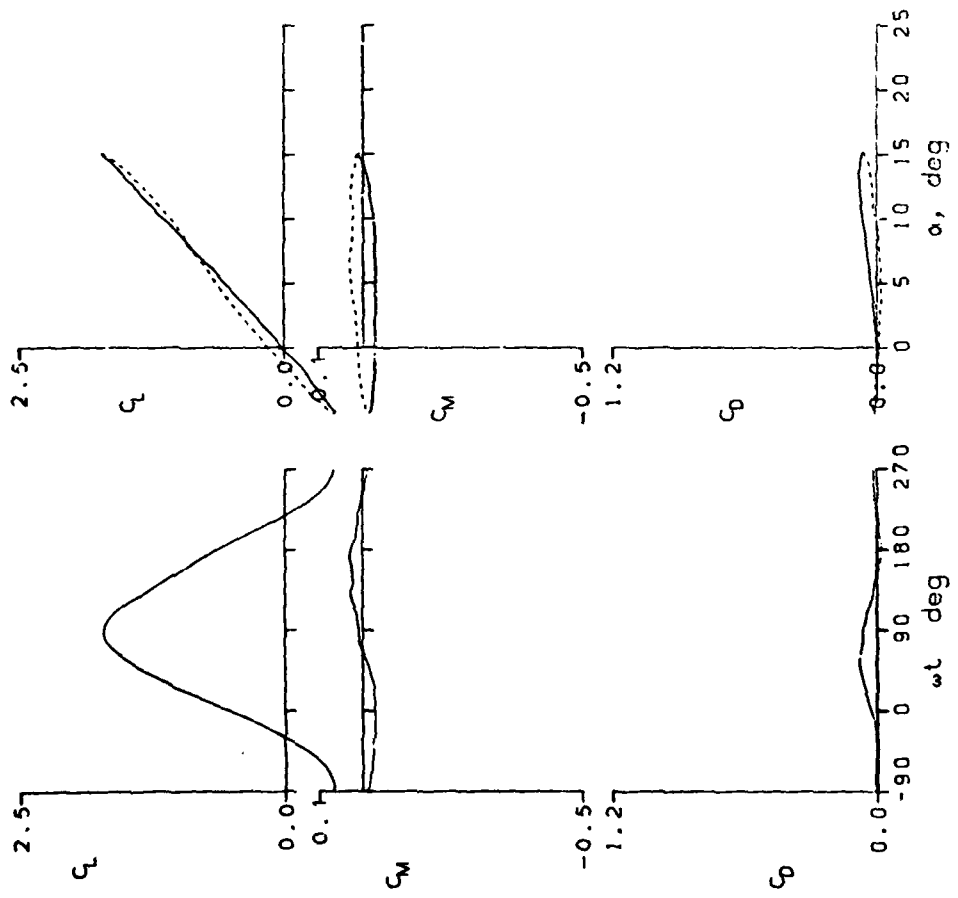


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 25319 $A0 = 5.32^\circ$ $k = 0.098$
 $Re = 3.83 \text{ E}6$ $A1 = 10.07^\circ$ $M = 0.302$
 $C_{L_{max}} = 1.74$ $C_{M_{min}} = -0.05$ $C_{D_{max}} = 0.11$
 $\alpha_{L_{max}} = 15.6^\circ$ $\xi = 0.216$ $M_{max} = 1.303$
 $\alpha_{C_{min}} = 4.8^\circ$ $-C_{D_{max}} = 9.7$ $\alpha_{M_{max}} = 15.6^\circ$

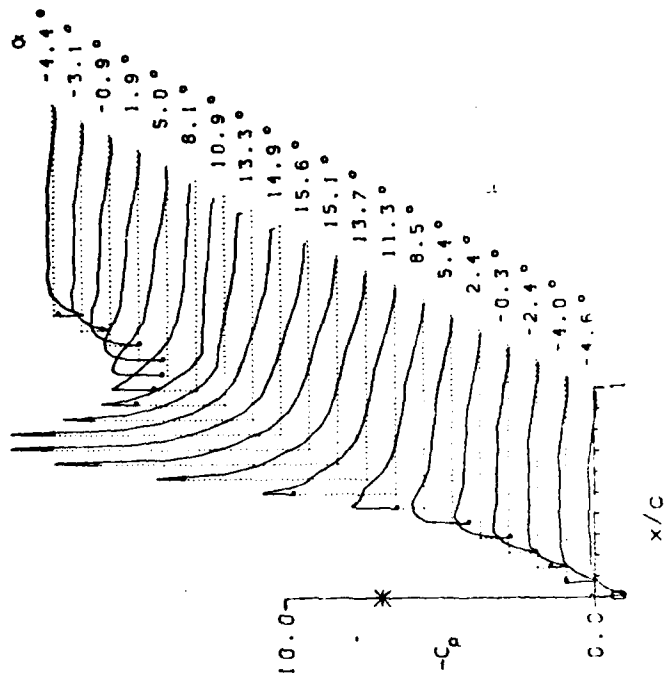
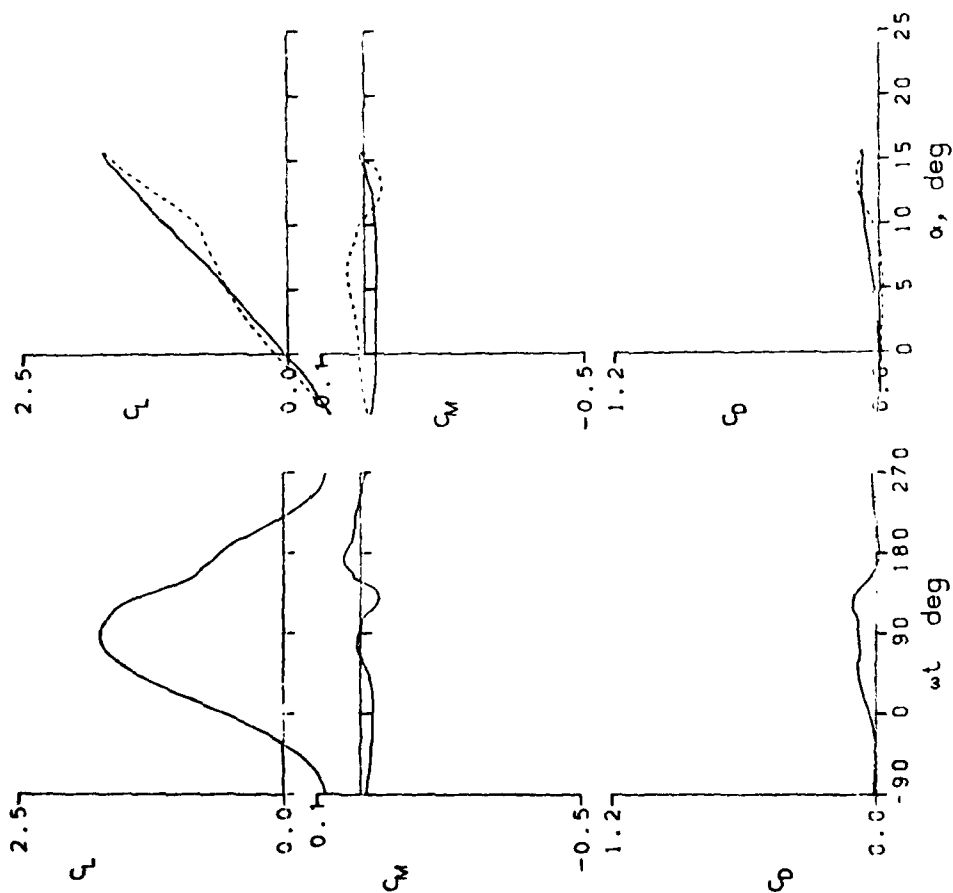


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29023	A0 = 14.85°	k = 0.025	TRIP
Re = 3.70 E6	A1 = 9.90°	M = 0.291	
C _{Lmax} = 1.78	C _{Mmin} = -0.23	C _{Dmax} = 0.47	
α _{Lmax} = 17.6°	ξ = 0.081	M _{max} = 1.299	
α _{Cmin} = 14.5°	-C _{Dmax} = 10.4	α _{Mmax} = 16.6°	

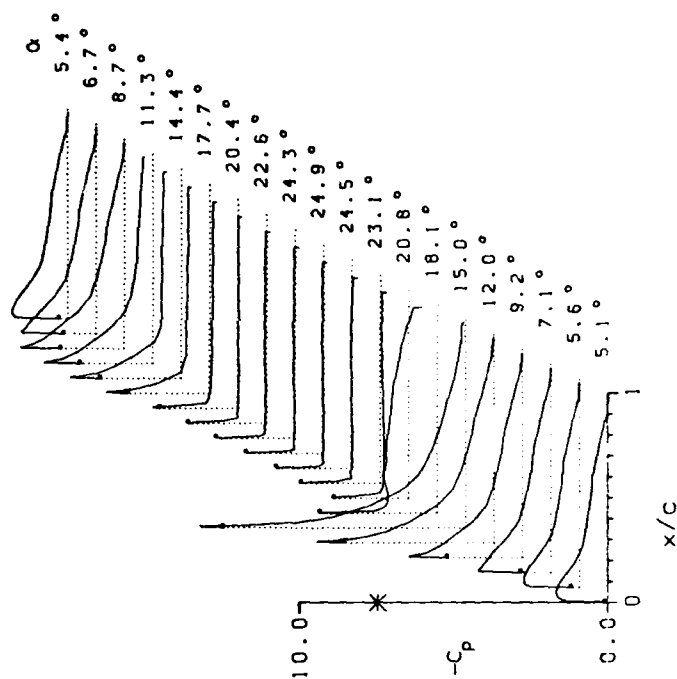
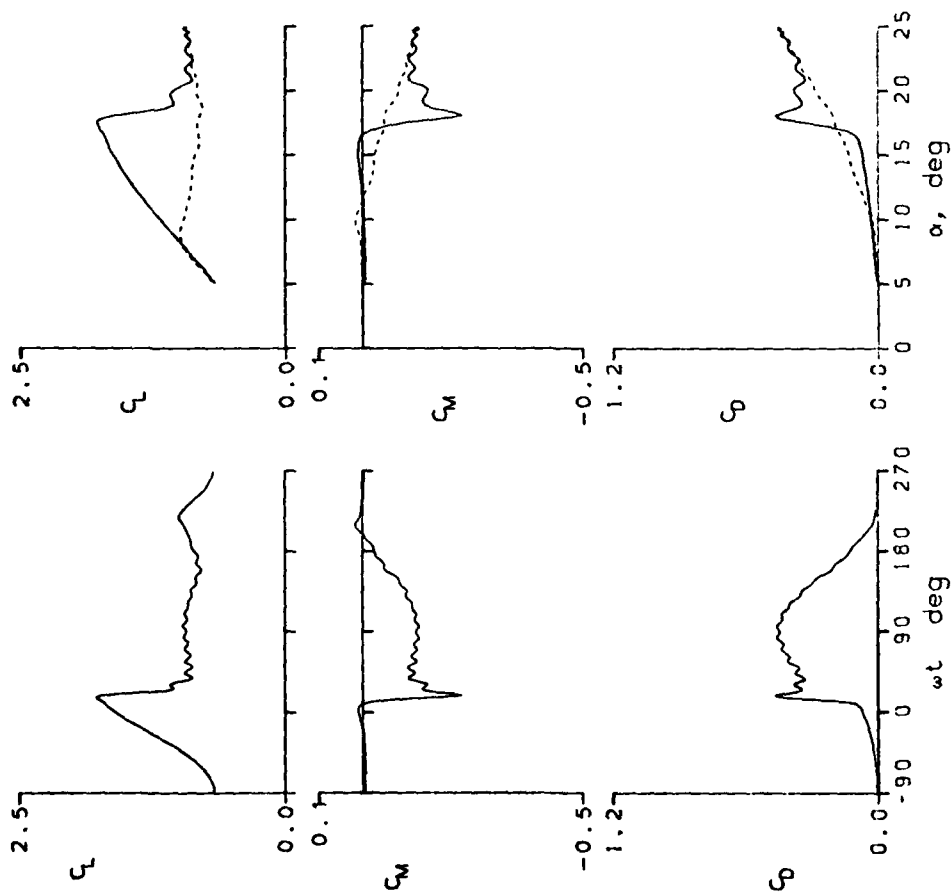


Figure 13.- Continued.

AMES-01 AIRFOIL TRIP

FRAME : 29101 A0 = 14.83° k = 0.050

Re = 3.54 E6 A1 = 9.90° M = 0.288

C_{Lmax} = 1.97 C_{Mmin} = -0.33 C_{Dmax} = 0.64

α_{Lmax} = 18.1° ζ = 0.307 M_{max} = 1.355

α_{Cmin} = 14.4° -C_{pmax} = 11.2 α_{Mmax} = 17.2°

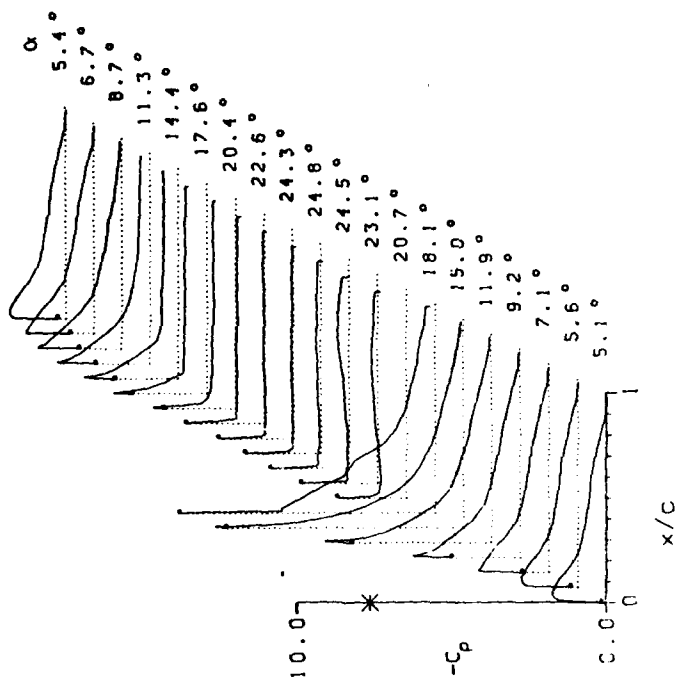
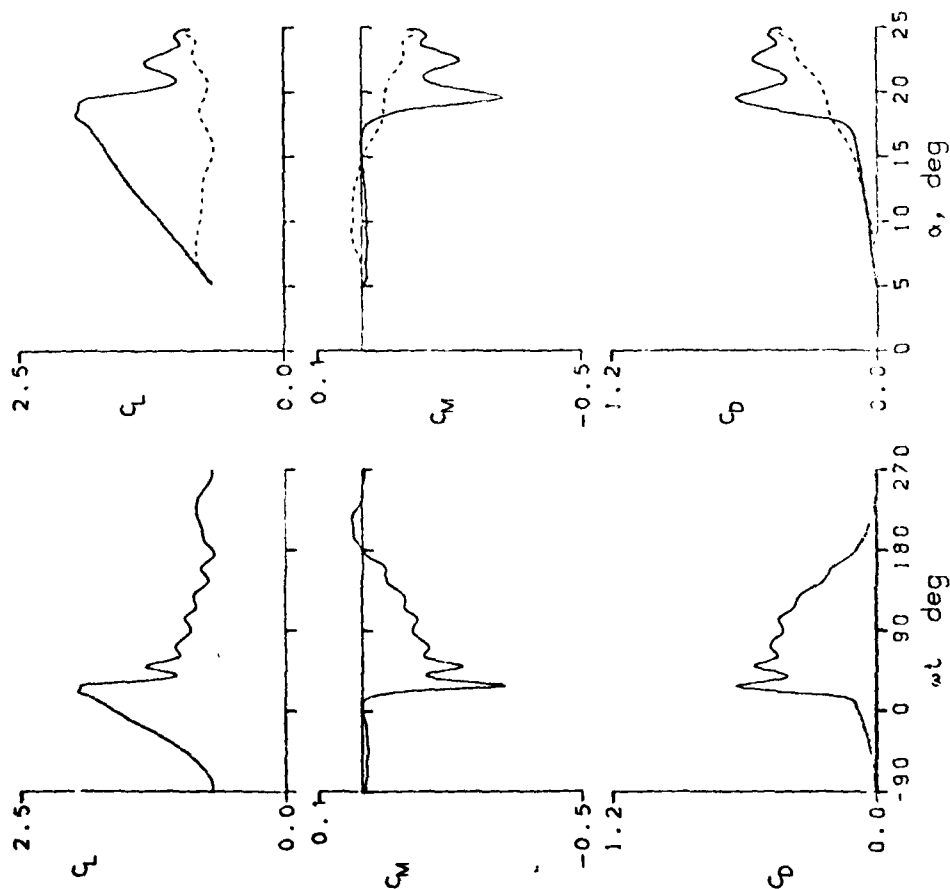


Figure 13.- Continued.

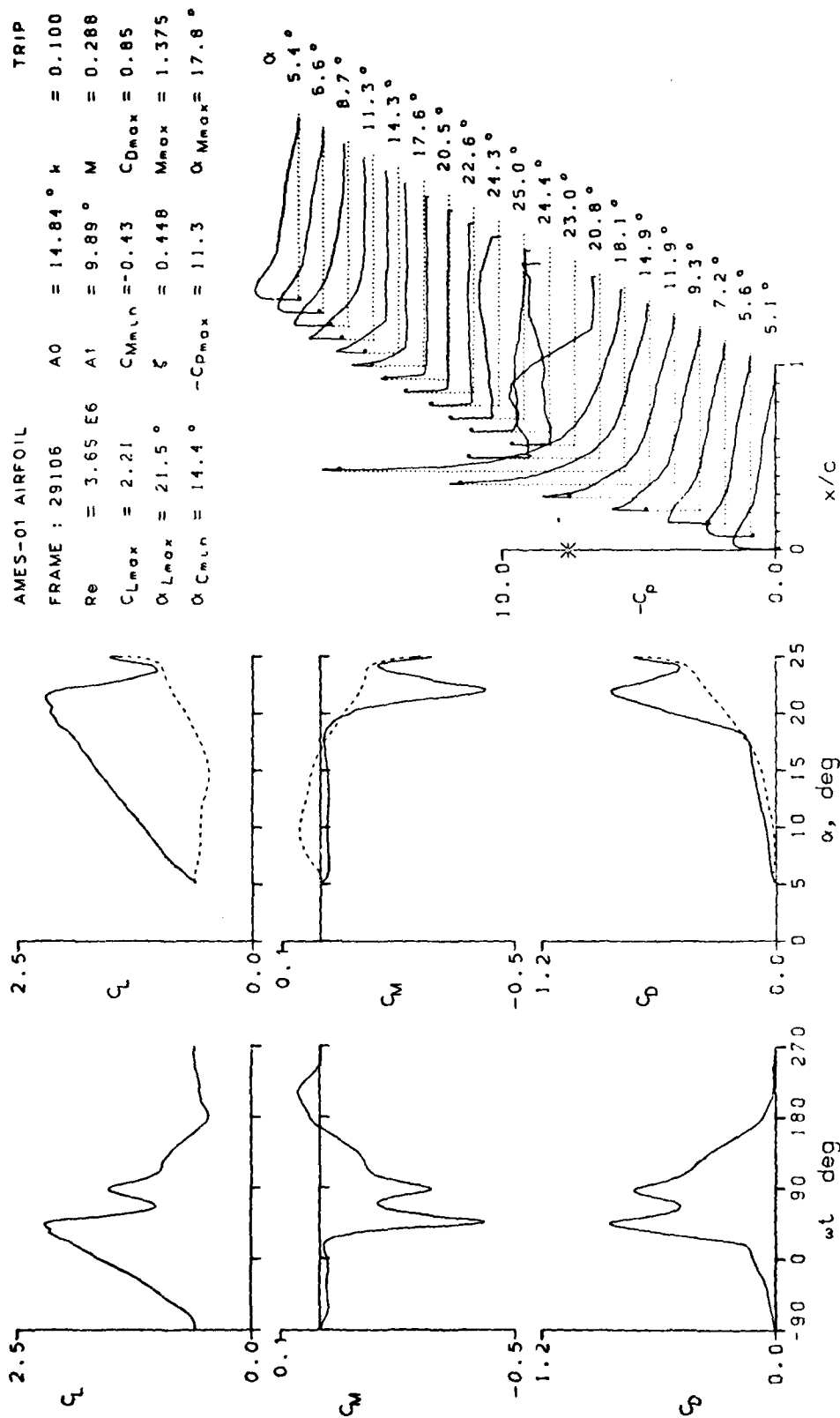


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29115	A0 = 14.83°	k = 0.049	TRIP
Re = 2.42 E6	A1 = 9.90°	M = 0.184	
CLmax = 2.65	CMmin = -0.35	CDmax = 0.73	
αLmax = 20.6°	ζ = 0.258	Mmax = 0.745	
αCmin = 14.4°	-CPmax = 12.3	αMmax = 18.9°	

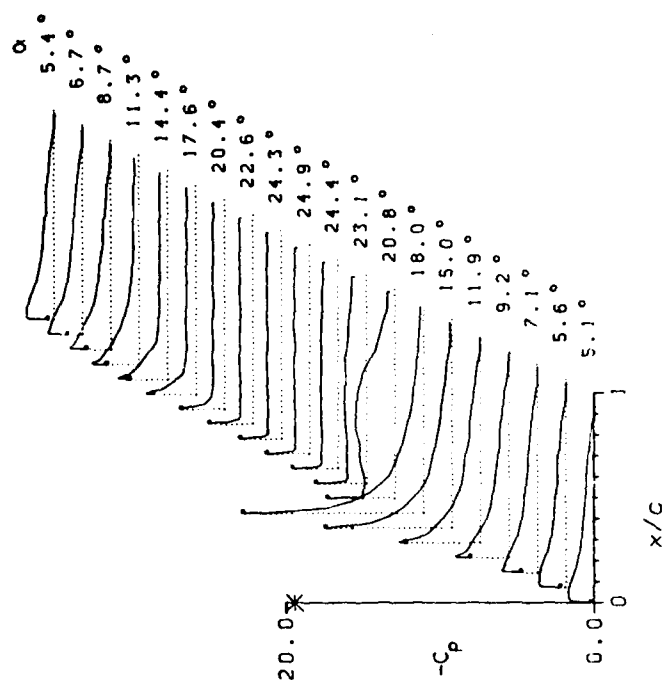
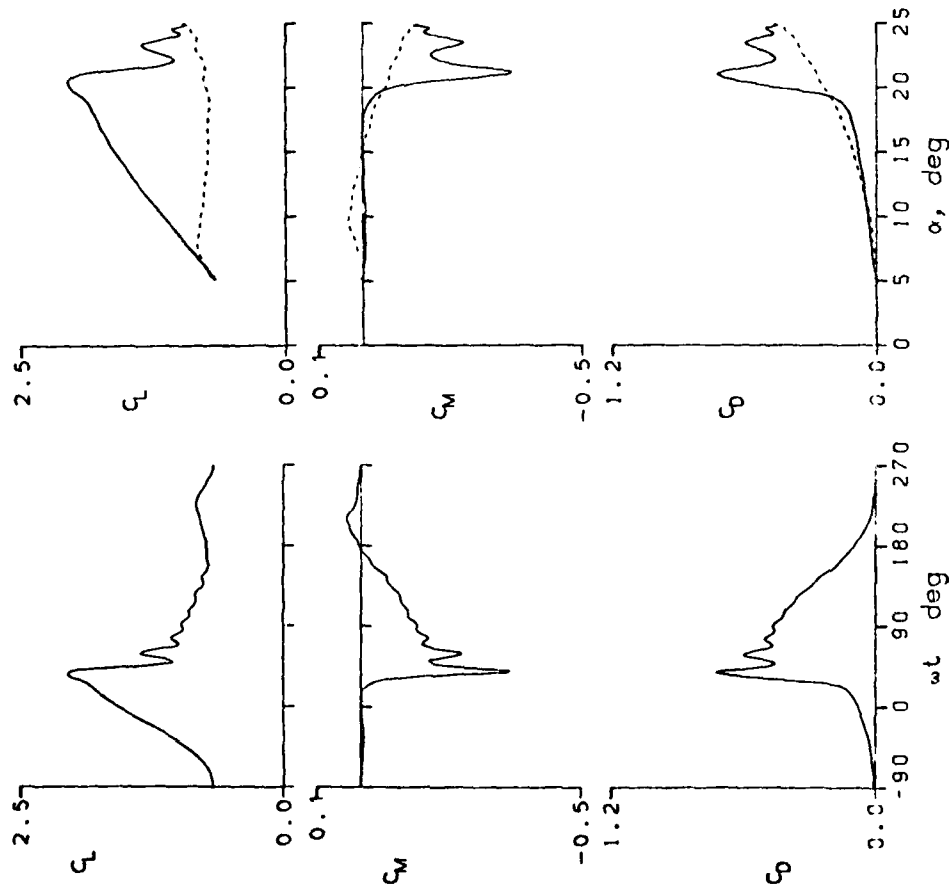


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29117	A0 = 14.81°	k = 0.099	TRIP
Re = 2.42 E6	A1 = 9.91°	M = 0.184	
CLmax = 2.32	CMmin = -0.40	CDmax = 0.91	
αLmax = 22.0°	ξ = 0.292	Mmax = 0.823	
αCmin = 14.4°	-Cpmax = 14.5	αMmax = 20.6°	

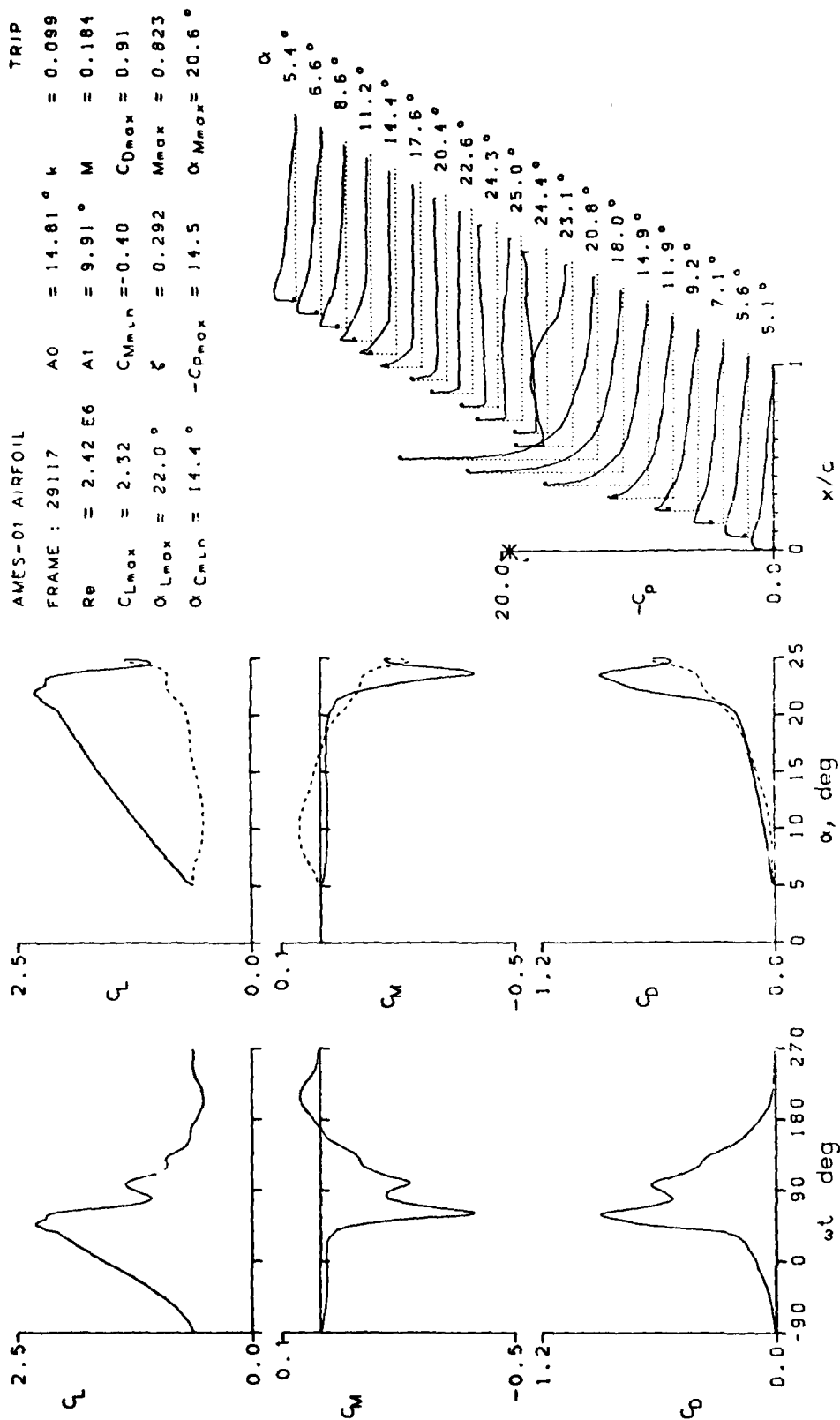


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29119	A0 = 1.11°	k = 0.148	TRIP
Re = 2.42 E6	A1 = 9.90°	M = 0.184	
C _{Lmax} = 2.46	C _{Mmin} = -0.46	C _{Dmax} = 1.06	
α _{Lmax} = 23.1°	ξ = 0.109	M _{max} = 0.871	
α _{Cmin} = 14.4°	-C _{Dmax} = 15.8	α _{Mmax} = 21.6°	

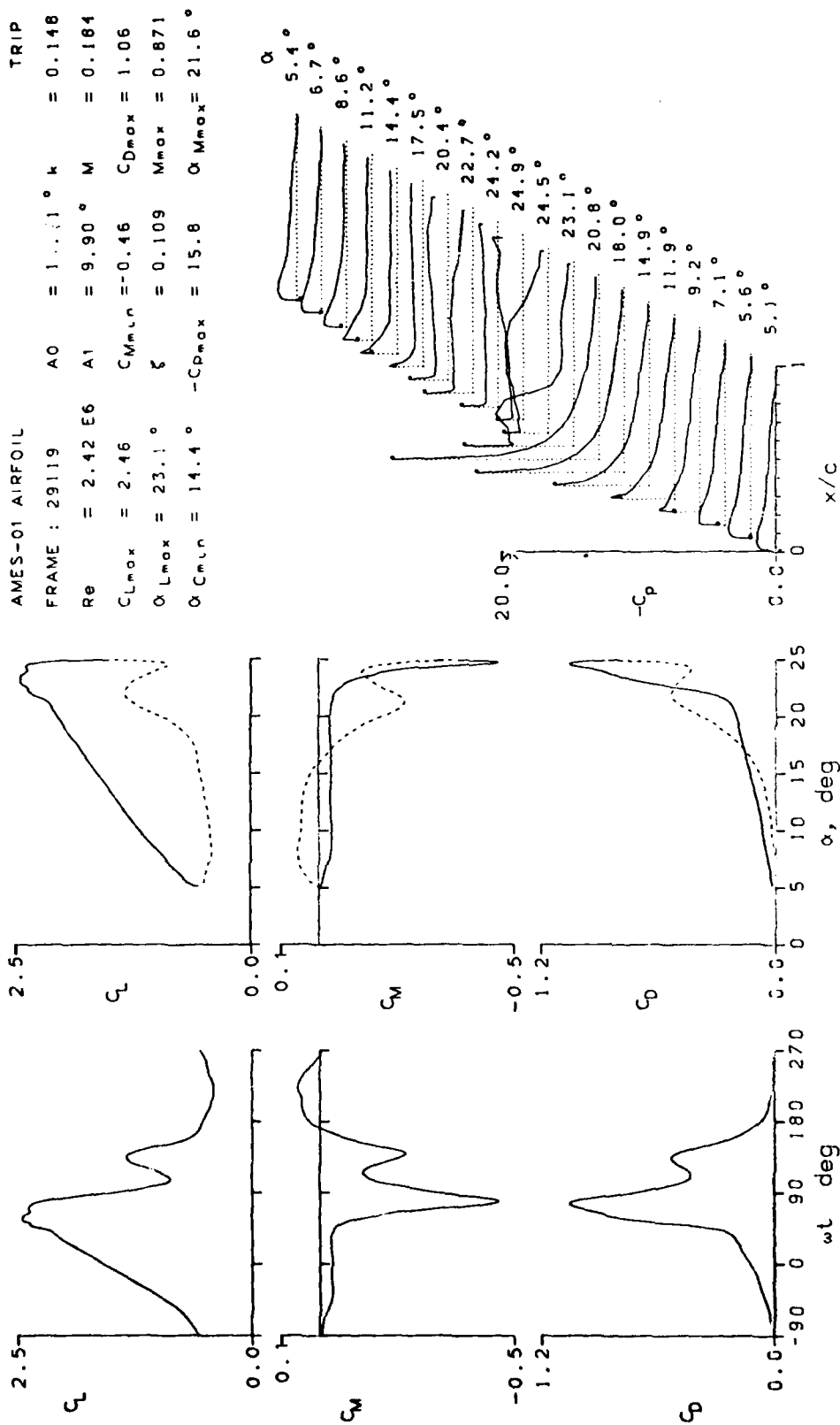


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 29205 $A_0 = 4.88^\circ$ $k = 0.010$
 $Re = 3.95 \text{ E}6$ $A_1 = 10.05^\circ$ $M = 0.301$
 $C_{Lmax} = 1.61$ $C_{Mmin} = -0.03$ $C_{Dmax} = 0.10$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = -0.003$ $M_{max} = 1.192$
 $\alpha_{Cmin} = 4.4^\circ$ $-C_{Dmax} = 8.8$ $\alpha_{Mmax} = 14.9^\circ$

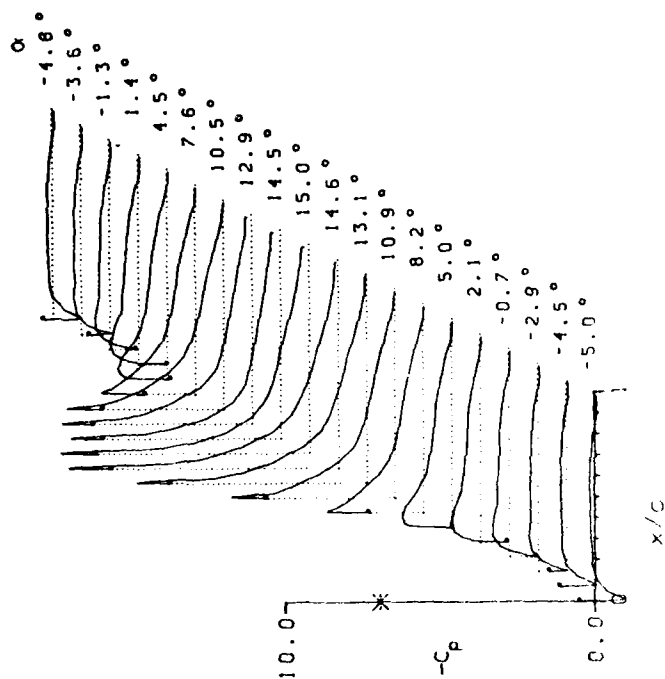
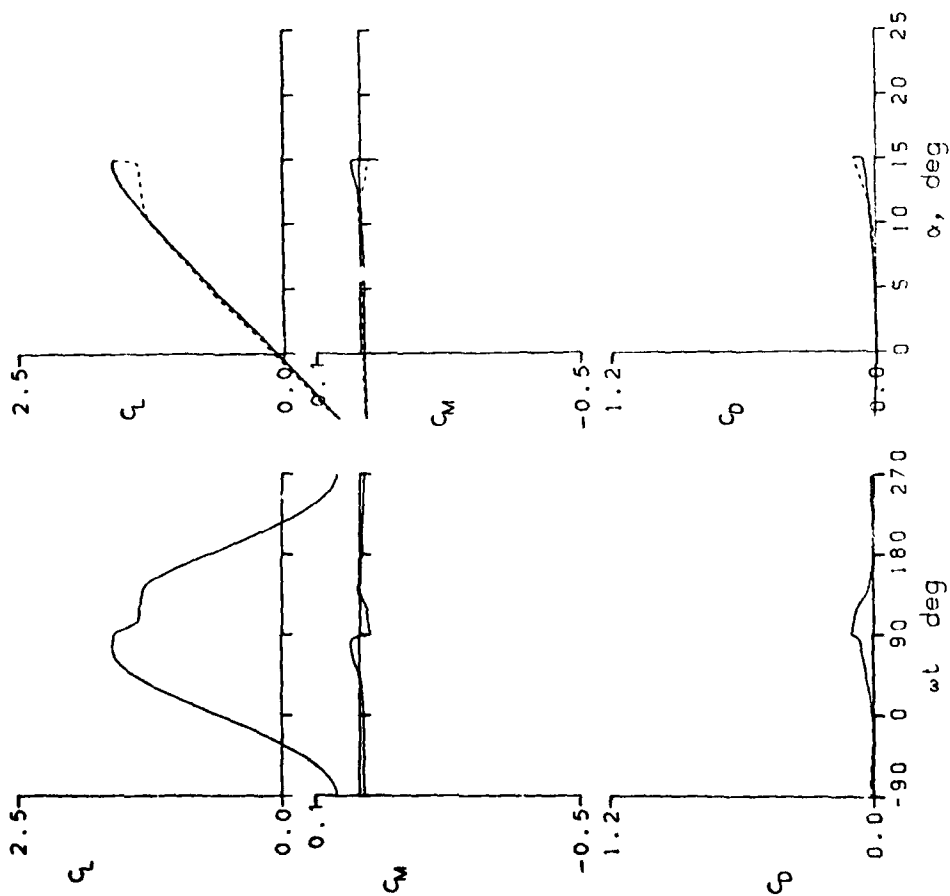


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29207	$A_0 = 4.80^\circ$	$h = 0.050$
$Re = 3.92 \text{ E}6$	$A_1 = 10.08^\circ$	$M = 0.301$
$C_{Lmax} = 1.69$	$C_{Mmin} = -0.03$	$C_{Dmax} = 0.09$
$\alpha_{Lmax} = 14.8^\circ$	$\xi = 0.103$	$M_{max} = 1.252$
$\alpha_{Cmin} = 4.3^\circ$	$-C_{Dmax} = 9.3$	$\alpha_{Mmax} = 14.9^\circ$

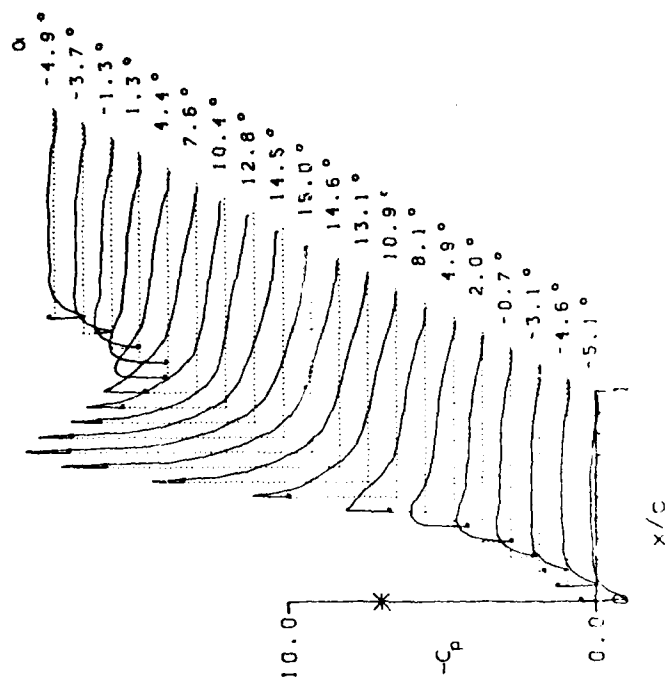
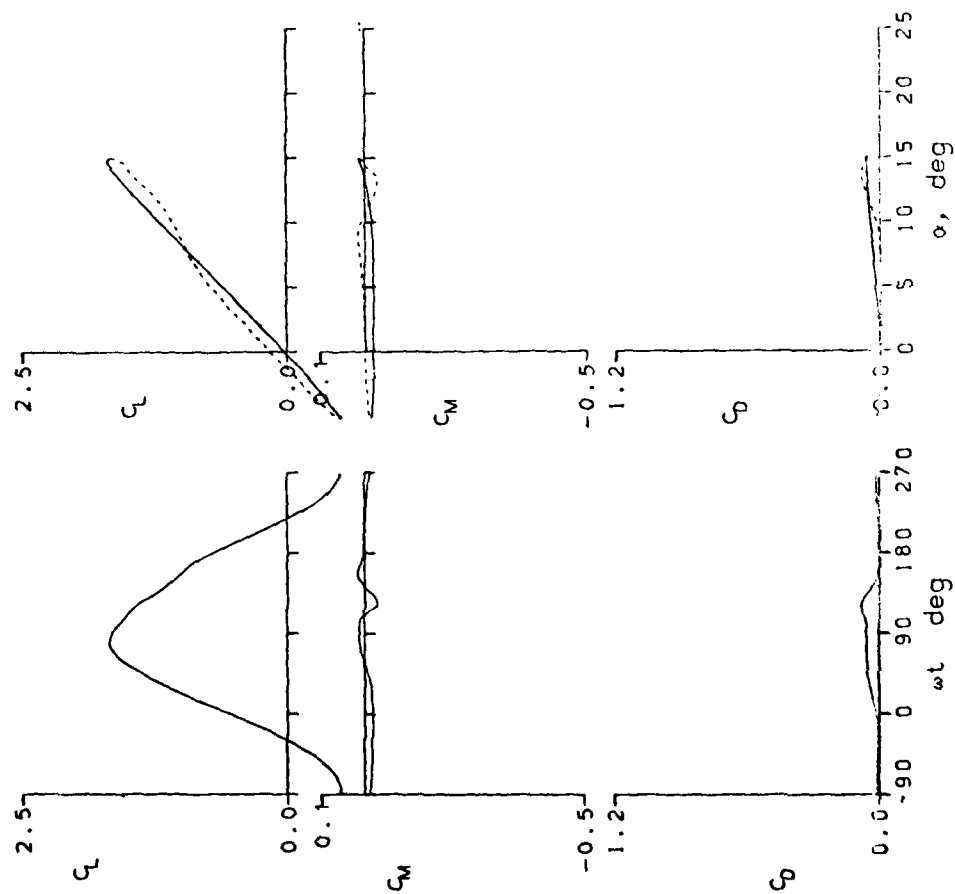


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29211	A0 = 4.85°	h = 0.099
Re = 3.90 E6	A1 = 10.06°	M = 0.301
C _{Lmax} = 1.71	C _{Mmin} = -0.03	C _{Dmax} = 0.08
α _{Lmax} = 15.0°	ξ = 0.317	M _{max} = 1.281
α _{Cmin} = 4.3°	-C _{Dmax} = 9.6	α _{Mmax} = 15.0°

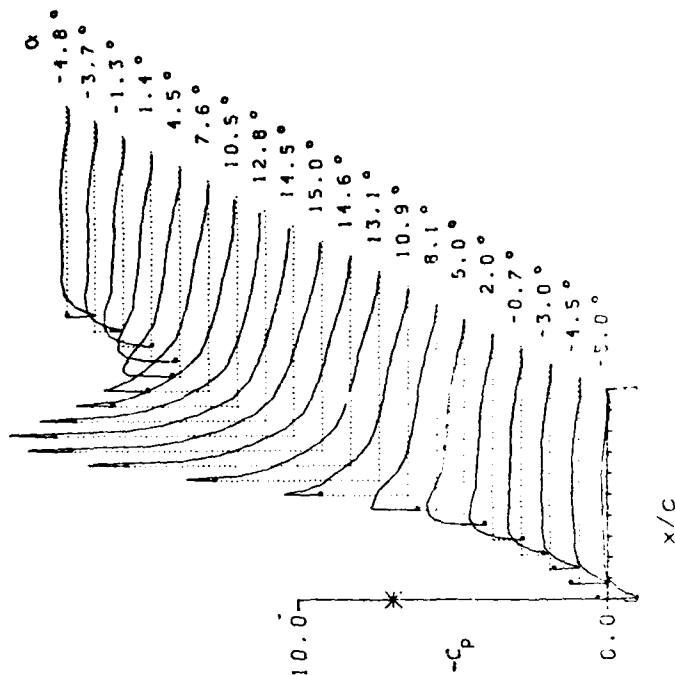
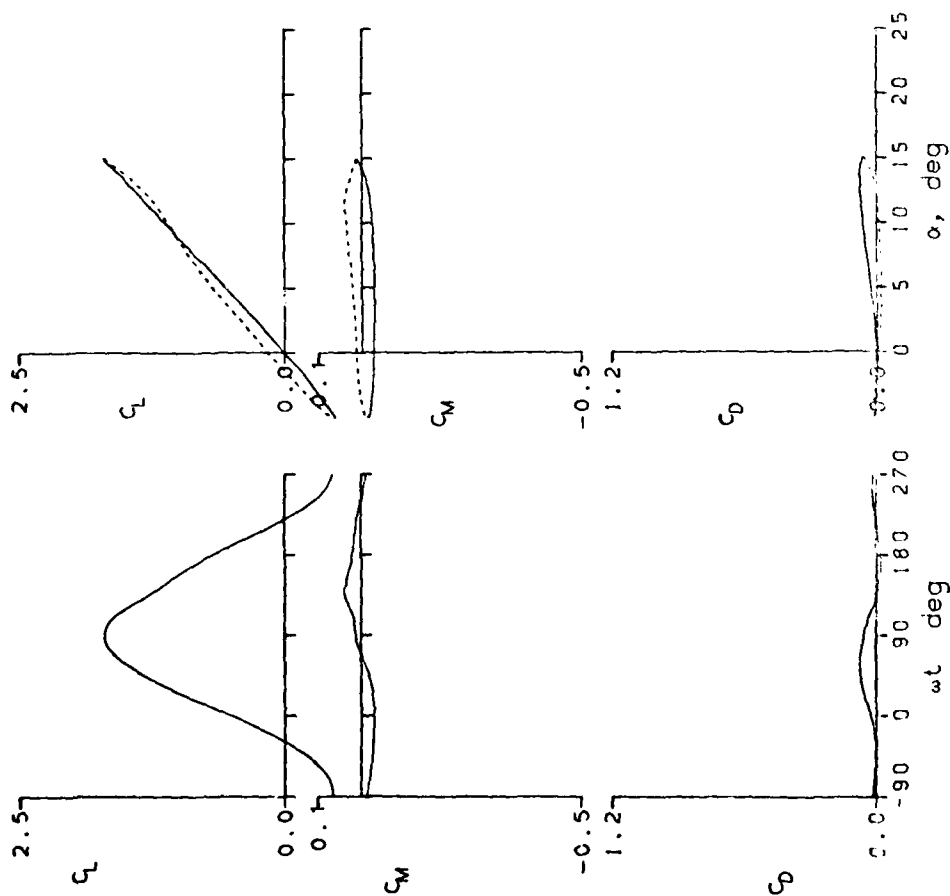


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29213	A0 = 4.80°	k = 0.148
Re = 3.90 E6	A1 = 10.06°	M = 0.301
C _{Lmax} = 1.74	C _{Mmin} = -0.05	C _{Dmax} = 0.10
α _{Lmax} = 14.9°	ξ = 0.473	M _{max} = 1.317
α _{Cmin} = 4.4°	-C _{pmax} = 9.9	α _{Mmax} = 14.7°

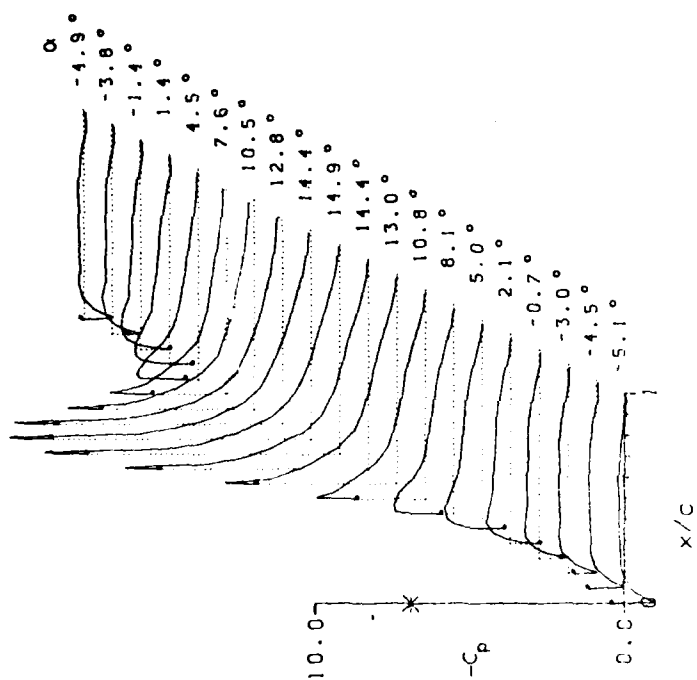
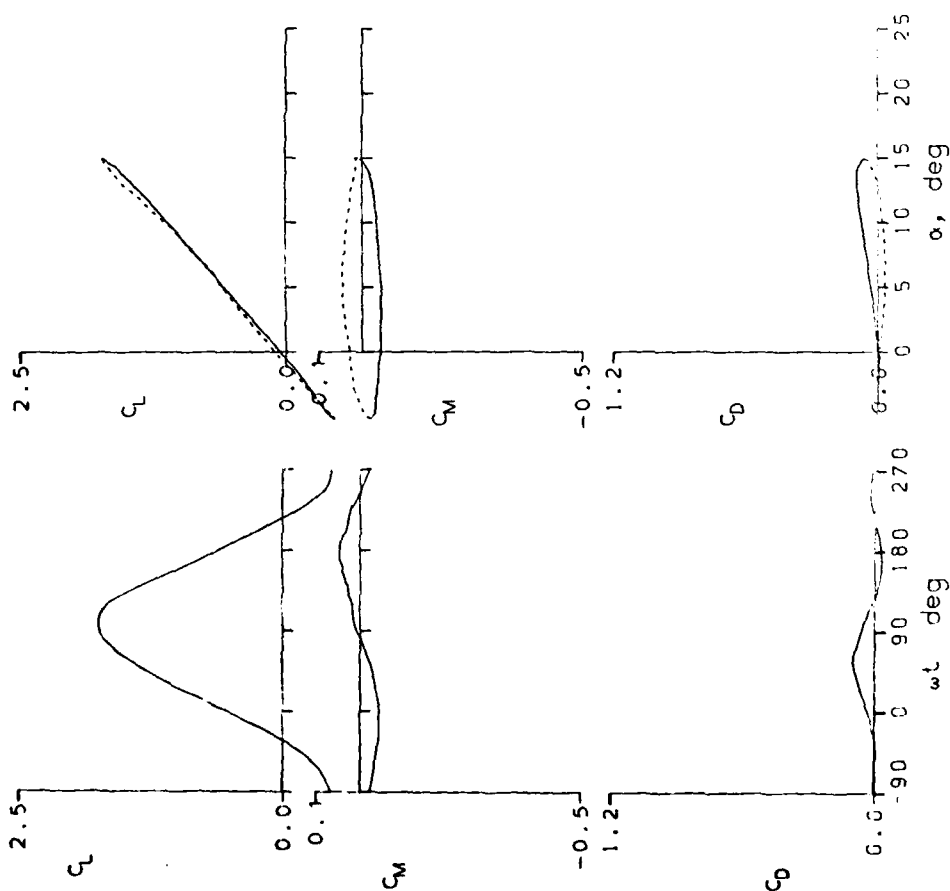


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 29215	A0 = 4.79°	k = 0.148
Re = 3.89 E6	A1 = 10.06°	M = 0.301
C _{Lmax} = 1.74	C _{Mmin} = -0.05	C _{Dmax} = 0.10
α _{Lmax} = 14.9°	ξ = 0.471	M _{max} = 1.317
α _{Cmin} = 4.4°	-C _{pmax} = 9.9	α _{Mmax} = 14.7°

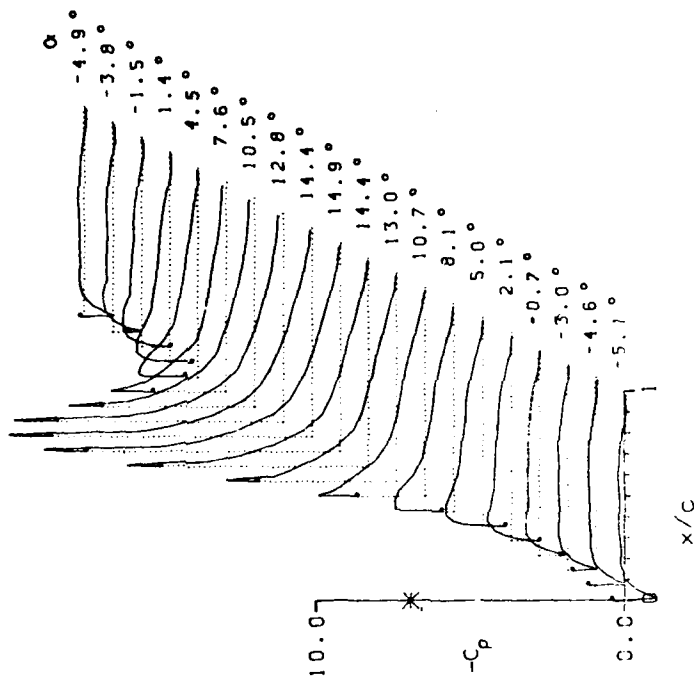
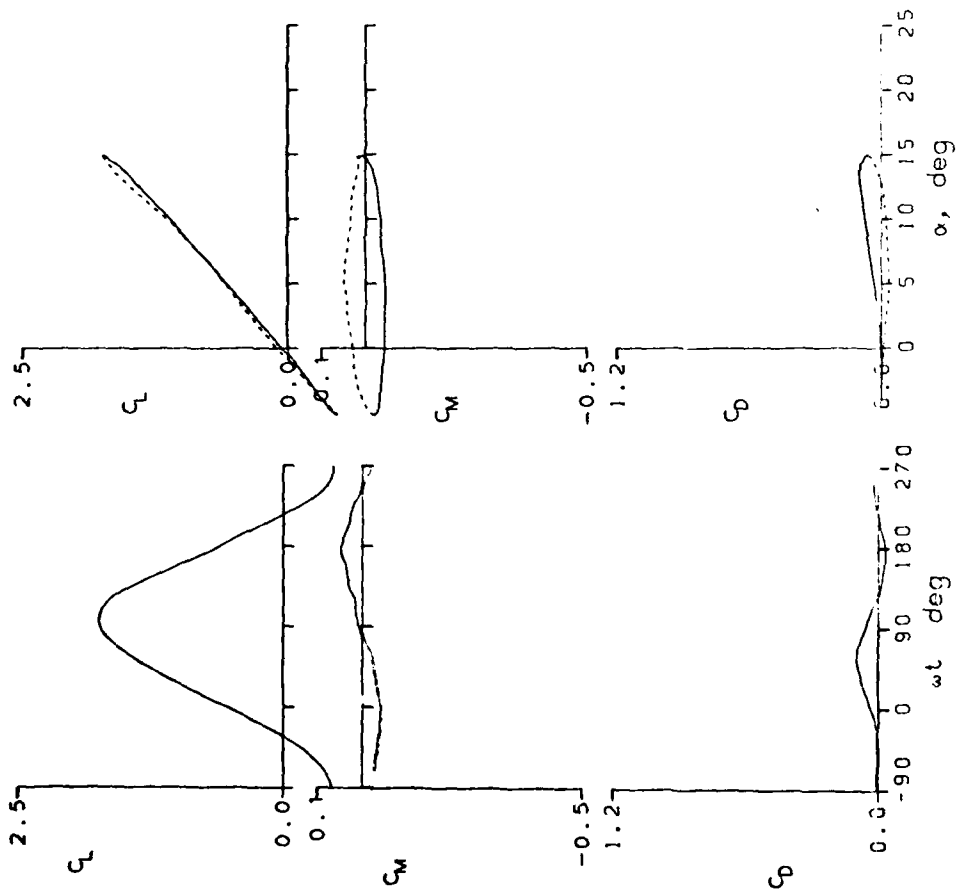


Figure 13.- Continued.

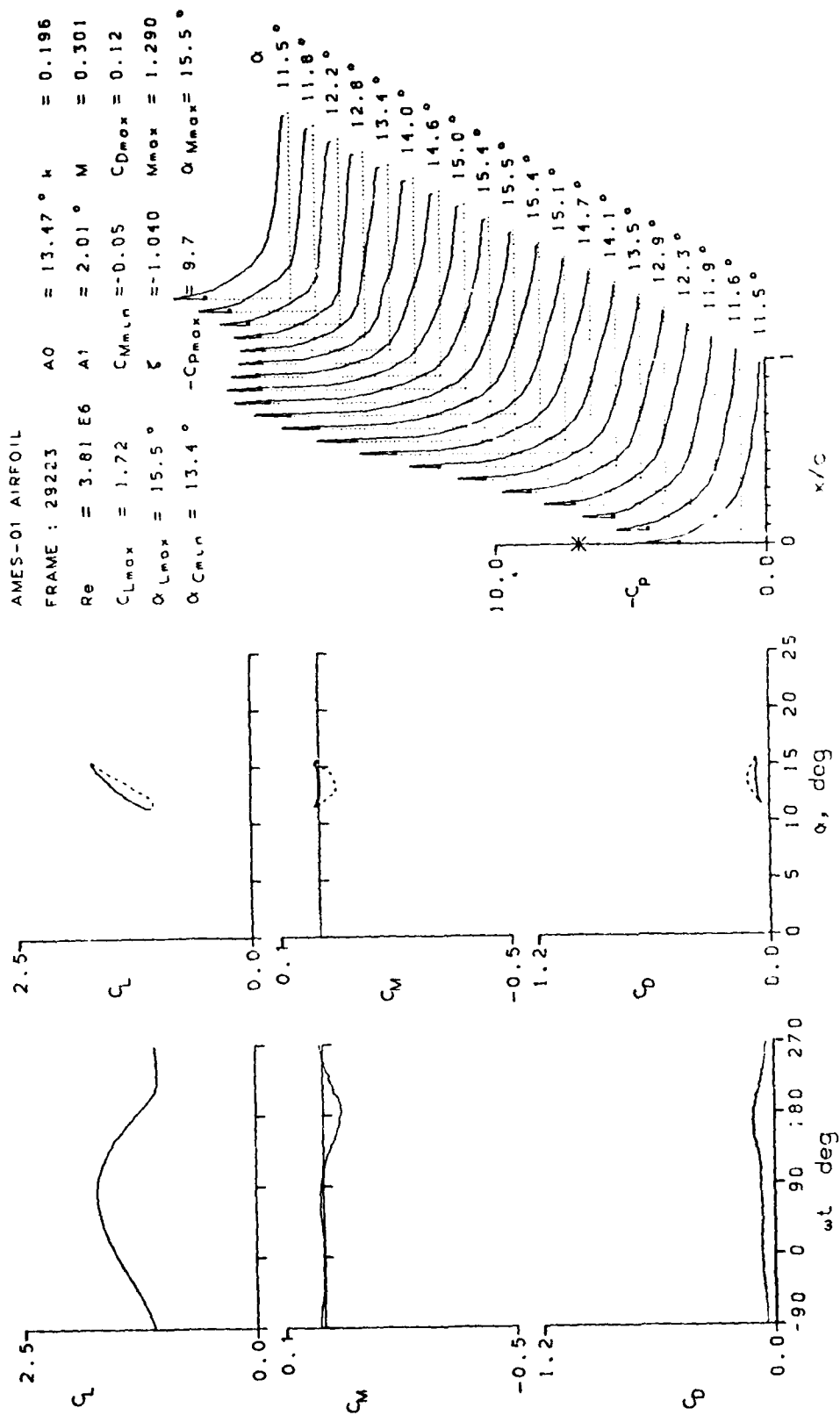


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 29304 $A_0 = 14.41^\circ$ $k = 0.197$
 $R_0 = 3.78 \text{ E } 6$ $A_1 = 2.01^\circ$ $M = 0.300$
 $C_{L_{max}} = 1.86$ $C_{M_{min}} = -0.17$ $C_{D_{max}} = 0.31$
 $\alpha_{L_{max}} = 16.5^\circ$ $\zeta = -1.836$ $M_{max} = 1.305$
 $\alpha_{C_{min}} = 14.3^\circ$ $-C_{p_{max}} = 9.9$ $\alpha_{M_{max}} = 16.2^\circ$

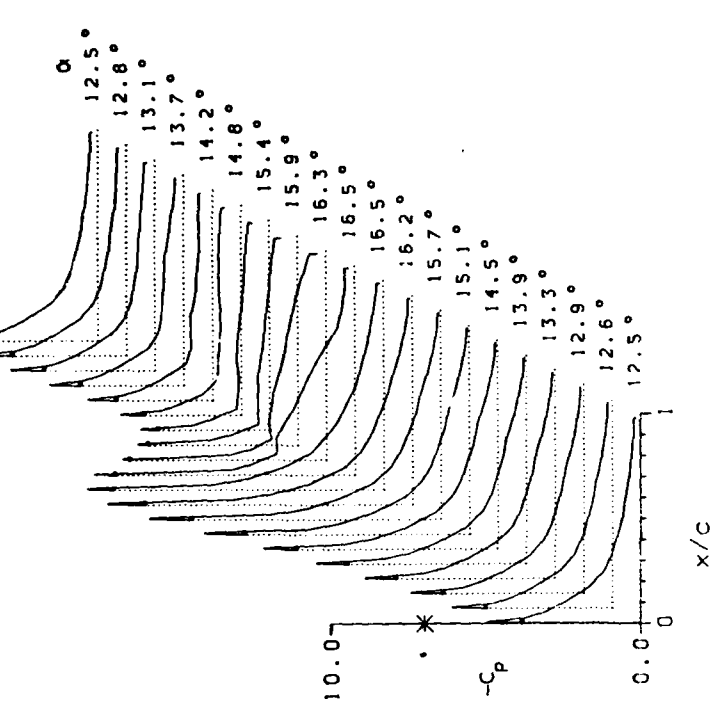
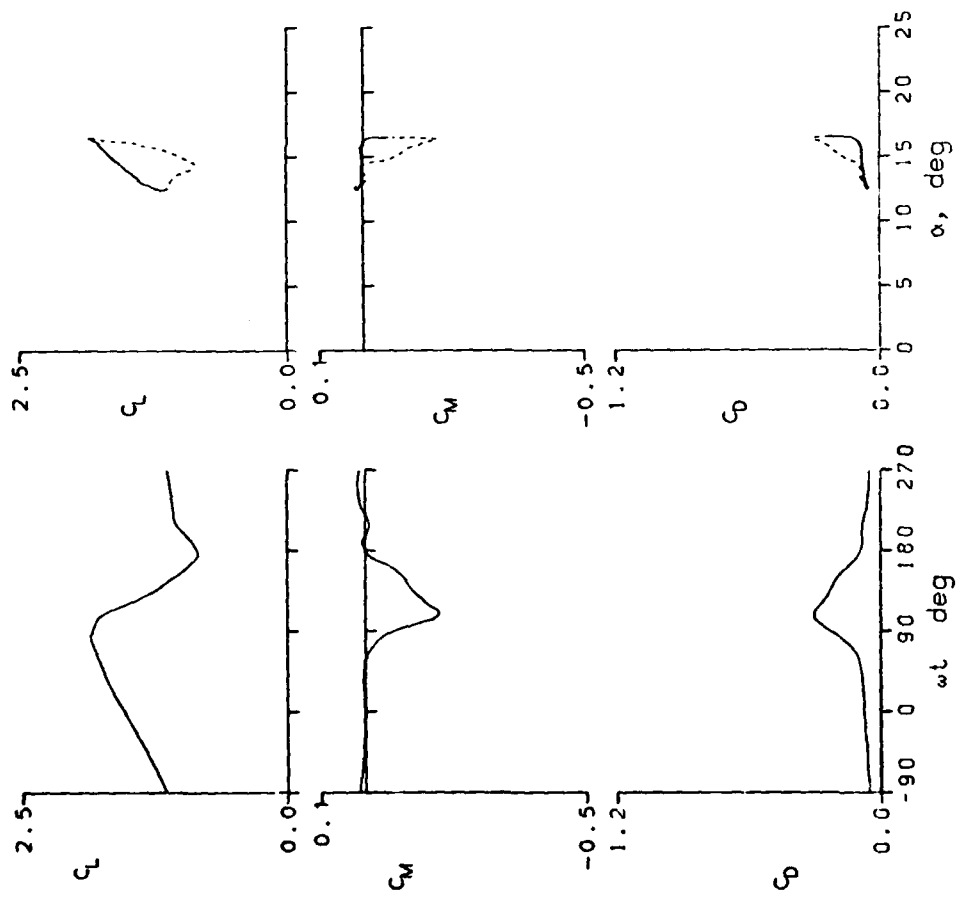


Figure 13.- Continued.

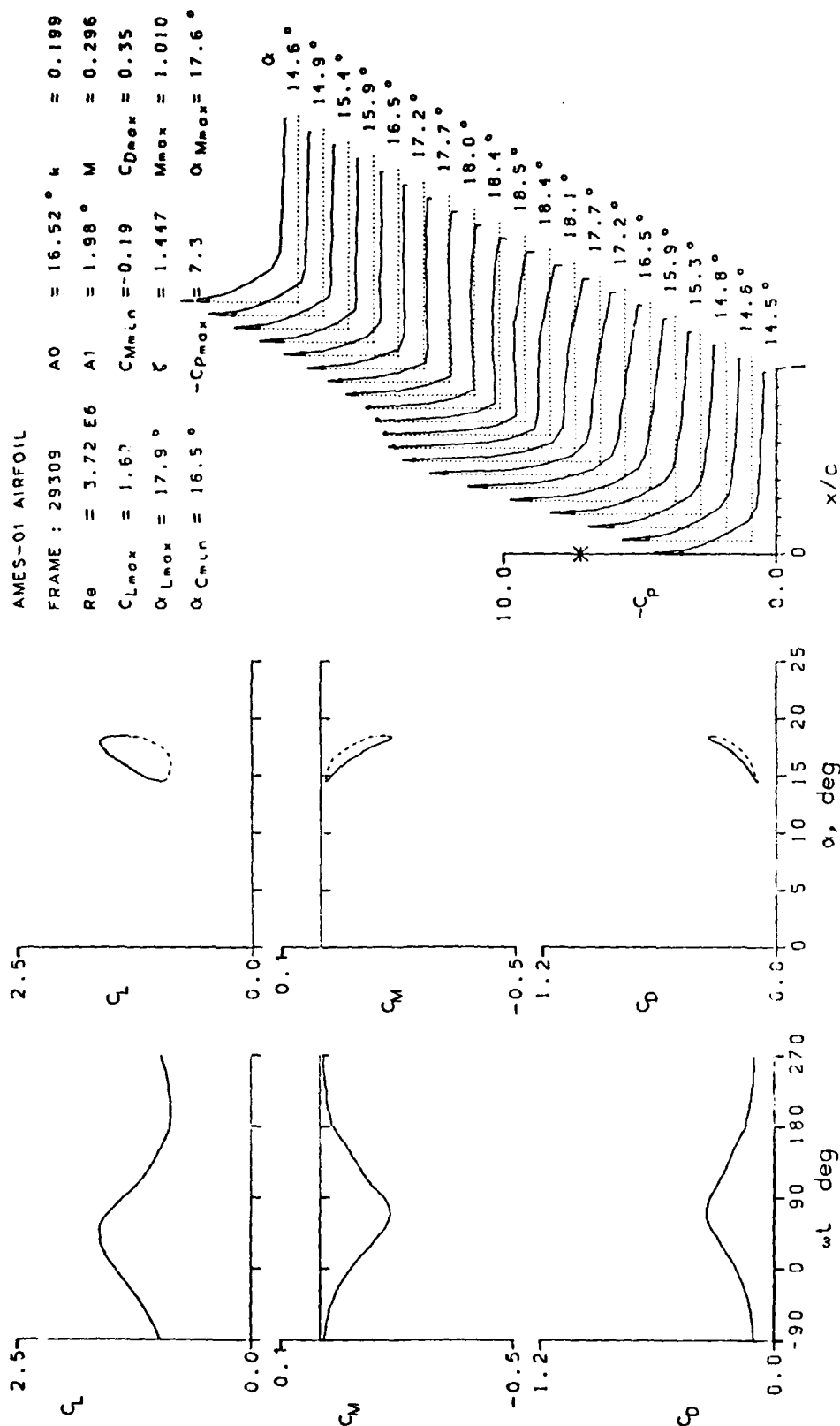


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 29317 $A_0 = 14.81^\circ$ $k = 0.102$
 $Re = 0.47 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.035$
 $C_{Lmax} = 2.34$ $C_{Mmin} = -0.33$ $C_{Dmax} = 0.88$
 $\alpha_{Lmax} = 20.5^\circ$ $\xi = 0.405$ $M_{max} = 0.120$
 $\alpha_{C_{min}} = 14.4^\circ$ $-C_{pmax} = 10.7$ $\alpha_{M_{max}} = 17.8^\circ$

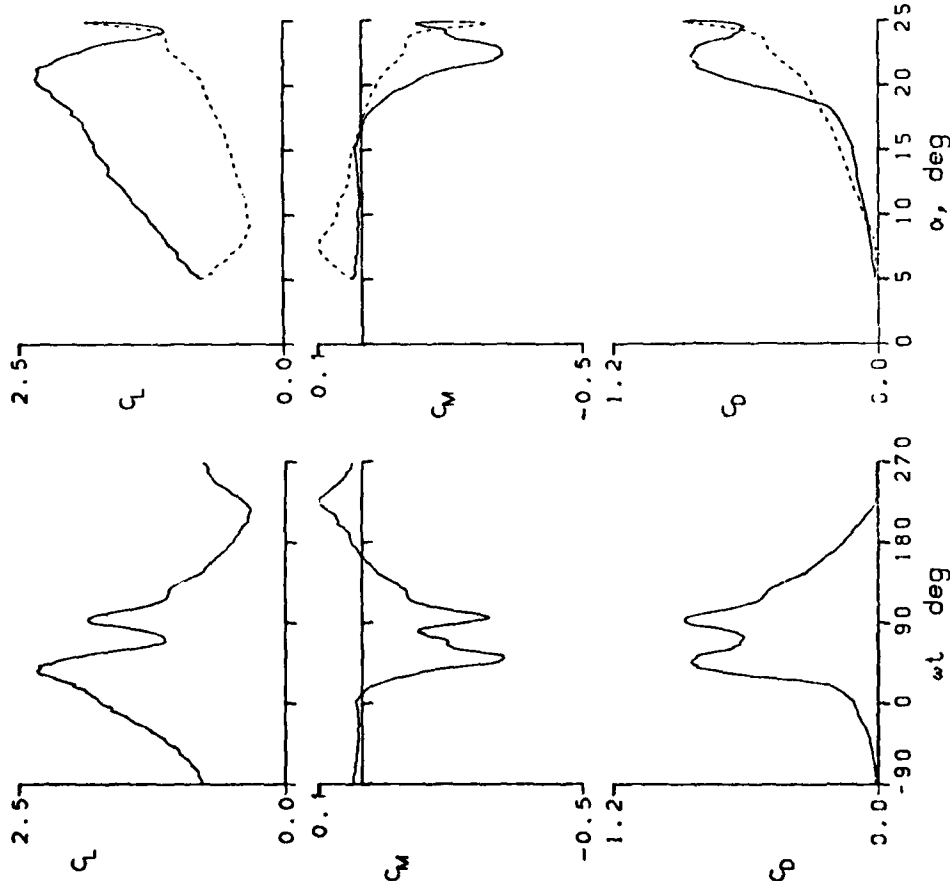


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 30019 $A_0 = 14.93^\circ$ $k = 0.010$
 $Re = 3.86 E6$ $A_1 = 9.87^\circ$ $M = 0.298$
 $C_{Lmax} = 1.62$ $C_{Mmin} = -0.15$ $C_{Dmax} = 0.38$
 $\alpha_{Lmax} = 15.8^\circ$ $\xi = 0.024$ $M_{max} = 1.192$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 15.4^\circ$

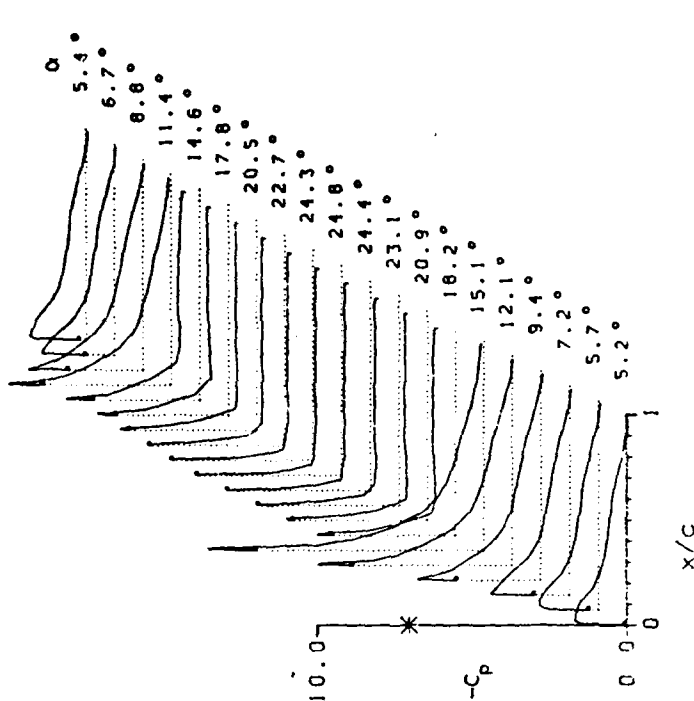
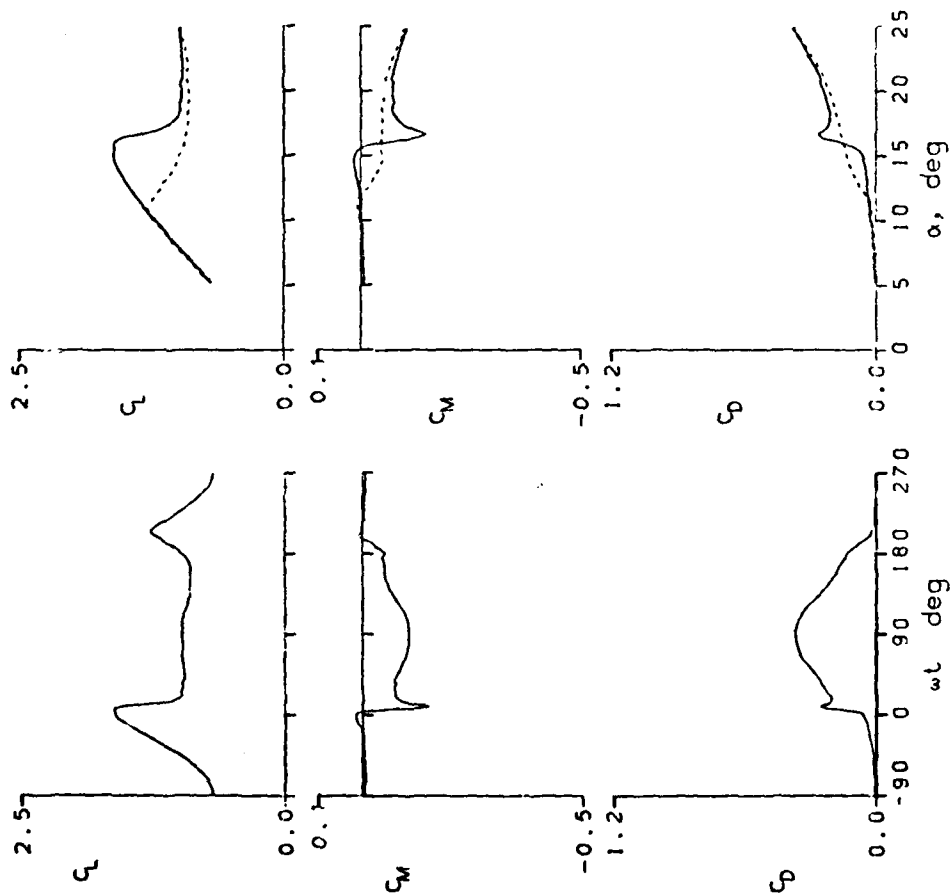


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 30020 $A_0 = 14.94^\circ$ $\mu = 0.010$
 $Re = 3.83 \text{ E} 6$ $A_1 = 9.88^\circ$ $M = 0.298$
 $C_{Lmax} = 1.64$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.38$
 $\alpha_{Lmax} = 15.7^\circ$ $\xi = 0.023$ $M_{max} = 1.203$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 15.4^\circ$

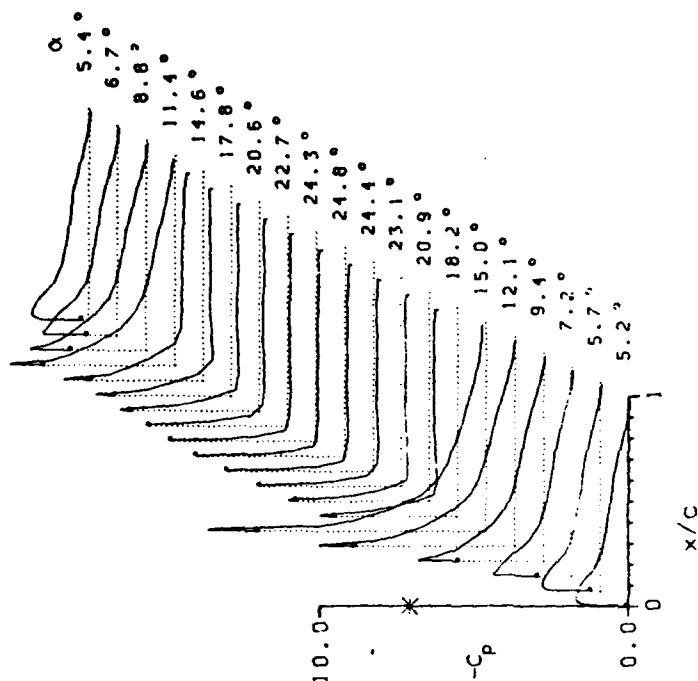
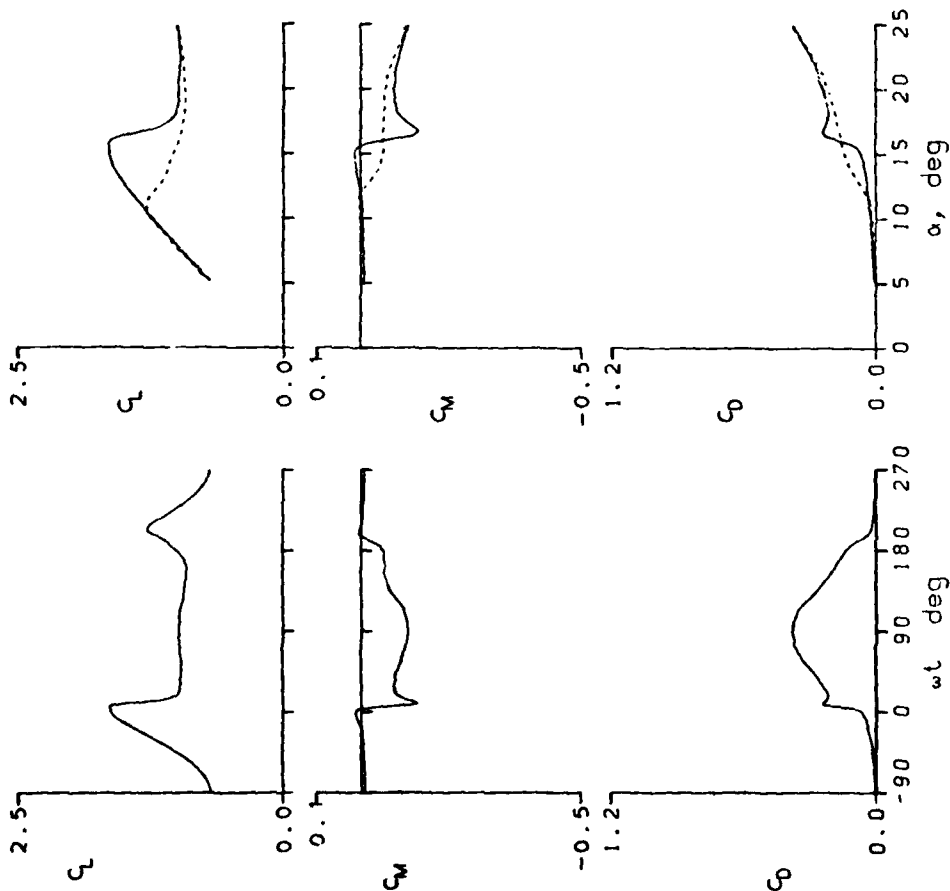


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 30105 $A_0 = 9.82^\circ$ $k = 0.010$
 $Re = 3.84 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.301$
 $C_{Lmax} = 1.61$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.23$
 $\alpha_{Lmax} = 14.5^\circ$ $\xi = -0.013$ $M_{max} = 1.195$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Pmax} = 8.8$ $\alpha_{Mmax} = 15.0^\circ$

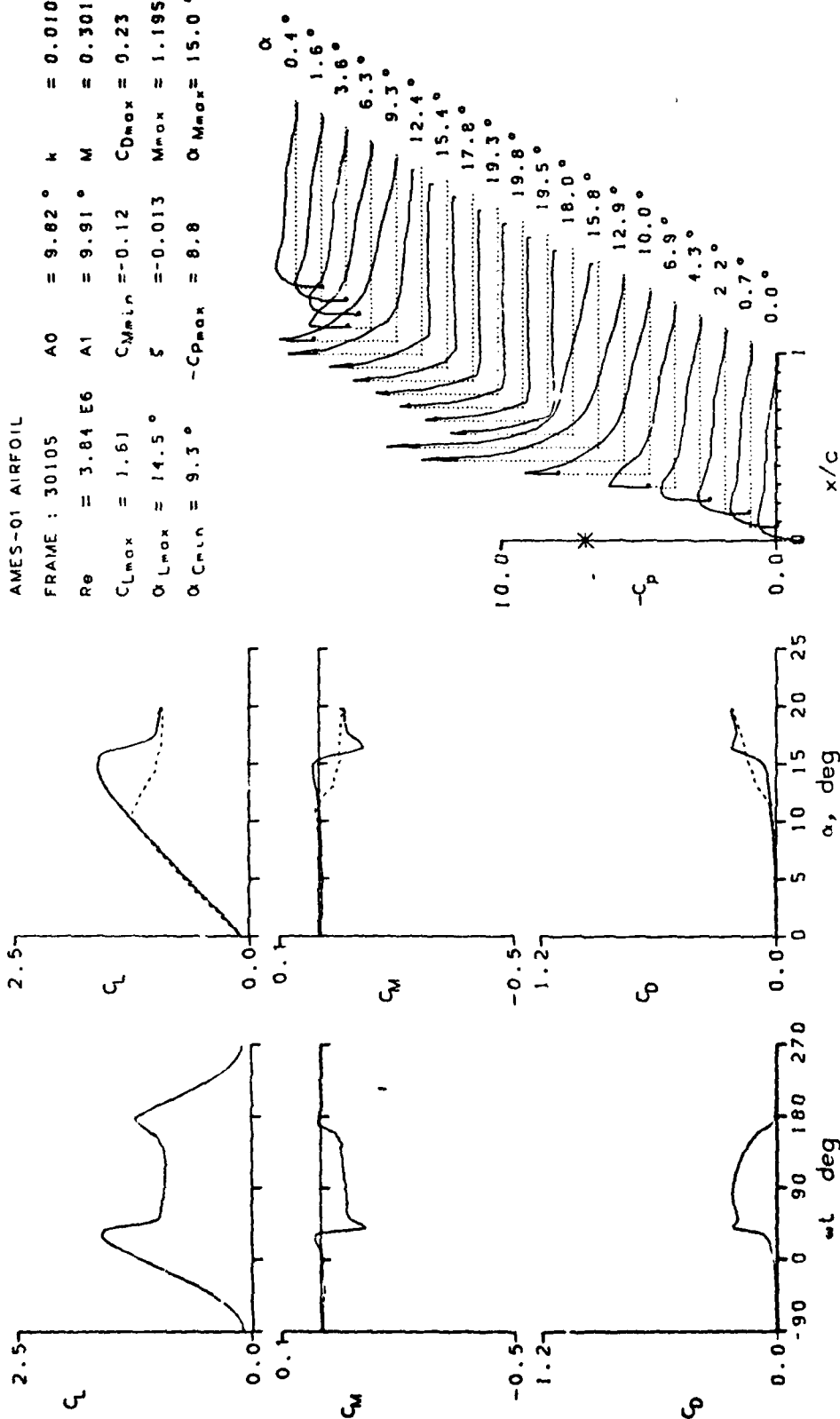


Figure 13.- Continued.

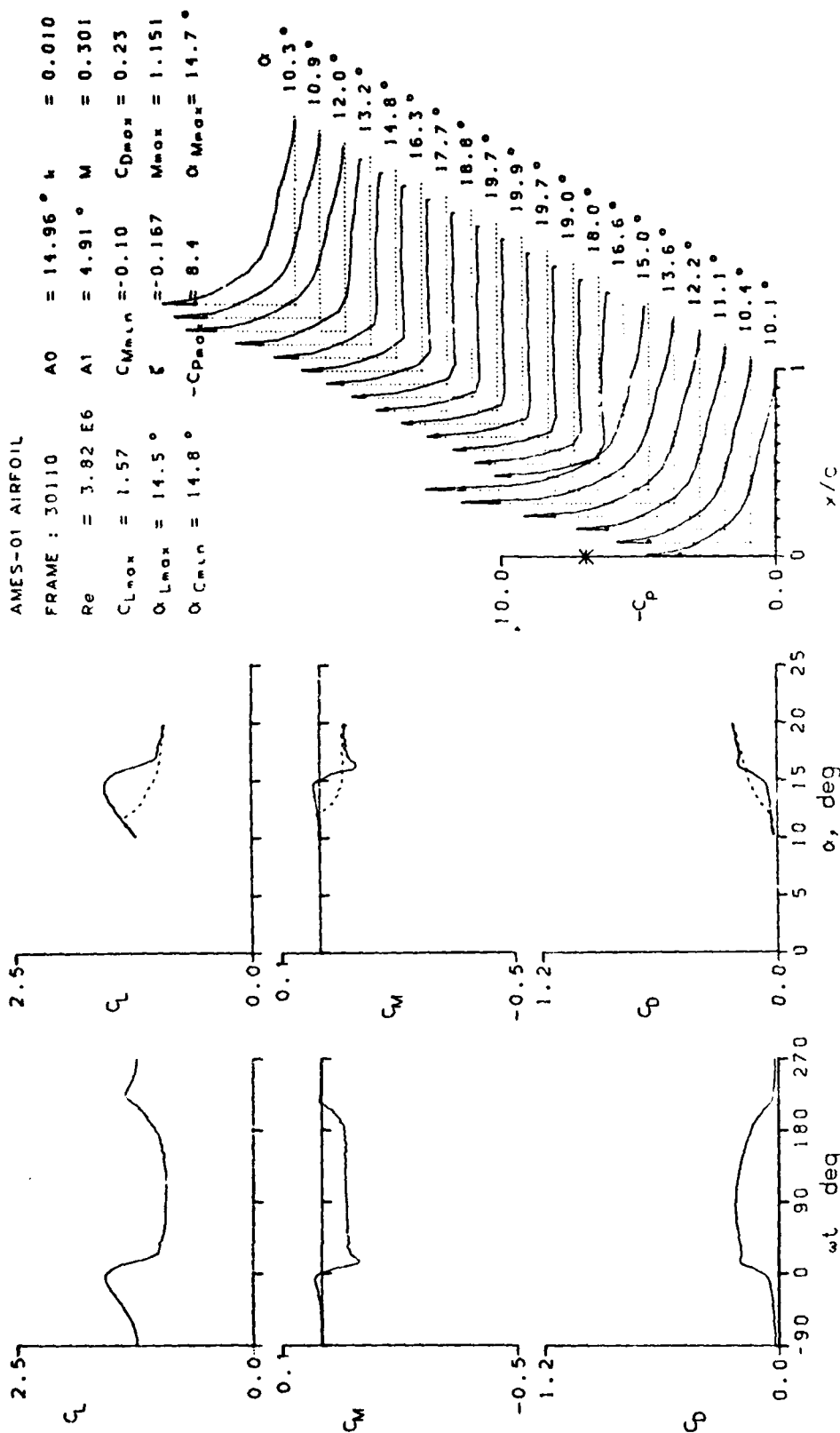


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 30119 $A_0 = 9.93^\circ$ $k = 0.010$
 $Re = 3.82 \text{ E}6$ $A_1 = 4.92^\circ$ $M = 0.300$
 $C_{Lmax} = 1.56$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.12$
 $\alpha_{Lmax} = 14.5^\circ$ $\zeta = -0.096$ $M_{max} = 1.129$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{pmax} = 8.3$ $\alpha_{Mmax} = 14.6^\circ$

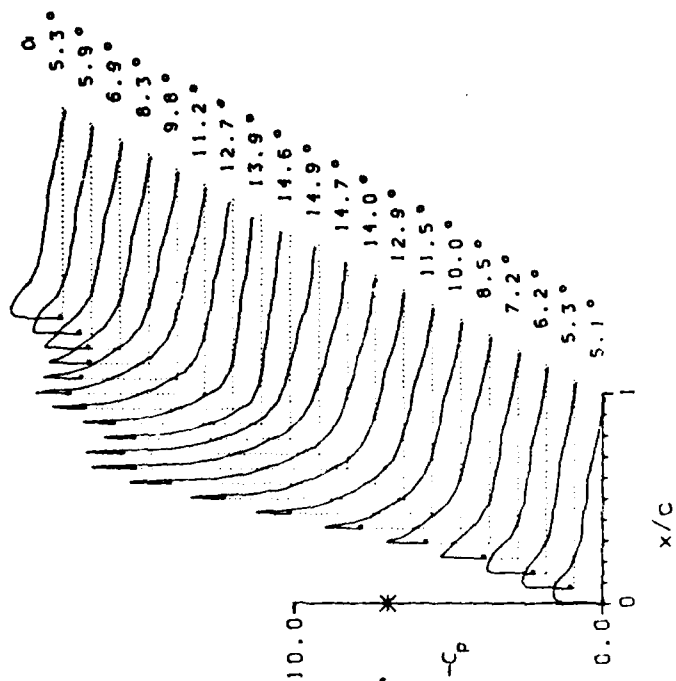
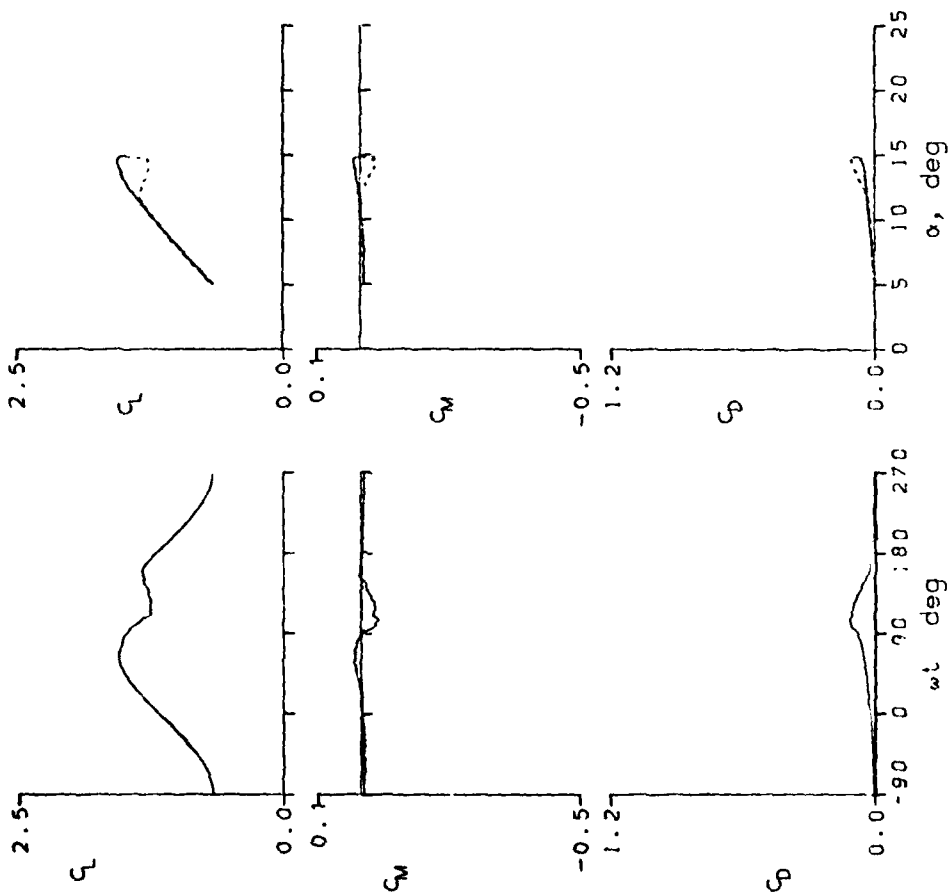


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 30201 $A_0 = 10.92^\circ$ $k = 0.010$
 $Re = 3.81 E6$ $A_1 = 4.90^\circ$ $M = 0.301$
 $C_{Lmax} = 1.57$ $C_{Dmin} = -0.09$ $C_{Dmax} = 0.17$
 $\alpha_{Lmax} = 14.4^\circ$ $\xi = -0.222$ $M_{max} = 1.137$
 $\alpha_{Cmin} = 10.7^\circ$ $-C_{pmax} = 8.3$ $\alpha_{Mmax} = 14.5^\circ$

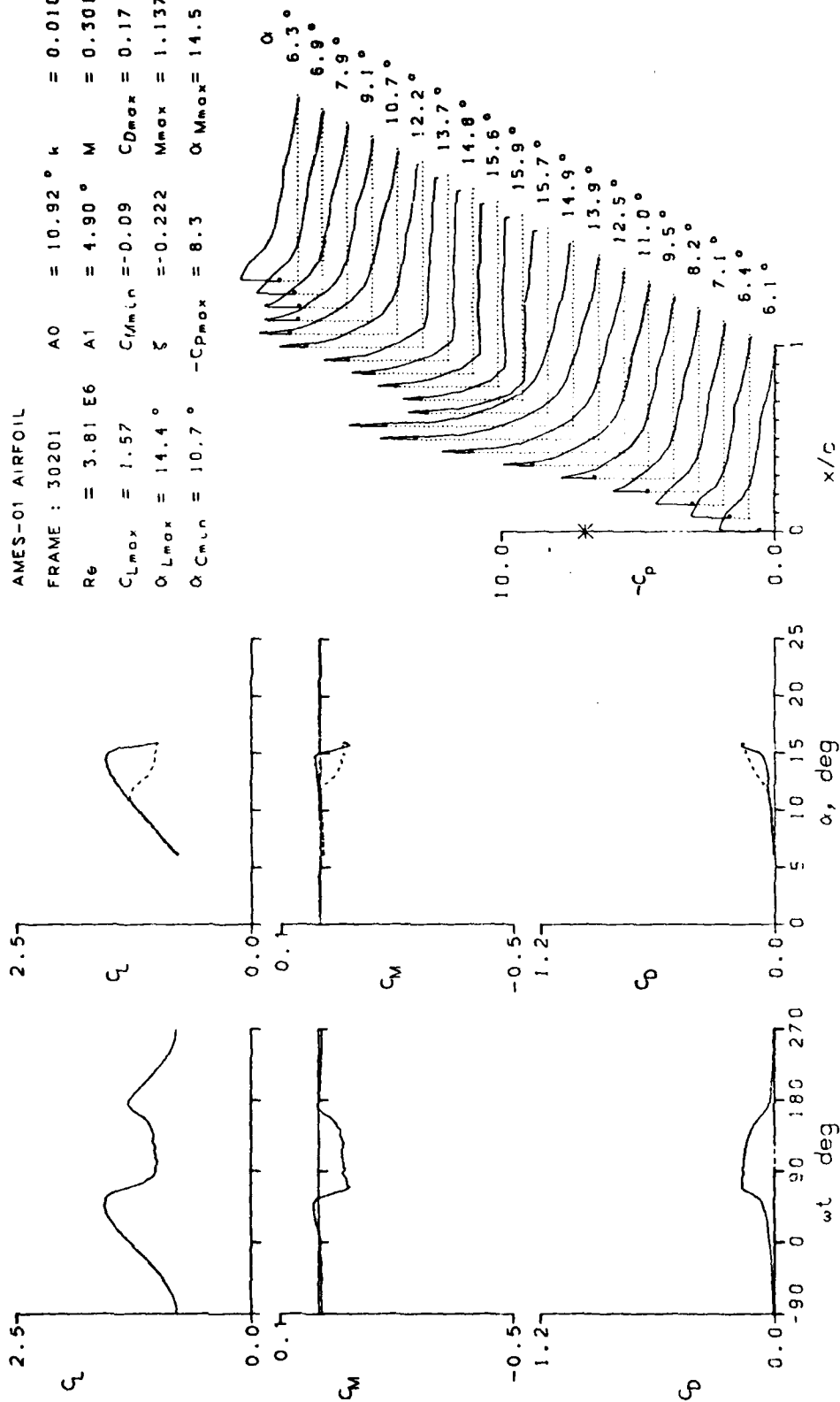


Figure 13.- Continued.

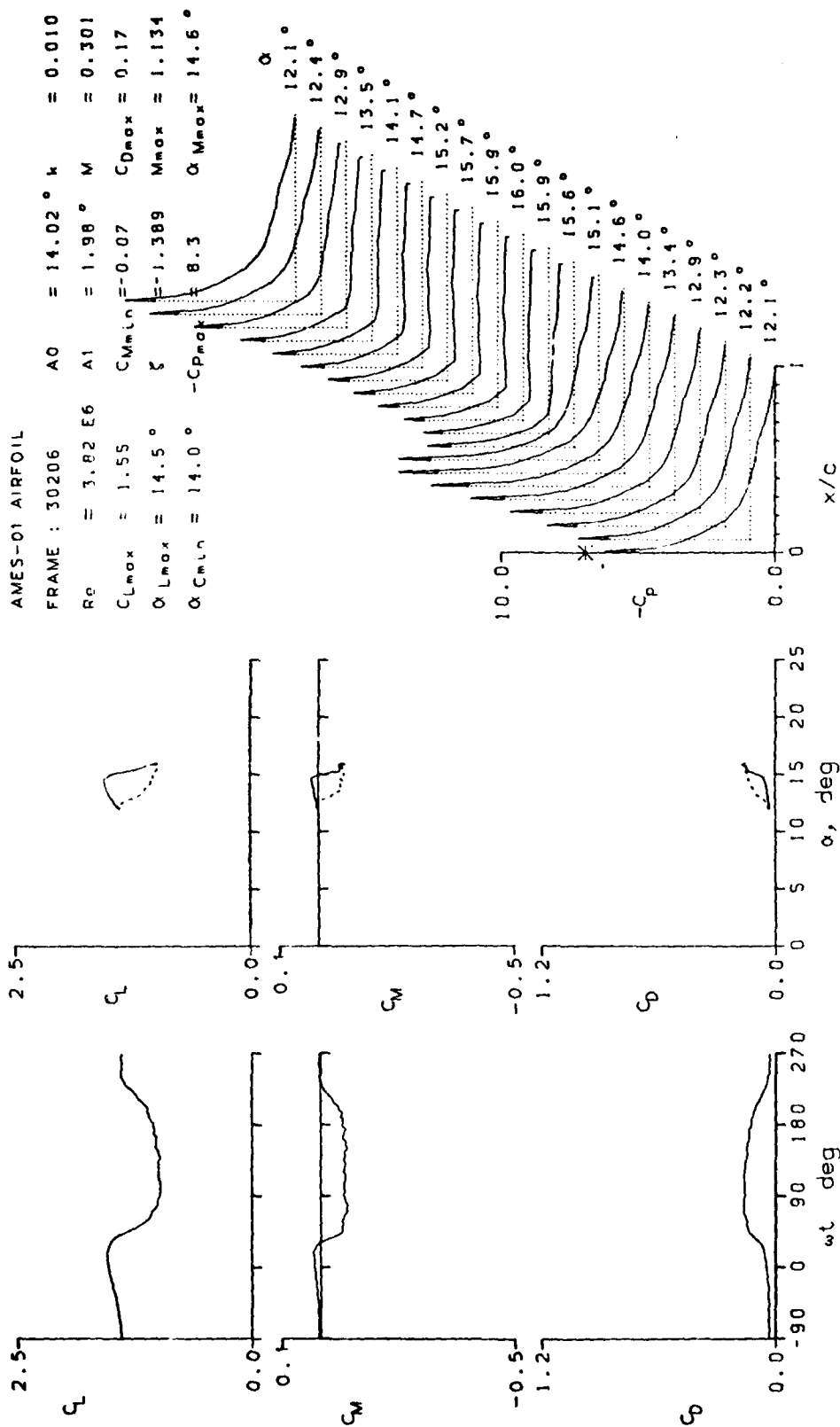


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 3021S $A_0 = 7.30^\circ$ $k = 0.010$
 $Re = 2.42 E6$ $A_1 = 10.00^\circ$ $M = 0.183$
 $C_{Lmax} = 1.66$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.20$
 $\alpha_{Lmax} = 16.5^\circ$ $\xi = -0.068$ $M_{max} = 0.654$
 $\alpha_{Cmin} = 6.8^\circ$ $-C_{pmax} = 9.9$ $\alpha_{Mmax} = 16.5^\circ$

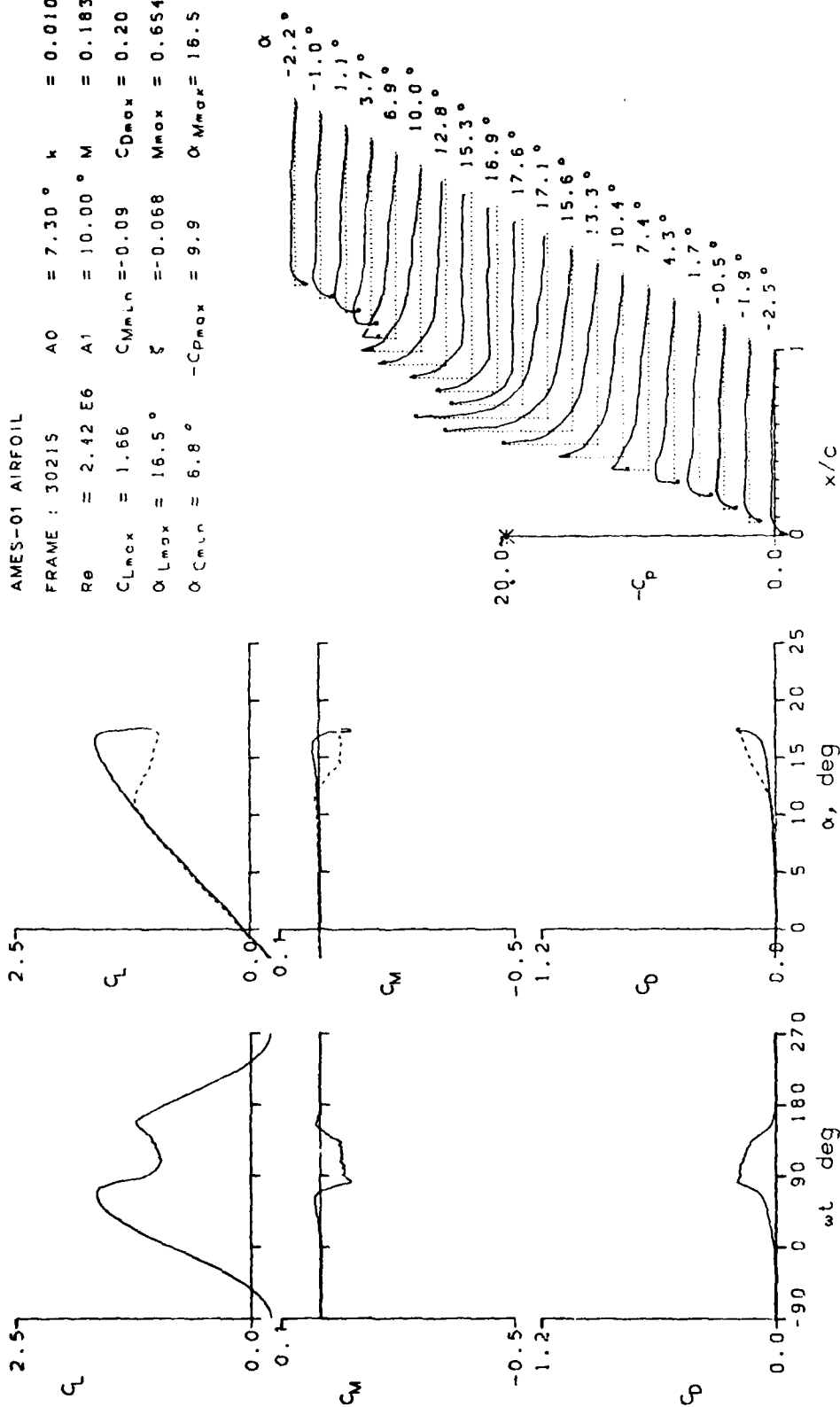


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31102 $A_0 = 9.80^\circ$ $k = 0.025$
 $Re = 3.88 \text{ E} 6$ $A_1 = 9.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.82$ $C_{Mmin} = -0.17$ $C_{Dmax} = 0.32$
 $\alpha_{Lmax} = 16.8^\circ$ $\zeta = 0.073$ $M_{max} = 1.268$
 $\alpha_{Cmin} = 9.2^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 16.1^\circ$

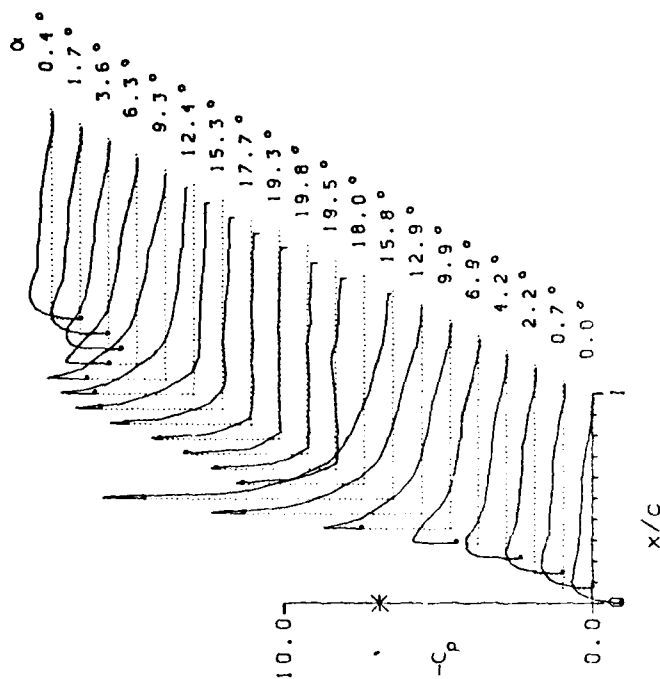
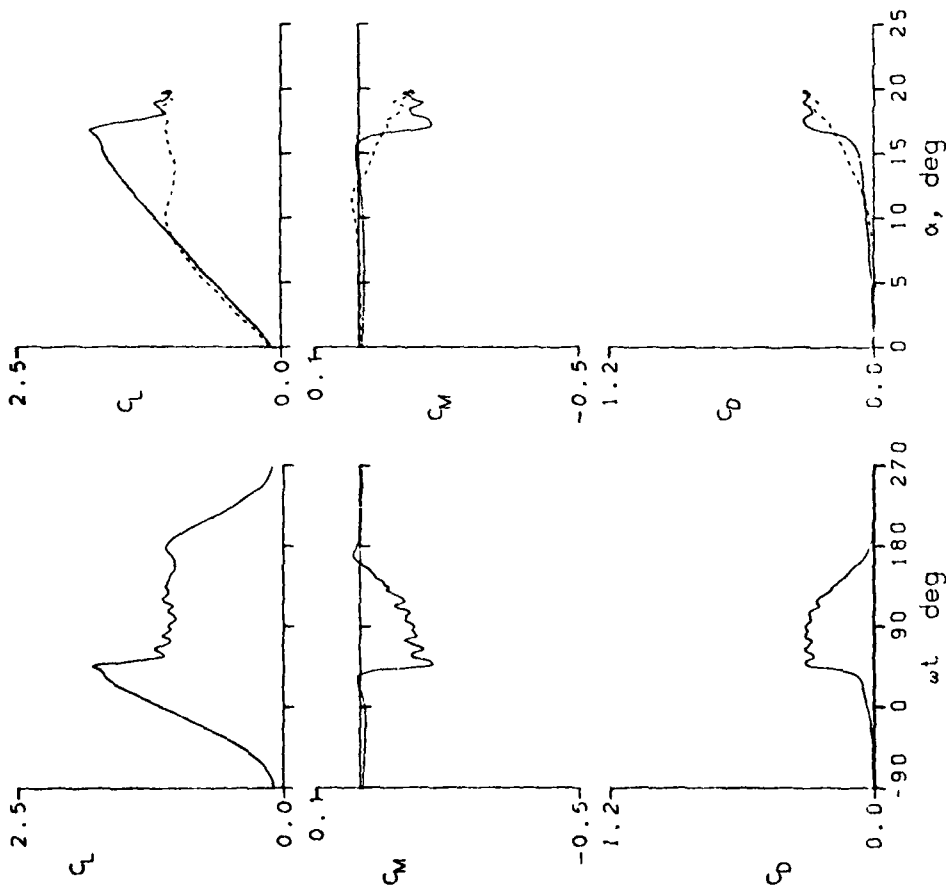


Figure 13.- Continued.

AMES-01 AIRFCIL
 FRAME : 31104 $A_0 = 9.78^\circ$ $k = 0.049$
 $Re = 3.86 E6$ $A_1 = 9.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.96$ $C_{Mmin} = -0.20$ $C_{Dmax} = 0.37$
 $\alpha_{Lmax} = 17.7^\circ$ $\xi = 0.091$ $M_{max} = 1.305$
 $\alpha_{Cmin} = 9.2^\circ$ $-C_{Dmax} = 9.7$ $\alpha_{Mmax} = 16.4^\circ$

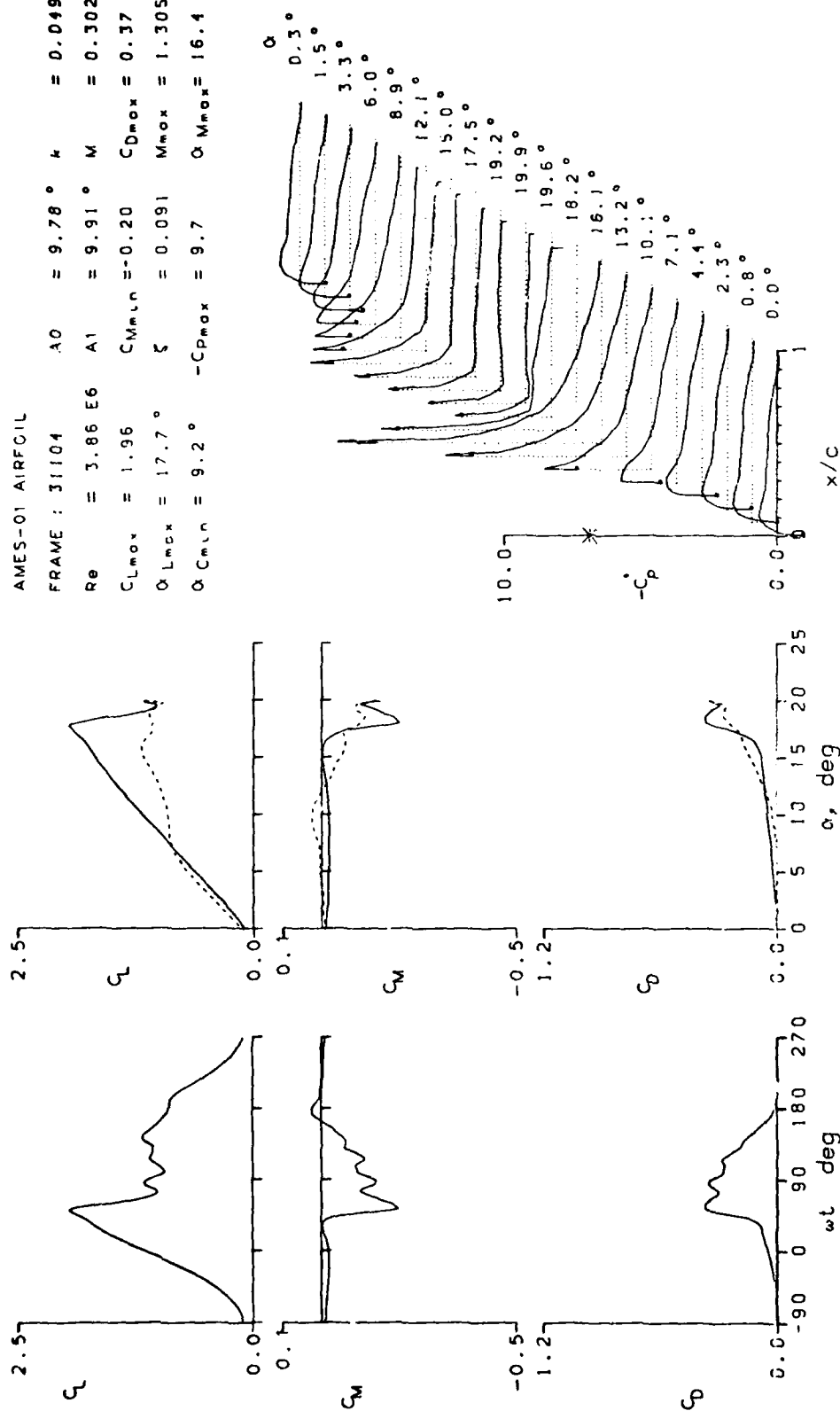


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 31110	A0 = 9.92°	k = 0.147
Re = 3.84 E6	A1 = 9.91°	M = 0.302
CLmax = 2.19	CMmin = -0.36	CDmax = 0.62
αLmax = 19.8°	ξ = 0.278	Mmax = 1.332
αCMmin = 9.5°	-CPmax = 9.9	αMmax = 17.7°

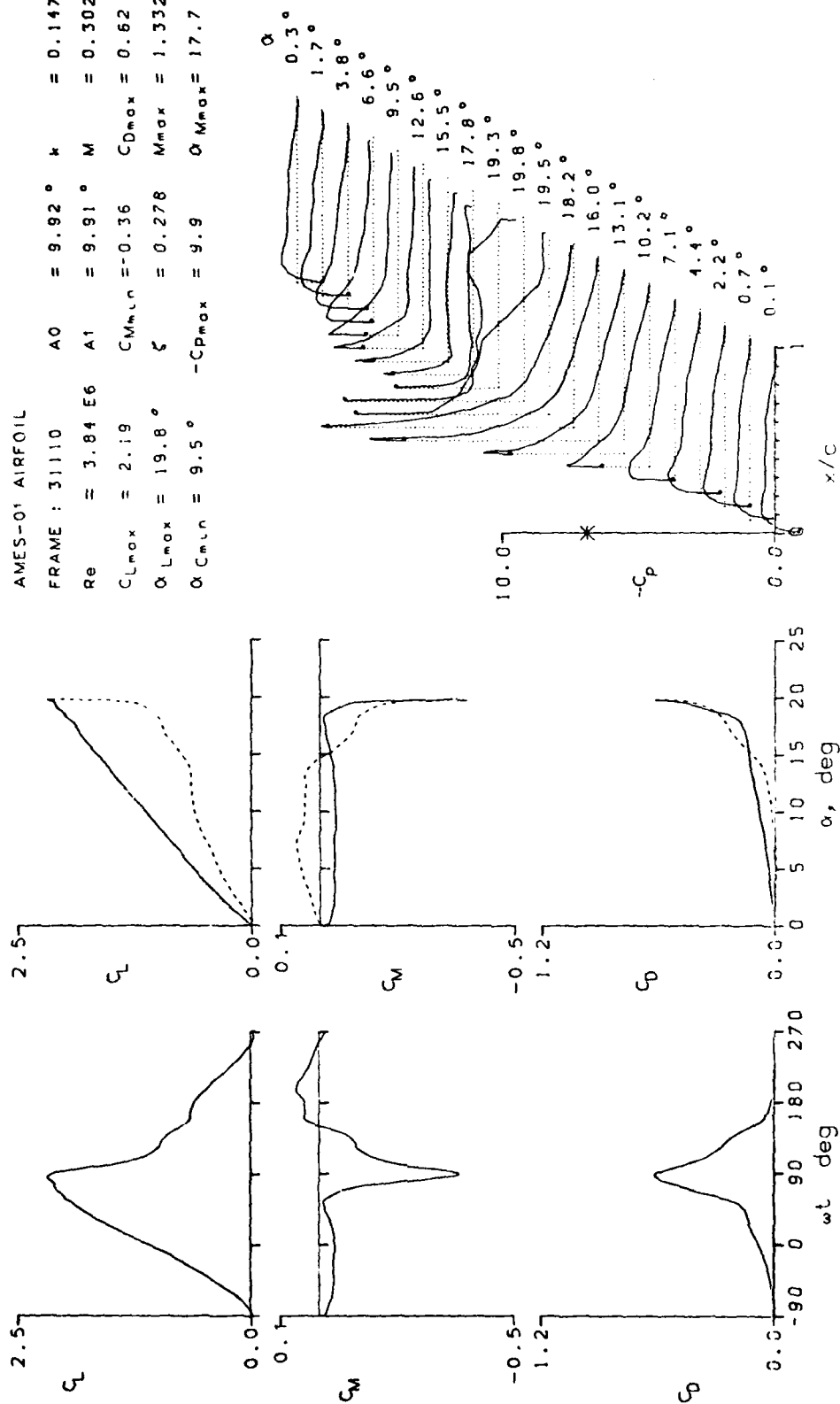


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31112 $A_0 = 9.91^\circ$ $k = 0.147$
 $Re = 3.83 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.302$
 $C_{Lmax} = 2.19$ $C_{Mmin} = -0.35$ $C_{Dmax} = 0.62$
 $\alpha_{Lmax} = 19.8^\circ$ $\xi = 0.282$ $M_{max} = 1.332$
 $\alpha_{Cmin} = 9.4^\circ$ $-C_{pmax} = 9.9$ $\alpha_{Mmax} = 17.7^\circ$

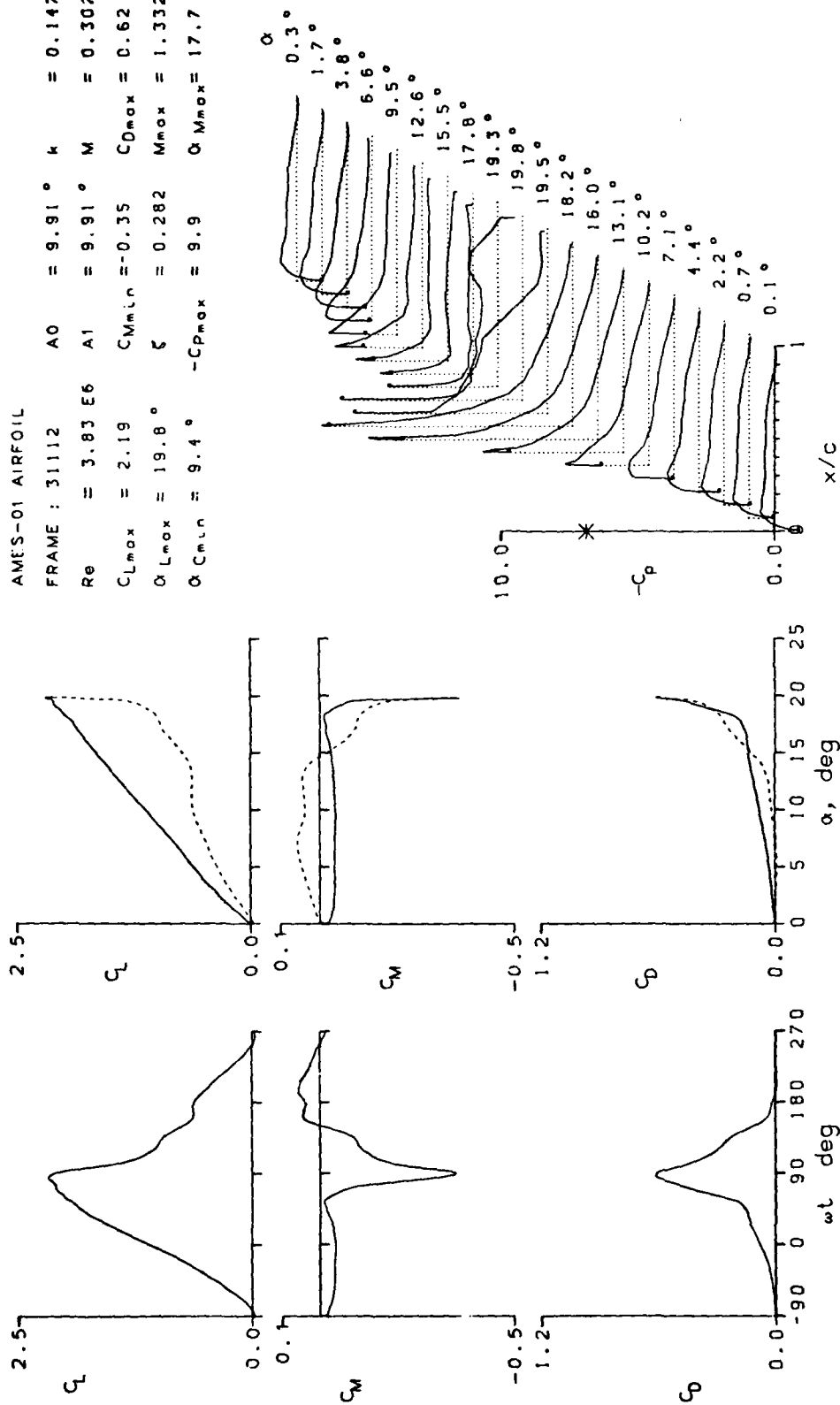


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31119 $A_0 = 4.90^\circ$ $k = 0.024$
 $Re = 3.86 \text{ E}6$ $A_1 = 10.02^\circ$ $M = 0.303$
 $C_{Lmax} = 1.61$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.11$
 $\alpha_{Lmax} = 14.6^\circ$ $\xi = 0.047$ $M_{max} = 1.206$
 $\alpha_{Cmin} = 4.4^\circ$ $-C_{Dmax} = 8.8$ $\alpha_{Mmax} = 14.8^\circ$

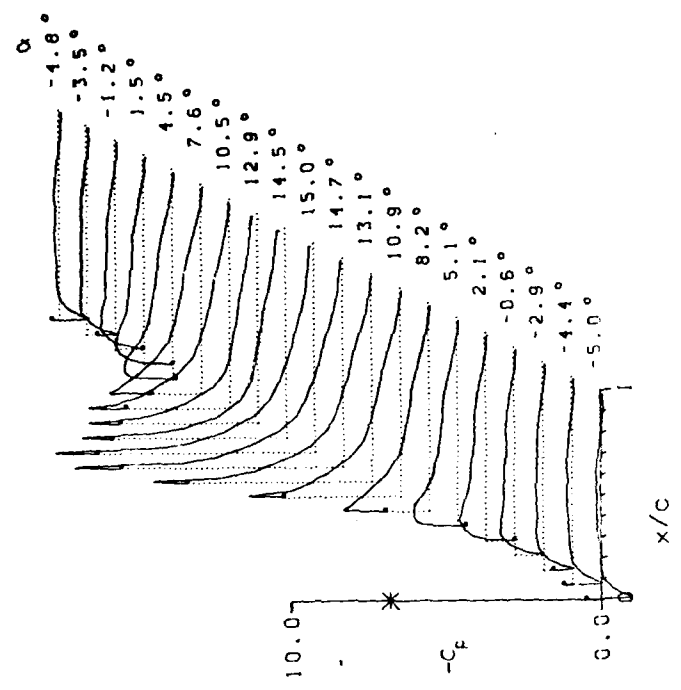
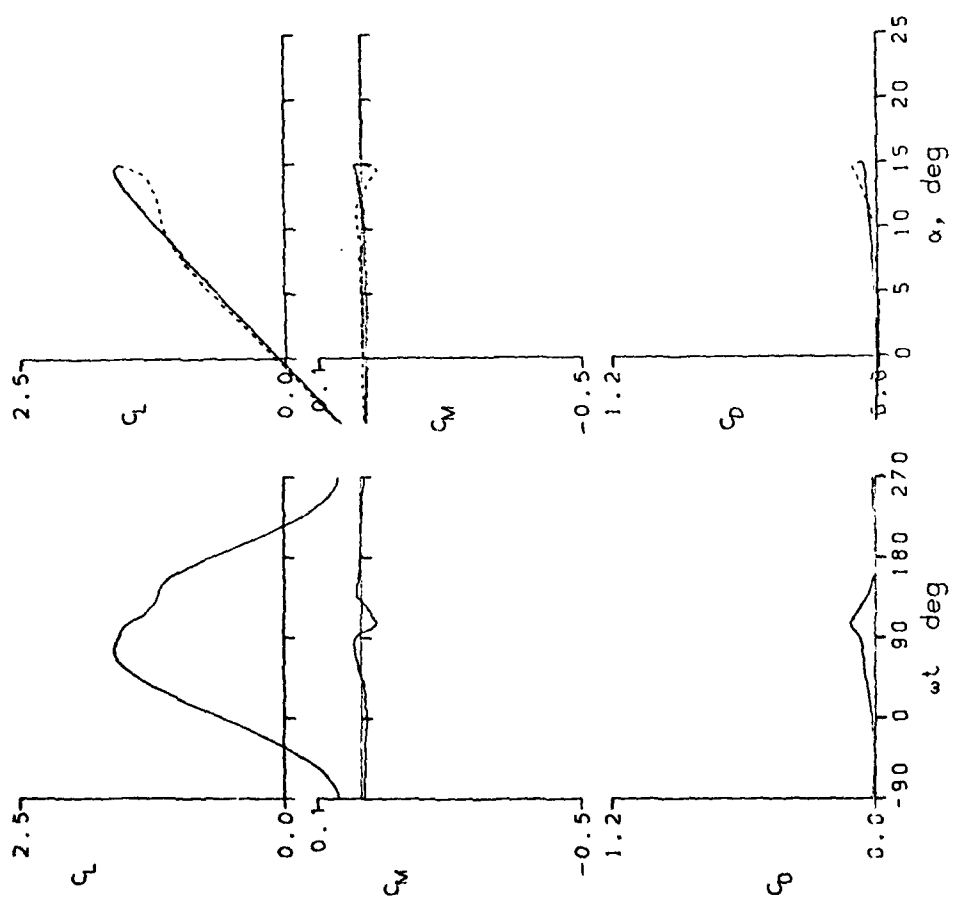


Figure 13.- Continued.

ANES-01 AIRFOIL
 FRAME : 31121 $A_0 = 4.81^\circ$ $k = 0.049$
 $Re = 3.83 \text{ E}6$ $A_1 = 10.08^\circ$ $M = 0.302$
 $C_{Lmax} = 1.66$ $C_{Mmin} = -0.02$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 14.8^\circ$ $\zeta = 0.118$ $M_{max} = 1.231$
 $\alpha_{Cmin} = 4.3^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 14.9^\circ$

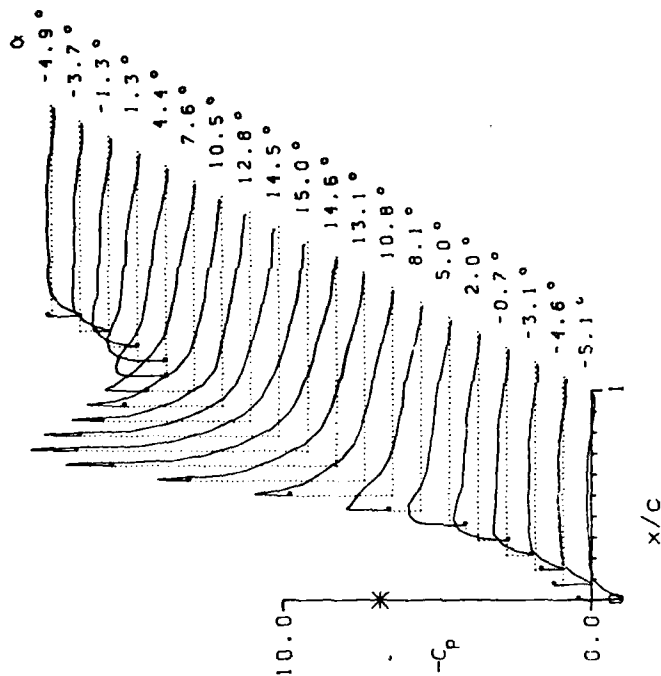
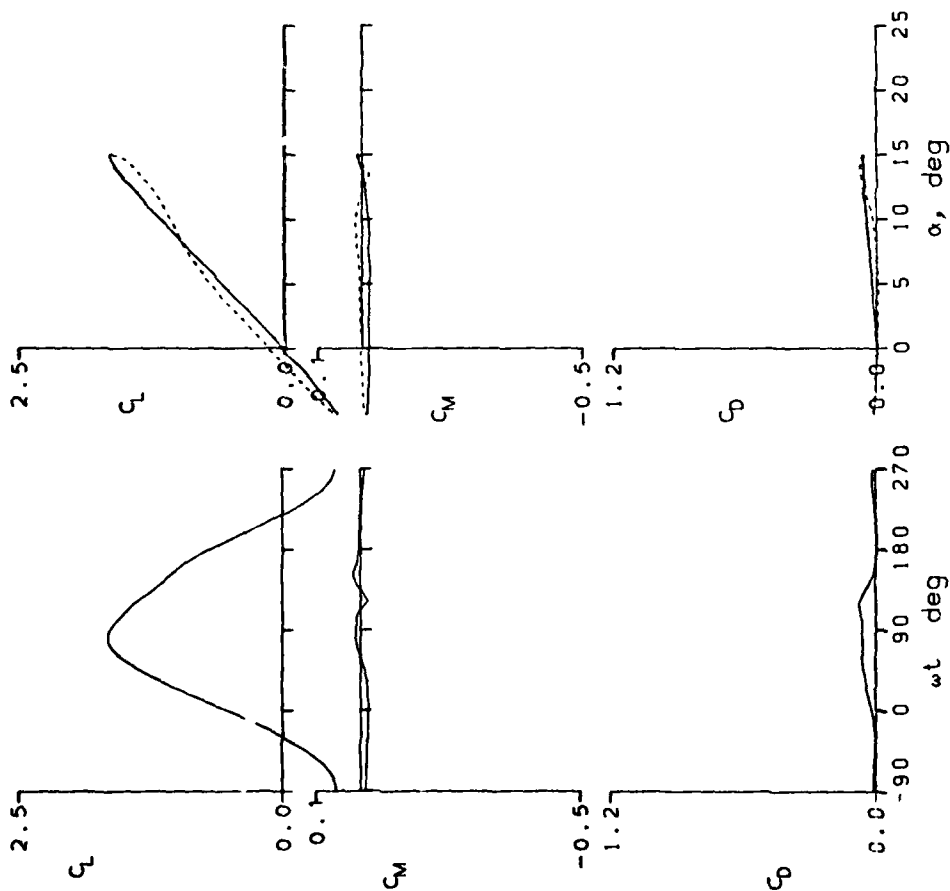


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31123 $A_0 = 4.84^\circ$ $k = 0.098$
 $Re = 3.82 \text{ E } 6$ $A_1 = 10.06^\circ$ $M = 0.303$
 $C_{Lmax} = 1.70$ $C_{Mmin} = -0.03$ $C_{Dmax} = 0.09$
 $\alpha_{Lmax} = 15.1^\circ$ $\xi = 0.288$ $M_{max} = 1.272$
 $\alpha_{Cmin} = 4.3^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 15.0^\circ$

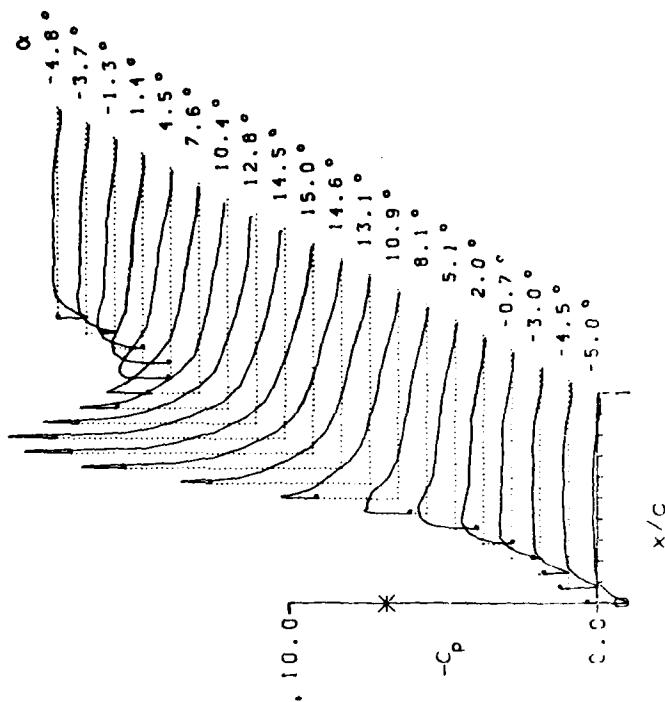
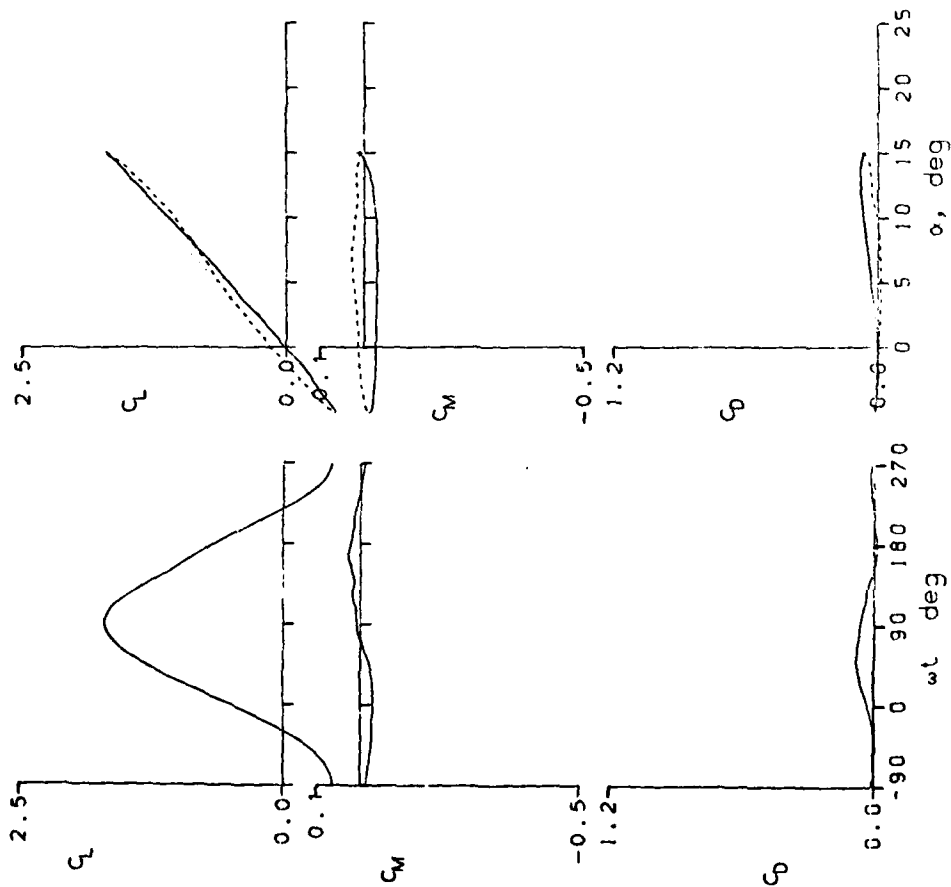


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31201 $A_0 = 4.82^\circ$ $k = 0.146$
 $Re = 3.82 \text{ E}6$ $A_1 = 10.06^\circ$ $M = 0.303$
 $C_{Lmax} = 1.73$ $C_{Mmin} = -0.05$ $C_{Dmax} = 0.10$
 $\alpha_{Lmax} = 14.9^\circ$ $\xi = 0.44$ $M_{max} = 1.297$
 $\alpha_{Cmin} = 4.4^\circ$ $-C_{Pmax} = 9.6$ $\alpha_{Mmax} = 14.7^\circ$

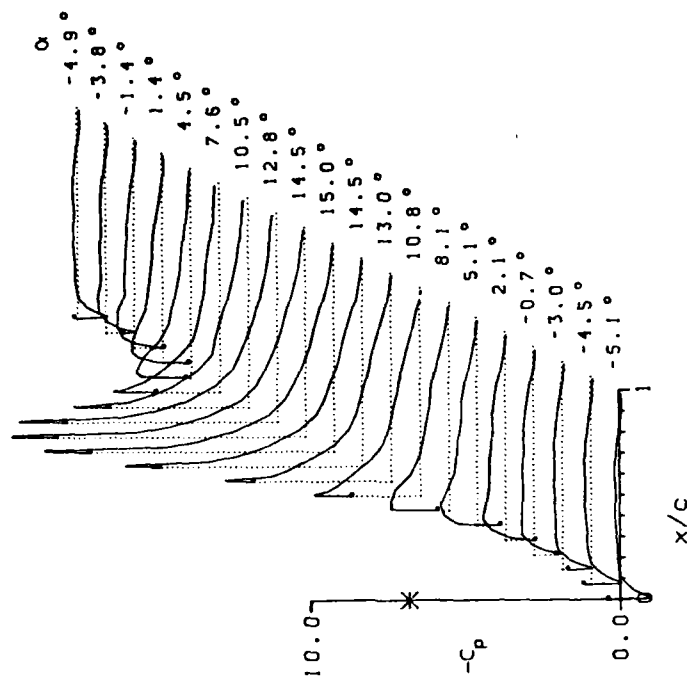
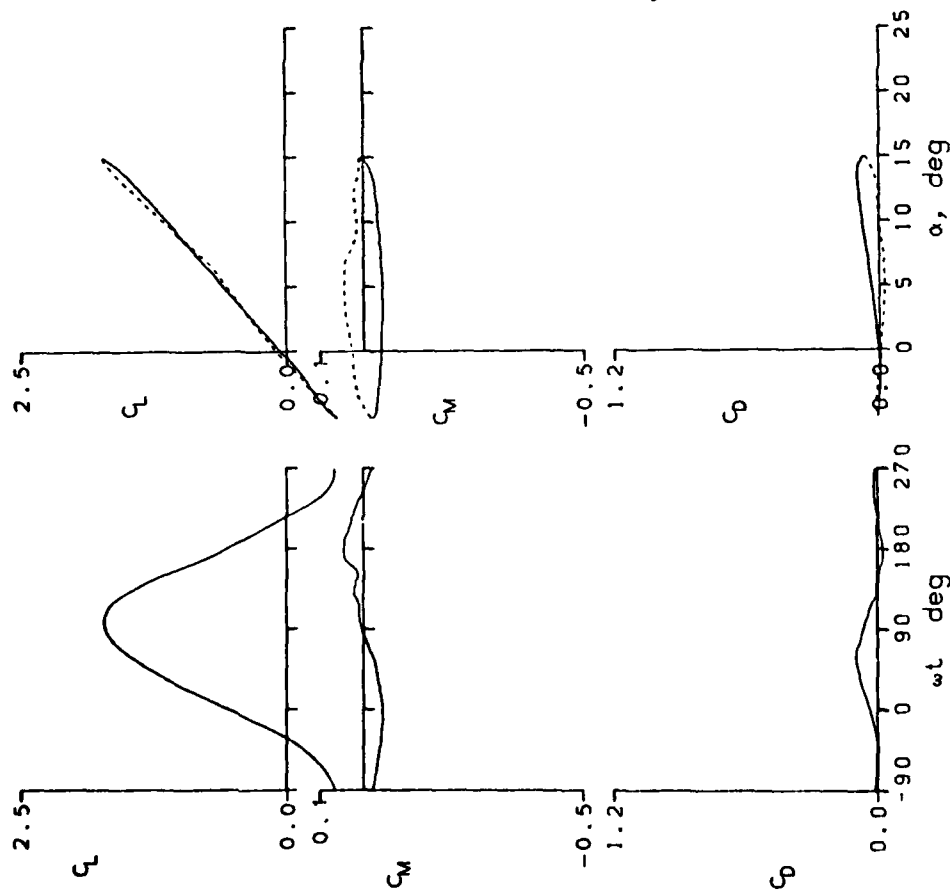


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31209 $A_0 = 14.82^\circ$ $k = 0.099$
 $Re = 2.42 E6$ $A_1 = 9.91^\circ$ $M = 0.184$
 $C_{Lmax} = 2.53$ $C_{Mmin} = -0.39$ $C_{Dmax} = 0.98$
 $\alpha_{Lmax} = 23.4^\circ$ $\xi = 0.174$ $M_{max} = 0.938$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 17.6$ $\alpha_{Mmax} = 22.5^\circ$

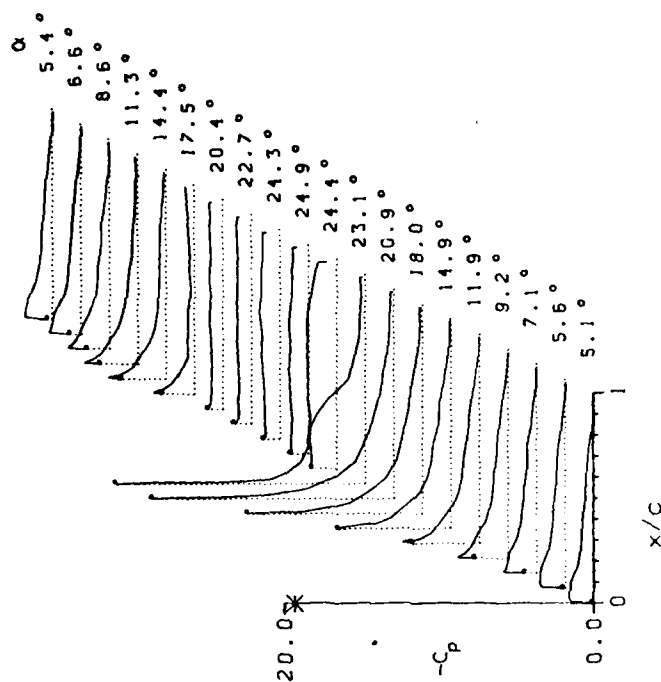
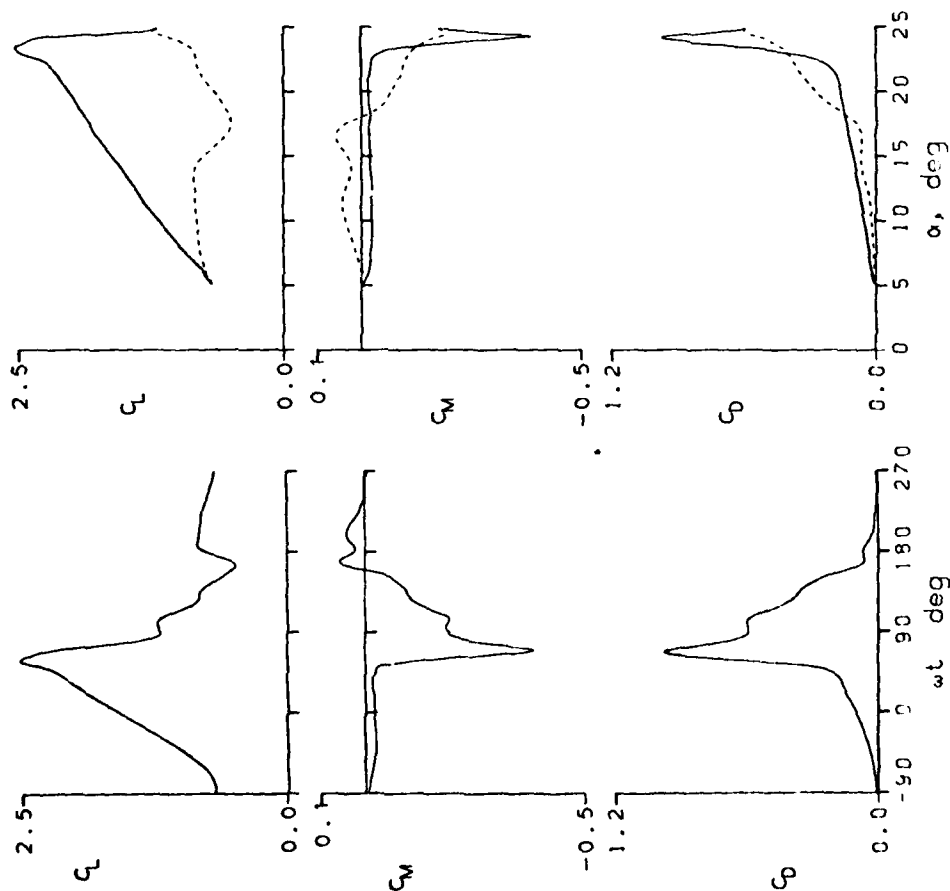


Figure 13.- Continued.

AMES-01 AIRFOIL

FRAME : 31215	A0 = 7.26°	h = 0.049
Re = 2.43 E6	A1 = 10.02°	M = 0.184
CLmax = 1.76	CMmin = -0.04	CDmax = 0.12
αLmax = 17.3°	ξ = 0.073	Mmax = 0.712
αCMmin = 6.7°	-CDmax = 11.3	αMmax = 17.5°

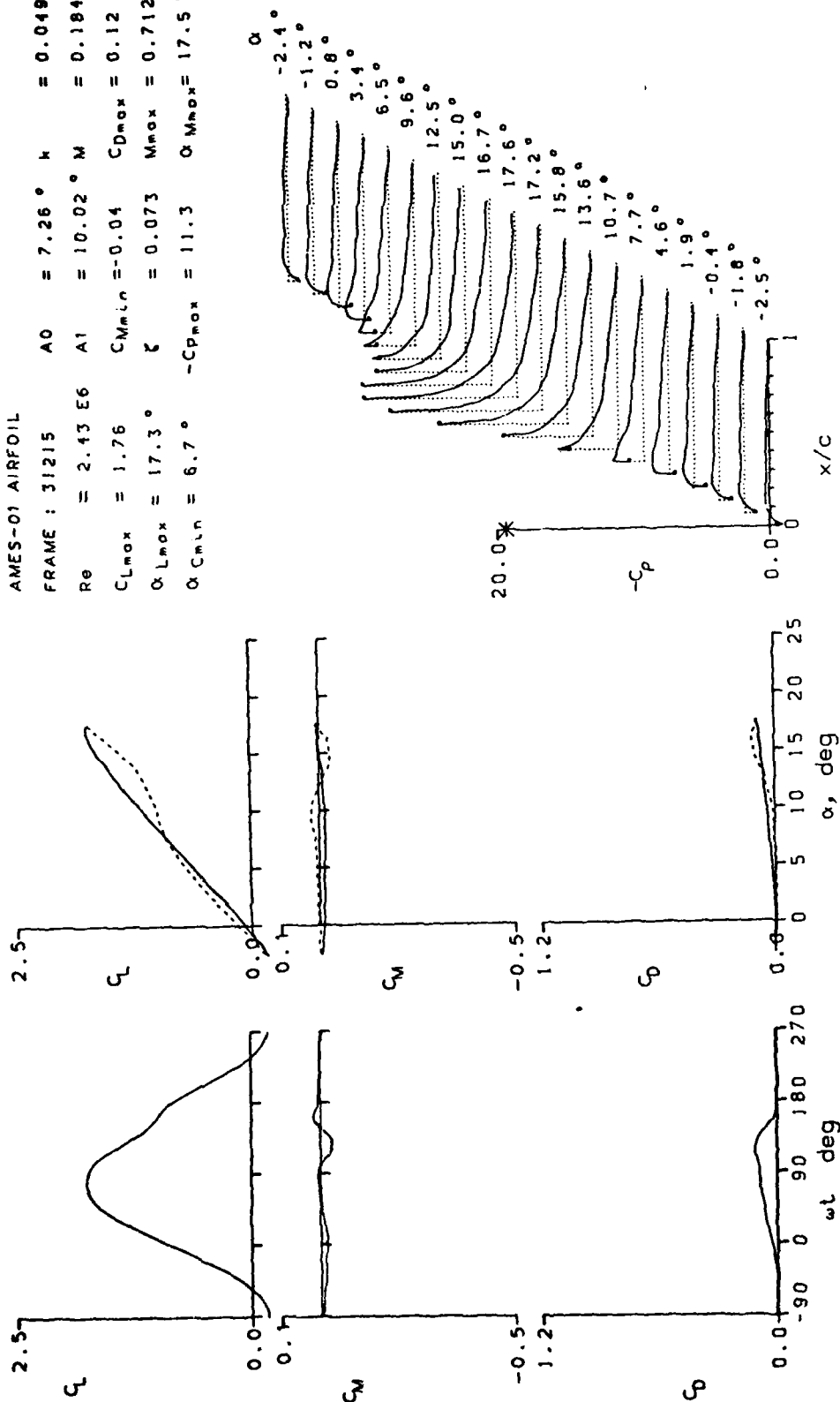


Figure 13.- Continued.

AMES-01 AIRFOIL
 FRAME : 31217 A0 = 7.27° k = 0.197
 Re = 2.42 E6 A1 = 10.01° M = 0.185
 CLmax = 1.80 CMmin = -0.06 CDmax = 0.13
 αLmax = 17.5° ξ = 0.574 Mmax = 0.727
 αCMmin = 6.6° -CPmax = 11.7 αMmax = 17.5°

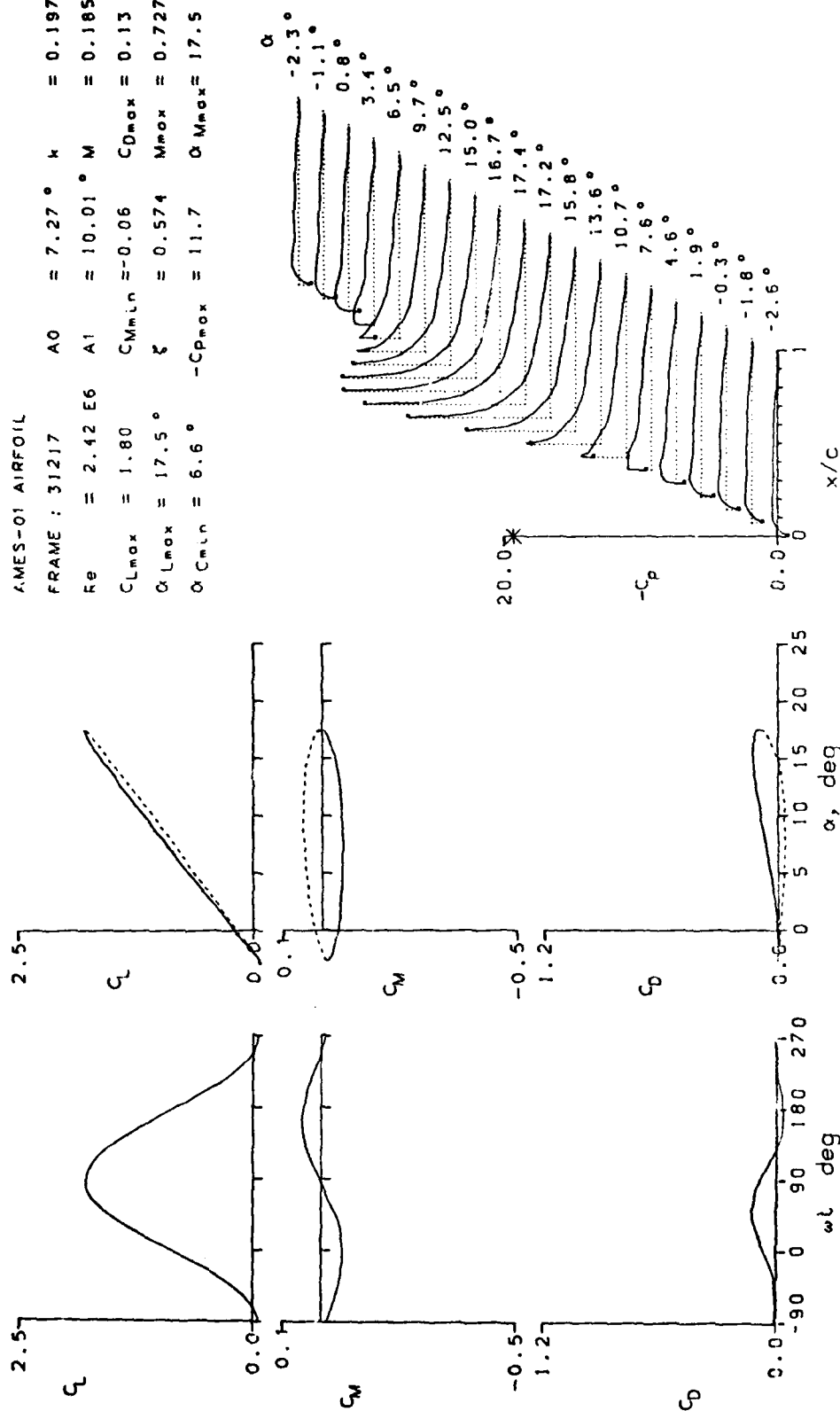


Figure 13.- Continued.

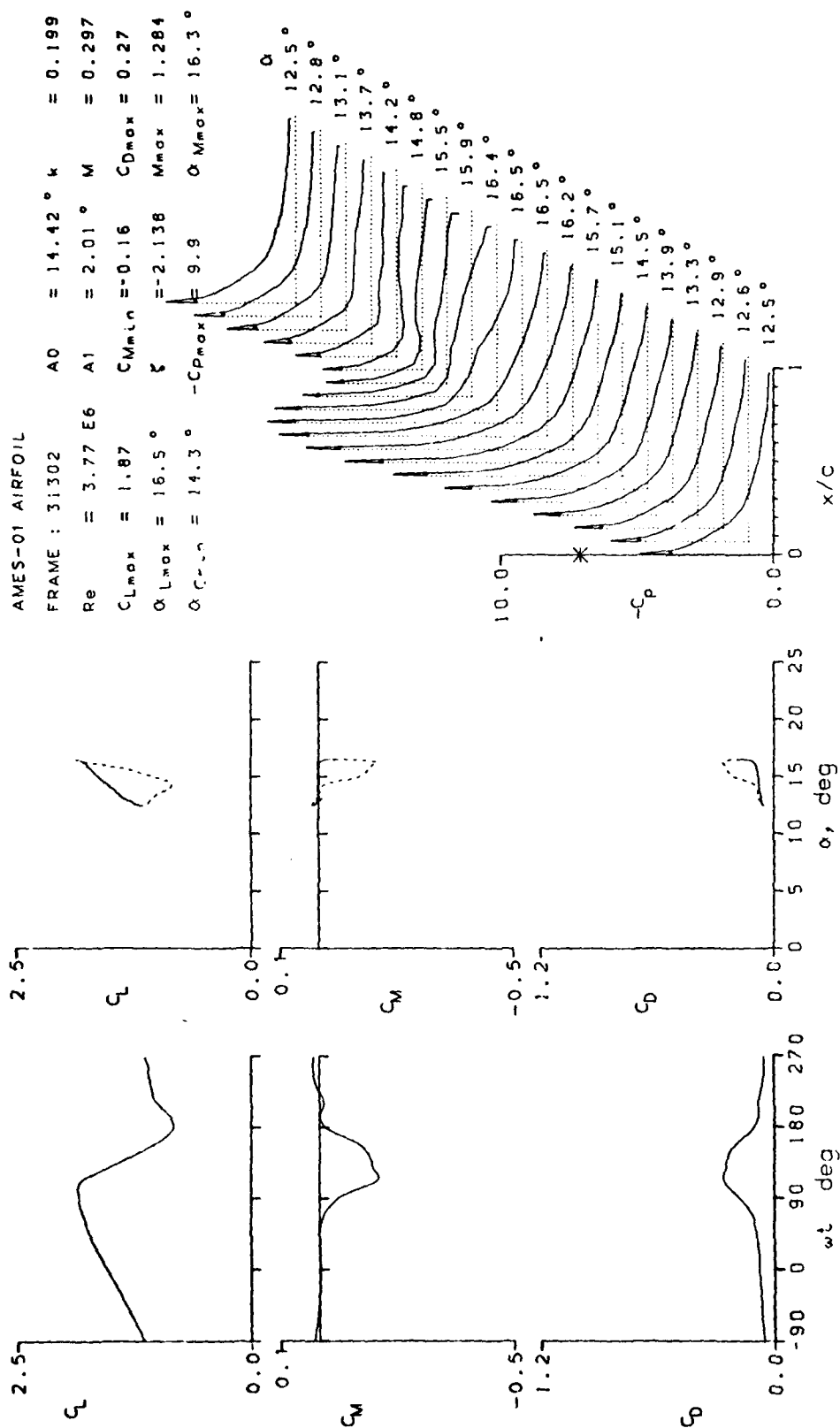


Figure 13.- Continued.

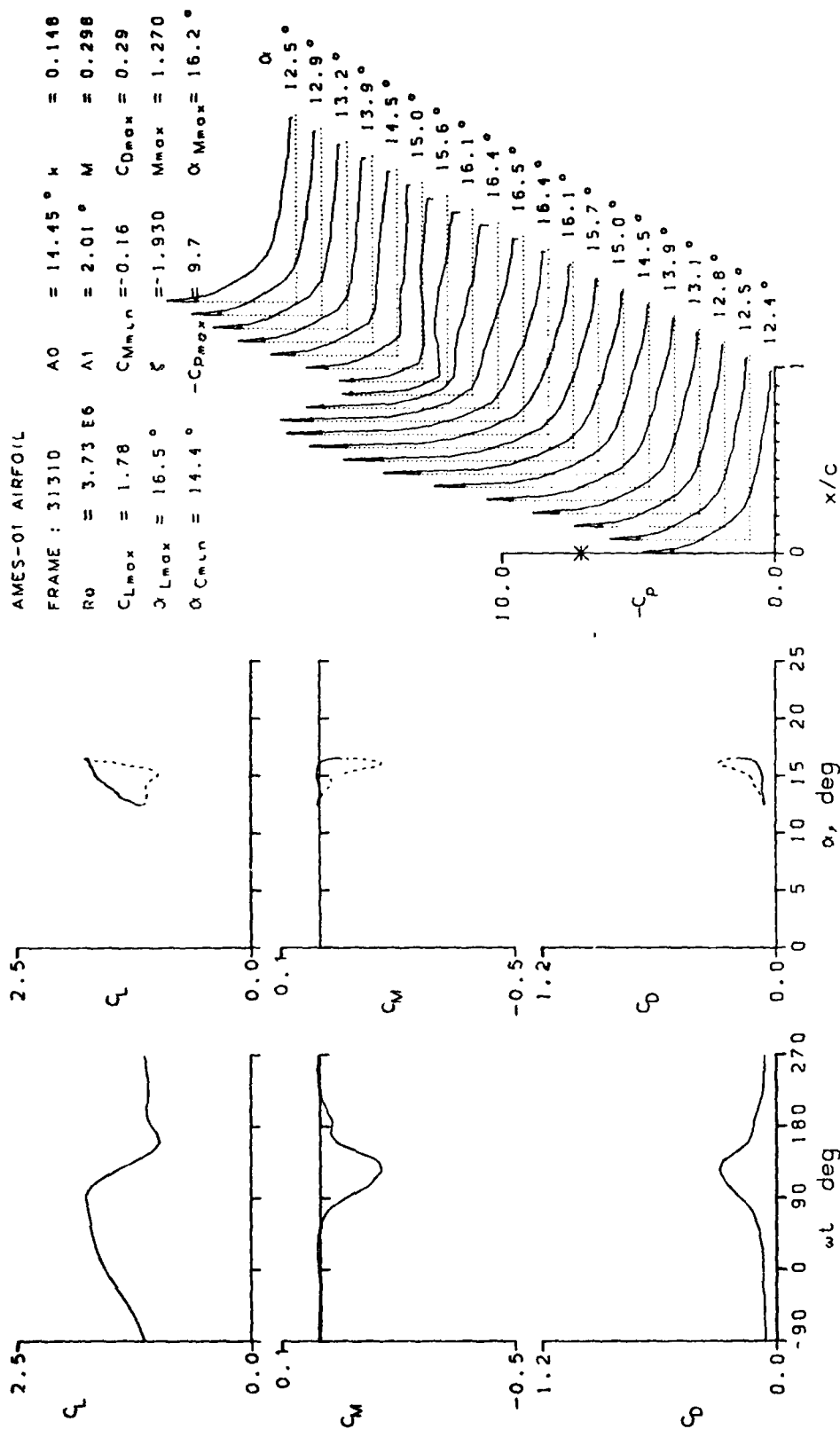


Figure 13.- Concluded.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 16019 $A_0 = 14.79^\circ$ $k = 0.101$
 $Re = 0.45 E6$ $A_1 = 9.90^\circ$ $M = 0.036$
 $C_{Lmax} = 2.16$ $C_{Mmin} = -0.46$ $C_{Dmax} = 0.99$
 $\alpha_{Lmax} = 24.7^\circ$ $\xi = 0.513$ $M_{max} = 0.107$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 7.7$ $\alpha_{Mmax} = 13.0^\circ$

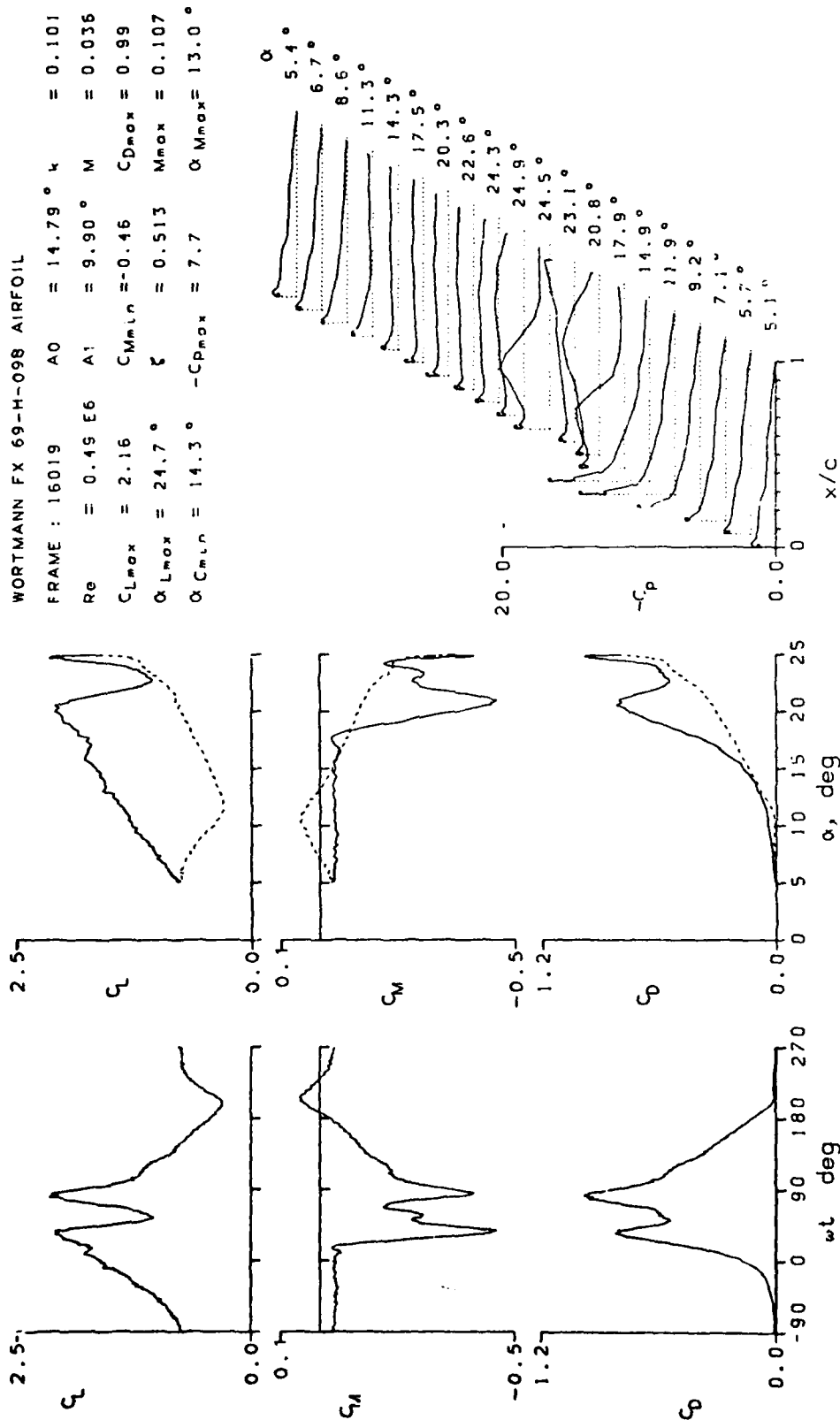


Figure 14.- Dynamic data for Wortmann FX-098 airfoil.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 16105 $A_0 = 14.80^\circ$ $k = 0.097$
 $Re = 0.99 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.074$
 $C_{Lmax} = 2.27$ $C_{Mmin} = -0.43$ $C_{Dmax} = 0.98$
 $\alpha_{Lmax} = 21.1^\circ$ $\zeta = 0.407$ $M_{max} = 0.325$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 17.5$ $\alpha_{Mmax} = 19.7^\circ$

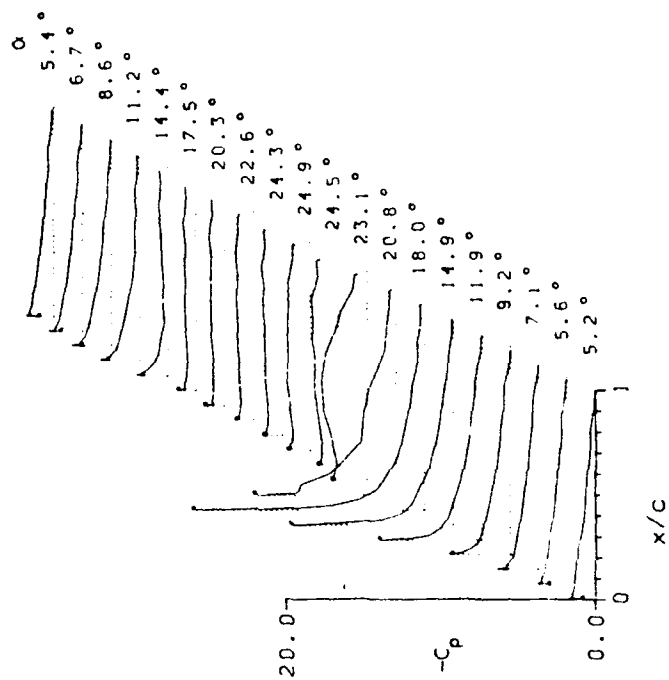
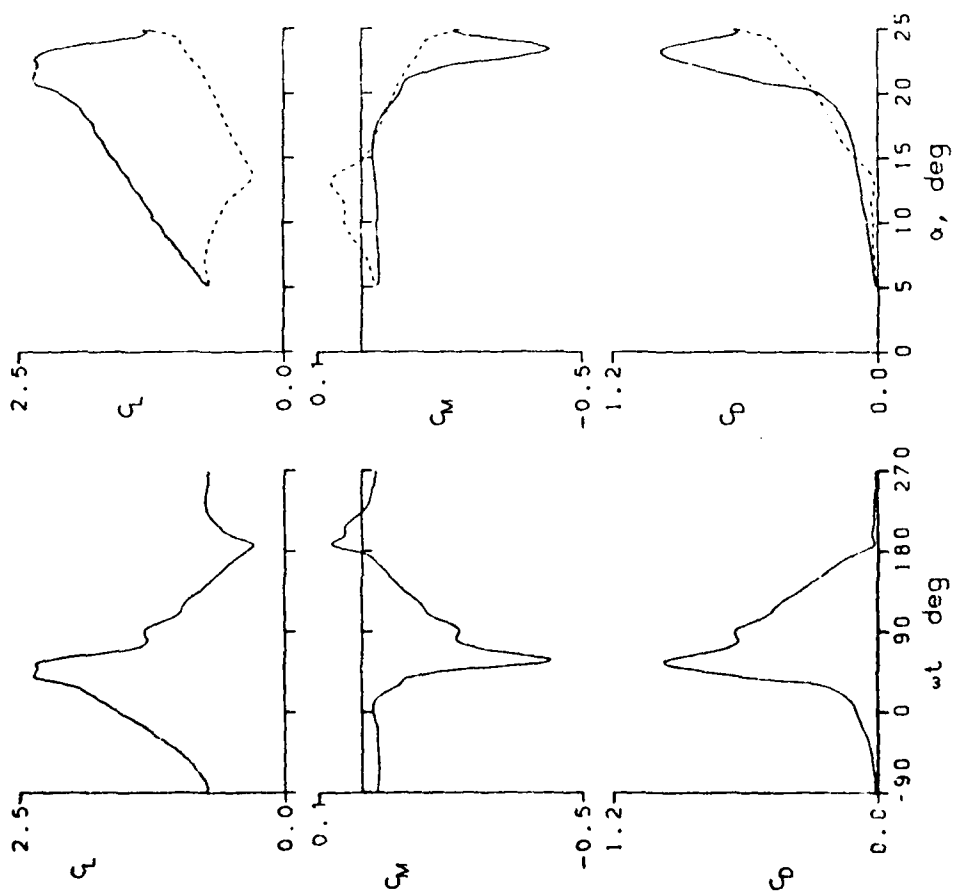


Figure 14.- Continued.

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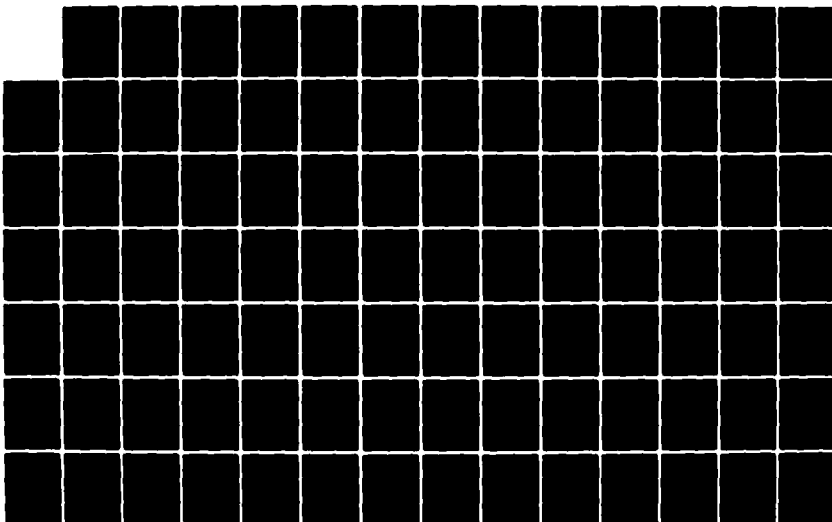
AN EXPERIMENTAL STUDY OF DYNAMIC STALL ON ADVANCED
AIRFOIL SECTIONS VOLUM. (U) NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION MOFFETT FIELD CALIF.

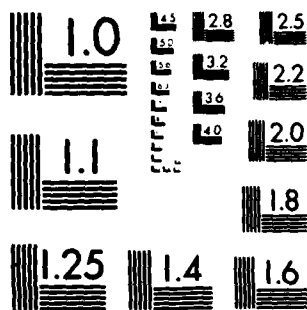
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WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 16114 $A_0 = 14.80^\circ$ $k = 0.098$
 $Re = 1.46 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.110$
 $C_{Lmax} = 2.48$ $C_{Mmin} = -0.44$ $C_{Dmax} = 1.02$
 $\alpha_{Lmax} = 22.8^\circ$ $\xi = 0.294$ $M_{max} = 0.539$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Pmax} = 20.3$ $\alpha_{Mmax} = 20.8^\circ$

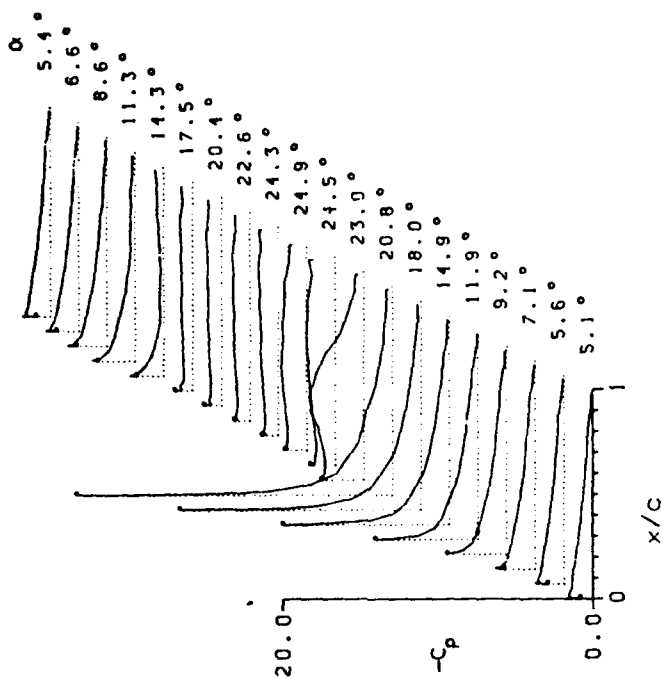
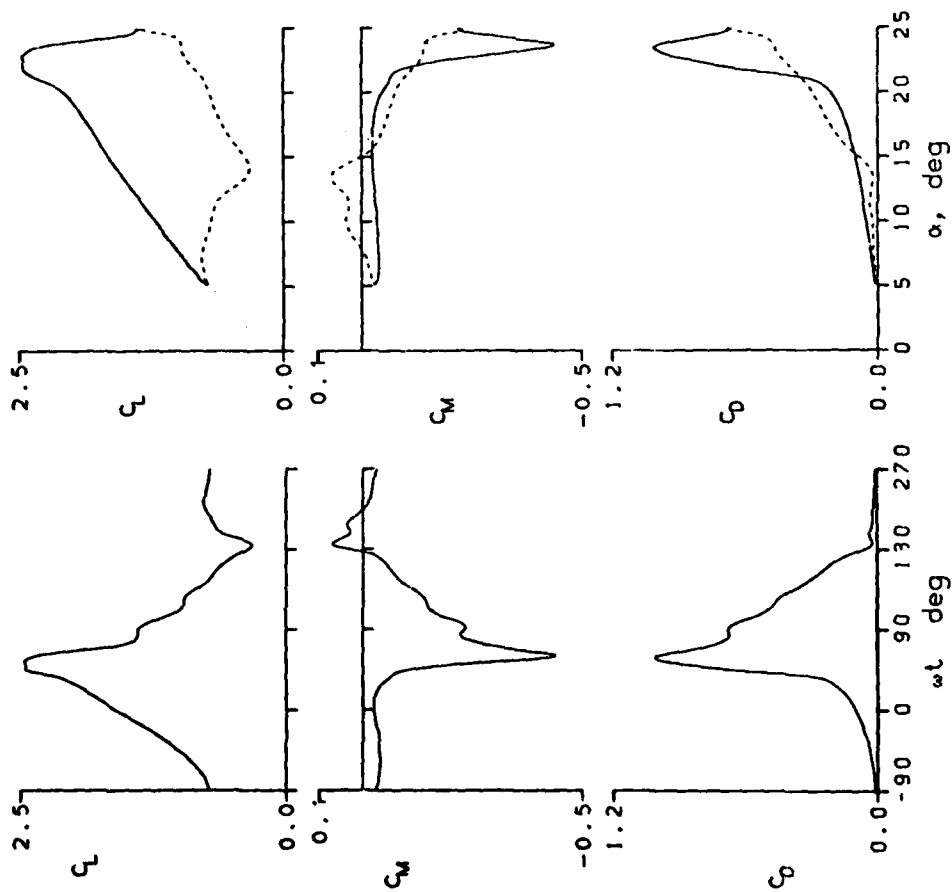


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 16200	A0 = 14.80°	k = 0.098
Re = 2.43 E6	A1 = 9.90°	M = 0.185
CLmax = 2.43	CMmin = -0.40	CDmax = 0.93
αLmax = 21.8°	ξ = 0.310	Mmax = 1.071
αCMmin = 14.3°	-CDmax = 21.0	αMmax = 20.3°

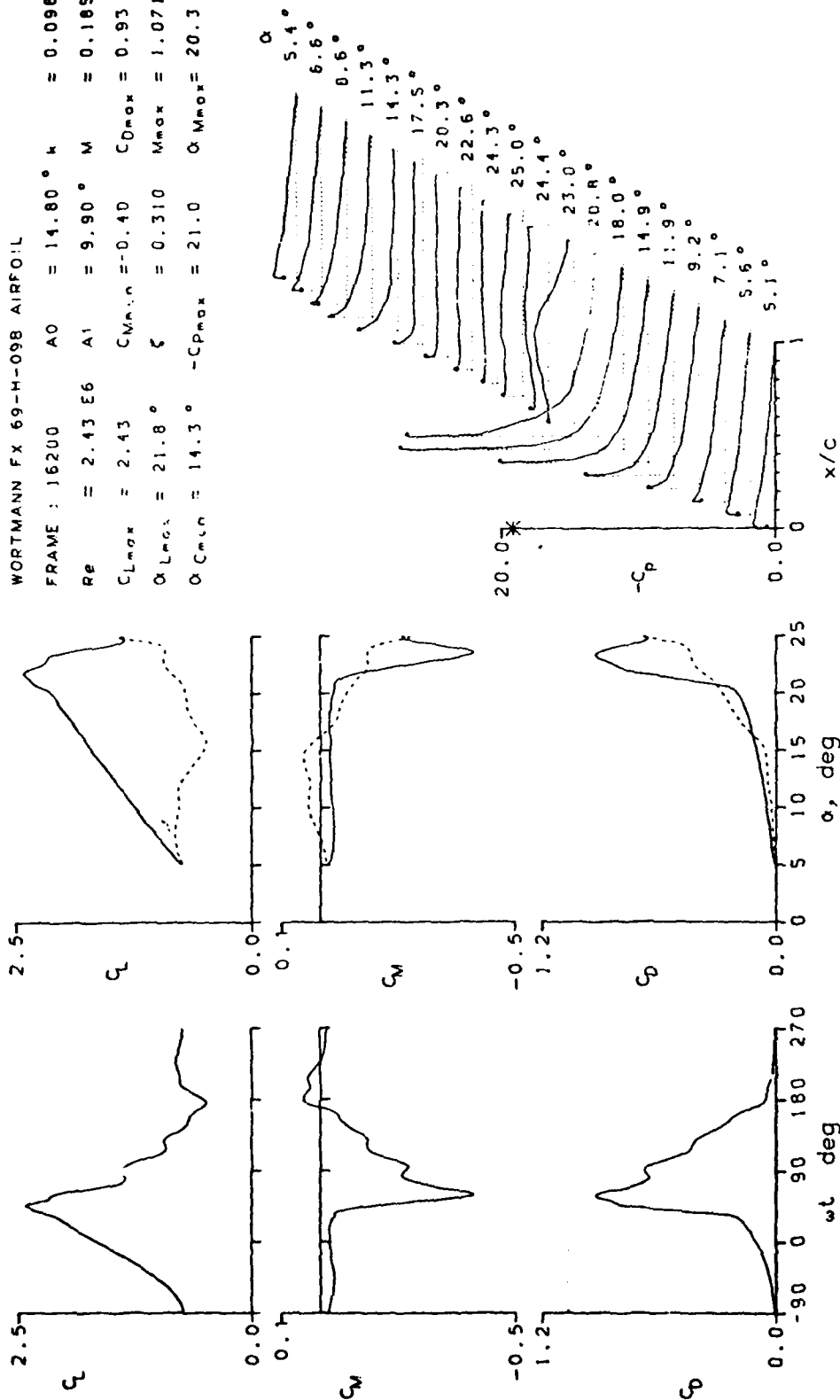


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL

FRAME : 16213 $A_0 = 6.34^\circ$ $h = 0.050$
 $R_0 = 2.50 \text{ E6}$ $A_1 = 10.01^\circ$ $M = 0.184$
 $C_{L_{max}} = 1.78$ $C_{M_{min}} = -0.04$ $C_{D_{max}} = 0.12$
 $\alpha_{L_{max}} = 16.3^\circ$ $\xi = 0.107$ $M_{max} = 0.824$
 $\alpha_{C_{min}} = 5.8^\circ$ $-C_{D_{max}} = 14.5$ $\alpha_{M_{max}} = 16.4^\circ$

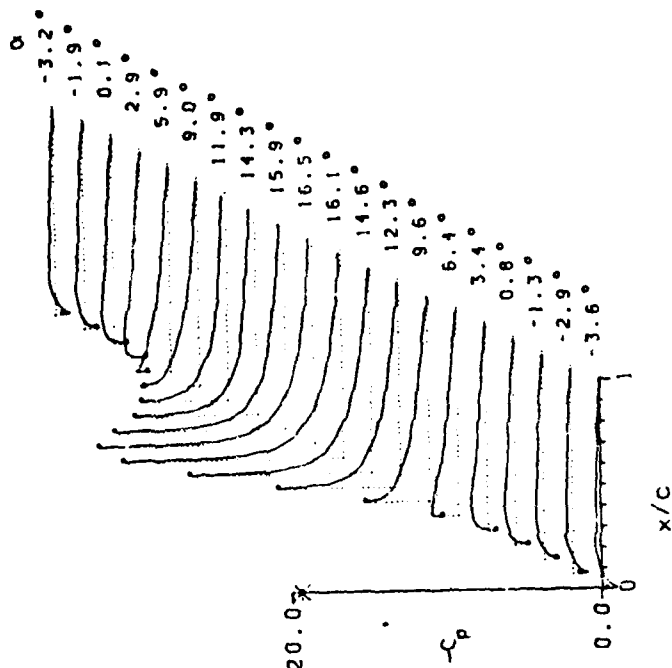
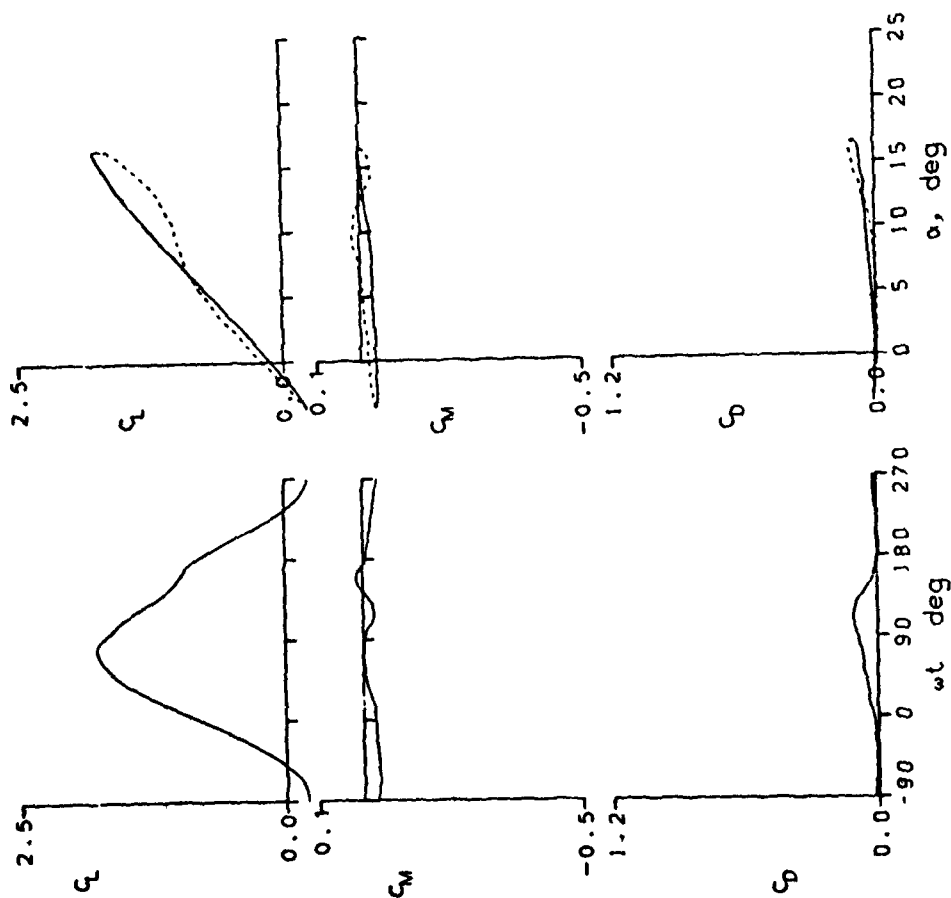


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL

FRAME : 16215	$A_0 = 6.33^\circ$	$k = 0.200$
$Re = 2.49 \text{ E}6$	$A_1 = 10.01^\circ$	$M = 0.184$
$C_{L_{max}} = 1.79$	$C_{M_{min}} = -0.07$	$C_{D_{max}} = 0.12$
$\alpha_{L_{max}} = 16.5^\circ$	$\xi = 0.600$	$M_{max} = 0.842$
$\alpha_{C_{M_{min}}} = 5.8^\circ$	$-C_{D_{max}} = 15.0$	$\alpha_{M_{max}} = 16.3^\circ$

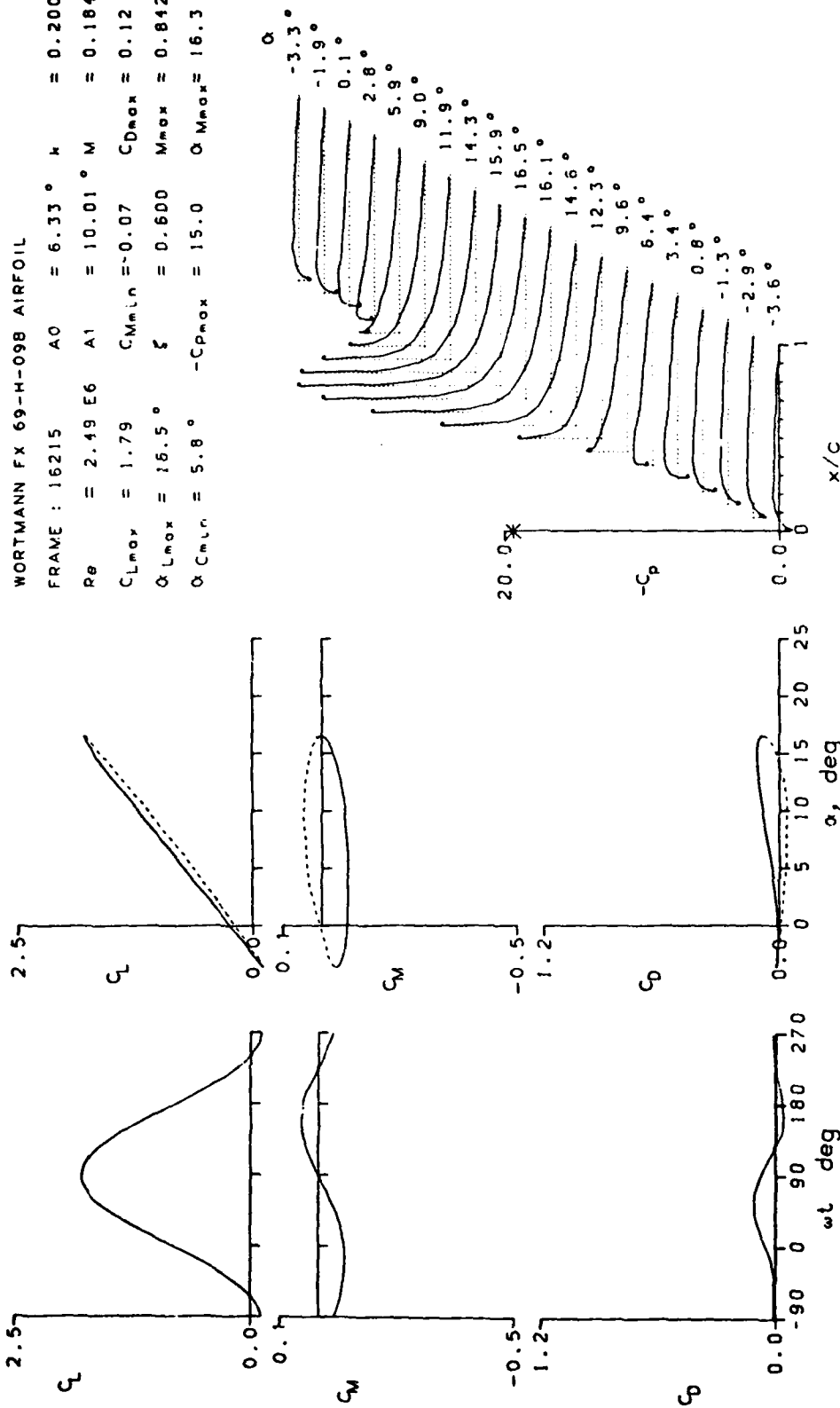


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 16300 $A0 = 14.81^\circ$ $k = 0.099$
 $Re = 2.89 \text{ E}6$ $A1 = 9.88^\circ$ $M = 0.220$
 $C_{Lmax} = 2.35$ $C_{Mmin} = -0.44$ $C_{Dmax} = 0.93$
 $\alpha_{Lmax} = 21.5^\circ$ $\xi = 0.421$ $M_{max} = 1.232$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 17.4$ $\alpha_{Mmax} = 18.6^\circ$

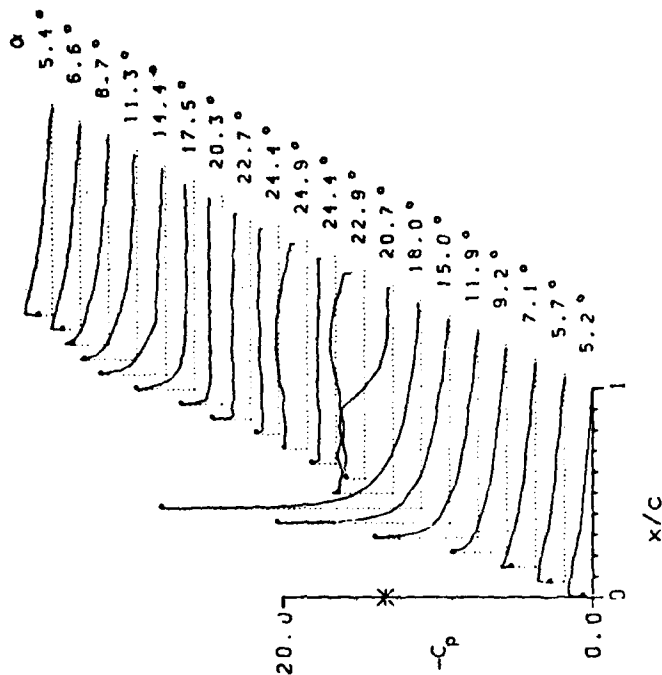
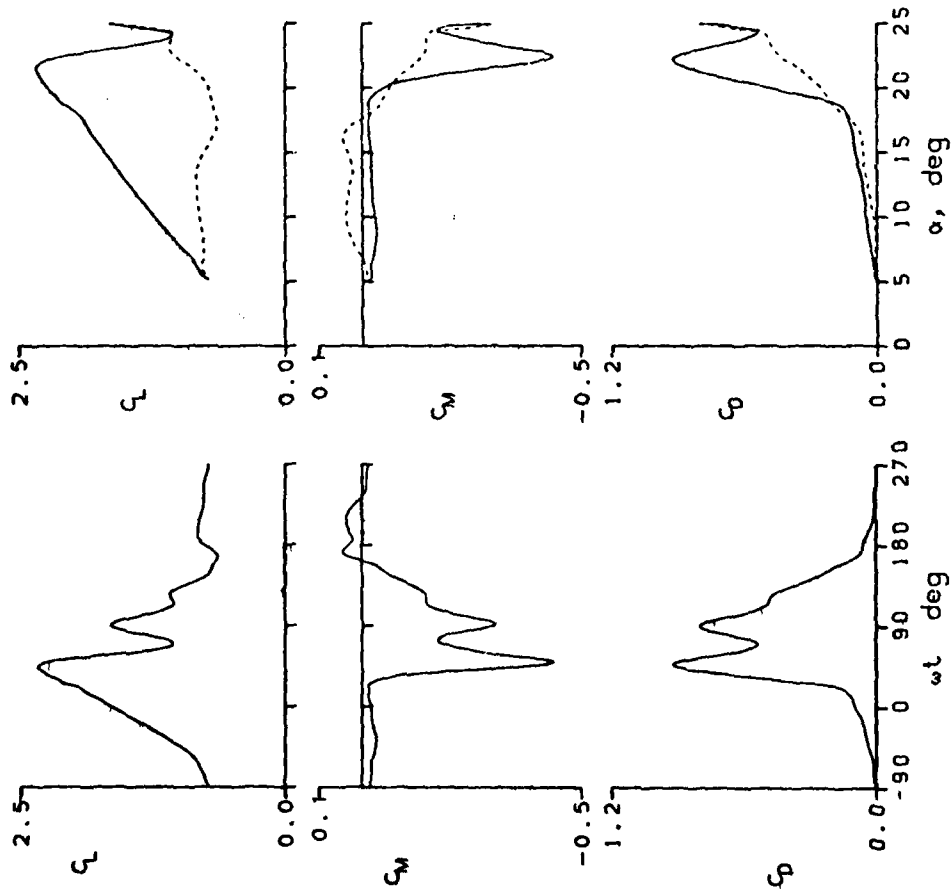


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 16308 $A_0 = 14.83^\circ$ $k = 0.099$

$Re = 3.23 \text{ E}6$ $A1 = 9.88^\circ$ $M = 0.249$

$C_{Lmax} = 2.32$ $C_{Dmin} = -0.44$ $C_{Dmax} = 0.88$

$\alpha_{Lmax} = 20.8^\circ$ $\xi = 0.543$ $M_{max} = 1.273$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 14.0$ $\alpha_{Mmax} = 16.8^\circ$

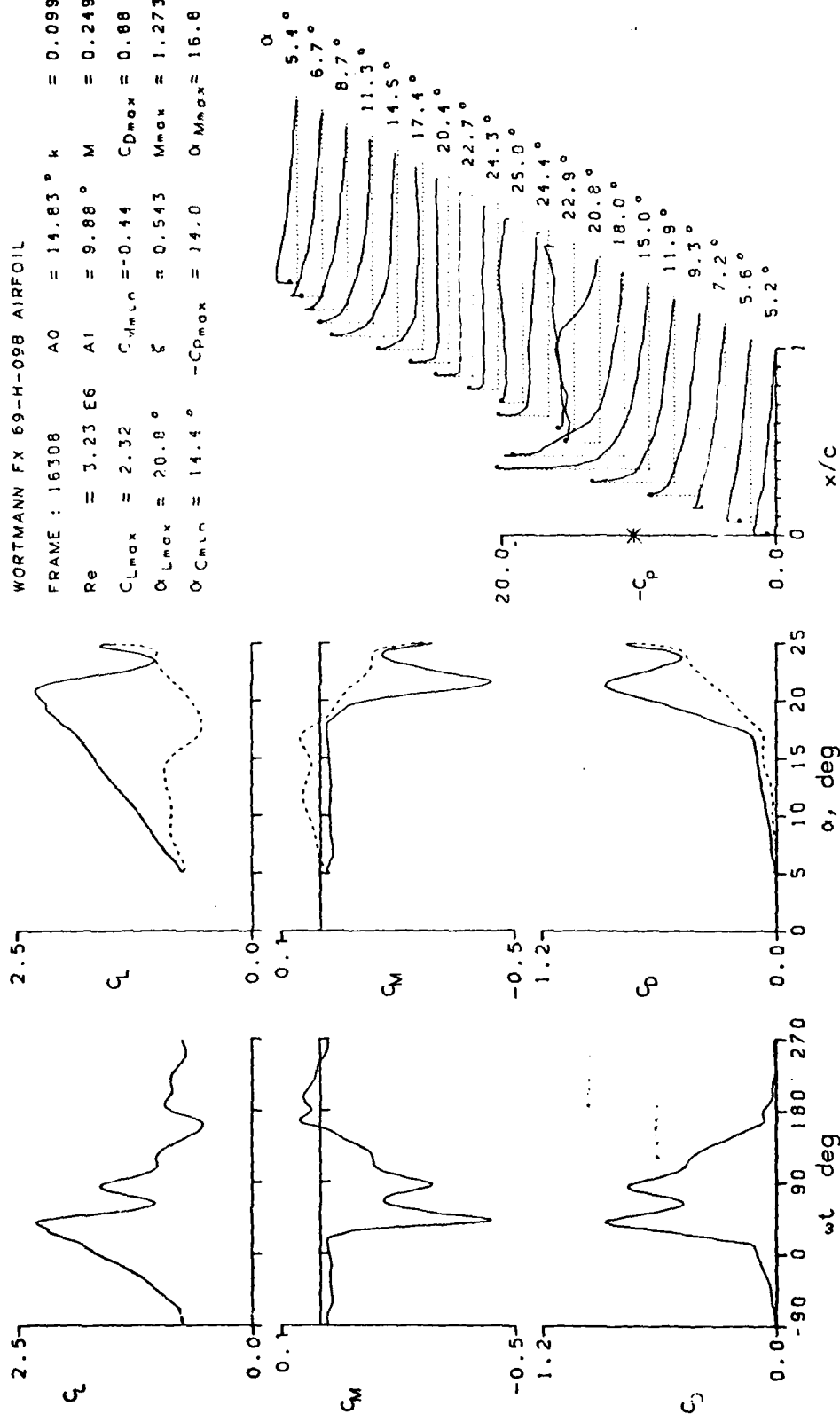


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL TRIP

FRAME : 17100 $A_0 \approx 14.81^\circ$ $\mu = 0.050$

$Re \approx 2.45 \text{ E}6$ $A_1 \approx 9.88^\circ$ $M \approx 0.184$

$C_{Lmax} = 1.88$ $C_{Mmin} = -0.32$ $C_{Dmax} \approx 0.61$

$\alpha_{Lmax} = 18.9^\circ$ $\zeta = 0.306$ $M_{max} = 0.762$

$\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 12.8$ $\alpha_{Mmax} = 16.4^\circ$

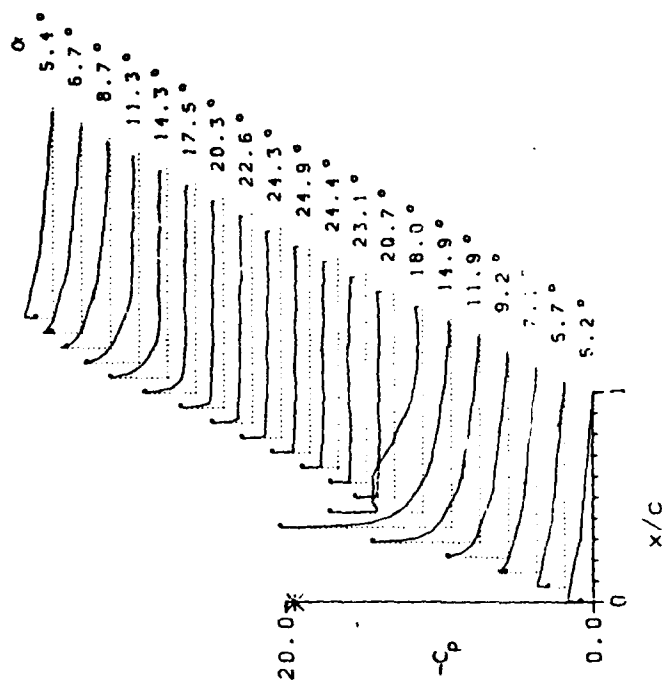
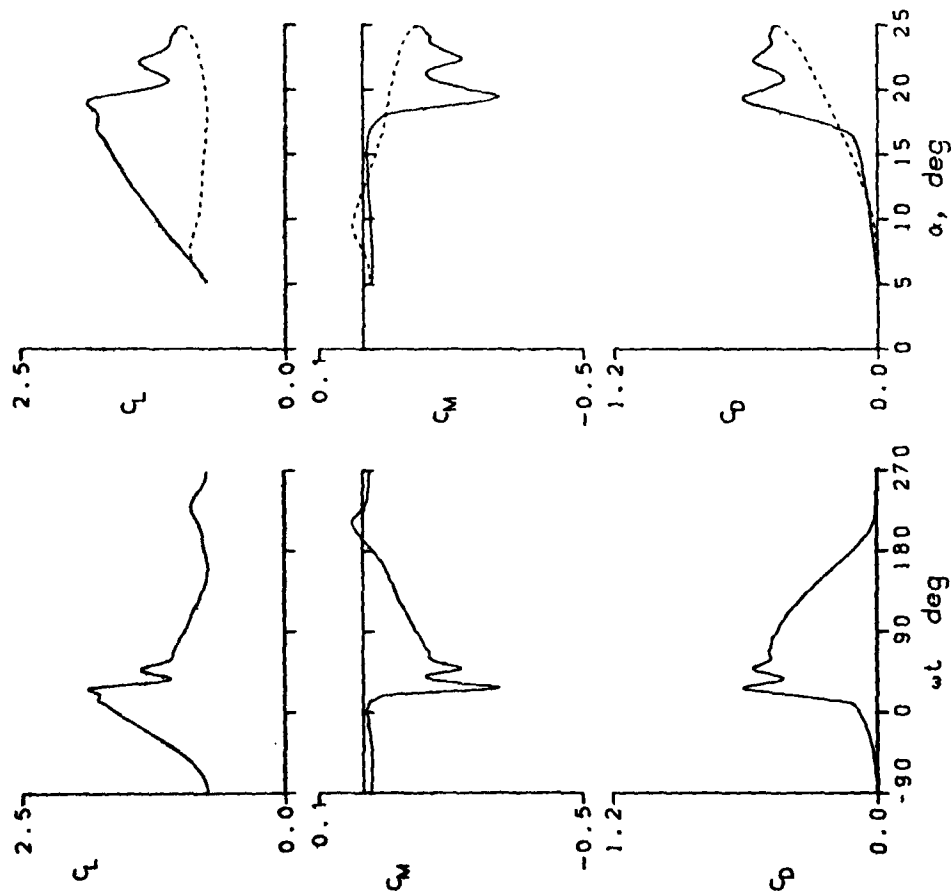


Figure 14.- Continued.

WORTMAN FX 69-H-098 AIRFOIL TRIP

FRAME : 17103 $A_0 = 14.81^\circ$ $k = 0.099$

$Re = 2.45 \times 10^6$ $A_1 = 9.90^\circ$ $M = 0.184$

$C_{Lmax} = 2.23$ $C_{Mmin} = -0.47$ $C_{Dmax} = 0.91$

$\alpha_{Lmax} = 21.5^\circ$ $\xi = 0.420$ $M_{max} = 0.794$

$\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 13.7$ $\alpha_{Mmax} = 17.1^\circ$

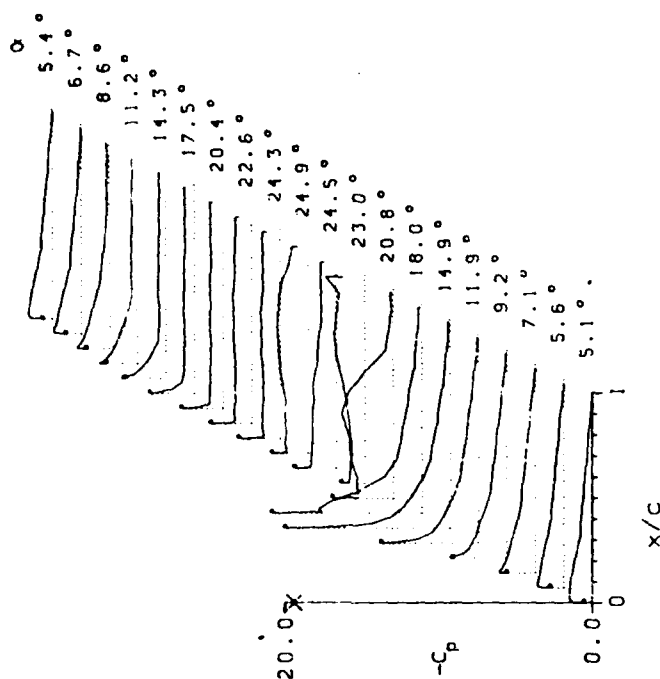
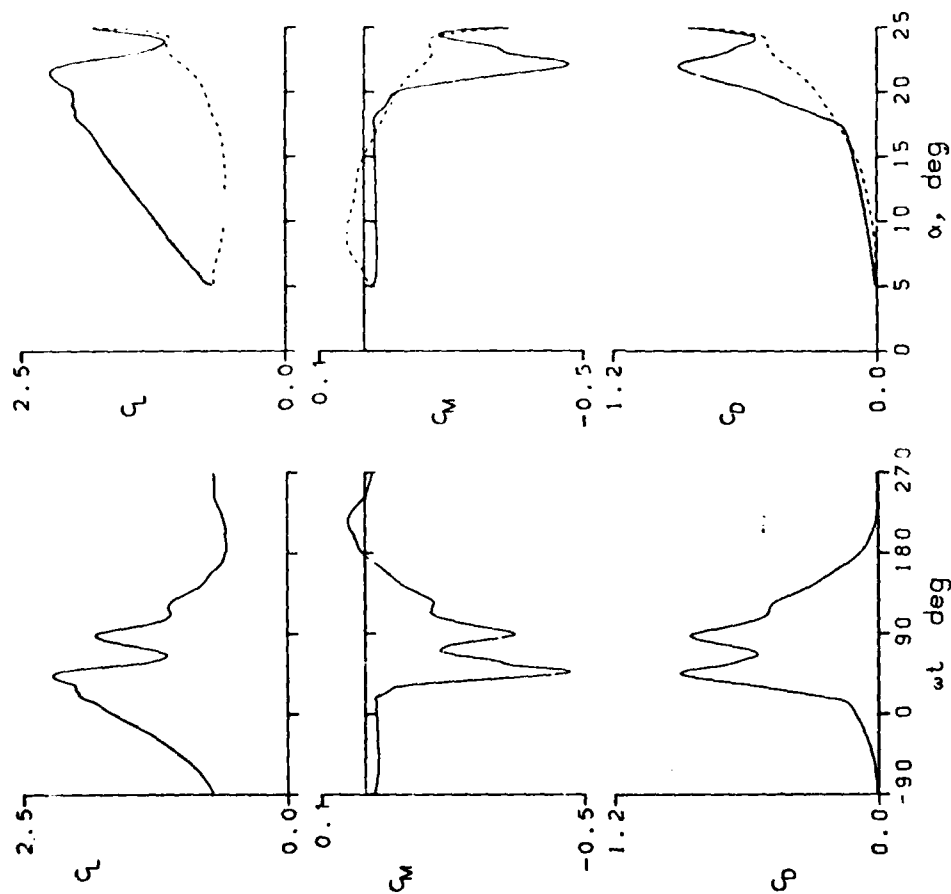


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 17109	$A_0 = 14.80^\circ$	$k = 0.149$	TRIP
$Re = 2.45 \text{ E} 6$	$A_1 = 9.89^\circ$	$M = 0.184$	
$C_{Lmax} = 2.37$	$C_{Mmin} = -0.53$	$C_{Dmax} = 1.07$	
$\alpha_{Lmax} = 23.6^\circ$	$\xi = 0.175$	$M_{max} = 0.802$	
$\alpha_{Cmin} = 14.3^\circ$	$-C_{Dmax} = 13.9$	$\alpha_{Mmax} = 17.7^\circ$	

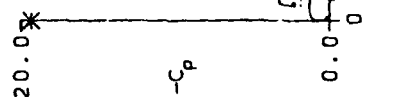
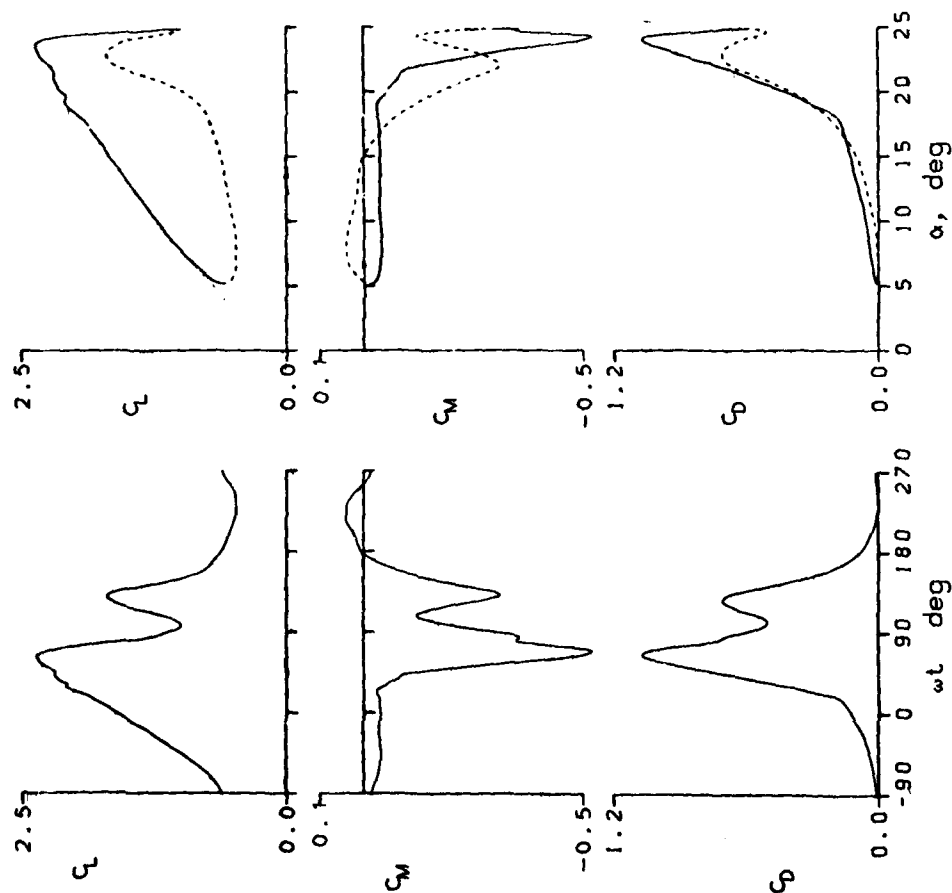


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL TRIP

FRAME : 17117 $A_0 = 14.84^\circ$ $\mu = 0.025$

$Re = 3.77 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.293$

$C_{Lmax} = 1.57$ $C_{Mmin} = -0.17$ $C_{Dmax} = 0.47$

$\alpha_{Lmax} = 14.4^\circ$ $\xi = 0.174$ $M_{max} = 1.212$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 9.5$ $\alpha_{Mmax} = 13.5^\circ$

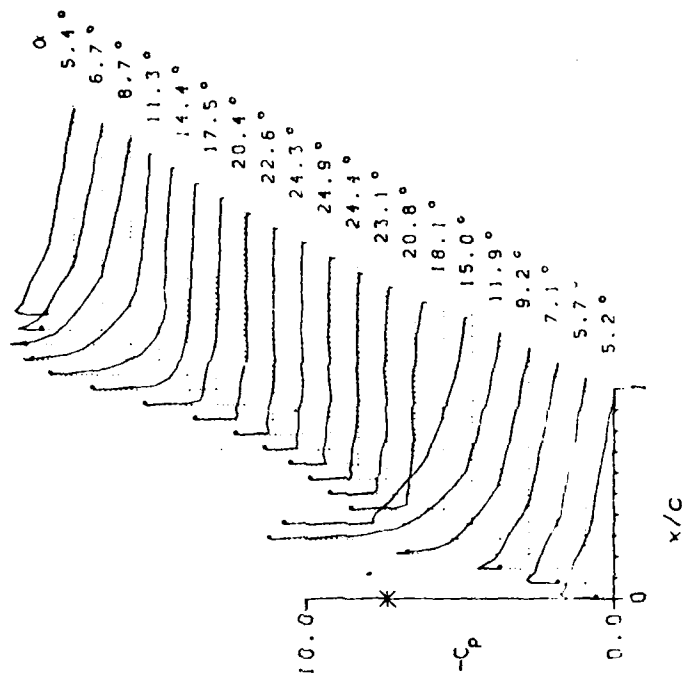
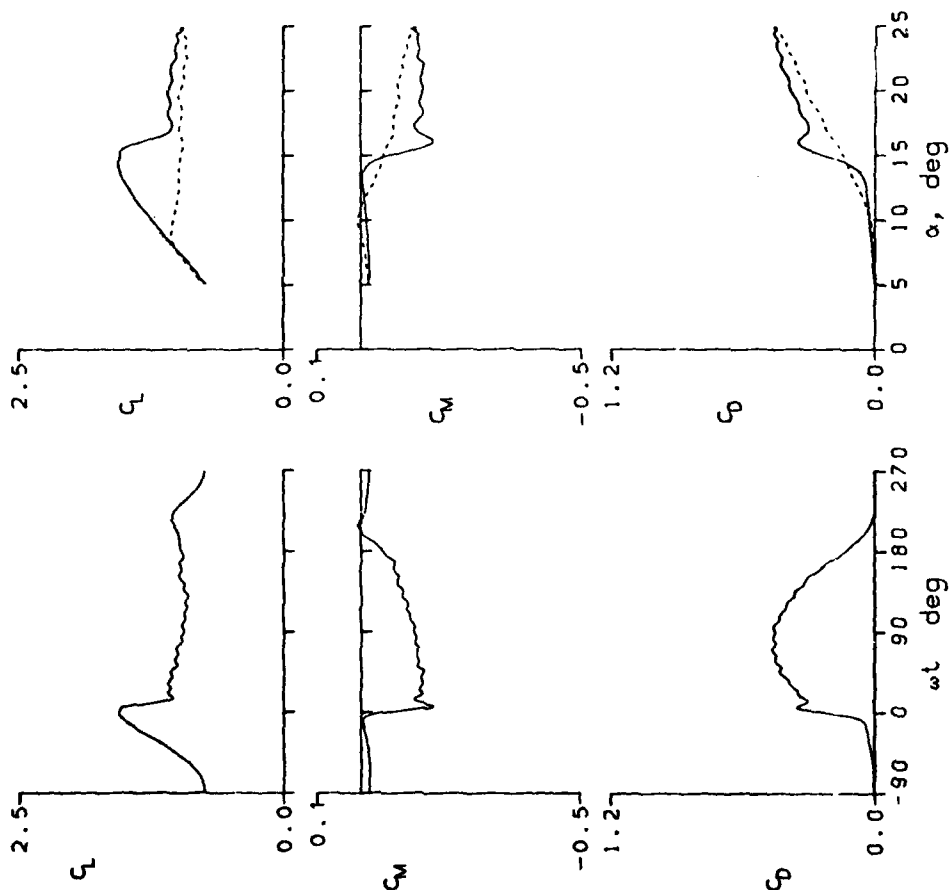


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL TRIP

FRAME : 17119 $A_0 = 14.81^\circ$ $k = 0.050$

$Re = 3.72 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.291$

$C_{Lmax} = 1.84$ $C_{Mmin} = -0.29$ $C_{Dmax} = 0.54$

$\alpha_{Lmax} = 17.1^\circ$ $\zeta = 0.333$ $M_{max} = 1.278$

$\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 10.2$ $\alpha_{Mmax} = 14.3^\circ$

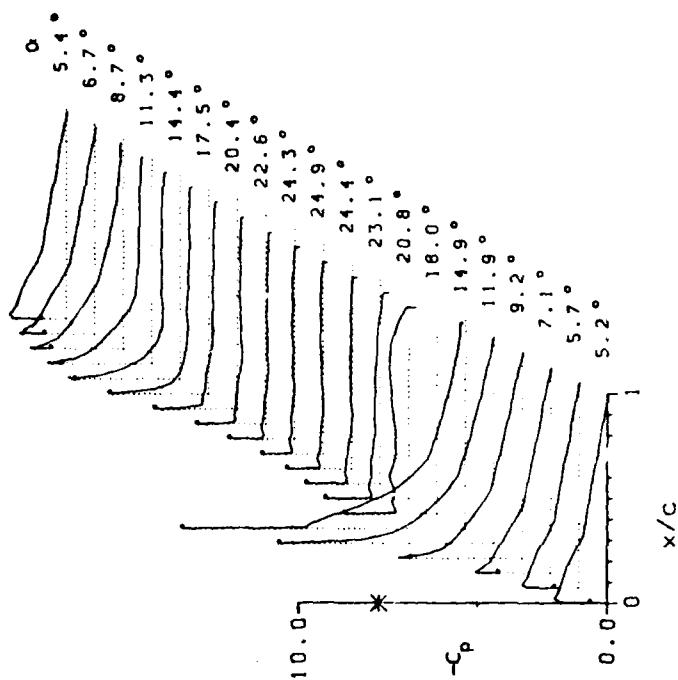
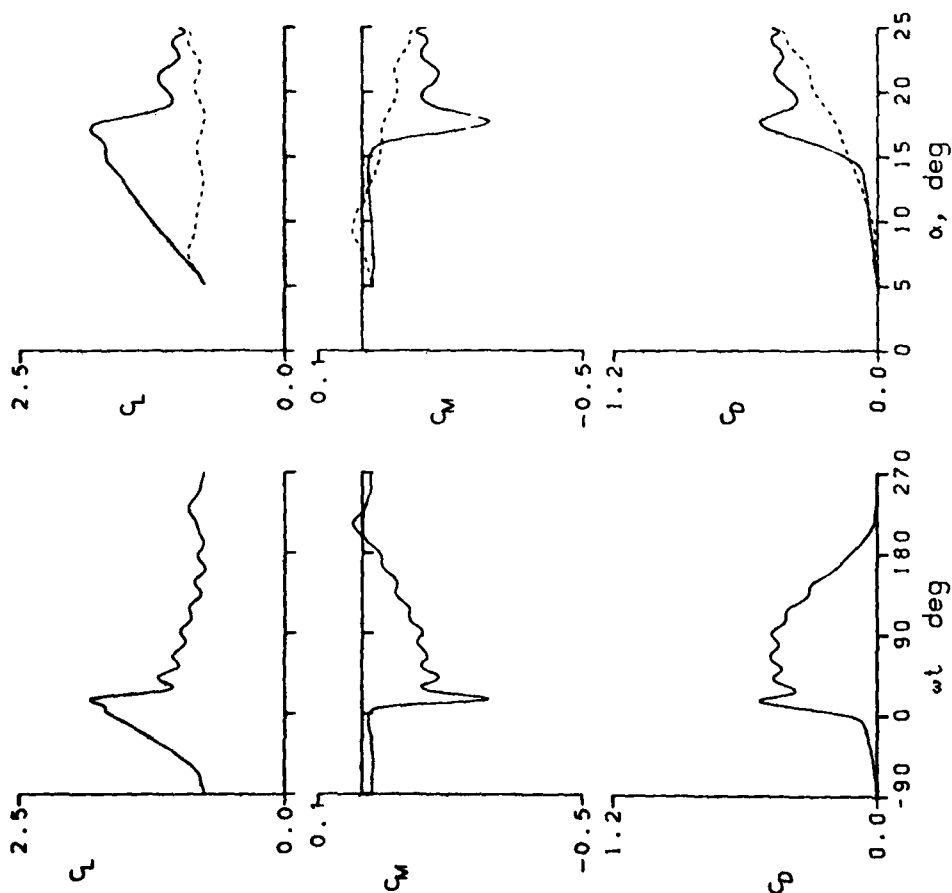


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL TRIP

FRAME : 17200 $A_0 = 14.81^\circ$ $\mu = 0.100$

$Re = 3.70 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.290$

$C_{Lmax} = 2.16$ $C_{Mmin} = -0.45$ $C_{Dmax} = 0.82$

$\alpha_{Lmax} = 20.0^\circ$ $\xi = 0.676$ $M_{max} = 1.316$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 10.7$ $\alpha_{Mmax} = 14.6^\circ$

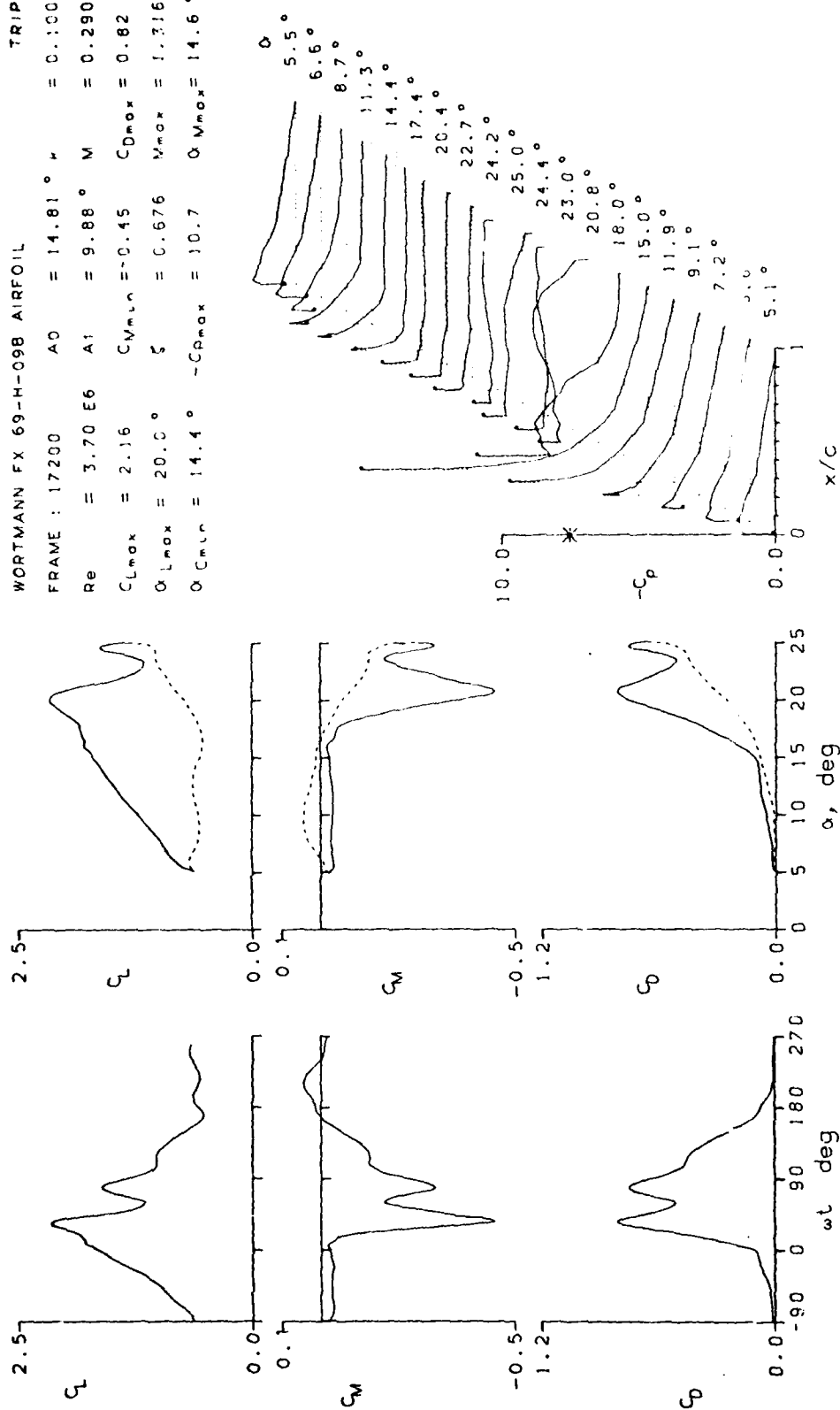


Figure 14.- Continued.

WORTMANN FX 69-M-098 AIRFOIL

FRAME : 21100 $A_0 = 14.95^\circ$ $\mu = 0.010$
 $Re = 3.72 \text{ E}6$ $A_1 = 9.87^\circ$ $M = 0.291$
 $C_{Lmax} = 1.52$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.43$
 $\alpha_{Lmax} = 13.7^\circ$ $\xi = 0.012$ $M_{max} = 1.245$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 14.1^\circ$

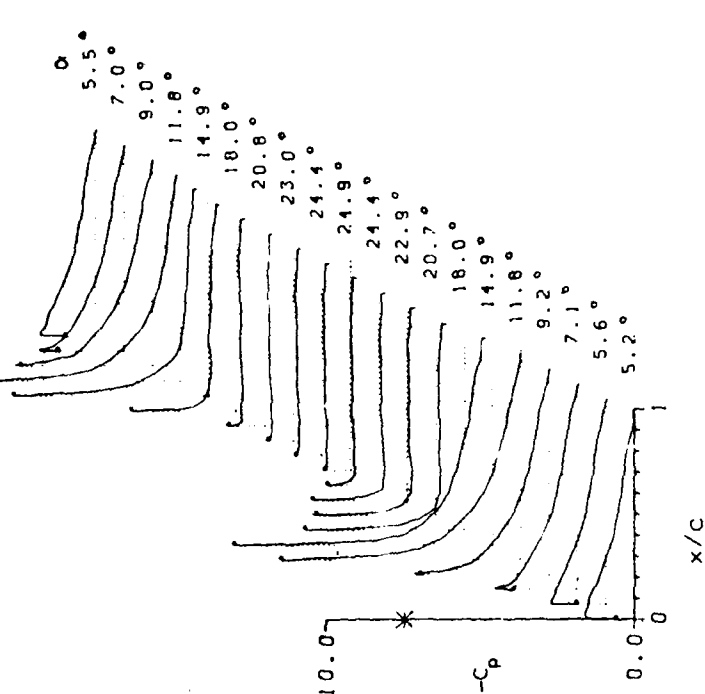
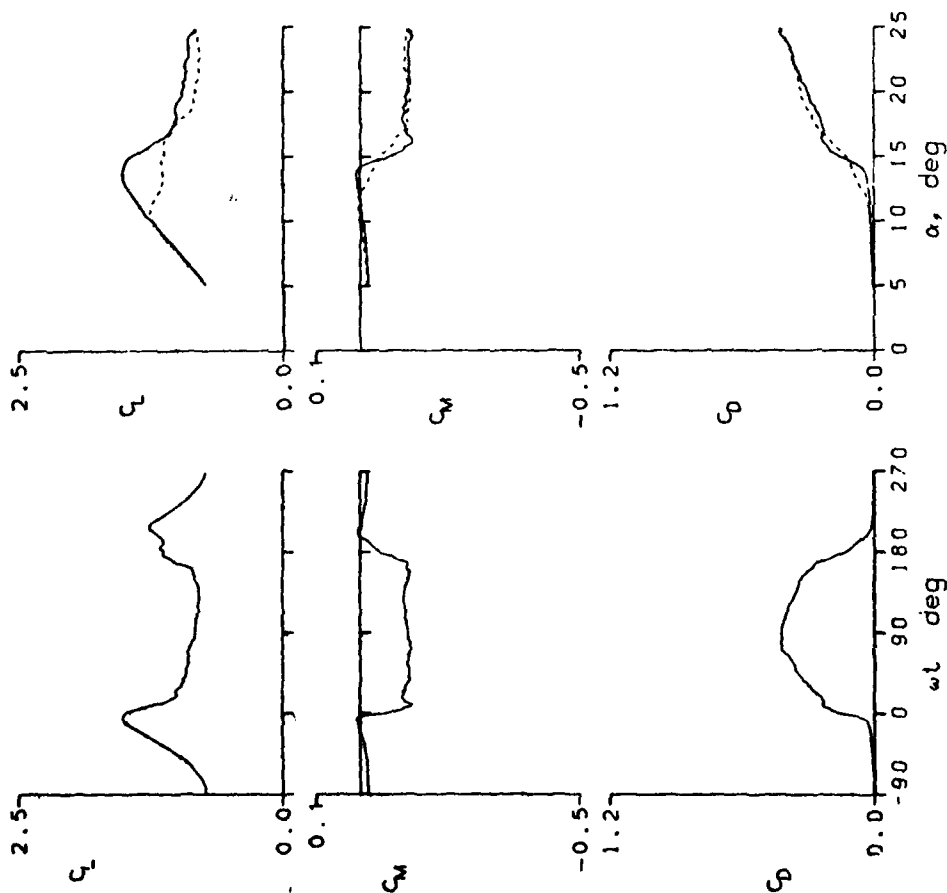


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL
 FRAME : 21107 $A_0 = 9.78^\circ$ $k = 0.010$
 $Re = 3.79 \text{ E}6$ $A_1 = 9.94^\circ$ $M = 0.299$
 $C_{Lmax} = 1.50$ $C_{Nmin} = -0.11$ $C_{Dmax} = 0.28$
 $\alpha_{Lmax} = 13.3^\circ$ $\xi = 0.026$ $M_{max} = 1.262$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Dmax} = 9.5$ $\alpha_{Mmax} = 13.6^\circ$

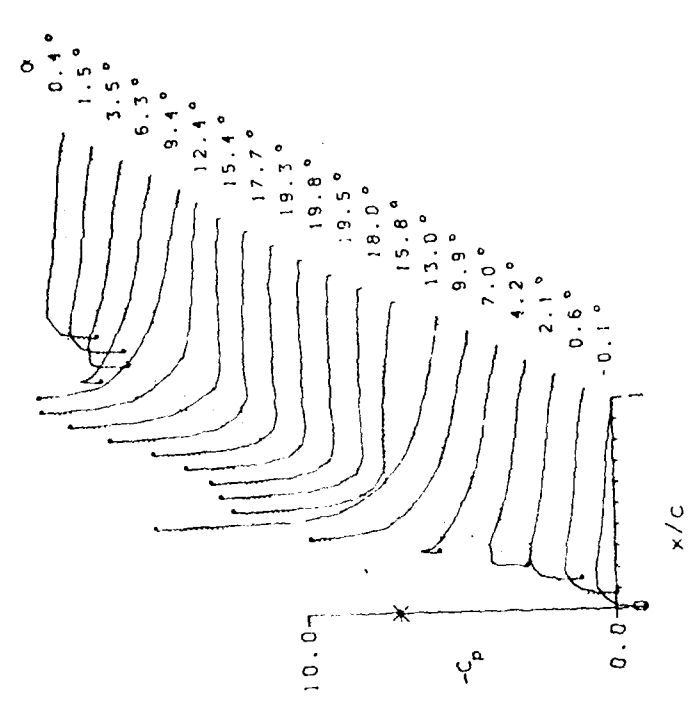
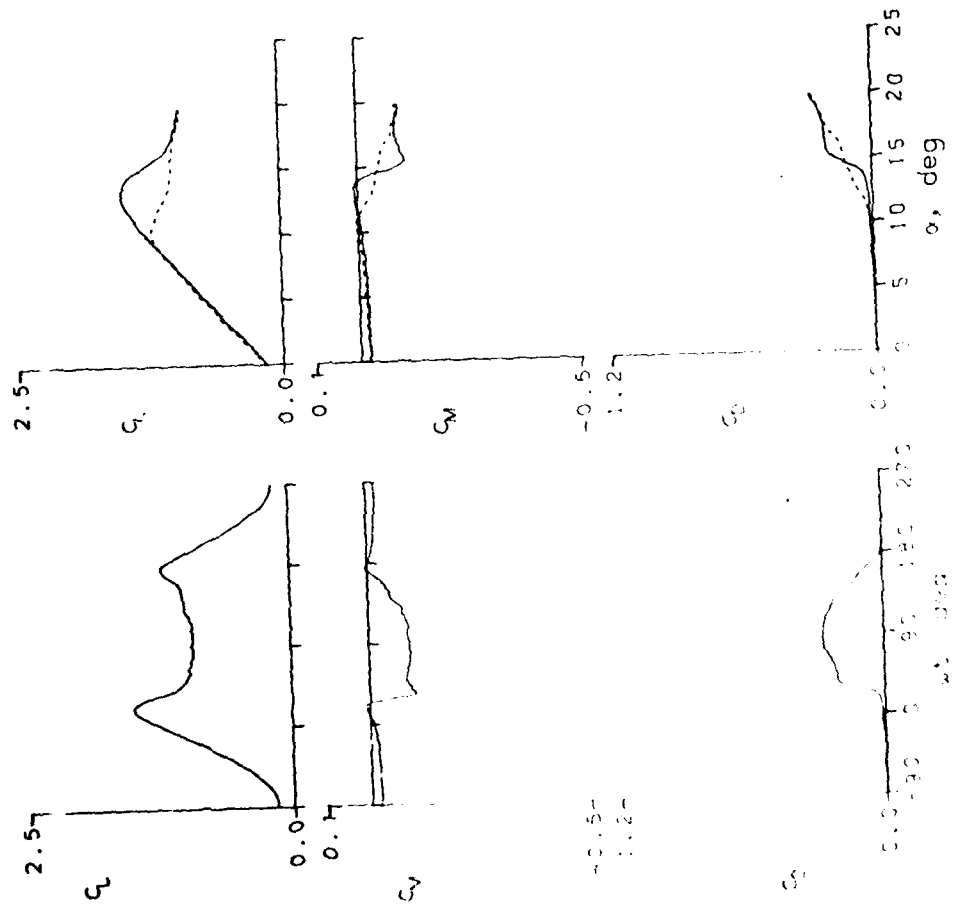


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 21112 $AD = 14.97^\circ$ $k = 0.010$
 $Re = 3.94 \times 10^6$ $A1 = 4.89^\circ$ $M = 0.301$
 $C_{Lmax} = 1.48$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.25$
 $\alpha_{Lmax} = 13.7^\circ$ $\xi = -0.104$ $M_{max} = 1.250$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 14.1^\circ$

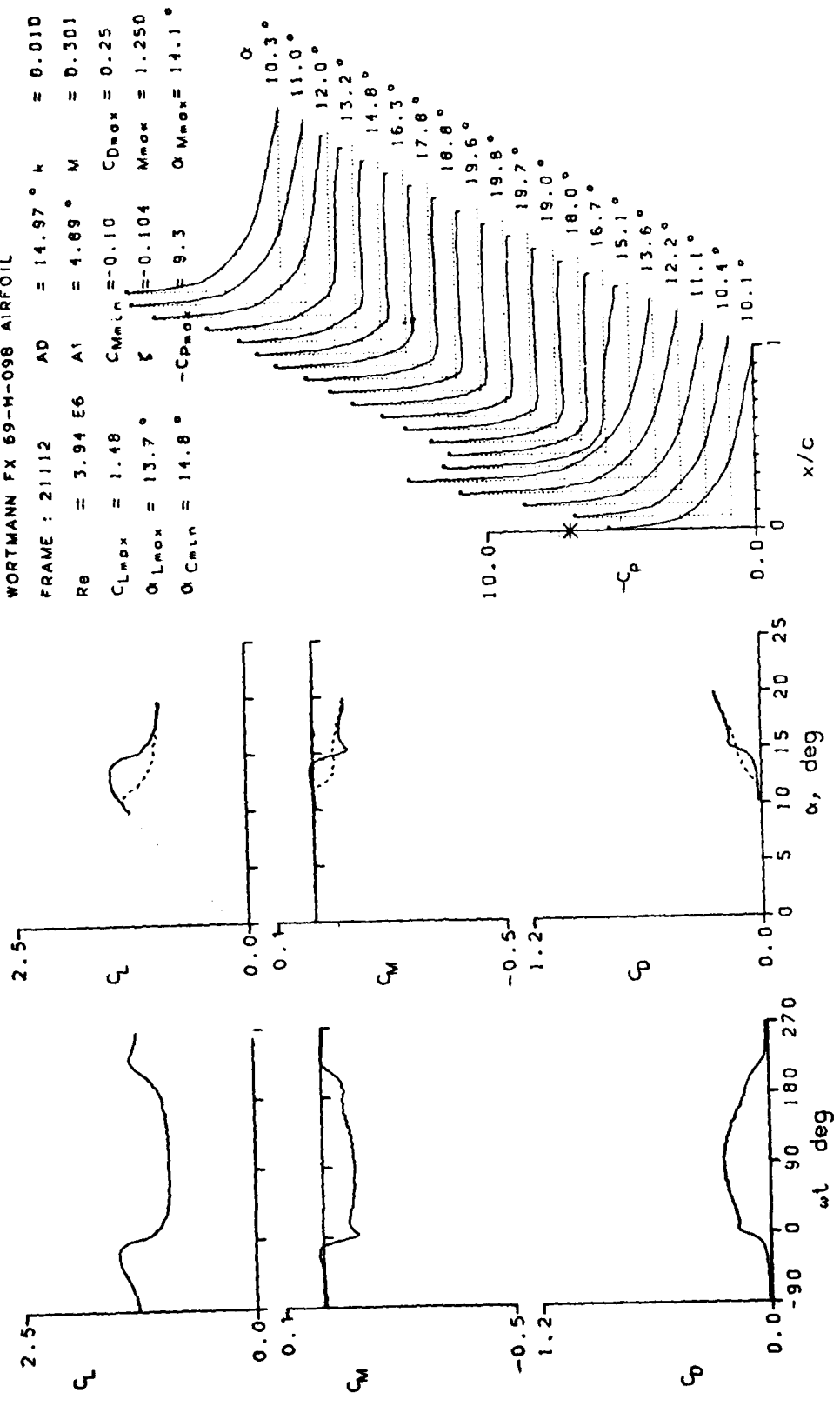


Figure 14.- Continued.

WORTMANN FX 69-M-008 AIRFOIL
 FRAME : 21200 $A_0 = 9.94^\circ$ $k = 0.010$
 $Re = 3.93 \text{ E}6$ $A_1 = 4.89^\circ$ $M = 0.301$
 $C_{Lmax} = 1.49$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.14$
 $\alpha_{max} = 14.0^\circ$ $\zeta = -0.136$ $M_{max} = 1.256$
 $\alpha_{crit} = 9.8^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 14.0^\circ$

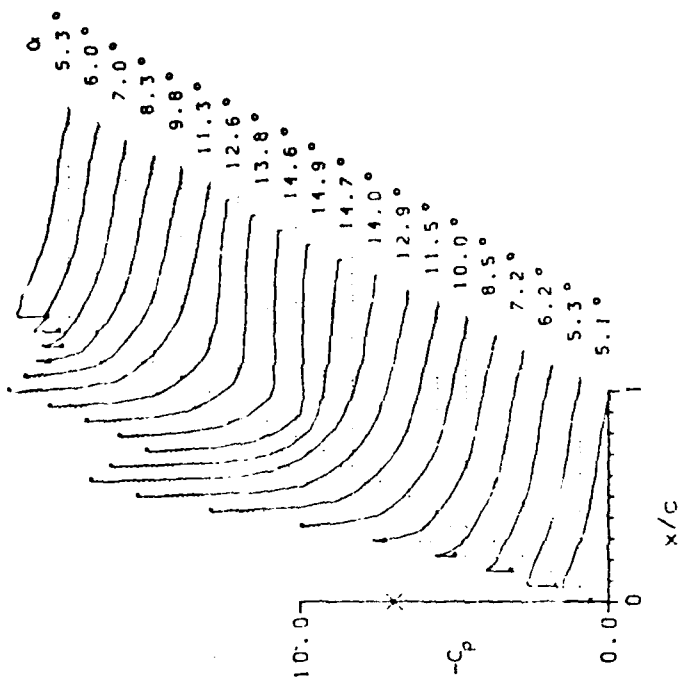
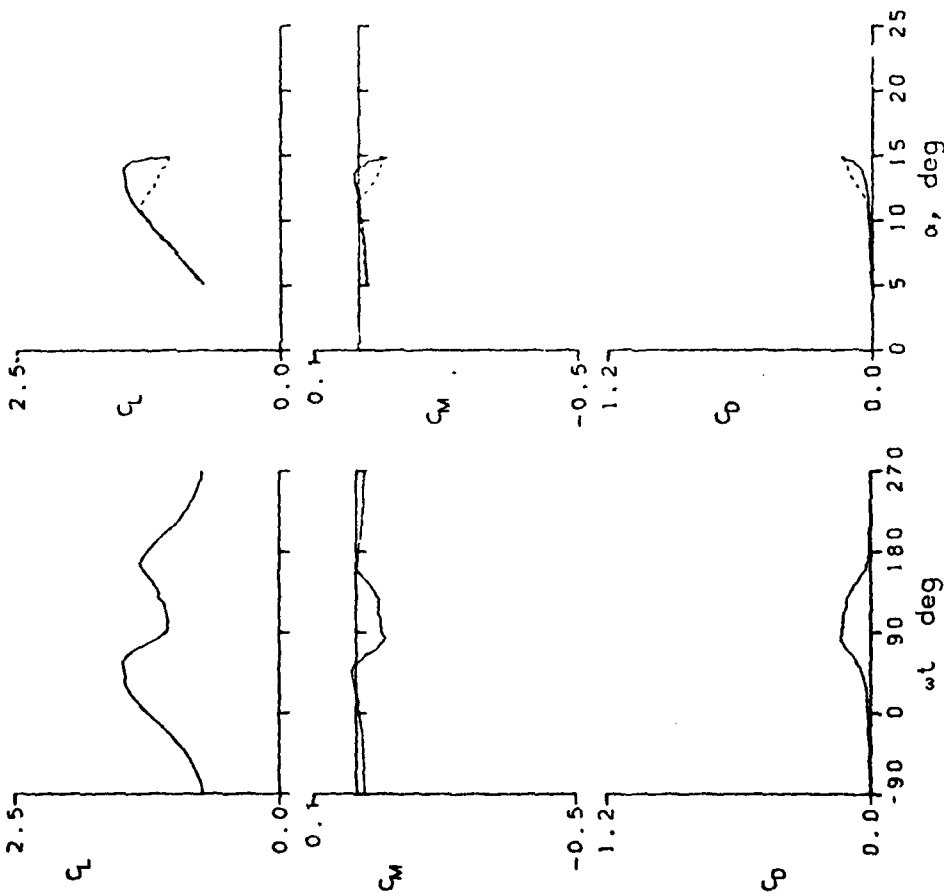


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL
 FRAME : 21208 $A_0 = 3.15^\circ$ $h = 0.010$
 $Re = 3.90 \times 10^6$ $A_1 = 10.16^\circ$ $M = 0.302$
 $C_{Lmax} = 1.50$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.06$
 $\alpha_{Lmax} = 12.8^\circ$ $\xi = 0.022$ $M_{max} = 1.224$
 $\alpha_{Cmin} = 2.8^\circ$ $-C_{pmax} = 9.0$ $\alpha_{Mmax} = 13.4^\circ$

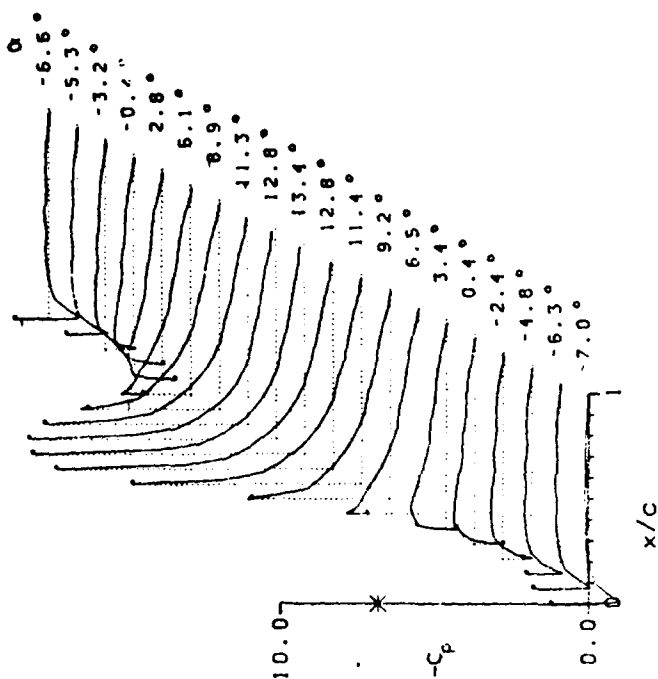
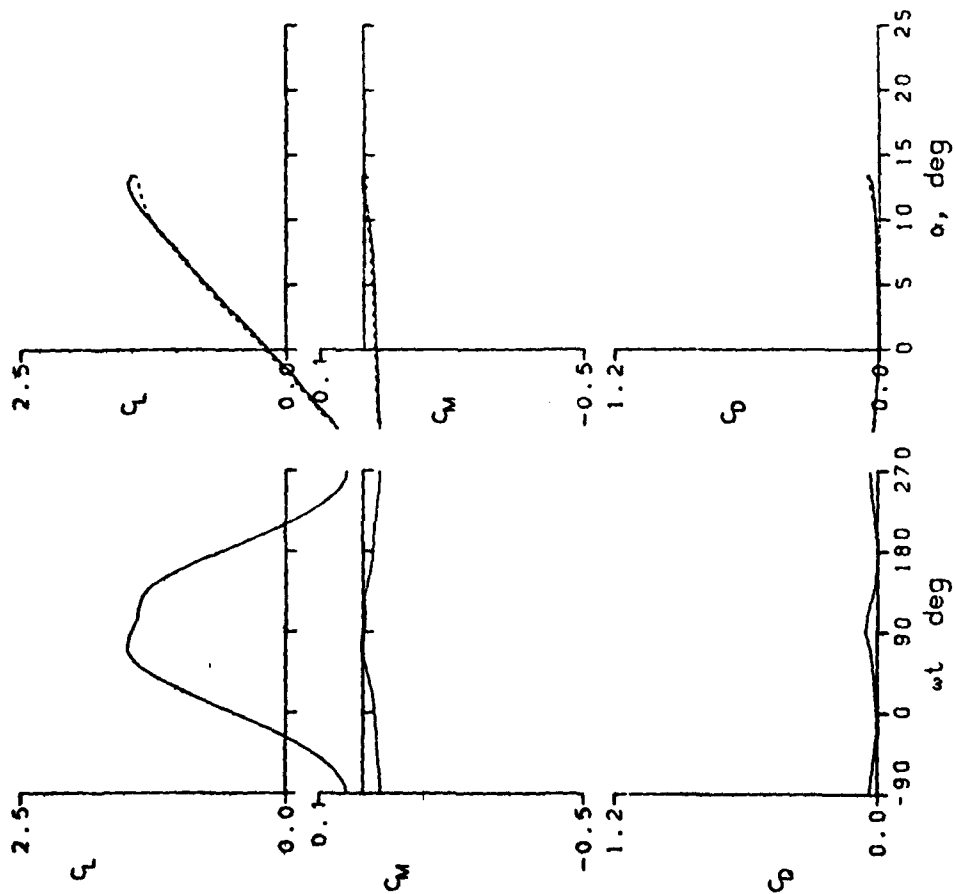


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 21219	A0 = 6.38°	k = 0.010
Rn = 2.46 E6	A1 = 10.00°	M = 0.184
C _{Lmax} = 1.54	C _{Mmin} = -0.09	C _{Dmax} = 0.19
α _{Lmax} = 14.8°	ξ = -0.018	M _{max} = 0.398
α _{Cmin} = 5.9°	-C _{Dmax} = 11.0	α _{Mmax} = 15.1°

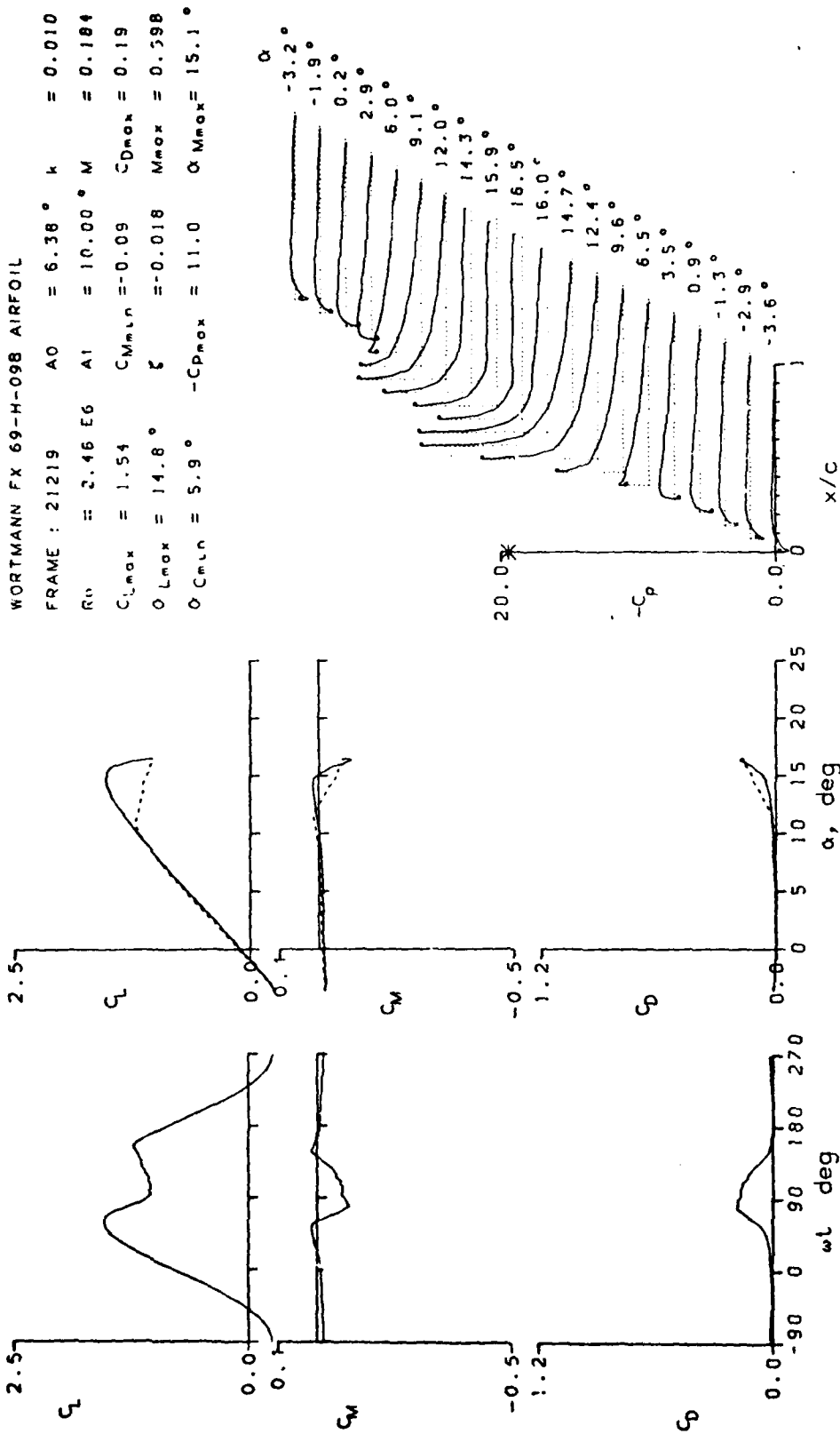


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22023 $A_0 = 14.84^\circ$ $k = 0.025$
 $R_0 = 3.73$ E_6 $A_1 = 9.90^\circ$ $M = 0.293$
 $C_{L_{max}} = 1.58$ $C_{M_{min}} = -0.17$ $C_{D_{max}} = 0.47$
 $\alpha_{L_{max}} = 14.4^\circ$ $\zeta = 0.202$ $M_{max} = 1.224$
 $\alpha_{C_{min}} = 14.4^\circ$ $-C_{p_{max}} = 9.6$ $\alpha_{M_{max}} = 13.0^\circ$

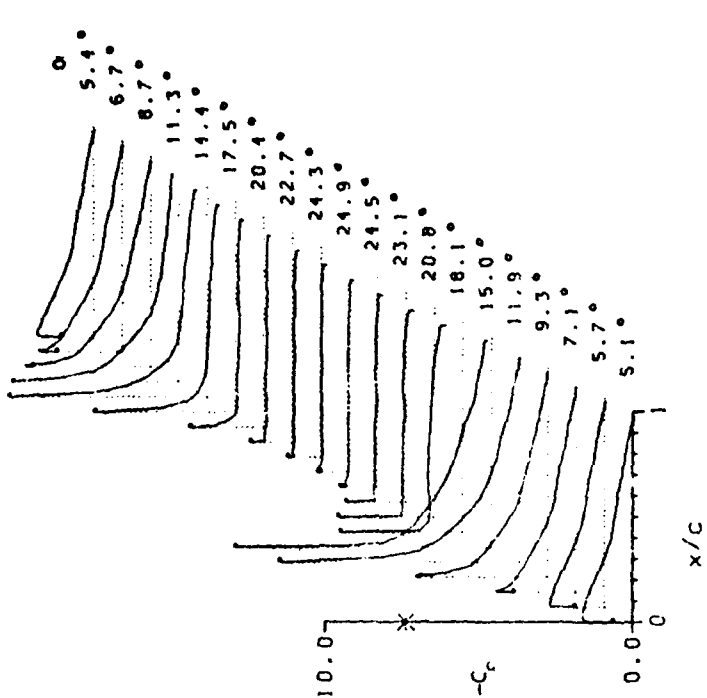
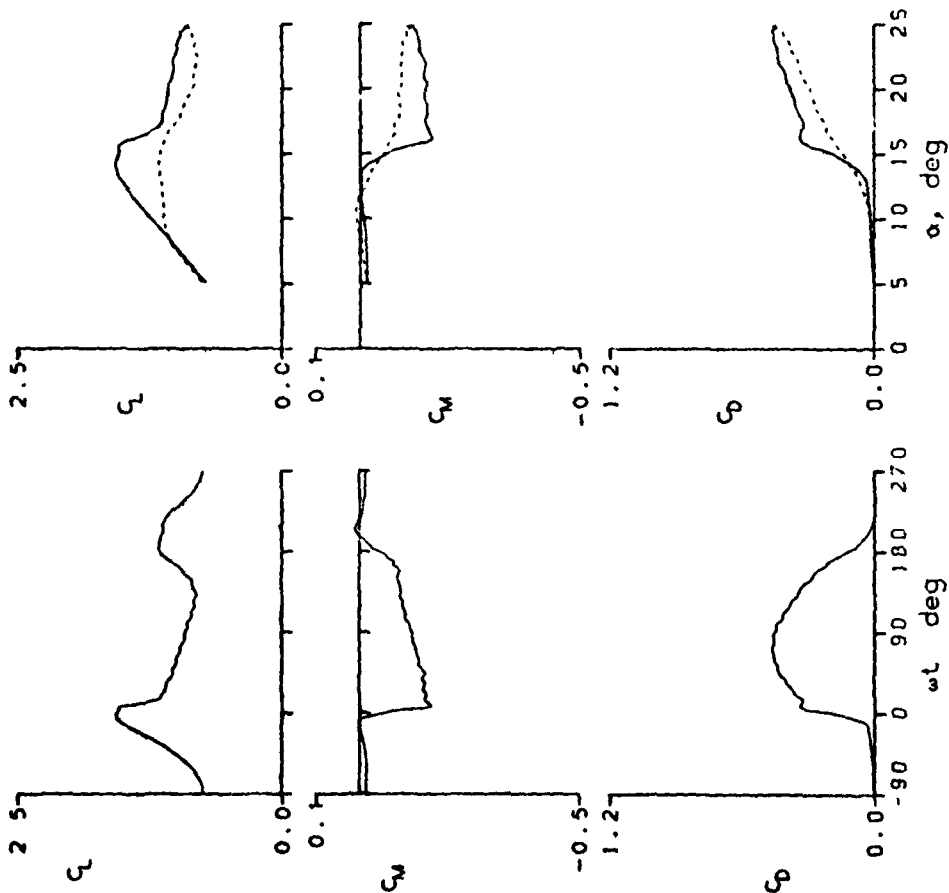


Figure 14.- Continued.

WORTMANN FX G9-M-G98 AIRFOIL
 FRAME : 22103 $A_0 = 14.82^\circ$ $k = 0.019$
 $Re = 3.75 \times 10^6$ $A_1 = 9.90^\circ$ $M = 0.294$
 $C_{Lmax} = 1.82$ $C_{Mmin} = -0.28$ $C_{Dmax} = 0.53$
 $\alpha_{Lmax} = 17.1^\circ$ $\zeta = 0.368$ $M_{max} = 1.348$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 10.6$ $\alpha_{Mmax} = 14.6^\circ$

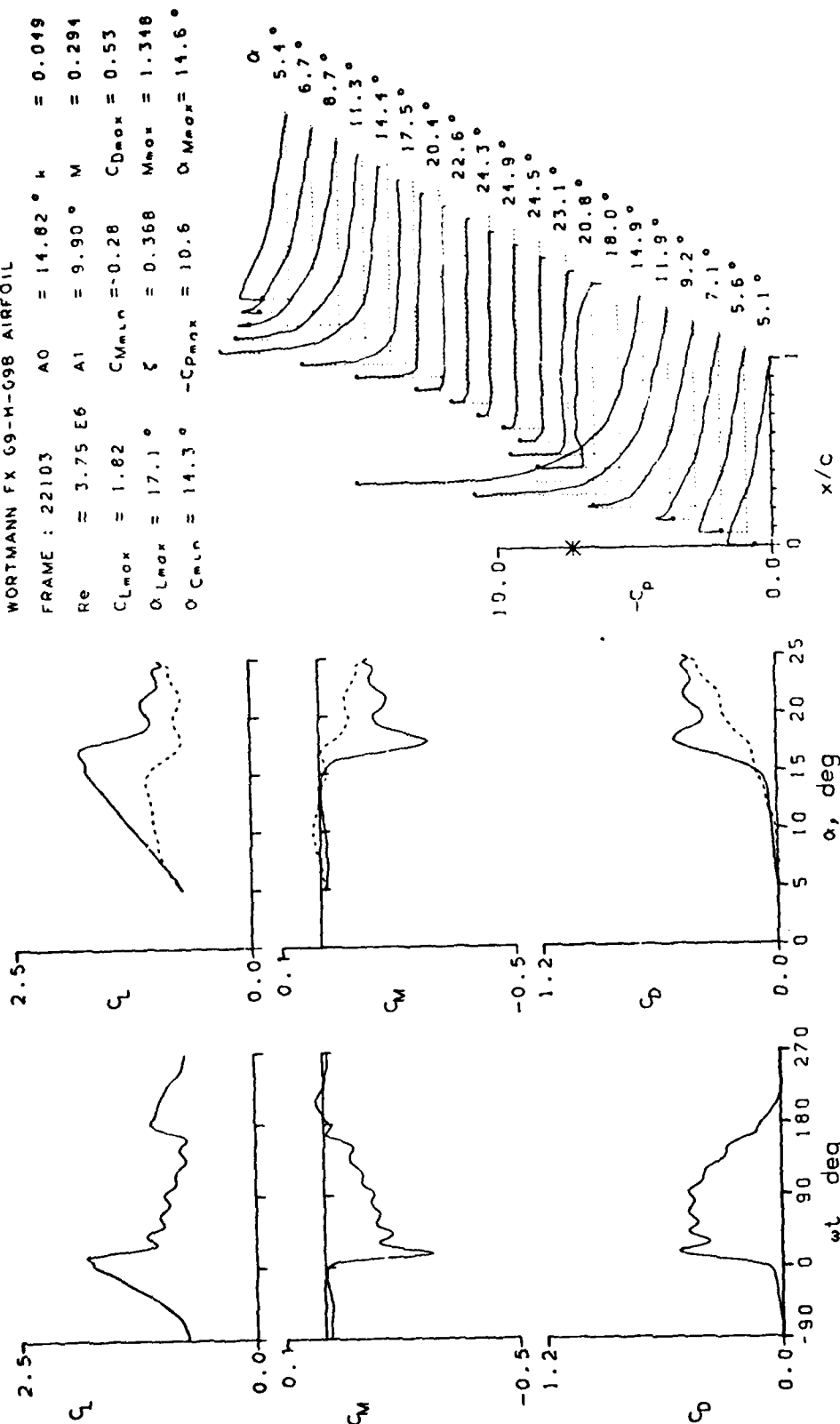


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22201	A0 = 14.79°	k = 0.101
Re = 3.55 E6	A1 = 9.91°	M = 0.285
CLmax = 2.15	CMmin = -0.42	CDmax = 0.81
αLmax = 20.3°	ξ = 0.650	Mmax = 1.354
αCMmin = 14.3°	-CPmax = 11.4	αMmax = 15.5°

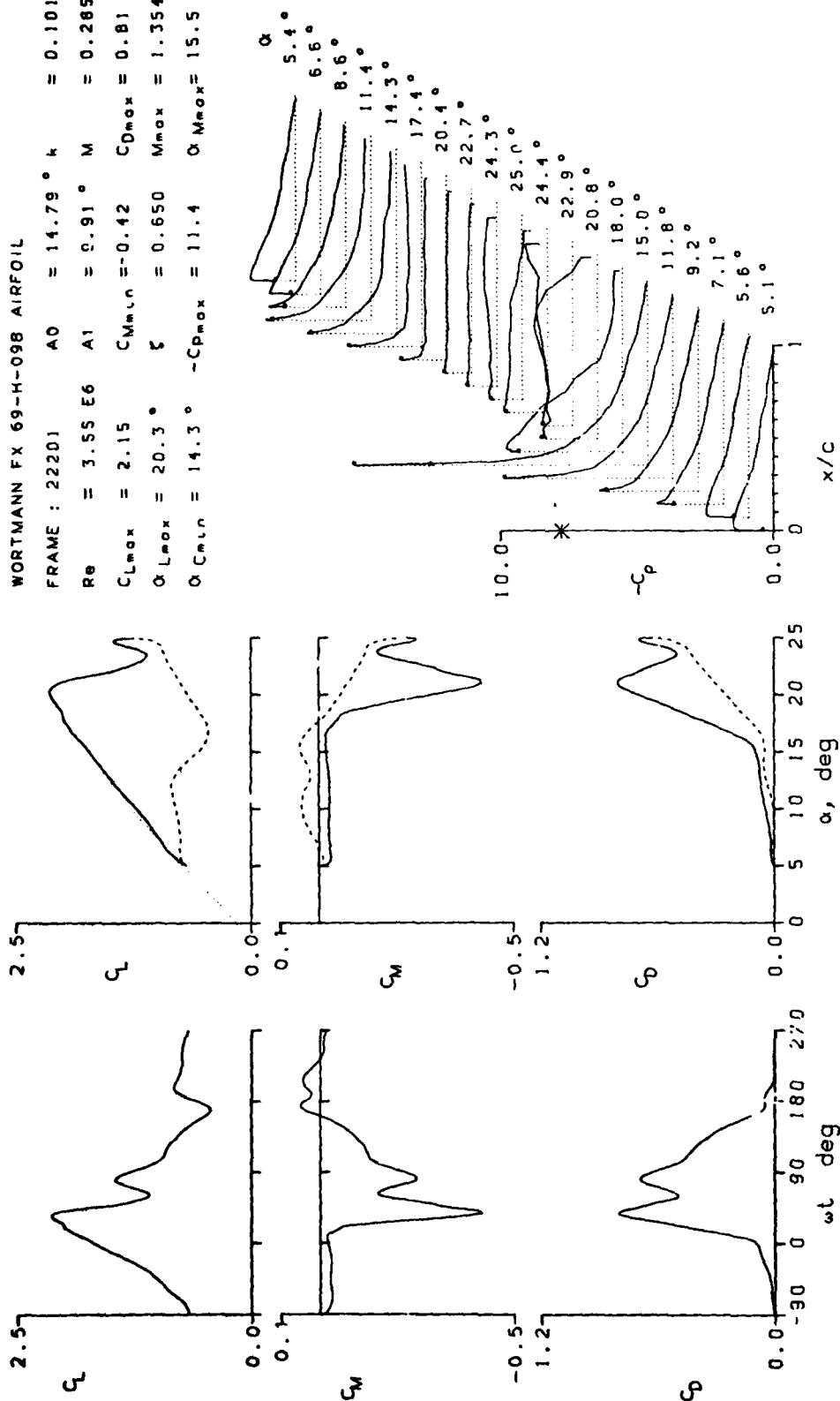


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 22206 $A_0 = 14.87^\circ$ $k = 0.154$
 $Re = 3.48 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.279$
 $C_{Lmax} = 2.23$ $C_{Mmin} = -0.49$ $C_{Dmax} = 1.00$
 $\alpha_{Lmax} = 22.6^\circ$ $\xi = 0.431$ $M_{max} = 1.348$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Pmax} = 11.8$ $\alpha_{Mmax} = 16.5^\circ$

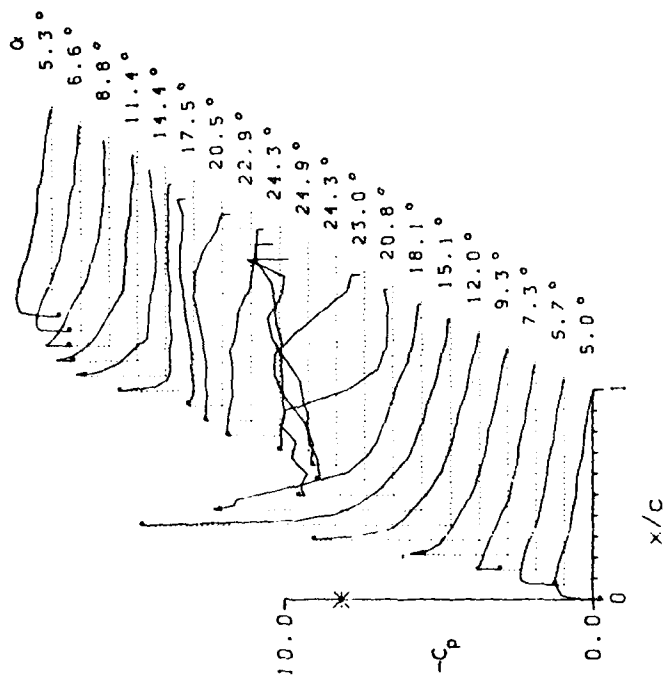
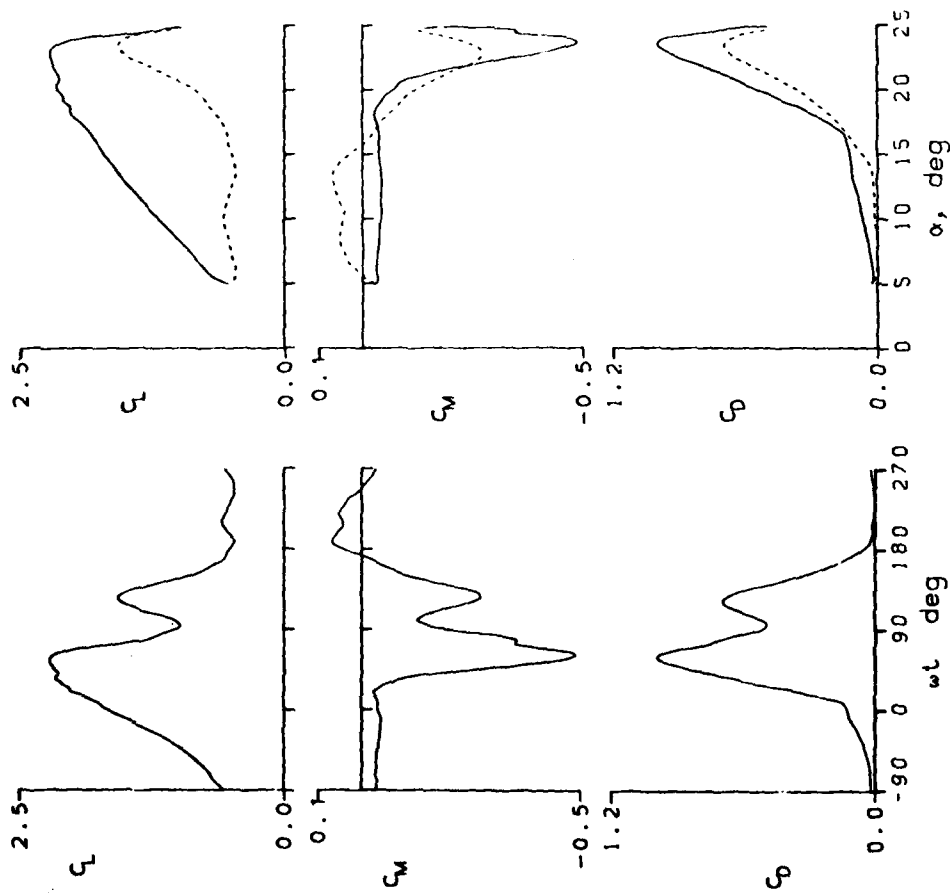


Figure 14.- Continued.

WORTMANN FX 59-H-098 AIRFOIL

FRAME : 22208 $A_0 = 14.81^\circ$ $k = 0.097$
 $Re = 3.48 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.281$
 $C_{Lmax} = 2.24$ $C_{Mmin} = -0.45$ $C_{Dmax} = 0.85$
 $\alpha_{Lmax} = 20.6^\circ$ $\alpha_{C} = 0.607$ $M_{max} = 1.351$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 11.7$ $\alpha_{Mmax} = 15.5^\circ$

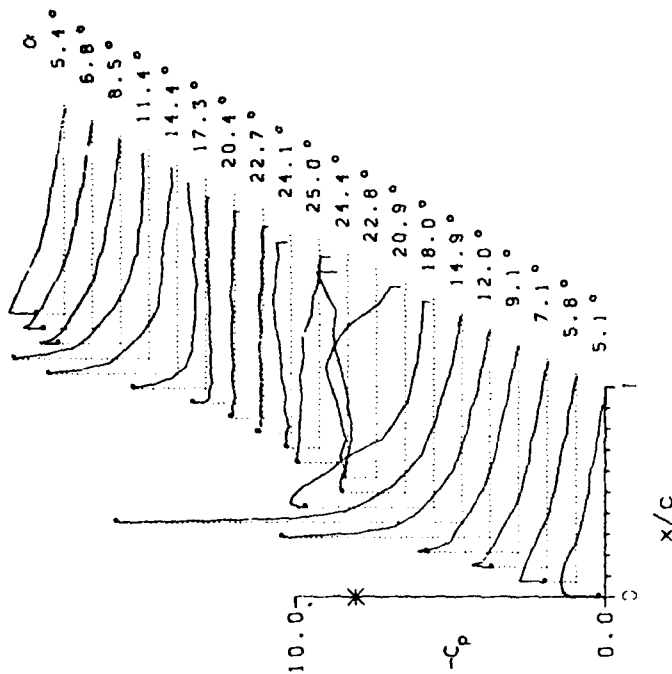
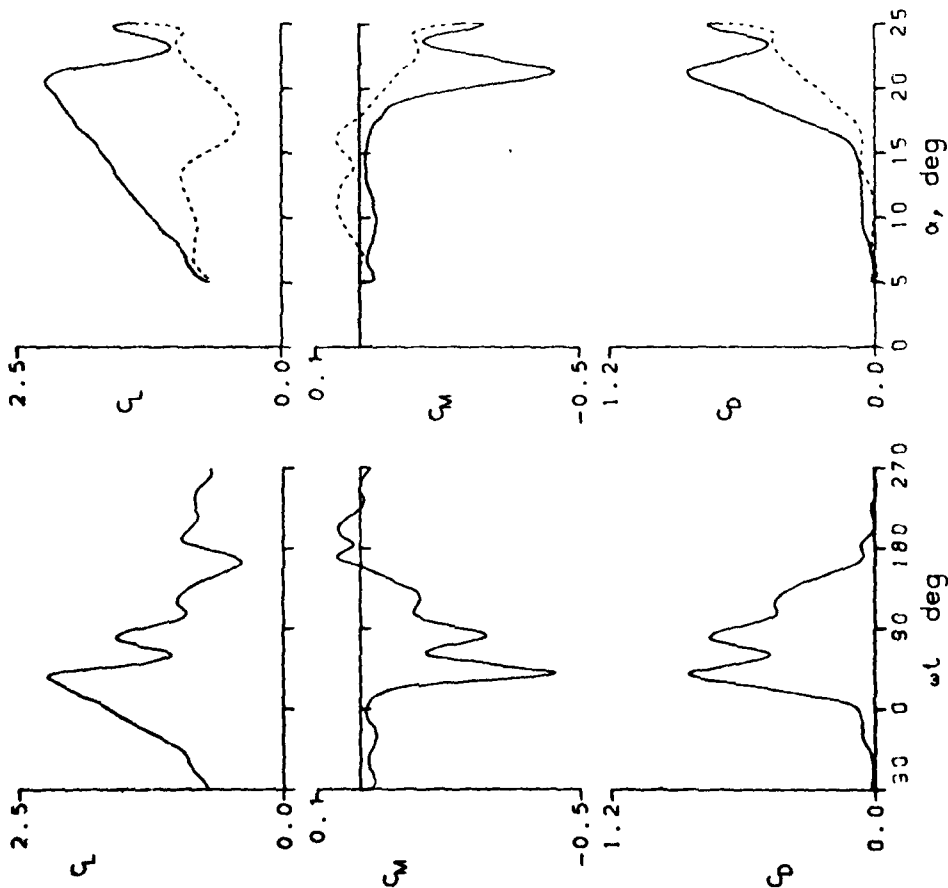


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22216 $A_0 = 9.81^\circ$ $k = 0.024$
 $Re = 3.73 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.60$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.32$
 $\alpha_{Lmax} = 15.0^\circ$ $\xi = 0.086$ $M_{max} = 1.365$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Pmax} = 10.2$ $\alpha_{Mmax} = 14.2^\circ$

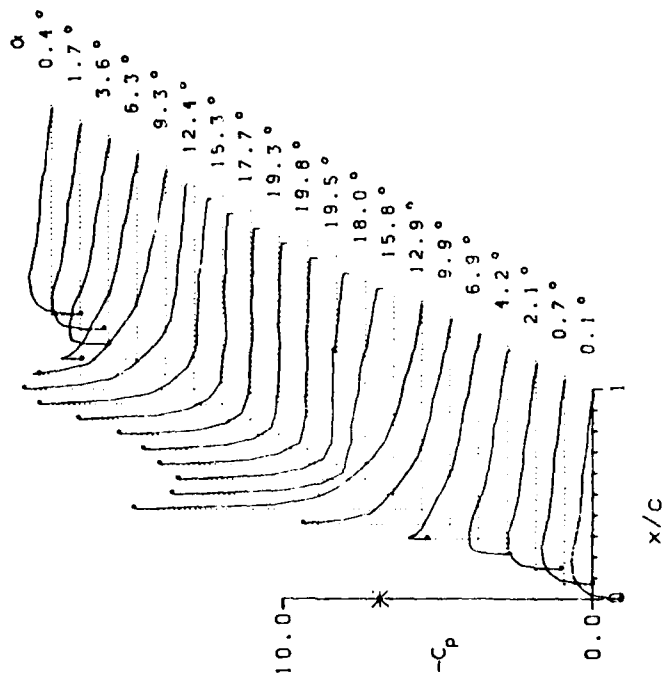
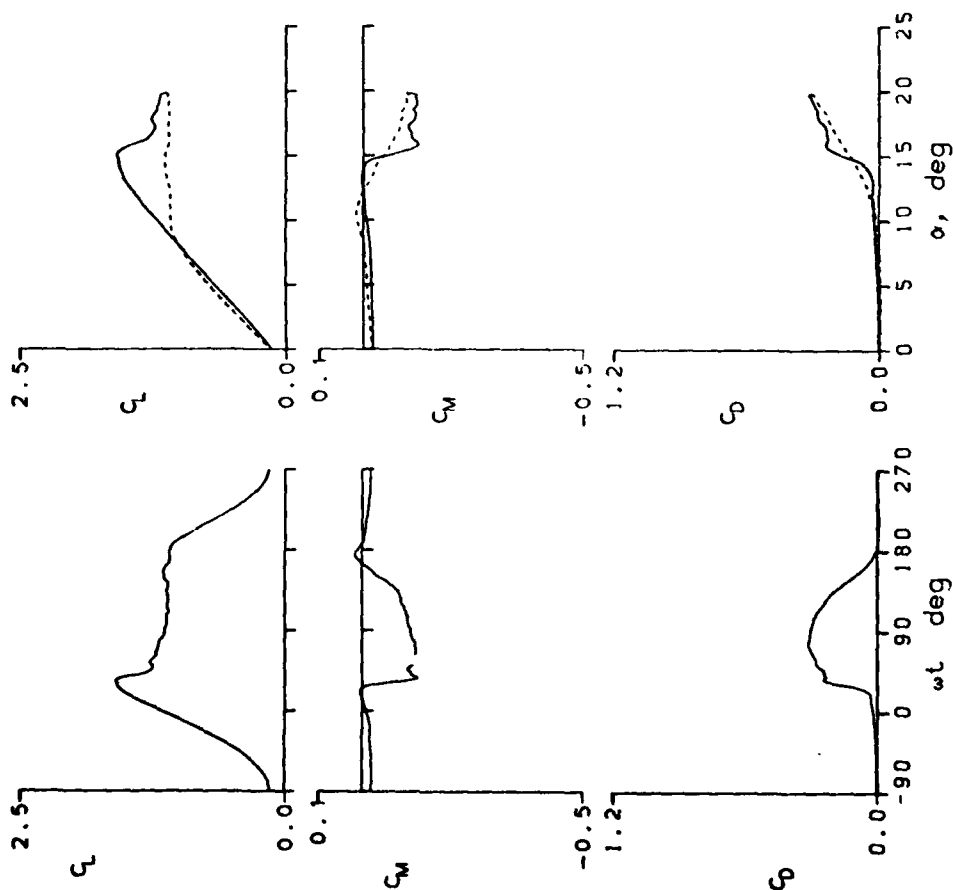


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22217	A0 = 9.79°	k = 0.049
Re = 3.72 E6	A1 = 9.91°	M = 0.302
C _{Lmax} = 1.79	C _{Mmin} = -0.22	C _{Dmax} = 0.46
α _{Lmax} = 16.3°	ξ = 0.159	M _{max} = 1.362
α _{Cmin} = 9.3°	-C _{Pmax} = 10.2	α _{Mmax} = 14.2°

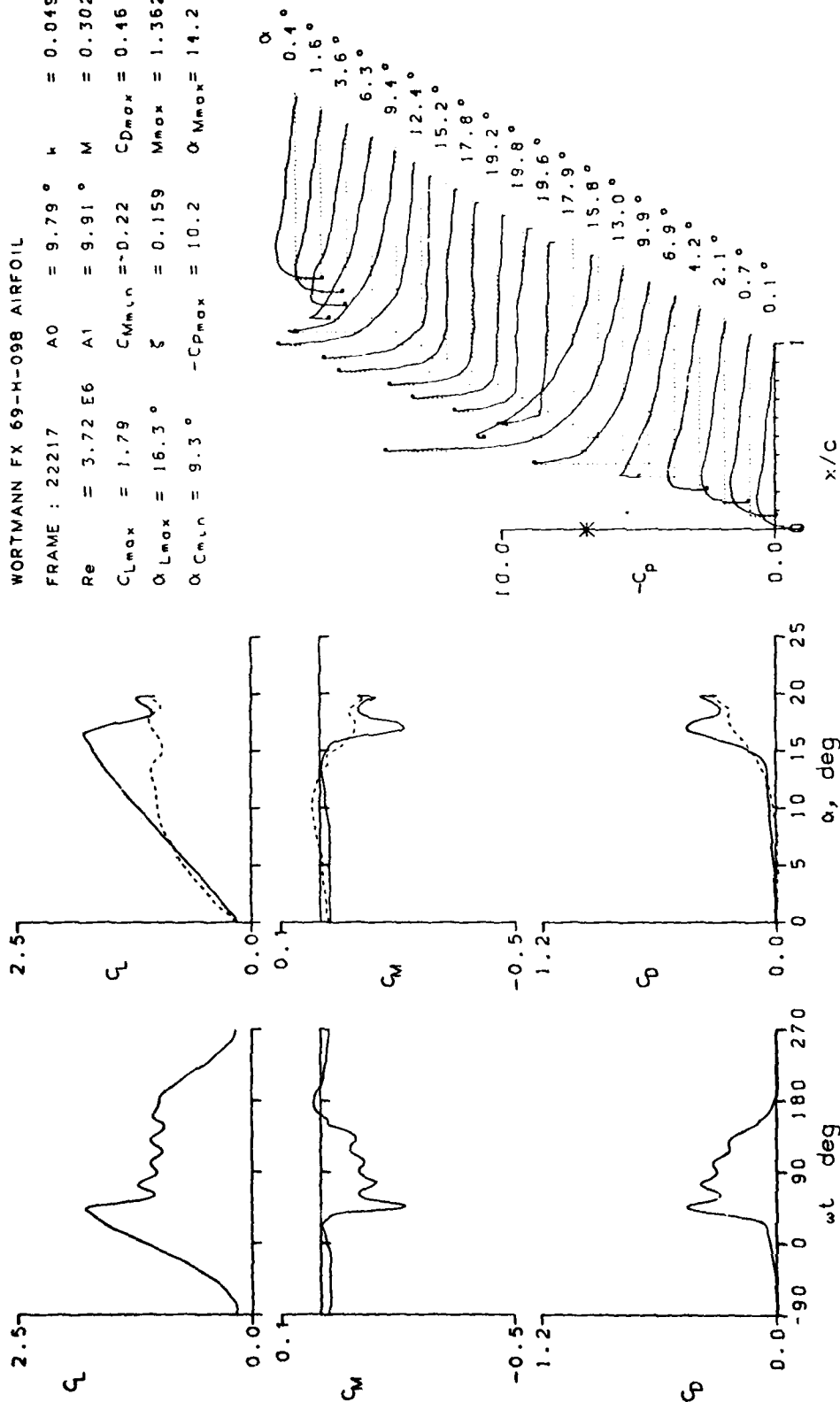


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 22218 AC = 9.81° = 0.098
 Re = 3.69E6 A* = 9.89° M = 0.300
 C_{Lmax} = 2.01 C_{Mmax} = -0.34 C_{Dmax} = 0.63
 α_{C_{Lmax}} = 18.2° δ = 0.371 V_{max} = 1.362
 α_{C_{Mmax}} = 9.2° -C_{Dmax} = 0.2 O_{Mmax} = 14.7°

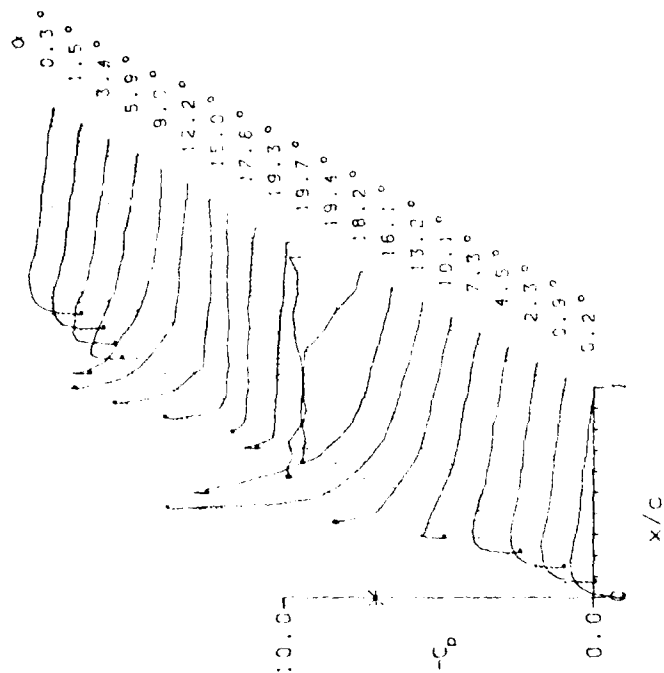
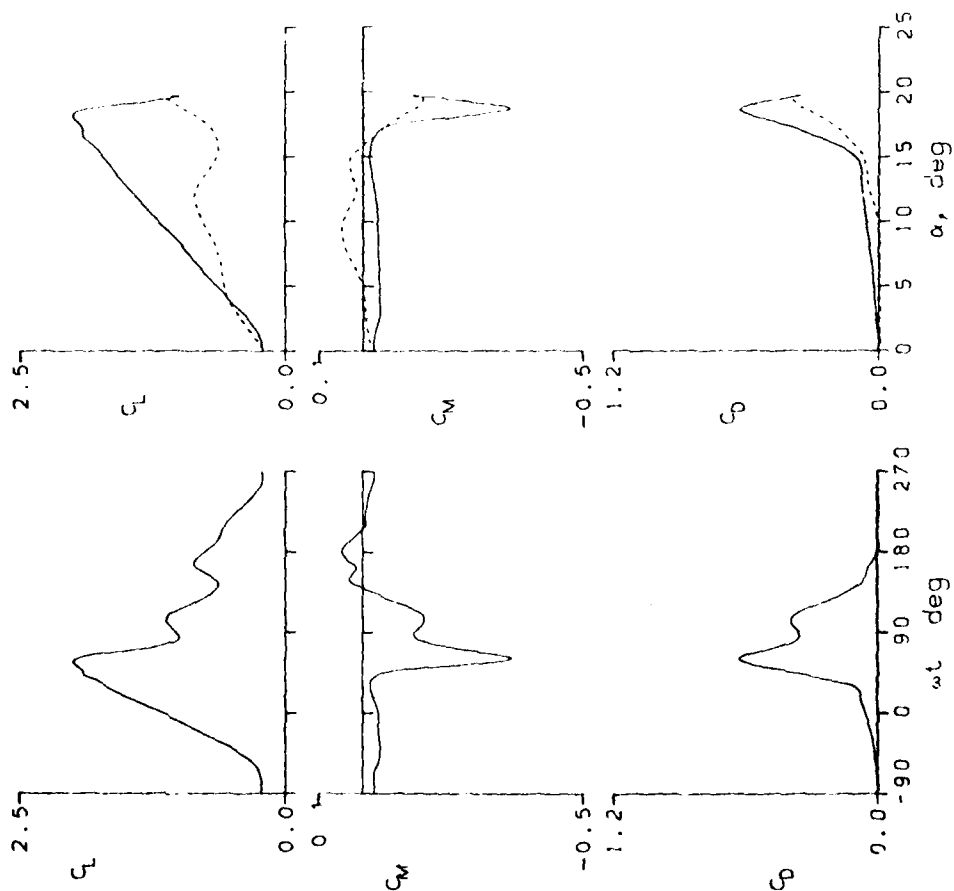


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22219	A0 = 9.93°	k = 0.149
Re = 3.62 E6	A1 = 9.90°	M = 0.294
CLmax = 2.10	CMmin = -0.40	CDmax = 0.73
αLmax = 19.6°	ξ = 0.300	Mmax = 1.379
αCMmin = 9.5°	-CPmax = 10.8	αMmax = 15.8°

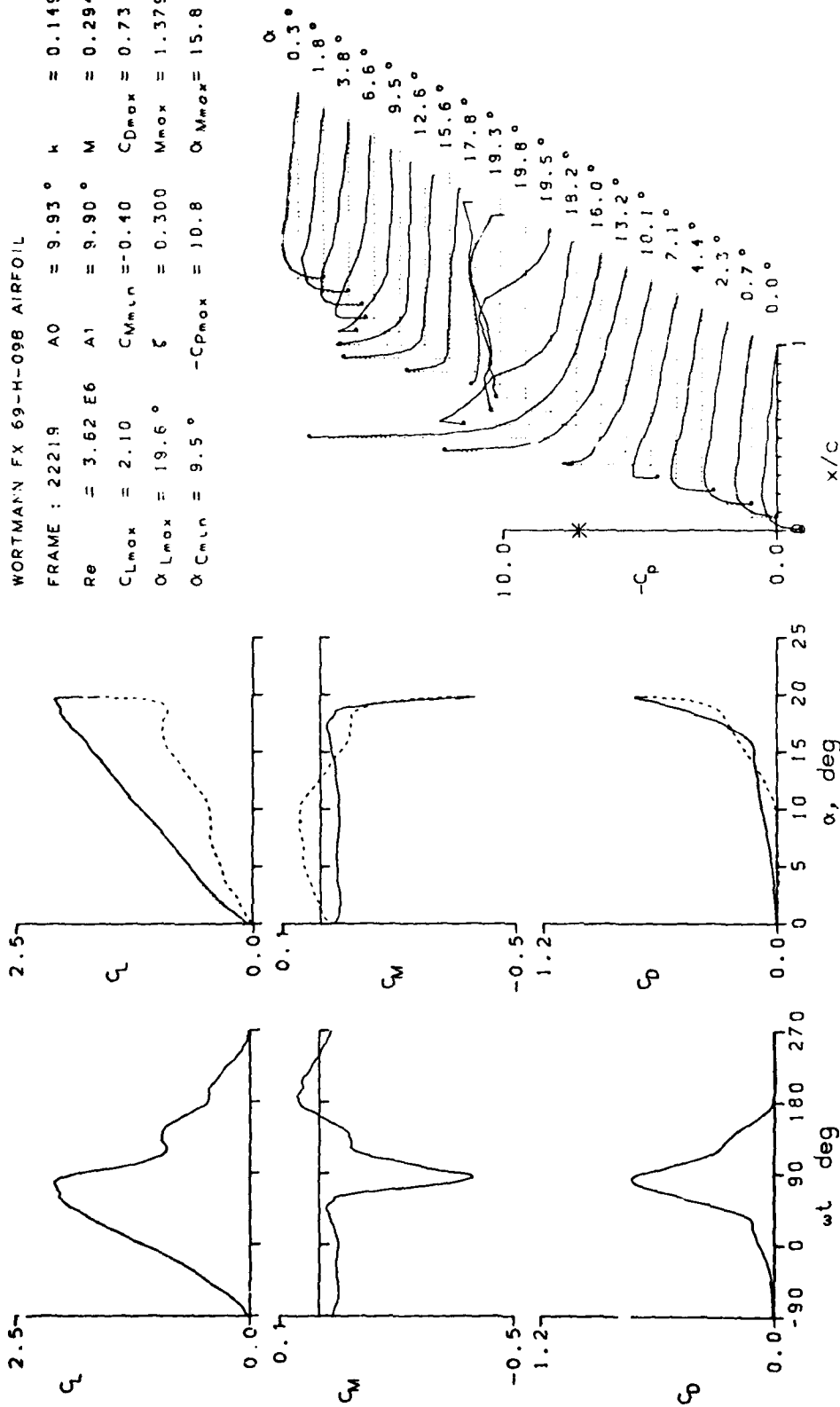


Figure 14.- Continued.

WORTMANN FX 69-M-098 AIRFOIL

FRAME : 22307	AO = 9.95°	k = 0.025
Re = 3.85 E6	AI = 4.90°	M = 0.301
CLmax = 1.53	CLmin = -0.08	CDmax = 0.15
αLmax = 13.8°	ξ = -0.108	Mmax = 1.330
αCLmin = 9.8°	-CDmax = 9.9	αVMmax = 13.9°

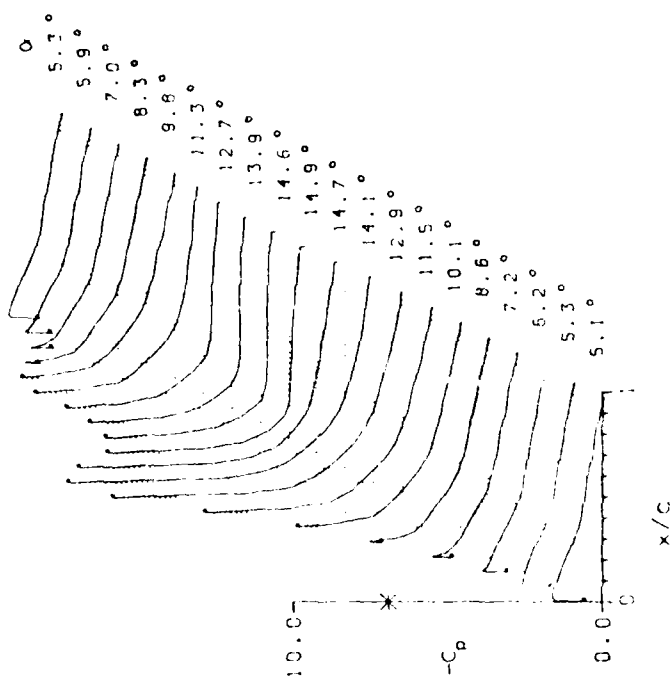
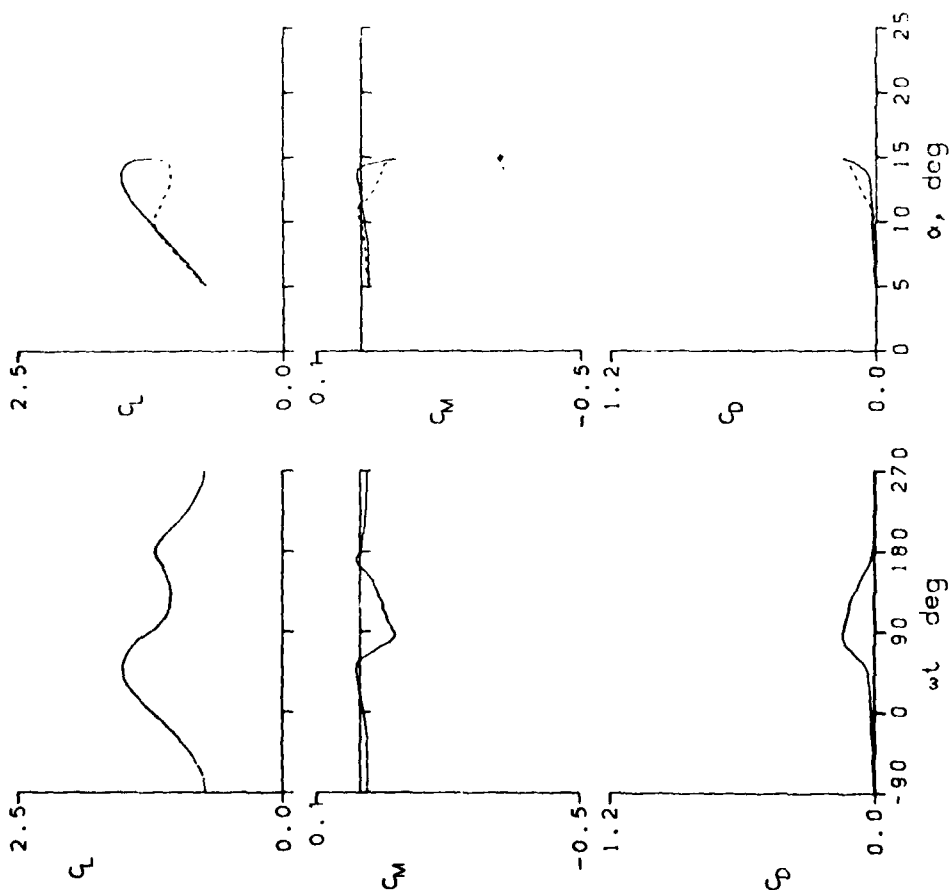


Figure 14.- Continued.

WORTMAN FX 69-M-098 AIRFOIL
 FRAME : 22308 AC = 9.96° k = 0.049
 Re = 5.86 E6 A' = 4.90° M = 0.303
 CLmax = 1.60 CMmax = 0.16 CDmax = 0.30
 αLmax = 15.9° ξ = 0.043 Vmax = 1.370
 αCMmax = 9.8° -CDmax = 10.2 αVmax = 13.9°

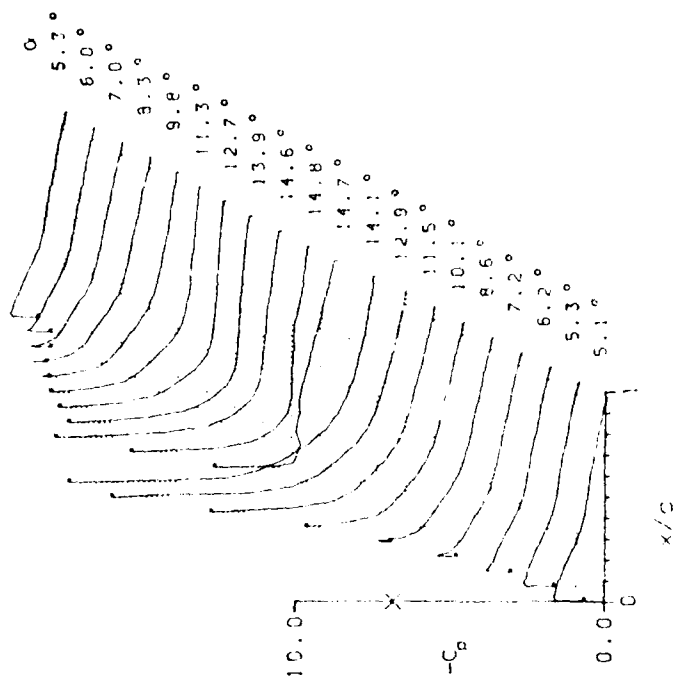
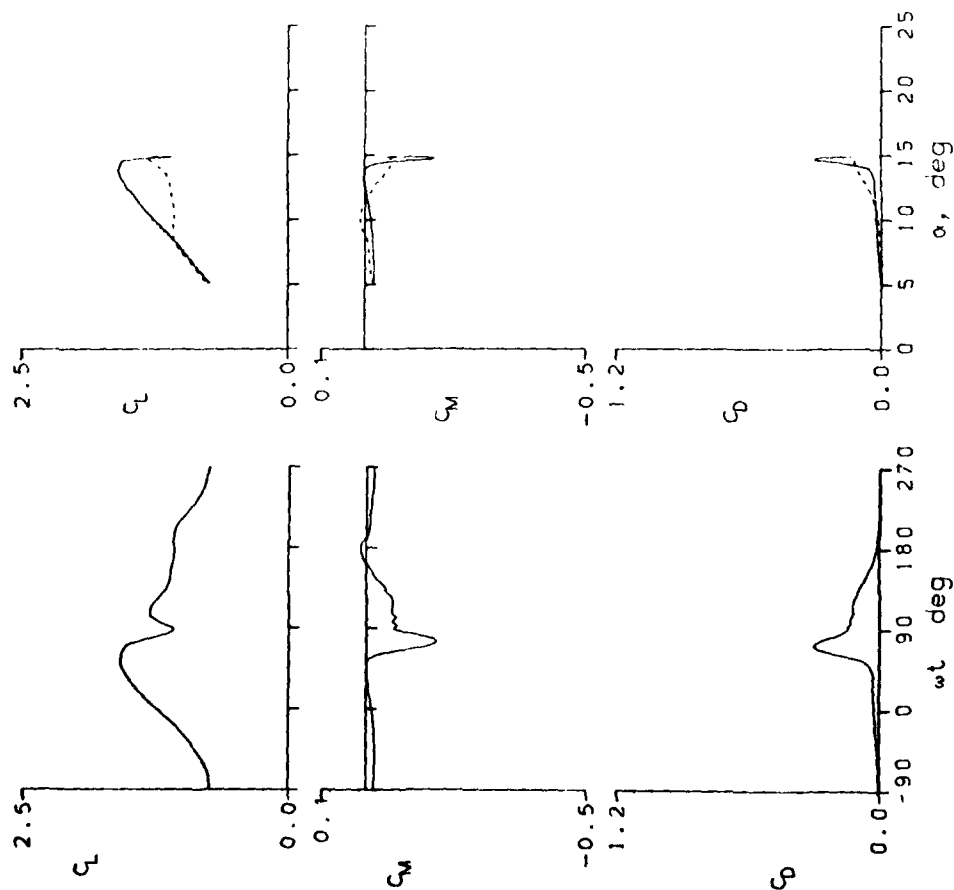


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 22309	$A_0 = 9.97^\circ$	$\kappa = 0.098$
$Re = 3.05 \times 10^6$	$A^* = 4.90^\circ$	$M = 0.303$
$C_{Lmax} = 2.32$	$C_{Mmax} = 0.13$	$C_{Dmax} = 0.13$
$\alpha_{Lmax} = 14.4^\circ$	$\alpha^* = 0.200$	$M_{max} = 1.397$
$\alpha_{C_{L0}} = 9.8^\circ$	$-C_{Dmax} = 10.4$	$\alpha_{Mmax} = 14.1^\circ$

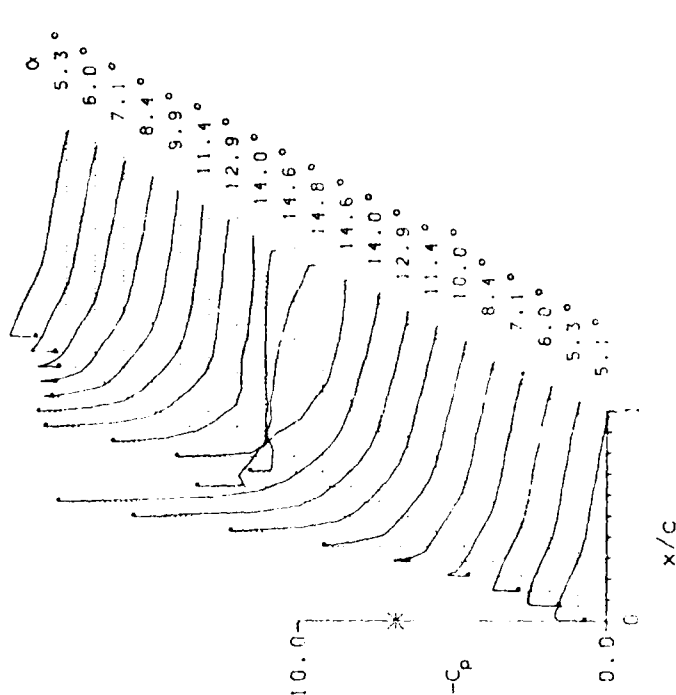
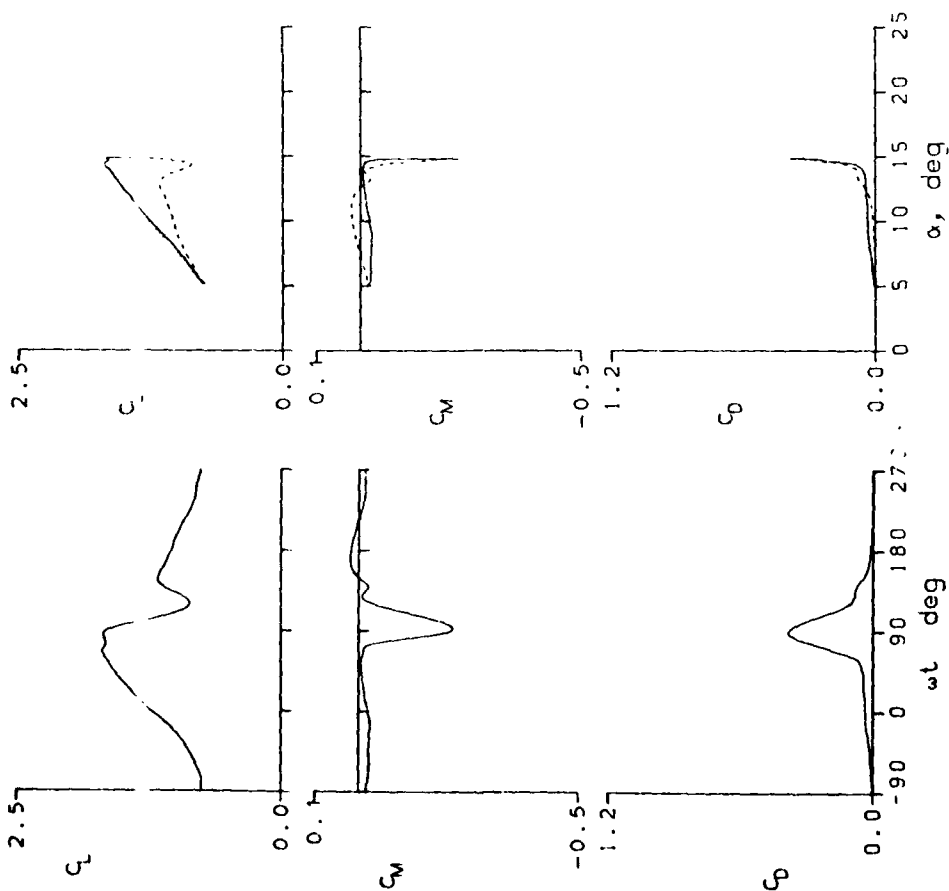


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL
 FRAME : 22311 $A_0 = 9.98^\circ$ $h = 0.148$
 $Re = 3.85 \text{ E}6$ $A_1 = 4.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.74$ $C_{Mmin} = -0.26$ $C_{Dmax} = 0.41$
 $\alpha_{Lmax} = 14.6^\circ$ $\xi = 0.057$ $M_{max} = 1.399$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 10.4$ $\alpha_{Mmax} = 14.1^\circ$

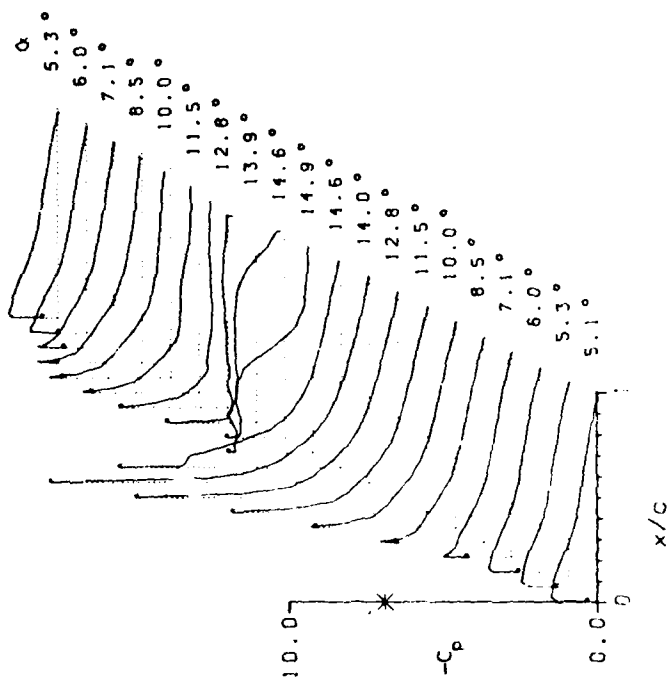
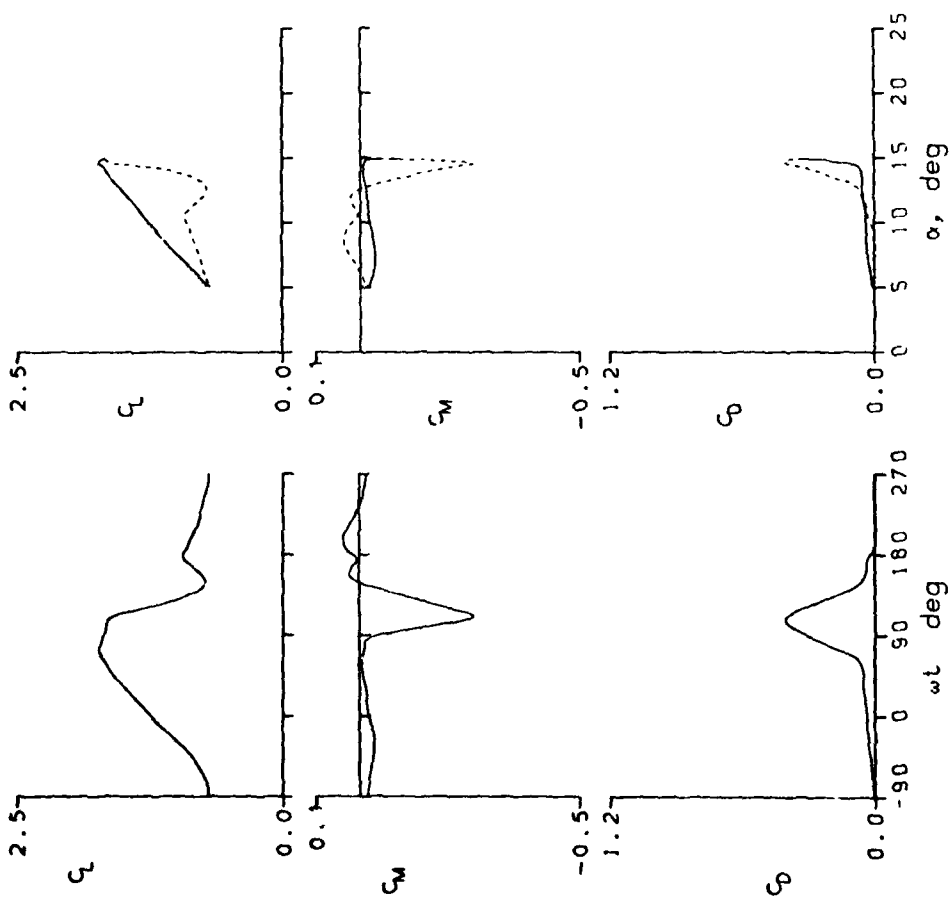


Figure 14.- Continued.

WORTMANN FX 69-M-098 AIRFOIL

FRAME : 22312 AC = 9.92° k = 0.196
 RE = 7.85 E6 A1 = 4.92° M = 0.303
 CLmax = 1.84 CMmin = -0.31 CDmax = 0.45
 αLmax = 14.6° S = -0.005 Mmax = 1.386
 αCLmin = 9.7° -CDmax = 10.3 αMmax = 13.9°

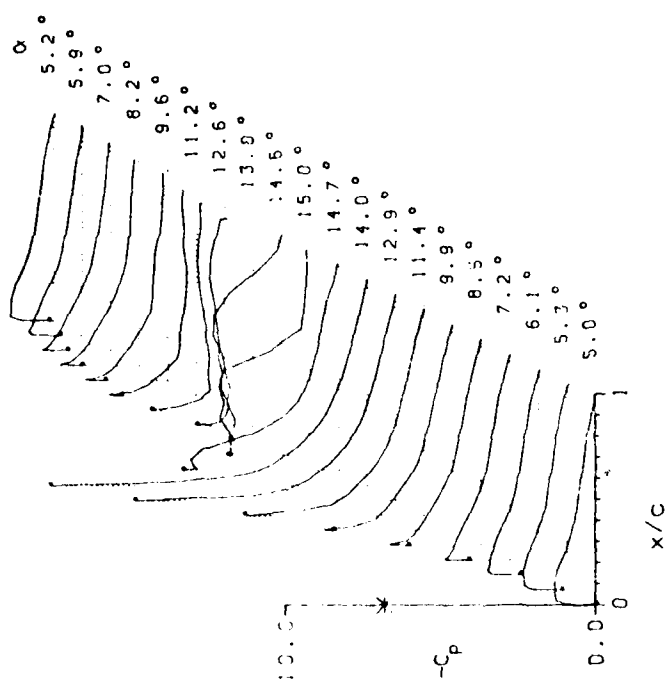
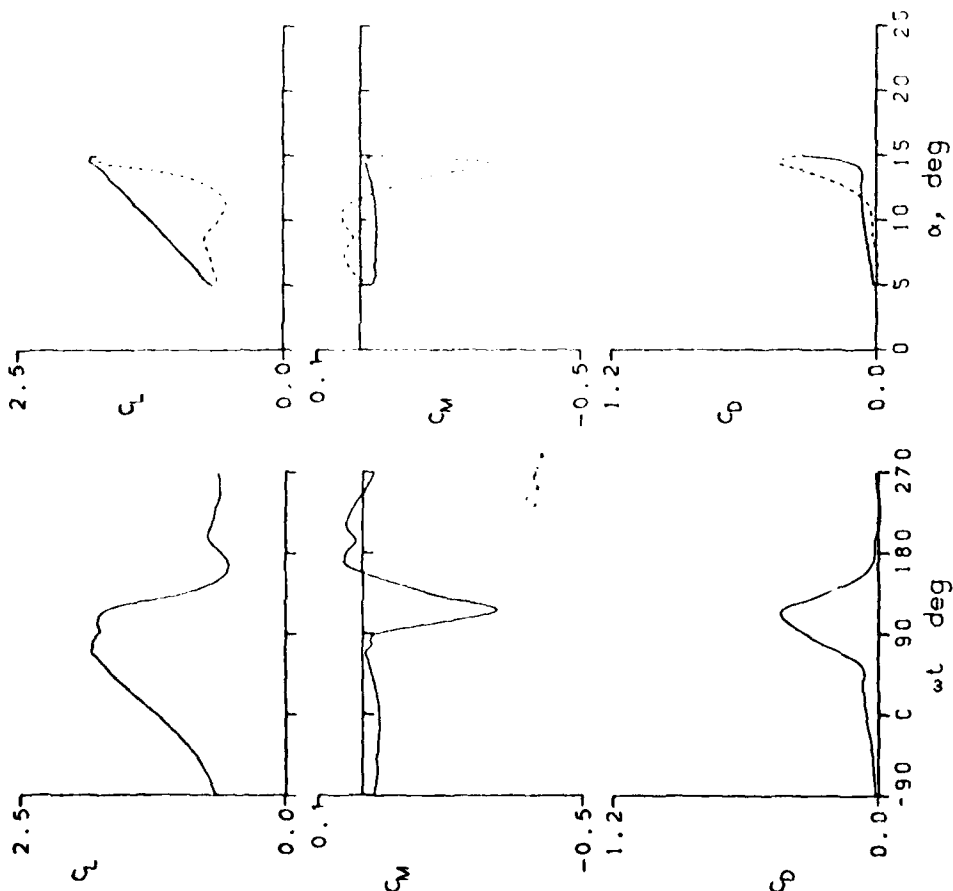


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23021 $A_0 = 14.95^\circ$ $k = 0.025$

$Re = 3.79 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.298$

$C_{Lmax} = 1.55$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.32$

$\alpha_{Lmax} = 14.0^\circ$ $\xi = 0.134$ $M_{max} = 1.316$

$\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 14.0^\circ$

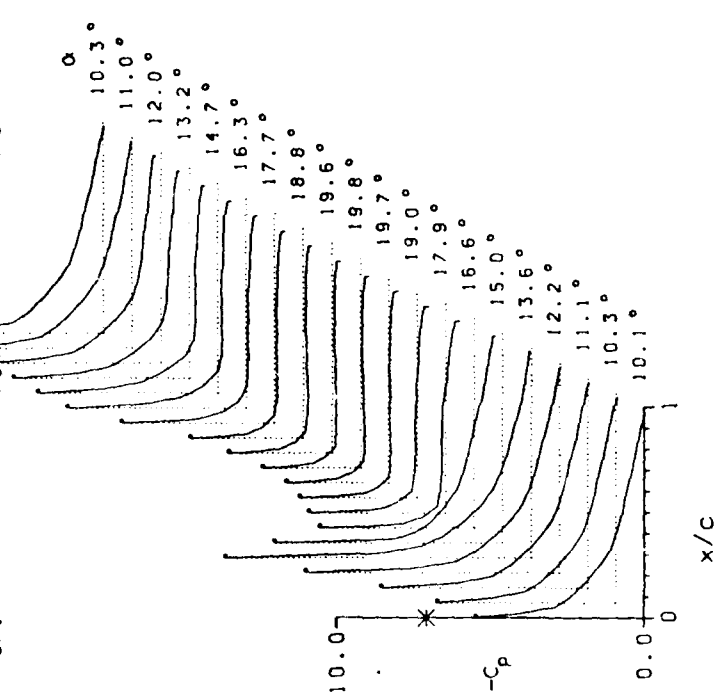
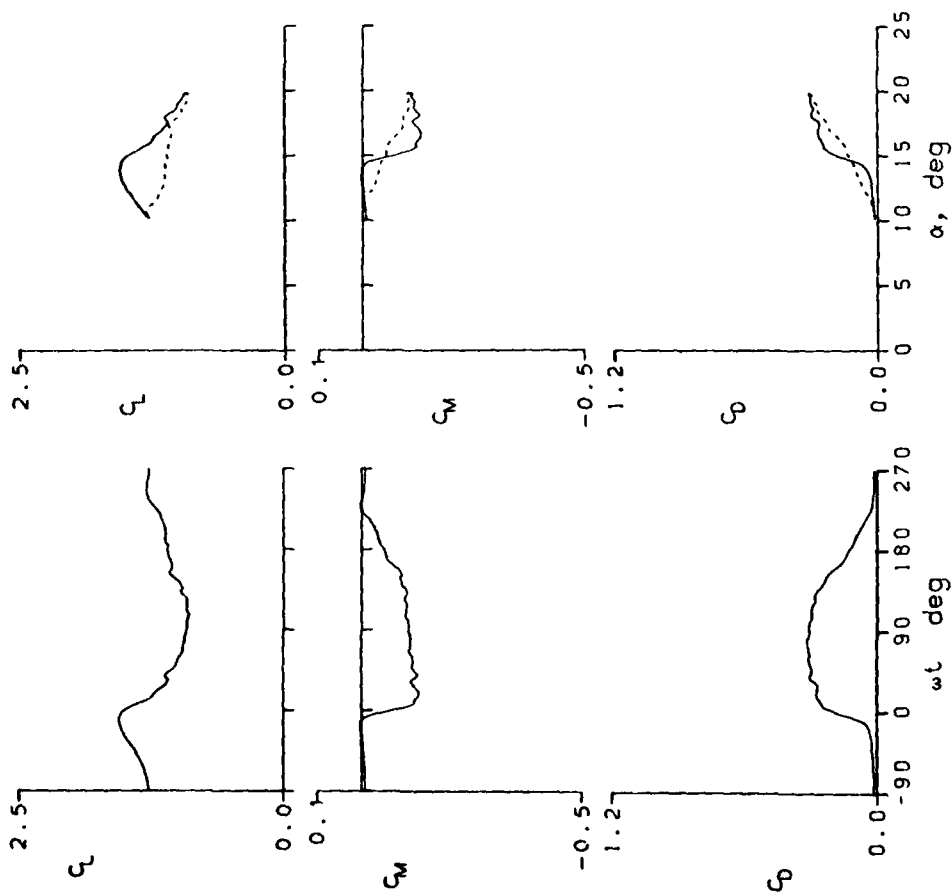


Figure 14.- Continued.

WESTMANN FX 59-H-09B AIRFOIL
 FRAME : 23022 $\alpha_0 = 14.94^\circ$ $k = 0.050$
 $Re = 3.75 \times 10^6$ $A_1 = 4.91^\circ$ $M = 0.297$
 $C_{L-ox} = 1.67$ $C_{M-ox} = -0.21$ $C_{D-ox} = 0.43$
 $C_{L-max} = 15.2^\circ$ $C_{M-max} = 0.347$ $C_{D-max} = 1.354$
 $\alpha_{C_{L-max}} = 14.7^\circ$ $\alpha_{C_{M-max}} = 10.4^\circ$ $\alpha_{C_{D-max}} = 14.0^\circ$

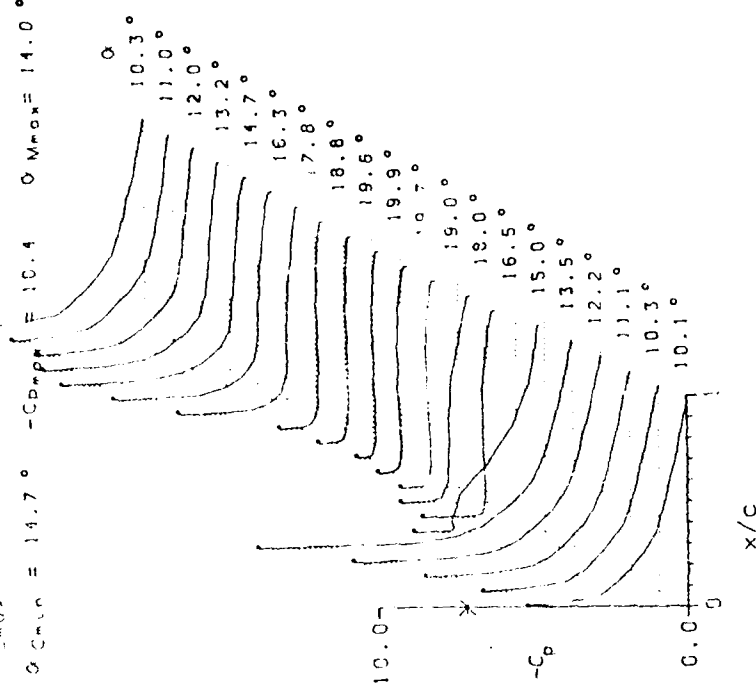
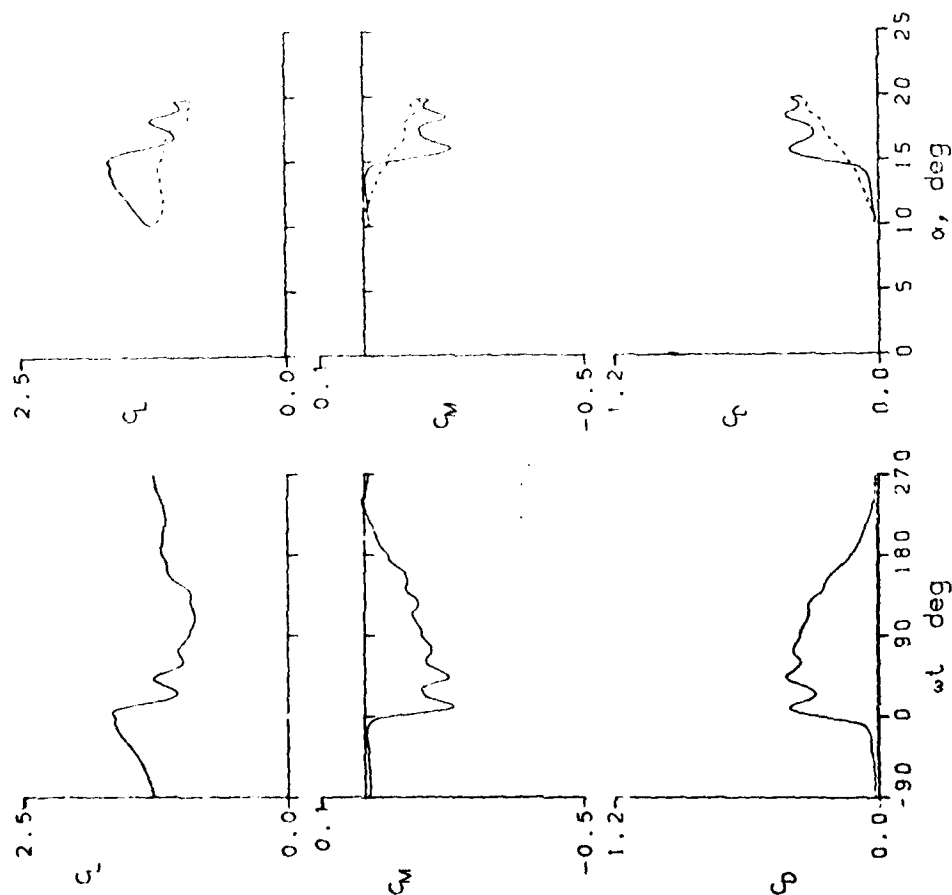


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23023 $A_0 = 14.94^\circ$ $k = 0.100$

$Re = 3.72 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.295$

$C_{Lmax} = 1.87$ $C_{Mmin} = -0.33$ $C_{Dmax} = 0.57$

$\alpha_{Lmax} = 17.0^\circ$ $\xi = 0.742$ $M_{max} = 1.376$

$\alpha_{C_{Lmin}} = 14.8^\circ$ $-C_{Dmax} = 10.8$ $\alpha_{Mmax} = 14.5^\circ$

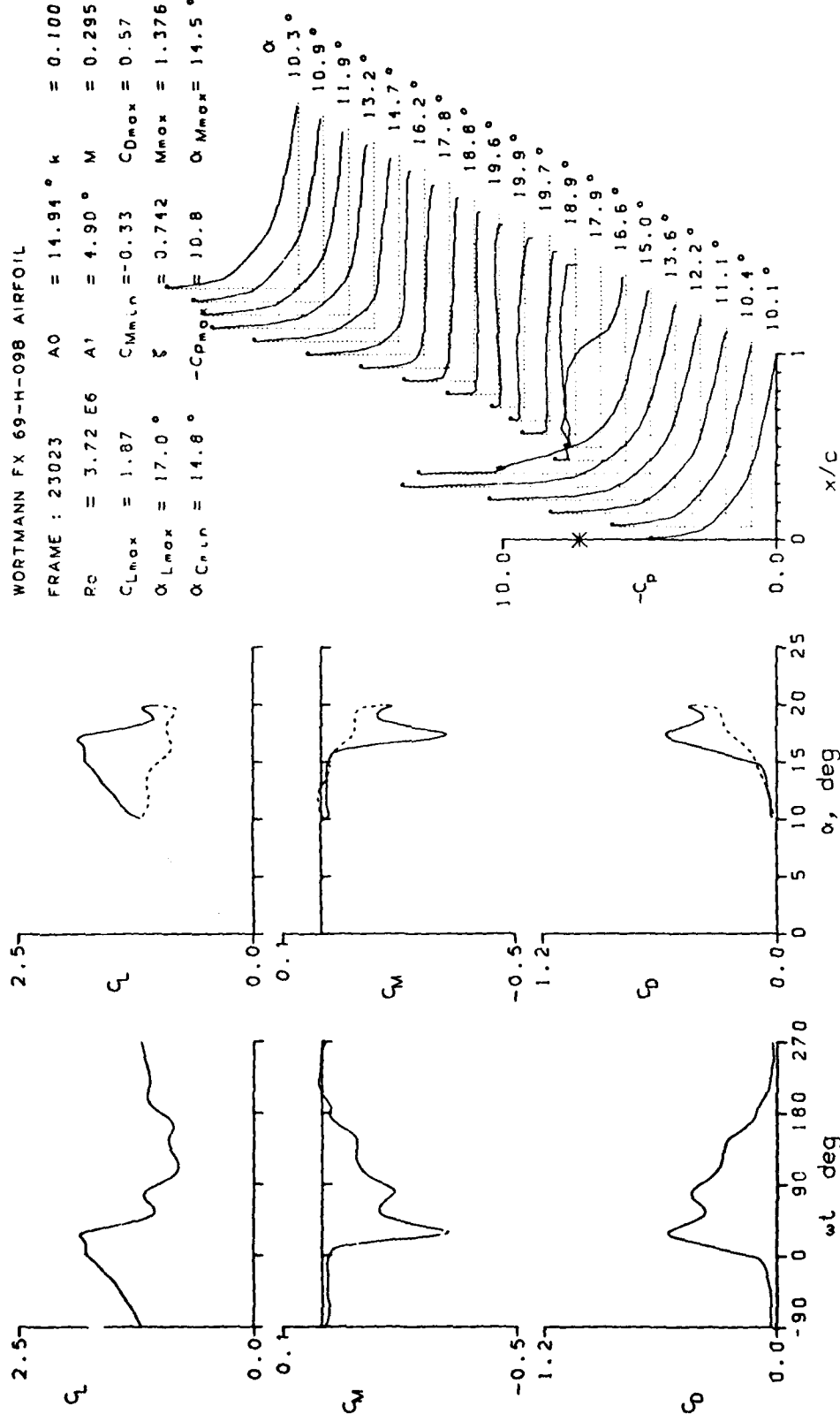


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL

FRAME : 23100 $\alpha_0 = 14.93^\circ$ $\mu = 0.152$

$Re = 3.57 E6$ $A^* = 4.92^\circ$ $M = 0.292$

$C_{Lmax} = 2.00$ $C_{Mmin} = -0.38$ $C_{Dmax} = 0.67$

$\alpha_{Lmax} = 18.3^\circ$ $\xi = 0.818$ $M_{max} = 1.376$

$\alpha_{C_{Lmax}} = 14.8^\circ$ $-C_{Dmax} = 11.0$ $\alpha_{M_{max}} = 14.9^\circ$

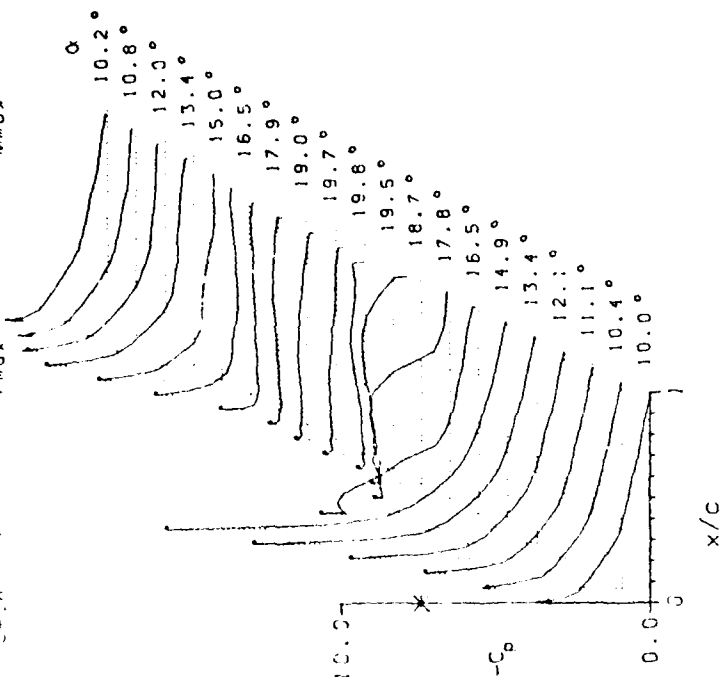
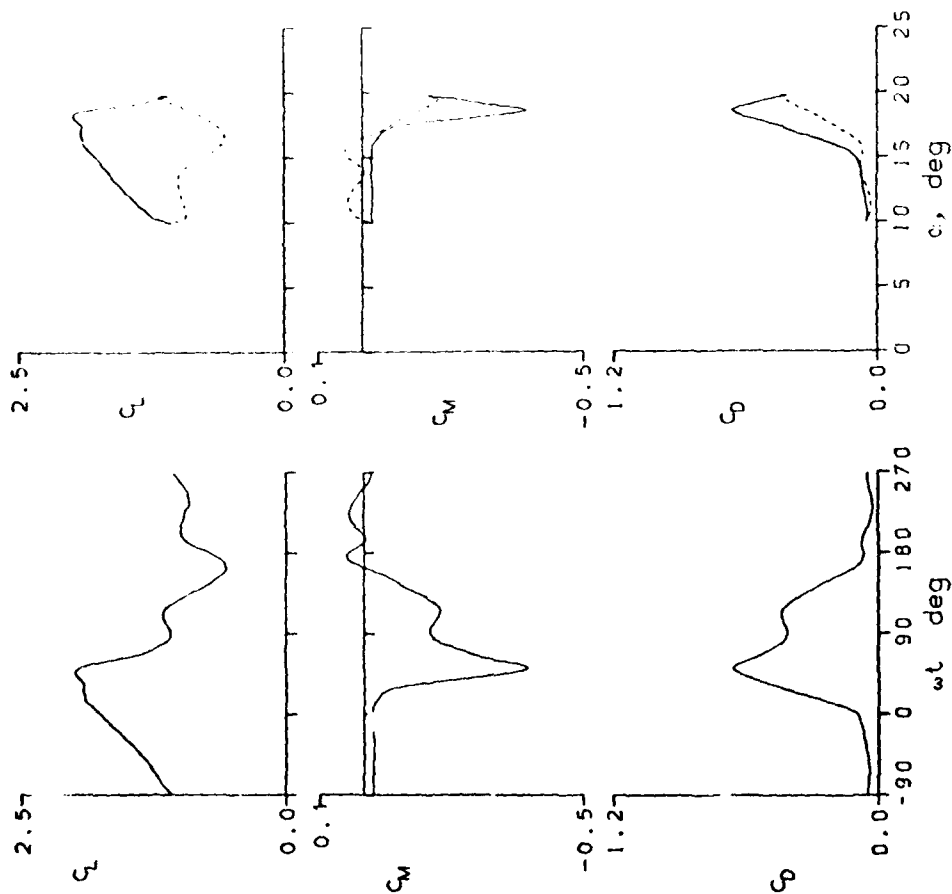


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 23101 $A_0 = 14.94^\circ$ $k = 0.205$
 $R_0 = 3.62$ E_6 $A_1 = 4.07^\circ$ $M = 0.287$
 $C_{Lmax} = 2.18$ $C_{Mmin} = -0.44$ $C_{Dmax} = 0.76$
 $\alpha_{Lmax} = 19.4^\circ$ $\zeta = -0.012$ $M_{max} = 1.364$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 11.3$ $\alpha_{Mmax} = 15.7^\circ$

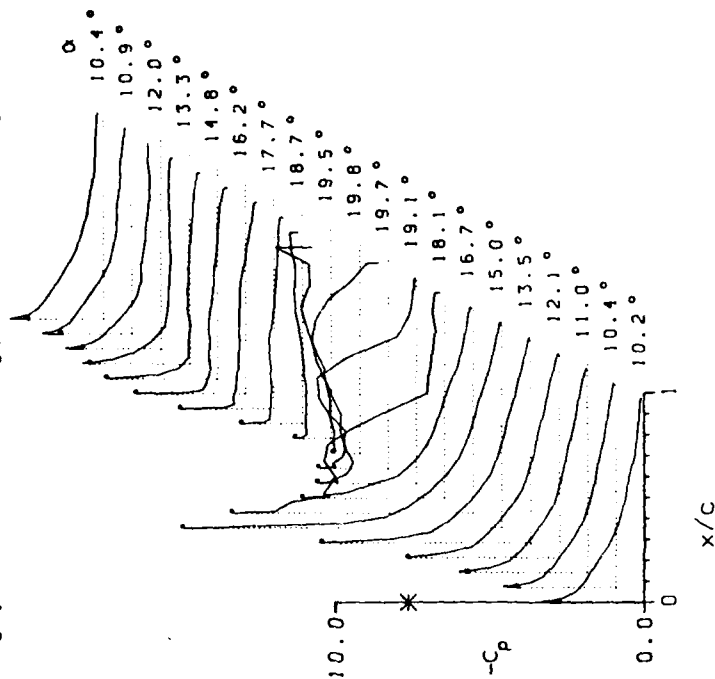
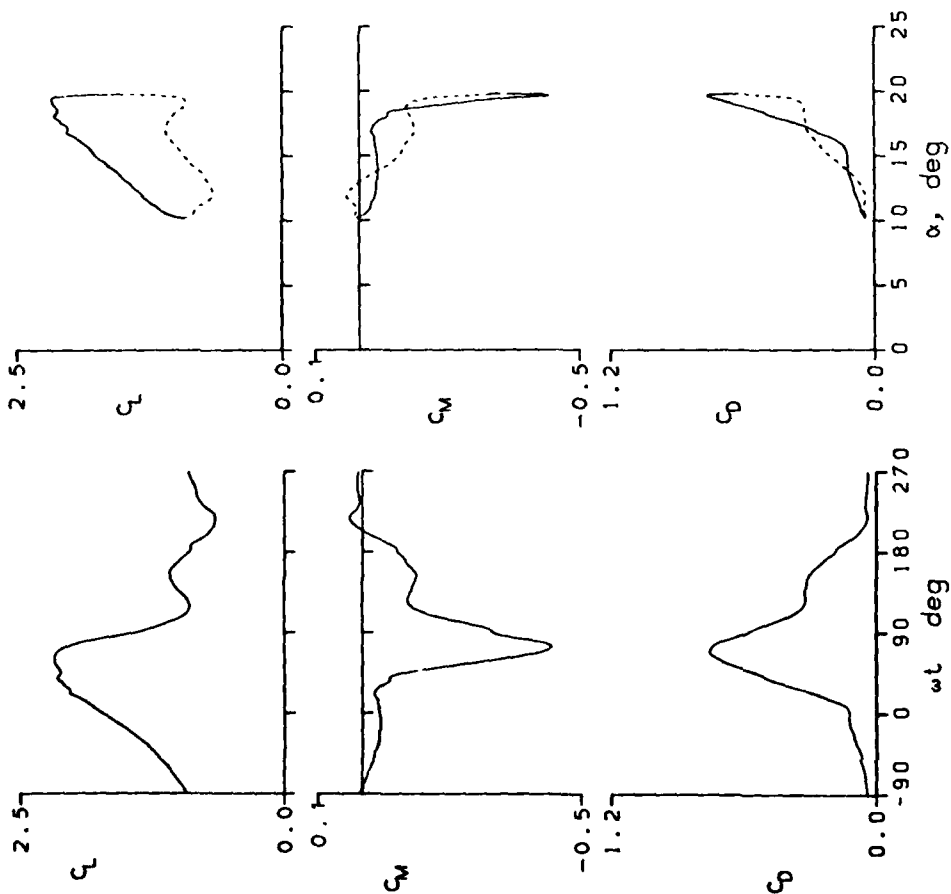


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

EDAVE : 23:07	A0 = 4.95°	k = 0.099
P0 = 3.80 E6	A1 = 5.00°	M = 0.300
C _{Lmax} = 1.25	C _{Mmin} = -0.04	C _{Dmax} = 0.03
α _{Lmax} = 9.9°	ξ = 0.287	M _{max} = 0.829
α _{Cmin} = 4.7°	-C _{Dmax} = 5.1	α _{Mmax} = 9.9°

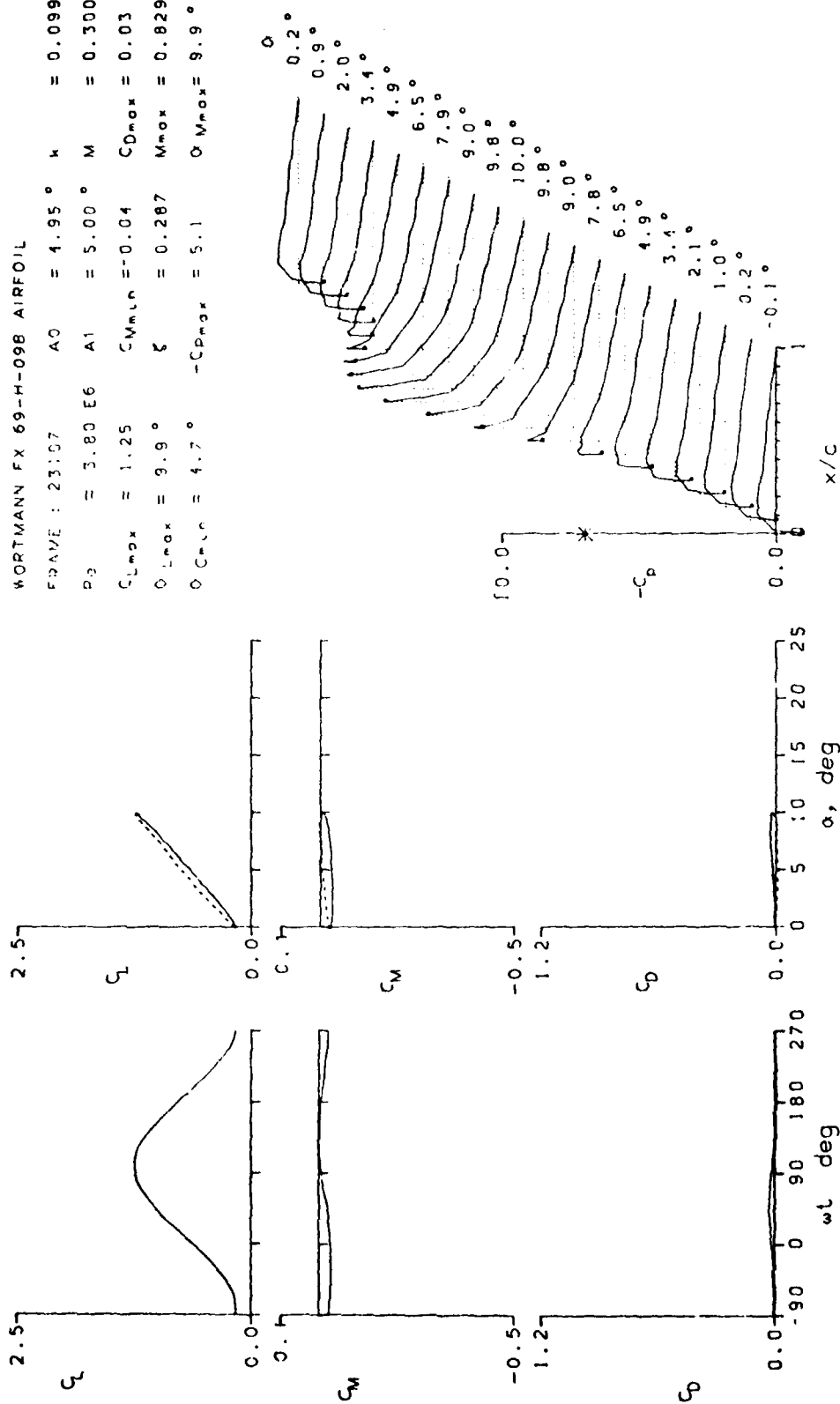


Figure 14.- Continued.

WORTMANN FX 69-H-09B AIRFOIL

FRAME : 23109	A0 = 4.97°	k = 0.197
Re = 3.79 E6	A1 = 5.01°	M = 0.300
C _{Lmax} = 1.27	C _{Mmin} = -0.05	C _{Dmax} = 0.04
α _{Lmax} = 10.0°	ξ = 0.660	M _{max} = 0.868
α _{Cmin} = 4.7°	-C _{Dmax} = 5.5	α _{Mmax} = 9.9°

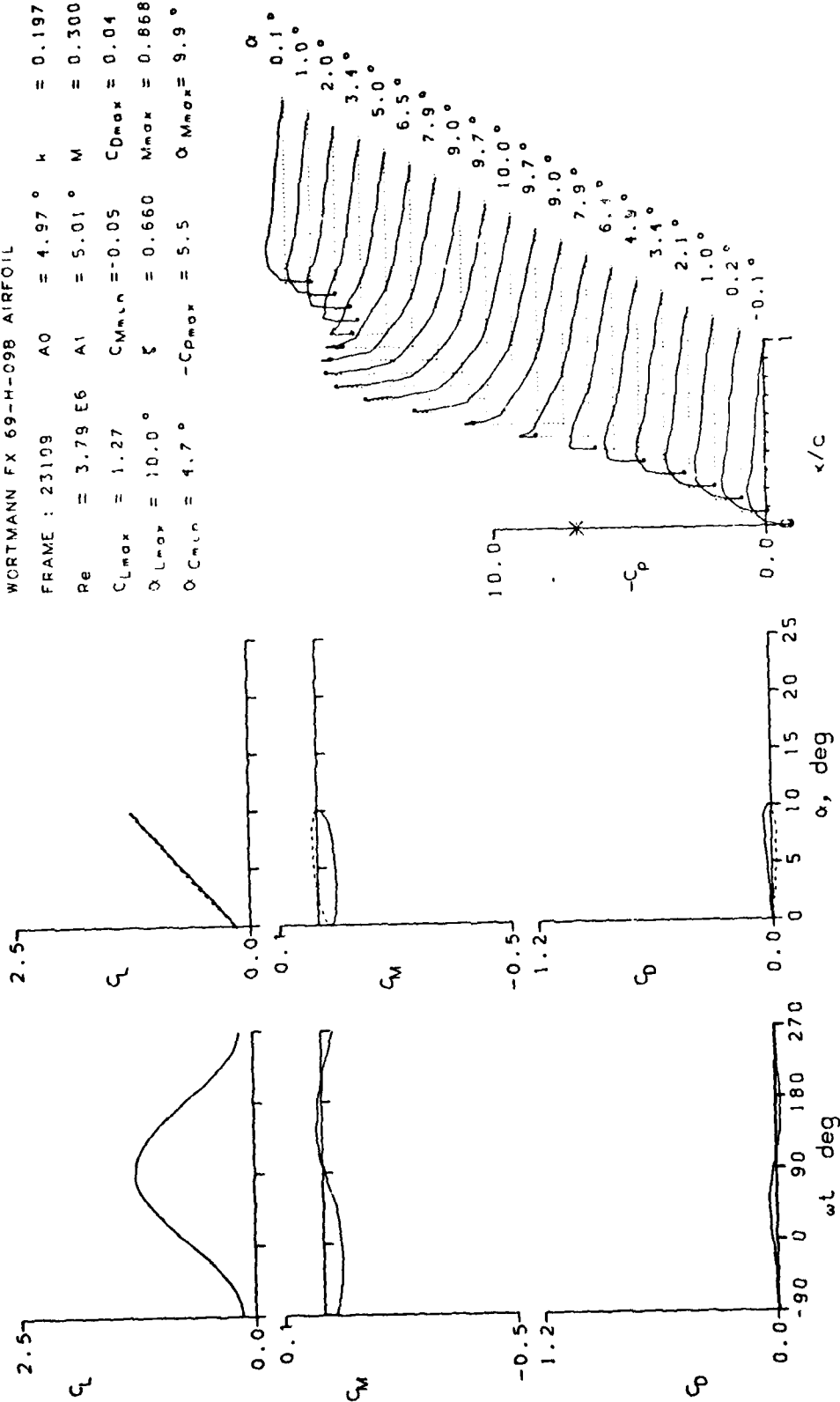


Figure 14.- Continued.

WORTMANN FX 69-M-098 AIRFOIL
 FRAME : 23117 $A_0 = 4.84^\circ$ $k = 0.098$
 $Re = 3.80 \times 10^6$ $A_1 = 10.05^\circ$ $M = 0.300$
 $C_{Lmax} = 1.74$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.32$
 $\alpha_{Lmax} = 14.3^\circ$ $\xi = 0.226$ $M_{max} = 1.387$
 $\alpha_{Cmin} = 4.4^\circ$ $-C_{Dmax} = 10.4$ $\alpha_{Mmax} = 14.4^\circ$

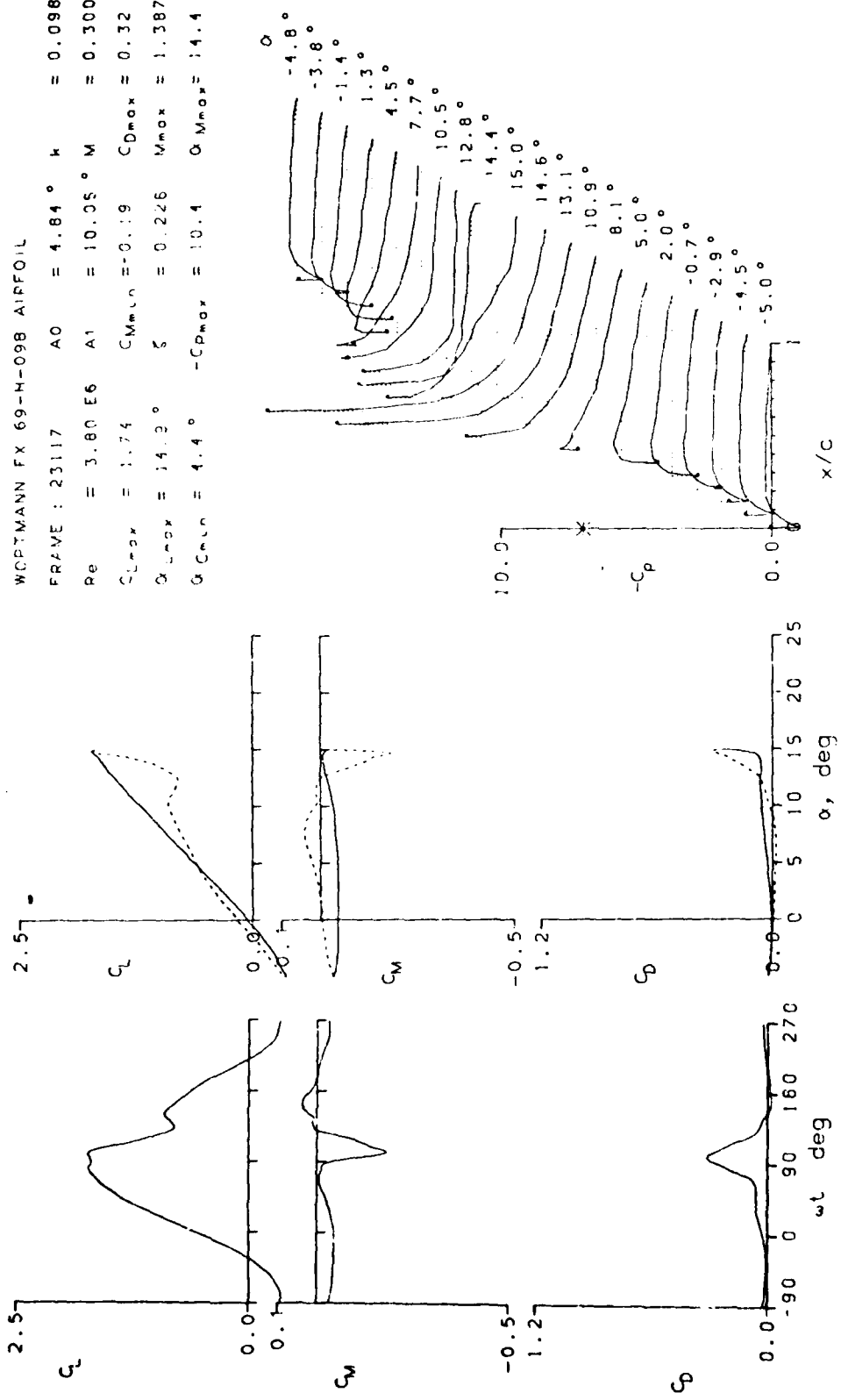


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23201 $A_0 = 3.66^\circ$ $k = 0.100$
 $Re = 3.95 \text{ E}6$ $A_1 = 10.10^\circ$ $M = 0.299$
 $C_{Lmax} = 1.69$ $C_{Mmin} = -0.05$ $C_{Dmax} = 0.07$
 $\alpha_{Lmax} = 13.9^\circ$ $\xi = 0.275$ $M_{max} = 1.396$
 $\alpha_{Cmin} = 3.2^\circ$ $-C_{Pmax} = 10.6$ $\alpha_{Mmax} = 13.9^\circ$

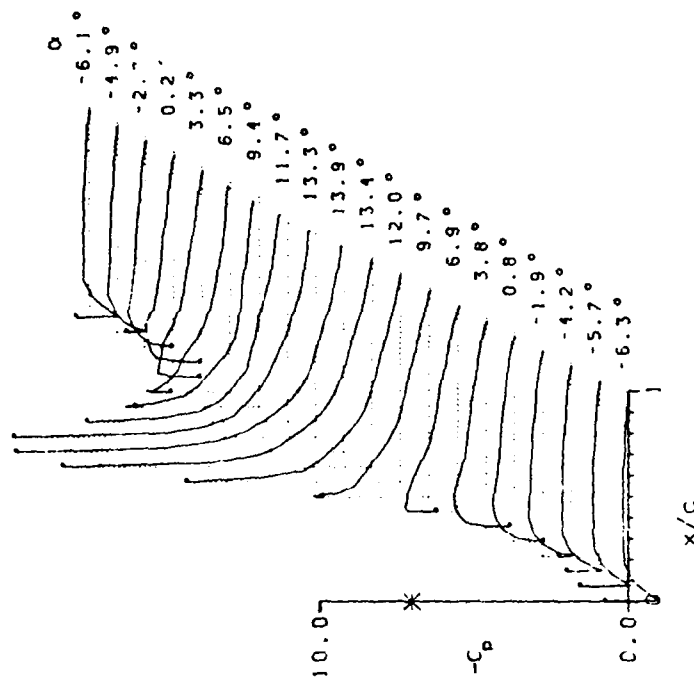
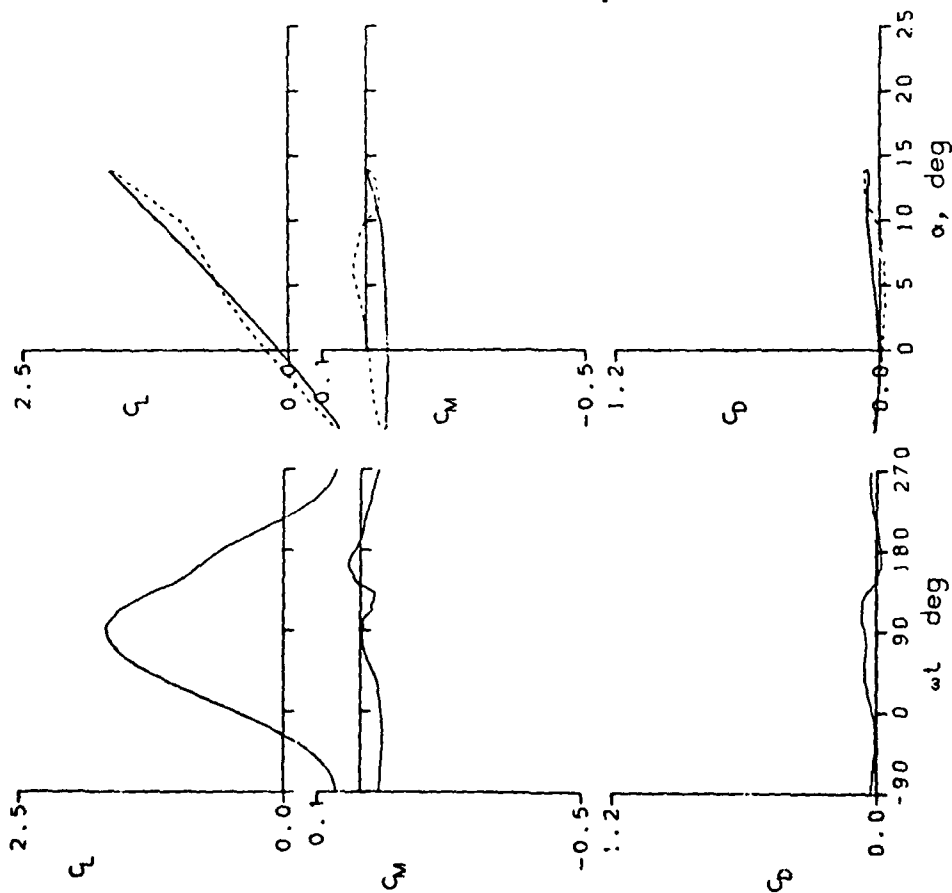


Figure 14.- Continued.

MCRTMANN FX 69-M-098 AIRFOIL
 FRAME : 23206 $A_0 = 3.07^\circ$ $k = 0.050$
 $Re = 3.92 \text{ E}6$ $A_1 = 10.19^\circ$ $M = 0.299$
 $C_{Lmax} = 1.62$ $C_{Mmin} = -0.05$ $C_{Dmax} = 0.04$
 $\alpha_{Lmax} = 13.2^\circ$ $\xi = 0.147$ $M_{max} = 1.356$
 $\alpha_{Cmin} = 2.6^\circ$ $-C_{Pmax} = 10.3$ $\alpha_{Mmax} = 13.4^\circ$

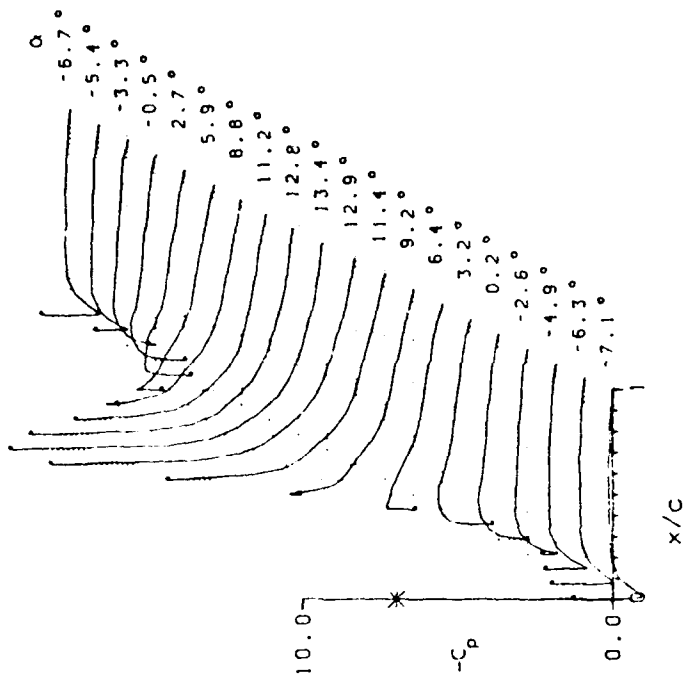
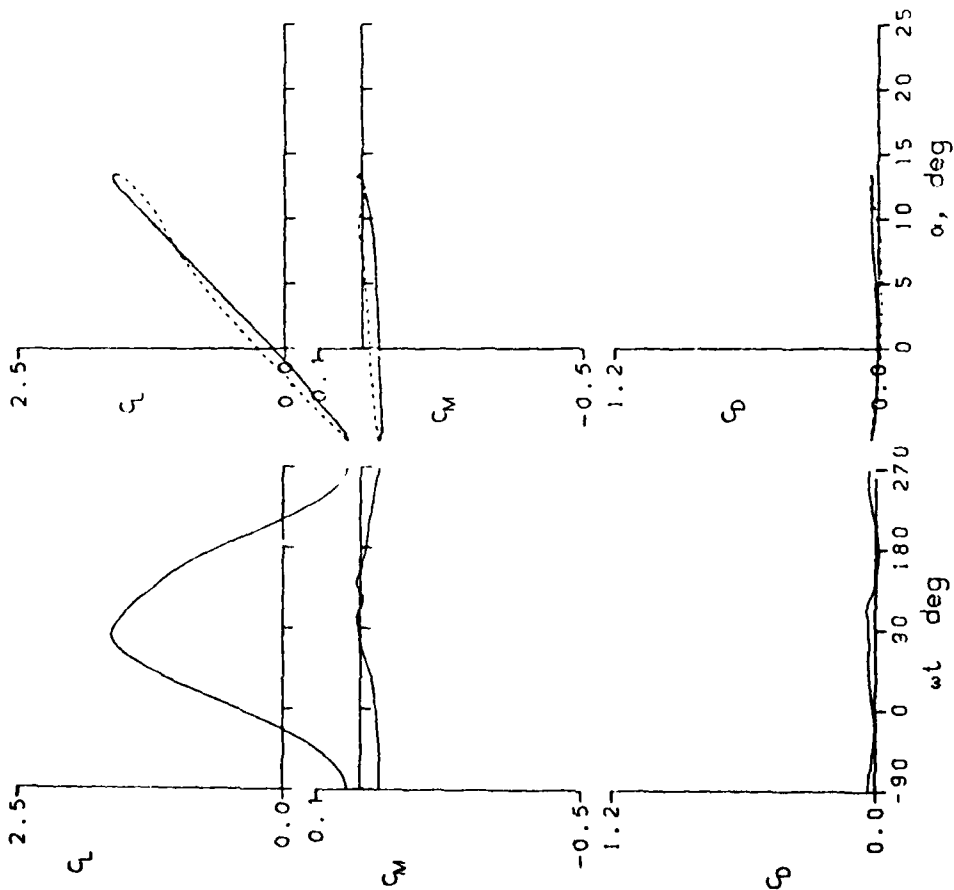


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 23208 $A_0 = 3.15^\circ$ $k = 0.100$
 $Re = 3.91 E6$ $A^* = 10.16^\circ$ $M = 0.300$
 $C_{Lmax} = 1.65$ $C_{Vmin} = -0.06$ $C_{Dmax} = 0.06$
 $\alpha_{Lmax} = 13.4^\circ$ $\xi = 0.319$ $M_{max} = 1.383$
 $\alpha_{Cmin} = 2.7^\circ$ $-C_{Dmax} = 10.4$ $\alpha_{Mmax} = 13.4^\circ$

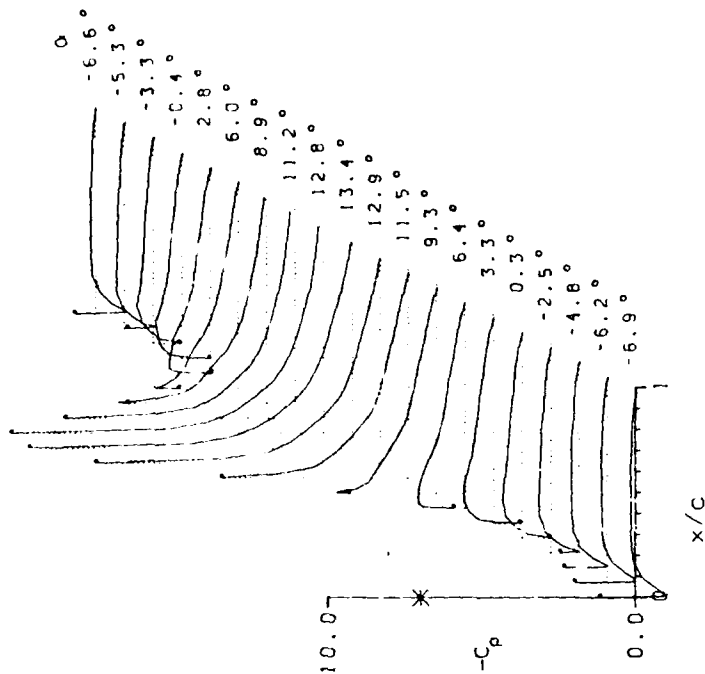
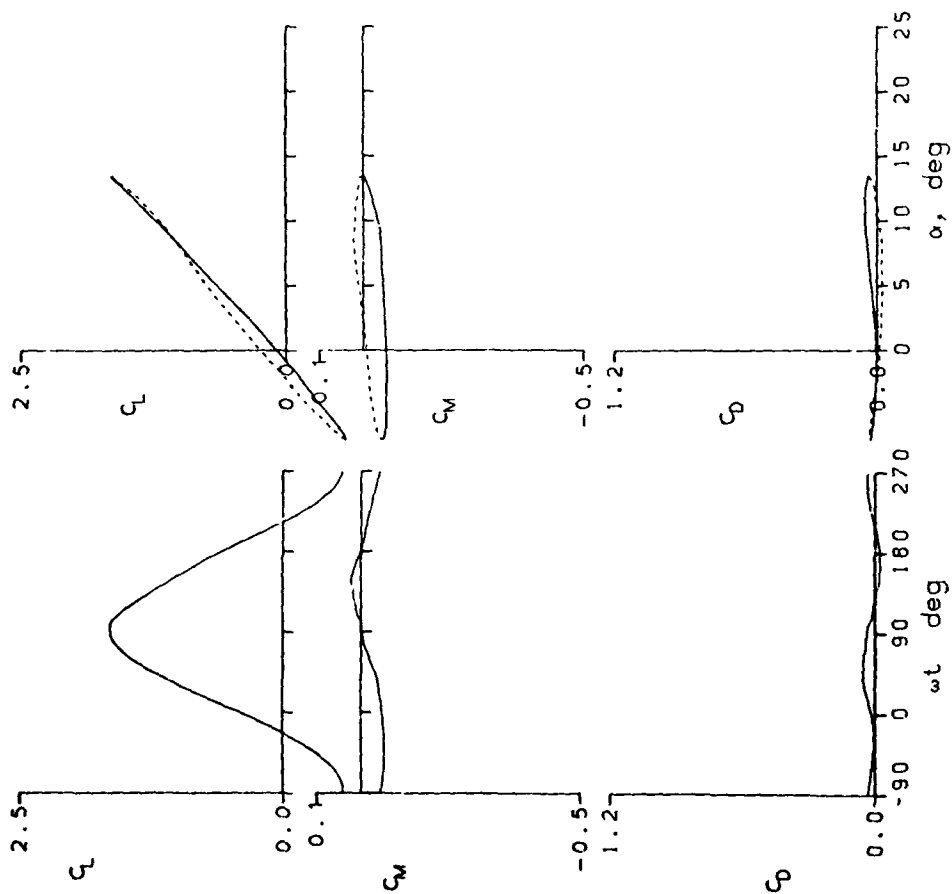


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23211	A0 = 3.06°	k = 0.149
Re = 3.90 E6	A1 = 10.17°	M = 0.300
C _{Lmax} = 1.66	C _{Mmin} = -0.07	C _{Dmax} = 0.08
α _{Lmax} = 13.1°	ξ = 0.497	M _{max} = 1.406
α _{Cmin} = 2.7°	-C _{Dmax} = 10.6	α _{Mmax} = 13.1°

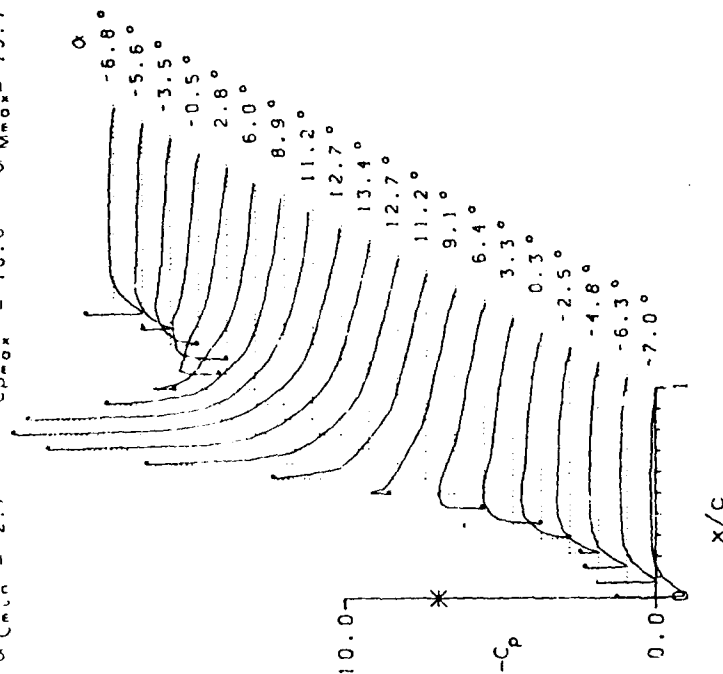
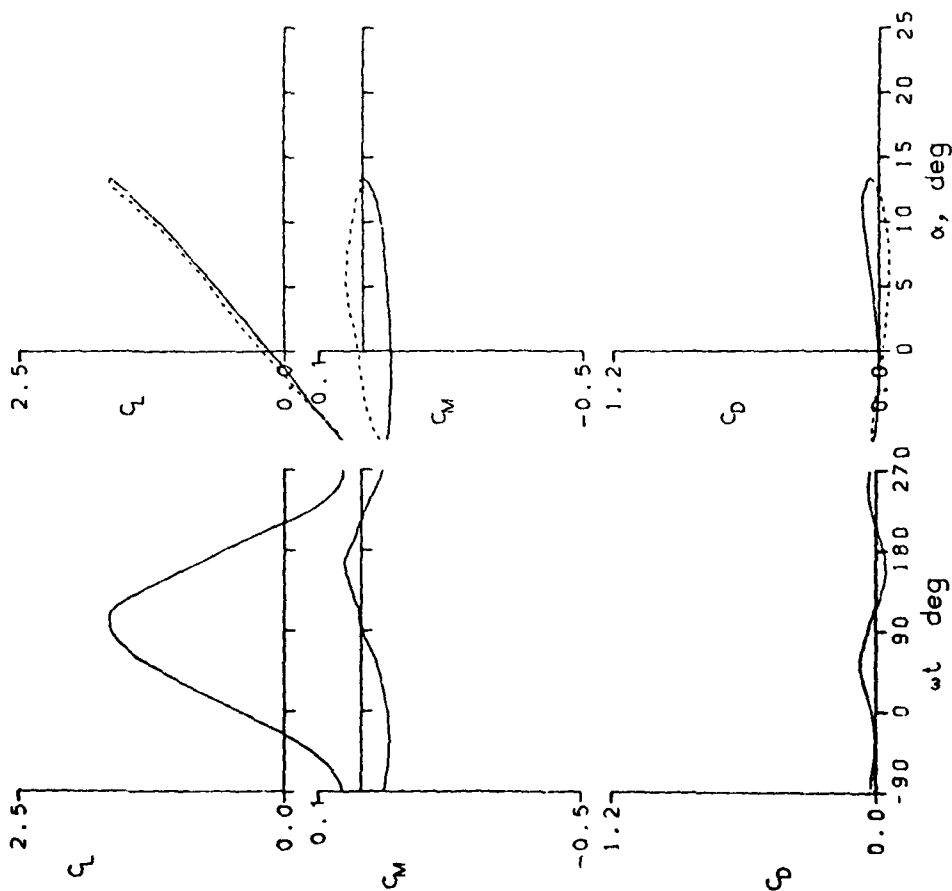


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL
 FRAME : 23219 $A0 = 11.95^\circ k = 0.199$
 $Re = 3.87 E6$ $A1 = 2.00^\circ M = 0.299$
 $C_{Lmax} = 1.70$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.13$
 $\alpha_{Lmax} = 13.9^\circ$ $\xi = -0.545$ $M_{max} = 1.394$
 $\alpha_{C_{Lmin}} = 11.9^\circ$ $-C_{Pmax} = 10.6$ $\alpha_{Mmax} = 13.9^\circ$

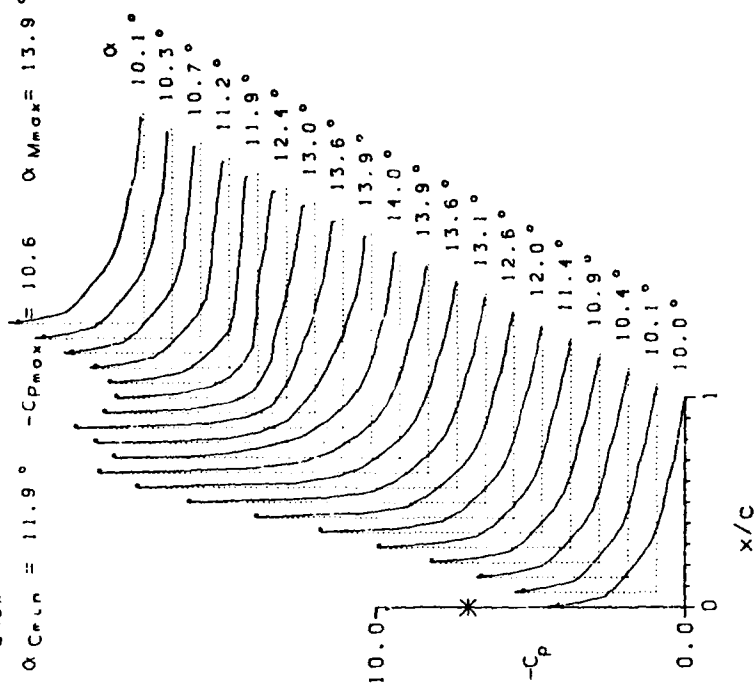
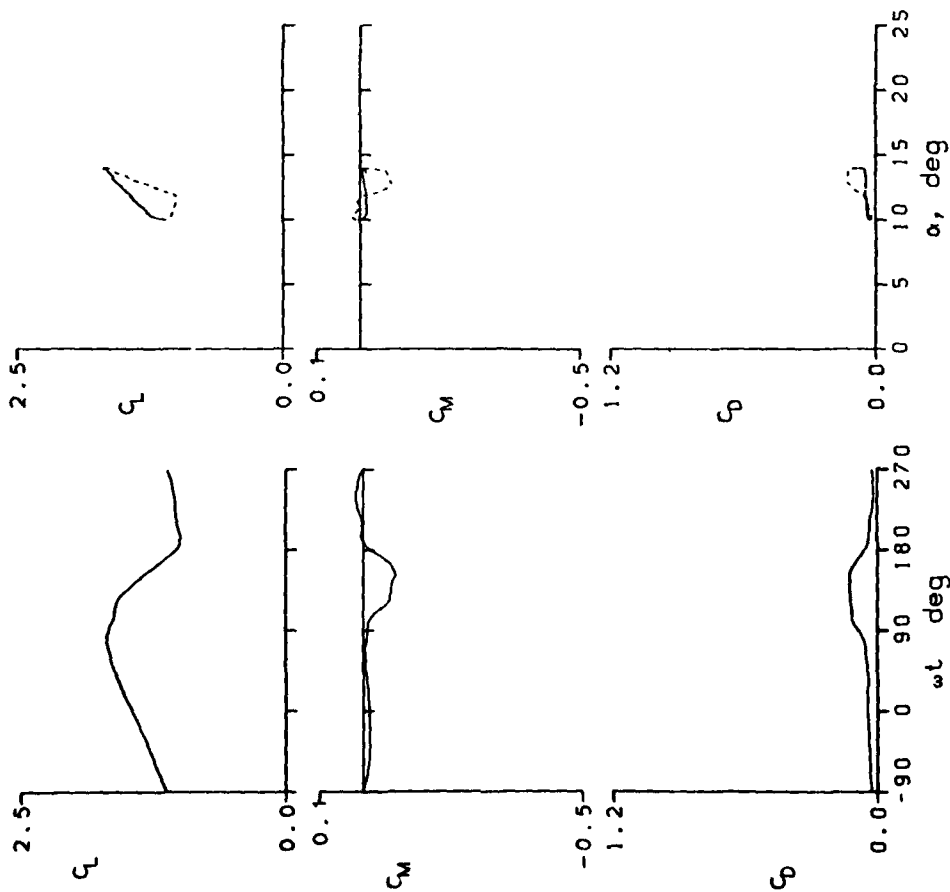


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23305 $A_0 = 13.98^\circ$ $k = 0.200$
 $Re = 3.83 \text{ E}6$ $A_1 = 1.98^\circ$ $M = 0.298$
 $C_{Lmax} = 1.88$ $C_{Mmin} = -0.27$ $C_{Dmax} = 0.47$
 $\alpha_{Lmax} = 15.9^\circ$ $\xi = -0.141$ $M_{max} = 1.385$
 $\alpha_{Cmin} = 13.5^\circ$ $-C_{Pmax} = 10.6$ $\alpha_{Mmax} = 14.6^\circ$

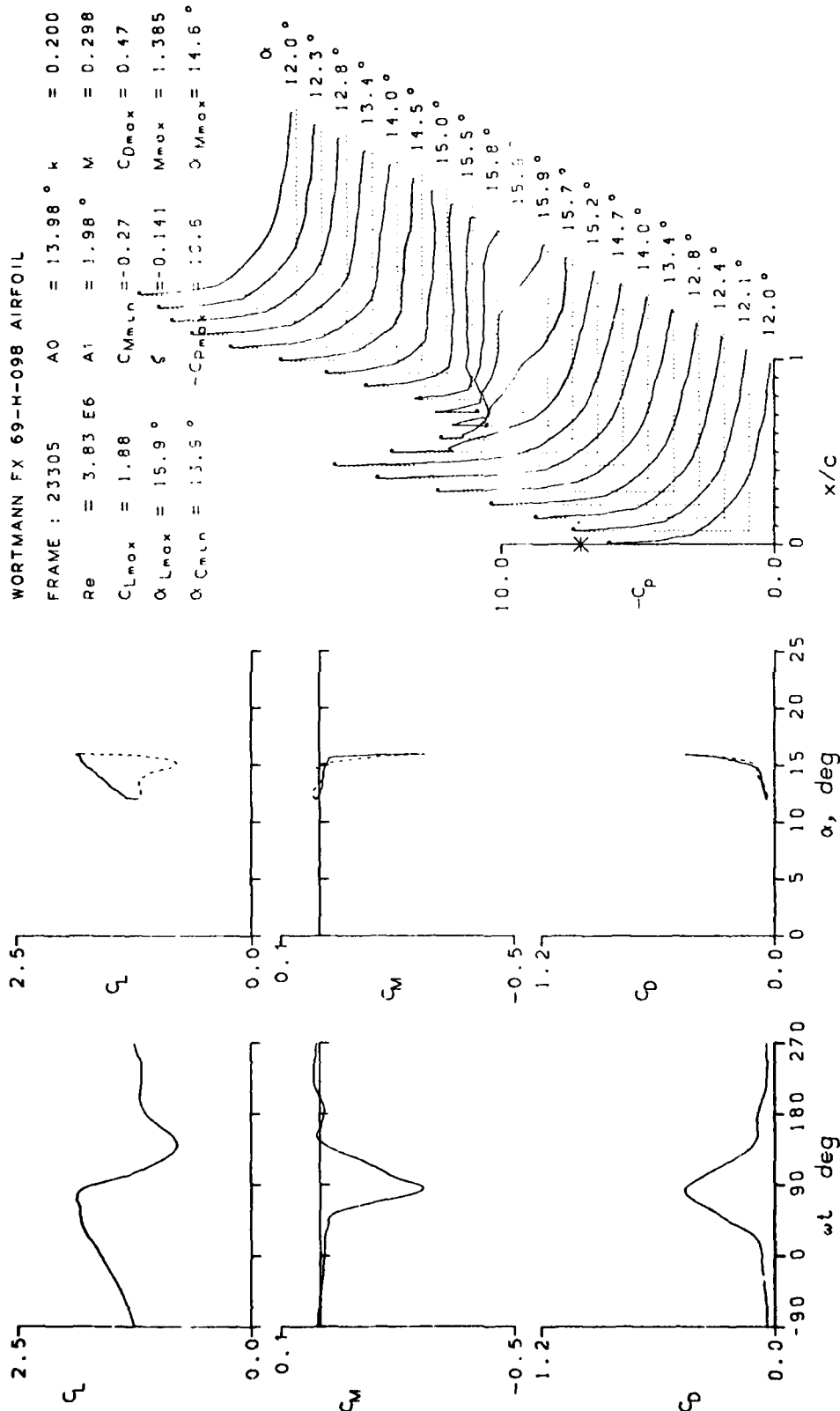


Figure 14.- Continued.

WORTMANN FX 69-H-098 AIRFOIL

FRAME : 23310	$A_0 = 16.01^\circ$	$k = 0.201$
$Re = 3.77 \text{ E} 6$	$A_1 = 1.98^\circ$	$M = 0.294$
$C_{Lmax} = 1.77$	$C_{Mmin} = -0.25$	$C_{Dmax} = 0.47$
$\alpha_{Lmax} = 17.3^\circ$	$\xi = 1.154$	$M_{max} = 1.258$
$\alpha_{Cmin} = 16.0^\circ$	$-C_{Dmax} = 9.8$	$\alpha_{Mmax} = 15.9^\circ$

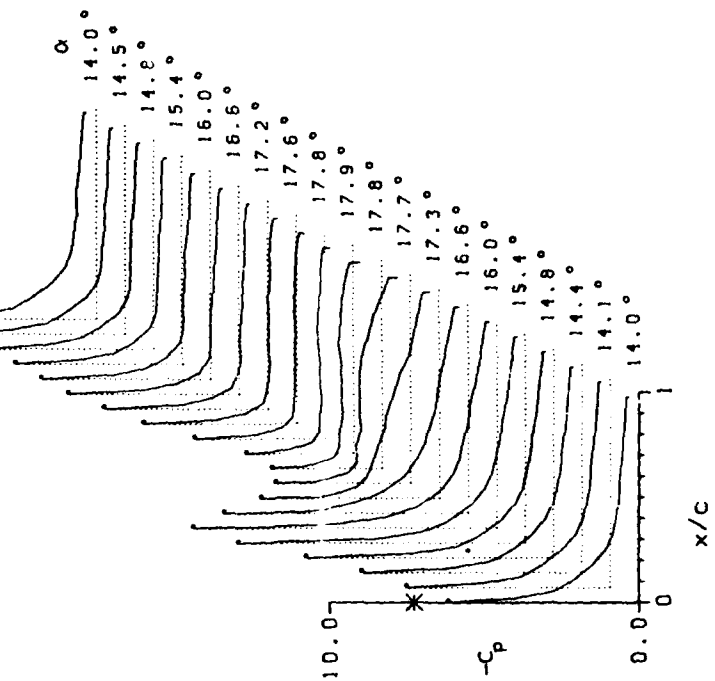
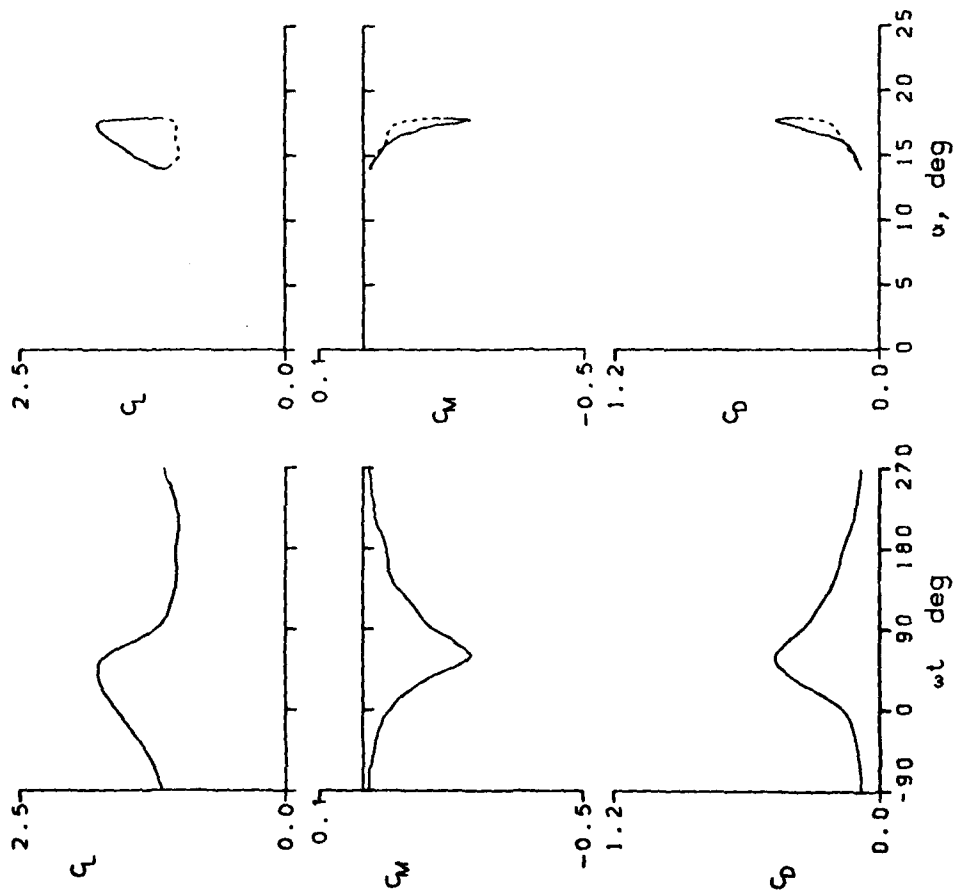


Figure 14.- Concluded.

SIKORSKY SC-1095 AIRFOIL

FRAME : 33022 $A_0 = 14.82^\circ$ $k = 0.099$

$Re = 0.98 \text{ E}6$ $A' = 9.88^\circ$ $M = 0.073$

$C_{Lmax} = 2.52$ $C_{Mmin} = -0.49$ $C_{Dmax} = 1.05$

$\alpha_{Lmax} = 22.8^\circ$ $\xi = 0.156$ $M_{max} = 0.299$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 15.4$ $\alpha_{Mmax} = 20.8^\circ$

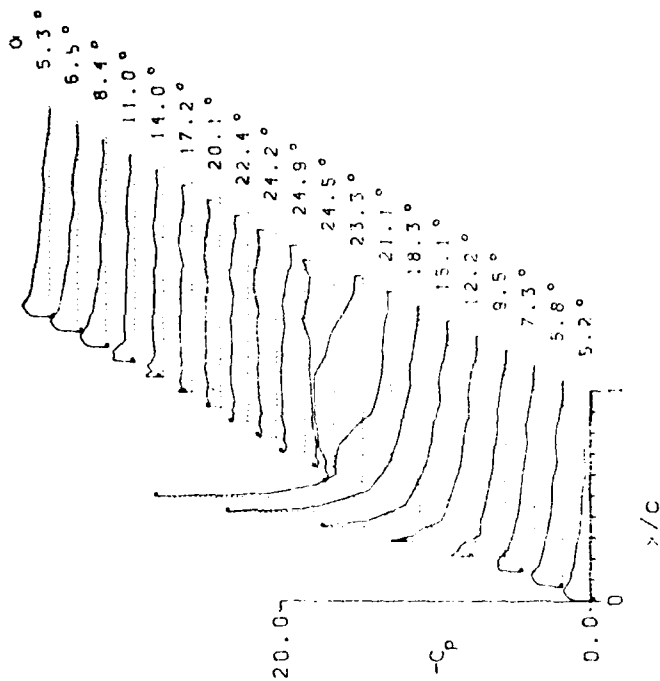
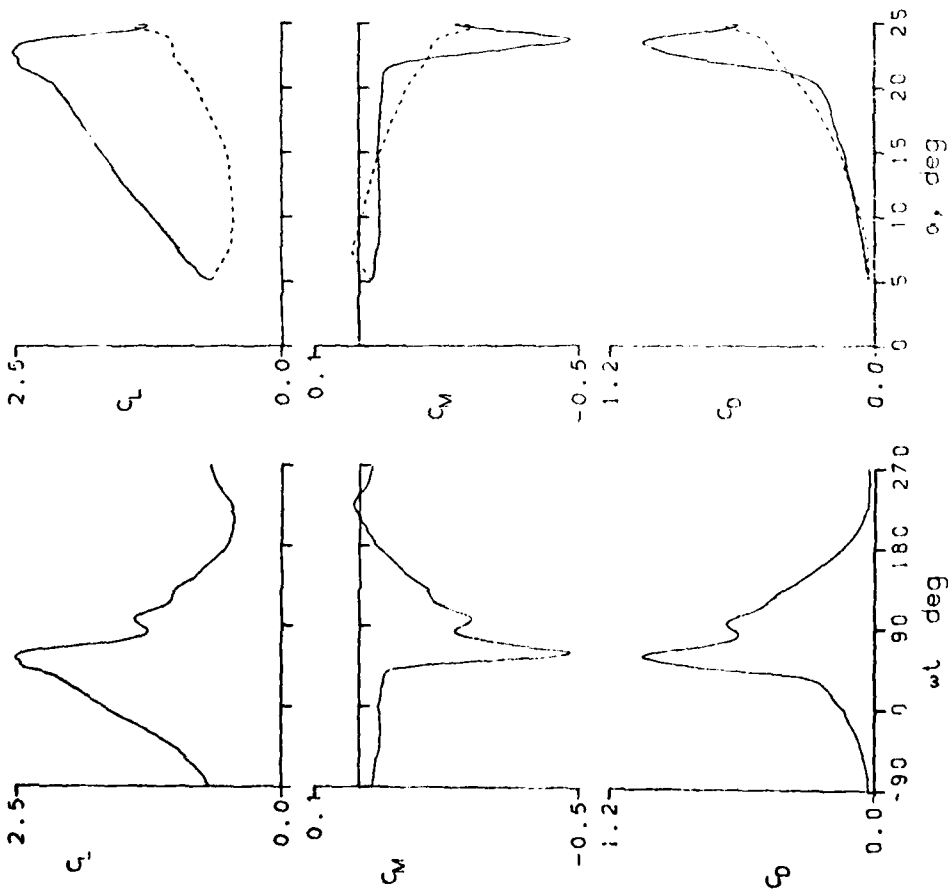


Figure 15.- Dynamic data for Sikorsky SC-1095 airfoil.

SIKORSKY SC-1095 AIRFOIL
 FRAML : 33106 $A_0 = 14.82^\circ$ $\mu = 0.098$
 $Re = 1.45 E6$ $A_1 = 9.88^\circ$ $M = 0.110$
 $C_{Lmax} = 2.50$ $C_{Mmin} = -0.49$ $C_{Dmax} = 1.05$
 $\alpha_{Lmax} = 23.3^\circ$ $\xi = 0.215$ $M_{max} = 0.478$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 16.3$ $\alpha_{Mmax} = 21.1^\circ$

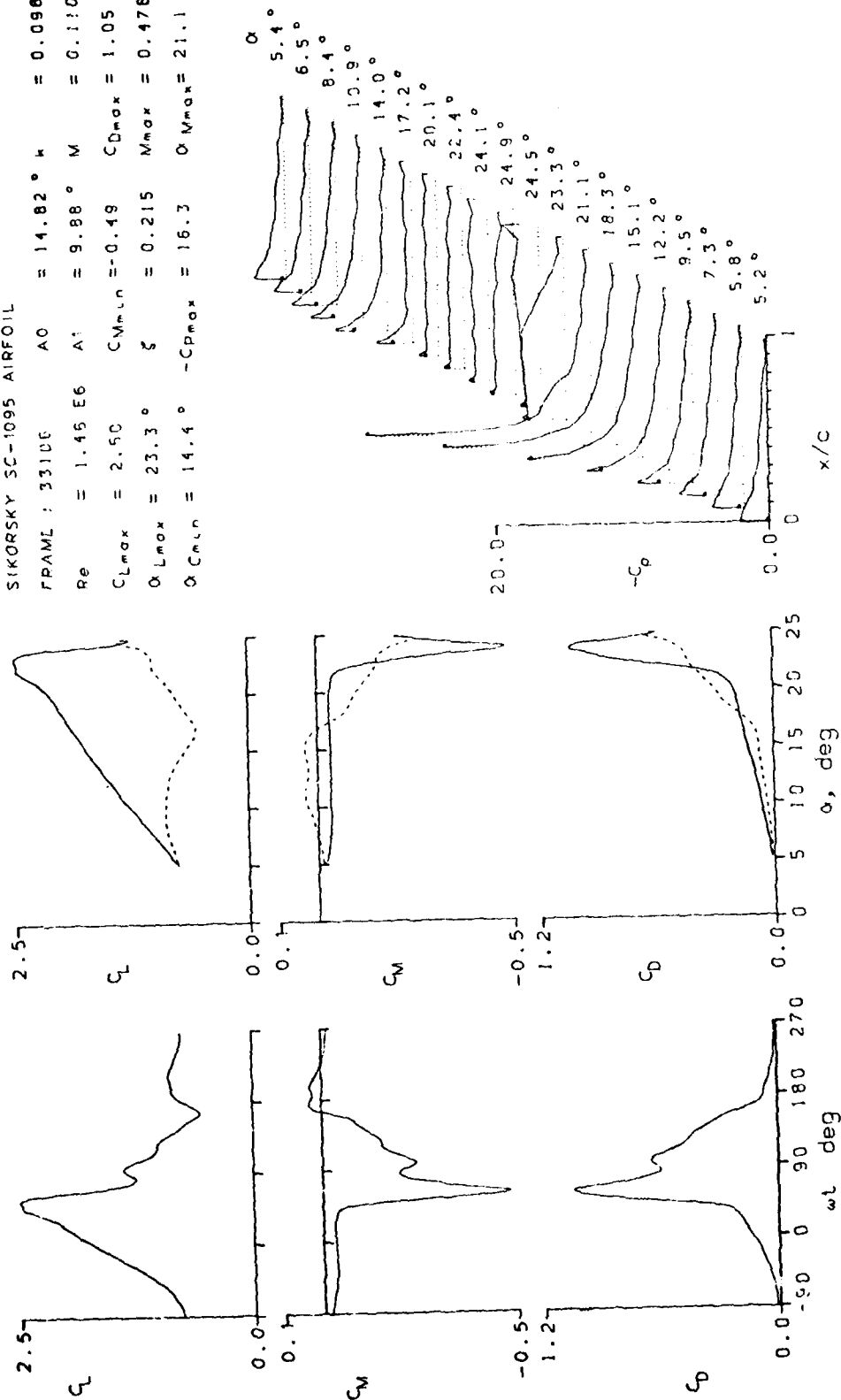


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 33110	A0 = 14.81°	μ = 0.099
Re = 2.40 E6	A1 = 9.92°	M = 0.183
CLmax = 2.58	CMmin = -0.50	CDmax = 1.07
αLmax = 22.9°	ξ = 0.272	Mmax = 0.904
αCmin = 14.4°	-CDmax = 16.9	αMmax = 20.9°

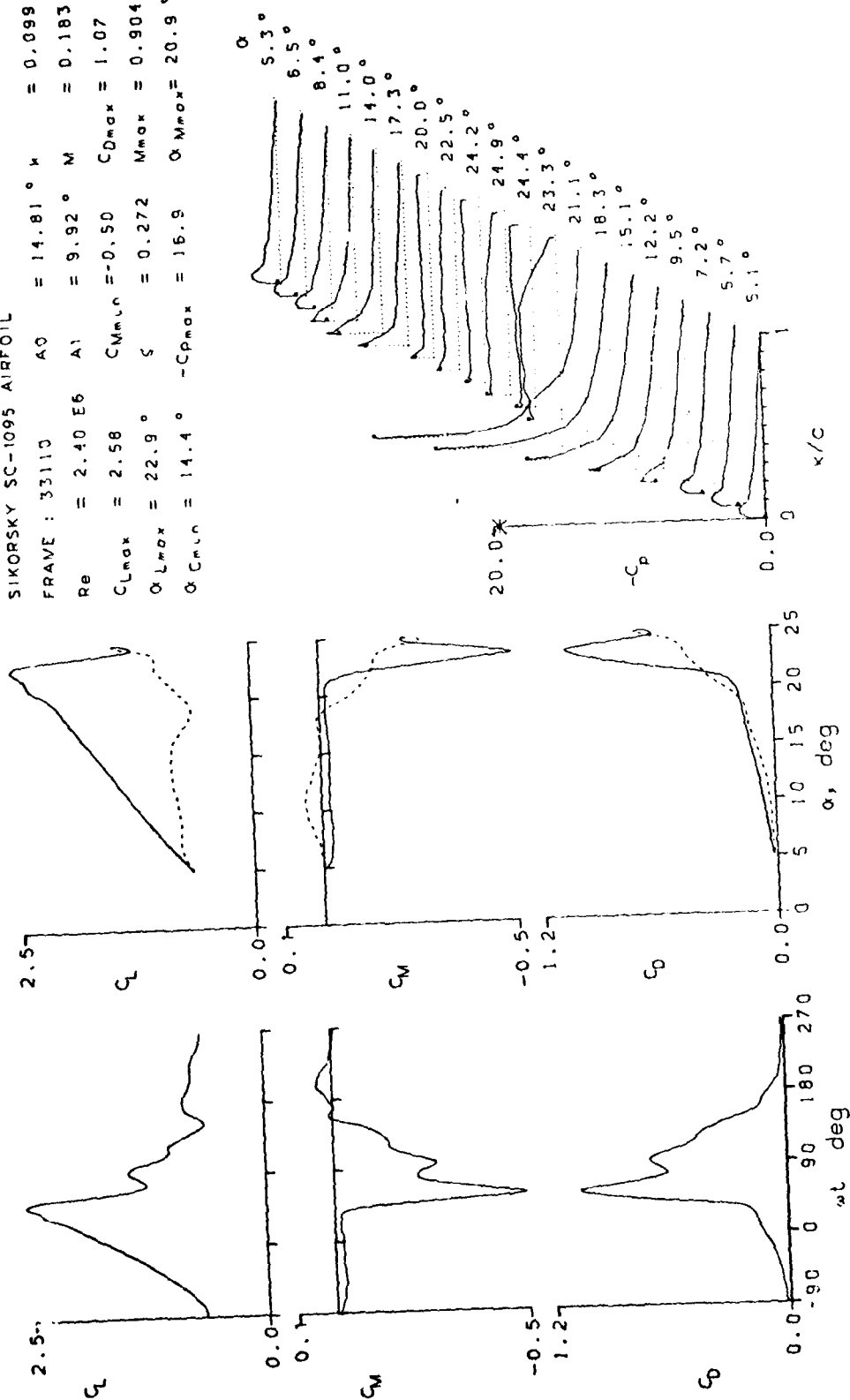


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 33118 $A_0 = 5.97^\circ$ $k = 0.050$
 $Re = 2.39 \times 10^6$ $A_1 = 10.05^\circ$ $M = 0.182$
 $C_{Lmax} = 1.74$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.15$
 $\alpha_{Lmax} = 15.2^\circ$ $\xi = 0.083$ $M_{max} = 0.685$
 $\alpha_{Cmin} = 5.4^\circ$ $-C_{Dmax} = 10.9$ $\alpha_{Mmax} = 16.2^\circ$

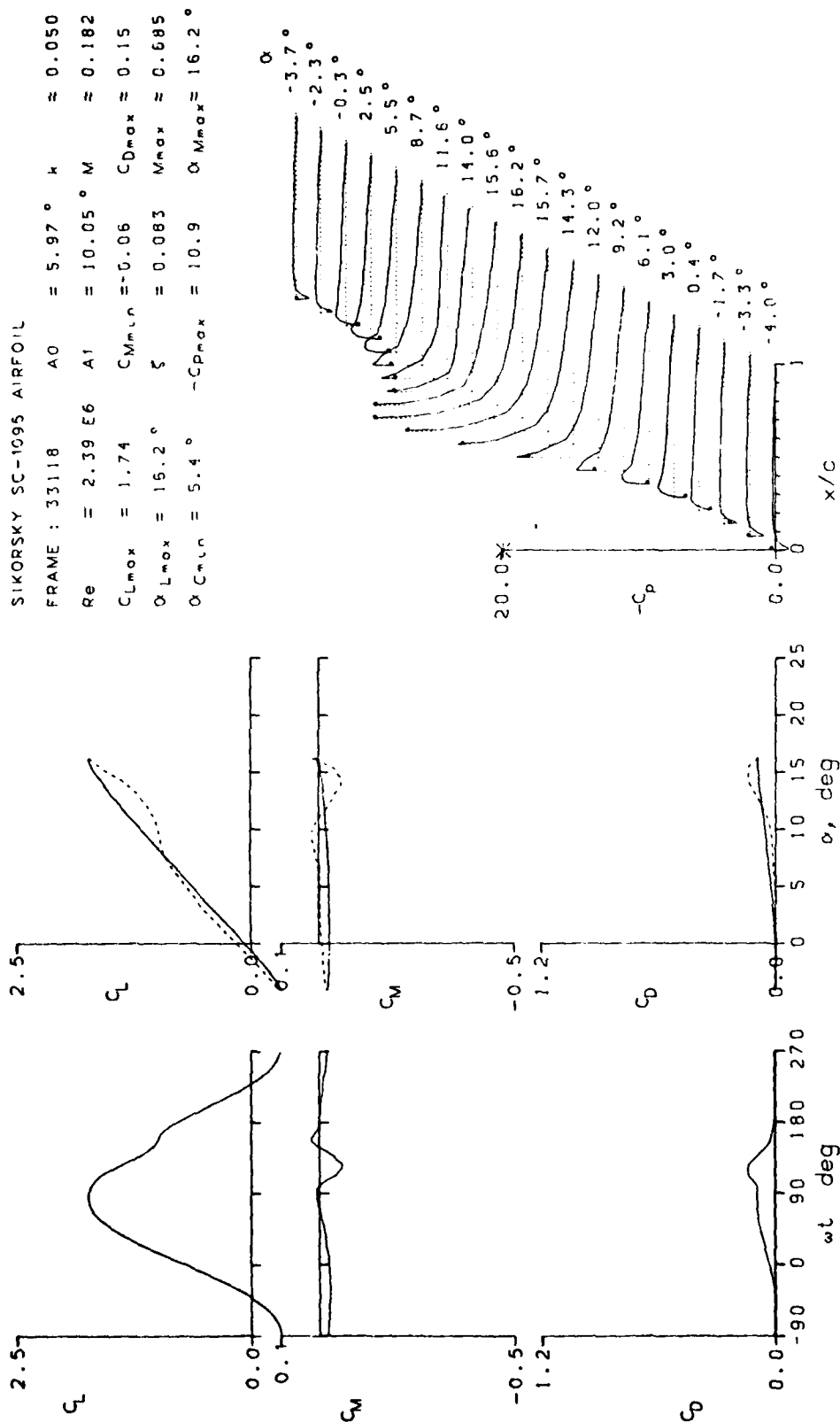


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 33121 A0 = 6.03° k = 0.198
 Re = 2.41 E6 A1 = 10.00° M = 0.184
 CLmax = 1.74 CMmin = -0.07 CDmax = 0.14
 αLmax = 16.2° ξ = 0.634 Vmax = 0.690
 αCMmin = 5.4° -CDmax = 10.8 αMmax = 16.1°

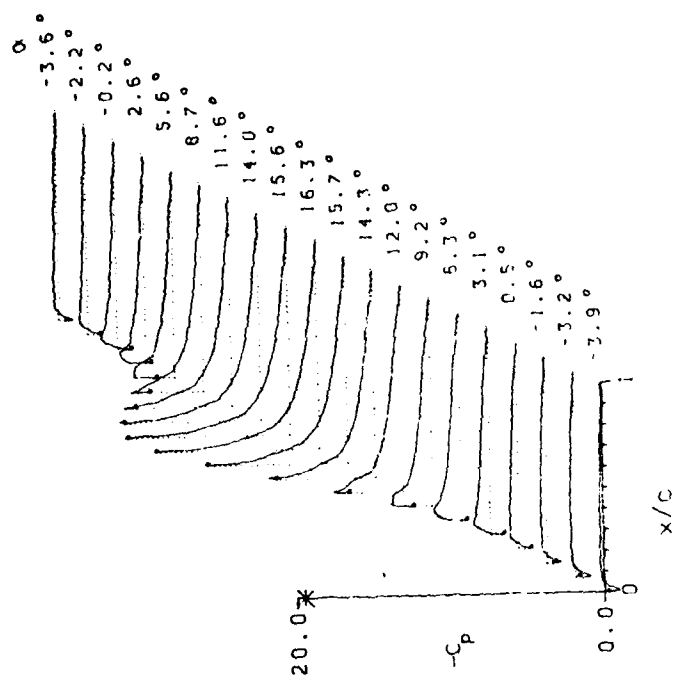
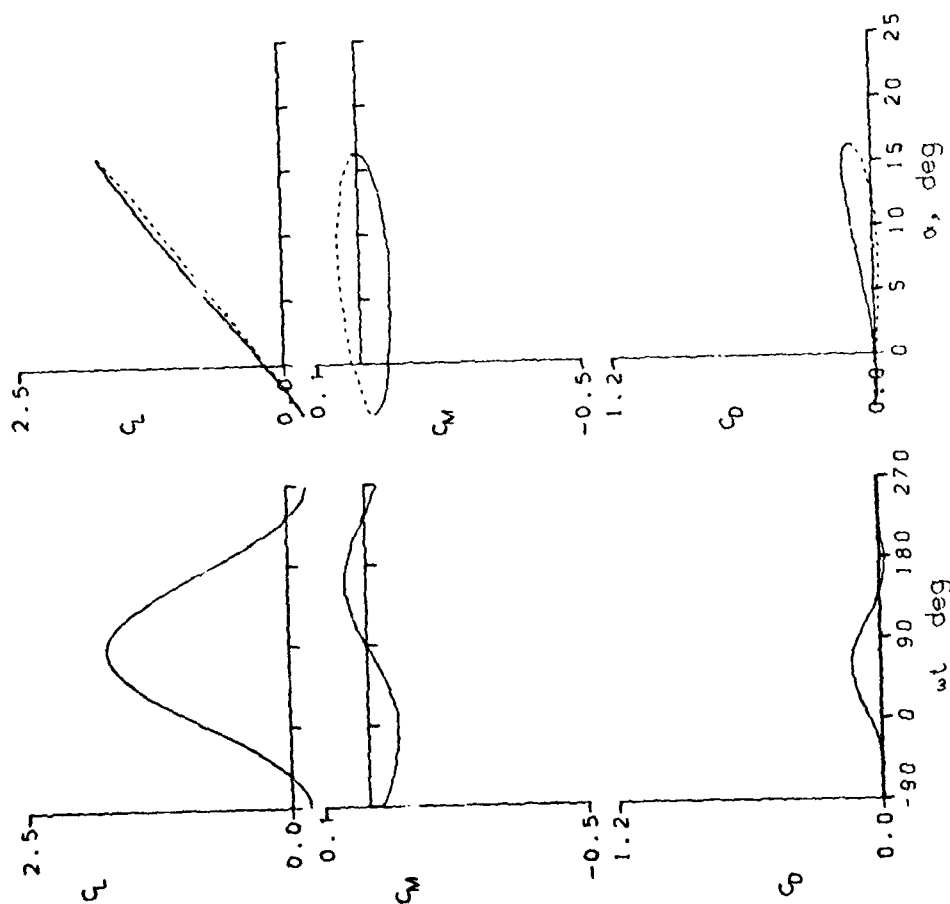


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 33205	A0 = 14.80 °	k = 0.099
Re = 2.84 E6	A1 = 9.84 °	M = 0.219
CLmax = 2.44	CMmin = -0.48	CDmax = 0.99
α Lmax = 22.3 °	ξ = 0.353	Mmax = 1.100
α Cmin = 14.3 °	-CDmax = 15.4	α Mmax = 20.0 °

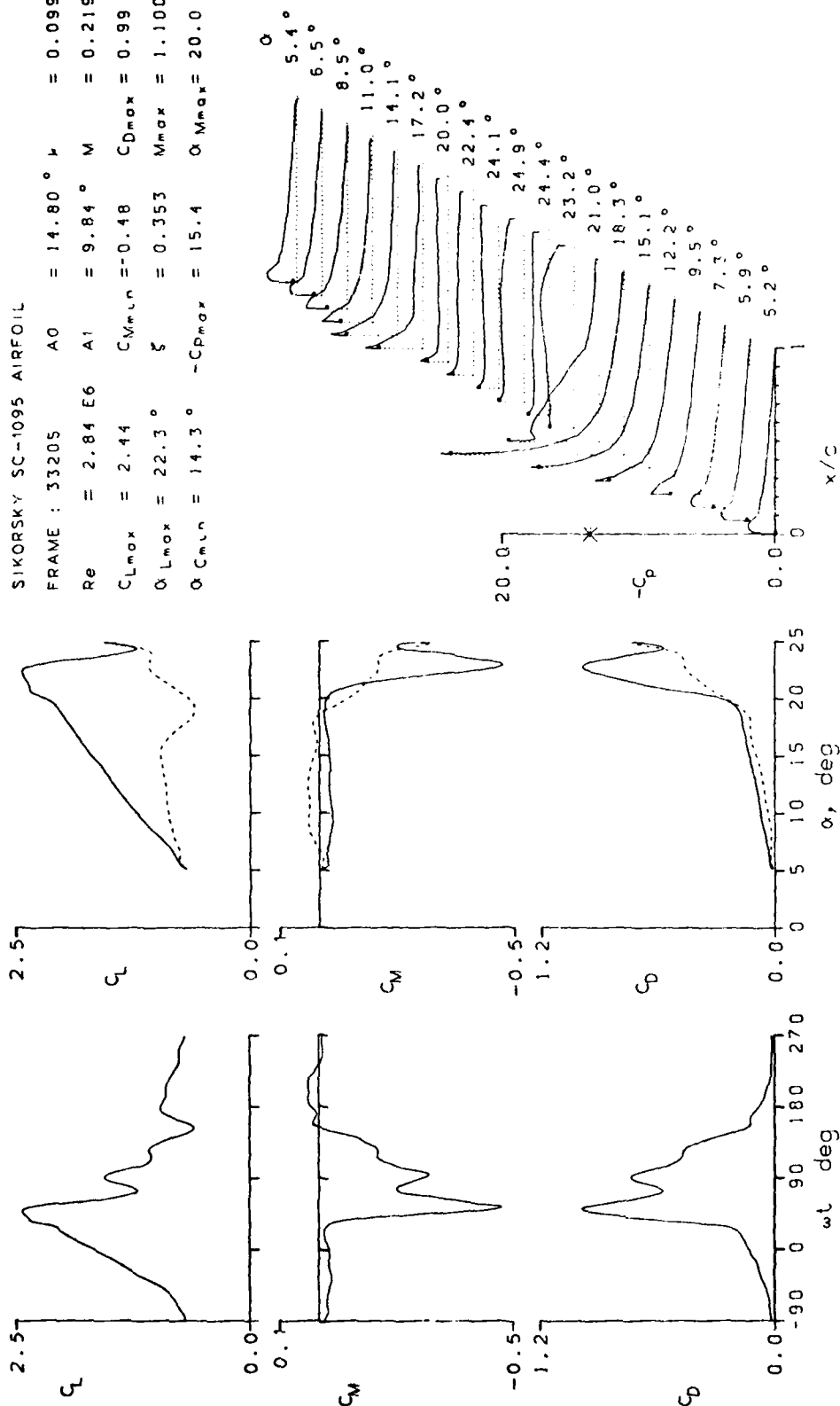


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 33207 $A_0 = 14.83^\circ$ $k = 0.098$
 $Re = 3.19 \times 10^6$ $A_1 = 9.86^\circ$ $M = 0.249$
 $C_{L_{max}} = 2.40$ $C_{M_{min}} = -0.46$ $C_{D_{max}} = 0.93$
 $\alpha_{L_{max}} = 21.6^\circ$ $\xi = 0.470$ $M_{max} = 1.208$
 $\alpha_{C_{M_{min}}} = 14.4^\circ$ $-C_{D_{max}} = 13.3$ $\alpha_{M_{max}} = 18.6^\circ$

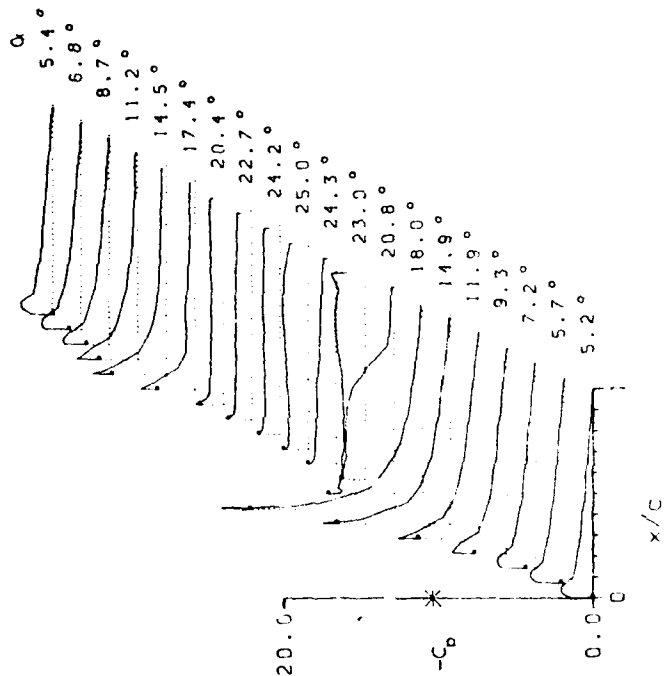
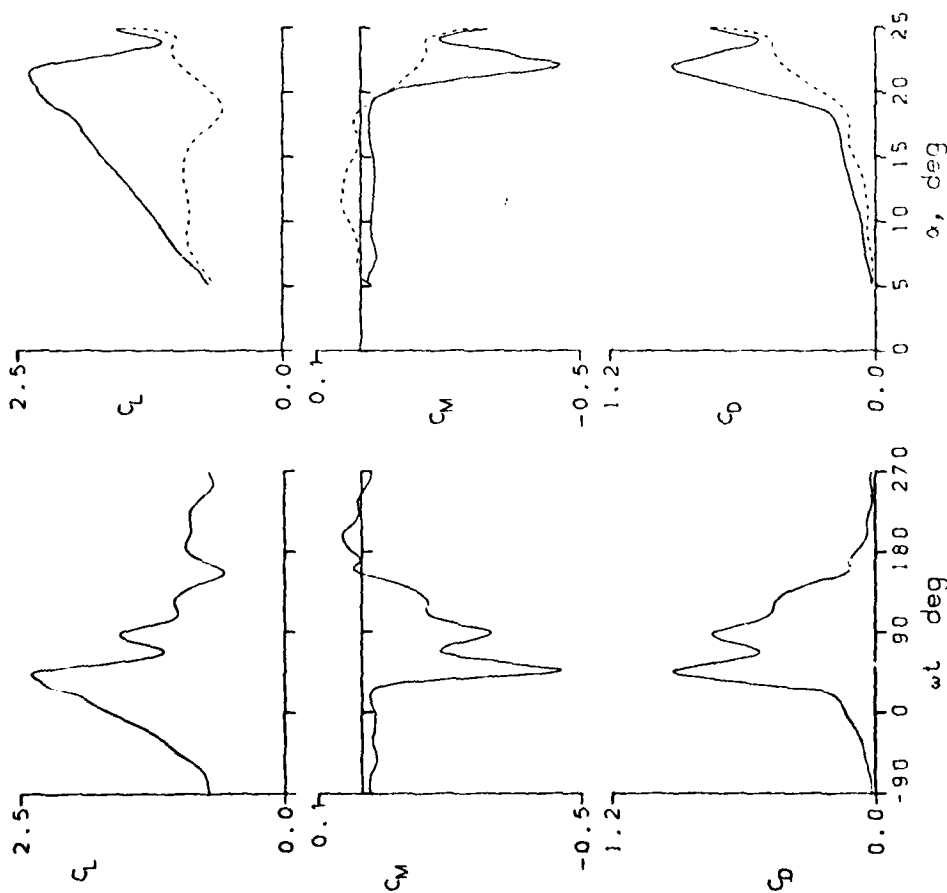


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 33215 $A_0 = 14.85^\circ$ $k = 0.100$
 $Re = 3.74 \text{ E}6$ $A_1 = 9.87^\circ$ $M = 0.279$
 $C_{Lmax} = 2.40$ $C_{Mmin} = -0.44$ $C_{Dmax} = 0.88$
 $\alpha_{Lmax} = 20.4^\circ$ $\xi = 0.485$ $M_{max} = 1.346$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Pmax} = 11.8$ $\alpha_{Mmax} = 17.8^\circ$

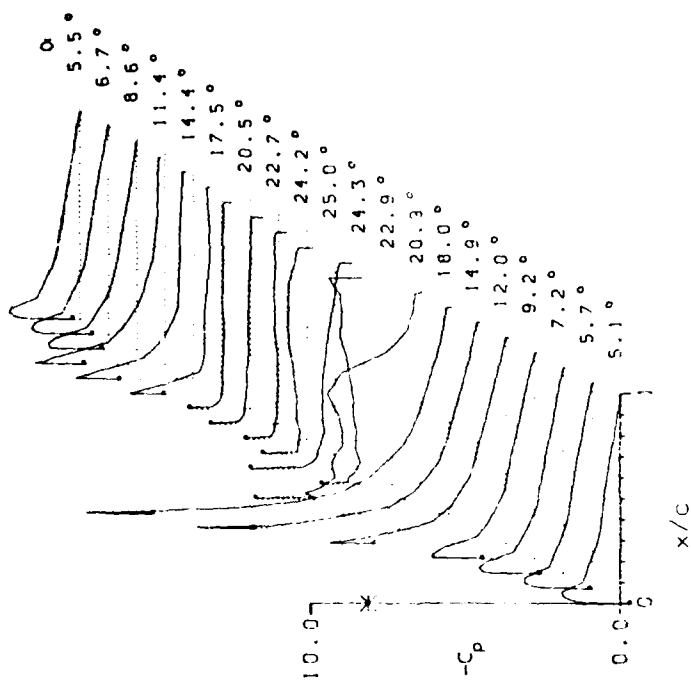
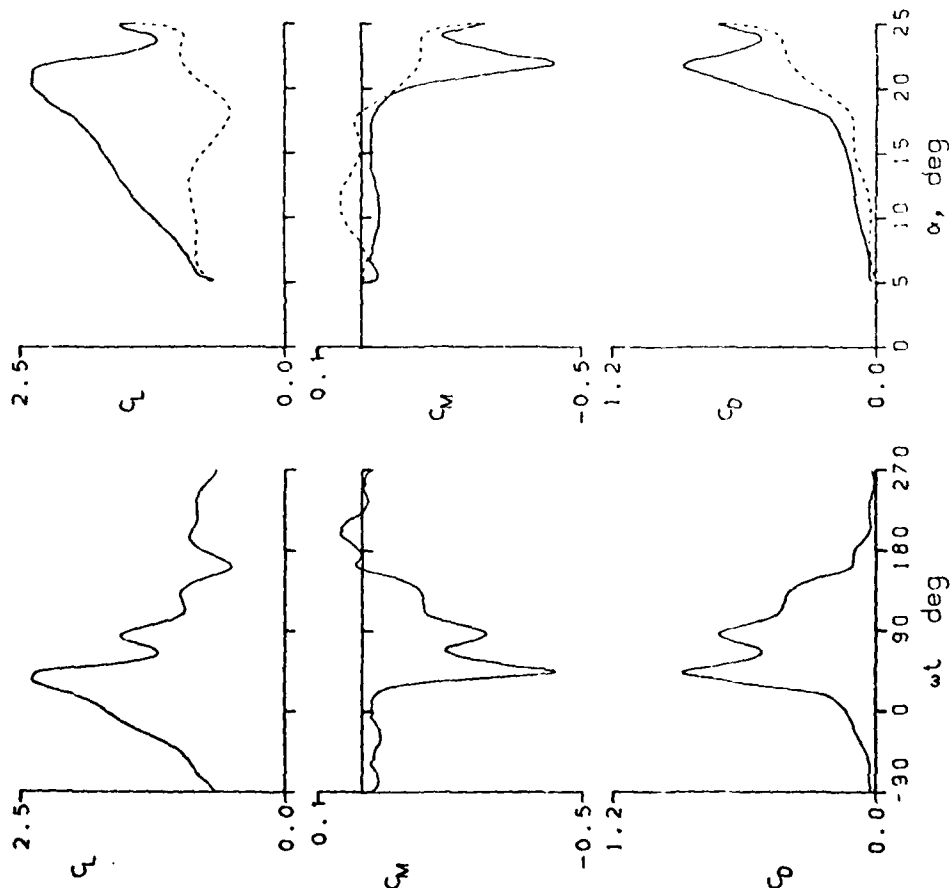


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 33217 ΔC = 14.87° μ = 0.025
 Re = 3.92 E6 A^* = 9.88° M = 0.297
 C_{Lmax} = 1.91 C_{Mmin} = -0.22 C_{Dmax} = 0.45
 α_{Lmax} = 16.3° ξ = 0.102 M_{max} = 1.354
 α_{Cmin} = 14.5° $-C_{Dmax}$ = 10.5 α_{Mmax} = 15.7°

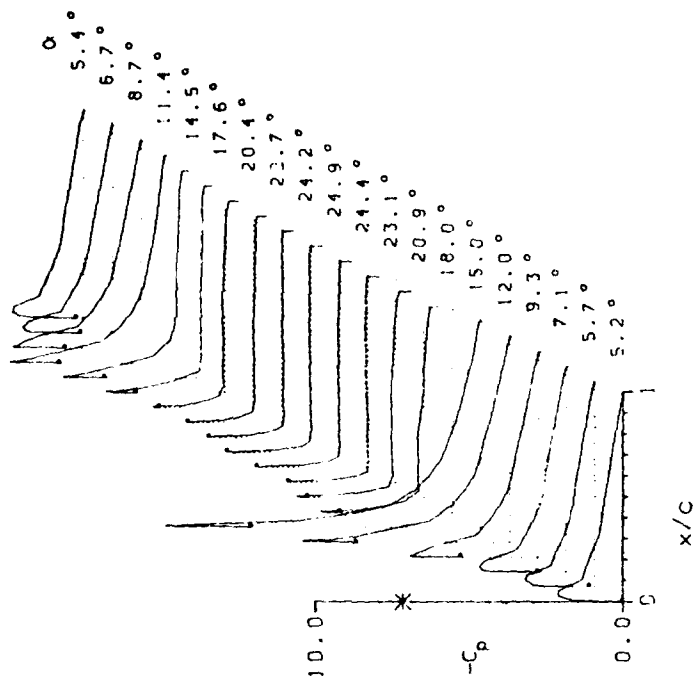
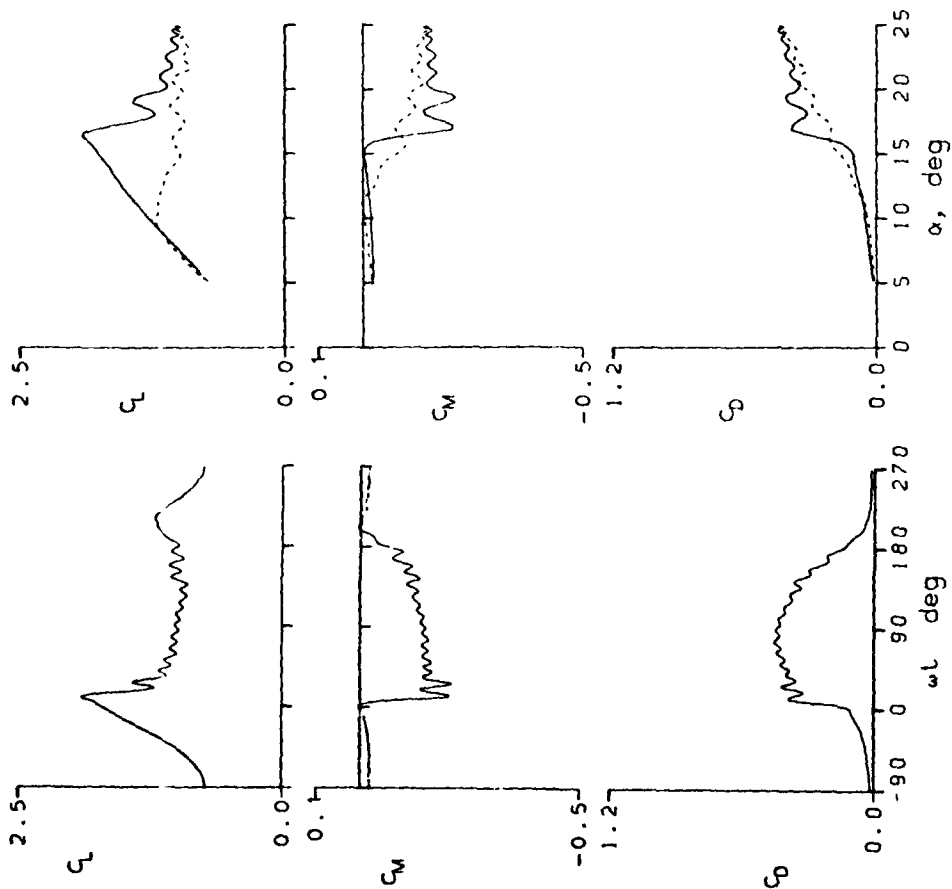


Figure 15.- Continued.

SIKORSKY SC-1045 AIRFOIL
 FRAME : 33222 $A_0 = 14.82^\circ$ $h = 0.049$
 $Re = 3.89 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.296$
 $C_{Lmax} = 2.10$ $C_{Mmin} = -0.29$ $C_{Dmax} = 0.53$
 $\alpha_{Lmax} = 18.1^\circ$ $\zeta = 0.216$ $M_{max} = 1.389$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 10.8$ $\alpha_{Mmax} = 16.2^\circ$

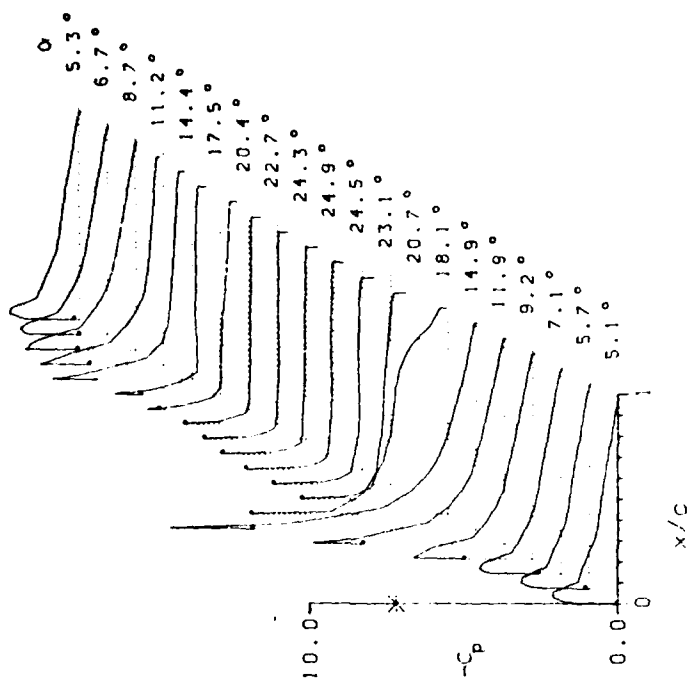
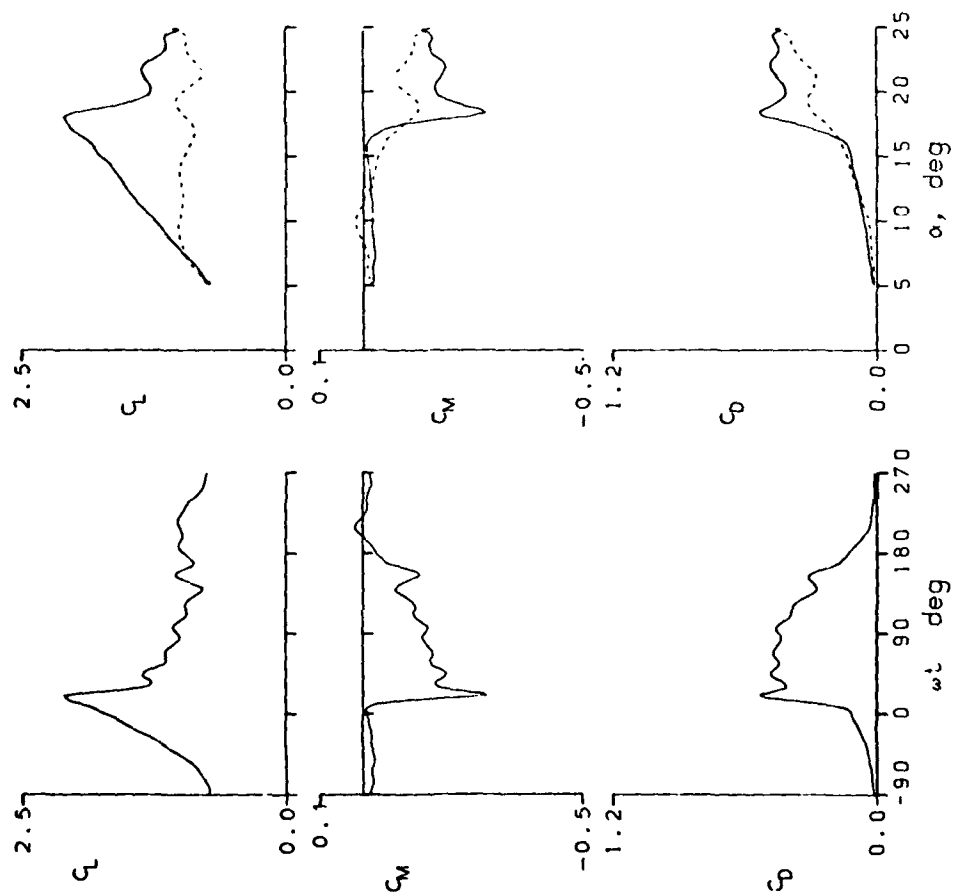


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 33300 $A_0 = 14.83^\circ$ $\mu = 0.100$
 $Re = 3.82 \text{ E}6$ $A_1 = 9.87^\circ$ $M = 0.292$
 $C_{Lmax} = 2.31$ $C_{Mmin} = -0.41$ $C_{Dmax} = 0.79$
 $\alpha_{Lmax} = 20.5^\circ$ $\zeta = 0.544$ $M_{max} = 1.391$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 11.1$ $\alpha_{Mmax} = 16.8^\circ$

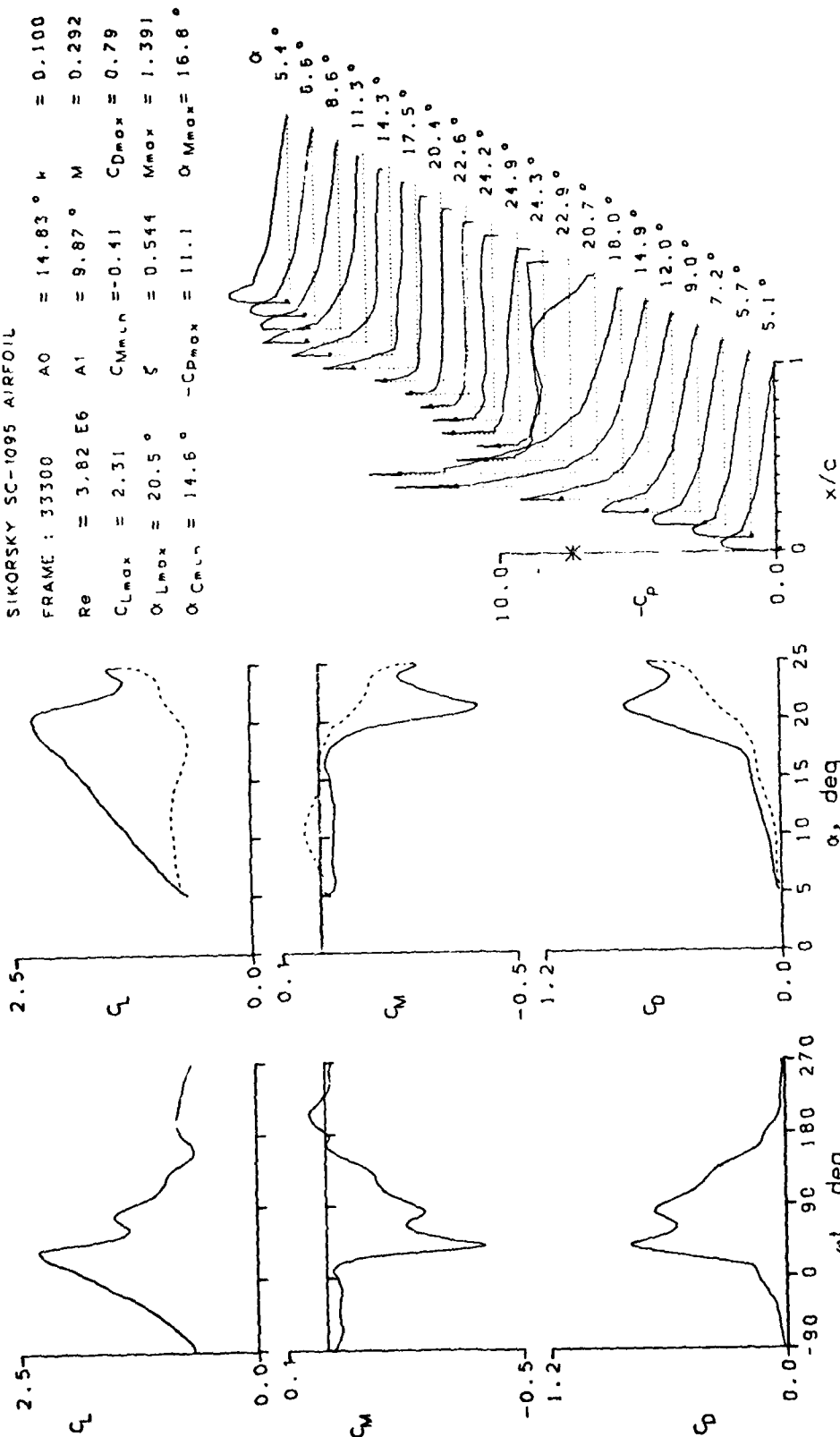


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL TRIP

FRAME : 34306 $A_0 = 14.81^\circ$ $k = 0.050$

$Re = 3.88 E6$ $A_1 = 9.91^\circ$ $M = 0.292$

$C_{Lmax} = 2.06$ $C_{Mmin} = -0.25$ $C_{Dmax} = 0.50$

$\alpha_{Lmax} = 17.2^\circ$ $\xi = 0.290$ $M_{max} = 1.256$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 15.6^\circ$

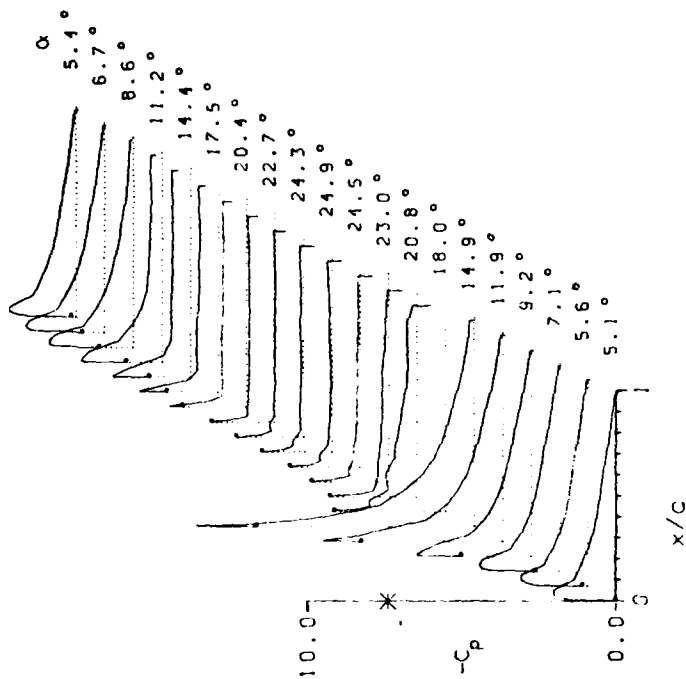
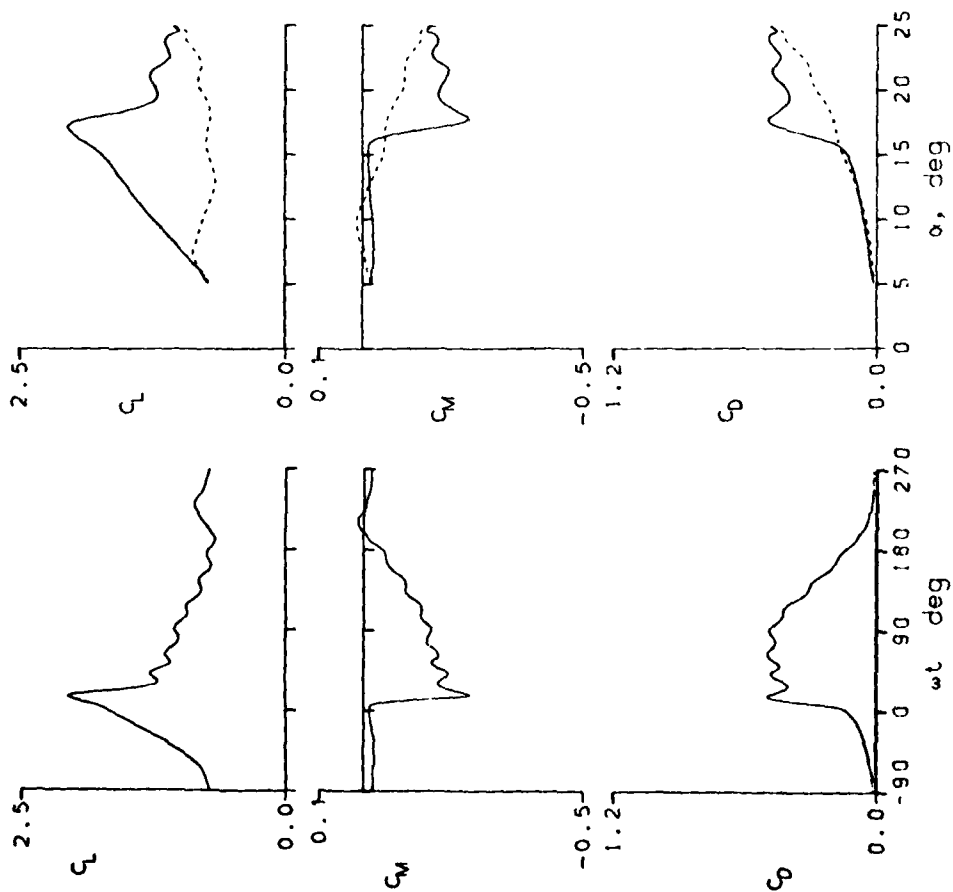


Figure 15.- Continued.

SIKORSKY SC-1095 : RFOIL

FRAME : 34308	A0 = 14.82°	k = 0.102	TRIP
Re = 3.80 E6	A1 = 9.89°	M = 0.288	
CLmax = 2.38	CMmin = -0.41	CDmax = 0.80	
Q Lmax = 25.7°	ξ = 0.526	Wav = 1.329	
Q CMmin = 14.4°	-CDmax = 10.9	Q Mmax = 17.2°	

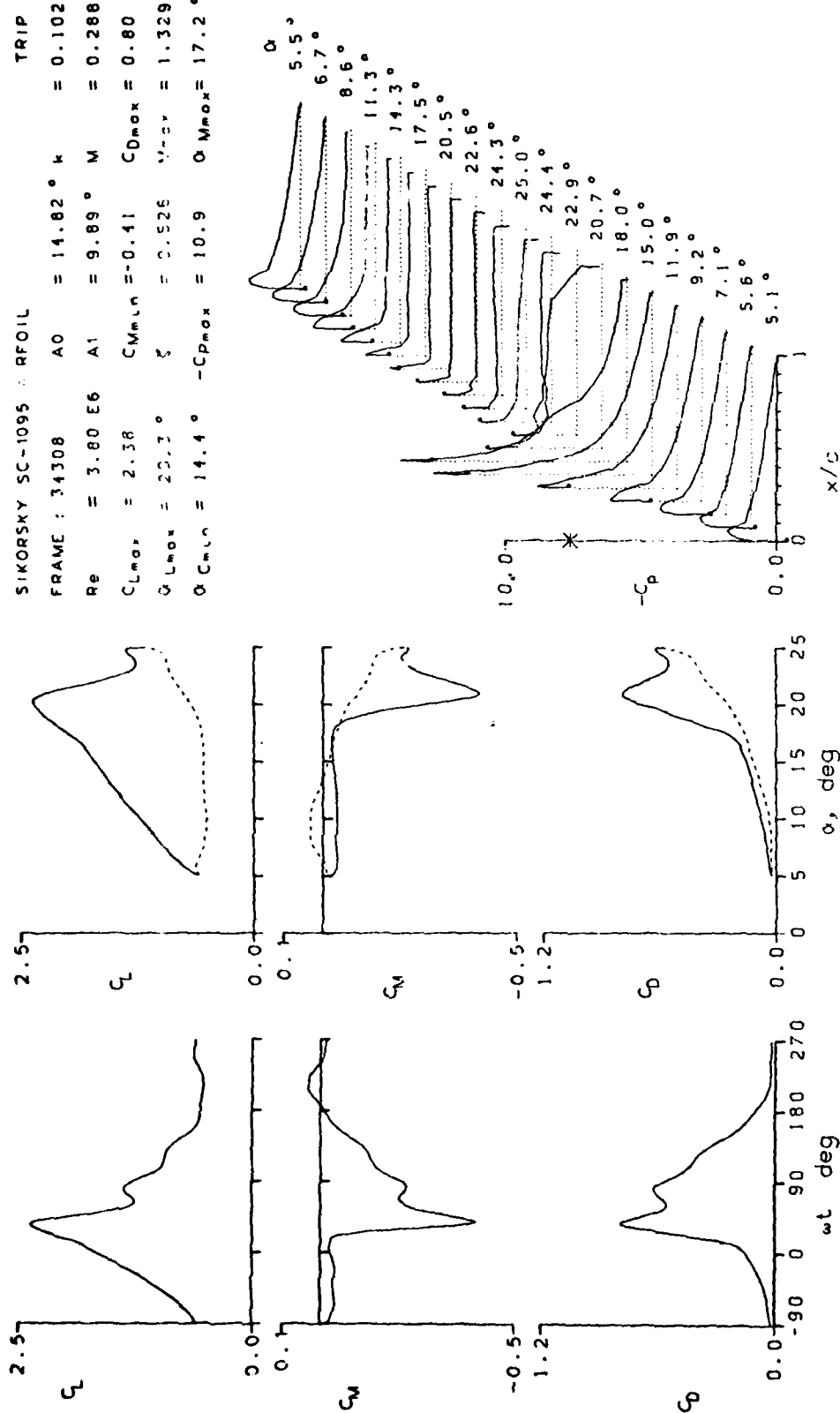


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 34318	A0 = 14.81°	k = 0.050	TRIP
Re = 2.48 E6	A1 = 9.91°	M = 0.184	
CLmax = 2.15	CMmin = -0.32	CDmax = 0.64	
αLmax = 18.9°	ξ = 0.255	Mmax = 0.702	
αCMmin = 14.4°	-CPmax = 11.2	αMmax = 17.2°	

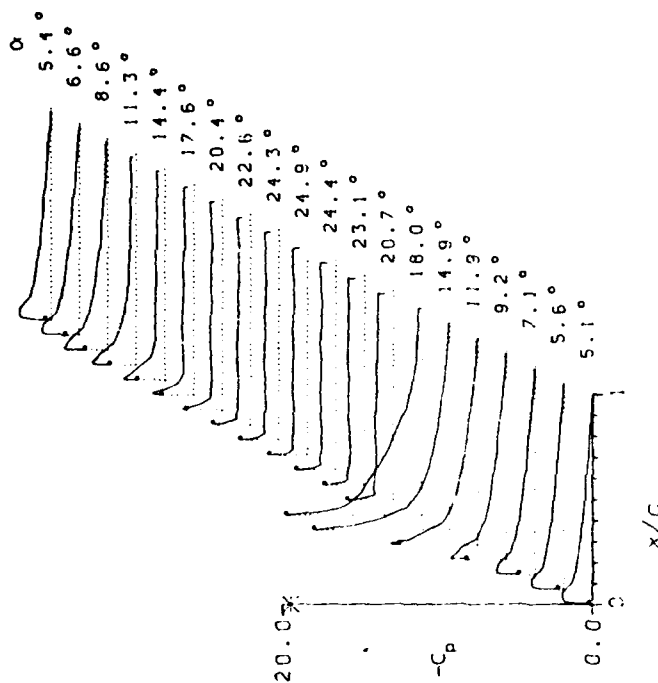
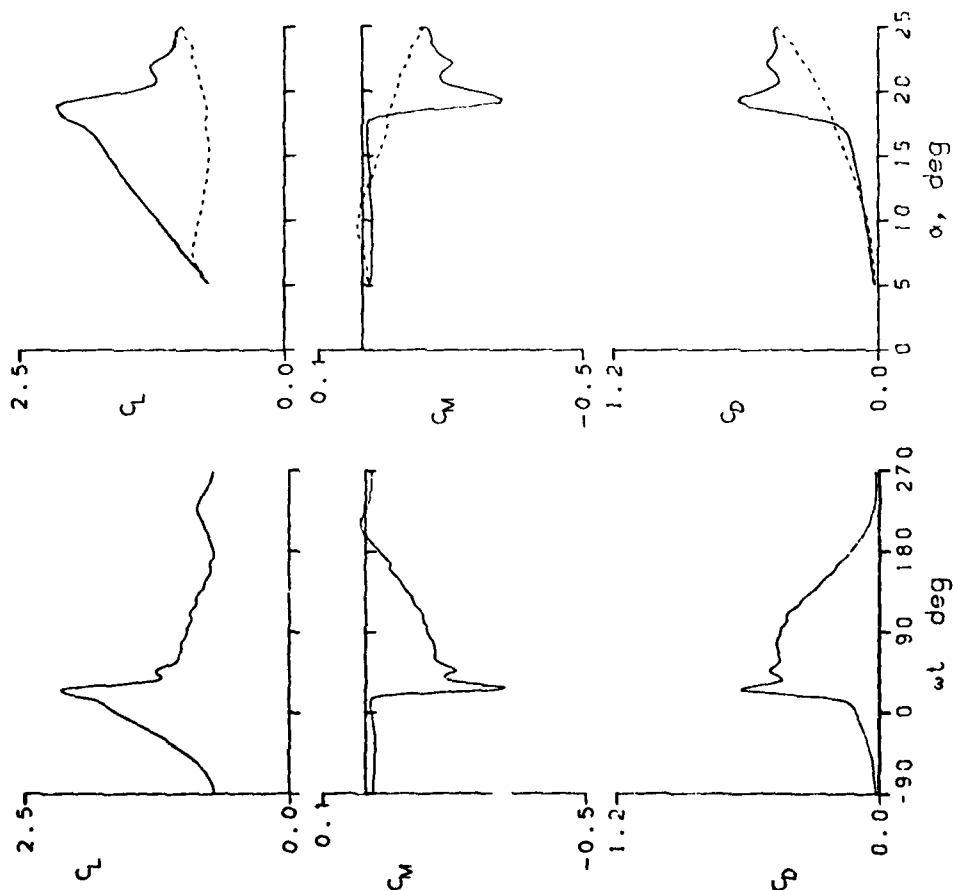


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 34321 $A_0 = 14.79^\circ$ $k = 0.100$
 $Re = 2.48 E6$ $A_1 = 9.93^\circ$ $M = 0.184$
 $C_{Lmax} = 2.44$ $C_{Mmin} = -0.45$ $C_{Dmax} = 0.91$
 $\alpha_{Lmax} = 21.3^\circ$ $\xi = 0.387$ $M_{max} = 0.754$
 $\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 12.6$ $\alpha_{Mmax} = 18.5^\circ$

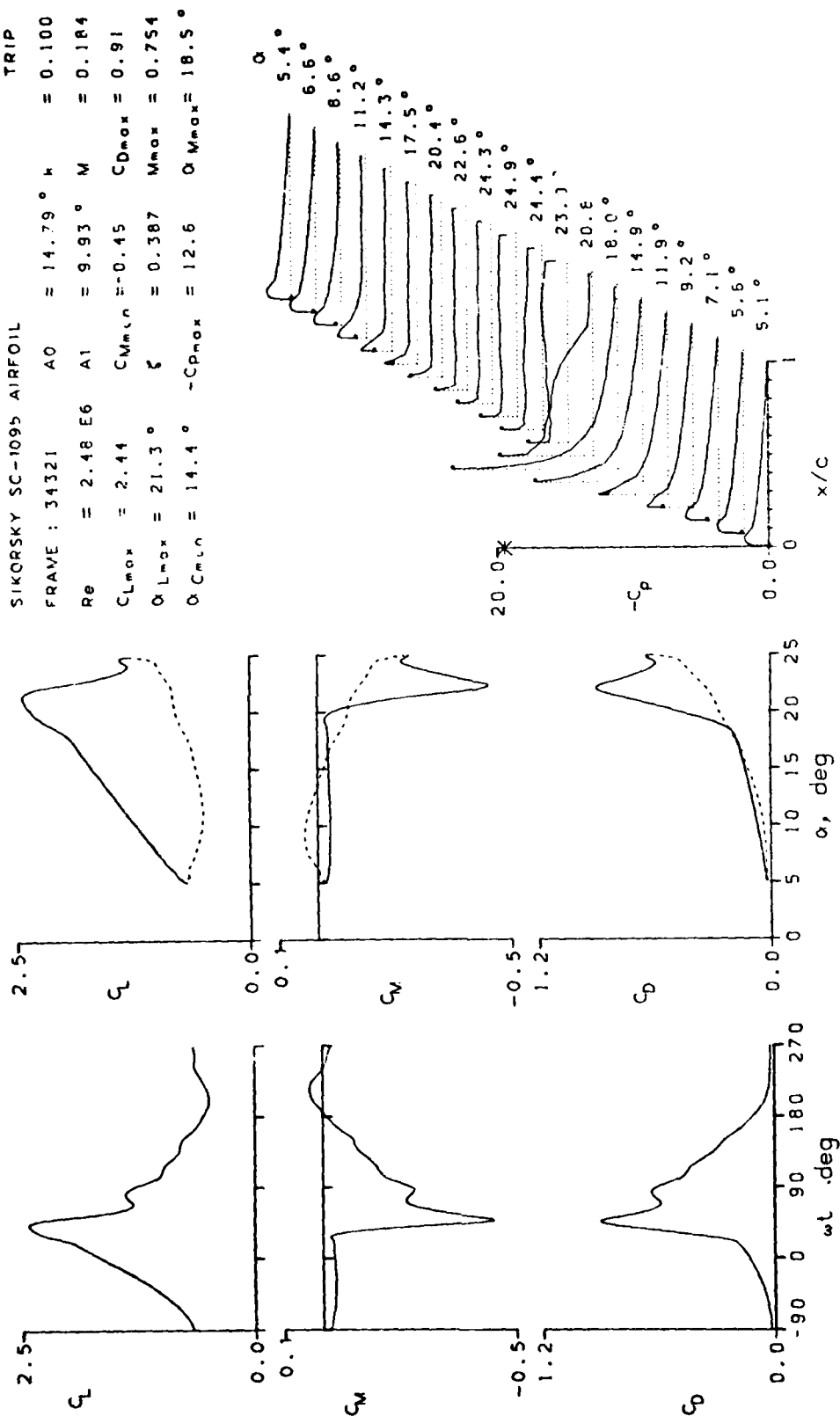


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 34323	$\Delta D = 14.81^\circ$	$k = 0.150$	TRIP
$Re = 2.47 \text{ E} 6$	$A1 = 9.90^\circ$	$M = 0.184$	
$CL_{max} = 2.58$	$CM_{min} = -0.51$	$CD_{max} = 1.08$	
$\alpha_{L_{max}} = 23.1^\circ$	$\xi = 0.208$	$M_{max} = 0.784$	
$\alpha_{C_{min}} = 14.4^\circ$	$-CD_{max} = 13.4$	$\alpha_{M_{max}} = 19.7^\circ$	

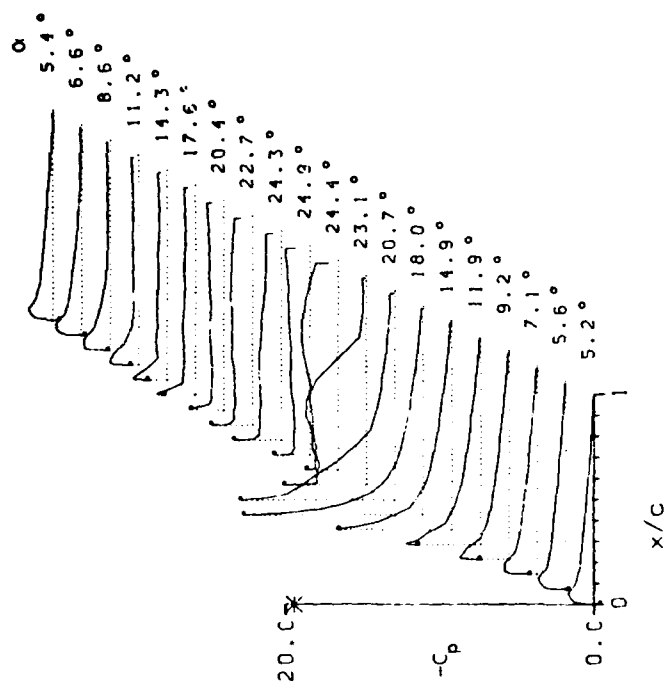
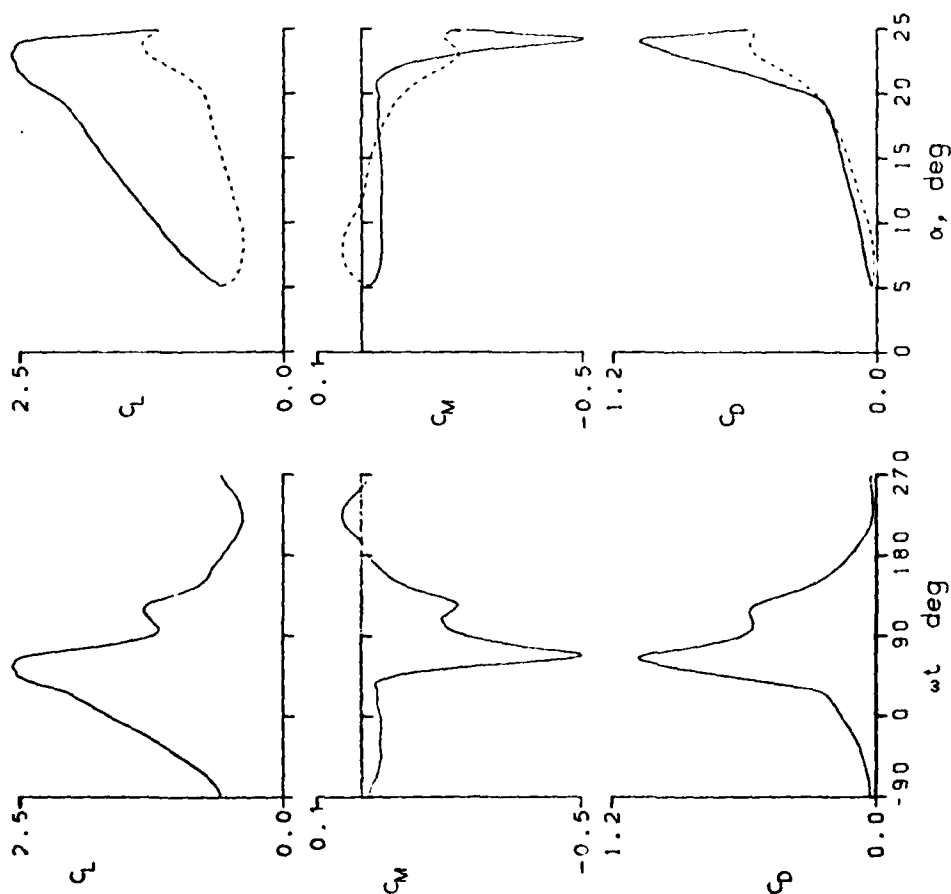


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 34409 $A_0 = 14.91^\circ$ $k = 0.156$
 $Re = 3.60 \times 10^6$ $A_1 = 9.87^\circ$ $M = 0.279$
 $C_{L_{max}} = 2.45$ $C_{M_{min}} = -0.47$ $C_{D_{max}} = 0.96$
 $\alpha_{L_{max}} = 21.4^\circ$ $\xi = 0.452$ $M_{max} = 1.287$
 $\alpha_{C_{min}} = 14.6^\circ$ $-C_{D_{max}} = 11.2$ $\alpha_{M_{max}} = 18.4^\circ$

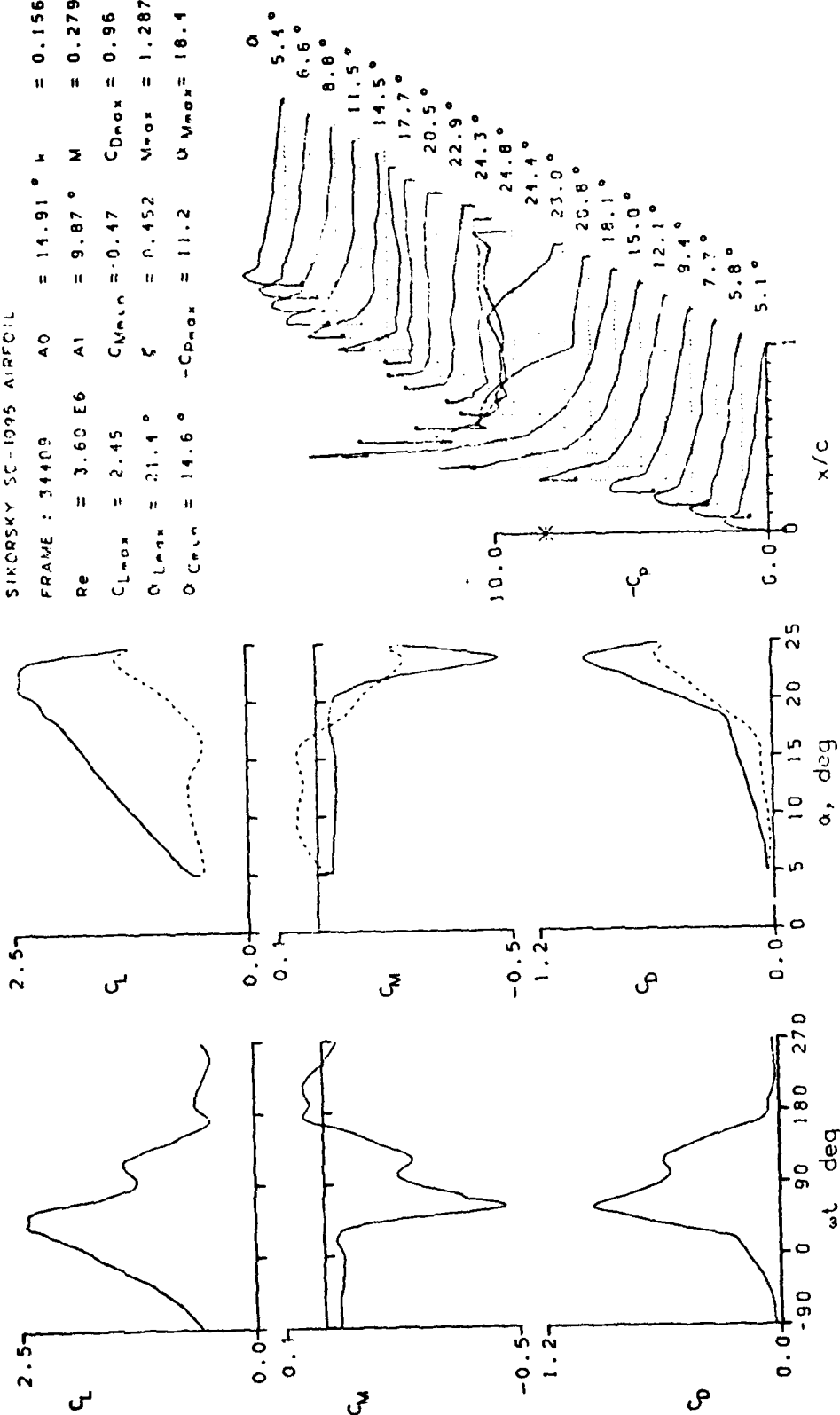


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 34418 $A_0 = 4.25^\circ$ $k = 0.098$
 $Re = 3.86 \text{ E}6$ $A_1 = 10.11^\circ$ $M = 0.302$
 $C_{L_{max}} = 1.69$ $C_{M_{min}} = -0.07$ $C_{D_{max}} = 0.13$
 $\alpha_{L_{max}} = 14.5^\circ$ $\xi = 0.246$ $M_{max} = 1.296$
 $\alpha_{C_{min}} = 3.6^\circ$ $-C_{D_{max}} = 9.7$ $\alpha_{M_{max}} = 14.5^\circ$

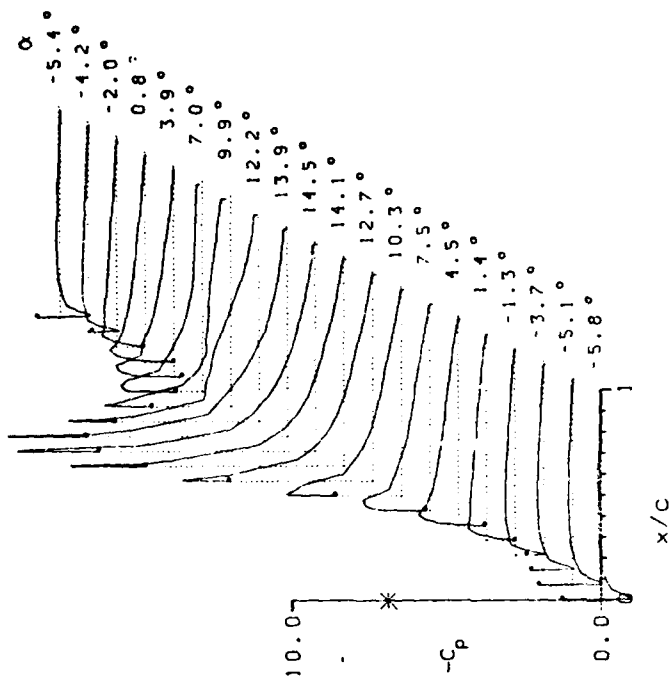
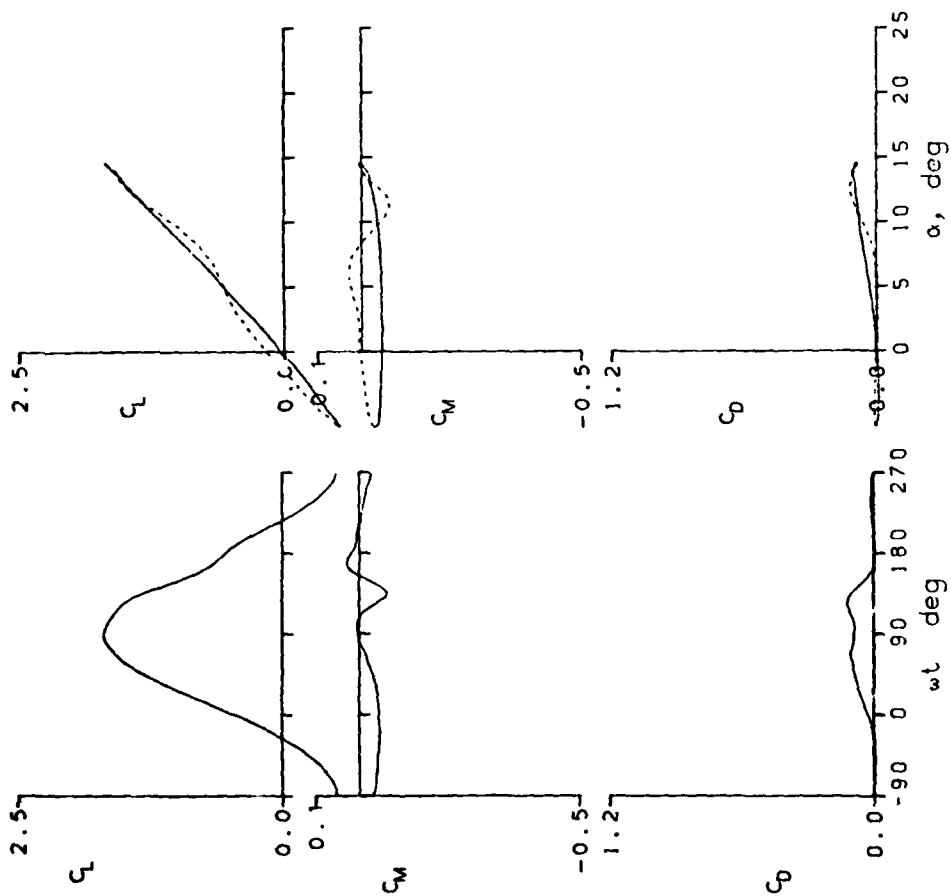


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37023 $A_0 = 9.73^\circ$ $k = 0.025$
 $Re = 3.94 \text{ E}6$ $A' = 9.95^\circ$ $M = 0.300$
 $C_{Lmax} = 1.83$ $C_{Mmin} = -0.21$ $C_{Dmax} = 0.35$
 $\alpha_{Lmax} = 15.6^\circ$ $\xi = 0.041$ $M_{max} = 1.309$
 $\alpha_{Cmin} = 9.2^\circ$ $-C_{Pmax} = 9.9$ $\alpha_{Mmax} = 15.0^\circ$

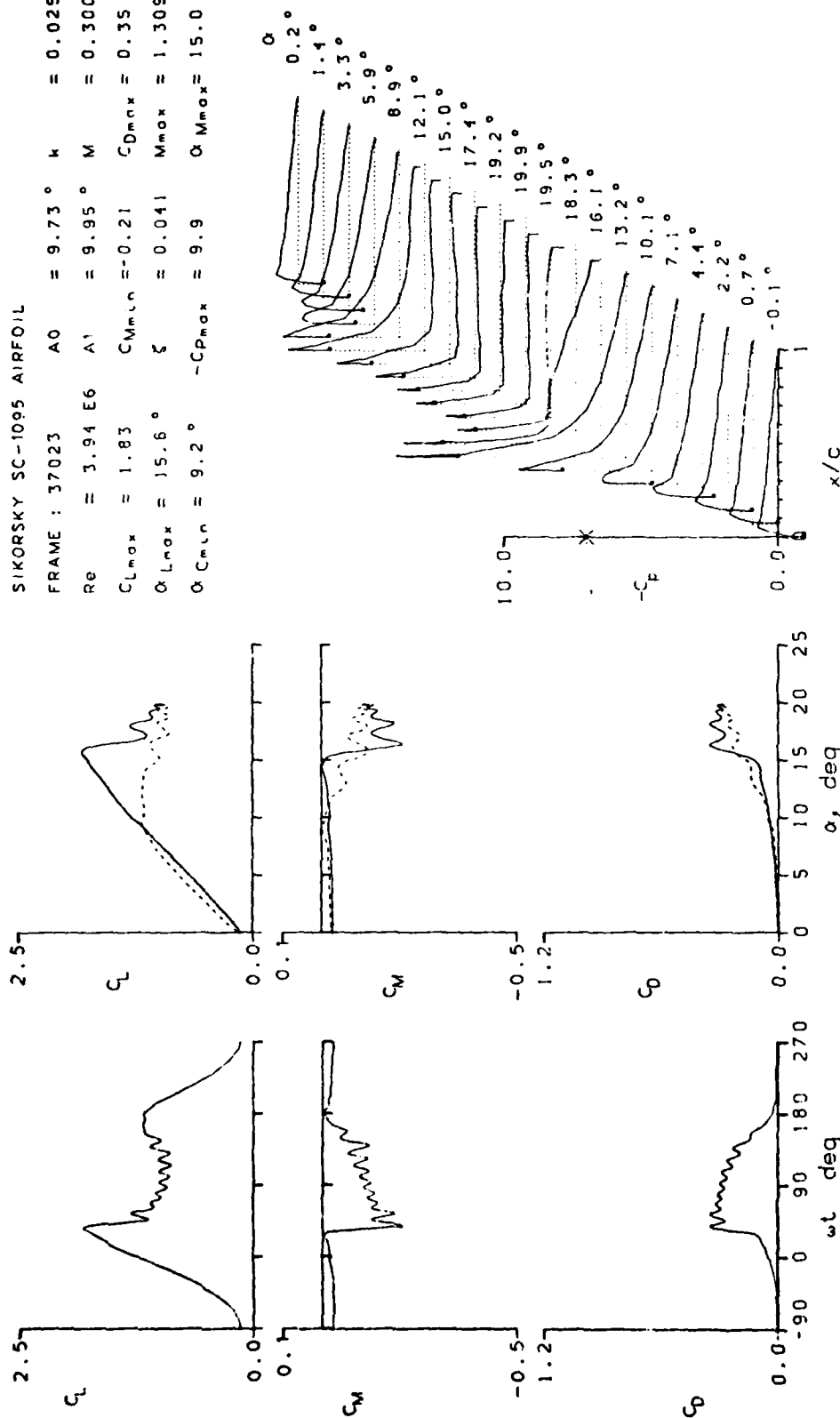


Figure 15.- Continued.

SIKORSKY SC-109S AIRFOIL

FRAME : 37101	A0 = 9.77°	k = 0.050
Re = 3.93 E6	A1 = 9.93°	M = 0.301
CLmax = 2.04	CMmin = -0.28	CDmax = 0.47
OLmax = 17.1°	ζ = 0.121	Mmax = 1.369
OLmin = 9.3°	-CDmax = 10.3	OLmax = 15.8°

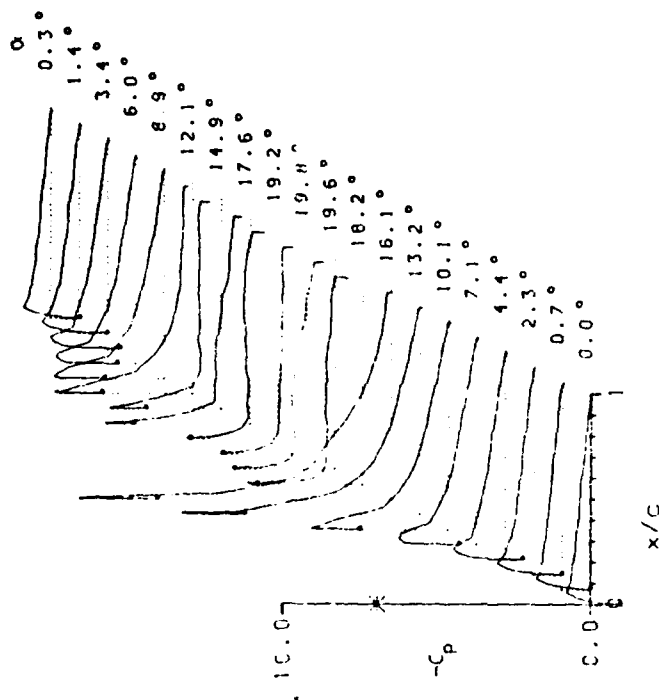
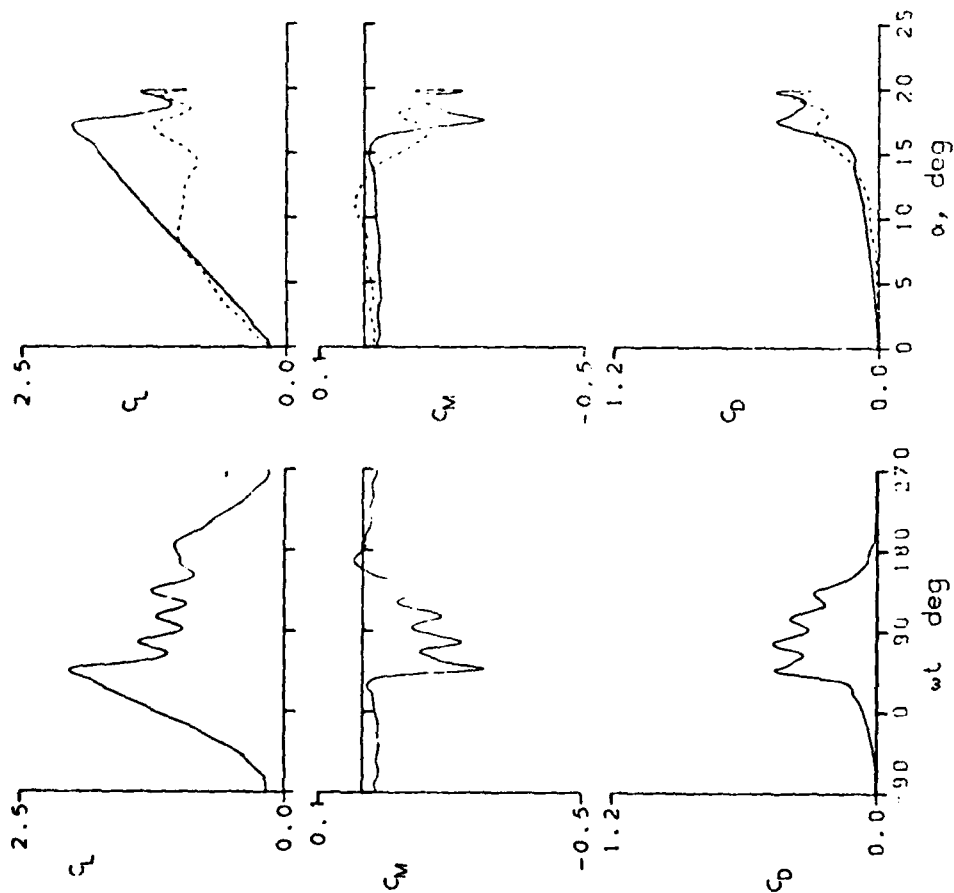


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37107 $A_0 = 9.78^\circ$ $\mu = 0.099$
 $R_0 = 3.92 \text{ E6}$ $A_1 = 9.90^\circ$ $M = 0.102$
 $C_{L_{\max}} = 2.18$ $C_{M_{\min}} = -0.36$ $C_{D_{\max}} = 0.64$
 $\alpha_{L_{\max}} = 18.7^\circ$ $\xi = 0.275$ $M_{\max} = 1.412$
 $\alpha_{C_{M_{\min}}} = 9.3^\circ$ $-C_{D_{\max}} = 10.5$ $\alpha_{M_{\max}} = 16.4^\circ$

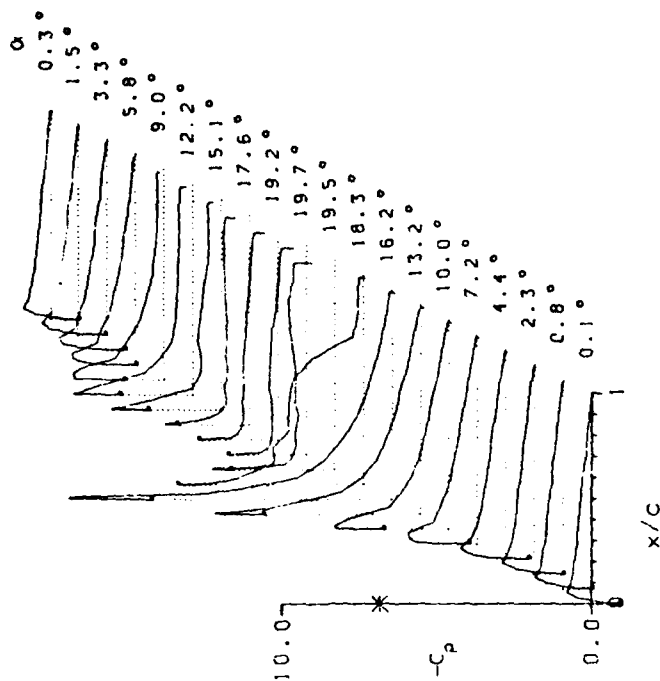
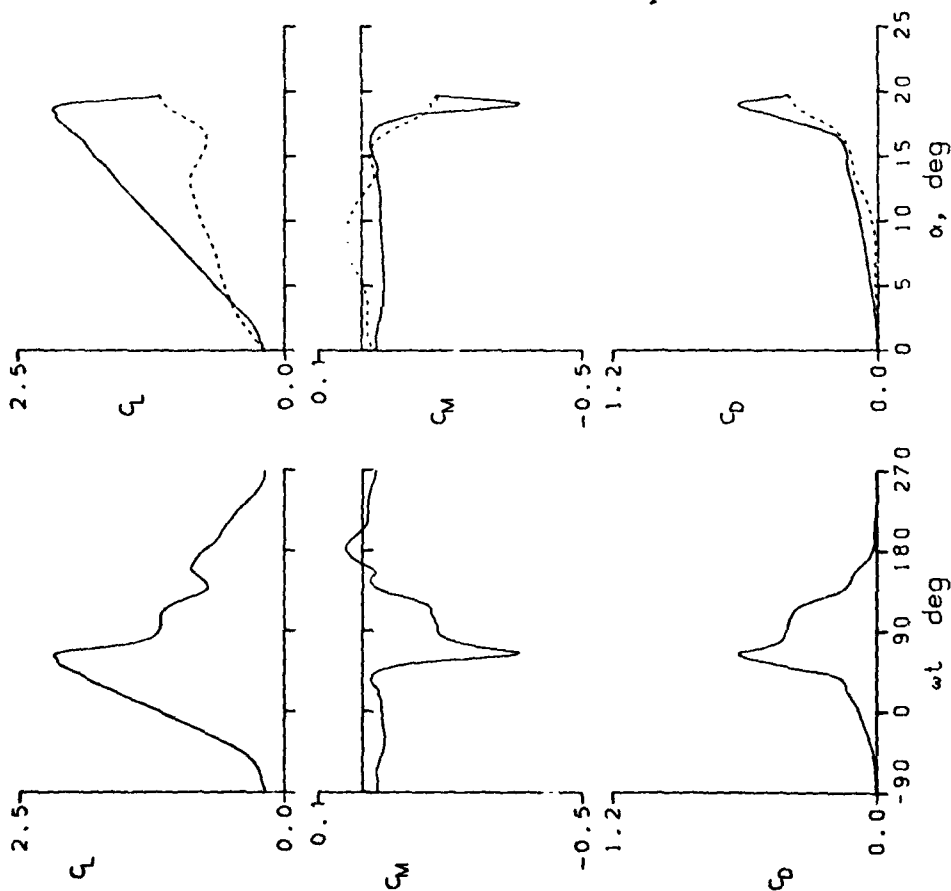


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37109 A0 = 9.92° μ = 0.148
 Re = 3.89 E6 A1 = 9.90° M = 0.302
 C_{Lmax} = 2.23 C_{Mmin} = -0.40 C_{Dmax} = 0.71
 α_{Lmax} = 19.6° ξ = 0.238 M_{max} = 1.427
 α_{Cmin} = 9.4° $-C_{Dmax}$ = 10.6 α_{Mmax} = 17.2°

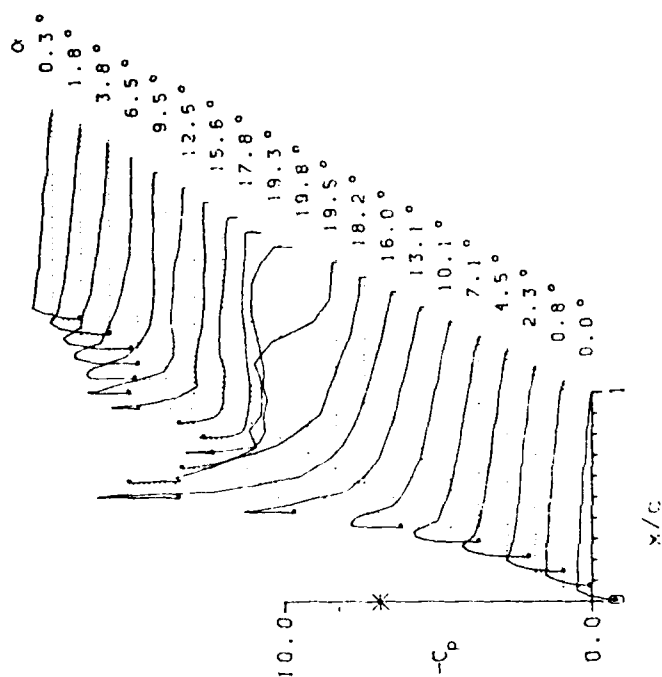
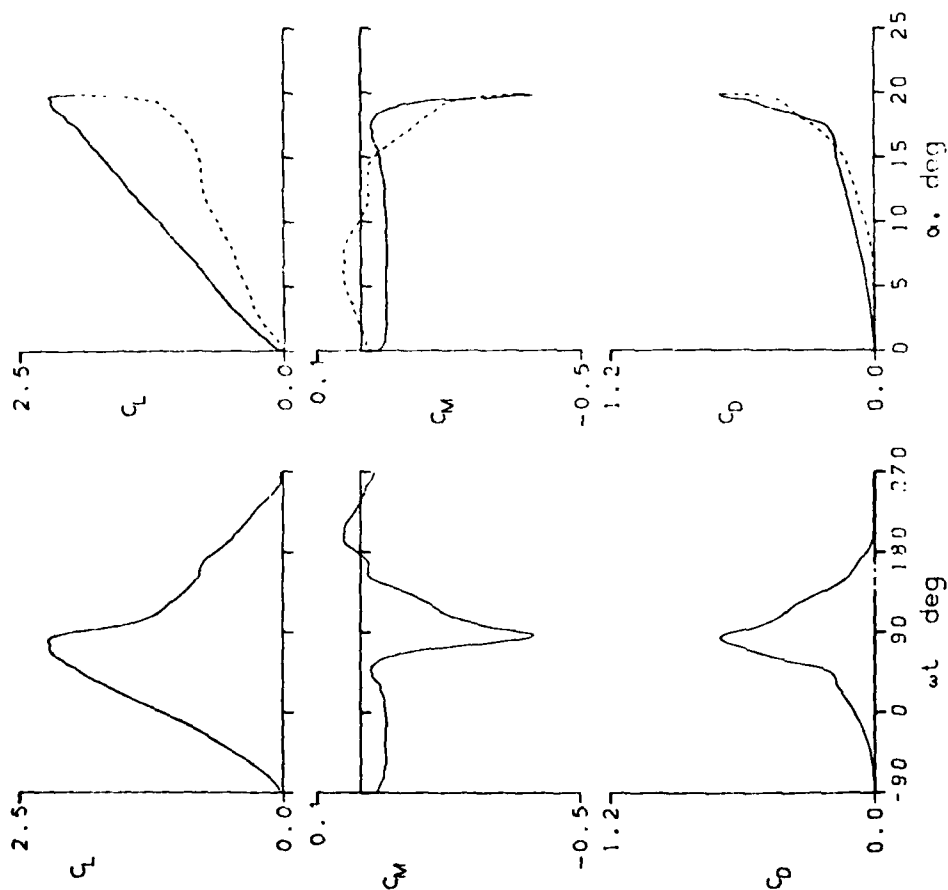


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37119 $A_0 = 3.90^\circ$ $k = 0.049$
 $Re = 3.87 \text{ E}6$ $A_1 = 10.13^\circ$ $M = 0.302$
 $C_{Lmax} = 1.65$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.14$
 $\alpha_{Lmax} = 14.1^\circ$ $\xi = 0.104$ $M_{max} = 1.276$
 $\alpha_{Cmin} = 3.4^\circ$ $-C_{Pmax} = 9.5$ $\alpha_{Mmax} = 14.2^\circ$

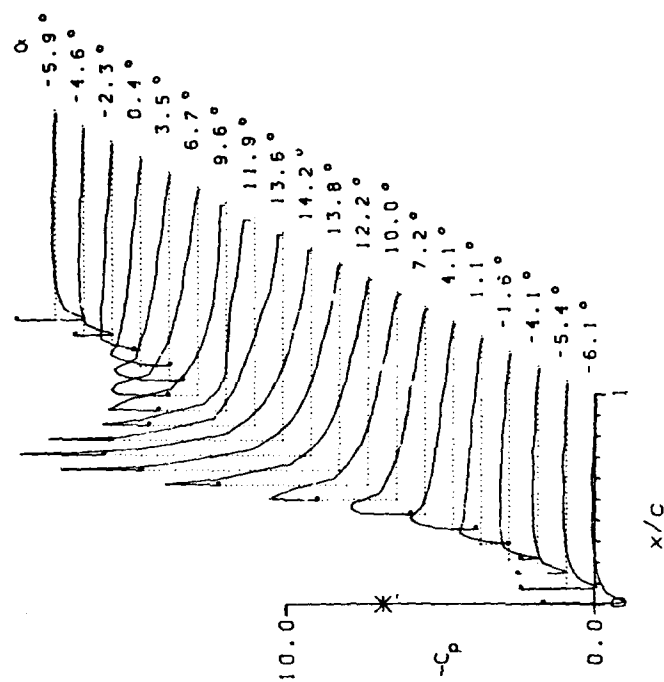
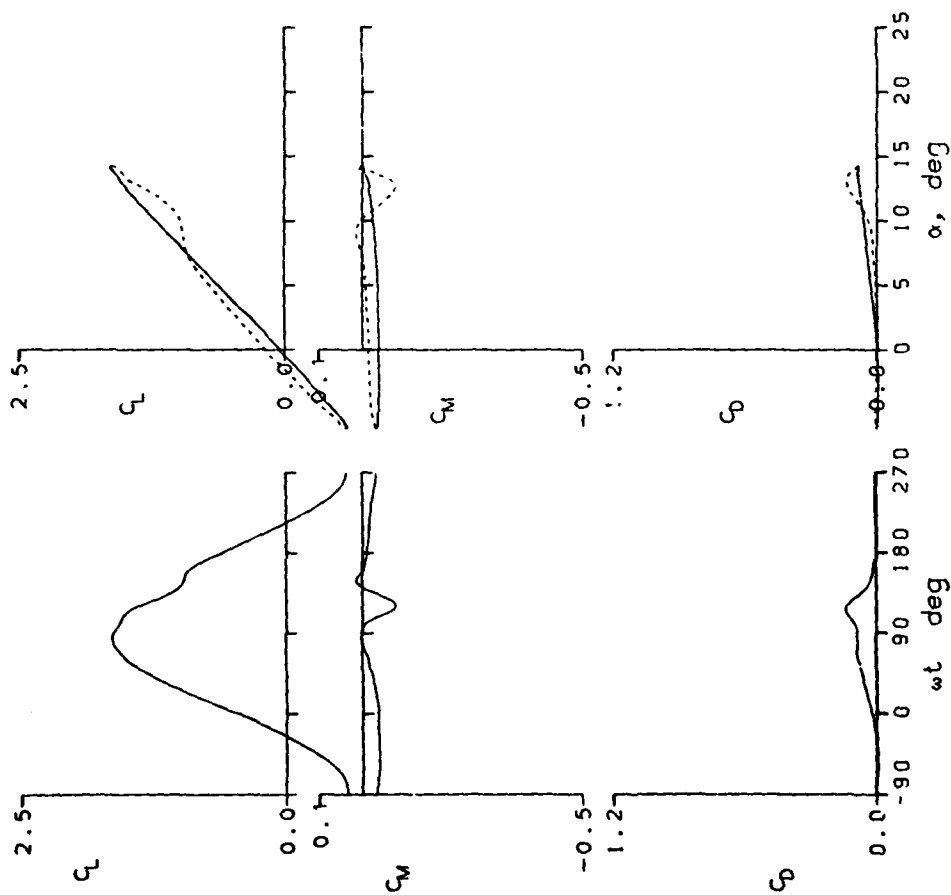


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37121 $A_0 = 3.93^\circ$ $k = 0.098$
 $R_9 = 3.86 \text{ E6}$ $A_1 = 10.11^\circ$ $M = 0.303$
 $C_{L_{max}} = 1.68$ $C_{y_{min}} = -0.06$ $C_{D_{max}} = 0.11$
 $\alpha_{L_{max}} = 14.2^\circ$ $\xi = 0.313$ $M_{max} = 1.304$
 $\alpha_{C_{min}} = 3.3^\circ$ $-C_{P_{max}} = 9.6$ $\alpha_{M_{max}} = 14.2^\circ$

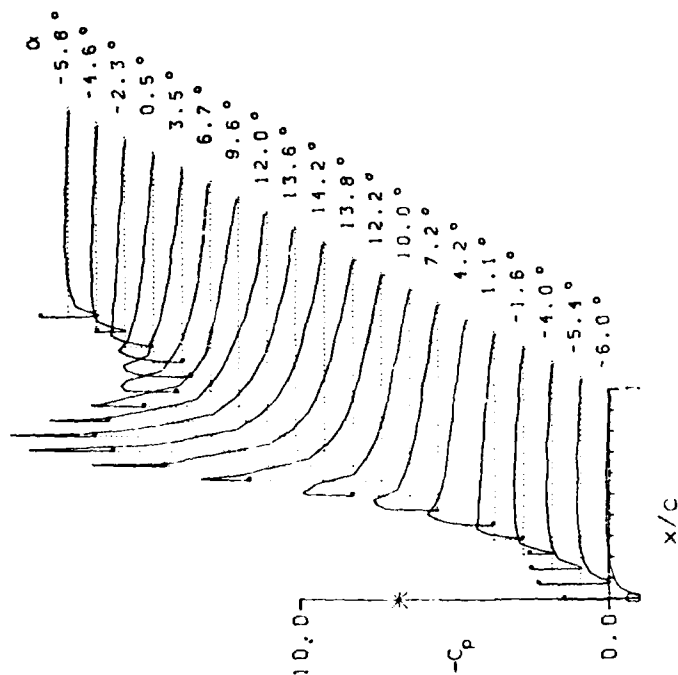
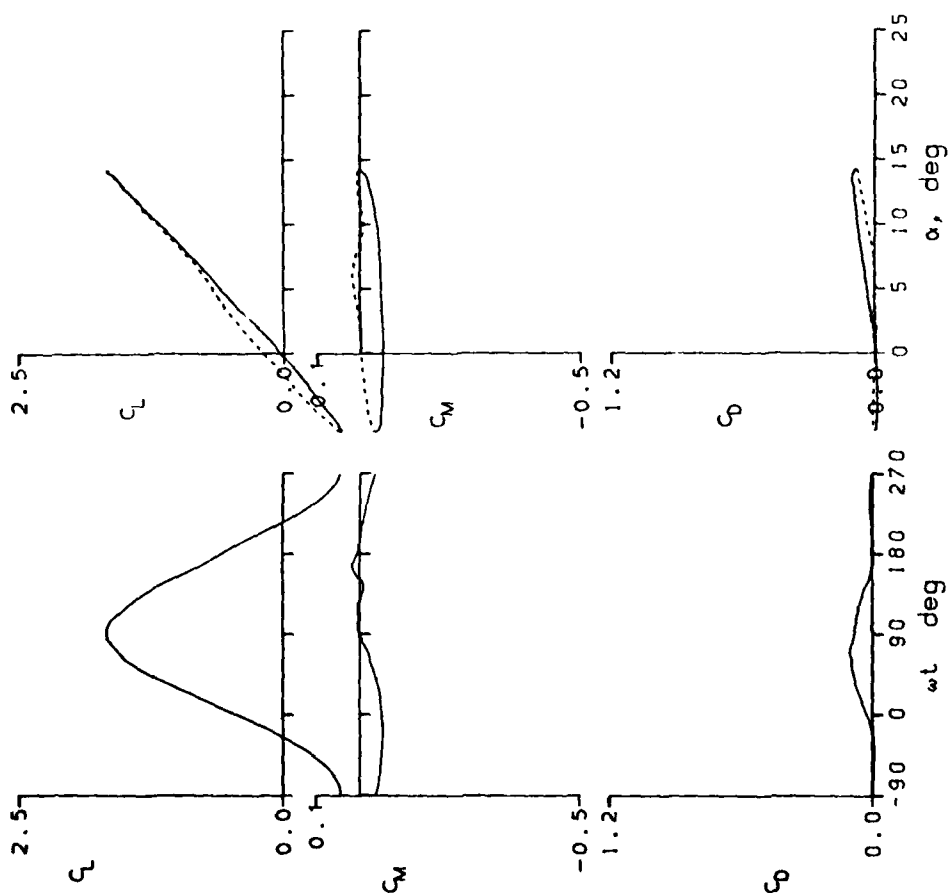


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37123 $A_0 = 3.88^\circ$ $h = 0.147$
 $Re = 3.84 \text{ E}6$ $A_1 = 10.11^\circ$ $M = 0.302$
 $C_{Lmax} = 1.70$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.12$
 $\alpha_{Lmax} = 14.1^\circ$ $\xi = 0.508$ $M_{max} = 1.327$
 $\alpha_{Cmin} = 3.4^\circ$ $-C_{Dmax} = 9.9$ $\alpha_{Mmax} = 13.8^\circ$

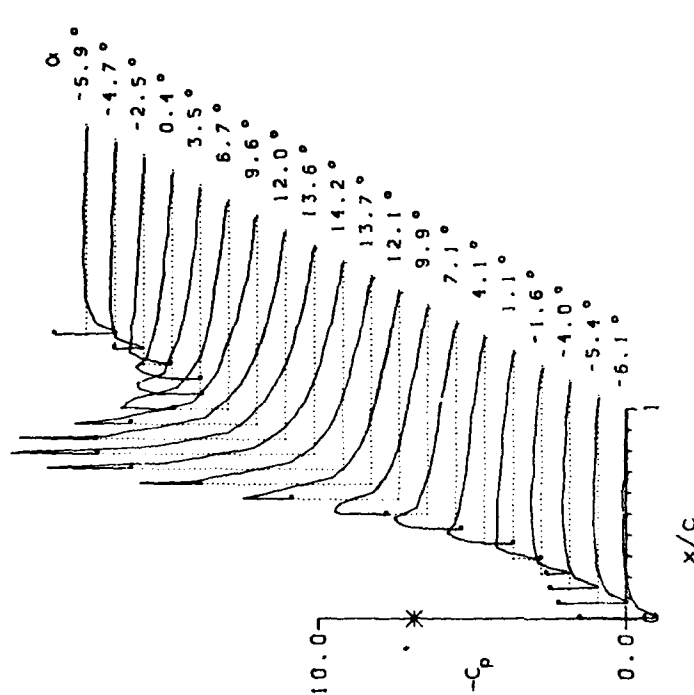
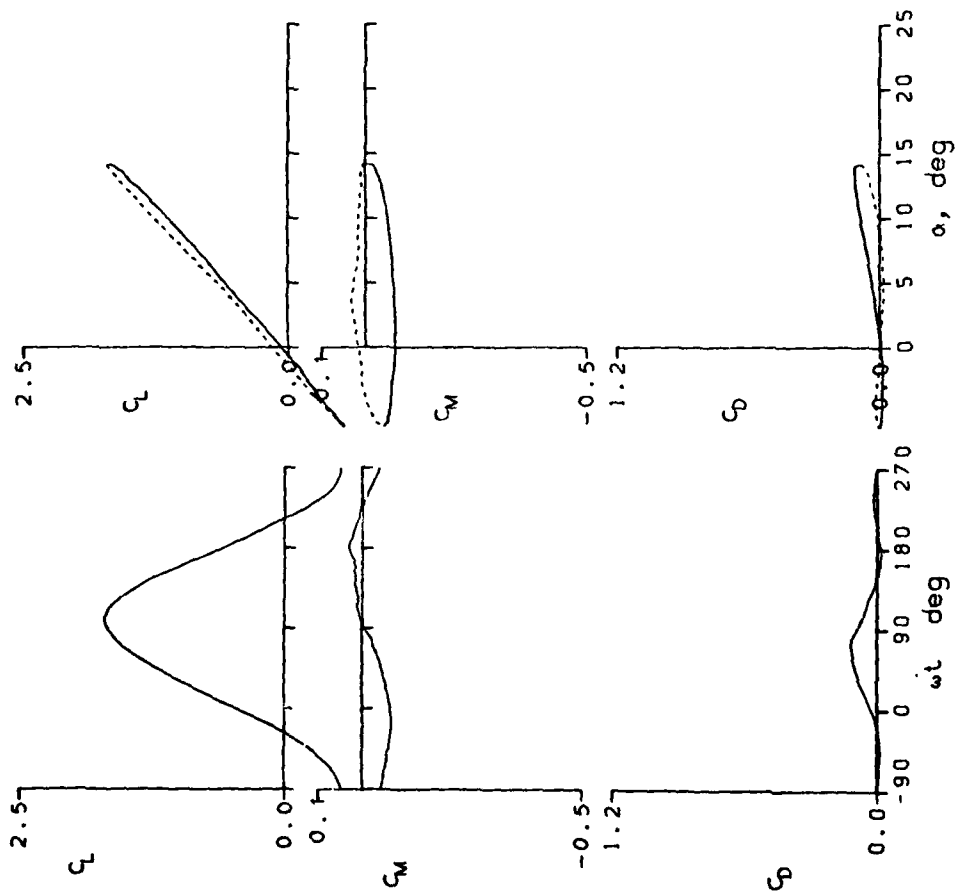


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37207 $A_0 = 9.94^\circ$ $k = 0.024$
 $Re = 3.78 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.61$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.24$
 $\alpha_{Lmax} = 14.3^\circ$ $\xi = -0.241$ $M_{max} = 1.247$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 9.2$ $\alpha_{Mmax} = 14.2^\circ$

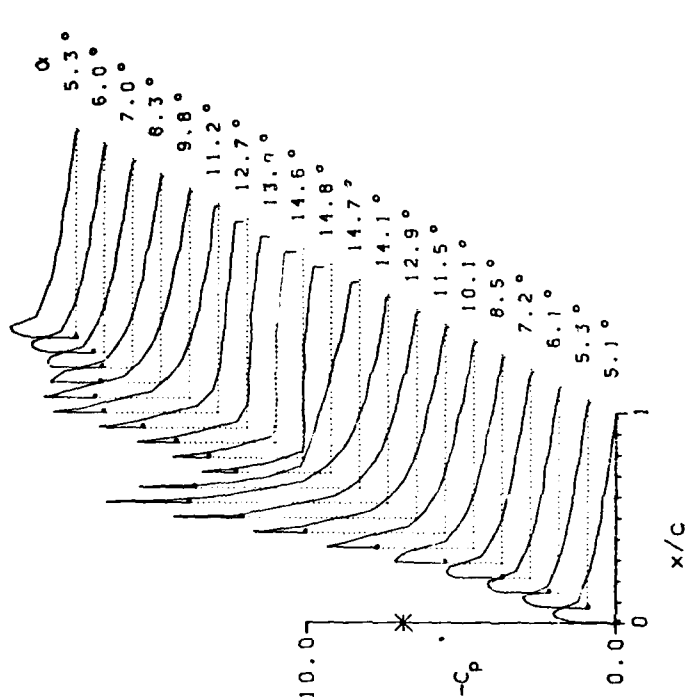
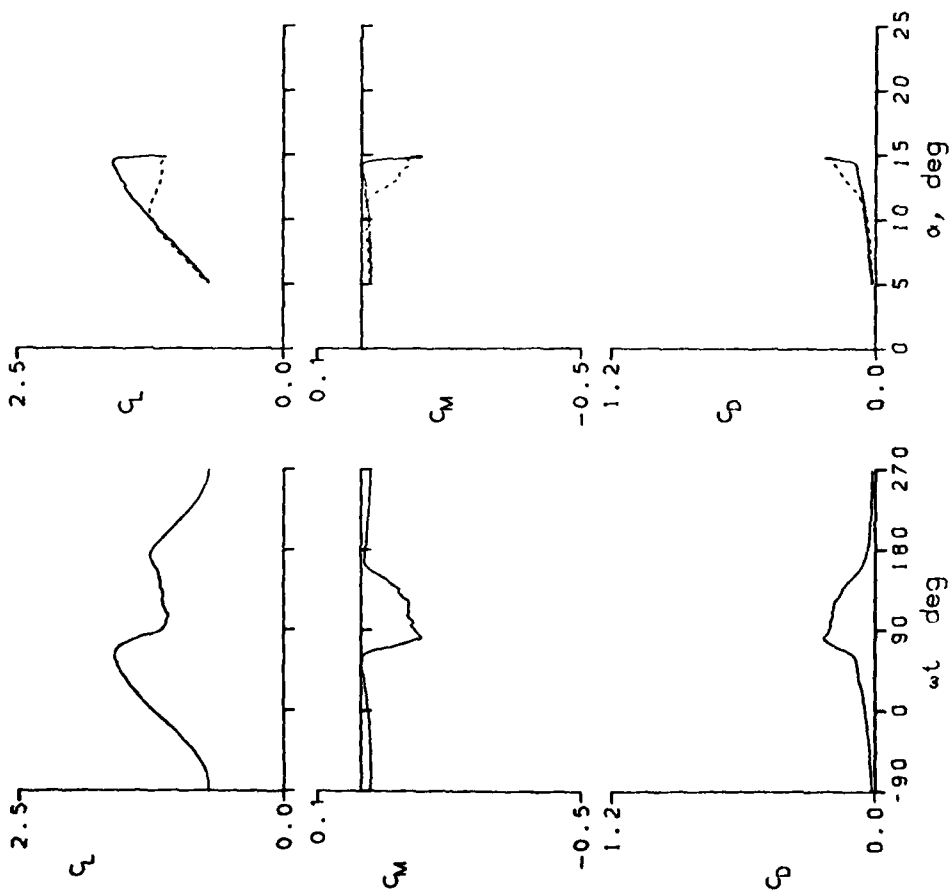


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37208 $A_0 = 9.93^\circ$ $k = 0.049$
 $R_0 = 3.75 E6$ $A_1 = 4.91^\circ$ $M = 0.301$
 $C_{Lmax} = 1.67$ $C_{Mmin} = -0.16$ $C_{Dmax} = 0.26$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = -0.152$ $M_{max} = 1.287$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{pmax} = 9.6$ $\alpha_{Mmax} = 14.6^\circ$

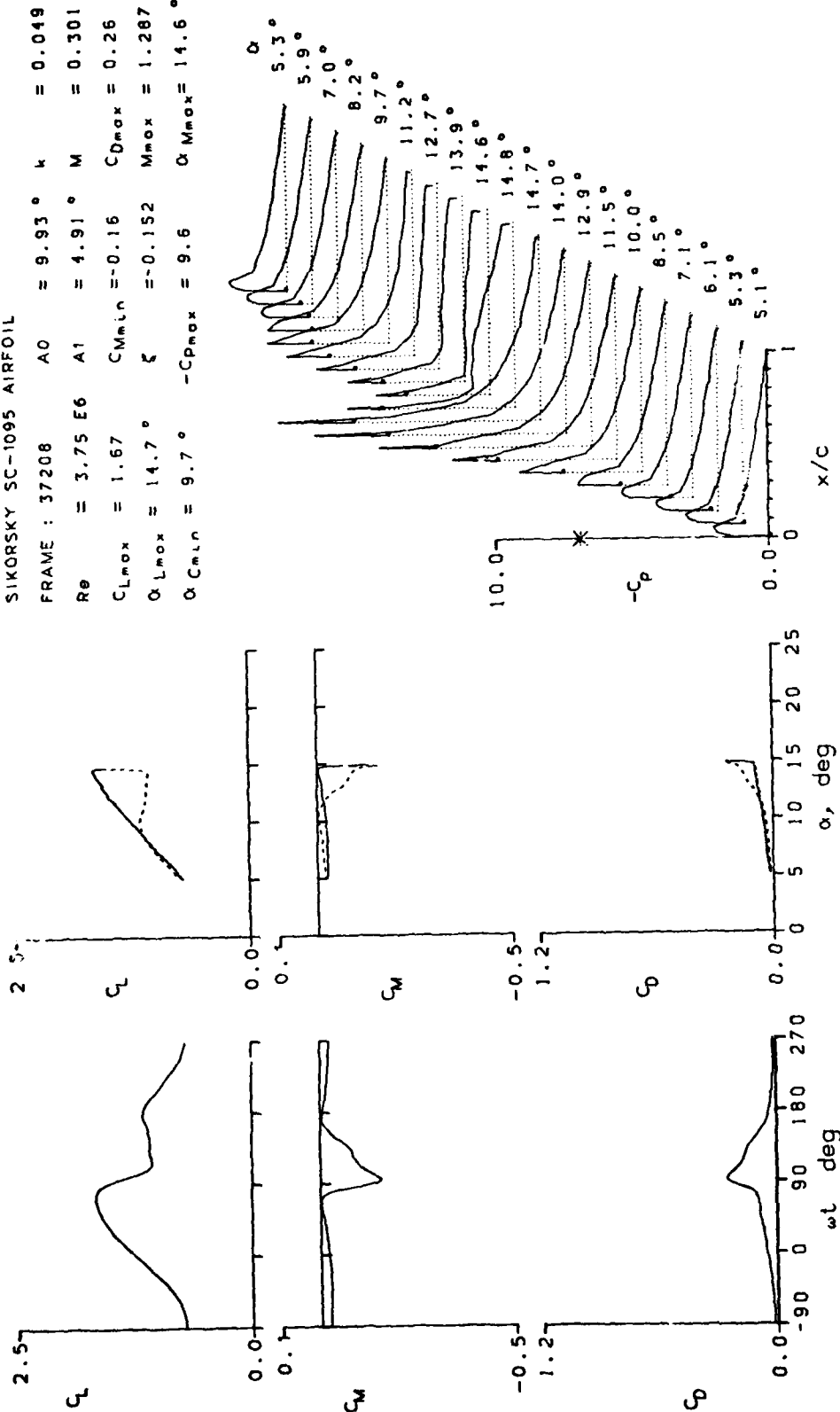


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37210	A0 = 9.92°	k = 0.097
Re = 3.76 E6	A1 = 4.91°	M = 0.302
CLmax = 1.73	CMmin = -0.16	CDmax = 0.27
αLmax = 14.8°	ξ = -0.039	Mmax = 1.332
αCmin = 9.7°	-CPmax = 9.9	αMmax = 14.8°

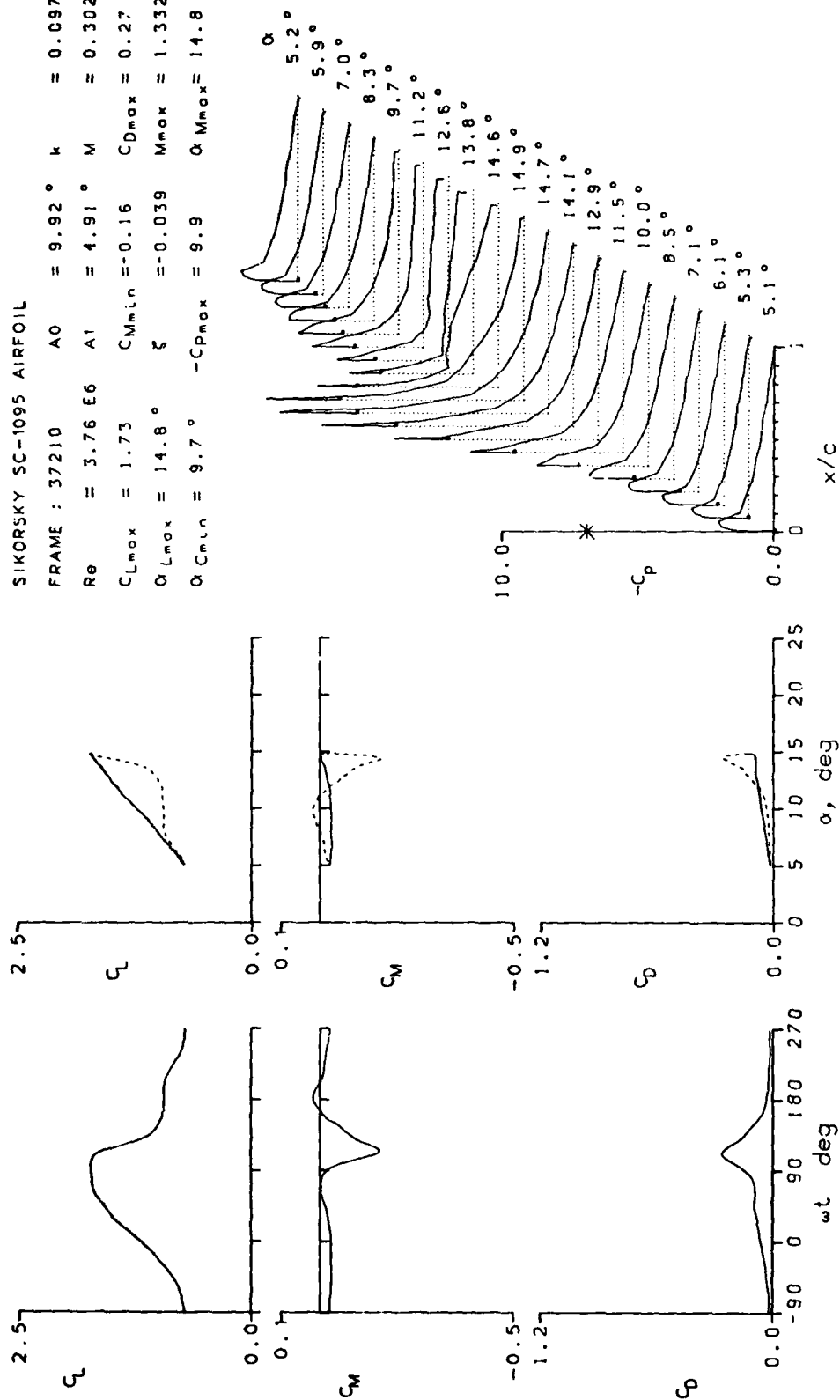


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37213	A0 = 9.93°	k = 0.145
Re = 3.78 E6	A1 = 4.90°	M = 0.303
C _{Lmax} = 1.77	C _{Mmin} = -0.17	C _{Dmax} = 0.27
α _{Lmax} = 14.8°	ξ = -0.037	M _{max} = 1.371
α _{Cmin} = 9.8°	-C _{pmax} = 10.1	α _{Mmax} = 14.9°

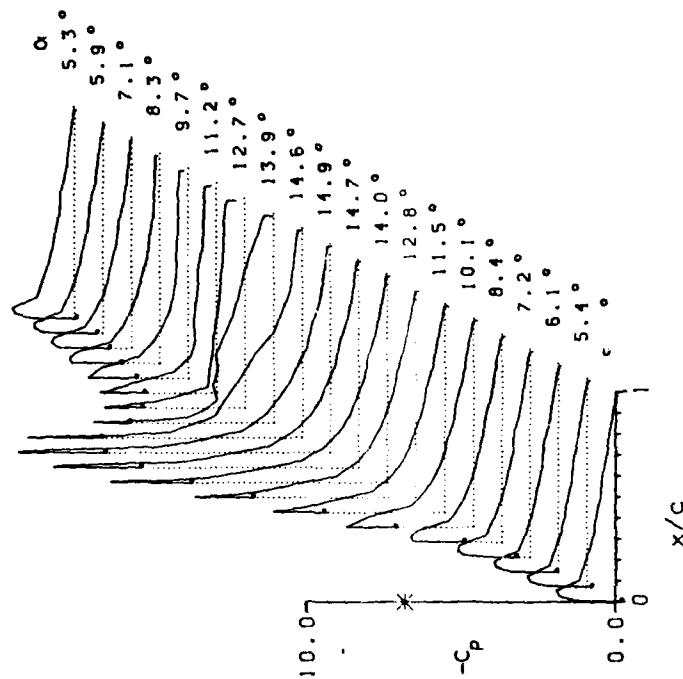
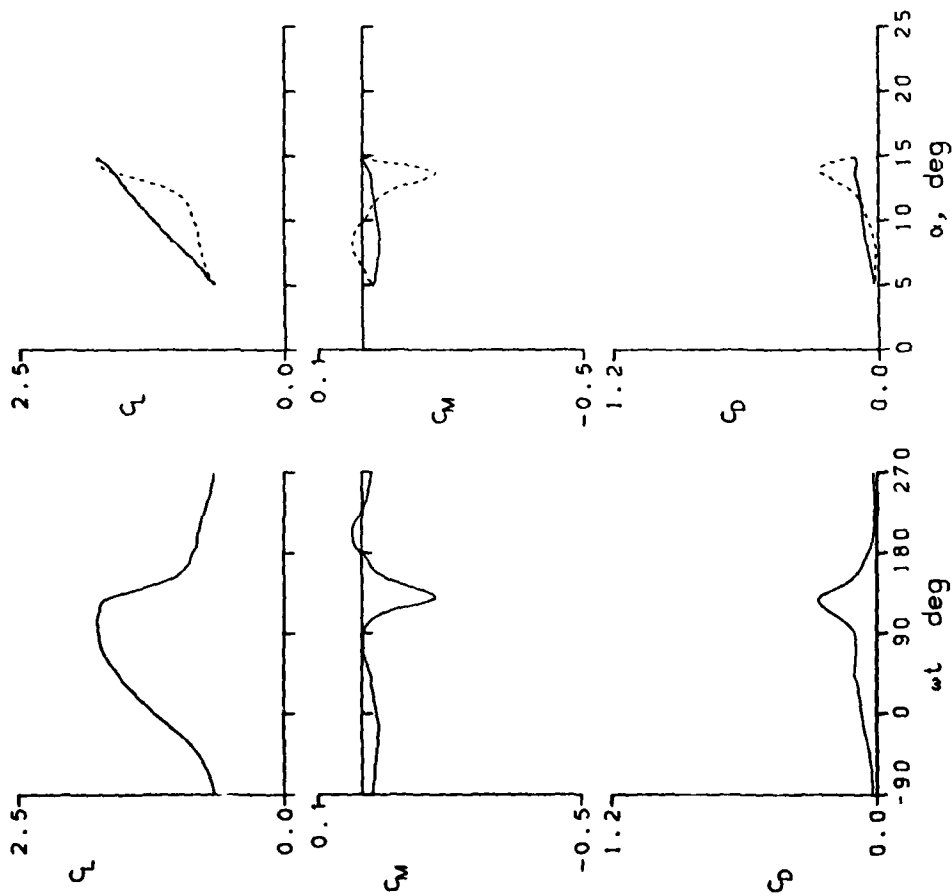


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 3721S $A_0 = 9.89^\circ$ $k = 0.194$

$Re = 3.76 E6$ $A_1 = 4.91^\circ$ $M = 0.303$

$C_{Lmax} = 1.89$ $C_{Mmin} = -0.22$ $C_{Dmax} = 0.31$

$\alpha_{Lmax} = 14.8^\circ$ $\xi = -0.045$ $M_{max} = 1.394$

$\alpha_{C_{Lmin}} = 9.7^\circ$ $-C_{Dmax} = 10.3$ $\alpha_{Mmax} = 14.9^\circ$

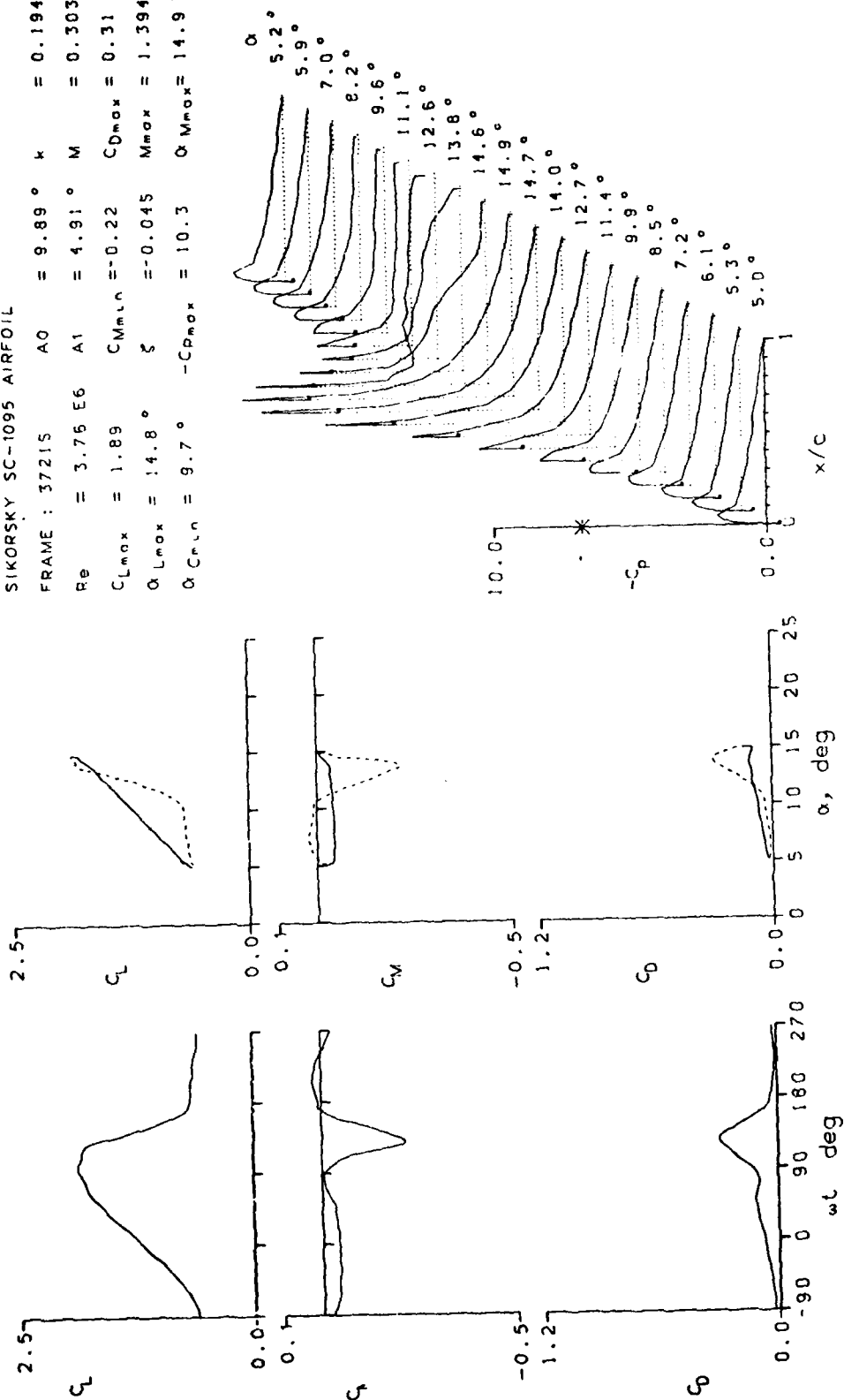


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37219 $A_0 = 10.93^\circ$ $k = 0.049$

$Re = 3.75 \text{ E}6$ $A_1 = 4.91^\circ$ $M = 0.301$

$C_{Lmax} = 1.72$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.32$

$\alpha_{Lmax} = 15.5^\circ$ $\xi = -0.191$ $M_{max} = 1.305$

$\alpha_{Cmin} = 10.7^\circ$ $-C_{pmax} = 9.8$ $\alpha_{Mmax} = 14.9^\circ$

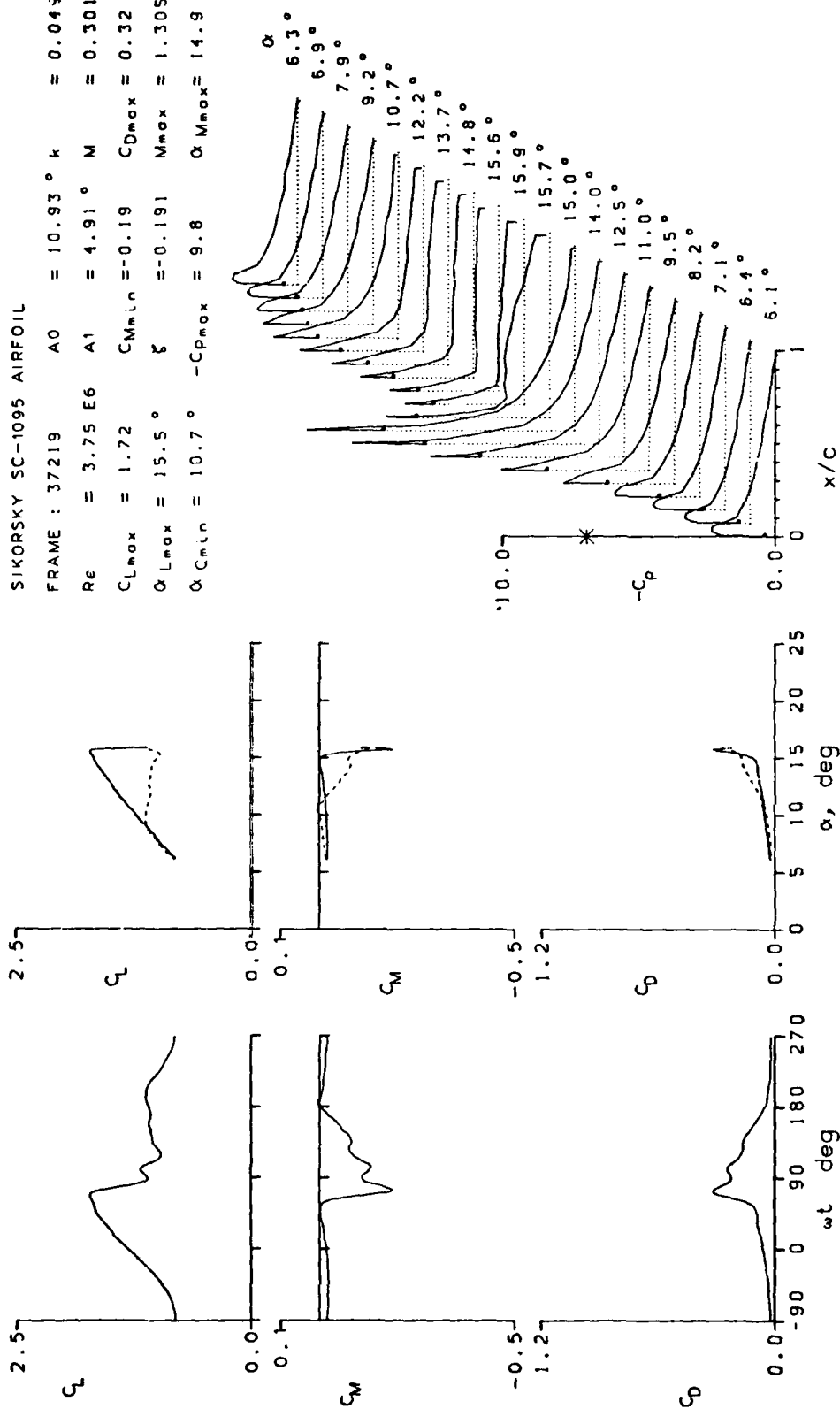


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37221 $A_0 = 10.93^\circ$ $k = 0.097$
 $Re = 3.75 \text{ E} 6$ $A_1 = 4.89^\circ$ $M = 0.302$
 $C_{Lmax} = 1.88$ $C_{Mmin} = -0.24$ $C_{Dmax} = 0.39$
 $\alpha_{Lmax} = 15.9^\circ$ $\xi = -0.087$ $M_{max} = 1.354$
 $\alpha_{Cmin} = 10.7^\circ$ $-C_{Pmax} = 10.1$ $\alpha_{Mmax} = 15.5^\circ$

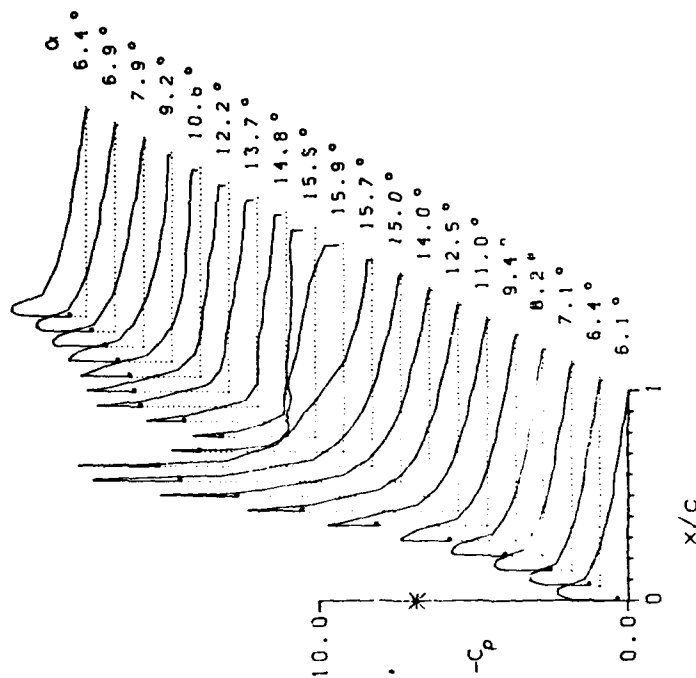
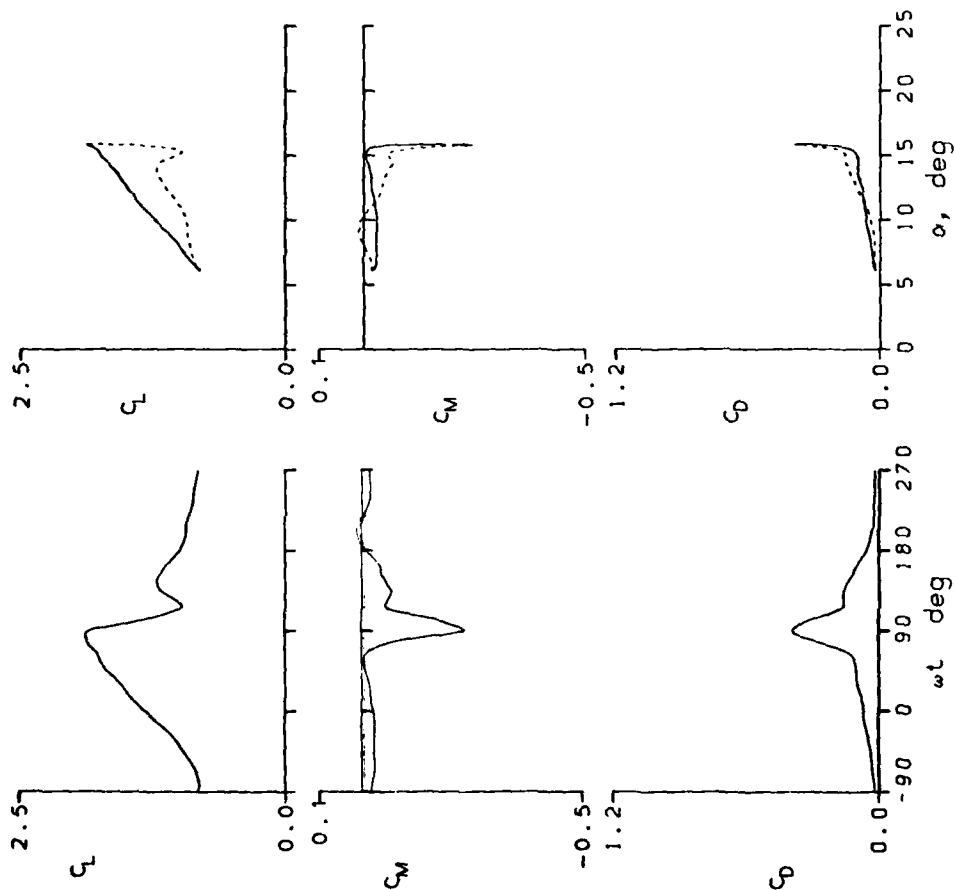


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 37304 $A_0 = 11.88^\circ$ $k = 0.050$
 $Re = 4.00 \text{ E}6$ $A_1 = 7.90^\circ$ $M = 0.301$
 $C_{Lmax} = 1.97$ $C_{Mmin} = -0.26$ $C_{Dmax} = 0.47$
 $\alpha_{Lmax} = 16.7^\circ$ $\zeta = 0.098$ $M_{max} = 1.363$
 $\alpha_{Cmin} = 11.4^\circ$ $-C_{pmax} = 10.2$ $\alpha_{Mmax} = 15.7^\circ$

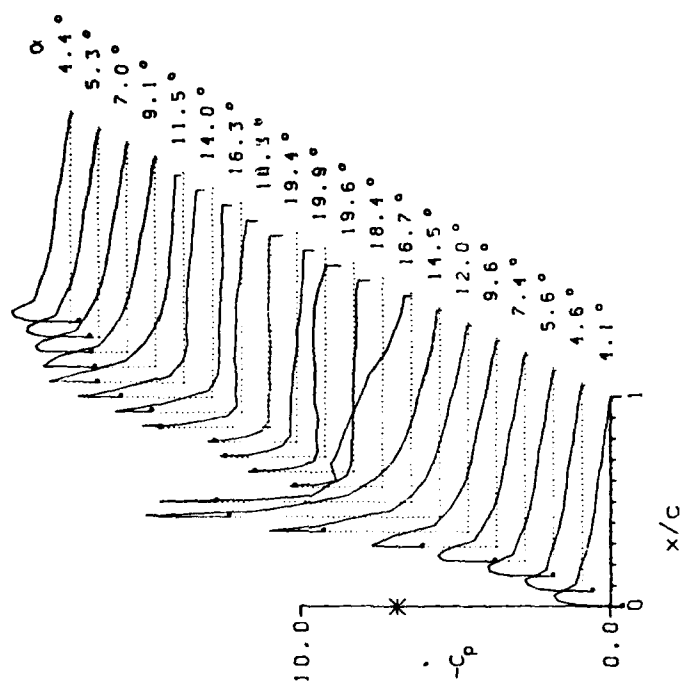
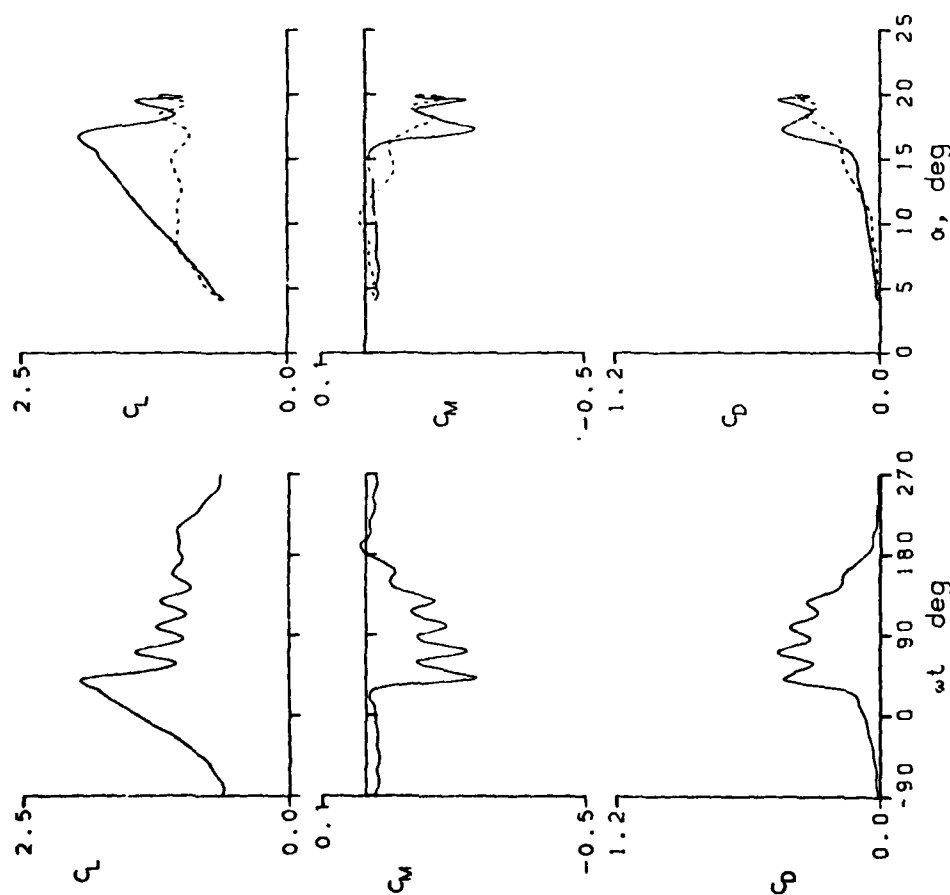


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37305 $A_0 = 11.86^\circ$ $k = 0.100$
 $R_0 = 3.98$ E_6 $A_1 = 7.90^\circ$ $M = 0.301$
 $C_{L_{max}} = 2.12$ $C_{M_{min}} = -0.34$ $C_{D_{max}} = 0.57$
 $\alpha_{L_{max}} = 17.7^\circ$ $\xi = 0.249$ $M_{max} = 1.409$
 $\alpha_{C_{min}} = 11.4^\circ$ $-C_{p_{max}} = 10.6$ $\alpha_{M_{max}} = 16.2^\circ$

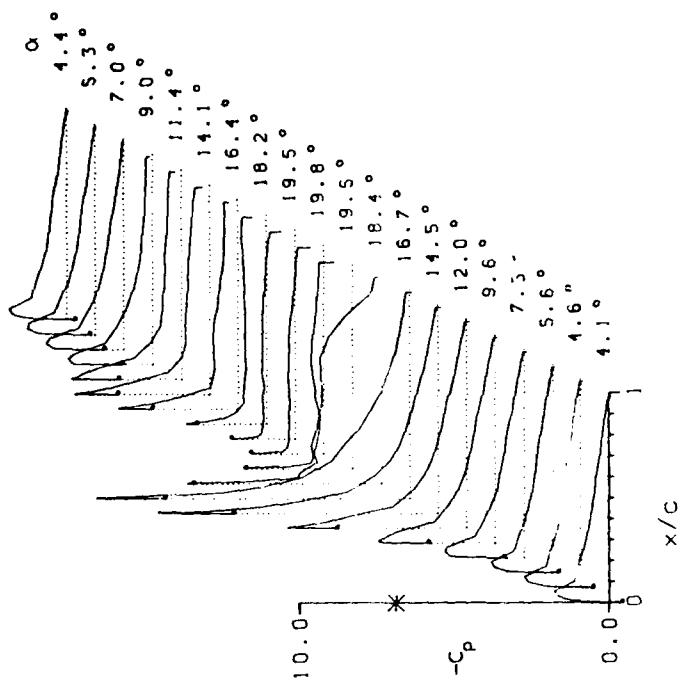
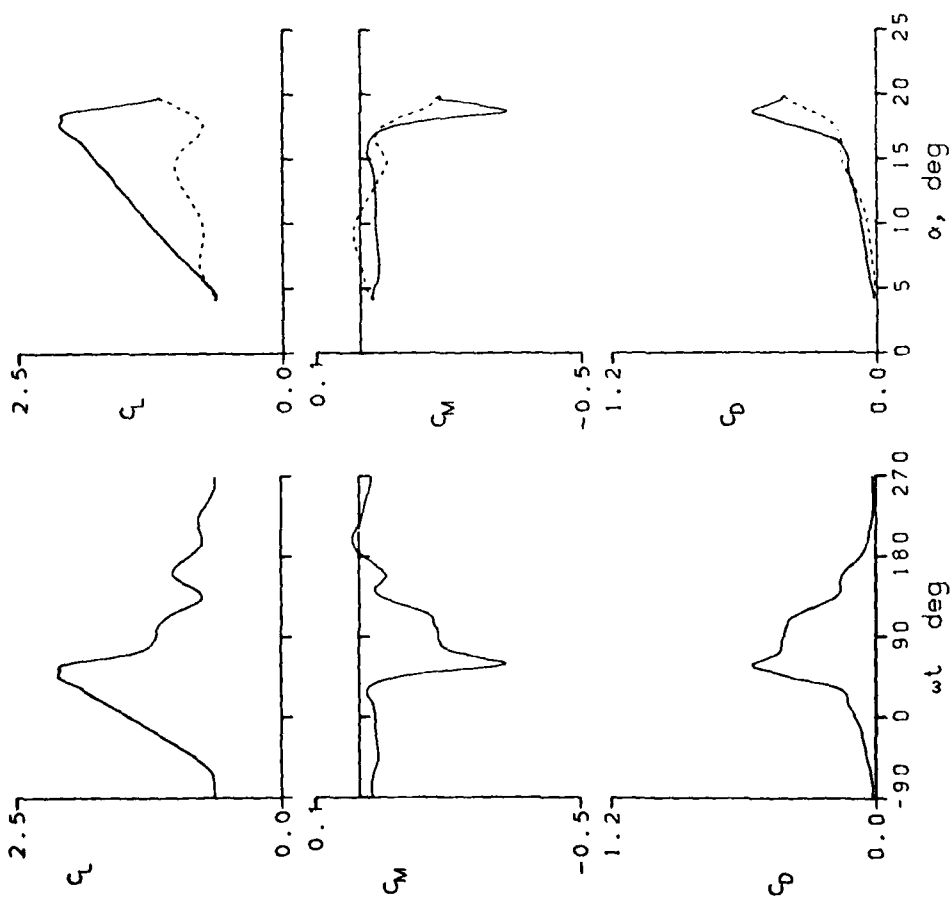


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 37306 $A_0 = 11.91^\circ$ $k = 0.127$
 $Re = 3.97 \text{ E}6$ $A_1 = 7.89^\circ$ $M = 0.301$
 $C_{Lmax} = 2.25$ $C_{Mmin} = -0.39$ $C_{Dmax} = 0.69$
 $\alpha_{Lmax} = 18.7^\circ$ $\xi = 0.158$ $M_{max} = 1.412$
 $\alpha_{Cmin} = 11.6^\circ$ $-C_{Dmax} = 10.6$ $\alpha_{Mmax} = 17.0^\circ$

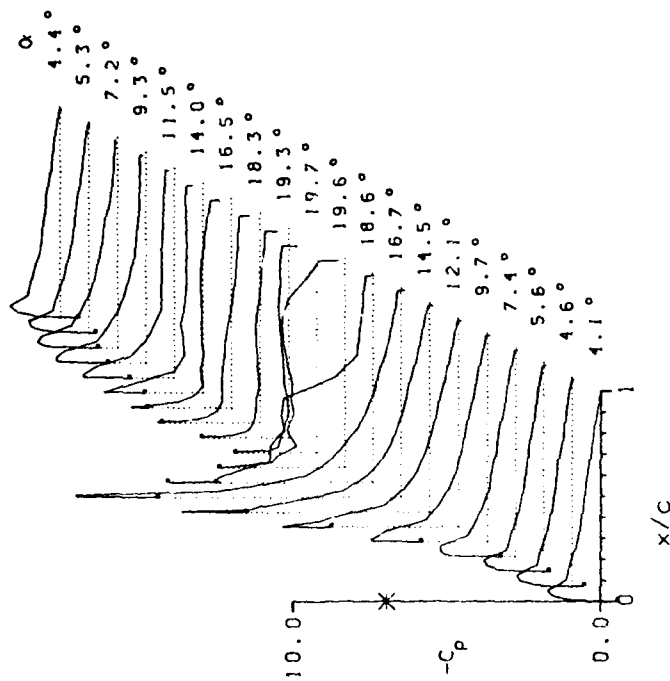
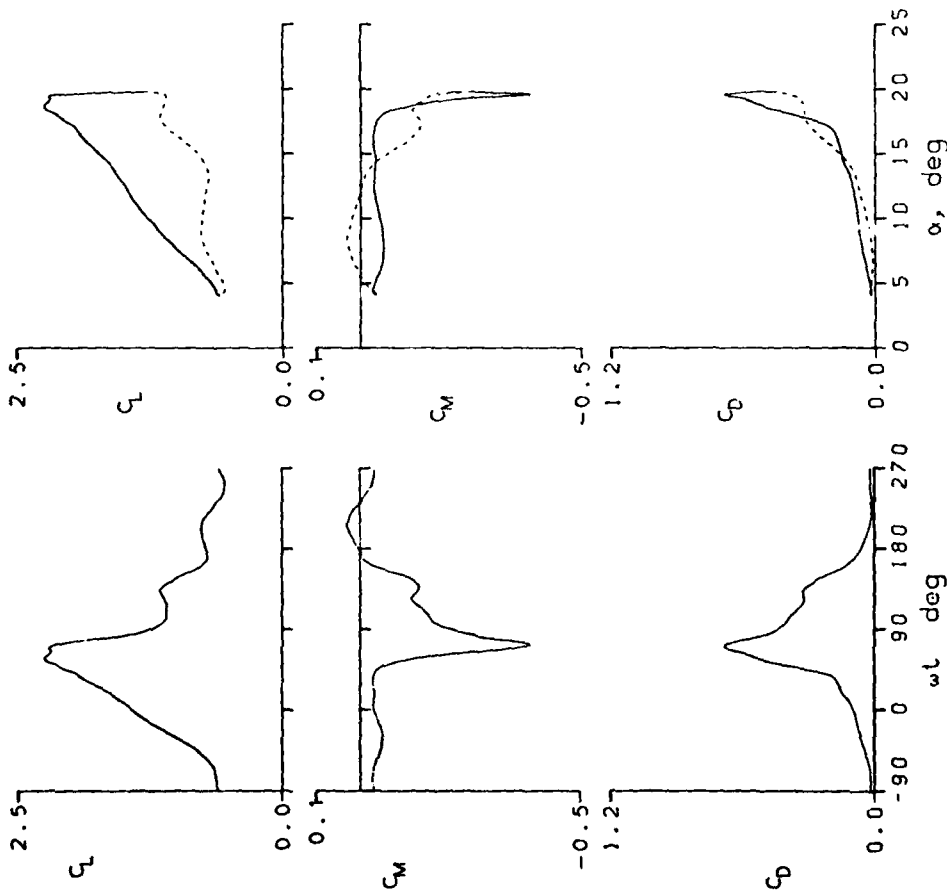


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 35021 $A_0 = 14.98^\circ$ $k = 0.025$
 $Re = 3.95 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.74$ $C_{Mmax} = -0.19$ $C_{Dmax} = 0.31$
 $C_{Lmax} = 15.2^\circ$ $C_{Mmax} = -0.050$ $M_{max} = 1.282$
 $C_{Lmin} = 14.8^\circ$ $-C_{Dmax} = 9.5$ $\alpha_{Mmax} = 14.7^\circ$

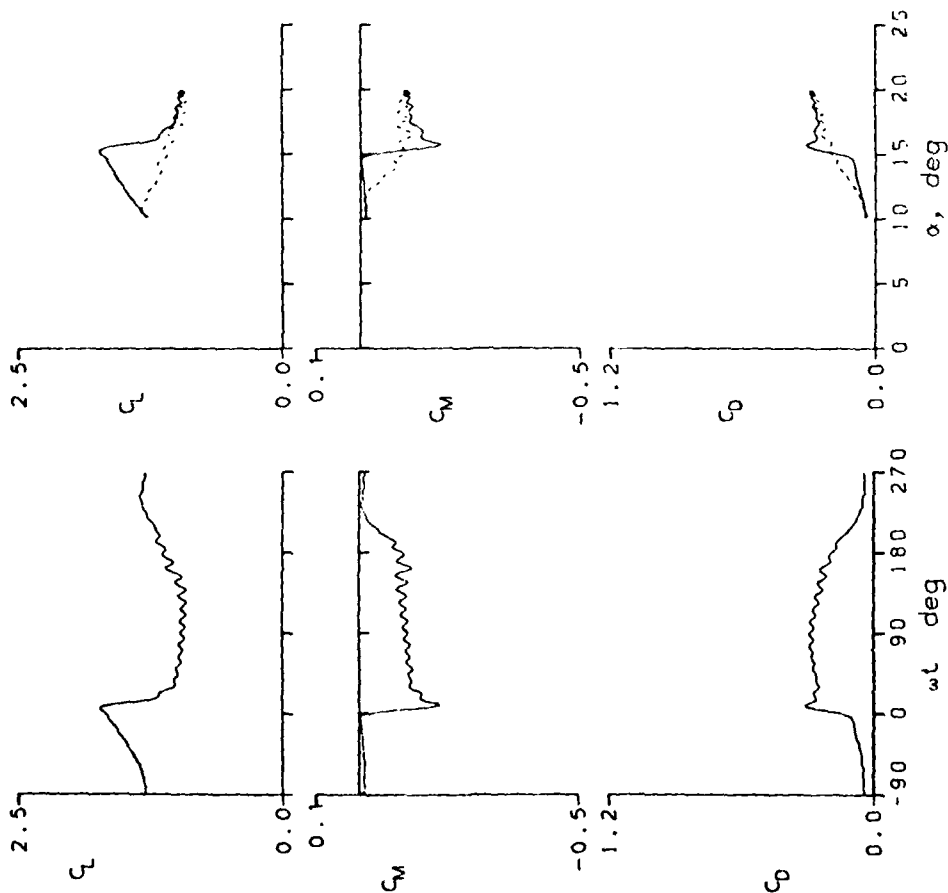


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 38022 $A_0 = 14.98^\circ$ $k = 0.050$
 $Re = 3.89 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.299$
 $C_{Lmax} = 1.89$ $C_{Mmin} = -0.23$ $C_{Dmax} = 0.40$
 $\alpha_{Lmax} = 16.2^\circ$ $\xi = 0.195$ $M_{max} = 1.316$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 15.2^\circ$

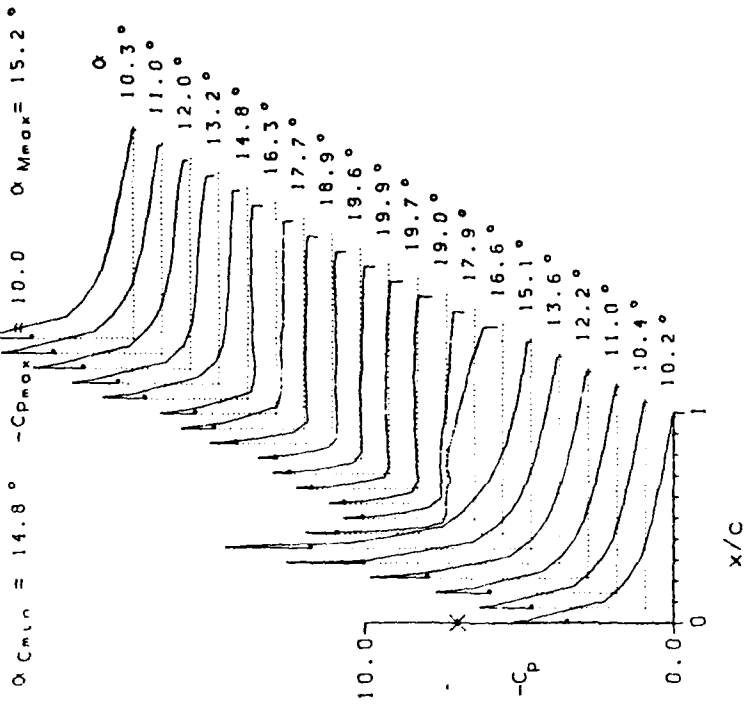
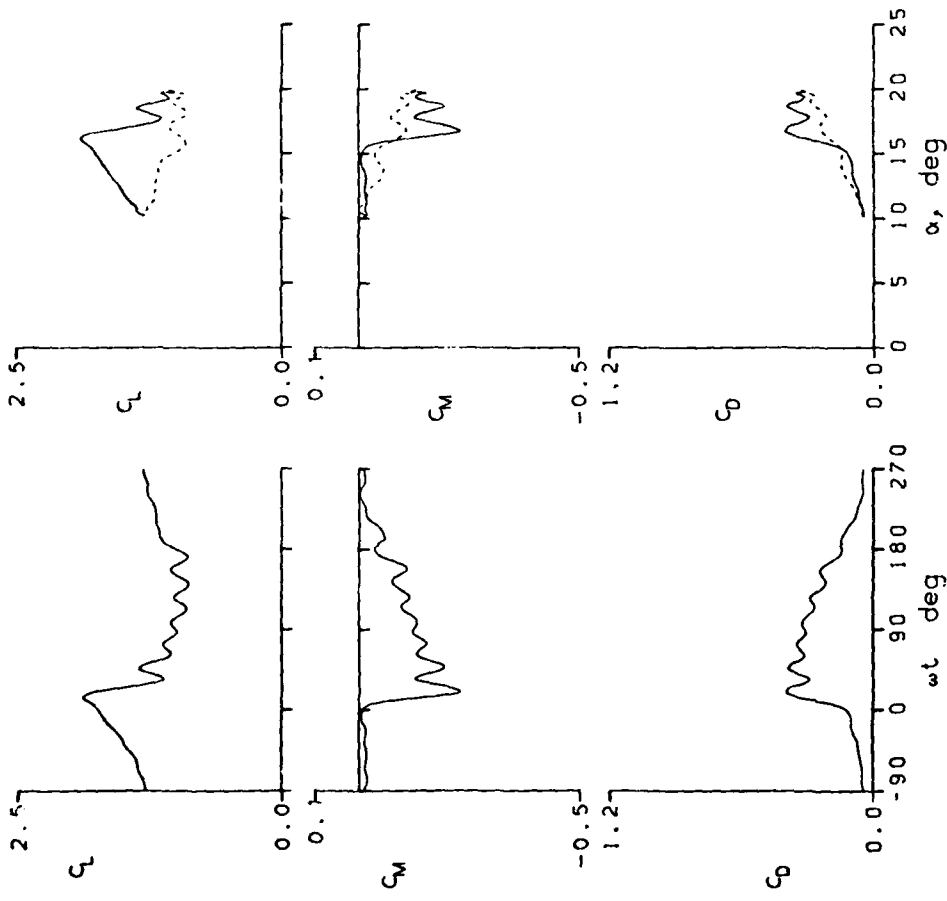


Figure 15.- Continued.

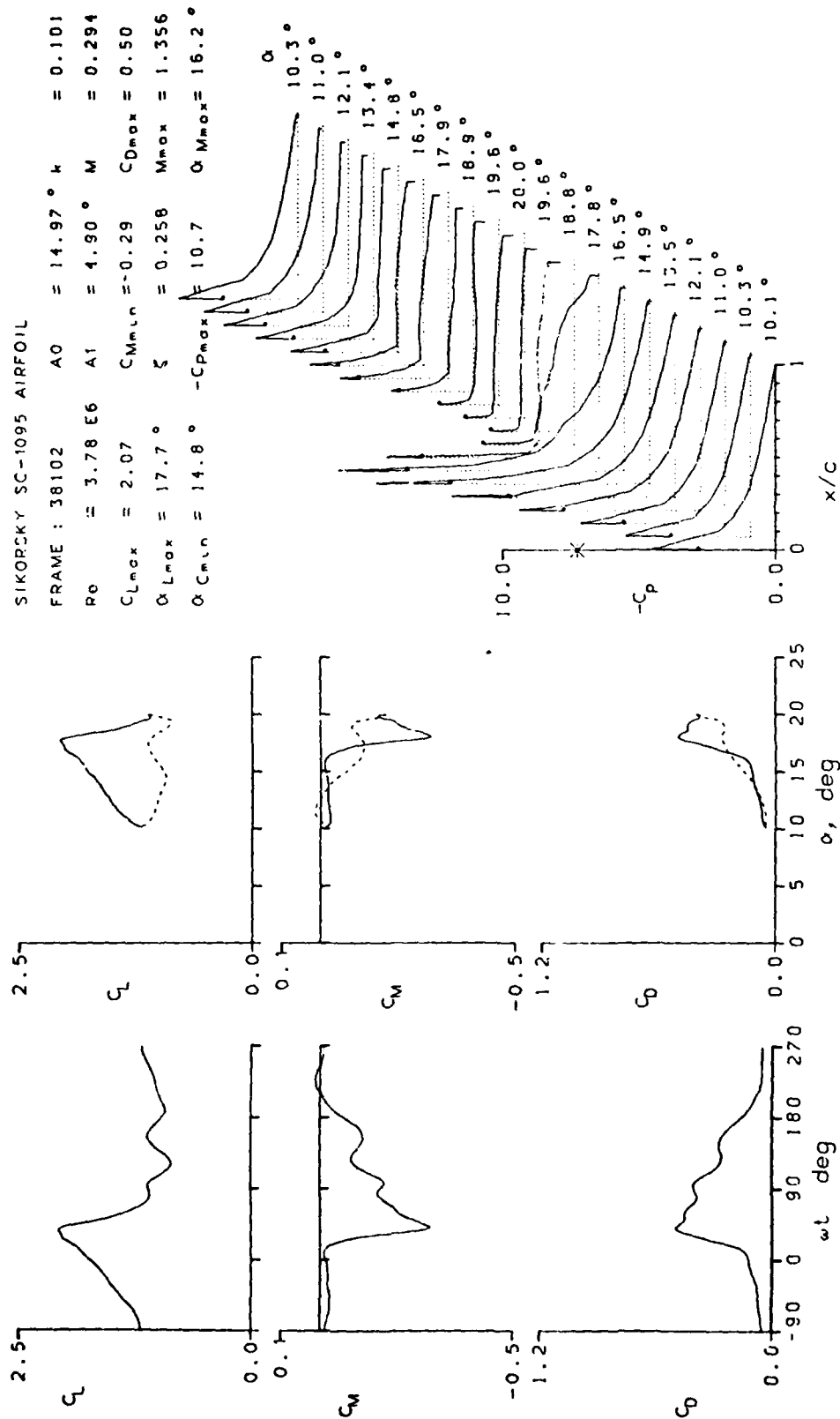


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 38103	$A_0 = 14.94^\circ$	$k = 0.152$
$Re = 3.75 \times 10^6$	$A_1 = 4.91^\circ$	$M = 0.293$
$C_{Lmax} = 2.16$	$C_{Mmin} = -0.34$	$C_{Dmax} = 0.62$
$\alpha_{Lmax} = 18.7^\circ$	$\xi = 0.404$	$M_{max} = 1.370$
$\alpha_{Cmin} = 14.8^\circ$	$-C_{Dmax} = 10.9$	$\alpha_{Mmax} = 16.5^\circ$

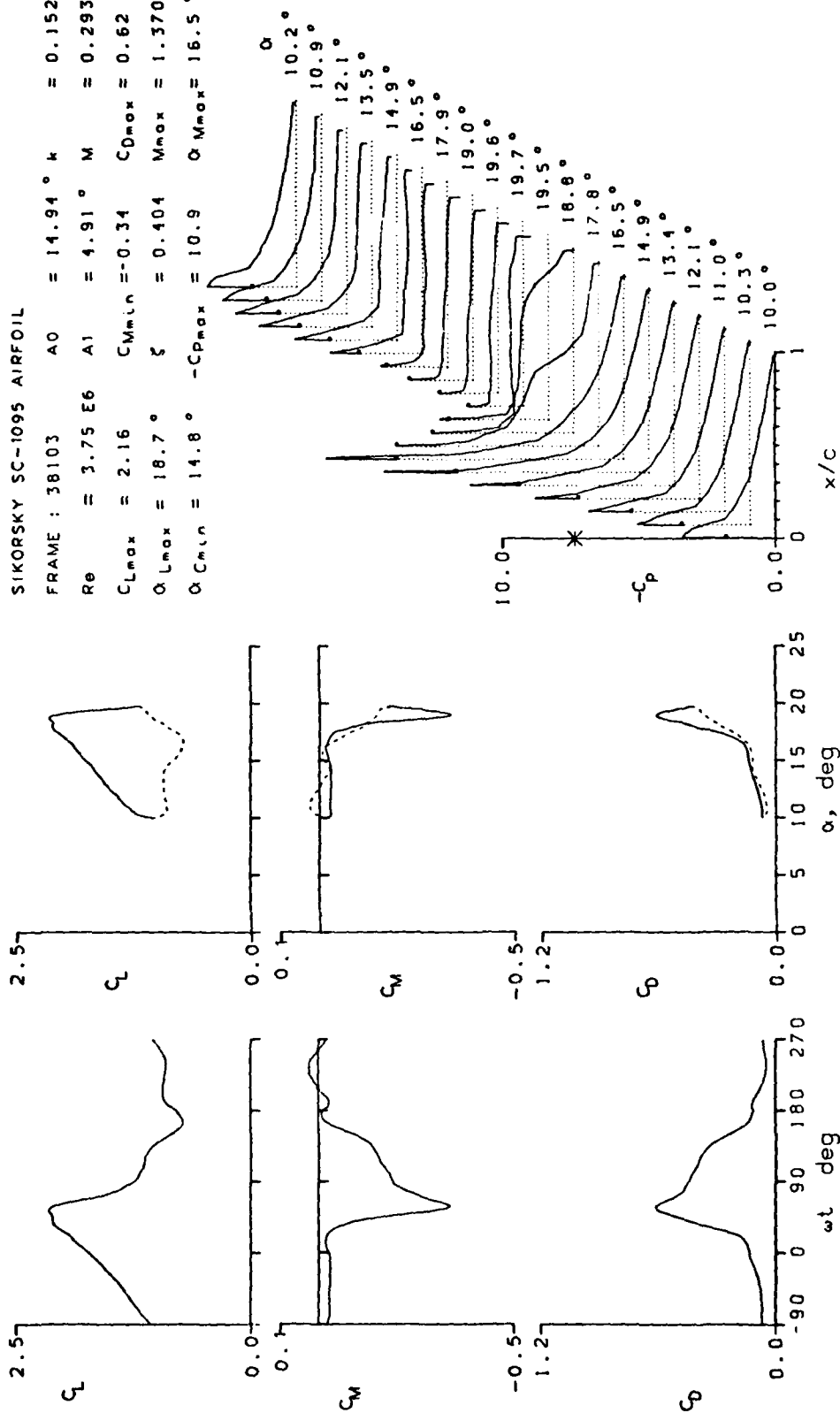


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 38104 $A_0 = 14.95^\circ$ $k = 0.205$

$Re = 3.69 \text{ E}6$ $A_1 = 4.87^\circ$ $M = 0.289$

$C_{Lmax} = 2.30$ $C_{Mmin} = -0.43$ $C_{Dmax} = 0.75$

$\alpha_{Lmax} = 19.0^\circ$ $\xi = -0.062$ $M_{max} = 1.354$

$\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 11.1$ $\alpha_{Mmax} = 17.0^\circ$

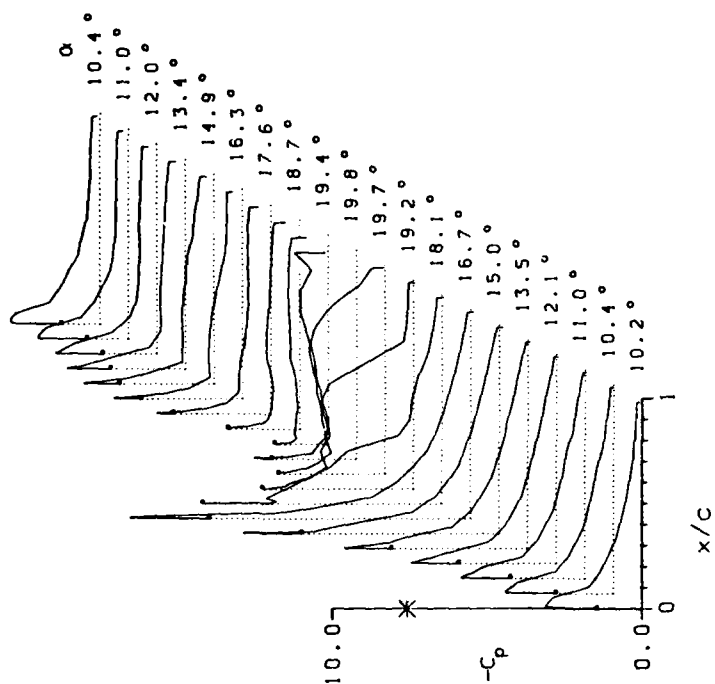
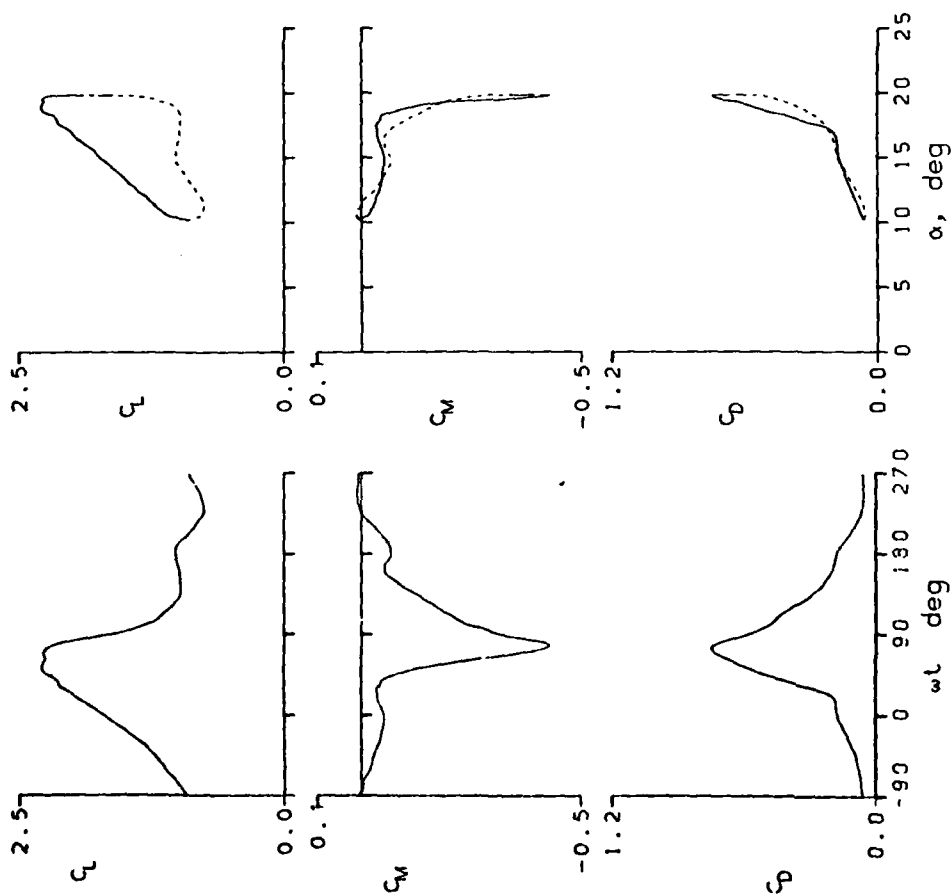


Figure 15.- Continued.

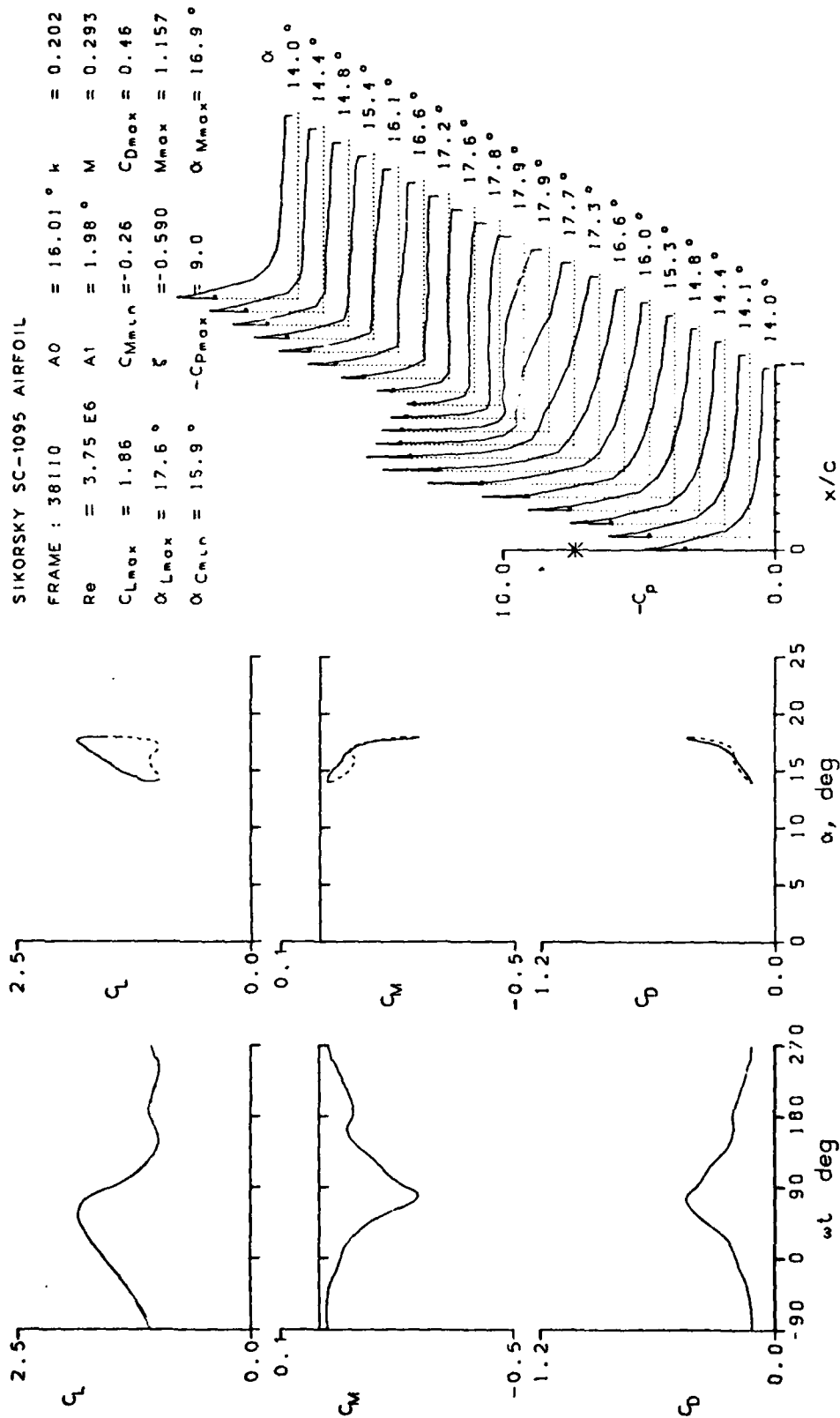


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 38119 $A_0 = 13.93^\circ$ $k = 0.198$
 $Re = 3.85 \times 10^6$ $A_1 = 2.00^\circ$ $M = 0.300$
 $C_{Lmax} = 1.97$ $C_{Mmin} = -0.25$ $C_{Dmax} = 0.40$
 $\alpha_{C_{Lmax}} = 16.0^\circ$ $\zeta = -1.898$ $M_{max} = 1.368$
 $\alpha_{C_{Mmin}} = 13.8^\circ$ $-C_{Dmax} = 10.3$ $\alpha_{M_{max}} = 15.6^\circ$

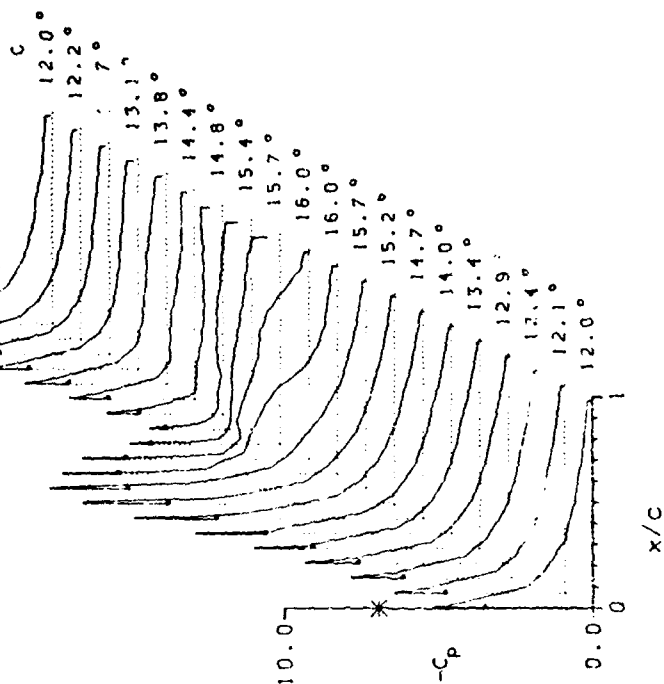
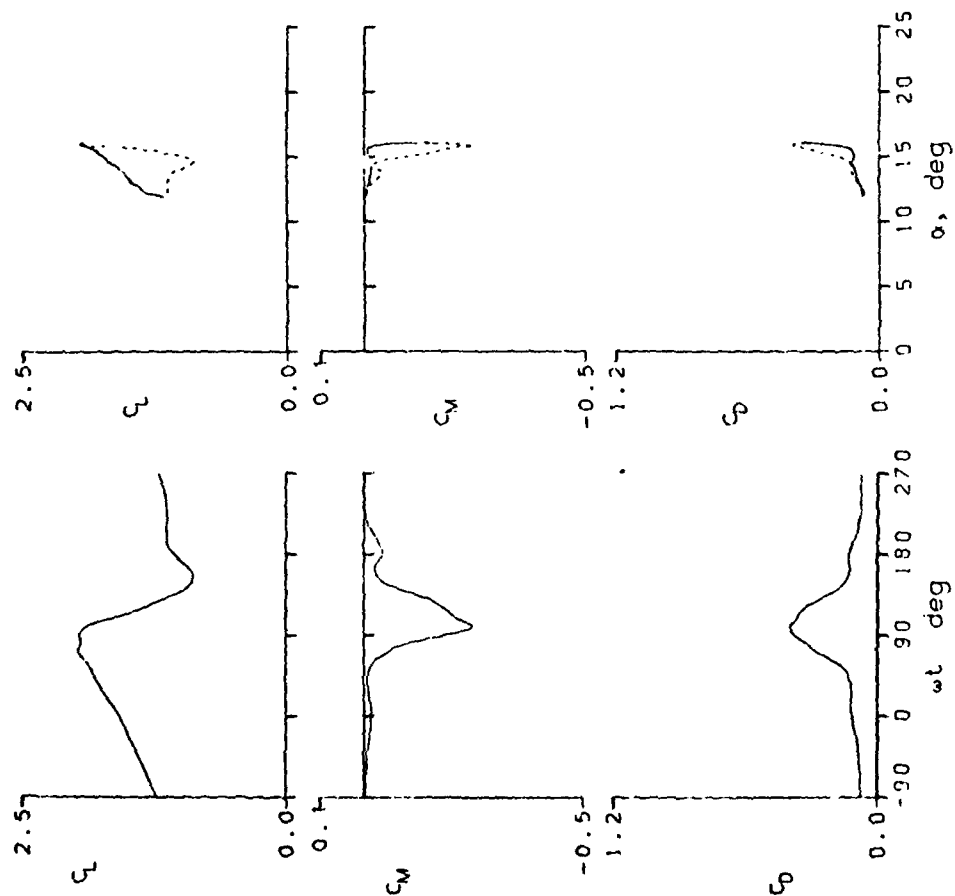
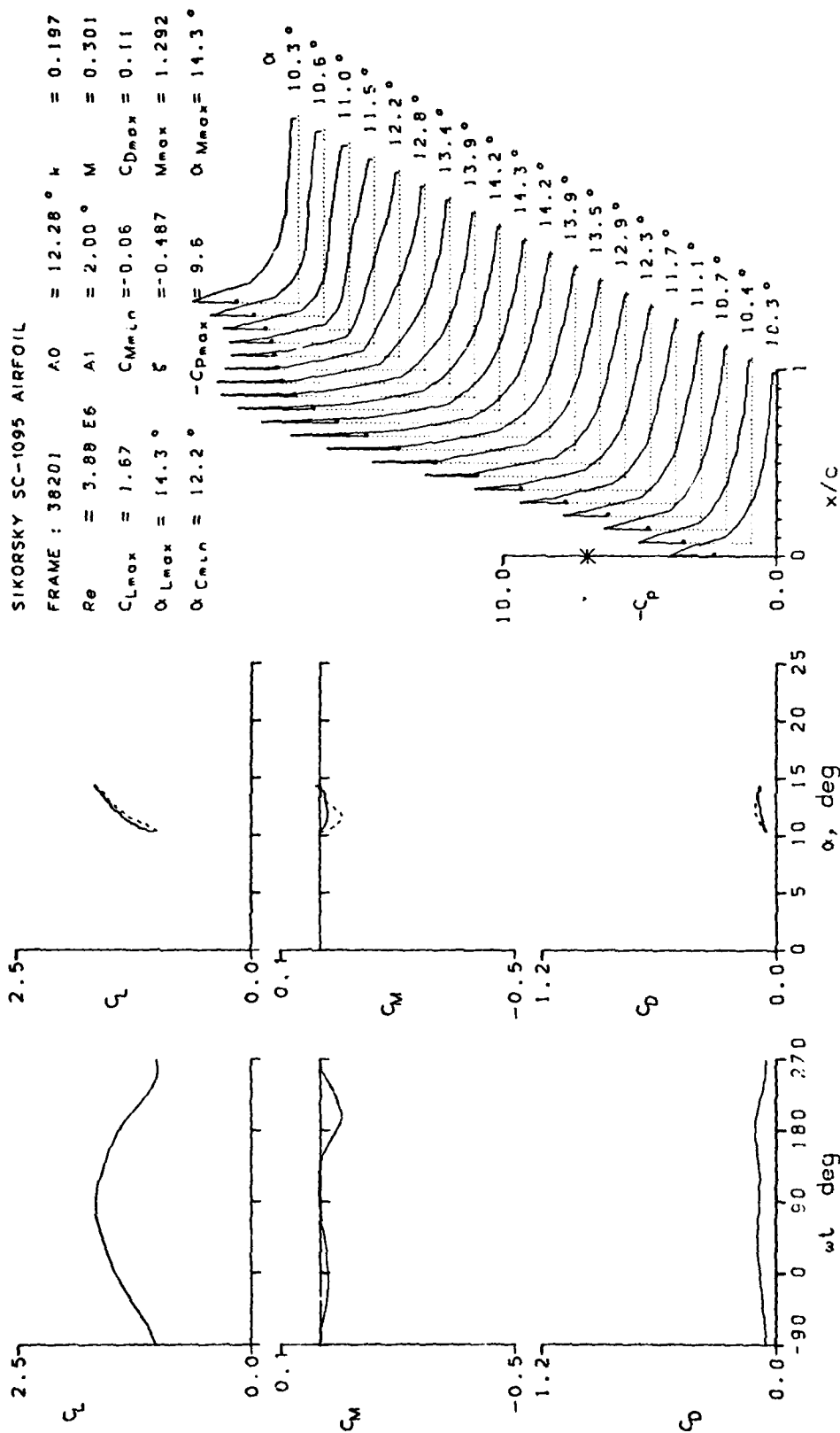


Figure 15.- Continued.



SIKORSKY SC-1095 AIRFOIL
 FRAME : 38216 $A_0 = 6.02^\circ$ $k = 0.010$
 $Re = 2.47 \text{ E} 6$ $A_1 = 10.02^\circ$ $M = 0.183$
 $C_{Lmax} = 1.70$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.24$
 $\alpha_{Lmax} = 15.4^\circ$ $\xi = -0.075$ $M_{max} = 0.654$
 $\alpha_{Chin} = 5.5^\circ$ $-C_{pmax} = 9.9$ $\alpha_{Mmax} = 15.2^\circ$

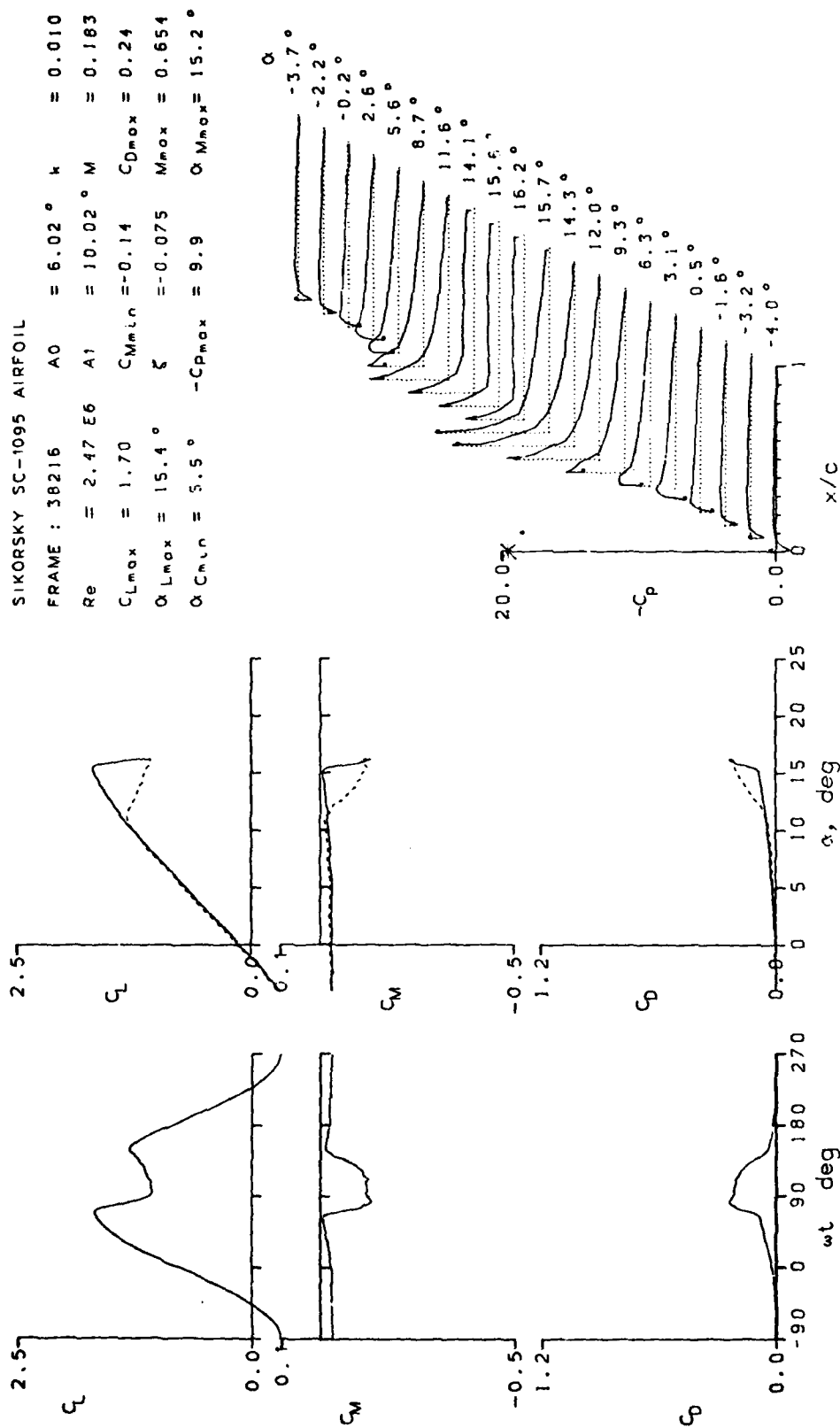


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 38300 $\alpha_0 = 14.86^\circ$ $k = 0.010$
 $Re = 3.95 \text{ E}6$ $A1 = 9.93^\circ$ $M = 0.298$
 $C_{Lmax} = 1.68$ $C_{Mmin} = -0.18$ $C_{Dmax} = 0.42$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.007$ $M_{max} = 1.227$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 14.4^\circ$

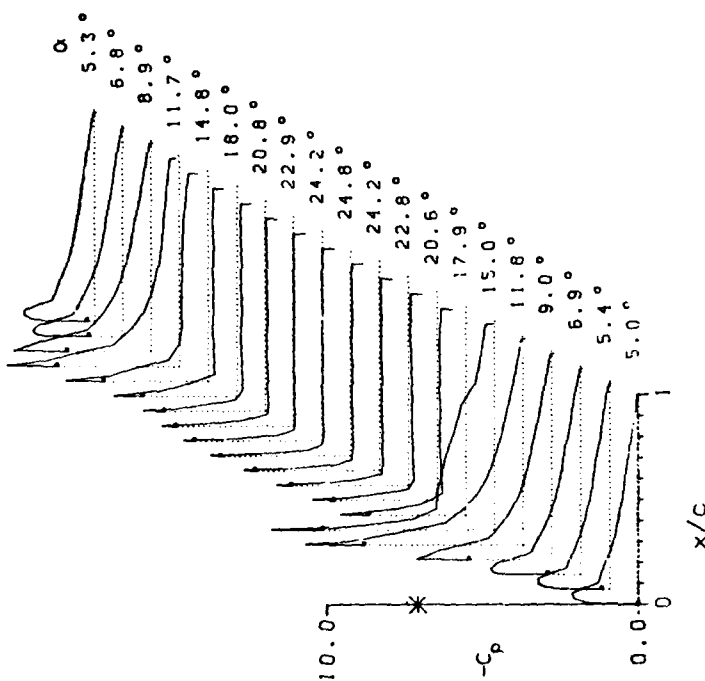
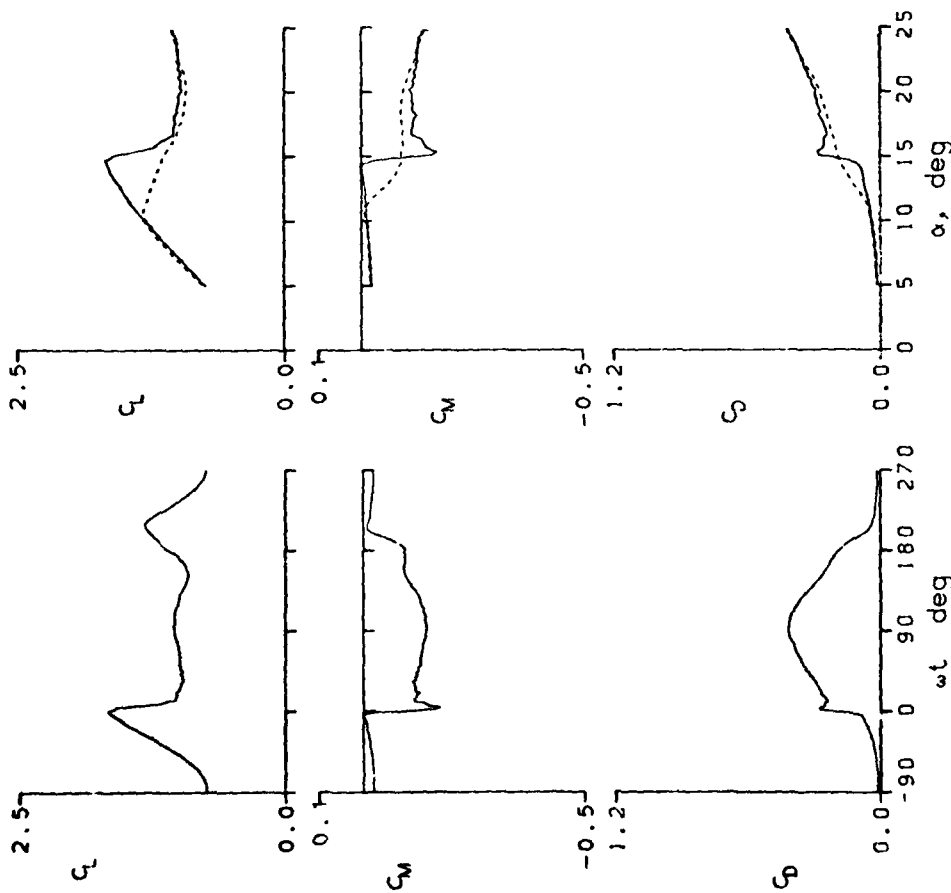


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 38306 A0 = 9.86° k = 0.010
 Re = 3.93 E6 A1 = 9.86° M = 0.299
 CLmax = 1.66 CMmin = -0.16 CDmax = 0.29
 αLmax = 14.5° ζ = -0.009 Mmax = 1.229
 αCmin = 9.4° -CPmax = 9.3 αMmax = 14.3°

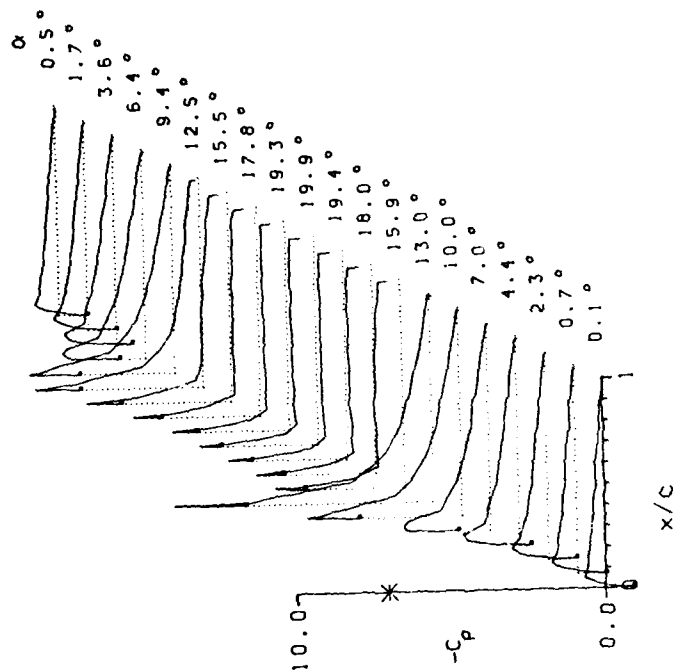
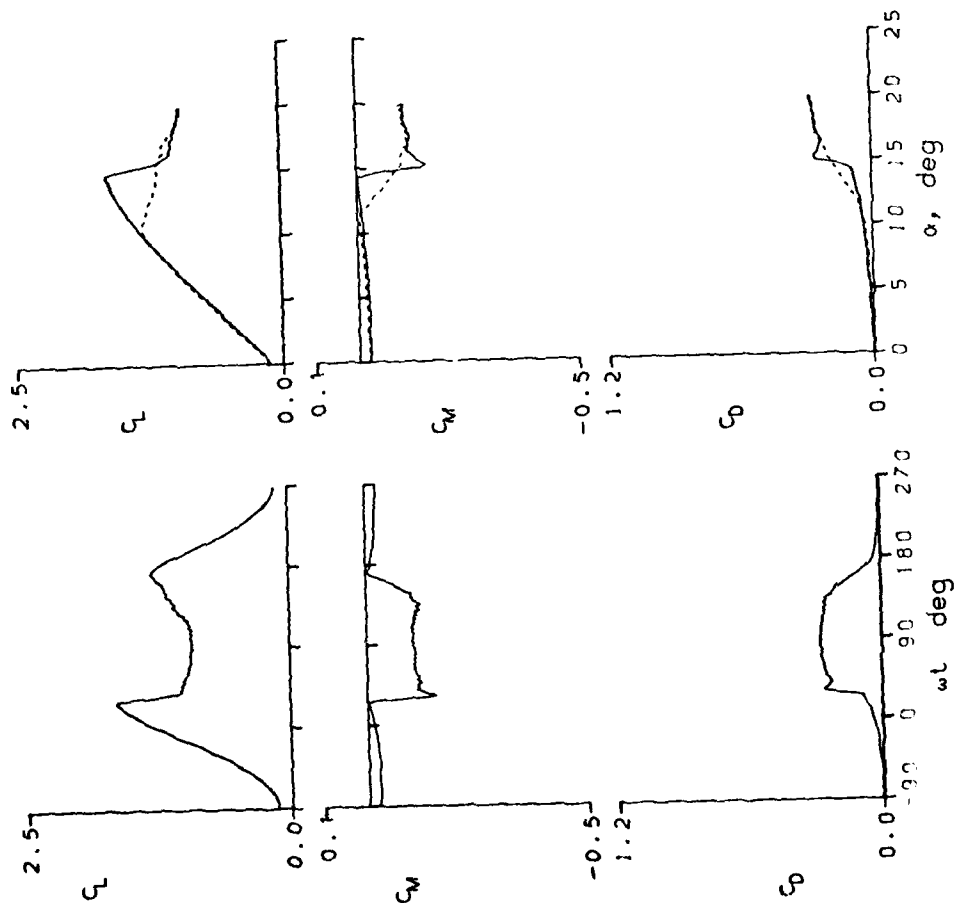


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 39021 $A_0 = 4.05^\circ$ $k = 0.010$
 $Re = 3.81 \times 10^6$ $A_1 = 10.08^\circ$ $M = 0.300$
 $C_{Lmax} = 1.58$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.20$
 $\alpha_{Lmax} = 13.5^\circ$ $\xi = -0.018$ $M_{max} = 1.161$
 $\alpha_{Cmin} = 3.5^\circ$ $-C_{Dmax} = 8.6$ $\alpha_{Mmax} = 13.5^\circ$

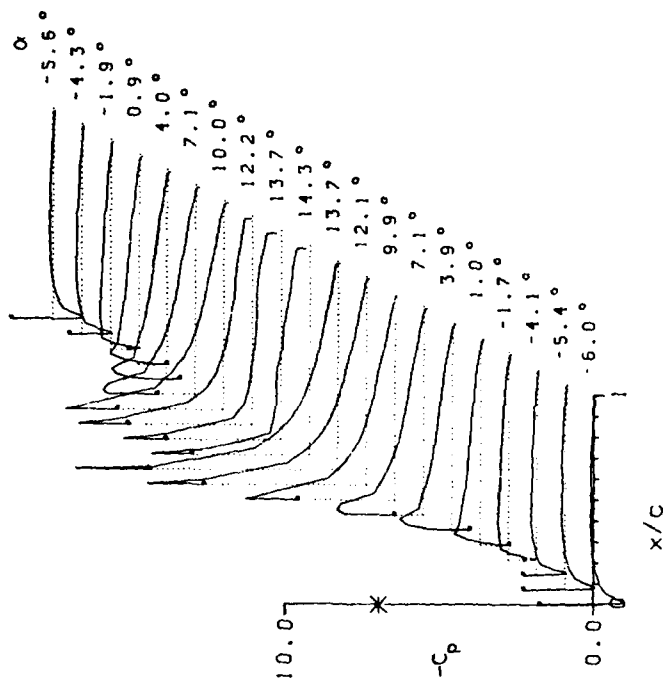
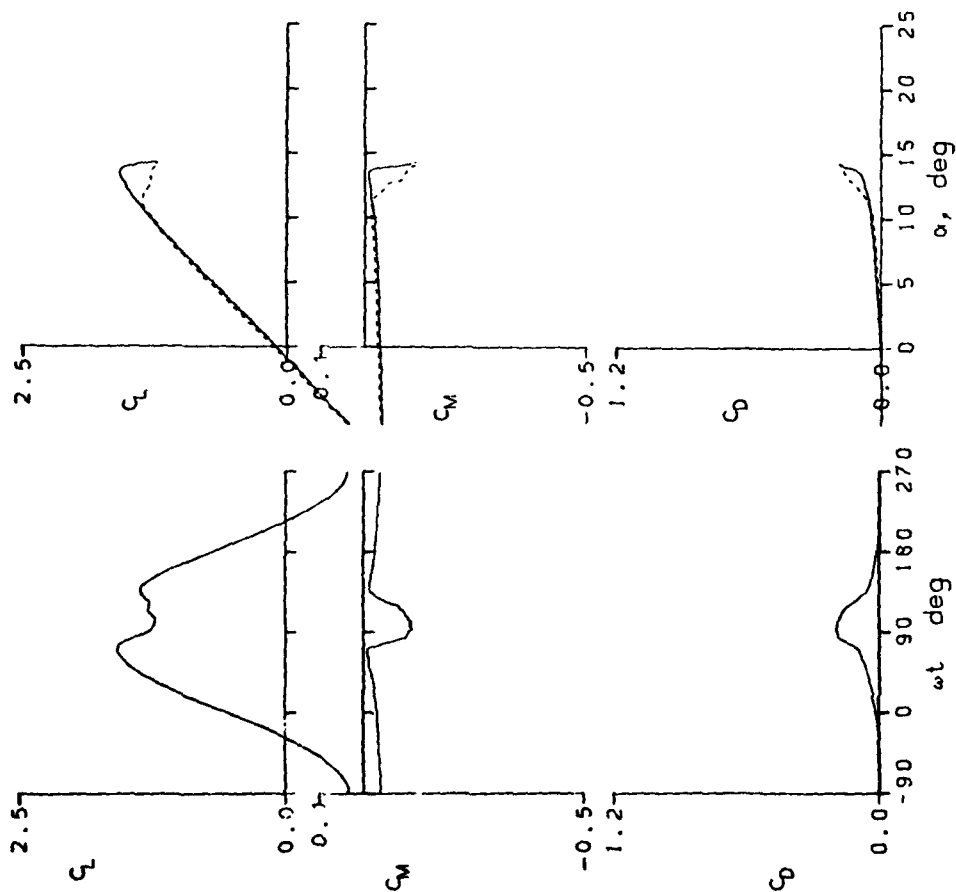


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 39104 $A_0 = 14.96^\circ$ $k = 0.010$
 $Re = 3.93 \text{ E}6$ $A_1 = 4.89^\circ$ $M = 0.297$
 $C_{L_{max}} = 1.65$ $C_{M_{min}} = -0.16$ $C_{D_{max}} = 0.29$
 $\alpha_{L_{max}} = 14.5^\circ$ $\alpha_{C_{L_{min}}} = -0.197$ $M_{max} = 1.230$
 $\alpha_{C_{M_{min}}} = 14.8^\circ$ $-C_{D_{min}} = 9.4$ $\alpha_{M_{max}} = 14.2^\circ$

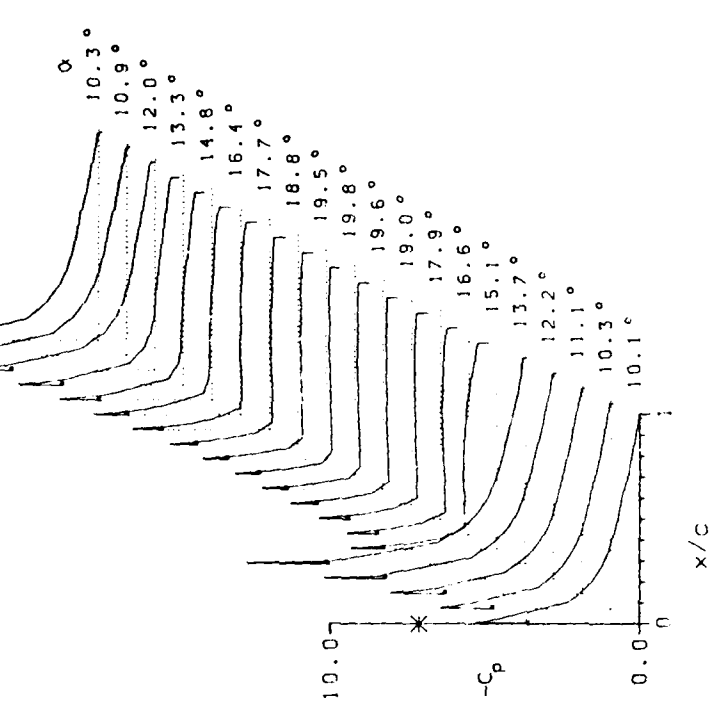
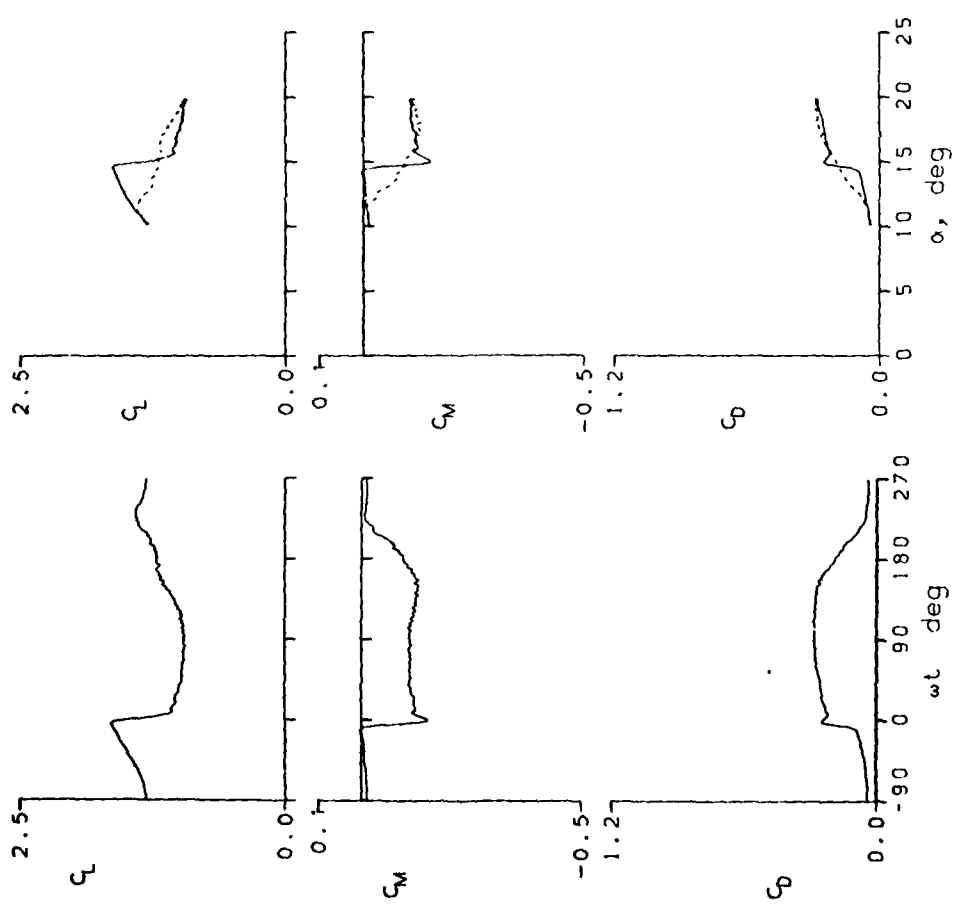


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL
 FRAME : 39107 $A_0 = 9.94^\circ$ $k = 0.010$
 $Re = 3.94 \times 10^6$ $A_1 = 4.91^\circ$ $M = 0.300$
 $C_{Lmax} = 1.62$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.22$
 $\alpha_{Lmax} = 14.1^\circ$ $\xi = -0.244$ $M_{max} = 1.232$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Pmax} = 9.2$ $\alpha_{Mmax} = 14.1^\circ$

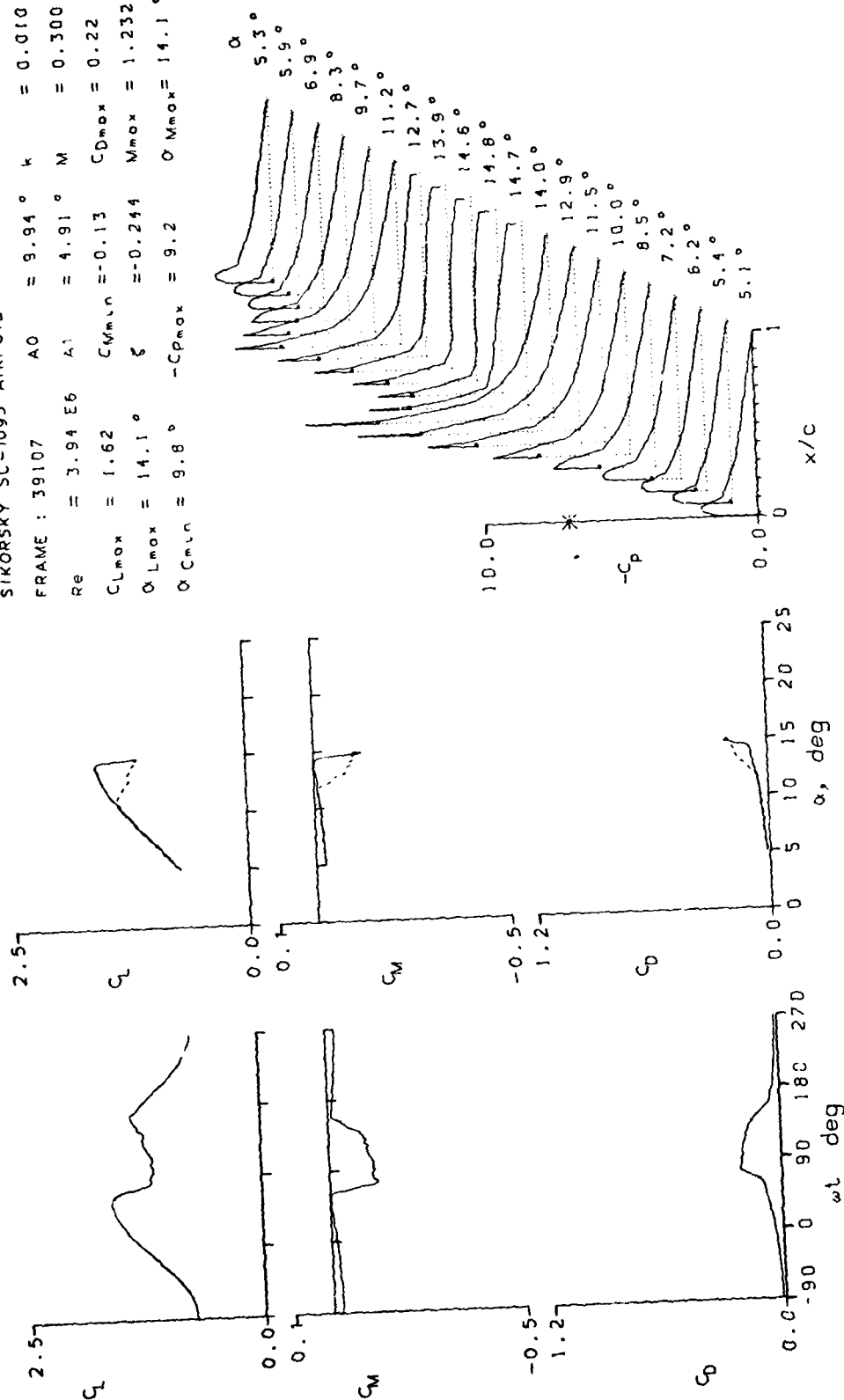


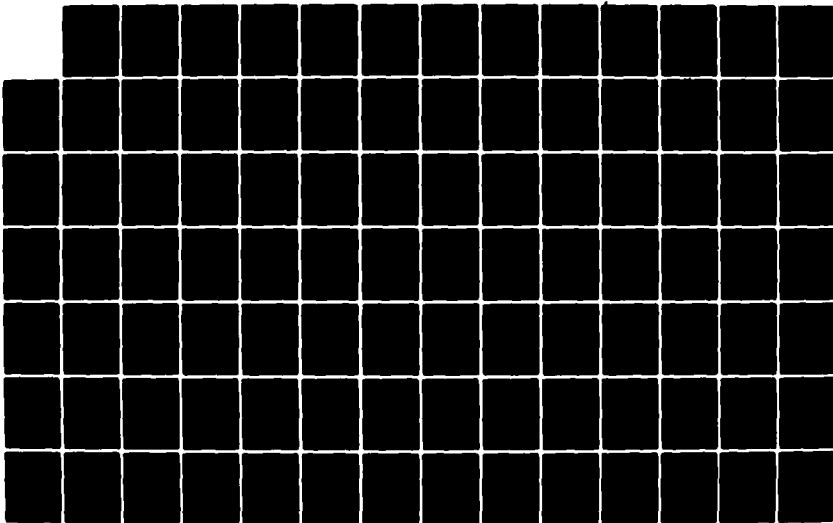
Figure 15.- Continued.

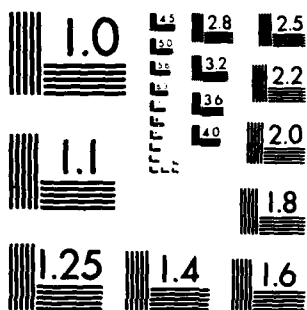
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SIKORSKY SC-1095 AIRFOIL
 FRAME : 391110 $A_0 = 10.90^\circ$ $k = 0.010$
 $Re = 3.90 \text{ E}6$ $A_1 = 4.92^\circ$ $M = 0.299$
 $C_{Lmax} = 1.60$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.24$
 $\alpha_{Lmax} = 14.4^\circ$ $\xi = -0.196$ $M_{max} = 1.210$
 $\alpha_{Cmin} = 10.7^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 14.0^\circ$

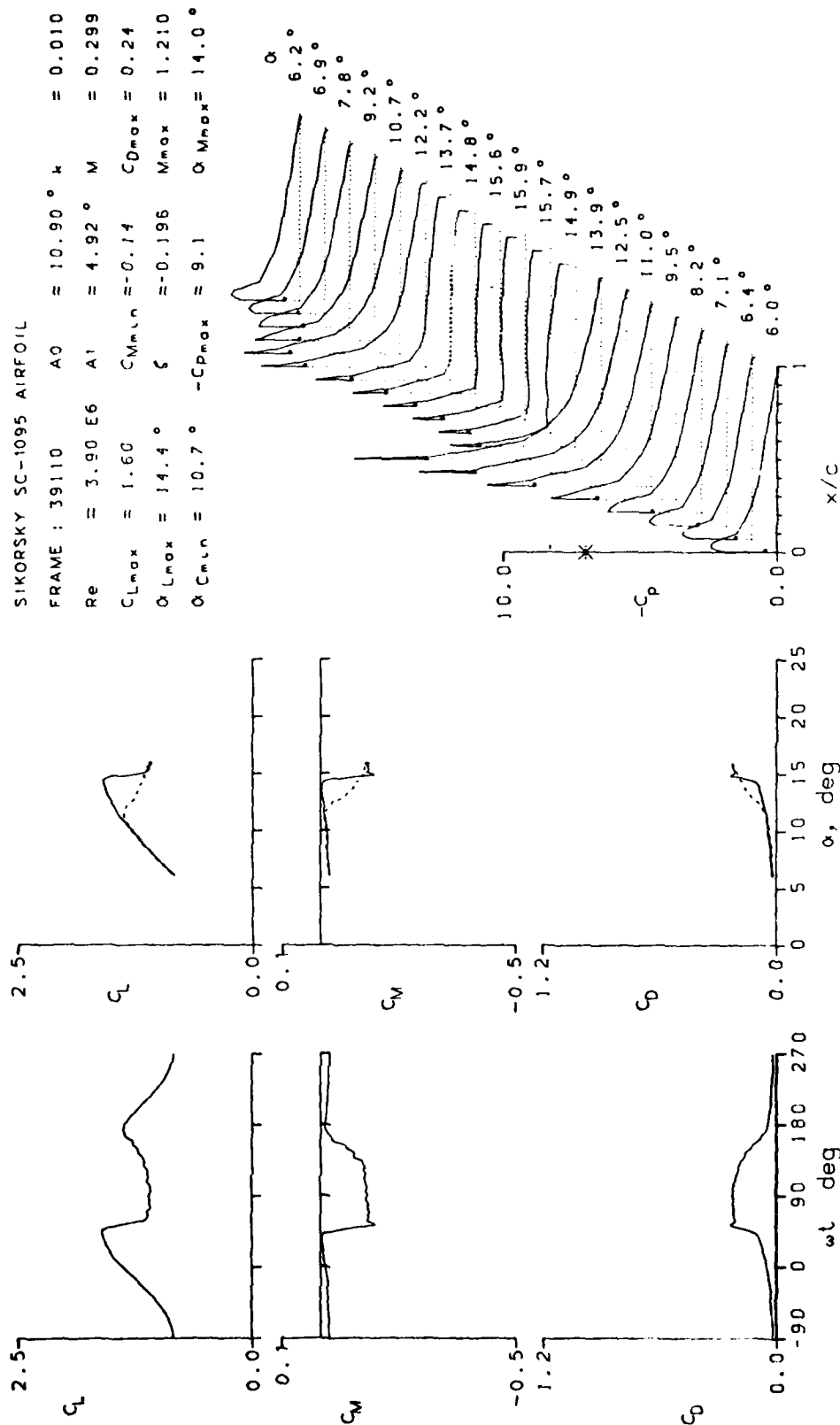


Figure 15.- Continued.

SIKORSKY SC-1095 AIRFOIL

FRAME : 39115 $A_0 = 14.02^\circ$ $k = 0.010$
 $Re = 3.84 \text{ E}6$ $A_1 = 1.99^\circ$ $M = 0.298$
 $C_{Lmax} = 1.58$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.23$
 $\alpha_{Lmax} = 13.8^\circ$ $\xi = -1.160$ $M_{max} = 1.184$
 $\alpha_{Cmin} = 14.0^\circ$ $-C_{Dpeak} = 8.9$ $\alpha_{Mmax} = 13.7^\circ$

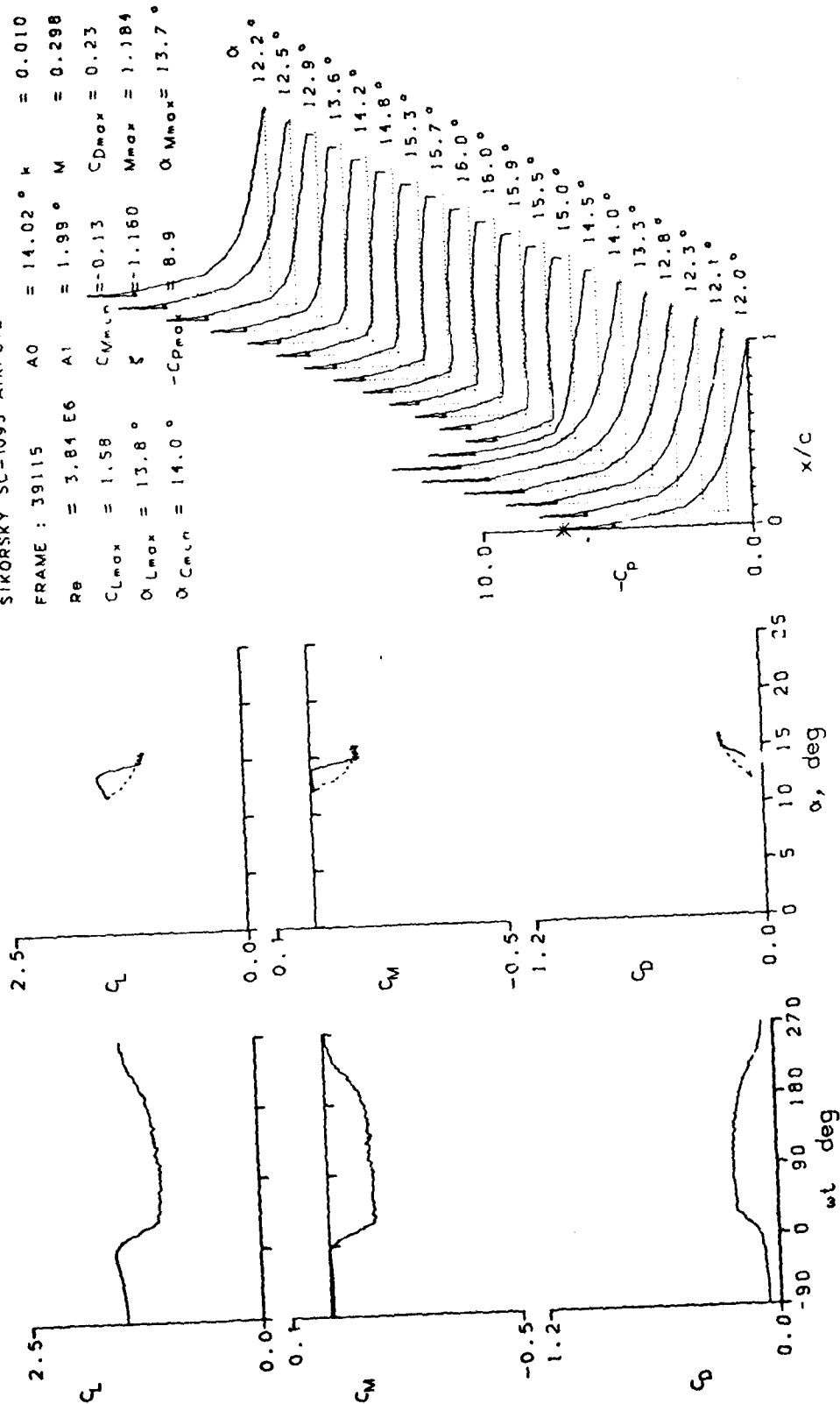


Figure 15.- Concluded.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 42019 $A_0 = 14.89^\circ$ $k = 0.025$ TRIP

$Re = 3.35 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.292$

$C_{Lmax} = 1.72$ $C_{Mmin} = -0.21$ $C_{Dmax} = 0.49$

$\alpha_{Lmax} = 15.4^\circ$ $\xi = 0.164$ $M_{max} = 1.003$

$\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 7.4$ $\alpha_{Mmax} = 13.3^\circ$

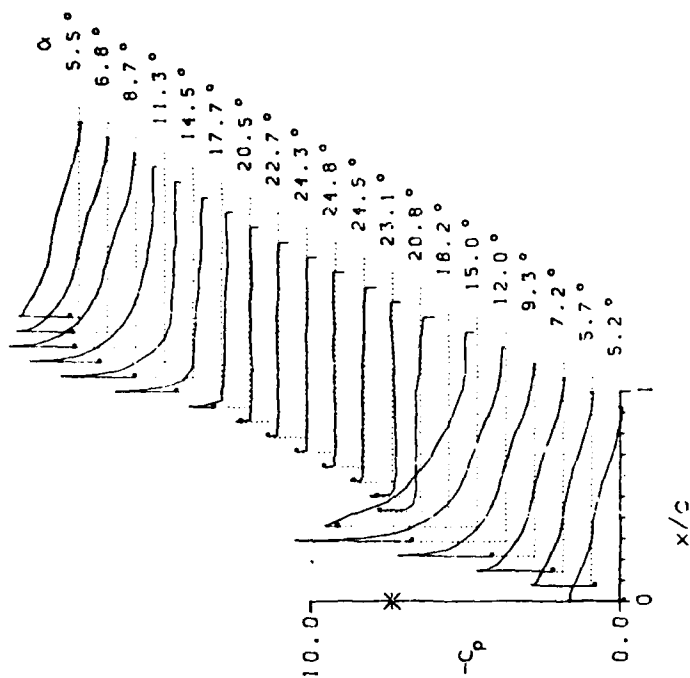
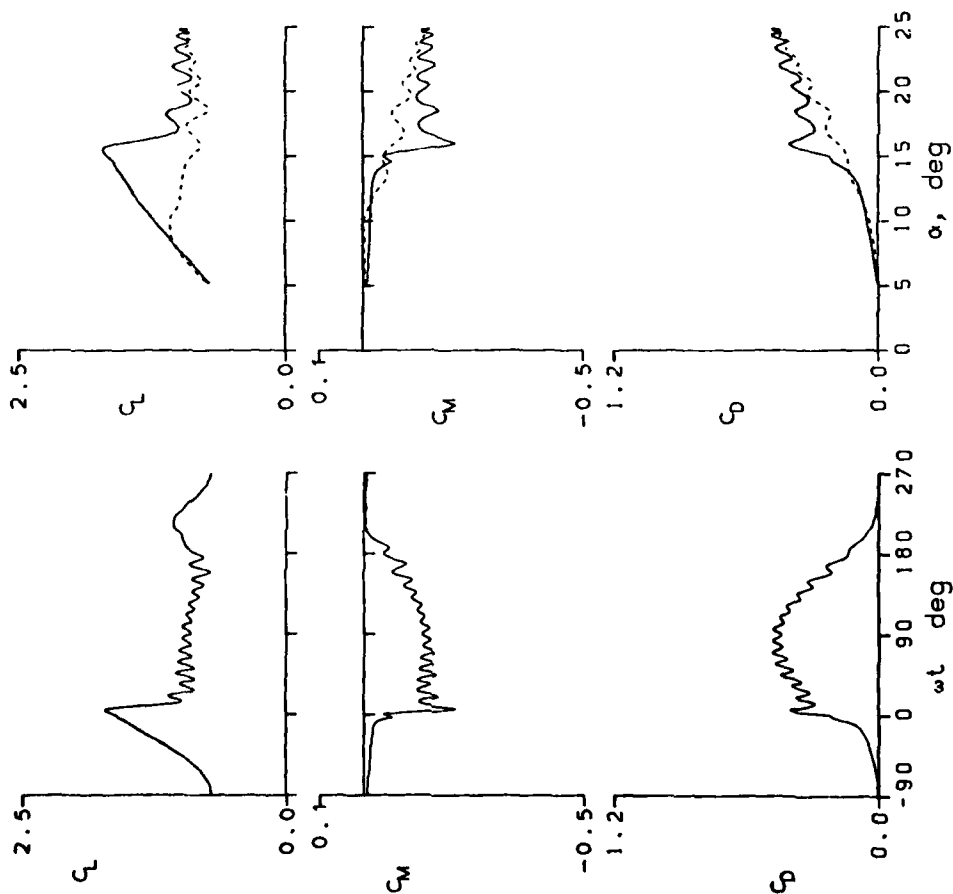


Figure 16.- Dynamic data for Hughes HH-02 airfoil.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 43021	AO = 14.85°	k = 0.051
Re = 3.88 E6	A1 = 9.99°	M = 0.289
C _{Lmax} = 1.99	C _{Mmin} = -0.30	C _{Dmax} = 0.59
α _{Lmax} = 17.5°	ξ = 0.365	M _{max} = 1.049
α _{Cmin} = 4.5°	-C _{Dmax} = 9.1	α _{Mmax} = 14.5°

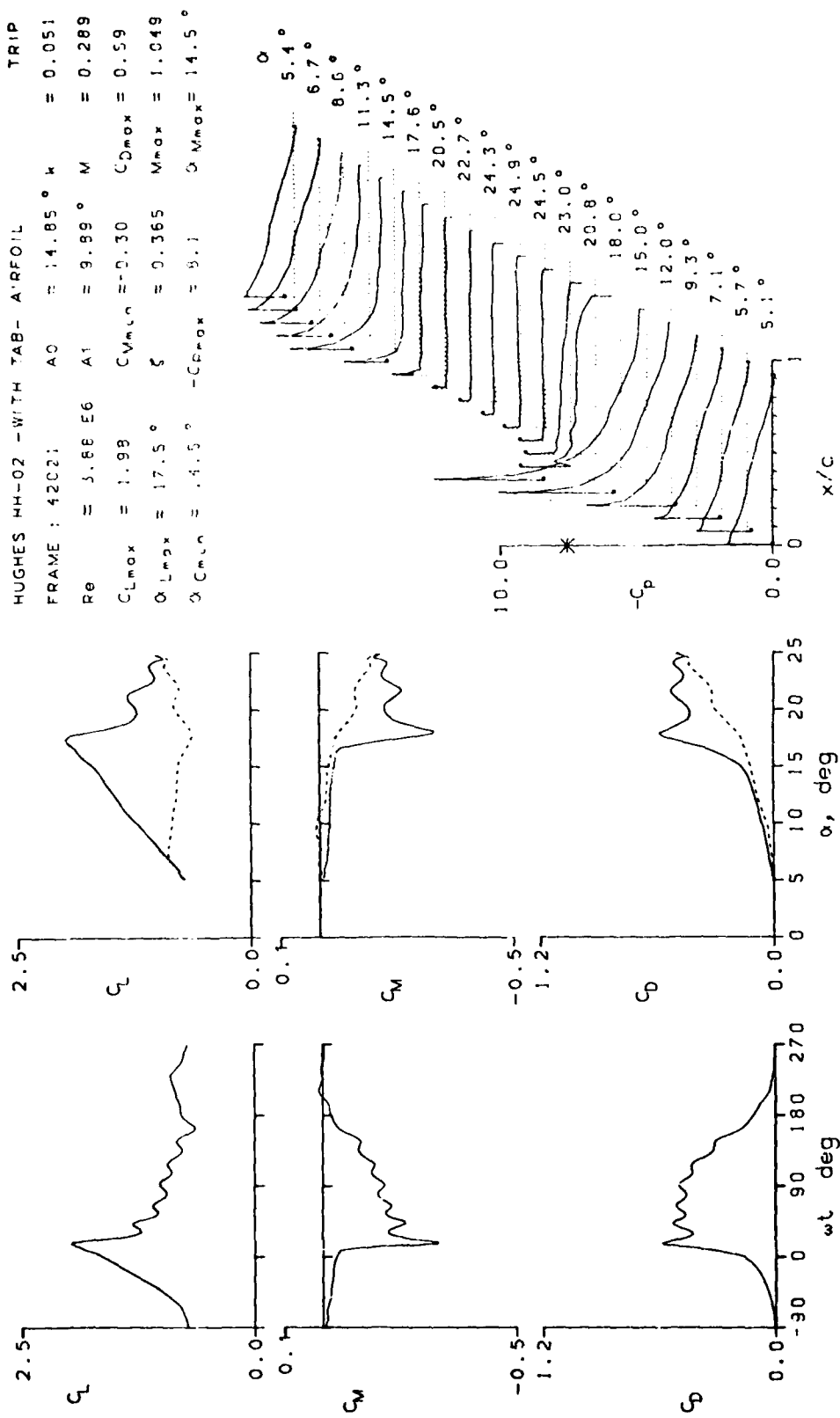


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB- AIRFOIL

FRAME : 42100	$A_0 = 14.83^\circ$	$\mu = 0.104$	TRIP
$Re = 3.79 \text{ E}6$	$A_1 = 9.89^\circ$	$M = 0.283$	
$C_{Lmax} = 2.25$	$C_{Mmin} = -0.42$	$C_{Dmax} = 0.86$	
$\alpha_{Lmax} = 20.5^\circ$	$\xi = 0.521$	$M_{max} = 1.084$	
$\alpha_{Cmin} = 14.6^\circ$	$-C_{pmax} = 8.8$	$\alpha_{Mmax} = 15.9^\circ$	

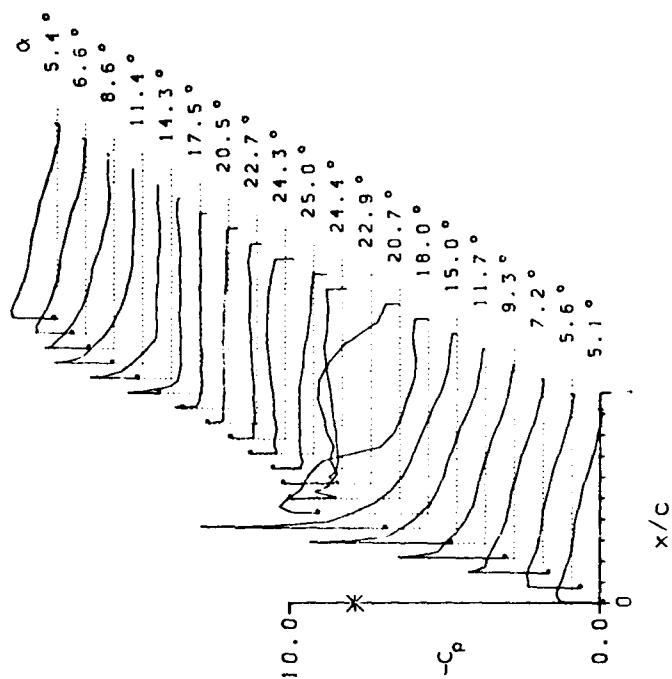
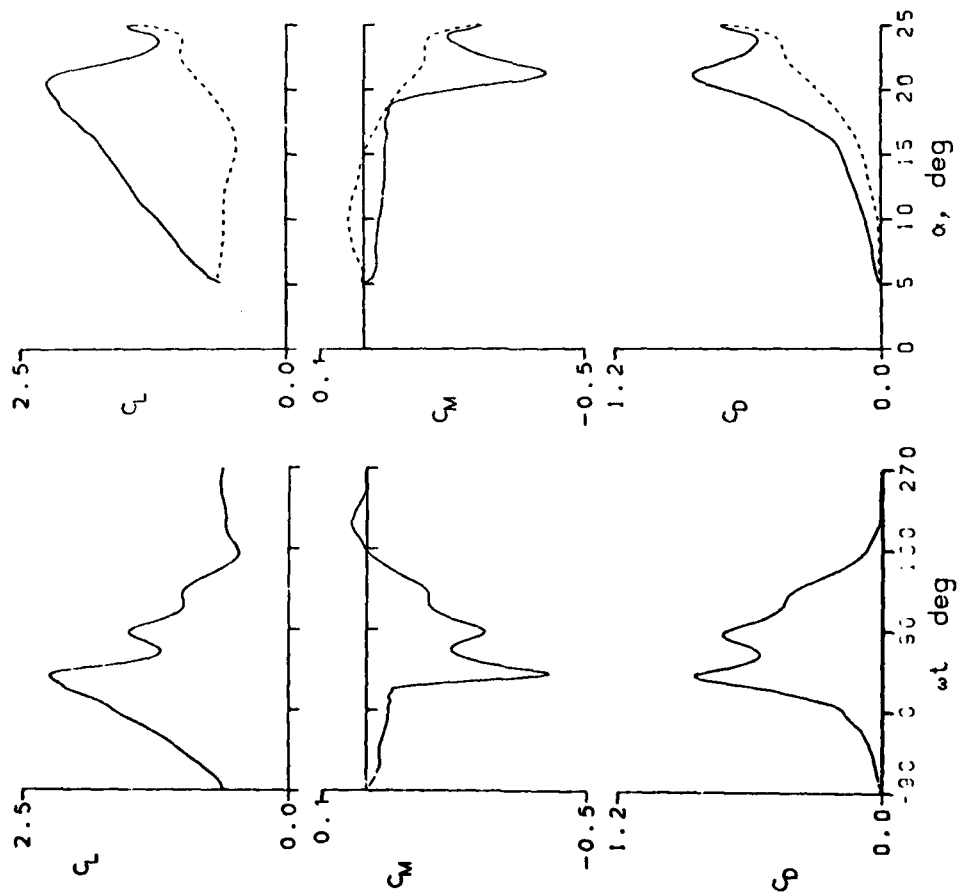


Figure 16.- Continued.

HUGHES HU-02 -WITH TAB- AIRFOIL

FRAME : 42108	A0 = 14.83°	k = 0.051	TRIP
Re = 2.53 E6	A1 = 9.89°	M = 0.183	
C _{Lmax} = 2.07	C _{Mmin} = -0.31	C _{Dmax} = 0.67	
α _{Lmax} = 13.2°	ξ = 0.485	M _{max} = 0.699	
α _{Cmin} = 14.5°	-C _{Dmax} = 11.2	α _{Mmax} = 18.0°	

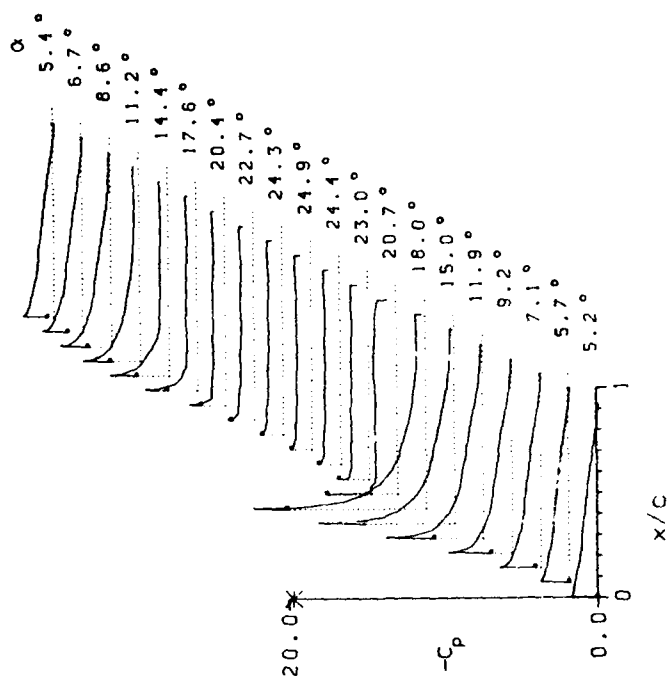
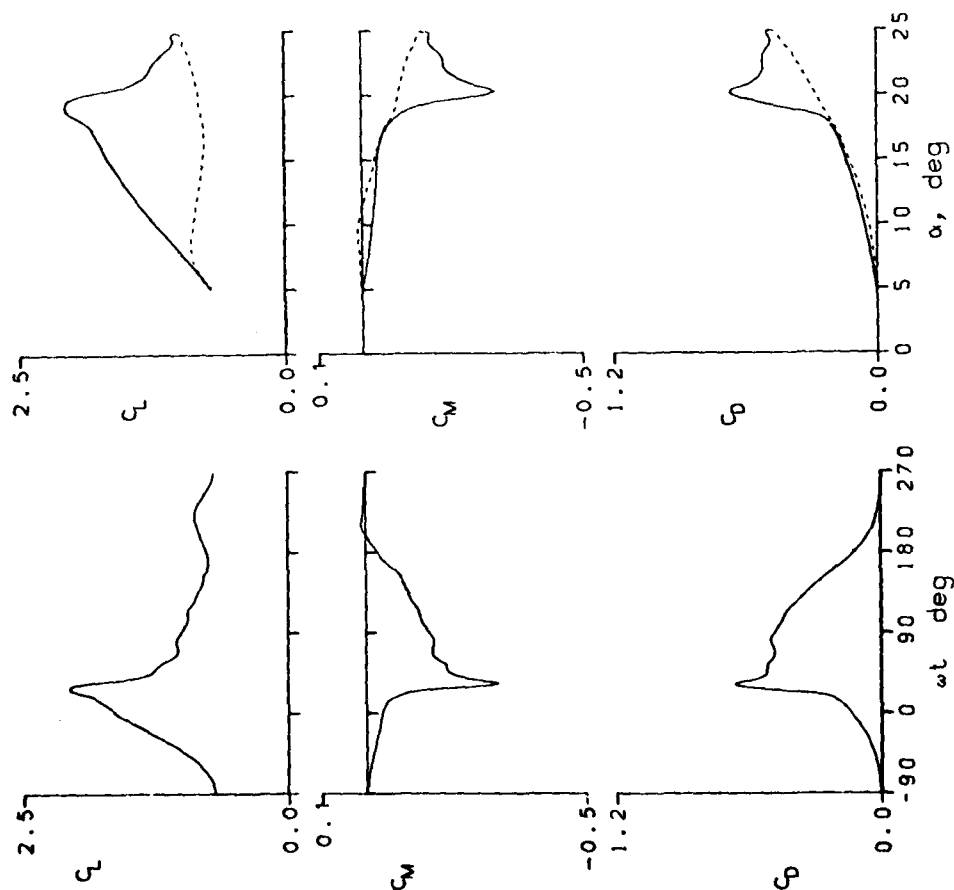


Figure 16.- Continued.

HUGHES HR-02 - WITH TAB - AIRFOIL

FRAME : 42110	A0 = 14.82°	k = 0.101	TRIP
Re = 2.53 E6	A1 = 9.91°	M = 0.183	
C _{Lmax} = 2.39	C _{Mmin} = -0.40	C _{Dmax} = 0.91	
α _{Lmax} = 20.8°	ξ = 0.404	Mmax = 0.713	
α _{Cmin} = 14.5°	-C _{pmax} = 11.6	α _{Mmax} = 18.9°	

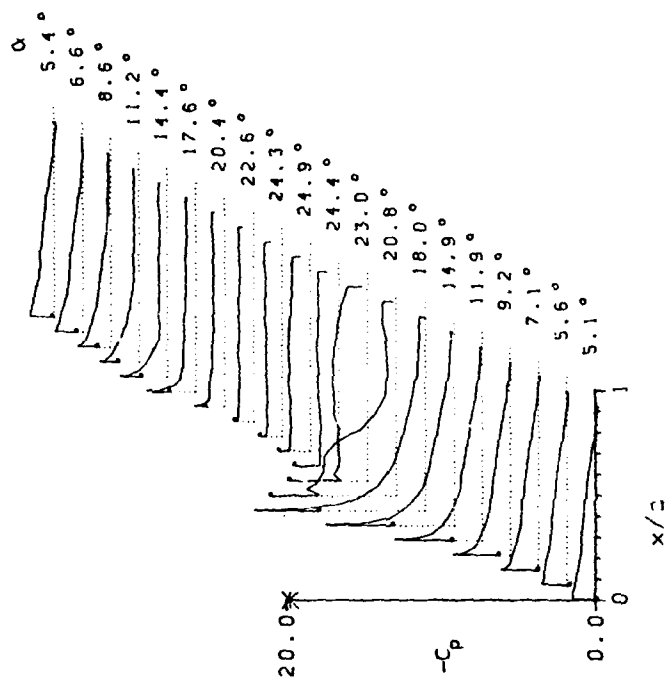
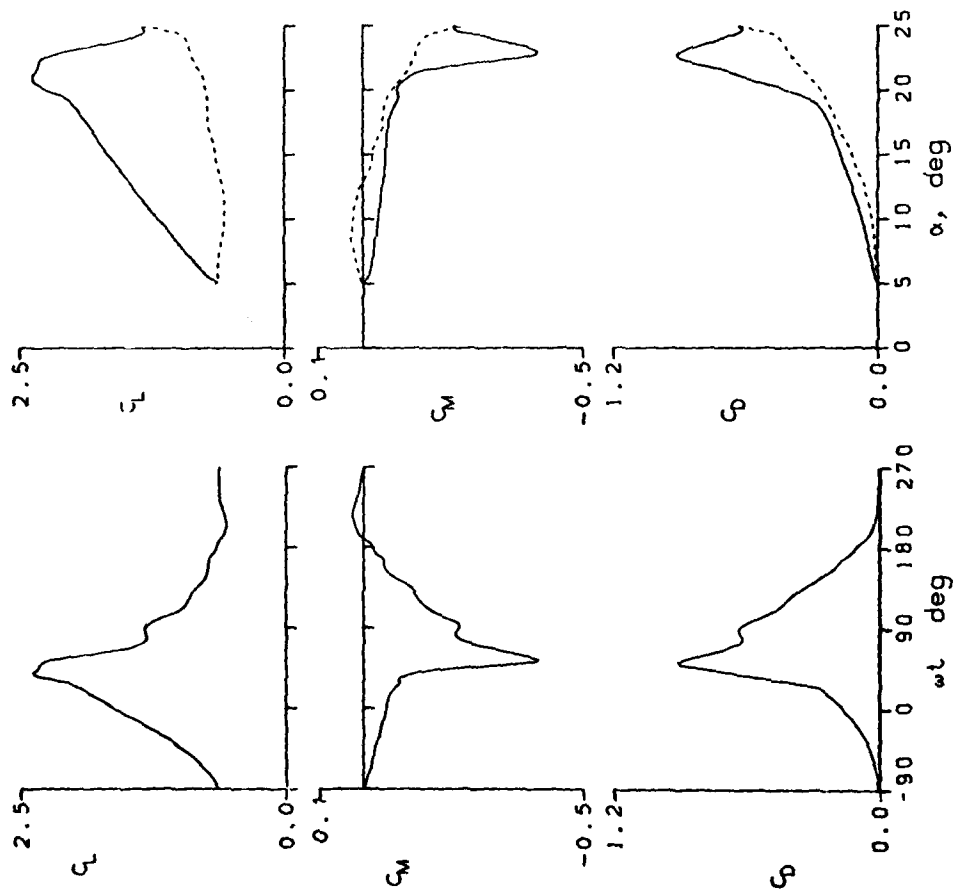


Figure 16.- Continued.

HUGHES HM-02 -WITH TAB- AIRFOIL TRIP
 FRAME : 42113 $A_0 = 14.84^\circ$ $k = 0.152$
 $Re = 2.53 \text{ EE}$ $A_1 = 9.88^\circ$ $M = 0.183$
 $C_{Lmax} = 2.61$ $C_{Mmin} = -0.46$ $C_{Dmax} = 1.09$
 $\alpha_{Lmax} = 22.4^\circ$ $\xi = 0.286$ $M_{max} = 0.724$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 11.9$ $\alpha_{Mmax} = 19.5^\circ$

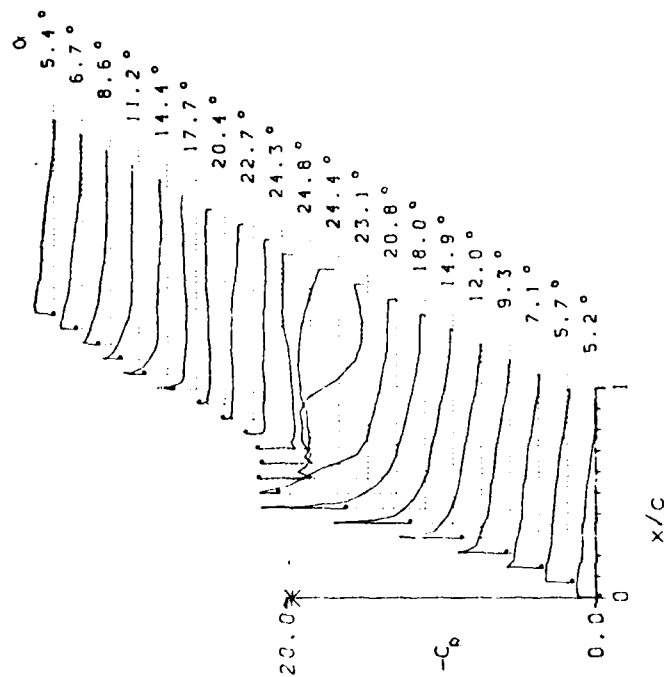
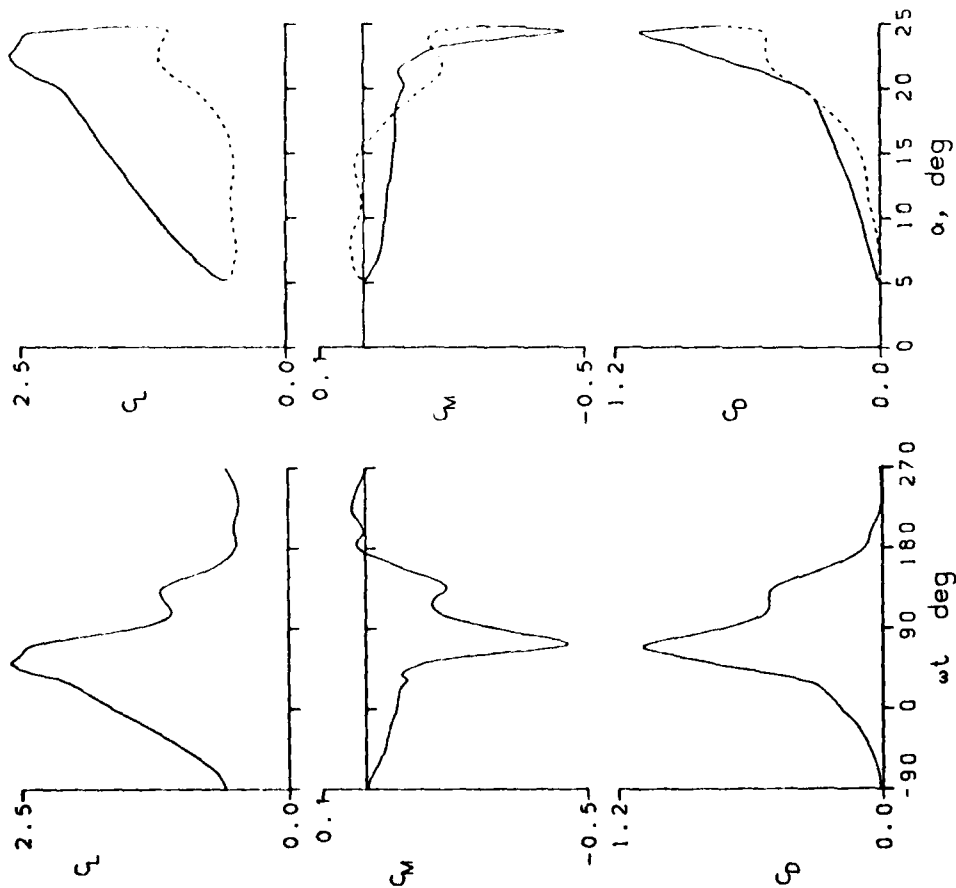


Figure 16.- Continued.

HUGHES MH-02 - WITH TAB - AIRFOIL

FRAME : 42121 $A_0 = 14.82^\circ$ $k = 0.101$

$Re = 1.03 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.072$

$C_{Lmax} = 2.47$ $C_{Mmin} = -0.43$ $C_{Dmax} = 1.03$

$\alpha_{Lmax} = 22.8^\circ$ $\xi = 0.389$ $M_{max} = 0.312$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 16.9$ $\alpha_{Mmax} = 21.3^\circ$

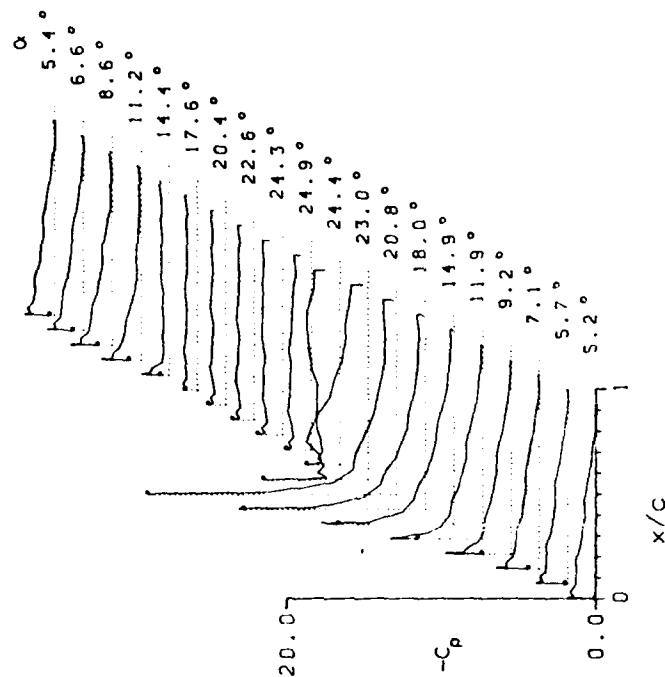
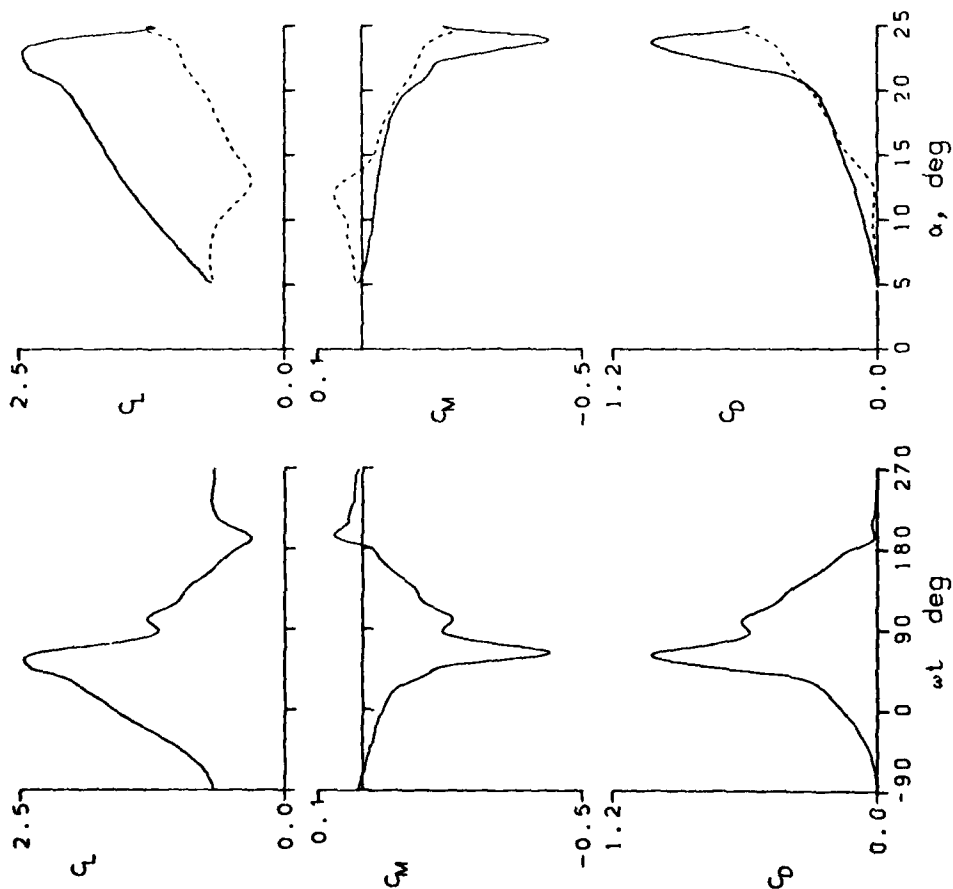


Figure 16.- Continued.

HUGHES 44-02 - WITH TAB - AIRFOIL
 FRAME : 42206 $A_0 = 14.89^\circ$ $\mu = 0.026$
 $Re = 3.98 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.290$
 $C_{Lmax} = 1.77$ $C_{Mmin} = -0.21$ $C_{Dmax} = 0.46$
 $\alpha_{Lmax} = 16.0^\circ$ $\xi = 0.187$ $M_{max} = 1.172$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 13.9^\circ$

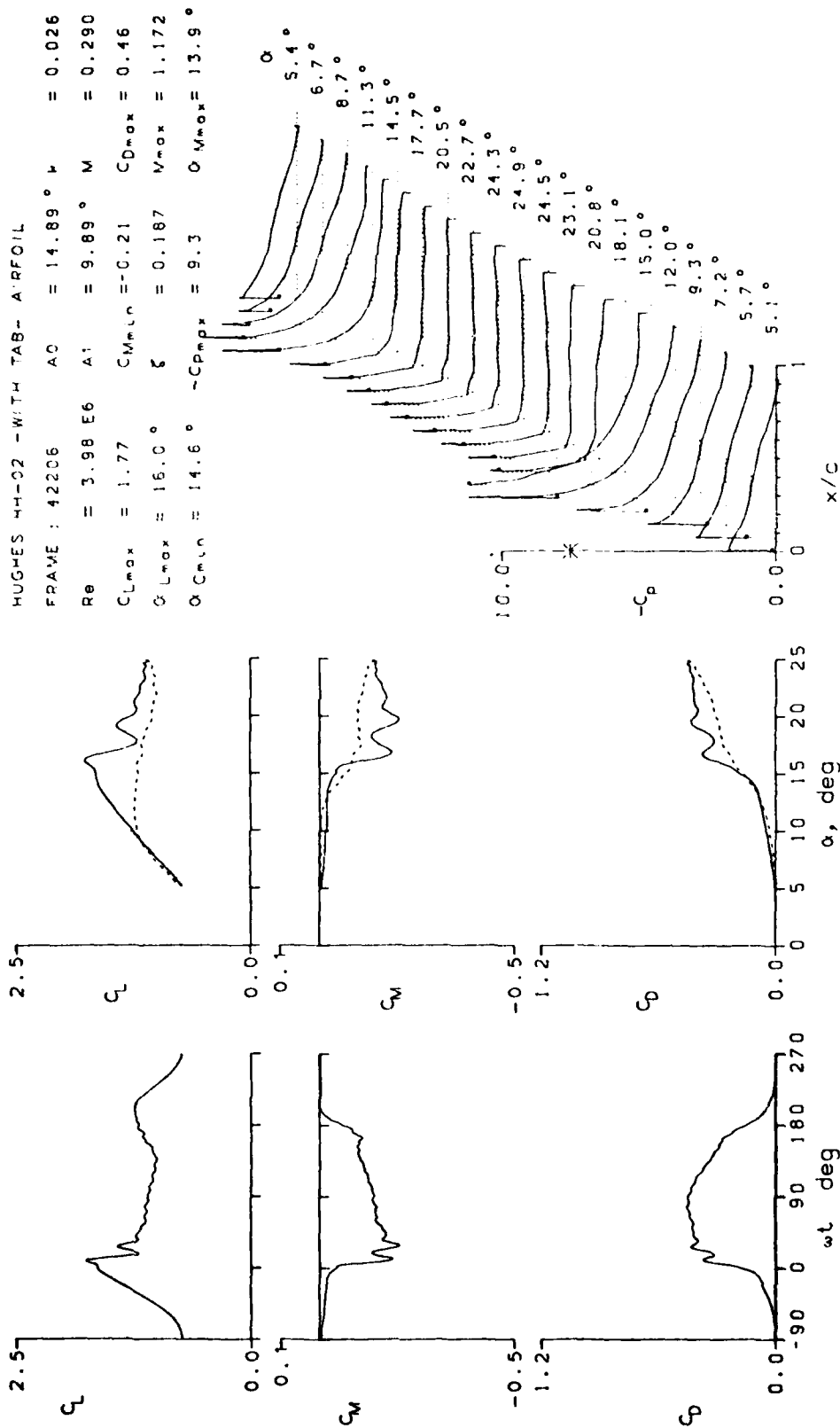


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 42208	$A_0 = 14.85^\circ$	$k = 0.051$
$Re = 3.98 E6$	$A_1 = 9.89^\circ$	$M = 0.292$
$C_{Lmax} = 1.95$	$C_{Mmin} = -0.25$	$C_{Dmax} = 0.49$
$\alpha_{Lmax} = 17.5^\circ$	$\xi = 0.289$	$M_{max} = 1.169$
$\alpha_{Cmin} = 14.5^\circ$	$-C_{Dmax} = 9.2$	$\alpha_{Mmax} = 14.2^\circ$

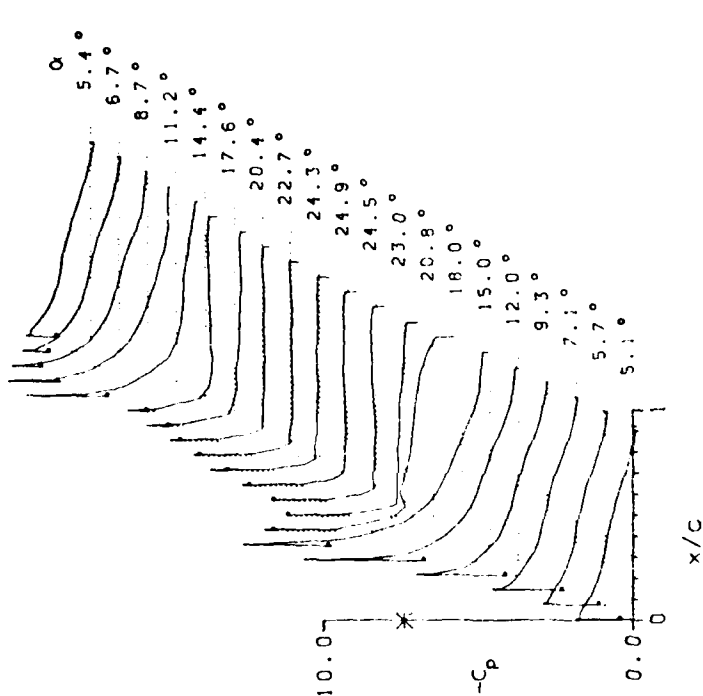
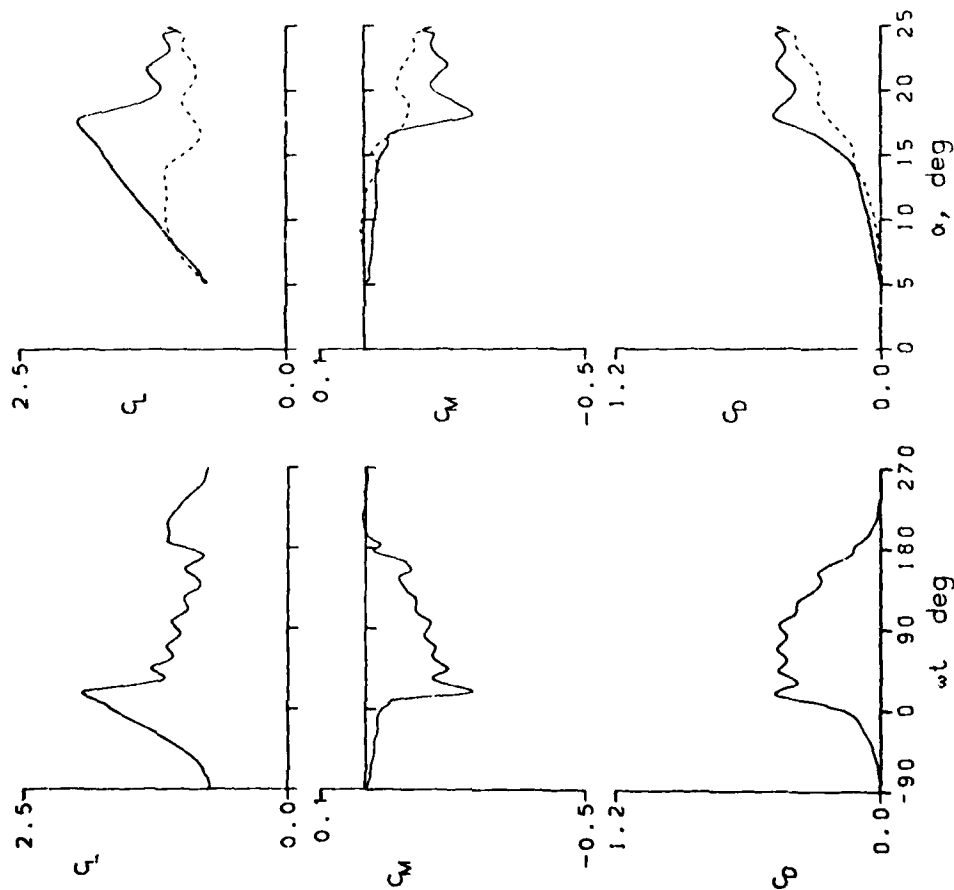


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 42208	$A_0 = 14.85^\circ$	$k = 0.051$
$Re = 3.98 \text{ E}6$	$A_1 = 9.89^\circ$	$M = 0.292$
$C_{Lmax} = 1.96$	$C_{Mmin} = -0.25$	$C_{Dmax} = 0.49$
$\alpha_{Lrov} = 17.5^\circ$	$\xi = 0.289$	$M_{max} = 1.169$
$\alpha_{Cmin} = 14.5^\circ$	$-C_{Dmax} = 9.2$	$\alpha_{Mmax} = 14.2^\circ$

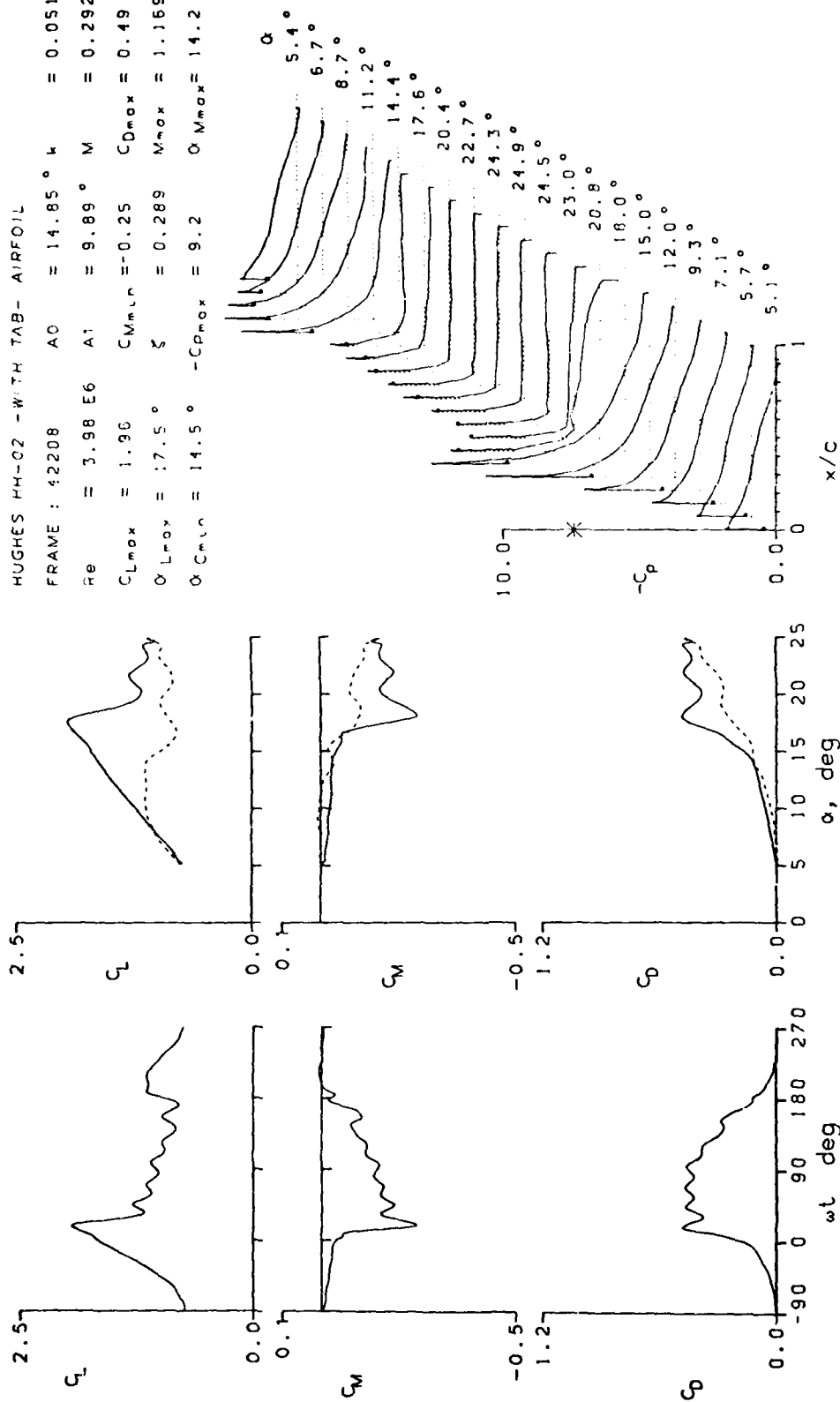


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 42210 $A_0 = 14.83^\circ$ $k = 0.103$
 $P_0 = 3.91 \text{ E6}$ $A' = 9.95^\circ$ $V = 0.288$
 $C_{Lmax} = 2.25$ $C_{Mmin} = -0.36$ $C_{Dmax} = 0.78$
 $\alpha_{Lmax} = 20.3^\circ$ $\xi = 0.543$ $M_{max} = 1.202$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{pmax} = 9.7$ $\alpha_{Mmax} = 15.2^\circ$

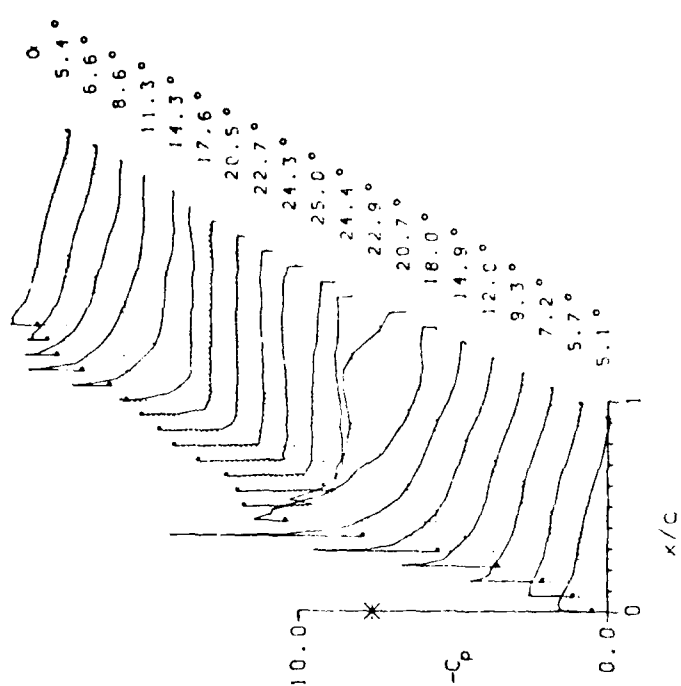
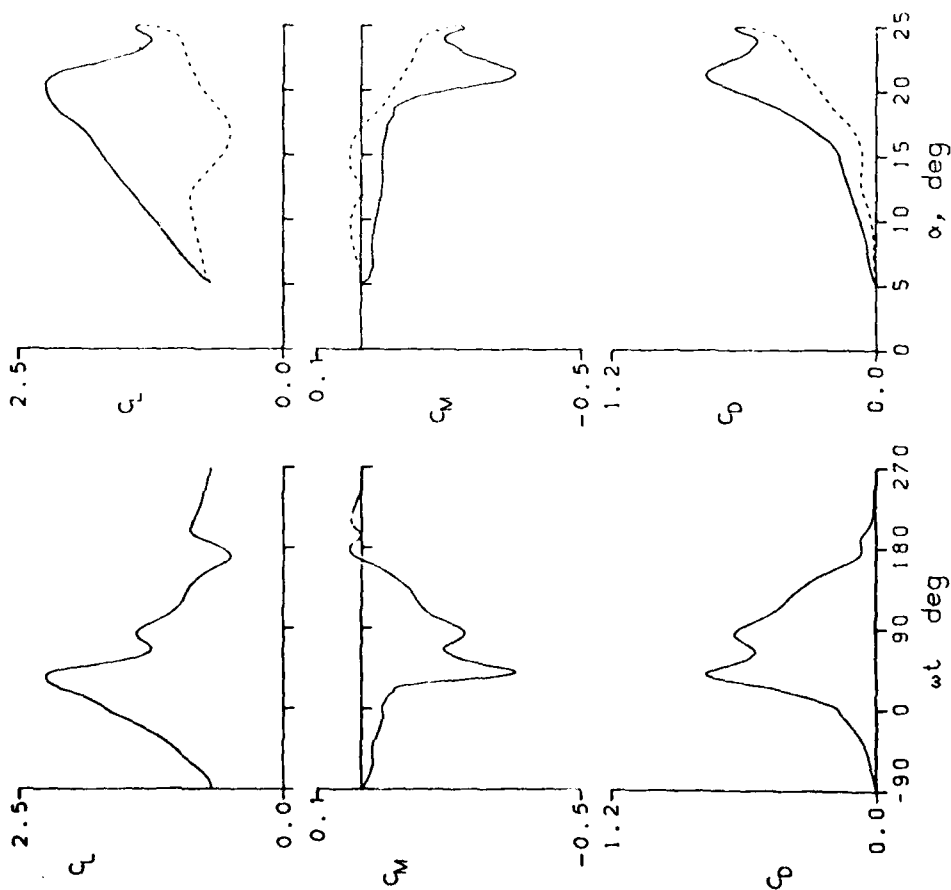


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 42212 $A_0 = 14.90^\circ$ $k = 0.156$
 $Re = 3.83 \text{ E}6$ $A' = 9.87^\circ$ $M = 0.283$
 $C_{Lmax} = 2.37$ $C_{Mmin} = -0.43$ $C_{Dmax} = 0.98$
 $\alpha_{Lmax} = 21.7^\circ$ $\xi = 0.472$ $M_{max} = 1.194$
 $\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 16.6^\circ$

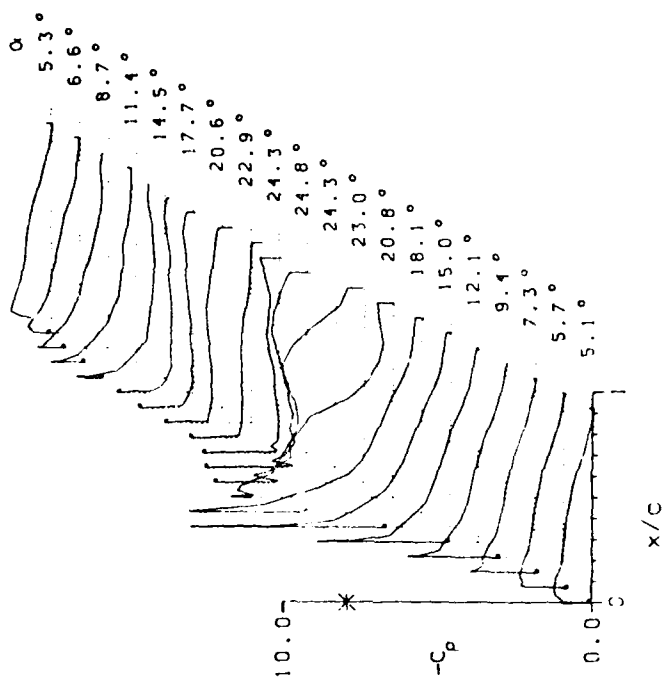
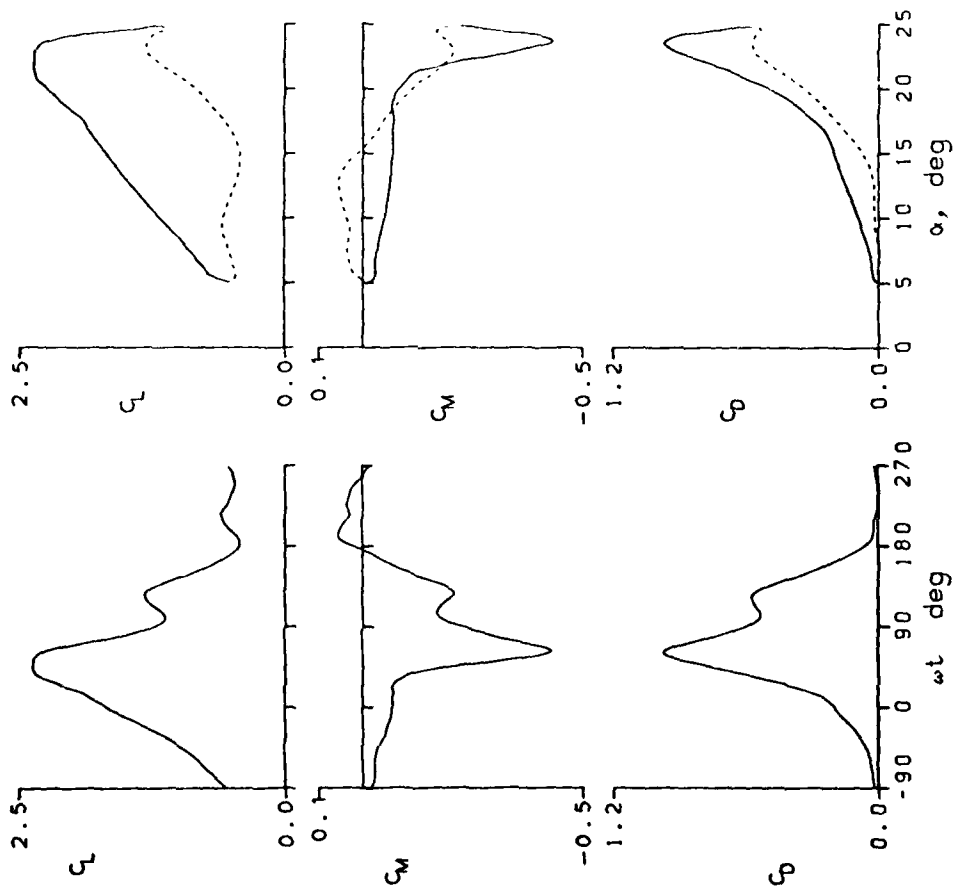


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRANC : 42217 $A_0 = 14.90^\circ$ $k = 0.156$

$Re = 3.83 \text{ E}6$ $A1 = 9.87^\circ$ $M = 0.283$

$C_{Lmax} = 2.37$ $C_{Mmax} = -0.44$ $C_{Dmax} = 0.99$

$\alpha_{Lmax} = 22.0^\circ$ $\xi = 0.466$ $M_{max} = 1.191$

$\alpha_{Cmin} = 14.7^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 16.6^\circ$

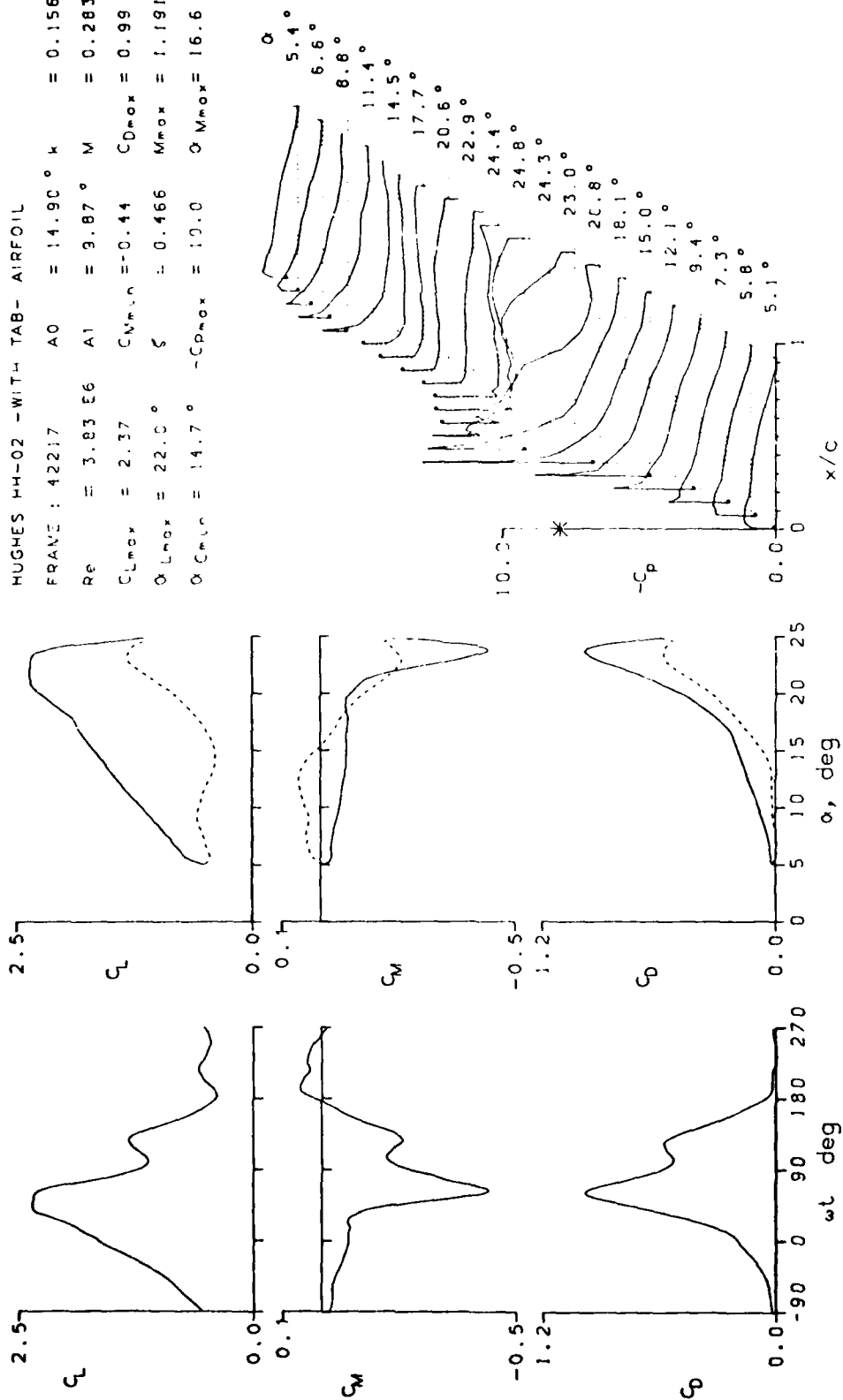


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 42218 $A_0 = 14.85^\circ$ $k = 0.101$
 $Re = 3.76 E6$ $A_1 = 9.87^\circ$ $M = 0.278$
 $C_{Lmax} = 2.28$ $C_{Mmin} = -0.37$ $C_{Dmax} = 0.81$
 $\alpha_{Lmax} = 20.8^\circ$ $\zeta = 0.521$ $M_{max} = 1.181$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 10.3$ $\alpha_{Mmax} = 15.6^\circ$

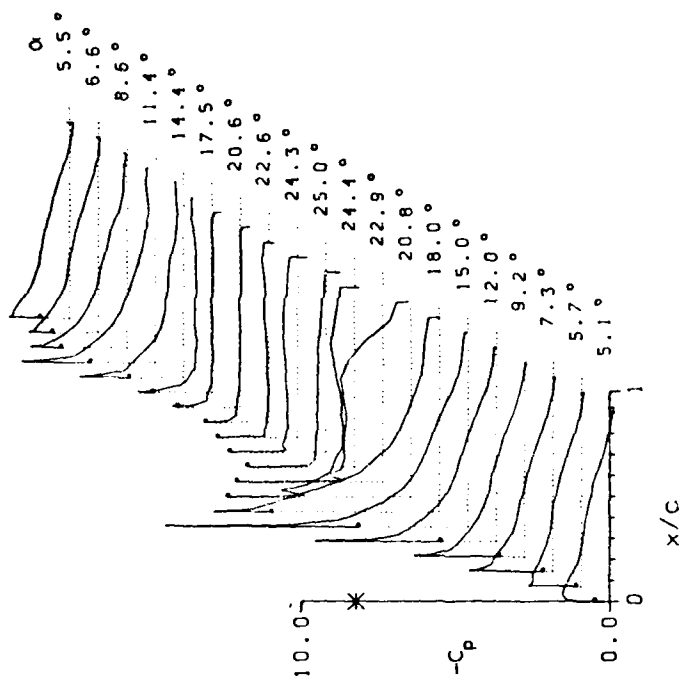
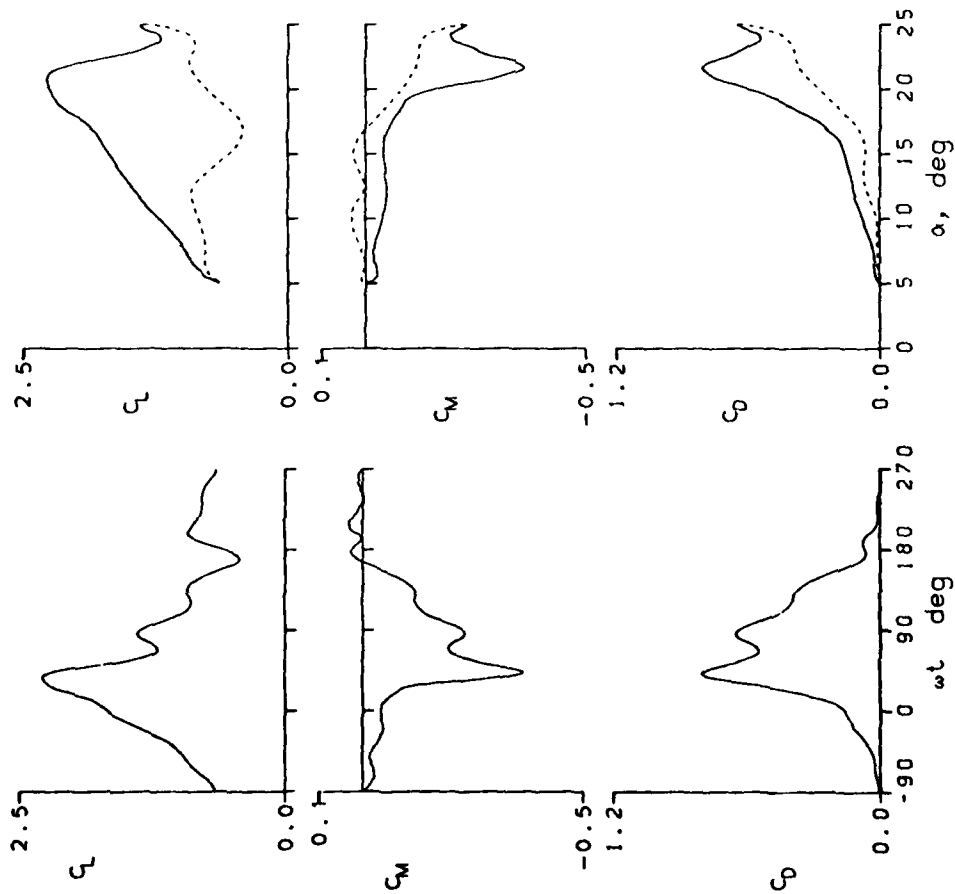


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 42302 A0 = 14.84° μ = 0.101
 Re = 2.53 E6 A1 = 9.89° M = 0.183
 CLmax = 2.55 CMmin = -0.38 CDmax = 0.95
 α_{Lmax} = 22.9° ξ = 0.299 Mmax = 0.902
 α_{CMmin} = 14.5° -CDmax = 16.9 α_{Mmax} = 20.8°

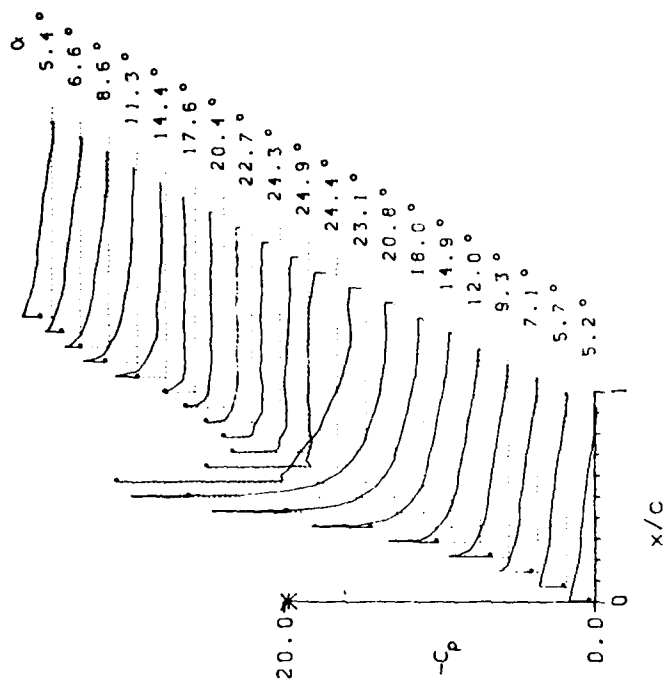
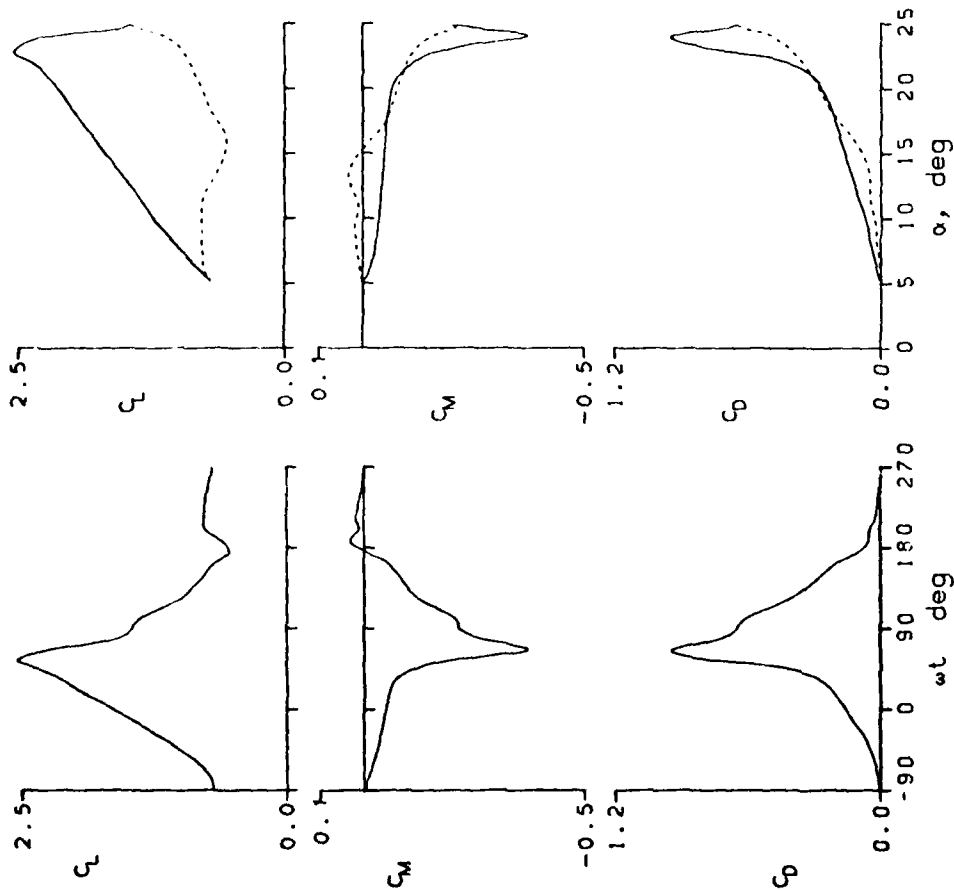


Figure 16.- Continued.

HUGHES HM-02 - WITH TAB - AIRFOIL

FRAME : 42309 $AC = 14.84^\circ$ $k = 0.101$

$Re = 2.98 \times 10^6$ $Al = 9.88^\circ$ $M = 0.218$

$C_{Lmax} = 2.41$ $C_{Mmin} = -0.39$ $C_{Dmax} = 0.92$

$\alpha_{Lmax} = 21.3^\circ$ $\zeta = 0.466$ $M_{max} = 1.083$

$\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 15.3$ $\alpha_{Mmax} = 18.9^\circ$

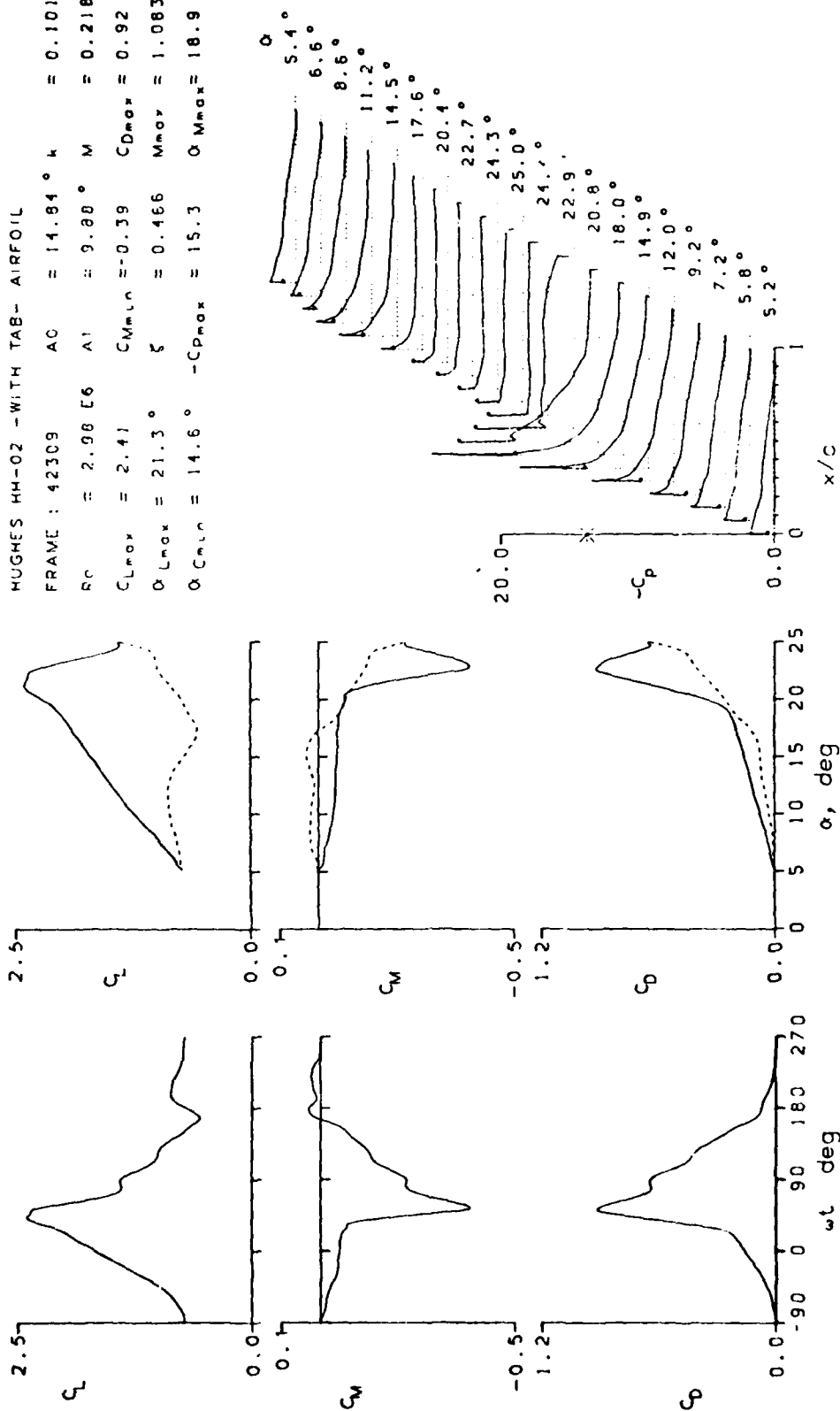


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 42313 $A_0 = 14.86^\circ$ $k = 0.101$

$Re = 3.33 \text{ E}6$ $A_1 = 9.86^\circ$ $M = 0.246$

$C_{Lmax} = 2.30$ $C_{Mmin} = -0.38$ $C_{Dmax} = 0.86$

$\alpha_{Lmax} = 20.1^\circ$ $\xi = 0.487$ $M_{max} = 1.109$

$\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 12.2$ $\alpha_{Mmax} = 17.5^\circ$

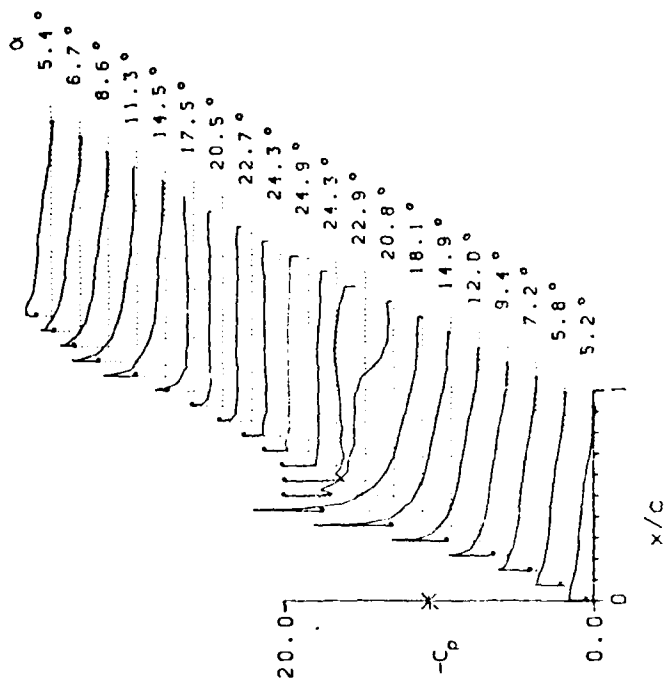
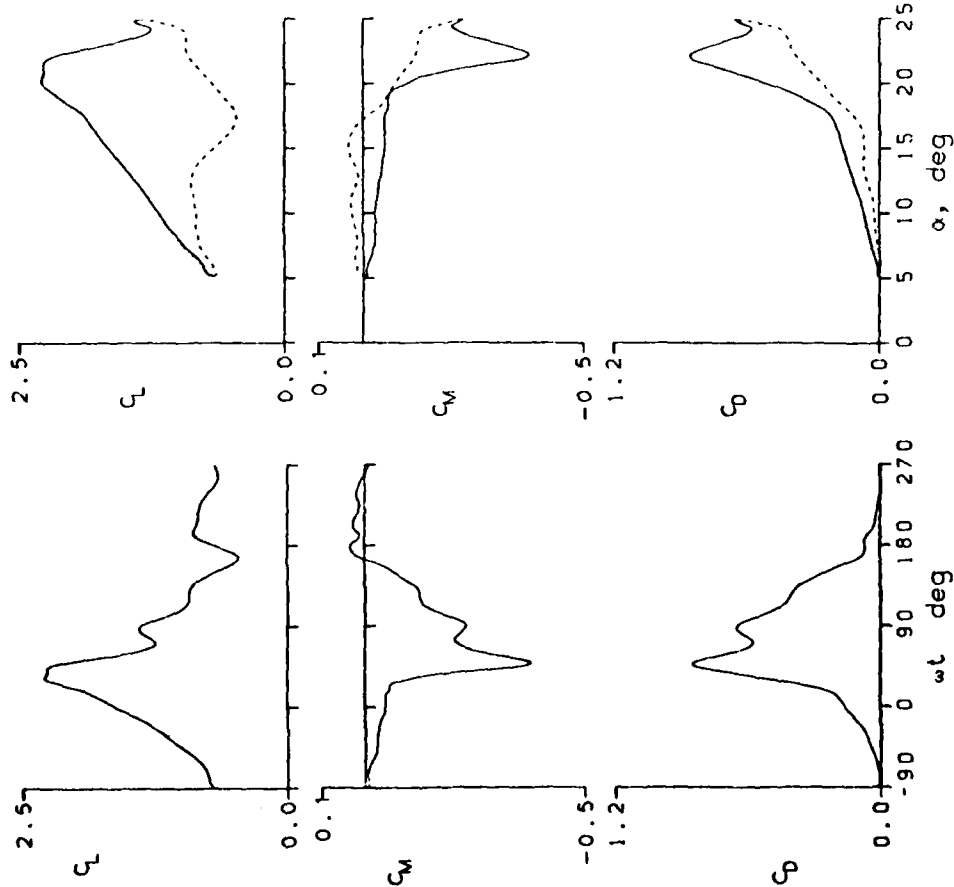


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME: 42321 $A_0 = 14.82^\circ$ $k = 0.101$

$Re = 1.51 \times 10^6$ $A_1 = 9.84^\circ$ $M = 0.108$

$C_{Lmax} = 2.58$ $C_{Mmin} = -0.44$ $C_{Dmax} = 1.05$

$\alpha_{Lmax} = 22.8^\circ$ $\xi = 0.288$ $M_{max} = 0.502$

$\alpha_{Cmin} = 14.4^\circ$ $-C_{Dmax} = 18.5$ $\alpha_{Mmax} = 22.3^\circ$

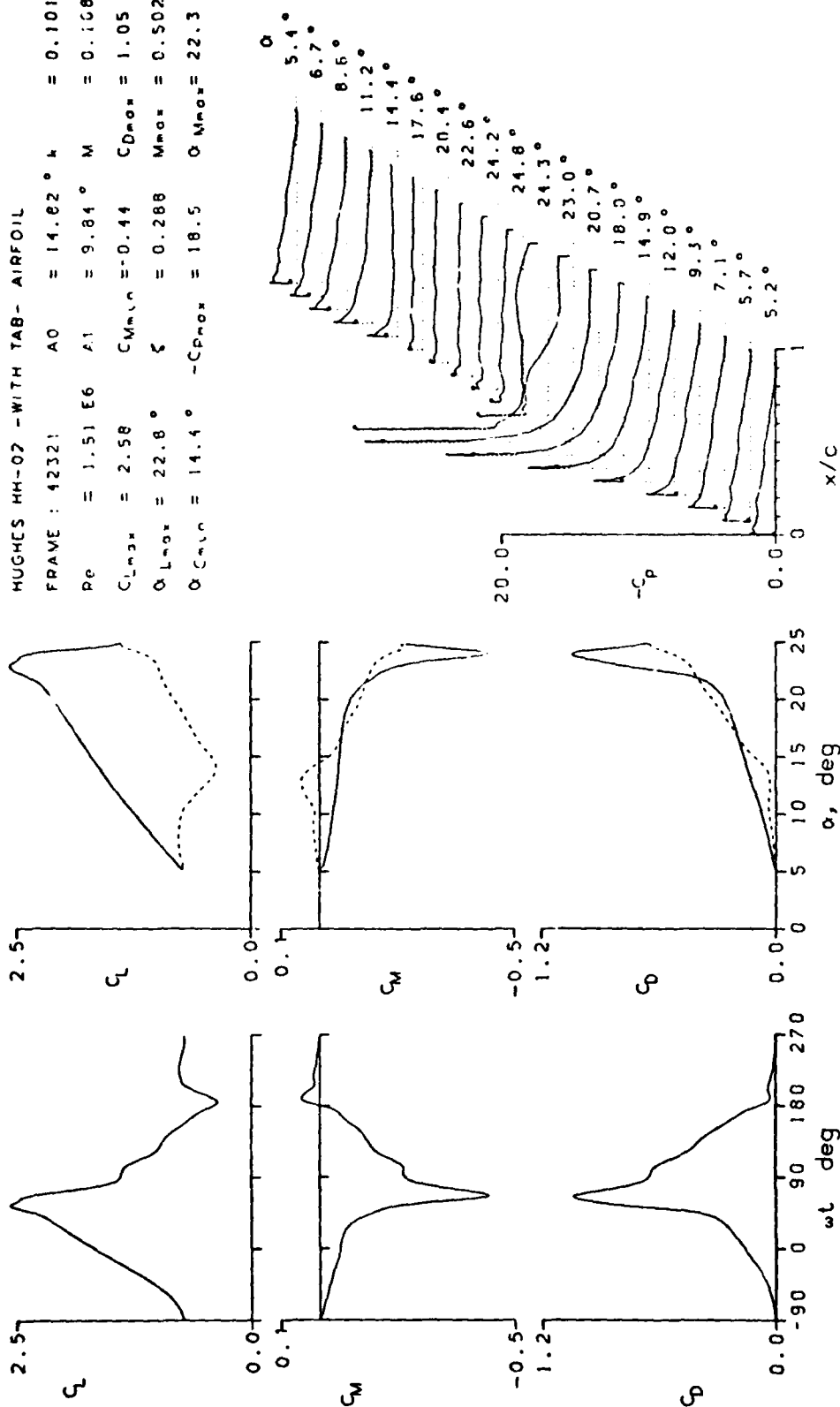


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB- AIRFOIL
 FRAME : 43019 $A_0 = 9.57^\circ$ $k = 0.010$
 $Re = 3.90 \text{ E}6$ $A_1 = 10.04^\circ$ $M = 0.297$
 $C_{Lmax} = 1.53$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.30$
 $\alpha_{Lmax} = 12.0^\circ$ $\xi = 0.042$ $M_{max} = 1.177$
 $\alpha_{Cmin} = 9.1^\circ$ $-C_{Dmax} = 8.9$ $\alpha_{Mmax} = 13.2^\circ$

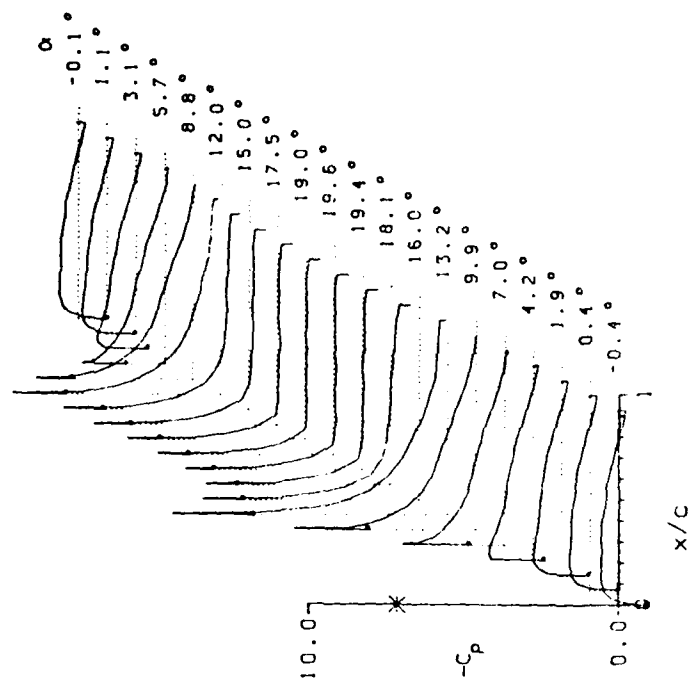
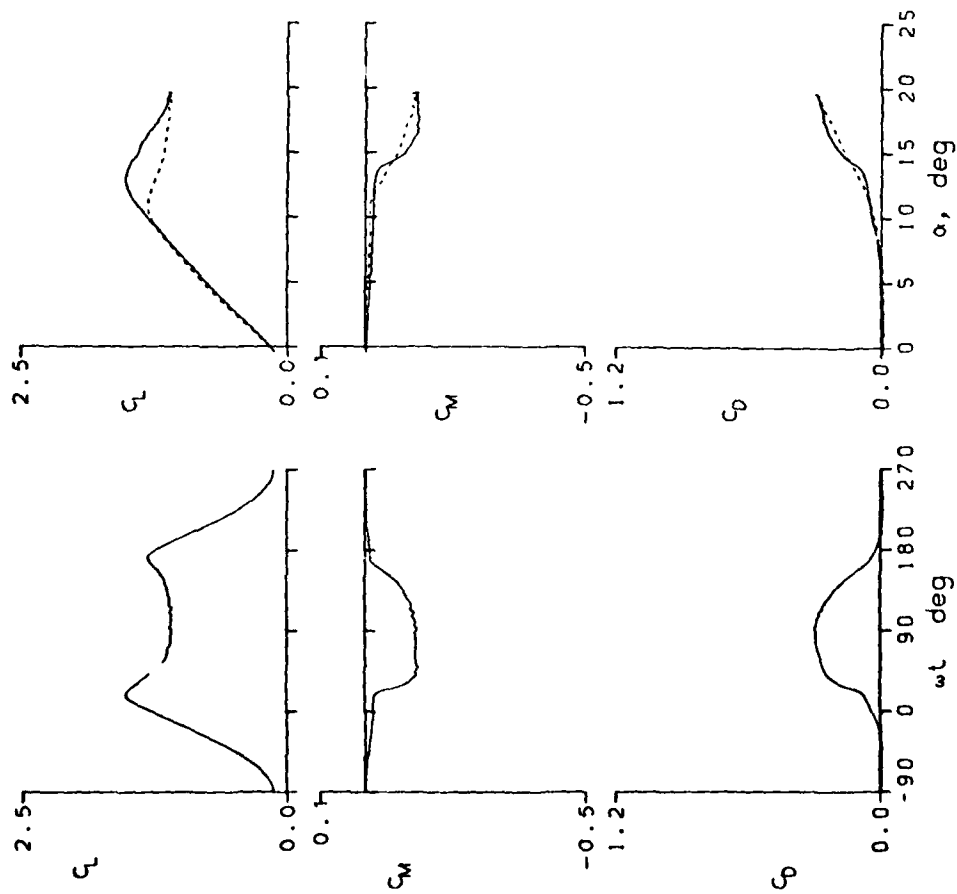


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB- AIRFOIL
 FRAME : 43106 $A_0 = 9.78^\circ$ $k = 0.025$
 $Re = 3.93 \text{ E} 6$ $A_1 = 9.90^\circ$ $M = 0.301$
 $C_{Lmax} = 1.64$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.41$
 $\alpha_{Lmax} = 15.6^\circ$ $\zeta = 0.088$ $M_{max} = 1.206$
 $\alpha_{Cmin} = 9.2^\circ$ $-C_{pmax} = 8.9$ $\alpha_{Mmax} = 13.5^\circ$

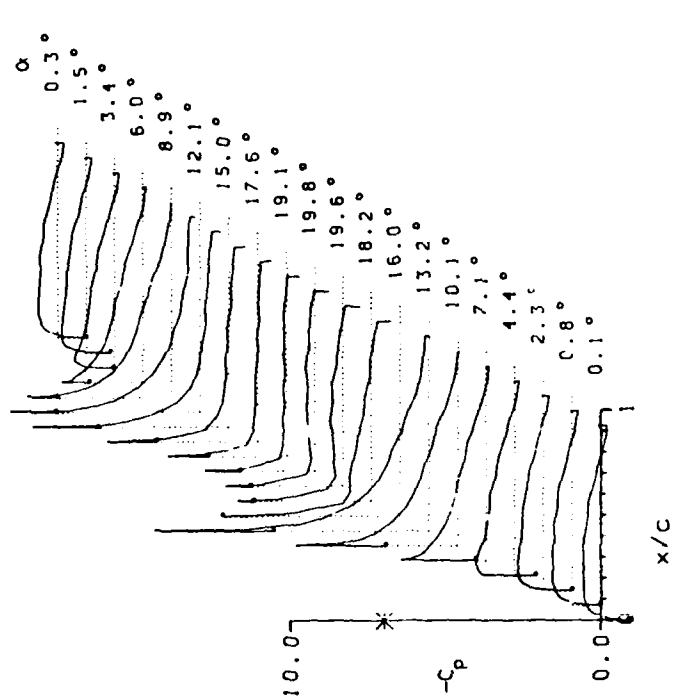
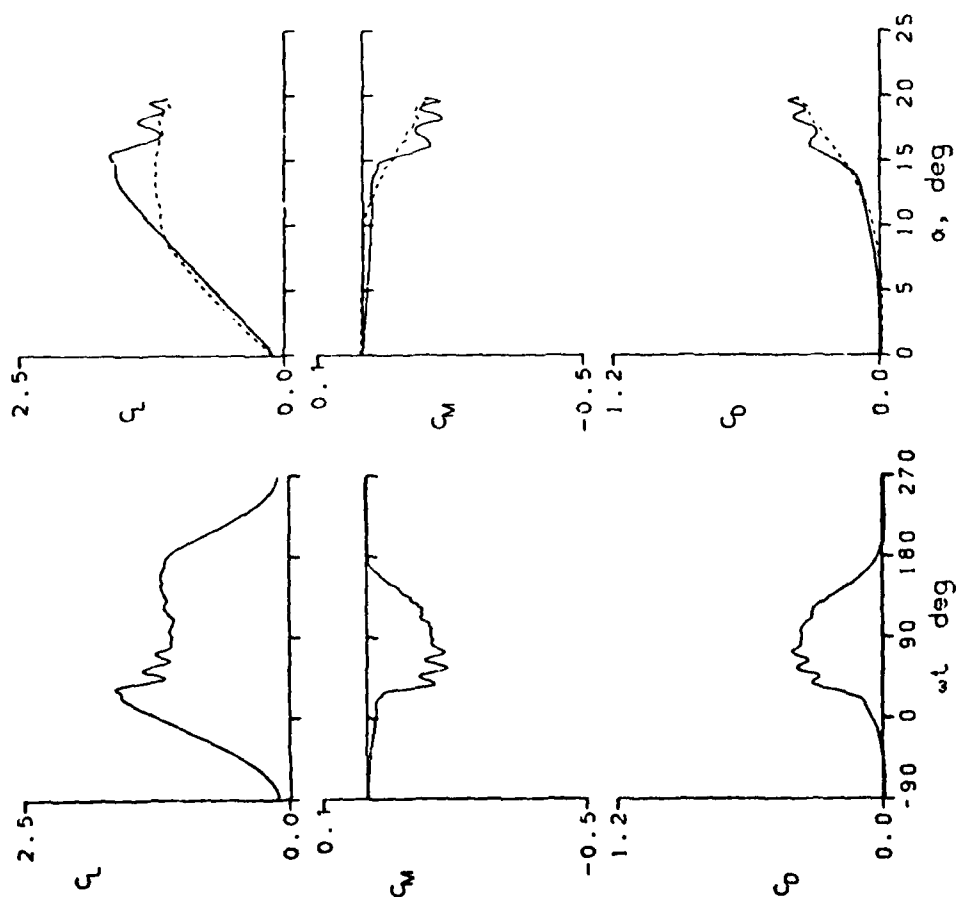


Figure 16.- Continued.

HUGHES HM-02 - WITH TAB - AIRFOIL

FRAME : 43108	A0 = 9.76°	h = 0.050
Re = 3.93 E6	A1 = 9.91°	M = 0.302
CLmax = 1.92	CMmin = -0.27	CDmax = 0.47
OLmax = 15.8°	ξ = 0.160	Mmax = 1.208
αCmin = 3.2°	-CPmax = 8.9	αMmax = 13.8°

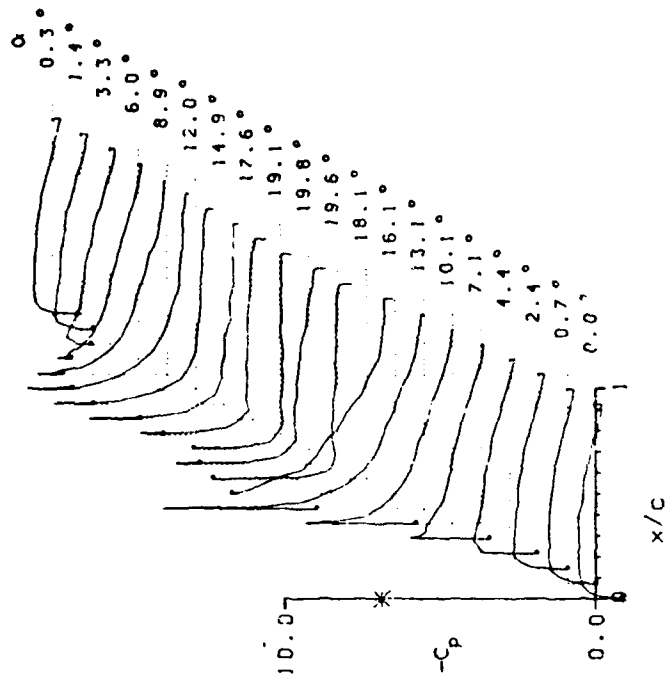
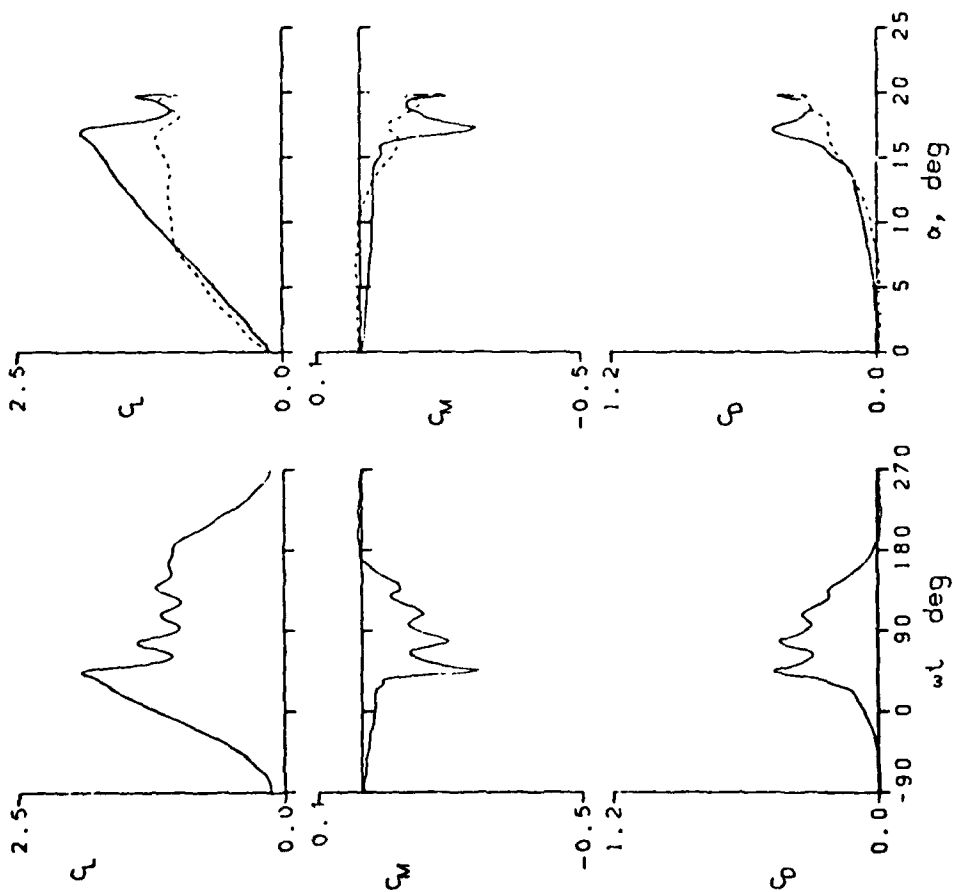


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL
 FRAME : 43112 $A_0 = 9.78^\circ$ $k = 0.099$
 $Re = 3.95 \text{ E}6$ $A_1 = 9.87^\circ$ $M = 0.302$
 $C_{Lmax} = 2.13$ $C_{Mmin} = -0.33$ $C_{Dmax} = 0.64$
 $\alpha_{Lmax} = 18.4^\circ$ $\xi = 0.314$ $M_{max} = 1.217$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 14.7^\circ$

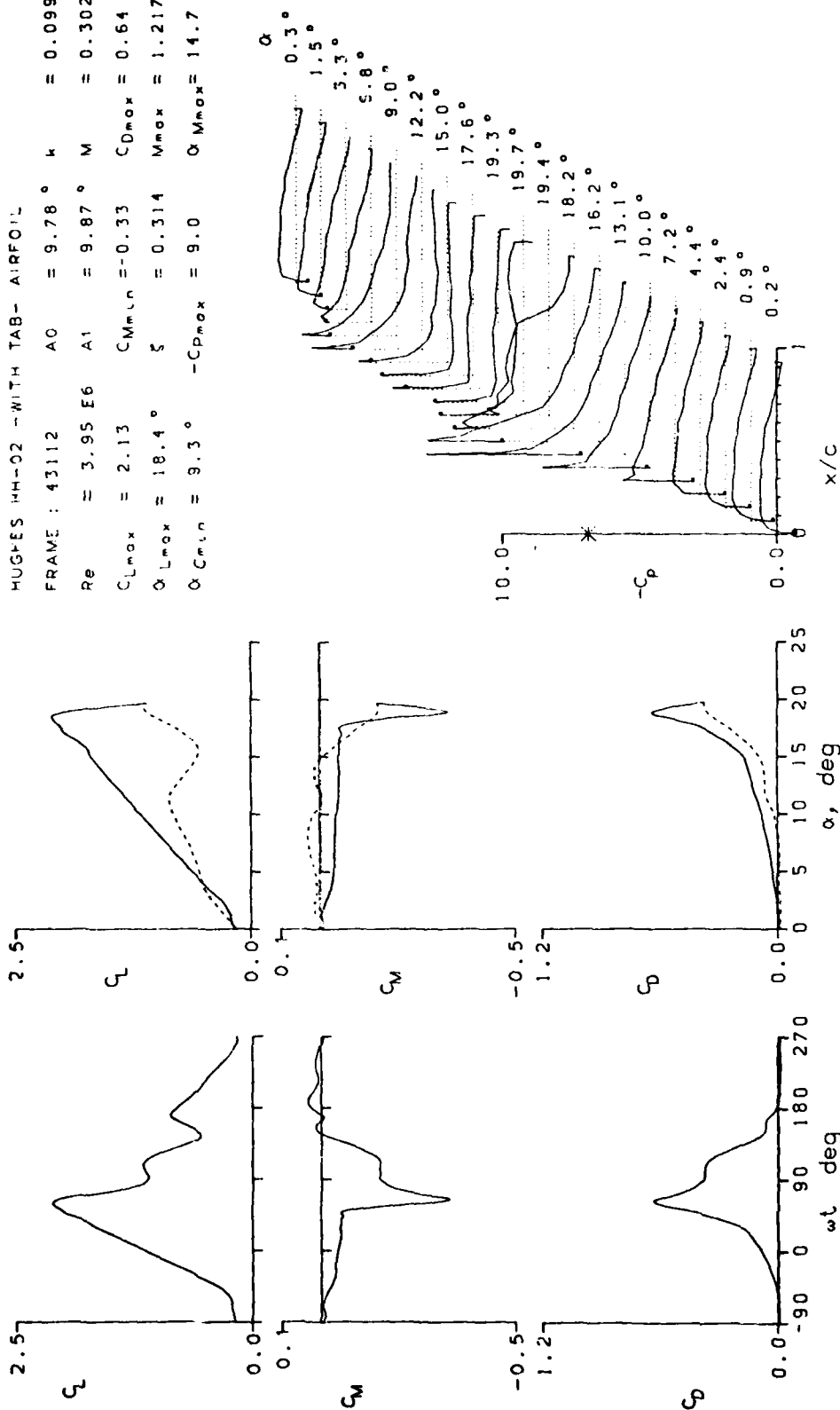


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 43114 $A_0 = 9.92^\circ$ $k = 0.150$
 $Re = 3.90 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.299$
 $C_{Lmax} = 2.18$ $C_{Mmin} = -0.35$ $C_{Dmax} = 0.70$
 $\alpha_{Lmax} = 19.5^\circ$ $\zeta = 0.299$ $M_{max} = 1.214$
 $\alpha_{Cmin} = 9.4^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 15.8^\circ$

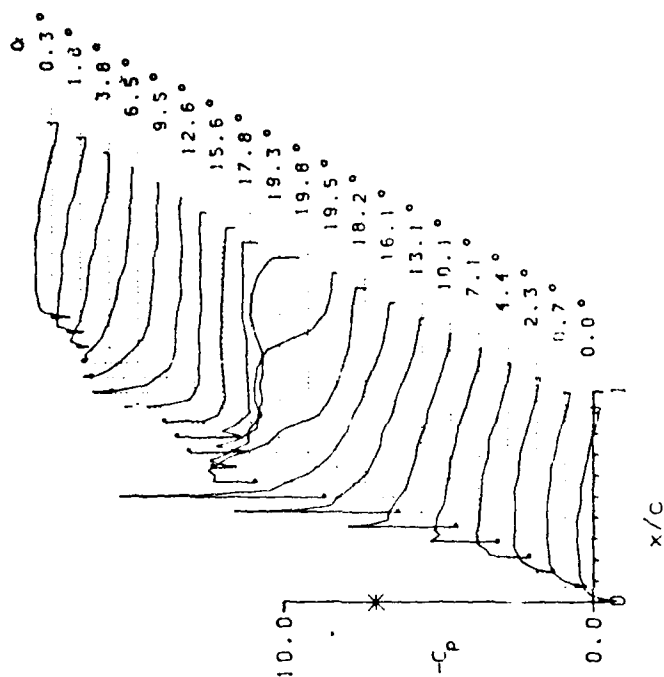
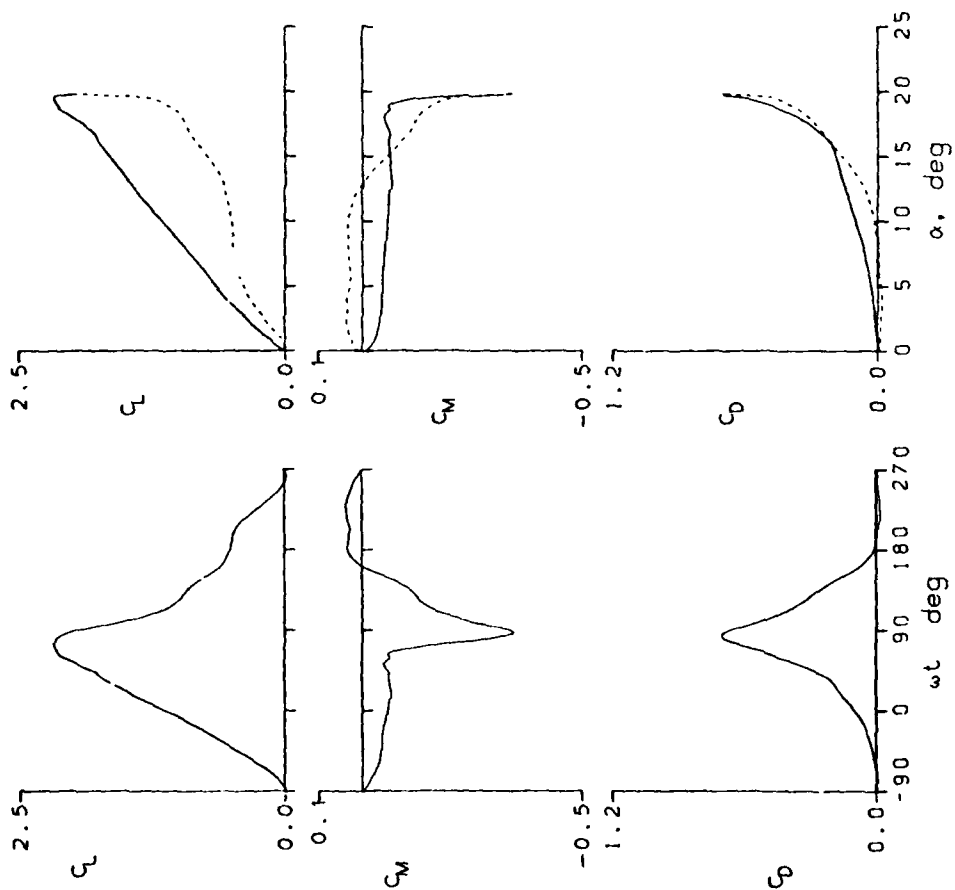


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 43117	A0 = 9.93°	k = 0.151
Re = 3.89 E6	A1 = 9.90°	M = 0.297
C _{Lmax} = 2.19	CM _{min} = -0.35	CDmax = 0.70
α _{Lmax} = 19.5°	ξ = 0.319	Mmax = 1.214
α _{CMmin} = 9.4°	-CDmax = 9.2	α _{Mmax} = 15.8°

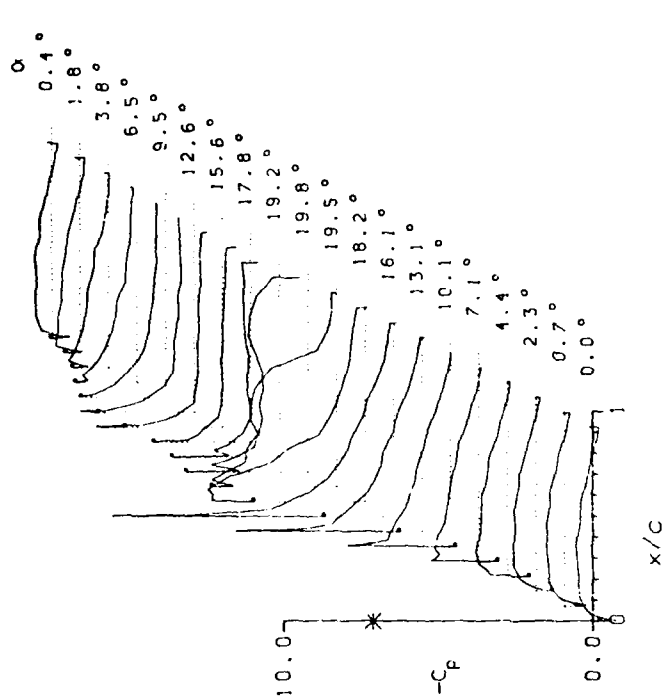
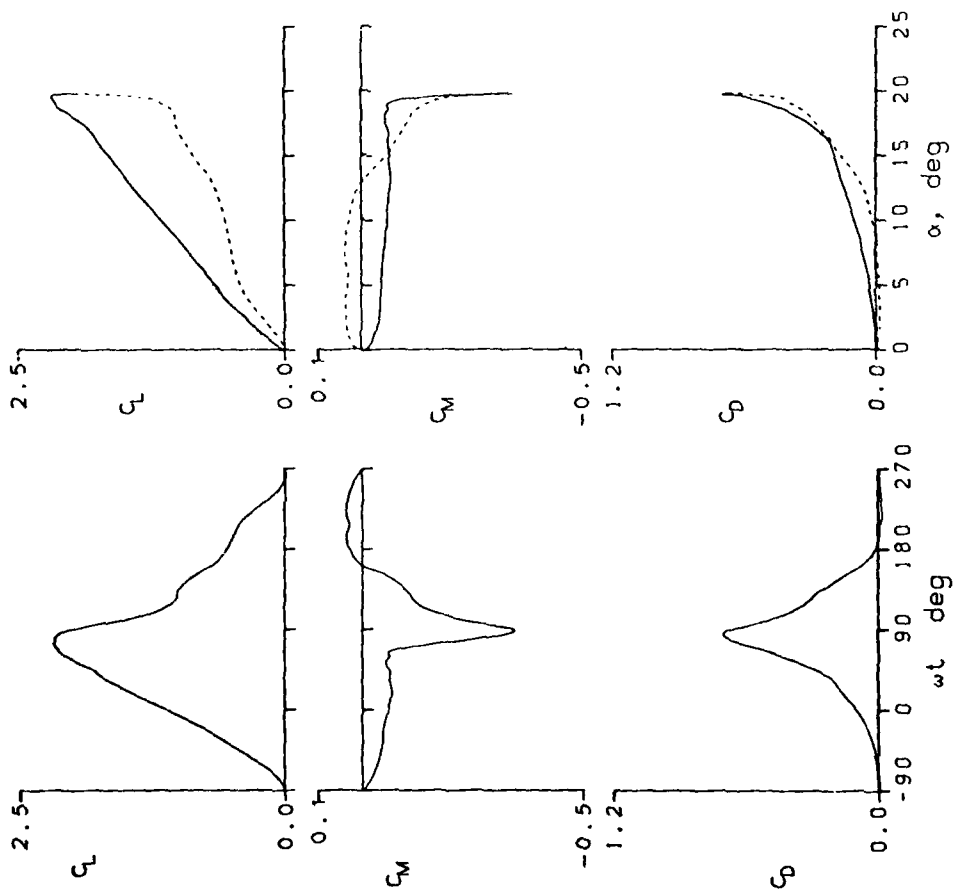


Figure 16.- Continued.

HUGHES PH-02 - WITH TAB- AIRFOIL
 FRAME : 43202 $A_0 = 3.61^\circ$ $\mu = 0.025$
 $R_0 = 3.97 \text{ E6}$ $A_1 = 10.13^\circ$ $M = 0.301$
 $C_{Lmax} = 1.52$ $C_{Mmax} = -0.05$ $C_{Dmax} = 0.12$
 $\alpha_{Lmax} = 13.1^\circ$ $\xi = 0.075$ $M_{max} = 1.212$
 $\alpha_{C-Lin} = 3.1^\circ$ $-C_{Dmax} = 0.9$ $\alpha_{Mmax} = 13.6^\circ$

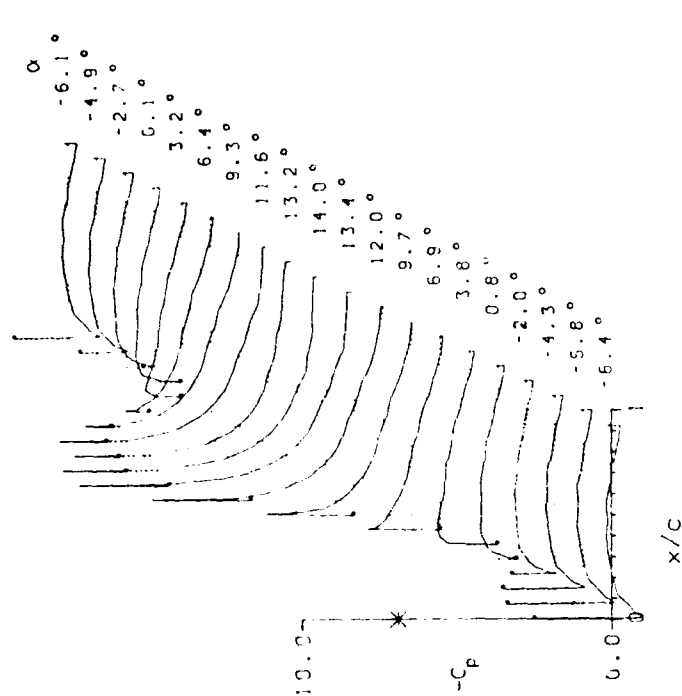
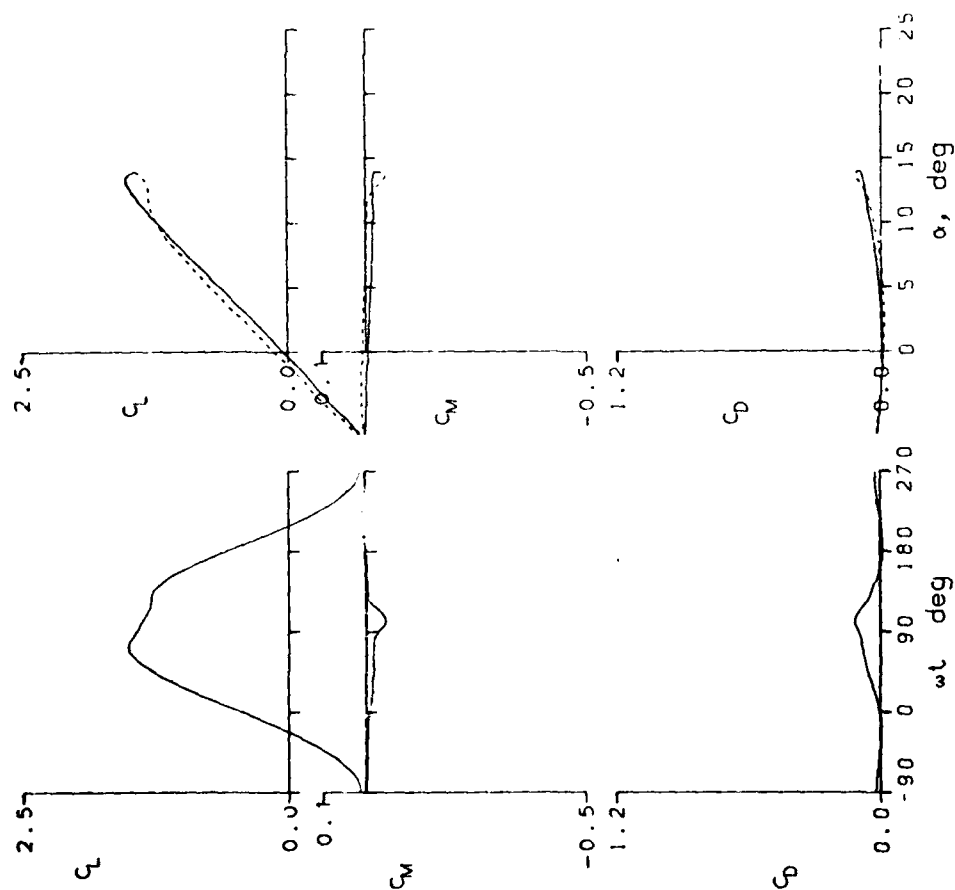


Figure 16.- Continued.

HUGHES HW-02 - WITH TAB - AIRFOIL
 FRAME : 43204 $A_0 = 3.62^\circ$ $k = 0.050$
 $Re = 3.96 E6$ $A_1 = 10.12^\circ$ $M = 0.302$
 $C_{Lmax} = 1.58$ $C_{Mmin} = -0.03$ $C_{Dmax} = 0.11$
 $\alpha_{Lmax} = 13.7^\circ$ $\xi = 0.154$ $M_{max} = 1.218$
 $\alpha_{Cmin} = 3.1^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 13.6^\circ$

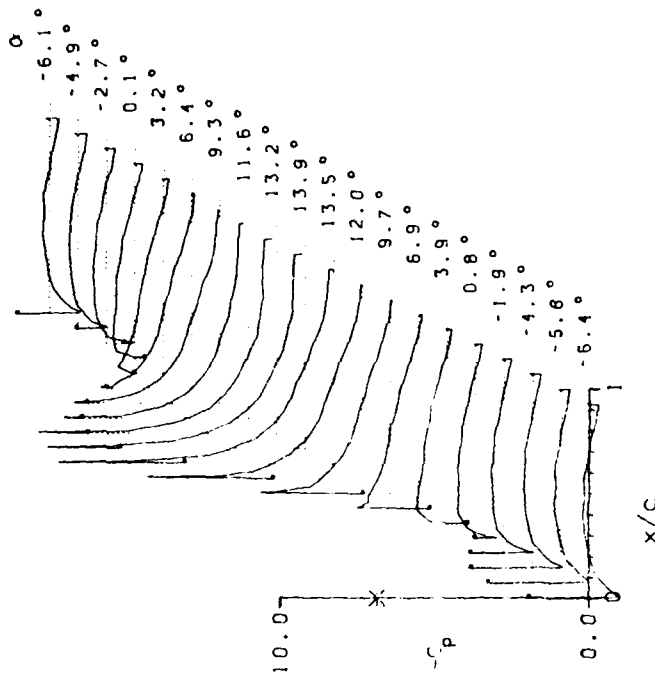
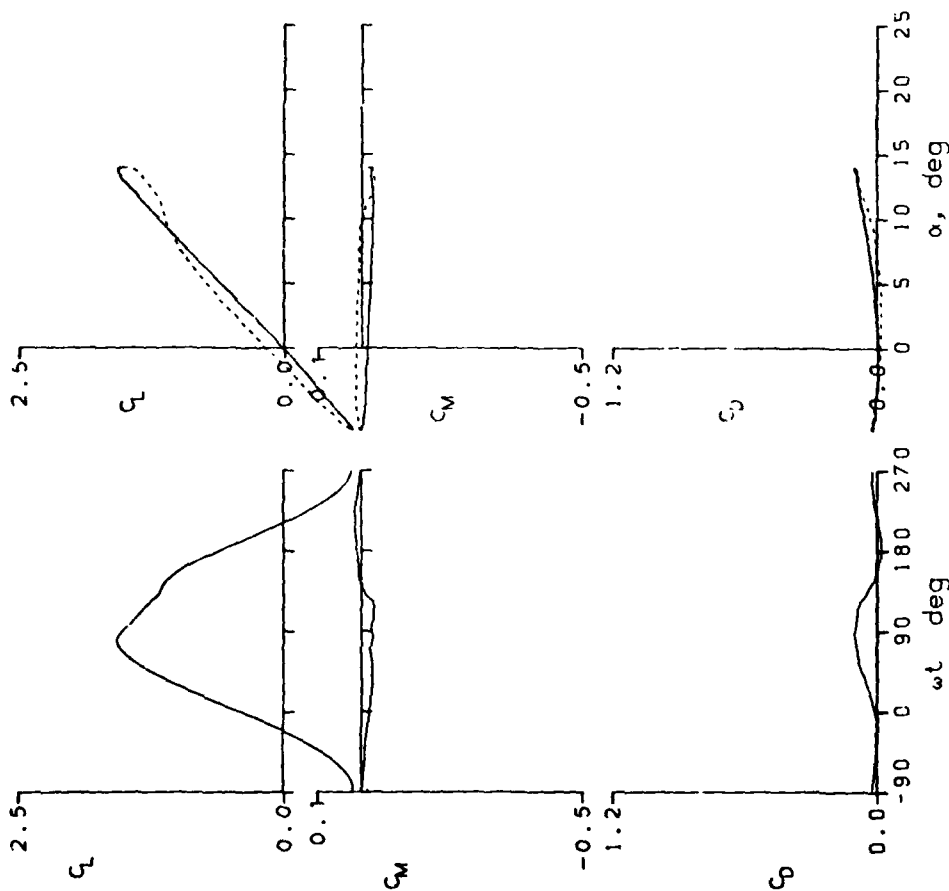


Figure 16.- Continued.

HUGHES -H-02 -WITH TAB- AIRFOIL
 FRAME : 47206 $A_0 = 3.66^\circ$ $k = 0.099$
 $Re = 3.96 \text{ E}6$ $A_1 = 10.10^\circ$ $M = 0.302$
 $C_{Lmax} = 1.61$ $C_{Mmin} = -0.04$ $C_{Dmax} = 0.13$
 $\alpha_{Lmax} = 14.2^\circ$ $\xi = 0.337$ $M_{max} = 1.223$
 $\alpha_{Cmin} = 3.2^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 13.9^\circ$

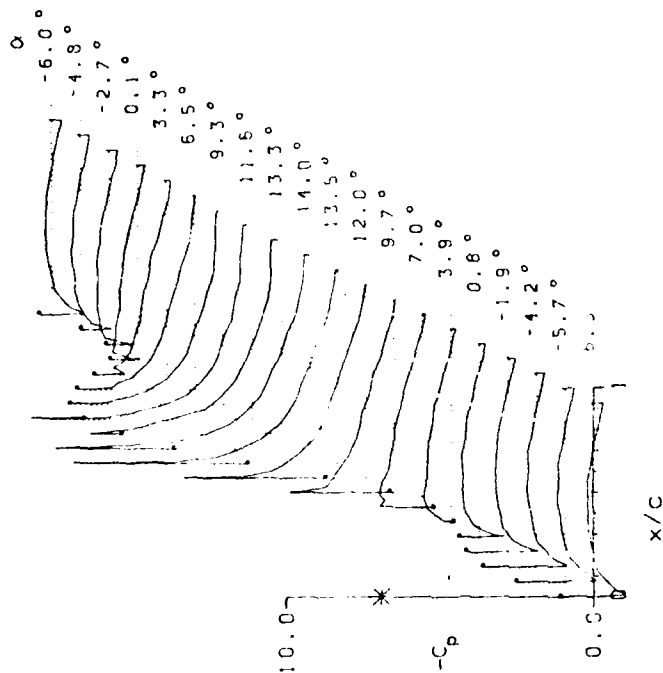
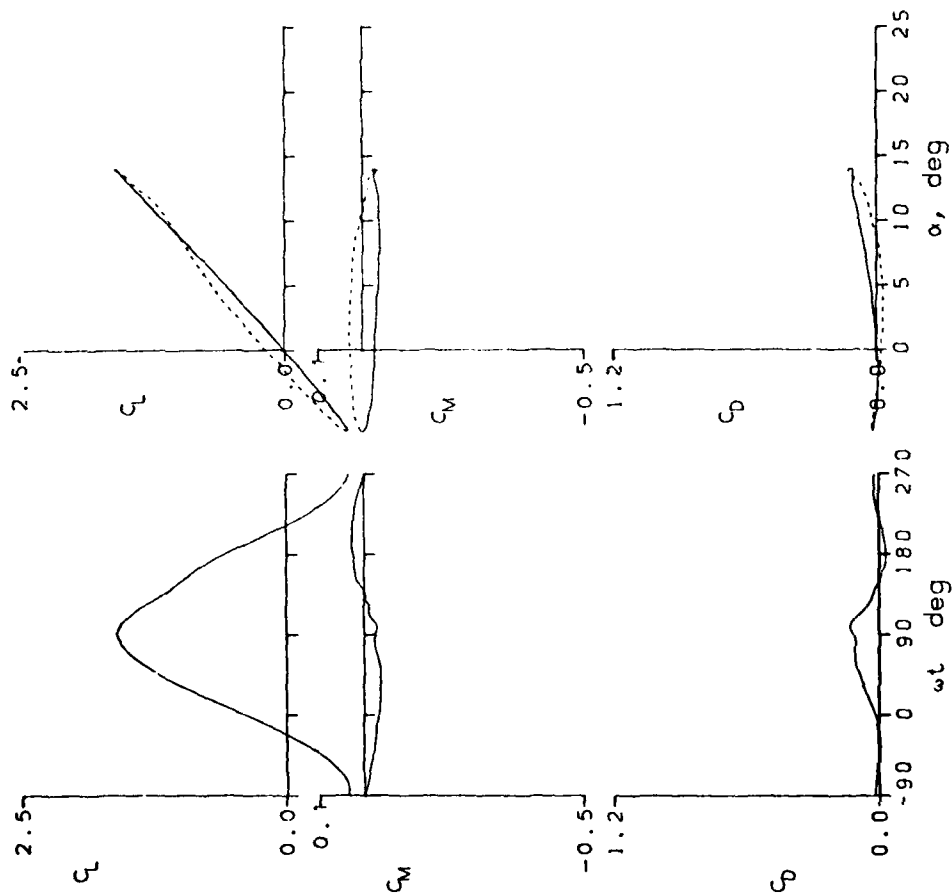


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 43209	$A_0 = 3.62^\circ$	$k = 0.149$
$Re = 3.96 \text{ E}6$	$A_1 = 10.11^\circ$	$M = 0.302$
$C_{Lmax} = 1.62$	$C_{Mmin} = -0.06$	$C_{Dmax} = 0.13$
$\alpha_{Lmax} = 13.9^\circ$	$\xi = 0.514$	$M_{max} = 1.224$
$\alpha_{Cmin} = 3.1^\circ$	$-C_{Dmax} = 9.0$	$\alpha_{Mmax} = 13.9^\circ$

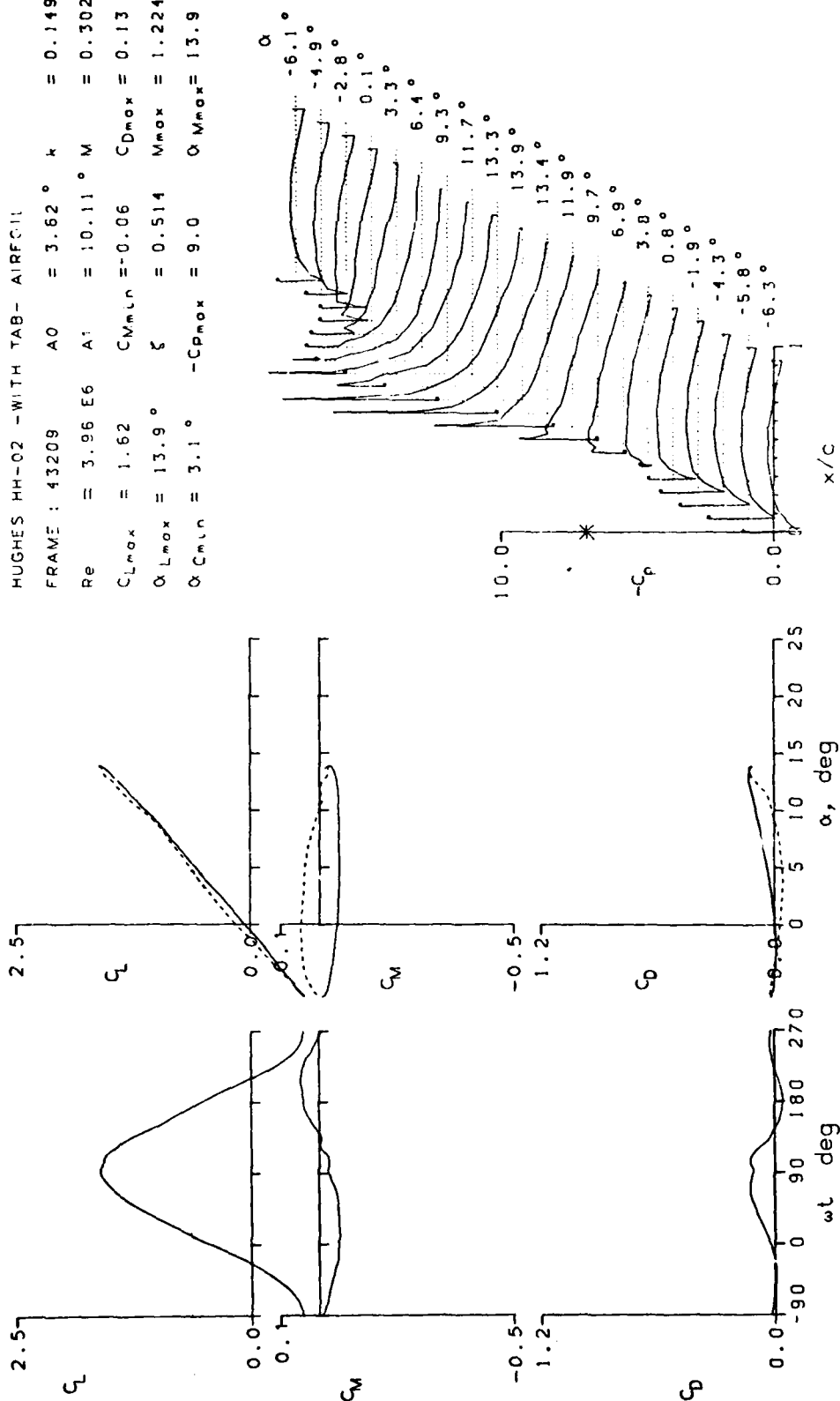


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 43215	$A_0 = 3.62^\circ$	$k = 0.010$
$R_0 = 4.06$	$E_6 A_1 = 10.13^\circ$	$M = 0.302$
$C_{Lmax} = 1.51$	$C_{Mmin} = -0.06$	$C_{Dmax} = 0.13$
$\alpha_{Lmax} = 13.0^\circ$	$\xi = 0.029$	$V_{max} = 1.214$
$\alpha_{C_{Lmin}} = 3.1^\circ$	$-C_{Dmax} = 8.9$	$\alpha_{V_{max}} = 13.5^\circ$

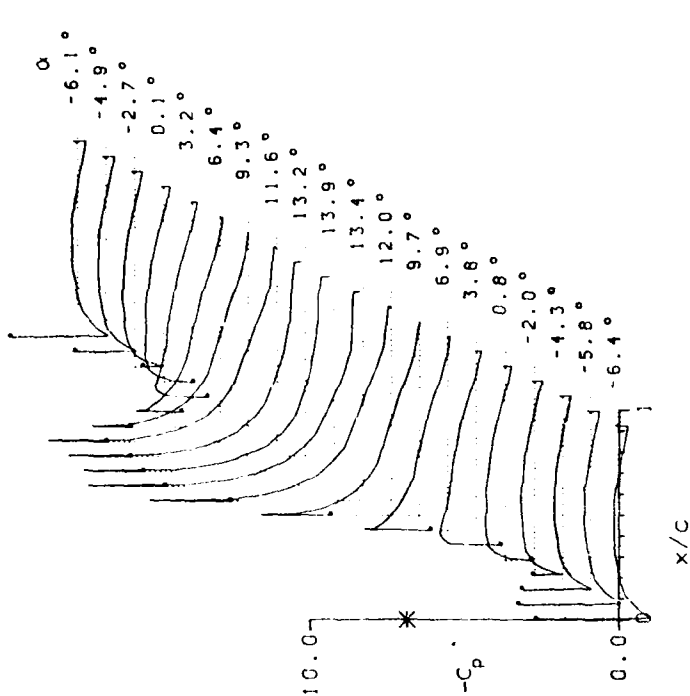
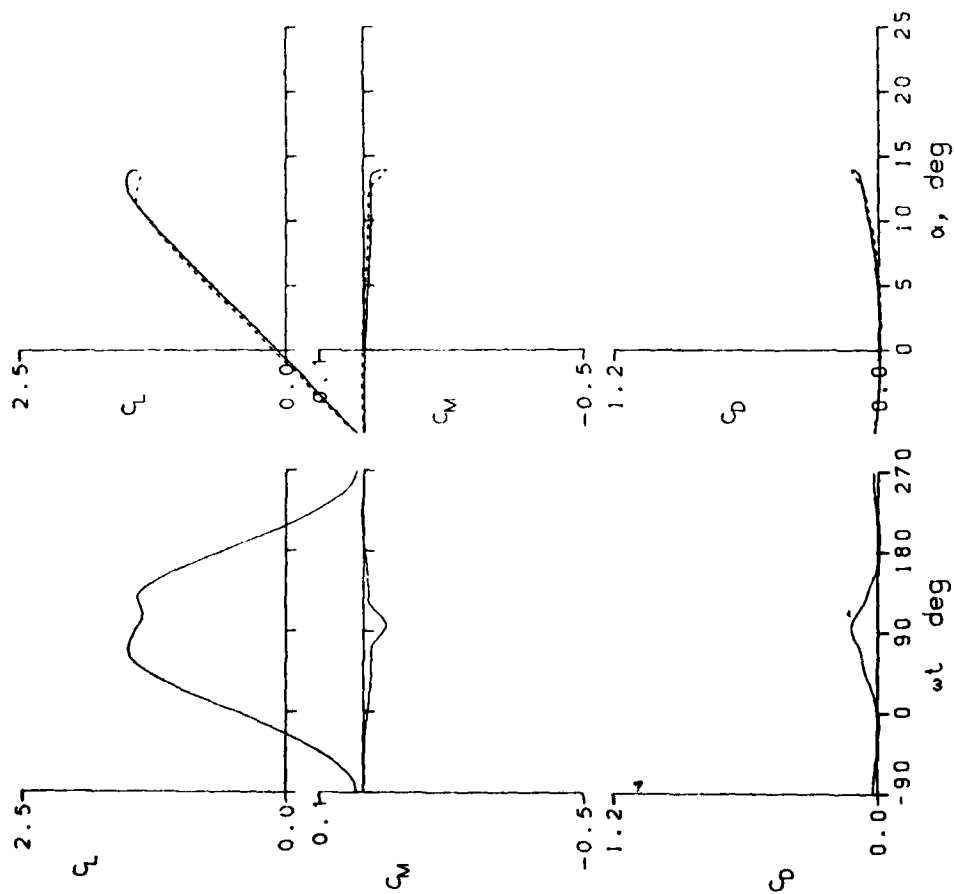


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB- AIRFOIL
 FRAME : 43219 $\Lambda_0 = 3.84^\circ$ $\kappa = 0.100$
 $Re = 4.05 E6$ $A_1 = 10.12^\circ$ $M = 0.303$
 $C_{Lmax} = 1.65$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.16$
 $\alpha_{Lmax} = 14.1^\circ$ $\alpha_{C_{Lmax}} = 0.300$ $M_{max} = 1.241$
 $\alpha_{C_{Lmin}} = 3.3^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 13.9^\circ$

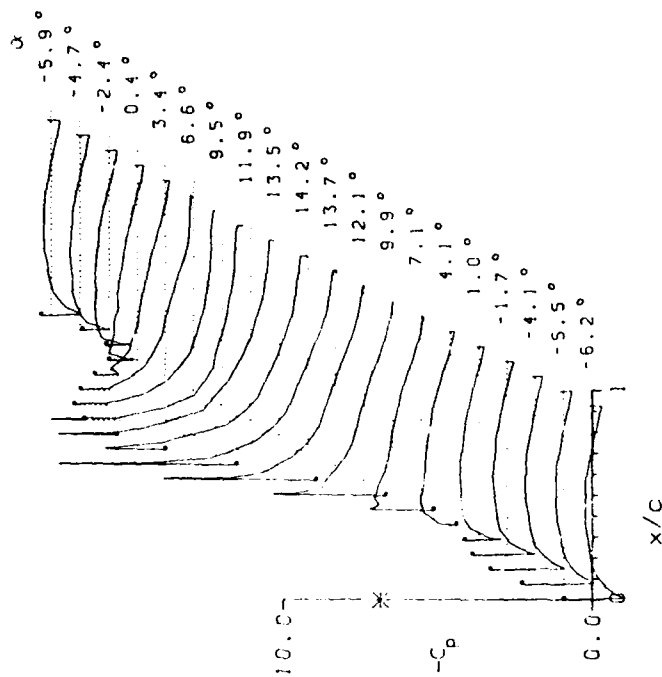
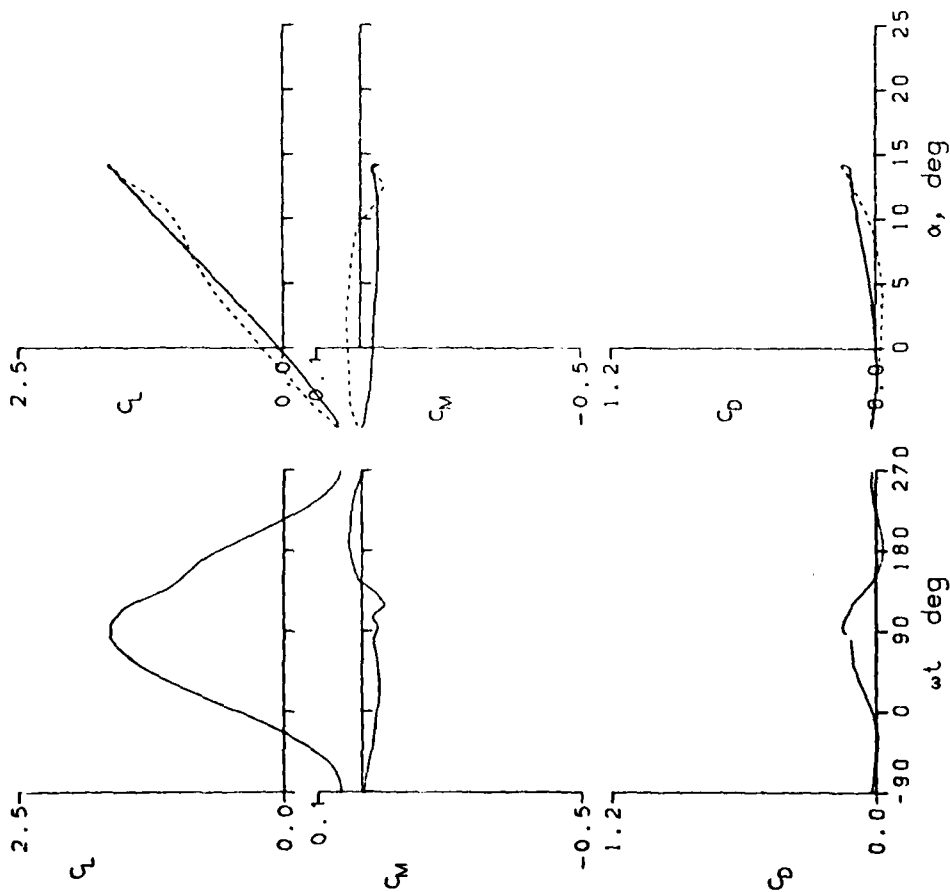


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB- AIRFOIL
 FRAME : 43303 $A_0 = 14.96^\circ$ $k = 0.025$
 $Re = 3.92 E6$ $A_1 = 4.88^\circ$ $M = 0.296$
 $C_{Lmax} = 1.54$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.31$
 $\alpha_{Lmax} = 13.9^\circ$ $\xi = 0.104$ $M_{max} = 1.210$
 $\alpha_{Crn} = 14.8^\circ$ $-C_{pmpk} = 9.2$ $\alpha_{M_{max}} = 14.1^\circ$

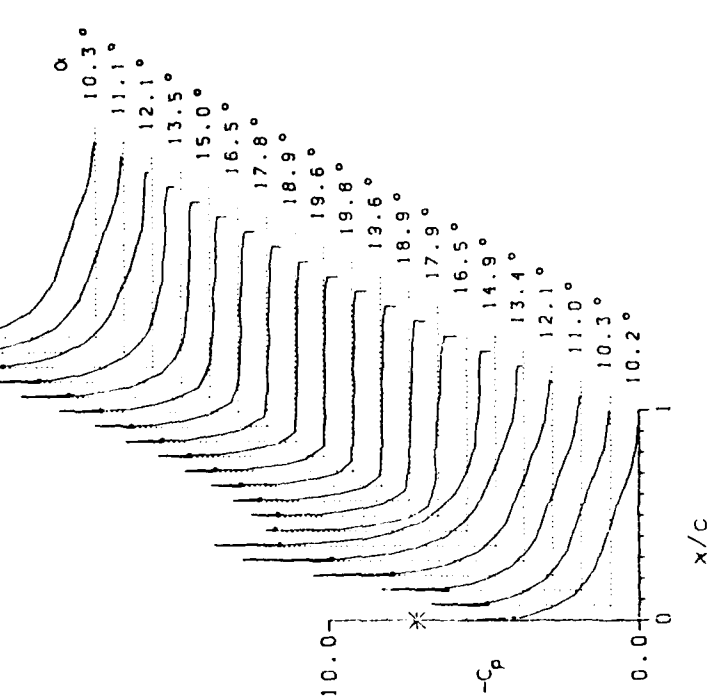
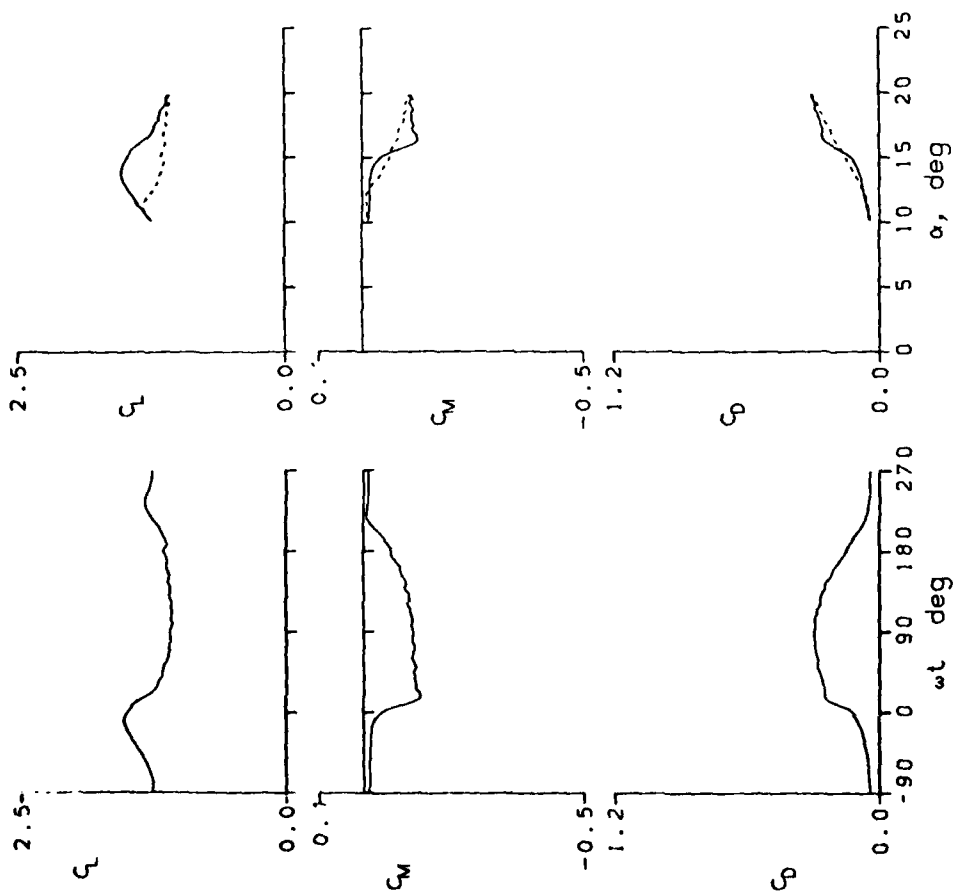


Figure 16.- Continued.

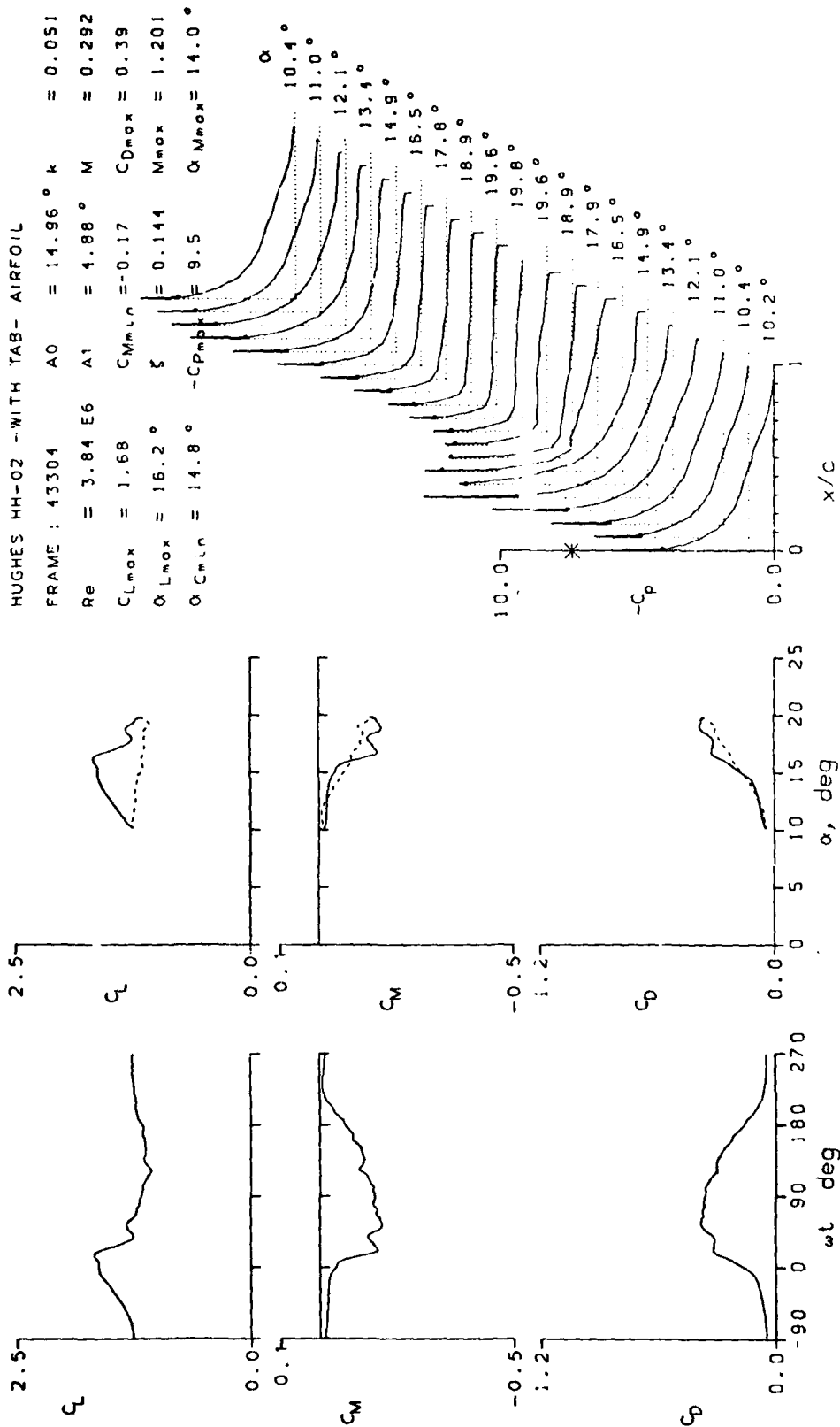


Figure 16.- Continued.

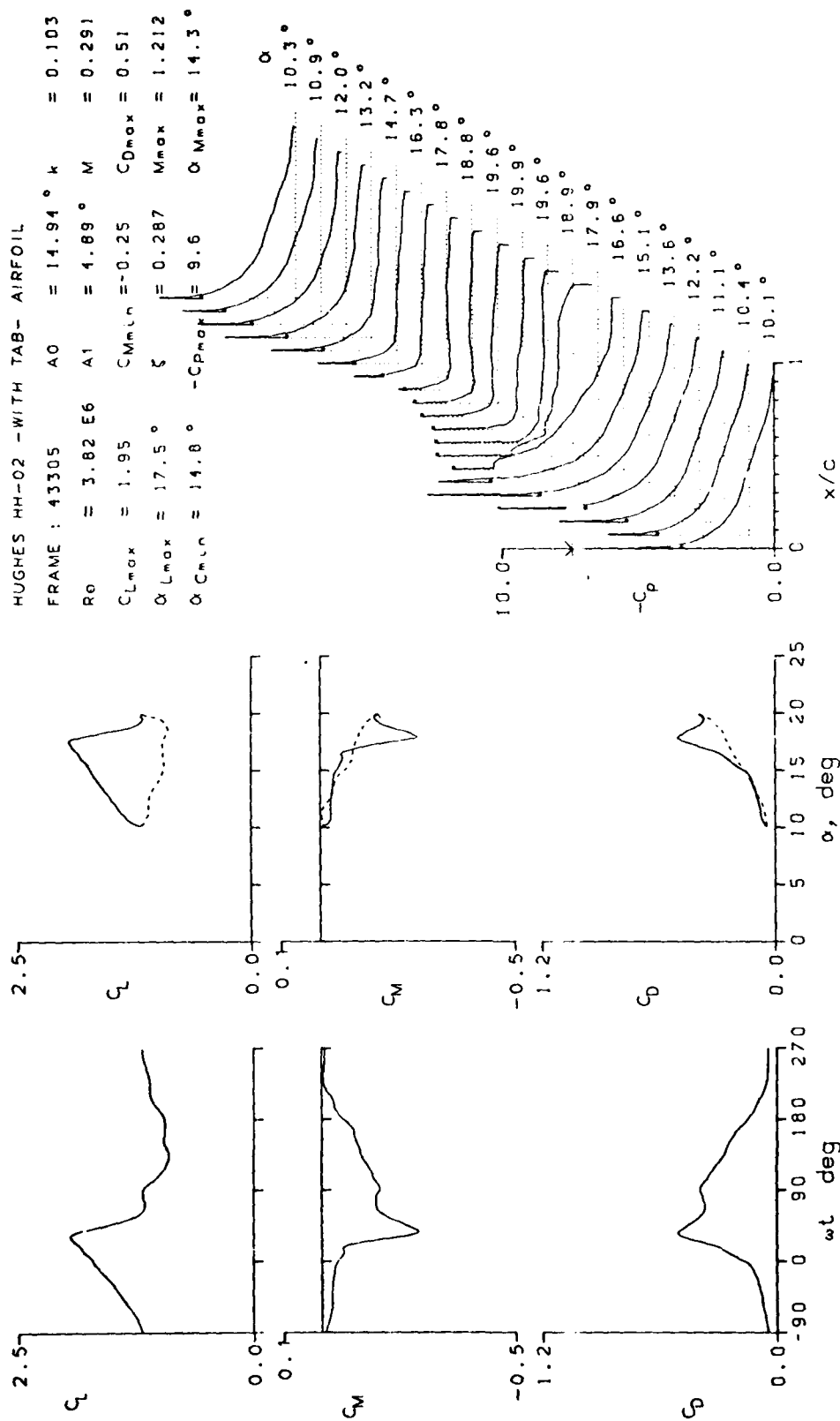


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 43308 $A_0 = 14.91^\circ$ $k = 0.135$

$Re = 3.81 \text{ E}6$ $A^* = 4.90^\circ$ $M = 0.290$

$C_{Lmax} = 2.09$ $C_{Mmin} = -0.31$ $C_{Dmax} = 0.61$

$\alpha_{Lmax} = 18.4^\circ$ $\zeta = 0.511$ $M_{max} = 1.209$

$\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 9.6$ $\alpha_{Mmax} = 14.7^\circ$

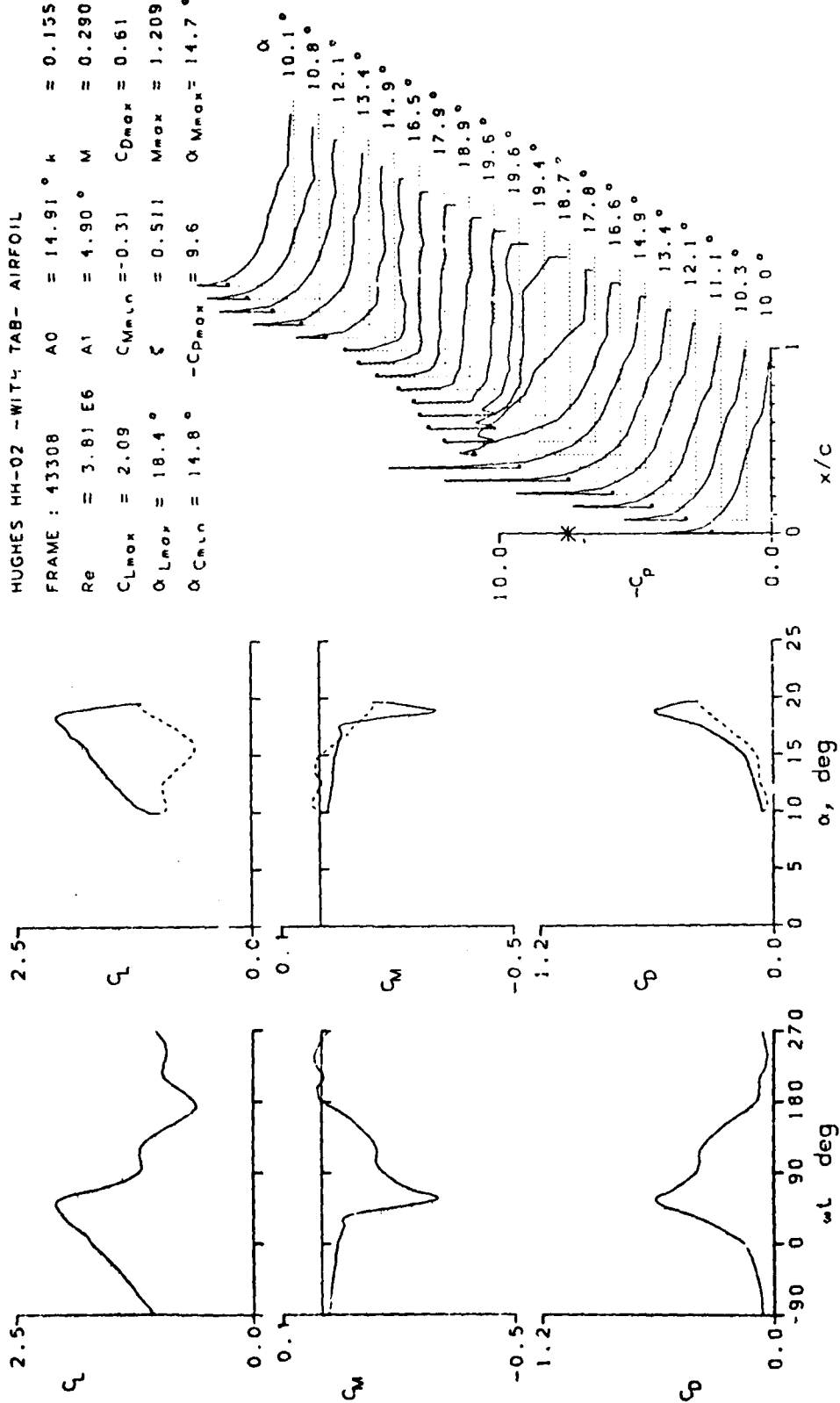


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 43309	$A_0 = 14.94^\circ$	$k = 0.207$
$Re = 3.78 \text{ E}6$	$A_1 = 4.88^\circ$	$M = 0.289$
$C_{Lmax} = 2.35$	$C_{Mmin} = -0.39$	$C_{Dmax} = 3.76$
$\alpha_{Lmax} = 19.3^\circ$	$\zeta = 0.173$	$M_{max} = 1.198$
$\alpha_{Cmin} = 14.7^\circ$	$-C_{Dmax} = 9.6$	$\alpha_{Mmax} = 15.9^\circ$

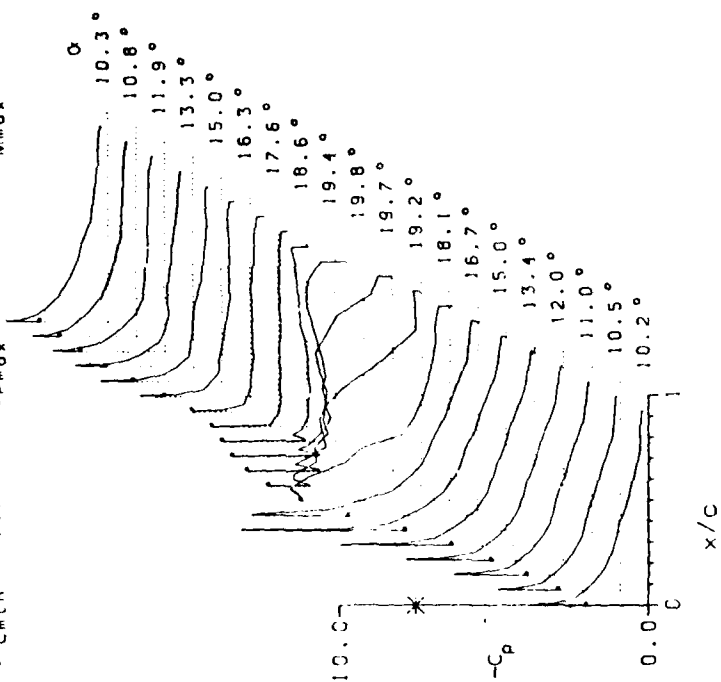
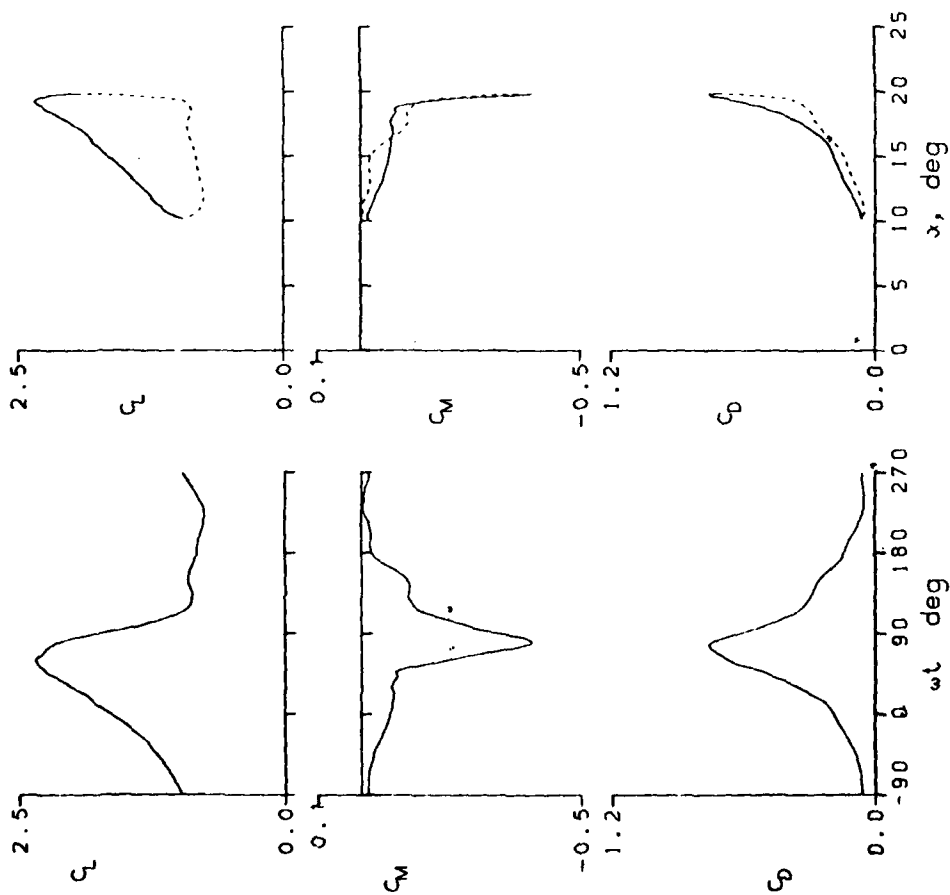


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL
 FRAME : 43314 $A_0 = 10.89^\circ$ $k = 0.025$
 $R_0 = 3.93 \text{ E6}$ $A_1 = 4.89^\circ$ $M = 0.302$
 $C_{Lmax} = 1.54$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.22$
 $\alpha_{Lmax} = 13.5^\circ$ $\xi = 0.000$ $M_{max} = 1.221$
 $\alpha_{Cmin} = 10.6^\circ$ $-C_{Dmax} = 9.40$ $M_{max} = 13.8^\circ$

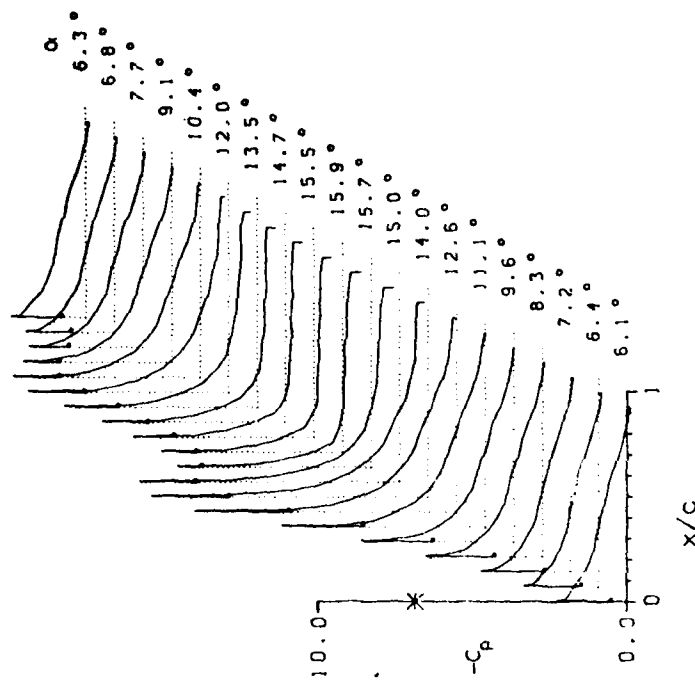
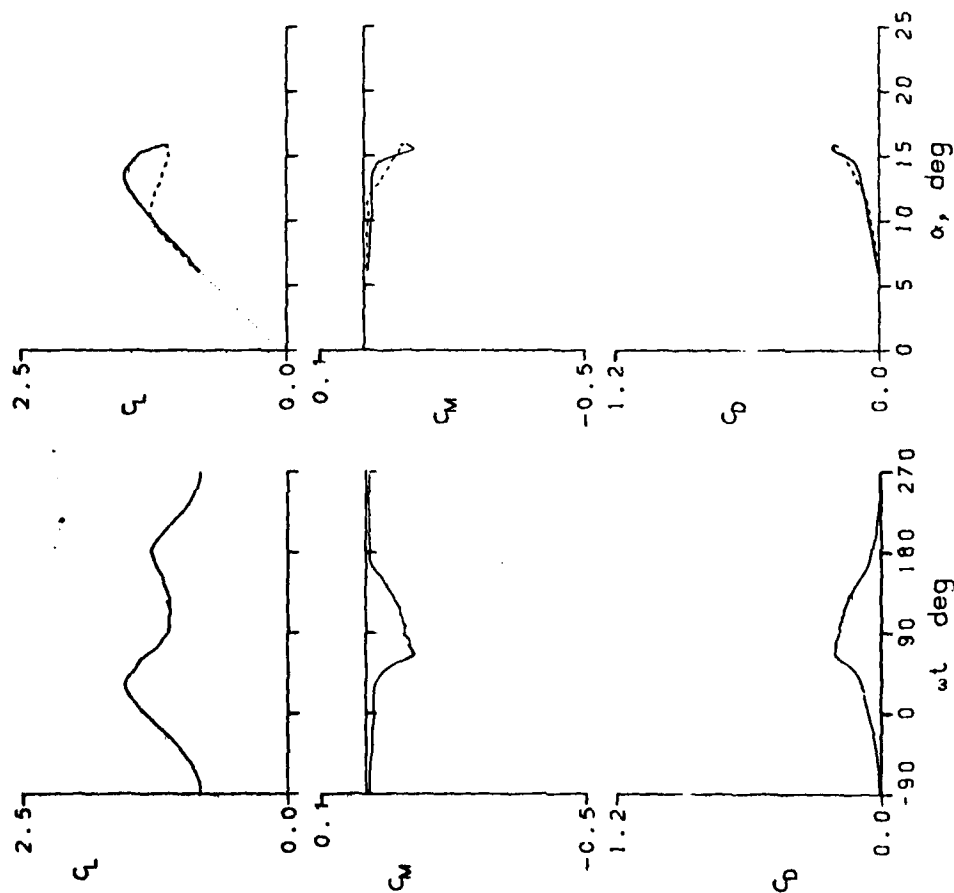


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 42315	$A_0 = 10.90^\circ$	$k = 0.049$
$Re = 3.92 \times 10^6$	$A' = 4.91^\circ$	$M = 0.302$
$C_{Lmax} = 1.59$	$C_{Mmin} = -0.12$	$C_{Dmax} = 0.26$
$\alpha_{C_{Lmax}} = 13.3^\circ$	$\xi = 0.27$	$M_{max} = 1.209$
$\alpha_{C_{Lmin}} = 10.0^\circ$	$-C_{Dmax} = 8.9$	$\alpha_{M_{max}} = 13.3^\circ$

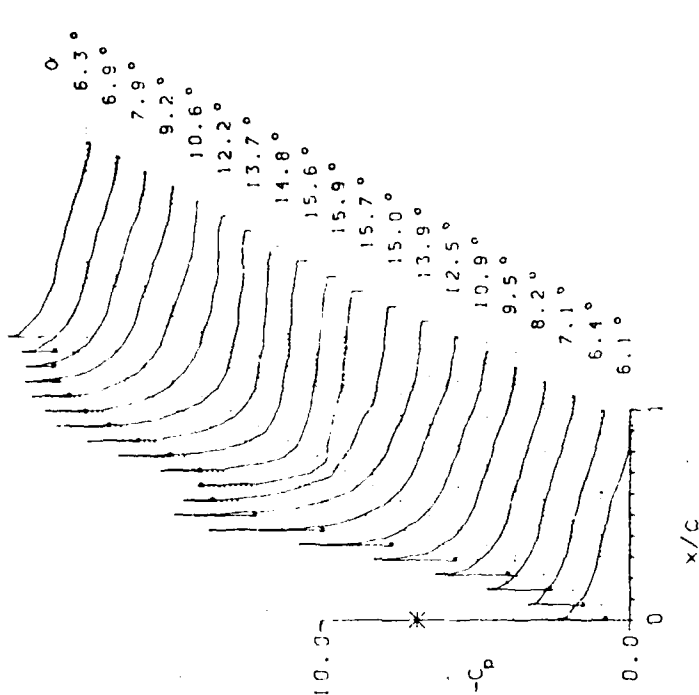
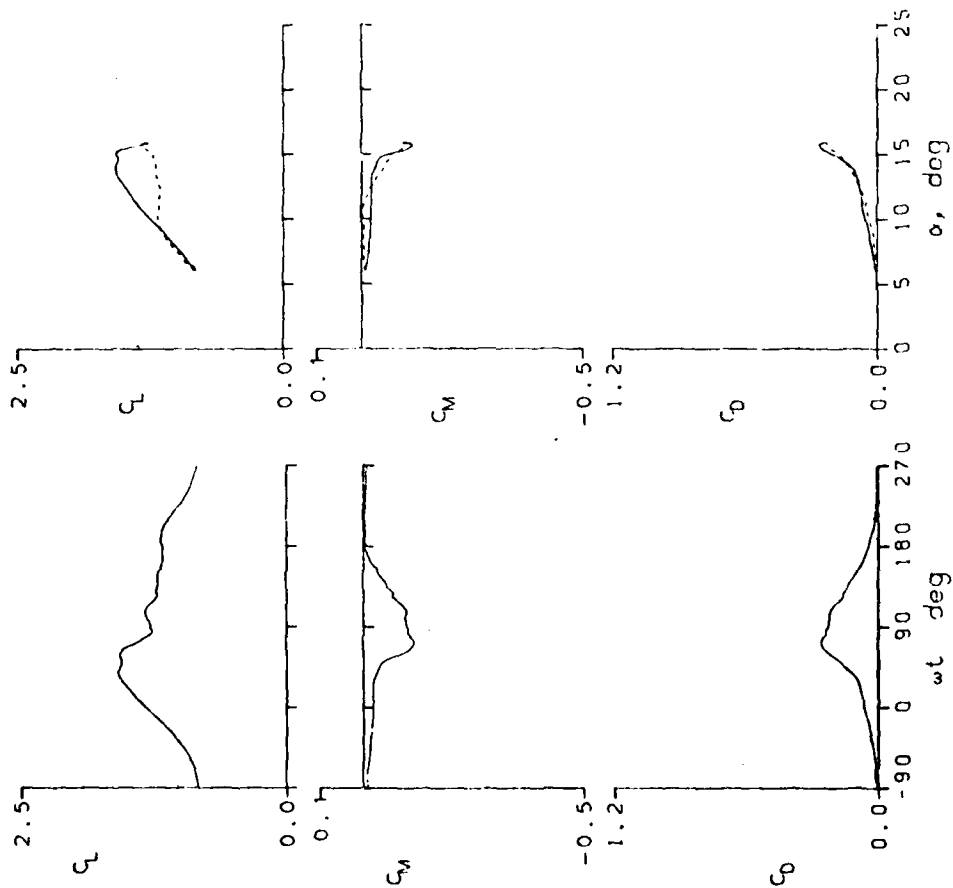


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 43316 AC = 10.91° k = 0.099
 Re = 3.91 E6 A1 = 4.89° M = 0.302
 C_{Lmax} = 1.75 C_{Mmin} = -0.17 C_{Dmax} = 0.32
 α_{max} = 15.7° C_L = 0.20 M_{max} = 1.221
 α_{Cmin} = 10.6° -C_{Dmax} = 9.0 α_{Mmax} = 13.8°

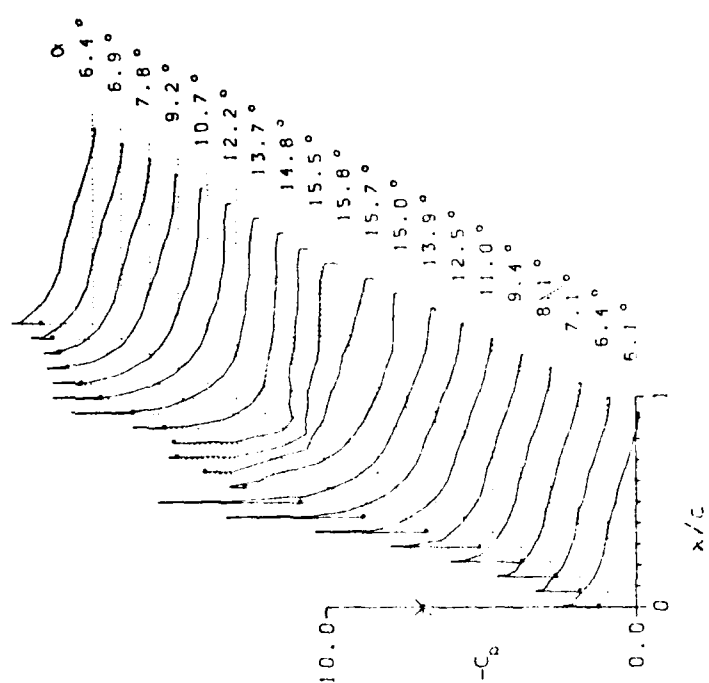
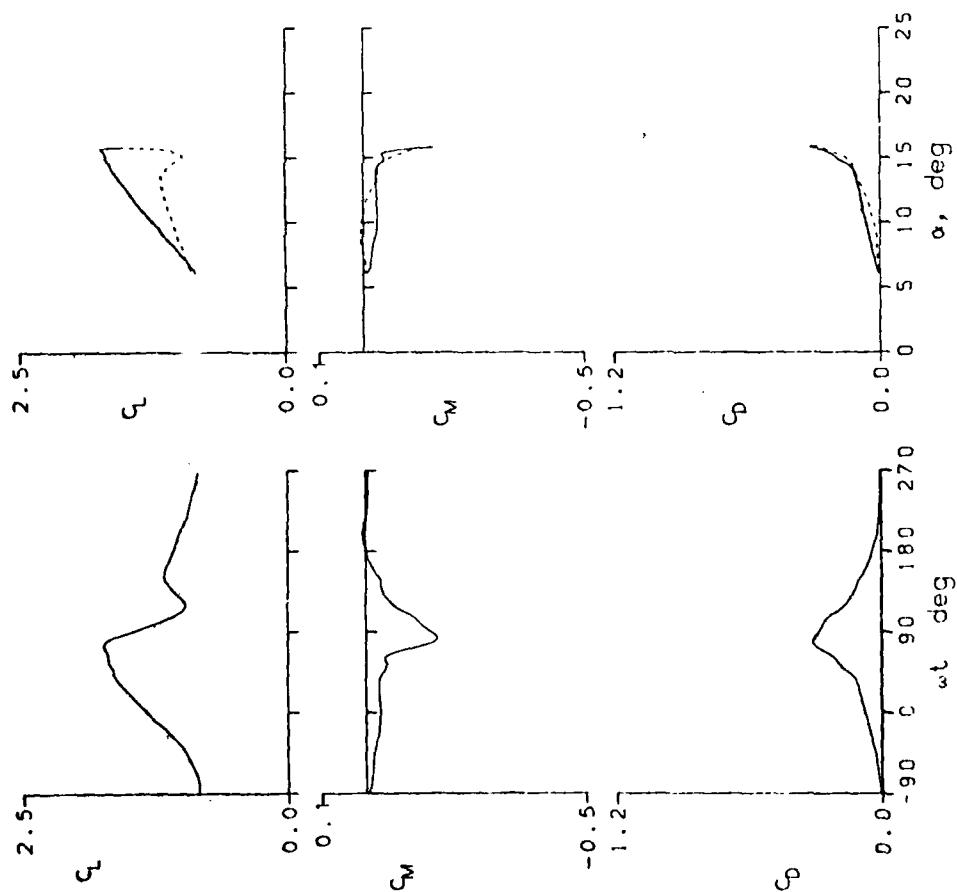


Figure 16.- Continued.

HUGHES 44-02 - WITH TAB- AIRFOIL
 FRAME : 44013 AC = 9.55° k = 0.010
 Re = 3.05 E6 A1 = 5.09° M = 0.301
 C_{Lmax} = 1.48 C_{Mmax} = -0.09 C_{Dmax} = 0.17
 α_{1max} = 13.1° ξ = -0.076 M_{max} = 1.173
 C_{Lmin} = 0.4° -C_{Dmax} = 9.6 C_{Mmax} = 13.3°

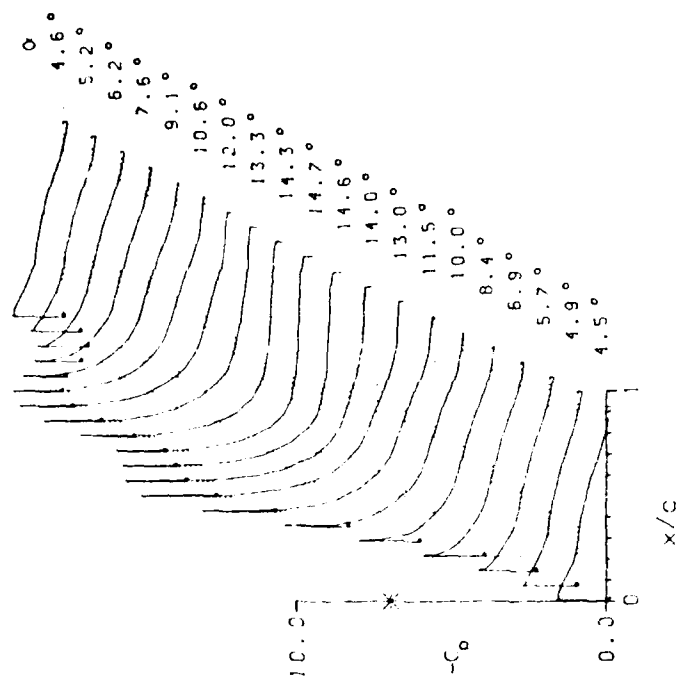
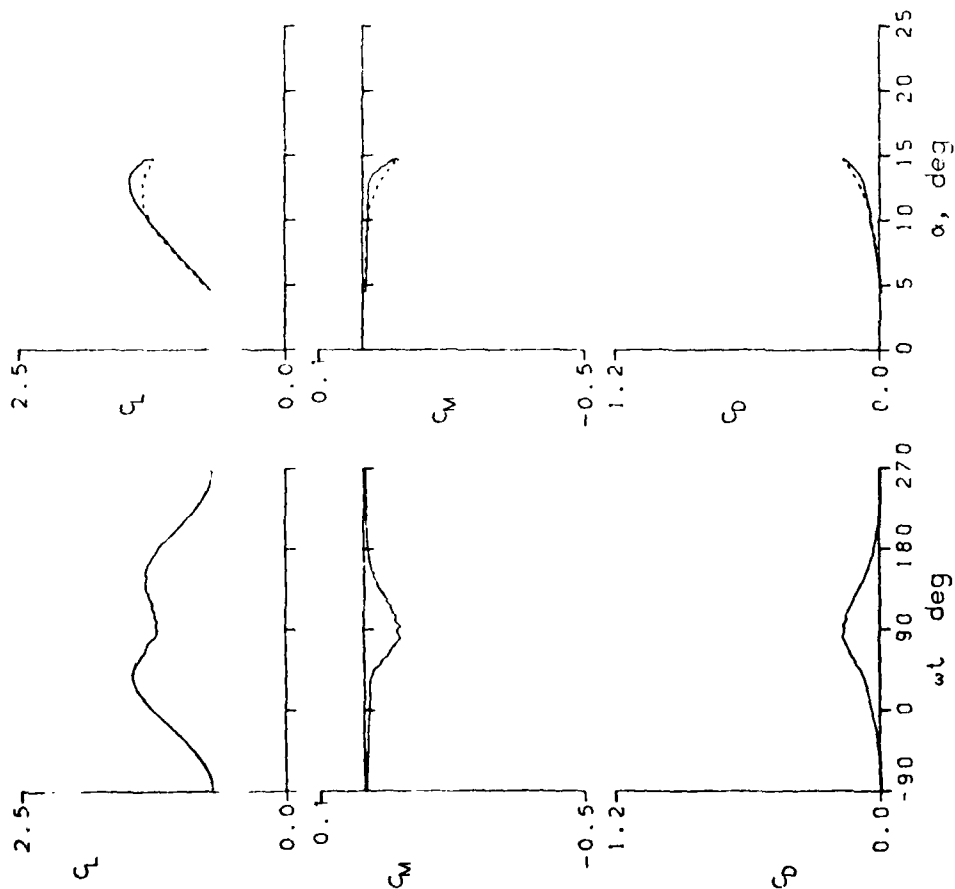


Figure 16.- Continued.

HUGHES HM-02 - WITH TAB - AIRFOIL

FRAME : 44021 $A_0 = 9.92^\circ$ $k = 0.025$

$R_0 = 3.95 \times 10^6$ $A_1 = 4.91^\circ$ $M = 0.302$

$C_{Lmax} = 1.53$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.18$

$\alpha_{Lmax} = 13.4^\circ$ $\zeta = -0.010$ $M_{max} = 1.21$

$\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 8.9$ $\alpha_{Mmax} = 13.8^\circ$

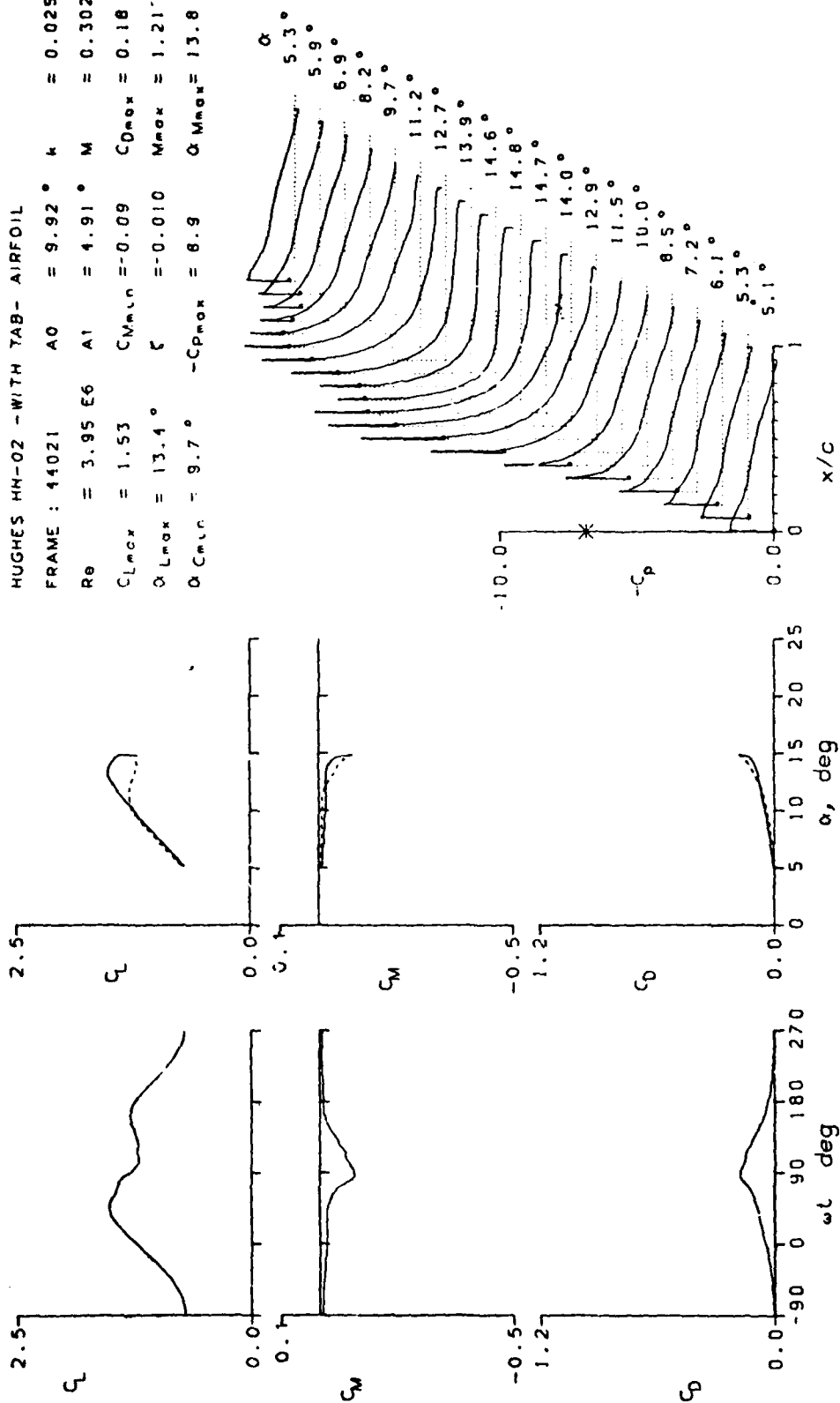


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 44023 $A_0 = 9.90^\circ$ $k = 0.050$

$Re = 3.94 \times 10^6$ $A^* = 4.92^\circ$ $M = 0.302$

$C_{Lmax} = 1.58$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.19$

$\alpha_{Lmax} = 13.6^\circ$ $\xi = 0.081$ $V_{max} = 1.115$

$\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 8.9$ $\alpha_{Mmax} = 13.5^\circ$

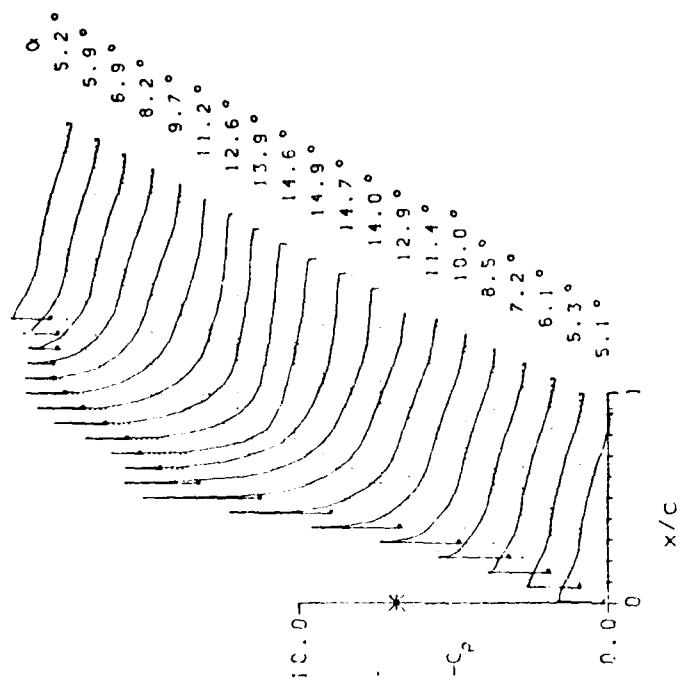
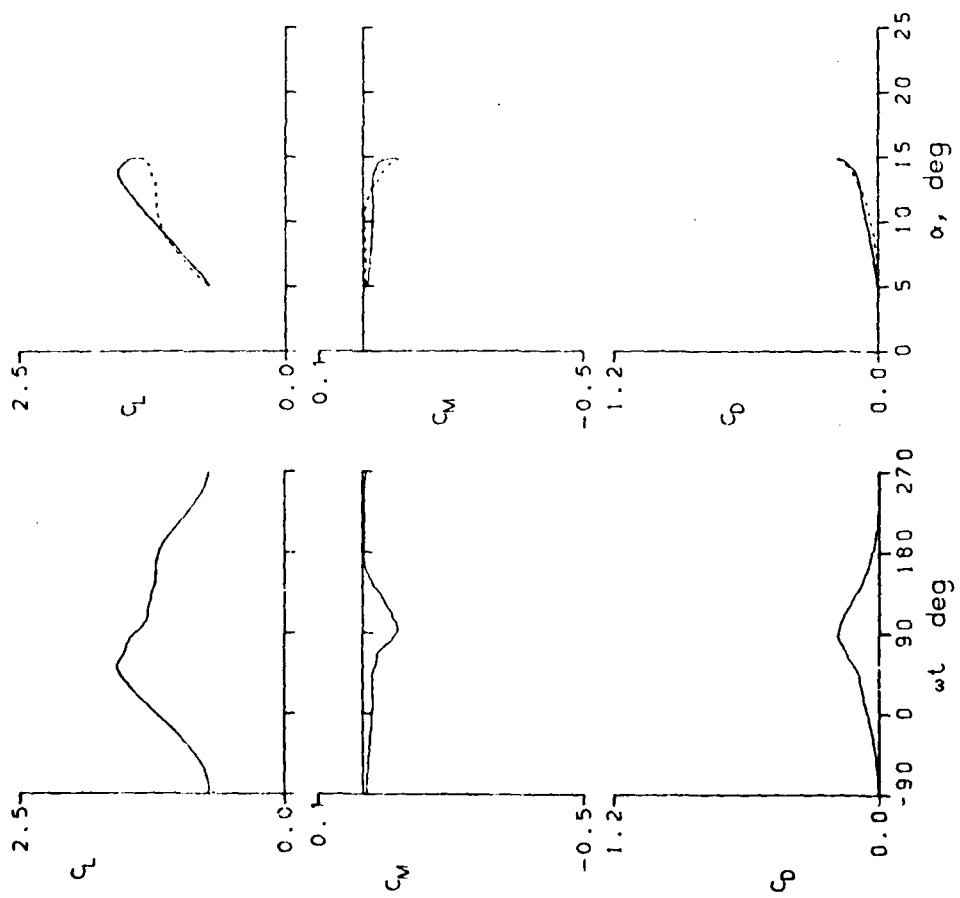


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 44104 $A_0 = 9.90^\circ$ $k = 0.099$
 $Re = 4.00 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.303$
 $C_{Lmax} = 1.65$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.25$
 $\alpha_{Lmax} = 14.9^\circ$ $\xi = 0.104$ $M_{max} = 1.225$
 $\alpha_{C_{Lmin}} = 9.6^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 13.8^\circ$

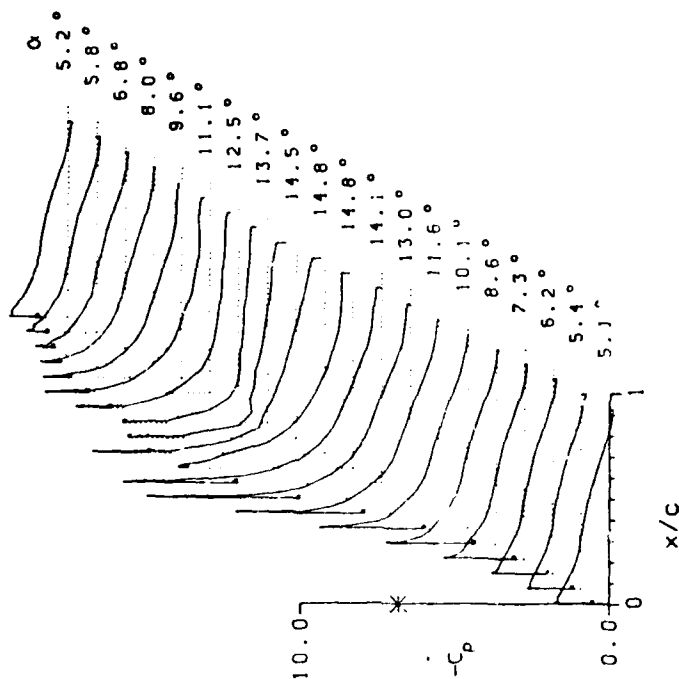
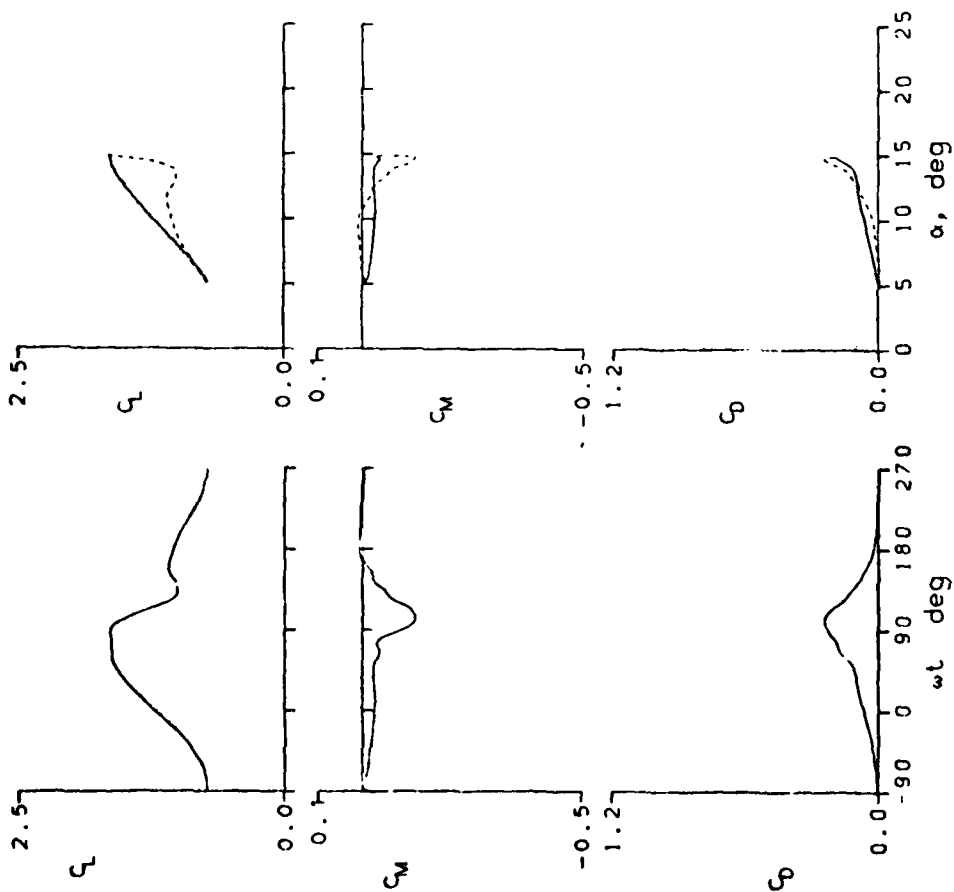


Figure 16.- Continued.

HUGHES 44-02 - WITH TAB- AIRFOIL

FRAME : 44106	$A_0 = 9.93^\circ$	$k = 0.149$
$Re = 3.99 \times 10^6$	$A_1 = 4.91^\circ$	$M = 0.303$
$C_{Lmax} = 1.72$	$C_{Mmin} = -0.15$	$C_{Dmax} = 0.26$
$\alpha_{min} = 14.0^\circ$	$\alpha_{max} = 9.0^\circ$	$M_{max} = 1.227$
$C_{Lmin} = 9.7^\circ$	$-C_{Dmax} = 9.0$	$\alpha_{Mmax} = 14.0^\circ$

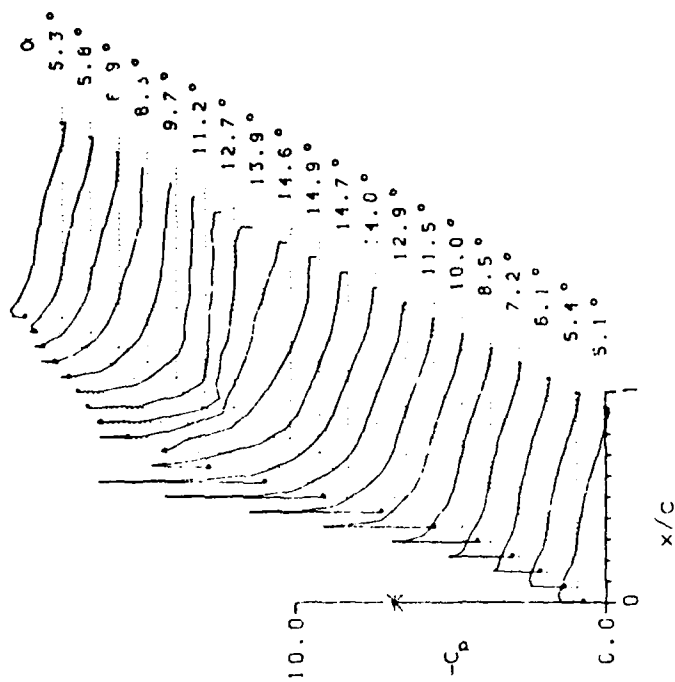
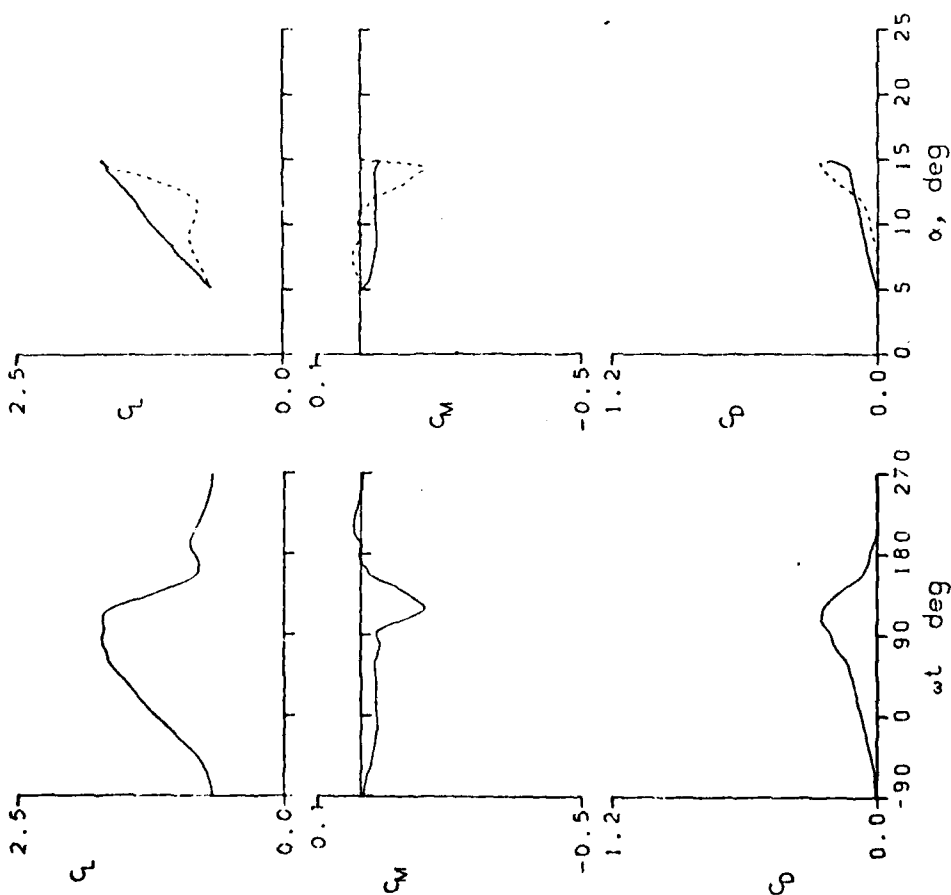


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 44112	A0 = 9.85°	k ≈ 0.199
Re = 4.00 E6	A1 = 4.90°	M = 0.303
C _{Lmax} = 1.84	C _{Mmin} = -0.21	C _{Dmax} = 0.32
α _{Lmax} = 14.9°	ξ = -0.010	M _{acc} = 1.221
α _{Cmin} = 9.6°	-C _{pmax} = 8.9	α _{Mmax} = 14.0°

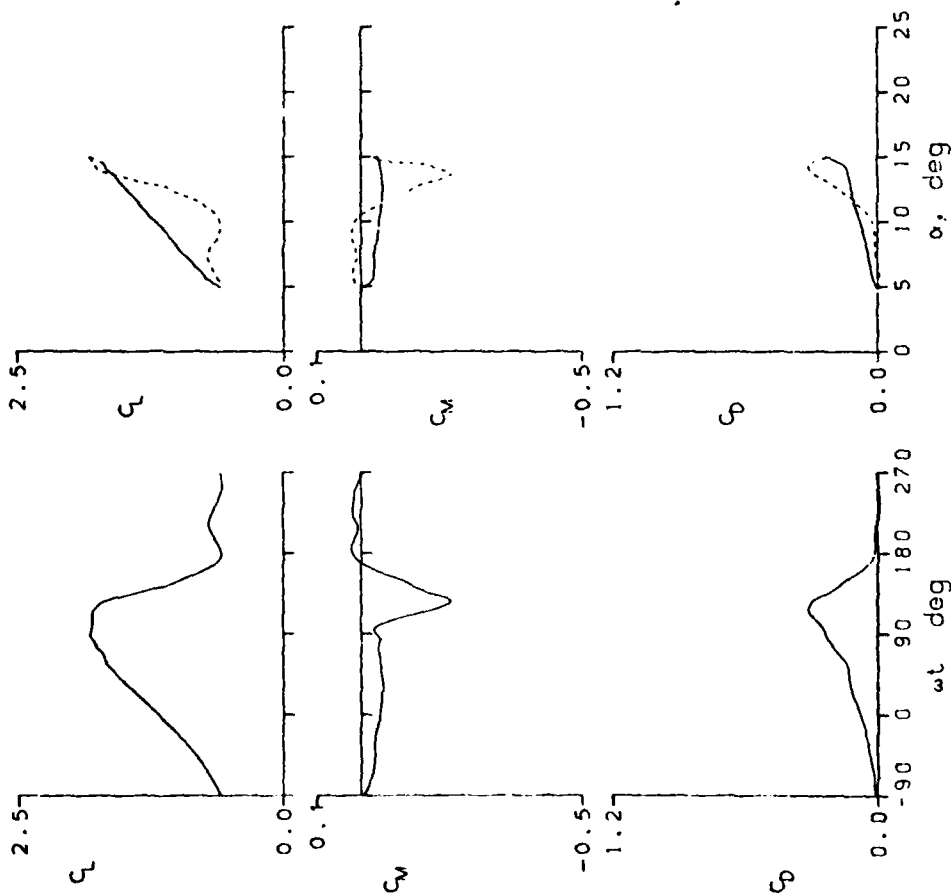


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 44118 $\alpha_0 = 9.89^\circ$ $k = 0.100$
 $Re = 4.04 \text{ E}6$ $\Delta t = 4.89^\circ$ $M = 0.302$
 $C_{Lmax} = 1.67$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.24$
 $\alpha_{Lmax} = 14.9^\circ$ $\zeta = 0.179$ $M_{max} = 1.241$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 9.2$ $\alpha_{Mmax} = 13.8^\circ$

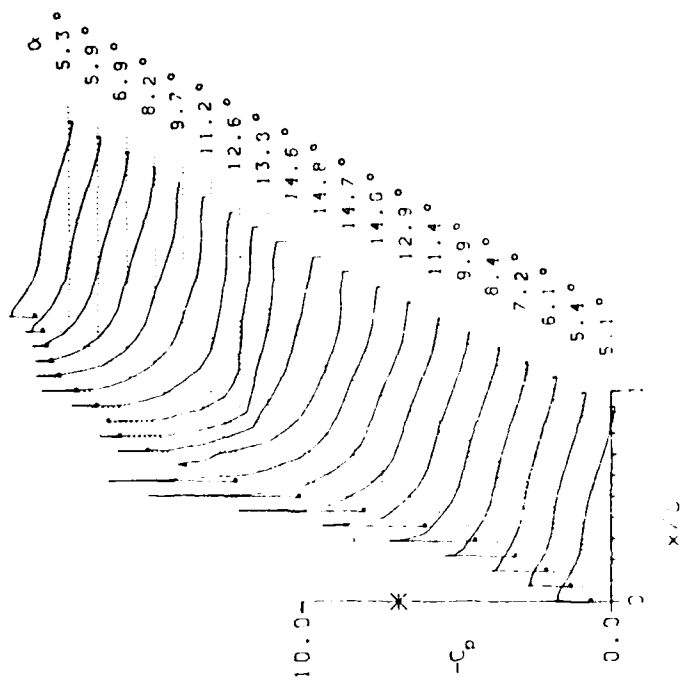
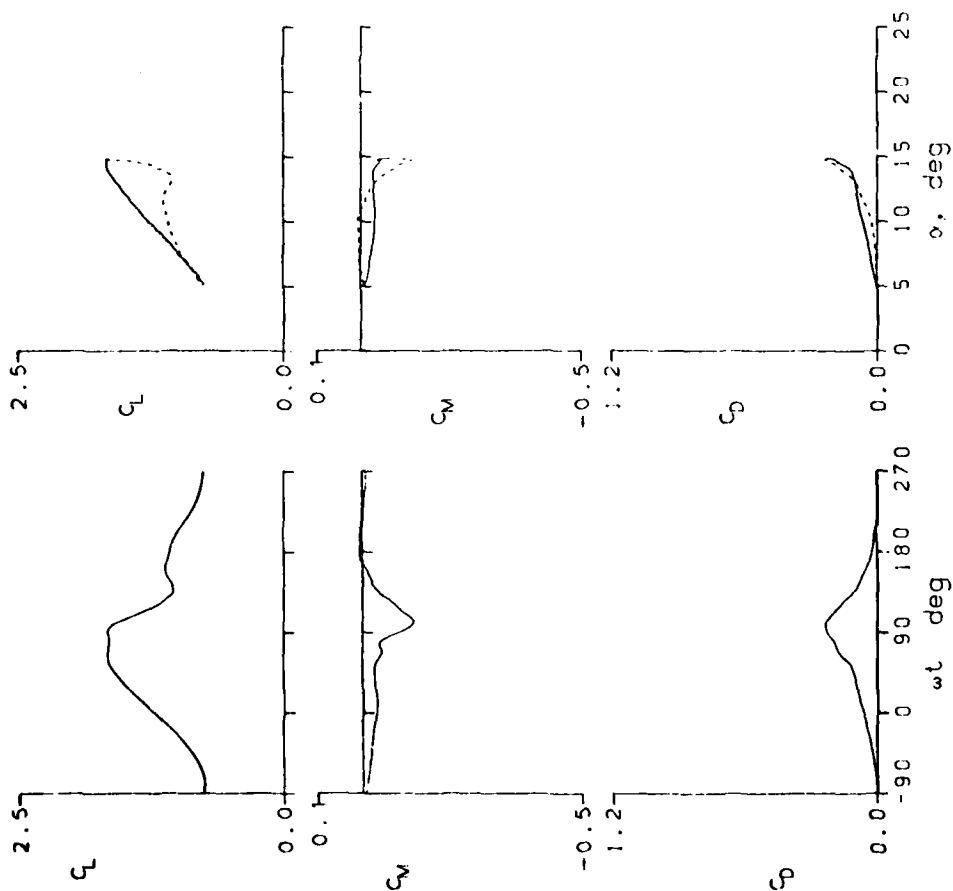


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 44119 $A_0 = 9.89^\circ$ $k = 0.025$
 $Re = 4.02 \text{ E } 6$ $A_1 = 4.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.55$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.19$
 $\alpha_{Lmax} = 13.2^\circ$ $\xi = 0.000$ $M_{max} = 1.229$
 $\alpha_{Cmin} = 9.6^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 13.8^\circ$

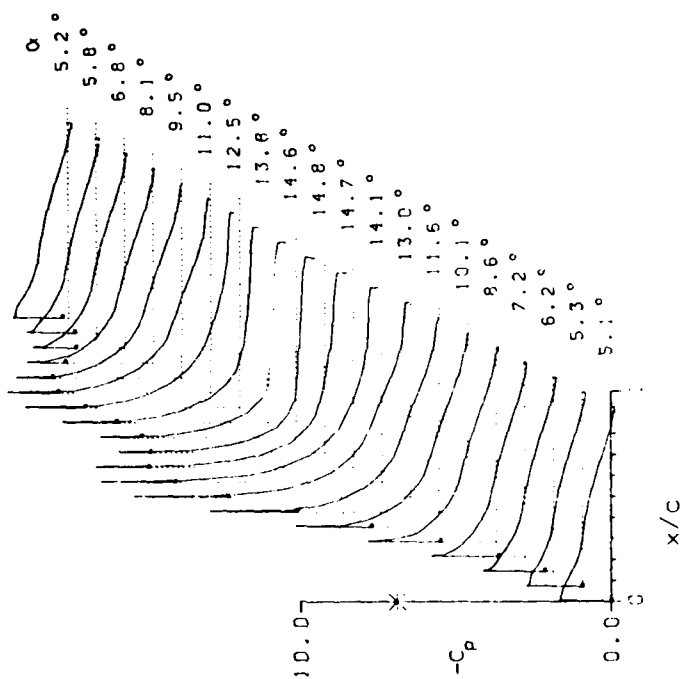
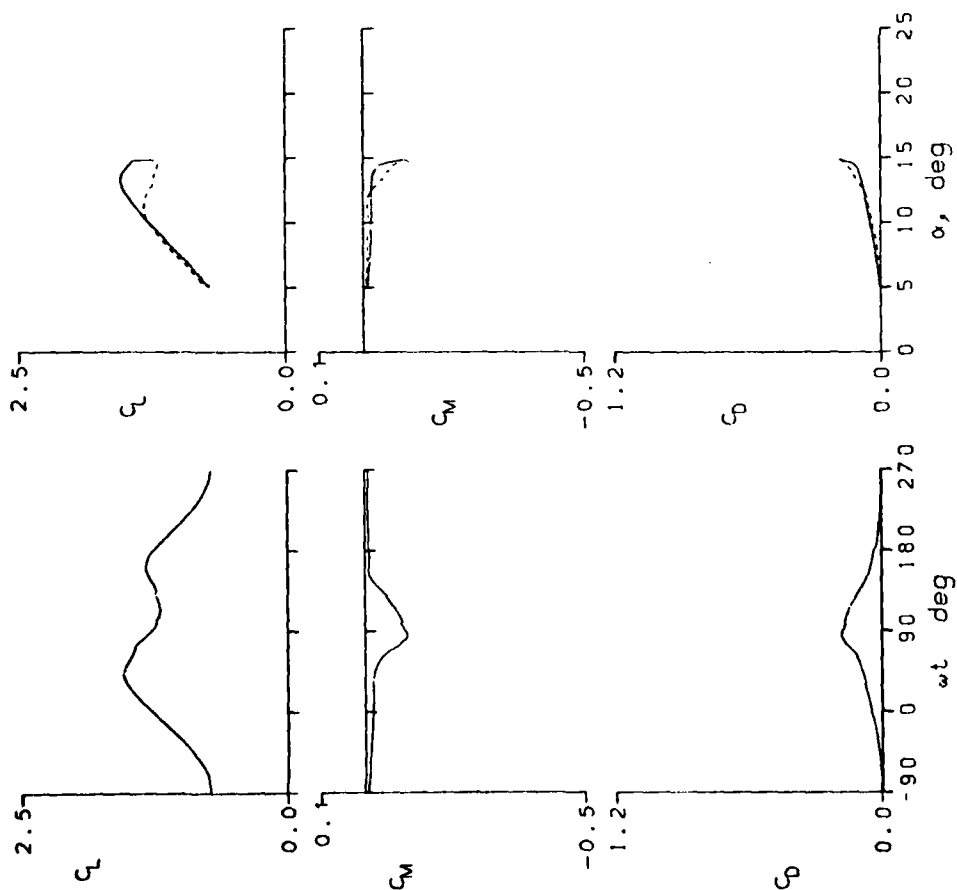


Figure 16.- Continued.

HUGHES HM-02 - WITH TAB - AIRFOIL
 FRAME : 44120 $A_0 = 9.84^\circ$ $k = 0.200$
 $Re = 4.01 E6$ $A' = 4.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.86$ $C_{Mmin} = -0.21$ $C_{Dmax} = 0.33$
 $\alpha_{Lmax} = 14.9^\circ$ $\zeta = 0.055$ $M_{max} = 1.228$
 $\alpha_{Cmin} = 9.6^\circ$ $-C_{Pmax} = 9.1$ $\alpha_{Mmax} = 14.0^\circ$

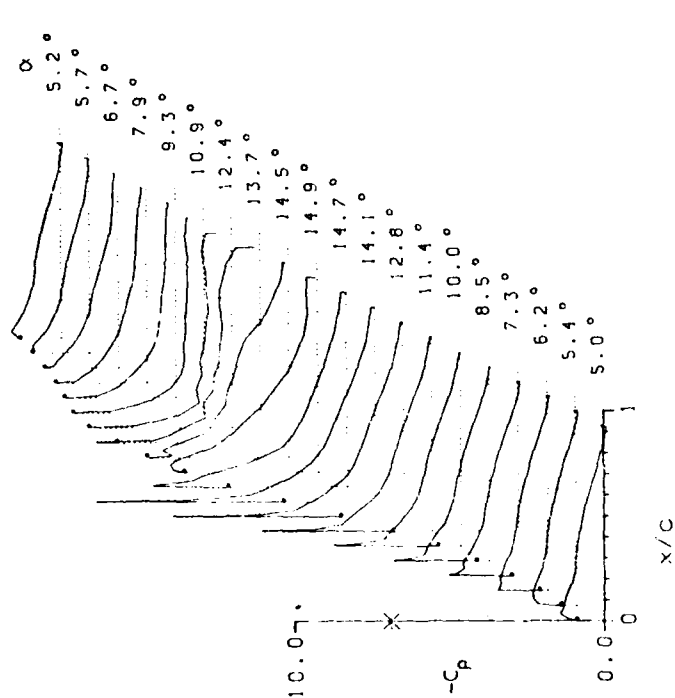
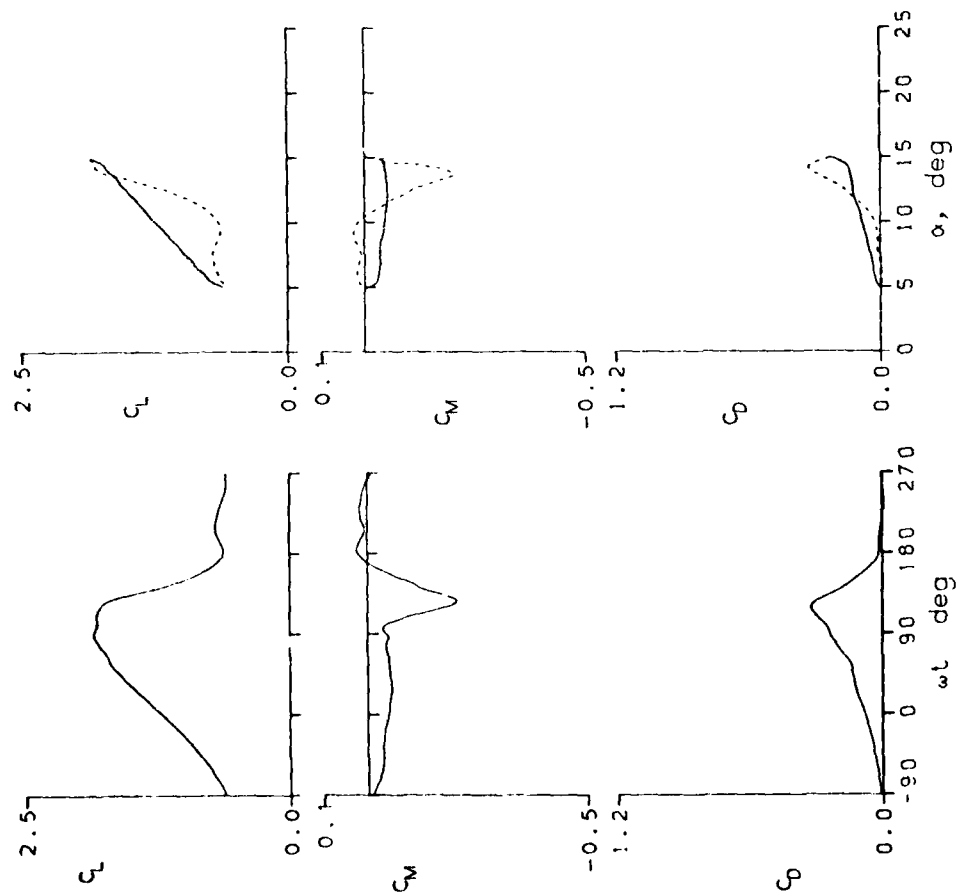


Figure 16.- Continued.

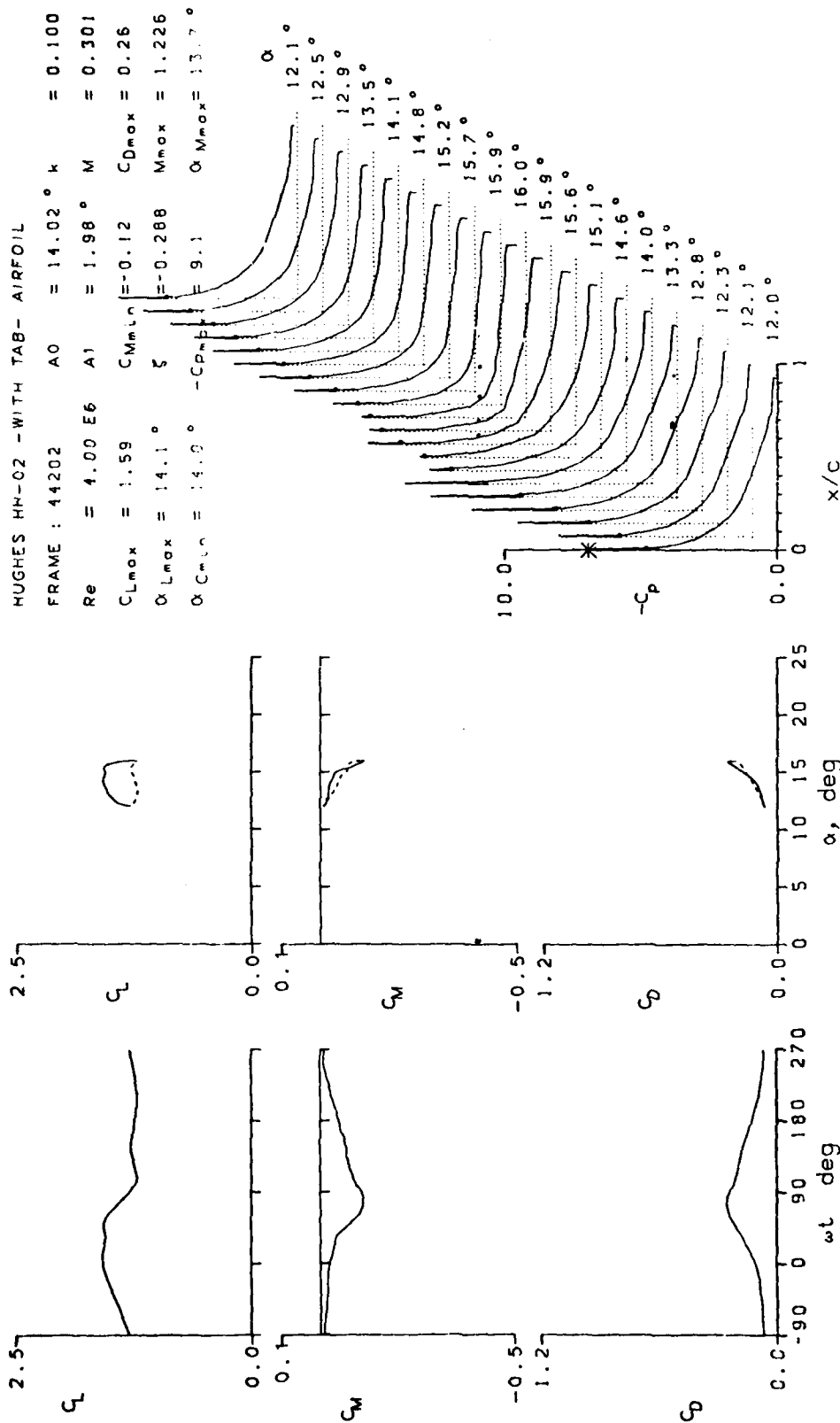


Figure 16.- Continued.

HUGHES HM-02 - WITH TAB- AIRFOIL
 FRAME : 44204 A0 = 13.95° k = 0.200
 Re = 3.99 E6 A1 = 1.99° M = 0.301
 CLmax = 1.88 CMmin = -0.23 CDmax = 0.41
 αLmax = 16.0° ξ = -0.657 Mmax = 1.221
 αCMmin = 13.9° -CDmax = 9.1 αMmax = 14.4°

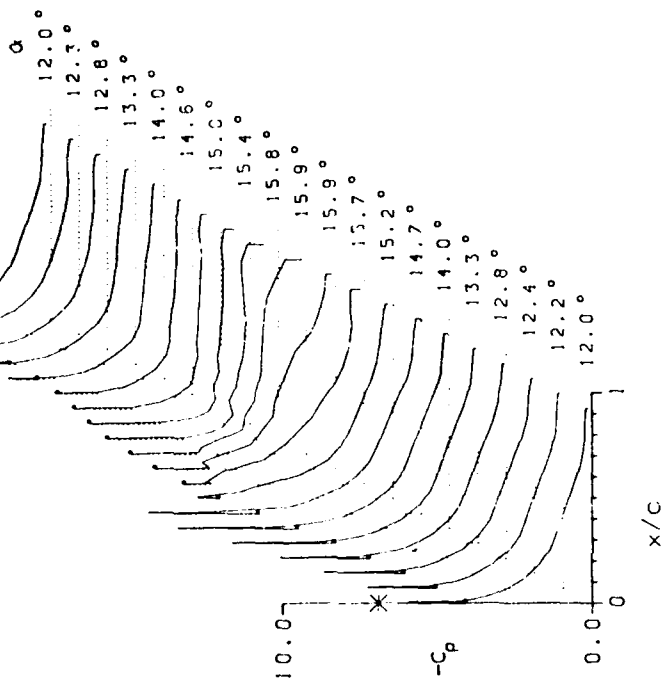
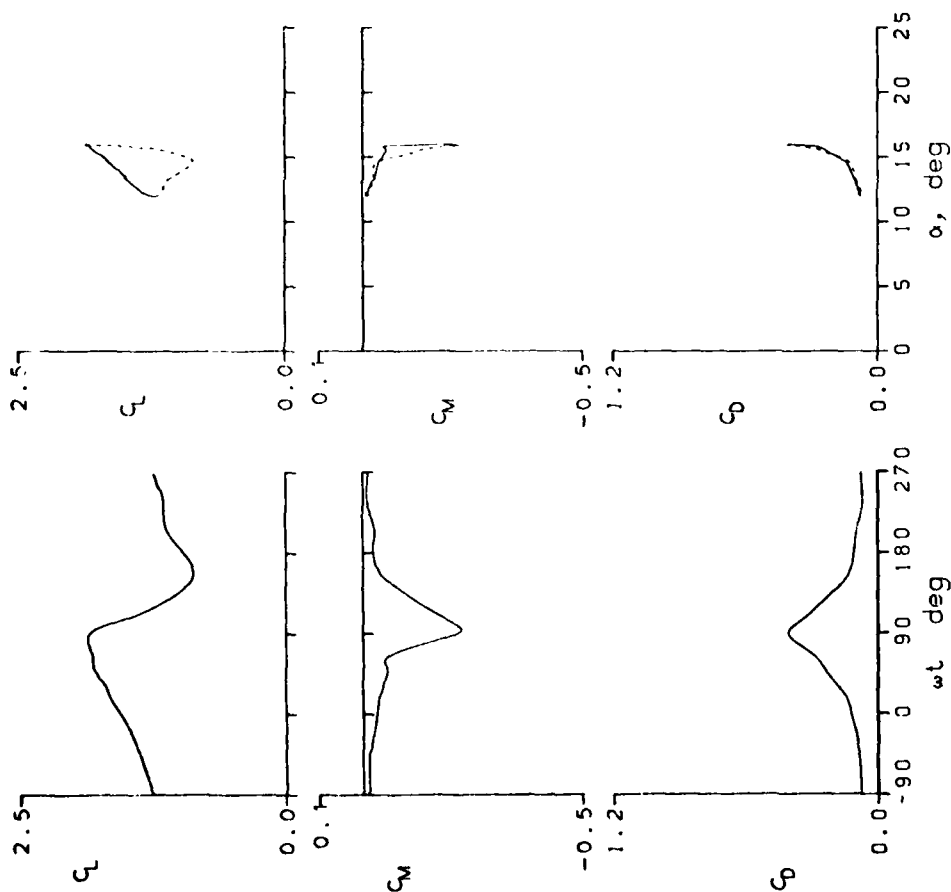


Figure 16.- Continued.

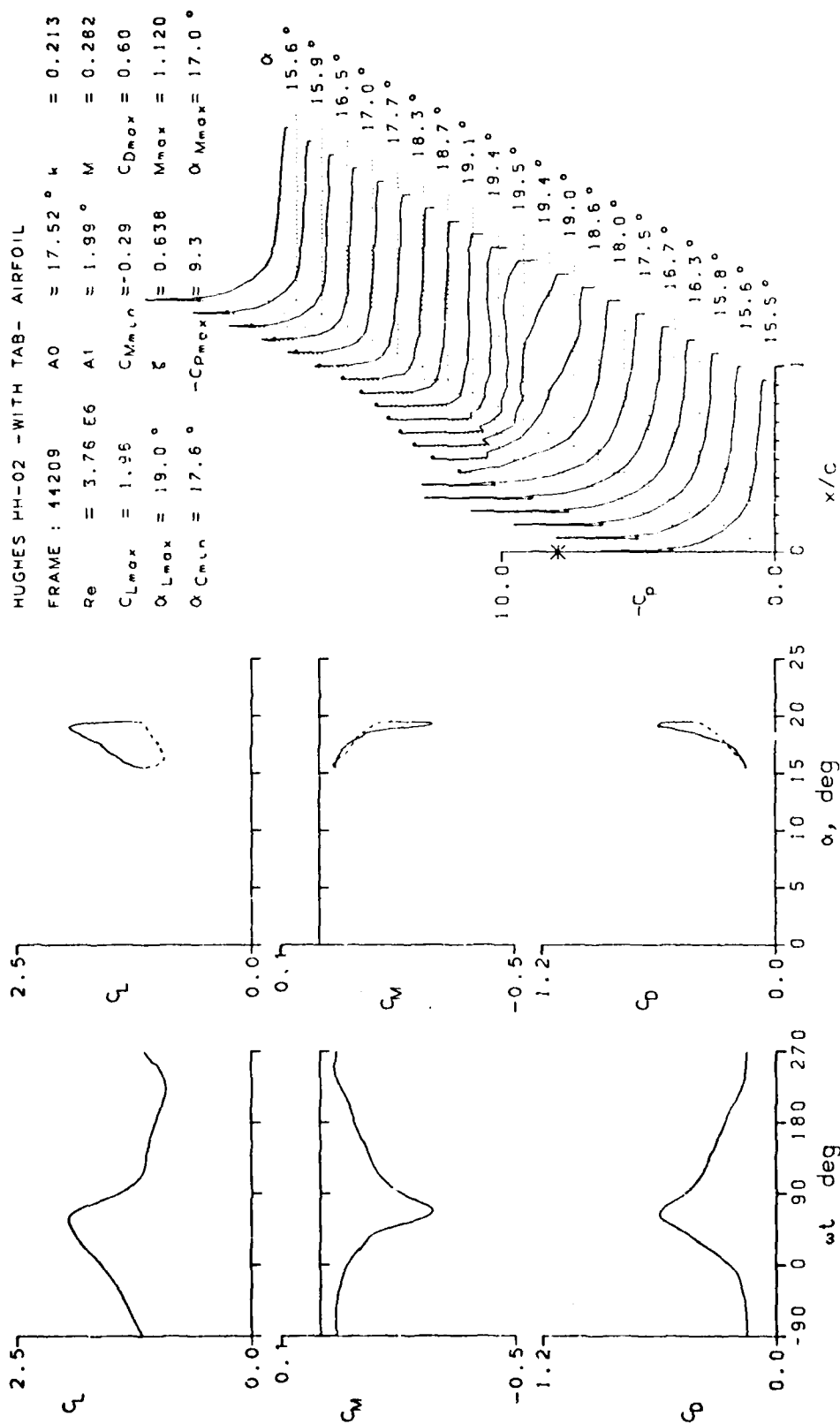


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 14212 $\alpha_0 = 15.47^\circ$ $\mu = 0.010$
 $Re = 3.95 \times 10^6$ $A1 = 1.99^\circ$ $M = 0.297$
 $C_{Lmax} = 1.45$ $C_{Mmax} = 0.10$ $CDmax = 0.23$
 $\alpha_{Lmax} = 13.6^\circ$ $\alpha_{Mmax} = 0.256$ $M_{max} = 1.166$
 $\alpha_{Cmin} = 15.3^\circ$ $-CD_{max} = 8.8$ $\alpha_{Mmax} = 13.6^\circ$

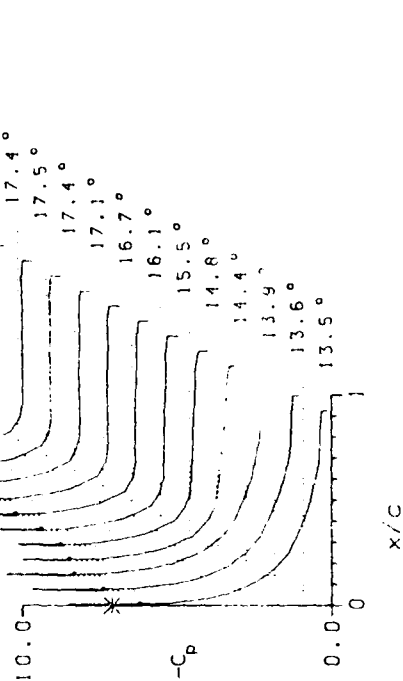
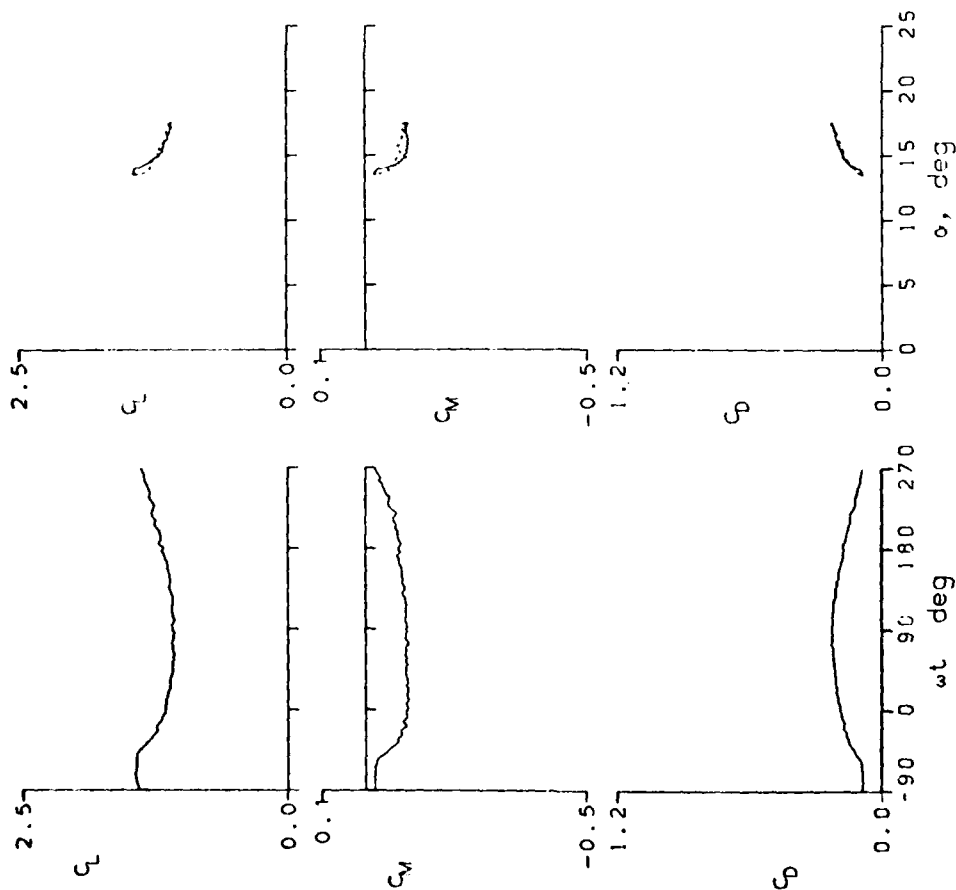


Figure 16.- Continued.

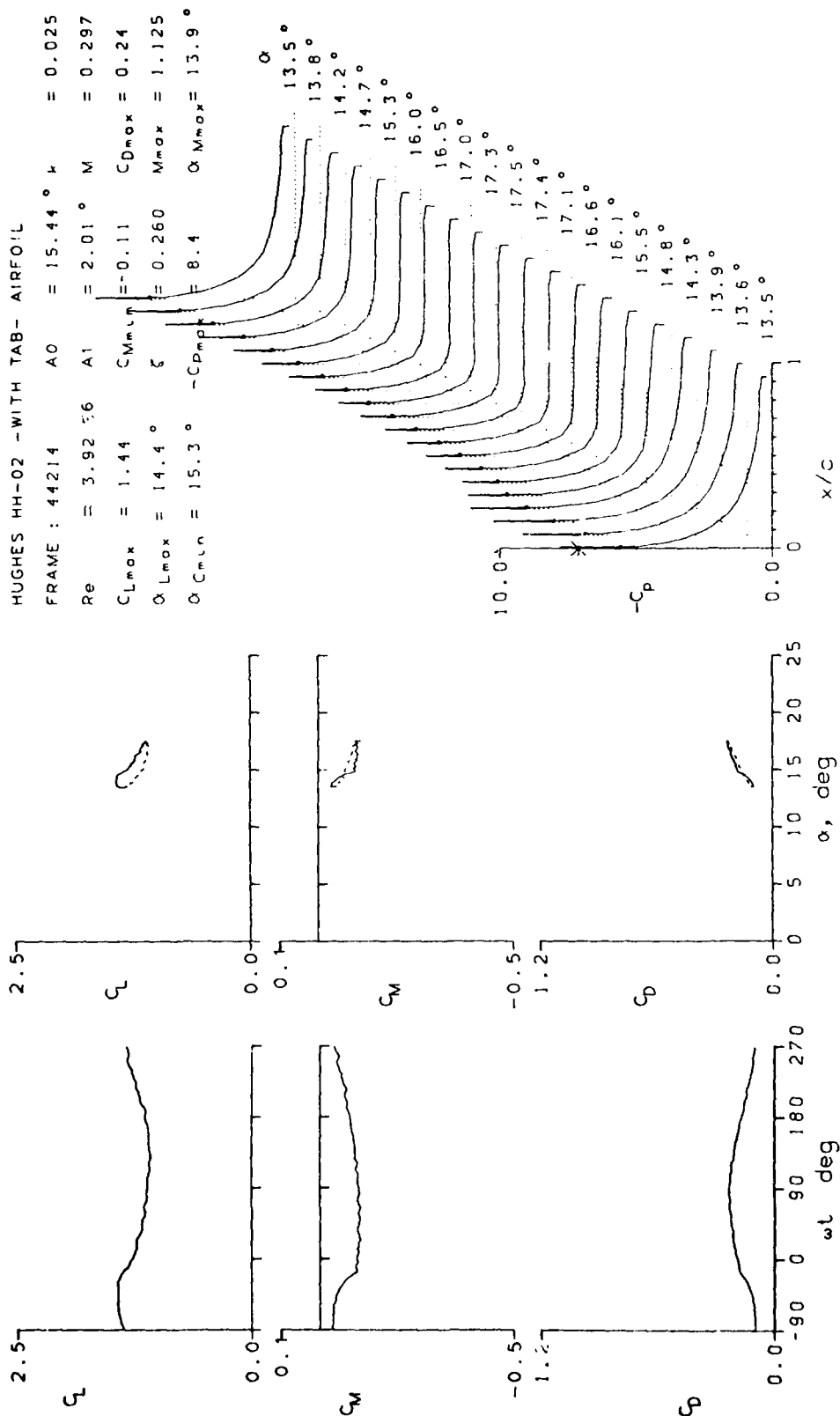


Figure 16.- Continued.

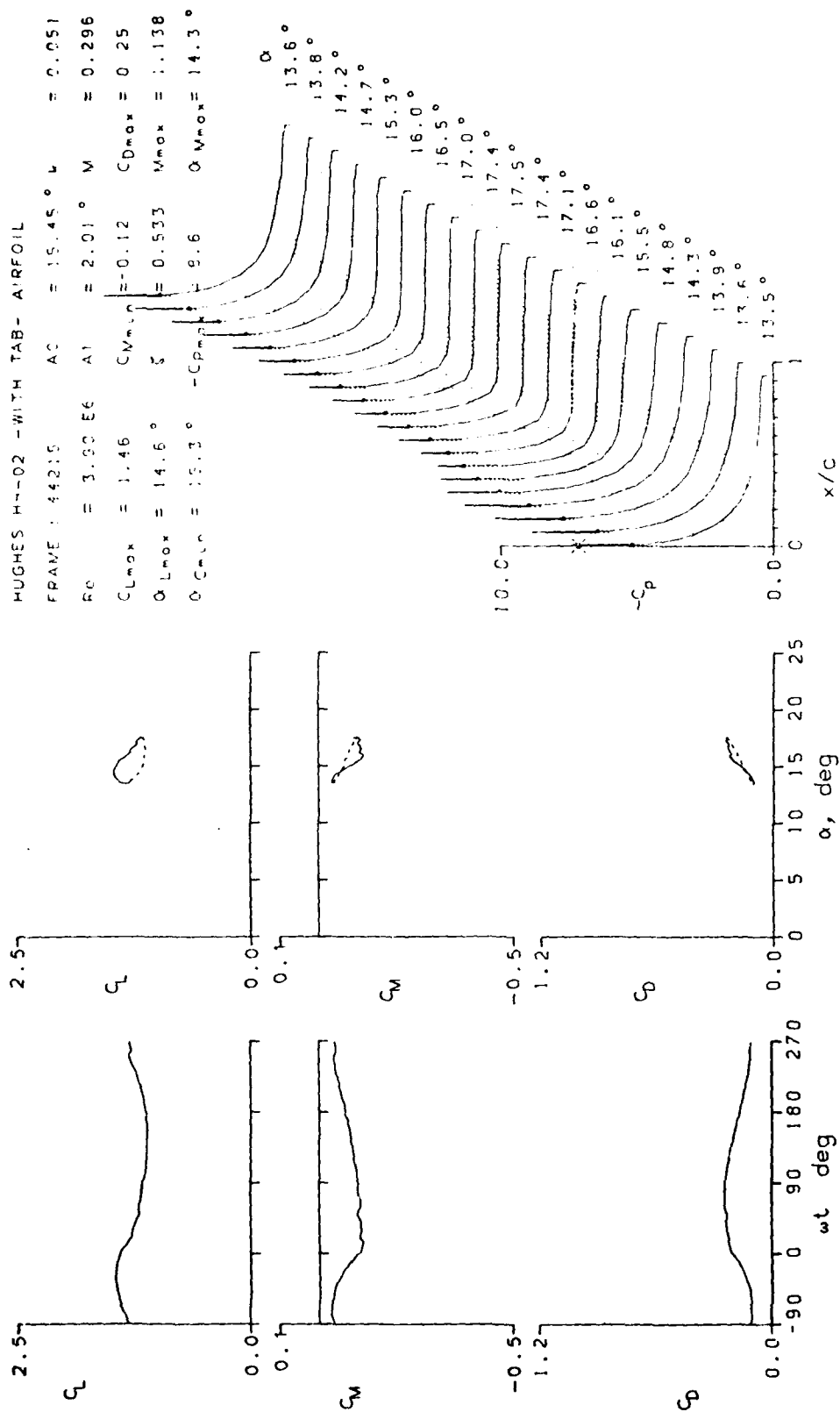


Figure 16.- Continued.

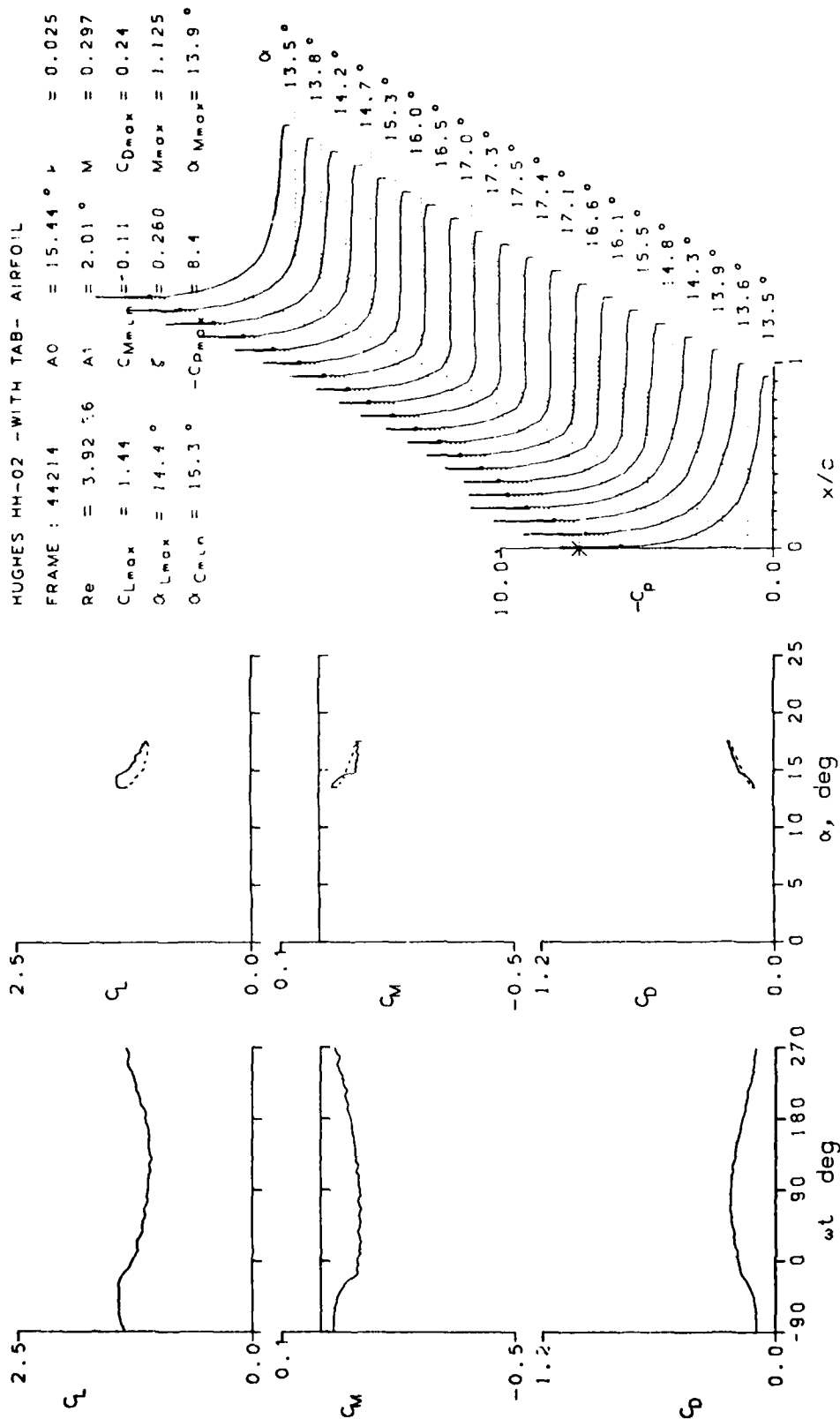


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 44216 A0 = 15.43° k = 0.102
 Re = 3.85 E6 A1 = 2.01° M = 0.293
 $C_{Lmax} = 1.63$ $C_{Mmin} = -0.15$ $C_{Dmax} = 0.32$
 $\alpha_{Lmax} = 16.2^\circ$ $\xi = 0.360$ $M_{max} = 1.164$
 $\alpha_{Cmin} = 15.3^\circ$ $-C_{Dcrit} = 9.0$ $\alpha_{Mmax} = 14.6^\circ$

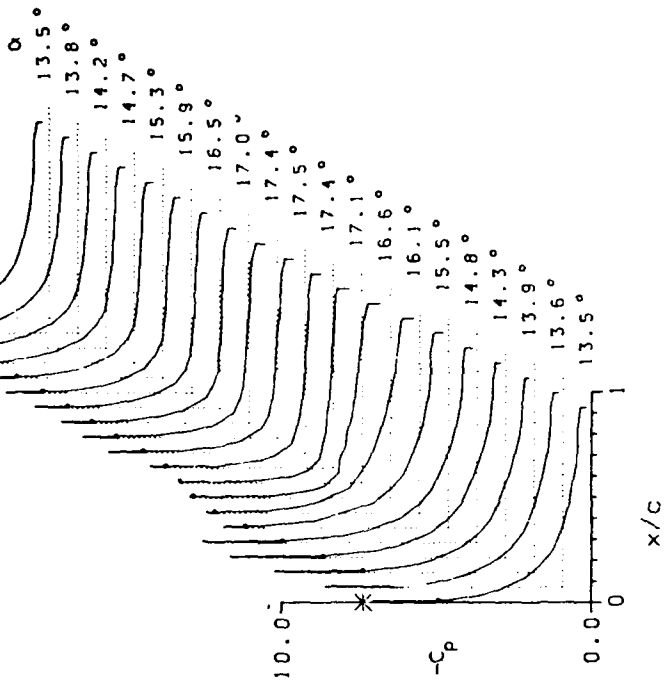
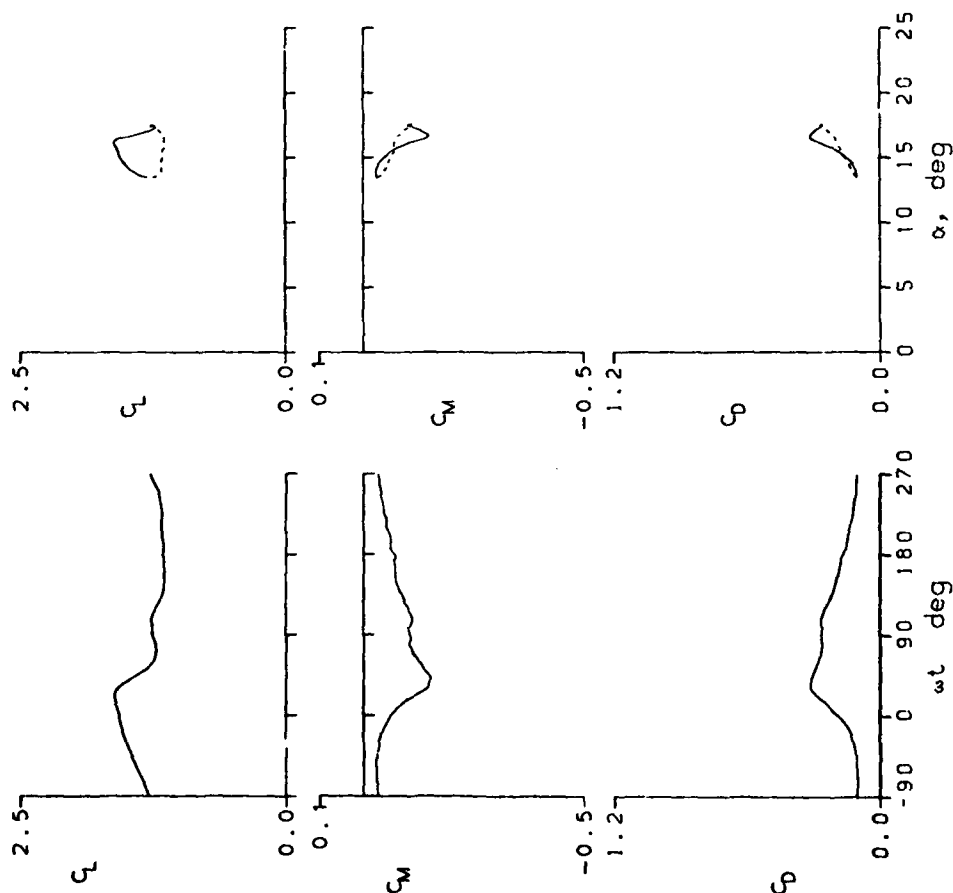


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL
 FRAME : 44217 $A_0 = 15.44^\circ$ $k = 0.154$
 $Re = 3.83 \text{ E}6$ $A_1 = 2.01^\circ$ $M = 0.291$
 $C_{Lmax} = 1.77$ $C_{Mmin} = -0.20$ $C_{Dmax} = 0.39$
 $\alpha_{Lmax} = 15.7^\circ$ $\xi = 0.326$ $M_{max} = 1.170$
 $\alpha_{Cmin} = 15.3^\circ$ $-C_{Dmin} = 9.2$ $\alpha_{Mmax} = 14.8^\circ$

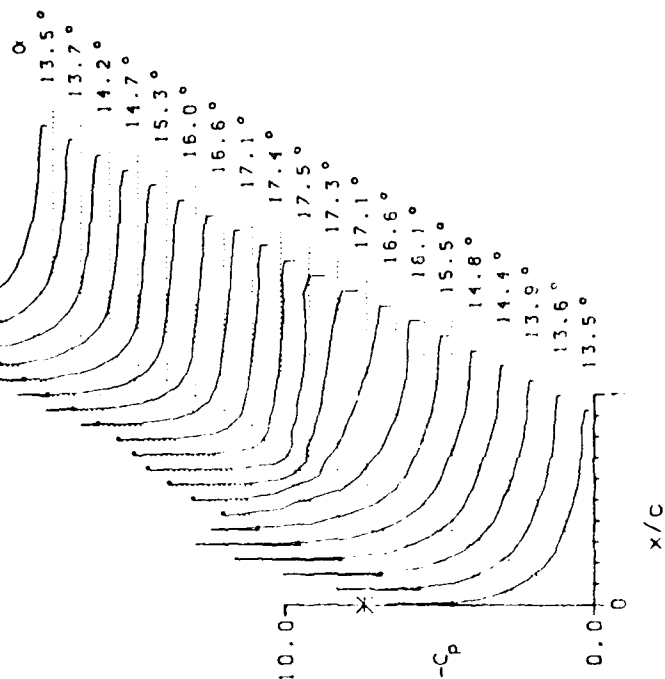
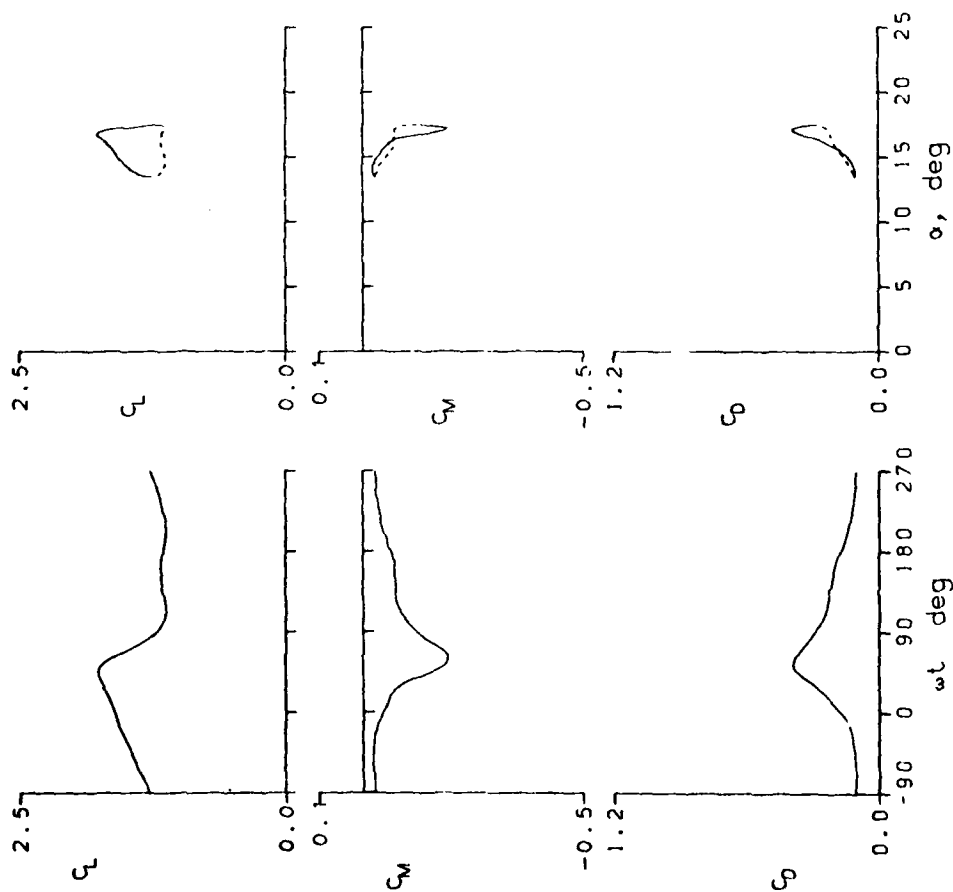


Figure 16.- Continued.

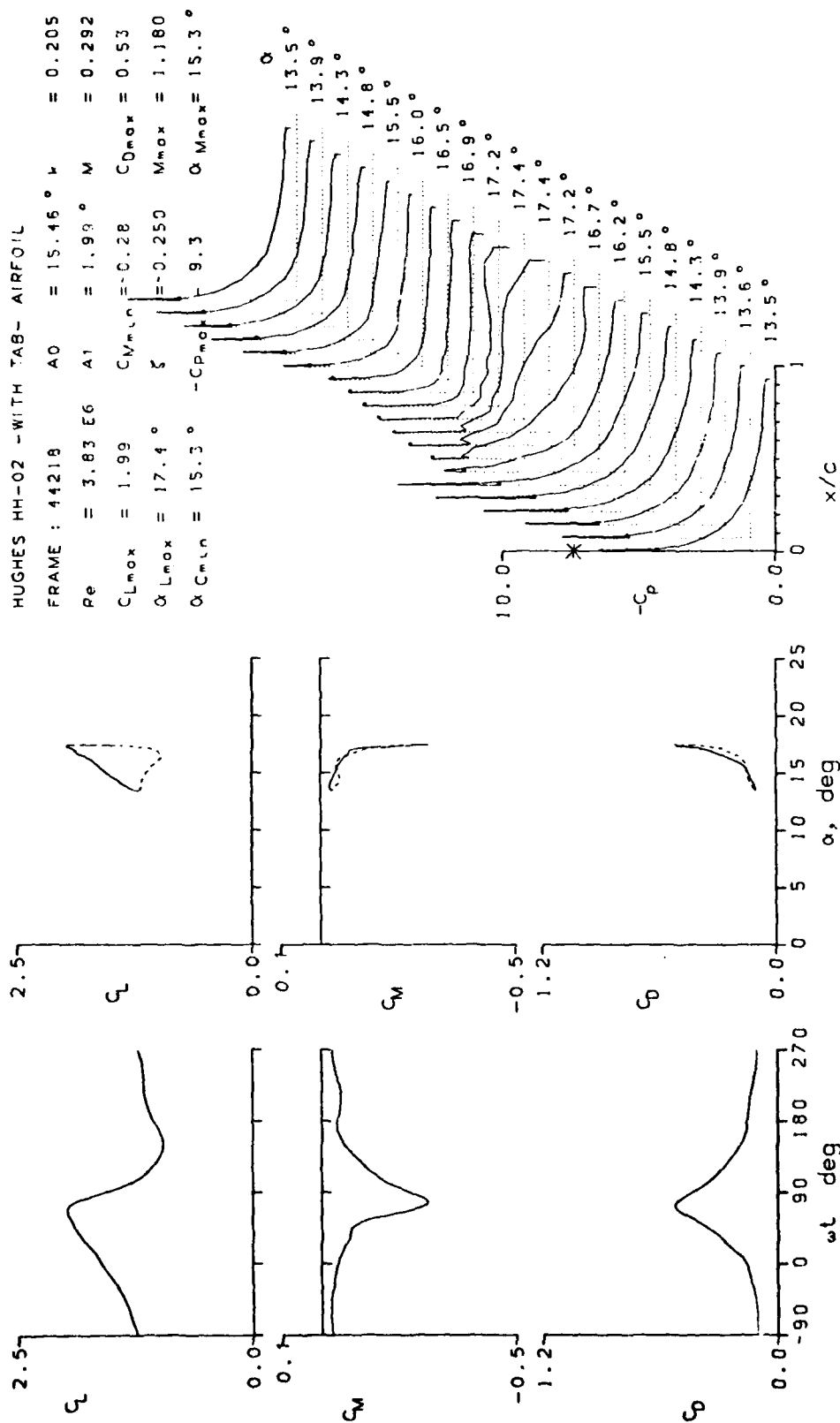


Figure 16.- Continued.

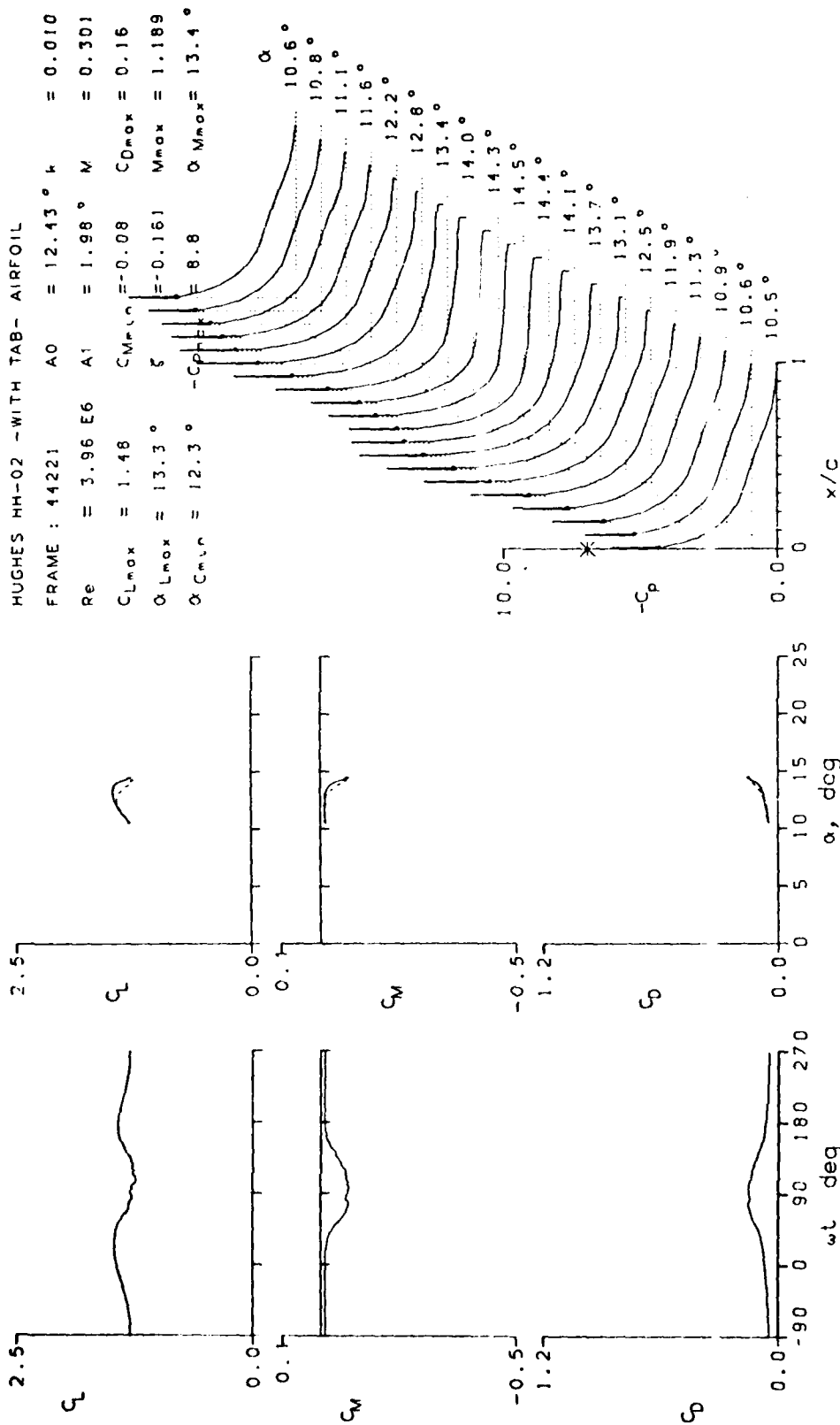


Figure 16.- Continued.

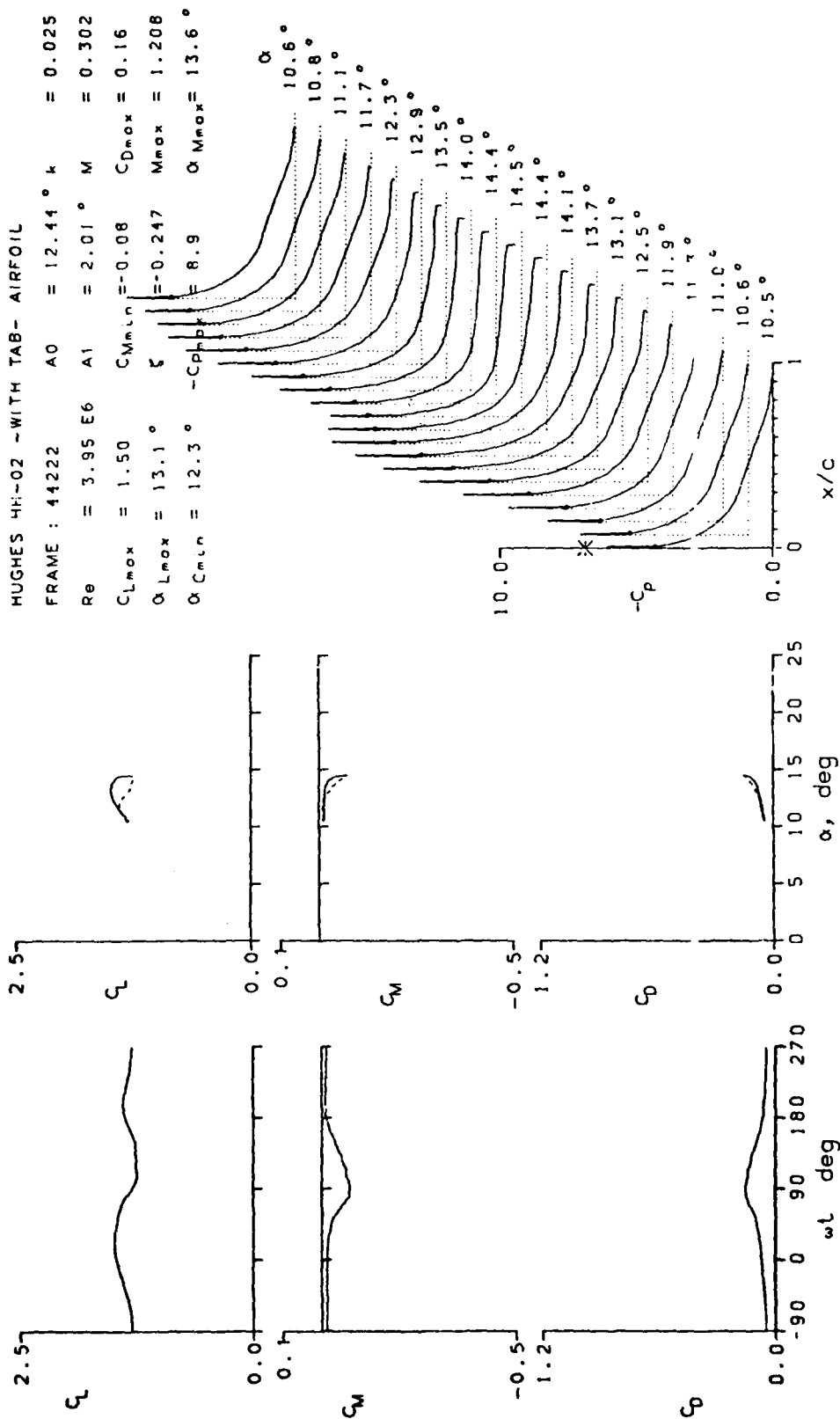


Figure 16.- Continued.

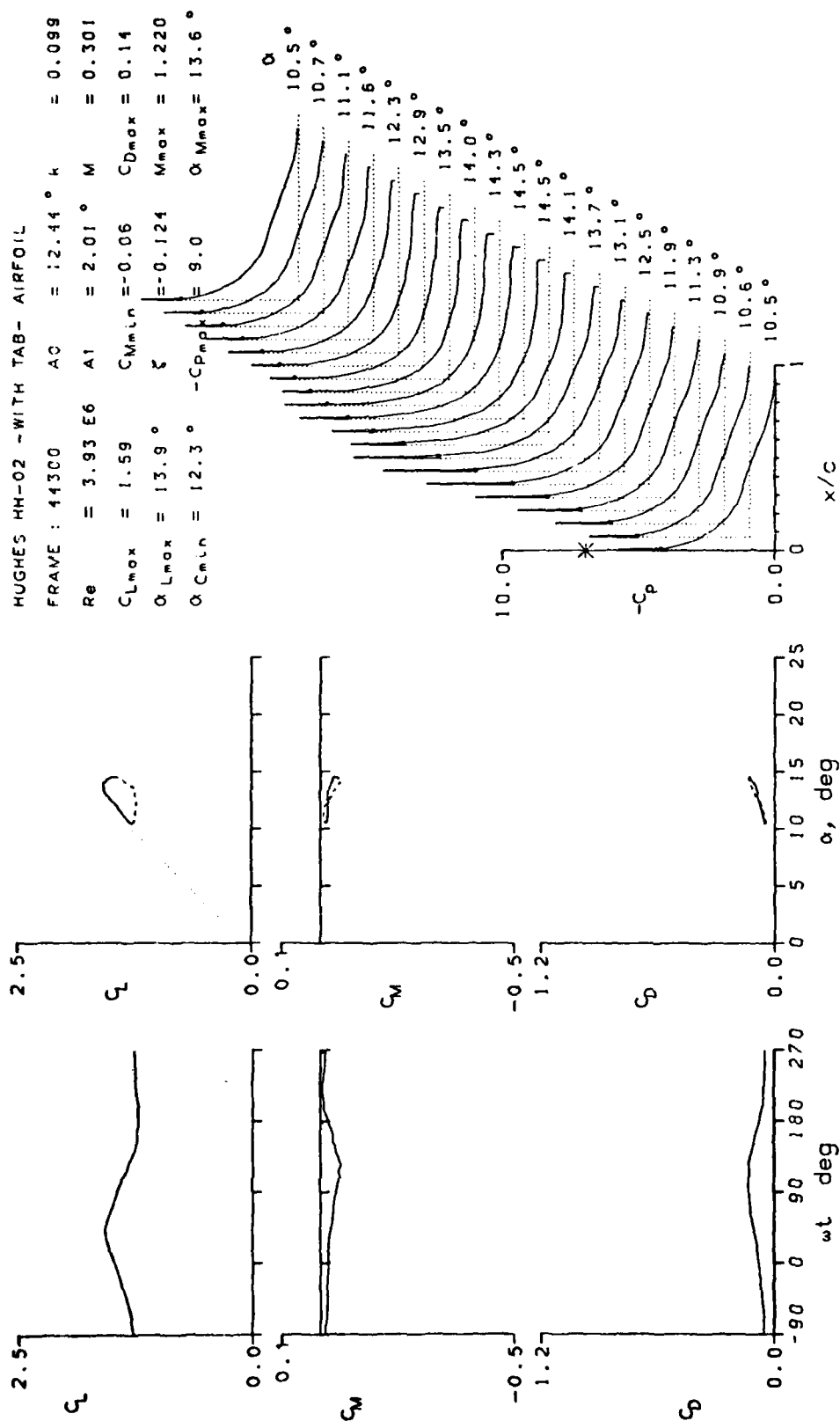


Figure 16.- Continued.

HUGHES HH-02 - WITH TAB - AIRFOIL

FRAME : 44303 $A_0 = 12.43^\circ$ $k = 0.149$

$Re = 3.95 \text{ EG}$ $A_1 = 2.01^\circ$ $M = 0.302$

$C_{Lmax} = 1.61$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.17$

$\alpha_{Lmax} = 14.0^\circ$ $\xi = -0.194$ $M_{max} = 1.221$

$\alpha_{Cmin} = 12.3^\circ$ $-C_{pmax} = 9.6$ $\alpha_{Mmax} = 13.6^\circ$

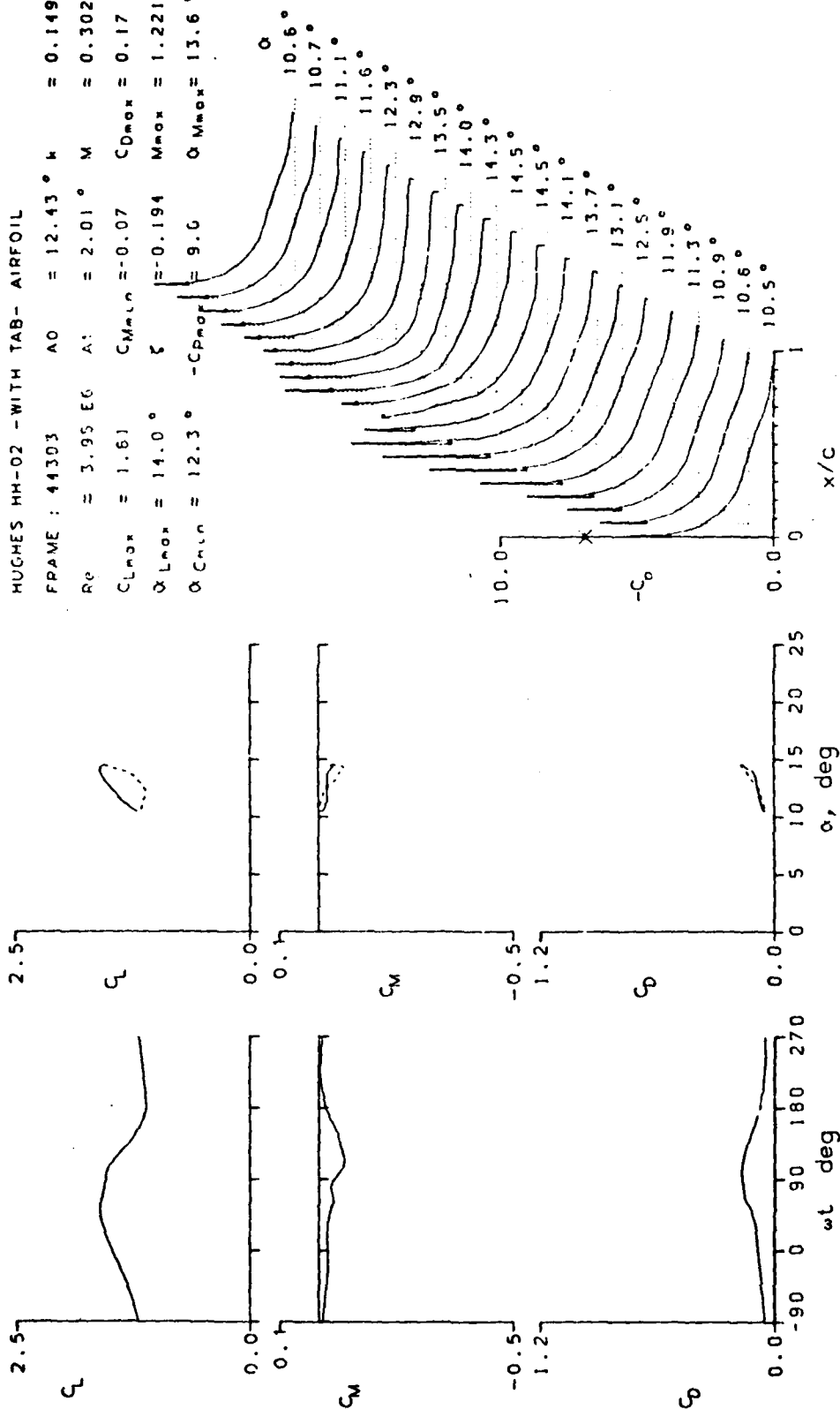


Figure 16.- Continued.

HUGHES HH-02 -WITH TAB- AIRFOIL

FRAME : 44304 $A_0 = 12.38^\circ$ $h = 0.198$

$Re = 3.95 \text{ E}6$ $A_1 = 2.02^\circ$ $M = 0.302$

$C_{Lmax} = 1.68$ $C_{Mmin} = -0.11$ $C_{Dmax} = 0.21$

$\alpha_{Lmax} = 14.5^\circ$ $\xi = -0.603$ $M_{max} = 1.216$

$\alpha_{Cmin} = 12.2^\circ$ $-C_{Dmax} = 9.0$ $\alpha_{Mmax} = 13.8^\circ$

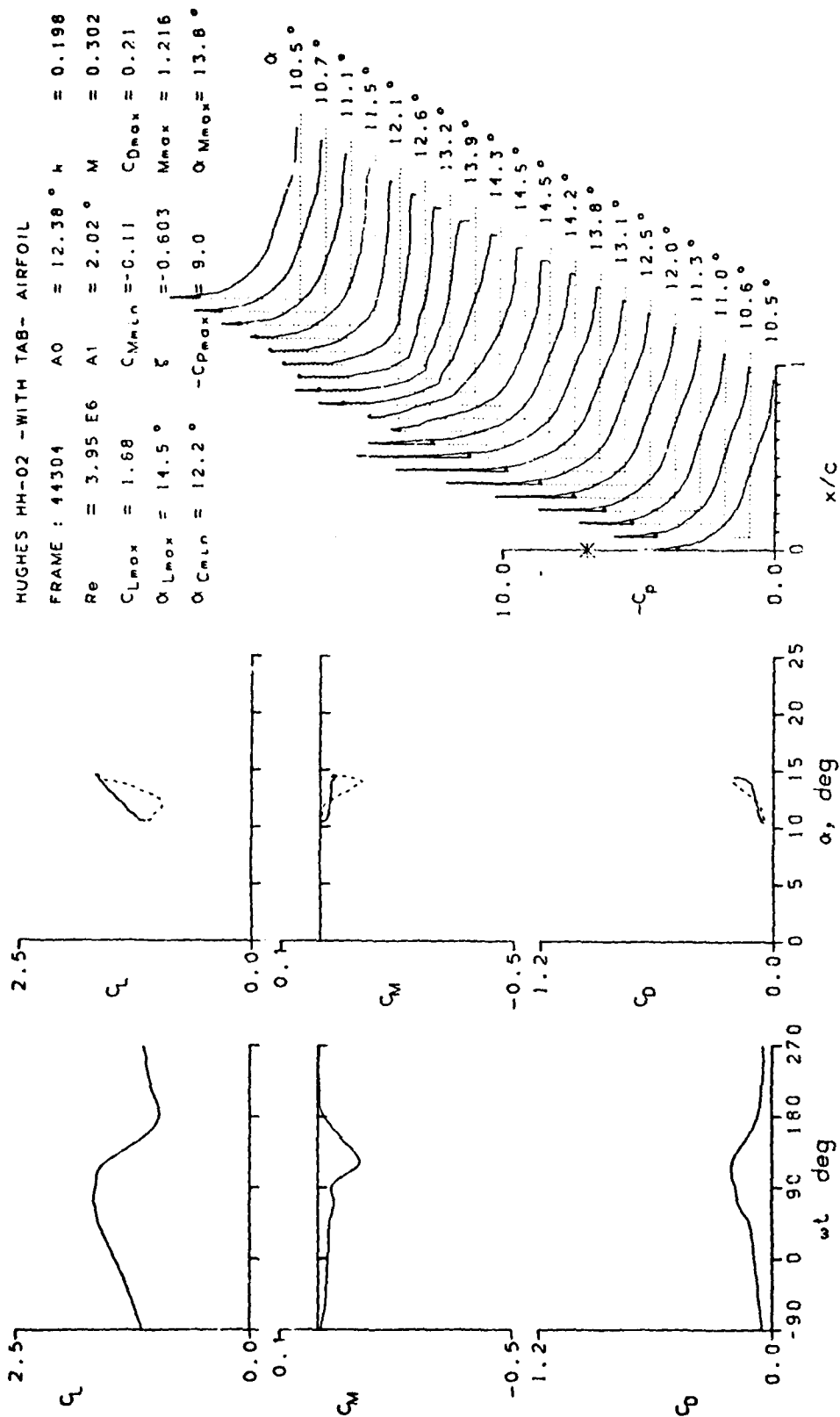


Figure 16.- Concluded.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45019	A0 = 14.83°	k = 0.025
Re = 4.06 E6	A1 = 9.93°	M = 0.300
CLmax = 1.82	CMmin = -0.23	CDmax = 0.43
αLmax = 16.3°	ξ = 0.234	Mmax = 1.326
αCMmin = 14.5°	-CPmax = 10.0	αMmax = 16.0°

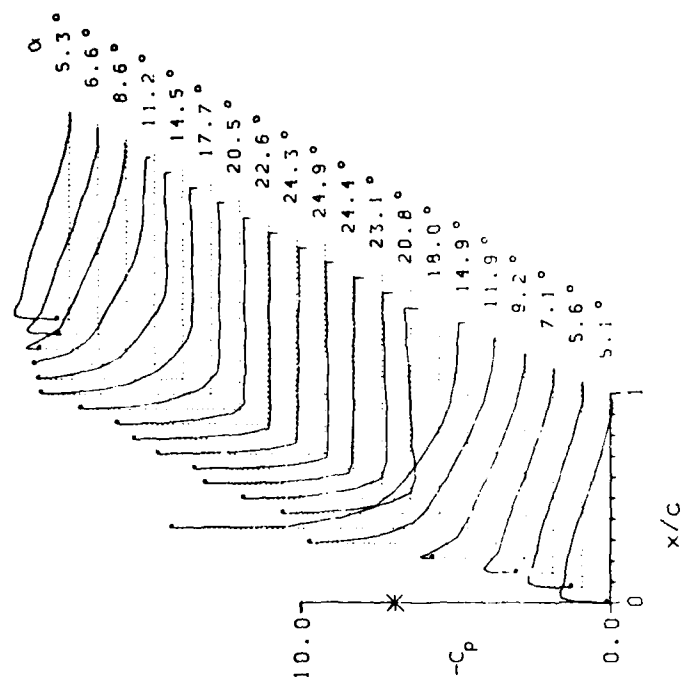
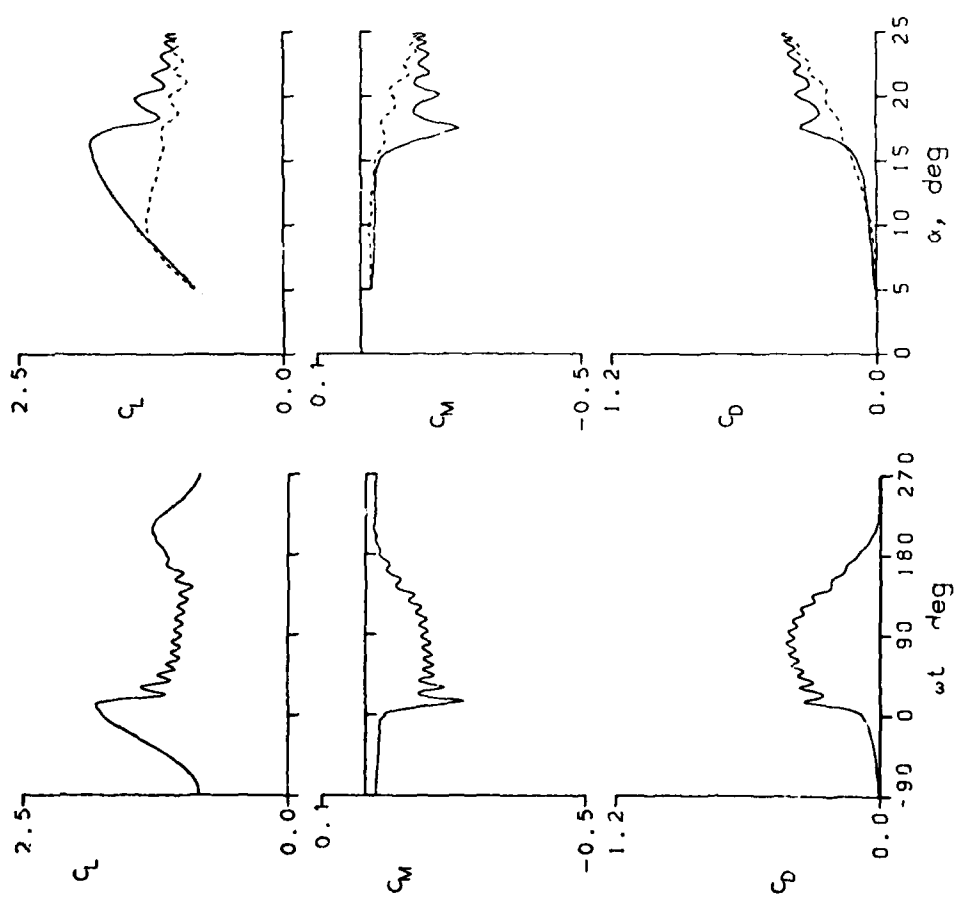


Figure 17.- Dynamic data for Vertol VR-7 airfoil.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 4502: $A_0 = 14.84^\circ$ $k = 0.051$
 $R_\theta = 3.94$ E_6 $A_1 = 9.90^\circ$ $M = 0.292$
 $C_{Lmax} = 2.11$ $C_{Mmin} = -0.25$ $C_{Dmax} = 0.46$
 $\alpha_{Lmax} = 18.1^\circ$ $\xi = 0.278$ $M_{max} = 1.473$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Pmax} = 11.7$ $\alpha_{Mmax} = 17.8^\circ$

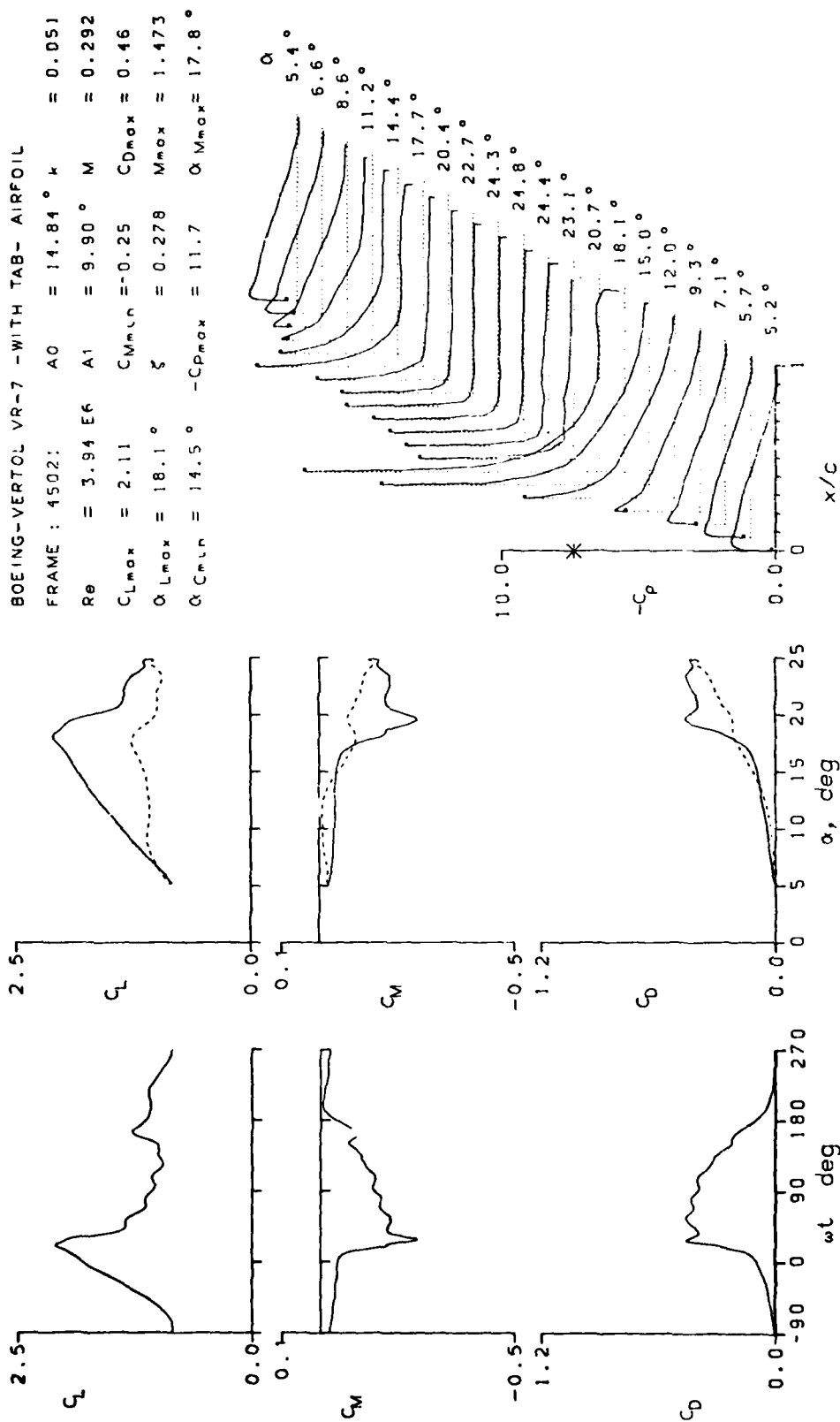


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH- TAB- AIRFOIL
 FRAME : 45023 A0 = 14.82° k = 0.101
 Re = 3.93 E6 A1 = 9.86° M = 0.293
 CLmax = 2.33 CMmin = -0.40 CDmax = 0.82
 αLmax = 20.9° ζ = 0.496 Mmax = 1.502
 αCmin = 14.7° -CPmax = 11.8 αMmax = 18.0°

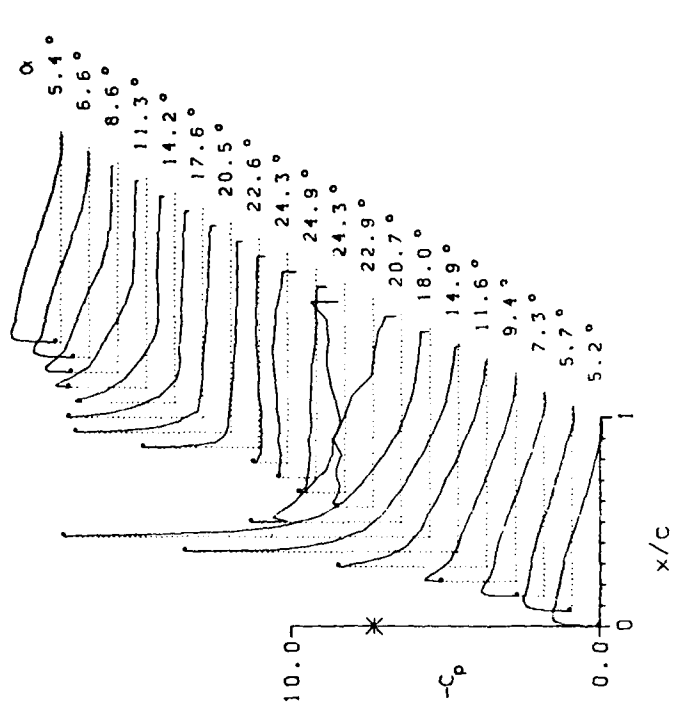
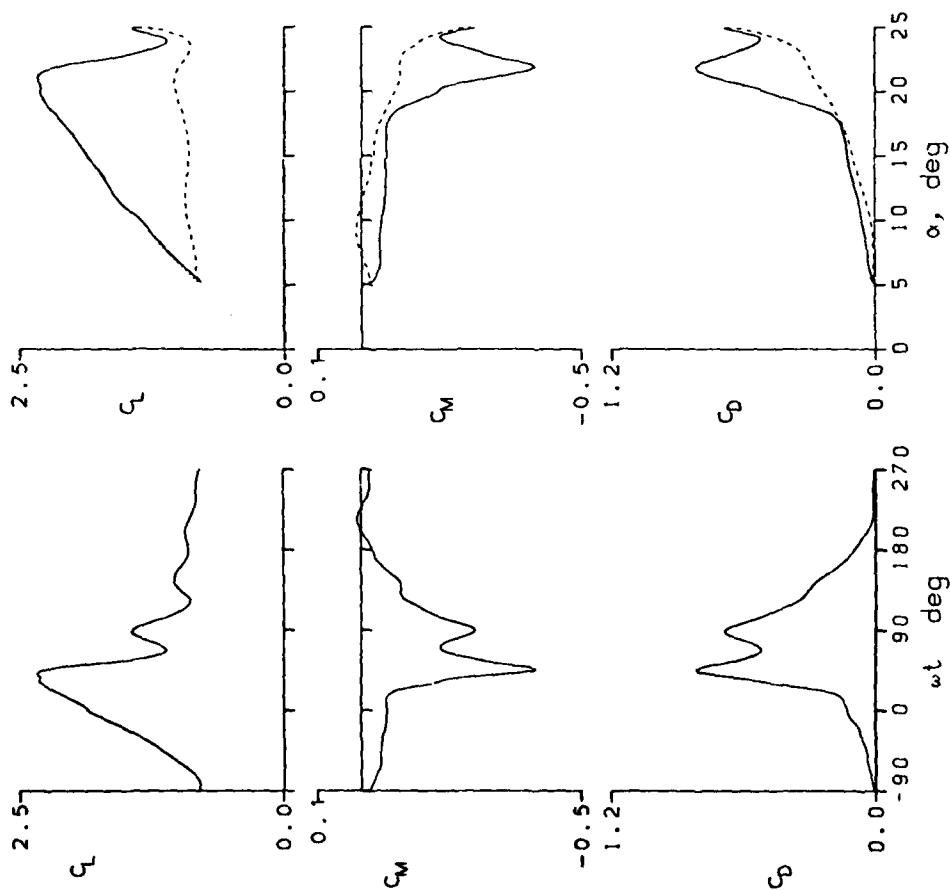


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45101 $A_0 = 14.89^\circ$ $k = 0.155$
 $Re = 3.82 \times 10^6$ $A_1 = 9.85^\circ$ $M = 0.285$
 $C_{Lmax} = 2.49$ $C_{Mmin} = -0.50$ $C_{Dmax} = 1.04$
 $\alpha_{Lmax} = 23.0^\circ$ $\zeta = 0.450$ $M_{max} = 1.489$
 $\alpha_{Cmin} = 11.7^\circ$ $-C_{Dmax} = 12.4$ $\alpha_{Mmax} = 18.9^\circ$

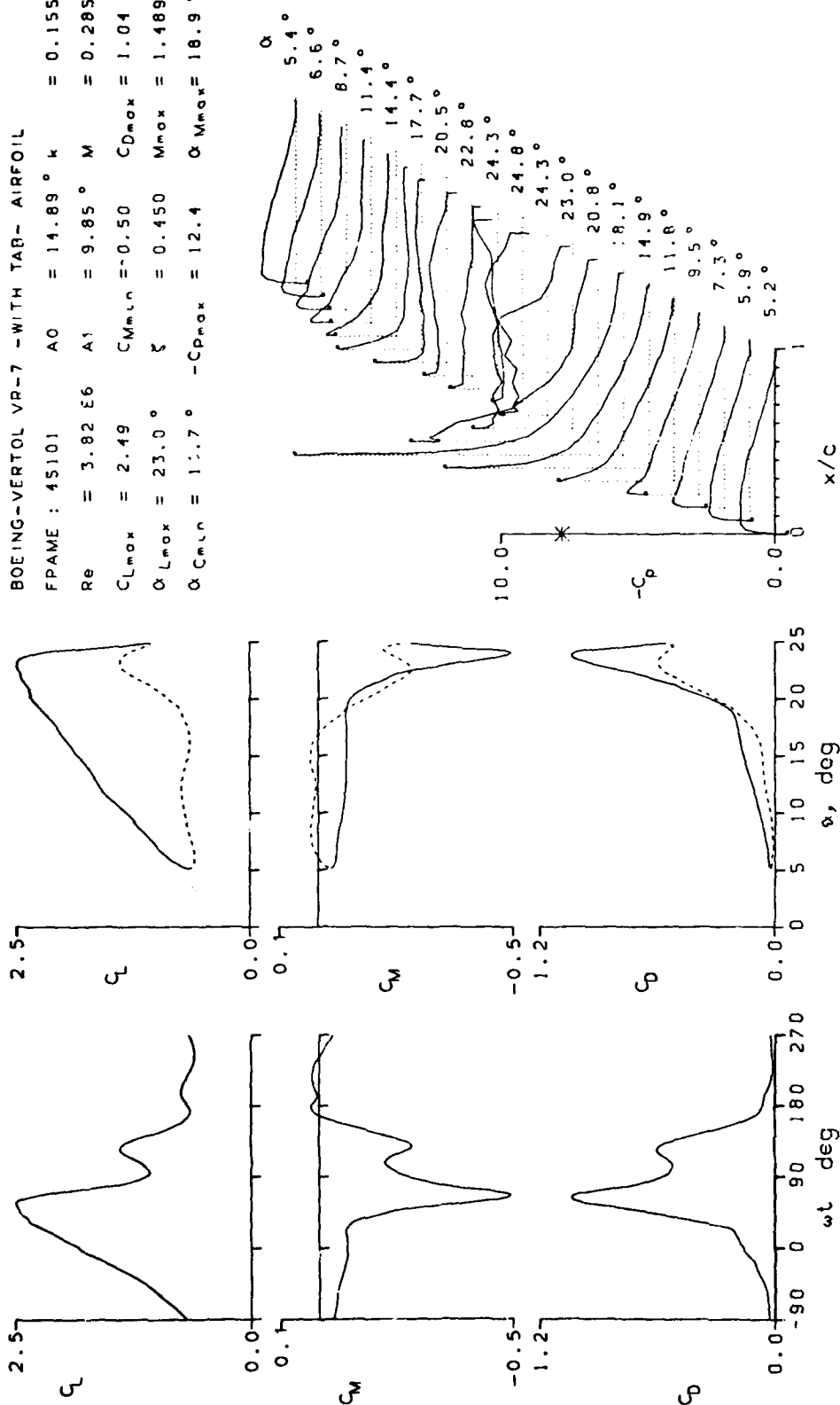


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WIT, TAB- AIRFOIL

FRAME : 45023	A0 = 14.82°	k = 0.101
Re = 3.93 E6	A1 = 9.86°	M = 0.293
CLmax = 2.33	CMmin = -0.40	CDmax = 0.82
αLmax = 20.9°	ξ = 0.496	Mmax = 1.502
αCMmin = 14.7°	-CPmax = 11.8	αMmax = 18.0°

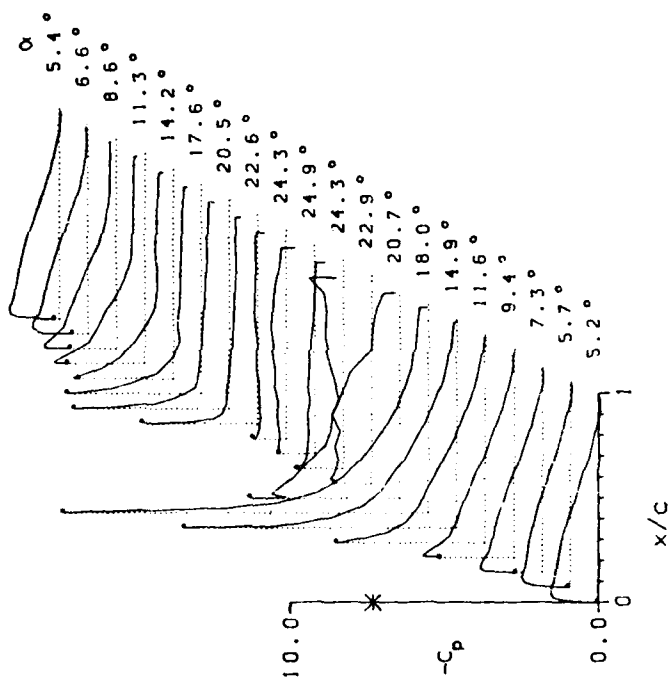
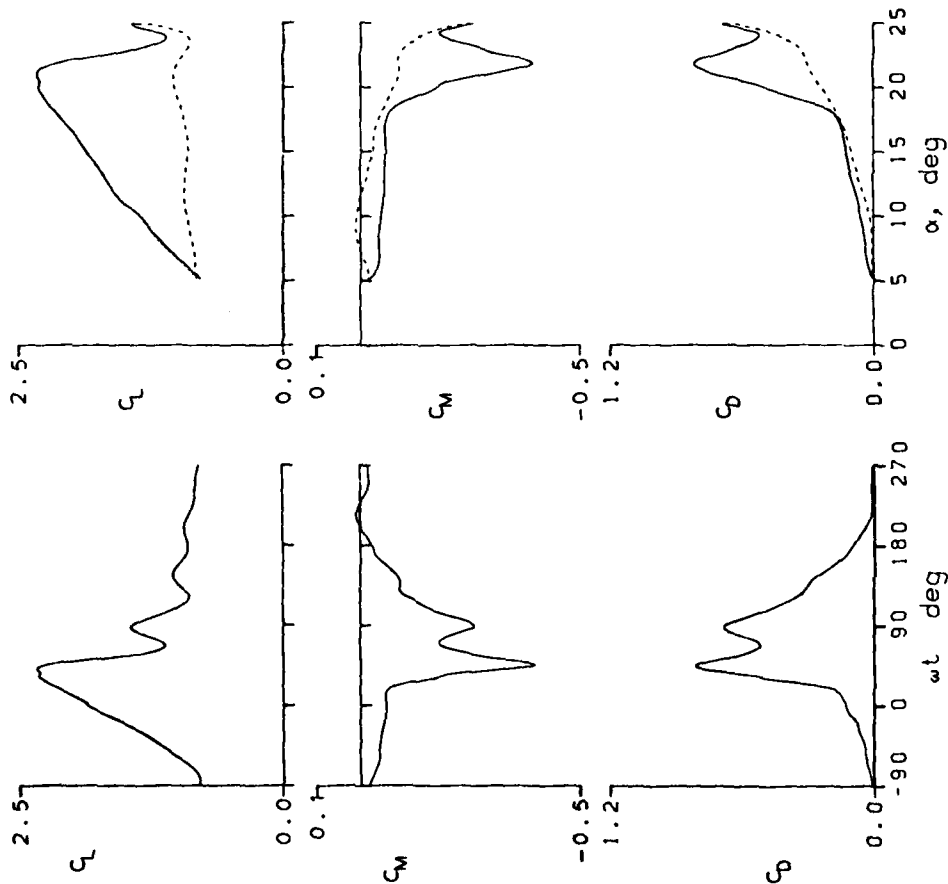


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45109 A0 = 9.91° k = 0.010
 Re = 4.03 E6 A1 = 9.89° M = 0.301
 CLmax = 1.66 CMmin = -0.11 CDmax = 0.26
 αLmax = 14.1° ζ = 0.043 Mmax = 1.151
 αCMmin = 9.4° -CDmax = 8.4 αMmax = 14.4°

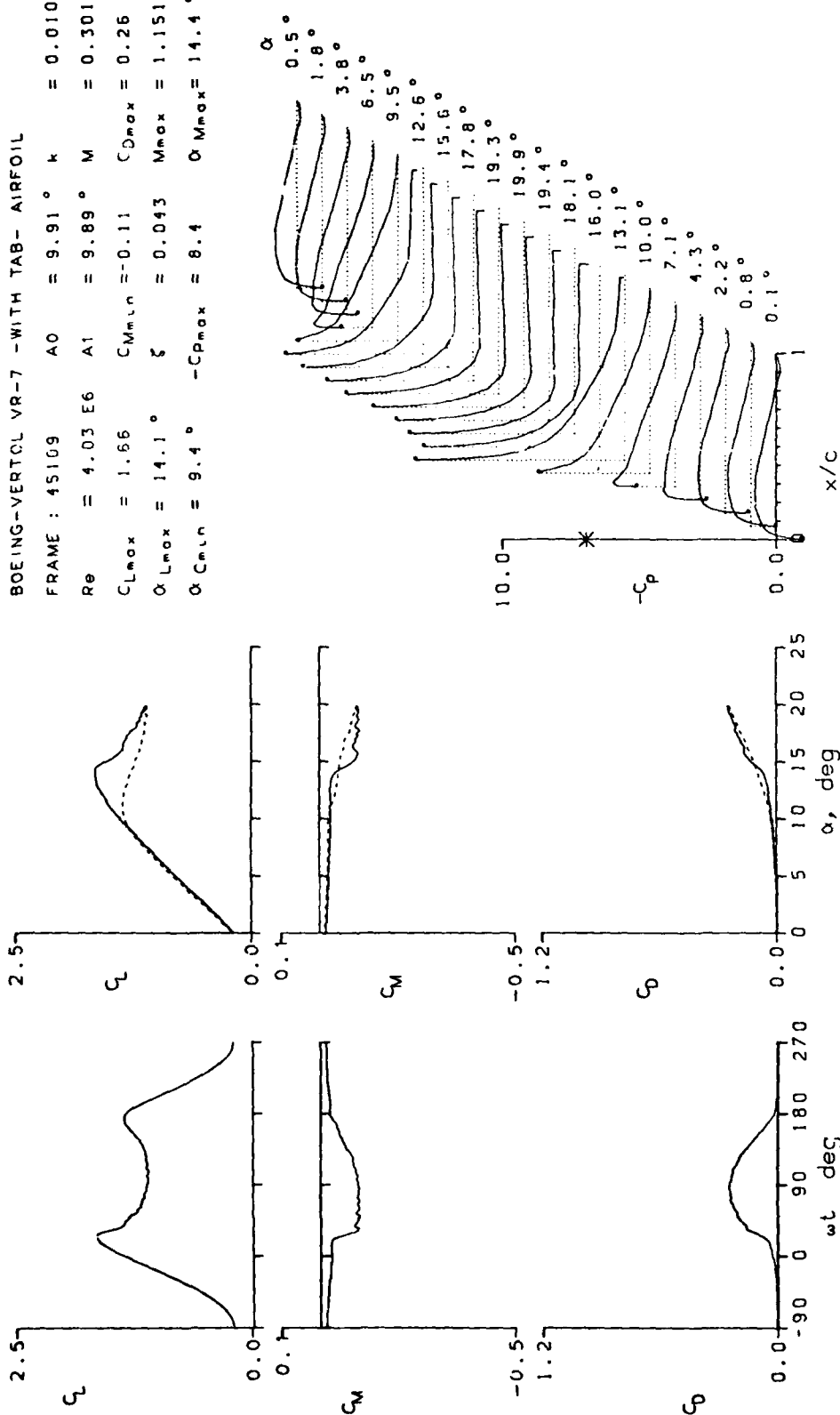
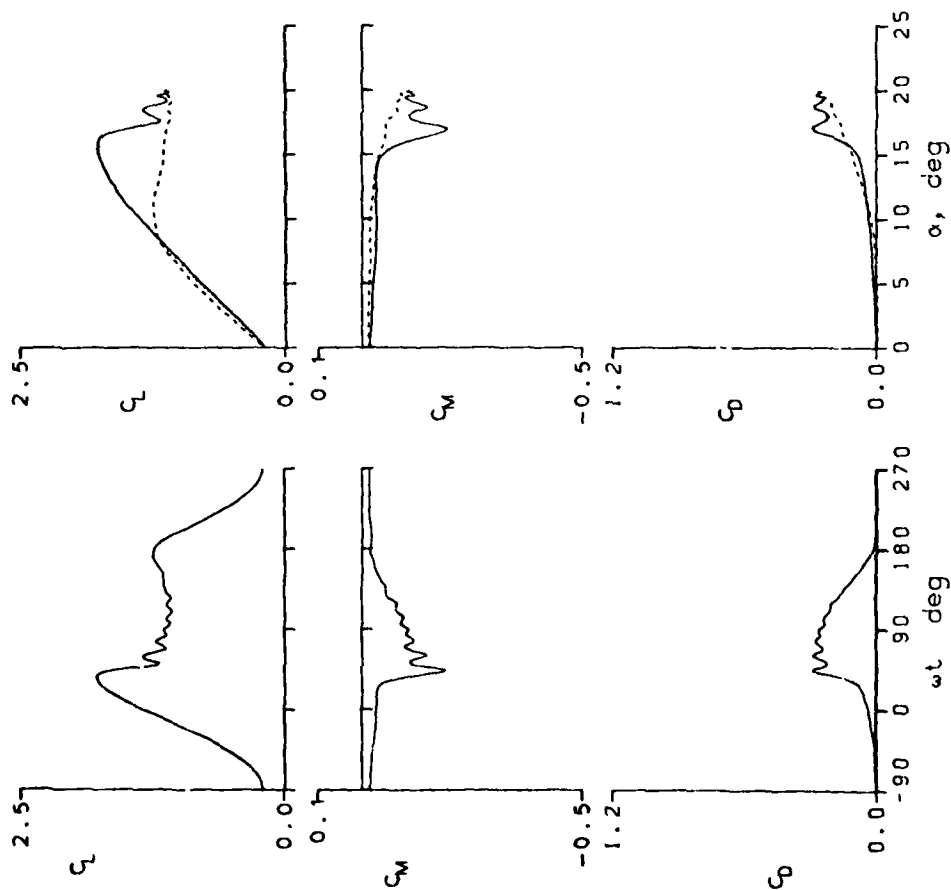


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45111 A0 = 9.76 ° k = 0.025
 Re = 4.01 E6 A1 = 9.91 ° M = 0.301
 CLmax = 1.78 CMmin = -0.20 CDmax = 0.30
 αLmax = 15.8 ° ζ = 0.146 Mmax = 1.304
 αCMmin = 9.2 ° -CDmax = 9.8 αMmax = 15.8 °



BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45113 A0 = 9.72° k = 0.050
 Re = 4.01 E6 A1 = 9.92° M = 0.301
 CLmax = 2.01 CMmin = -0.21 CDmax = 0.36
 αLmax = 17.3° ζ = 0.157 Mmax = 1.449
 αCMmin = 9.1° -CPmax = 10.8 αMmax = 17.0°

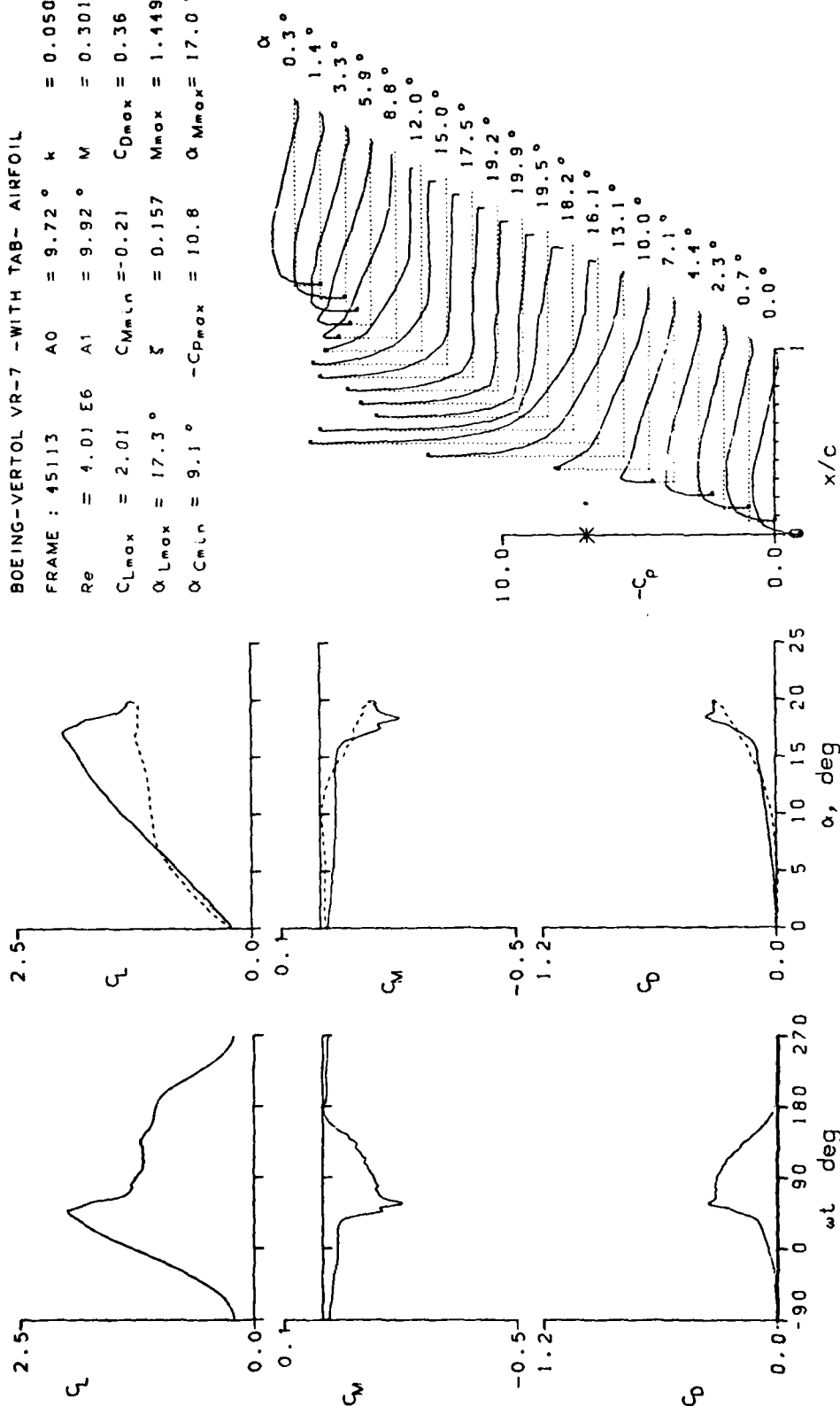


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45117	A0 = 9.75°	k = 0.100
Re = 4.02 E6	A1 = 9.88°	M = 0.301
CLmax = 2.21	CMmin = -0.33	CDmax = 0.65
αLmax = 18.5°	ξ = 0.228	Mmax = 1.489
αCMmin = 9.1°	-CDmax = 11.1	αMmax = 17.3°

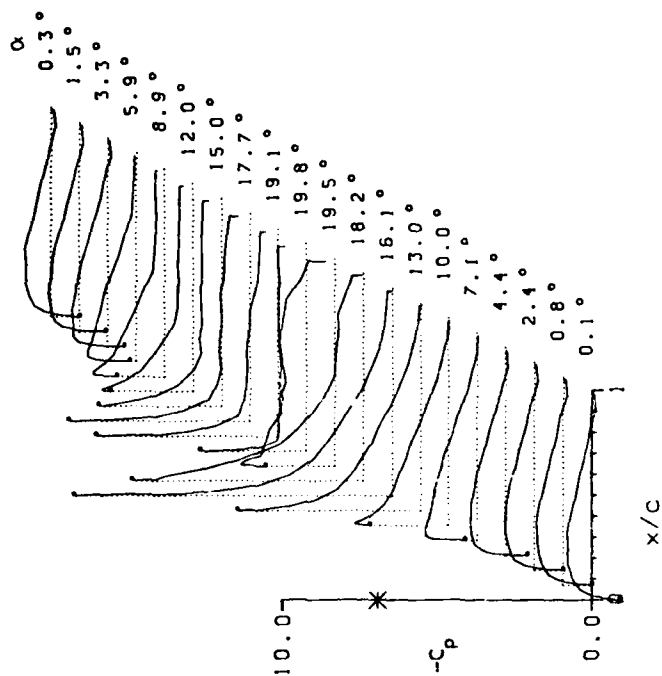
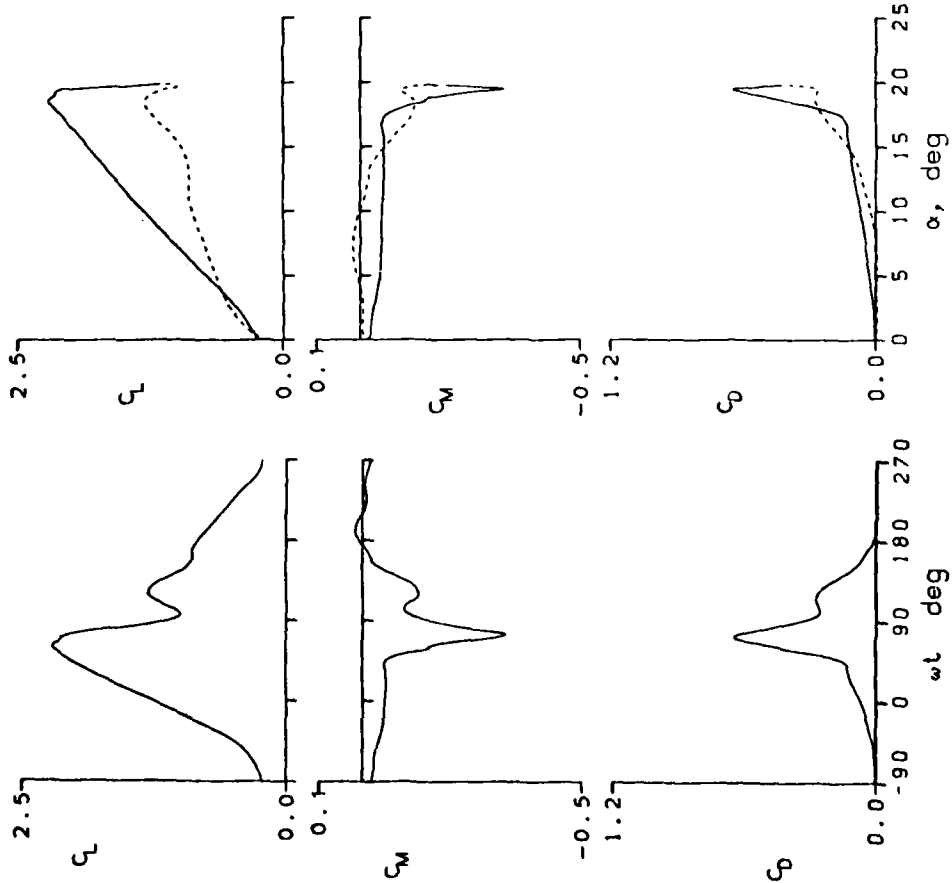


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45119	A0 = 9.81°	k = 0.150
Re = 1.02 E6	A1 = 9.91°	M = 0.302
CLmax = 2.30	CMmin = -0.40	CDmax = 0.76
αLmax = 19.4°	ξ = 0.259	Mmax = 1.495
αCmin = 9.2°	-CPmax = 11.1	αMmax = 17.9°

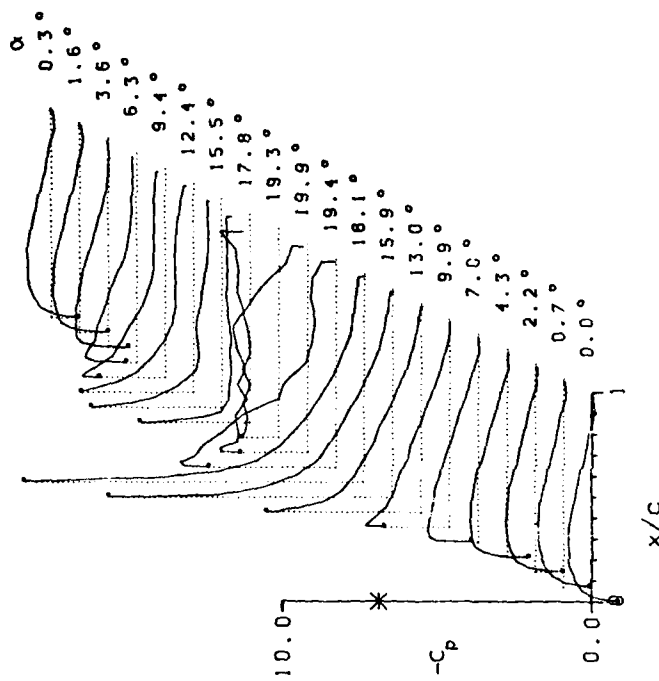
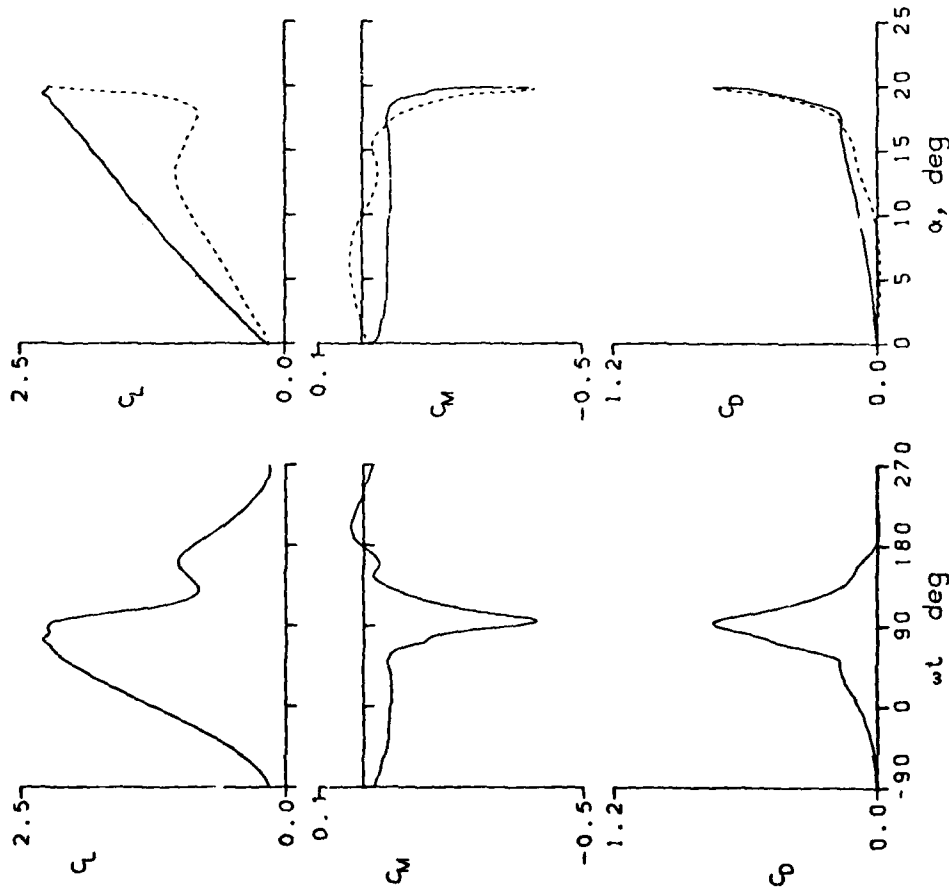


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45203	A0 = 14.65 °	k = 0.010
Re = 4.02 E6	A1 = 5.05 °	M = 0.300
CLmax = 1.60	CMmin = -0.11	CDmax = 0.25
α Lmax = 12.7 °	ξ = 0.077	Mmax = 1.034
α CMmin = 14.6 °	-CPmax = 7.3	α Mmax = 13.4 °

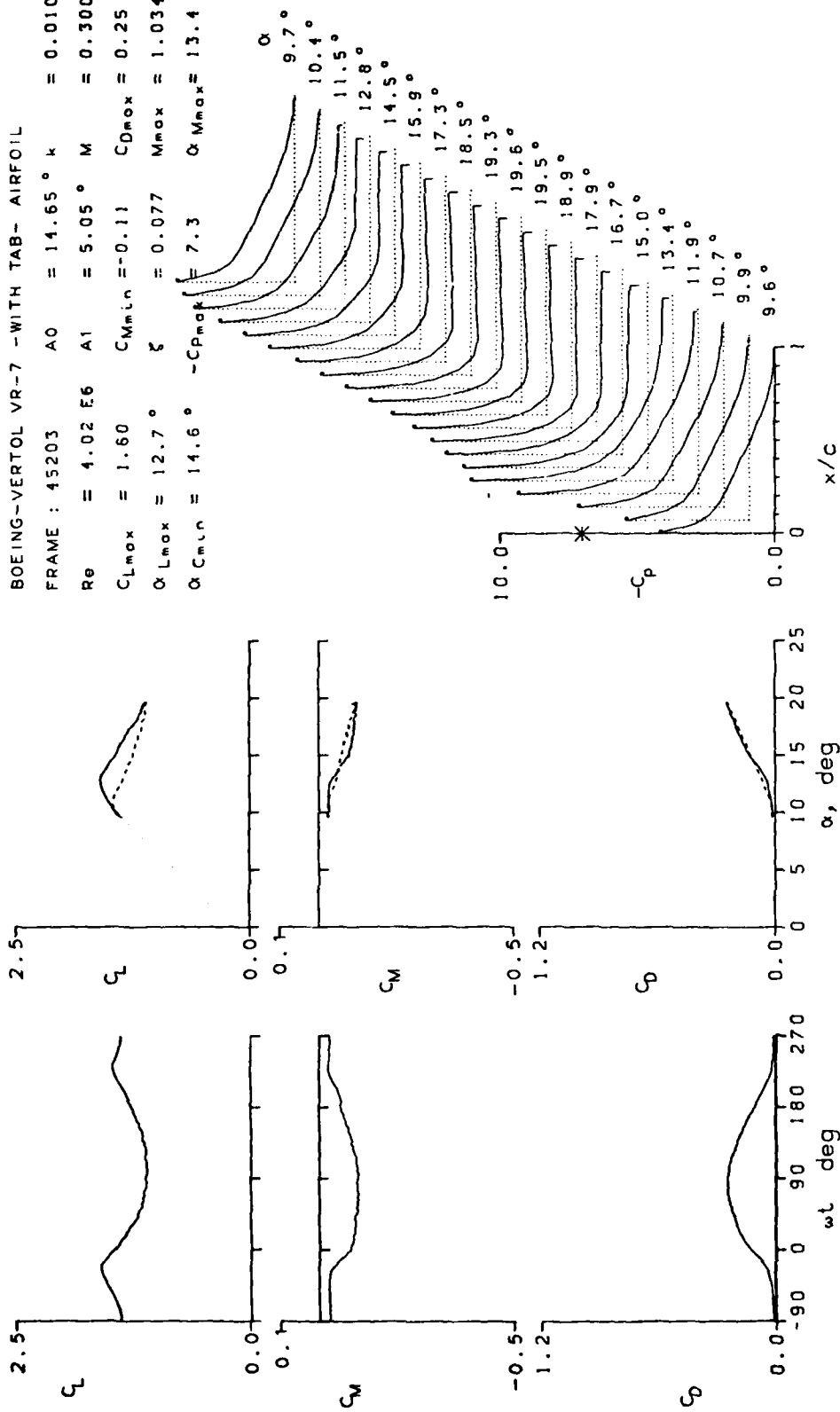


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45205 $A_0 = 14.96^\circ$ $k = 0.025$
 $Re = 4.01 \text{ E}6$ $A_1 = 4.88^\circ$ $M = 0.301$
 $C_{Lmax} = 1.68$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.76$
 $\alpha_{Lmax} = 14.5^\circ$ $\xi = 0.207$ $M_{max} = 1.190$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Pmax} = 8.8$ $\alpha_{Mmax} = 14.9^\circ$

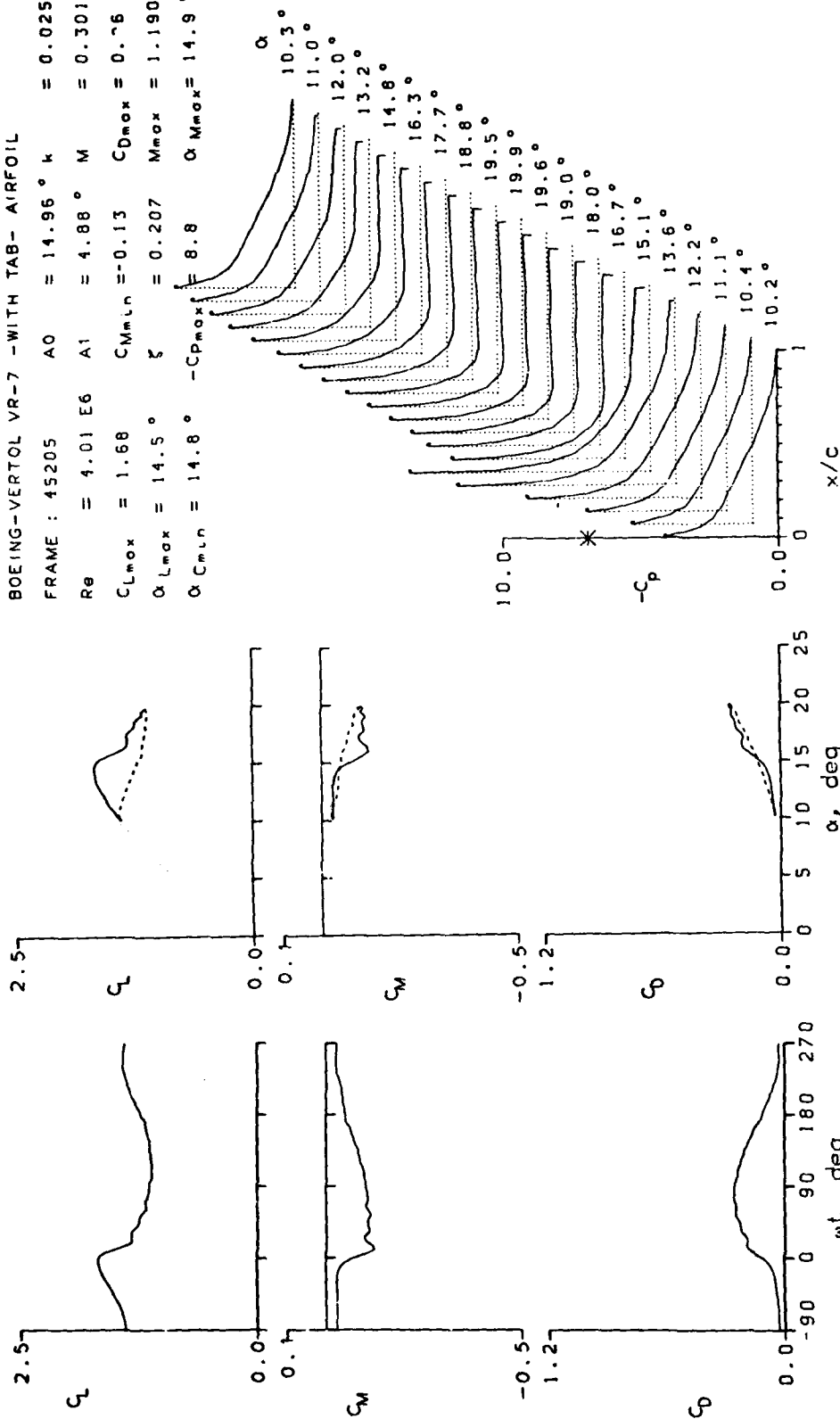


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TA3- AIRFOIL

FRAME : 45207	$A_0 = 14.98^\circ$	$k = 0.050$
$Re = 4.01 \text{ E} 6$	$A_1 = 4.69^\circ$	$M = 0.301$
$C_{Lmax} = 1.82$	$C_{Mmin} = -0.22$	$C_{Dmax} = 0.34$
$\alpha_{Lmax} = 16.3^\circ$	$\xi = 0.515$	$M_{max} = 1.326$
$\alpha_{Cmin} = 14.8^\circ$	$-C_{Pmax} = 9.9$	$\alpha_{Mmax} = 15.1^\circ$

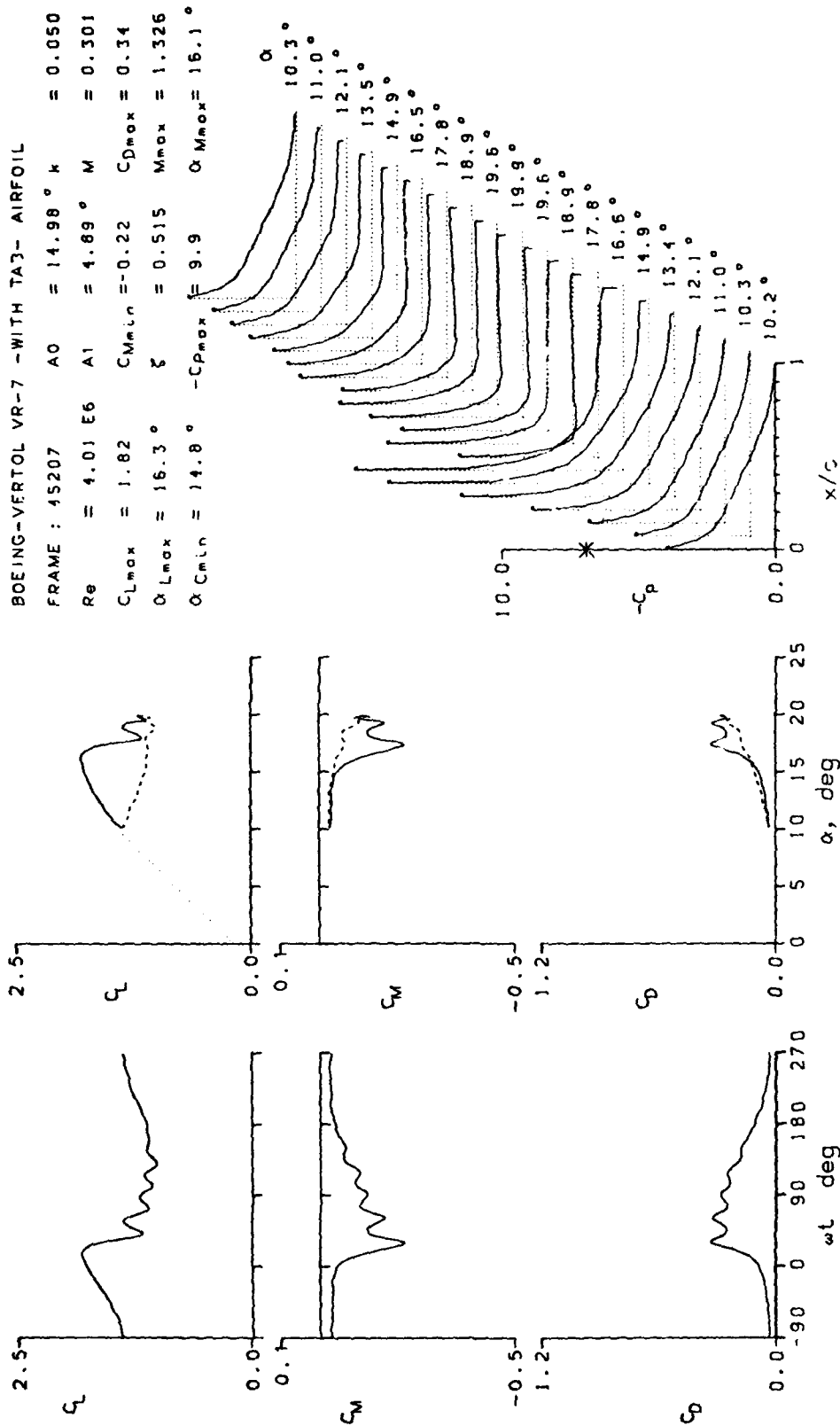


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45209 $A_0 = 14.96^\circ$ $k = 0.100$
 $Re = 3.99 \text{ E}6$ $A_1 = 4.89^\circ$ $M = 0.300$
 $C_{Lmax} = 2.07$ $C_{Mmin} = -0.25$ $C_{Dmax} = 0.44$
 $\alpha_{Lmax} = 17.6^\circ$ $\xi = 0.339$ $M_{max} = 1.460$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Pmax} = 11.0$ $\alpha_{Mmax} = 17.5^\circ$

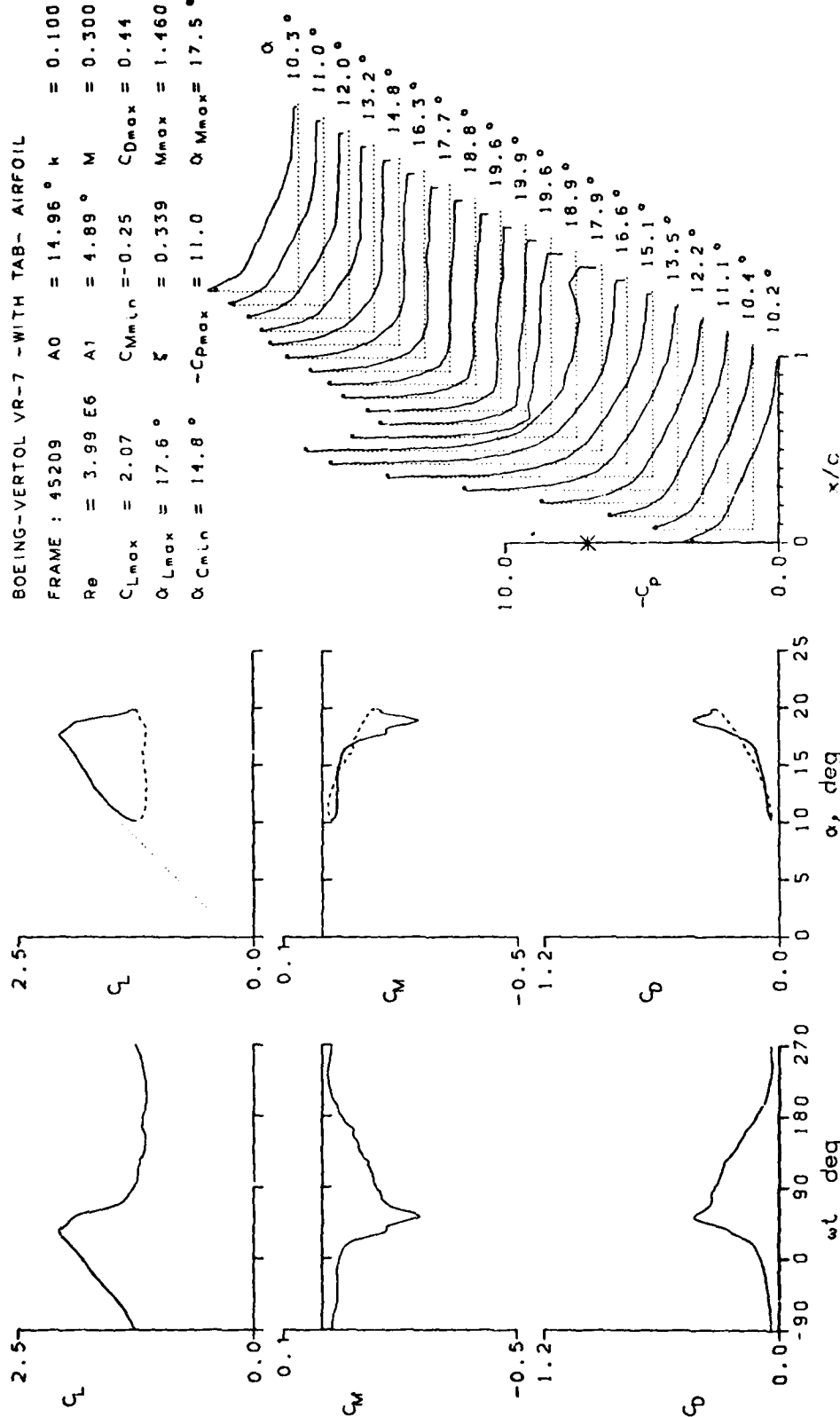


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45211	$A_0 = 14.94^\circ$	$k = 0.151$
$Re = 3.96 E6$	$A_1 = 4.89^\circ$	$M = 0.298$
$C_{Lmax} = 2.21$	$C_{Mmin} = -0.33$	$C_{Dmax} = 0.65$
$\alpha_{Lmax} = 18.5^\circ$	$\xi = 0.297$	$M_{max} = 1.482$
$\alpha_{Cmin} = 14.8^\circ$	$-C_{pmax} = 11.3$	$\alpha_{Mmax} = 17.6^\circ$

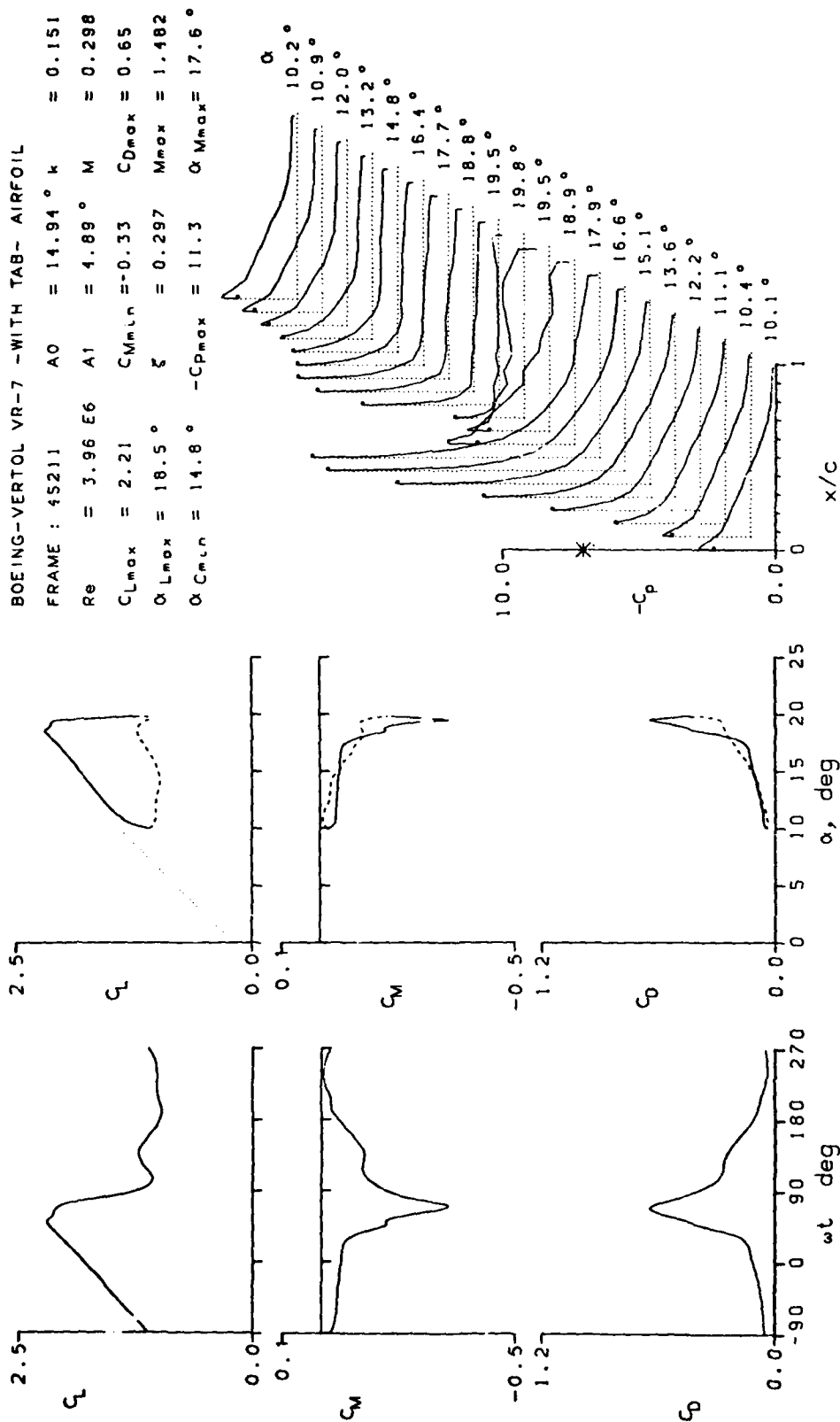


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45213 $A_0 = 14.98^\circ$ $k = 0.204$
 $Re = 3.91 E6$ $A_1 = 4.88^\circ$ $M = 0.295$
 $C_{Lmax} = 2.33$ $C_{Mmin} = -0.42$ $C_{Dmax} = 0.77$
 $\alpha_{Lmax} = 18.9^\circ$ $\xi = 0.240$ $M_{max} = 1.484$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{pmax} = 11.6$ $\alpha_{Mmax} = 7.5^\circ$

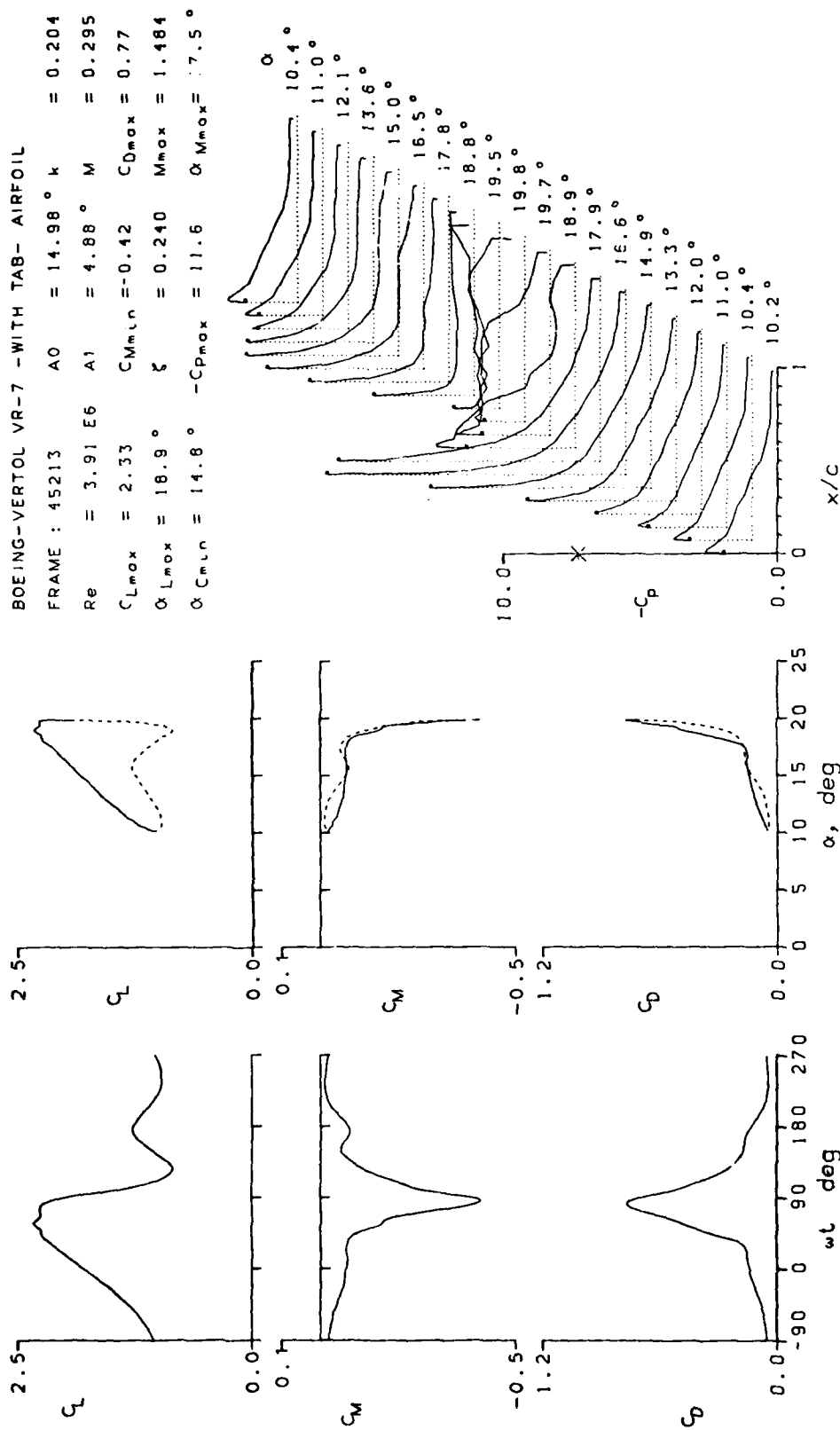


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45221 $A_0 = 9.90^\circ$ $k = 0.025$
 $Re = 4.05 E6$ $A_1 = 4.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.65$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.14$
 $\alpha_{Lmax} = 13.8^\circ$ $\xi = 0.008$ $M_{max} = 1.134$
 $\alpha_{Cmin} = 9.6^\circ$ $-C_{Dmax} = 8.2$ $\alpha_{Mmax} = 14.2^\circ$

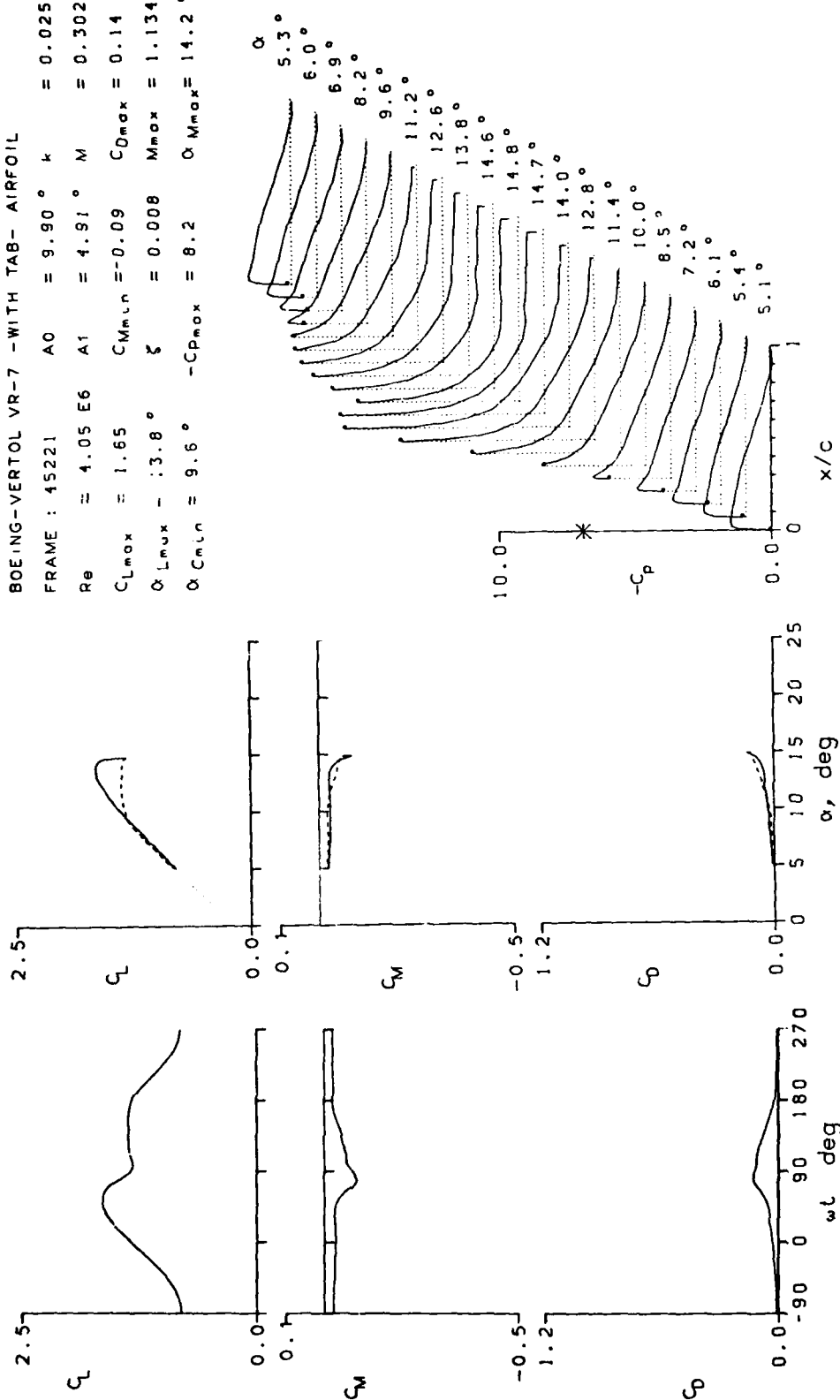


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45223	$A_0 = 9.89^\circ$	$k = 0.050$
$Re = 4.03 \text{ E}6$	$A_1 = 4.91^\circ$	$M = 0.301$
$C_{Lmax} = 1.70$	$C_{Mmin} = -0.10$	$C_{Dmax} = 0.14$
$\alpha_{Lmax} = 14.7^\circ$	$\xi = 0.070$	$M_{max} = 1.219$
$\alpha_{Cmin} = 9.6^\circ$	$-C_{Pmax} = 9.0$	$\alpha_{Mmax} = 14.7^\circ$

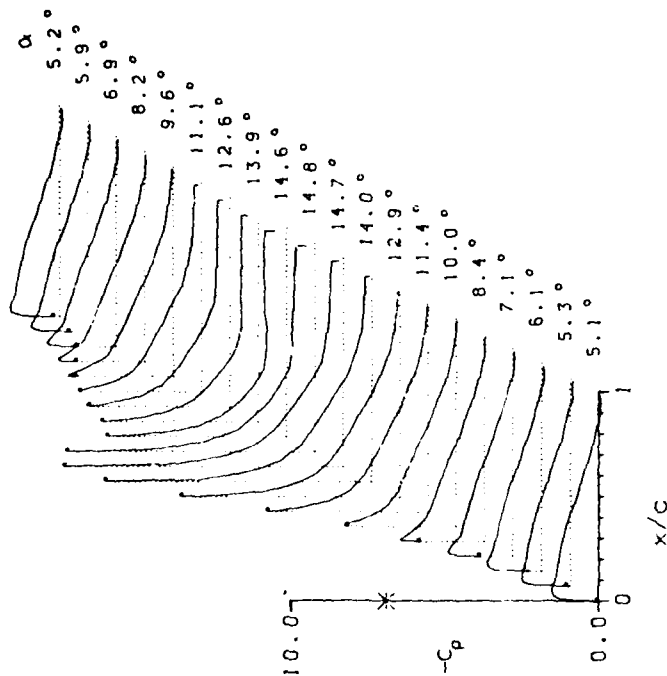
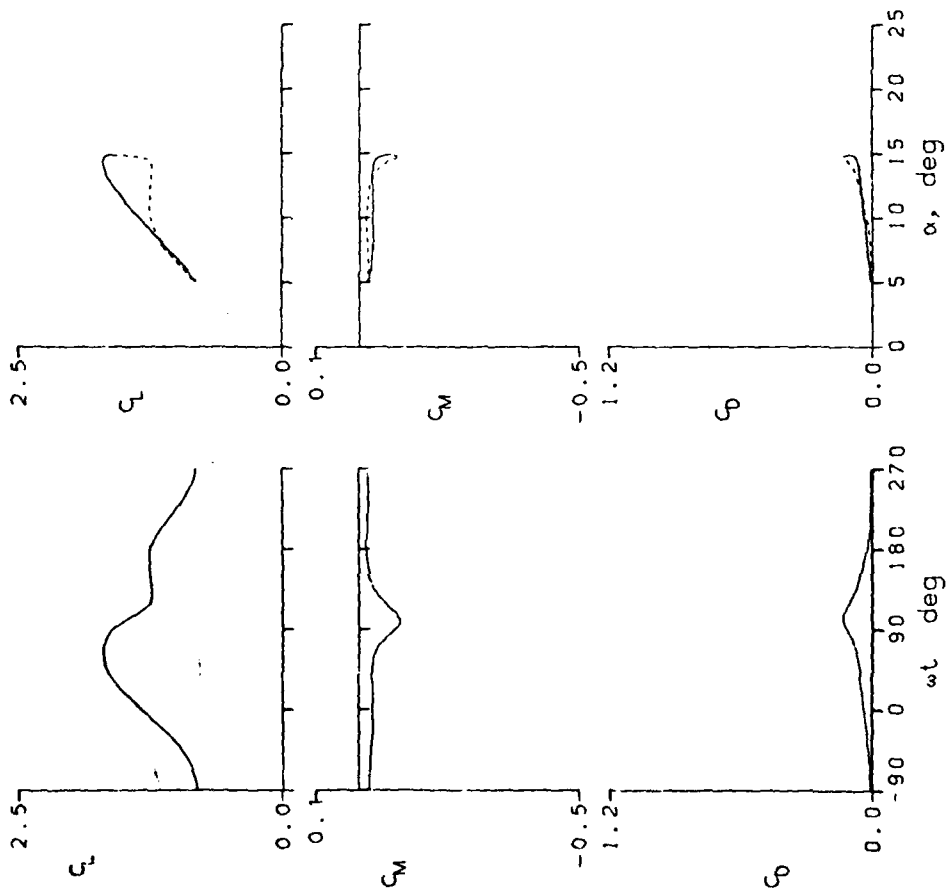


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 45300	A0 = 9.89 °	k = 0.100
Re = 4.03 E6	A1 = 4.91 °	M = 0.301
CLmax = 1.78	CMmin = -0.08	CDmax = 0.10
αLmax = 14.7 °	ξ = 0.084	Mmax = 1.296
αCMln = 9.6 °	-CDmax = 9.7	αMmax = 14.8 °

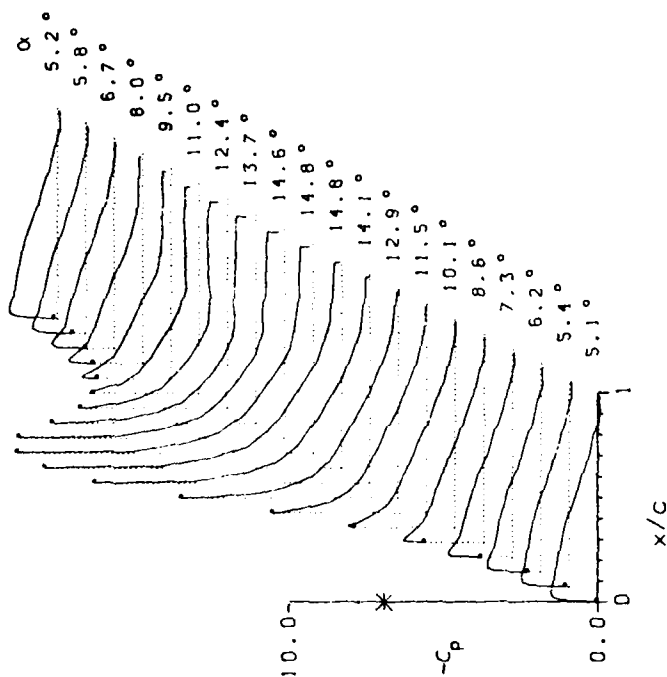
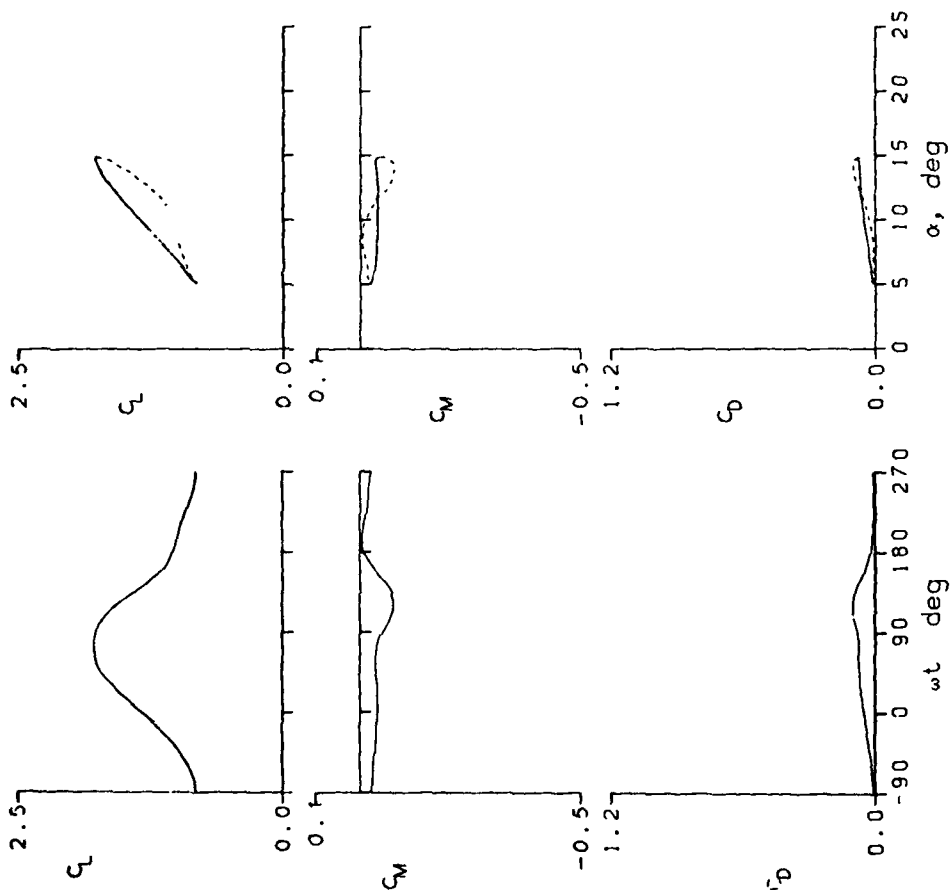


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45302 $A_0 = 9.90^\circ$ $k = 0.150$
 $Re = 4.03 \times 10^6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.83$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 14.8^\circ$ $\zeta = 0.230$ $M_{max} = 1.346$
 $\alpha_{Cmin} = 9.6^\circ$ $-C_{Dmax} = 10.1$ $\alpha_{Mmax} = 14.8^\circ$

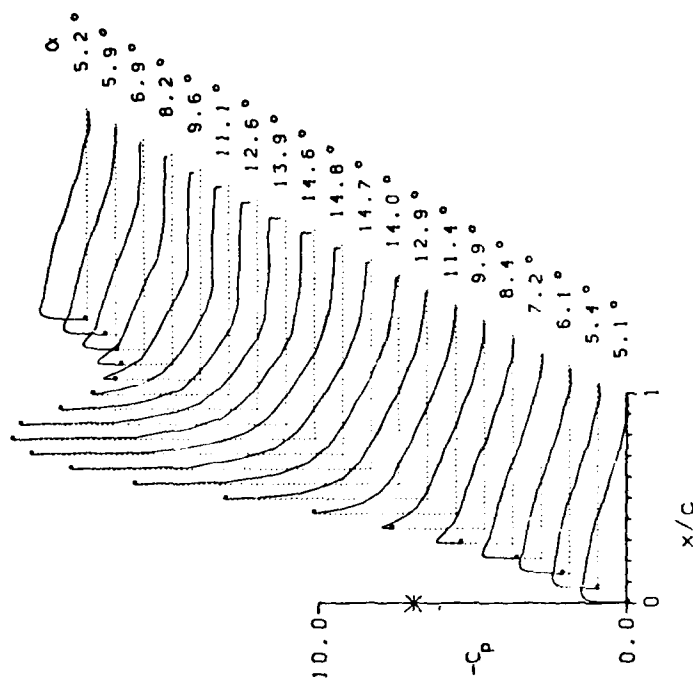
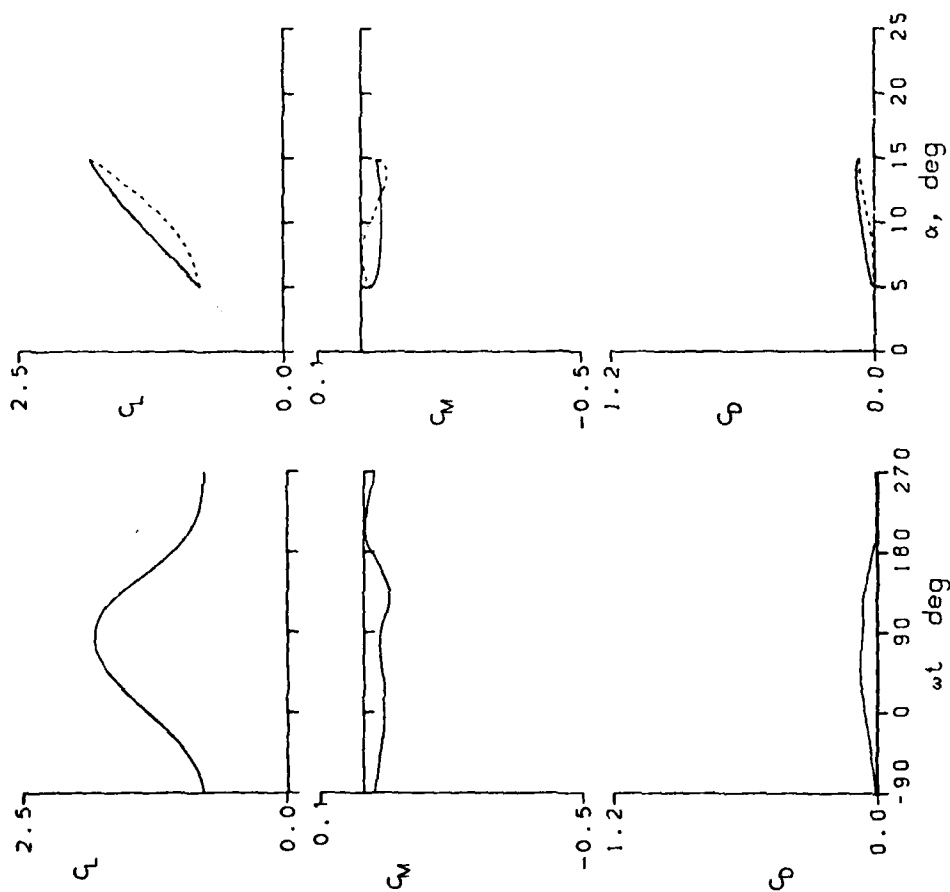


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 45303 $A_0 = 9.90^\circ$ $k = 0.200$
 $Re = 4.03 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.301$
 $C_{Lmax} = 1.88$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.09$
 $\alpha_{Lmax} = 14.9^\circ$ $\zeta = 0.419$ $M_{max} = 1.395$
 $\alpha_{Cmin} = 9.6^\circ$ $-C_{Pmax} = 10.4$ $\alpha_{Mmax} = 14.8^\circ$

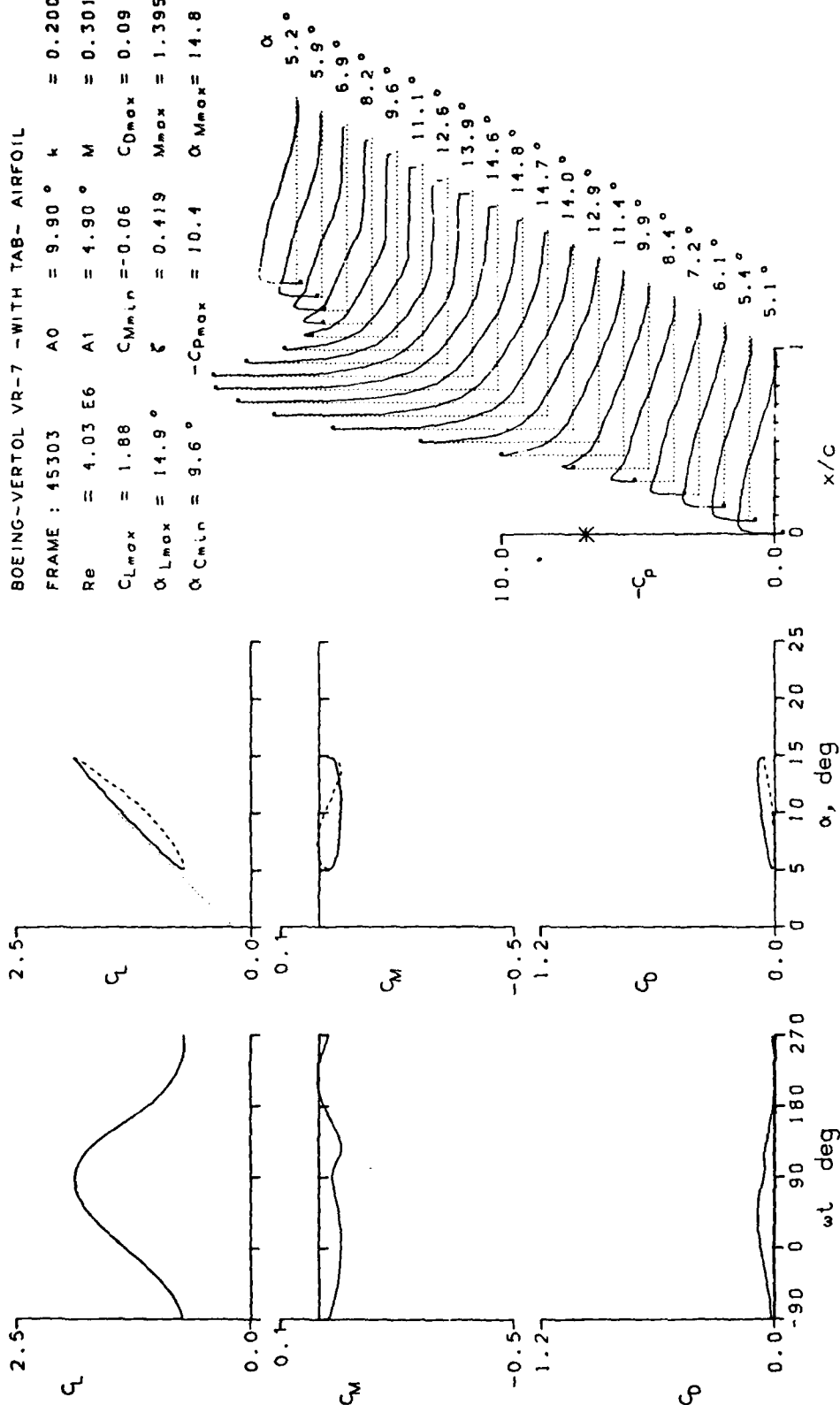


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL TRIP

FRAME : 47020 A0 = 14.81° h = 0.025

Re = 4.06 E6 A1 = 9.88° M = 0.299

$C_{Lmax} = 1.66$ $C_{Mmin} = -0.20$ $C_{Dmax} = 0.47$

$\alpha_{Lmax} = 14.9^\circ$ $\xi = 0.211$ $M_{max} = 1.061$

$\alpha_{C_{Mmin}} = 14.5^\circ$ $-C_{Dmax} = 7.6$ $\alpha_{M_{max}} = 15.2^\circ$

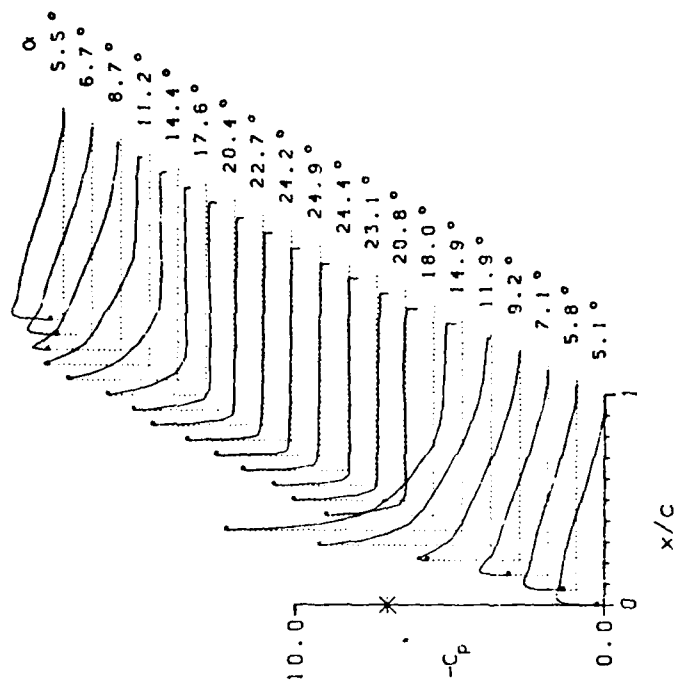
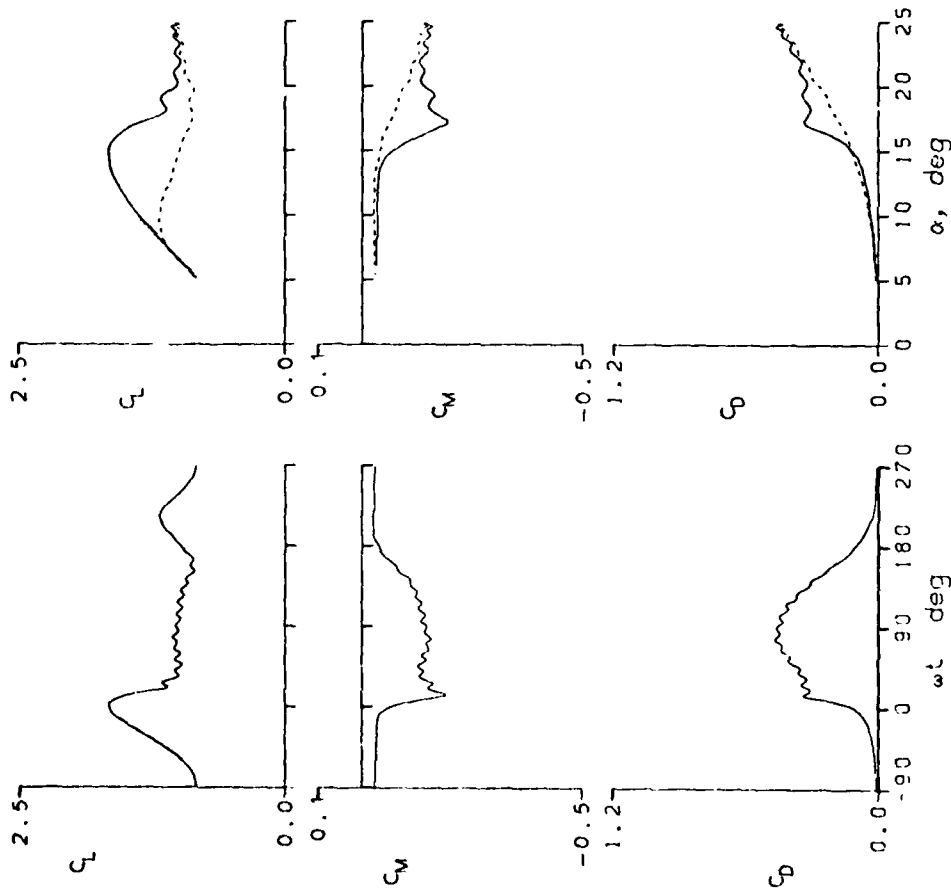


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL TRIP
 FRAME : 47022 $A_0 = 14.81^\circ$ $k = 0.050$
 $Re = 3.99 \text{ E}6$ $A_1 = 9.89^\circ$ $M = 0.296$
 $C_{Lmax} = 1.91$ $C_{Mmin} = -0.26$ $C_{Dmax} = 0.50$
 $\alpha_{Lmax} = 17.4^\circ$ $\xi = 0.369$ $M_{max} = 1.291$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 10.0$ $\alpha_{Mmax} = 17.4^\circ$

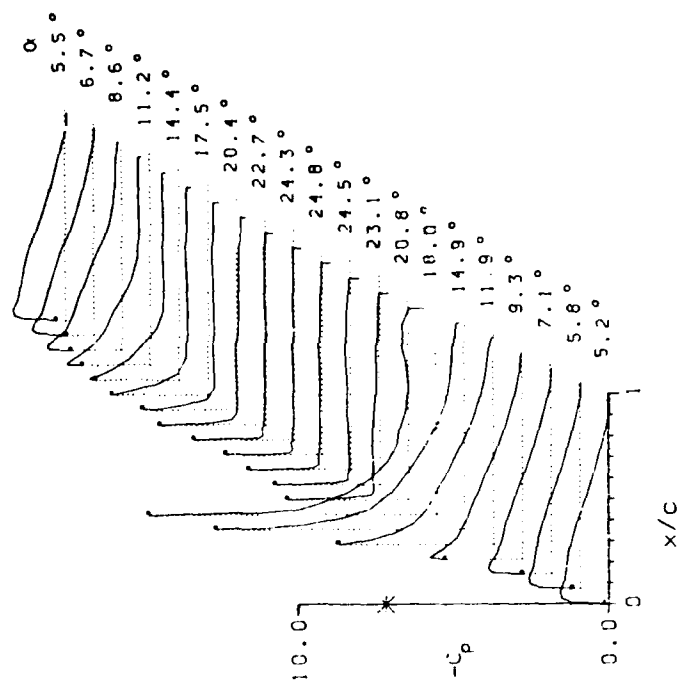
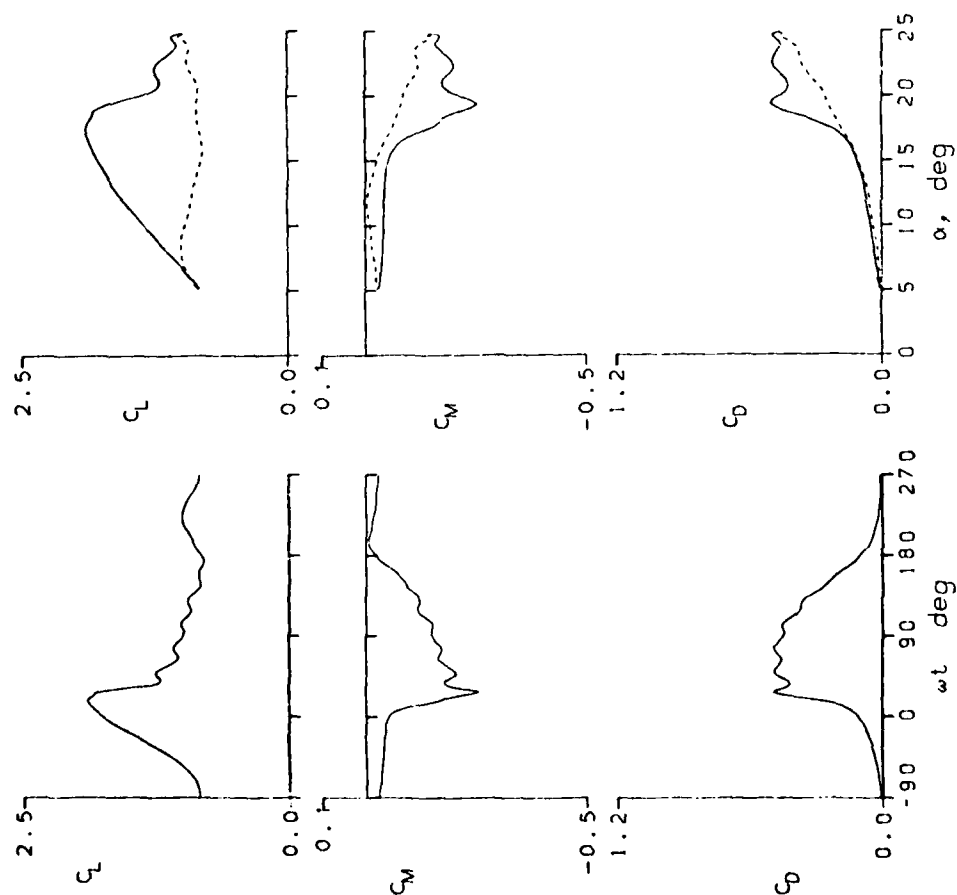


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL TRIP

FRAME : 47100 A0 = 14.82° k = 0.101

Re = 3.93 E6 A1 = 9.88° M = 0.292

CLmax = 2.34 CMmin = -0.40 CDmax = 0.84

αLmax = 21.0° ξ = 0.558 Mmax = 1.412

αCMmin = 14.4° -CDmax = 11.3 αMmax = 18.6°

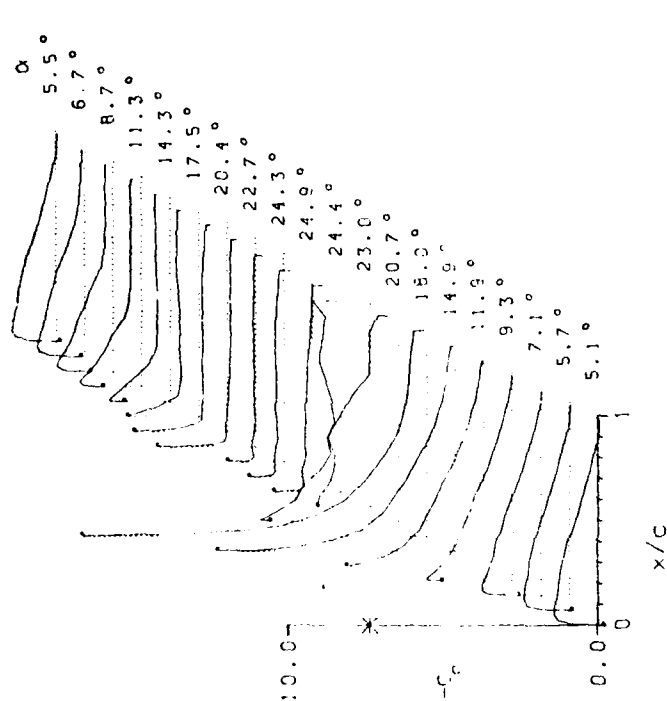
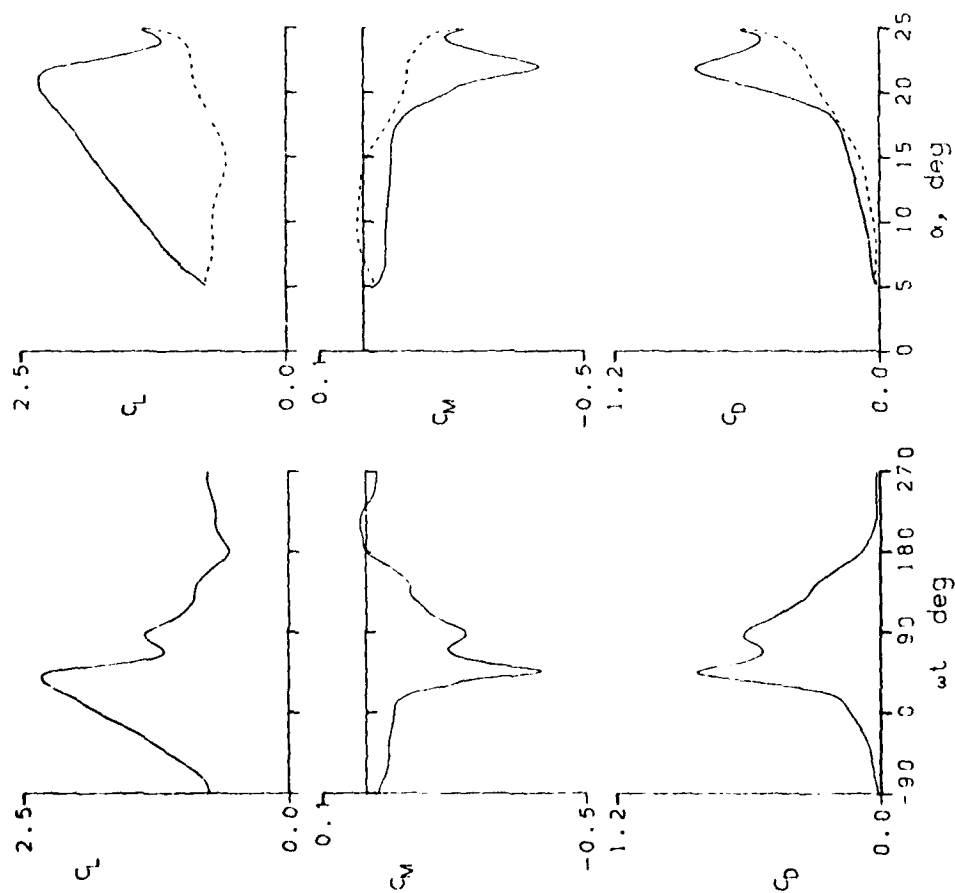


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL TRIP

FRAME : 47110 AO = 14.81° k = 0.051

Re = 2.58 E6 A1 = 9.98° M = 0.184

C_{Lmax} = 1.84 C_{Mmin} = -0.27 C_{Dmax} = 0.63

α_{Lmax} = 17.7° ξ = 0.355 M_{max} = 0.716

α_{Cmin} = 14.5° $-C_{Dmax}$ = 11.5° α_{Mmax} = 18.3°

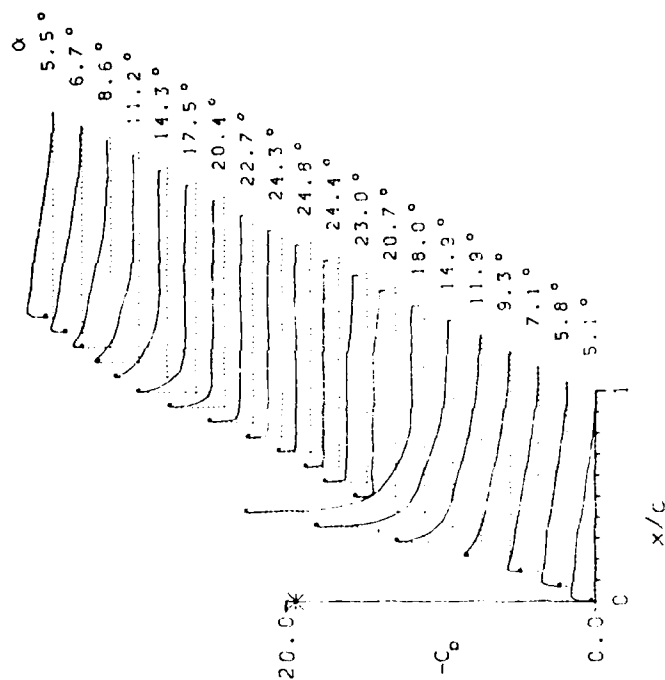
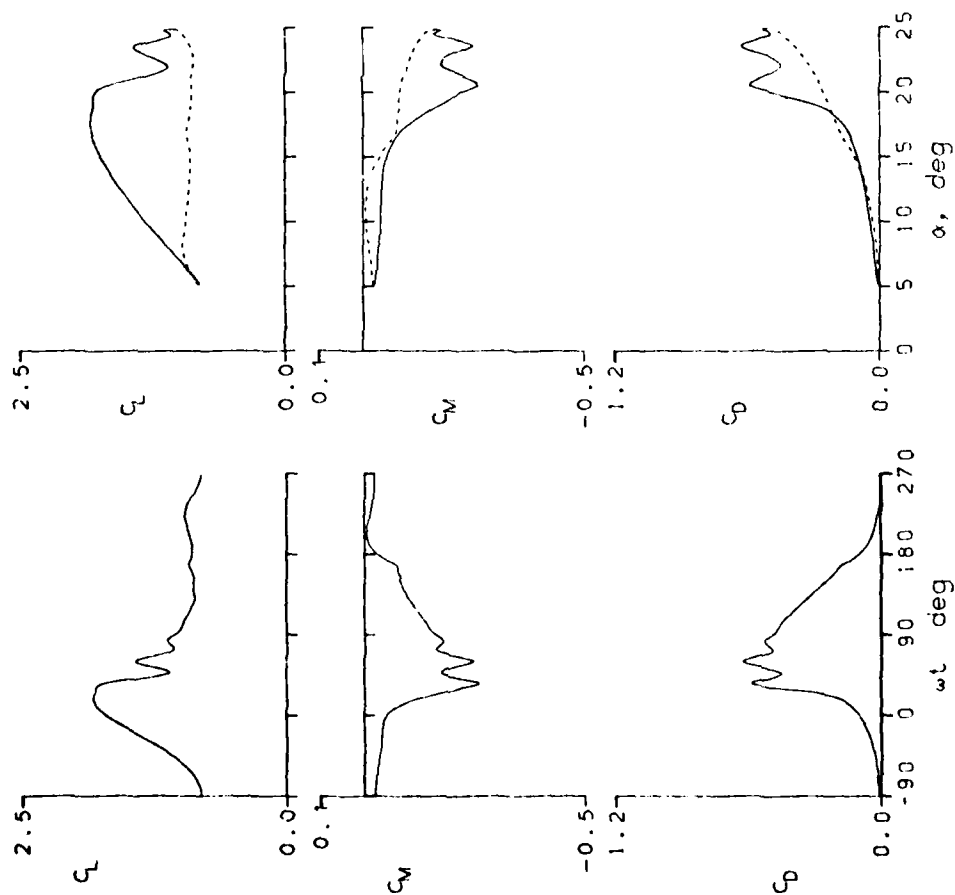


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB- AIRFOIL TRIP
 FRAME : 47112 A0 = 14.83° k = 0.101
 Re = 2.59 E6 A1 = 9.88° M = 0.185
 CLmax = 2.26 CMmin = -0.37 CDmax = 0.86
 αLmax = 22.2° ζ = 0.377 Mmax = 0.888
 αCMmin = 14.5° -CDmax = 16.1 αMmax = 21.1°

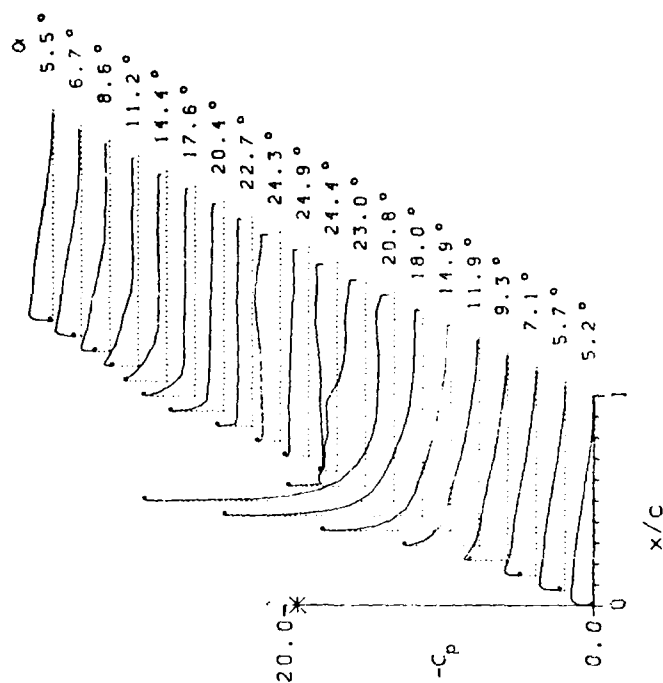
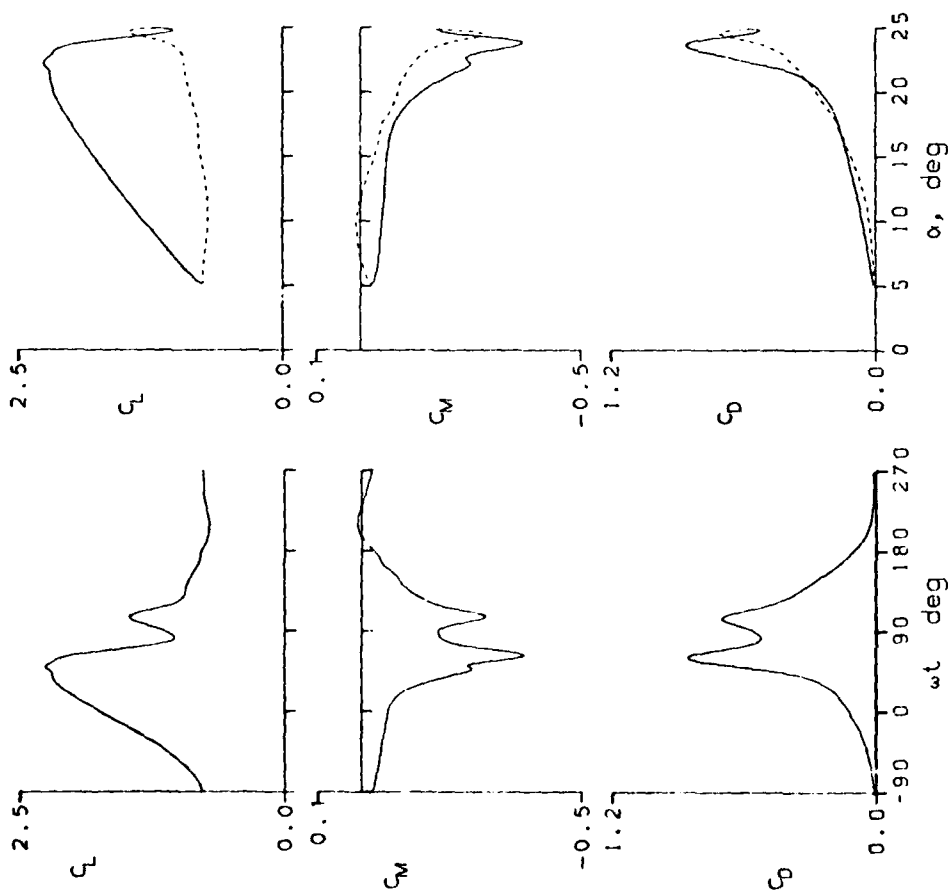


Figure 17.- Continued.

BOEING-VEPOTOL VR-7 -WITH TAB- AIRFOIL TRIP

FRAME : 47114 A0 = 14.82° k = 0.151

Re = 2.58 E6 A1 = 9.88° M = 0.185

C_{Lmax} = 2.61 C_{Mmin} = -0.44 C_{Dmax} = 1.05

α_{Lmax} = 23.2° ξ = 0.273 M_{max} = 1.014

α_{Cmin} = 14.5° -C_{pmax} = 19.5 α_{Mmax} = 22.6°

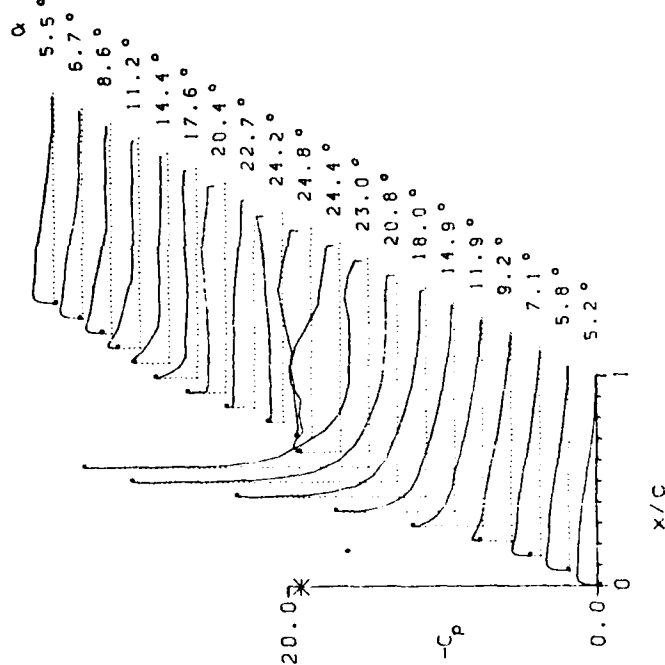
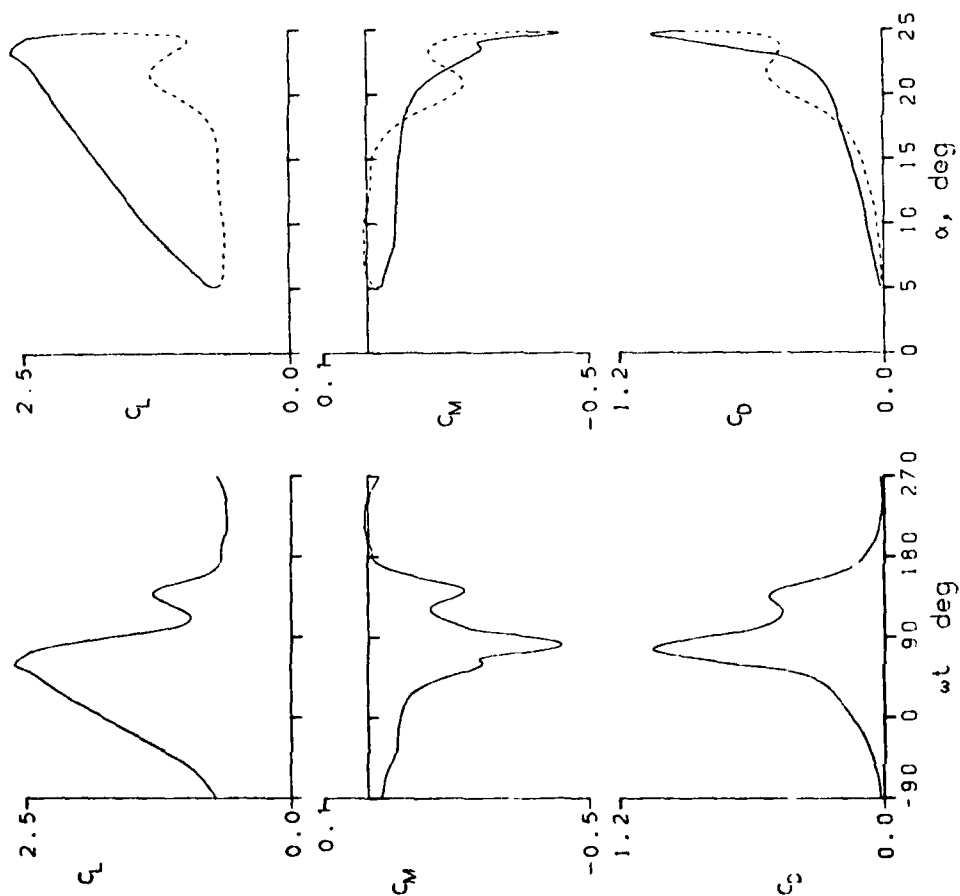


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 47123 $A_0 = 14.82^\circ$ $k = 0.101$
 $Re = 1.03 \text{ E}6$ $A1 = 9.08^\circ$ $M = 0.073$
 $C_{Lmax} = 2.48$ $C_{Mmin} = -0.37$ $C_{Dmax} = 0.82$
 $\alpha_{Lmax} = 21.9^\circ$ $\zeta = 0.565$ $M_{max} = 0.299$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 15.2$ $\alpha_{Mmax} = 20.8^\circ$

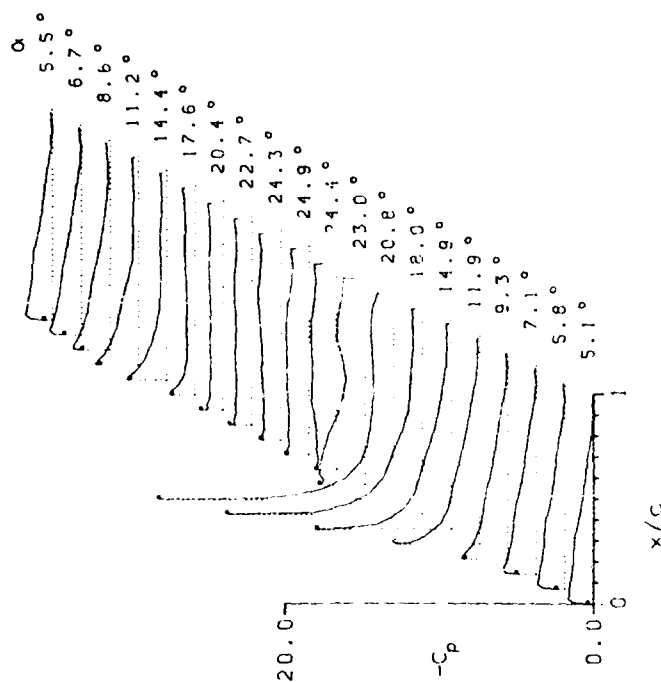
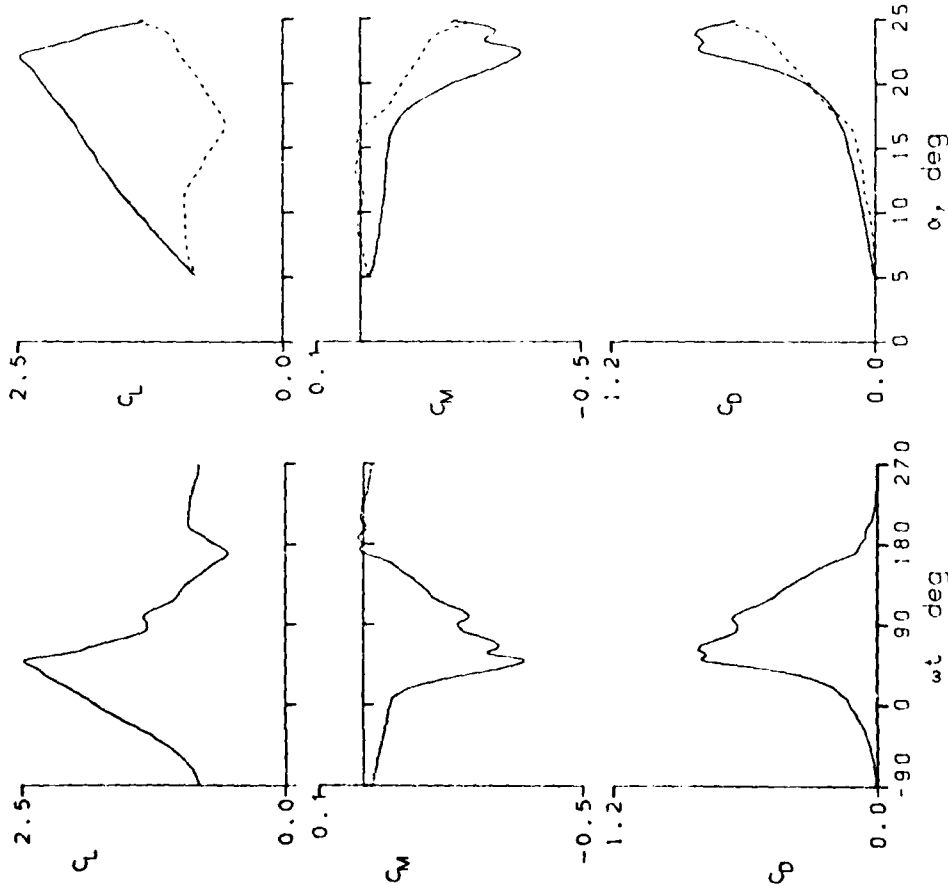


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 47206 $A_0 = 14.83^\circ$ $k = 0.101$
 $Re = 1.55 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.110$
 $C_{Lmax} = 2.42$ $C_{Mmin} = -0.41$ $C_{Dmax} = 0.94$
 $\alpha_{Lmax} = 22.8^\circ$ $\xi = 0.464$ $M_{max} = 0.460$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 16.3$ $\alpha_{Mmax} = 21.0^\circ$

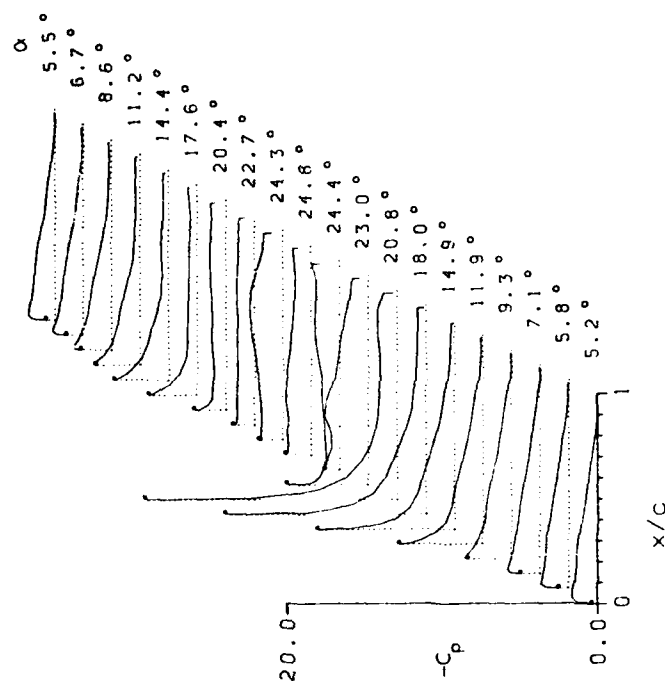
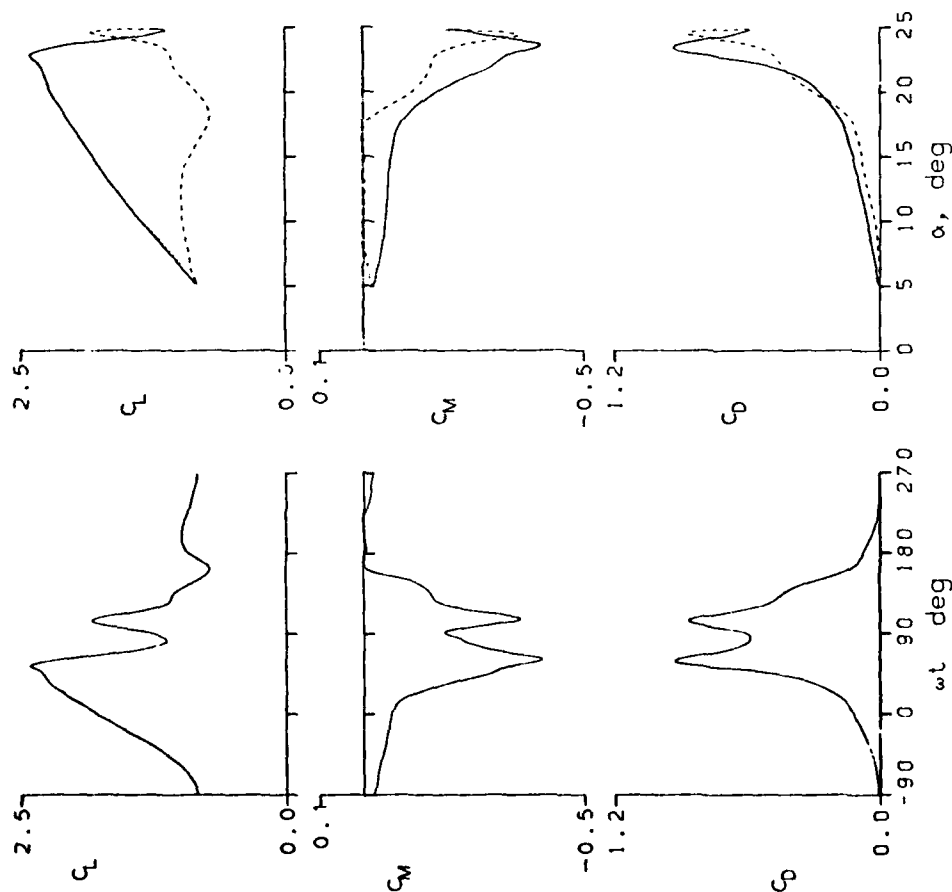


Figure 17.- Continued.

BOEING-VEPTEL VR-7 -WITH TAB- AIRFOIL

FRAME : 47213 $A_0 = 14.83^\circ$ $k = 0.102$

$Re = 2.61 \times 10^6$ $A_1 = 9.87^\circ$ $M = 0.185$

$C_{Lmax} = 2.37$ $C_{Mmin} = -0.43$ $C_{Dmax} = 0.98$

$\alpha_{Lmax} = 23.2^\circ$ $\zeta = 0.327$ $M_{max} = 0.963$

$\alpha_{Cmin} = 14.5^\circ$ $-C_{pmax} = 18.2$ $\alpha_{Mmax} = 21.8^\circ$

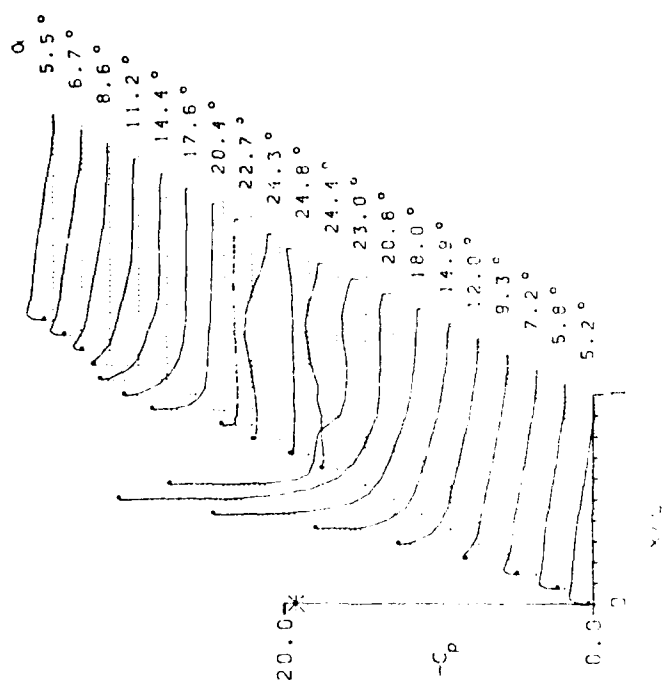
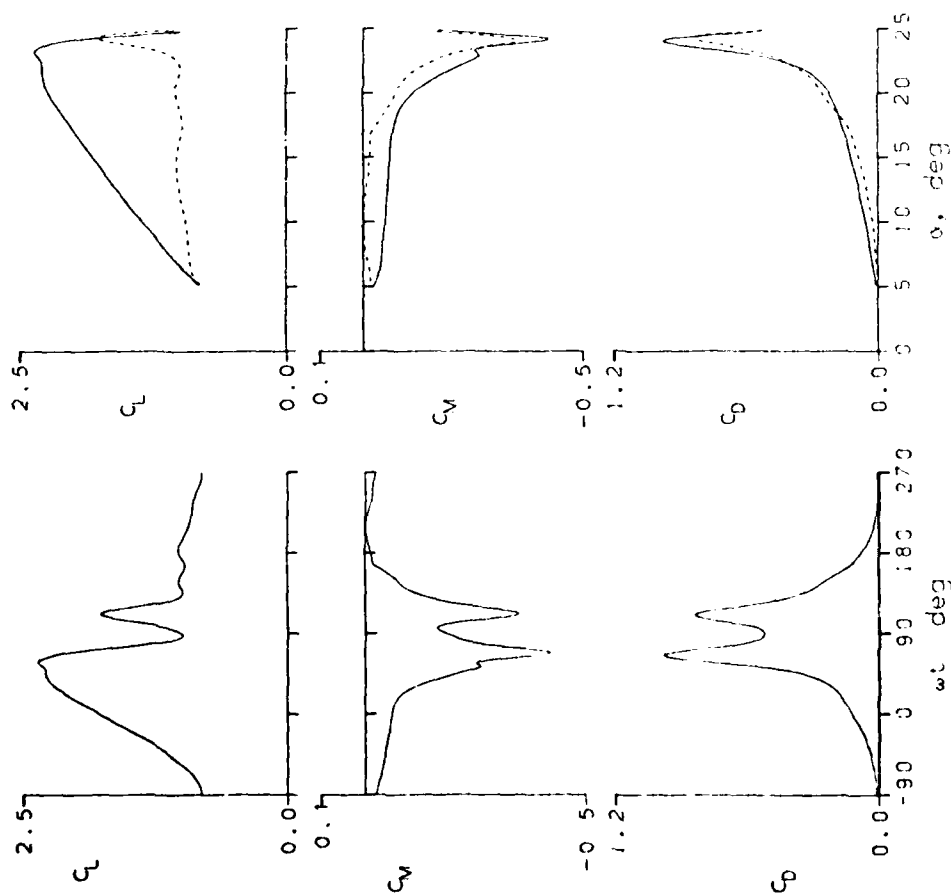


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 47217 $A_0 = 14.83^\circ$ $k = 0.101$
 $Re = 3.04 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.221$
 $C_{Lmax} = 2.48$ $C_{Mmin} = -0.42$ $C_{Dmax} = 0.96$
 $\alpha_{Lmax} = 21.7^\circ$ $\xi = 0.360$ $M_{max} = 1.207$
 $\alpha_{Cmin} = 14.5^\circ$ $-C_{Dmax} = 17.0$ $\alpha_{Mmax} = 20.8^\circ$

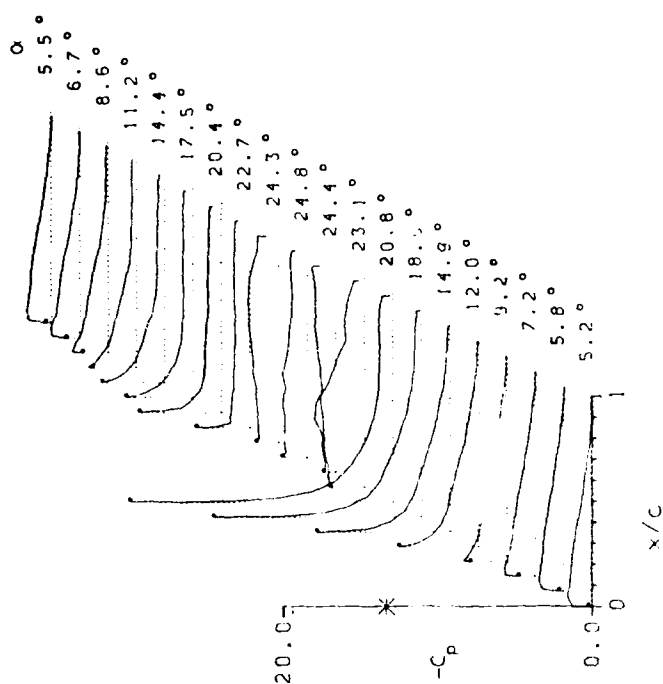
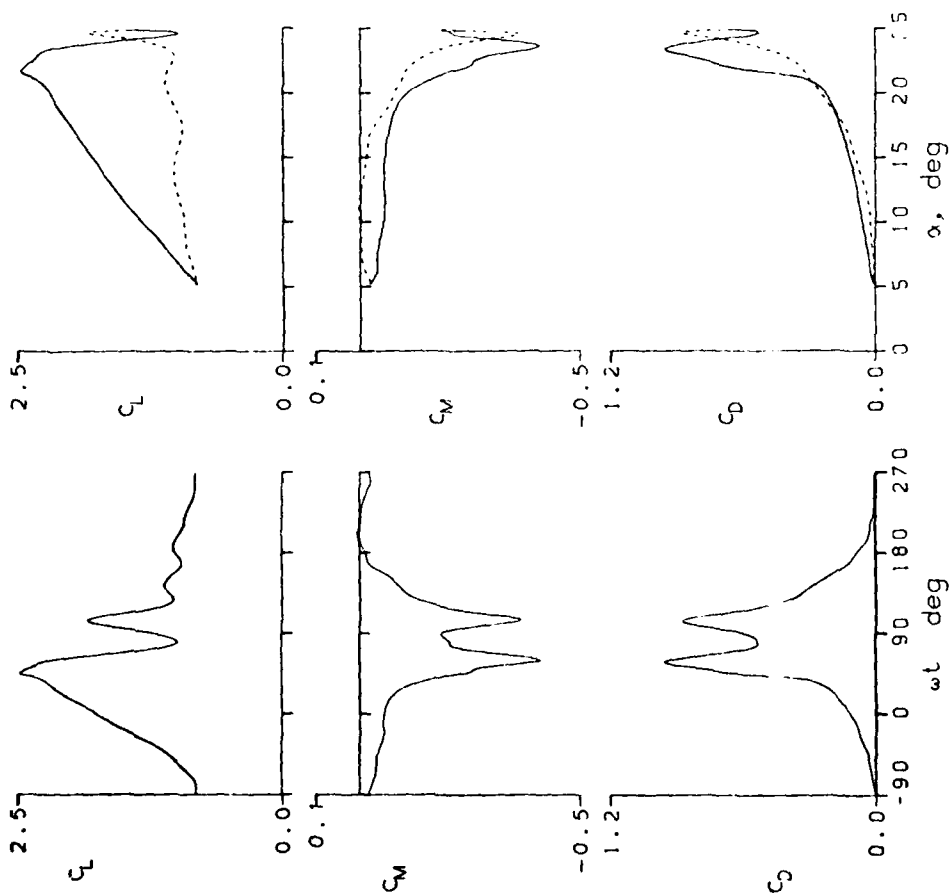


Figure 17.- Continued.

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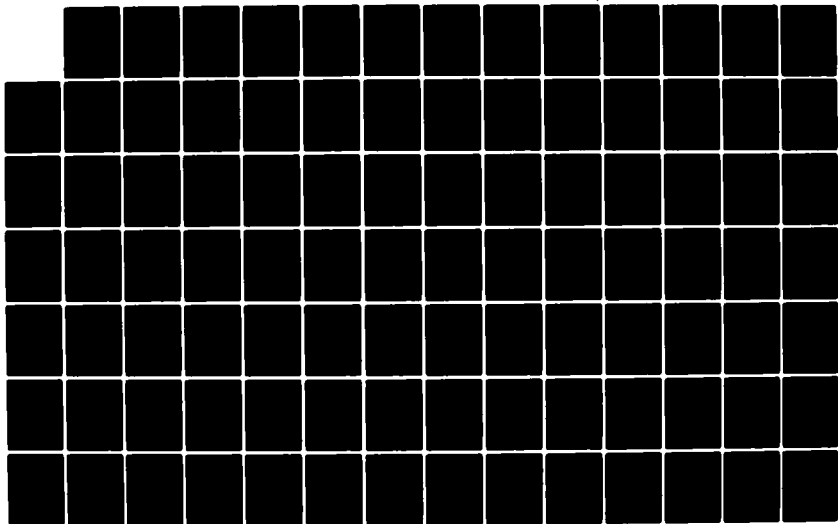
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AIRFOIL SECTIONS VOLUM... (U) NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION MOFFETT FIELD CALIF.

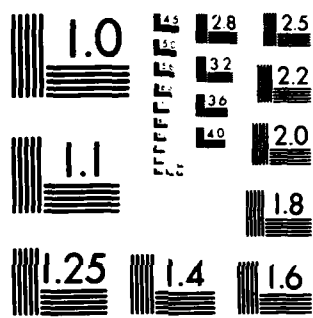
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BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAM : 47701	$A_0 = 14.87^\circ$	$\alpha = 0.101$
Re = 3.41 E6	$A_1 = 9.87^\circ$	$M = 0.250$
$C_{Lmax} = 2.39$	$C_{Mmin} = -0.43$	$C_{Dmax} = 0.93$
$\alpha_{Lmax} = 20.3^\circ$	$\xi = 0.424$	$M_{max} = 1.318$
$\alpha_{Cmin} = 14.5^\circ$	$-C_{Dmax} = 14.5$	$\alpha_{Mmax} = 19.4^\circ$

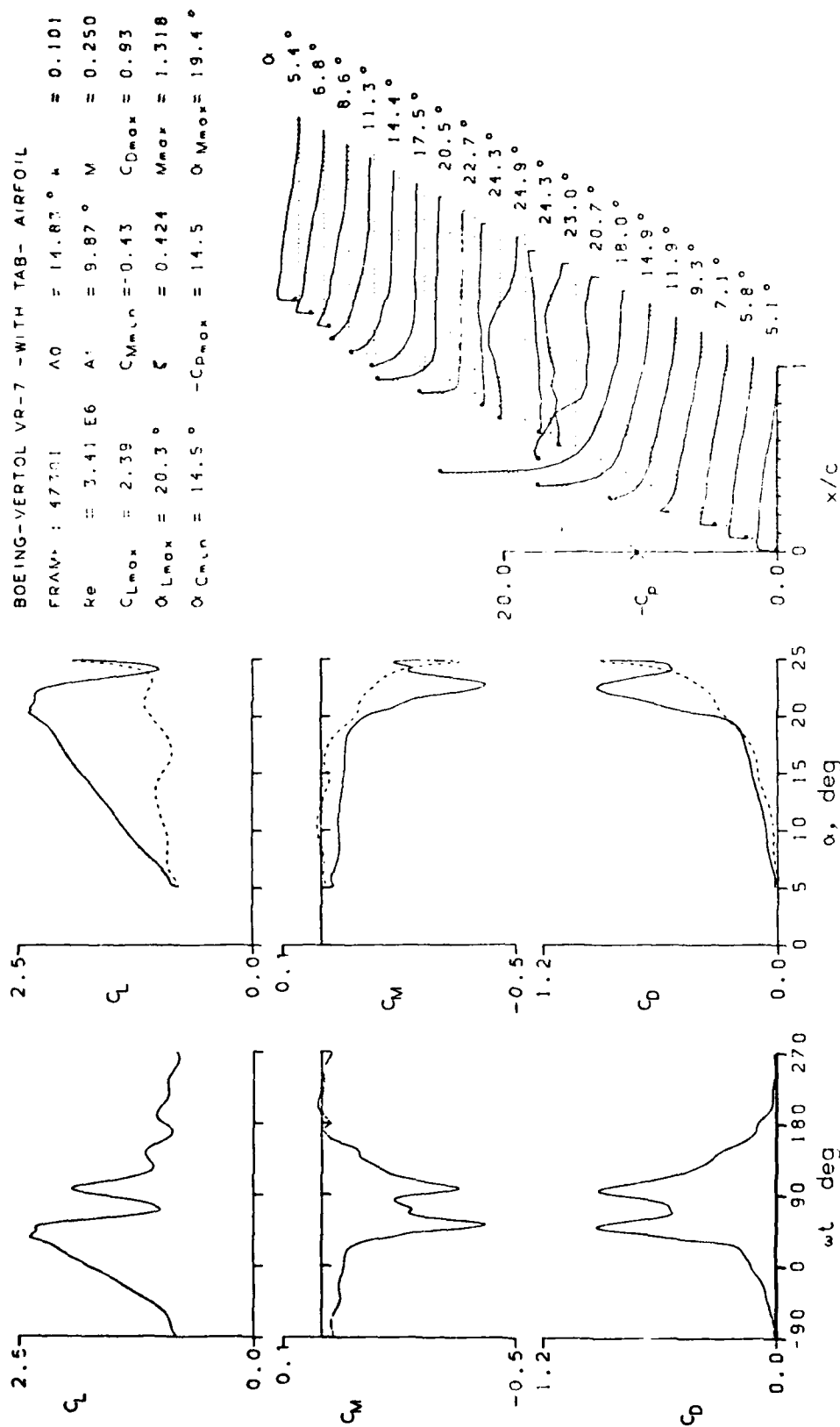


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 47305 $A_0 = 14.84^\circ$ $\mu = 0.100$
 $Re = 3.78 \text{ E}6$ $A_1 = 9.88^\circ$ $M = 0.281$
 $C_{Lmax} = 2.37$ $C_{Mmin} = -0.46$ $C_{Dmax} = 0.95$
 $\alpha_{Lmax} = 20.3^\circ$ $\zeta = 0.410$ $M_{max} = 1.434$
 $\alpha_{Cmin} = 14.6^\circ$ $-C_{Dmax} = 12.4$ $\alpha_{Mmax} = 18.6^\circ$

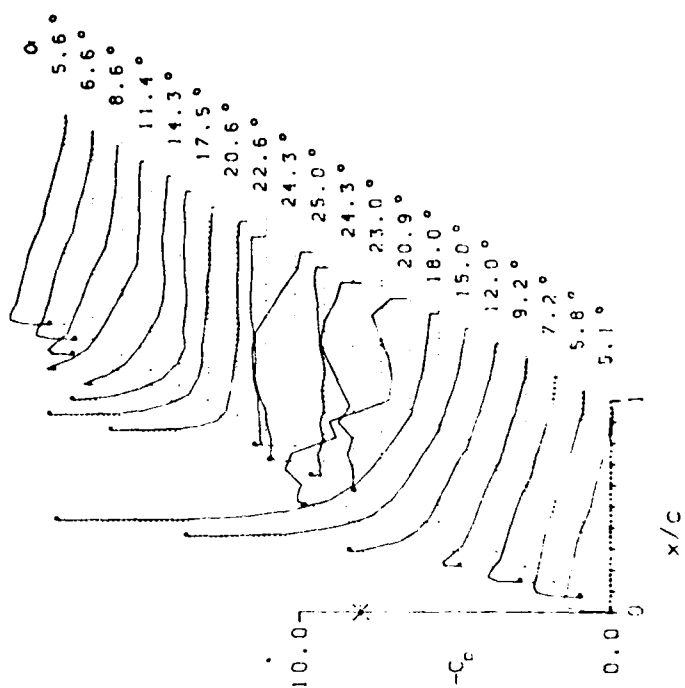
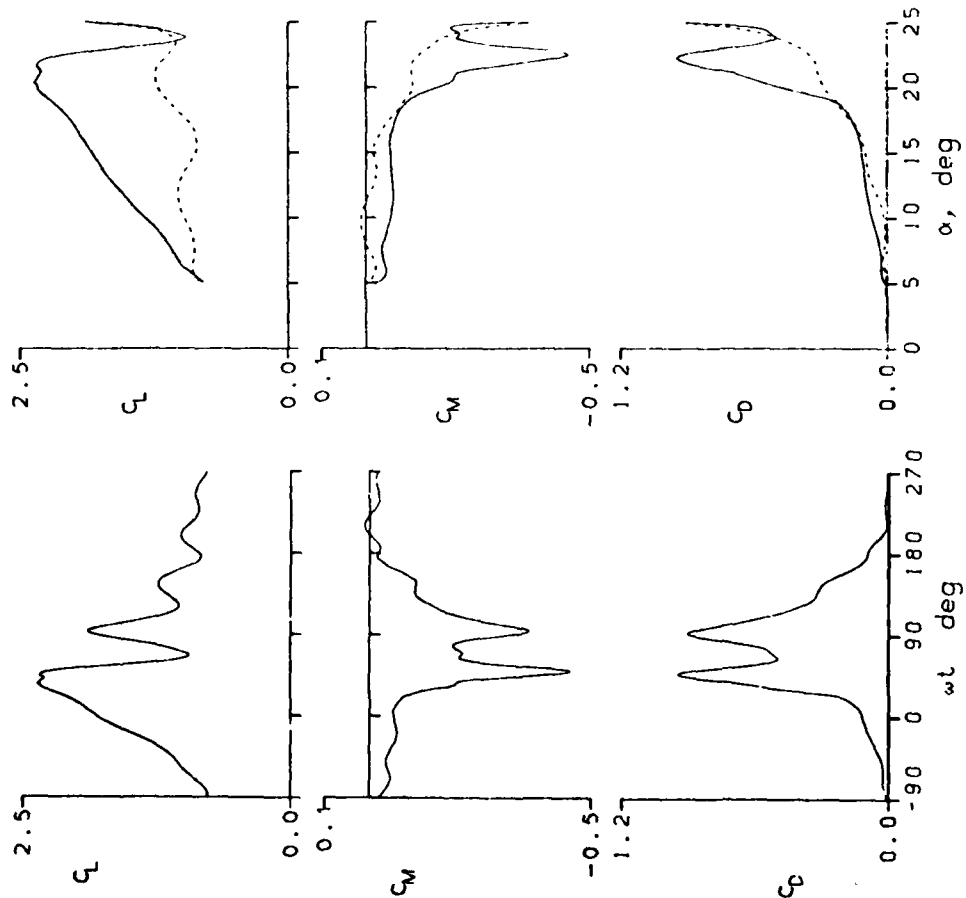


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48019	$A_0 = 3.95^\circ$	$k = 0.010$
$Re = 4.22 E6$	$A_1 = 10.10^\circ$	$M = 0.299$
$C_{Lmax} = 1.63$	$C_{Mmin} = -0.07$	$C_{Dmax} = 0.11$
$\alpha_{Lmax} = 13.4^\circ$	$\xi = 0.021$	$M_{max} = 1.068$
$\alpha_{Cmin} = 3.5^\circ$	$-C_{Dmax} = 7.7$	$\alpha_{Mmax} = 13.7^\circ$

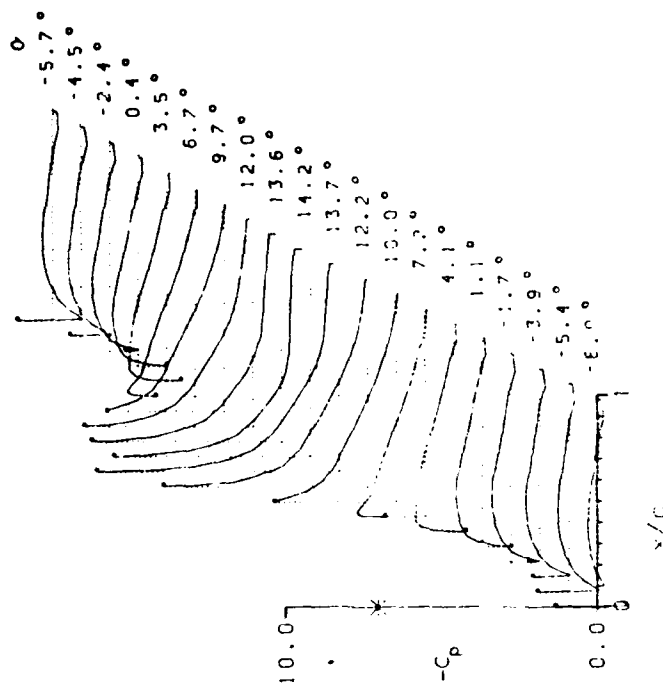
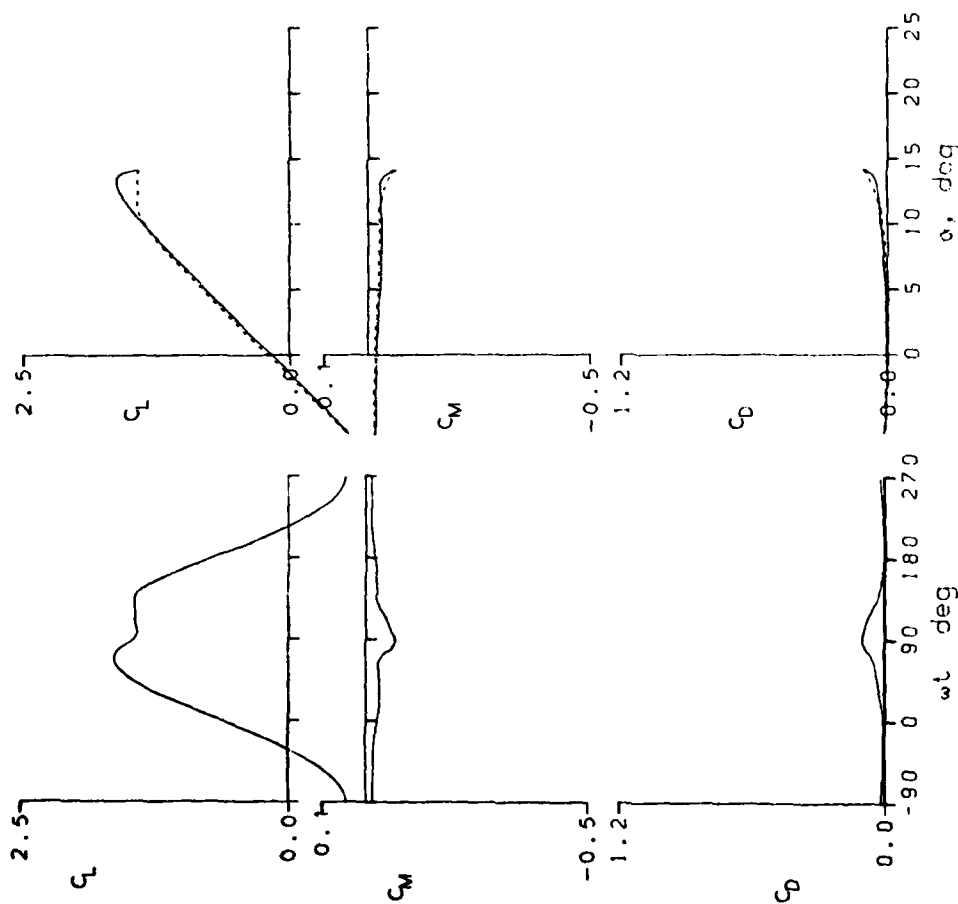


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48023	$A_0 = 3.95^\circ$	$k = 0.025$
$R_0 = 4.19$	$L_6 = 10.10^\circ$	$M = 0.300$
$C_{Lmax} = 1.68$	$C_{Mmin} = -0.07$	$C_{Dmax} = 0.10$
$\alpha_{Lmax} = 13.7^\circ$	$\xi = 0.058$	$M_{max} = 1.146$
$\alpha_{Cmin} = 3.5^\circ$	$-C_{Dmax} = 8.4$	$\alpha_{Mmax} = 14.0^\circ$

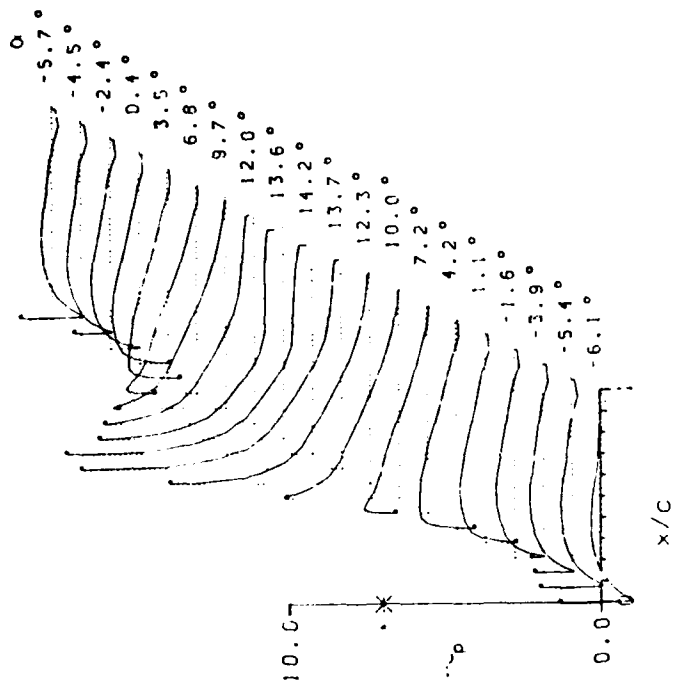
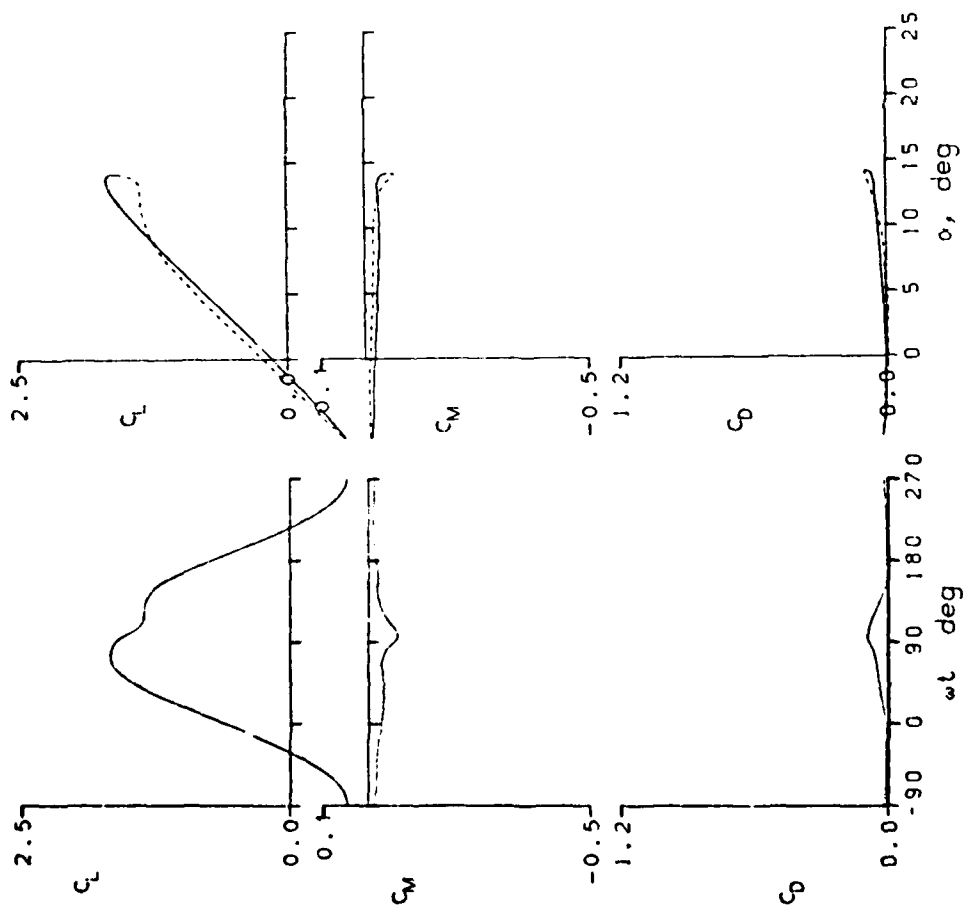


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB- AIRFOIL

FRAME : 48101	$A_0 = 3.95^\circ$	$b = 0.051$
$Re = 4.16 \text{ E}6$	$A_1 = 10.10^\circ$	$M = 0.299$
$C_{Lmax} = 1.73$	$C_{Mmin} = -0.05$	$C_{Dmax} = 0.07$
$\alpha_{Lmax} = 14.0^\circ$	$\zeta = 0.130$	$M_{max} = 1.216$
$\alpha_{Cmin} = 3.5^\circ$	$-C_{pmax} = 9.1$	$\alpha_{Mmax} = 14.2^\circ$

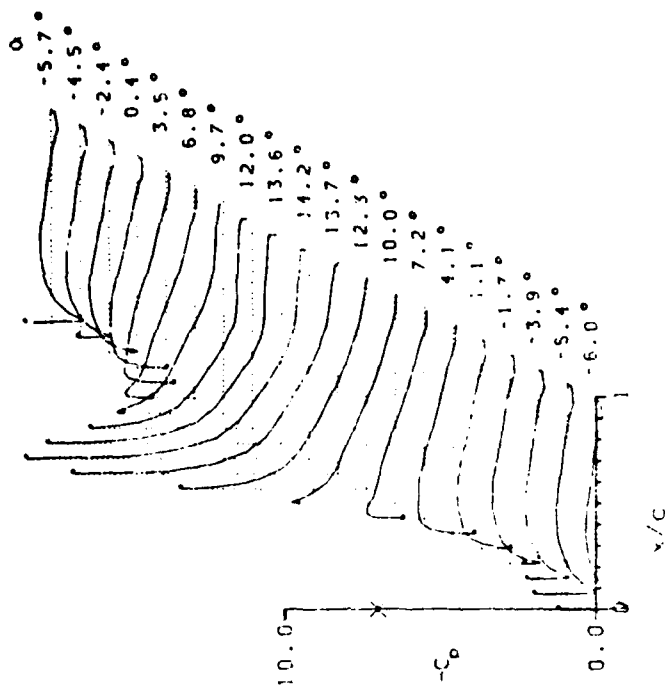
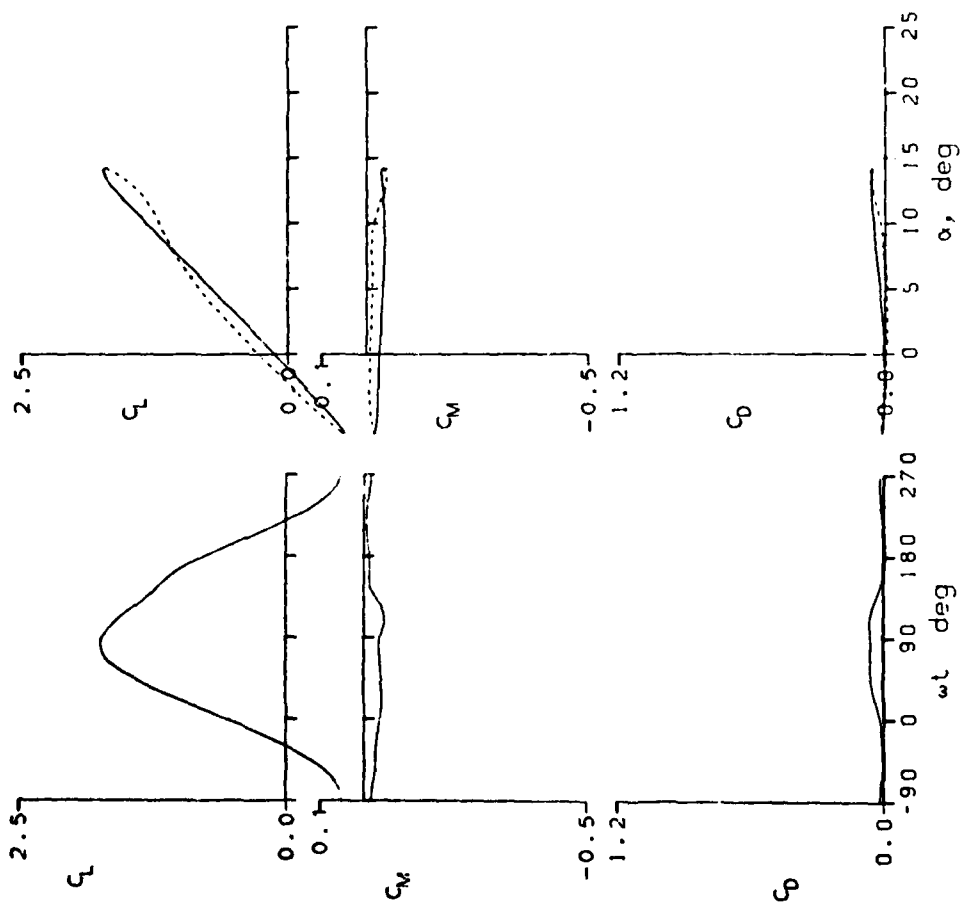


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAM1: 48103 $A_0 = 3.95^\circ$ $k = 0.102$
 $Re = 4.15 \text{ E}6$ $A1 = 10.10^\circ$ $M = 0.300$
 $C_{Lmax} = 1.78$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.09$
 $\alpha_{Lmax} = 14.2^\circ$ $\zeta = 0.307$ $M_{max} = 1.271$
 $\alpha_{Cmin} = 3.5^\circ$ $-C_{Dmax} = 9.6$ $\alpha_{Mmax} = 14.1^\circ$

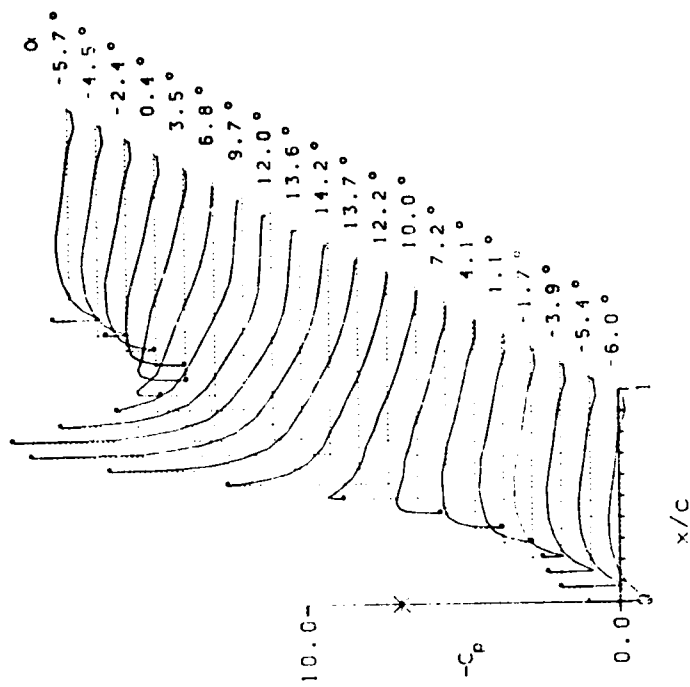
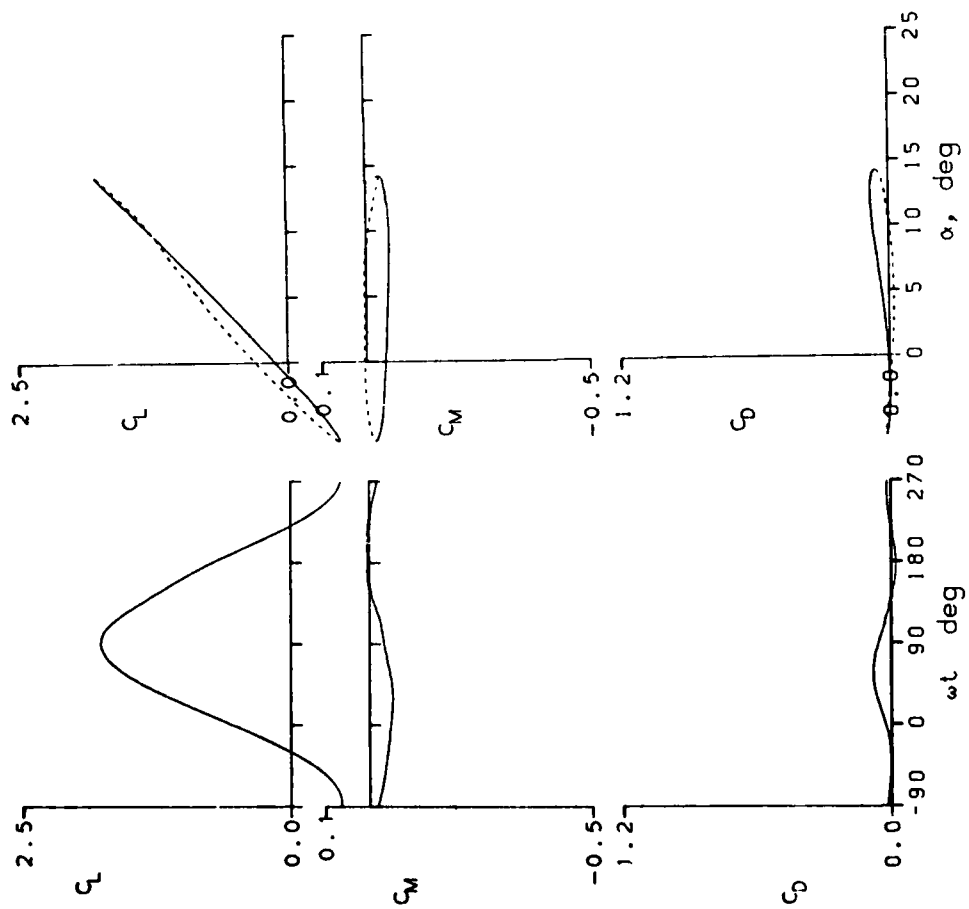


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAVE : 48115 A0 = 13.00° k = 0.025
 Re = 4.08 E6 A1 = 2.00° M = 0.299
 CLmax = 1.63 CMmin = -0.08 CDmax = 0.13
 αLmax = 13.5° ζ = -0.151 Mmax = 1.070
 αCMmin = 12.9° -CDmax = 7.7 αMmax = 13.9°

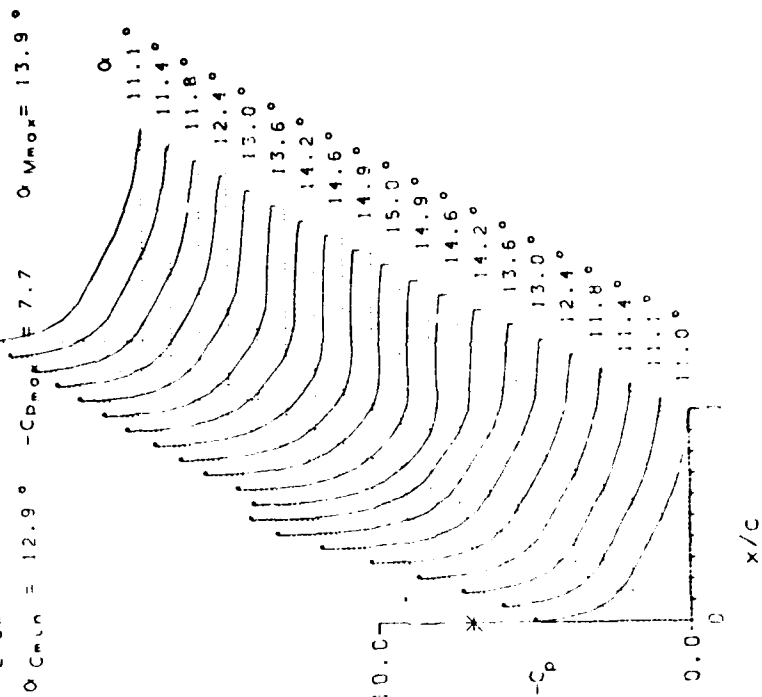
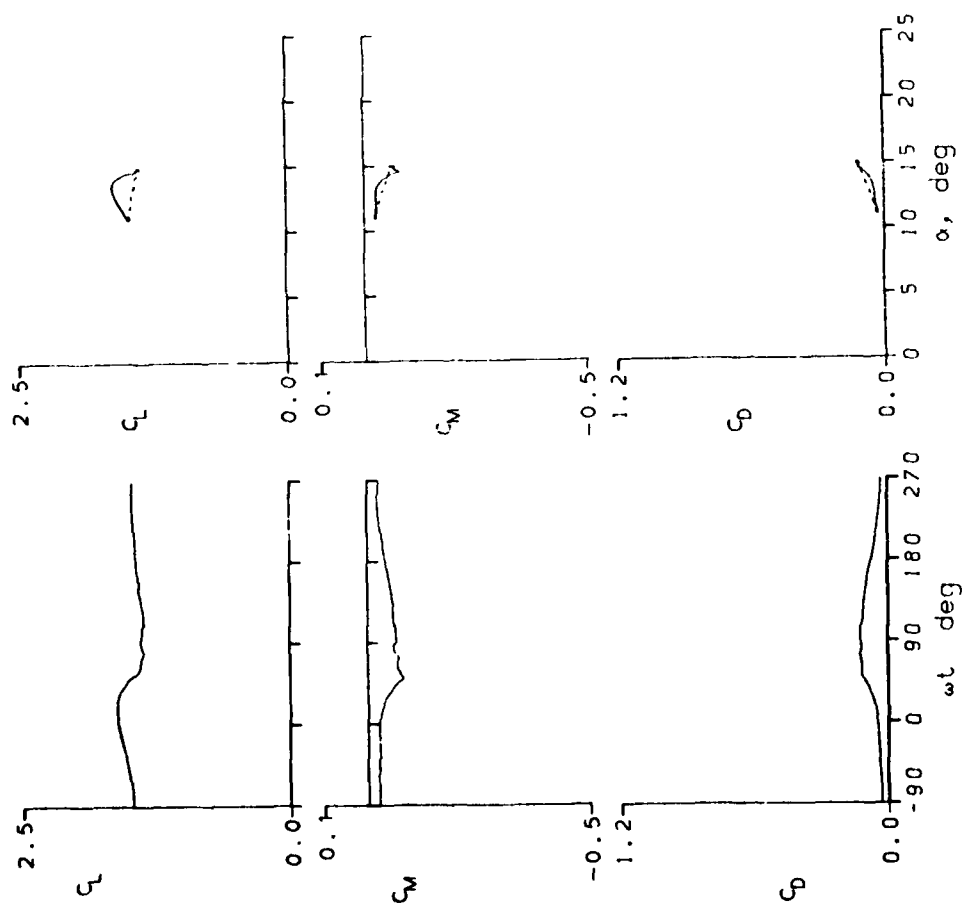


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB - AIRFOIL

FRAME : 48118 $A_0 = 13.00^\circ$ $\mu = 0.050$

$Re = 4.06 \text{ E}6$ $A_1 = 1.99^\circ$ $M = 0.299$

$C_{L_{max}} = 1.66$ $C_{M_{min}} = -0.10$ $C_{D_{max}} = 0.14$

$\alpha_{L_{max}} = 14.1^\circ$ $\xi = -0.213$ $M_{max} = 1.148$

$\alpha_{C_{min}} = 12.9^\circ$ $-C_{P_{max}} = 8.5$ $\alpha_{M_{max}} = 14.4^\circ$

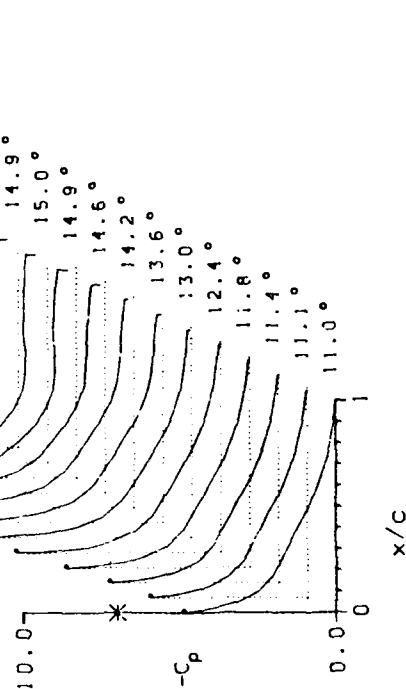
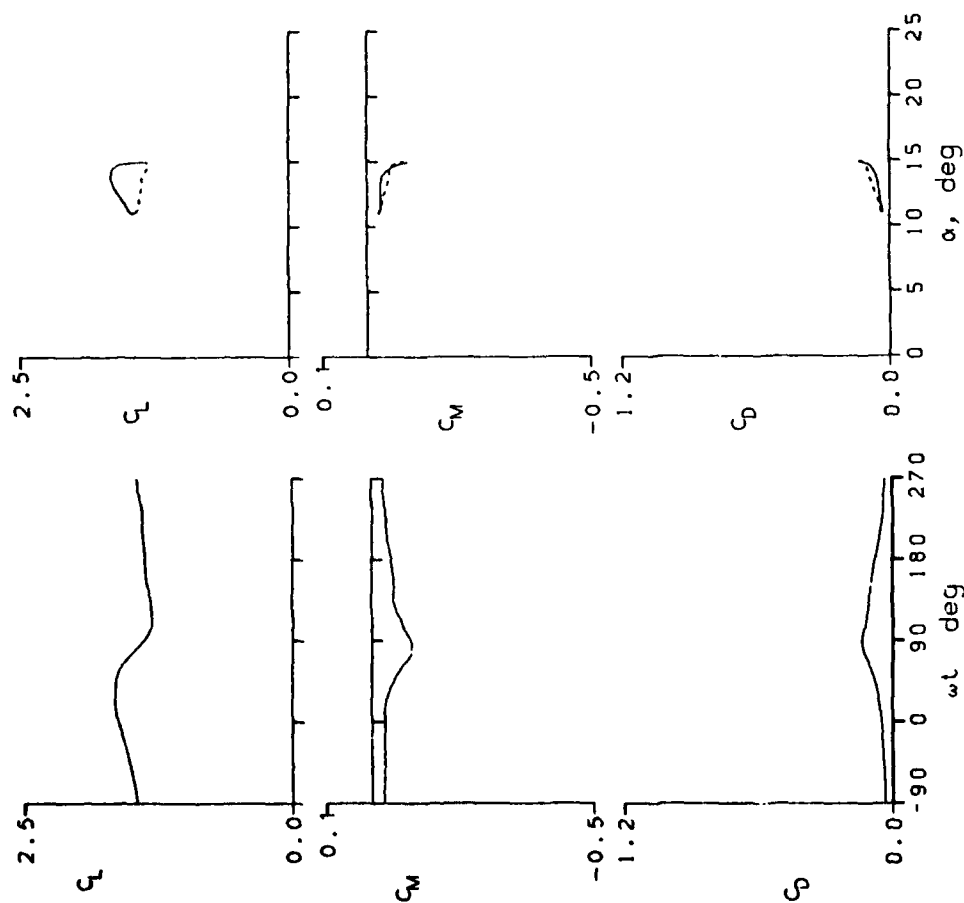


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB- AIRFOIL

FRAME : 48122 $A_0 = 12.99^\circ$ $k = 0.101$

$Re = 4.06 E6$ $A1 = 2.00^\circ$ $M = 0.299$

$C_{Lmax} = 1.73$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.14$

$\alpha_{Lmax} = 14.5^\circ$ $\xi = -0.339$ $M_{max} = 1.234$

$\alpha_{Cmin} = 12.9^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 14.8^\circ$

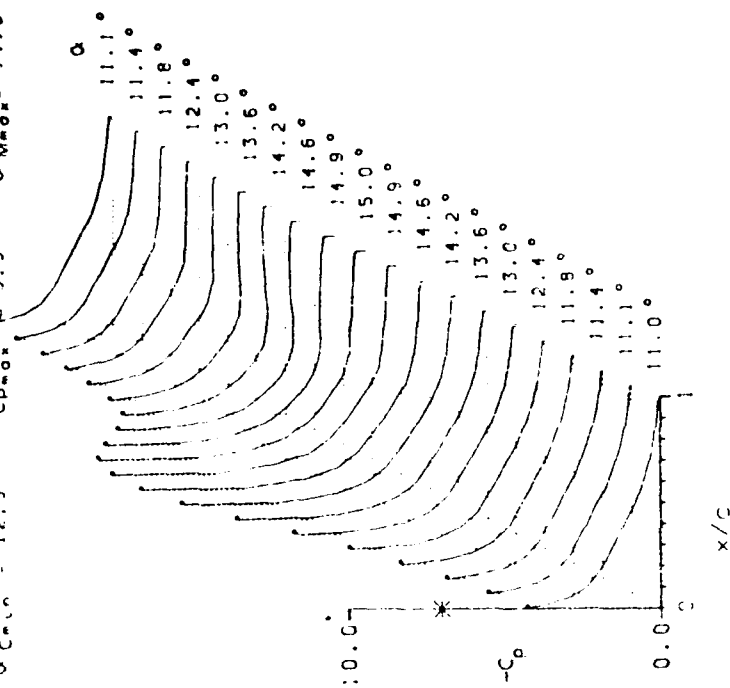
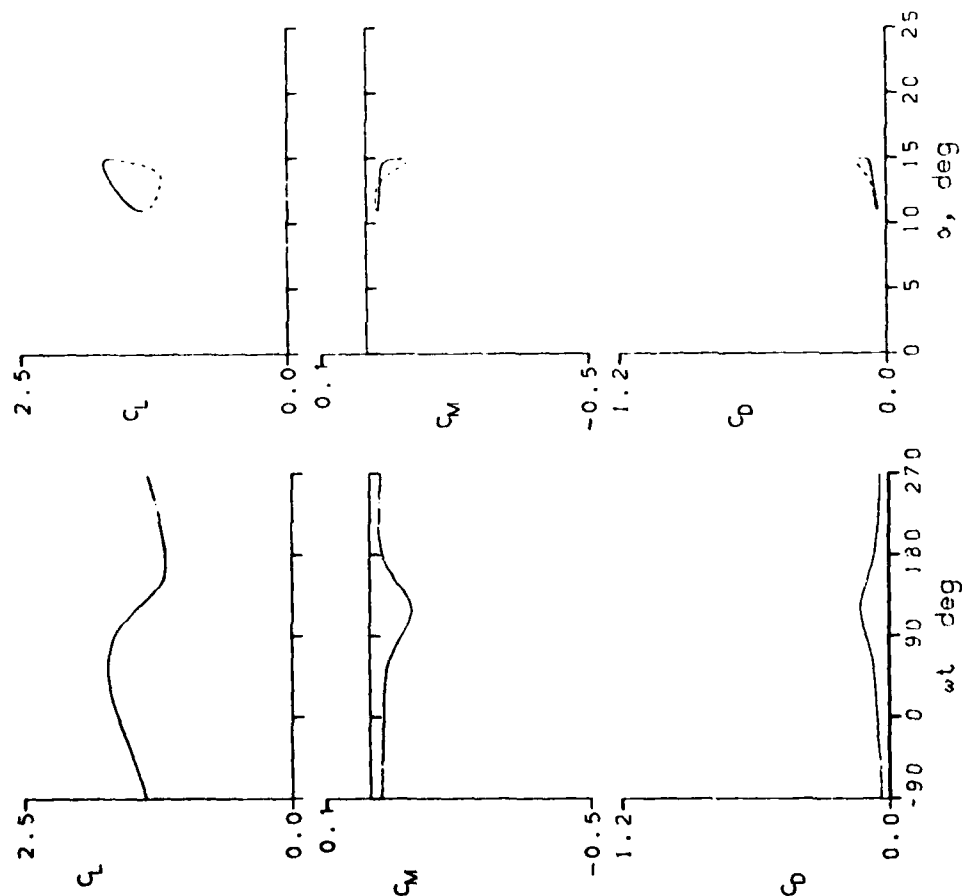


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48209	$A_0 = 15.95^\circ$	$k = 0.203$
$Re = 4.06 \times 10^6$	$A_1 = 2.00^\circ$	$M = 0.298$
$C_{Lmax} = 1.87$	$C_{Mmin} = -0.31$	$C_{Dmax} = 0.46$
$\alpha_{Lmax} = 17.9^\circ$	$\xi = 0.060$	$M_{max} = 1.359$
$\alpha_{Cmin} = 15.8^\circ$	$-C_{Dmax} = 10.4$	$\alpha_{Mmax} = 17.6^\circ$

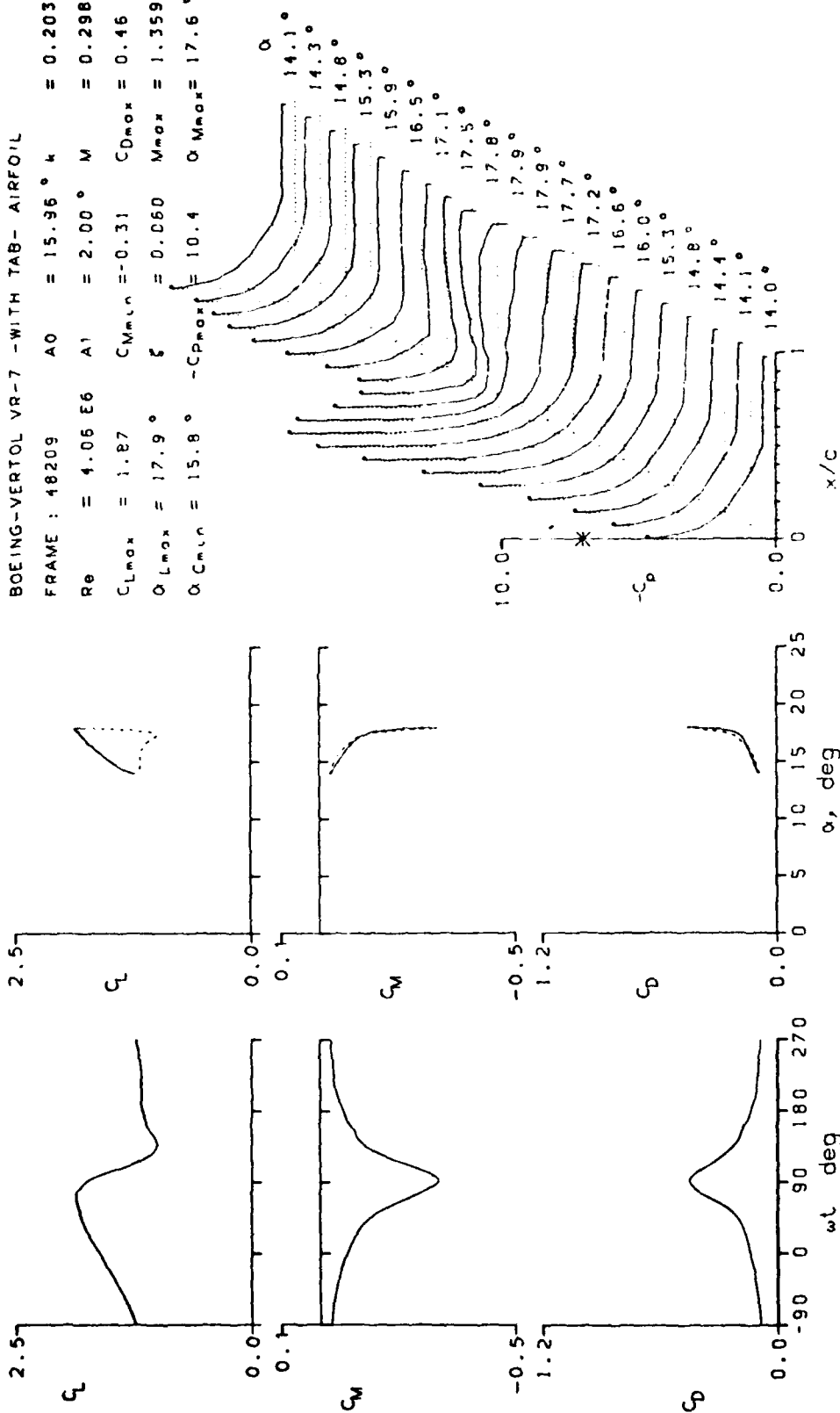


Figure 17.- Continued.

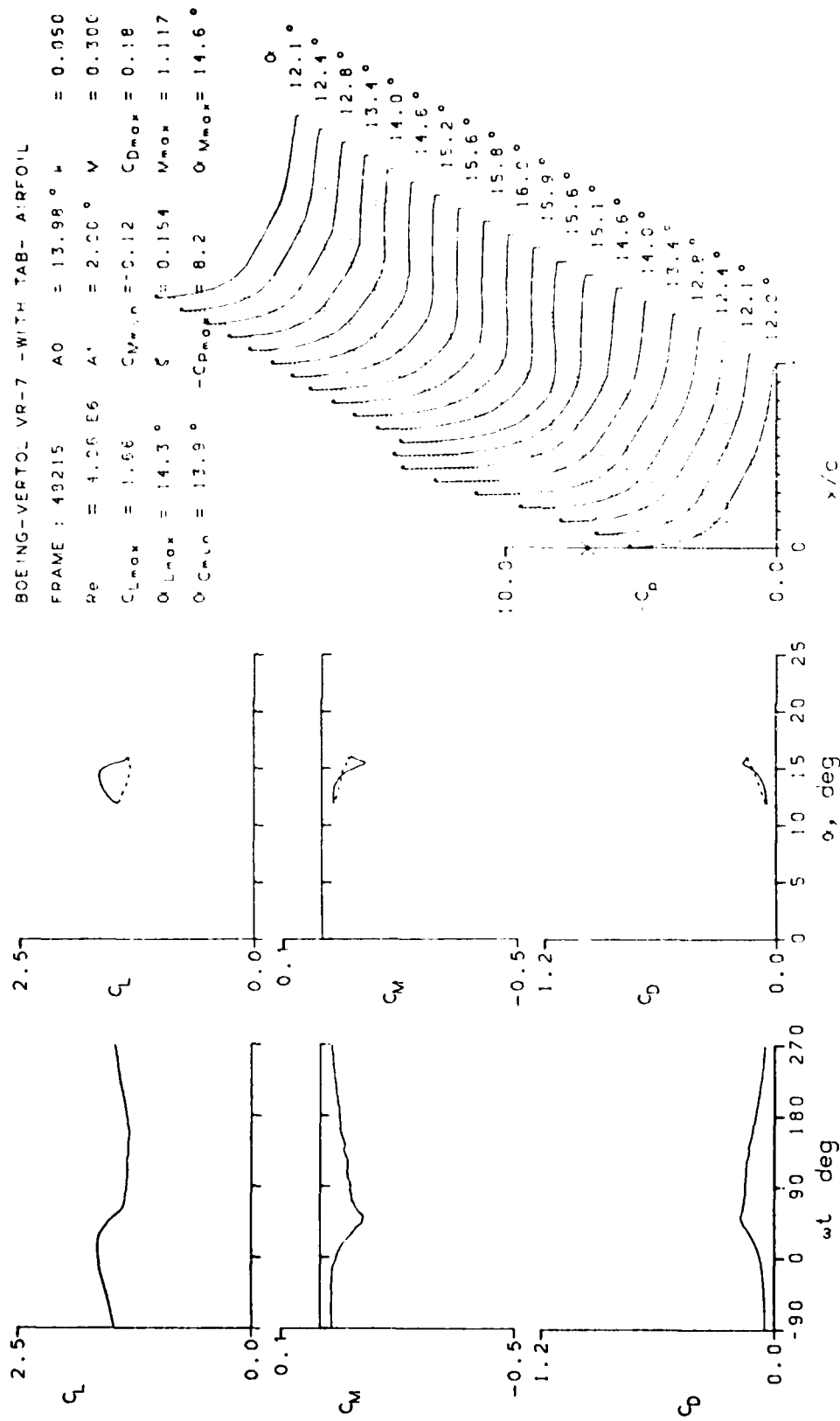


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48216 $AO = 13.99^\circ$ $k = 0.101$

$Re = 4.05 \times 10^6$ $A' = 1.99^\circ$ $M = 0.300$

$C_{Lmax} = 1.74$ $C_{Mmin} = -0.16$ $C_{Dmax} = 0.23$

$\alpha_{Lmax} = 15.2^\circ$ $\xi = 0.456$ $M_{max} = 1.238$

$\alpha_{Cmin} = 14.0^\circ$ $-C_{Pmax} = 9.3$ $\alpha_{Mmax} = 15.3^\circ$

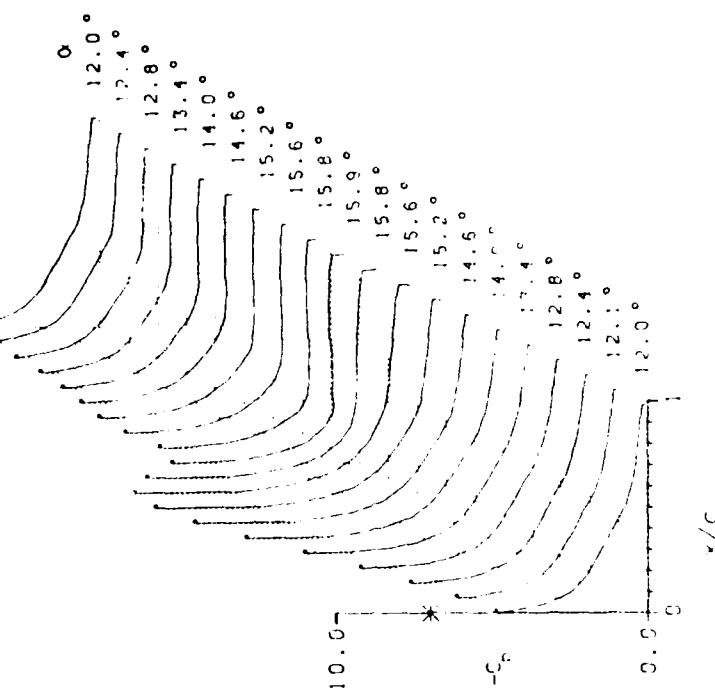
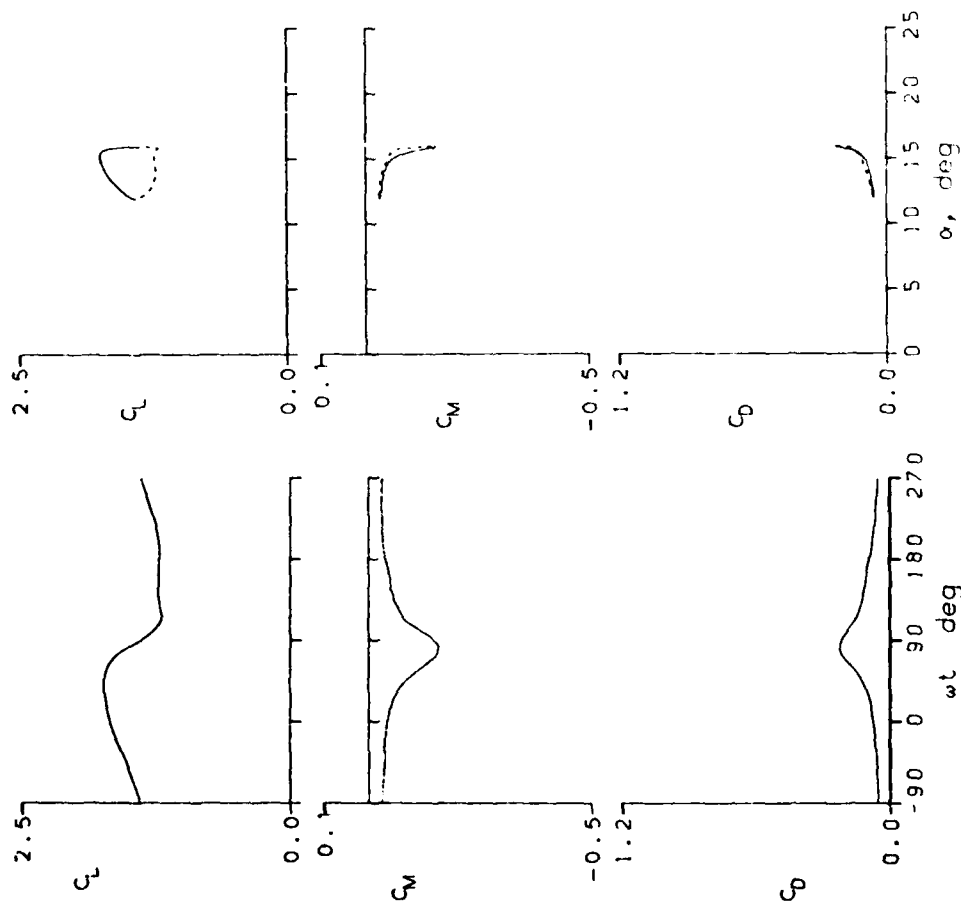
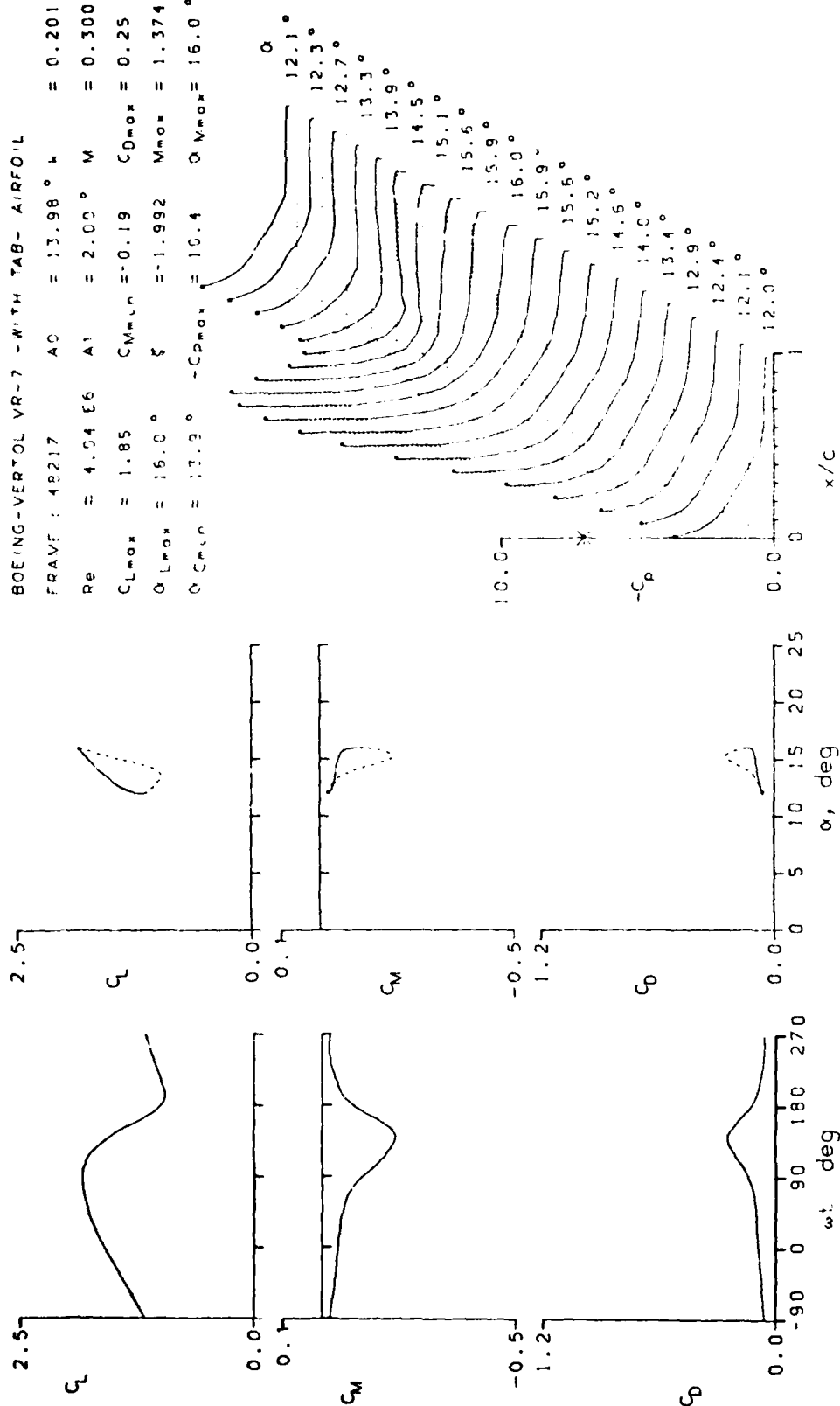


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB - AIRFOIL
 FRATE : 48217 $\alpha_0 = 13.98^\circ$ $\mu = 0.201$
 $Re = 4.04 \times 10^6$ $A^* = 2.00^\circ$ $M = 0.300$
 $C_{Lmax} = 1.85$ $C_{Mmin} = -0.19$ $C_{Dmax} = 0.25$
 $\alpha_{Lmax} = 16.0^\circ$ $\xi = -1.992$ $M_{max} = 1.374$
 $\alpha_{Cmin} = 13.9^\circ$ $-C_{Dmax} = 10.4$ $\alpha_{Vmax} = 16.0^\circ$



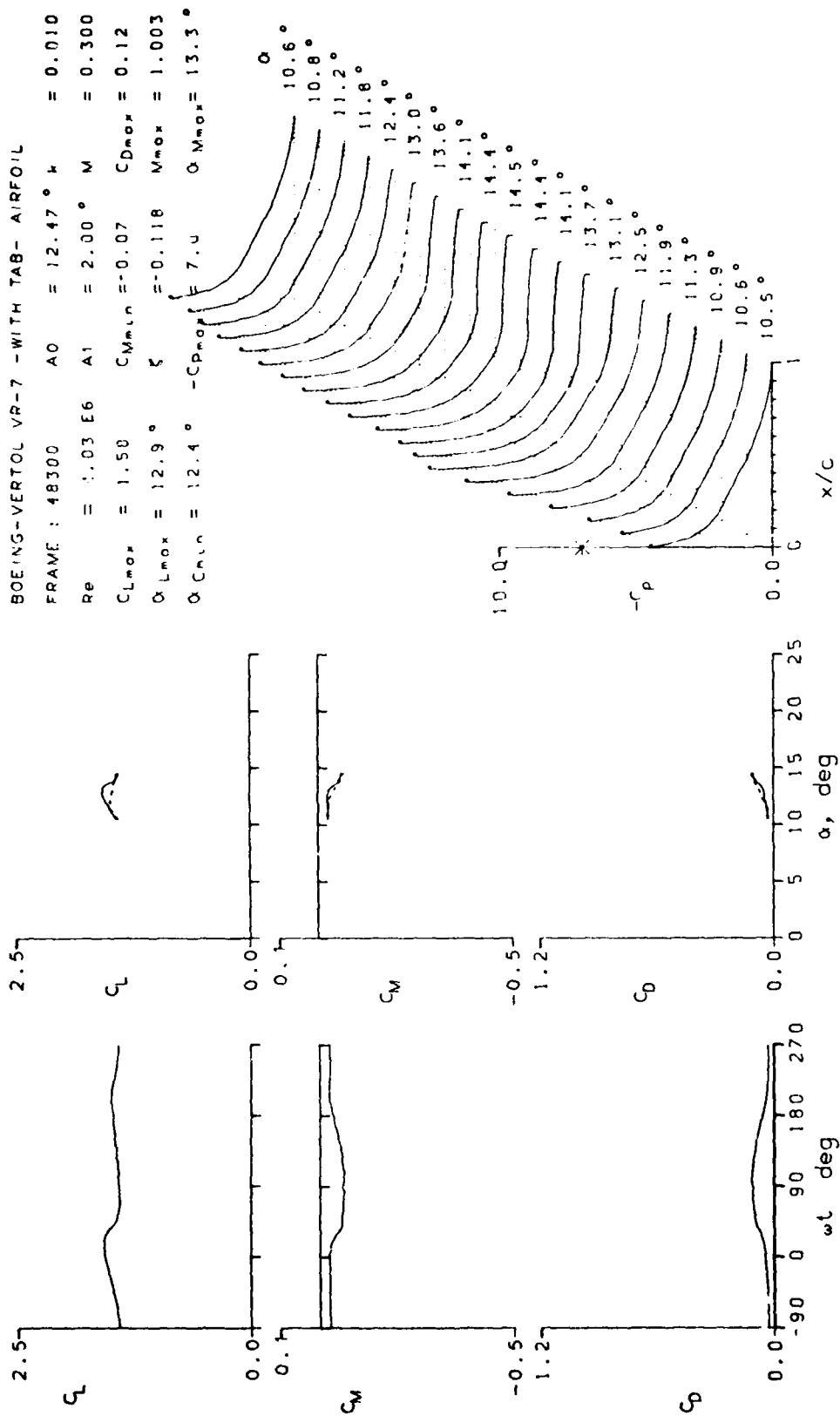


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB - AIRFOIL

FRAME : 48301 $A_0 = 12.47^\circ$ $\mu = 0.025$

$R_0 = 4.01$ E_6 $A_1 = 2.00^\circ$ $M = 0.300$

$C_{Lmax} = 1.62$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.12$

$\alpha_{Lmax} = 13.3^\circ$ $\xi = -0.155$ $M_{max} = 1.055$

$\alpha_{Cmin} = 12.4^\circ$ $-C_{Dmax} = 7.5$ $\alpha_{Mmax} = 13.8^\circ$

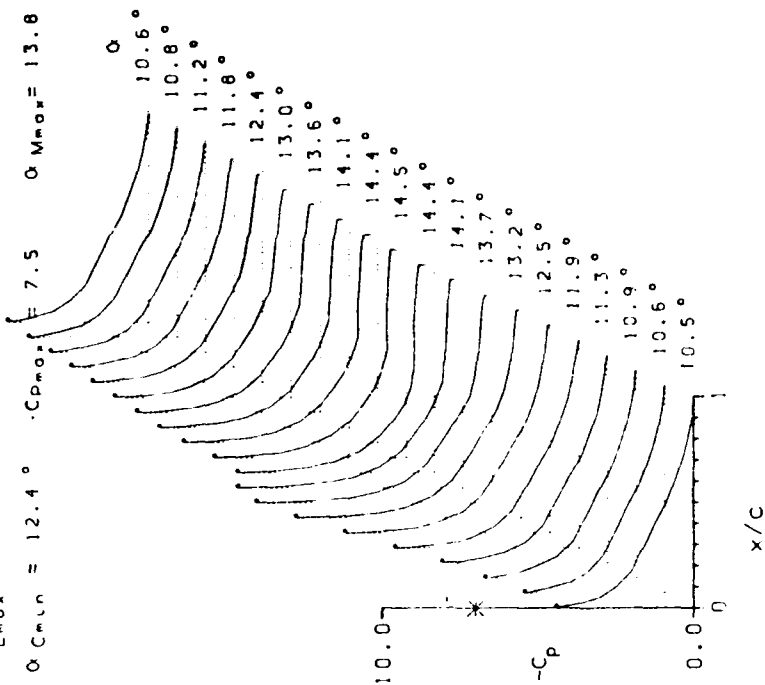
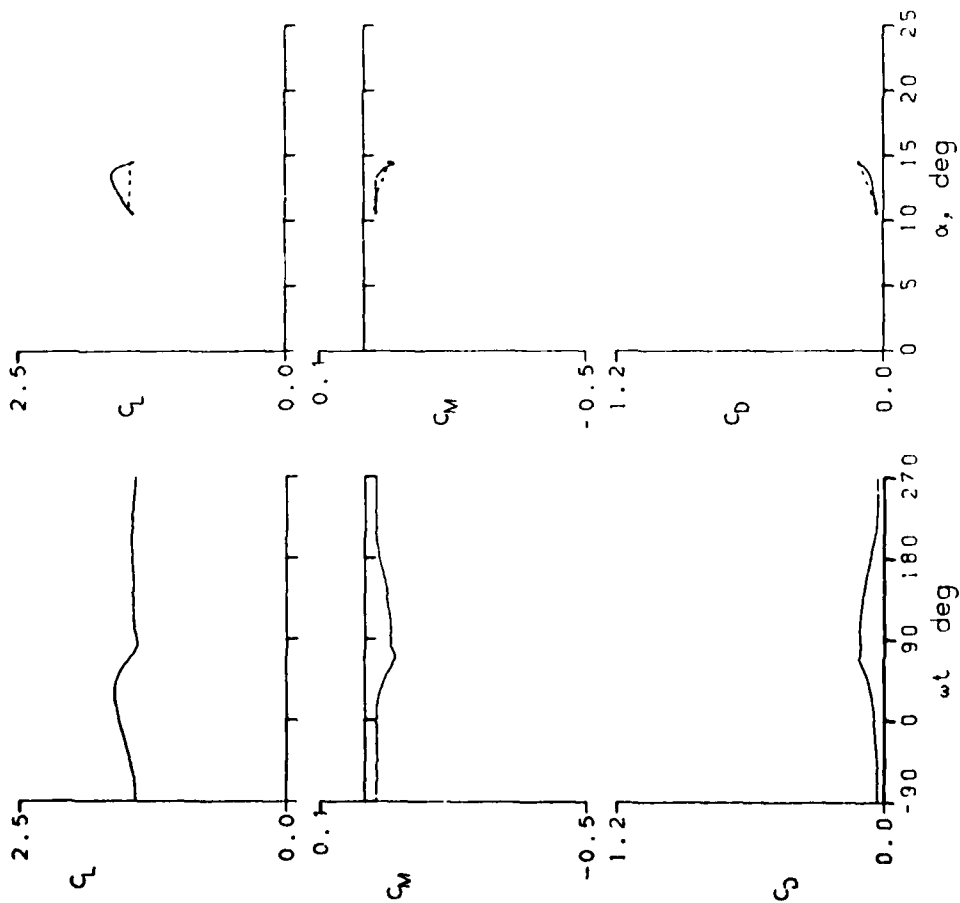


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 48302 $A_0 = 12.48^\circ$ $k = 0.050$
 $Re = 4.01 \times 10^6$ $A_1 = 2.00^\circ$ $M = 0.301$
 $C_{L_{max}} = 1.66$ $C_{M_{min}} = -0.09$ $C_{D_{max}} = 0.12$
 $\alpha_{L_{max}} = 13.8^\circ$ $\zeta = -0.153$ $M_{max} = 1.119$
 $\alpha_{C_{min}} = 12.4^\circ$ $-C_{p_{max}} = 8.1$ $\alpha_{M_{max}} = 14.2^\circ$

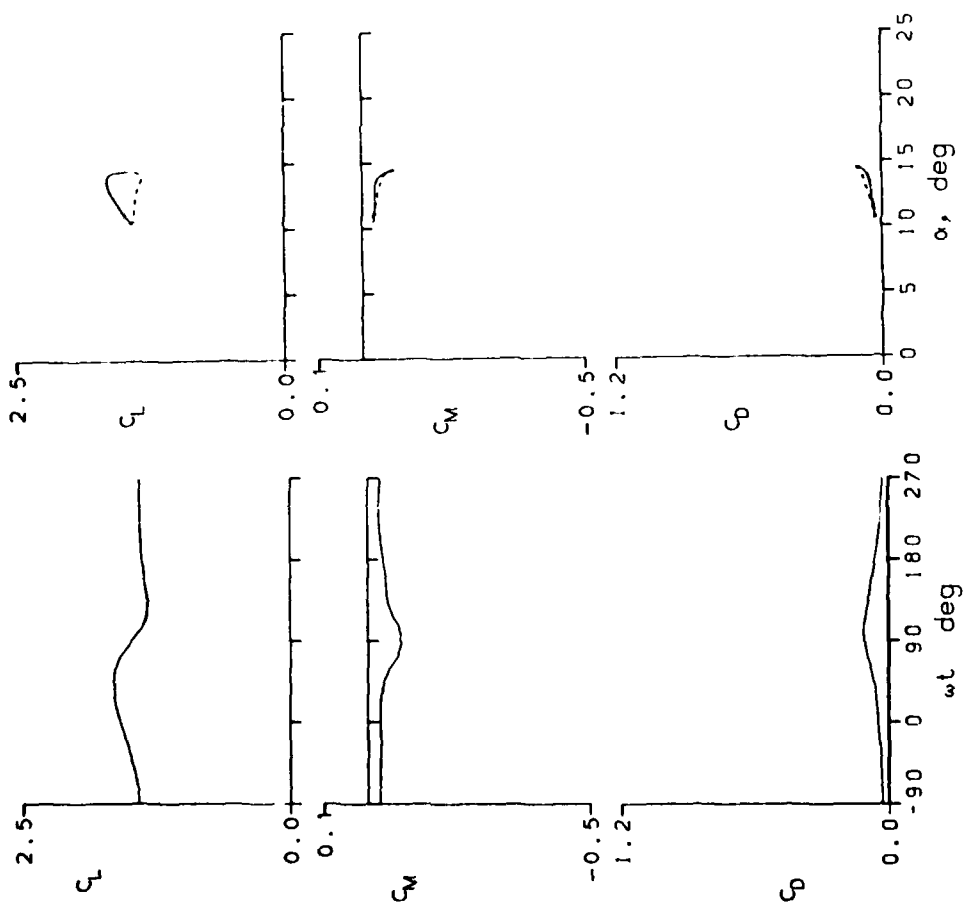


Figure 17.- Continued.

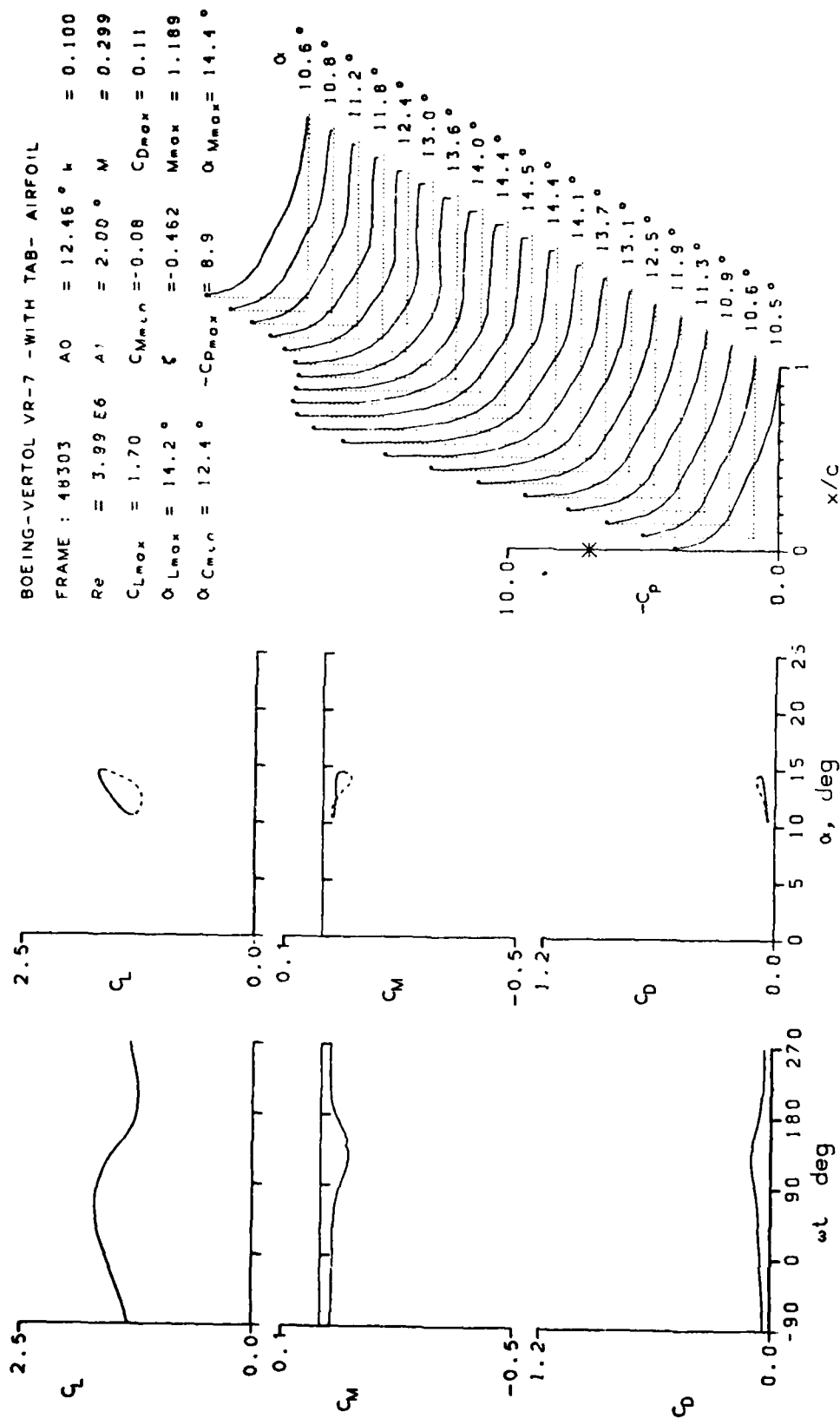


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48304 $A_0 = 12.47^\circ$ $k = 0.151$
 $Re = 3.98 \text{ E}6$ $A_1 = 2.00^\circ$ $M = 0.299$
 $C_{Lmax} = 1.73$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 14.4^\circ$ $\xi = -0.217$ $M_{max} = 1.231$
 $\alpha_{Cmin} = 12.4^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 14.5^\circ$

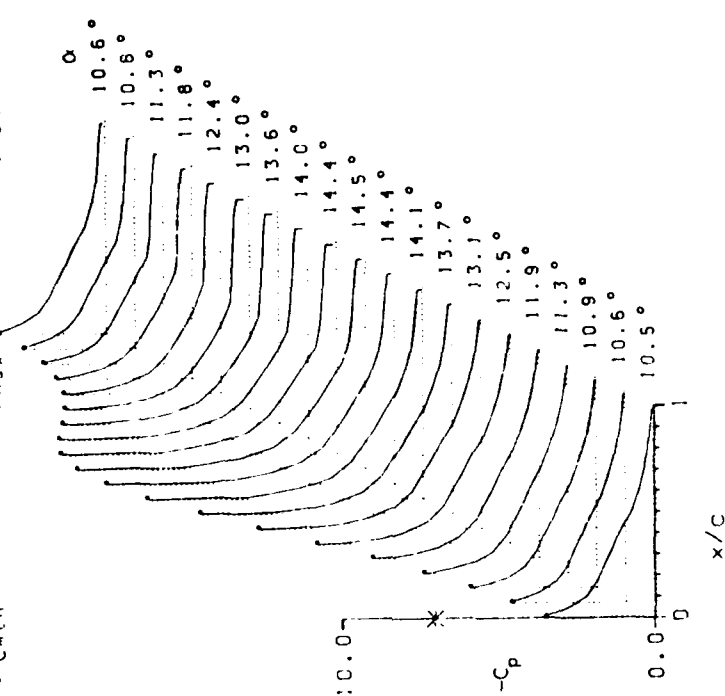
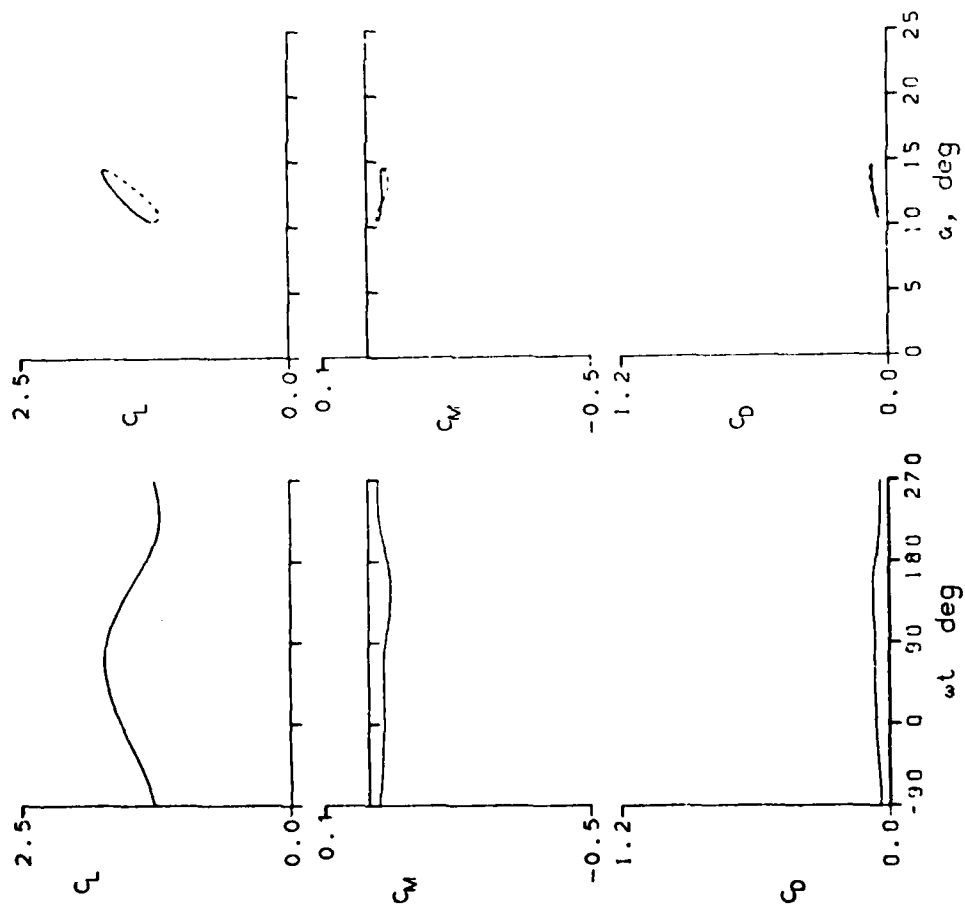


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 48308 $A_0 = 12.48^\circ$ $k = 0.201$
 $Re = 4.00 \text{ E}6$ $A_1 = 2.00^\circ$ $M = 0.300$
 $C_{Lmax} = 1.76$ $C_{Mmin} = -0.05$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 14.4^\circ$ $\zeta = 0.074$ $M_{max} = 1.265$
 $\alpha_{Cmin} = 12.4^\circ$ $-C_{Dmax} = 9.5$ $\alpha_{Mmax} = 14.5^\circ$

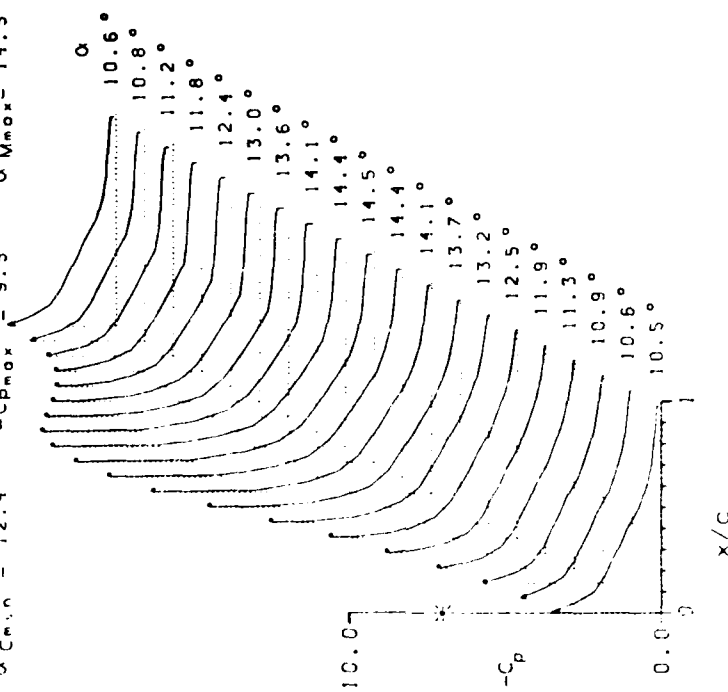
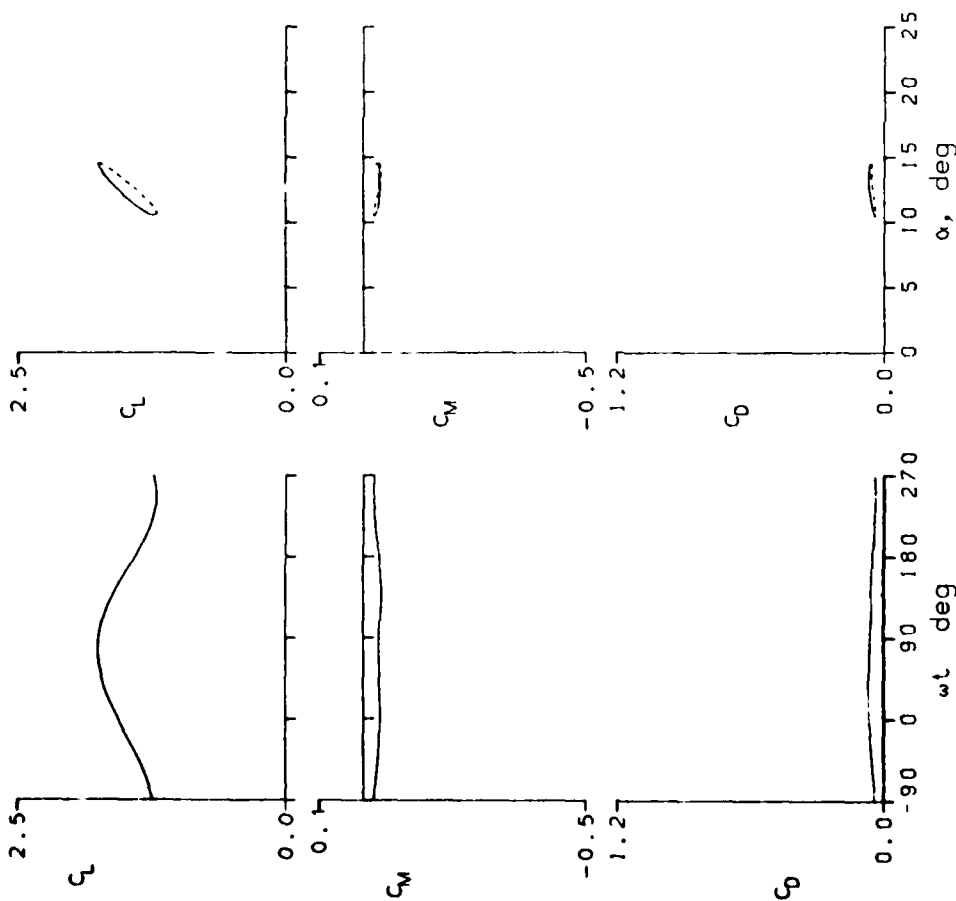


Figure 17.- Continued.

BOEING-VERVOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 49023 A0 = 14.77° k = 0.010
 Re = 2.54 E6 A1 = 9.90° M = 0.184
 CLmax = 1.58 CMmin = -0.12 CDmax = 0.36
 αLmax = 13.9° ζ = 0.084 Mmax = 0.609
 αCMmin = 14.2° -CDmax = 8.6 αMmax = 14.9°

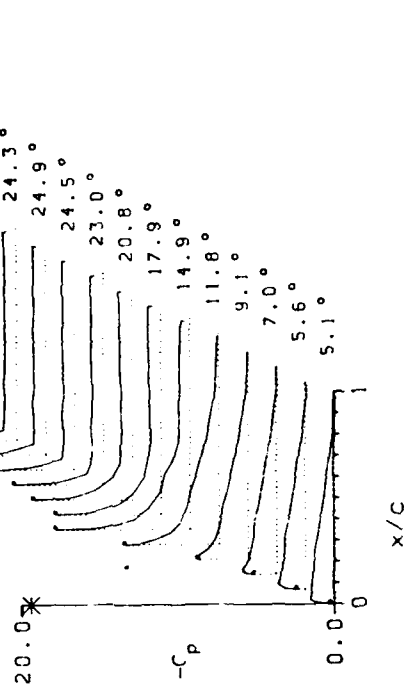
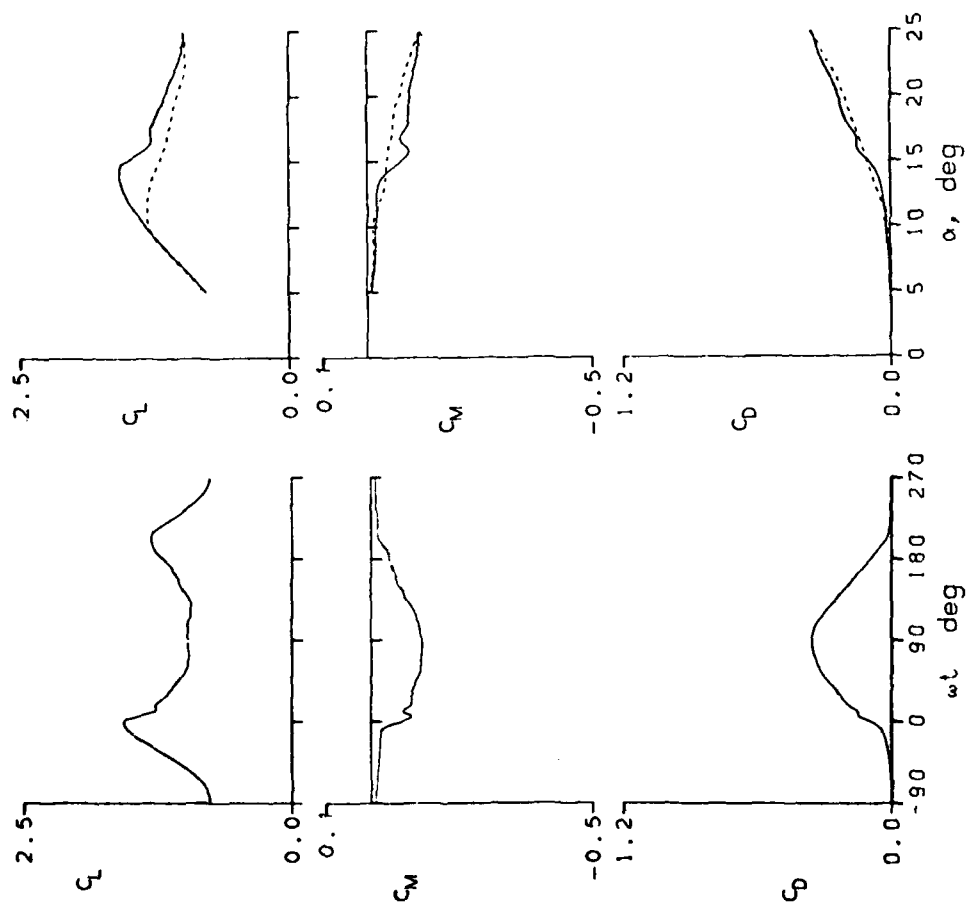


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 49110	A0 = 14.77 °	k = 0.026
Re = 2.63 E6	A1 = 9.90 °	M = 0.184
C _{Lmax} = 1.76	C _{Mmin} = -0.22	C _{Dmax} = 0.38
α _{Lmax} = 16.1 °	ξ = 0.270	M _{max} = 0.681

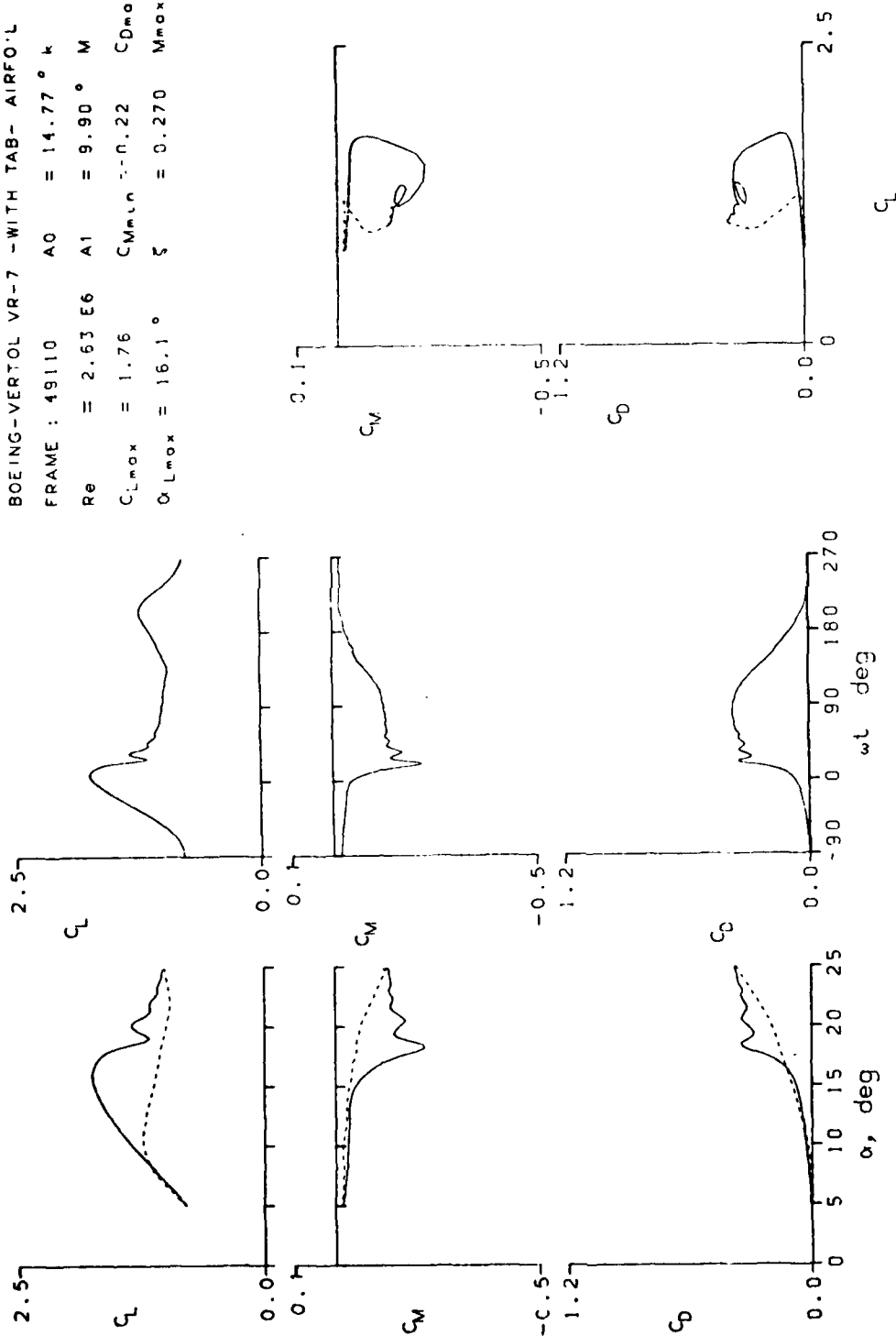


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 49117 A0 = 14.78° h = 0.051
 Re = 2.62 E6 A1 = 9.90° M = 0.185
 C_{Lmax} = 1.95 C_{Mmin} = -0.33 C_{Dmax} = 0.68
 α_{Lmax} = 17.9° ξ = 0.387 M_{max} = 0.792

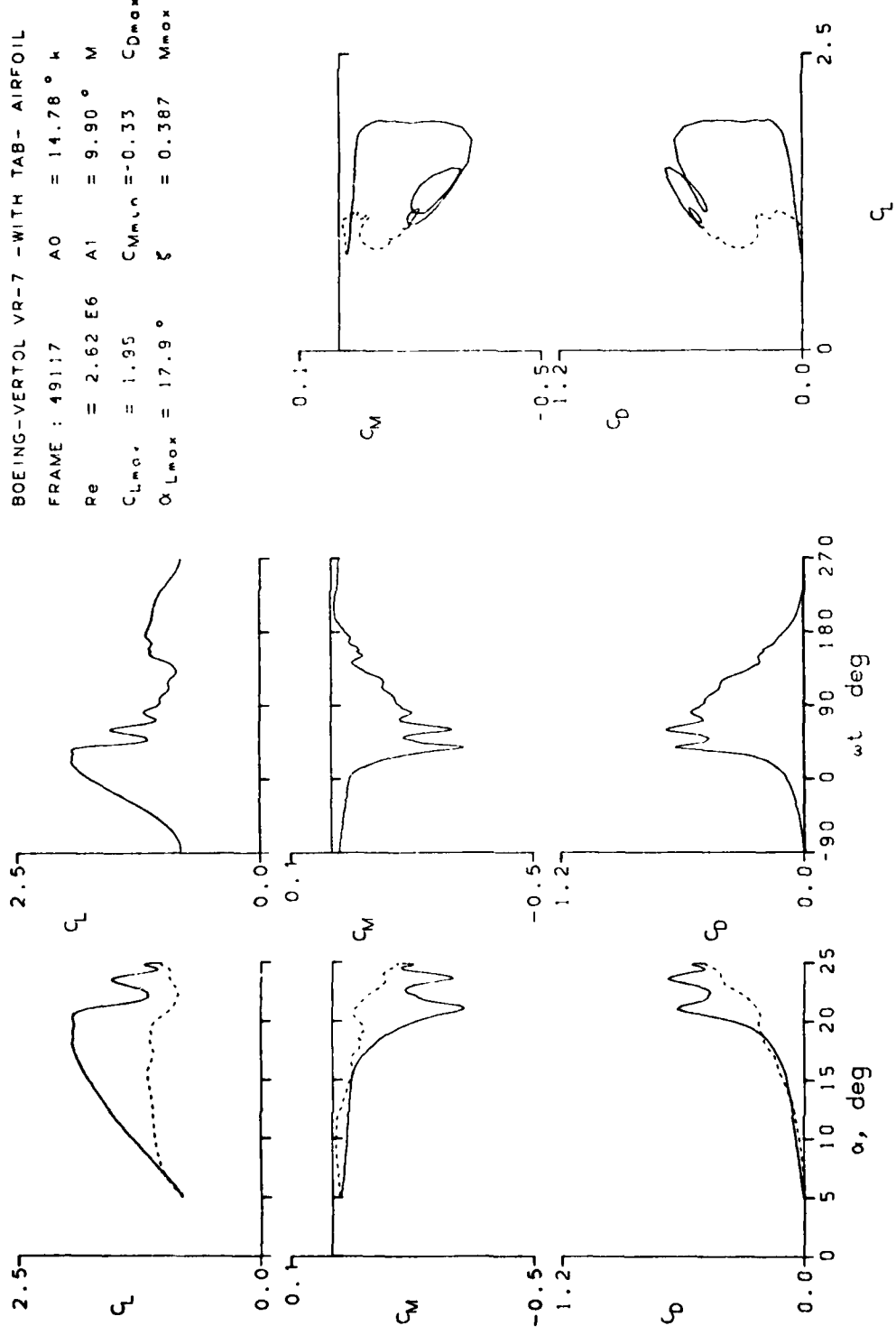


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 49120 $A_0 = 14.78^\circ$ $\mu = 0.101$
 $Re = 2.60 \times 10^6$ $A_1 = 9.90^\circ$ $M = 0.185$
 $C_{Lmax} = 2.34$ $C_{Mmin} = -0.42$ $C_{Dmax} = 0.97$
 $\alpha_{Lmax} = 23.0^\circ$ $\xi = 0.338$ $M_{max} = 0.959$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Pmax} = 18.1$ $\alpha_{Mmax} = 21.6^\circ$

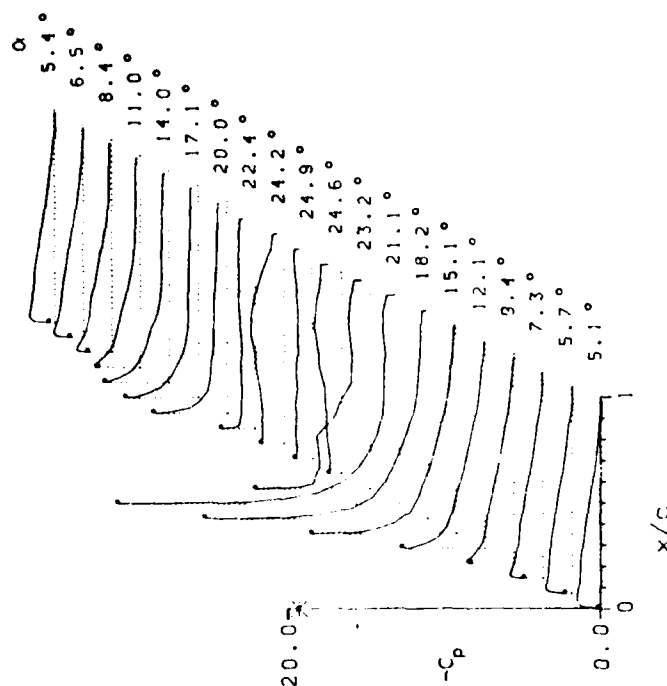
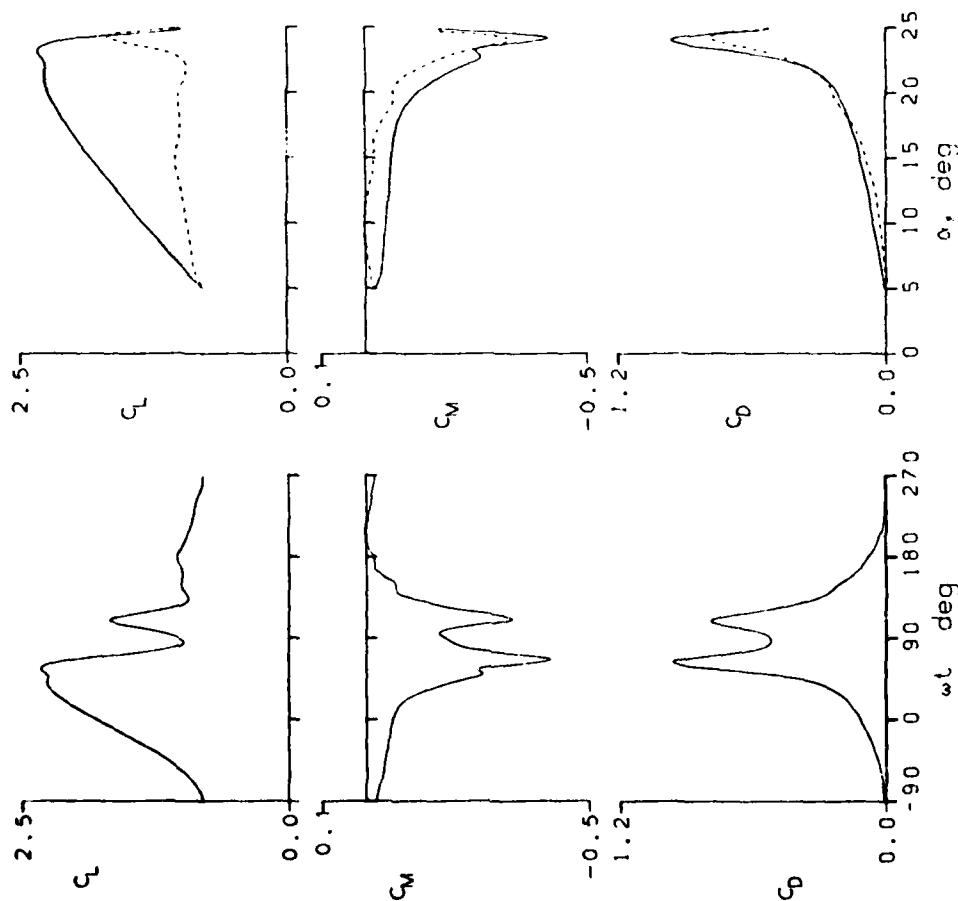


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 49203 $A_0 = 14.77^\circ$ $h = 0.152$
 $Re = 2.59 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.185$
 $C_{Lmax} = 2.68$ $C_{Mmin} = -0.46$ $C_{Dmax} = 1.10$
 $\alpha_{Lmax} = 24.1^\circ$ $\xi = 0.215$ $M_{max} = 1.066$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{pmax} = 20.9$ $\alpha_{Mmax} = 23.2^\circ$

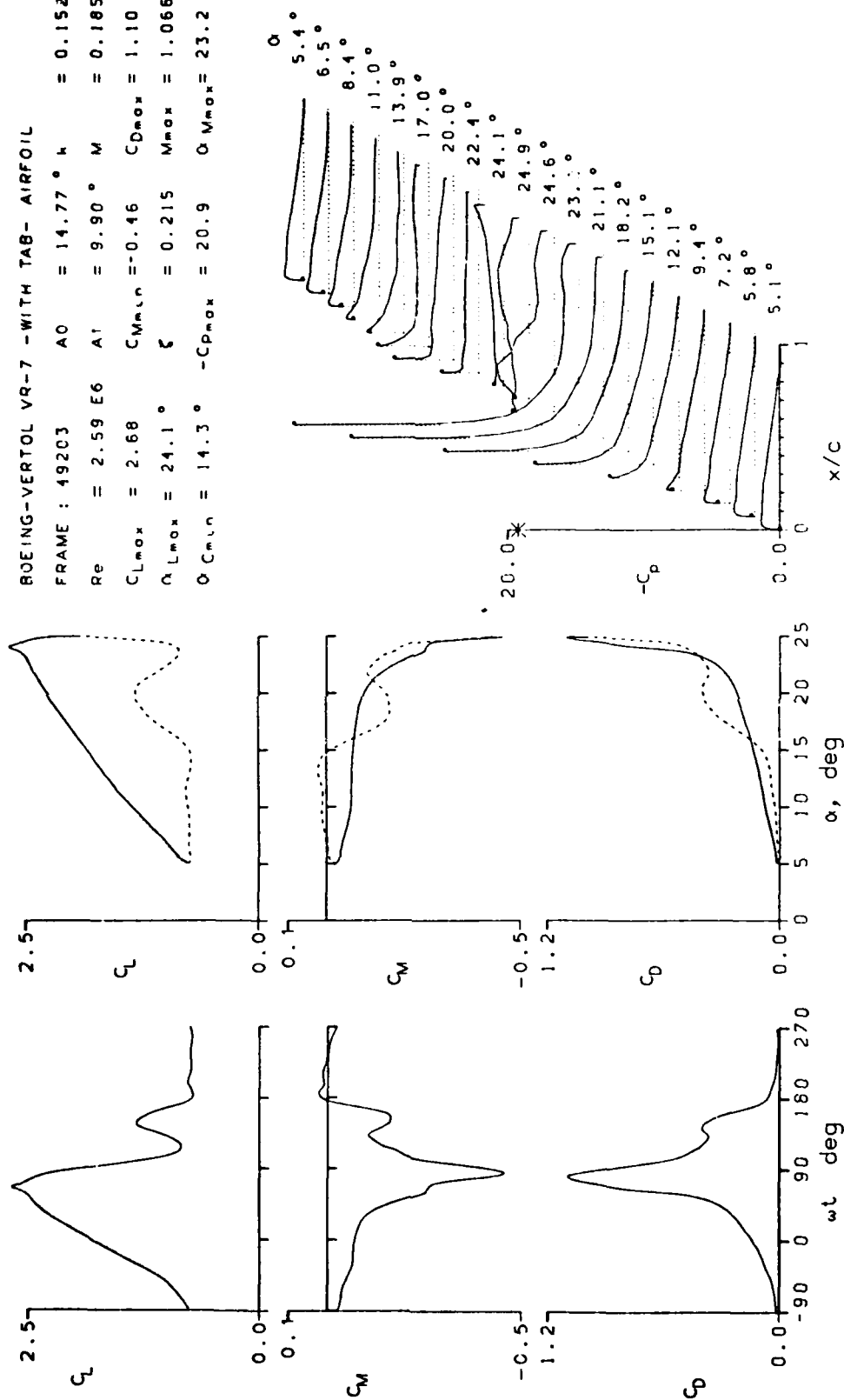


Figure 17.- Continued.

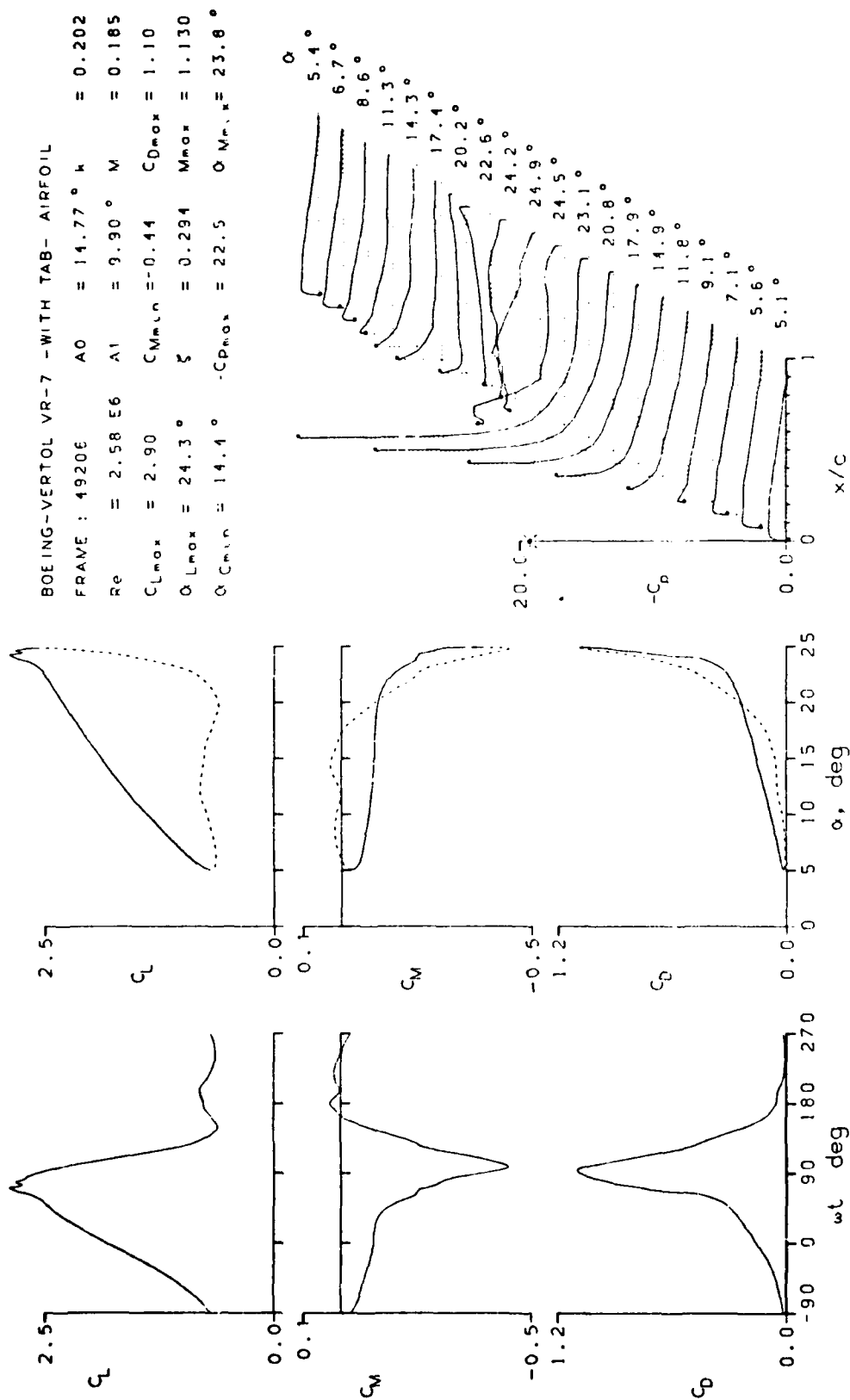


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB - AIRFOIL

FRAMF : 49216	A0 = 4.55°	k = 0.025
Re = 2.56 E6	A1 = 10.95°	M = 0.184
CLmax = 1.62	CMmin = -0.09	CDmax = 0.11
αLmax = 13.9°	ξ = 0.058	Mmax = 0.600
αCmin = 4.1°	-CDmax = 8.3	αMmax = 14.3°

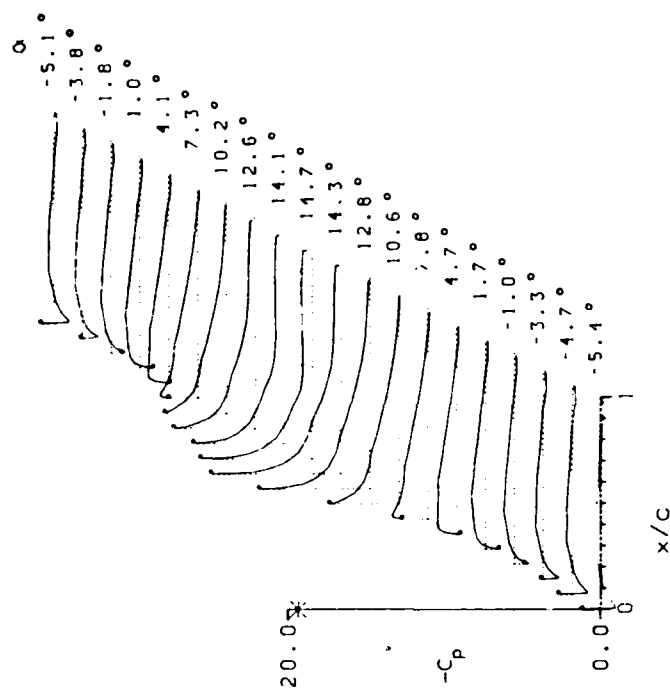
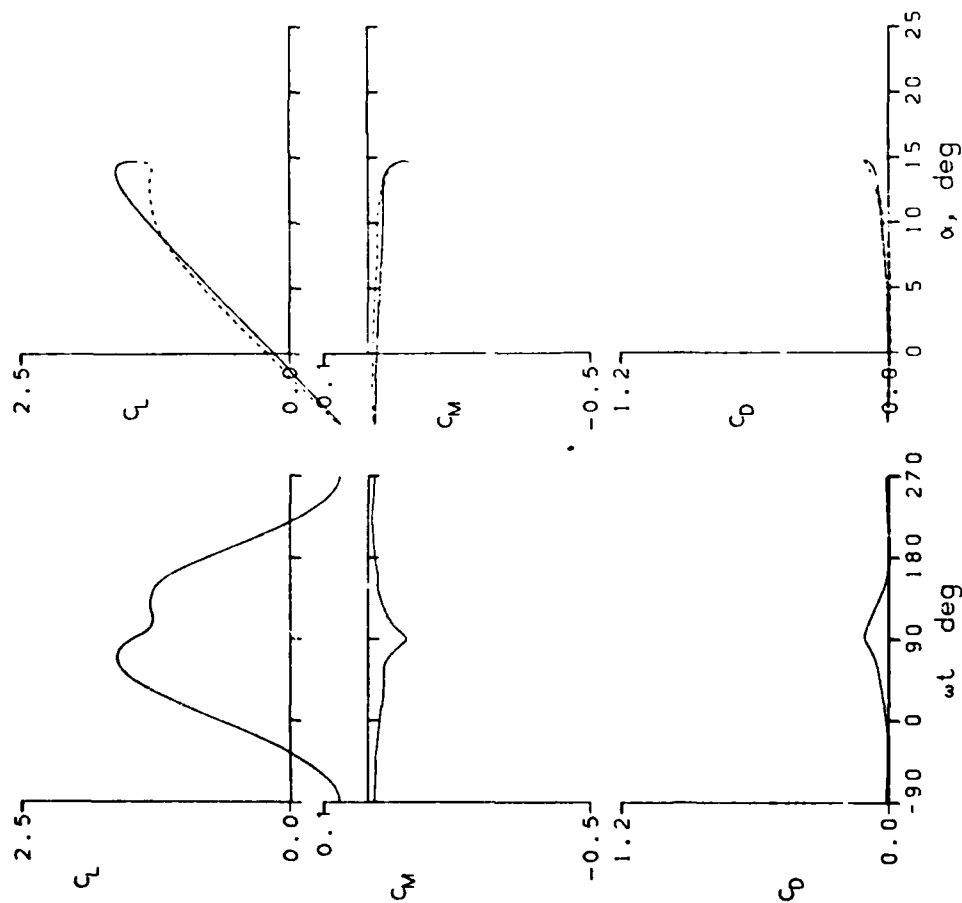


Figure 17.- Continued.

BCEING-VERTOL VP-7 -WITH TAB- AIRFOIL

FRAME : 49300 $A_0 = 4.54^\circ$ $k = 0.101$
 $Re = 2.54 \text{ E}6$ $A_1 = 10.05^\circ$ $M = 0.104$
 $C_{Lmax} = 1.72$ $C_{Mmin} = -0.05$ $C_{Dmax} = 0.09$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.260$ $M_{max} = 0.638$
 $\alpha_{Cmin} = 4.1^\circ$ $-C_{Pmax} = 9.3$ $\alpha_{Mmax} = 14.7^\circ$

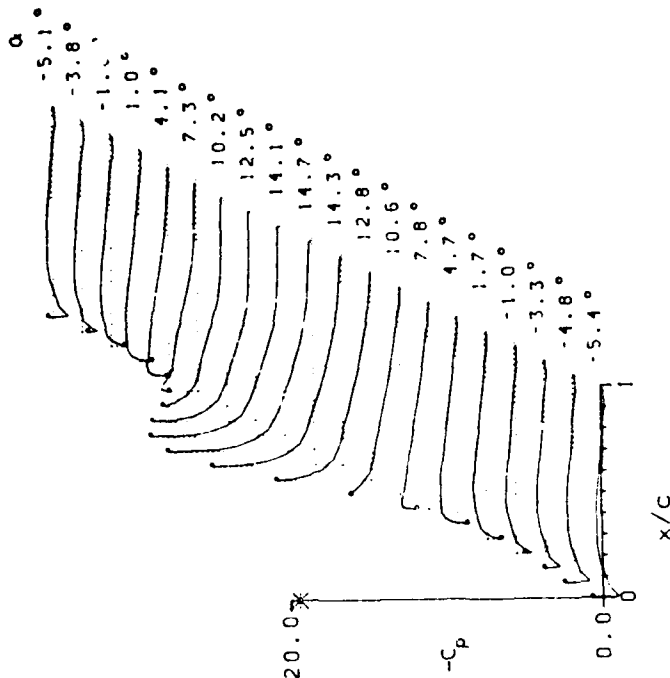
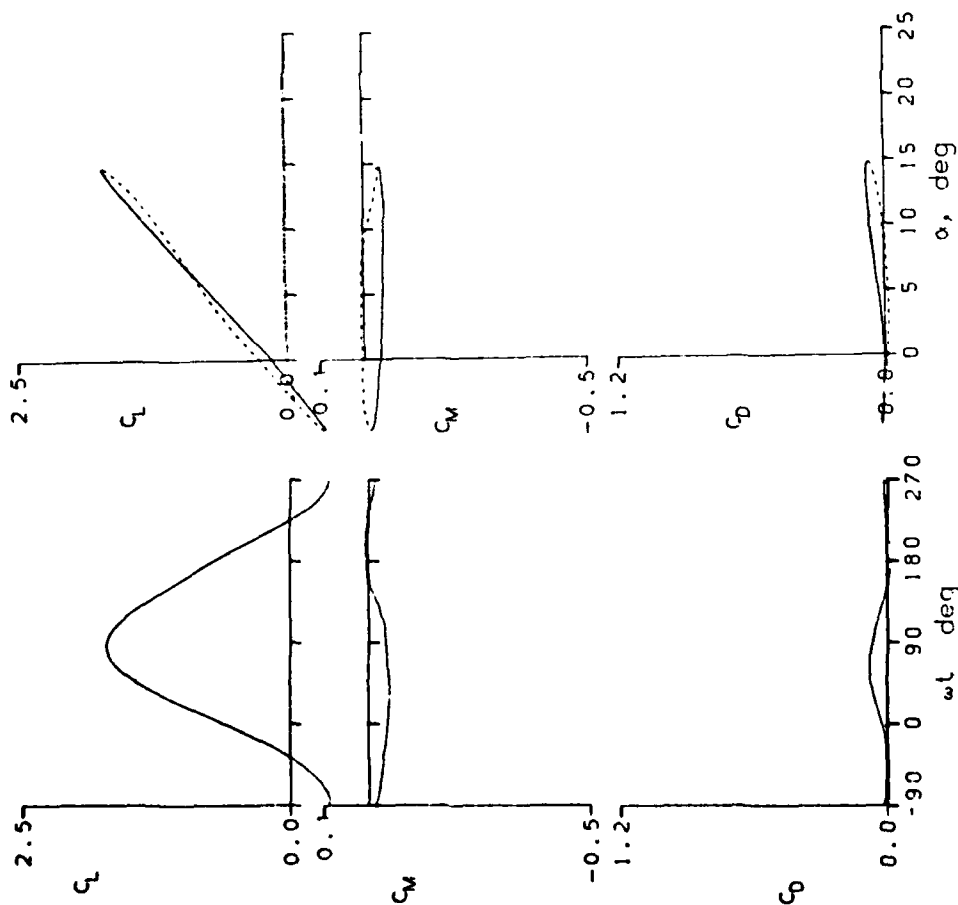


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 49307 $A_0 = 4.53^\circ$ $k = 0.201$
 $Re = 2.55 \text{ E}6$ $A_1 = 10.05^\circ$ $M = 0.185$
 $C_{Lmax} = 1.71$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.11$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.578$ $M_{max} = 0.640$
 $\alpha_{Cmin} = 4.1^\circ$ $-C_{Pmax} = 9.3$ $\alpha_{Mmax} = 14.6^\circ$

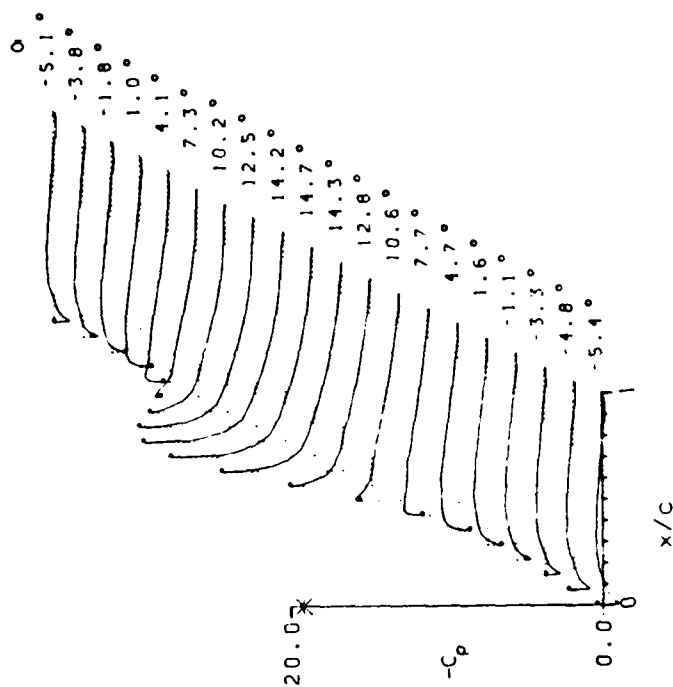
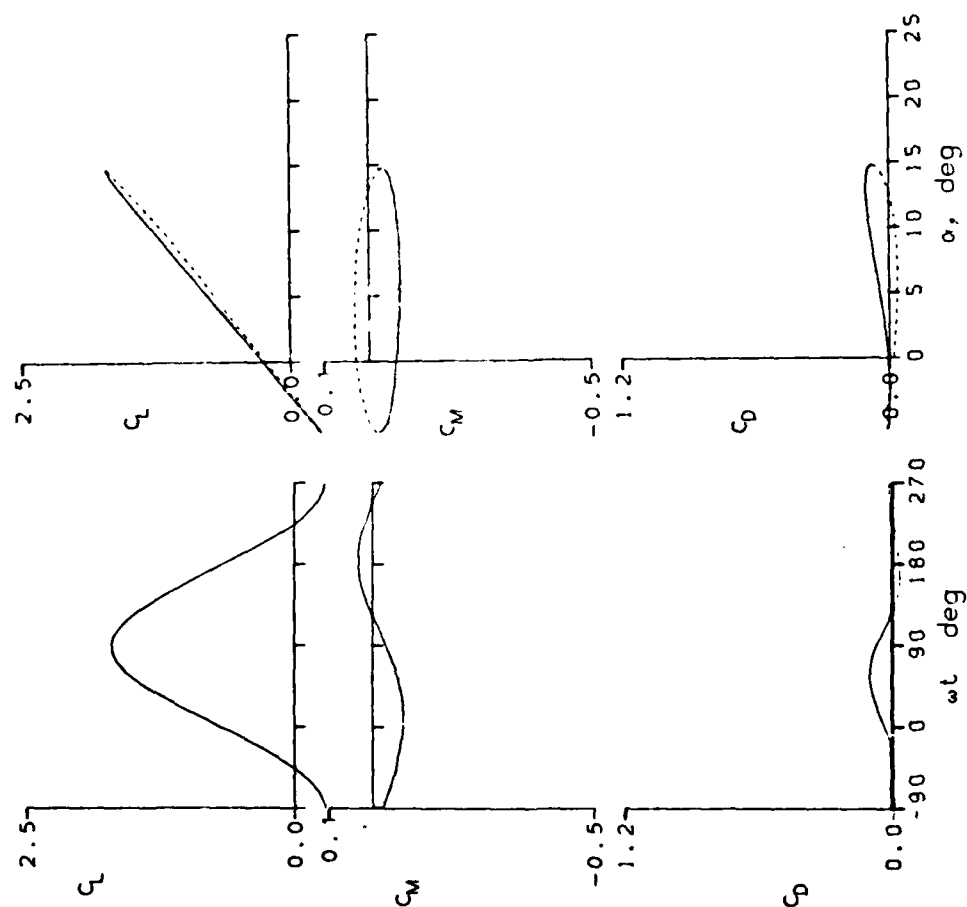


Figure 17.- Continued.

BOEING-VERVOL VR-7 - WITH TAB- AIRFOIL
 FRAME : 4931C $A_0 = 4.54^\circ$ $k = 0.250$
 $Re = 2.54 \text{ E}6$ $A' = 10.05^\circ M$ $= 0.185$
 $C_{Lmax} = 1.72$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.12$
 $\alpha_{Lmax} = 14.7^\circ$ $\zeta = 0.754$ $M_{max} = 0.643$
 $\alpha_{Cmin} = 4.3^\circ$ $-C_{Dmax} = 9.4$ $\alpha_{Mmax} = 14.3^\circ$

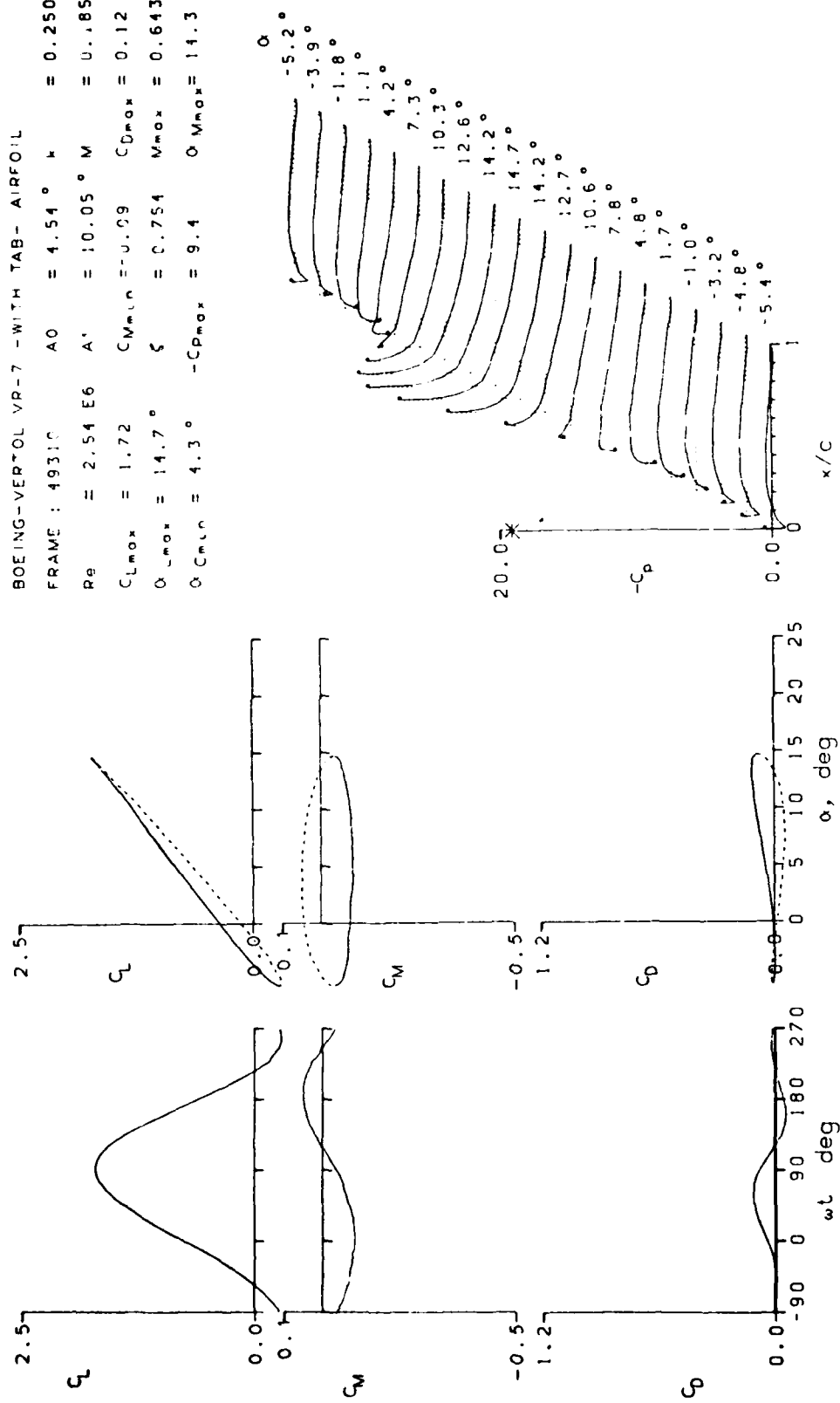


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 50116 A0 = 4.55° k = 0.010
 Re = 2.53 E6 A1 = 10.05° M = 0.183
 CLmax = 1.56 CMmin = -0.07 CDmax = 0.11
 αLmax = 13.4° ξ = 0.023 Mmax = 0.560
 αCMmin = 4.1° -CDmax = 7.4 αMmax = 13.7°

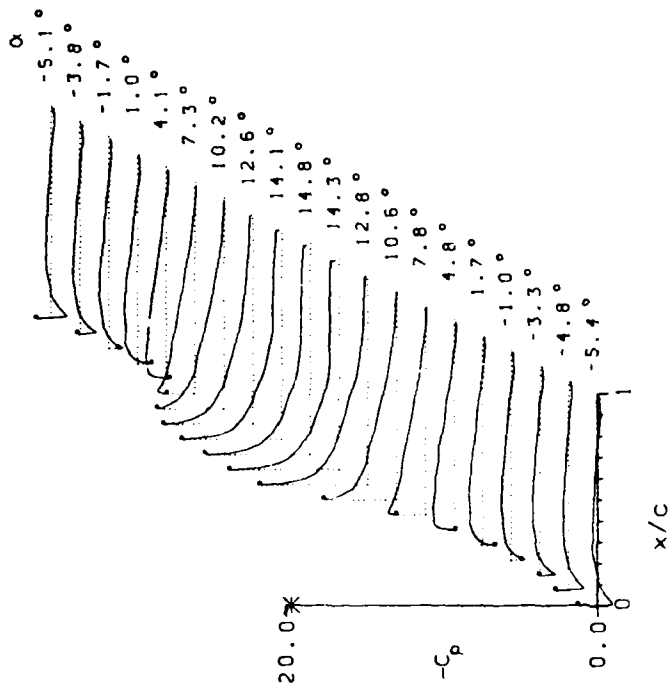
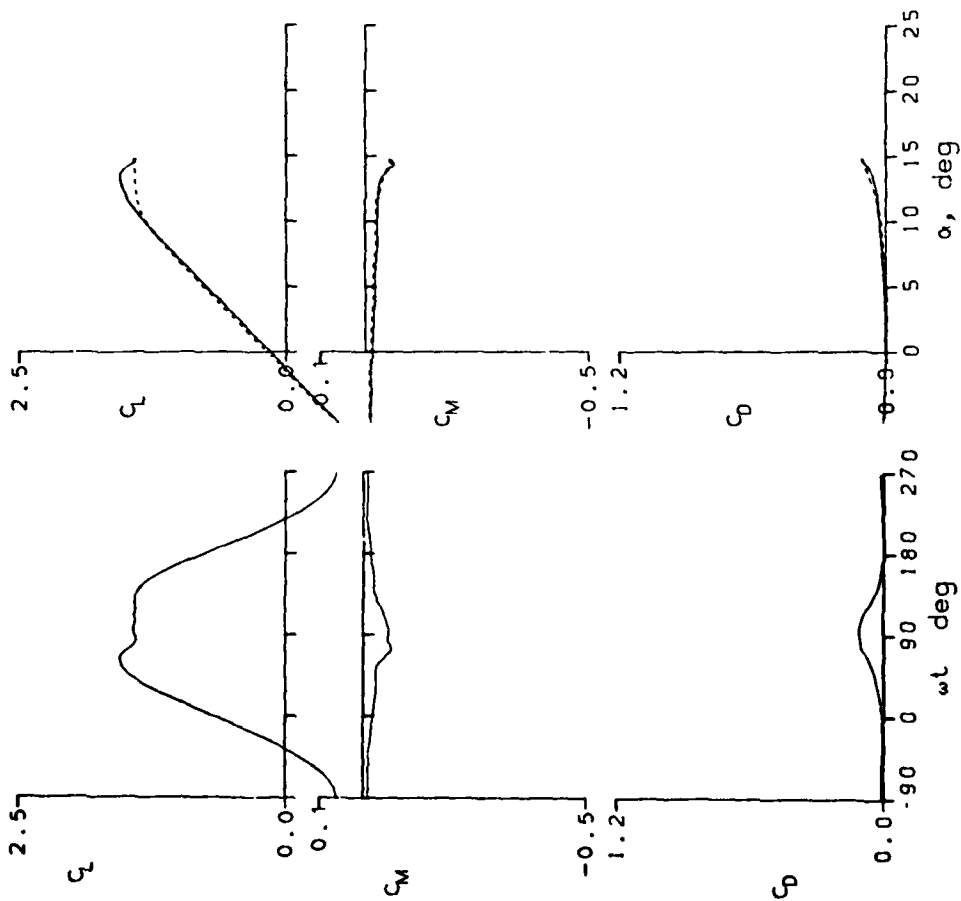


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 54019	A0 = 9.82°	k = 0.026
Re = 2.63 E6	A1 = 9.90°	M = 0.183
CLmax = 1.74	CMmin = -0.18	CDmax = 0.28
αLmax = 15.3°	ξ = 0.146	Mmax = 0.669
αCMmin = 9.3°	-CDmax = 10.3	αMmax = 16.1°

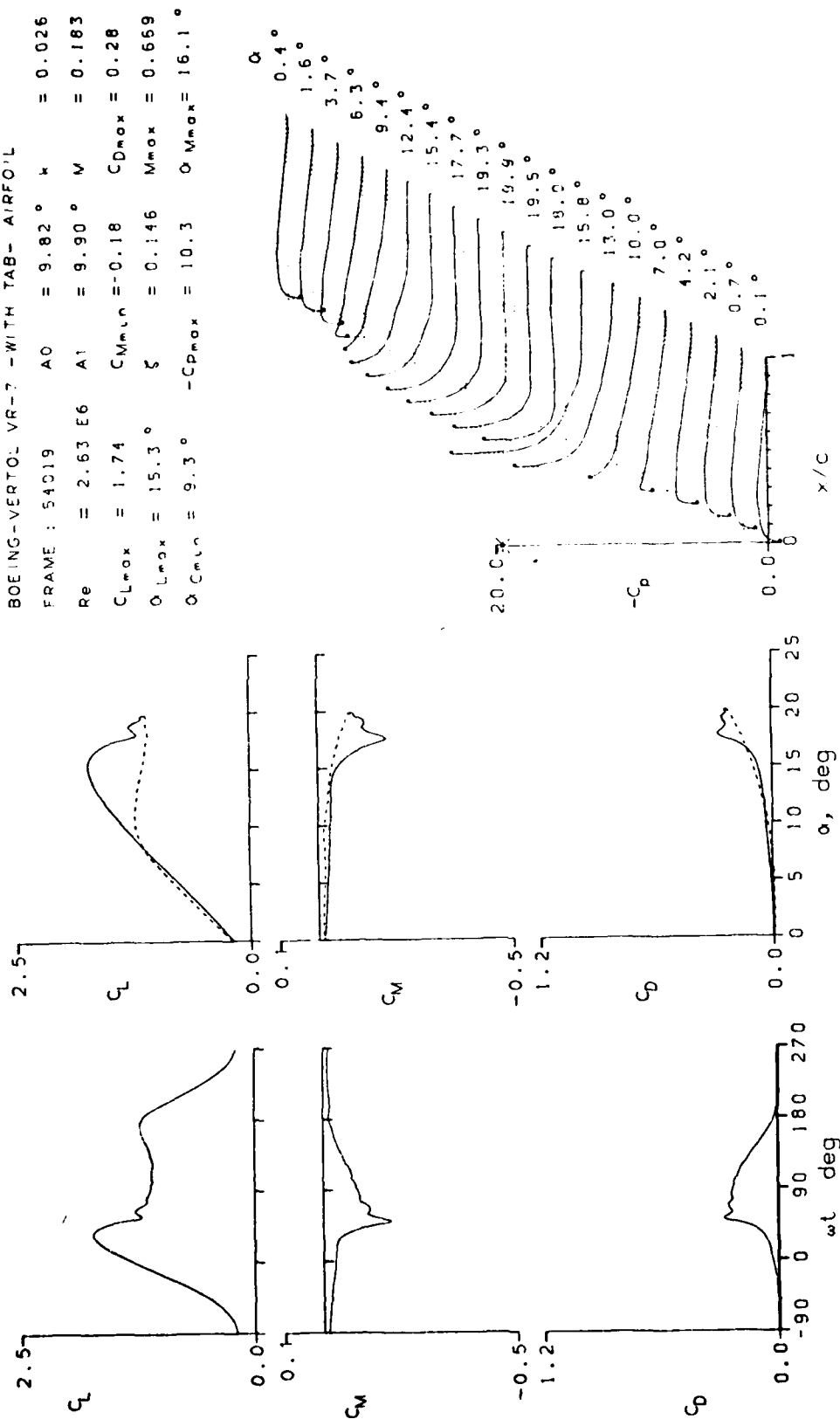


Figure 17.- Continued.

BOEING VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 54022 A0 = 9.83° k = 0.051
 Re = 2.62 E6 A1 = 9.90° M = 0.183
 CLmax = 1.90 CMmin = -0.28 CDmax = 0.48
 αLmax = 17.1° ζ = 0.244 Mmax = 0.754
 αCMmin = 9.3° -CDmax = 12.7 αMmax = 17.9°

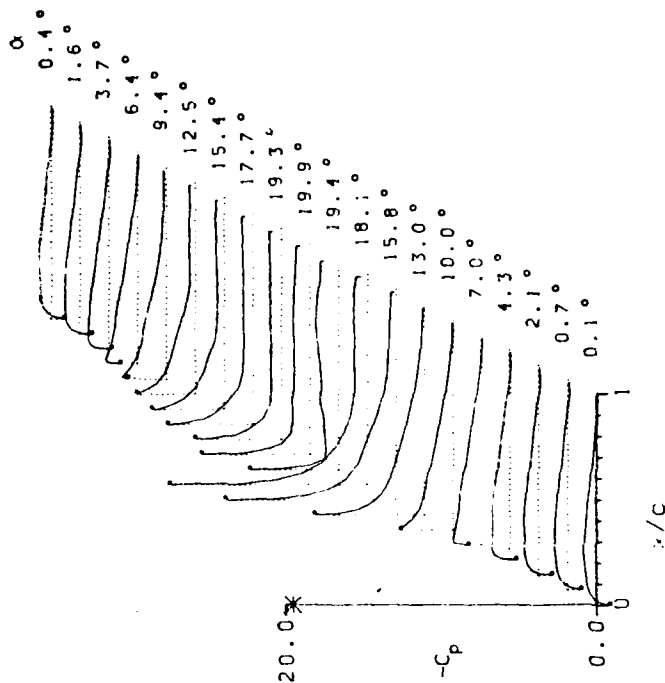
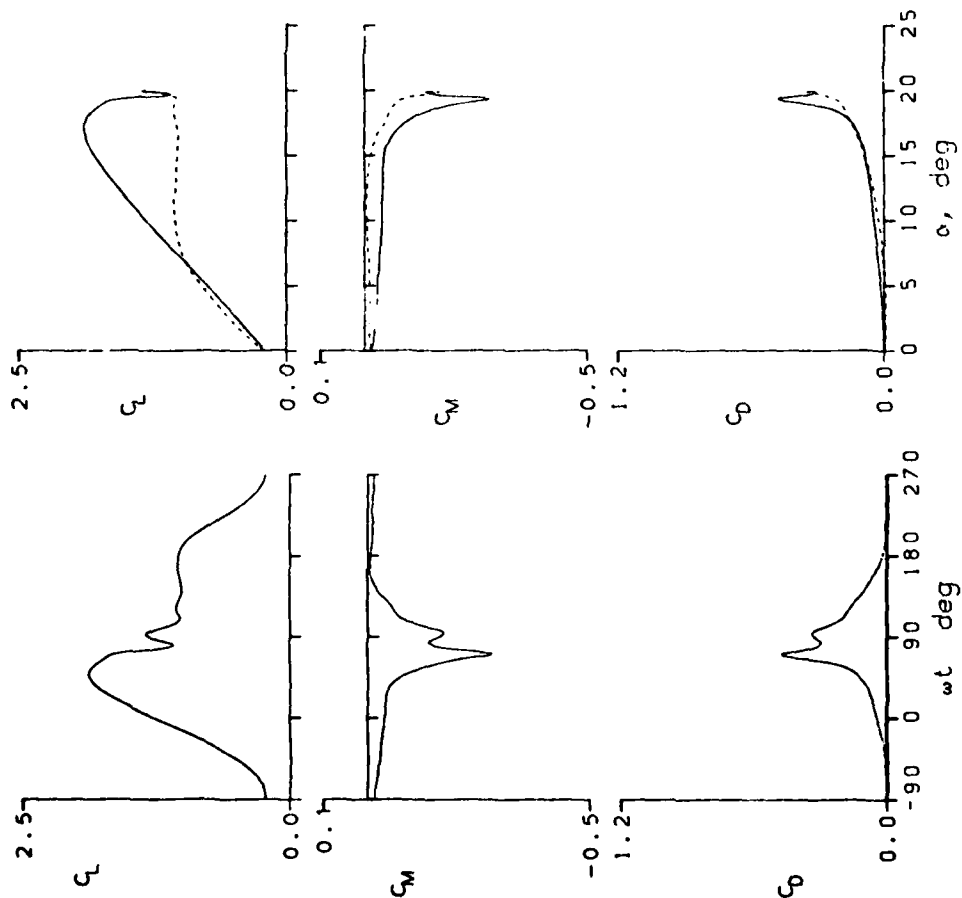


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 54101 $A_0 = 9.83^\circ$ $k = 0.102$

$Re = 2.5 \times 10^6$ $A_1 = 9.90^\circ$ $M = 0.183$

$C_{Lmax} = 2.11$ $C_{Mmin} = -0.29$ $C_{Dmax} = 0.54$

$\alpha_{Lmax} = 19.0^\circ$ $\xi = 0.154$ $M_{max} = 0.867$

$\alpha_{Cmin} = 9.4^\circ$ $-C_{Dmax} = 15.9$ $\alpha_{Mmax} = 19.4^\circ$

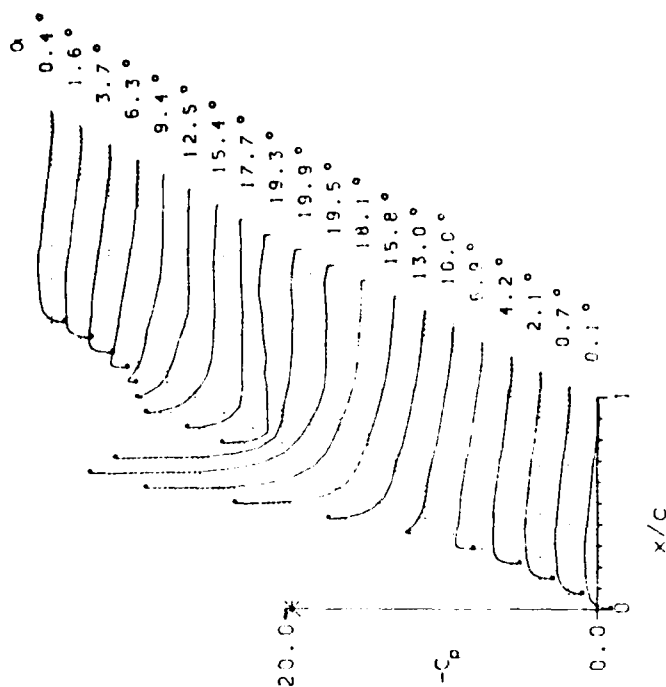
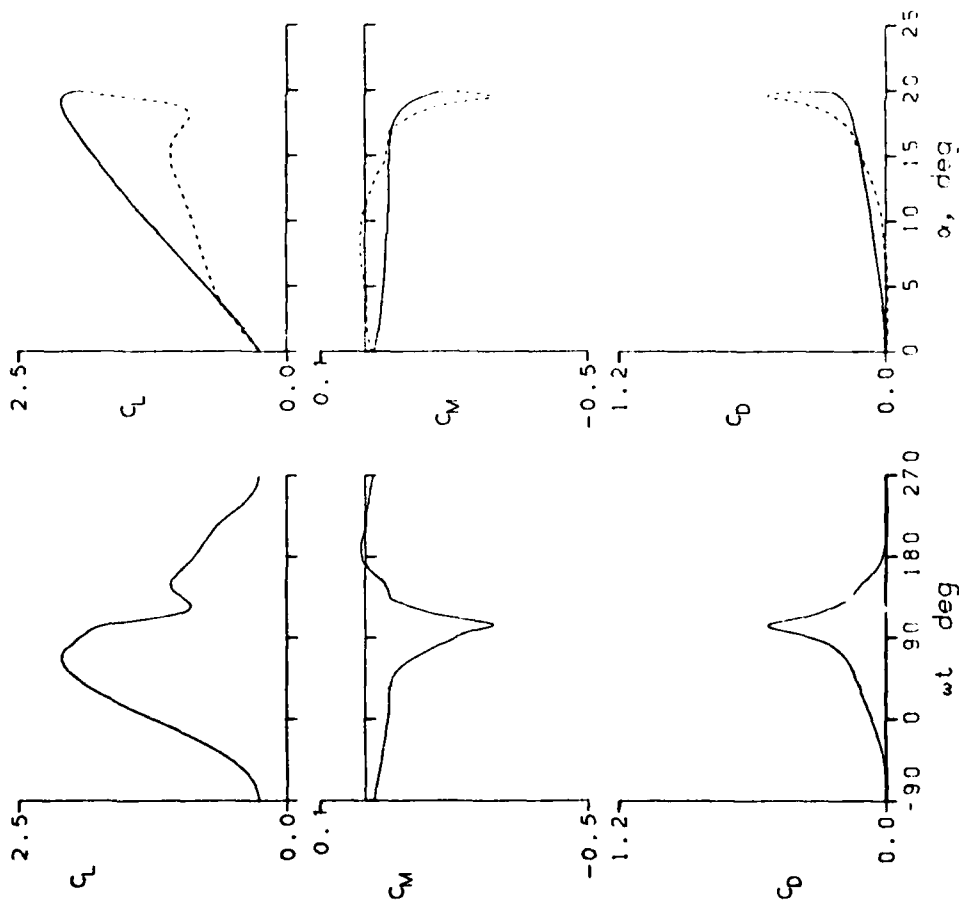


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 54110	A0 = 9.82°	k = 0.153
Re = 2.60 E6	A1 = 9.91°	M = 0.184
CLmax = 2.19	CMmin = -0.24	CDmax = 0.39
α Lmax = 19.7°	ξ = 0.092	Mmax = 0.923
α Cmin = 9.3°	-CPmax = 17.4	α Mmax = 19.9°

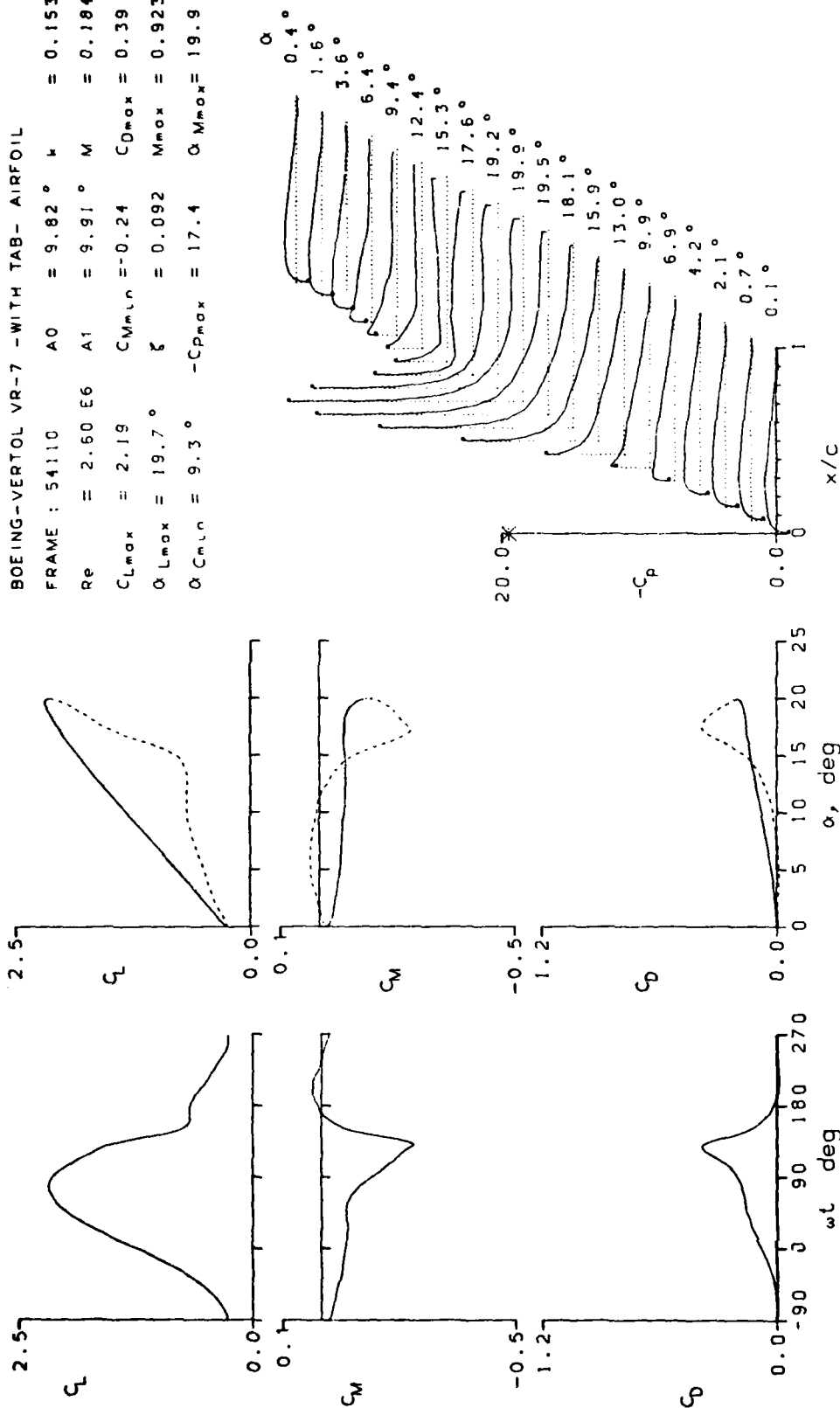


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 54113 $A_0 = 9.81^\circ$ $k = 0.203$
 $Re = 2.59 \text{ E}6$ $A_1 = 9.91^\circ$ $M = 0.184$
 $CL_{max} = 2.24$ $CM_{min} = -3.16$ $CD_{max} = 0.20$
 $\alpha_{L_{max}} = 19.8^\circ$ $\xi = 0.177$ $M_{max} = 0.950$
 $\alpha_{C_{min}} = 9.3^\circ$ $-CD_{max} = 18.1$ $\alpha_{M_{max}} = 19.9^\circ$

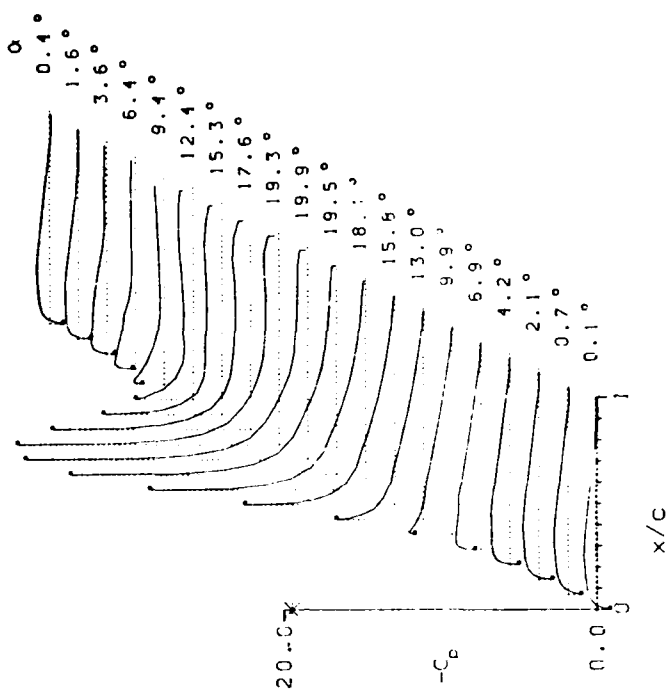
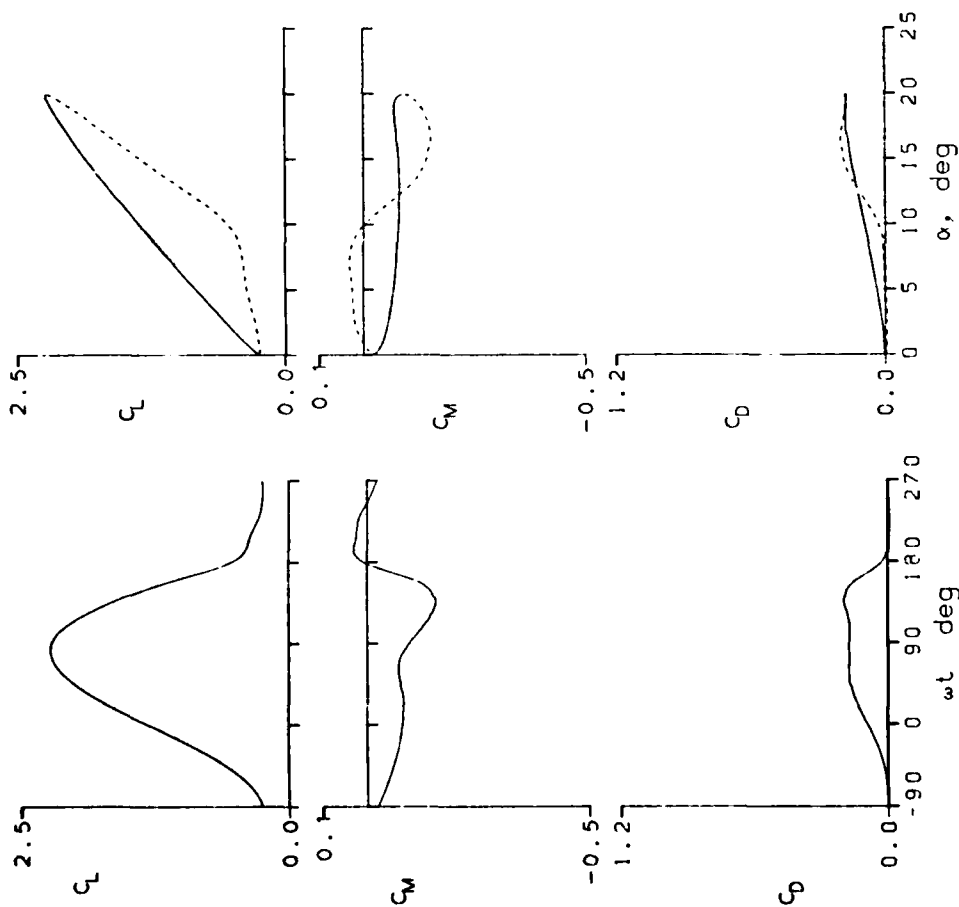


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 54116 A0 = 9.83° μ = 0.254
 Re = 2.58 E6 A1 = 9.90° M = 0.184
 C_{Lmax} = 2.27 C_{Mmin} = -0.11 C_{Dmax} = 0.20
 α_{Lmax} = 19.9° ξ = 0.348 M_{max} = 0.971
 α_{Cmin} = 9.4° $-C_{Dmax}$ = 18.7 α_{Mmax} = 19.8°

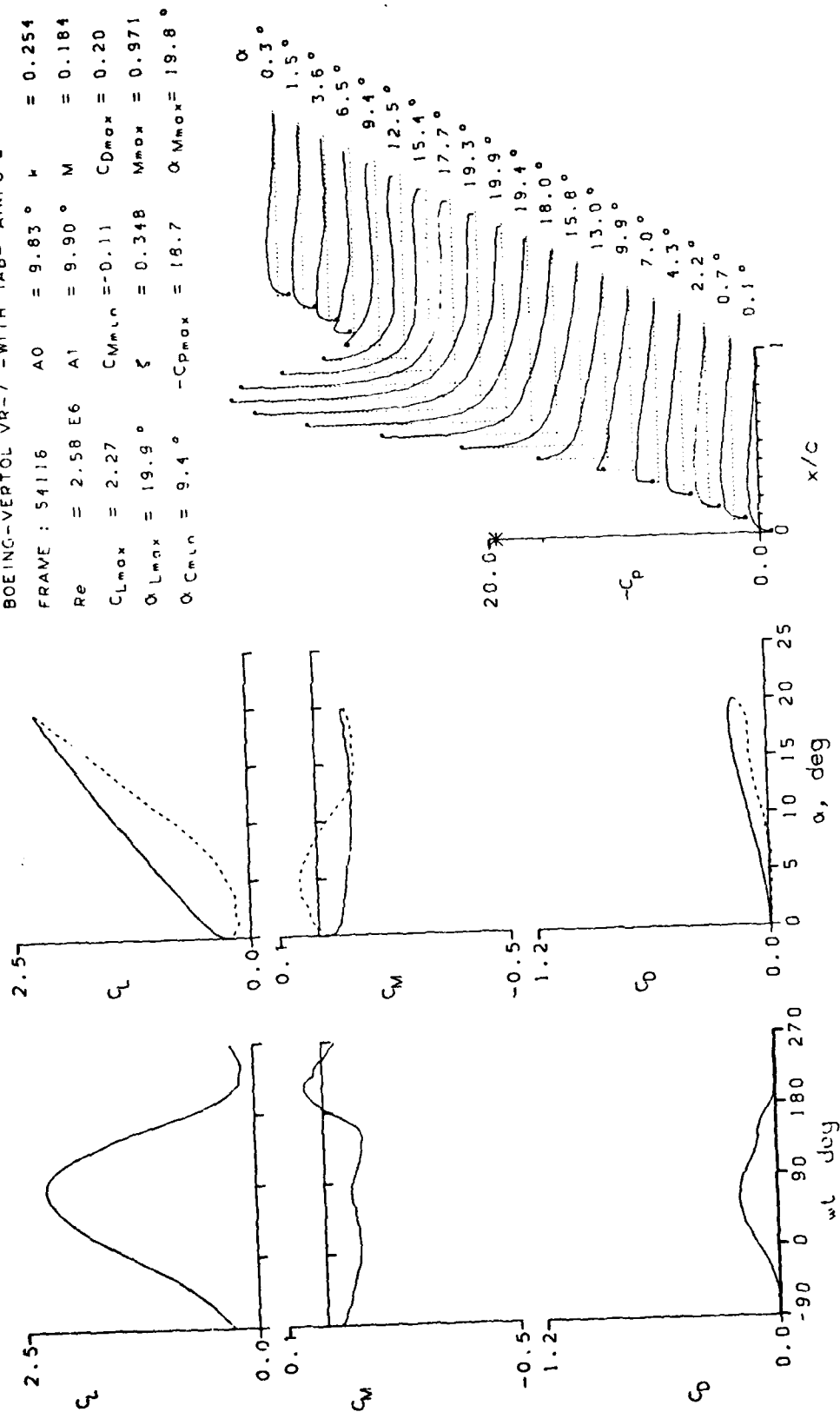


Figure 17.- Continued.

BUFFING-VEPTOL VP-7 -WITH TAB- AIRFOIL
 FRAME : 54216 A0 = 14.78° α = 0.151
 R0 = 2.55 E6 A1 = 9.90° M = 0.184
 C_{Lmax} = 2.66 C_{Mmin} = -0.46 C_{Dmax} = 1.09
 α_{Lmax} = 24.0° ζ = 0.216 M_{max} = 1.048
 α_{Cmin} = 14.2° $-C_{Pmax}$ = 20.7 α_{Mmax} = 23.1°

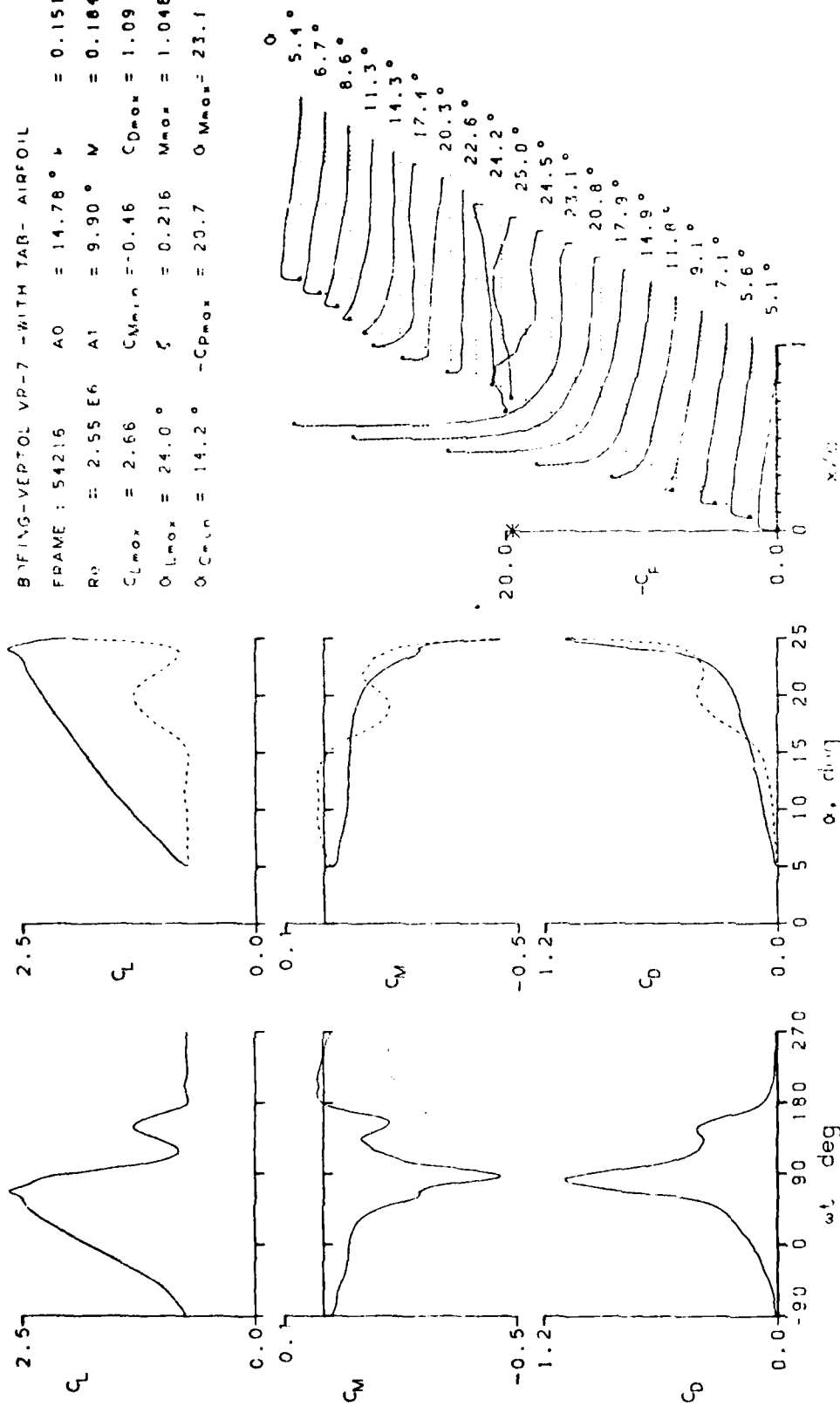


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 57018 $A_0 = 14.77^\circ$ $k = 0.152$
 $Re = 2.56 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.184$
 $C_{Lmax} = 2.67$ $C_{Mmin} = -0.46$ $C_{Dmax} = 1.06$
 $\alpha_{Lmax} = 24.0^\circ$ $\zeta = 0.226$ $M_{max} = 1.056$
 $\alpha_{Cmin} = 14.2^\circ$ $-C_{Dmax} = 20.9$ $\alpha_{Mmax} = 23.2^\circ$

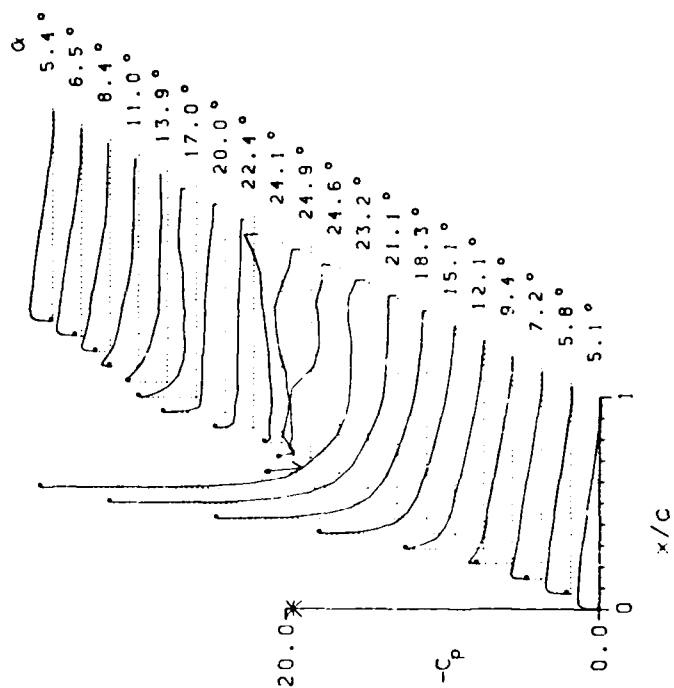
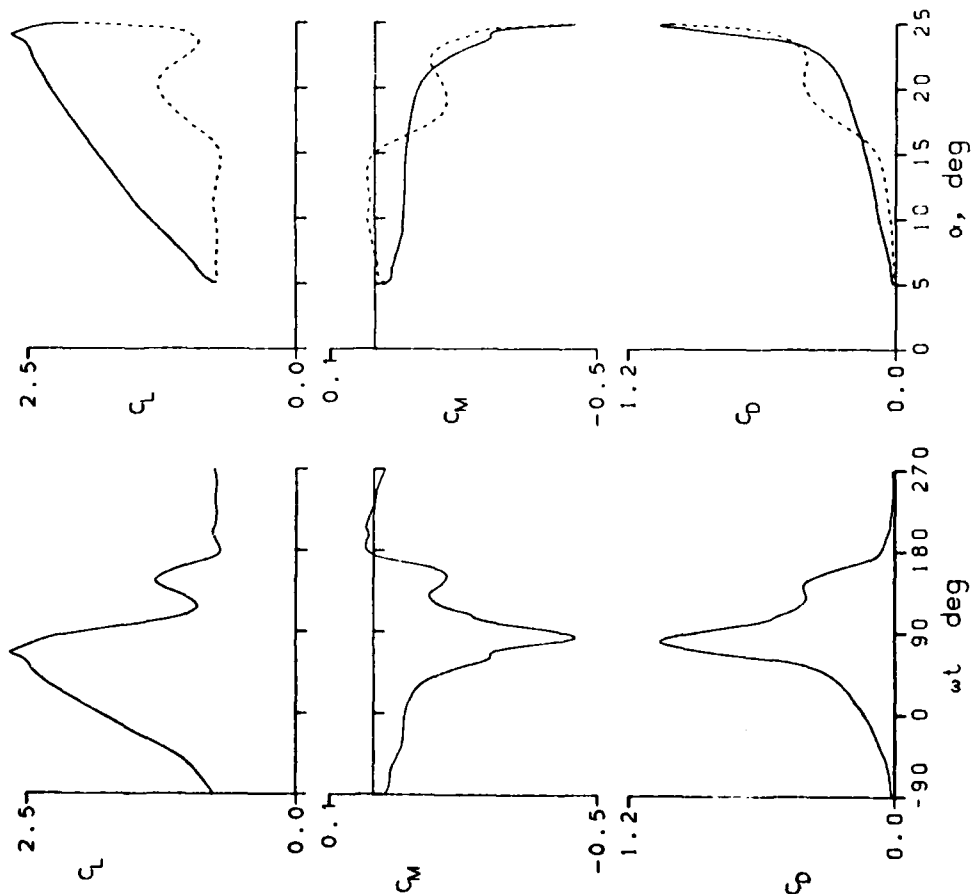


Figure 17.- Continued.

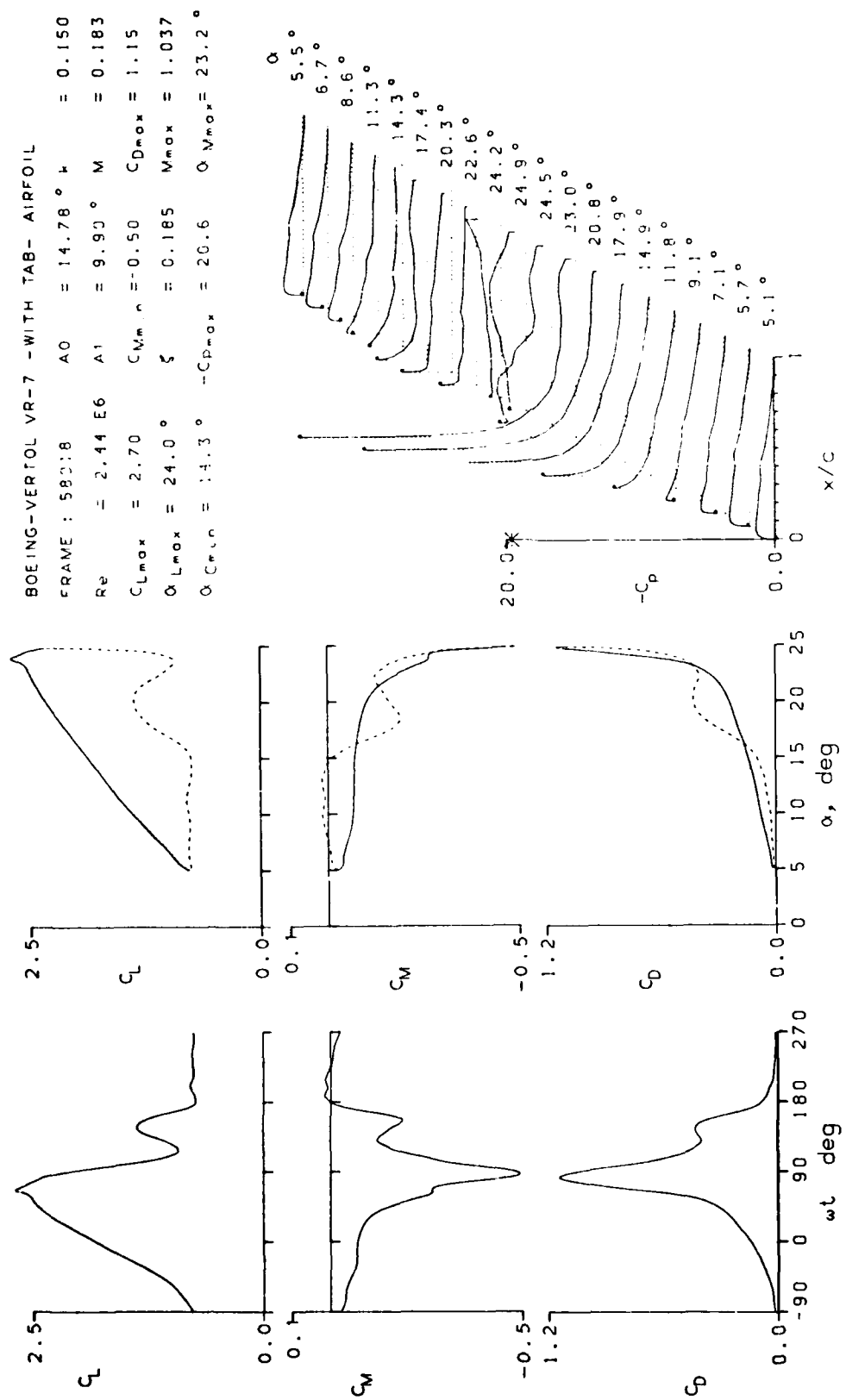


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 58102 $A_0 = 14.78^\circ$ $\mu = 0.098$
 $Re = 0.50 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.037$
 $C_{Lmax} = 2.37$ $C_{Mmin} = -0.41$ $C_{Dmax} = 0.98$
 $\alpha_{Lmax} = 20.8^\circ$ $\zeta = 0.529$ $M_{max} = 0.134$
 $\alpha_{Cmin} = 14.2^\circ$ $-C_{Dmax} = 12.2$ $\alpha_{Mmax} = 19.7^\circ$

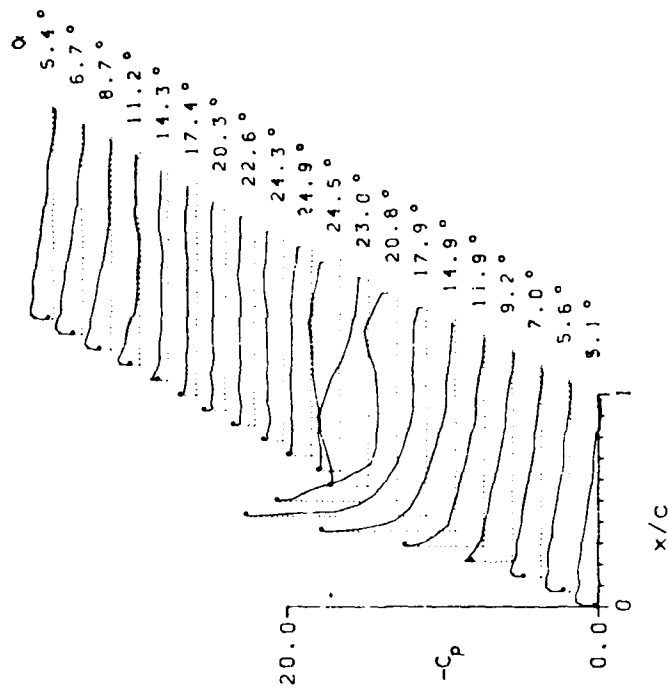
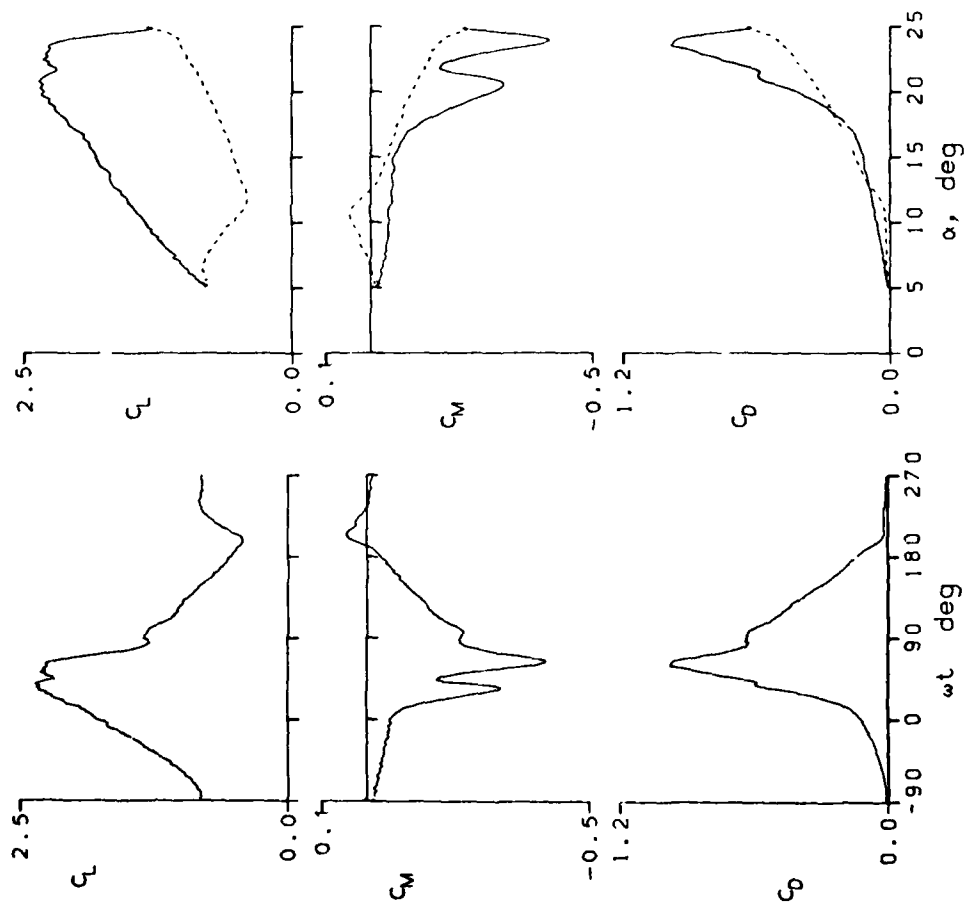


Figure 17.- Continued.

BOEING-VERTOL VR-7 - WITH TAB - AIRFOIL

FRAME : 58111 $A_0 = 14.78^\circ$ $\mu = 0.101$

$Re = 1.53 \text{ E}6$ $A_1 = 5.90^\circ$ $M = 0.109$

$C_{Lmax} = 2.44$ $C_{Mmin} = -0.41$ $C_{Dmax} = 0.95$

$\alpha_{Lmax} = 22.6^\circ$ $\xi = 0.498$ $M_{max} = 0.480$

$\alpha_{Cmin} = 14.2^\circ$ $-C_{Dmax} = 16.7$ $\alpha_{Mmax} = 21.1^\circ$

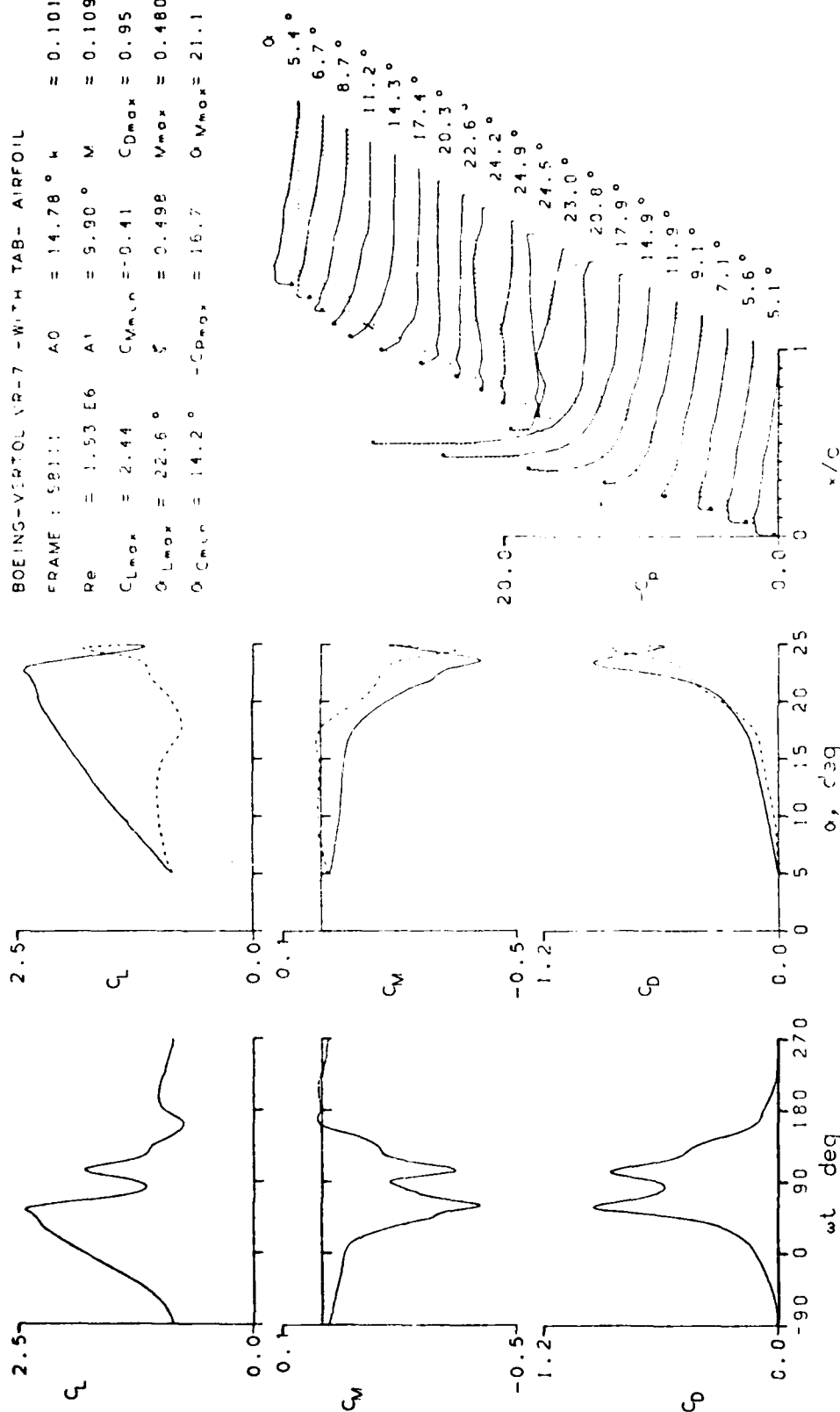


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 58120	A0 = 14.78°	k = 0.151
Re = 2.54 E6	A1 = 9.90°	M = 0.184
$C_{Lmax} = 2.77$	$C_{Mmin} = -0.16$	$C_{Dmax} = 1.13$
$\alpha_{Lmax} = 24.1°$	$\zeta = 0.224$	$M_{max} = 1.371$
$\alpha_{Cmin} = 14.3°$	$-C_{pmax} = 21.2$	$\alpha_{Mmax} = 23.2°$

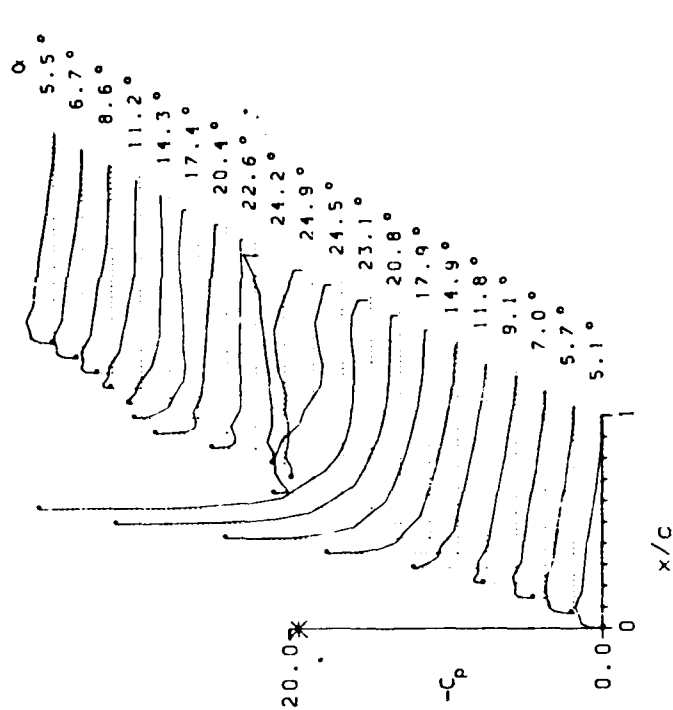
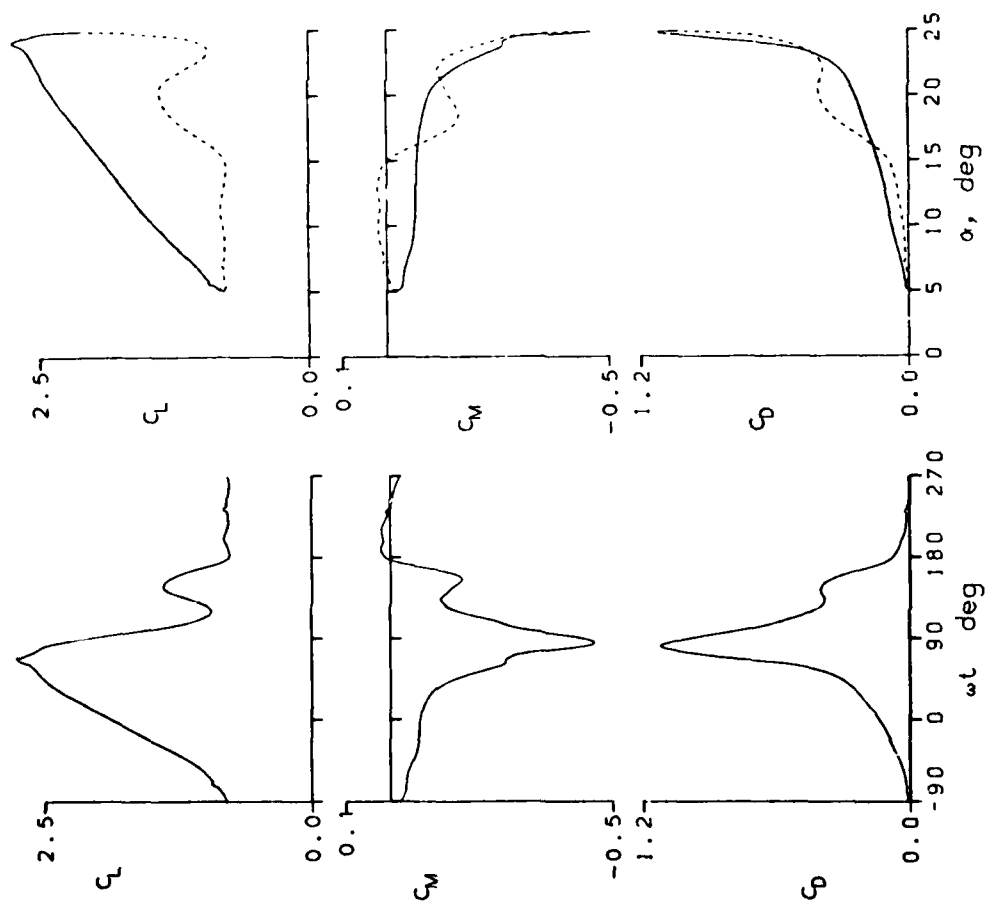


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL
 FRAME : 58121 AC = 14.79° k = 0.101
 Re = 2.53 E6 A1 = 9.90° M = 0.184
 C_{Lmax} = 2.43 C_{Mmin} = -0.42 C_{Dmax} = 0.98
 α_{Lmax} = 23.1° ζ = 0.391 M_{max} = 0.962
 α_{Cmin} = 14.3° -C_{Dmax} = 18.4 α_{Mmax} = 21.8°

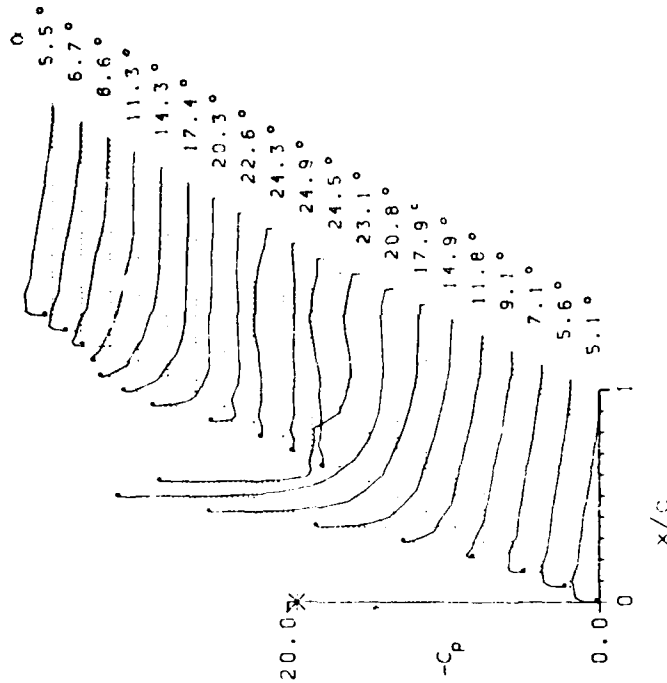
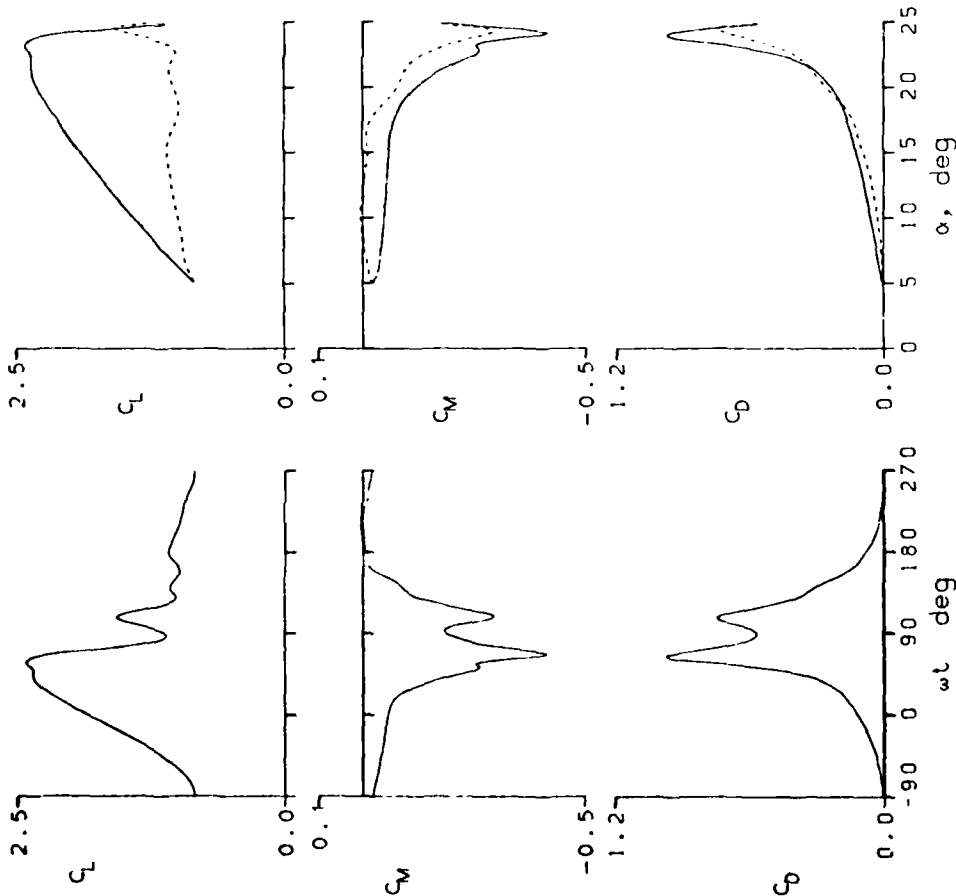


Figure 17.- Continued.

BOEING-VERTOL VR-7 -WITH TAB- AIRFOIL

FRAME : 48200 $A_0 = 12.99^\circ$ $k = 0.201$

$Re = 4.06 \text{ E}6$ $A_1 = 2.00^\circ$ $M = 0.301$

$C_{Lmax} = 1.80$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.10$

$\alpha_{Lmax} = 14.9^\circ$ $\xi = -0.867$ $M_{max} = 1.316$

$\alpha_{Cmin} = 12.9^\circ$ $-C_{Dmax} = 9.9$ $\alpha_{Mmax} = 15.0^\circ$

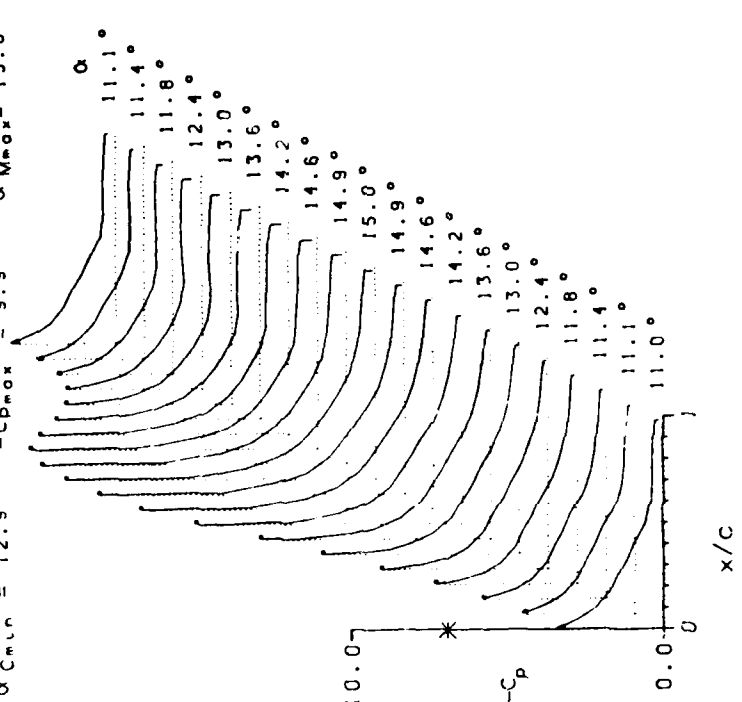
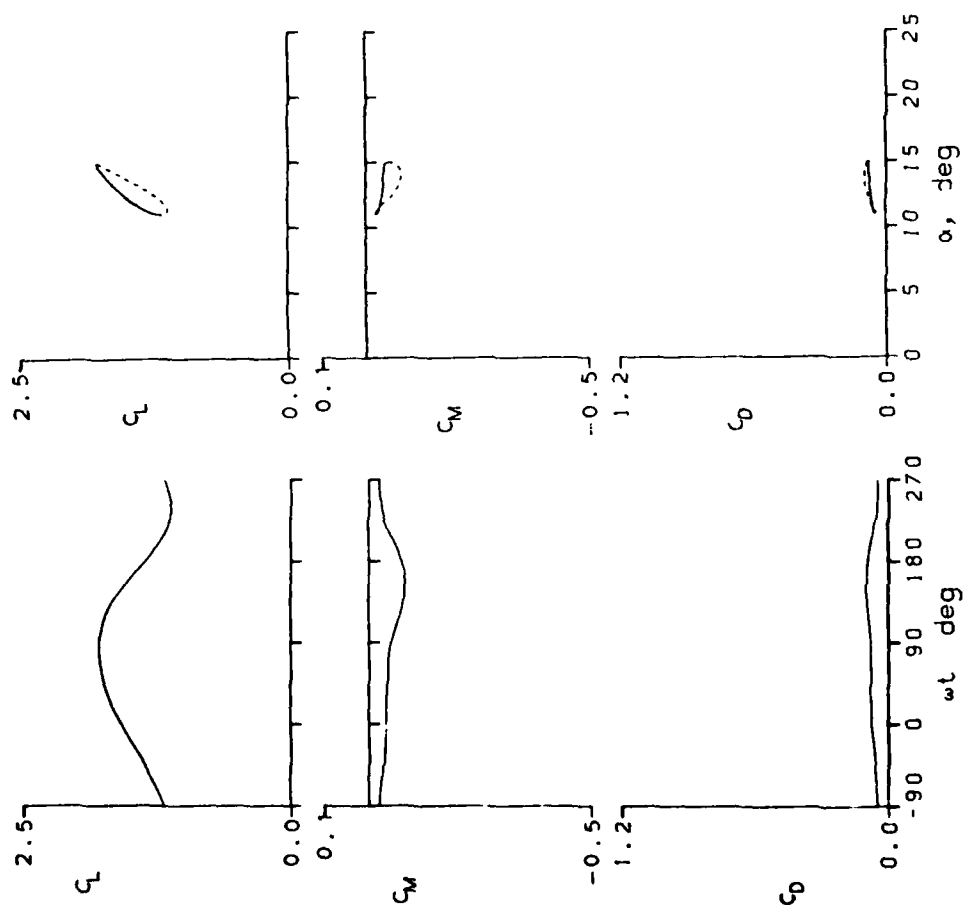


Figure 17.- Concluded.

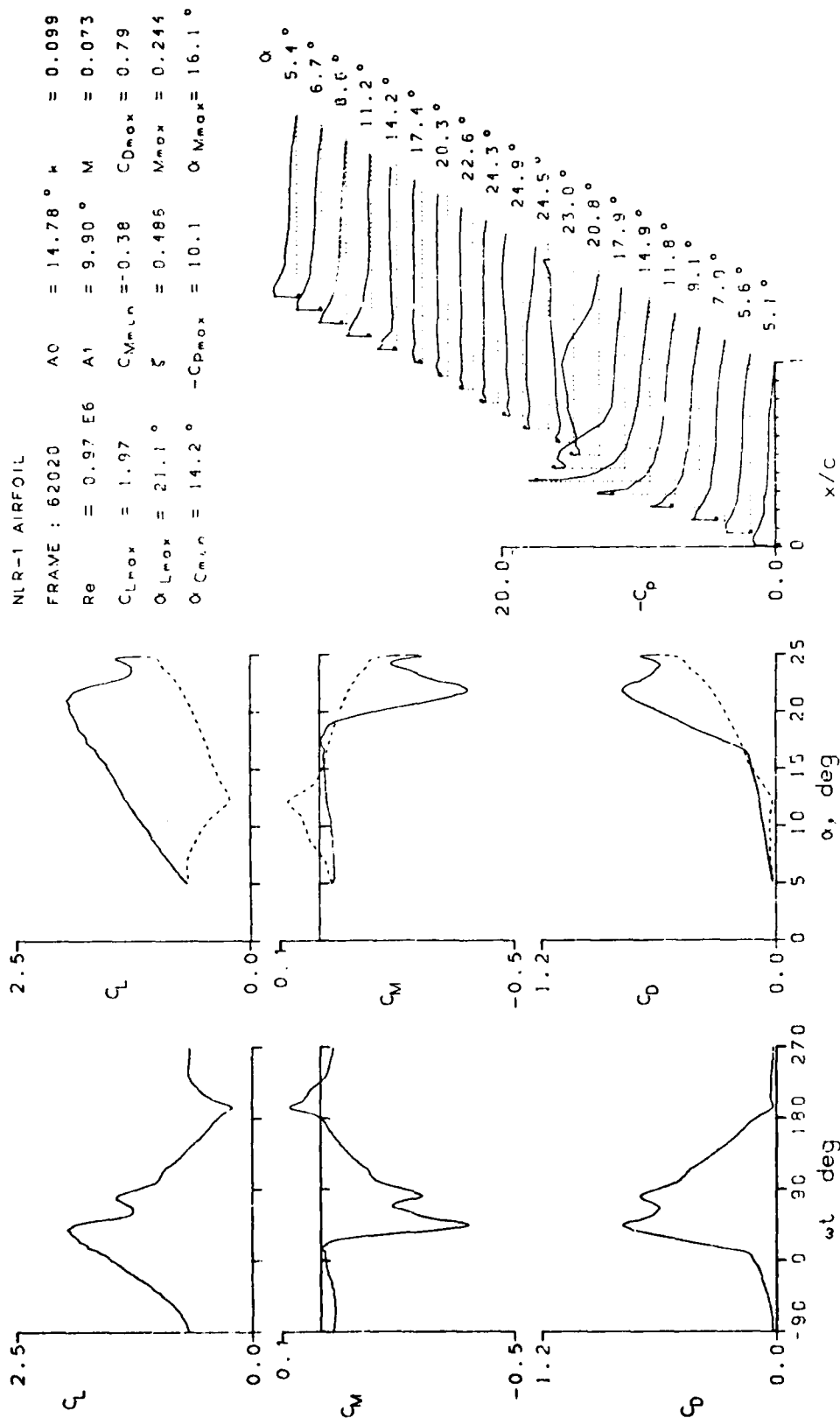


Figure 18.- Dynamic data for NLR-1 airfoil.

NLR-1 AIRFOIL

FRAME : 62104	A0 = 14.78 °	k = 0.099
Re = 1.45 E6	A1 = 9.30 °	M = 0.109
CLmax = 2.25	CMmin = -0.44	CDmax = 0.94
αLmax = 22.2 °	ξ = 0.388	Mmax = 0.450
αCMmin = 14.2 °	-CPmax = 14.7	αMmax = 18.5 °

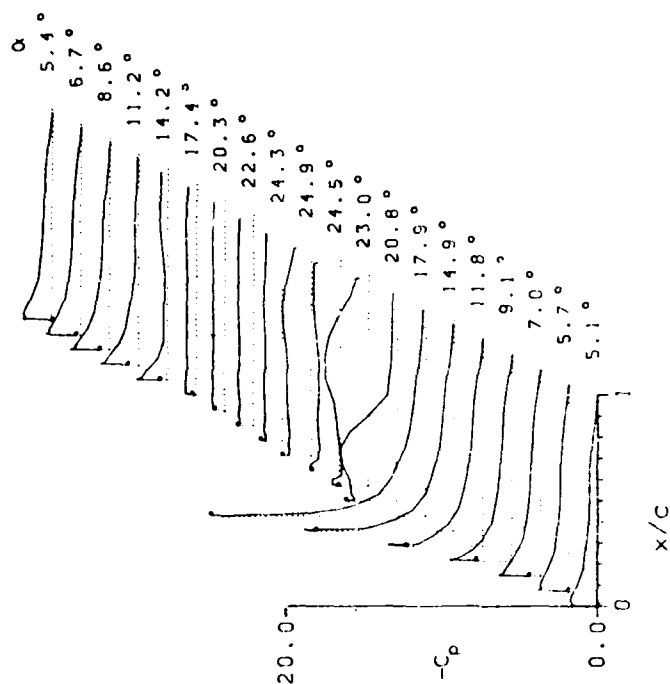
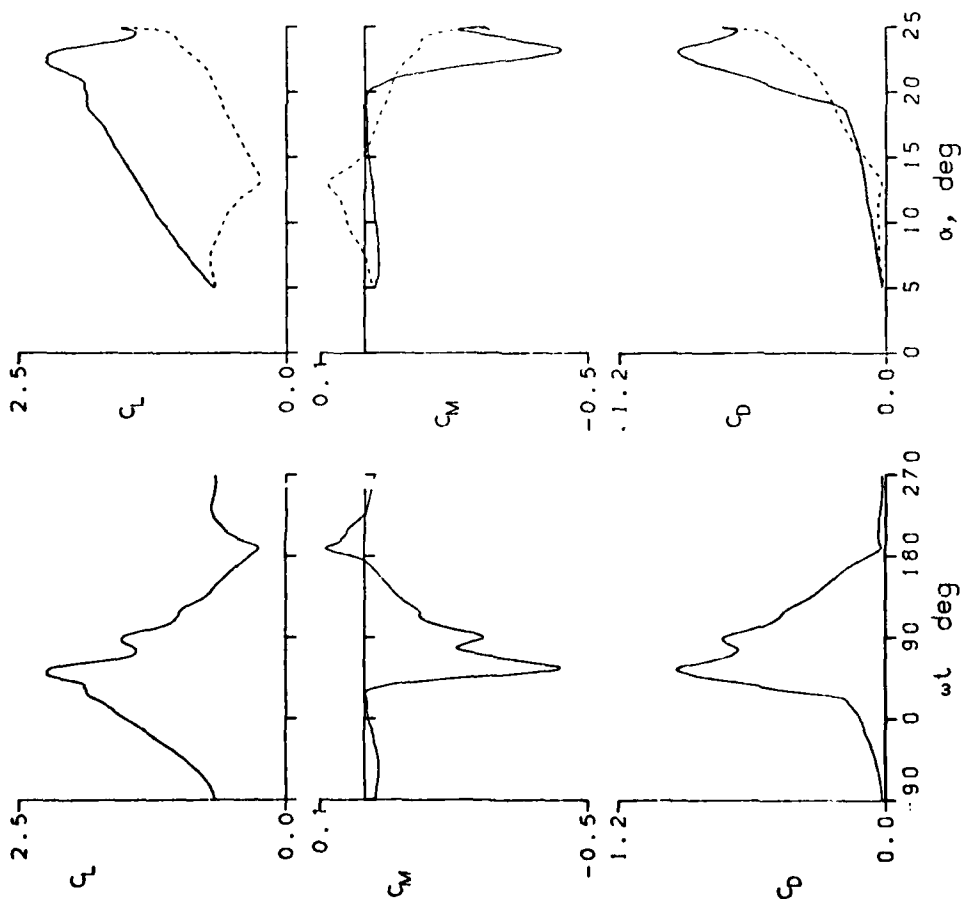


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62112 $A_0 = 14.79^\circ$ $k = 0.100$
 $Re = 2.51 E6$ $A_1 = 9.90^\circ$ $M = 0.184$
 $C_{Lmax} = 2.43$ $C_{Mmin} = -0.42$ $C_{Dmax} = 0.95$
 $\alpha_{Lmax} = 22.5^\circ$ $\xi = 0.344$ $M_{max} = 0.841$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Pmax} = 15.0$ $\alpha_{Mmax} = 18.8^\circ$

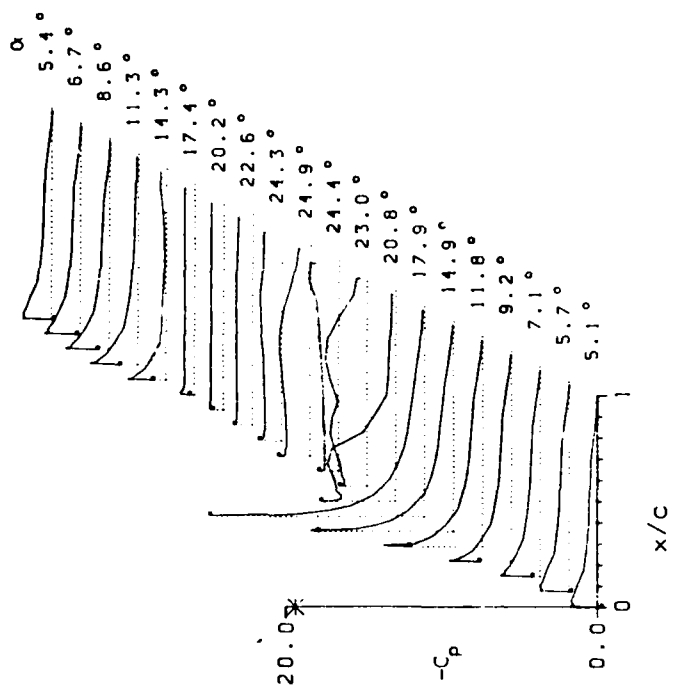
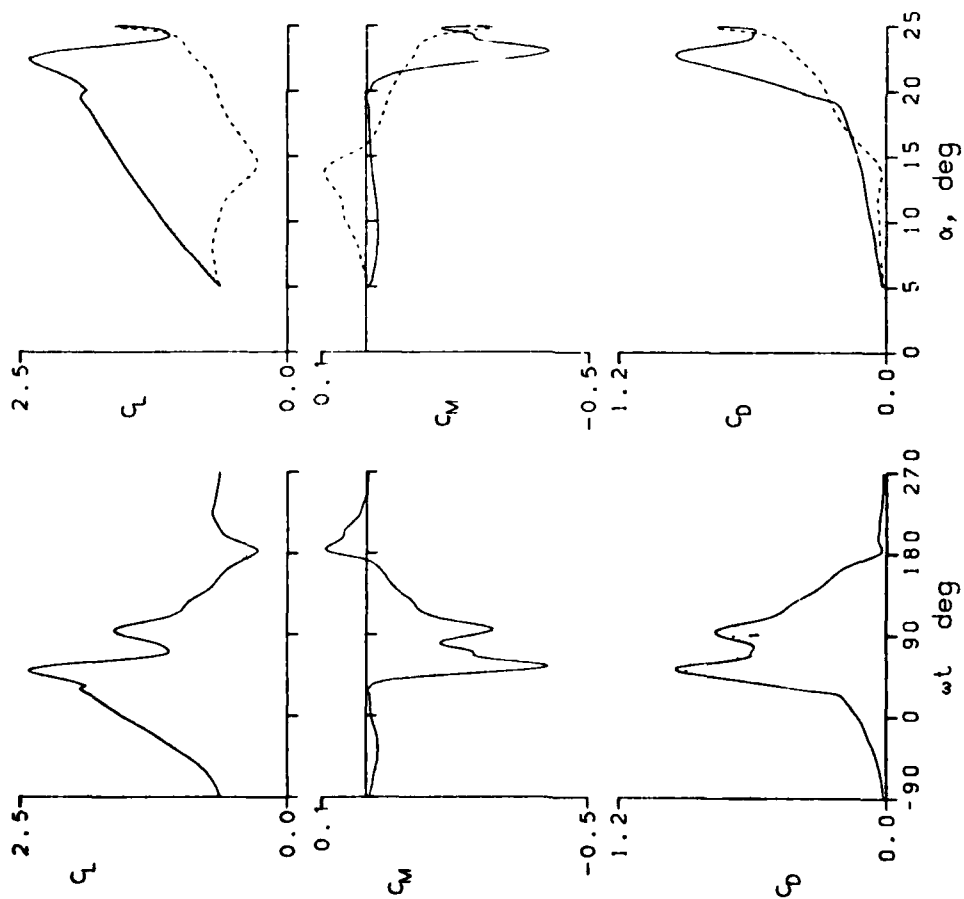


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 52114	AO = 14.79°	k = 0.100
Re = 2.70 E6	A1 = 9.90°	M = 0.199
C _{Lmax} = 2.41	C _{Mmin} = -0.43	C _{Dmax} = 0.93
α _{Lmax} = 21.8°	ζ = 0.427	M _{max} = 0.856
α _{Cmin} = 14.3°	-C _{pmax} = 13.1	α _{Mmax} = 17.9°

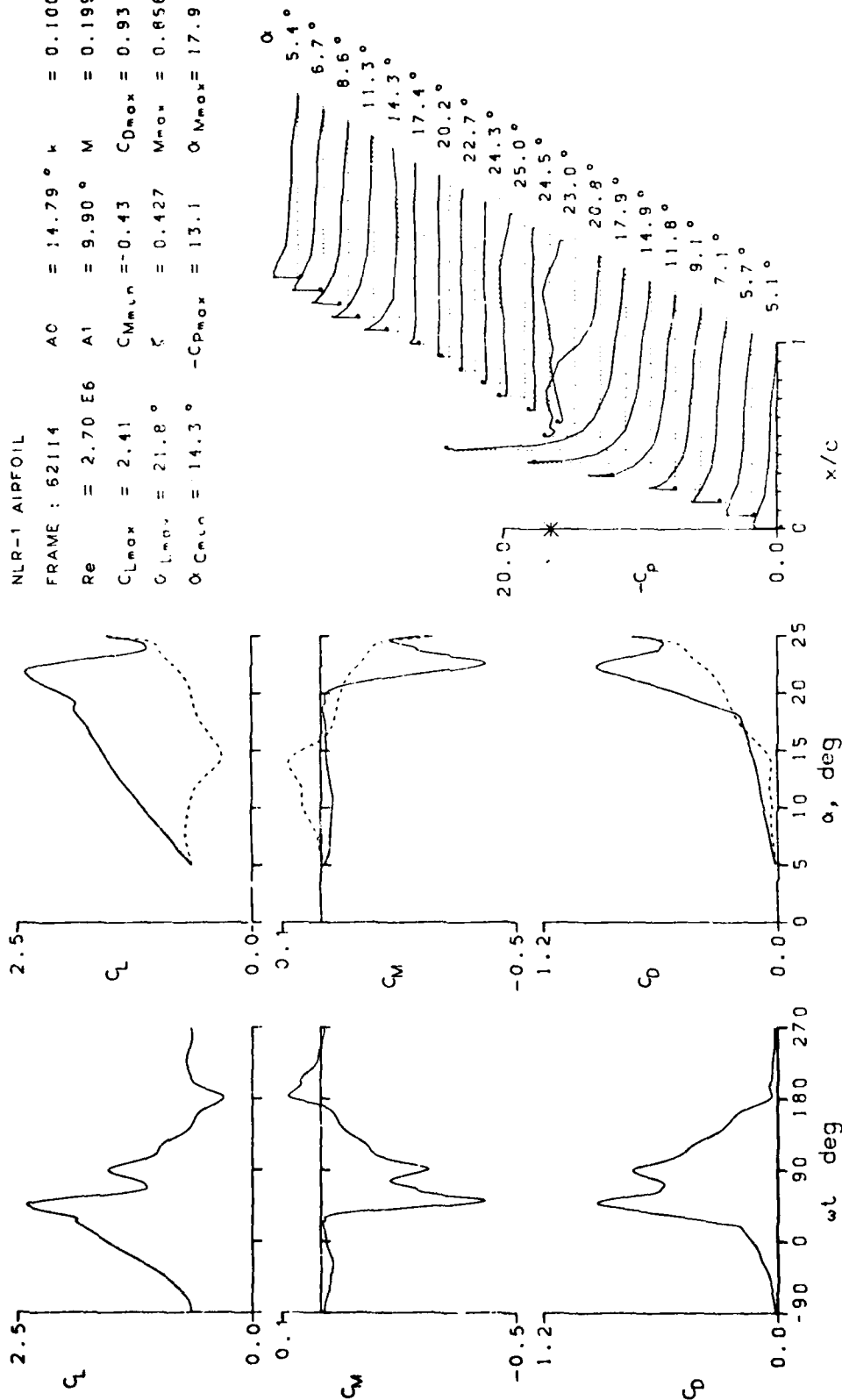


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 52121 $A_0 = 9.83^\circ$ $\mu = 0.171$
 $Re = 2.56 E6$ $A_1 = 9.91^\circ$ $M = 0.200$
 $C_{Lmax} = 2.26$ $C_{Mmin} = -0.35$ $C_{Dmax} = 0.72$
 $\alpha_{Lmax} = 19.9^\circ$ $\xi = 0.034$ $M_{max} = 0.855$
 $\alpha_{Cmin} = 9.4^\circ$ $-C_{Dmax} = 13.0$ $\alpha_{Mmax} = 18.3^\circ$

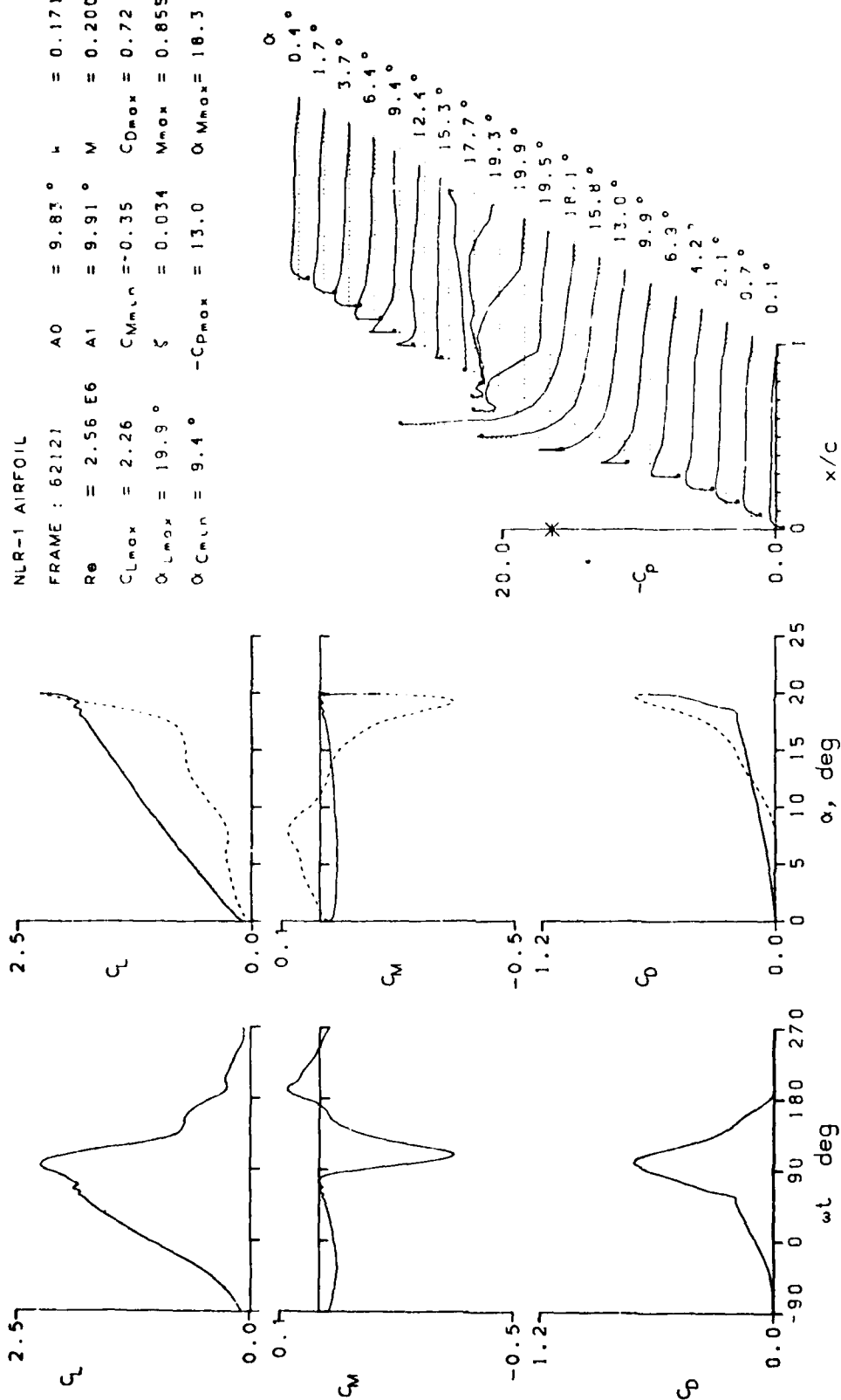


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62201 $A_0 = 14.95^\circ$ $\mu = 0.283$
 $Re = 2.54 E6$ $A_1 = 4.90^\circ$ $M = 0.200$
 $C_{Lmax} = 2.27$ $C_{Mmin} = -0.36$ $C_{Dmax} = 0.72$
 $\alpha_{Lmax} = 19.8^\circ$ $\zeta = -1.213$ $M_{max} = 0.854$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 12.9$ $\alpha_{Mmax} = 18.2^\circ$

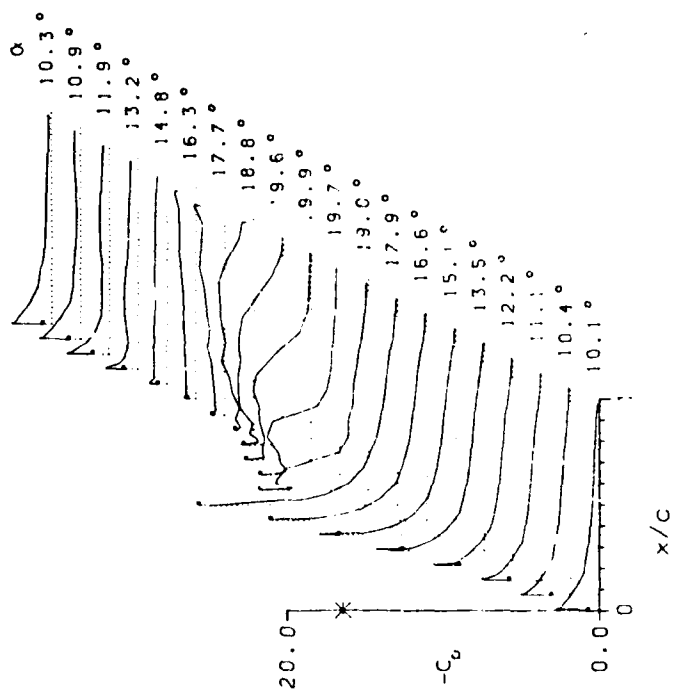
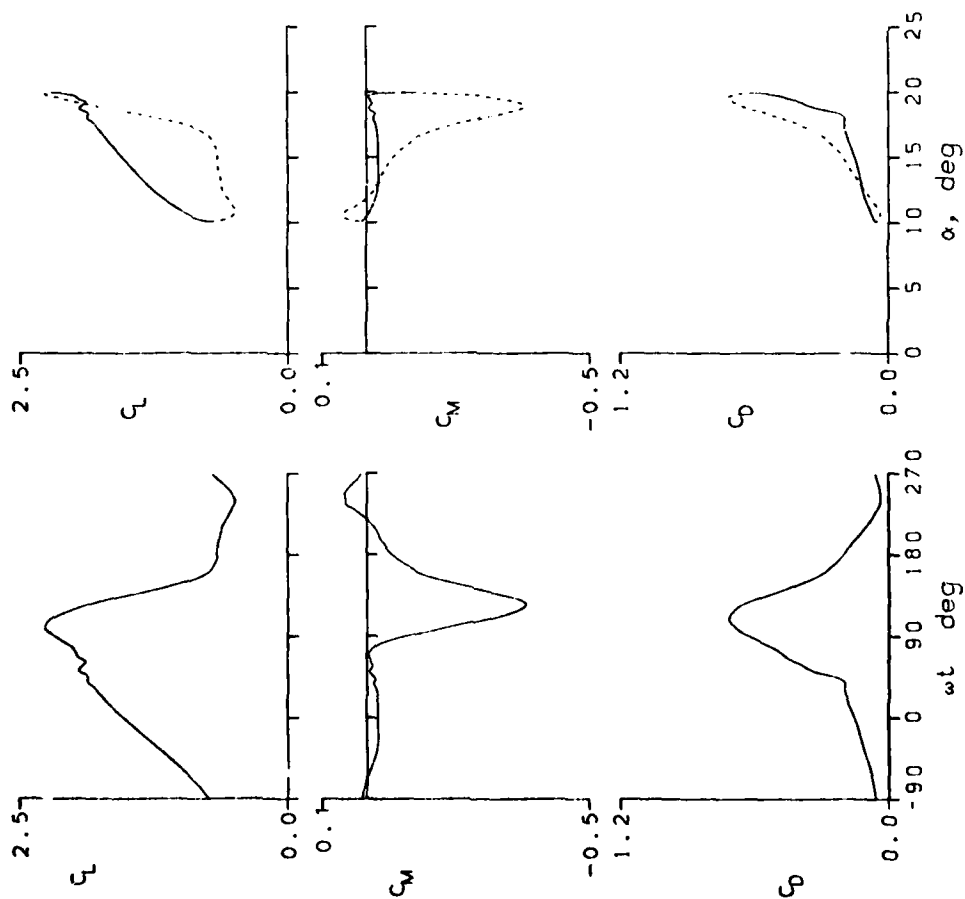


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62202 $A_0 = 14.97^\circ$ $\mu = 0.171$
 $Re = 2.53 \times 10^6$ $A^* = 4.89^\circ$ $M = 0.199$
 $C_{Lmax} = 2.25$ $C_{Mmin} = -0.36$ $C_{Dmax} = 0.75$
 $\alpha_{Lmax} = 19.8^\circ$ $\xi = -0.424$ $V_{max} = 0.841$
 $\alpha_{Cmin} = 14.8^\circ$ $-C_{Dmax} = 12.7$ $\alpha_{Mmax} = 17.7^\circ$

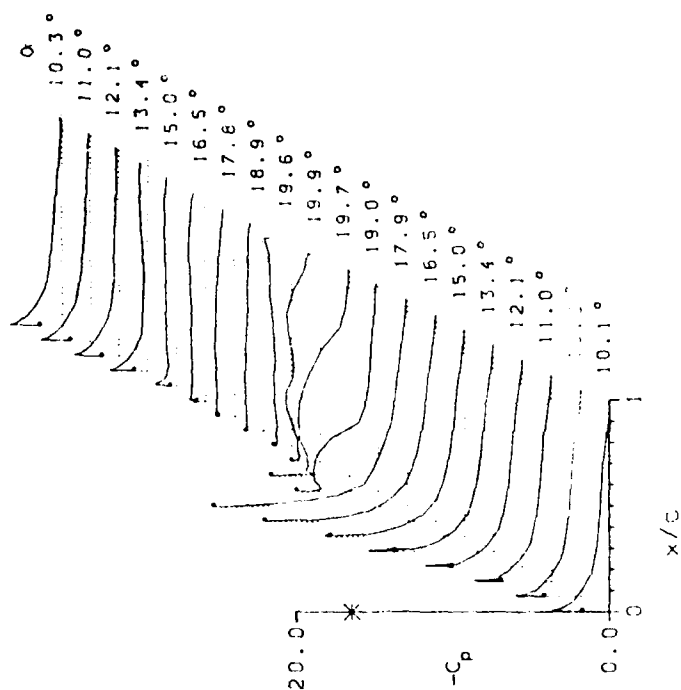
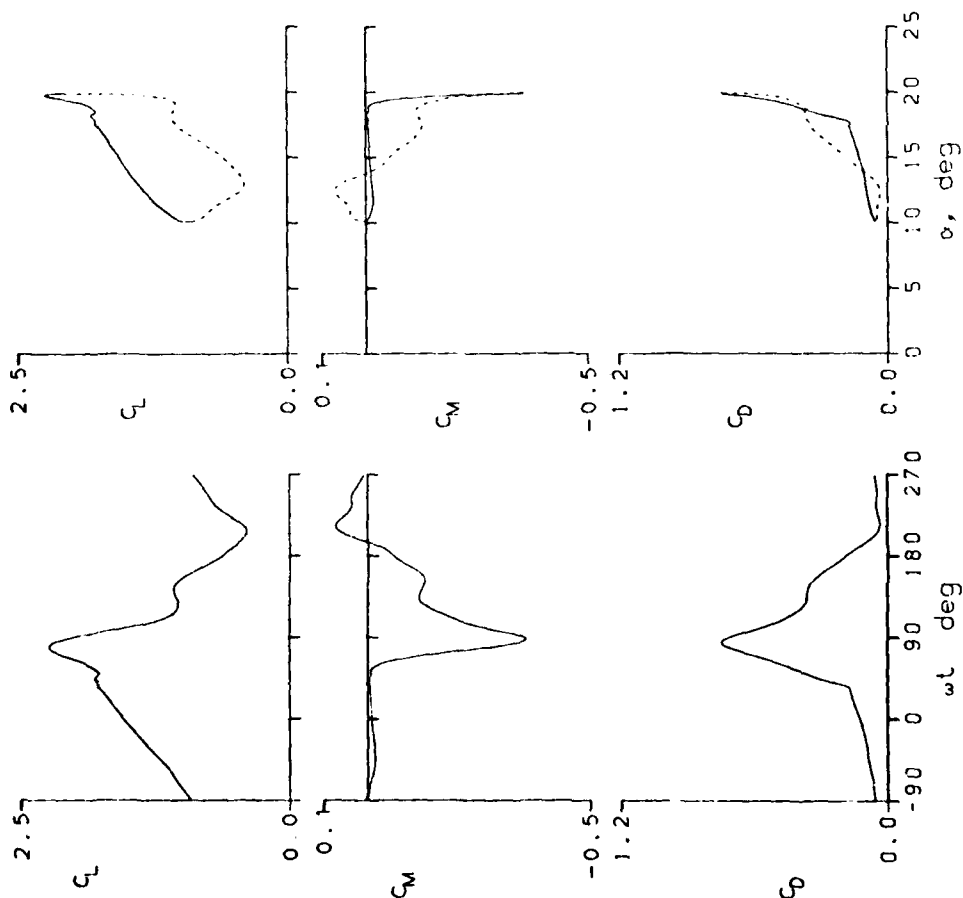


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62208 $A_0 = 14.78^\circ$ $k = 0.097$
 $R_0 = 2.78 \text{ [6]}$ $A^* = 9.89^\circ$ $M = 0.220$
 $C_{Lmax} = 2.33$ $C_{Mmin} = -0.78$ $C_{Dmax} = 0.84$
 $\alpha_{Lmax} = 20.7^\circ$ $\zeta = 0.514$ $M_{max} = 0.860$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Dmax} = 10.7$ $\alpha_{Mmax} = 16.4^\circ$

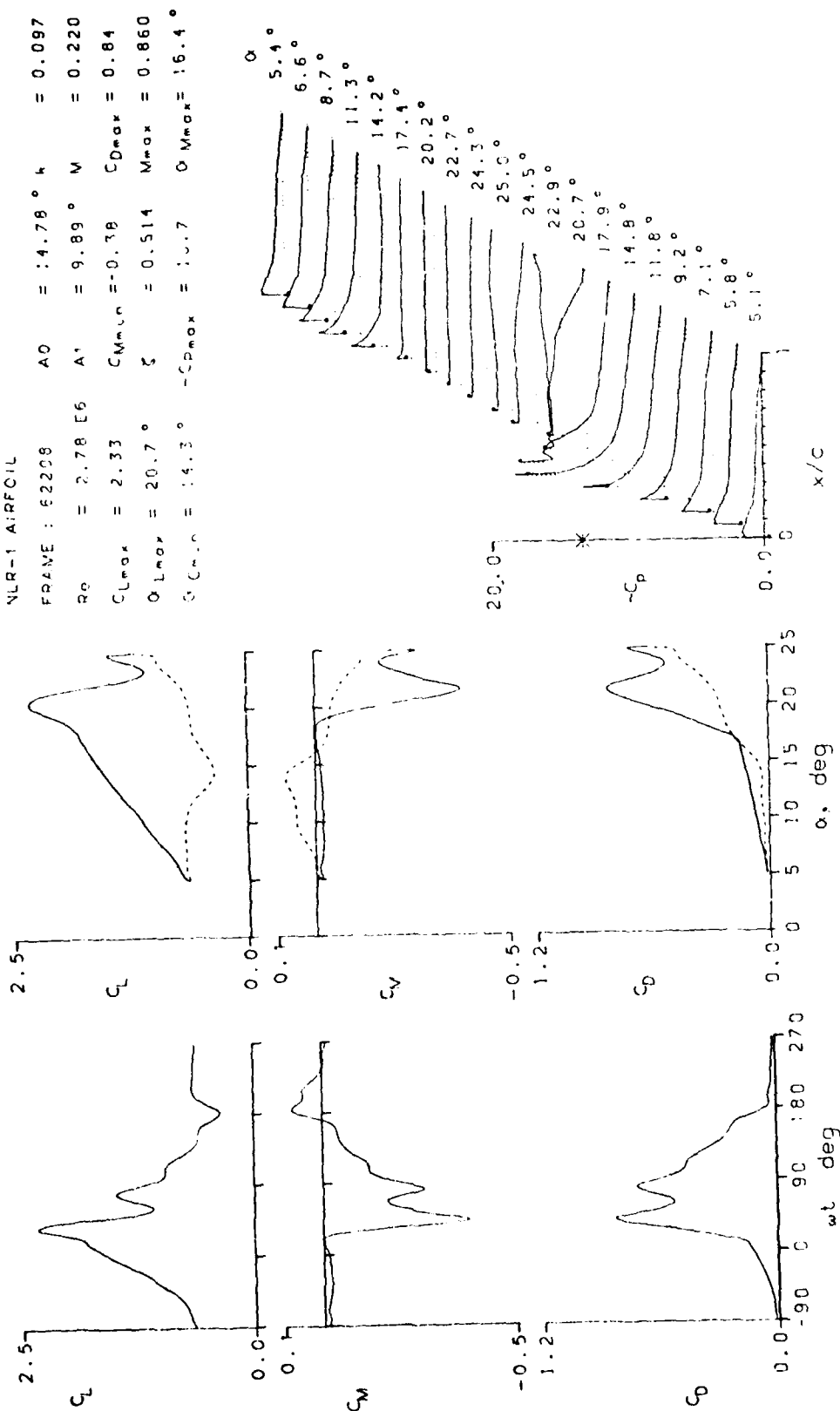


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 6221C	A0 = 14.78°	μ = 0.097
Re = 2.11 E6	A1 = 9.90°	M = 0.250
CLmax = 2.20	CMmin = -0.37	CDmax = 0.77
αcrit = 20.0°	ξ = 0.615	Mmax = 1.010
αCMcr = 14.3°	-CDcr = 10.4	αMmax = 15.5°

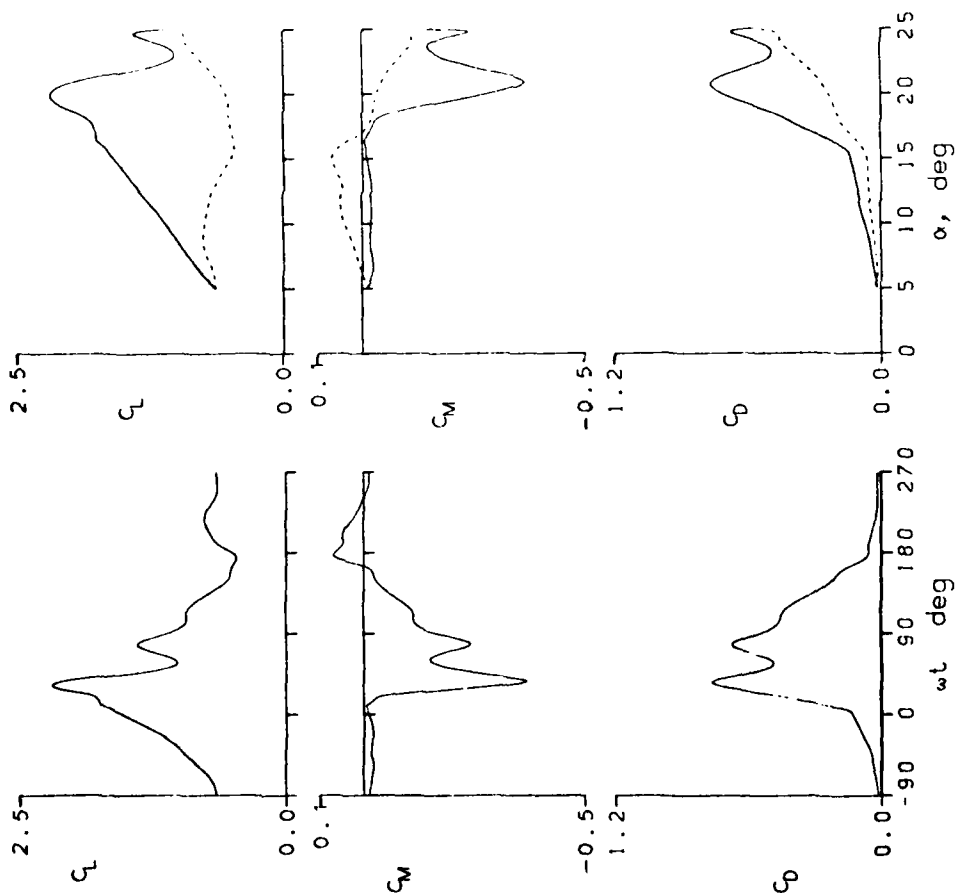


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 62218	A0 = 14.78°	k = 0.097
Re = 3.44 E6	A1 = 9.90°	M = 0.280
C _{lmax} = 2.04	C _{Mmin} = -0.34	C _{Dmax} = 0.68
α _{lmax} = 19.4°	ξ = 0.646	M _{max} = 1.117
α _{Cmin} = 14.3°	-C _{pmax} = 9.4	α _{Mmax} = 14.6°

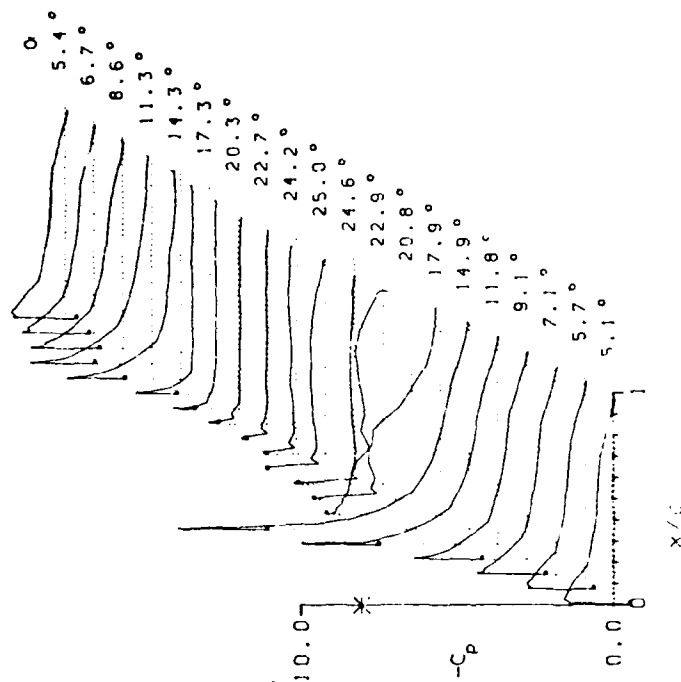
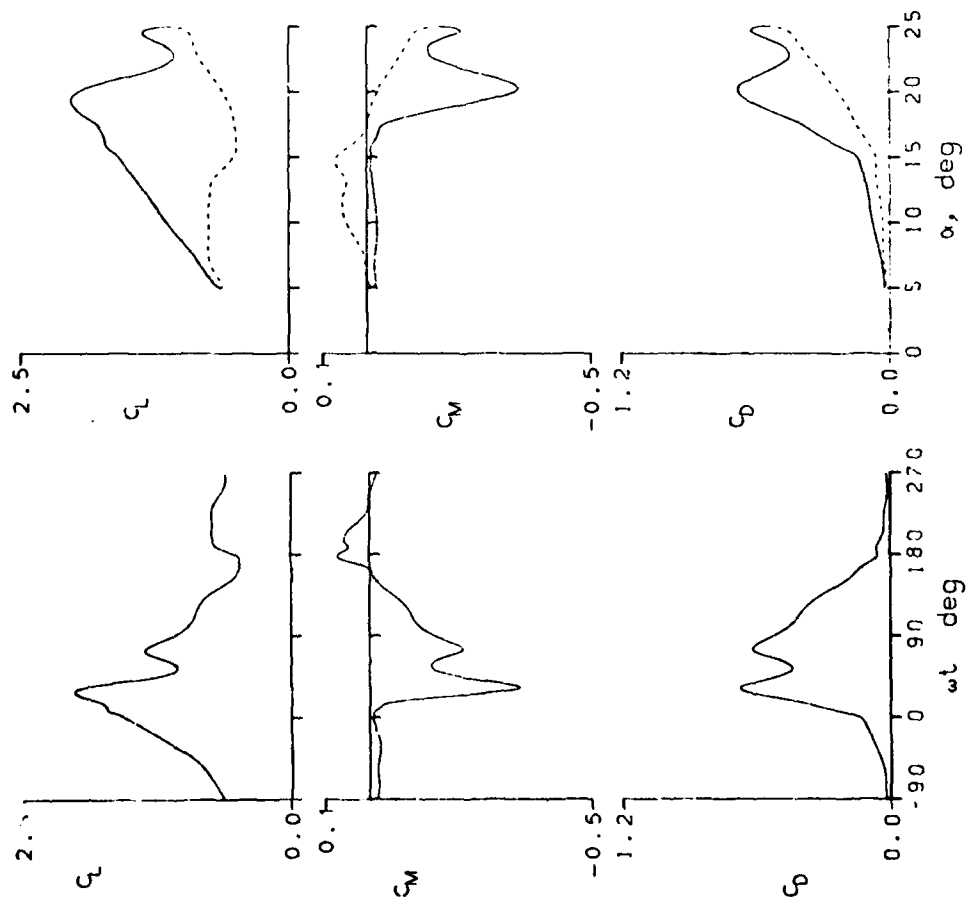


Figure 18.- Continued.

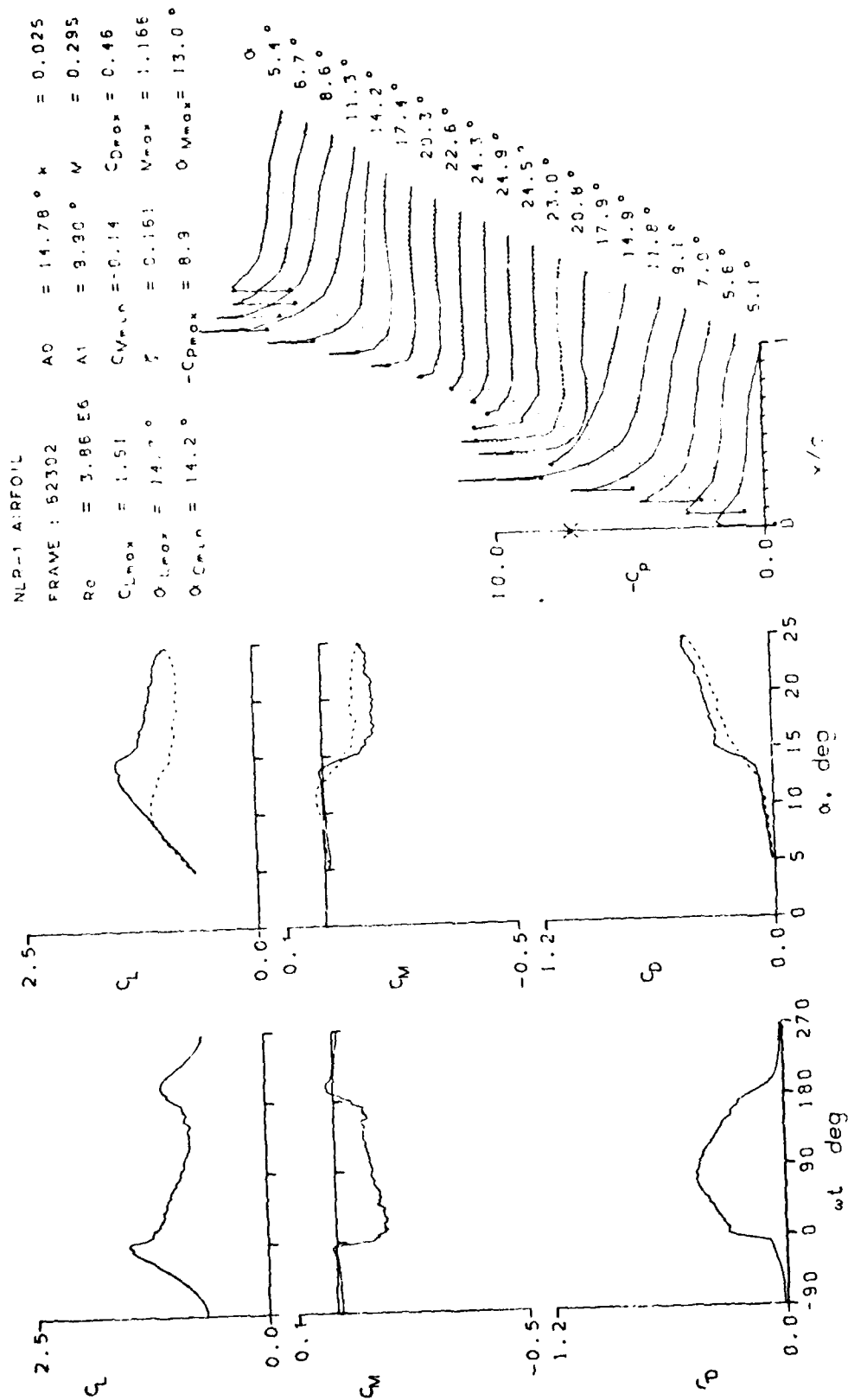


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62304 $A_0 = 14.78^\circ$ $k = 0.050$
 $Re = 3.82 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.294$
 $CL_{max} = 1.71$ $CM_{min} = -0.15$ $CD_{max} = 0.46$
 $\alpha_{L_{max}} = 16.1^\circ$ $\zeta = 0.156$ $M_{max} = 1.169$
 $\alpha_{C_{min}} = 14.3^\circ$ $-CD_{max} = 9.0$ $\alpha_{M_{max}} = 13.6^\circ$

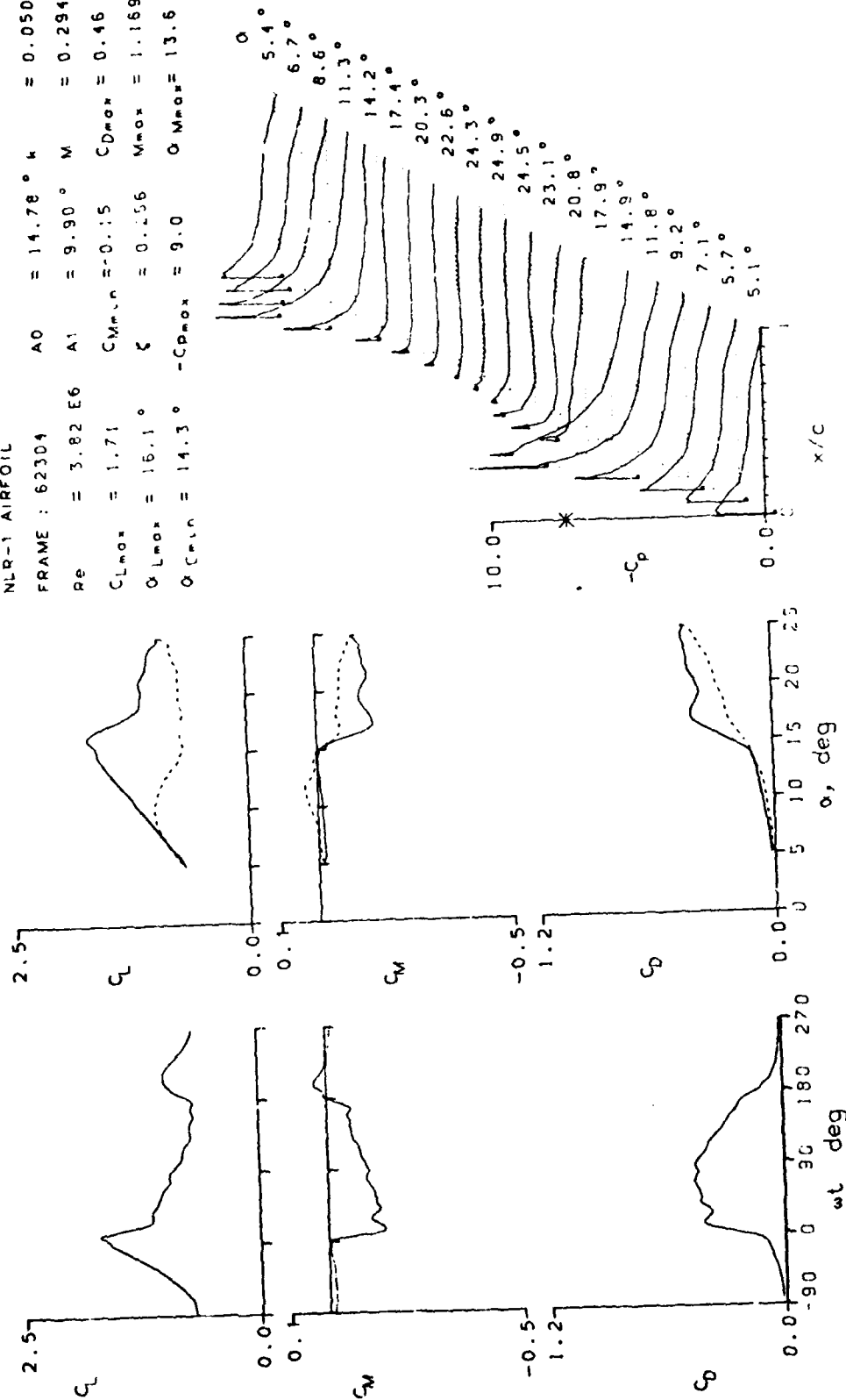


Figure 18.- Continued.

NLR-1 AIRFOIL
 PRANDTL : 62337 AC = 14.78° μ = 0.099
 RE = 7.01 E6 A1 = 9.90° M = 0.294
 C_{Lmax} = 2.03 C_{Mmin} = -0.32 C_{Dmax} = 0.68
 α_{max} = 19.1° ζ = 0.633 M_{max} = 1.18
 $\alpha_{C_{Lmax}}$ = 14.4° $-C_{Dmax}$ = 9.1 α_{Mmax} = 14.4°

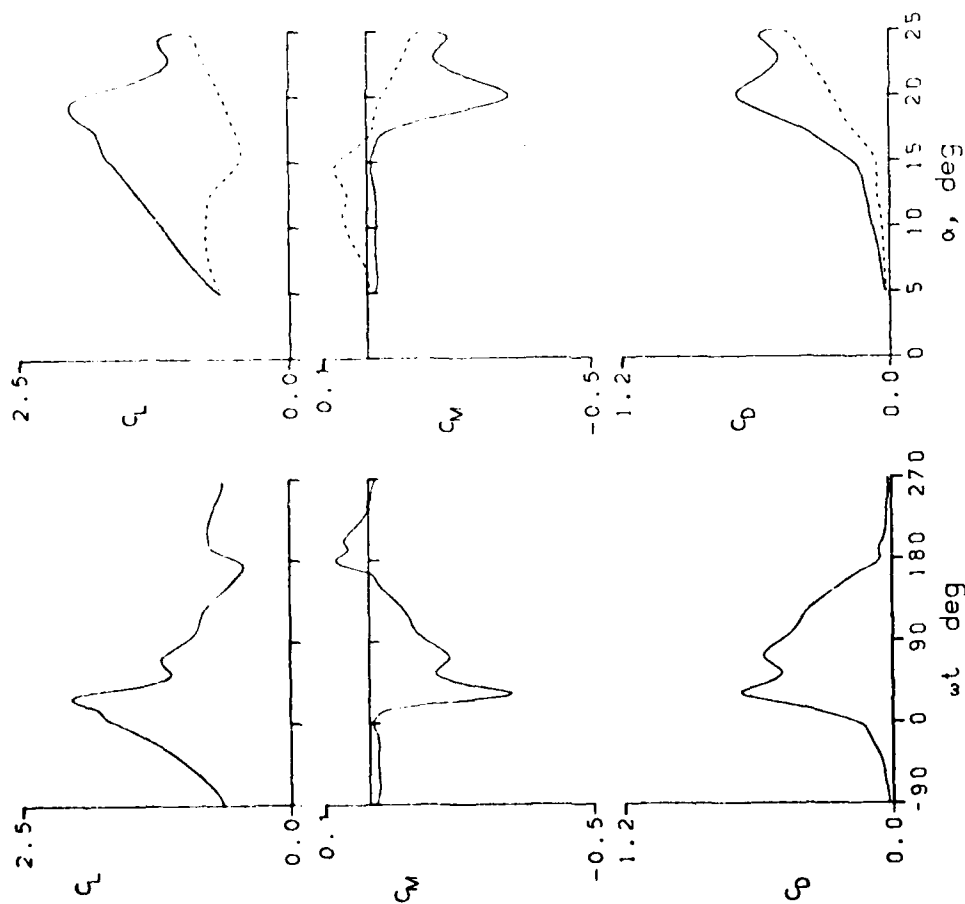


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 62309	A0	= 14.87 °	k	= 0.152	
Re	= 3.70 E6	A1	= 9.89 °	M	= 0.287
CLmax	= 2.24	CMmin	= -0.44	CDmax	= 0.90
α Lmax	= 21.8 °	ζ	= 0.608	Mmax	= 1.160
α Cmin	= 14.5 °	-CDmax	= 9.4	α Mmax	= 15.3 °

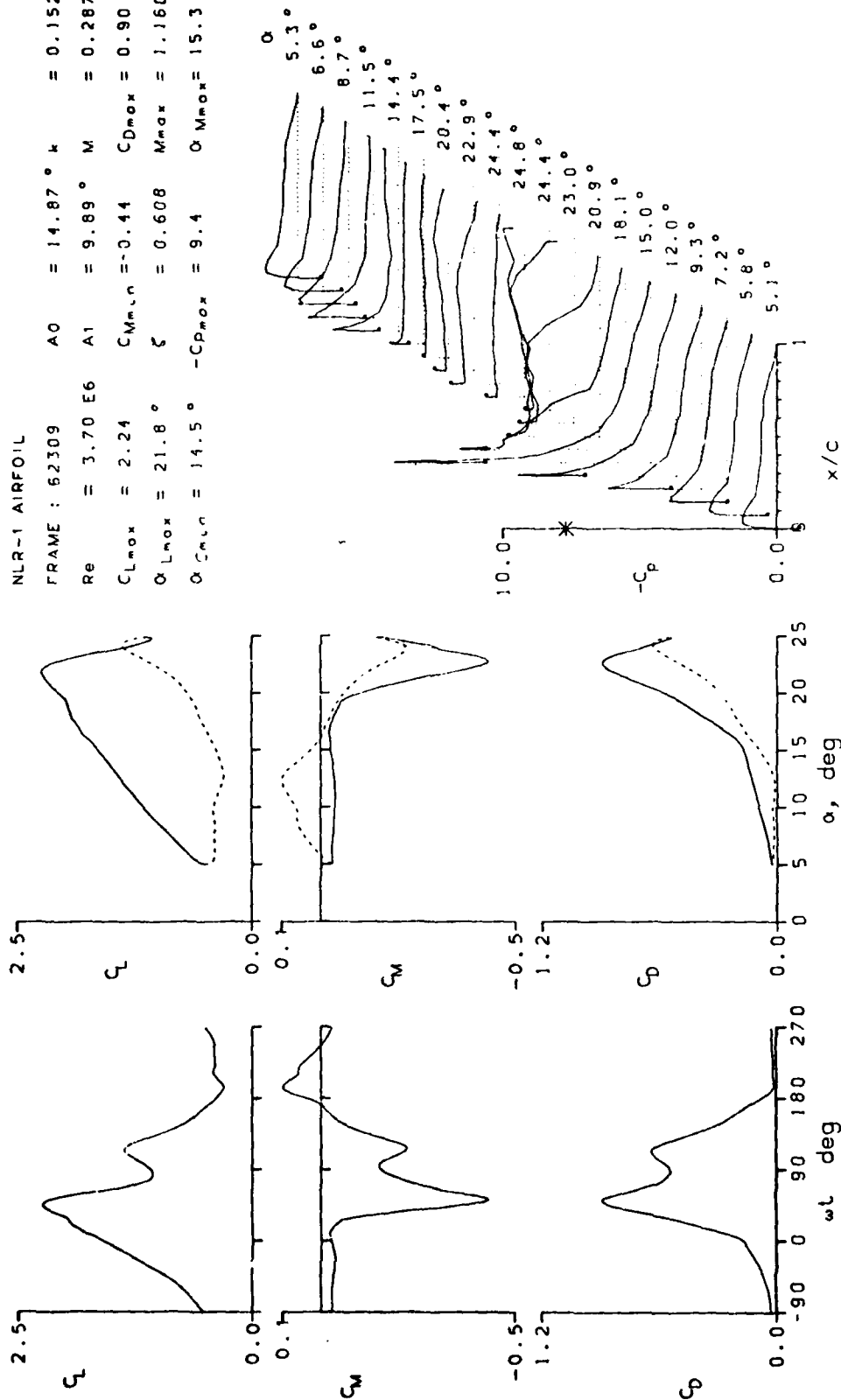


Figure 18.- Continued.

Figure 1 consists of six subplots arranged in a 2x3 grid. The top row shows the dependence of correlation functions C_L , C_M , and C_D on the angle α (in degrees), ranging from 0 to 25. The bottom row shows the dependence of C_L , C_M , and C_D on the angle ω (in degrees), ranging from -90 to 270. The y-axis for C_L ranges from 0.0 to 2.5. The y-axis for C_M ranges from 0.0 to 0.1. The y-axis for C_D ranges from -0.5 to 1.2. In the top row, the plots show a sharp peak at $\alpha = 0$ and a smaller peak at $\alpha \approx 15$. In the bottom row, the plots show a broad peak centered around $\omega = 0$ and a smaller peak at $\omega \approx 180$.

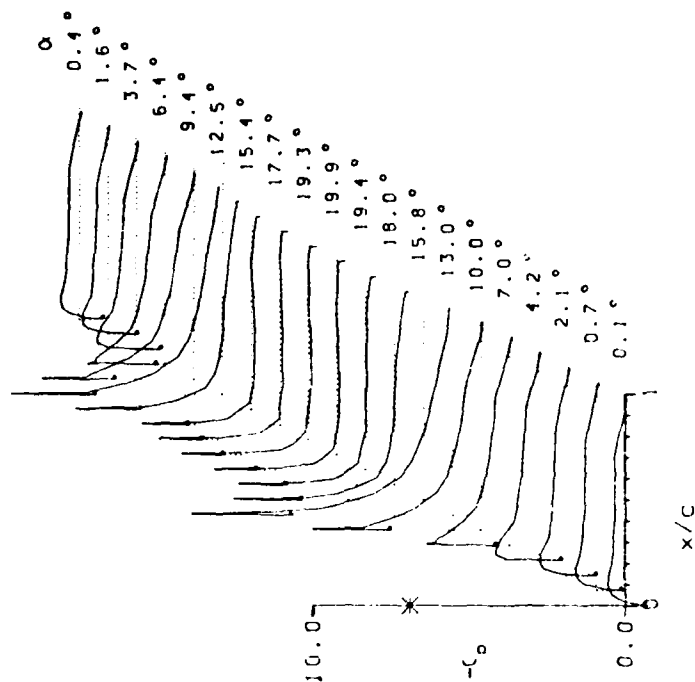


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62320 $A_0 = 9.83^\circ$ $k = 0.024$
 $Re = 3.70 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.51$ $C_{Mmin} = -0.14$ $C_{Dmax} = 0.33$
 $\alpha_{Lmax} = 14.5^\circ$ $\zeta = 0.094$ $M_{max} = 1.163$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Pmax} = 6.5$ $\alpha_{Mmax} = 13.0^\circ$

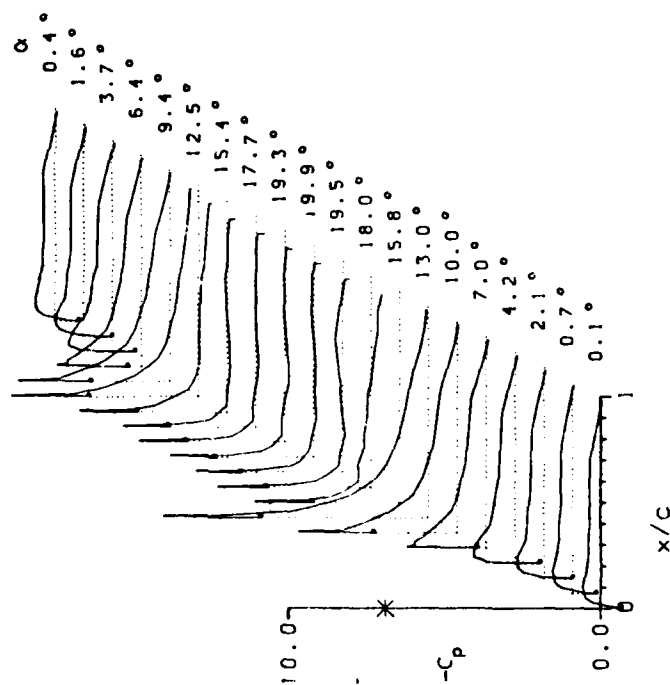
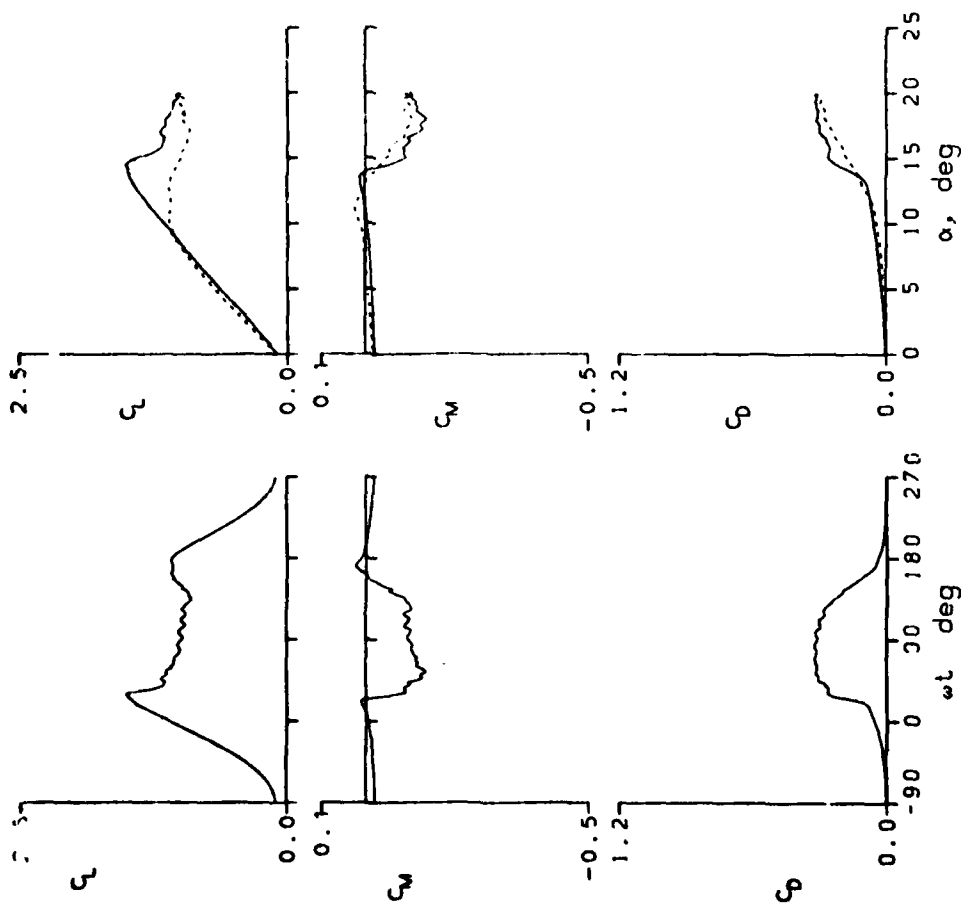


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62322
 $Re = 3.69 \text{ E}6$
 $C_{Lmax} = 1.68$
 $\alpha_{Lmax} = 15.6^\circ$
 $\alpha_{Cmin} = 9.4^\circ$
 $A0 = 9.83^\circ$
 $A1 = 9.90^\circ$
 $C_{Mmin} = -0.17$
 $\zeta = 0.194$
 $-C_{Dmax} = 8.6$
 $\mu = 0.048$
 $M = 0.301$
 $C_{Dmax} = 0.38$
 $Mmax = 1.175$
 $\alpha_{Mmax} = 13.3^\circ$

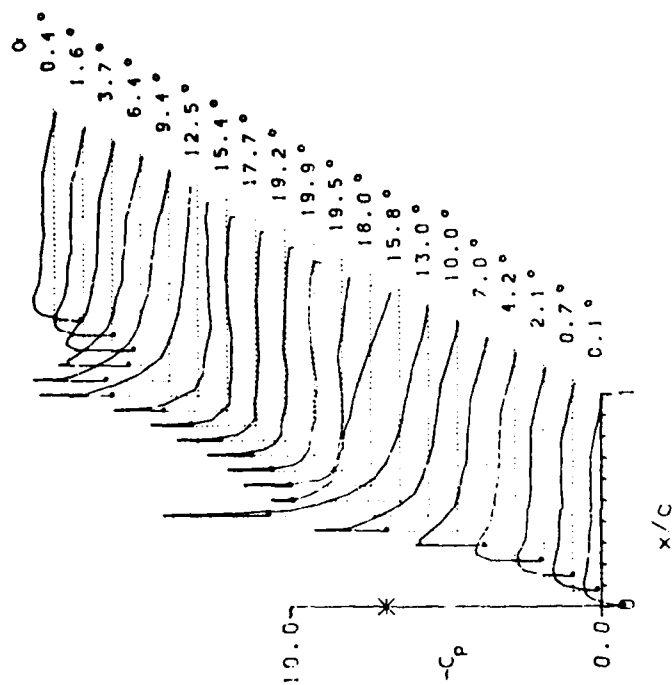
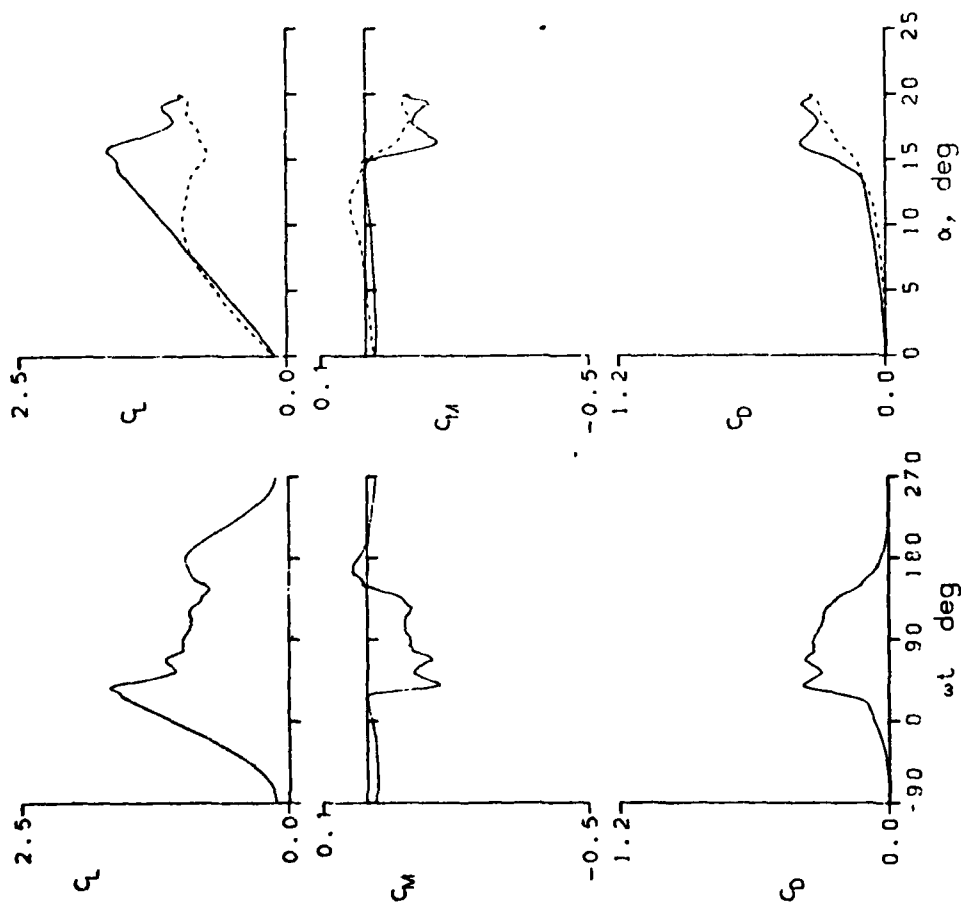
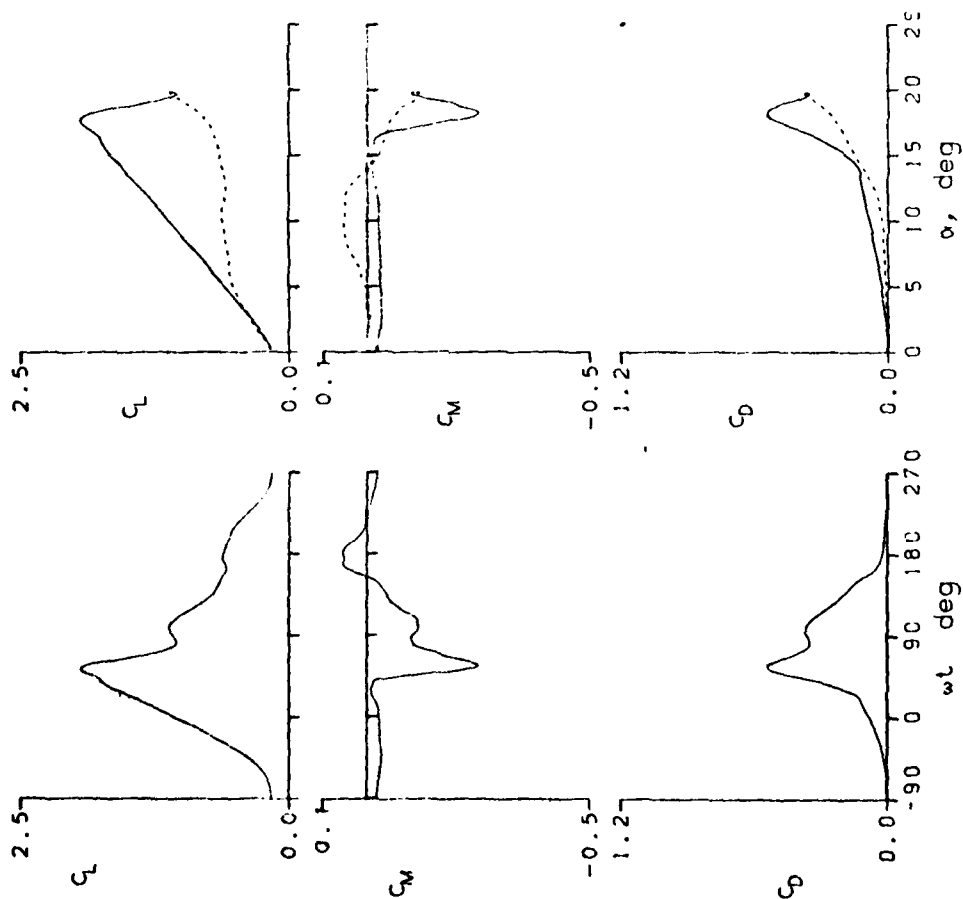


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 62400	A0 = 9.82°	k = 0.097
Re = 3.69 E6	A1 = 9.89°	M = 0.302
CLmax = 1.95	CMmin = -0.26	CDmax = 0.55
αLmax = 17.7°	ζ = 0.342	Mmax = 1.178
αCMmin = 9.3°	-CPmax = 8.6	αMmax = 13.9°



NLR-1 AIRFOIL
 FRAME : 52403 $A_0 = 9.83^\circ$ $k = 0.116$
 $Re = 3.70 \times 10^6$ $A_1 = 9.91^\circ$ $M = 0.303$
 $C_{Lmax} = 2.02$ $C_{Mmin} = -0.30$ $C_{Dmax} = 0.62$
 $\alpha_{Lmax} = 18.5^\circ$ $\xi = 0.366$ $M_{max} = 1.184$
 $\alpha_{Cmin} = 9.5^\circ$ $-C_{Dmax} = 8.6$ $\alpha_{Mmax} = 14.5^\circ$

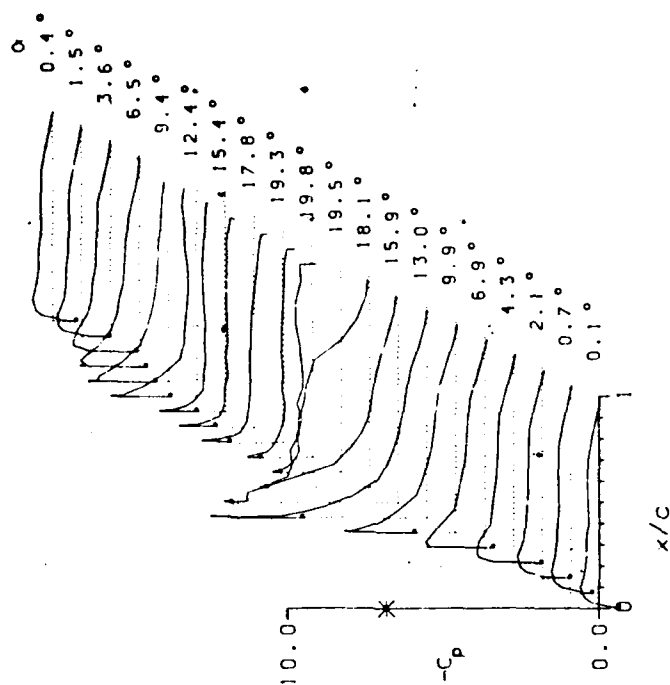
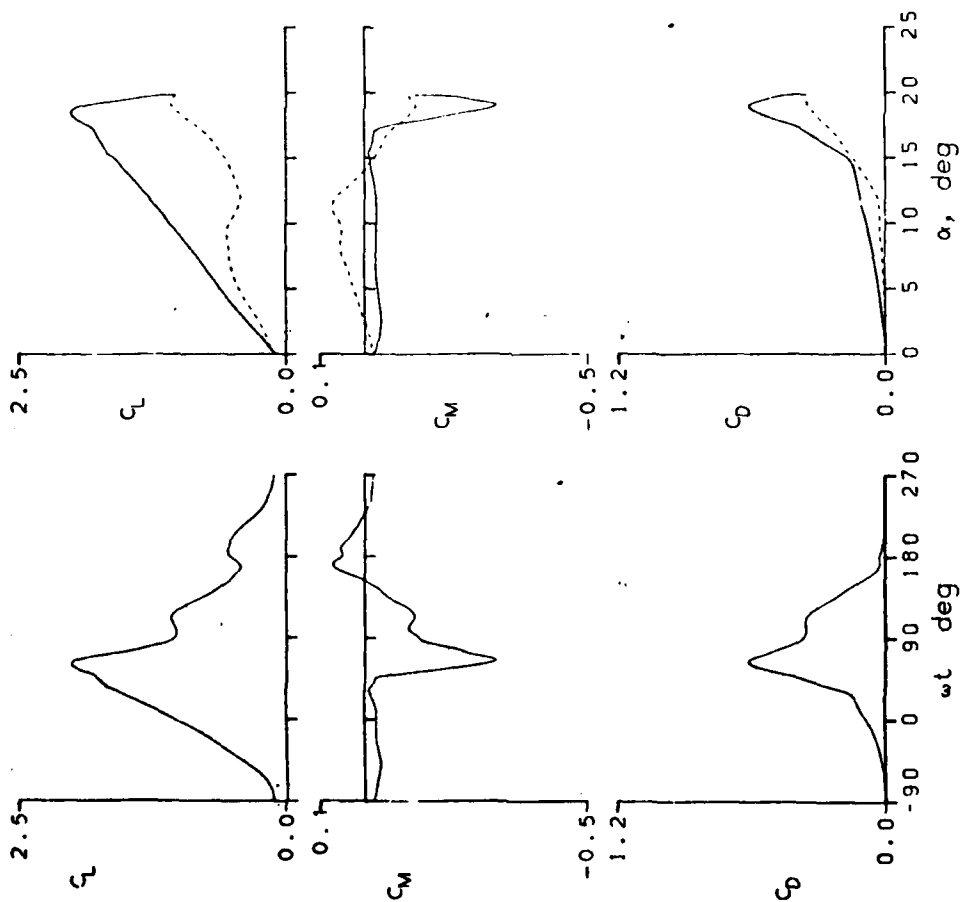


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 62405 $A_0 = 9.95^\circ$ $h = 0.145$
 $Re = 3.56 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.300$
 $C_{Lmax} = 1.99$ $C_{Mmin} = -0.29$ $C_{Dmax} = 0.62$
 $\alpha_{Lmax} = 18.9^\circ$ $\zeta = 0.353$ $M_{max} = 1.179$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 8.7$ $\alpha_{Mmax} = 14.7^\circ$

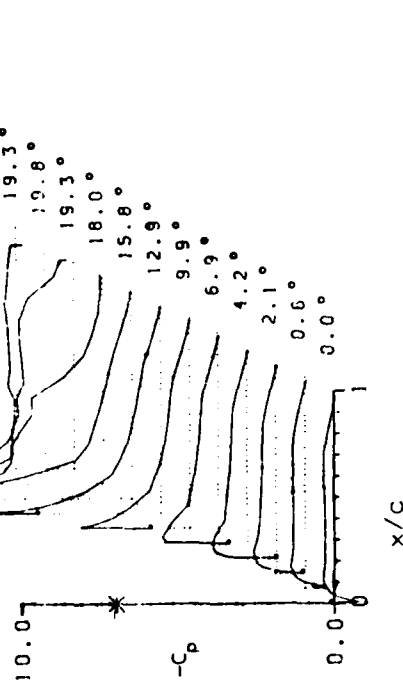
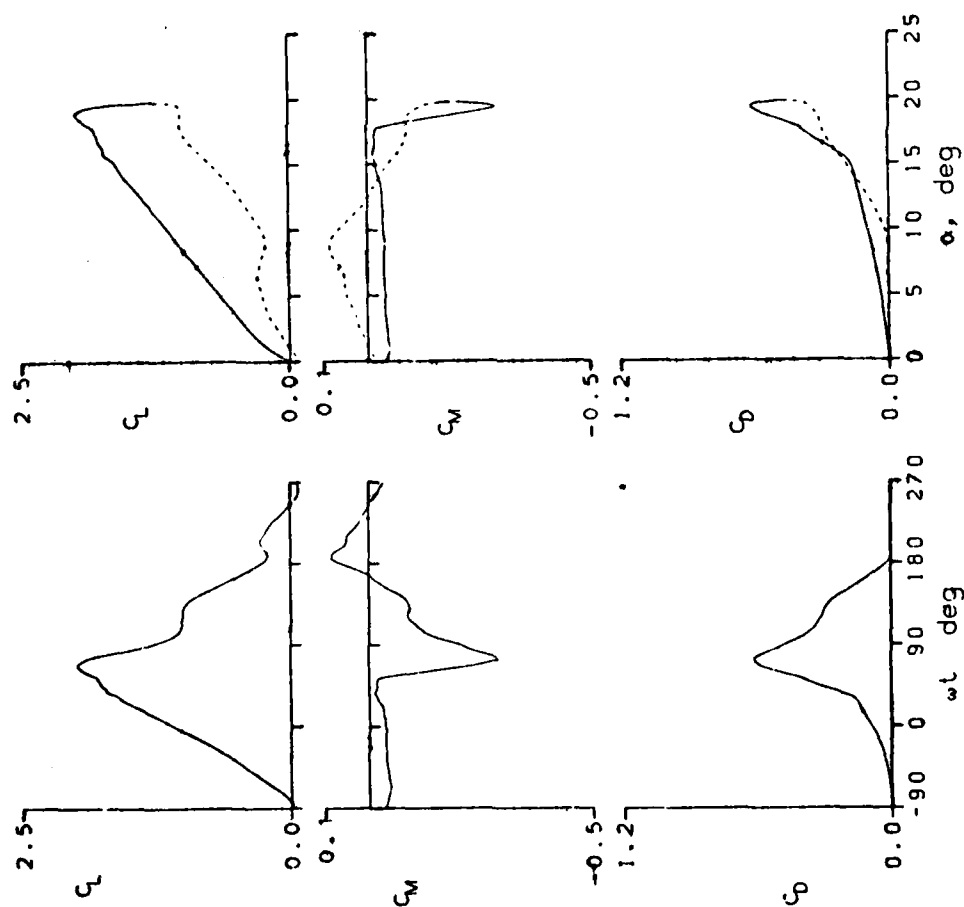


Figure 18.- Continued.

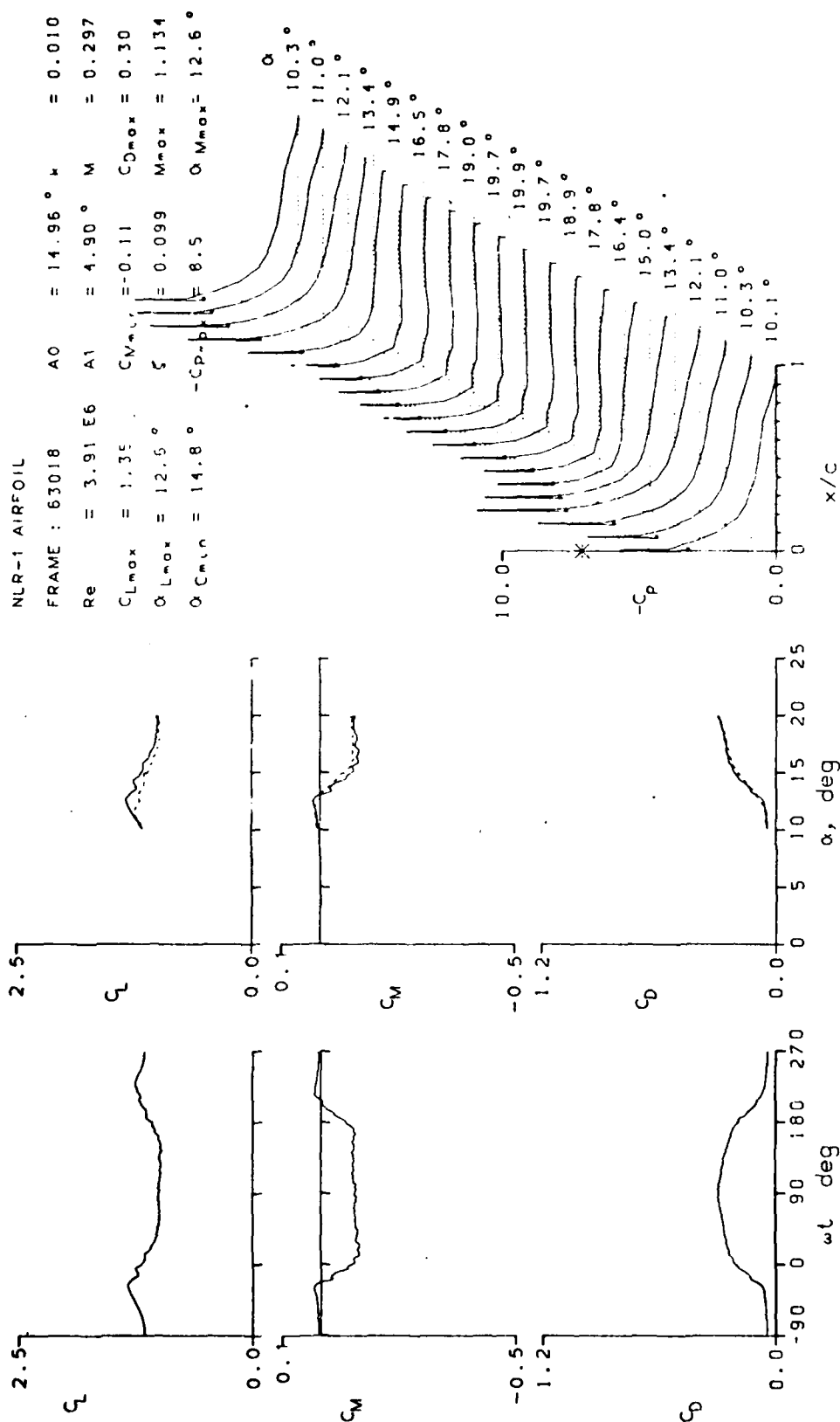


Figure 18.- Continued.

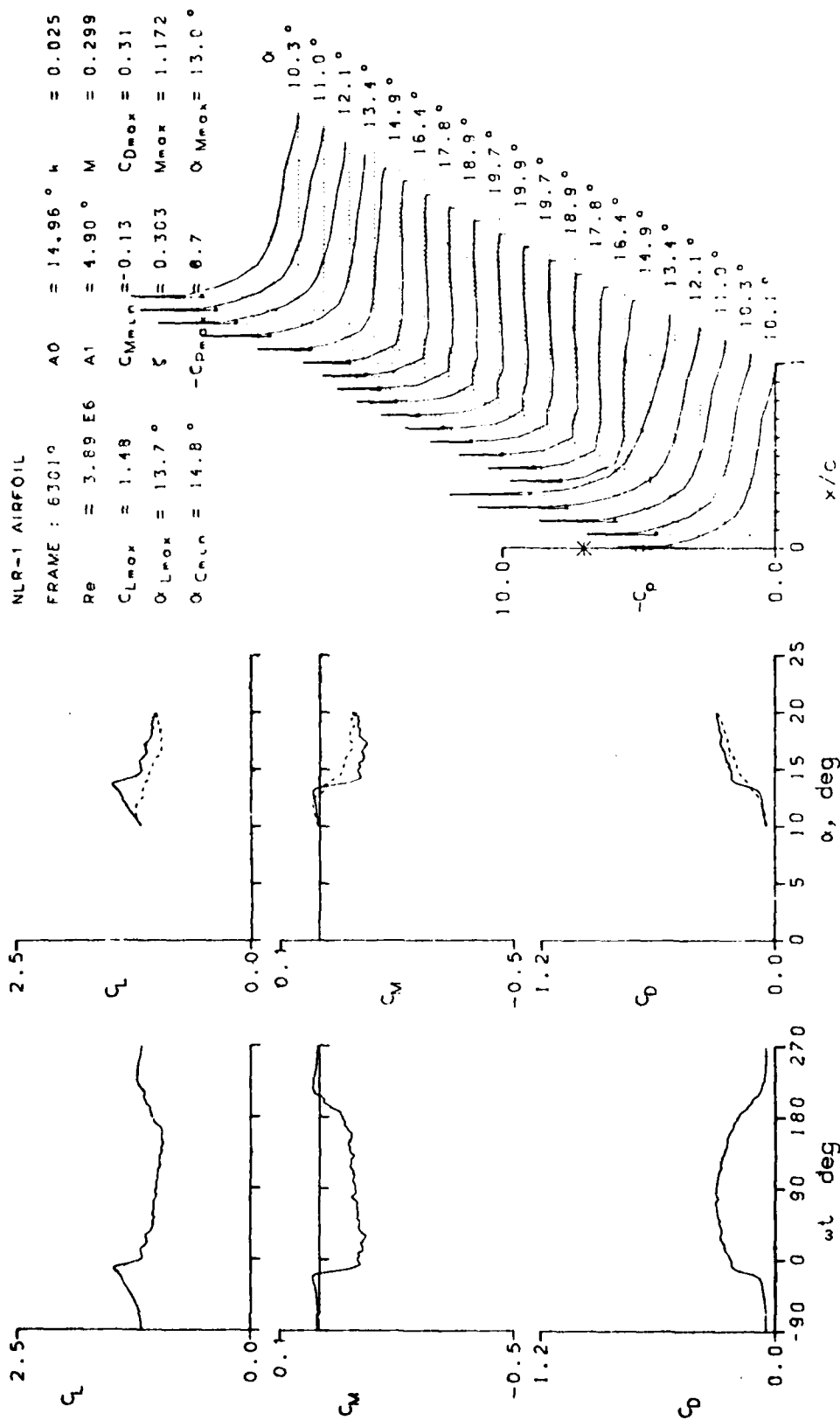


Figure 18.- Continued.

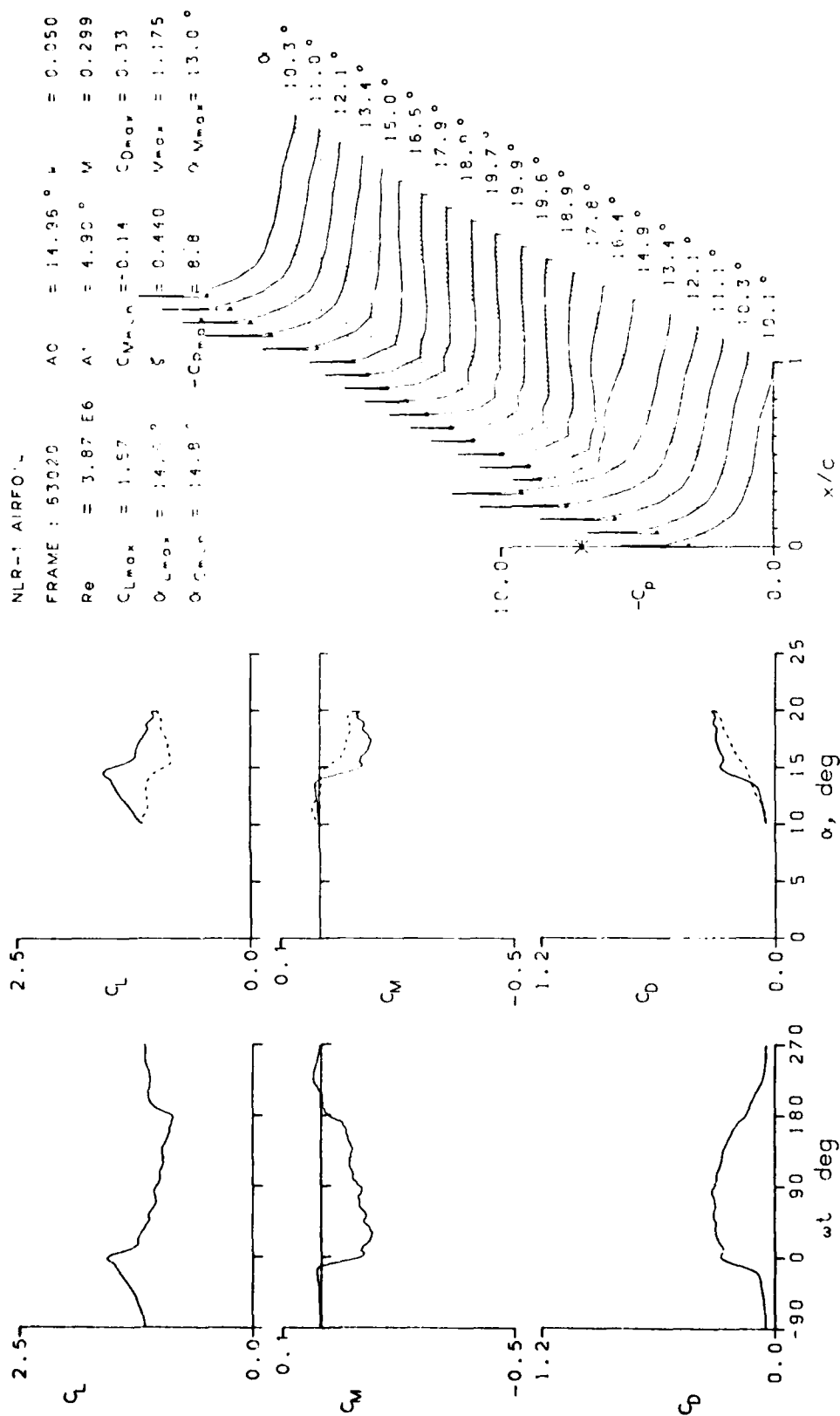


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 53021 $A_0 = 14.96^\circ$ $k = 0.100$
 $Re = 3.84 \text{ E}6$ $A_1 = 4.91^\circ$ $M = 0.297$
 $C_{Lmax} = 1.77$ $C_{VMmin} = -0.19$ $C_{Dmax} = 0.42$
 $\alpha_{Lmax} = 16.1^\circ$ $\zeta = 0.676$ $M_{max} = 1.179$
 $\alpha_{CMmin} = 14.8^\circ$ $-C_{Pmax} = 8.9$ $\alpha_{VMmax} = 13.4^\circ$

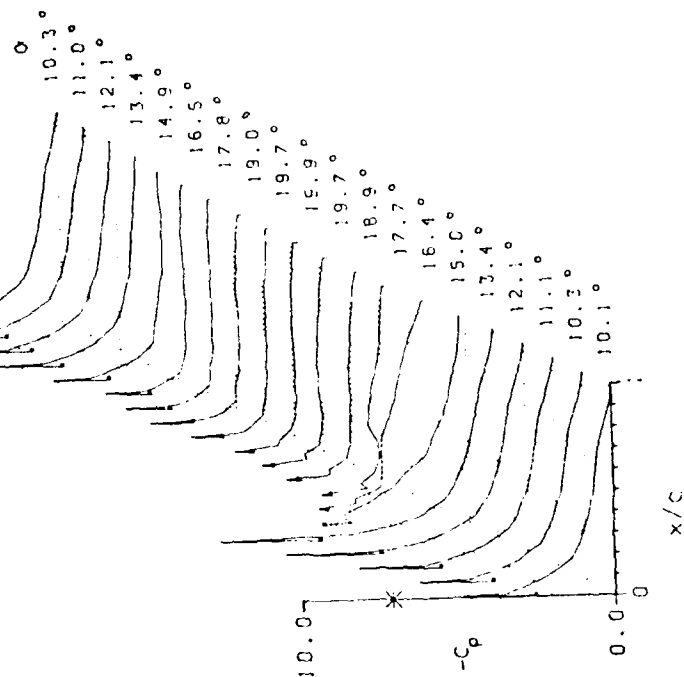
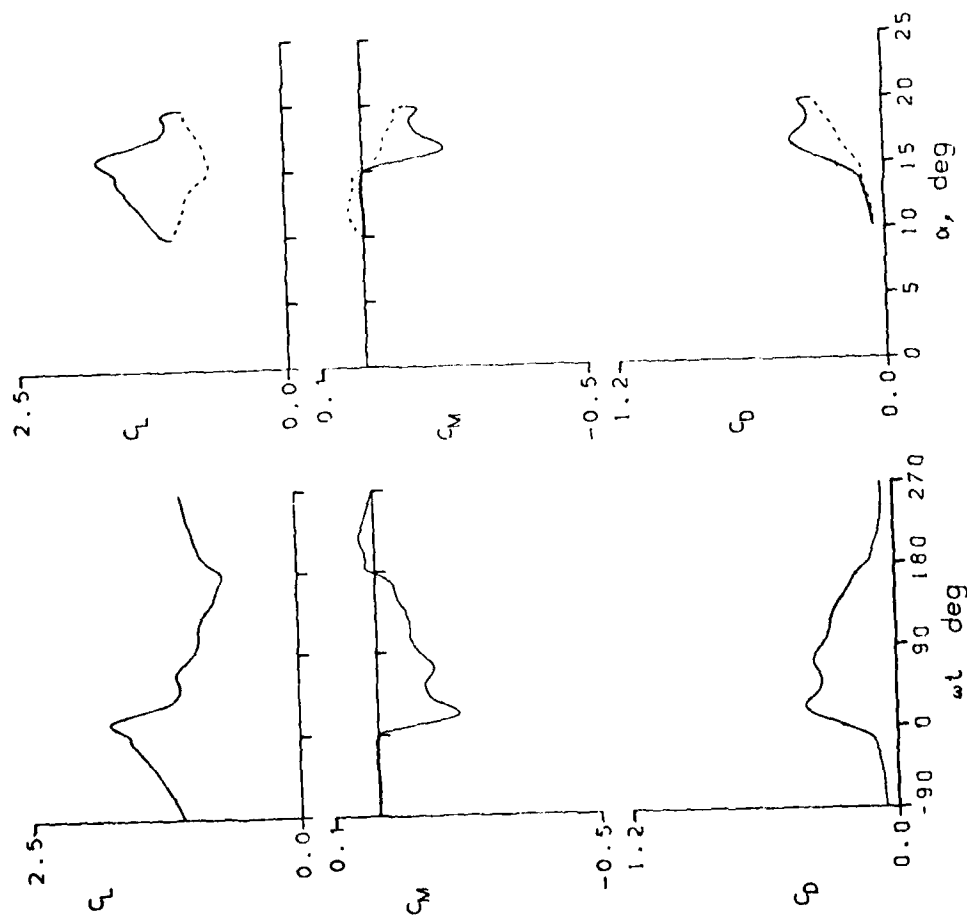


Figure 18.- Continued.

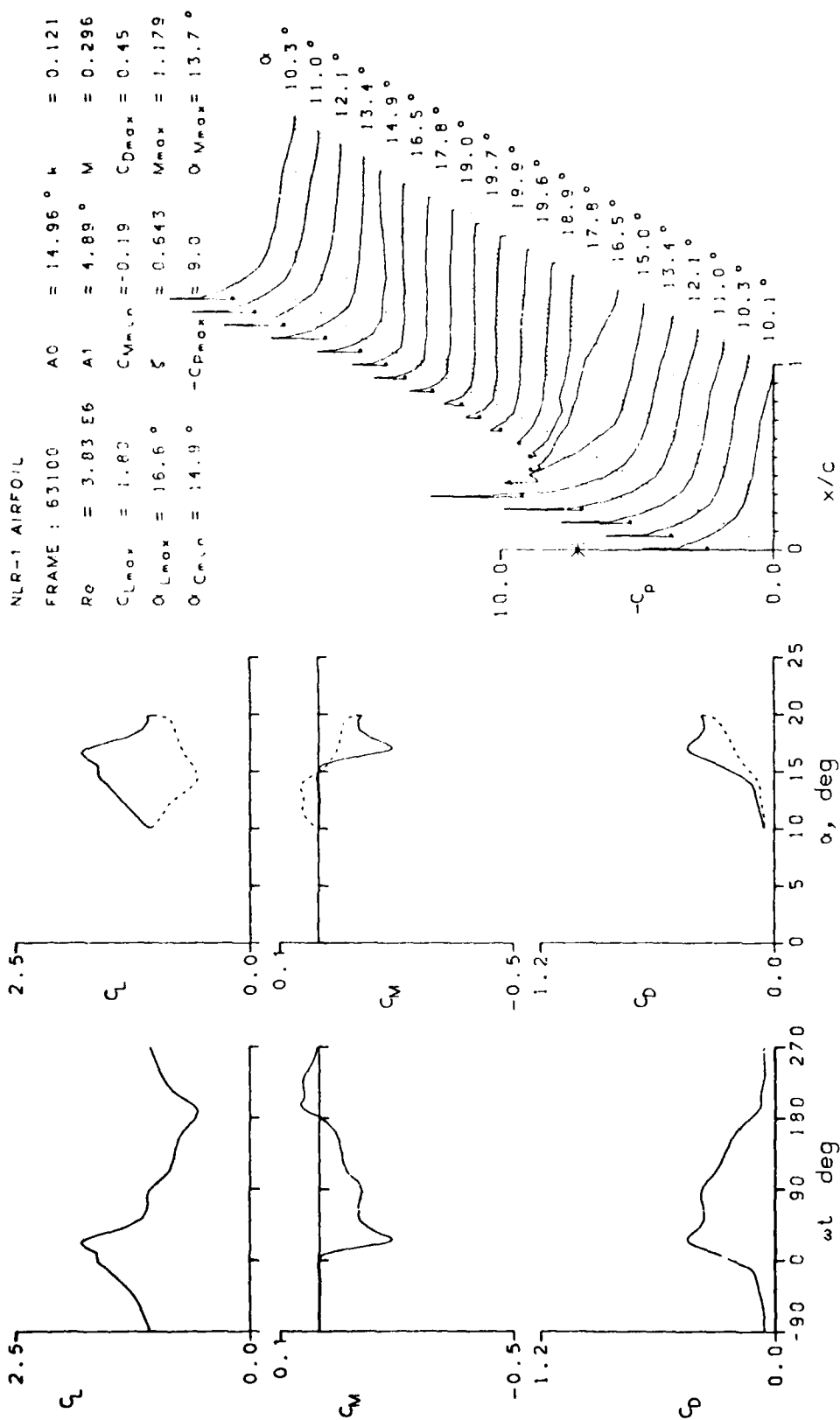


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 6310: $A_0 = 14.94^\circ$ $\mu = 0.151$
 $Re = 3.80 \times 10^6$ $A_1 = 4.91^\circ$ $M = 0.295$
 $C_{Lmax} = 1.88$ $C_{Mmin} = -0.23$ $C_{Dmax} = 0.51$
 $\alpha_{Lmax} = 17.3^\circ$ $\xi = 0.757$ $M_{max} = 1.180$
 $\alpha_{Cmin} = 14.9^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 13.8^\circ$

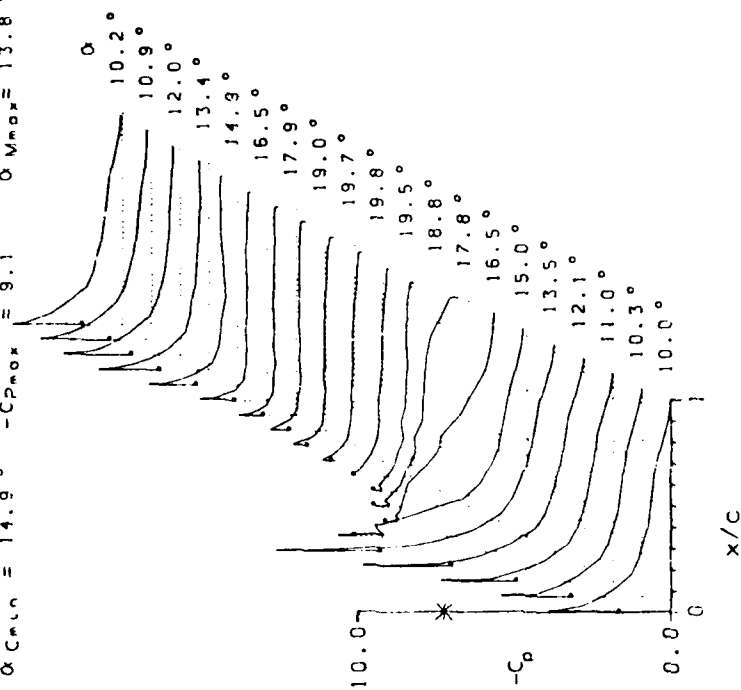
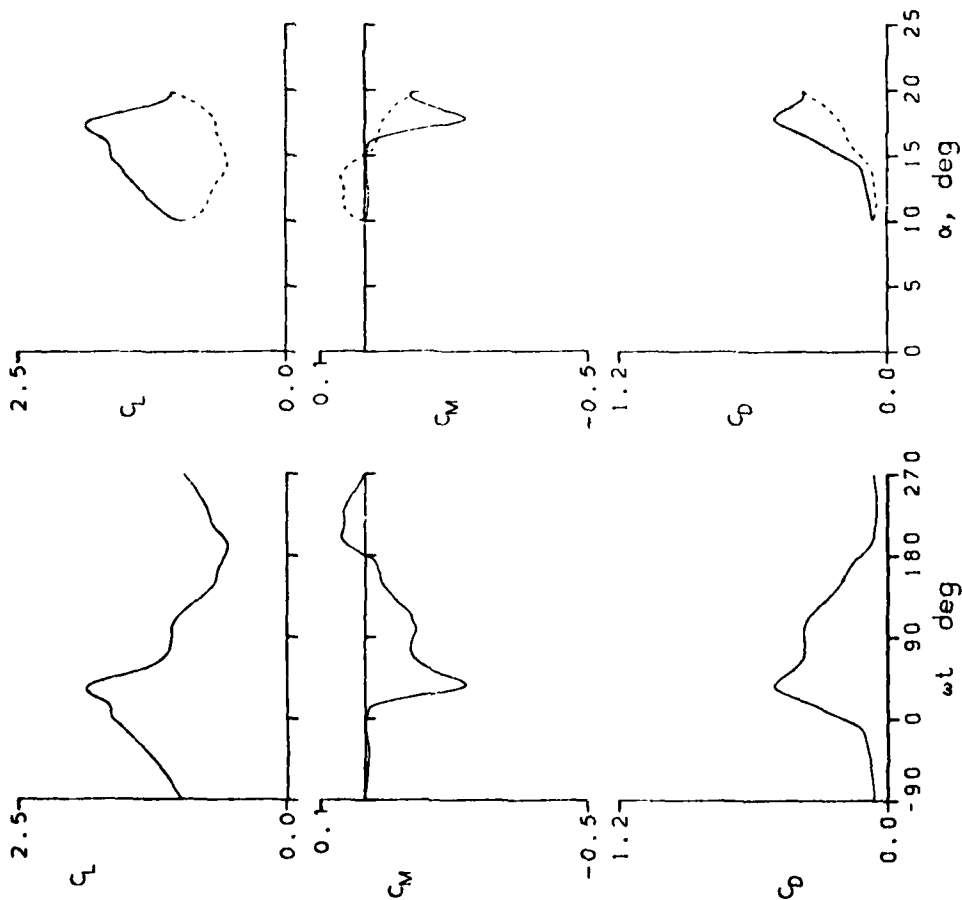


Figure 18.- Continued.

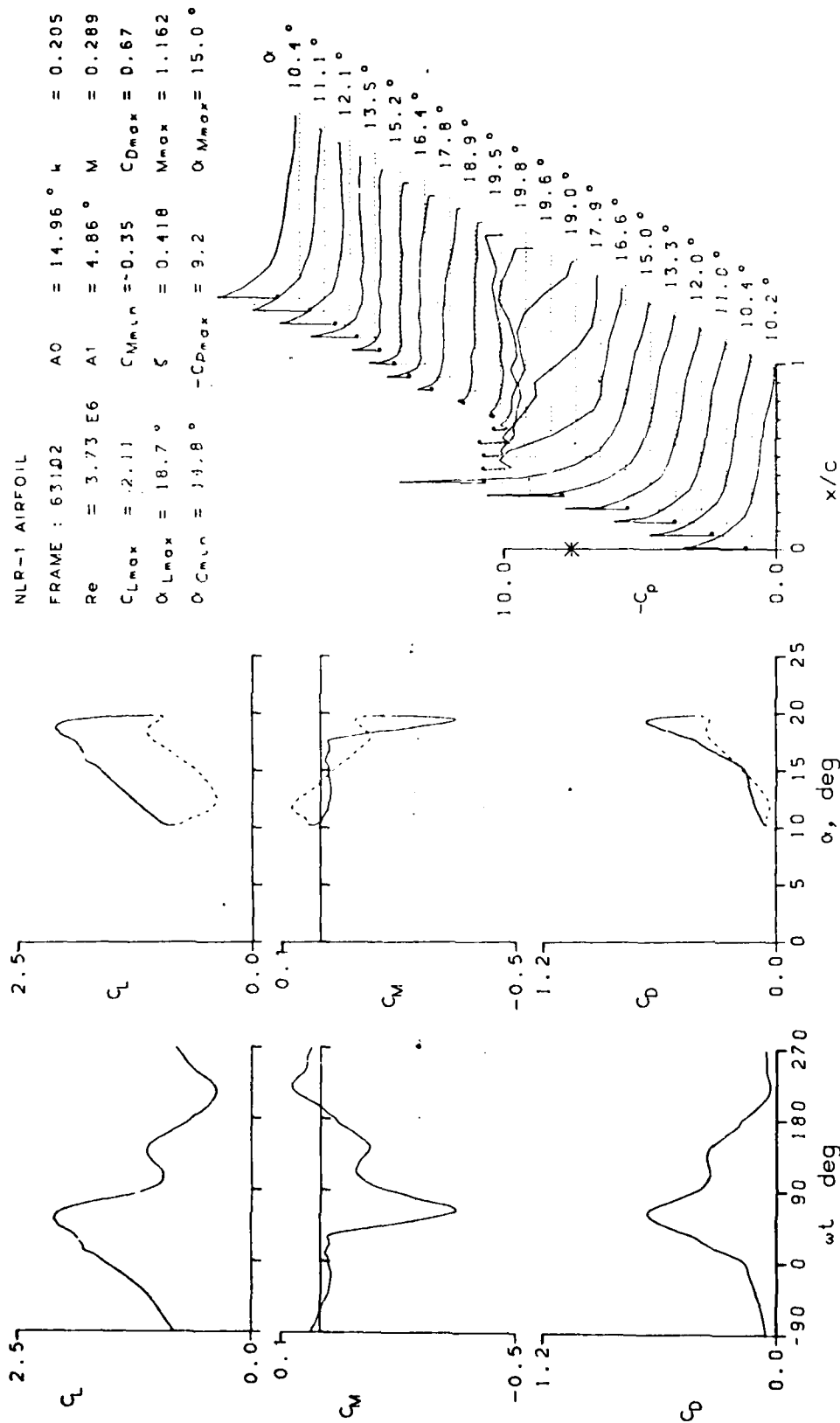


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 63108 $A_0 = 9.97^\circ$ $k = 0.024$
 $Re = 3.60 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.303$
 $C_{Lmax} = 1.41$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.23$
 $\alpha_{Lmax} = 13.4^\circ$ $\zeta = 0.085$ $M_{max} = 1.168$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 8.5$ $\alpha_{Mmax} = 12.8^\circ$

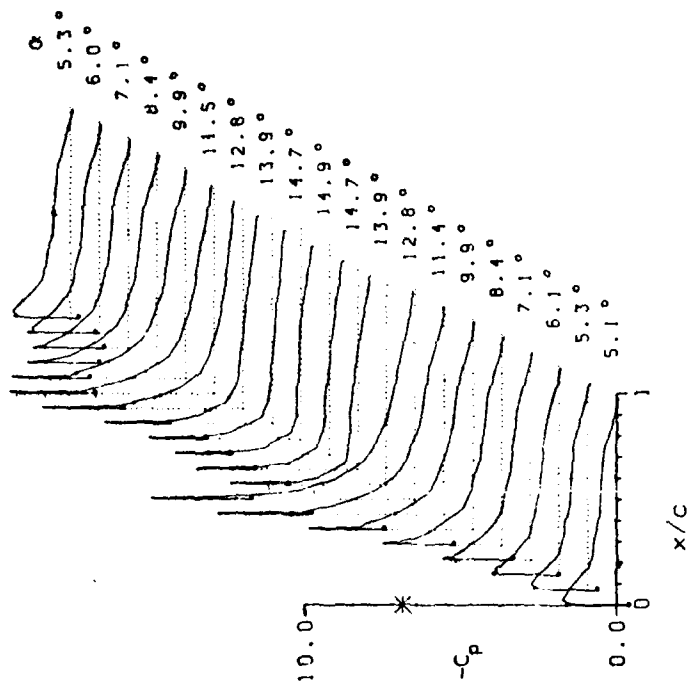
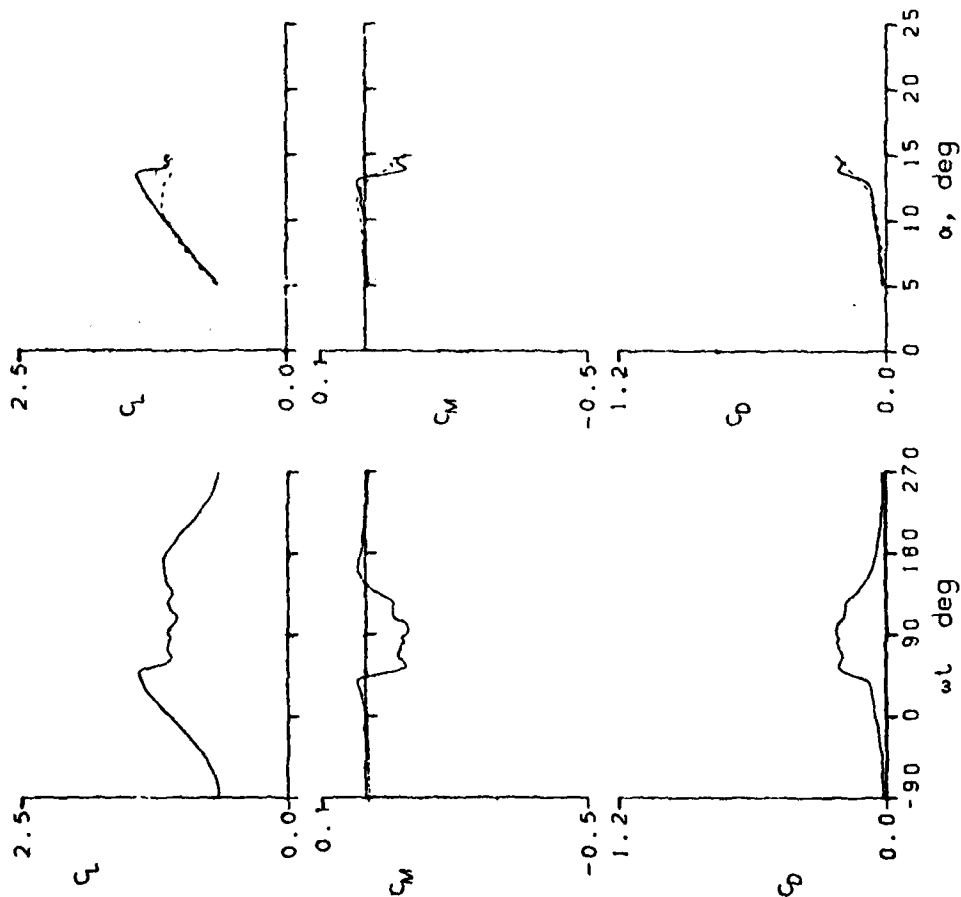


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 63112 $A_0 = 9.98^\circ$ $k = 0.098$
 $Re = 3.76 E6$ $A_1 = 4.90^\circ$ $M = 0.301$
 $C_{Lmax} = 1.60$ $C_{Mmin} = -0.13$ $C_{Dmax} = 0.30$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.163$ $M_{max} = 1.168$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Pmax} = 8.6$ $\alpha_{Mmax} = 13.1^\circ$

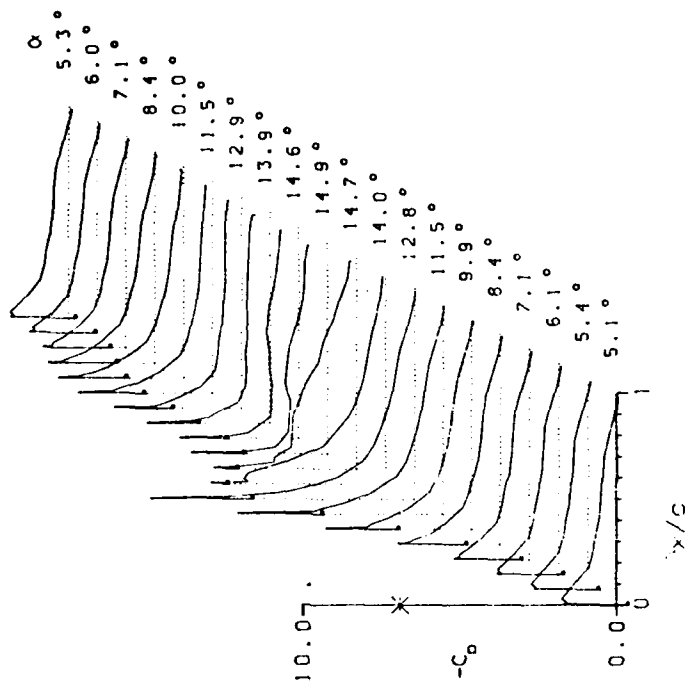
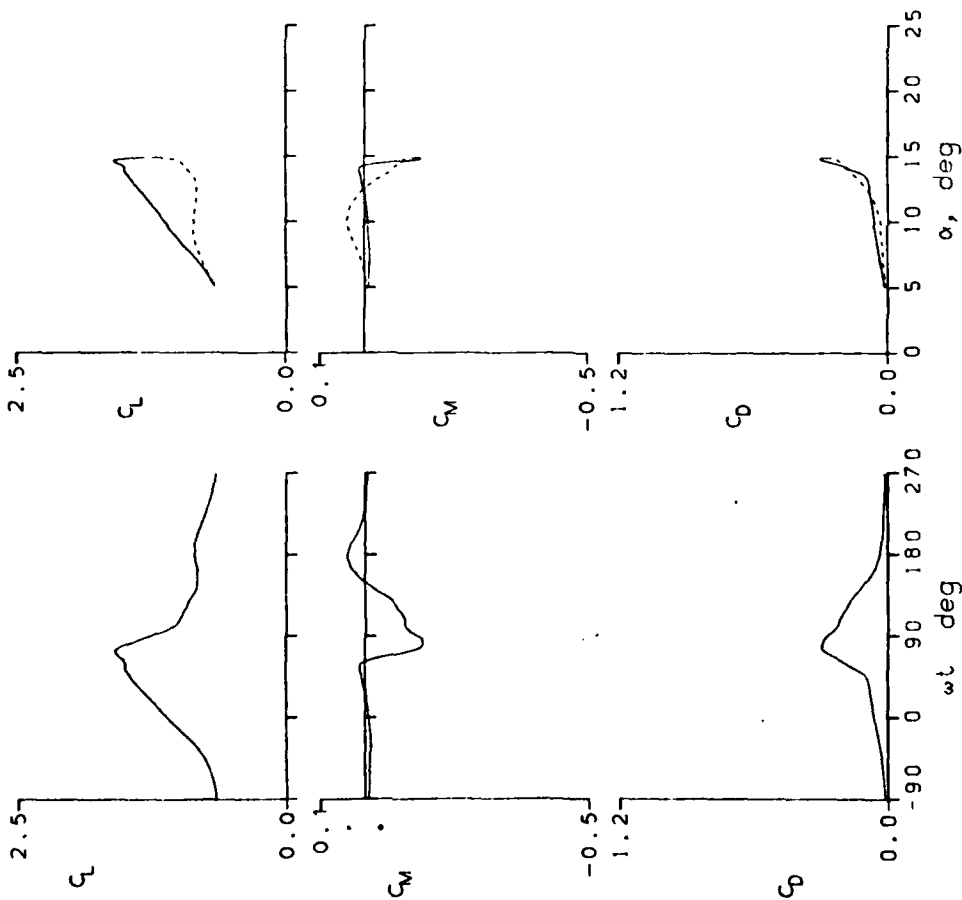


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 63114 $A_0 = 9.90^\circ$ $k = 0.195$
 $Re = 3.75 \text{ E}6$ $A_1 = 4.91^\circ$ $M = 0.302$
 $C_{Lmax} = 1.76$ $C_{Mmin} = -0.22$ $C_{Dmax} = 0.38$
 $\alpha_{Lmax} = 14.9^\circ$ $\xi = 0.264$ $M_{max} = 1.172$
 $\alpha_{Cmin} = 9.7^\circ$ $-C_{Dmax} = 8.6$ $\alpha_{Mmax} = 13.3^\circ$

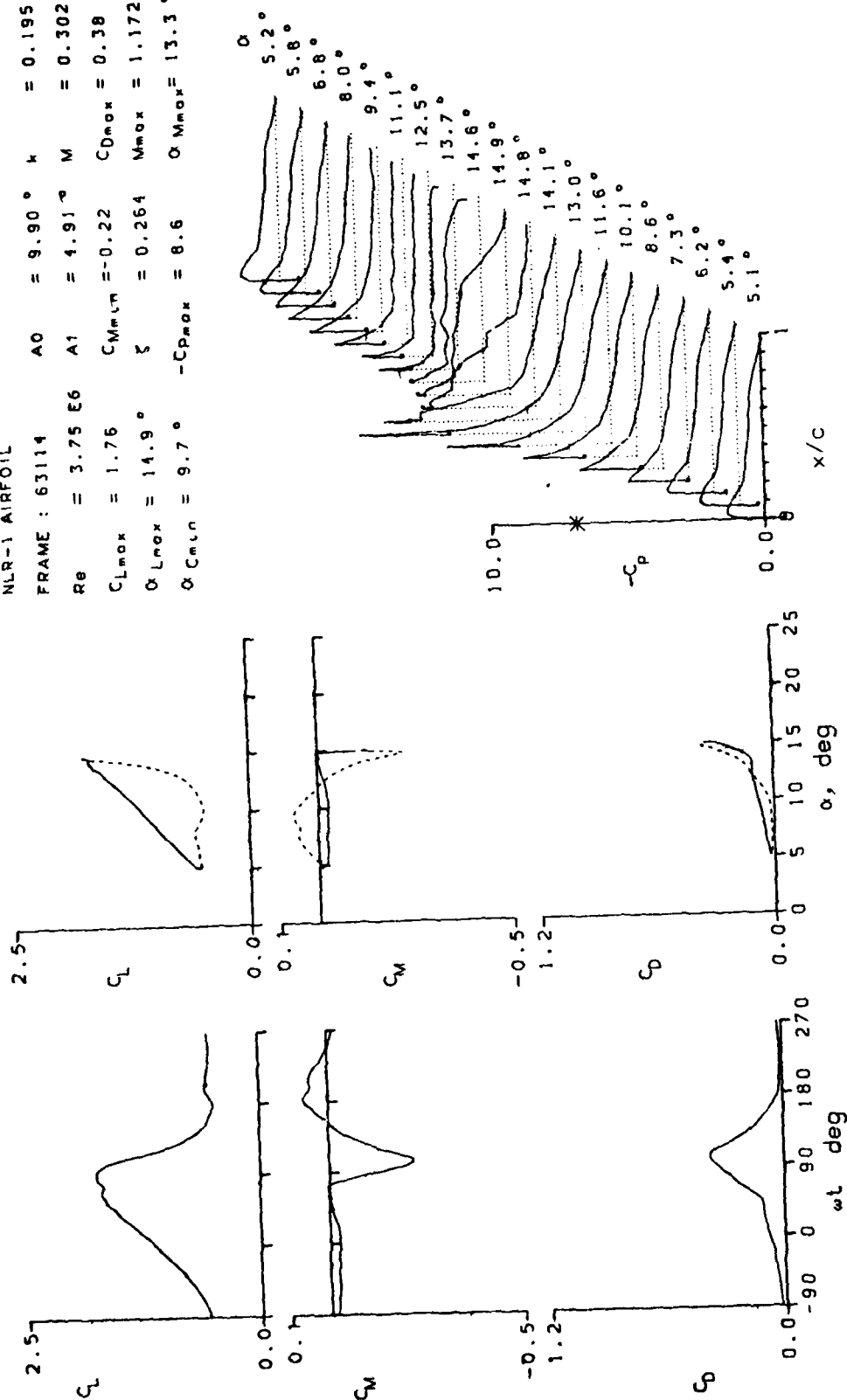


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 63122 $A_0 = 11.91^\circ$ $k = 0.117$
 $Re = 3.74 \text{ E}6$ $A_1 = 7.90^\circ$ $M = 0.300$
 $C_{Lmax} = 1.90$ $C_{Mmin} = -0.30$ $C_{Dmax} = 0.59$
 $\alpha_{Lmax} = 18.1^\circ$ $\zeta = 0.445$ $M_{max} = 1.159$
 $\alpha_{Cmin} = 11.5^\circ$ $-C_{Dmax} = 8.5$ $\alpha_{Mmax} = 14.2^\circ$

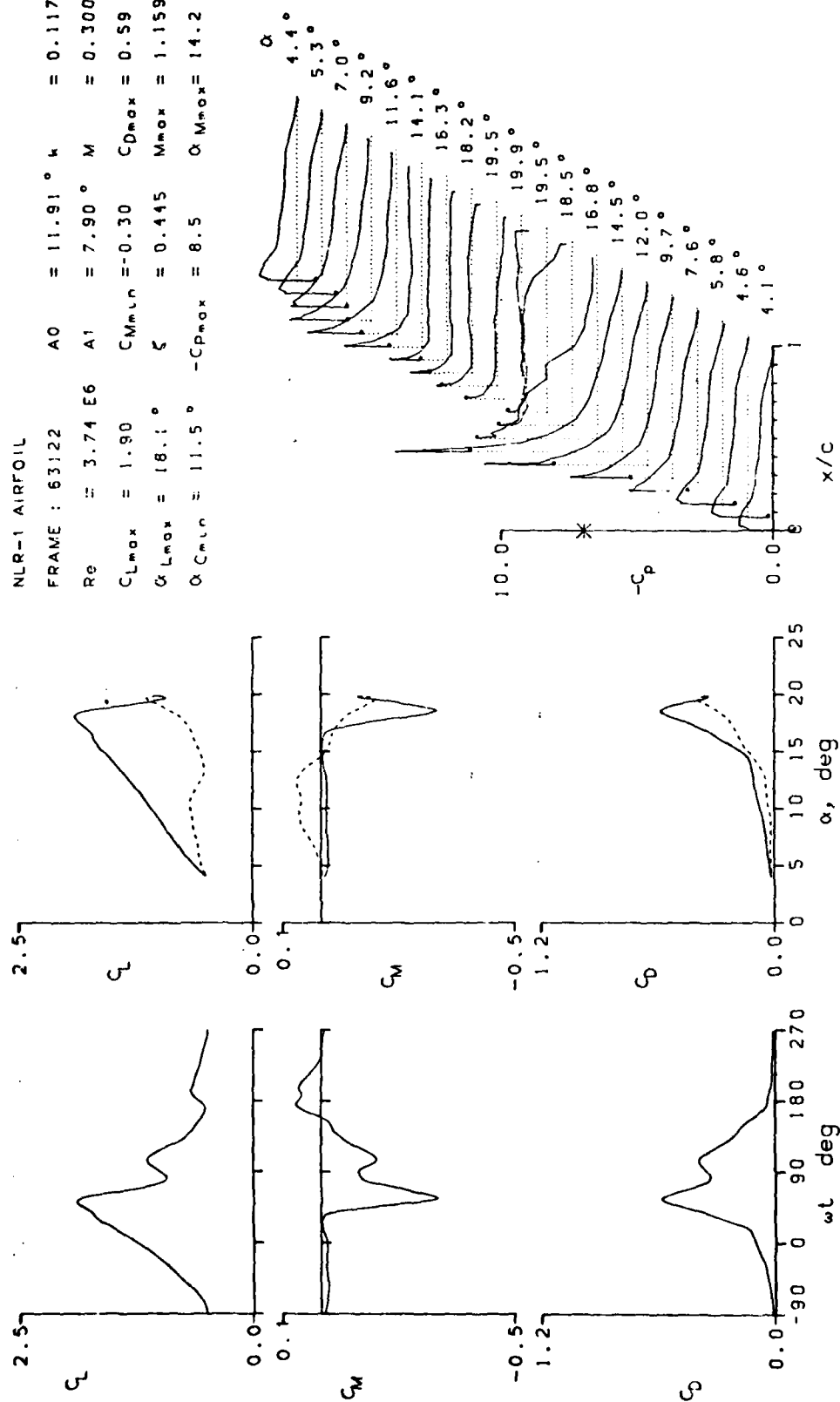


Figure 18.- Continued.

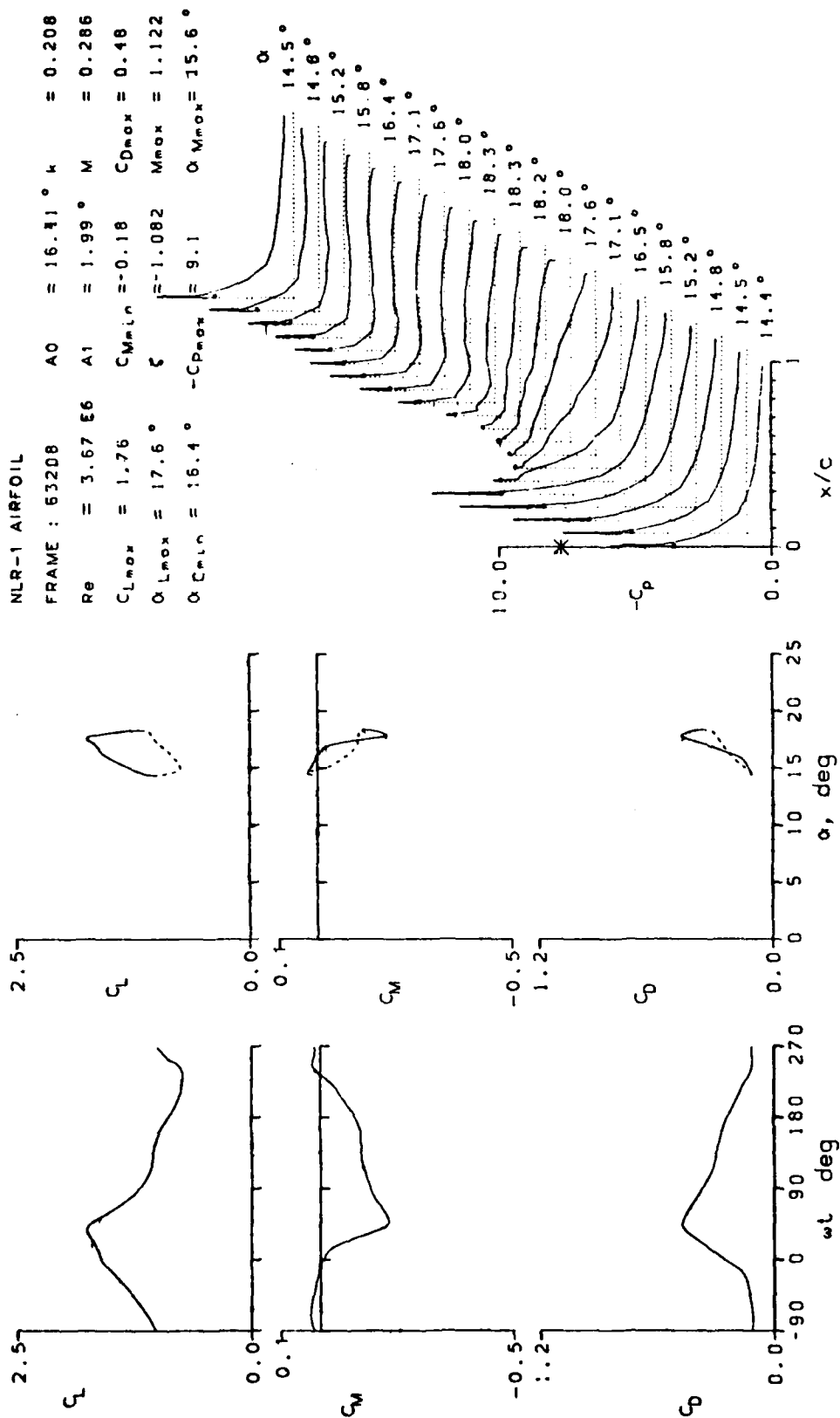


Figure 18.- Continued.

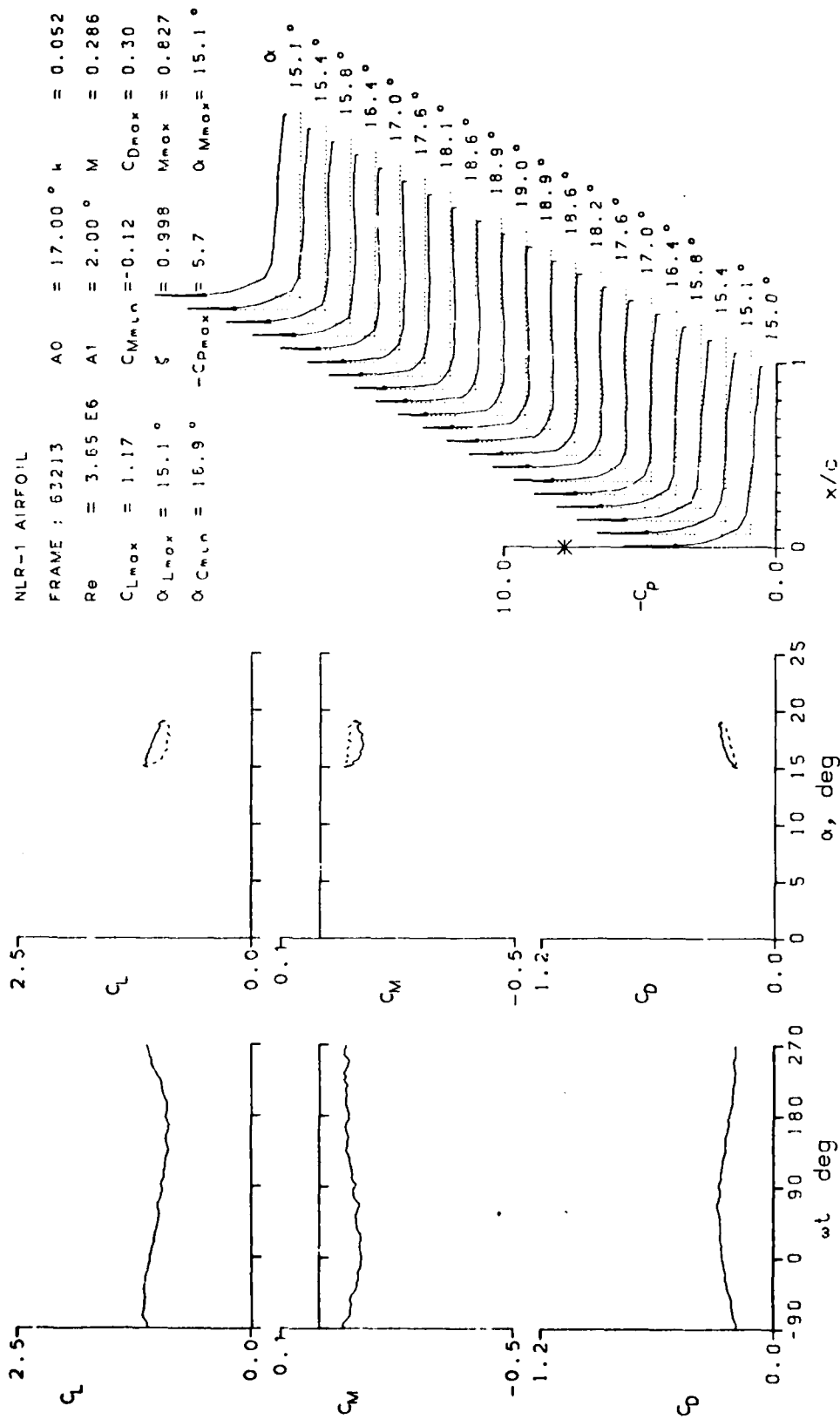


Figure 18.- Continued.

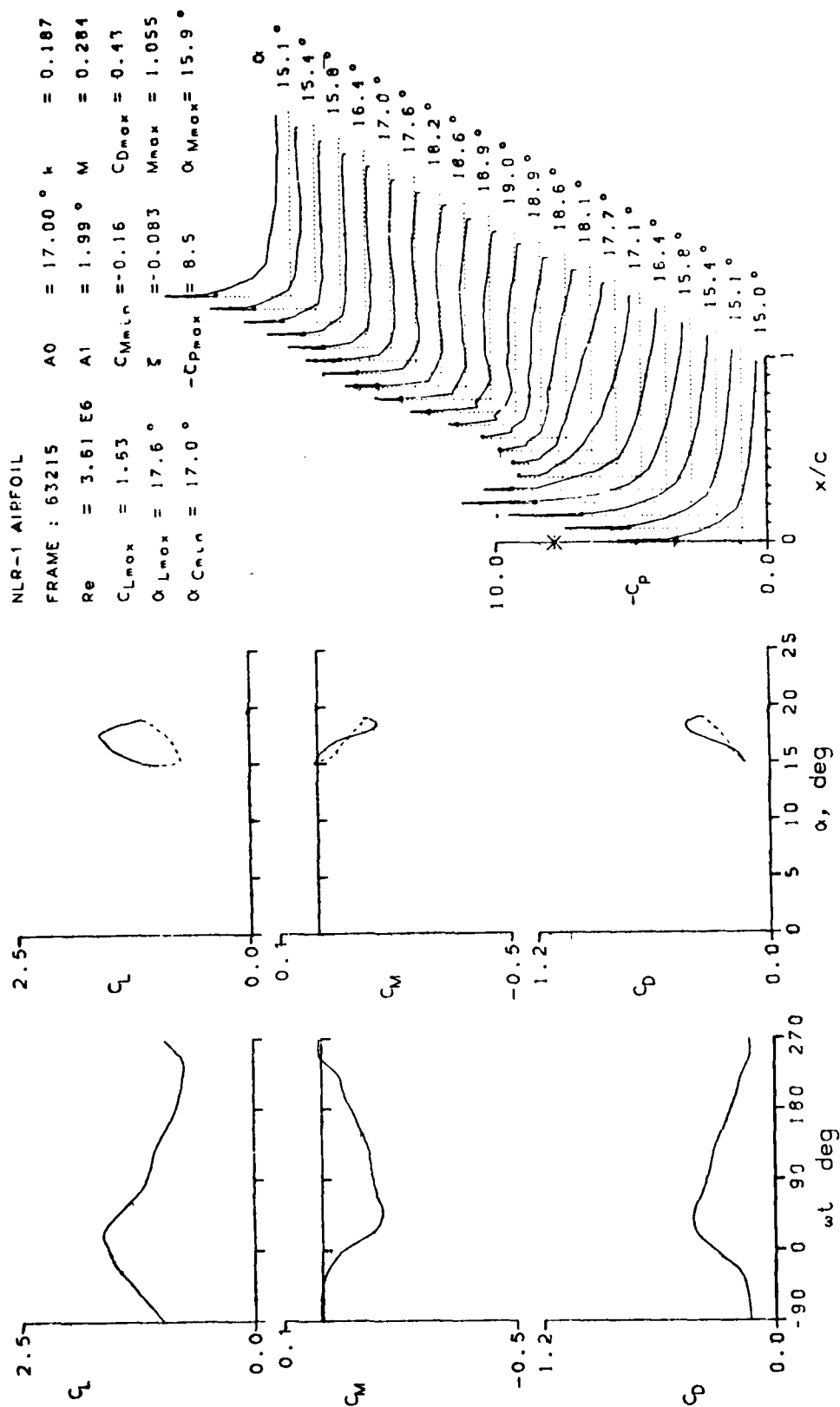


Figure 18.- Continued.

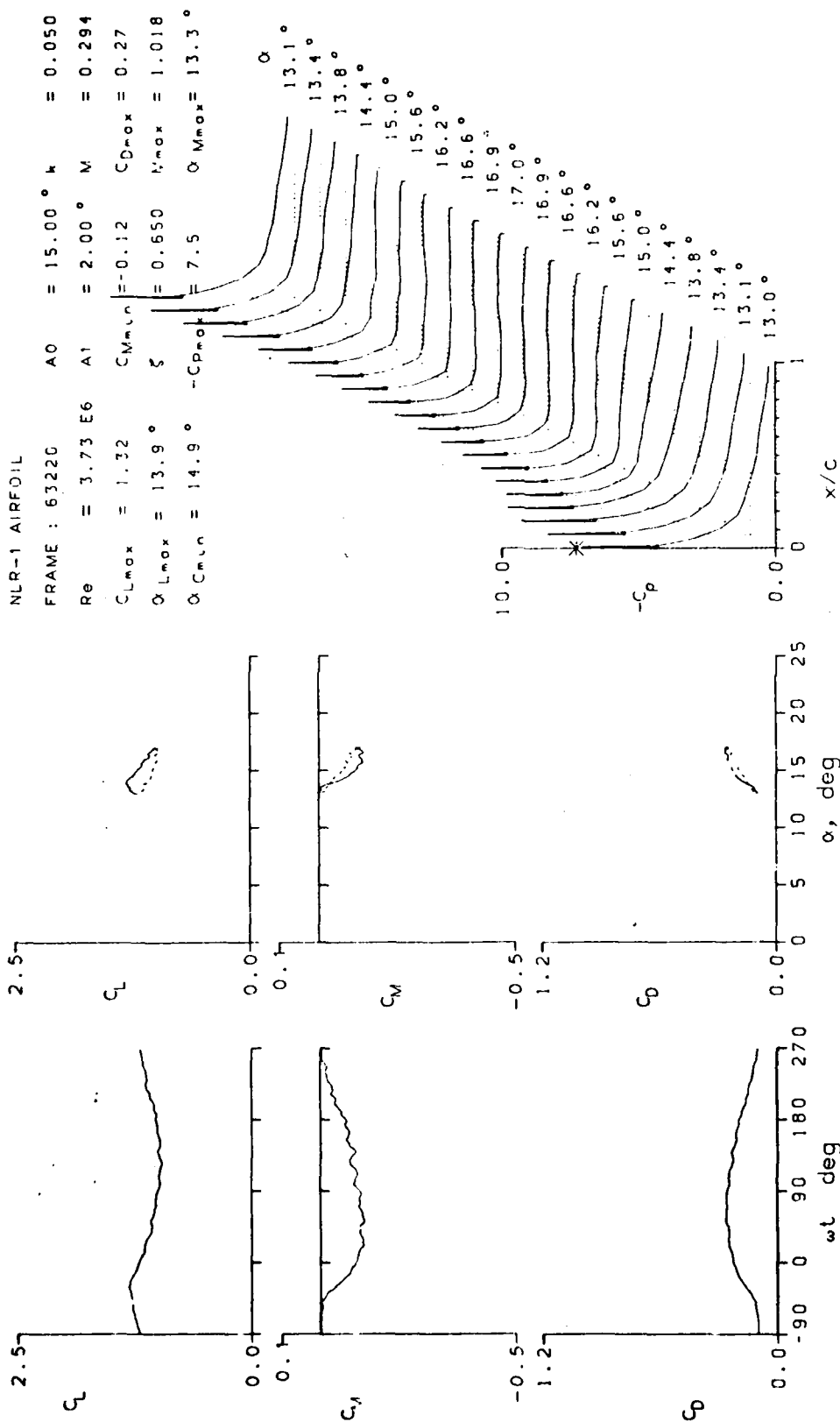


Figure 18.- Continued.

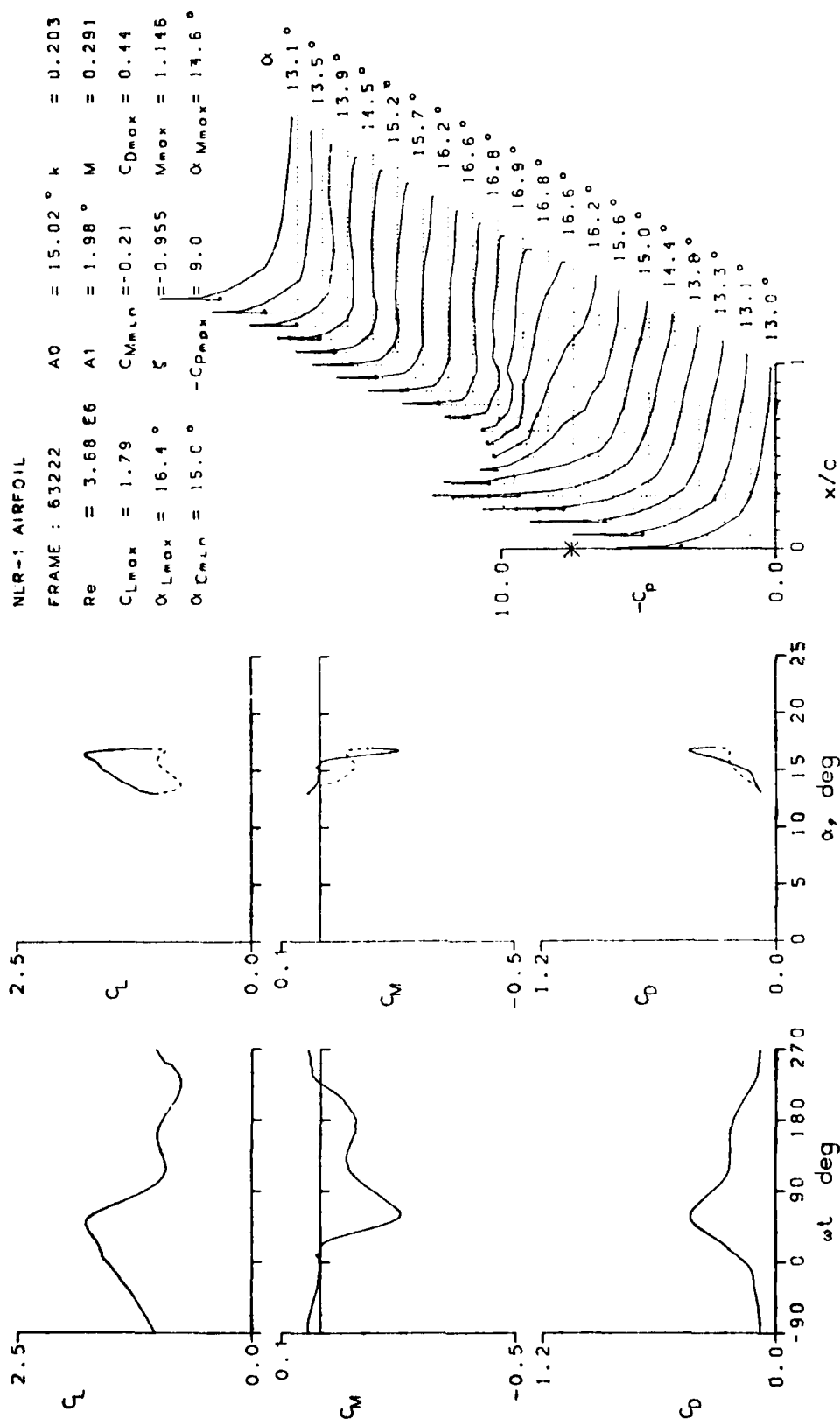


Figure 18.- Continued.

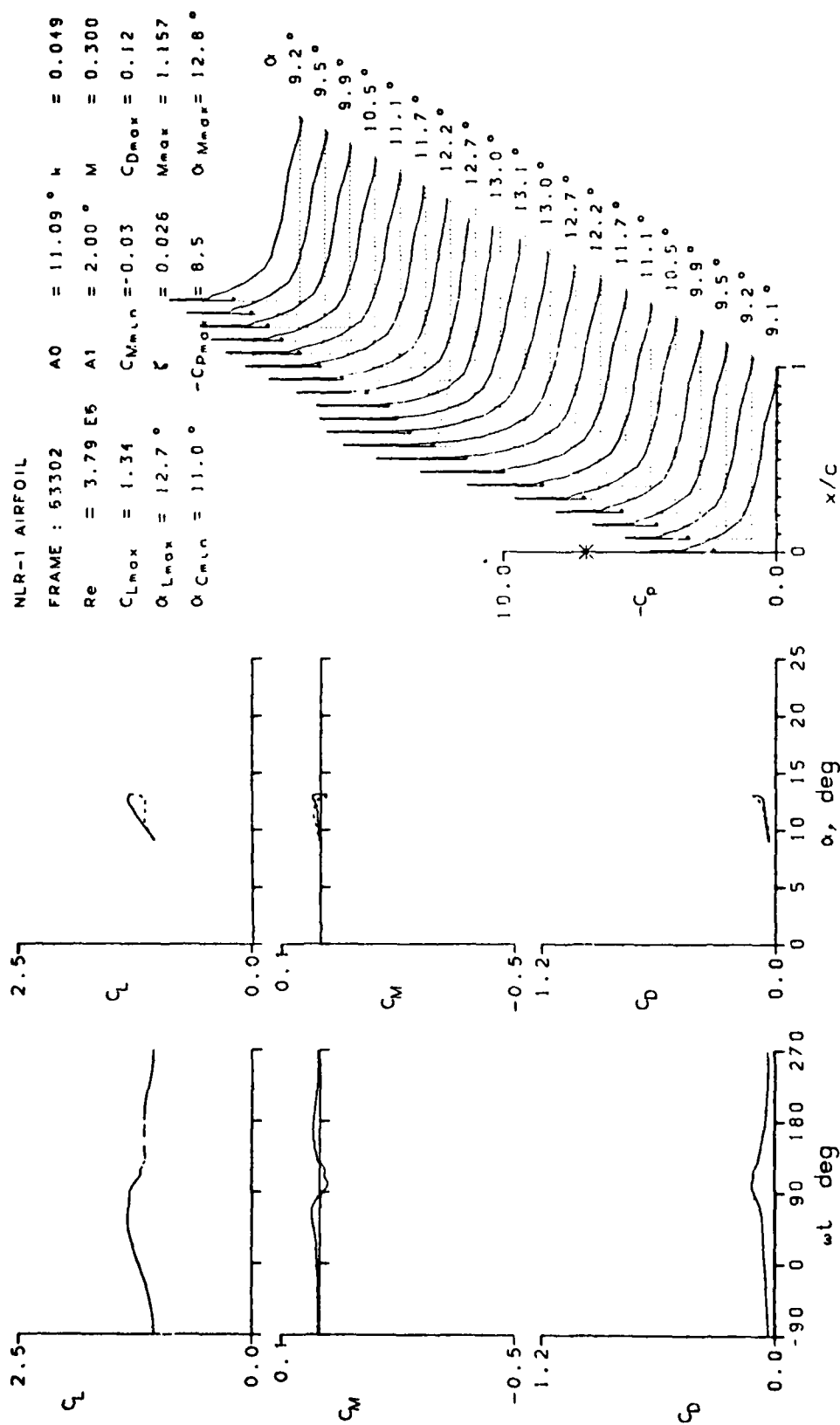


Figure 18.- Continued.

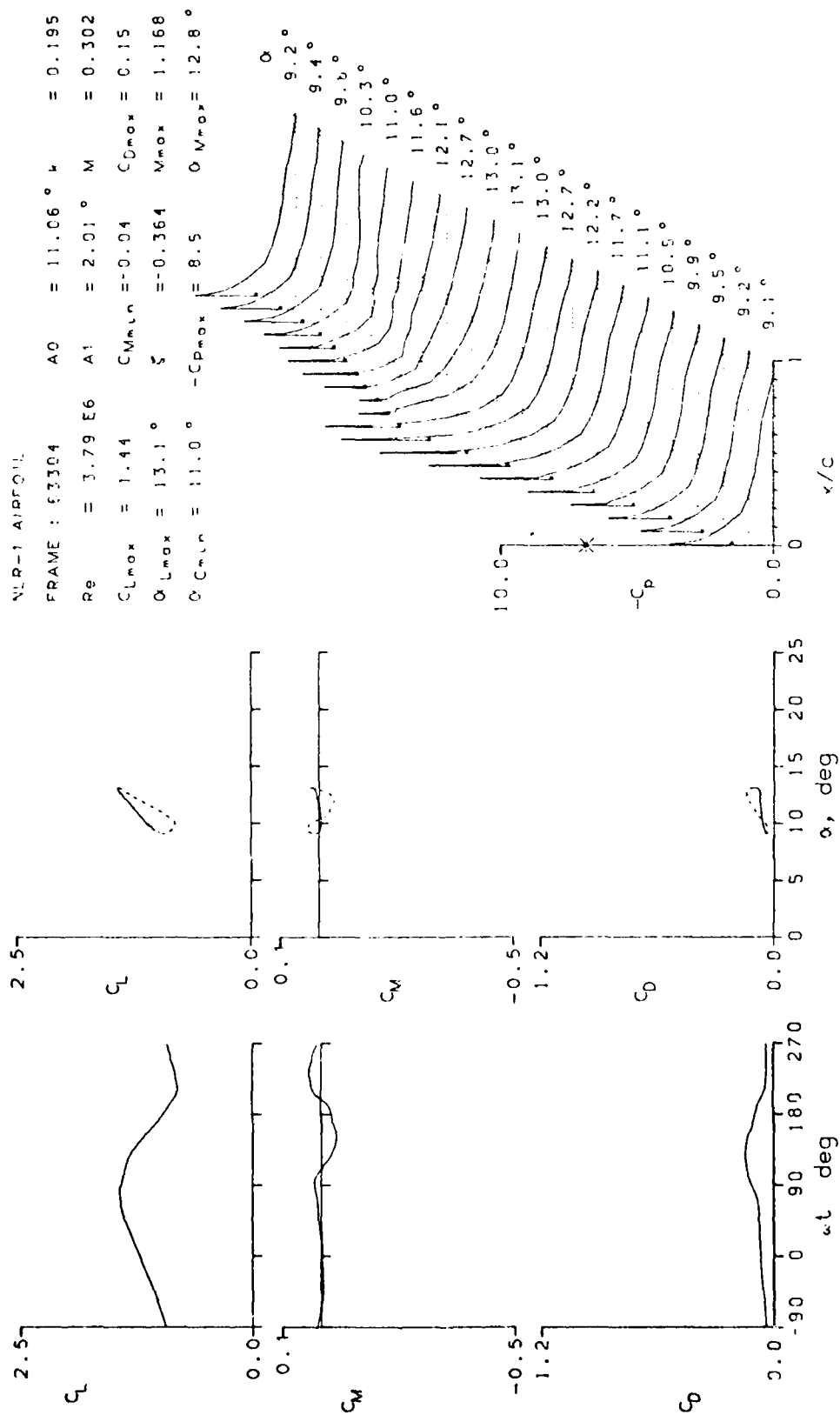


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 65312	$\alpha_0 = 2.35^\circ$	$h = 0.010$
$Re = 3.76 E6$	$\alpha_1 = 10.14^\circ$	$M = 0.302$
$C_{Lmax} = 1.29$	$C_{Mmax} = -0.05$	$C_{Dmax} = 0.09$
$\alpha_{Lmax} = 12.3^\circ$	$\zeta = 0.035$	$M_{max} = 1.116$
$\alpha_{Cmin} = 2.0^\circ$	$-C_{Dmax} = 8.0$	$\alpha_{Mmax} = 12.3^\circ$

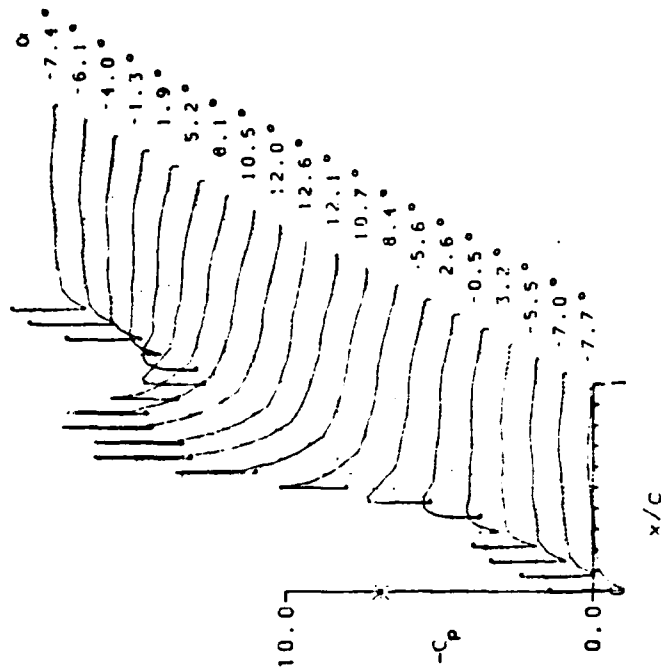
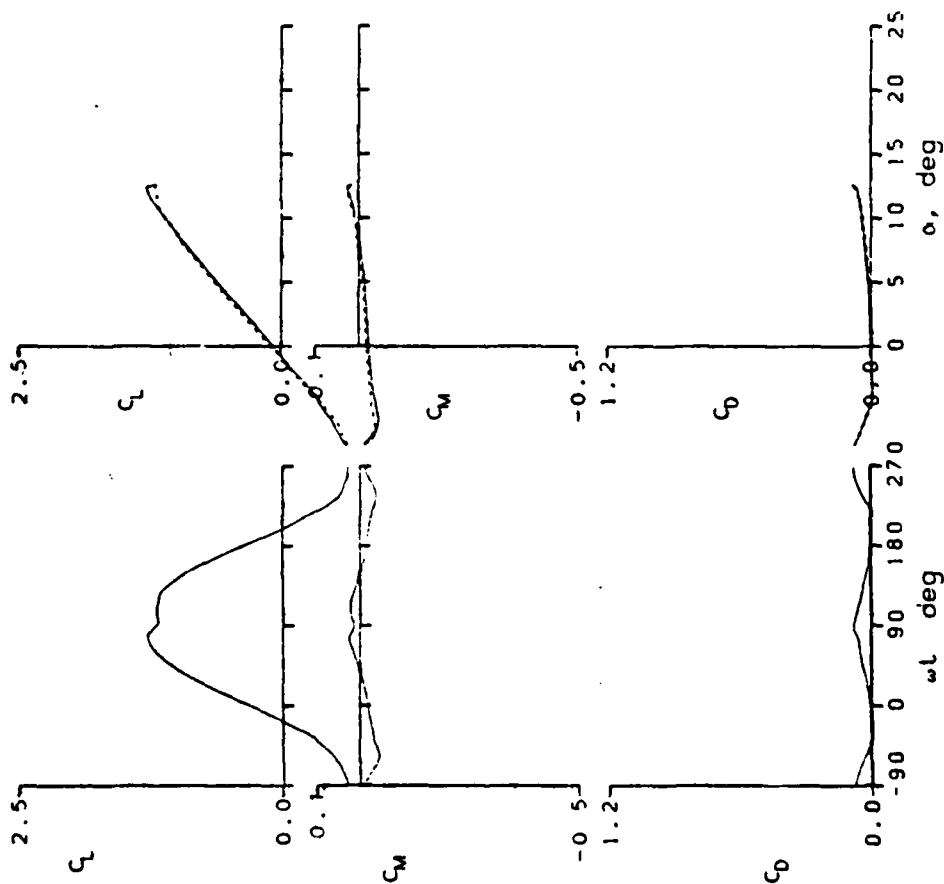


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 63314	A0 = 2.35°	h = 0.024
Re = 3.74 E6	A1 = 10.15°	M = 0.302
CLmax = 1.32	CMmin = -0.05	CDmax = 0.09
OLmax = 12.4°	ξ = 0.077	Mmax = 1.143
OLCMIN = 1.9°	-CDmax = 0.3	OLMmax = 12.5°

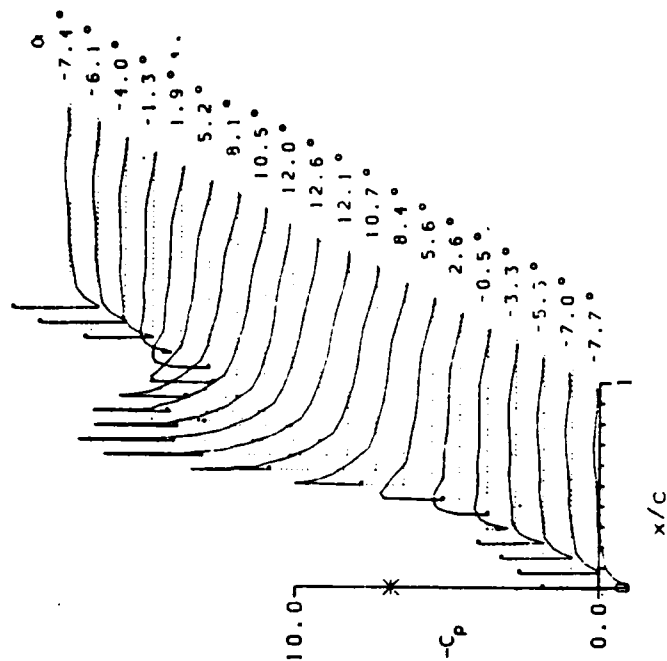
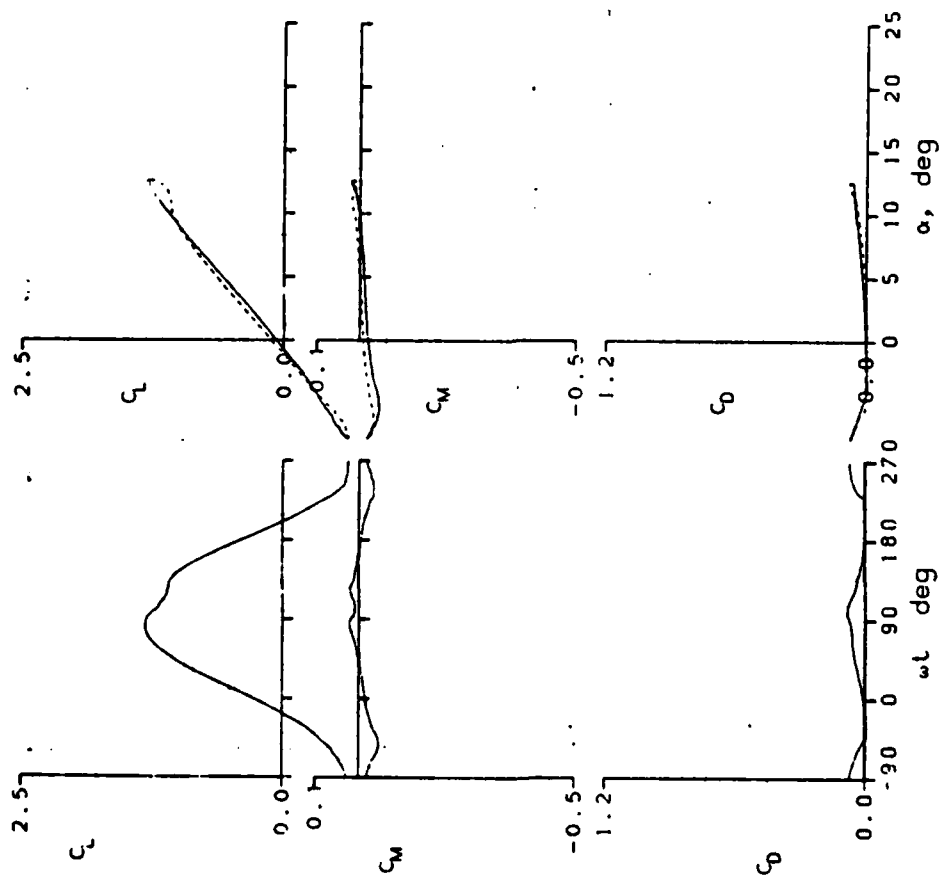


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 63318	$A_0 = 2.35^\circ$	$\mu = 0.049$
$Re = 3.76 E6$	$A_1 = 10.15^\circ$	$M = 0.303$
$C_{Lmax} = 1.34$	$C_{Mmin} = -0.06$	$C_{Dmax} = 0.09$
$\alpha_{Lmax} = 12.4^\circ$	$\zeta = 0.148$	$M_{max} = 1.151$
$\alpha_{Cmin} = 1.9^\circ$	$-C_{Dmax} = 8.3$	$\alpha_{Mmax} = 12.6^\circ$

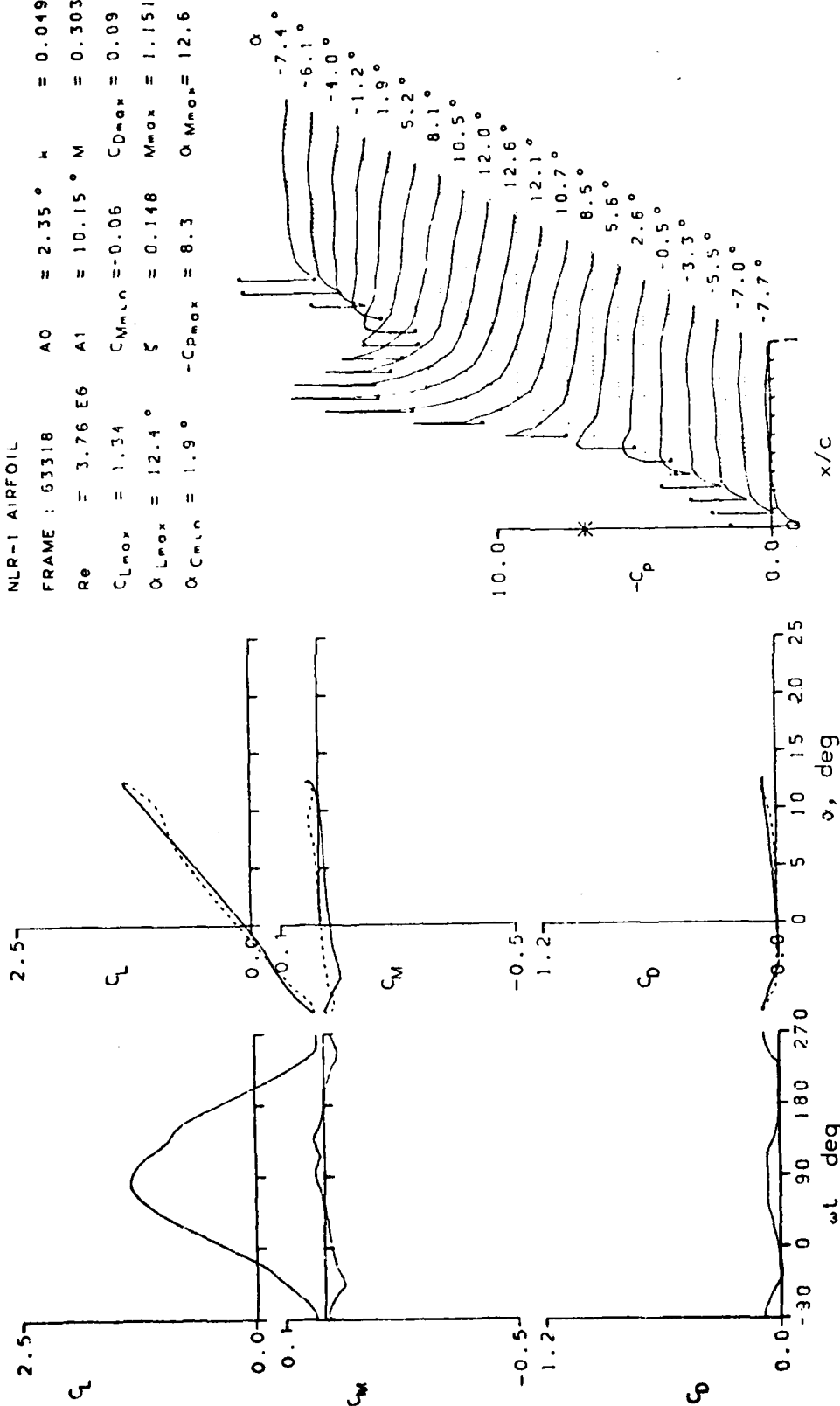


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 63320	A0 = 2.34°	h = 0.097
Re = 3.74 E6	A1 = 10.15°	M = 0.303
CLmax = 1.36	CMmin = -0.07	CDmax = 0.08
OLmax = 12.6°	ξ = 0.317	Mmax = 1.153
OCmin = 0.1°	-CDmax = 8.3	OMax = 12.5°

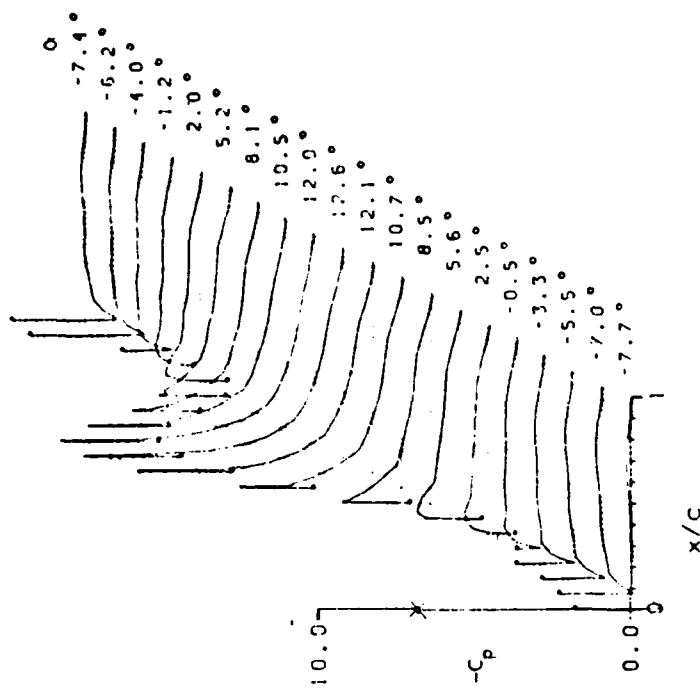
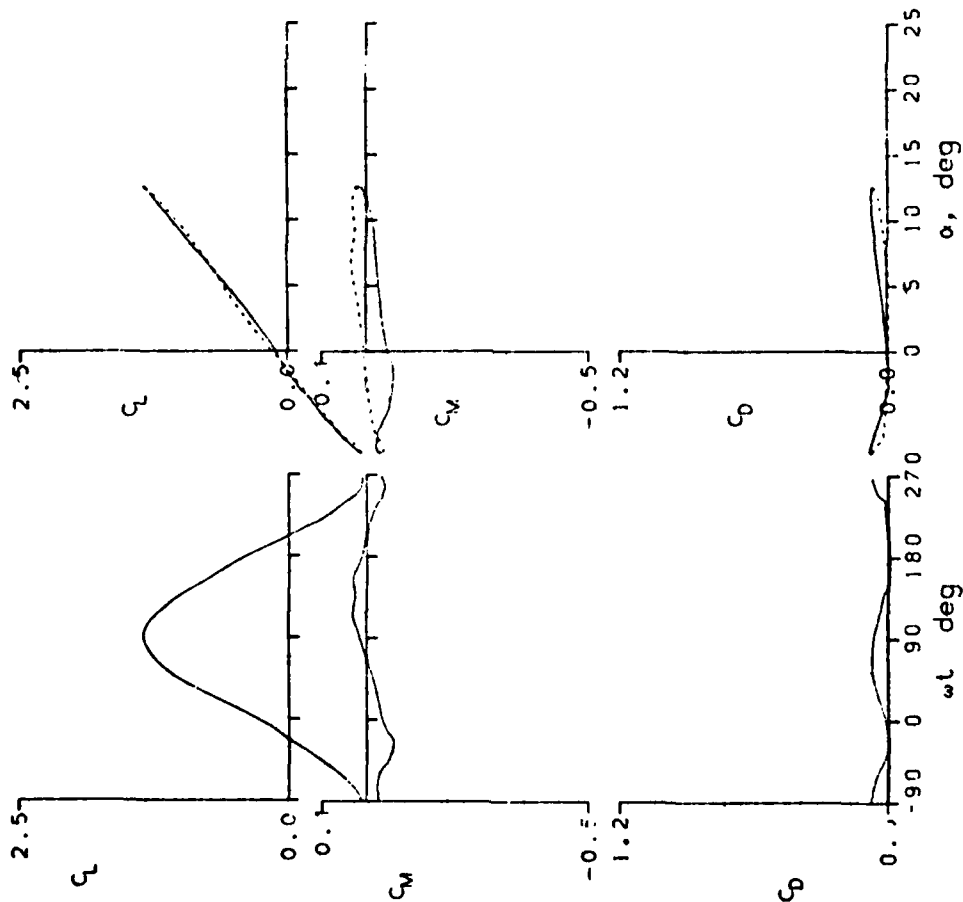


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 63323 $A_0 = 2.54^\circ$ $k = 0.097$
 $Re = 3.75 \text{ E}6$ $A_1 = 10.15^\circ$ $M = 0.303$
 $C_{Lmax} = 1.37$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.08$
 $\alpha_{Lmax} = 12.7^\circ$ $\xi = 0.315$ $M_{max} = 1.157$
 $\alpha_{Cmin} = 0.3^\circ$ $-C_{Dmax} = 8.4$ $\alpha_{Mmax} = 12.7^\circ$

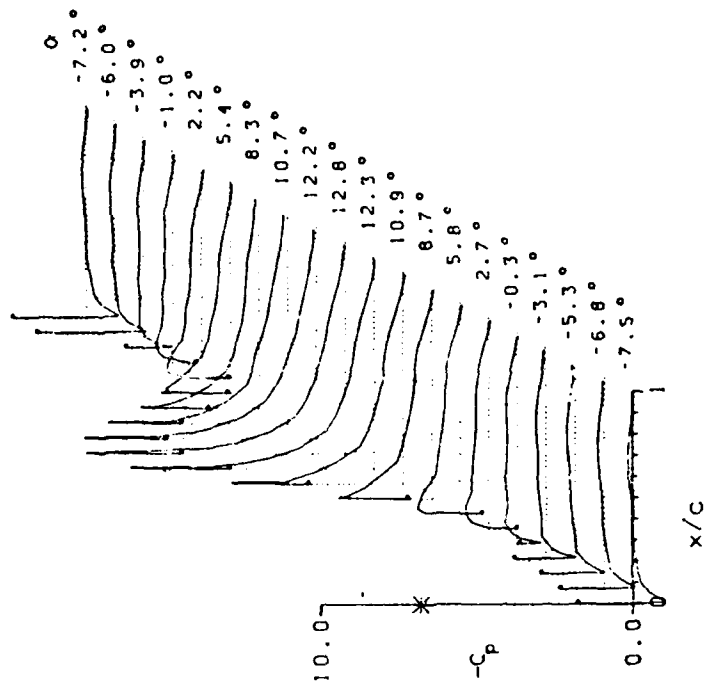
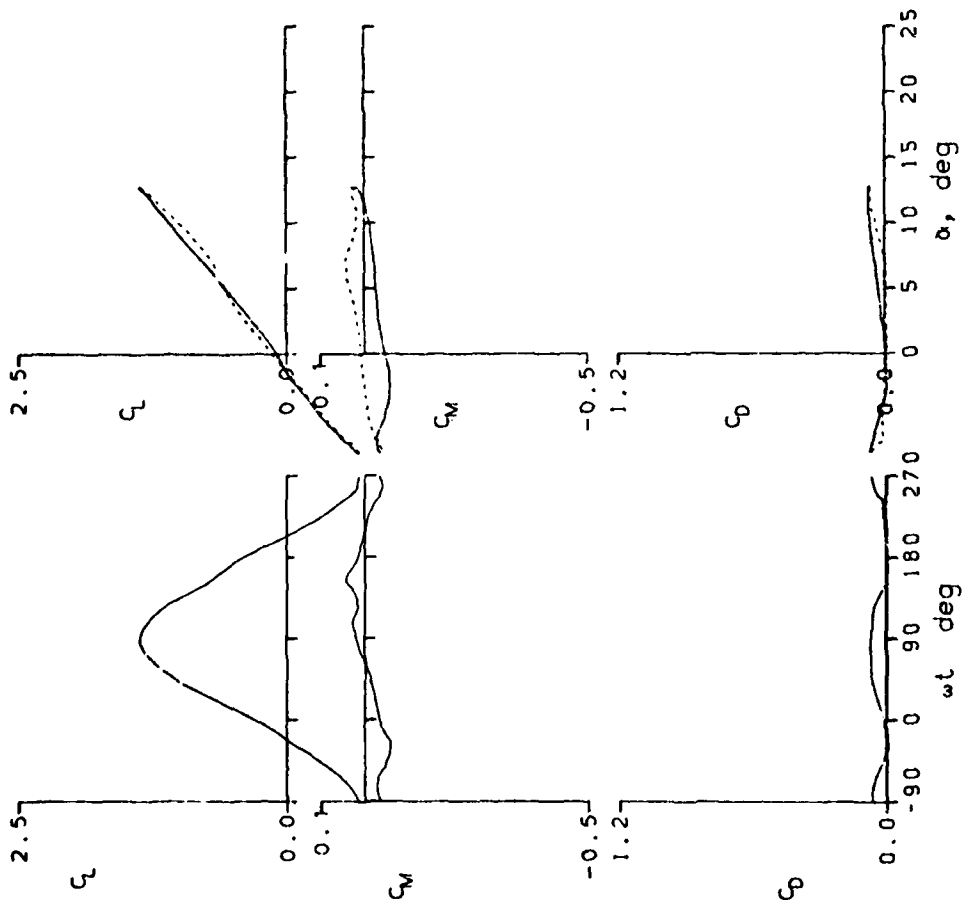


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64019	A0 = 14.77°	k = 0.025	TRIP
Re = 3.87 E6	A1 = 9.90°	M = 0.296	
C _{Lmax} = 1.51	C _{Mmin} = -0.18	C _{Dmax} = 0.44	
α _{Lmax} = 14.2°	ξ = 0.180	M _{max} = 0.976	
α _{Cmin} = 14.2°	-C _{pmax} = 6.9	α _{Mmax} = 12.7°	

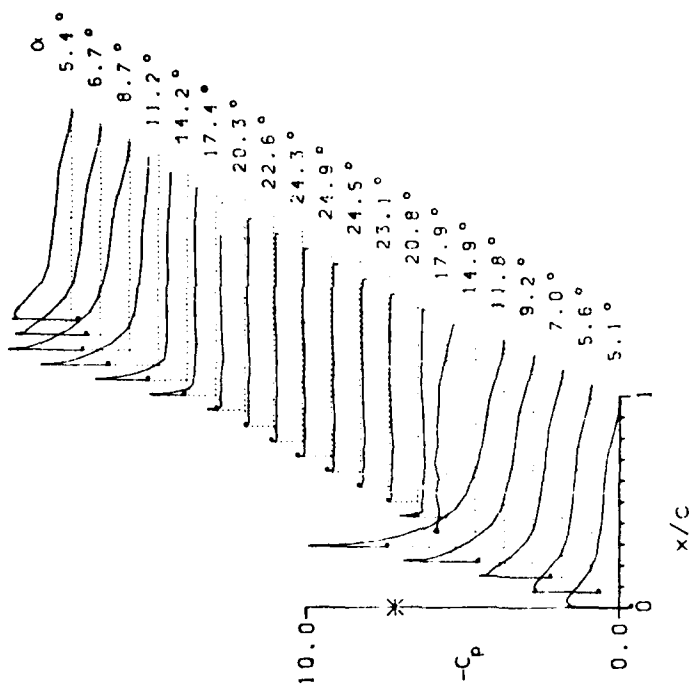
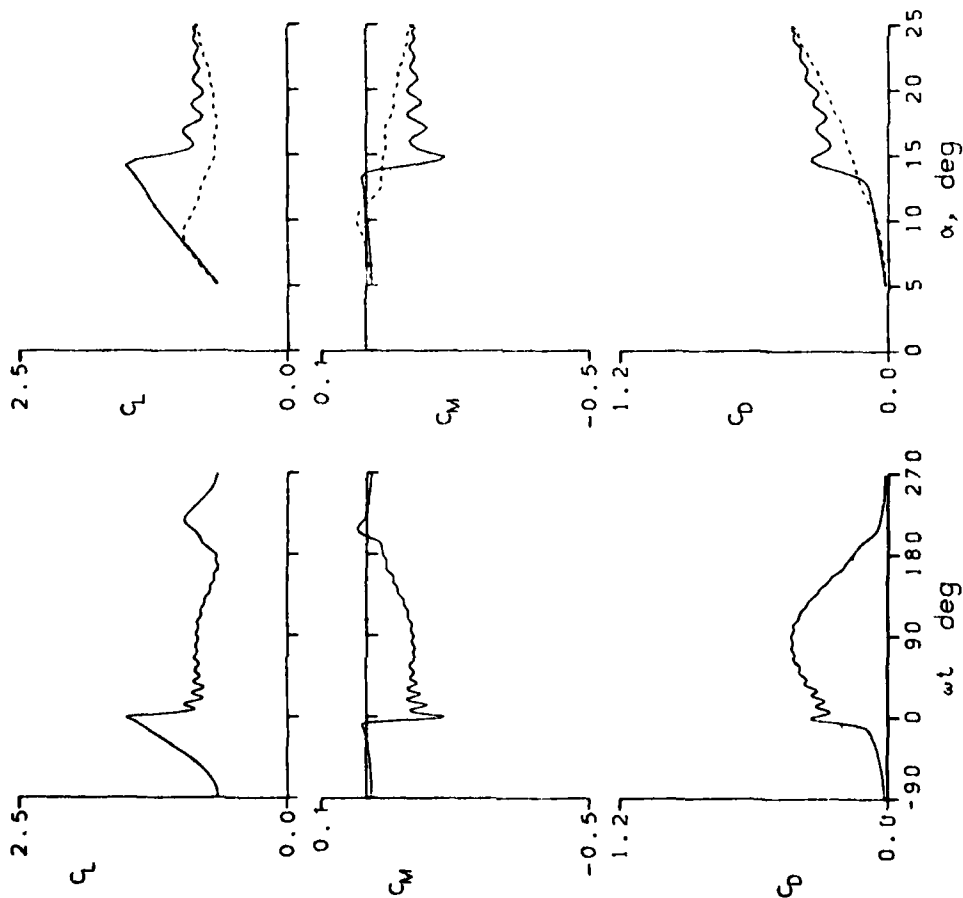


Figure 18.- Continued.

NLR-1 AIRFOIL

FRATE : 54021	A0 = 14.77 °	k = 0.049	TRIP
Re = 3.81 E6	A1 = 9.90 °	M = 0.295	
CLmax = 1.73	CMmin = -0.26	CDmax = 0.48	
OLmax = 15.8 °	ξ = 0.384	Mmax = 0.994	
OLmin = 14.2 °	-CDmax = 7.1	OLmax = 13.3 °	

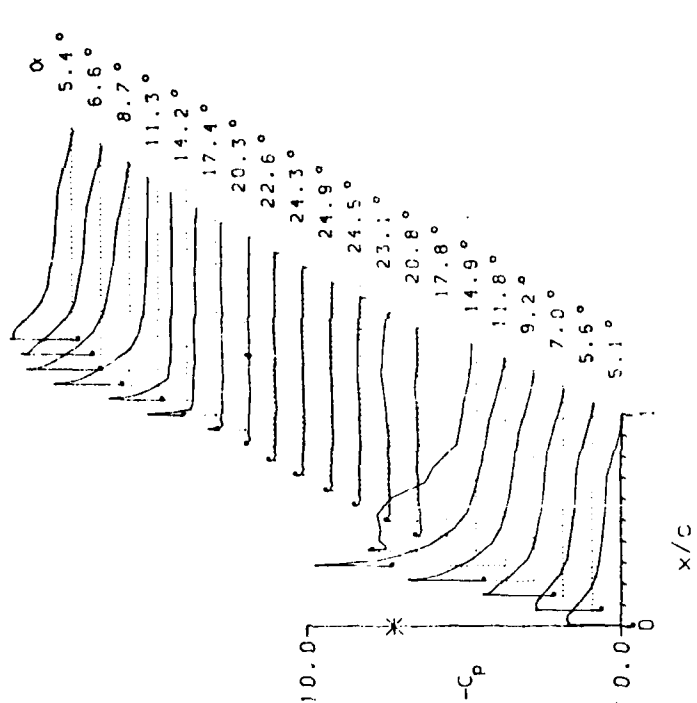
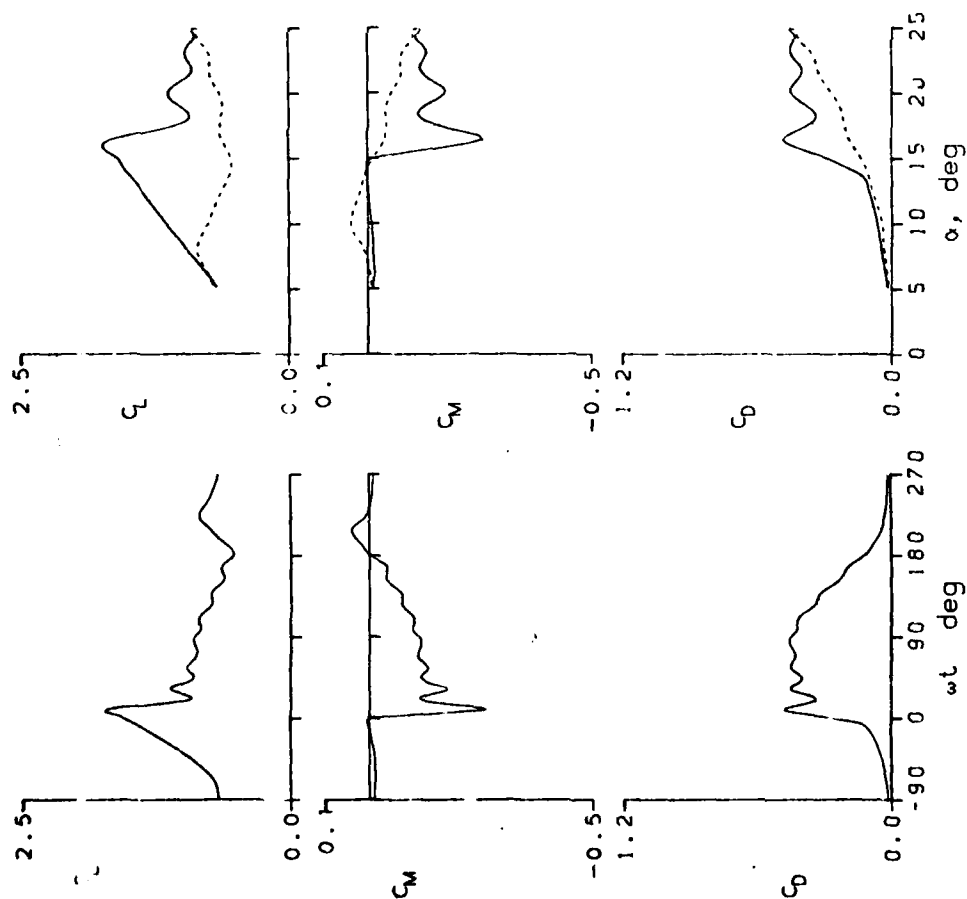


Figure 18.- Continued.

NLR-1 AIRFOIL TRIP
 FRAME : 64023 A0 = 14.79° k = 0.100
 Re = 3.75 E6 A1 = 9.91° M = 0.292
 CLmax = 2.01 CMmin = -0.37 CDmax = 0.70
 OLmax = 18.8° ξ = 0.668 Mmax = 0.990
 O CMmin = 14.4° -CPmax = 7.3 O Mmax = 14.0°

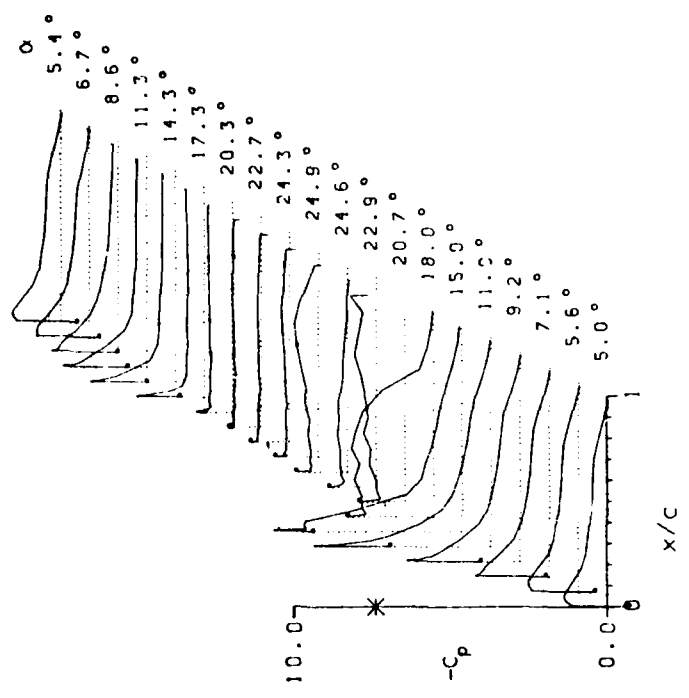
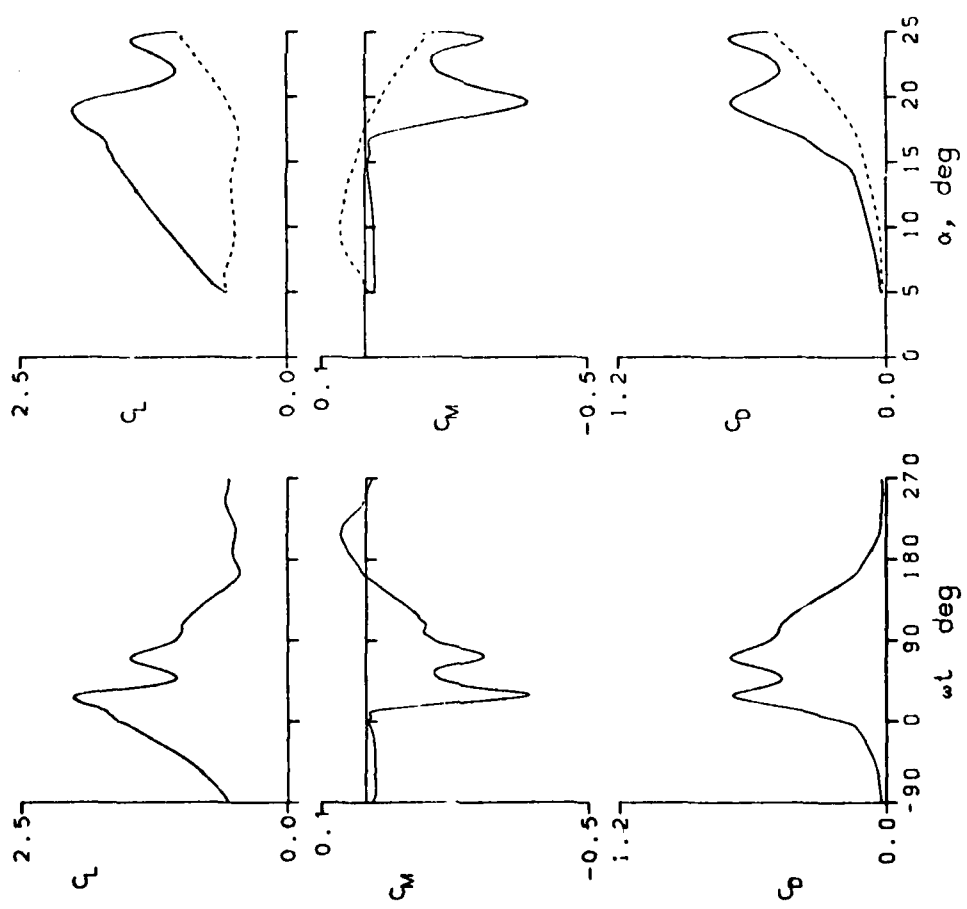


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64107	A0 = 14.77°	k = 0.050	TRIP
Re = 2.45 E6	A1 = 9.90°	M = 0.185	
CLmax = 1.87	CMmin = -0.31	CDmax = 0.59	
αLmax = 17.9°	ξ = 0.360	Mmax = 0.618	
αCMmin = 14.3°	-CDmax = 8.8	αMmax = 15.8°	

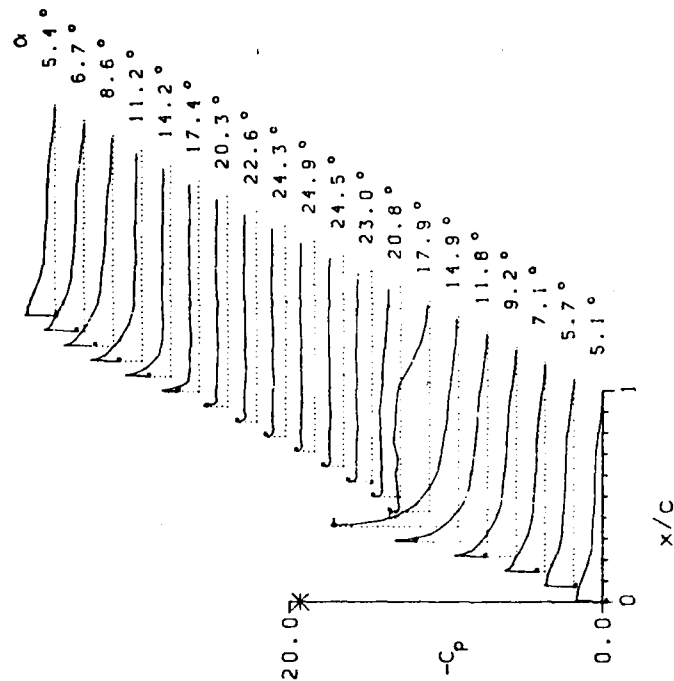
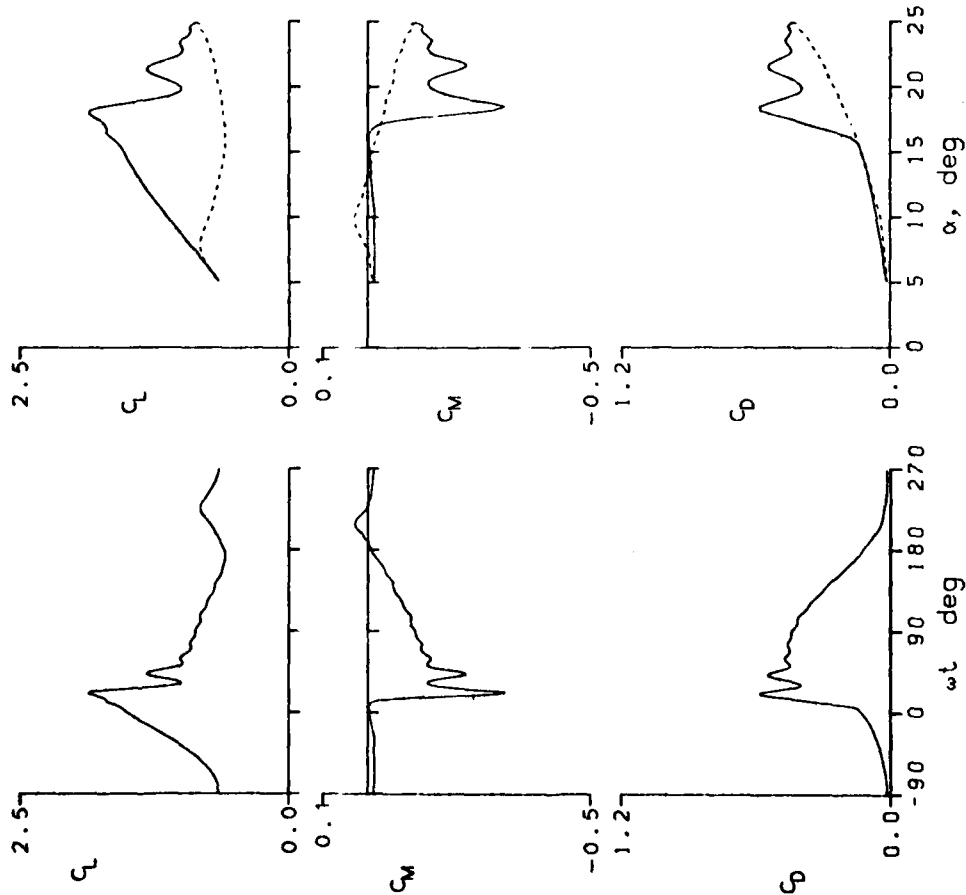


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64109	A0	= 14.78 °	k	= 0.099
Re = 2.44 E6	A1	= 9.90 °	M	= 0.184
CLmax = 2.15	CMmin	= -0.39	CDmax	= 0.80
αLmax = 20.5 °	ζ	= 0.494	Mmax	= 0.644
αCmin = 14.2 °	-CPmax	= 9.5	αMmax	= 16.7 °

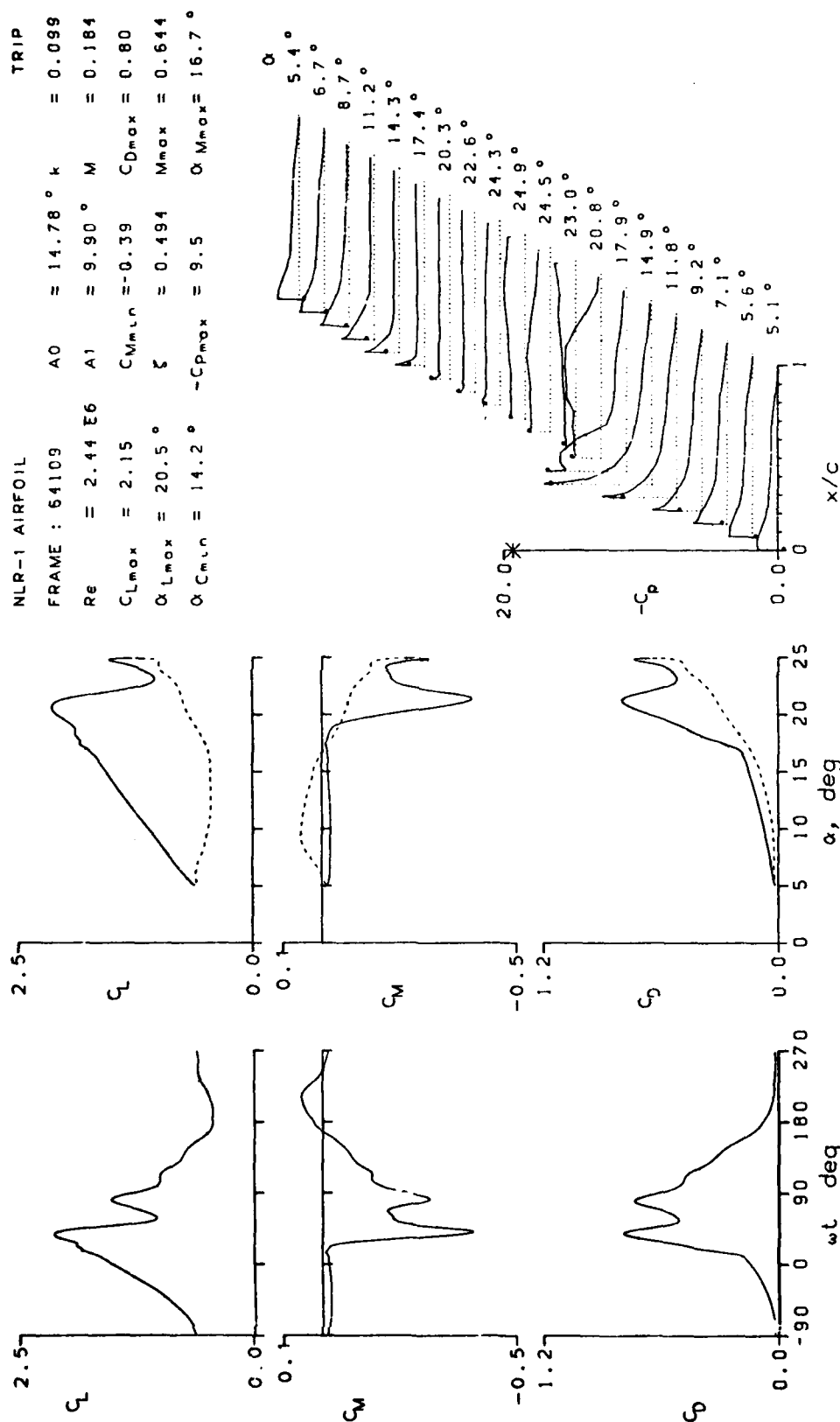


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64111	A0 = 14.79°	k = 0.148	TRIP
Re = 2.44 E6	A1 = 9.90°	M = 0.185	
CLmax = 2.32	CMmin = -0.44	CDmax = 0.96	
αLmax = 22.2°	ξ = 0.347	Mmax = 0.657	
αCMmin = 14.3°	-CDmax = 9.8	αMmax = 17.7°	

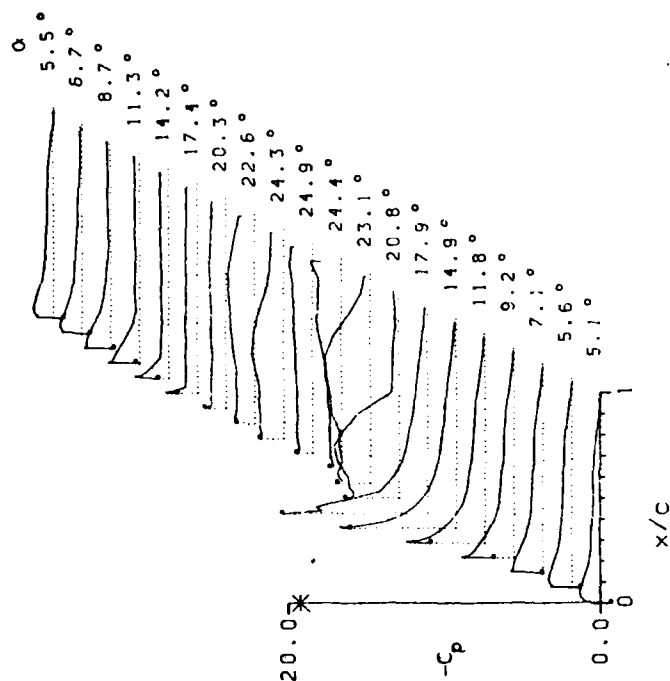
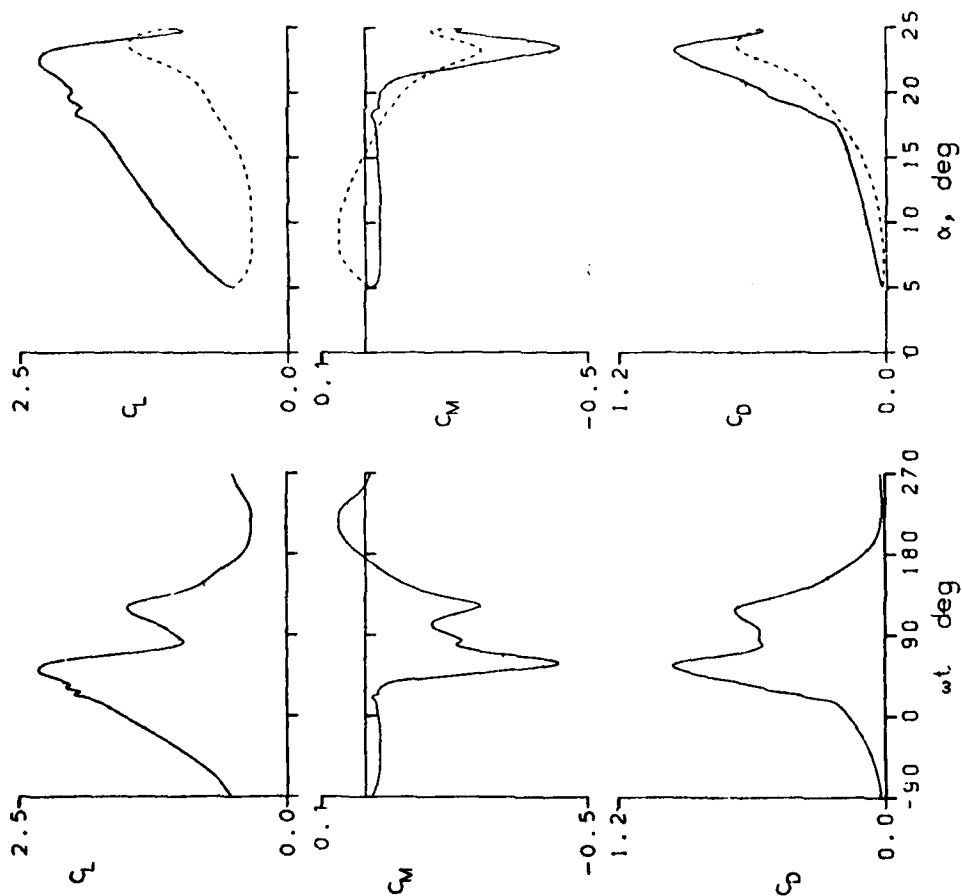


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64119	A0 = 2.35°	k = 0.010	TRIP
Re = 3.82 E6	A1 = 10.15°	M = 0.302	
C _{Lmax} = 1.30	C _{Mmin} = -0.05	C _{Dmax} = 0.15	
α _{Lmax} = 12.2°	ξ = 0.025	M _{max} = 0.965	
α _{Cmin} = 2.0°	-C _{pmax} = 6.5	α _{Mmax} = 12.1°	

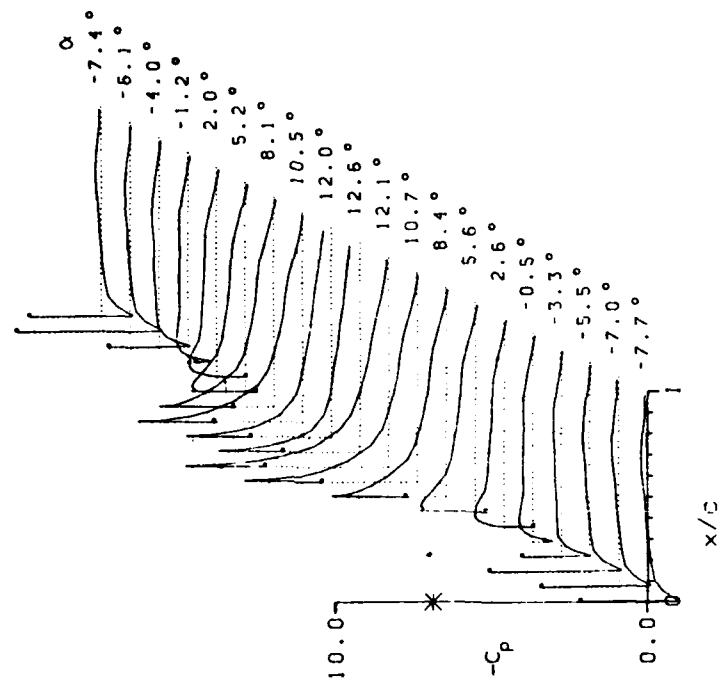
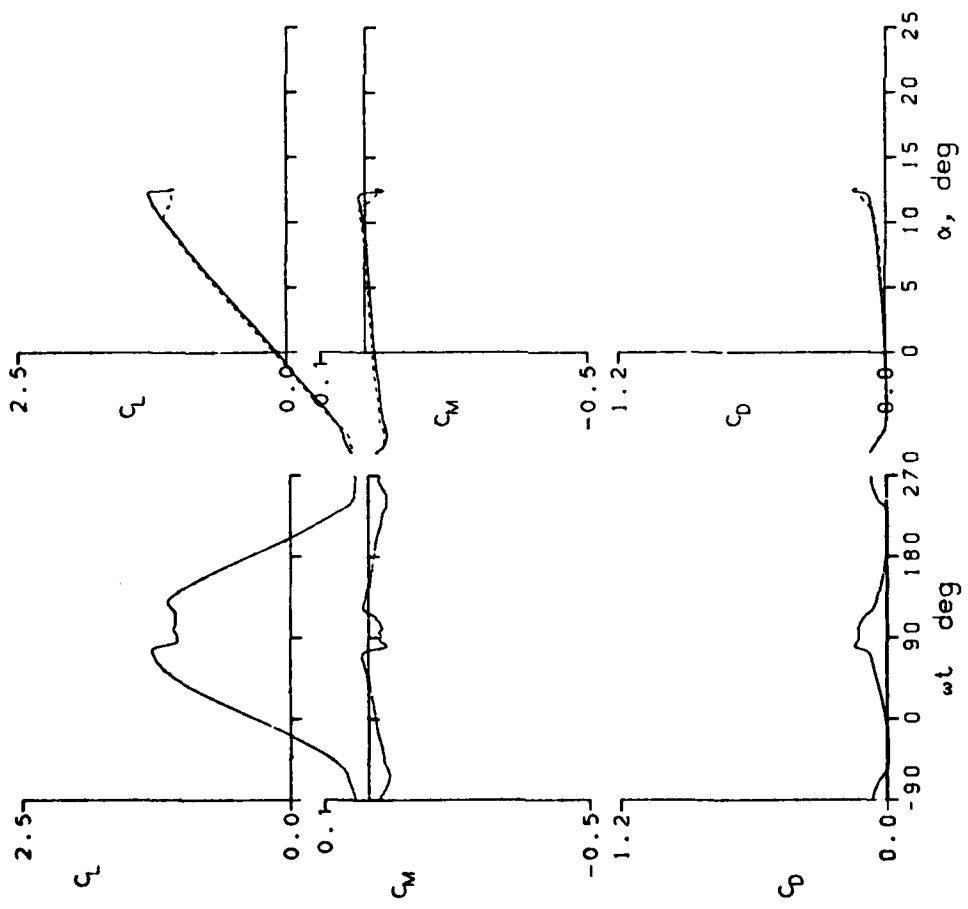


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64J21	A0 = 2.36°	k = 0.024
Re = 3.79 E6	A1 = 10.15°	M = 0.302
CLmax = 1.35	CMmin = -0.09	CDmax = 0.20
αLmax = 12.5°	ξ = 0.069	Mmax = 0.988
αCMmin = 2.0°	-CDmax = 6.8	ΔMmax = 12.4°

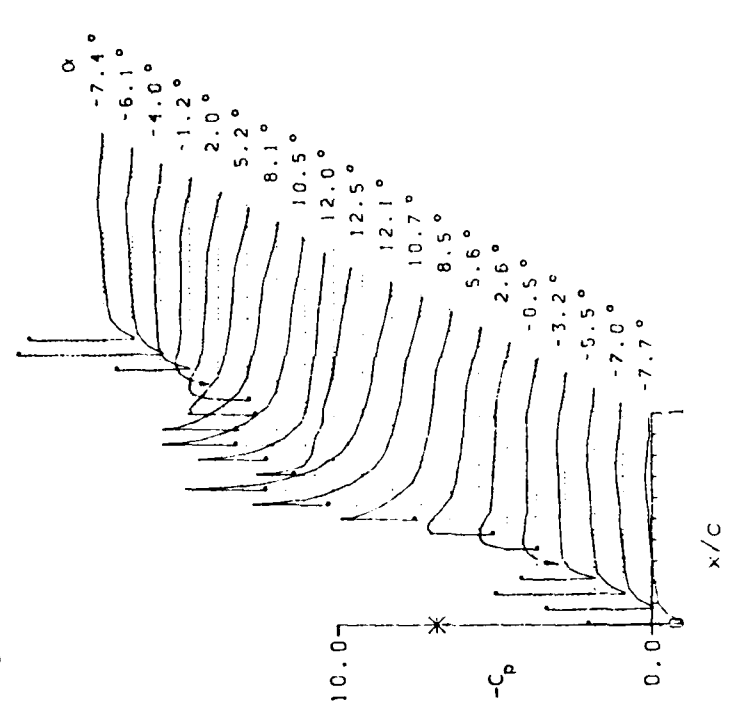
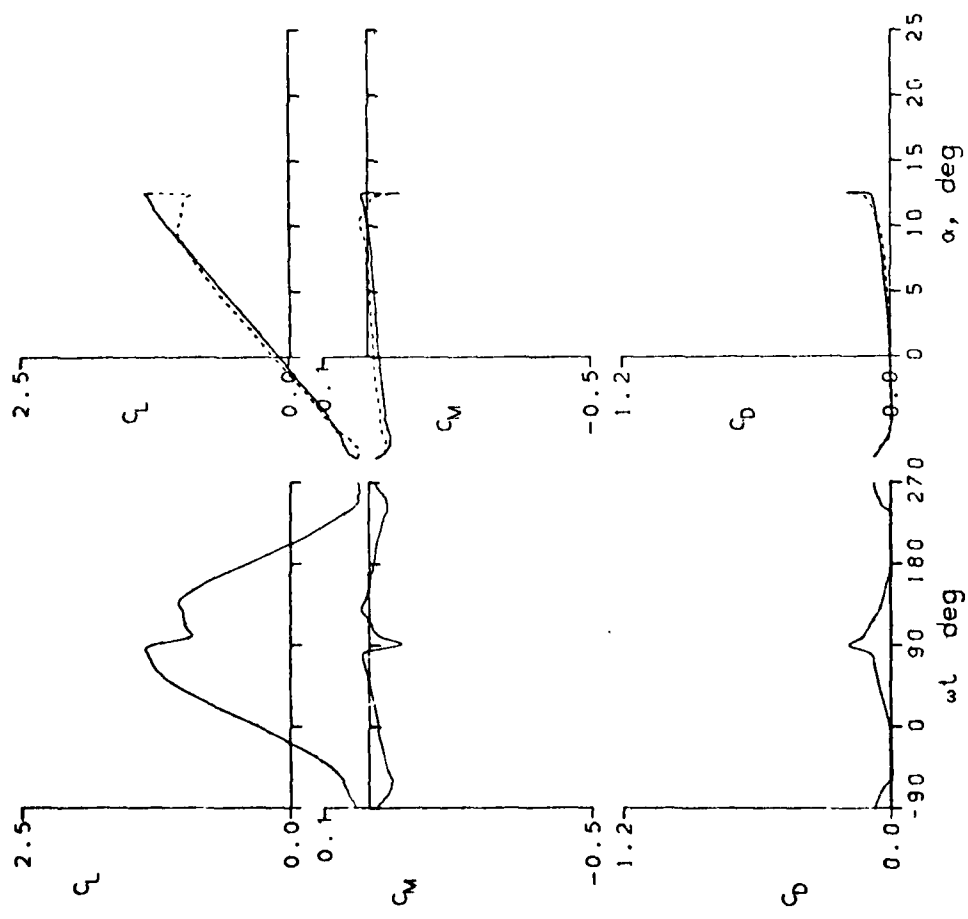


Figure 18.- Continued.

NLR-1 AIRFOIL TRIP

FRAME : 64202 A0 = 2.35° k = 0.049

Re = 3.79 E6 A1 = 10.15° M = 0.303

C_{Lmax} = 1.35 C_{Mmin} = -0.10 C_{Dmax} = 0.21

α_{Lmax} = 12.6° ζ = 0.126 M_{max} = 0.999

α_{Cmin} = 1.9° -C_{Dmax} = 6.8 α_{Mmax} = 12.4°

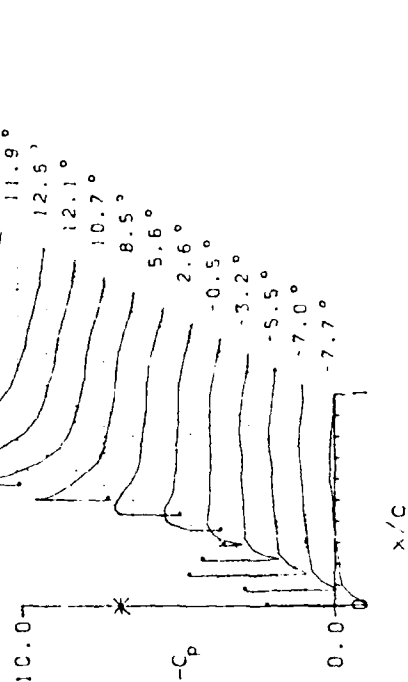
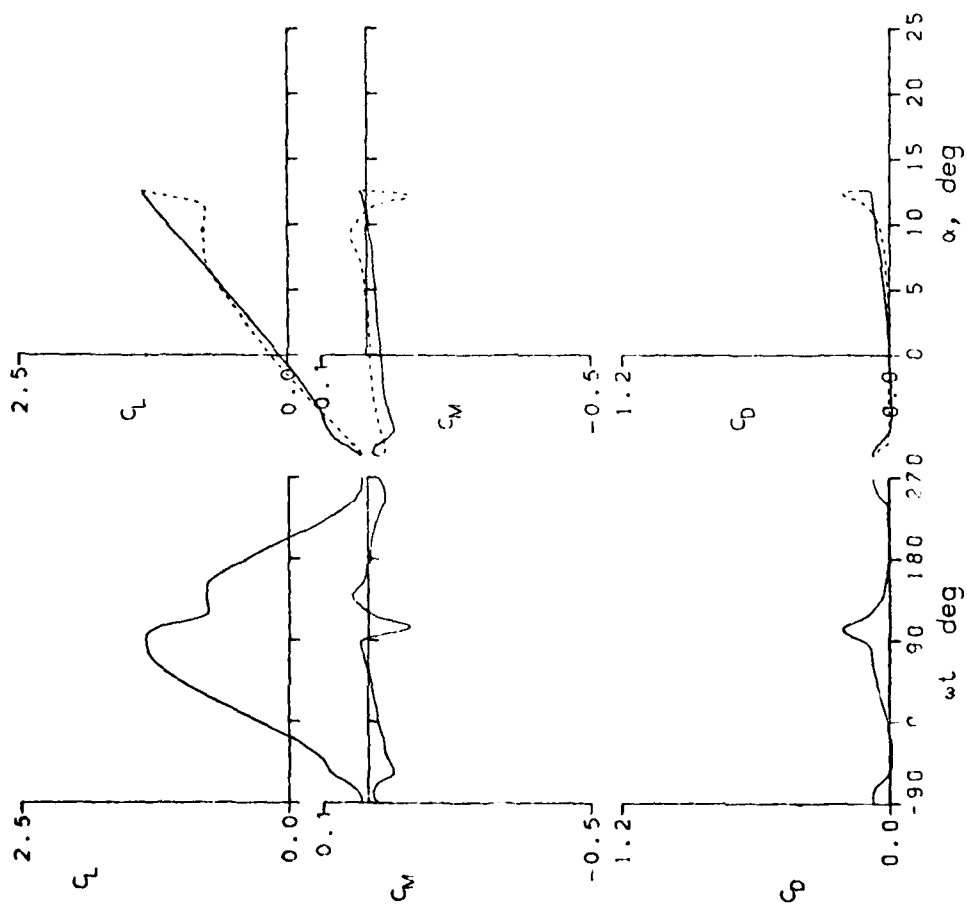


Figure 18.- Continued.

AD-A121 598 AN EXPERIMENTAL STUDY OF DYNAMIC STALL ON ADVANCED
AIRFOIL SECTIONS VOLUM. (U) NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION MOFFETT FIELD CALIF.

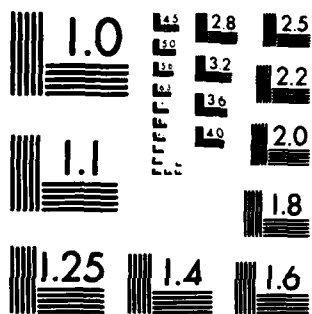
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NLR-1 AIRFOIL

FRAME : 54204	A0	= 2.34°	k	= 0.097	
Re	= 3.77 E6	A1	= 10.15°	M	= 0.302
CLmax	= 1.35	CMmin	= -0.07	CDmax	= 0.14
α Lmax	= 12.6°	ξ	= 0.293	Mmax	= 1.003
α CMmin	= 0.5°	-CDmax	= 6.9	α Mmax	= 12.5°

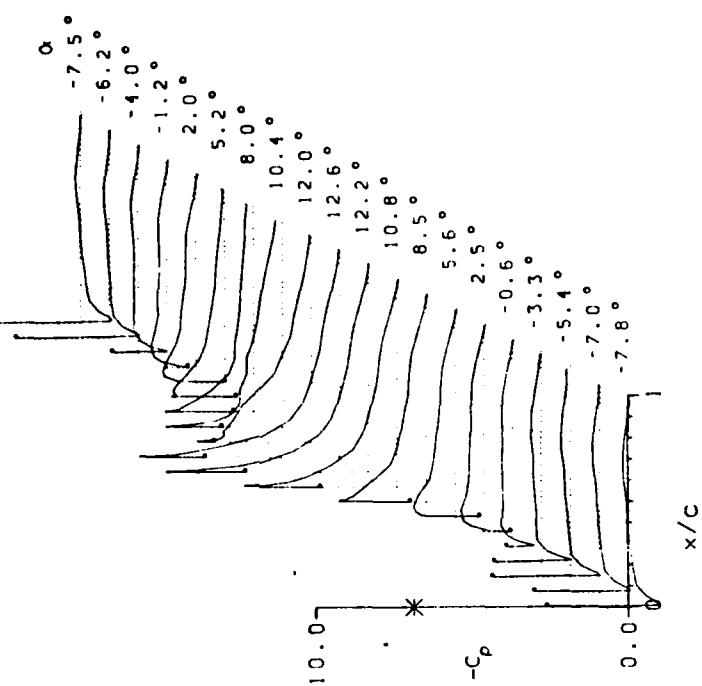
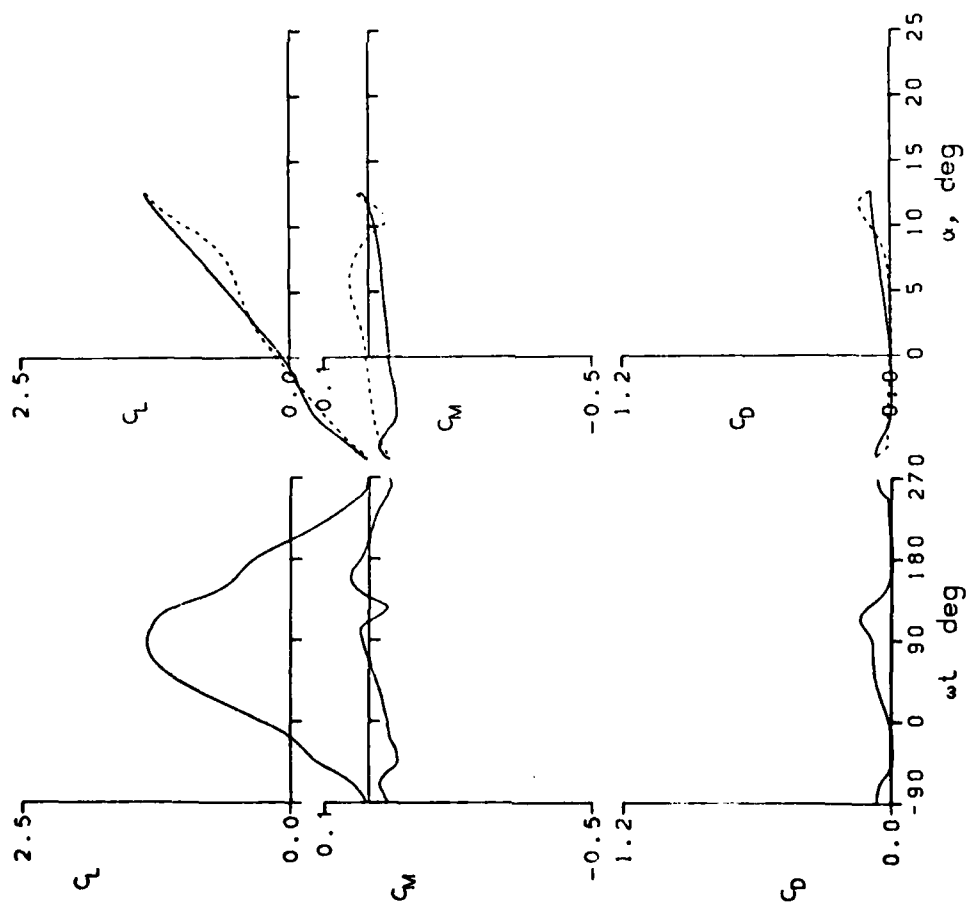


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64212	A0 = -2.19°	κ = 0.010
Re = 3.72 E6	A1 = 10.00°	M = 0.302
CLmax = 0.92	CMmin = -0.05	CDmax = 0.17
αLmax = 8.0°	ζ = 0.044	Mmax = 0.585
αCMmin = -2.7°	-CDmax = 3.5	αMmax = -6.3°

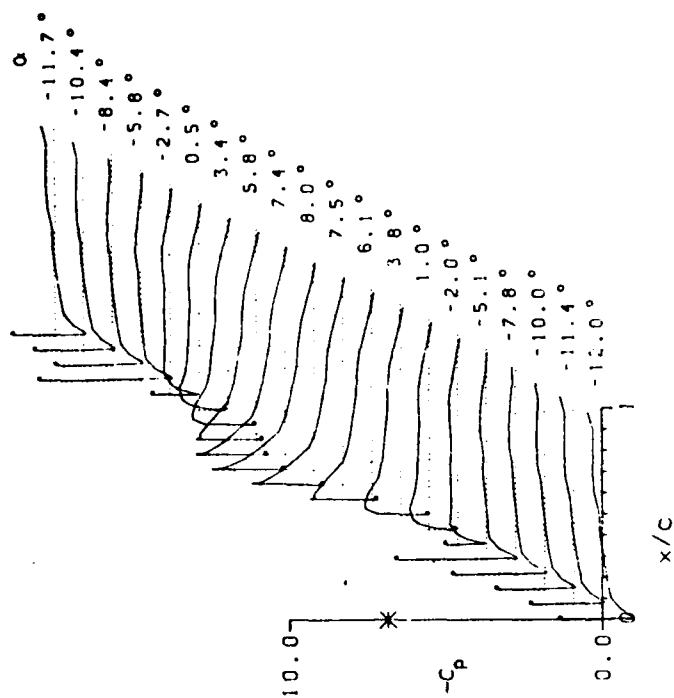
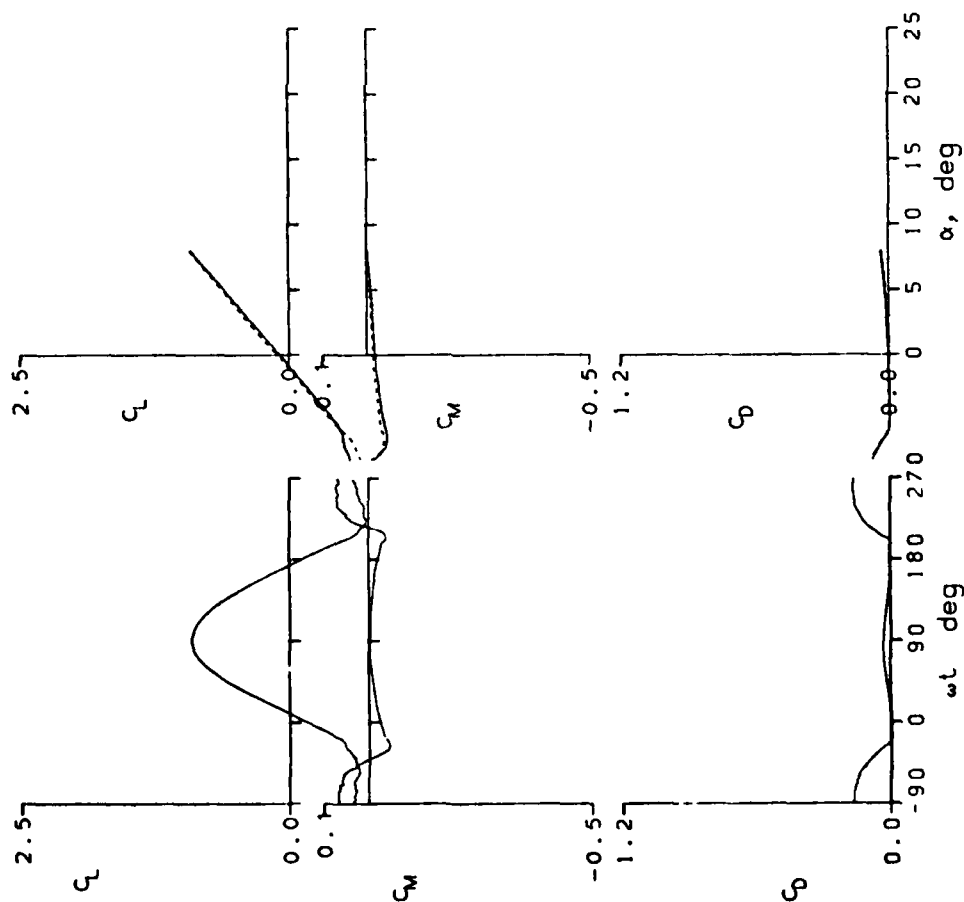


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64213	A0 = -2.19°	k = 0.024
Re = 3.70 E6	A1 = 10.00°	M = 0.303
CLmax = 0.92	CMmin = -0.06	CDmax = 0.18
OLmax = 3.0°	ξ = 0.094	Mmax = 0.711
OLmin = -2.7°	-CPmax = 3.8	OLmax = -6.6°

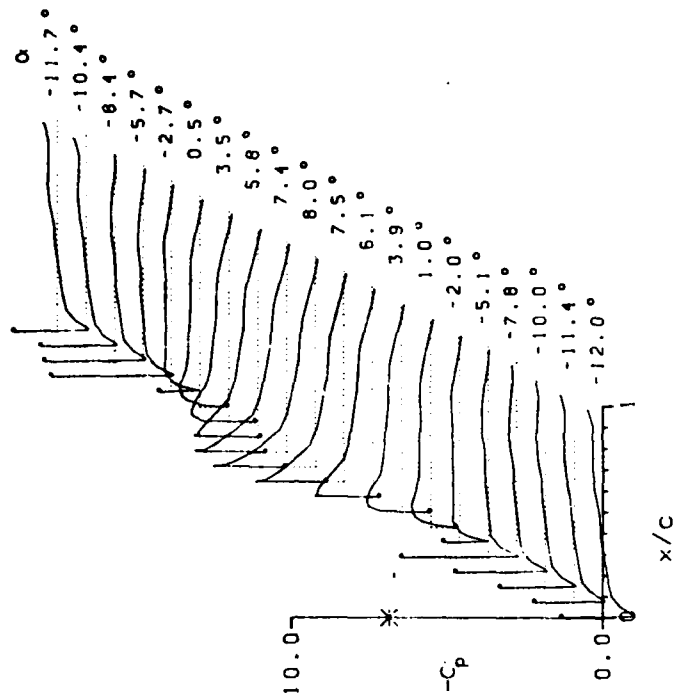
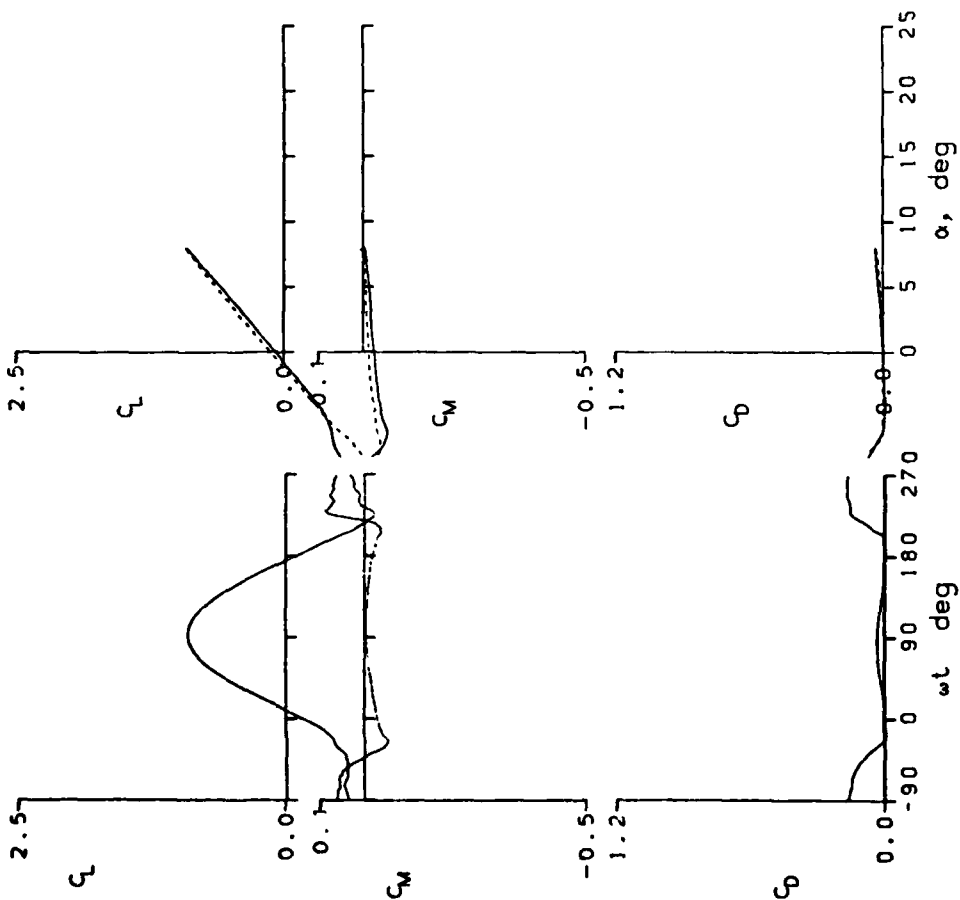


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 54214	A0	= -2.18°	μ	= 0.048	
Re	= 3.69 E6	A1	= 10.00°	M	= 0.302
C _{Lmax}	= 0.91	C _{Mmin}	= -0.06	C _{Dmax}	= 0.20
Q _{Lmax}	= 8.0°	ξ	= 0.137	M _{max}	= 0.753
Q _{Cmin}	= -2.7°	-C _{Pmax}	= 4.2	Q _{Mmax}	= -7.5°

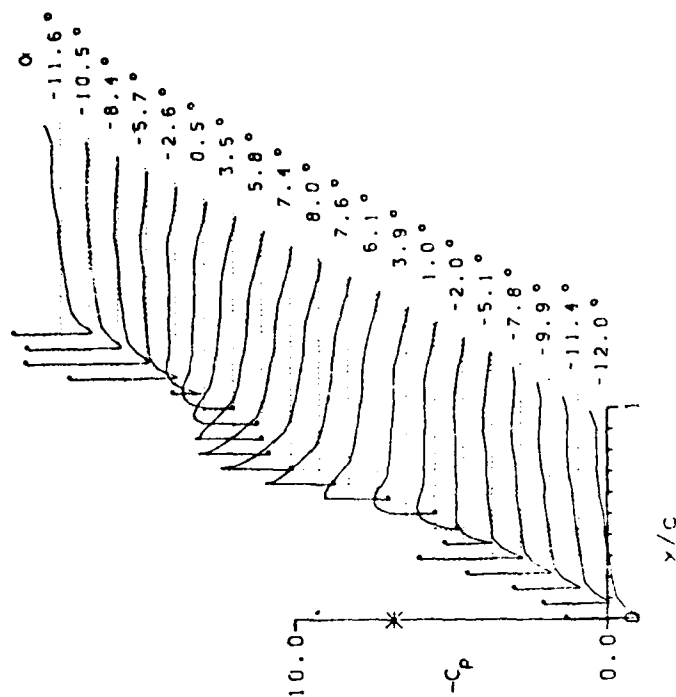
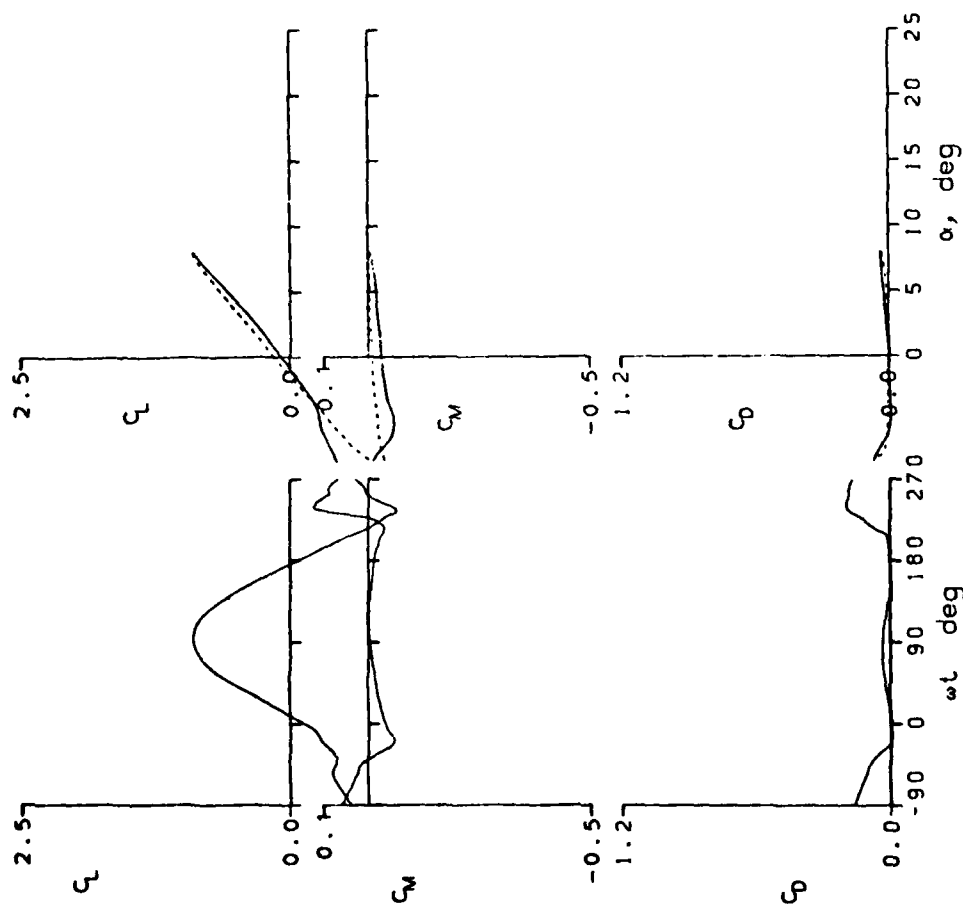


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 64215	A0	= -2.21°	k	= 0.096	
Re	= 3.68 E6	A1	= 9.99°	M	= 0.303
C _{Lmax}	= 0.89	C _{Mmin}	= -0.08	C _{Dmax}	= 0.25
Q _{Lmax}	= 8.0°	ξ	= 0.208	M _{max}	= 0.801
Q _{Cmin}	= -2.8°	-C _{pmax}	= 4.7	Q _{Mmax}	= -8.5°

TRIP

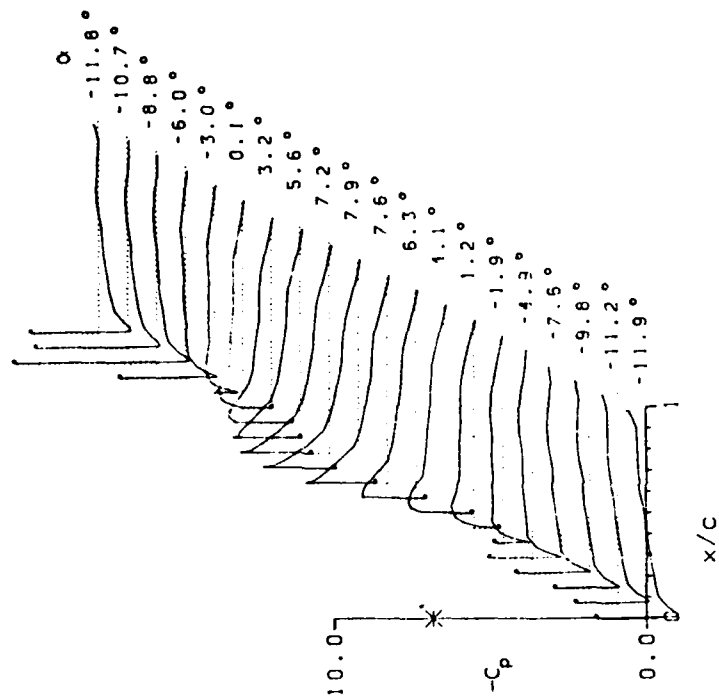
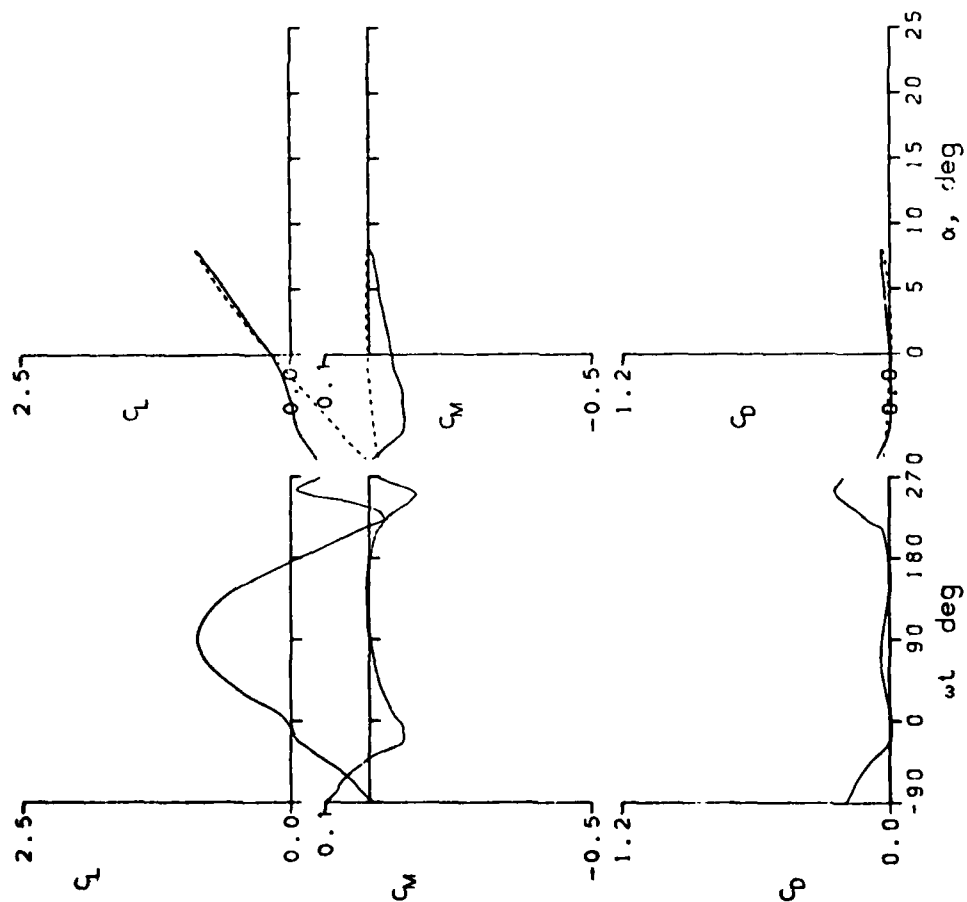


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 65121	A0	= -2.19°	k	= 0.010	
Re	= 3.72 E6	A1	= 10.00°	M	= 0.300
C_{Lmax}	= 0.94	C_{Mmin}	= -0.06	C_{Dmax}	= 0.18
α_{Lmax}	= 8.0°	ξ	= 0.017	M_{max}	= 0.675
α_{Cmin}	= -2.7°	$-C_{Dmax}$	= 3.4	α_{Mmax}	= 8.0°

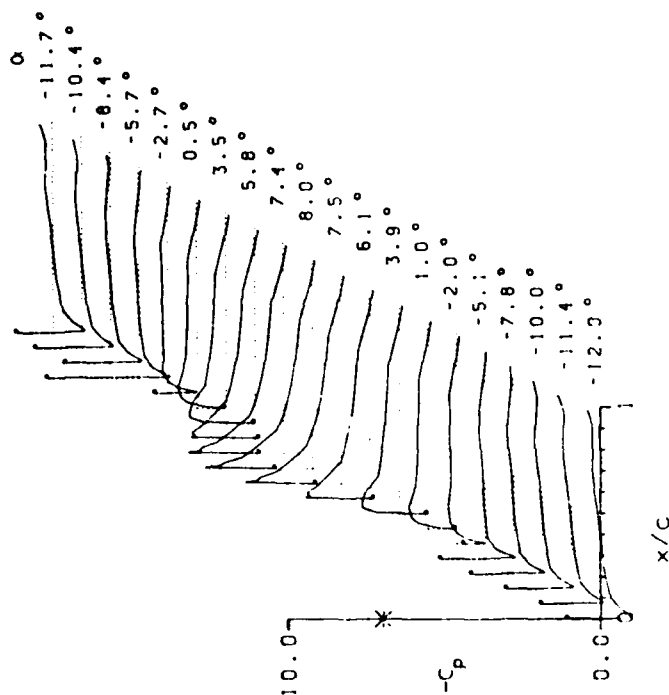
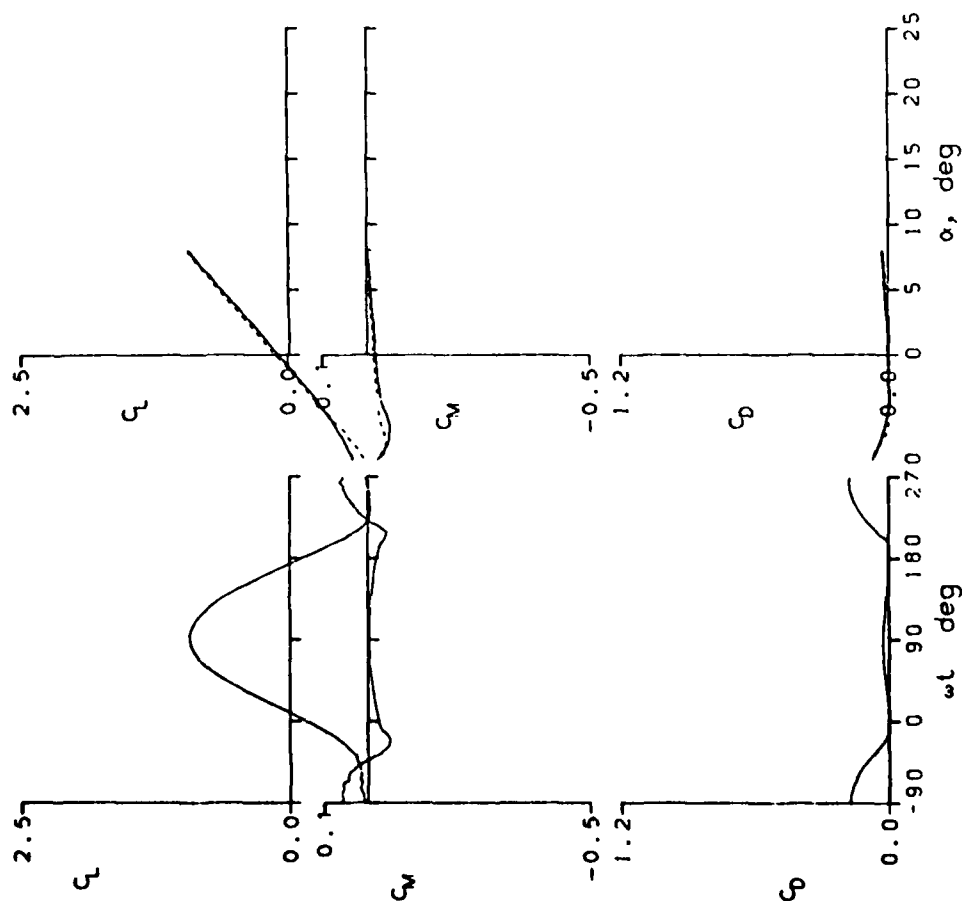


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 65122 $A_0 = -2.18^\circ$ $k = 0.024$
 $Re = 3.70 \times 10^6$ $A_1 = 10.00^\circ$ $M = 0.301$
 $C_{Lmax} = 0.95$ $C_{Mmin} = -0.06$ $C_{Dmax} = 0.18$
 $\alpha_{Lmax} = 8.0^\circ$ $\xi = 0.040$ $M_{max} = 0.680$
 $\alpha_{Cmin} = -2.5^\circ$ $-C_{Dmax} = 3.5$ $\alpha_{Mmax} = 8.0^\circ$

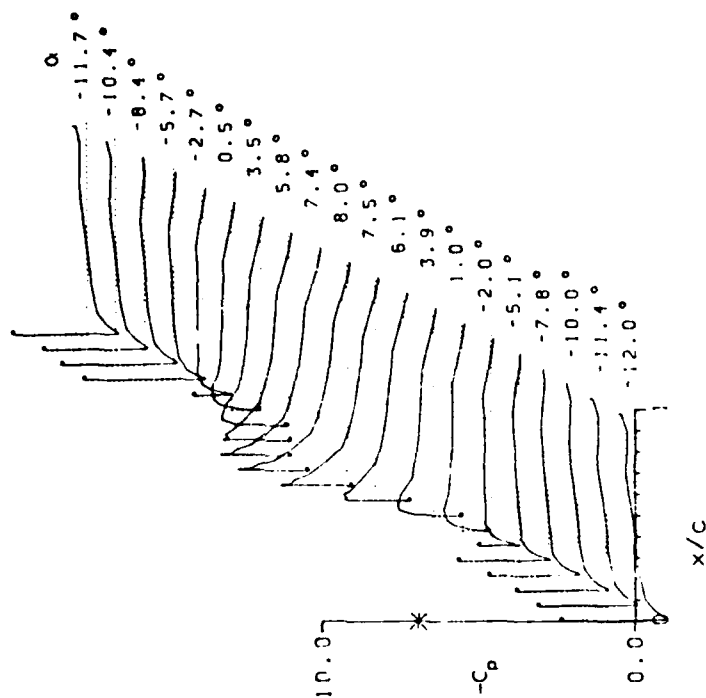
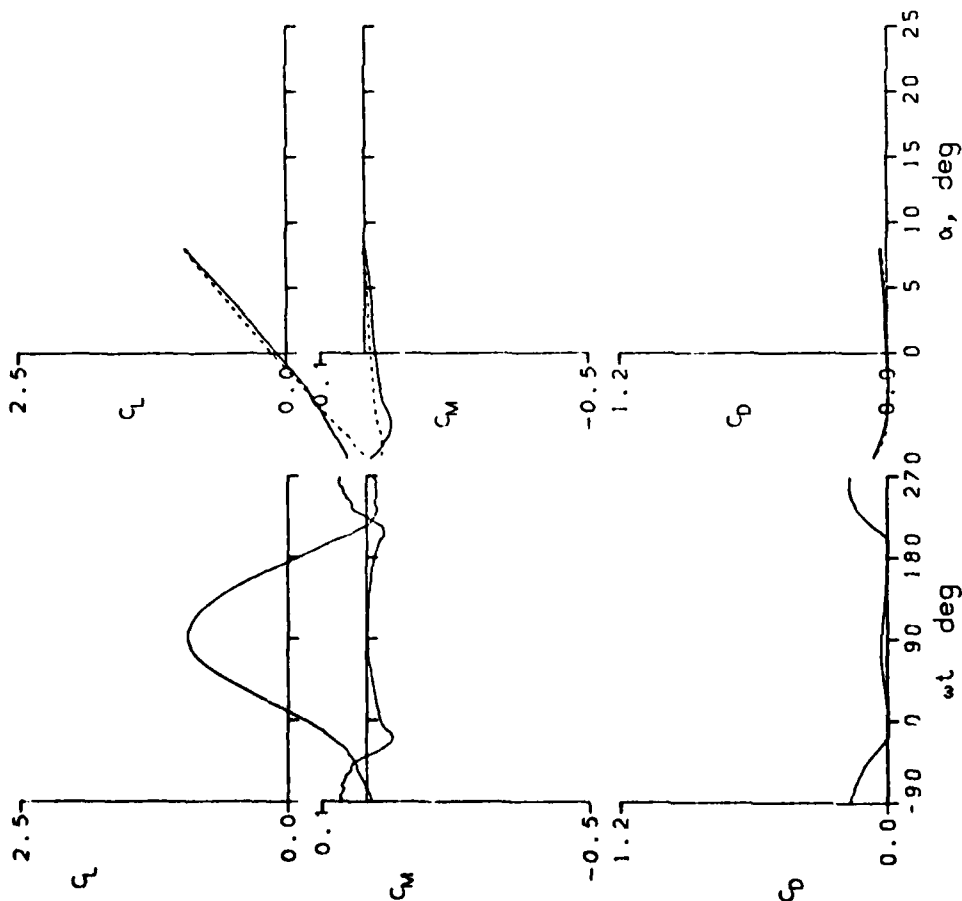


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 65123 $A_0 = -2.18^\circ$ $k = 0.042$
 $Re = 3.69 E6$ $A_1 = 10.00^\circ$ $M = 0.301$
 $C_{Lmax} = 0.94$ $C_{Mmin} = -0.07$ $C_{Dmax} = 0.19$
 $\alpha_{Lmax} = 8.0^\circ$ $\xi = 0.083$ $M_{max} = 0.715$
 $\alpha_{Cmin} = -2.7^\circ$ $-C_{Dmax} = 3.8$ $\alpha_{Mmax} = -7.5^\circ$

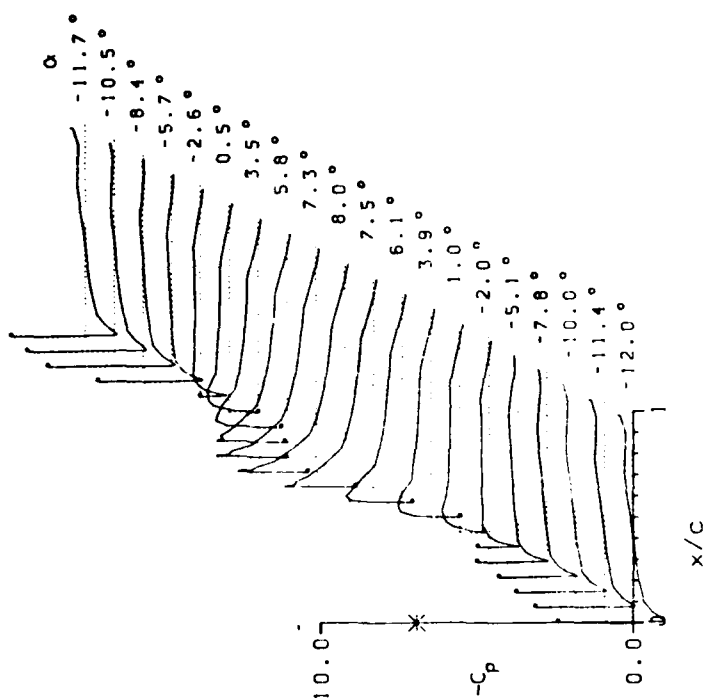
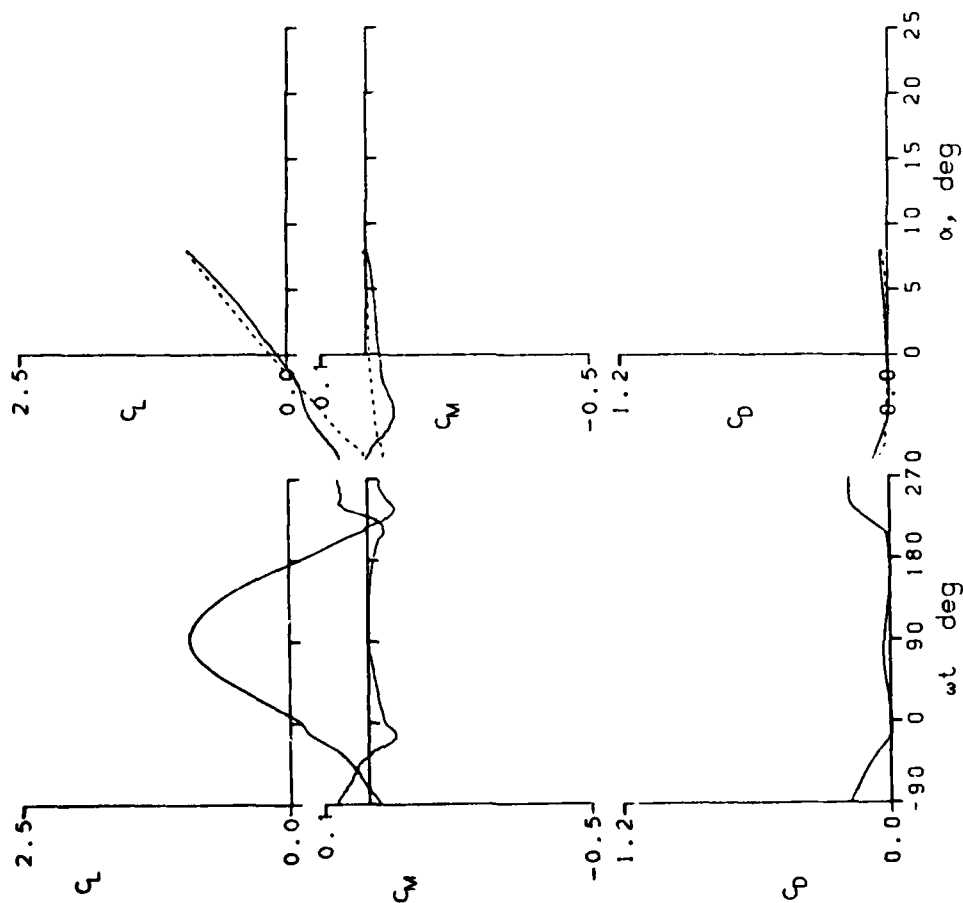


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 65200	A0 = -2.20°	k = 0.097
Re = 3.69 E6	A1 = 10.00°	M = 0.302
CLmax = 0.92	CMmin = -0.08	CDmax = 0.23
αLmax = 8.0°	ξ = 0.188	Mmax = 0.740
αCMmin = -11.9°	-CDmax = 4.1	αMmax = -8.2°

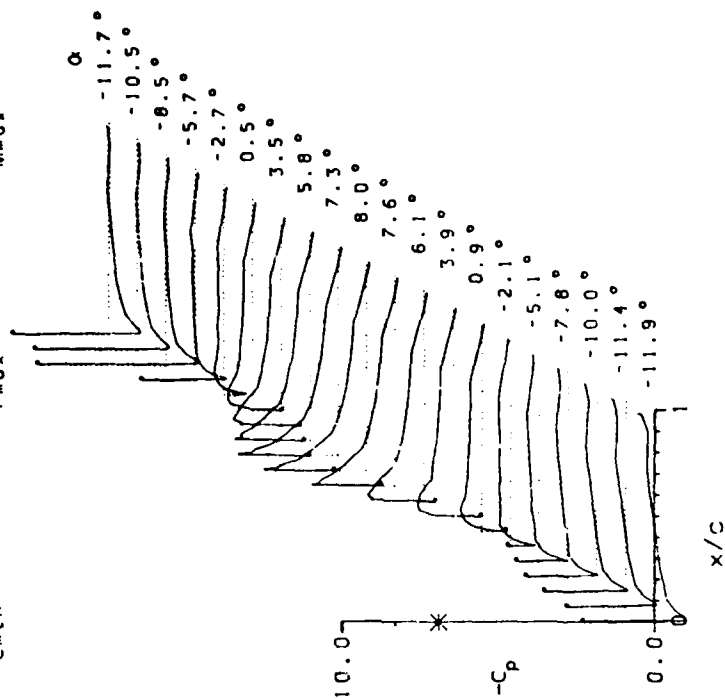
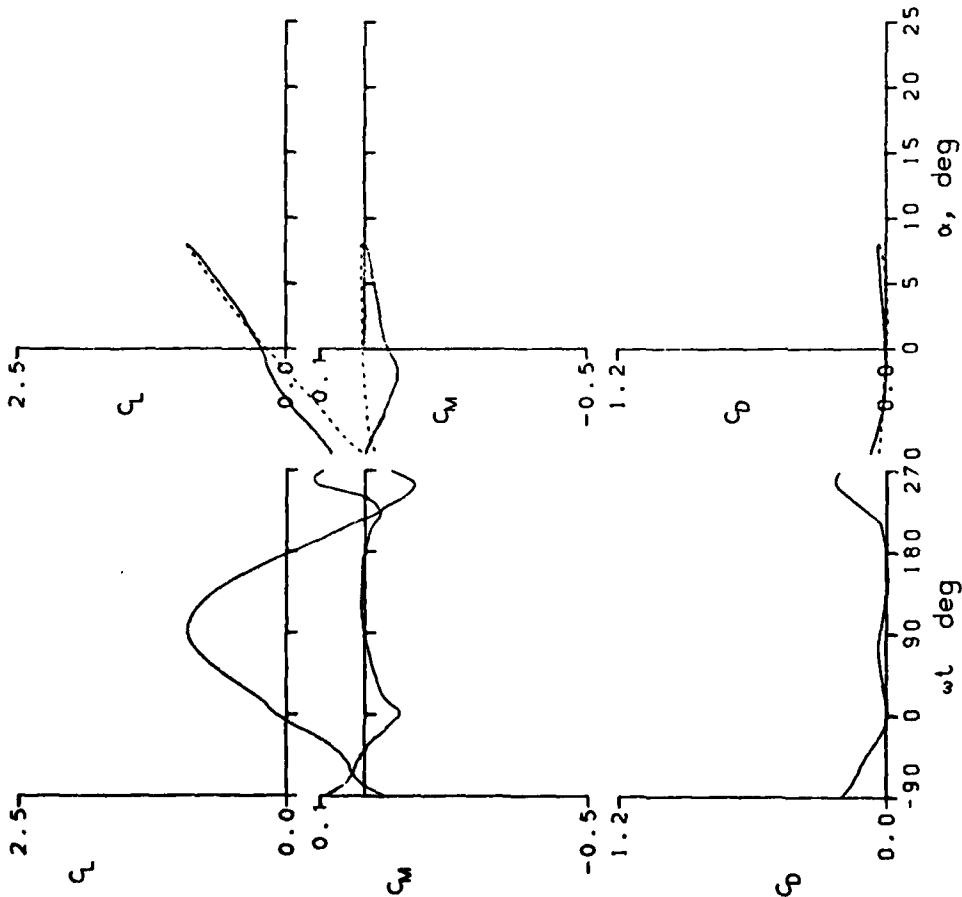


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 65207 $A_0 = 14.80^\circ$ $\mu = 0.100$
 $Re = 2.65 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.199$
 $C_{Lmax} = 2.37$ $C_{Mmin} = -0.36$ $C_{Dmax} = 0.84$
 $\alpha_{Lmax} = 21.6^\circ$ $\xi = 0.398$ $M_{max} = 0.867$
 $\alpha_{Cmin} = 14.3^\circ$ $-C_{Pmax} = 13.4$ $\alpha_{Mmax} = 18.3^\circ$

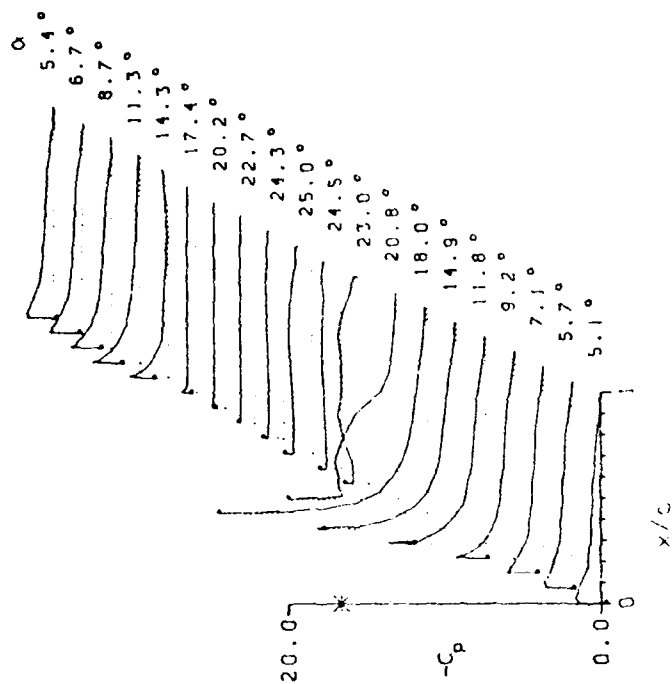
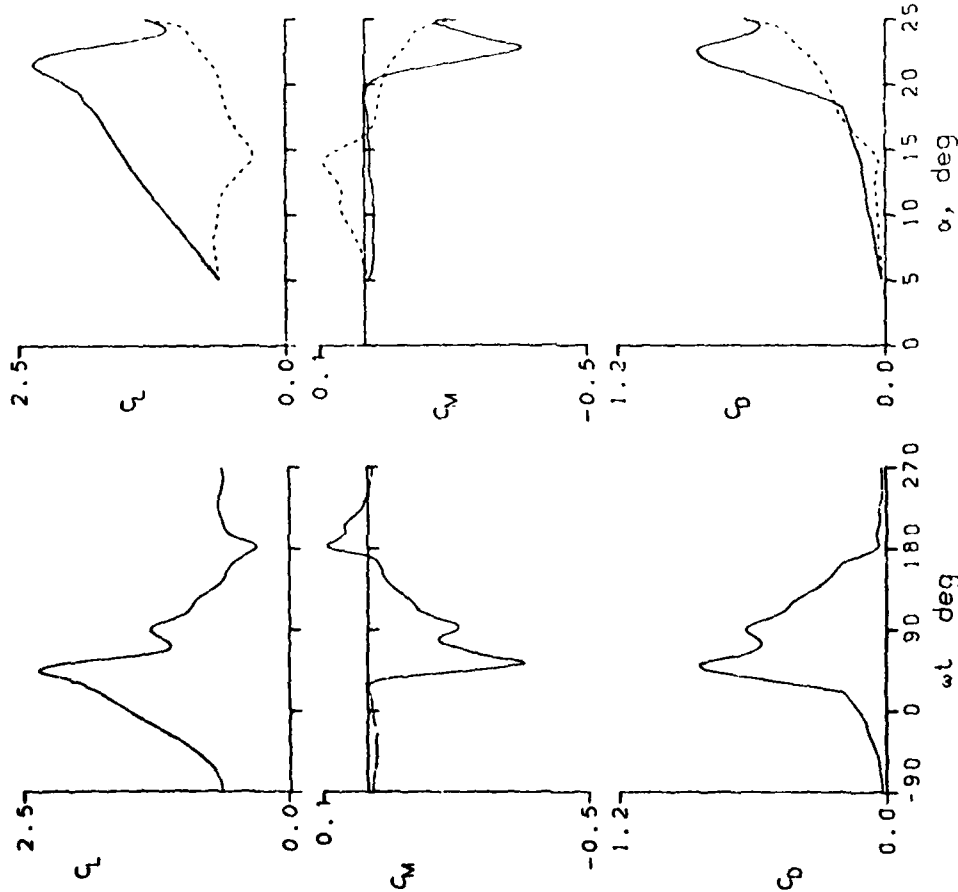


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 65209	A0 = 14.80°	h = 0.102
Re = 3.78 E6	A1 = 9.91°	M = 0.292
CLmax = 2.08	CMmin = -0.34	CDmax = 0.71
Q Lmax = 19.4°	ζ = 0.611	Mmax = 1.188
Q CMmin = 14.4°	-CDmax = 9.3	Q Mmax = 14.7°

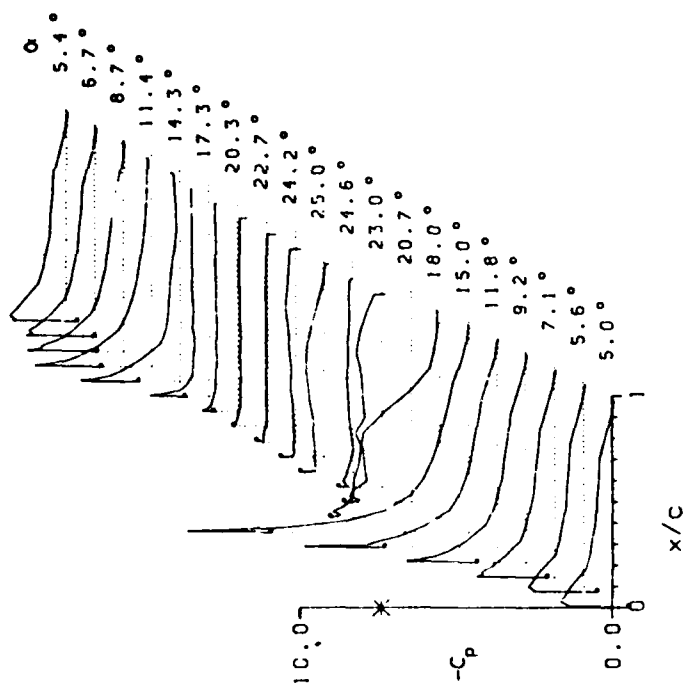
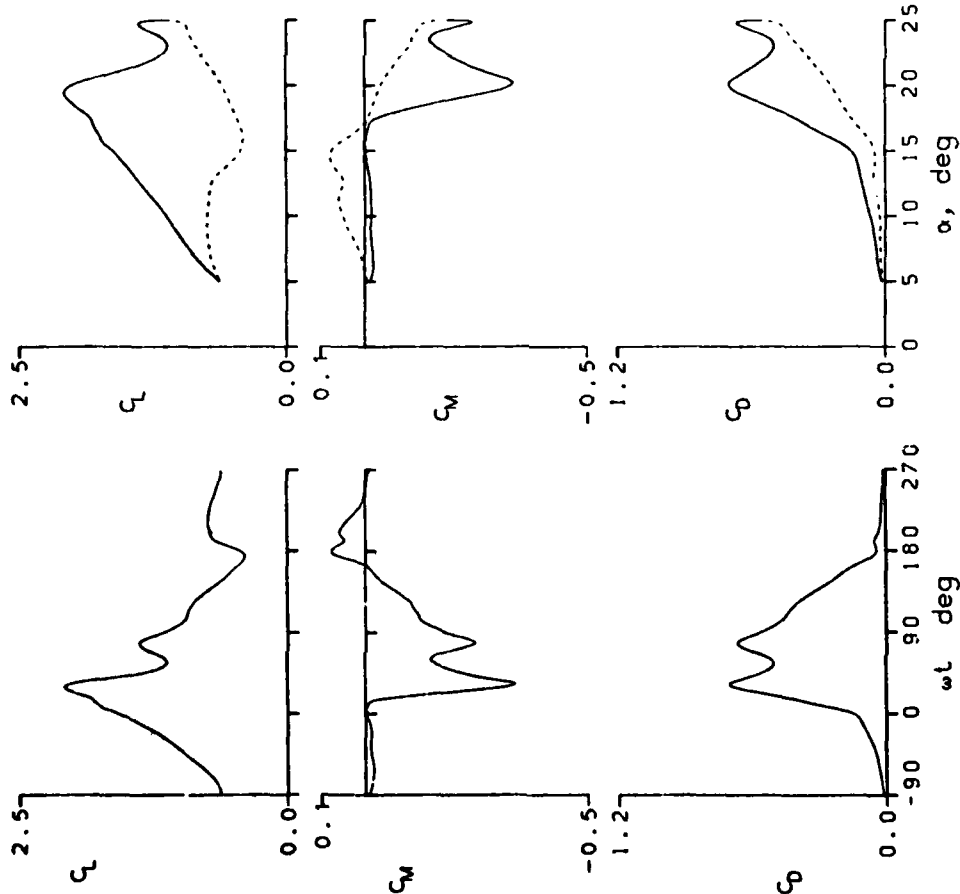


Figure 18.- Continued.

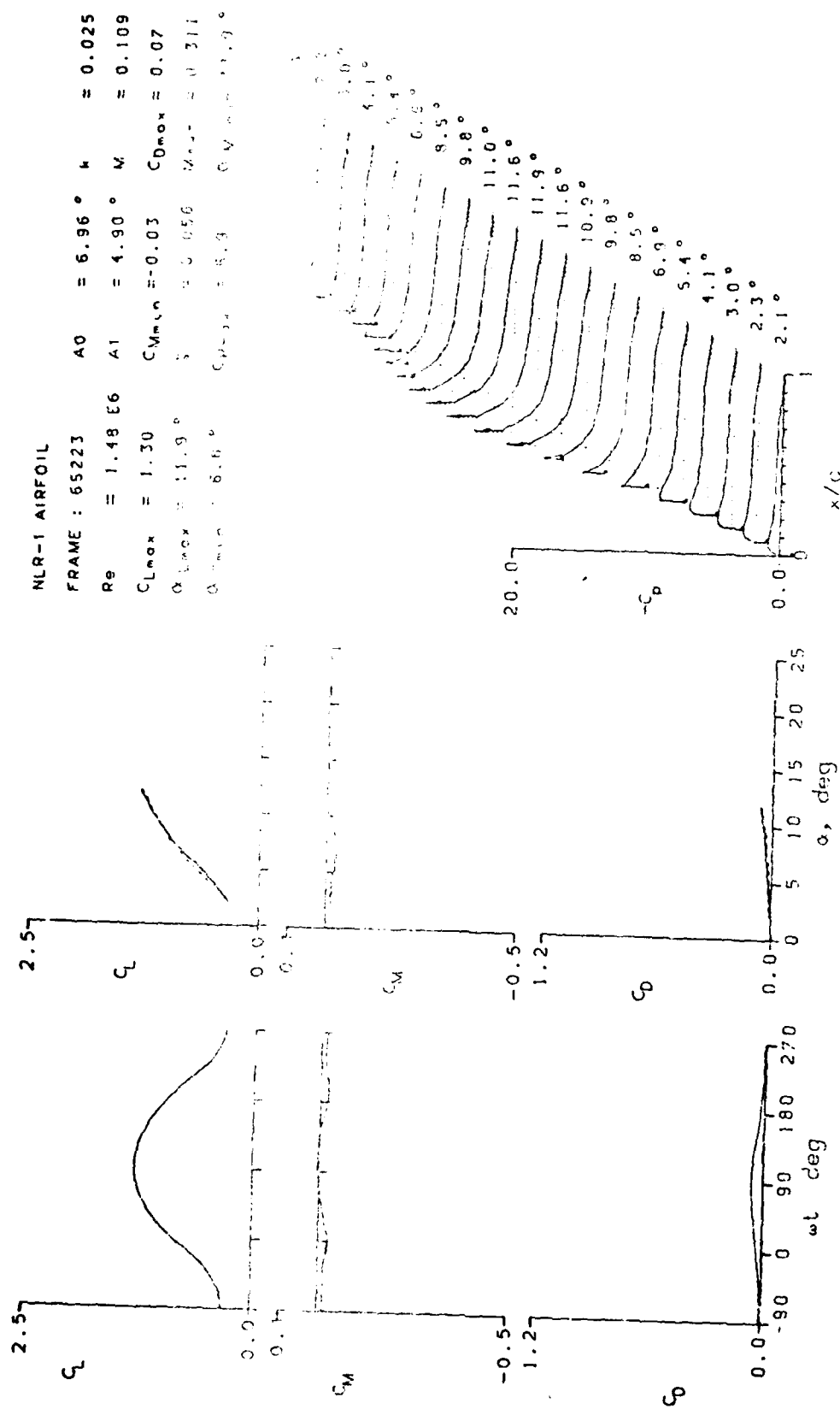


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 653C0	A0 = 6.96°	k = 0.200
Re = 1.47 E6	A1 = 4.89°	M = 0.109
C _{Lmax} = 1.27	C _{Mmin} = -0.04	C _{Dmax} = 0.08
α _{Lmax} = 11.9°	ζ = 0.448	M _{max} = 0.301
α _{Cmin} = 6.8°	-C _{pmax} = 6.4	α _{Mmax} = 11.8°

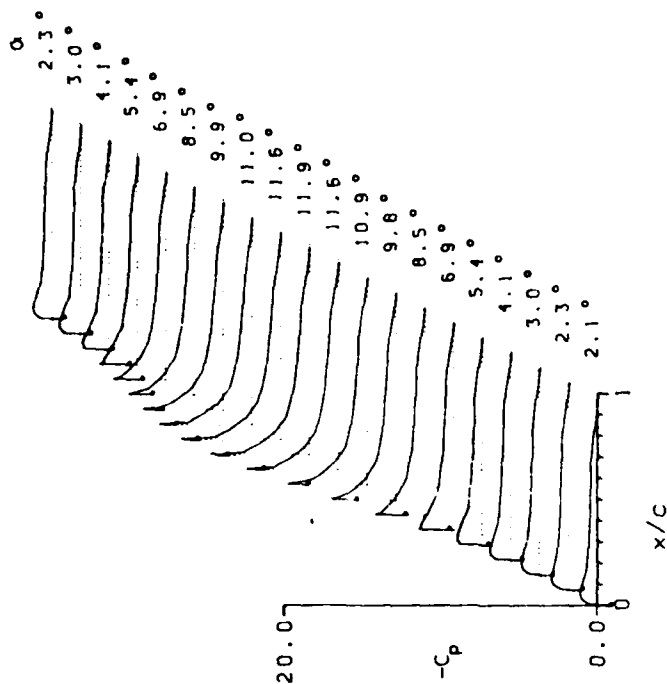
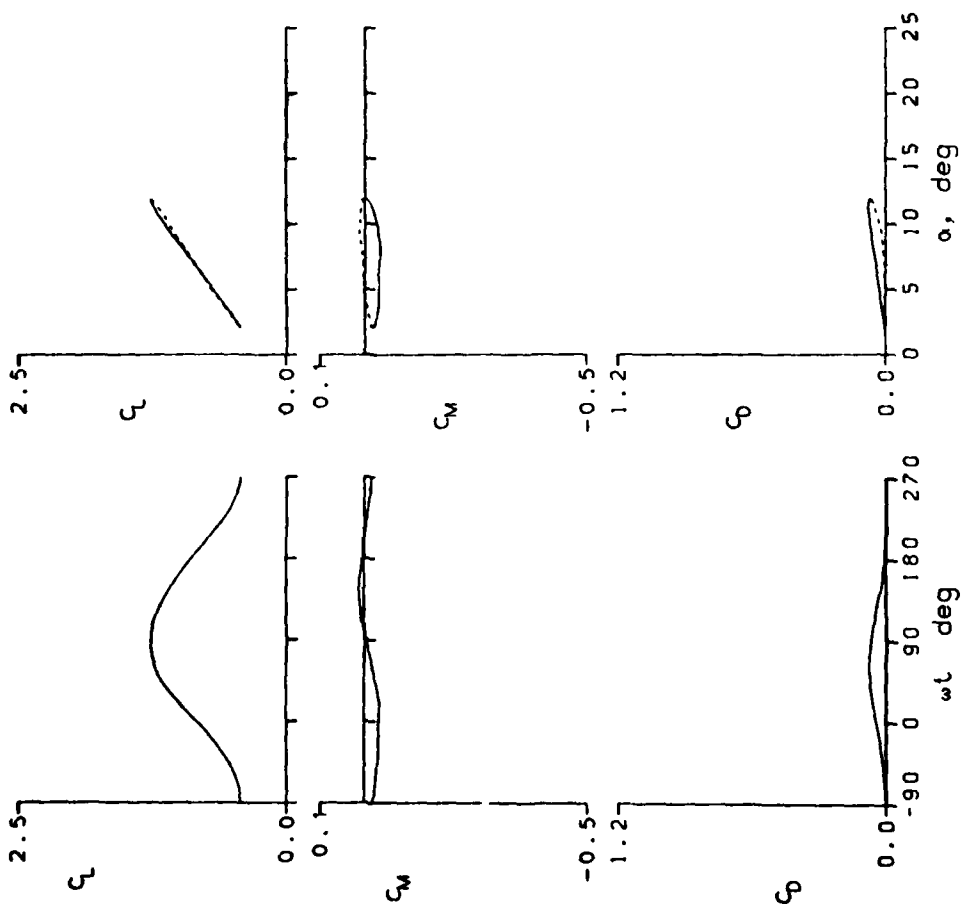


Figure 18.- Continued.

NLR-1 AIRFOIL
 FRAME : 65309 $A_0 = 6.96^\circ$ $\mu = 0.010$
 $Re = 3.89 \text{ E}6$ $A_1 = 4.89^\circ$ $M = 0.301$
 $C_{Lmax} = 1.30$ $C_{Mmin} = -0.02$ $C_{Dmax} = 0.06$
 $\alpha_{Lmax} = 11.8^\circ$ $\zeta = 0.032$ $M_{max} = 1.117$
 $\alpha_{Cmin} = 6.8^\circ$ $-C_{Pmax} = 8.1$ $\alpha_{Mmax} = 11.9^\circ$

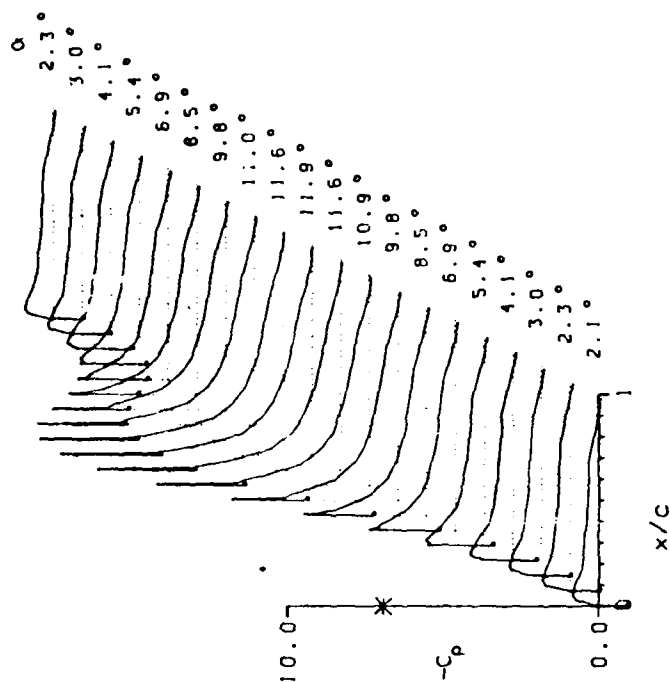
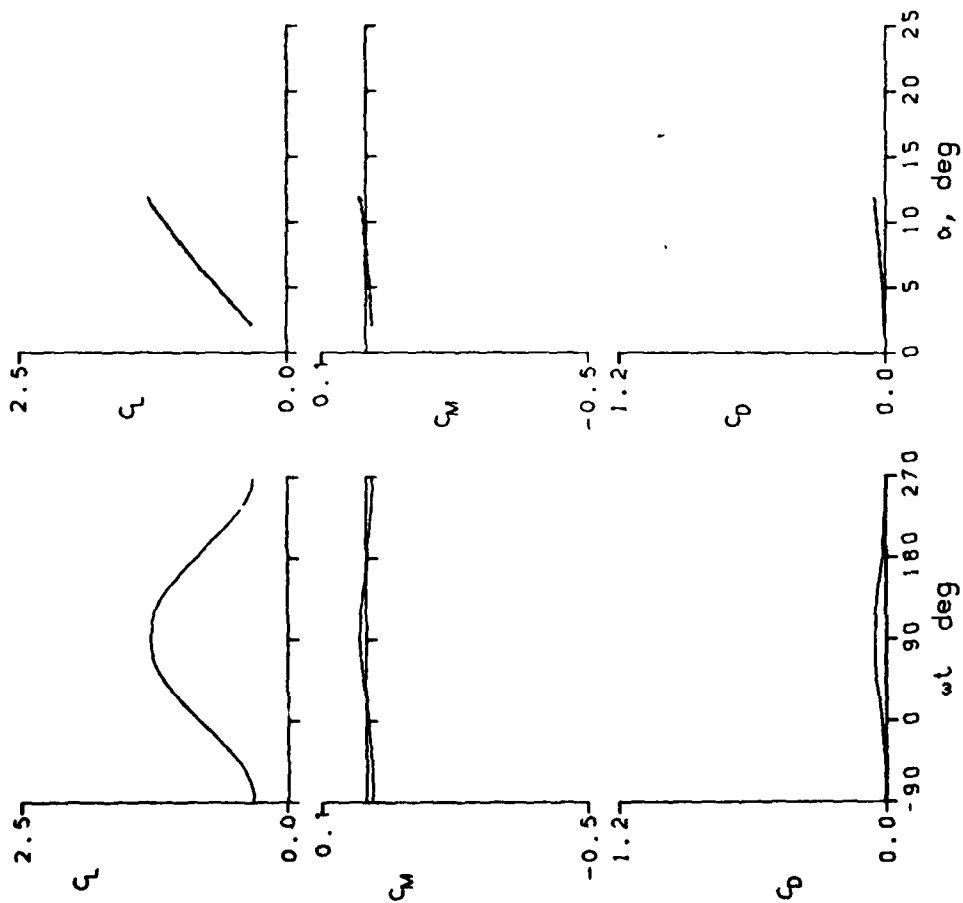


Figure 18.- Continued.

NLR-1 AIRFOIL

FRAME : 65311	A0 = 6.98°	k = 0.197
Re = 3.86 E6	A1 = 4.90°	M = 0.301
CLmax = 1.38	CMmin = -0.04	CDmax = 0.07
αLmax = 11.9°	ξ = 0.616	Mmax = 1.176
αCMmin = 6.8°	-CDmax = 8.6	αMmax = 11.8°

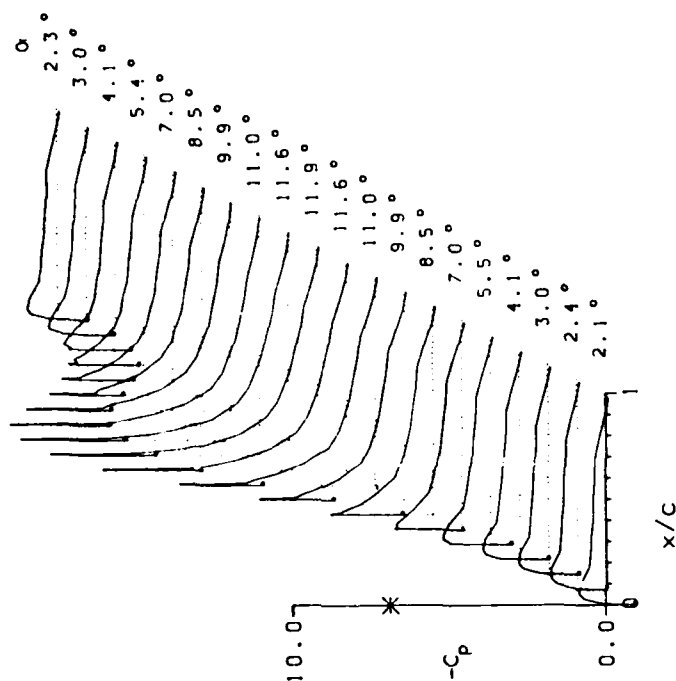
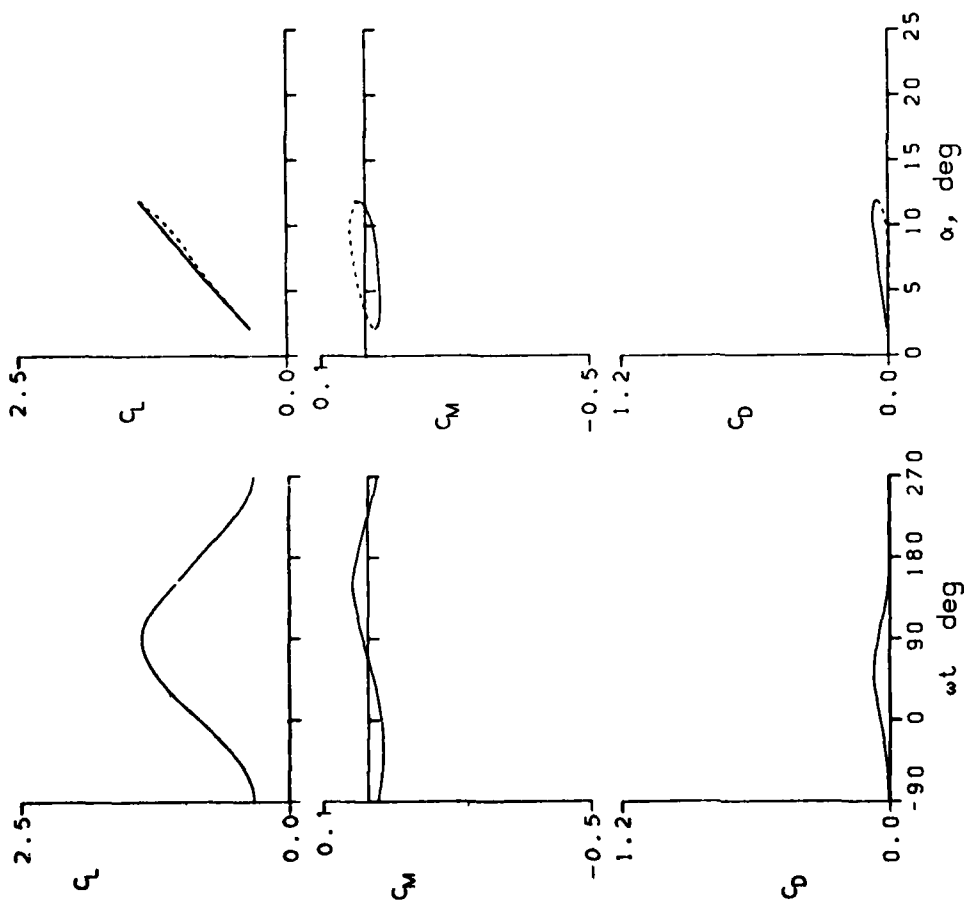


Figure 18.- Concluded.

NLR-7301 AIRFOIL

FRATE : 67019	A0	= 14.79 °	μ	= 0.025	
Re	= 2.44 E6	A1	= 9.90 °	M	= 0.183
CLmax	= 1.93	CMmin	= -0.26	CDmax	= 0.49
αLmax	= 19.2 °	ξ	= 0.097	Mmax	= 0.622
αCMmin	= 14.2 °	-CDmax	= 9.0	αMmax	= 18.3 °

TRIP

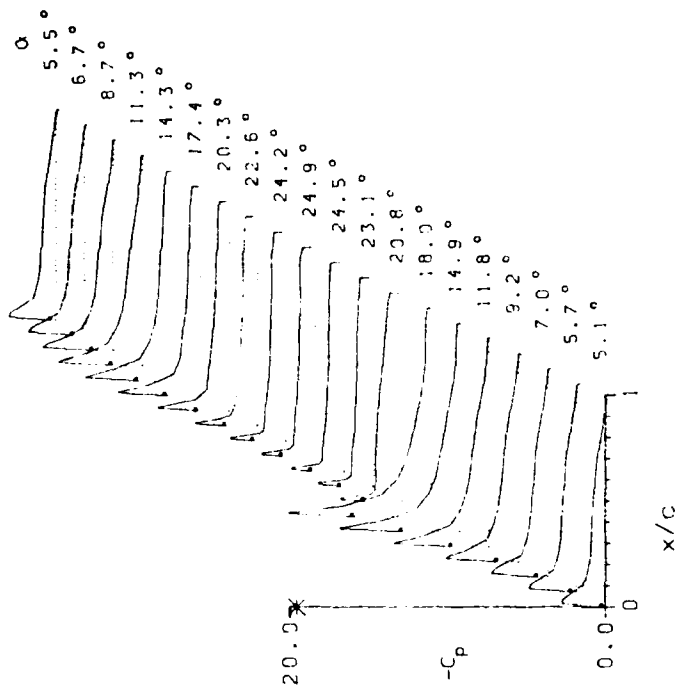
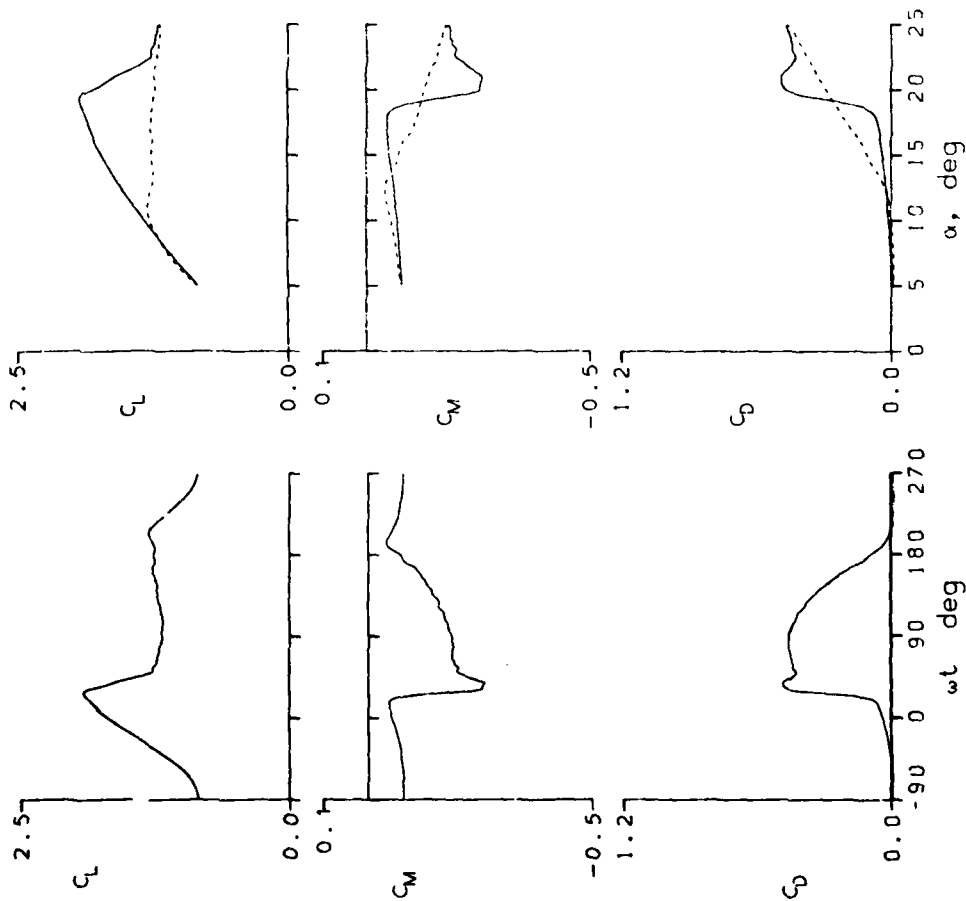


Figure 19.- Dynamic data for NLR-7301 airfoil.

NLR-7301 AIRFOIL TRIP

FRAME : 6702: A0 = 14.80° k = 0.099

Re = 2.43 E6 A1 = 9.90° M = 0.184

C_{Lmax} = 2.3: C_{Mmin} = -0.49 C_{Dmax} = 0.91

α_{Lmax} = 24.1° ξ = 0.060 M_{max} = 0.697

α_{Cmin} = 14.2° -C_{Dmax} = 11.0 α_{Mmax} = 21.8°

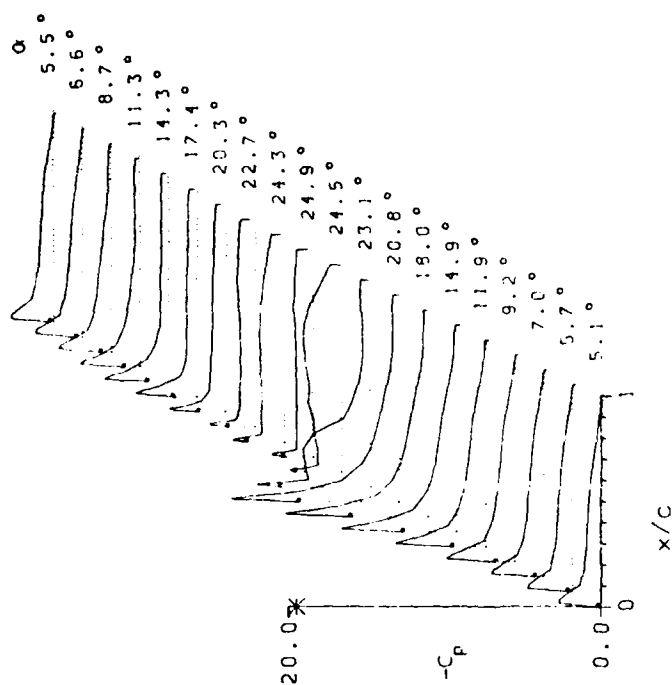
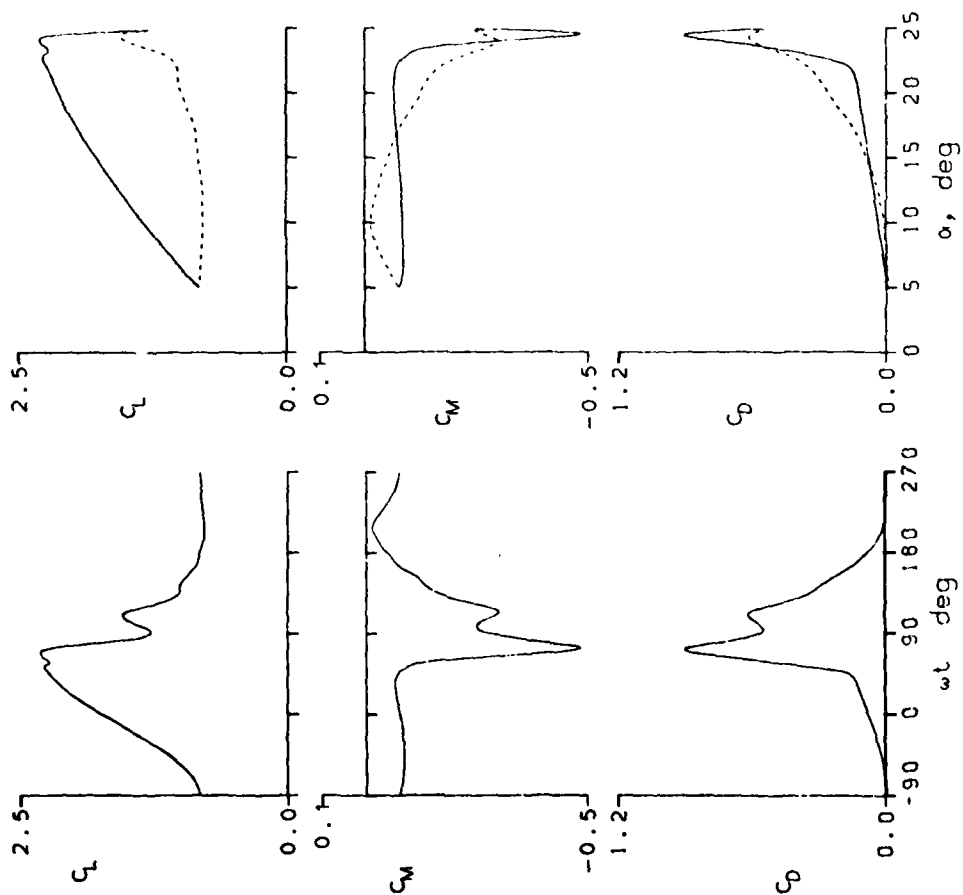


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67023	A0 = 14.79°	k = 0.198
Re = 2.43 E6	A1 = 9.90°	M = 0.183
C _{Lmax} = 2.44	C _{Mmin} = -0.50	C _{Dmax} = 0.94
α _{Lmax} = 24.2°	ξ = -0.289	M _{max} = 0.719
α _{Cmin} = 14.3°	-C _{pmax} = 11.7	α _{Mmax} = 22.9°

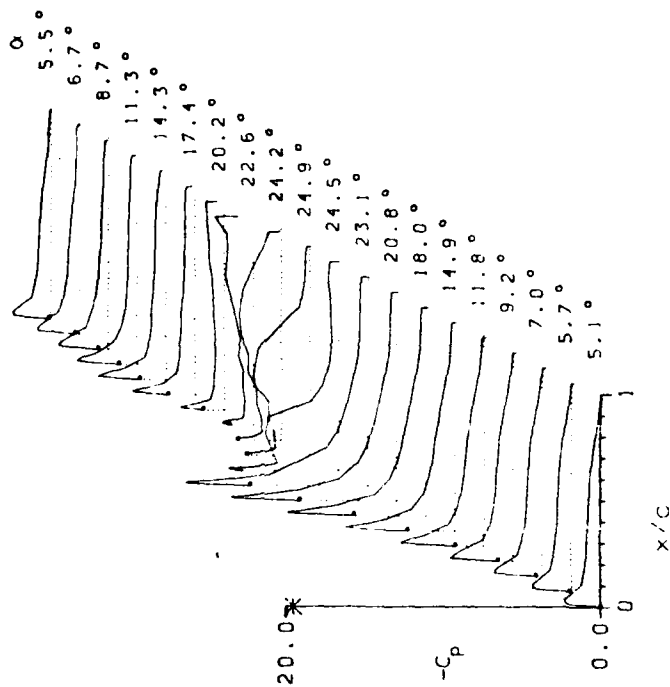
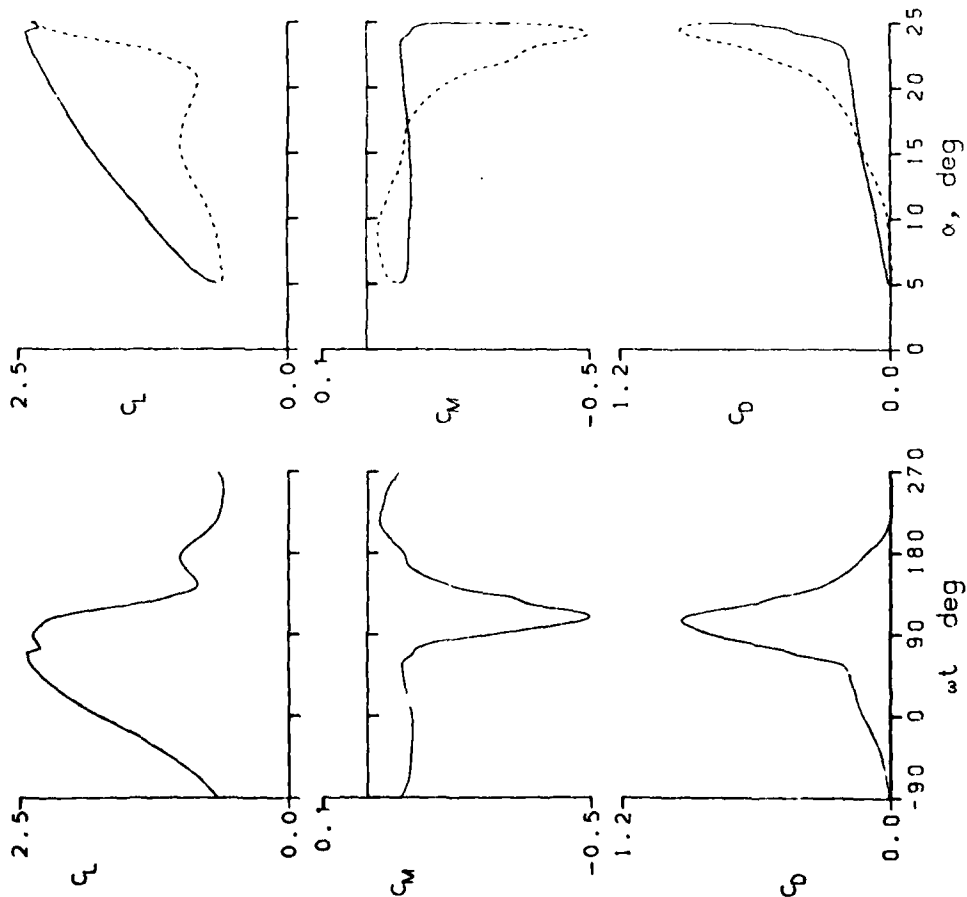


Figure 19.- Continued.

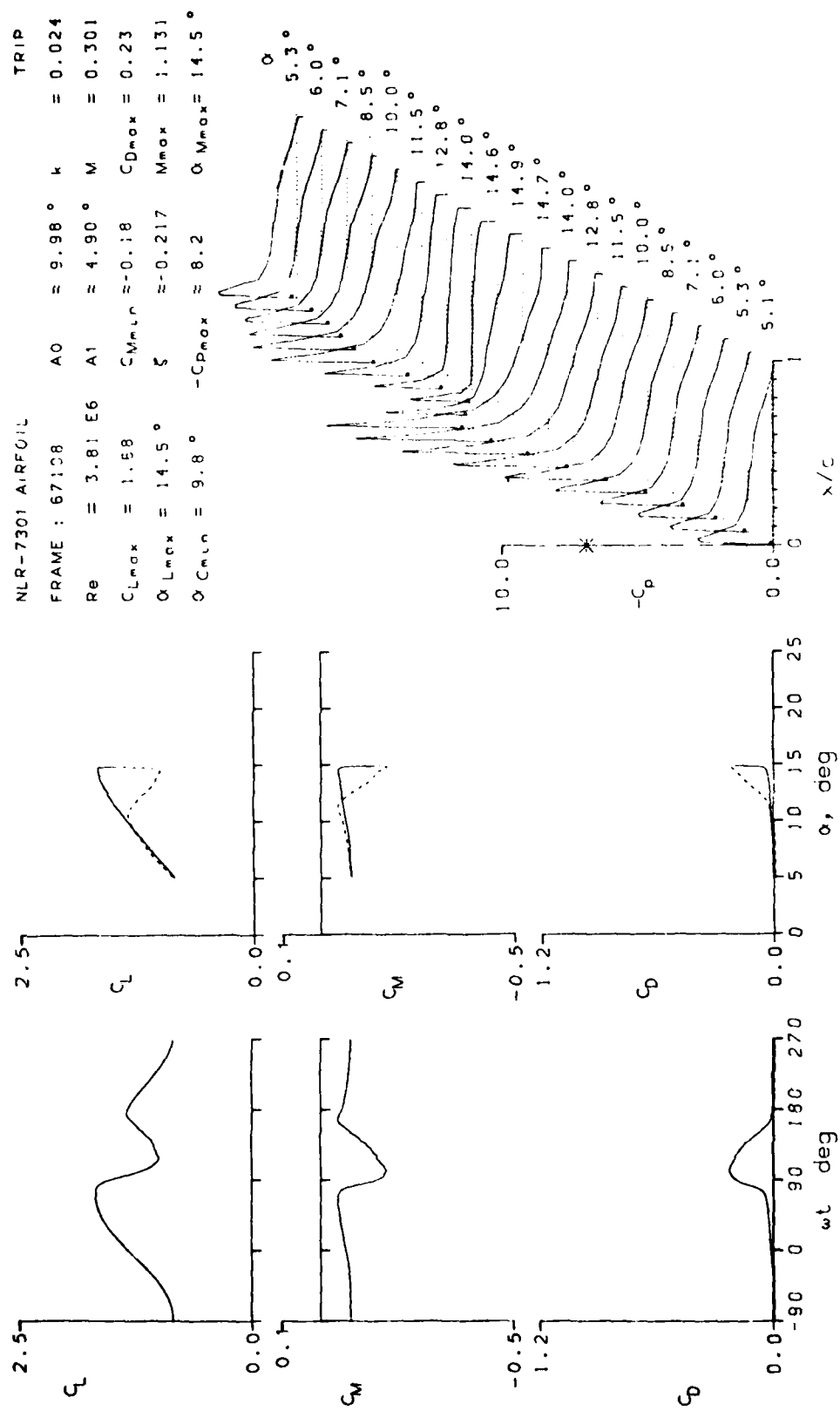


Figure 19.- Continued.

NLR-7301 AIRFOIL TRIP

FRAME : 67110 A0 = 9.98° k = 0.049

Re = 3.75 E6 A1 = 4.90° M = 0.298

C_{Lmax} = 1.72 C_{Mmin} = -0.16 C_{Dmax} = 0.19

α_{Lmax} = 14.7° ζ = -0.158 M_{max} = 1.143

α_{Cmin} = 9.8° $-C_{pmax}$ = 8.5 α_{Mmax} = 14.9°

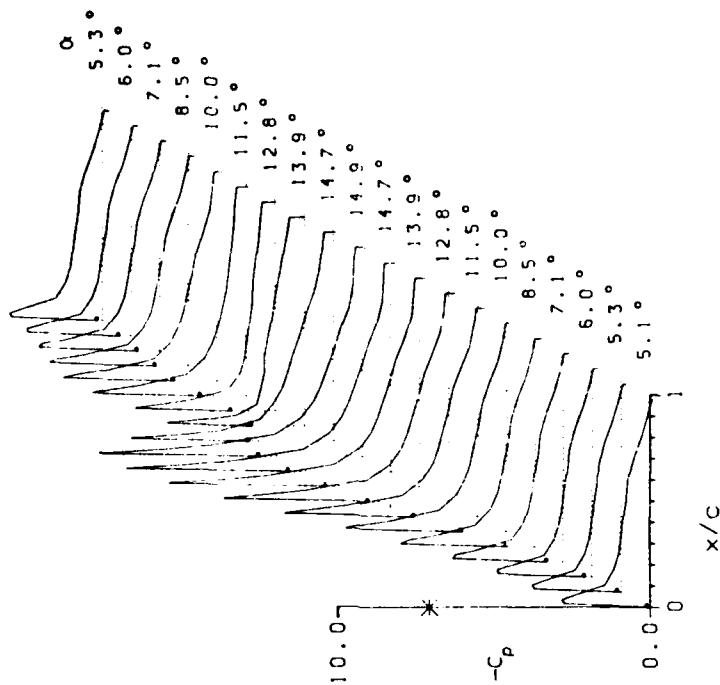
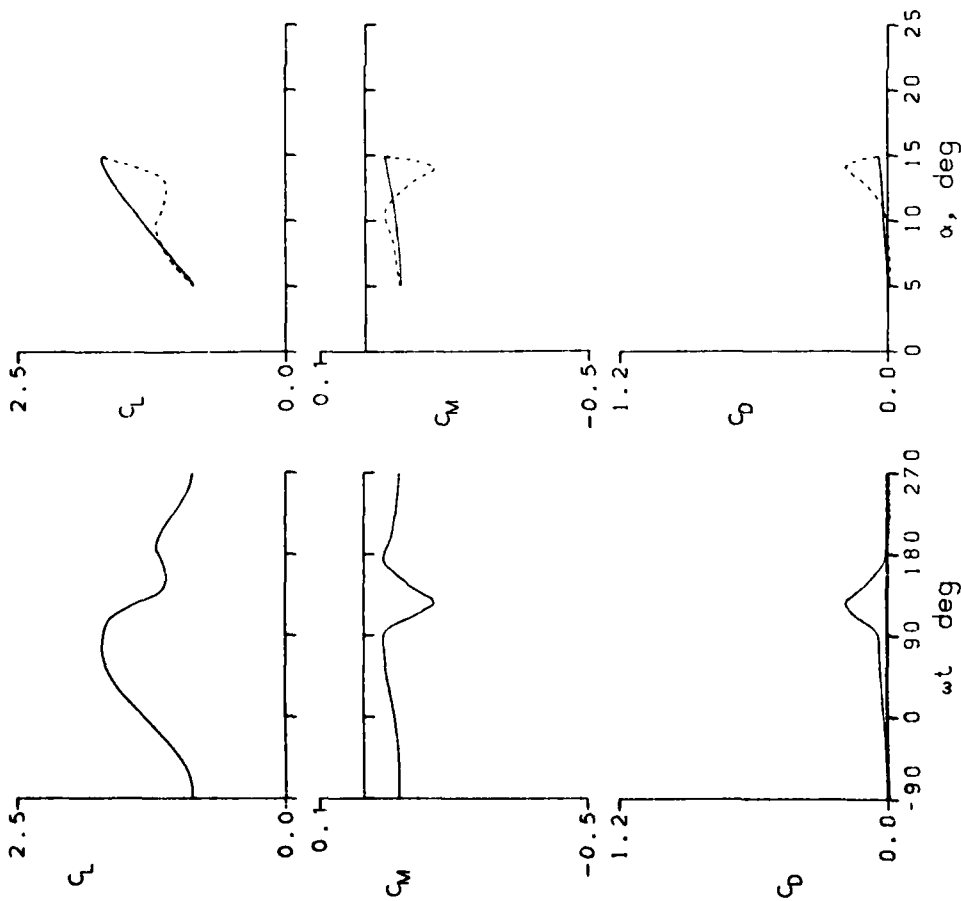


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRATE : 57112	AO = 9.97°	k = 0.099
Re = 3.74 E6	A1 = 4.90°	M = 0.298
CLmax = 1.75	CMmin = -0.03	CDmax = 0.04
αLmax = 14.8°	ξ = 0.193	Mmax = 1.162
αCMmin = 9.8°	-CDmax = 8.7	αVmax = 14.9°

TRIP

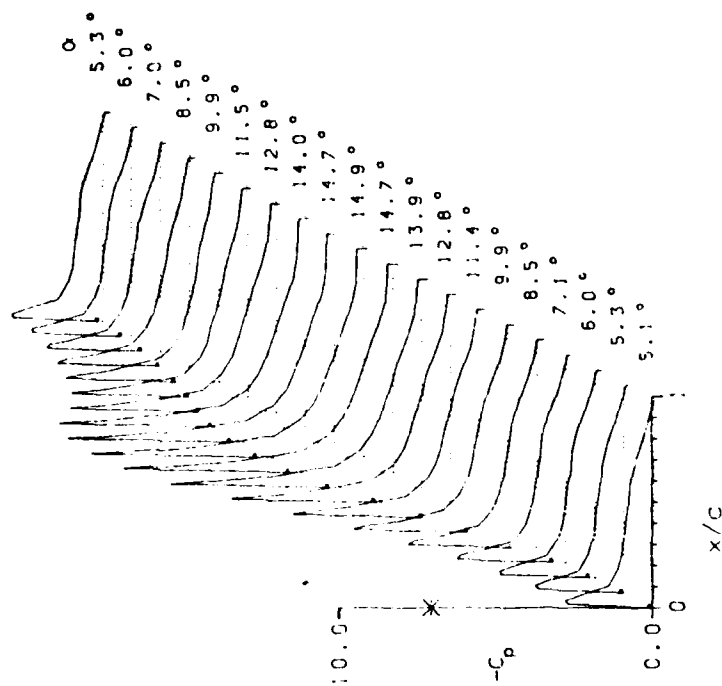
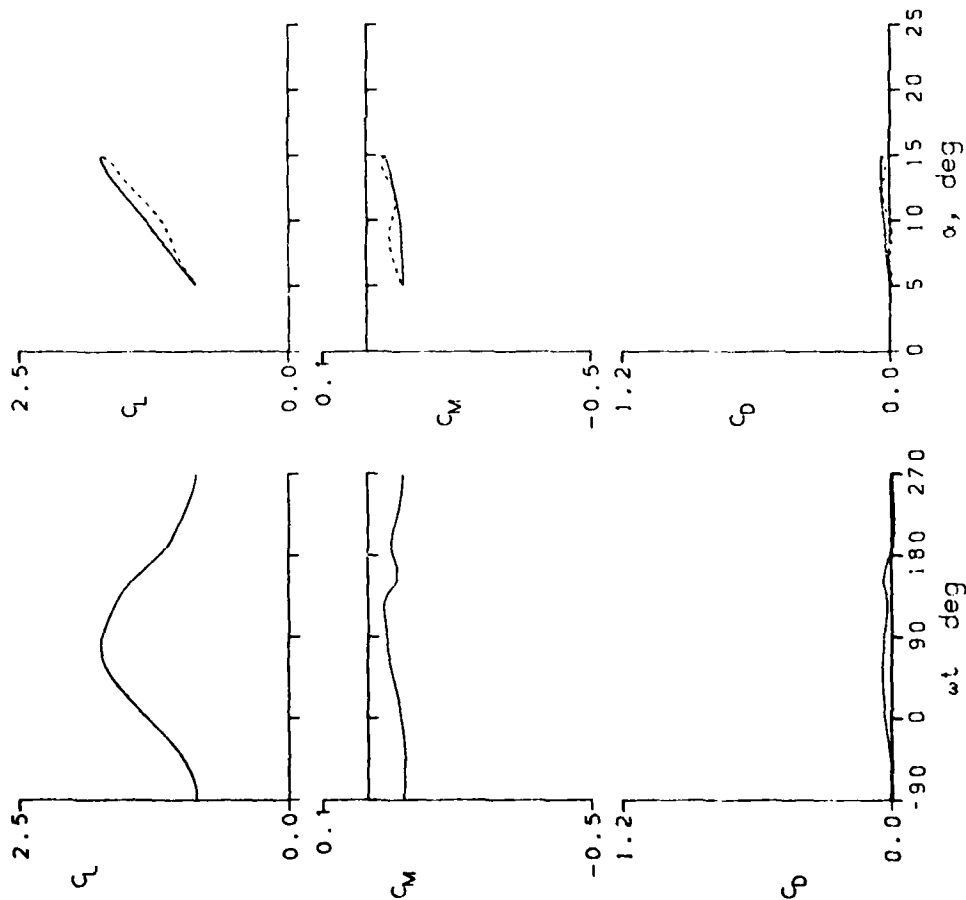


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67120	$A_0 = 14.79^\circ$	$\mu = 0.099$
$Re = 1.48 \text{ E}6$	$A_1 = 9.90^\circ$	$M = 0.110$
$C_{Lmax} = 2.31$	$C_{Mmin} = -0.37$	$C_{Dmax} = 0.82$
$\alpha_{Lmax} = 24.7^\circ$	$\xi = -0.221$	$M_{max} = 0.395$
$\alpha_{Cmin} = 14.2^\circ$	$-C_{Dmax} = 11.2$	$\alpha_{Mmax} = 23.4^\circ$

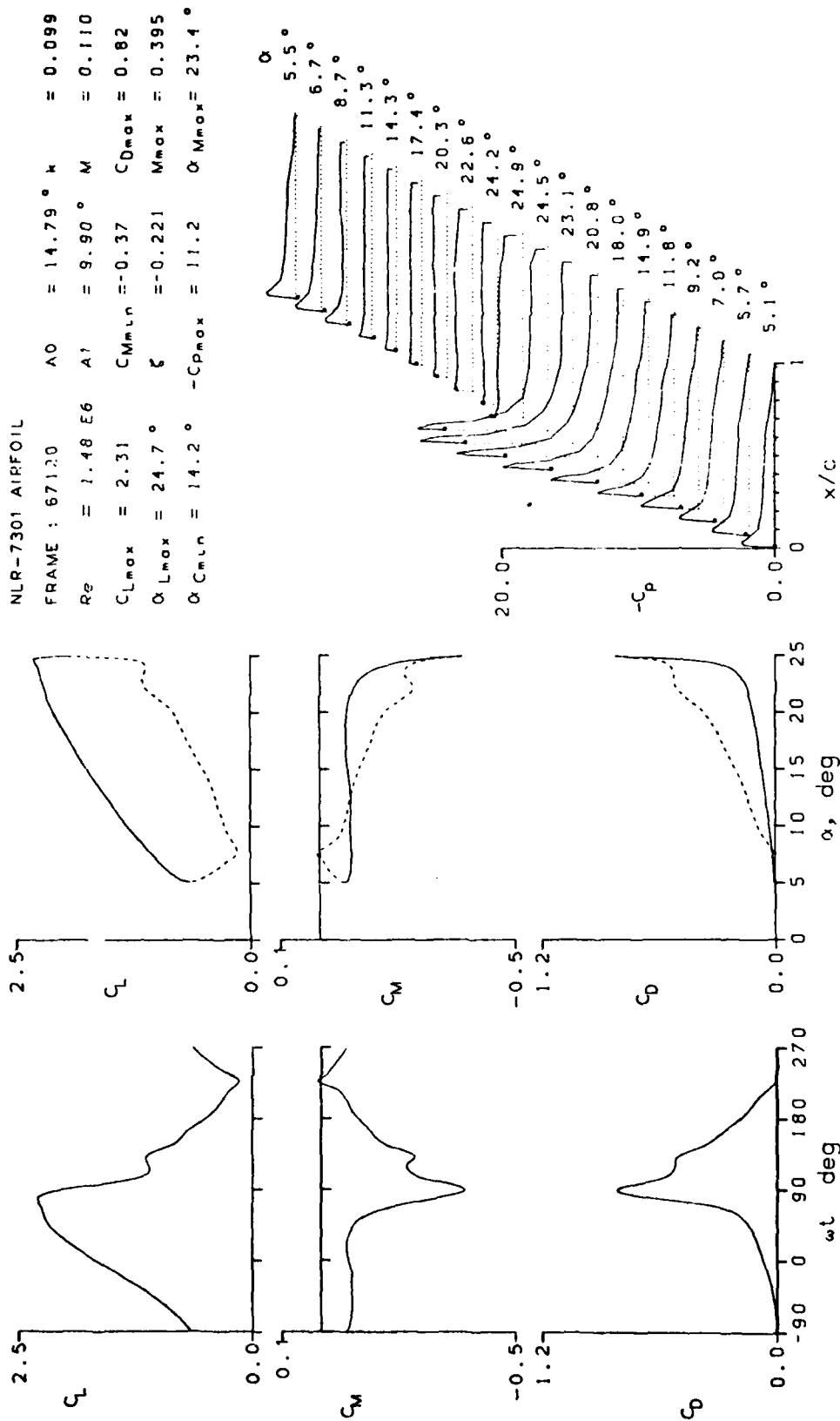


Figure 19.- Continued.

NLR-730' AIRFOIL

FRAME : 57201	A0	= 9.80 °	k	= 0.099	
Re	= 1.48 E6	A1	= 9.90 °	M	= 0.110
C _{Lmax}	= 1.99	C _{Mmin}	= -0.09	C _{Dmax}	= 0.09
α _{Lmax}	= 19.6 °	ξ	= 0.227	M _{max}	= 0.368
α _{Cmin}	= 9.3 °	-C _{Dmax}	= 9.7	α _{Mmax}	= 19.8 °

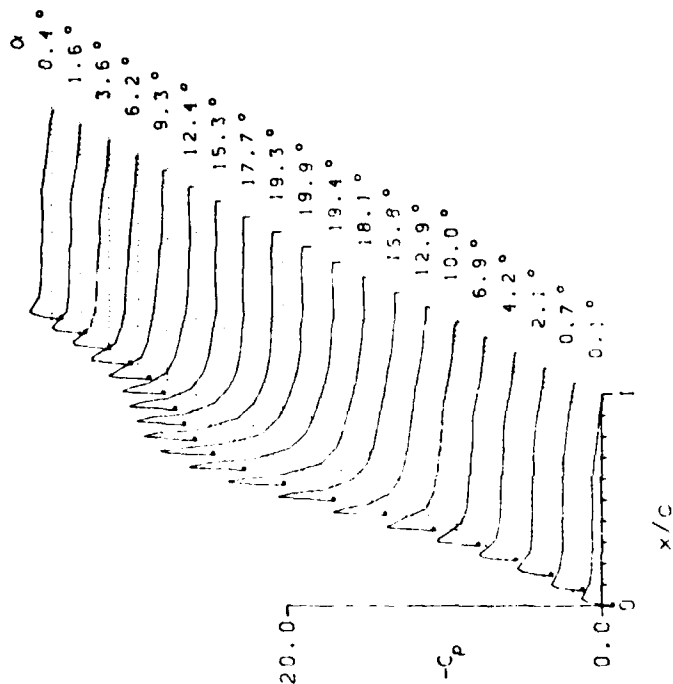
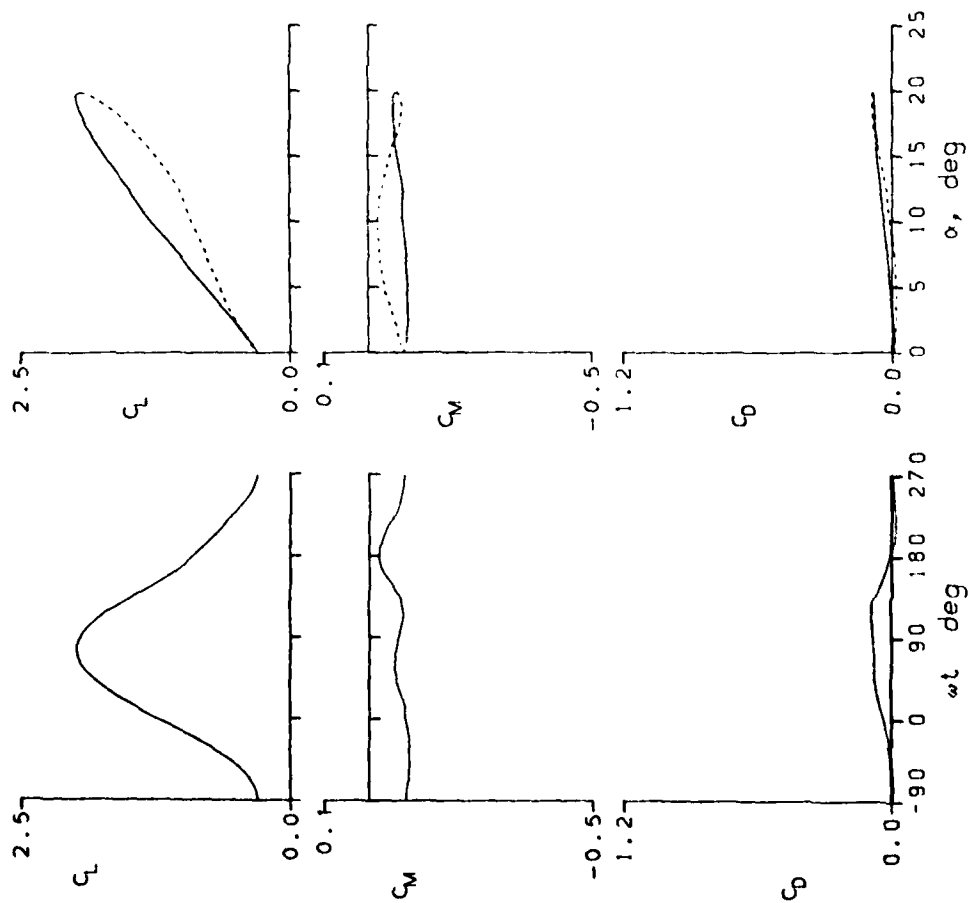


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 67208 $A_0 = 9.81^\circ$ $k = 0.025$
 $Re = 2.46 E6$ $A_1 = 9.90^\circ$ $M = 0.184$
 $C_{Lmax} = 1.90$ $C_{Mmin} = -0.12$ $C_{Dmax} = 0.18$
 $\alpha_{Lmax} = 19.2^\circ$ $\zeta = 0.002$ $M_{max} = 0.639$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Dmax} = 9.3$ $\alpha_{Mmax} = 19.4^\circ$

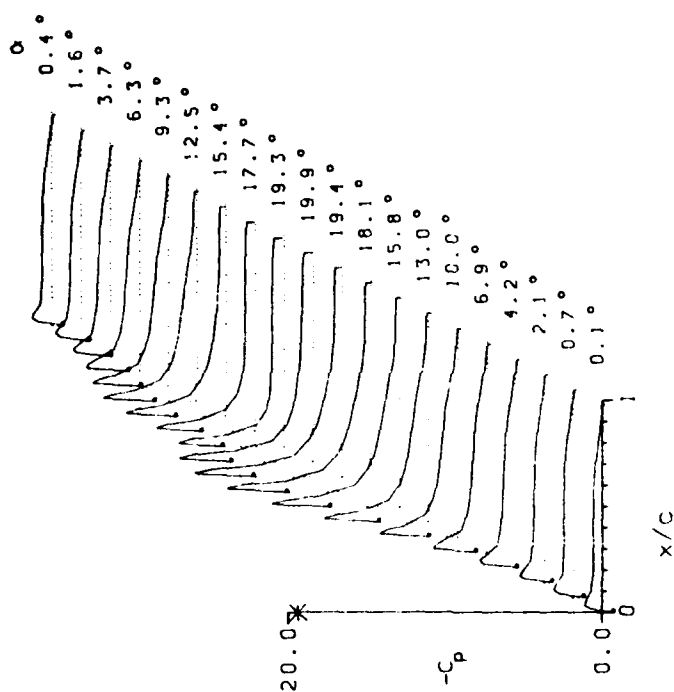
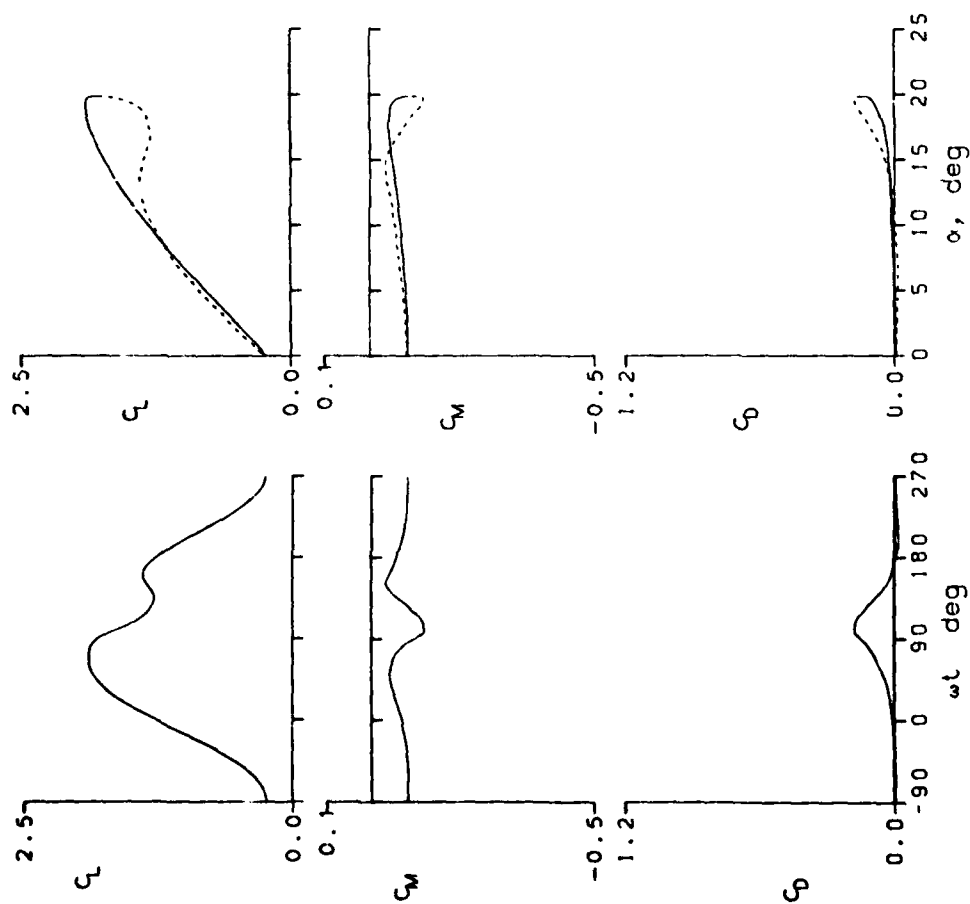


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67210	A0 = 9.80 °	k = 0.099
Re = 2.46 E6	A1 = 9.90 °	M = 0.185
C _{Lmax} = 2.10	C _{Mmin} = -0.10	C _{Dmax} = 0.08
α _{Lmax} = 19.6 °	ξ = 0.237	M _{max} = 0.685
α _{Cmin} = 9.3 °	-C _{Dmax} = 10.6	α _{Mmax} = 19.8 °

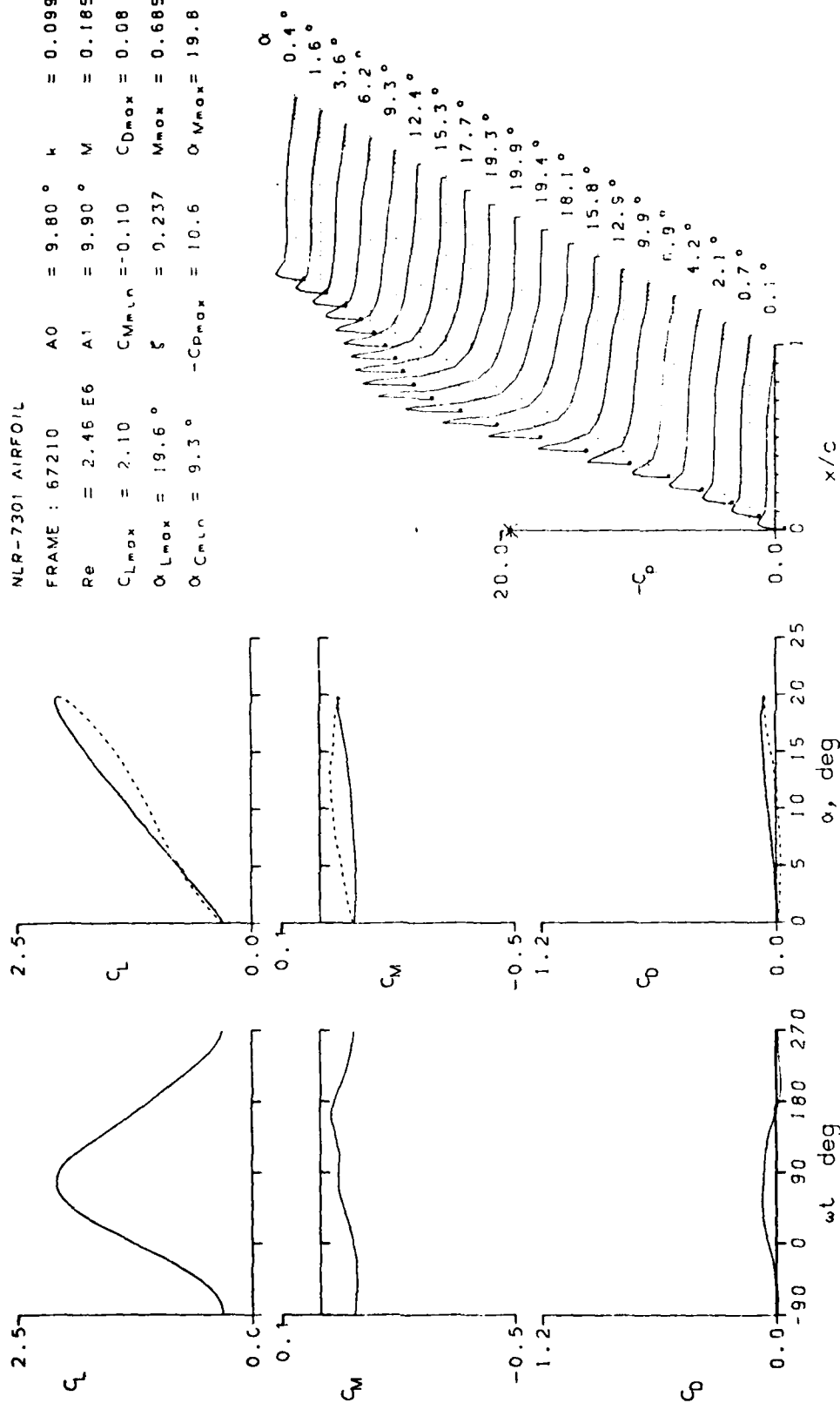


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67212	A0 = 9.79 °	k = 0.198
Re = 2.45 E6	A1 = 9.90 °	M = 0.184
C _{Lmax} = 2.15	C _{Mmin} = -0.12	C _{Dmax} = 0.12
α _{Lmax} = 19.7 °	ξ = 0.533	M _{max} = 1.697
α _{Cmin} = 9.3 °	-C _{pmax} = 10.9	α _{Mmax} = 19.9 °

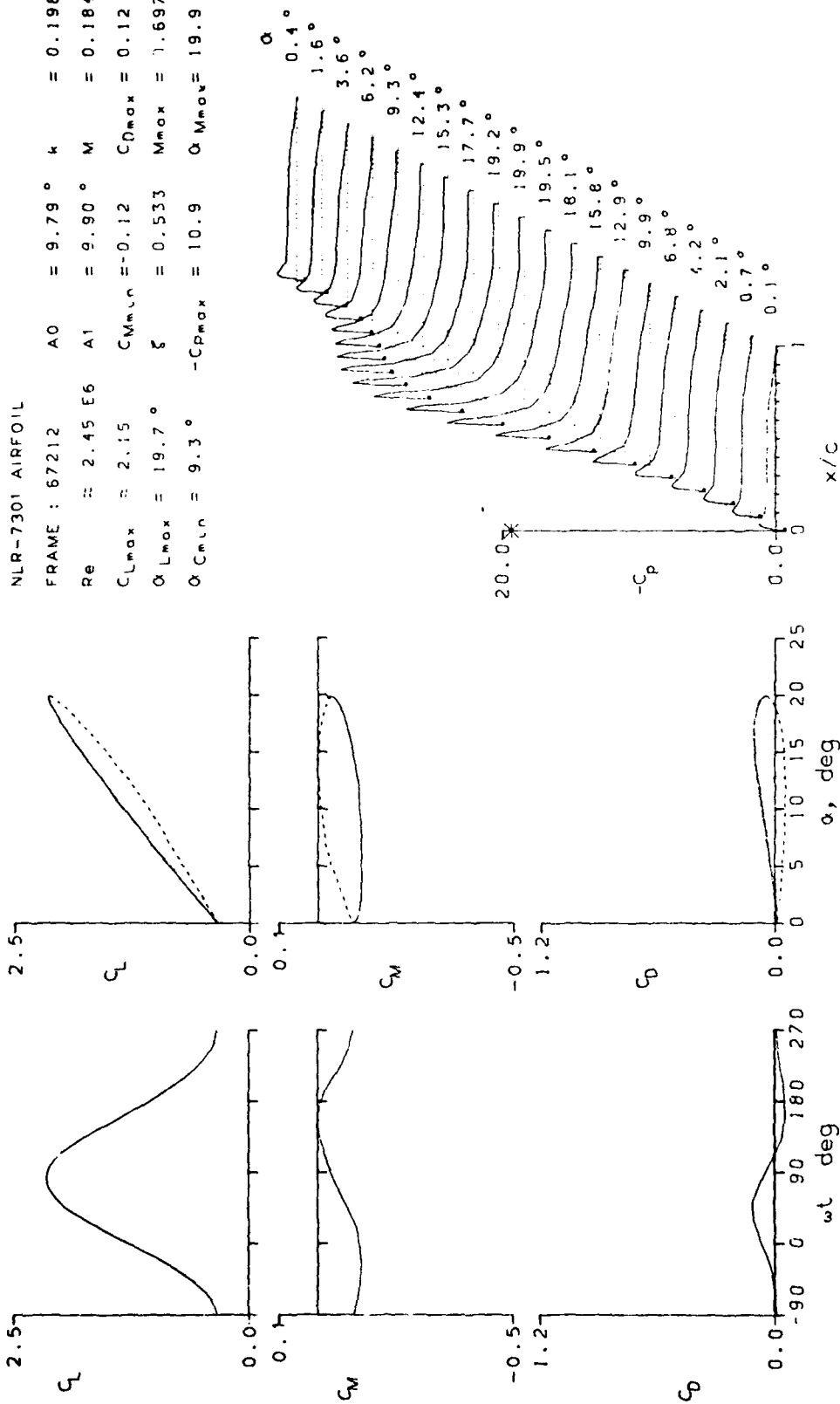


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 57218	A0 = 14.79°	μ = 0.025
Re = 2.45 E6	A1 = 9.90°	M = 0.184
C _{Lmax} = 2.01	C _{Mmin} = -0.26	C _{Dmax} = 0.54
α _{Lmax} = 21.1°	ξ = -0.214	M _{max} = 0.663
α _{Cmin} = 14.3°	-C _{Dmax} = 10.0	α _{Mmax} = 21.1°

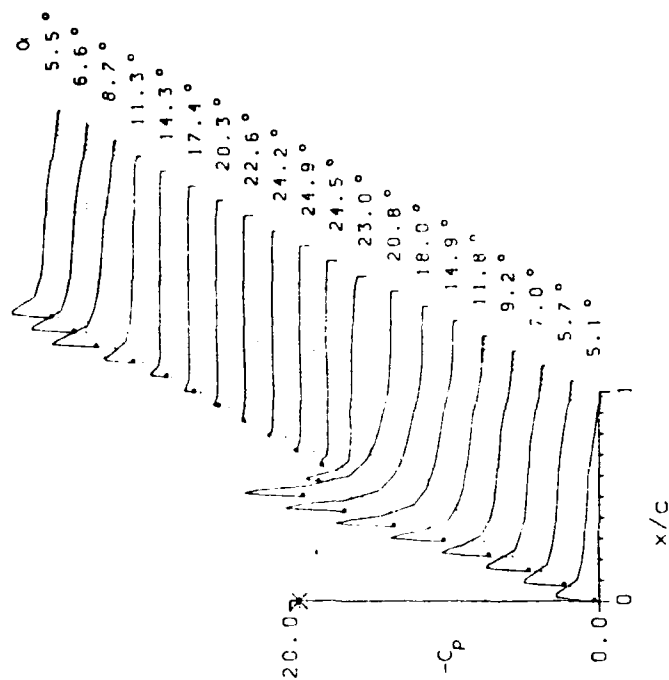
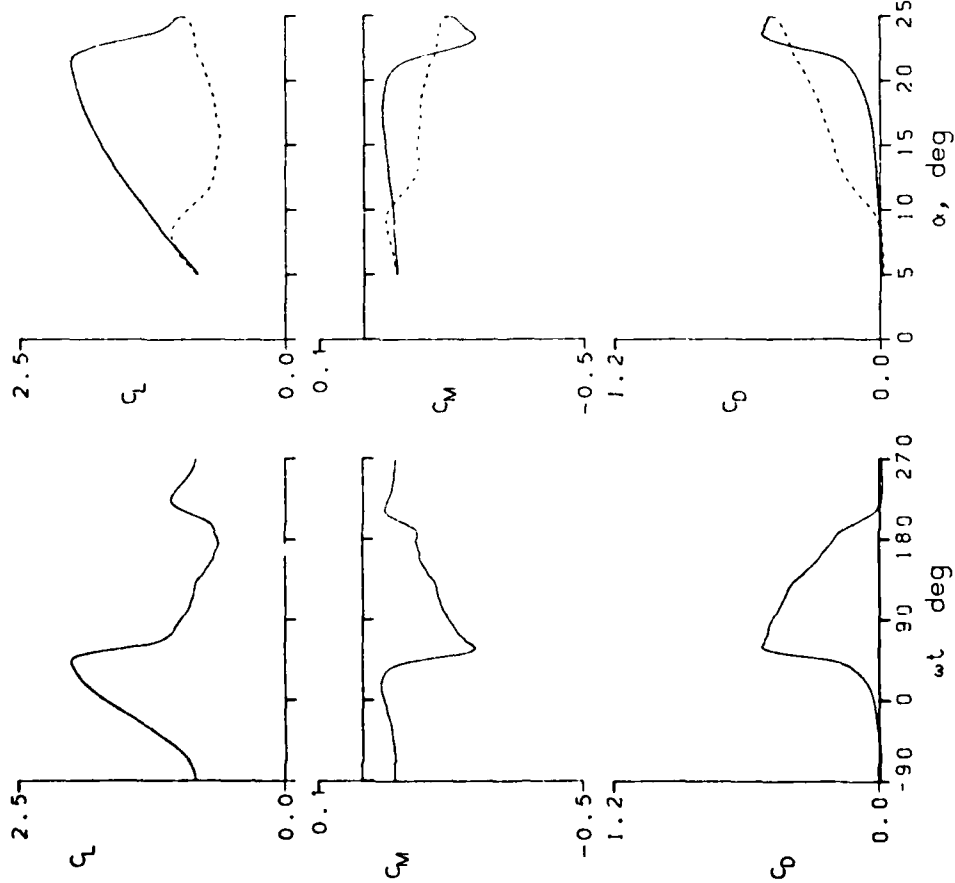


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67220	A0 = 14.80°	k = 0.099
Re = 2.45 E6	A1 = 9.90°	M = 0.184
CLmax = 2.36	CMmin = -0.31	CDmax = 0.65
αLmax = 24.3°	ξ = -0.384	Mmax = 0.755
αCMmin = 14.2°	-CPmax = 12.5	αMmax = 23.9°

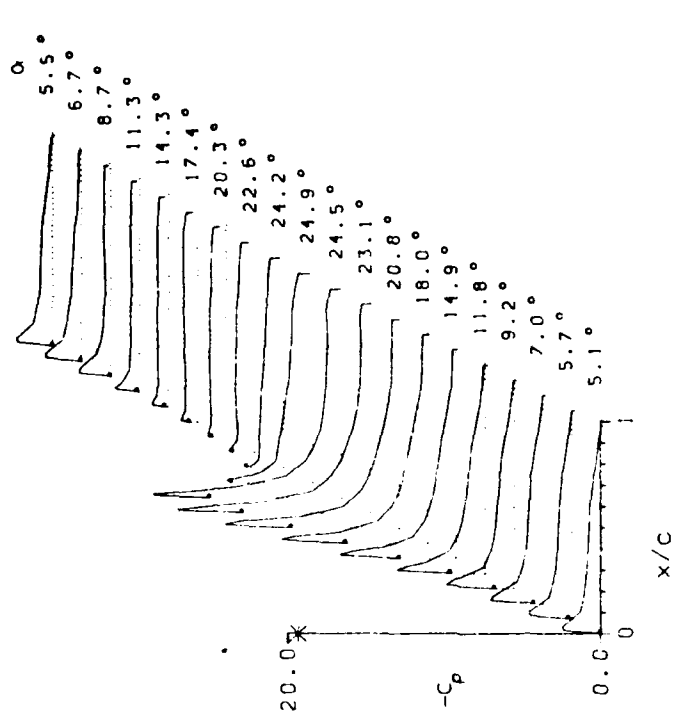
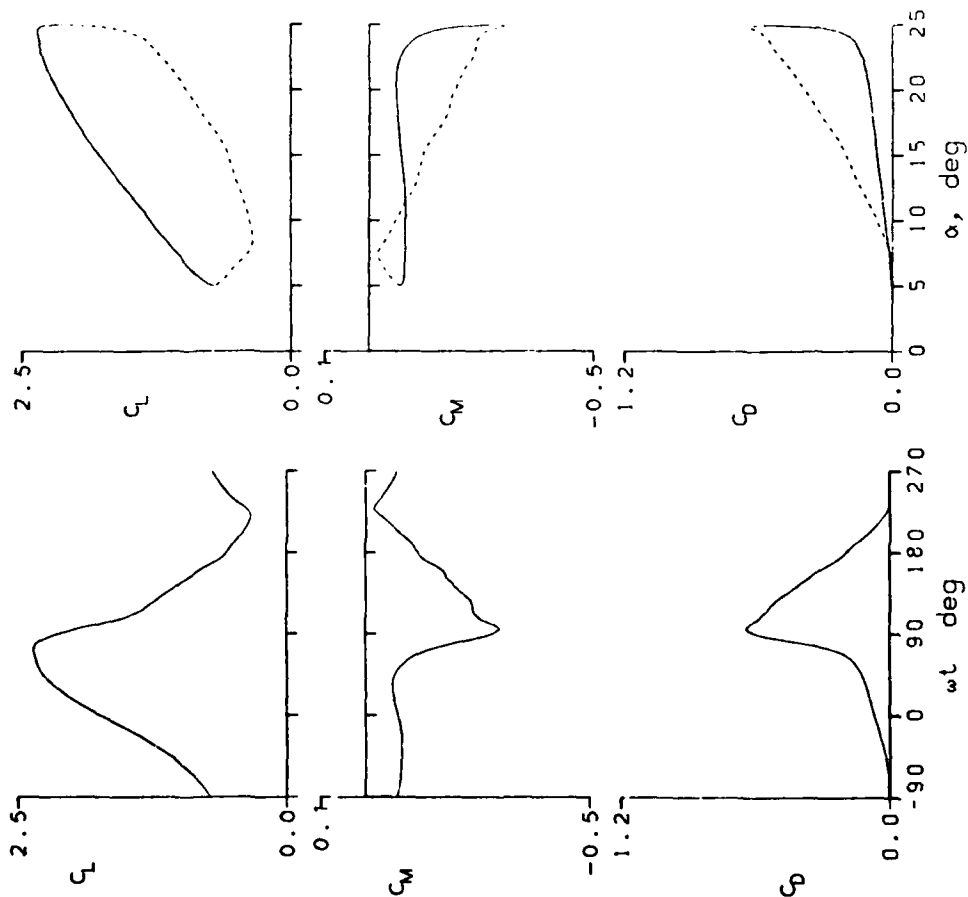


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67222	A0 = 14.78°	μ = 0.198
Re = 2.45 E6	A1 = 9.91°	M = 0.184
C _{Lmax} = 2.48	C _{Mmin} = -0.25	C _{Dmax} = 0.35
α _{Lmax} = 24.5°	ξ = -0.239	M _{max} = 0.805
α _{Cmin} = 14.3°	-C _{Dmax} = 13.9	α _{Mmax} = 24.9°

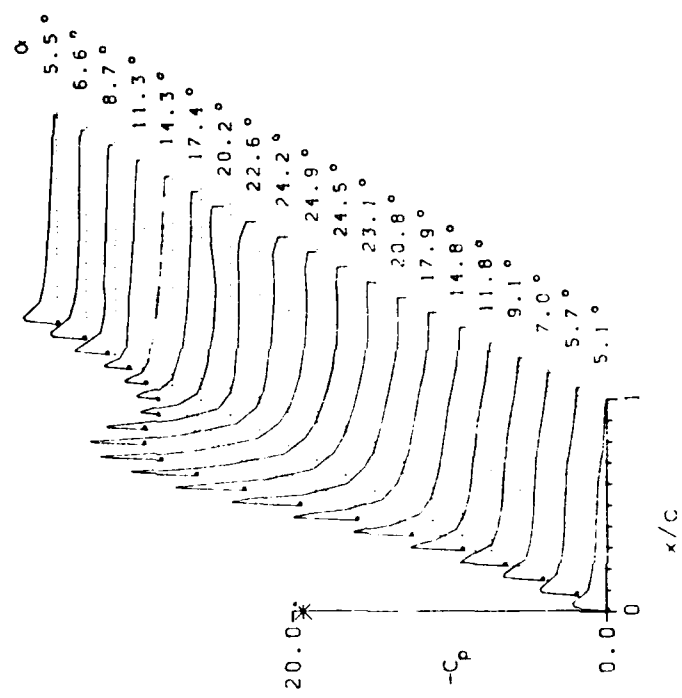
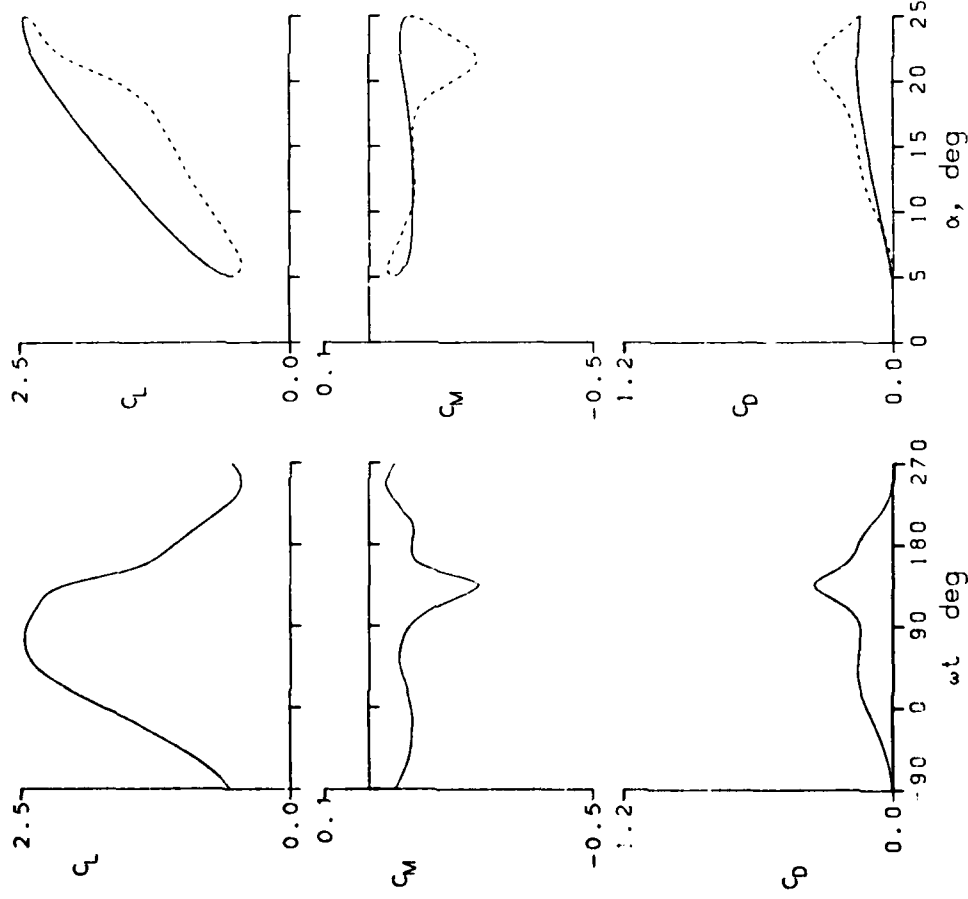


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67305	A0 = 14.81°	h = 0.099
Re = 3.25 E6	A1 = 9.90°	M = 0.248
C _{Lmax} = 2.37	C _{Mmin} = -0.38	C _{Dmax} = 0.65
α _{Lmax} = 24.3°	ζ = -0.244	M _{max} = 1.206
α _{Cmin} = 14.3°	-C _{Dmax} = 13.3	α _{Mmax} = 22.7°

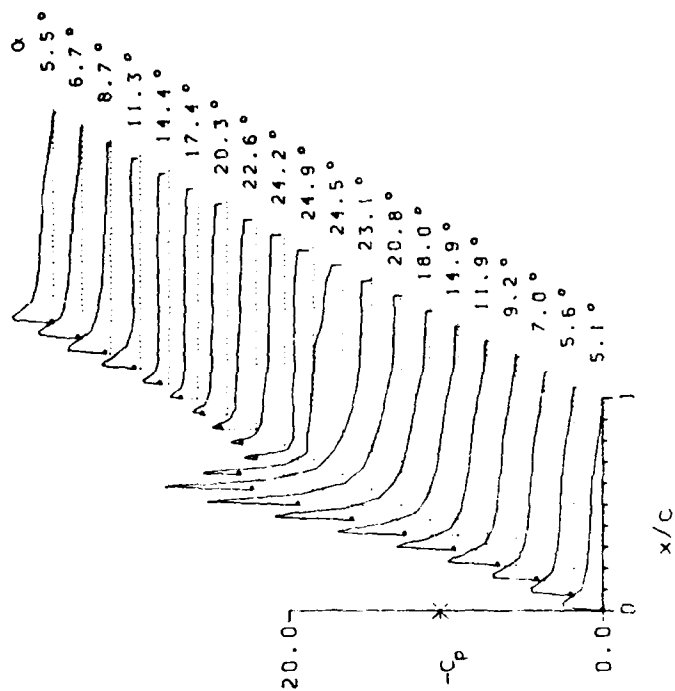
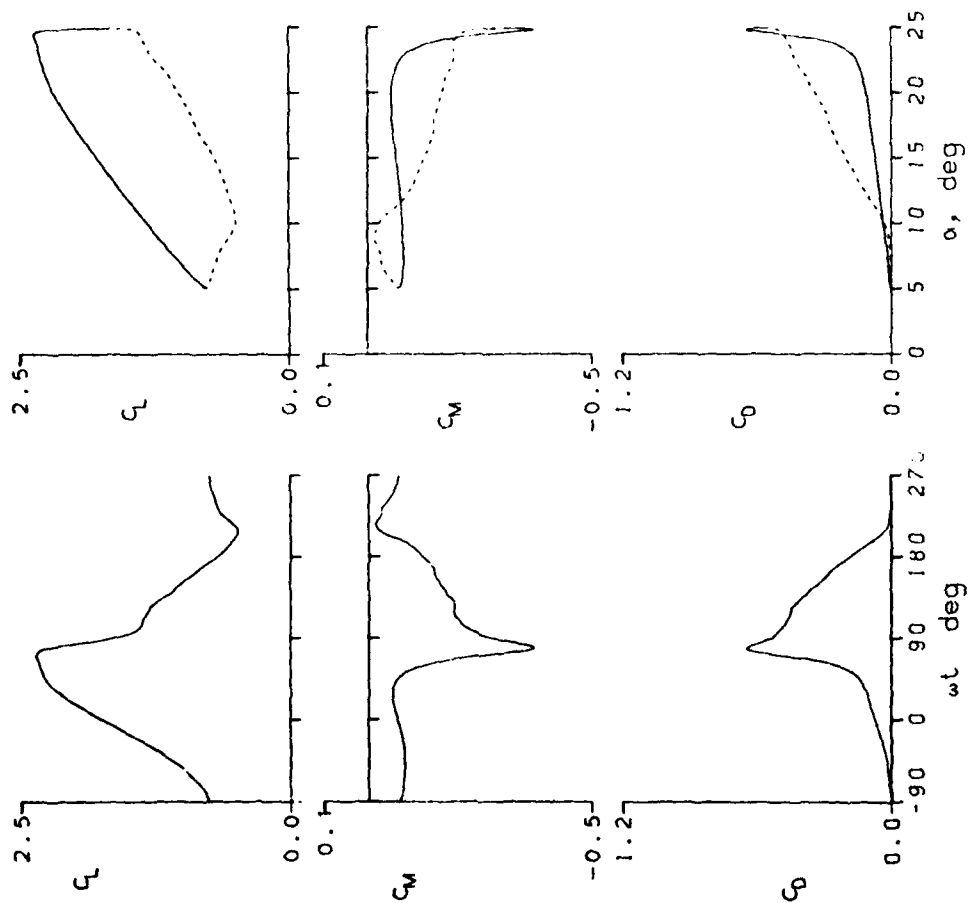


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 67310	A0 = 9.81°	k = 0.099
R0 = 3.26 E6	A1 = 9.90°	M = 0.250
CLmax = 2.13	CMmin = -0.10	CDmax = 0.08
αLmax = 19.4°	ξ = 0.228	Mmax = 1.101
αCMmin = 9.3°	-CPmax = 11.8	αMmax = 19.8°

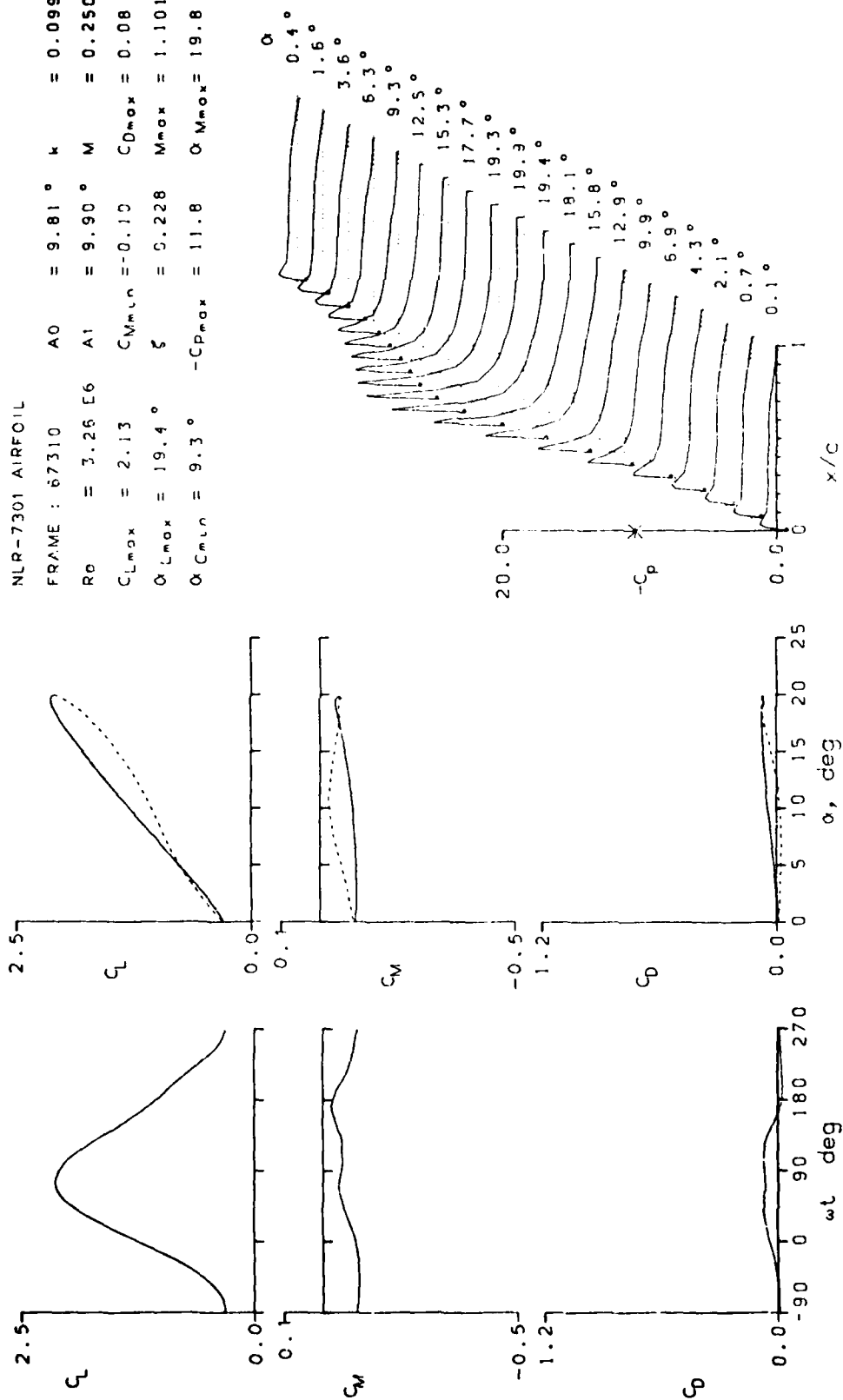


Figure 19.- Continued.

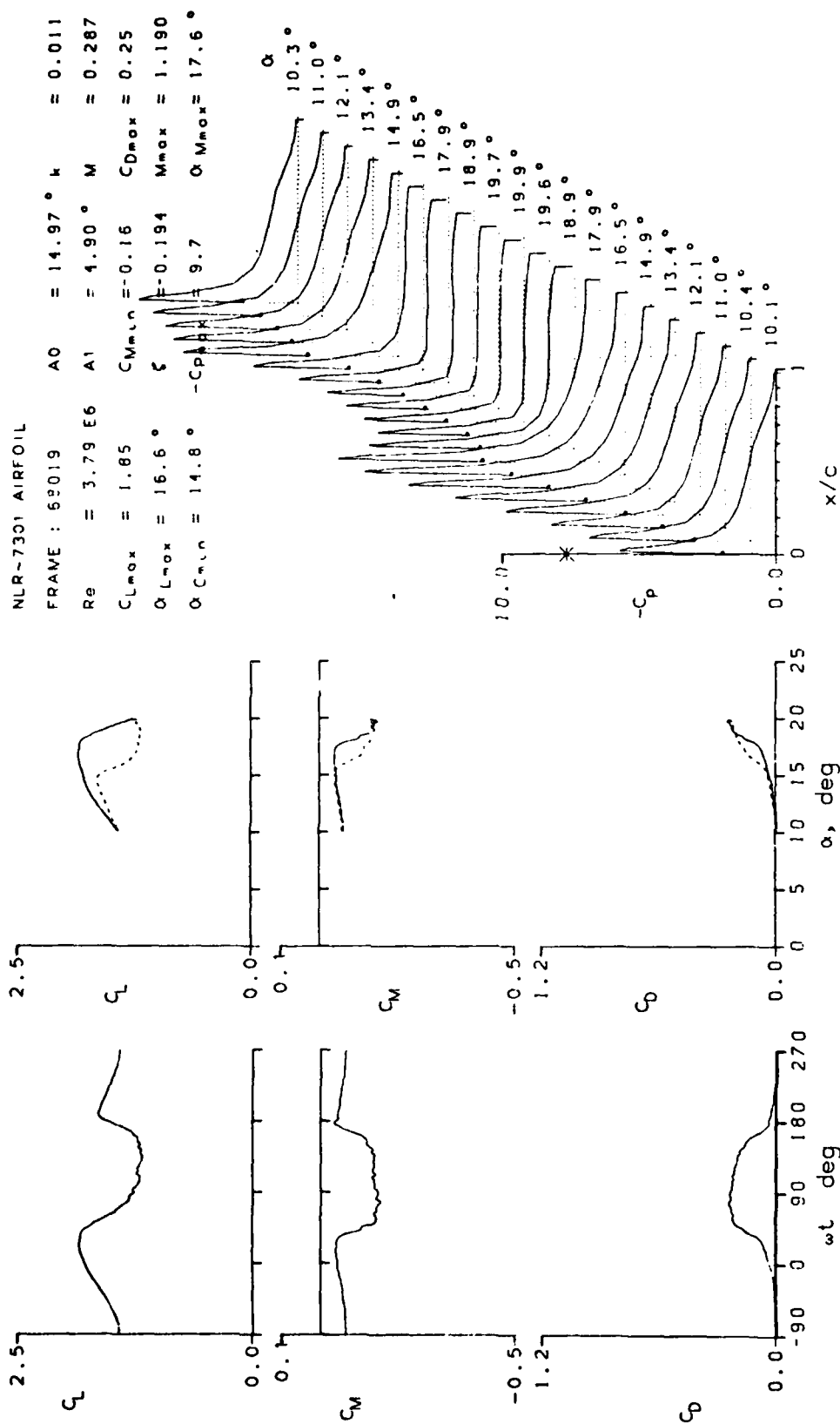


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 58100 $A_0 = 14.97^\circ$ $k = 0.026$

$Re = 3.77 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.288$

$C_{Lmax} = 1.84$ $C_{Mmin} = -0.16$ $C_{Dmax} = 0.27$

$\alpha_{Lmax} = 17.5^\circ$ $\xi = 0.174$ $M_{max} = 1.193$

$\alpha_{Cmin} = 14.8^\circ$ $-C_{Pmax} = 9.7$ $\alpha_{Mmax} = 18.0^\circ$

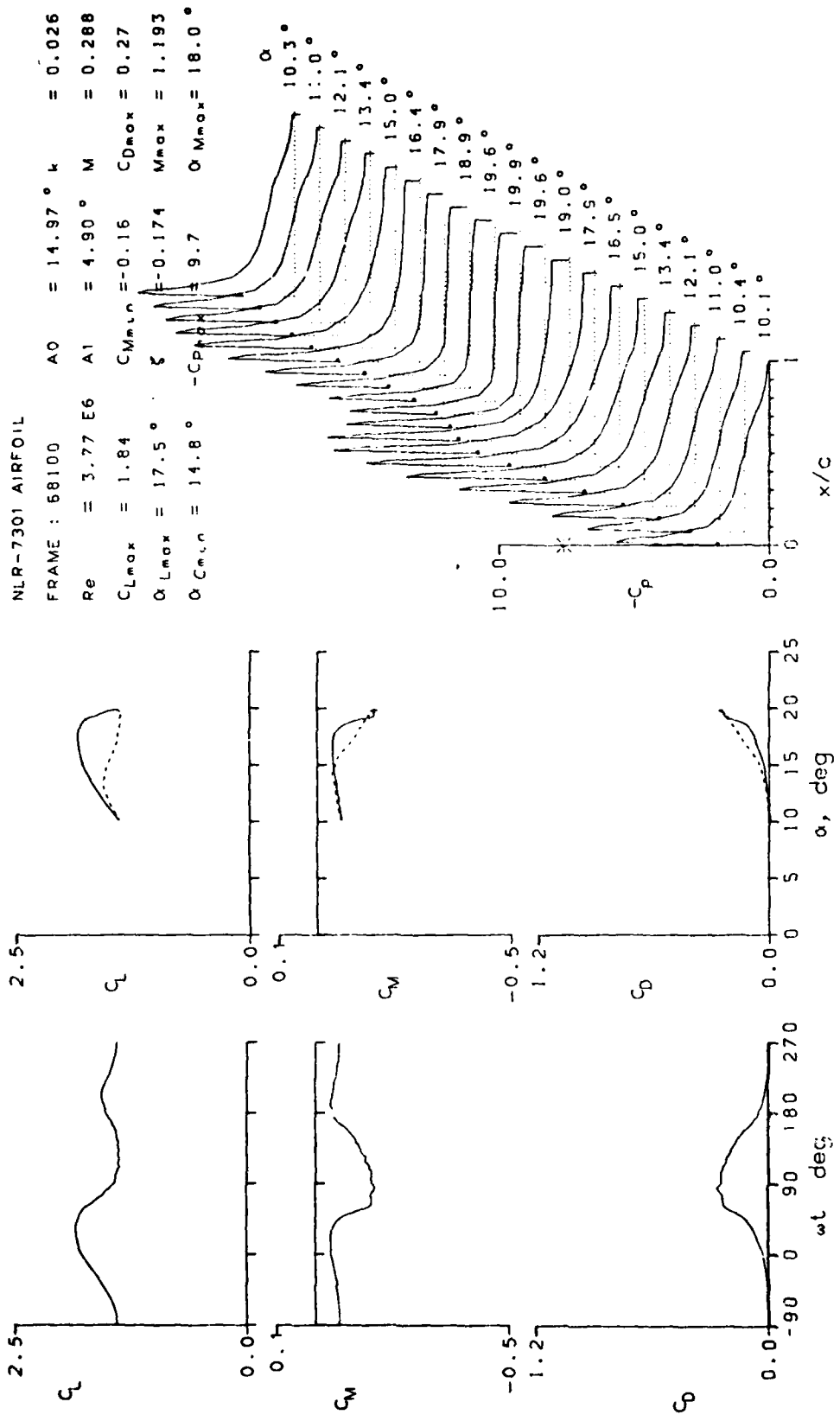


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 68102	A0 = 14.98°	k = 0.052
Re = 3.73 E6	A1 = 4.90°	M = 0.286
CLmax = 1.91	CMmin = -0.18	CDmax = 0.29
α Lmax = 17.0°	ξ = -0.225	Mmax = 1.212
α CMmin = 14.8°	-CDmax = 10.0	α Mmax = 18.3°

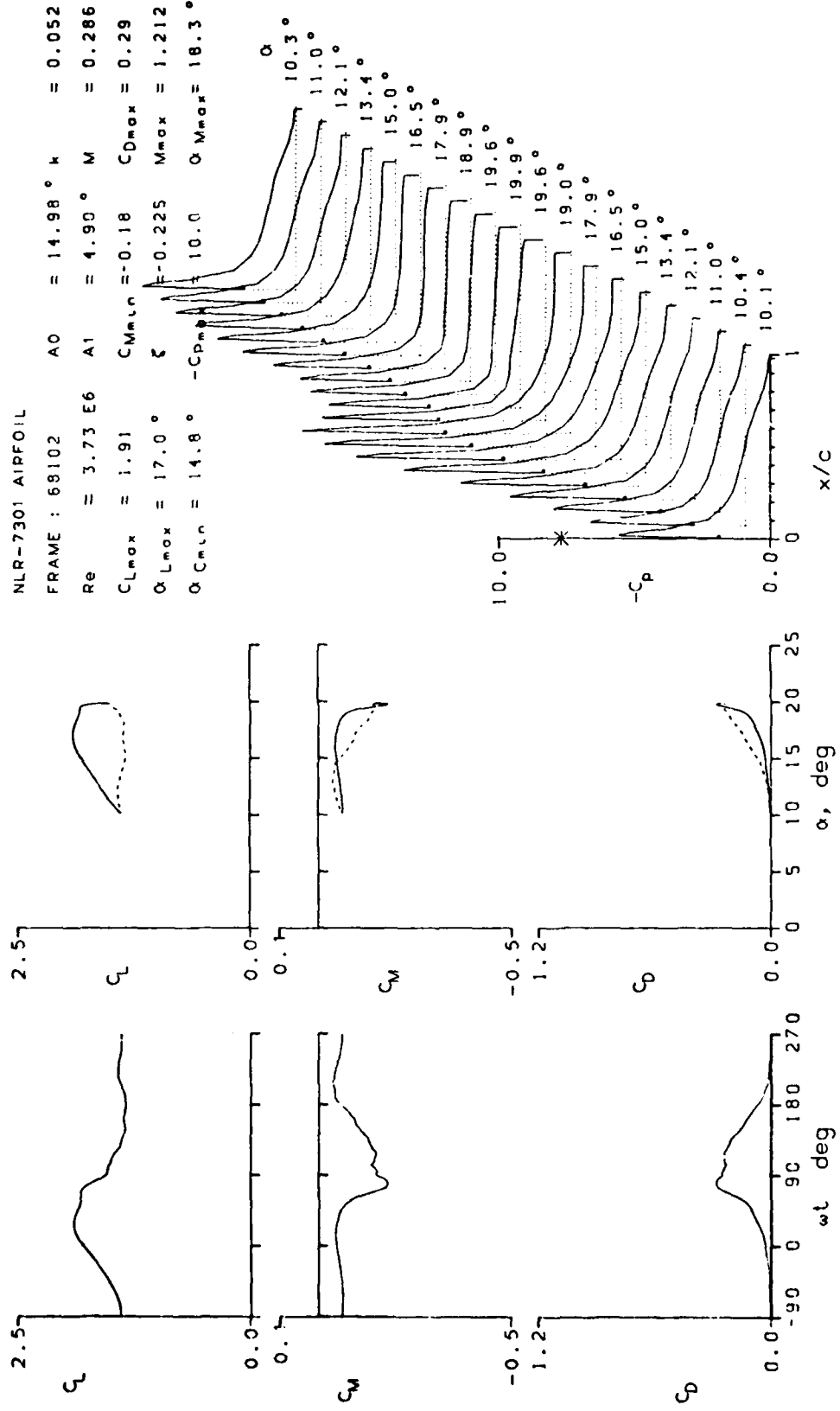


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 68104 $A_0 = 14.97^\circ$ $k = 0.104$
 $R_0 = 3.73 \text{ E6}$ $A_1 = 4.90^\circ$ $M = 0.287$
 $C_{L_{max}} = 2.02$ $C_{M_{min}} = -0.19$ $C_{D_{max}} = 0.29$
 $\alpha_{L_{max}} = 18.2^\circ$ $\zeta = -0.578$ $M_{max} = 1.256$
 $\alpha_{C_{min}} = 14.8^\circ$ $-C_{D_{max}} = 10.3$ $\alpha_{M_{max}} = 18.0^\circ$

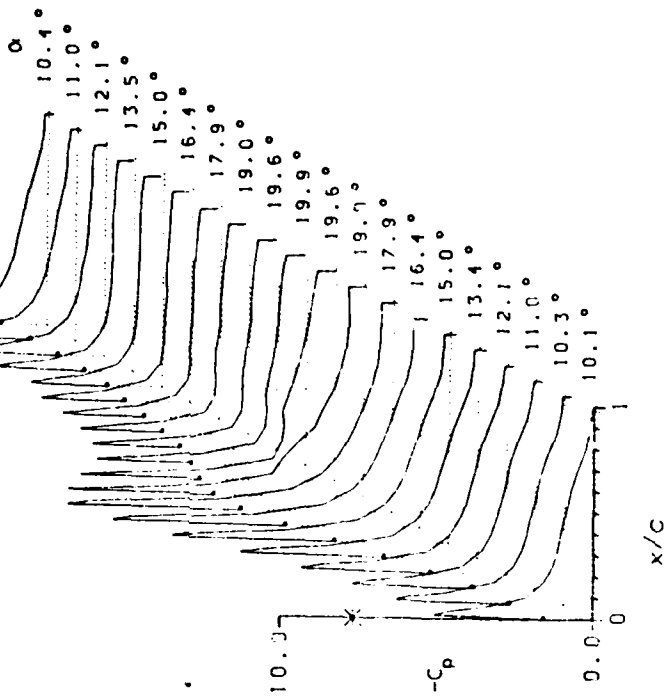
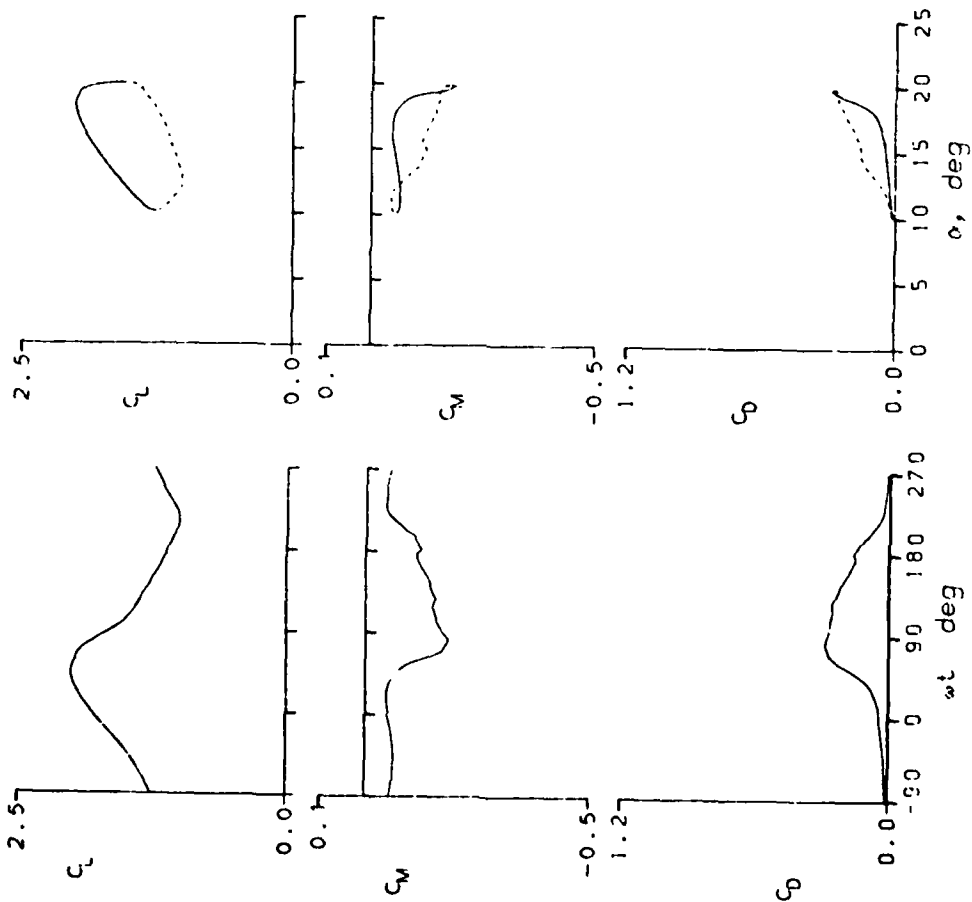
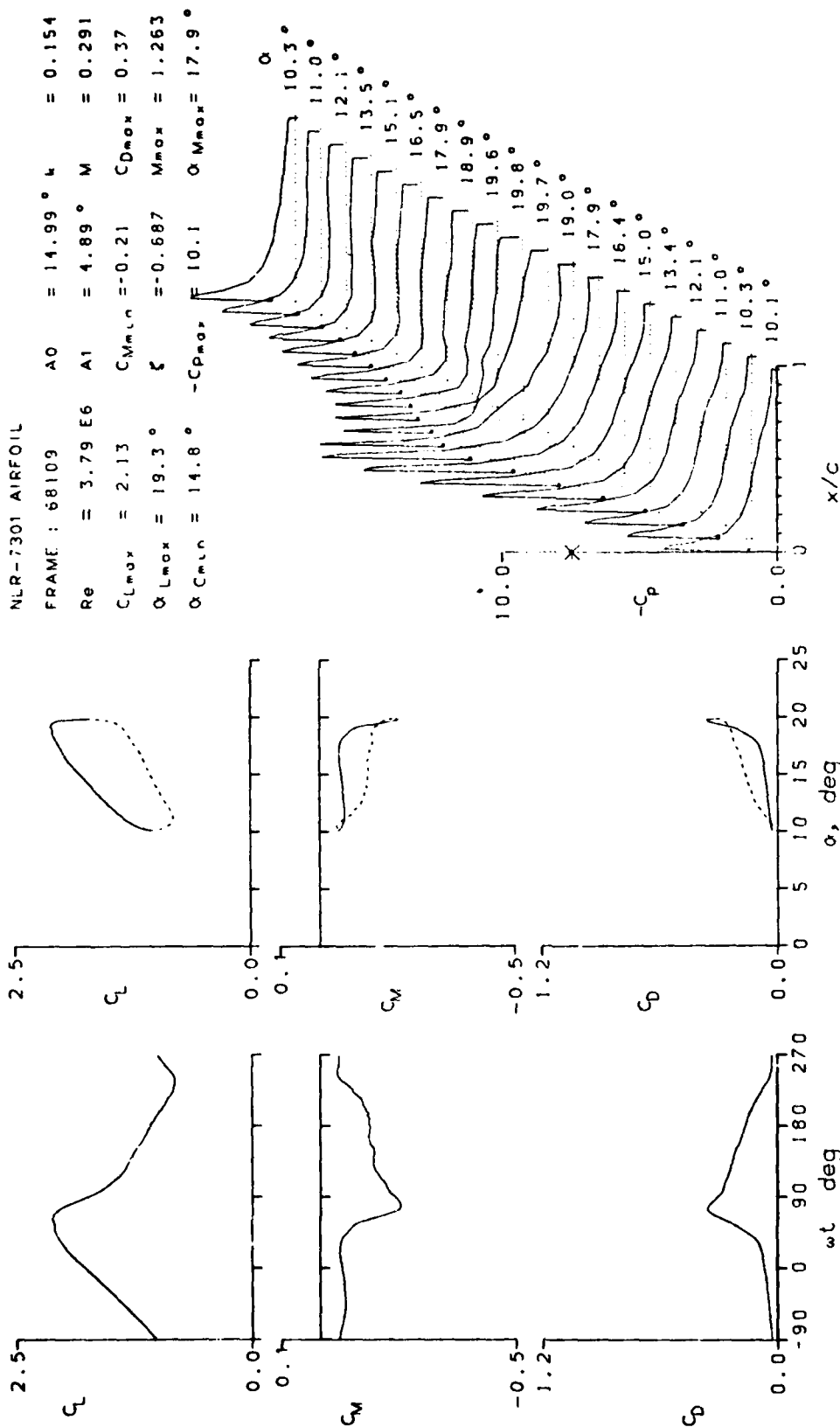


Figure 19.- Continued.



NLR-7301 AIRFOIL

FRAME : 68111 A0 = 14.97° k = 0.203

Re = 3.79 E6 A1 = 4.90° M = 0.293

C_{Lmax} = 2.21 C_{Mmin} = -0.25 C_{Dmax} = 0.46

α_{Lmax} = 19.7° ζ = -0.404 M_{max} = 1.268

α_{Cmin} = 14.8° -C_{pmax} = 10.0 α_{Mmax} = 17.8°

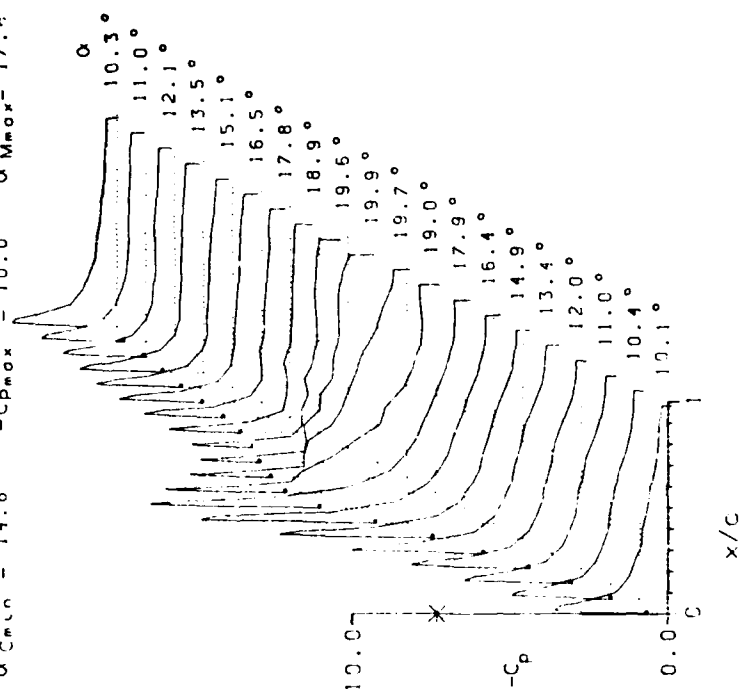
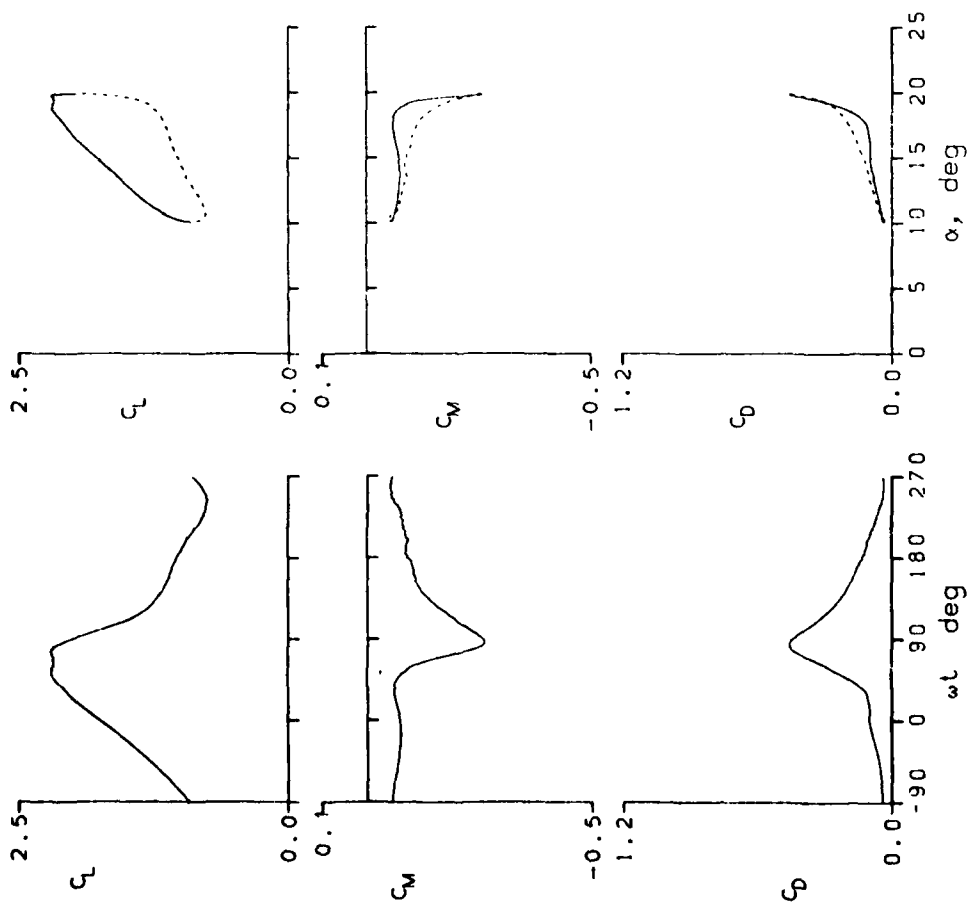


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 60113	A0 = 9.96°	μ = 0.010
Re = 3.81 E6	A1 = 4.90°	M = 0.297
CLmax = 1.71	CMmin = -0.08	CDmax = 0.04
αLmax = 14.9°	ξ = 0.013	Mmax = 1.117
αCmin = 9.8°	-CDmax = 8.3	αMmax = 14.9°

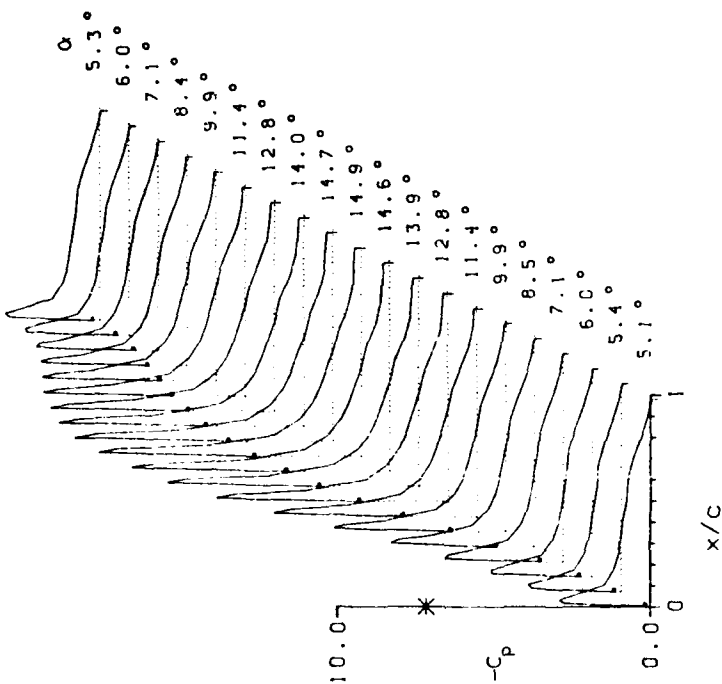
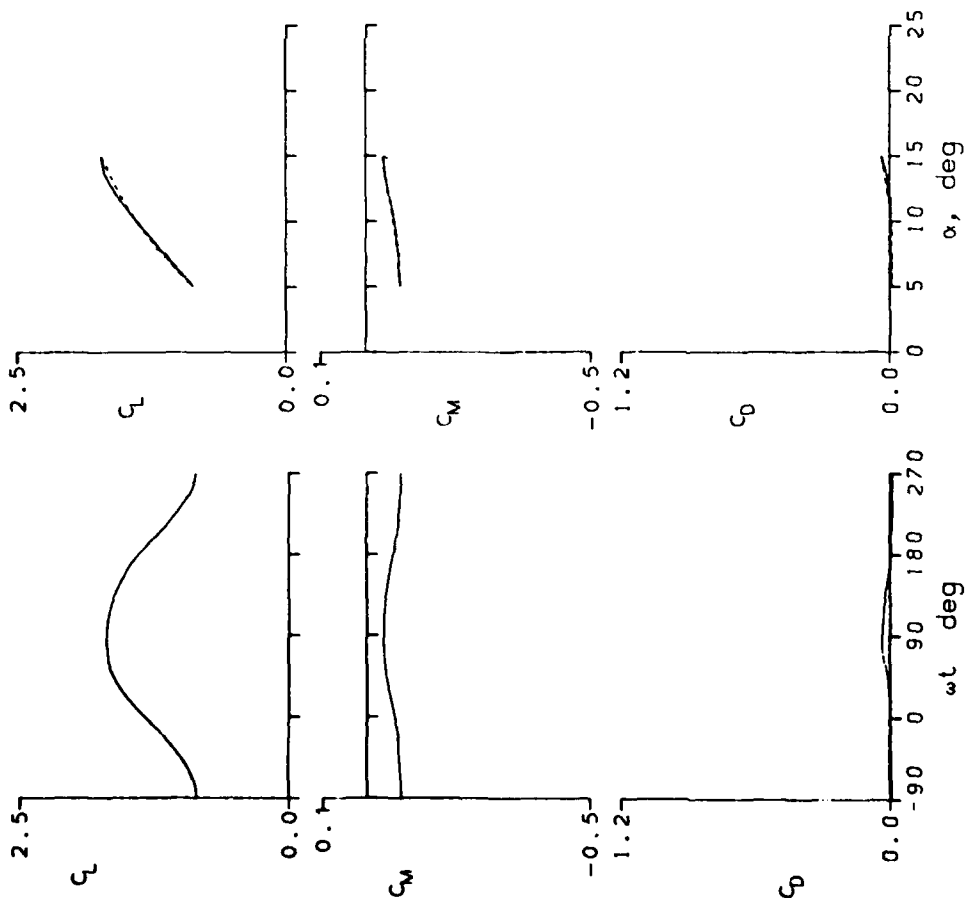


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 58121 $A_0 = 9.97^\circ$ $k = 0.025$
 $Re = 3.79 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.298$
 $C_{Lmax} = 1.72$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.04$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.044$ $M_{max} = 1.129$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 8.4$ $\alpha_{Mmax} = 14.6^\circ$

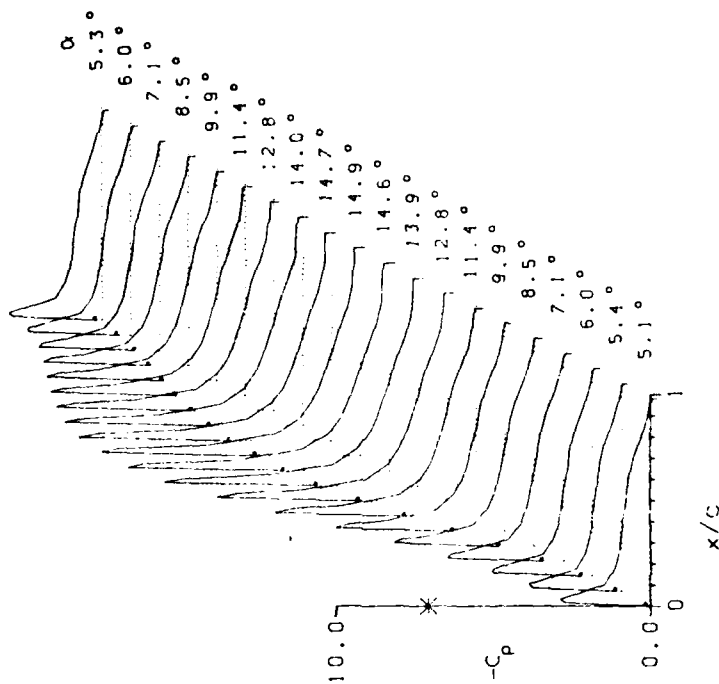
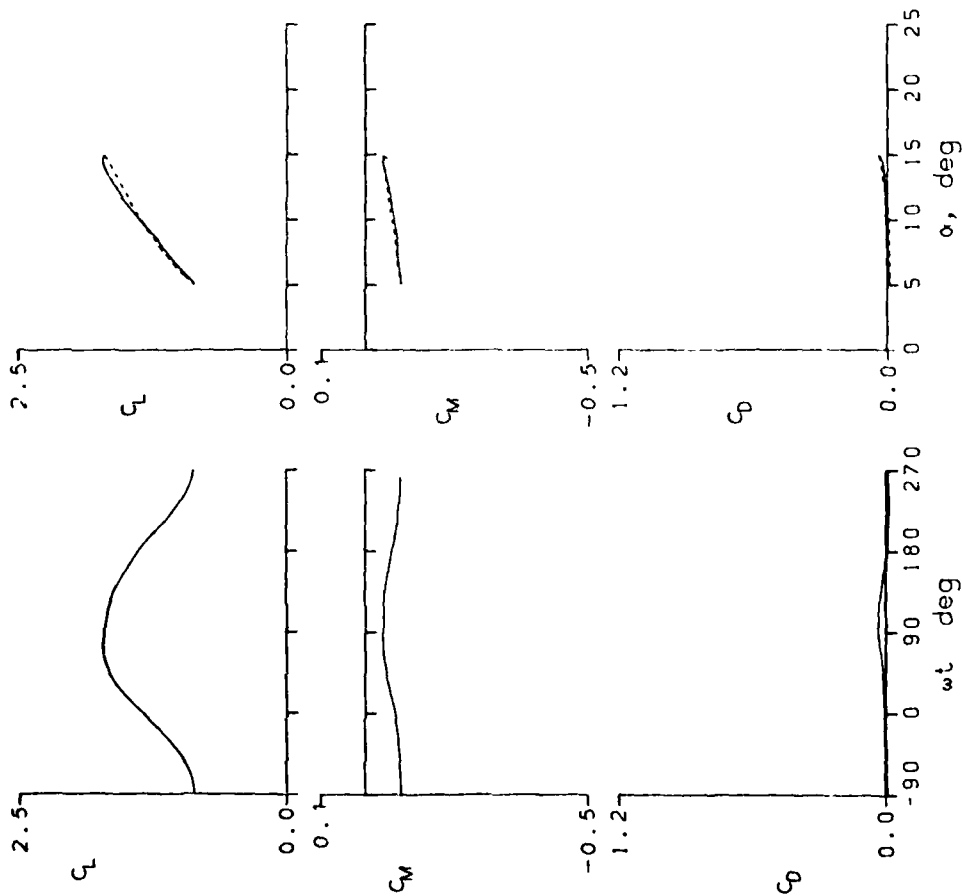


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 58123 $A_0 = 9.97^\circ$ $k = 0.049$
 $Re = 3.79 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.299$
 $C_{Lmax} = 1.76$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.04$
 $\alpha_{Lmax} = 14.6^\circ$ $\xi = 0.112$ $M_{max} = 1.152$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 8.6$ $\alpha_{Mmax} = 14.8^\circ$

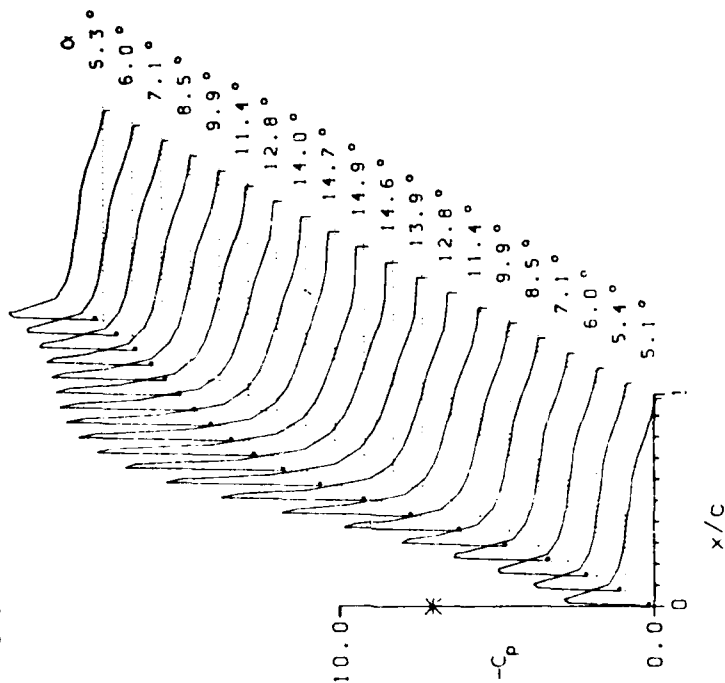
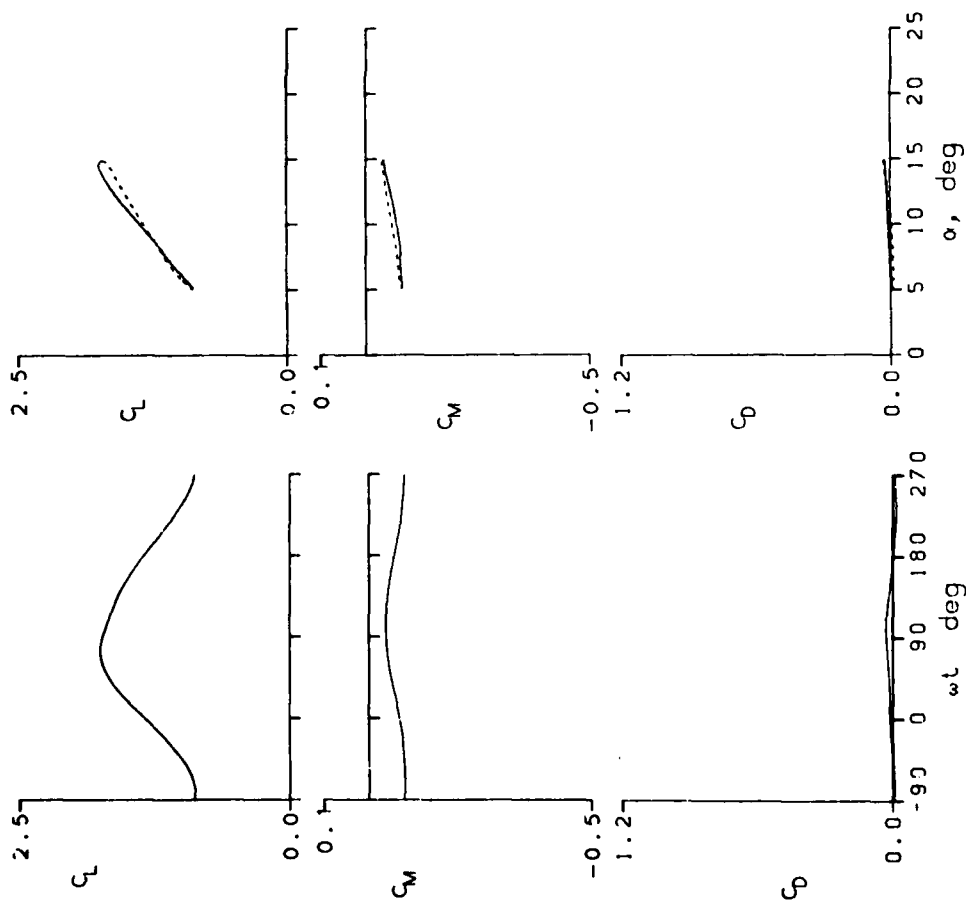


Figure 19.- Continued.

NLR-7301 A:REQ'L

FRAME : 68201 $\alpha_0 = 9.96^\circ$ $k = 0.098$

$Re = 3.81 E6$ $A1 = 4.90^\circ$ $M = 0.300$

$C_{Lmax} = 1.72$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.03$

$\alpha_{Lmax} = 14.7^\circ$ $\alpha' = 0.279$ $M_{max} = 1.177$

$\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 8.7$ $\alpha_{Mmax} = 14.9^\circ$

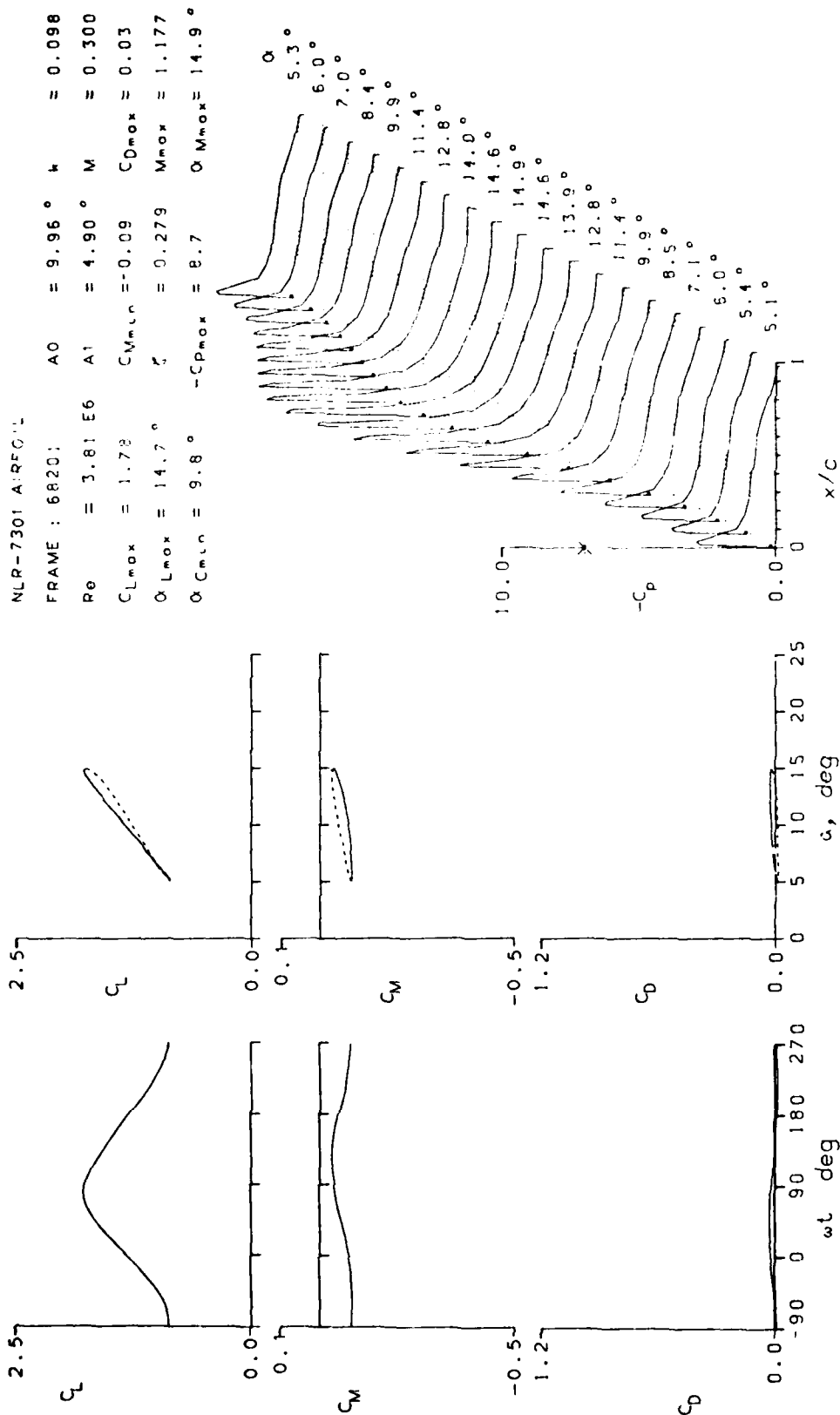


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 68203 $A_0 = 9.98^\circ$ $k = 0.196$
 $Re = 3.82 \text{ E}6$ $A_1 = 4.90^\circ$ $M = 0.302$
 $C_{Lmax} = 1.87$ $C_{Mmin} = -0.10$ $C_{Dmax} = 0.05$
 $\alpha_{Lmax} = 14.8^\circ$ $\xi = 0.674$ $M_{max} = 1.228$
 $\alpha_{Cmin} = 9.8^\circ$ $-C_{Dmax} = 9.1$ $\alpha_{Mmax} = 14.9^\circ$

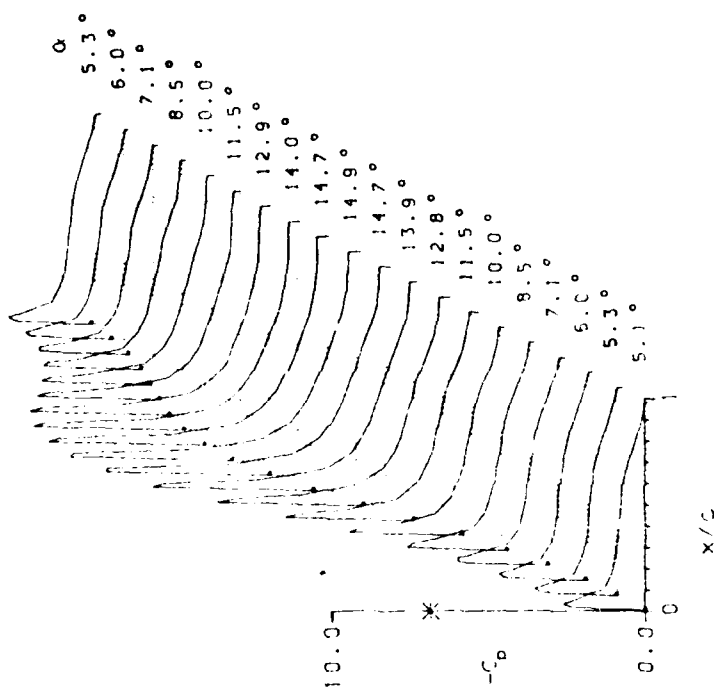
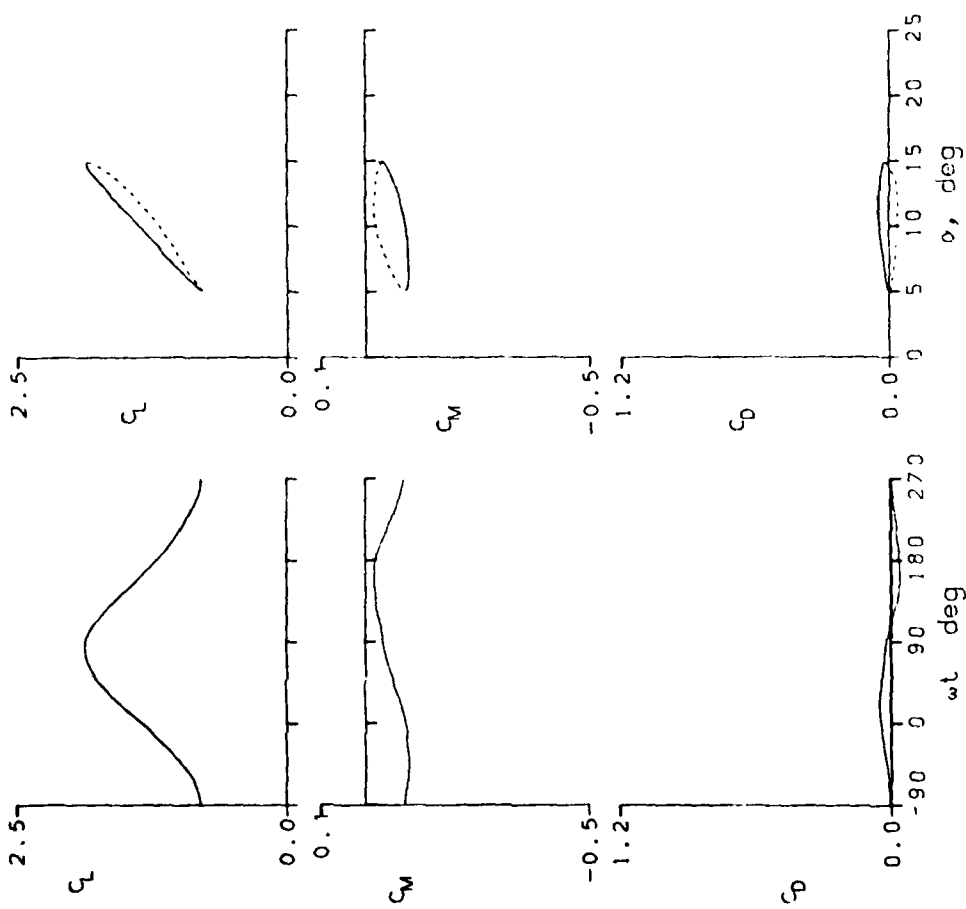


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 68211	A0 = 4.96 °	k = 0.198
Re = 7.84 E6	A1 = 5.00 °	M = 0.299
CLmax = 1.36	CMmin = -0.10	CDmax = 0.03
αLmax = 10.0 °	ξ = 0.495	Mmax = 0.868
αCMmin = 4.8 °	-CPmax = 5.6	αMmax = 9.9 °

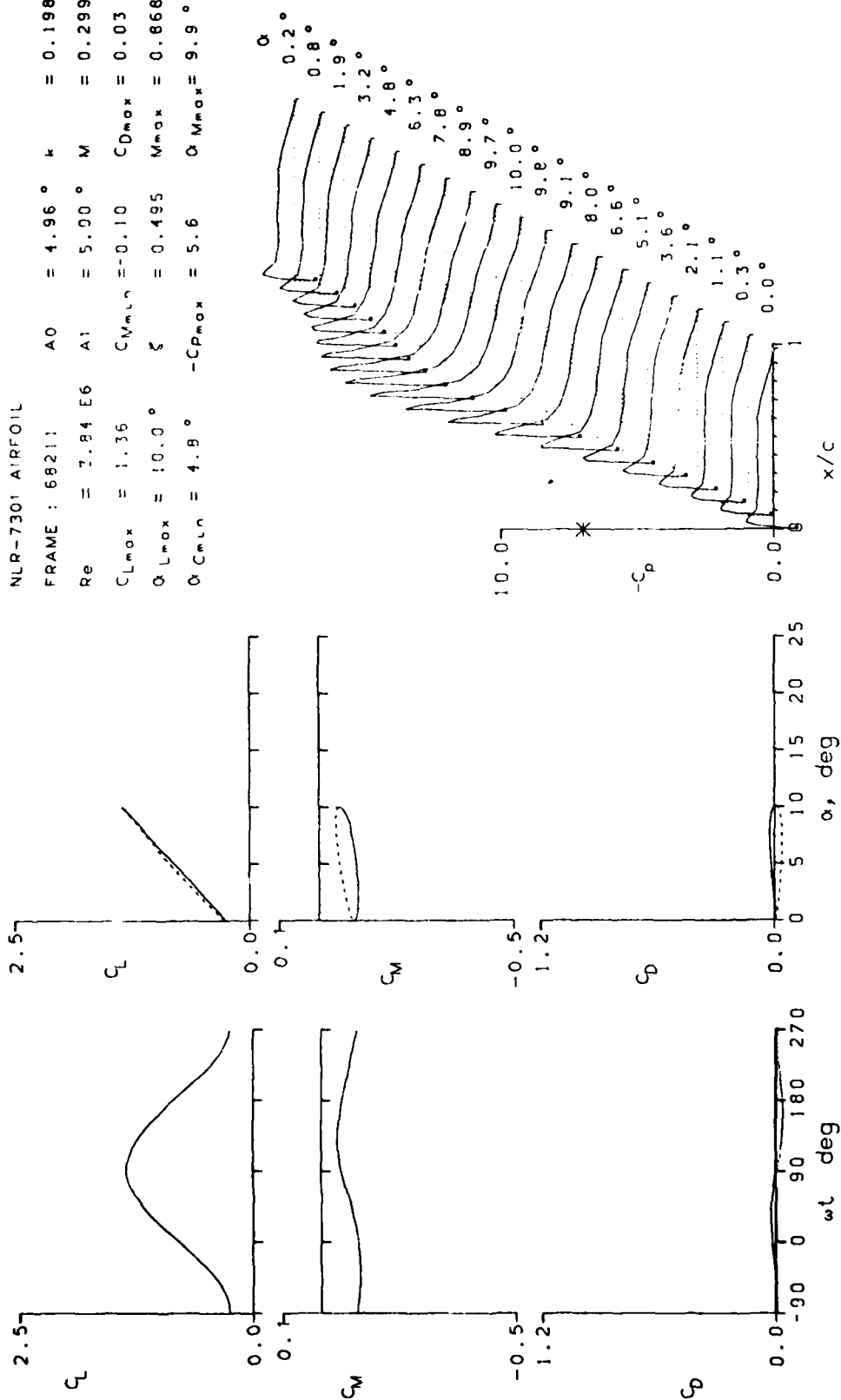


Figure 19.- Continued.

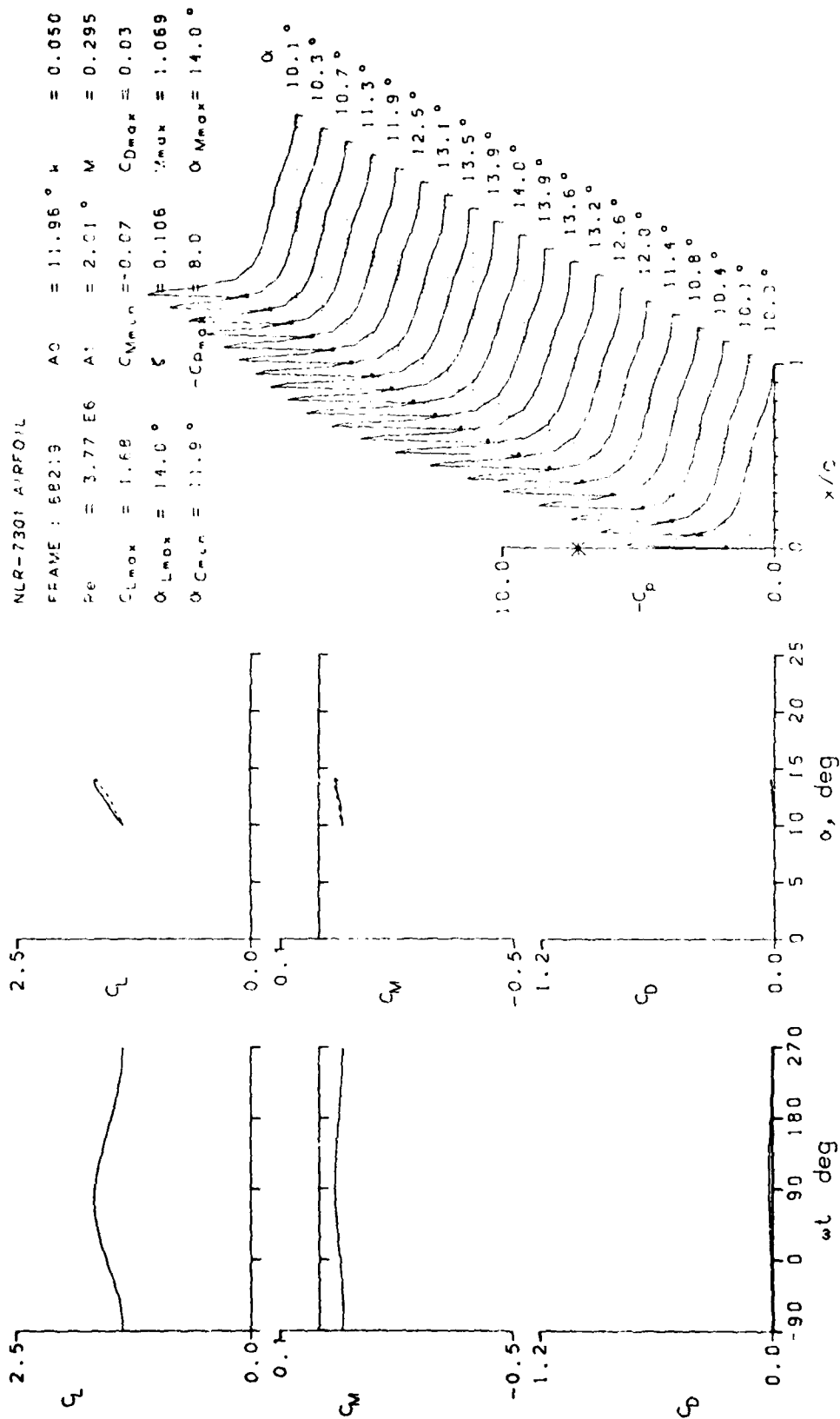


Figure 19.- Continued.

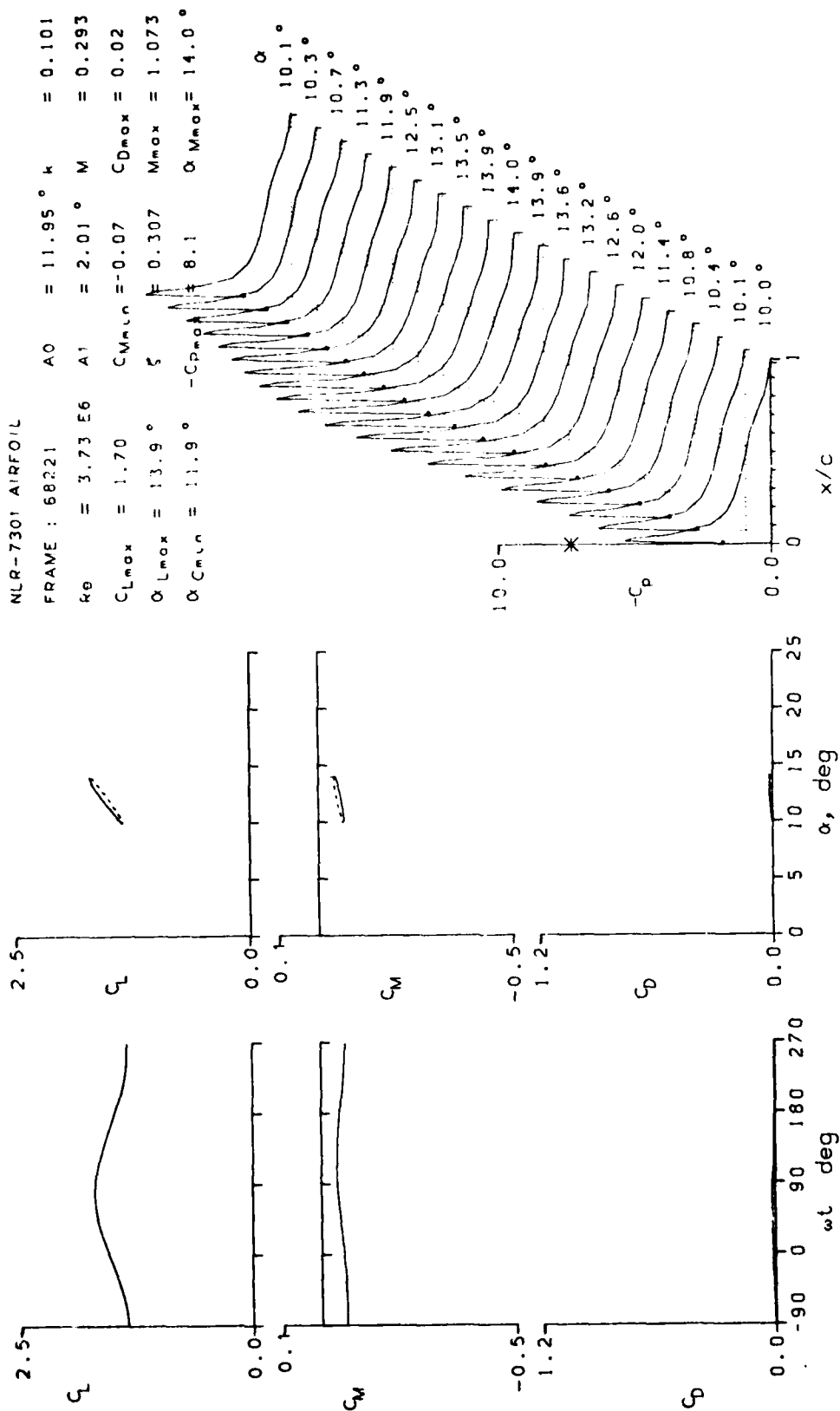


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 58304 $A_0 = 11.96^\circ$ $k = 0.201$
 $Re = 3.72 \text{ E}6$ $A_1 = 2.01^\circ$ $M = 0.293$
 $C_{Lmax} = 1.75$ $C_{Mmin} = -0.08$ $C_{Dmax} = 0.03$
 $\alpha_{Lmax} = 13.9^\circ$ $\xi = 0.773$ $M_{max} = 1.112$
 $\alpha_{Cmin} = 11.9^\circ$ $-C_{pmax} = 8.5$ $\alpha_{Mmax} = 14.0^\circ$

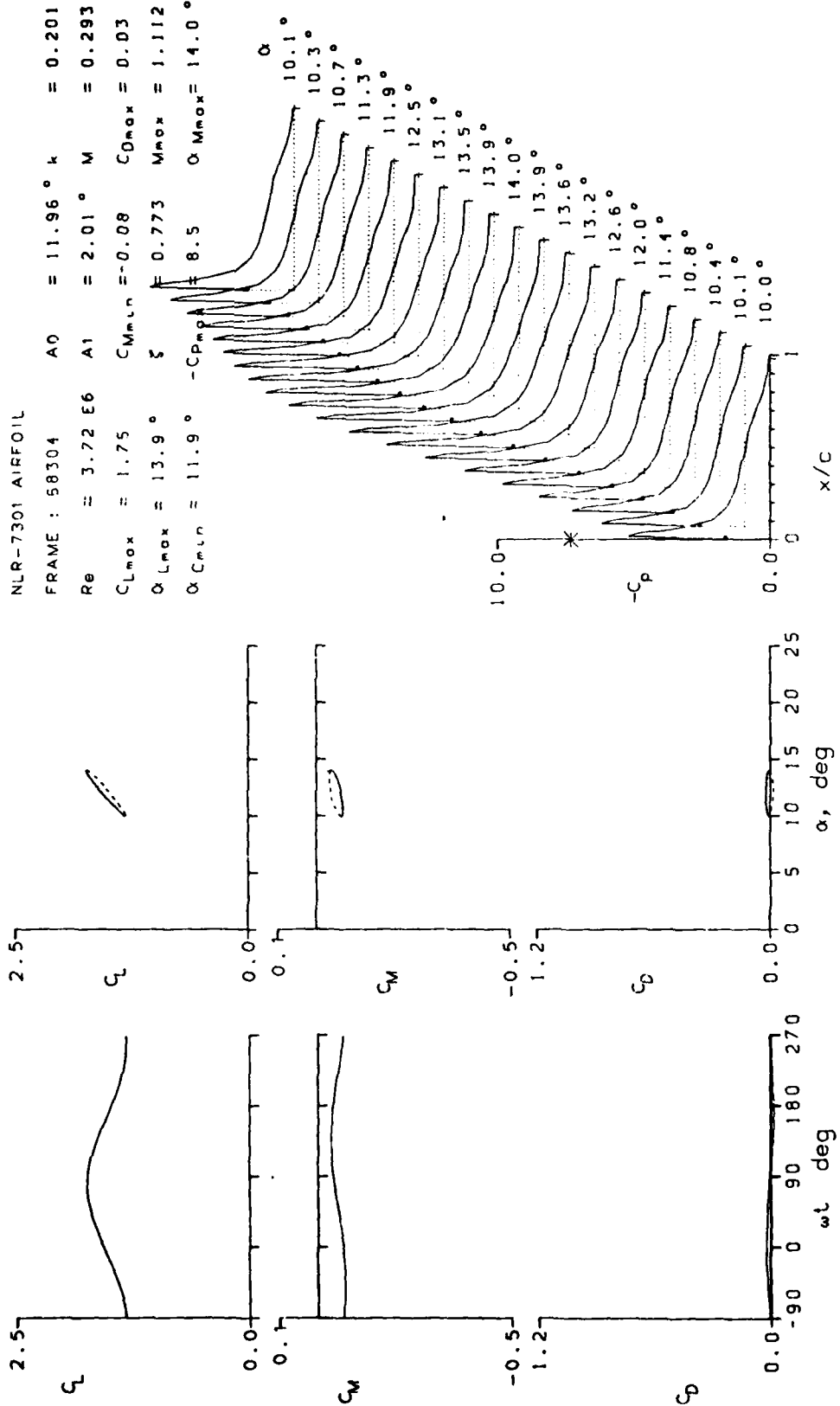


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : E9019 $A_0 = 9.80^\circ$ $k = 0.010$
 $Re = 3.95 \text{ E}6$ $A_1 = 9.90^\circ$ $M = 0.299$
 $C_{Lmax} = 1.74$ $C_{Mmin} = -0.15$ $C_{Dmax} = 0.25$
 $\alpha_{Lmax} = 14.7^\circ$ $\xi = 0.003$ $M_{max} = 1.182$
 $\alpha_{Cmin} = 9.3^\circ$ $-C_{Dmax} = 8.8$ $\alpha_{Mmax} = 16.7^\circ$

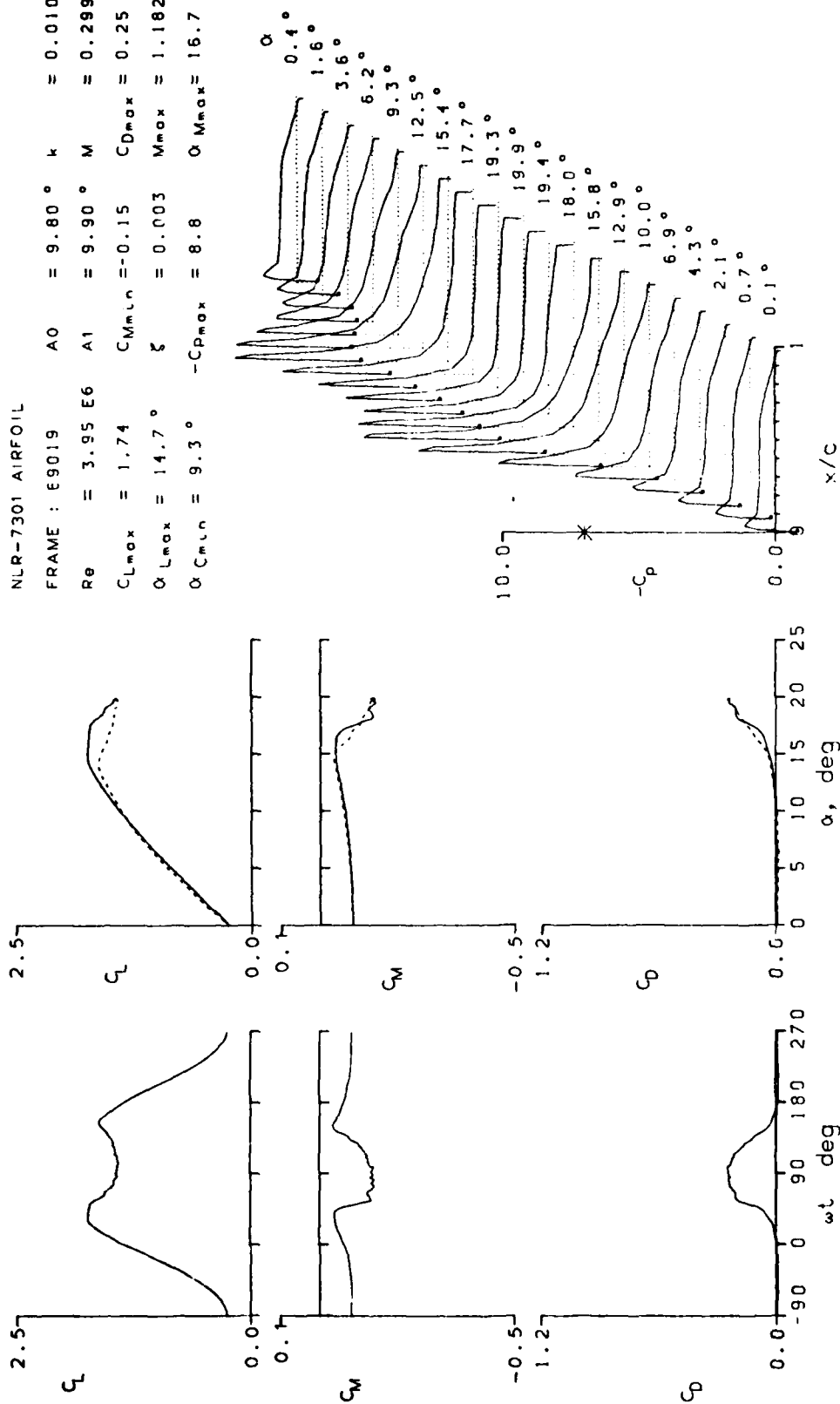


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69100	A0 = 9.81°	k = 0.025
Re = 3.92 E6	A1 = 9.89°	M = 0.300
C _{Lmax} = 1.81	C _{Mmin} = -0.16	C _{Dmax} = 0.25
α _{Lmax} = 15.8°	ξ = 0.016	M _{max} = 1.210
α _{Cmin} = 9.3°	-C _{Pmax} = 9.0	α _{Mmax} = 16.8°

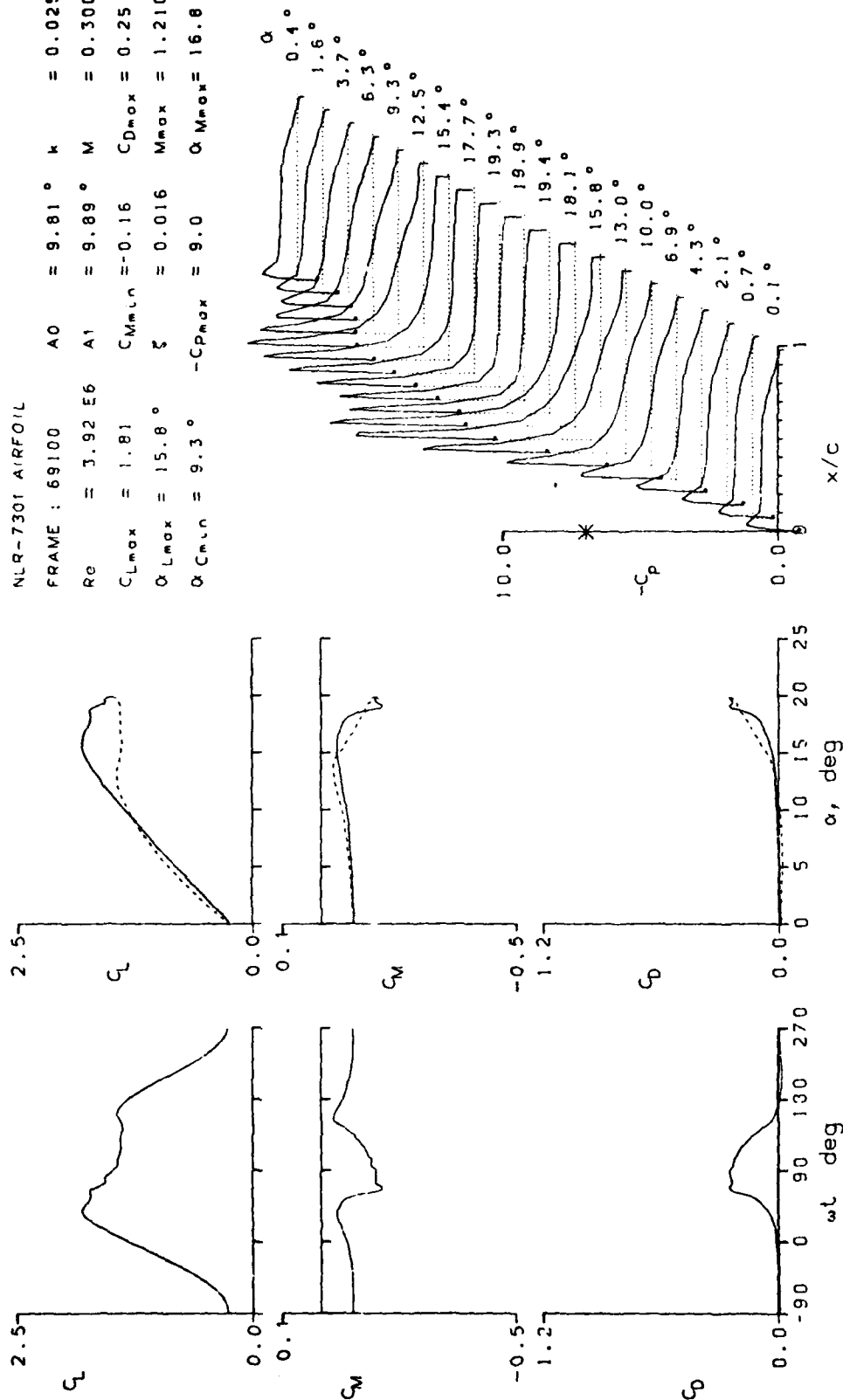


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69102	A0 = 9.82°	k = 0.050
Re = 3.90 E6	A1 = 9.89°	M = 0.300
C _{Lmax} = 1.92	C _{Mmin} = -0.17	C _{Dmax} = 0.28
α _{Lmax} = 16.5°	ξ = 0.002	M _{max} = 1.238
α _{Cmin} = 9.3°	-C _{Dmax} = 9.2	α _{Mmax} = 16.5°

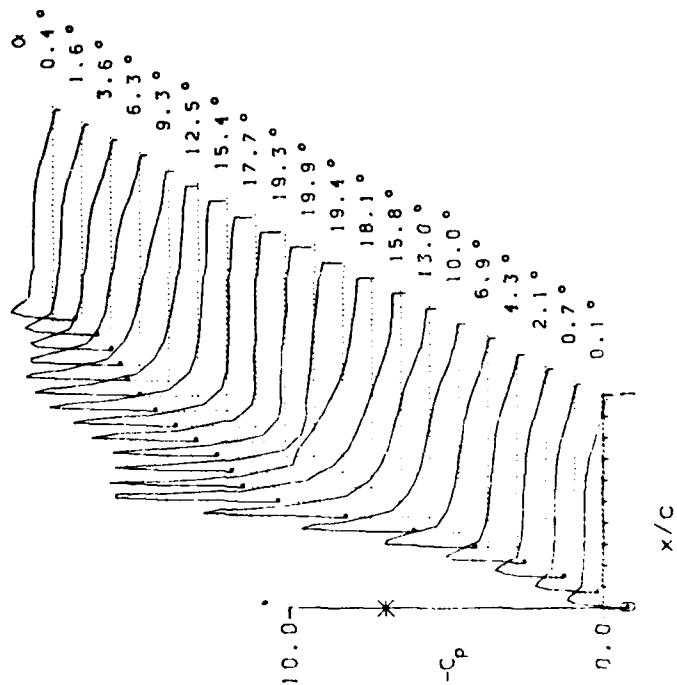
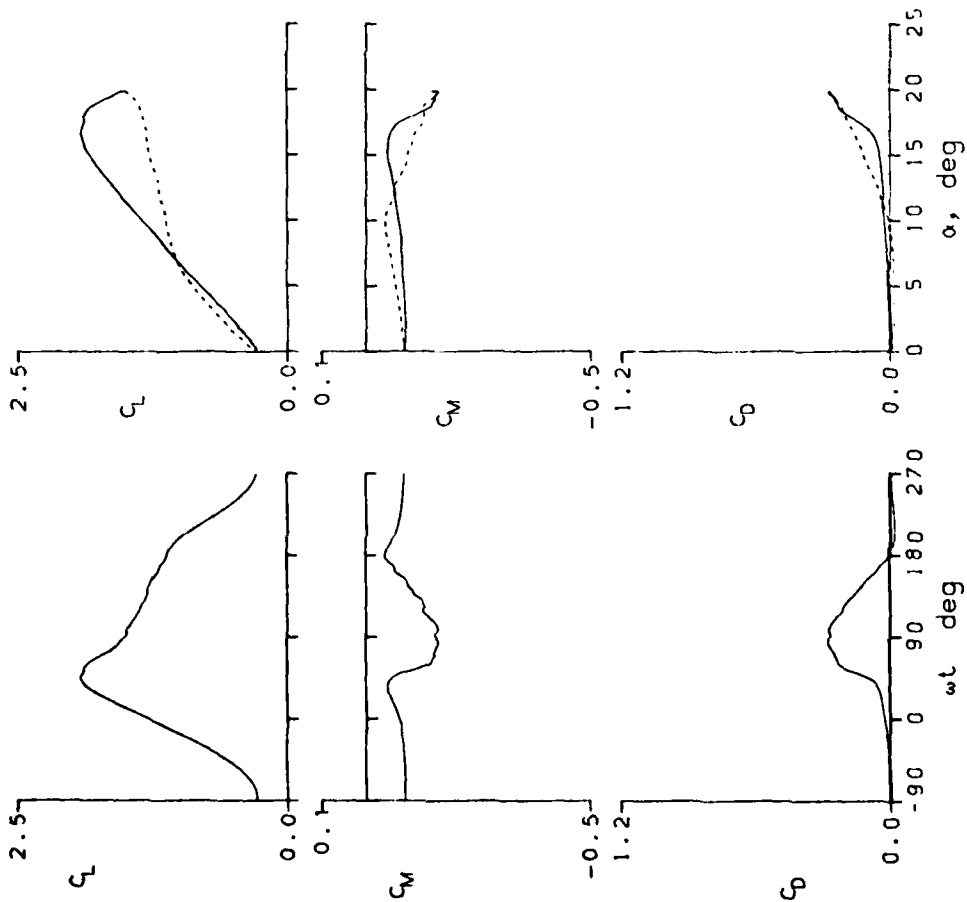


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69105	A0 = 9.80°	k = 0.099
Re = 3.90 E6	A1 = 9.90°	M = 0.301
C _{Lmax} = 2.07	C _{Mmin} = -0.20	C _{Dmax} = 0.32
α _{Lmax} = 18.7°	ξ = 0.061	M _{max} = 1.262
α _{Cmin} = 9.3°	-C _{pmax} = 9.4	α _{Mmax} = 17.3°

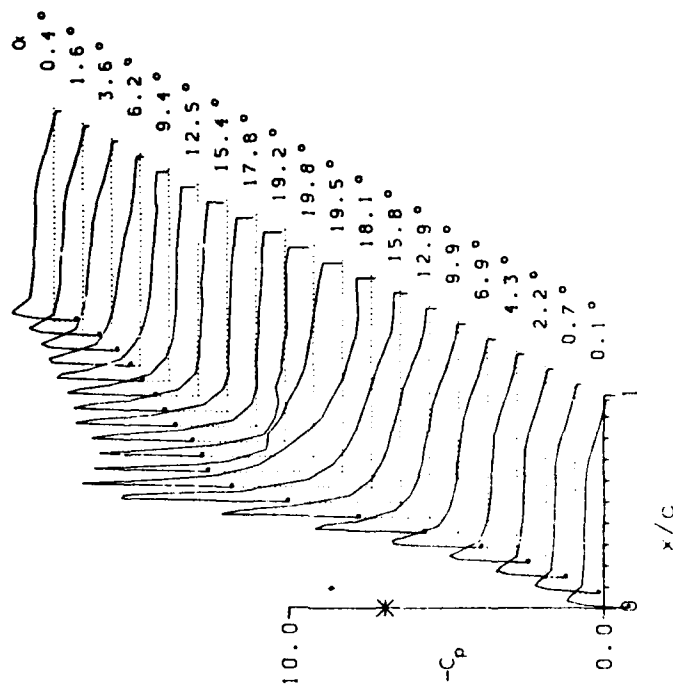
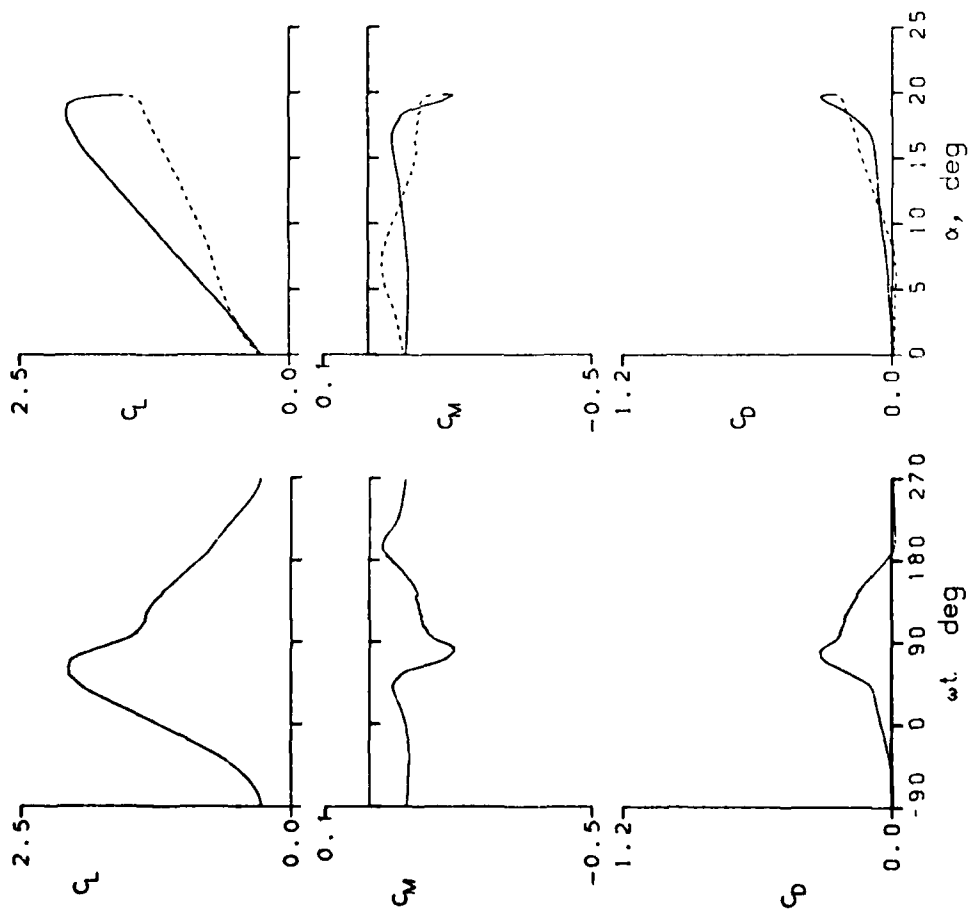


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69107	A0 = 9.91°	Λ = 0.148
Re = 3.88 E6	A1 = 9.90°	M = 0.300
C _{Lmax} = 2.14	C _{Mmin} = -0.22	C _{Dmax} = 0.35
α _{Lmax} = 18.8°	ξ = 0.156	M _{max} = 1.271
α _{Cmin} = 9.5°	-C _{pmax} = 9.5	α _{Mmax} = 17.8°

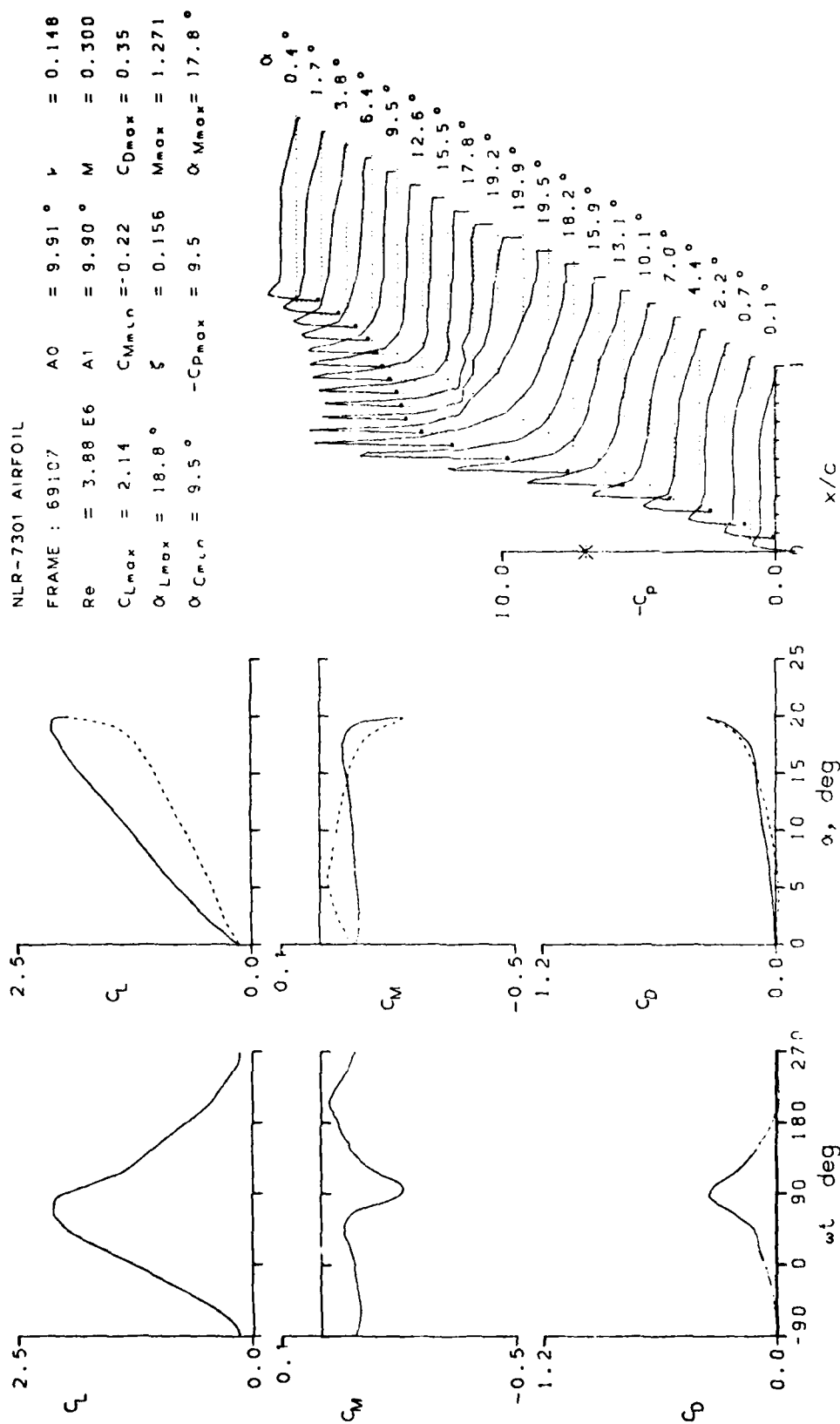


Figure 19.- Continued.

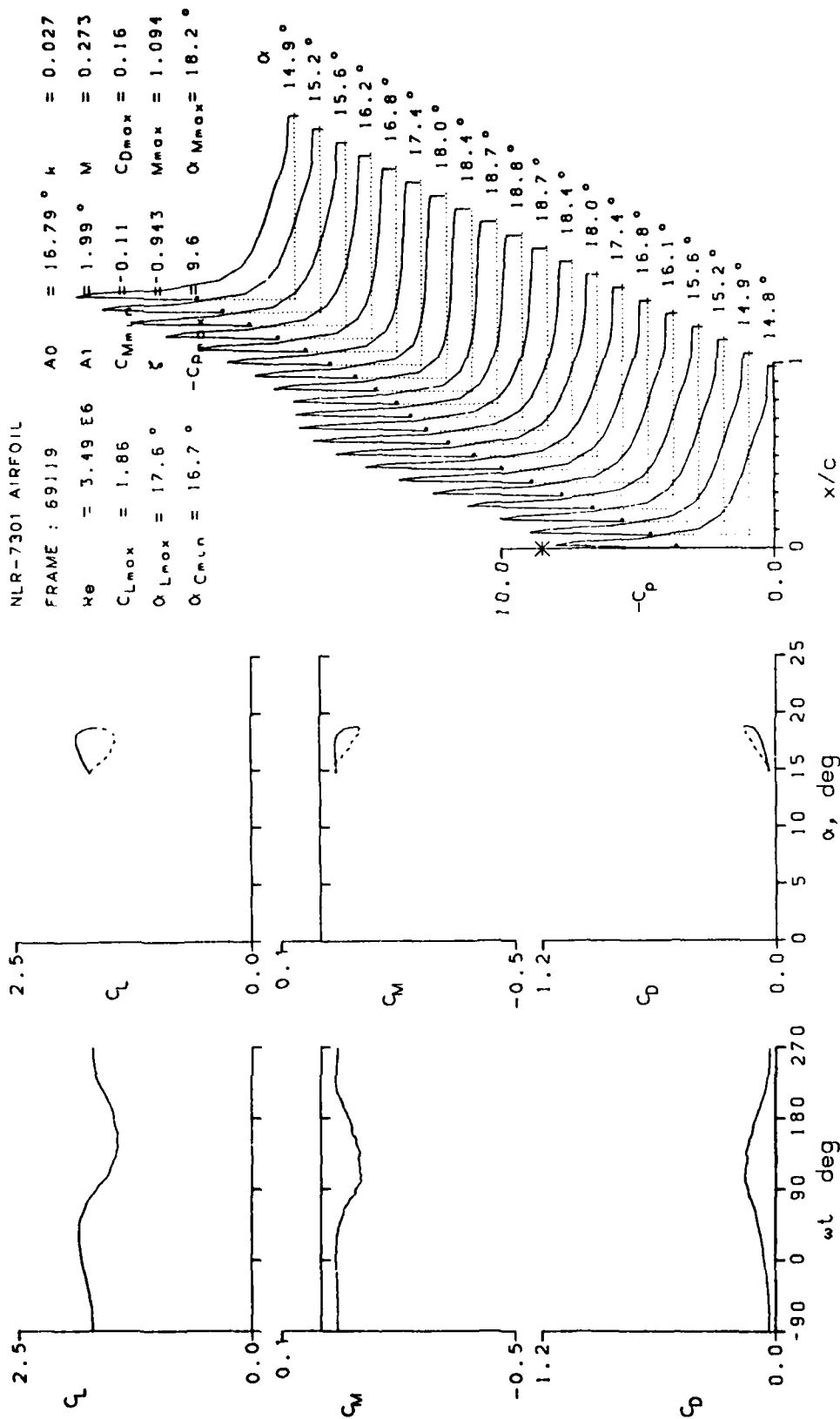


Figure 19.- Continued.

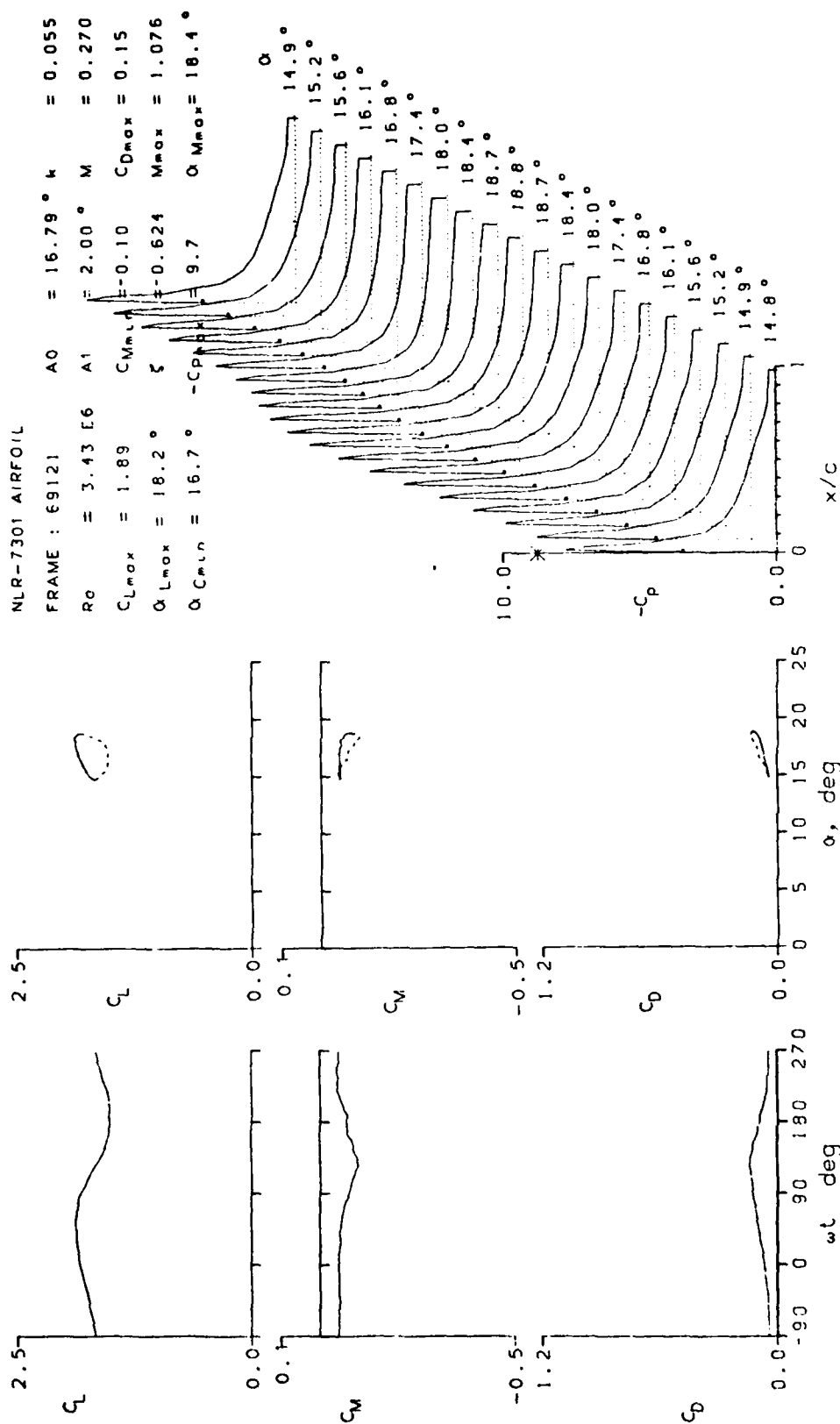


Figure 19.- Continued.

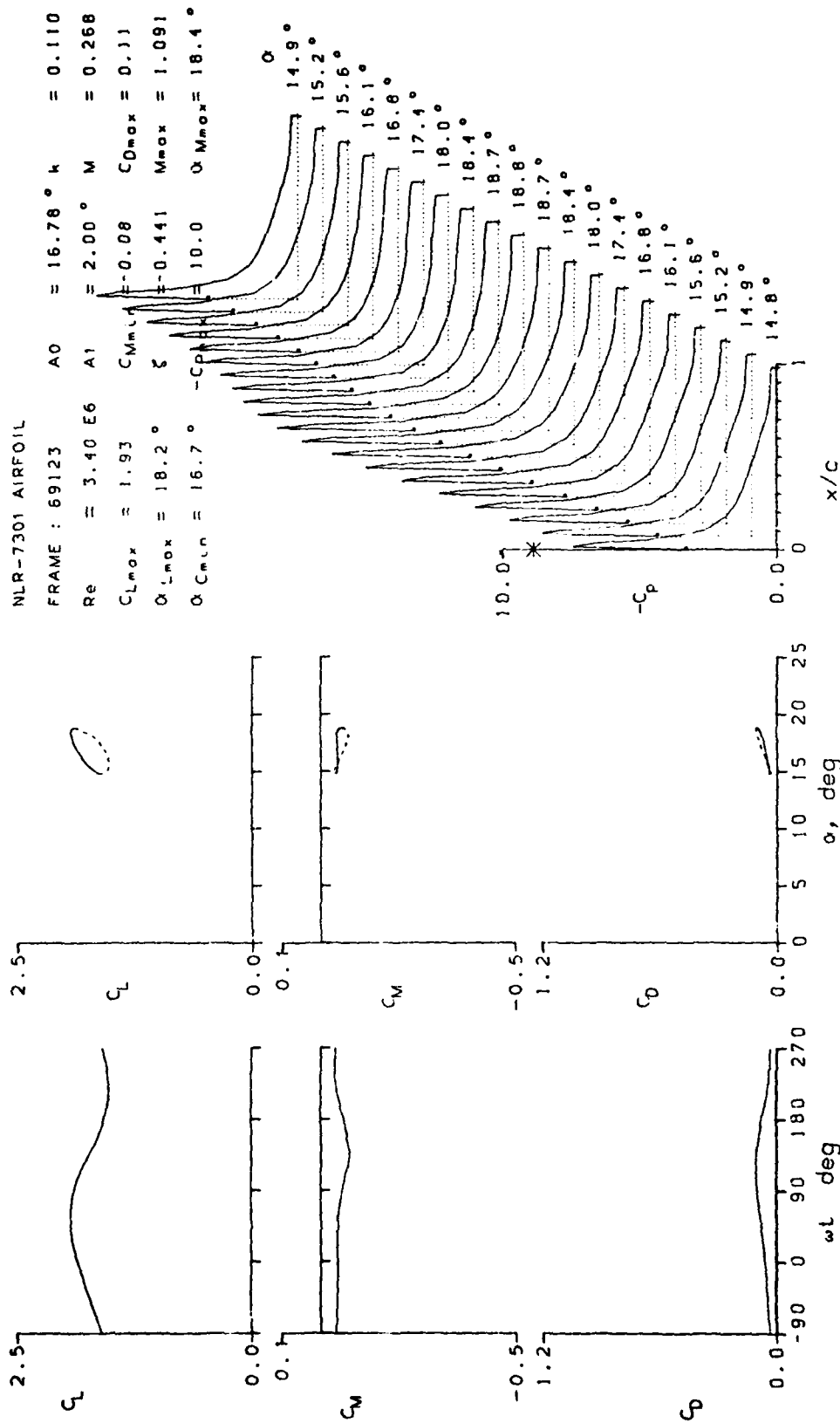


Figure 19.- Continued.

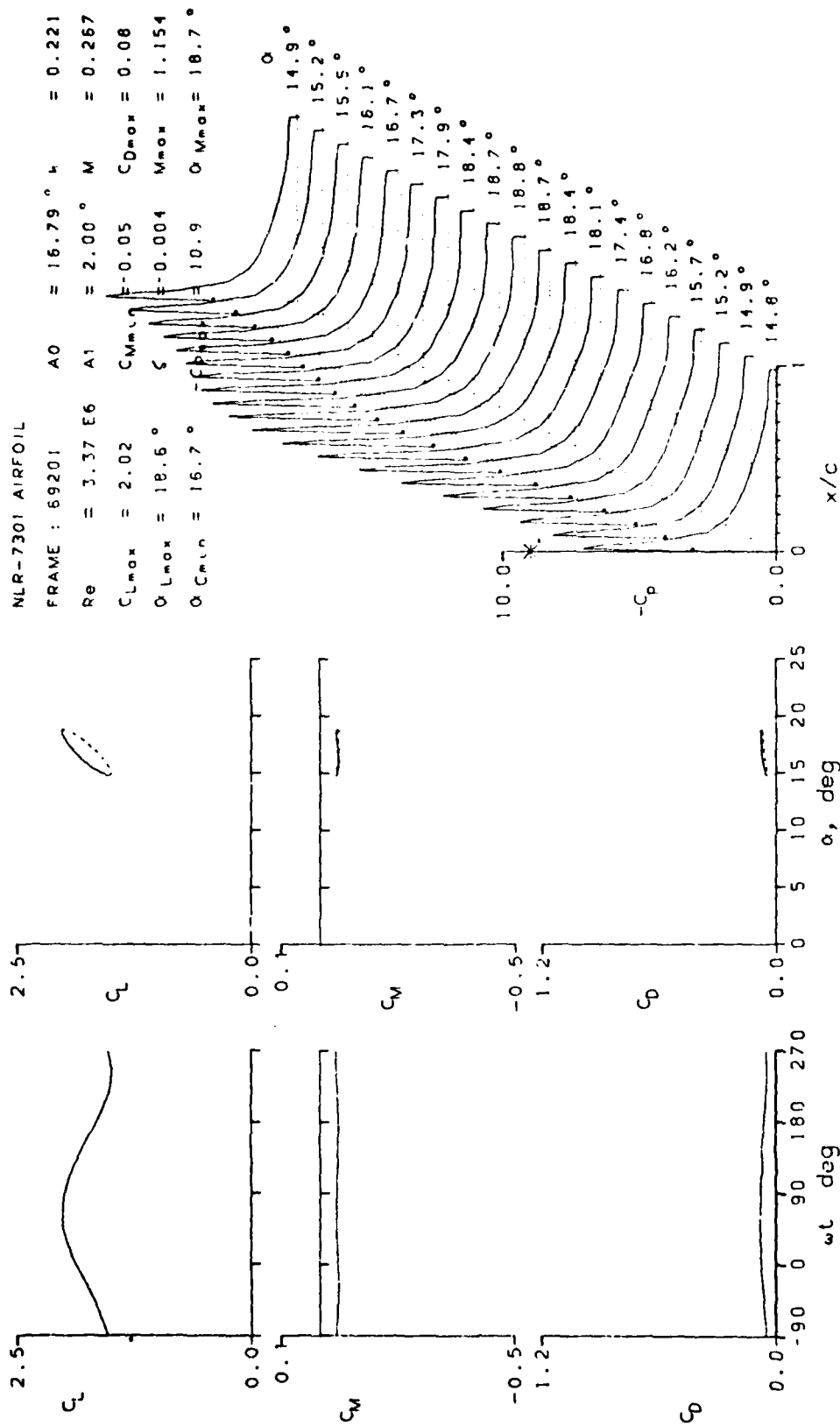


Figure 19.- Continued.

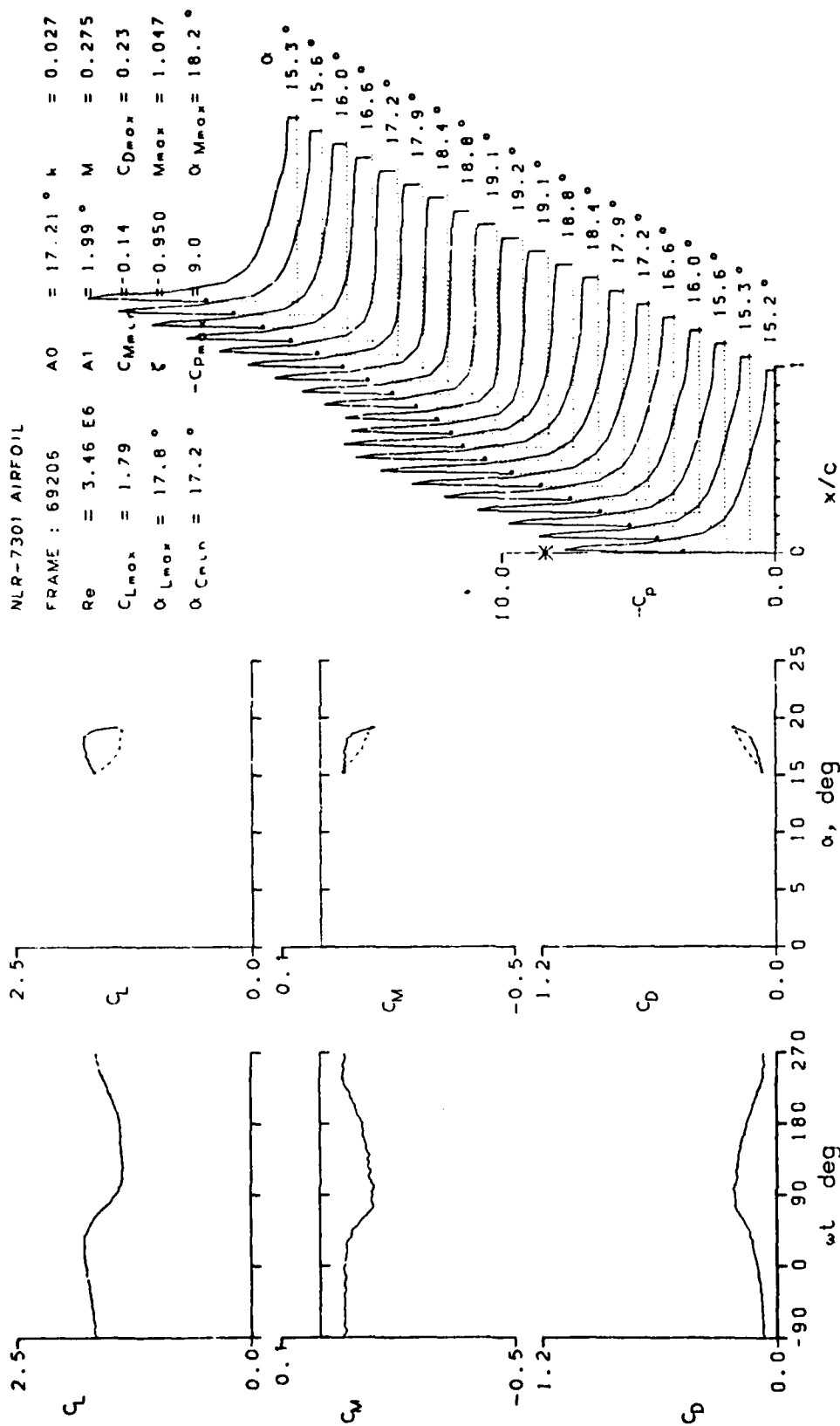


Figure 19.- Continued.

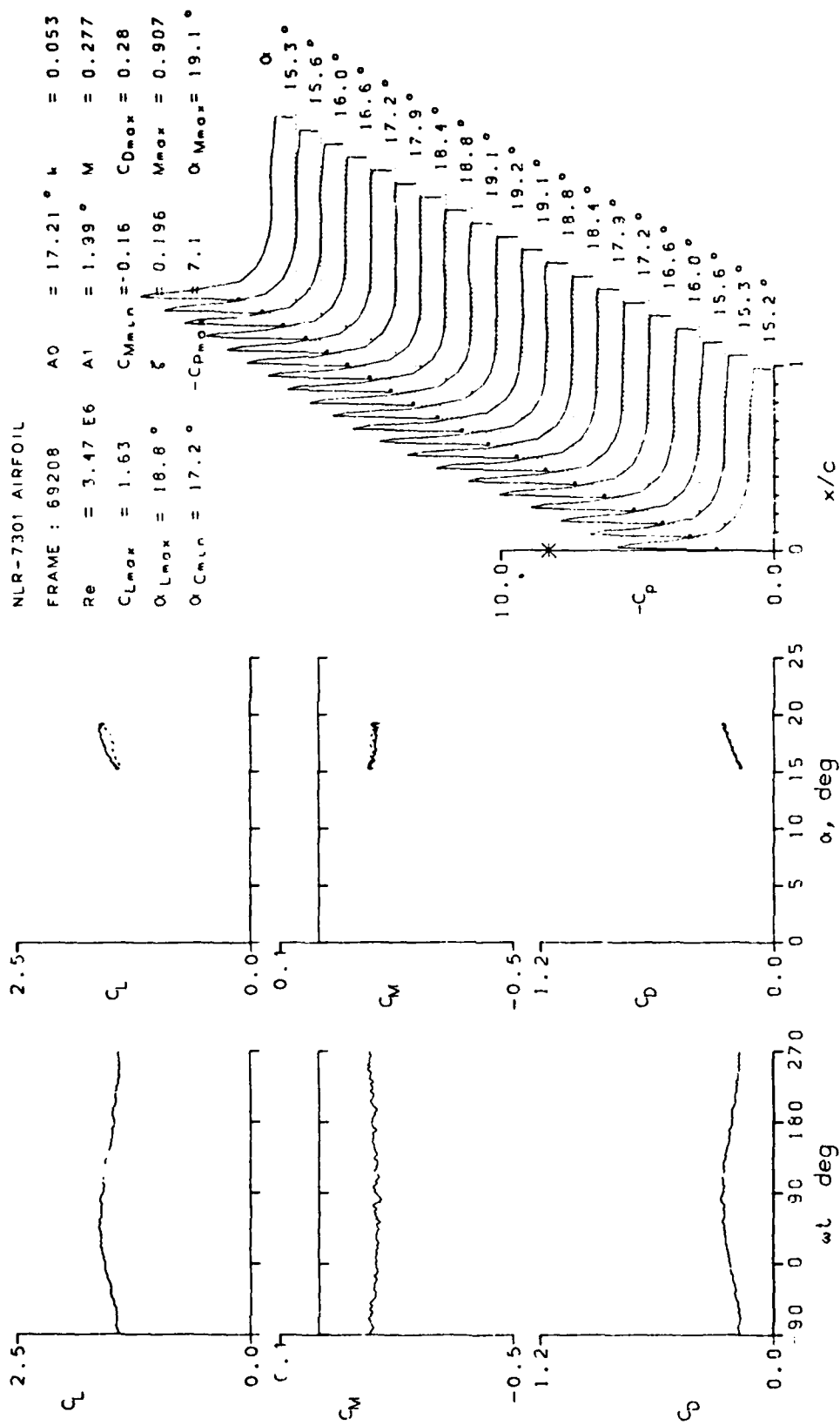


Figure 19.- Continued.

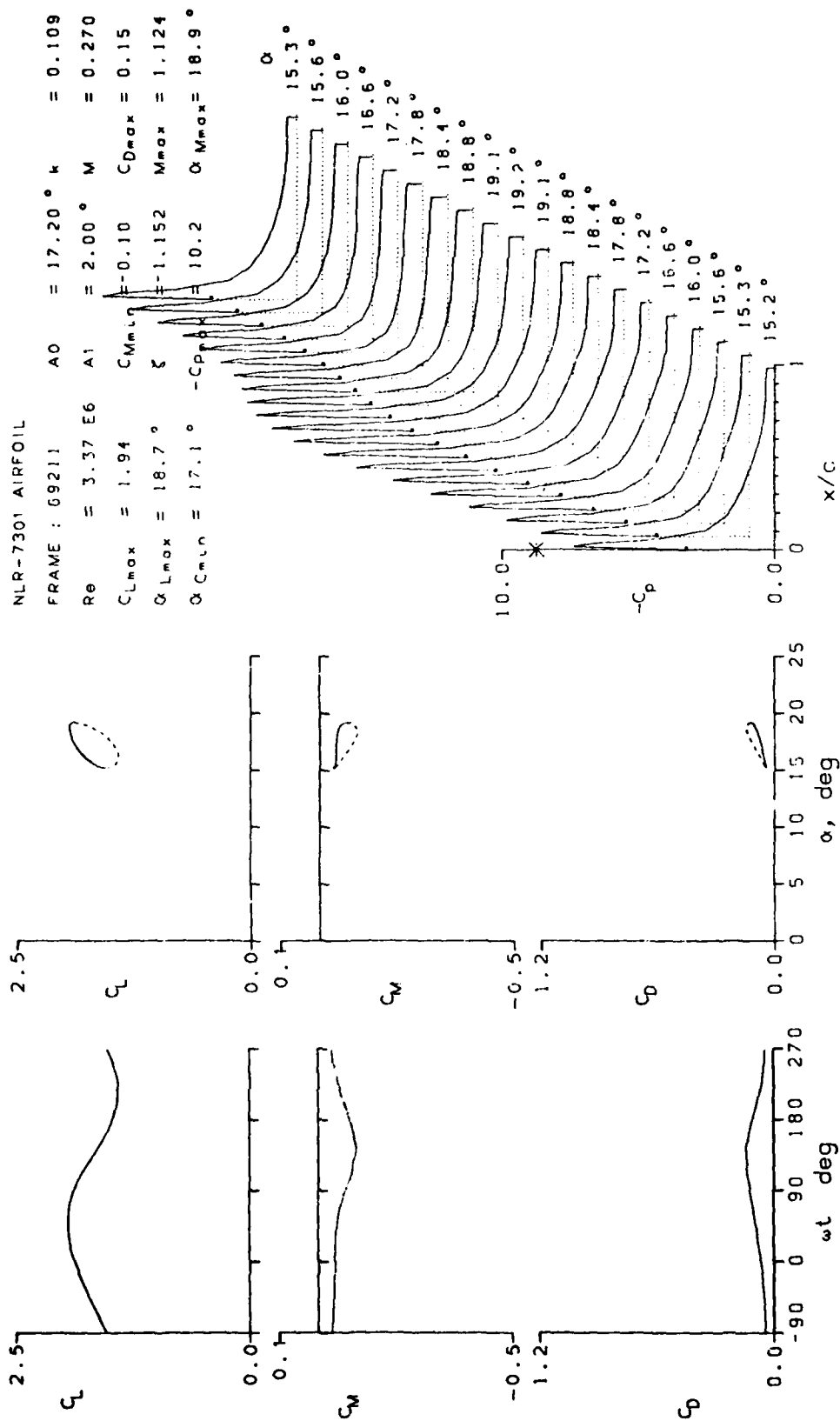


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69213	A0 = 17.19 °	k = 0.162
Re = 3.39 E6	A1 = 2.00 °	M = 0.272
$C_{Lmax} = 0.99$	$C_{Mmin} = -0.21$	$C_{Dmax} = 0.38$
$\alpha_{Lmax} = 18.5 °$	$\zeta = 1.062$	$M_{max} = 0.418$
$\alpha_{Cmin} = 17.2 °$	$-C_{Dmax} = 1.3$	$\alpha_{Vmax} = 19.2 °$

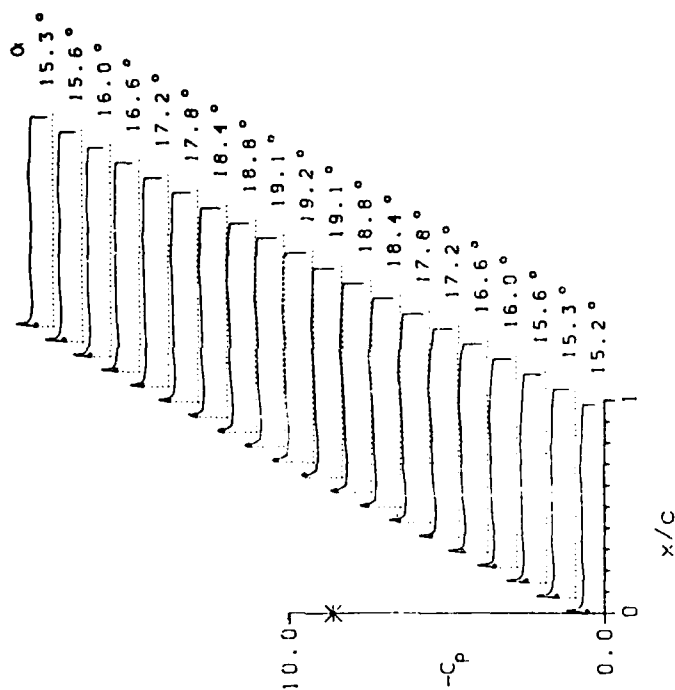
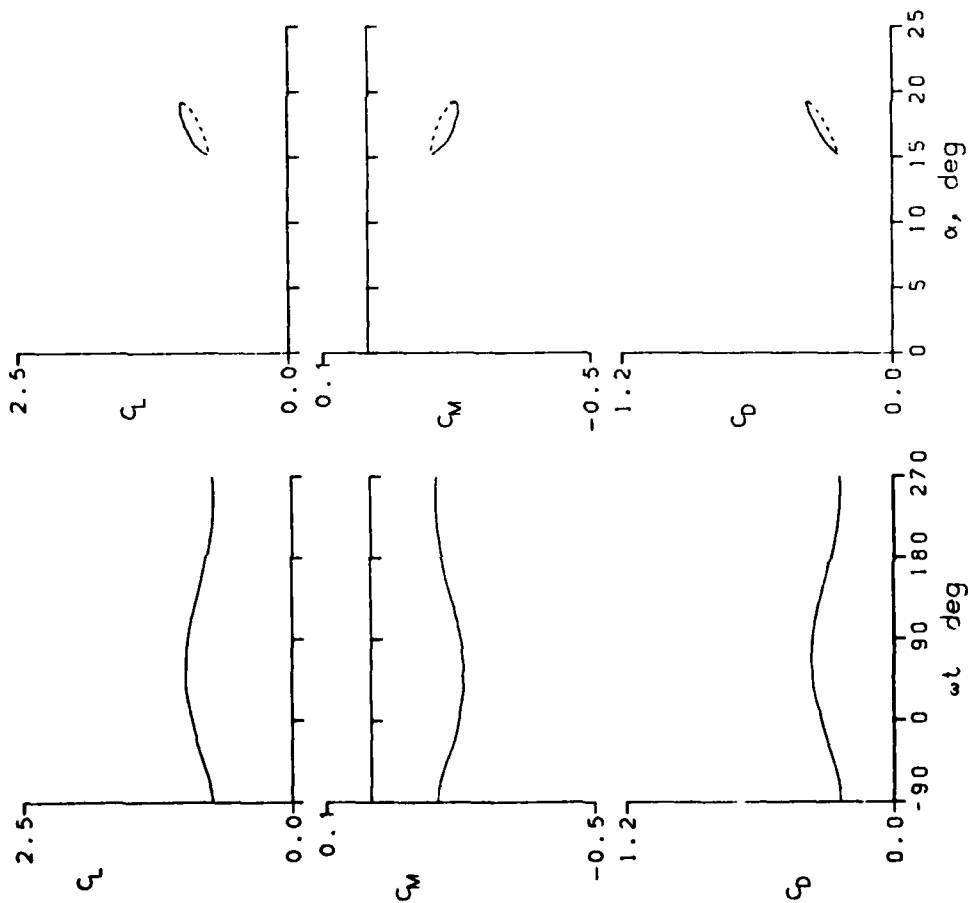


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 63215 $A_0 = 17.21^\circ$ $k = 0.210$
 $Re = 3.46 \text{ E}6$ $A_1 = 1.99^\circ$ $M = 0.279$
 $C_{Lmax} = 1.52$ $C_{Mmin} = -0.21$ $C_{Dmax} = 0.30$
 $\alpha_{Lmax} = 17.4^\circ$ $\xi = 1.001$ $M_{max} = 0.825$
 $\alpha_{Cmin} = 17.2^\circ$ $-C_{Dmax} = 6.0$ $\alpha_{Mmax} = 19.2^\circ$

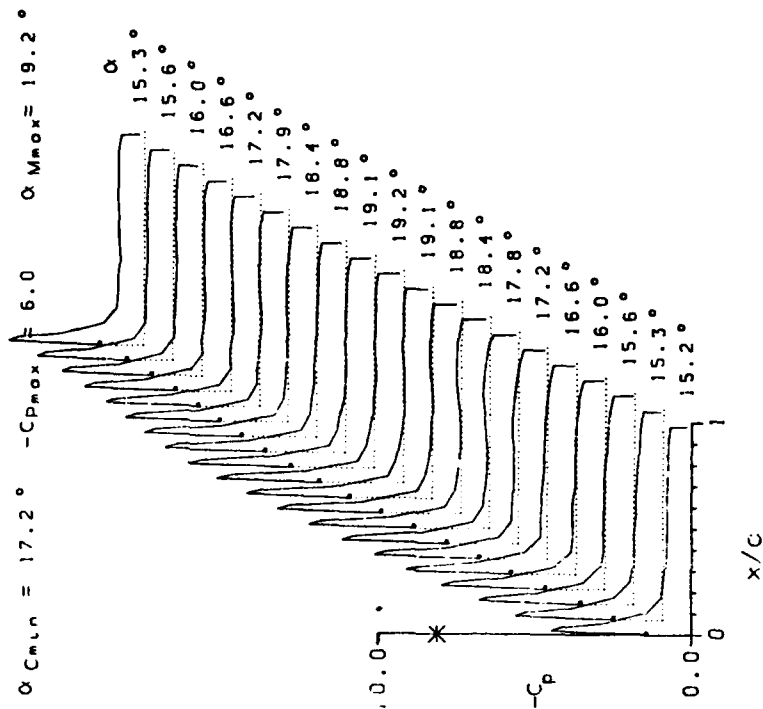
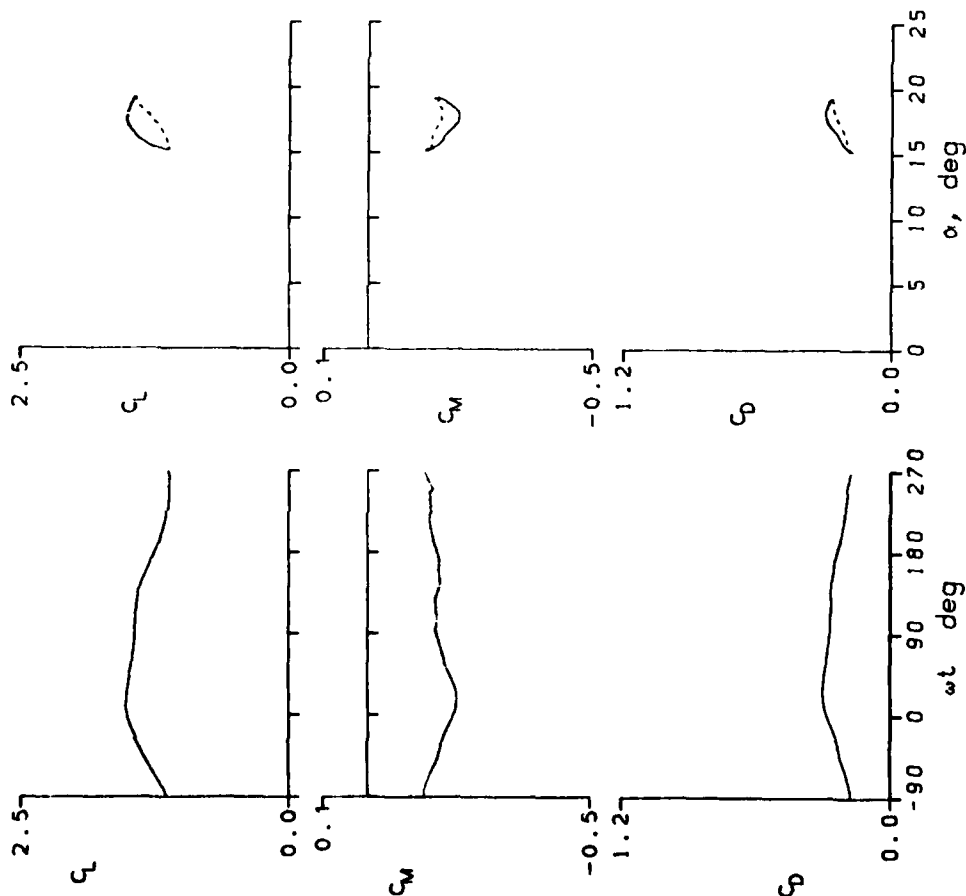


Figure 19.- Continued.

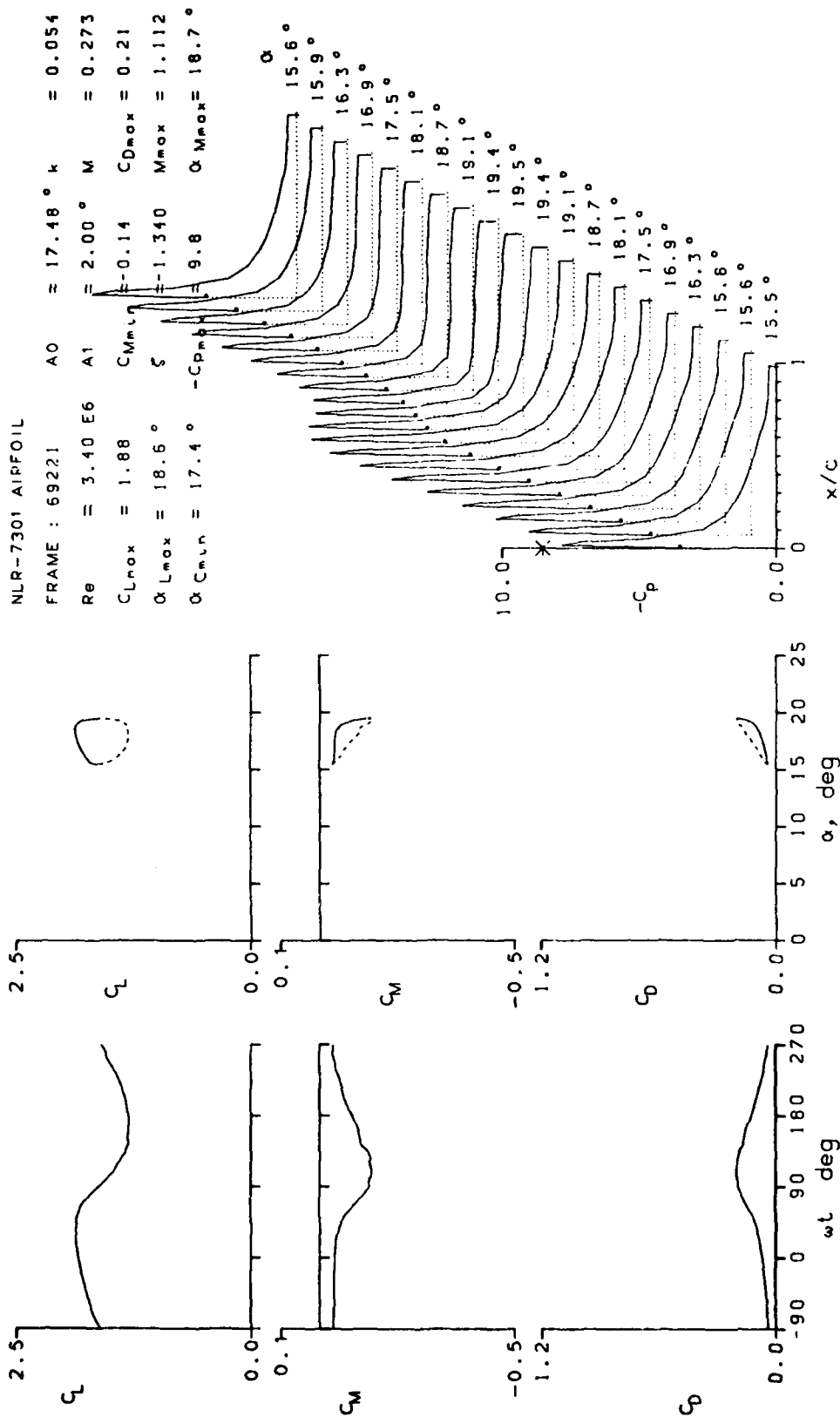


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69223	A0 = 17.48°	k = 0.221
Re = 3.29 E6	A1 = 2.00°	M = 0.265
C _{Lmax} = 1.00	C _{Mmin} = -0.21	C _{Dmax} = 0.38
α _{Lmax} = 19.4°	ξ = 0.813	M _{max} = 0.404
α _{Cmin} = 17.5°	-C _{Dmax} = 1.3	α _{Mmax} = 19.5°

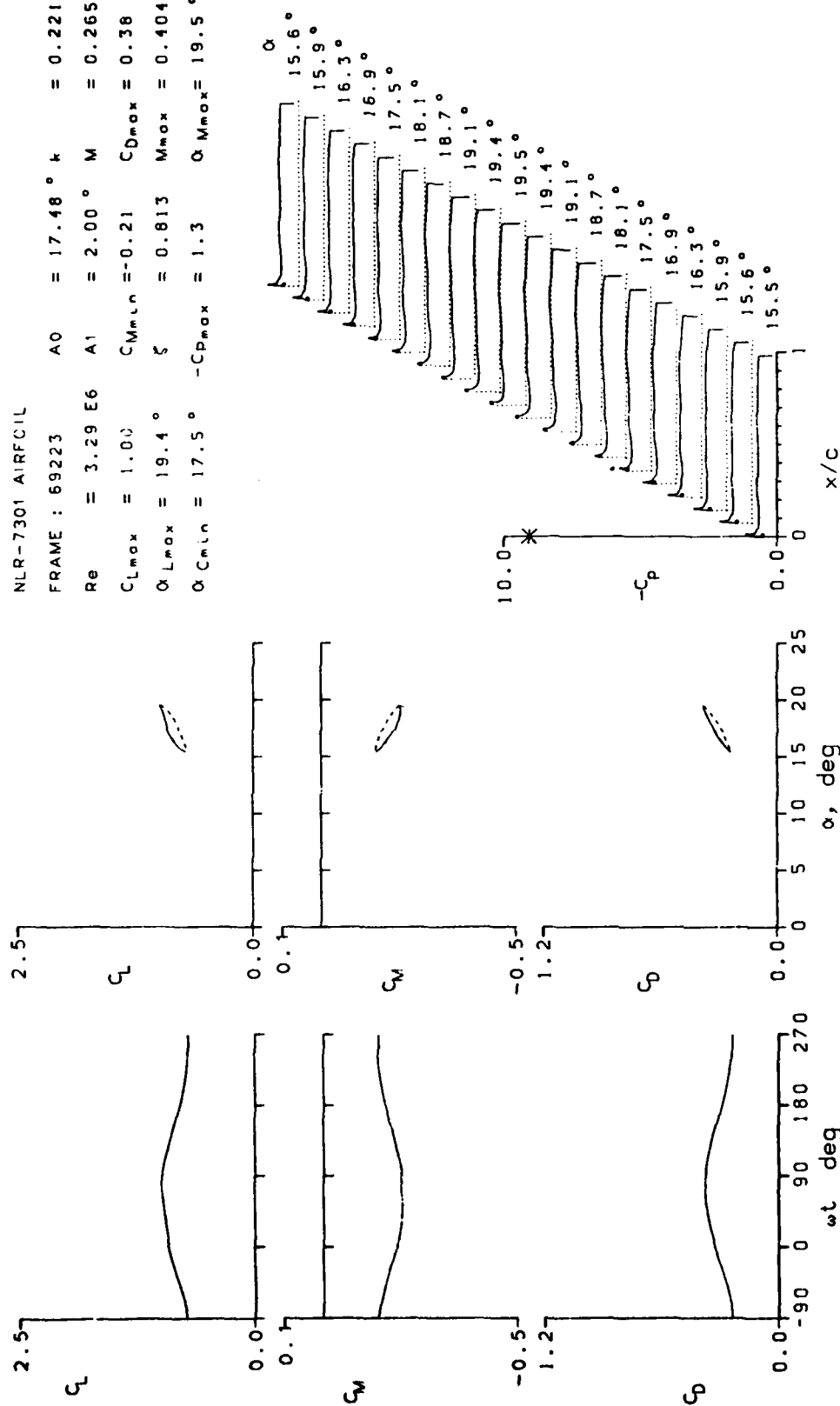


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 69304	A0 = 18.48°	k = 0.055
Re = 3.29 E6	A1 = 2.01°	M = 0.266
C _{Lmax} = 0.93	C _{Mmin} = -0.19	C _{Dmax} = 0.37
α _{Lmax} = 20.5°	ξ = 0.617	M _{max} = 0.417
α _{Cmin} = 18.5°	-C _{pmax} = 1.4	α _{Mmax} = 20.1°

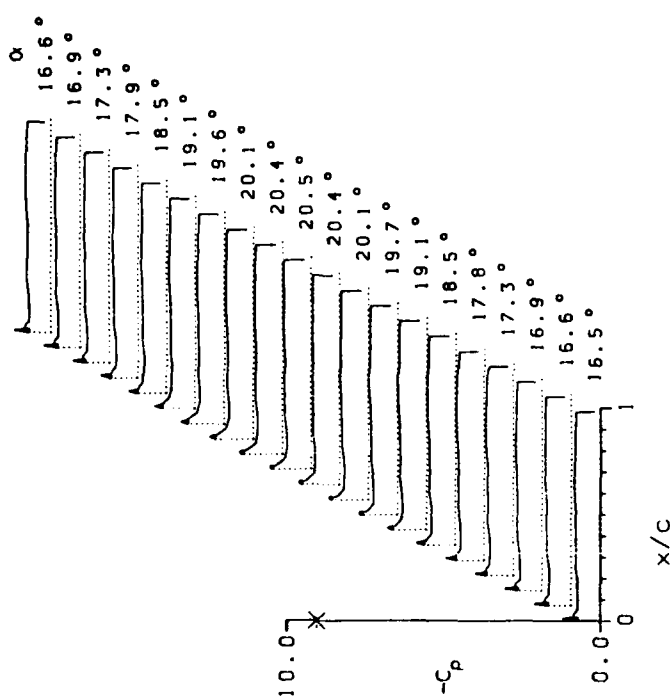
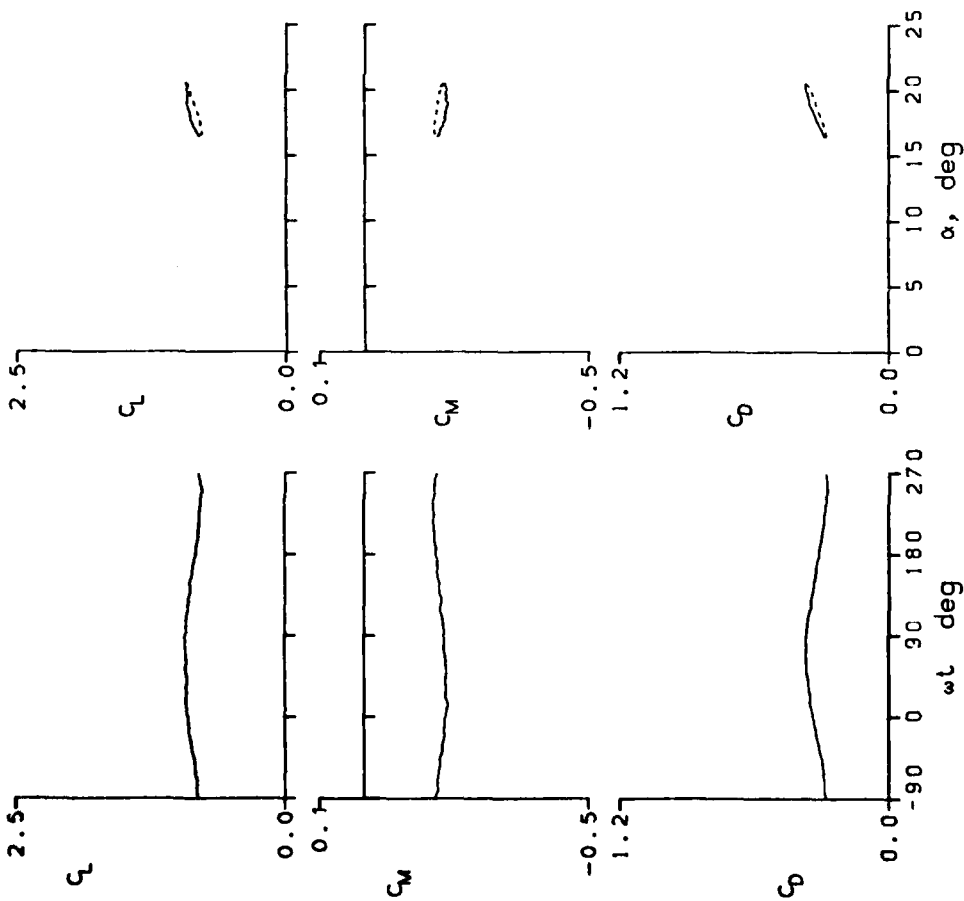


Figure 19.- Continued.

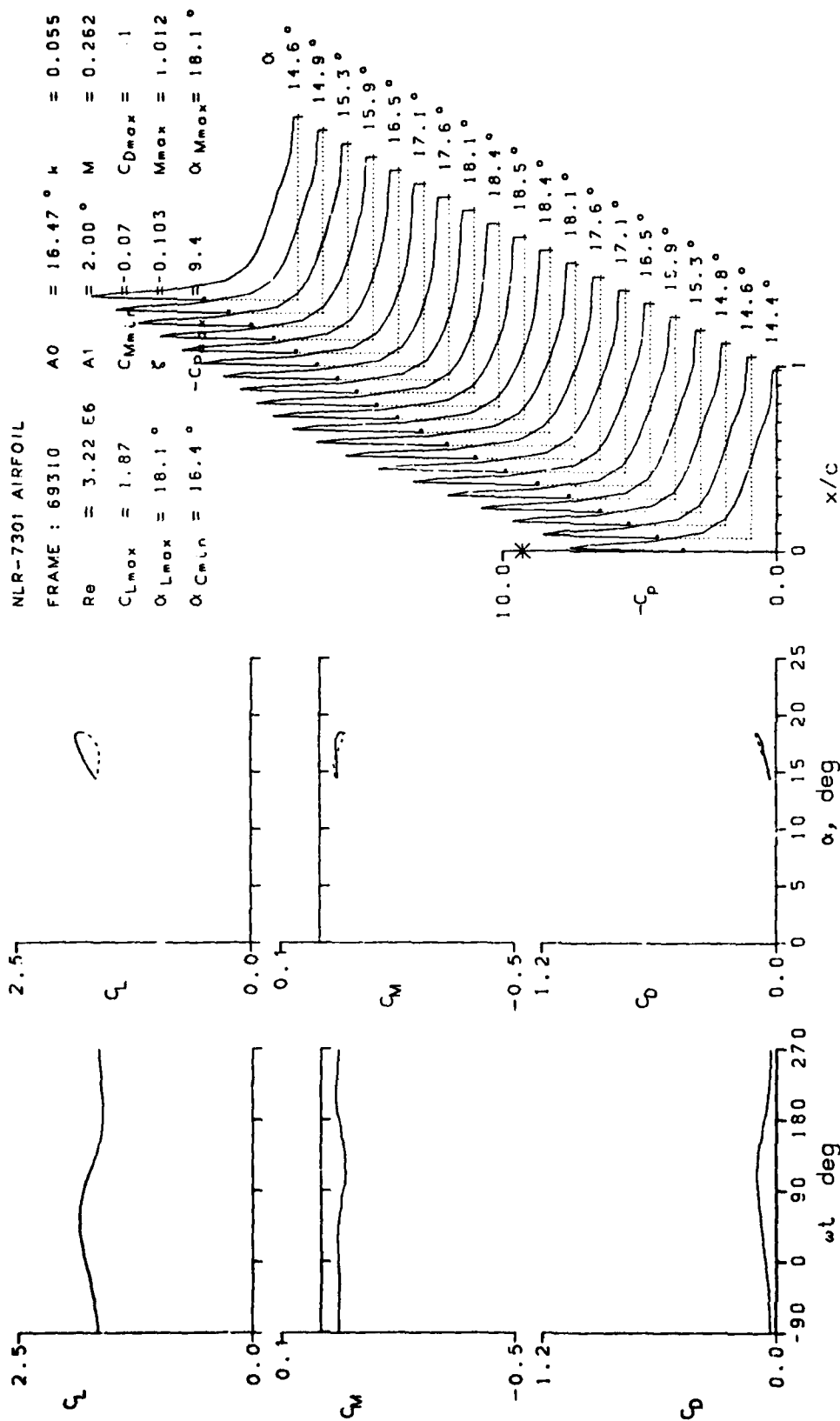


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70019	A0 = 9.22°	k = 9.024
Re = 2.34 E6	A1 = 9.94°	M = 0.185
C _{Lmax} = 1.88	C _{Mmin} = -0.11	C _{Dmax} = 0.15
α _{Lmax} = 18.8°	ξ = 0.009	M _{max} = 0.633
α _{Cmin} = 8.7°	-C _{Dmax} = 9.1	α _{Mmax} = 19.1°

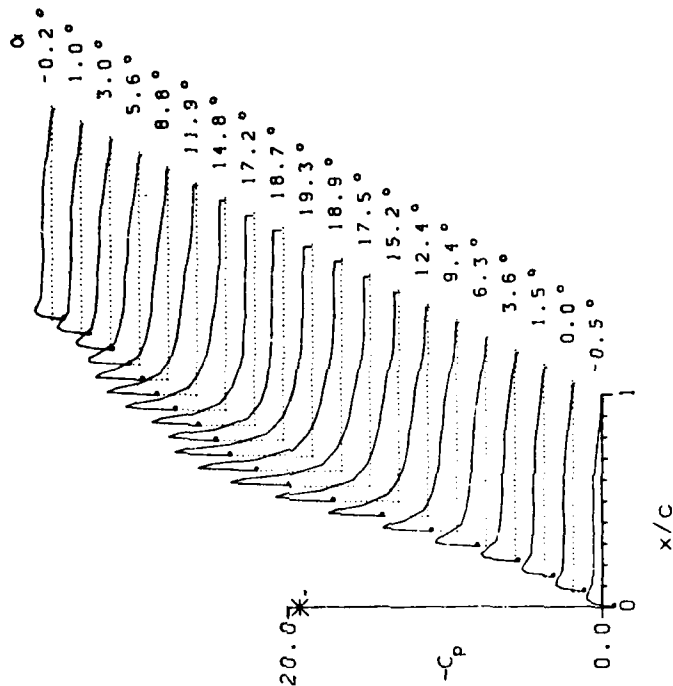
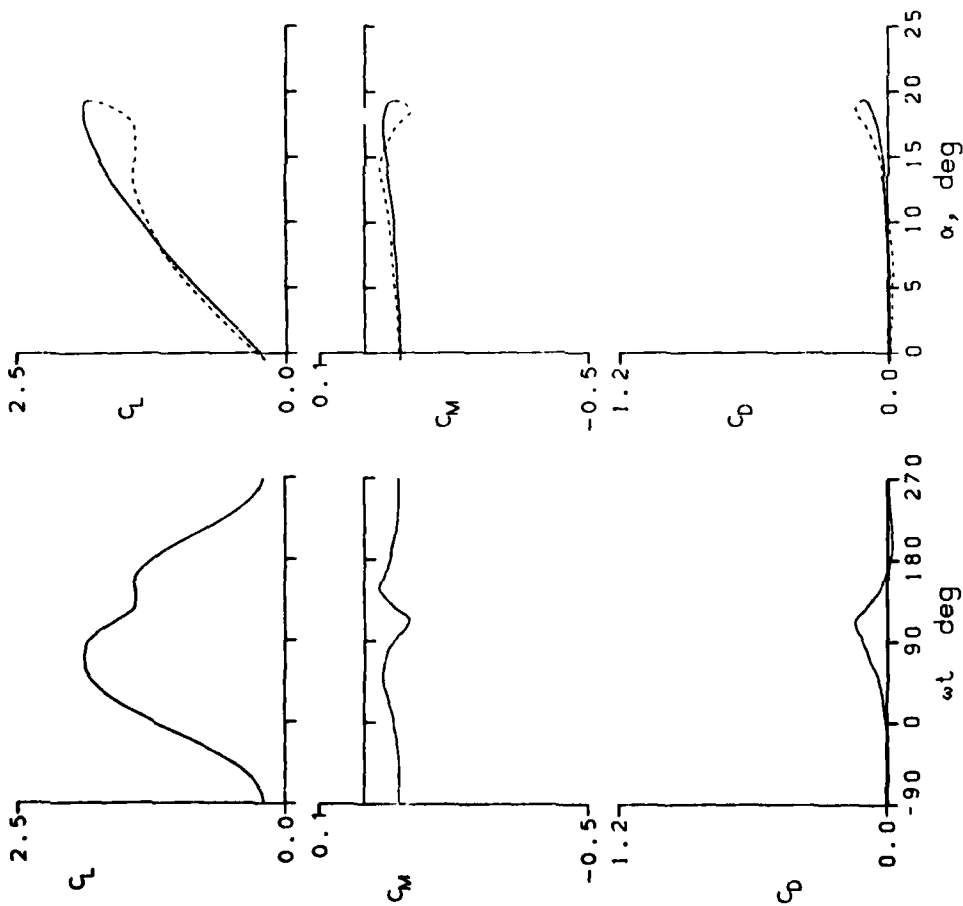


Figure 19.- Continued.

NL4-7301 AIRFOIL

FRAME : 70021	A0 = 9.22°	k = 0.097
Re = 2.34 E6	A1 = 9.94°	M = 0.185
CLmax = 2.05	CMmin = -0.09	CDmax = 0.07
αLmax = 19.1°	ξ = 0.236	Mmax = 0.672
αCmin = 8.8°	-CPmax = 10.2	αMmax = 19.3°

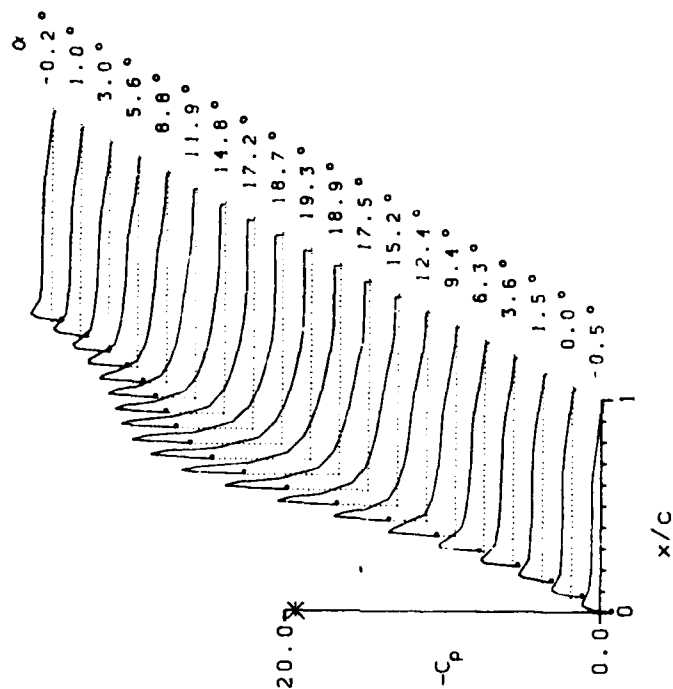
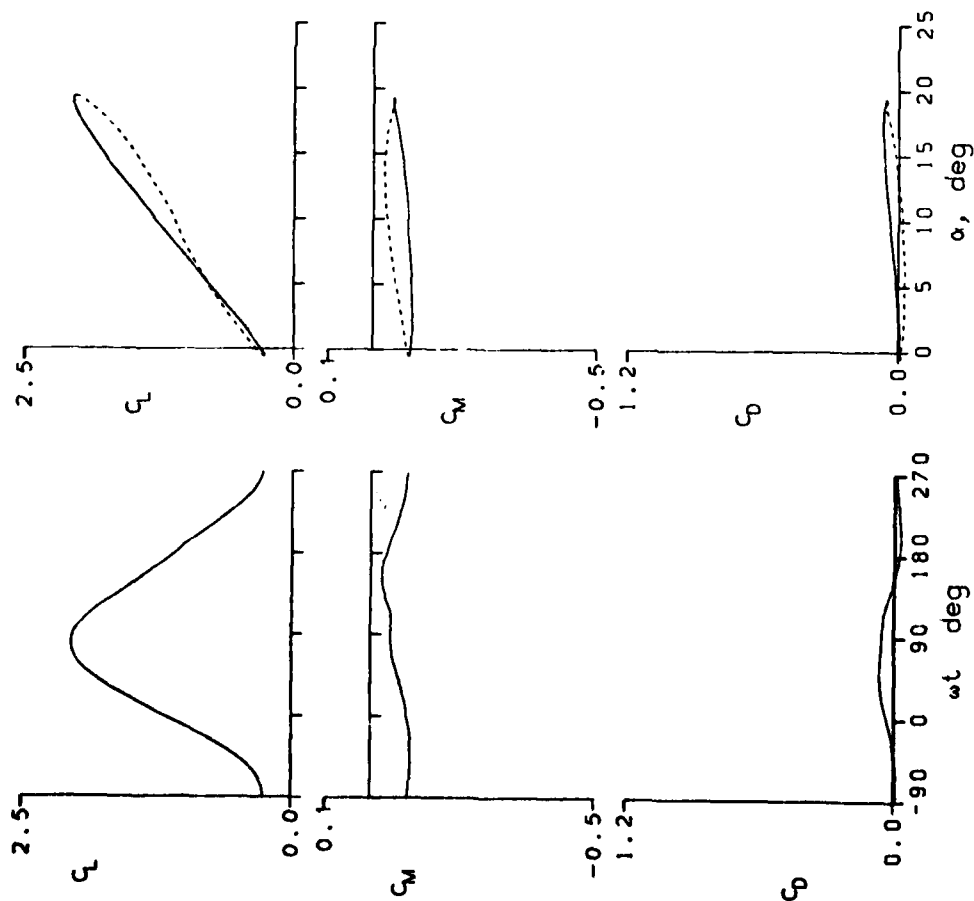


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70C23	A0 = 9.20°	k = 0.195
Re = 2.34 E6	A1 = 9.94°	M = 0.185
C _{Lmax} = 2.12	C _{Mmin} = -0.11	C _{Dmax} = 0.11
α _{Lmax} = 19.1°	ξ = 0.506	M _{max} = 0.685
α _{Cmin} = 8.7°	-C _{pmax} = 10.6	α _{Mmax} = 19.3°

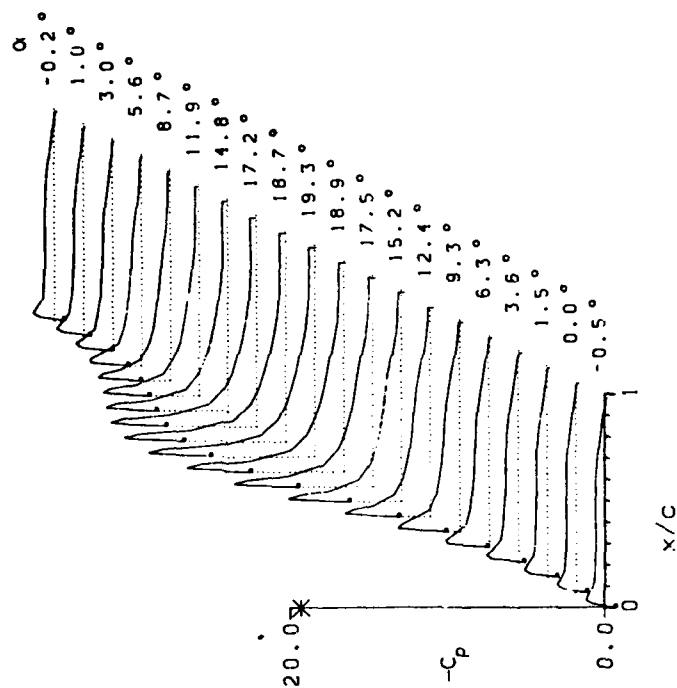
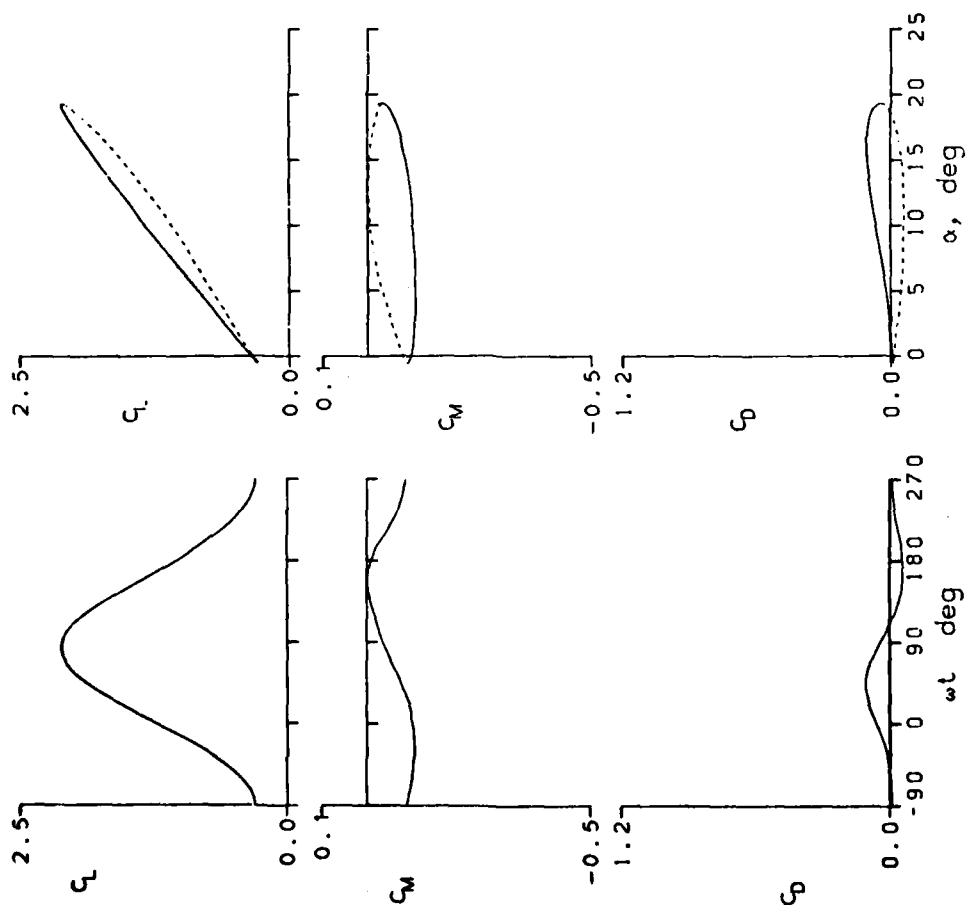


Figure 19.- Continued.

NLR-7301 AIRFOIL
 FRAME : 70107 $A_0 = 5.48^\circ$ $k = 0.010$
 $Re = 3.92 E6$ $A_1 = 10.04^\circ$ $M = 0.301$
 $C_{Lmax} = 1.77$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.06$
 $\alpha_{Lmax} = 15.5^\circ$ $\xi = 0.014$ $M_{max} = 1.185$
 $\alpha_{Cmin} = 5.0^\circ$ $-C_{pmax} = 8.7$ $\alpha_{Mmax} = 15.7^\circ$

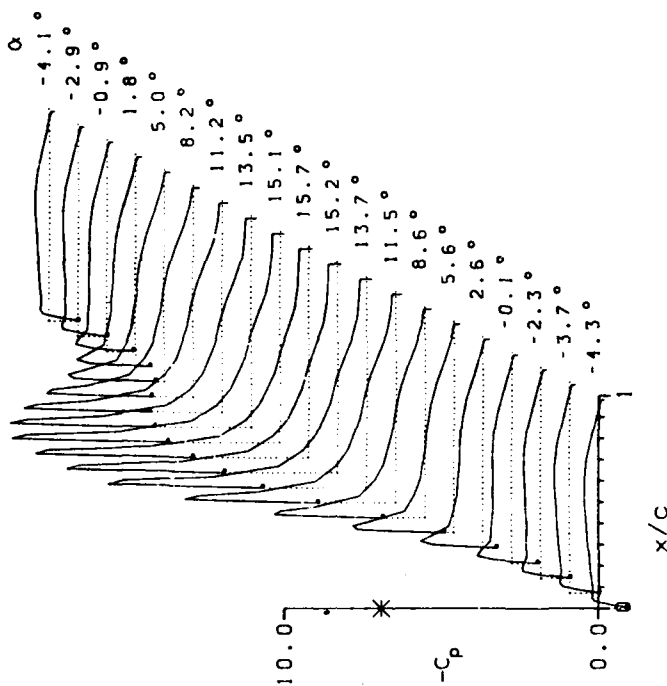
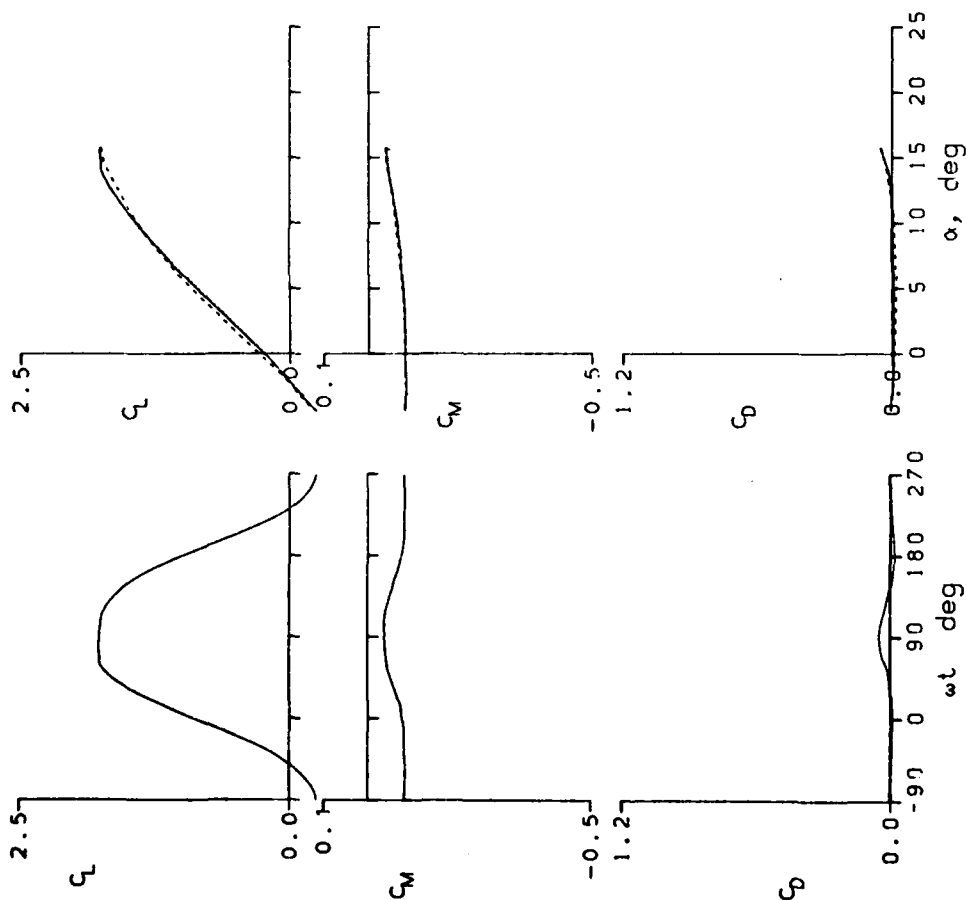


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70109 $A_0 = 5.49^\circ$ $k = 0.025$
 $Re = 3.88 \text{ E}6$ $A_1 = 10.04^\circ$ $M = 0.301$
 $C_{Lmax} = 1.81$ $C_{Mmin} = -0.09$ $C_{Dmax} = 0.05$
 $\alpha_{Lmax} = 14.8^\circ$ $\xi = 0.035$ $M_{max} = 1.198$
 $\alpha_{Cmin} = 5.0^\circ$ $-C_{pmax} = 8.8$ $\alpha_{Mmax} = 15.2^\circ$

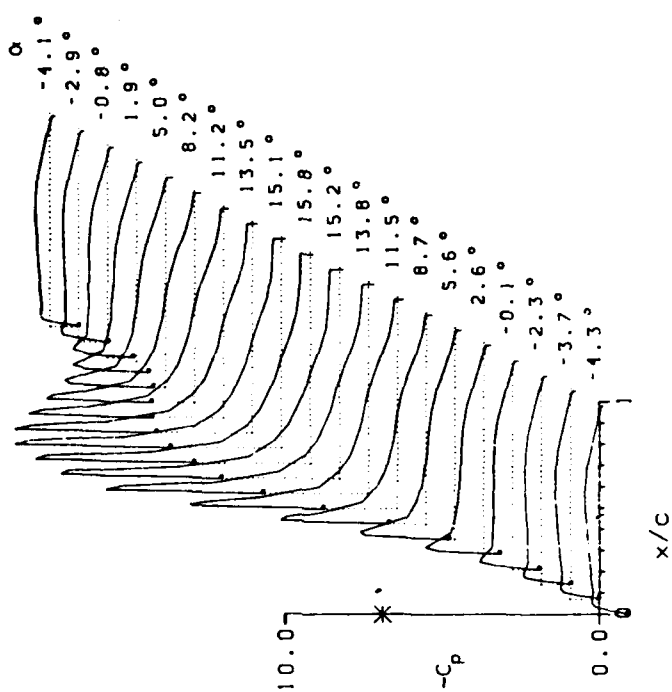
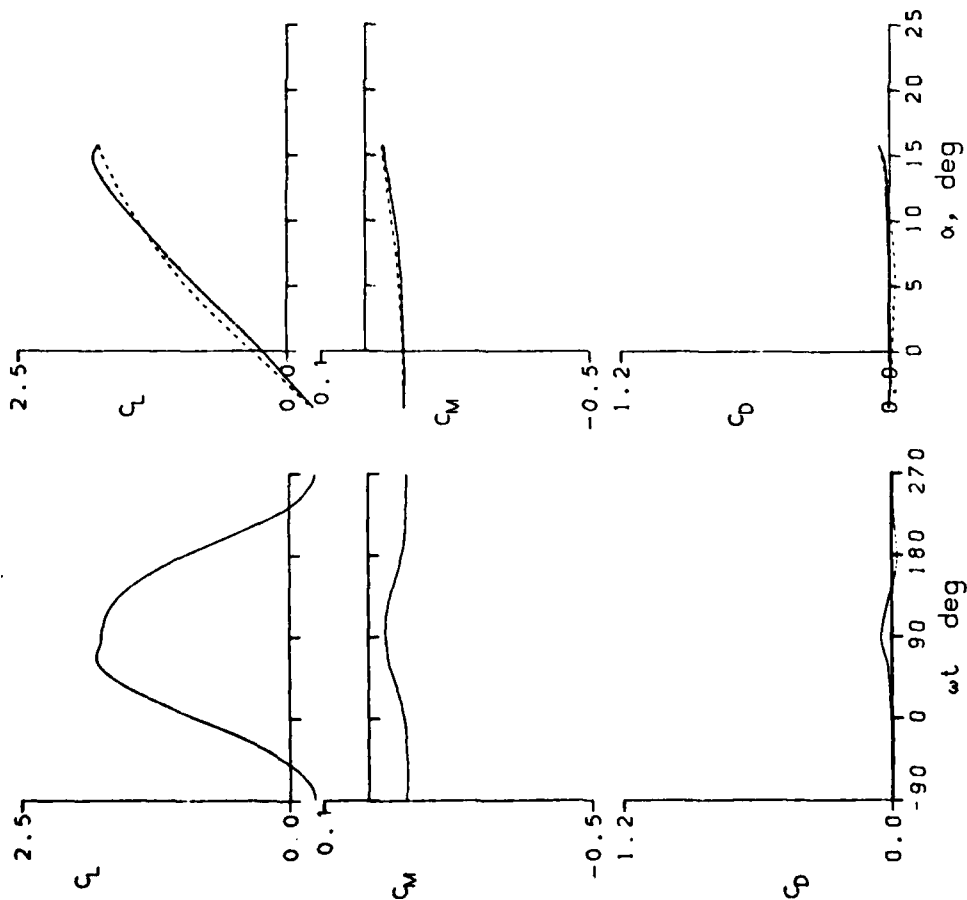


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70113	A0 = 5.49 °	k = 0.049
Re = 3.86 E6	A1 = 10.05 °	M = 0.300
C _{Lmax} = 1.85	C _{Mmin} = -0.09	C _{Dmax} = 0.04
α _{Lmax} = 15.2 °	ξ = 0.095	M _{max} = 1.222
α _{Cmin} = 5.0 °	-C _{pmax} = 9.1	α _{Mmax} = 15.6 °

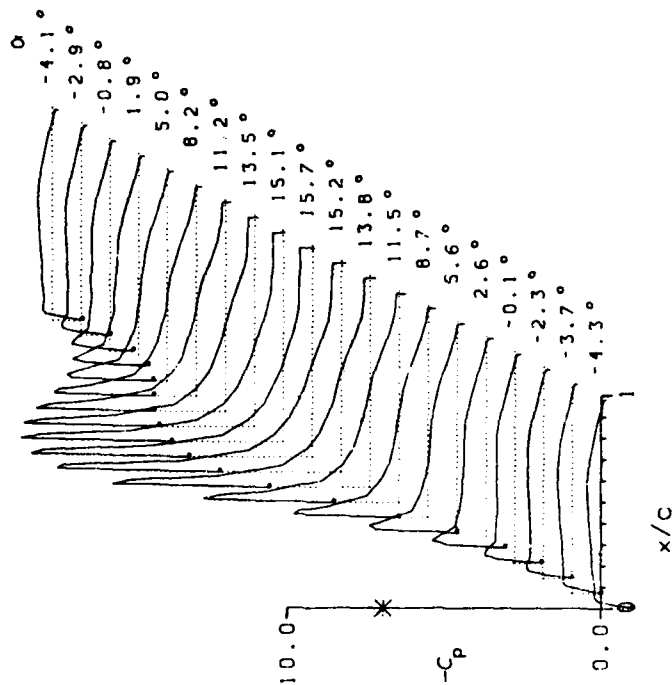
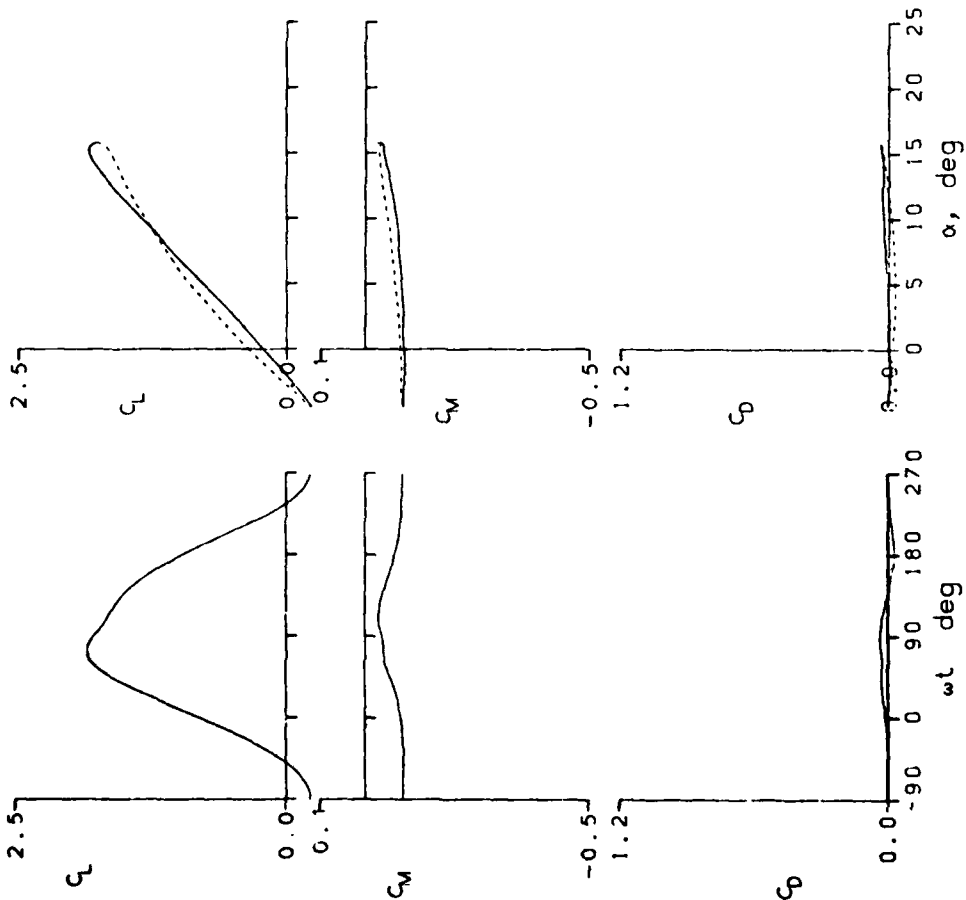


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70115	A0 = 5.48°	k = 0.099
Re = 3.85 E6	A1 = 10.04°	M = 0.301
C _{Lmax} = 1.91	C _{Mmin} = -0.10	C _{Dmax} = 0.06
α _{Lmax} = 15.6°	ξ = 0.242	M _{max} = 1.256
α _{Cmin} = 4.9°	-C _{pmax} = 9.4	α _{Mmax} = 15.7°

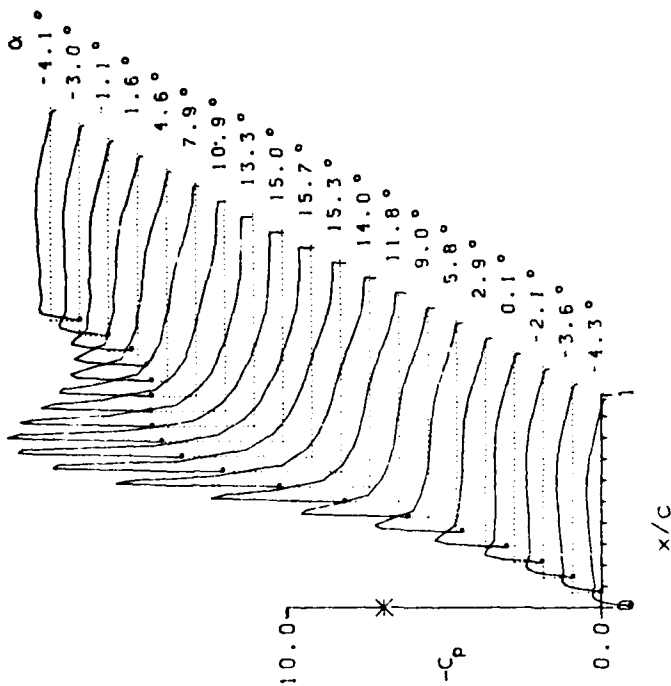
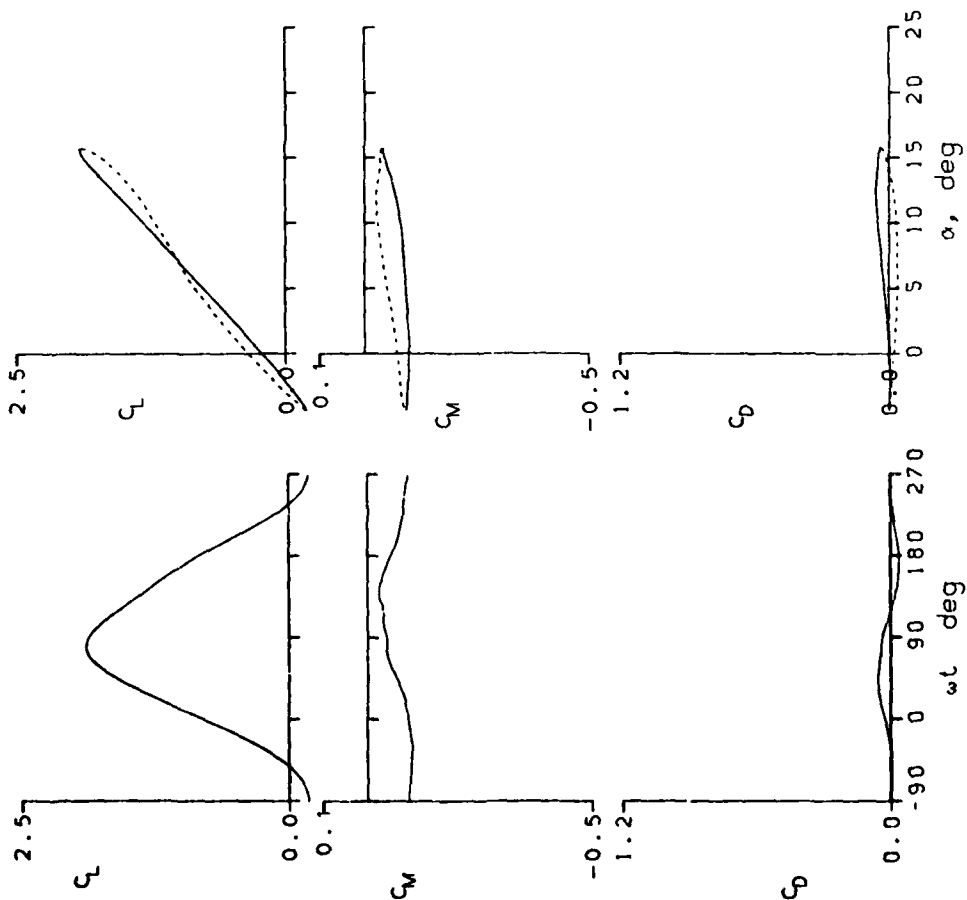


Figure 19.- Continued.

NLR-7301 AIRFOIL

FRAME : 70117	A0 = 5.55°	k = 0.148
Re = 3.84 E6	A1 = 10.04°	M = 0.301
CLmax = 1.92	CMmin = -0.11	CDmax = 0.08
αLmax = 15.7°	ξ = 0.394	Mmax = 1.264
αCMmin = 5.1°	-CDmax = 9.4	αMmax = 15.6°

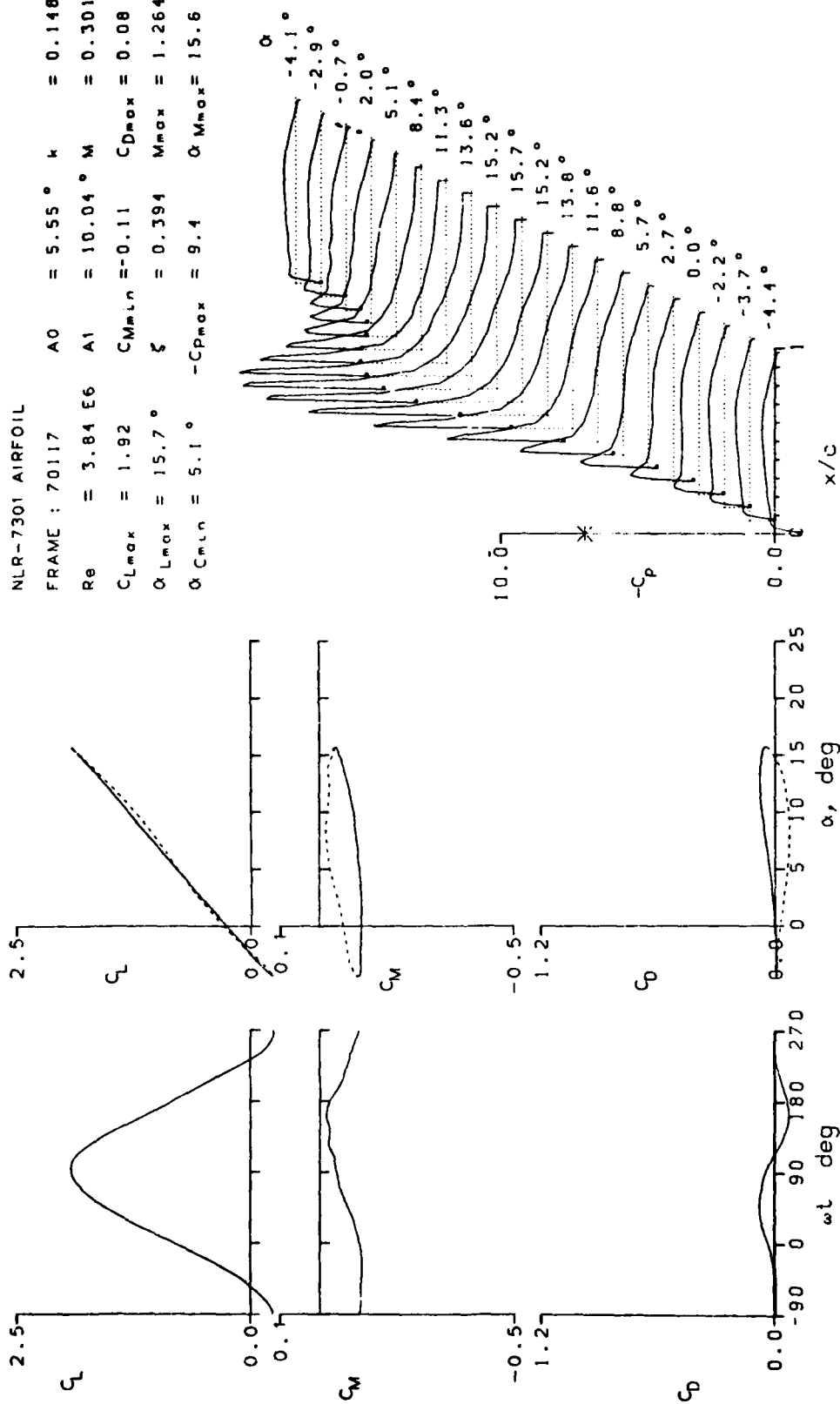


Figure 19.- Concluded.

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16. Abstract → Experimentally derived force and moment data are presented for eight airfoil sections that were tested at fixed and varying incidence in a subsonic two-dimensional stream. Airfoil incidence was varied through sinusoidal oscillations in pitch over a wide range of amplitude and frequency. The surface pressure distribution, as well as the lift, drag, and pitching moment derived therefrom, are displayed in a uniform fashion to delineate the static and dynamic characteristics of each airfoil both in and out of stall. ↙					
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