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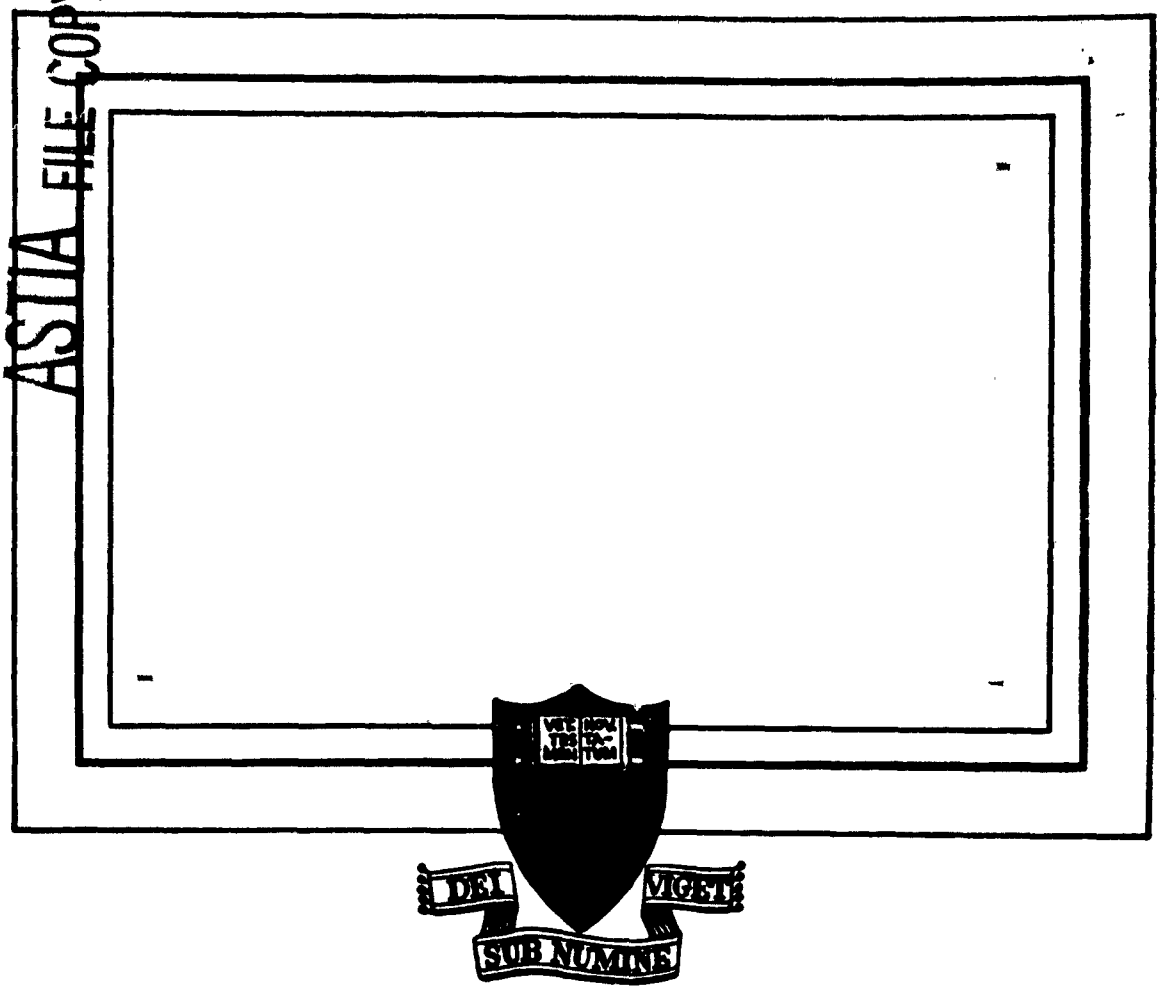

PRINCETON UNIVERSITY

DEPARTMENT OF AERONAUTICAL ENGINEERING

CIRCULATION CONTROL BY MEANS OF TRAILING EDGE SUCTION

(Detailed Data Report)

by

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ABSTRACT

Data are presented in detail on the two dimensional lift, drag, pitching moment, slot pressure and pressure distribution characteristics of the non-flapped NACA 23015 profile modified for trailing edge suction. The Discussion is brief and analysis is not attempted since that has been done in detail in Princeton Report No. 239 for which this is, in effect, an appendix.

TABLE OF CONTENTS

		Page
I	Introduction	1
II	Discussion	2
III	References	4
IV	List of Figures	5
V	Figures	

INTRODUCTION

Princeton University Report No.239 presents the results of two years work in the field of circulation control by means of trailing edge suction as applied to the unflapped NACA 23015 profile. There was, as a consequence, a great quantity of data taken which was not practical to present in one report. This led to the decision to report in two volumes; the first (Reference 1) to include a complete discussion of theory and experiment and summaries of all significant data, and the second to include all of the detailed data. This makes available a sizeable quantity of information to those interested in the detailed behavior of this type of high lift device.

1. A.E.Lab. Report 239

DISCUSSION

This study of circulation control by means of trailing edge suction has involved both force and pressure studies to determine the effect of measured quantities of suction upon the lift, drag, pitching moment, slot total pressure drop and the pressure distribution of a NACA 23015 profile. Figures 1 and 2 show photographs of the two-dimensional, 8-inch chord, 18-inch span, force model, and its installation in the wind tunnel, while Figure 3 is a photograph of the 16-inch chord, 18-inch span model fitted with pressure taps. The testing program was divided into three parts as follows:

Part 1 - Force Measurements: This determined the effect of suction by force measurement upon the lift and pitching moment. Drag coefficients were obtained by pressure surveying the wake. In addition, total pressures outside and inside the model were recorded to determine the pressure drop across the slot. The several trailing edge configurations tested with this model are shown in Figures 4a, b, and c. The characteristics of these ten variations are shown in Figures 5 through 158. Figures 159 through 162 compare the results of lift, drag, pitching moment and slot pressure coefficients for these tests.

Part 2 - Variable Trailing Edge: The installation of a variable trailing edge was made to study the effect on lift of extension of the lower lip of the suction slot. The ten variations of geometry tested are shown in Figure 163 and the results are presented in Figures 164 through 183. A comparison of the effect of these several positions of the variable trailing edge upon lift is made in Figure 184.

Part 3 - Pressure Distributions: In order to aid understanding of the mechanics of trailing edge suction slots, three pressure distribution studies were made. The first of these was conducted with a typical slot configuration (I-A) as shown in Figure 185, the results of which are presented in Figures 186 through 266. The model was then modified to have the same proportions as trailing edge 1-b (see Figure 4) but twice the size of 1-b, its designation being I-B. Figures 267 through 338 represent the results of tests with this model. The third pressure study was made with an elliptical model having a bent up lower lip designed to permit easier entrance for the air into the slot. Figure 339 shows this model, the results of which appear in Figures 340 through 364.

A complete discussion and interpretation of these data is included in Reference 1. It is hoped that the information herein presented will prove to be of value to others involved with this method of circulation control.

NOTE: In the following figures, the various trailing edge configurations are designated by T. E. 1-a, 1-b, etc.

REFERENCES

1. Hazen, D. C., Sweeney, T. E., Lehnert, R. F., and Ringleb, F. O., Circulation Control by Means of Trailing Edge Suction (Final Report) Princeton University Report No. 239.

LIST OF FIGURES

Figure 1	Photo of Force Model and T.E.'s
Figure 2	Photo of Force Model in Wind Tunnel
Figure 3	Photo of Press Model
Figure 4a	Geometry of Force Model Configurations
b	"
c	"
Figure 5	C_ℓ Summary, T. E. 1-a
Figure 6	C_d Summary, T. E. 1-a
Figure 7	$C_{mc/4}$ Summary, T. E. 1-a
Figure 8	C_p Summary, T. E. 1-a
Figure 9	Characteristics of T. E. 1-a, $\alpha = -3^\circ$
Figure 10	Characteristics of T. E. 1-a, $\alpha = -1^\circ$
Figure 11	Characteristics of T. E. 1-a, $\alpha = 1^\circ$
Figure 12	Characteristics of T. E. 1-a, $\alpha = 3^\circ$
Figure 13	Characteristics of T. E. 1-a, $\alpha = 5^\circ$
Figure 14	Characteristics of T. E. 1-a, $\alpha = 7^\circ$
Figure 15	Characteristics of T. E. 1-a, $\alpha = 9^\circ$
Figure 16	Characteristics of T. E. 1-a, $\alpha = 11^\circ$
Figure 17	Characteristics of T. E. 1-a, $\alpha = 13^\circ$
Figure 18	C_p Characteristics, T.E. 1-a, $\alpha = -3, -1, 1^\circ$
Figure 19	C_p Characteristics, T.E. 1-a, $\alpha = 3, 5, 7^\circ$
Figure 20	C_p Characteristics, T.E. 1-a, $\alpha = 9, 11, 13^\circ$
Figure 21	C_ℓ Summary, T. E. 1-b
Figure 22	C_d Summary, T. E. 1-b
Figure 23	$C_{mc/4}$ Summary, T. E. 1-b
Figure 25	Characteristics of T. E. 1-b, $\alpha = -3^\circ$
Figure 26	Characteristics of T. E. 1-b, $\alpha = -1^\circ$
Figure 27	Characteristics of T. E. 1-b, $\alpha = 1^\circ$
Figure 28	Characteristics of T. E. 1-b, $\alpha = 3^\circ$
Figure 29	Characteristics of T. E. 1-b, $\alpha = 5^\circ$
Figure 30	Characteristics of T. E. 1-b, $\alpha = 7^\circ$
Figure 31	Characteristics of T. E. 1-b, $\alpha = 9^\circ$
Figure 32	Characteristics of T. E. 1-b, $\alpha = 11^\circ$
Figure 33	Characteristics of T. E. 1-b, $\alpha = 13^\circ$
Figure 34	C_p Characteristics, T. E. 1-b, $\alpha = 3, -1, 1^\circ$
Figure 35	C_p Characteristics, T. E. 1-b, $\alpha = 3, 5, 7^\circ$
Figure 36	C_p Characteristics, T. E. 1-b, $\alpha = 9, 11, 13^\circ$
Figure 37	C_ℓ Summary, T. E. 1-c
Figure 38	C_d Summary, T. E. 1-c
Figure 39	$C_{mc/4}$ Summary, T. E. 1-c
Figure 40	C_p Summary, T. E. 1-c
Figure 41	Characteristics of T. E. 1-c, $\alpha = -3^\circ$
Figure 42	Characteristics of T. E. 1-c, $\alpha = -1^\circ$
Figure 43	Characteristics of T. E. 1-c, $\alpha = 1^\circ$

Figure 44	Characteristics of T. E. 1-c, α = +3
Figure 45	Characteristics of T. E. 1-c, α = 5°
Figure 46	Characteristics of T. E. 1-c, α = 7°
Figure 47	Characteristics of T. E. 1-c, α = 9°
Figure 48	Characteristics of T. E. 1-c, α = 11°
Figure 49	Characteristics of T. E. 1-c, α = 13°
Figure 50	C_p Characteristics of T. E. 1-c α = -3, -1, +1°
Figure 51	C_p Characteristics of T. E. 1-c α = 3, 5, 7°
Figure 52	C_p Characteristics of T. E. 1-c α = 9, 11, 13°
Figure 53	C_l Summary, T. E. 1-g
Figure 54	C_d Summary, T. E. 1-g
Figure 55	$C_{mc/4}$ Summary, T. E. 1-g
Figure 56	C_p Summary, T. E. 1-g
Figure 57	Characteristics of T. E. 1-g, α = -3°
Figure 58	Characteristics of T. E. 1-g, α = -1°
Figure 59	Characteristics of T. E. 1-g, α = +1°
Figure 60	Characteristics of T. E. 1-g, α = +3°
Figure 61	Characteristics of T. E. 1-g, α = 5°
Figure 62	Characteristics of T. E. 1-g, α = 7°
Figure 63	Characteristics of T. E. 1-g, α = 9°
Figure 64	Characteristics of T. E. 1-g, α = 11°
Figure 65	C_p Characteristics of T. E. 1-g, α = -3, -1, +1°
Figure 66	C_p Characteristics of T. E. 1-g, α = 3, 5, 7°
Figure 67	C_p Characteristics of T. E. 1-g, α = 9, 11, 13°
Figure 68	C_l Summary T. E. 2-b
Figure 69	C_d Summary T. E. 2-b
Figure 70	$C_{mc/4}$ Summary T. E. 2-b
Figure 71	C_p Summary T. E. 2-b
Figure 72	Characteristics of T. E. 2-b, α = -3°
Figure 73	Characteristics of T. E. 2-b, α = -1°
Figure 74	Characteristics of T. E. 2-b, α = +1°
Figure 75	Characteristics of T. E. 2-b, α = +3°
Figure 76	Characteristics of T. E. 2-b, α = 5°
Figure 77	Characteristics of T. E. 2-b, α = 7°
Figure 78	Characteristics of T. E. 2-b, α = 9°
Figure 79	Characteristics of T. E. 2-b, α = 11°
Figure 80	Characteristics of T. E. 2-b, α = 13°
Figure 81	C_p Characteristics of T. E. 2-b, α = -3, -1, +1°
Figure 82	C_p Characteristics of T. E. 2-b, α = 3, 5, 7°
Figure 83	C_p Characteristics of T. E. 2-b, α = 9, 11, 13°
Figure 84	C_l Summary, T. E. 2-d
Figure 85	C_d Summary, T. E. 2-d
Figure 86	$C_{mc/4}$ Summary, T. E. 2-d

Figure 87 C_p Summary, T. E. 2-d
Figure 88 Characteristics of T. E. 2-d, α = -3°
Figure 89 Characteristics of T. E. 2-d, α = -1°
Figure 90 Characteristics of T. E. 2-d, α = +1°
Figure 91 Characteristics of T. E. 2-d, α = +3°
Figure 92 Characteristics of T. E. 2-d, α = 5°
Figure 93 Characteristics of T. E. 2-d, α = 7°
Figure 94 Characteristics of T. E. 2-d, α = 9°
Figure 95 Characteristics of T. E. 2-d, α = 11°
Figure 96 Characteristics of T. E. 2-d, α = 13°
Figure 97 C_p Characteristics of T. E. 2-d, α = -3, -1, +1°
Figure 98 C_p Characteristics of T. E. 2-d, α = 3, 5, 7°
Figure 99 C_p Characteristics of T. E. 2-d, α = 9, 11, 13°
Figure 100 C_ℓ Summary, T. E. 2-e
Figure 101 C_d Summary, T. E. 2-e
Figure 102 $C_{mc/4}$ Summary, T. E. 2-e
Figure 103 C_p Summary, T. E. 2-e
Figure 104 Characteristics of T. E. 2-e, α = -3°
Figure 105 Characteristics of T. E. 2-e, α = -1°
Figure 106 Characteristics of T. E. 2-e, α = +1°
Figure 107 Characteristics of T. E. 2-e, α = 3°
Figure 108 Characteristics of T. E. 2-e, α = 5°
Figure 109 Characteristics of T. E. 2-e, α = 7°
Figure 110 Characteristics of T. E. 2-e, α = 9°
Figure 111 Characteristics of T. E. 2-e, α = 11°
Figure 112 C_p Characteristics of T. E. 2-e, α = -3, -1, +1°
Figure 113 C_p Characteristics of T. E. 2-e, α = 3, 5, 7°
Figure 114 C_p Characteristics of T. E. 2-e, α = 9, 11, 13°
Figure 115 C_ℓ Summary, T. E. 4-f
Figure 116 C_d Summary, T. E. 4-f
Figure 117 $C_{mc/4}$ Summary, T. E. 4-f
Figure 118 C_p Summary, T. E. 4-f
Figure 119 Characteristics of T. E. 4-f, α = -1°
Figure 120 Characteristics of T. E. 4-f, α = +3°
Figure 121 Characteristics of T. E. 4-f, α = 7°
Figure 122 Characteristics of T. E. 4-f, α = 11°
Figure 123 Characteristics of T. E. 4-f, α = 13°
Figure 124 C_p Characteristics of T. E. 4-f, α = -3, -1, +1°
Figure 125 C_p Characteristics of T. E. 4-f, α = 3, 5, 7°
Figure 126 C_p Characteristics of T. E. 4-f, α = 9, 11, 13°
Figure 127 C_ℓ Summary of T. E. 5-e
Figure 128 C_d Summary of T. E. 5-e
Figure 129 $C_{mc/4}$ Summary of T. E. 5-e
Figure 130 C_p Summary of T. E. 5-e
Figure 131 Characteristics of T. E. 5-e, α = -3°
Figure 132 Characteristics of T. E. 5-e, α = -1°
Figure 133 Characteristics of T. E. 5-e, α = +1°
Figure 134 Characteristics of T. E. 5-e, α = 3°
Figure 135 Characteristics of T. E. 5-e, α = 5°

Figure 136 Characteristics of T. E. 5-e, $\alpha = 7^\circ$
Figure 137 Characteristics of T. E. 5-e, $\alpha = 9^\circ$
Figure 138 Characteristics of T. E. 5-e, $\alpha = 11^\circ$
Figure 139 Characteristics of T. E. 5-e, $\alpha = 13^\circ$
Figure 140 C_p Characteristics of T. E. 5-e, $\alpha = -3, -1, +1^\circ$
Figure 141 C_p Characteristics of T. E. 5-e, $\alpha = 3, 5, 7^\circ$
Figure 142 C_p Characteristics of T. E. 5-e, $\alpha = 9, 11, 13^\circ$
Figure 143 C_ℓ Summary of T. E. d -a
Figure 144 C_d Summary of T. E. d -a
Figure 145 $C_{mc/4}$ Summary of T. E. d -a
Figure 146 C_p Summary of T. E. d -a
Figure 147 Characteristics of T. E. d -a, $\alpha = -3^\circ$
Figure 148 Characteristics of T. E. d -a, $\alpha = -1^\circ$
Figure 149 Characteristics of T. E. d -a, $\alpha = +1^\circ$
Figure 150 Characteristics of T. E. d -a, $\alpha = +3^\circ$
Figure 151 Characteristics of T. E. d -a, $\alpha = 5^\circ$
Figure 152 Characteristics of T. E. d -a, $\alpha = 7^\circ$
Figure 153 Characteristics of T. E. d -a, $\alpha = 9^\circ$
Figure 154 Characteristics of T. E. d -a, $\alpha = 11^\circ$
Figure 155 Characteristics of T. E. d -a, $\alpha = 13^\circ$
Figure 156 C_p Characteristics of T. E. d -a, $\alpha = -3, -1, +1^\circ$
Figure 157 C_p Characteristics of T. E. d -a, $\alpha = 3, 5, 7^\circ$
Figure 158 C_p Characteristics of T. E. d -a, $\alpha = 9, 11, 13^\circ$
Figure 159 Comparison Summary ~ Lift Coefficients
Figure 160 Comparison Summary ~ Drag Coefficients
Figure 161 Comparison Summary ~ Pitching Moment Coefficients
Figure 162 Comparison Summary ~ Pressure Coefficients
Figure 163 Geometry of T. E. 1- ν
Figure 164 C_ℓ Summary, T. E. 1- ν 1
Figure 165 Characteristics of T. E. 1- ν -1, $\alpha = -1, 5, 11^\circ$
Figure 166 C_ℓ Summary, T. E. 1- ν -2
Figure 167 Characteristics of T. E. 1- ν -2, $\alpha = -1, 5, 11^\circ$
Figure 168 C_ℓ Summary, T. E. 1- ν -3
Figure 169 Characteristics of T. E. 1- ν -3, $\alpha = -1, 5, 11^\circ$
Figure 170 C_ℓ Summary, T. E. 1- ν -4
Figure 171 Characteristics of T. E. 1- ν -4, $\alpha = -1, 5, 11^\circ$
Figure 172 C_ℓ Summary, T. E. 1- ν -5
Figure 173 Characteristics of T. E. 1- ν -6, $\alpha = 1, 5, 11^\circ$
Figure 174 C_ℓ Summary, T. E. 1- ν -6
Figure 175 Characteristics of T. E. 1- ν -6, $\alpha = 1, 5, 11^\circ$
Figure 176 C_ℓ Summary, T. E. 1- ν -7
Figure 177 Characteristics of T. E. 1- ν -7, $\alpha = 1, 5, 11^\circ$
Figure 178 C_ℓ Summary, T. E. 1- ν -8
Figure 179 Characteristics of T. E. 1- ν -8, $\alpha = 1, 5, 11^\circ$
Figure 180 C_ℓ Summary, T. E. 1- ν -9
Figure 181 Characteristics of T. E. 1- ν -9, $\alpha = 1, 5, 11^\circ$
Figure 182 C_ℓ Summary, T. E. 1- ν -10
Figure 183 Characteristics of T. E. 1- ν -10, $\alpha = 1, 5, 11^\circ$
Figure 184 Comparison Summary (T. E. 1- ν) ~ Lift

Figure 185	Geometry of T. E. I-A
Figure 186	C_ℓ Summary, T. E. I-A
Figure 187	C_d Summary, T. E. I-A
Figure 188	Characteristics of T. E. I-A, $\alpha = -5^\circ$
Figure 189	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = 0$
Figure 190	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0063$
Figure 191	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0089$
Figure 192	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0109$
Figure 193	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0122$
Figure 194	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0137$
Figure 195	Pressure Distribution, T. E. I-A, $\alpha = -5^\circ$, $C_Q = .0221$
Figure 196	Characteristics of T. E. I-A, $\alpha = -3^\circ$
Figure 197	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = 0$
Figure 198	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0063$
Figure 199	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0089$
Figure 200	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0109$
Figure 201	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0125$
Figure 202	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0130$
Figure 203	Pressure Distribution, T. E. I-A, $\alpha = -3^\circ$, $C_Q = .0227$
Figure 204	Characteristics of T. E. I-A, $\alpha = -1^\circ$
Figure 205	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = 0$
Figure 206	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0064$
Figure 207	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0089$
Figure 208	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0110$
Figure 209	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0124$
Figure 210	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0129$
Figure 211	Pressure Distribution, T. E. I-A, $\alpha = -1^\circ$, $C_Q = .0225$
Figure 212	Characteristics of T. E. I-A, $\alpha = +1^\circ$
Figure 213	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = 0$
Figure 214	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0064$
Figure 215	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0089$
Figure 216	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0109$
Figure 217	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0123$
Figure 218	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0137$
Figure 219	Pressure Distribution, T. E. I-A, $\alpha = +1^\circ$, $C_Q = .0223$
Figure 220	Characteristics of T. E. I-A, $\alpha = +3^\circ$
Figure 221	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = 0$
Figure 222	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0064$
Figure 223	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0089$
Figure 224	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0109$
Figure 225	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0123$
Figure 226	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0139$
Figure 227	Pressure Distribution, T. E. I-A, $\alpha = +3^\circ$, $C_Q = .0223$
Figure 228	Characteristics of T. E. I-A, $\alpha = +5^\circ$
Figure 229	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = 0$
Figure 230	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0063$
Figure 231	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0089$
Figure 232	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0109$
Figure 233	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0124$
Figure 234	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0145$
Figure 235	Pressure Distribution, T. E. I-A, $\alpha = +5^\circ$, $C_Q = .0193$

Figure 236	Characteristics of T. E. I-A, $\alpha = 7^\circ$	
Figure 237	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = 0$
Figure 238	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0063$
Figure 239	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0089$
Figure 240	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0110$
Figure 241	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0123$
Figure 242	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0140$
Figure 243	Pressure Distribution, T. E. I-A, $\alpha = 7^\circ$,	$C_Q = .0192$
Figure 244	Characteristics of T. E. I-A, $\alpha = 9^\circ$	
Figure 245	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0063$
Figure 246	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0090$
Figure 247	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0109$
Figure 248	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0124$
Figure 249	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0142$
Figure 250	Pressure Distribution, T. E. I-A, $\alpha = 9^\circ$,	$C_Q = .0190$
Figure 251	Characteristics of T. E. I-A, $\alpha = 11^\circ$	
Figure 252	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = 0$
Figure 253	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0063$
Figure 254	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0089$
Figure 255	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0109$
Figure 256	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0124$
Figure 257	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0133$
Figure 258	Pressure Distribution, T. E. I-A, $\alpha = 11^\circ$,	$C_Q = .0190$
Figure 259	Characteristics of T. E. I-A, $\alpha = 13^\circ$	
Figure 260	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = 0$
Figure 261	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0064$
Figure 262	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0092$
Figure 263	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0109$
Figure 264	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0124$
Figure 265	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0140$
Figure 266	Pressure Distribution, T. E. I-A, $\alpha = 13^\circ$,	$C_Q = .0189$
Figure 267	C_l Summary, T. E. I-B	
Figure 268	C_d Summary, T. E. I-B	
Figure 269	Characteristics of T. E. I-B, $\alpha = -5^\circ$	
Figure 270	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = 0$
Figure 271	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = .0186$
Figure 272	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = .0260$
Figure 273	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = .0312$
Figure 274	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = .0361$
Figure 275	Pressure Distribution, T. E. I-B, $\alpha = -5^\circ$,	$C_Q = .0410$
Figure 276	Characteristics of T. E. I-B, $\alpha = -3^\circ$	
Figure 277	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = 0$
Figure 278	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = .0198$
Figure 279	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = .0259$
Figure 280	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = .0313$
Figure 281	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = .0355$
Figure 282	Pressure Distribution, T. E. I-B, $\alpha = -3^\circ$,	$C_Q = .0412$
Figure 283	Characteristics of T. E. I-B, $\alpha = -1^\circ$	
Figure 284	Pressure Distribution, T. E. I-B, $\alpha = -1^\circ$,	$C_Q = 0$
Figure 285	Pressure Distribution, T. E. I-B, $\alpha = -1^\circ$,	$C_Q = .0189$
Figure 286	Pressure Distribution, T. E. I-B, $\alpha = -1^\circ$,	$C_Q = .0261$

Figure 287	Pressure Distribution, T. E. I-B,	$\alpha = -1^\circ$,	$C_Q = .0309$
Figure 288	Pressure Distribution, T. E. I-B,	$\alpha = -1^\circ$,	$C_Q = .0357$
Figure 289	Pressure Distribution, T. E. I-B,	$\alpha = -1^\circ$,	$C_Q = .0416$
Figure 290	Characteristics of T. E. I-B,	$\alpha = +1^\circ$	
Figure 291	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = 0$
Figure 292	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = .0190$
Figure 293	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = .0260$
Figure 294	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = .0312$
Figure 295	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = .0359$
Figure 296	Pressure Distribution, T. E. I-B,	$\alpha = +1^\circ$,	$C_Q = .0417$
Figure 297	Characteristics of T. E. I-B,	$\alpha = +3^\circ$	
Figure 298	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = 0$
Figure 299	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = .0189$
Figure 300	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = .0263$
Figure 301	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = .0312$
Figure 302	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = .0359$
Figure 303	Pressure Distribution, T. E. I-B,	$\alpha = +3^\circ$,	$C_Q = .0420$
Figure 304	Characteristics of T. E. I-B,	$\alpha = +5^\circ$	
Figure 305	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = 0$
Figure 306	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = .0209$
Figure 307	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = .0266$
Figure 308	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = .0319$
Figure 309	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = .0355$
Figure 310	Pressure Distribution, T. E. I-B,	$\alpha = +5^\circ$,	$C_Q = .0419$
Figure 311	Characteristics of T. E. I-B,	$\alpha = +7^\circ$	
Figure 312	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = 0$
Figure 313	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = .0190$
Figure 314	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = .0264$
Figure 315	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = .0306$
Figure 316	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = .0390$
Figure 317	Pressure Distribution, T. E. I-B,	$\alpha = +7^\circ$,	$C_Q = .0419$
Figure 318	Characteristics of T. E. I-B,	$\alpha = 9^\circ$	
Figure 319	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = 0$
Figure 320	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = .0195$
Figure 321	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = .0263$
Figure 322	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = .0313$
Figure 323	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = .0355$
Figure 324	Pressure Distribution, T. E. I-B,	$\alpha = 9^\circ$,	$C_Q = .0419$
Figure 325	Characteristics of T. E. I-B,	$\alpha = 11^\circ$	
Figure 326	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = 0$
Figure 327	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = .0196$
Figure 328	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = .0255$
Figure 329	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = .0311$
Figure 330	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = .0354$
Figure 331	Pressure Distribution, T. E. I-B,	$\alpha = 11^\circ$,	$C_Q = .0410$
Figure 332	Characteristics of T. E. I-B,	$\alpha = 13^\circ$	
Figure 333	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = 0$
Figure 334	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = .0187$
Figure 335	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = .0274$
Figure 336	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = .0308$
Figure 337	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = .0352$
Figure 338	Pressure Distribution, T. E. I-B,	$\alpha = 13^\circ$,	$C_Q = .0408$

Figure 339	Geometry of Elliptical Model			
Figure 340	C_{ℓ} Summary, Elliptical Model			
Figure 341	Characteristics of Elliptical Model,	$\alpha = 0^{o}$		
Figure 342	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= o
Figure 343	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0094
Figure 344	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0137
Figure 345	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0167
Figure 346	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0216
Figure 347	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0230
Figure 348	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0262
Figure 349	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0312
Figure 350	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0379
Figure 351	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0441
Figure 352	Pressure Distribution, Elliptical Model,	$\alpha = 0^{o}$,	C_{Q}	= .0498
Figure 353	Characteristics of Elliptical Model,	$\alpha = 10^{o}$		
Figure 354	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= o
Figure 355	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0095
Figure 356	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0138
Figure 357	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0165
Figure 358	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0192
Figure 359	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0215
Figure 360	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0260
Figure 361	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0308
Figure 362	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0370
Figure 363	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0423
Figure 364	Pressure Distribution, Elliptical Model,	$\alpha = 10^{o}$	C_{Q}	= .0490

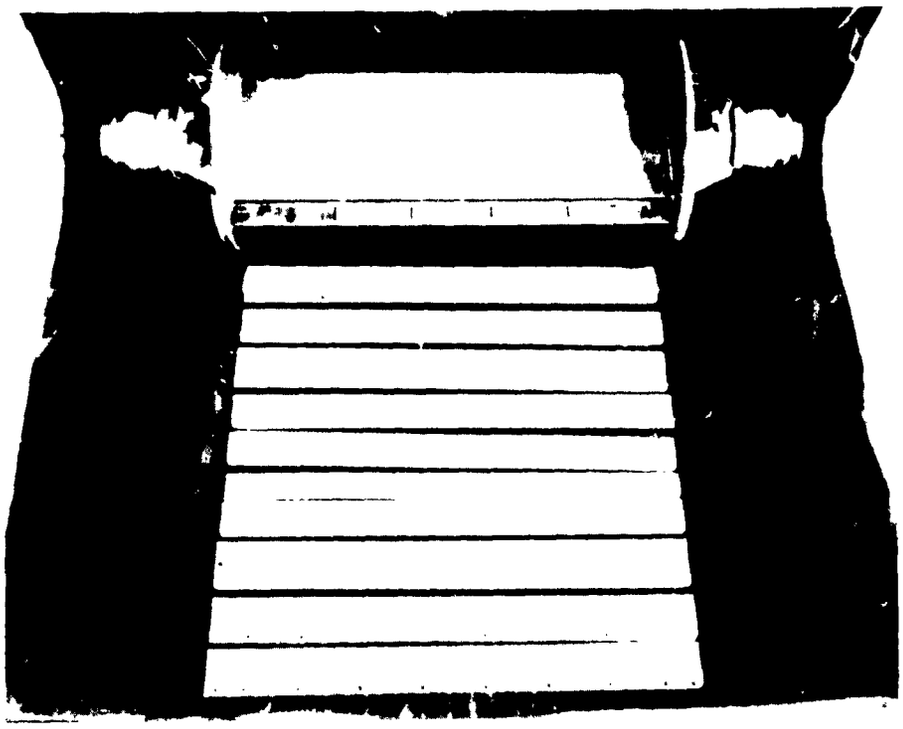


Fig. 1

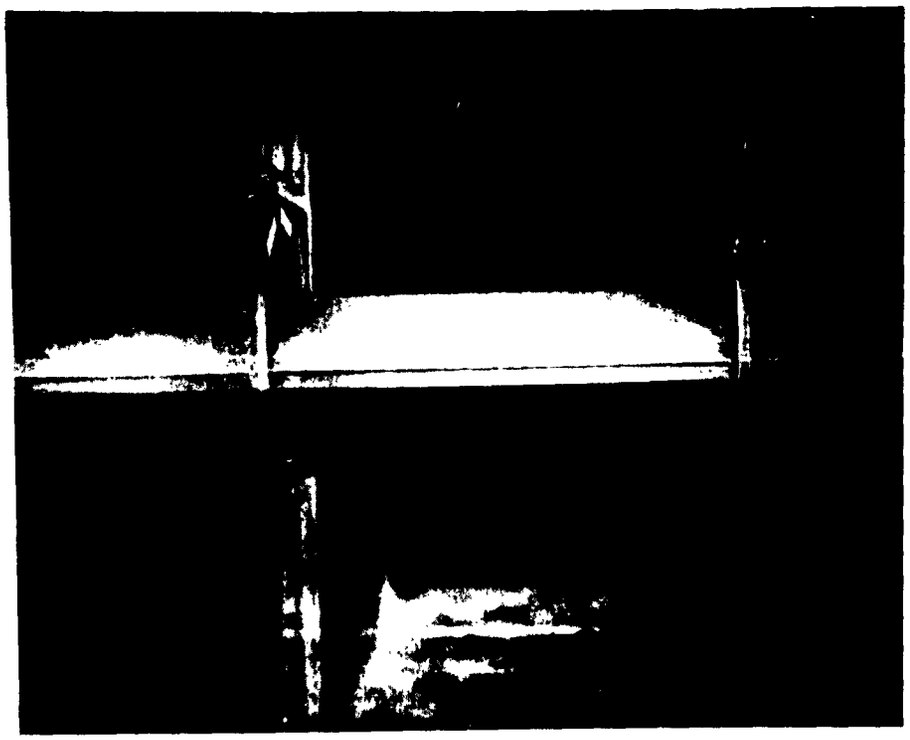


Fig. 2

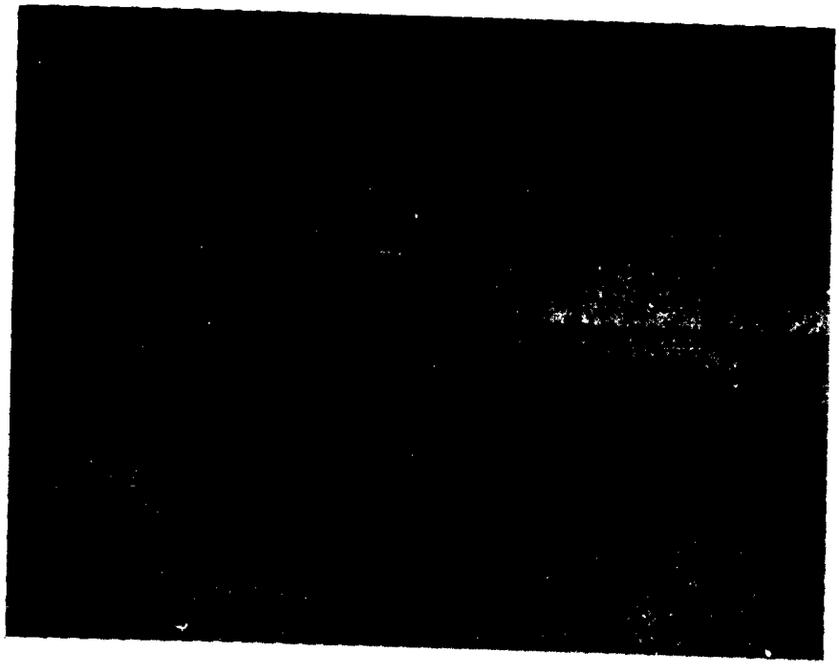
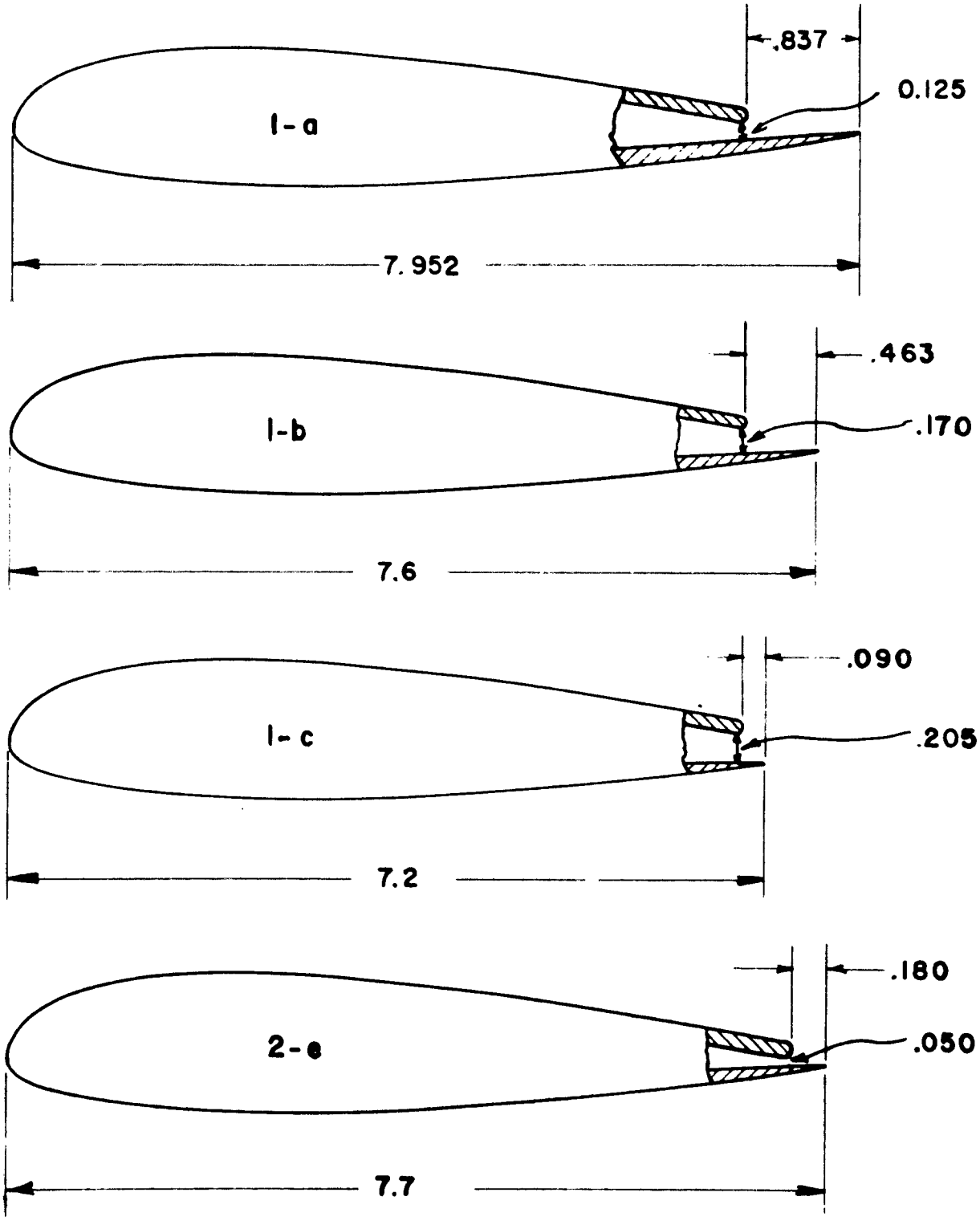


Fig. 3

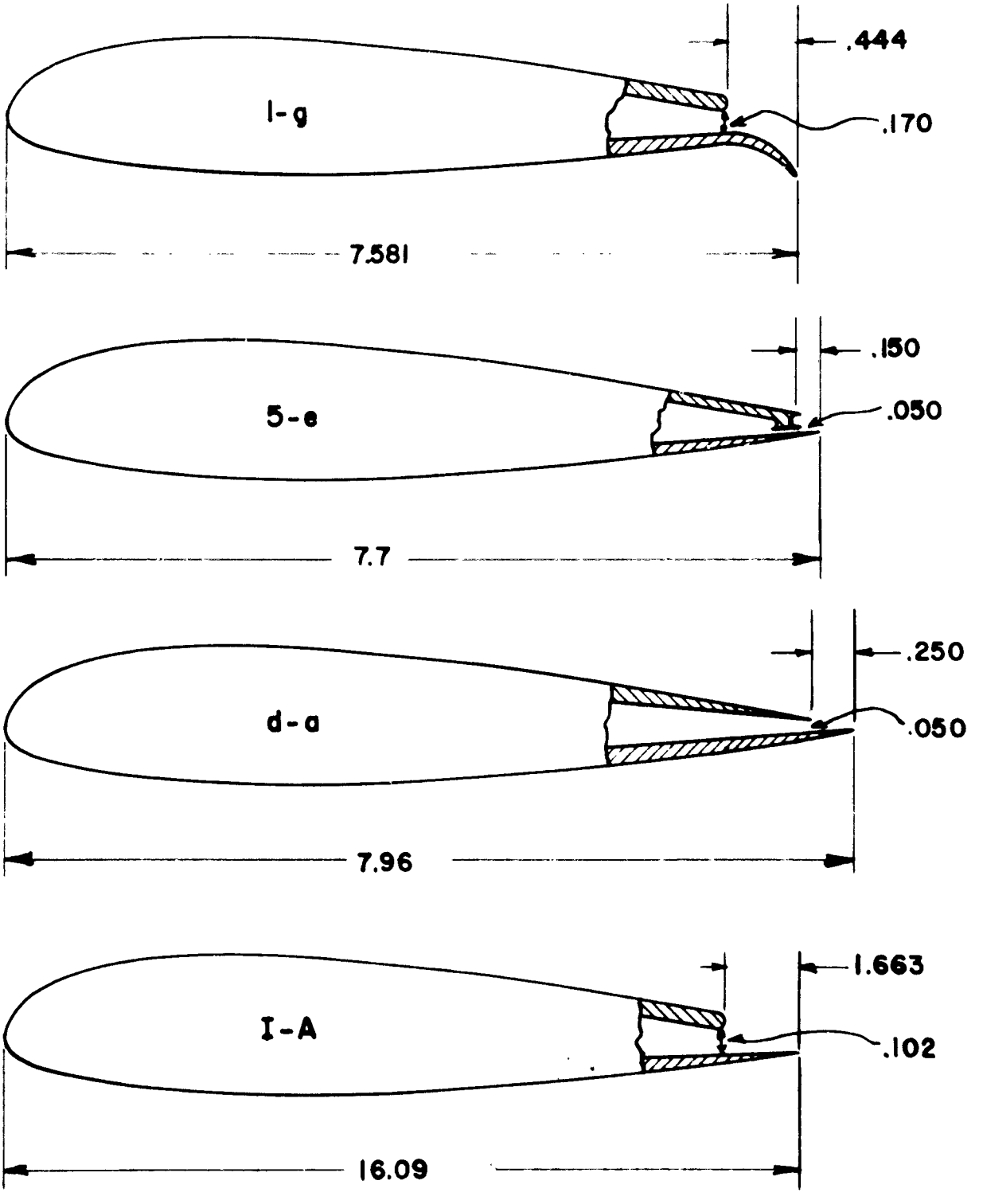
NACA 23015 AIRFOIL AS MODIFIED FOR TRAILING EDGE SUCTION TESTS

FIG. 4A



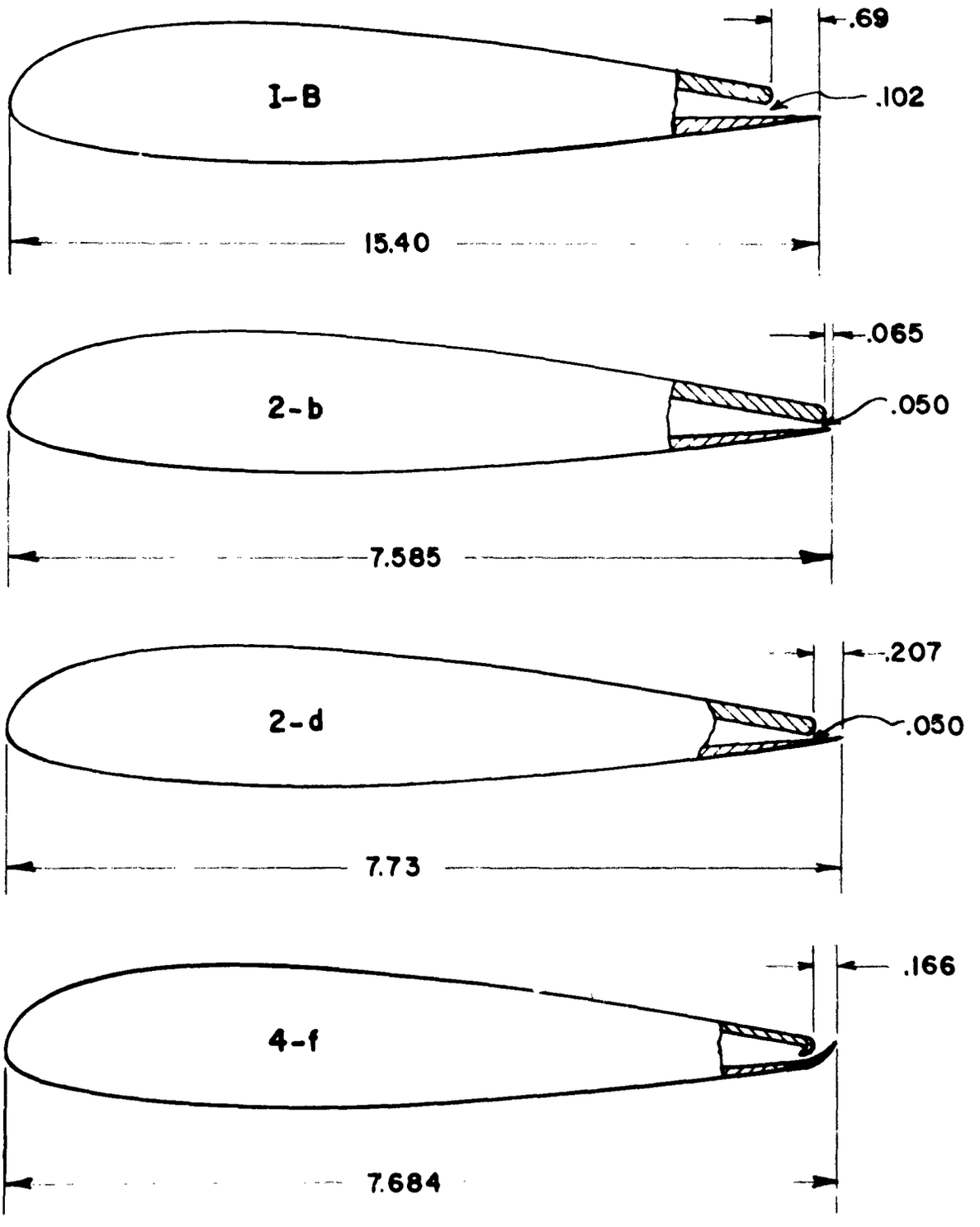
NACA 23015 AIRFOIL AS MODIFIED FOR TRAILING EDGE SUCTION TESTS

FIG. 48



NACA 23015 AIRFOIL AS MODIFIED FOR TRAILING EDGE SUCTION TESTS

FIG. 4C

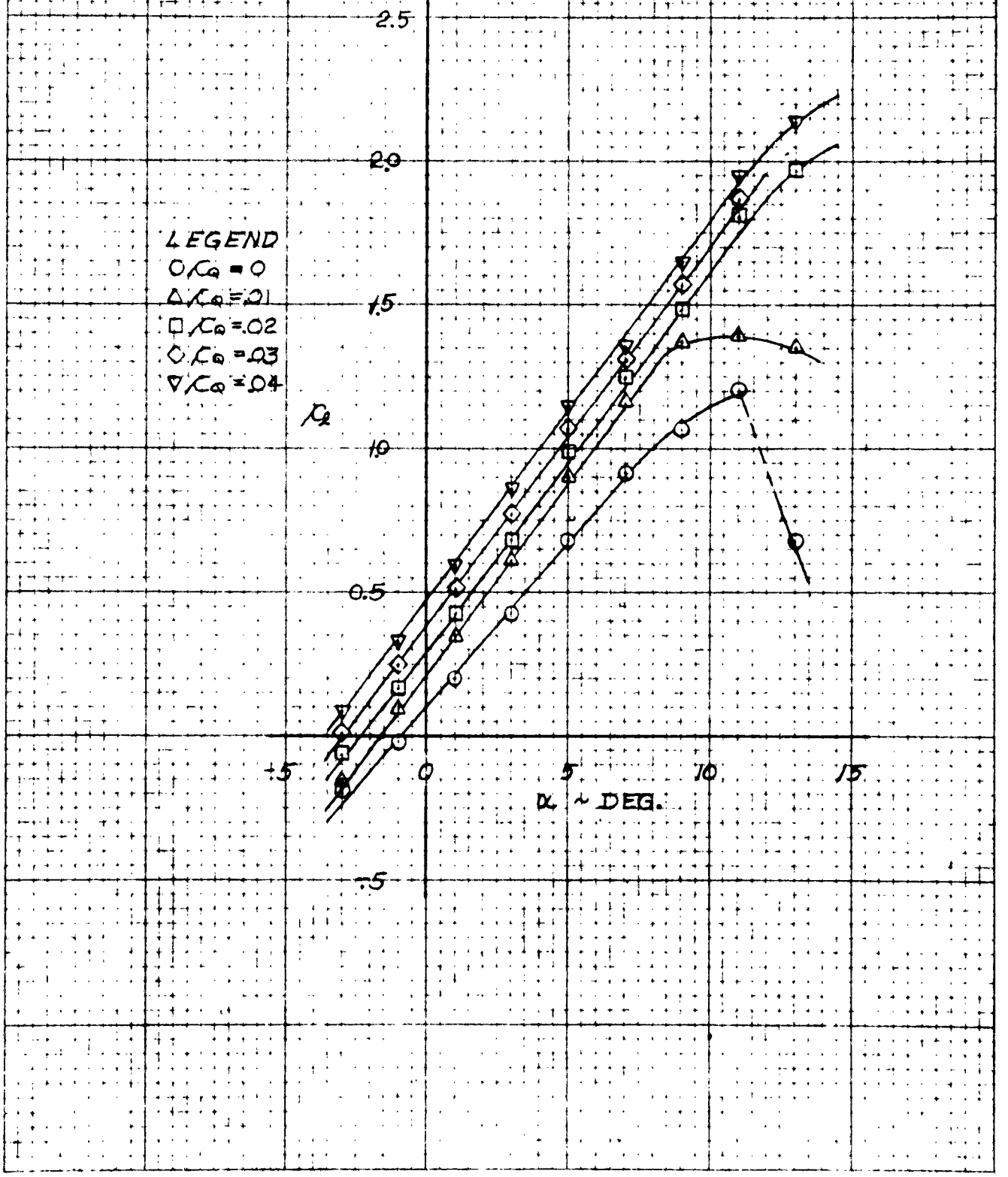


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $I-a$, R.N. = $.690 \times 10^6$, 4-23-52

C_l vs. α FOR SEVERAL VALUES OF C_Q

FIG.- 5



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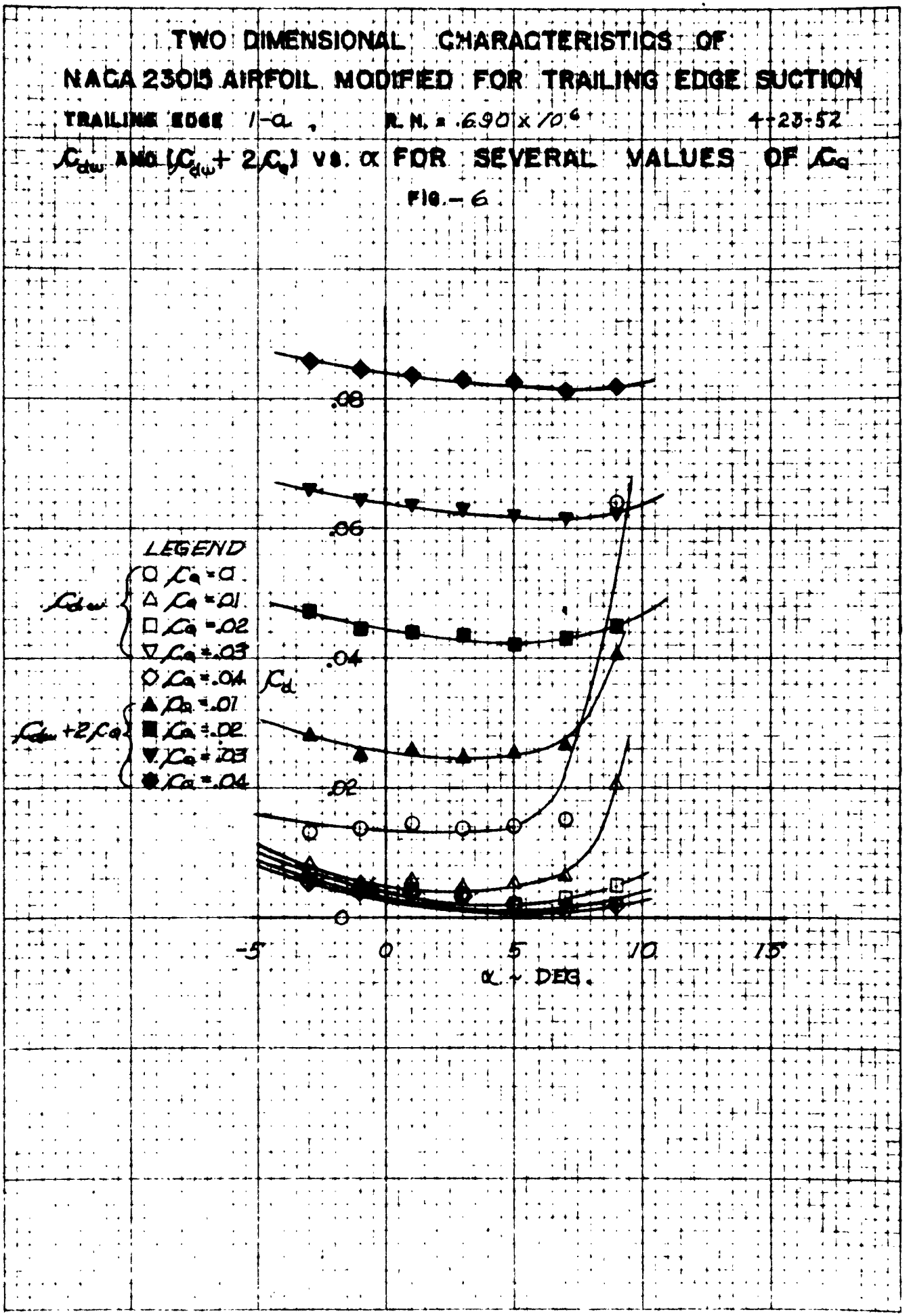
10 X 10 to the inch

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-a , R.N. = .690 x 10^6 4-23-52

c_{d_w} AND $(c_{d_w} + 2c_q)$ VS. α FOR SEVERAL VALUES OF c_q

FIG. - 6

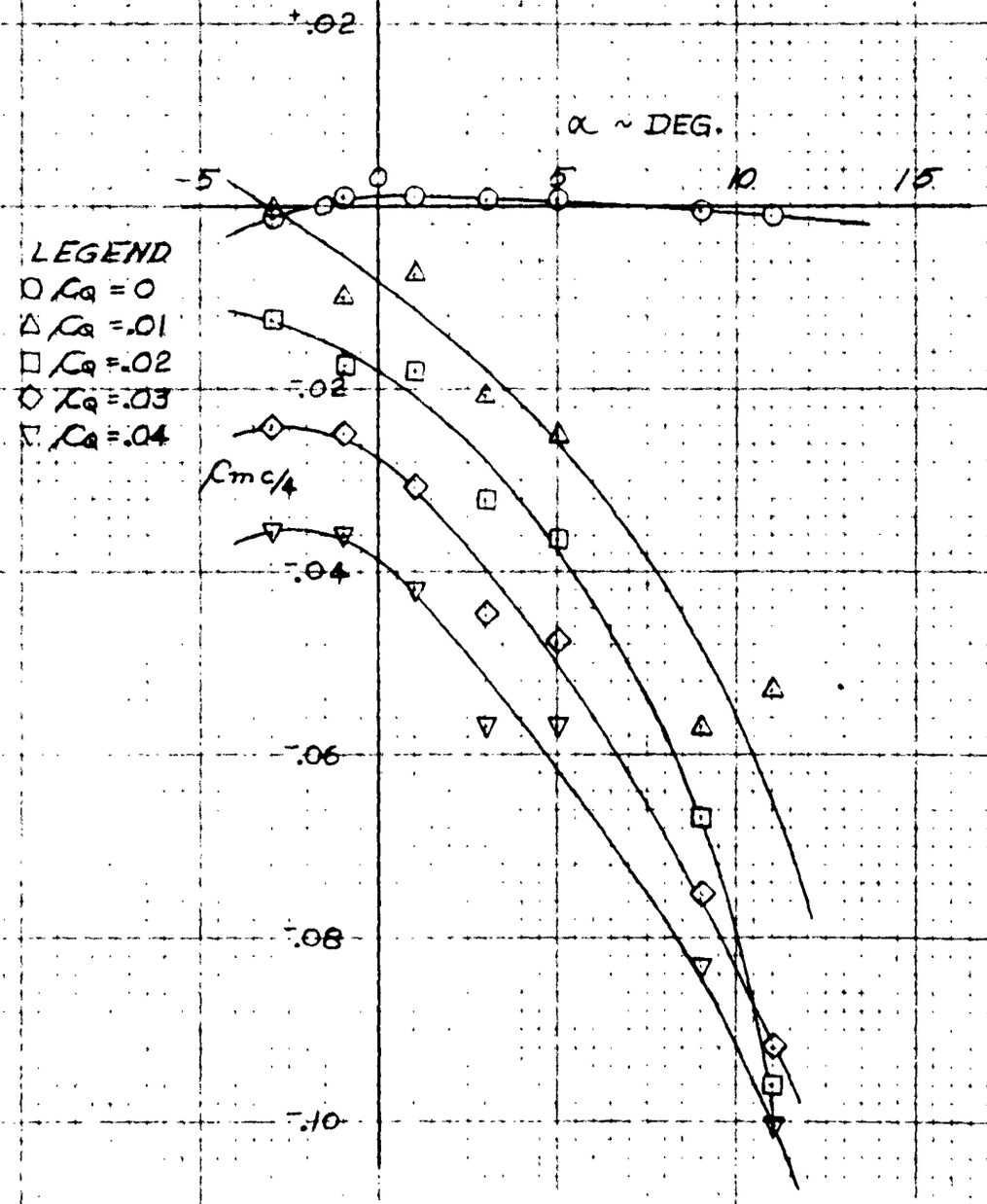


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-a , R.N. = 6.90 x 10⁶ , 4-23-52

$C_{m\,c/4}$ VS. α FOR SEVERAL VALUES OF C_q

FIG. – 7



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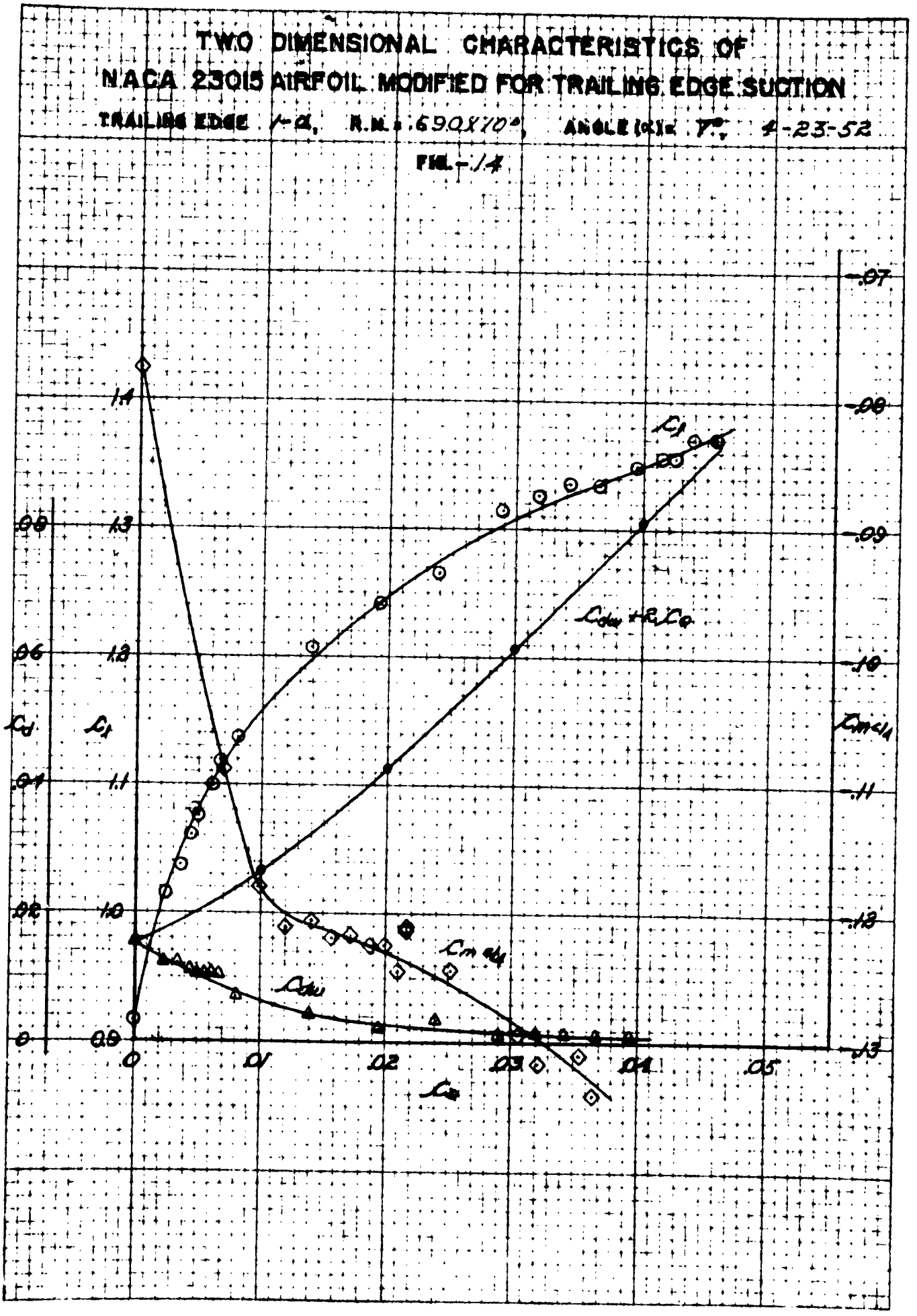
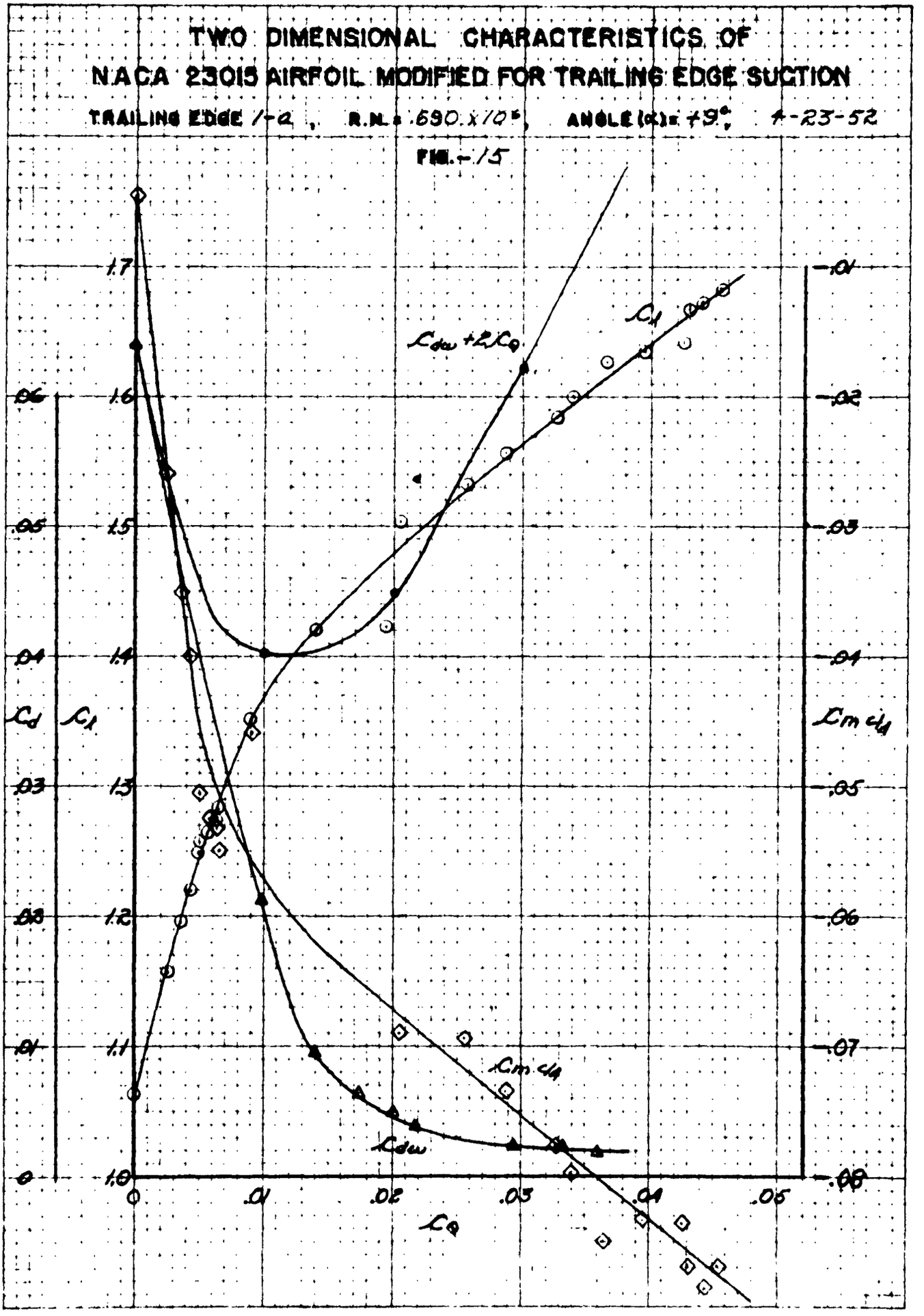
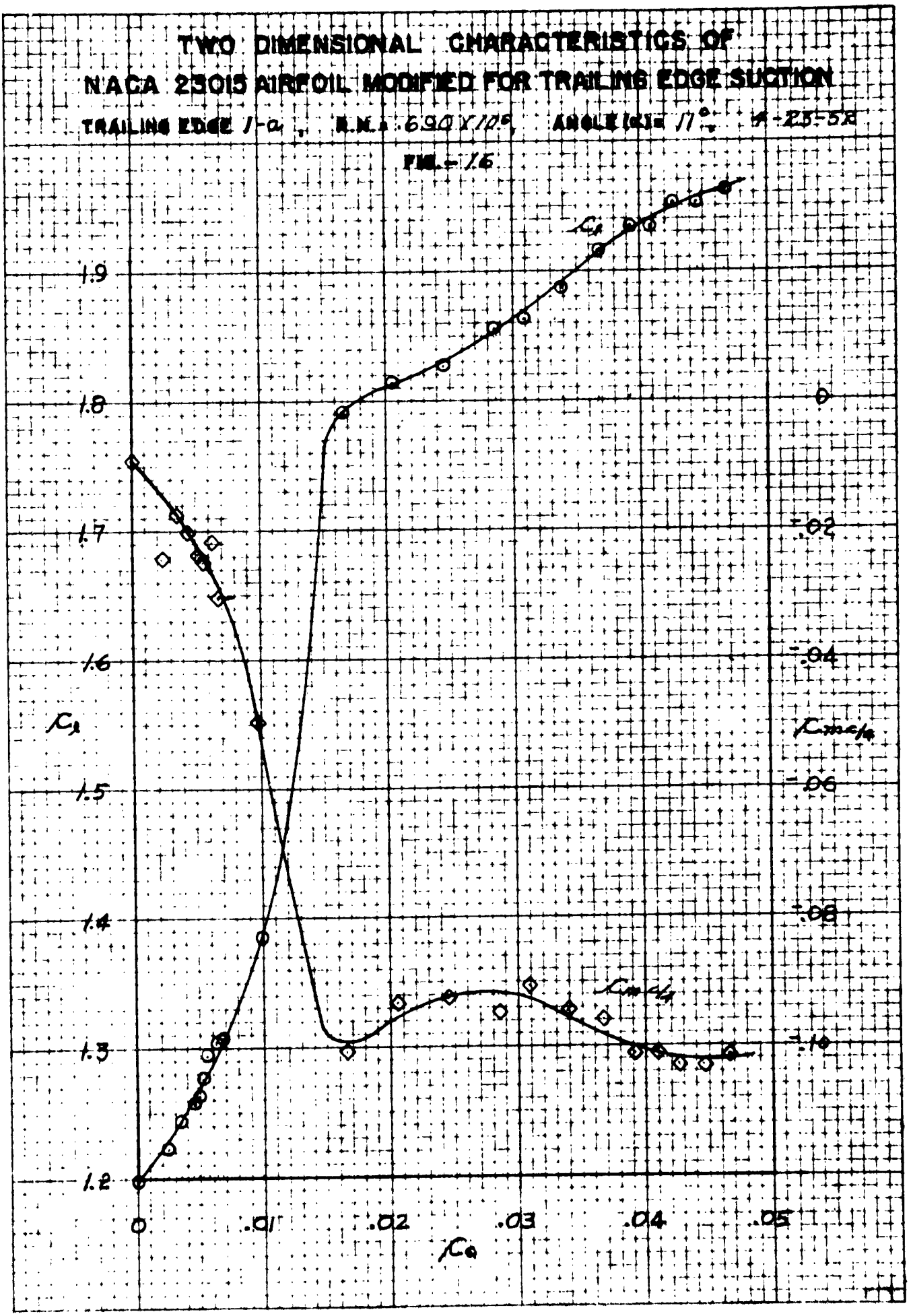

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE f-a, R.N. = 6.90 x 10^6, ANGLE (α)= 7°, 4-23-52
FIG.-14
C_l
$C_{d_w} + R C_q$
$C_m c/4$
C_{d_w}
C_d
C_l
$C_m c/4$
C_q
1.4
1.3
1.2
1.1
1.0
0.9
.07
.08
.09
.10
.11
.12
.13
0
.01
.02
.03
.04
.05

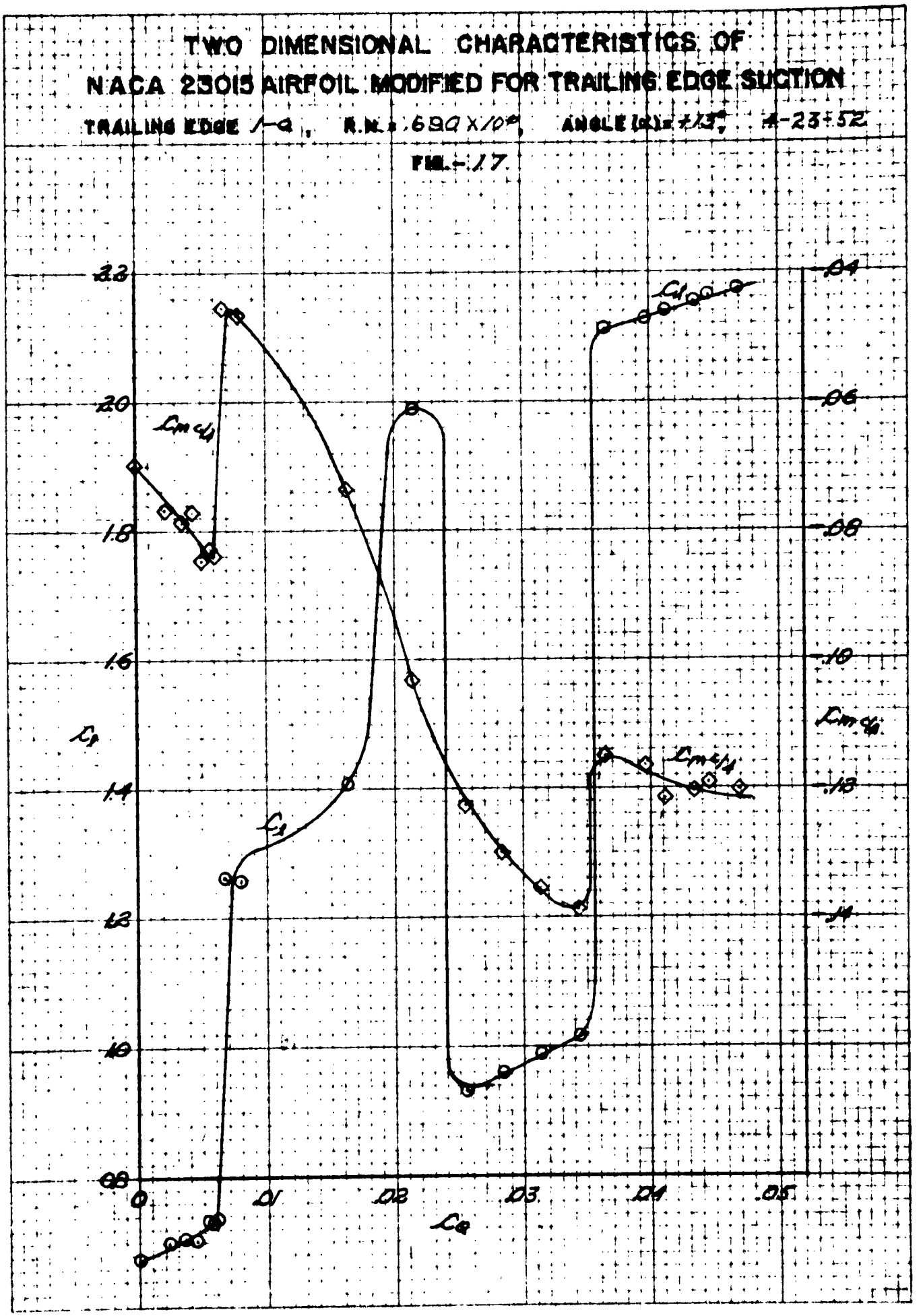

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-a , R.N. = .690 X 10⁶, ANGLE (α) = +9°, 1-23-52
FIG.-15
$c_{dw}+2c_q$
c_l
$c_m c_{l_4}$
c_{dw}
c_d
c_l
c_q
$c_m c_{l_4}$
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
.06
.05
.04
.03
.02
.01
0
.01
.02
.03
.04
.05
-.01
-.02
-.03
-.04
-.05
-.06
-.07
-.08


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-a, R.N. = 6.90 X 10^6, ANGLE (α) = 11°, 4-25-52
FIG. - 16
C_l
C_m
$C_{m_{c/4}}$
C_d
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
0
.01
.02
.03
.04
.05
-.02
-.04
-.06
-.08
-.10

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-a, R.N. = .690 X 10⁶, ANGLE (α) = +13°, 4-23-52

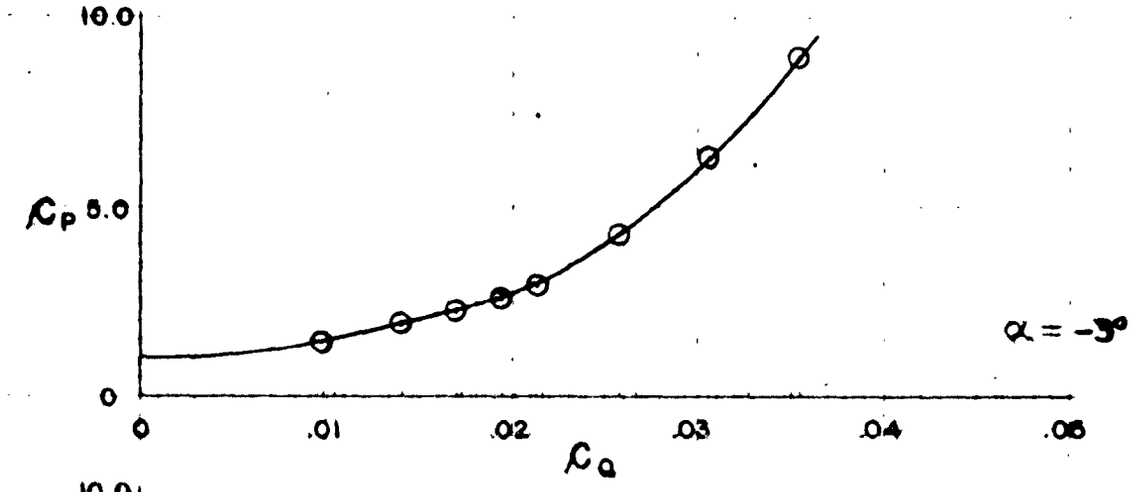
FIG. 17

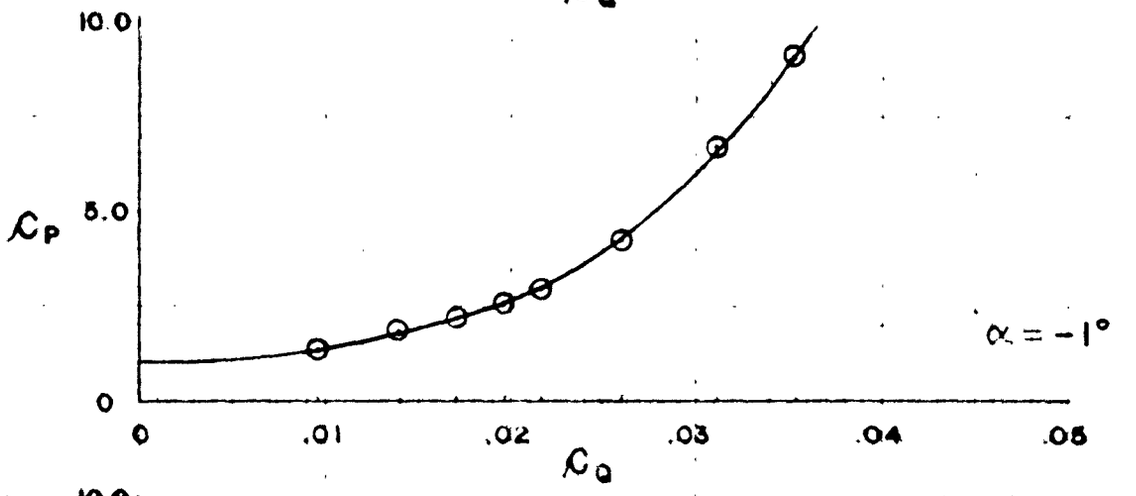


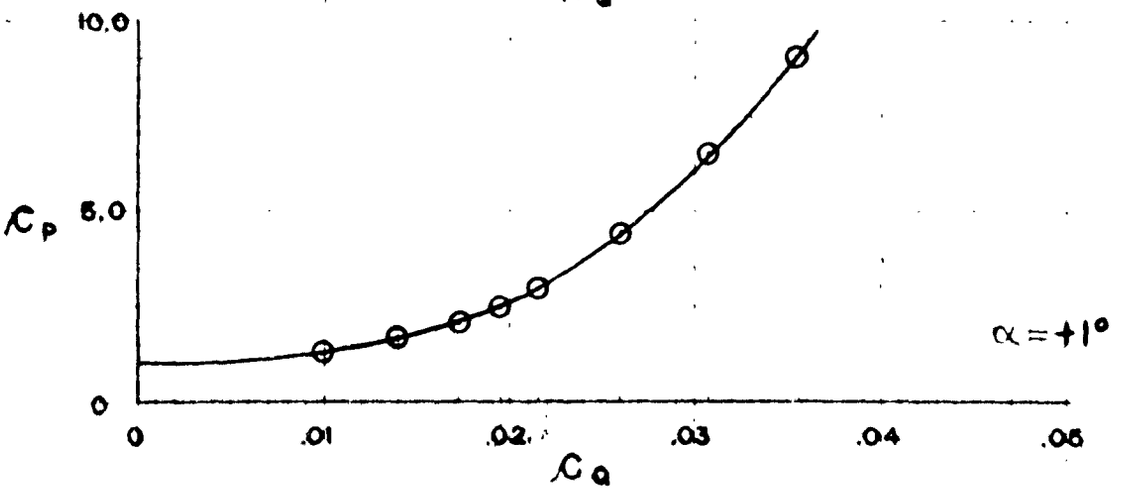
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-a, R.N. = .690 x 10⁶ DATE: 3-11-53

C_p VS. C_Q

FIG. - 18



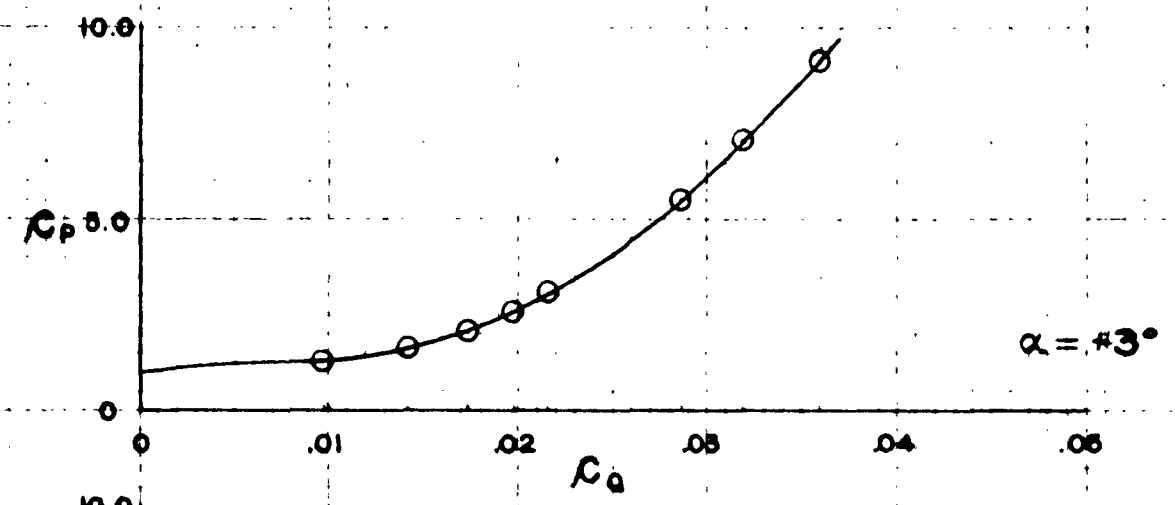


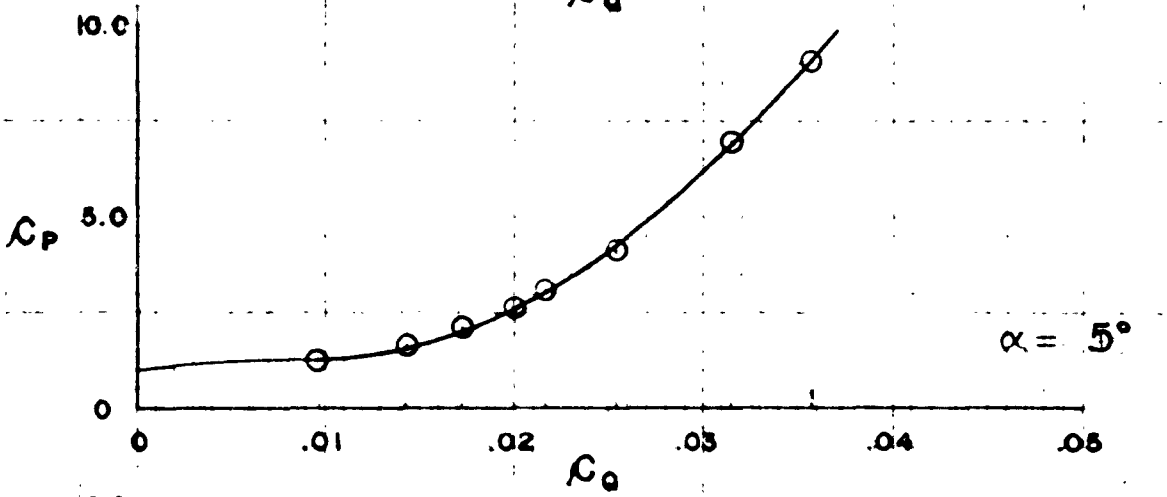


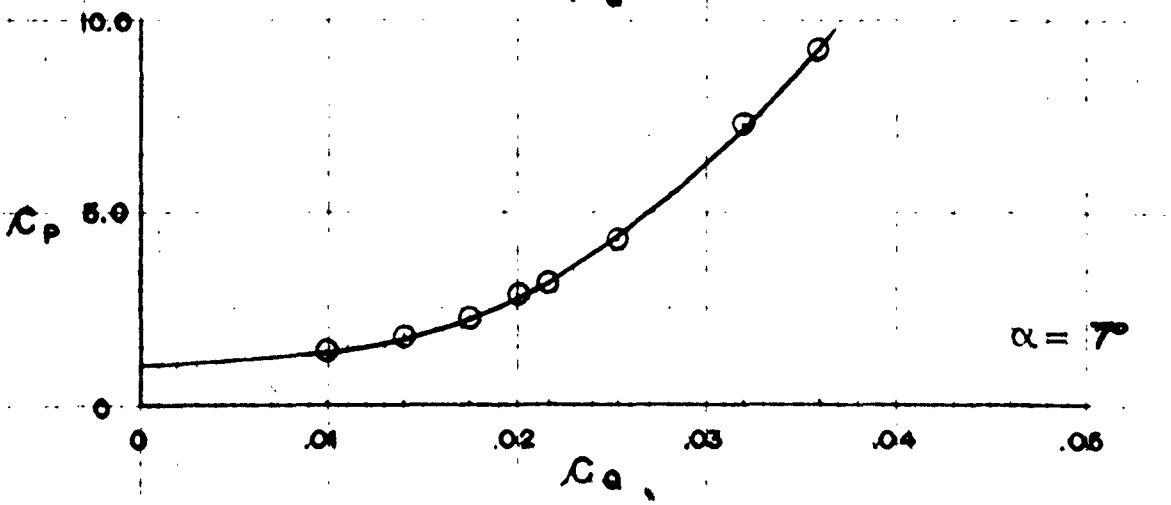
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-a, RN. = .690 x 10⁶ DATE: 3-11-53

C_p VS. C_q

FIG. - 19



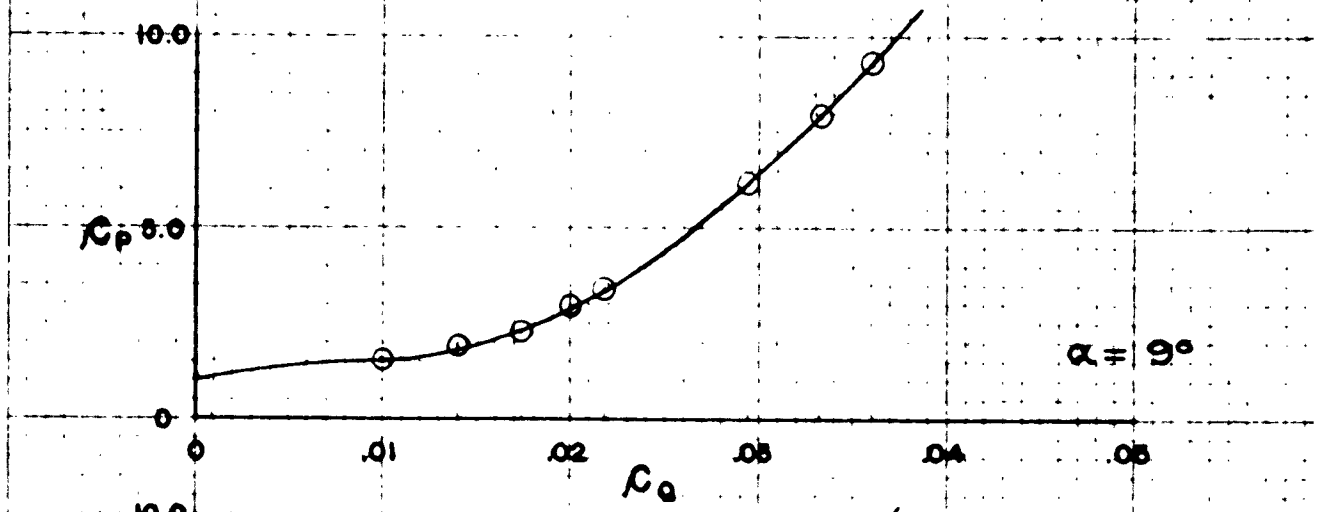


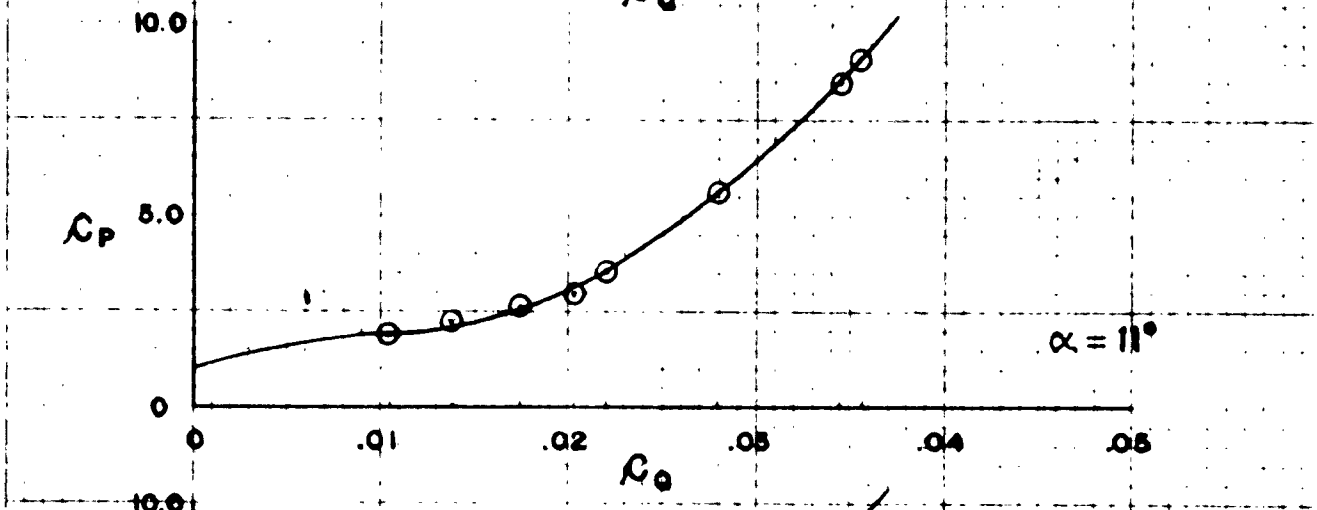


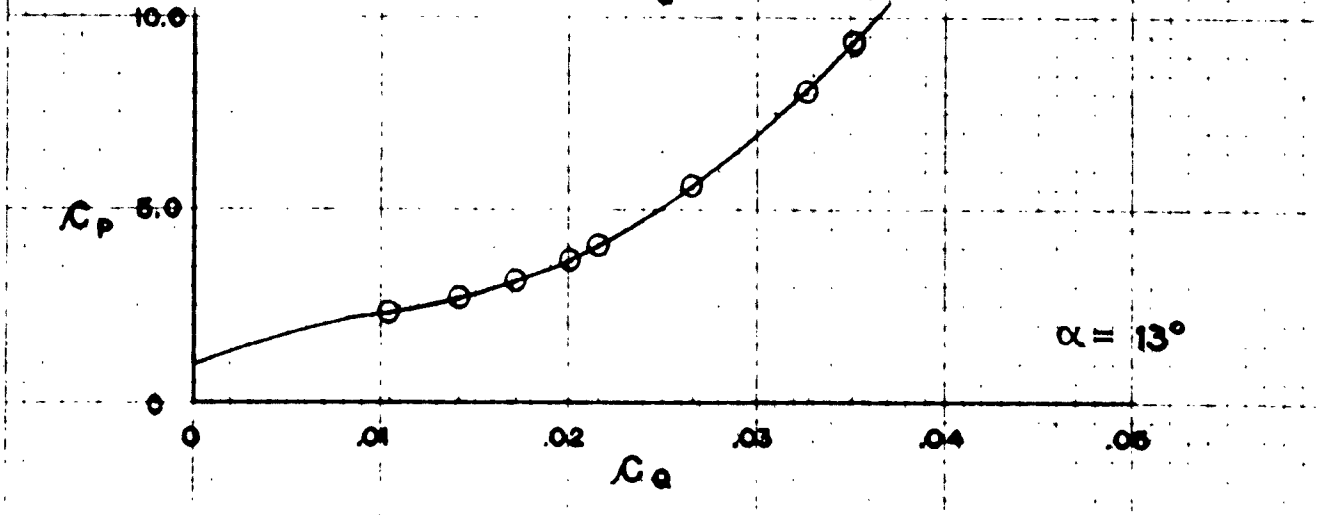
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-a, RN.= 690 X 10⁶ DATE : 3-11-53

C_p VS. C_Q

FIG.- 20







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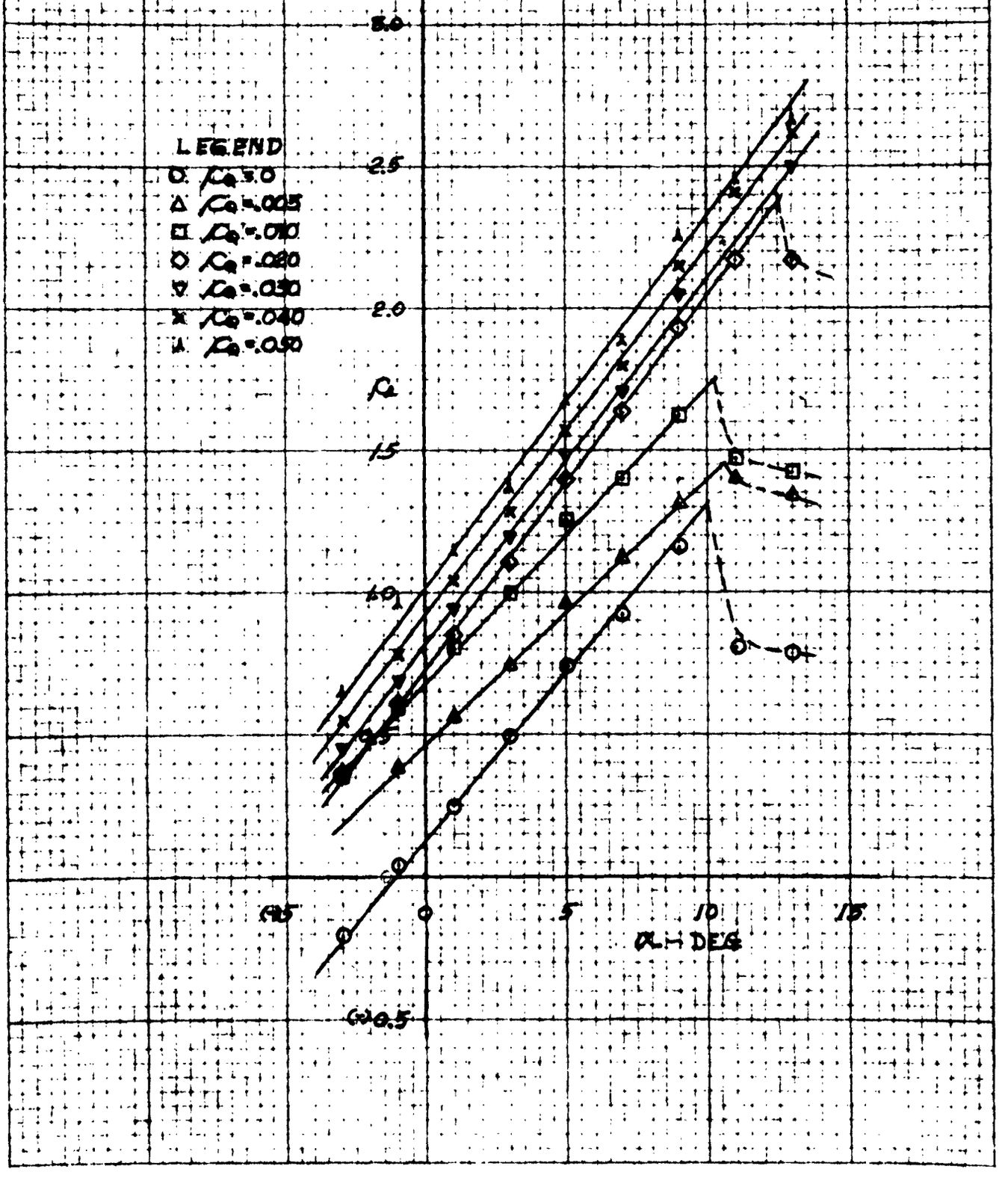
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

10-30-52

TRAILING EDGE I-b, R.N. = 6.47 X 10^6.

C_l VS. α FOR SEVERAL VALUES OF C_q

FIG.-21

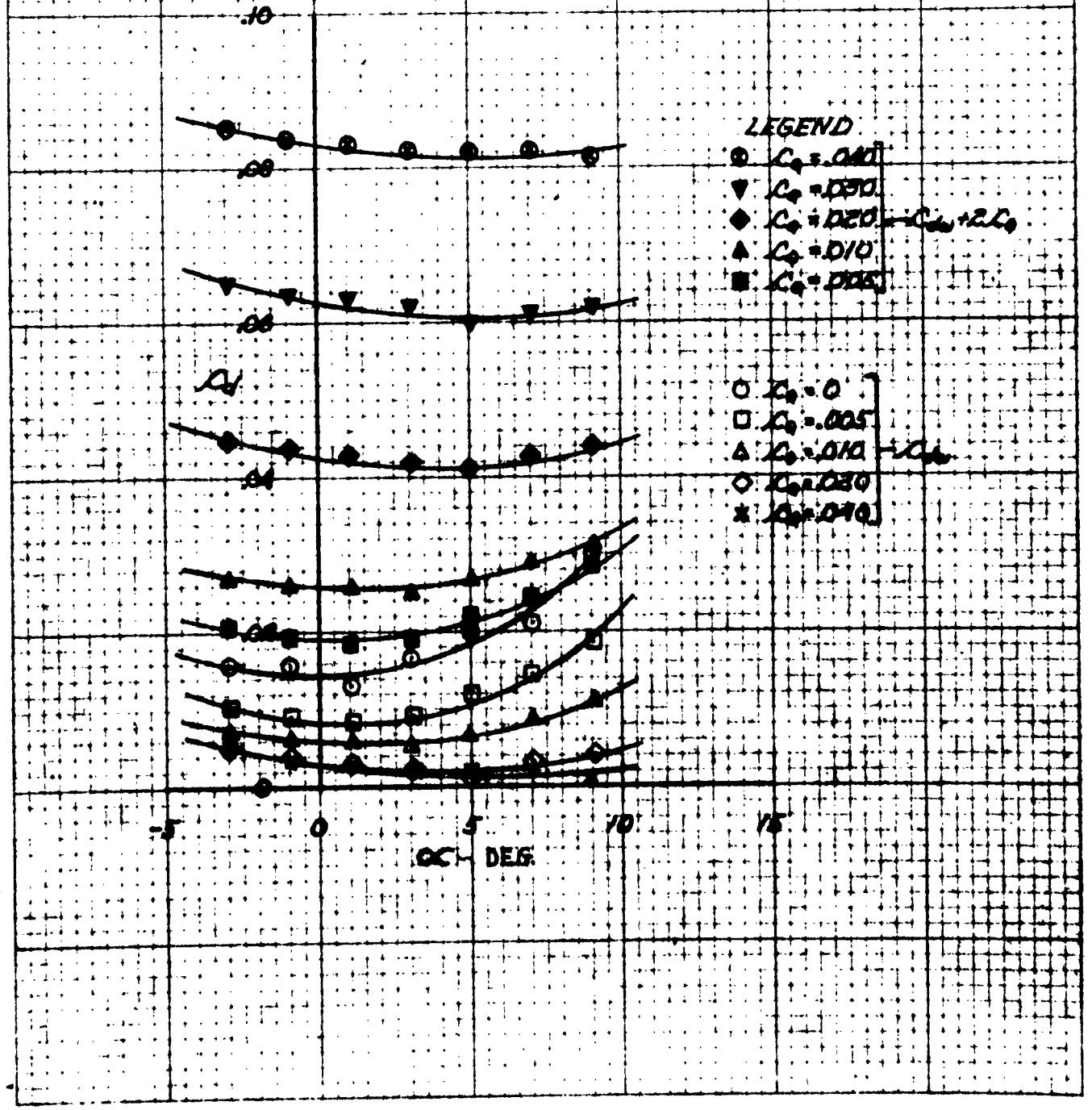


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-Δ , R.N. = 6.47 X 10⁶ 4-30-52

C_{d_w} AND $[C_{d_w} + 2C_{c_q}]$ vs. α FOR SEVERAL VALUES OF C_q

FIG.- 22

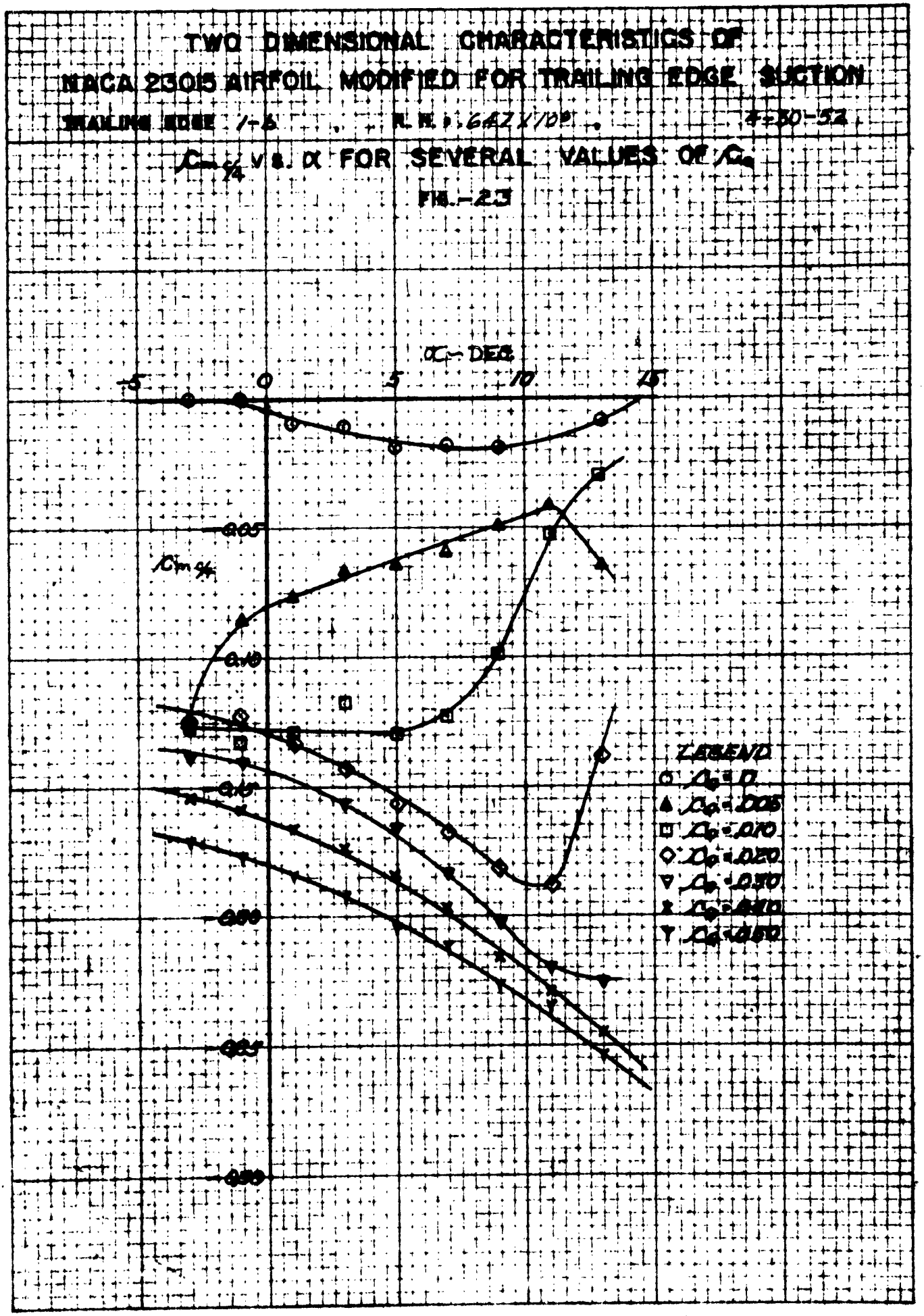


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6 , R.N. = .6A2 X 10⁶ , 4-30-52

$C_{m_{c/4}}$ vs. α FOR SEVERAL VALUES OF C_Q

FIG.-23



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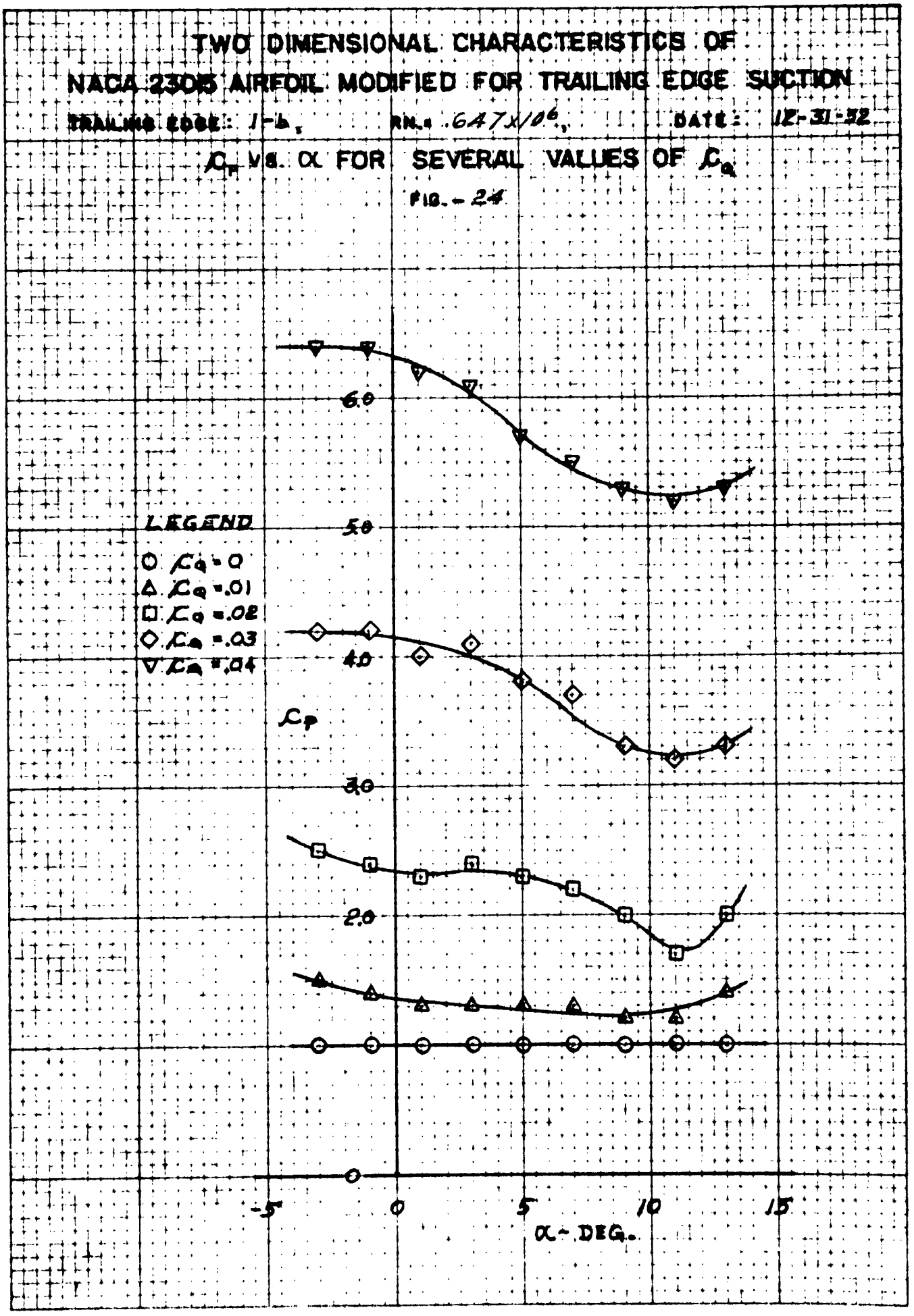
10 X 10 to the inch

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 2305 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: 1-b, RN. = .647 x 10^6, DATE: 12-31-52

C_P vs. α FOR SEVERAL VALUES OF C_Q

FIG. - 24

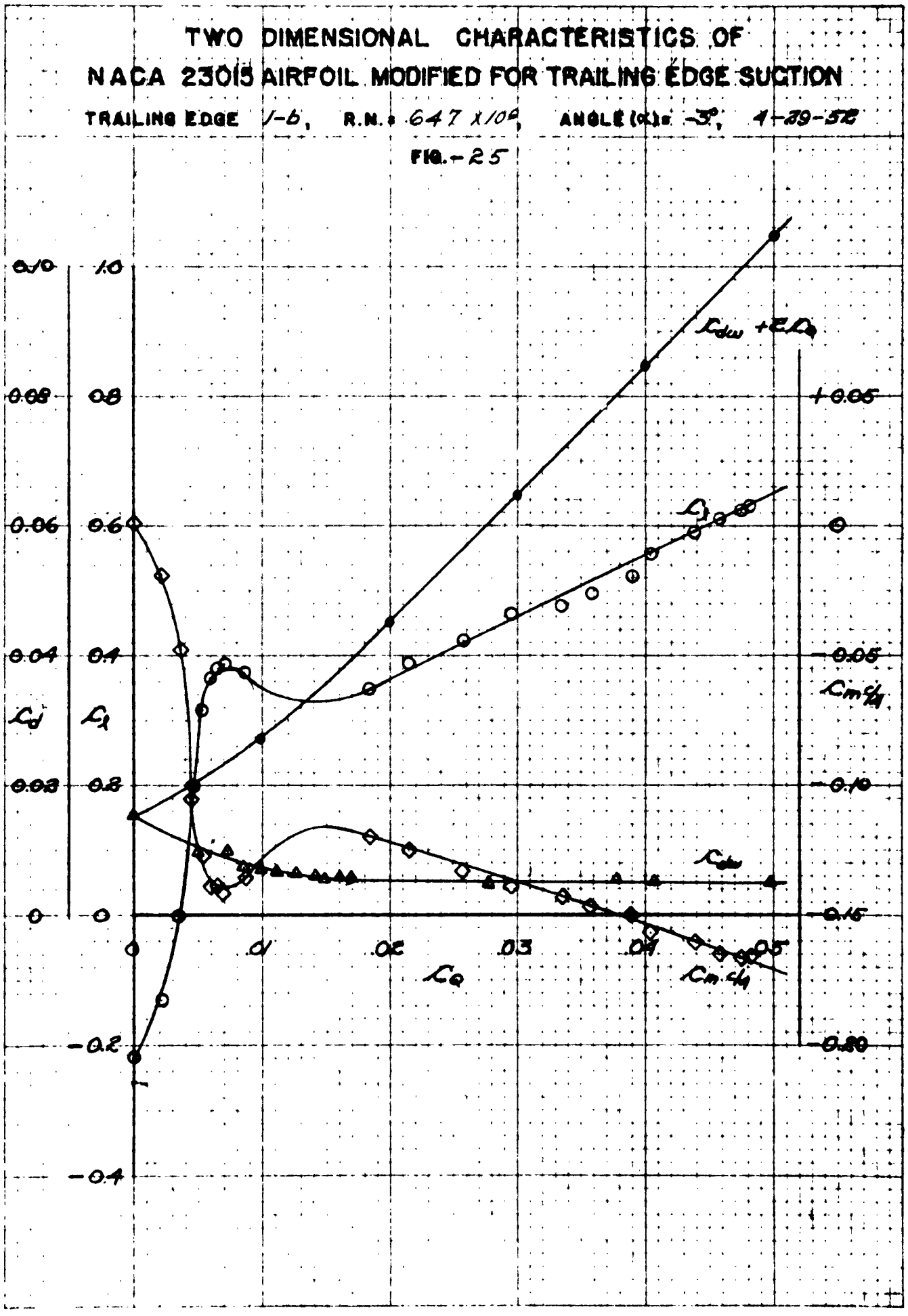


KEUFFEL & ESSER CO
10 X 10 to the inch

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6, R.N. = 647 X 10⁶, ANGLE (α) = -3°, 4-29-52

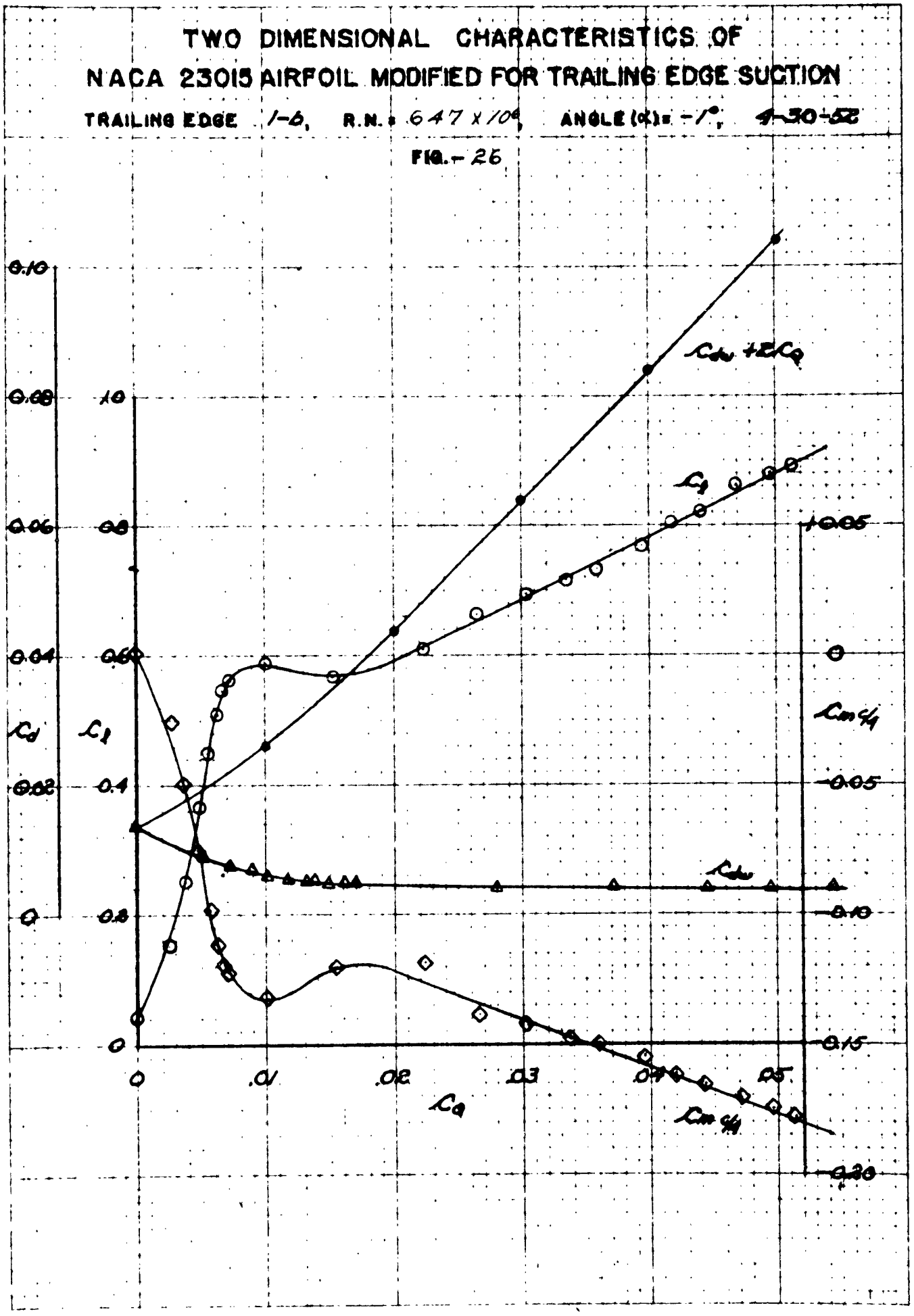
FIG. - 25



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6, R.N. = 6.47 x 10^6, ANGLE (α) = -1°, 4-30-52

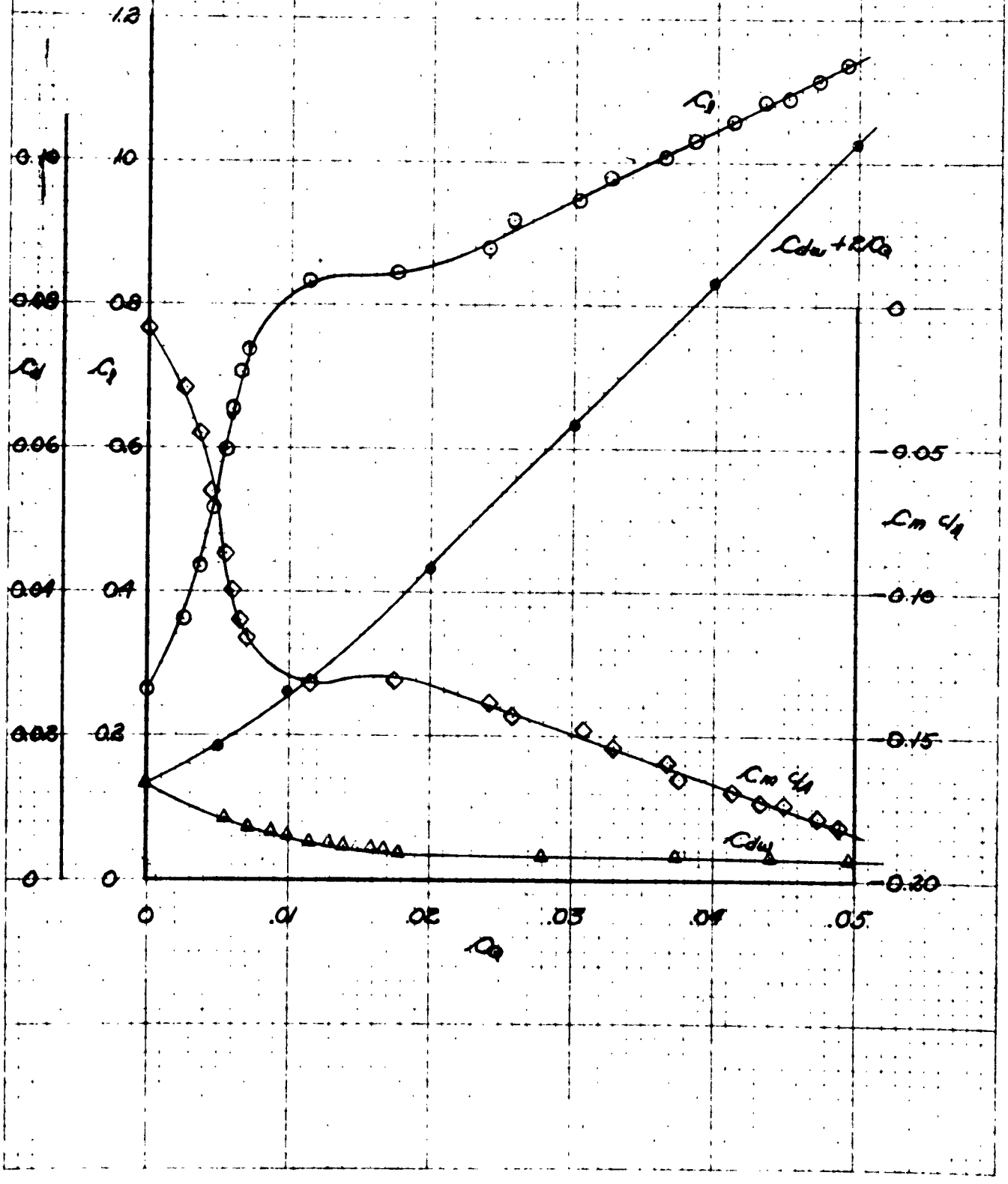
FIG. - 25



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6, R.N. = .647 X 10⁶, ANGLE (α) = +1°, 4-30-52

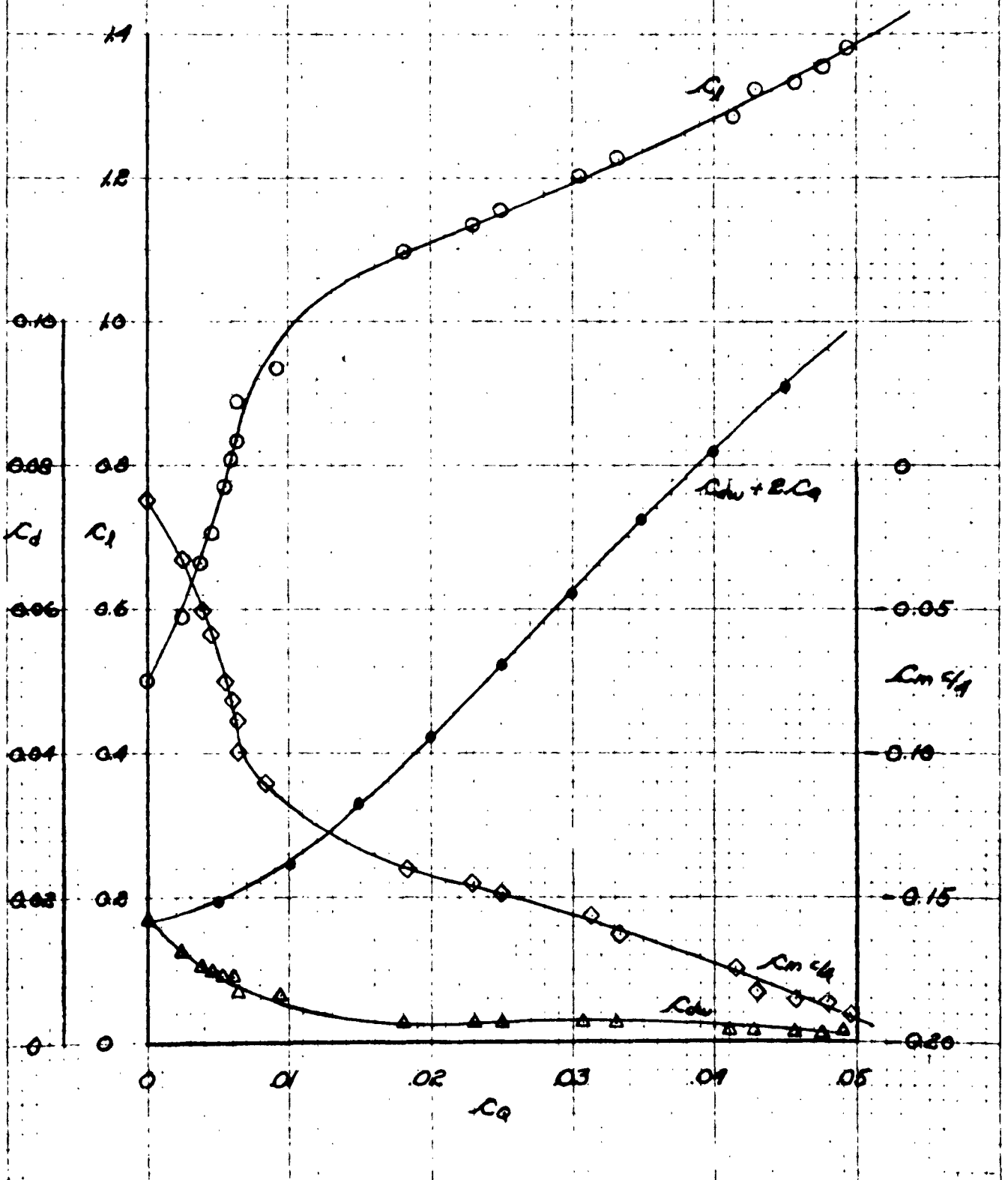
FIG. - 27



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6, R.N. = 647 X 10⁶, ANGLE (α) = +3°, 4-30-52

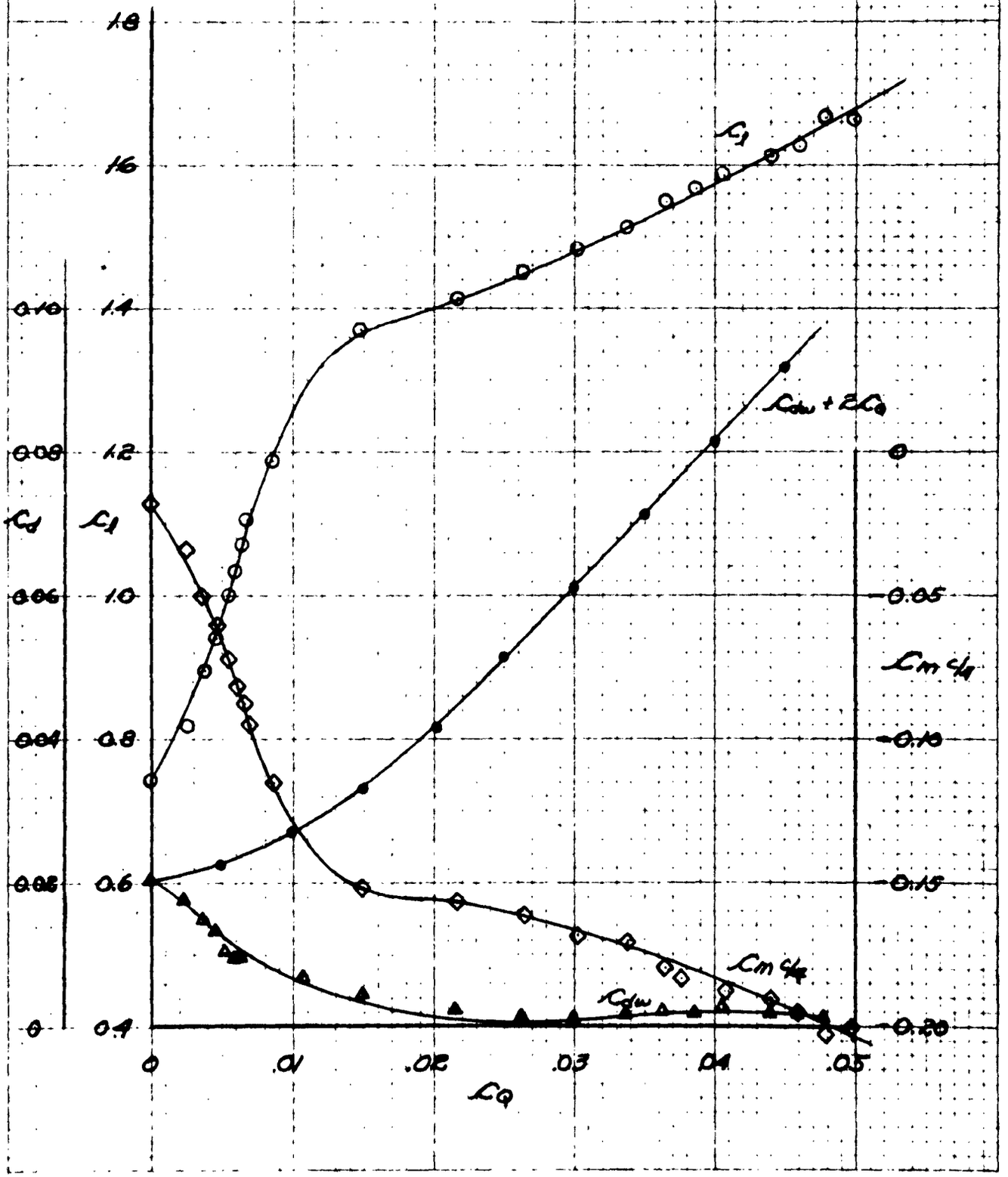
FIG. - 28

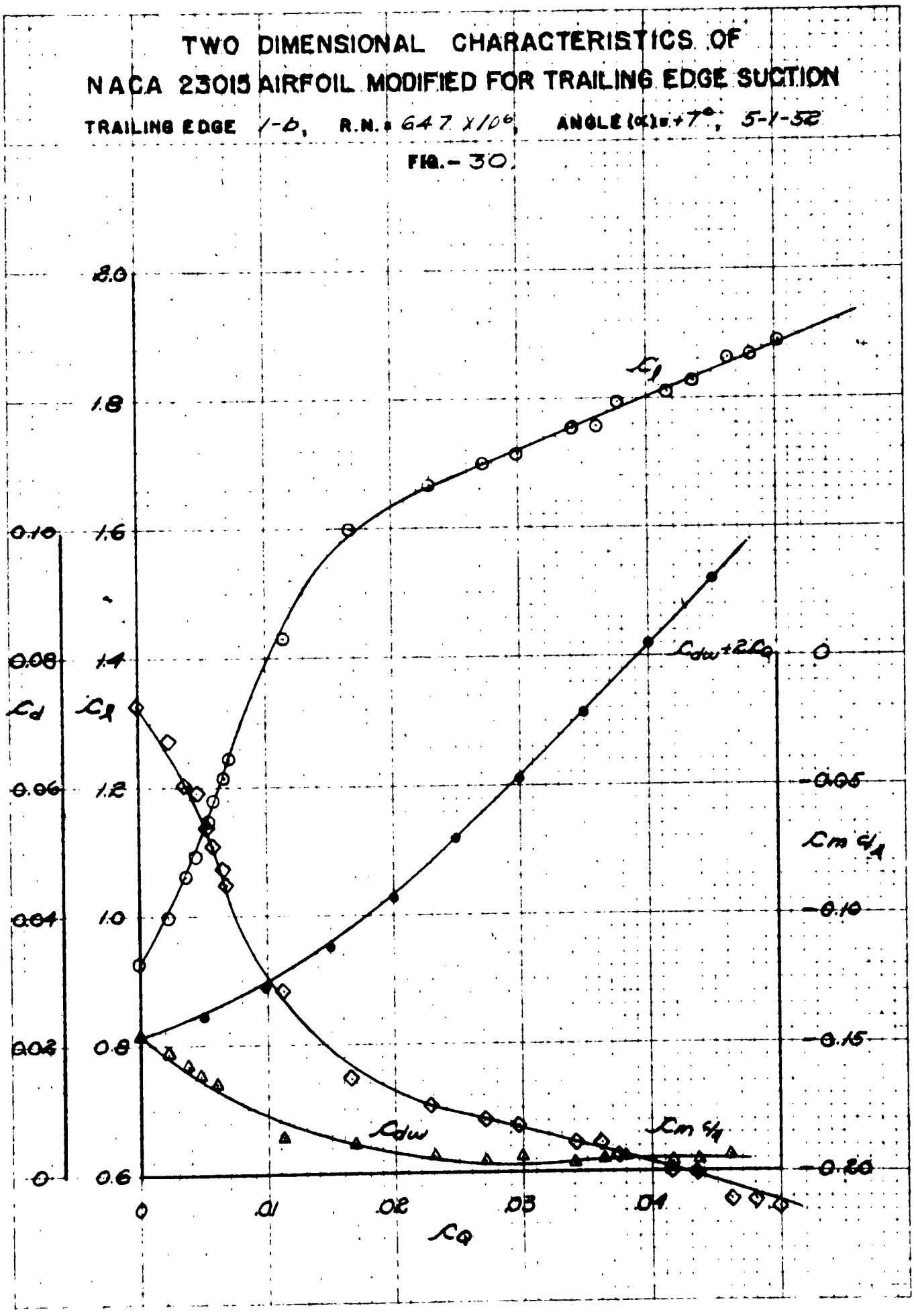


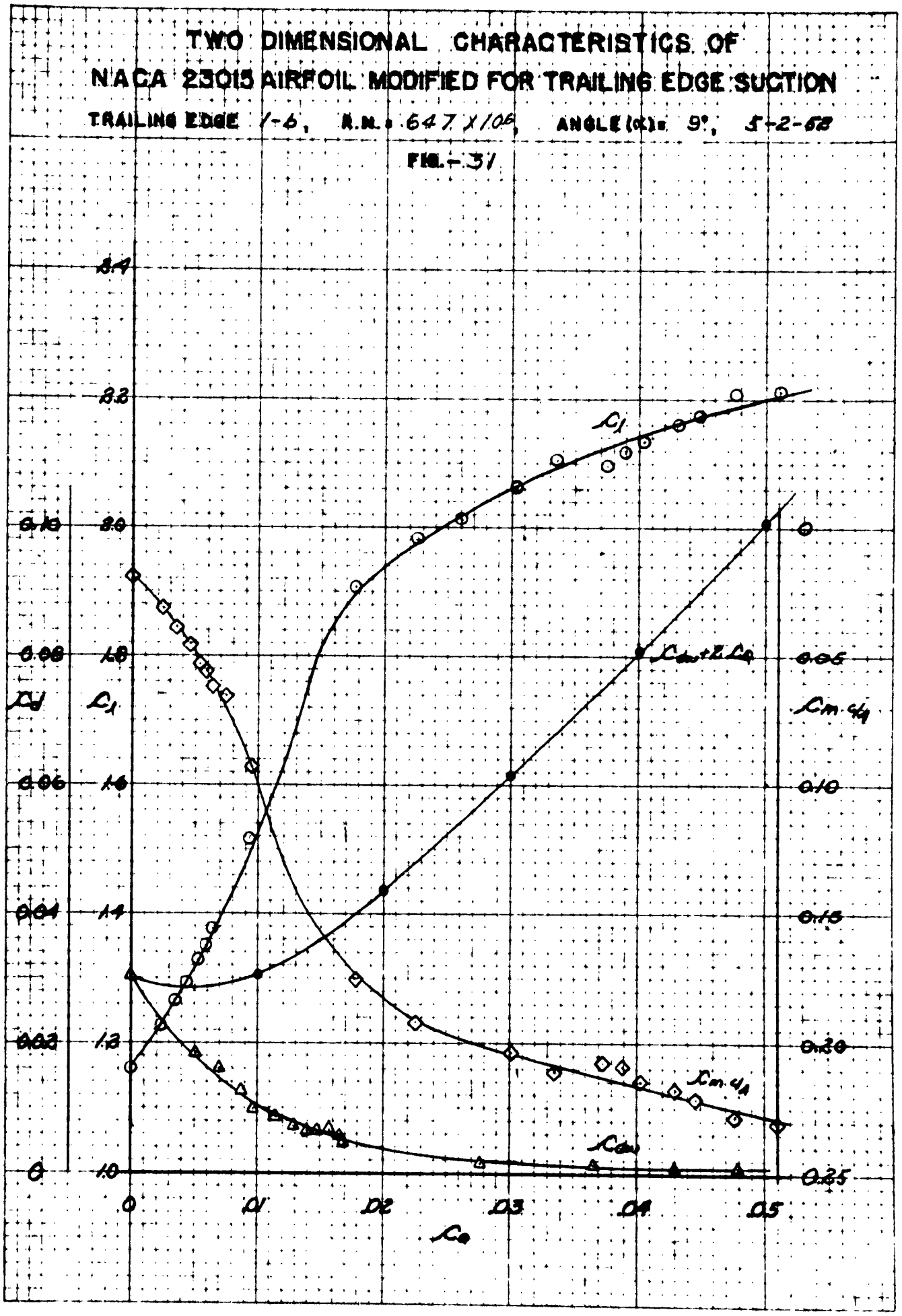
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-6, R.N. = .647 X 10⁶, ANGLE (α) = +5°, 5-1-52

FIG. - 29



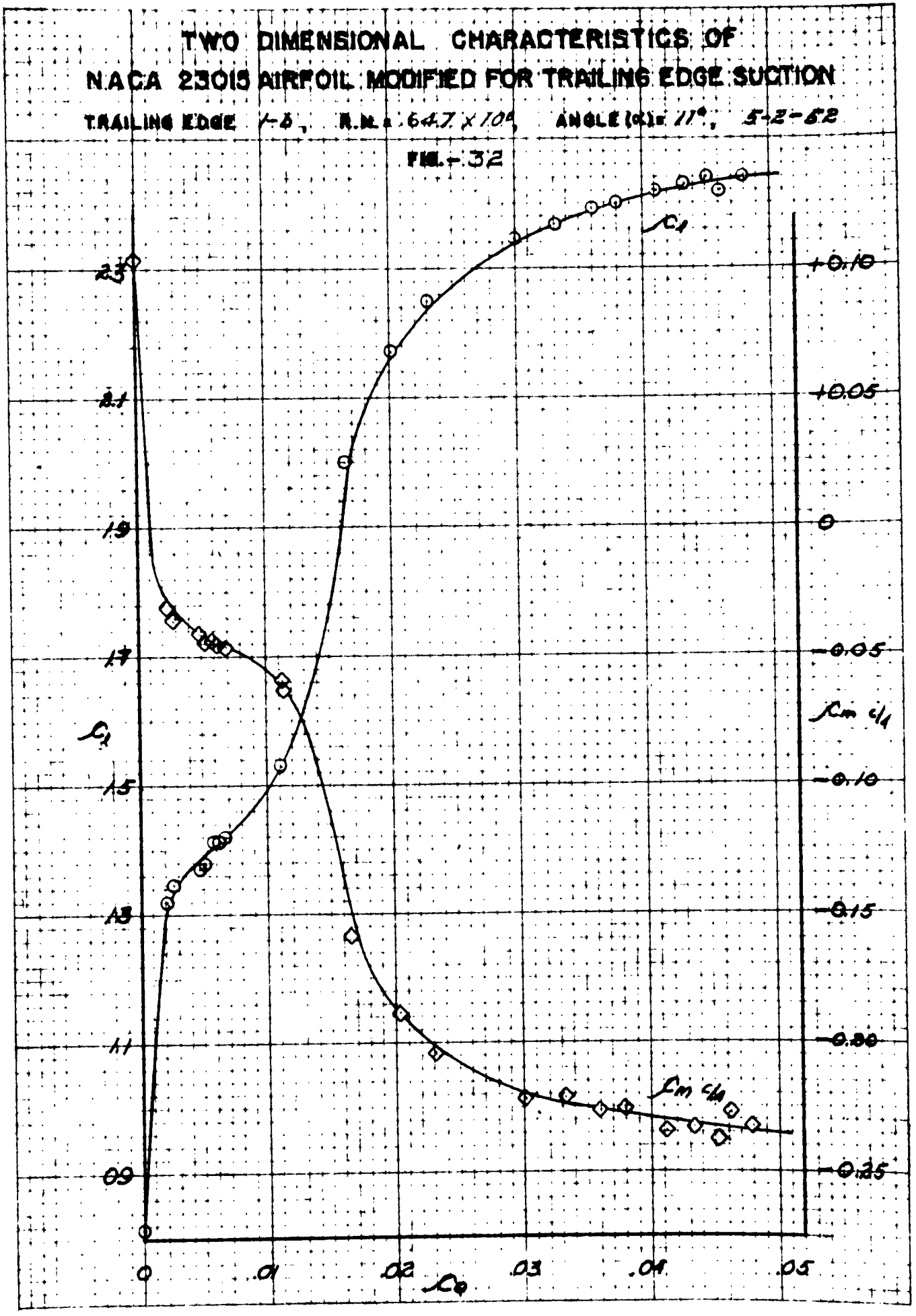

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-D, R.N. = 647 X10⁶, ANGLE (α)= +7°, 5-1-52
FIG.- 30
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.10
0.08
0.06
0.04
0.02
0
c_d
c_l
$c_{dw}+2c_q$
c_{dw}
$c_{m\,c/4}$
0
-0.05
-0.10
-0.15
-0.20
0
.01
.02
.03
.04
c_q


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-6, R.N. = 647 X 10⁶, ANGLE (α) = 9°, 5-2-68
FIG. - 31
C_l
$C_{m_{c/4}} + \frac{1}{2} C_d$
$C_{m_{c/4}}$
$C_{m_{LE}}$
C_d
C_l
$C_{m_{c/4}}$
$C_{m_{LE}}$
C_d
α
0.4
0.2
0
-0.2
2.0
1.8
1.6
1.4
1.2
1.0
0.08
0.06
0.04
0.02
0
0.05
0.10
0.15
0.20
0.25
0
0.1
0.2
0.3
0.4
0.5

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-5, R.N. = 6.47 x 10⁶, ANGLE (α) = 11°, 5-2-52

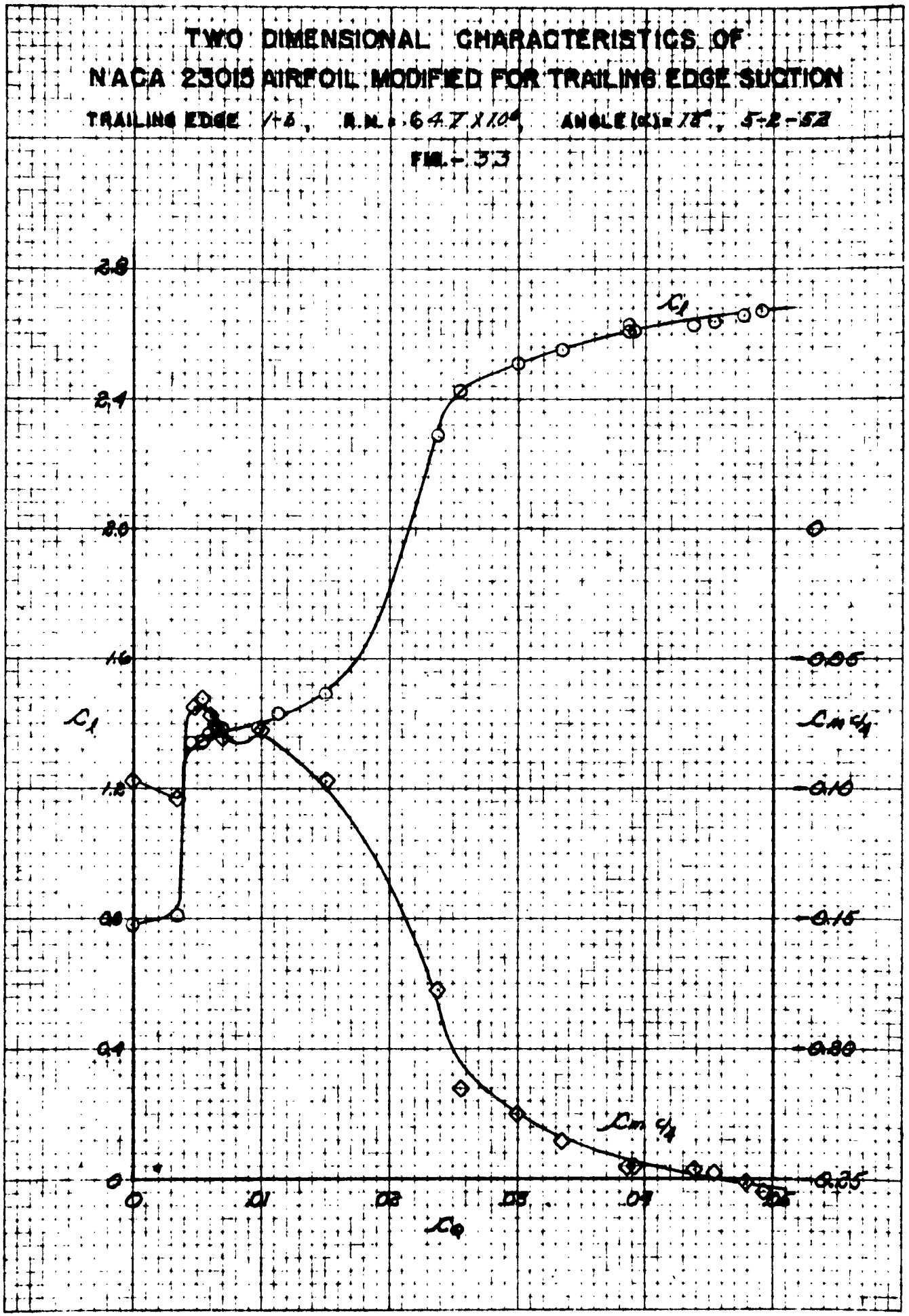
FIG. - 32



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1/4, R.N. = 6.47 X 10⁶, ANGLE (α) = 18°, 5-2-52

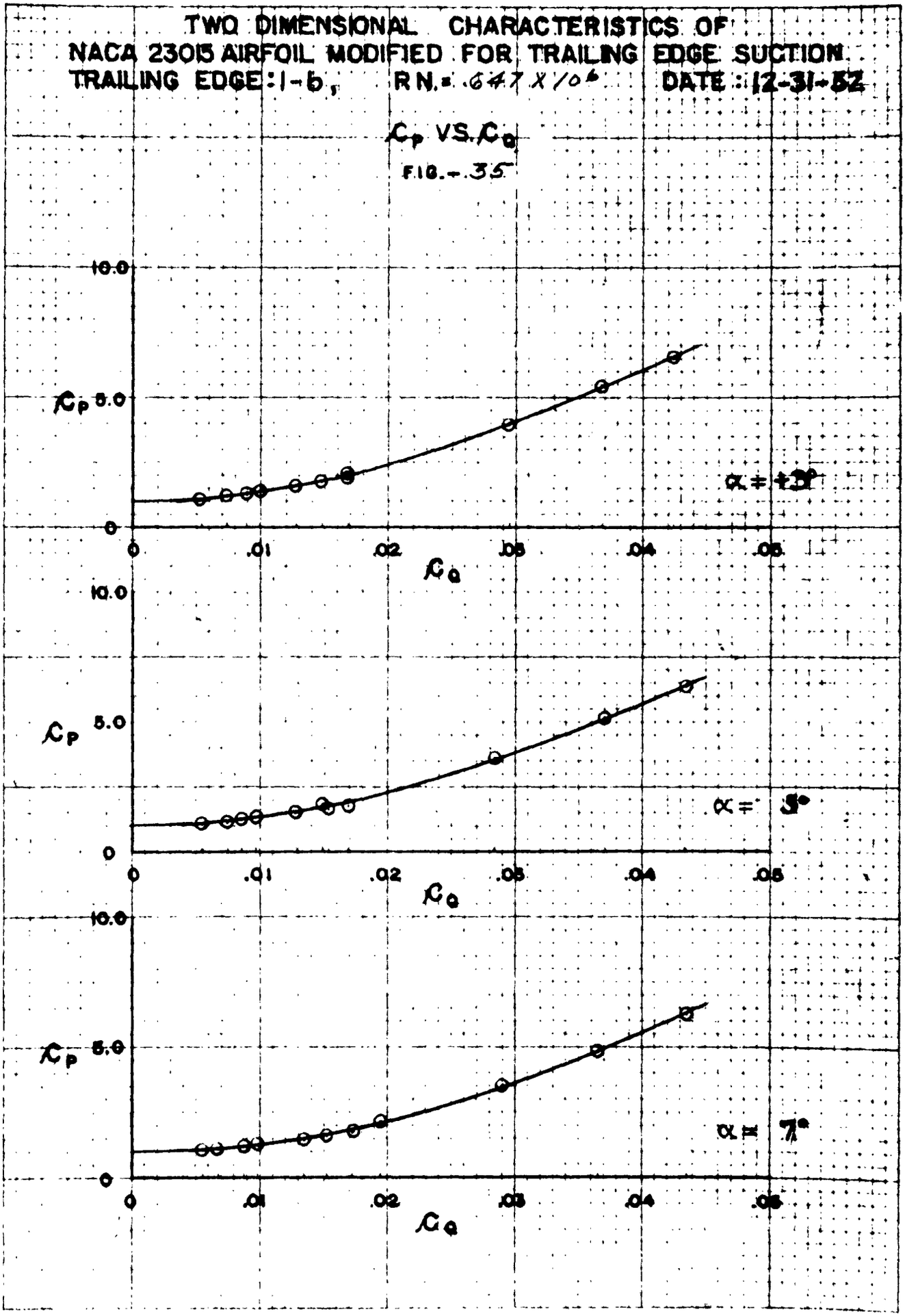
FIG. - 33



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION.
TRAILING EDGE: 1-b, R.N. = .647 X 10⁶ DATE: 12-31-52

C_p VS. C_Q

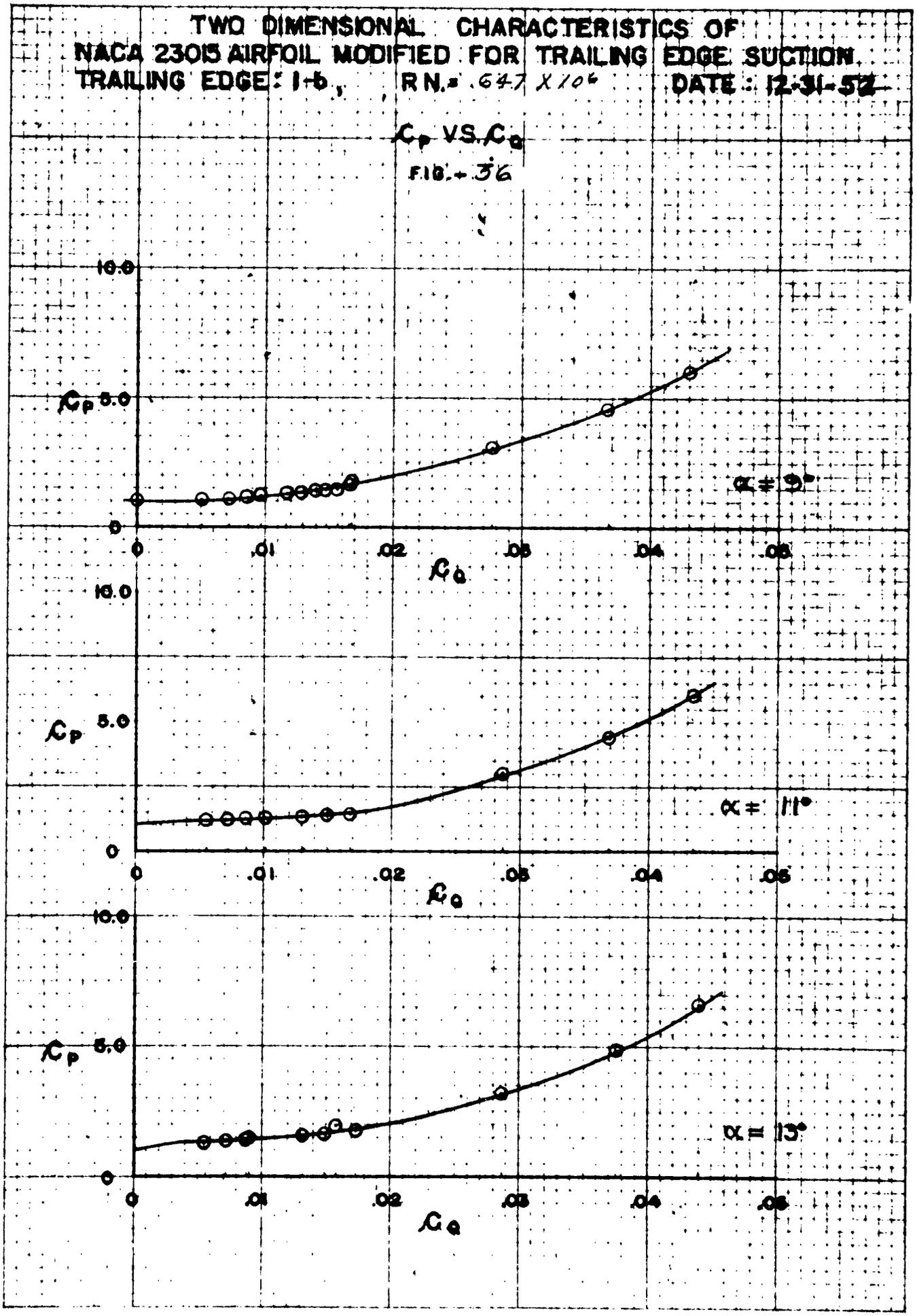
FIG. - 35



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION.
TRAILING EDGE: 1-6, R.N. = .647 X 10⁶ DATE: 12-31-52

C_p VS. C_Q

FIG. - 36

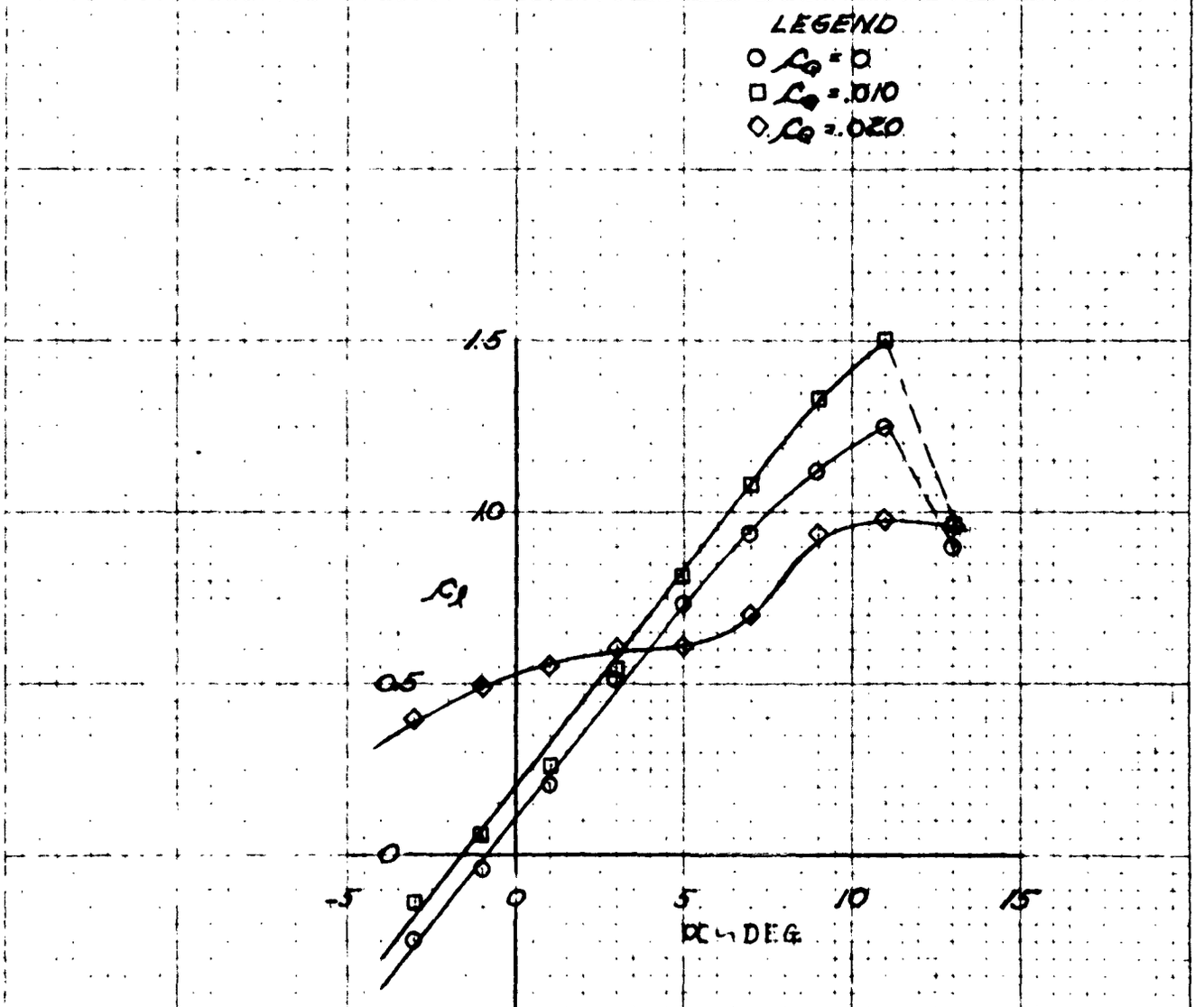


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C, R. N. = .561 X 10^6, 5-7-52

C_l VS. α FOR SEVERAL VALUES OF C_Q

FIG.-37

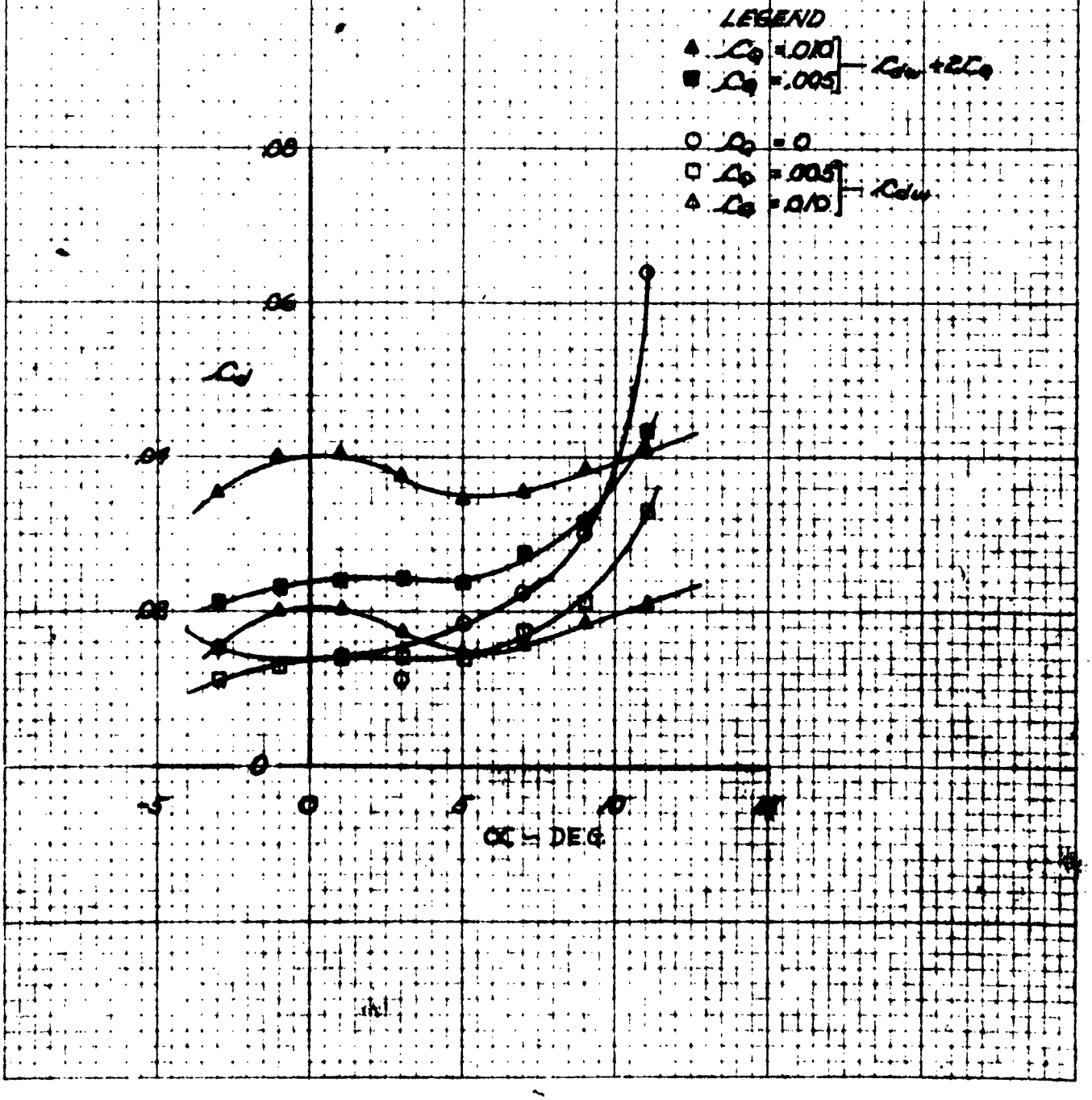


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C , R. N. = 5.61 x 10⁶ 5-7-52

C_{d_w} AND $(C_{d_w} + 2C_q)$ vs. α FOR SEVERAL VALUES OF C_q

FIG.-30



359-5 KEUFFEL & ESSER CO

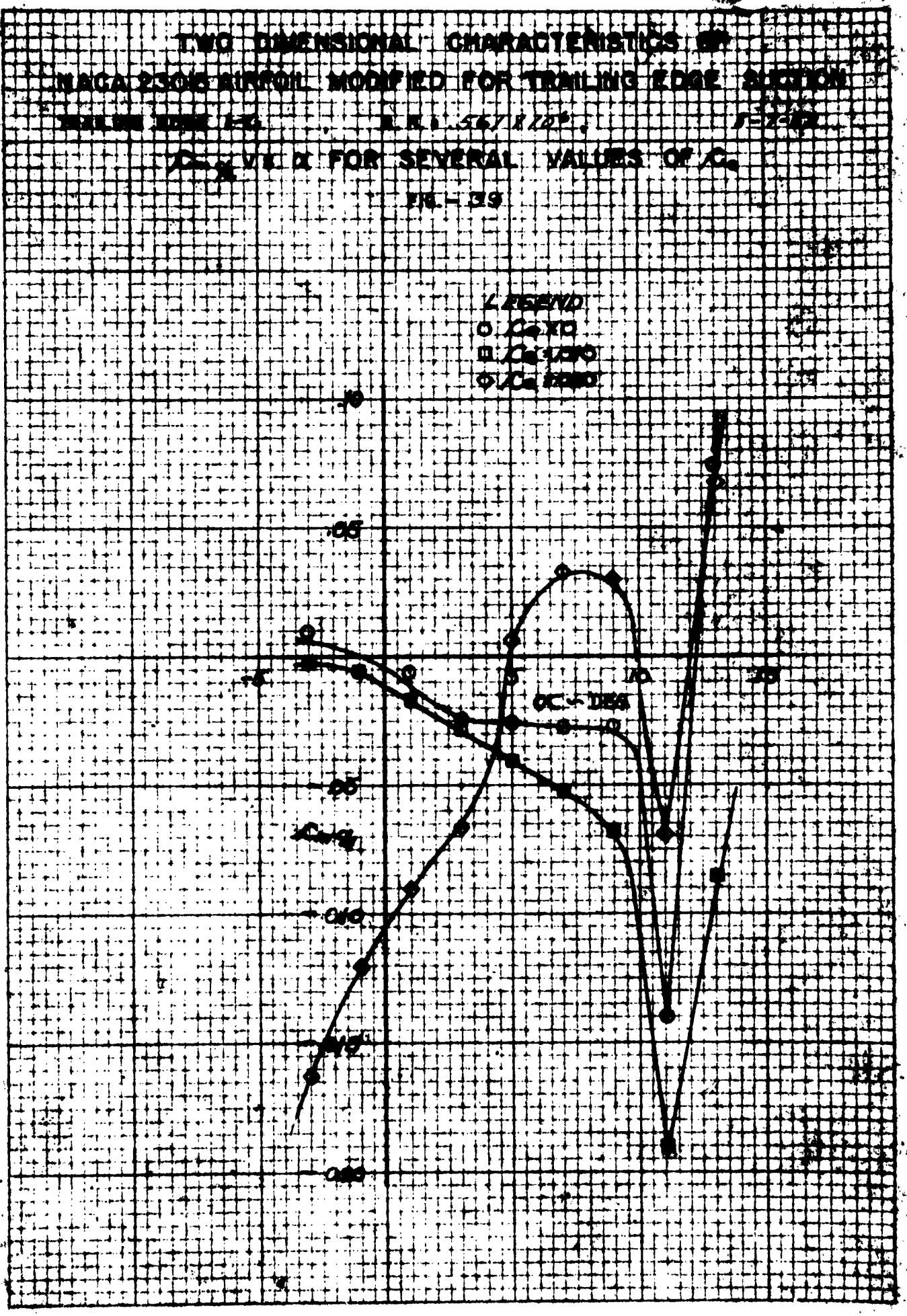
TWO DIMENSIONAL CHARACTERISTICS OF

NACA 2306 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

BOUNDARY LAYER CONTROL R.N. = .567 X 10⁶ ; f = 12.5%

C_L - α VS α FOR SEVERAL VALUES OF C_q

FIG. - 39



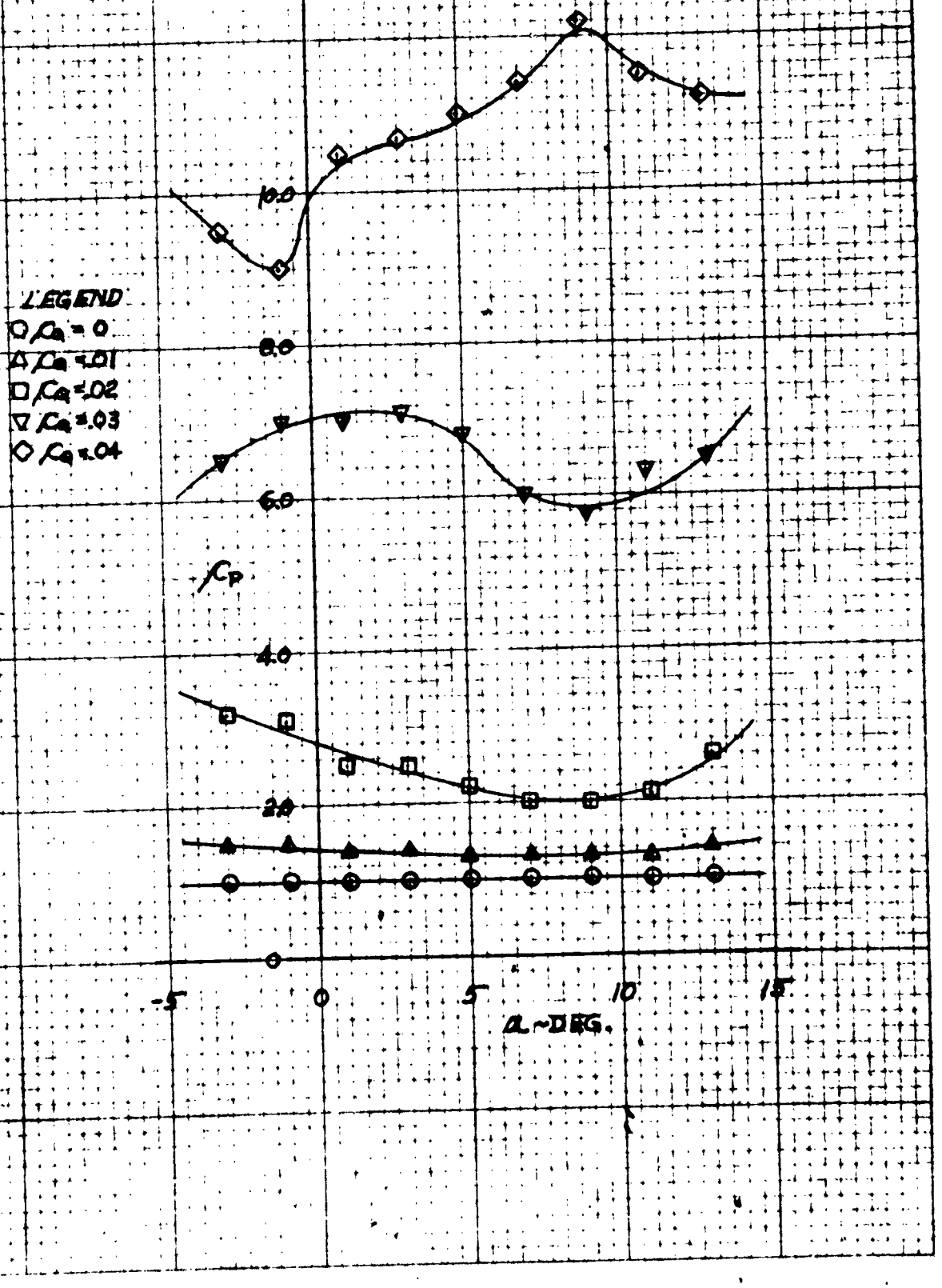
KEUFFEL & ESSER CO.

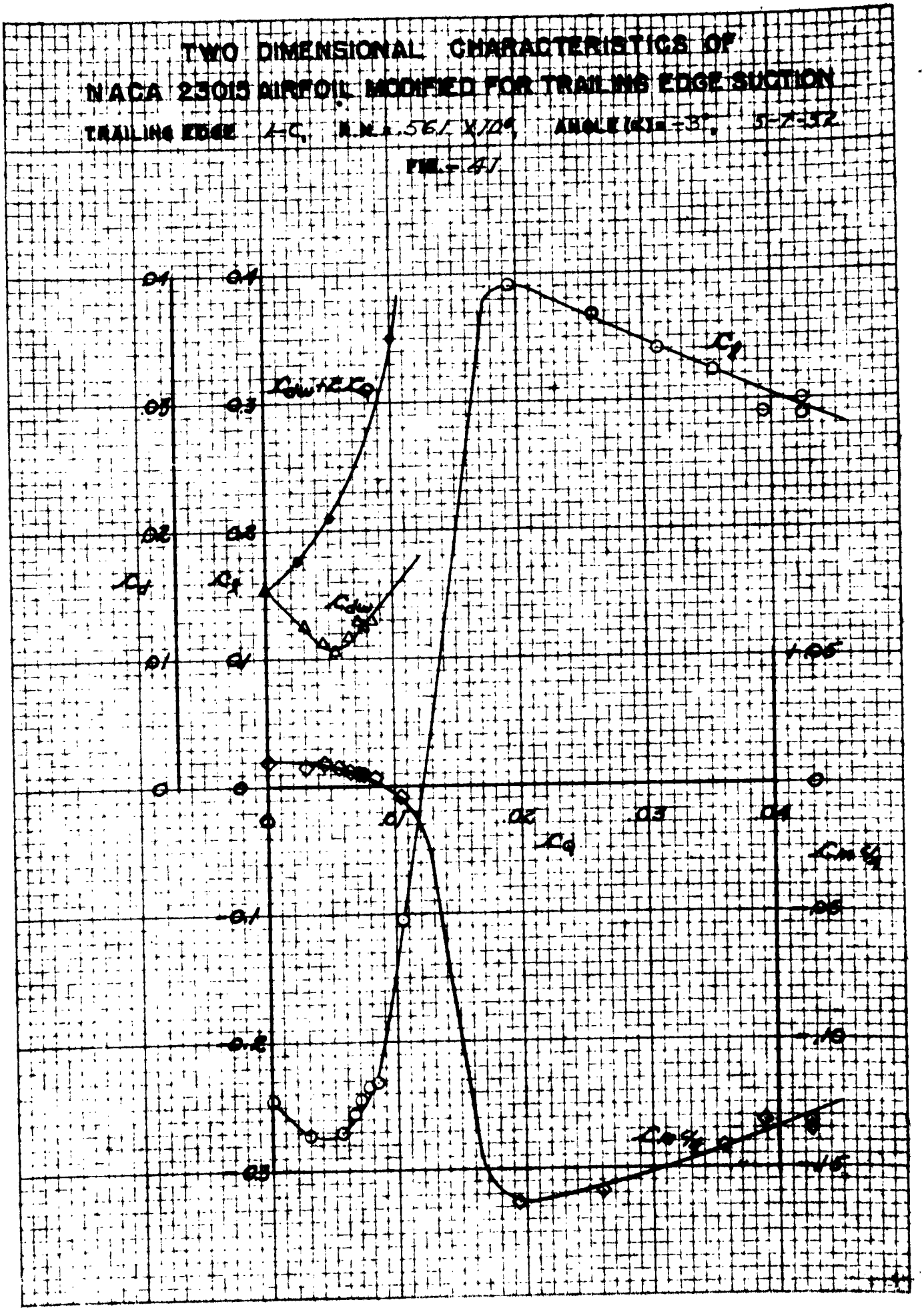
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: 1-C, RN = .561 X 10^6, DATE: 2-16-53

C_p vs. α FOR SEVERAL VALUES OF C_q

FIG. - 40

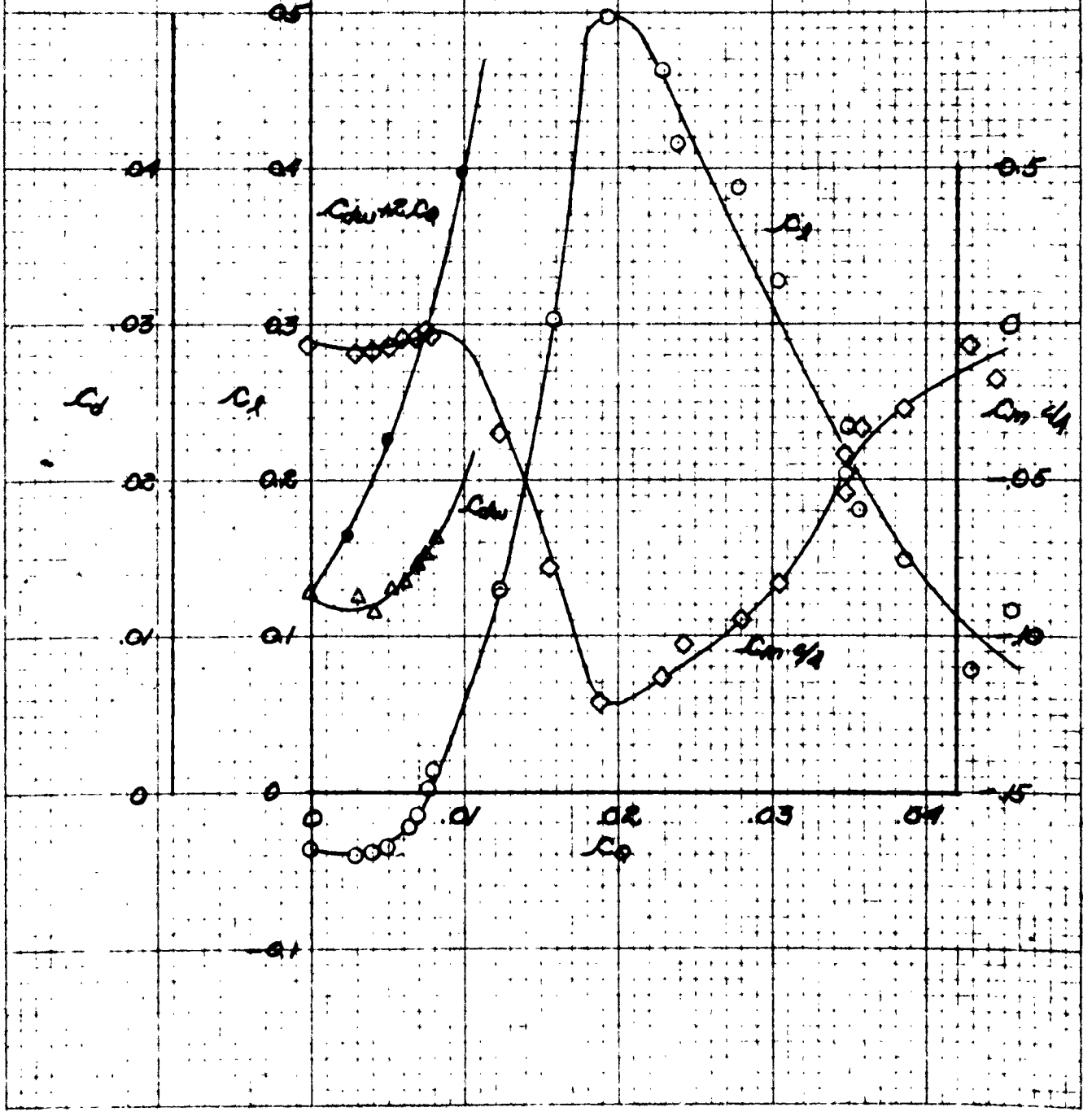



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-C, R.N. = .561 X10⁶, ANGLE (K)= -3°, 5-7-52
FIG. - 41
C_l
$C_{dw}+C_{do}$
C_{dw}
C_d
C_m c/4
.1
.2
.3
.4
.05
-.1
-.2
-.3
-.05
-.10
-.15

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE V-C, R.N. = .561 X10^6, ANGLE (α_1) = -1°, 5-7-52

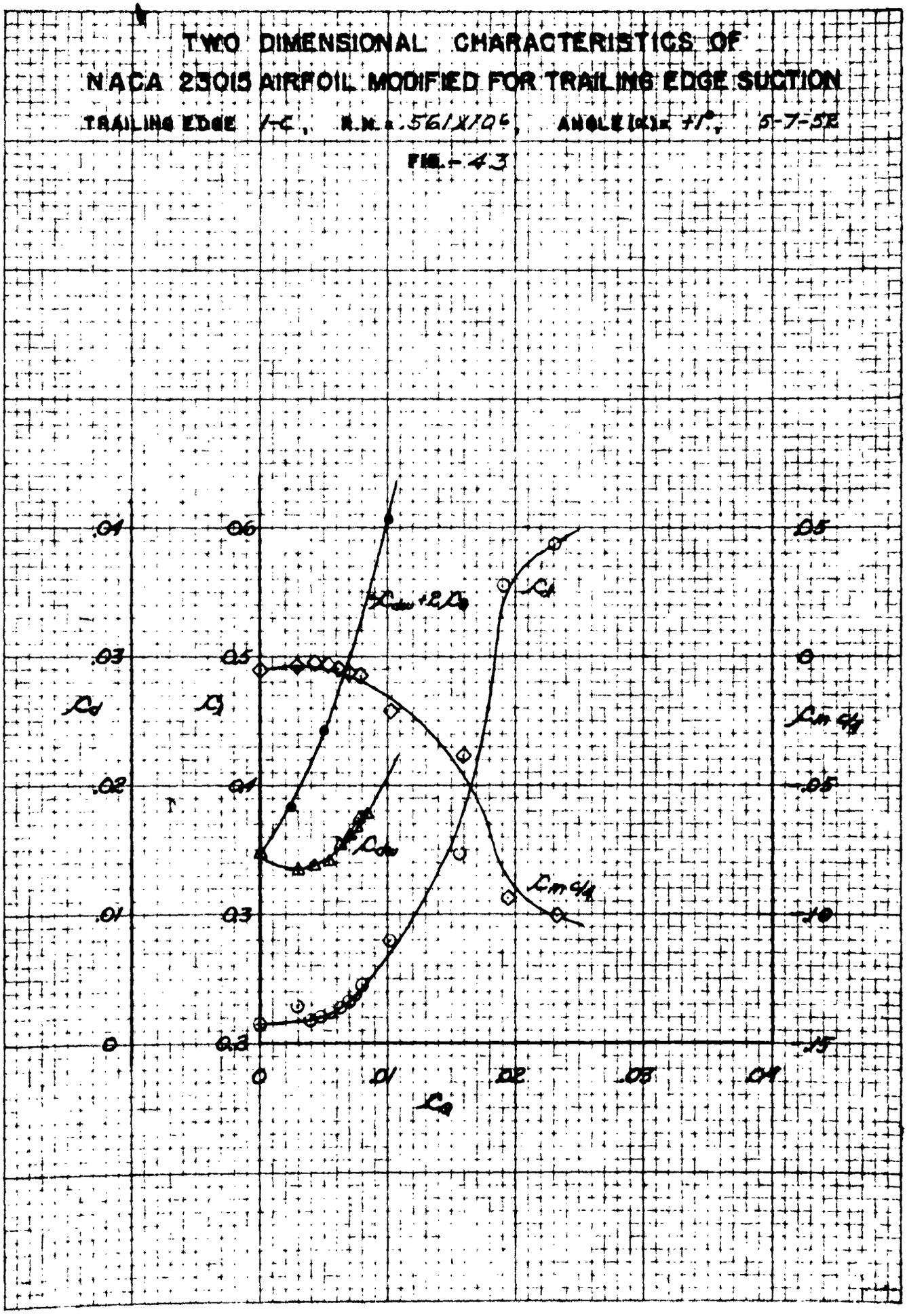
FIG. - 42



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C, R.N. = .561X10⁶, ANGLE (α) = 1°, 5-7-52

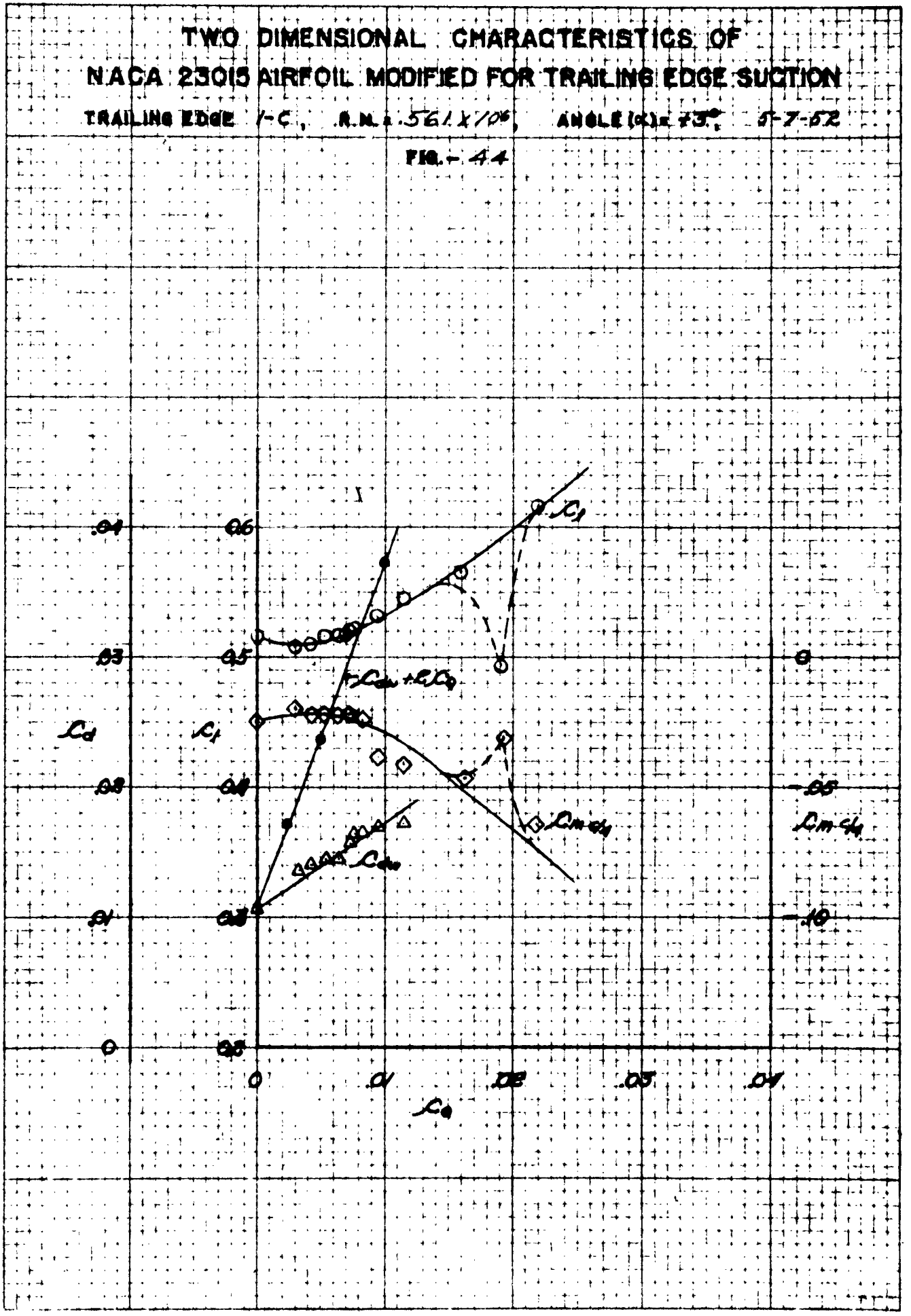
FIG. - 43



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C, R.N. = .561 x 10^6, ANGLE (α) = +3°, 5-7-52

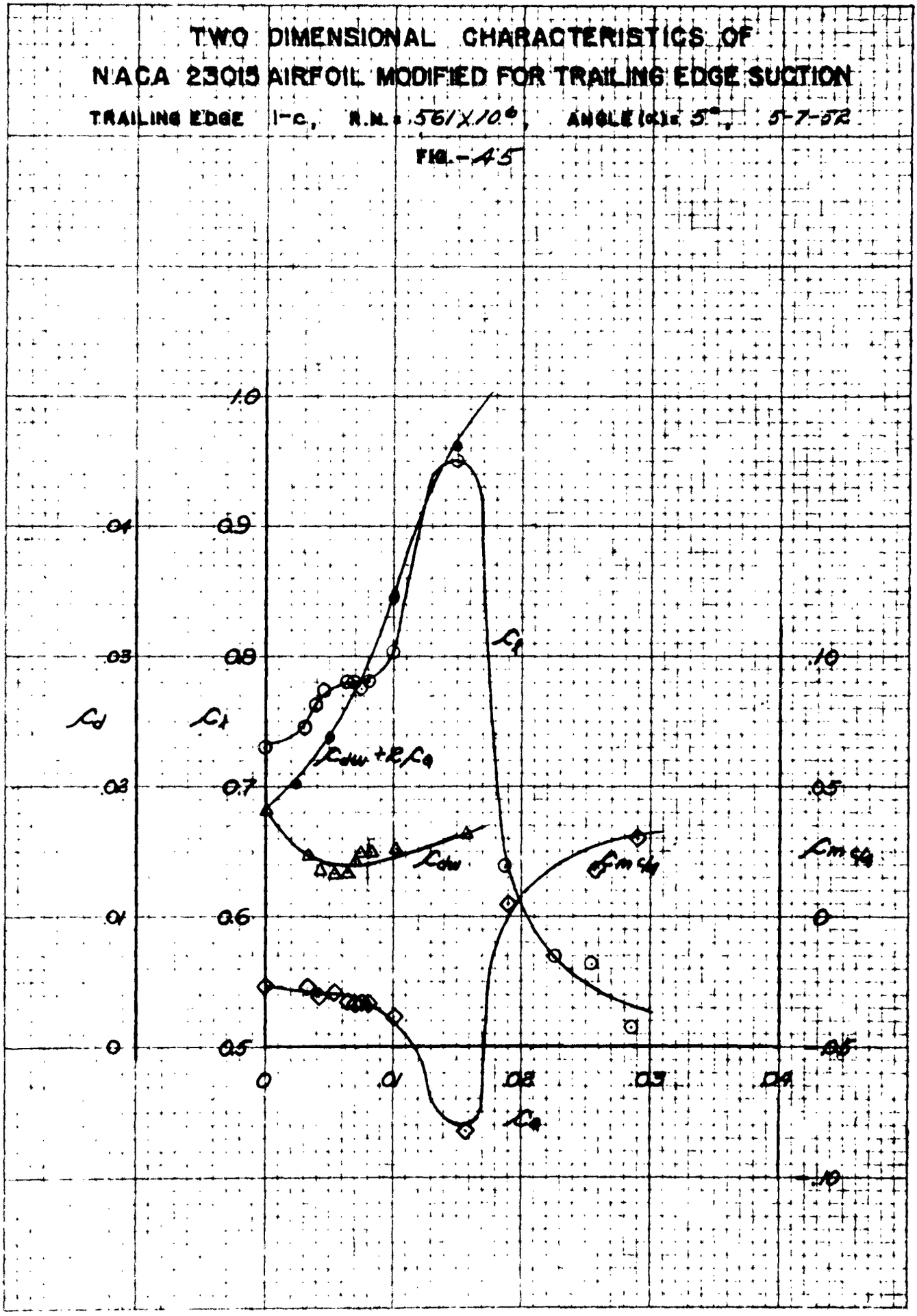
FIG. - 44

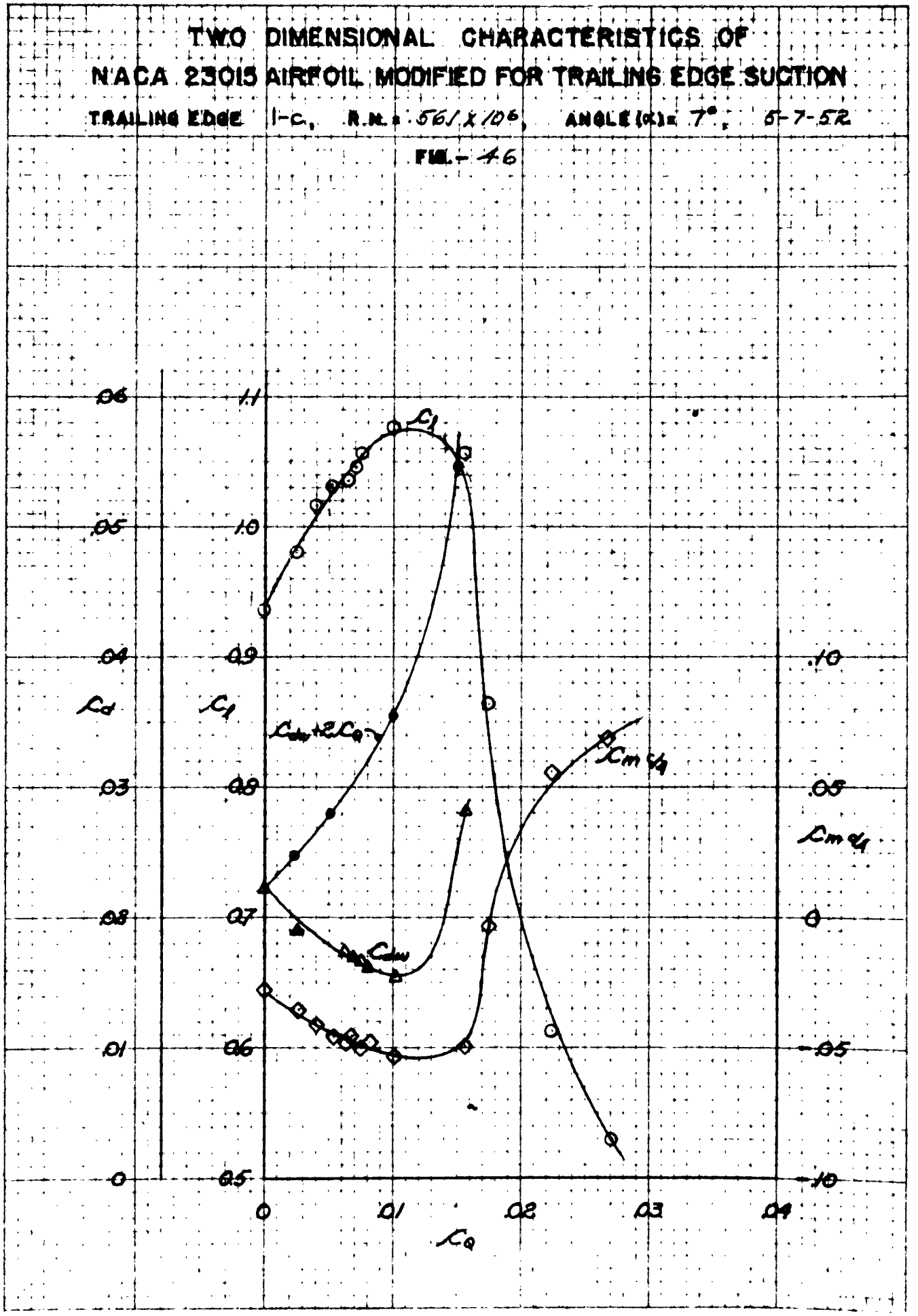


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-C, R.N. = .561 X 10⁶, ANGLE (α) = 5°, 5-7-52

FIG. - 45

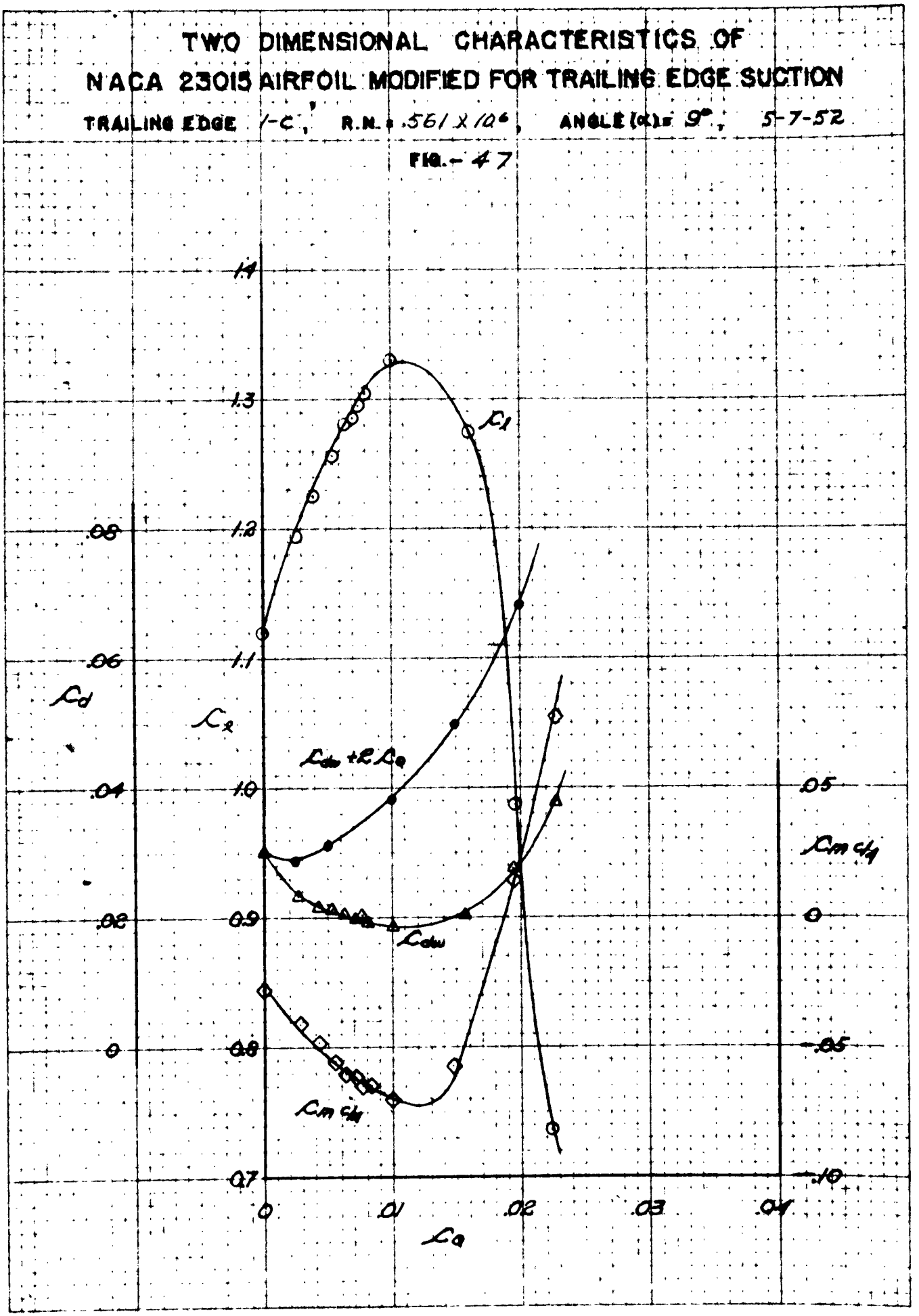



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-C, R.N. = 561 X 10⁶, ANGLE (α) = 7°, 5-7-52
FIG. - 46
Cd
Cl
Cdw+2Cq
Cl
Cdw
Cmc/4
Cmc/4
Cq
.06
.05
.04
.03
.02
.01
0
1.1
1.0
.9
.8
.7
.6
.5
.10
.05
0
-.05
-.10
0
.01
.02
.03
.04

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C', R.N. = .561 X 10⁶, ANGLE (α) = 9°, 5-7-52

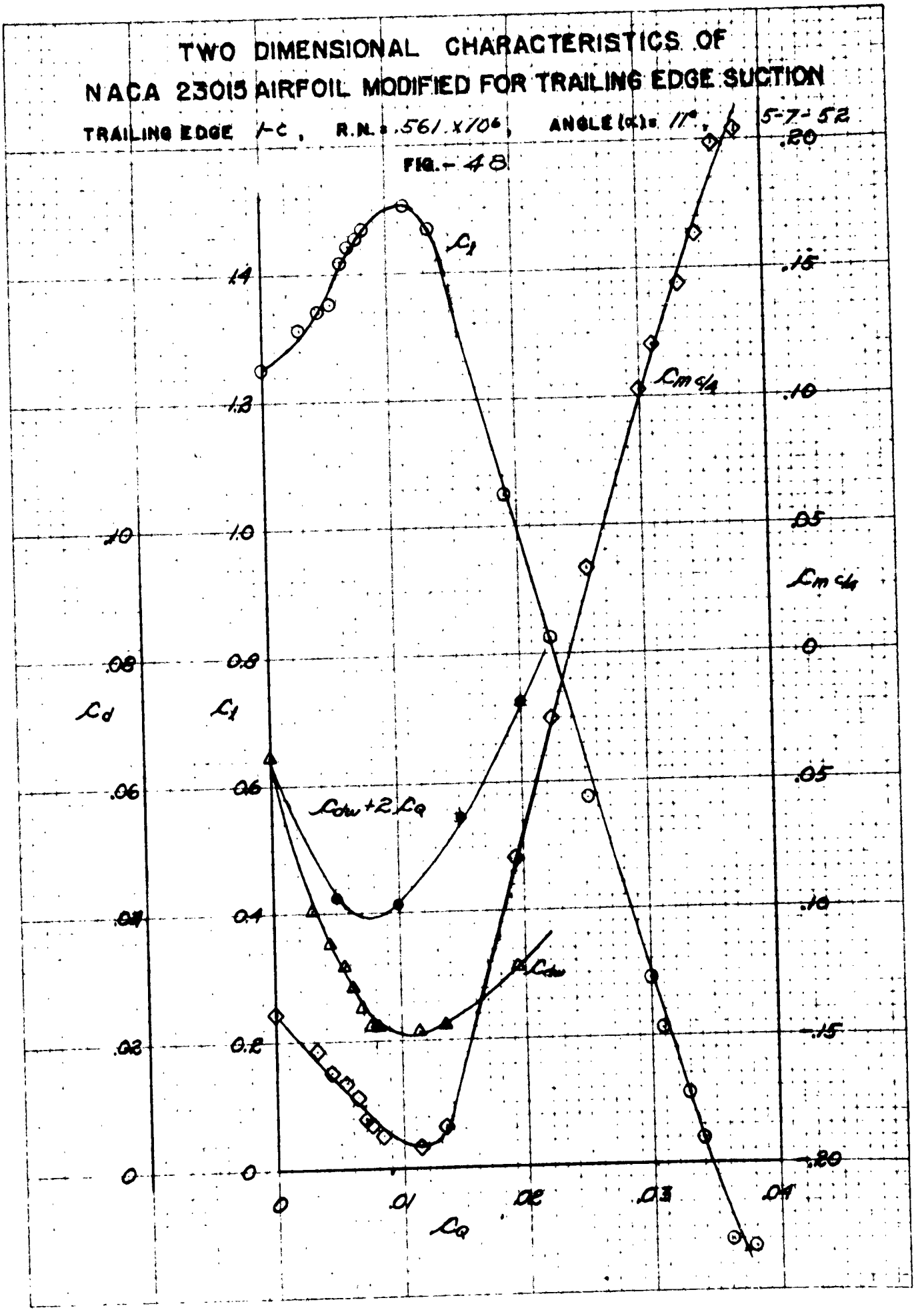
FIG. - 47



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C, R.N. = .561 x 10⁶, ANGLE (α) = 11°, 5-7-52

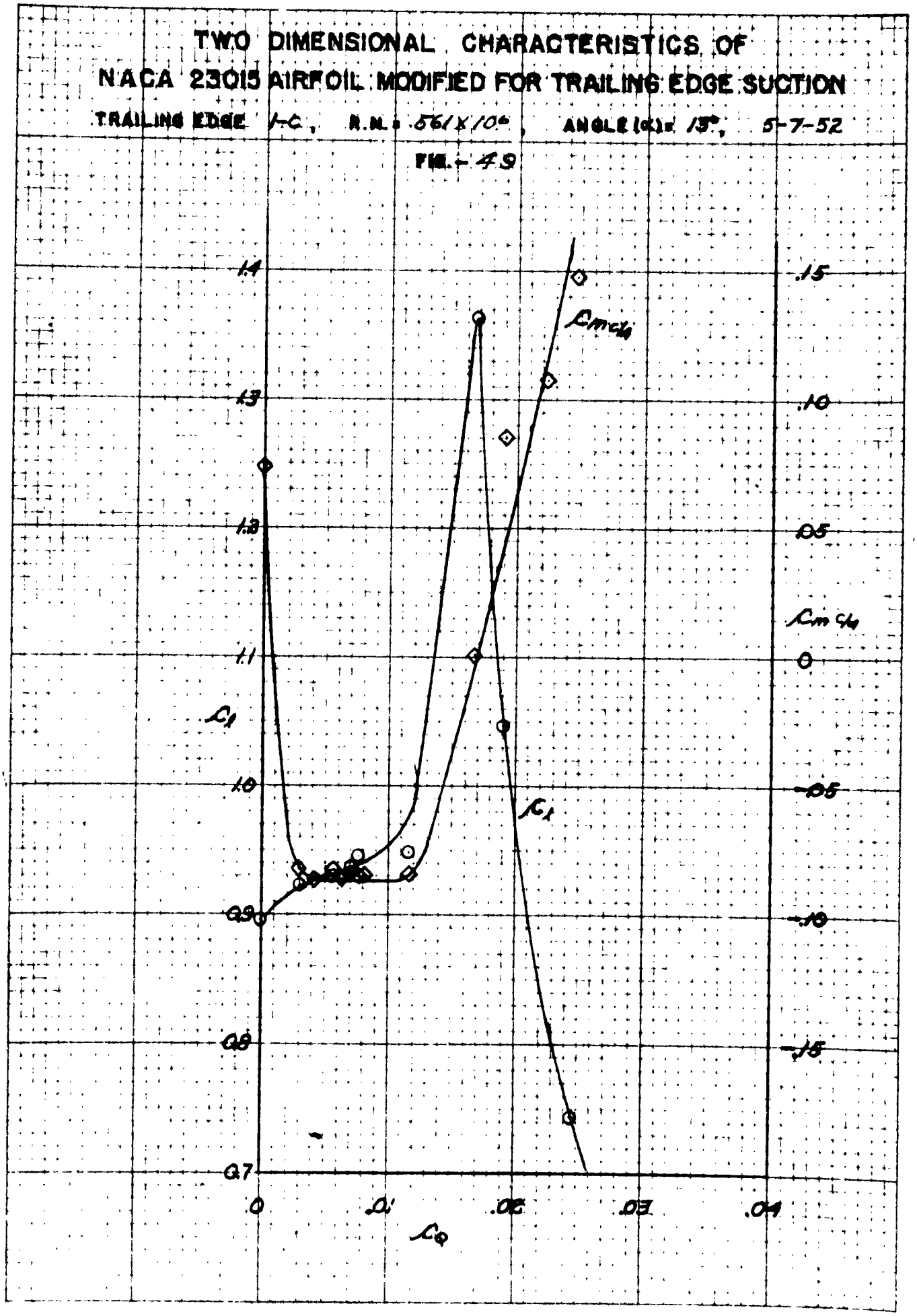
FIG. - 48



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-C, R.N. = 561 X 10^6, ANGLE (α) = 13°, 5-7-52

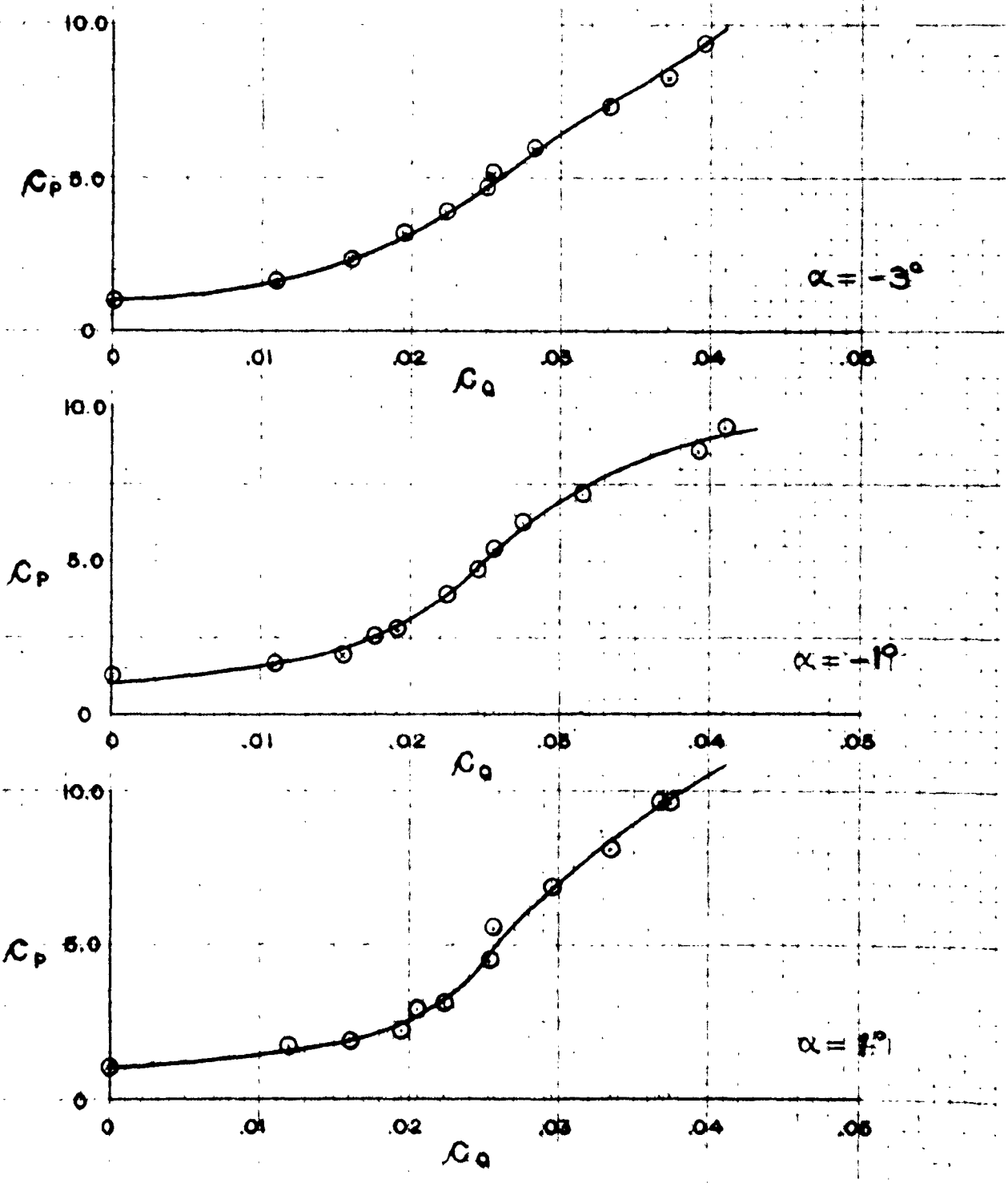
FIG. - 49



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-C, R.N. = .561 x 10⁶ DATE: 2-16-53

C_p VS. C_Q

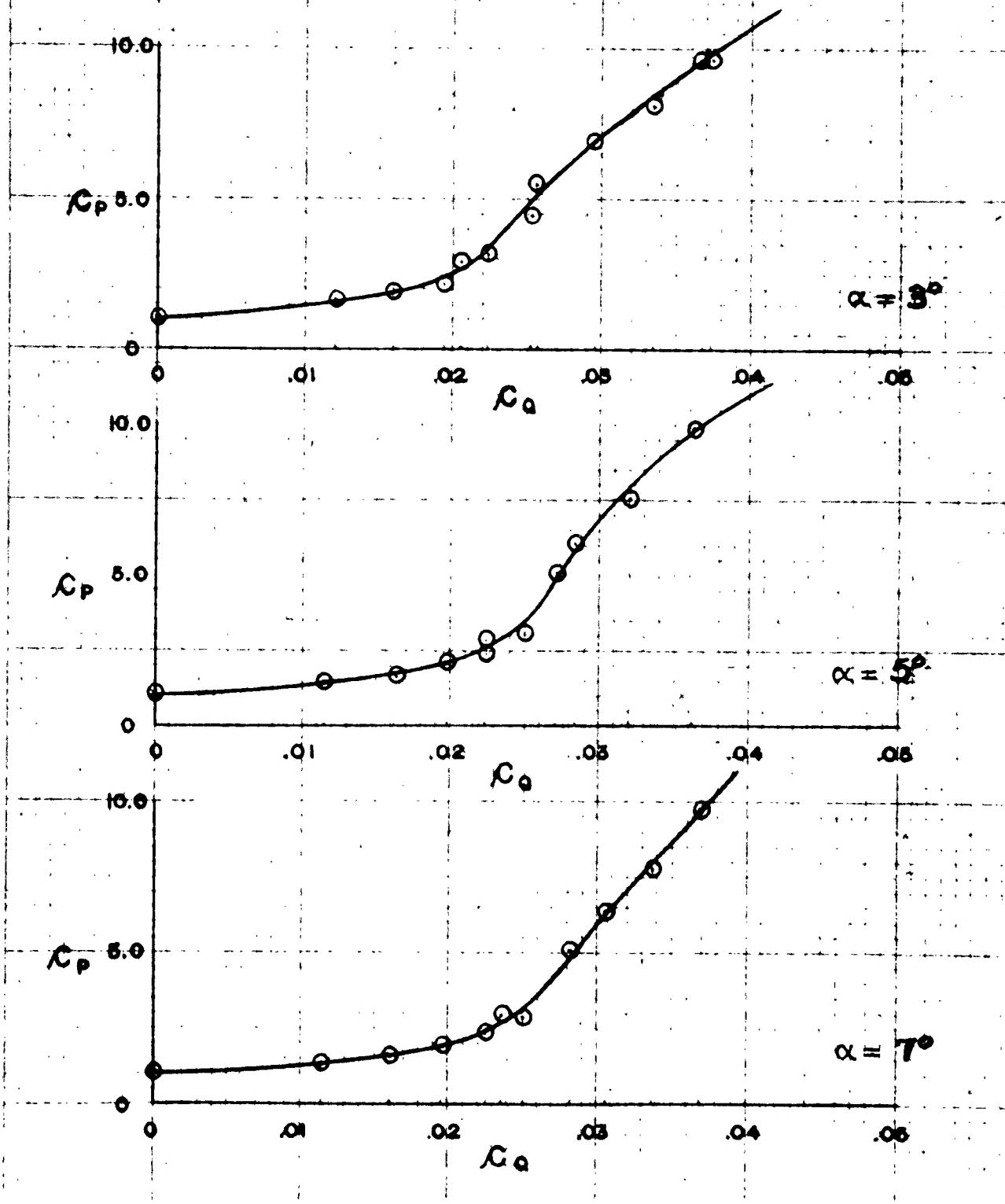
FIG. - 50



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-C, R.N. = .561 x 10⁶ DATE: 2-16-53

C_p VS. C_Q

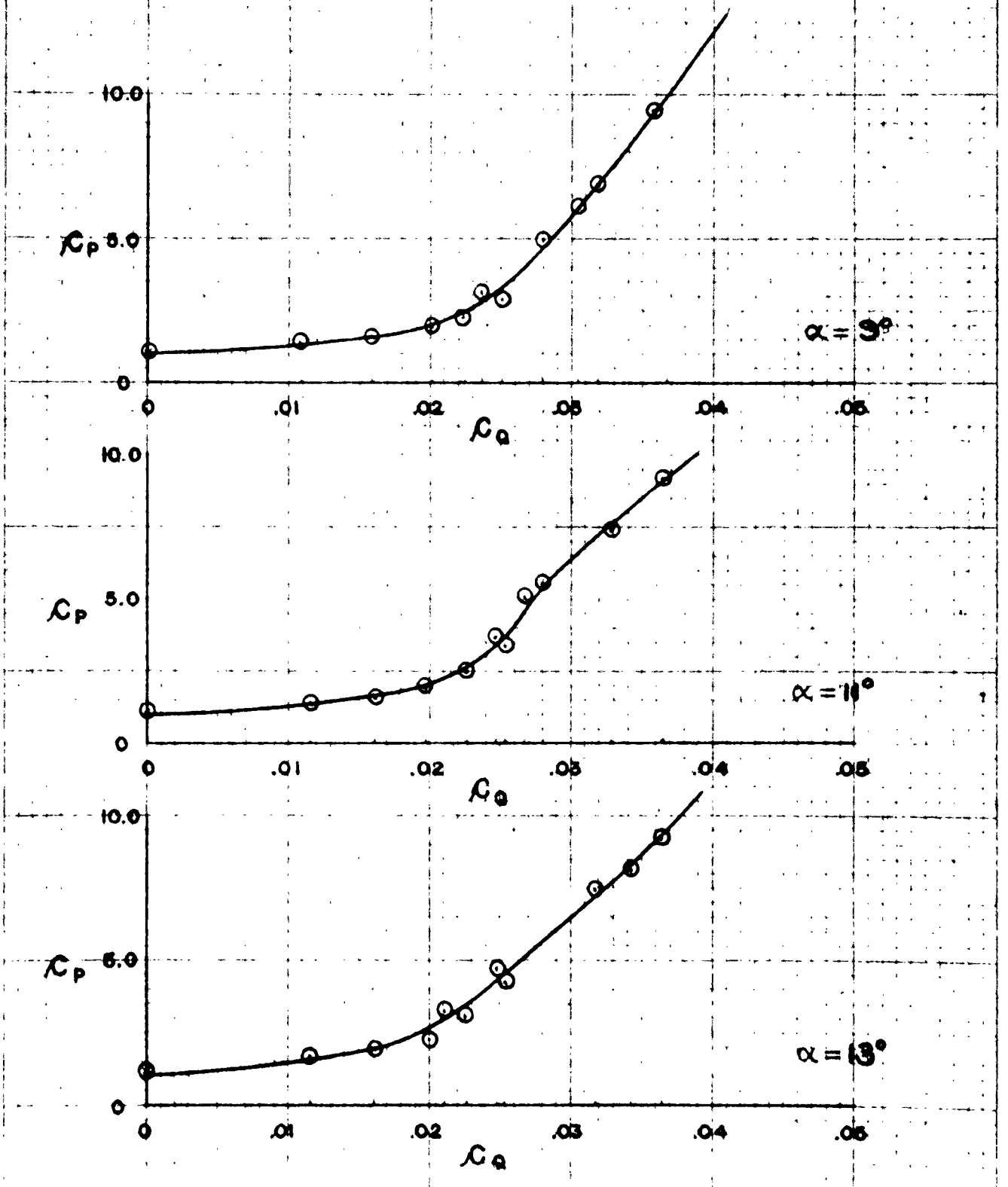
FIG. - 51



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-C, R.N. = .561 X 10⁶ DATE: 2-16-53

C_p VS. C_Q

FIG. - 52

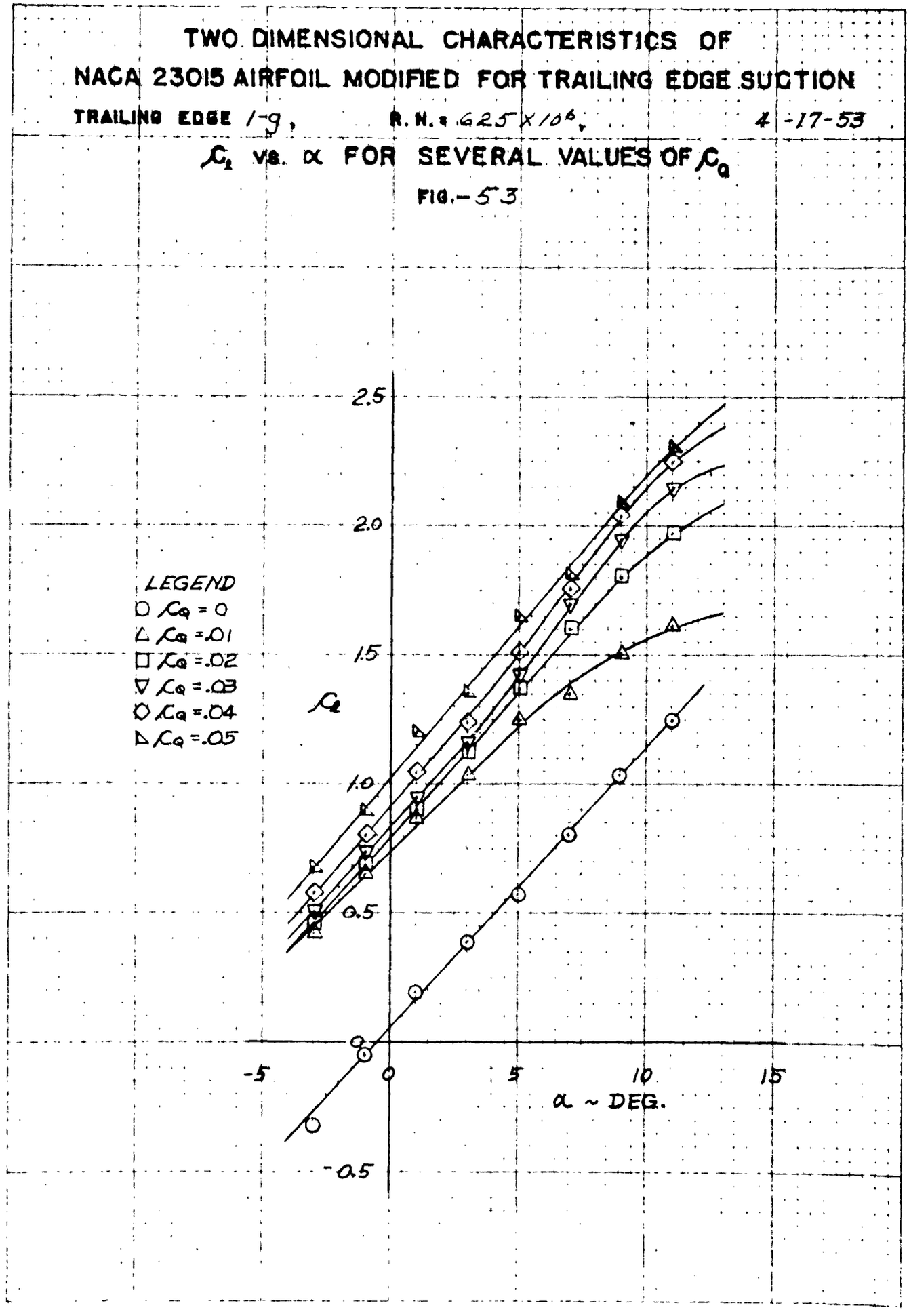


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-9, R.N. = .625 X 10⁶, 4-17-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

FIG.-53

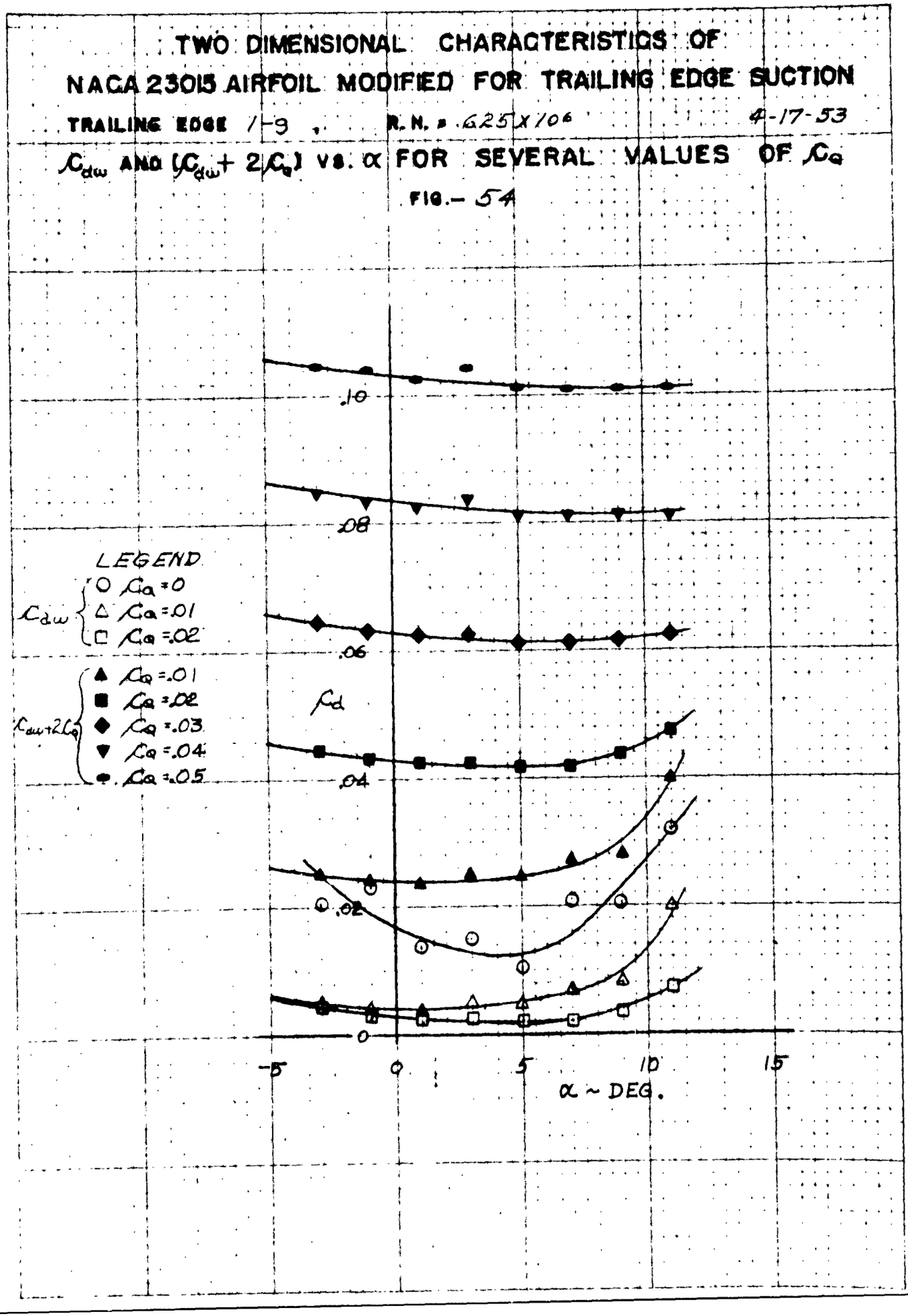


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-9 , R.N. = .625 X 10⁶ 4-17-53

c_{d_w} AND $(c_{d_w} + 2c_q)$ VS. α FOR SEVERAL VALUES OF c_q

FIG.- 54



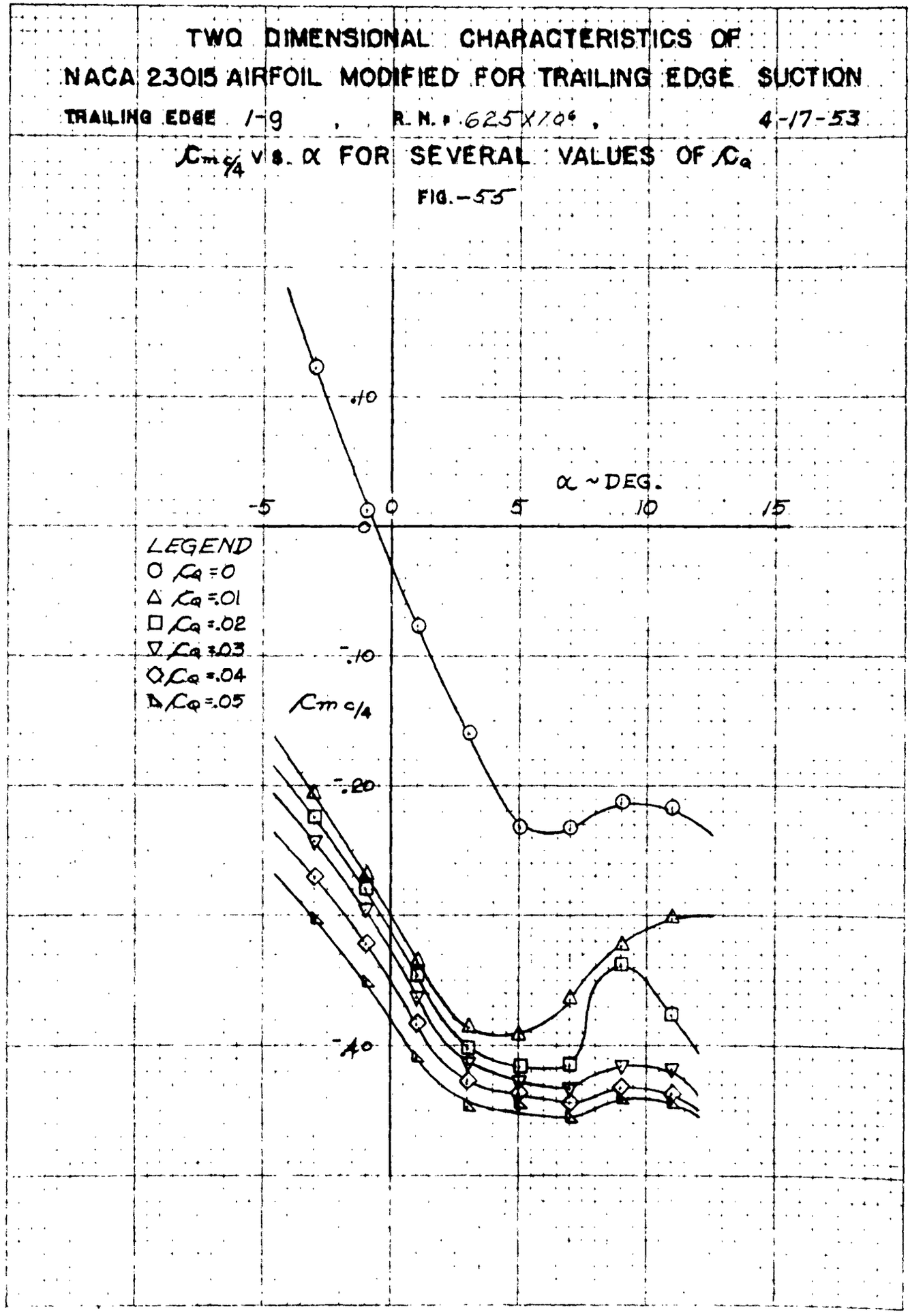
KEUFFEL & ESSER CO

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-9 , R. N. = .625 X 10⁶ , 4-17-53

$C_{m_{c/4}}$ vs. α FOR SEVERAL VALUES OF C_Q

FIG.-55

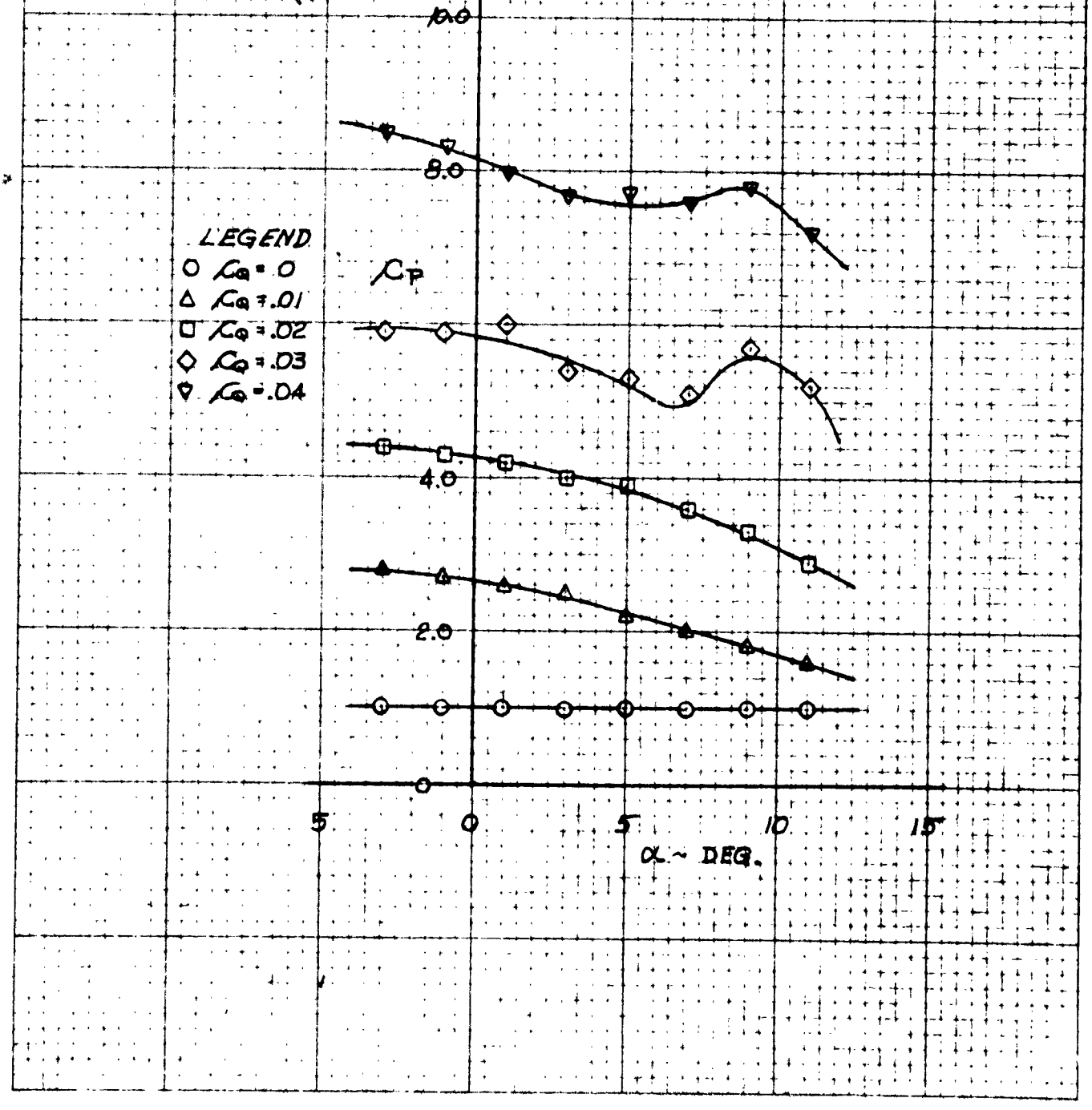


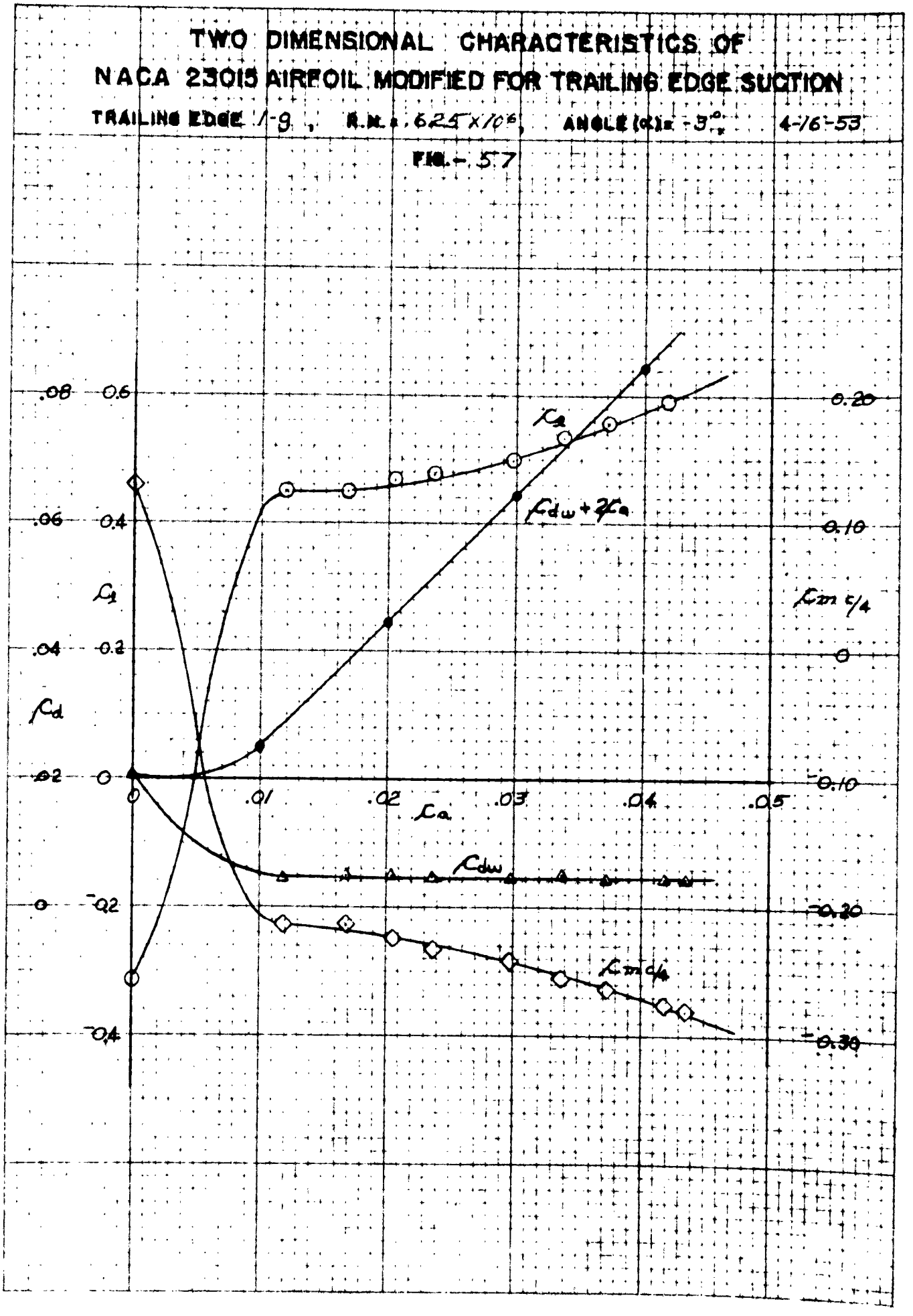
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

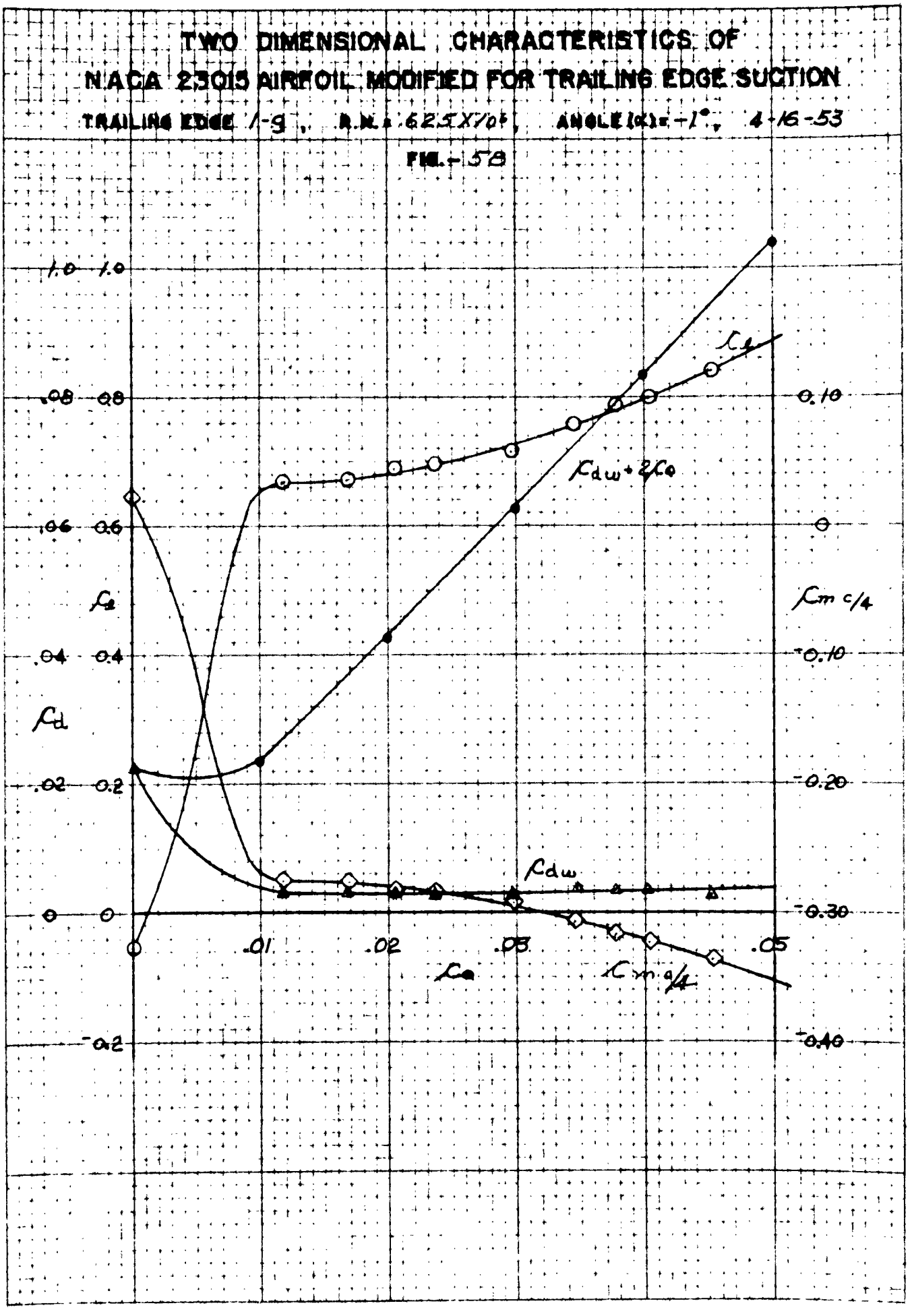
TRAILING EDGE: 1-9 $R_N = .625 \times 10^6$ DATE: 4-16-55

C_p vs. α FOR SEVERAL VALUES OF C_q

FIG. - 56



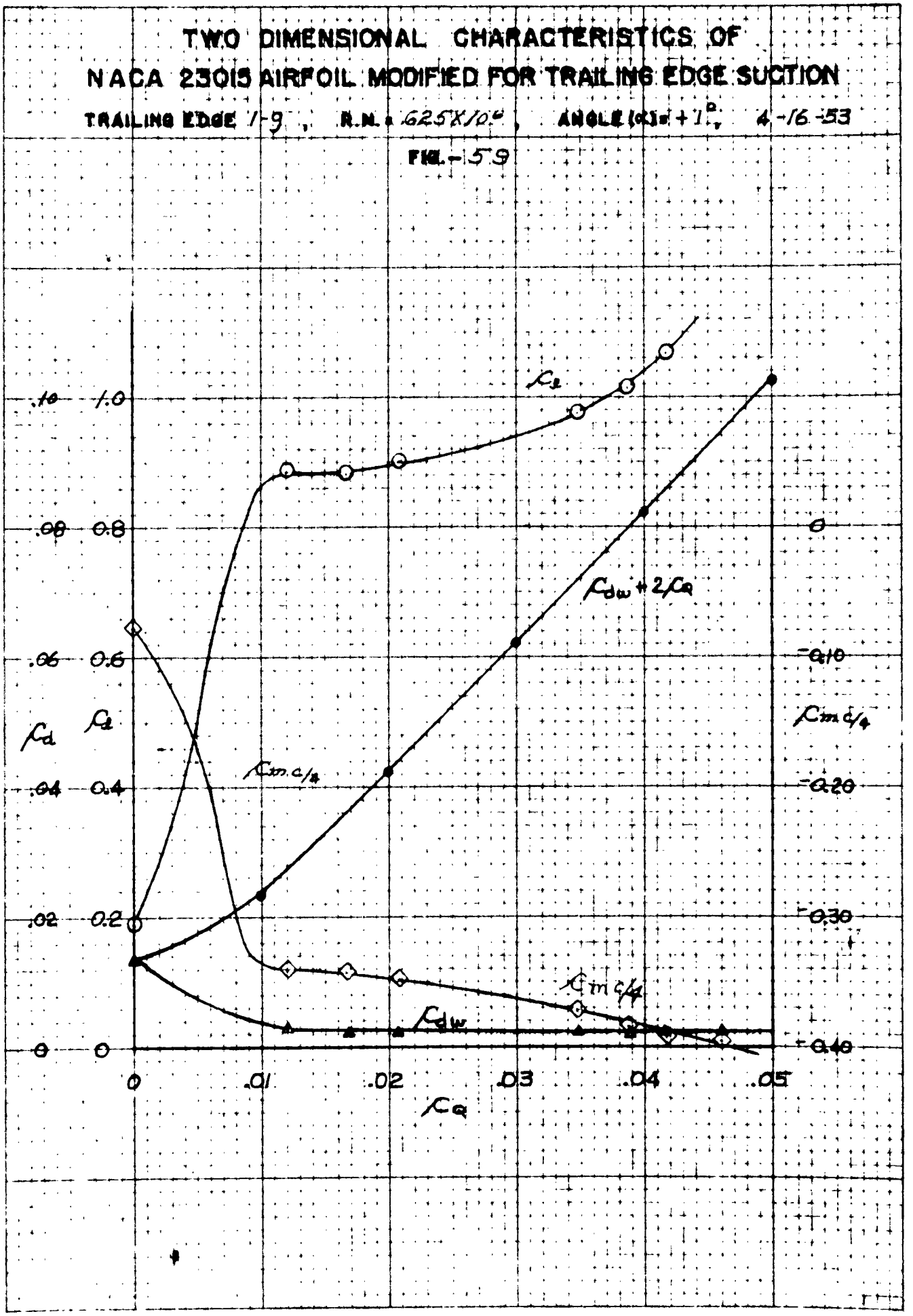

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = .625 X 10^6, ANGLE (α) = -3°, 4-16-53
FIG. - 57
.08
0.6
.06
0.4
.04
0.2
c_d
-.02
0
-.04
.01
.02
c_a
.03
.04
.05
c_l
$c_{dw}+2c_a$
c_{dw}
$c_{m\,c/4}$
0.20
0.10
$c_{m\,c/4}$
0
-0.10
-0.20
-0.30

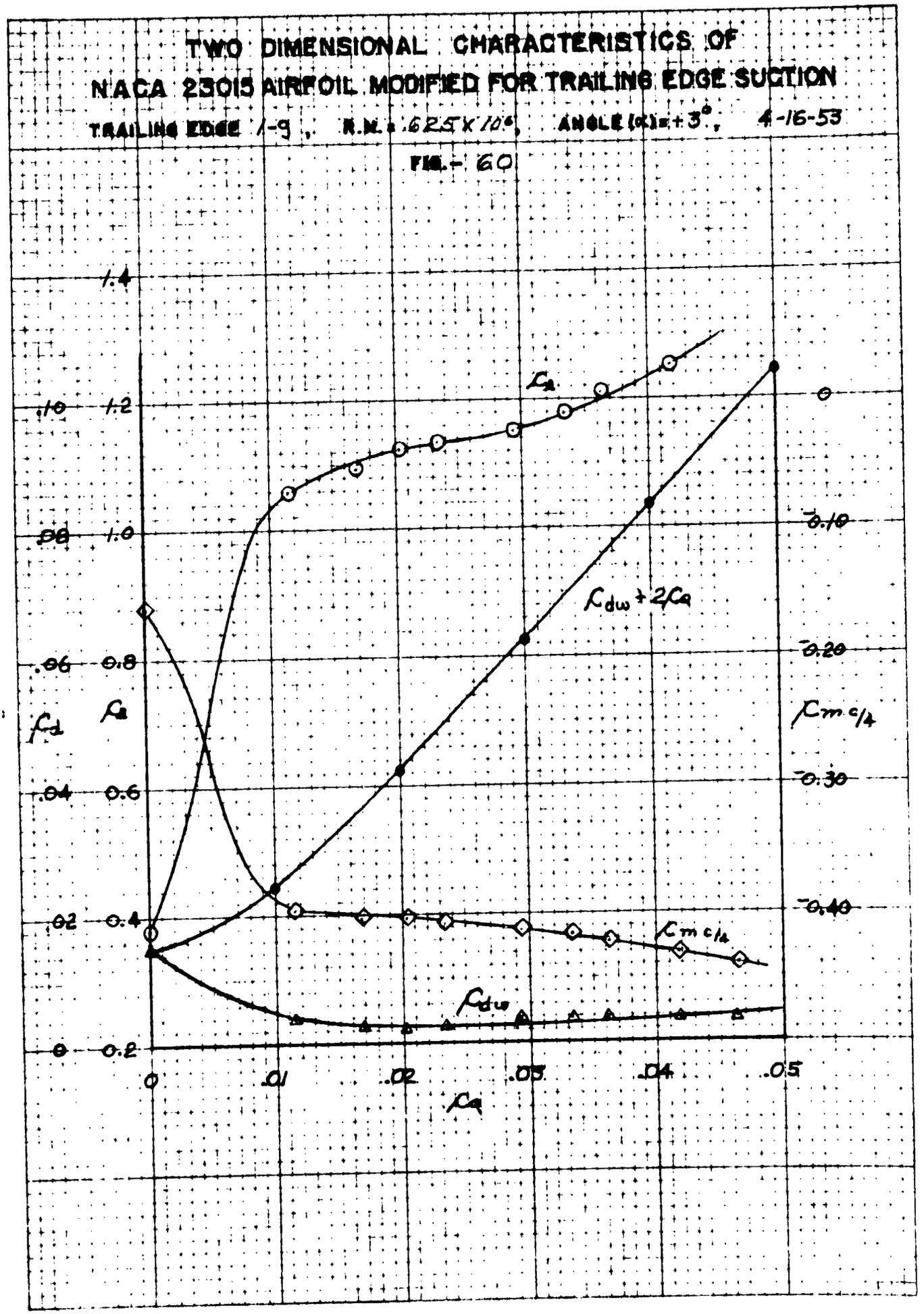

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = 625X10⁶ , ANGLE (α)i = -1° , 4-16-53
FIG.-5B
1.0
.8
.6
.4
.2
0
-.2
c_l
c_d
$c_{d_w} + 2c_q$
c_{d_w}
c_q
0.10
0
-0.10
-0.20
-0.30
-0.40
$c_{m\ c/4}$
.01
.02
.03
.05

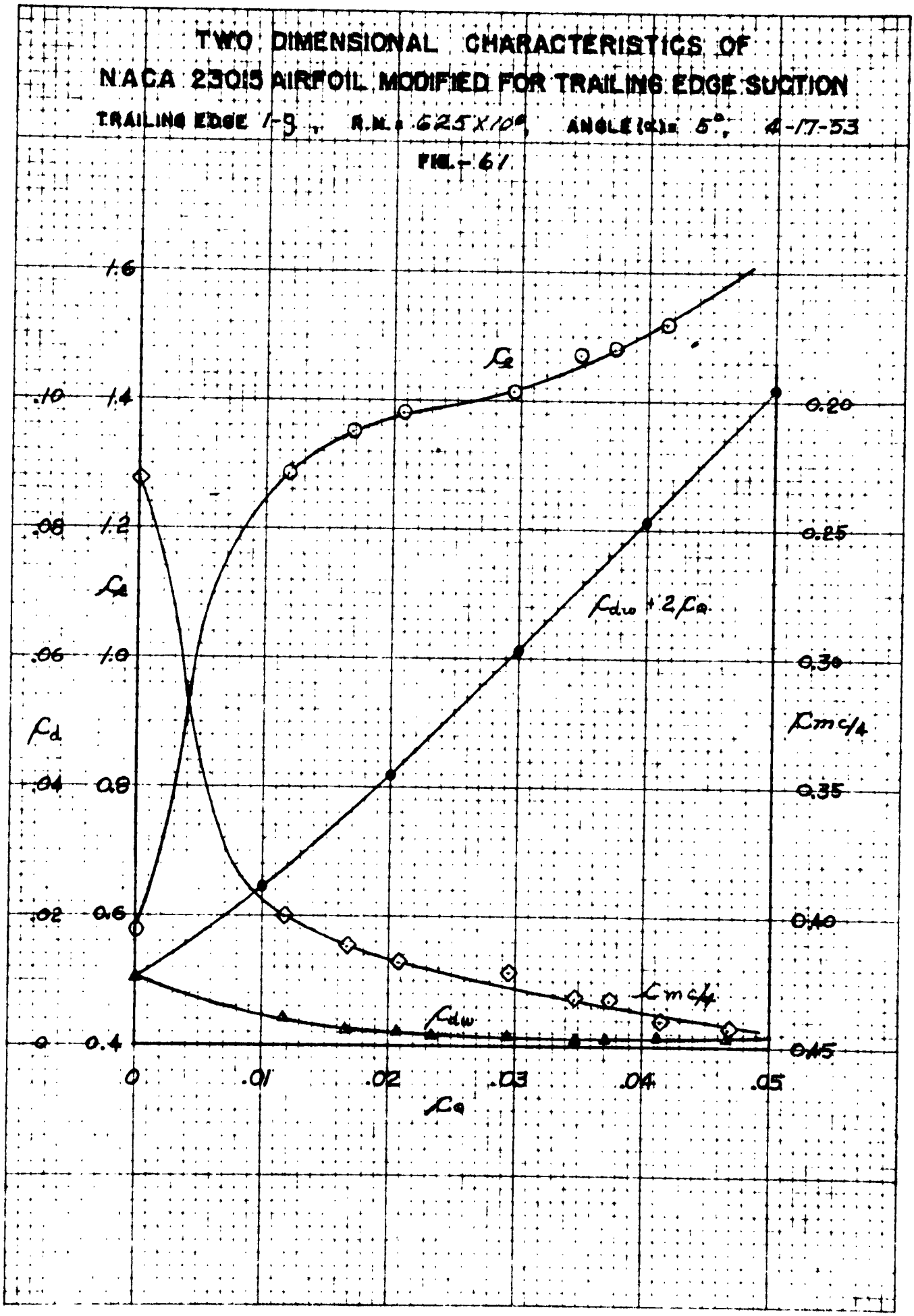
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

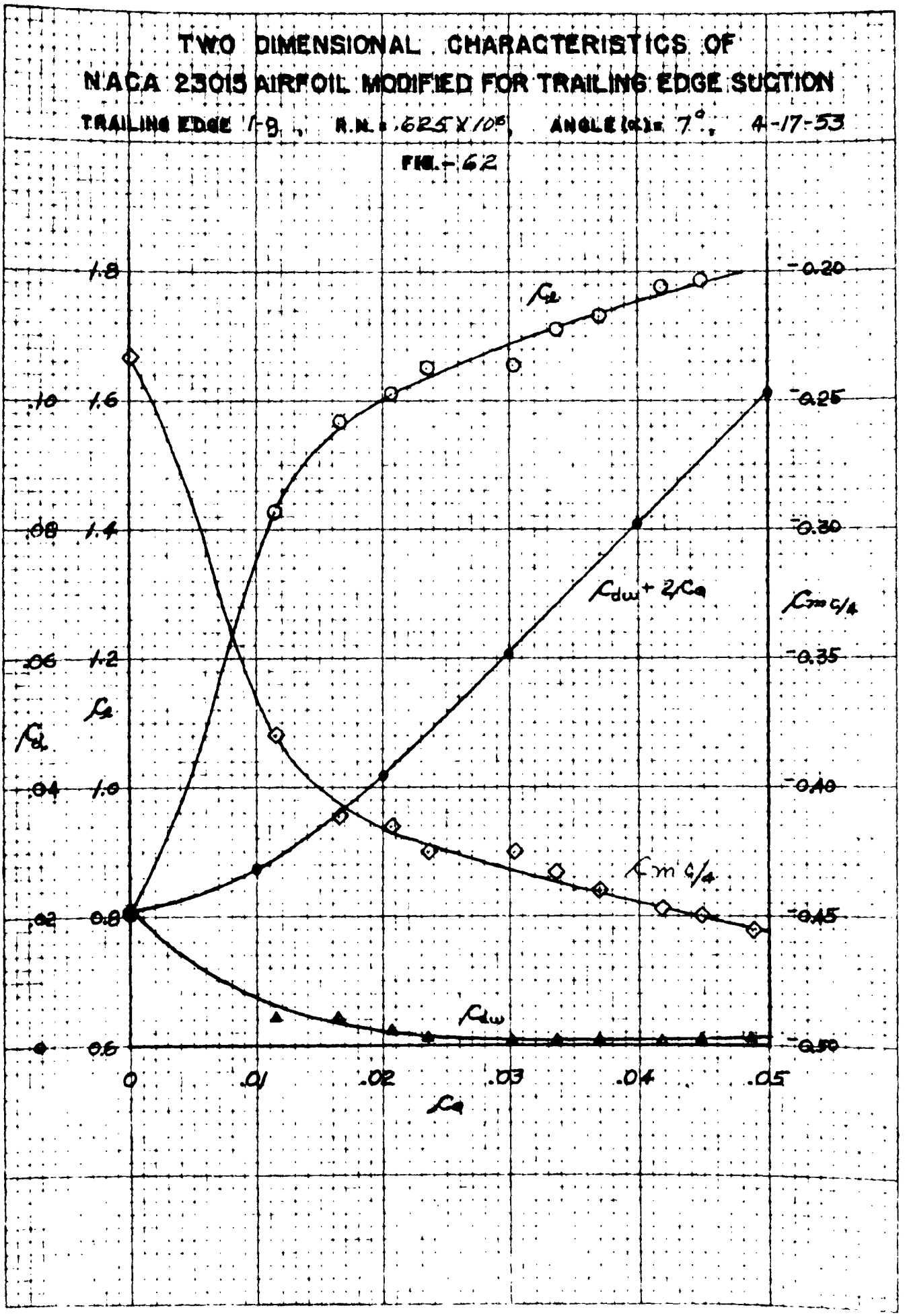
TRAILING EDGE 1-9 , R.N. = .625X10⁶ , ANGLE (α) = +1°, 4-16-53

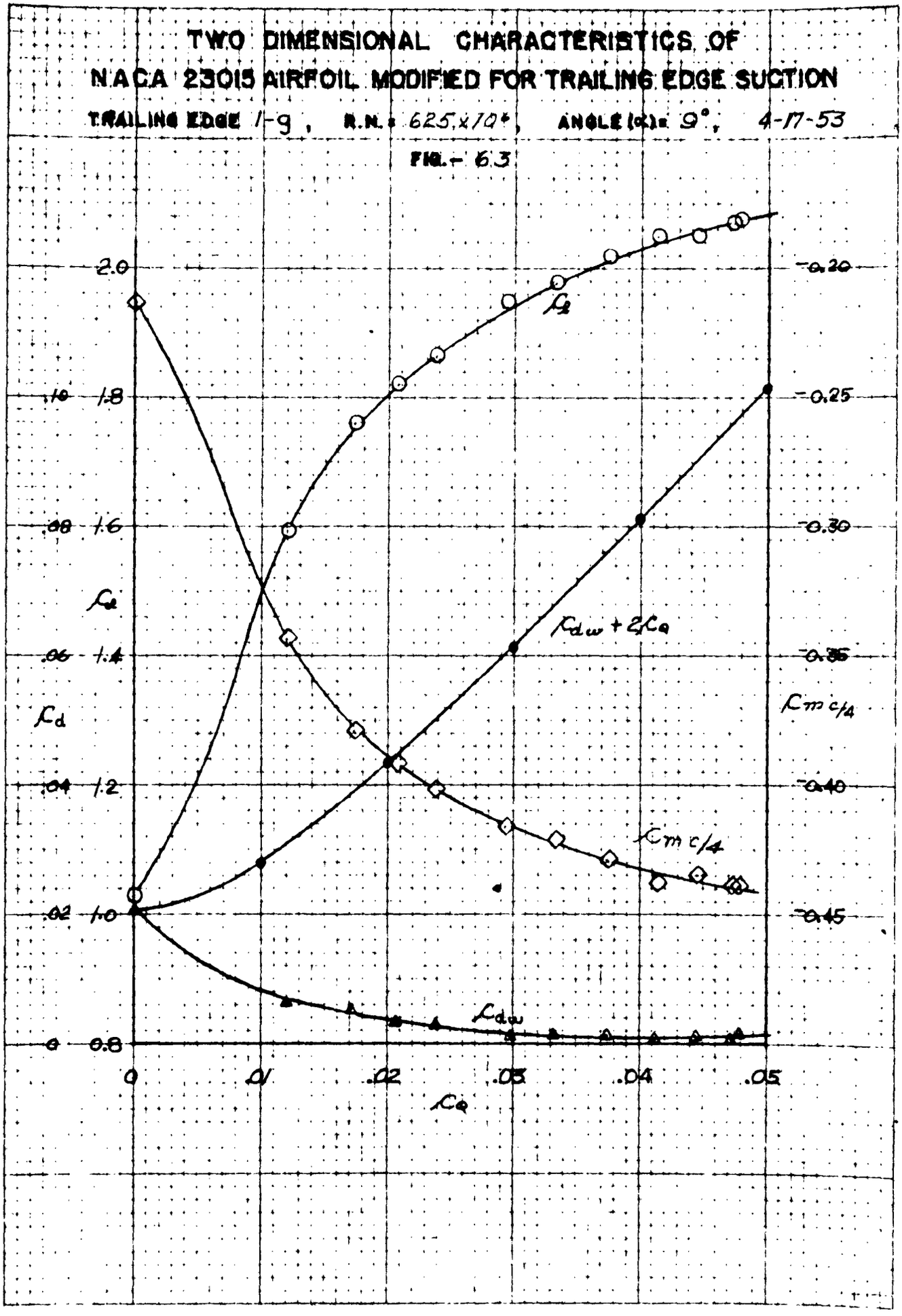
FIG.-59




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = .625 X 10⁶, ANGLE (α) = +3°, 4-16-53
FIG. - 60
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
.10
.08
.06
.04
.02
c_l
c_a
$c_{dw} + 2c_a$
$c_{m\,c/4}$
c_{dw}
0
-0.10
-0.20
-0.30
-0.40
$c_{m\,c/4}$
0
.01
.02
.03
.04
.05
c_a


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = 6.25 X 10^6, ANGLE (α) = 5°, 4-17-53
FIG. - 61
1.6
1.4
1.2
1.0
0.8
0.6
0.4
.10
.08
.06
.04
.02
0
c_l
c_d
0.20
0.25
0.30
0.35
0.40
0.45
$c_{mc/4}$
$c_{d_w} + 2c_q$
c_{d_w}
.01
.02
.03
.04
.05
c_q

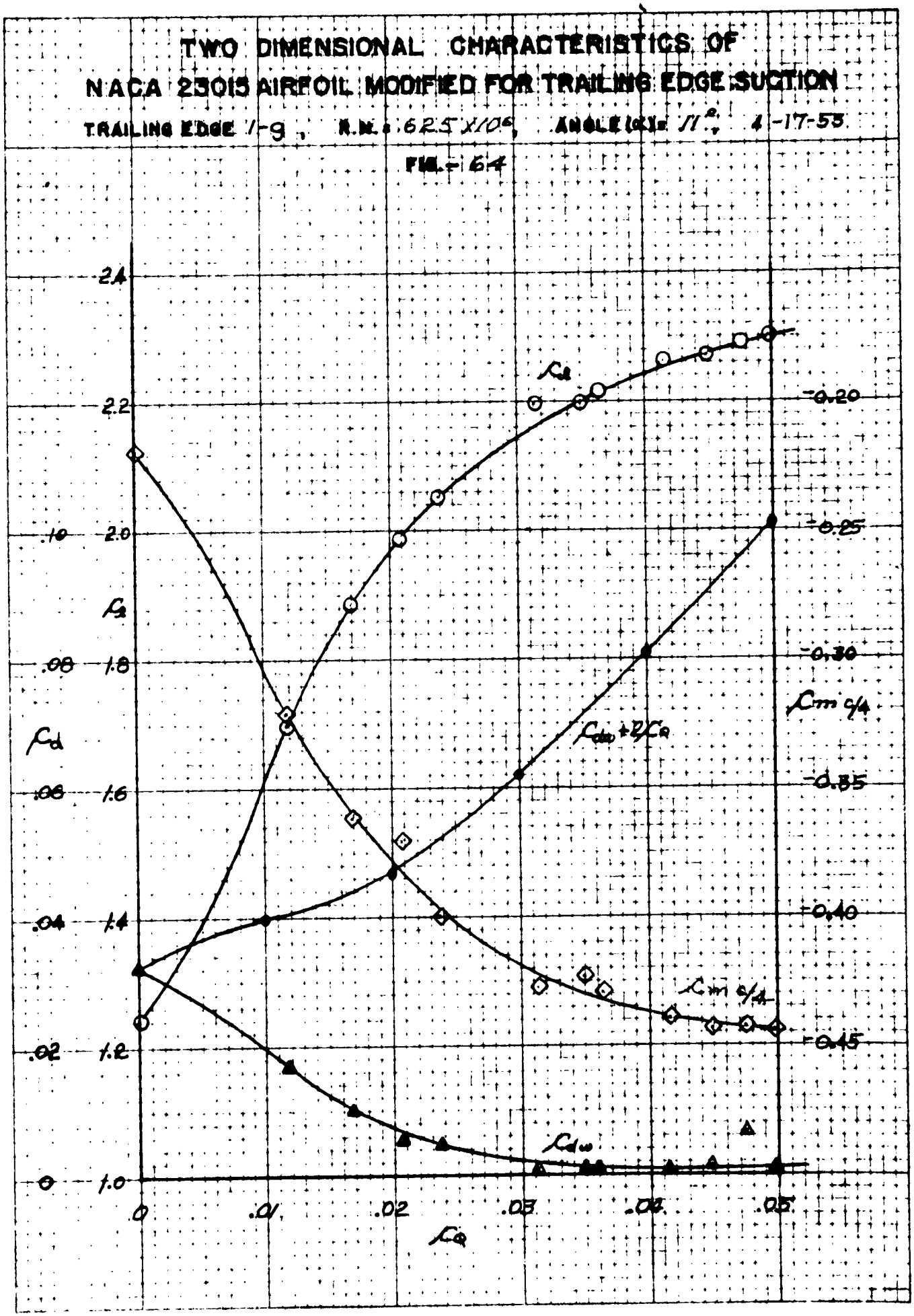

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = .625 X 10⁶, ANGLE (α) = 7°, 4-17-53
FIG. - 62
1.8
1.6
1.4
1.2
1.0
0.8
0.6
.10
.08
.06
.04
.02
c_l
c_d
$c_{dw} + 2/c_a$
$c_{m\,c/4}$
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
-0.50
0
.01
.02
.03
.04
.05
c_a


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-9 , R.N. = 625 x 10⁶ , ANGLE (α) = 9° , 4-17-53
FIG. - 6.3
2.0
1.8
1.6
1.4
1.2
1.0
0.8
c_l
c_d
.10
.08
.06
.04
.02
0
$c_{d_w} + 2c_q$
c_{d_w}
$c_{m\,c/4}$
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
$c_{m\,c/4}$
0
.01
.02
.03
.04
.05
c_q

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-9 , R.N. = 6.25 X 10⁶, ANGLE (α) = 11°, 4-17-53

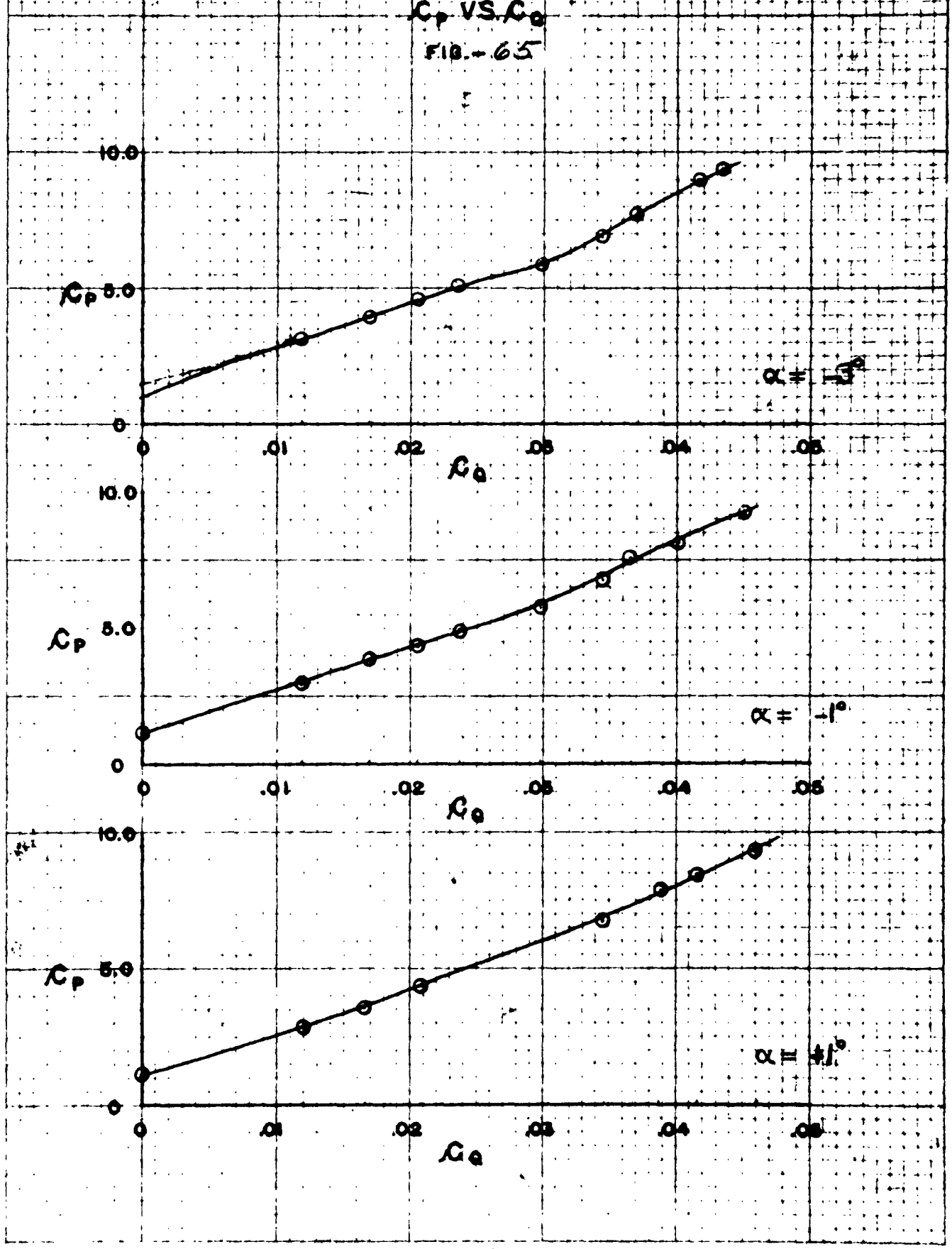
FIG. - 64



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-9, R.N. = .625 x10⁶ DATE: 4-16-53

C_p VS. C_Q

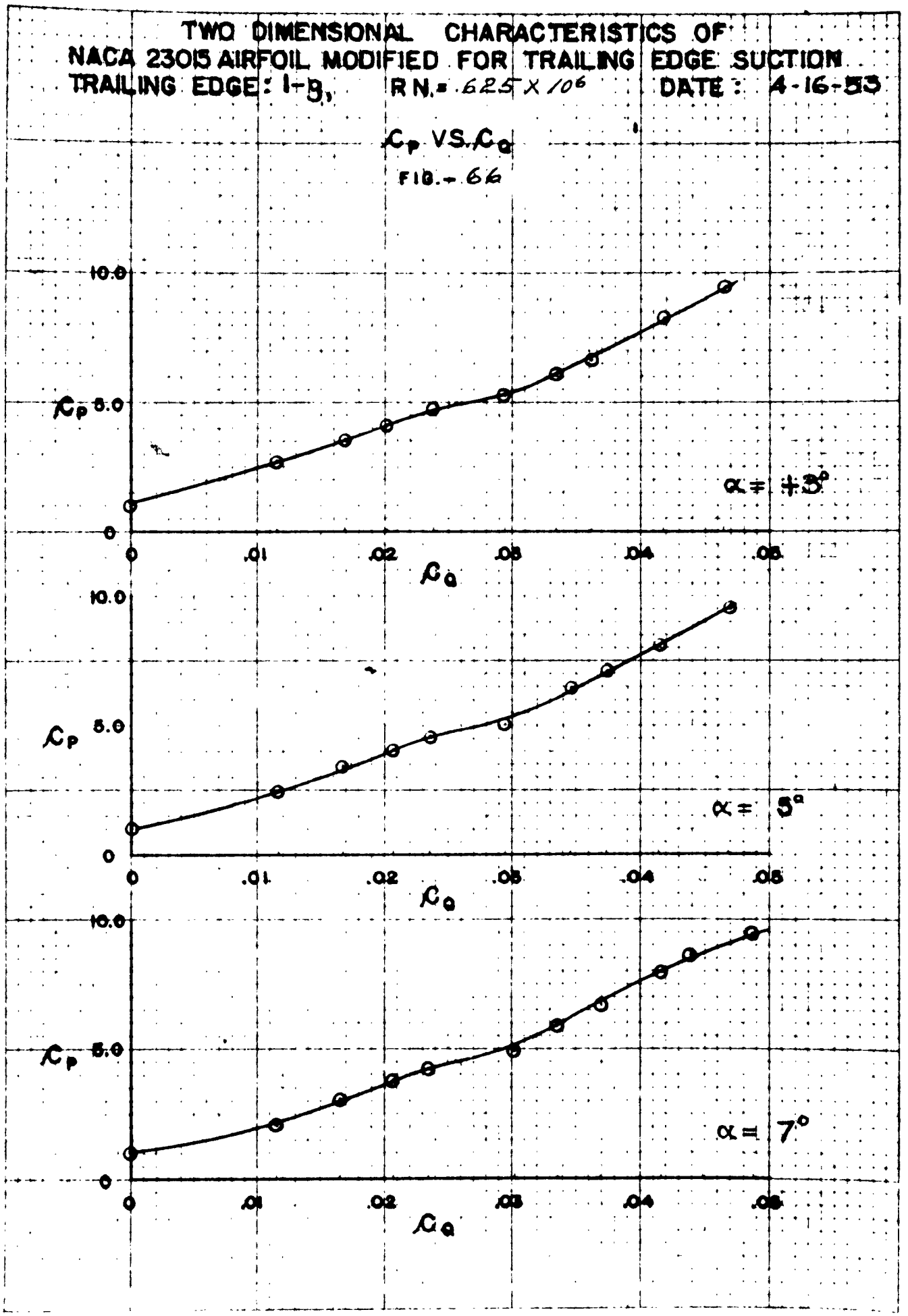
FIG. - 65



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-3, R.N. = .625 X 10⁶ DATE: 4-16-53

C_p VS. C_Q

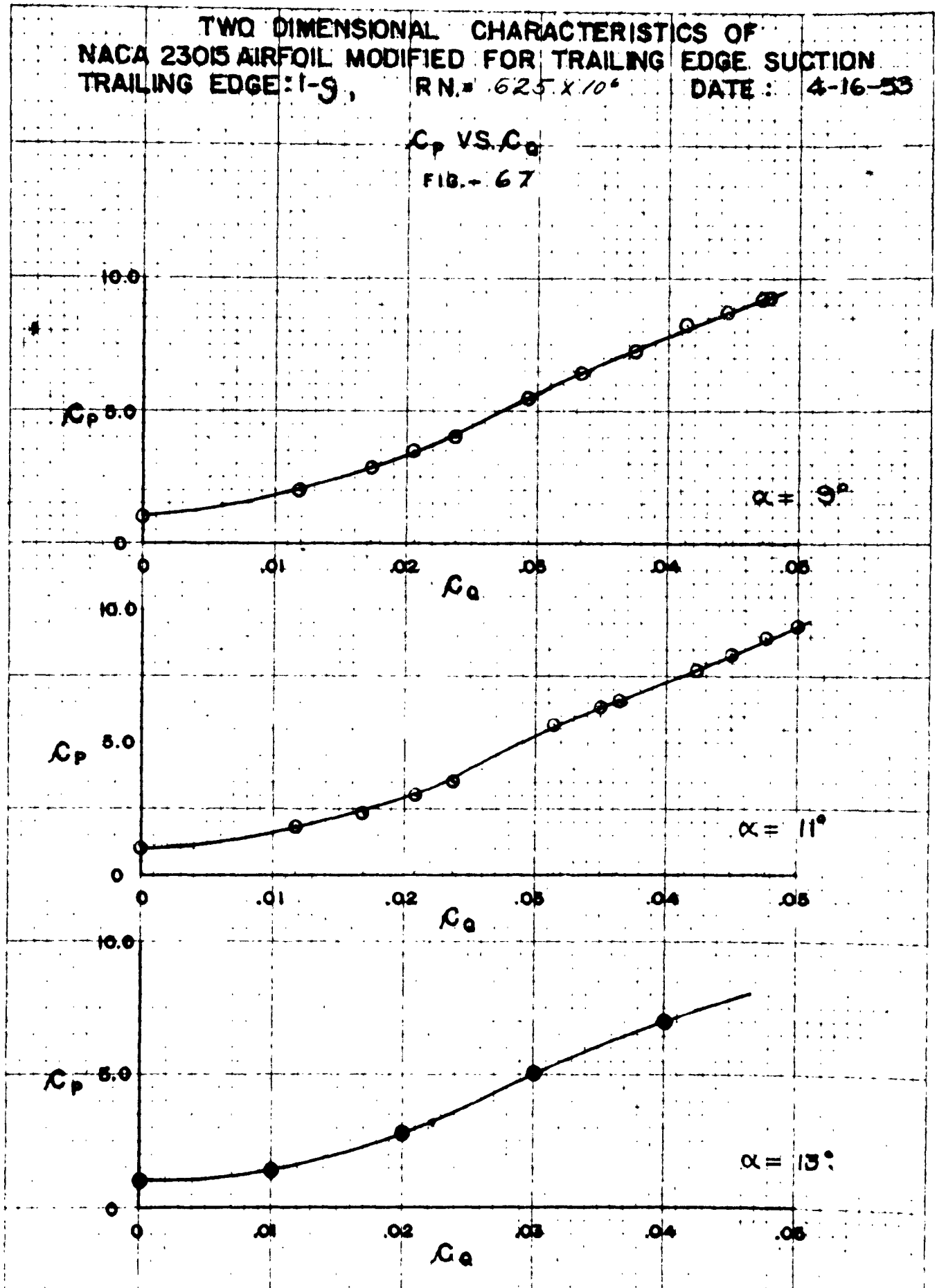
FIG. - 66



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 1-9, R.N. = .625 x 10⁶ DATE: 4-16-53

C_p VS. C_Q

FIG. - 67

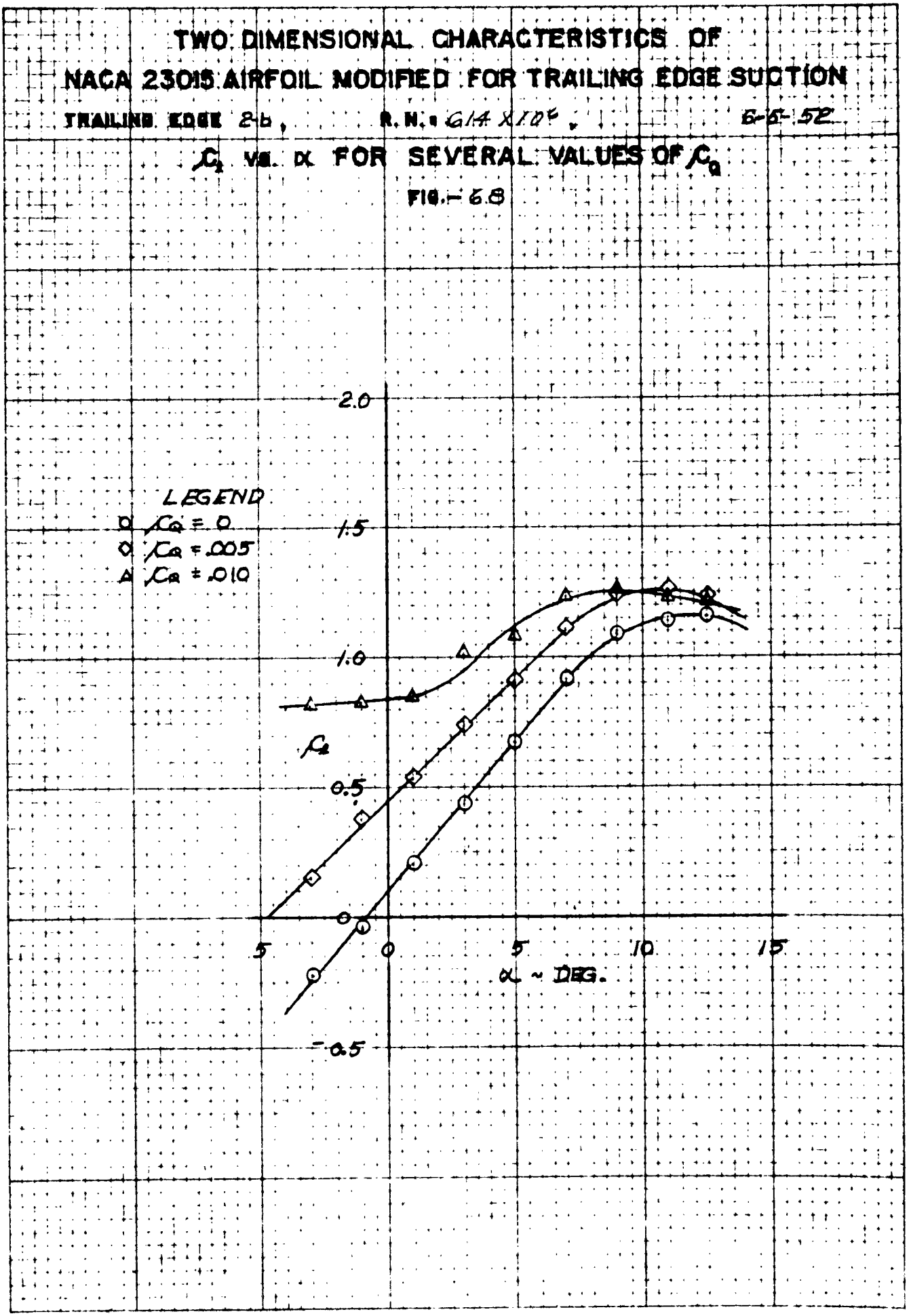


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b, R.N. = 6.14 X 10⁶, 6-6-52

C_l VS. α FOR SEVERAL VALUES OF C_q

FIG.- 6.8



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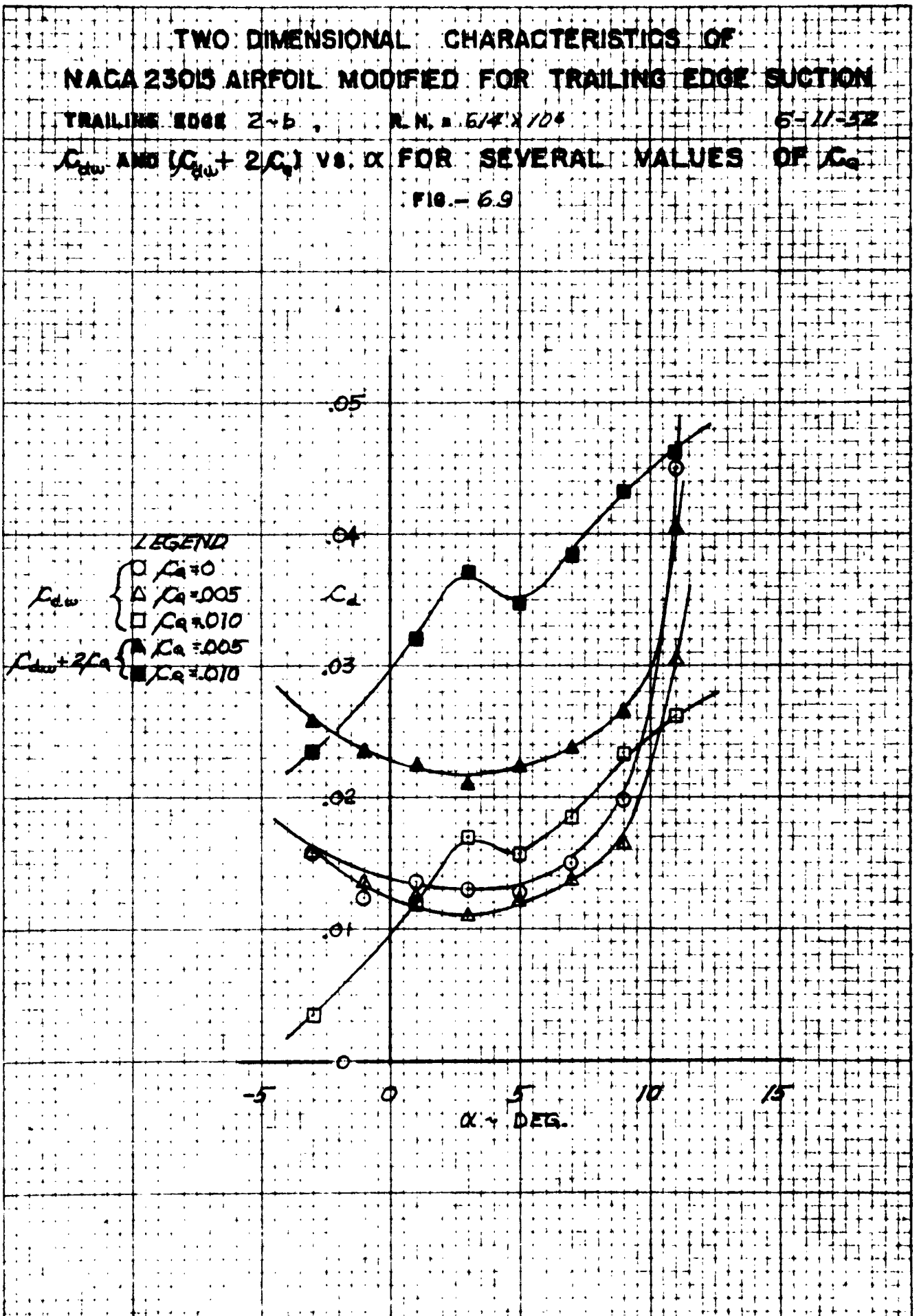
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b , R.N. = 6.14 X 10⁶ 6-11-32

C_{d_w} AND $(C_{d_w} + 2C_q)$ vs. α FOR SEVERAL VALUES OF C_q

FIG.- 6.9

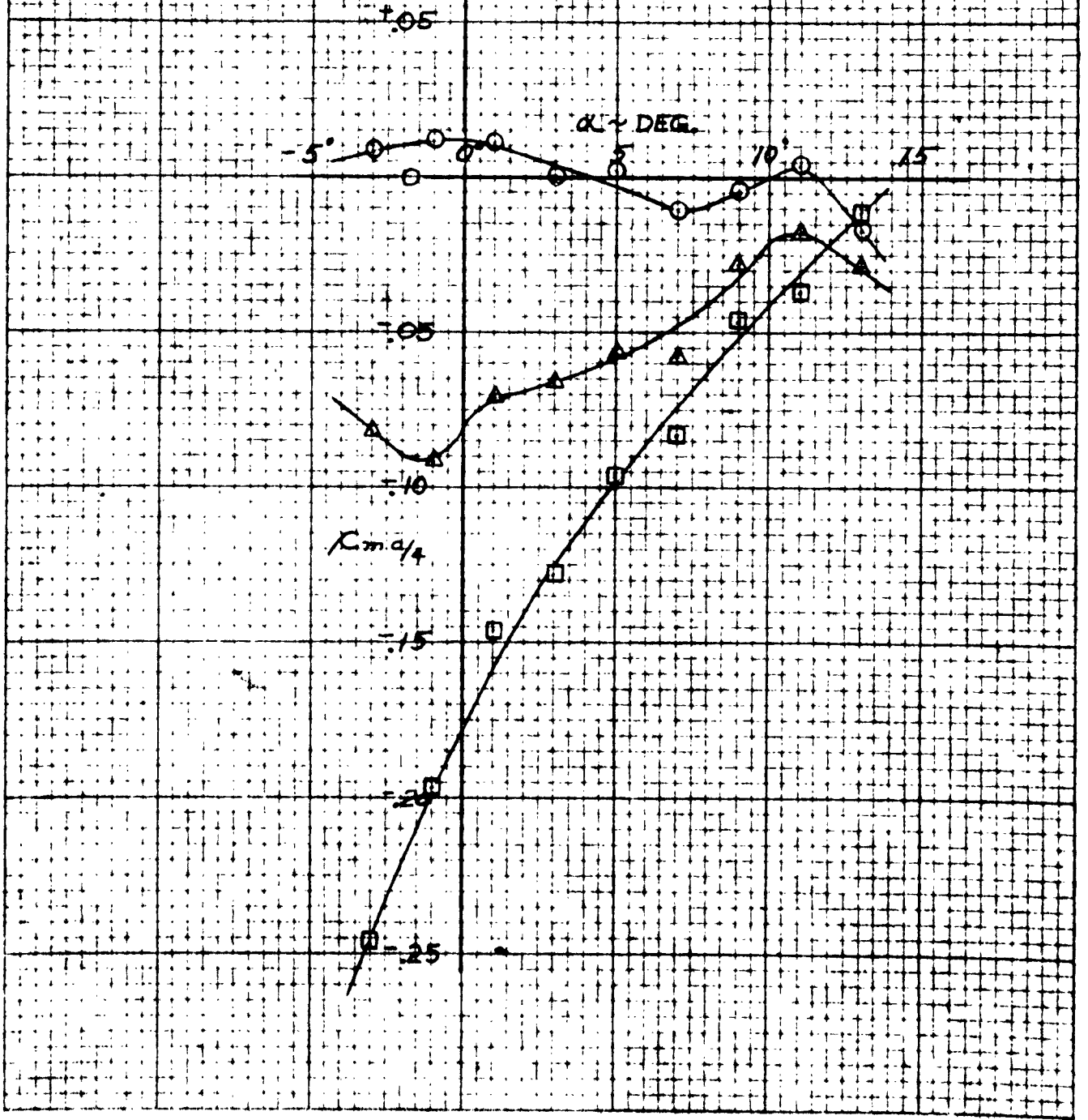


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b R.N. = 6.14 x 10⁶ 6-8-52

$C_{m_{c/4}}$ vs. α FOR SEVERAL VALUES OF C_q

FIG.-70

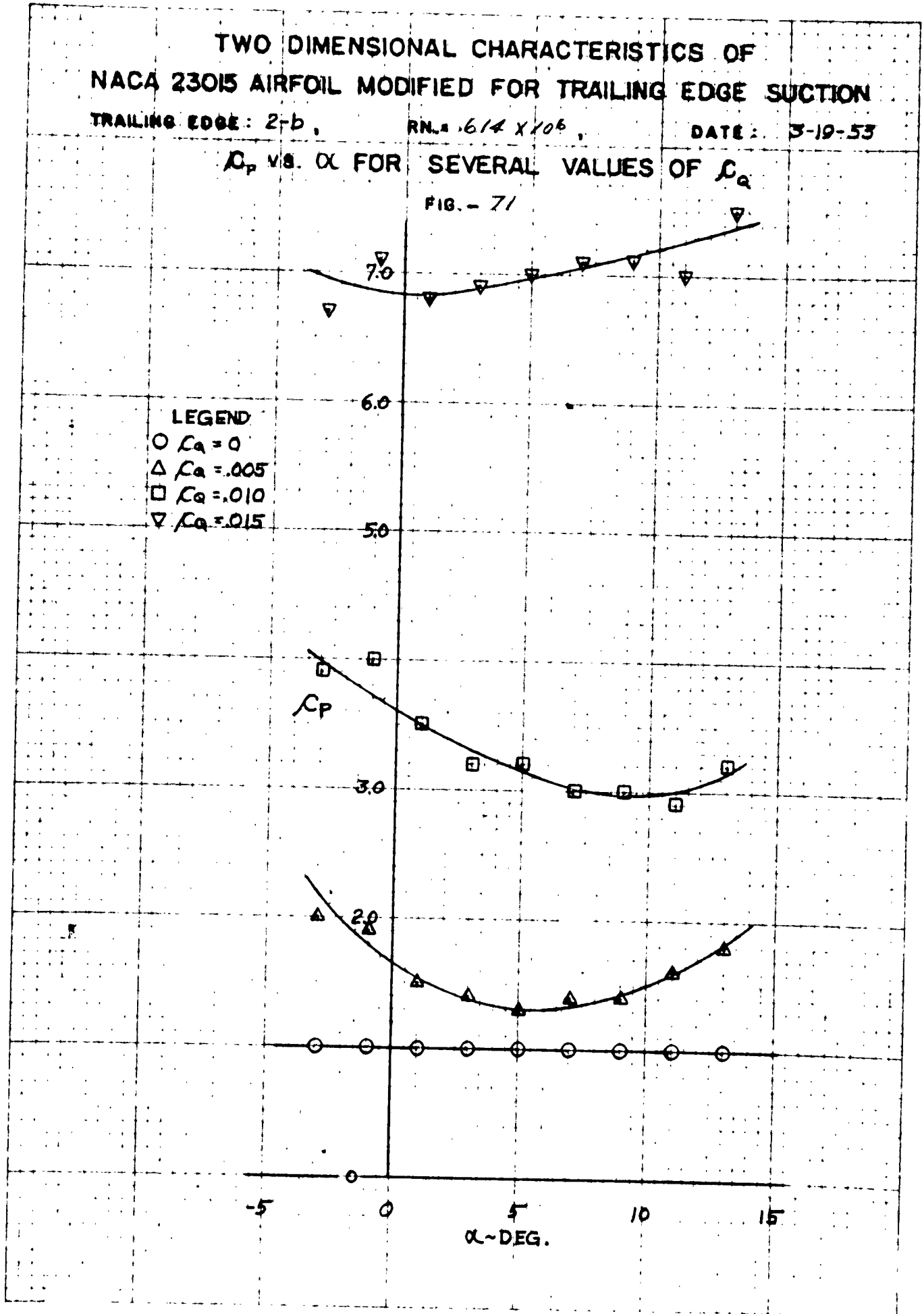


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: 2-b, RN. = .614 X 10⁶, DATE: 3-19-53

C_P VS. α FOR SEVERAL VALUES OF C_Q

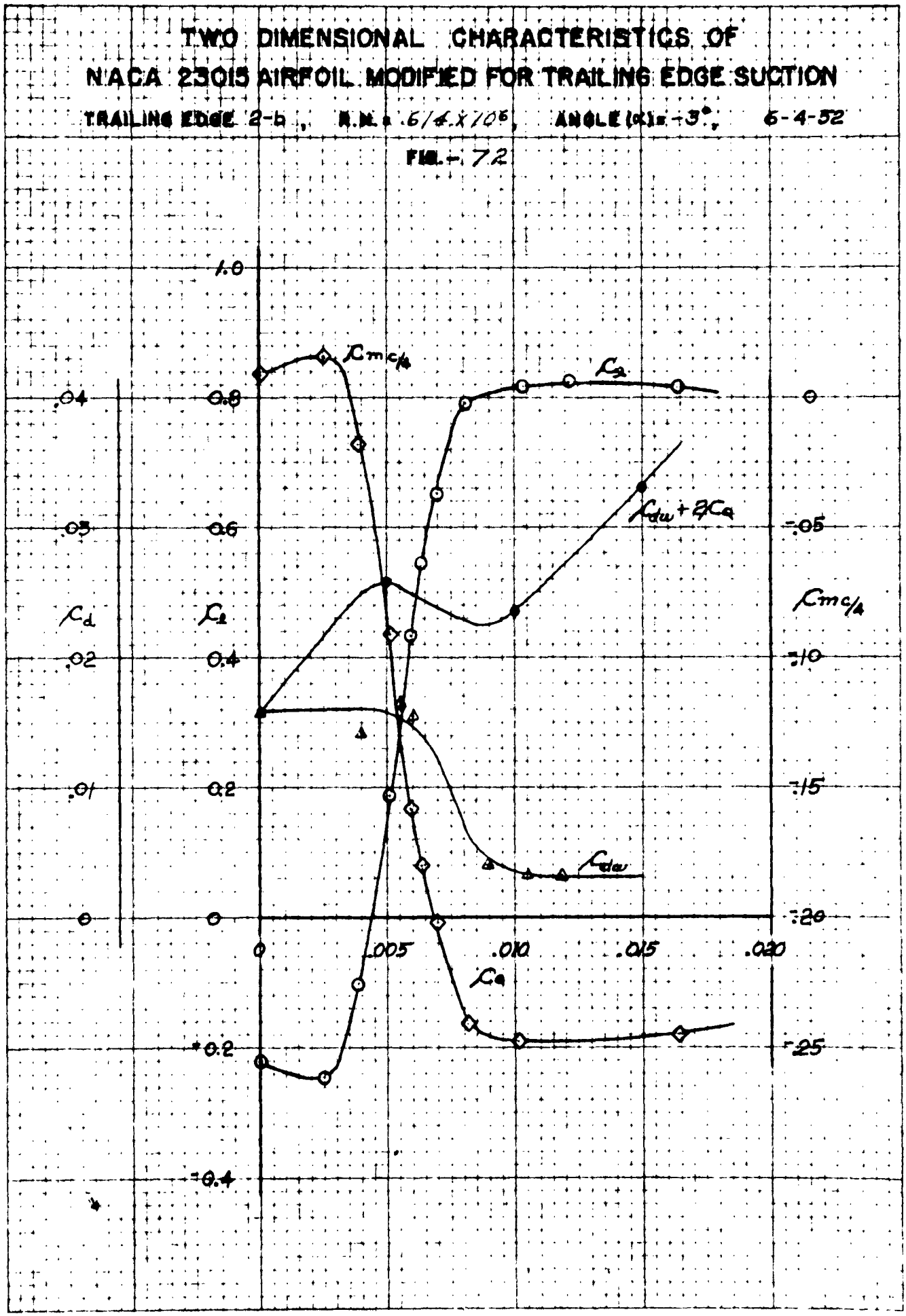
FIG. - 71



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b , R.N. = .6/4 X 10⁶, ANGLE (α) = -3°, 6-4-52

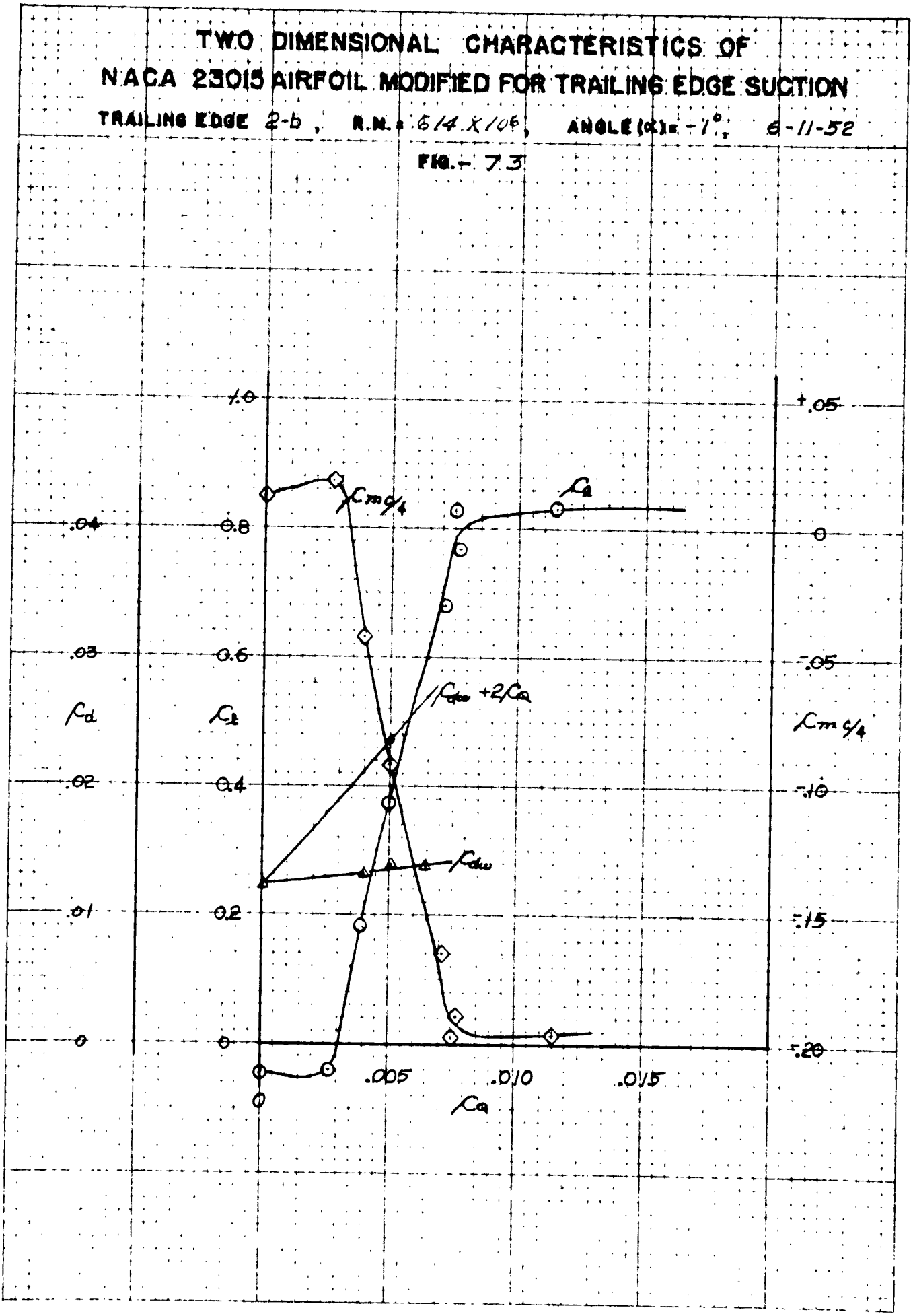
FIG. 7.2



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b , R.N. = 6.14 X 10⁶, ANGLE (α) = -1°, 6-11-52

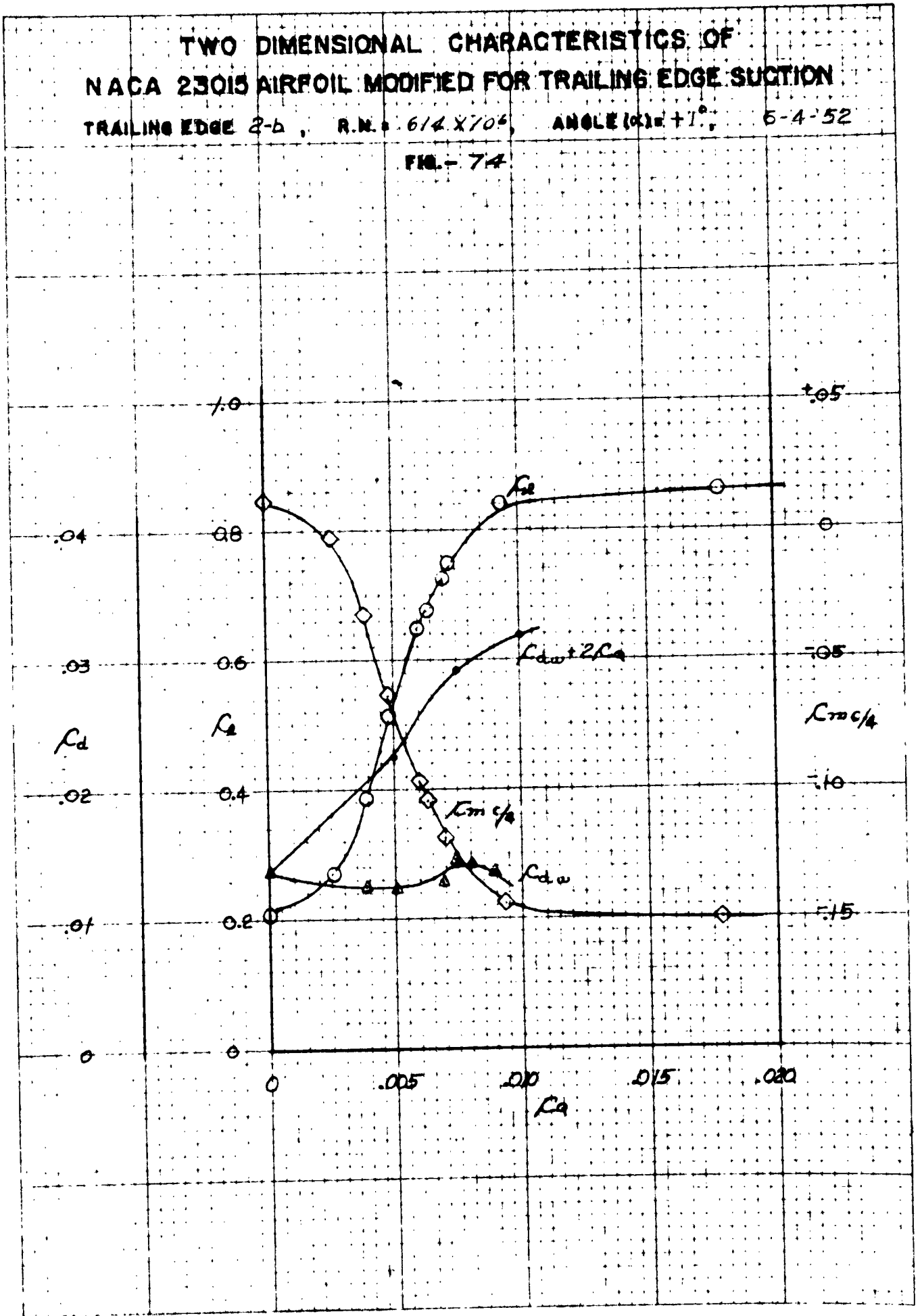
FIG. - 73

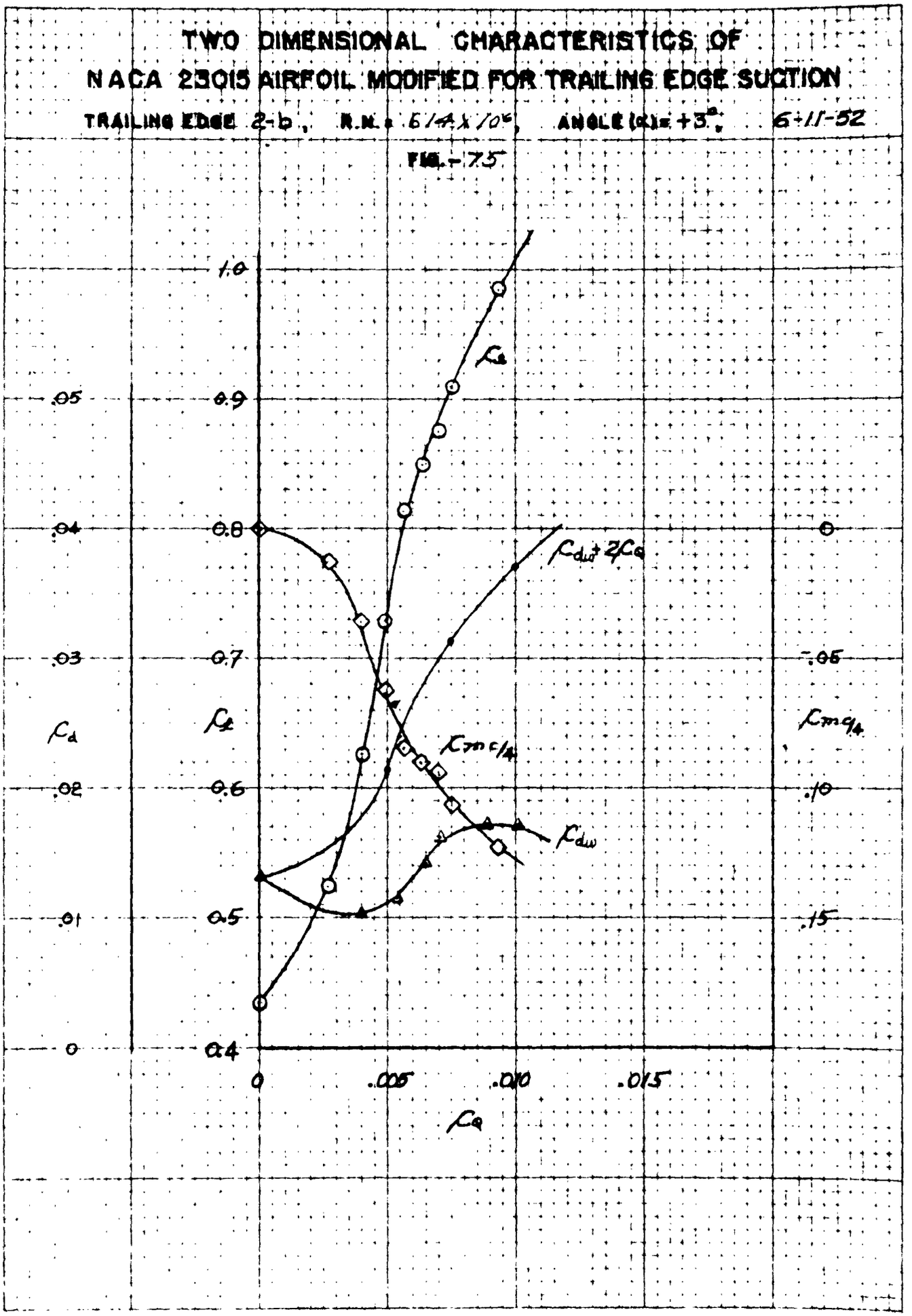


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b , R.N. = 614 X 10⁶, ANGLE (α) = +1°, 6-4-52

FIG. - 74

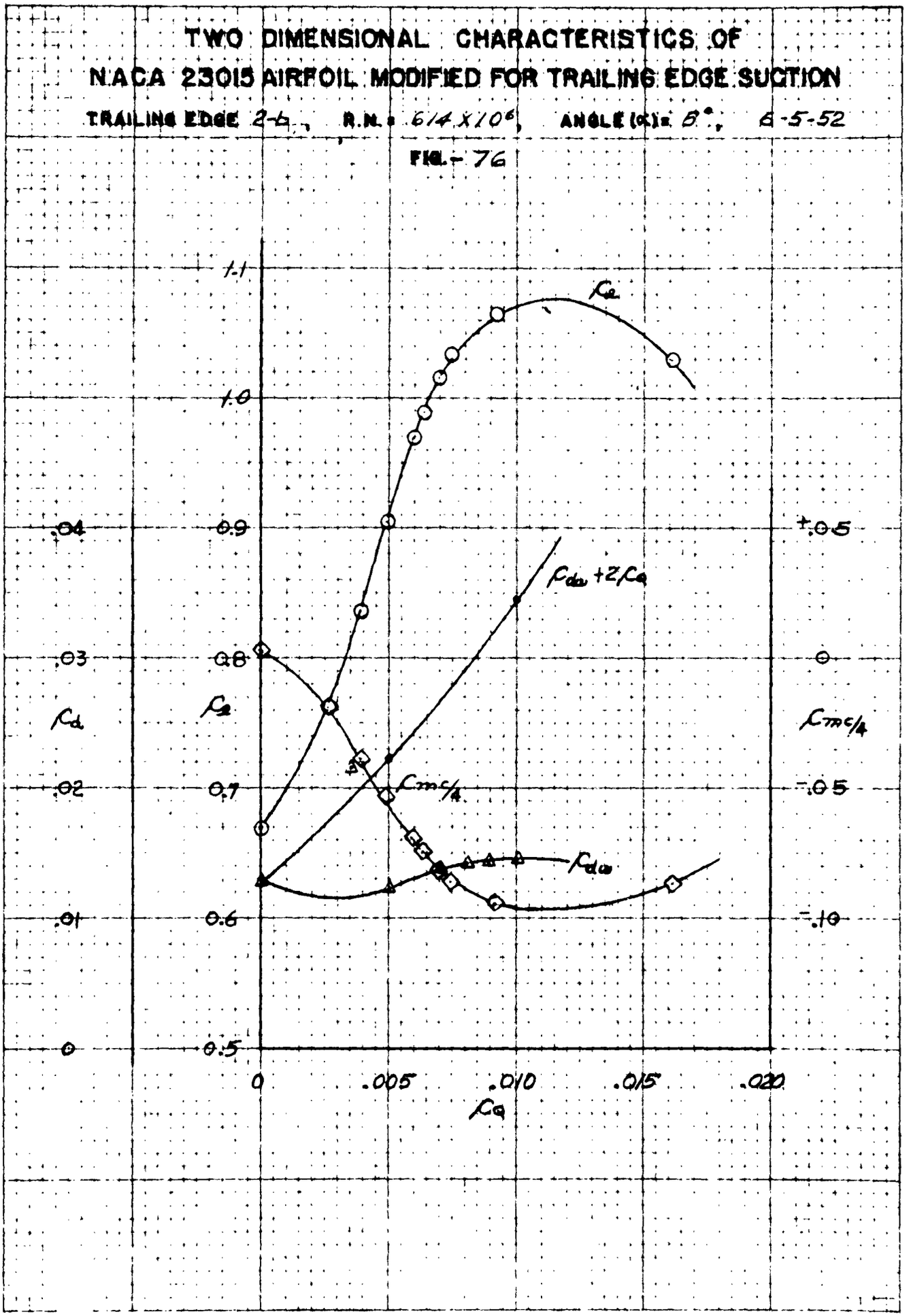


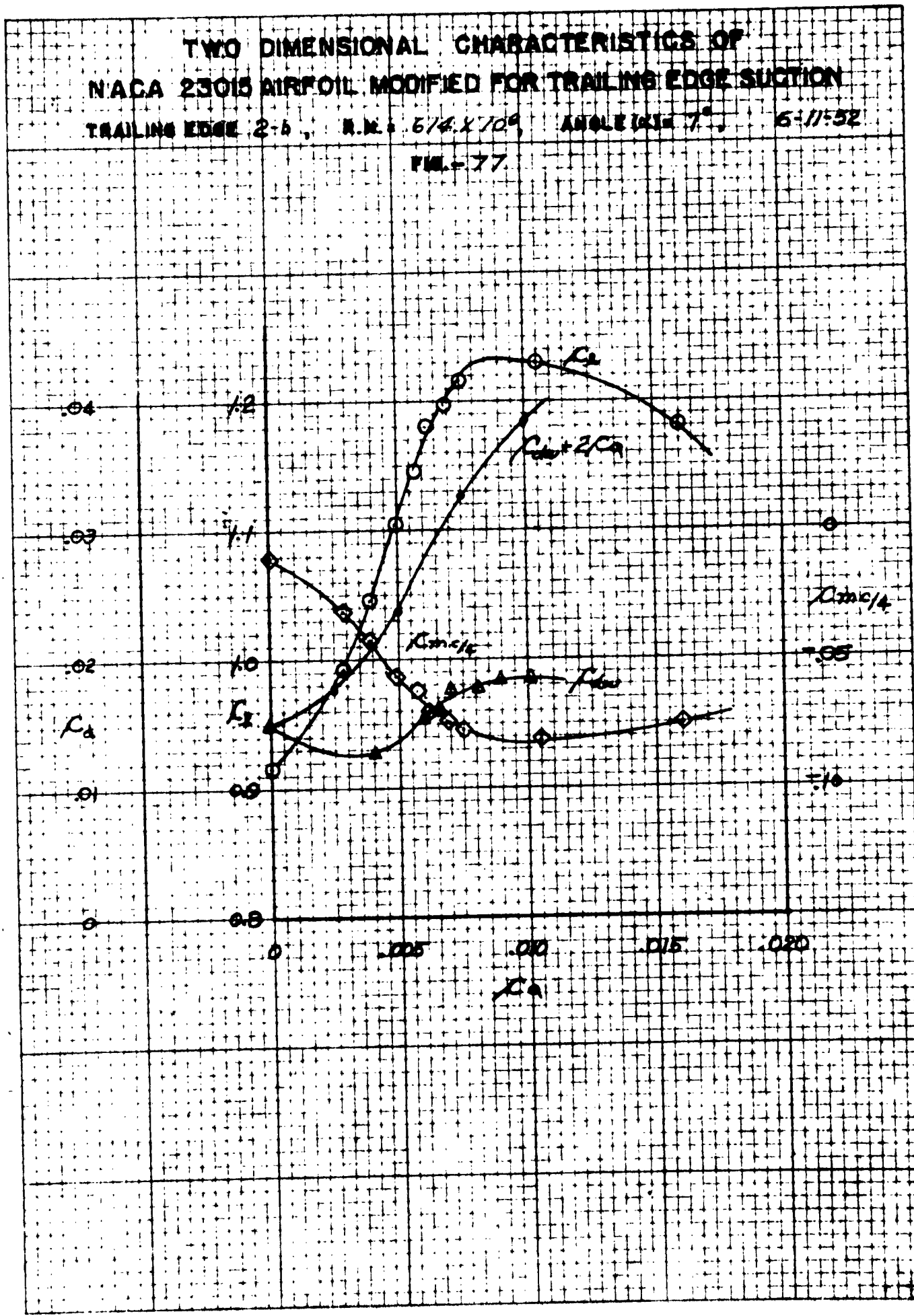

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-b, R.N. = 6.4 x 10^6, ANGLE (α) = +3°, 6-11-52
FIG. - 7.5
1.0
0.9
0.8
0.7
0.6
0.5
0.4
.05
.04
.03
.02
.01
0
0
-.05
.10
.15
.005
.010
.015
c_l
c_d
$c_{m\,c/4}$
$c_{d_w} + 2c_q$
c_{d_w}
c_q

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-4, R.N. = 6.14 X 10⁶, ANGLE (α) = 8°, 6-5-52

FIG. - 76

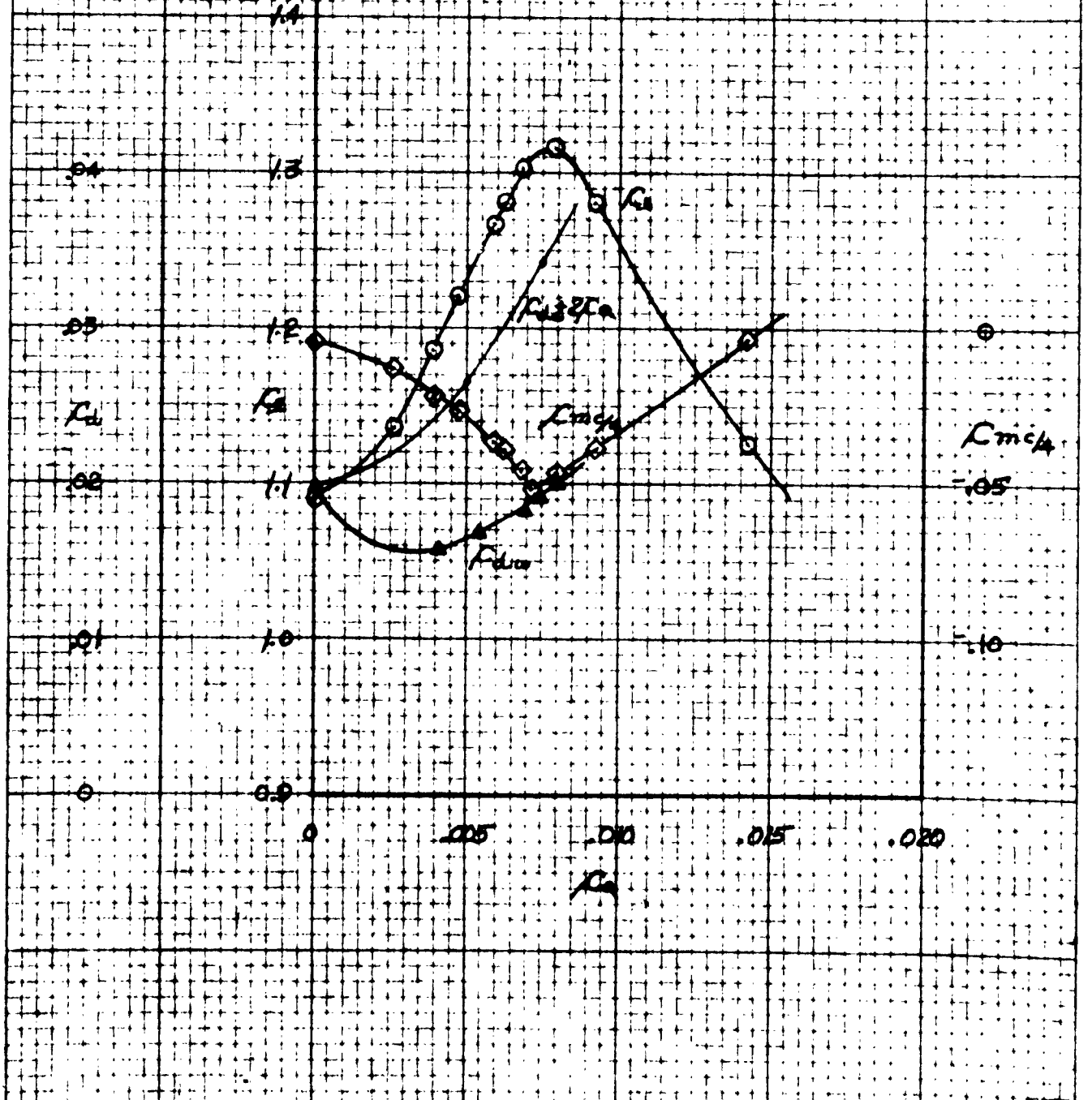



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-b , R.N. = 6.14 x 10^6, ANGLE OF α = 7°, 6-11-52
FIG. - 77
C_l
$C_{l_{max}} + 2C_{d_0}$
$C_{m_{c/4}}$
$C_{m_{c/4}}$
$C_{l_{max}}$
C_l
C_d
1.2
1.1
1.0
0.9
0.8
.04
.03
.02
.01
0
-.05
-.10
.005
.010
.015
.020
C_d

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-b , R.N. = 6.4 X 10⁶, ANGLE (α) = 9°, 6-5-52

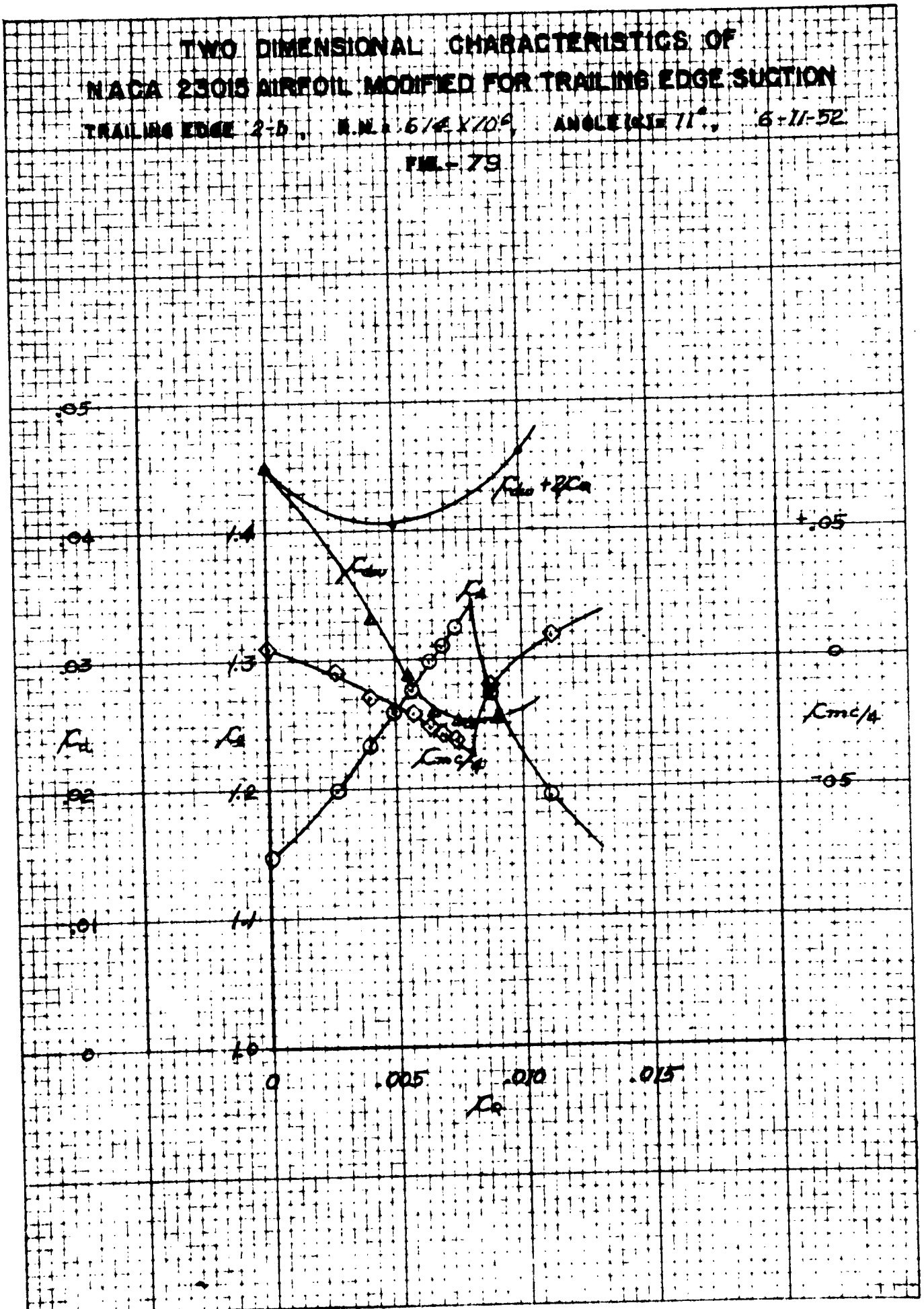
FIG. - 78

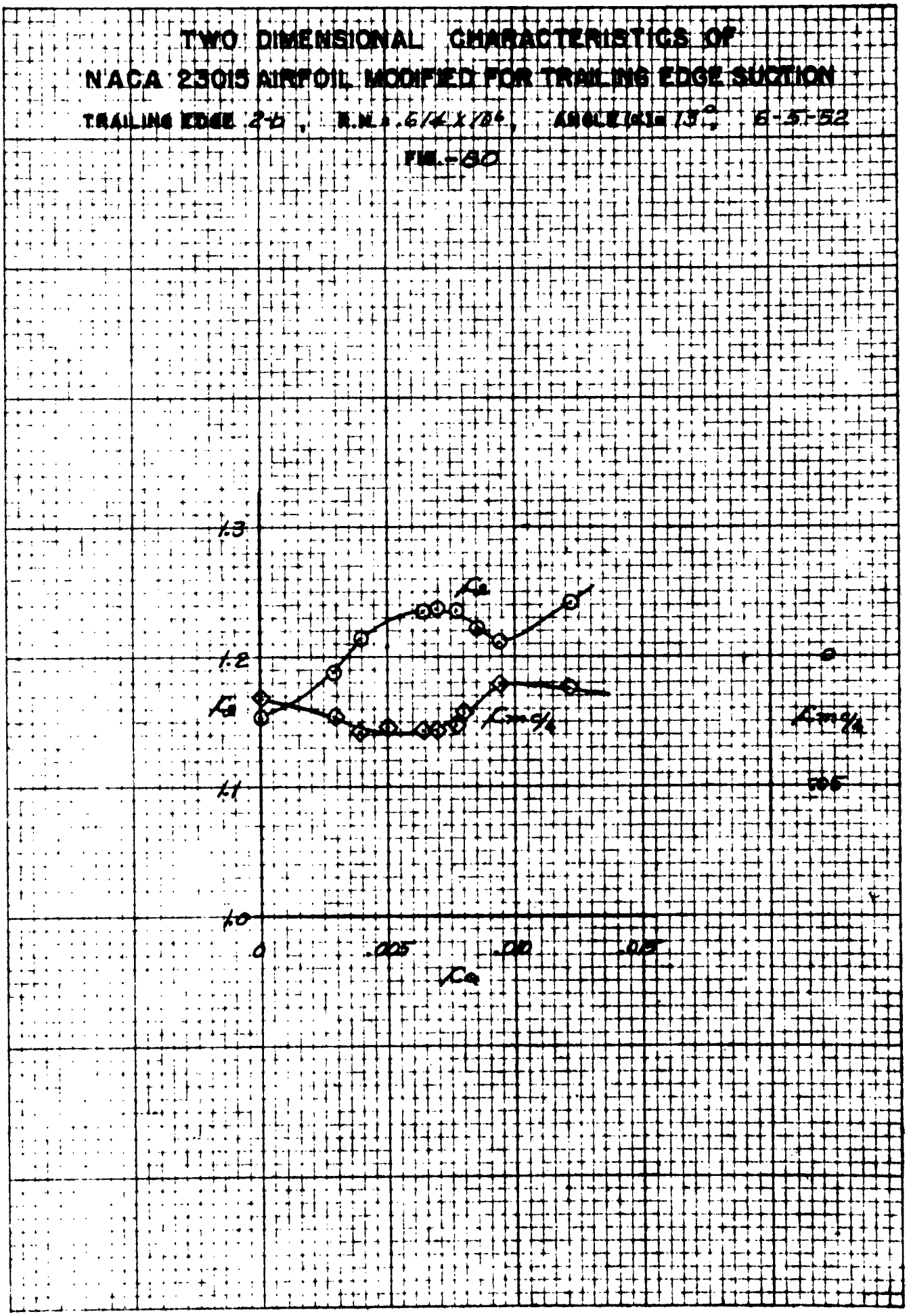


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-5 , R.N. = 6¼ X 10⁶ , ANGLE (α) = 11° , 6-11-52

FIG. - 79

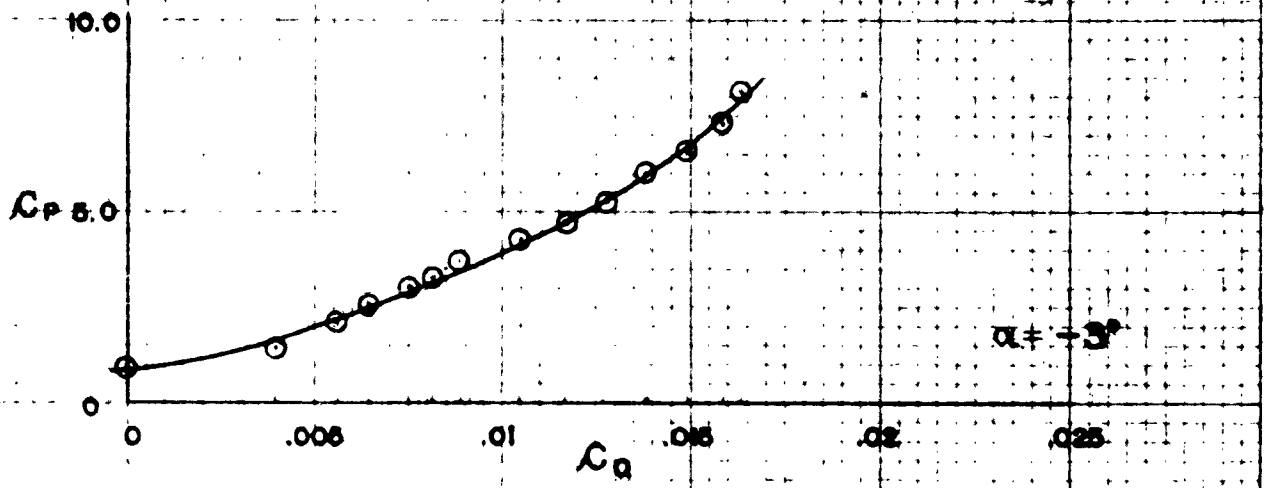


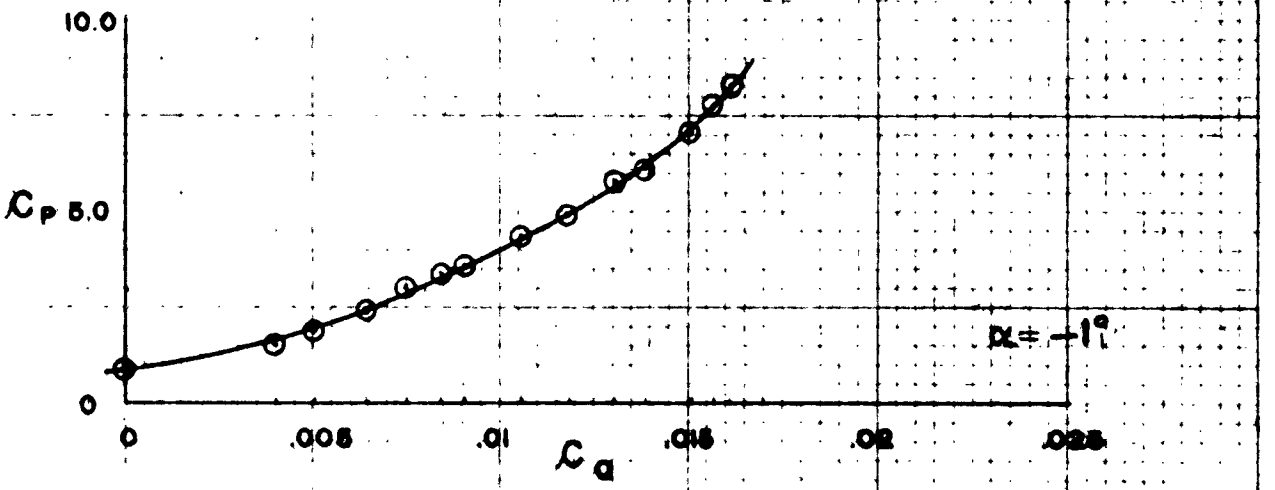

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-D , R.N. = .6/4 x 10^6 , ANGLE (α) = 13°. 8-5-52
FIG.-60
1.3
1.2
1.1
1.0
0
.005
.010
.015
Cl
Cm c/4
α
Cm c/4
Cd

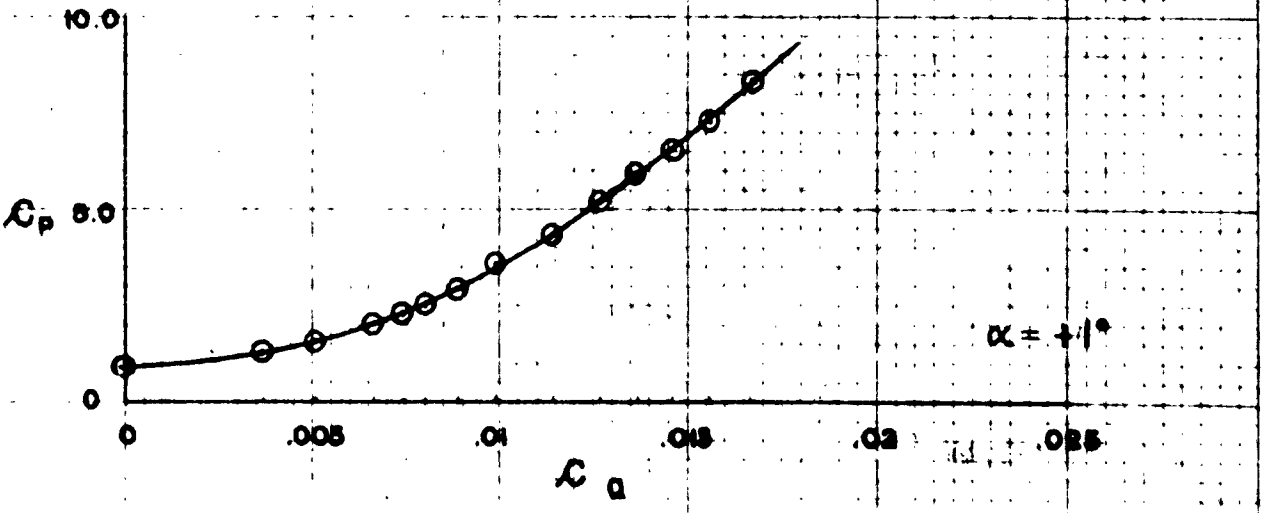
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-b , RN. = 6.14 x 10^6 DATE: 3-19-53

C_p VS. C_q

FIG. - 81



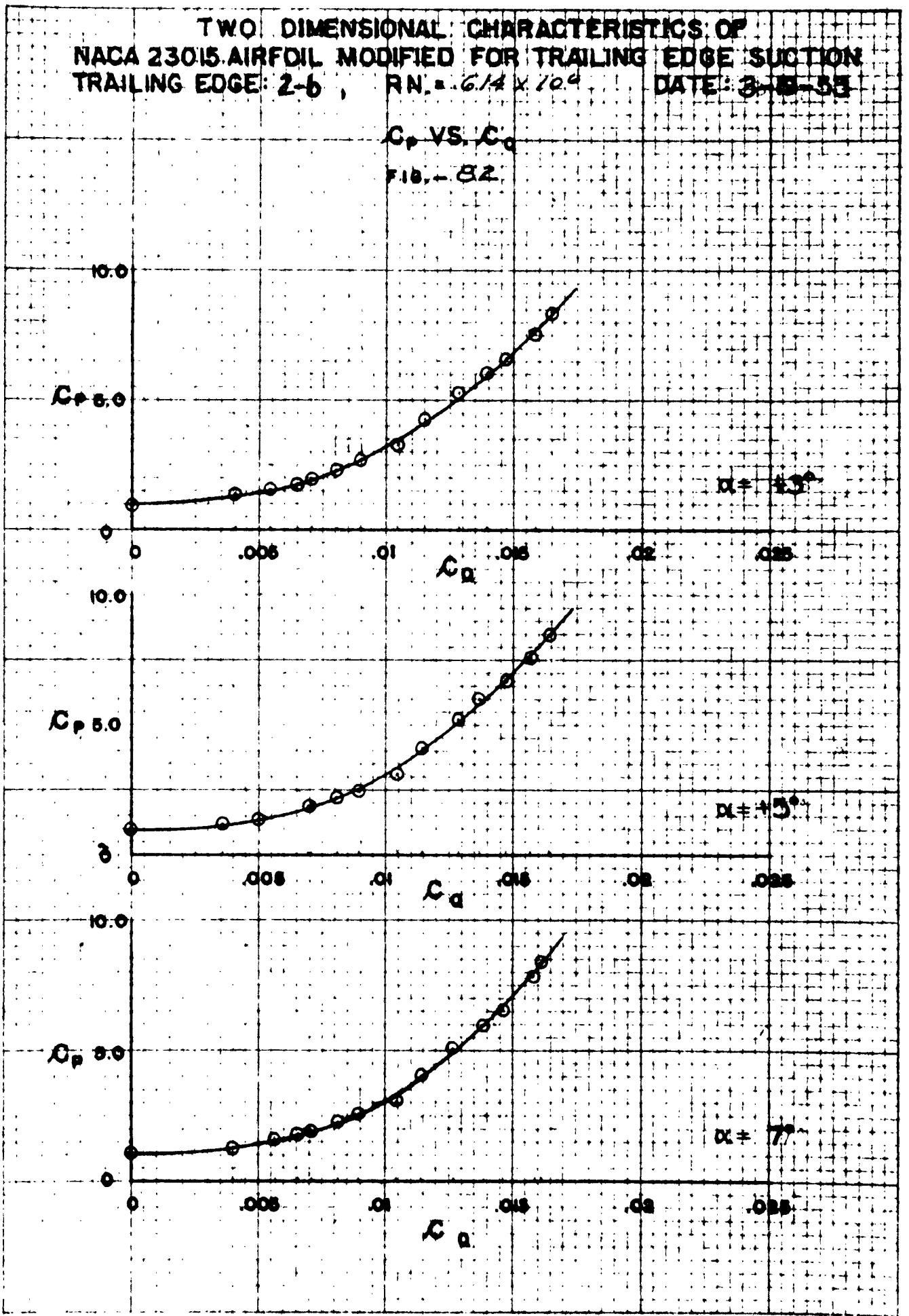




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-b , RN. = 6.14 x 10^6 DATE: 3-6-53

C_p VS. C_q

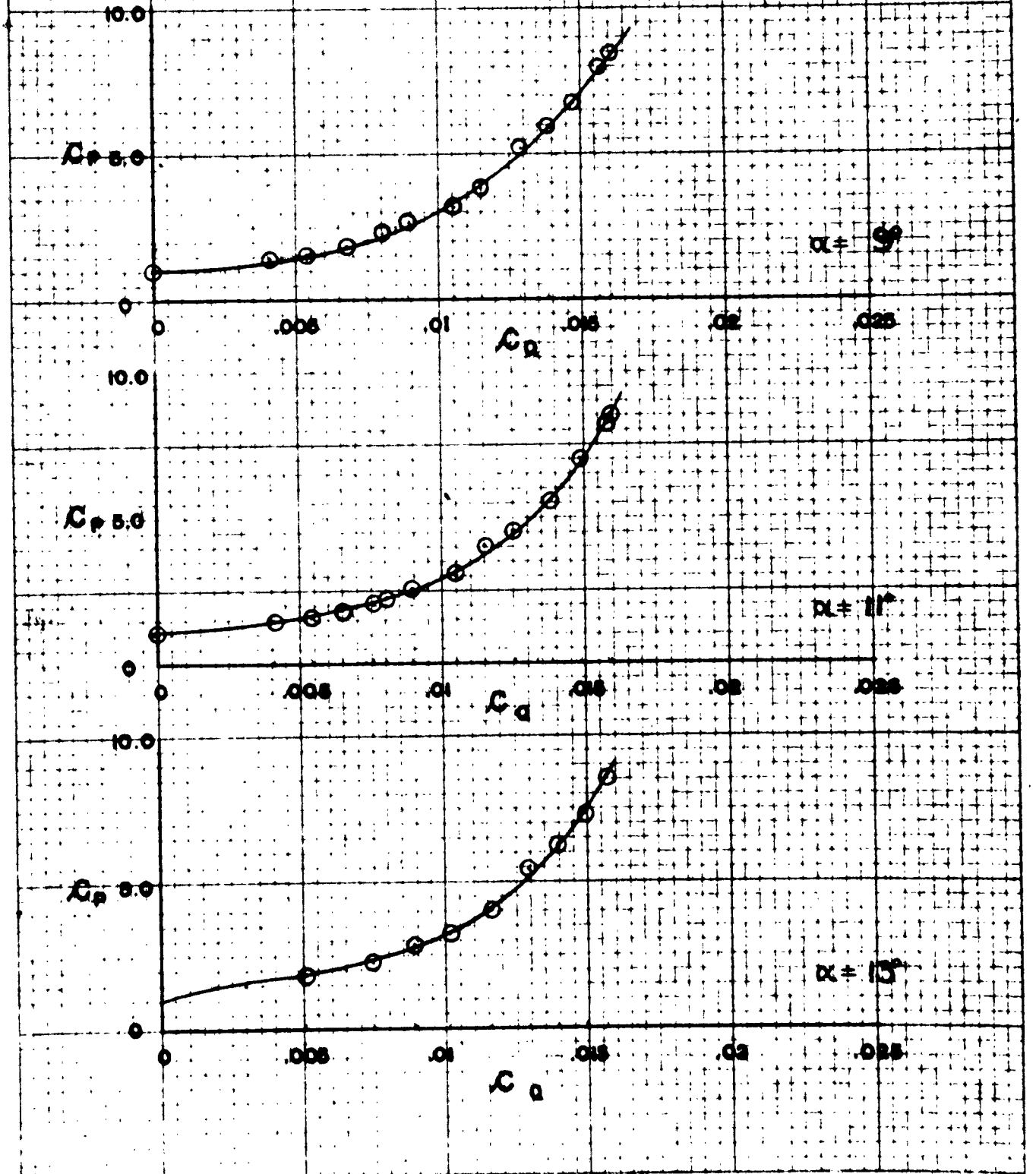
FIG. - 82



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-b , R.N. = .614 x 10^6 DATE: 3-19-53

C_p VS. C_q

FIG. - 83

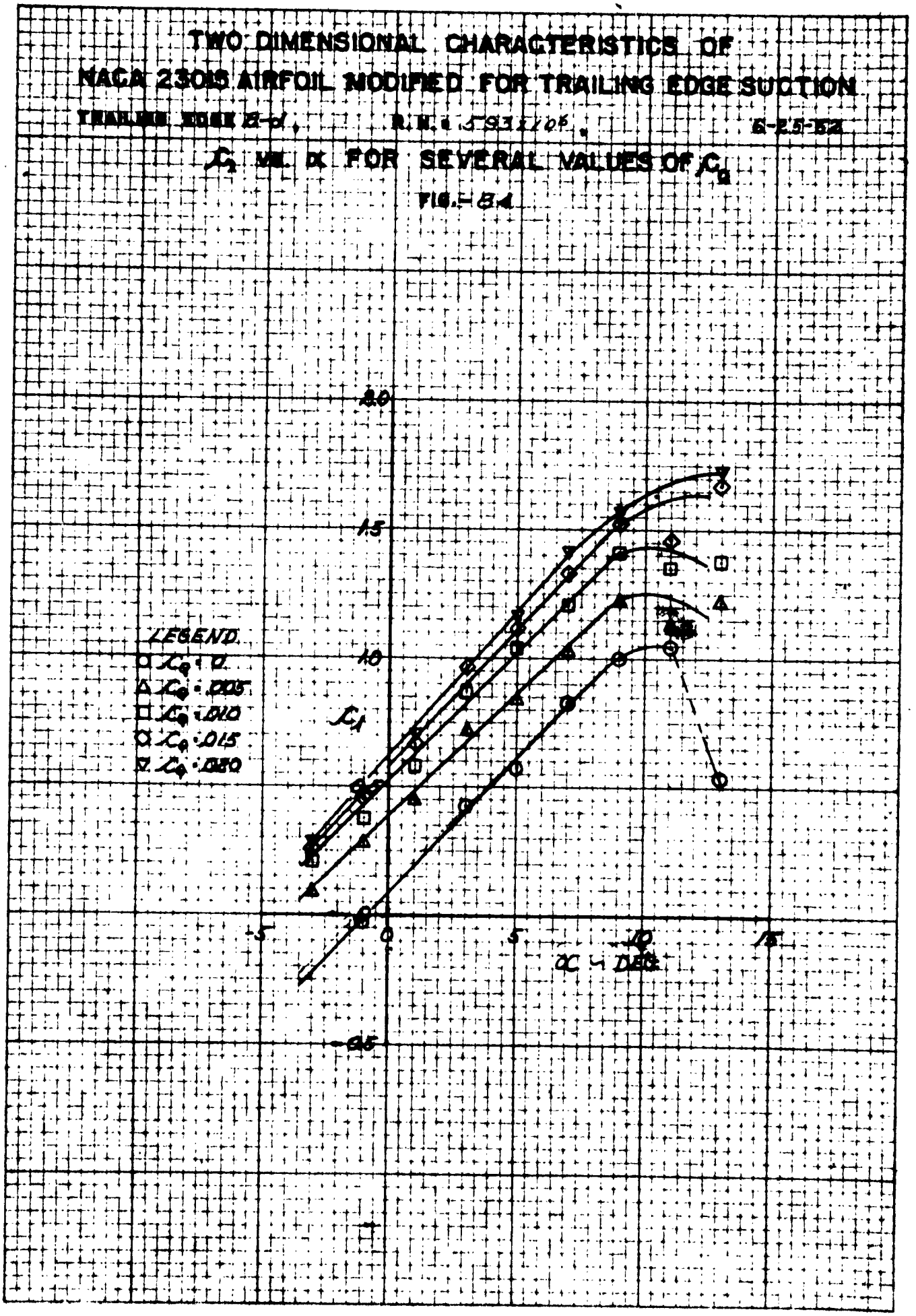


TWO DIMENSIONAL CHARACTERISTICS OF NACA 2301S AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE Z-d, R.N. = 5.93 x 10^6, 6-25-52

C_l VS. α FOR SEVERAL VALUES OF C_q

FIG. - 8.4



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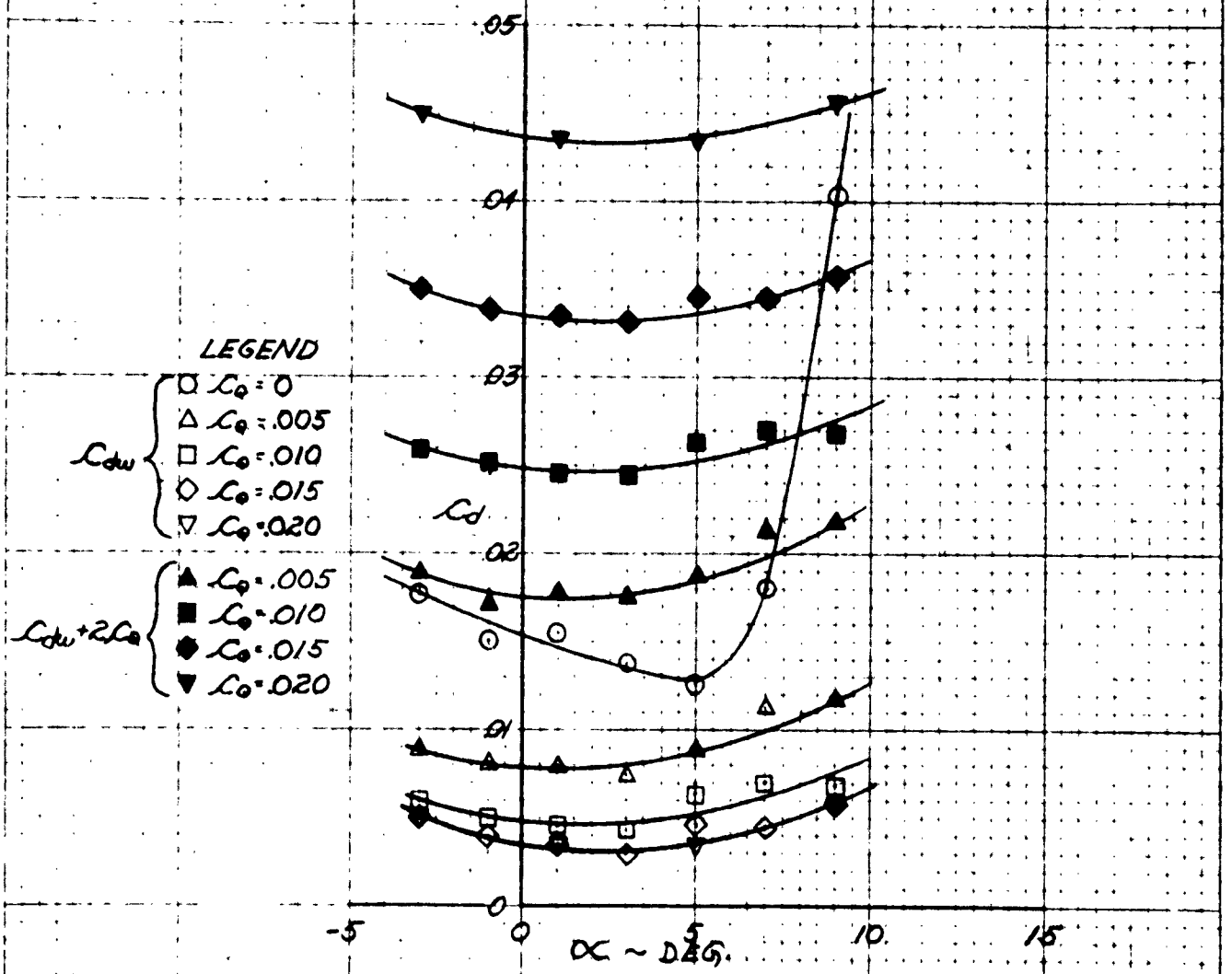
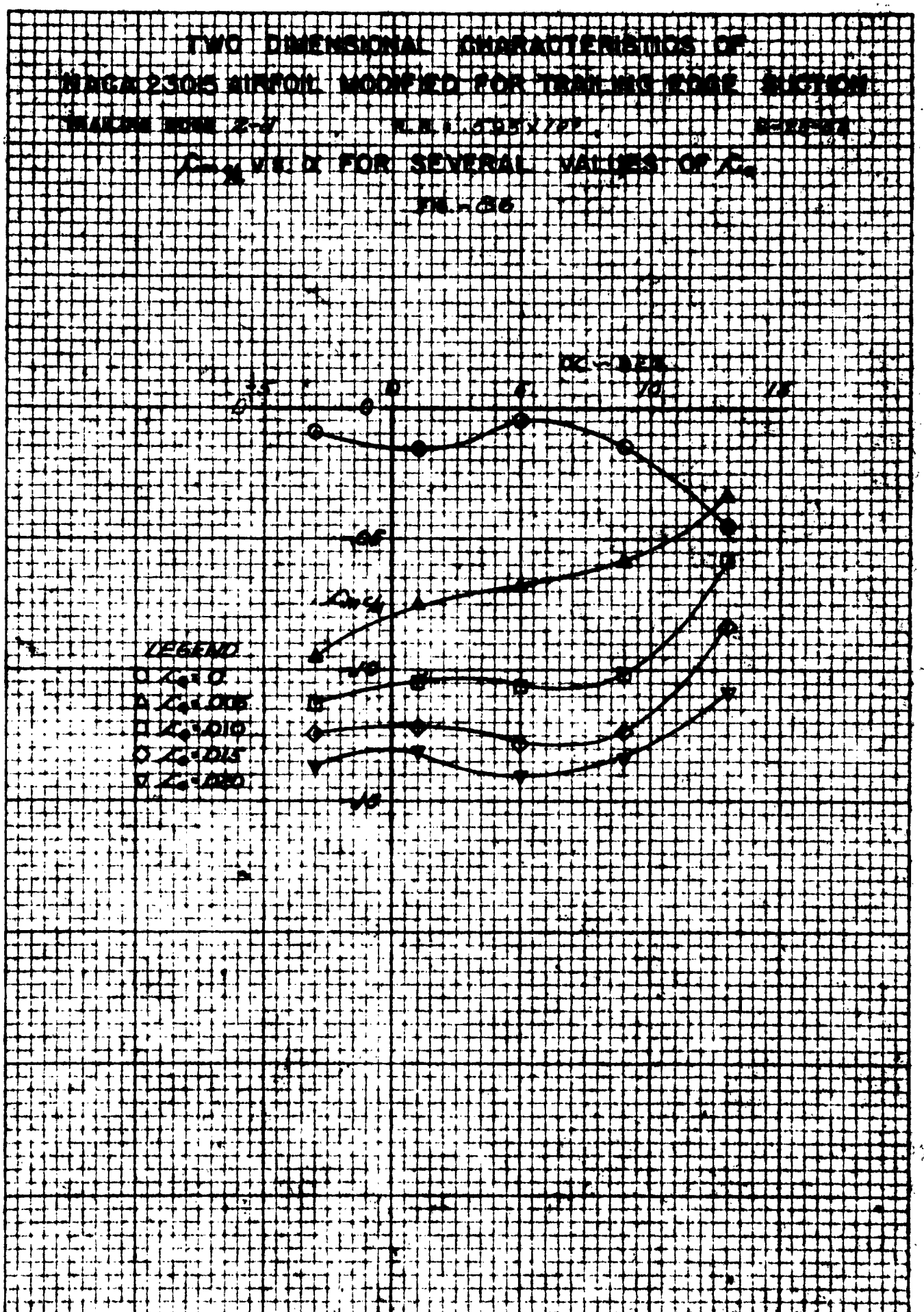
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-d , R.N. = 5.93 X 10⁶ 6-25-52

c_{d_w} AND $(c_{d_w} + 2c_q)$ VS. α FOR SEVERAL VALUES OF c_q

FIG.-B5



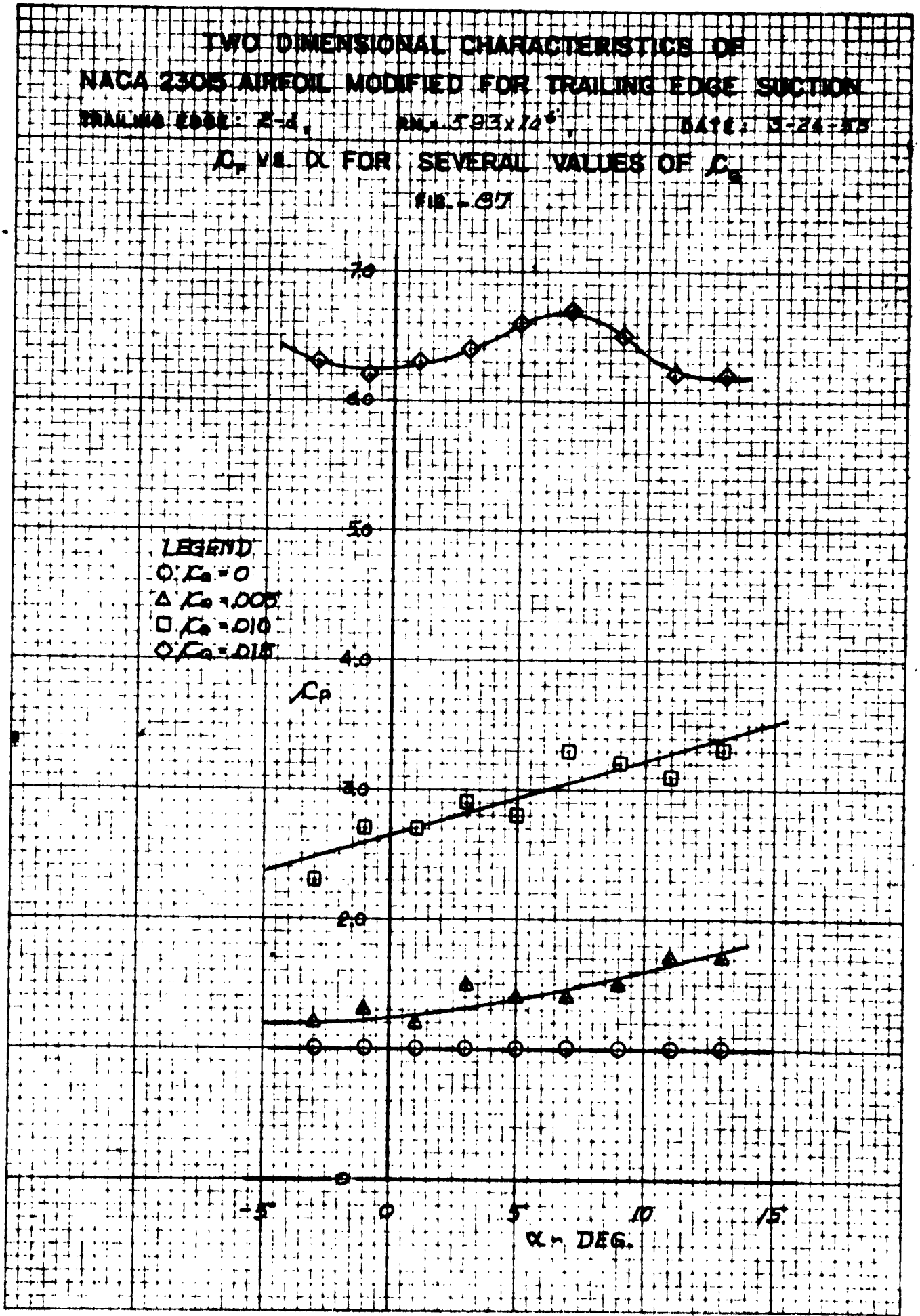

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 2305 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
C_m VS. α FOR SEVERAL VALUES OF C_q
FIG. 36
LEGEND
$C_q = 0$
$C_q = .005$
$C_q = .010$
$C_q = .015$
$C_q = .020$

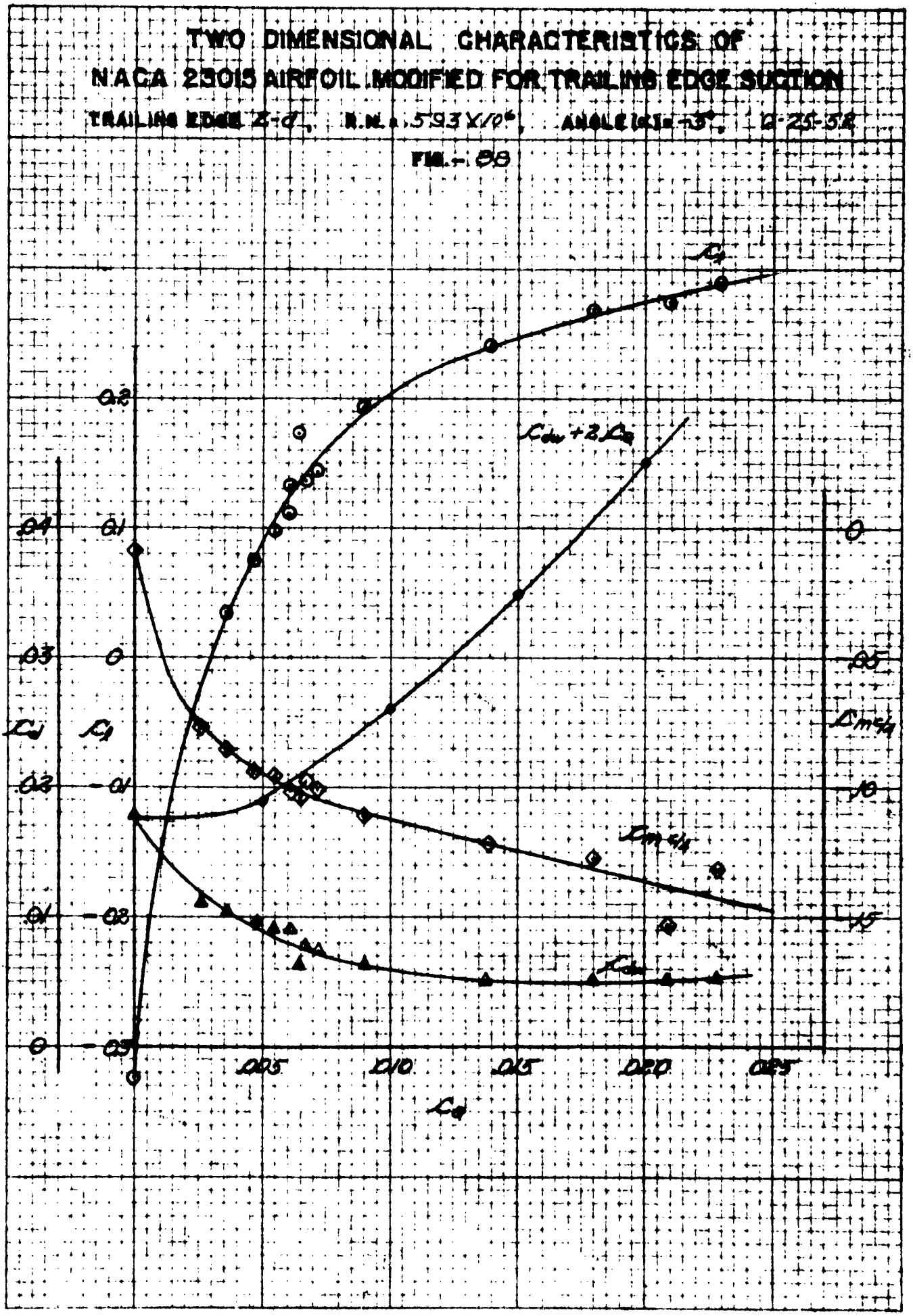
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: Z-d, RN. 5.93 x 10^6, DATE: 3-24-37

C_p VS. α FOR SEVERAL VALUES OF C_Q

FIG. - 87

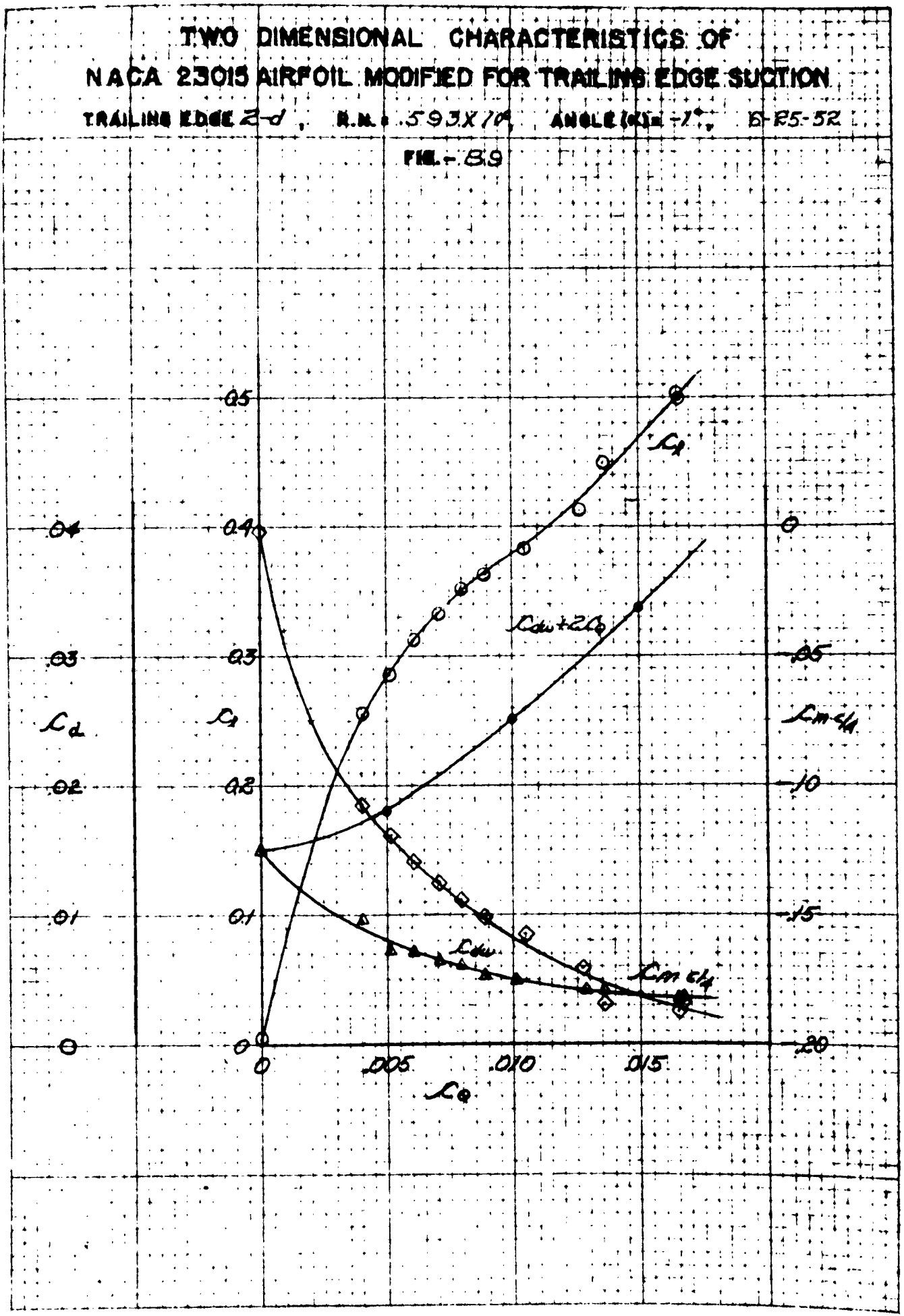



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE Z-d, R.N. = 5.93 X 10^6, ANGLE (α)i = -3°, 12-25-52
FIG. - 88
C_l
$C_{d_w} + 2C_q$
$C_{m_{c/4}}$
C_{d_w}
C_q
0.2
0.1
0
-0.1
-0.2
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
0.05
0.10
0.15
0.20
0.25
0
-0.05
-0.10
-0.15

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-d , R.N. = .593X10⁶, ANGLE (α) = -1°, 6-25-52

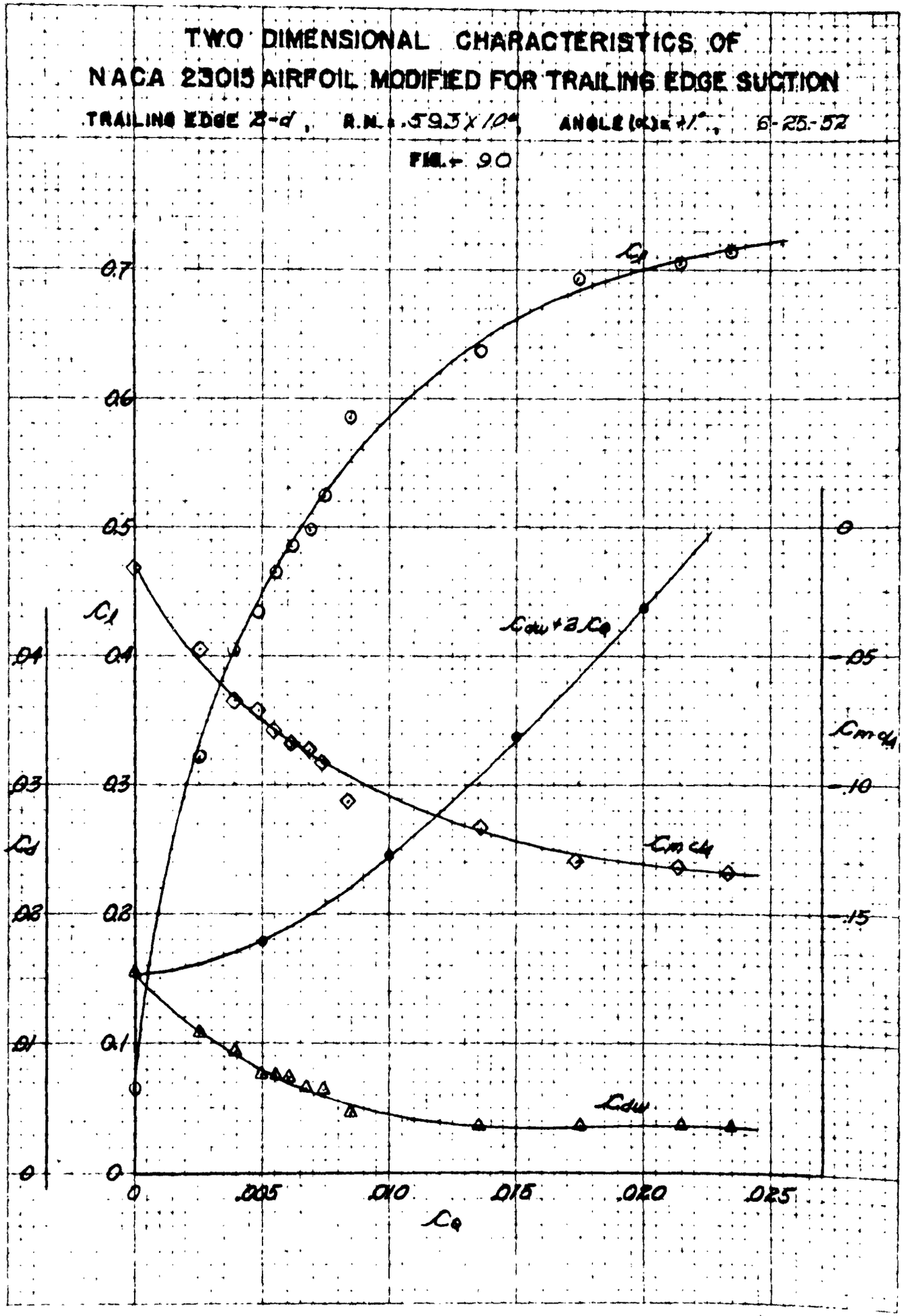
FIG. - 89



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-d, R.N. = .593 x 10⁶, ANGLE (α) = +1°, 6-25-52

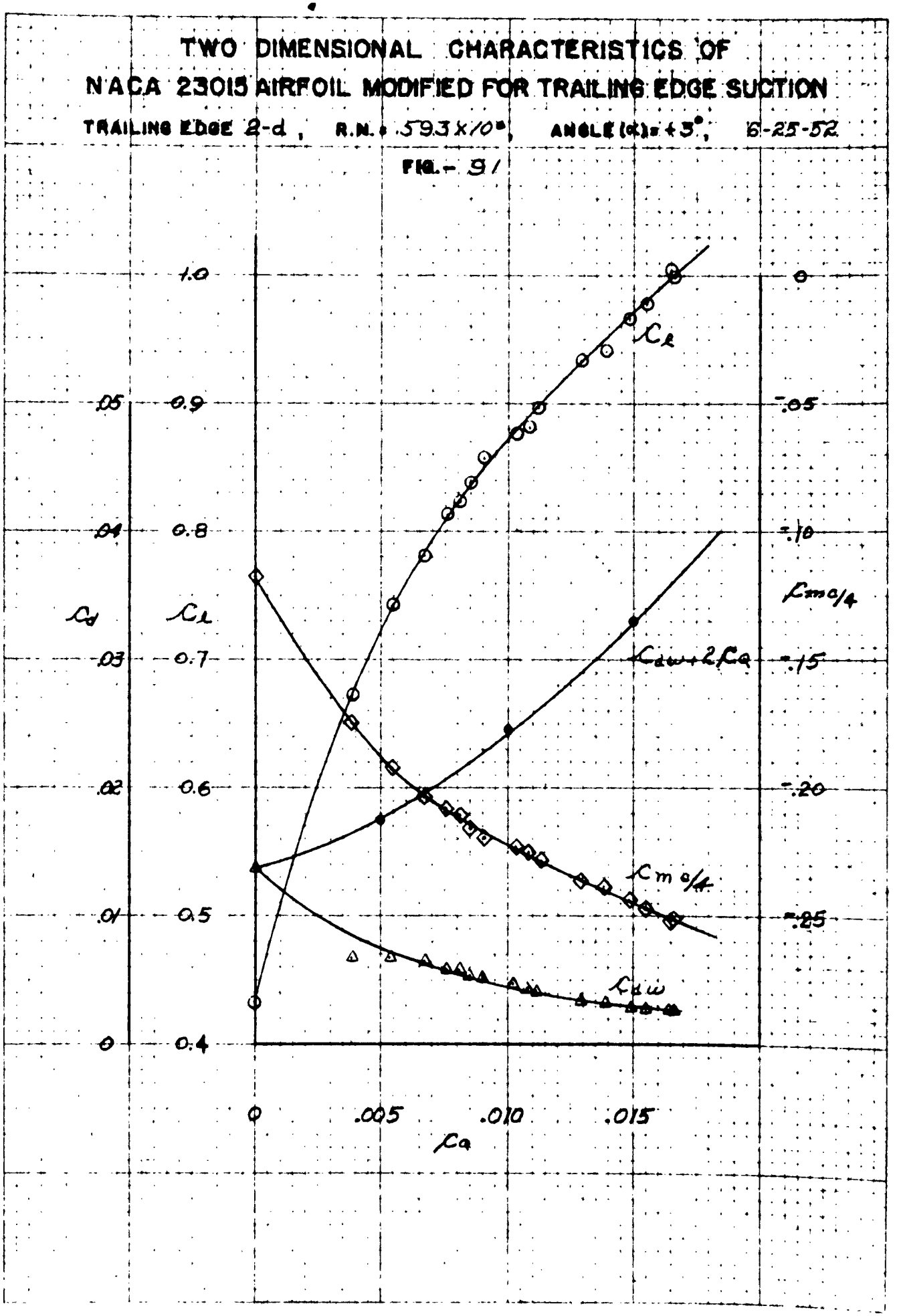
FIG. 90



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-d , R.N. = .593 x 10⁶, ANGLE (α) = +3°, 6-25-52

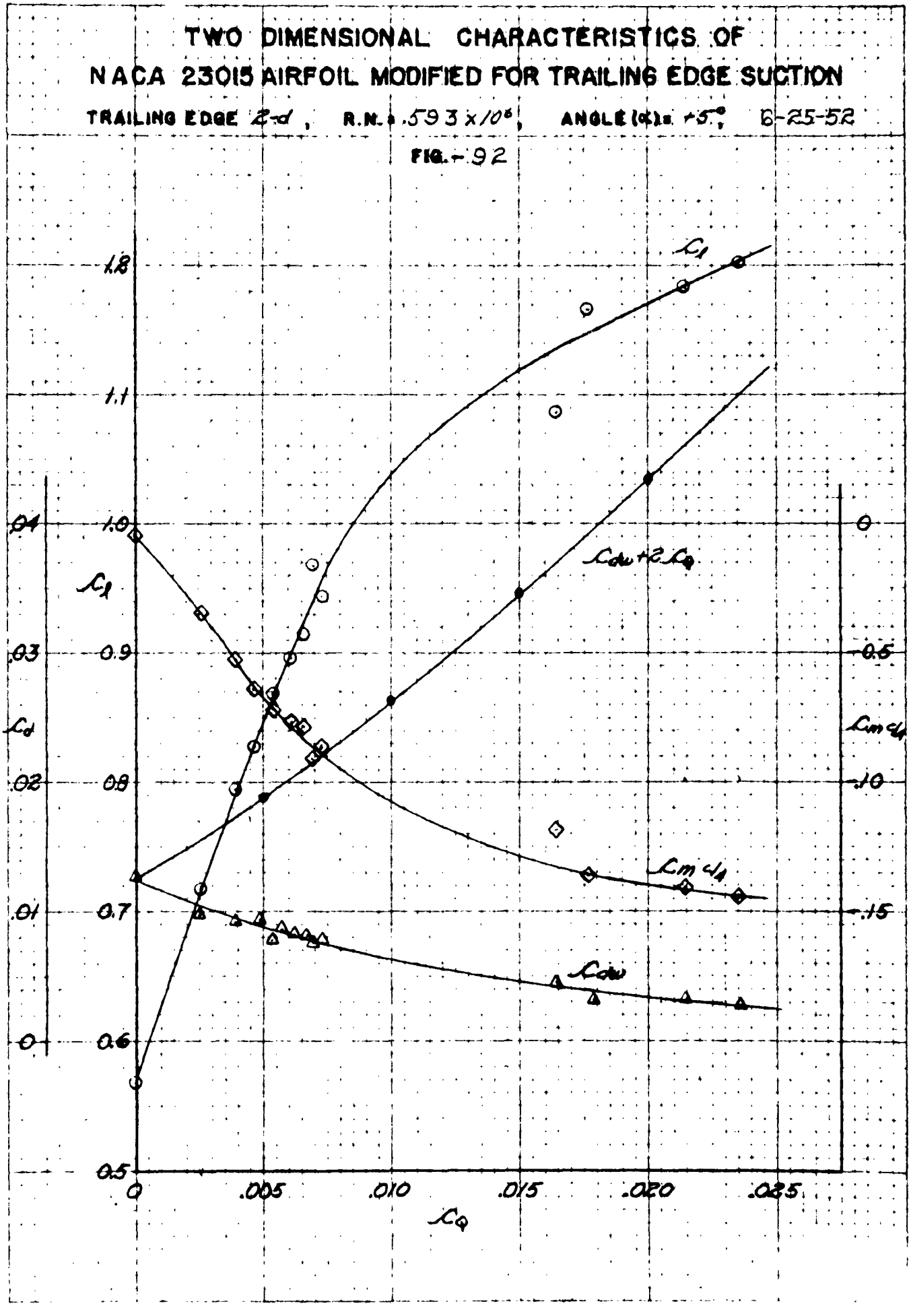
FIG. - 91

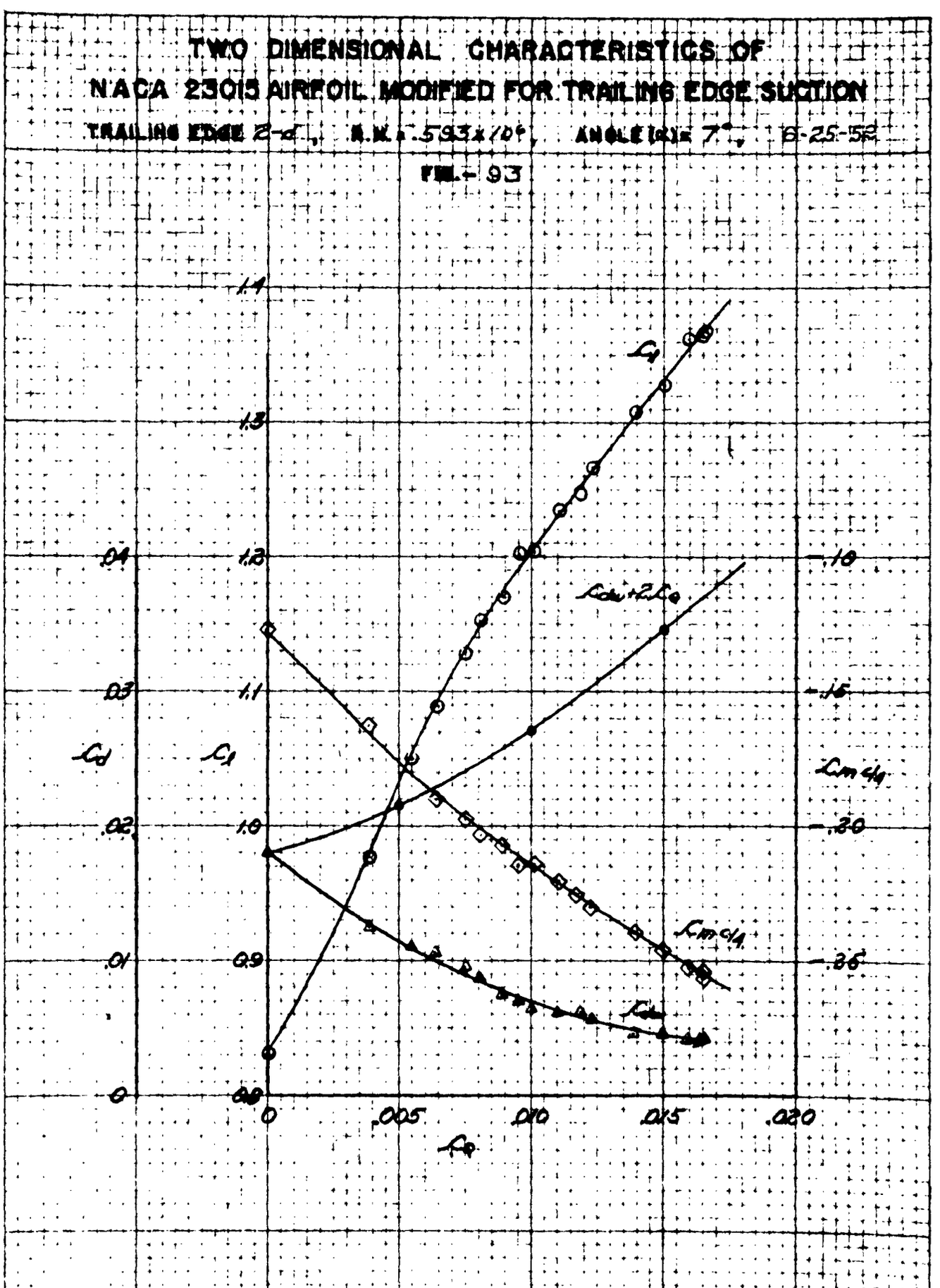


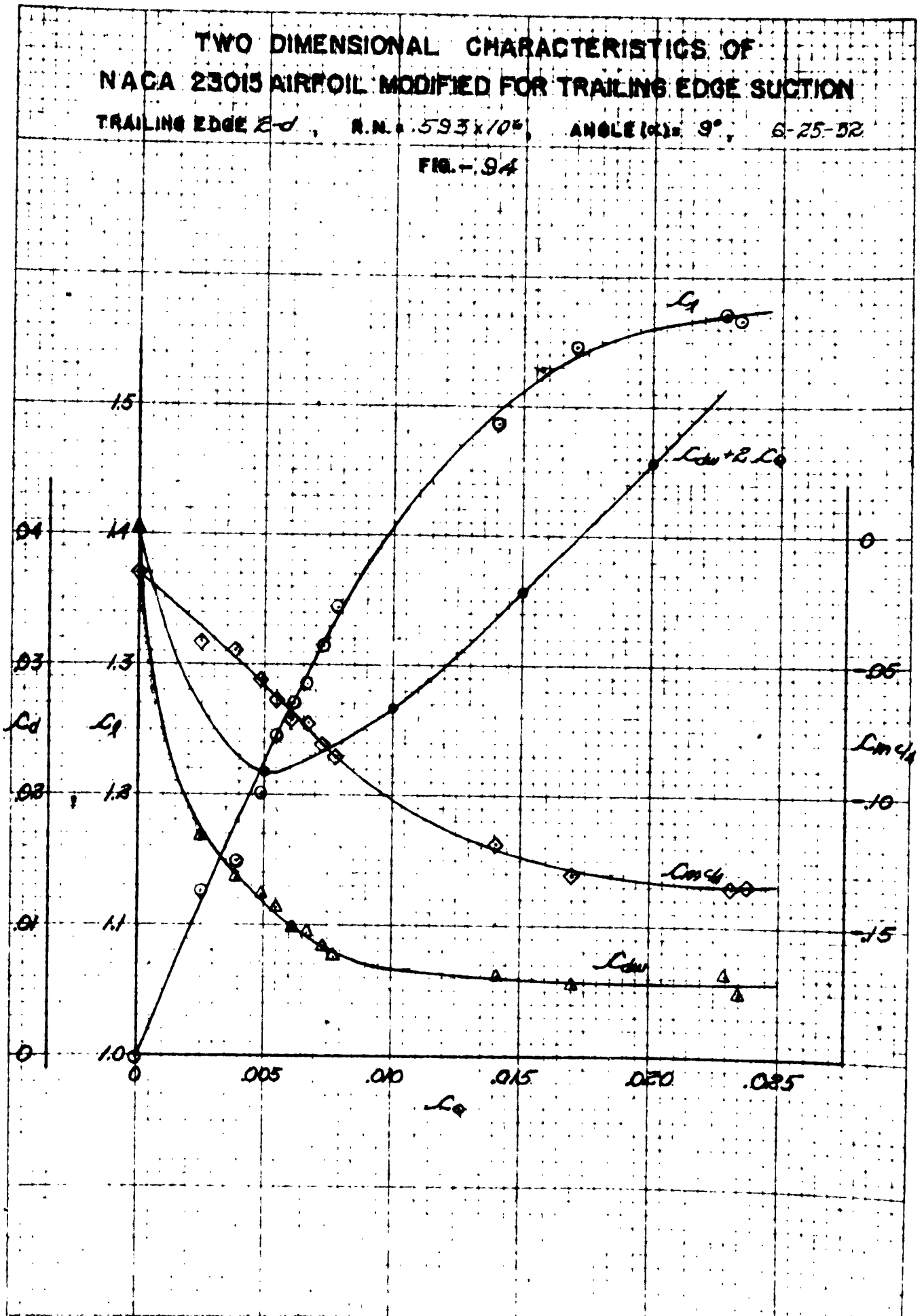
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-d , R.N. = .593 x 10^6, ANGLE (α) = +5°, 6-25-52

FIG. - 92



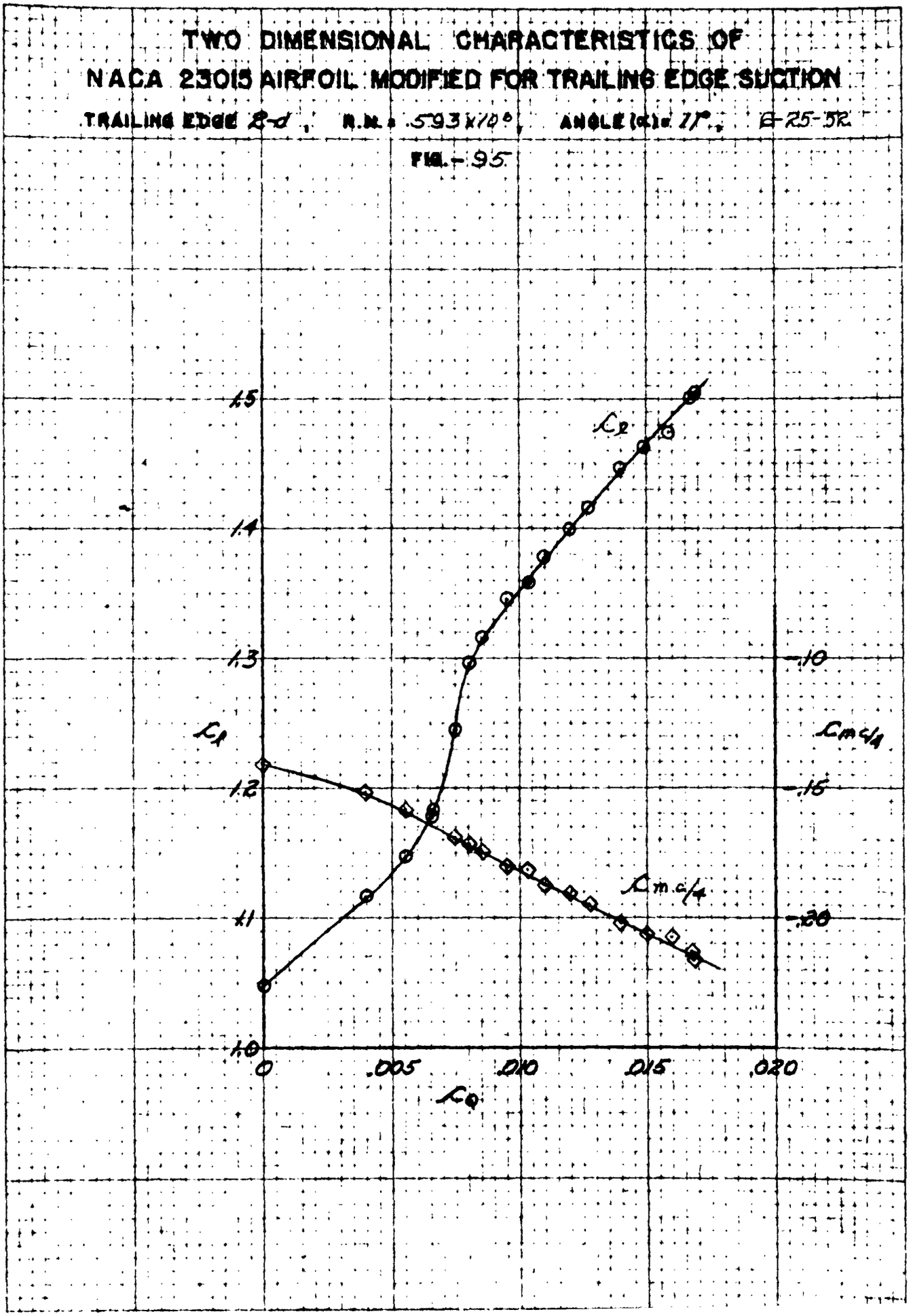

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-d, R.N. = .593 x 10⁶, ANGLE (α) = 7°, 6-25-52
FIG. - 93
1.4
1.3
1.2
1.1
1.0
0.9
0.8
.04
.03
.02
.01
0
-.10
-.15
-.20
-.25
0
.005
.010
.015
.020
c_l
c_d
$c_{m_{c/4}}$
$c_{l_{\alpha=2.0}}$


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE E-d , R.N. = .593 x 10^6 , ANGLE (α) = 9° , 6-25-52
FIG. - 94
C_l
$C_{dw} + 2C_q$
$C_{mc/4}$
C_{dw}
C_d
C_l
C_q
1.5
1.4
1.3
1.2
1.1
1.0
.04
.03
.02
.01
0
.005
.010
.015
.020
.025
-.05
-.10
-.15

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 8-d , R.N. = .593 x 10⁶ , ANGLE (α) = 11° , E-25-5R.

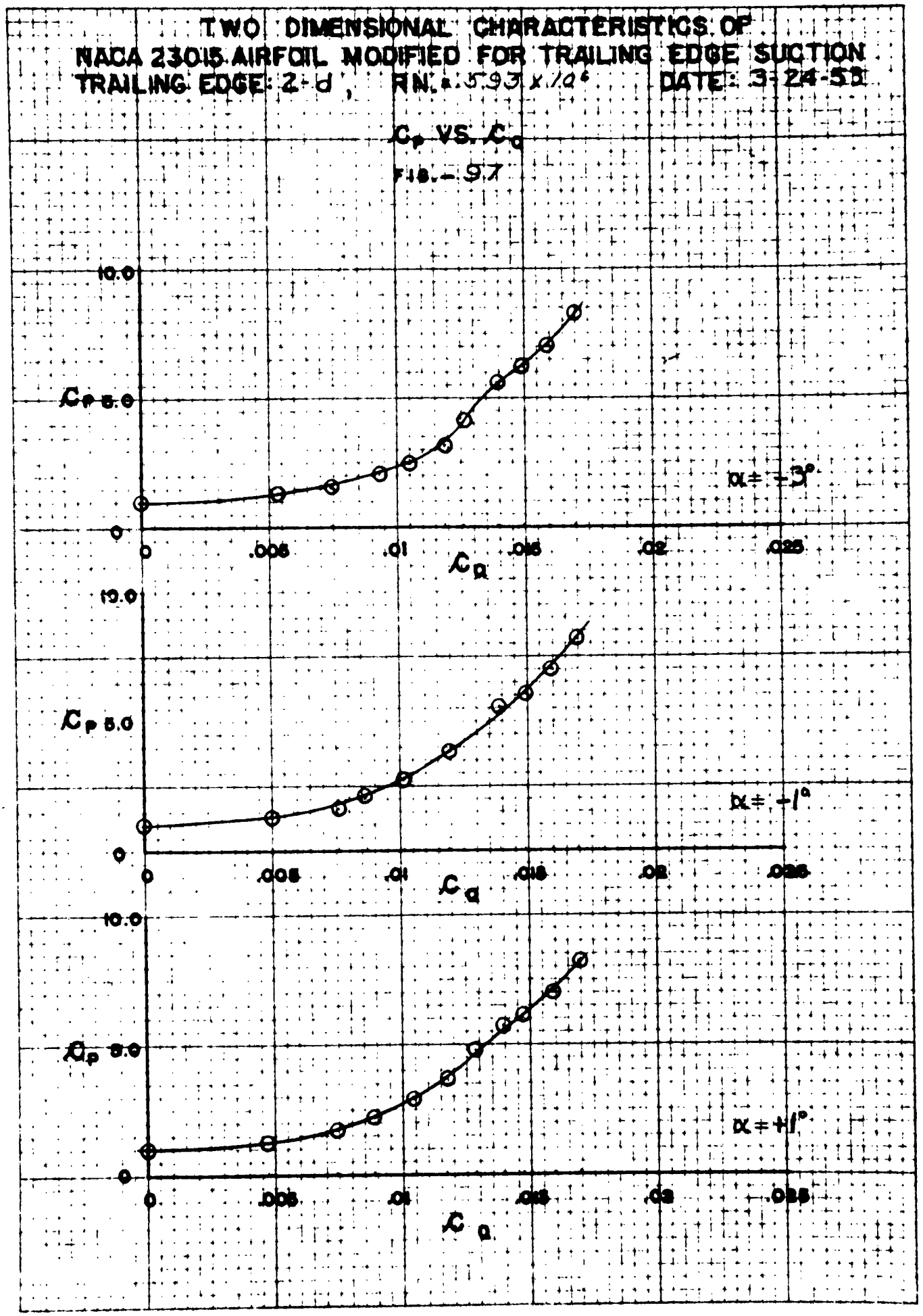
FIG. - 95



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-d , RN. = 5.93 x 10⁶ DATE: 3-24-55

C_p VS. C_q

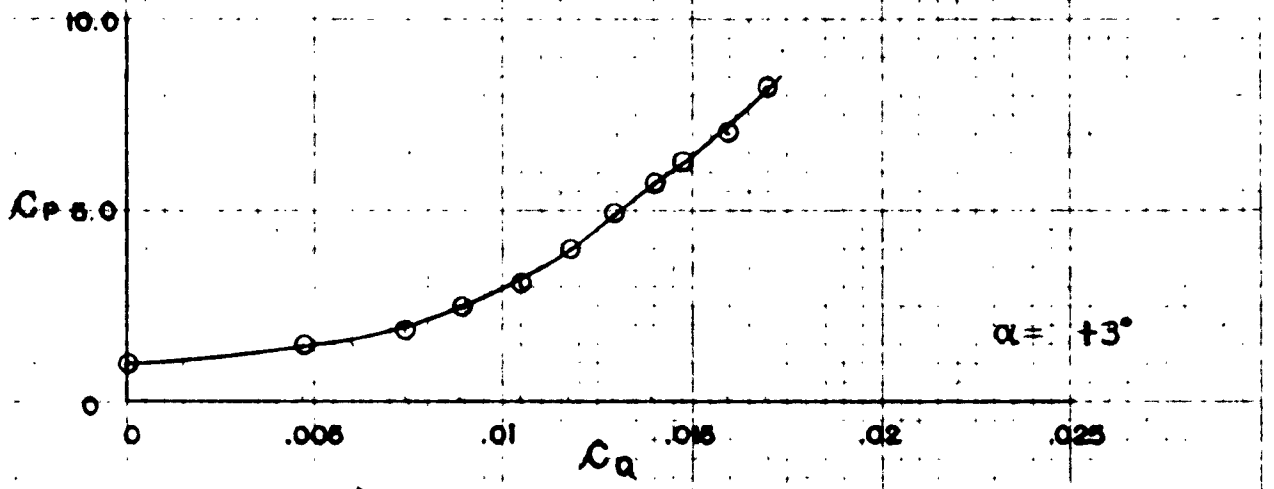
FIG. - 97

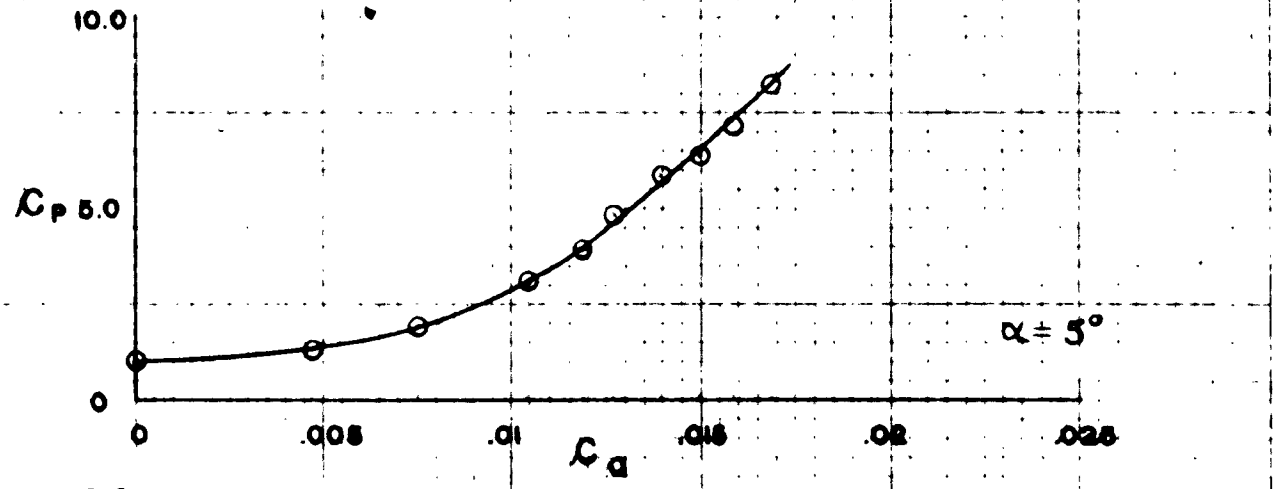


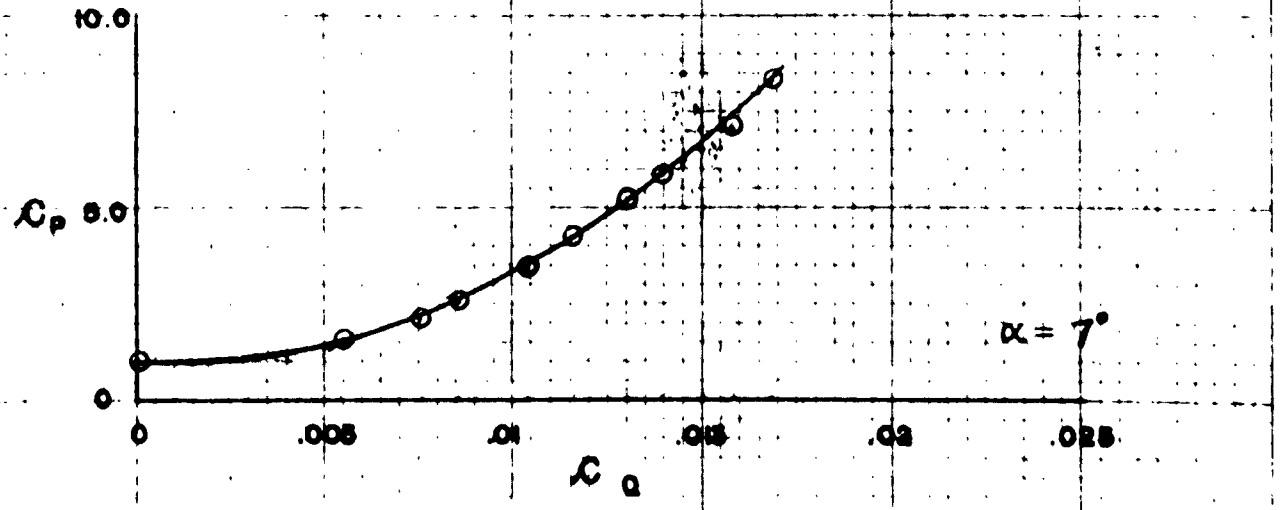
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-d , RN. = .593 x 10⁶ DATE: 3-24-53

C_p VS. C_q

FIG. - 98



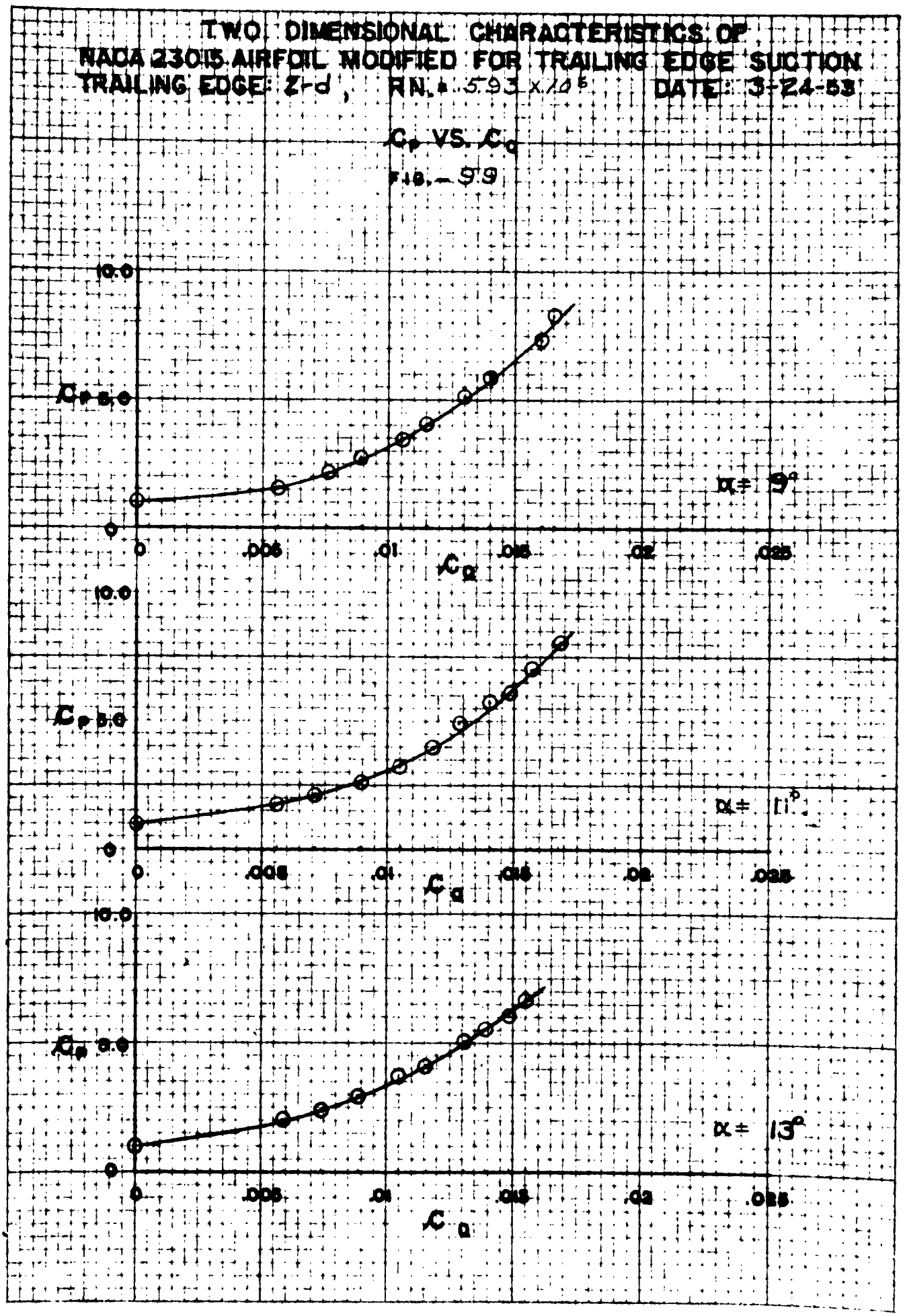




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-d , RN. = 5.93 x 10^6 DATE: 3-24-53

C_p VS. C_q

Fig. - 59



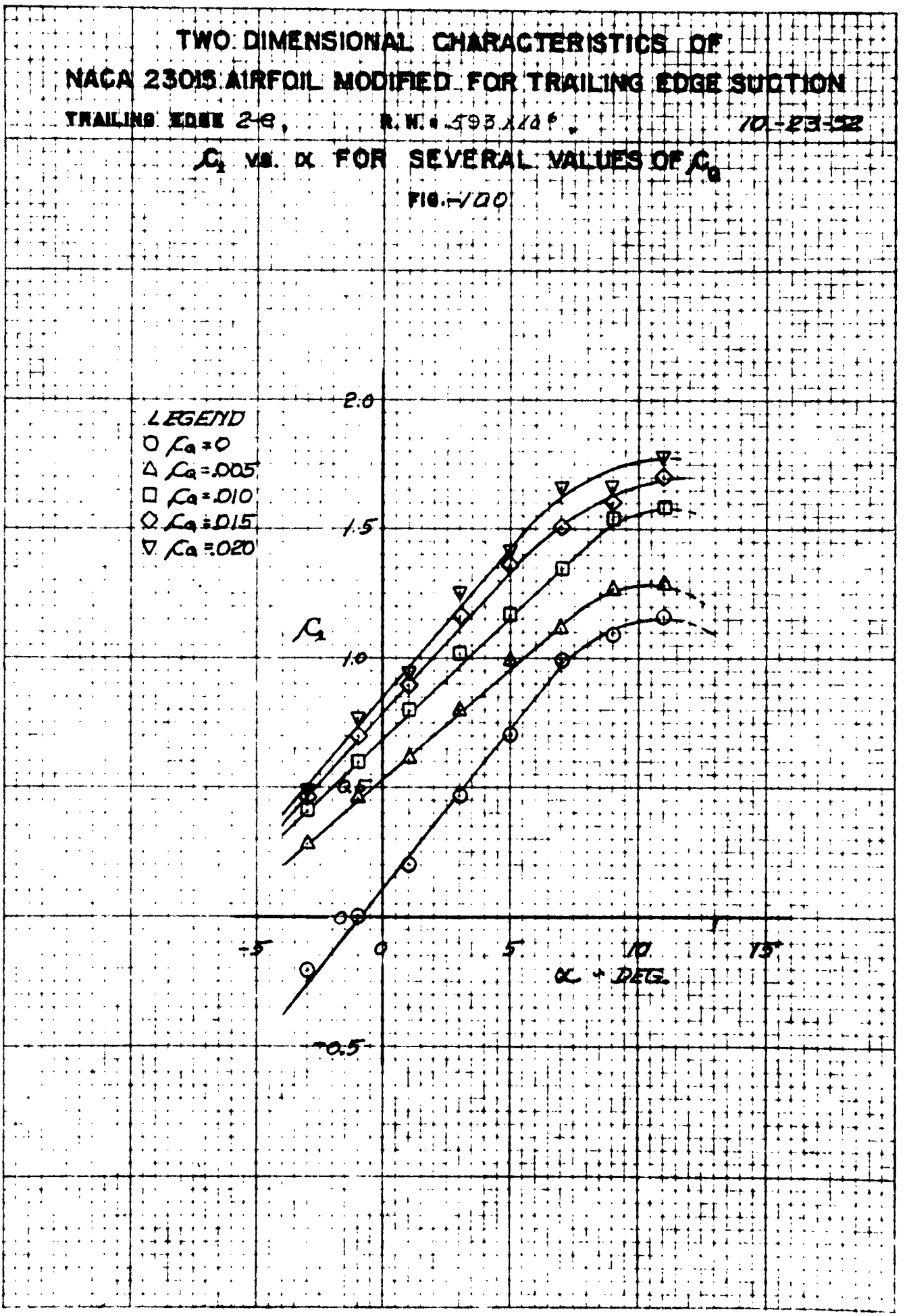
359-9 KEUFFEL & ESSER CO.
10 X 10 to the inch

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-C, R.N. = 5.93 x 10^6, 10-23-32

C_l VS. α FOR SEVERAL VALUES OF C_Q

FIG. 100



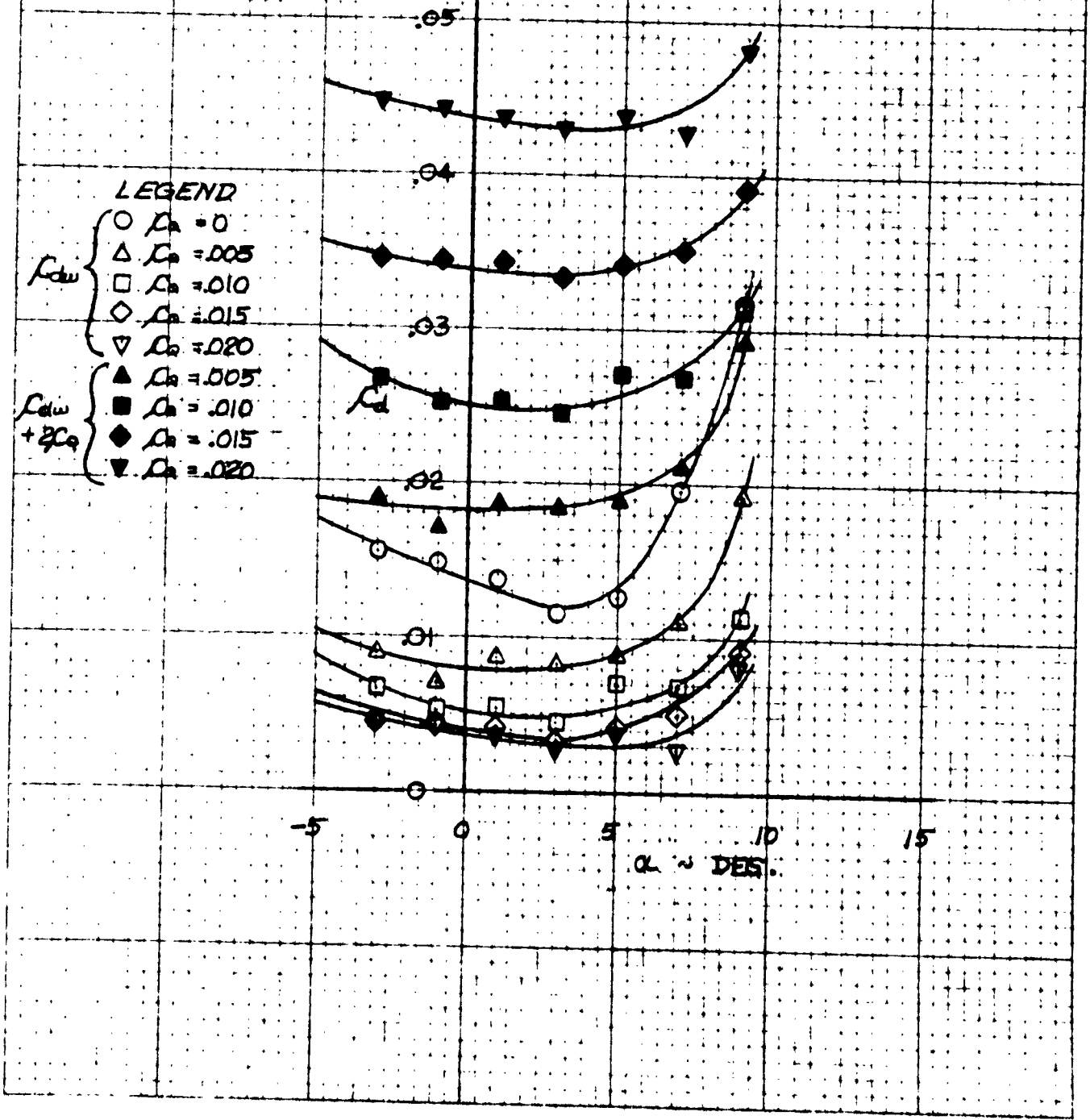
339 S KEUFFEL & ESSER CO
10 x 1 (to the inch)
MADE IN U.S.A.

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

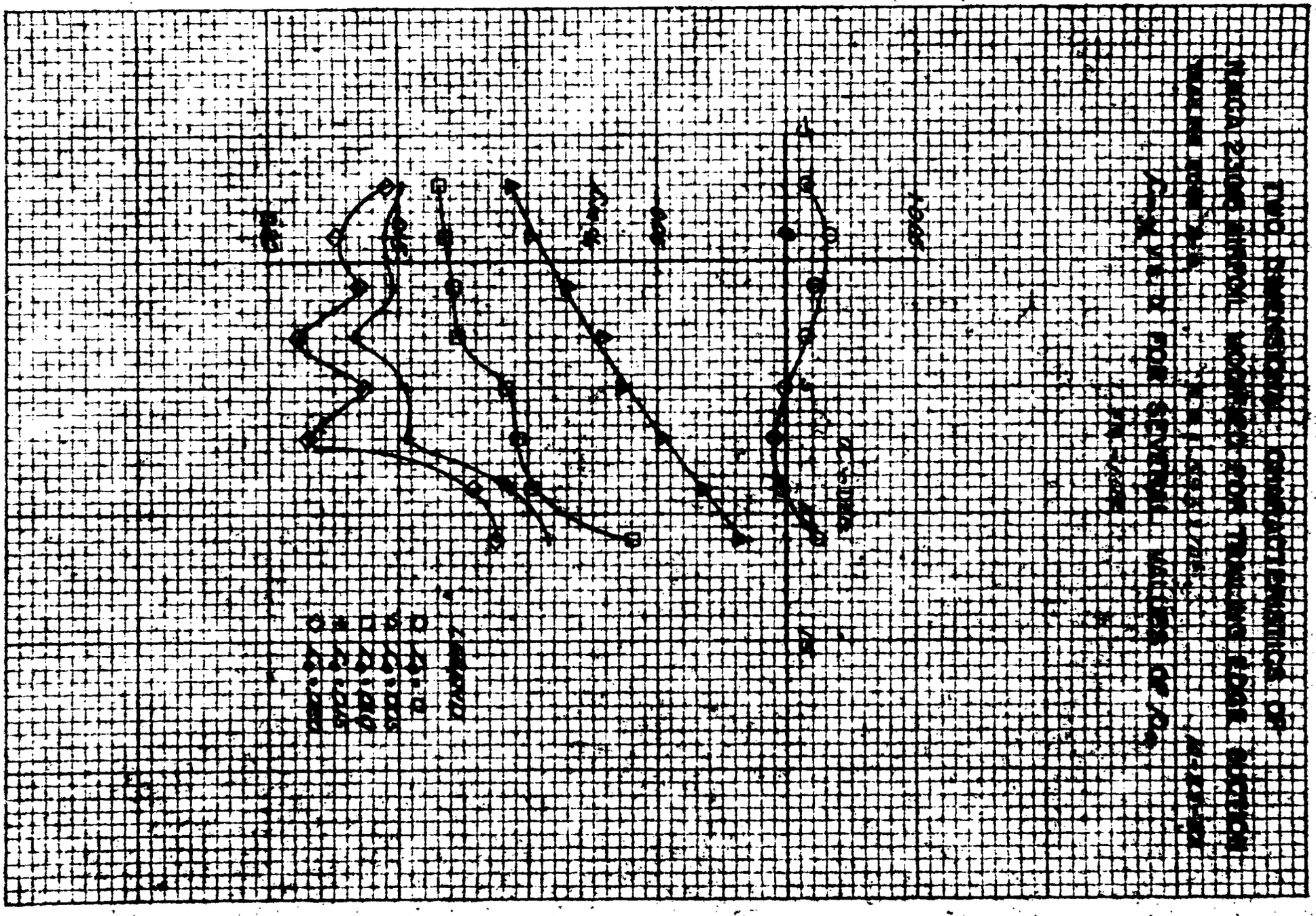
TRAILING EDGE 2-e , R.N. = 5.93 X 10⁶ 10-23-52

c_{d_w} AND $(c_{d_w} + 2c_q)$ vs. α FOR SEVERAL VALUES OF c_q

FIG.- 101



339-8 KEUFFEL & ESSER CO
10 x 10 to the inch

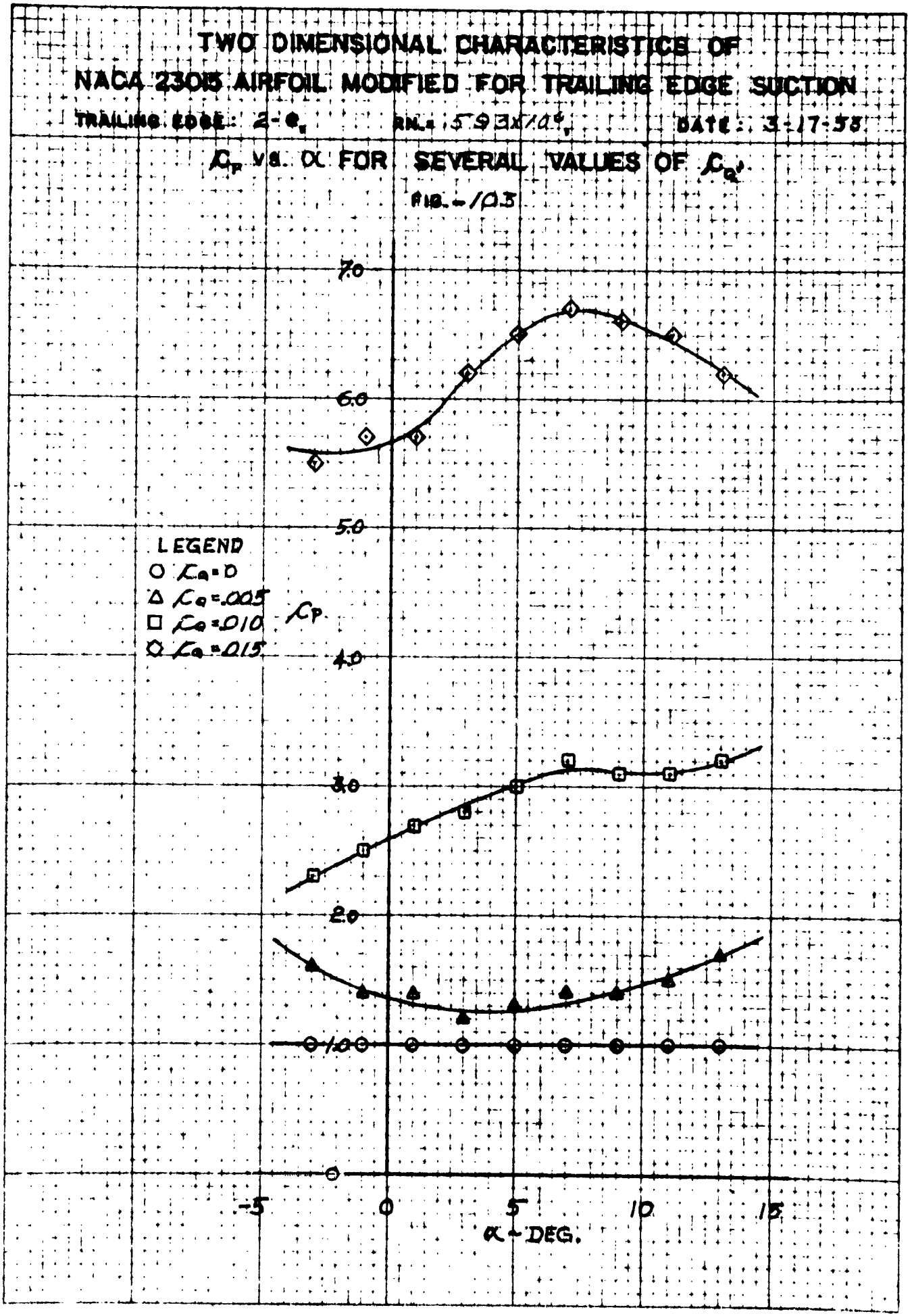


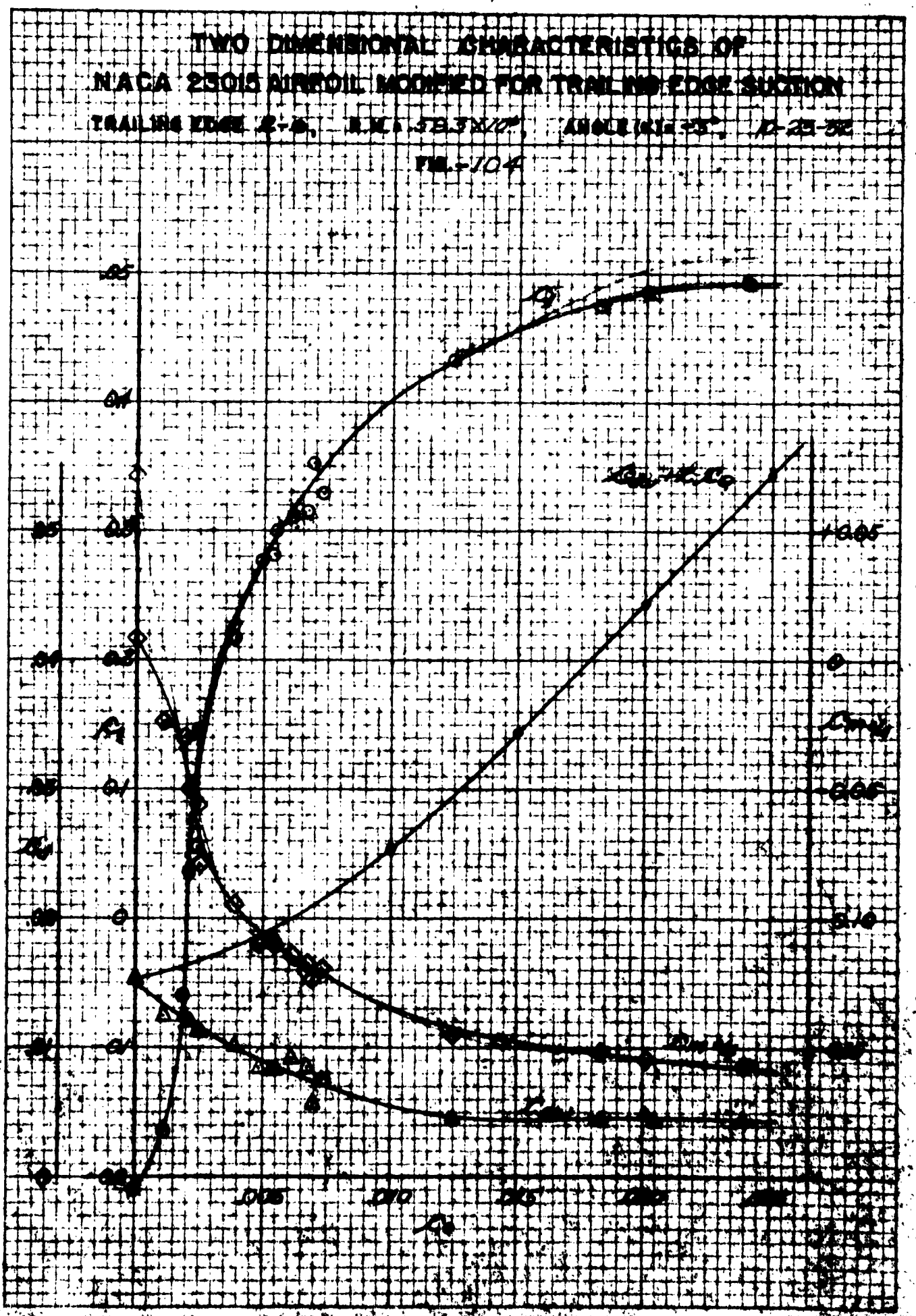
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: 2-Θ_1 RN. = 5.93 x 10^6 DATE: 3-17-55

C_p vs. α FOR SEVERAL VALUES OF C_Q.

FIG. - 103




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-6, R.N. = 5.3 X 10^6, ANGLE (α)i = +3°, M-23-52
FIG.-104
.05
.04
.03
.02
.01
0
-.01
-.02
-.03
-.04
-.05
.005
.010
.015
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.025
.030
.035
.040
.045
.050
.055
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.065
.070
.075
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.090
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.105
.110
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.120
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.685
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.715
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.770
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.930
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.940
.945
.950
.955
.960
.965
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.975
.980
.985
.990
.995
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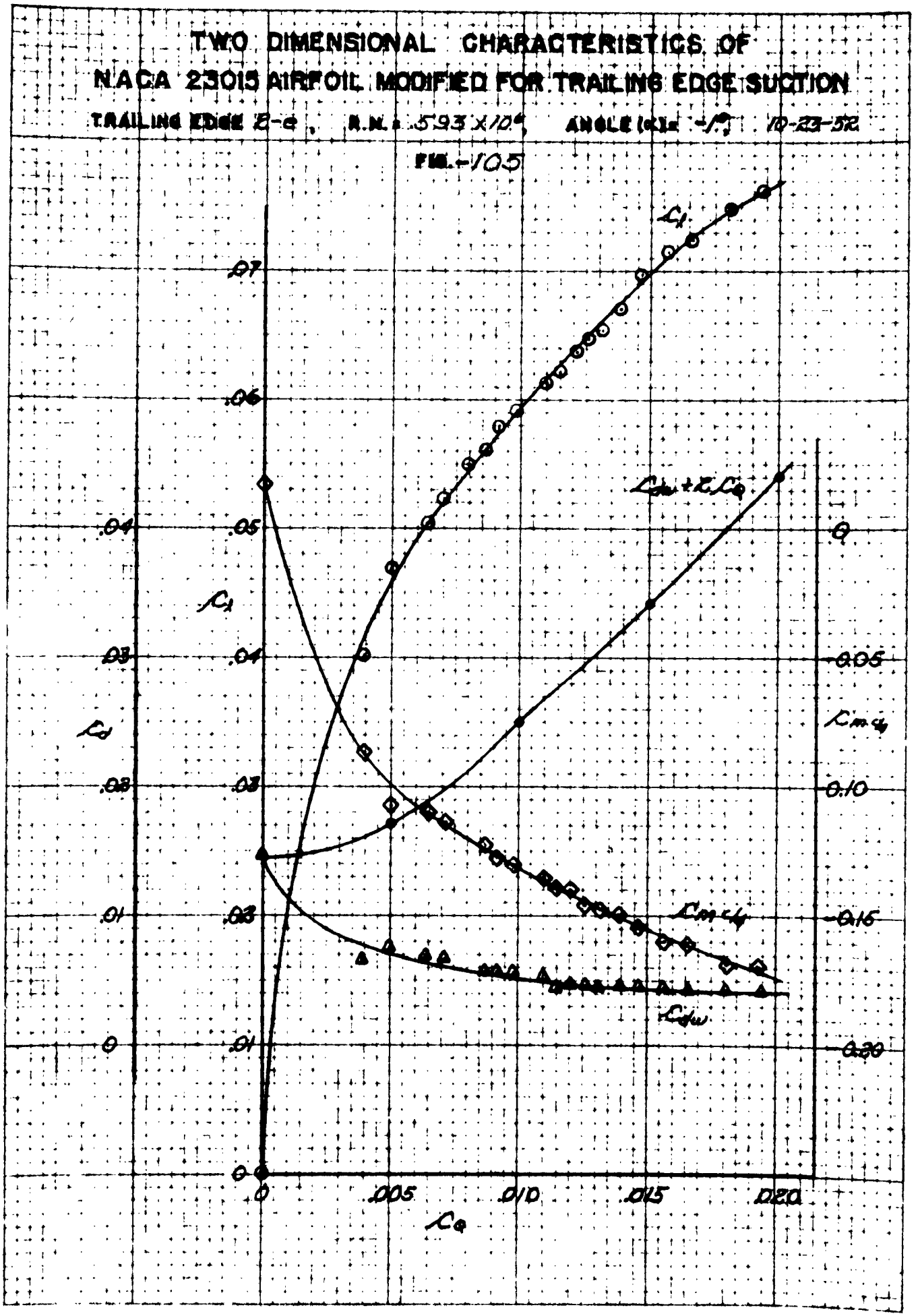
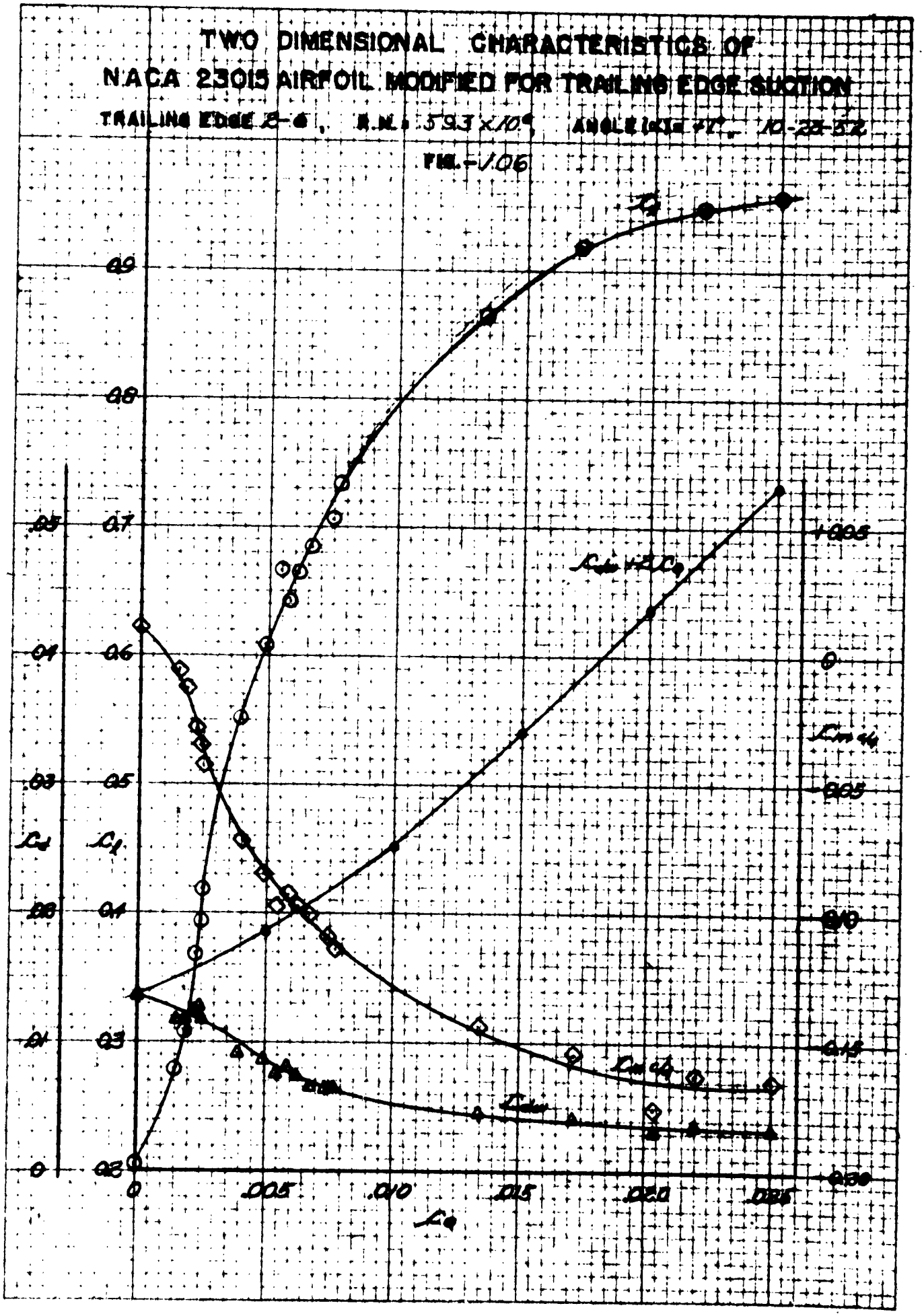
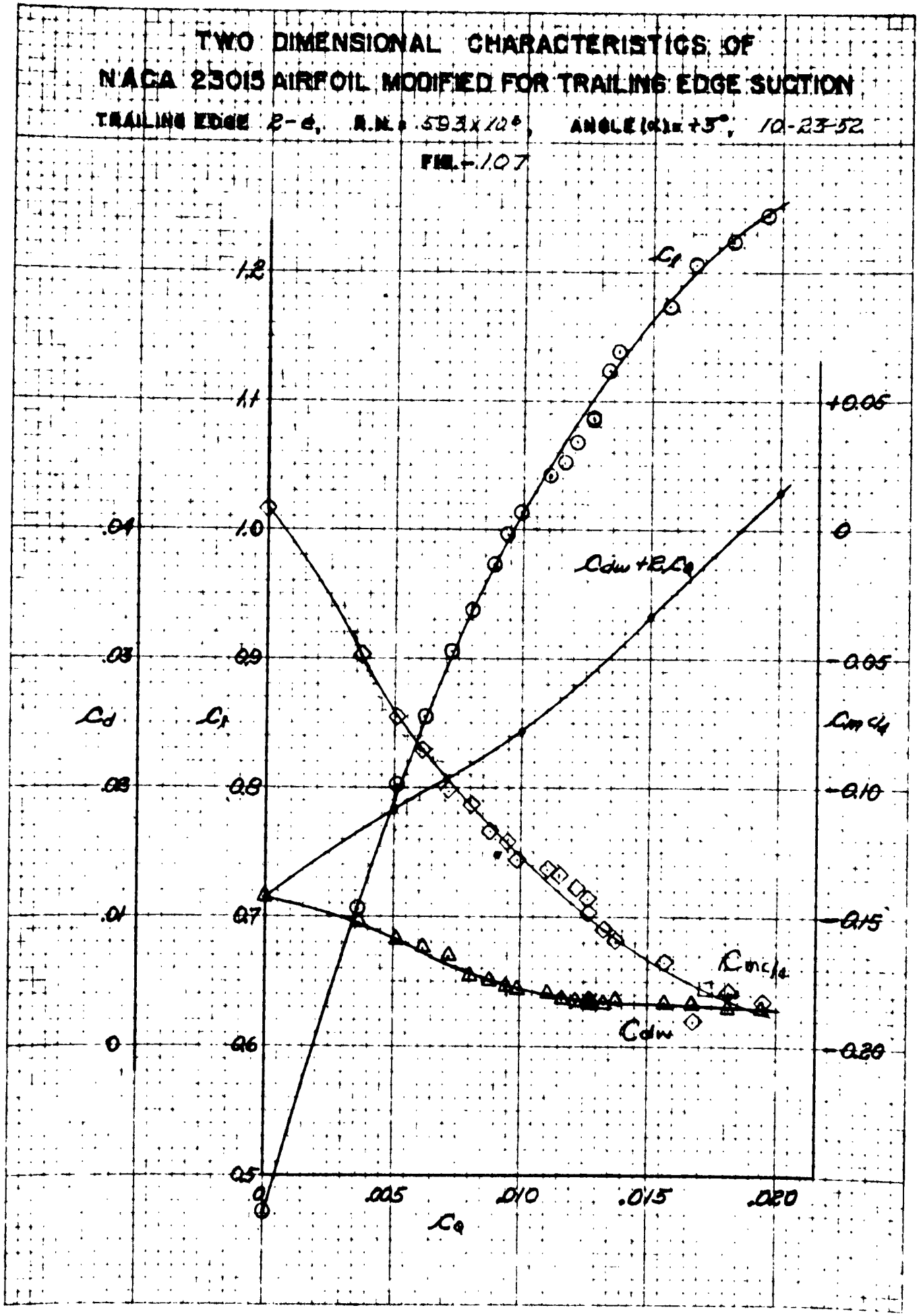

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-e, R.N. = .593 X 10^6, ANGLE (α)a = -1°, 10-23-52
FIG.-105
C_l
$C_{m_{c/4}} + \Sigma C_q$
C_d
$C_{m_{c/4}}$
C_{d_w}
C_q
.07
.06
.05
.04
.03
.02
.01
0
.005
.010
.015
.020
0
-.05
-.10
-.15
-.20

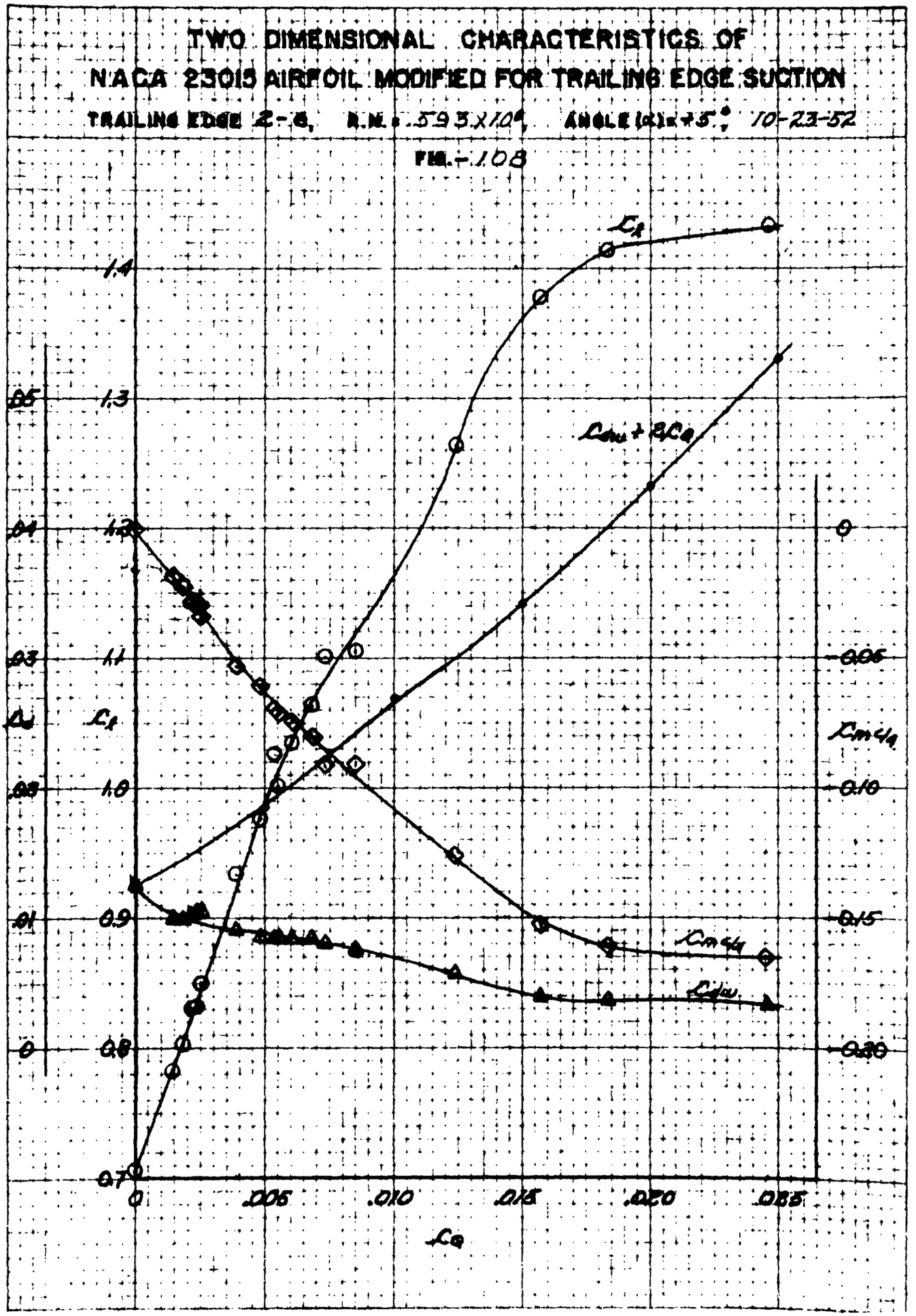

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE C-6, R.N. 5.93 x 10^6, ANGLE (α) = 12°, 10-22-52
FIG. - 106
C_l
$C_{m_{c/4}} + .25 C_l$
$C_{m_{c/4}}$
C_m
C_d
C_l
C_p
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
.005
.010
.015
.020
.025
+.005
0
-.005
-.010
-.015
-.020

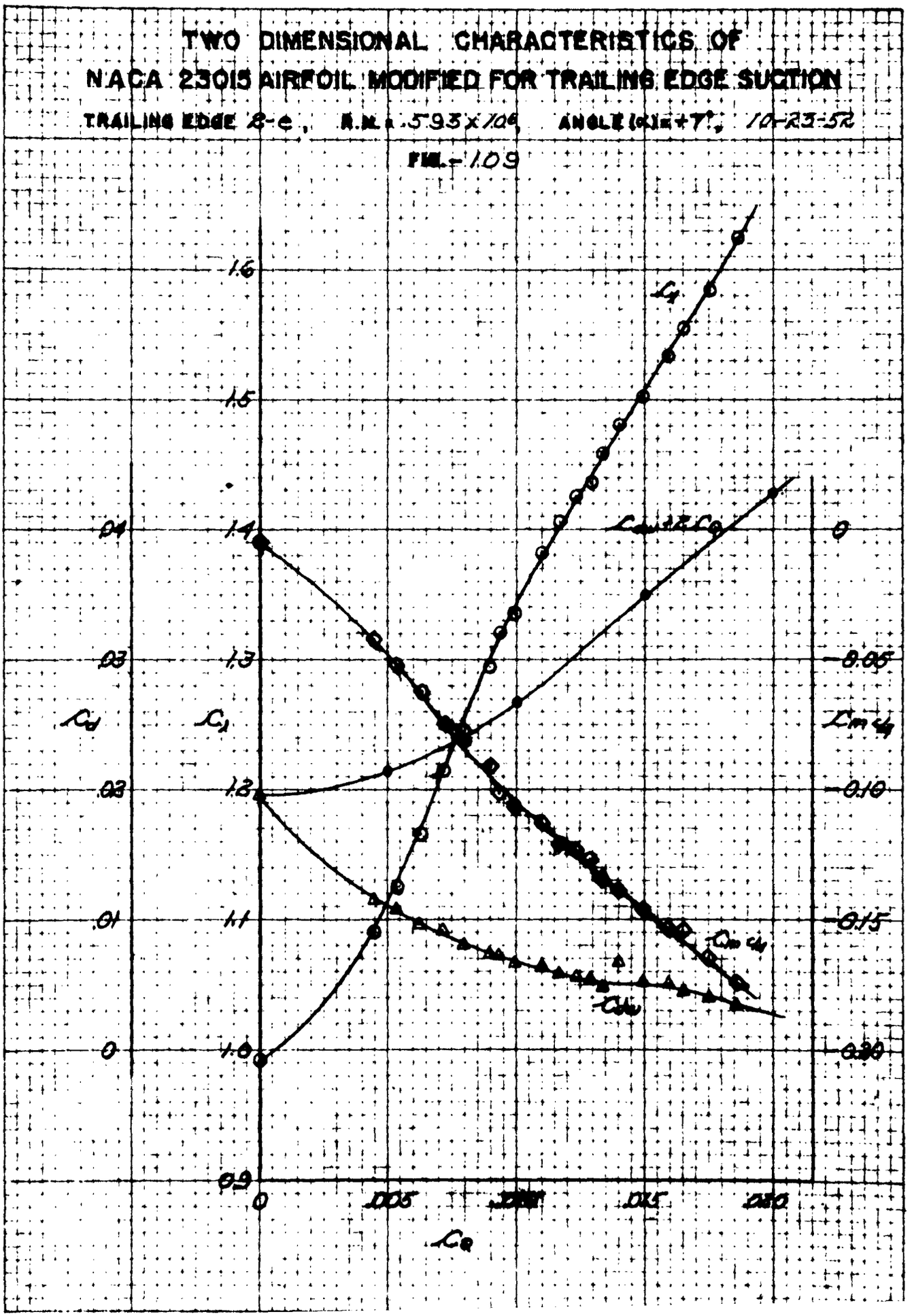

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-d, R.N. = 5.93 x 10^6, ANGLE (α)a = +5°, 10-23-52
FIG. - 107
c_l
$c_{dw} + k c_q$
$c_{mc/4}$
c_{dw}
c_d
c_l
$c_m c_4$
c_q
1.2
1.1
1.0
.9
.8
.7
.6
.5
.04
.03
.02
.01
0
+0.05
0
-0.05
-0.10
-0.15
-0.20
0
.005
.010
.015
.020

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-6, R.N. = .593 X 10⁶, ANGLE (α) = +5°, 10-23-52

FIG. - 108

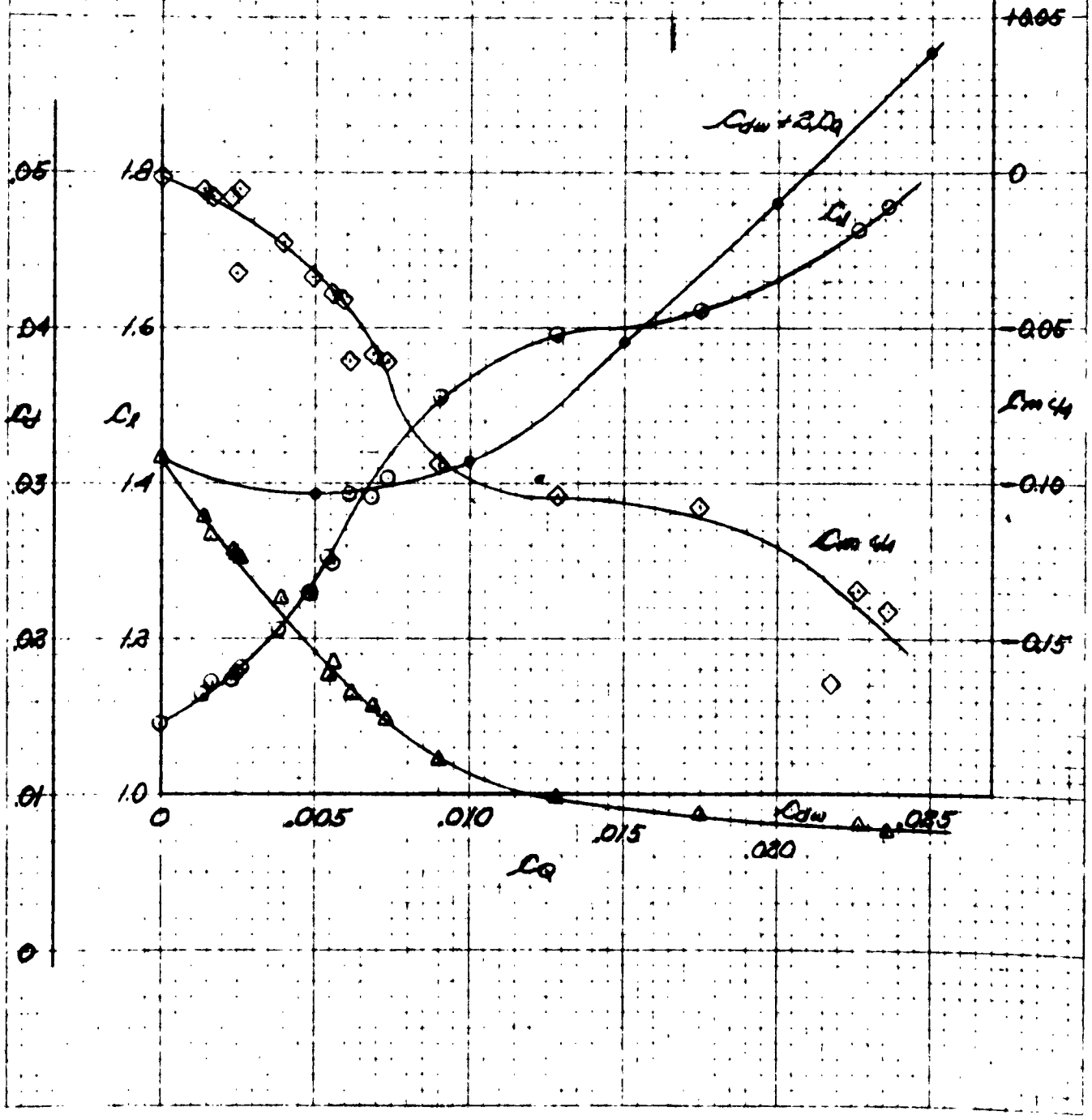



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 2-c, R.N. .593 x 10⁶, ANGLE (α)=+7°, 10-23-52
FIG.-109
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
.04
.03
.02
.01
0
C_d
C_l
$C_l = 12 C_q$
C_l
$C_{m\,c/4}$
C_{m_0}
0
-0.05
-0.10
-0.15
-0.20
$C_{m\,c/4}$
0
.005
.010
.015
.020
C_q

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-e, R.N. = 5.93 x 10^6, ANGLE (α) = +5°, 10-23-52

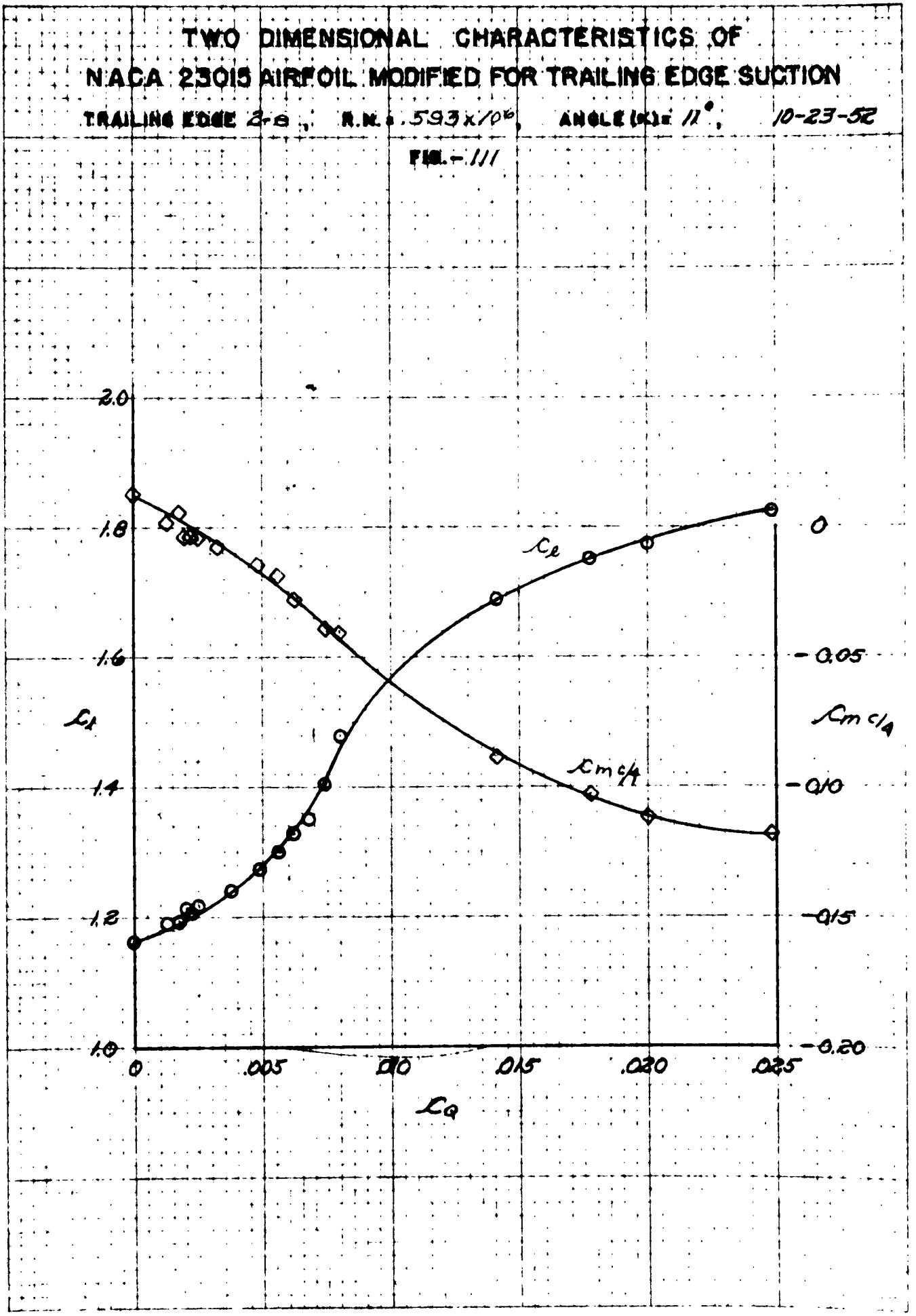
FIG. - 110



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 2-a ; R.N. = .593 x 10^6, ANGLE (α) = 11°, 10-23-52

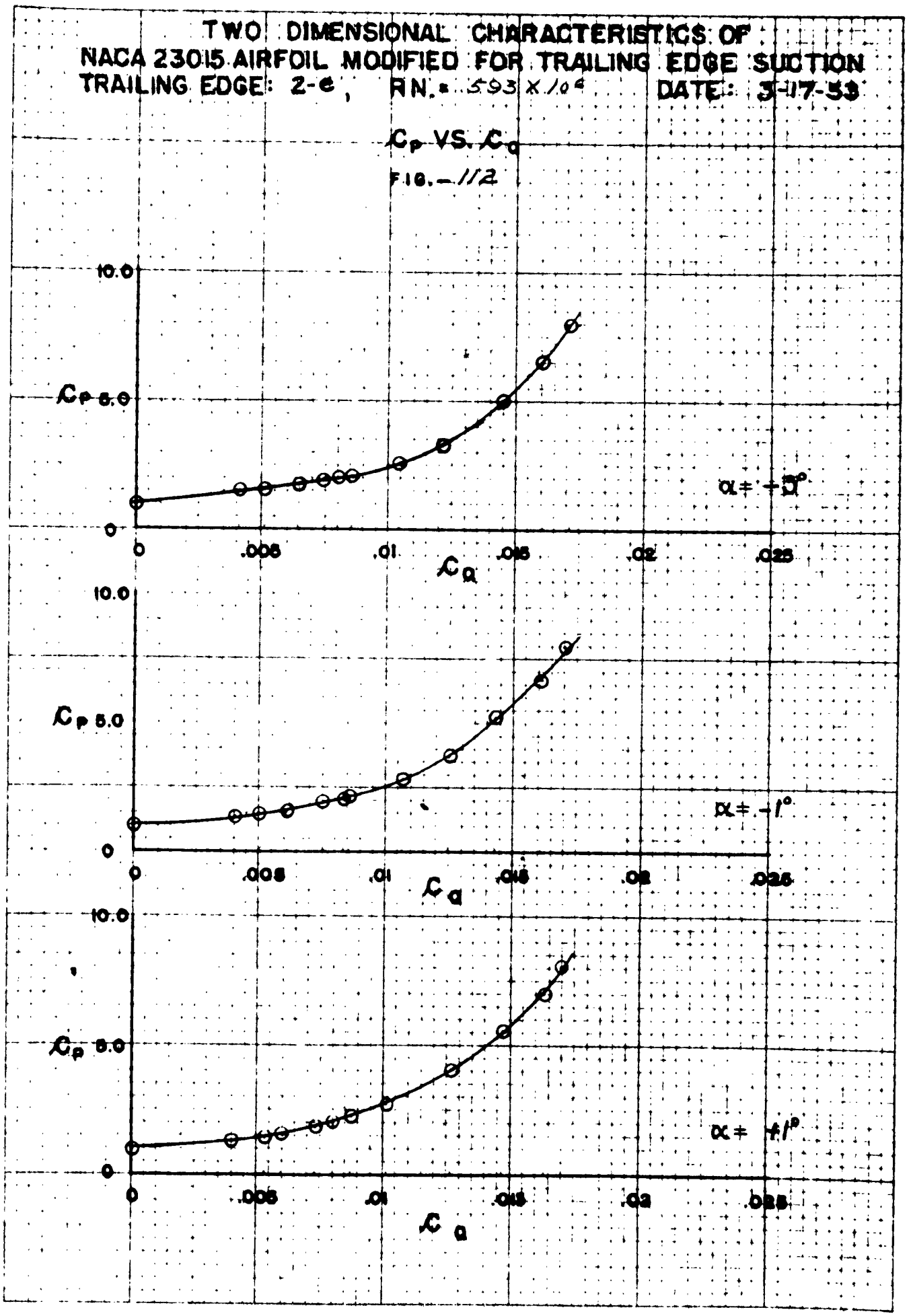
FIG. - 111



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-e, RN. = .593 X 10⁶ DATE: 3-17-53

C_p VS. C_q

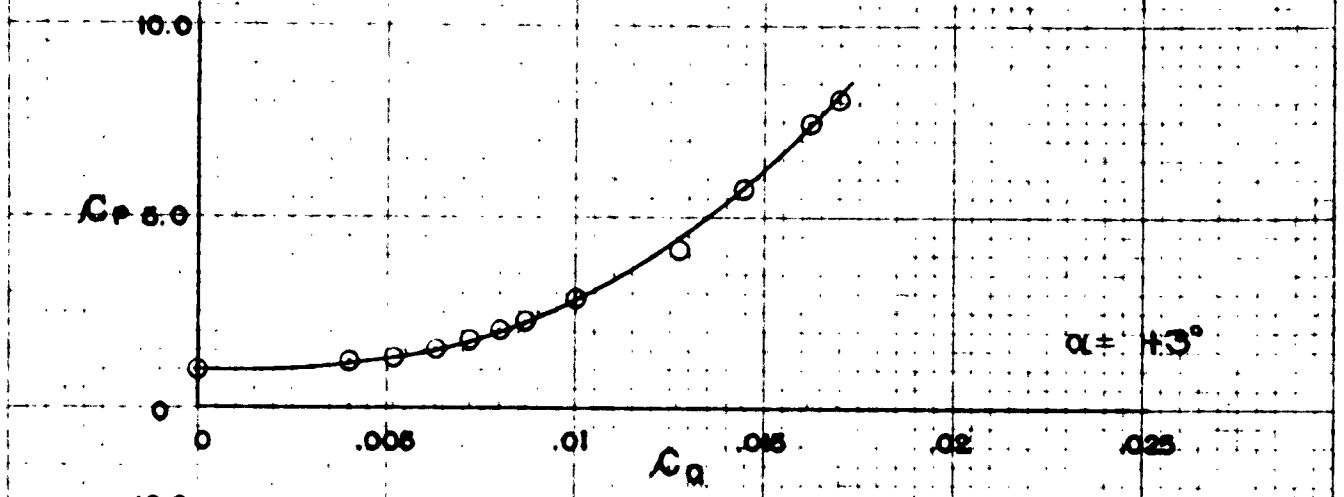
FIG. — 112

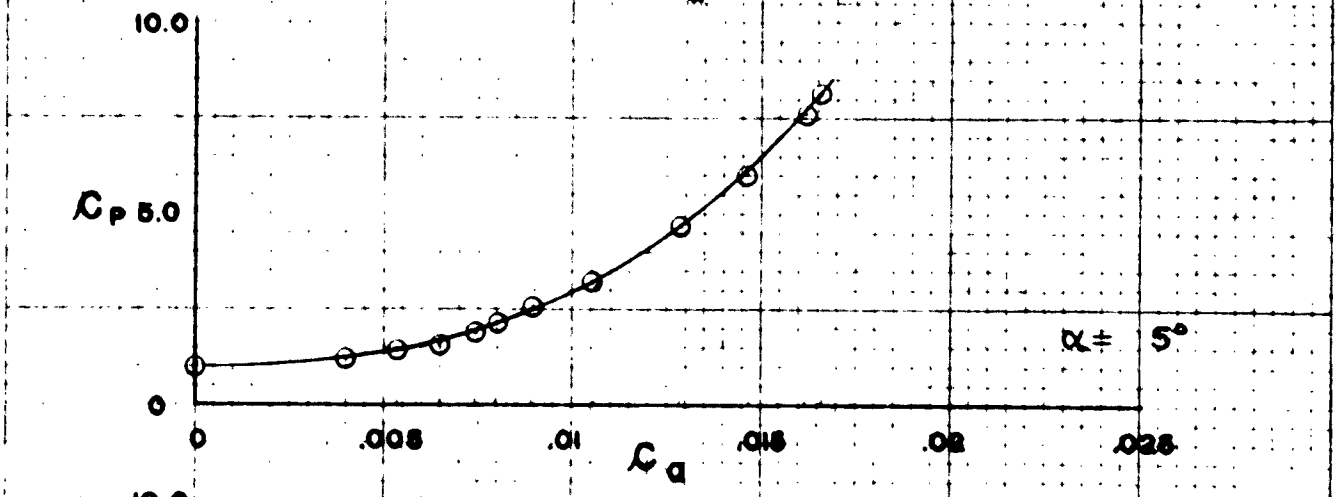


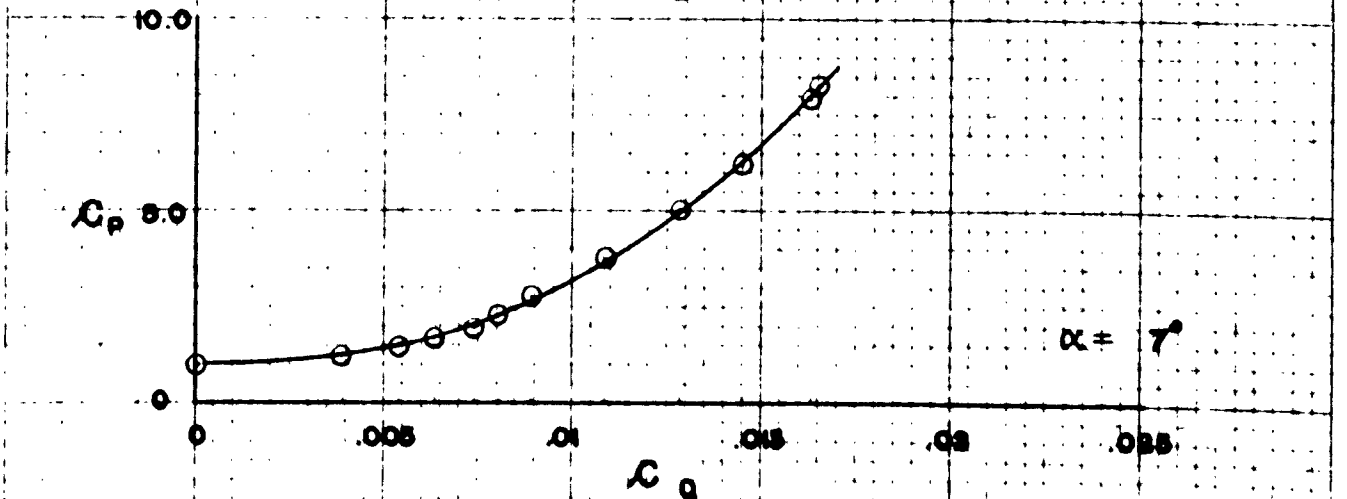
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-e, RN.= 5.93 x 10⁶ DATE: 3-17-53

C_p VS. C_q

FIG.-113



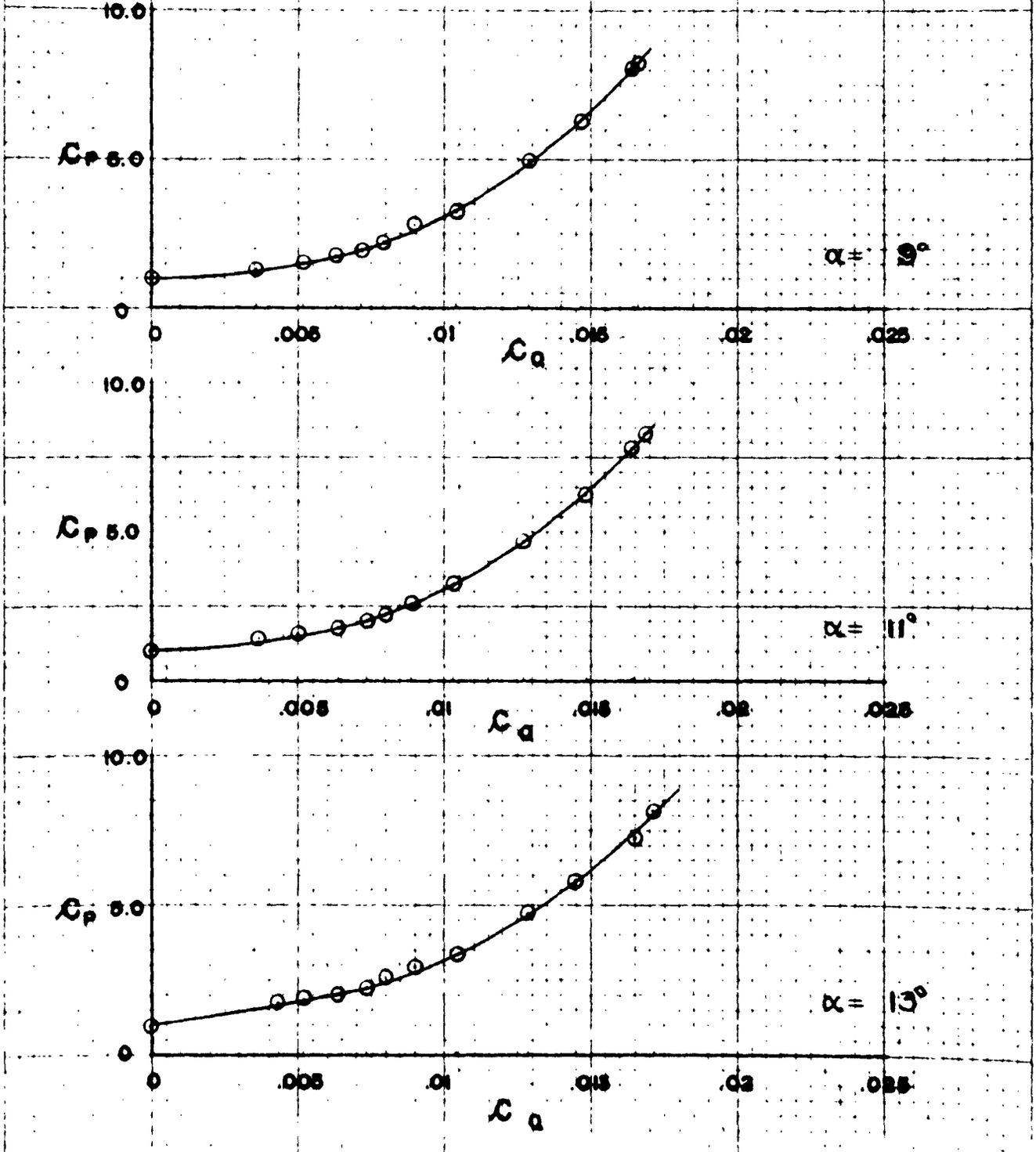




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 2-e, RN. = 5.93 x 10^6 DATE: 3-17-53

C_p VS. C_a

FIG. -114

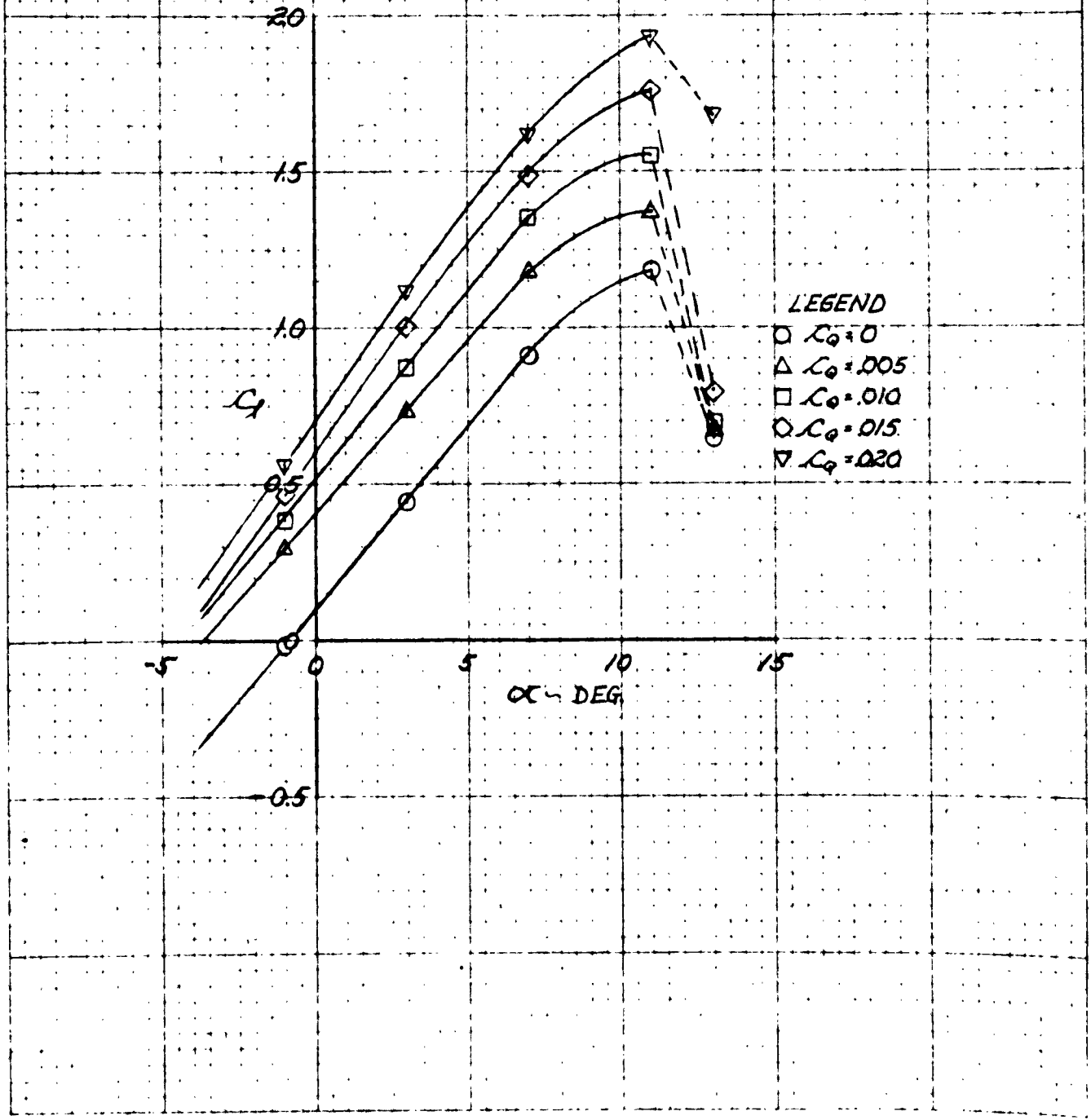


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 4-F , R. N. = 6.14 x 10^6 , 10-7-52

C_l VS. α FOR SEVERAL VALUES OF C_Q

FIG.- 115

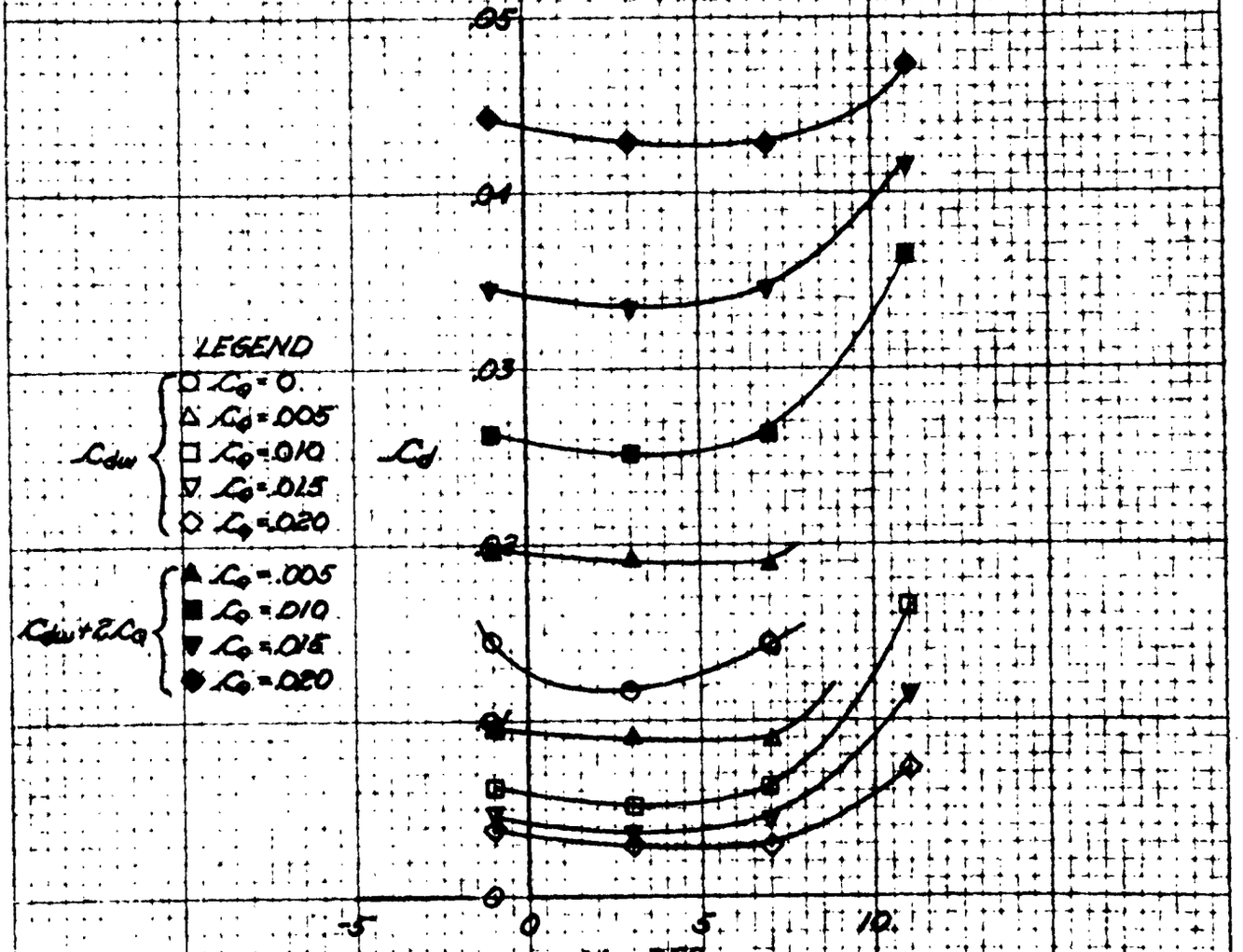


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 4-5 R.N. = 6.14 x 10⁶ 10-7-52

C_{d_w} AND $C_{d_w} + 2C_q$ VS. C_l FOR SEVERAL VALUES OF C_q

FIG.-11G

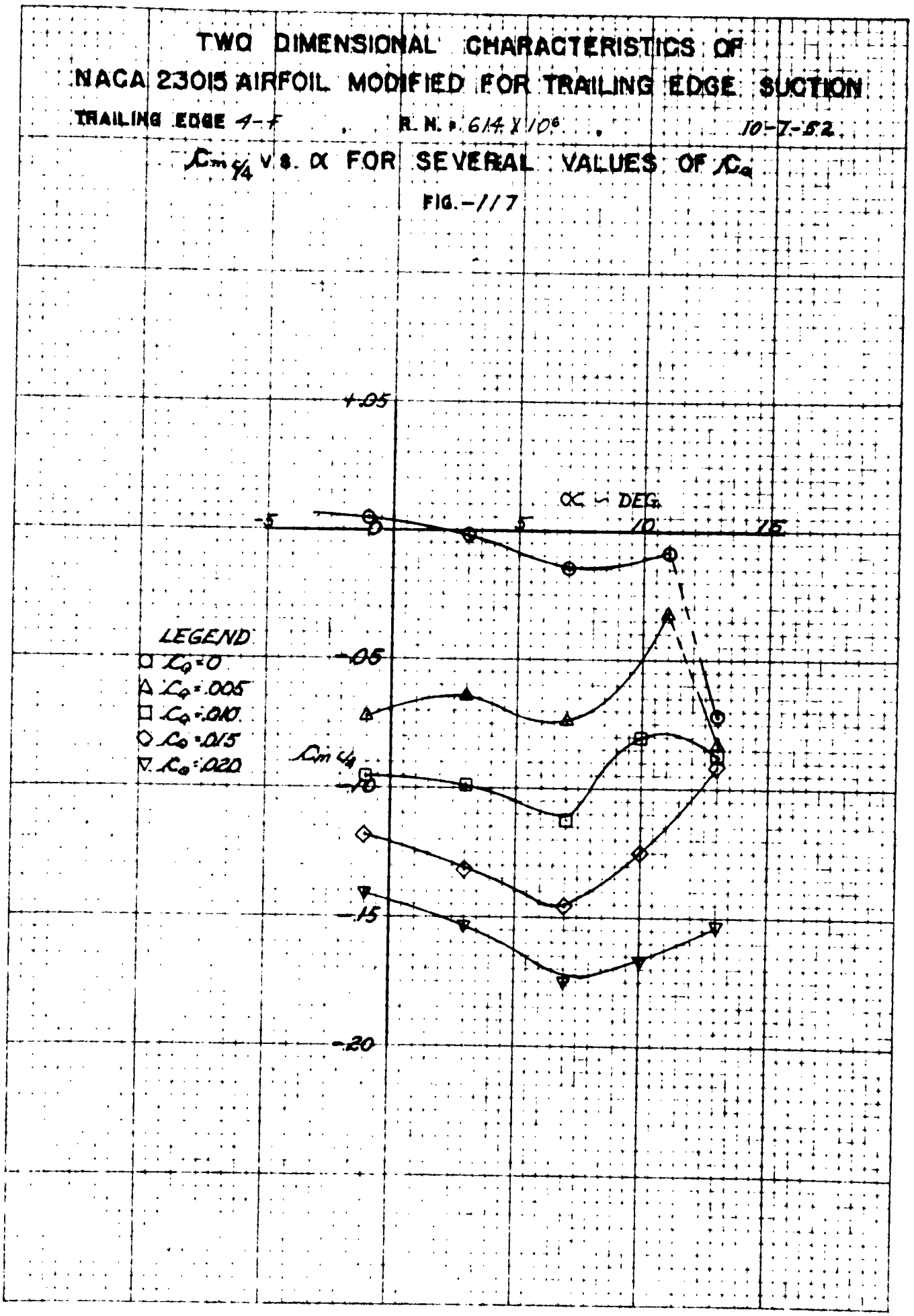


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 4-F . . R. N. = 6.14 X 10⁶ . . 10-7-52

$C_{m\,c/4}$ VS. α FOR SEVERAL VALUES OF C_Q

FIG.-117

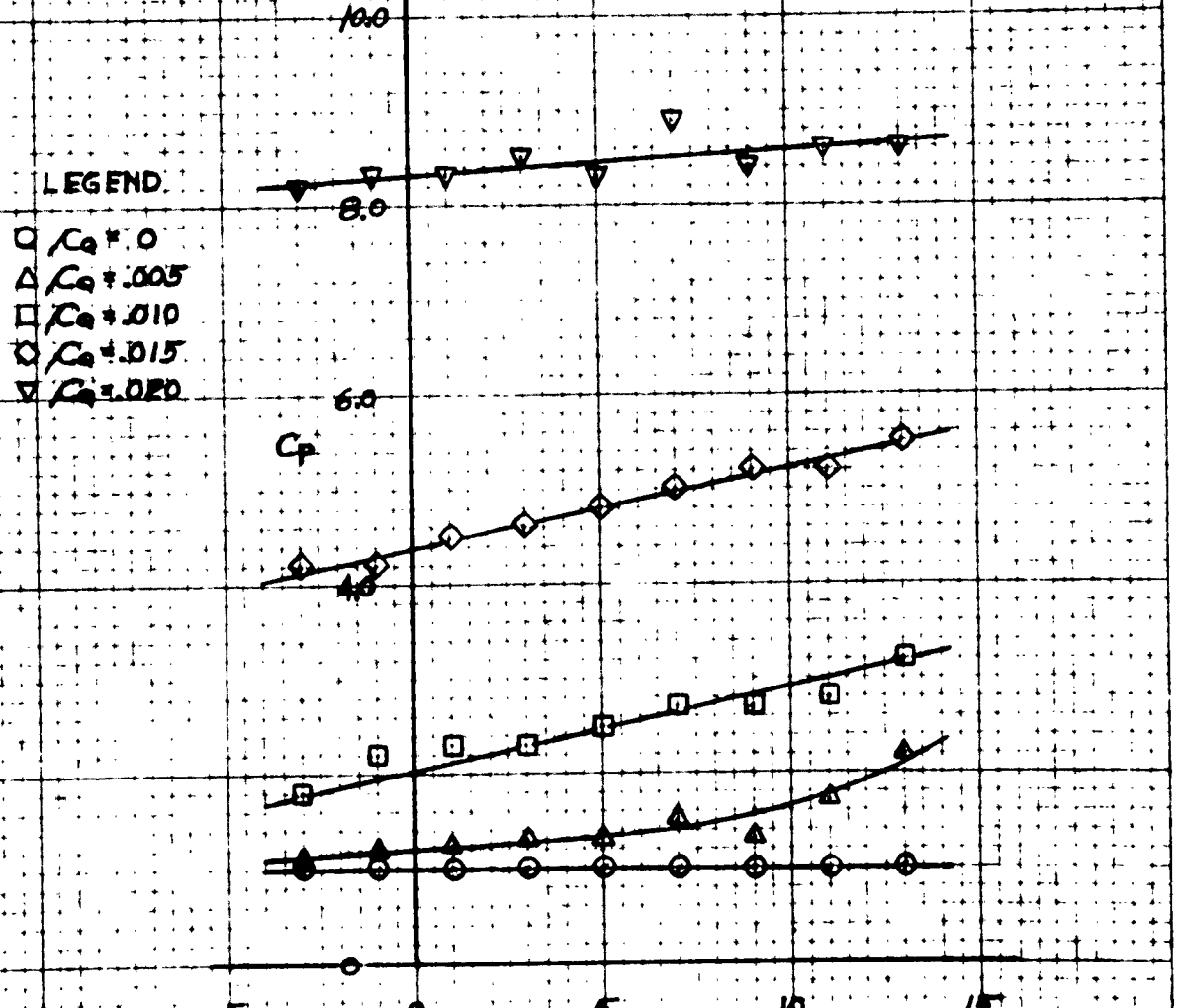


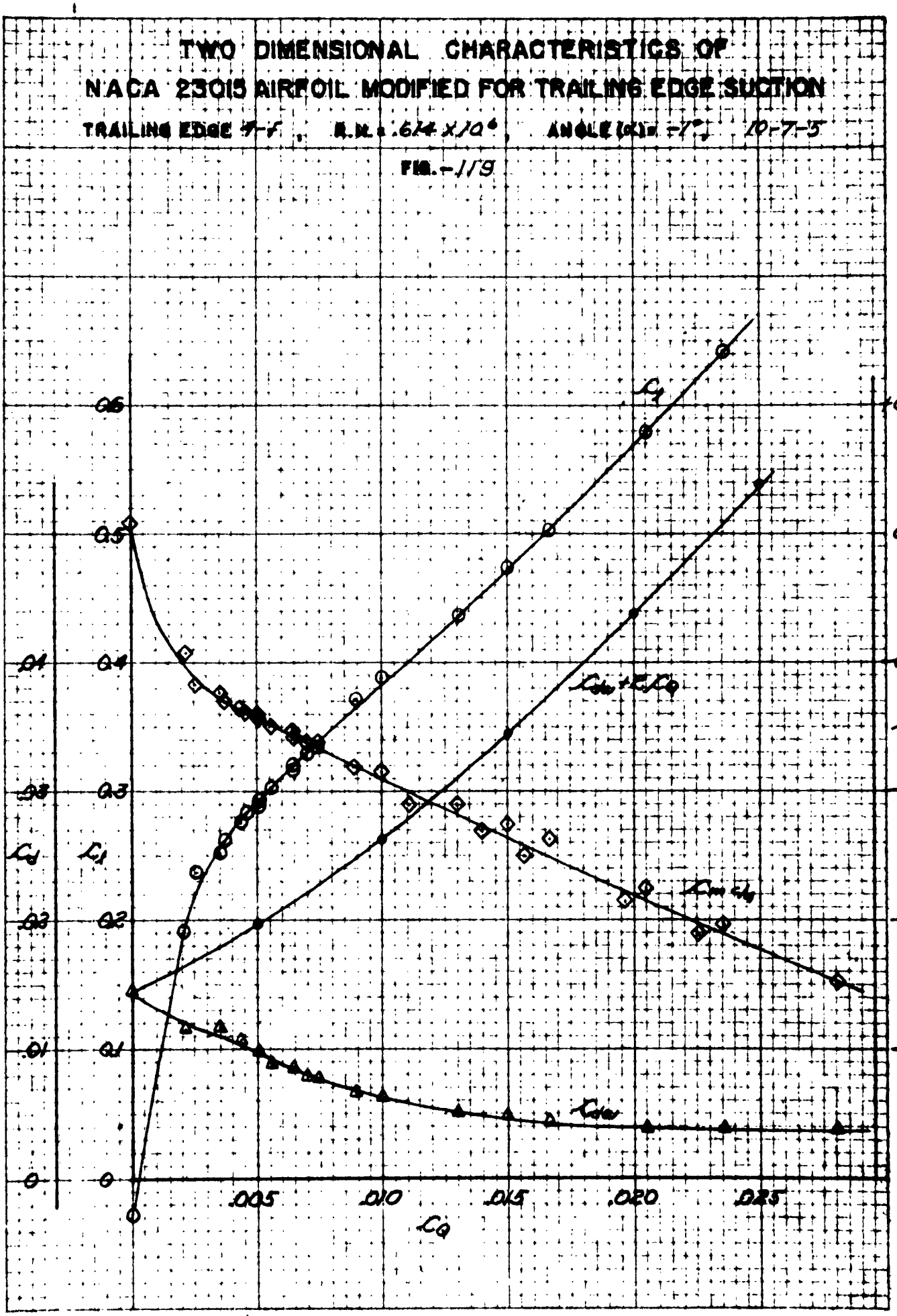
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

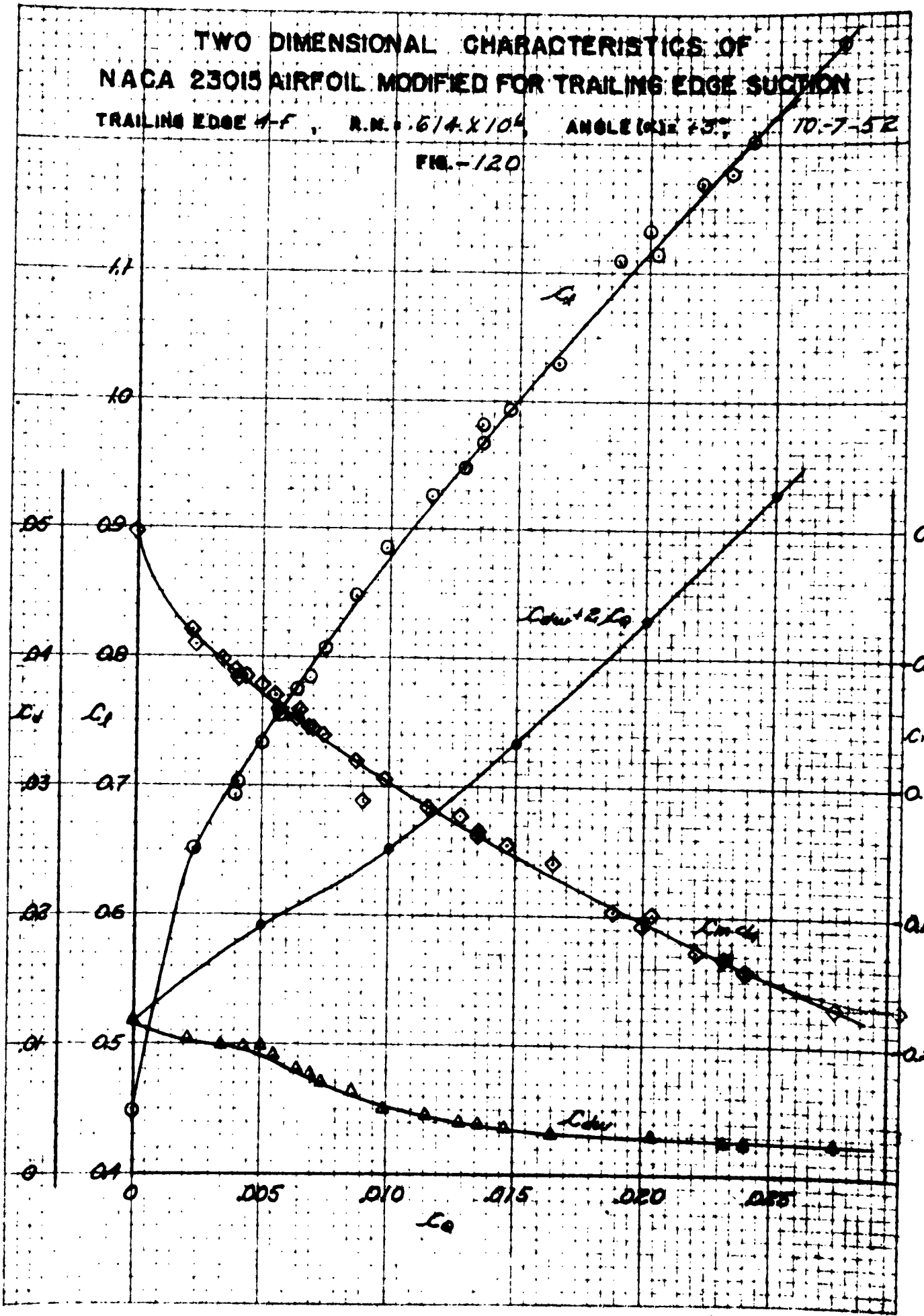
TRAILING EDGE: 4-F RN. = .614 X 10^6 DATE: 2-18-53

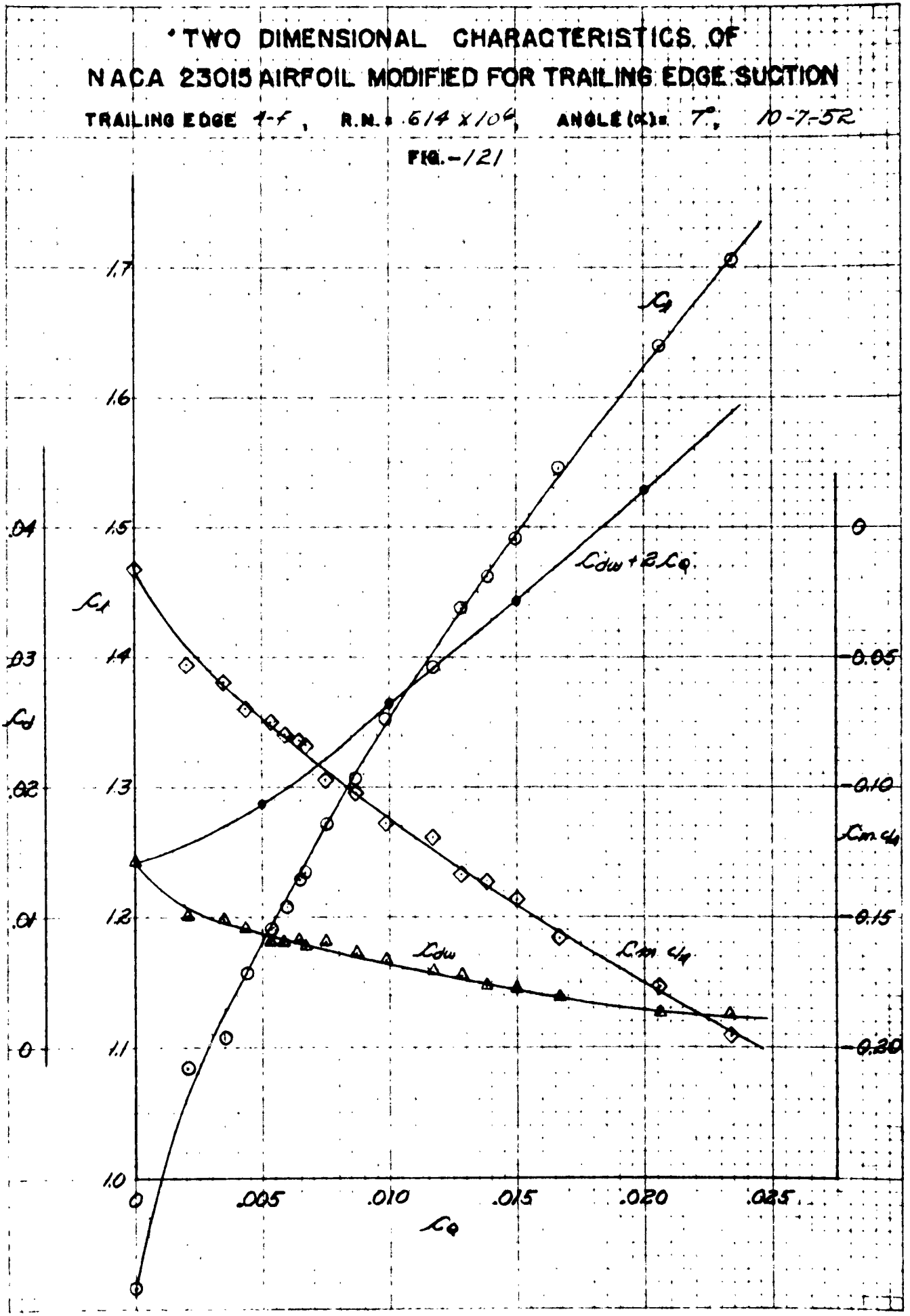
C_p VS. α FOR SEVERAL VALUES OF C_q

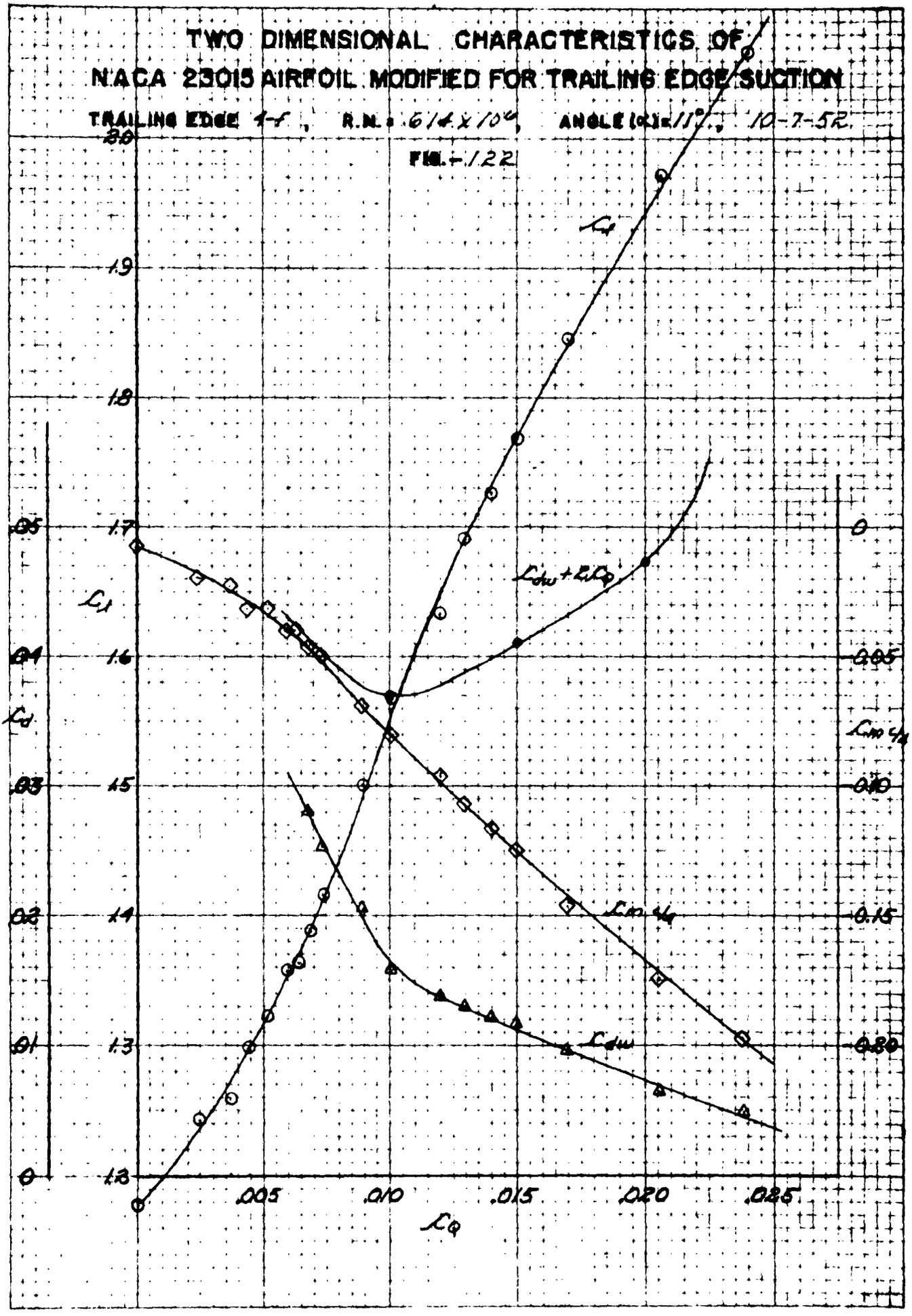
FIG. - 113

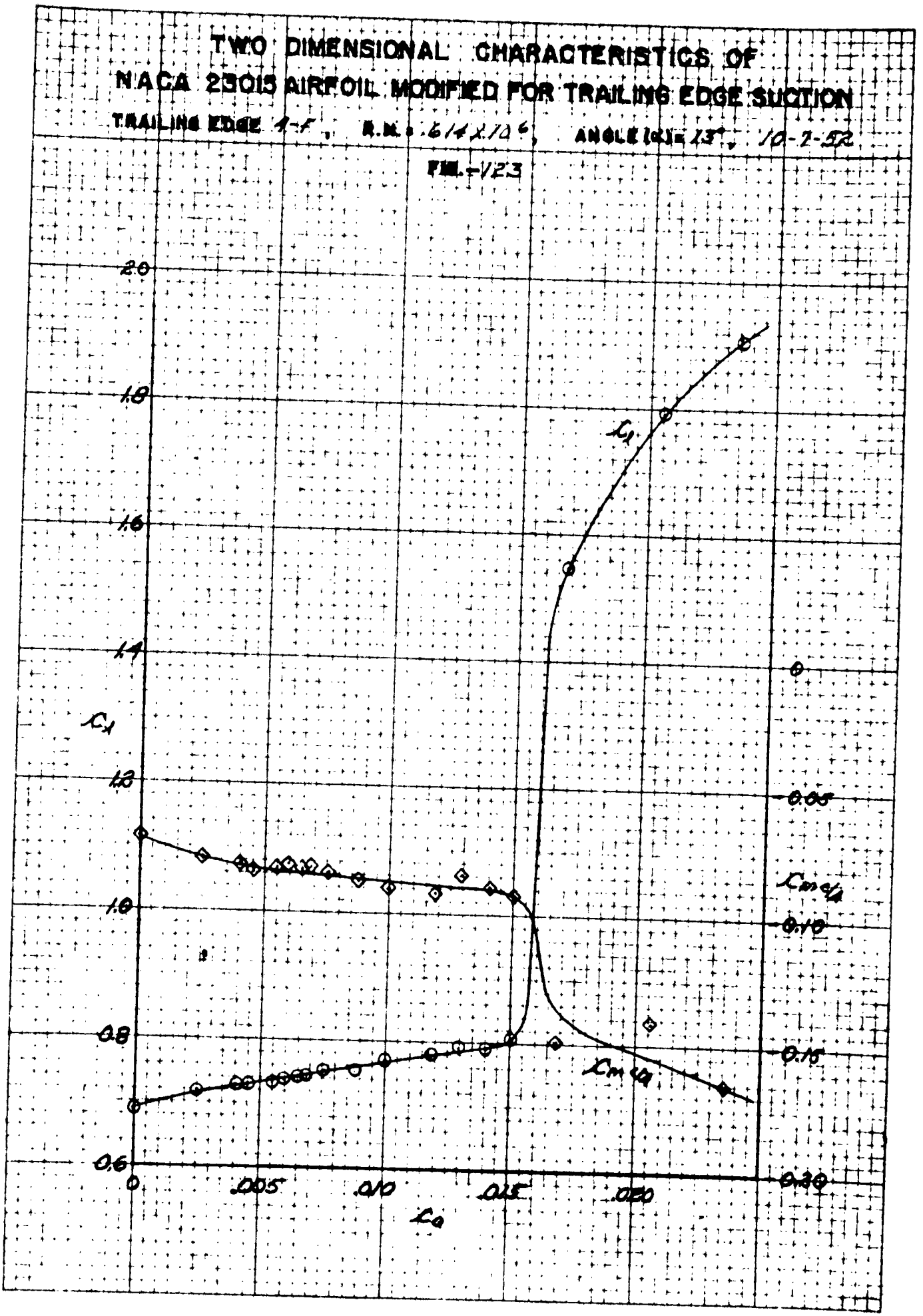



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 7-6 , R.N. = .624 x 10^6 , ANGLE (α) = -1° , 10-7-5
FIG. - 119
C_l
$C_{l_{max}} = C_{l_0}$
$C_{m_{c/4}}$
C_{d_0}
C_d
C_l
C_q
.005
.010
.015
.020
.025
0
.01
.02
.03
.04
.05
.06


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 4-F , R.N. .614 X 10⁶, ANGLE (α)= +3°, 10-7-52
FIG.-120
1.1
1.0
.9
.8
.7
.6
.5
.4
0
.04
.03
.02
.01
0
.005
.010
.015
.020
.025
C_d
C_l
$C_{dw}+2C_q$
C_{dw}
$C_{m_{c/4}}$
$C_{m_{c/4}}$
0
.05
.10
.15
.20
C_q


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 4-F, R.N. = 6.14 x 10^6, ANGLE (α) = 7°, 10-7-52
FIG. - 121
c_l
c_d
$c_{l_w} + 2c_q$
c_{l_w}
$c_{m\,c/4}$
c_q
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
.04
.03
.02
.01
0
0
.005
.010
.015
.020
.025
0
-0.05
-0.10
-0.15
-0.20

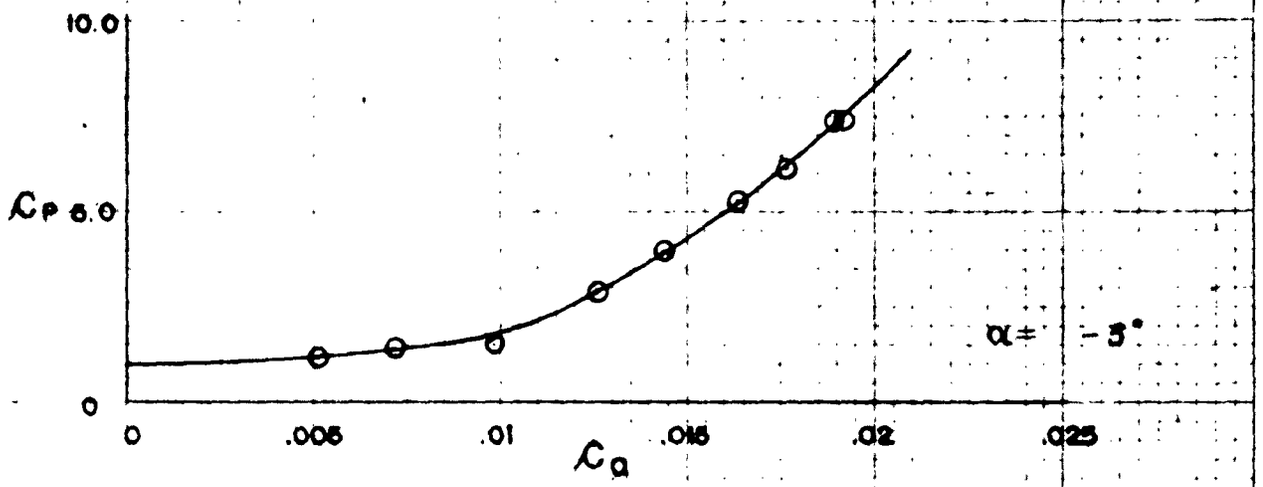

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-F, R.N. = 6.14 x 10^6, ANGLE (α) = 11°, 10-7-52.
FIG. - 122
c_l
c_d
$c_{dw} + 2c_q$
$c_{m\,c/4}$
$c_{m\,c/4}$
c_{dw}
c_q
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
.05
.04
.03
.02
.01
0
0
-.005
-.010
-.015
-.020
-.025
.005
.010
.015
.020
.025

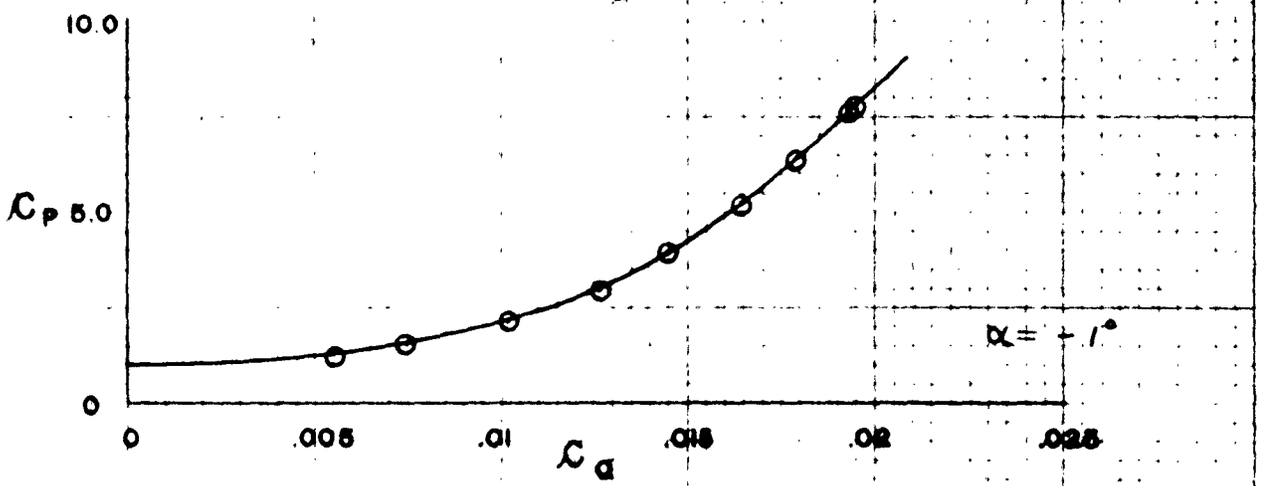

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-F, R.N. = .614 x 10^6, ANGLE (α) = 13°, 10-2-52
FIG. -123
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
c_l
c_l
$c_{m\,c/4}$
0
.005
.010
.015
.020
c_d
0.05
0.10
0.15
0.20
$c_{m\,c/4}$

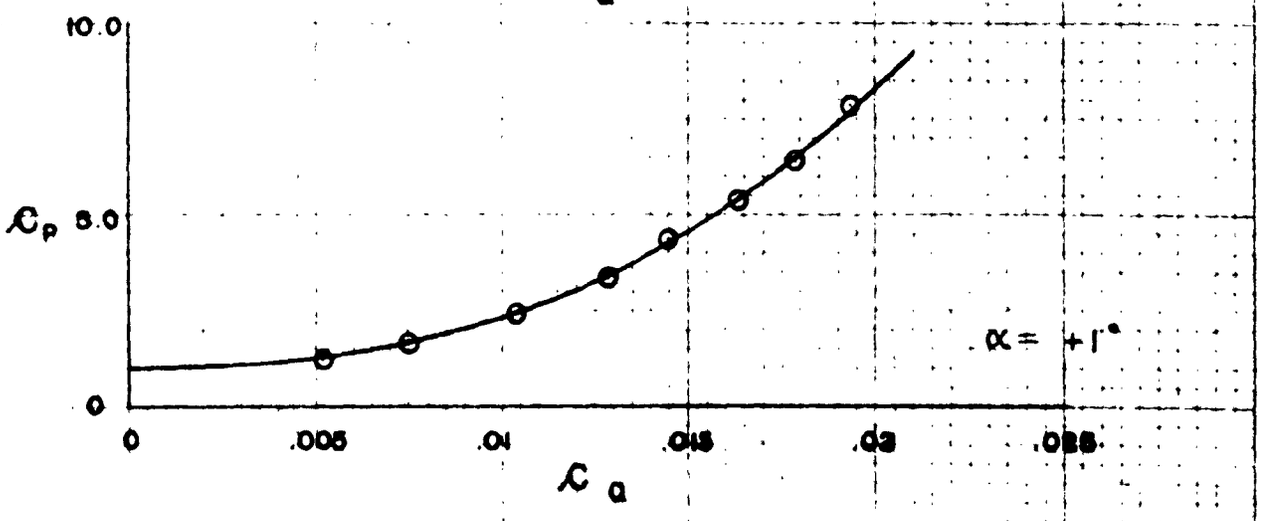
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 4-f , RN. = .614 X 10⁶ DATE: 2-18-55

C_p VS. C_q

FIG. - 124



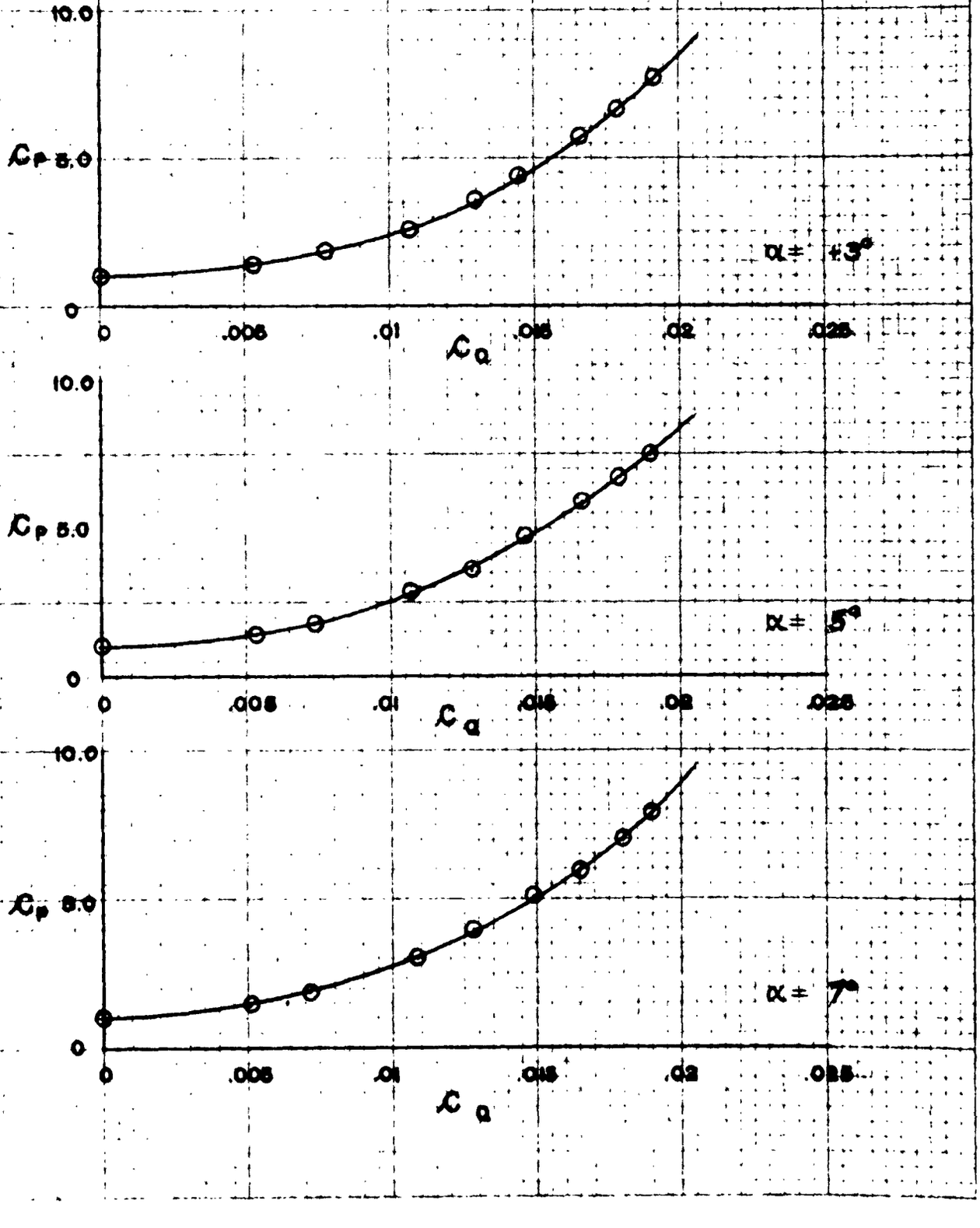




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 4-f , RN. = .614 x 10⁶ DATE: 2-18-53

C_p VS. C_q

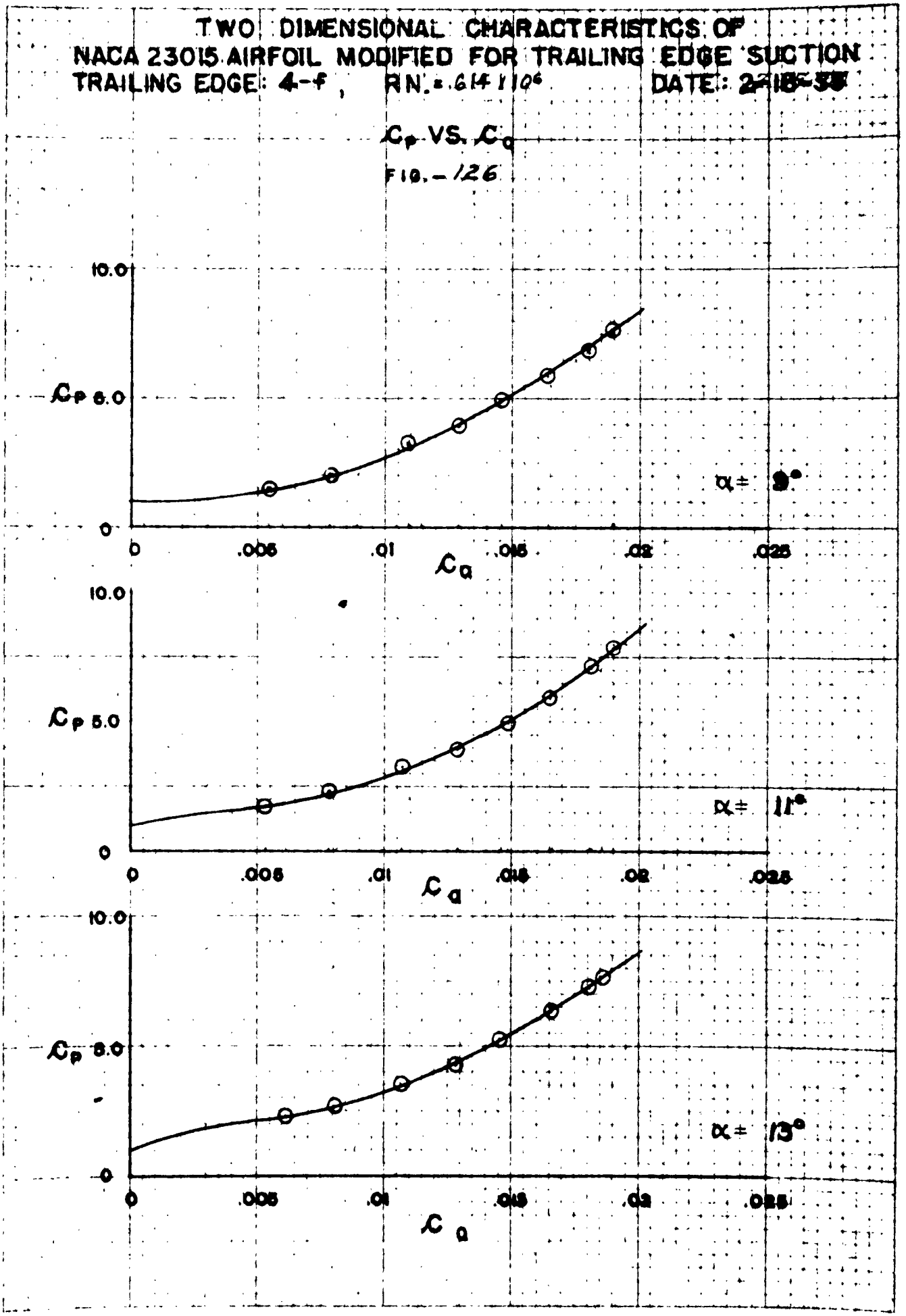
FIG. -125



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 4-f , RN. = .614 10^6 DATE: 2-18-38

C_p VS. C_q

FIG. - 126

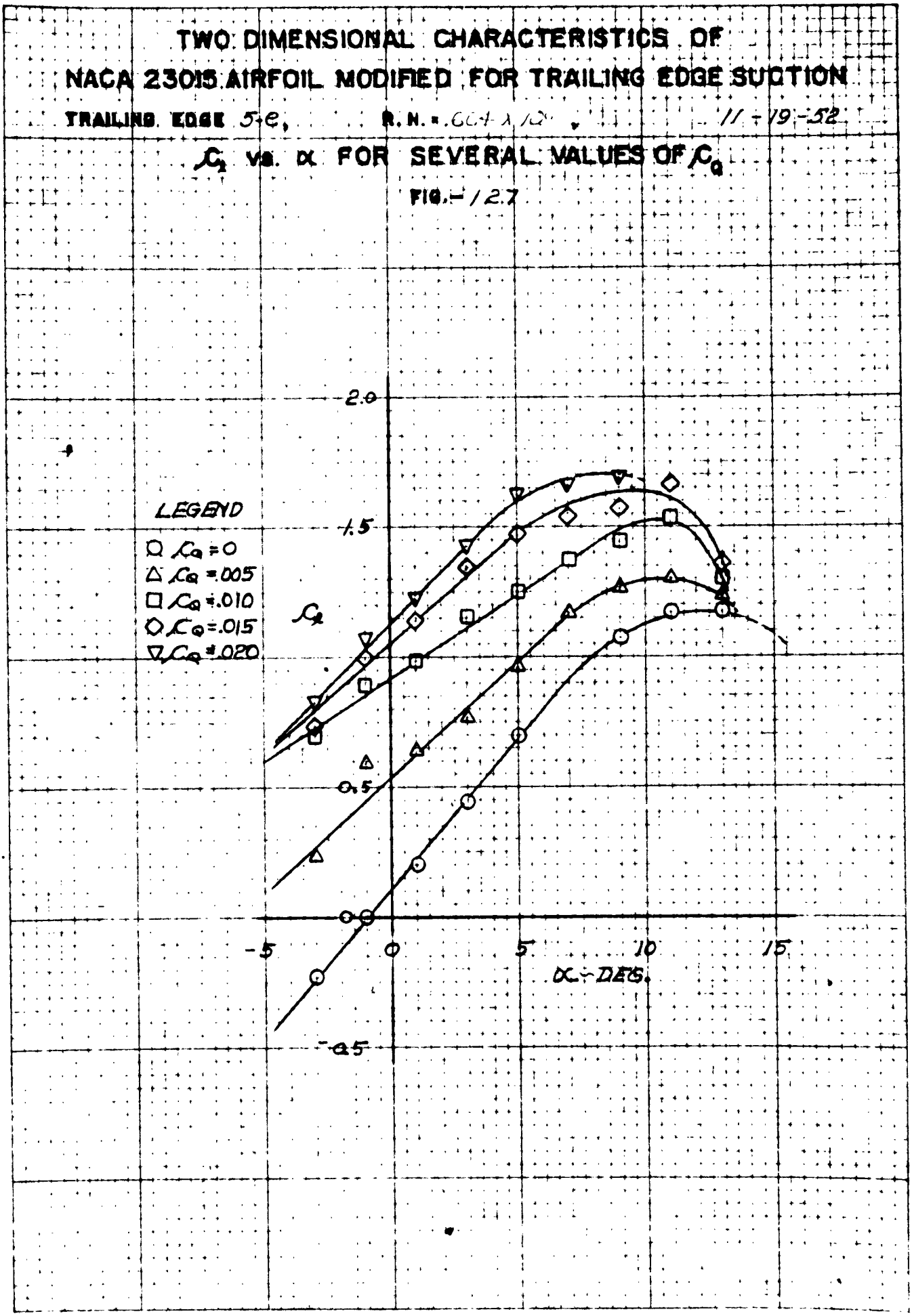


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-e, R.N. = .664 x 10⁶, 11-19-52

C_l vs. α FOR SEVERAL VALUES OF C_Q

FIG. - 127

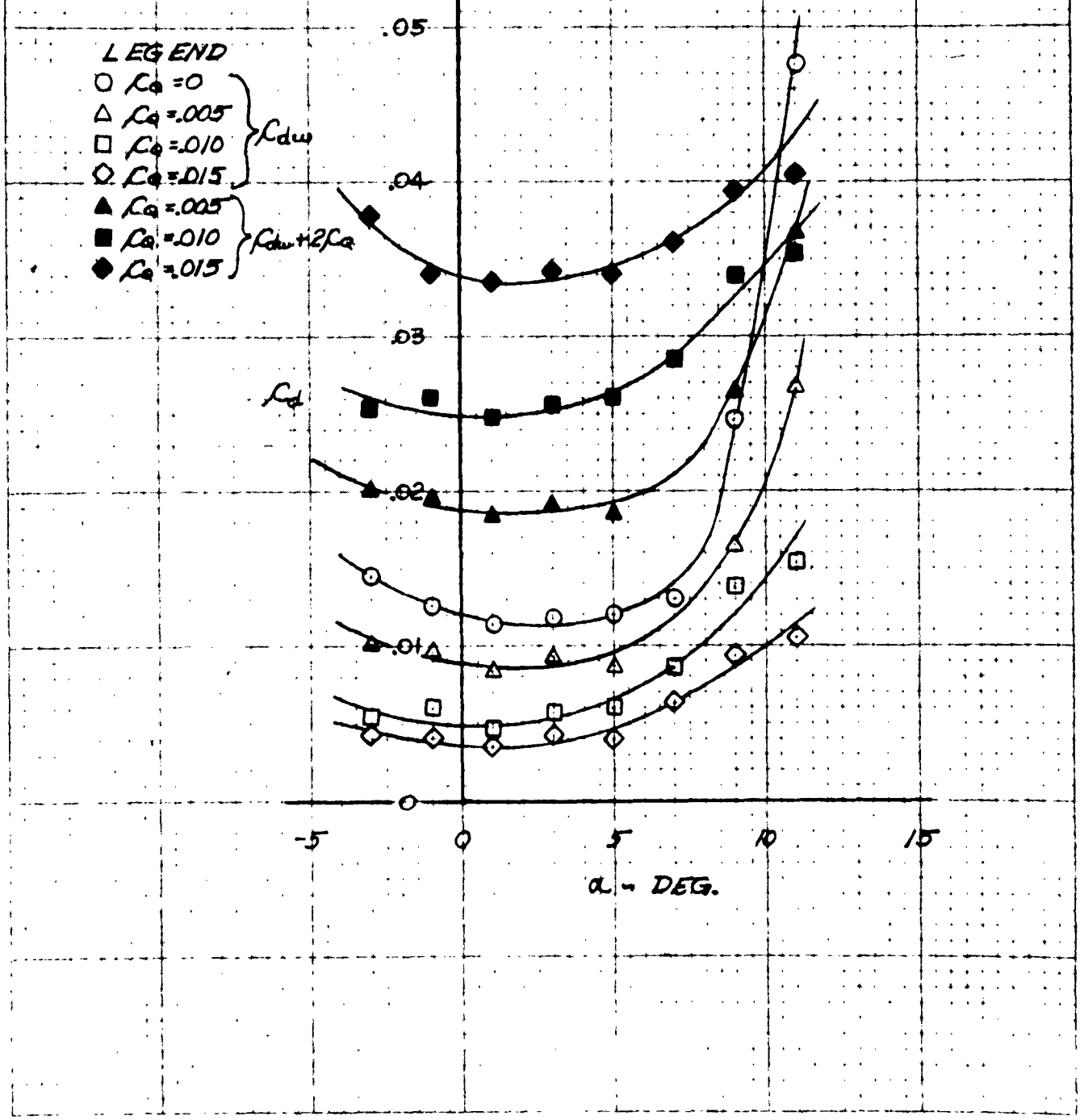


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-e , R.N. = .604 x 10^6 11-19-53

c_{d_w} AND $(c_{d_w} + 2c_q)$ vs. α FOR SEVERAL VALUES OF c_q

FIG.-12a

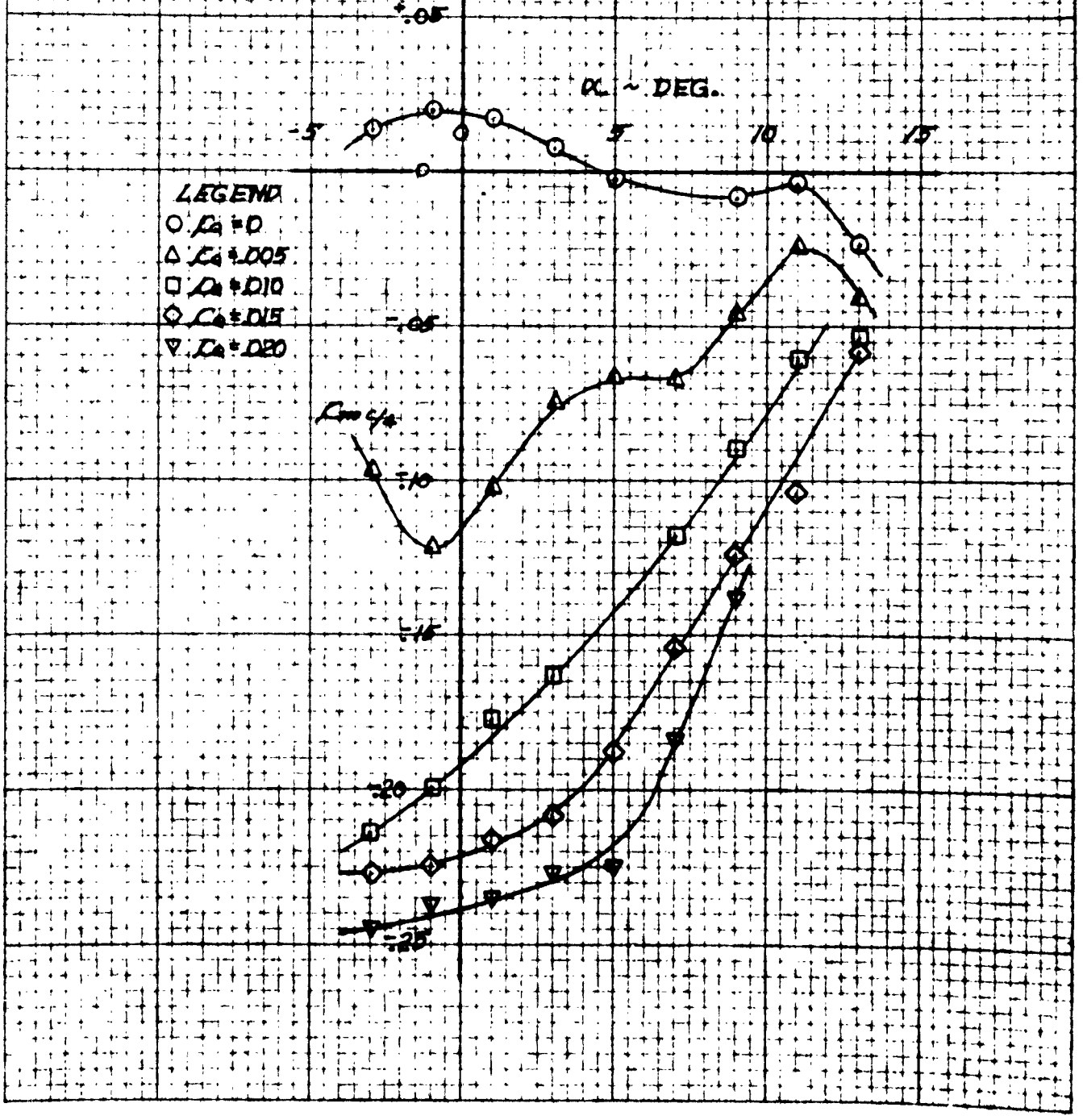


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-8 R.N. = .604 X 10^6 11-19-52

$C_{m\,c/4}$ vs. α FOR SEVERAL VALUES OF C_q

FIG.-128

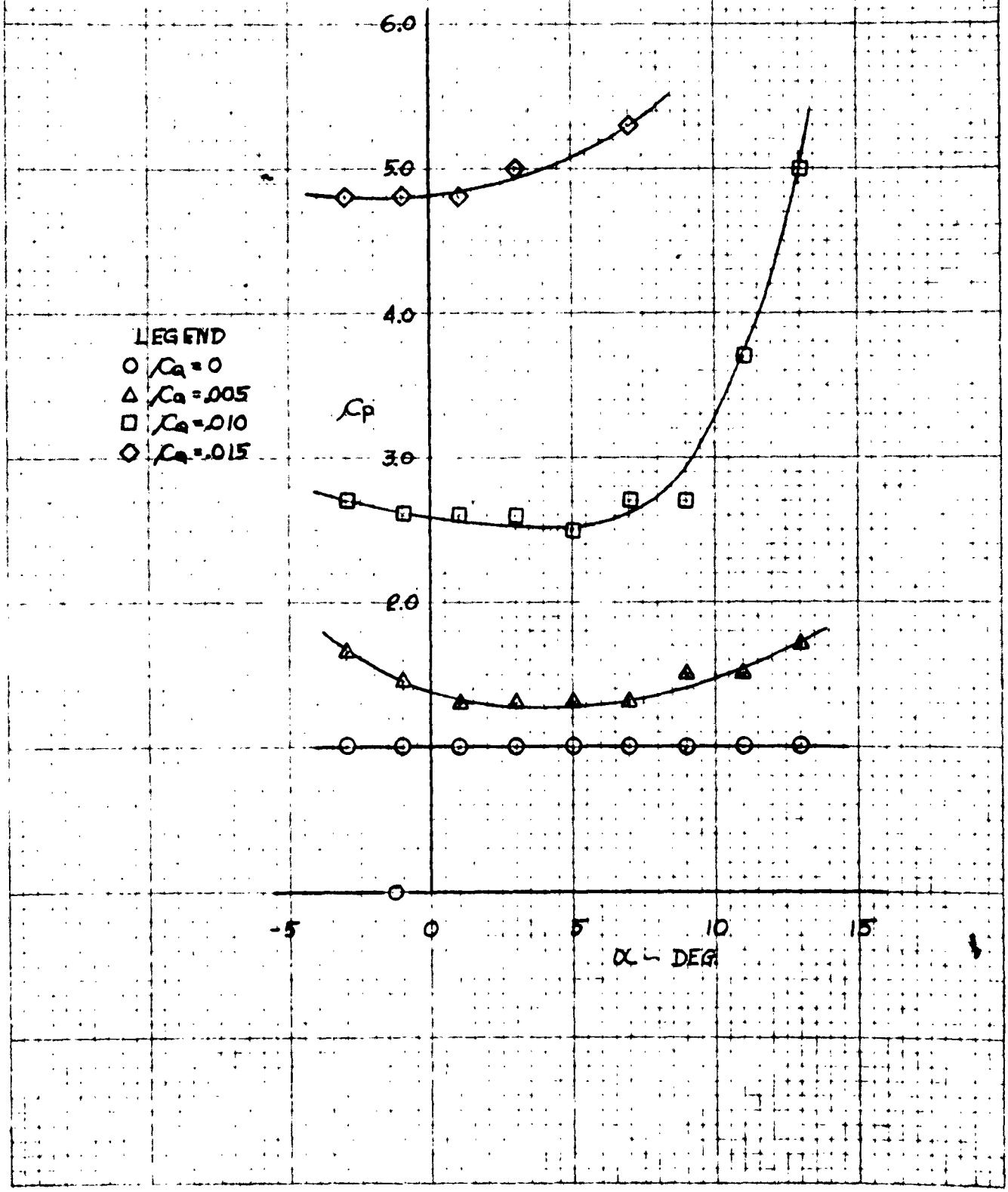


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE: 5-e , RN. = .804 X 10^6 , DATE: 11-28-52

C_p vs. α FOR SEVERAL VALUES OF C_Q

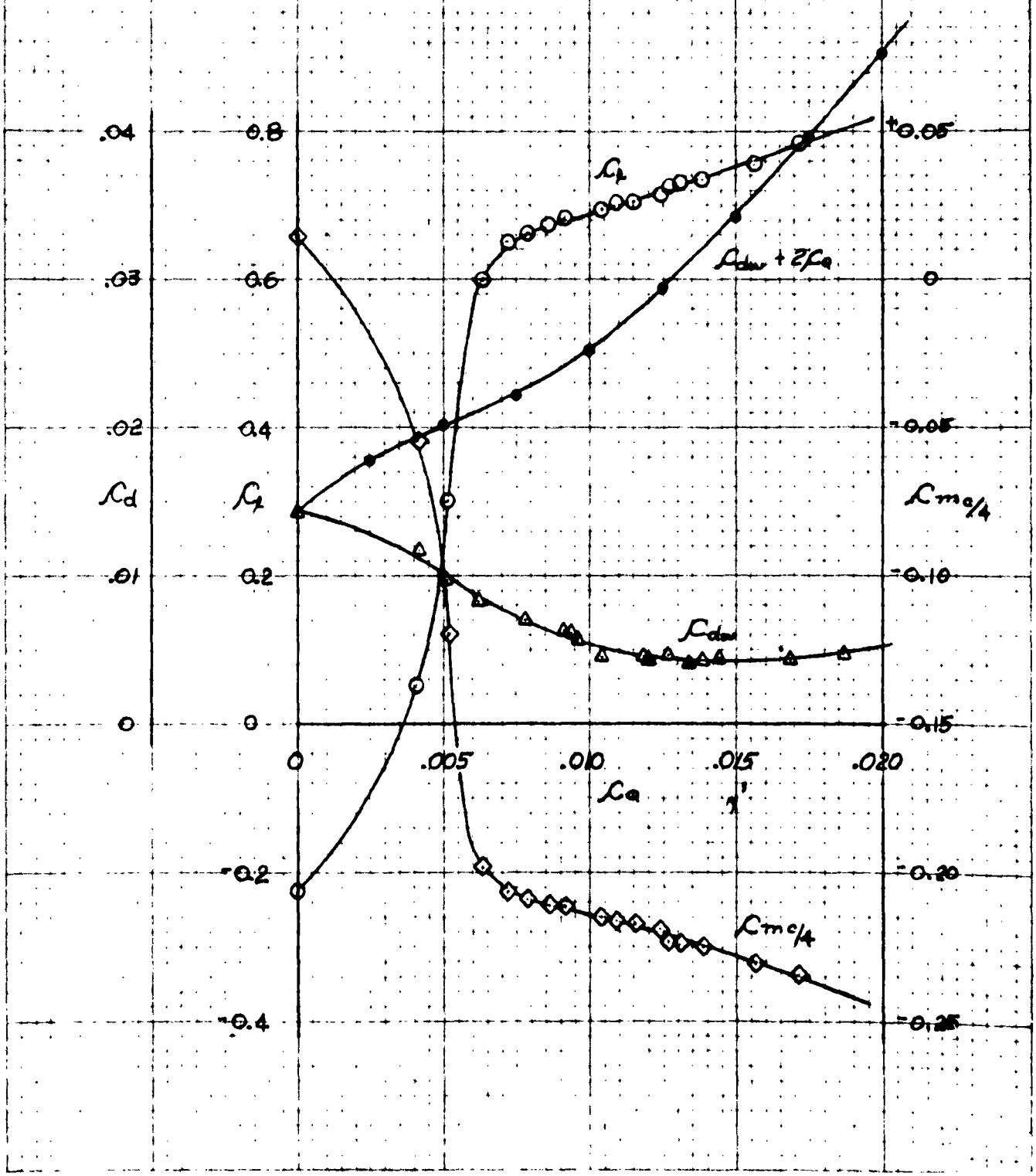
FIG. - 130

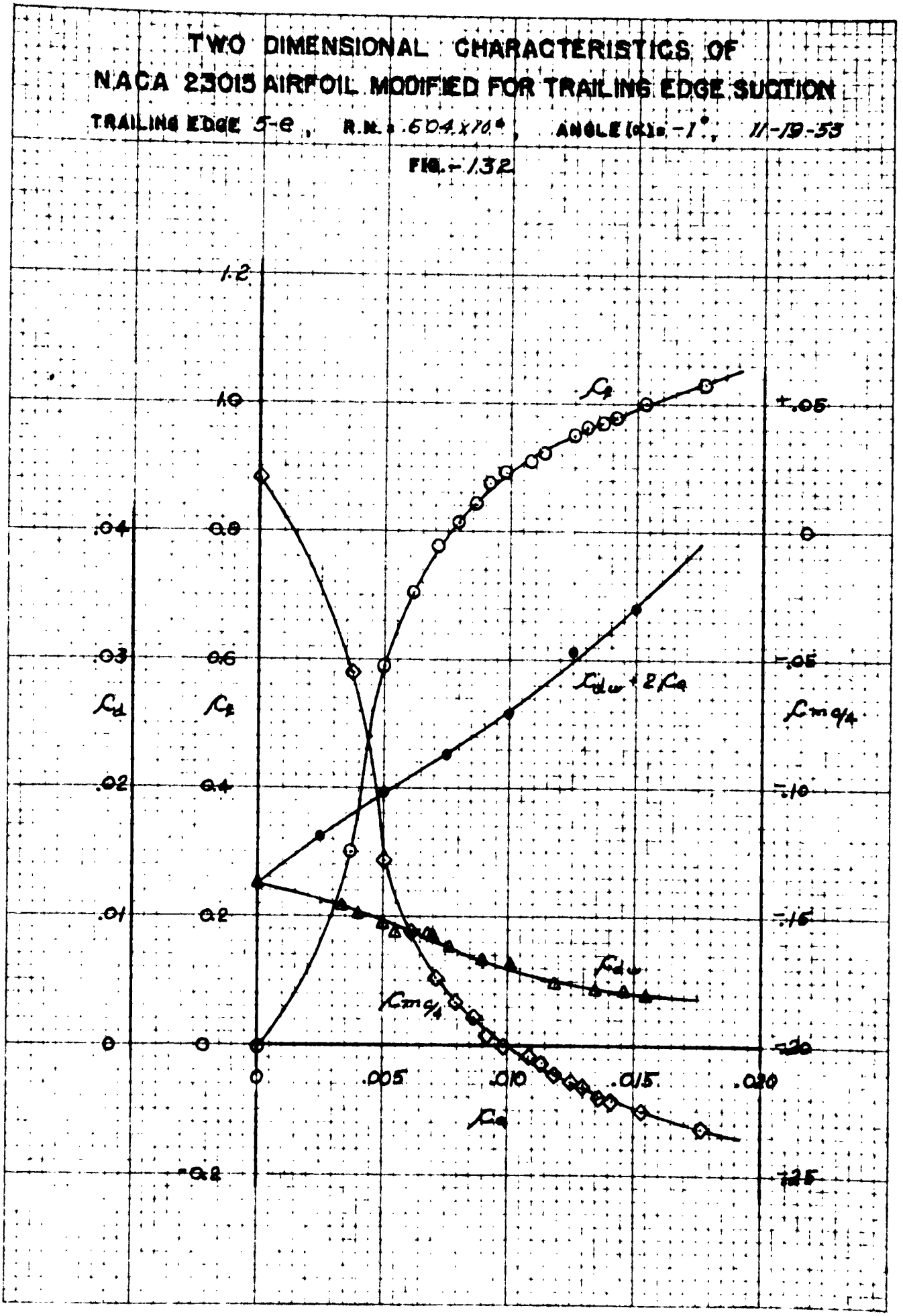


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-6, R.N. = 6.04 x 10^6, ANGLE (α)ir = -3°, 11-19-52

FIG. - 131

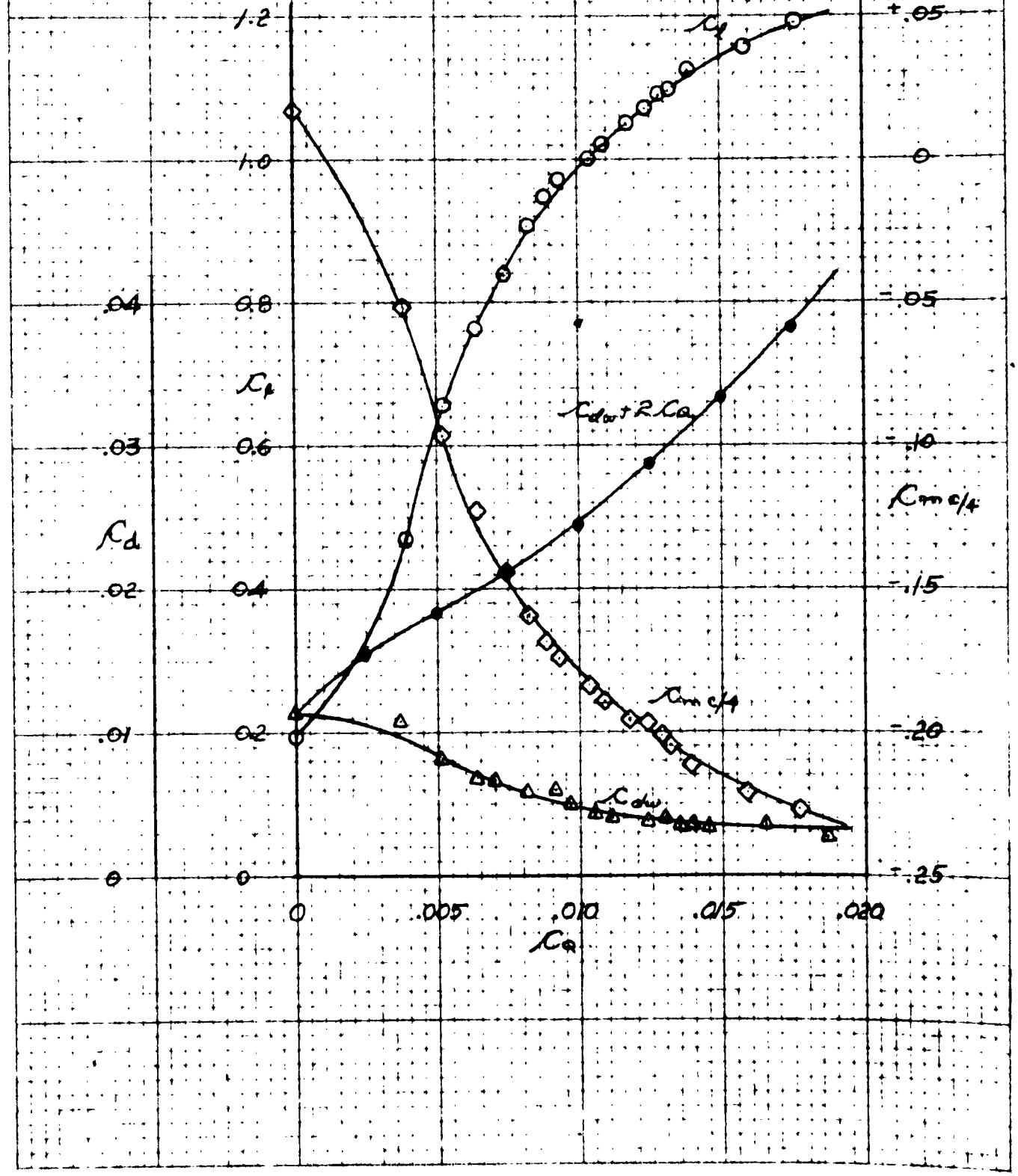


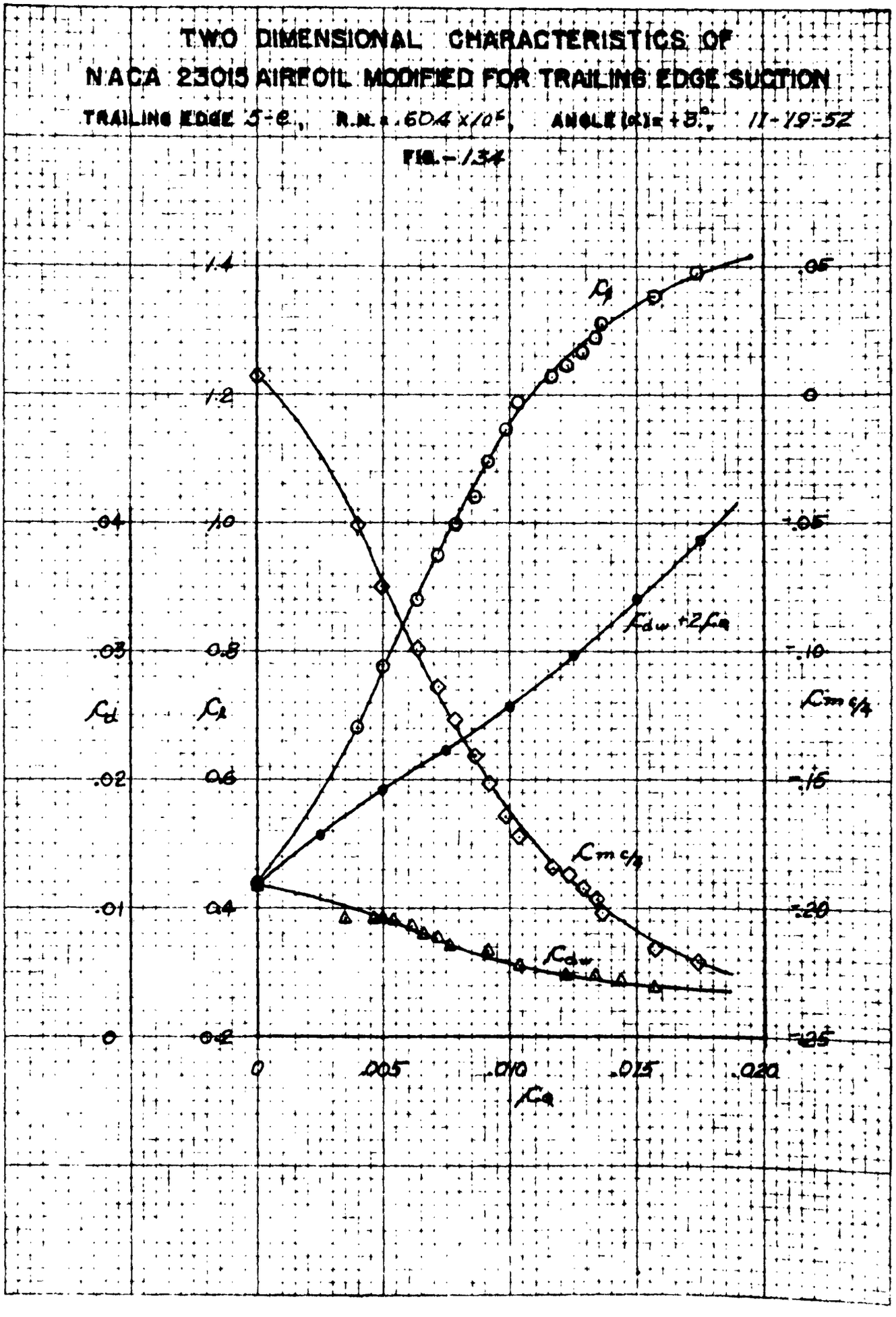

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 5-e , R.N. = .604 x 10^6 , ANGLE (α)a = -1° , 11-19-53
FIG. - 132
1.2
1.0
0.8
0.6
0.4
0.2
0
-0.2
.04
.03
.02
.01
0
.005
.010
.015
.020
+.05
0
-.05
-.10
-.15
-.20
-.25
c_l
c_d
c_m
$c_{d_w} + 2c_q$
c_{d_w}
$c_{m_{c/4}}$

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-e, R.N. = .604 x 10⁶, ANGLE (α_{1s}) = +1°, 11-19-52

FIG. - 133

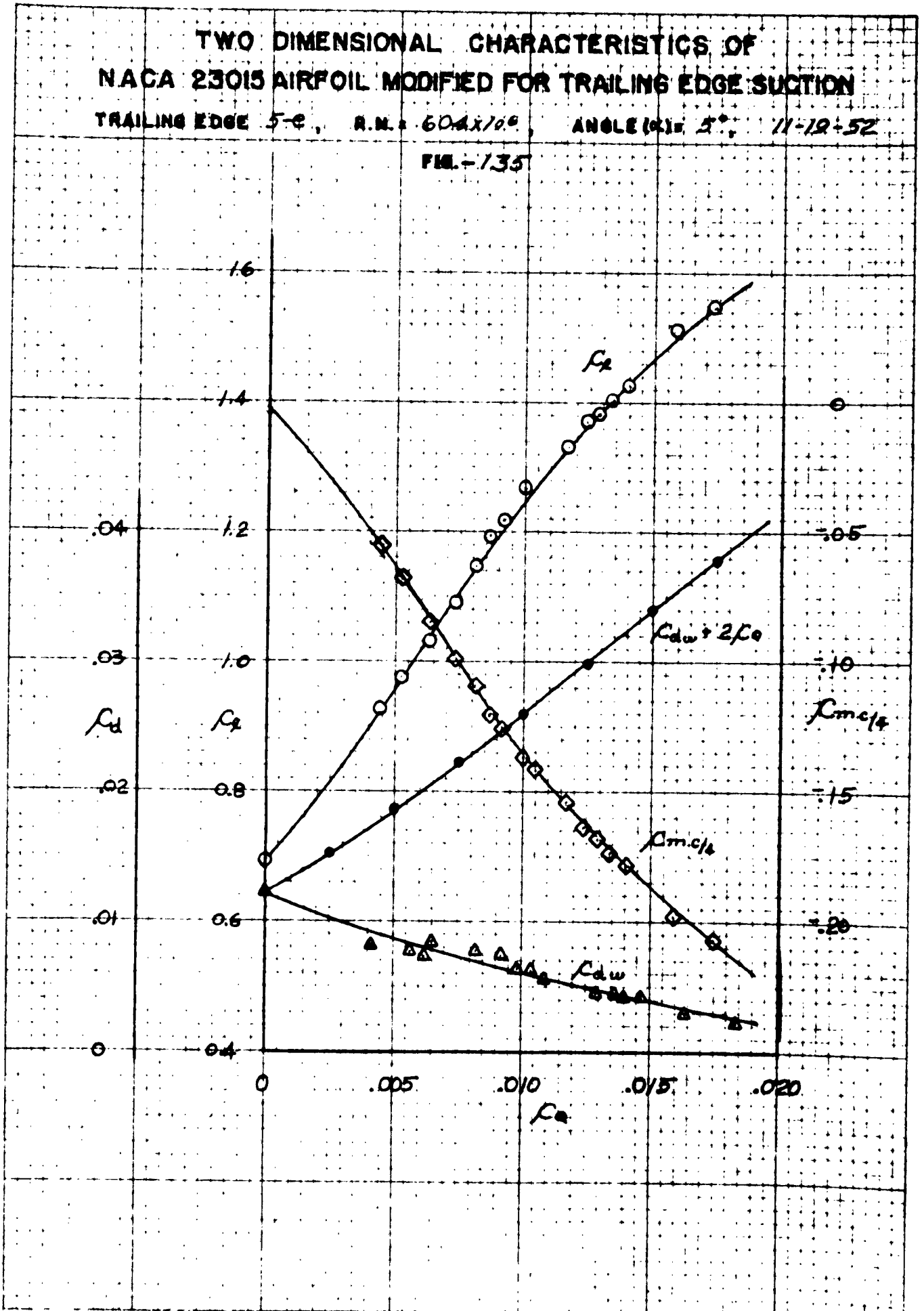



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 5-C, R.N. = .604 x 10^6, ANGLE (α) = +8°, 11-19-52
FIG. - 134
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
.05
0
-.05
-.10
-.15
-.20
-.25
.04
.03
.02
.01
0
c_l
c_d
$c_{m\,c/4}$
$c_{d_w} + 2c_a$
$c_{m\,c/4}$
c_{d_w}
0
.005
.010
.015
.020
c_a

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-C, R.N. = 6.04x10^6, ANGLE (α_1) = 5°, 11-12-52

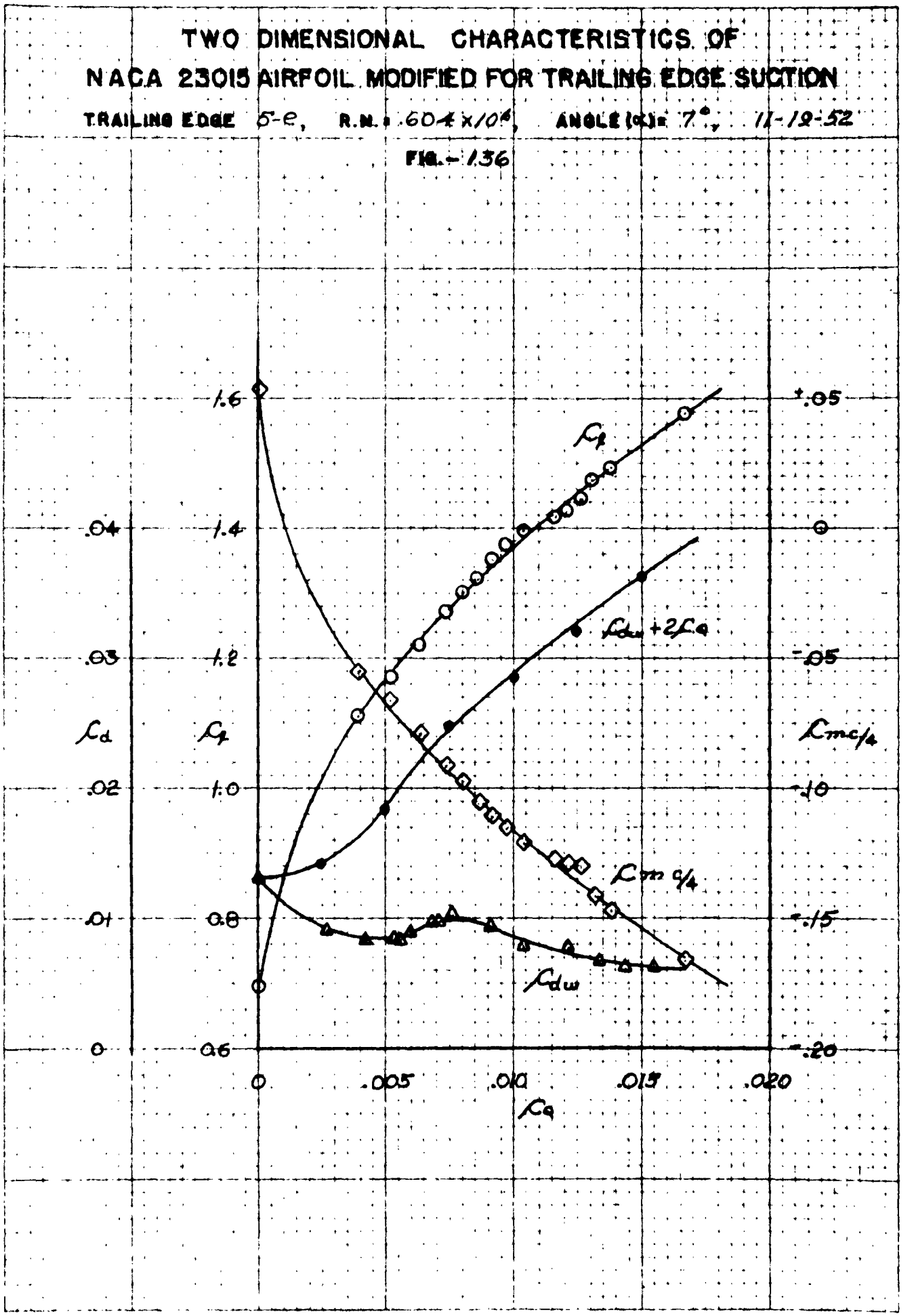
FIG.-135

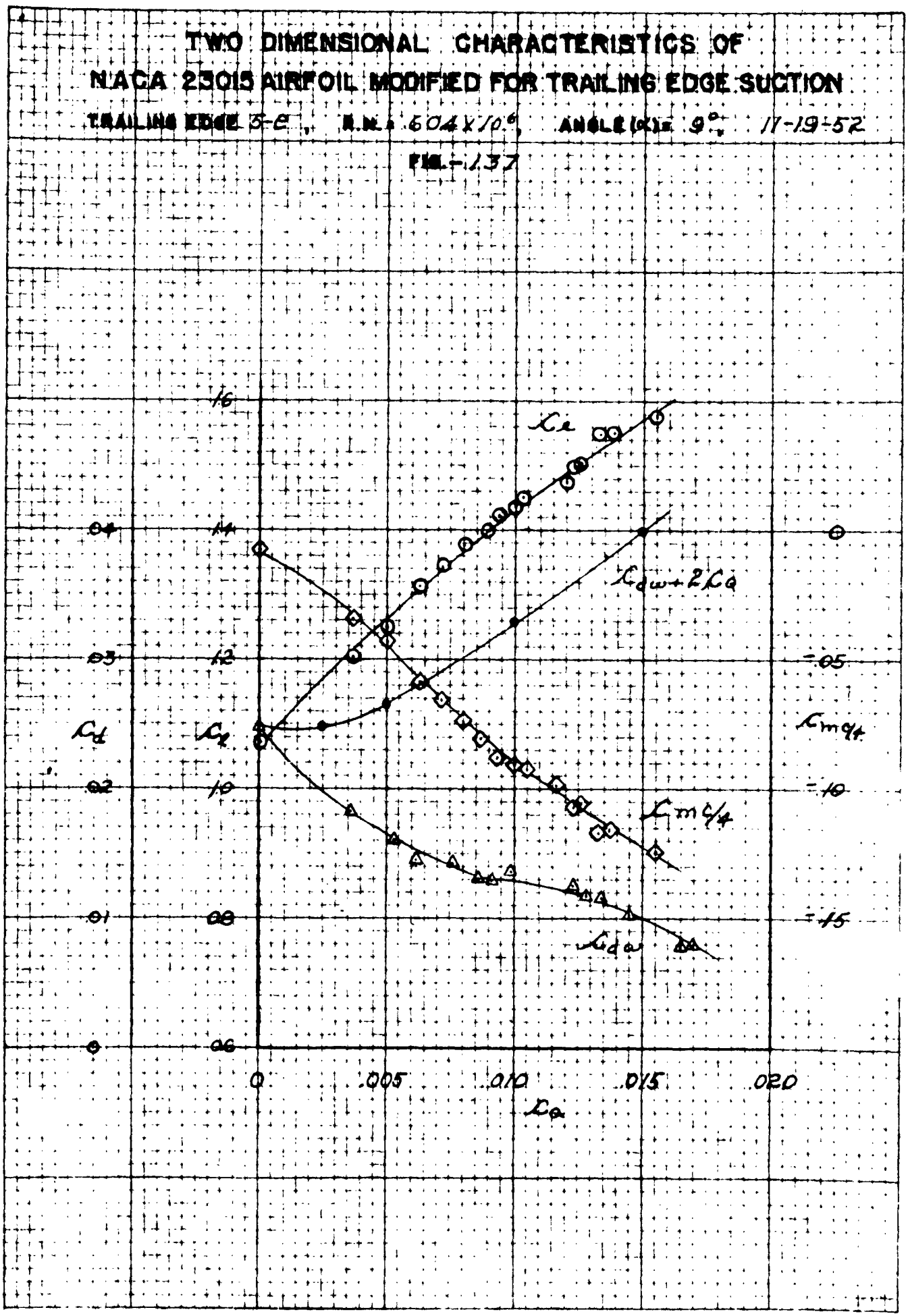


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-e, R.N. = .604 x 10^6, ANGLE (α) = 7°, 11-19-52

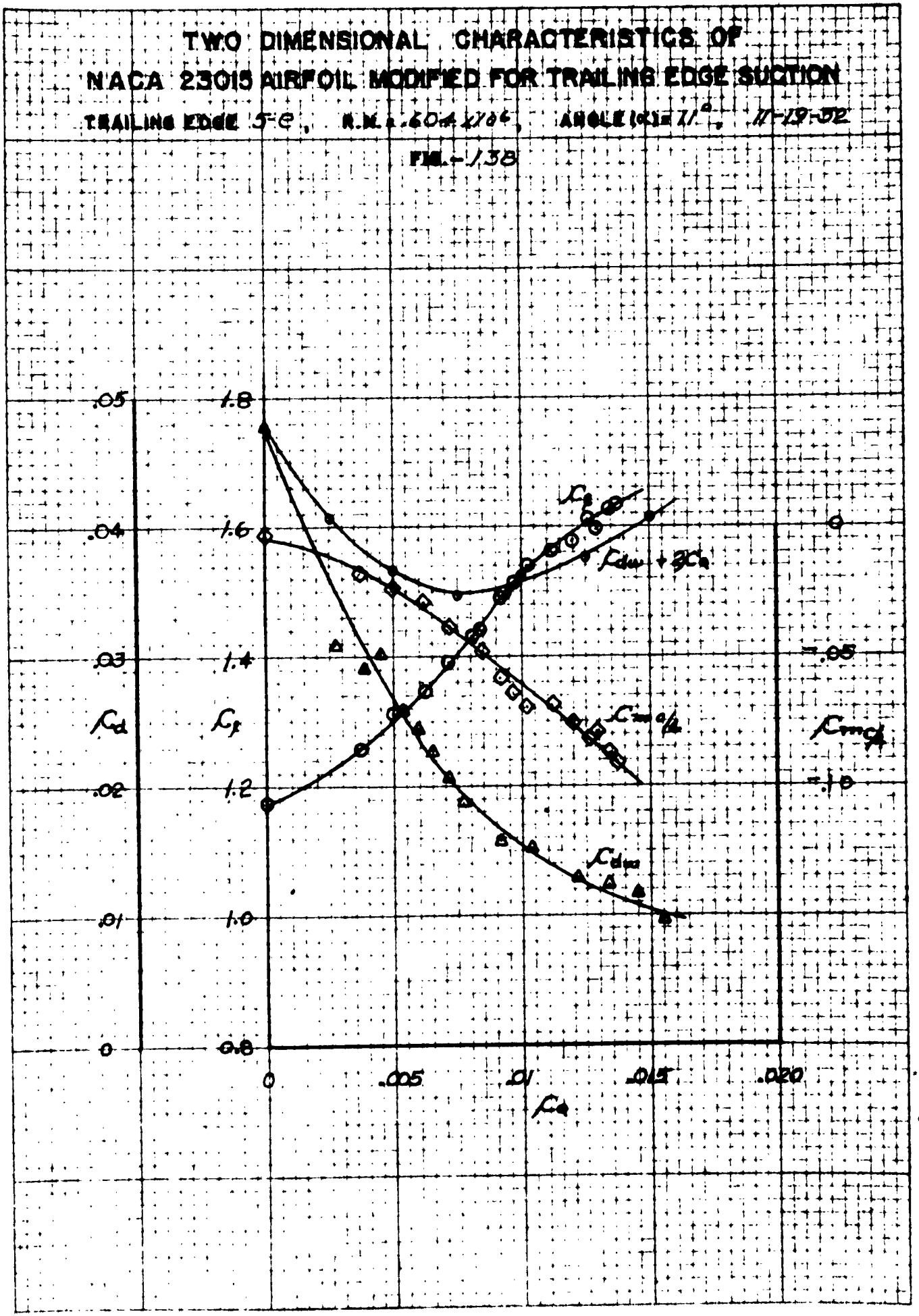
FIG. - 136




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE S-C , R.N. = 6.04 x 10^6, ANGLE (α) = 9°, 11-19-52
FIG. - 137
c_l
$c_{d_w} + 2c_q$
$c_{m_{c/4}}$
$c_{m_{c/4}}$
c_{d_q}
c_q
1.6
1.4
1.2
1.0
.08
.06
.04
.02
0
.005
.010
.015
.020
-.05
-.10
-.15

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 5-C, R.N. = .60 x 10^6, ANGLE (α) = 11°, 11-19-32

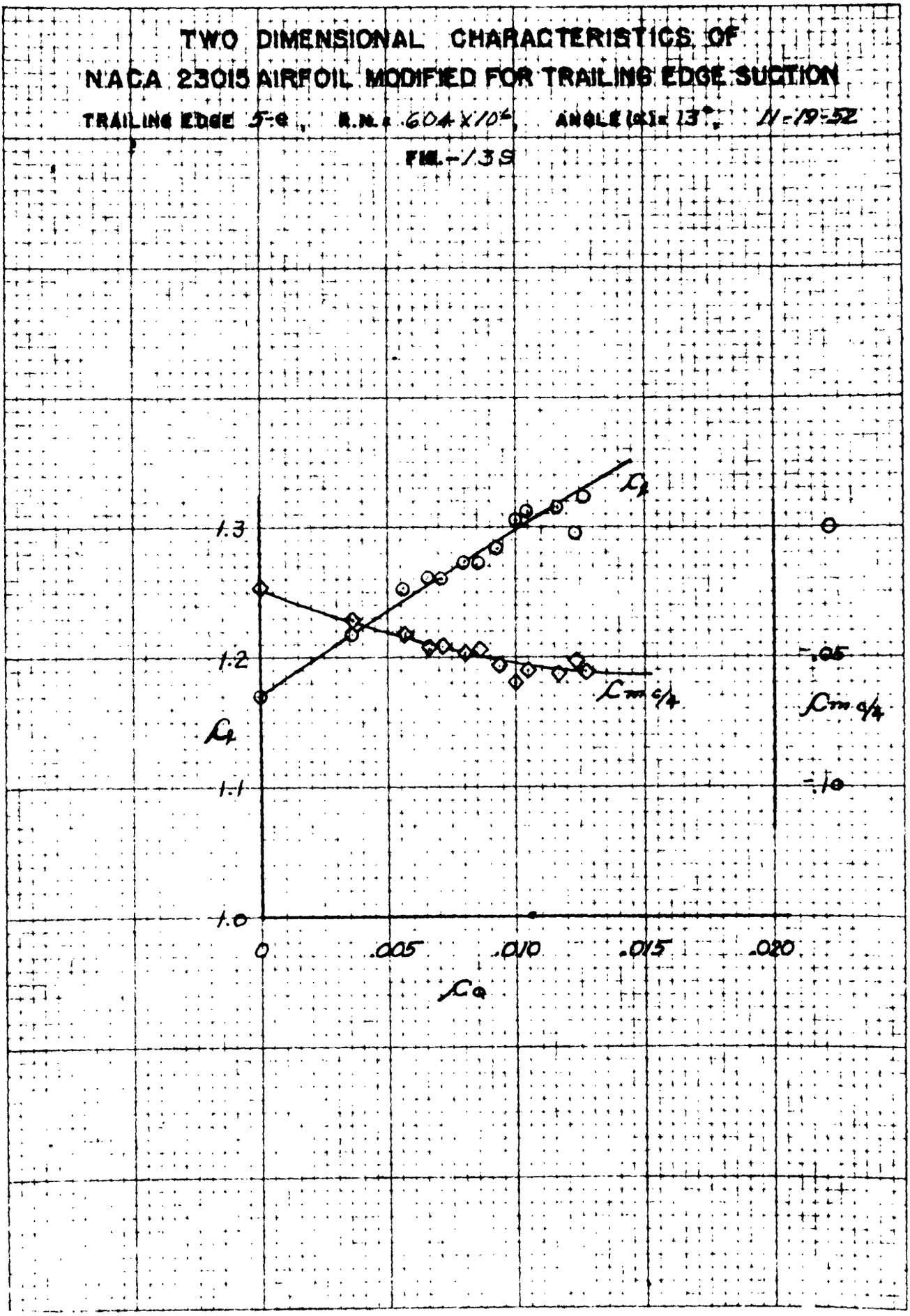
FIG. - 138



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 5-9, R.N. = 6.04 X 10⁶, ANGLE (α) = 13°, N-19-52

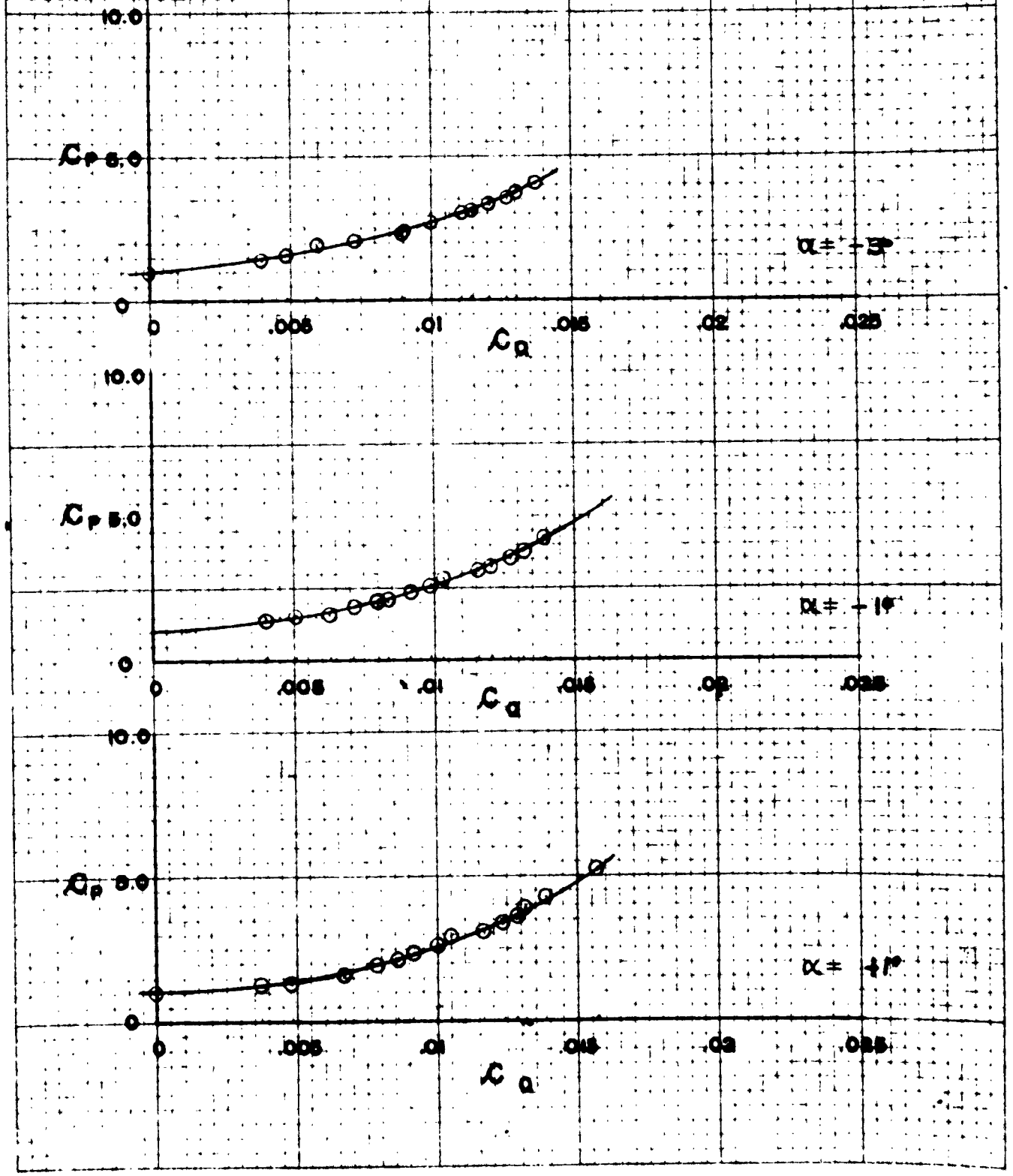
FIG.-135



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 5-2, RN. = 6.04 X 10⁶ DATE: 11-28-53

C_p VS. C_q

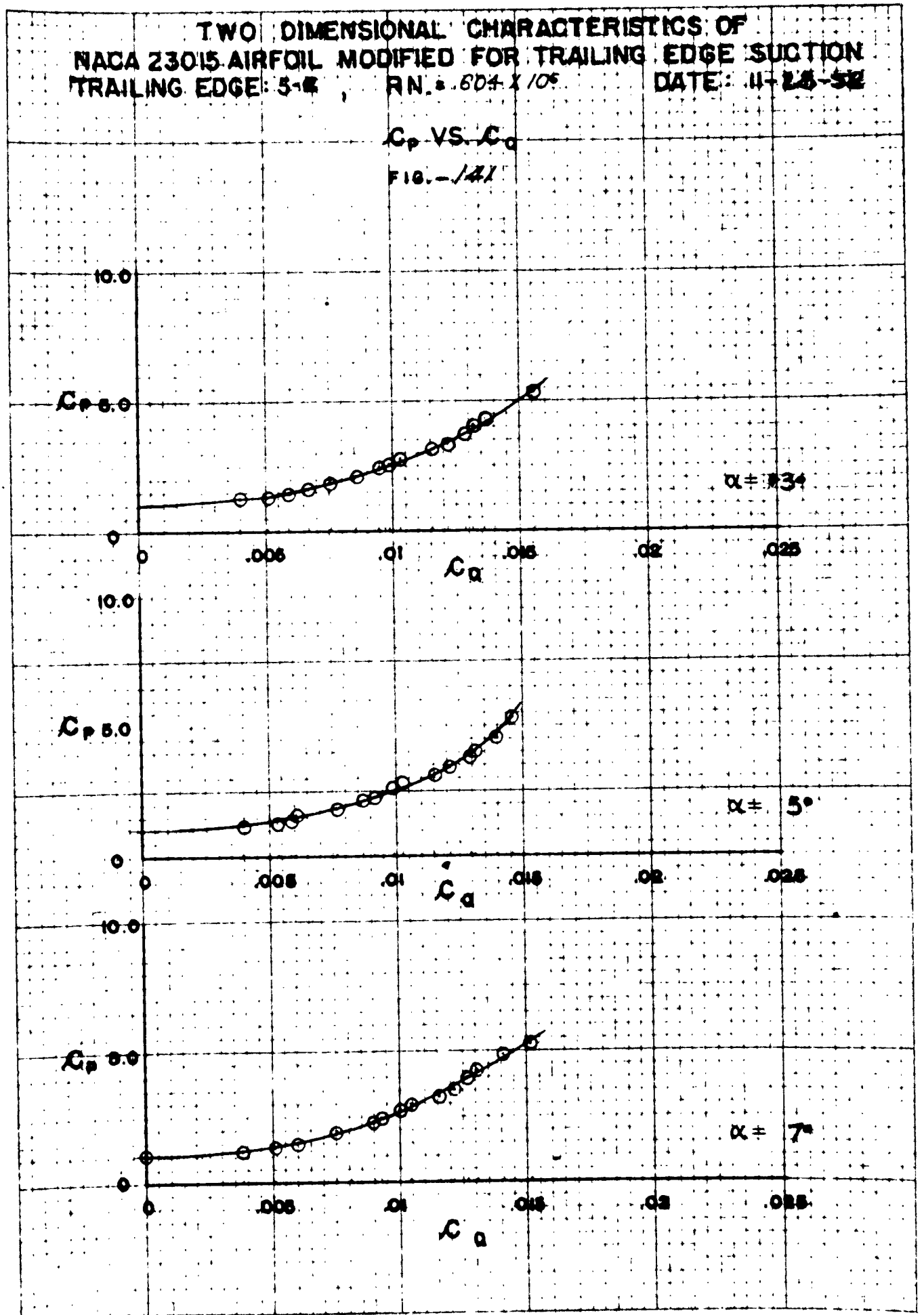
FIG. -140



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 5-% , R.N. = .604 X 10⁶ DATE: 11-25-52

C_p VS. C_a

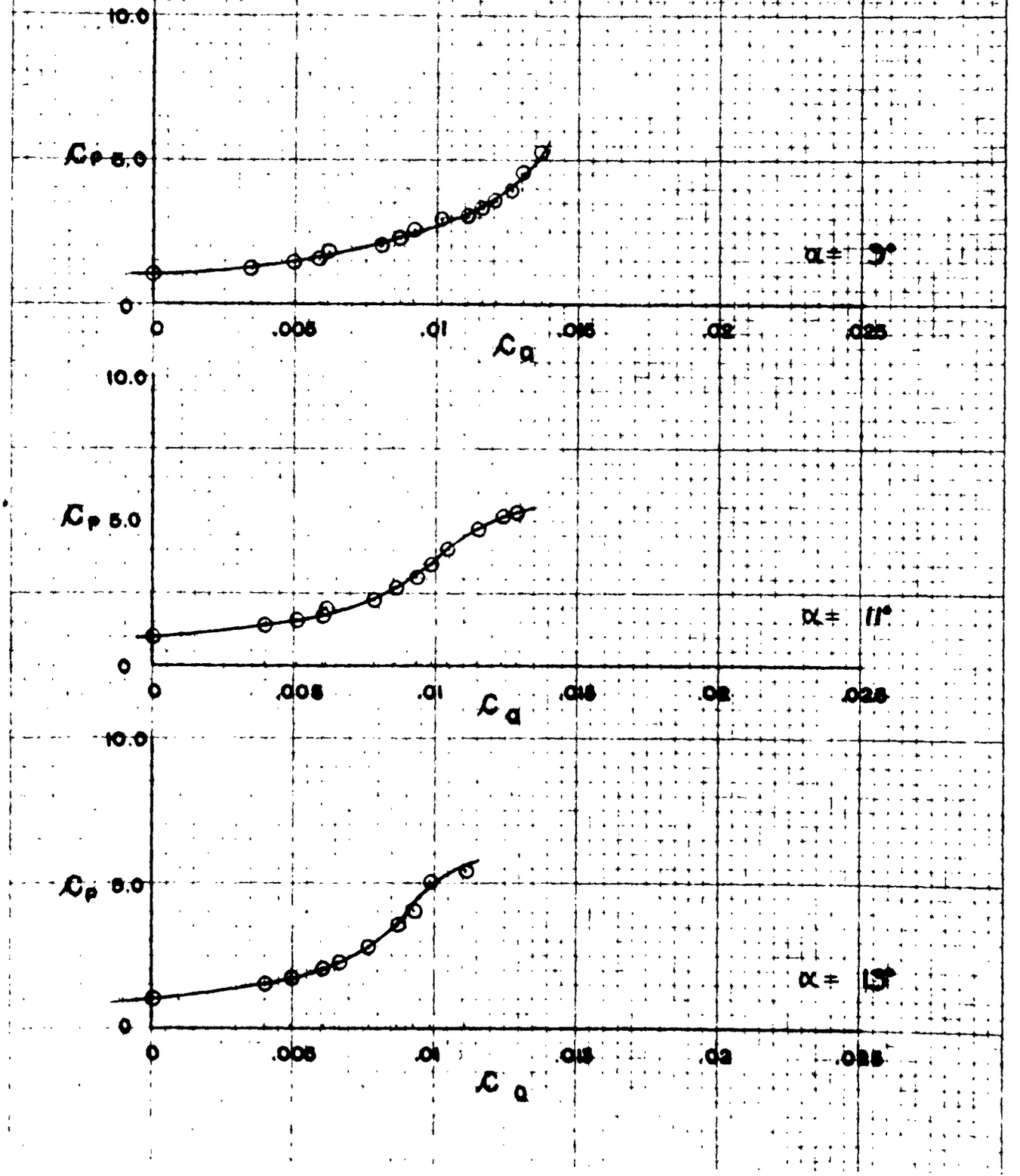
FIG. - 141



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: 5-%, R.N. = .604 X 10^6 DATE: 11-25-52

C_p VS. C_q

FIG. -142

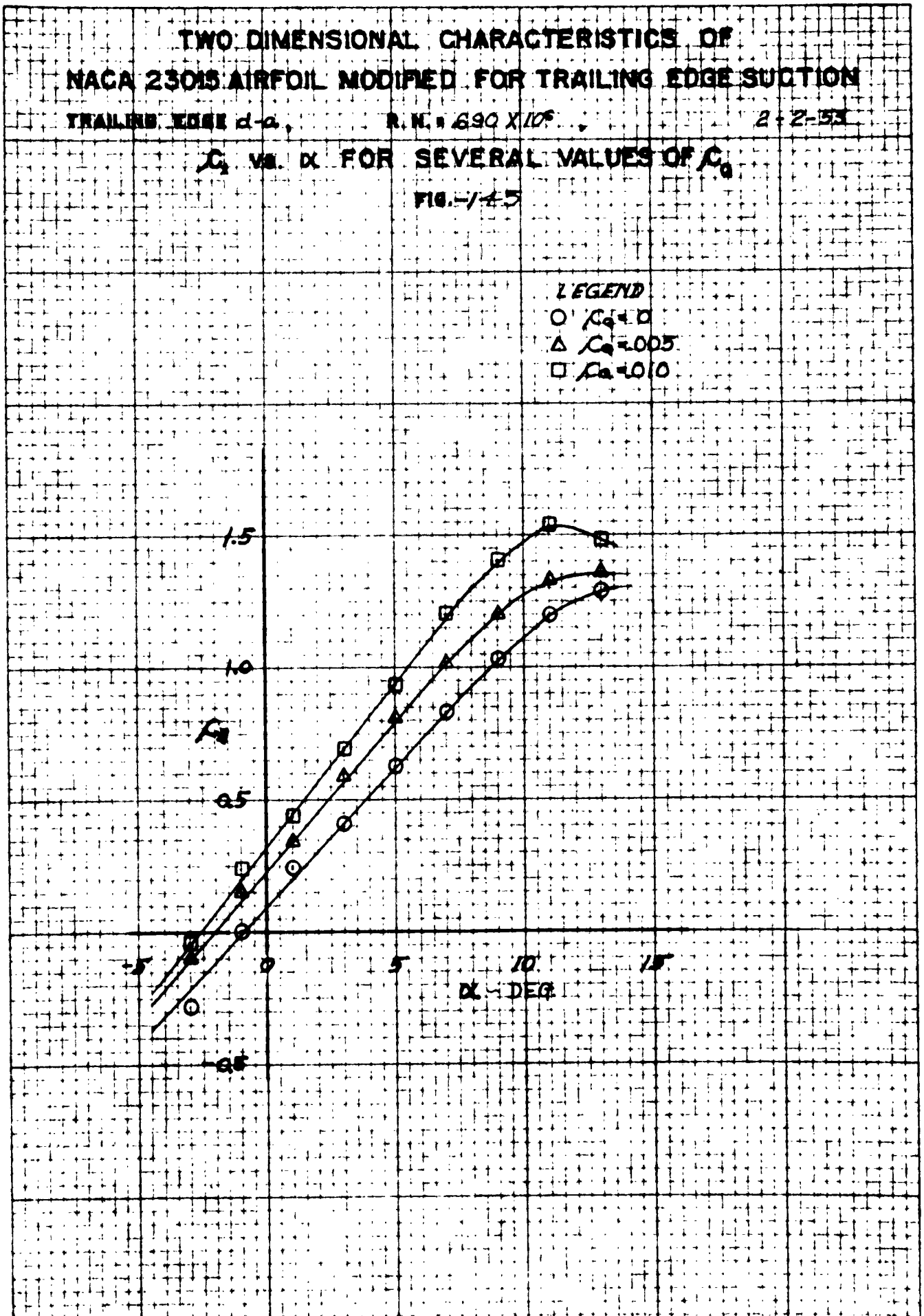


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE d-a, R.N. = 6.90 X 10^6, 2-2-53

C_l VS. α FOR SEVERAL VALUES OF C_q

FIG.-1-45



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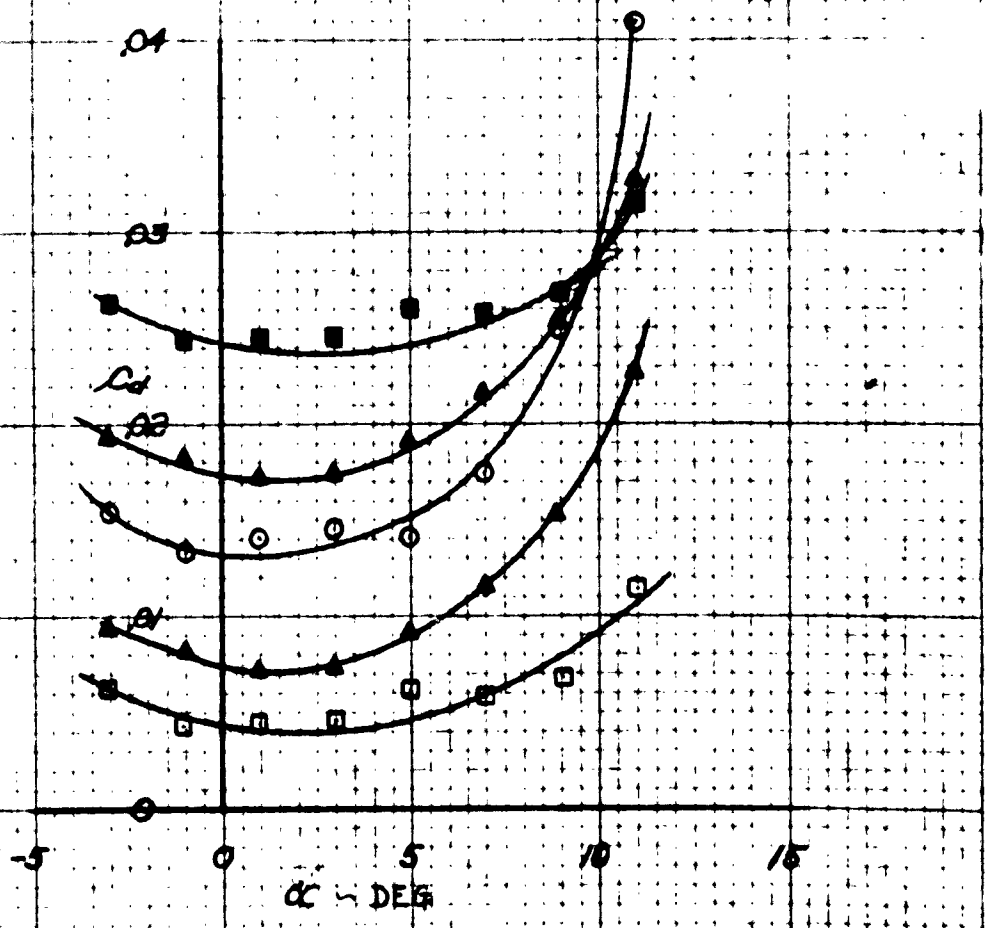
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE δ-a , R. N. = .690 X 10^6 1-30-58

C_{d_w} AND $(C_{d_w} + 2C_q)$ vs. α FOR SEVERAL VALUES OF C_q

FIG.-144

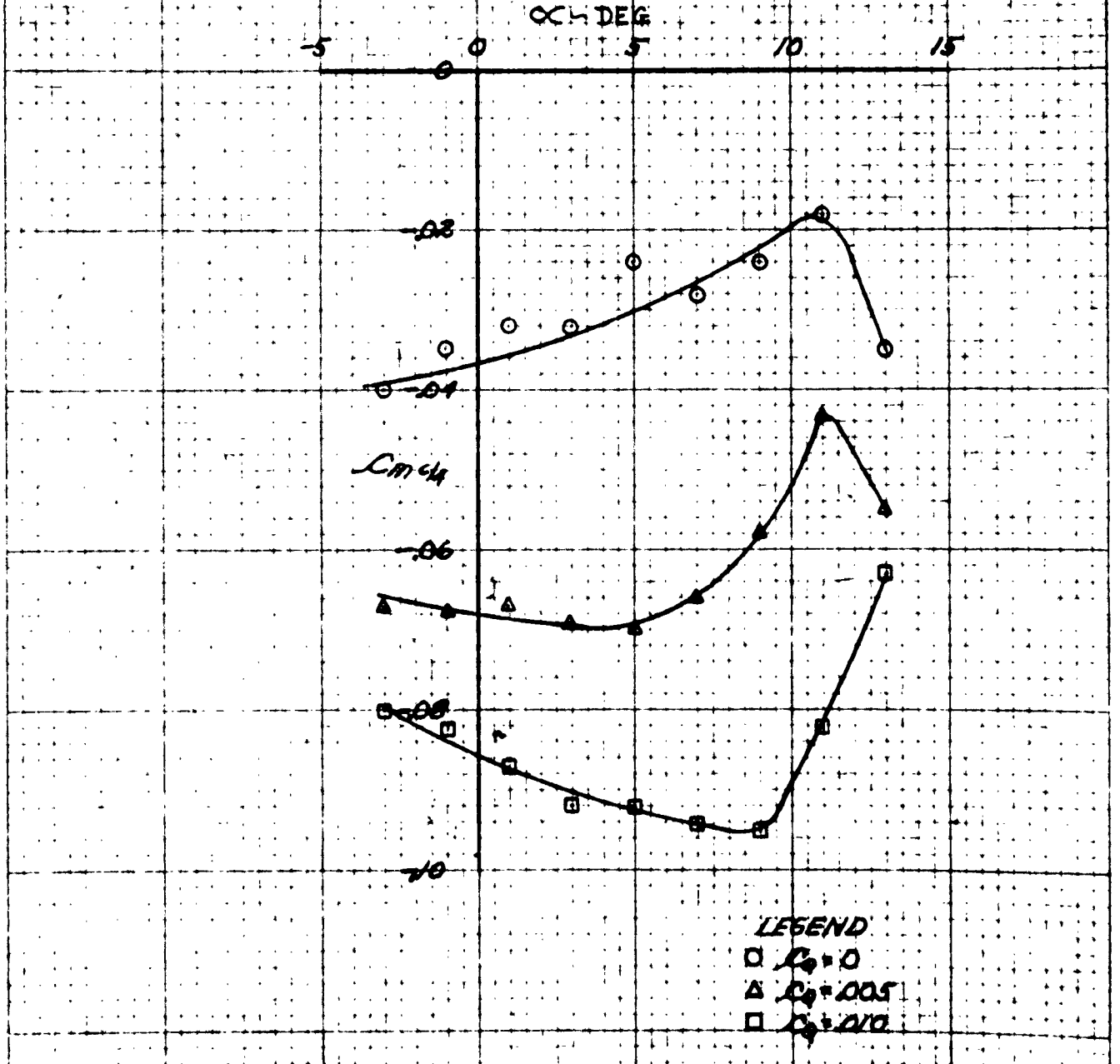


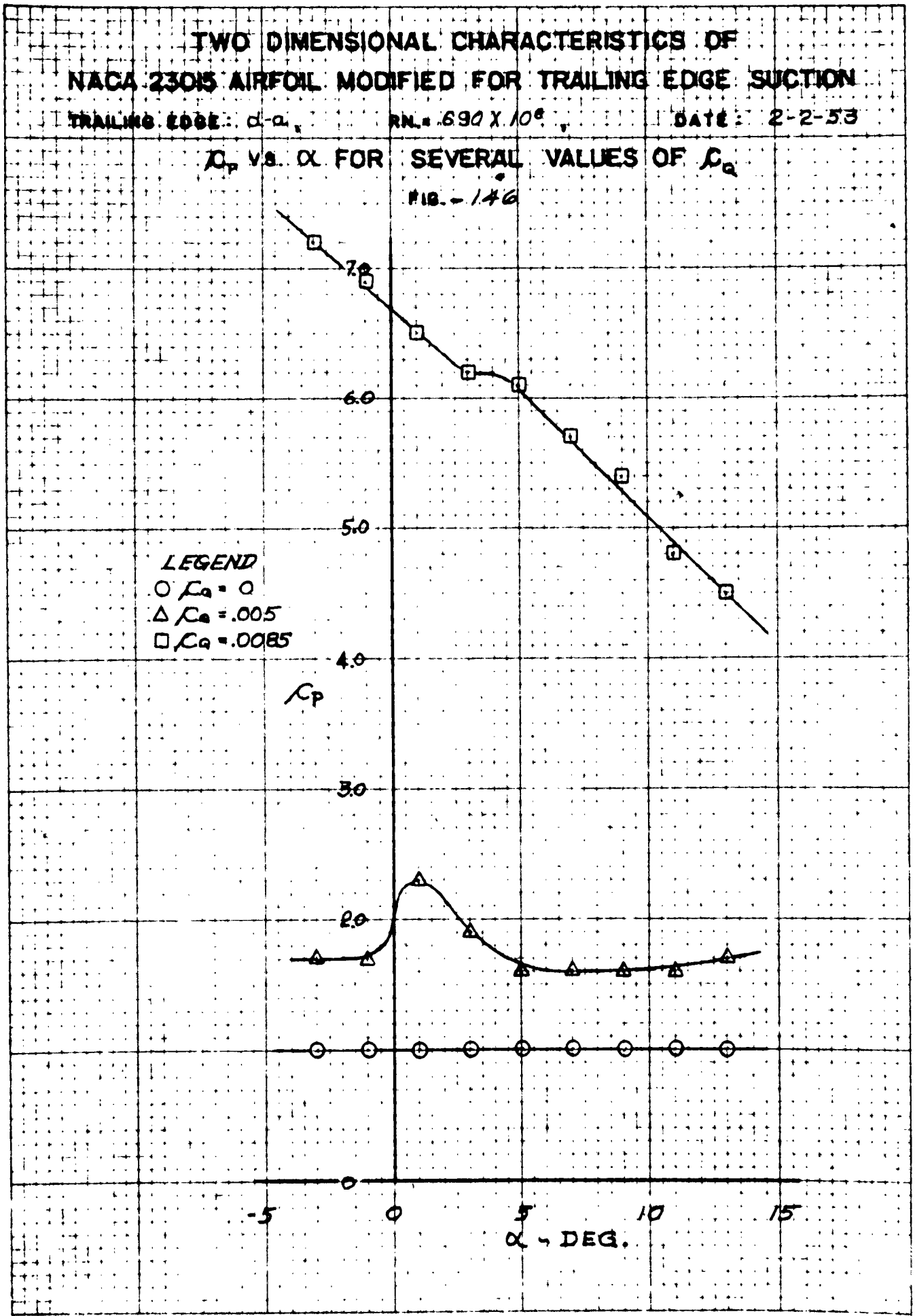
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $\delta = 0$, R. N. = $.690 \times 10^6$, 1-30-53

$C_{m\,c/4}$ VS. α FOR SEVERAL VALUES OF C_Q

FIG. - 145

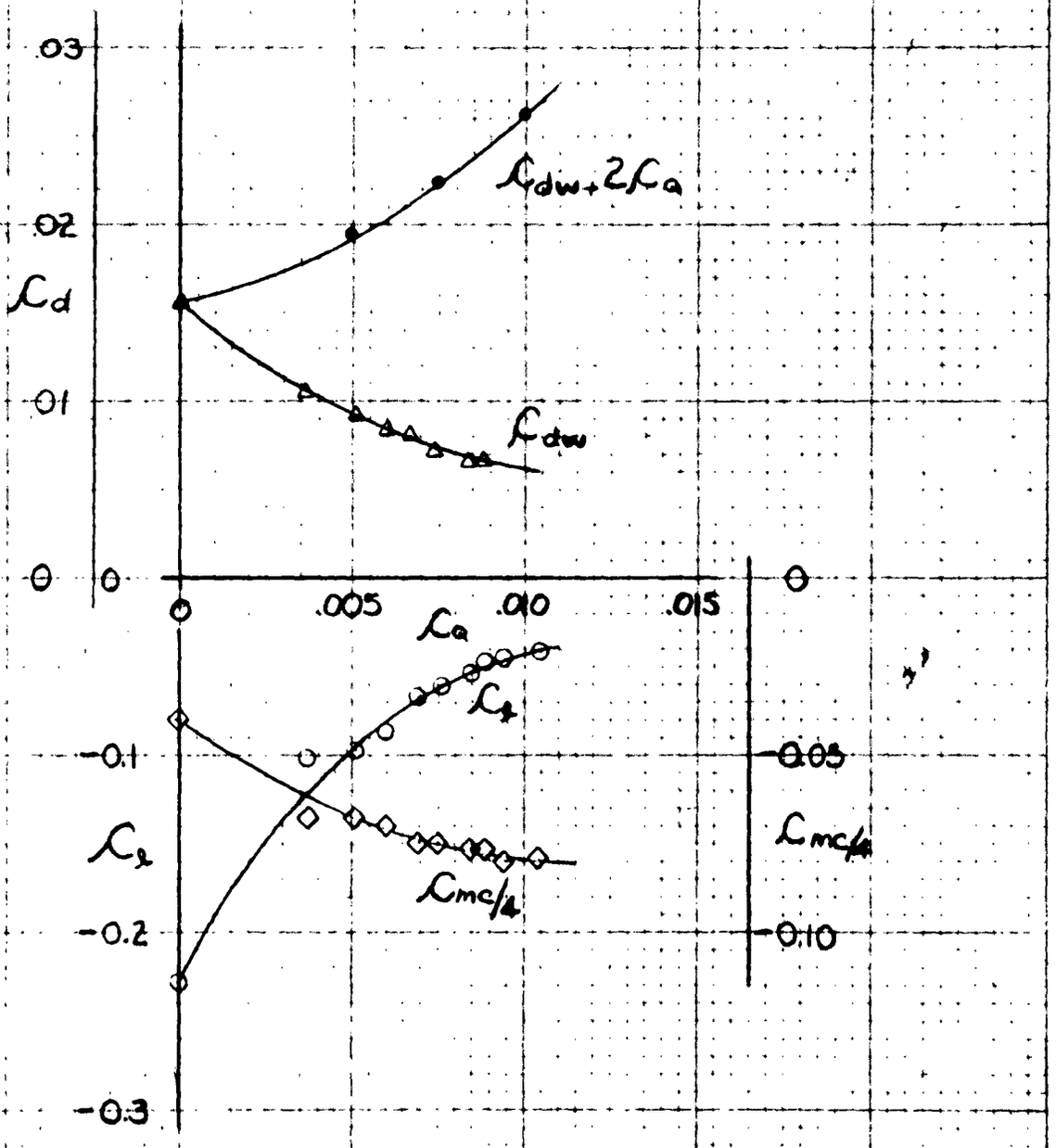



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: d-a
RN. = 6.90 X 10^6
DATE: 2-2-53
C_p VS. α FOR SEVERAL VALUES OF C_Q
FIG. - 146
LEGEND
○ C_Q = 0
△ C_Q = .005
□ C_Q = .0085
C_p
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
-5
0
5
10
15
α - DEG.

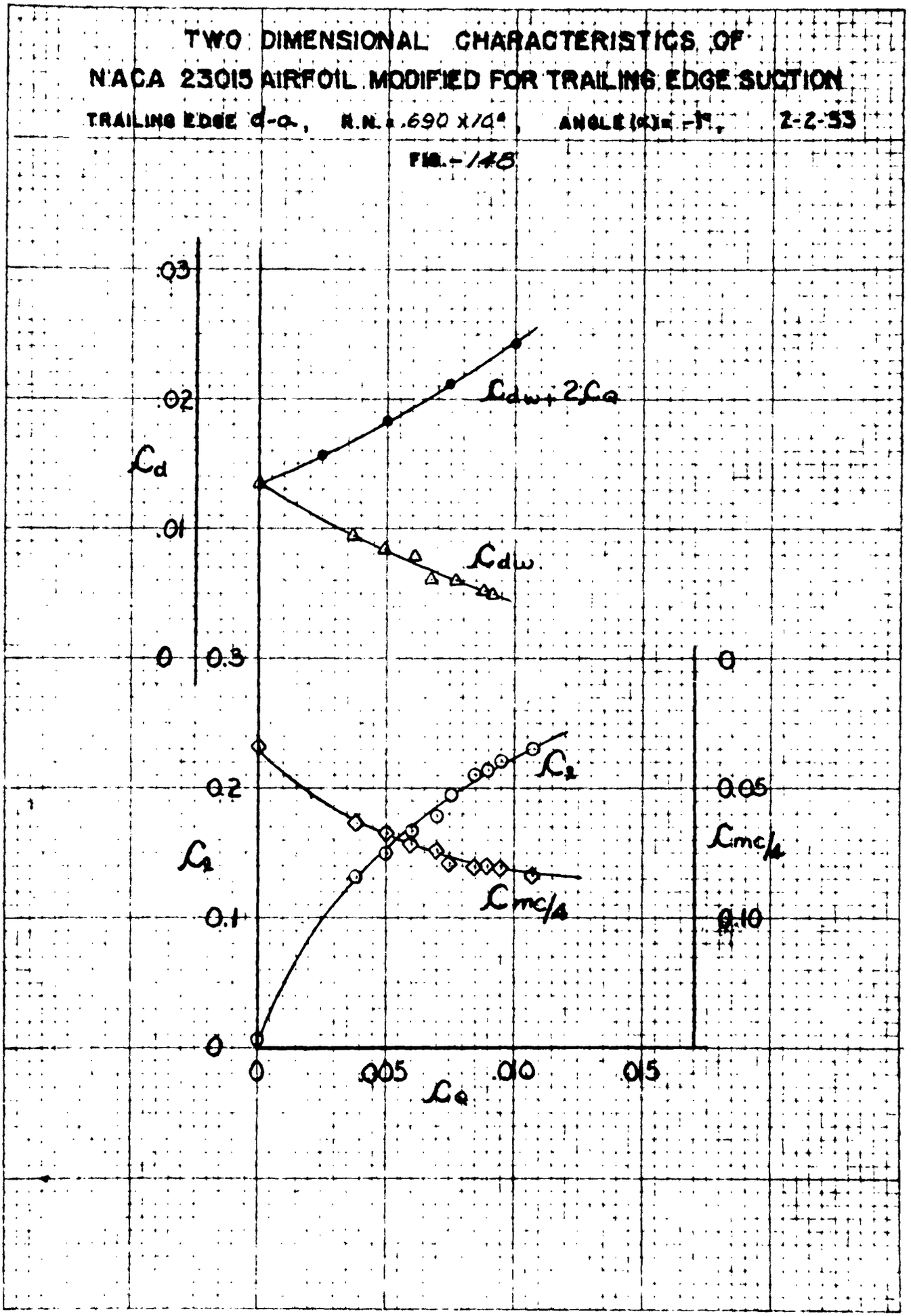
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE d-a, R.N. = 690 x 10⁶, ANGLE (α) = -3°, 2-2-53

FIG. - 147

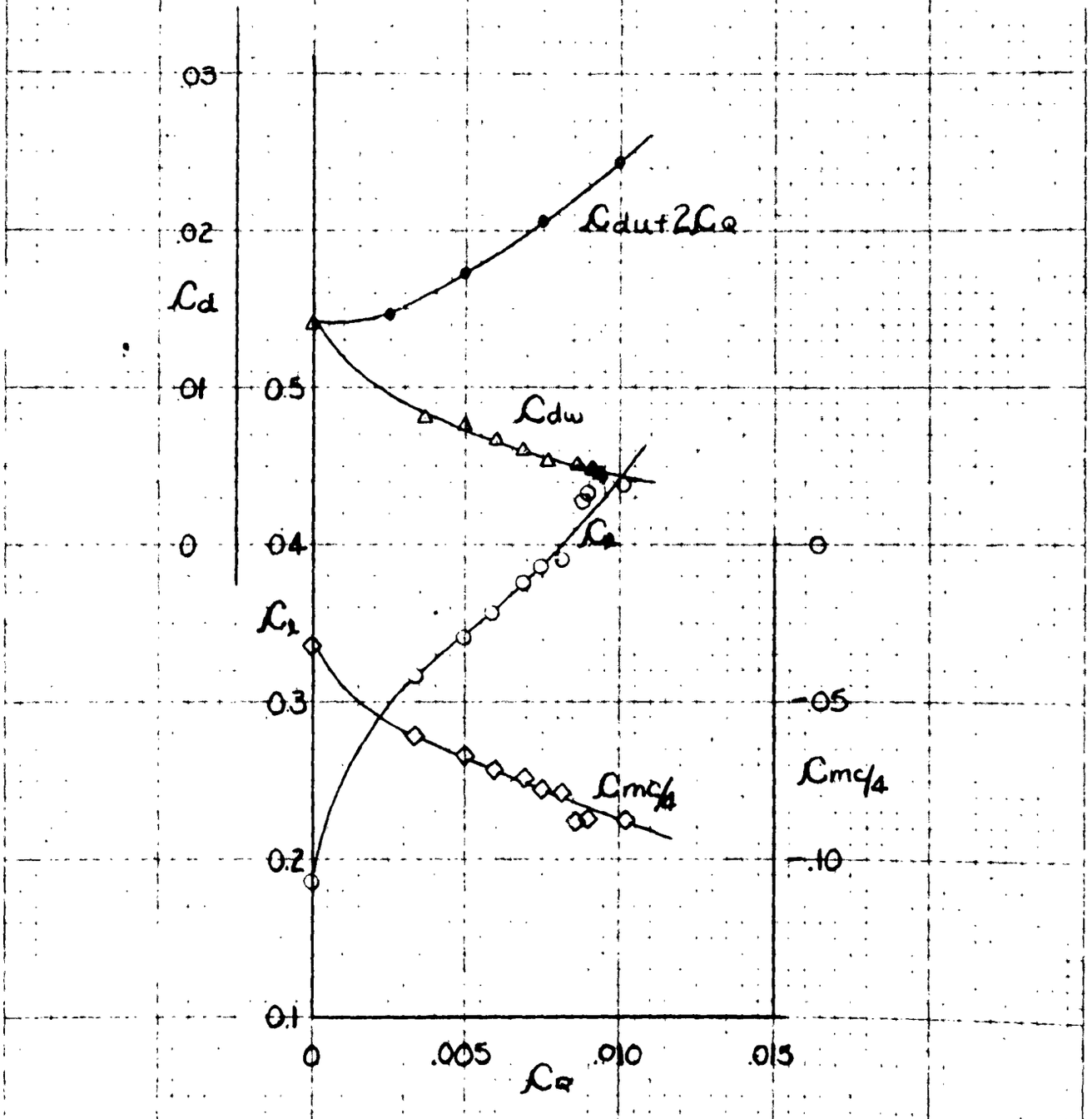


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE d-a, R.N. = .690 x 10⁶, ANGLE (α) = -1°, 2-2-53
FIG. - 145



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE d–a, R.N. = 690 x 10^6, ANGLE (α) = +1°, 2-2-53

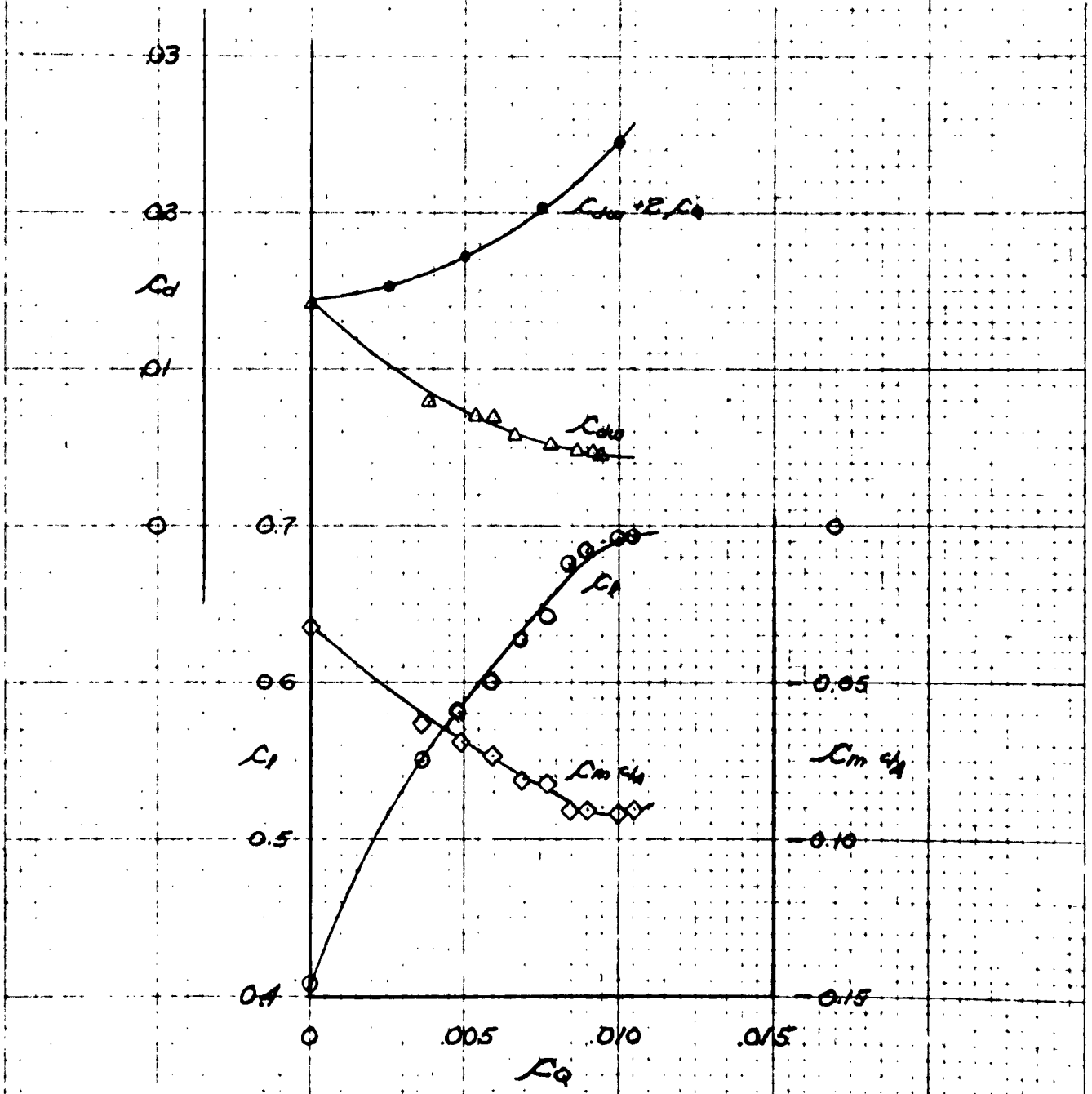
FIG. – 14 9



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE a-a, R.N. = .690 X 10⁶, ANGLE (α) = +3°, 2-2-53

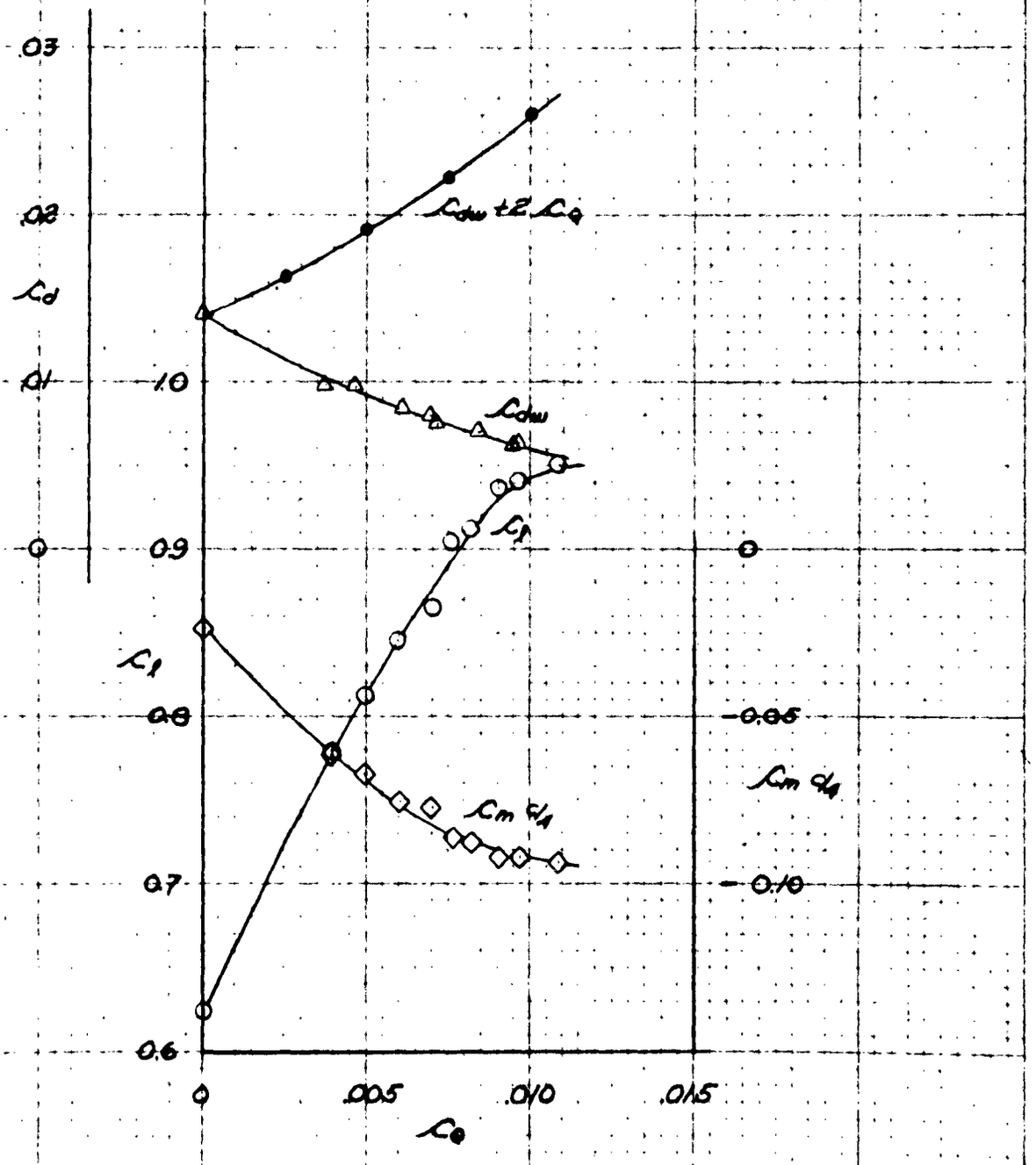
FIG. - 150

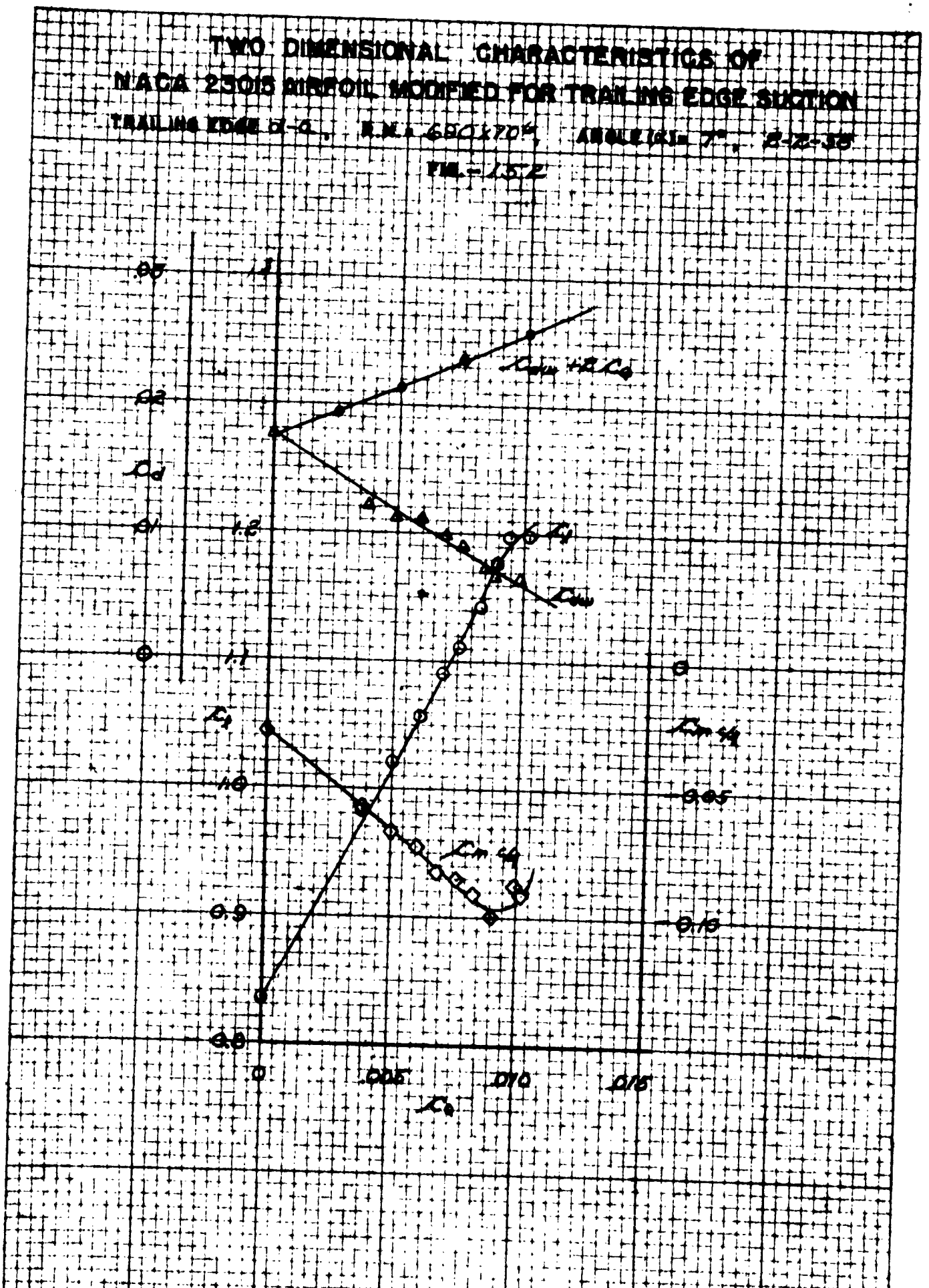


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE d-a, R.N. = 690x10⁶, ANGLE (α) = 5°, E-2-53

FIG. - 151

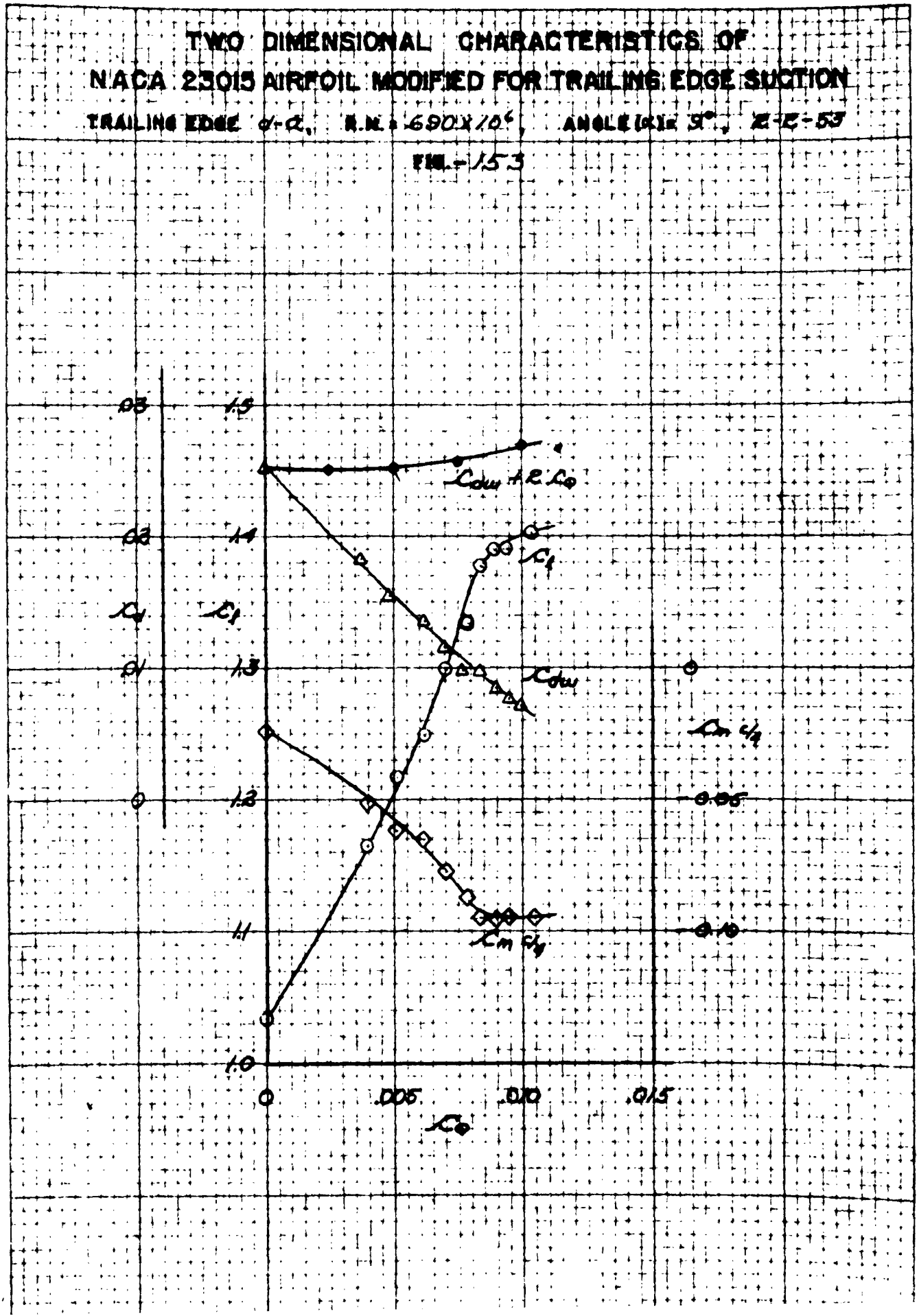



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE of c, R.N. = 6.80 x 10^6, ANGLE (α) = 7°, 8-2-38
FIG. - 15.2
$C_{M_{c/4}}$ + 2 C_d
C_d
C_l
$C_{M_{c/4}}$
C_l
$C_{M_{c/4}}$
C_l
C_d
0.7
0.2
0.1
1.2
1.1
1.0
0.9
0.8
0
-0.05
-0.10
-0.15
0.005
0.010
0.015

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE α-α_1, R.N. = 6.90 X 10^6, ANGLE(α_1) = 5°, $\frac{x}{c}$ = .53

FIG. - 153



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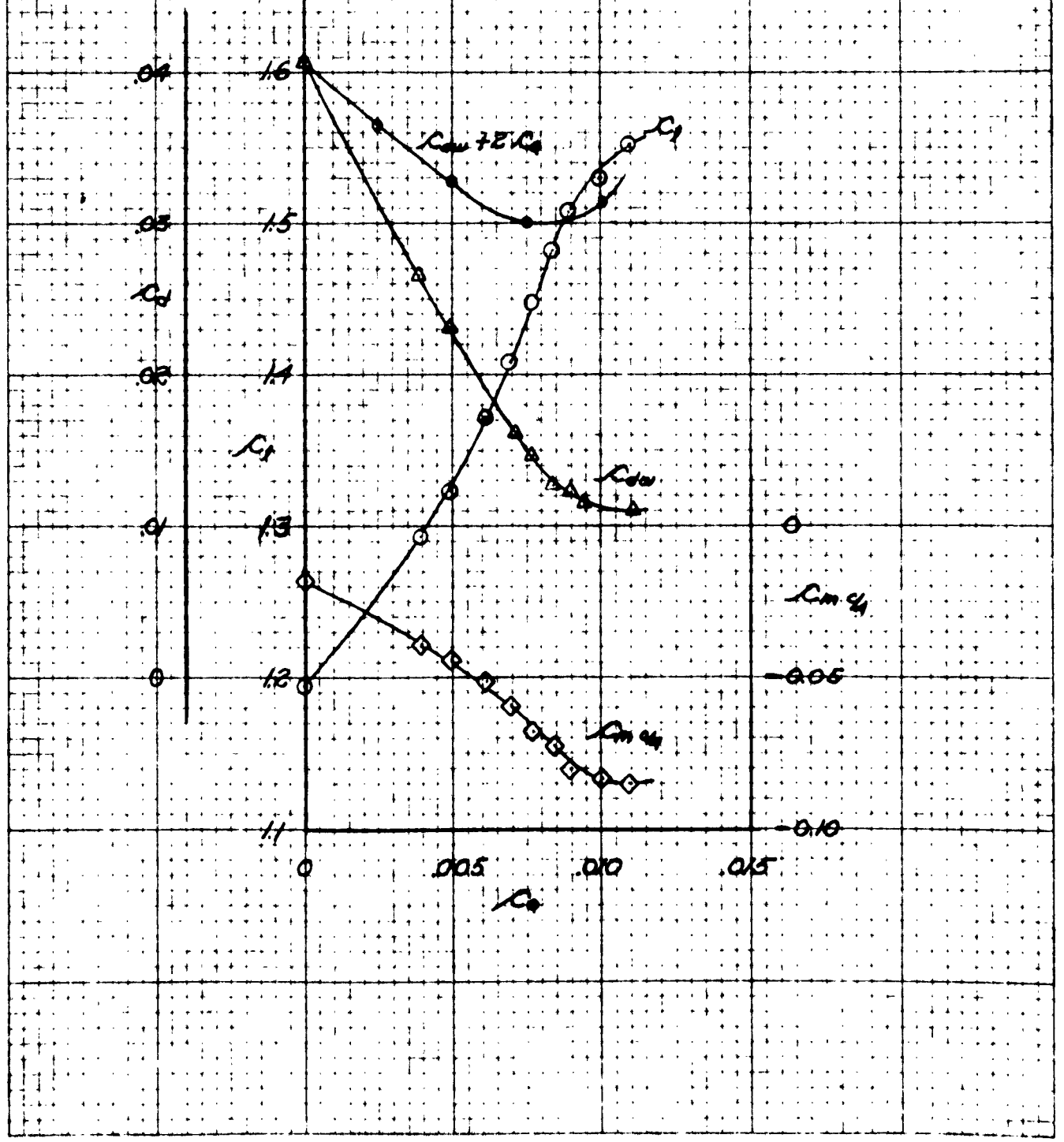
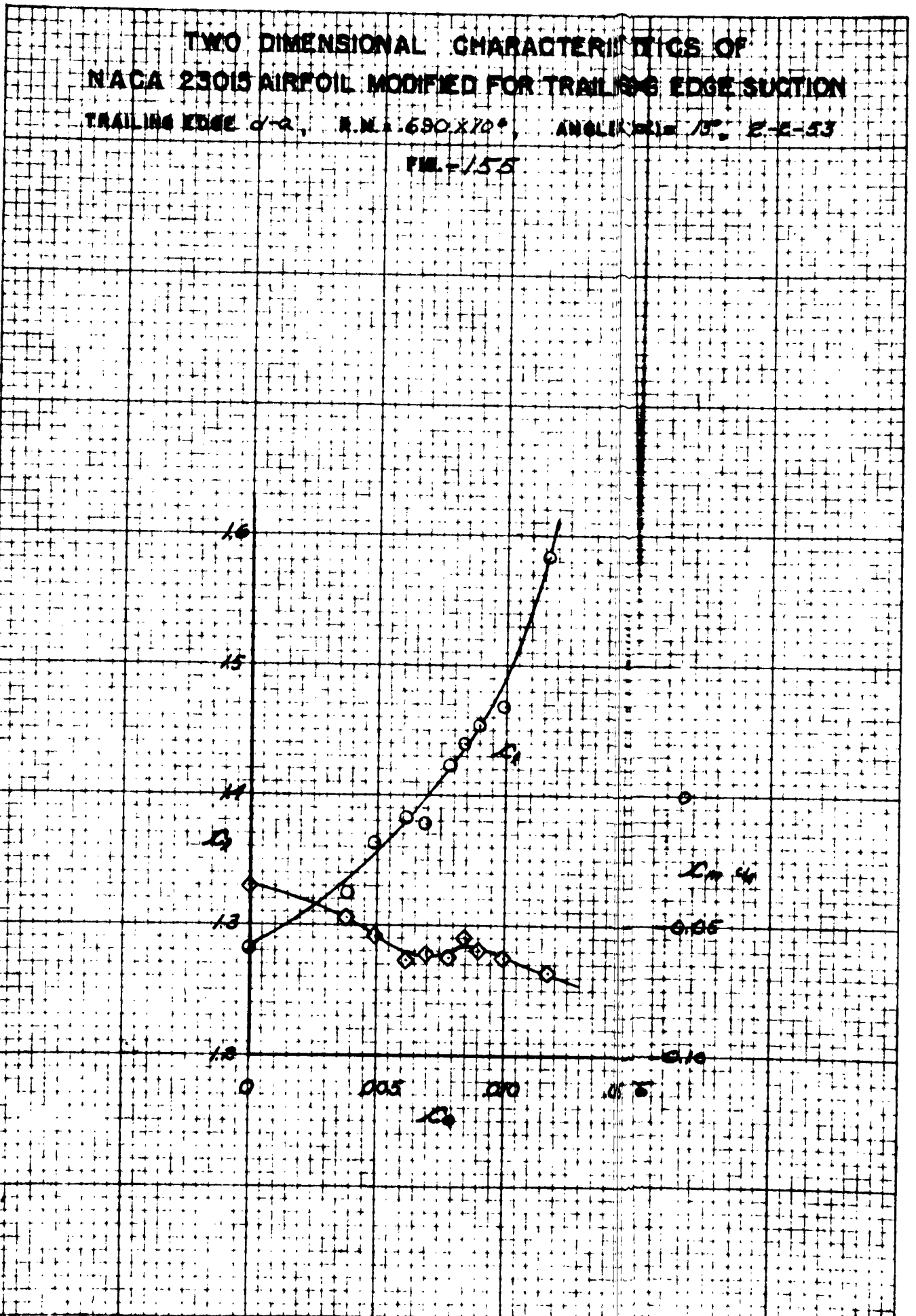
10 x 10 to the inch

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23013 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE d-a, R.N. = .690 X 10⁶, ANGLE (α) = 11°, 2-2-53

FIG.-154

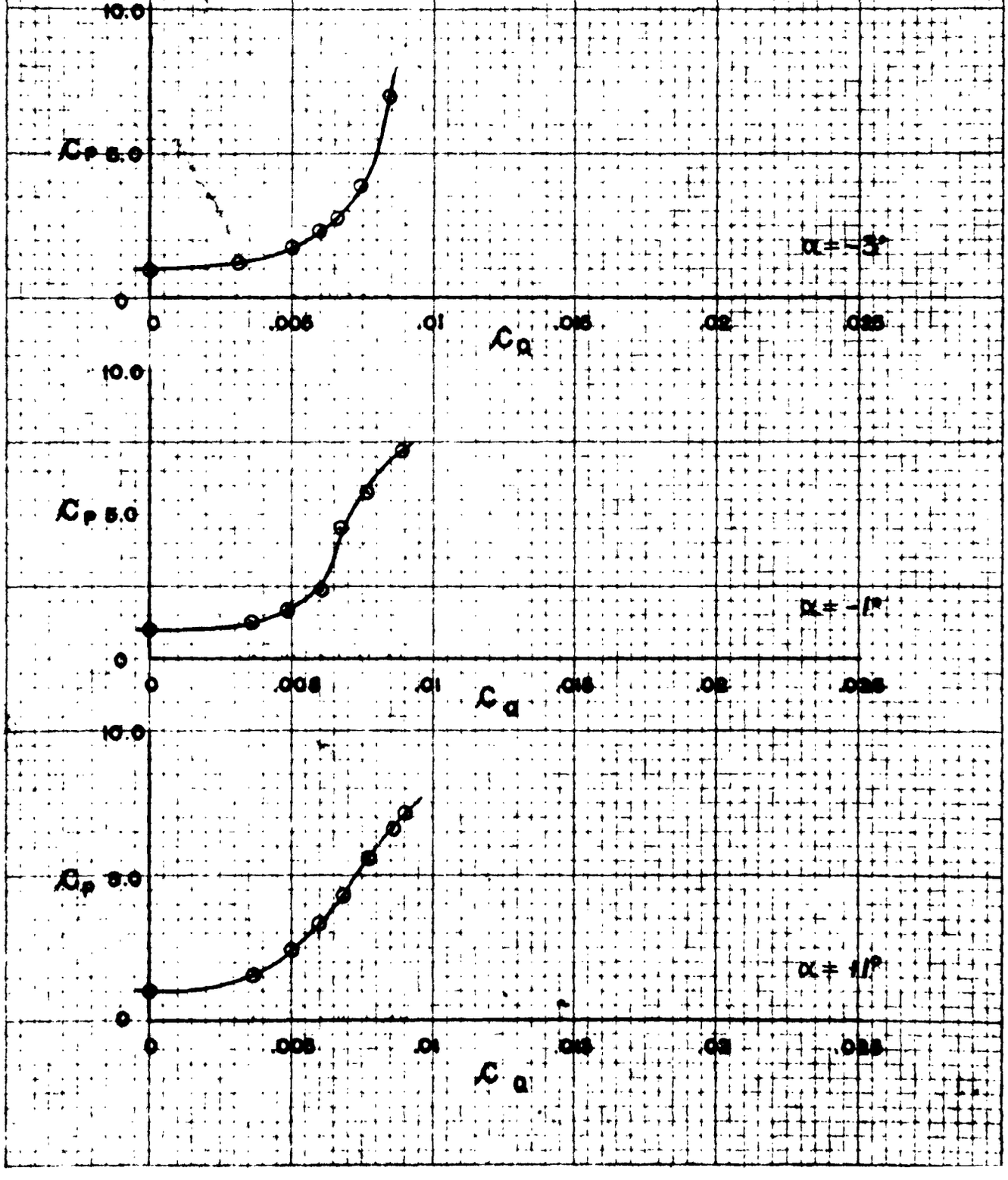



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE d-a, R.N. = .690 x 10⁶, ANGLE OF ATTACK = 15°, 2-2-53
FIG. - 155
1.6
1.5
1.4
1.3
1.0
C_l
C_m c/4
0.05
0.10
0
.005
.010
.015
C_d

TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: d-a, R.N. = 6.90 X 10^6 DATE: 2-2-53

C_p VS. C_q

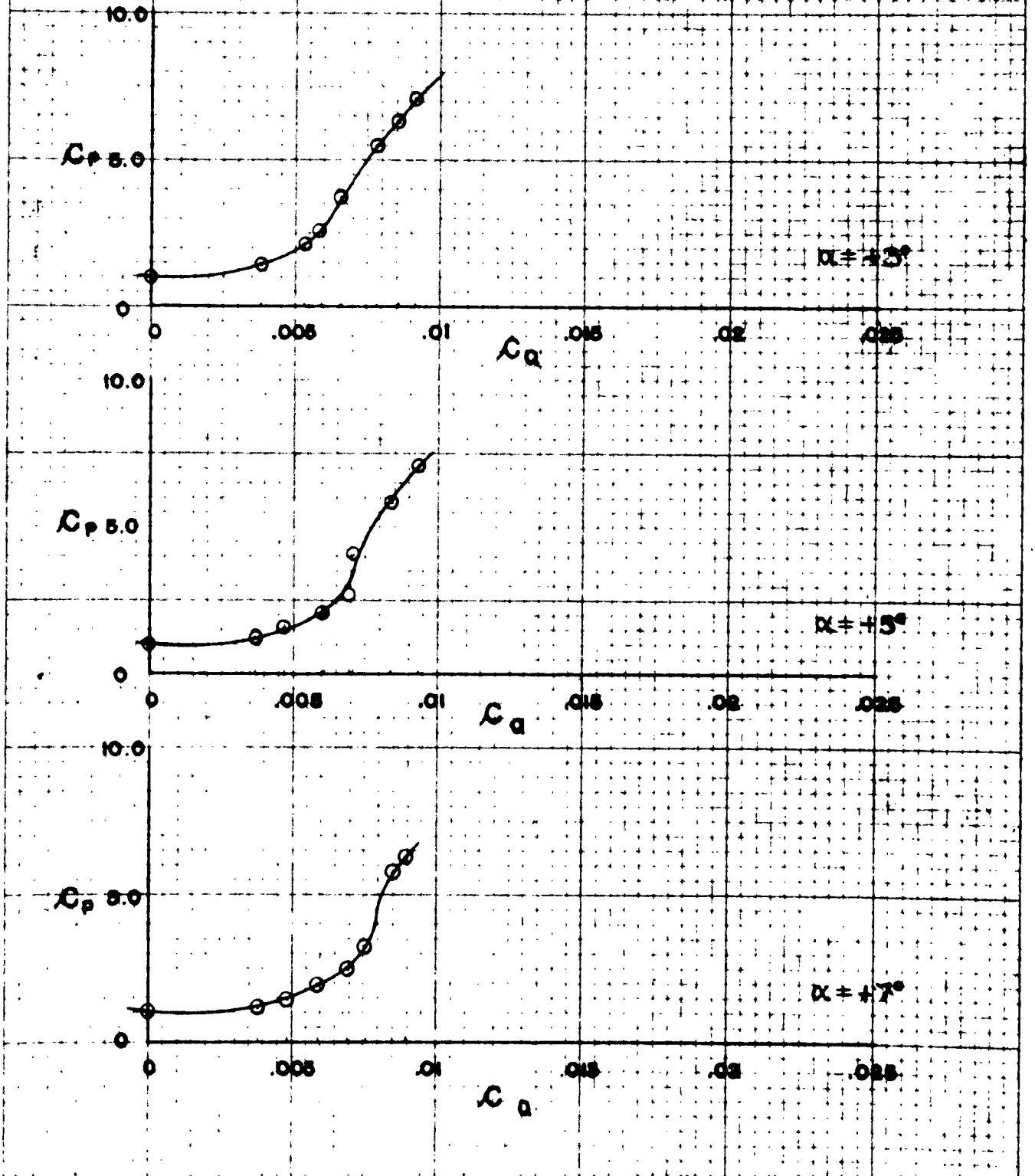
Fig. — 1516



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: d-a , RN. = 690,000 DATE: 2-2-55

C_p VS. C_q

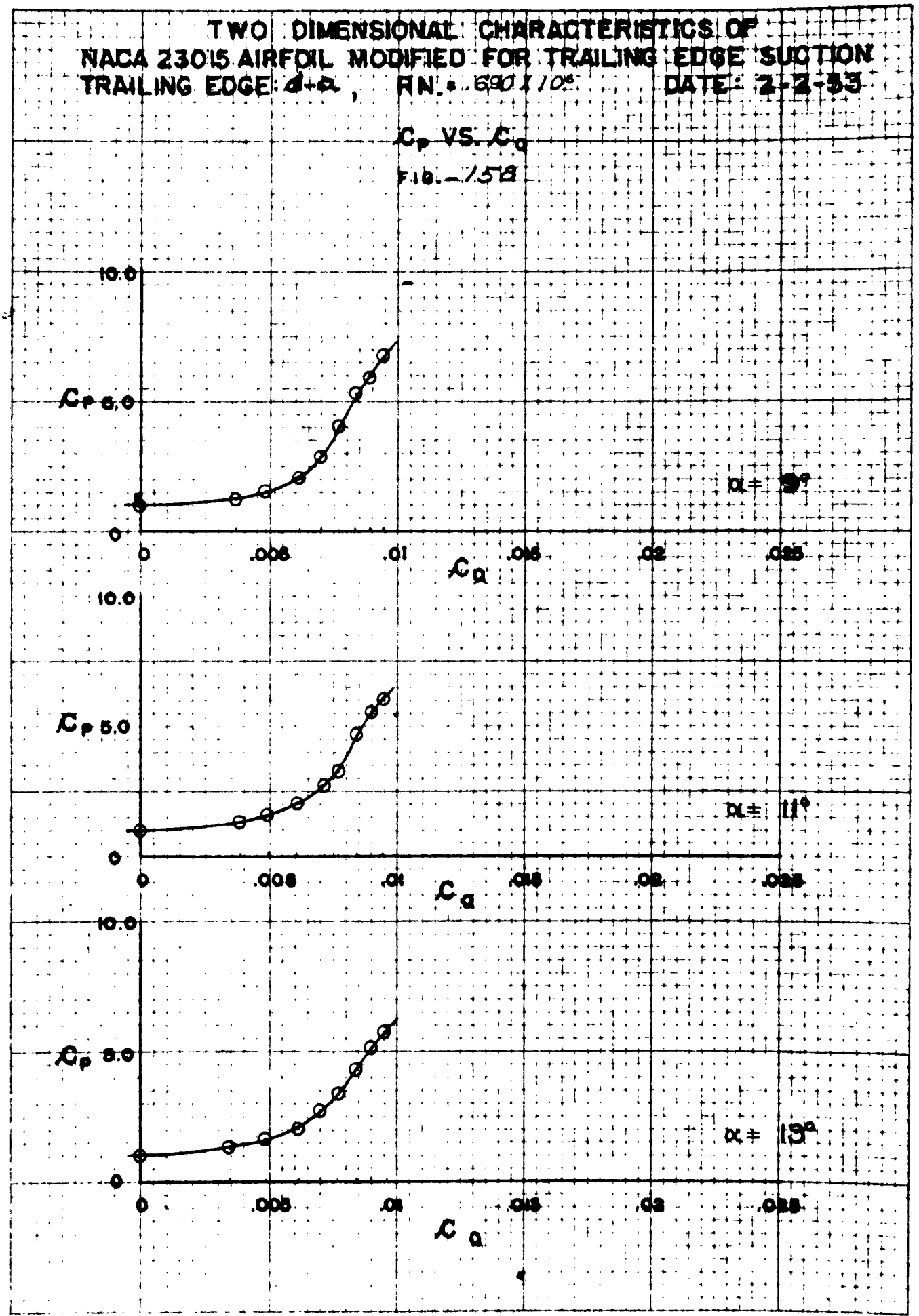
FIG. - 157



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE: d-a, RN. = 6901/10⁶ DATE: 2-2-53

C_p VS. C_a

Fig. - 158



SUMMARY OF LIFT CHARACTERISTICS OF THE VARIOUS CONFIGURATIONS TESTED

BASE AIRFOIL: NACA 23015, R.N. = .65×10⁶, 6-30-53

FIG. - 159

LEGEND
▲ α = 1°
▼ α = 7°
● α = 13°

1-a 1-b 1-c 1-g 2-b 2-d 2-e 4-f 5-e d-a

11°

C_l

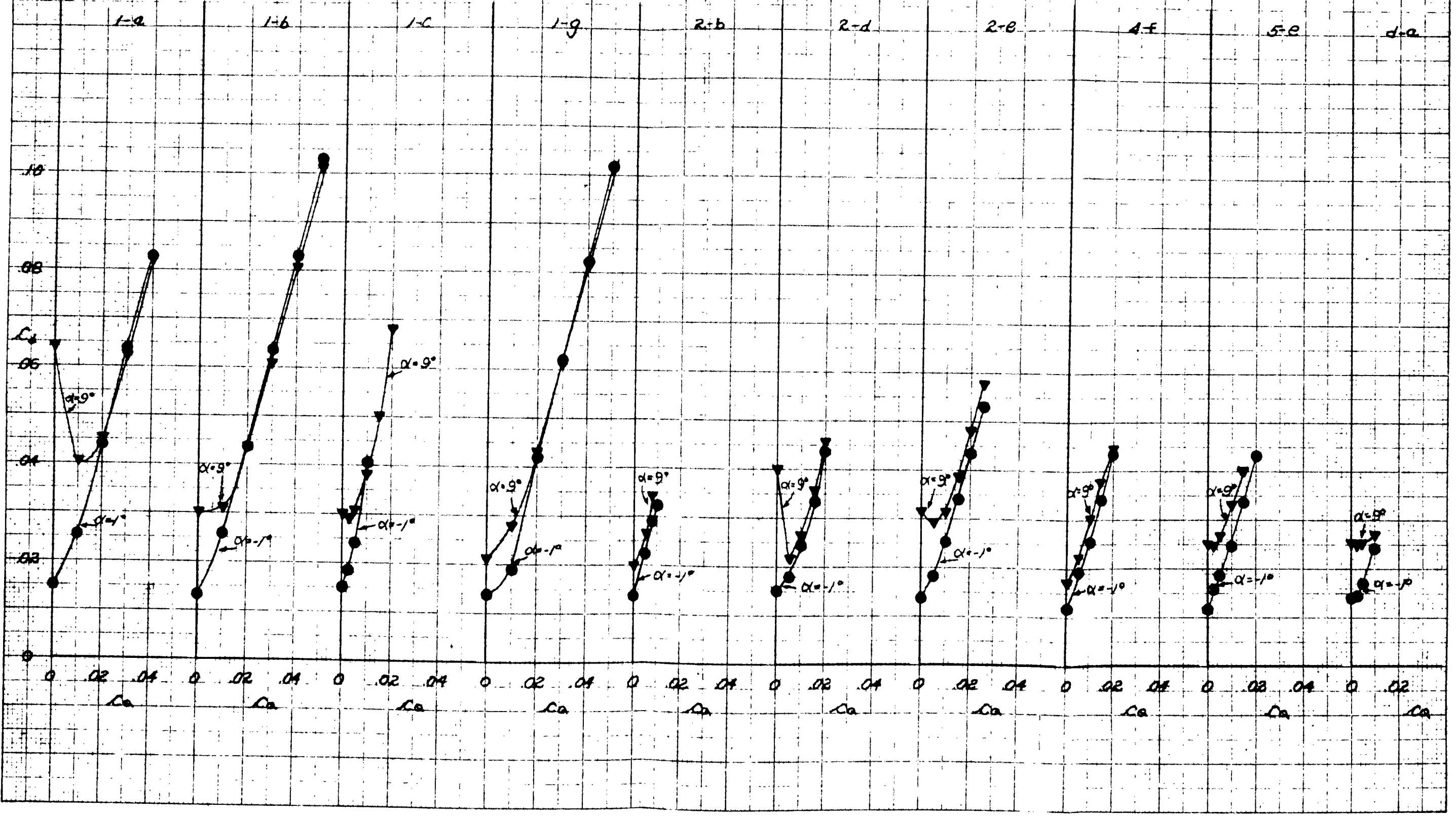
3.0 2.5 2.0 1.5 1.0 .5 0

0 .02 .04 C_a

SUMMARY OF DRAG CHARACTERISTICS OF THE VARIOUS CONFIGURATIONS TESTED

BASE AIRFOIL: NACA 23015, R.N. = .65×10⁶, 6-30-53

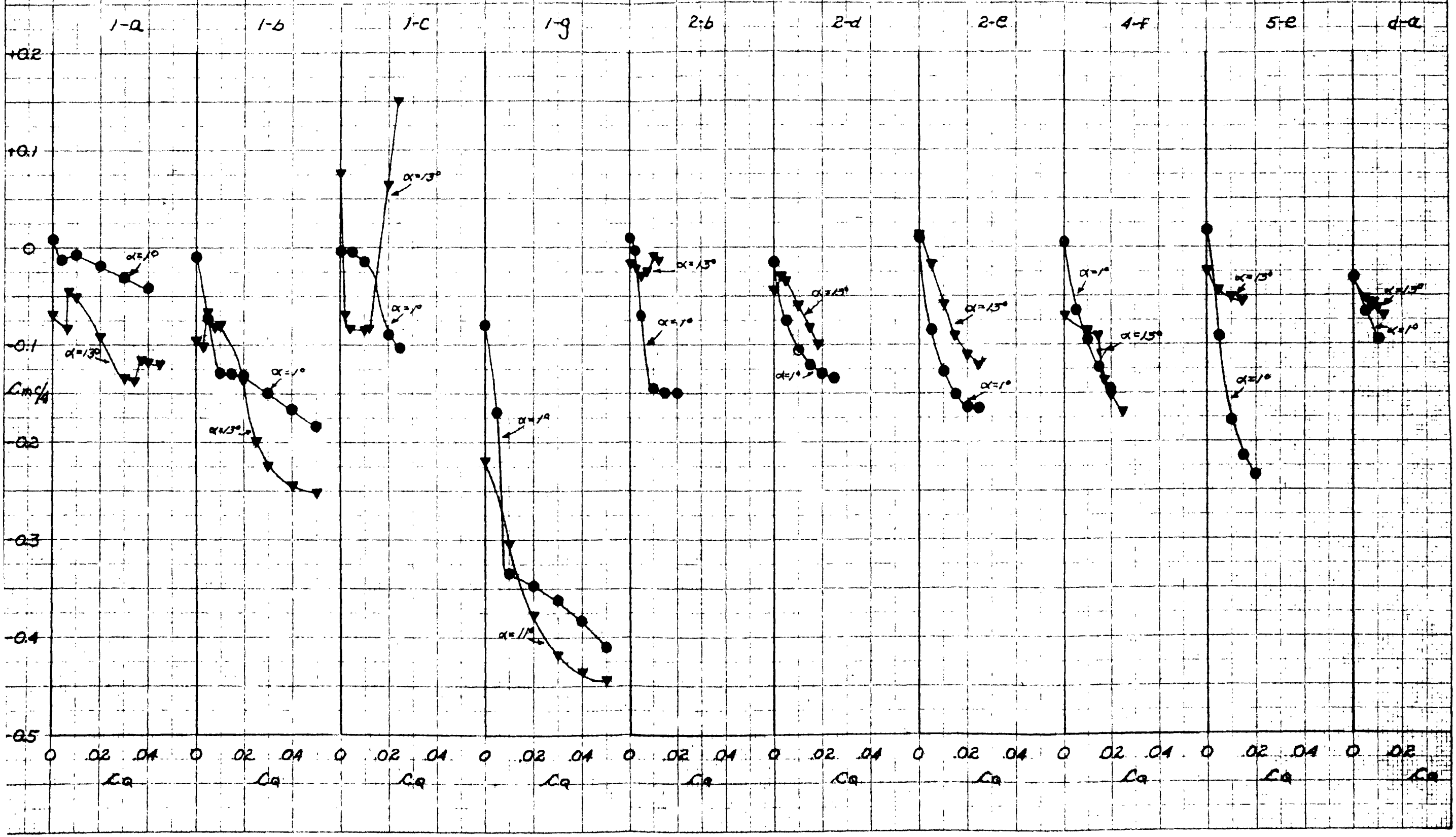
FIG. -160-



Summary Of Pitching Moment Characteristics Of The Various Configurations Tested

Base airfoil: NACA 23015, $R.N. = 6.5 \times 10^6$, 6-30-53

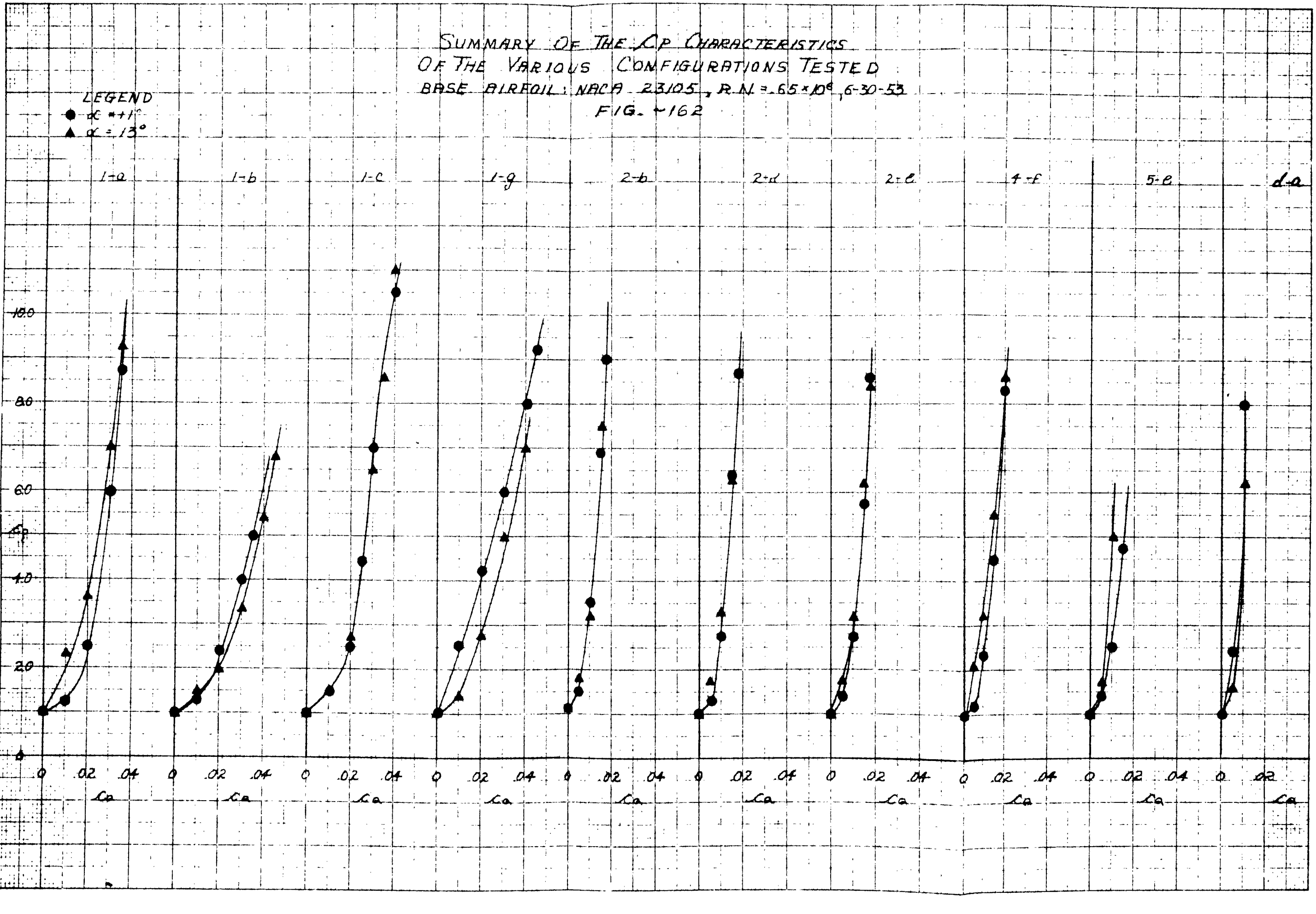
Fig. ~ 161



SUMMARY OF THE C_p CHARACTERISTICS OF THE VARIOUS CONFIGURATIONS TESTED

BASE AIRFOIL: NACA 23105, R.N. = .65 × 10⁶, 6-30-53

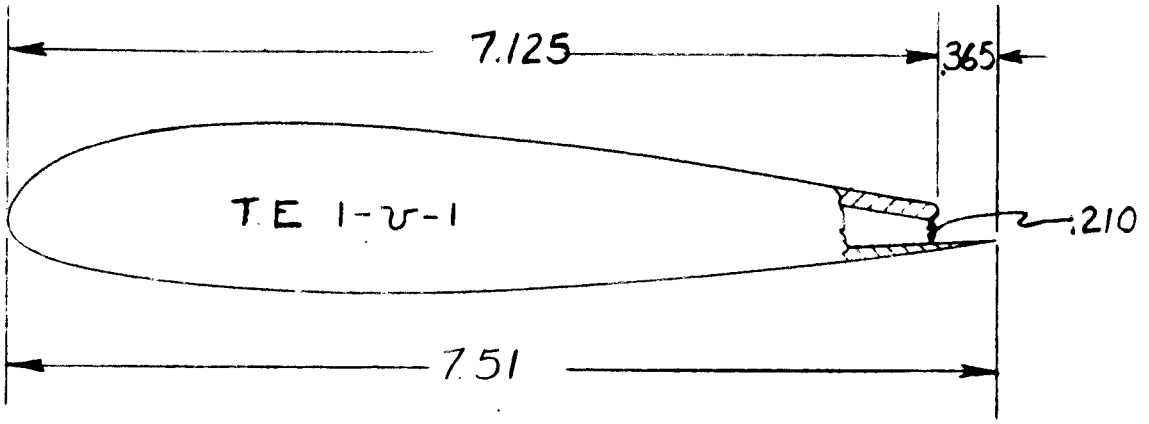
FIG. ~162

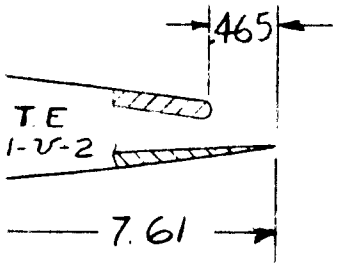


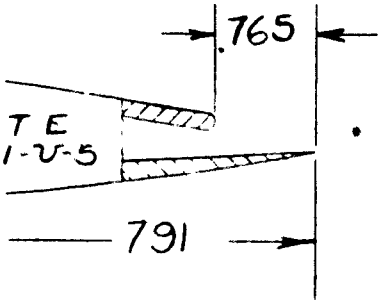
VARIABLE TRAILING EDGE

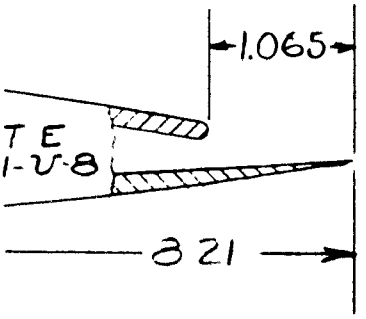
T. E. 1-V

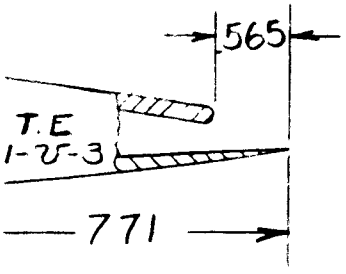
FIG 163

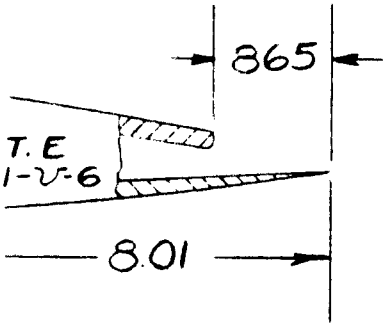


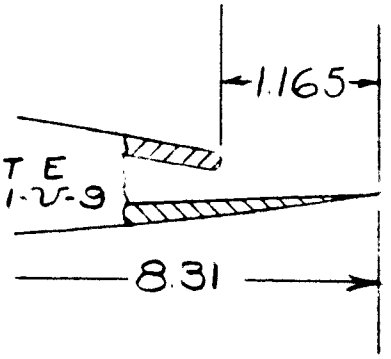


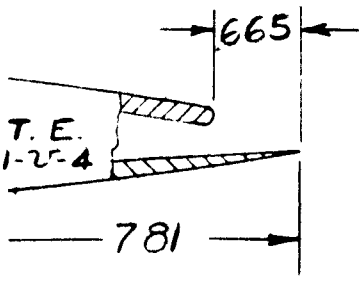


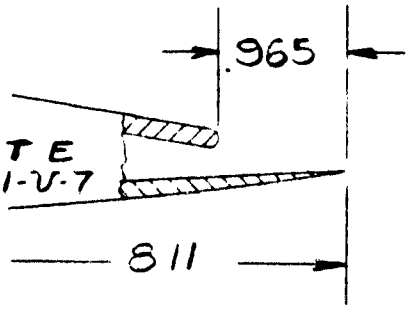


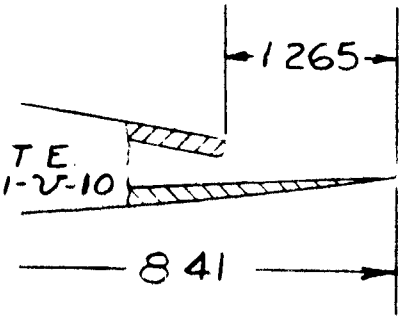










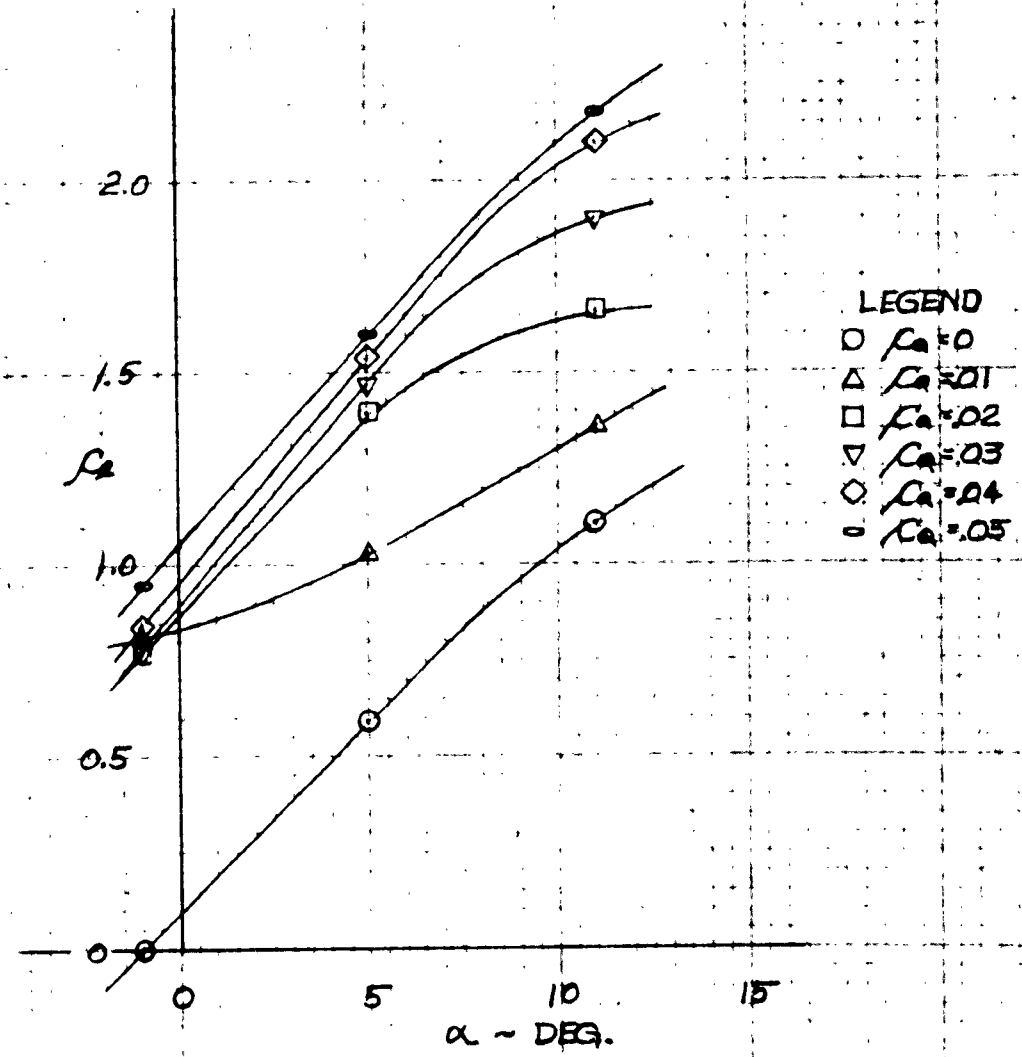


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $I-V_1-I$ R.N. $= .616 \times 10^6$ 5-20-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

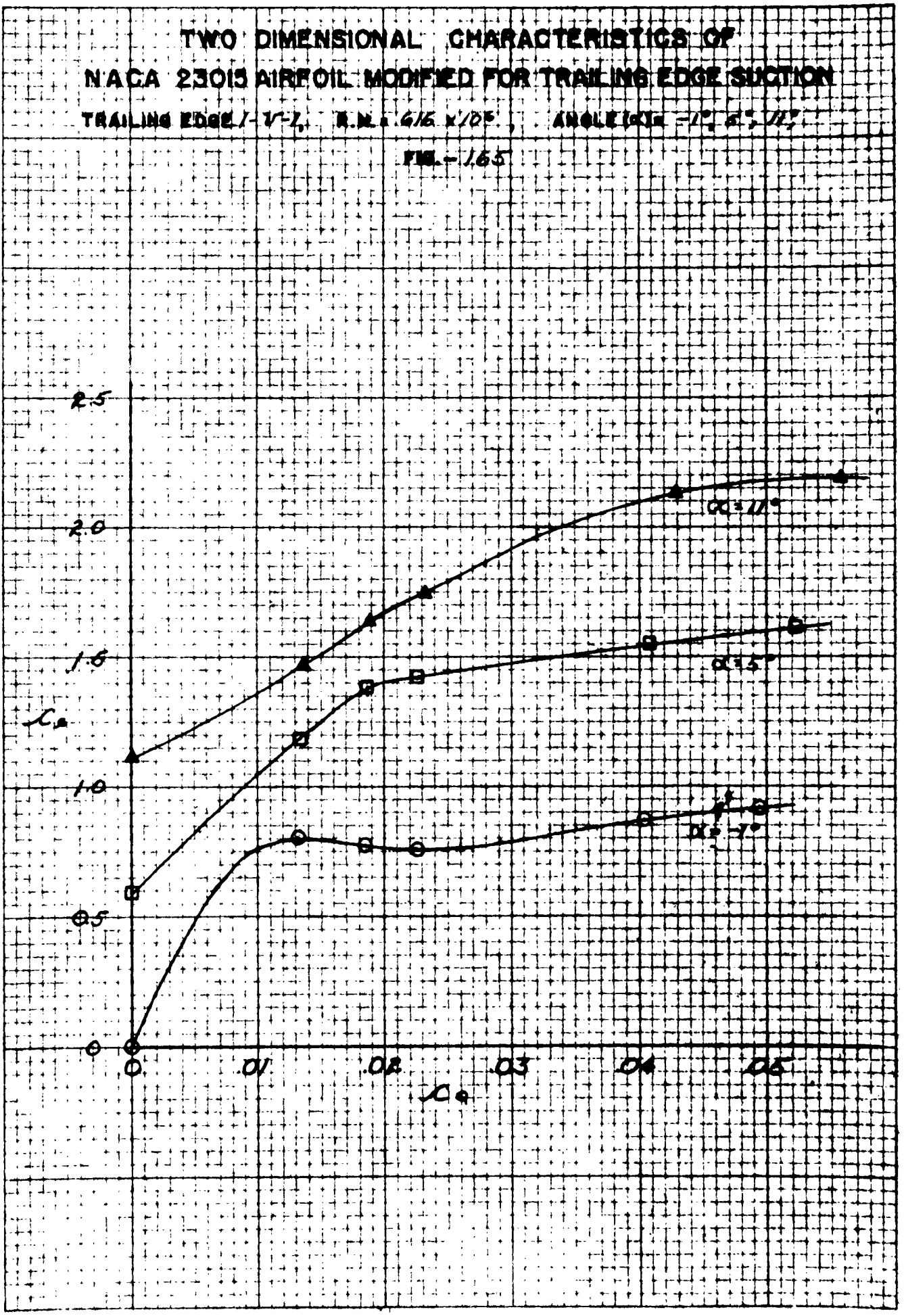
FIG.- 164



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-V-I, R.N. = 6.16 x 10^6, ANGLE (α) = -1°, 6°, 11°

FIG. - 165



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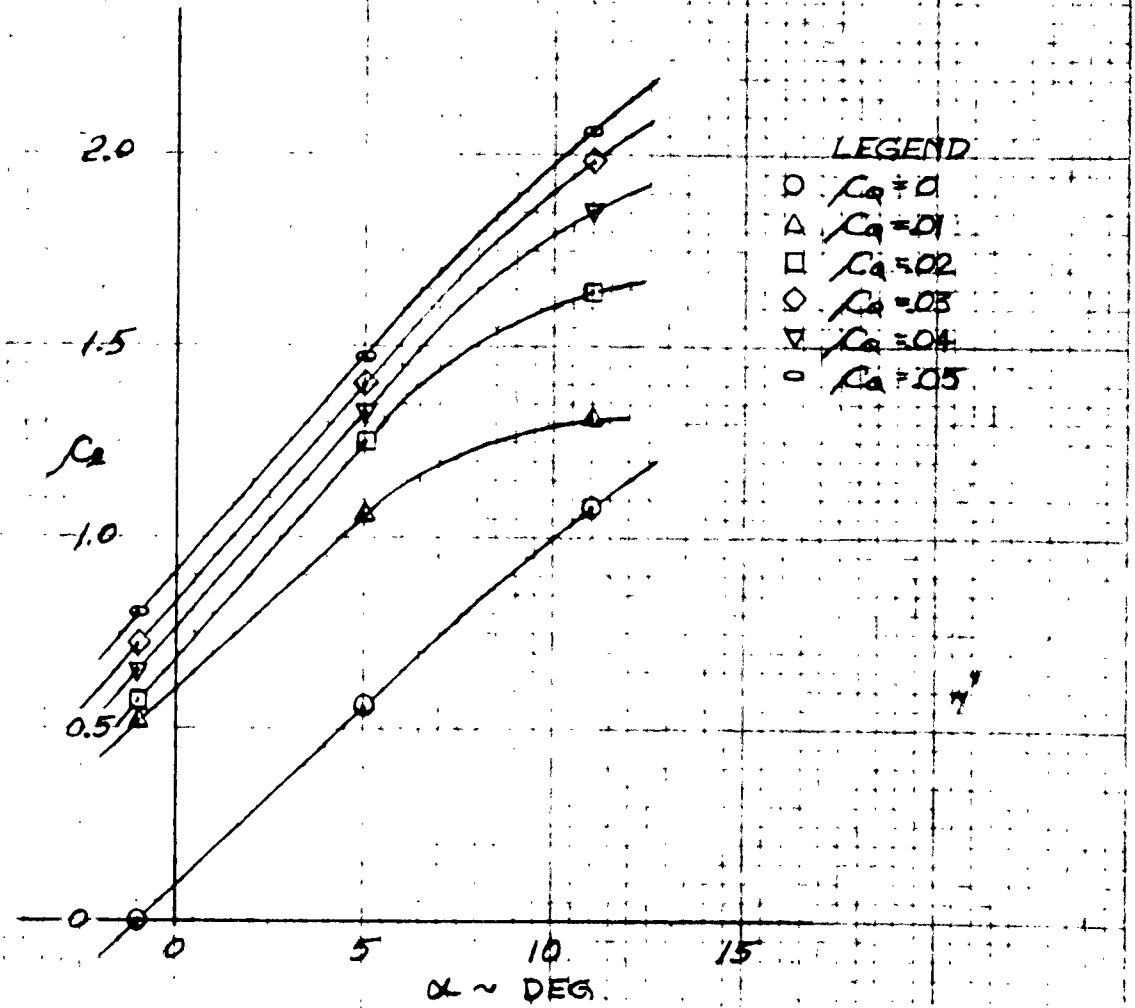
10 × 10 to the inch
MADE IN U.S.A.

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE /-V ;-2 R.N. = .624 X 10⁶ 5-20-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

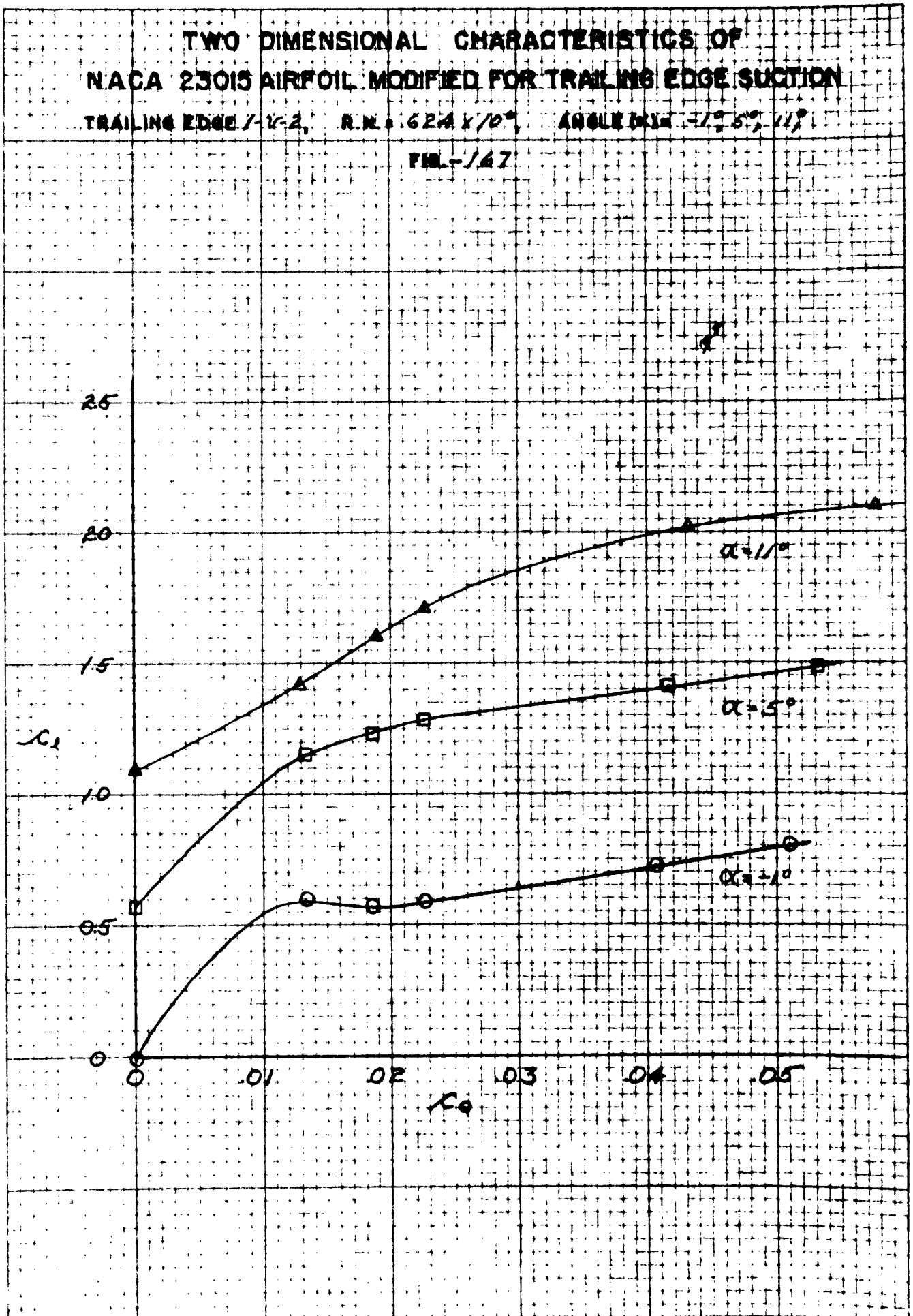
FIG.-166



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-1/2-2, R.N. = .624 x 10⁶, ANGLE IN = -1°, 5°, 11°

FIG.-147

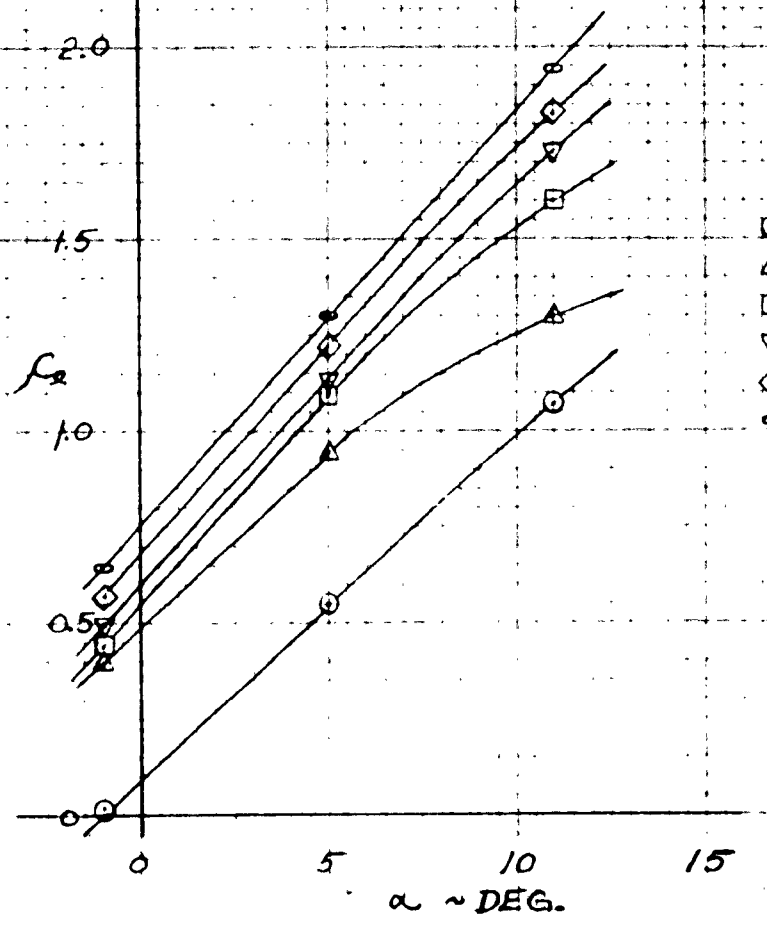


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $f/c = .3$ R.N. = $.632 \times 10^6$ 5-20-53

C_l VS. α FOR SEVERAL VALUES OF C_Q

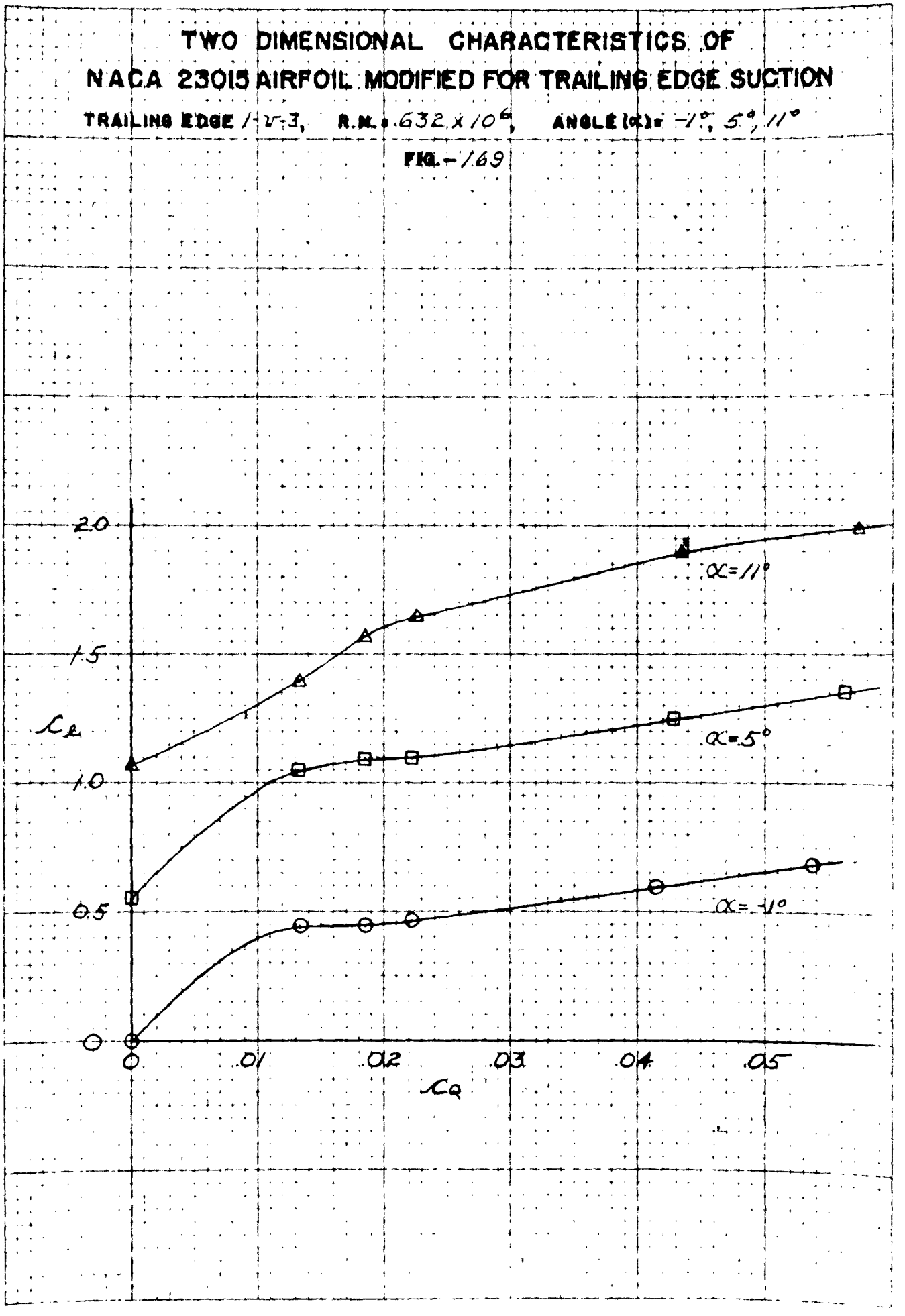
FIG.- 16B



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-V-3, R.N. .632 x 10^6, ANGLE (α) = -1°, 5°, 11°

FIG. - 169

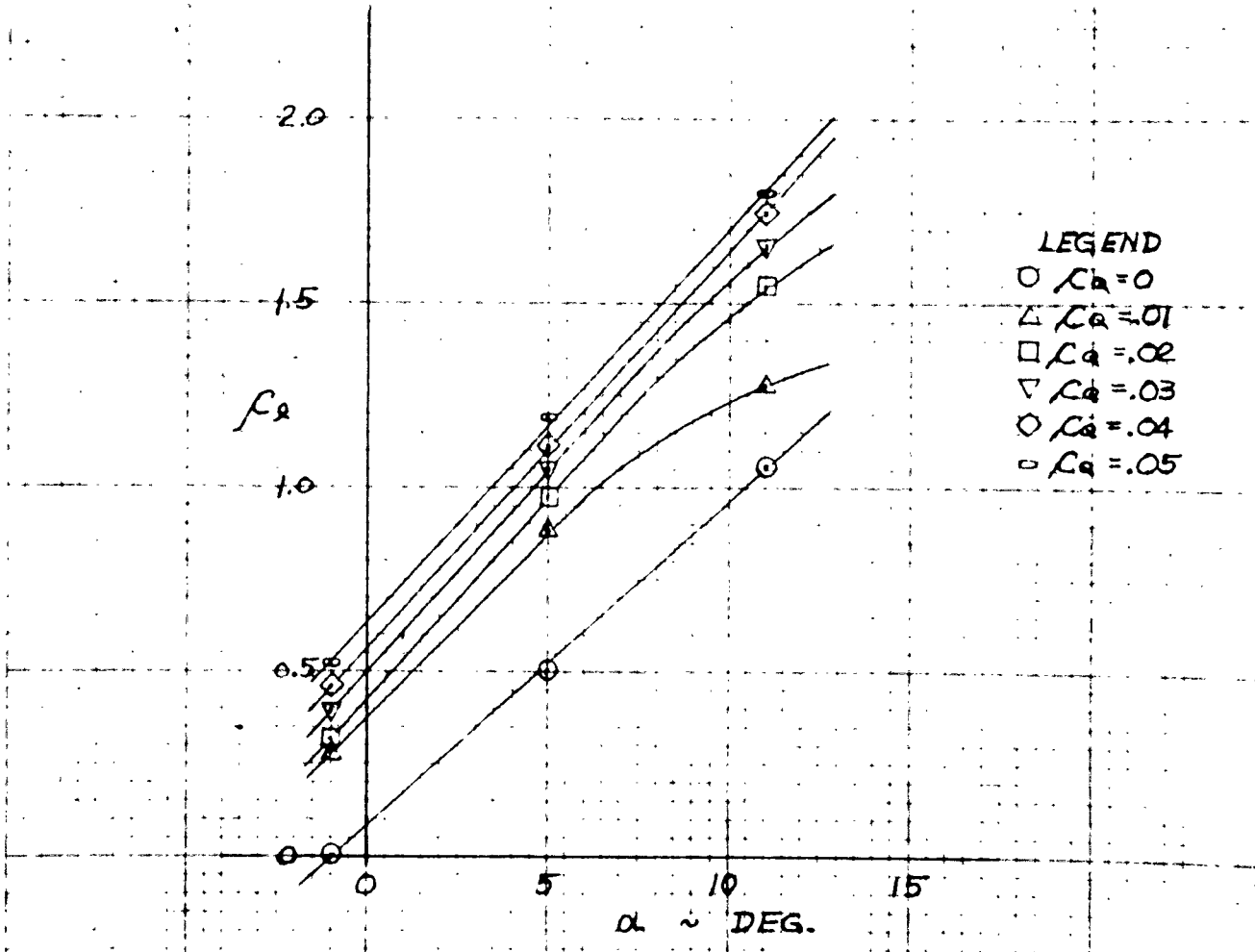


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-σ,-4 R. N. = .640 X 10^6, 5-21-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

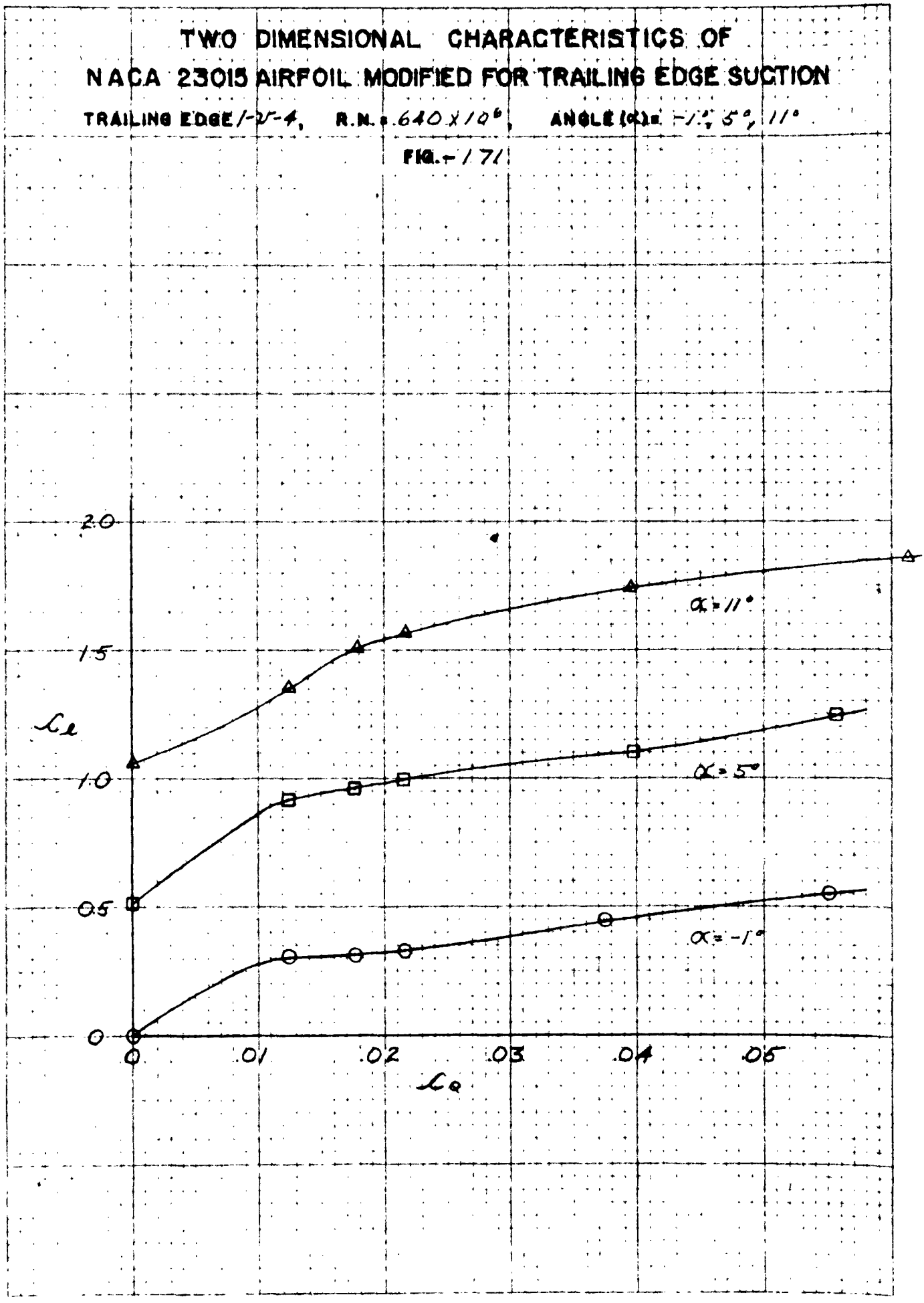
FIG.- 170



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE/-2-4, R.N. = .640 X 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG. - 171

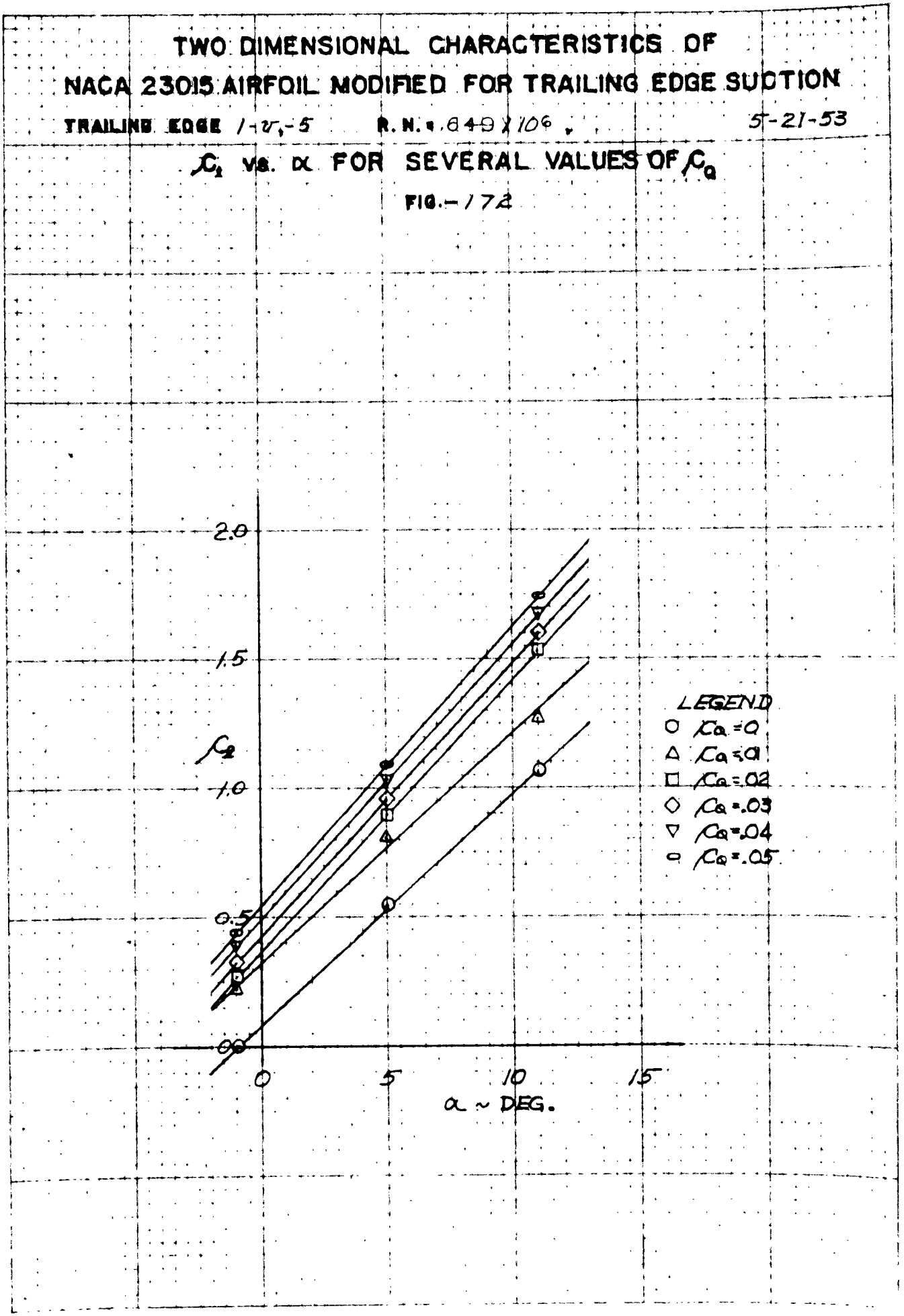


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $I-V_j-S$ R.N. = $.849 \times 10^6$ 5-21-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

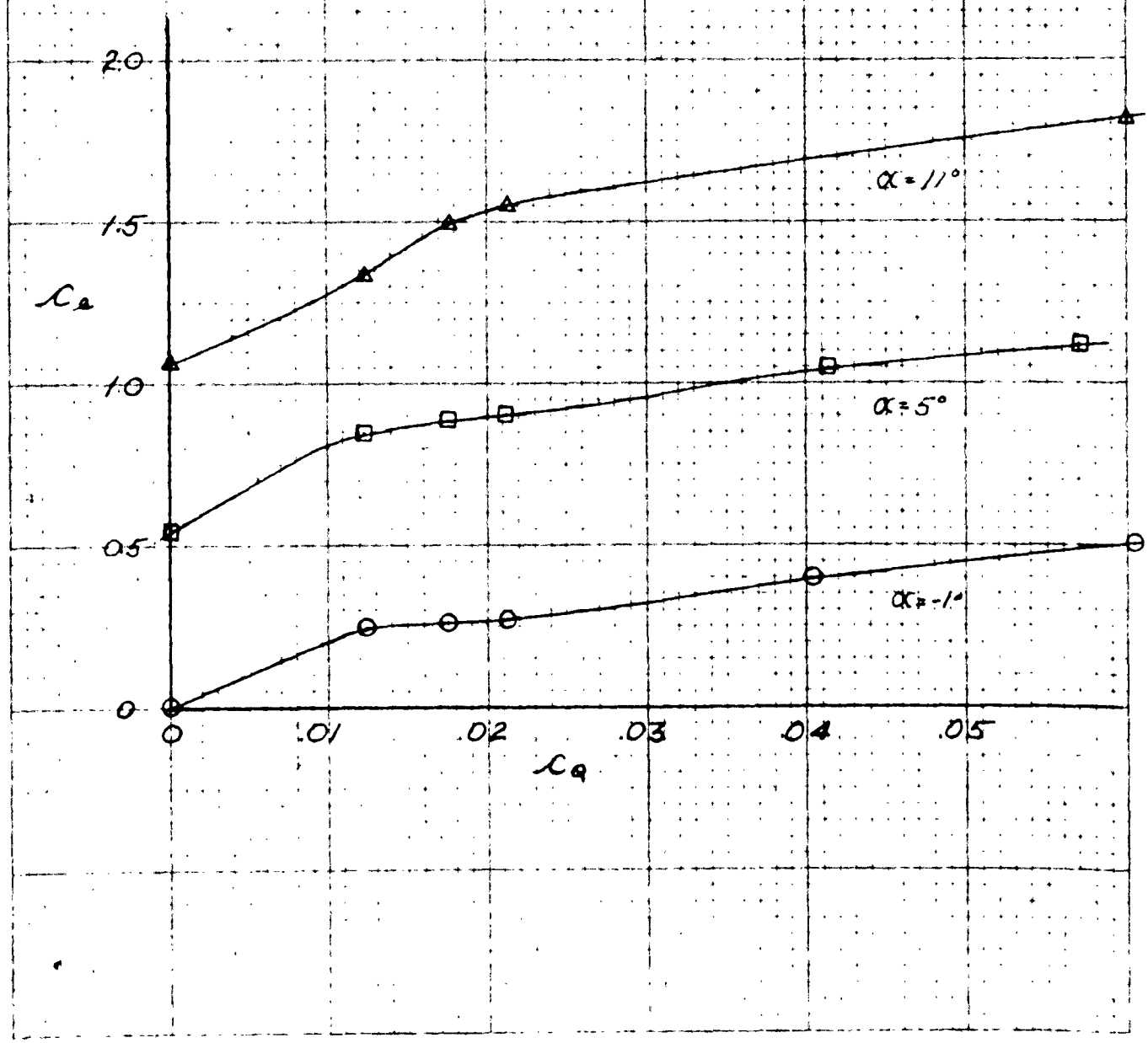
FIG.- 172



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-D-5, R.N. = .619 x 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG. - 173

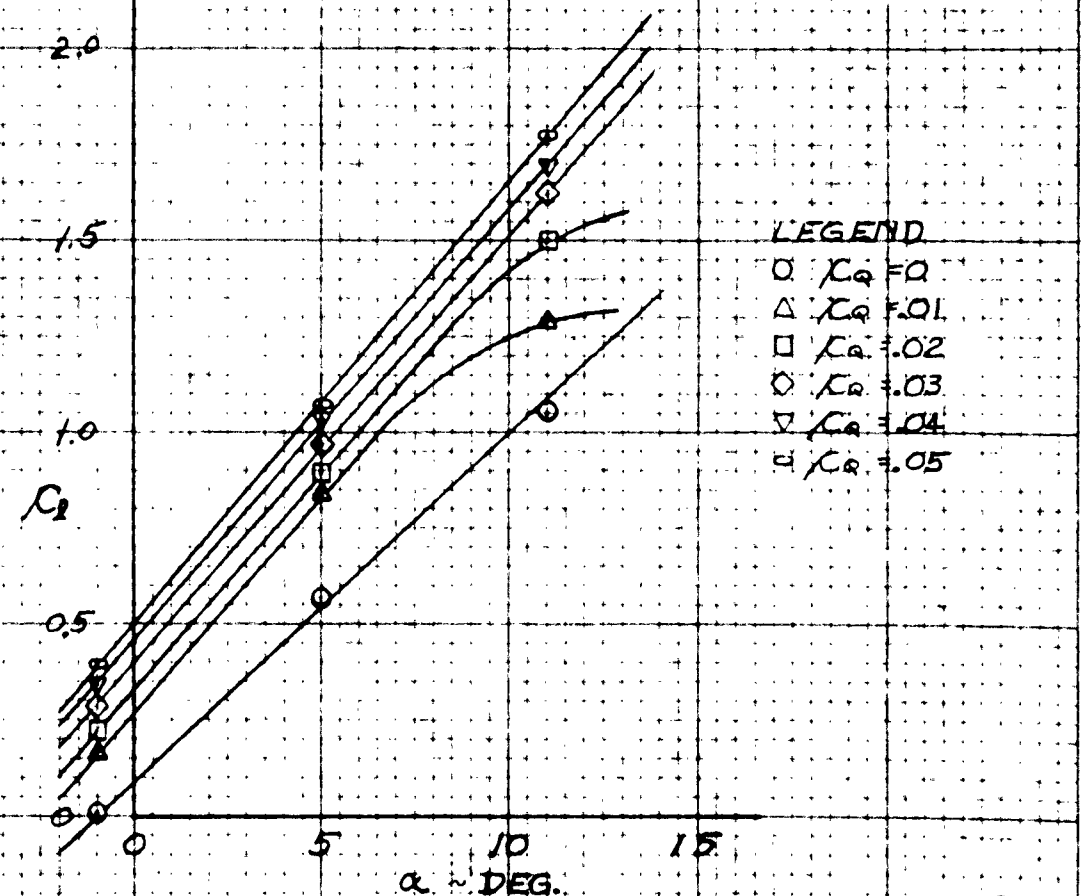


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-V-6 R.N. = .657 X 10⁶ 5-21-53

C_l VS. α FOR SEVERAL VALUES OF C_Q

FIG.-174

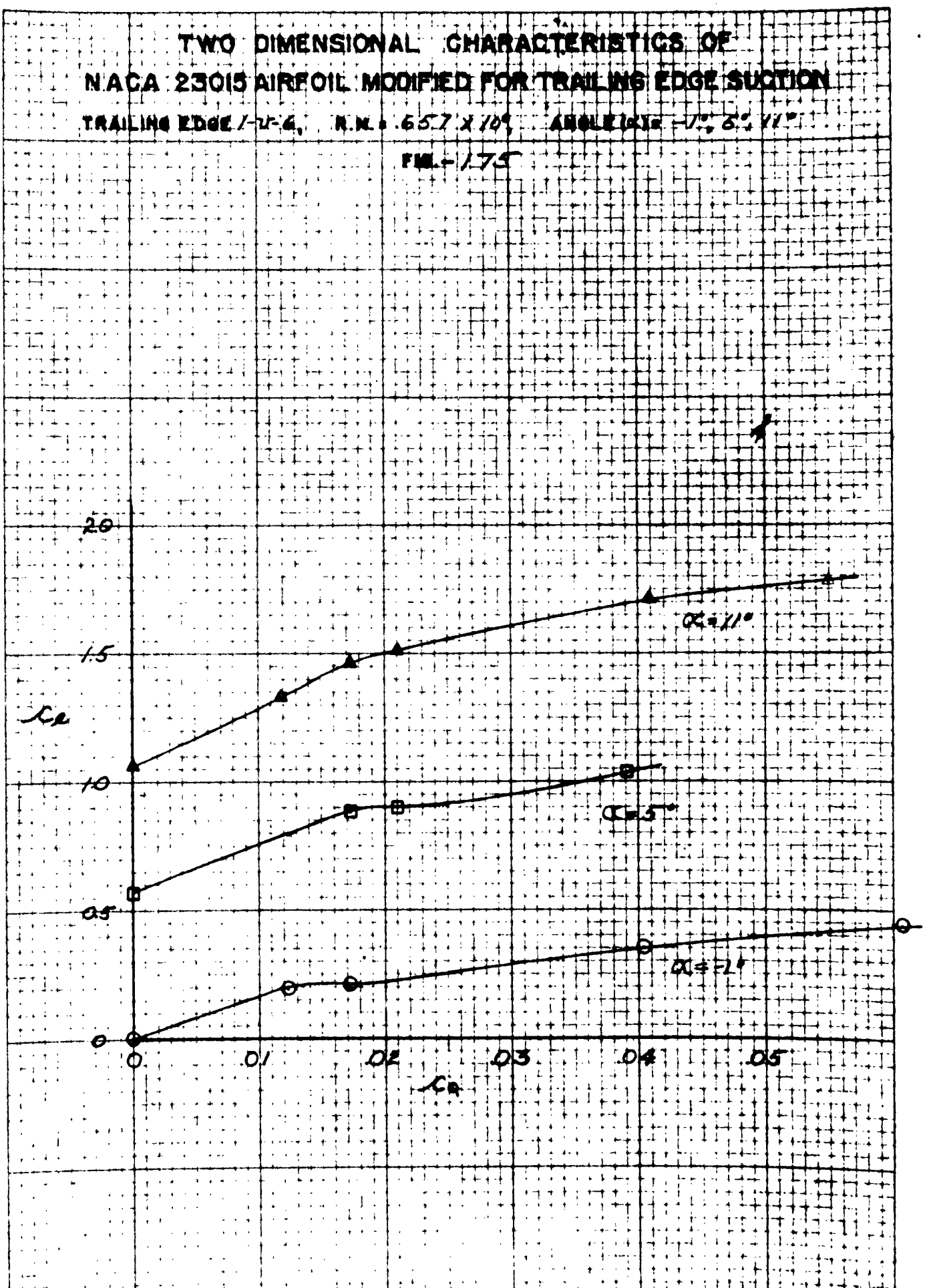


339 S KEUFFEL & ESSER CO
10 x 10 to the inch
MADE IN U.S.A.

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-U-4, R.N. = .657 X 10⁶, ANGLE(α) = -1°, 5°, 11°

FIG.- 175

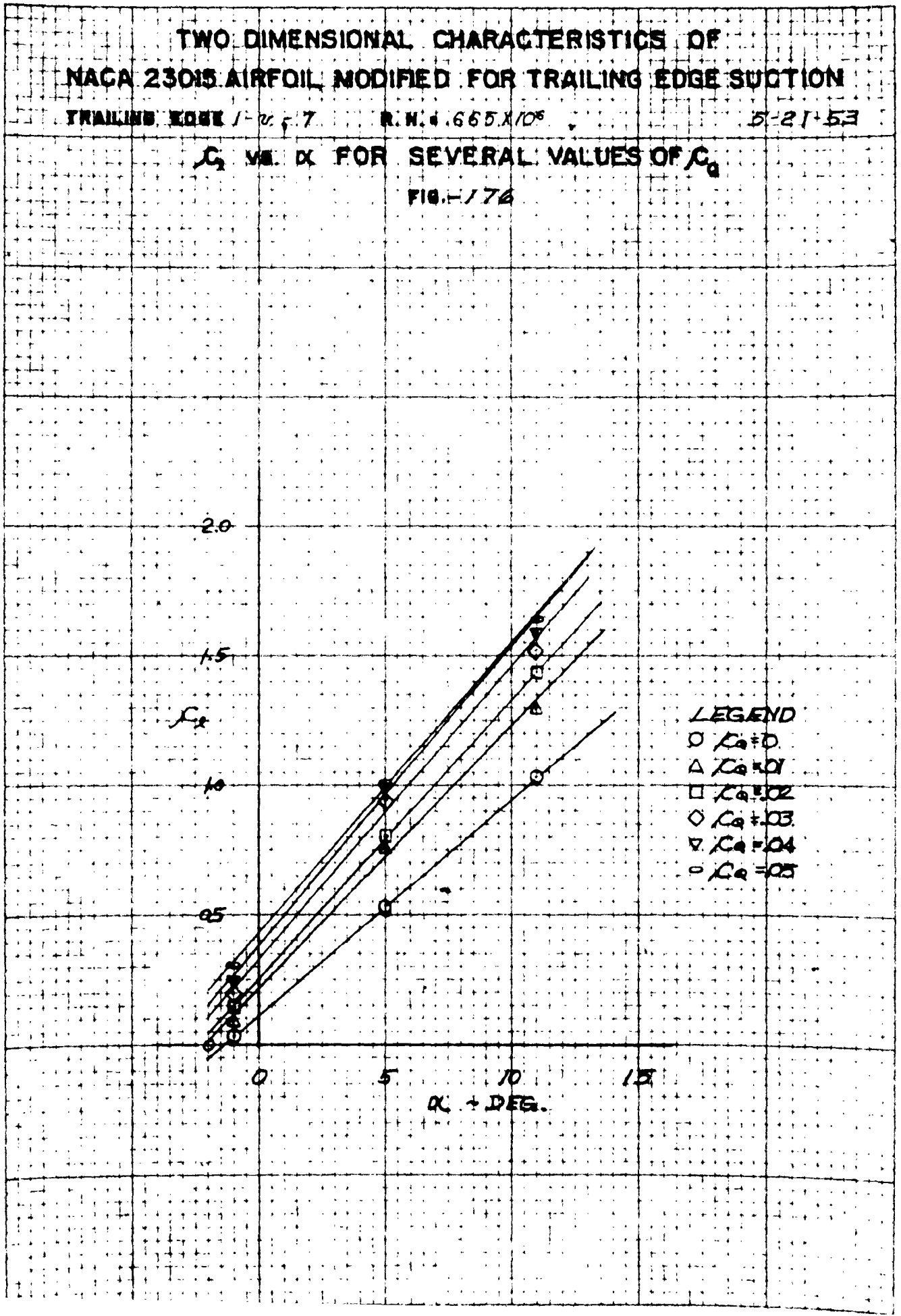


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE $\frac{1}{2}$ - in. R. N. $.665 \times 10^6$ 5-21-53

C_l VS. α FOR SEVERAL VALUES OF C_q

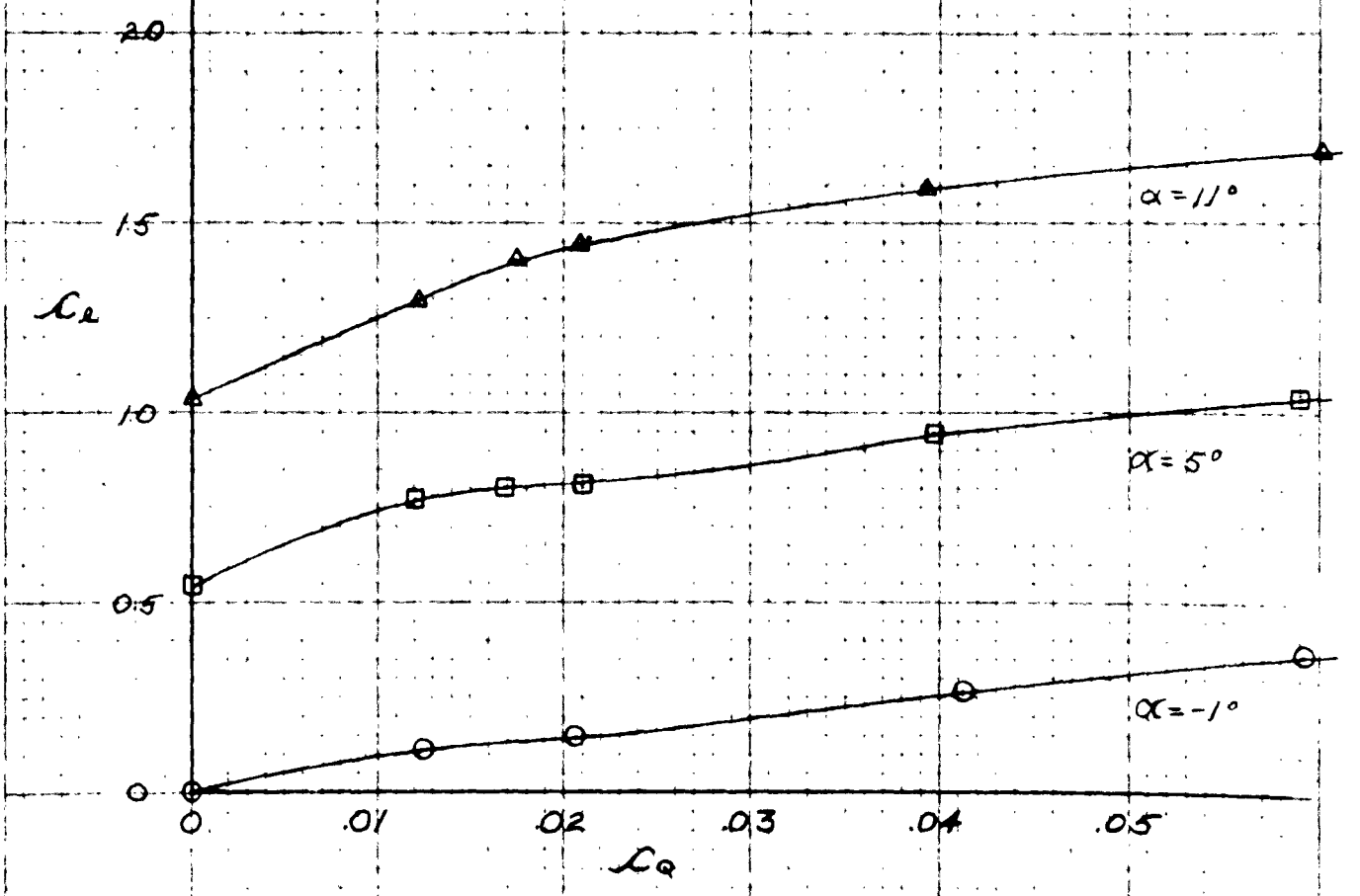
FIG. - 176

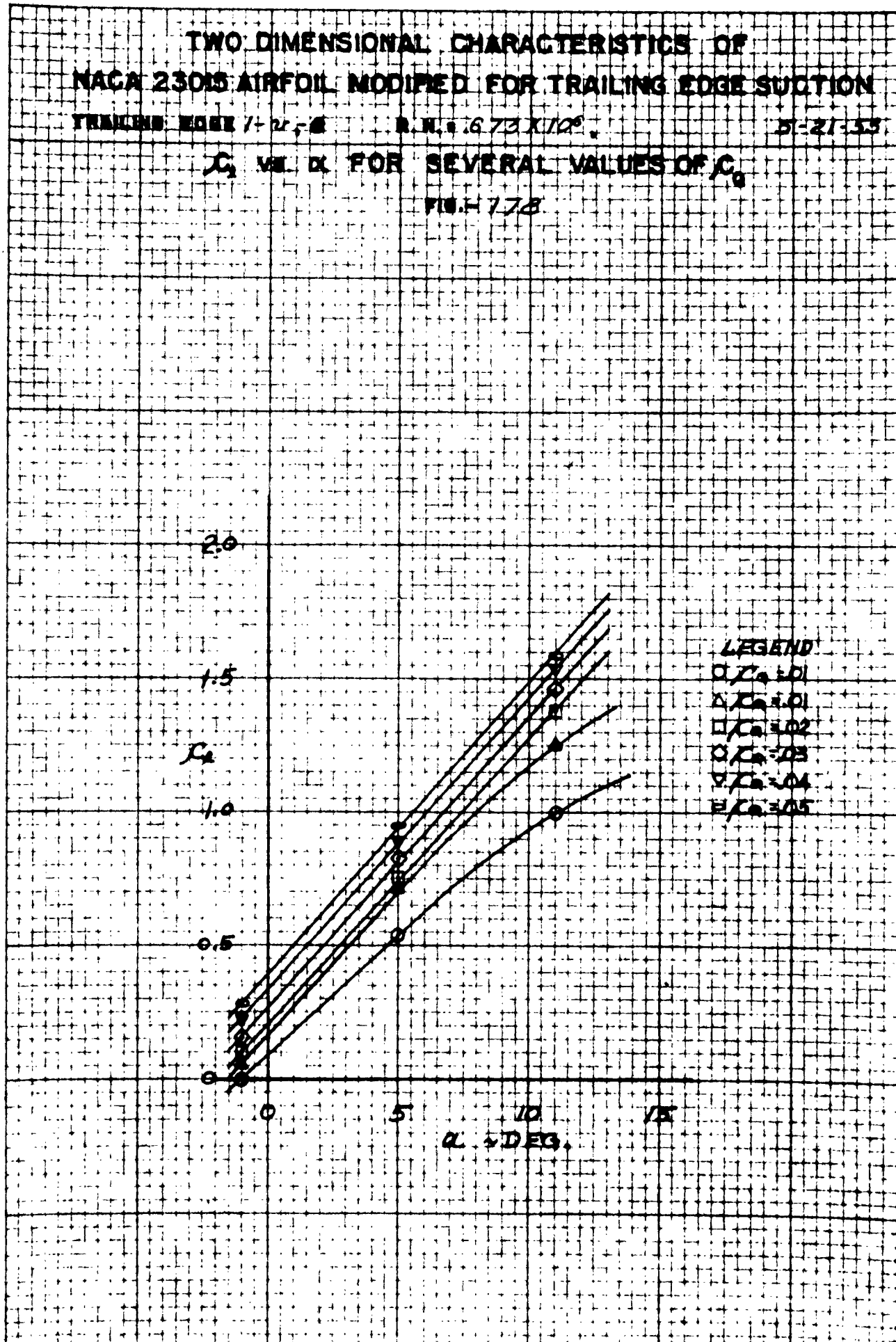


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-2-7, R.N. = .665 x 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG. - 177

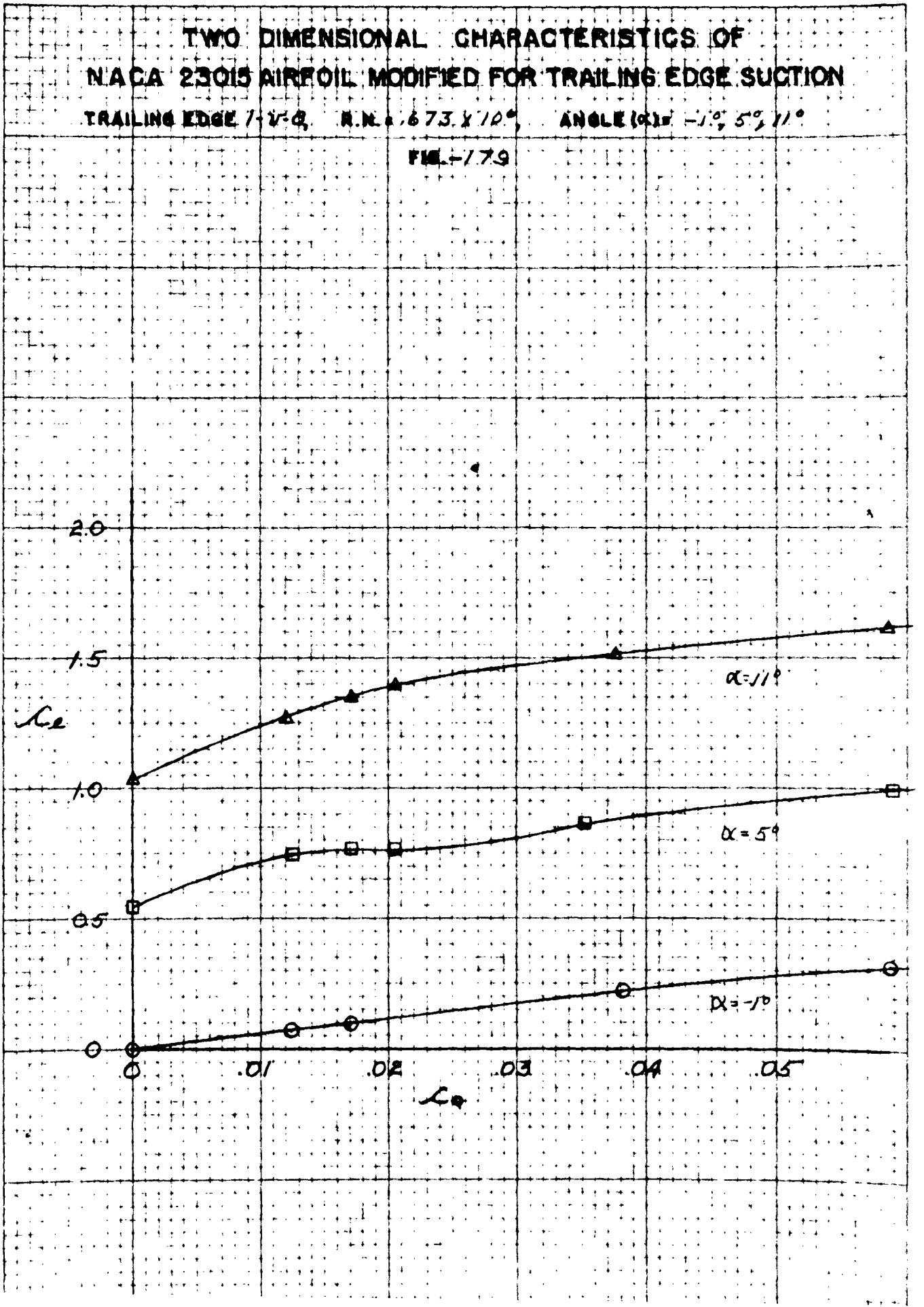



TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1+ hr, -6
R.N. = .673 X 10^6
5-21-53
C_l VS. α FOR SEVERAL VALUES OF C_Q
FIG. H 178
LEGEND
C_Q = .01
C_Q = .01
C_Q = .02
C_Q = .03
C_Q = .04
C_Q = .05
2.0
1.5
1.0
0.5
C_l
0
5
10
15
α - DEG.

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-V-8, R.N. = .673 x 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG.-179

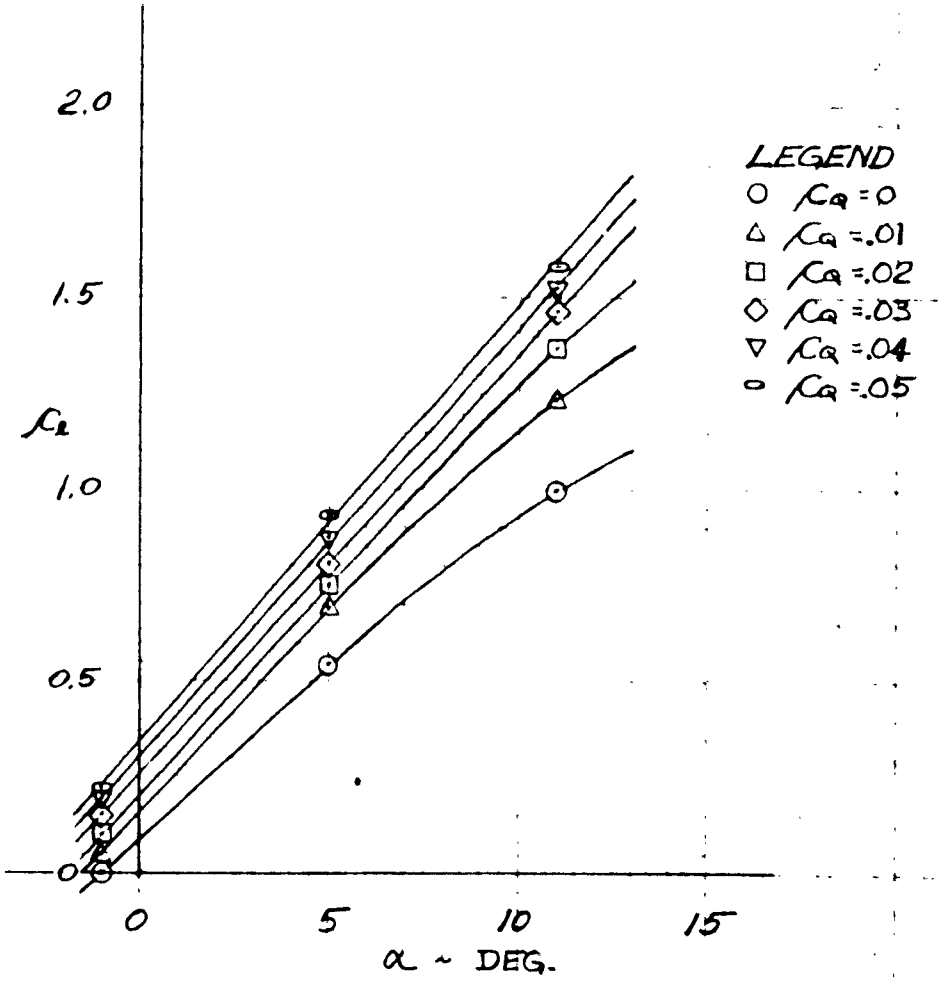


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-U-9 R.N. = .681 X 10^6, 5-21-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

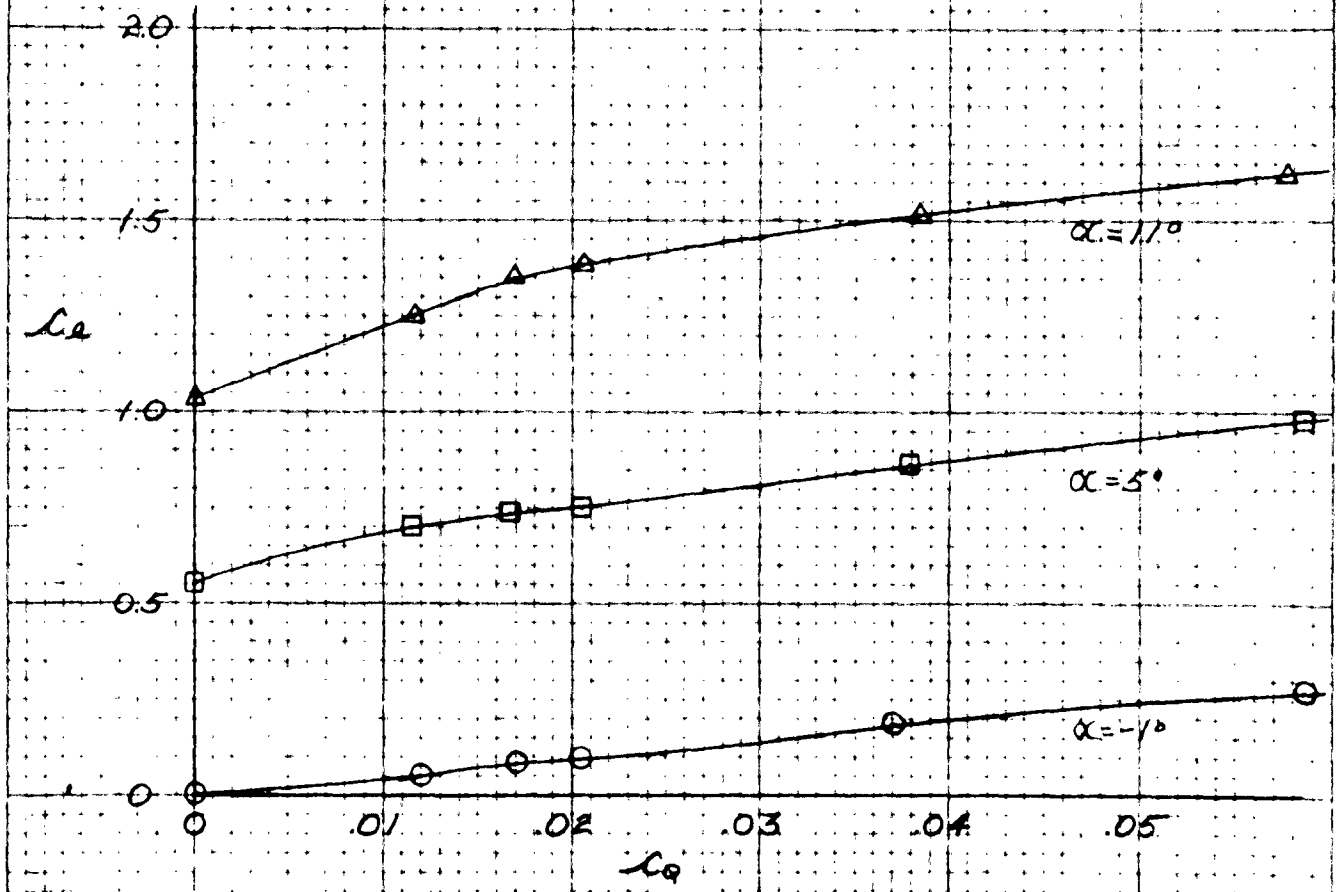
FIG.-180



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-2-9, R.N. = .681 x 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG. - 181



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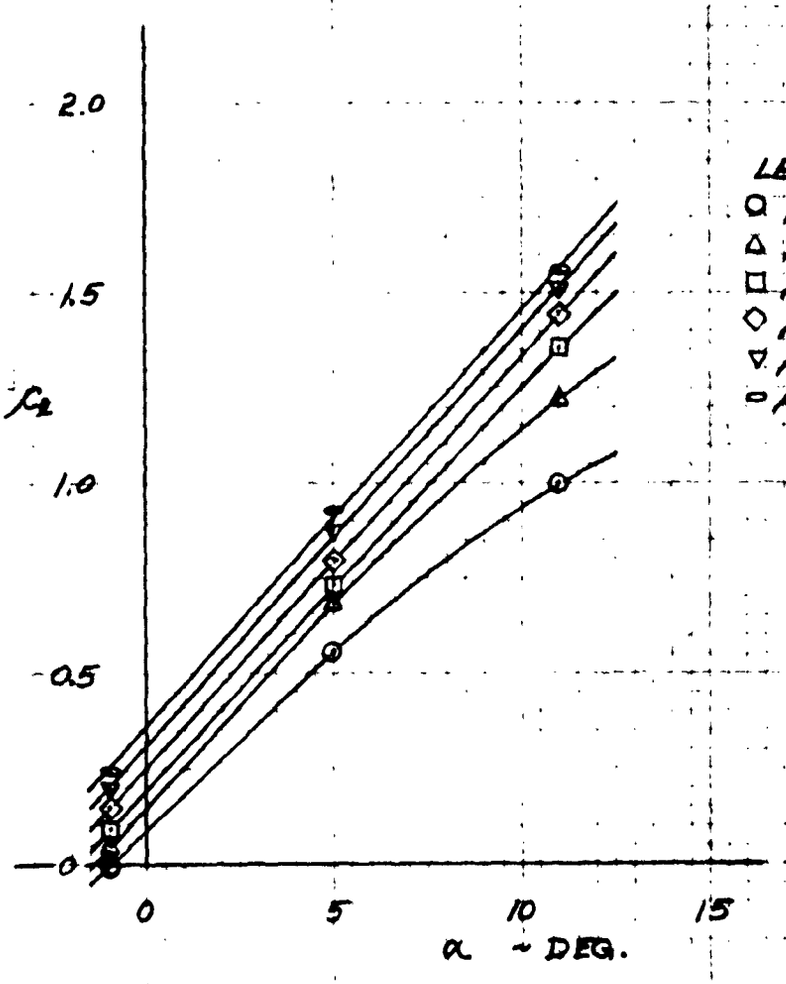
TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-T,-10 R.N. = .690 X 10⁶, 5-21-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

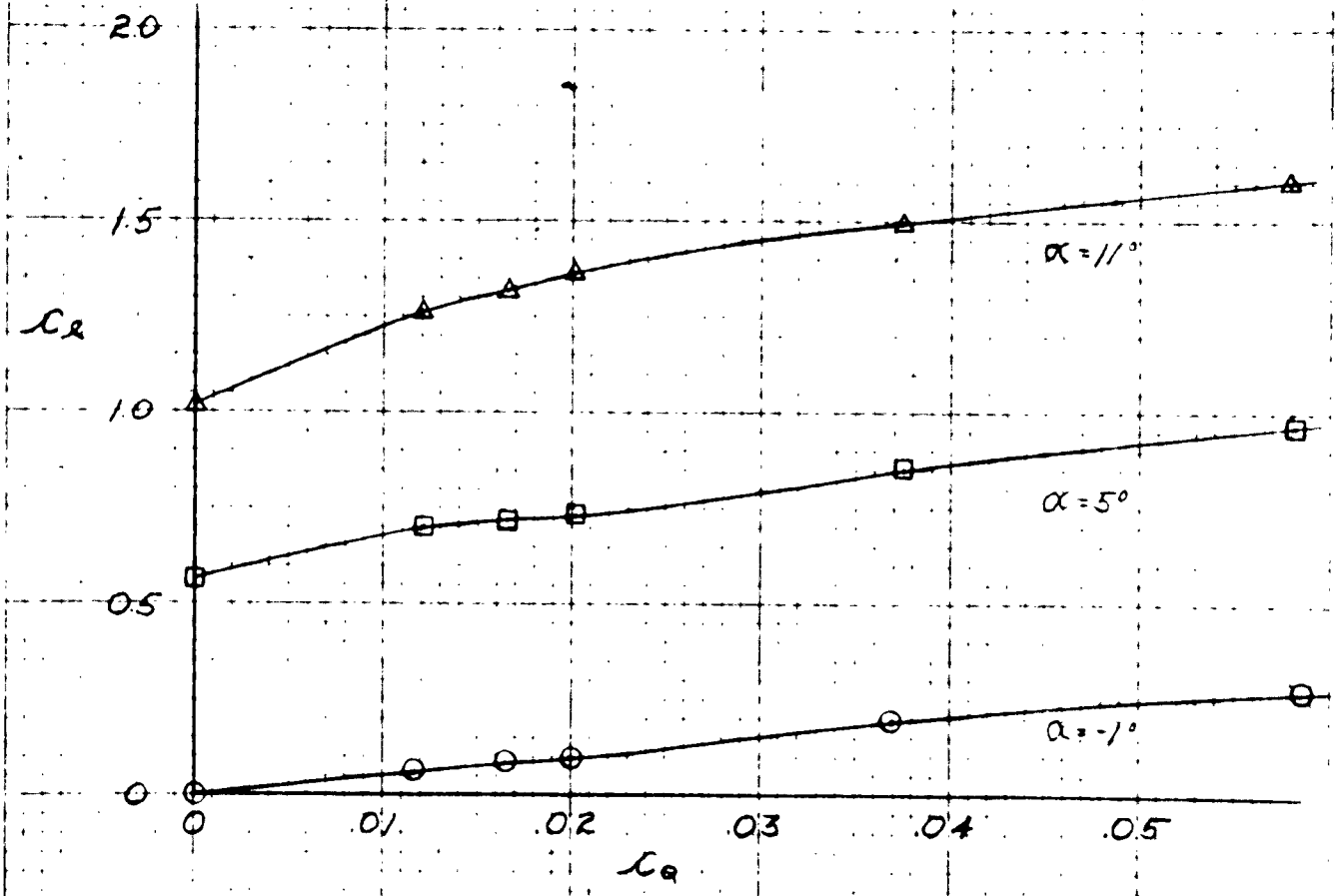
FIG.- 182



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 1-T-19 R.N. = 690 X 10⁶, ANGLE (α) = -1°, 5°, 11°

FIG.-183



Summary Of Lift Characteristics Of The Variable Trailing Edge Tested

Base Airfoil: NACA 23015, $R_N = .55 \times 10^6$, 7-1-53

Fig. 1 - 1 & 4

LEGEND
- ▼ $\alpha = -1°$
- ▲ $\alpha = 5°$
- ● $\alpha = 11°$

1-V-1 1-V-2 1-V-3 1-V-4 1-V-5 1-V-6 1-V-7 1-V-8 1-V-9 1-V-10

c_l: 0, .5, 1.0, 1.5, 2.0, 2.5

c_a: 0, .02, .04

NACA 23015 PROFILE EQUIPPED WITH TRAILING EDGE I-A

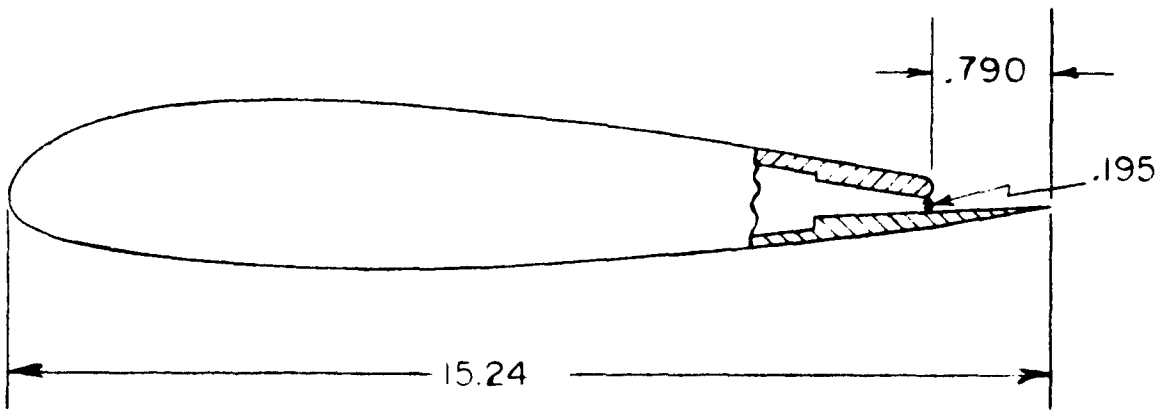
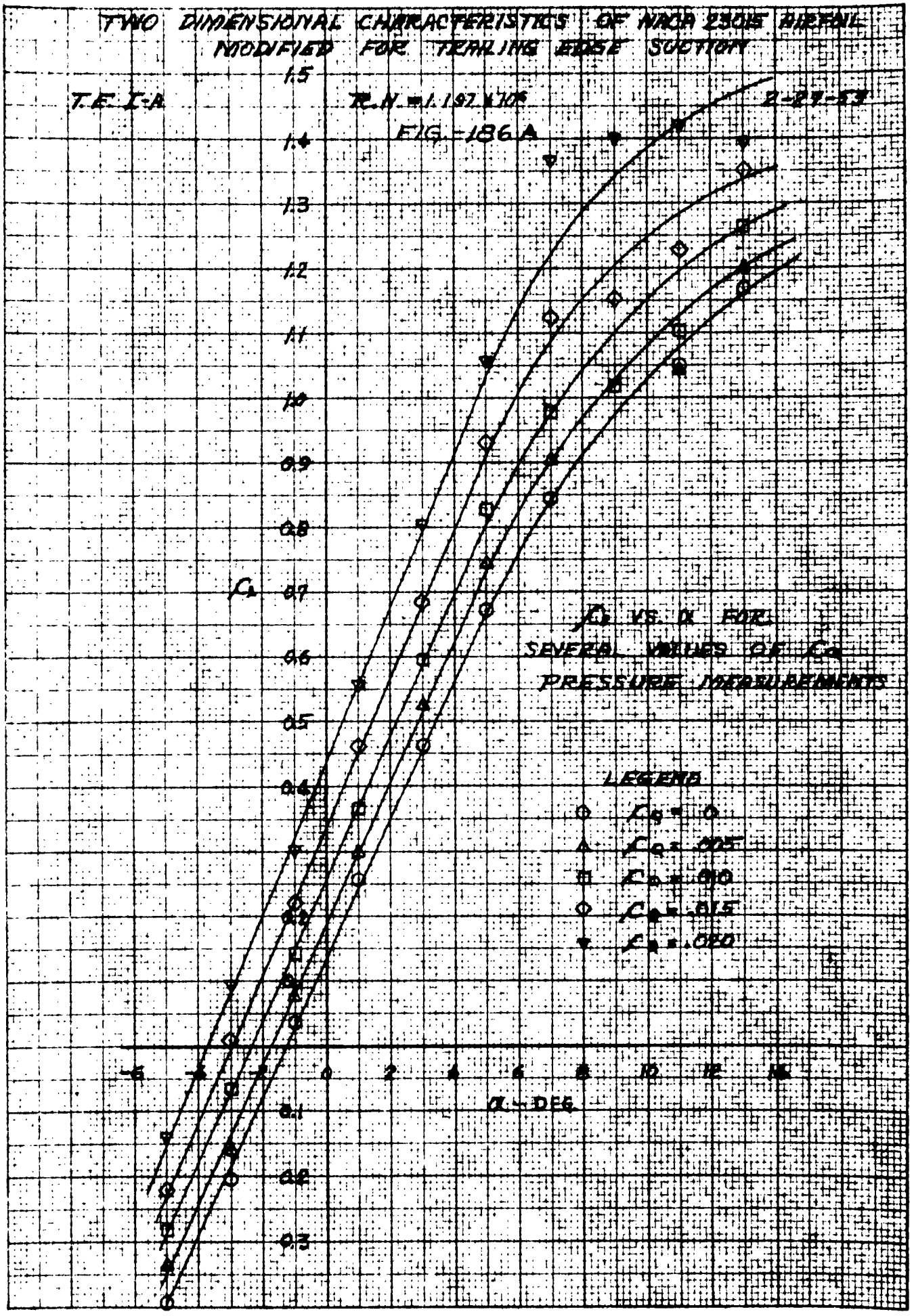
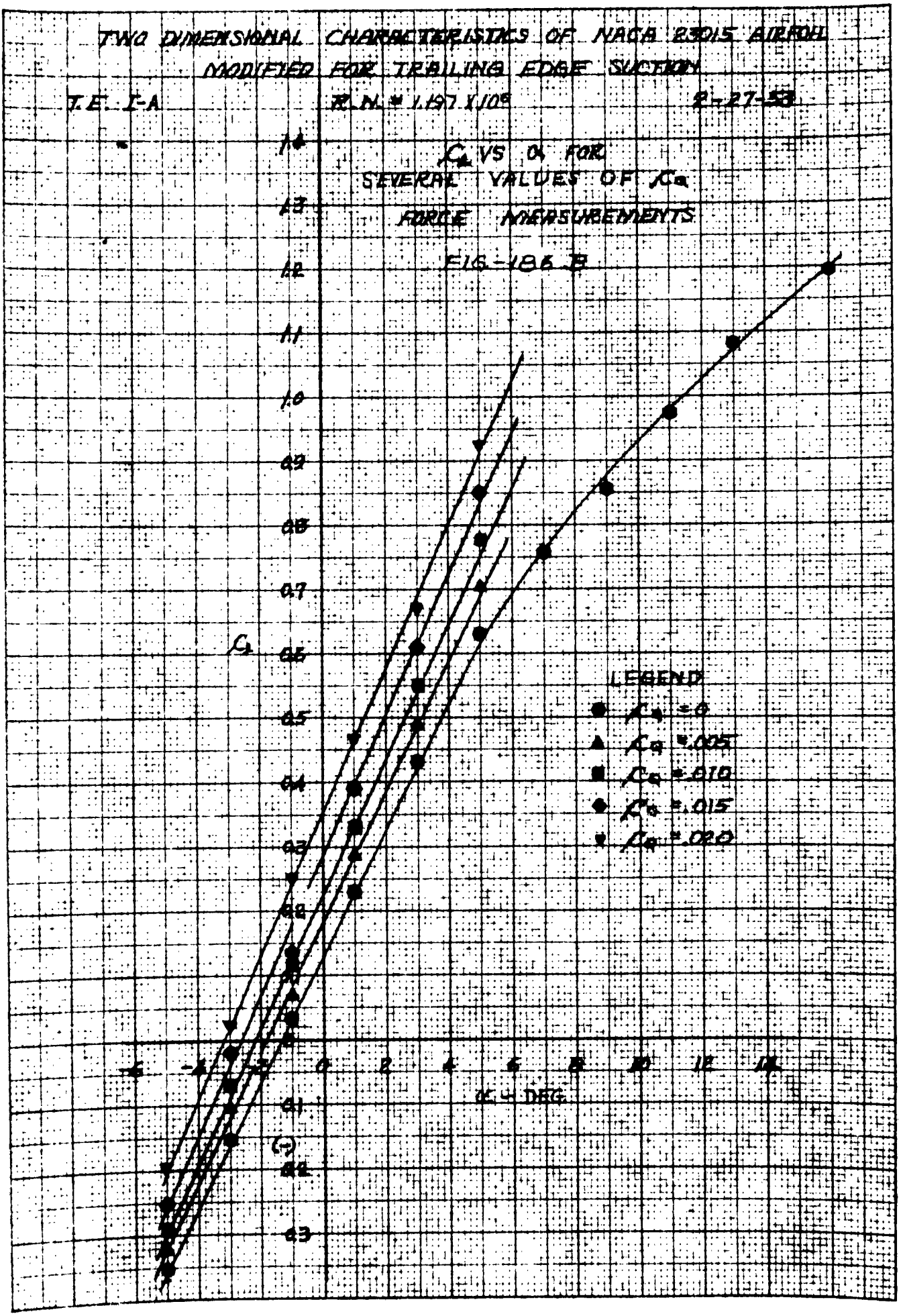


FIG. 185


TWO DIMENSIONAL CHARACTERISTICS OF NACA 2301S AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
T.E. I-A
R.N. = 1.192 X 10⁶
FIG. -186A
2-27-53
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
C_L
C_L VS. α FOR SEVERAL VALUES OF C_Q
PRESSURE MEASUREMENTS
LEGEND
C_Q = 0
C_Q = .005
C_Q = .010
C_Q = .015
C_Q = .020
-6
0
2
4
6
8
10
12
14
α - DEG.

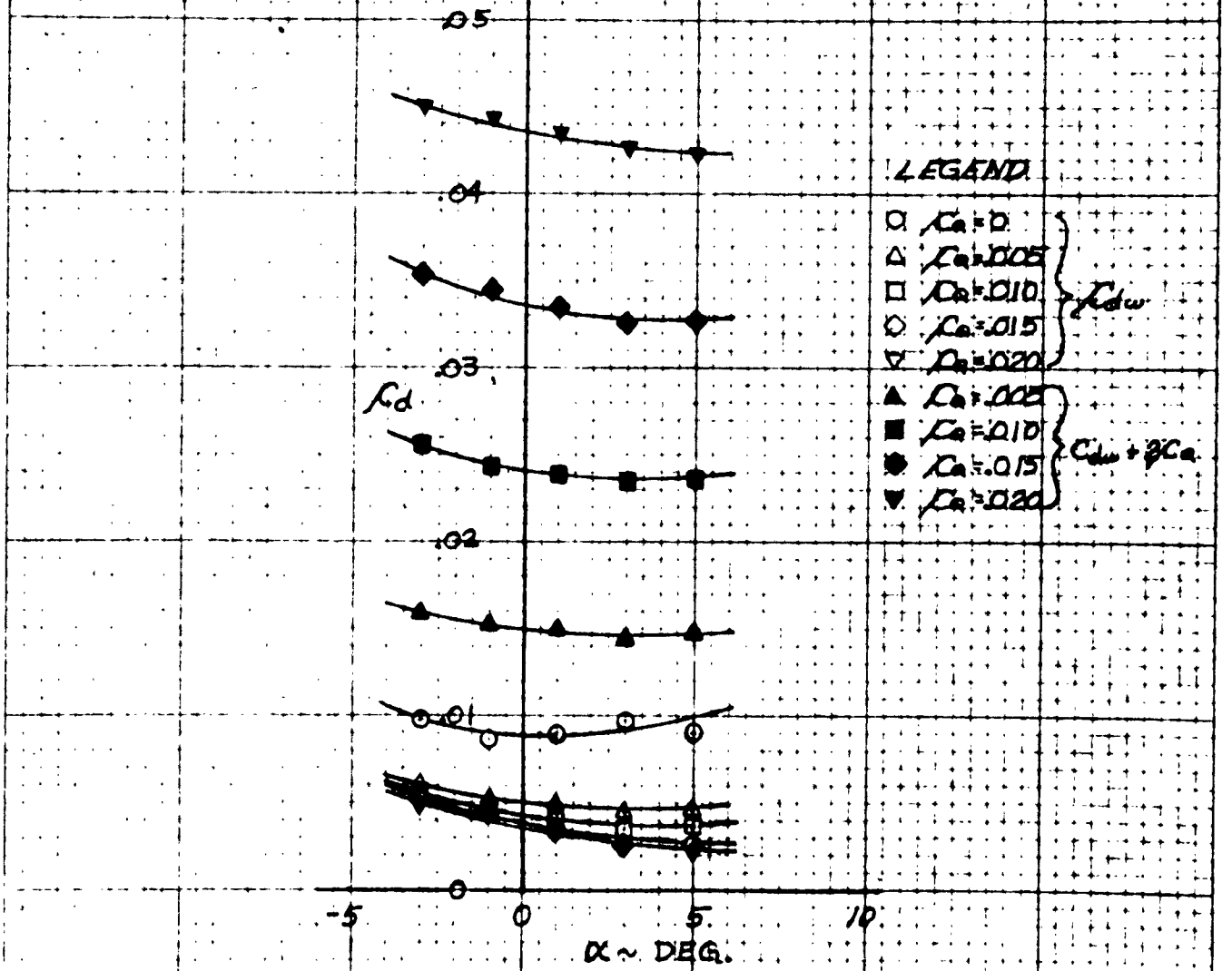

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL
MODIFIED FOR TRAILING EDGE SUCTION
T.E. I-A
R.N. = 1.197 X 10⁶
2-27-53
C_L VS α FOR
SEVERAL VALUES OF C_Q
FORCE MEASUREMENTS
F16-186 B
LEGEND
C_Q = 0
C_Q = .005
C_Q = .010
C_Q = .015
C_Q = .020
C_L
α - DEG.
1.4
1.3
1.2
1.1
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
(-).2
.3
-6
-4
-2
0
2
4
6
8
10
12
14

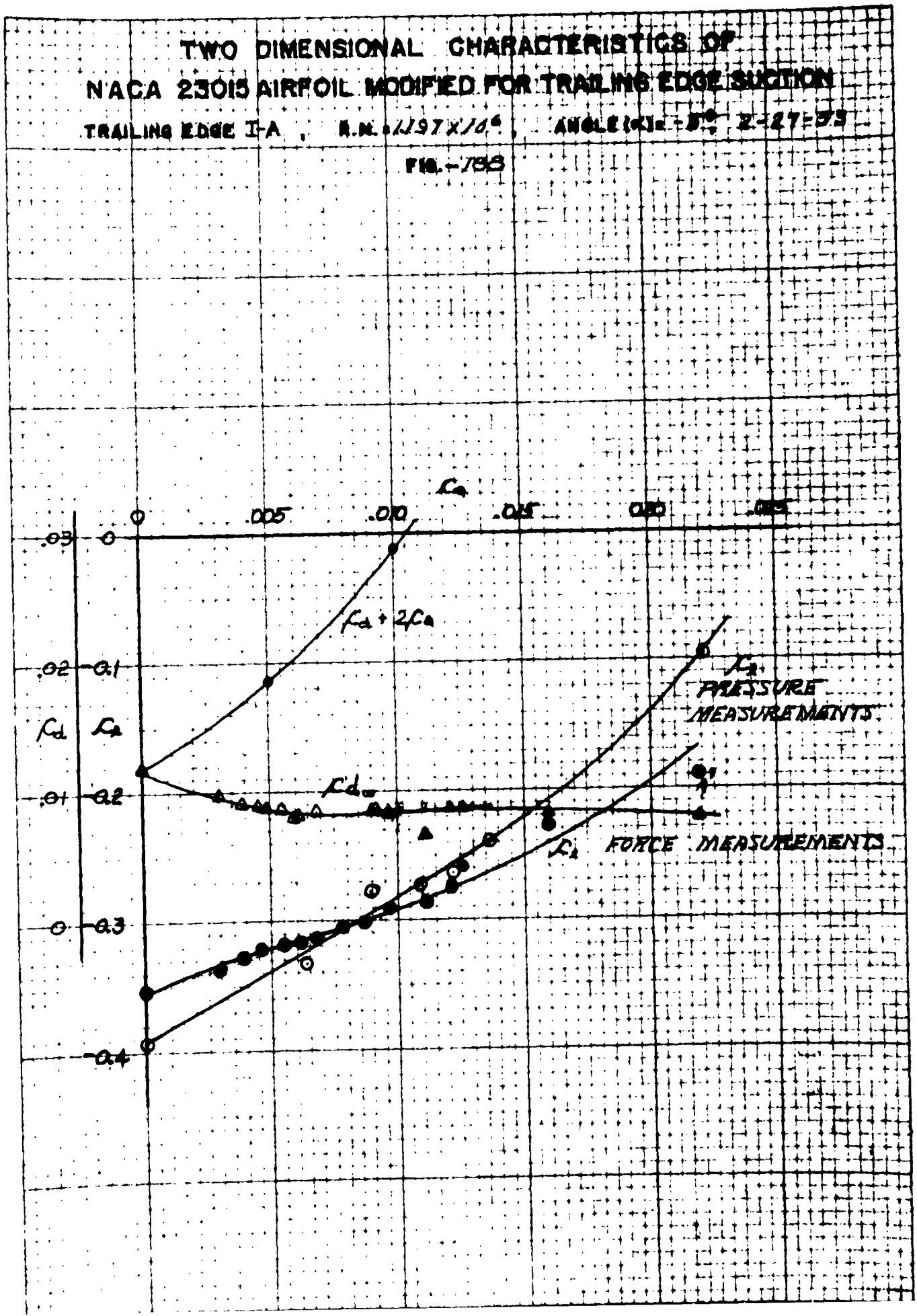
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A R.N. = 1.197 x 10^6 2-25-55

c_{d_w} AND $(c_{d_w} + 2c_q)$ vs. α FOR SEVERAL VALUES OF c_q

FIG.-187




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-A , R.N. 1.197 X 10^6 , ANGLE (α)i = 5° 2-27-52
FIG. - 183
c_m
0
.005
.010
.025
.03
.02
.01
0
c_d
c_l
0
.1
.2
.3
.4
$c_l + 2c_m$
c_d
c_l PRESSURE MEASUREMENTS
c_l FORCE MEASUREMENTS

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = -5°, C_L = -0.39, C_Q = 0

DATE: 2-27-53, q (IN. H_2O) = 4.346

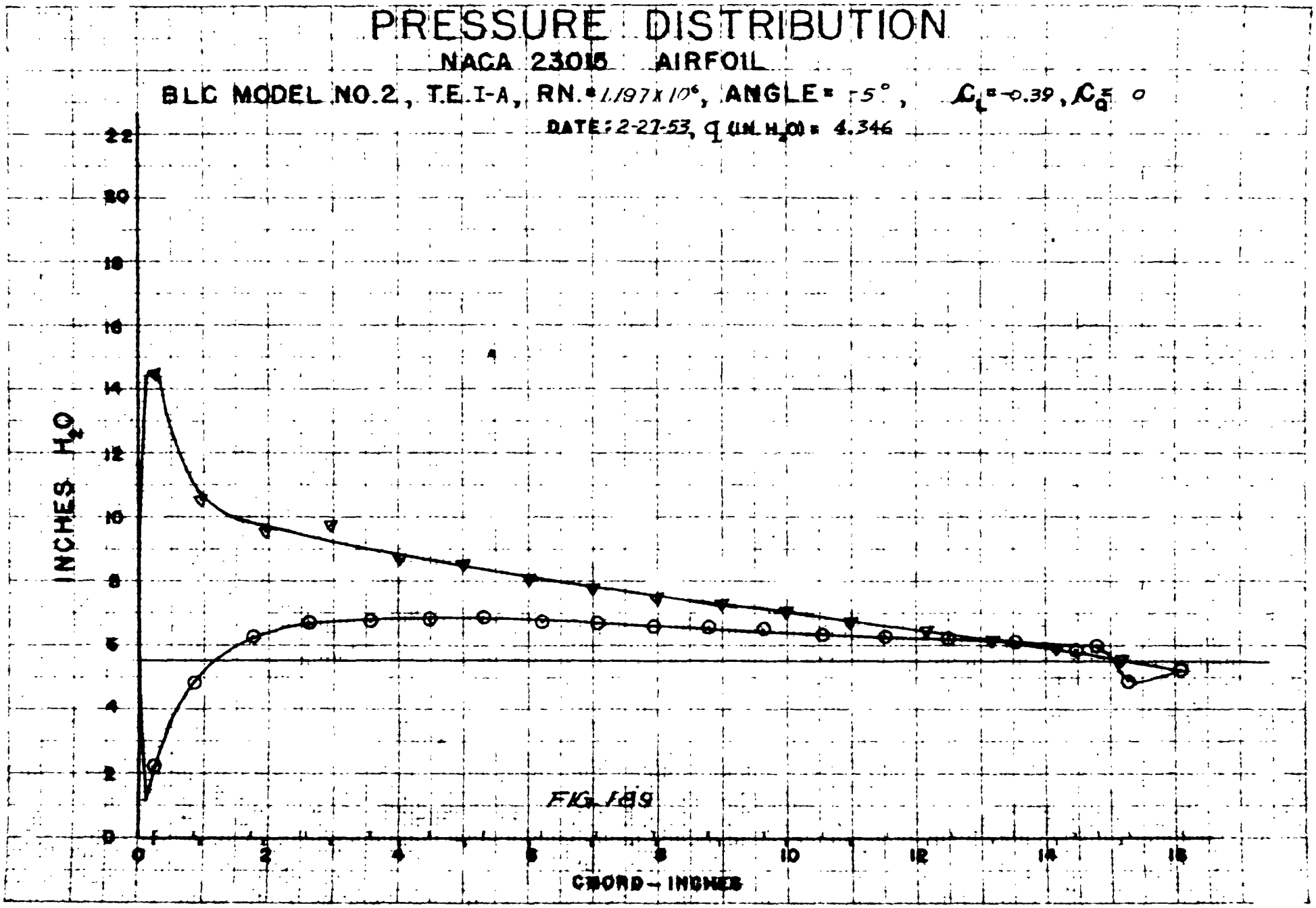


FIG. 18S

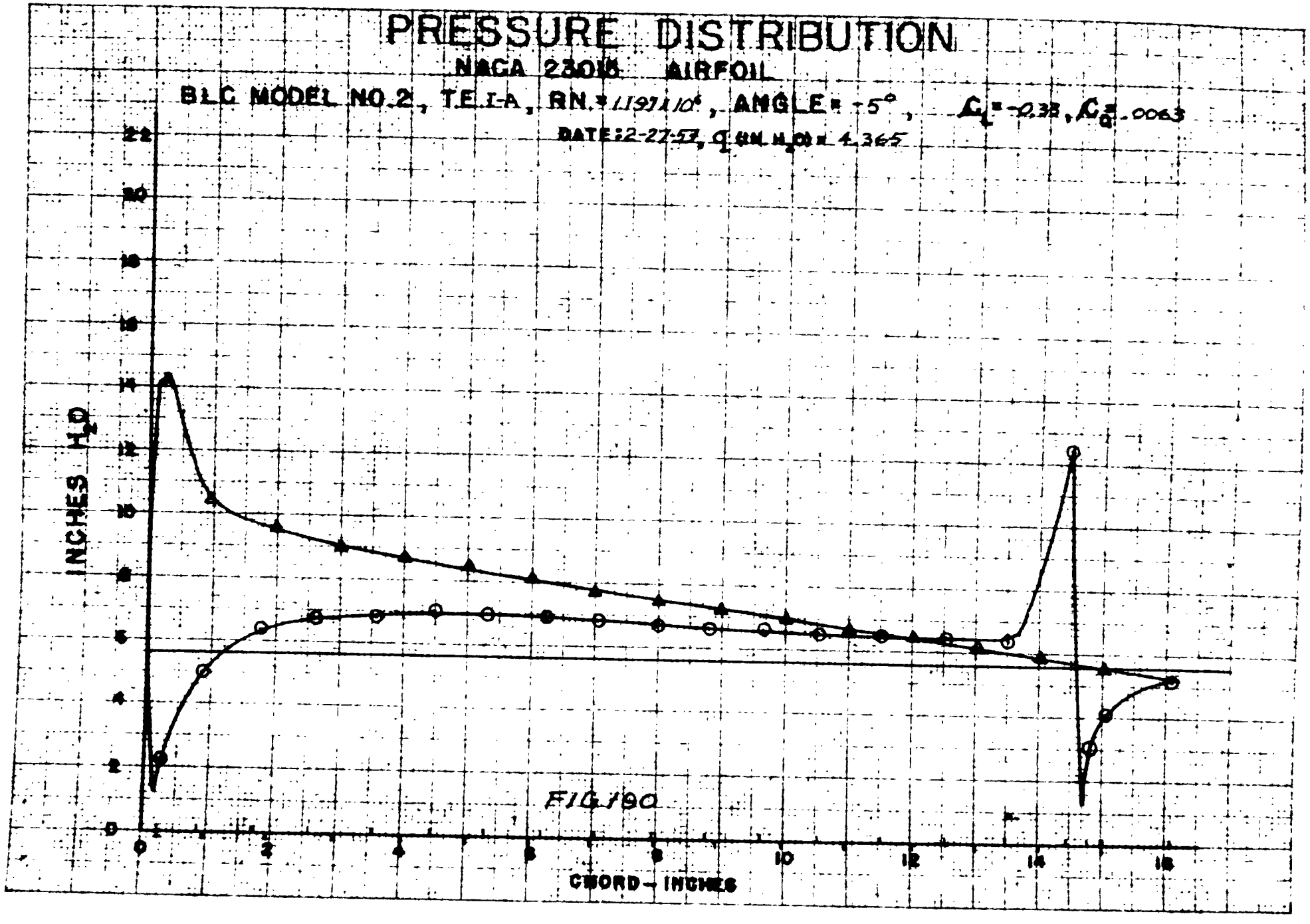
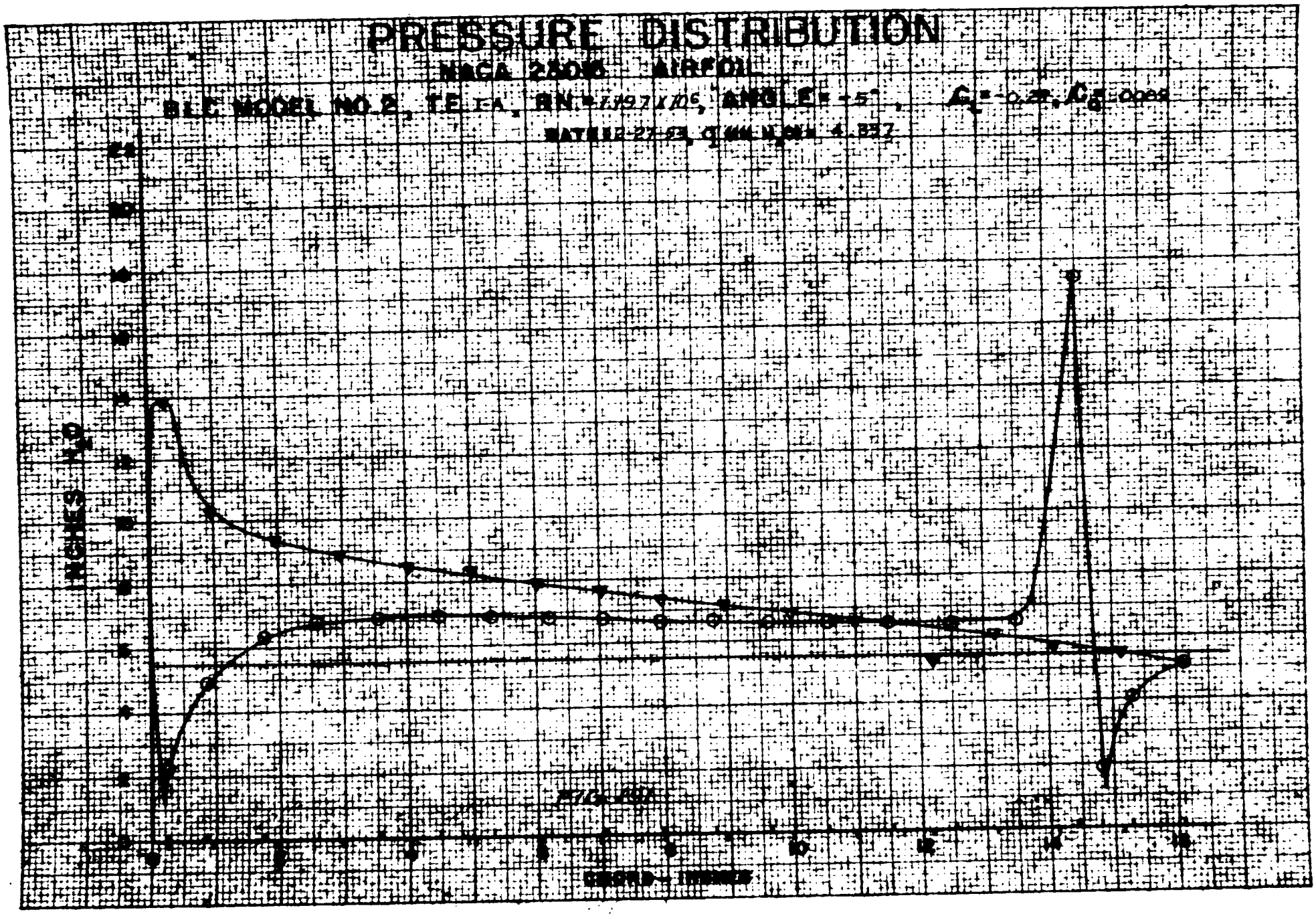

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E.I-A, RN.=1.191x10^6, ANGLE=-5°, C_L=-0.33, C_d=.0063
DATE:2-22-57, q IN. H2O = 4.365
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG 19a

KEUFFEL & ESSER CO
for X 10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.



PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN.= 1.197 x 10^6, ANGLE = -5°, C_L = -0.27, C_d = .0109

DATE: 2-27-53, q (IN H_2O) = 4.337

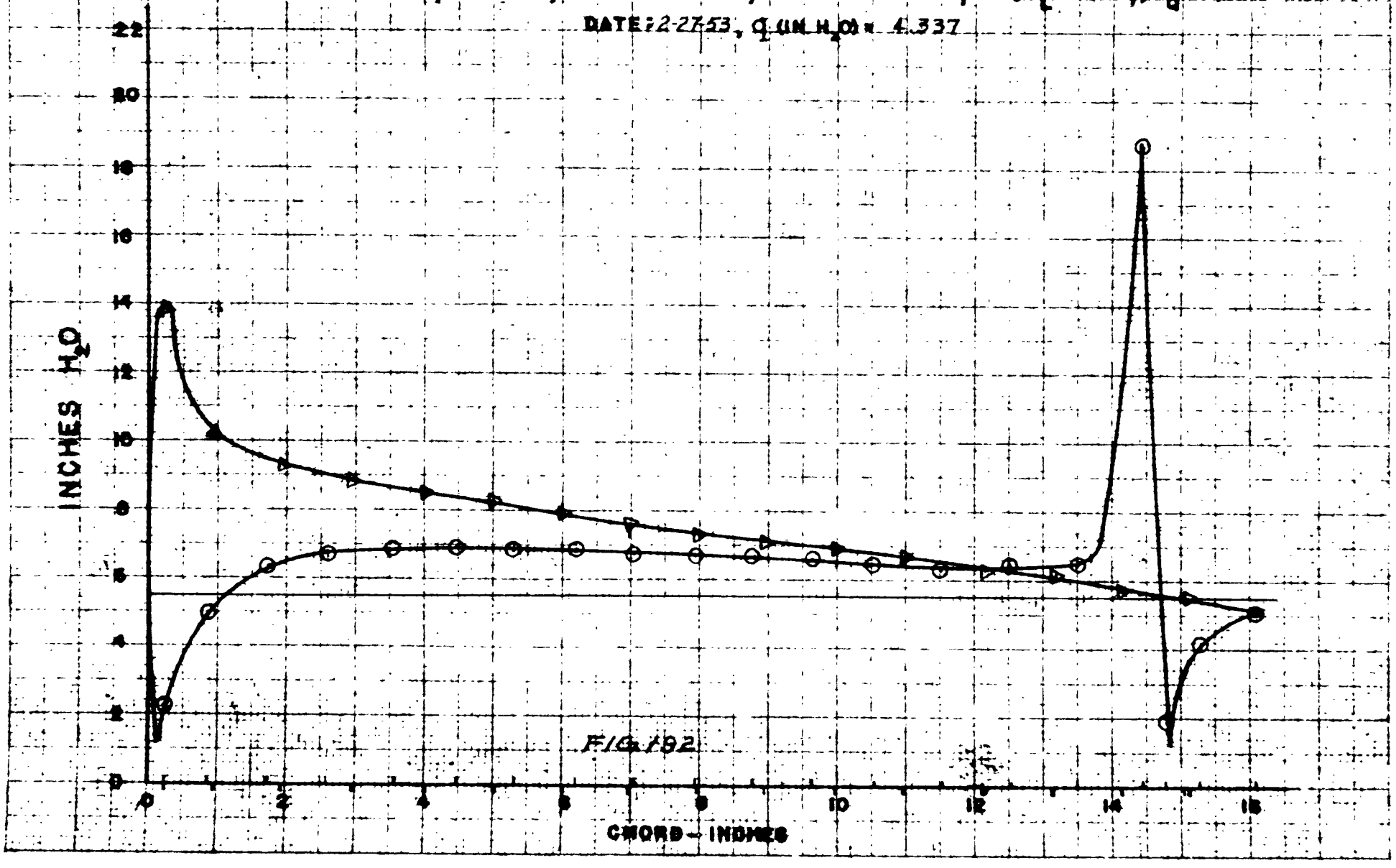


FIG. 192

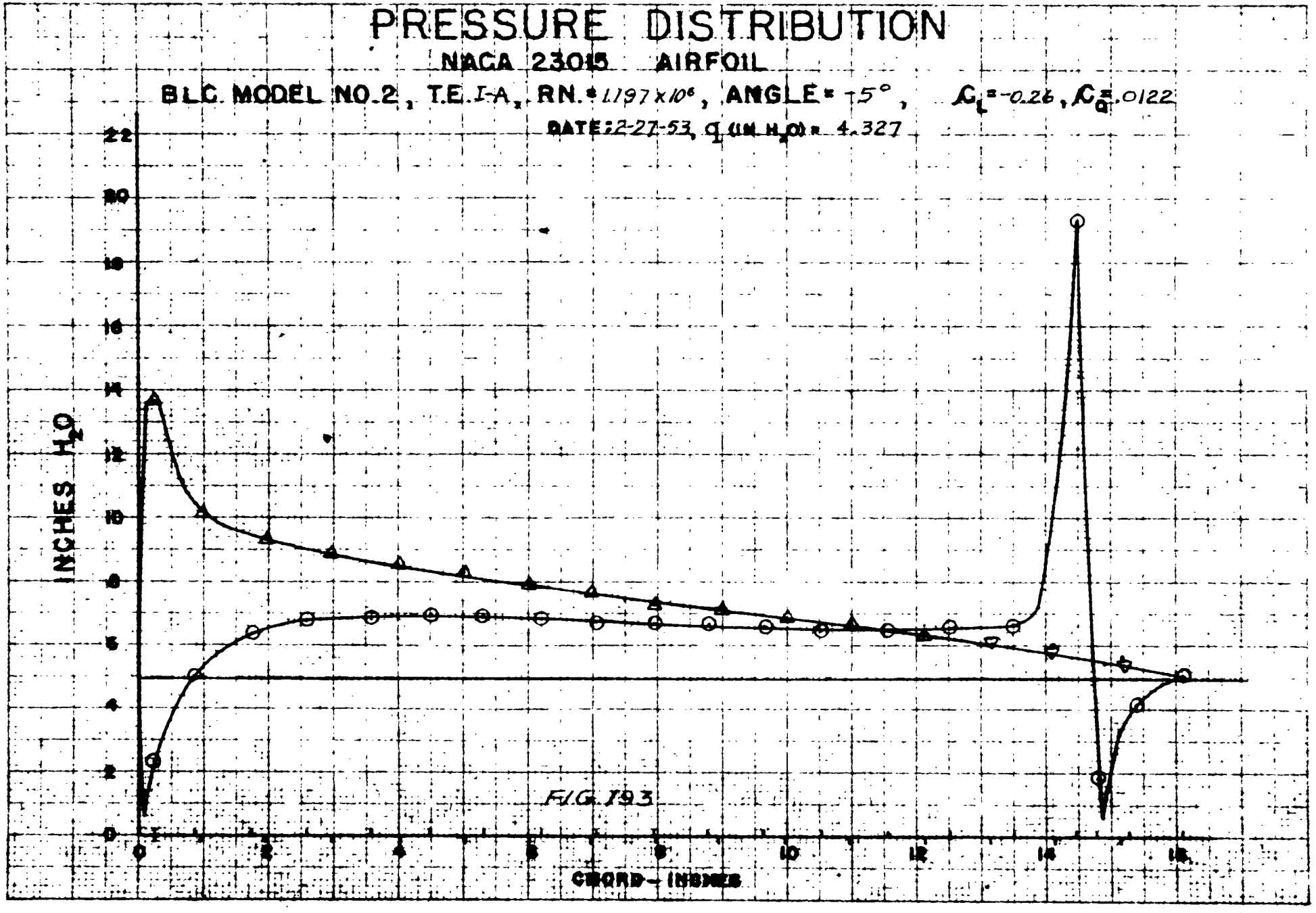

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN.=1.197 x 10⁶, ANGLE = +5°, C_L = -0.26, C_d = .0122
DATE: 2-27-53, q (IN H_2O) = 4.327
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG 193

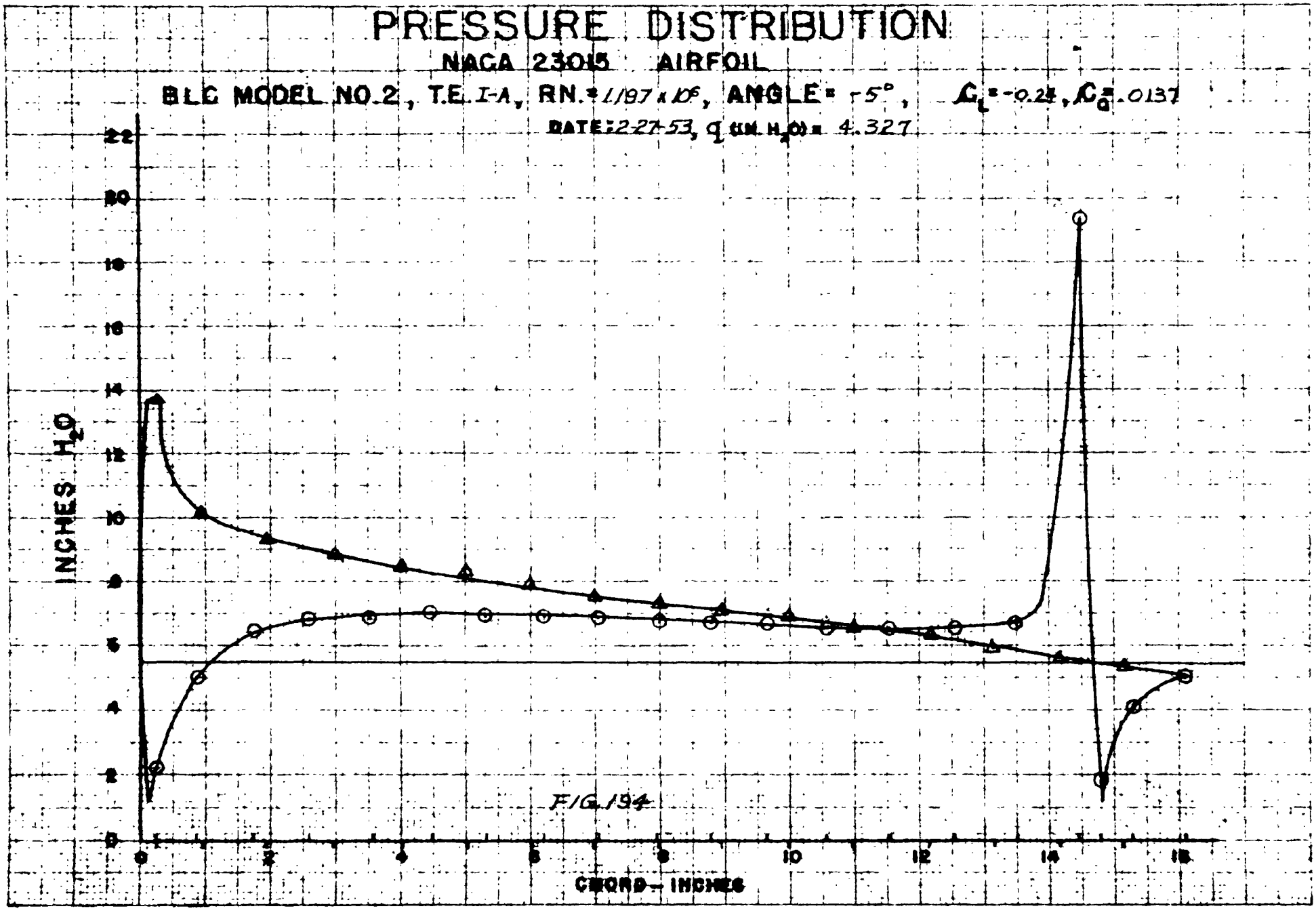

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = -5°, C_L = -0.23, C_d = .0137
DATE: 2-27-53, q (in. H2O) = 4.327
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG. 194

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = -5°, C_L = -0.10, C_d = .0221

DATE: 2-27-53, q (IN. H_2O) = 1.365

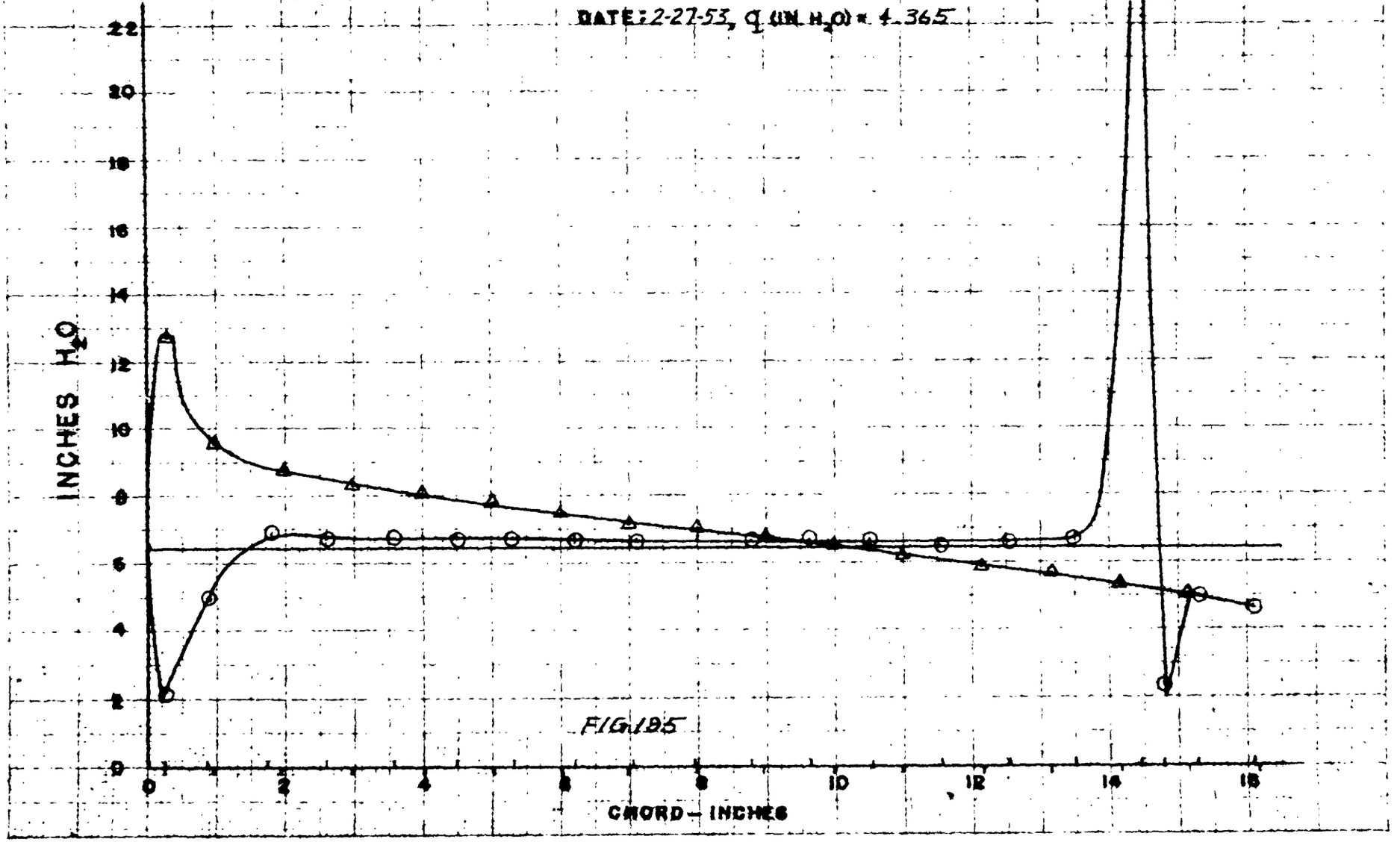
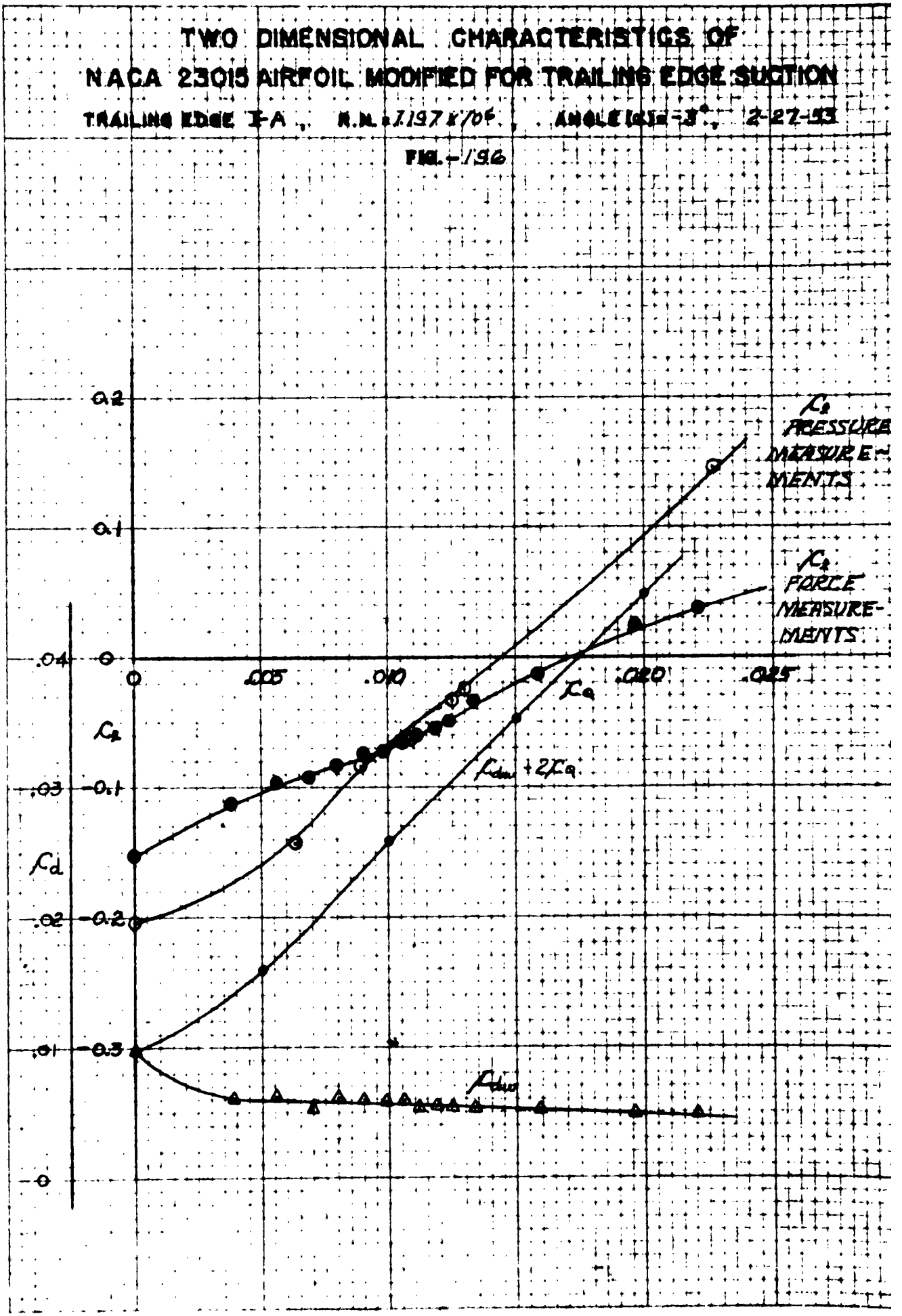


FIG 195


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-A , R.N. = 1.197 x 10⁶ , ANGLE (α)a = -3° , 2-27-53
FIG. - 196
c_l PRESSURE MEASURE-MENTS
c_l FORCE MEASURE-MENTS
c_q
$c_{d_{min}} + 2c_q$
$c_{d_{min}}$
c_l
c_d
.2
.1
0
-.1
-.2
-.3
.04
.03
.02
.01
-0
0
.005
.010
.020
.025

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E.I-A, RN.= 1.197 X 10⁶, ANGLE = -3°, C_L = -0.20, C_Q = 0

DATE: 2-27-53, q (IN. H_2O) = 4.337

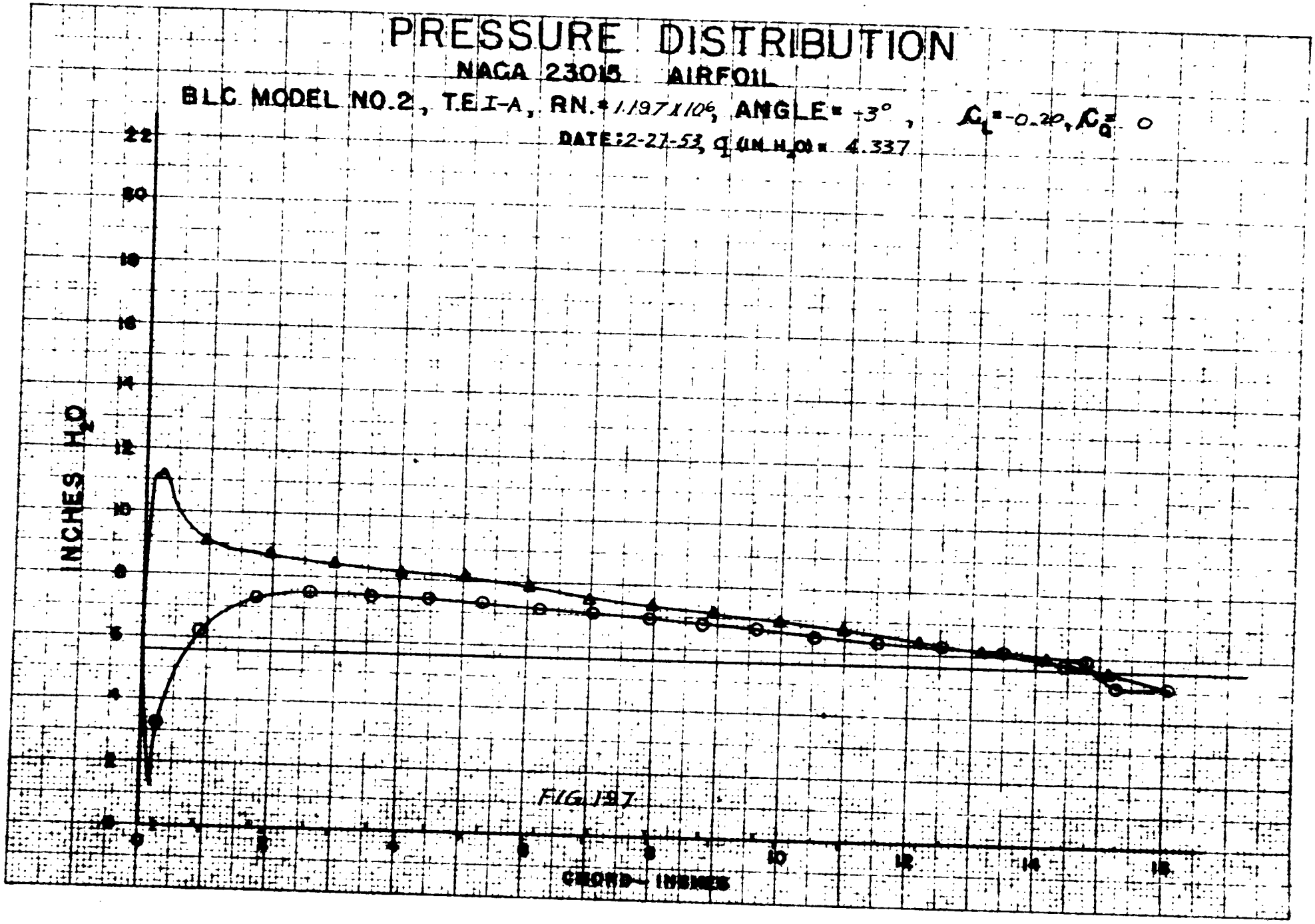


FIG. 27

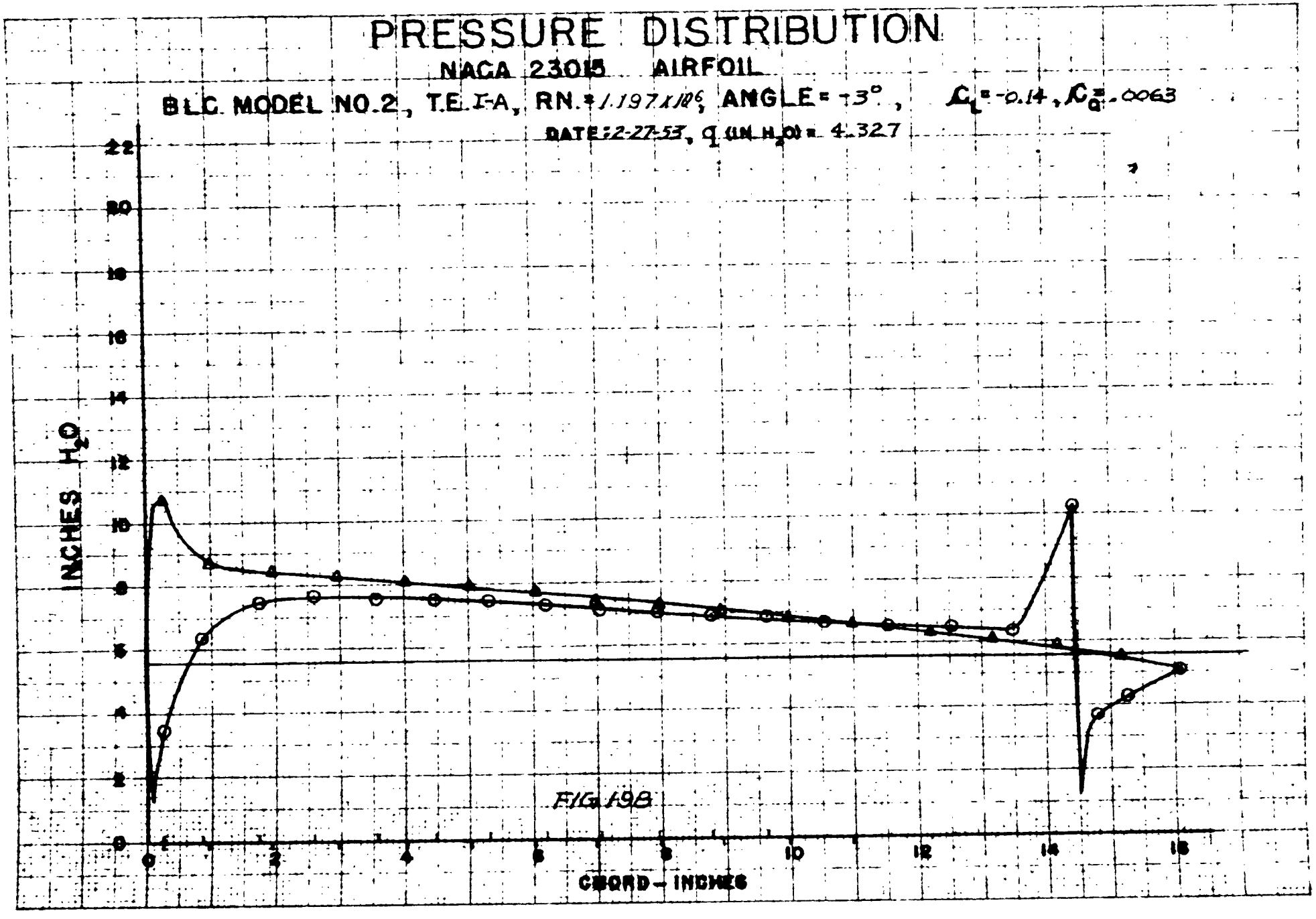

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = +3°, C_L = -0.14, C_d = .0063
DATE: 2-27-53, q (IN. H2O) = 4.327
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG. 19B

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.97 x 10^6, ANGLE = -3°, C_L = -.008, C_d = .0089

DATE: 2-27-53, q (IN. H_2O) = 4.308

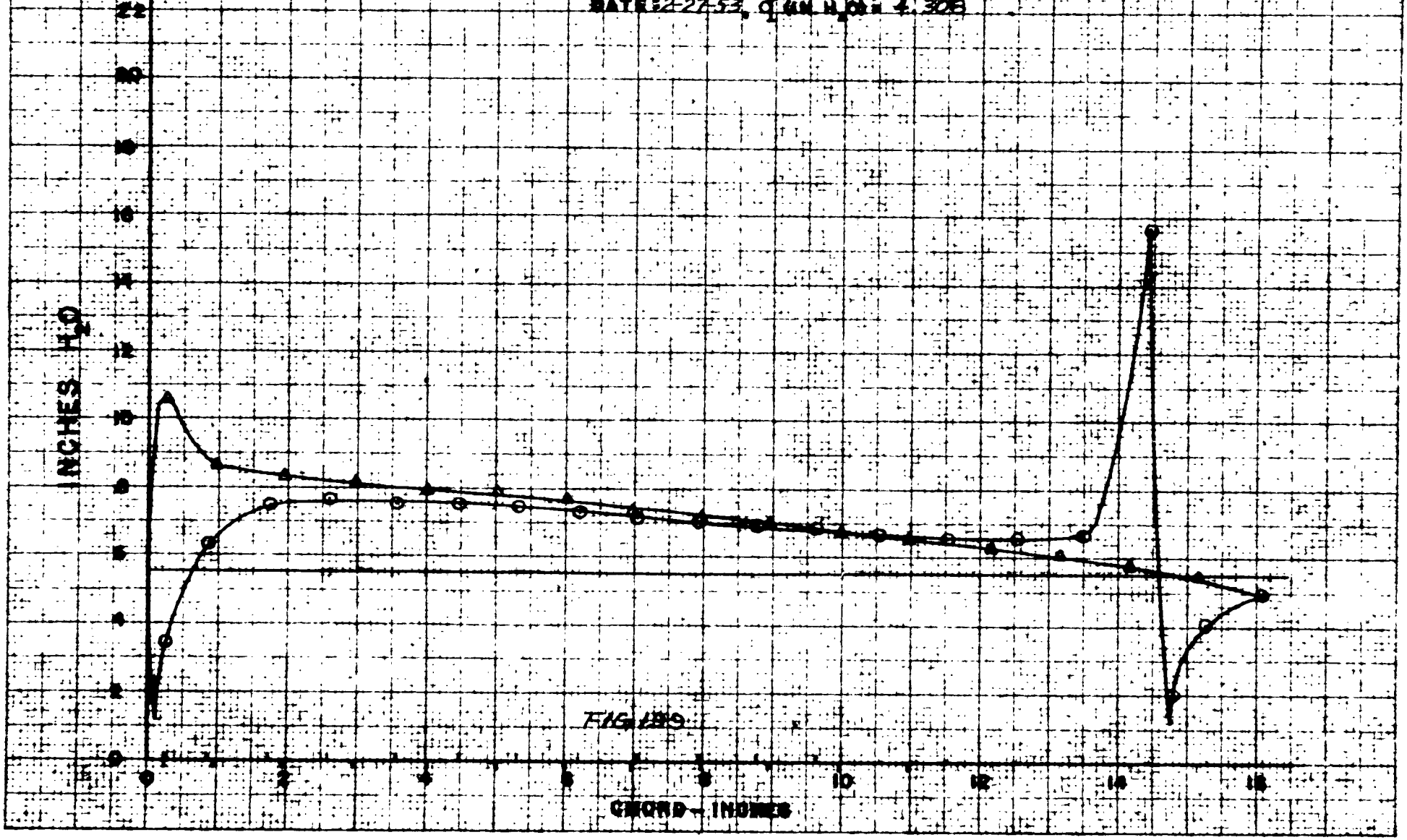
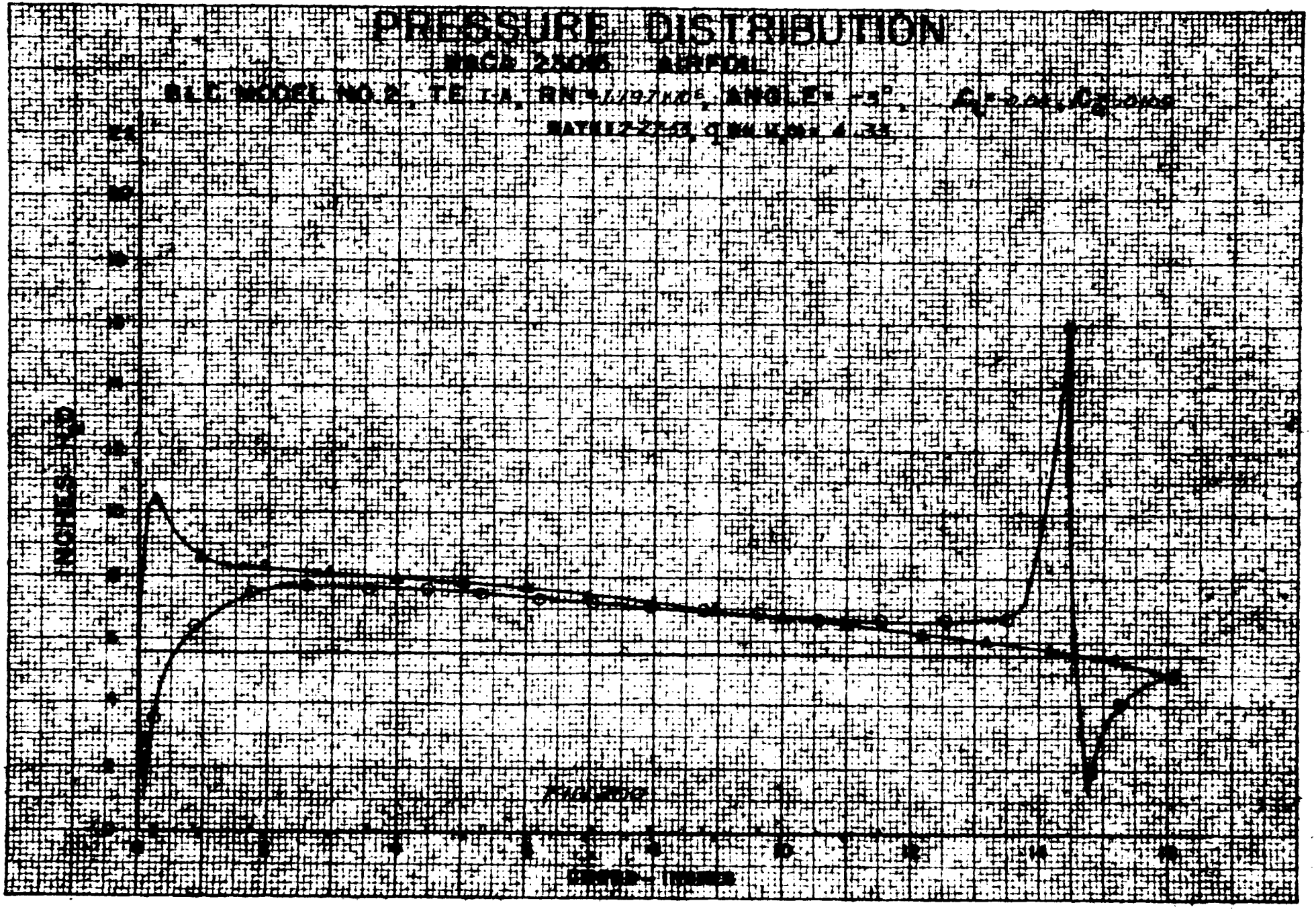
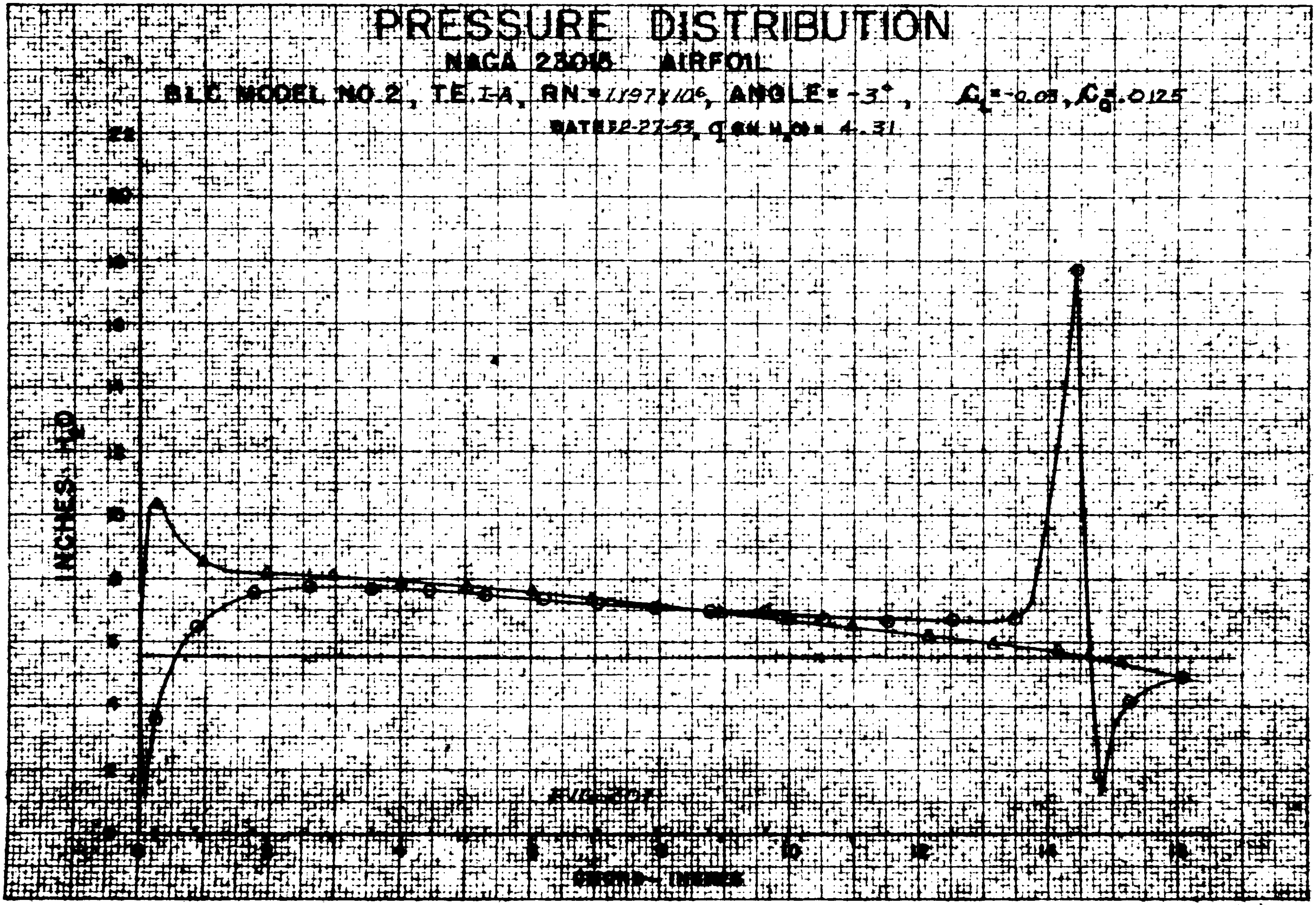


FIG. 1B9

359-11G KEUFFEL & ESSER CO
10 × 10 to the ½ Inch, 5th lines accented.




PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO. 2, T.E. I-A, RN = 1.197 x 10^6, ANGLE = -3°, CL = -0.08, CQ = .0125
DATE 2-27-53, q IN H2O = 4.31
INCHES H2O
CHORD - INCHES

KEUFFEL & ESSER CO

KEUFFEL & ESSER CO.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN = 1.197 x 10^6, ANGLE = -3°, C_L = +0.15, C_D = 0.0227

DATE: 12-27-53, q_c (IN. H_2O) = 4.27

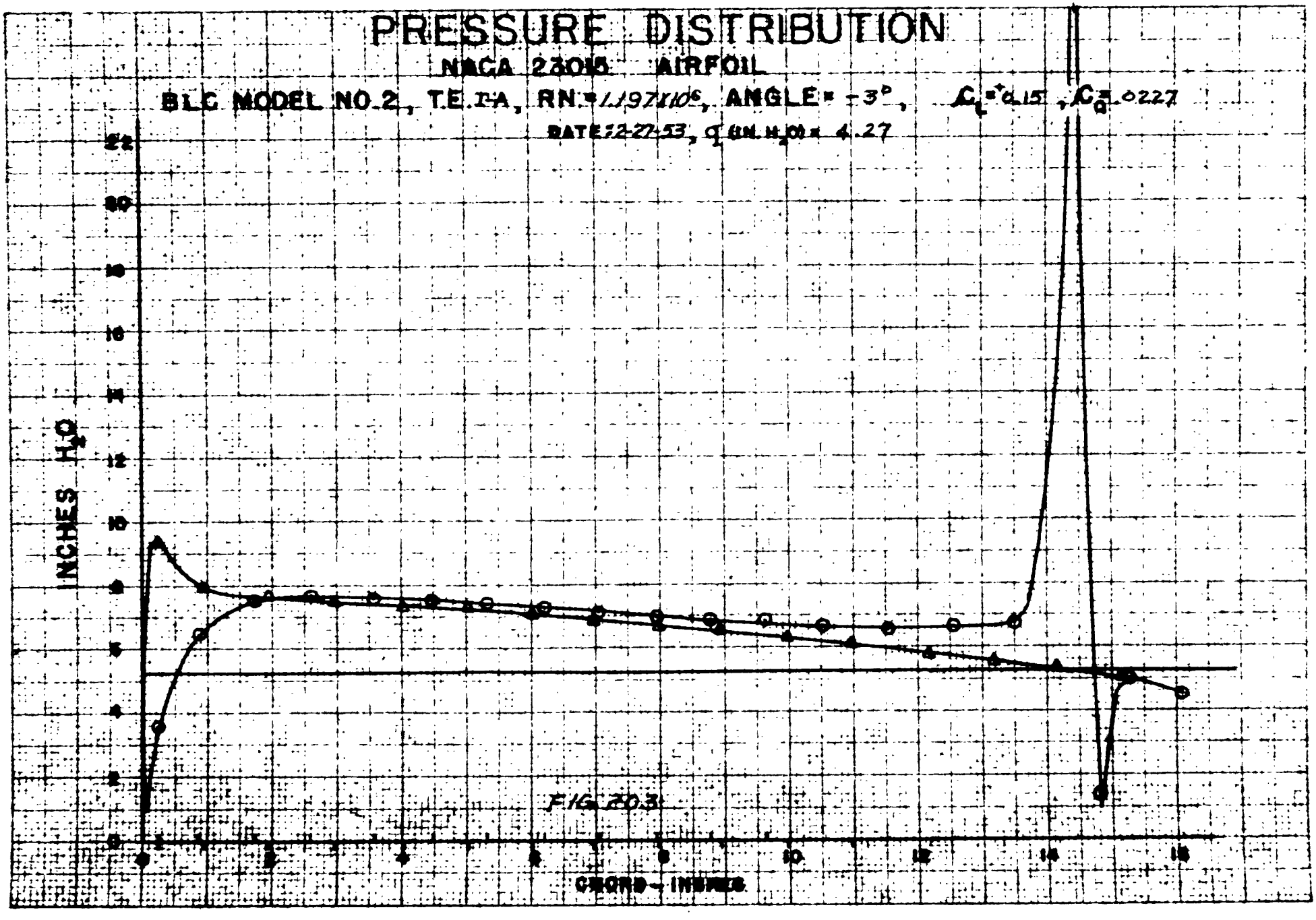
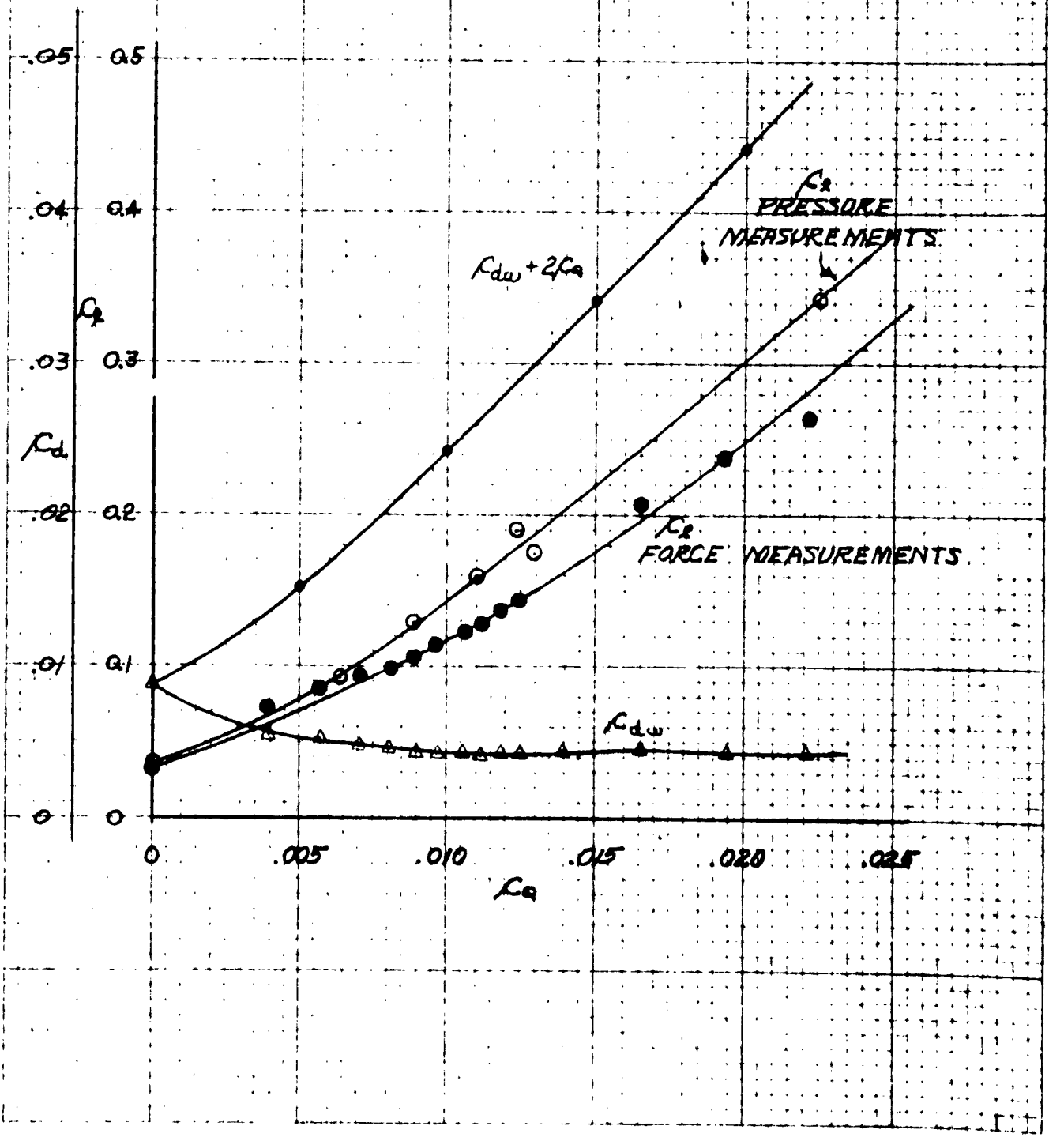


FIG. 20.3

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. = 1.197 x 10⁶ , ANGLE (α_i) = -1° , 2-25-53

FIG. - 204



389-12G KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.

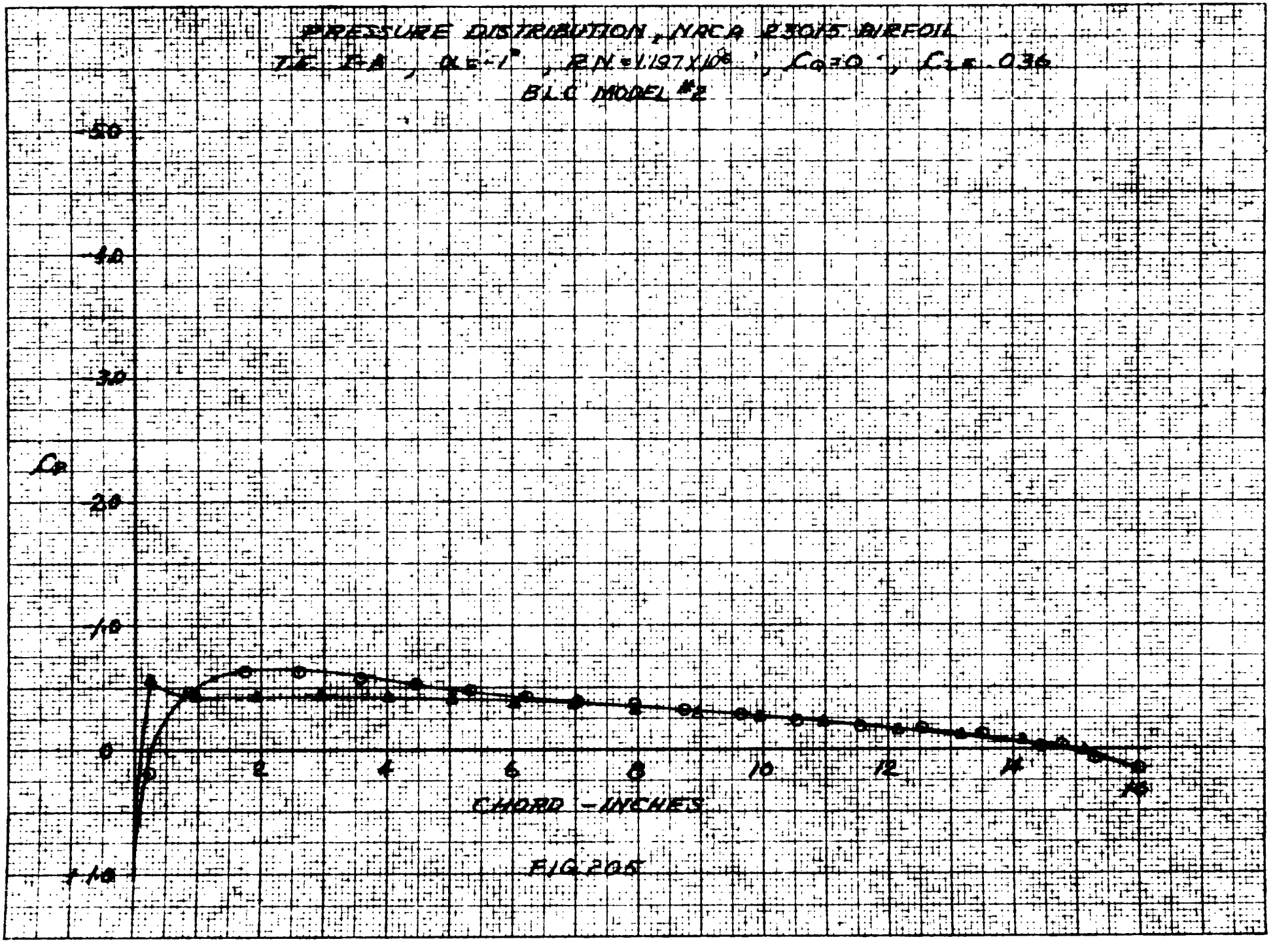


FIG 205

359-12G KEUFFEL & ESSER CO.
[illegible] to the ¼ Inch, 5th lines accented.
MADE IN U.S.A.

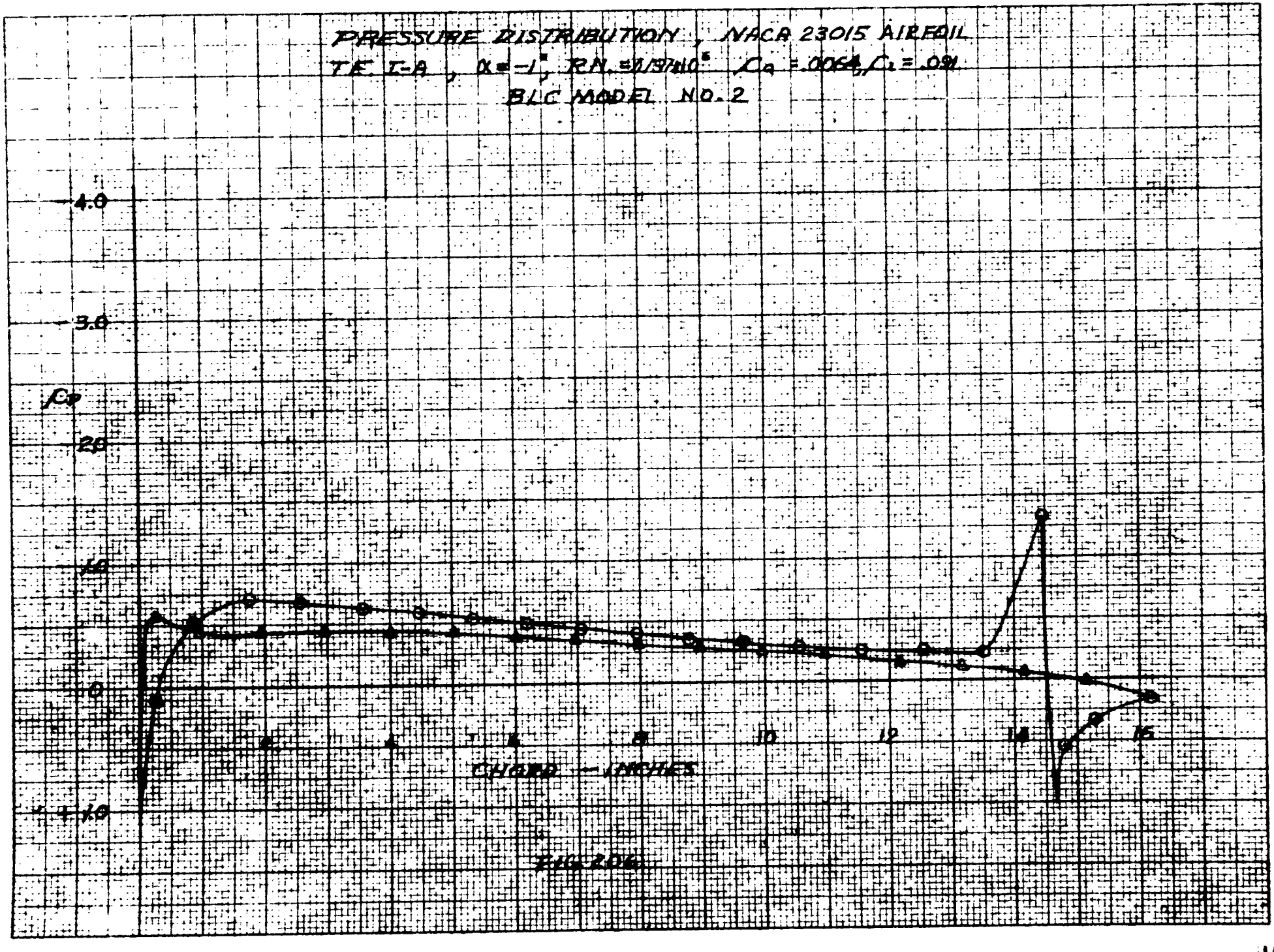
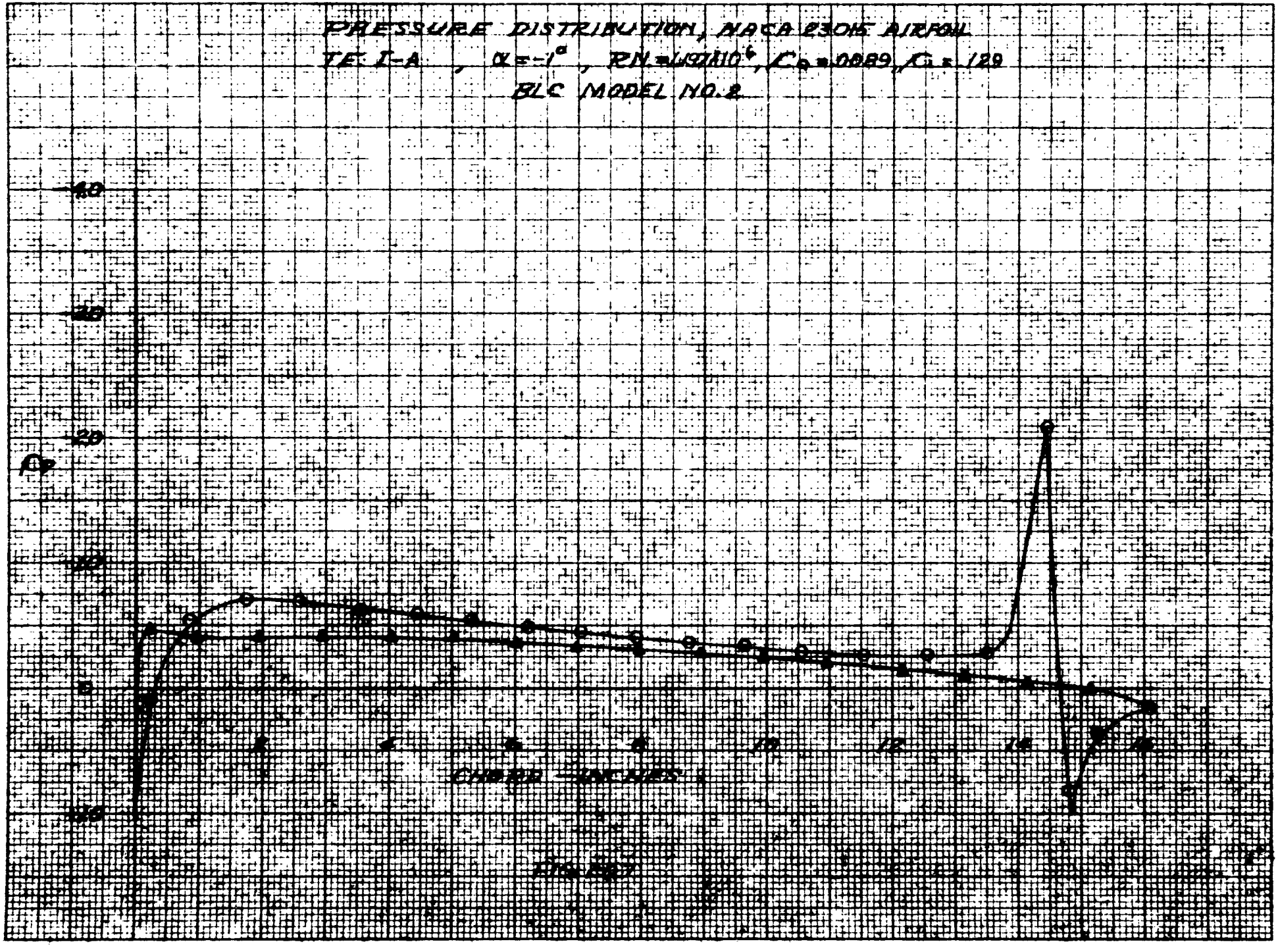


Fig 20b

359-13G KEUFFEL & ESSER CO
10 × 10 to the ½ inch, 5th lines accented
MADE IN U.S.A.



359 12G KEUFFEL & ESSER CO
10 X 10 to the ½ inch, 5th Lines accented
MADE IN U.S.A.

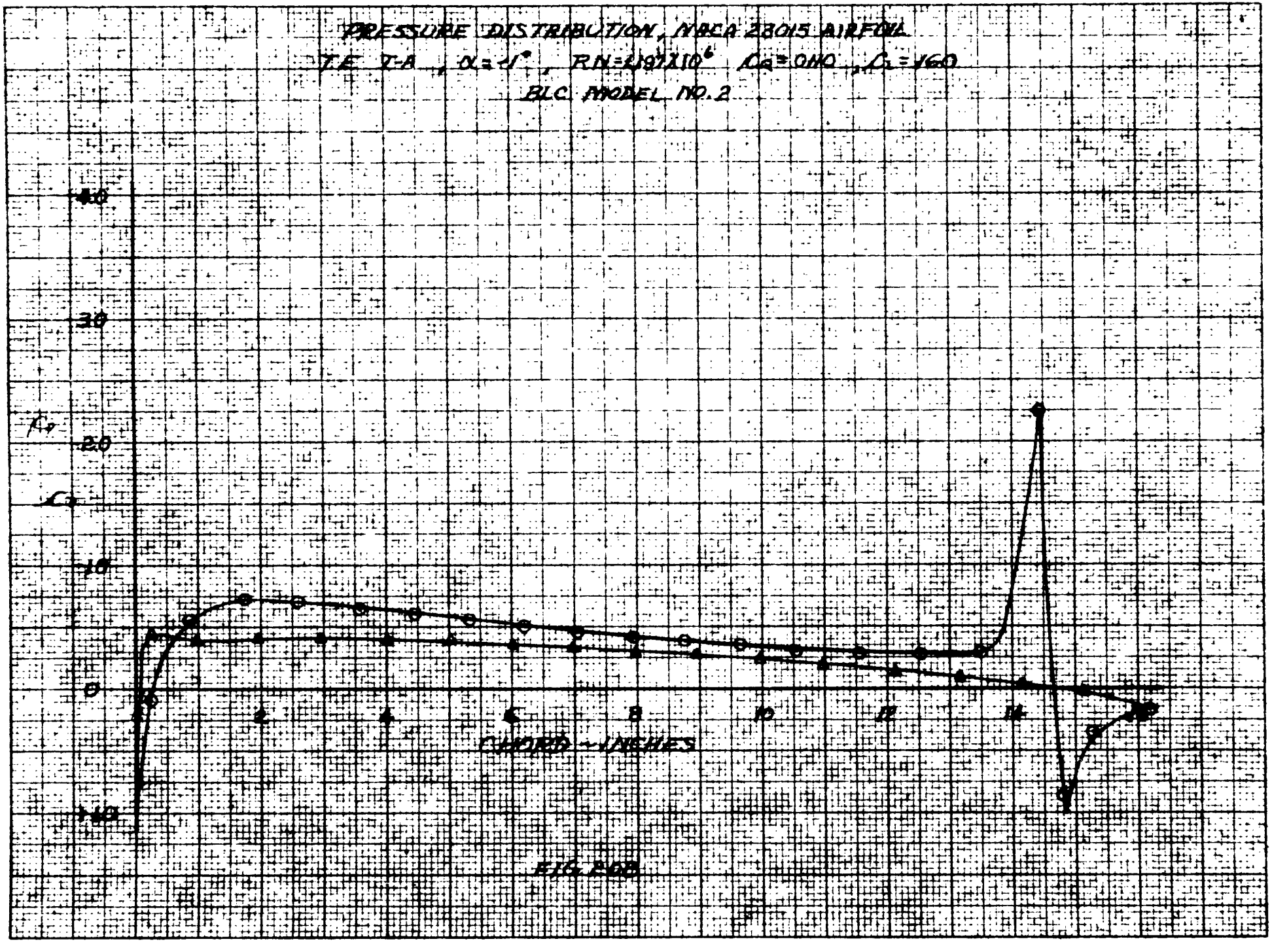


FIG. 20B

KEUFFEL & ESSER CO

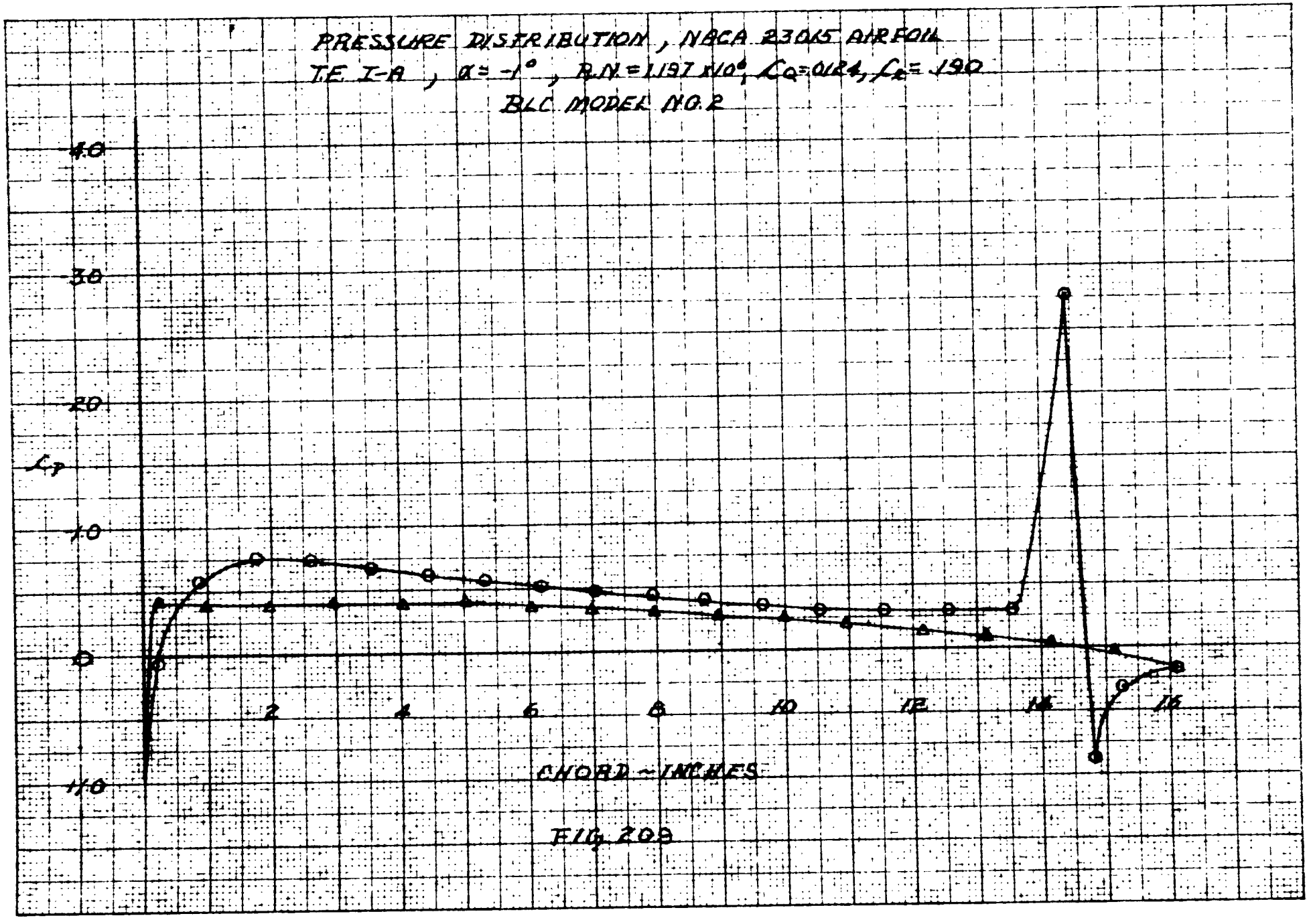


FIG. 209

359-12G KEUFFEL & ESSER CO
1 in. = 10 to the ½ inch, 5th lines accented

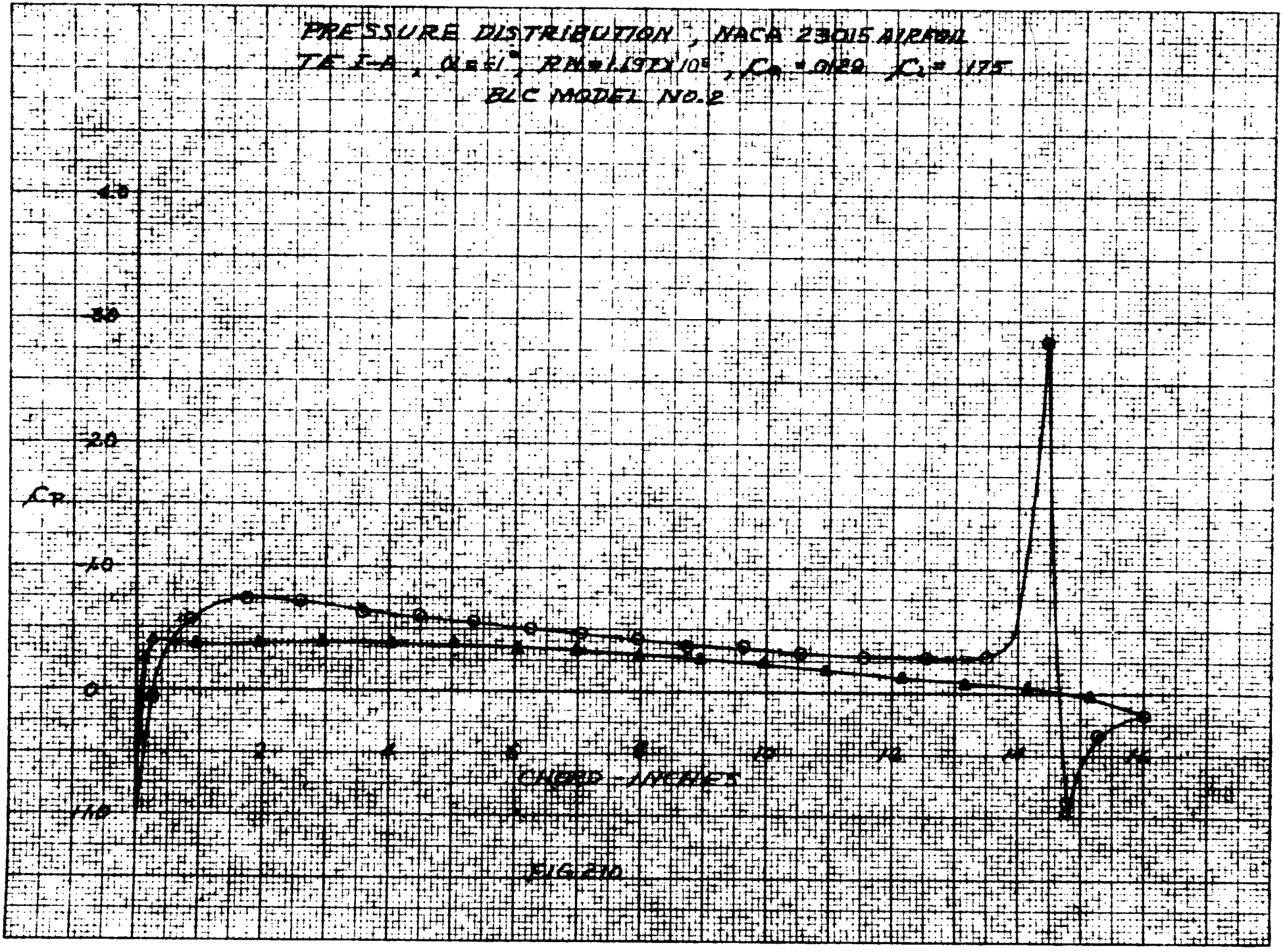
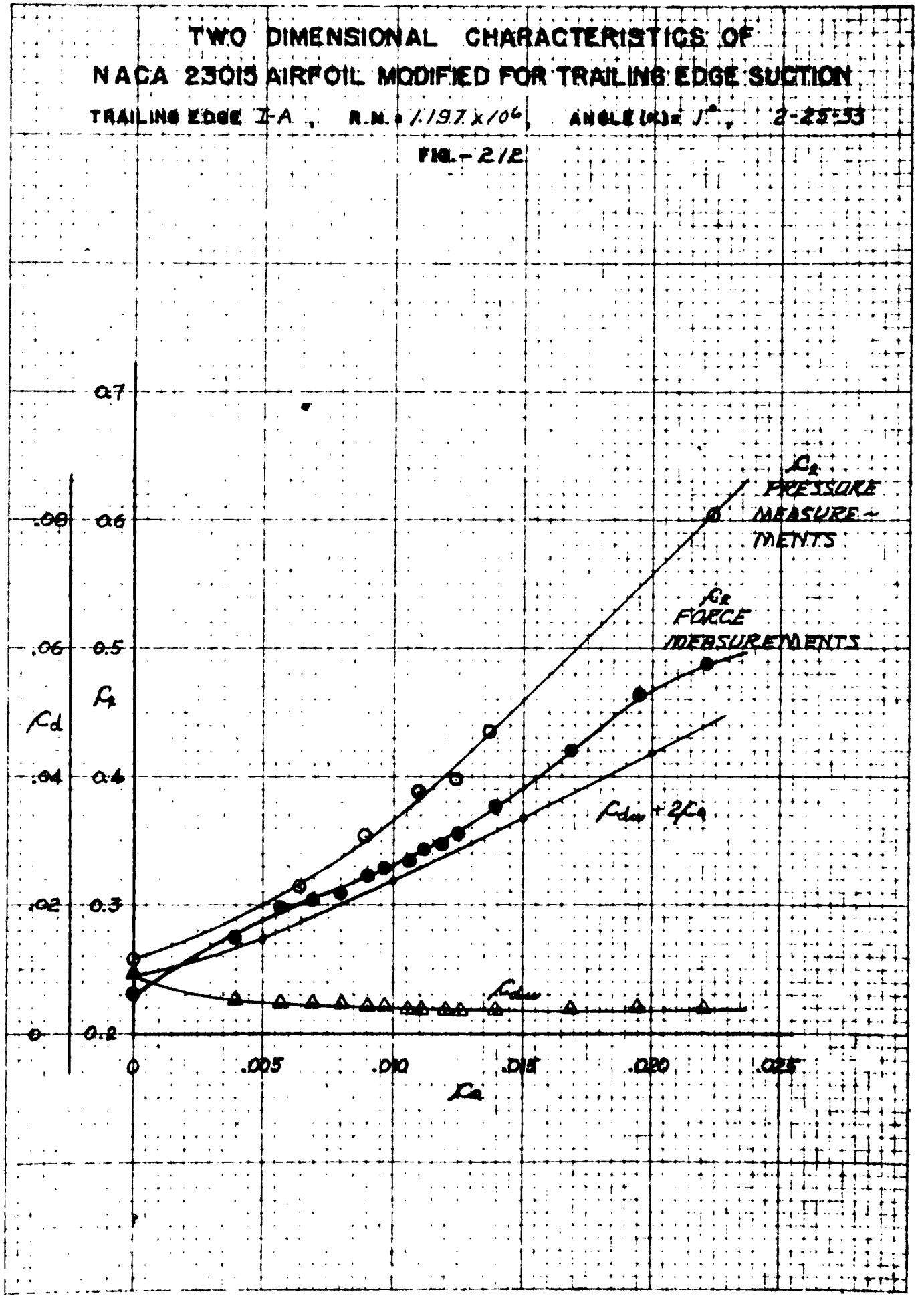


FIG. 21D

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. = 1.197 x 10^6, ANGLE (α) = 1°, 2-25-53

FIG. - 212



PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = +1°, C_L = 0.26, C_d = 0

DATE: 2-27-53, q (IN. H_2O) = 4.31

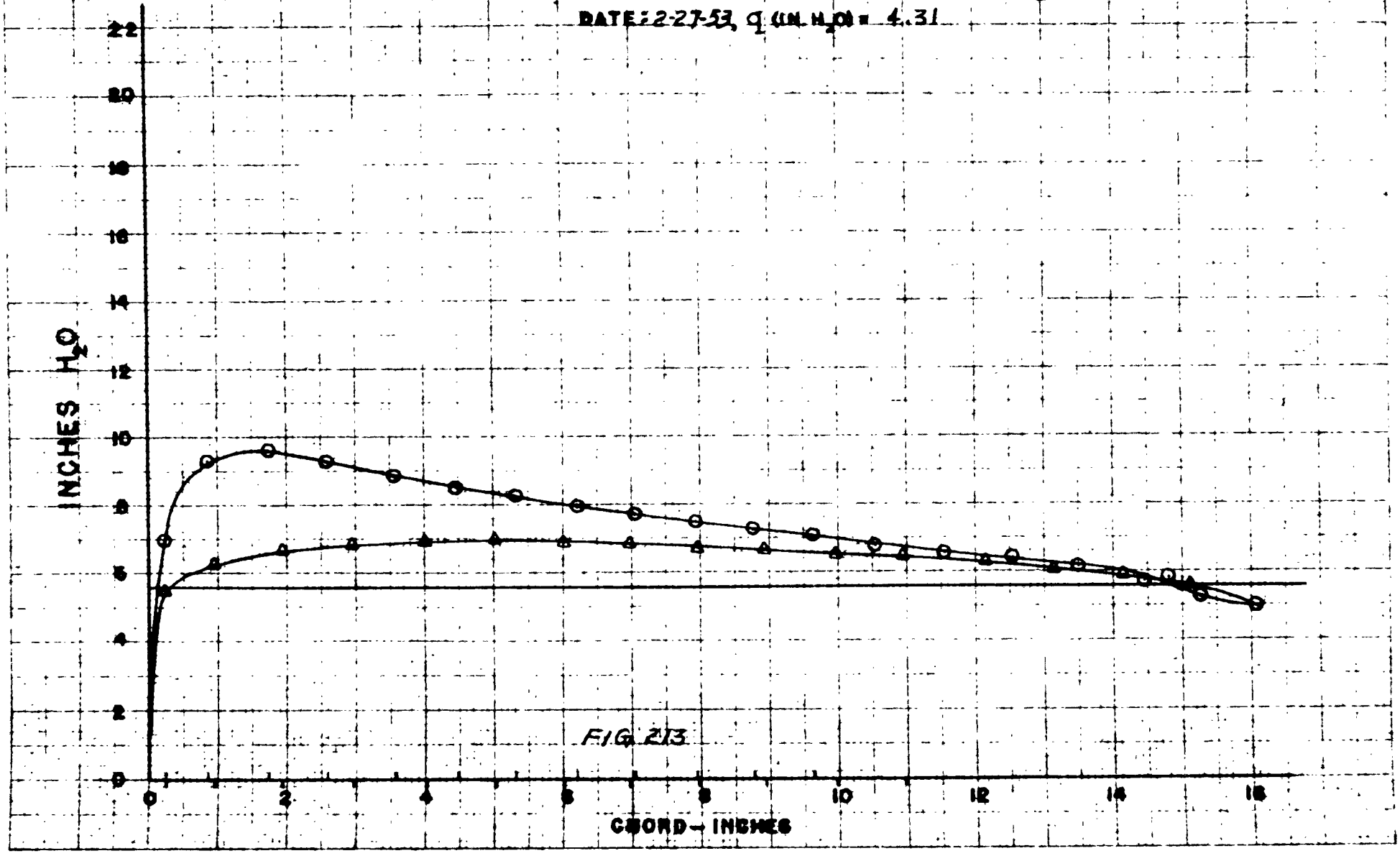


FIG. 213

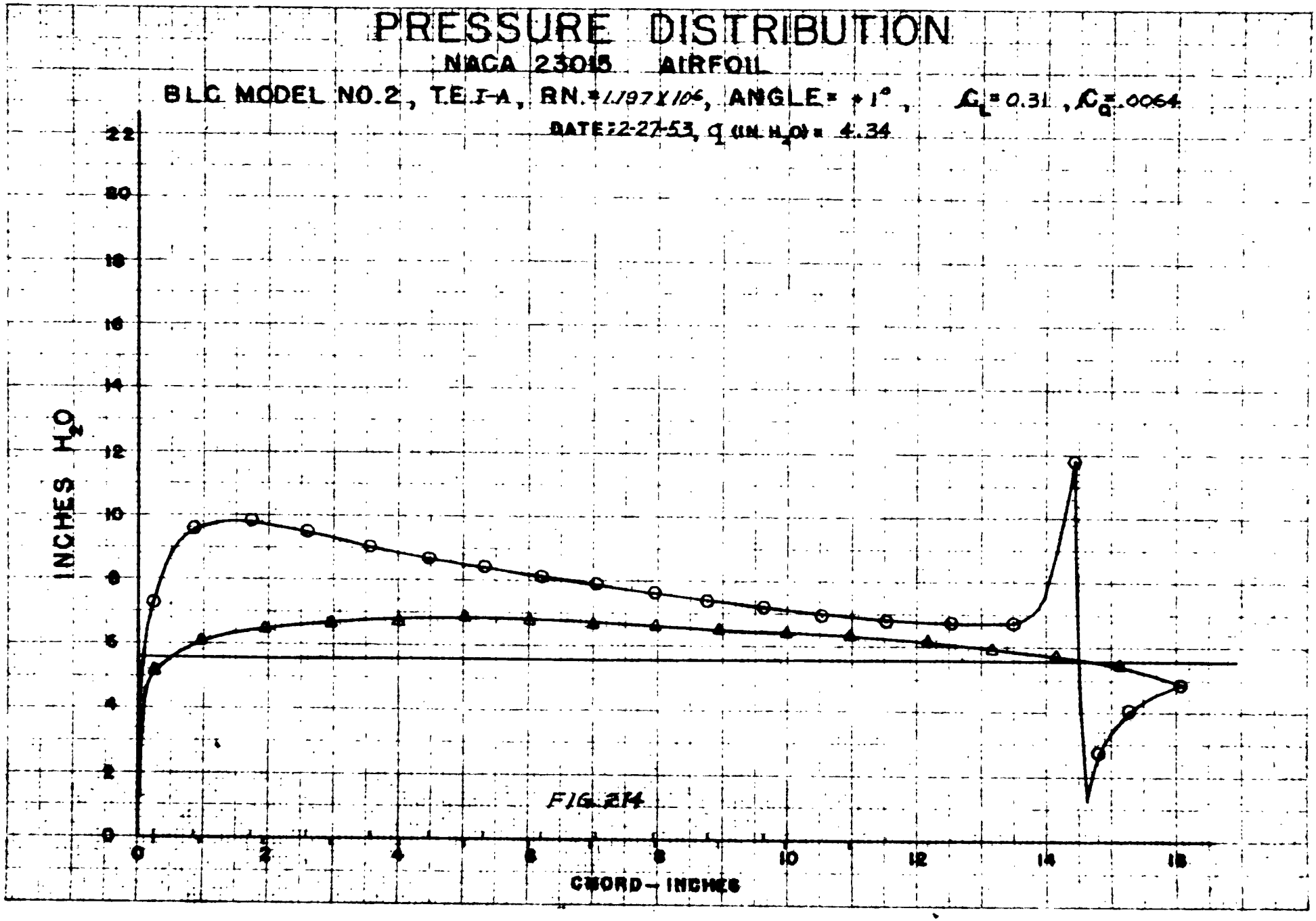

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E.I-A, RN.=1.197X10⁶, ANGLE= +1°, C_L=0.31, C_d=.0064
DATE=2-27-53, q (IN. H_2O)= 4.34
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 214

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = +1°, C_L = 0.35, C_d = .0089

DATE: 2-27-53, q (in. H_2O) = 4.31

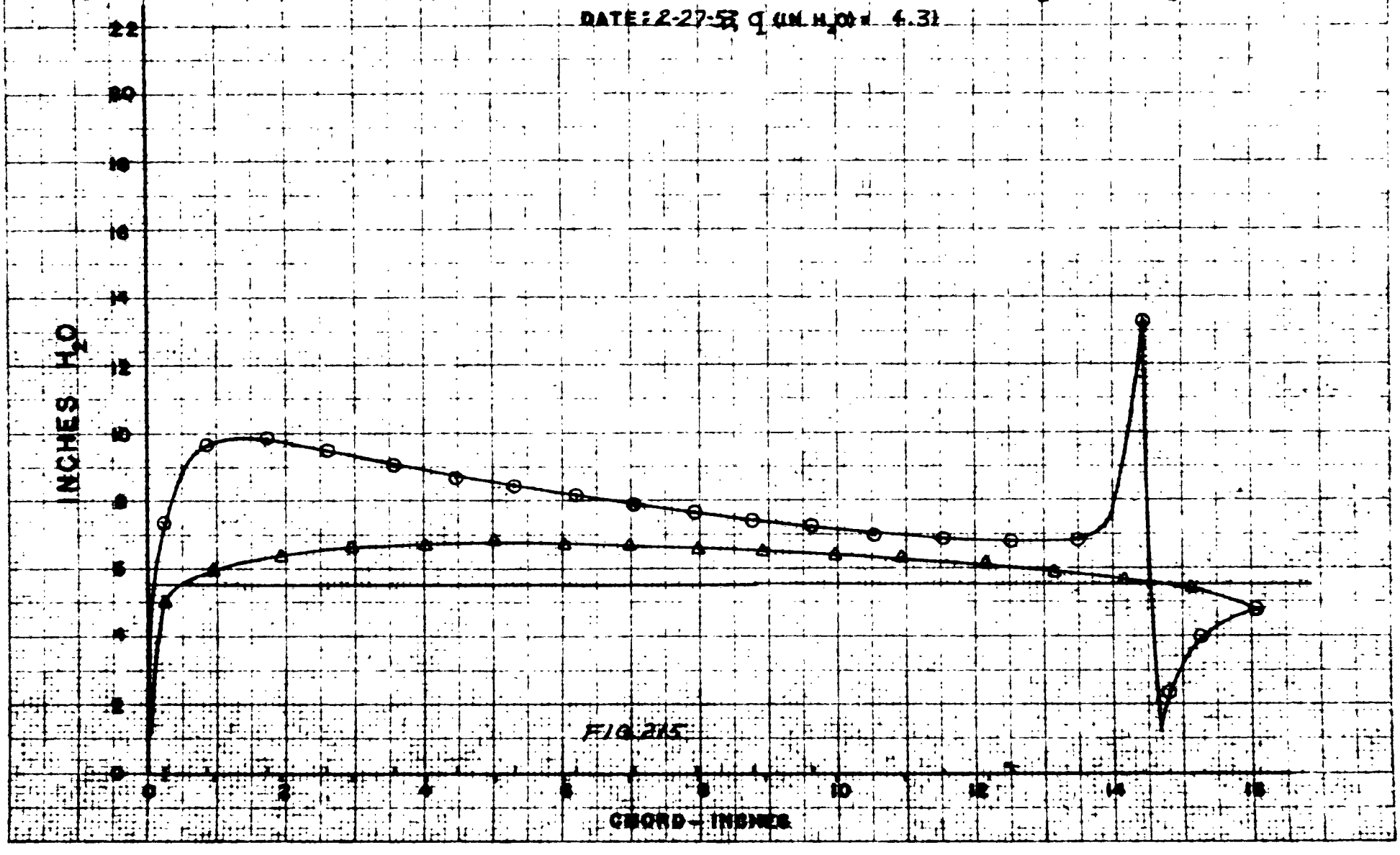


FIG. 21S

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = + 1°, C_L = 0.39, C_d = .0109

DATE: 2-27-53, q in H_2O = 4.34

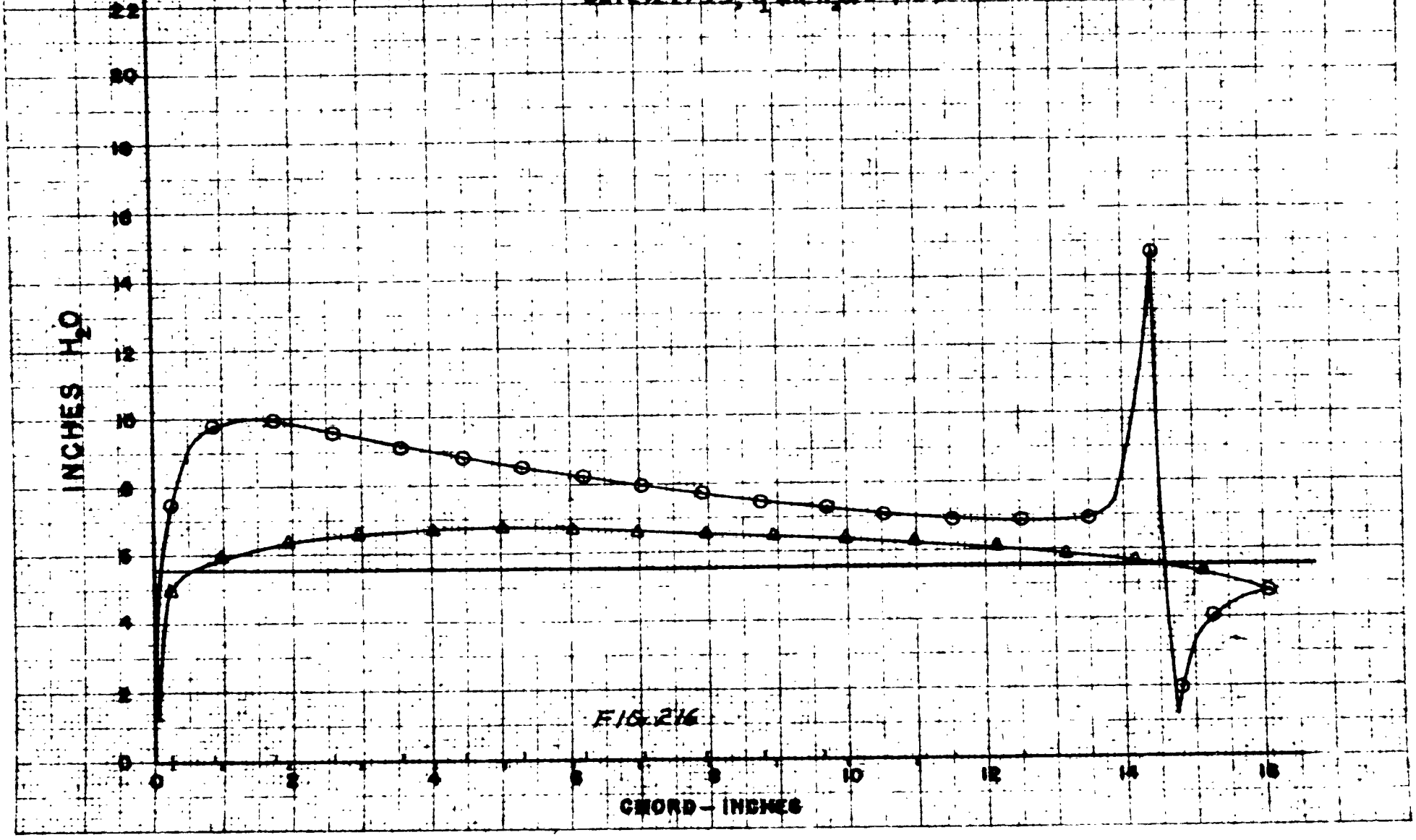


FIG. 216

KEUFFEL & ESSER CO
10 × 10 to the ½ inch, 5th lines accented.

PRESSURE DISTRIBUTION

NACA 23006 AIRFOIL

M.I.T. MODEL NO. 2, T.E. [illegible], RN = 1,193,000, ANGLE = +1°, C_L = 0.44, C_D = 0.023

DATE 12-22-53, q_{84} = 4.37

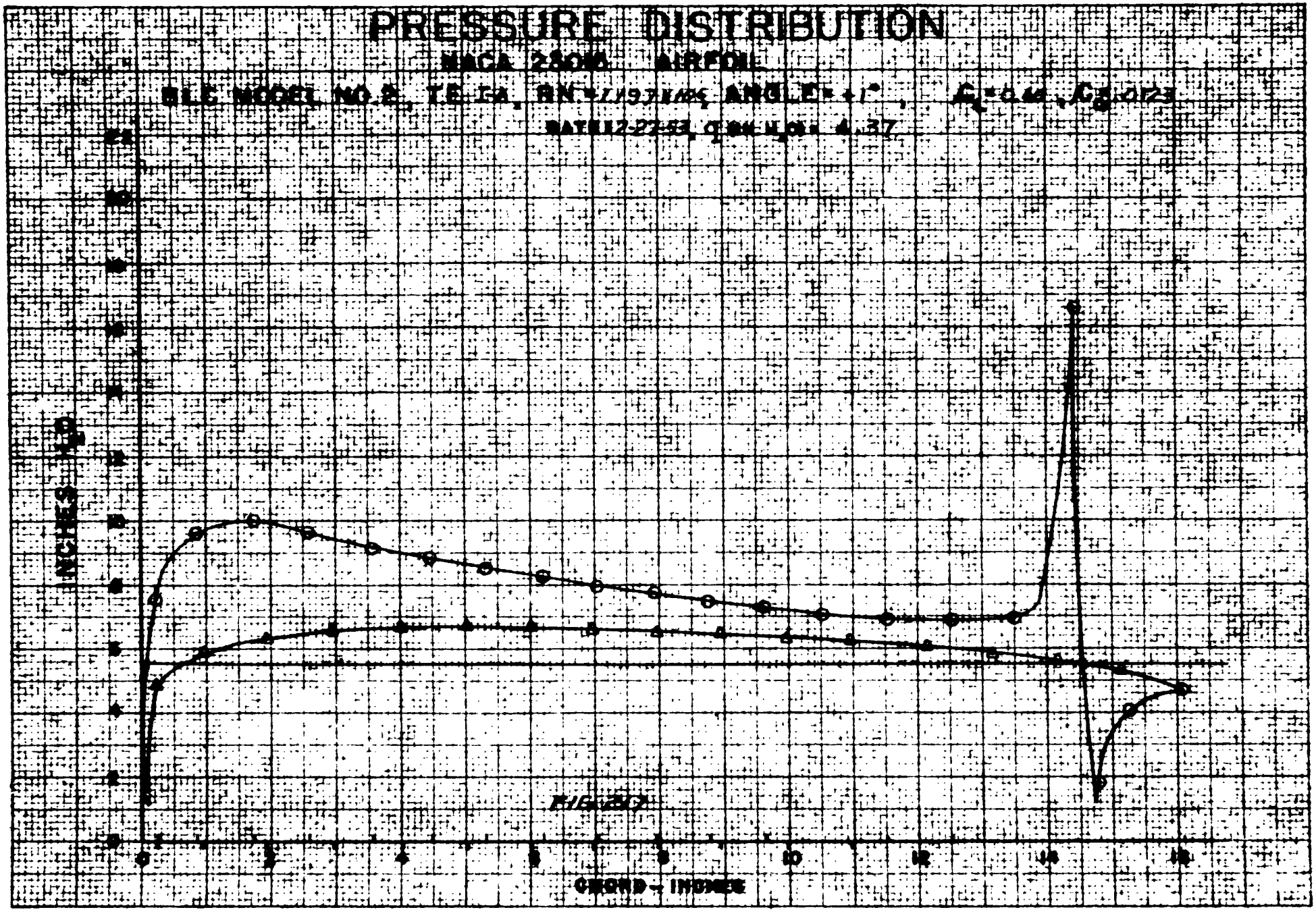


FIG. 25

KEUFFEL & ESSER CO

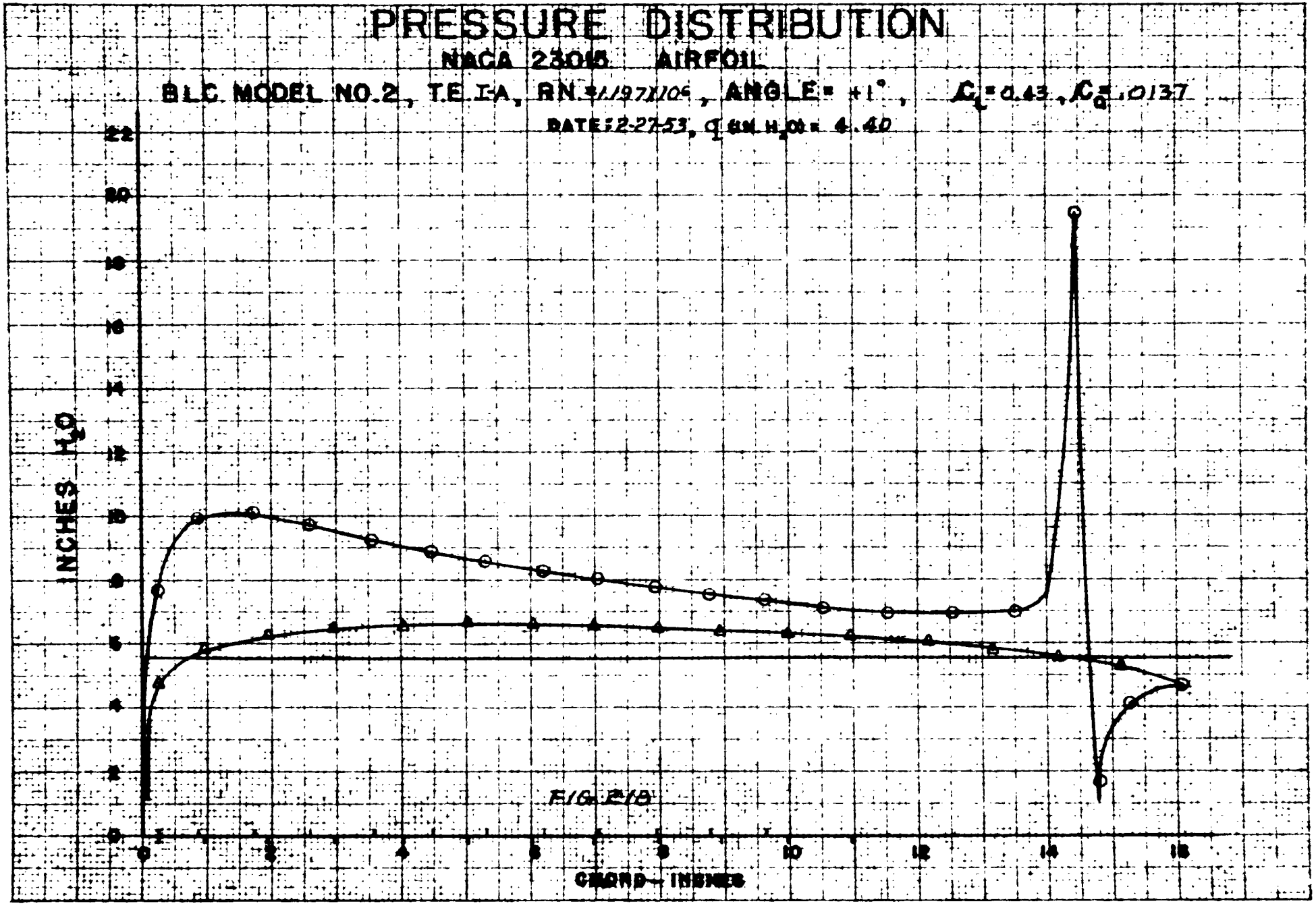


FIG. 21B

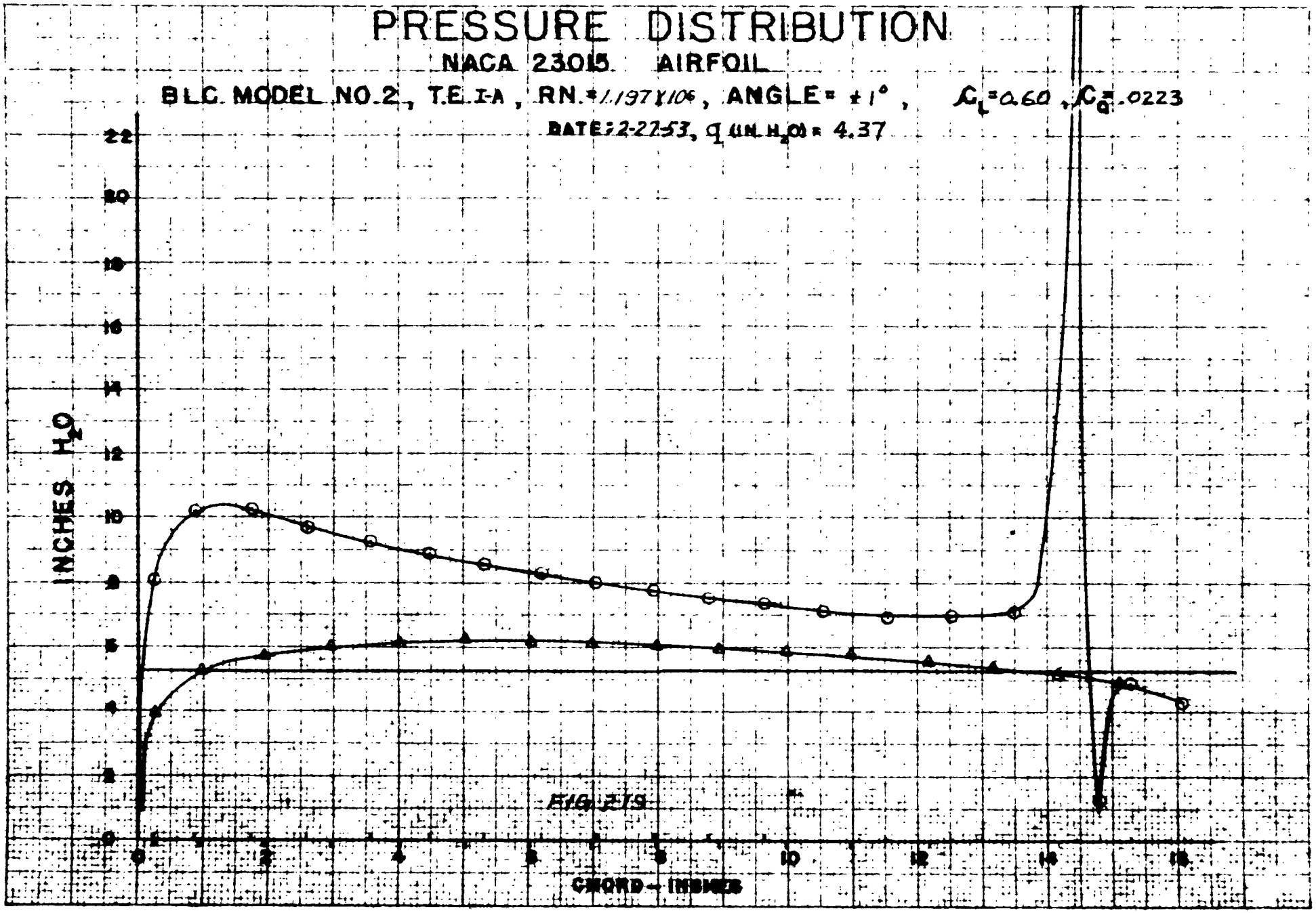
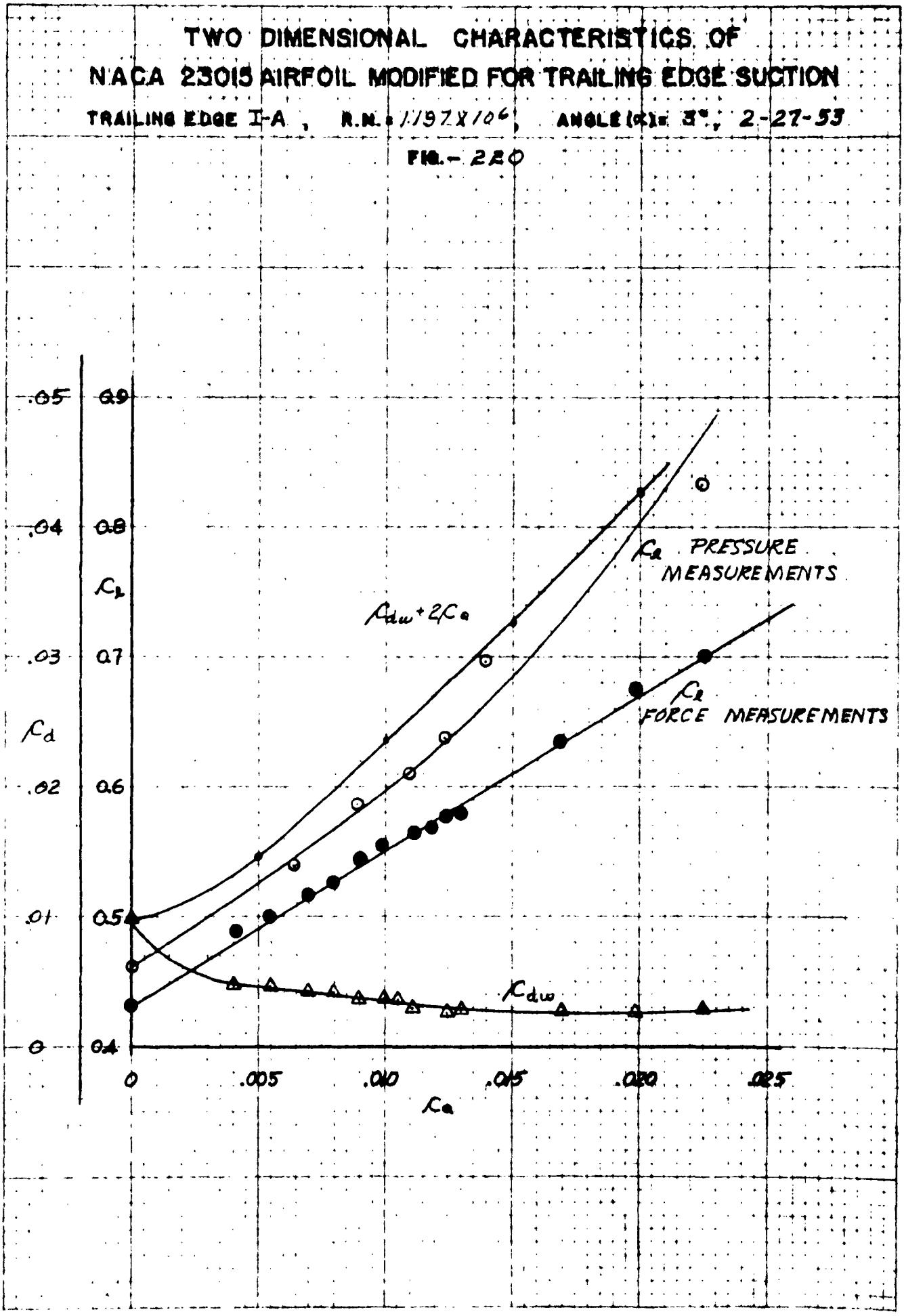

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN.=1.197X10⁶, ANGLE= +1°, C_L=0.60, C_d=.0223
DATE: 2-27-53, q (IN. H_2O) = 4.37
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 21a

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. = 1.197 X 10⁶, ANGLE (α) = 3°, 2-27-53

FIG. - 220



KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1,197,110, ANGLE = 3°, C_L = 0.46, C_d = 0

DATE: 2-27-53, q in. H_2O = 4.34

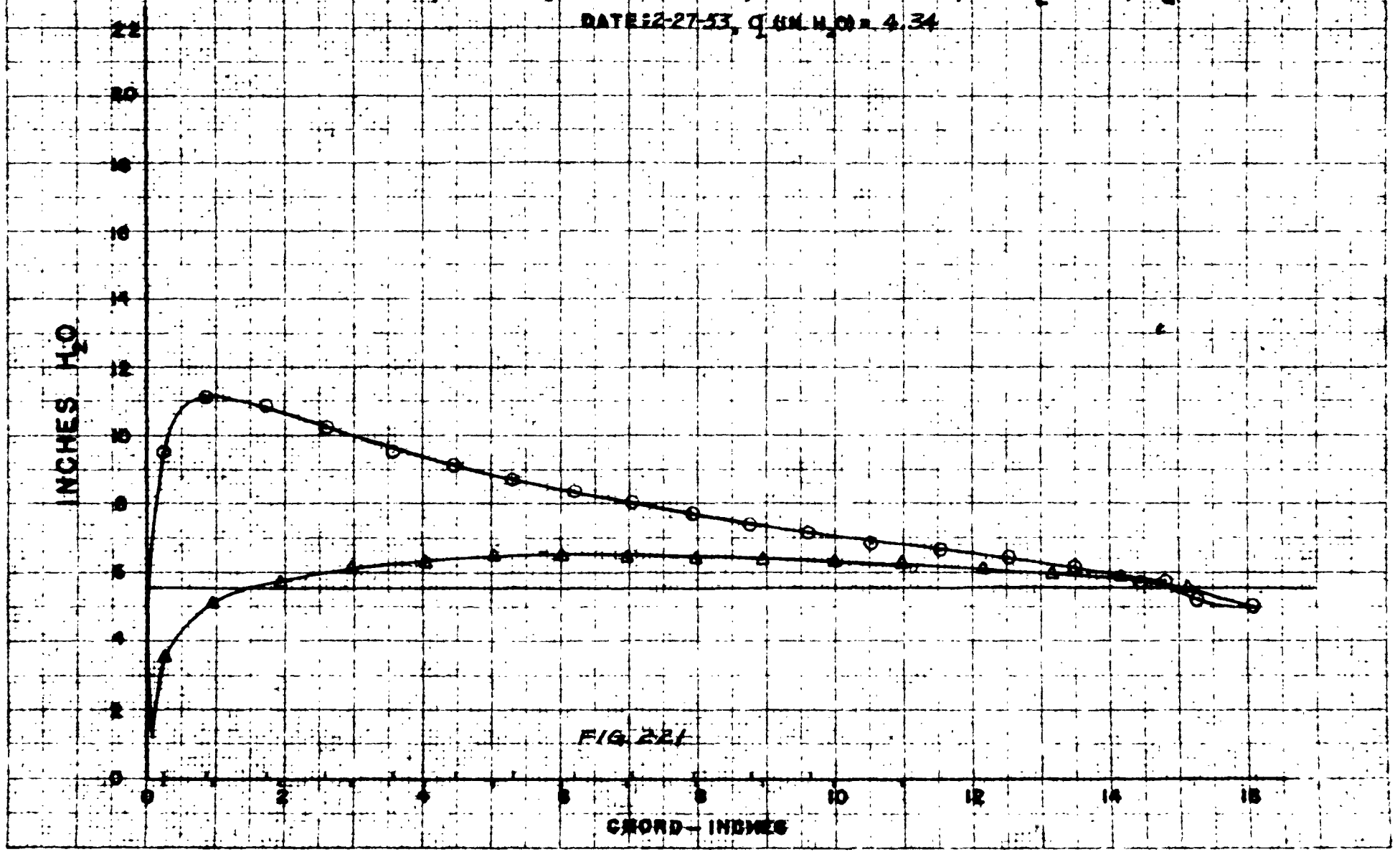


FIG. 22I

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.19 X 10^6, ANGLE = 3°, C_L = 0.54, C_D = .0064

DATE: 12-27-53, q (in H_2O) = 4.33

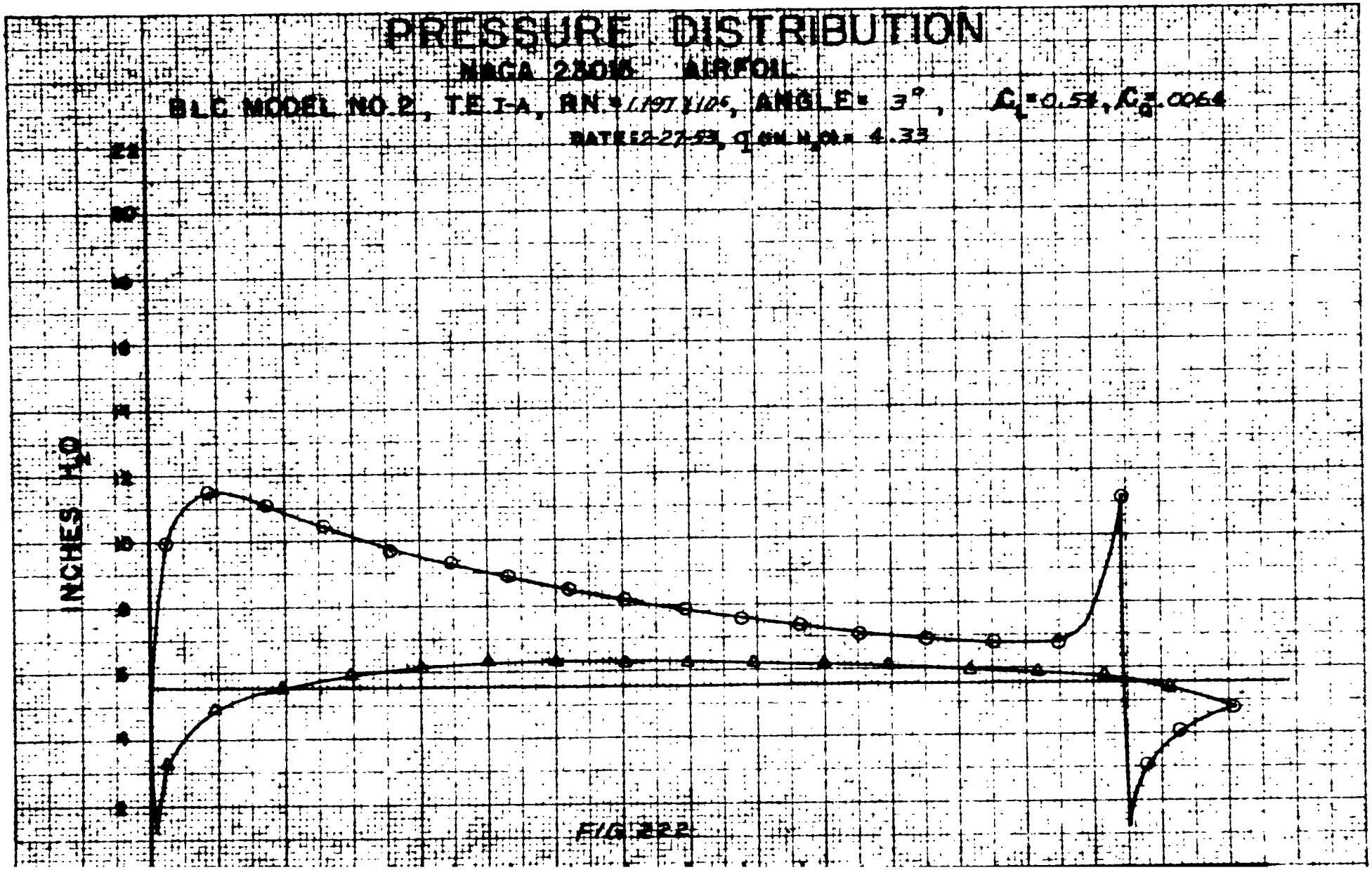


FIG 222

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = 3°, C_L = 0.59, C_d = .0089

DATE: 12-27-53, q (IN H_2O) = 4.33

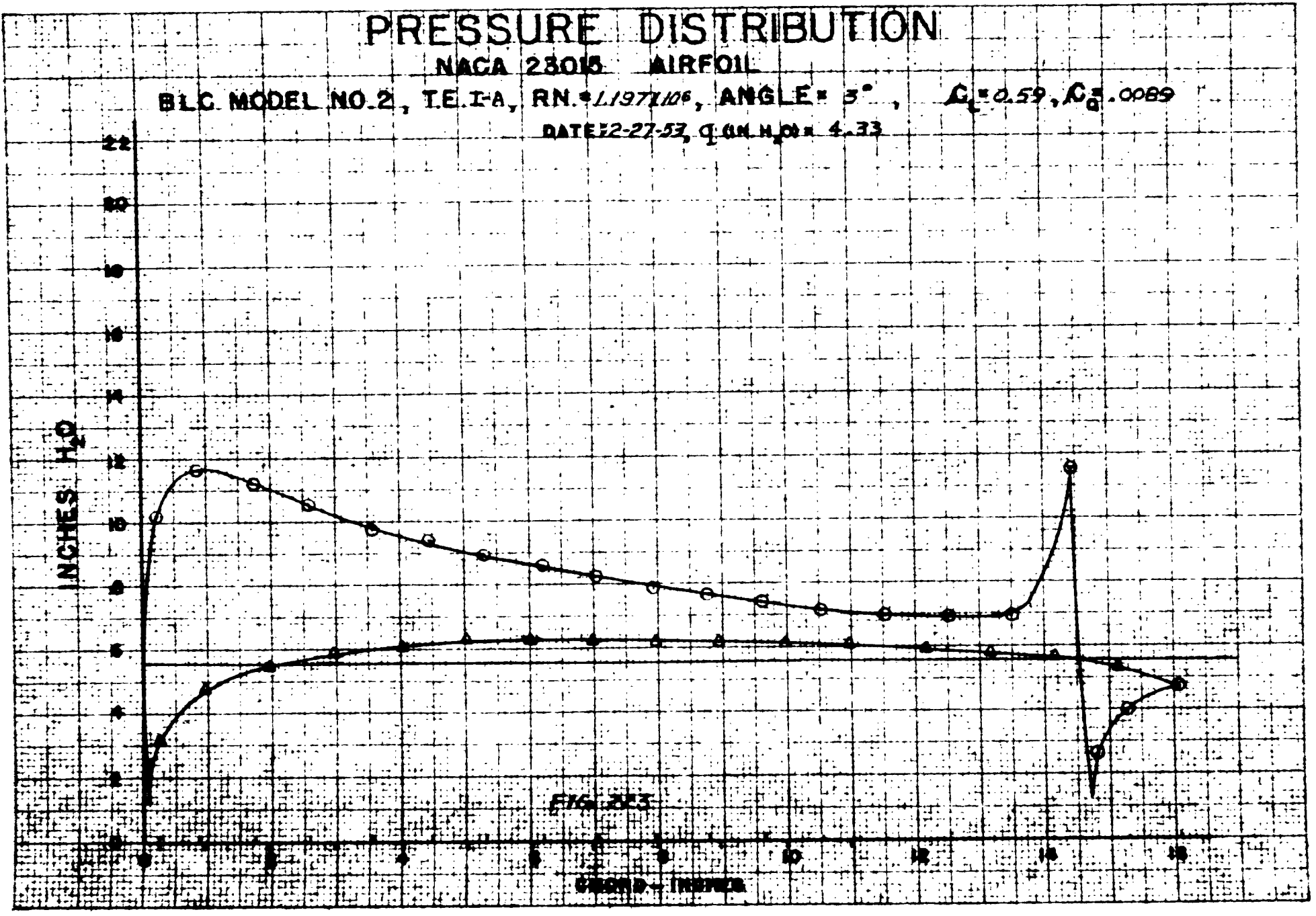


FIG. 2C3

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, R.N. = 1.197 X 10^6, ANGLE = 3°, C_L = 0.61, C_d = .0109

DATE: 2-27-53, q in. H_2O = 4.35

INCHES H_2O

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1197 X 10^6, ANGLE = 3°, C_L = 0.61, C_d = .0109

DATE: 12-27-53, q (in H_2O) = 4.35

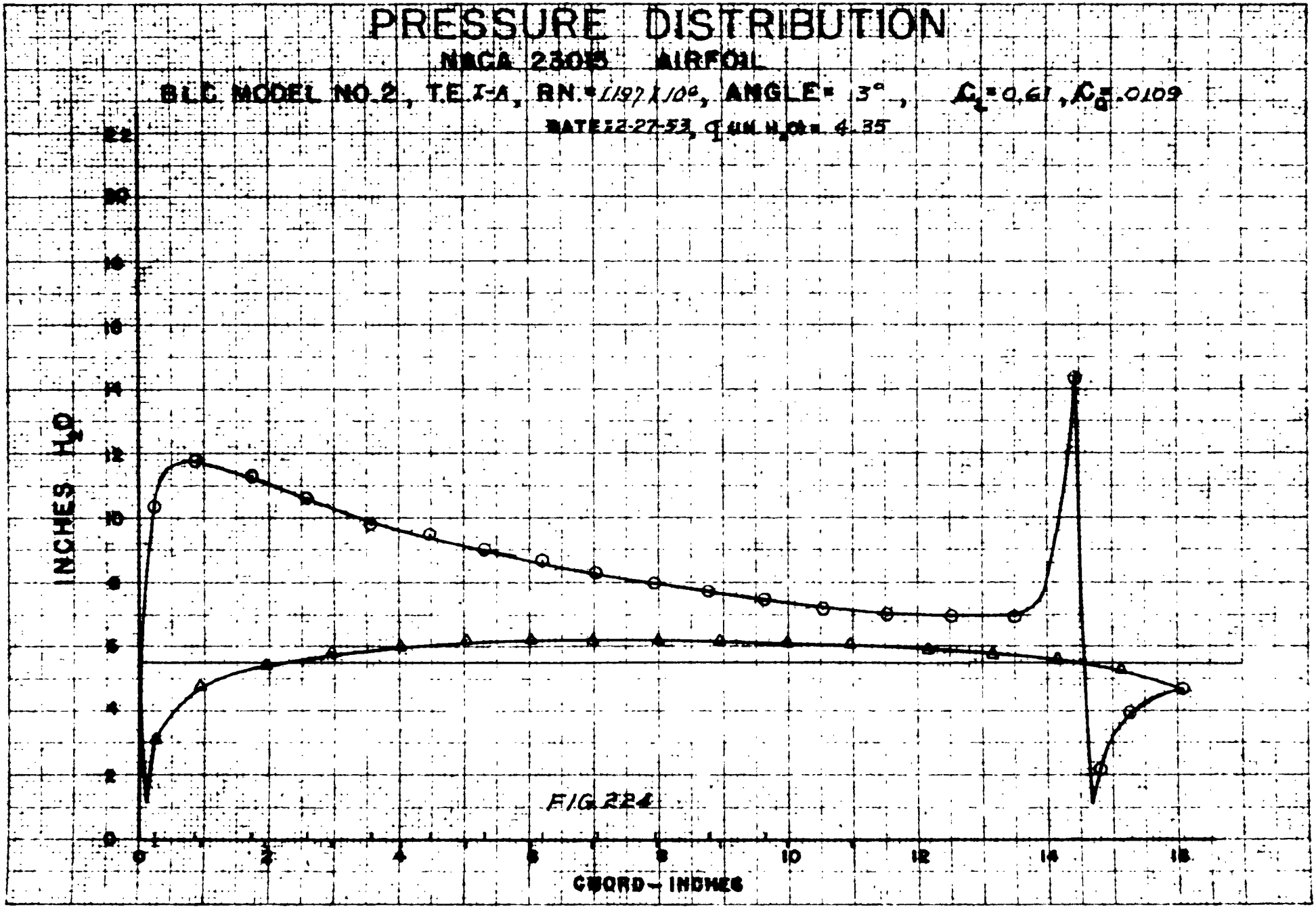


FIG. 224

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 4.197 / 10^6, ANGLE = 3°, C_L = 0.64, C_d = .0123

DATE: 2-27-53, q (IN. H_2O) = 4.35

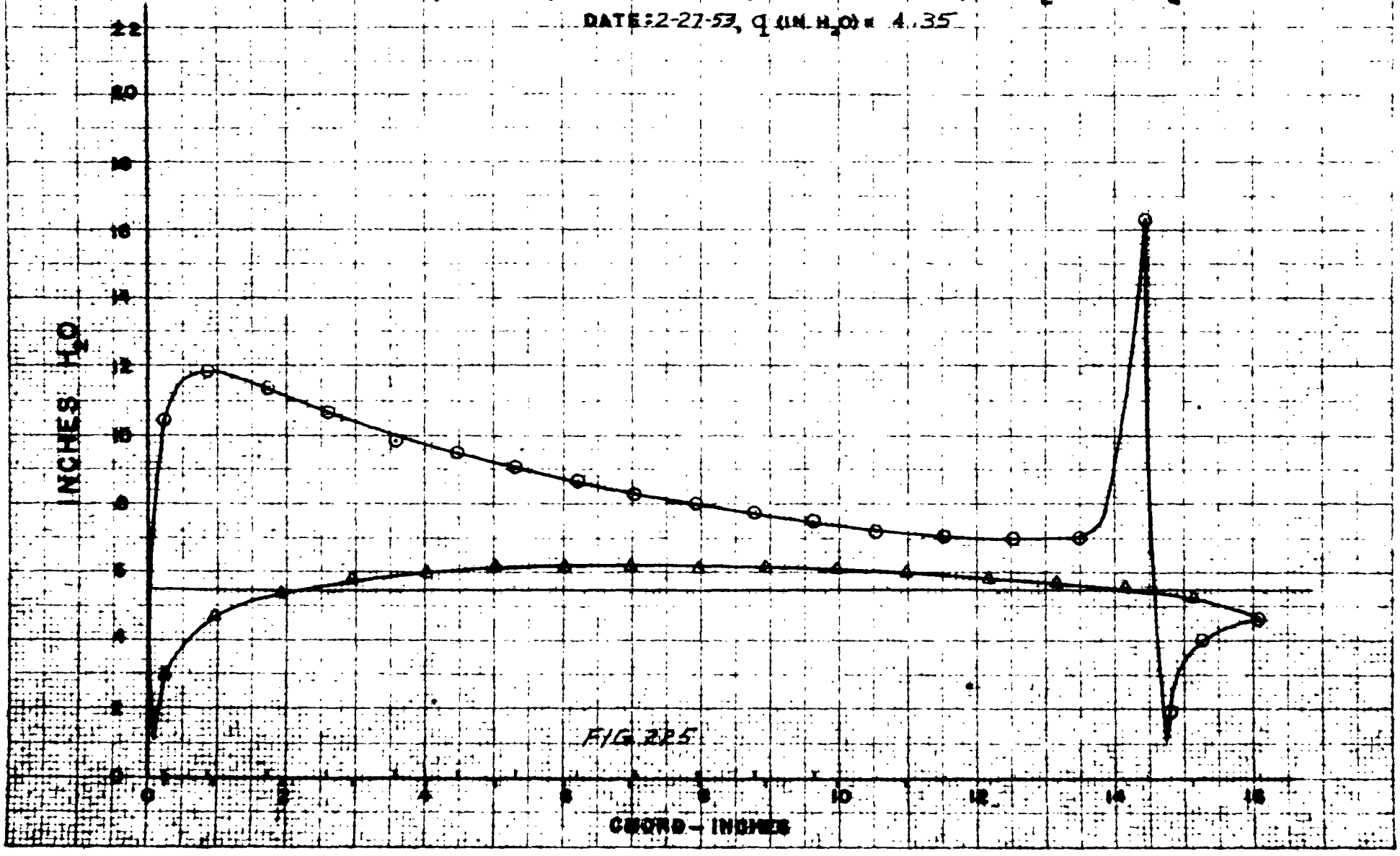


FIG. 225

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 3°, C_L = 0.70, C_D = .0139

DATE: 2-27-53, q IN H_2O = 4.33

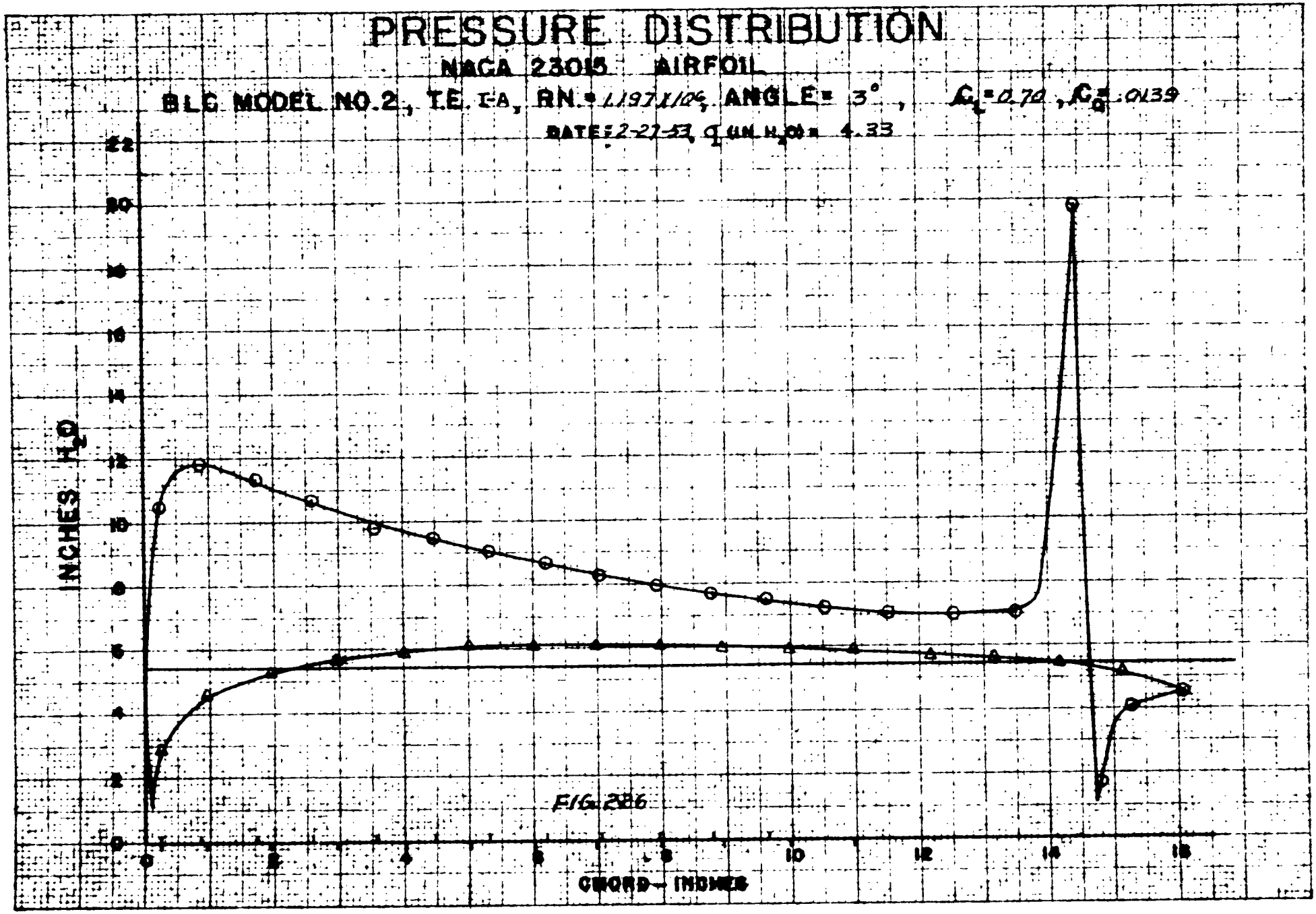


FIG. 226

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = 3°, C_l = 0.83, C_d = .0223

DATE 12-22-53, q (IN. H_2O) = 4.35

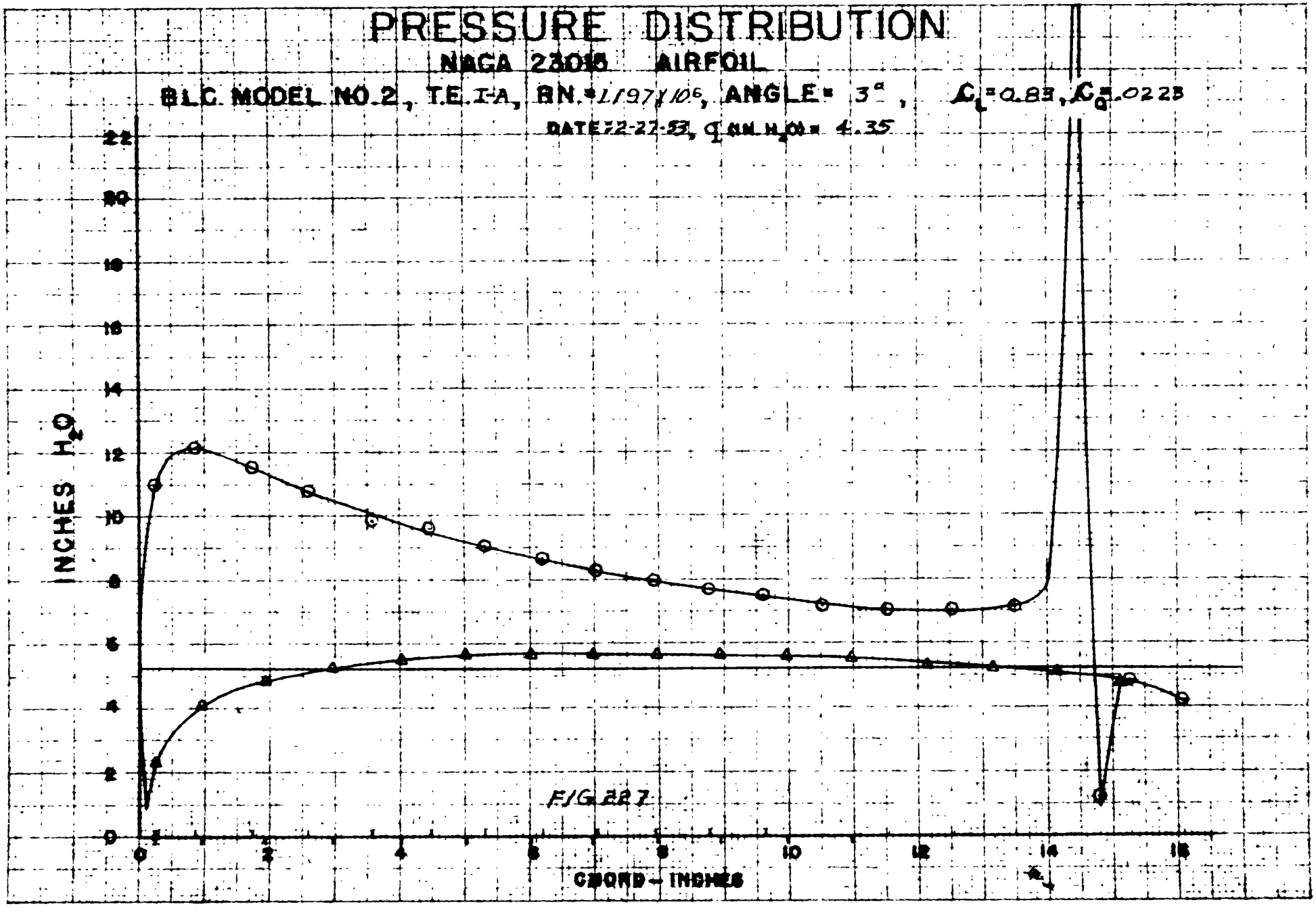
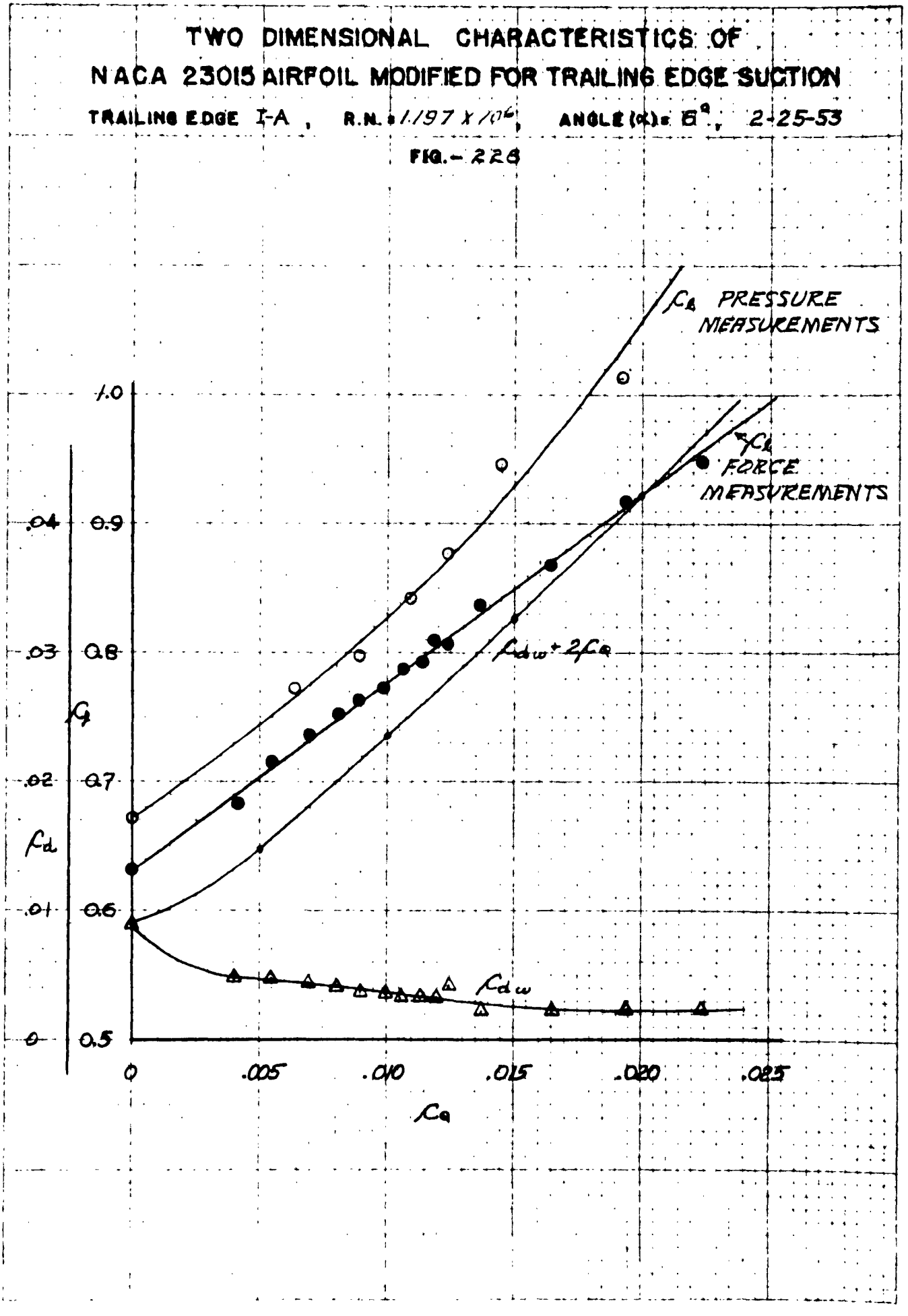


FIG 22.7

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. = 1.197 X 10⁶, ANGLE (α) = 6°, 2-25-53

FIG. - 228



389-12G KEUFFEL & ESSER CO.
10 X 10 to the ½ inch, 5th lines accented

PRESSURE DISTRIBUTION, NACA 23015 AIRFOIL
T.E. I.A., $\alpha = 5°$, $R_N = 1.9 \times 10^6$, $\epsilon_R = 0$, $C_L = .672$
B.L.C. MODEL NO. 2

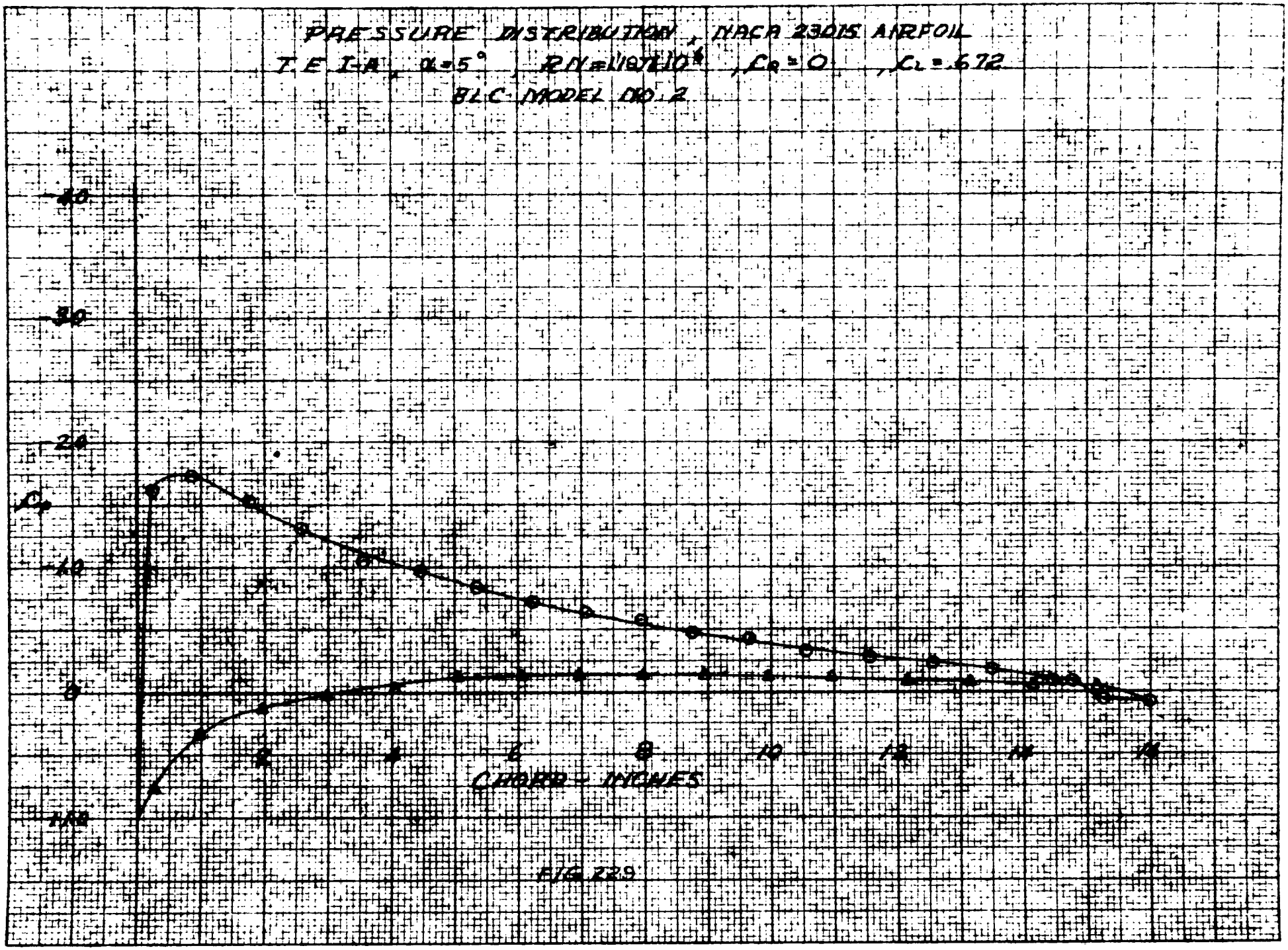


FIG. R29

PRESSURE DISTRIBUTION, NACA 23015 AIRFOIL
T.E. I-A, $\alpha = 5°$, $R_N = 1.97 \times 10^6$, $C_D = .0463$, $C_L = .774$
B.L.C. MODEL NO. 2

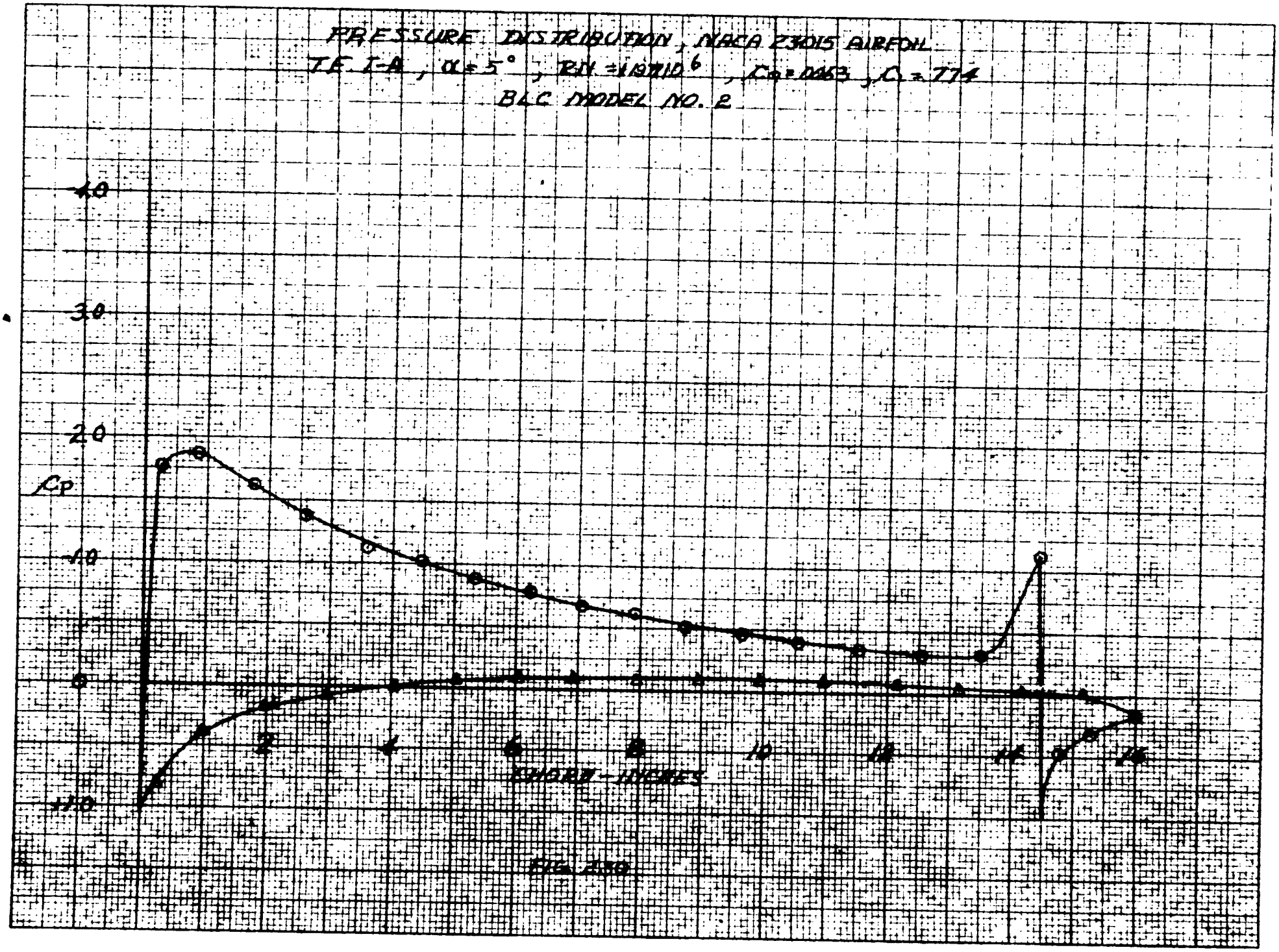
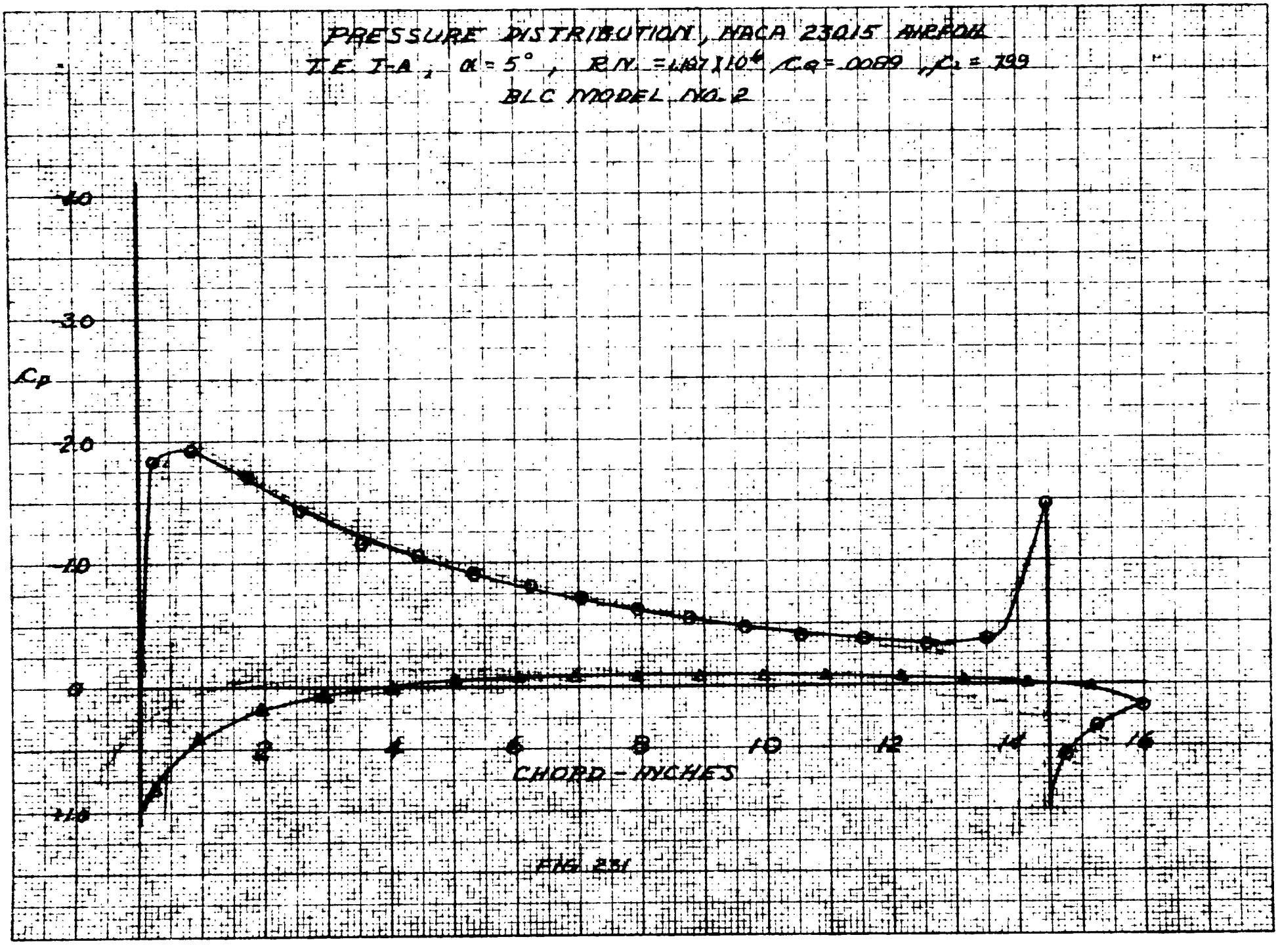


FIG. 23D

SBV-12G KEUFFEL & ESSER CO.
10 to the ½ inch, 5th lines accented



359-12G KEUFFEL & ESSER CO.
1 IN. X 10 to the ½ inch, 5th lines accented
MADE IN U.S.A.

PRESSURE DISTRIBUTION, NACA 23015 AIRFOIL
T.E. T-A, $\alpha = 5°$, $RN = 1197116^{6}$, $C_D = .0109$, $C_L = .842$
BLC MODEL NO. 2

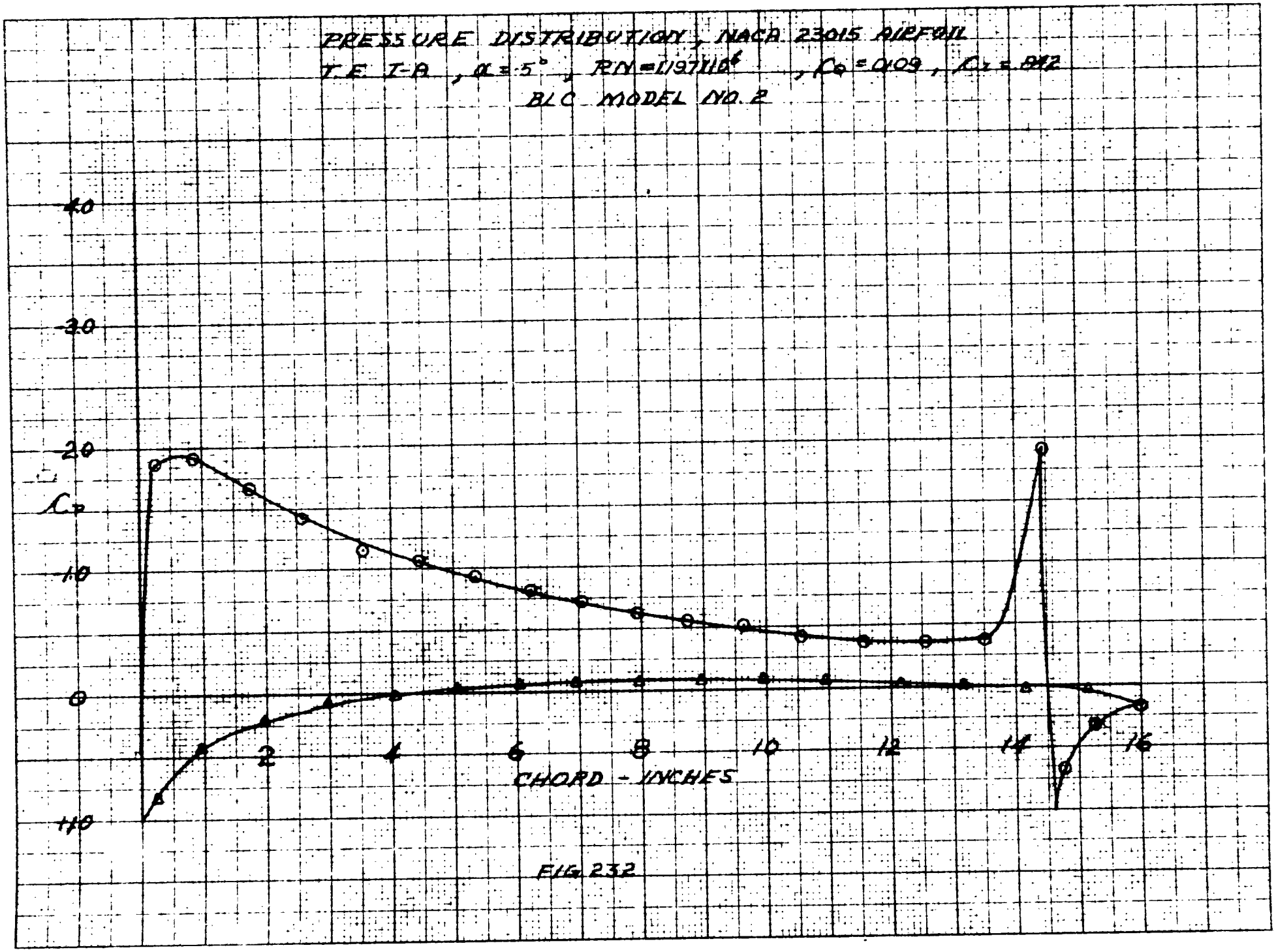


FIG. 232

359-12G KEUFFEL & ESSER CO.

PRESSURE DISTRIBUTION, NACA 23015 AIRFOIL
TE I-A, $\alpha = 5°$, $R.N. = 1.197 \times 10^6$ $c_d = .014$ $c_l = .878$
BLC MODEL NO. 2

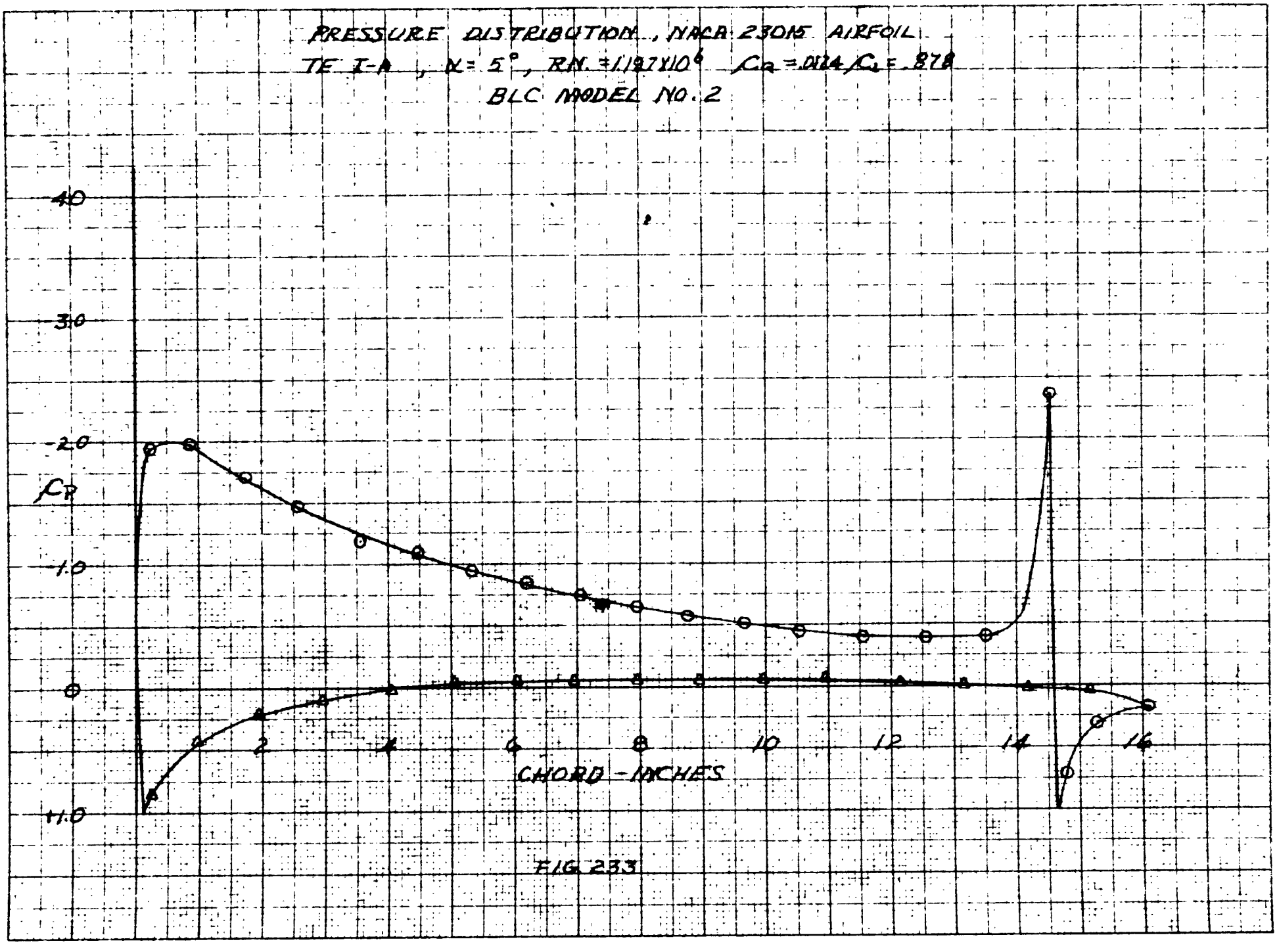


FIG 233

359-120 KEUFFEL & ESSER CO.
Made in the U.S.A.

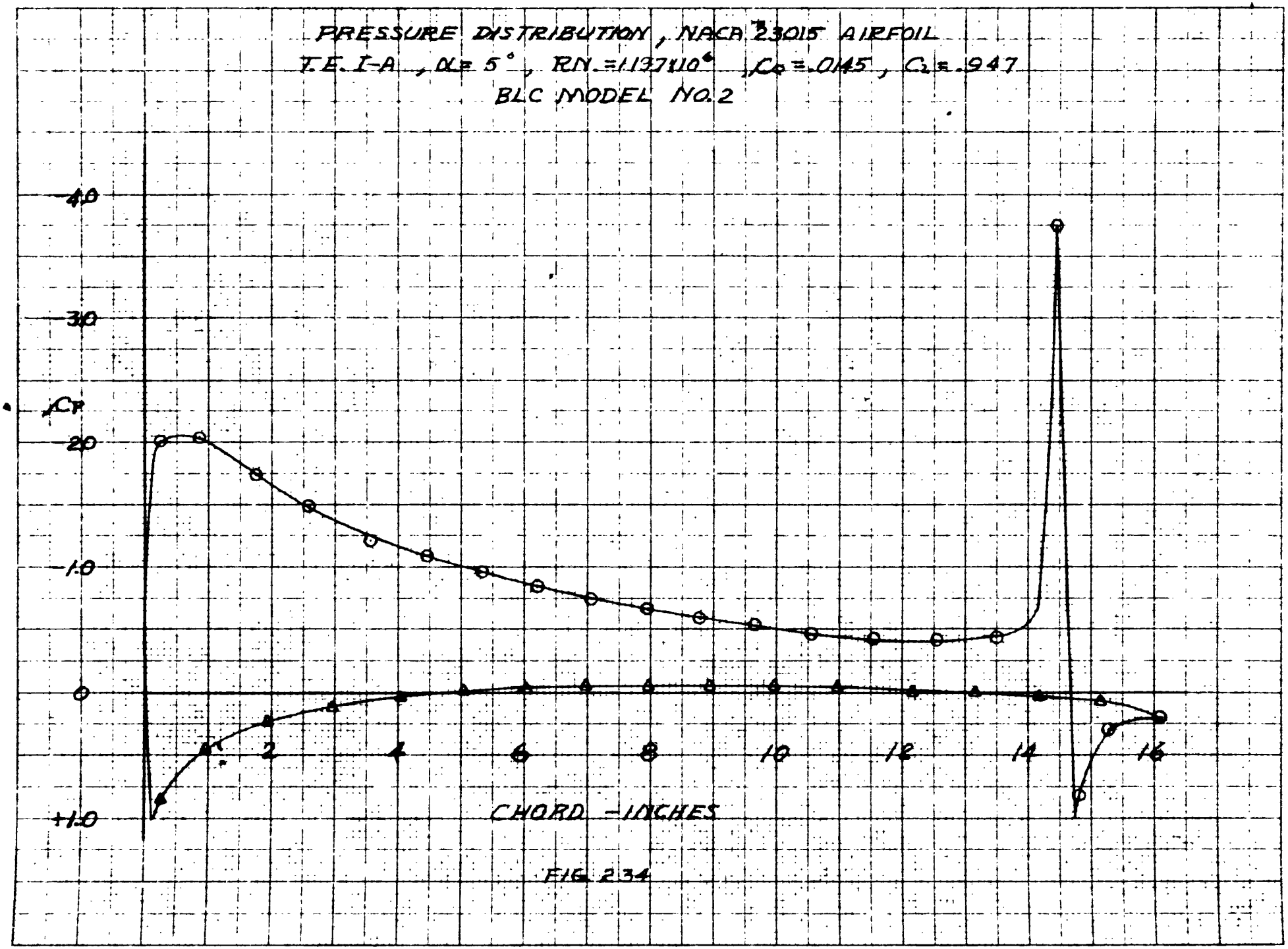


FIG. 234

359 12G KEUFFEL & ESSER CO

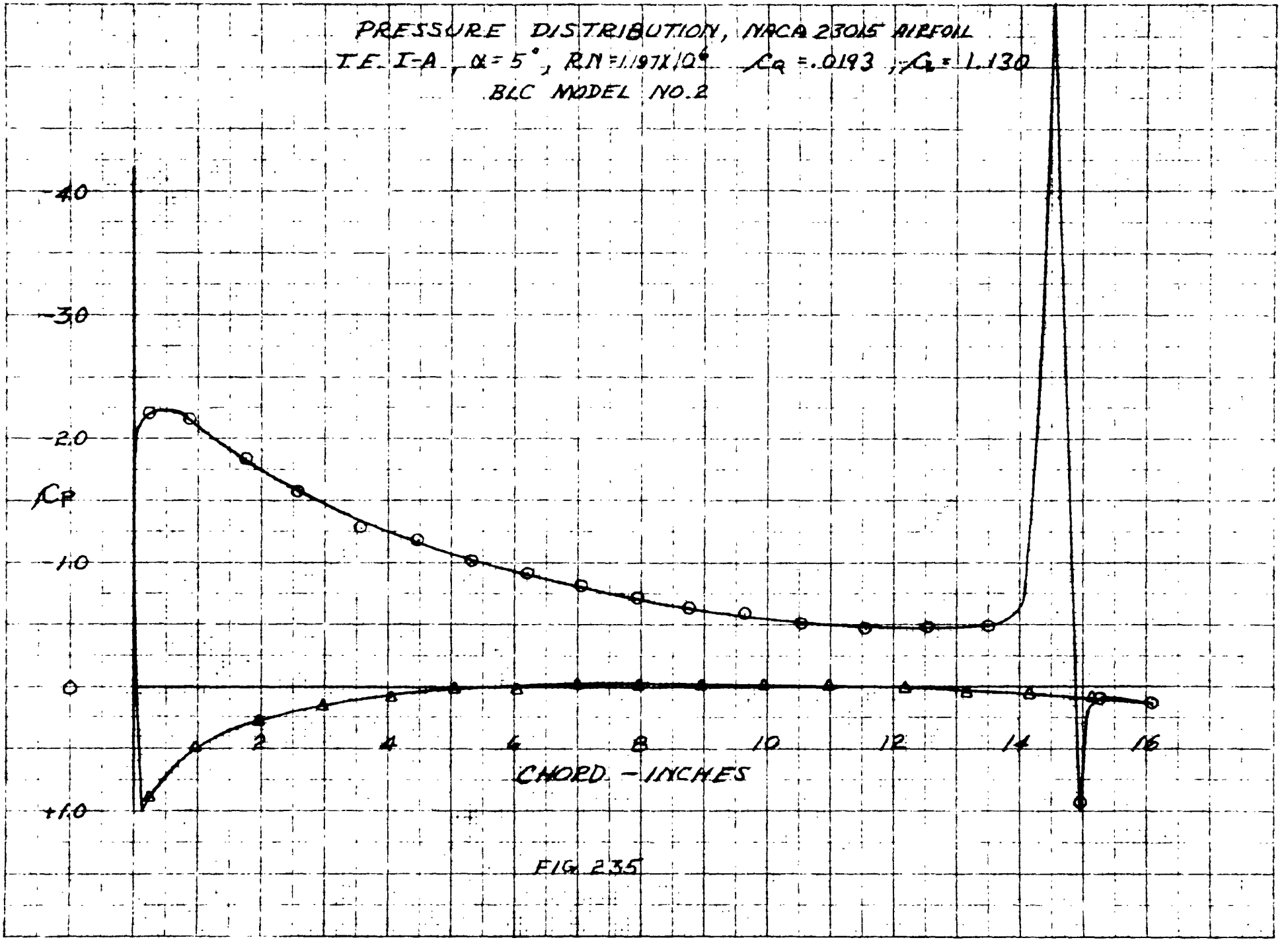
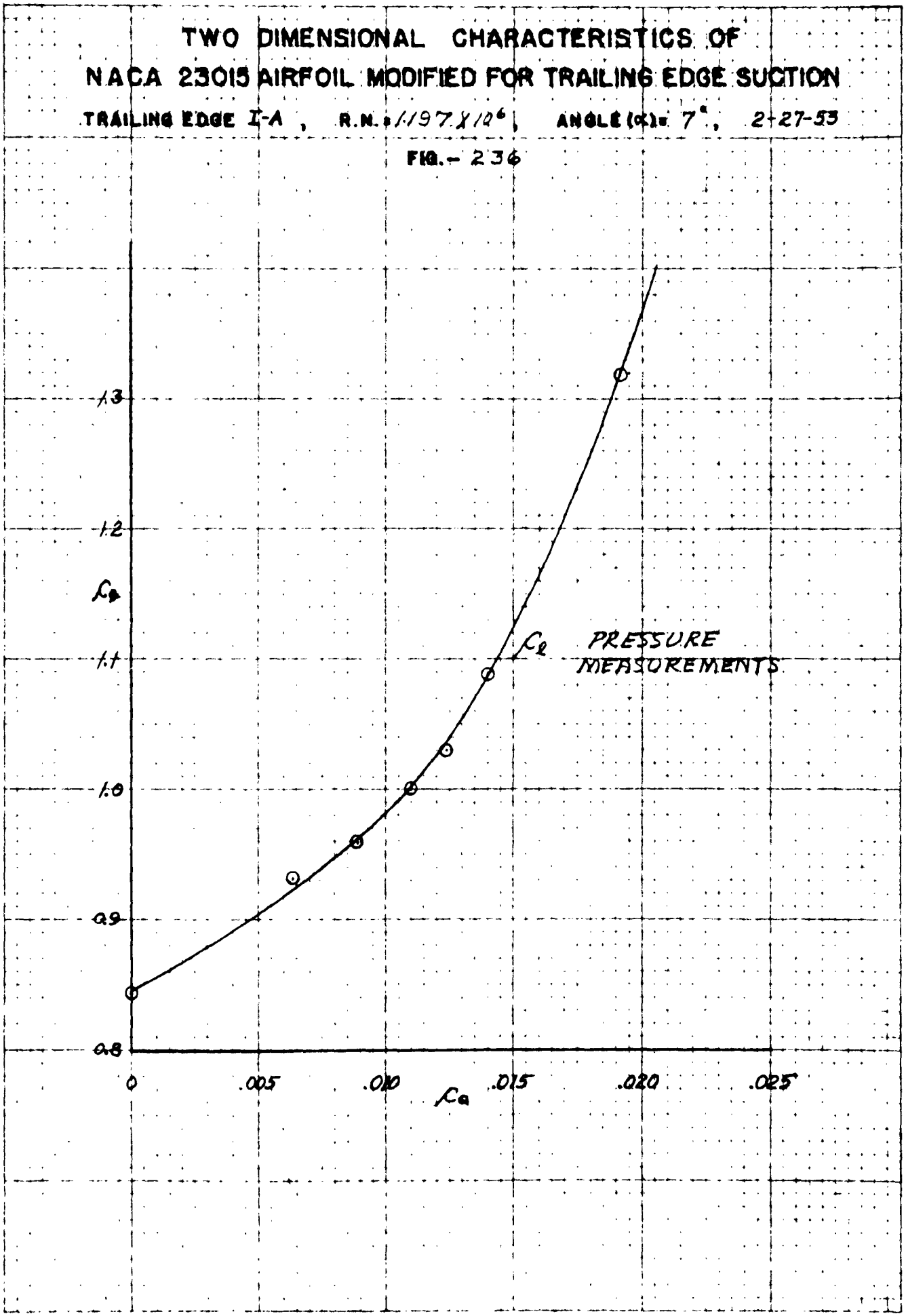


FIG. 235

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. = 1.197 X 10^6, ANGLE (α) = 7°, 2-27-53

FIG. - 236



PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 7°, C_L = 0.84, C_Q = 0

DATE: 2-27-53, q (IN. H_2O) = 4.327

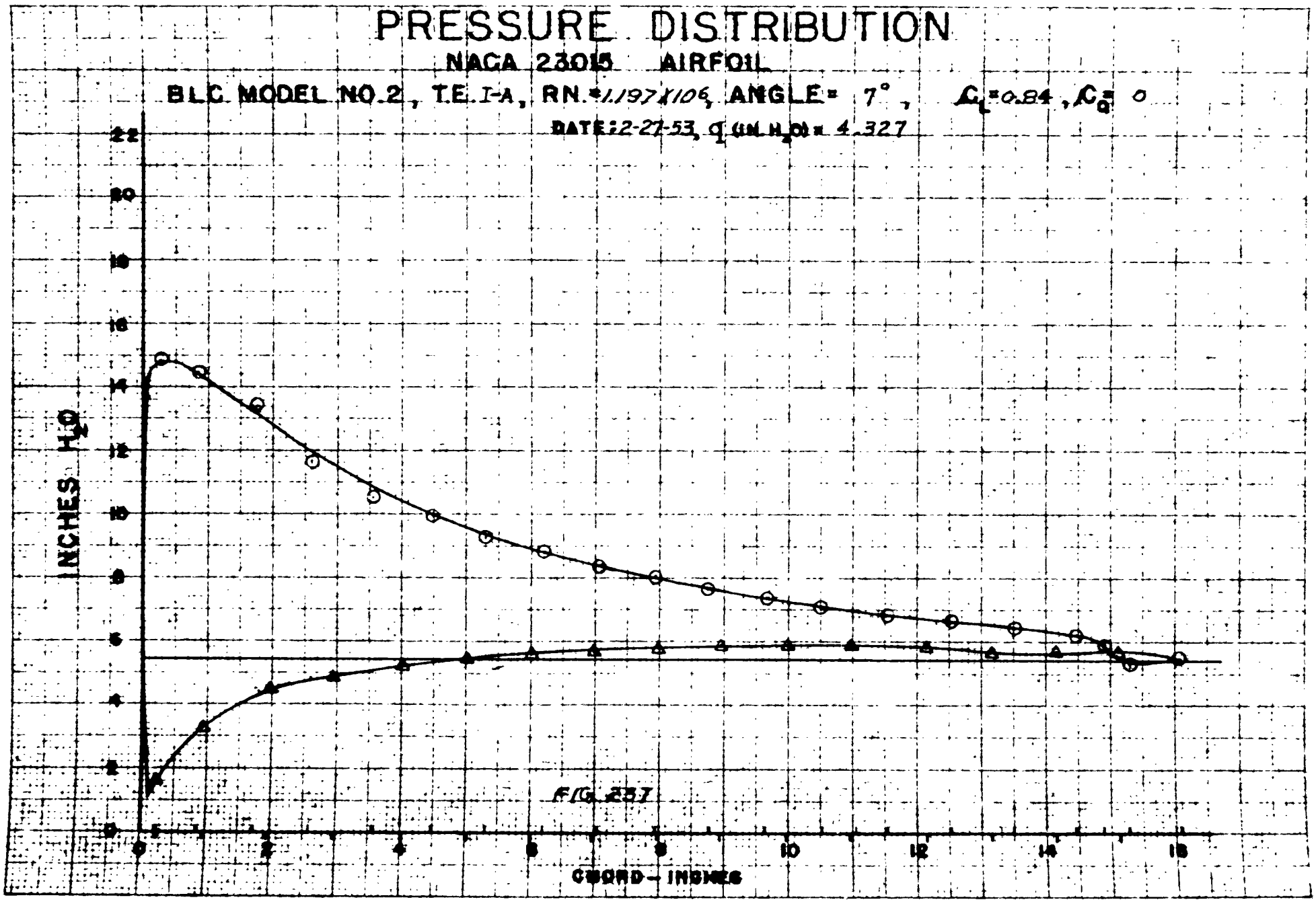


FIG. 23J

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 7°, C_L = 0.93, C_D = .0063

DATE: 2-27-53, $q_{(IN\ H_2O)}$ = 4.337

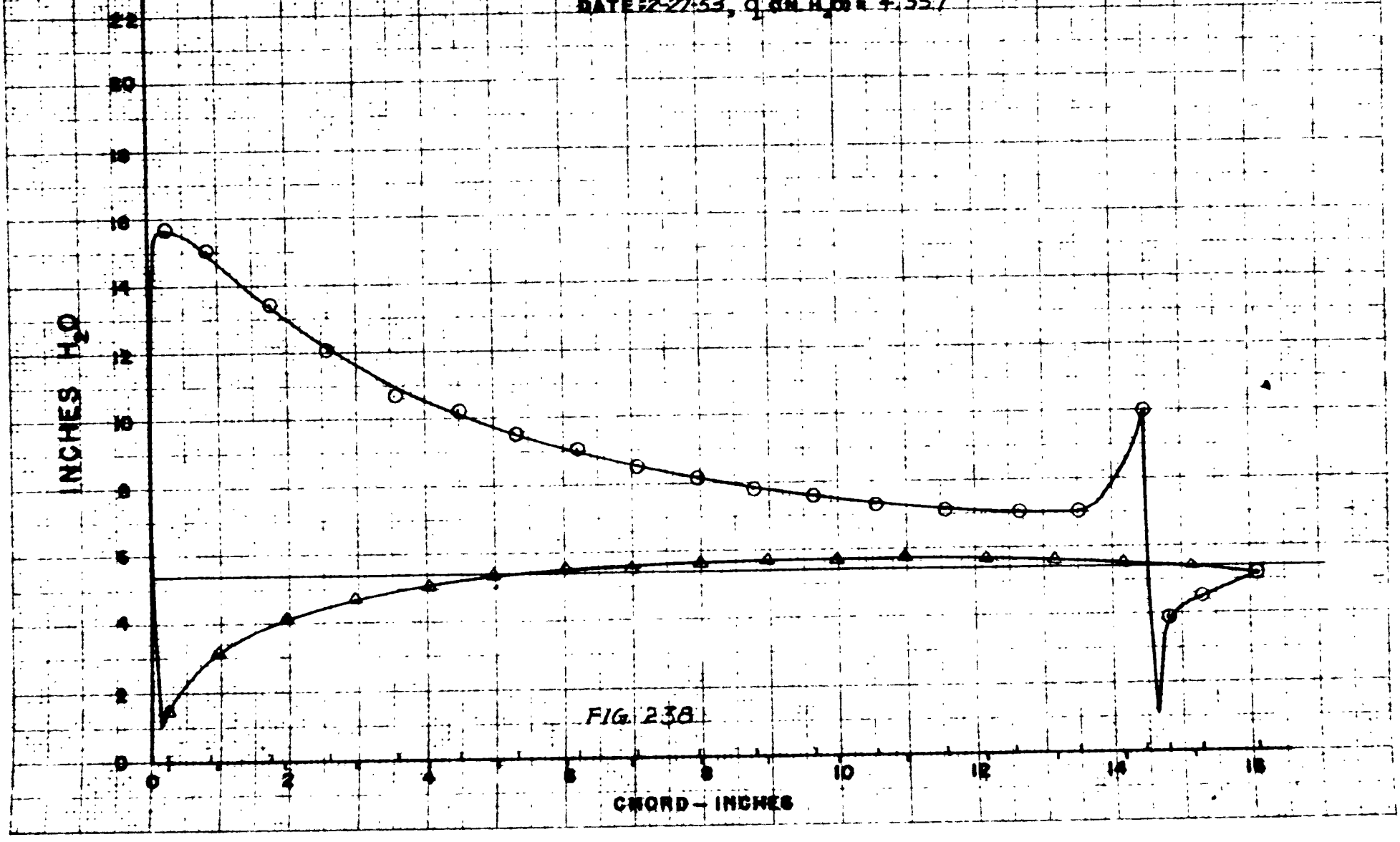


FIG. 238

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 x 10^6, ANGLE = 7°, C_L = 0.96, C_d = .0089

DATE: 2-27-53, q in. H_2O = 4.346

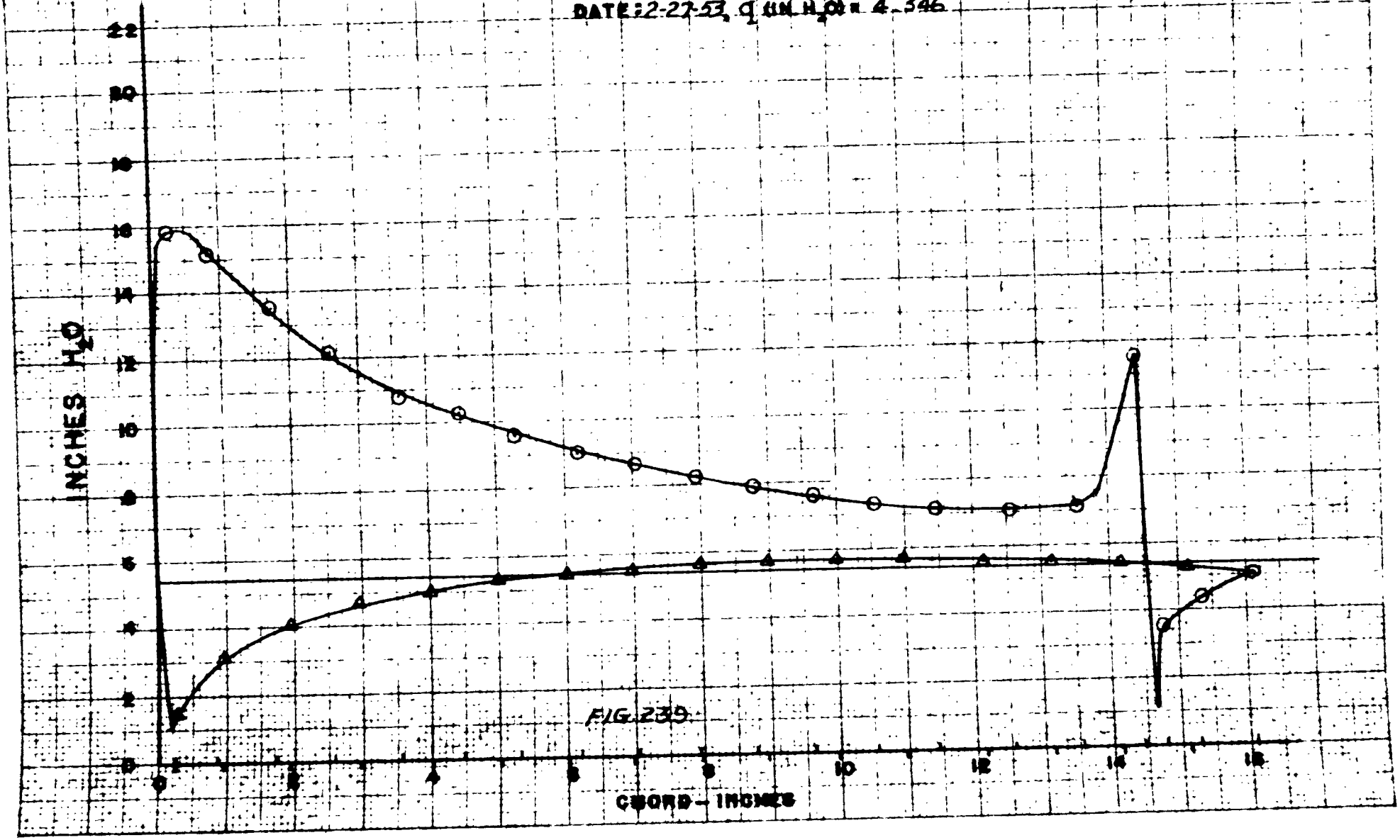


FIG. 239

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 7°, C_L = 1.00, C_D = .0110

DATE: 2-27-53, q_∞ (IN H_2O) = 4.327

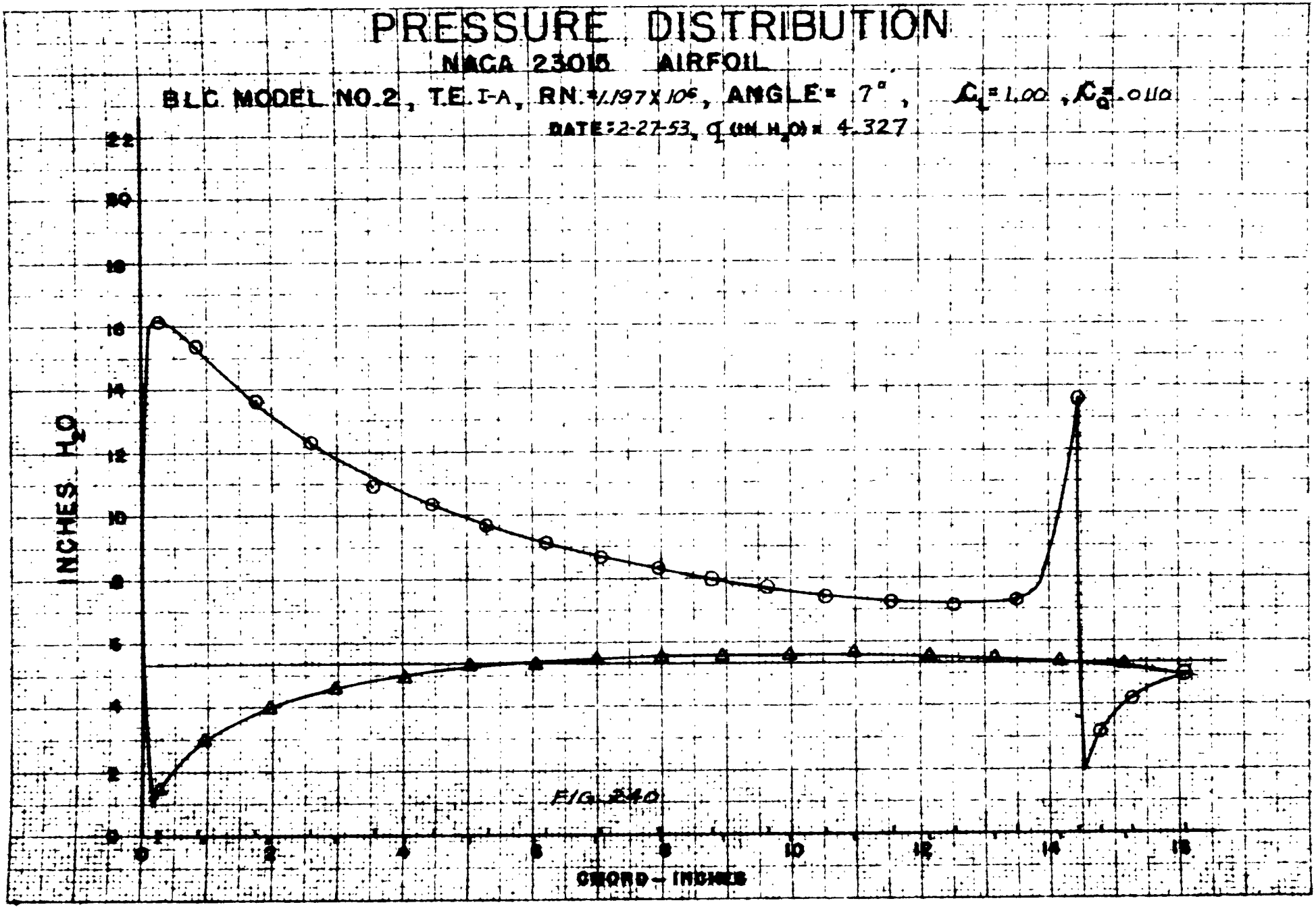


FIG. 240

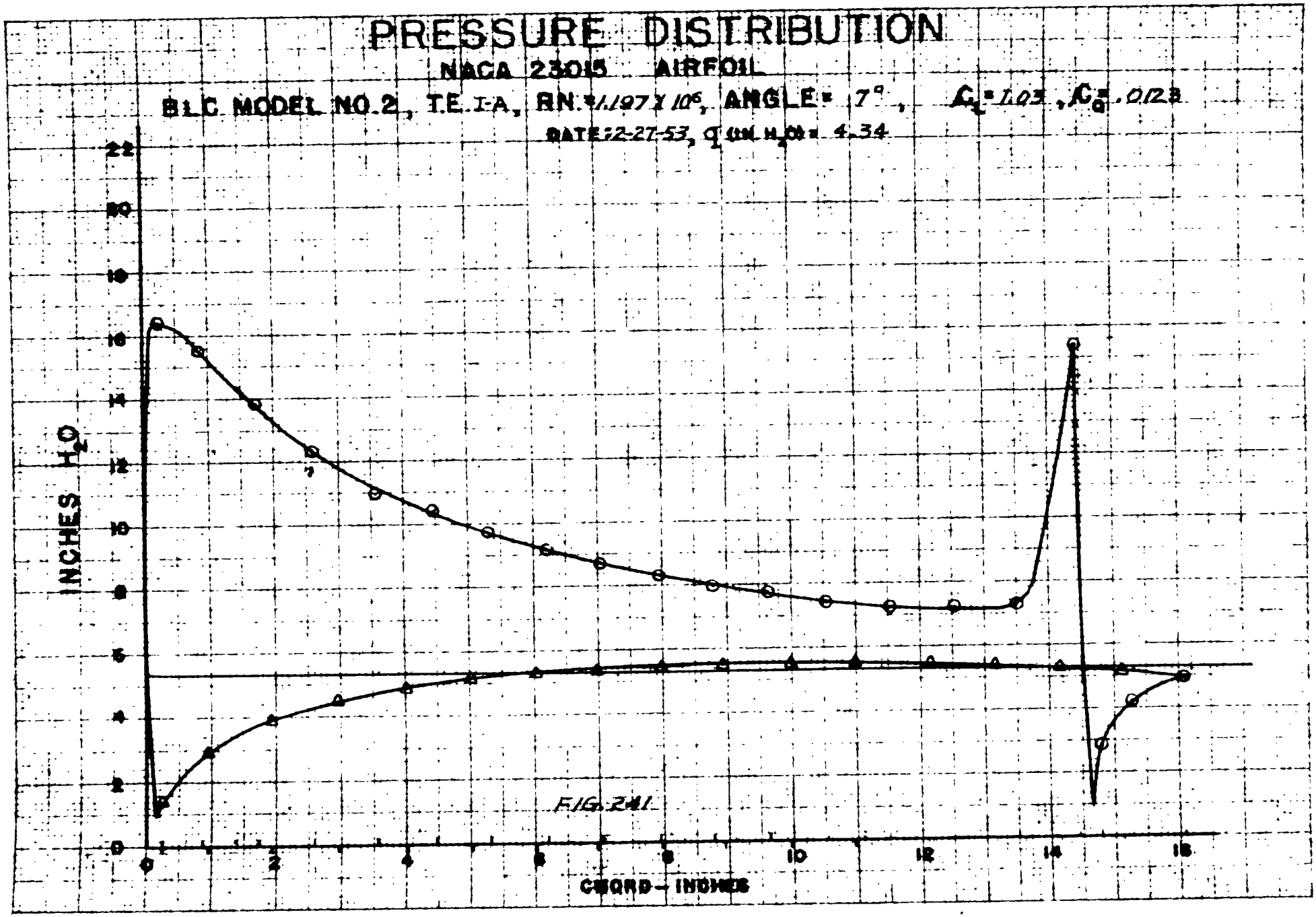

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 7°, C_L = 1.03, C_D = .0123
DATE: 2-27-53, q (in. H2O) = 4.34
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG. 241

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 7°, C_L = 1.09, C_d = .0140

DATE: 2-27-53, q (in H_2O) = 4.35

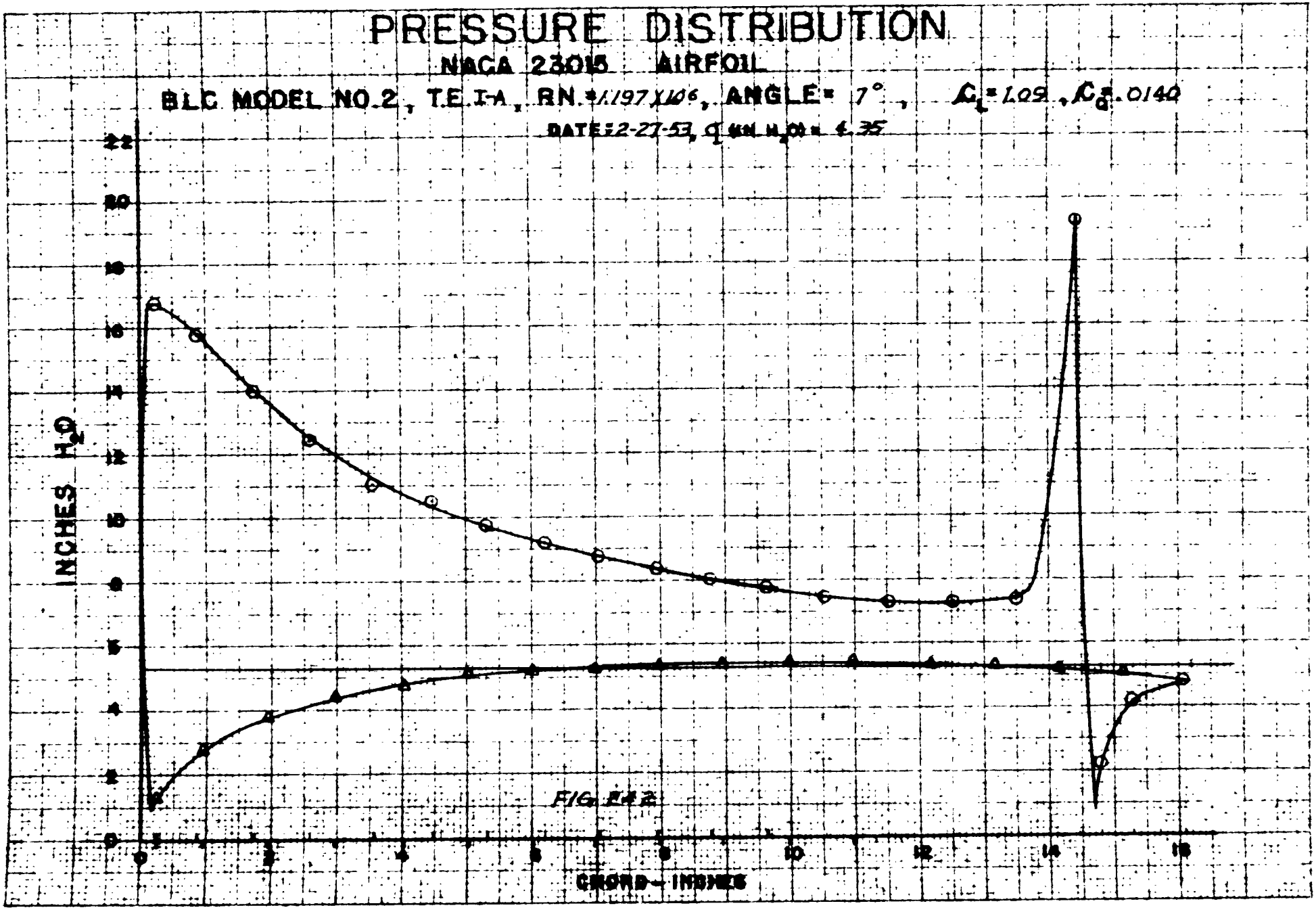


FIG. 242

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.97 X 10⁶, ANGLE = 7°, C_L = 1.32, C_d = .0192

DATE: 12-27-53, q (IN. H_2O) = 4.35

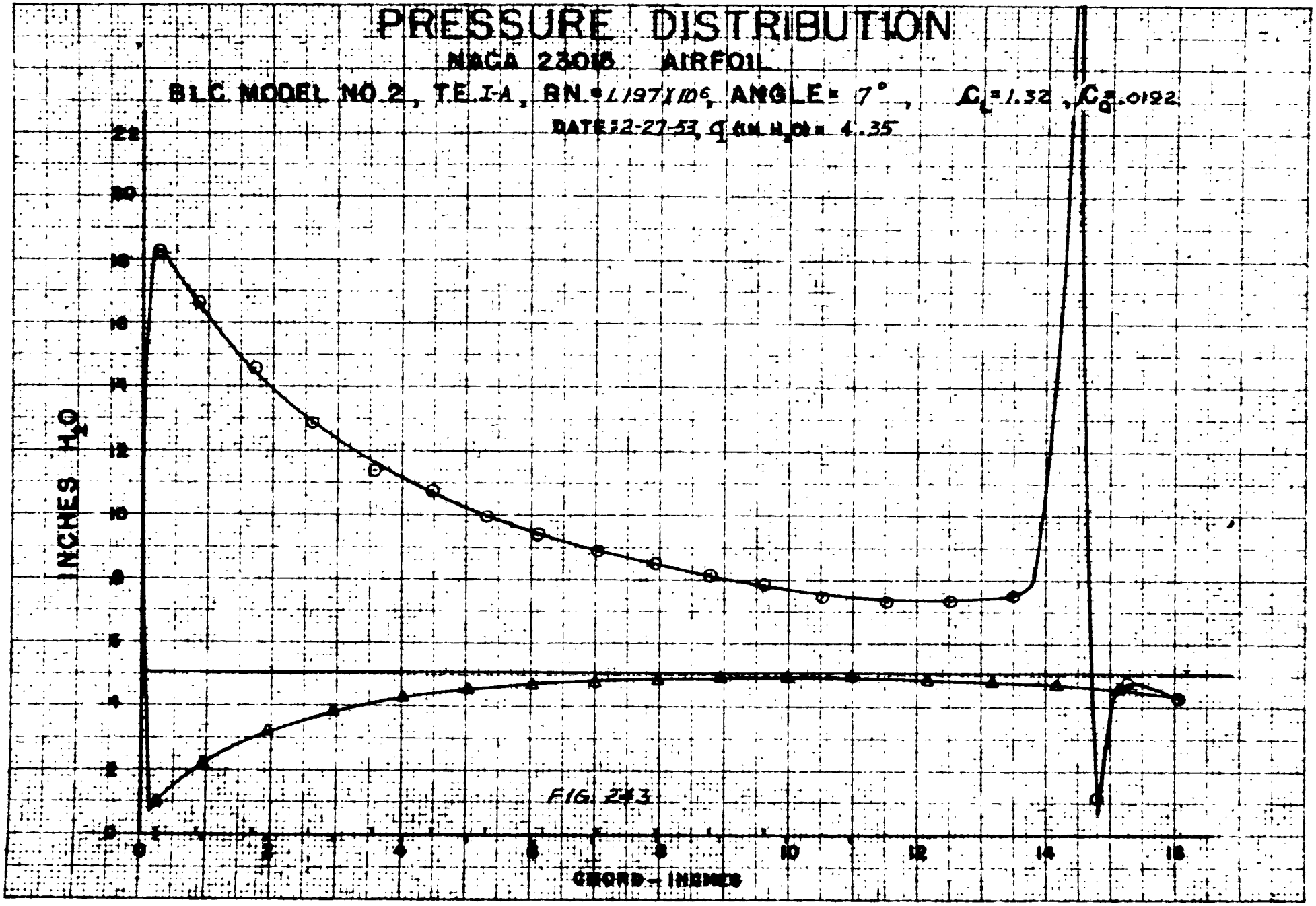
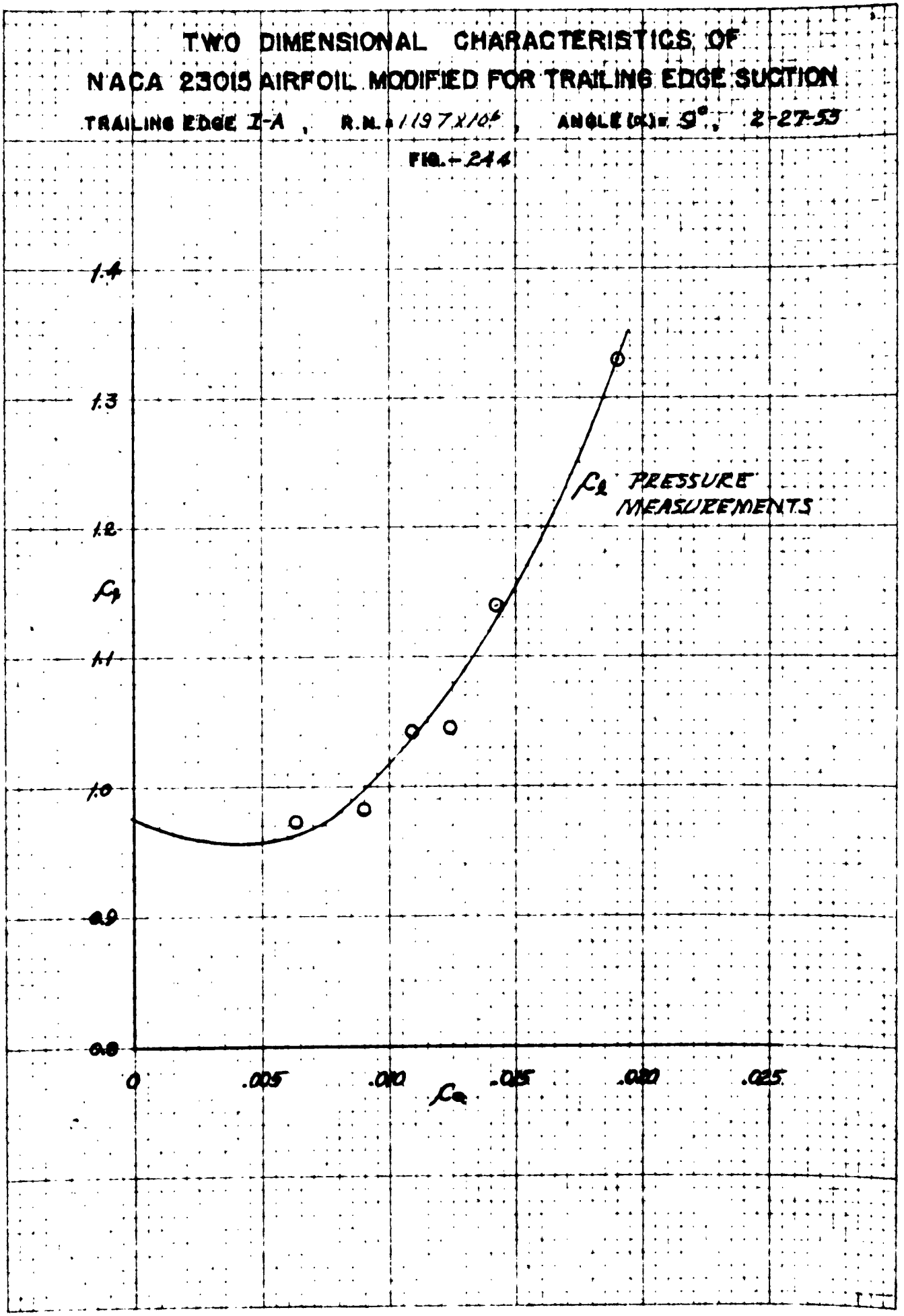


FIG. 243


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-A , R.N. = 1197 X 10⁶ , ANGLE (α) = 9° , 2-27-53
FIG. - 244
1.4
1.3
1.2
1.1
1.0
.9
.8
c_l
c_l PRESSURE MEASUREMENTS
0
.005
.010
.015
.020
.025
c_d

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. 4.1/97/10⁶, ANGLE = 9°, C_L = 0.91, C_d = .0063

DATE: 2-27-53, q (IN. H_2O) = 4.37

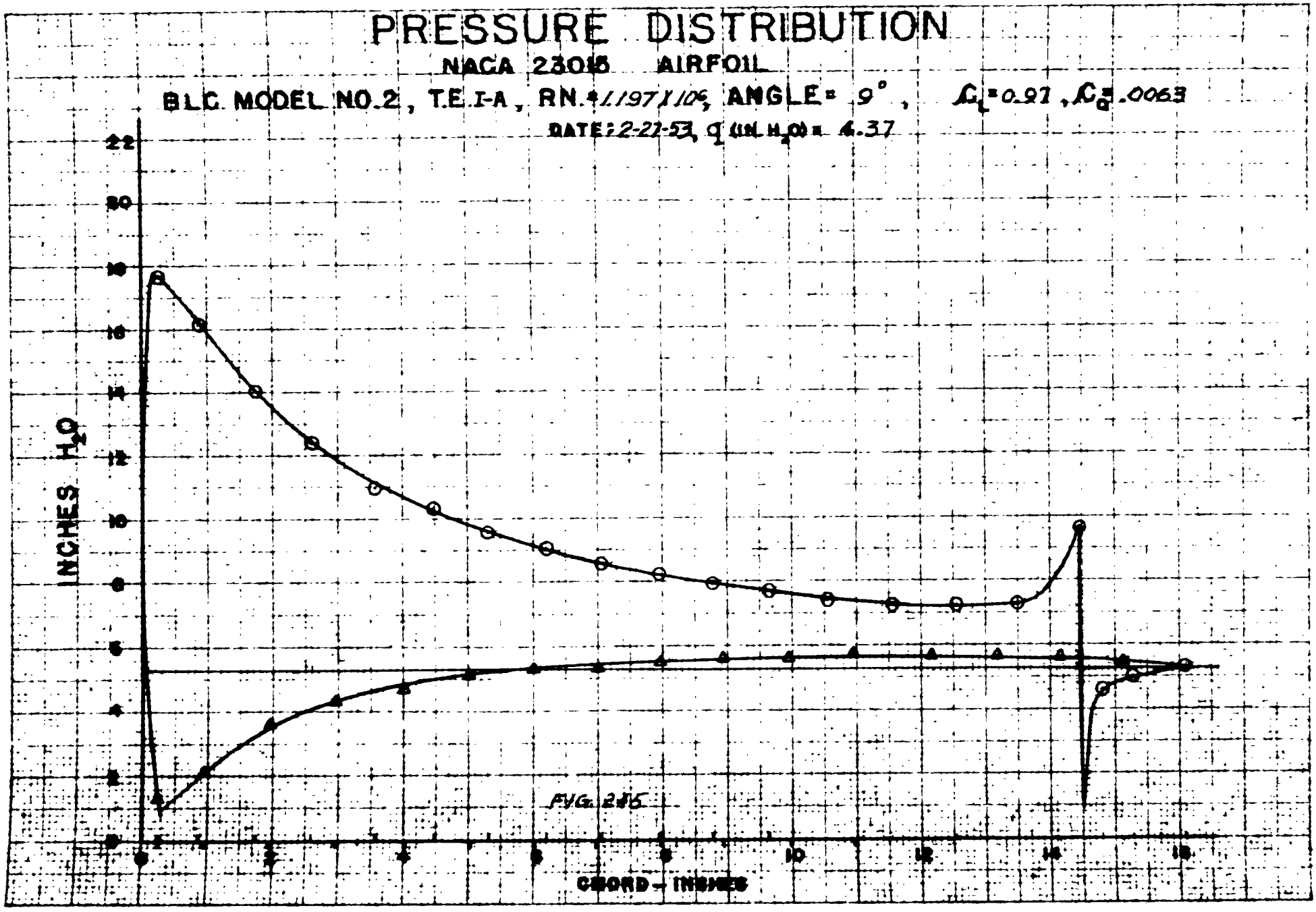


FIG. 2B5

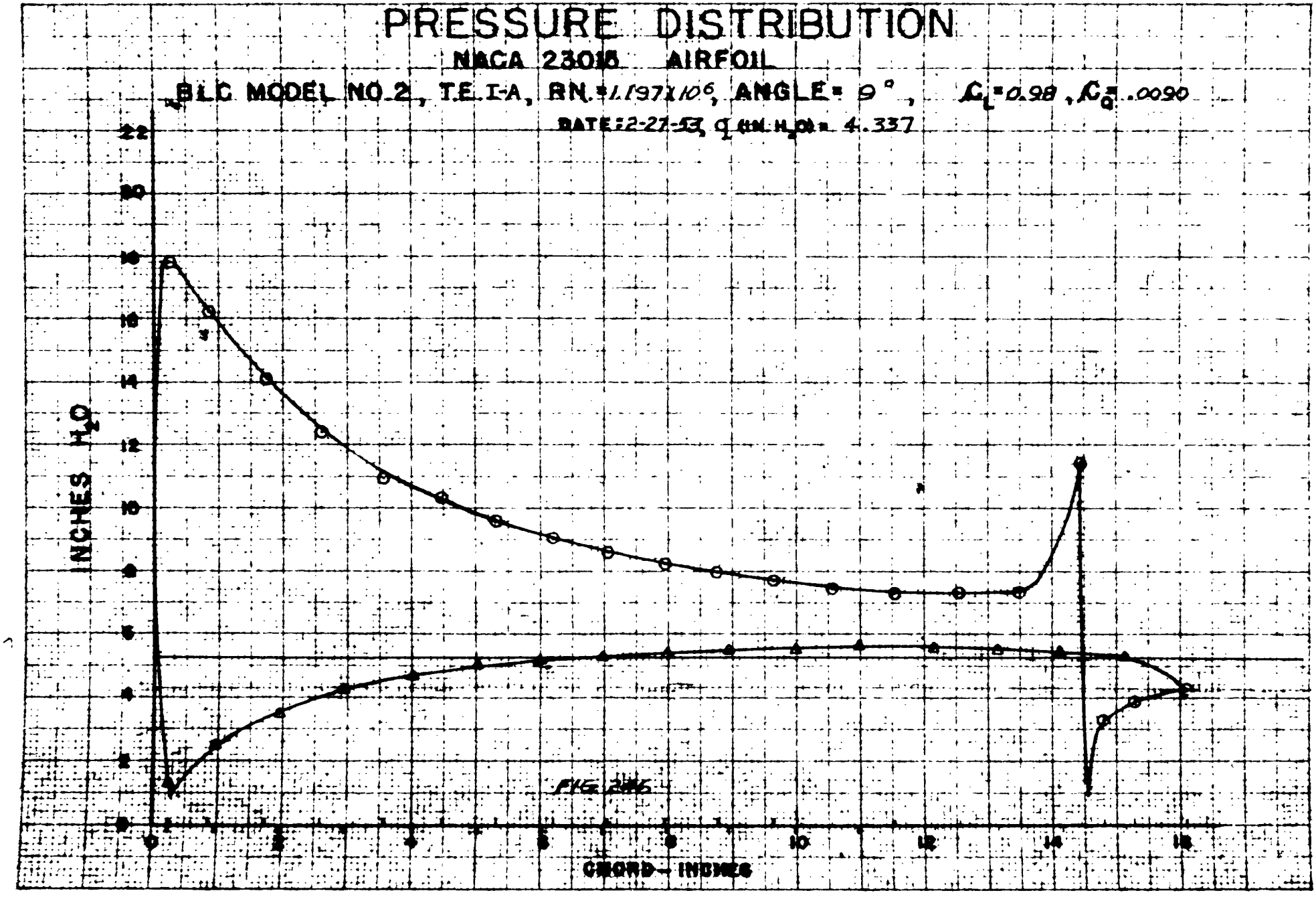

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 9°, C_L = 0.98, C_D = .0090
DATE: 2-27-53, q (IN. H2O) = 4.337
INCHES H2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 2A6

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN. = 1.197 10^6, ANGLE = 9°, C_L = 1.04, C_d = .0109

DATE: 2-27-53, q (IN H_2O) = 4.337

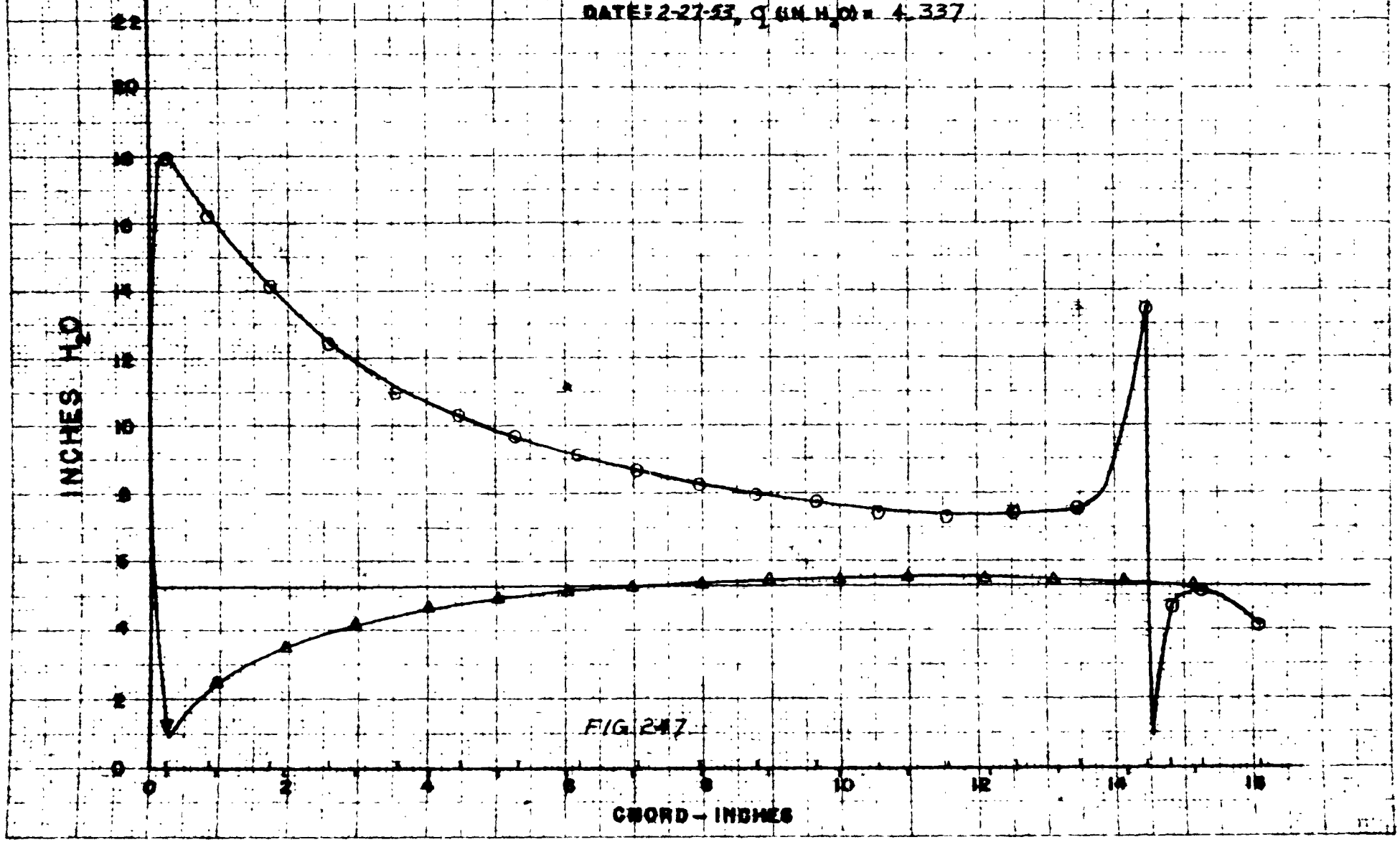


FIG. 247

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 9°, C_L = 1.04, C_d = .0124

DATE: 2-27-53, q (IN H_2O) = 4.327

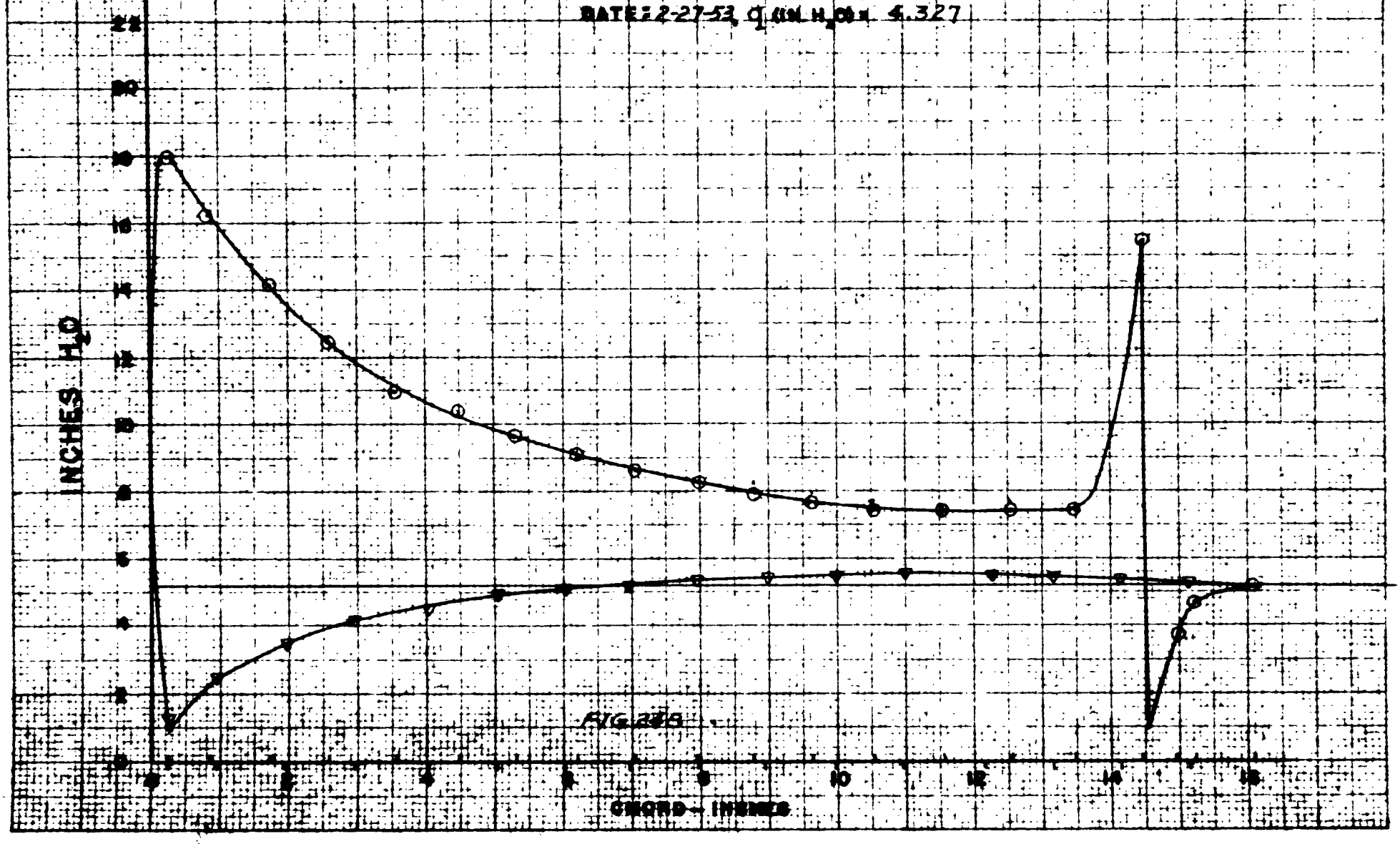


FIG. 28B

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. IA, RN. = 1.197 x 10^6, ANGLE = 9°, C_L = 1.14, C_D = .0142

DATE: 2-27-53, q (in H_2O) = 4.327

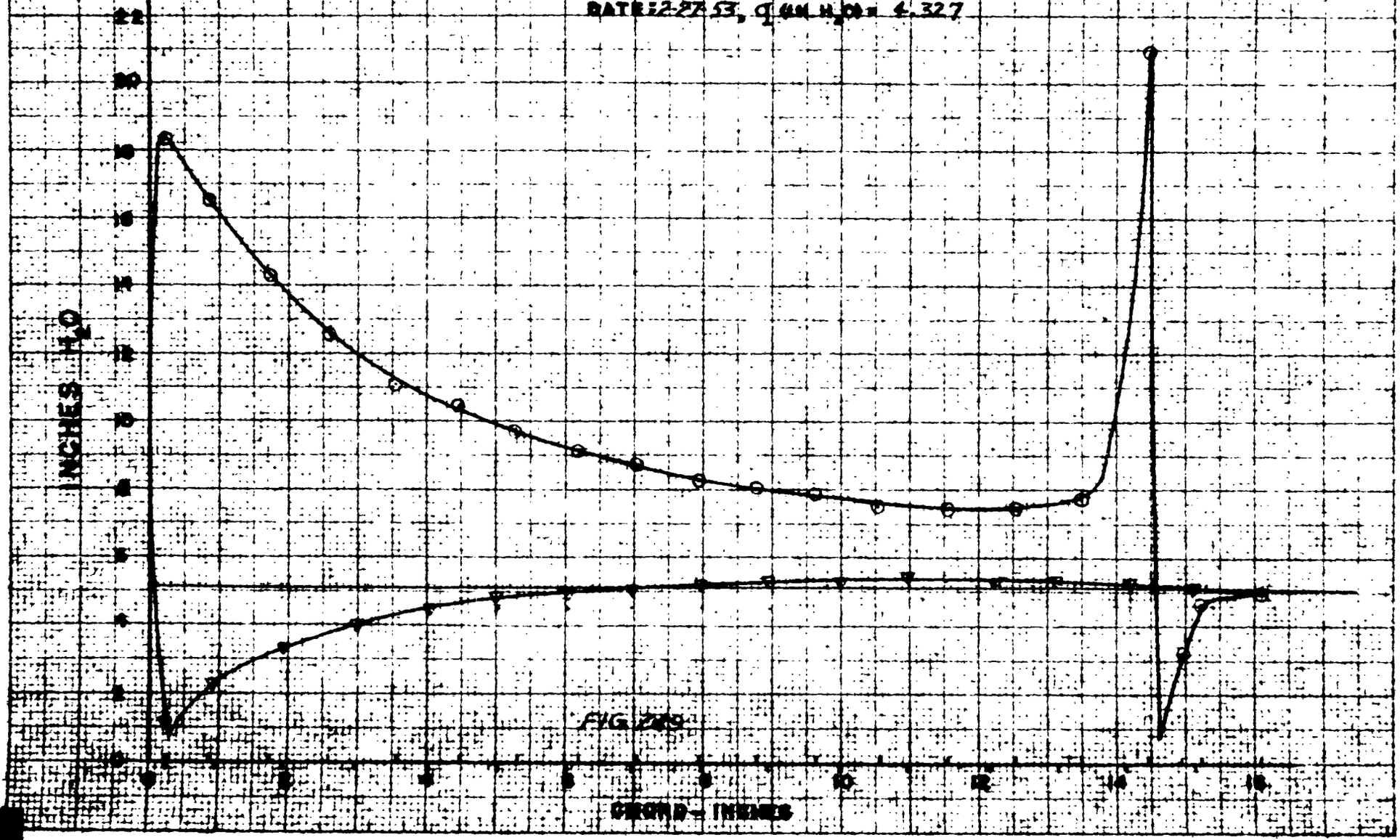
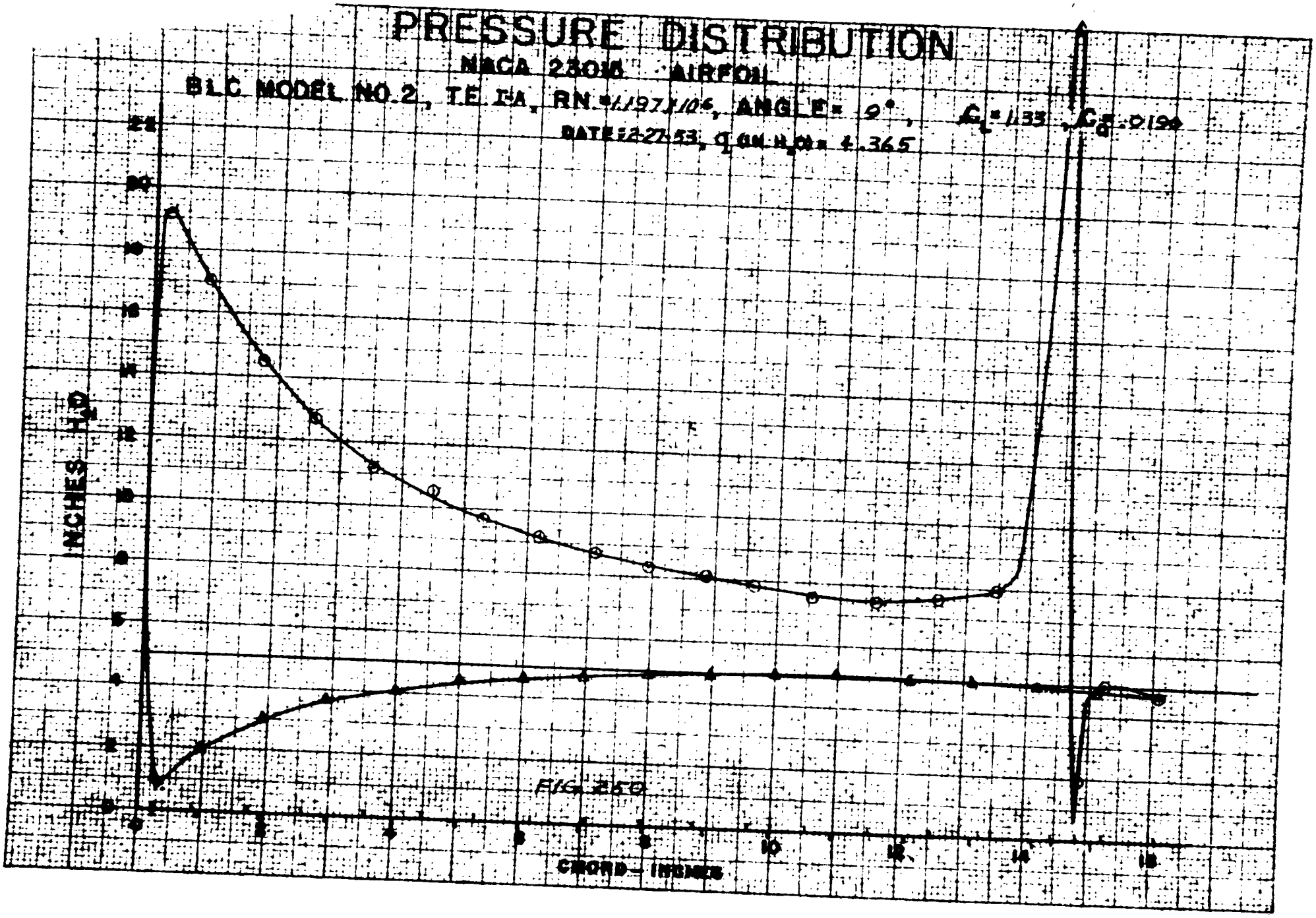
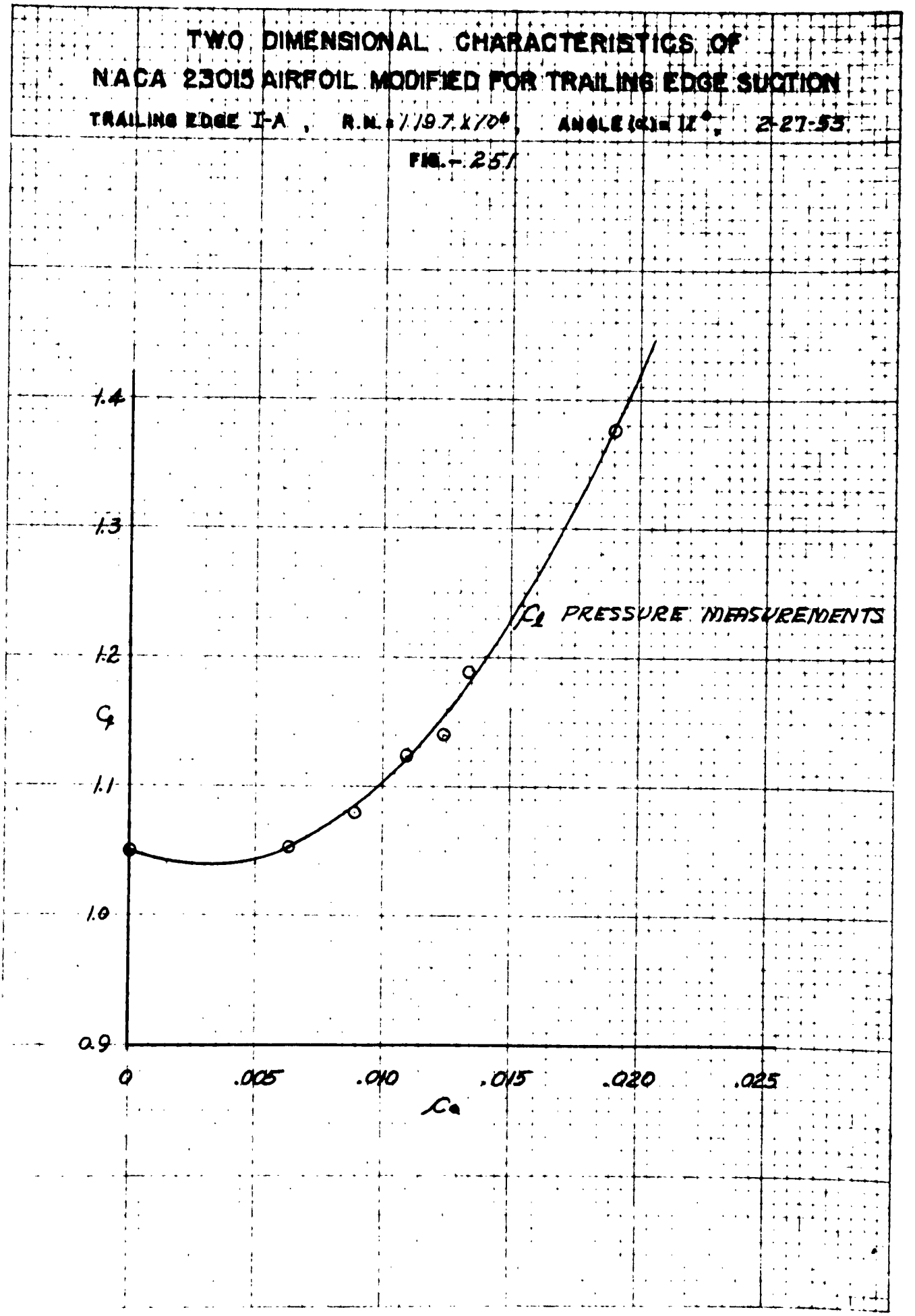


FIG 2B9


PRESSURE DISTRIBUTION
NACA 23018 AIRFOIL
BLC MODEL NO. 2, T.E. I-A, RN = 1.197 X 10^6, ANGLE = 9°, C_L = 1.33, C_d = .0194
DATE 12-27-53, q (IN. H_2O) = 4.365
INCHES H_2O
CHORD - INCHES
FIG. 25 D


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-A , R.N. = 1.197 X 10⁶ , ANGLE (α)= 11° , 2-27-53.
FIG. - 25
1.4
1.3
1.2
1.1
1.0
0.9
C_l
C_l PRESSURE MEASUREMENTS
0
.005
.010
.015
.020
.025
C_d

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-A, RN. = 1197 x 10^6, ANGLE = 11°, C_L = 1.05, C_d = 0

DATE: 2-27-53, q (IN H_2O) = 4.33

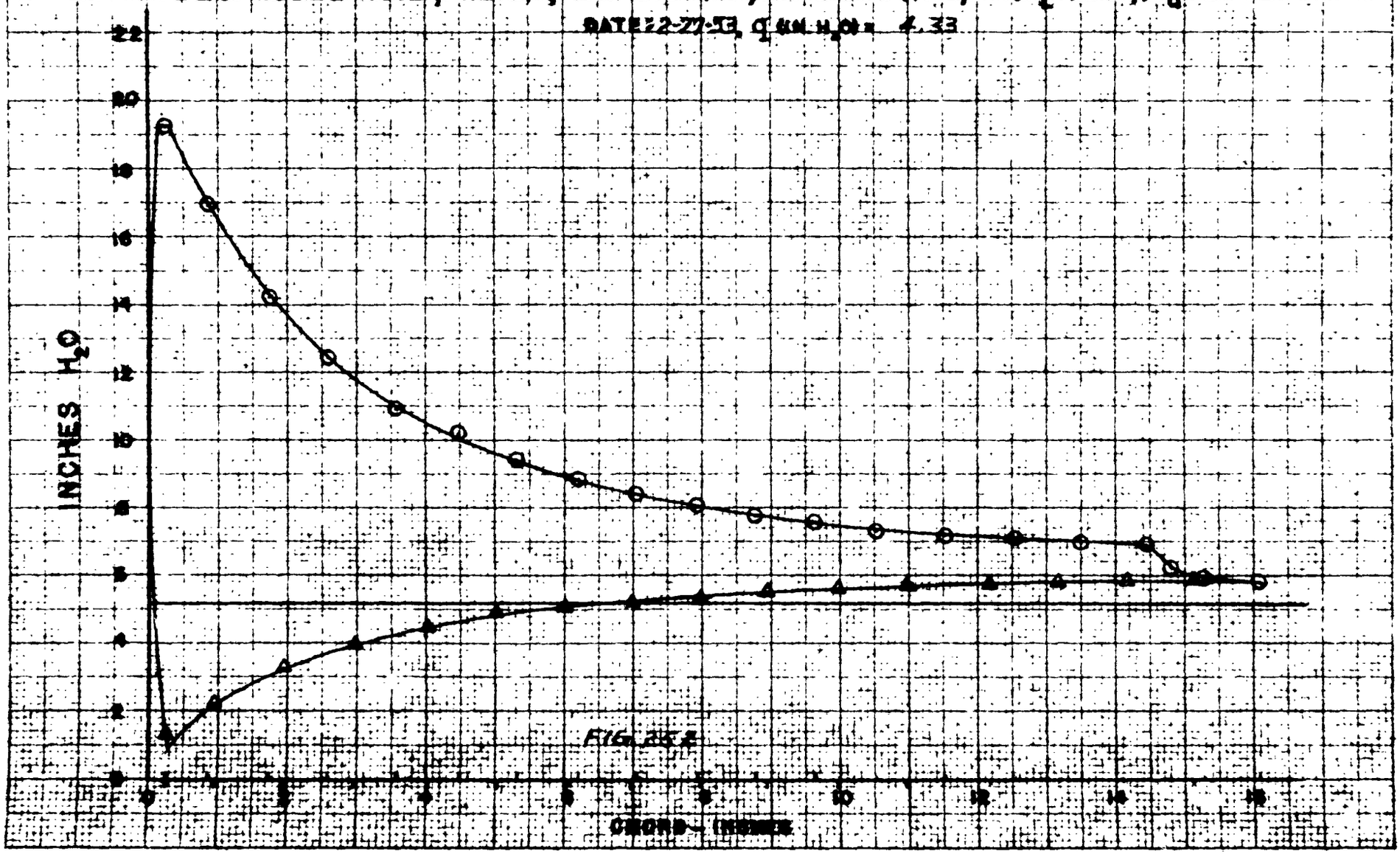


FIG. 25 A

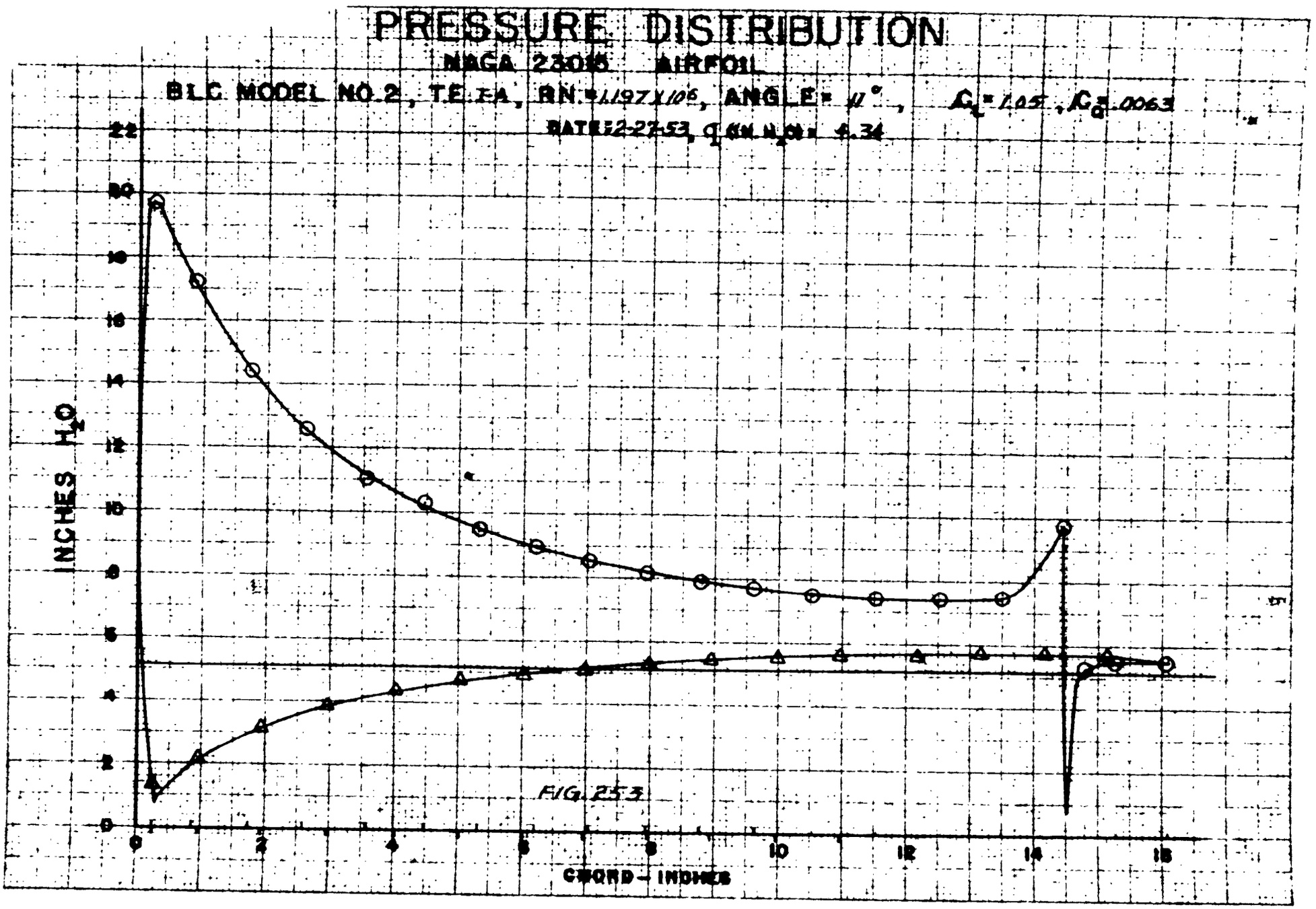

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO. 2, TE FA, RN = 1.197 X 10^6, ANGLE = 11°, C_L = 1.05, C_d = .0063
DATE: 12-27-53, q (IN H_2O) = 4.34
INCHES H_2O
CHORD - INCHES

FIG. 253

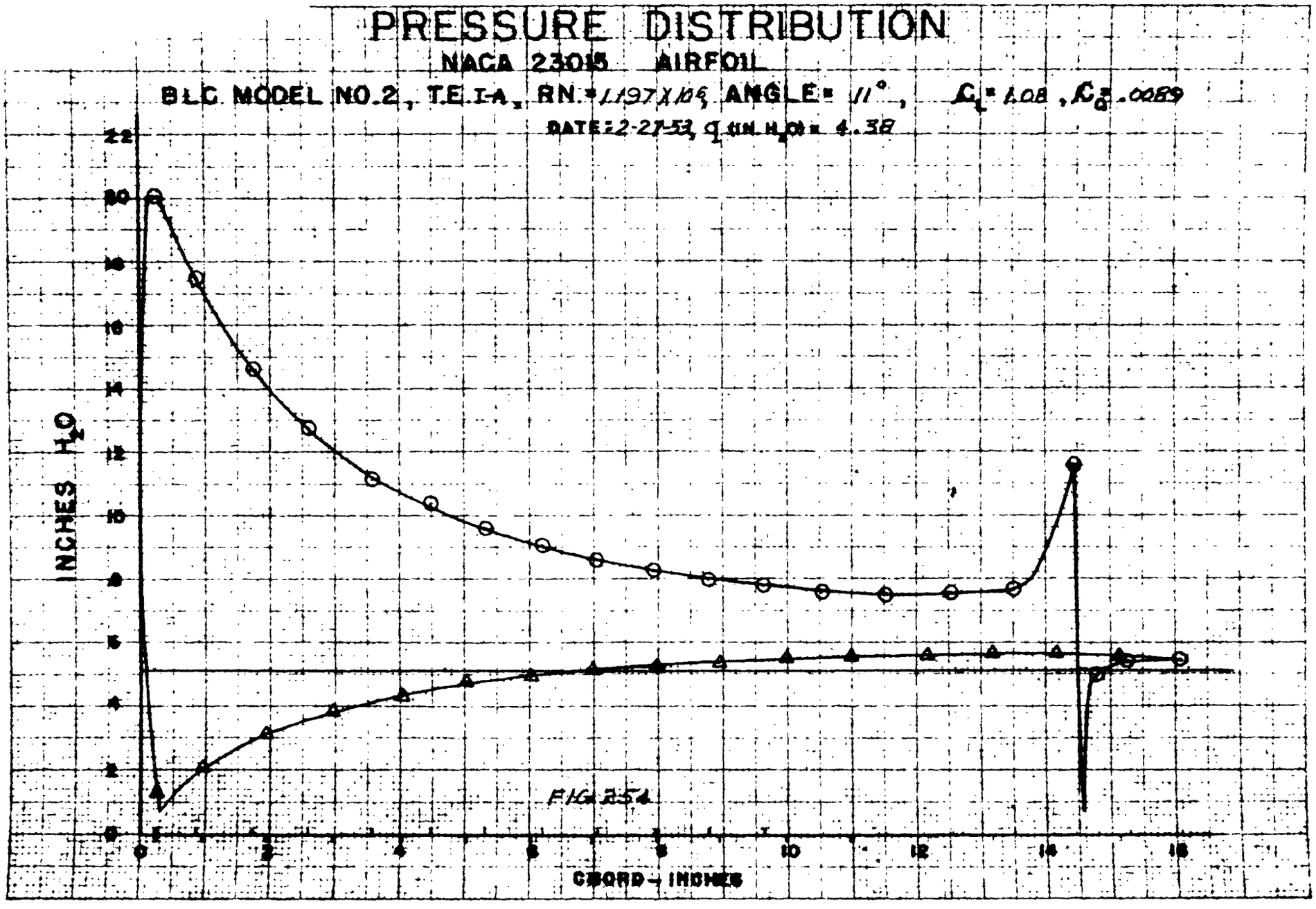

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 11°, C_L = 1.08, C_D = .0089
DATE: 2-27-53, q (IN. H_2O) = 4.38
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG 254

KEUFFEL & ESSER CO

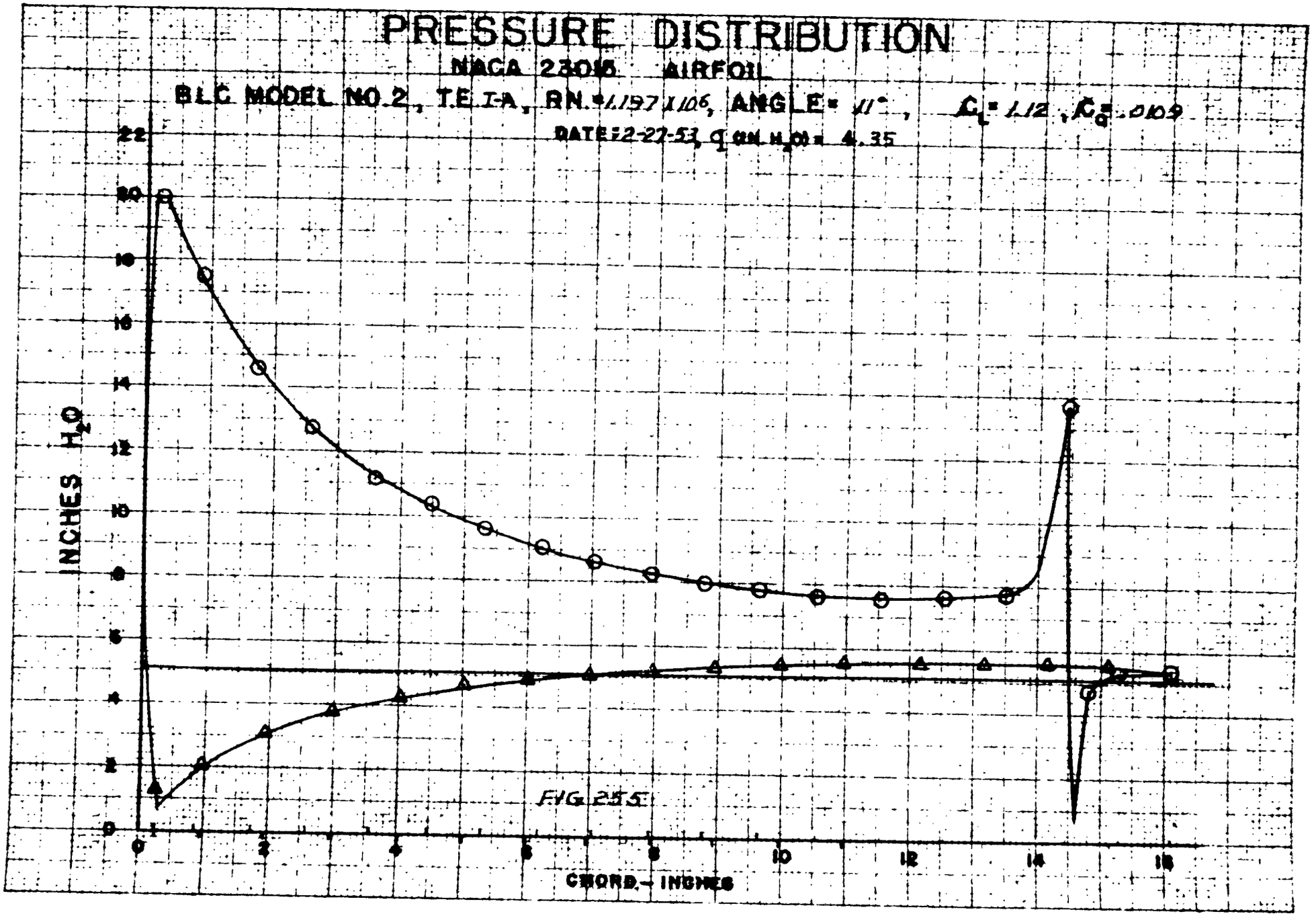


FIG 255

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 11°, C_L = 1.14, C_d = .0124

DATE: 2-27-53, q (IN H_2O) = 4.33

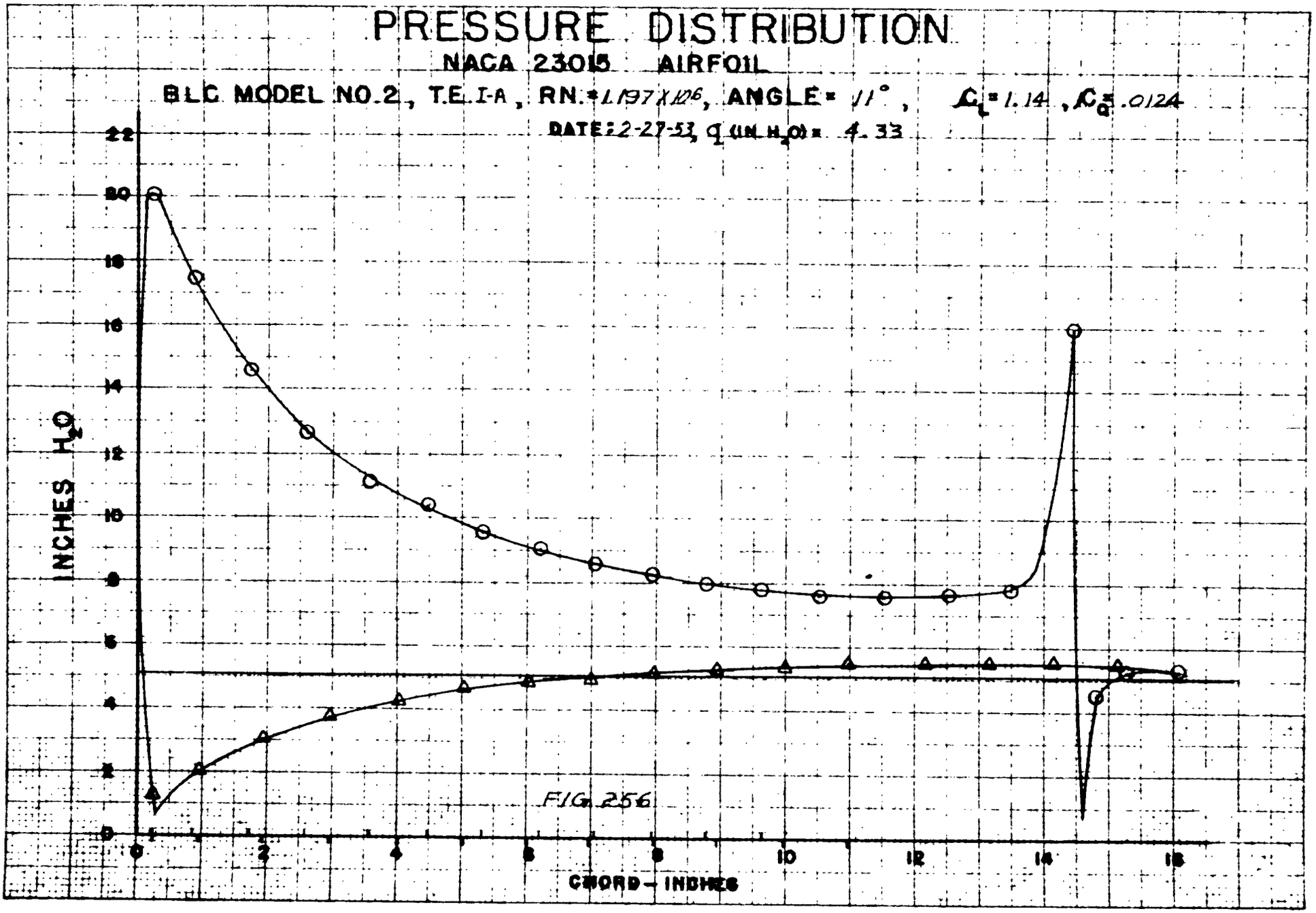


FIG. 256

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E.I-A, RN.=1.197 X 10⁶, ANGLE = 11°, C_L = 1.19, C_D = .0133

DATE: 2-27-53, q (IN. H_2O) = 4.29

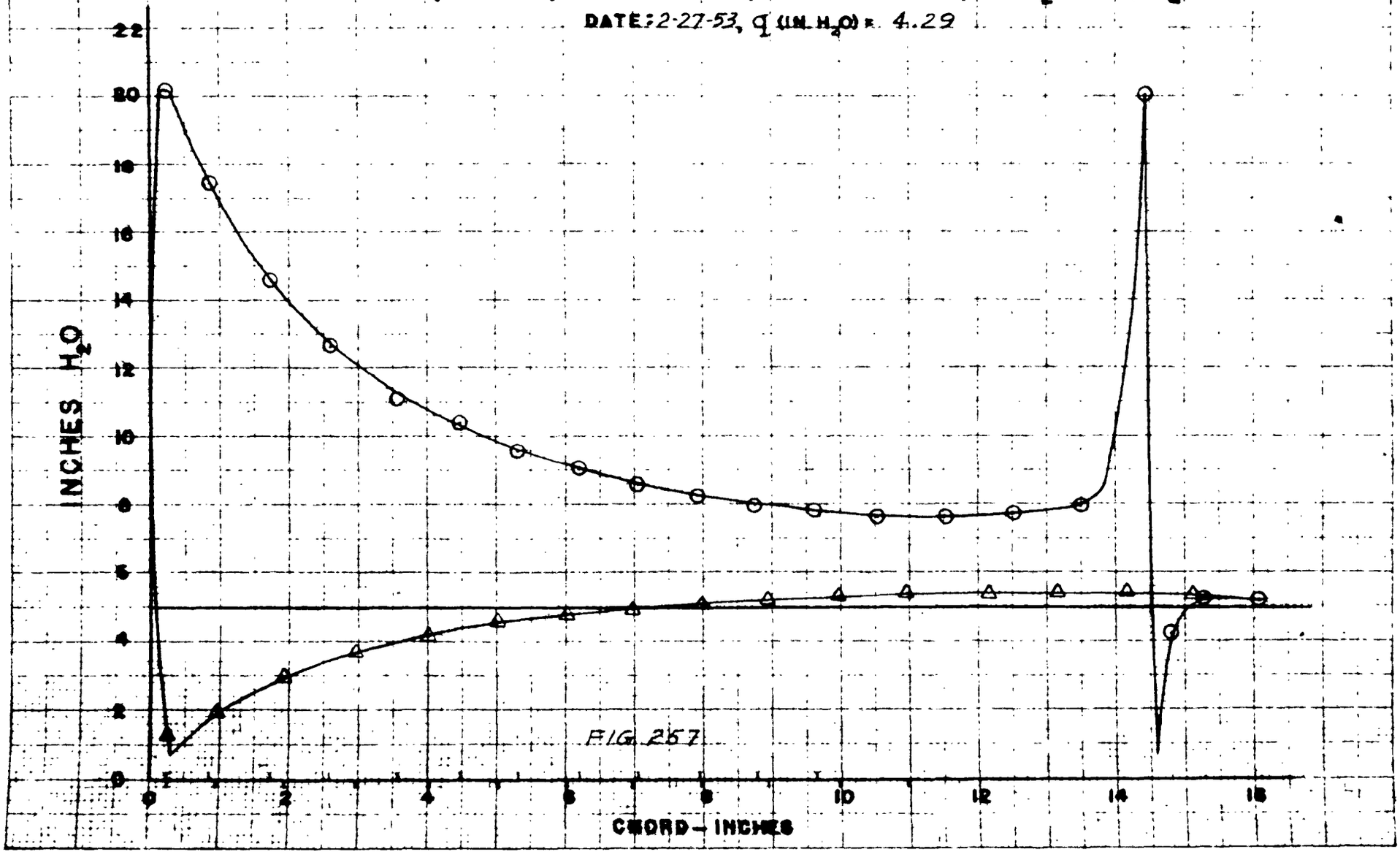


FIG. 257

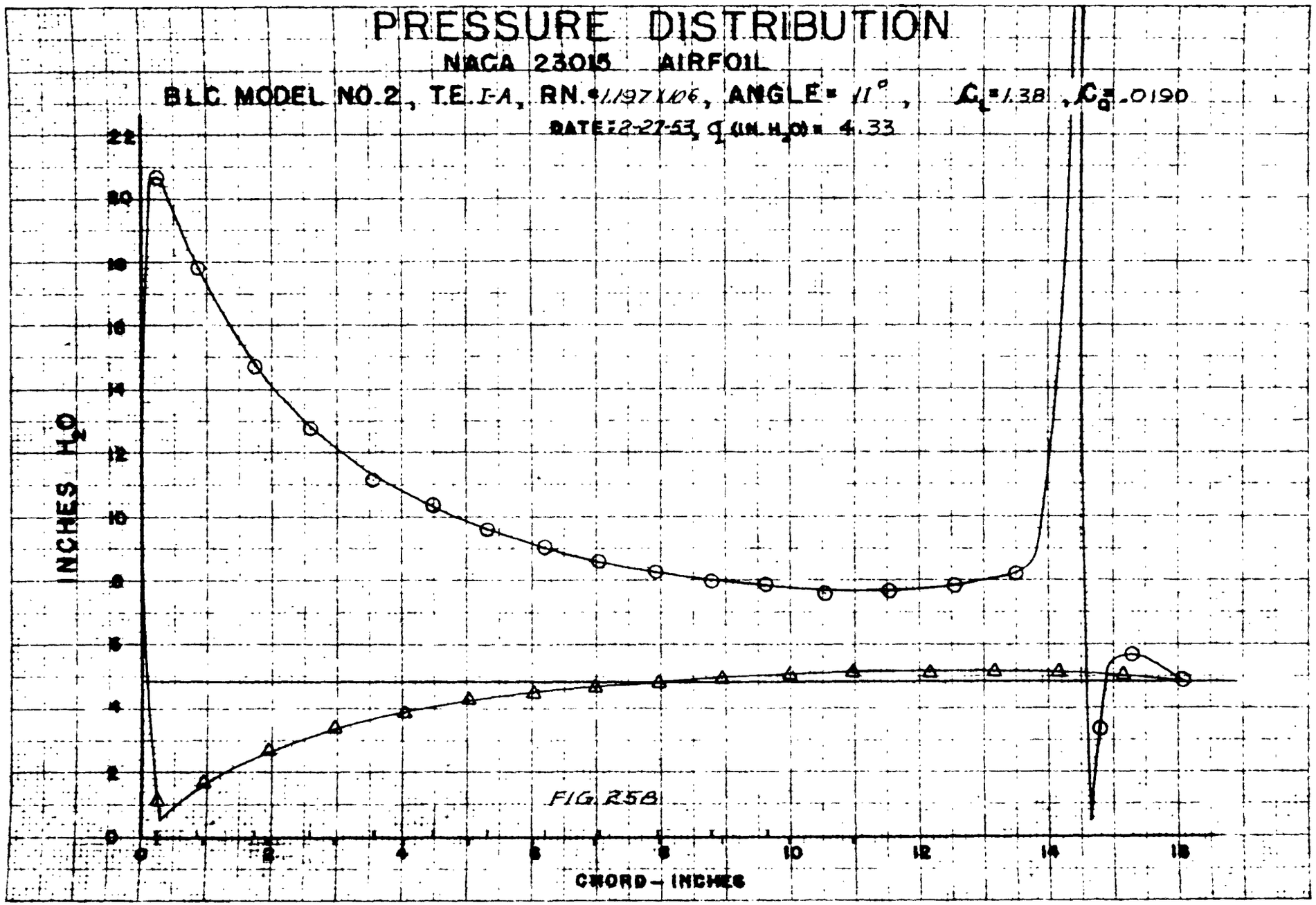
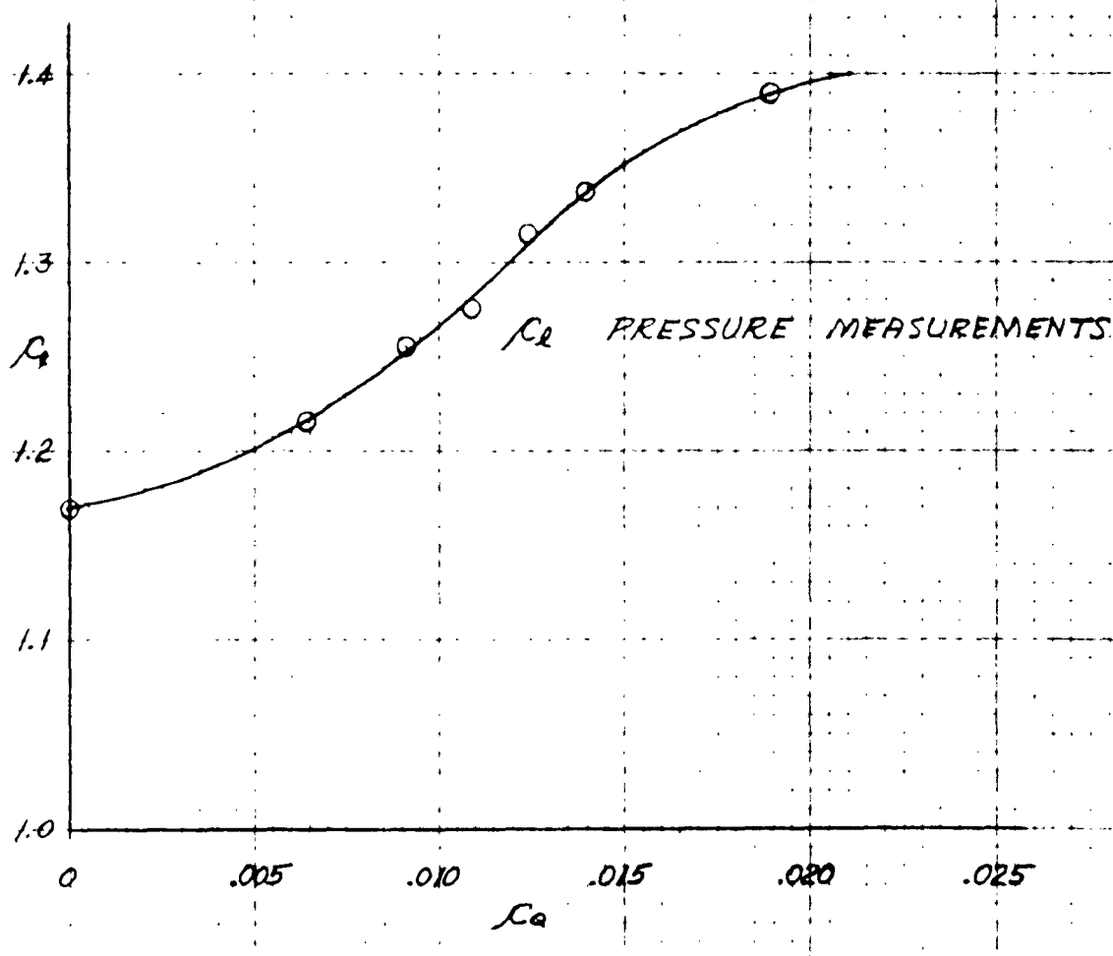

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN. 1.197106, ANGLE = 11°, C_L = 1.38, C_d = .0190
DATE: 2-27-53, q (IN. H_2O) = 4.33
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 25B

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-A , R.N. .1197 X 10^6, ANGLE (α) = 13°, 2-27-53

FIG.- 259



PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10⁶, ANGLE = 13°, C_L = 1.17, C_D = 0

DATE: 2-27-53, q (IN. H_2O) = 4.33

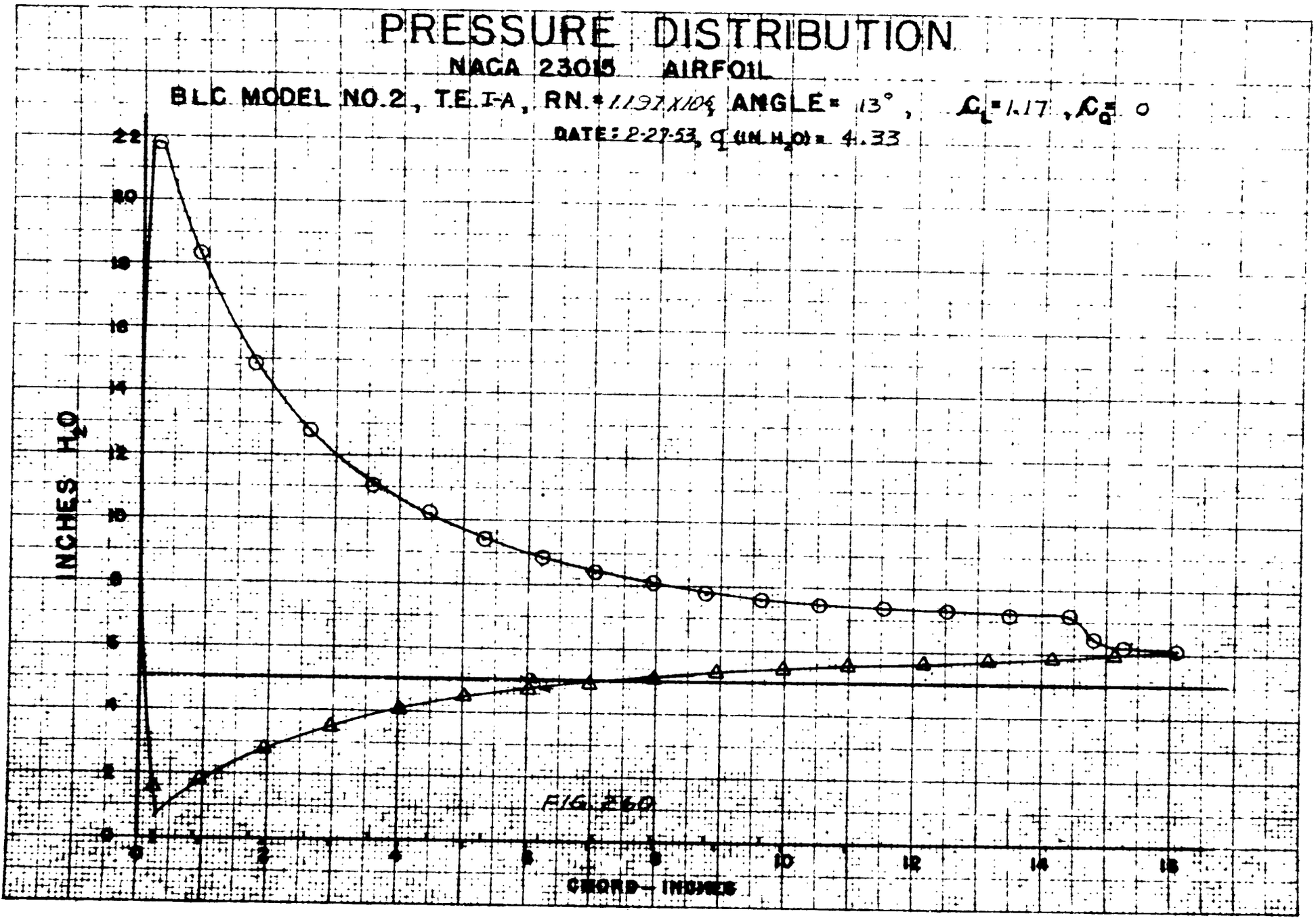


FIG. 260

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 13°, C_L = 1.22, C_D = .0064

DATE: 2-27-53, q IN. H_2O = 4.31

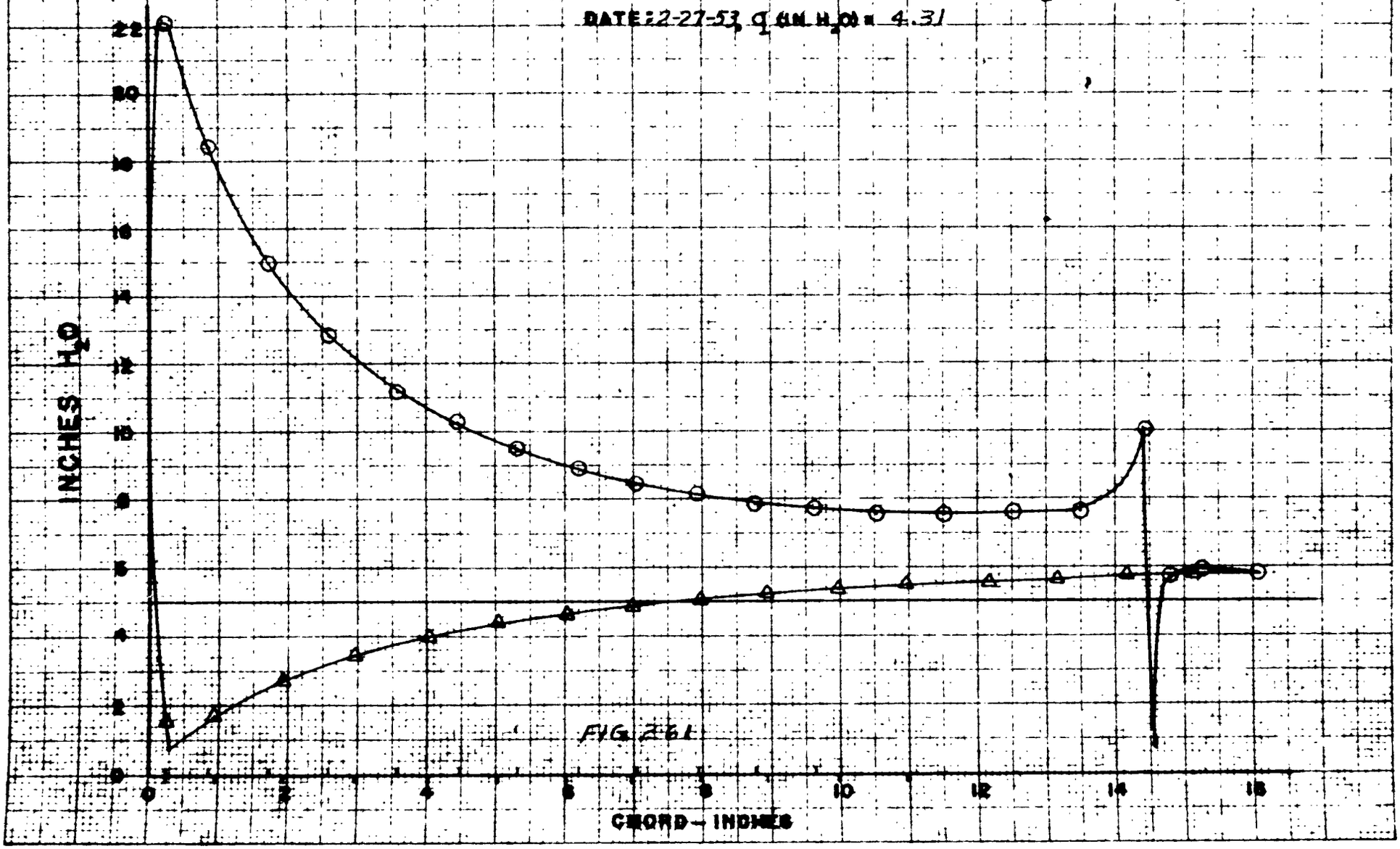


FIG. 261

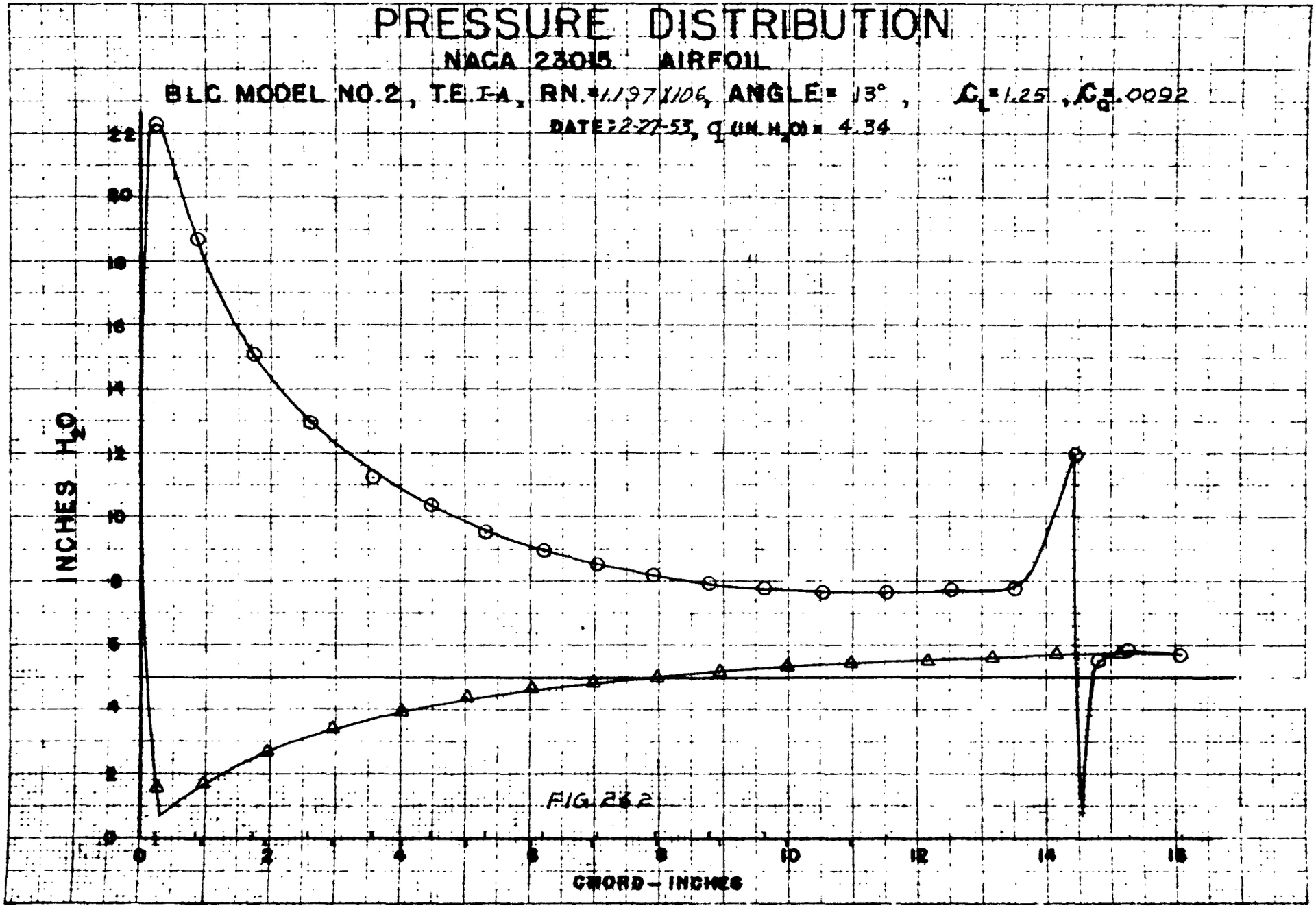

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN.=1197X106, ANGLE= 13°, C_L=1.25, C_d=.0092
DATE: 2-27-53, q (IN. H_2O) = 4.34
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 26.2

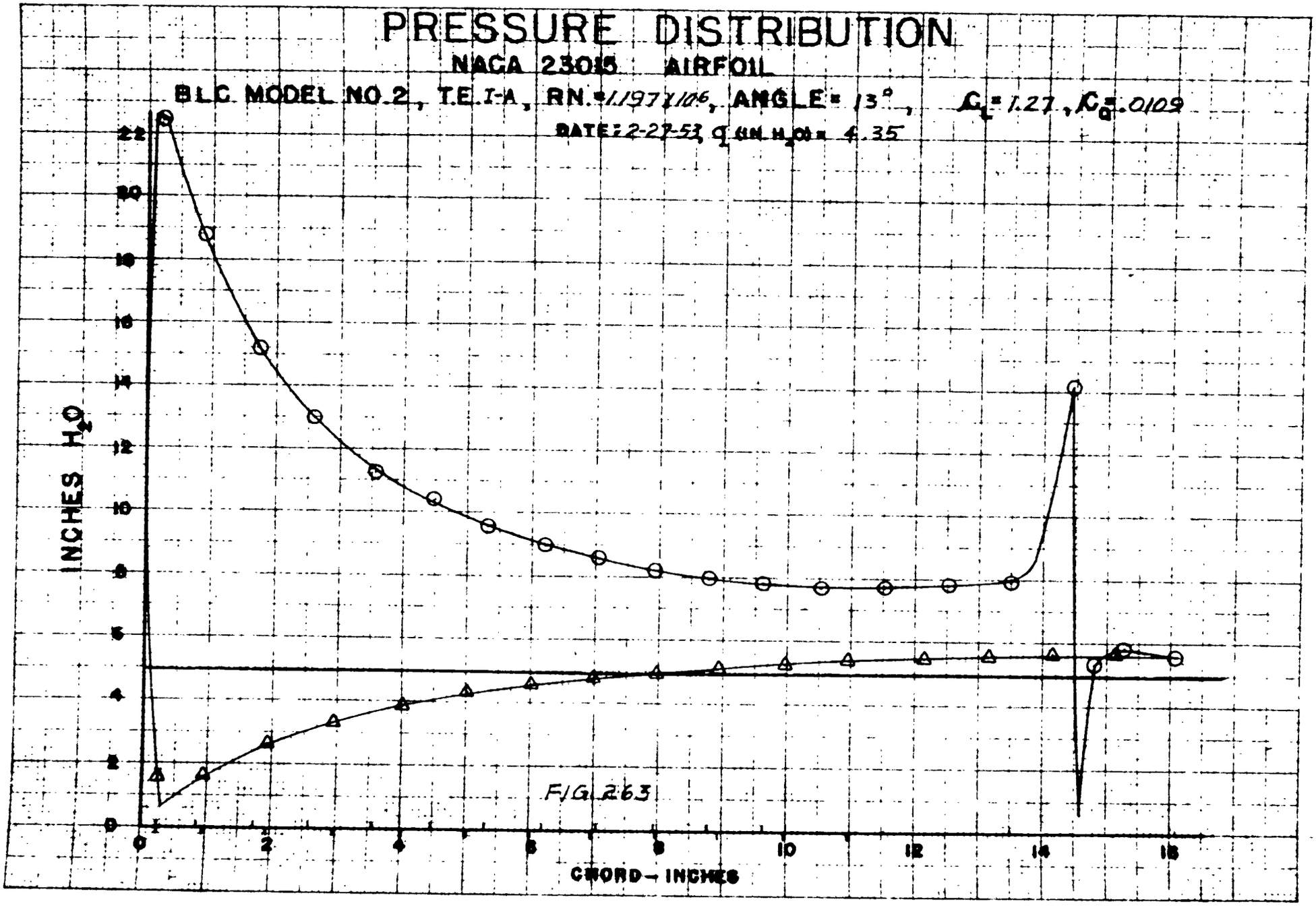

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 13°, C_L = 1.27, C_d = .0109
DATE: 2-27-53, q (IN. H2O) = 4.35
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG 263

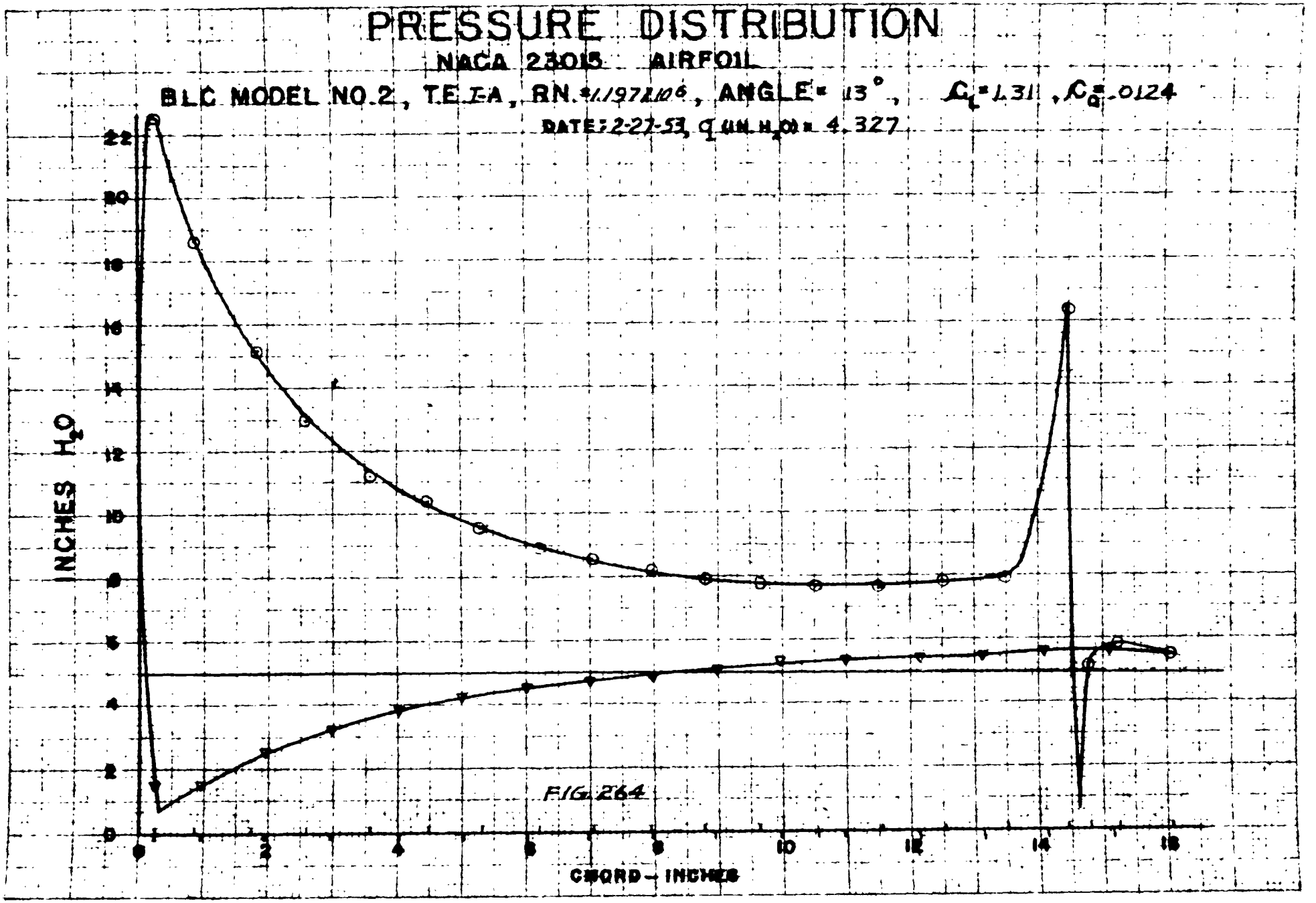

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-A, RN. 4.1197 x 10^6, ANGLE = 13°, C_L = 1.31, C_d = .0124
DATE: 2-27-53, q (IN. H_2O) = 4.327
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 264

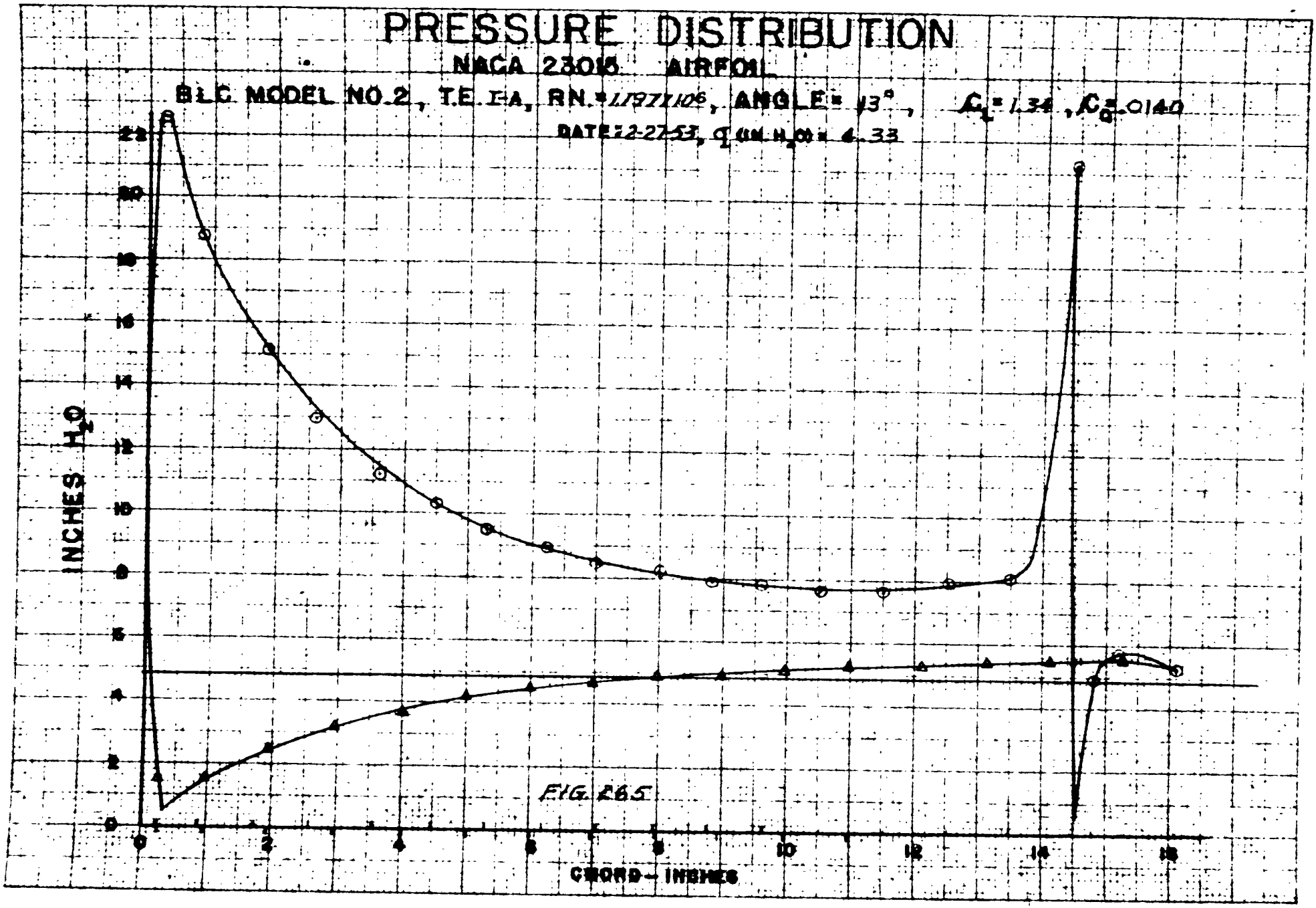
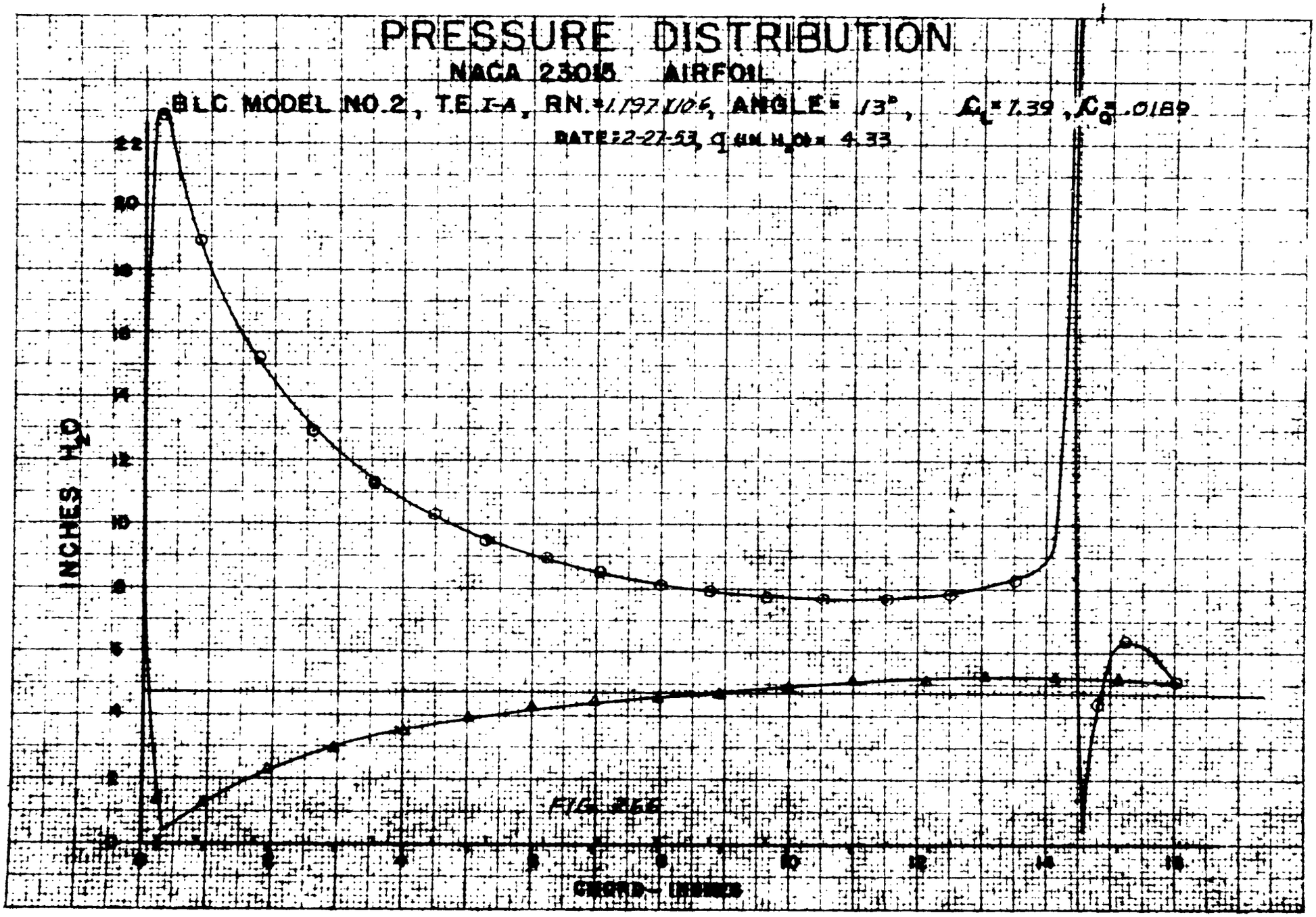

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO 2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 13°, C_L = 1.34, C_D = .0140
DATE: 12-27-53, q (IN H2O) = 4.33
INCHES H2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22

FIG. 265


PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-A, RN. = 1.197 X 10^6, ANGLE = 13°, C_L = 1.39, C_d = .0189
DATE: 2-27-53, q in. H_2O = 4.33
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
2
4
6
8
10
12
14
16
CHORD - INCHES
FIG. 26E

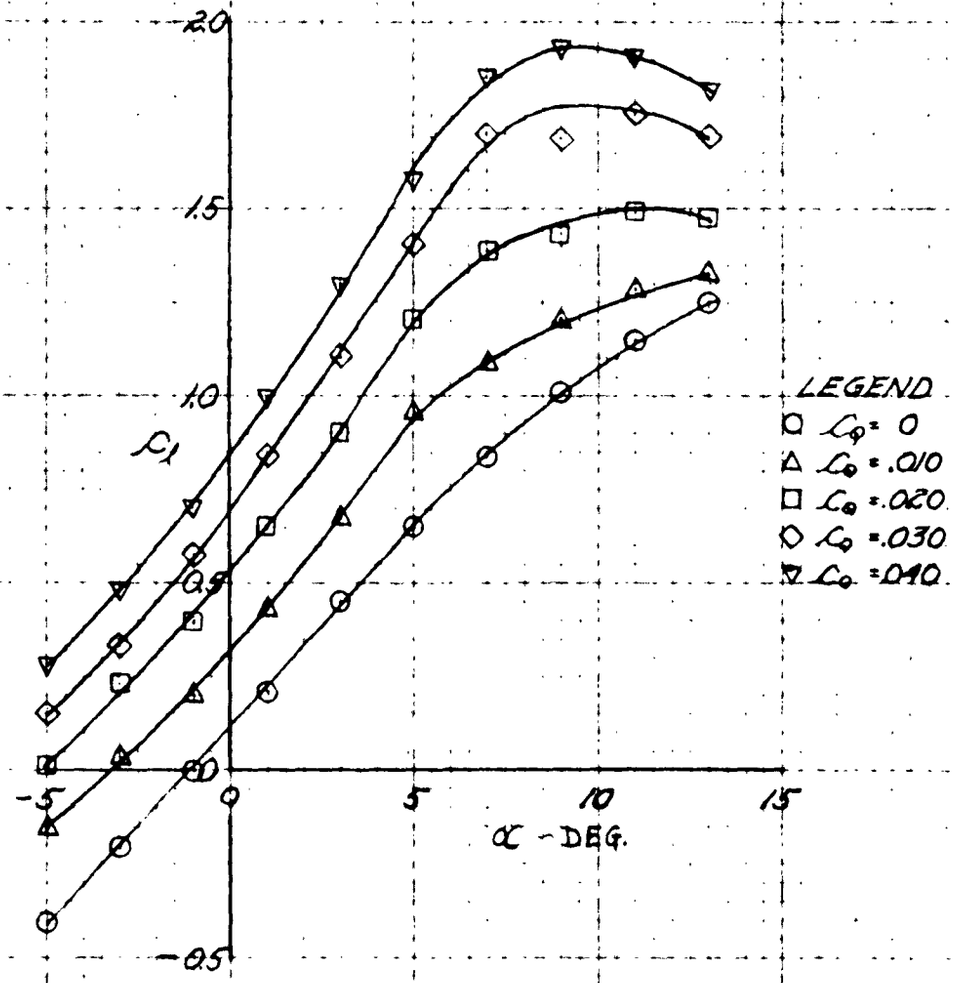
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-B, R. N. = 1.143 X 10^6, 4-10-53

C_l vs. α FOR SEVERAL VALUES OF C_Q

FIG.-267 A

PRESSURE MEASUREMENTS



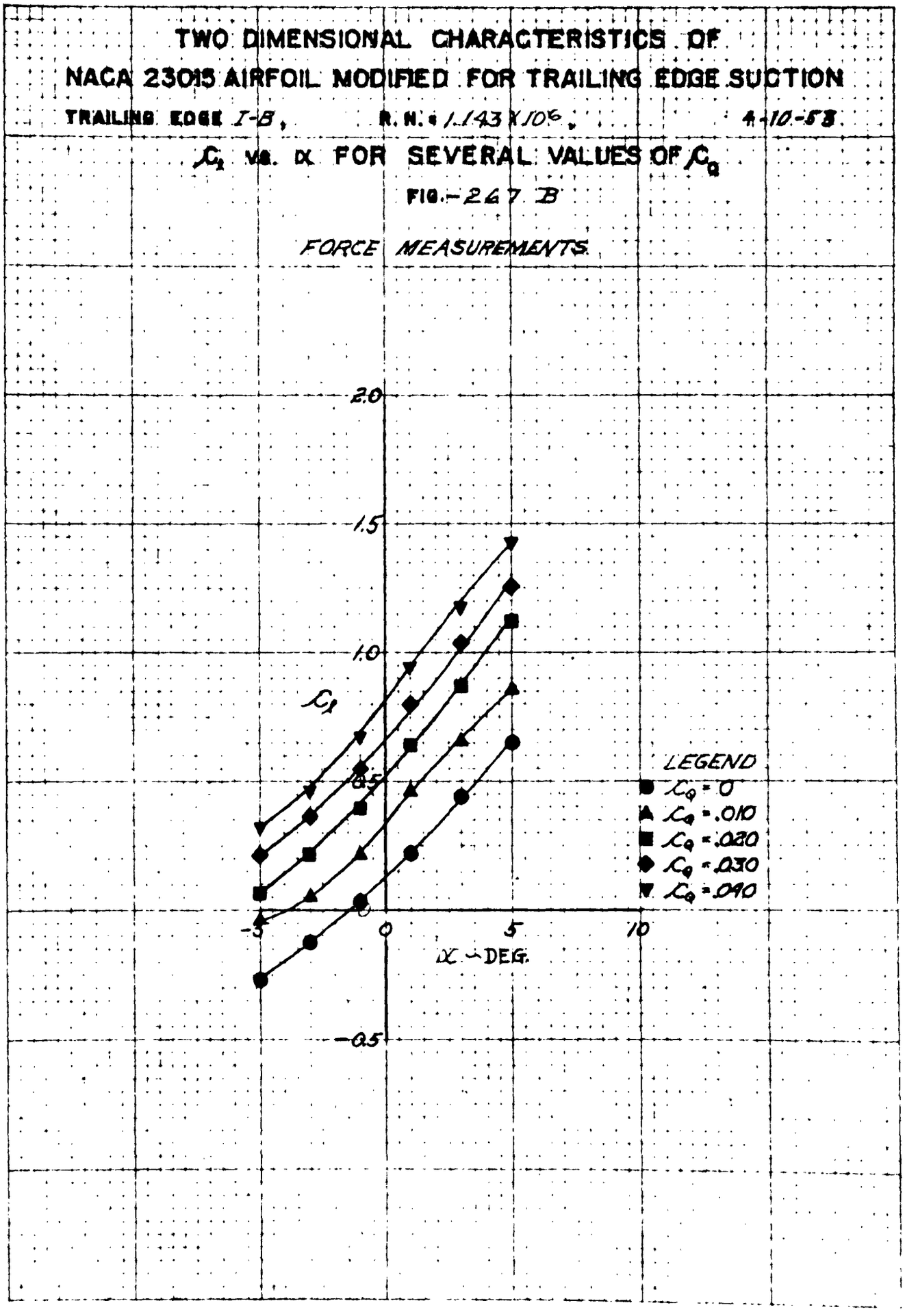
TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-B, R.N. = 1.143 X 10⁶, 4-10-58

C_l vs. α FOR SEVERAL VALUES OF C_Q

FIG.- 267 B

FORCE MEASUREMENTS

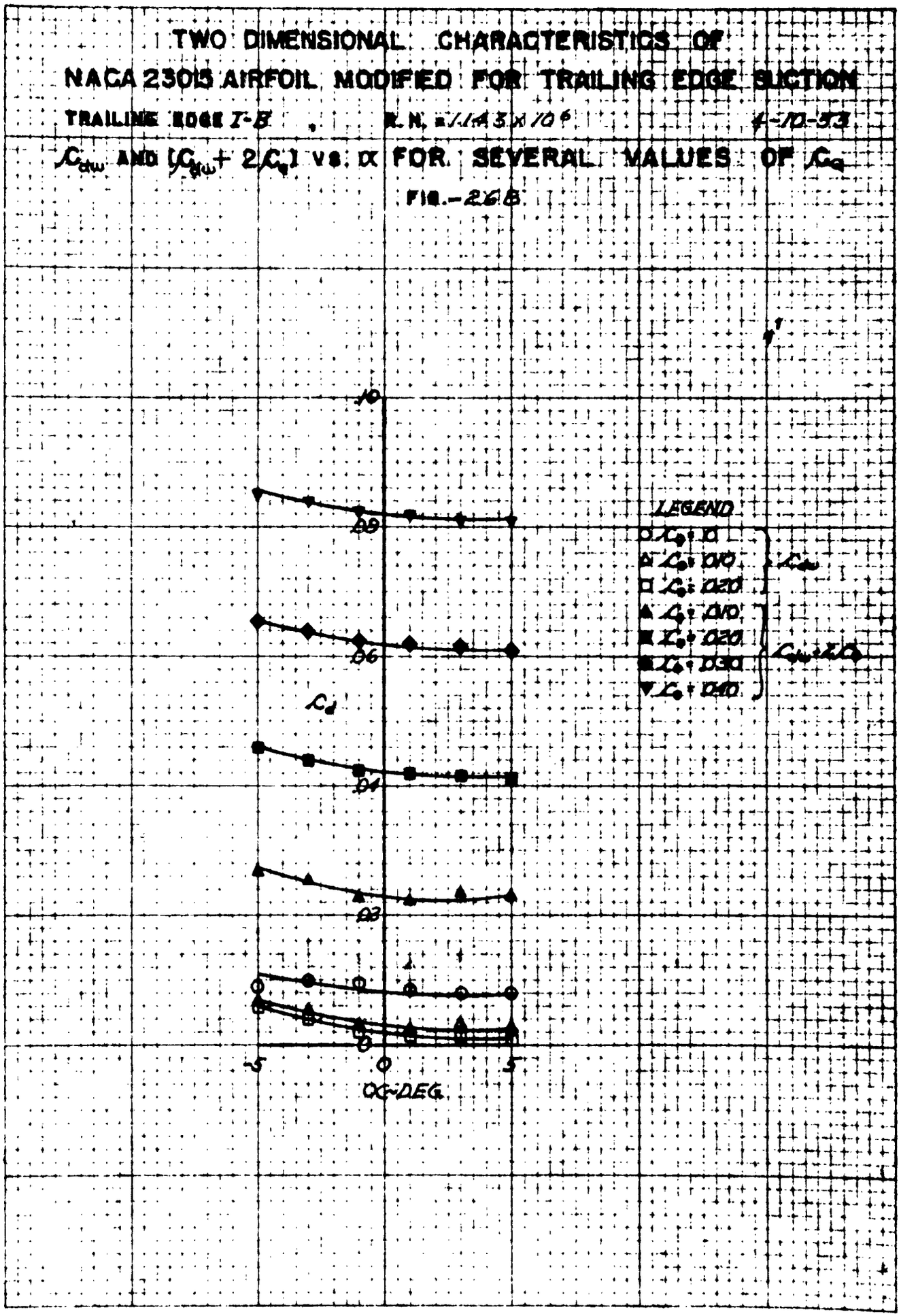


TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-B R.N. = 1.143 x 10⁶ 4-10-53

C_{d_w} AND $C_{d_w} + 2C_q$ vs. α FOR SEVERAL VALUES OF C_q

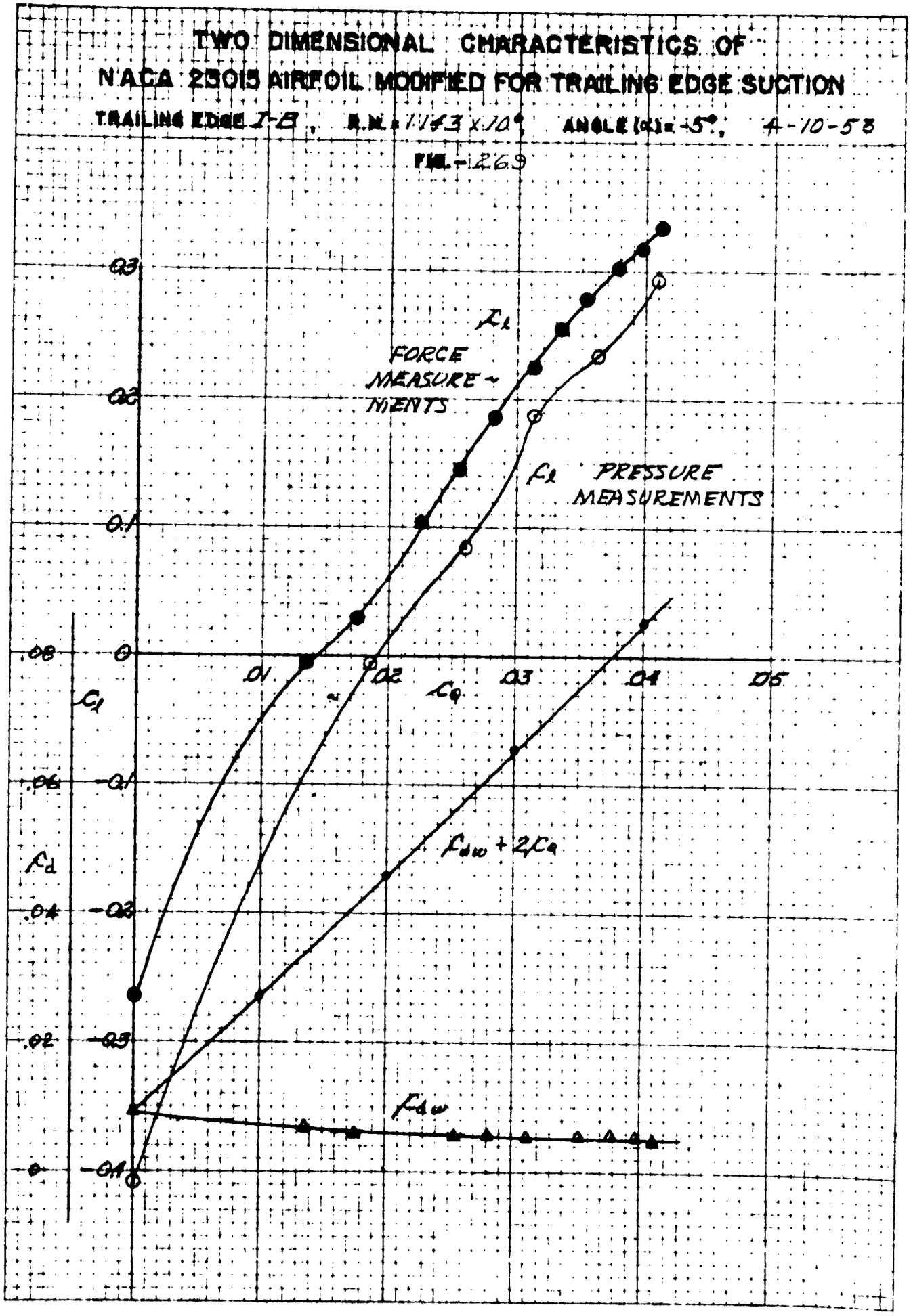
FIG.-26B



TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE T-B, R.N. = 1.143 x 10⁶, ANGLE (α) = -5°, 4-10-58

FIG. - 269



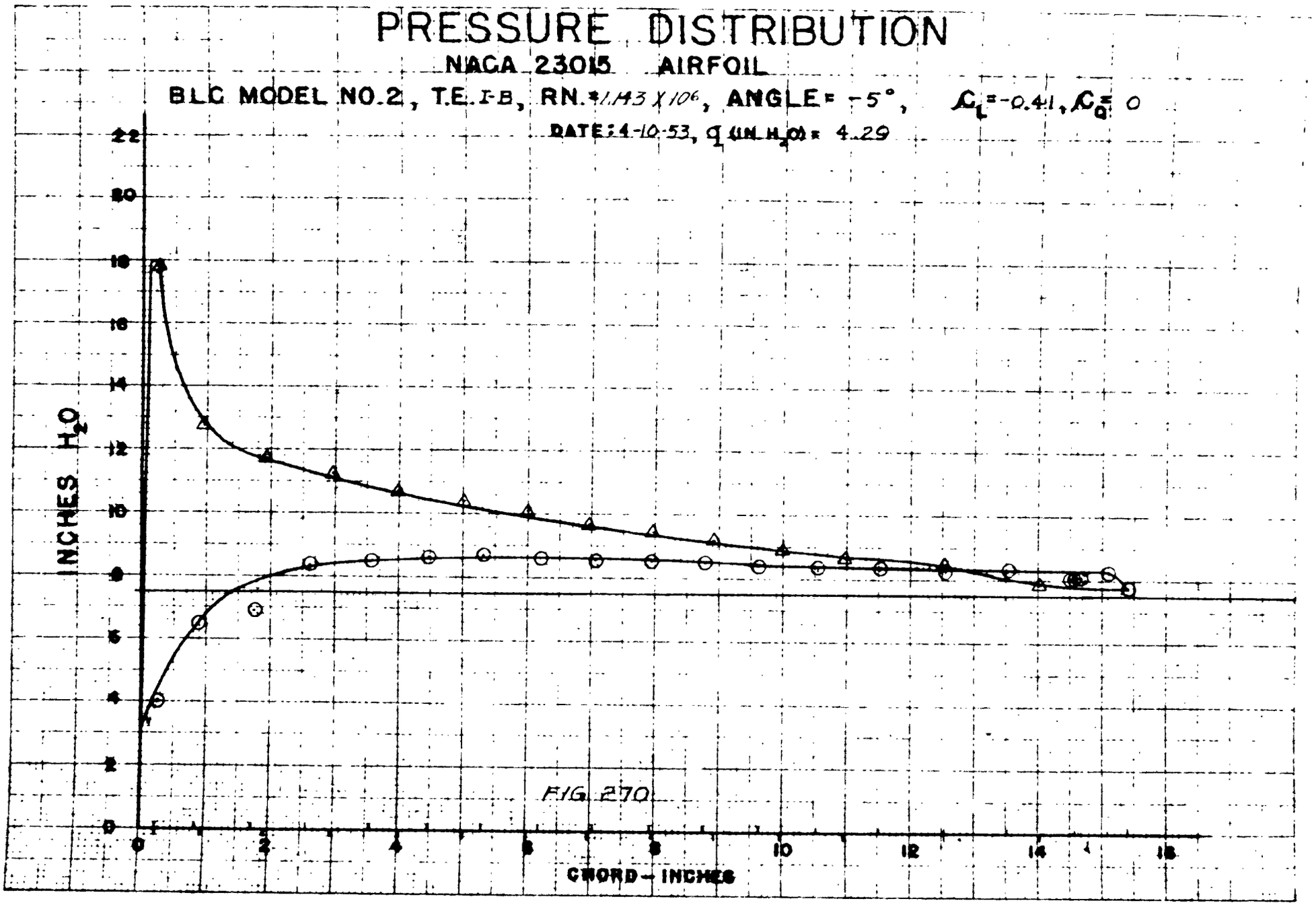

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN.=1.43 X 10⁶, ANGLE = -5°, C_L = -0.41, C_D = 0
DATE: 4-10-53, q (IN. H_2O) = 4.29
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 270

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-B, RN. = 1.143 X 10^6, ANGLE = -5°, C_L = 0, C_d = .0186

DATE: 7-10-53, q (IN H_2O) = 4.29

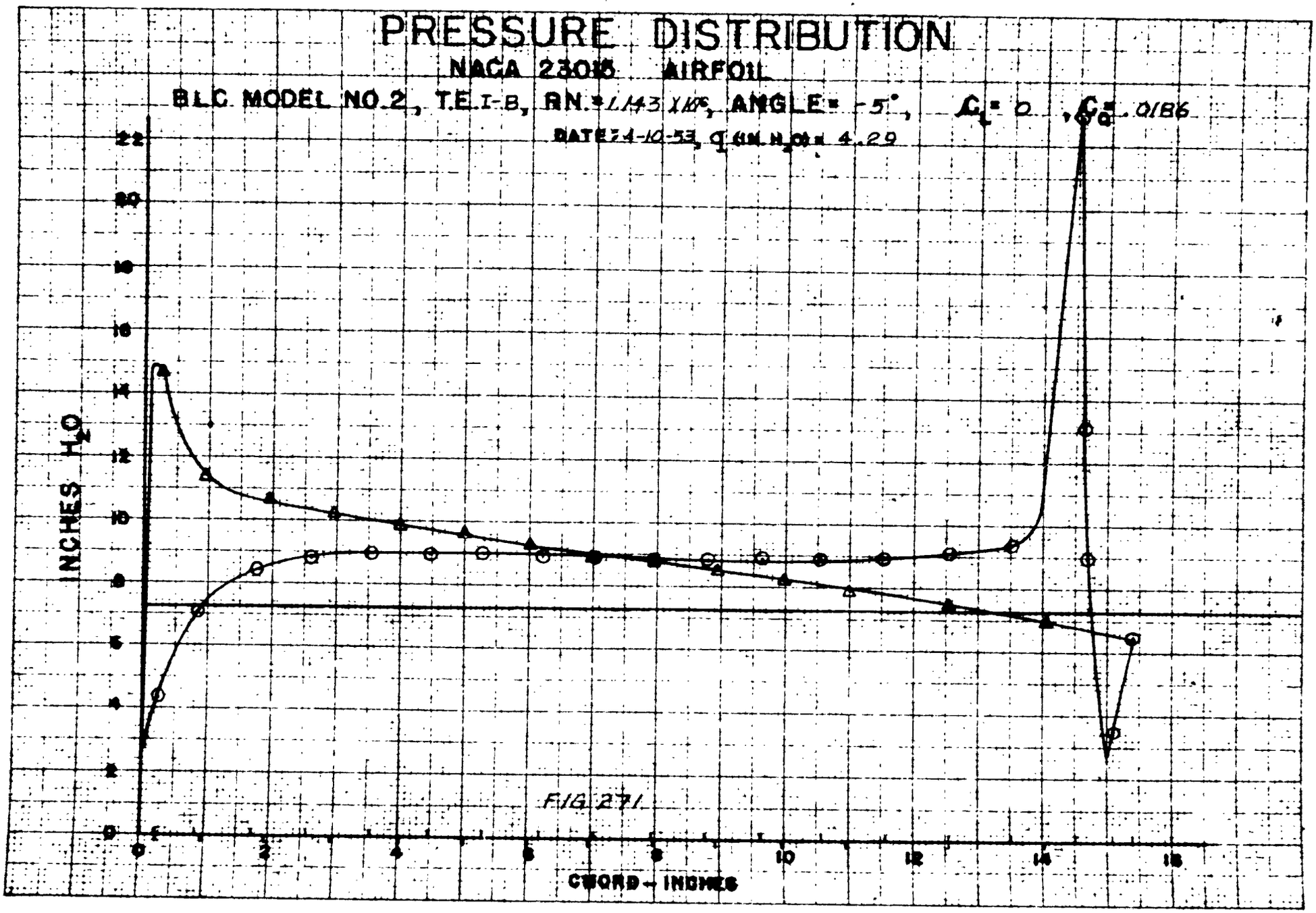


FIG 27

KEUFFEL & ESSER CO

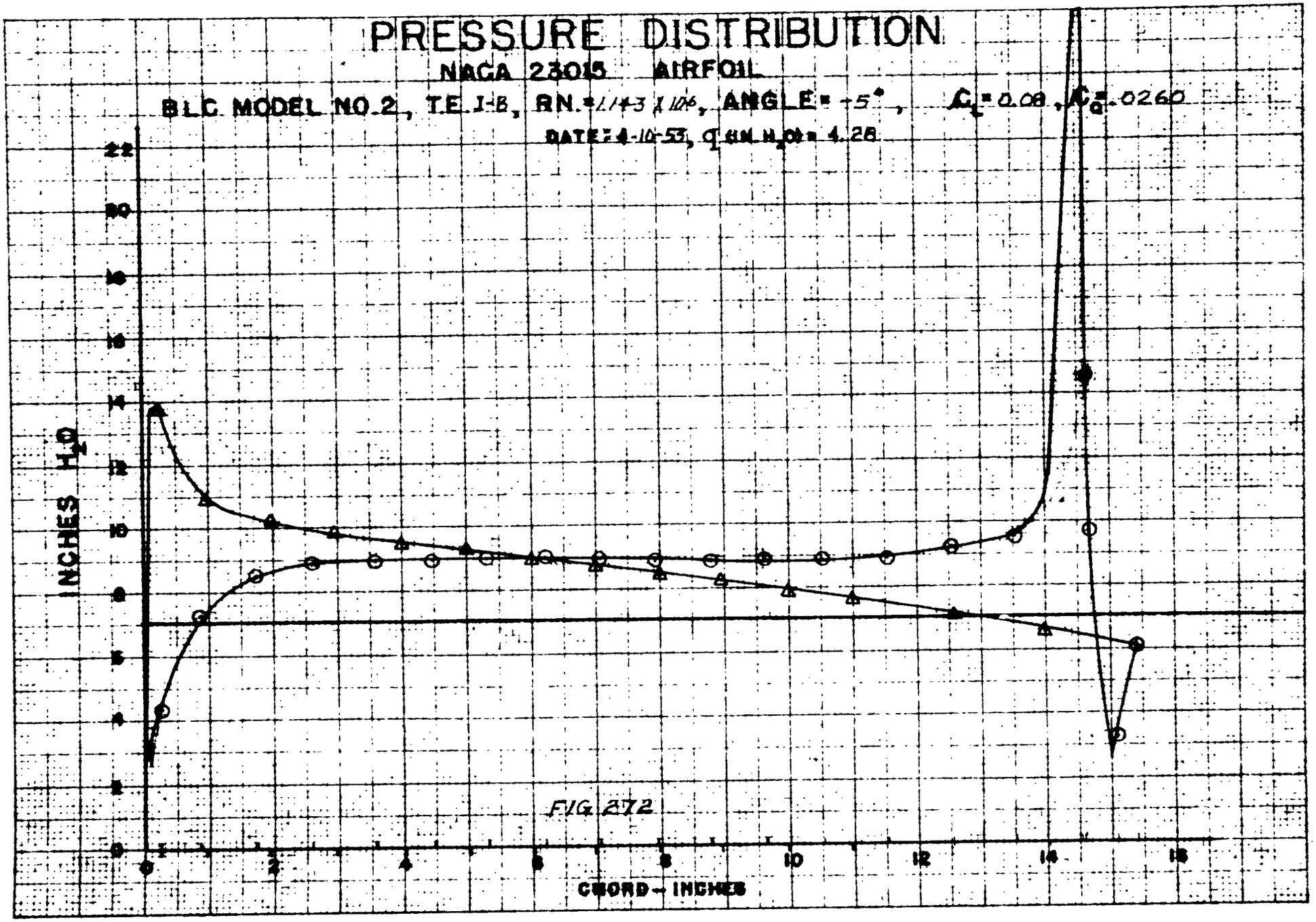


FIG 272

KRUPPEL & ESSER CO

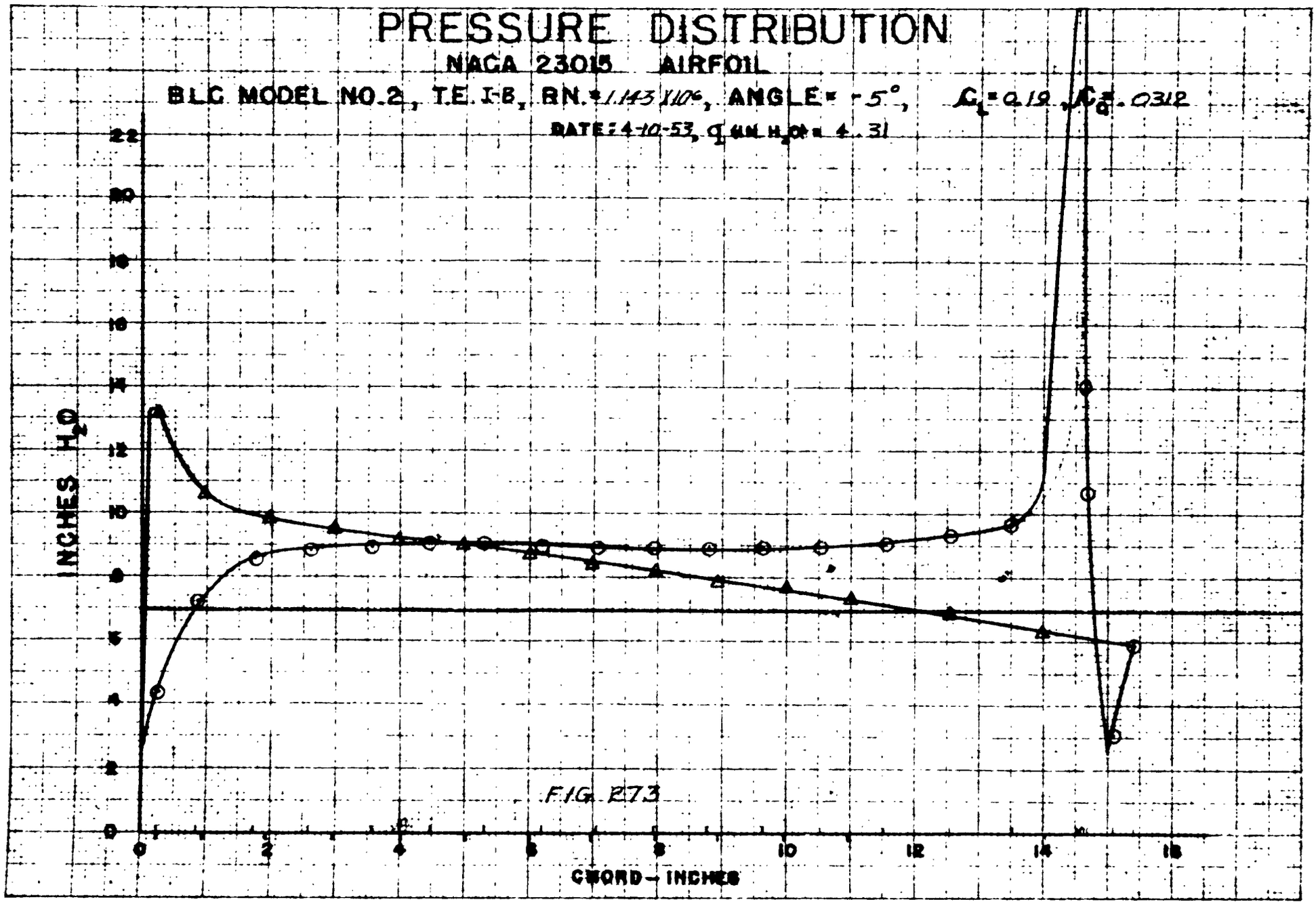


FIG. 273

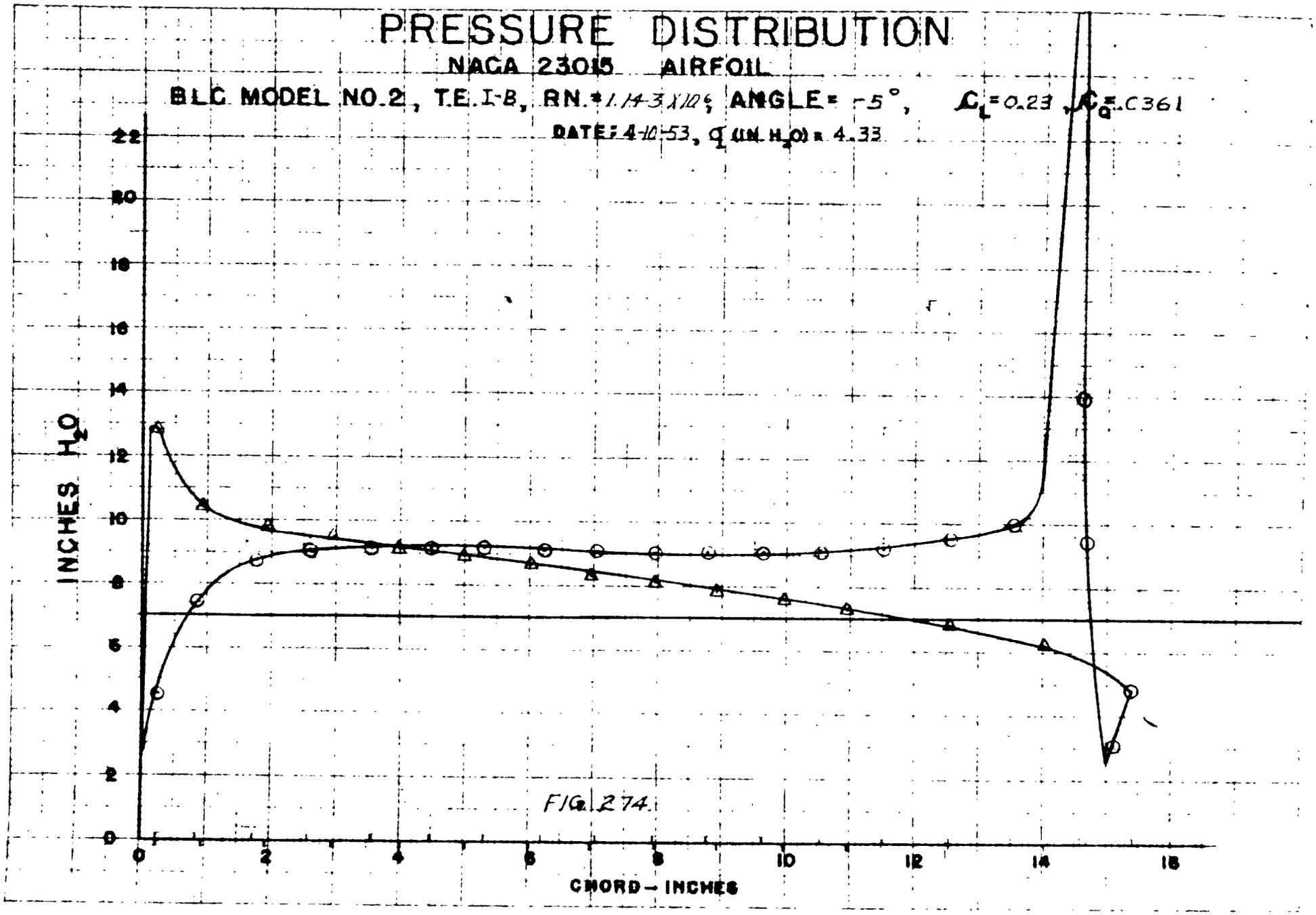

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E.I-B, RN.=1.143X10⁶, ANGLE= -5°, C_L=0.23, C_d=.0361
DATE: 4-10-53, q (IN. H_2O) = 4.33
INCHES H_2O
CHORD - INCHES
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
12
14
16

FIG. 274.

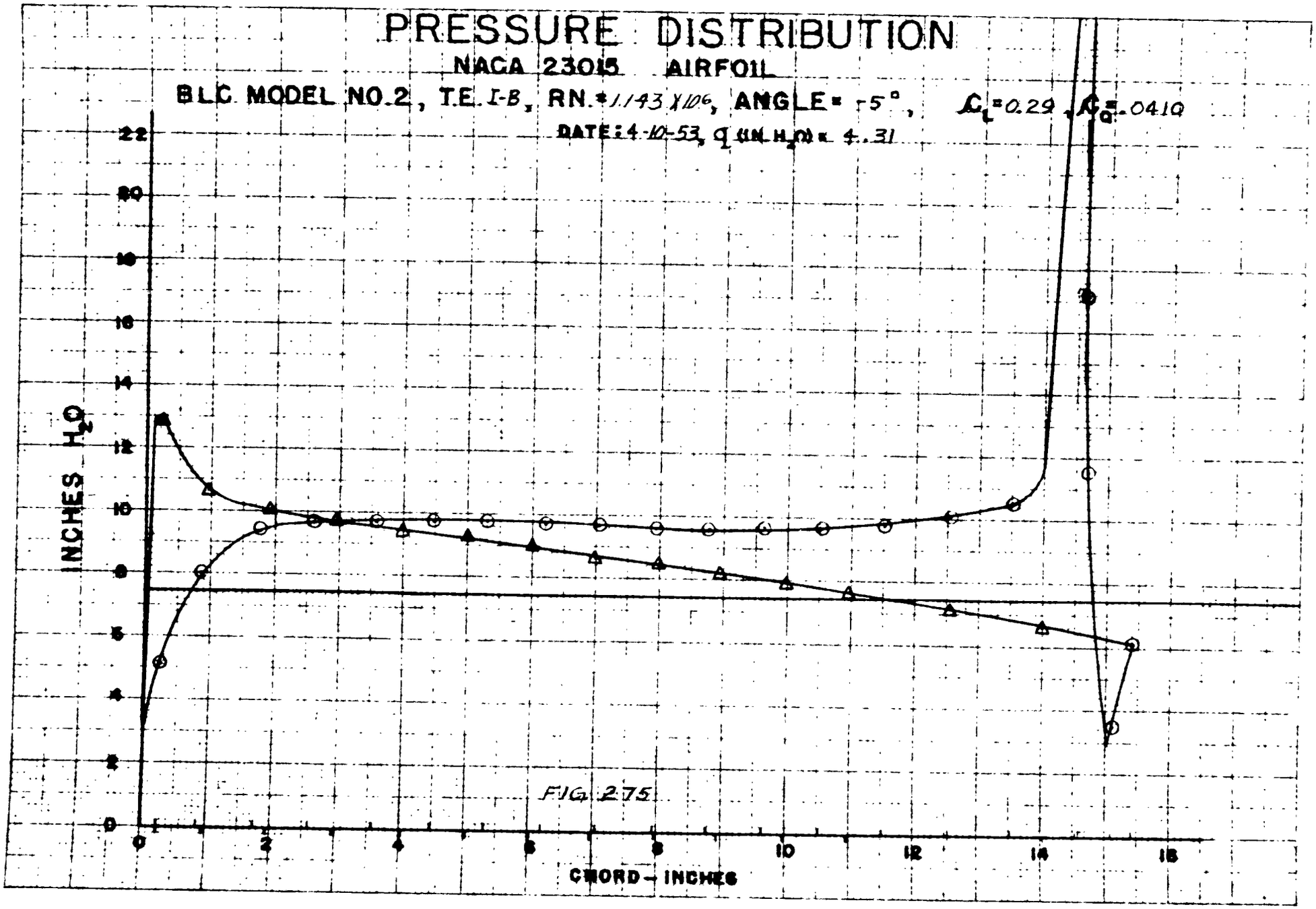
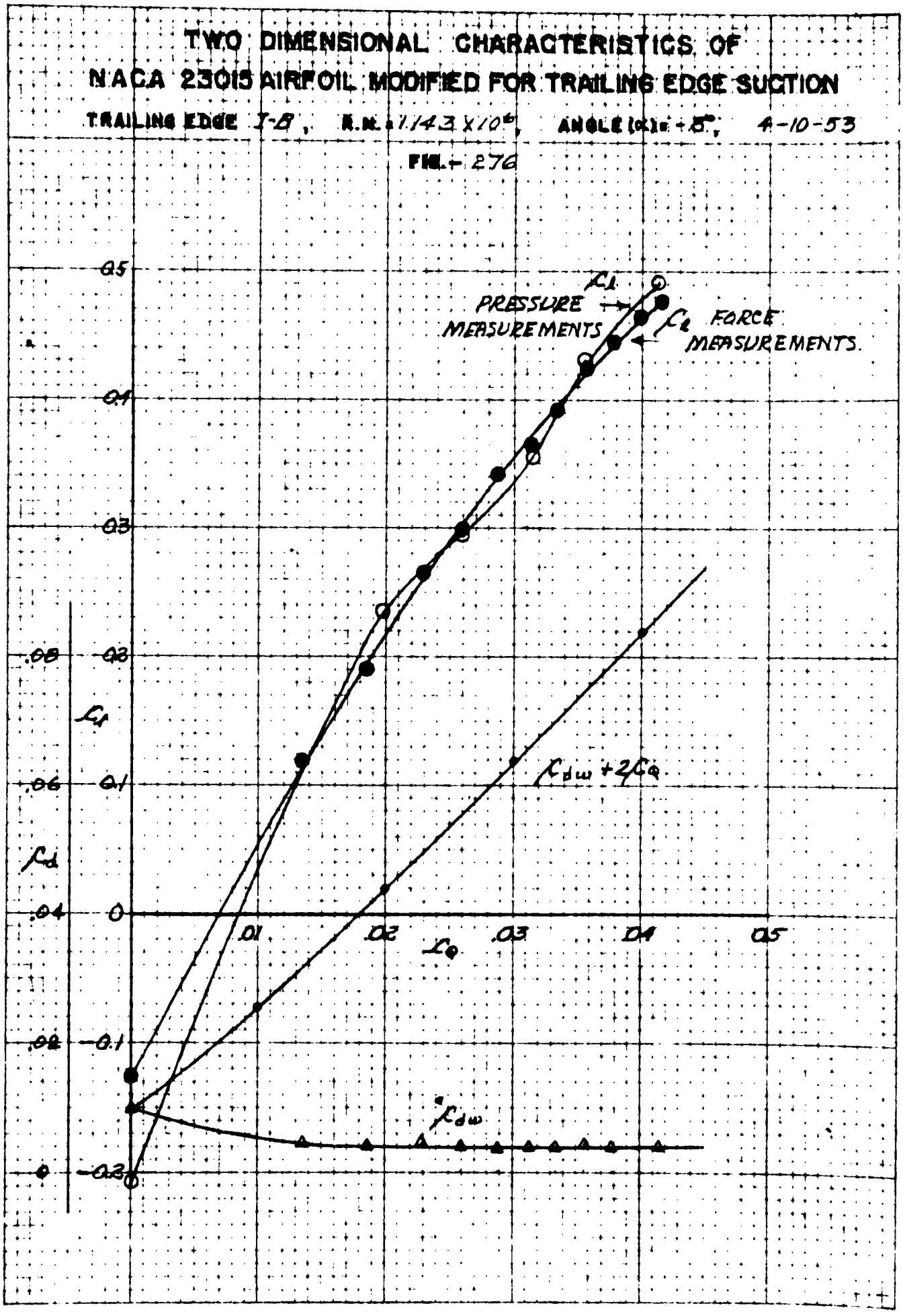

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN.*1.143 X10⁶, ANGLE = -5°, C_L=0.29, C_d=.0410
DATE: 4-10-53, q (IN. H_2O) = 4.31
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG 275


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-B, R.N. = 1.143 X 10^6, ANGLE (α)= +8°, 4-10-53
FIG. - 276
PRESSURE MEASUREMENTS
FORCE MEASUREMENTS.
c_l
c_d
$c_{d\omega}$
$c_{d\omega} + 2c_q$
c_q
.05
.04
.03
.02
.01
0
-.01
-.02
.08
.06
.04
.02
0
.01
.02
.03
.04
.05

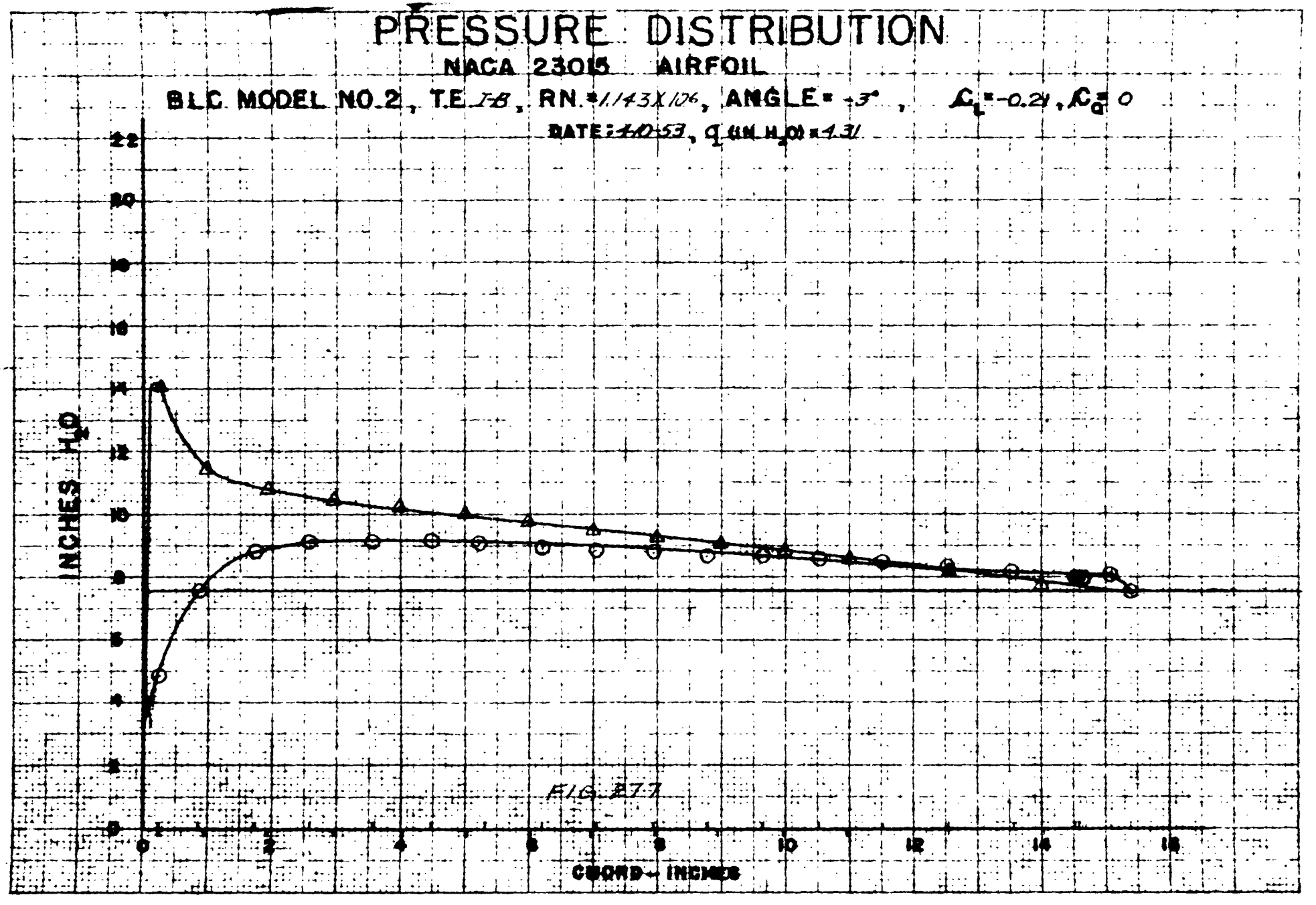

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. 1/8, RN. = 1.143 X 10⁶, ANGLE = +3°, C_L = -0.21, C_d = 0
DATE: 10-53, q in. H_2O = 4.31
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 27

KEUFFEL & ESSER CO
10 to the ¼ inch, 5th Lines accented.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. Full, RN = 1.43 x 10⁶, ANGLE = -3°, C_L = 0.23, C_d = .0198

DATE 1-10-53, q (in. H_2O) = 4.29

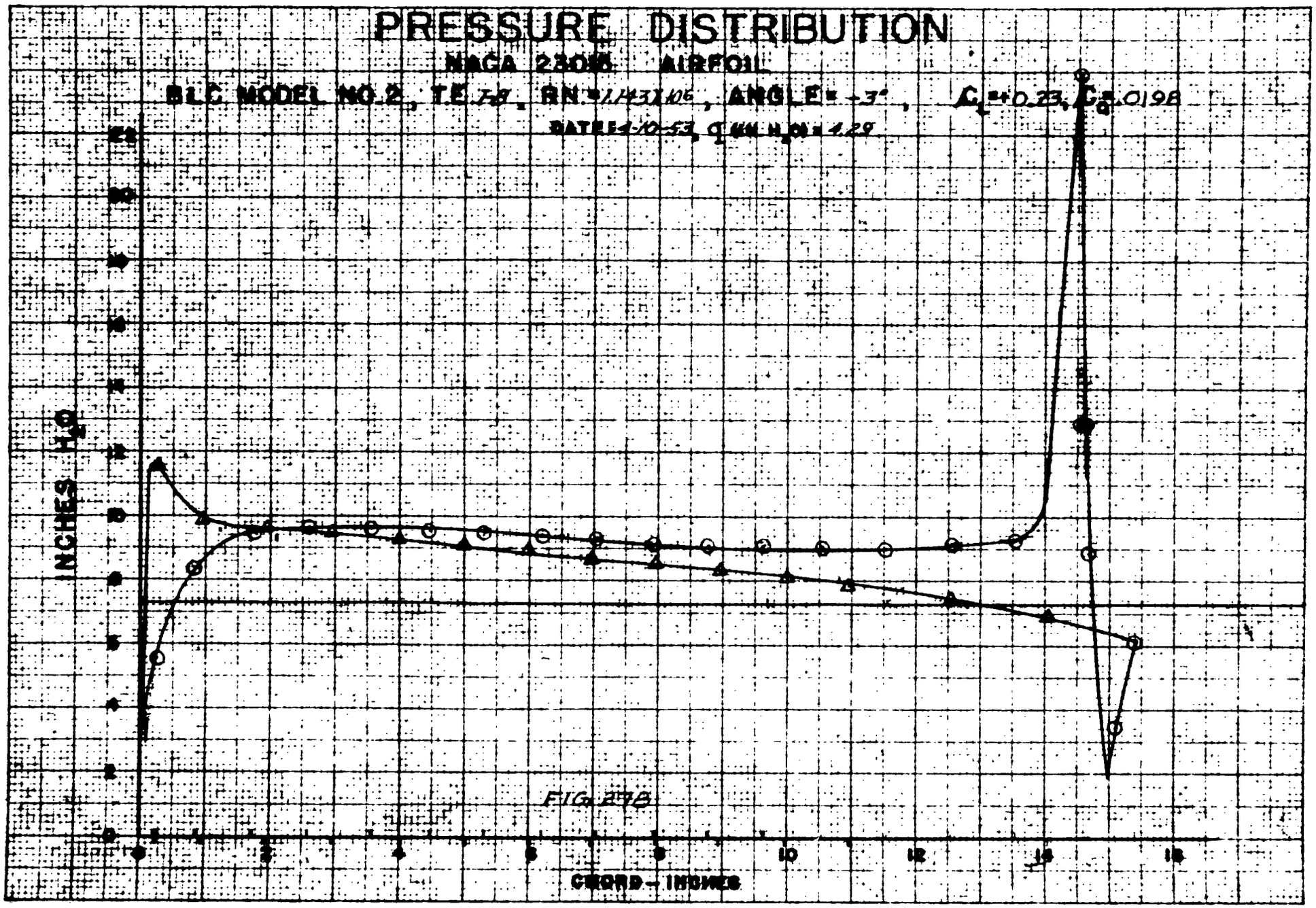


FIG. 27B

FEUPPEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-B, RN. = 1.143 x 10⁶, ANGLE = -3°, C_L = 0.30, C_d = .0259

DATE: 4-10-53, q_1 (IN H_2O) = 4.31

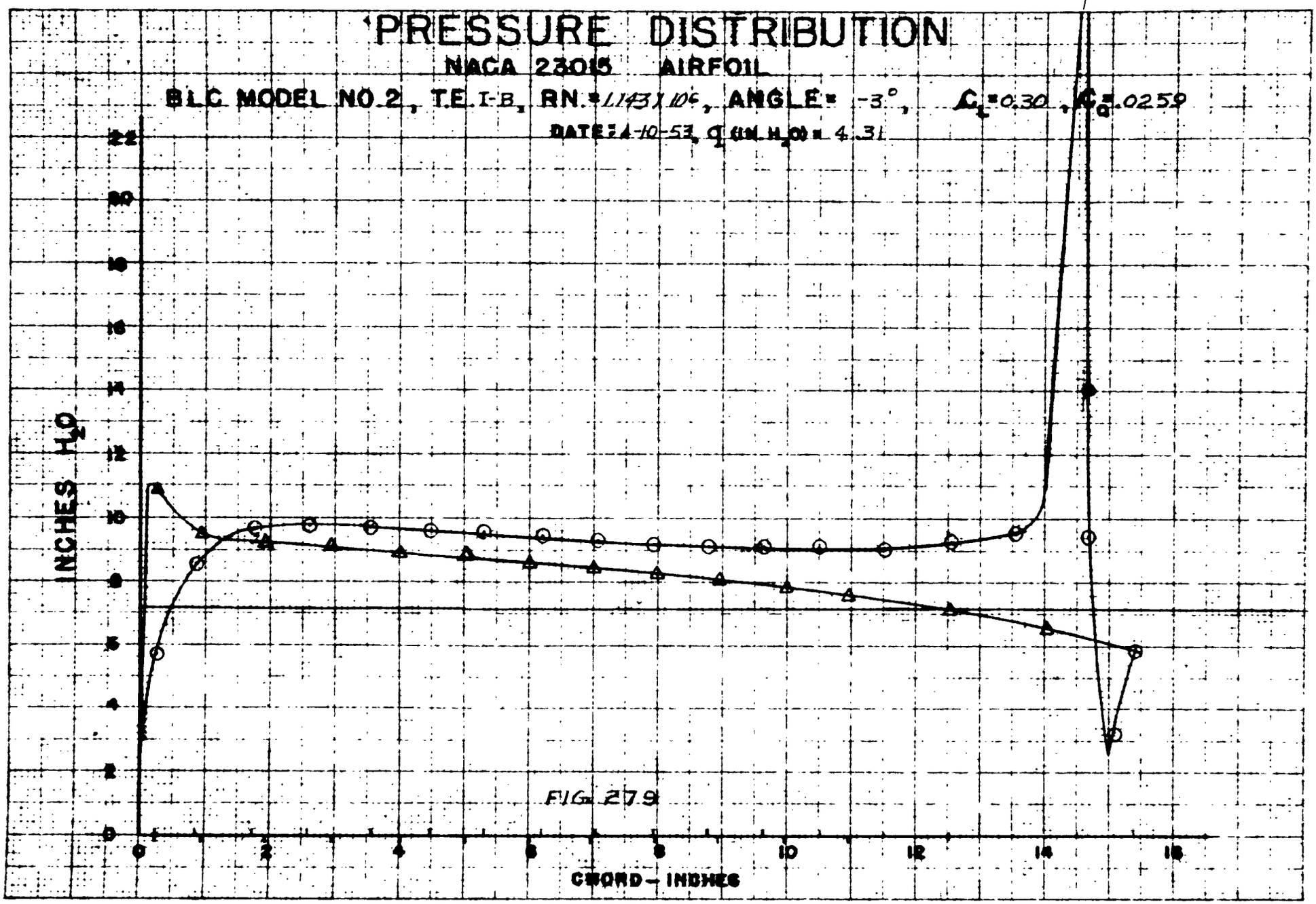


FIG. 27.9

KEUFFEL & ESSER CO

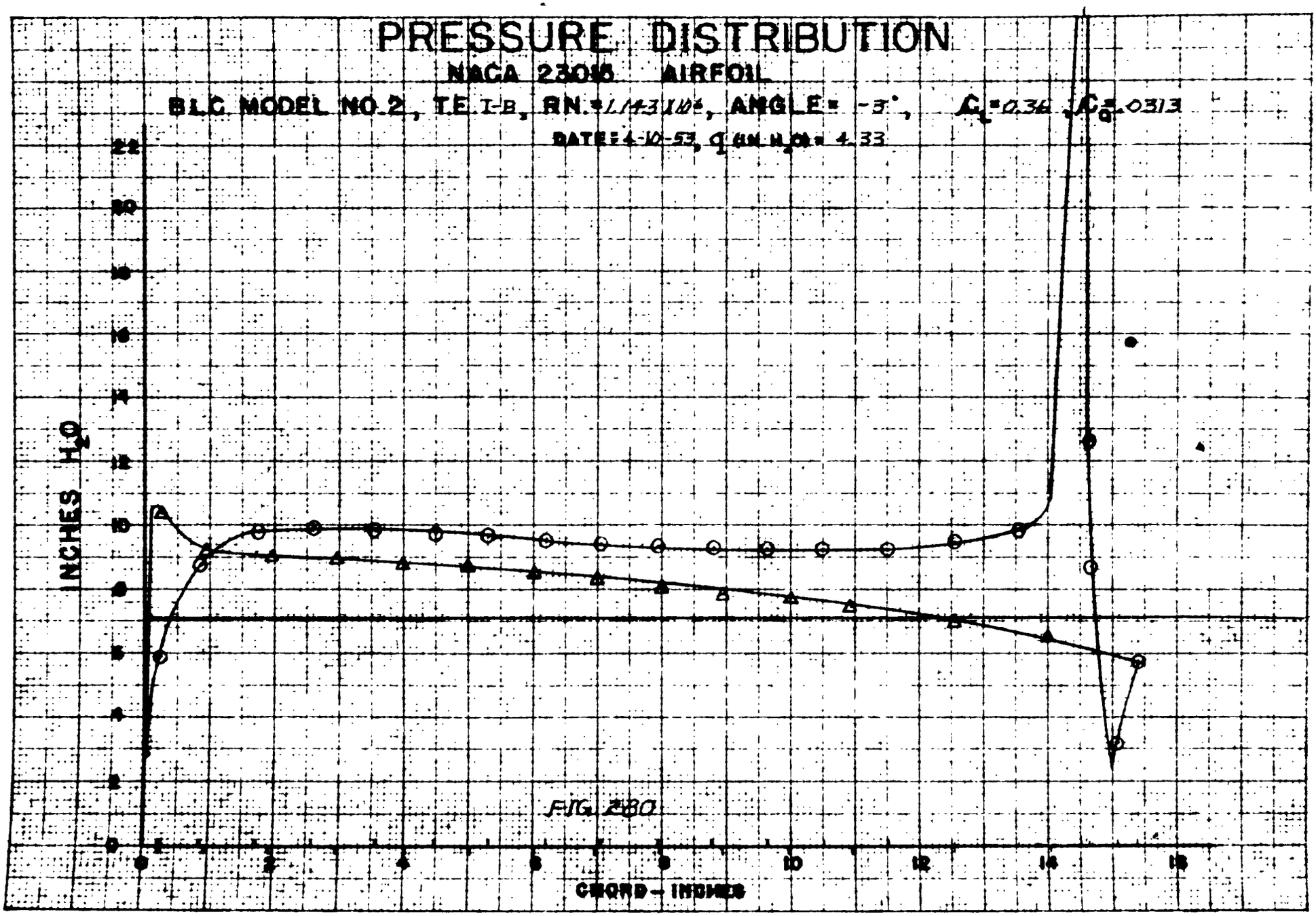


FIG. 230

KEUFFEL & ESSER CO

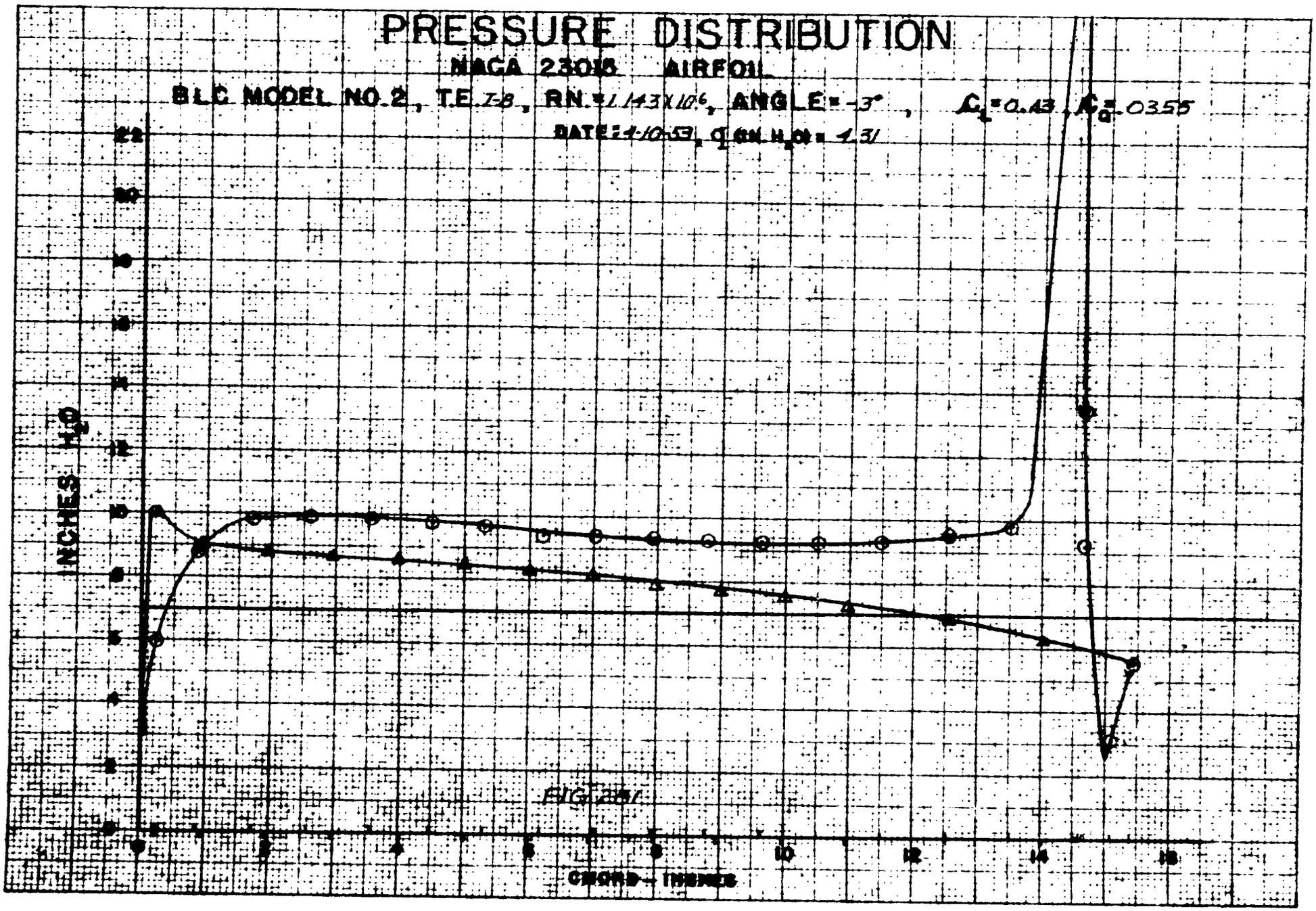


FIG. 28A

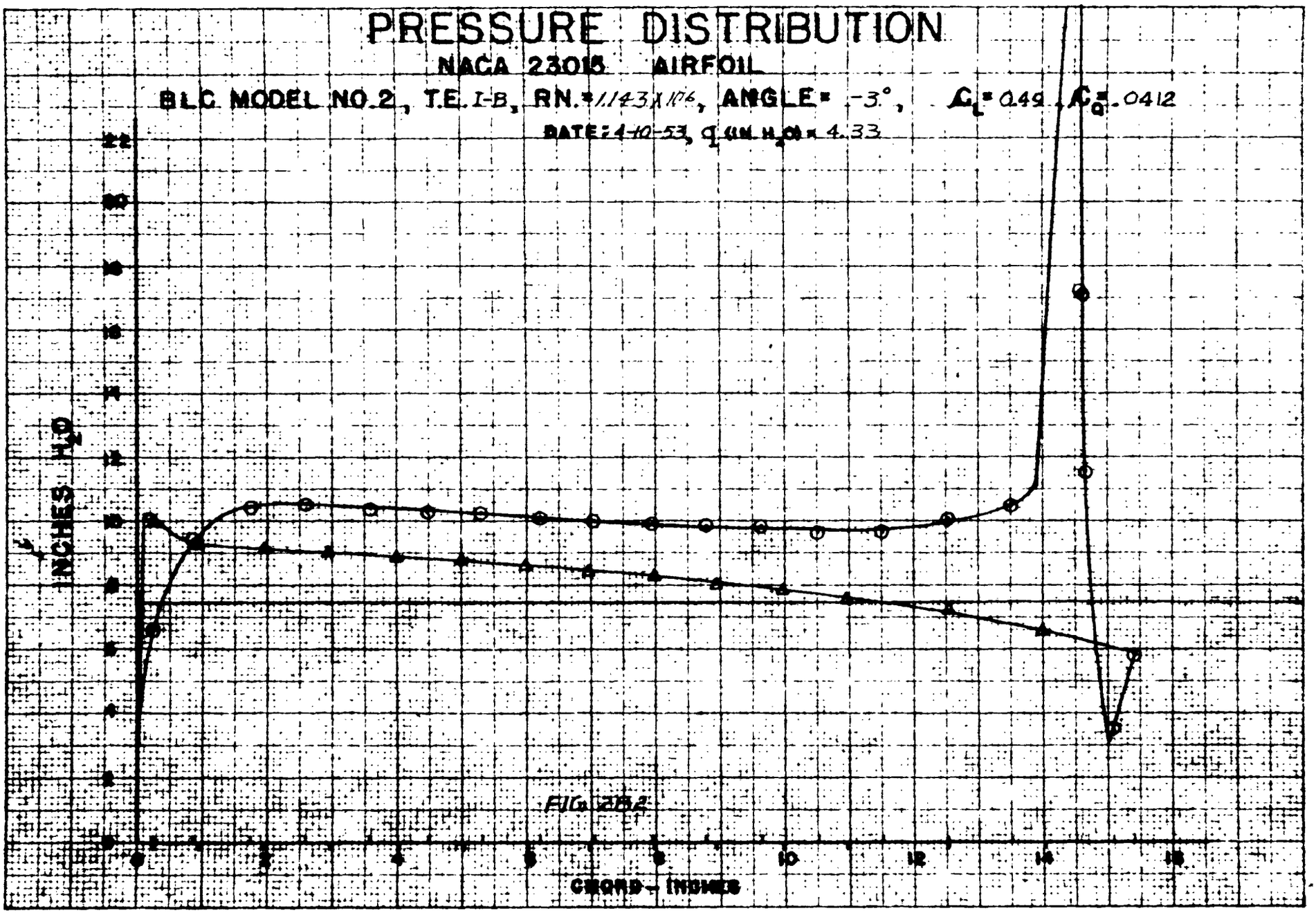
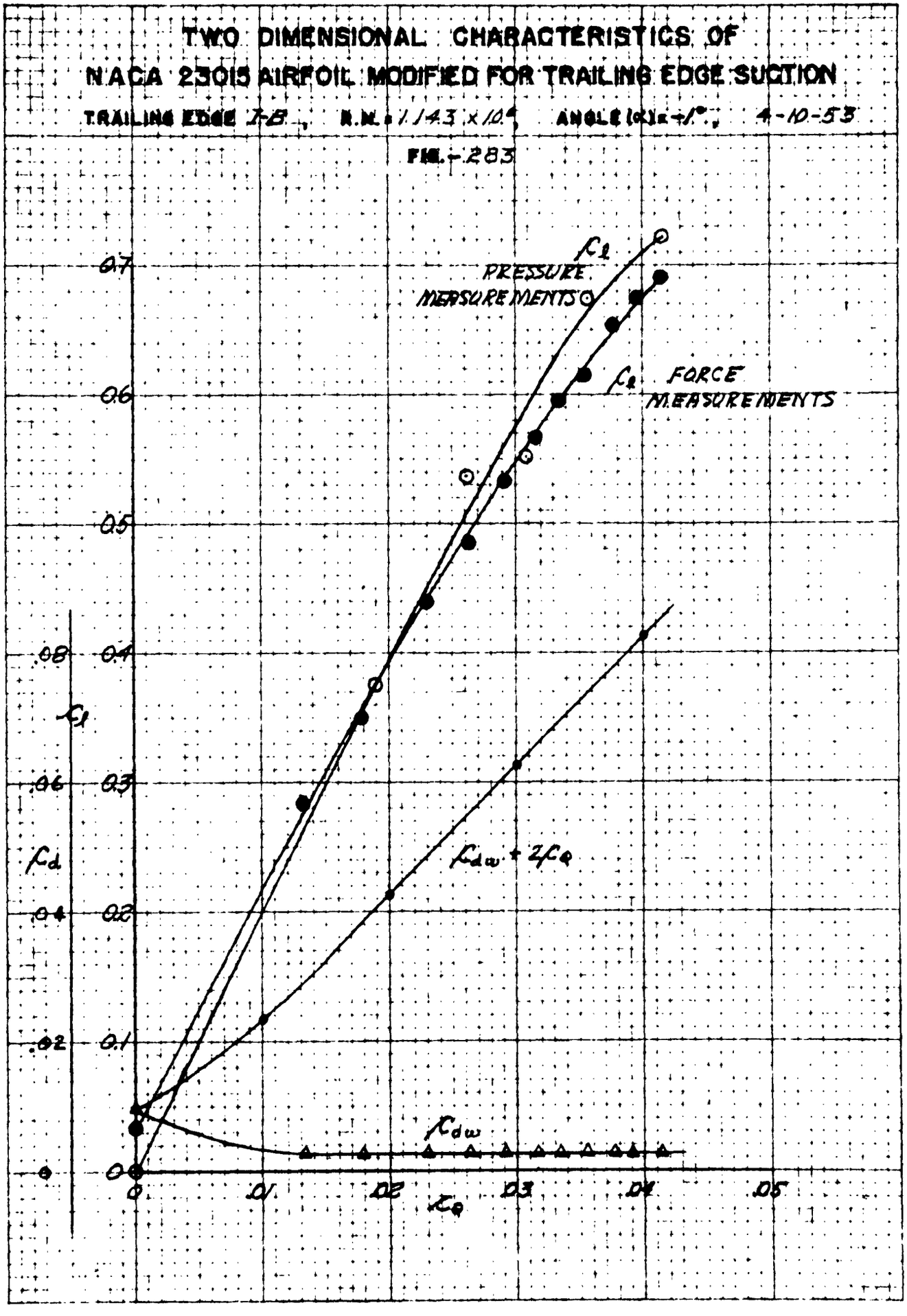

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN.=1.143 X 10^6, ANGLE = -3°, C_L = 0.49, C_D = .0412
DATE: 4-10-53, q (IN. H_2O) = 4.33
INCHES H_2O
CHORD - INCHES

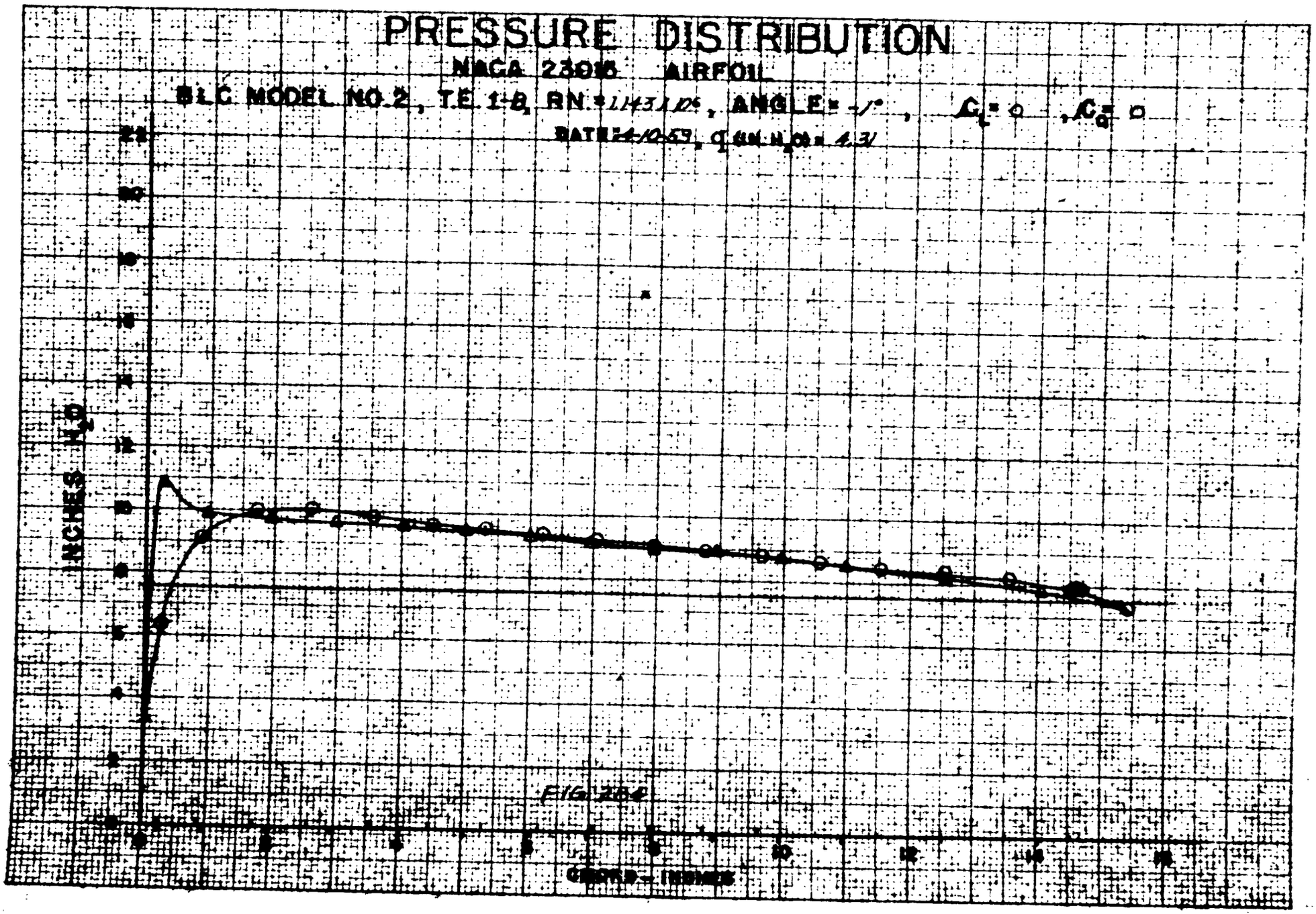
FIG. 2B2

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE 7-8 , R.N. = 1.143 x 10^6, ANGLE (α)i = +1°, 4-10-53

FIG. - 283




PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. 1-B, RN = 1143 x 10^6, ANGLE = -1°, C_L = 0, C_D = 0
DATE 24-10-53, q (IN. H2O) = 4.31
INCHES H2O
FIG 28 C
CHORD - INCHES

KEUFFEL & ESSER CO
To the ½ Inch, 6th lines a centi

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I.D., R.N. = 1.143 X 10^6, ANGLE = -1°, C_L = 0.38, C_Q = 0.0189

DATE: 4-20-53, q (cm H_2O) = 1.33

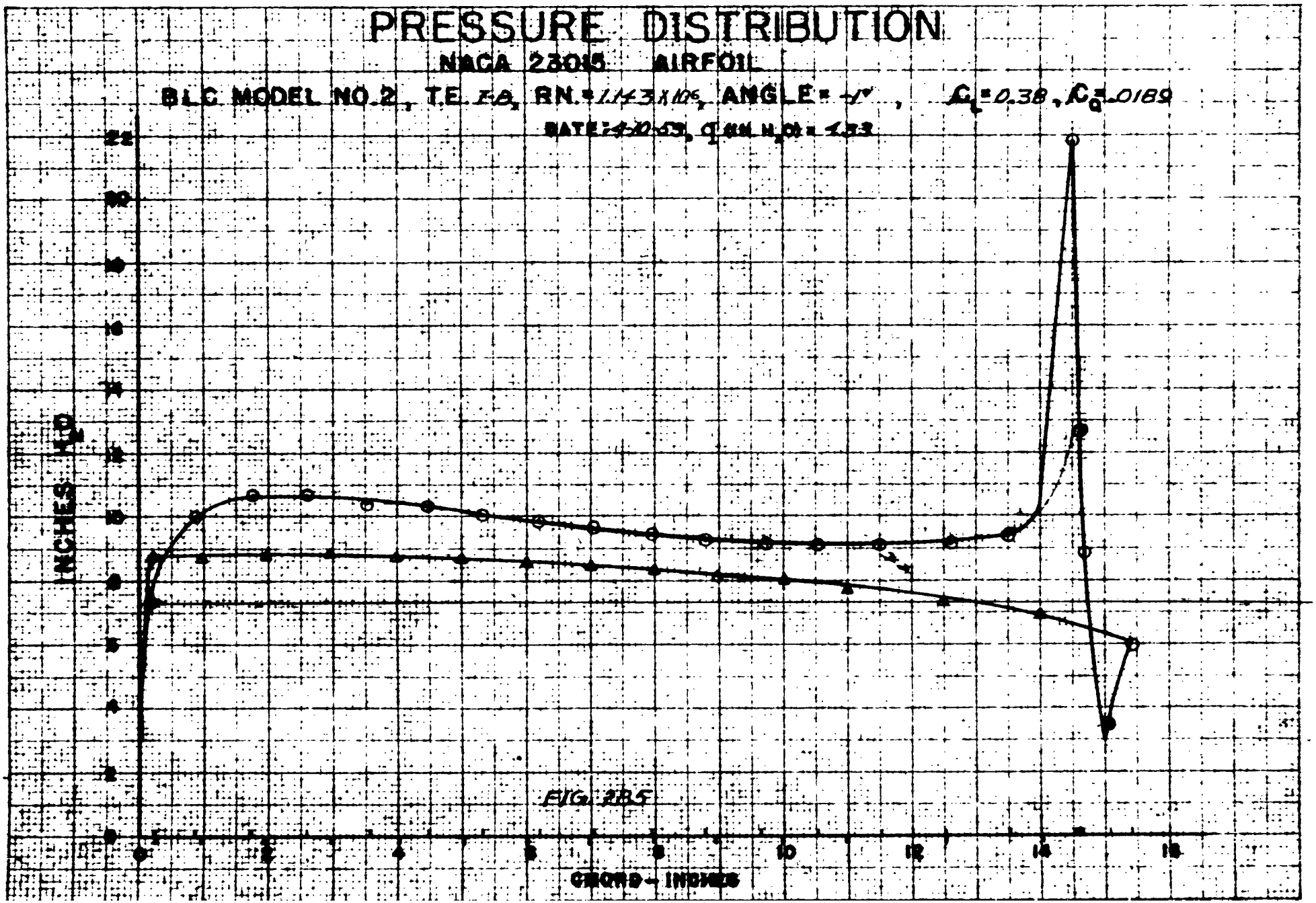


FIG. 23S

KEUFFEL & ESSER CO.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO.2, T.E. I-B, RN. = 1.143 X 10^6, ANGLE = -1°, C_L = 0.54, C_d = .0261

DATE = 4-10-53, q (IN H_2O) = 1.31

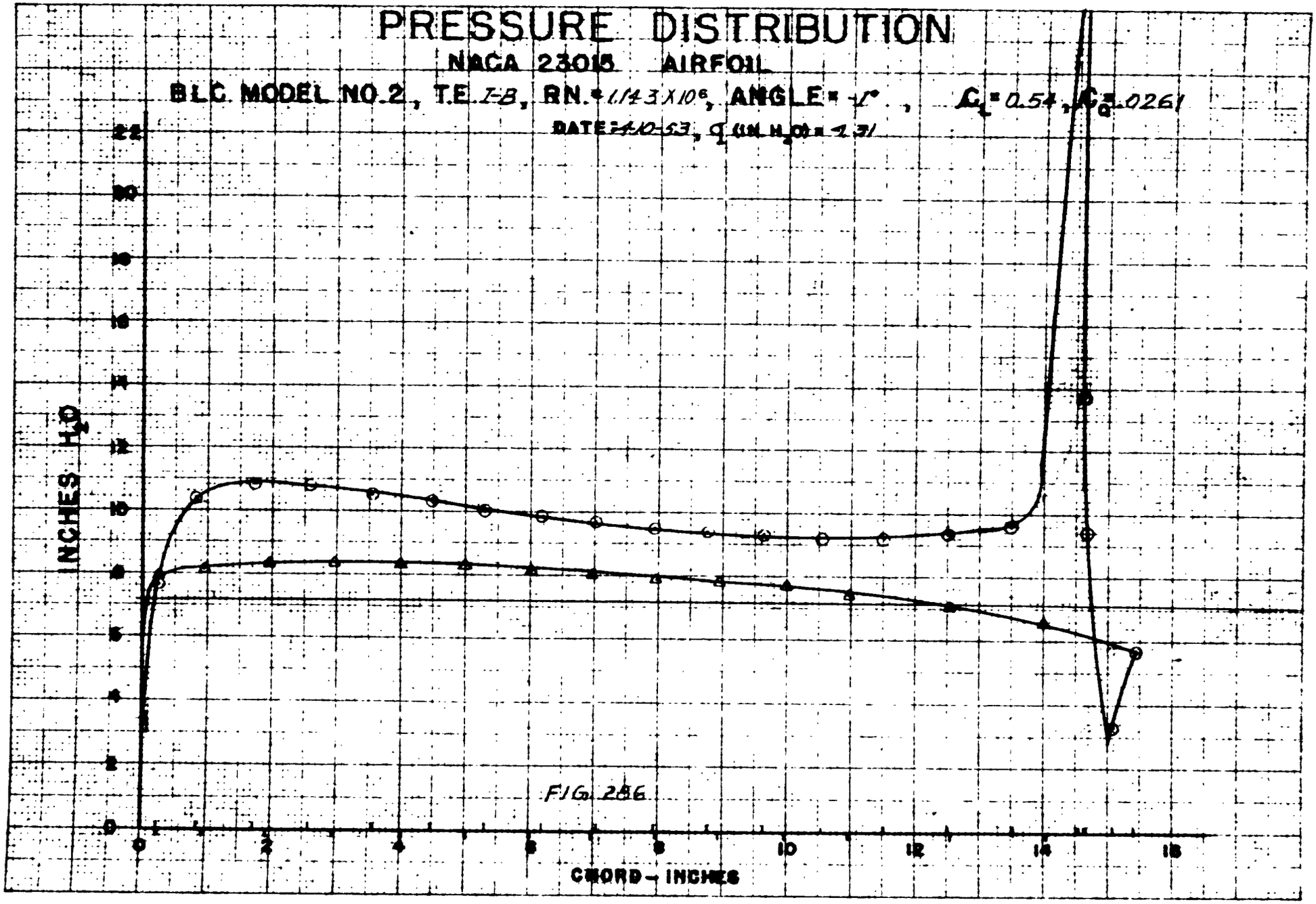


FIG. 286

KEUFFEL & ESSER CO
10 to the ½ Inch, 5th lines accented.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, TE 59, RN = 1.45 10^6, ANGLE = -1°, C_L = 0.55, C_D = 0.0309

DATE 4-10-53, q (IN H$_2$O) = 4.33

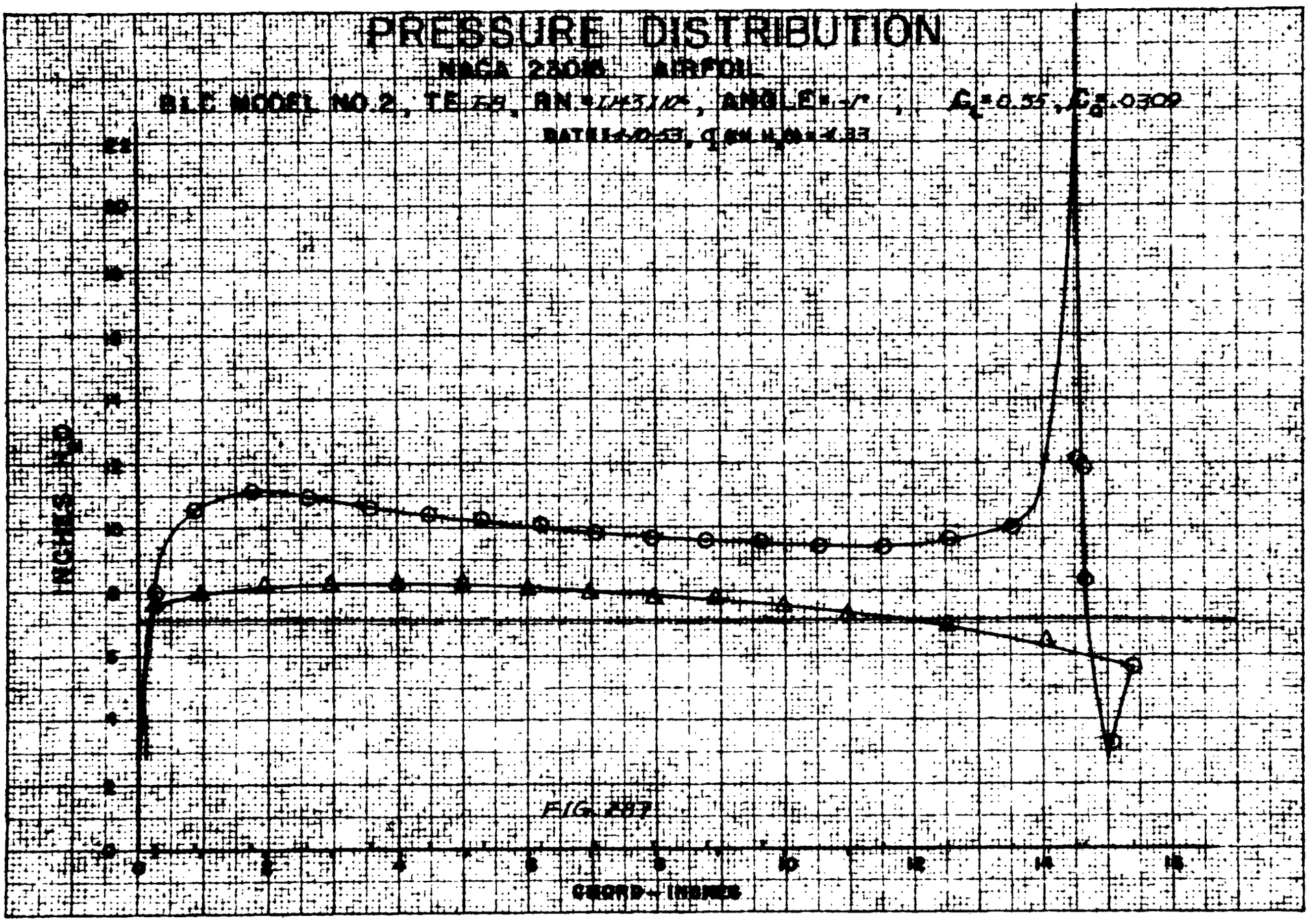


FIG. 287

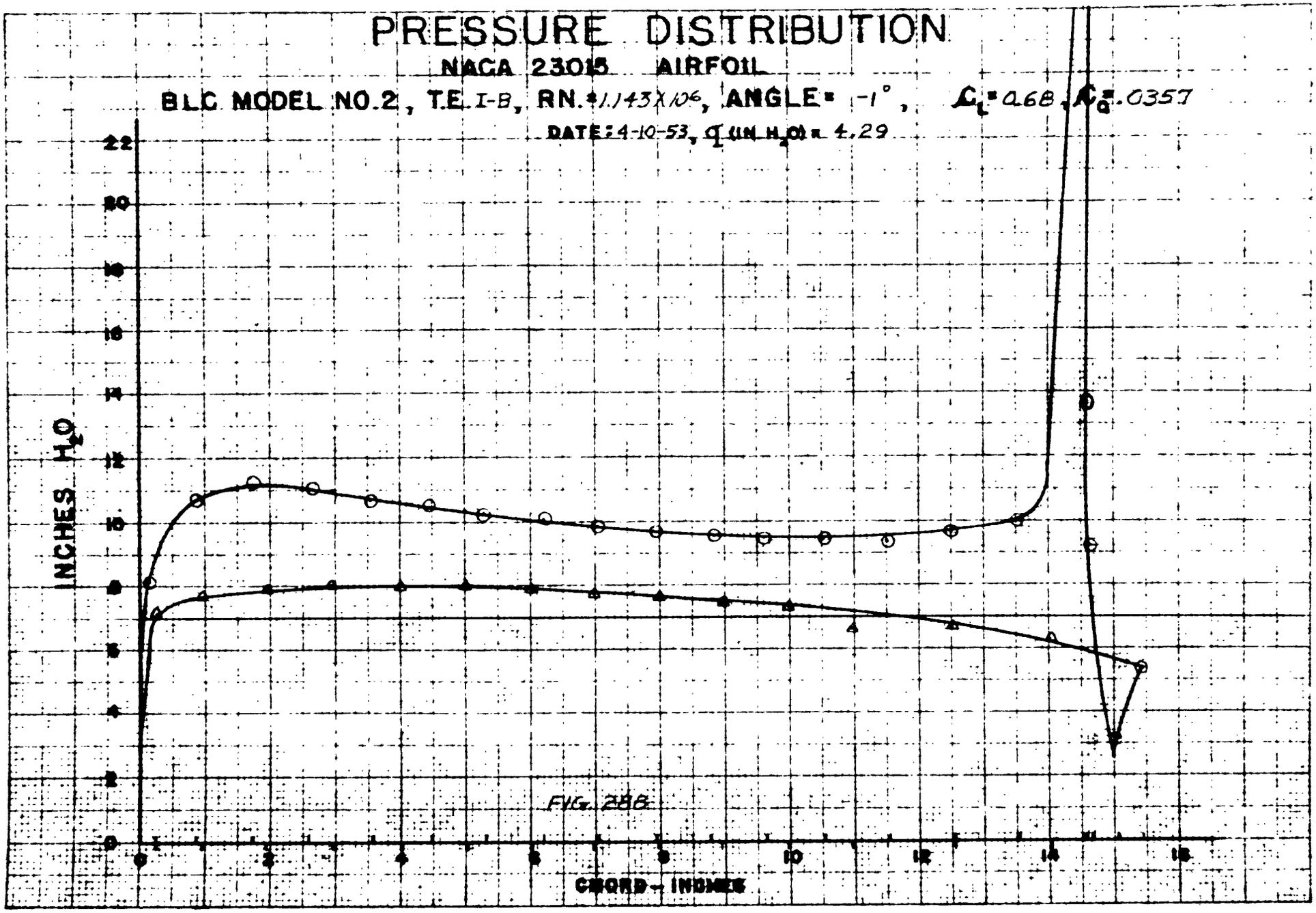

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN.=1.143X10⁶, ANGLE= -1°, C_l=0.68, C_d=.0357
DATE: 4-10-53, q (IN H_2O) = 4.29
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 28B

KEUFFEL & ESSER CO
10 to the ½ Inch. 6th lines accented.

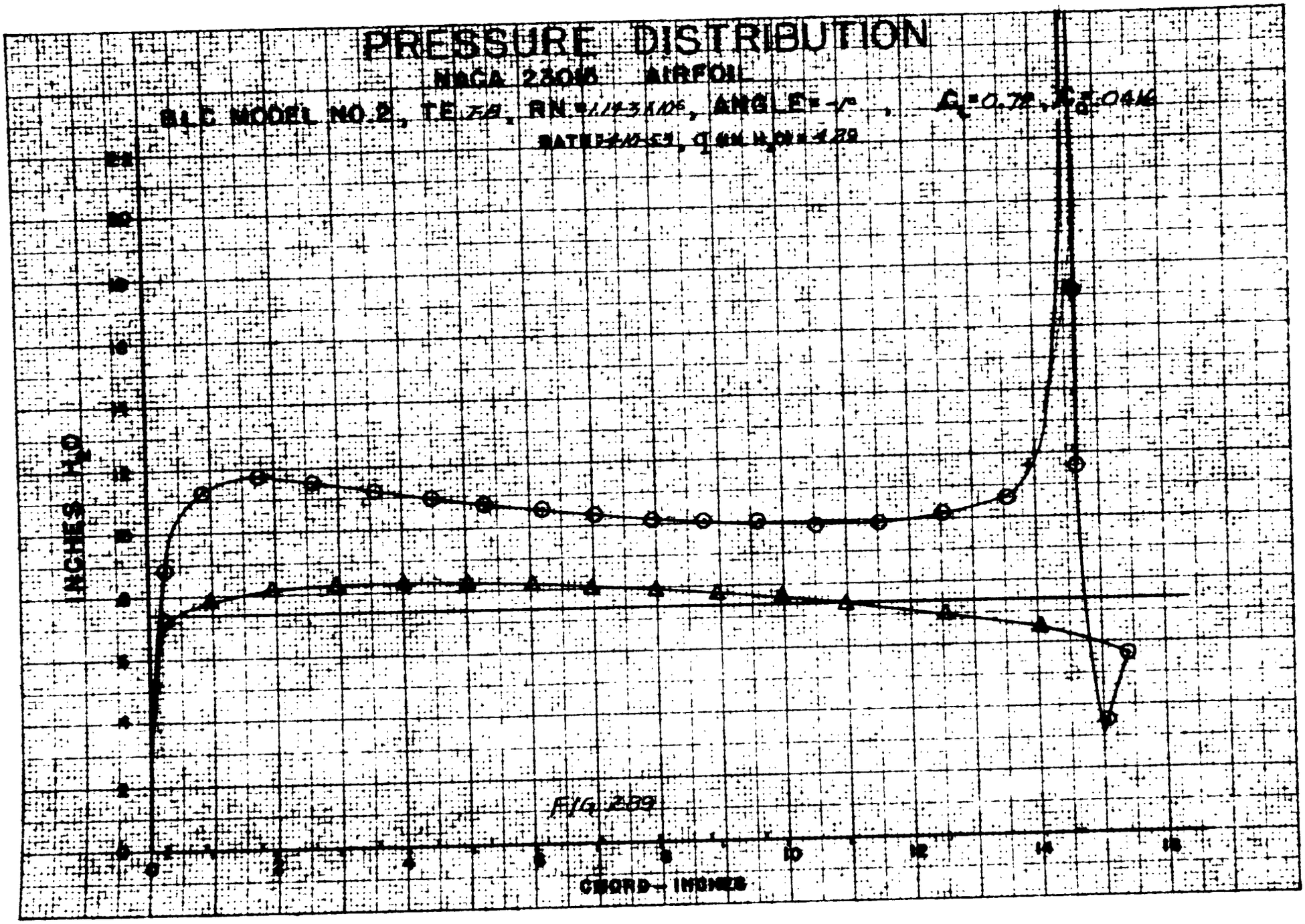
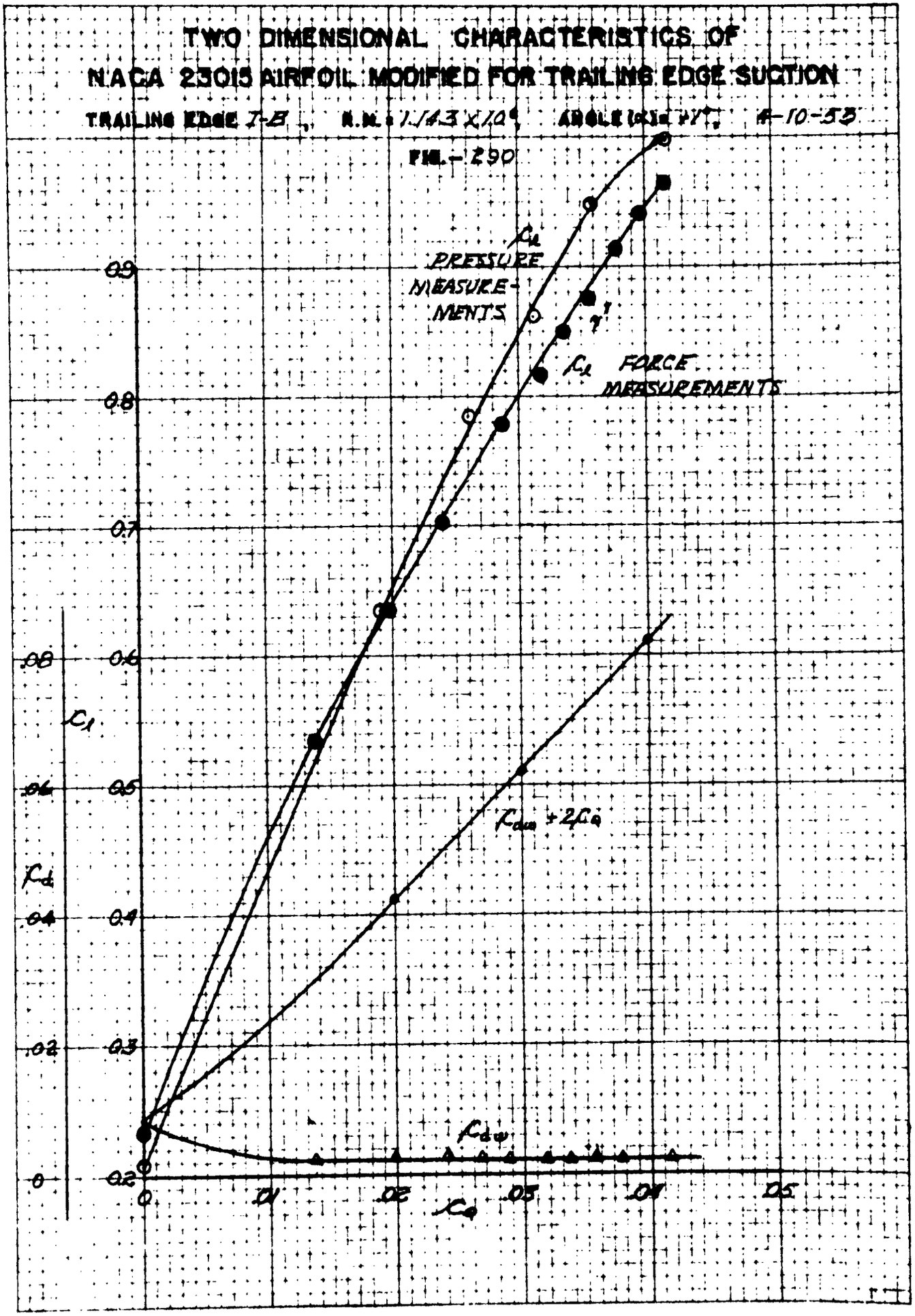


Fig. 259


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE T-B , R.N. = 1.143 X 10⁶ , ANGLE (α) = +1°, 4-10-53
FIG. - 290
c_{l_p} PRESSURE MEASUREMENTS
c_l FORCE MEASUREMENTS
$c_{d_m} + 2c_q$
c_{d_w}
c_l
c_d
c_q
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0
0.1
0.2
0.3
0.4
0.5

KEUFFEL & ESSER CO.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

BLC MODEL NO. 2, T.E. I-B, RN. = 1.143 X 10⁶, ANGLE = +1°, C_L = 0.21, C_d = 0

DATE: 4-10-53, q IN. H_2O = 4.29

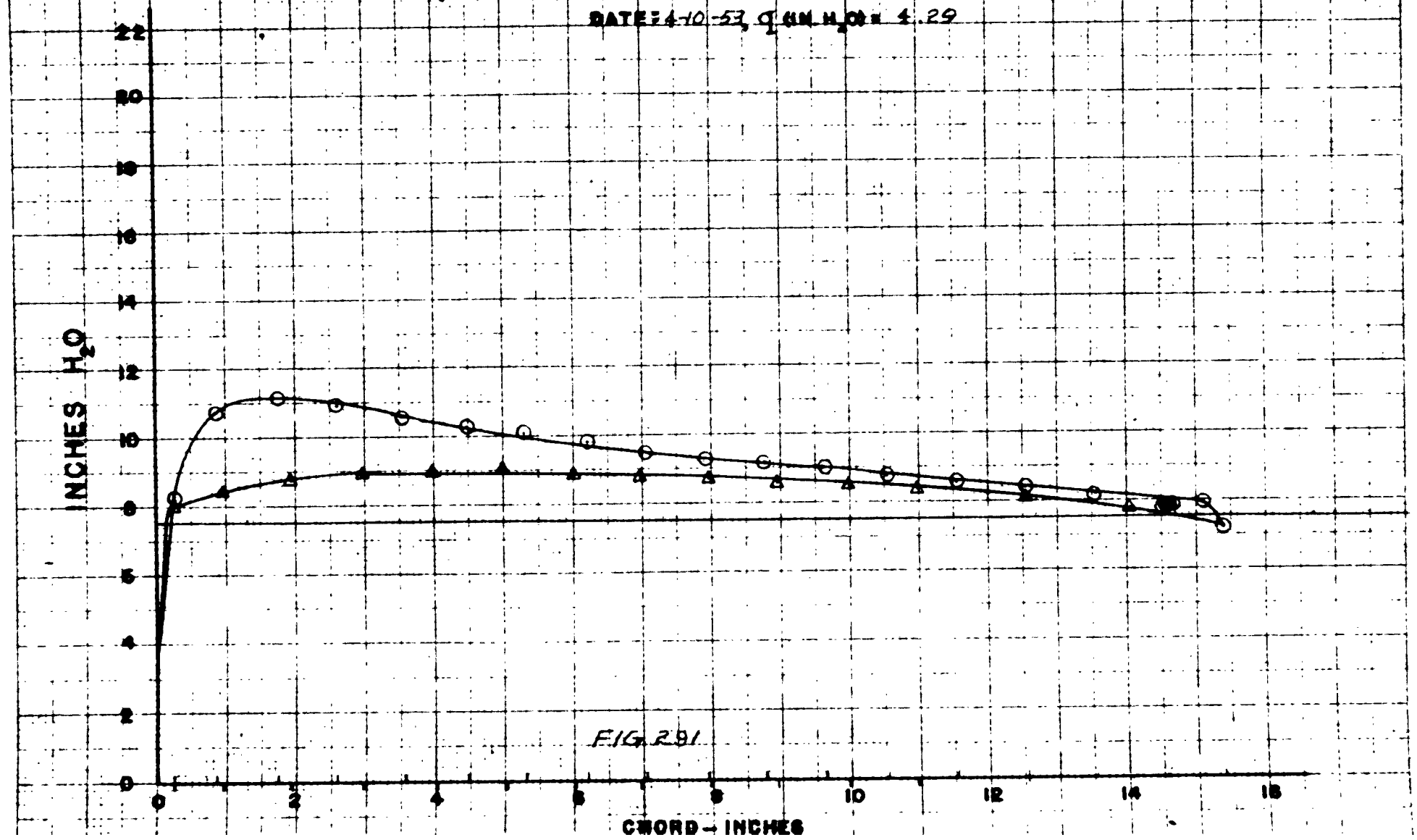


FIG. 291

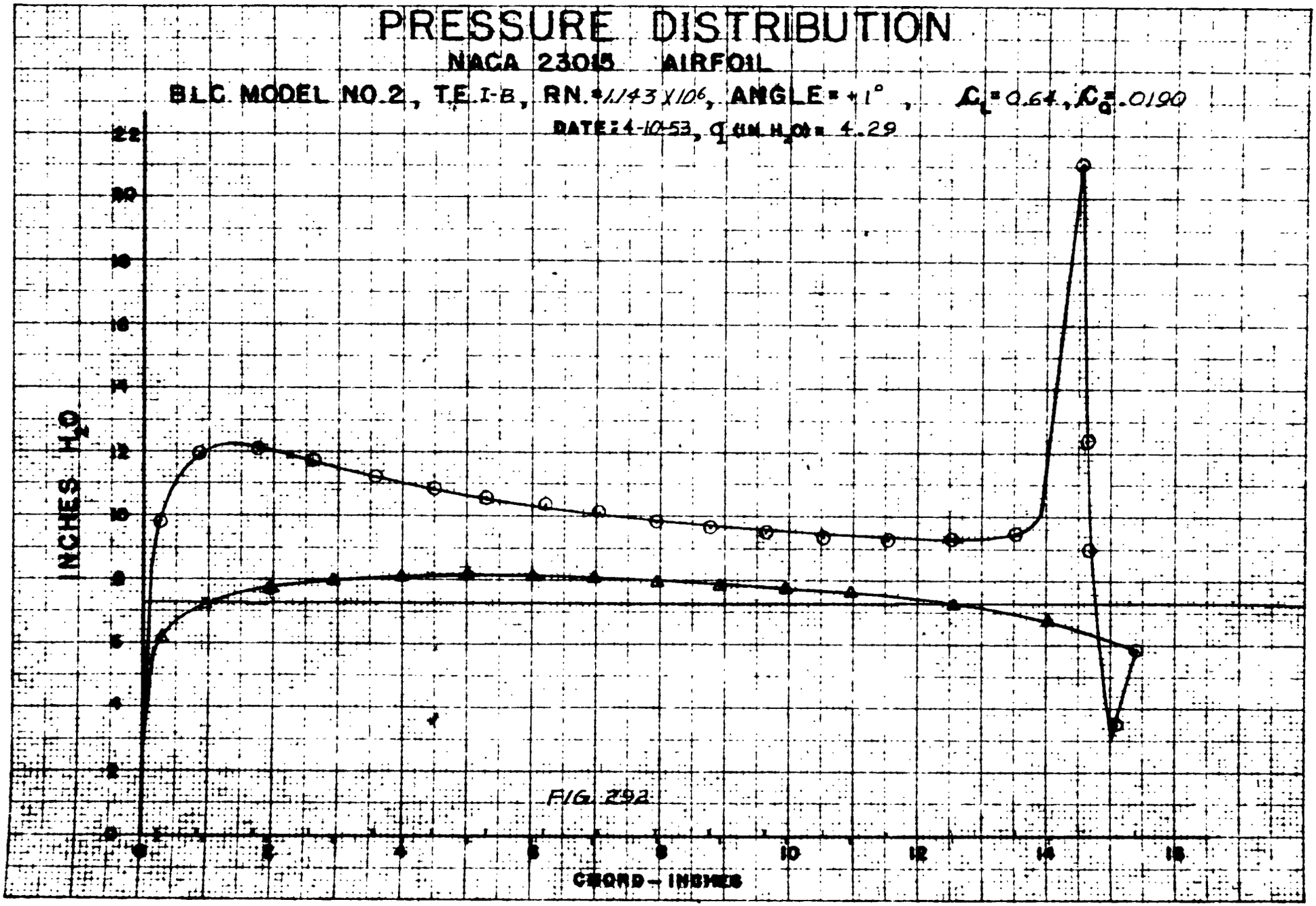

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO.2, T.E. I-B, RN. = 1.143 X 10⁶, ANGLE = +1°, C_L = 0.64, C_d = .0190
DATE: 4-10-53, q (IN H_2O) = 4.29
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 292

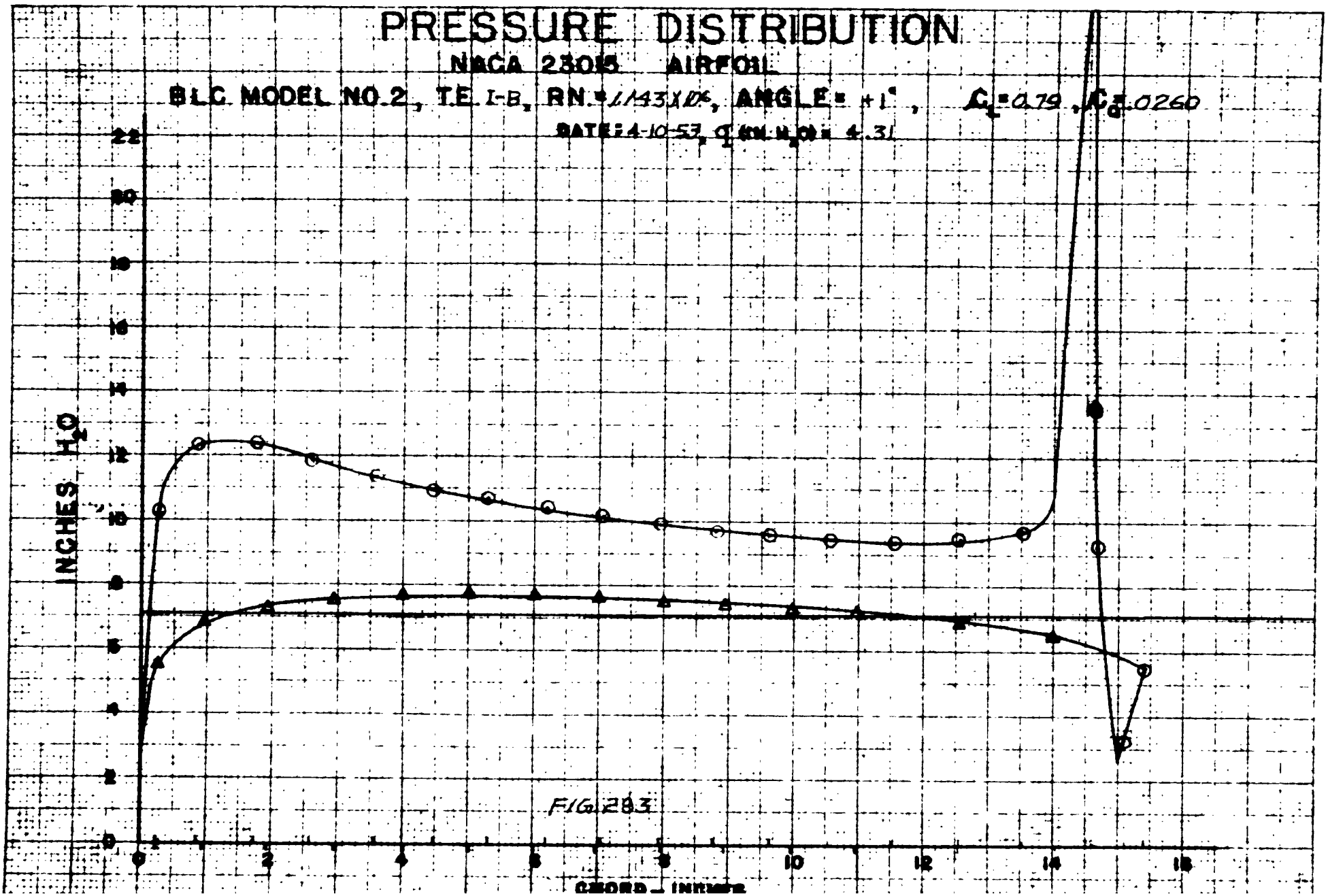

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN. = 1.143 X 10⁶, ANGLE = +1°, C_L = 0.79, C_d = 0.0260
DATE: 4-10-53, q (IN. H_2O) = 4.31
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 283

KEUFFEL & ESSER CO
... 1/2 inch, 5th ... made in U.S.A.

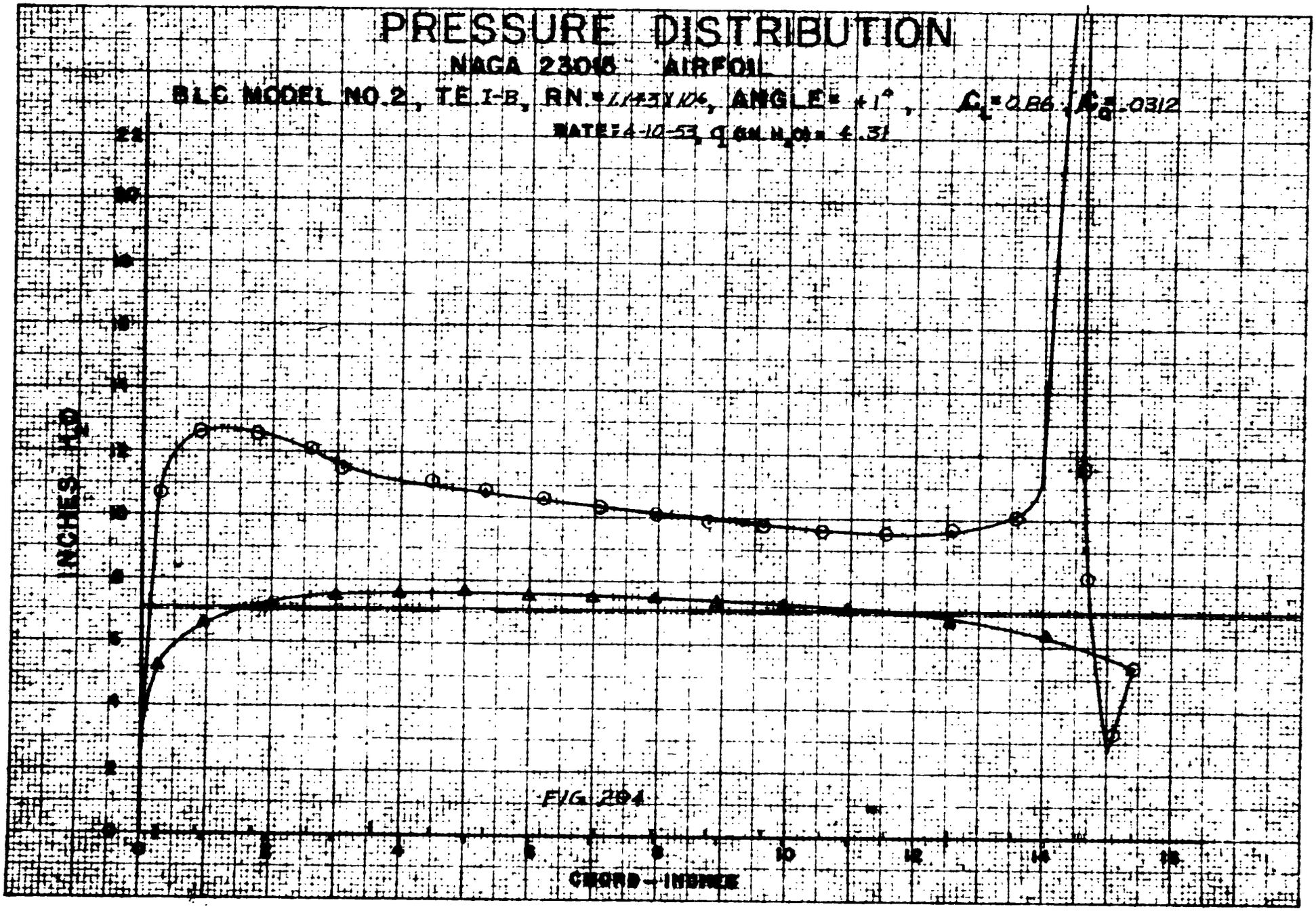


FIG. 204

KEUFFEL & ESSER CO
10 x 10 to ½ inch, 6th lines accented

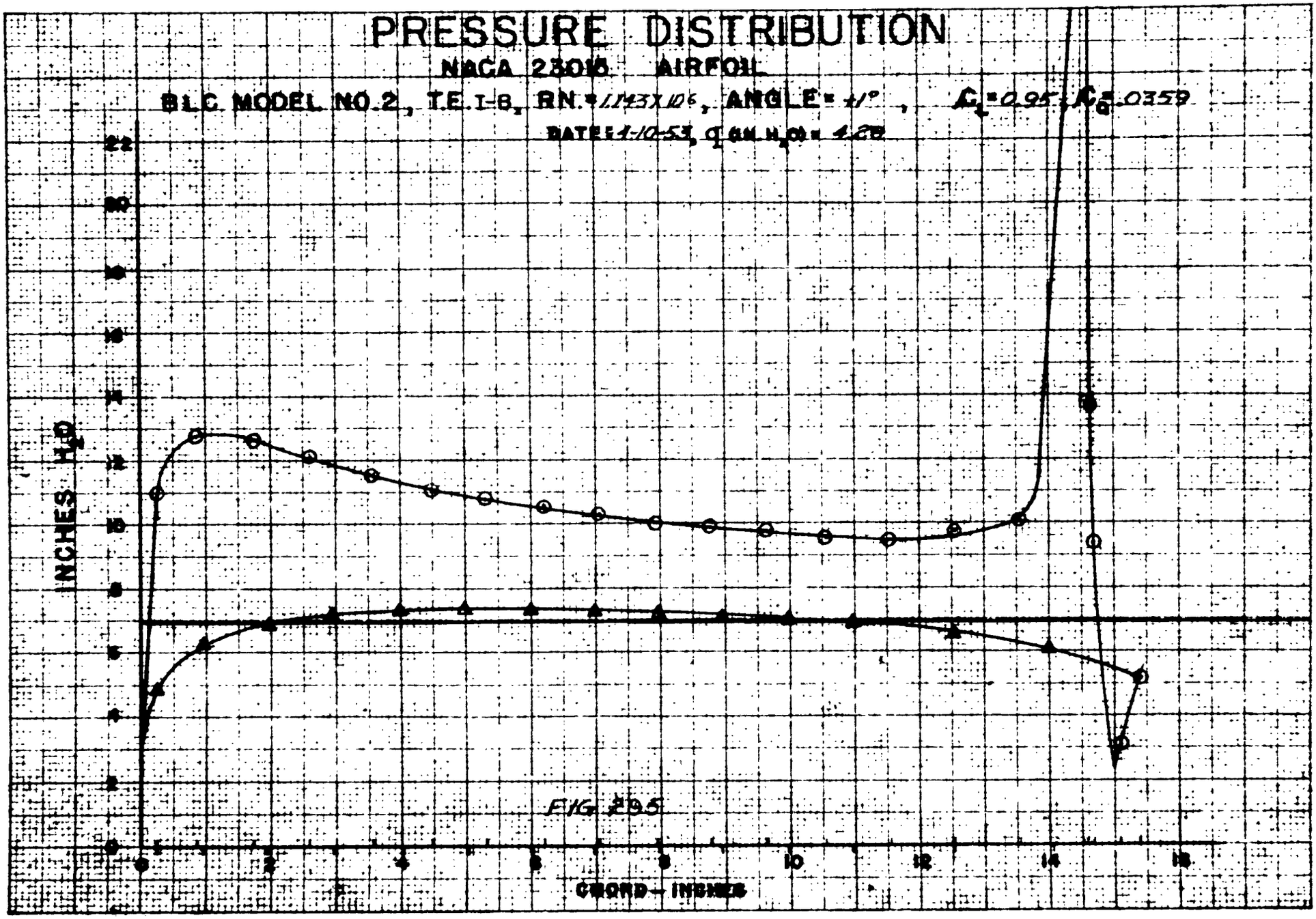
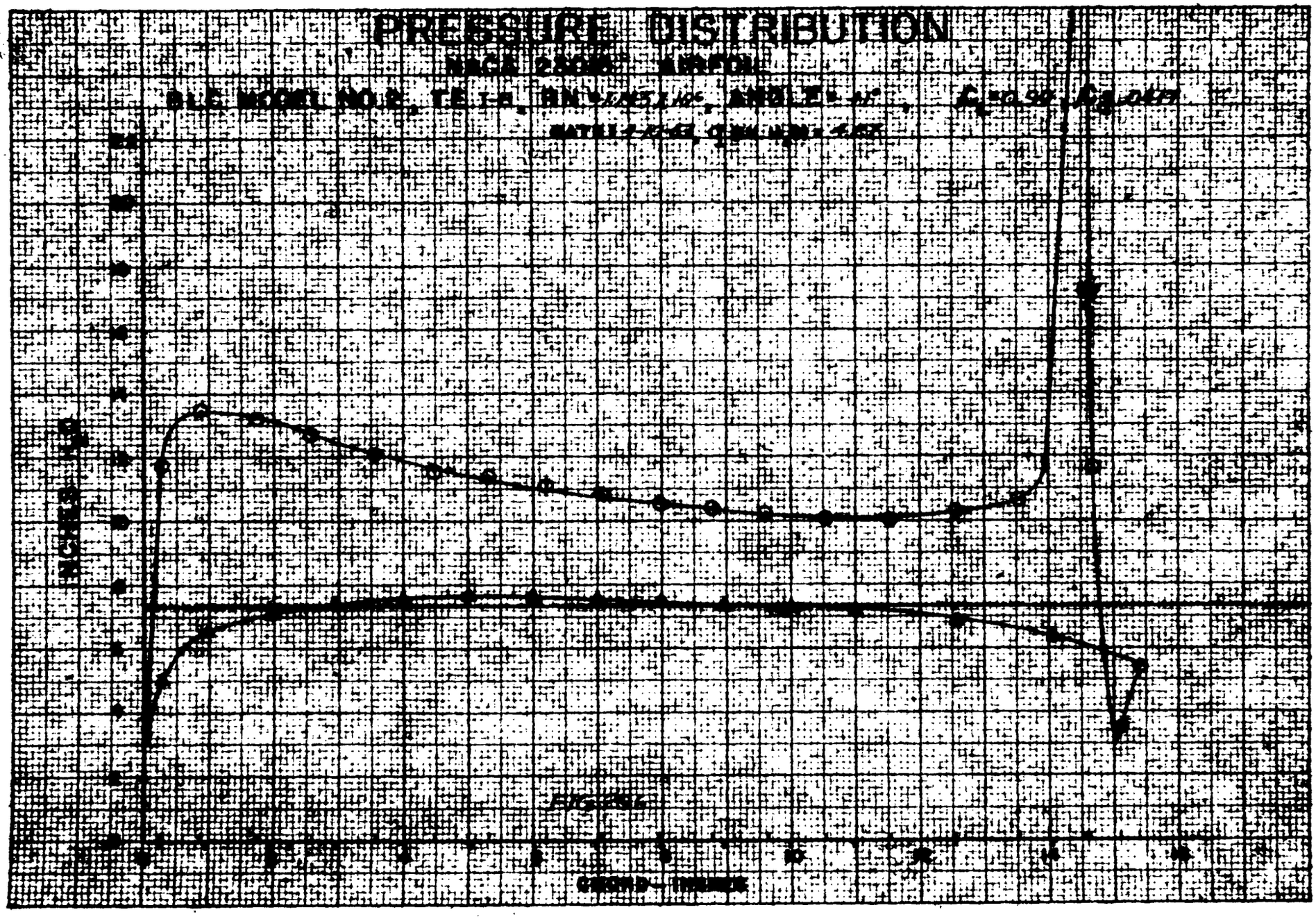
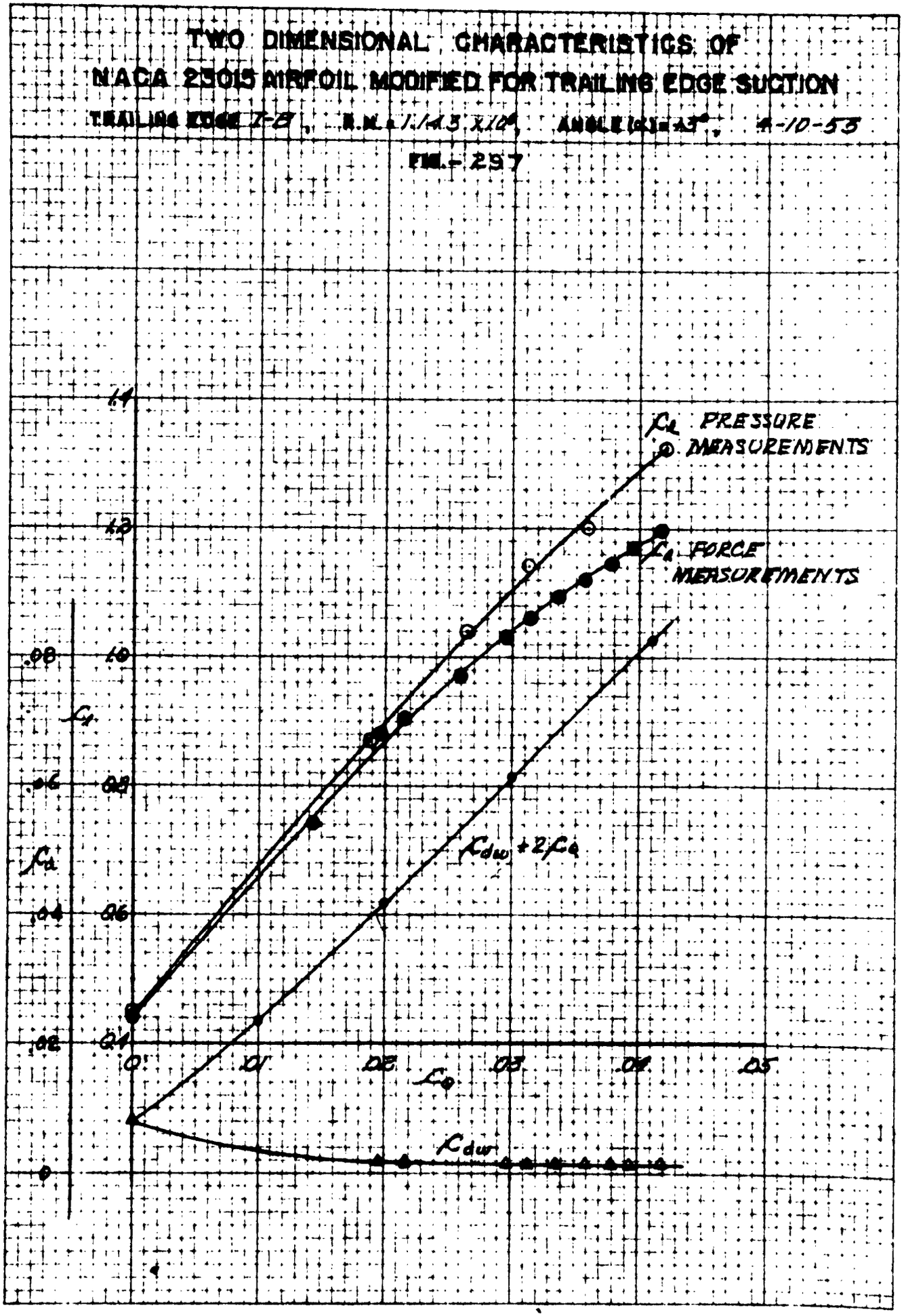


FIG. 295

KEUFFEL & ESSER CO
1 × 10 to the ½ inch. 5th line accented.




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 7-8 , R.N. = 1.143 X10⁶ , ANGLE (α) = 3° , 4-10-53
FM.-297
c_l PRESSURE MEASUREMENTS
c_l FORCE MEASUREMENTS
c_l
c_d
$c_{dw} + 2c_d$
c_{dw}
c_d
1.4
1.2
1.0
.8
.6
.4
.2
0
.1
.2
.3
.4
.5

Reproduced by
14 × 17 to the ½ inch, 6th lines accented.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.E. MODEL NO. 2, T.E. [illegible], R.N. [illegible], ANGLE = [illegible], C_L = 0.45, $C_{M_{c/4}}$ = 0.

DATE: [illegible], q_{cal} = [illegible]

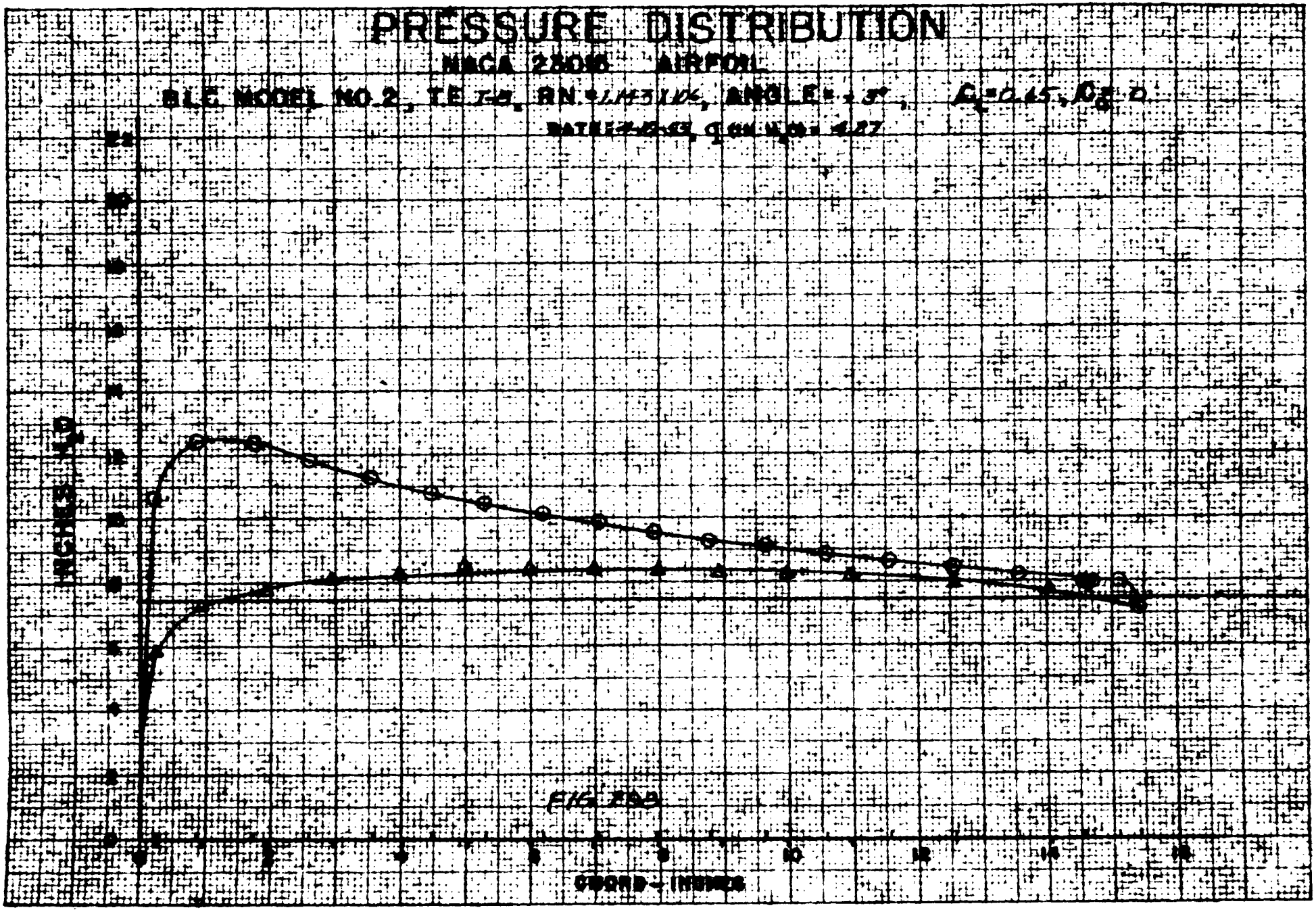
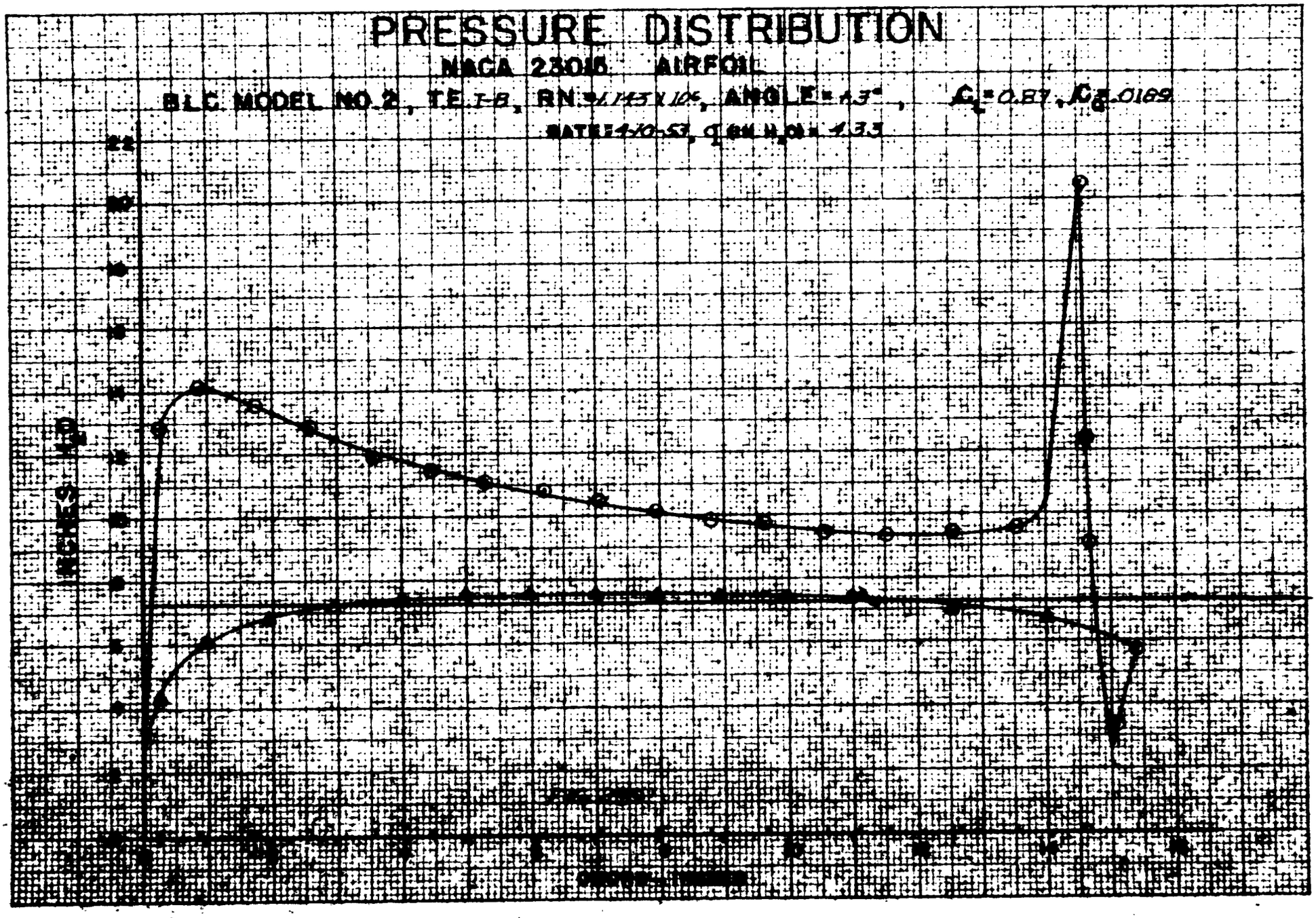
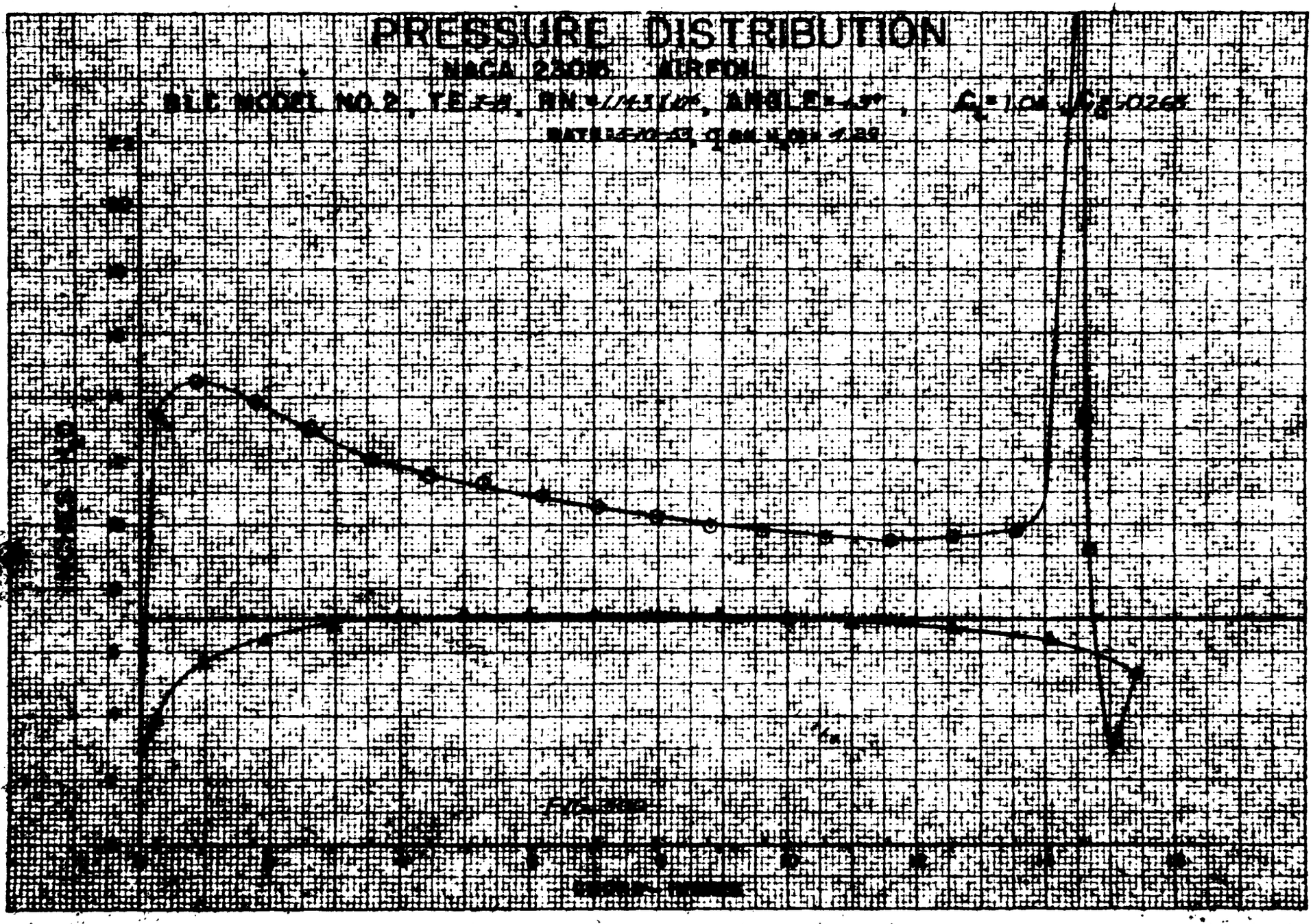


FIG. 23A

KEUFFEL & ESSER CO.
10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.



KEUFFEL & ESSER CO
10 to the ½ inch, 5th lines accented.



KEUFFEL & ESSER CO
10 to the ½ inch 5th lines accented

PRESSURE DISTRIBUTION

NACA 23016 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-B, RN = 1.4 x 10⁶, ANGLE = 4.3°, C_L = 1.14, C_D = .0312

DATE: 4-10-53, q = 84, M_∞ = 1.28

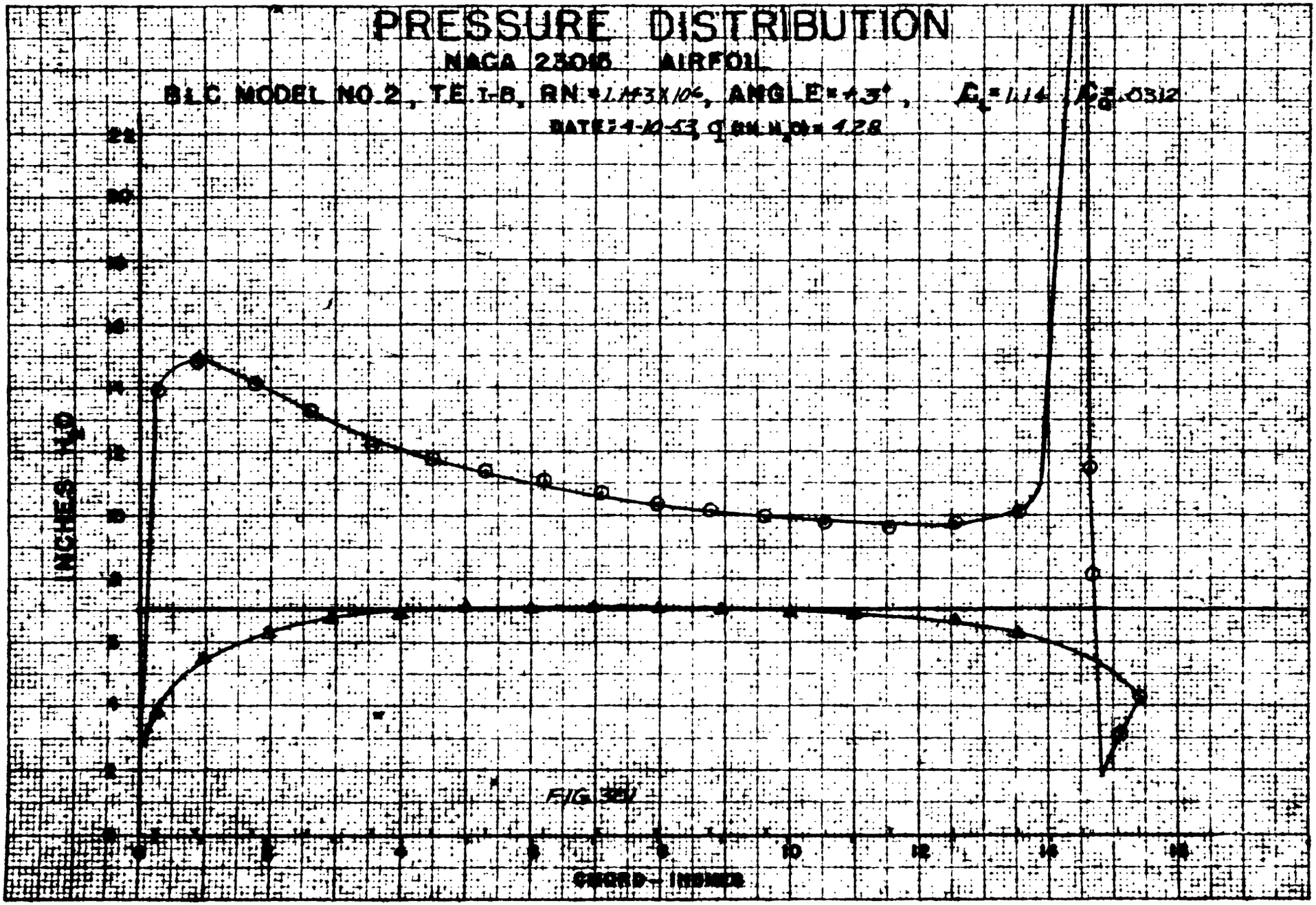


FIG. 35J

KEUFFEL & ESSER CO.

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L. MODEL NO. 2, T.E. Z-B, RN = 1,113,000, ANGLE = -5°, C_L = 1.20, C_D = 0.0359

DATE 5-10-57, q (at H_{20}) = 4.27

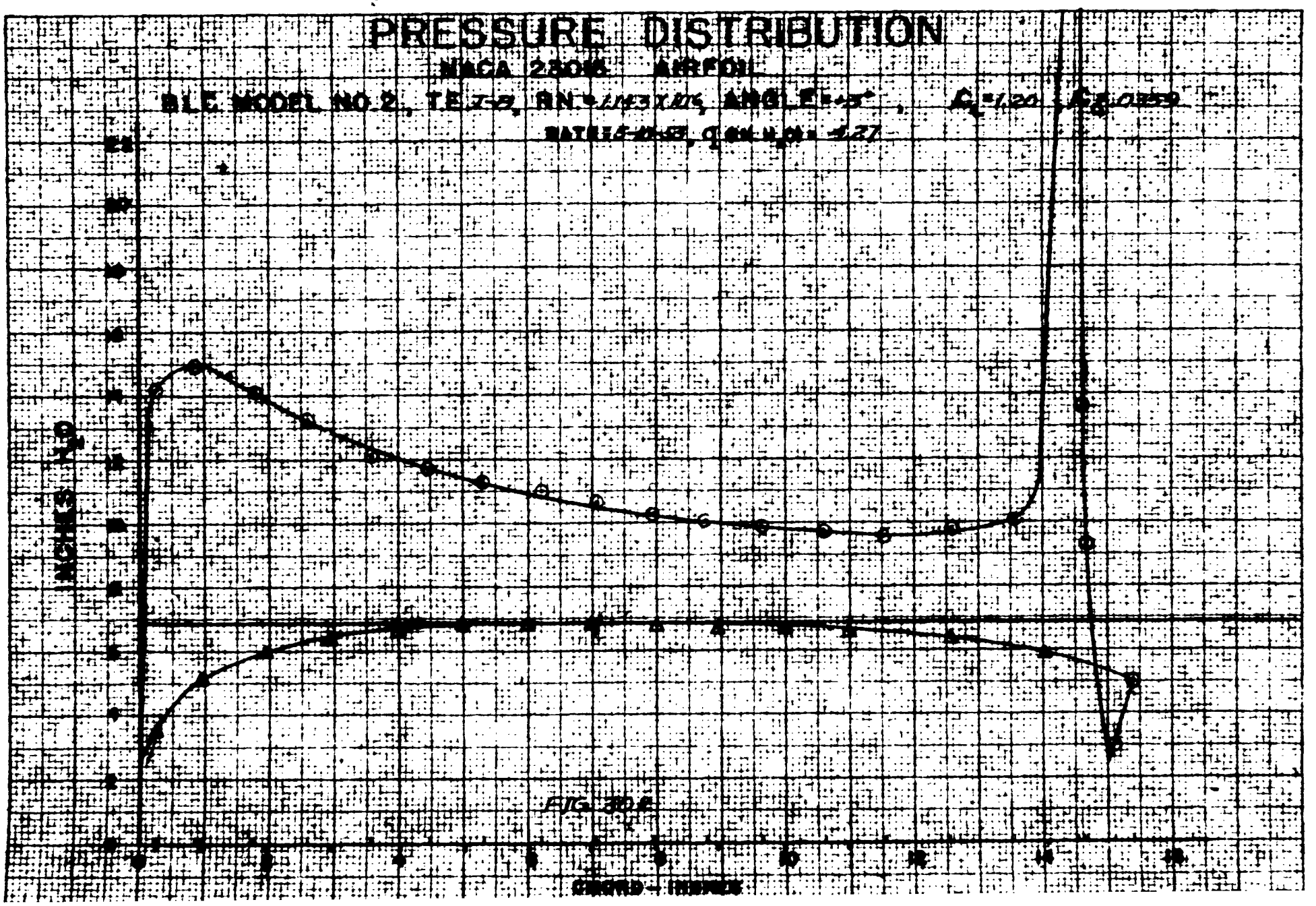


FIG. 30A

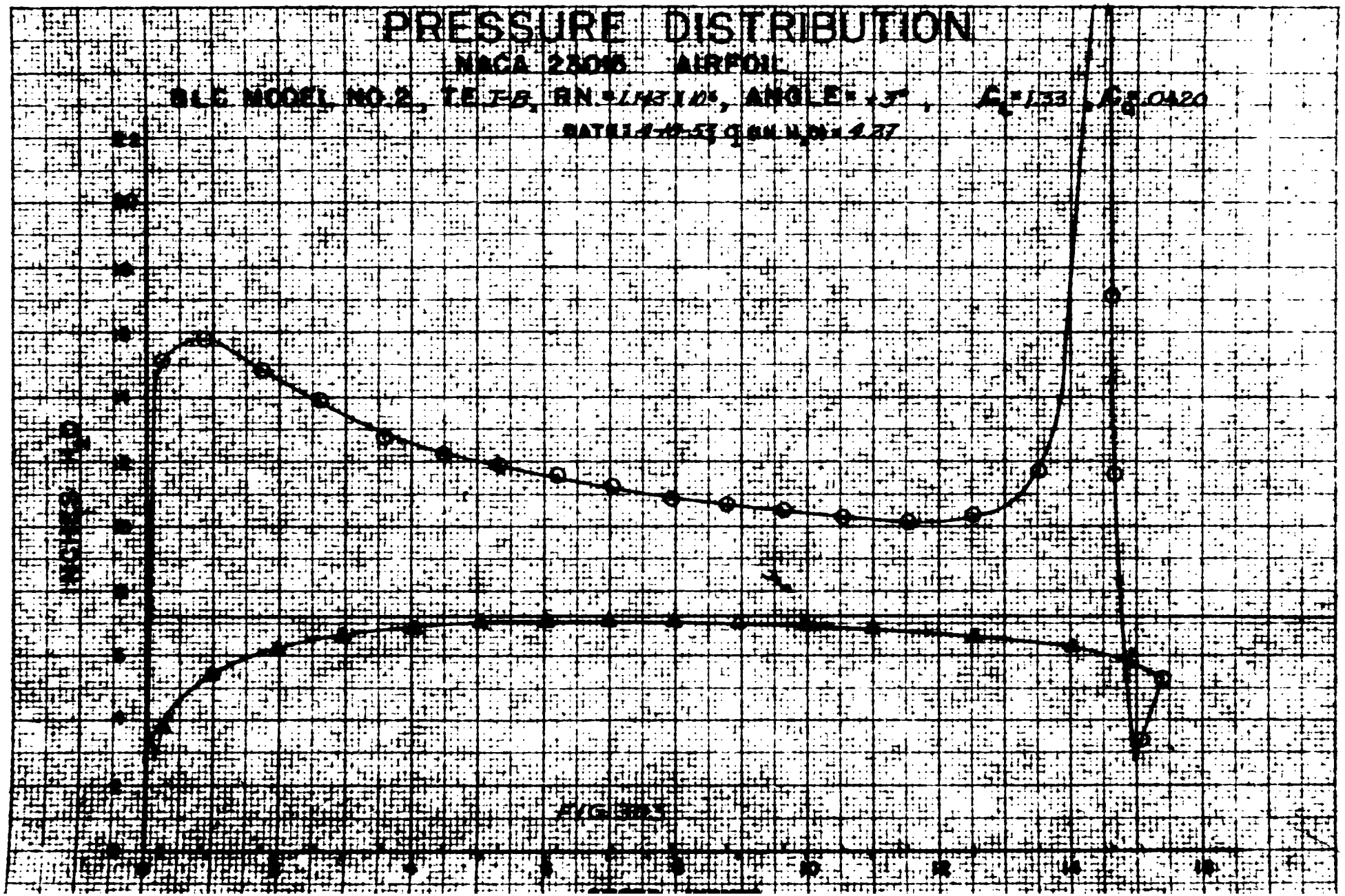
KEUFFEL & ESSER CO

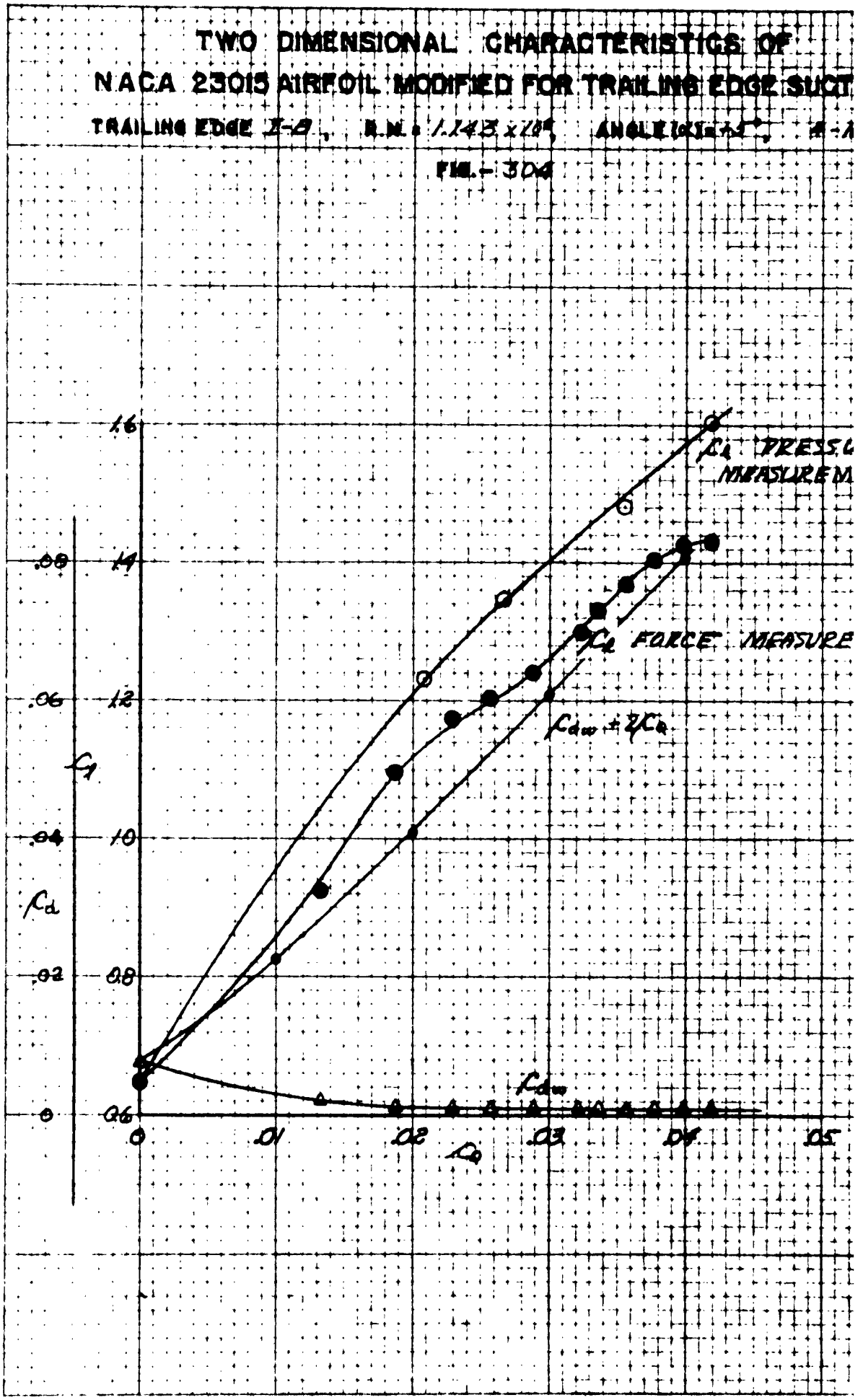
PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, TEST B, RN = 1.43 10^6, ANGLE = +3°, C_L = 1.33, C_D = .0420

DATE 1-19-53 q (IN H$_2$O) = 4.27




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCT
TRAILING EDGE I-D , R.N. = 1.143 x 10⁶ , ANGLE (α) = -1°
FIG. - 304
1.6
1.4
1.2
1.0
.8
0
.06
.04
.02
C_l
C_d
C_l PRESS
MEASUREM
C_l FORCE MEASURE
$C_{dw} + \Delta C_p$
C_{dw}
.01
.02
.03
.04
.05
C_p

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 2306 AIRFOIL

B.L.C. MODEL NO. 2, T.E. FLAP, RN. 1,143,000, ANG. OF ATT. +5°, C_L = 0.65, C_D = 0

DATE 4-12-43, q @ H_2O = 4.29

INCHES H_2O

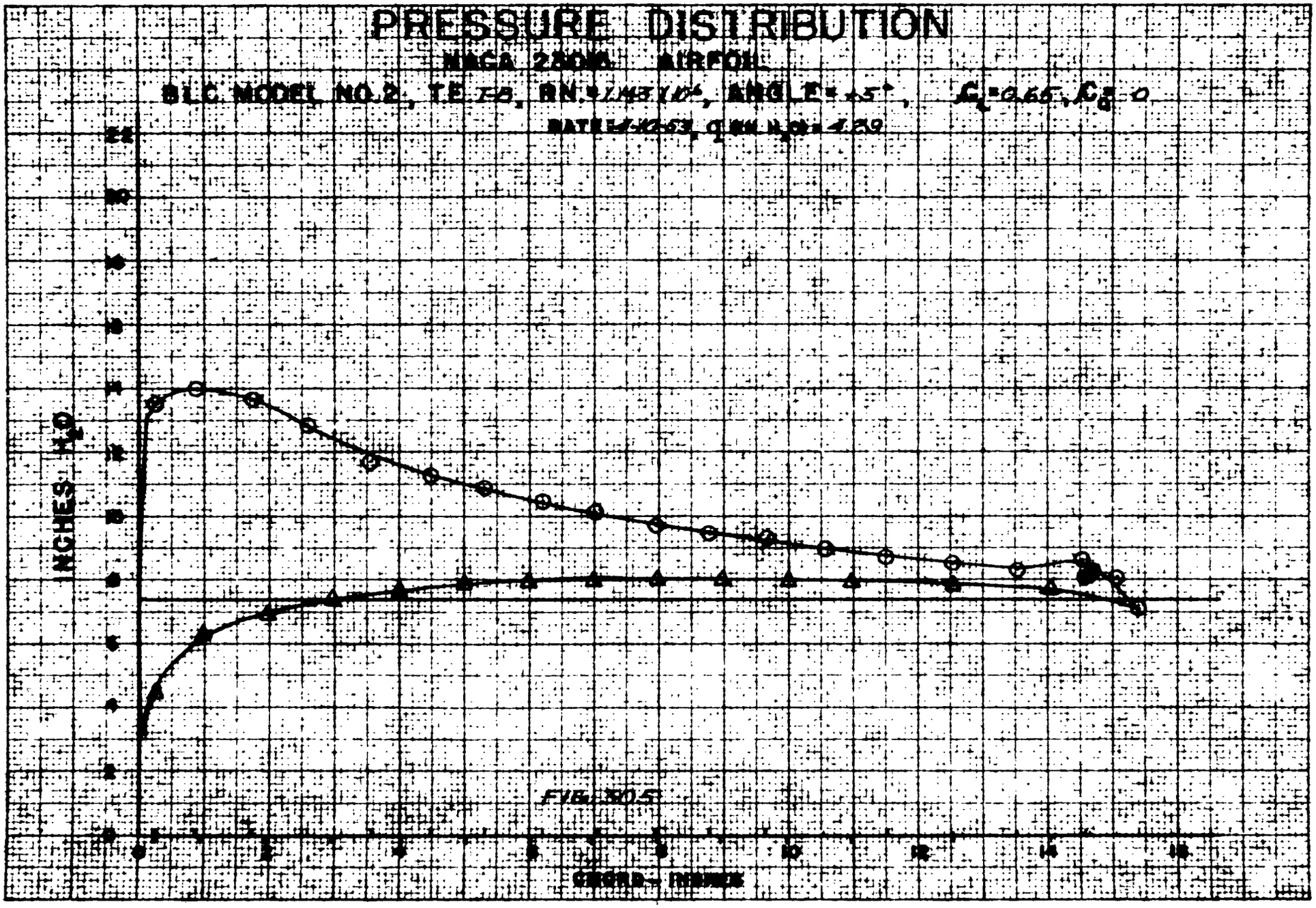


FIG. 30.5

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-B, RN. = 1.143 x 10⁶, ANGLE = +5°, C_L = 1.24, C_Q = .0209

DATE: 4-10-53, q IN. H_2O = 1.34

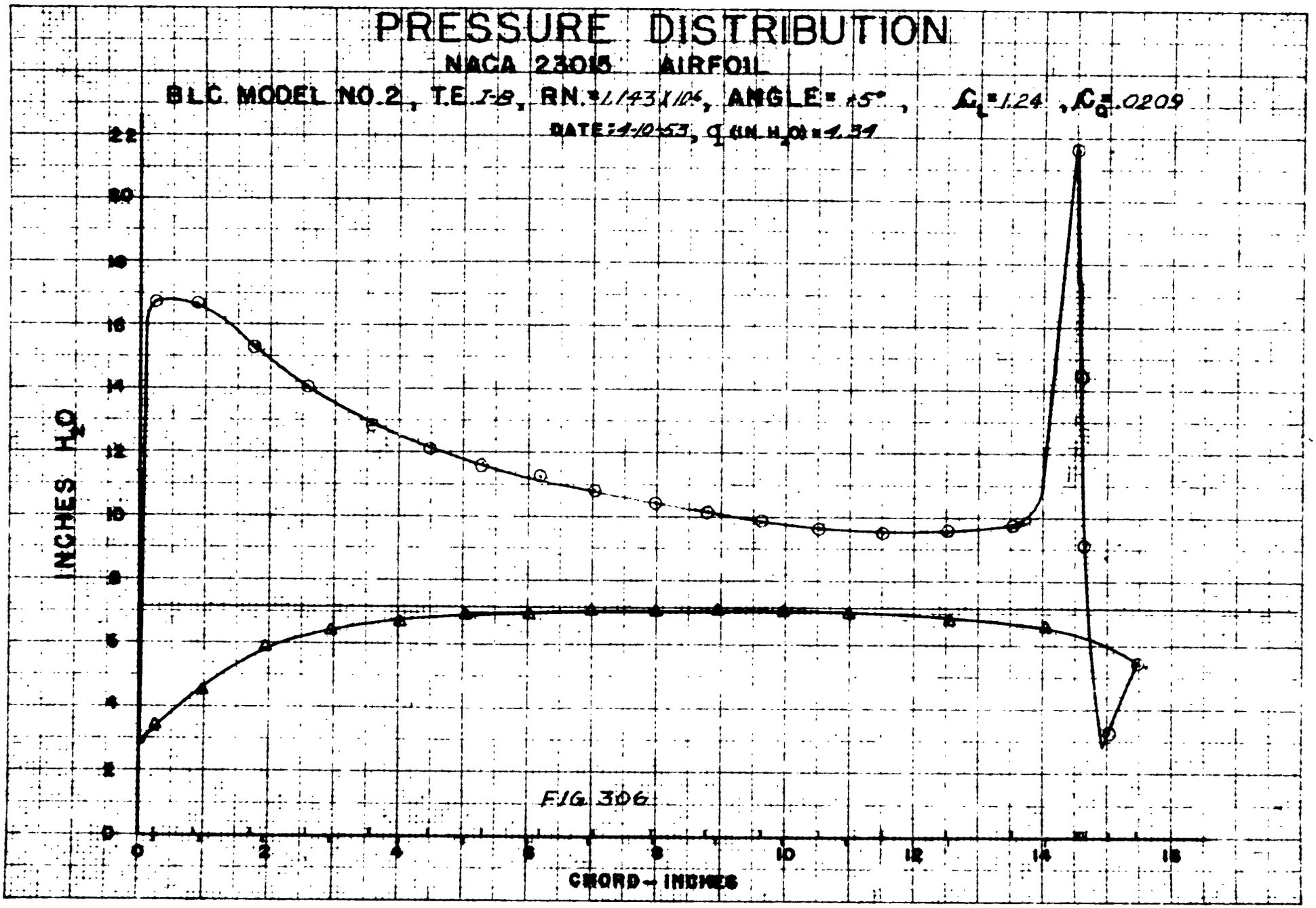


FIG. 306

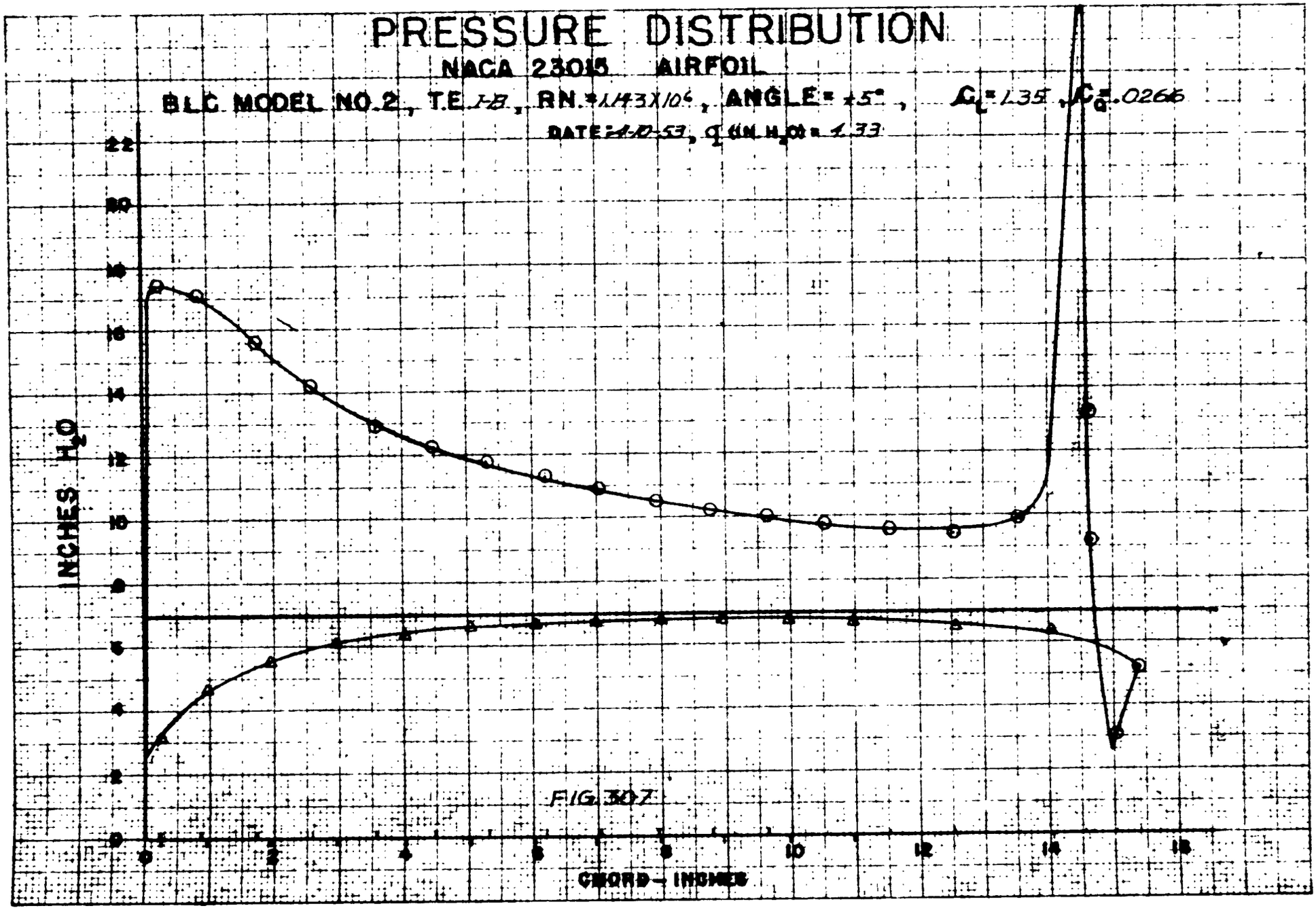
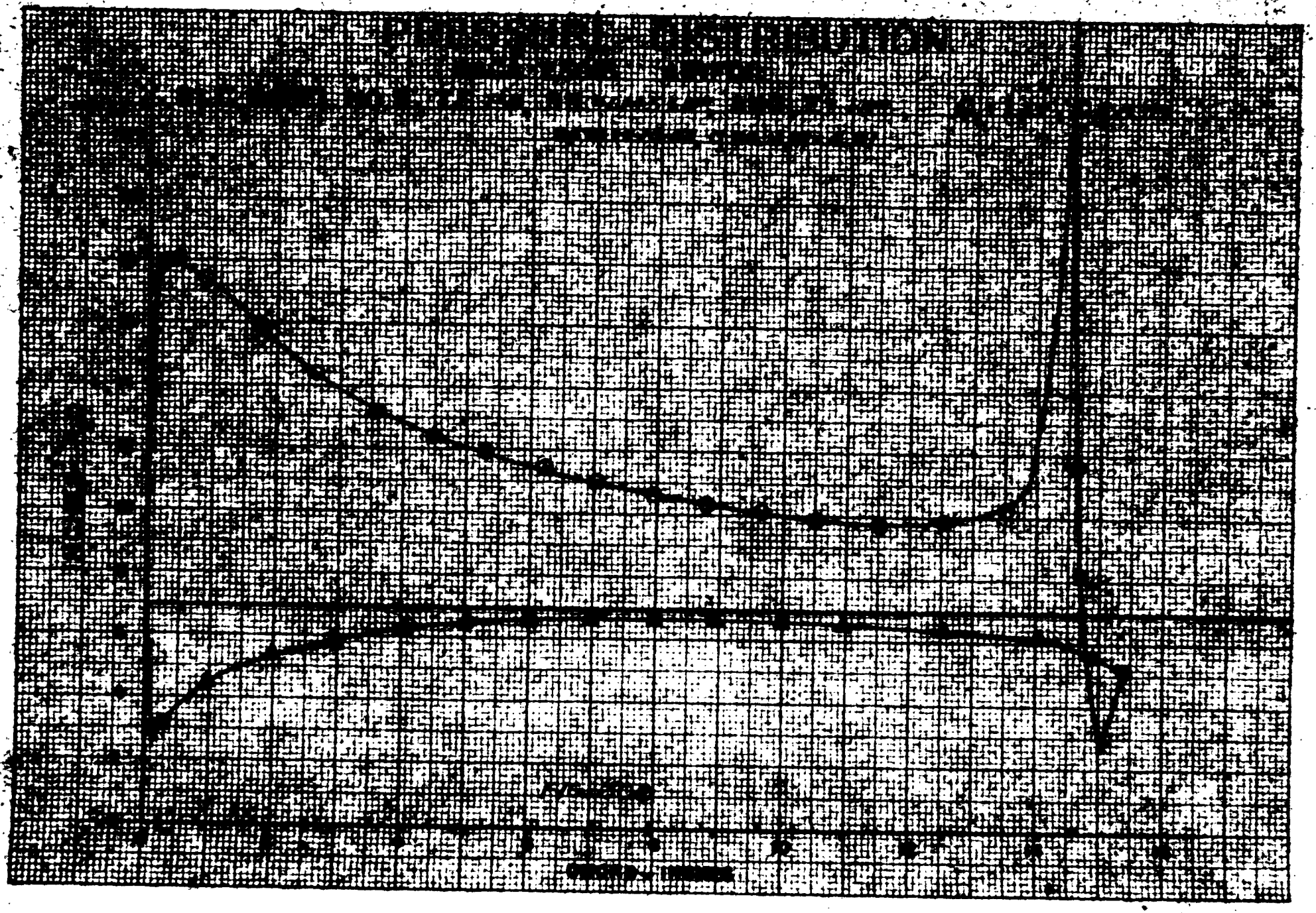

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. H-B, RN.=1.43X10⁶, ANGLE=+5°, C_L=1.35, C_d=.0266
DATE=4-10-53, q IN. H_2O=1.33
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 307


PRESSURE DISTRIBUTION

KEUFFEL & ESSER CO.
10 to the ½ inch. 5th lines accented.

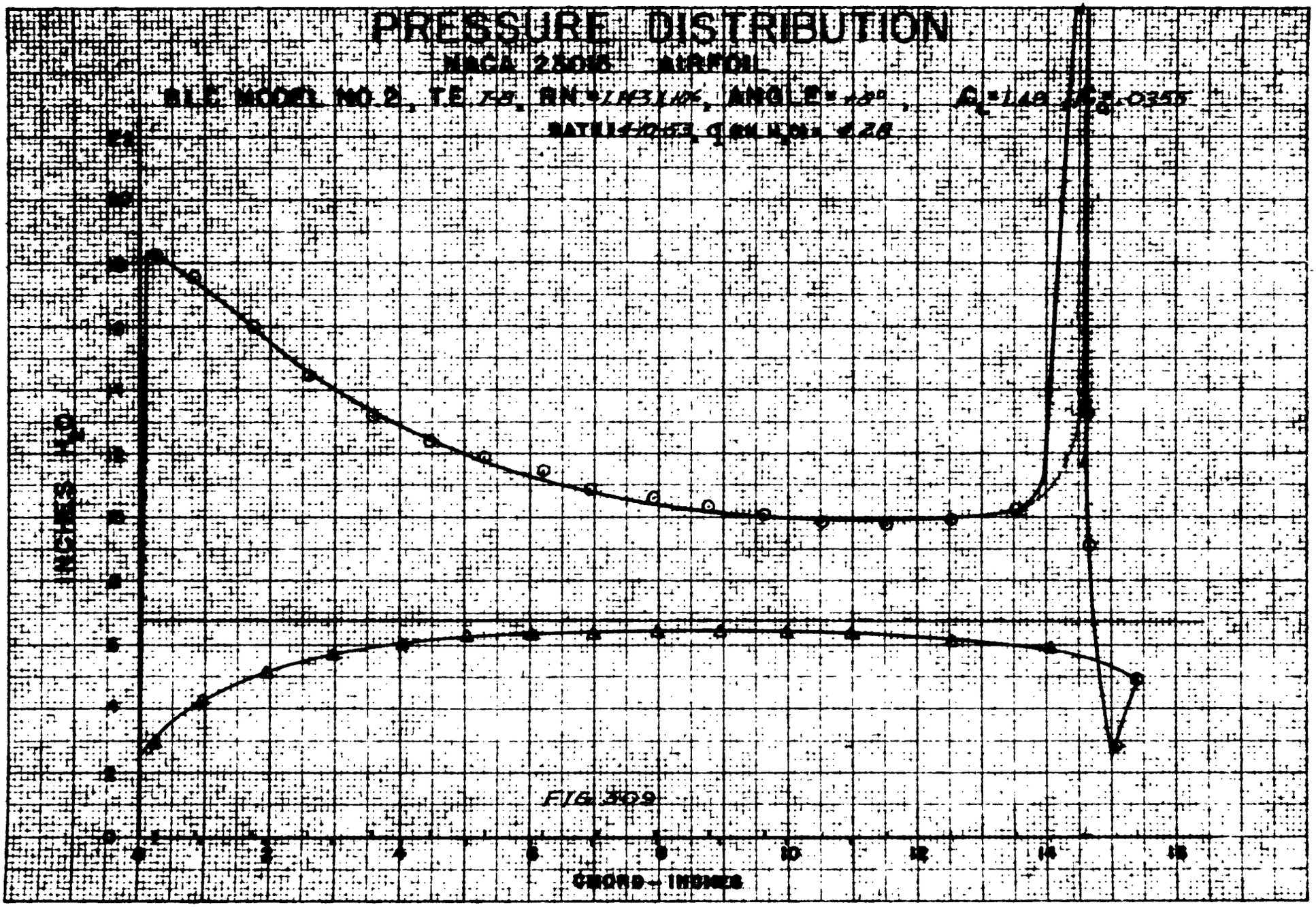
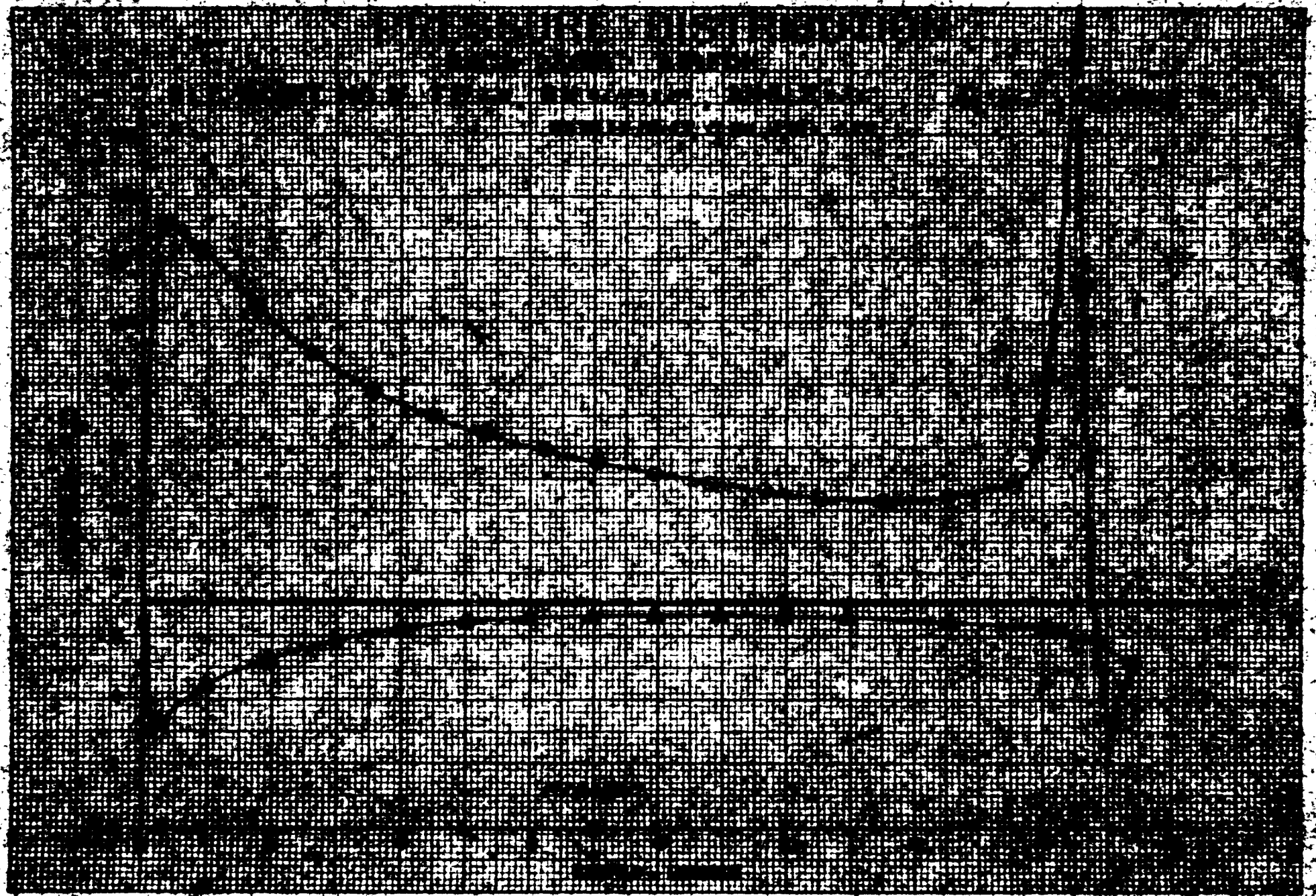
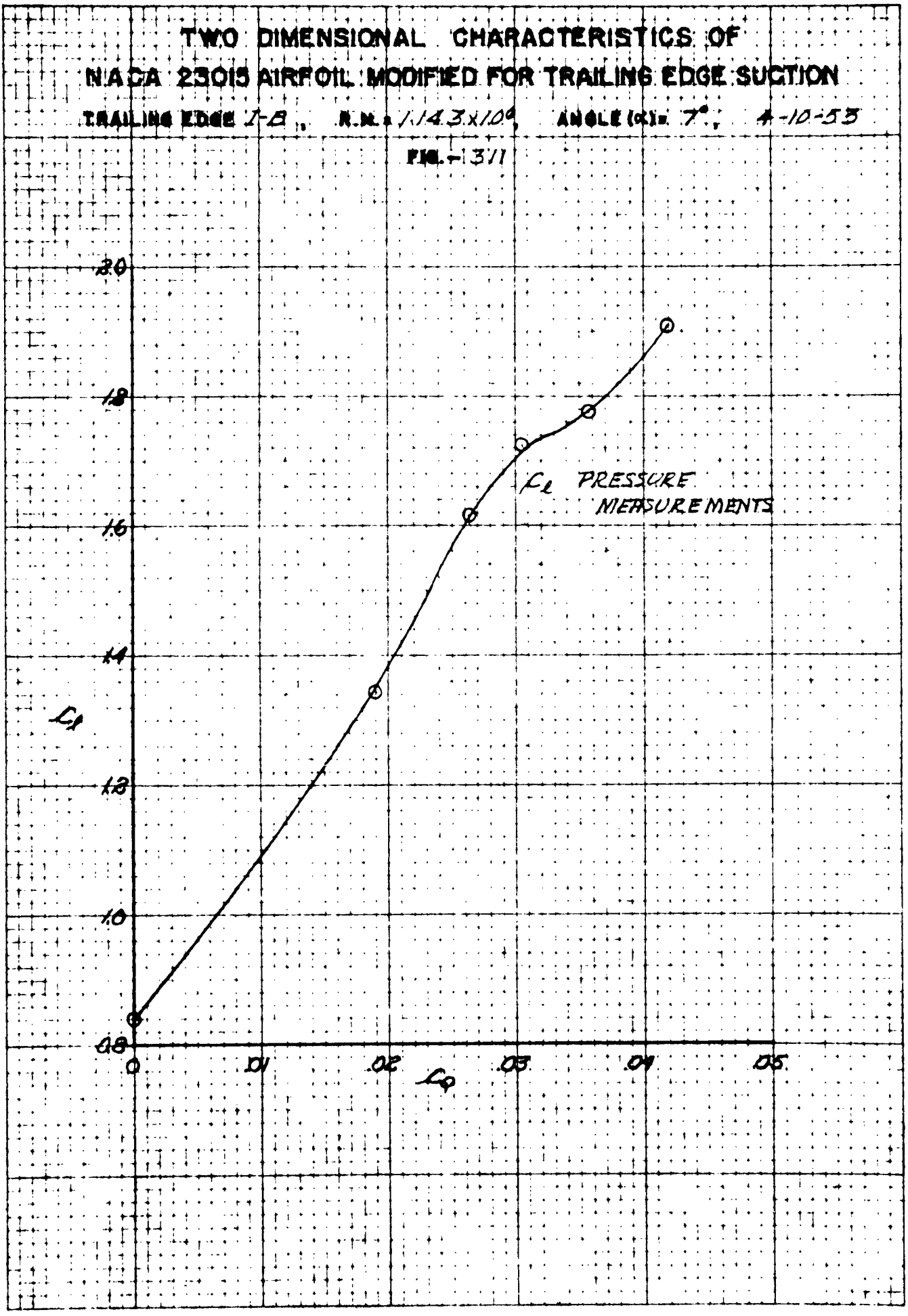


FIG. 309




TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE 1-B , R.N. = 1.143 x 10^6, ANGLE (α) = 7°, 4-10-53
FIG. - 1311
2.0
1.8
1.6
1.4
1.2
1.0
.08
C_l
C_l PRESSURE MEASUREMENTS
0
.01
.02
.03
.04
.05
C_D

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I.D., RN: 1.143 X 10^6, ANGLE = 7°, C_L = 0.64, C_d = 0°

DATE: 6-10-53, q (at H_2O) = 1.3"

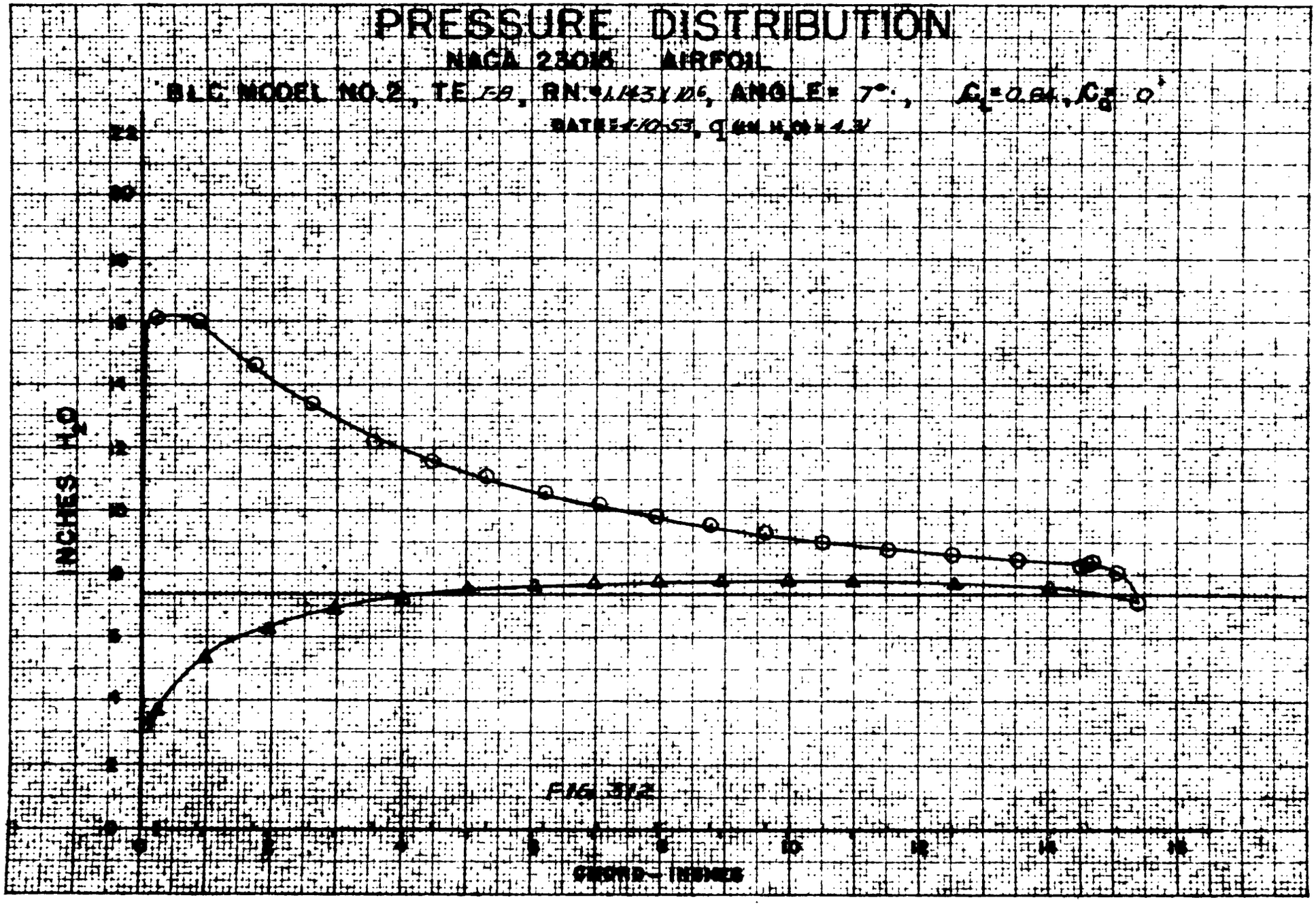


FIG. 312

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. 1-9, RN. 4.43 x 10^6, ANGLE = 7°, C_L = 1.35, C_d = .0190

DATE 7-10-53, q (in. H_2O) = 1.33

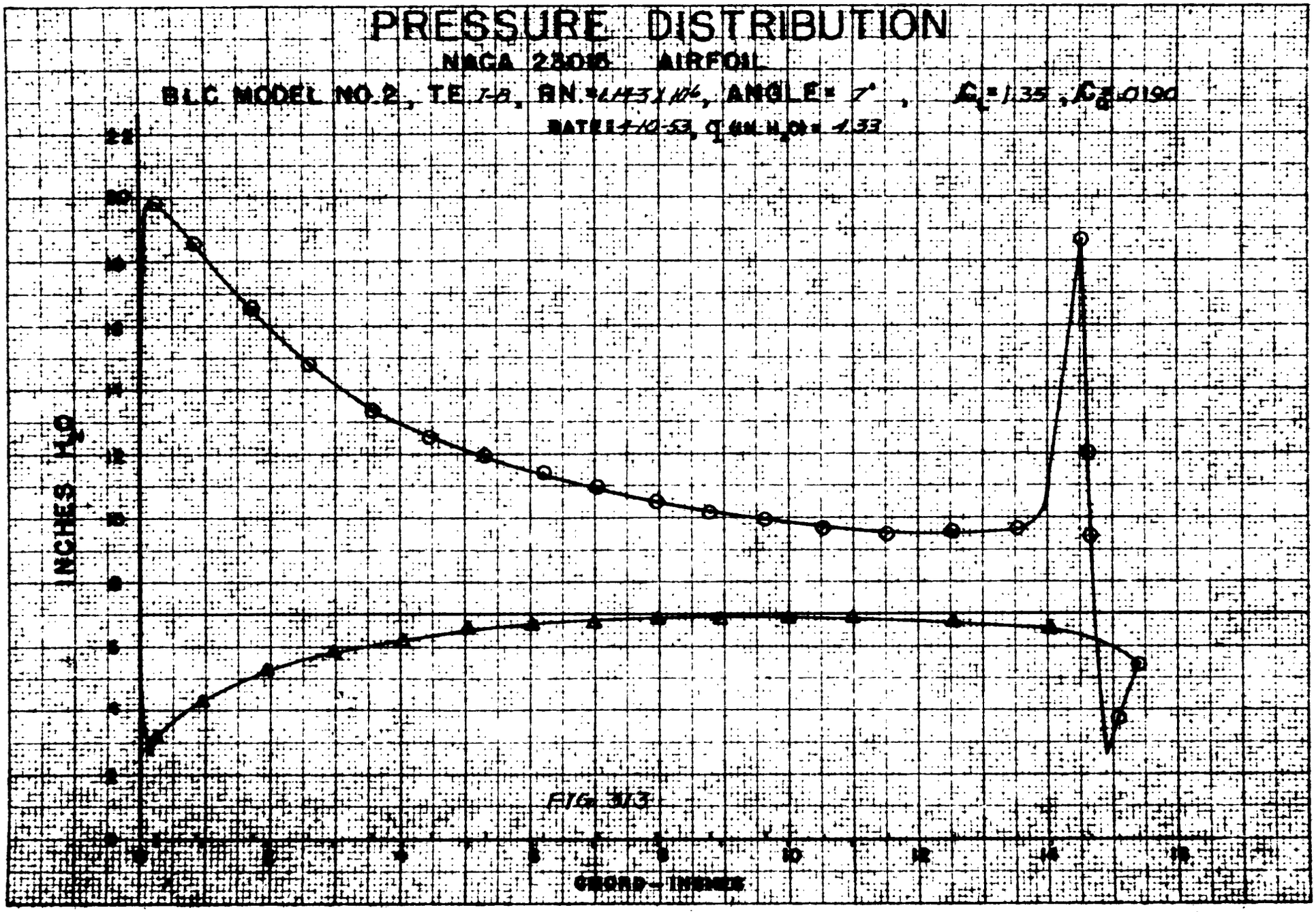


FIG. 313

KEUFFEL & ESSER CO

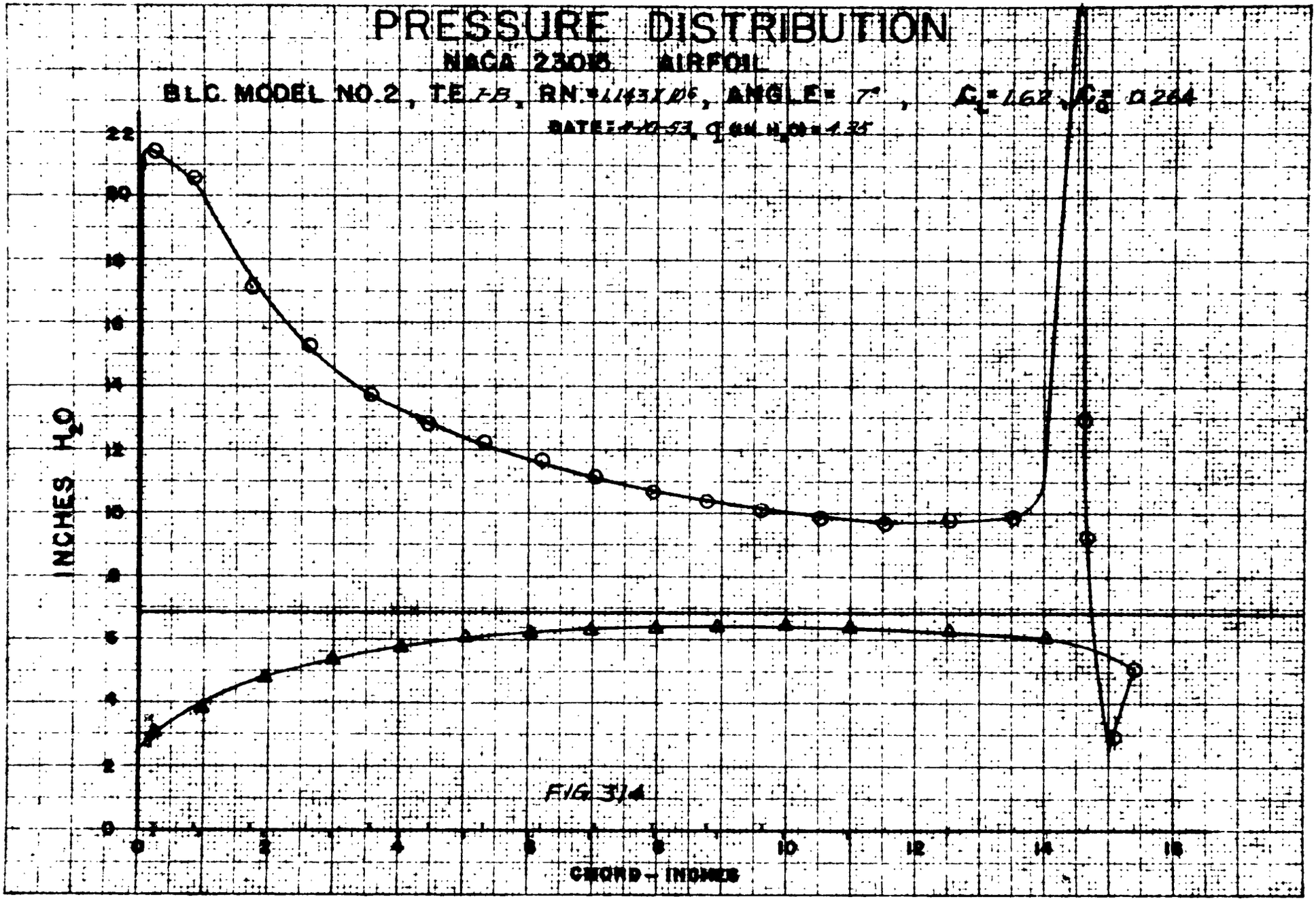


FIG. 3.4

KEUFFEL & ESSER CO
10 to the ½ inch, 5th lines accented.

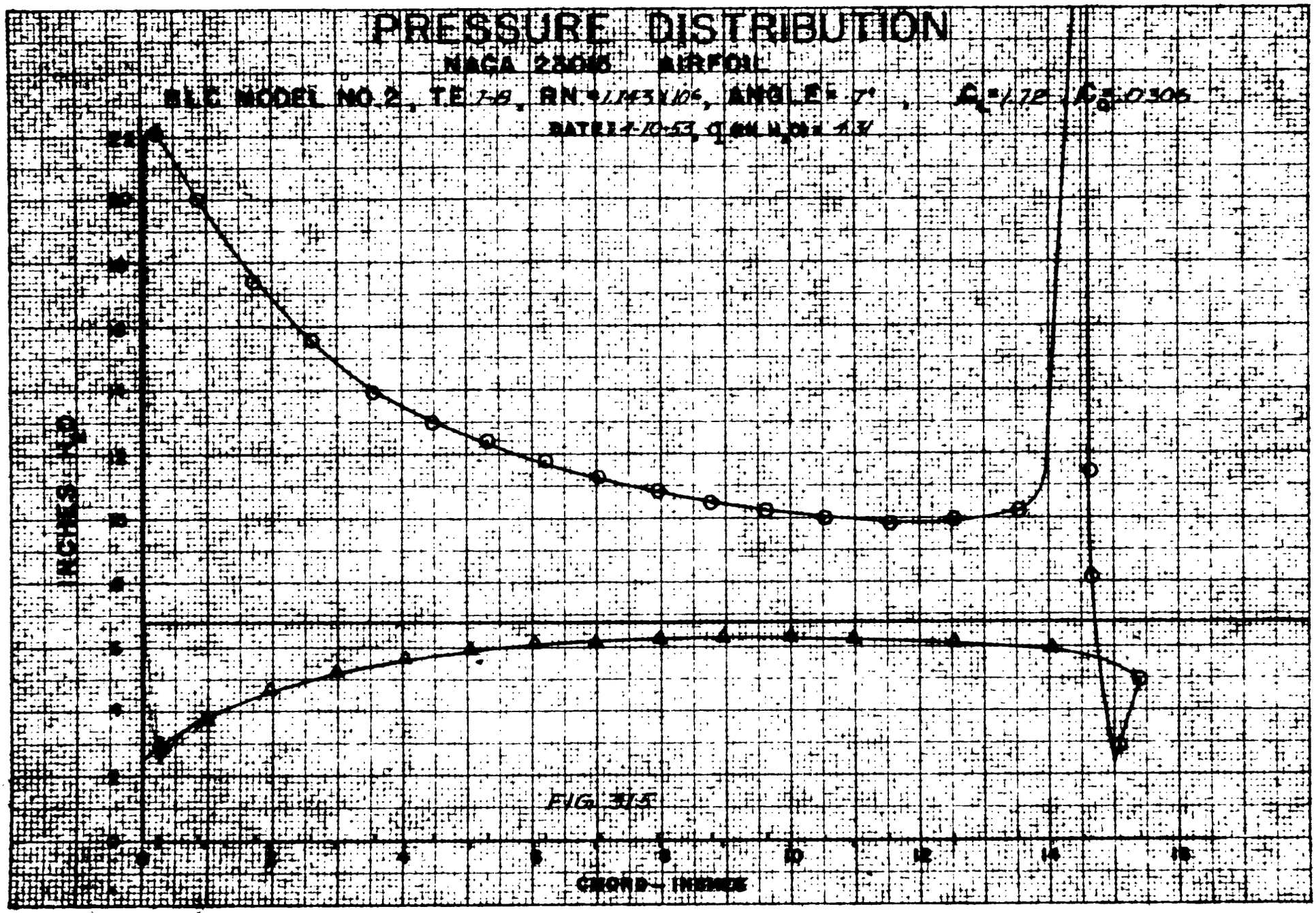


FIG. 315

KEUFFEL & ESSER CO

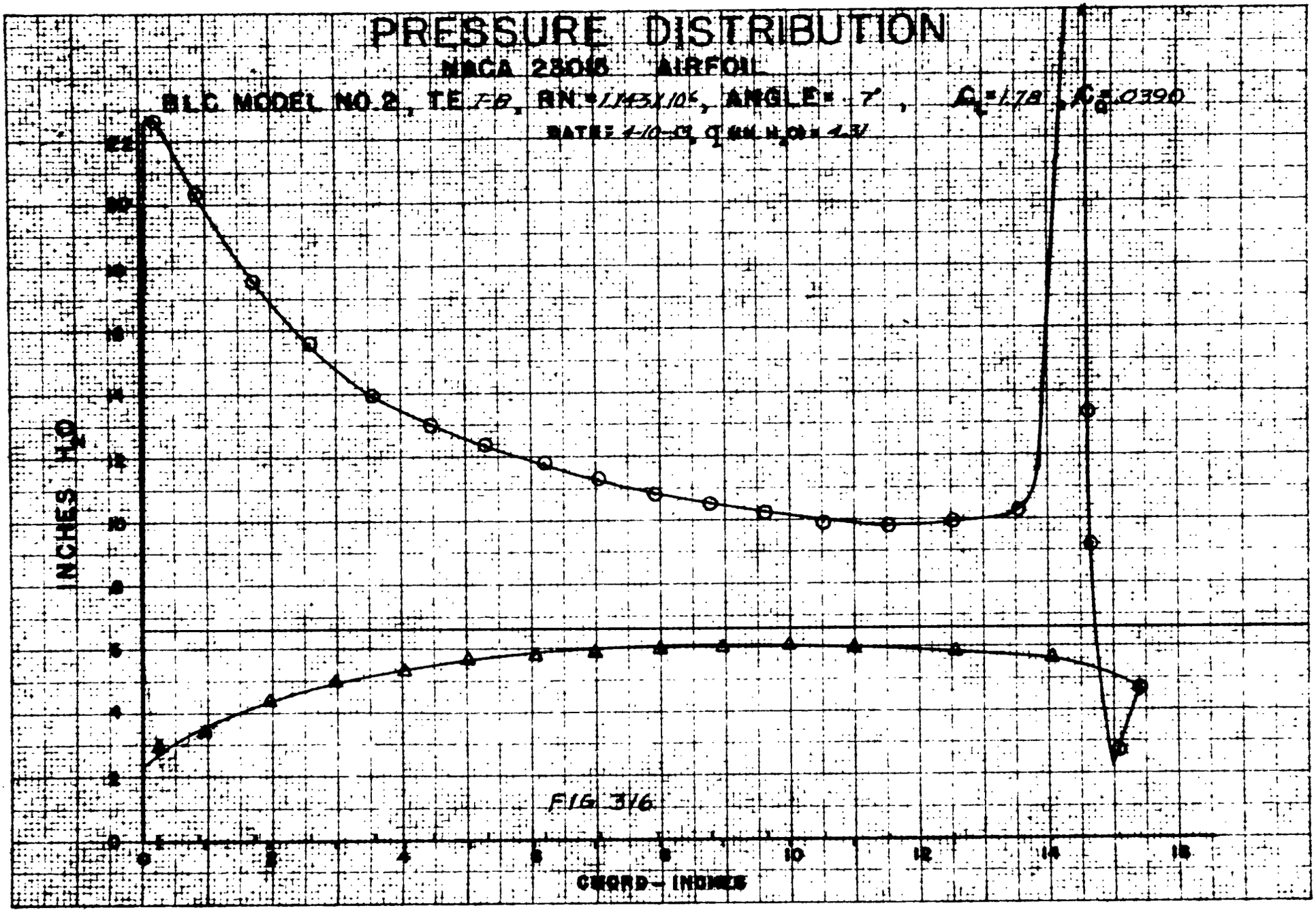


FIG. 316

KEUFFEL & ESSER CO

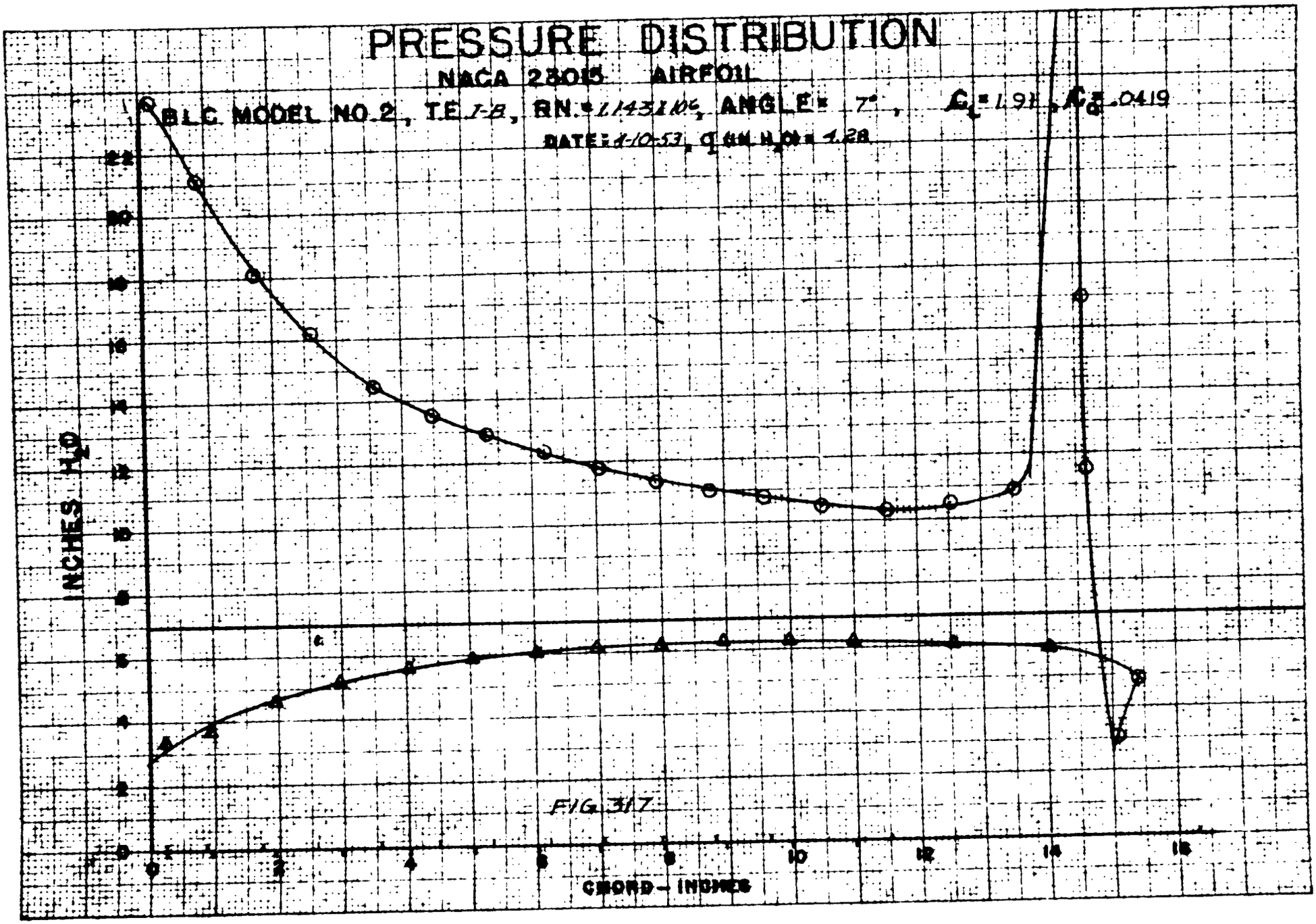
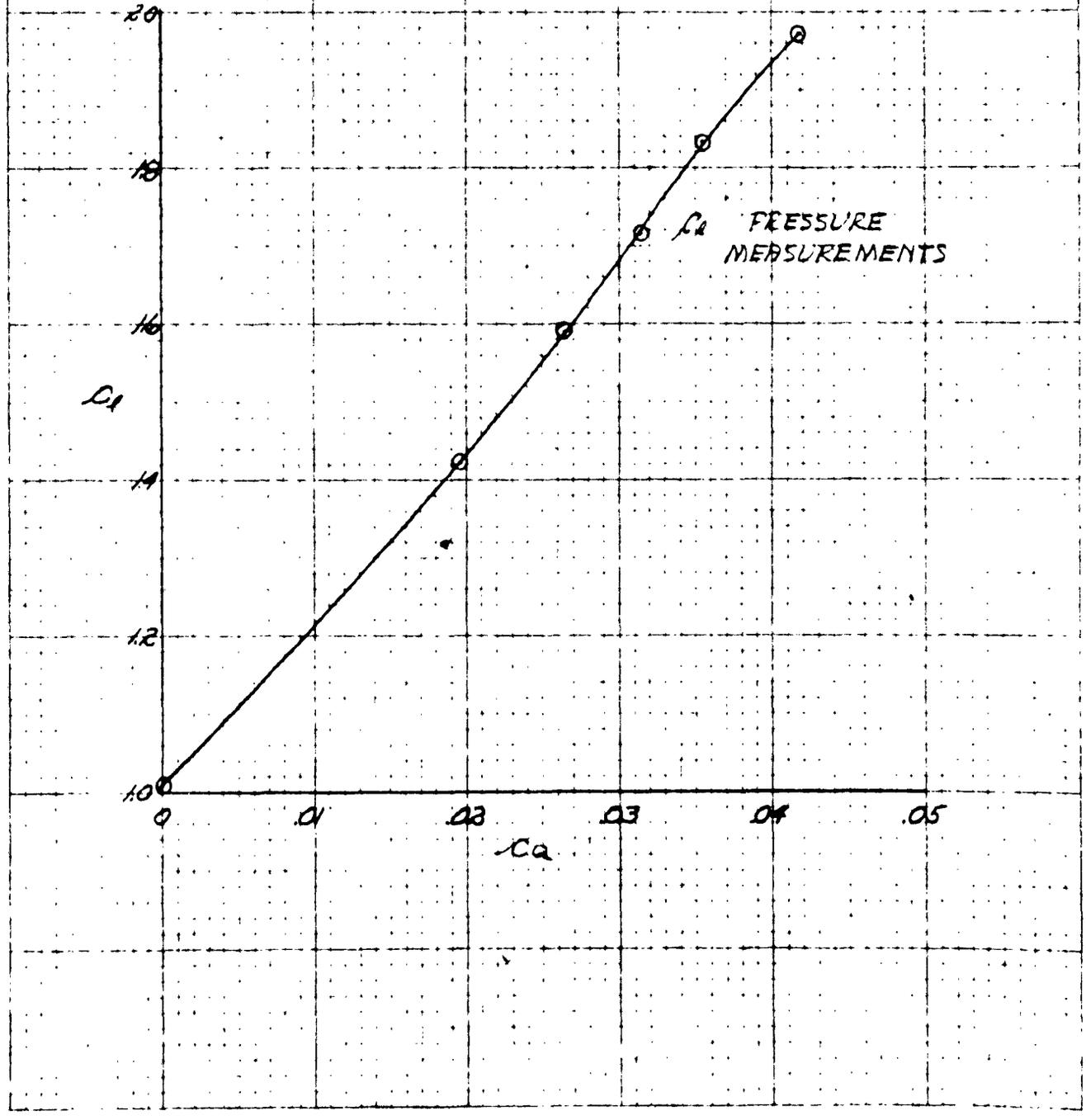


FIG. 317

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-B , R.N. = 1.143 X 10⁶ , ANGLE (α) = 9° , 4-10-53

FIG. - 318



KEUFFEL & ESSER CO

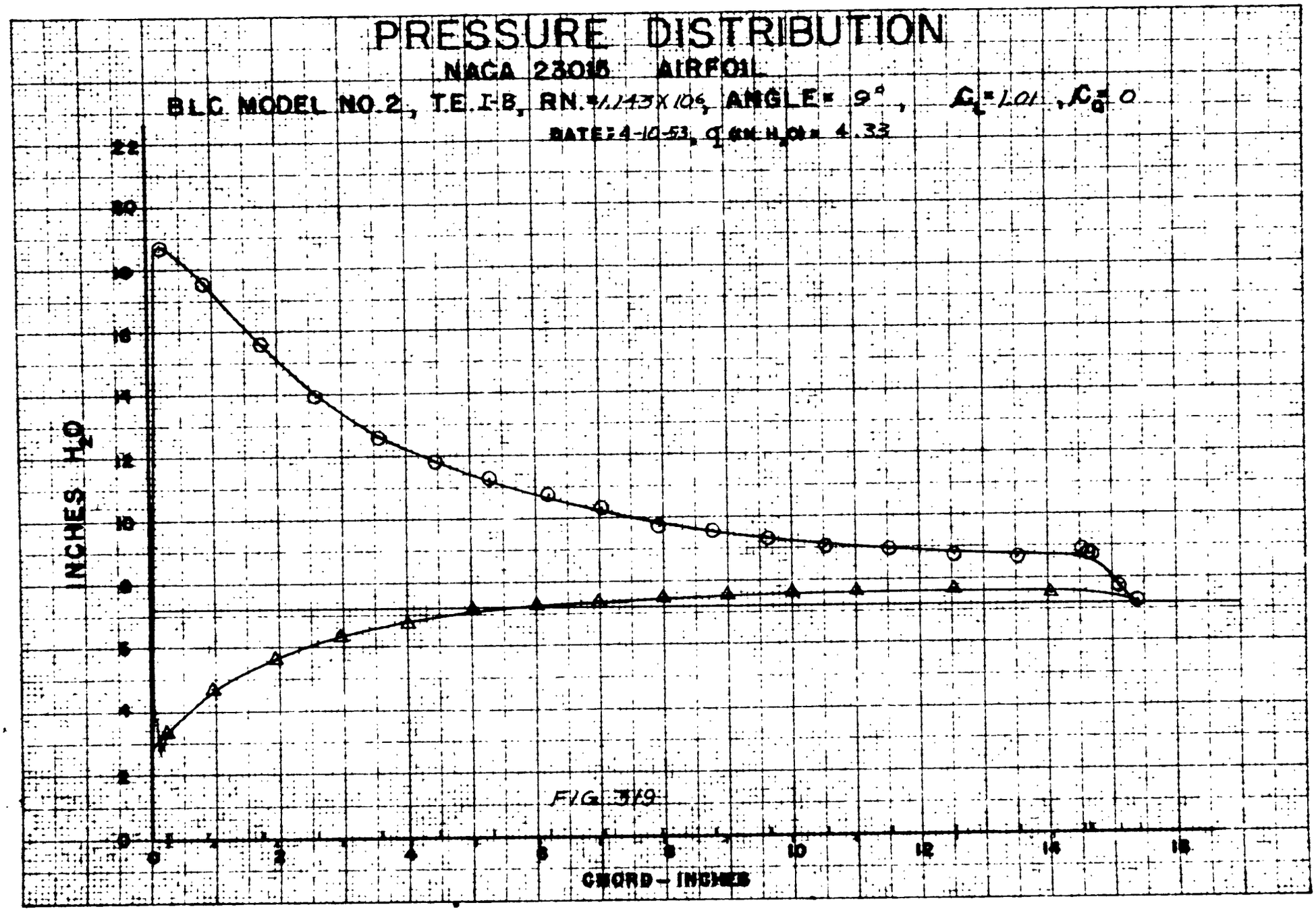

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-B, RN. = 1.143 X 10⁶, ANGLE = 9°, C_L = 1.01, C_D = 0
DATE: 4-10-53, q (IN. H_2O) = 4.33
INCHES H_2O
CHORD - INCHES

FIG. 3(9

KEUFFEL & ESSER CO
10 × 10 to the ½ inch. 5th lines accented.

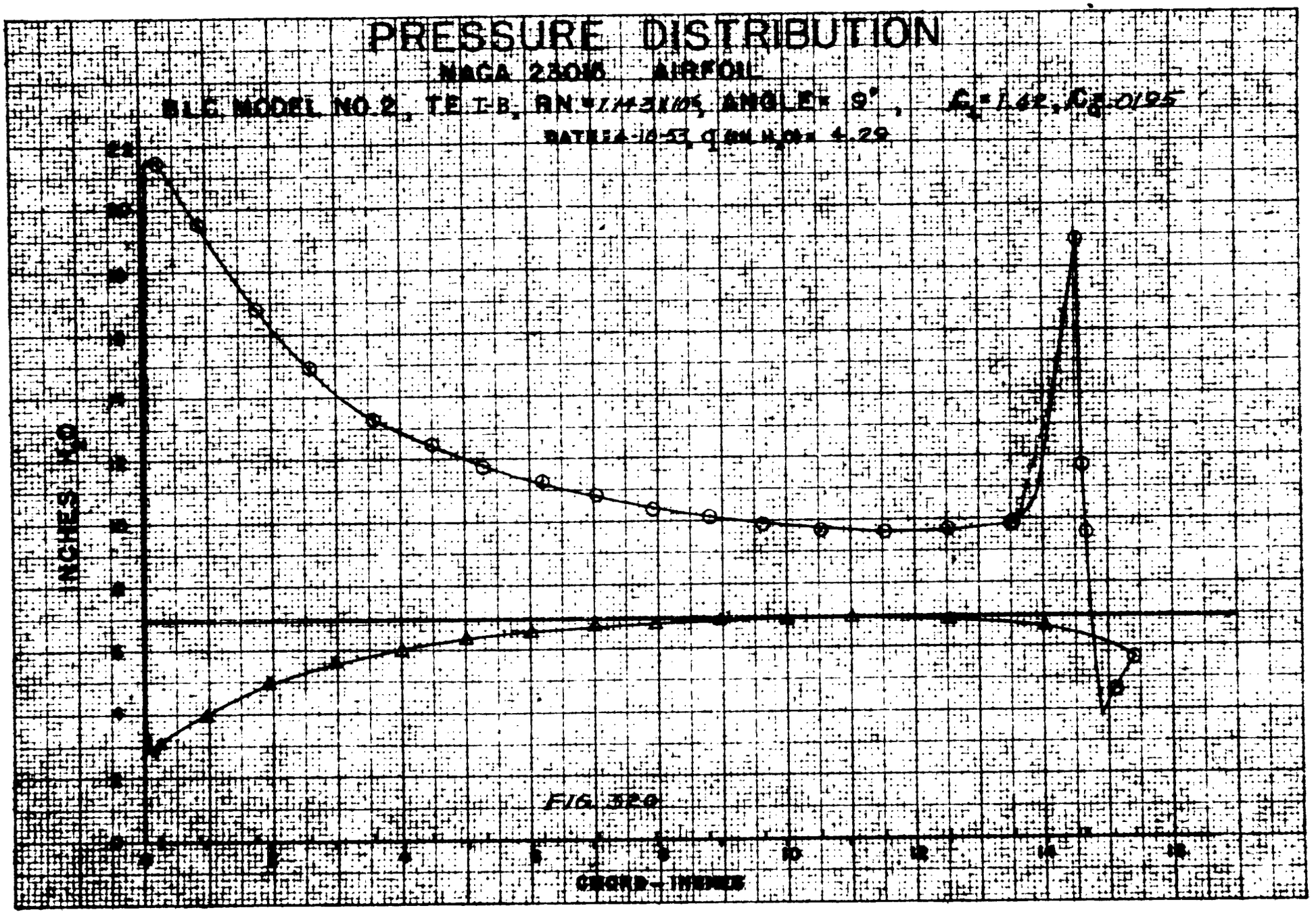


FIG. 320

KEUFFEL & ESSER CO
10 × 10 to the ½ inch, 5th lines accented.

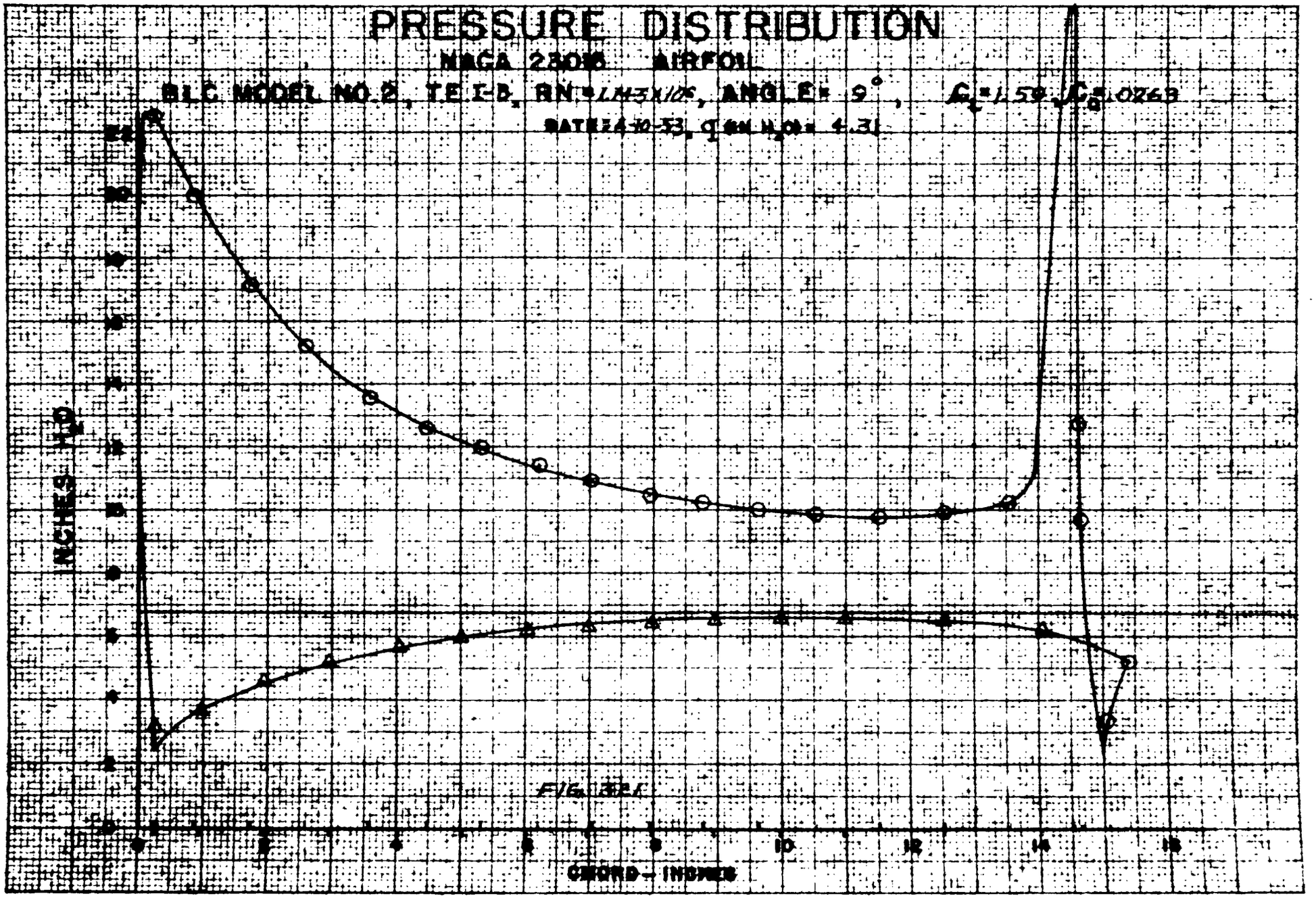


FIG. 32L

KEUFFEL & ESSER CO

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

L.C. MODEL NO. 2, T.E. I-B, RN. = 1.43 x 10^6, ANGLE = 9°, C_L = 1.72, C_D = .0313

DATE 14-10-53, q (IN H_2O) = 4.29

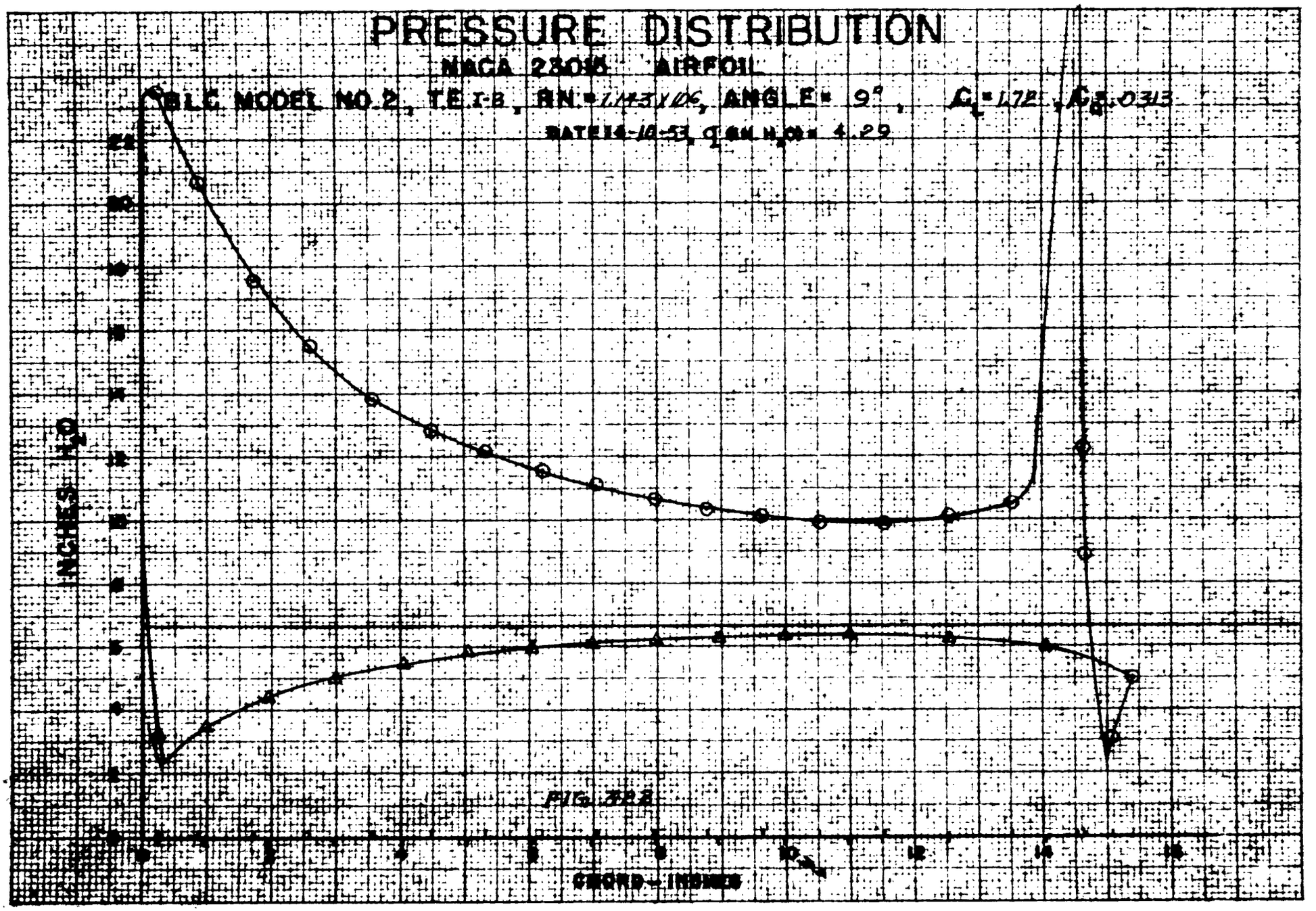


FIG. 322

KEUFFEL & ESSER CO

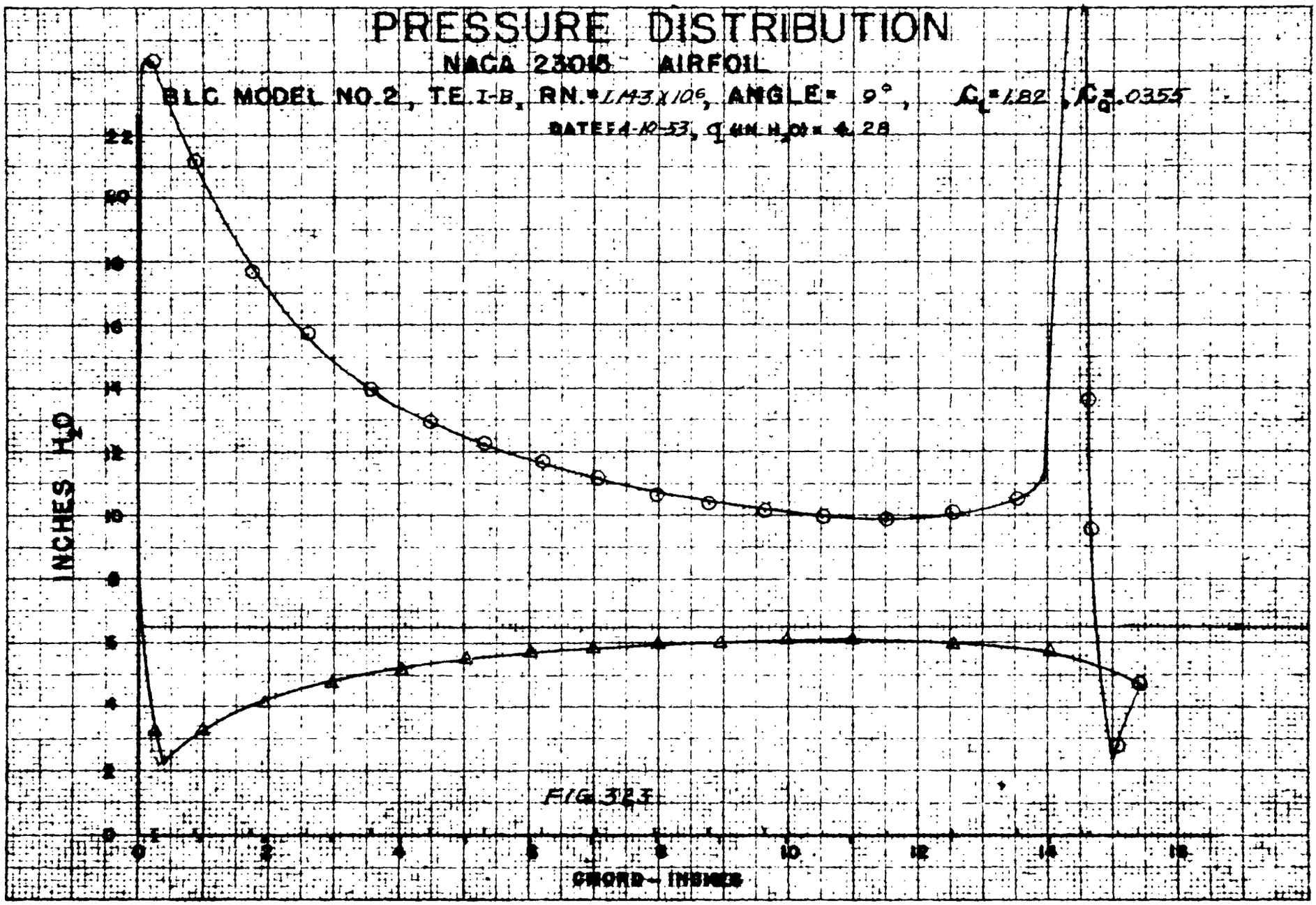


FIG. 323

KEUFFEL & ESSER CO
10 to the ½ Inch, 5th Issue

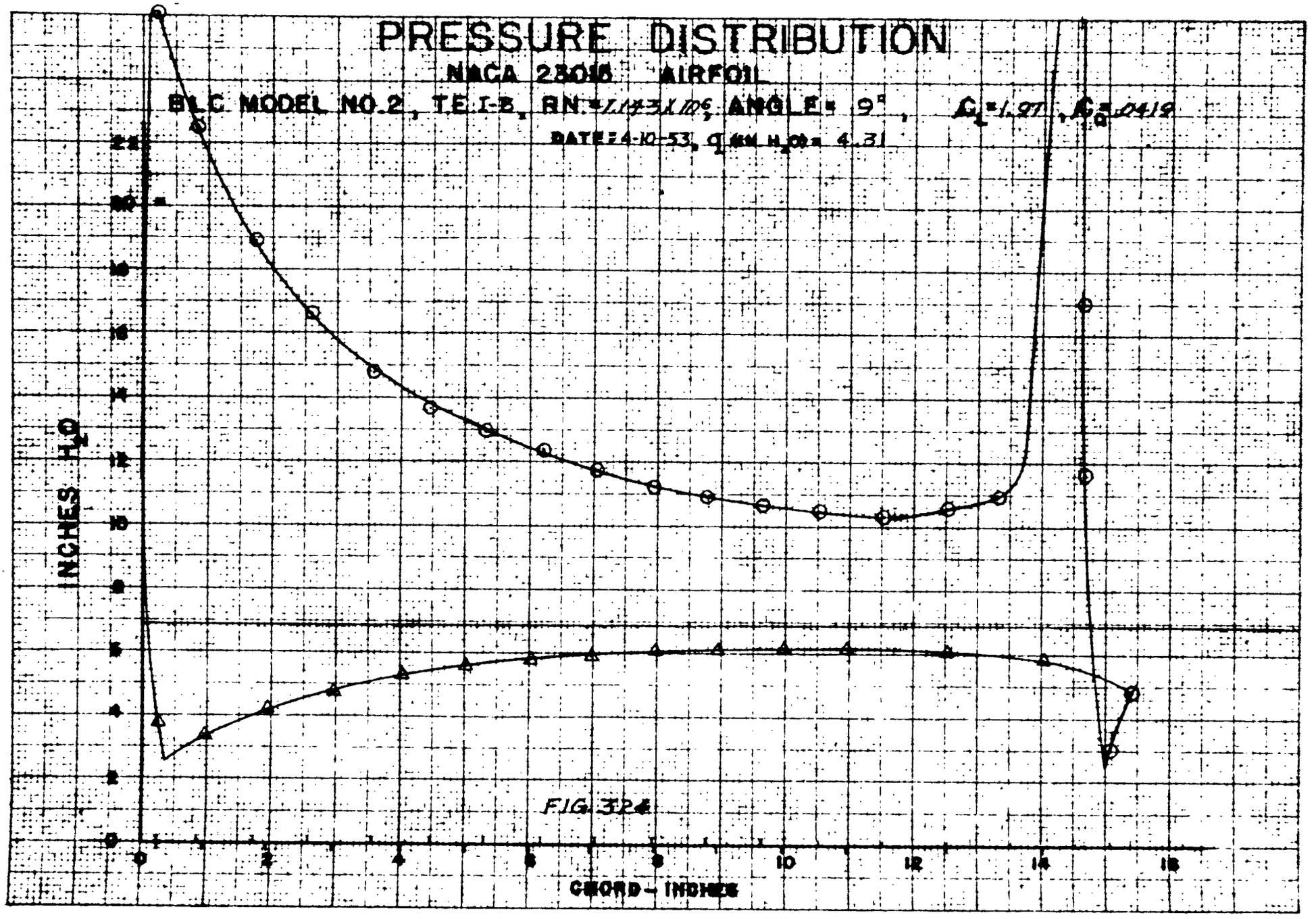
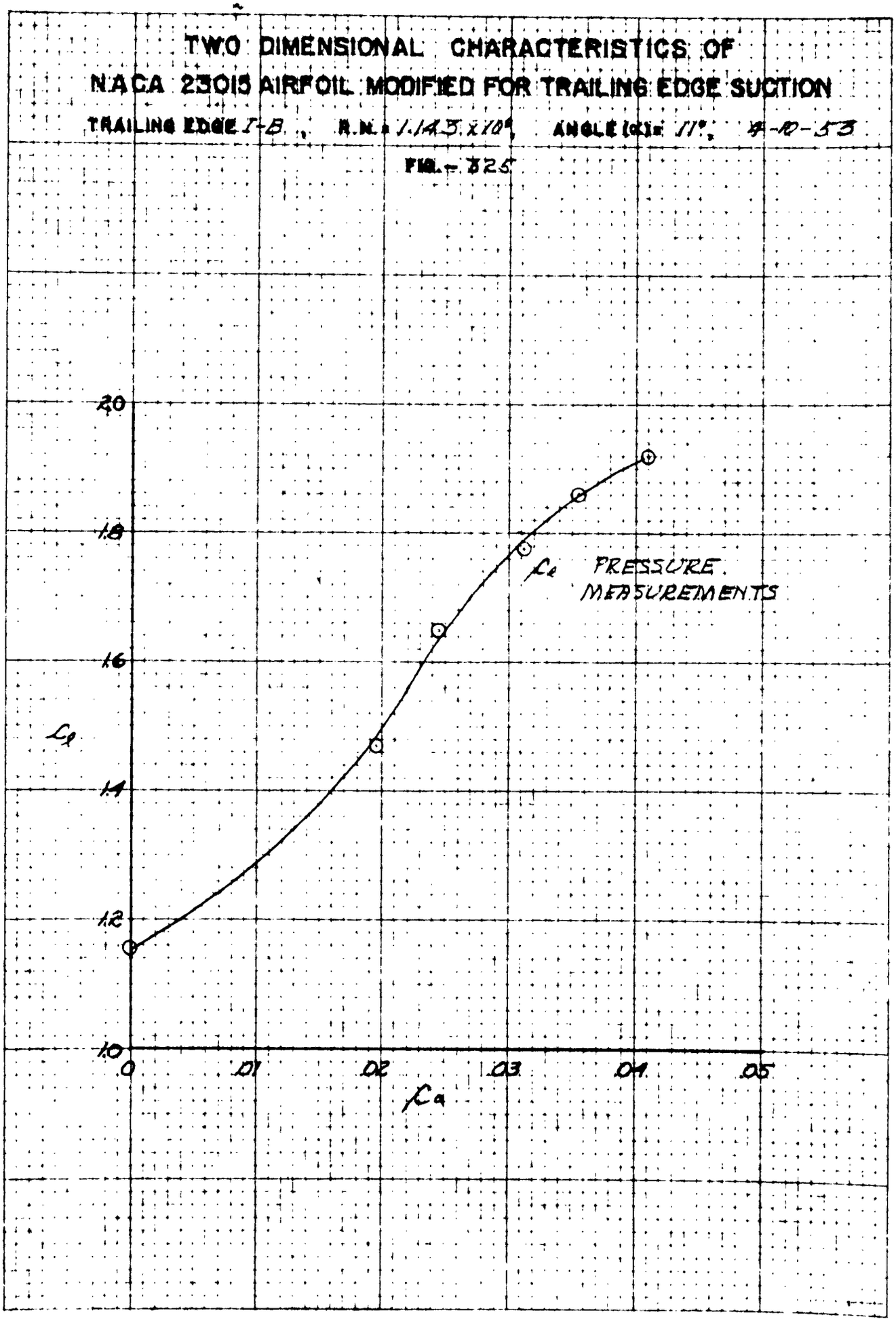


FIG. 32A


TWO DIMENSIONAL CHARACTERISTICS OF
NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
TRAILING EDGE I-B , R.N. = 1.143 x 10⁶, ANGLE (CL)= 11°, 4-10-53
FIG. - 325
2.0
1.8
1.6
1.4
1.2
1.0
C_l
0
.01
.02
.03
.04
.05
C_d
C_l PRESSURE MEASUREMENTS

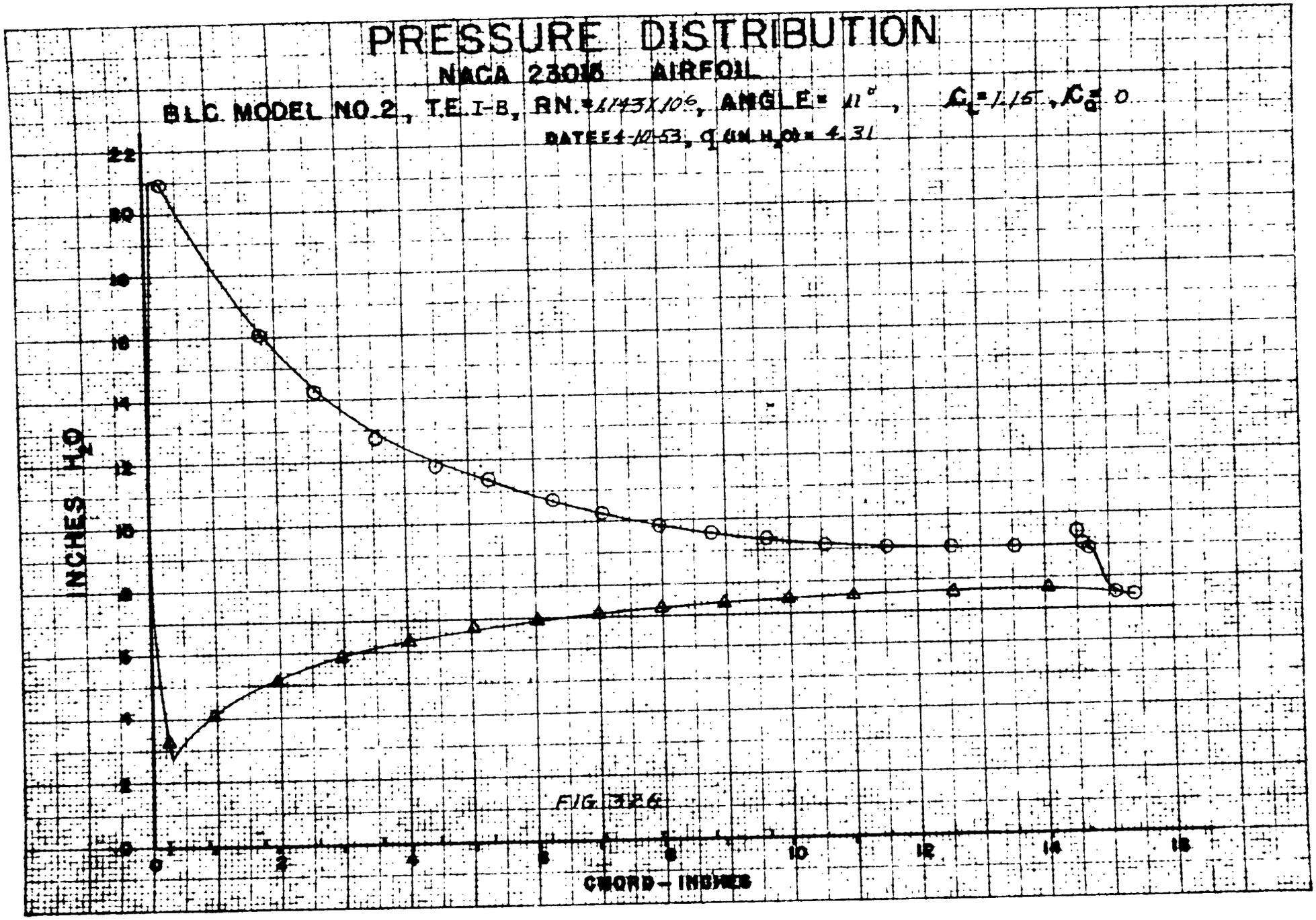

PRESSURE DISTRIBUTION
NACA 23016 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-B, RN. = 1.143 X 10⁶, ANGLE = 11°, C_L = 1.15, C_d = 0
DATE: 4-10-53, q (IN H_2O) = 4.31
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 32 C

KEUFFEL & ESSER CO
¼ Inch

PRESSURE DISTRIBUTION

NACA 23015 AIRFOIL

B.L.C. MODEL NO. 2, T.E. I-B, RN = 1.143 X 10⁶, ANGLE = 11°, C_L = 1.47, C_d = .0196

DATE: 4-10-53, q (IN. H_2O) = 4.34

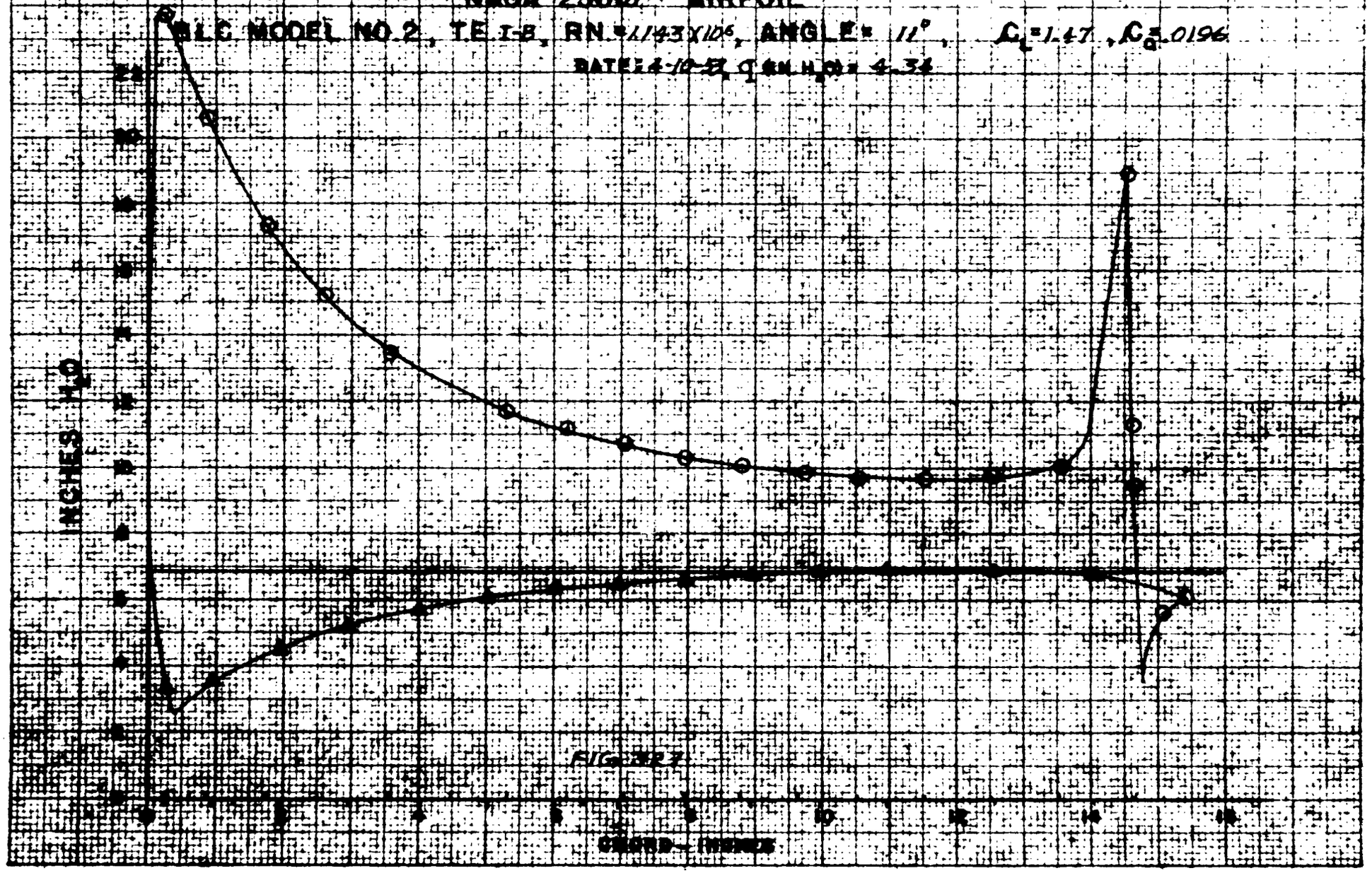
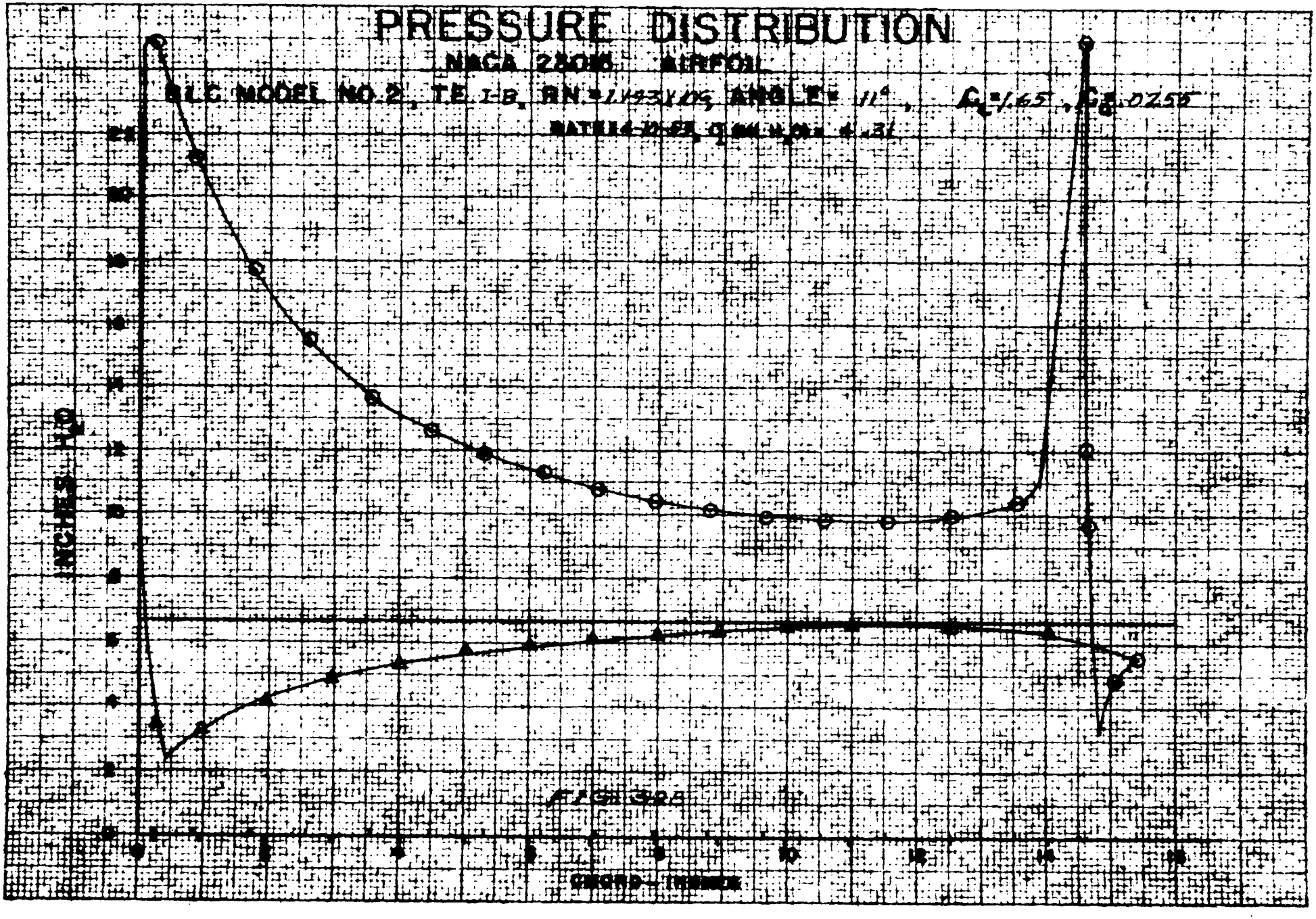


FIG. 22.7

KEUFFEL & ESSER CO.
MADE IN U.S.A.



KEUFFEL & ESSER CO
the ½ inch, 6th lines accented.

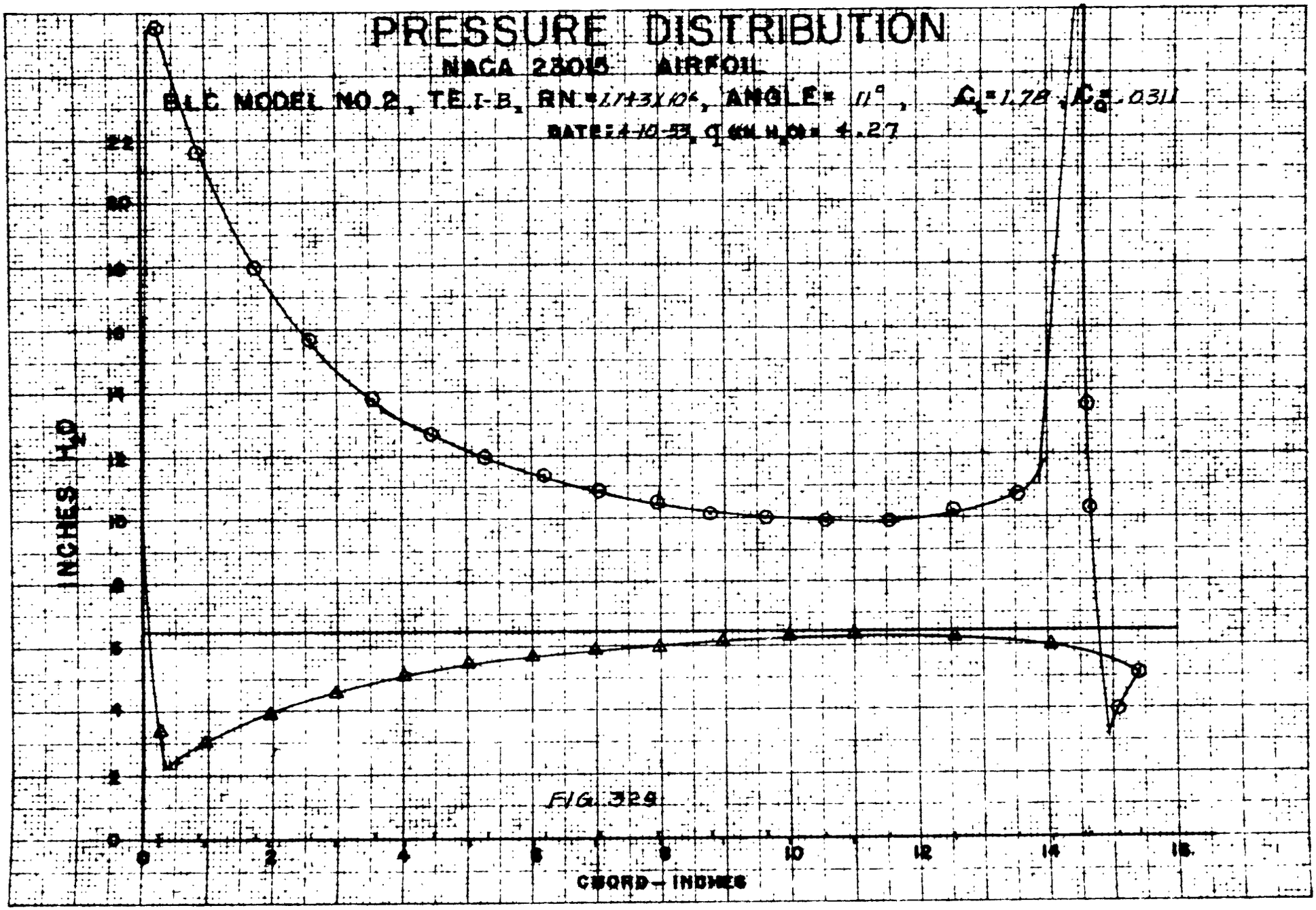


FIG. 329

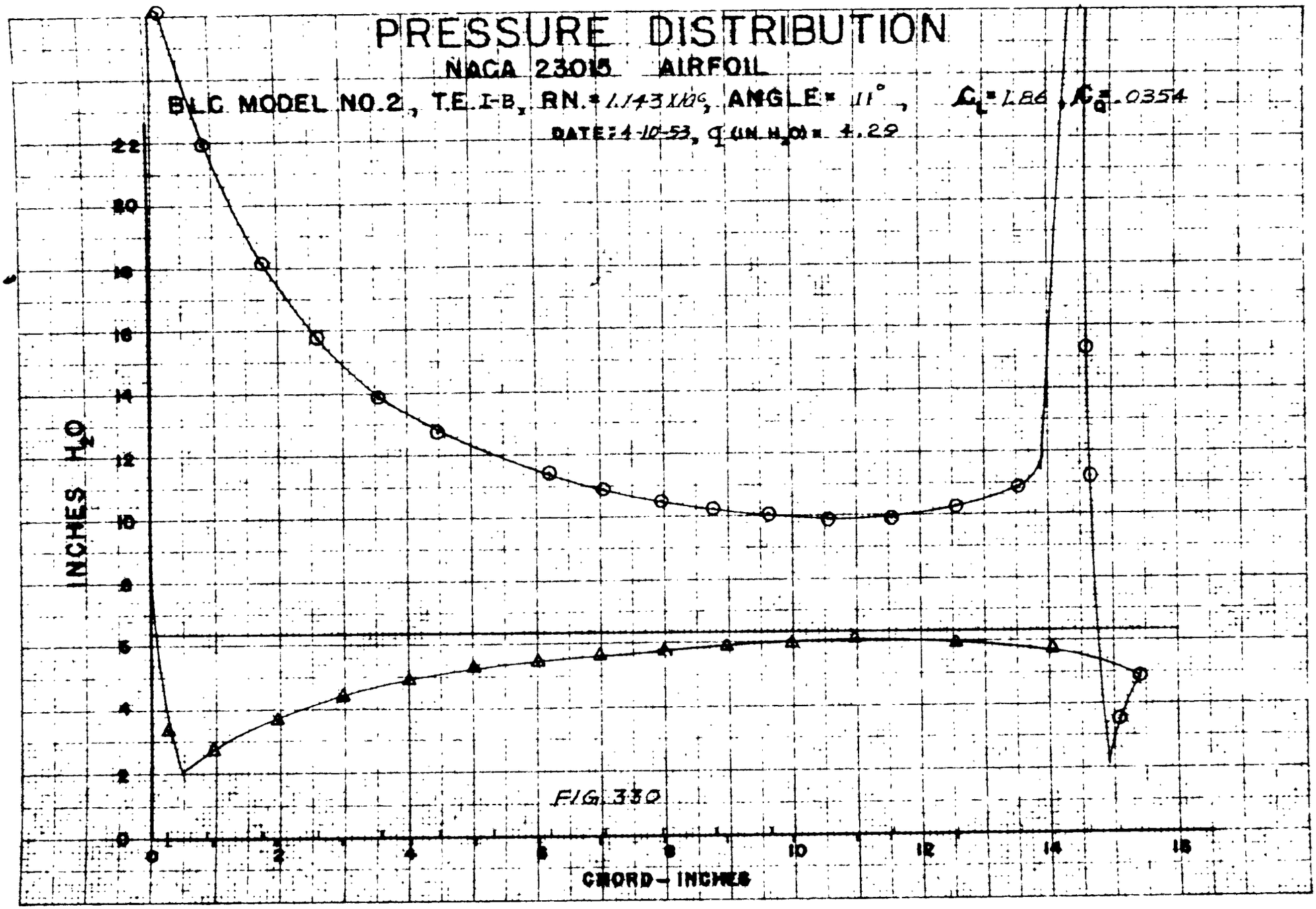

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN. = 1.143 X 10^6, ANGLE = 11°, C_L = 1.86, C_d = .0354
DATE: 4-10-53, q (IN. H2O) = 4.29
INCHES H2O
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 330

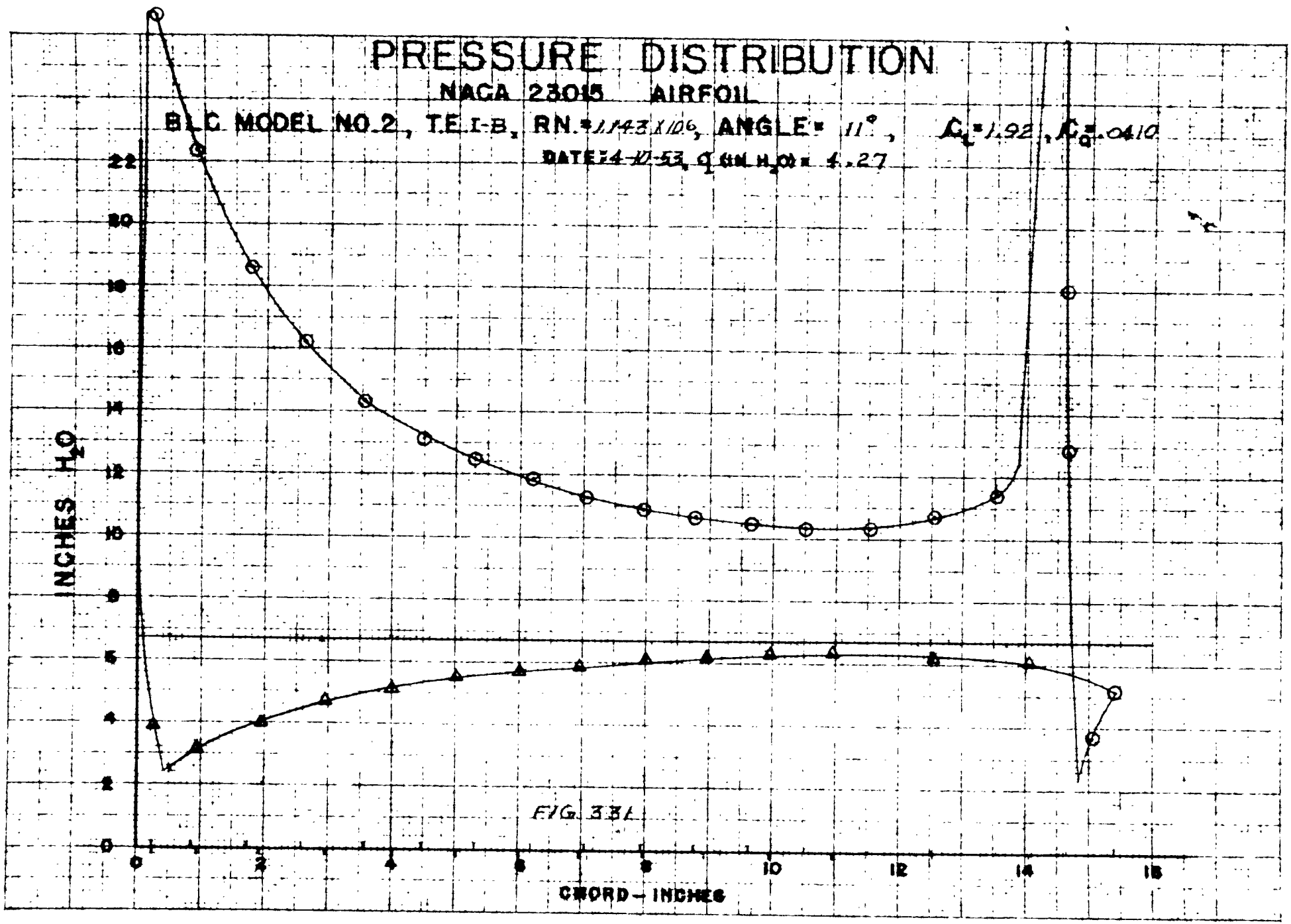
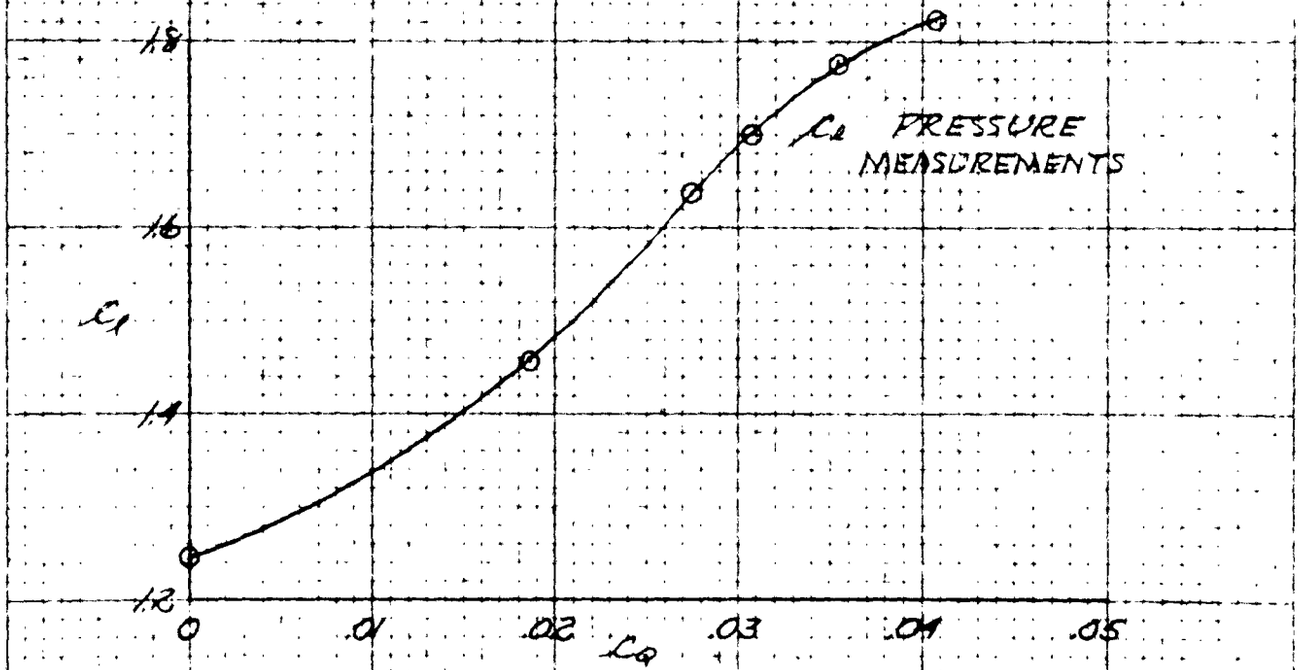

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO.2, T.E. I-B, RN.=1.143 X 10⁶, ANGLE= 11°, C_L=1.92, C_d=.0410
DATE: 4-10-53, q (IN H_2O) = 4.27
INCHES H_2O
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 33L

TWO DIMENSIONAL CHARACTERISTICS OF NACA 23015 AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION

TRAILING EDGE I-B , R.N. = 1.143 X 10⁶, ANGLE (α) = 13°, 4-10-53

FIG. - 332



KEUFFEL & ESSER CO

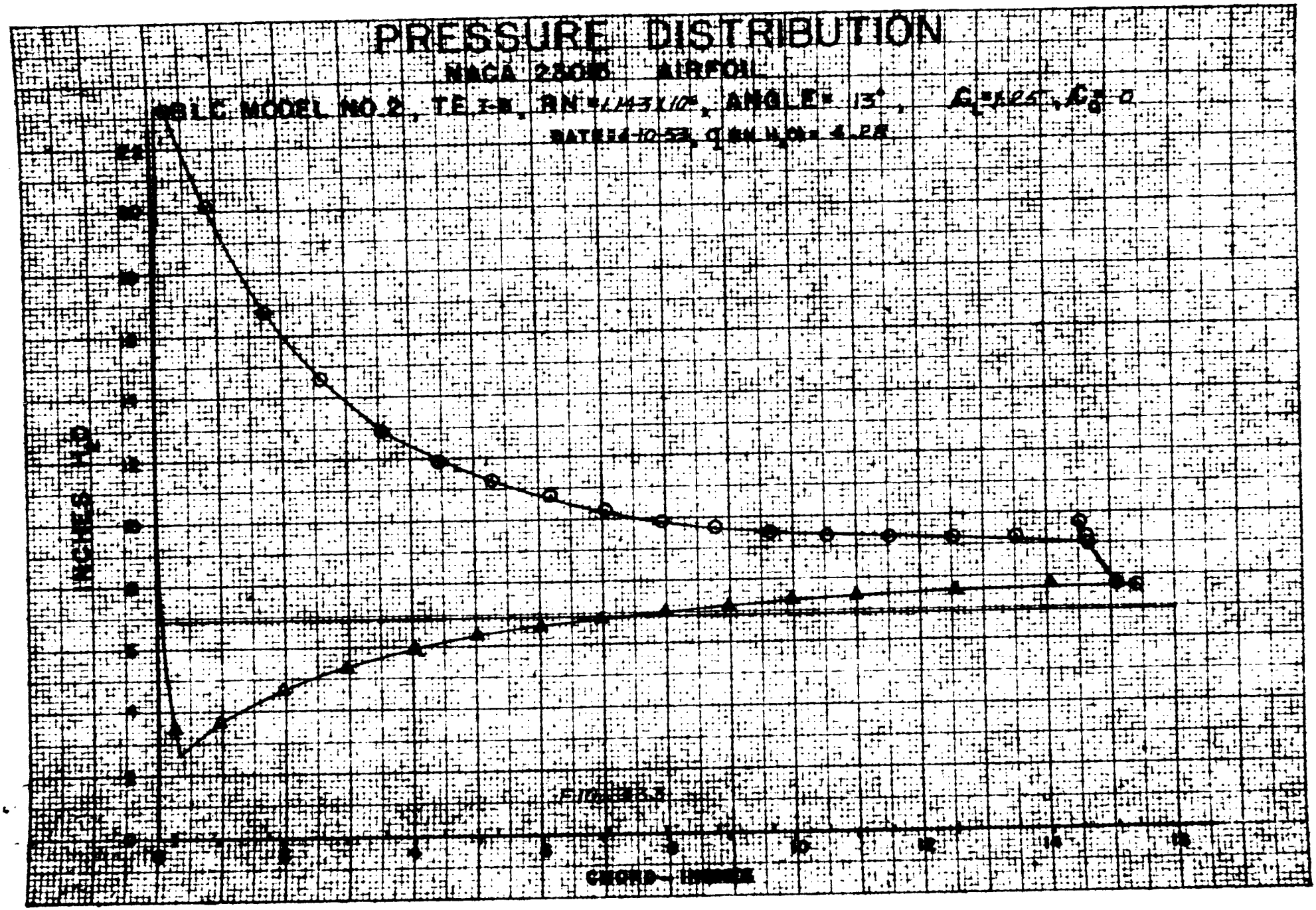


FIGURE 3

459 17 - KEUFFEL & ESSER CO
10 to the ½ inch, 6th lines accented.

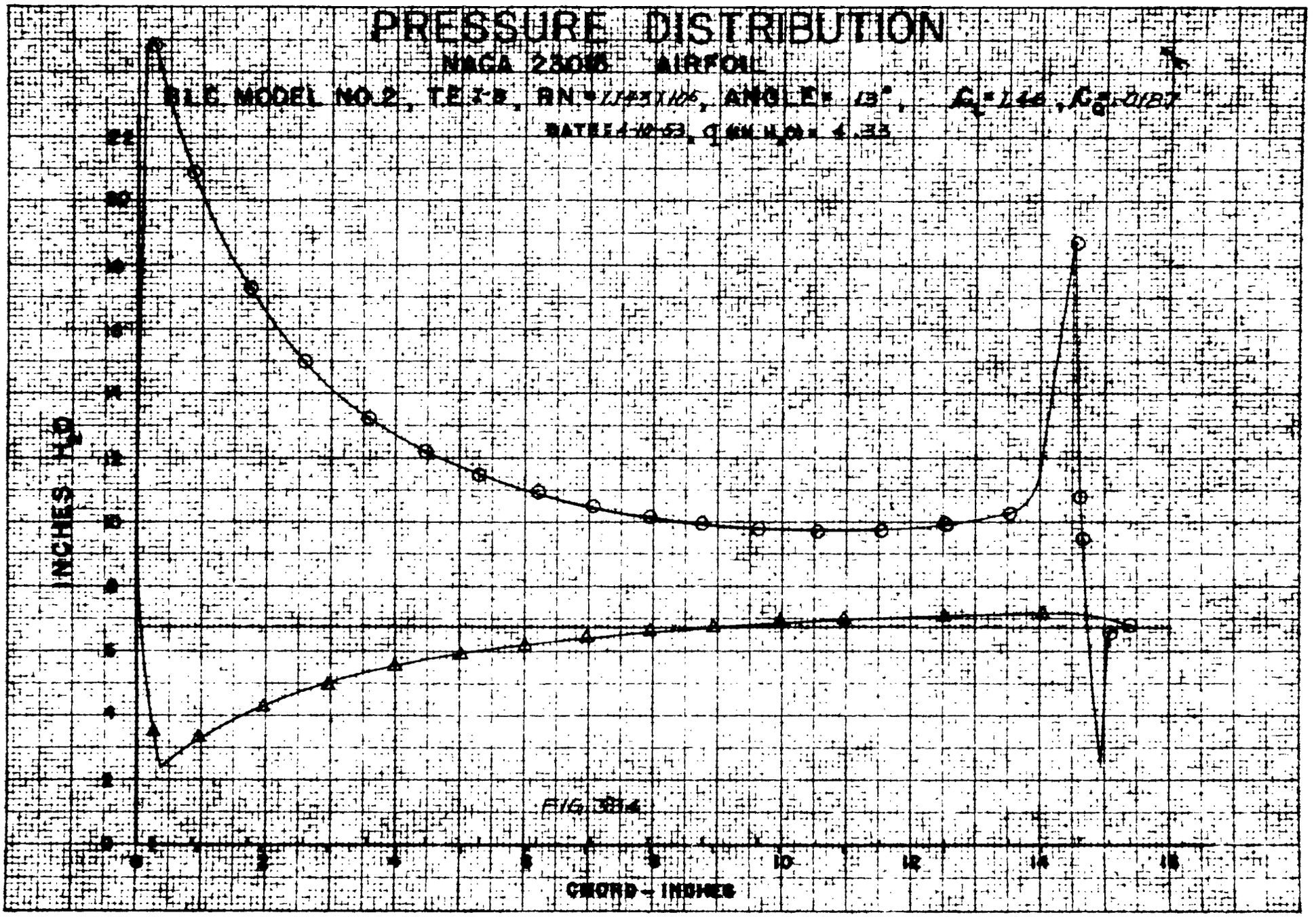


FIG. 38-4

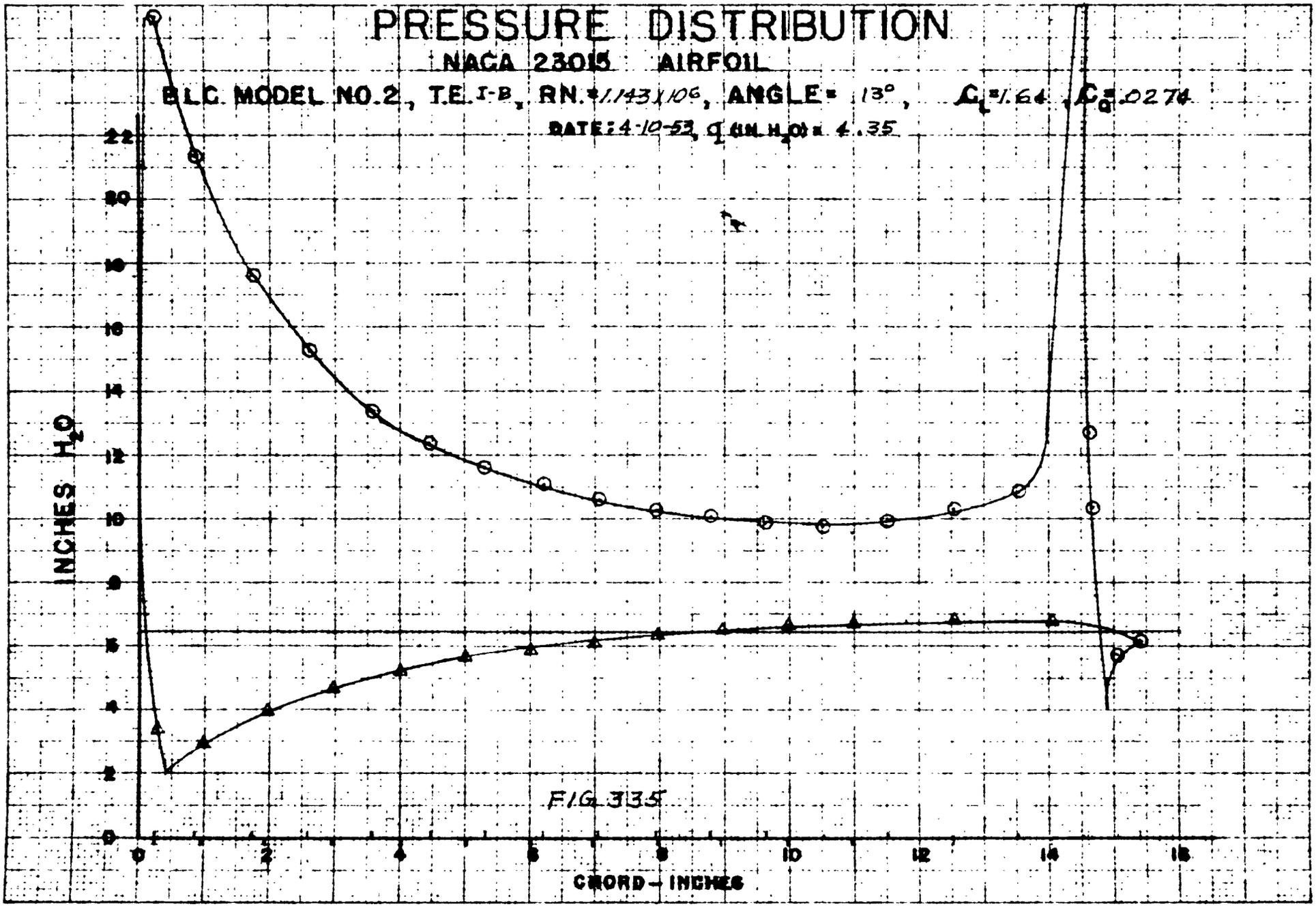

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO.2, T.E. I-B, RN.=1.143x10^6, ANGLE= 13°, C_L=1.64, C_d=.0274
DATE: 4-10-52, q (IN. H2O) = 4.35
INCHES H2O
0
2
4
6
8
10
12
14
16
18
20
22
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG 335

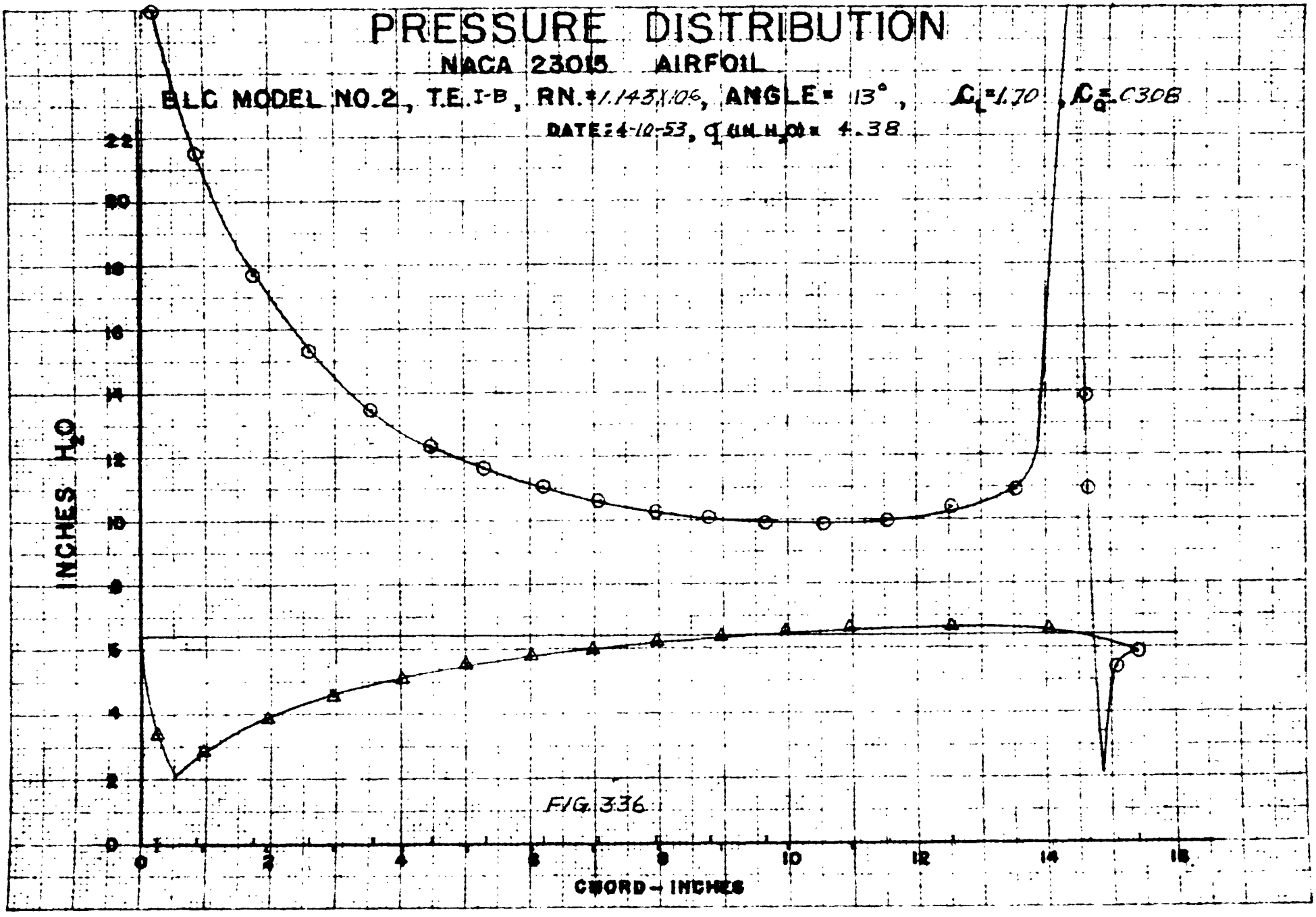

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E. I-B, RN. = 1.143,106, ANGLE = 13°, C_L = 1.70, C_d = .0308
DATE: 4-10-53, q (IN. H_2O) = 4.38
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG. 336

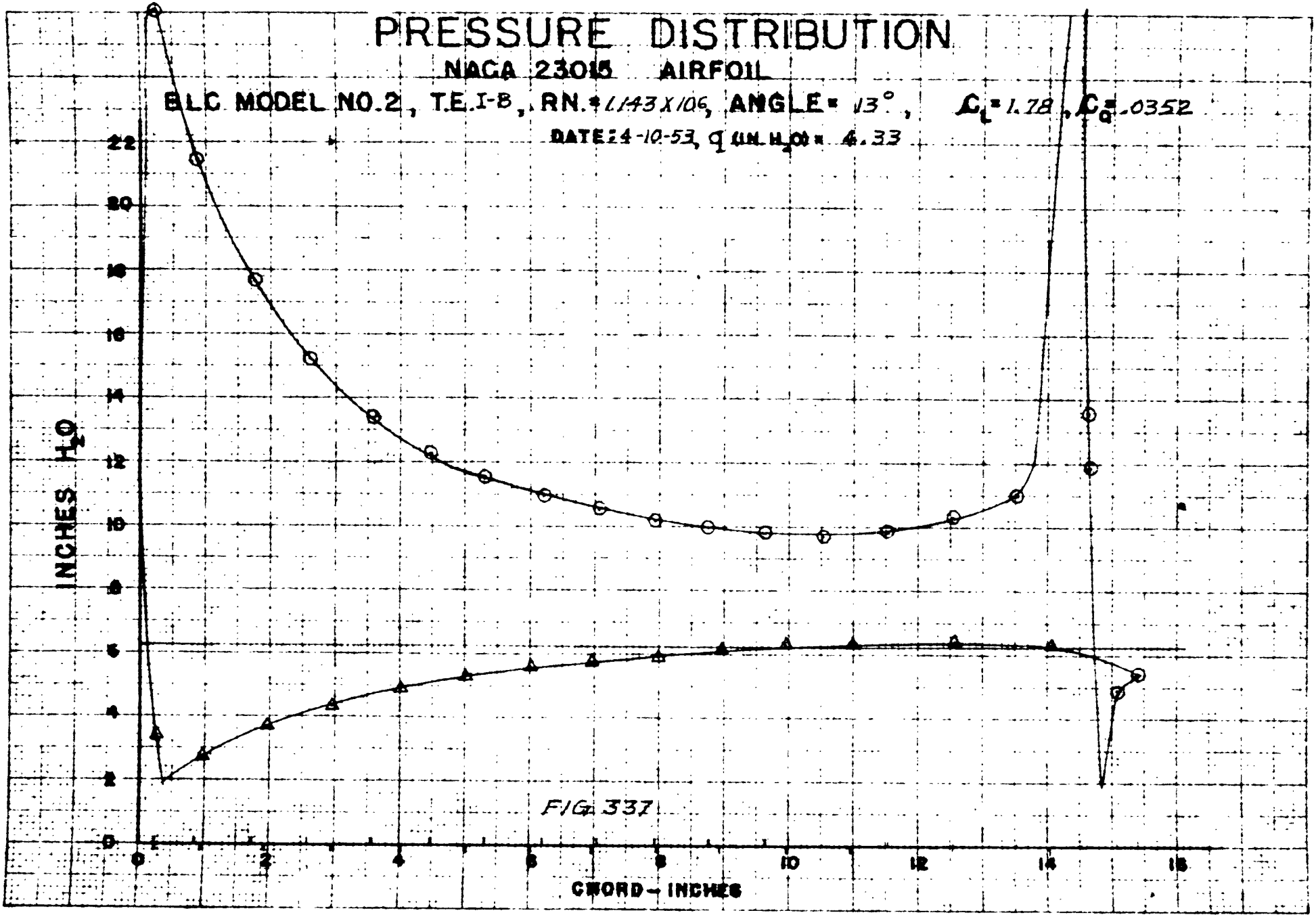

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
BLC MODEL NO.2, T.E.I-B, RN.=1.143X10⁶, ANGLE= 13°, C_l=1.78, C_d=.0352
DATE: 4-10-53, q (IN. H_2O) = 4.33
INCHES H_2O
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
CHORD - INCHES

FIG 337

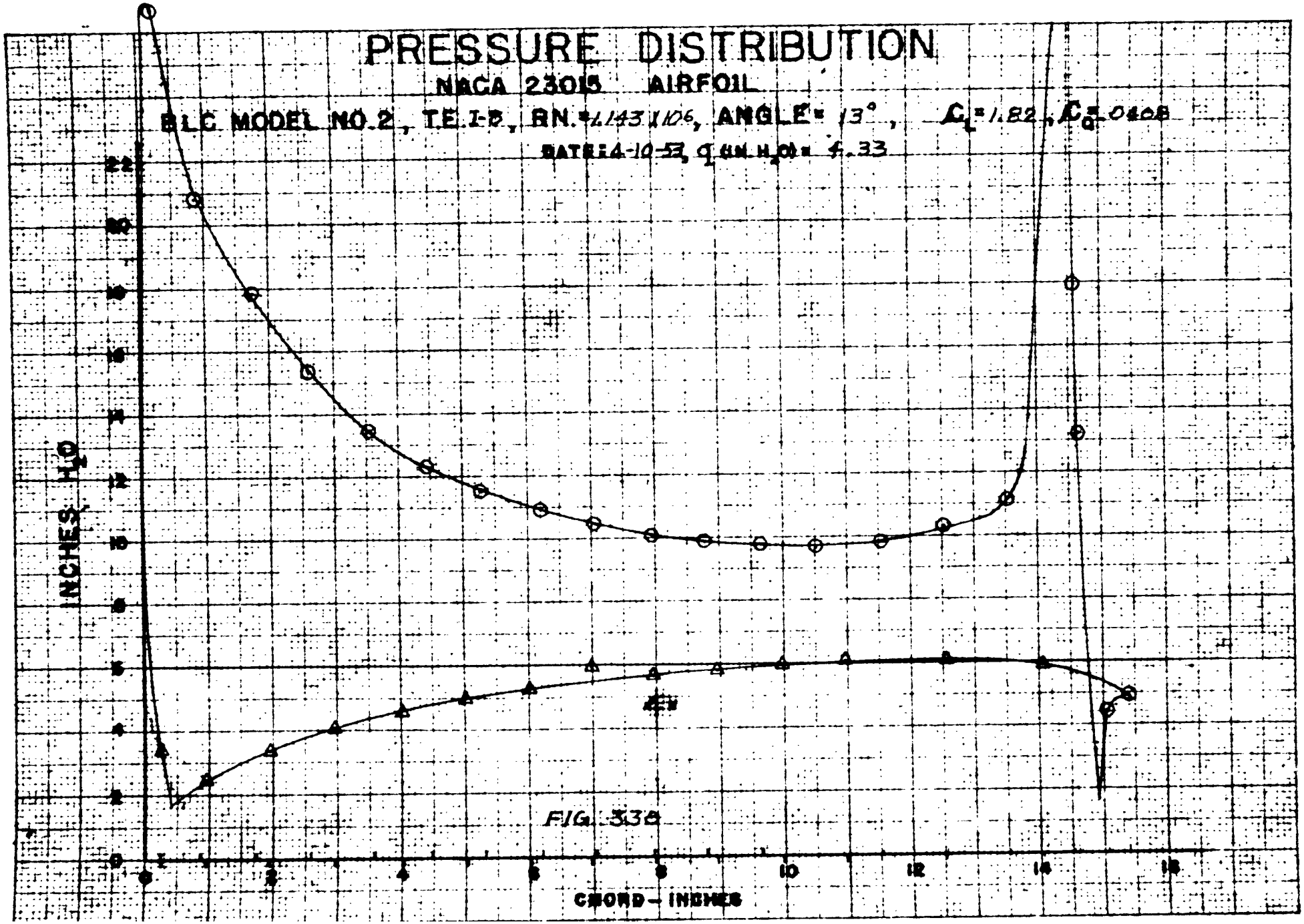

PRESSURE DISTRIBUTION
NACA 23015 AIRFOIL
B.L.C. MODEL NO. 2, T.E. I-D, RN. 4.143 X 10⁶, ANGLE = 13°, C_L = 1.82, C_D = 0.0408
DATE: 4-10-53, q (IN. H_2O) = 4.33
INCHES, H_2O
CHORD - INCHES

FIG. 33a

15% ELLIPTICAL PROFILE EQUIPPED WITH TRAILING EDGE SUCTION SLOT

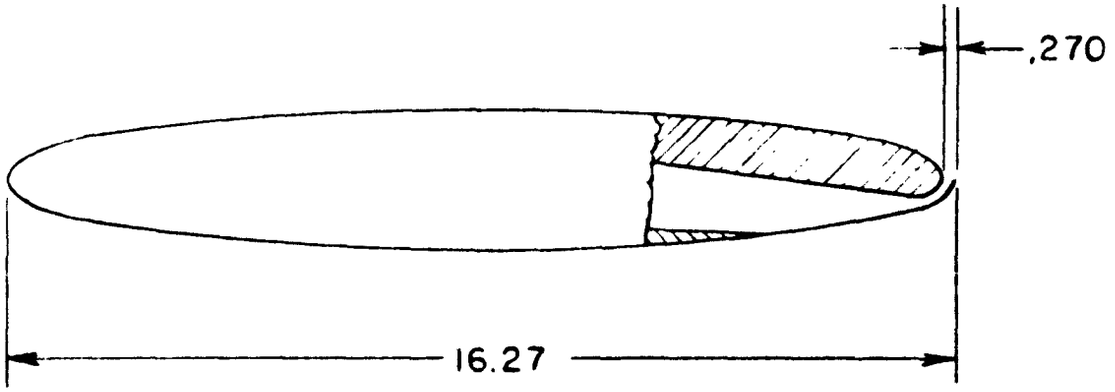
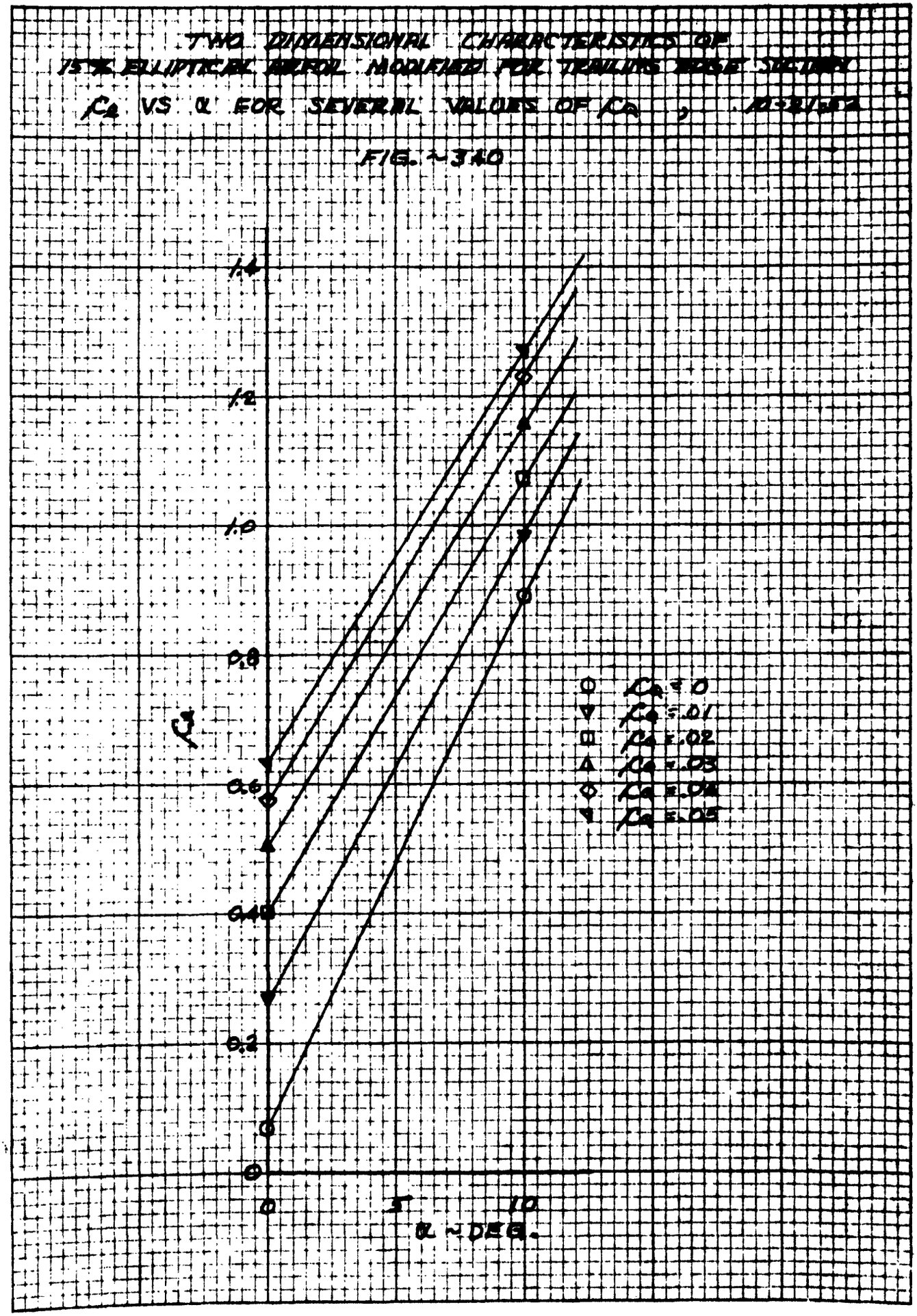


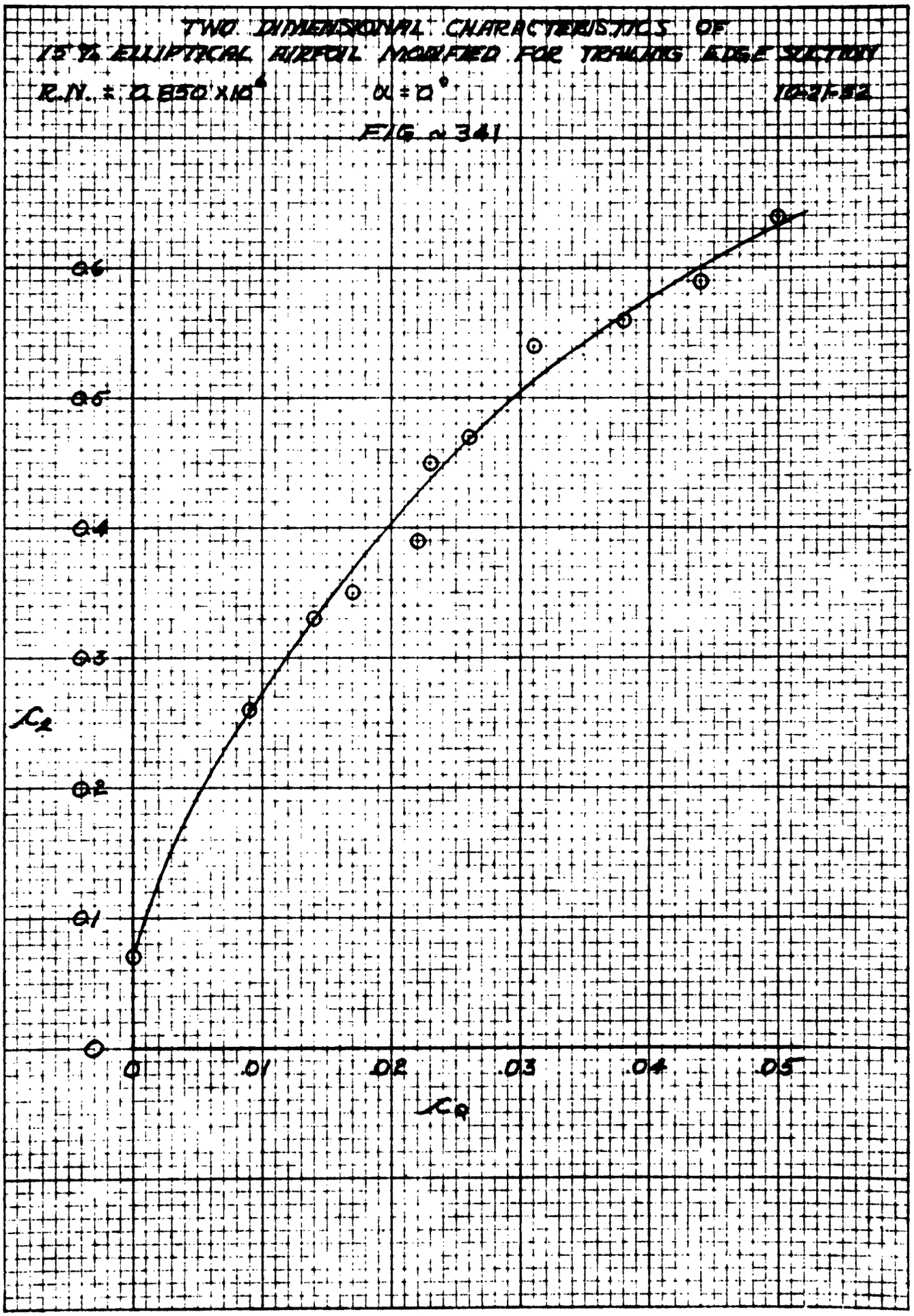
FIG. 339

TWO DIMENSIONAL CHARACTERISTICS OF
15% ELLIPTICAL AIRFOIL MODIFIED FOR TRAILING EDGE SECTION
C_l VS α FOR SEVERAL VALUES OF C_d , $R = 3.1 \times 10^6$

FIG. ~ 340



359-6 KEUFFEL & ESSER CO
10 X 10 to the inch
MADE IN U.S.A.



359-8 KEUFFEL & ESSER CO
10 × 10 to the inch

KEUFFEL & ESSER CO

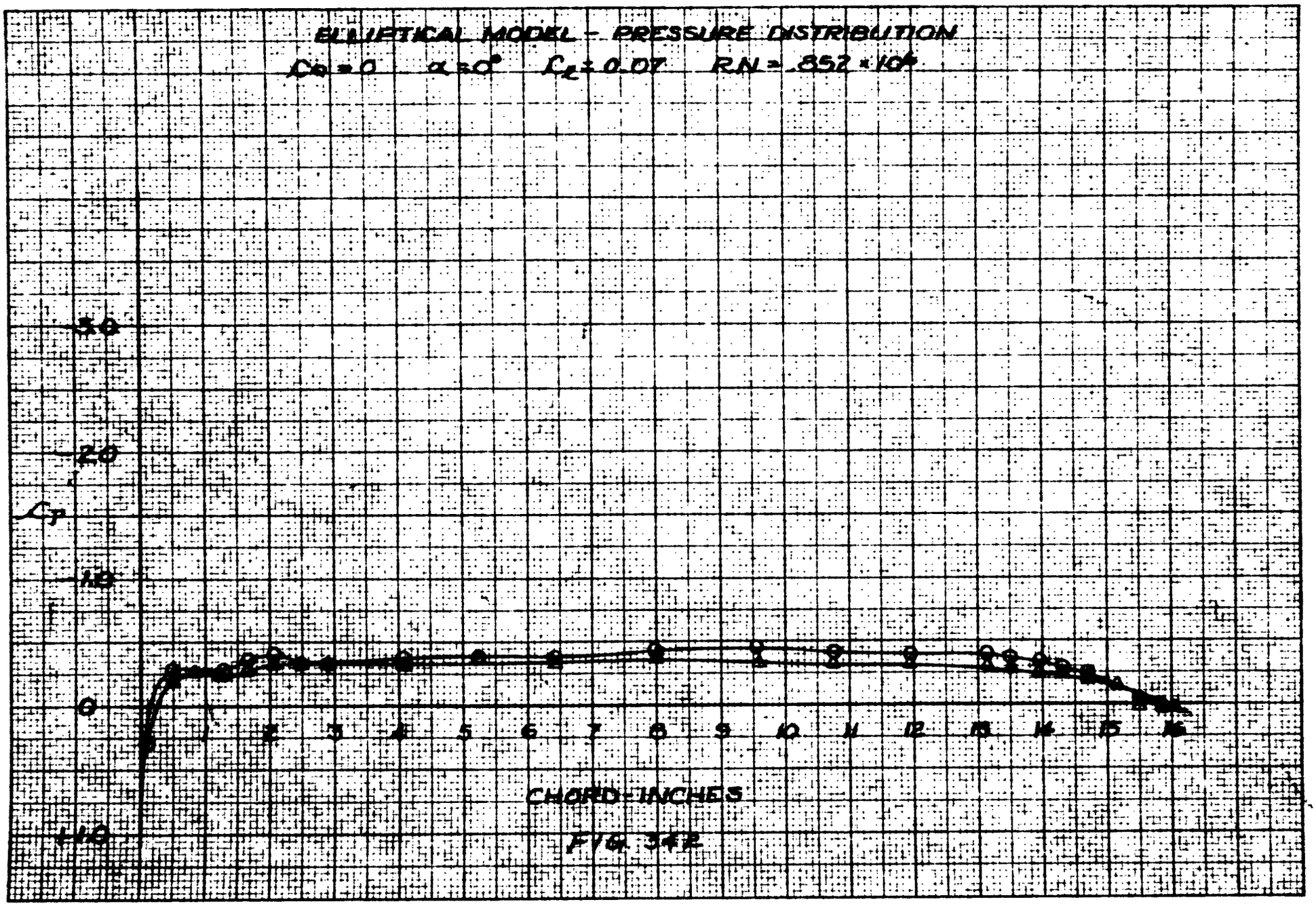


FIG 342

359-156 KEUFFEL & ESSER CO
10 x 10 to the ½ inch. 5th line accented

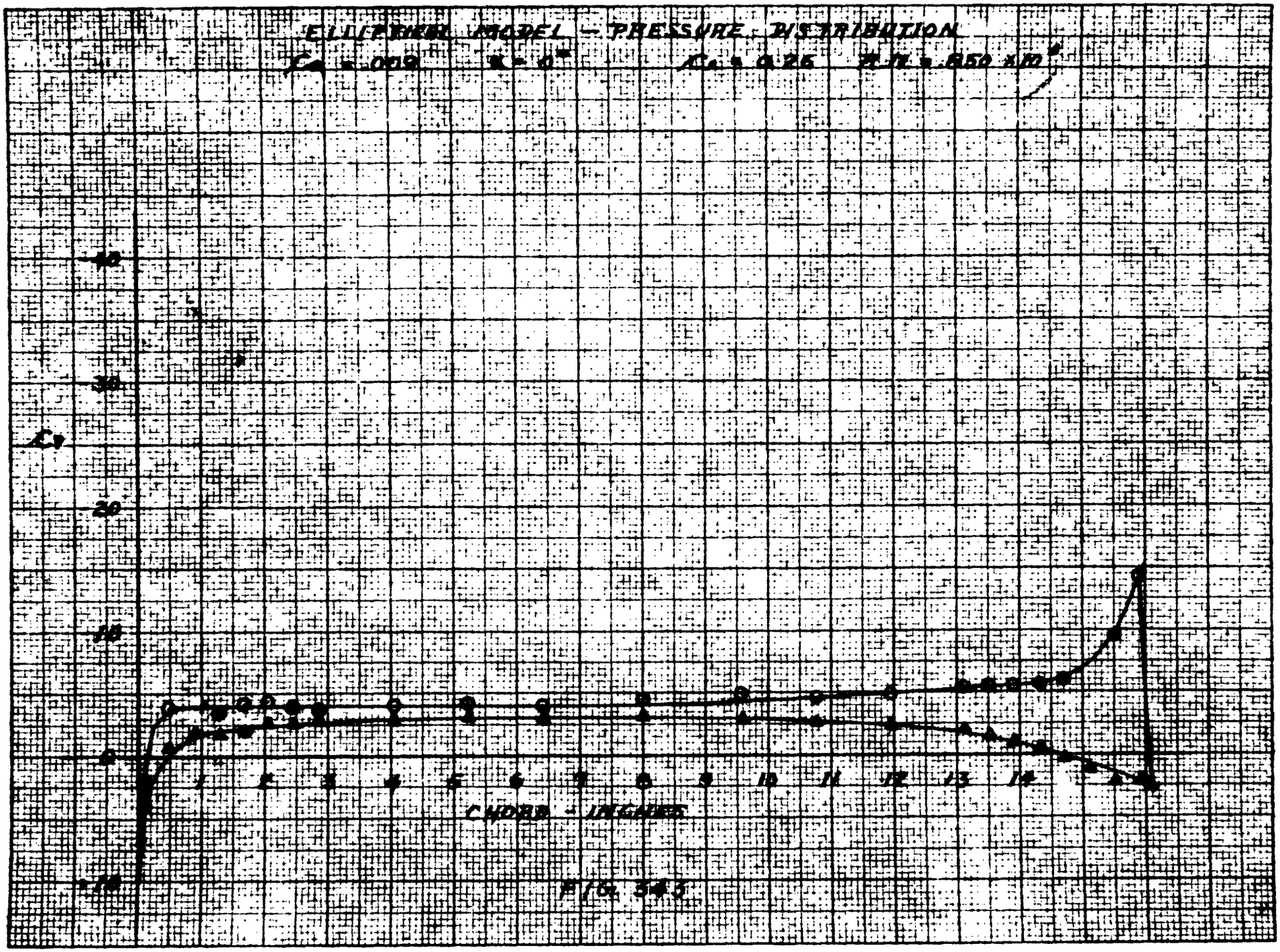


FIG. 34.5

KEUFFEL & ESSER CO.
Made in the U.S.A.

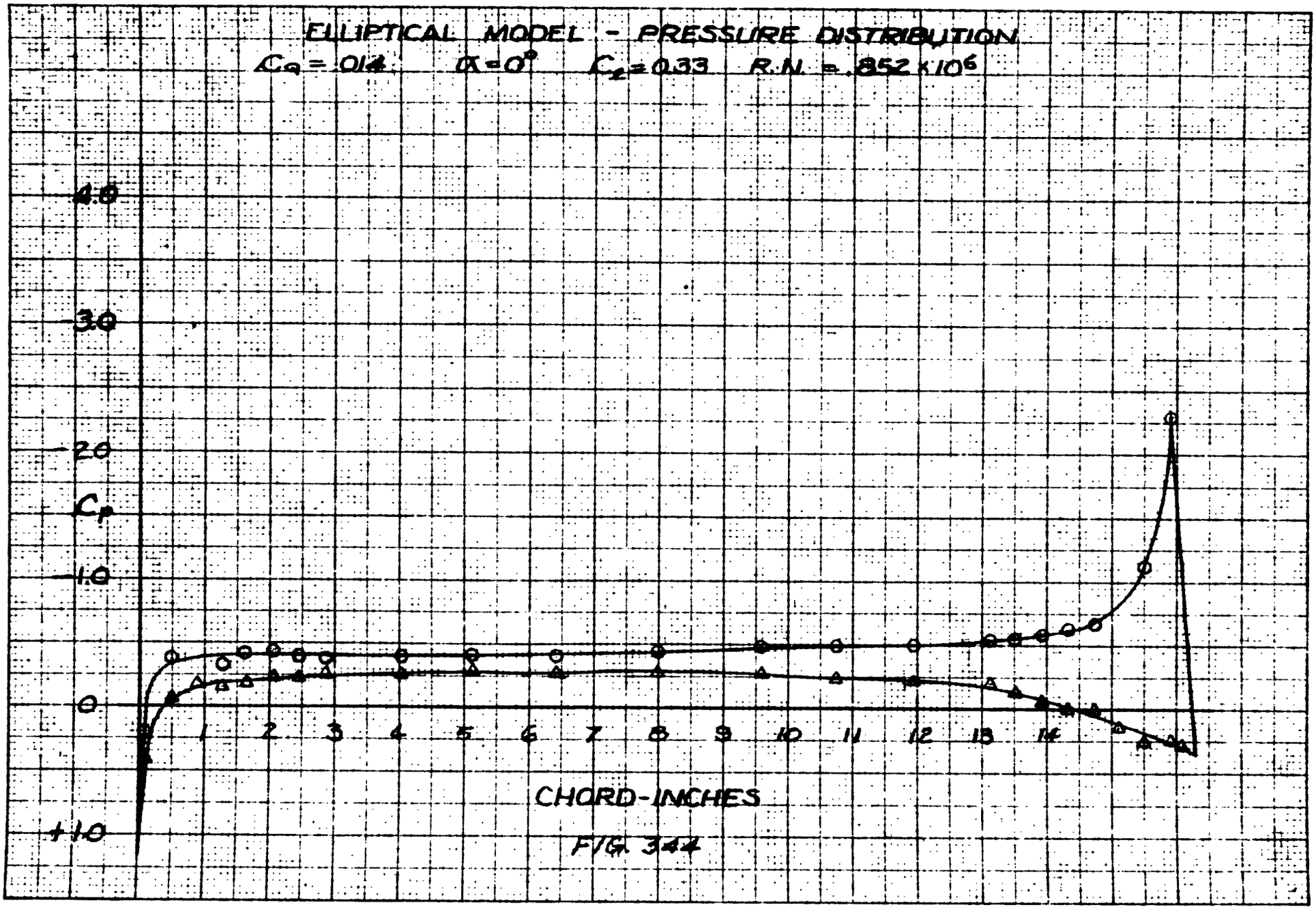
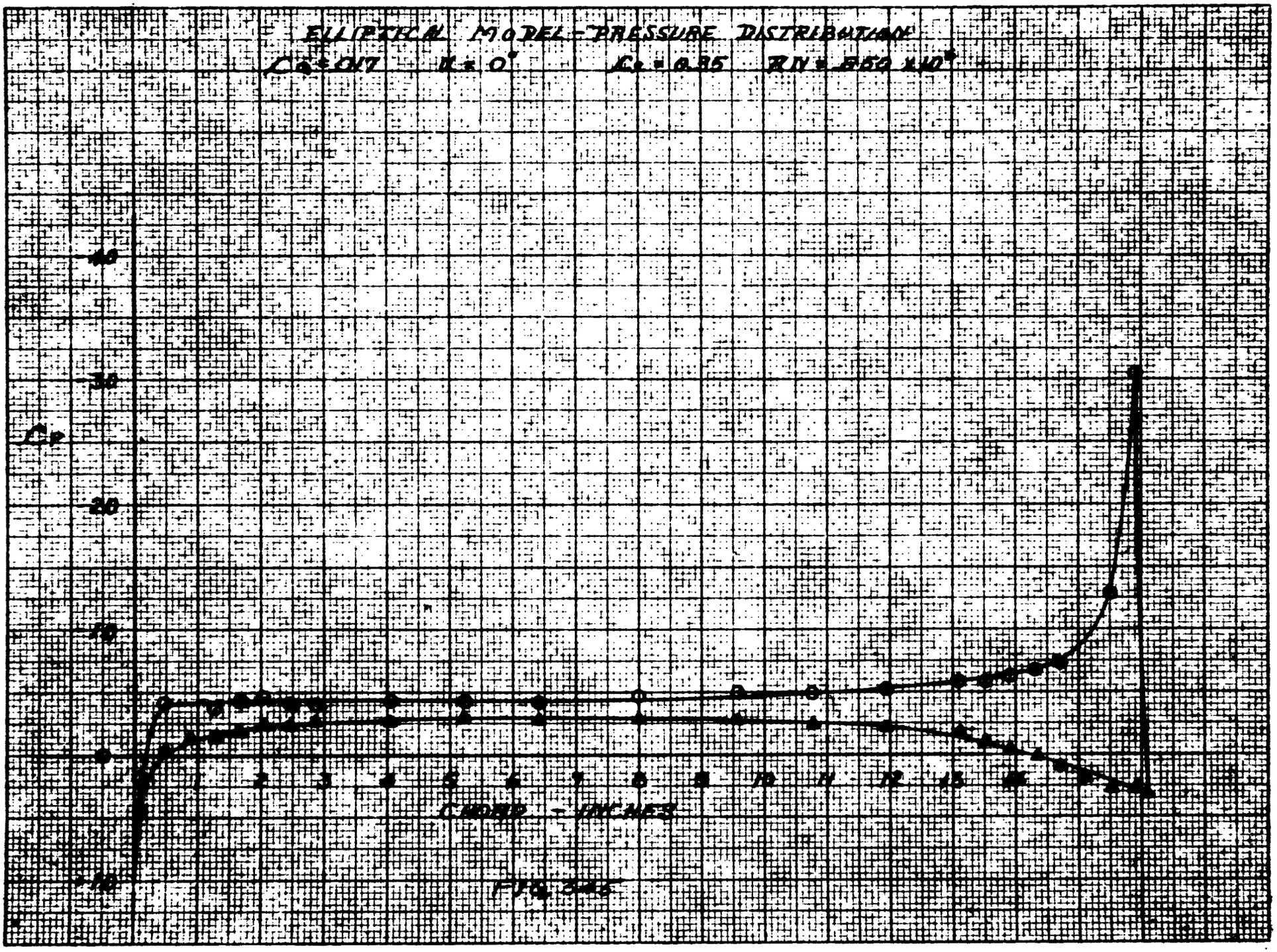


FIG 344

359-120 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented.
MADE IN U. S. A.



389-12G KEUFFEL & ESSER CO.
Made in the U.S.A.

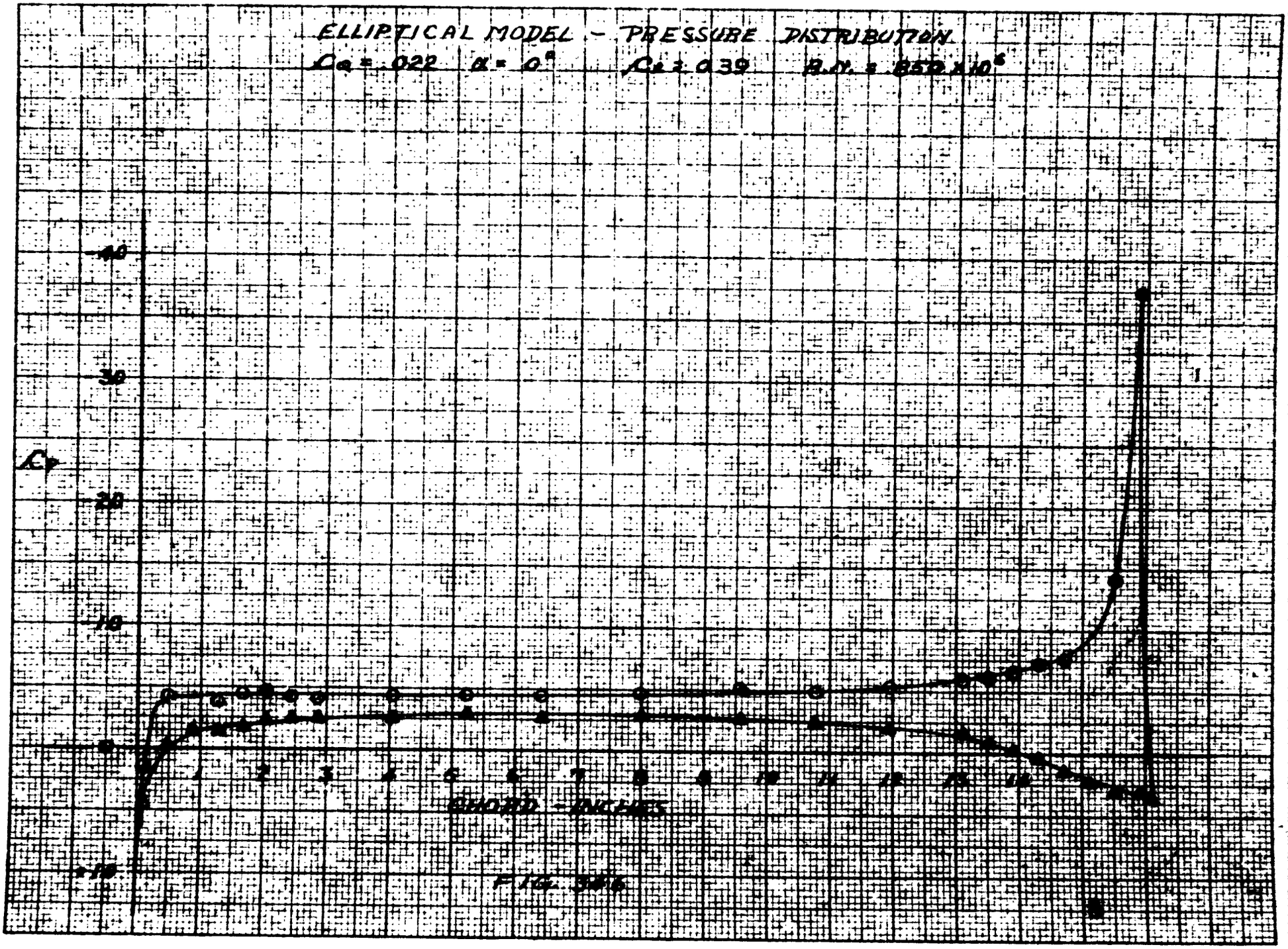


Fig. 3A6

359-120 KEUFFEL & ESSER CO
10 X 10 to the ½ Inch, 5th Line Accented

ELLIPTICAL MODEL - PRESSURE DISTRIBUTION
C_{DB}=.023 α=0° C_L=0.45 R.N.=850 X10⁶

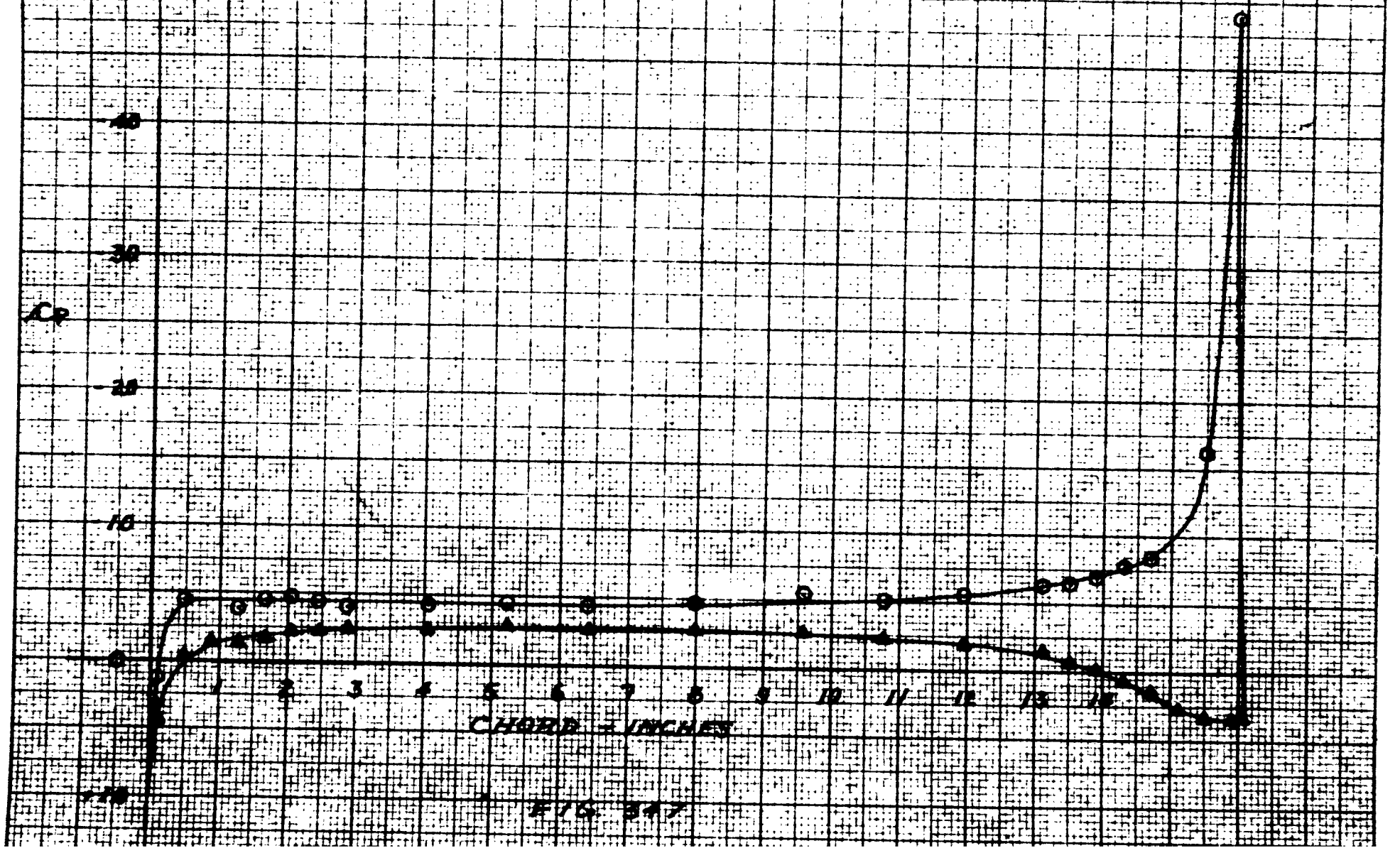


FIG. 34

389-12G KLUFFEL & ESSER CO.

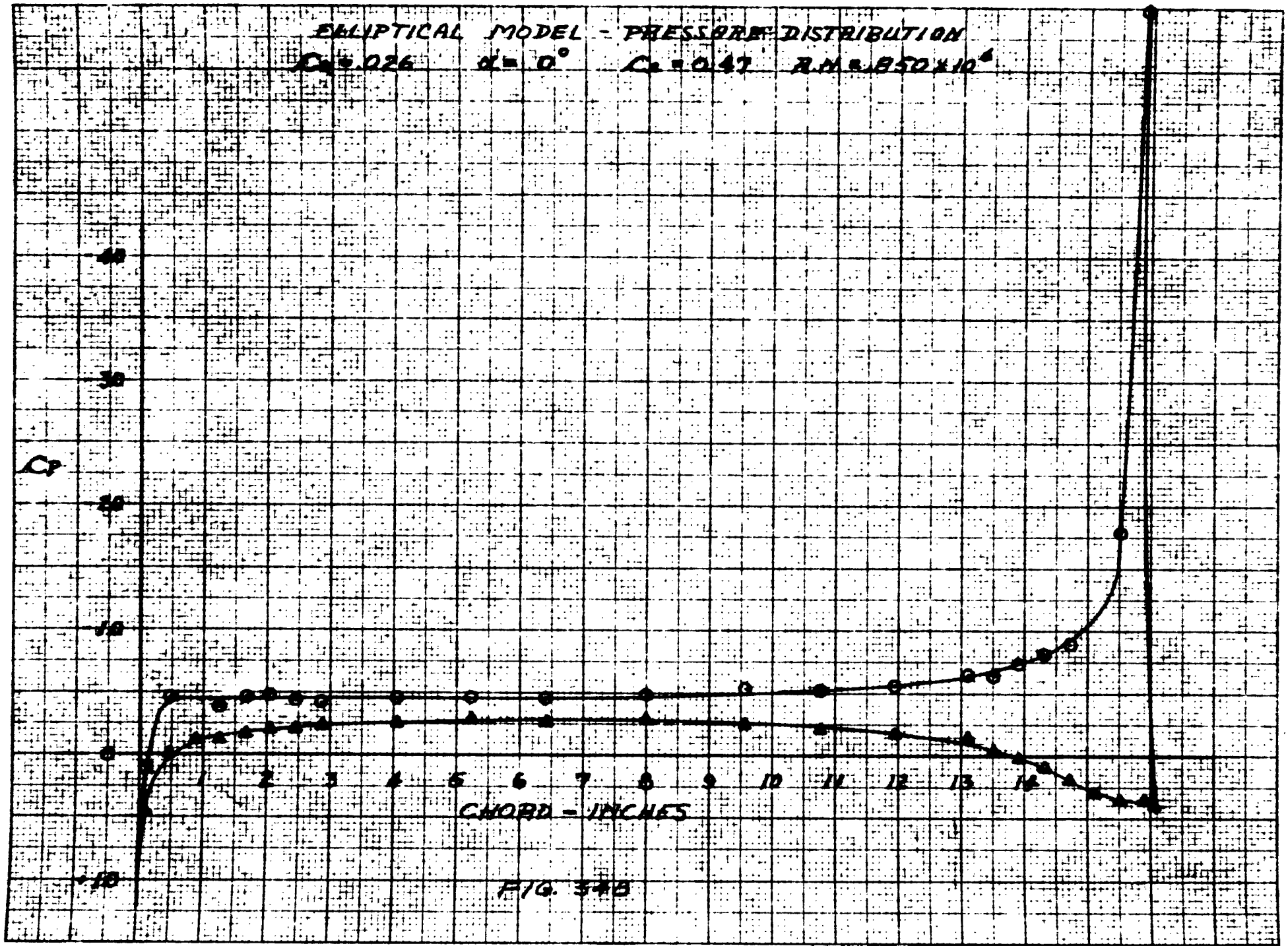


FIG. 34B

359-11C KEUFFEL & ESSER CO
10 to the ½ inch, 5th lines accented

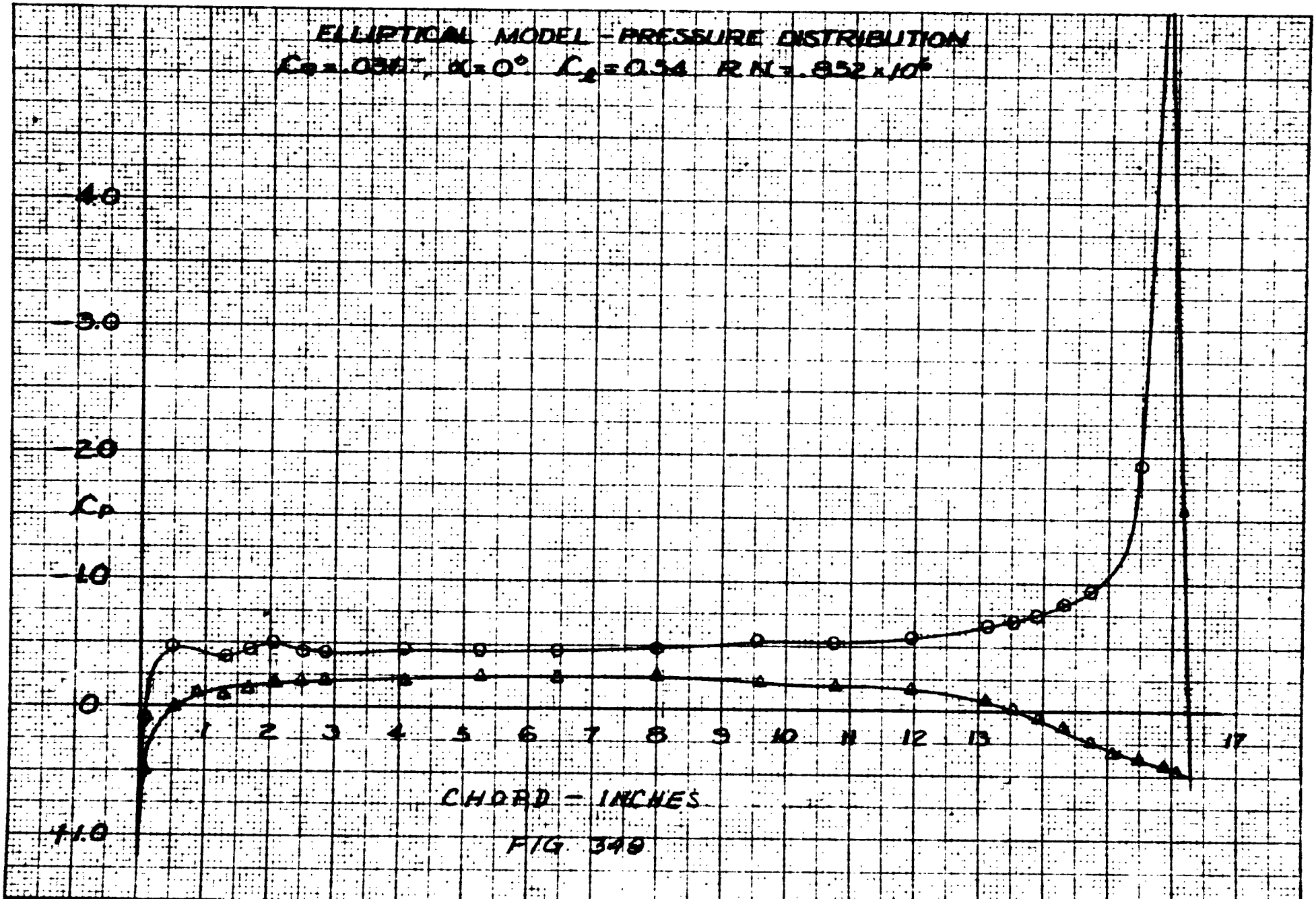


FIG 349

359-12G KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.

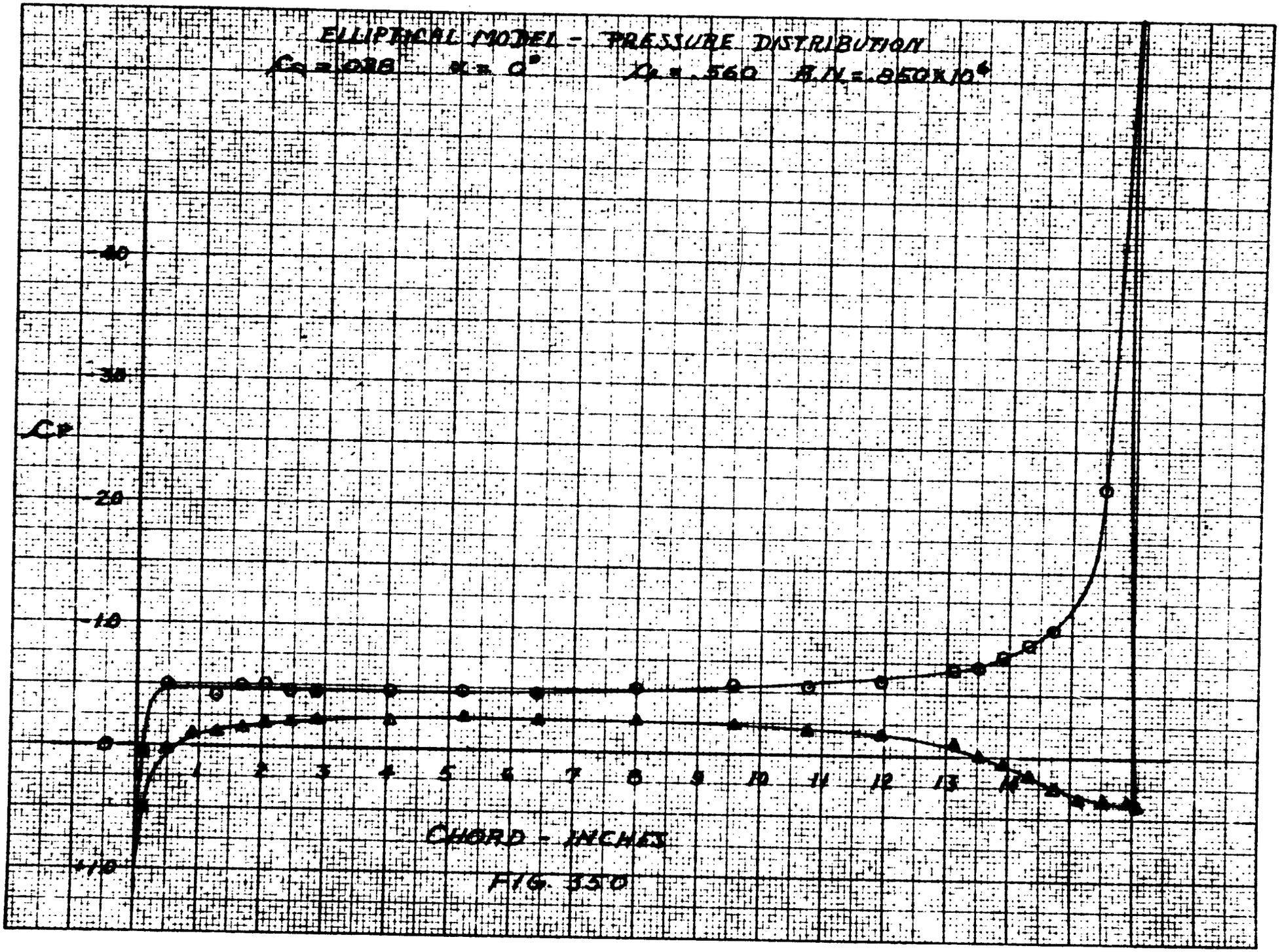


FIG. 330

359 11G KEUFFEL & ESSER CO
10 × 10 to the ½ inch, 5th lines accented

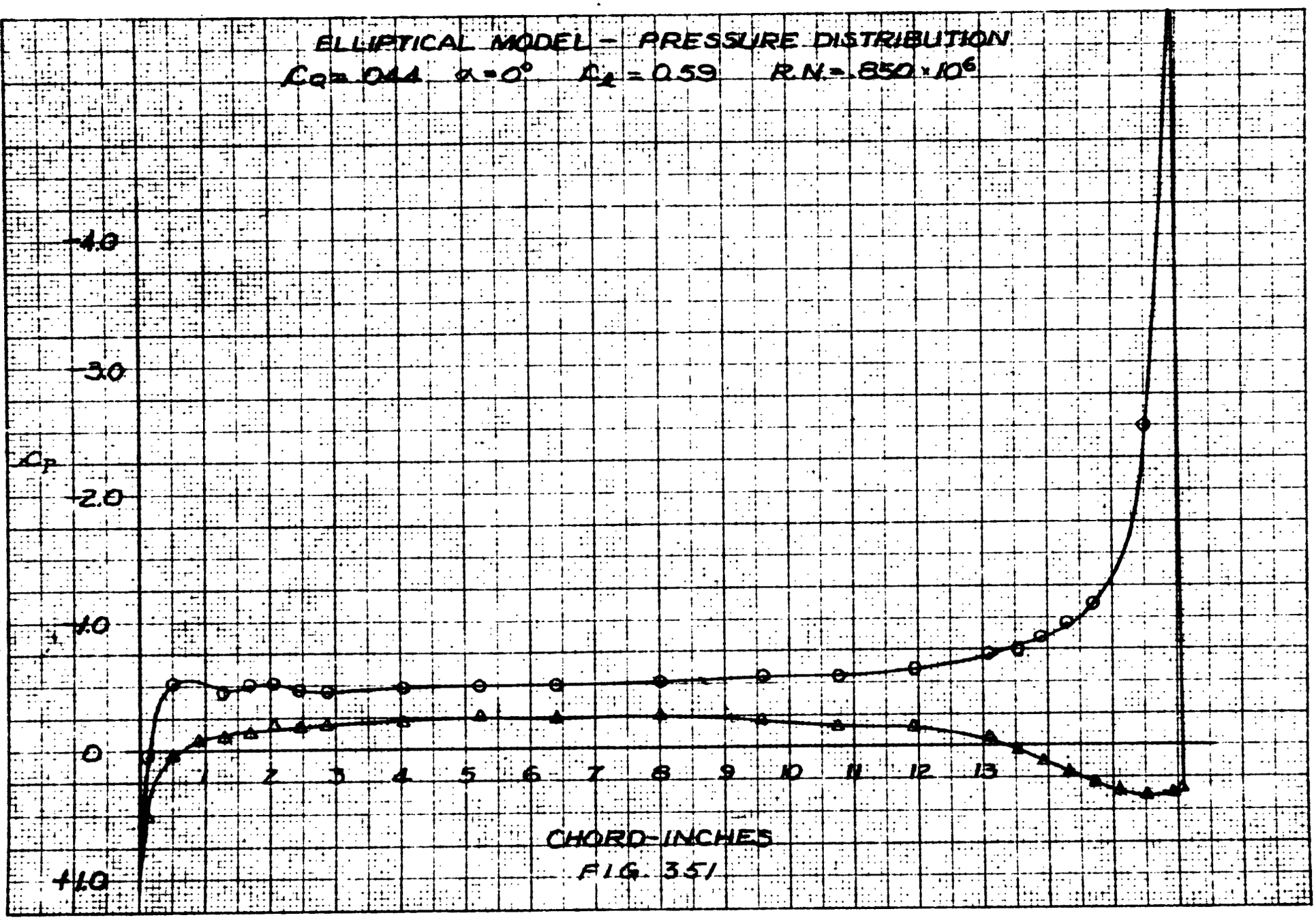


FIG. 351

359-12G KUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

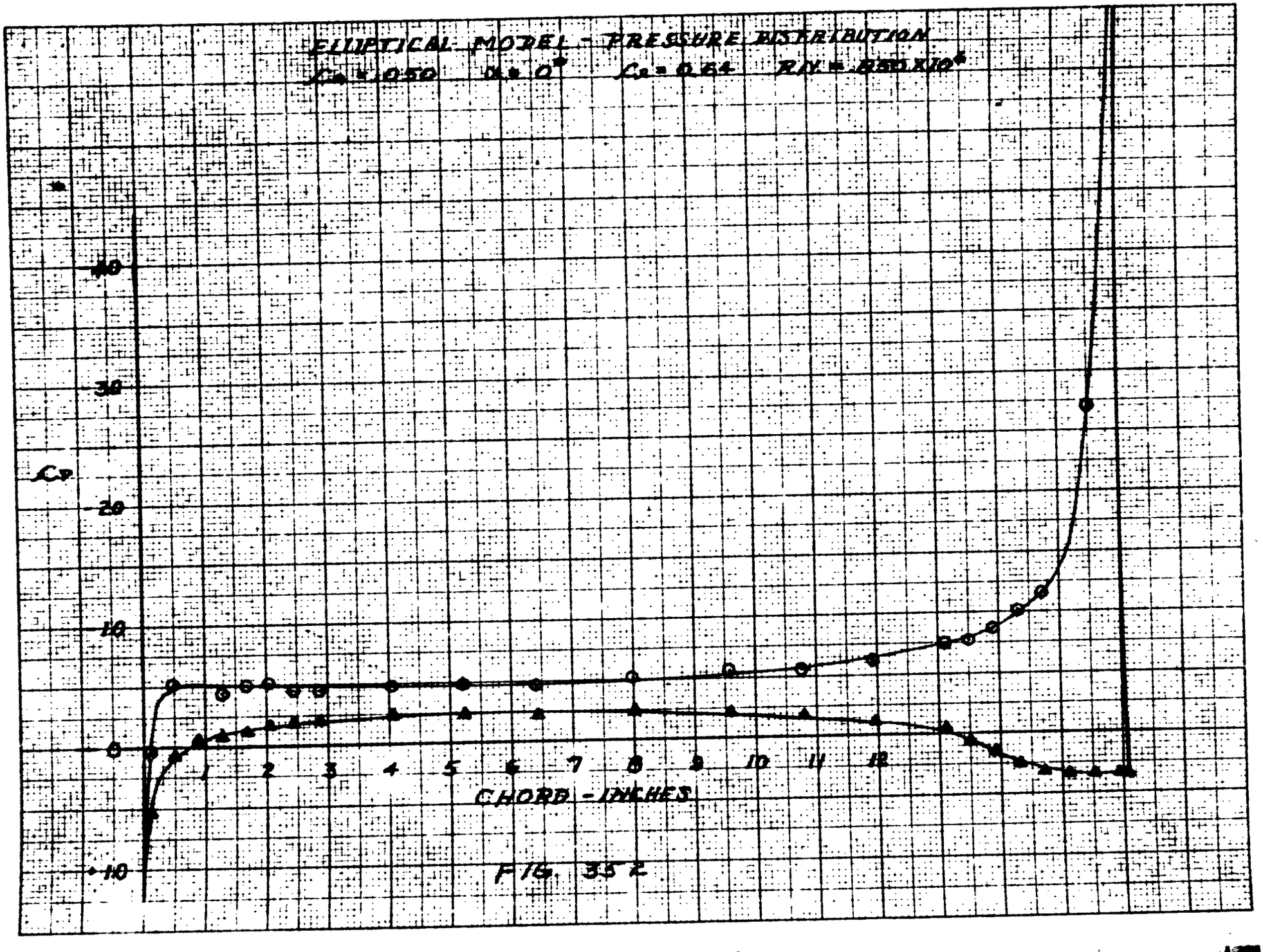
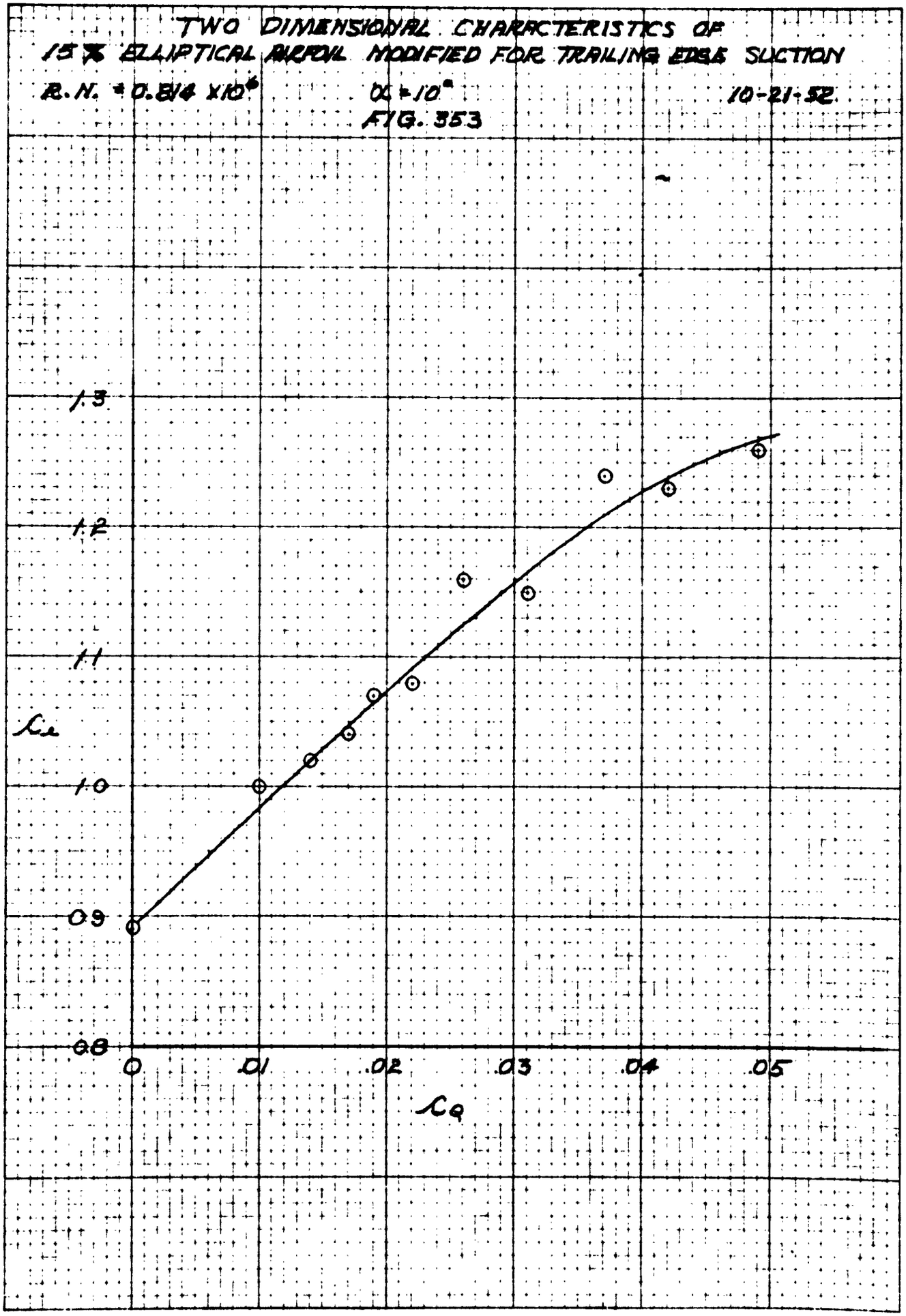
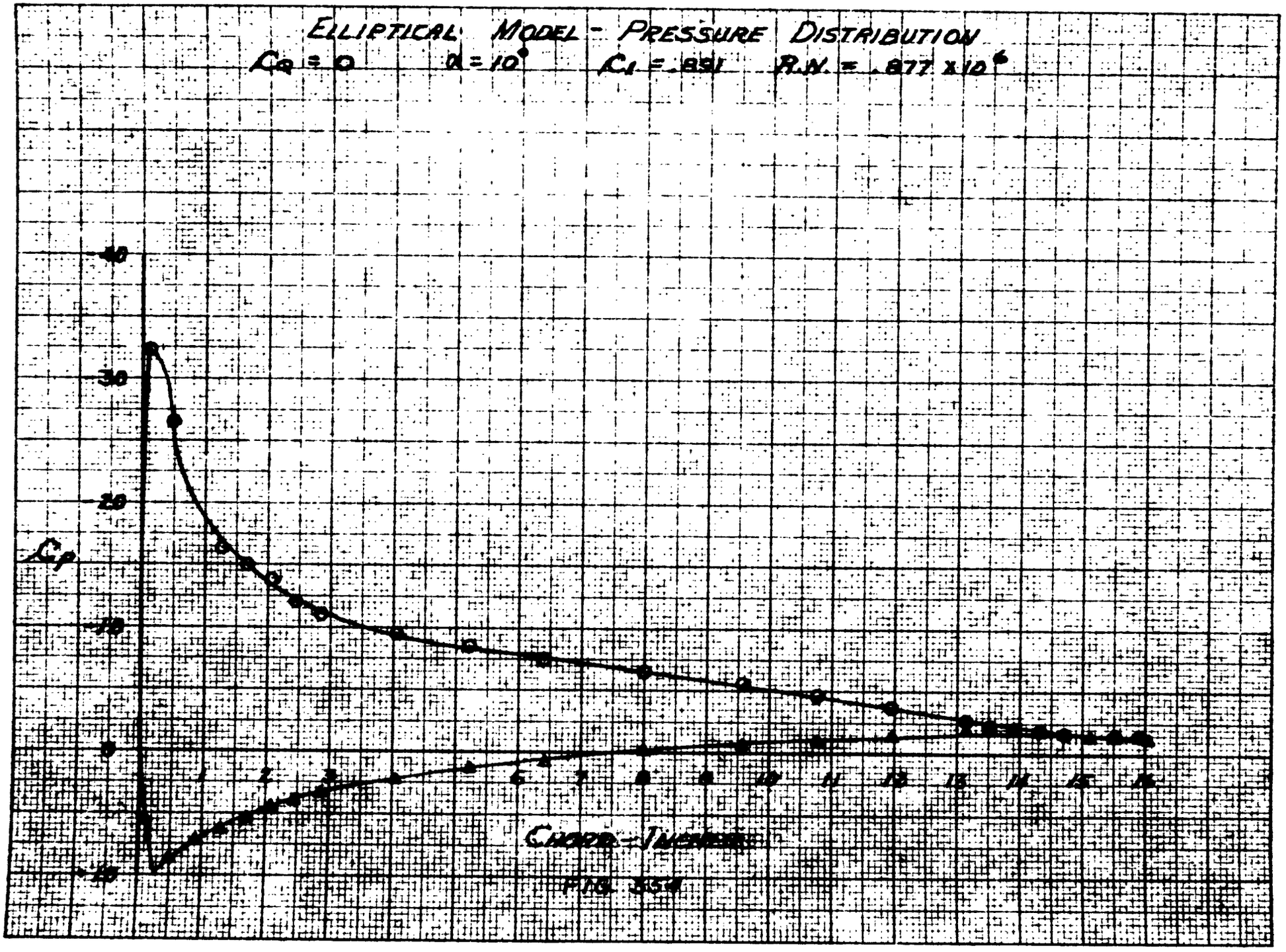


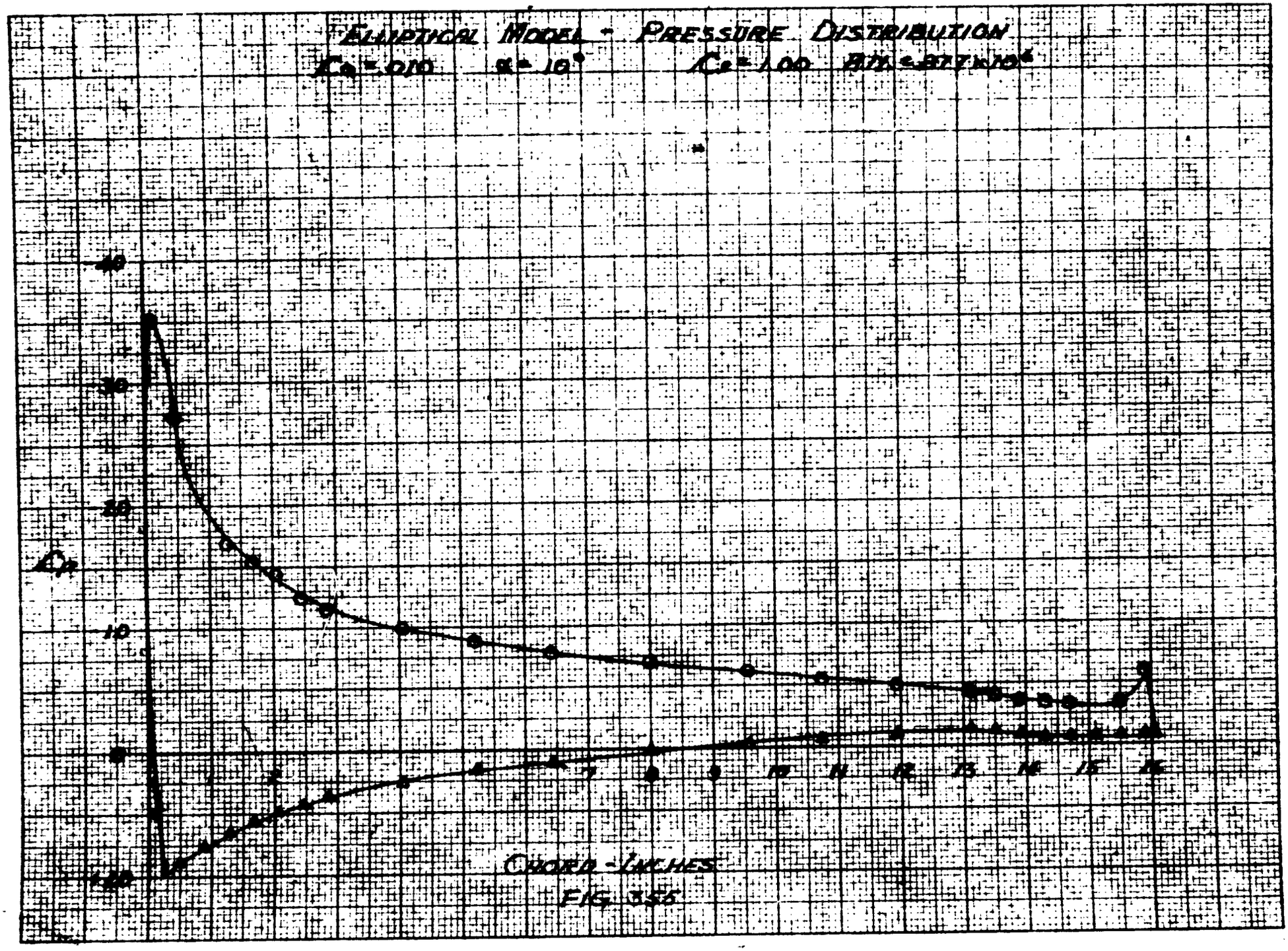
FIG. 35 2


TWO DIMENSIONAL CHARACTERISTICS OF
15% ELLIPTICAL AIRFOIL MODIFIED FOR TRAILING EDGE SUCTION
R.N. = 0.814 X10^6
α = 10°
10-21-52
FIG. 353
1.3
1.2
1.1
1.0
.9
.8
c_l
0
.01
.02
.03
.04
.05
c_q

389-12G KEUFFEL & ESSER CO.



359-12G KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented
MADE IN U.S.A.



359-12G KEUFFEL & ESSER CO.
10 X 10 to the ½ inch. 5th lines accented.

ELLIPTICAL MODEL - PRESSURE DISTRIBUTION

$C_M = .014$ $\alpha = 10°$ $C_L = 1.02$ $R_N = 2.14 \times 10^6$

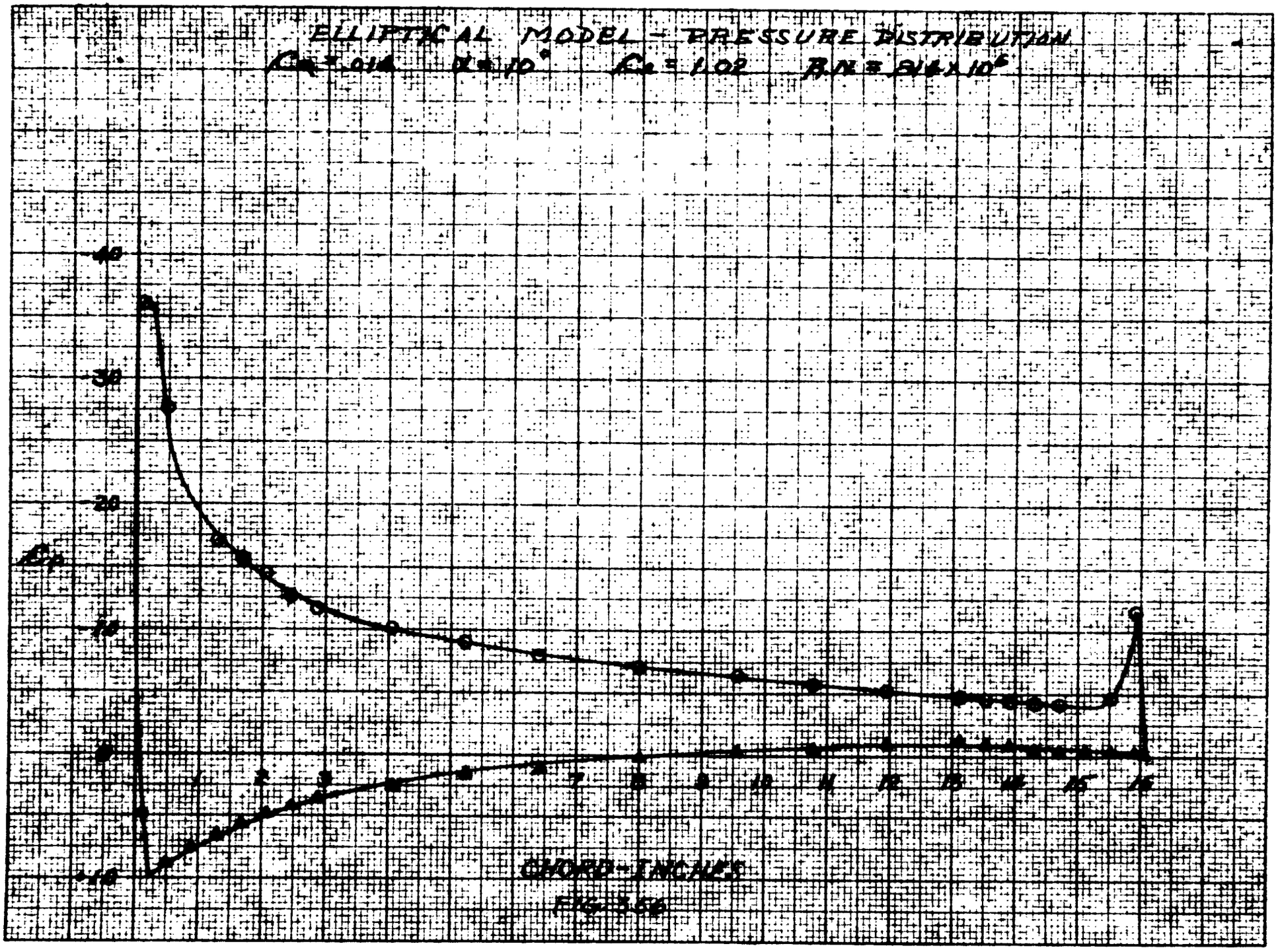


FIG. 3.6B

389-12G KEUFFEL & ESSER CO.
10 X 10 to the ½ inch, 5th lines accented
MADE IN U.S.A.

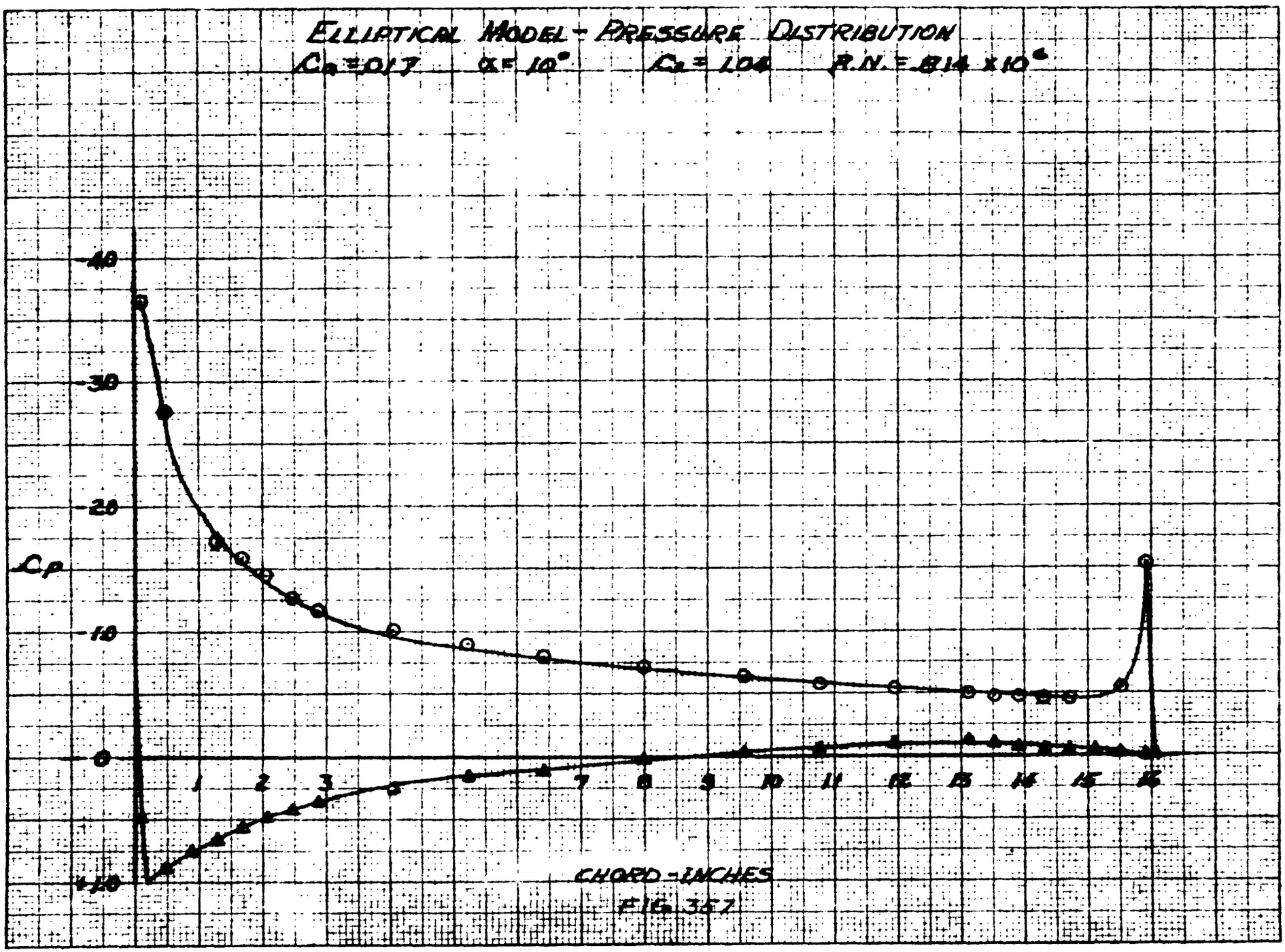


FIG. 357

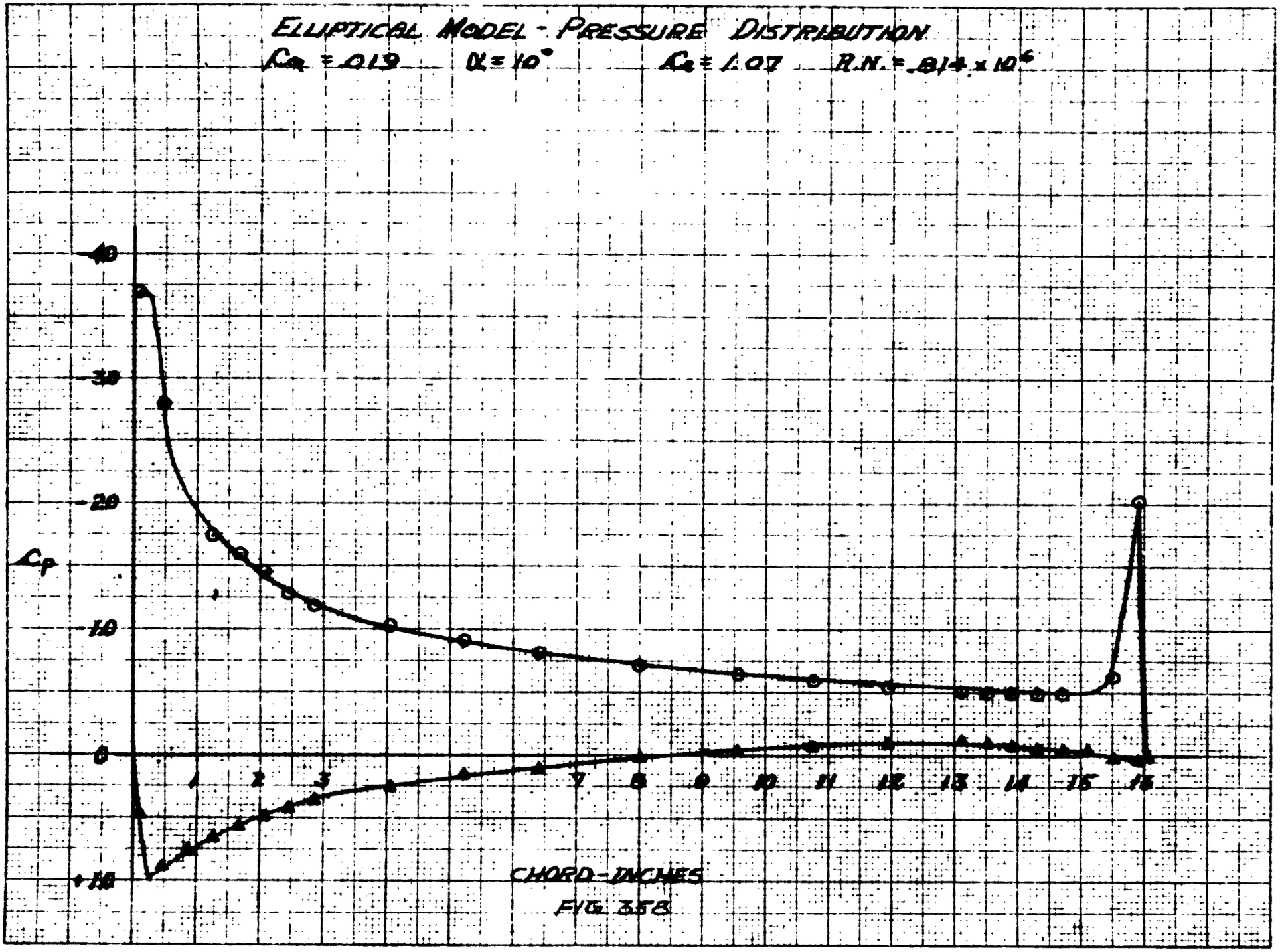

ELLIPTICAL MODEL - PRESSURE DISTRIBUTION
$C_{m_{c/4}}$ = .019 α = 10° C_L = 1.07 R.N. = .814 x 10⁶
-40
-30
-20
C_p
-10
0
+10
1
2
3
7
8
9
10
11
12
13
14
15
16
CHORD-INCHES

FIG. 35B

389-120 KEUFFEL & ESSER CO
10 × 10 to the ½ inch. 5th lines accented

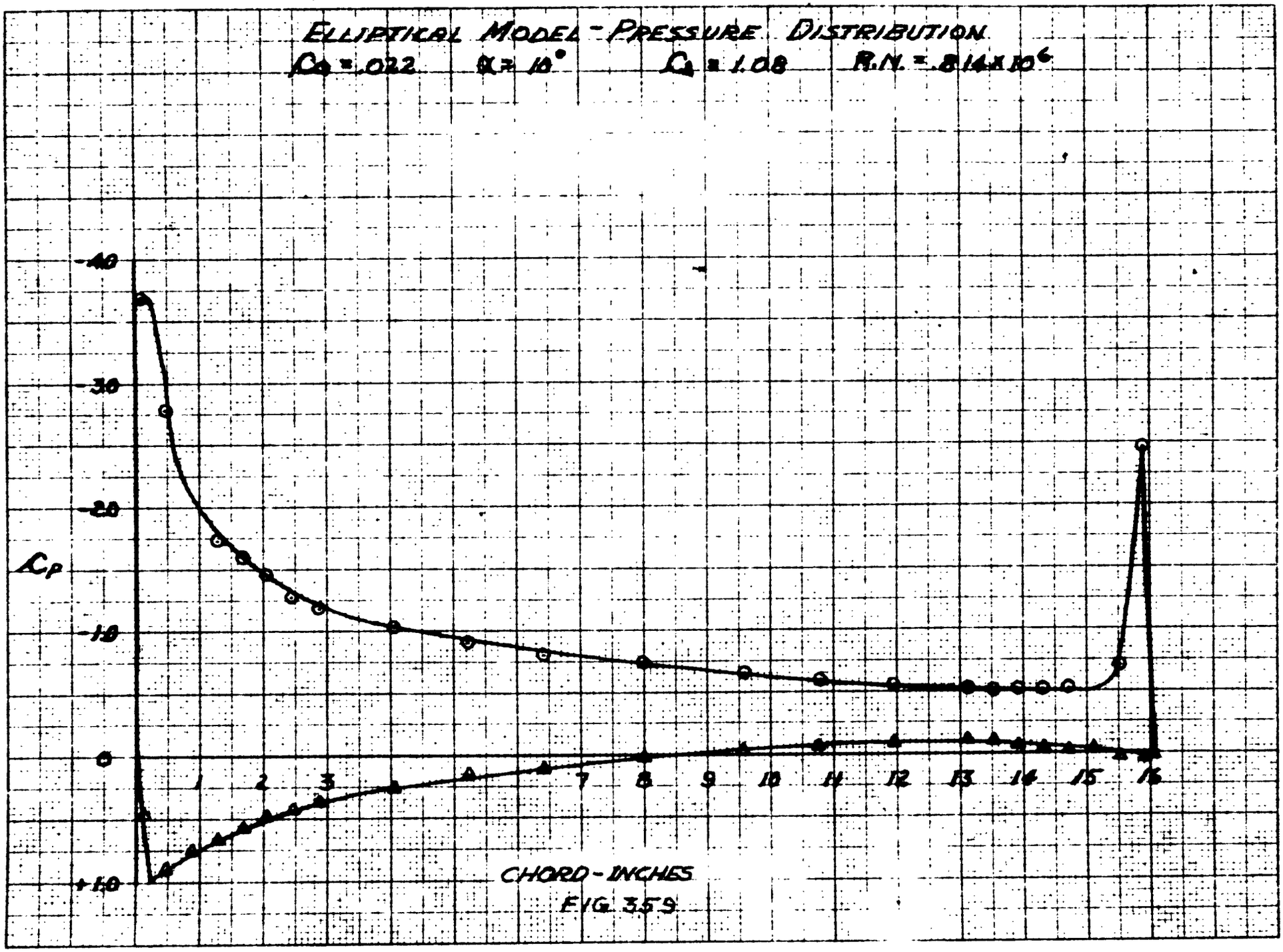


FIG. 359

359-120 KEUFFEL & ESSER CO
10 X 10 to the ½ inch, 5th lines accented.

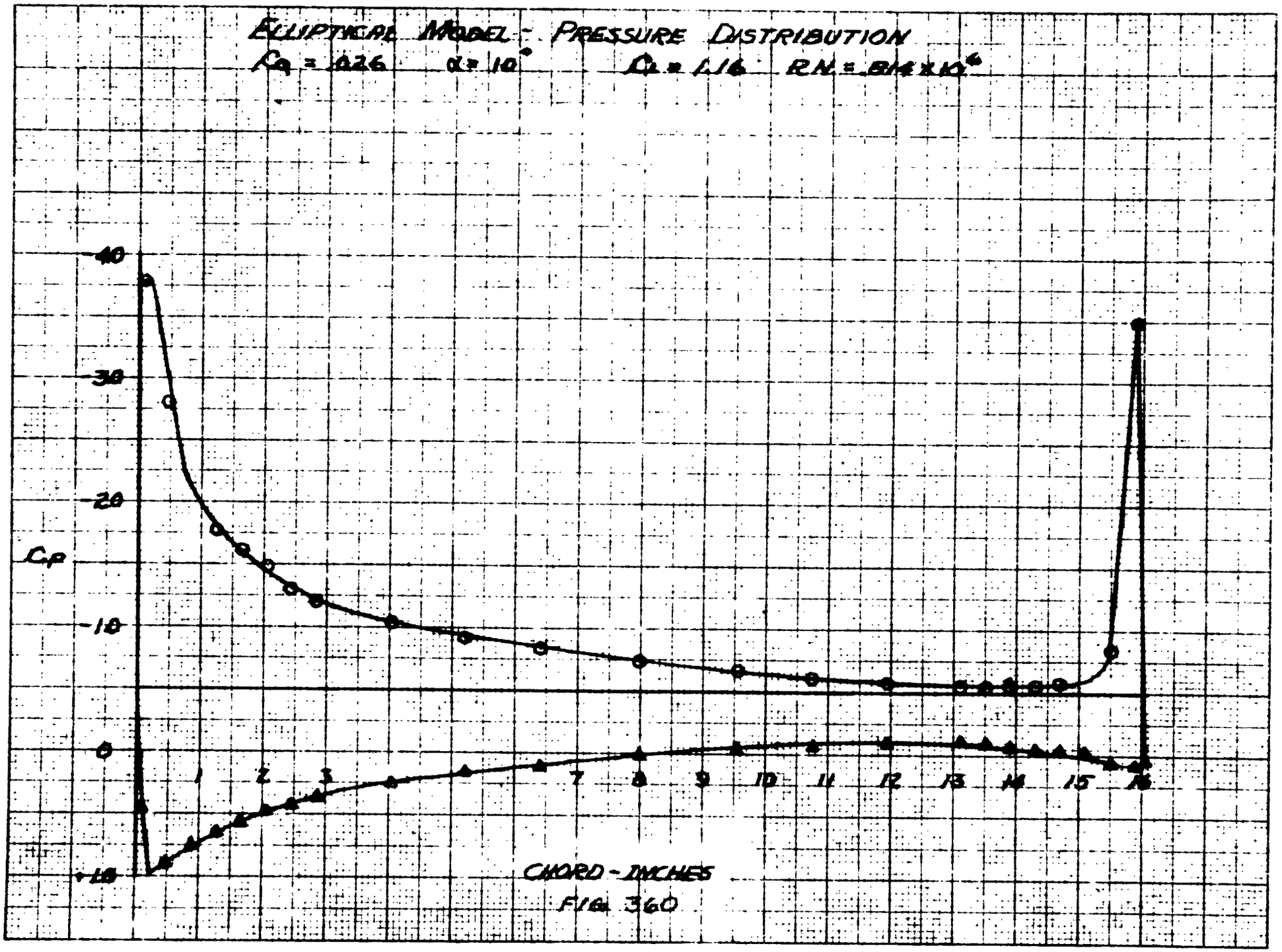


FIG. 360

389-12G KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented

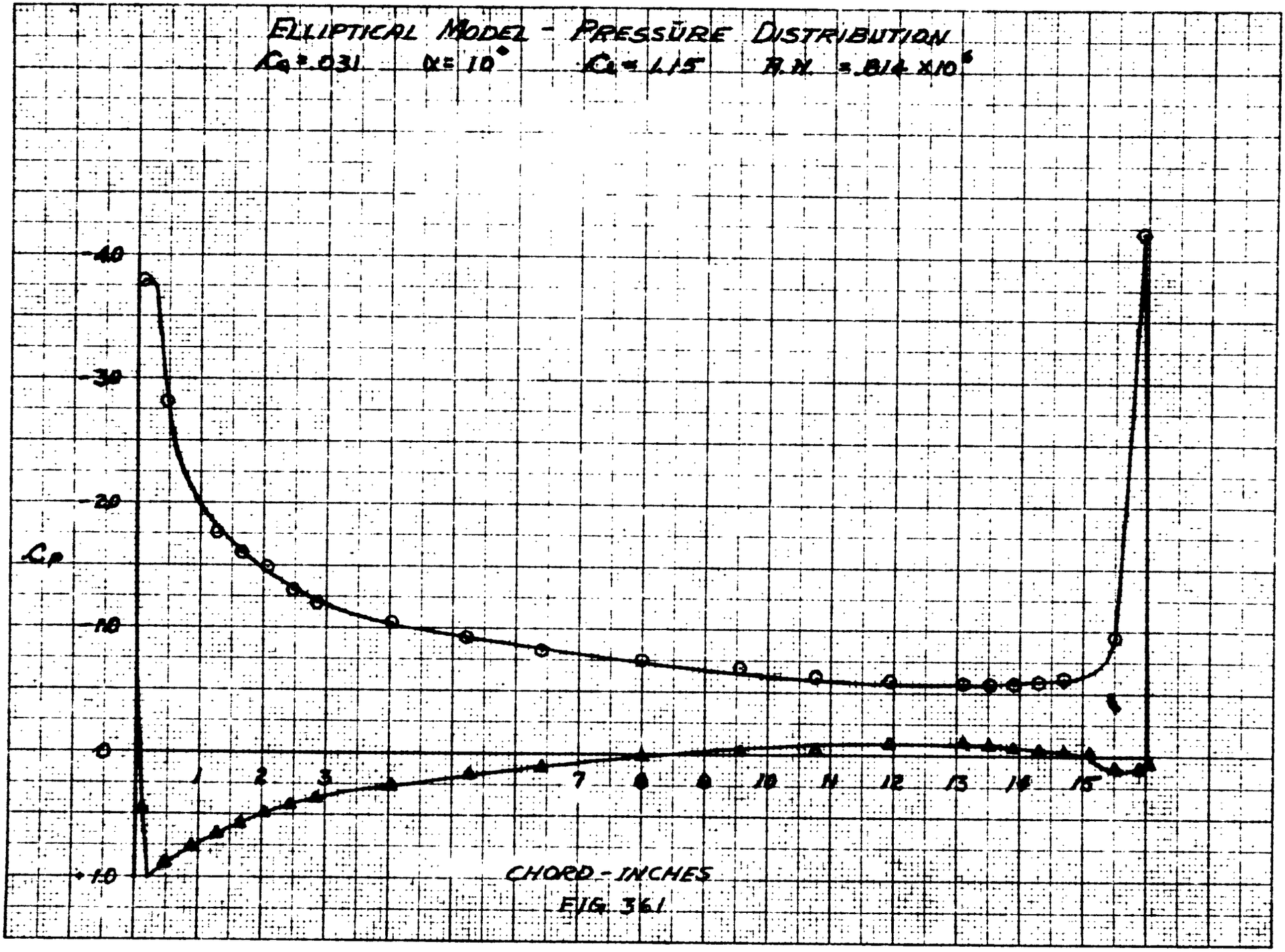


FIG. 361

359-12C KEUFFEL & ESSER CO.
[illegible] to the ½ inch, 5th Lines accented

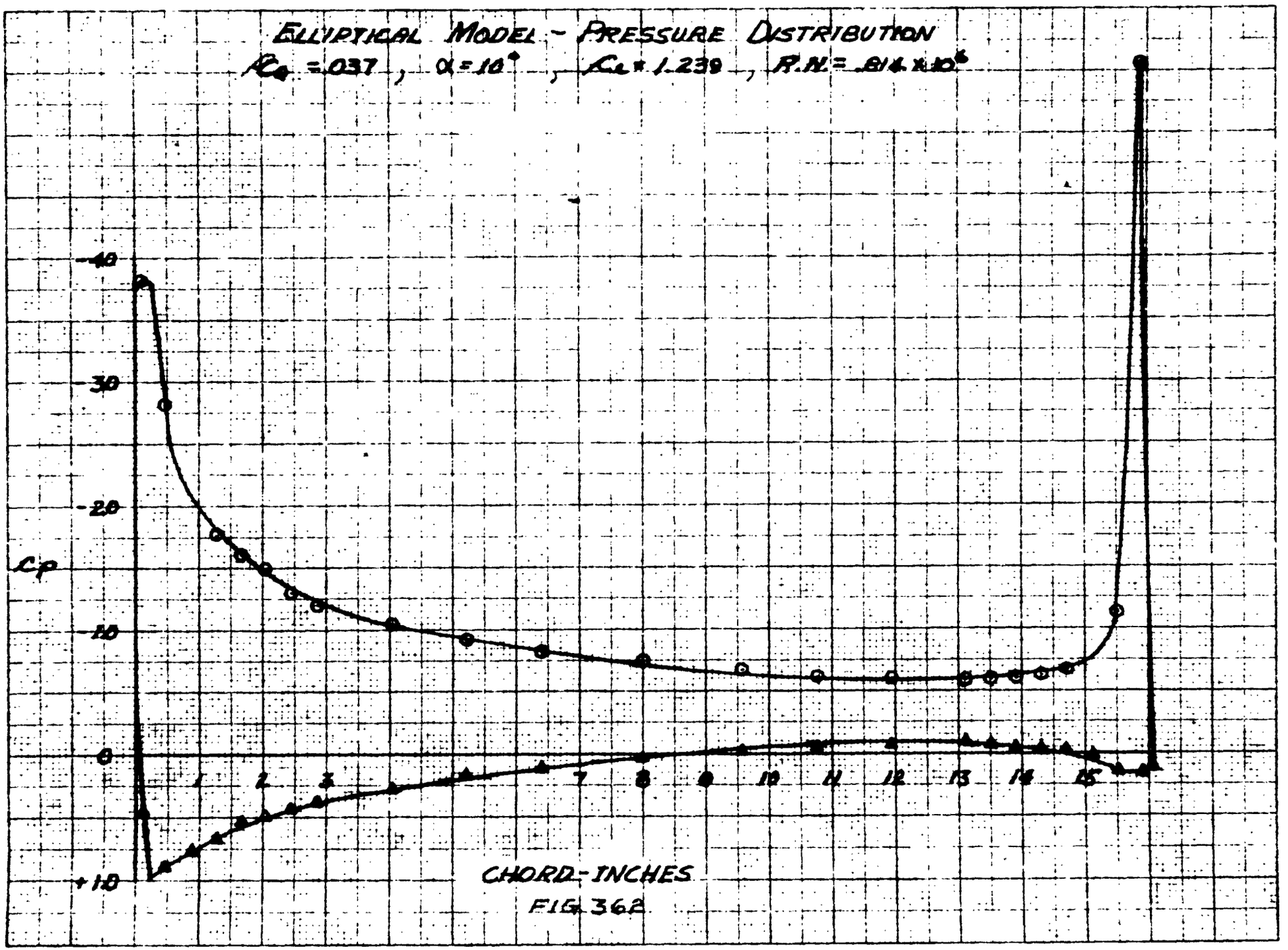


FIG. 362

389-120 KEUFFEL & ESSER CO
10 × 10 to the ½ inch, 5th [illegible] accented

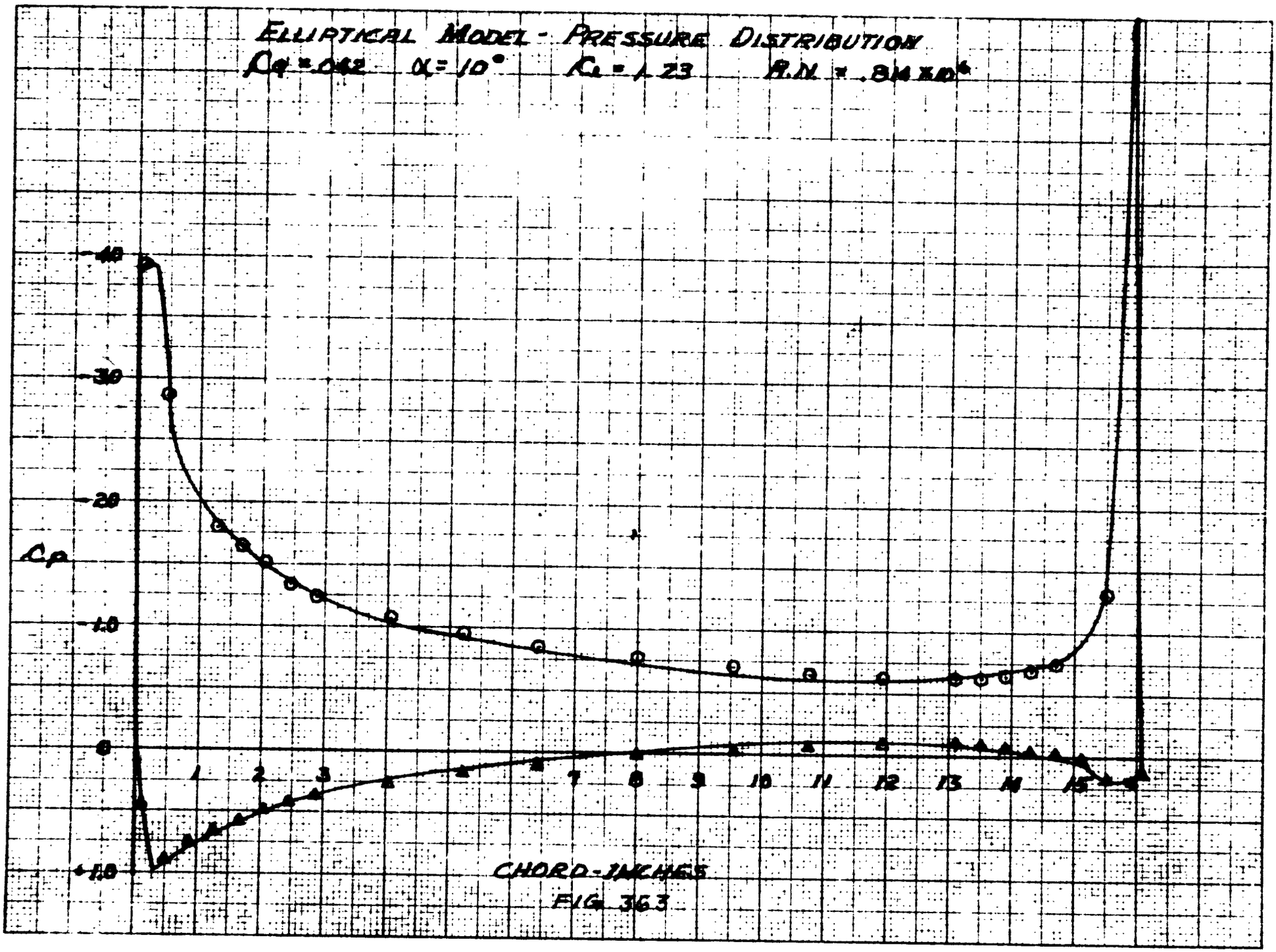


FIG. 363

359-12C KEUFFEL & ESSER CO

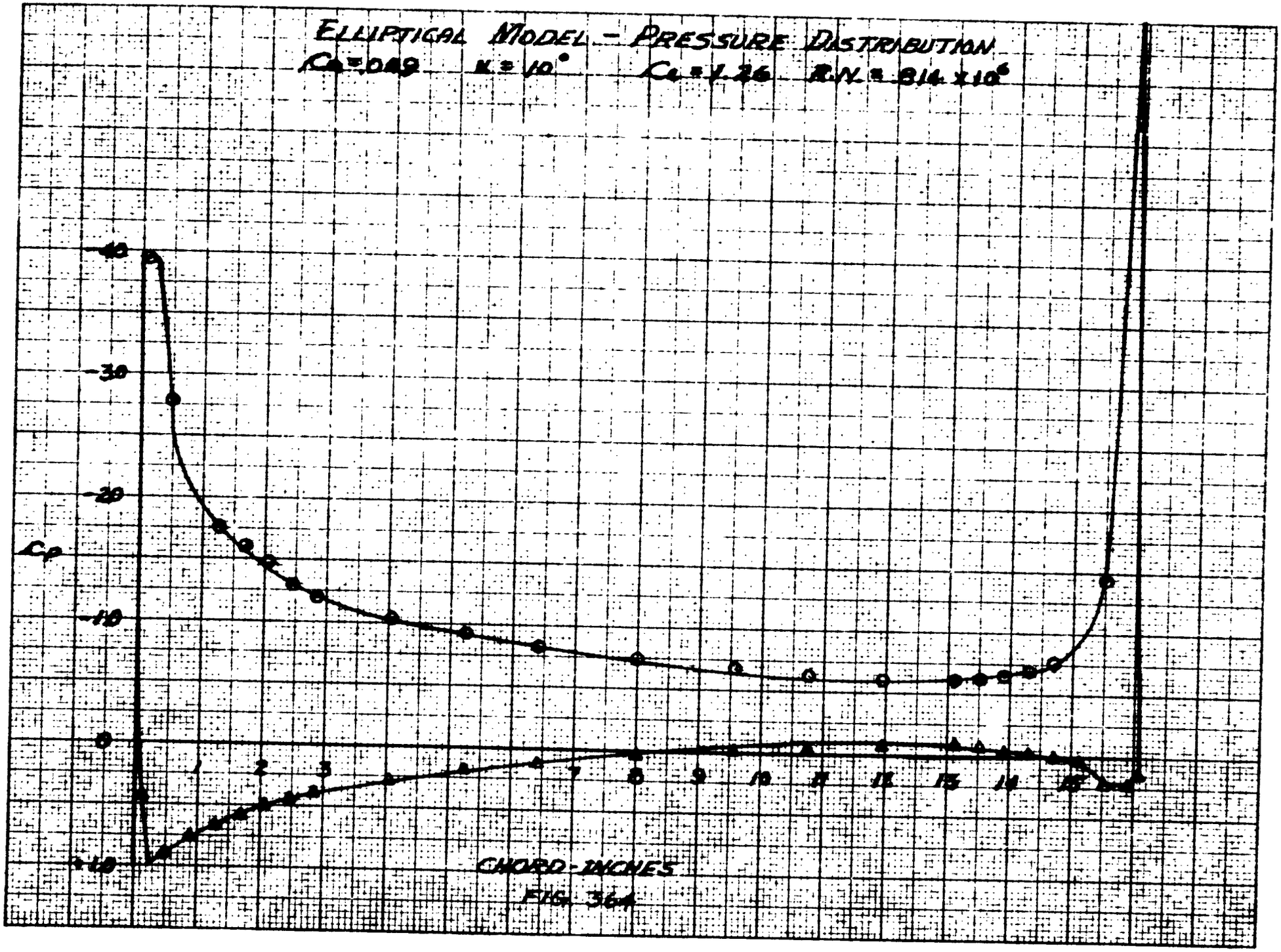


FIG. 36A