QC
Avro
C-105
P/WT/20
Vol. III

QCX
Avro
CF105
P-WT-20
v.3
(25)

FILE IN VAULT

C-105 ANALYZED P/WIND TUNNEL/20

DERIVATIVES AND ZERO VALUES

VOLUME III

LATERAL CONTROL

Copy No. 2 June 1954.

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TO

DATE
Dec. 7, 1992

Report no.: QCX - AVRO - CF105- P-WT-20 V.3

has been ☐ downgraded to :

☒ XX de-classified

by (Name): Michel W. Drapeau

(Dept.): A/DND Coordinator, Access to Information

Date: Dec. 7, 1992

R. Burgess
Signature

FORM 1316A

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A. V ROE CANADA LIMITED
MALTON - ONTARIO

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT: C-105

REPORT No: P/W.T./20

FILE No:

NO OF SHEETS:

TITLE:

ANALYZED

DERIVATIVES AND ZERO VALVES

VOLUME III

LATERAL CONTROL

Classification ~~cancelled / changed to~~ confirmed as: UNCLASSSIFIED
By authority of: DRDA 7/DARFT 5-8/DAS Eng 6-4-5
Date: 5 Nov 1992
Signature: B. Aubrey
Unit / Rank / Appointment: DSIS 3, Secretary CRAD HQ DRP

National Research Council
MAR 14 1957
Aeronautical Library

PREPARED BY DATE June 54

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SUPERVISED BY DATE

APPROVED BY DATE

ISSUE No	REVISION No	REVISED BY	APPROVED BY	DATE	REMARKS

FORM 1316A

45116
12416802

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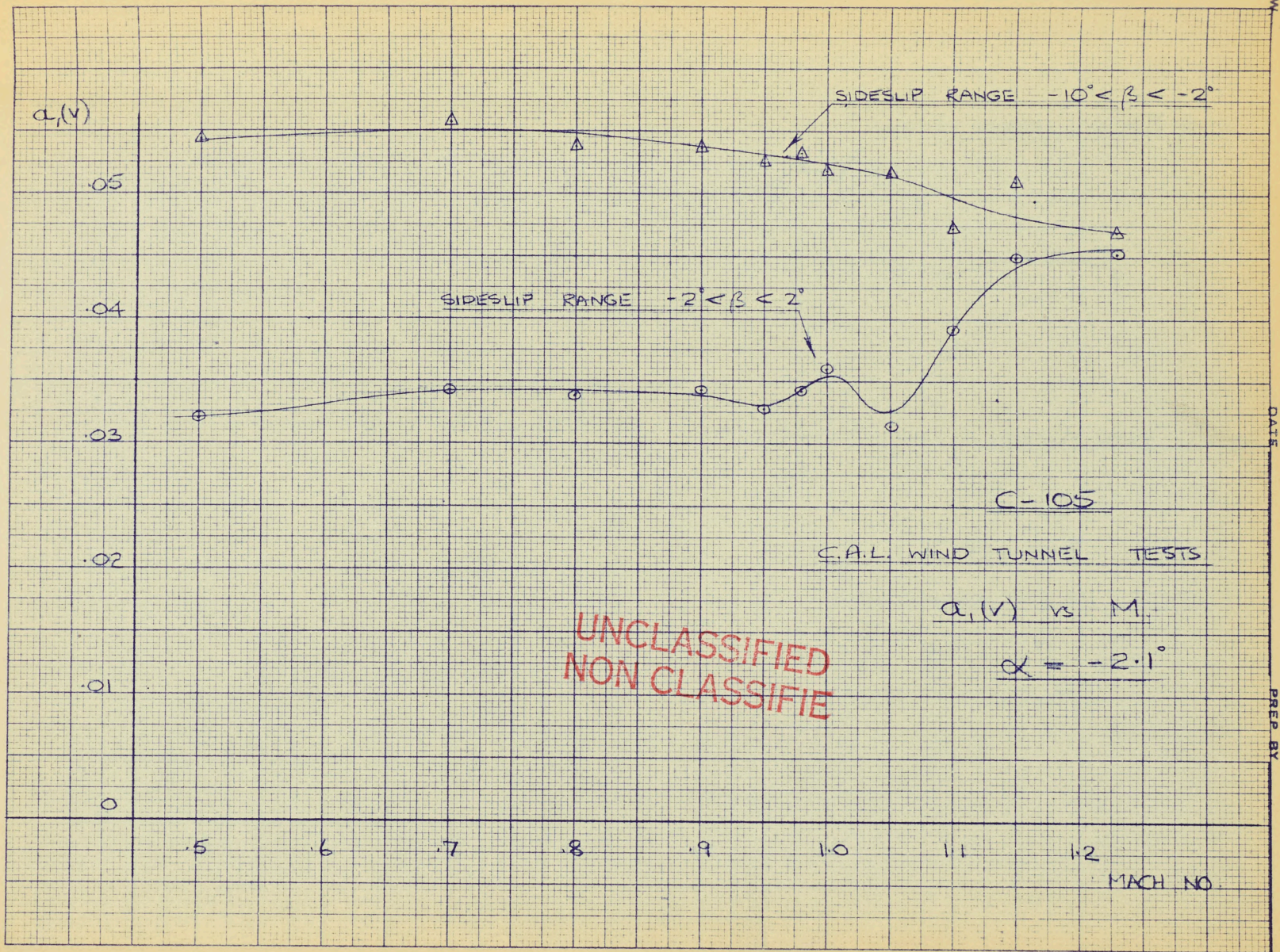
359-12 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th times accented.
MADE IN U.S.A.

AIRCRAFT A.U.W. COMPONENT DATE SHEET No. 1/1/ REPORT No. PREP BY



C-105

C.A.L. WIND TUNNEL TESTS

$C_{l_\beta}(V)$ vs M.

$\alpha = -2.1°$

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FORM 1748

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

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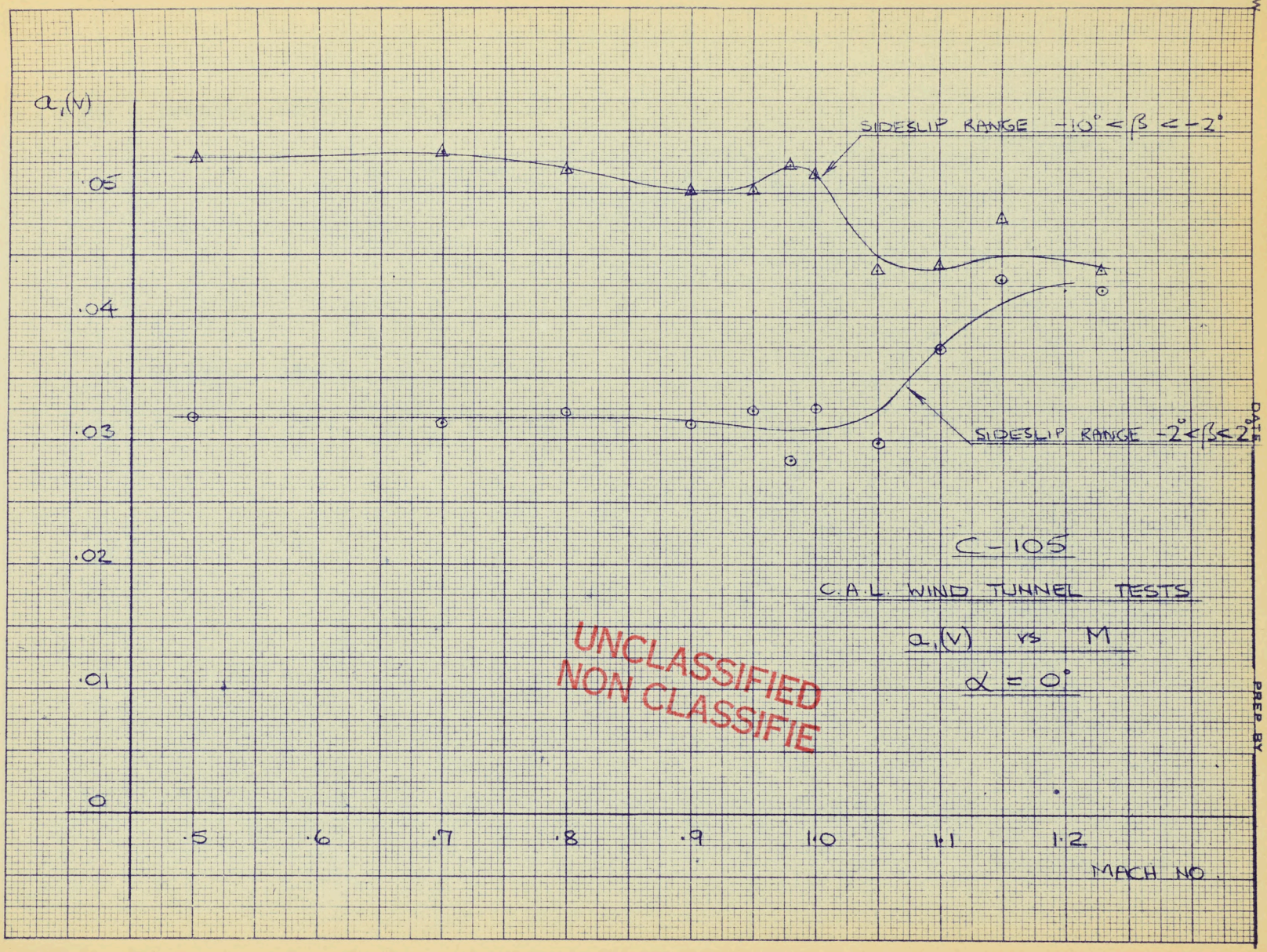

C-105

C.A.L. WIND TUNNEL TESTS

$a_1(V)$ vs M

$\alpha = 0°$

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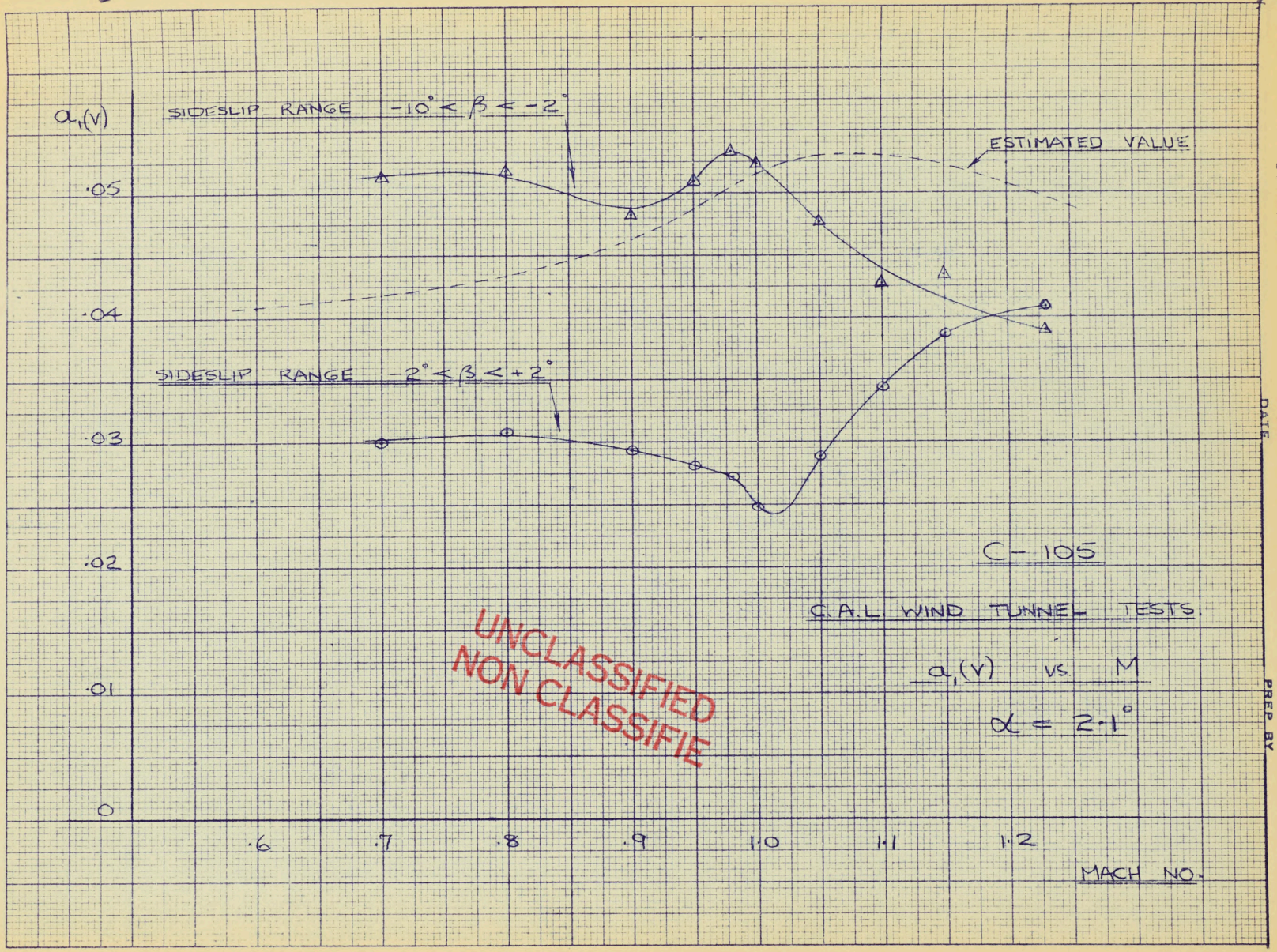
FORM 1745

339-12 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.

AIRCRAFT A.U.W. COMPONENT SHEET NO. 113.

DATE PREP BY REPORT NO.



C-105

C.A.L. WIND TUNNEL TESTS

$a_1(V)$ VS M

$\alpha = 2.1°$

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FORM 1745

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A.U.W.

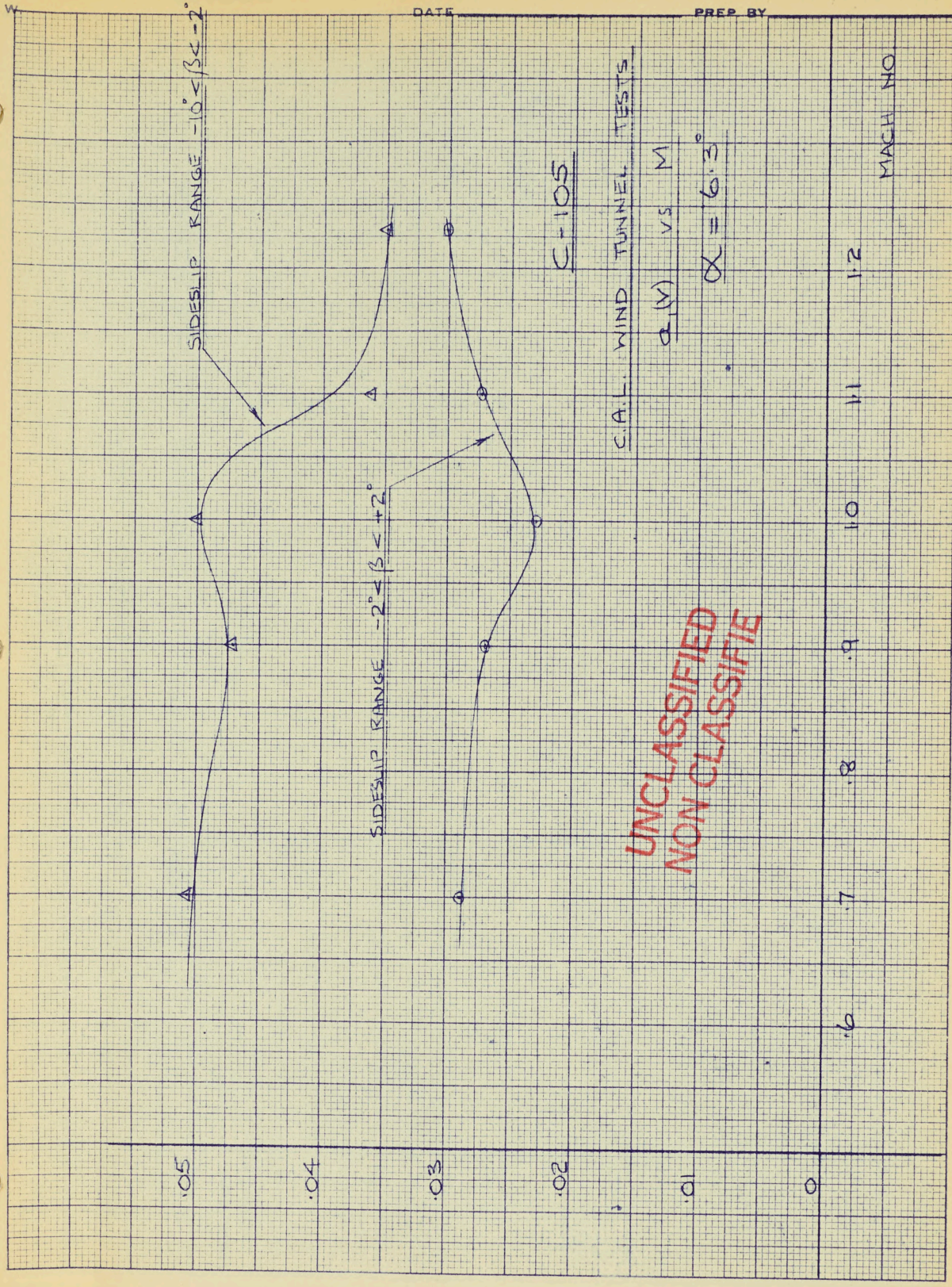
COMPONENT

SHEET No. 114.

REPORT No. PAE-162

DATE

PREP BY



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359-12 KEUFFEL & ESSER CO.
10 × 10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

FORM 1746

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

AIRCRAFT A.U.W. COMPONENT SHEET NO. 122 REPORT NO.

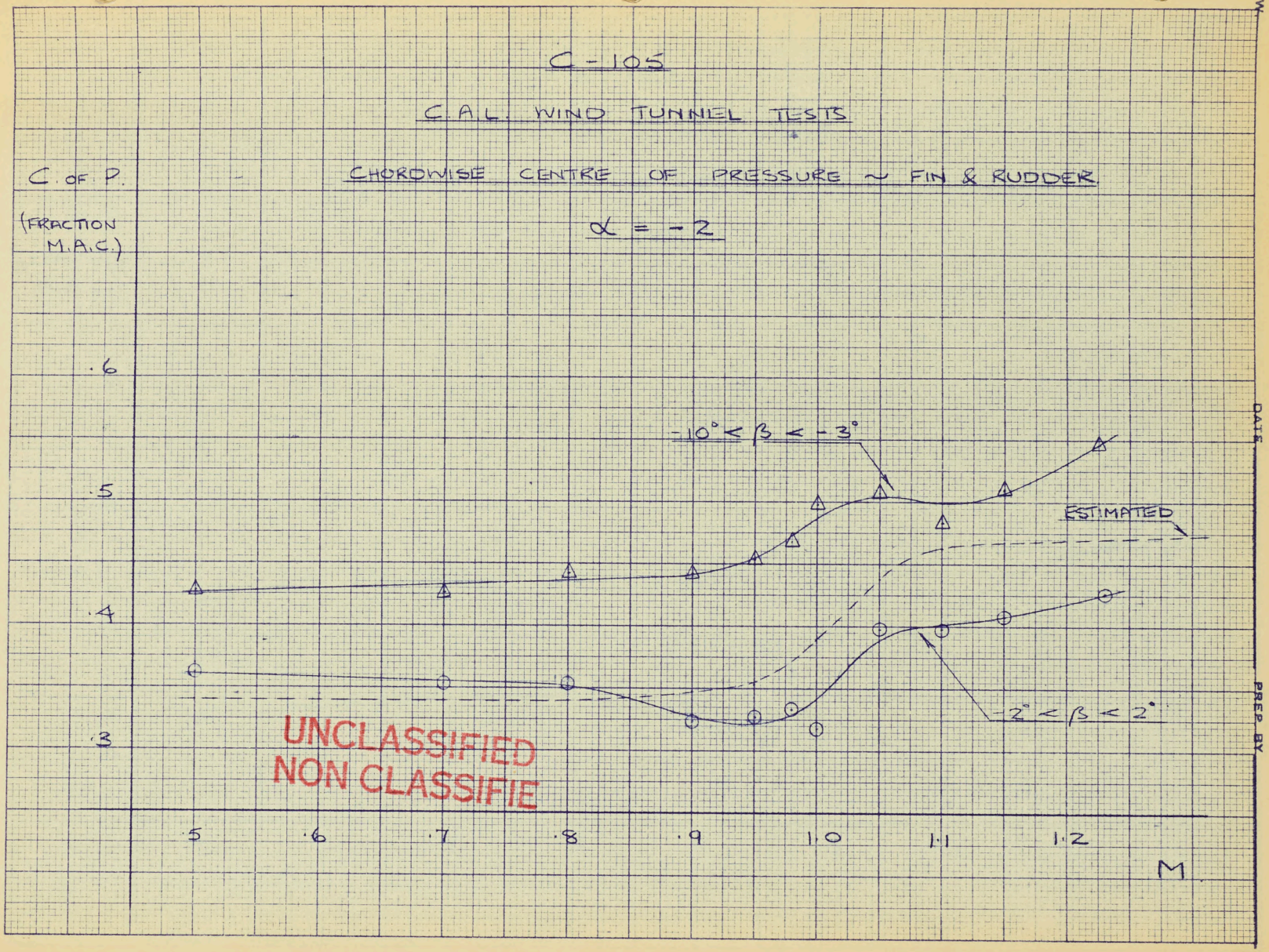
DATE PREP. BY

C-105

C.A.L. WIND TUNNEL TESTS

CHORDWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = -2$



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

AIRCRAFT
A. U. W.

COMPONENT

SHEET NO. 123

DATE

REPORT NO

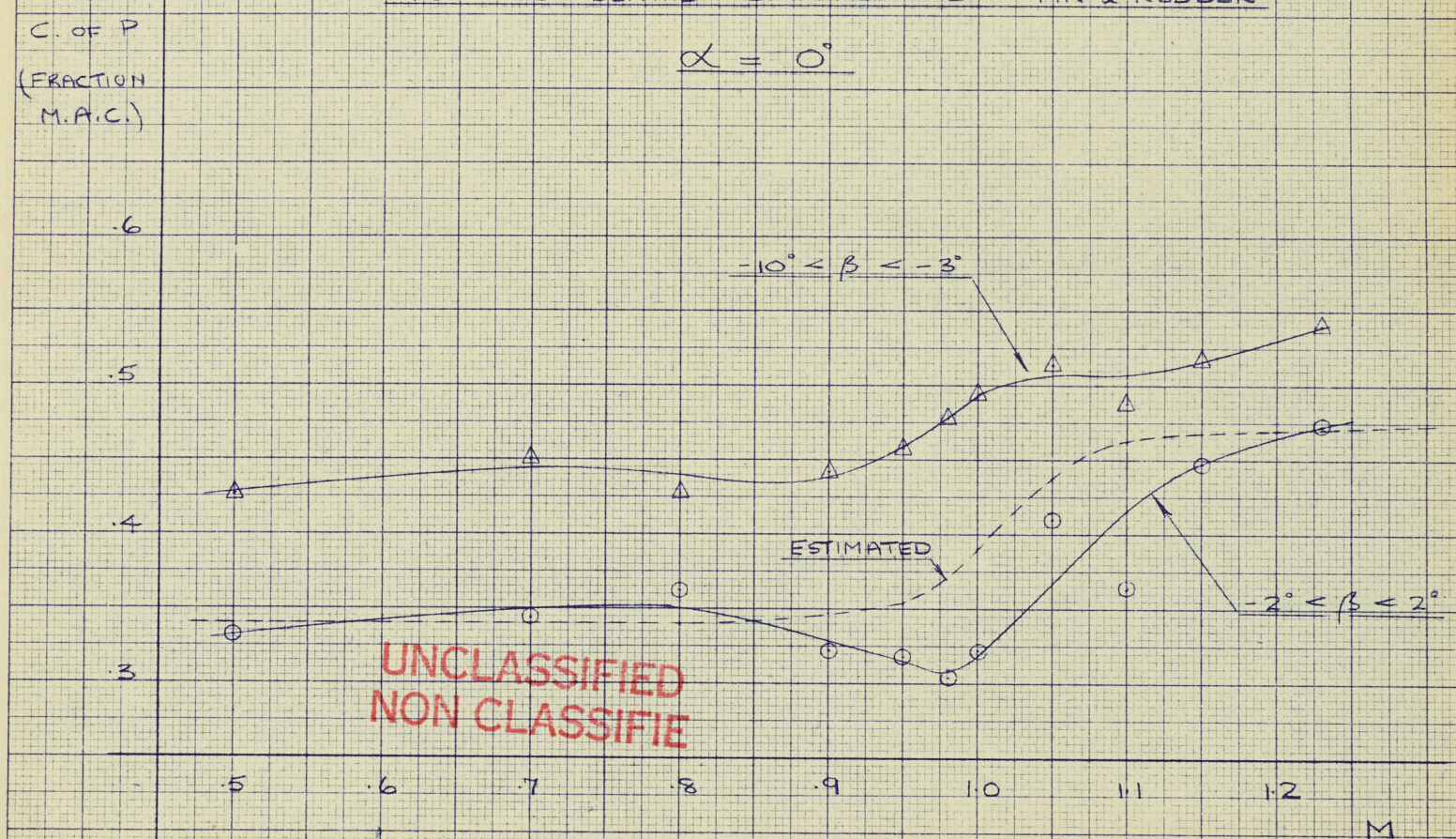
PREP. BY

C-105

CAL WIND TUNNEL TESTS

CHORDWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = 0°$



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FORM 1746

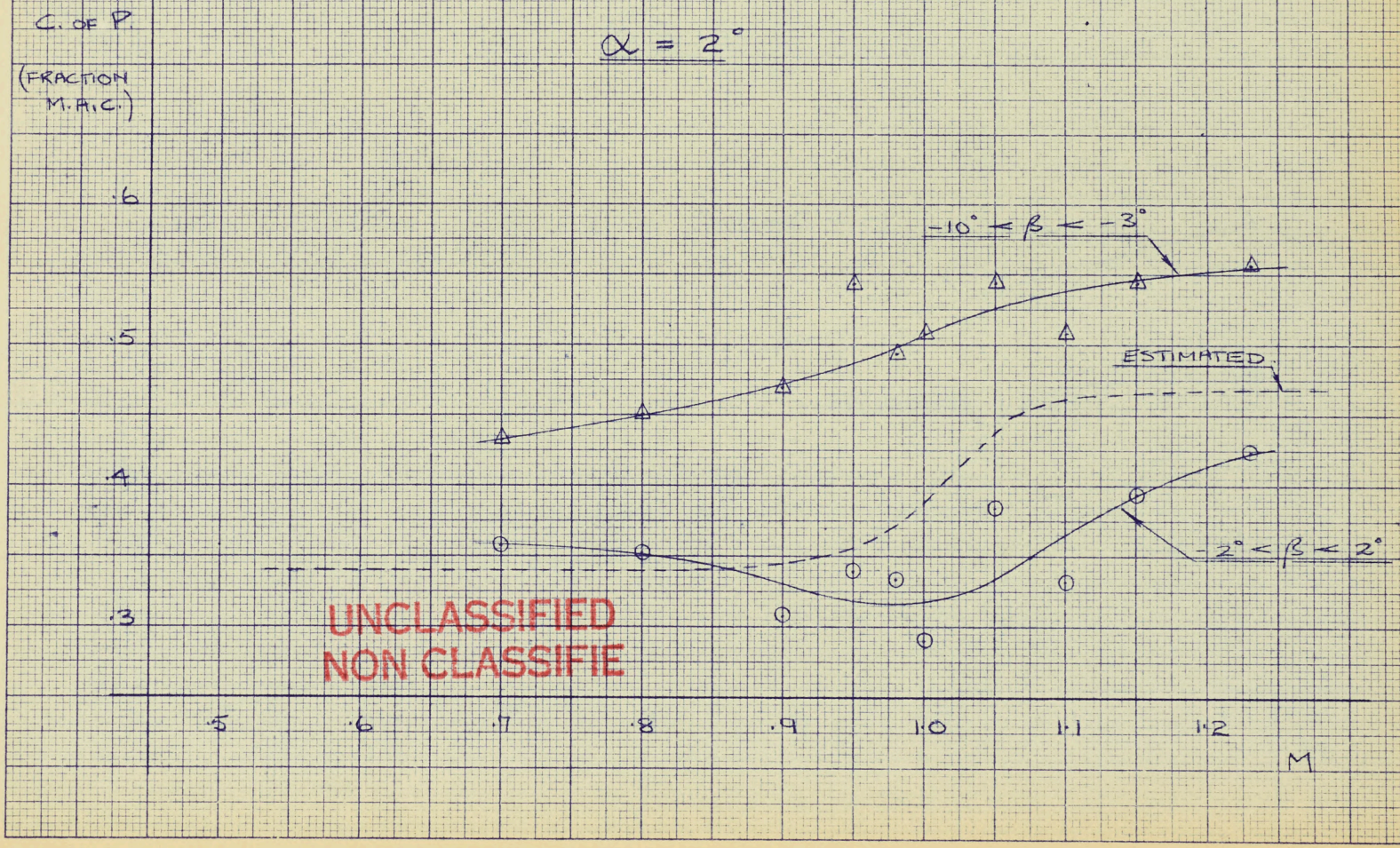
359-12 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

C-105

C.A.L. WIND TUNNEL TESTS

CHORDWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = 2°$



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1.2.4

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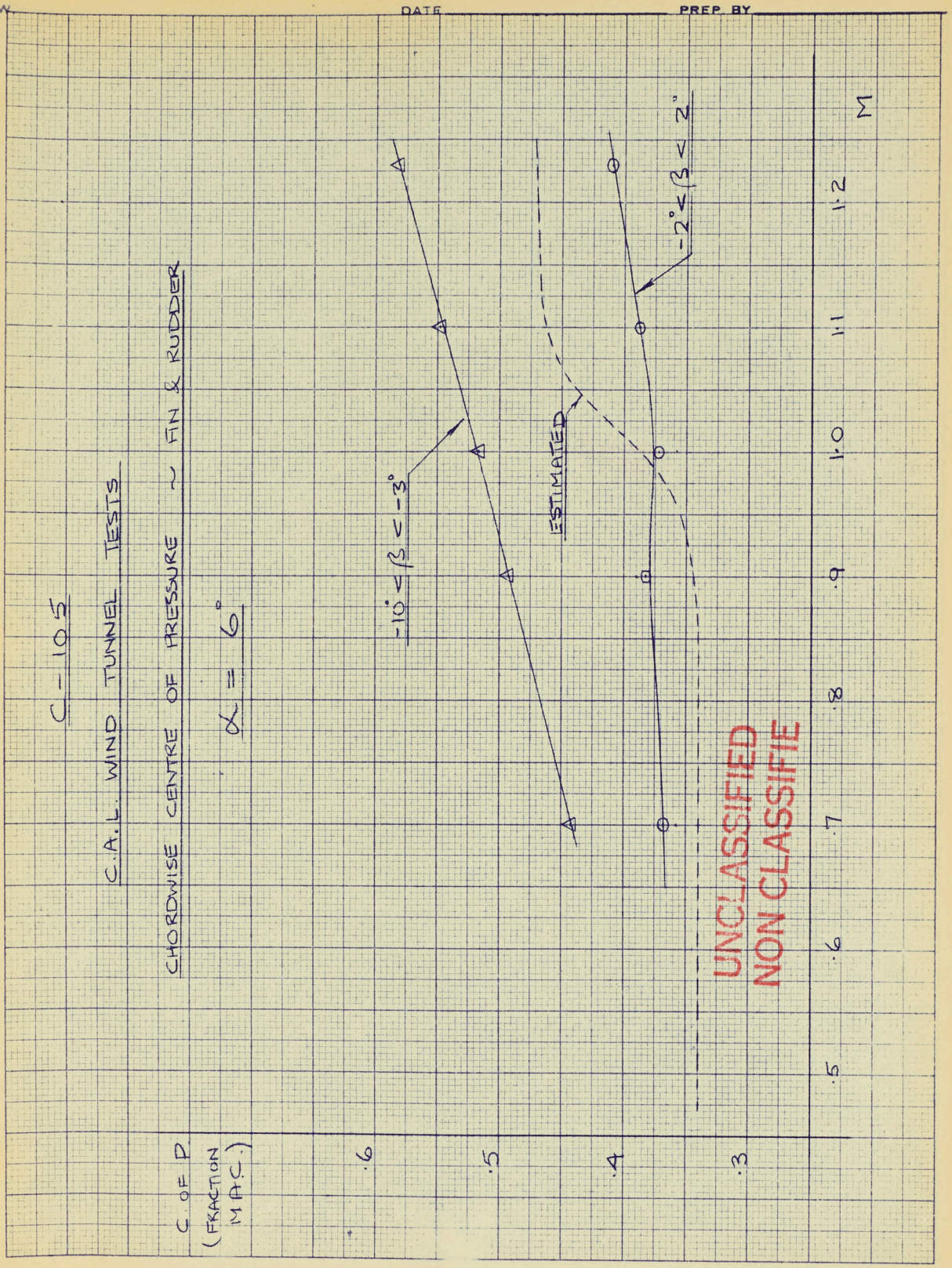
DATE PREP. BY

C-105

C.A.L. WIND TUNNEL TESTS

CHORDWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = 6°$



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3333-12 KEUFFEL & ESSER CO.
10 x 10 to 1" 1/2 inch. 5th lines accented
MADE IN U.S.A.

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

AIRCRAFT A.U.W.

COMPONENT

SHEET No. 132

DATE

REPORT No.

PREP. BY

C-105

C.A.L. WIND TUNNEL TESTS.

SPANWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = -2°$

$\eta_{C.P.}$ (FRACTION OF SPAN)

.6
.5
.4
.3

ESTIMATED

⊙ $-2° < \beta < 2°$

△ $-10° < \beta < -3°$

⊡ $-8° < \beta < +8°$

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NON CLASSIFIE

.5 .6 .7 .8 .9 1.0 1.1 1.2

M

FORM 1746

359-12 KEUFFEL & ESSER CO.
10 × 10 to the 1/2 inch. 5th lines accented
MADE IN U.S.A.

AIRCRAFT A.U.W. COMPONENT SHEET NO. 133 REPORT NO.

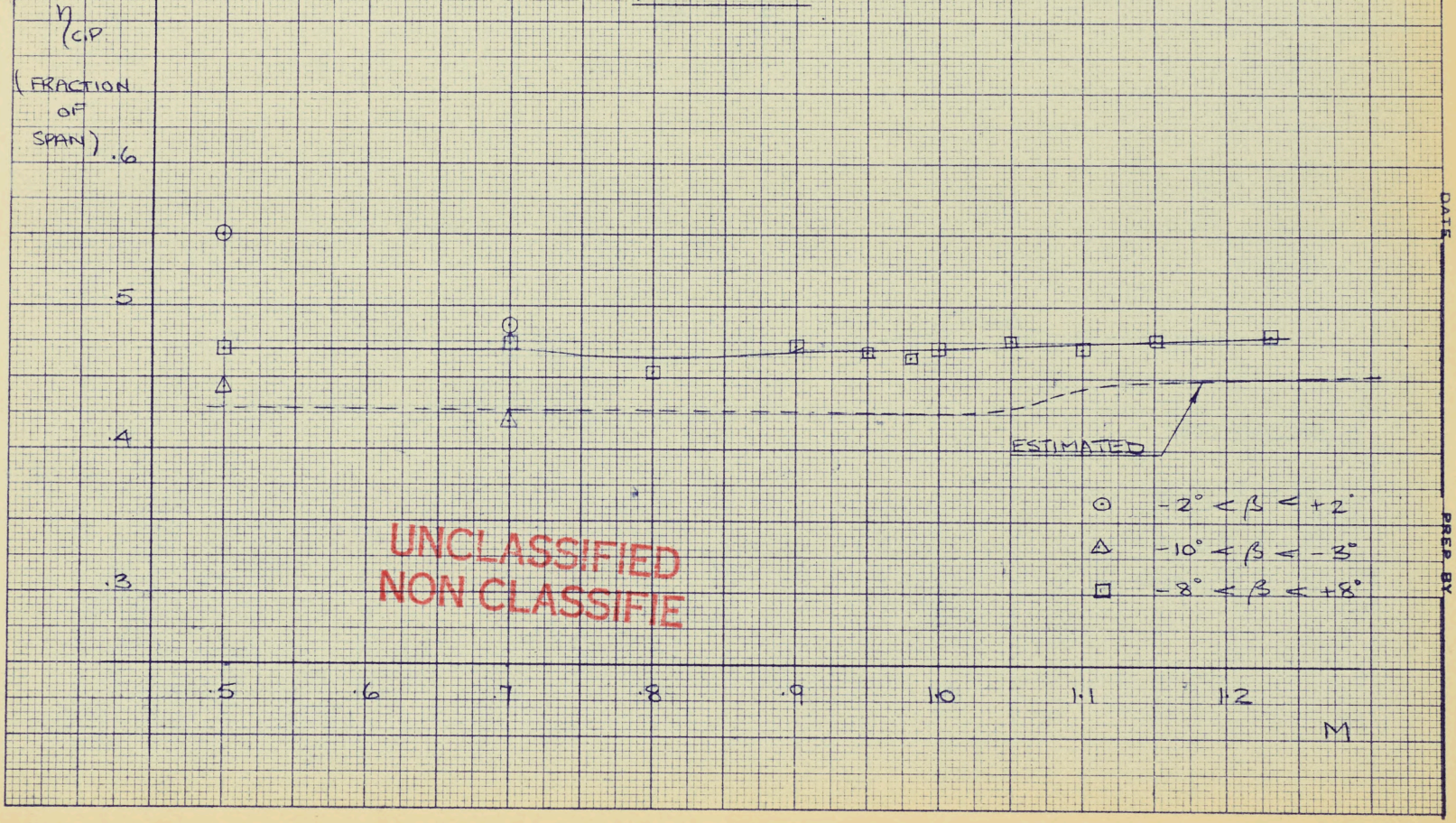
DATE PREP. BY

C-105

C.A.L. WIND TUNNEL TESTS.

SPANWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = 0°$



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FORM 1746

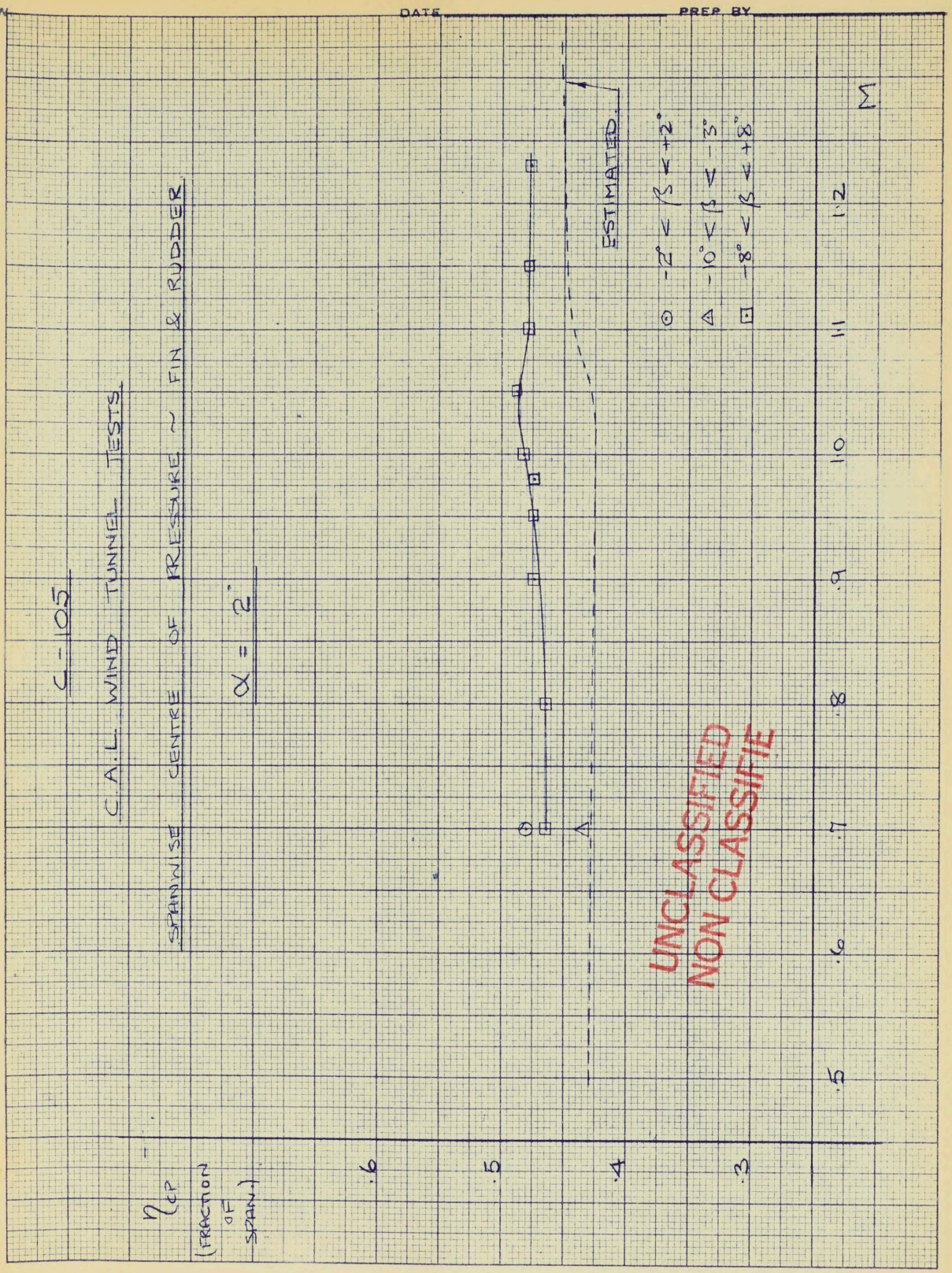
AIRCRAFT A.U.W. COMPONENT SHEET No. 134. REPORT No. [illegible]
DATE PREP BY

C-105

C.A.L. WIND TUNNEL TESTS.

SPANWISE CENTRE OF PRESSURE ~ FIN & RUDDER.

$\alpha = 2°$



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

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

AIRCRAFT A.U.W. COMPONENT SHEET NO. 135. REPORT NO. A.U.W. 160

DATE PREP. BY

C-105

C.A.L. WIND TUNNEL TESTS

SPANWISE CENTRE OF PRESSURE ~ FIN & RUDDER

$\alpha = 6°$

$\eta_{cp.}$ (FRACTION OF SPAN).

.6
.5
.4
.3

ESTIMATED

⊙ $-2° < \beta < 2°$

△ $-10° < \beta < -3°$

□ $-8 < \beta < 8°$

.5 .6 .7 .8 .9 1.0 1.1 1.2 M

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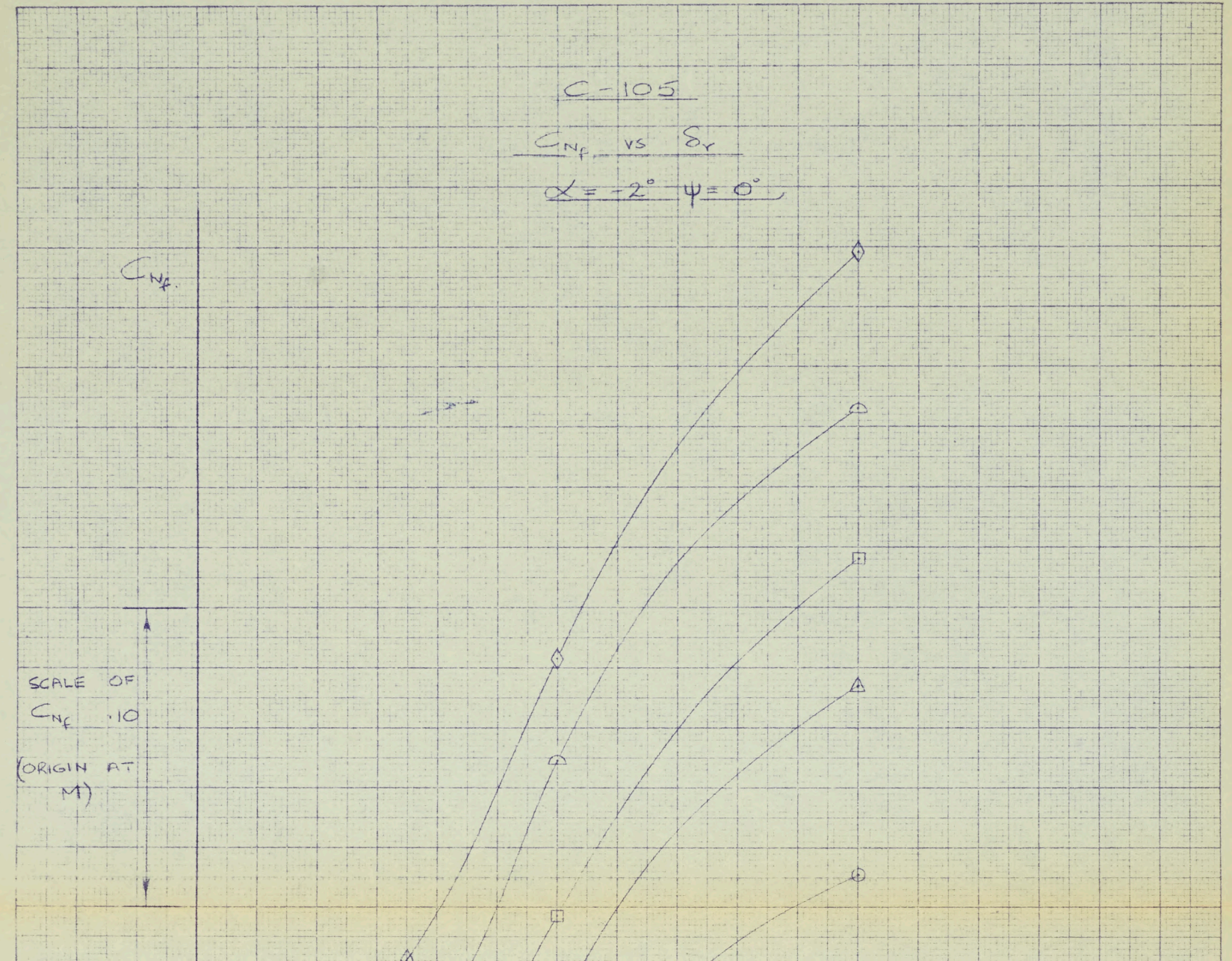
FORM 1745

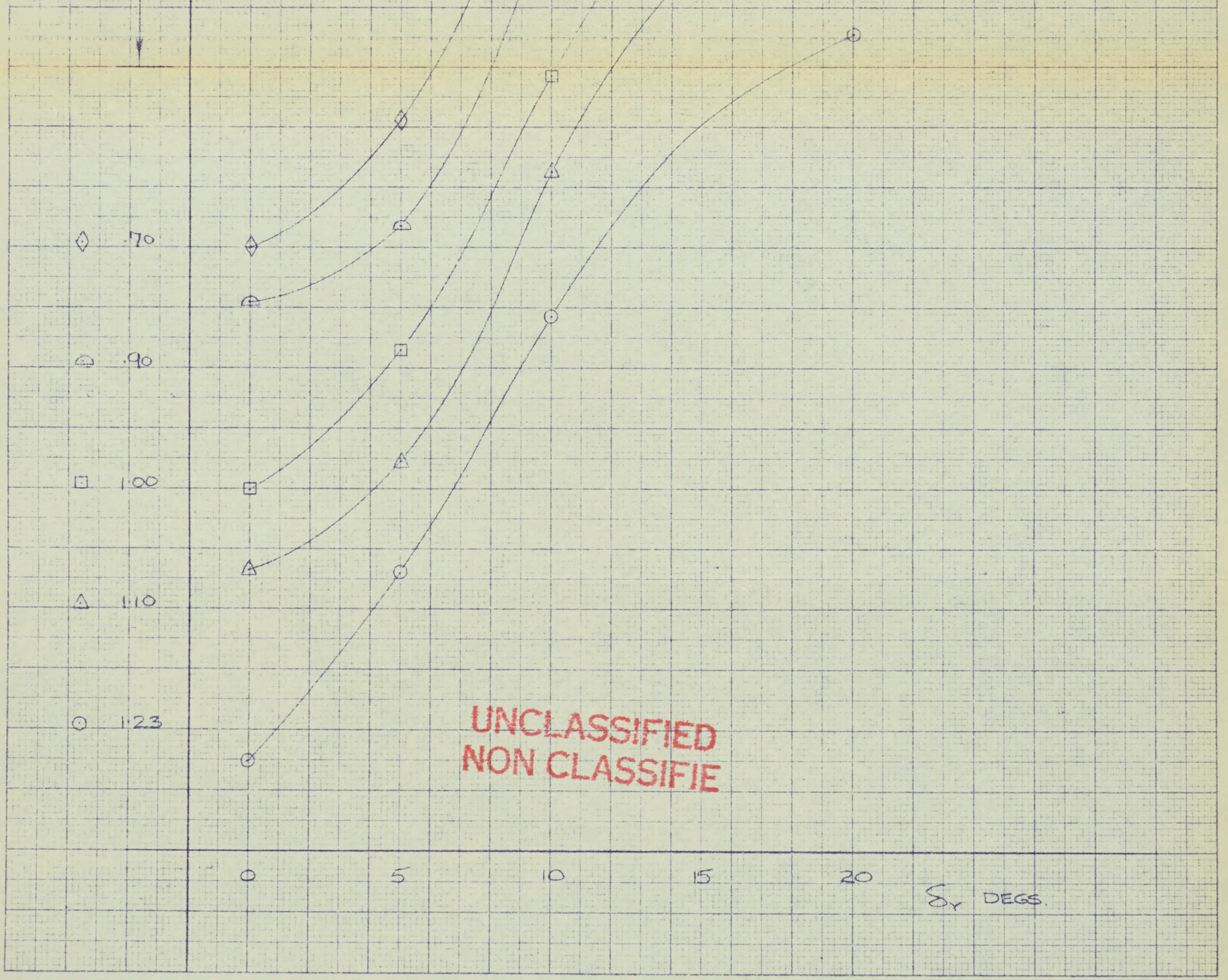
359-11L KEUFFEL & ESSER CO.
10 X 10 to the ½ inch, 5th lines accented

C-105

C_{N_f} vs δ_r

$\alpha = -2°$ $\psi = 0°$





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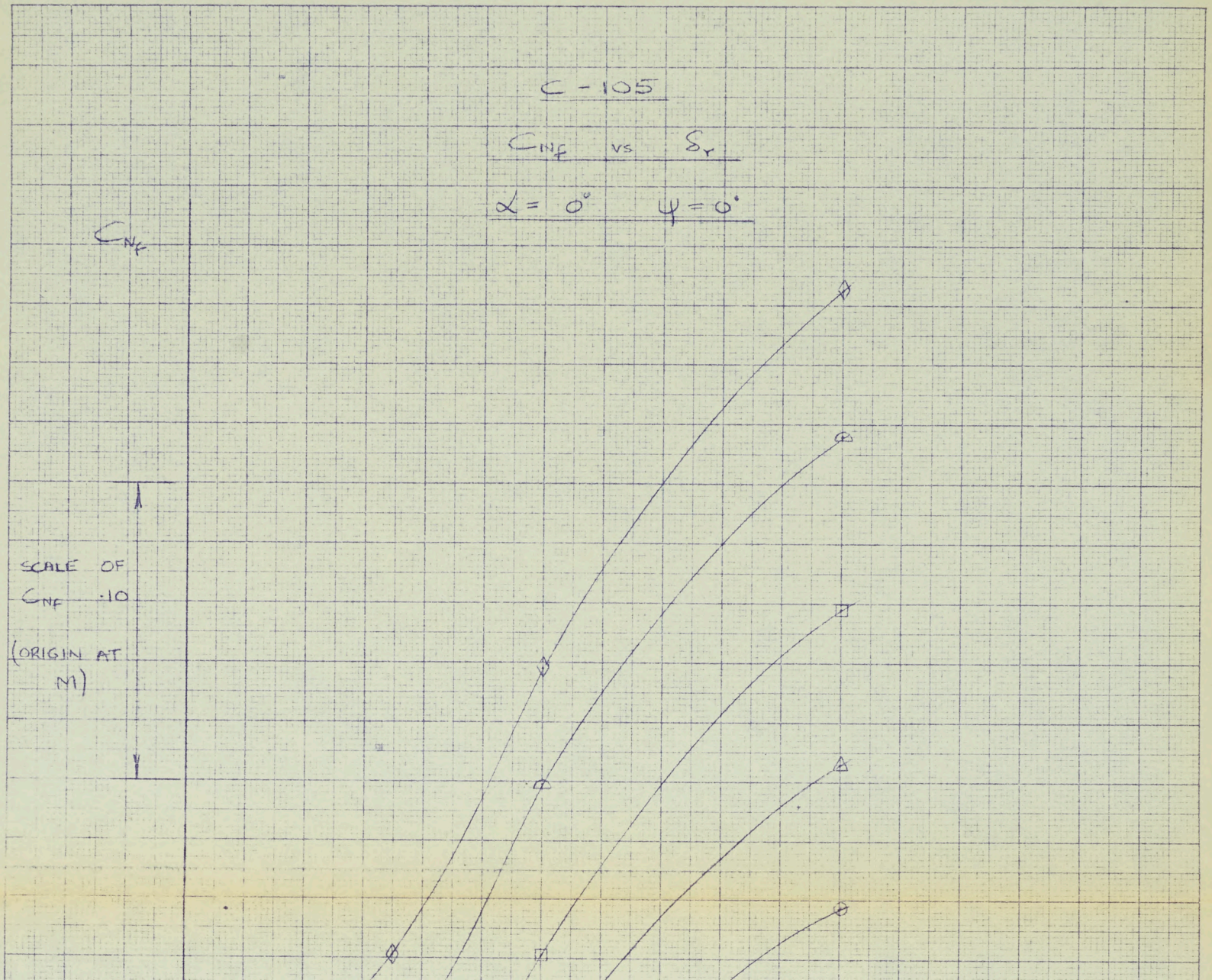
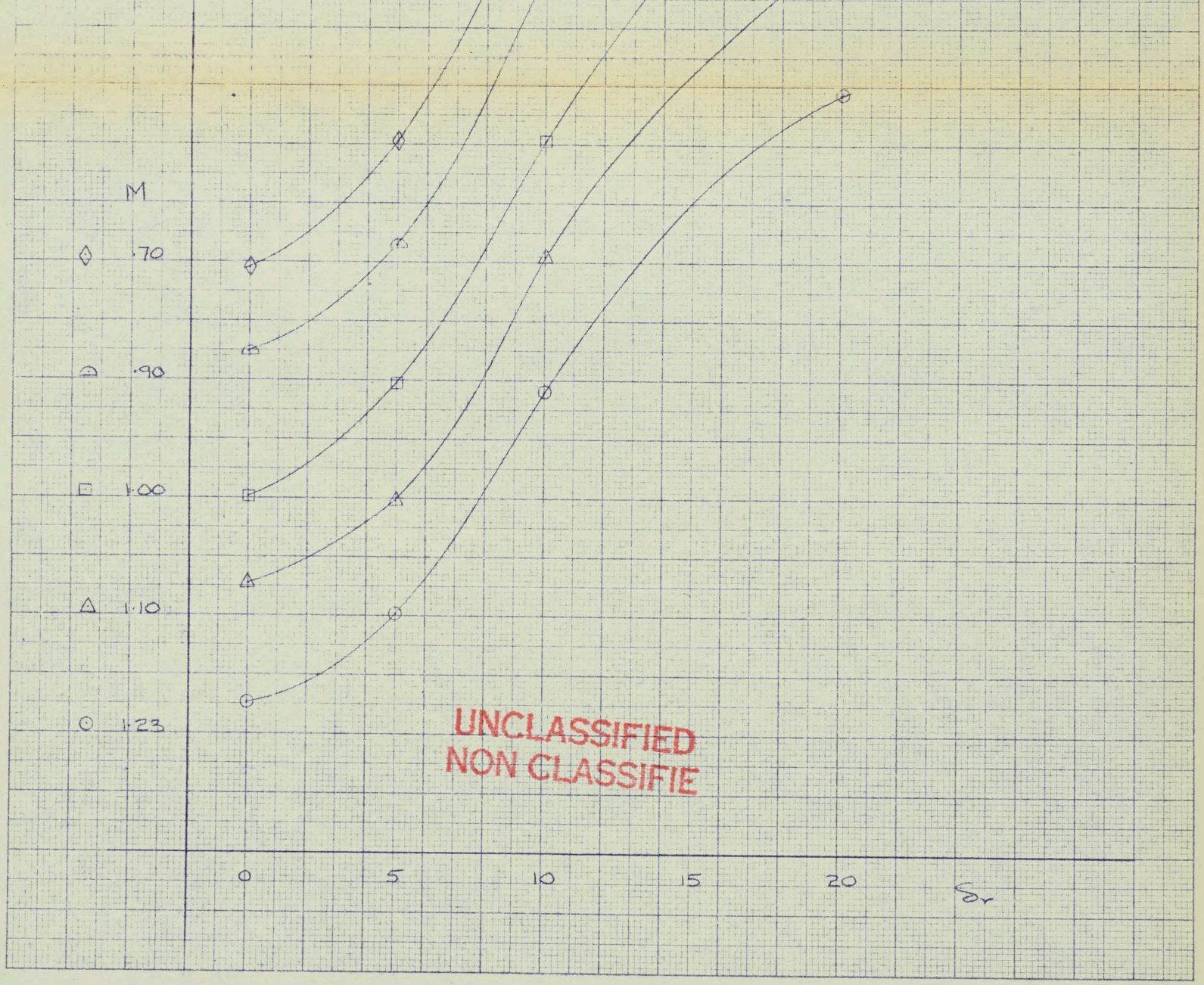
359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

C-105

C_{N_F} vs δ_r

$\alpha = 0°$ $\psi = 0°$





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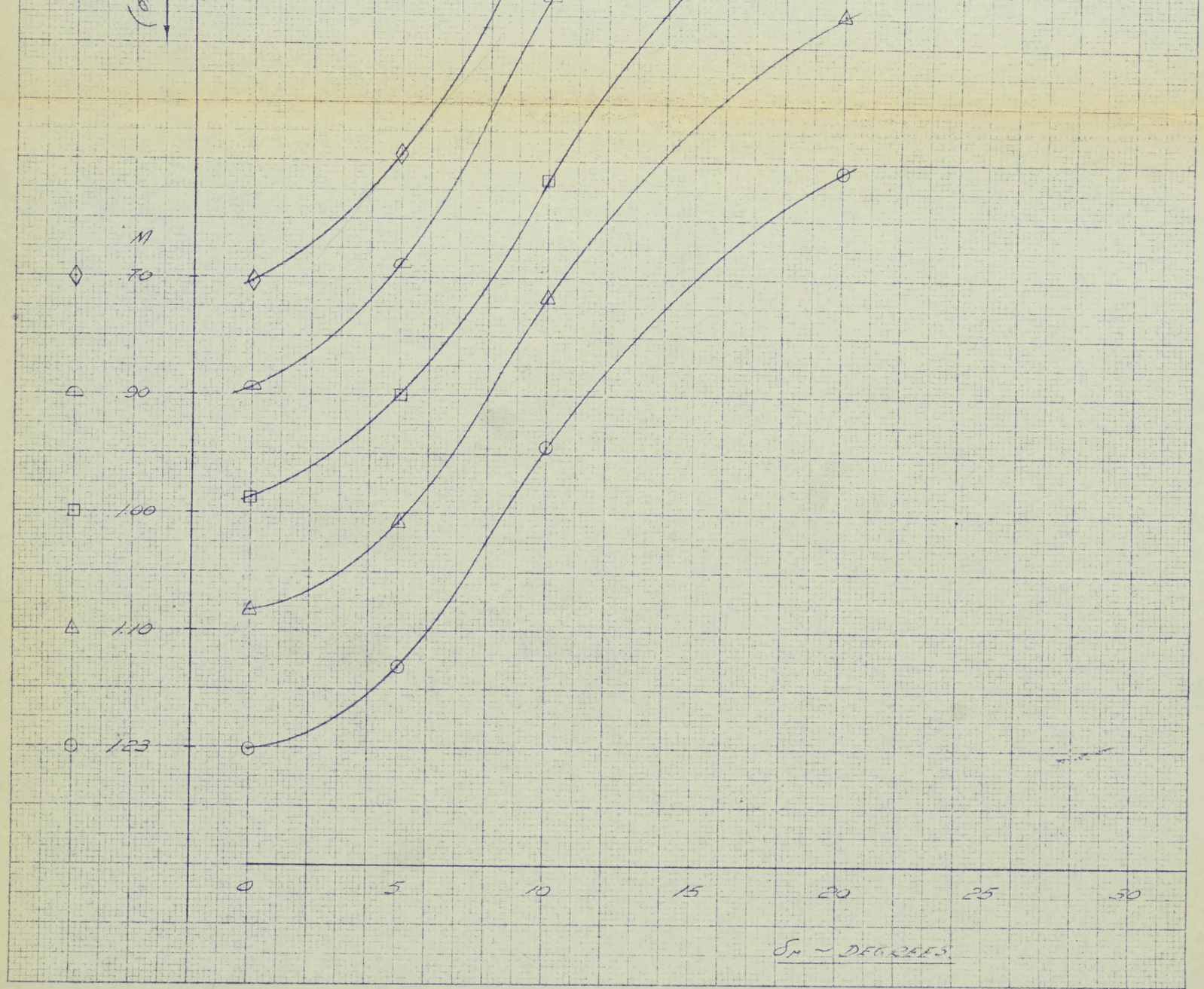
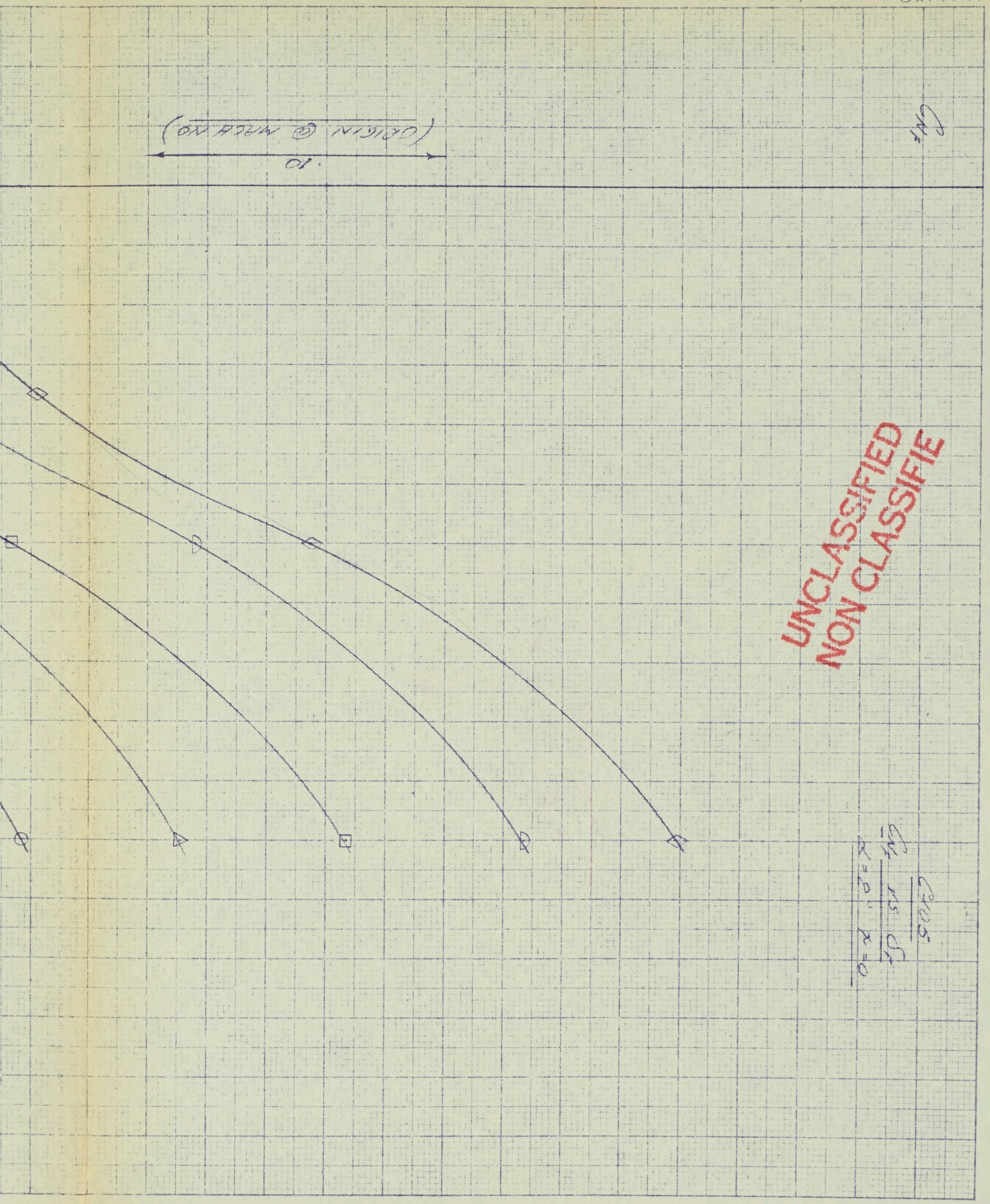
1.4.2.
P/W.T/20.


M
70
90
100
110
123
0
5
10
15
20
25
30

1.4.3. P/N.T./20
MAY 54. CLARK.



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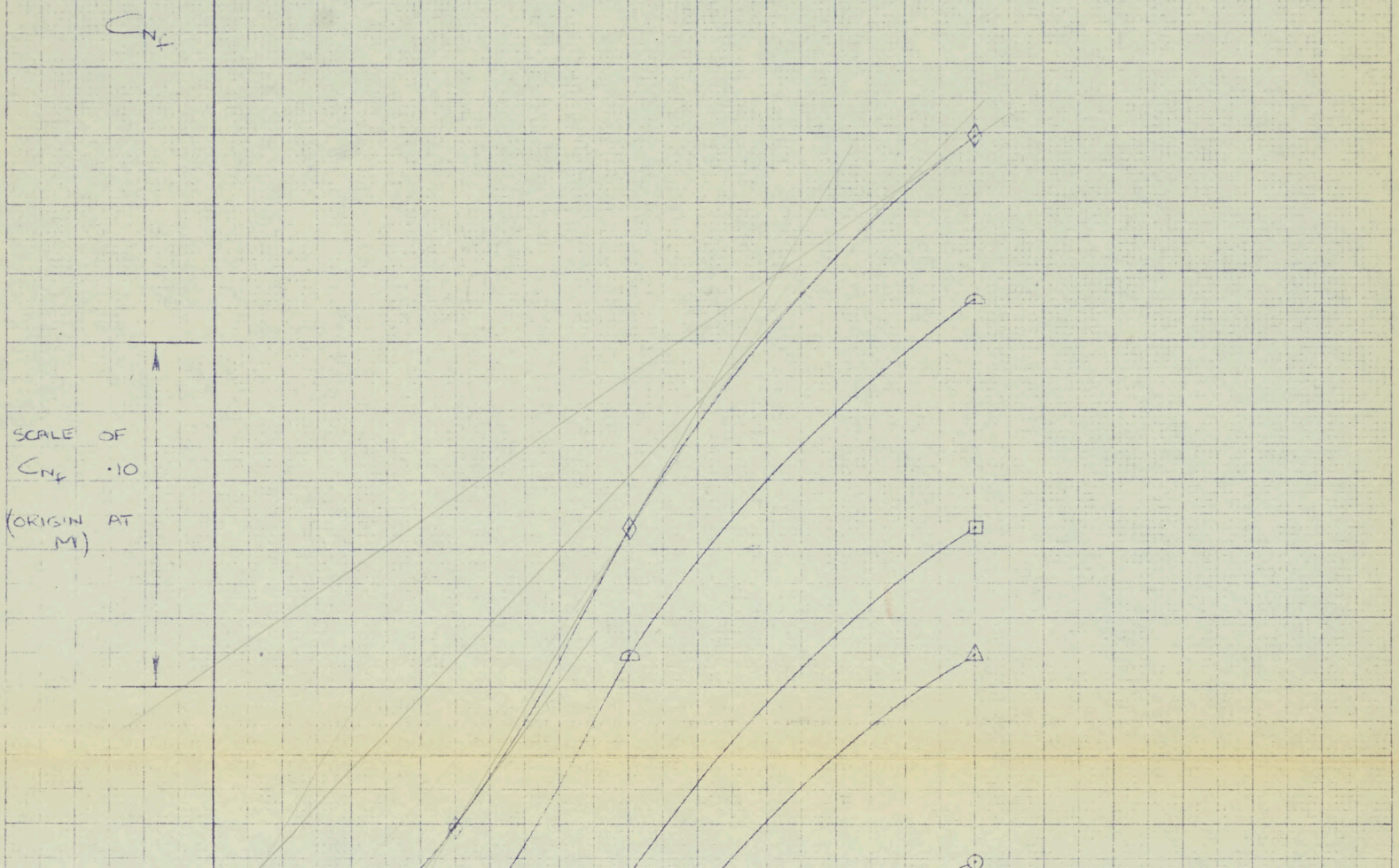
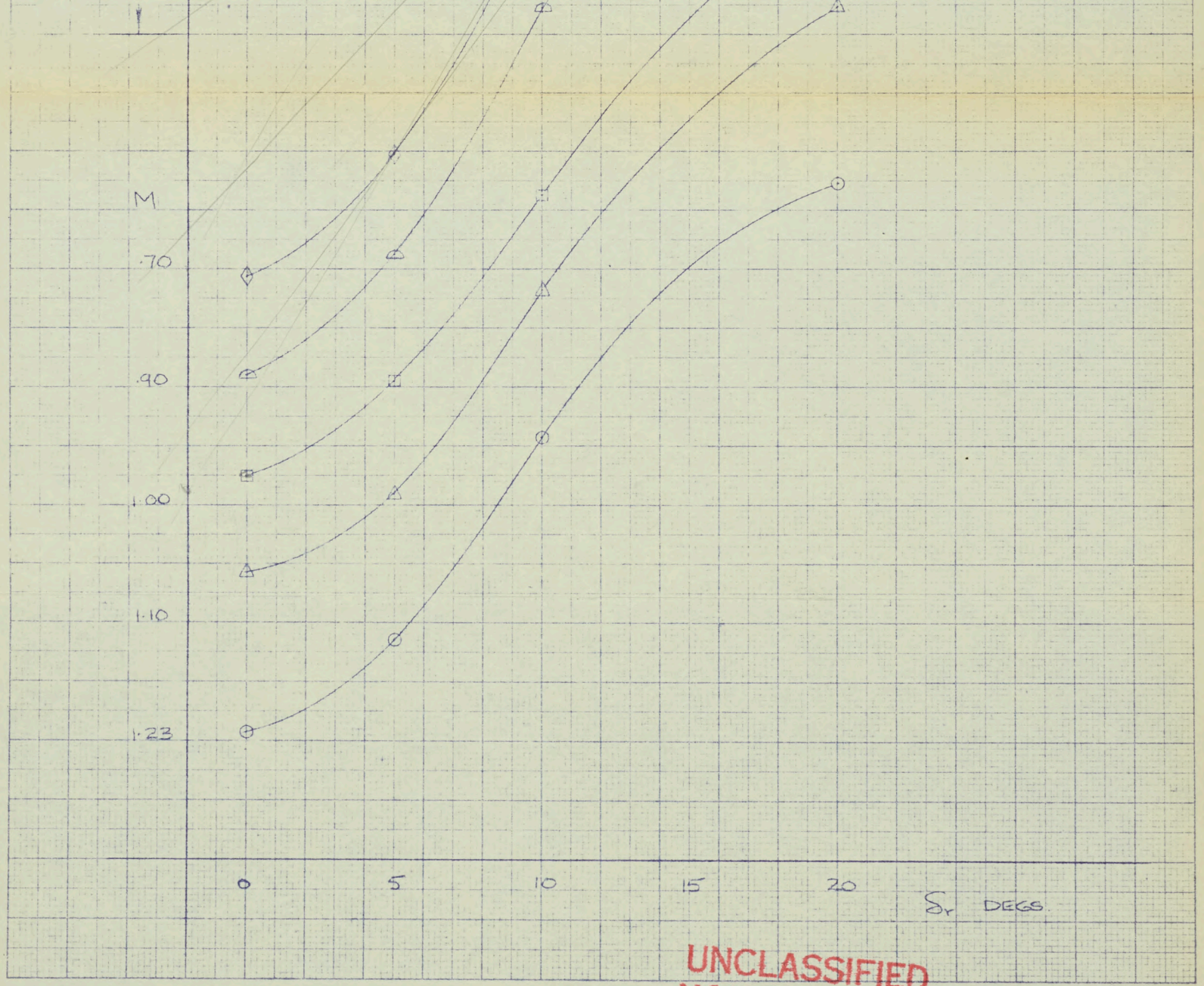
359-11L KEUFFEL & ESSER CO.

C-105

C_{N_f} vs δ_f

$\alpha = 6°$ $\psi = 0°$





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COMPONENT

SHEET No. 14.7.

REPORT No. P/W.T./20.

DATE

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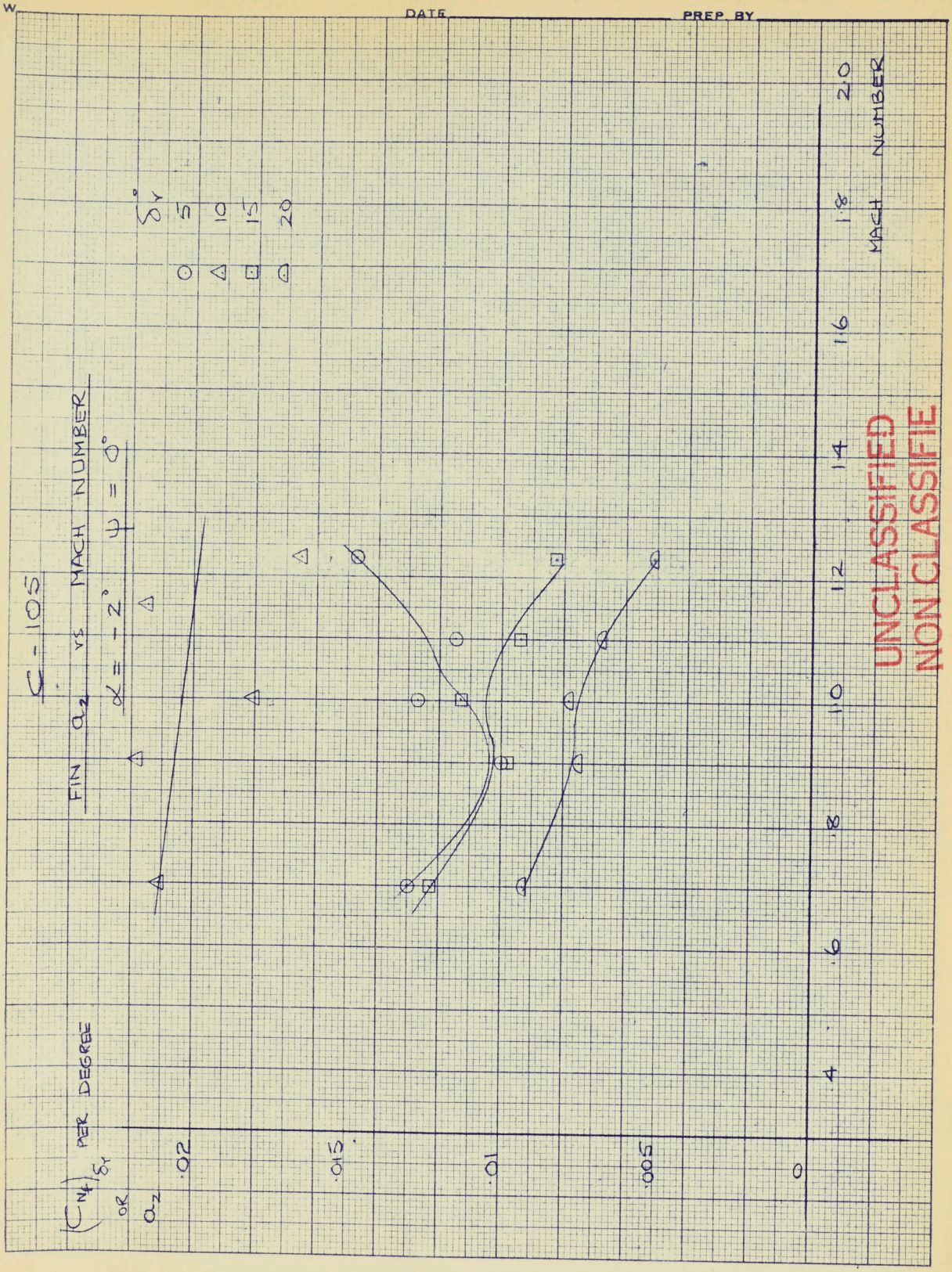

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359-12 KEUFFEL & ESSER CO.
10 × 10 to the 1 inch, 5th thick ruled
MADE IN U.S.A.

AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 14.8

REPORT No. P/W.T./20.

DATE

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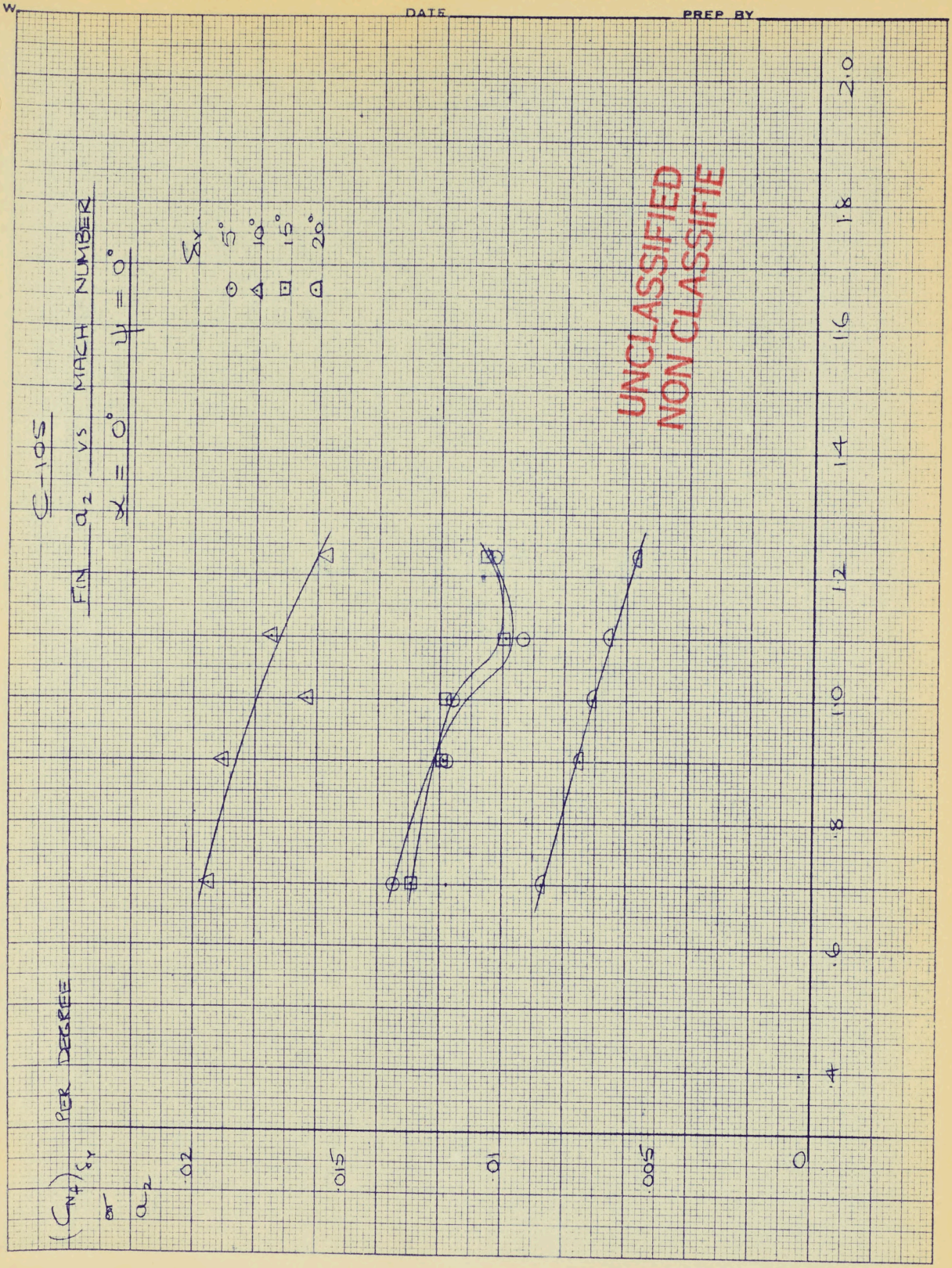

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359-12 KEUFFEL & ESSER CO.
10 × 10 to the 2 inch, 5th lines accented
MADE IN U.S.A.

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AIRCRAFT
A. U. W.

COMPONENT

SHEET NO. 149

REPORT NO. P/W T/20

DATE

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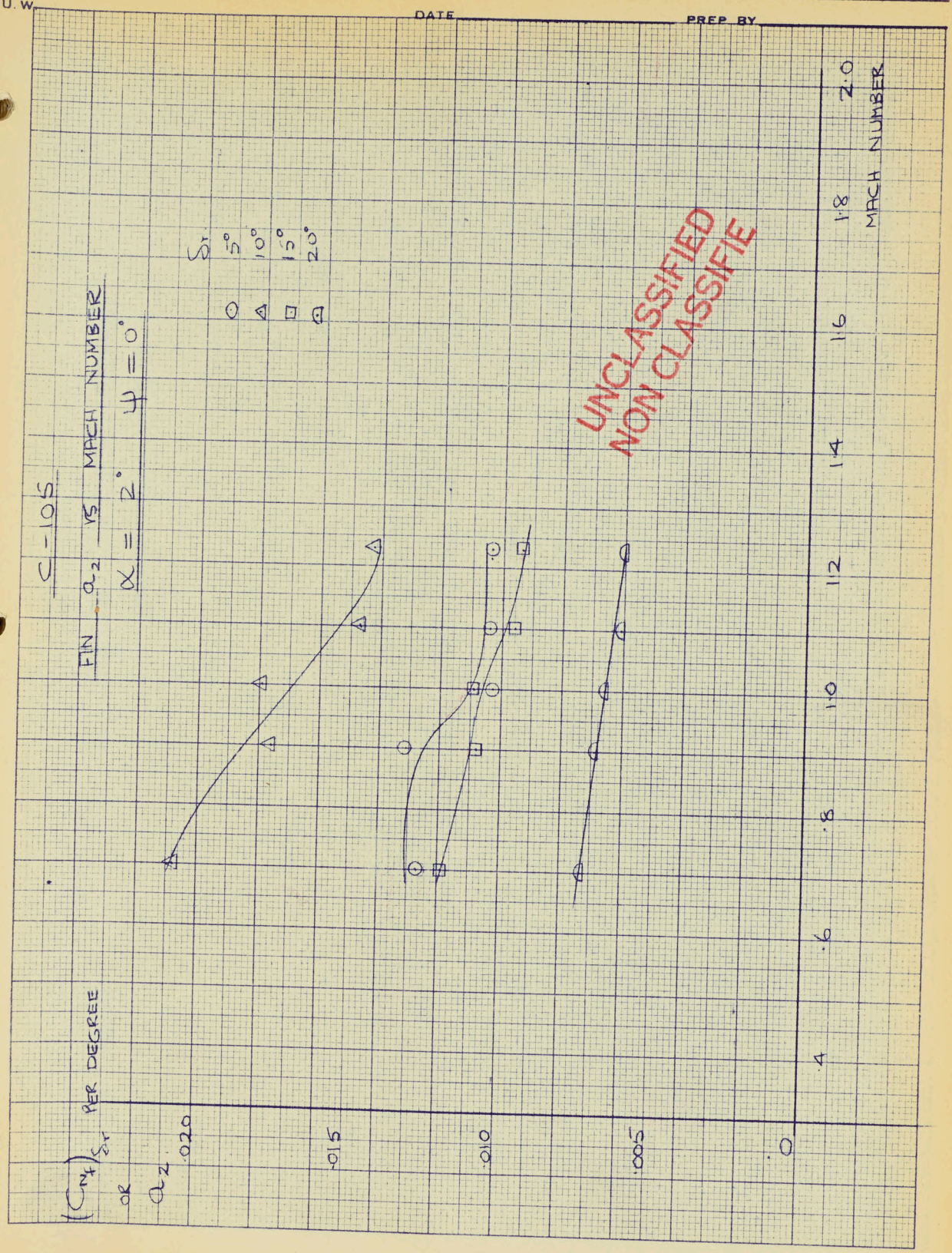

UNCLASSIFIED
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459 12 KEUFFEL & ESSER CO
10 × 10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

FORM 1746

AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 1.4.10

REPORT No. P/W.T/20

DATE

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C-105

FIN C_{l_2} VS MACH NUMBER

$\alpha = 6°$ $\psi = 0°$

δ_r

○ 5°
△ 10°
□ 15°
◁ 20°

$(C_{N_2})_{\delta_r}$ PER DEGREE OR C_{l_2}

.020
.015
.010
.005
0

MACH NUMBER

.4 .6 .8 1.0 1.2 1.4 1.6 1.8 2.0

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1912 KEUFFEL & ESSER CO.
10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

FORM 1746

359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

C-105

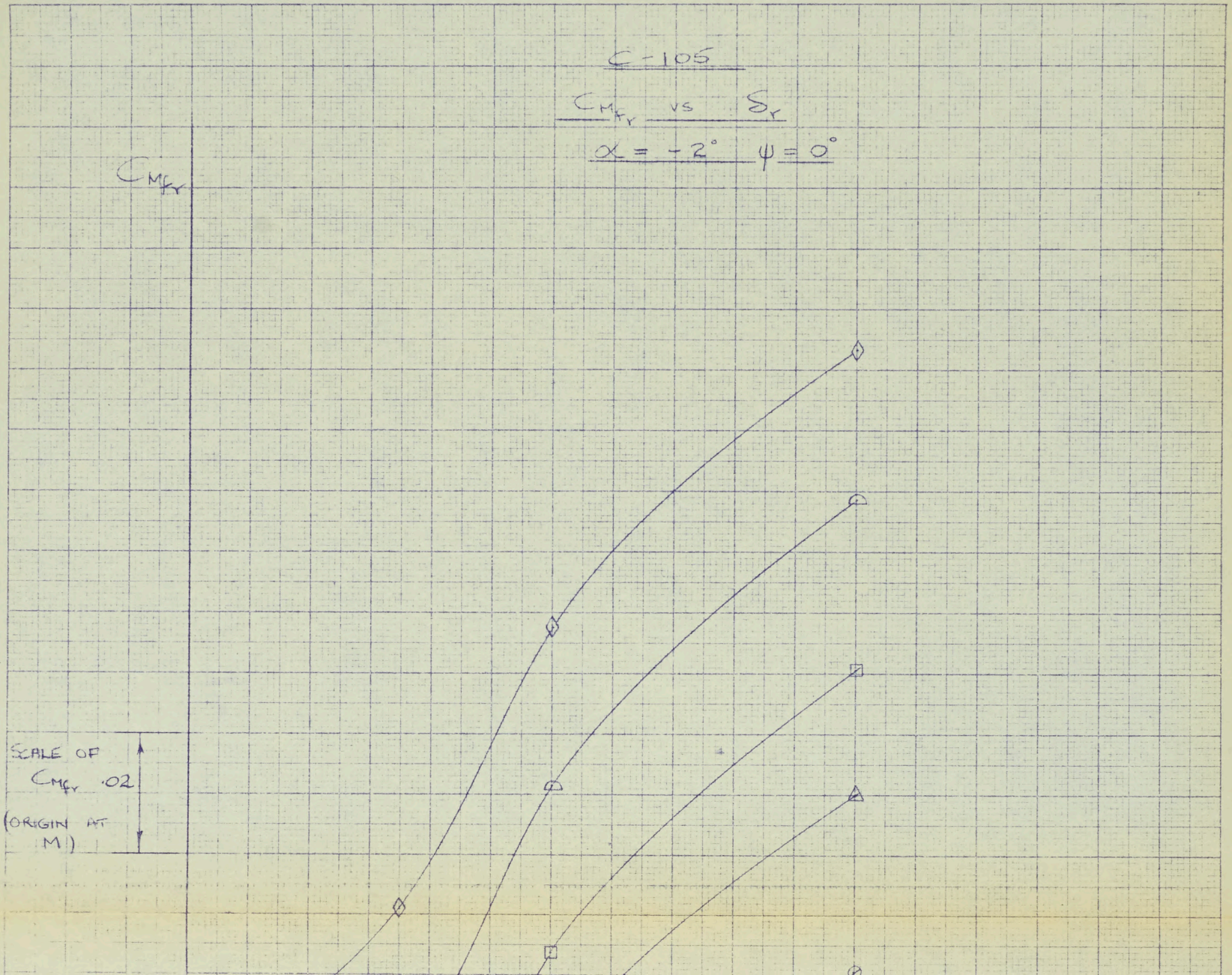
$C_{M_{fr}}$ vs δ_r

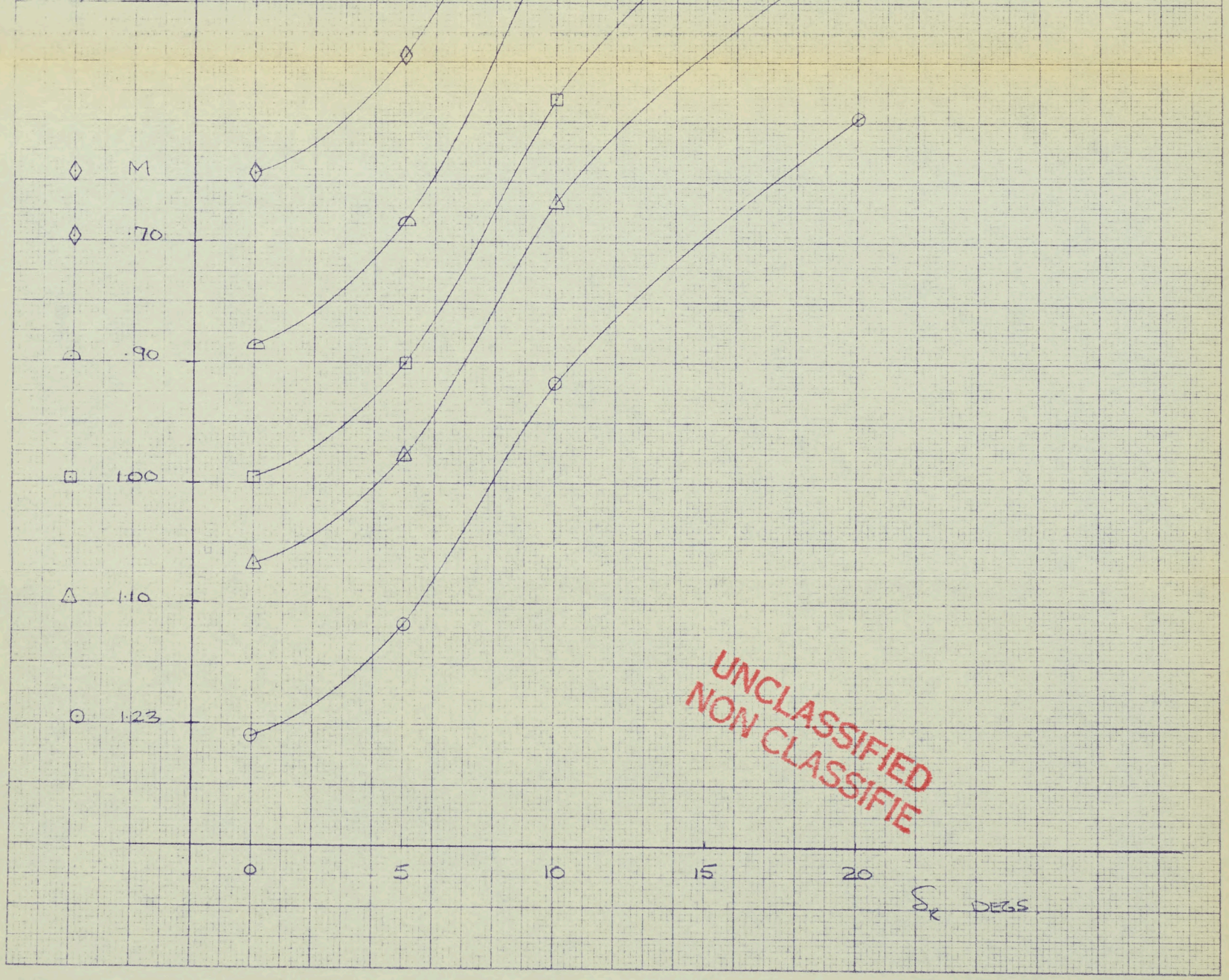
$\alpha = +2°$ $\psi = 0°$

$C_{M_{fr}}$

SCALE OF $C_{M_{fr}}$ .02

(ORIGIN AT M1)





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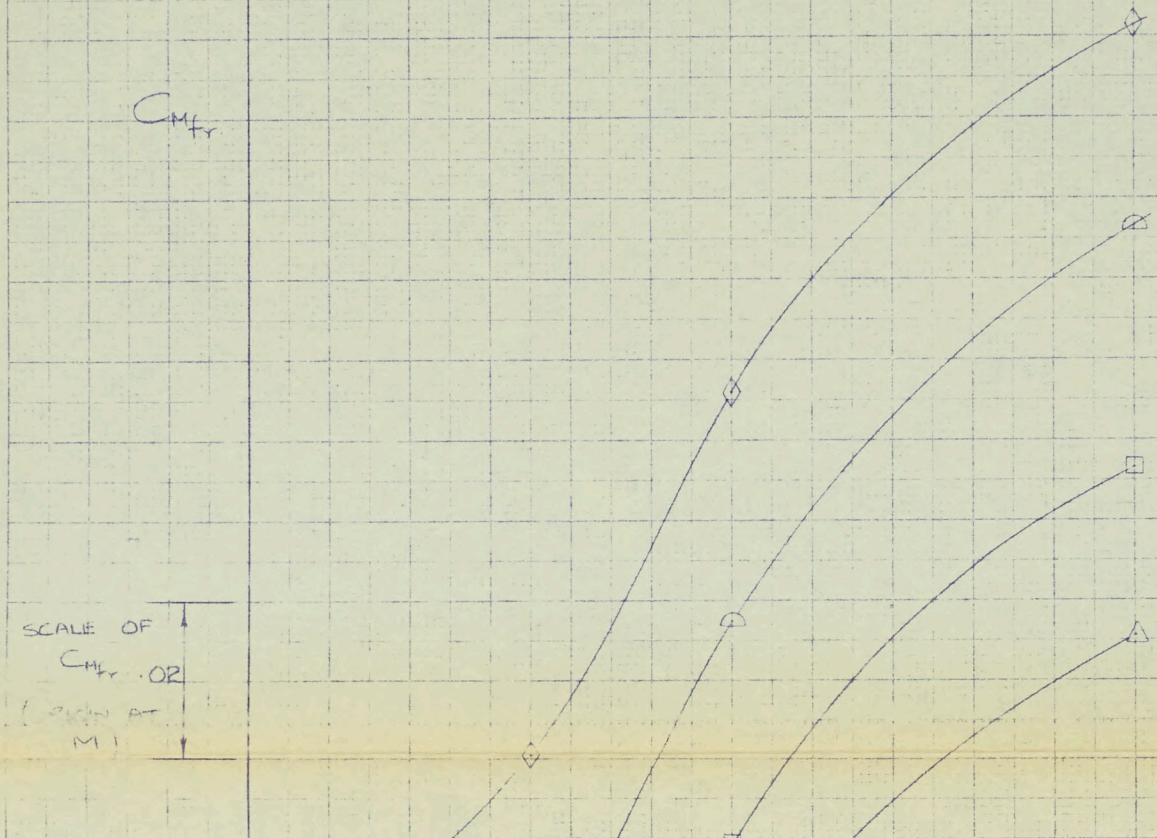
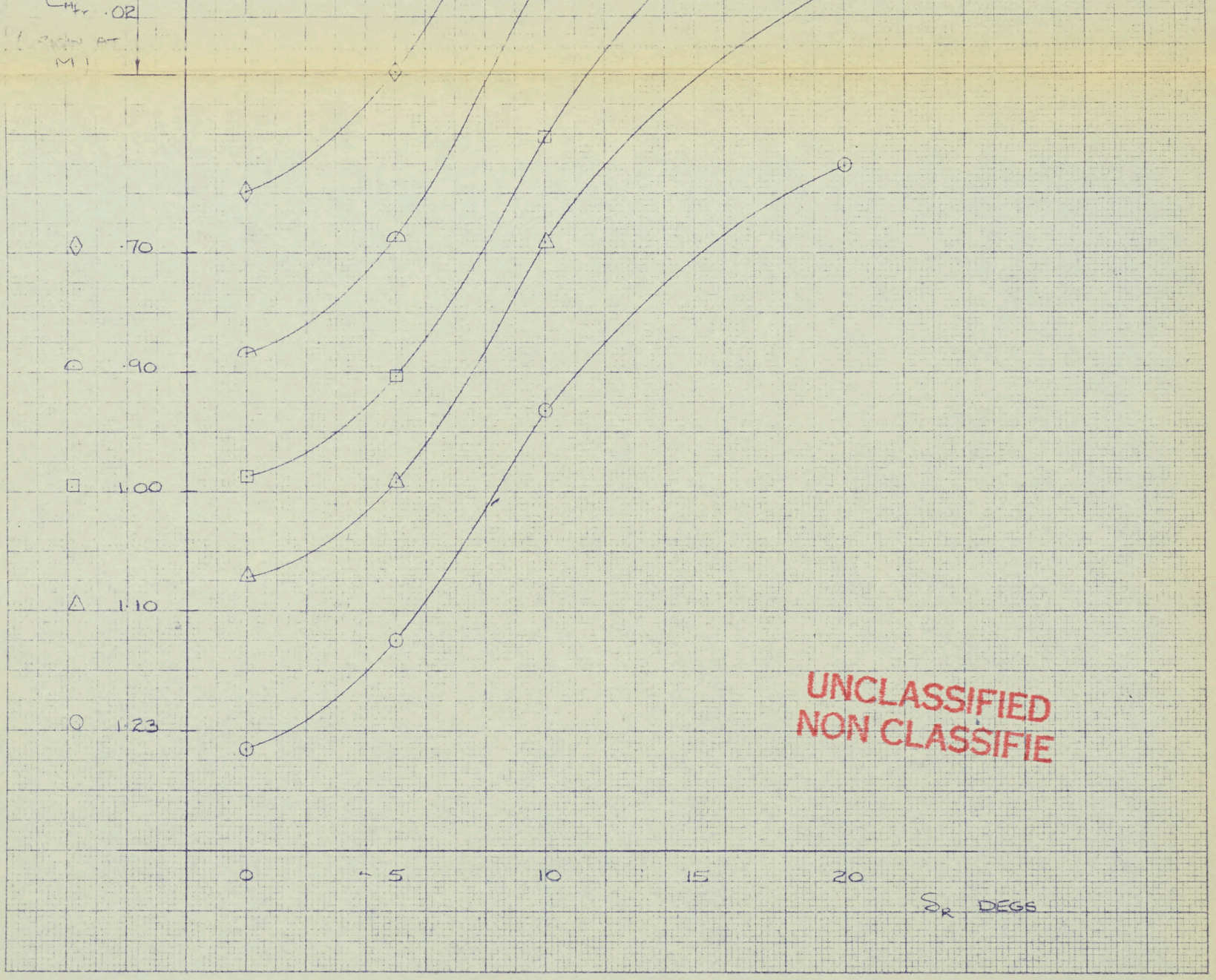
C - 105

$C_{M_{fr}}$ vs δ_R

$\alpha = 0°$ $\psi = 0°$





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COMPONENT

SHEET No. 153. REPORT No. P/W.T./20

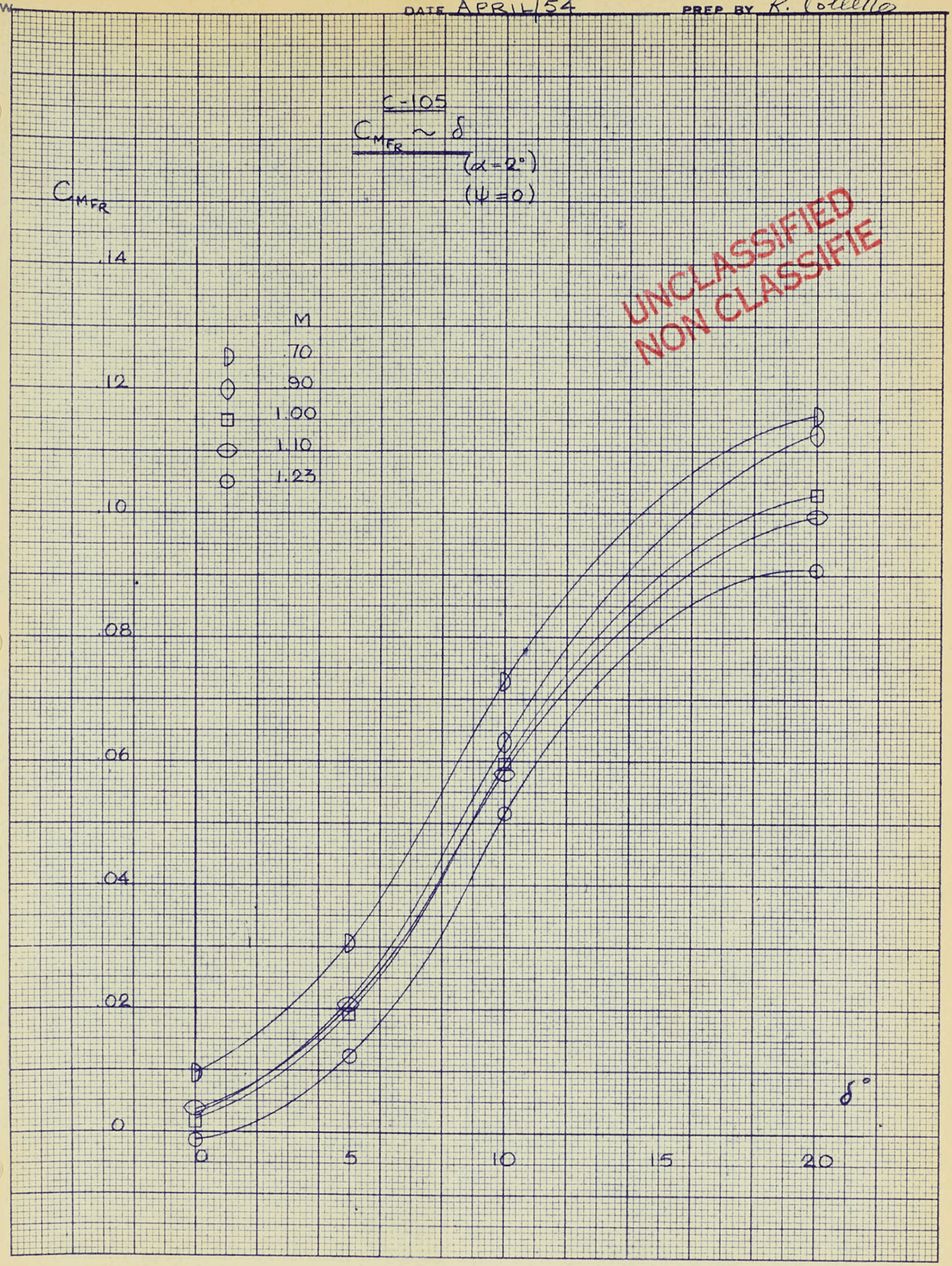
DATE APRIL/54 PREP BY R. Colletta

C-105

$C_{M_{FR}} \sim \delta$

$(\alpha = 2°)$

$(\psi = 0)$



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359-12 KEUFFEL & ESSER CO.
10 / 10 to the 1/2 inch, 5th lines accented.
MADE IN U.S.A.

359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

C - 105

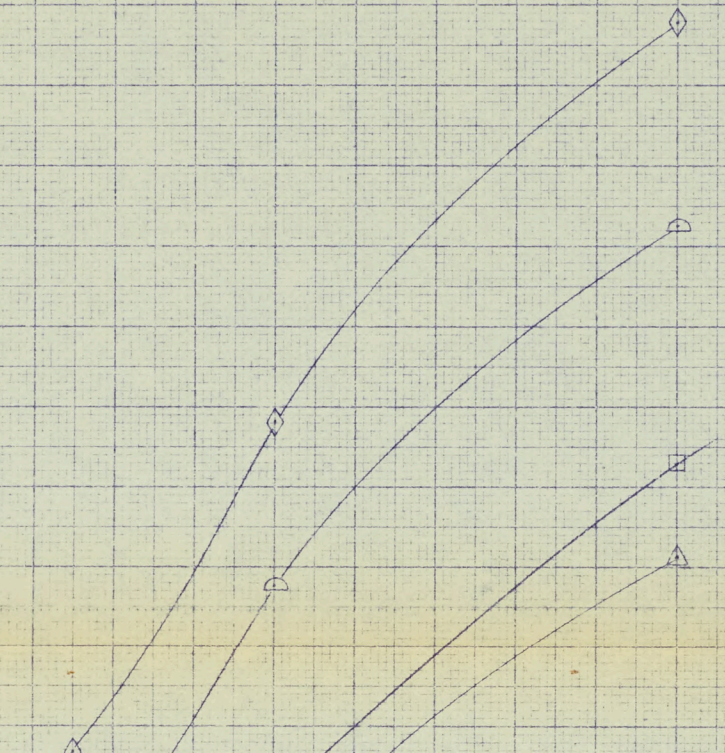
$C_{M_{fr}}$ vs δ_R

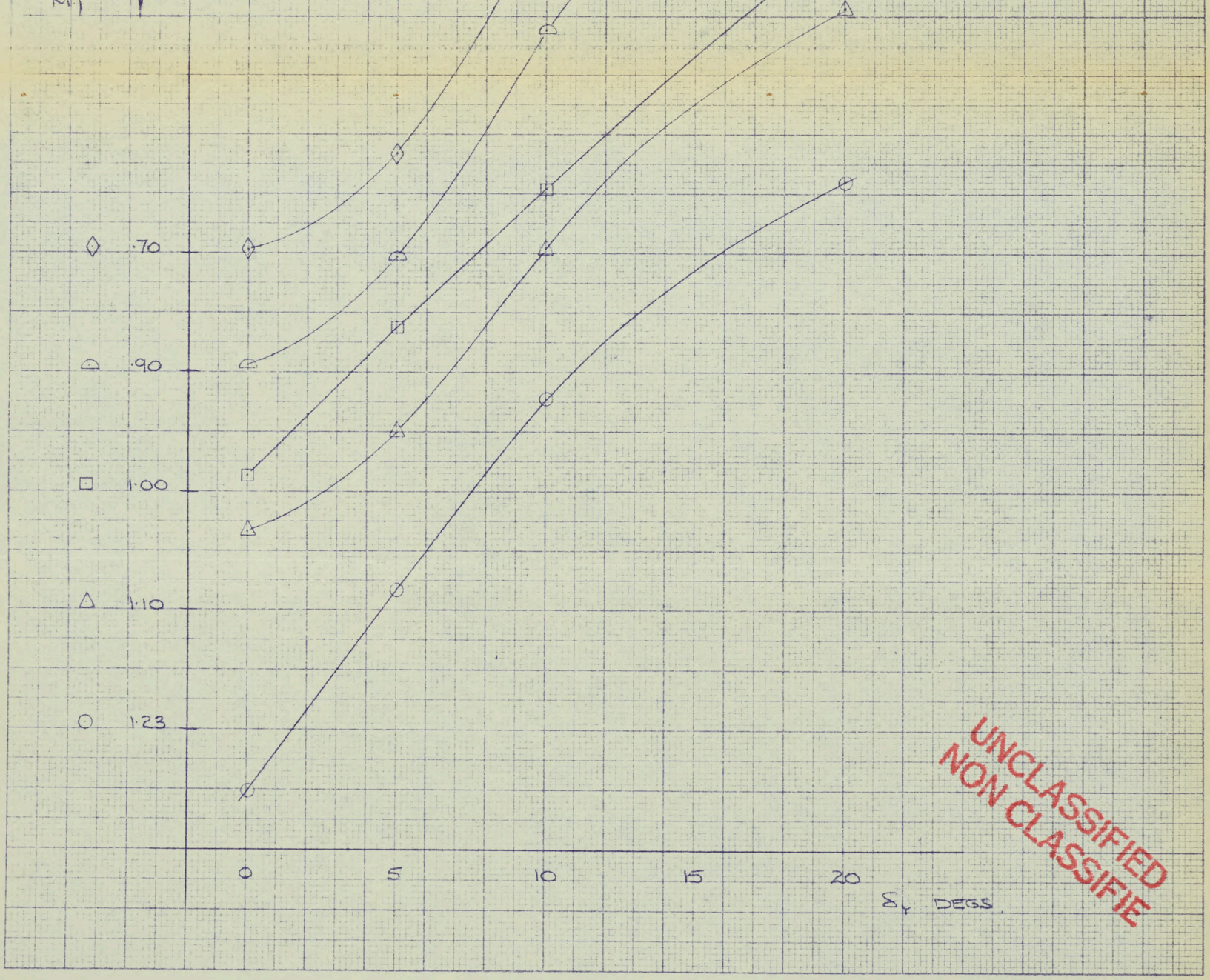
$\alpha = 6°$ $\psi = 0°$

$C_{M_{fr}}$

SCALE OF $C_{M_{fr}}$ .02

(ORIGIN AT M)





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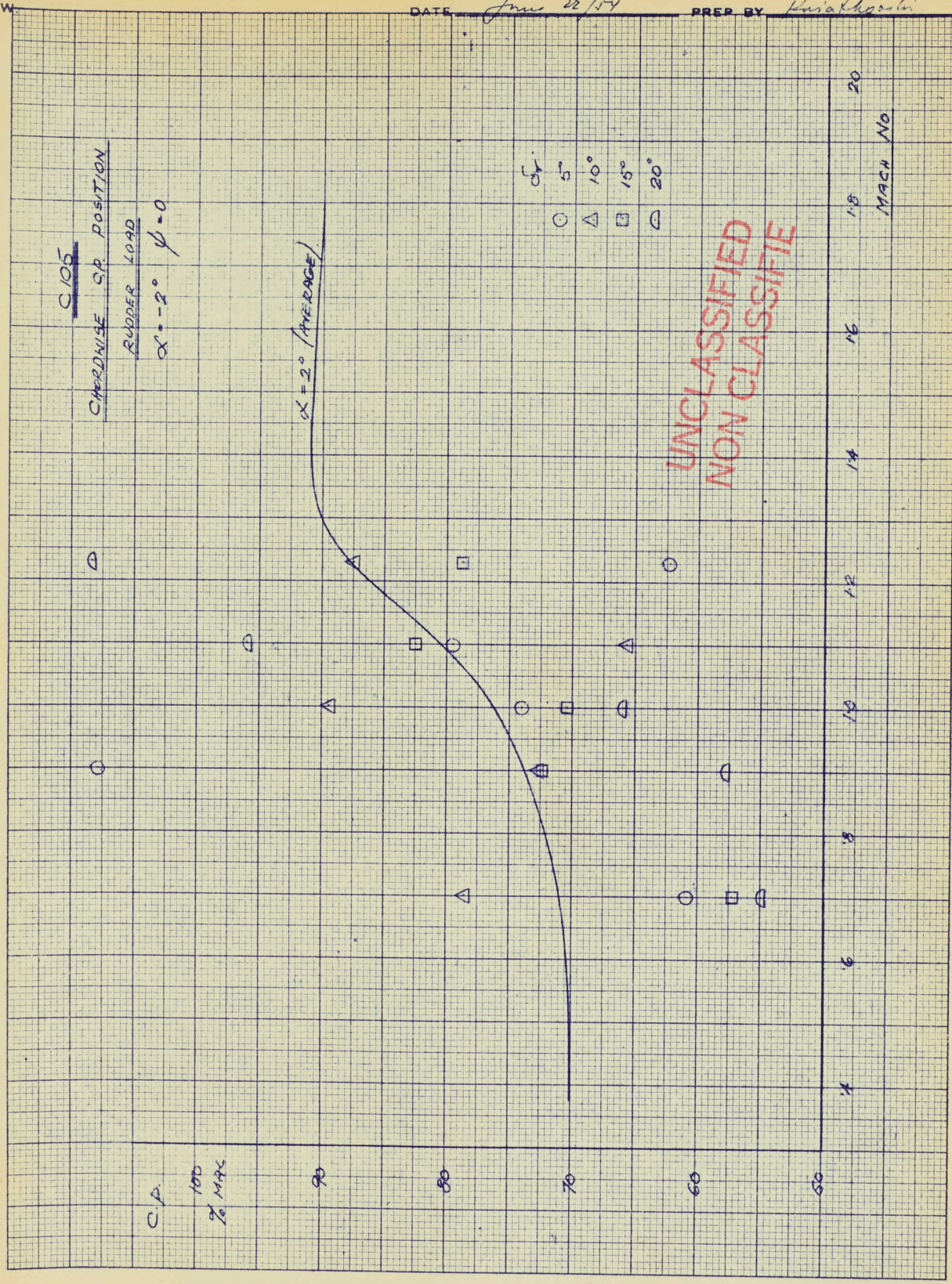
AIRCRAFT C105 COMPONENT SHEET No. 156. REPORT No. P/W.T./20

A.U.W. DATE June 22/54 PREP BY Kusakhgoshi



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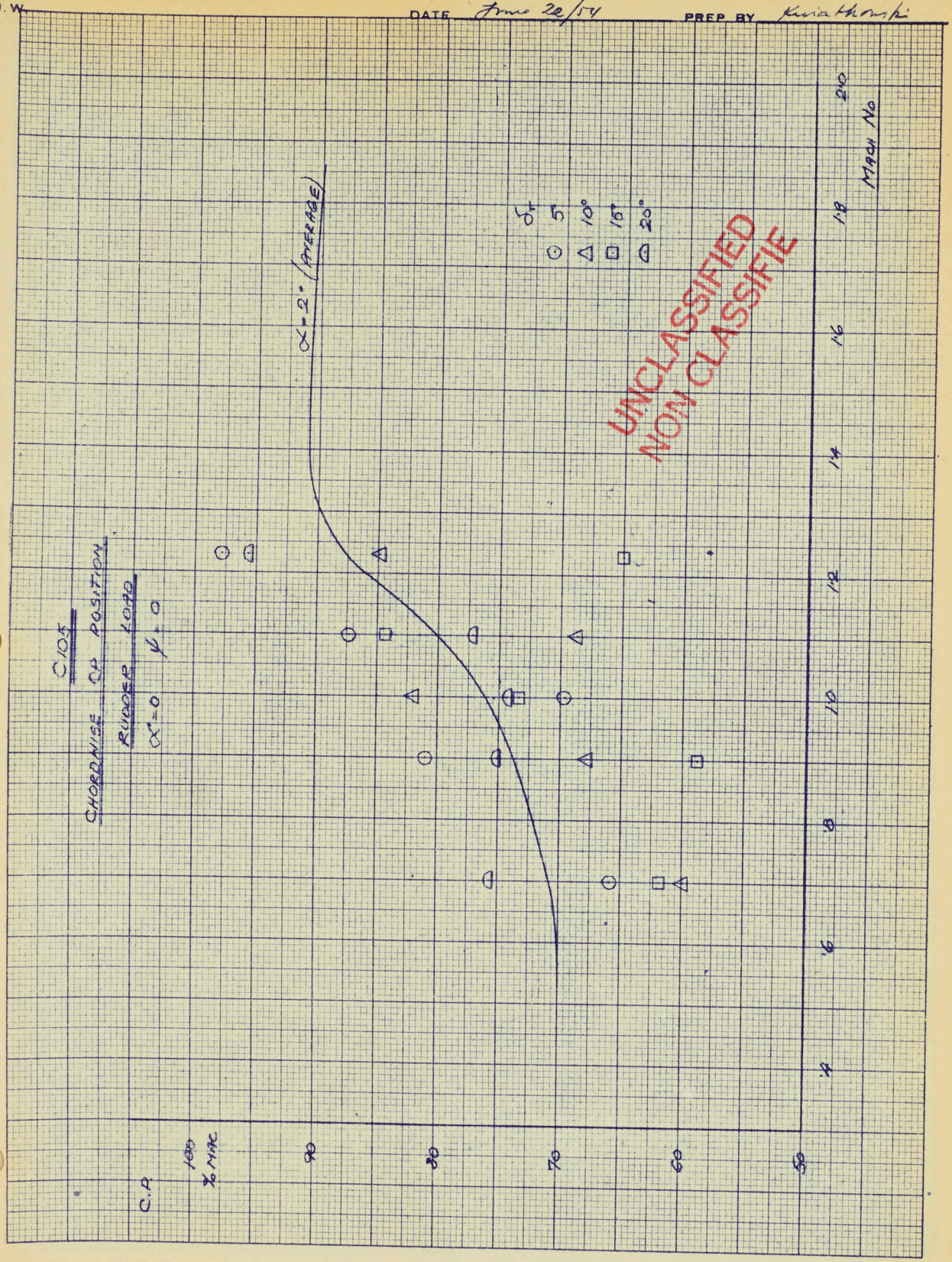
359-12 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

AIRCRAFT C105 COMPONENT SHEET No. 157 REPORT No. P/W.T./20

A.U.W. DATE June 22/54 PREP. BY Kwiatkowski



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

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A. U. W.

COMPONENT

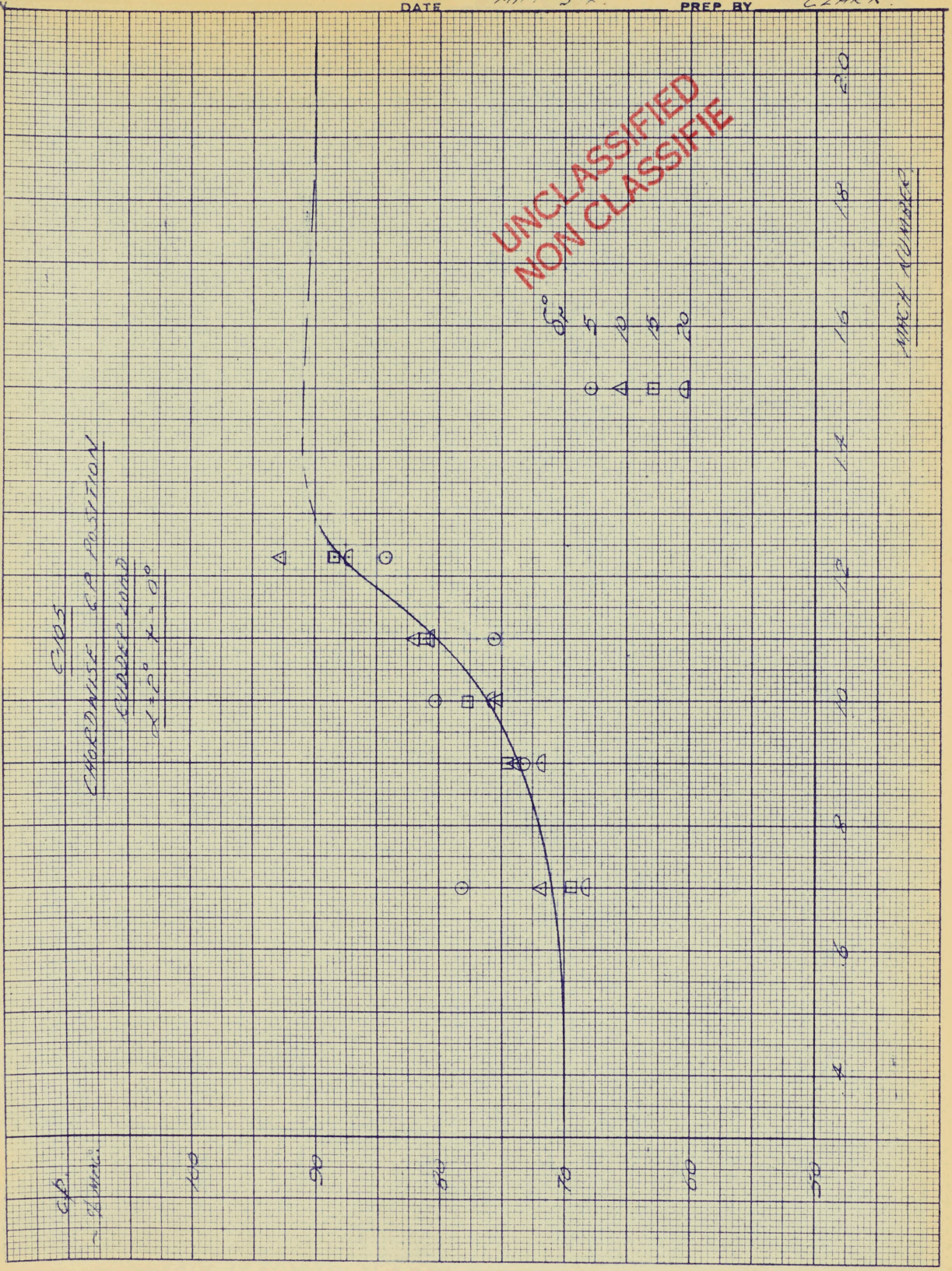
SHEET No. 158.

REPORT No. Plw. T 120.

DATE MAY 54.

PREP. BY CLARK.

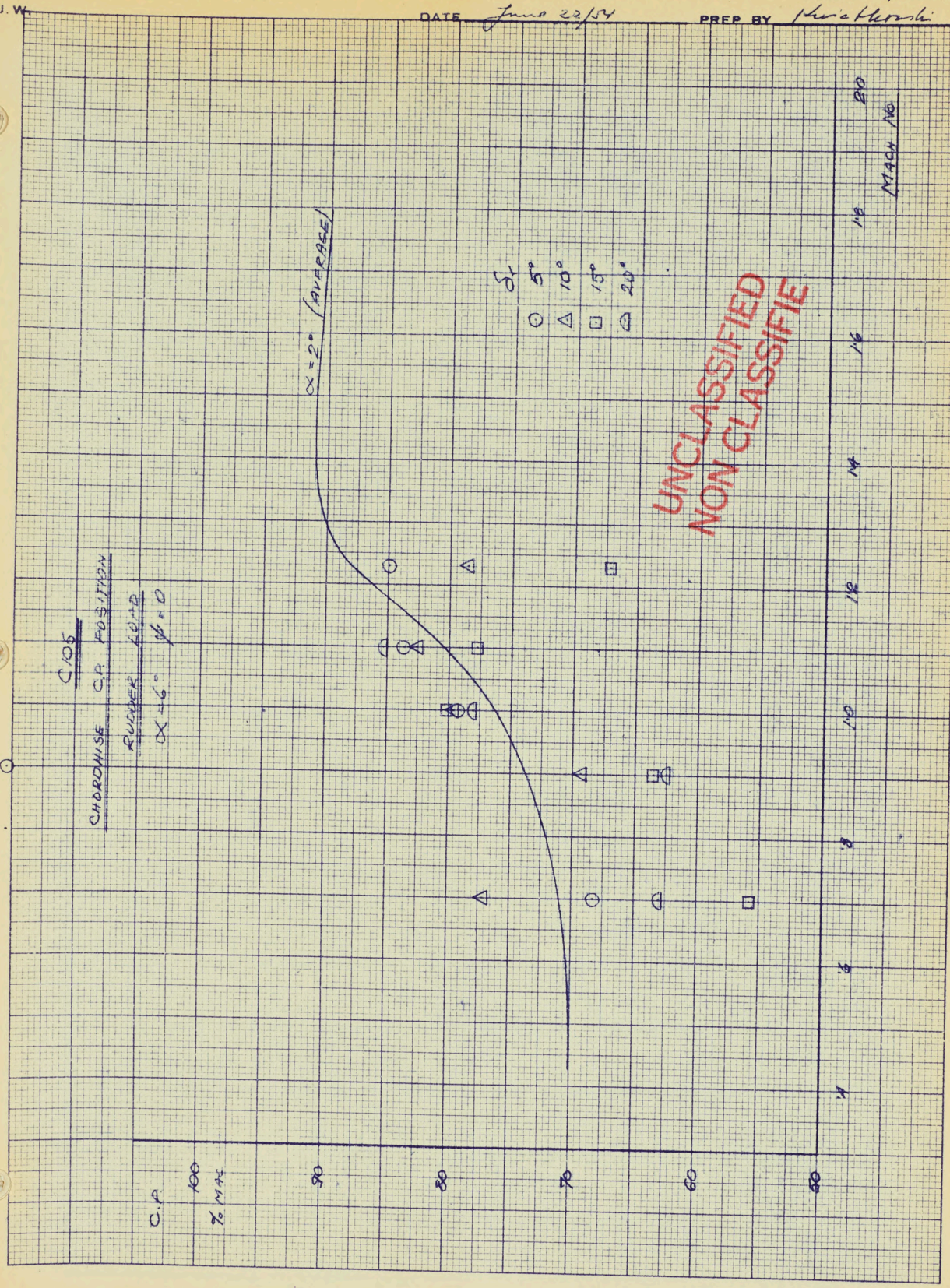
UNCLASSIFIED
NON CLASSIFIE



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

FORM 1746

AIRCRAFT C105 COMPONENT SHEET No. 1.5.9 REPORT No. P/W.T. 120
A. U. W. DATE June 22/54 PREP BY Hirschhorn



UNCLASSIFIED
NON CLASSIFIE

359-12 KEUFFEL & ESSER CO.
10 x 10 to the ½ inch, 5th lines accntd.
MADE IN U.S.A.

FORM 1746

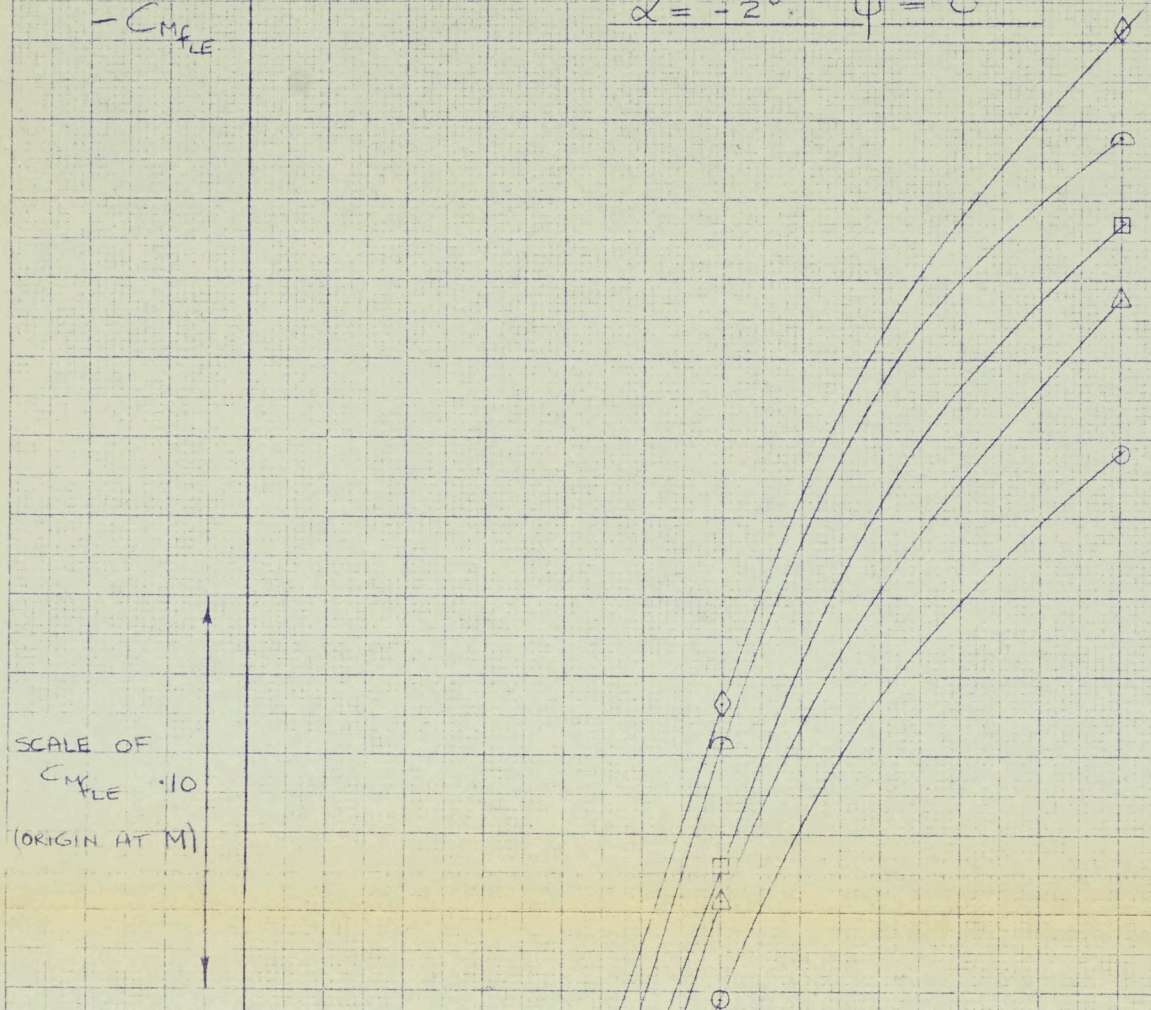
359-11L KEUFFEL & ESSER CO.
10 X 10 to the ½ inch 5th lines accented
SAFE-T-E

C-105

$C_{M_{f_{LE}}}$ vs δ_f

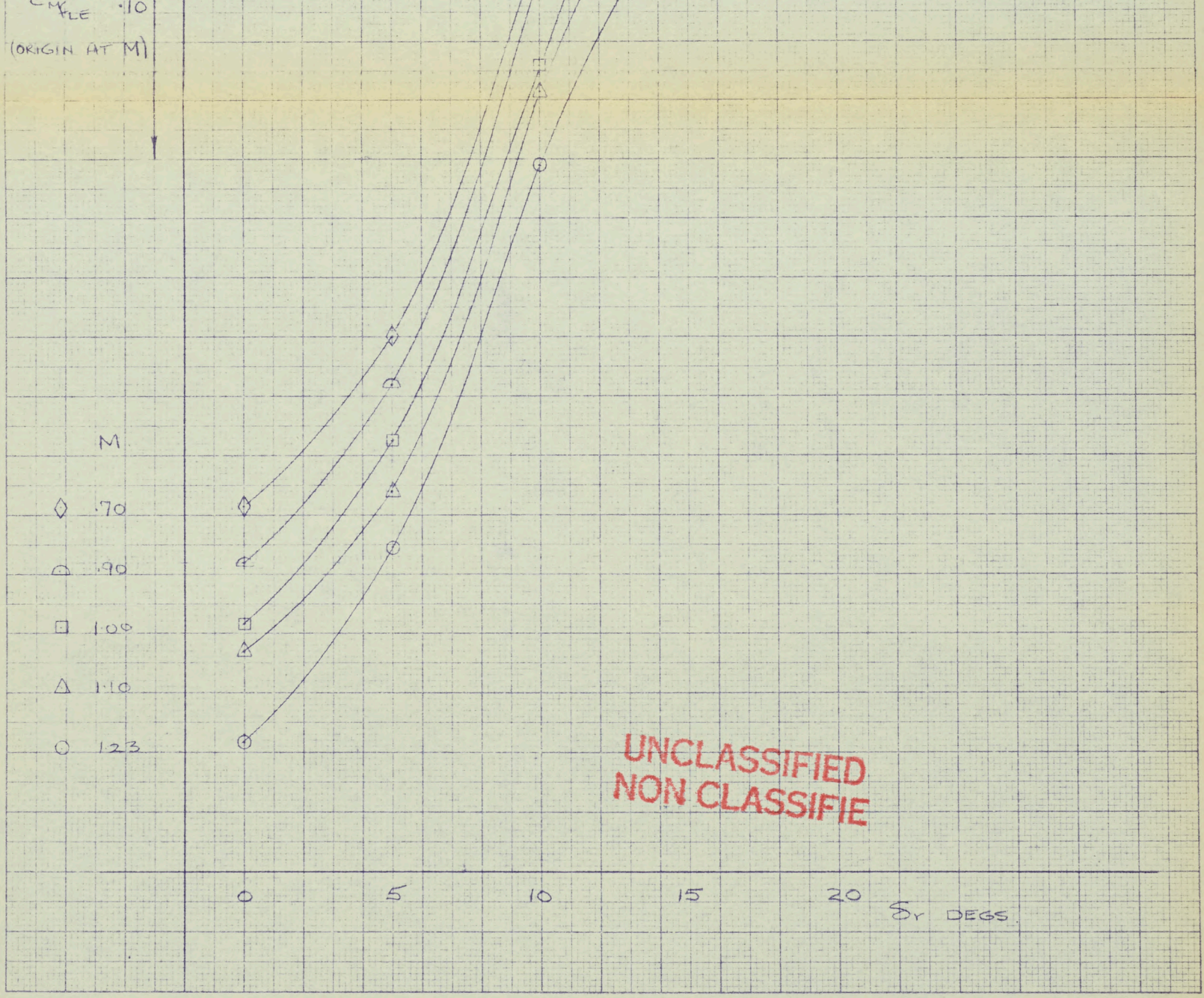
$\alpha = -2°$ $\psi = 0°$

$-C_{M_{f_{LE}}}$



SCALE OF $C_{M_{f_{LE}}}$ ·10

(ORIGIN AT M)



UNCLASSIFIED
NON CLASSIFIE

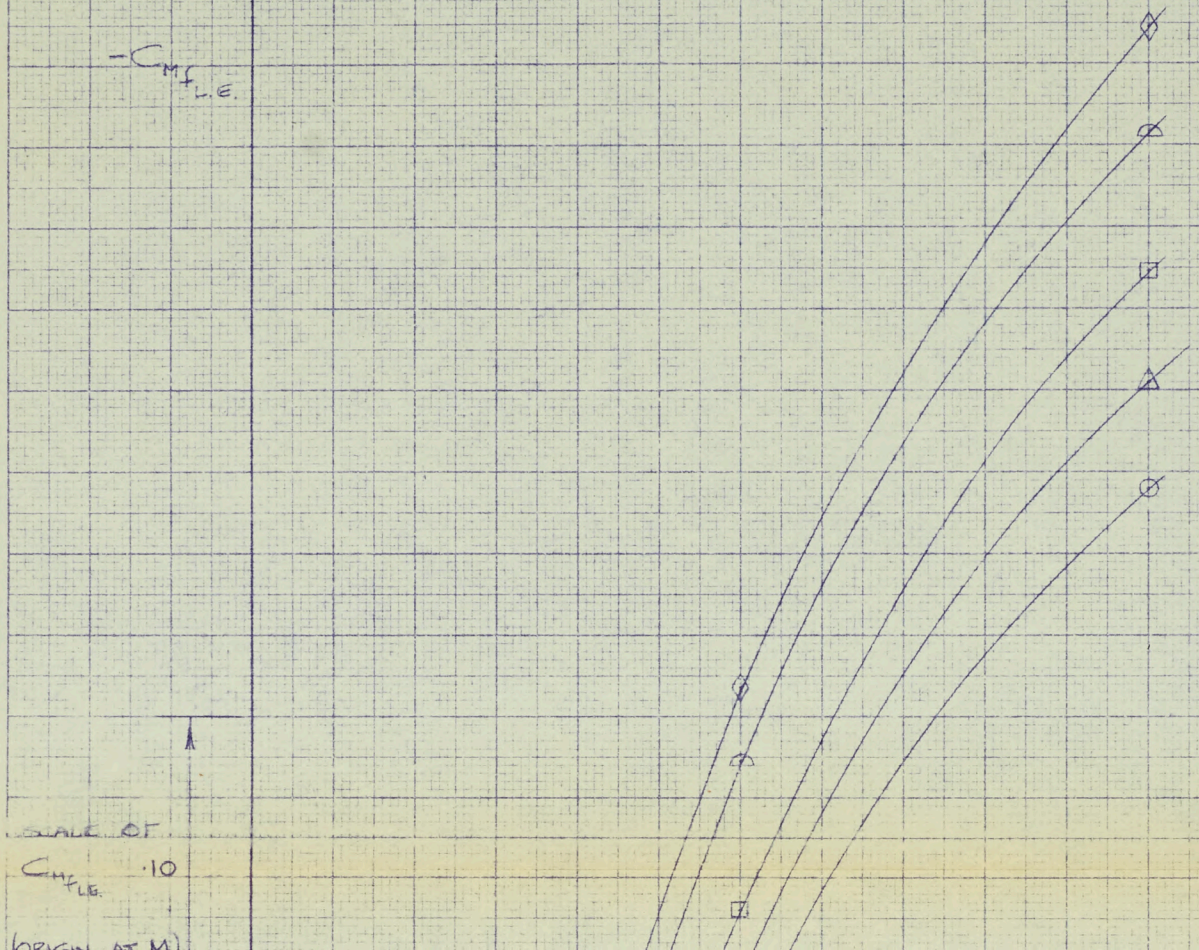
7/11/7 120.
121

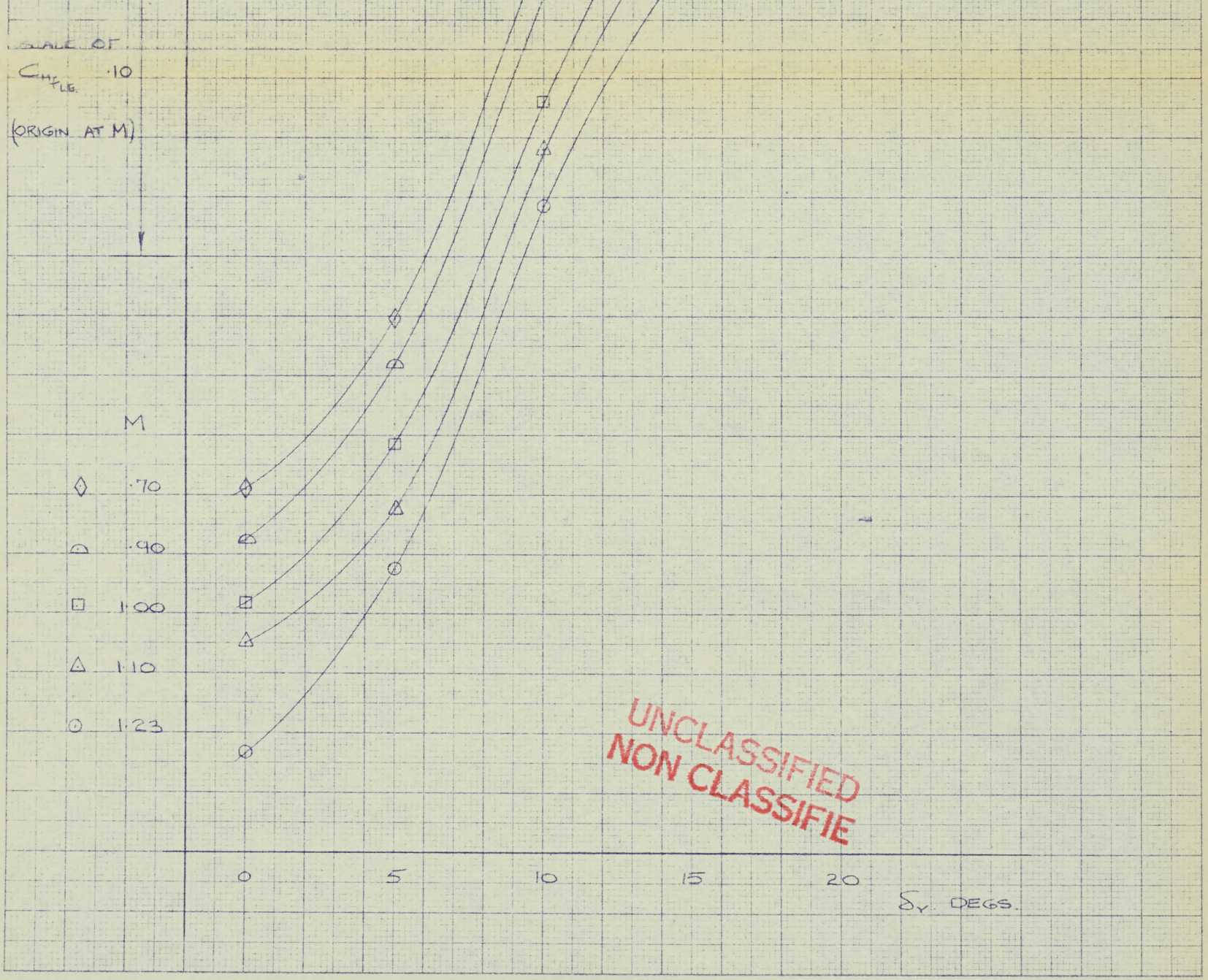
359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.

C-105

$C_{M_{f_{L.E.}}}$ vs δ_f

$\alpha = 0°$ $\psi = 0°$





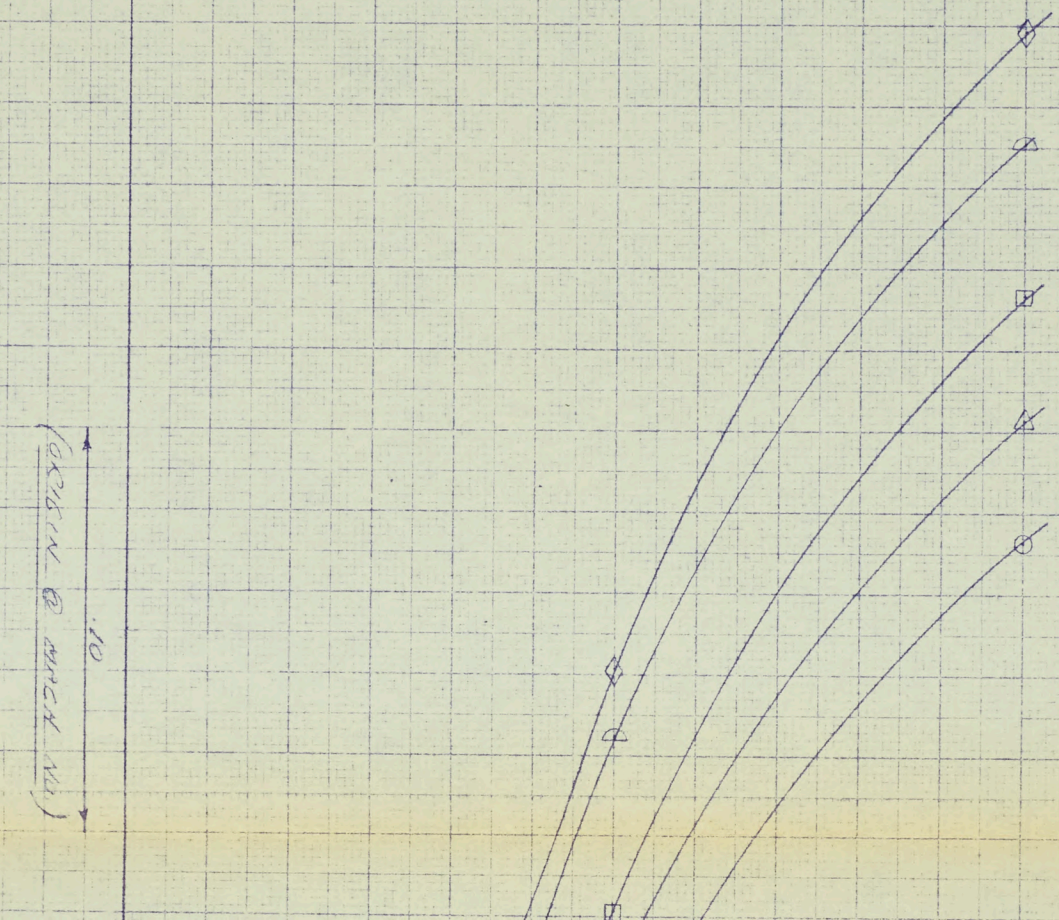
UNCLASSIFIED
NON CLASSIFIE

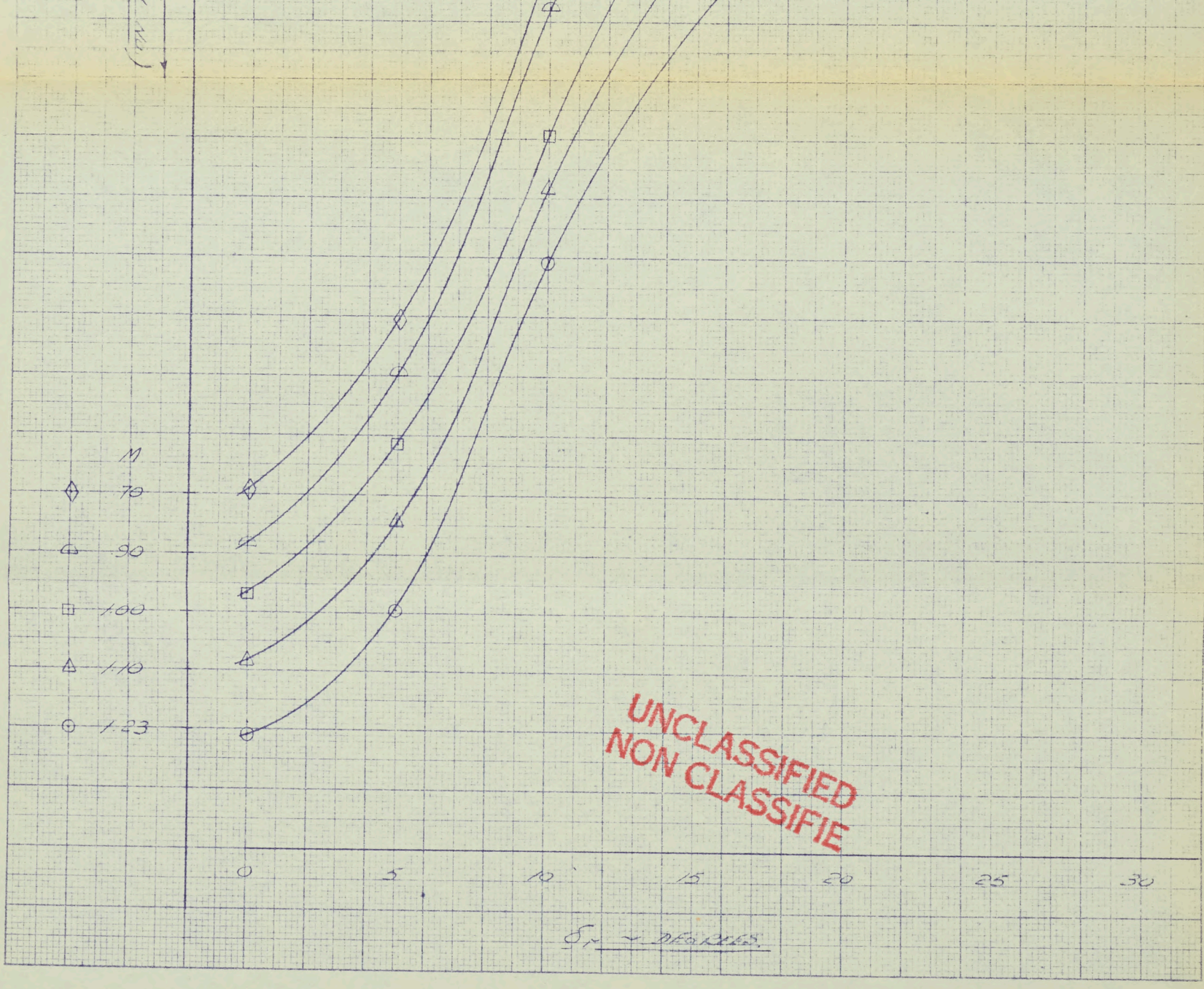
359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U. S. A.

C_{105}

$C_{N_{F.L.E.}}$ vs $\delta_{F.L.}$

$\alpha = 2°$ $\psi = 0$





UNCLASSIFIED
NON CLASSIFIE

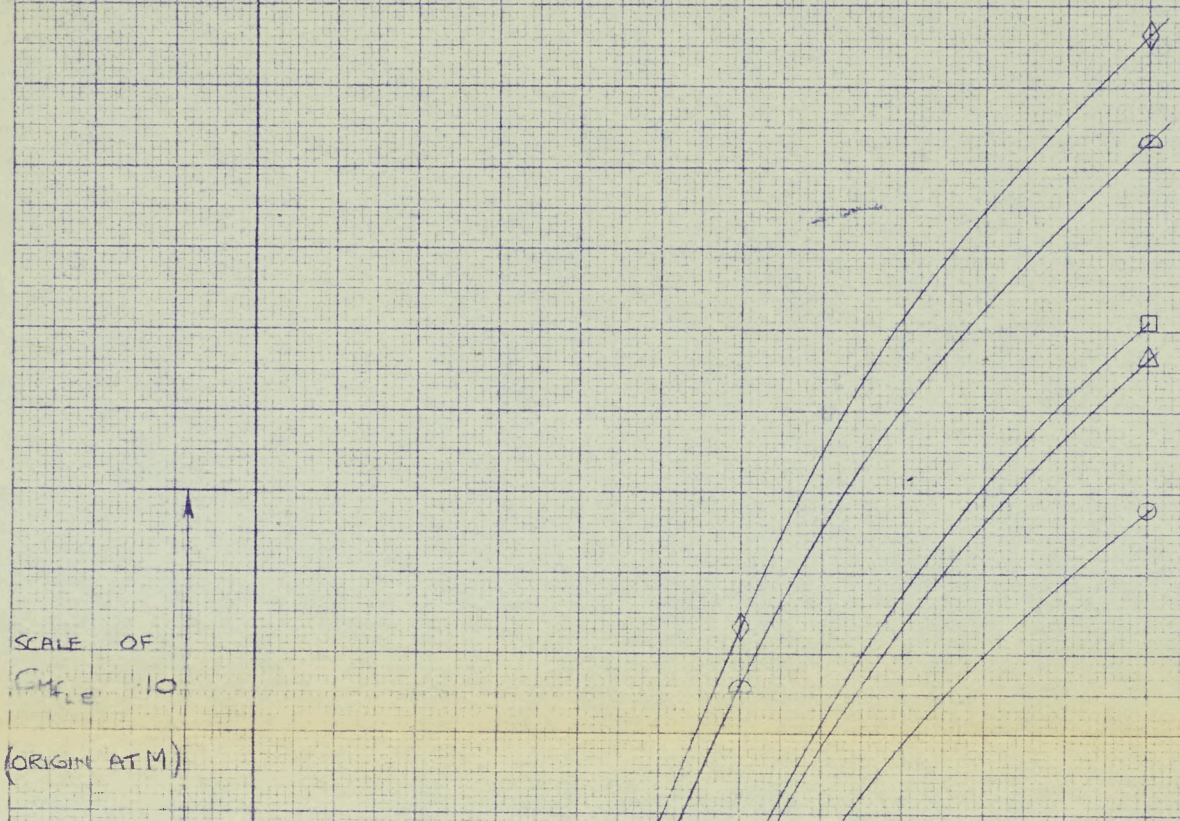
359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th lines accented.
MADE IN U. S. A.

C-105

$C_{M_{F_{L.E.}}}$ vs δ_r

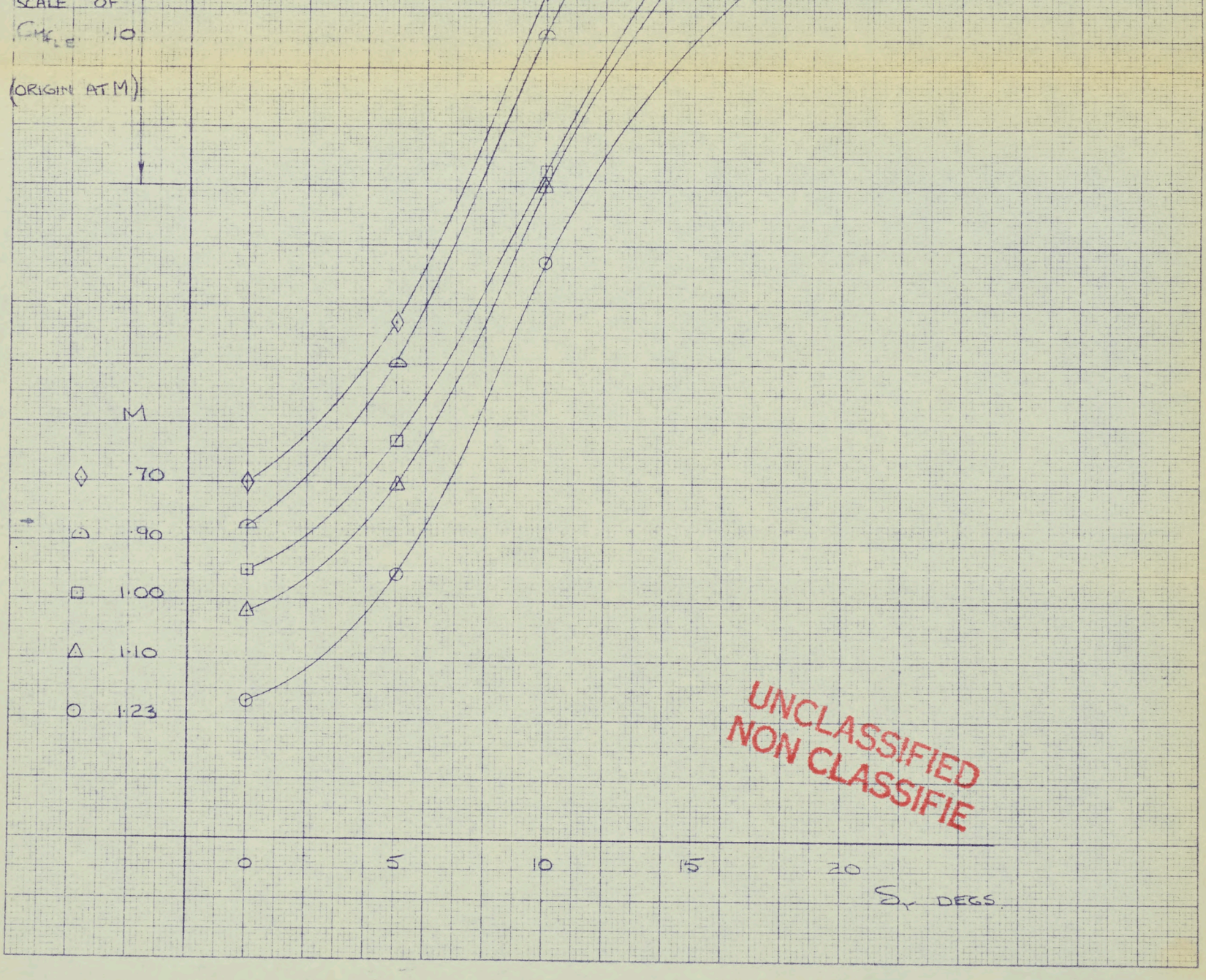
$\alpha = -6°$ $\psi = 0°$

$-C_{M_{F_{L.E.}}}$



SCALE OF $C_{M_{F_{L.E.}}}$ 10

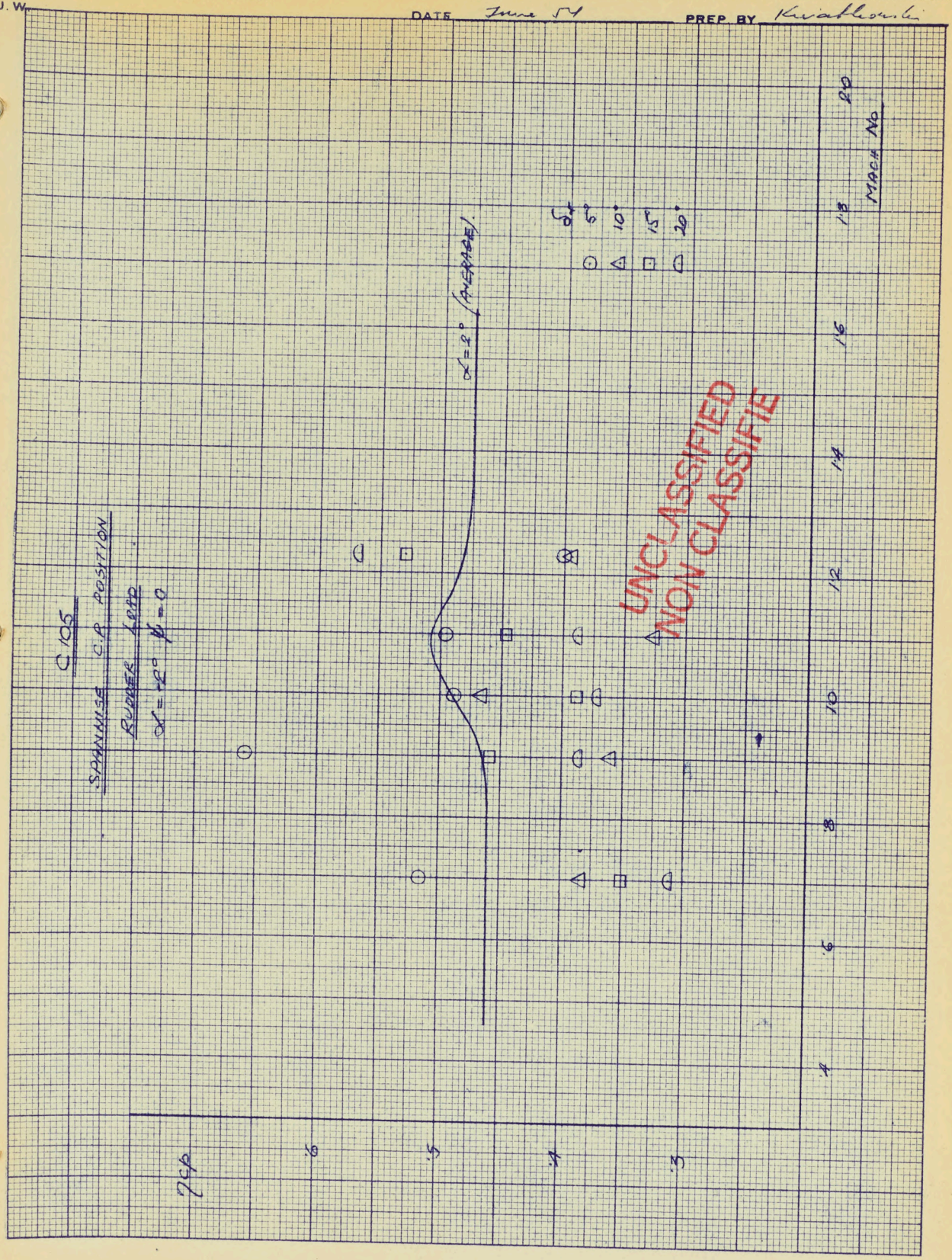
(ORIGIN AT M)



UNCLASSIFIED
NON CLASSIFIE

AIRCRAFT C105 COMPONENT SHEET No. 166 REPORT No. P/W.T./20.

A. U. W. DATE June 54 PREP BY Kwiatkowski

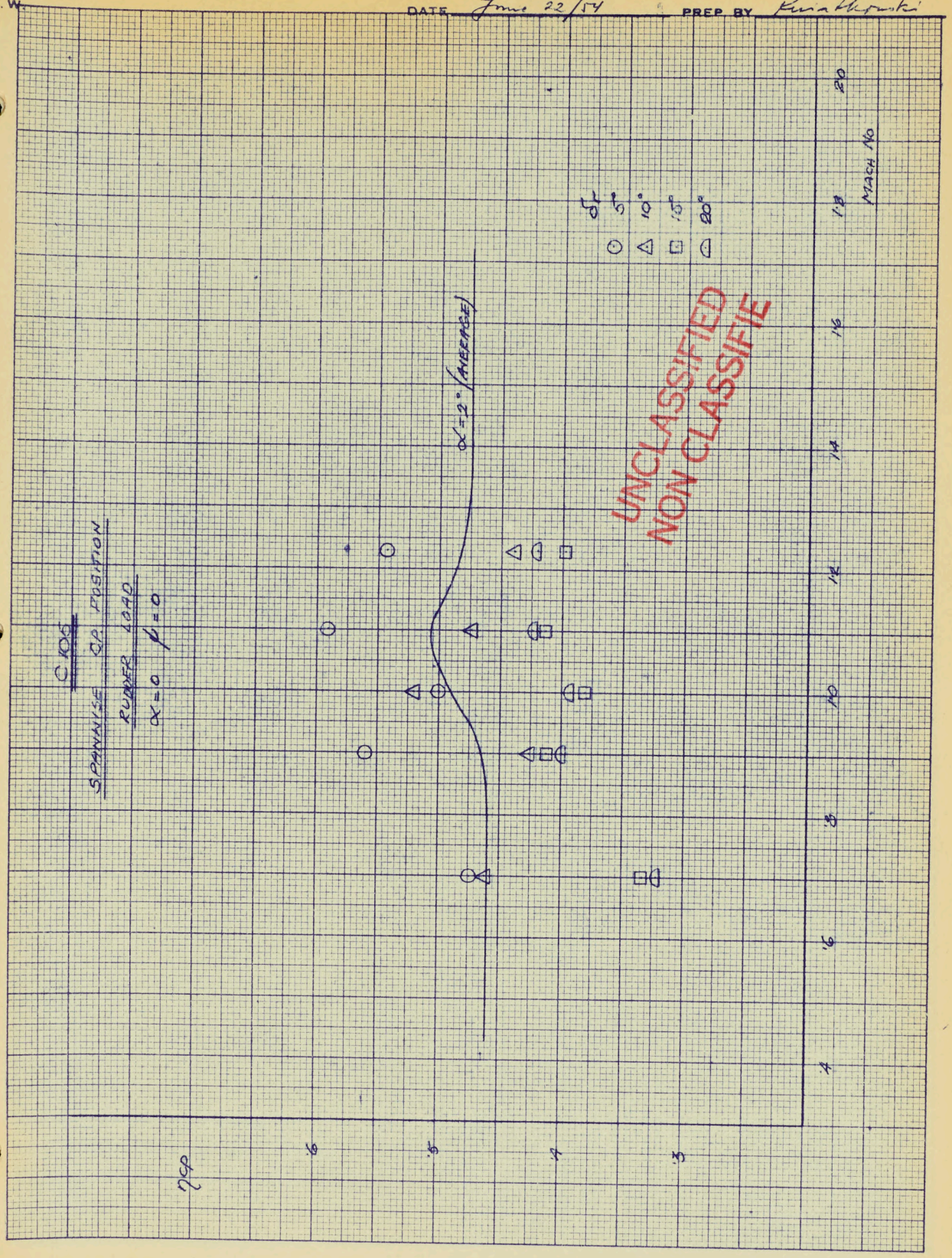


UNCLASSIFIED
NON CLASSIFIE

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

AIRCRAFT C105 COMPONENT SHEET No. 1.6.7. REPORT No. P/N.T /20

A. U. W. DATE June 22/54 PREP BY Kwiatkowski



UNCLASSIFIED
NON CLASSIFIE

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

AIRCRAFT
A.U.W.

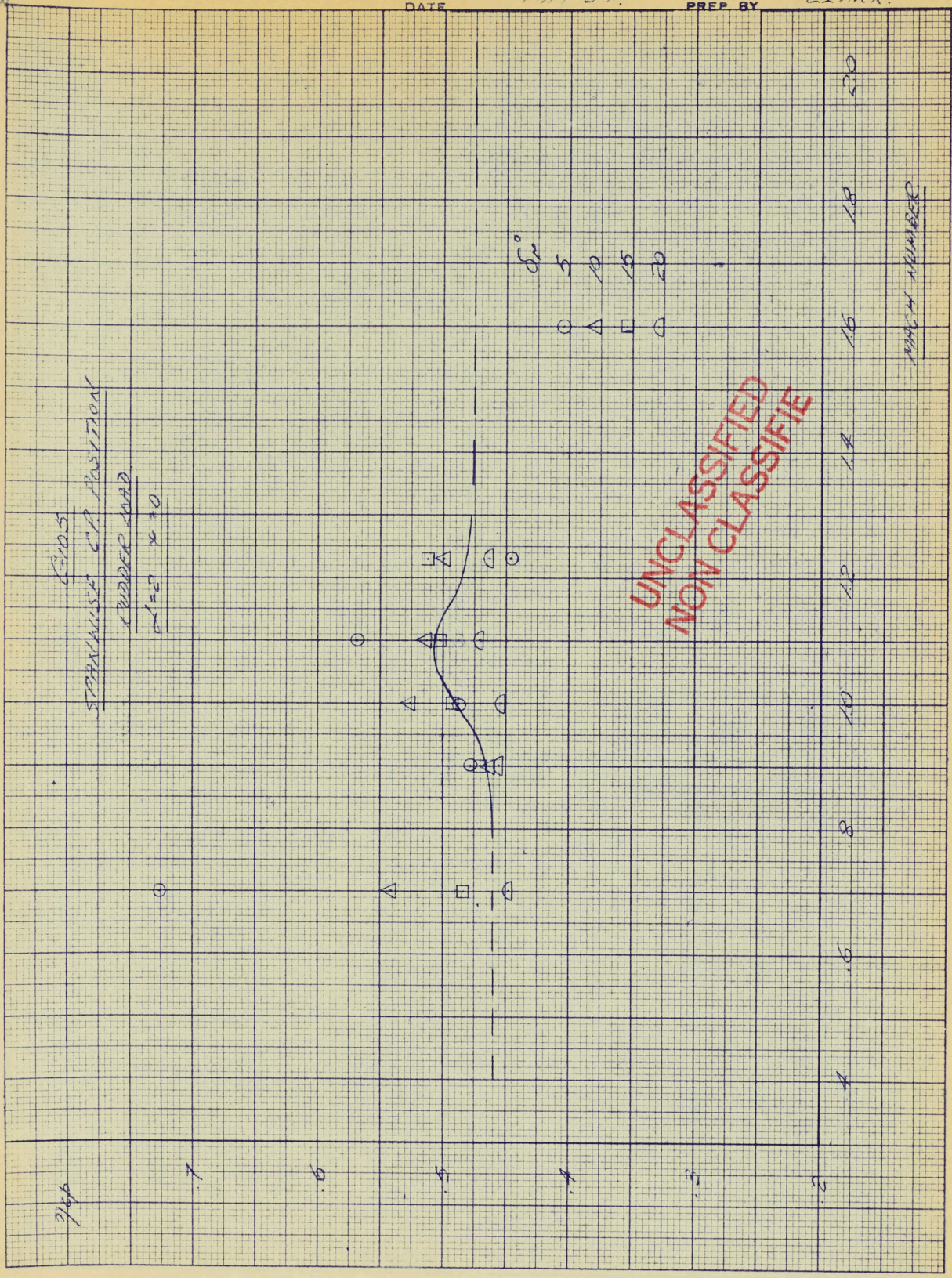
COMPONENT

SHEET No. 16.8.

DATE NOV 54.

REPORT No. NT/20

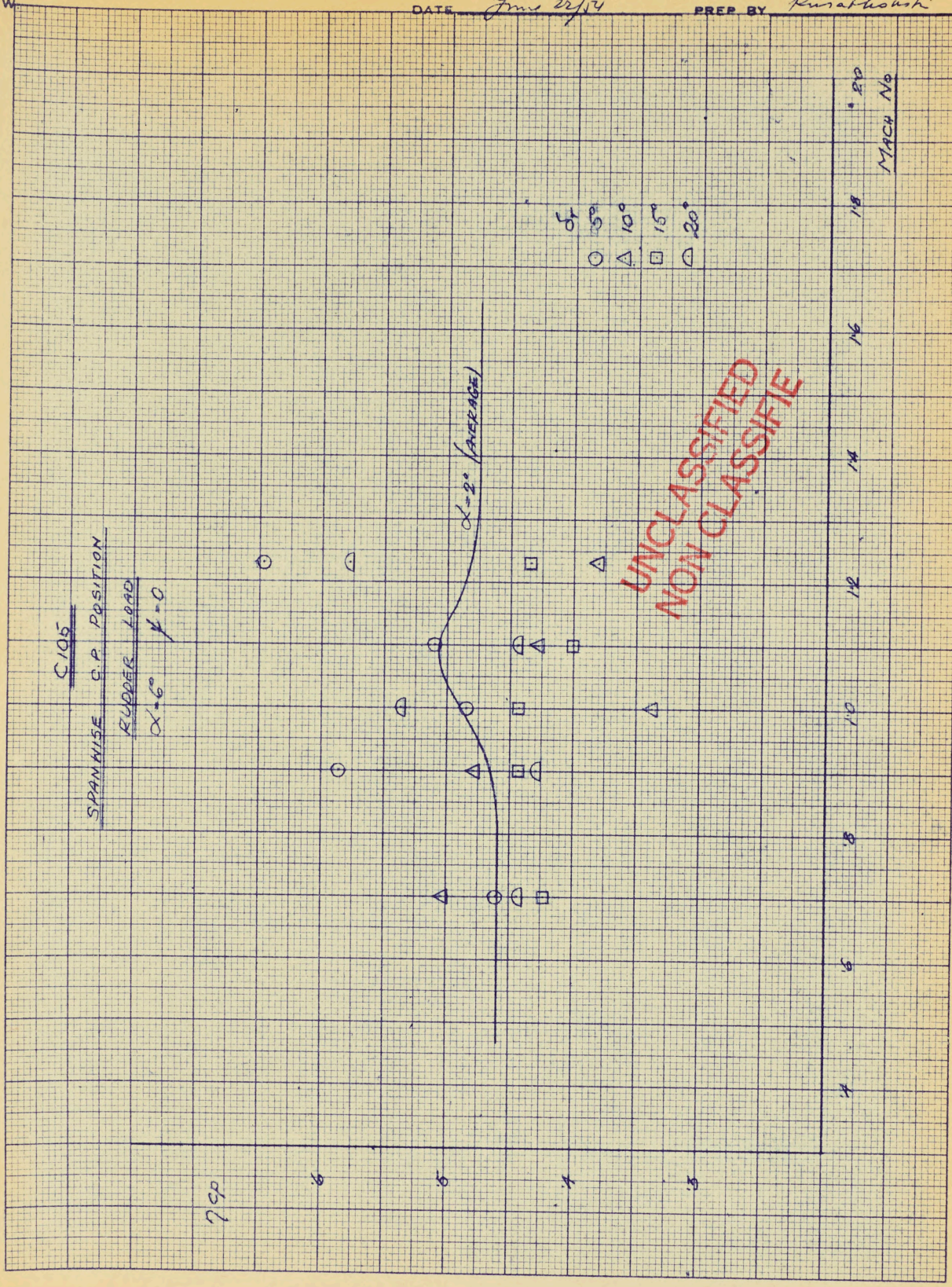
PREP BY CLARK.



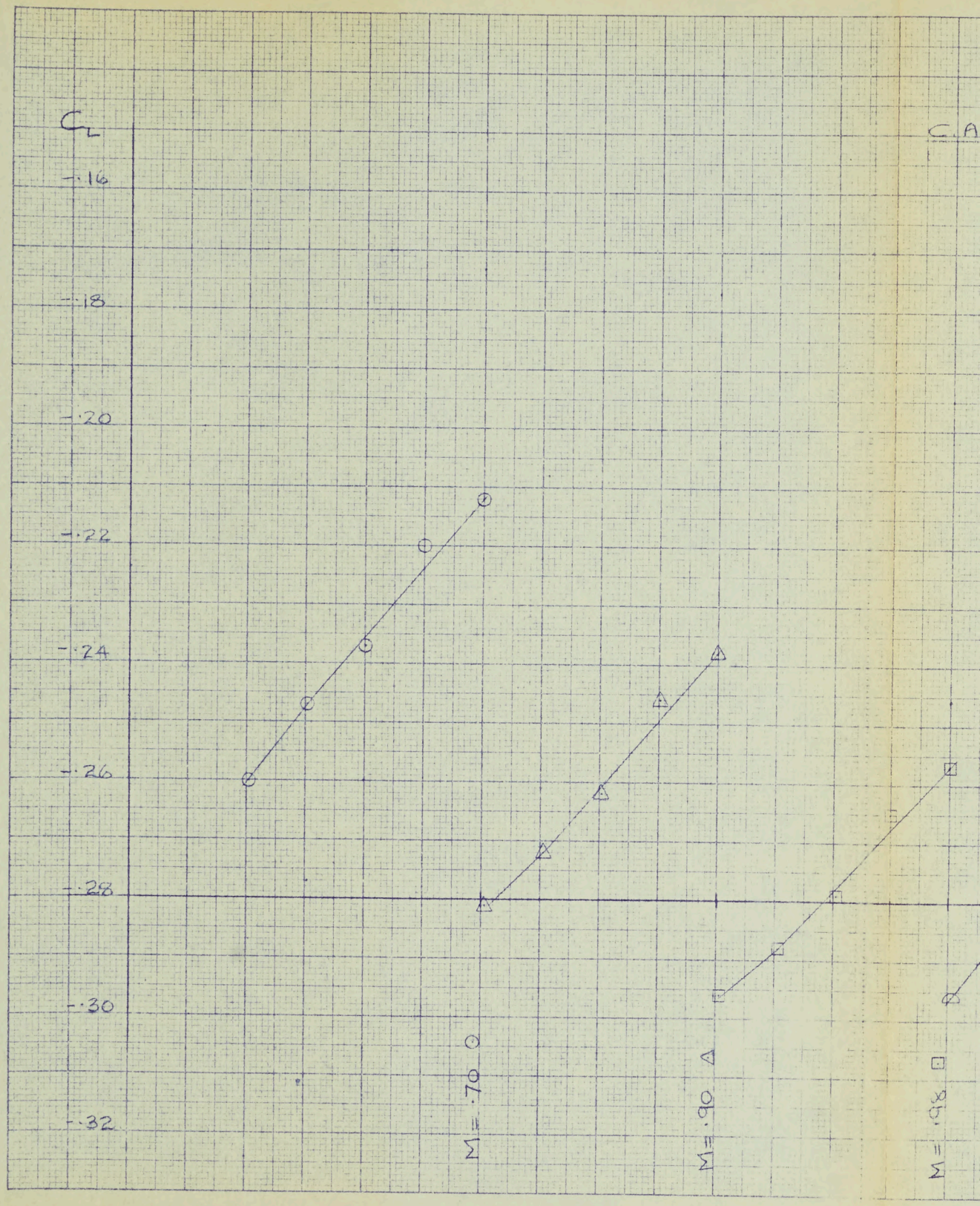
KEUFFEL & ESSER CO.
10 × 10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

AIRCRAFT C105 COMPONENT SHEET NO. 1.6.9 REPORT NO. P/W.T./20

A. U. W. DATE June 22/54 PREP. BY Kuriakhoshi



159-12 KEUFFEL & ESSER CO.
10 X 10 to the ½ inch, 5th lines accented.
MADE IN U.S.A.


C_L
-.16
-.18
-.20
-.22
-.24
-.26
-.28
-.30
-.32
C.A
M = .70 ○
M = .90 △
M = .98 □

C-105

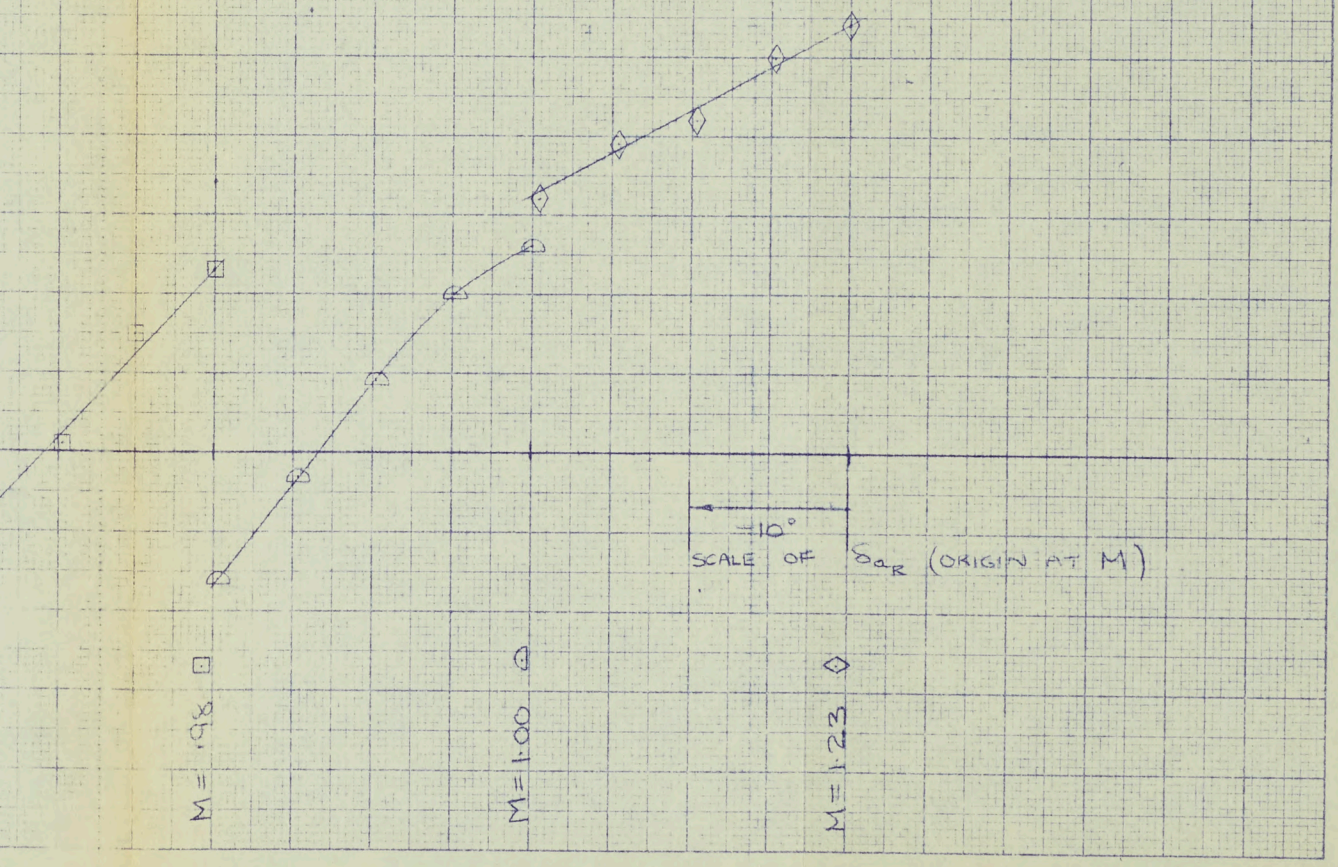
C.A.L. WIND TUNNEL TESTS.

C_L vs. $\delta\alpha_R$

($\delta\alpha_L = 0°$)

$\alpha = -4°$

UNCLASSIFIED
NON CLASSIFIE

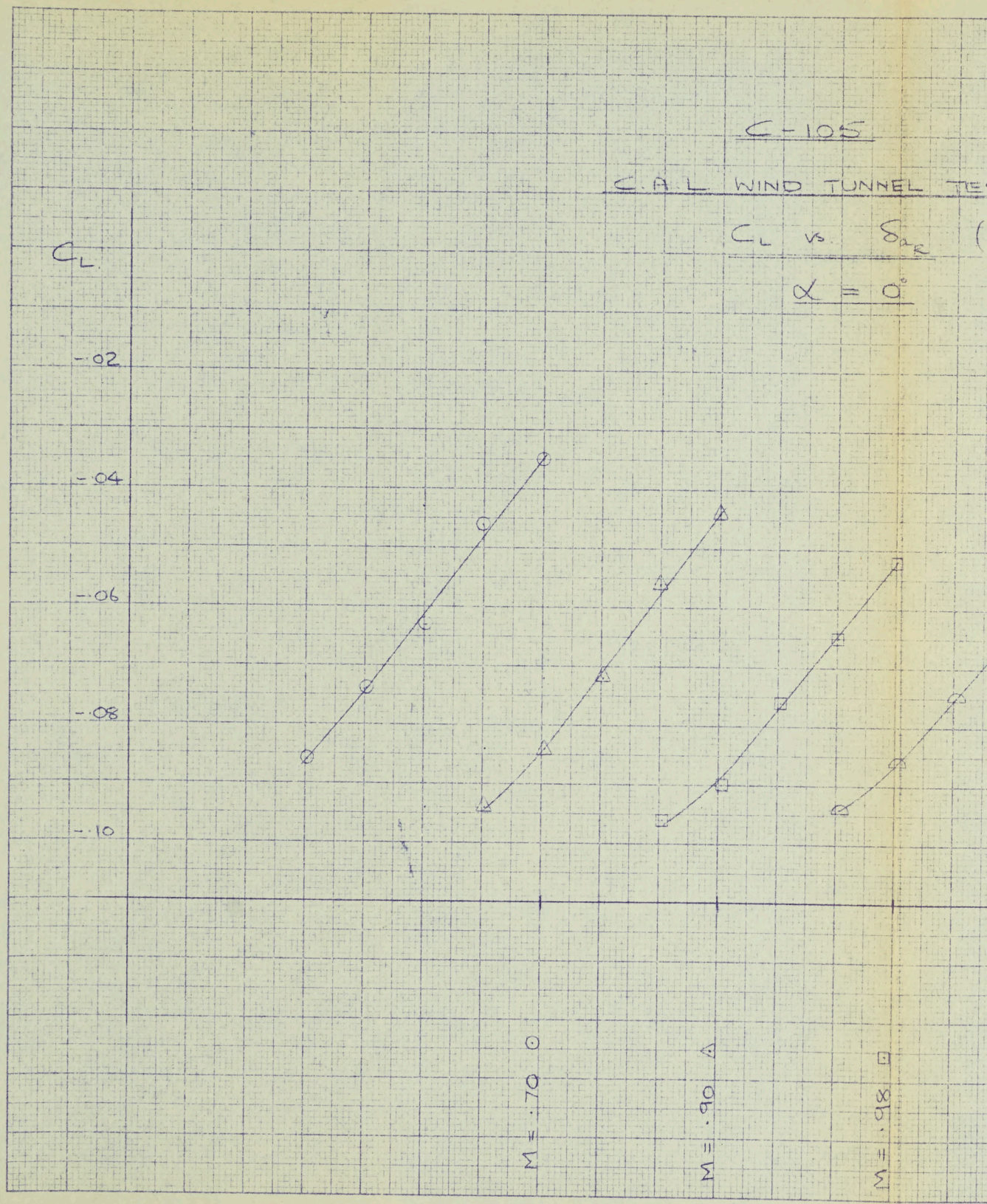


C-105

C.A.L WIND TUNNEL TE

C_L vs. δ_{a_R} (

$\alpha = 0°$



359-111 KEUFFEL & ESSER CO.
10 X 10 to the inch, 5th line accented.
MADE IN U.S.A.

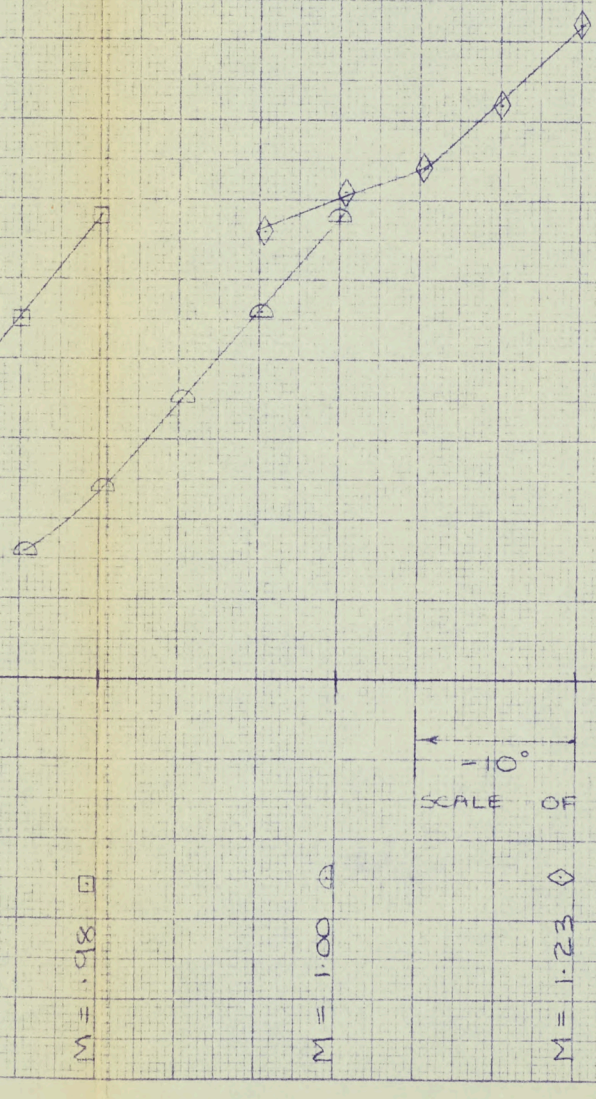
~~Stewart~~ 11 V 54

05

TUNNEL TESTS.

δ_{a_R} ($\delta_{a_L} = 0°$)

$= 0°$



$-10°$

SCALE OF δ_{a_R} (ORIGIN AT M).

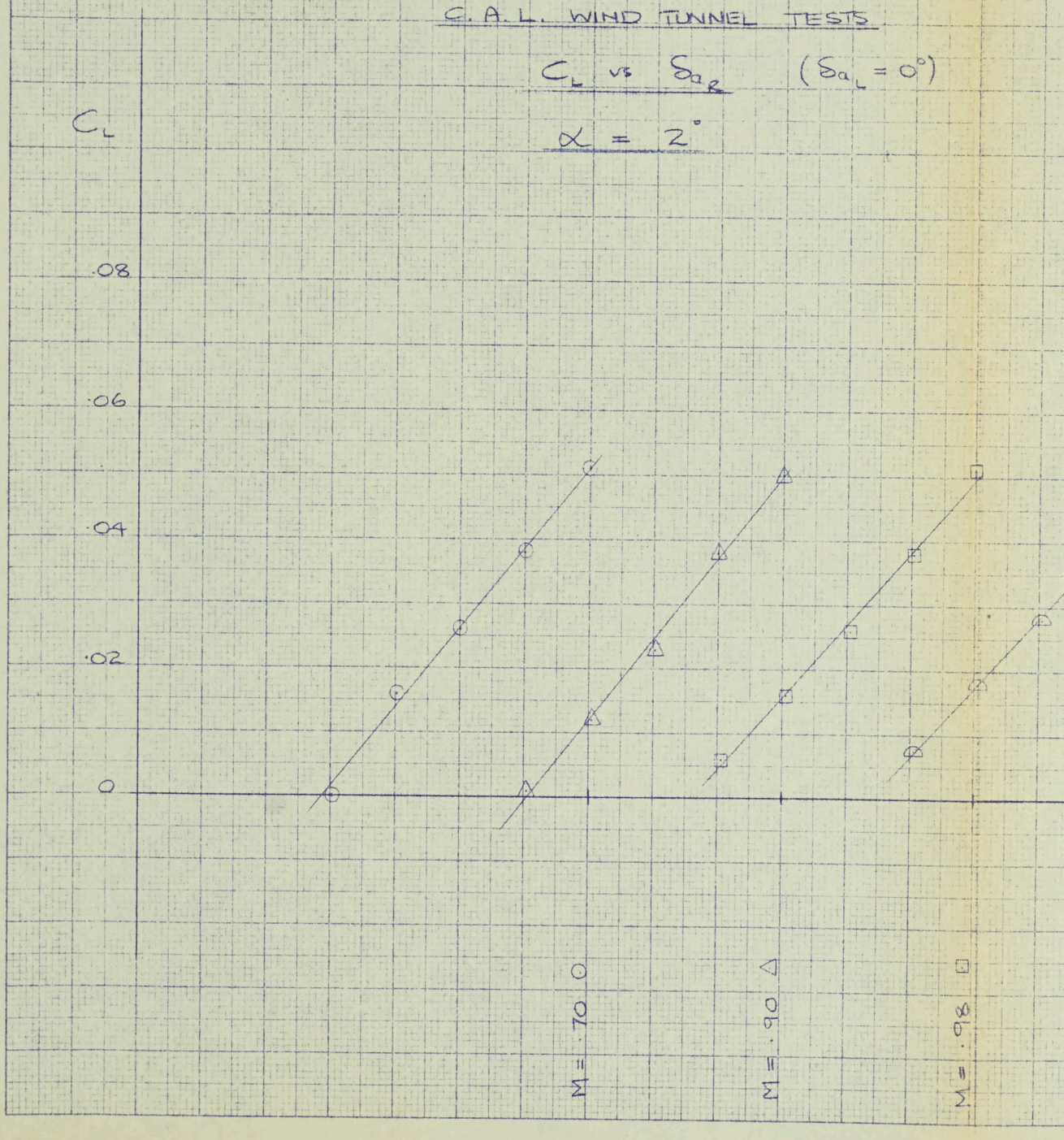
UNCLASSIFIED
NON CLASSIFIE

E - 105

C. A. L. WIND TUNNEL TESTS

C_L vs δ_{a_R} $(\delta_{a_L} = 0°)$

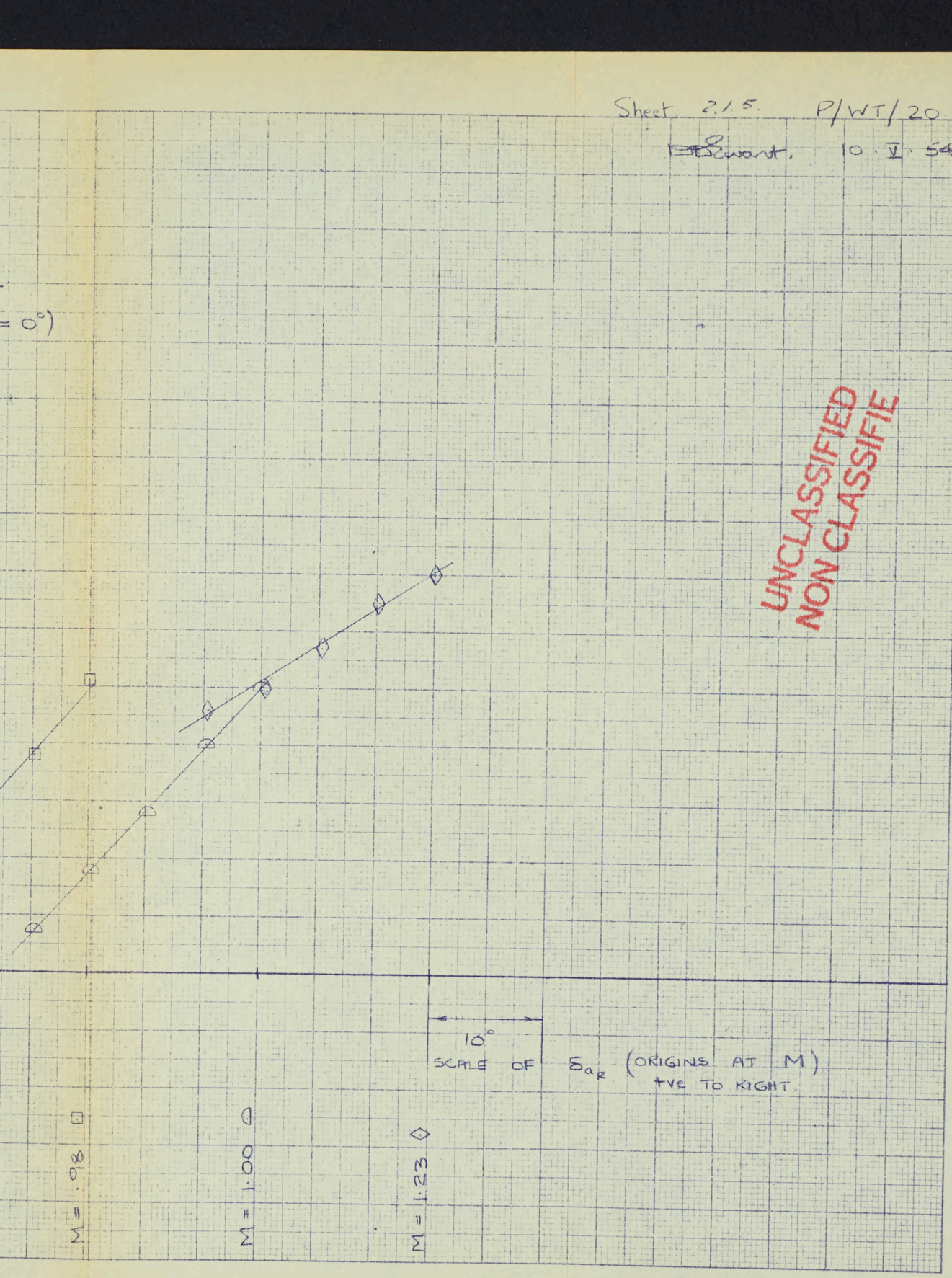
$\alpha = 2°$



359-11L KEUFFEL & ESSER CO.
MADE IN U. S. A.

Swart. 10. V. 54

UNCLASSIFIED
NON CLASSIFIE



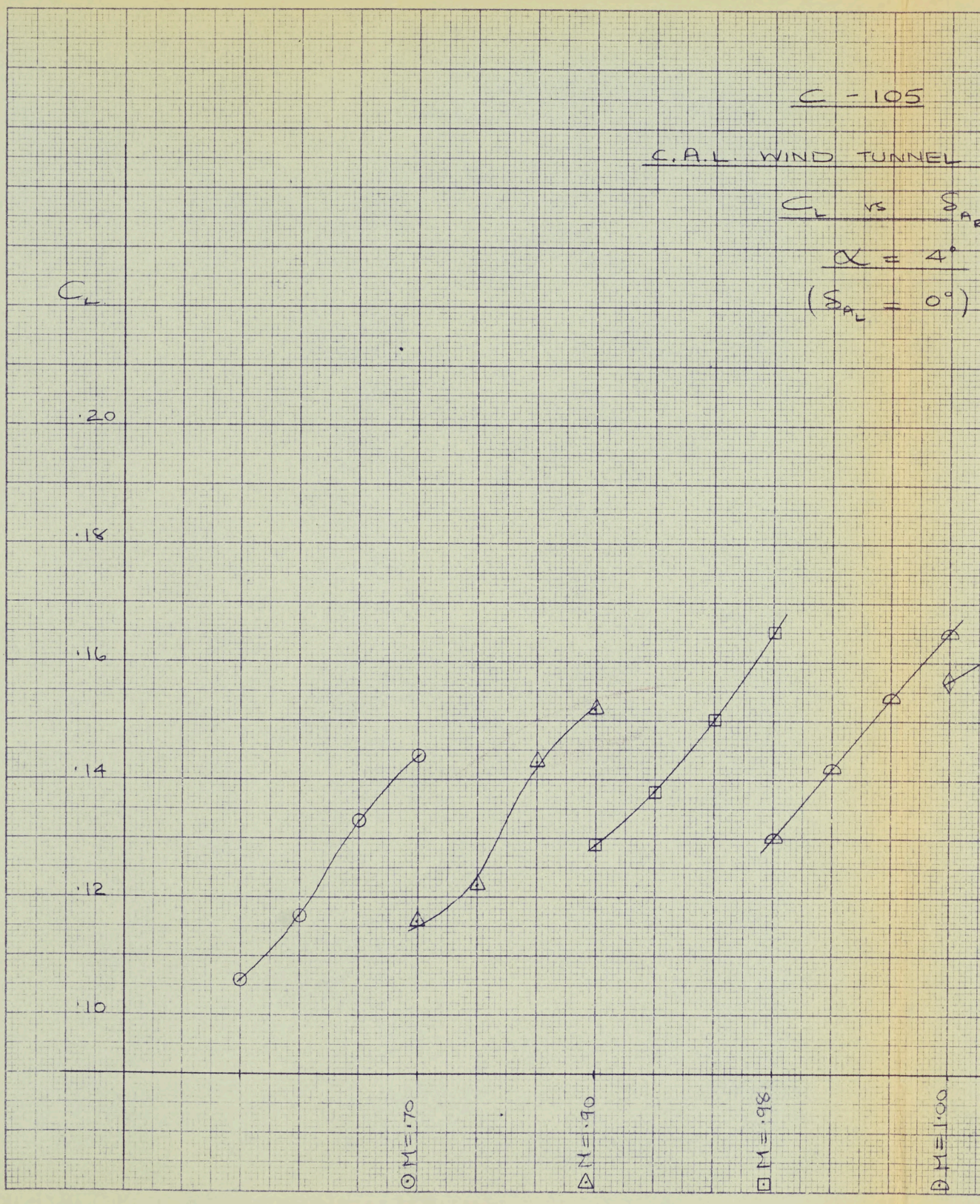
C - 105

C.A.L. WIND TUNNEL

C_L vs δ_{A_R}

$\alpha = 4°$

$(\delta_{A_L} = 0°)$



10 X 10 TO THE 1/2 INCH 359-11L
KEUFFEL & ESSER CO. MADE IN U.S.A.

P/WT/20 SHEET 2.1.5(a)
Nov. 54 L.S. Swant.

- 105

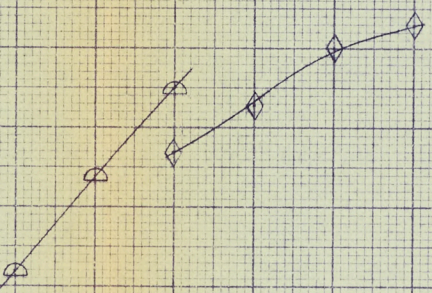
TUNNEL TESTS APRIL 54.

vs δ_{A_R}.

$\alpha = 4°$

($\delta_{A_L} = 0°$)

NOTE: δ_{A_R} UNCORRECTED FOR MEASURED VALUE OF ELASTICITY.



UNCLASSIFIED
NON CLASSIFIE

M=1·00

M=1·23

5° SCALE OF δ_{AR}
(ORIGIN AT M)

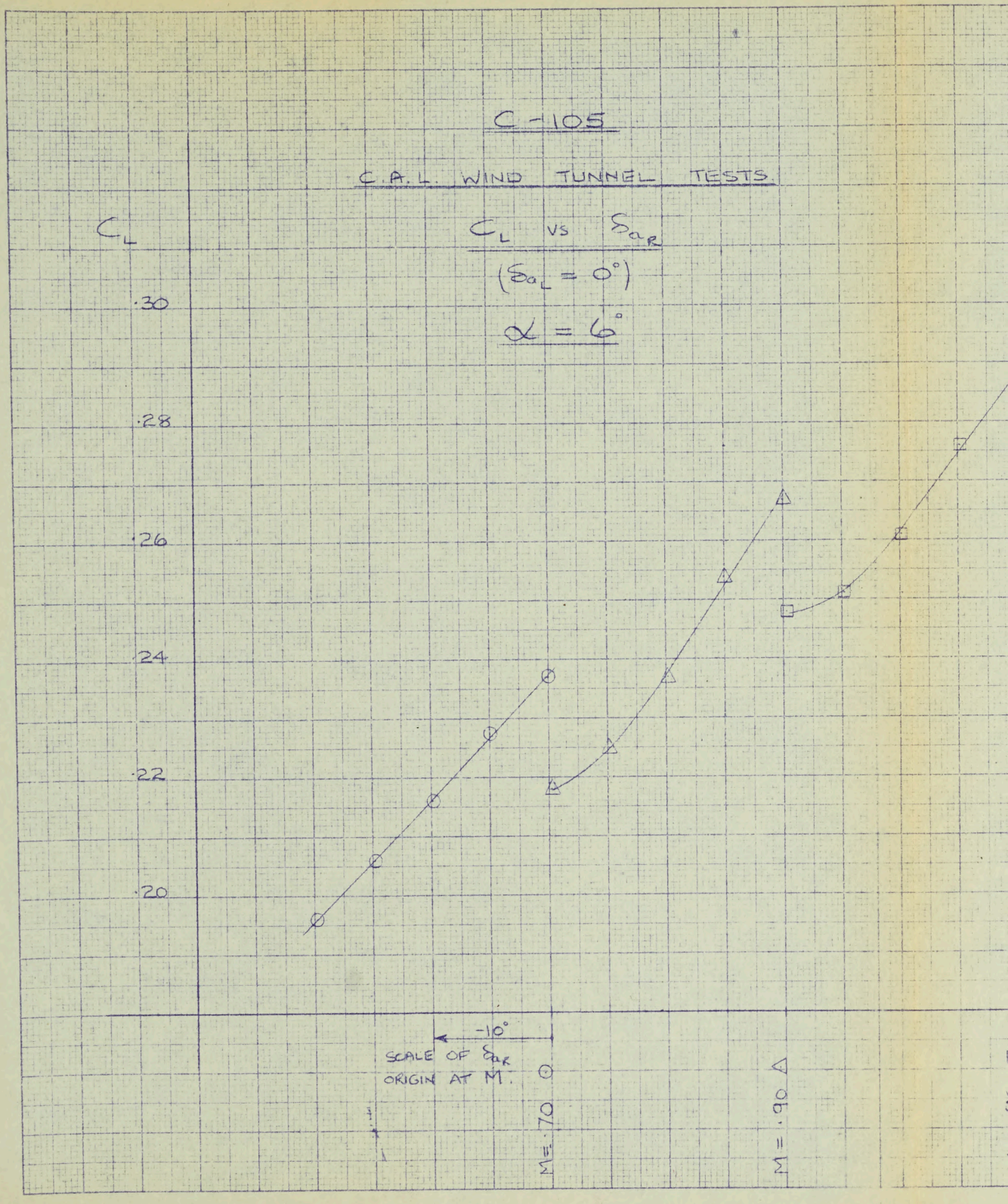
C-105

C.A.L. WIND TUNNEL TESTS

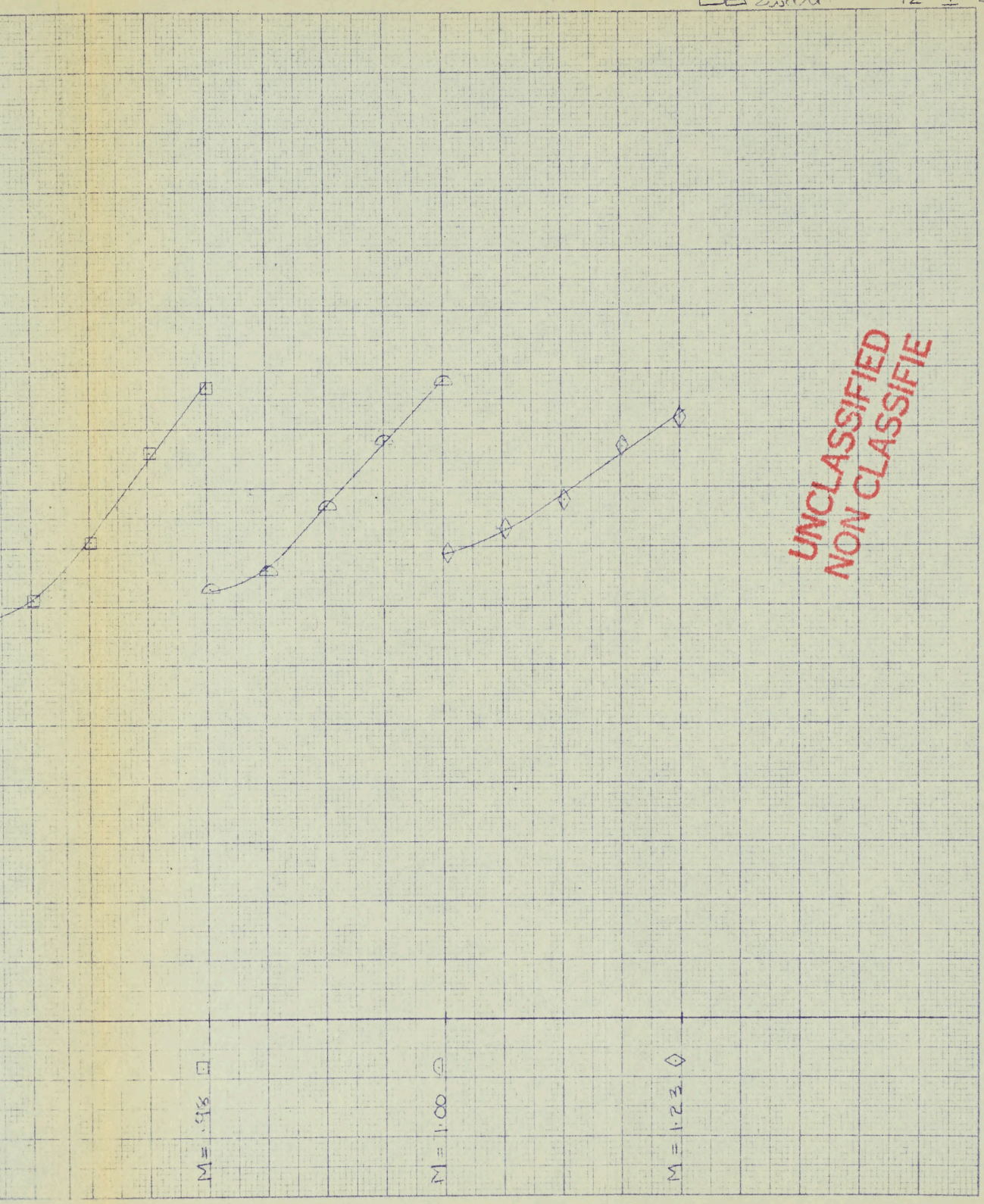
C_L vs δ_{a_R}

($\delta_{a_L} = 0°$)

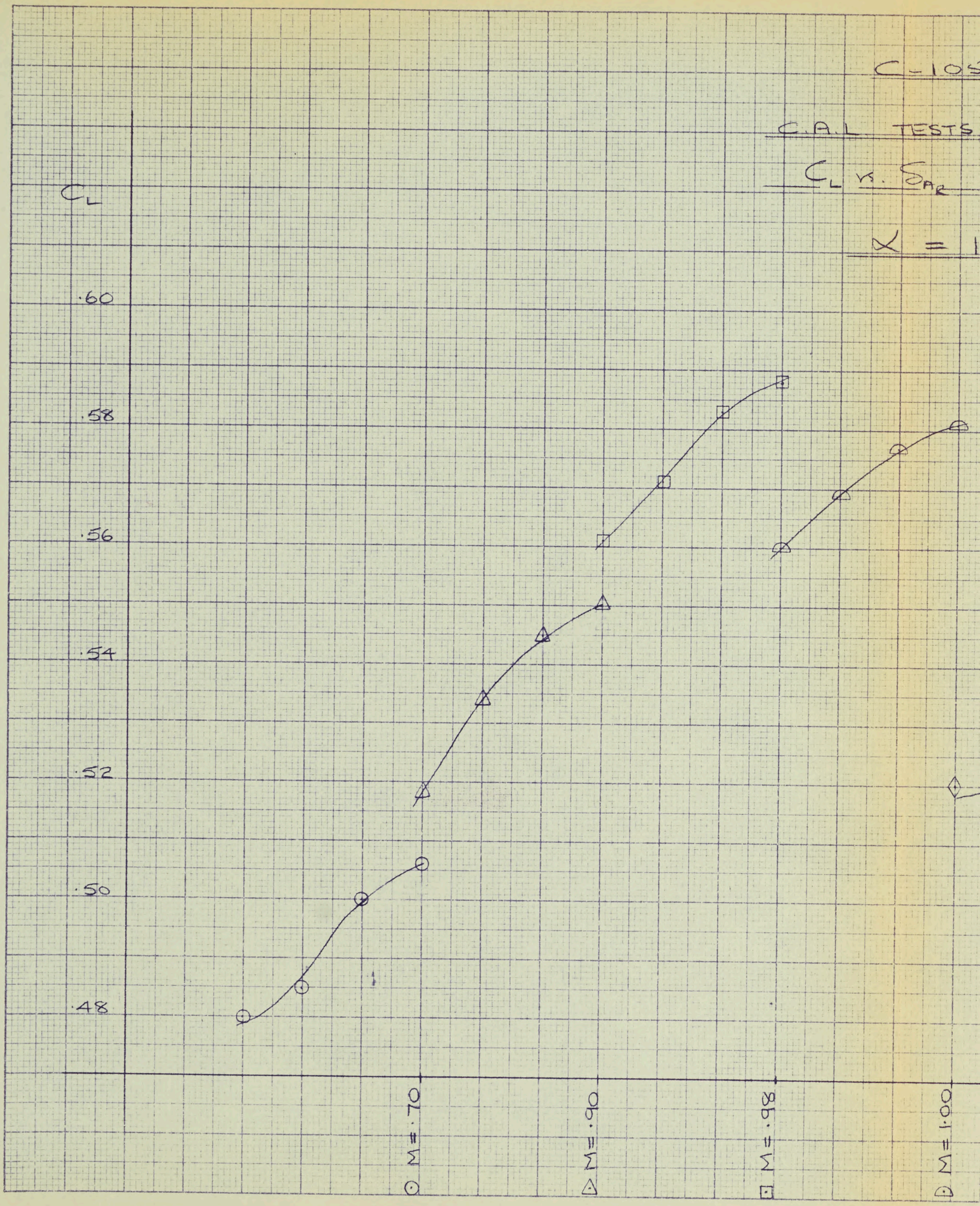
$\alpha = 6°$



359-11L KEUFFEL & ESSER CO.
MADE IN U.S.A.



UNCLASSIFIED
NON CLASSIFIE



10 X 10 TO THE 1/2 INCH 359-11L
KEUFFEL & ESSER CO. MADE IN U.S.A.

D.E. Swart Nov. '54

C-105

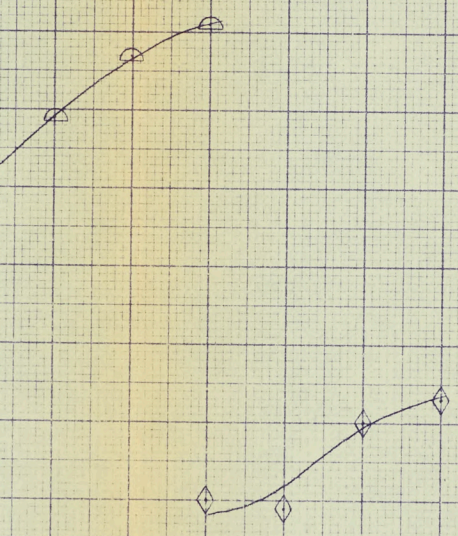
A.L TESTS APRIL '54

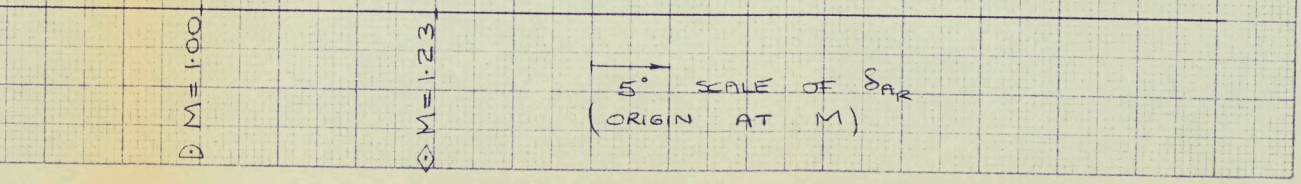
C_L vs. δ_{AR} ($\delta_{A_L} = 0°$)

$\alpha = 11°$

NOTE: δ_{AR} UNCORRECTED FOR MEASURED VALUE OF ELASTICITY

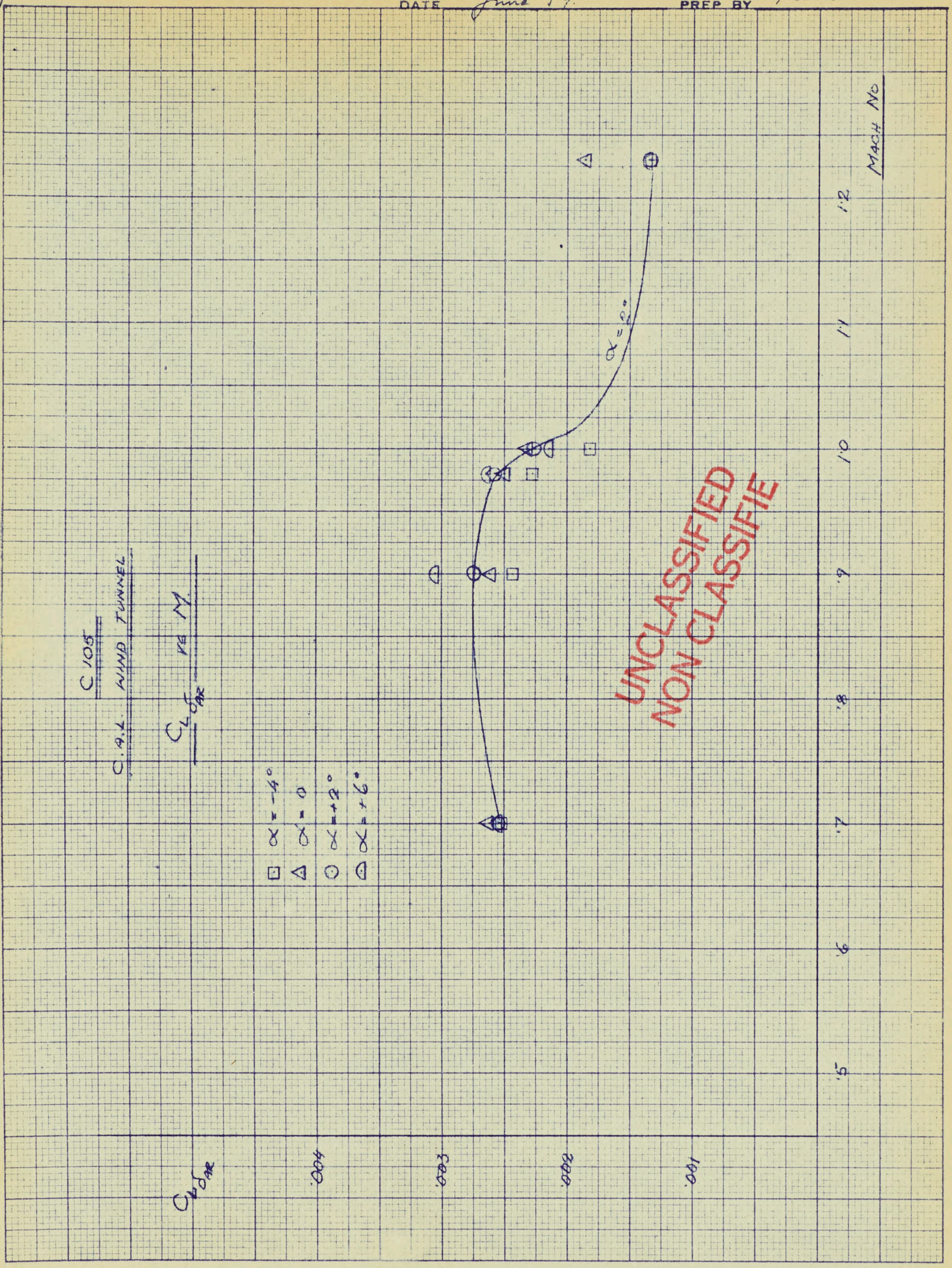
UNCLASSIFIED
NON CLASSIFIE





AIRCRAFT C105 COMPONENT SHEET No. 2.1.7. REPORT No. P/W.T./20

A.U.W. DATE June 51. PREP BY [illegible]



359-12 KEUFFEL & ESSER CO.
10 x 10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

FORM 1746

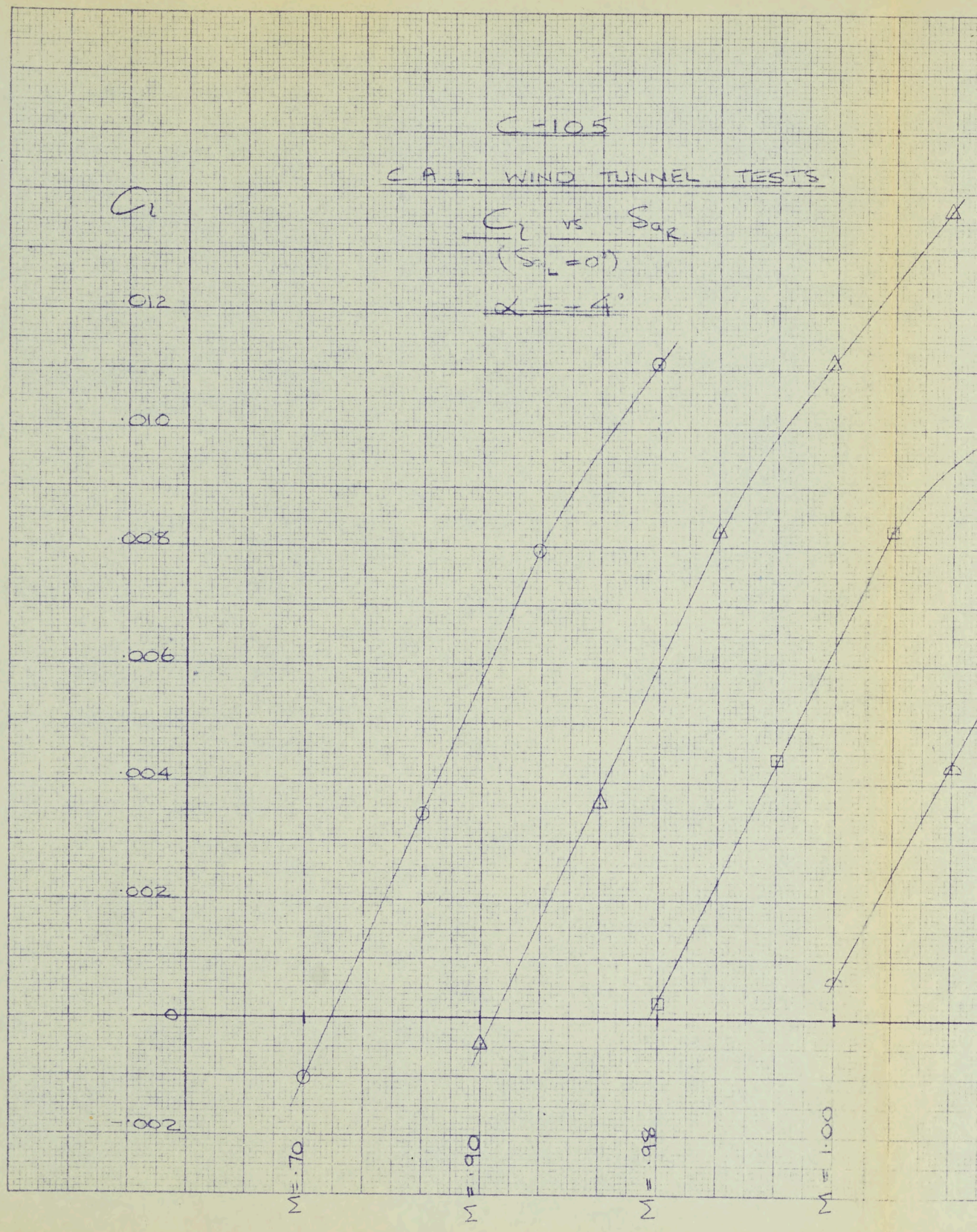
C-105

C.A.L. WIND TUNNEL TESTS

C_l vs S_{a_R}

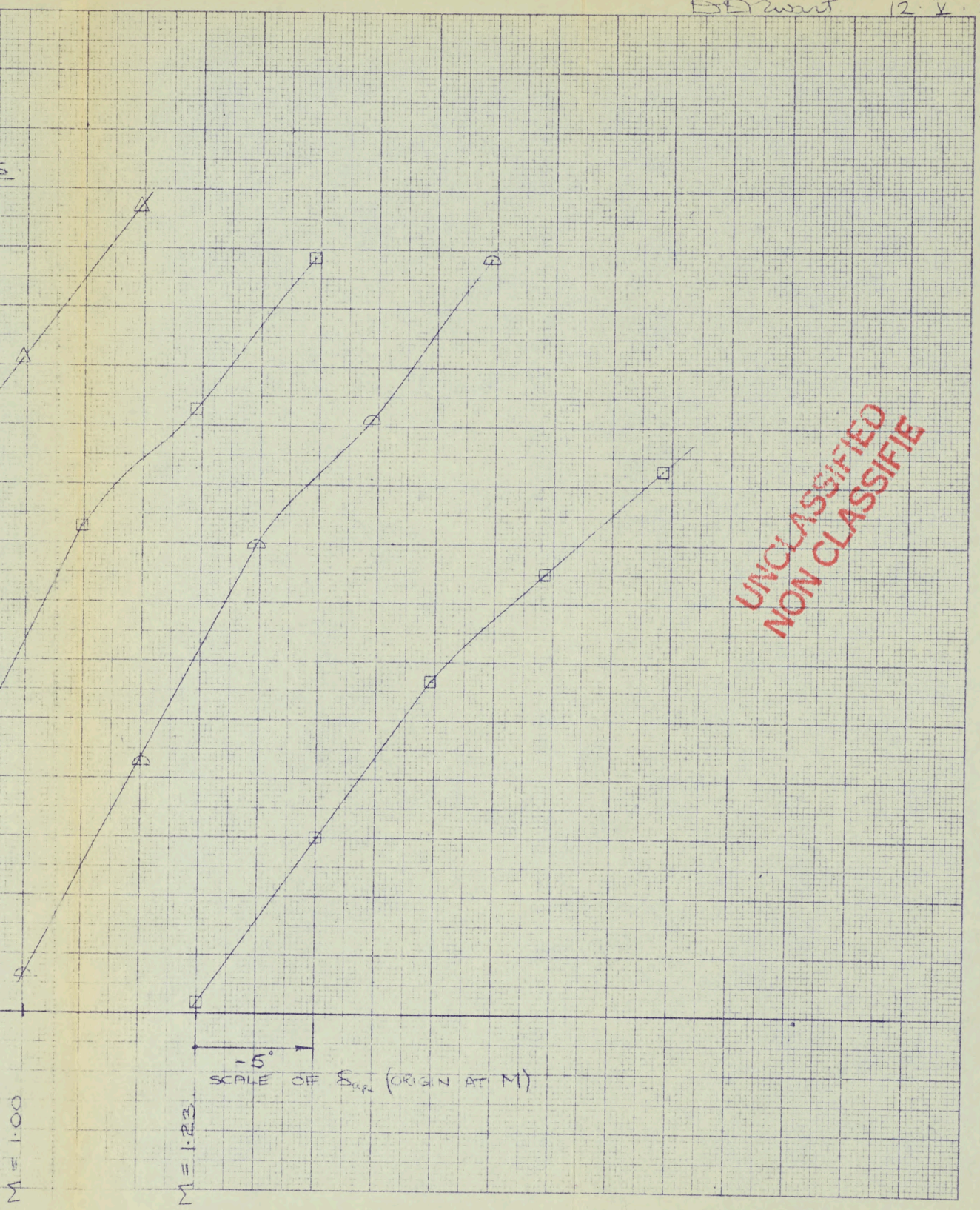
($S_{a_L} = 0°$)

$\alpha = +4°$



Sheet 21.8 P/WT/20

B.D. Ewart 12.V.54



UNCLASSIFIED
NON CLASSIFIE

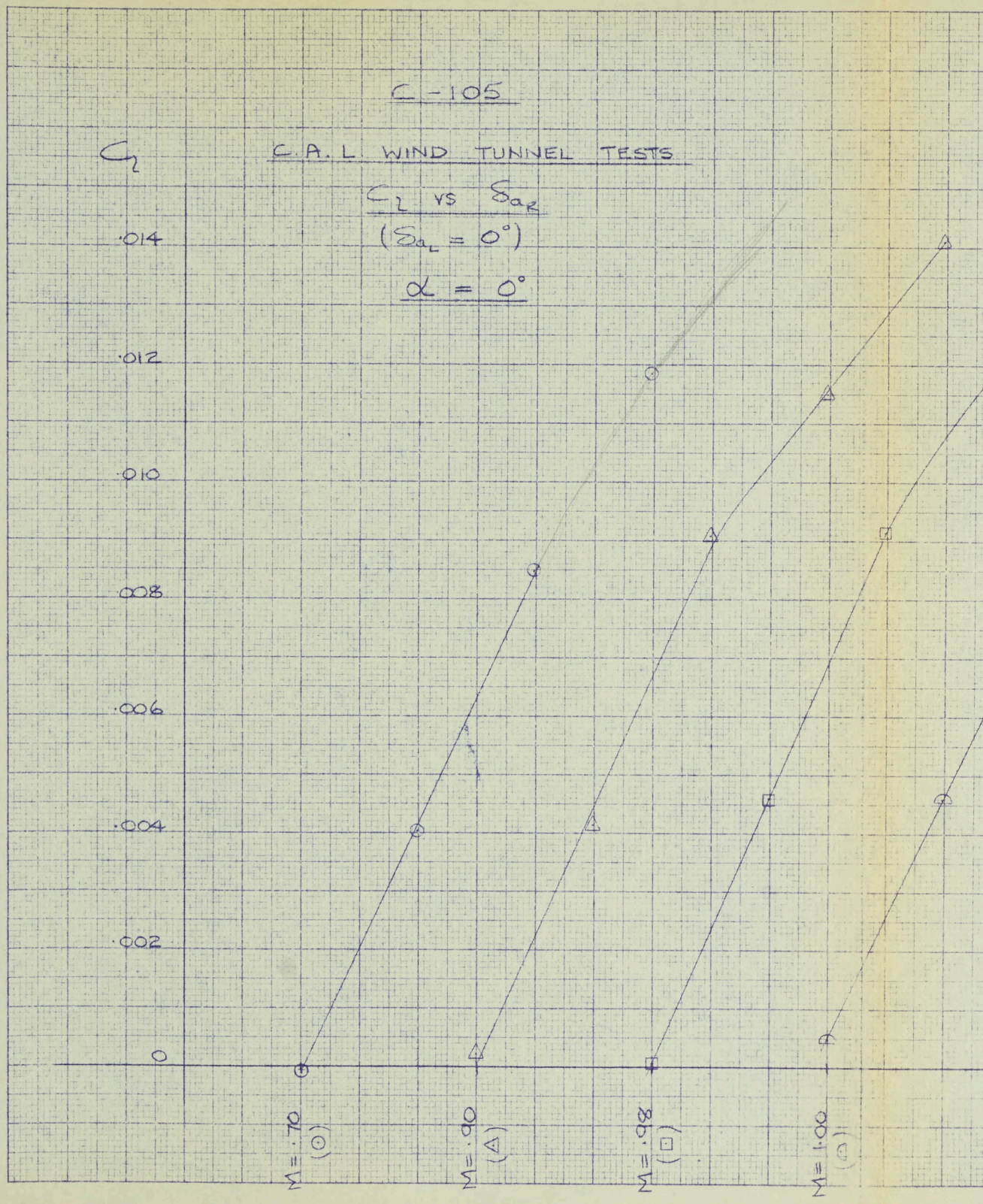
C-105

C.A.L WIND TUNNEL TESTS

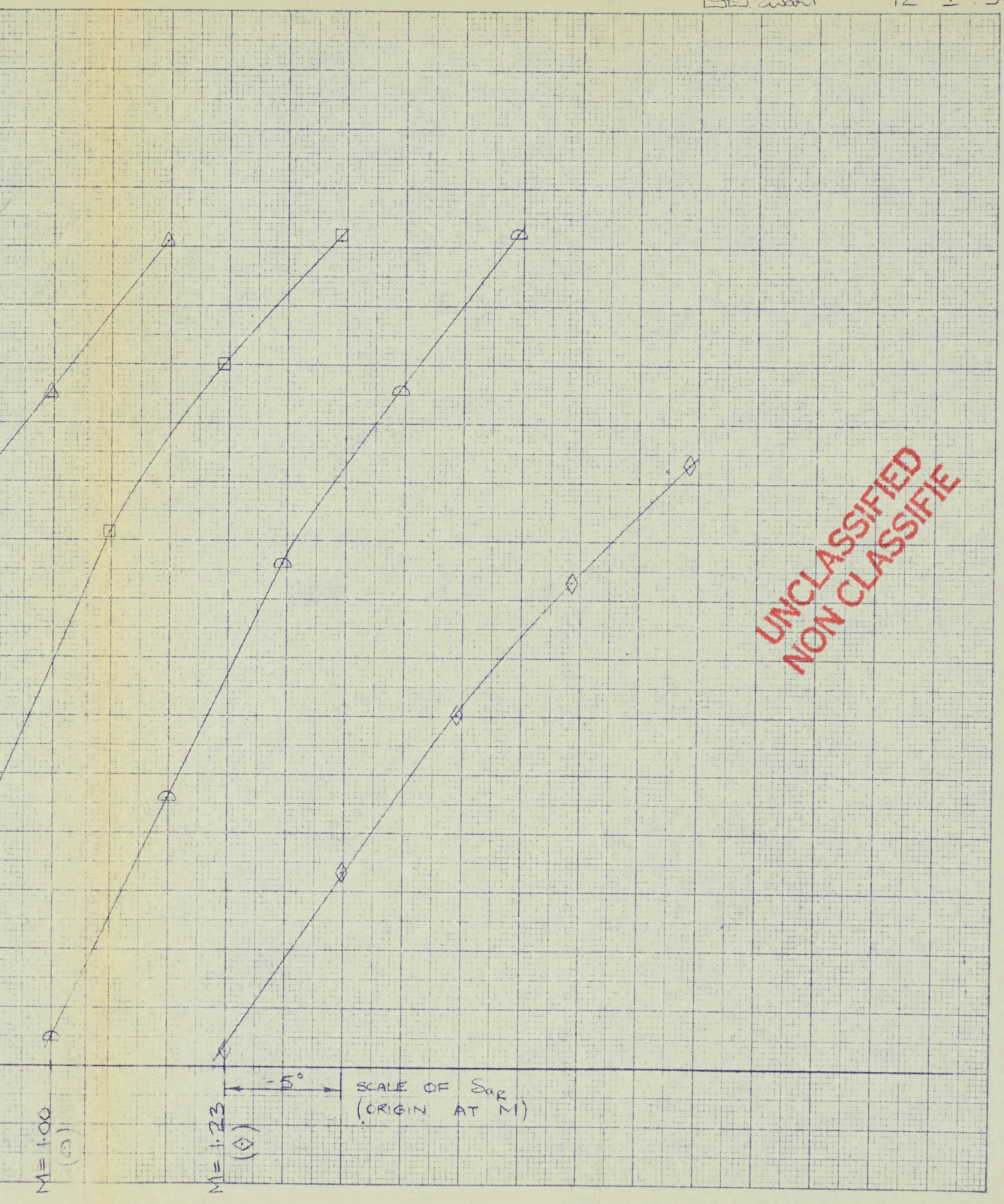
C_l vs δ_{a_R}

$(\delta_{a_L} = 0°)$

$\alpha = 0°$



359-11L KEUFFEL & ESSER CO.
MADE IN U.S.A.



UNCLASSIFIED
NON CLASSIFIE

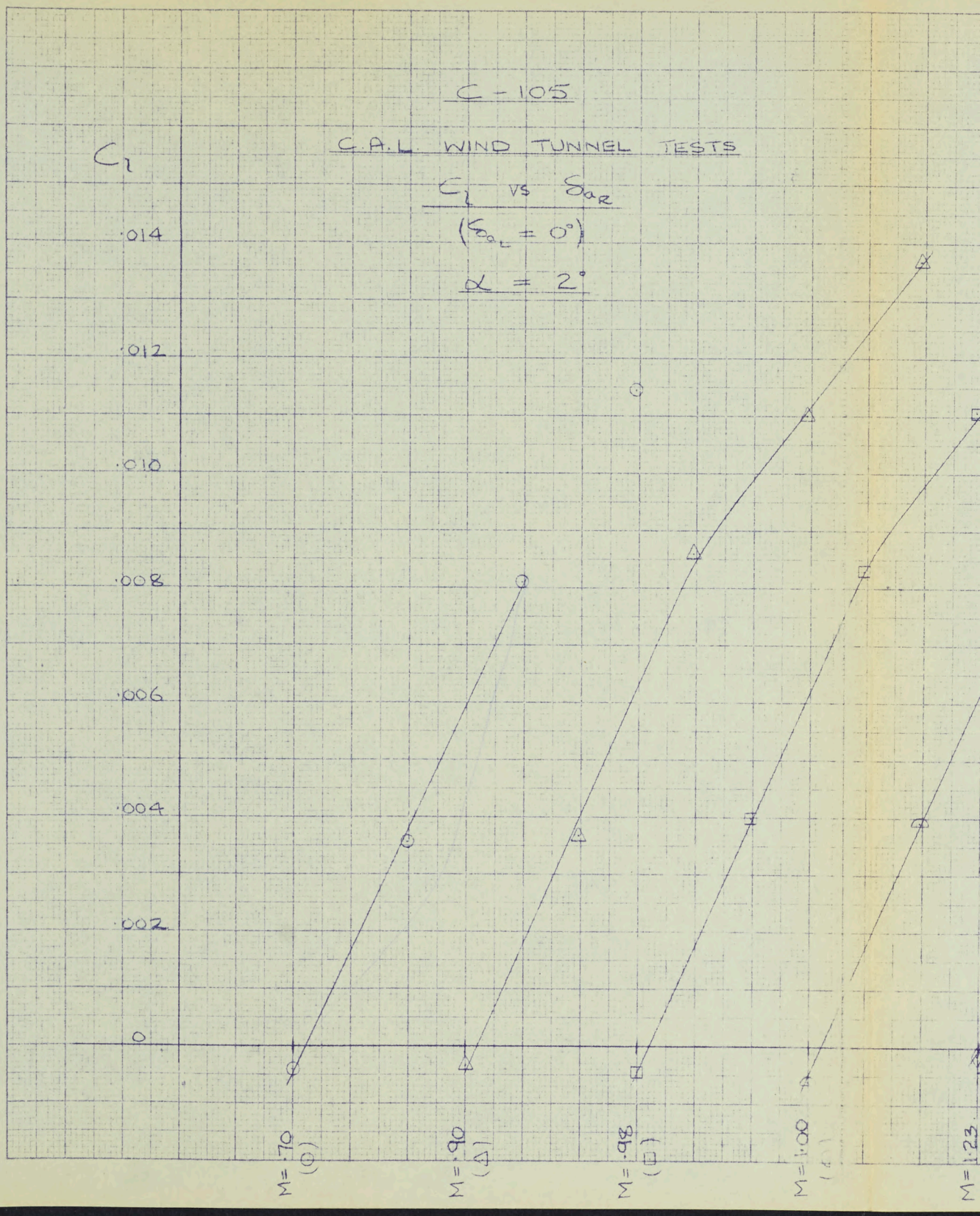
C-105

C.A.L. WIND TUNNEL TESTS

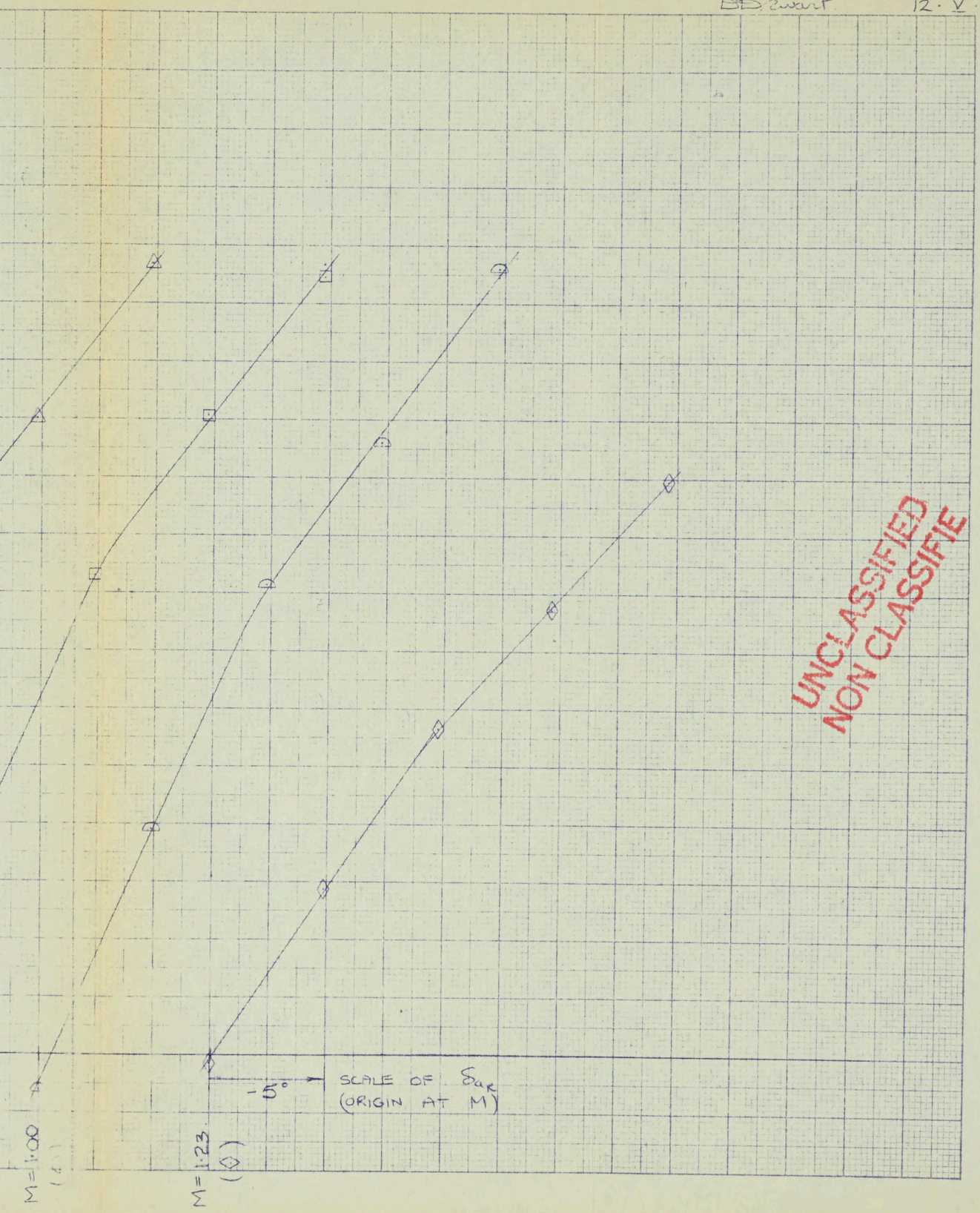
C_l vs δ_{aR}

($\delta_{aL} = 0°$)

$\alpha = 2°$



B.D. Ewart 12.V.54



UNCLASSIFIED
NON CLASSIFIE

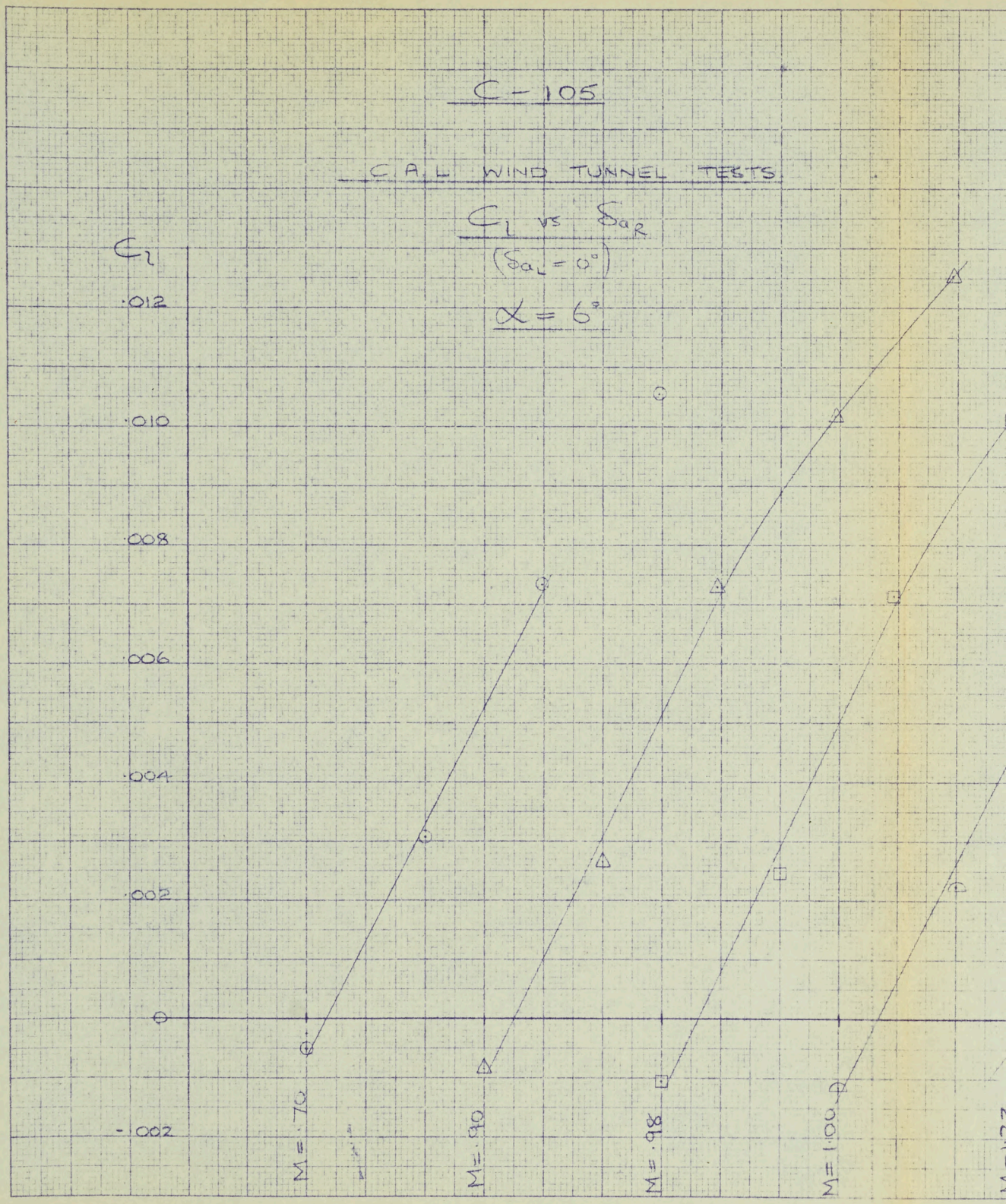
C-105

C.A.L. WIND TUNNEL TESTS

C_l vs δ_{a_R}

($\delta_{a_L} = 0°$)

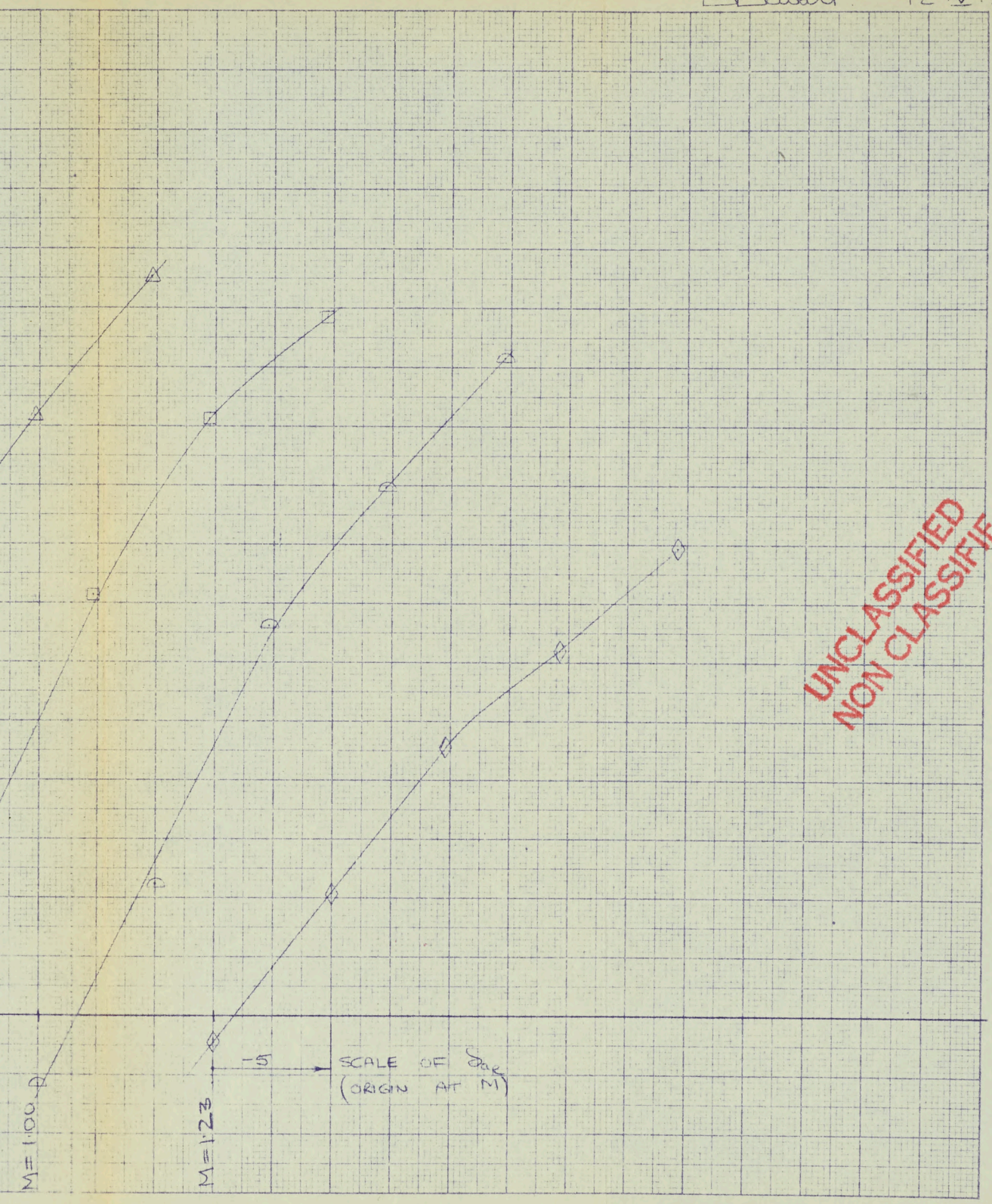
$\alpha = 6°$



950-11L KEUFFEL & ESSER CO.
10 x 10 to the inch, 5th time accented.
MADE IN U.S.A.

Sheet. 2.1.11. P/WT/20

Stuart. 12.V.54.



UNCLASSIFIED
NON CLASSIFIE

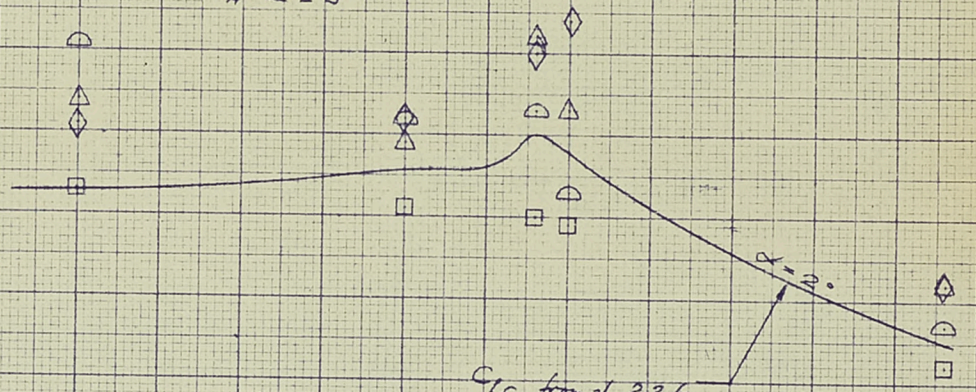
K+E 10 X 10 TO THE INCH 359-12
KEUFFEL & ESSER CO.

C105

CAL. WIND TUNNEL TESTS APRIL 54.

$C_{l\delta_a}$ vs M.

δ_A < ±5°



$C_{l\delta_a}$ from ol. 2.2.6
Vol. II P/HT/20
BOTH AILERONS DEFLECTED

$2 \times C_{l\delta_{aR}}$ — RIGHT AILERON ONLY DEFLECTED

- ⌓ — α = -4°
- △ — α = 0
- ◇ — α = 2°
- □ — α = 6°

$2 \times C_{l\delta_{aR}}$

-.0020
-.0015
-.0010
-.0005

.5 .6 .7 .8 .9 1.0 1.1 1.2

MACH NO.

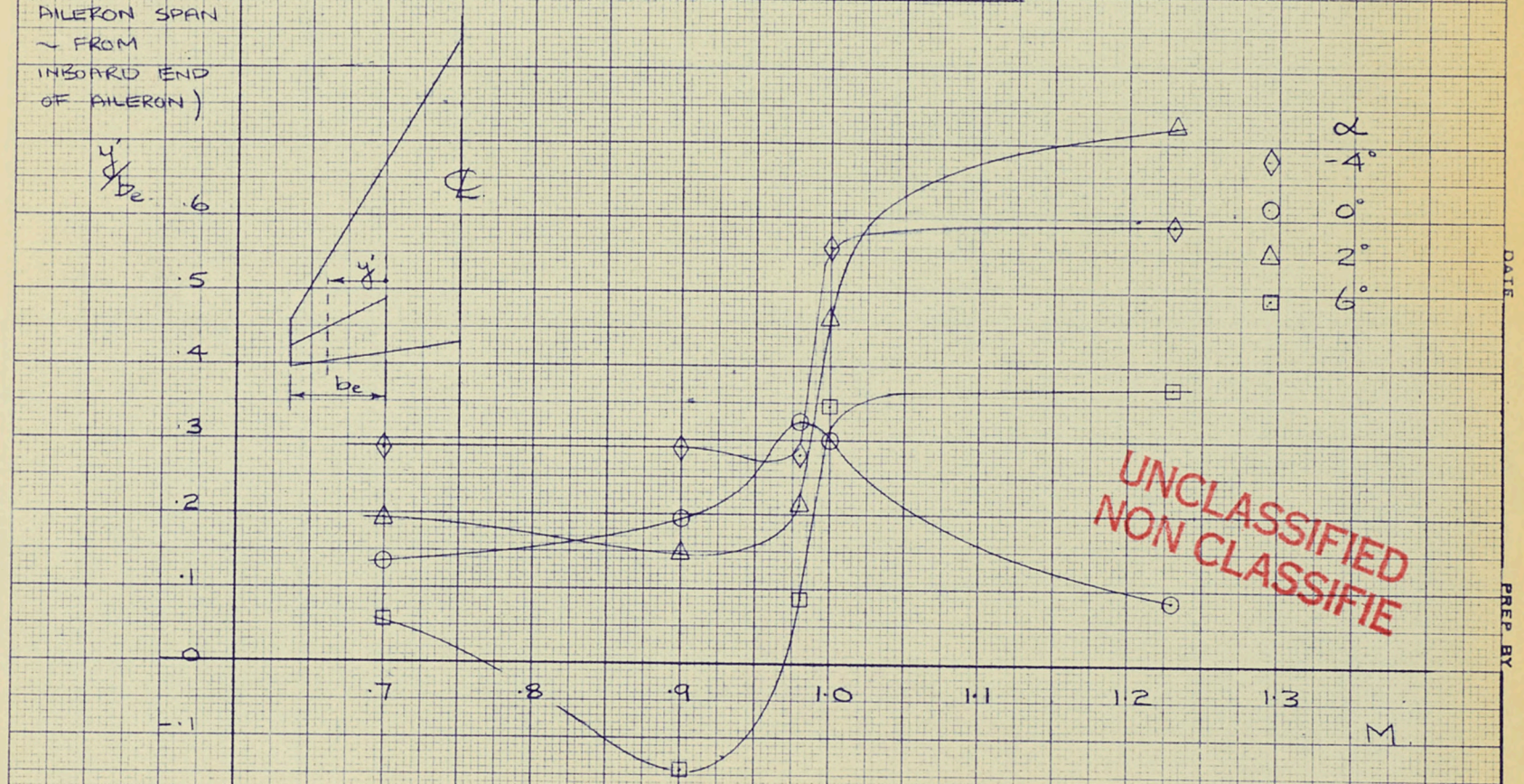
UNCLASSIFIED
NON CLASSIFIE

2.1.12.
Ack/54.
P/HT/20 /31.
Kuchemann.

C-105

C.A.L. WIND TUNNEL TESTS.

SPANWISE POSITION OF AILERON LOADS AS FRACTION OF AILERON SPAN



UNCLASSIFIED
NON CLASSIFIE

AIRCRAFT A U W.

COMPONENT

SHEET NO. 223

DATE

REPORT NO. A.W.T./20

PREP BY

FORM 1746

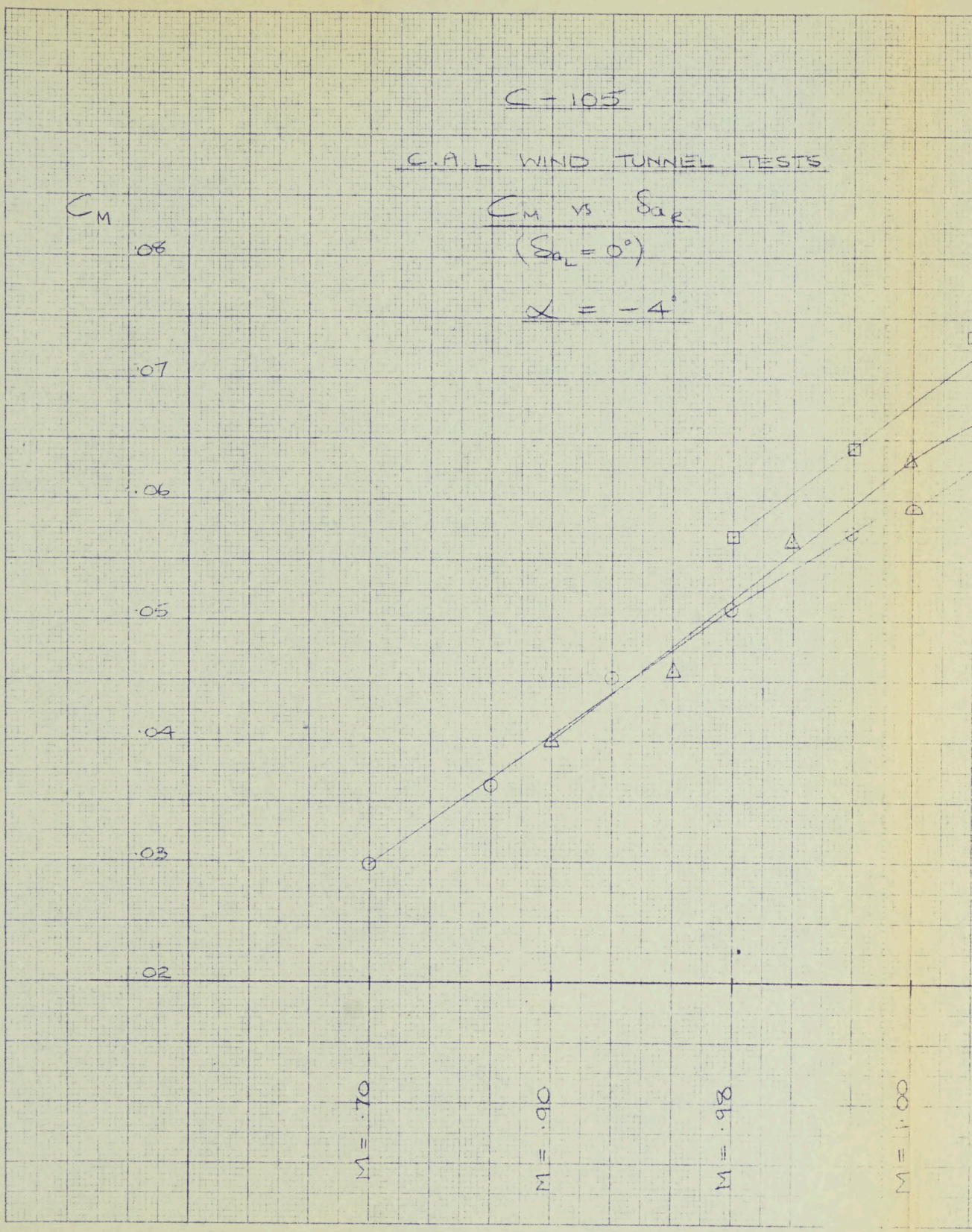
C-105

C.A.L. WIND TUNNEL TESTS

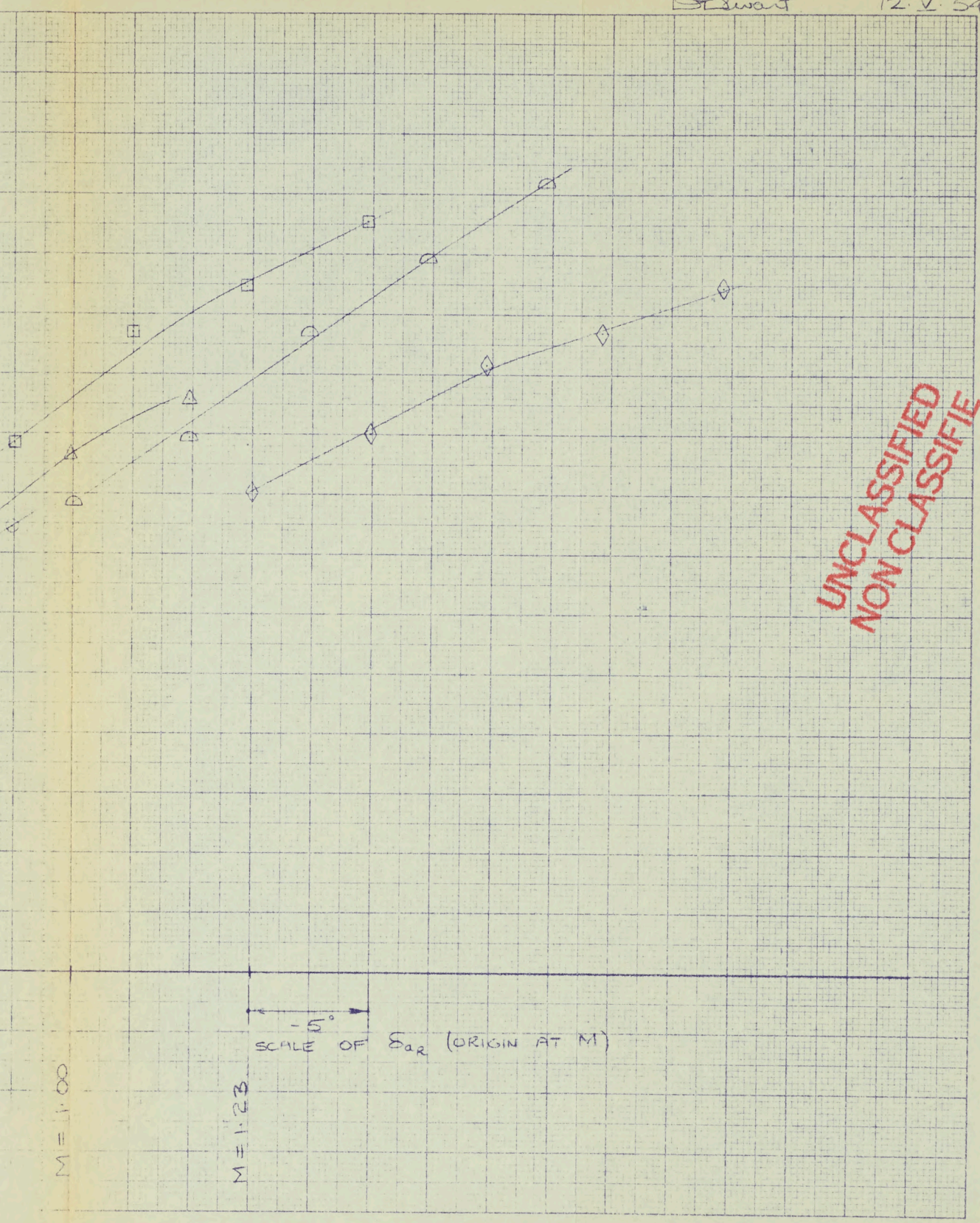
C_M vs δ_{a_R}

($\delta_{a_L} = 0°$)

$\alpha = -4°$



359-111 KEUFFEL & ESSER CO.
10 × 10 to Lin. ½ Inch, 5th Lines accented
Made in U.S.A.



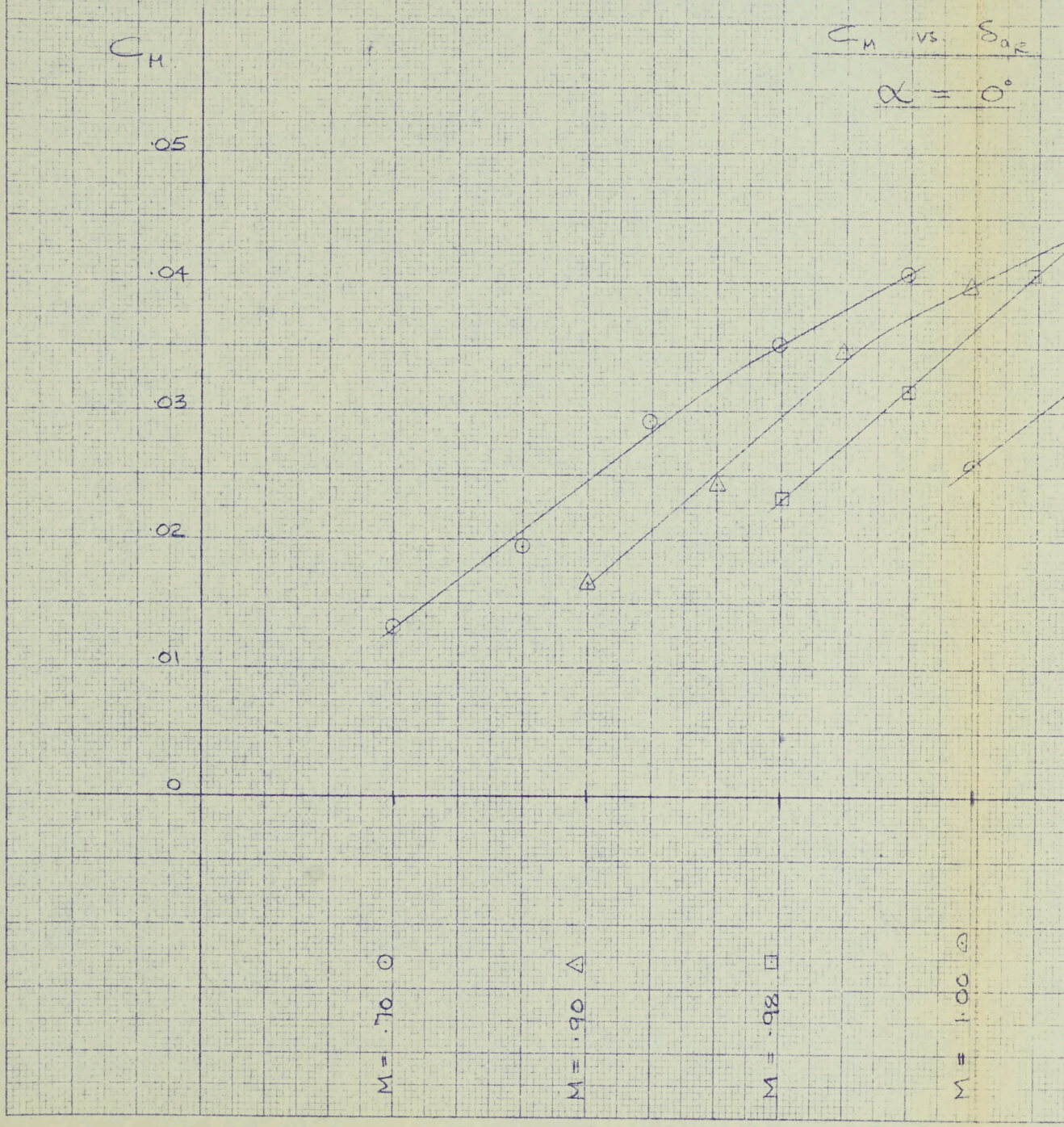
UNCLASSIFIED
NON CLASSIFIE

C-105

C.A.L. WIND TUNNEL

C_M vs δ_{a_R}

$\alpha = 0°$



359-11L KEUFFEL & ESSER CO.
10 X 10 to the inch, 5 blue lines accented
MADE IN U.S.A.

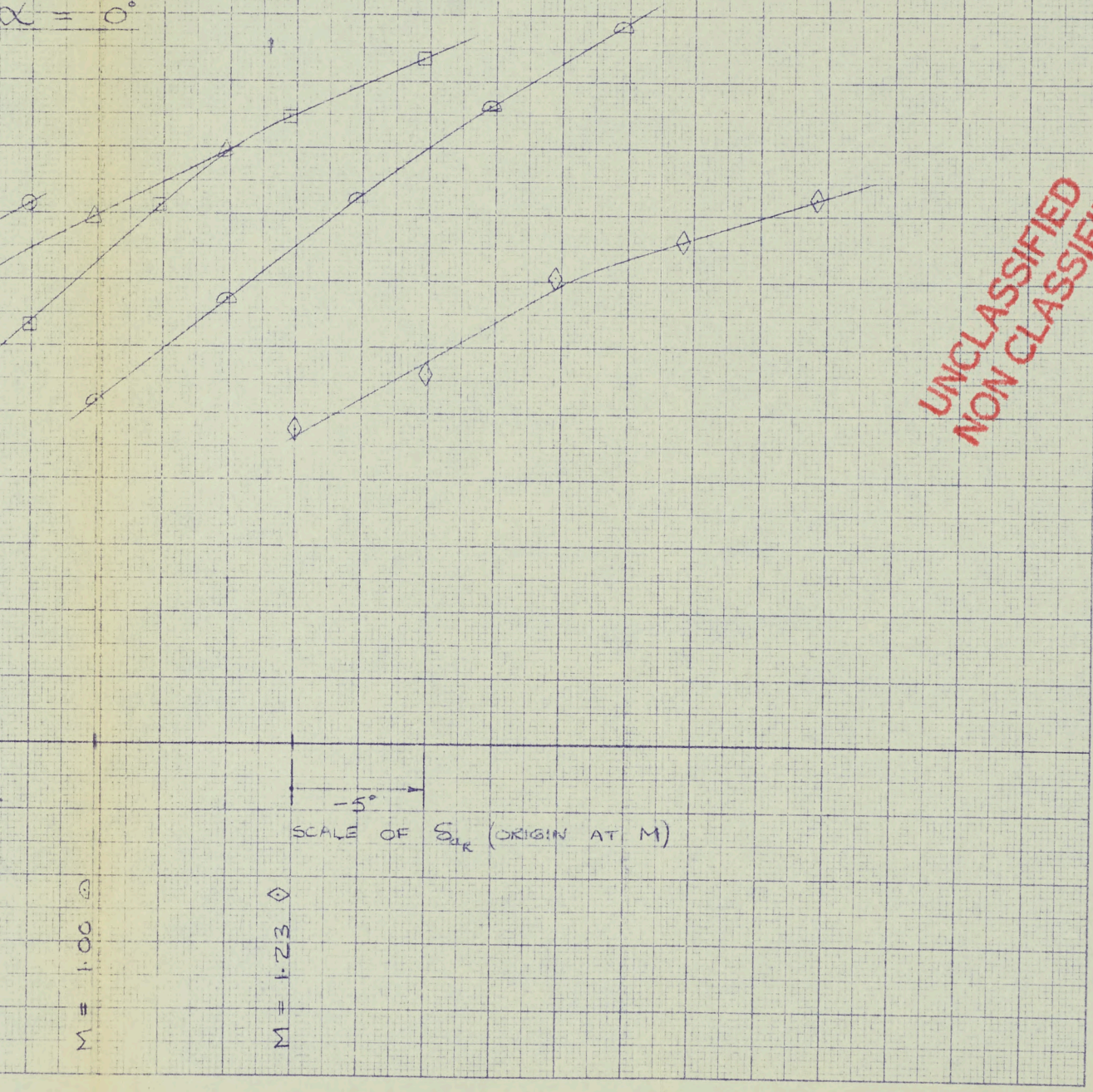
D. Ewart. 11 V 54.

105

TUNNEL TESTS.

vs. δ_{a_R} ($\delta_{a_L} = 0°$)

$\alpha = 0°$



UNCLASSIFIED
NON CLASSIFIE

C-105

C.A.I.L. WIND TUNNEL

C_M vs. δ_{aR}

$\alpha = 2°$

C_M

.04

.03

.02

.01

M = .70 ○

M = .90 △

M = .98 □

M = 1.00 ◇

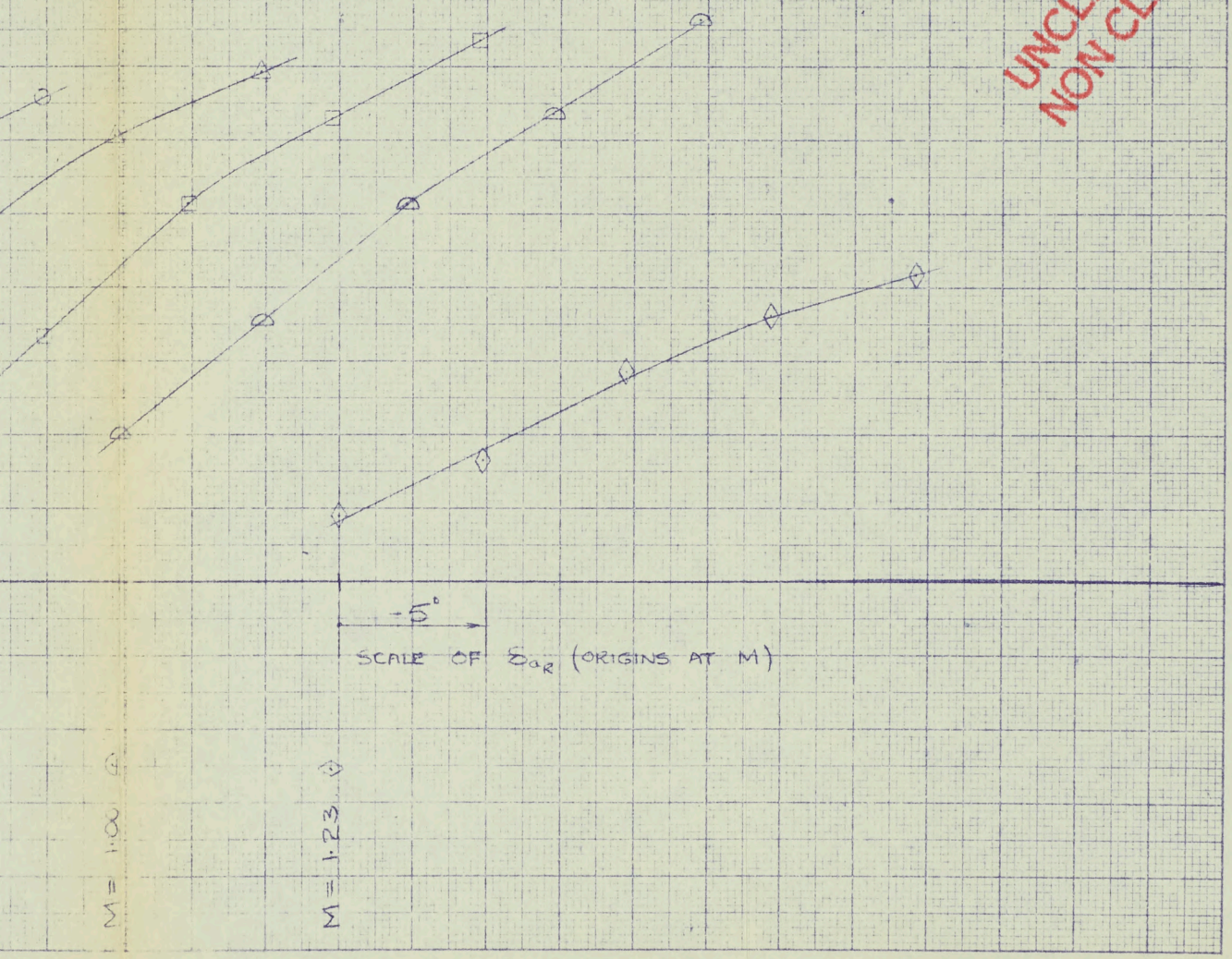
359-11L KEUFFEL & ESSER CO.

- 105

TUNNEL TESTS

vs δ_{a_R} ($\delta_{a_L} = 0°$)

$= 2°$



UNCLASSIFIED
NON CLASSIFIE

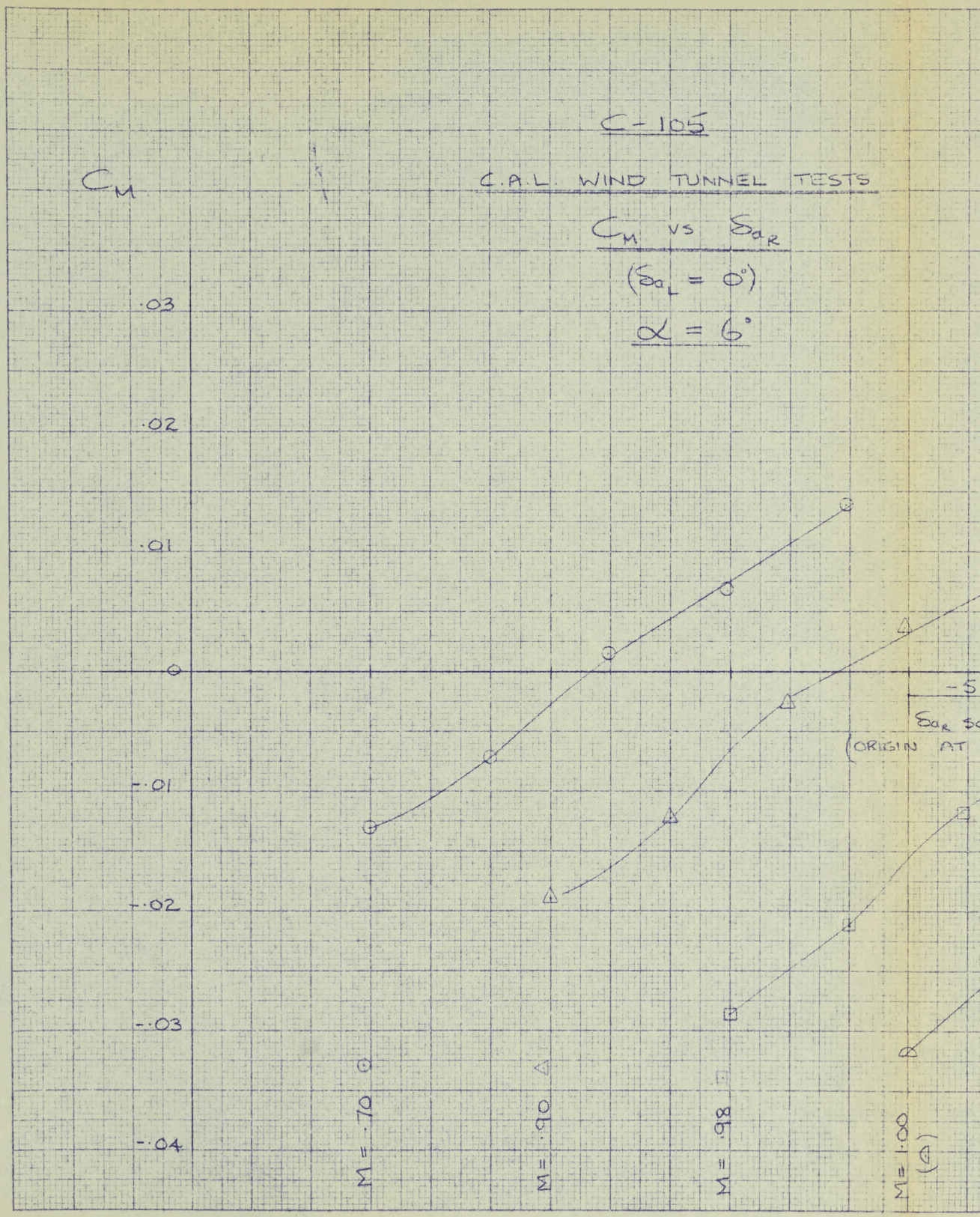
C-105

C.A.L. WIND TUNNEL TESTS

C_M vs δ_{a_R}

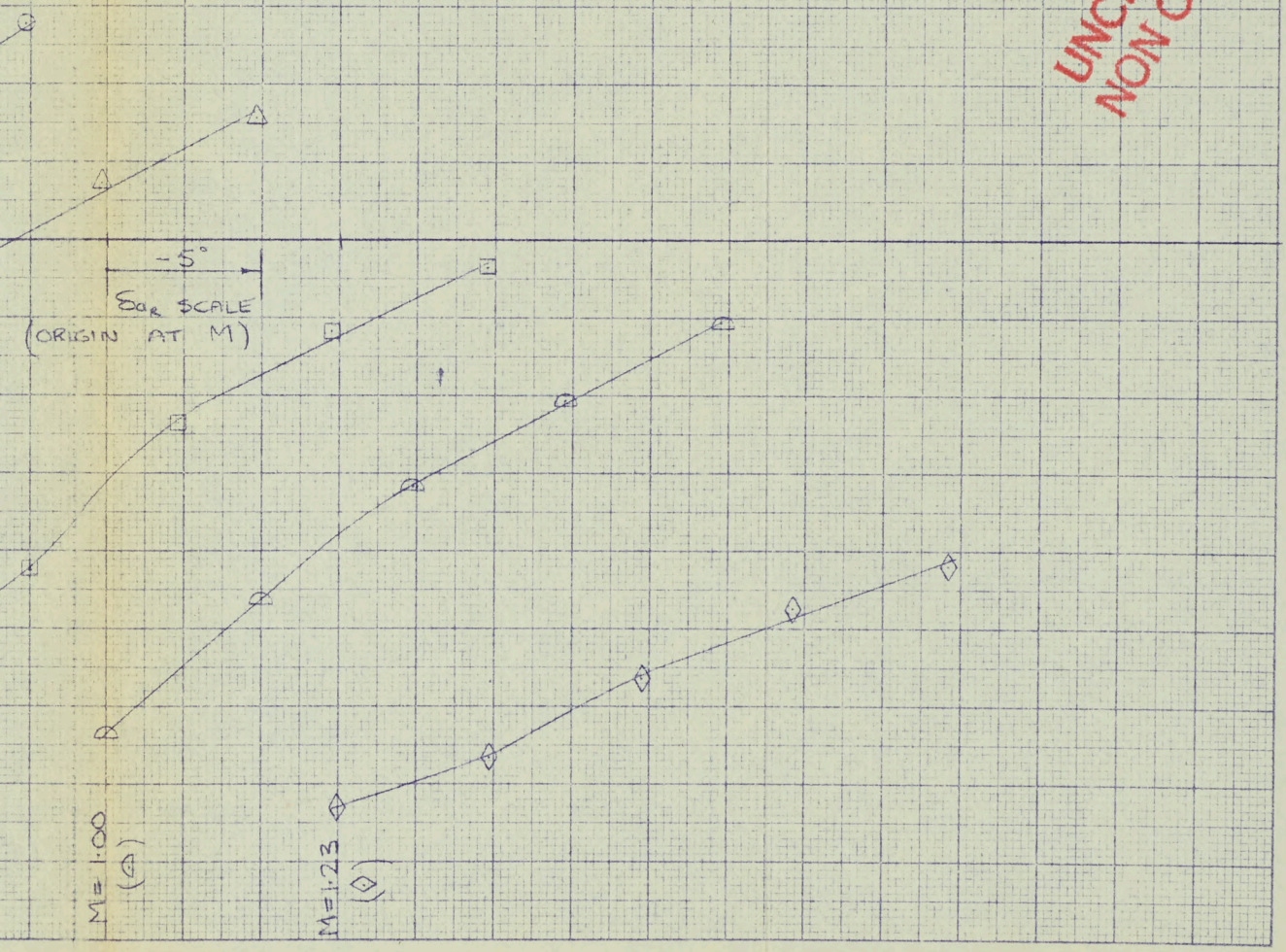
($\delta_{a_L} = 0°$)

$\alpha = 6°$



399-11L KEUFFEL & ESSER CO.
MADE IN U.S.A.

STS



UNCLASSIFIED
NON CLASSIFIE

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

AIRCRAFT C/05 COMPONENT SHEET No. 2.3.6.

A.U.W. DATE June '57 REPORT NO 3/H.T./20

PREP BY

C105

CAL. W.T. TESTS

$C_{M_{\delta_{RR}}}$ vs M

($\delta_{AL} = 0$)

UNCLASSIFIED
NON CLASSIFIE

FORM 1746

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

AIRCRAFT A.U.W.

COMPONENT

SHEET No. 244

REPORT No. P/WT/20

DATE 13-V-54

PREP. BY D.B.S.

C-105

C.A.L. WIND TUNNEL TESTS

CHORDWISE POSITION OF AILERON LOADS AS FRACTION OF M.A.C. OUTER WING

$\alpha = -4°$

C.P. POSITION (FRACTION M.A.C. OUTER WING)

1.0
.9
.8
.7
.6
.5
.4
.3

.7 .8 .9 1.0 1.1 1.2 1.3 M

M.A.C. OF WING OUTBOARD OF X-X

X X

STARBOARD AILERON.
AILERON ANGLE $-10° \leq \delta_{aR} \leq 0°$
(DEFLECTED DOWN).

UNCLASSIFIED
NON CLASSIFIE

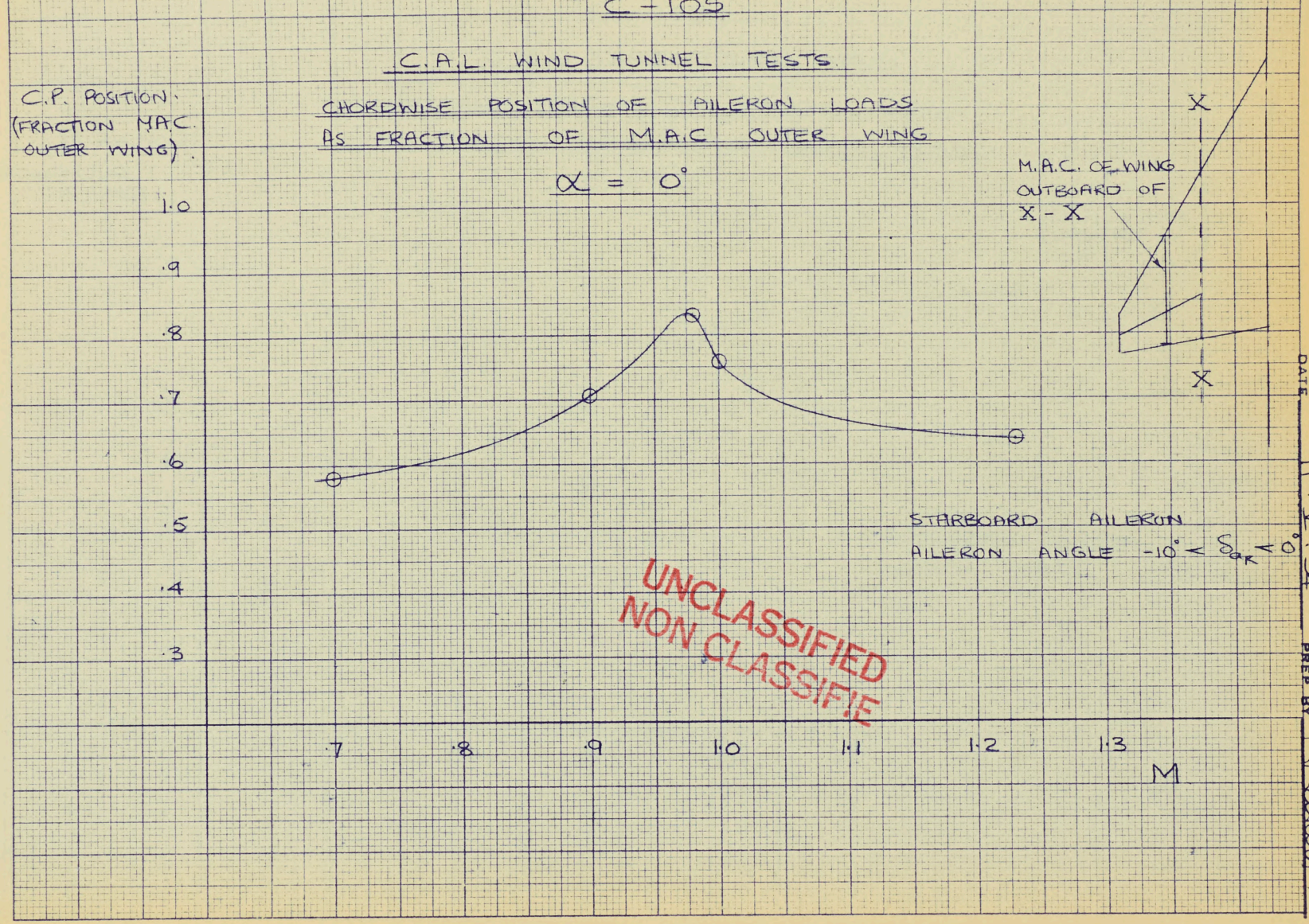
FORM 1746

C-105

C.A.L. WIND TUNNEL TESTS

CHORDWISE POSITION OF AILERON LOADS AS FRACTION OF M.A.C OUTER WING

$\alpha = 0°$



UNCLASSIFIED
NON CLASSIFIE

AIRCRAFT
A.U.W.
COMPONENT
SHEET No. 11
DATE 11. V. 54
REPORT No. 2.45. R/WT/20
PREP. BY

FORM 1746

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

C-105

C.A.L. WIND TUNNEL TESTS

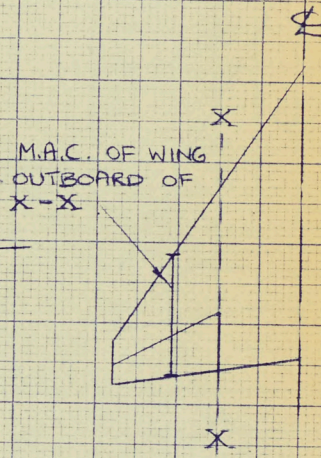
CHORDWISE POSITION OF AILERON LOAD AS FRACTION OF M.A.C. OUTER WING

$\alpha = 2°$

C.P. POSITION (FRACTION M.A.C. OUTER WING)

1.0
.9
.8
.7
.6
.5
.4
.3

.7 .8 .9 1.0 1.1 1.2 1.3 M



STARBOARD AILERON

AILERON RANGE $-10° < \delta_{aR} < 0°$

UNCLASSIFIED
NON CLASSIFIE

AIRCRAFT A.U.W.

COMPONENT

SHEET NO. 246.

REPORT NO. P/WT/20

DATE

PREP. BY

FORM 1746

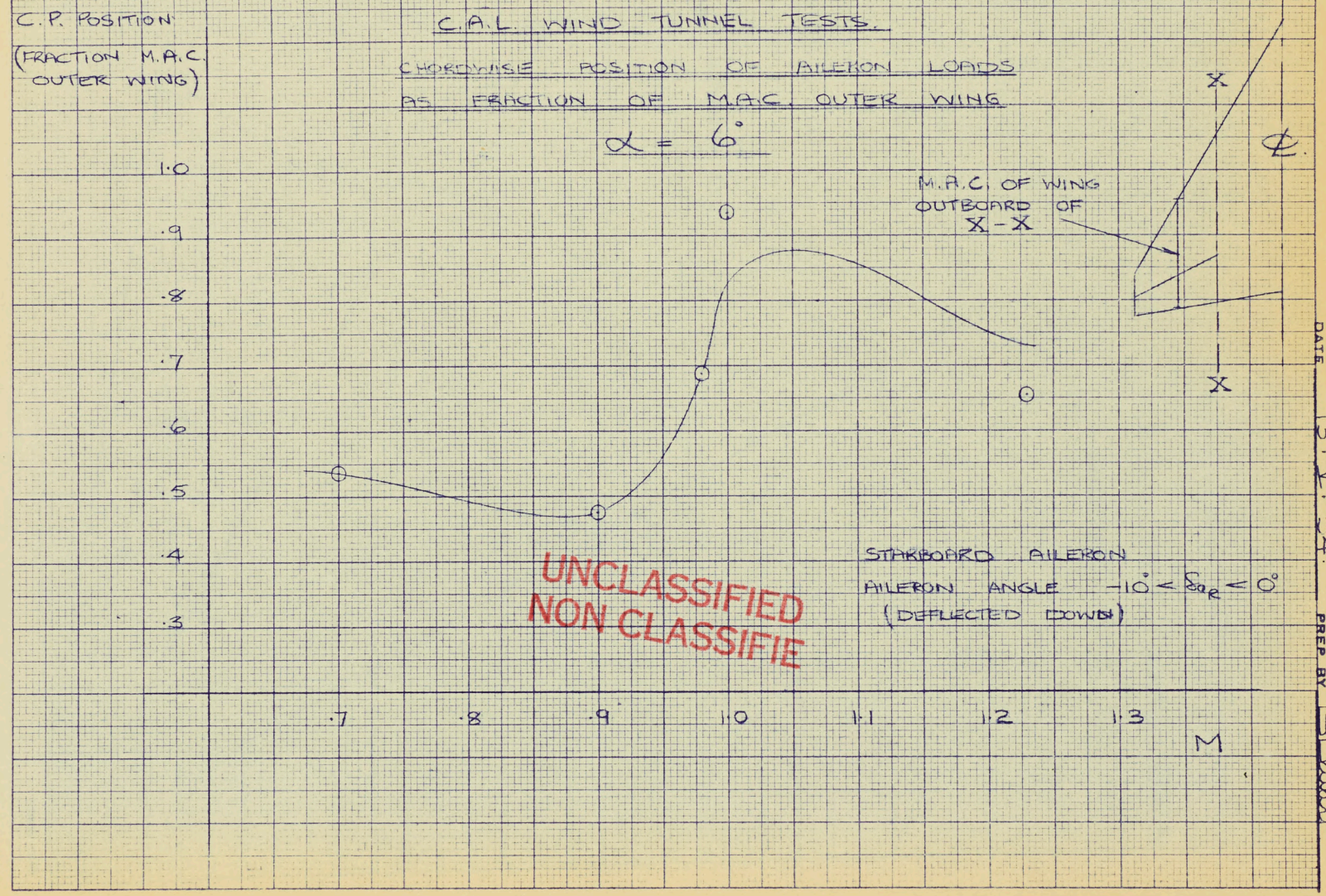
359-12 KEUFFEL & ESSER CO.
10 × 10 to the 1/2 inch, 5th lines accented
MADE IN U.S.A.

C-105

C.A.L. WIND TUNNEL TESTS.

CHORDWISE POSITION OF AILERON LOADS AS FRACTION OF M.A.C. OUTER WING

$\alpha = 6°$



UNCLASSIFIED
NON CLASSIFIE

AIRCRAFT
A U W
COMPONENT
SHEET NO. 2 47.
DATE 13. V. 54.
PREP BY
REPORT NO. P/WT/30
REPORT NO. P/WT/20

FORM 1746

AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 251. REPORT No. P/WT/80

DATE 12. V. 54 PREP. BY E. T. Swart.

C-105

C.A.L. WIND TUNNEL TESTS

AILERON LOAD POSITION

$(-10° < \delta_{aR} < 0°)$

$\alpha = -4°$

○ M = .70

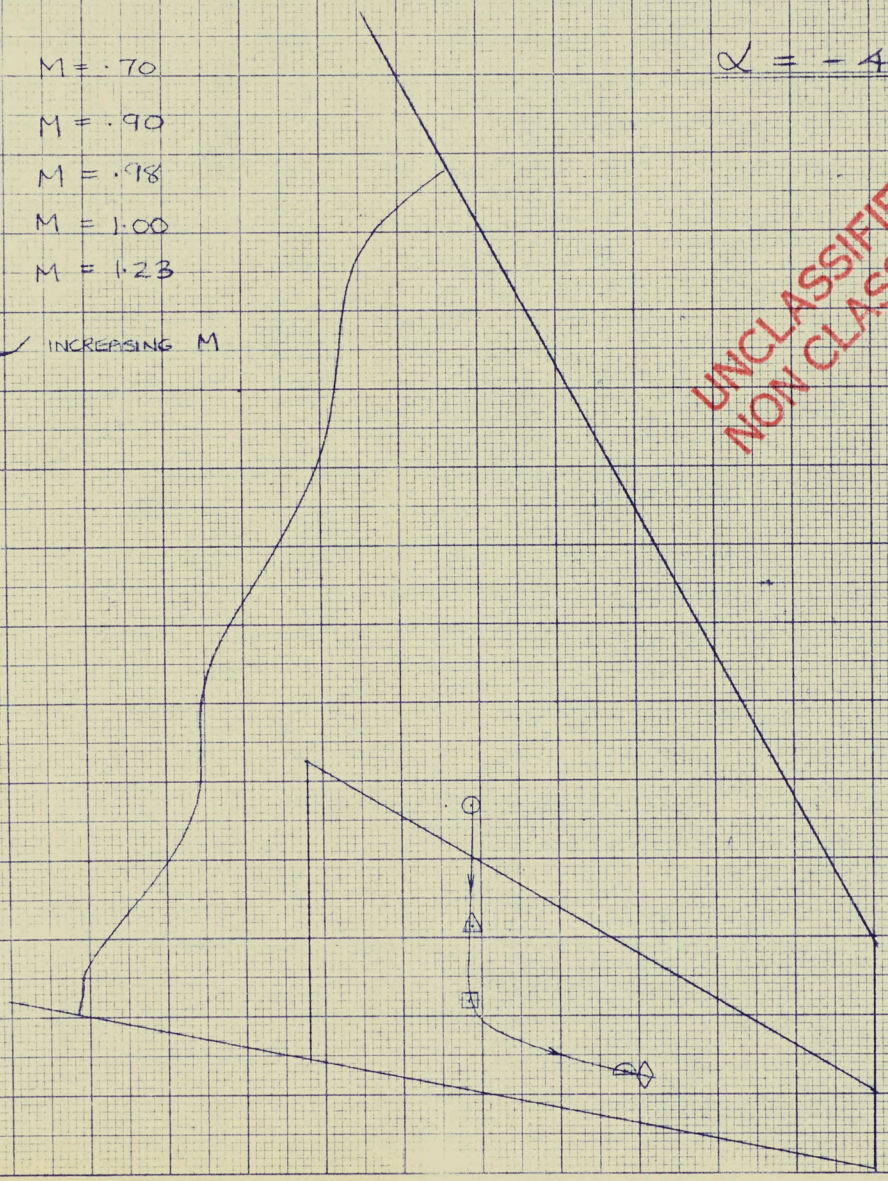
△ M = .90

□ M = .98

⌓ M = 1.00

◇ M = 1.23

INCREASING M



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NON CLASSIFIE

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

FORM 1746

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

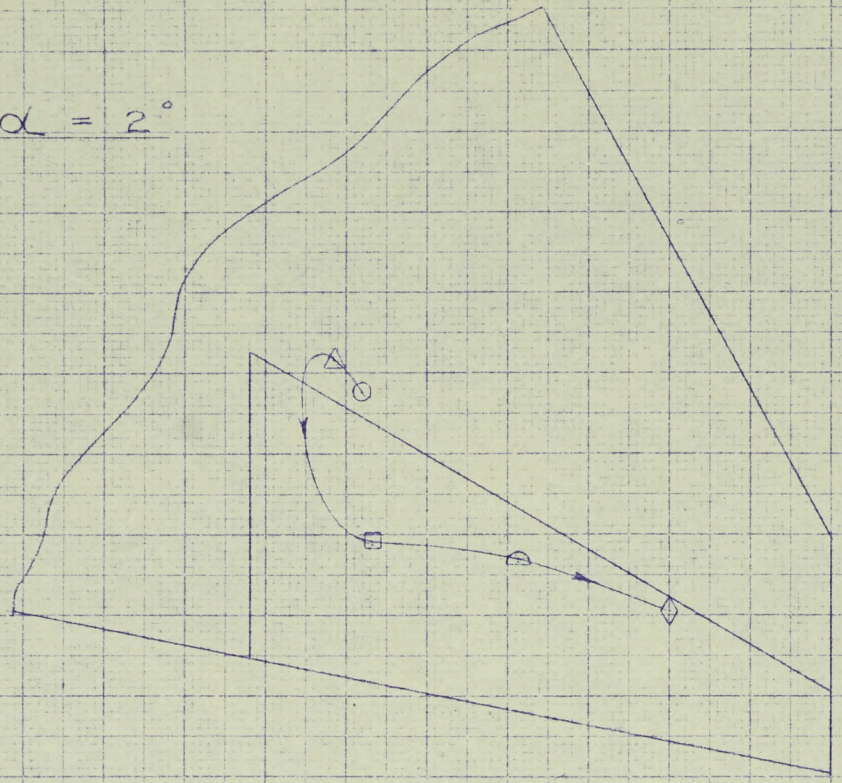
C-105

C.A.L. WIND TUNNEL TESTS

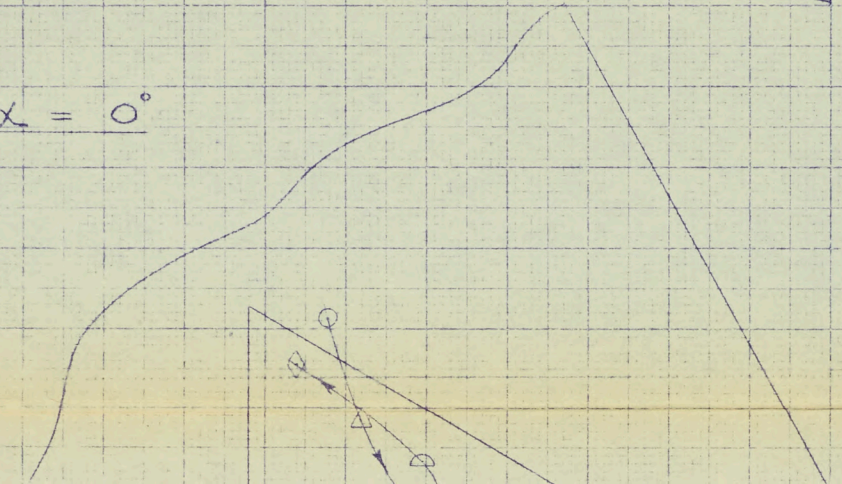
AILERON LOAD POSITION

$(-10^\circ \leq \delta_{a_R} \leq 0^\circ)$

$\alpha = 2^\circ$



$\alpha = 0^\circ$



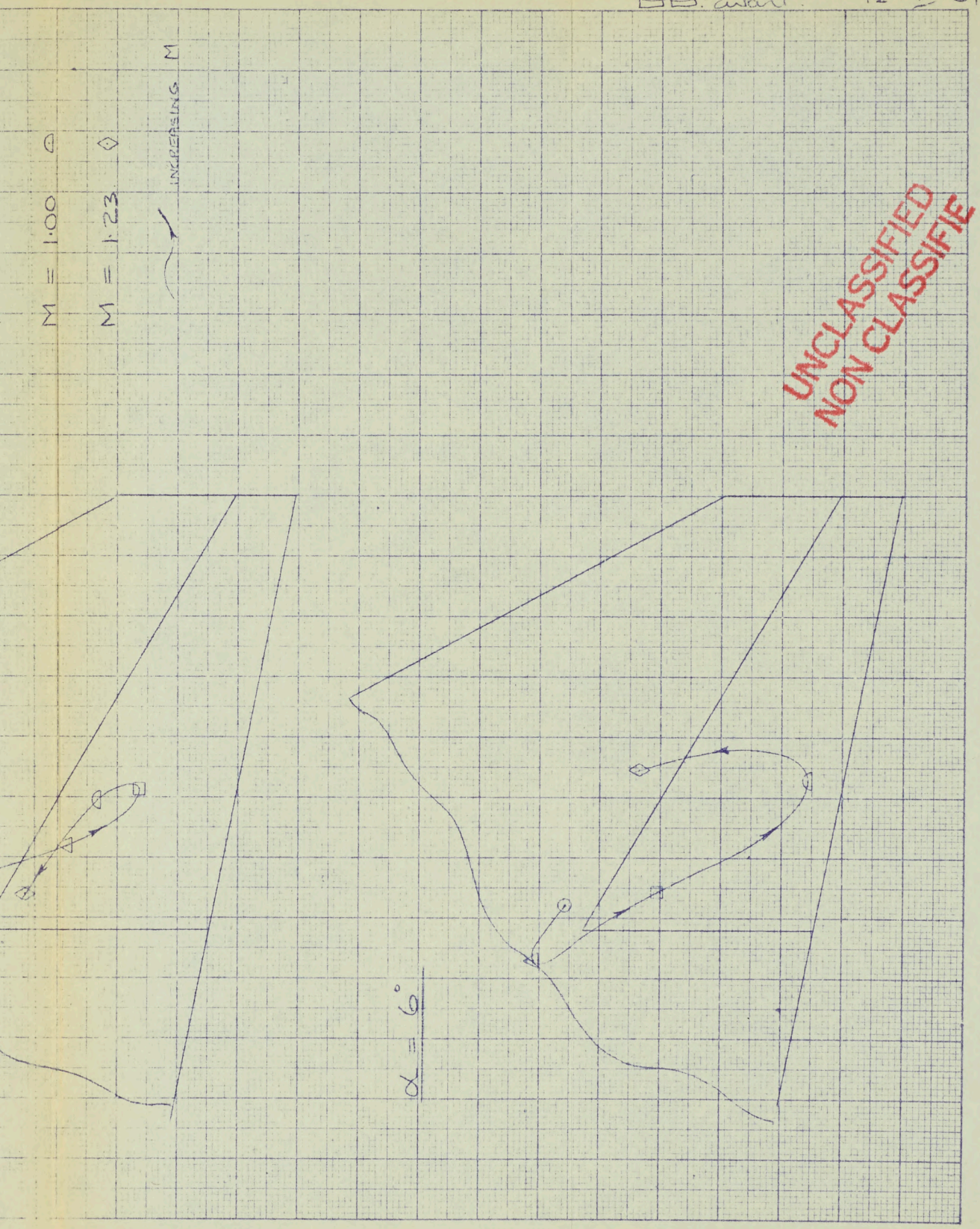
M = .70 ⊙

M = .90 △

M = .98 ⊡

M = 1.00 ⌓

M = 1.23 ◇



UNCLASSIFIED
NON CLASSIFIE

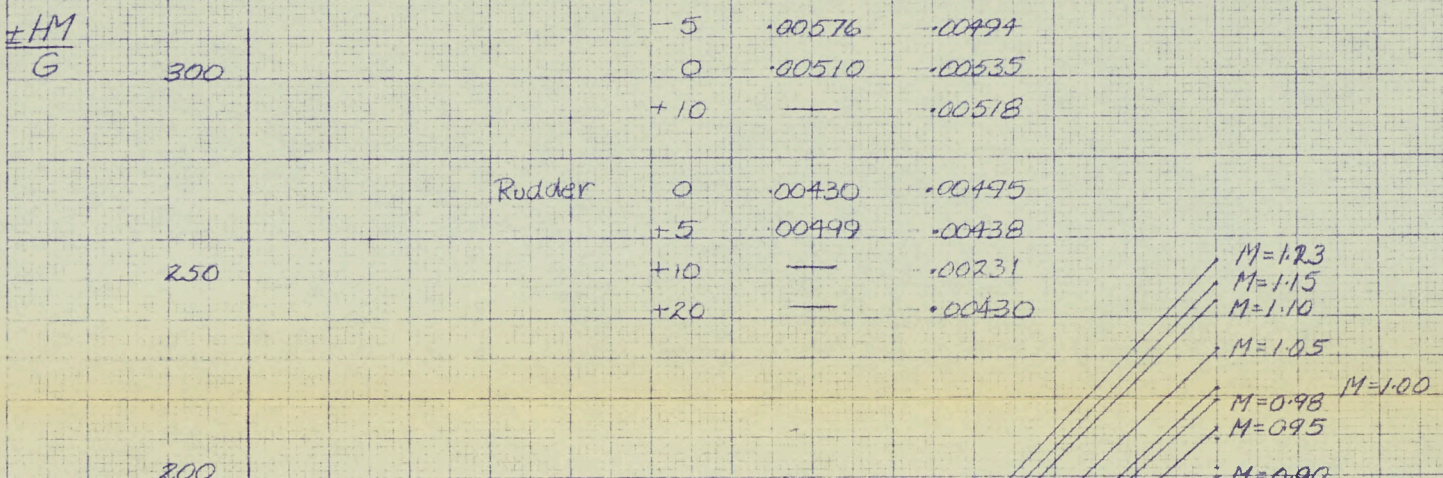
359-11L KEUFFEL & ESSER CO.
10 × 10 to the ½ inch, 5th line accented
MADE IN U.S.A.

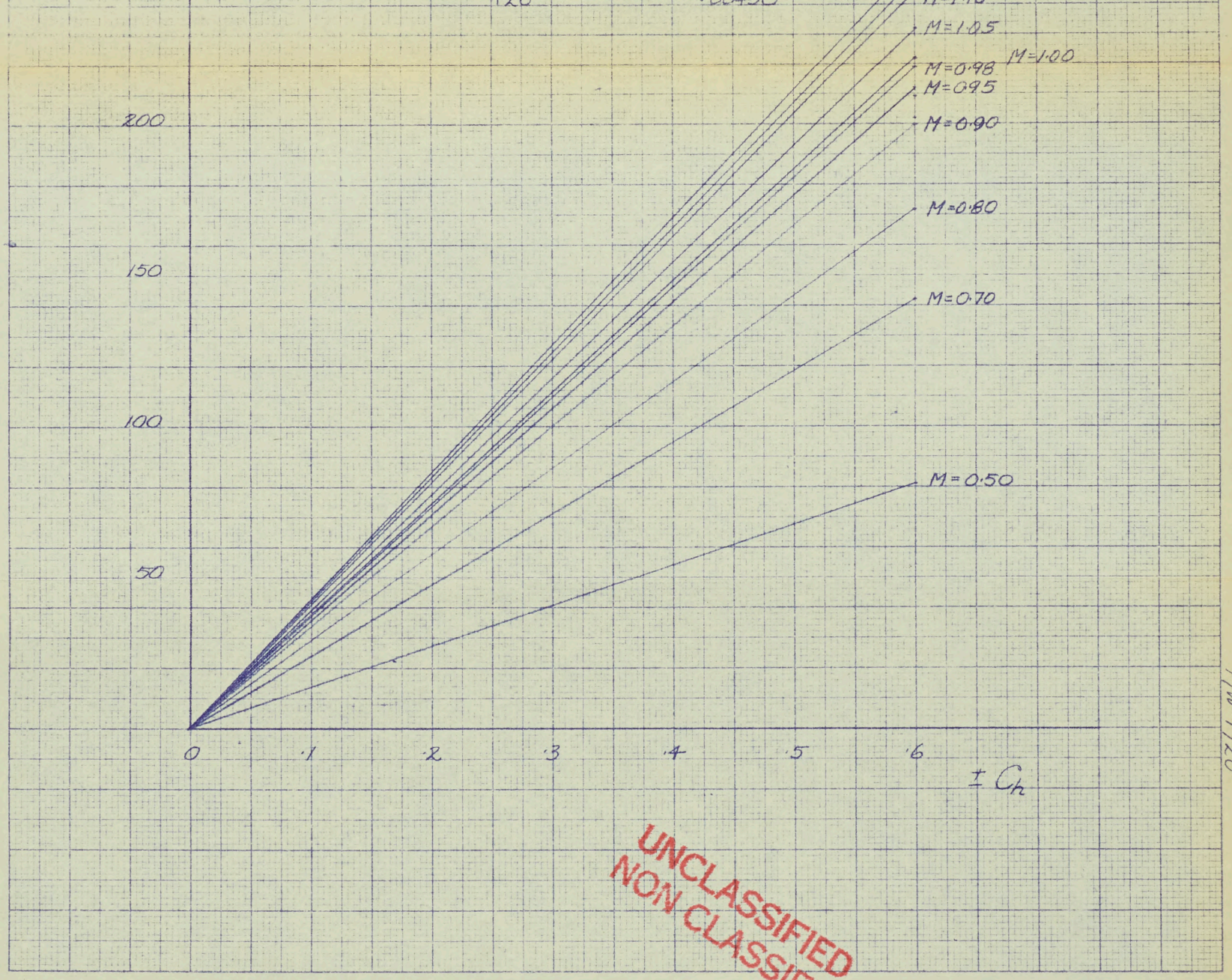
C-105 C.A.L. W-T Tests

Deflection of Loaded Controls

$$\Delta\delta^{\circ} = \frac{HM}{G} \times \frac{G\Delta\delta}{HM}$$

Surface	δ°	$+HM$ $\frac{G\Delta\delta}{HM}$	$-HM$ $\frac{G\Delta\delta}{HM}$	δ°	$+HM$ $\frac{G\Delta\delta}{HM}$	$-HM$ $\frac{G\Delta\delta}{HM}$
Aileron	0	.00633	-.00527	0	.00479	-.00428
—(R.H.)	+5	—	-.00469	-5	.00472	-.00428
+(L.H.)	+10	—	-.00383	-10	.00304	-.00544
	+15	—	-.00602	-15	.00428	-.00414
	+20	—	-.00428	-20	.00369	-.00434
Elevator	-30	.00502	—			
(L.H.)	-20	.00461	—			
	-10	.00469	—			
	-5	.00576	-.00494			
	0	.00510	-.00535			
	+10	—	-.00518			
Rudder	0	.00430	-.00495			
	+5	.00499	-.00438			
	+10	—	-.00231			
	+20	—	-.00430			





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NON CLASSIFIE

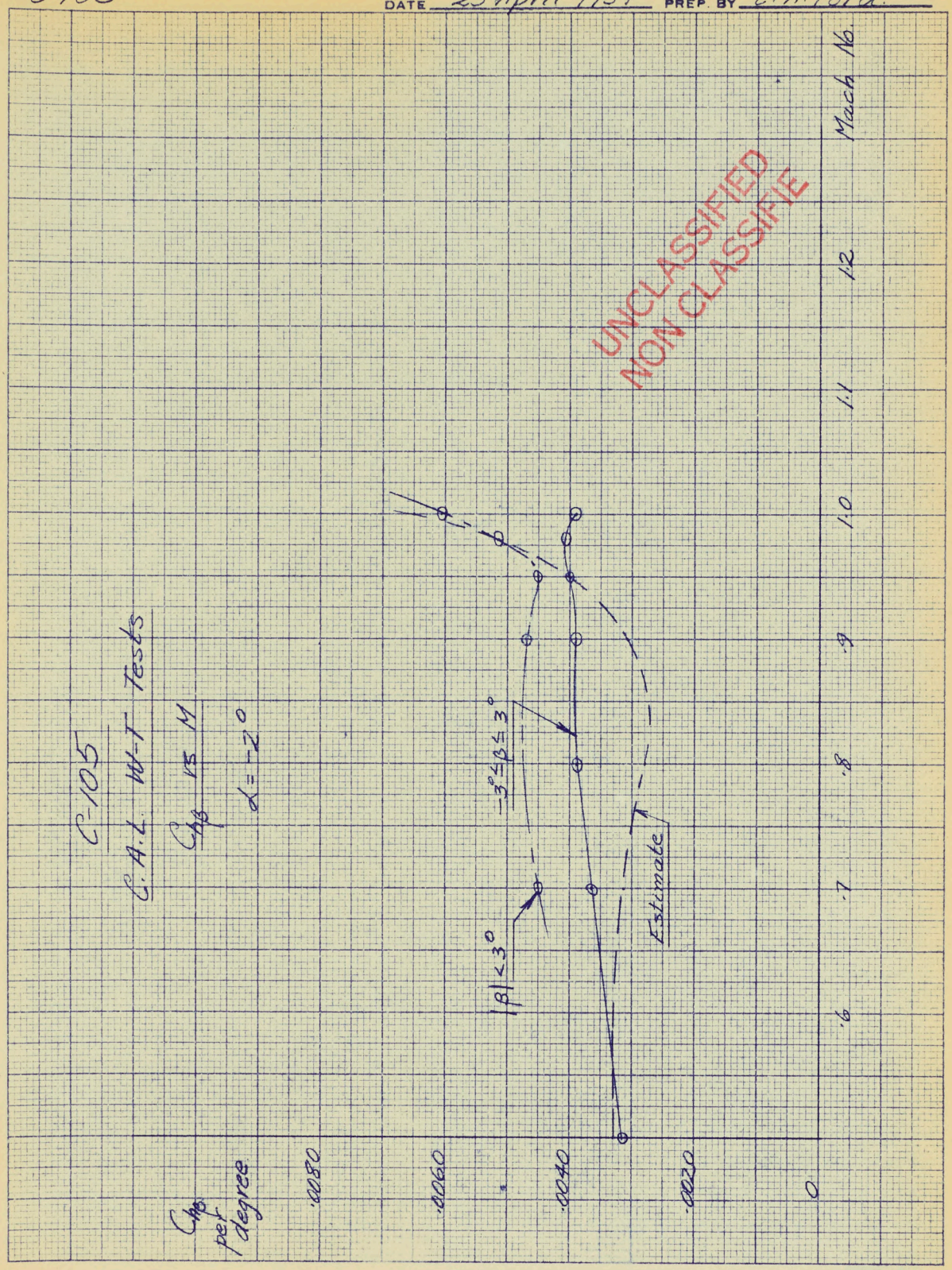
C.A Ford.
P/W-T/20
3.1.57

AIRCRAFT C-105 COMPONENT

A. U. W.

SHEET No. 323. REPORT No. S/W.T. 120

DATE 23 April 1954 PREP. BY C. A. Ford.



UNCLASSIFIED
NON CLASSIFIE

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

FORM 1746

AIRCRAFT A.U.W. C-105 COMPONENT

SHEET No. 324 REPORT No. CAL-720.

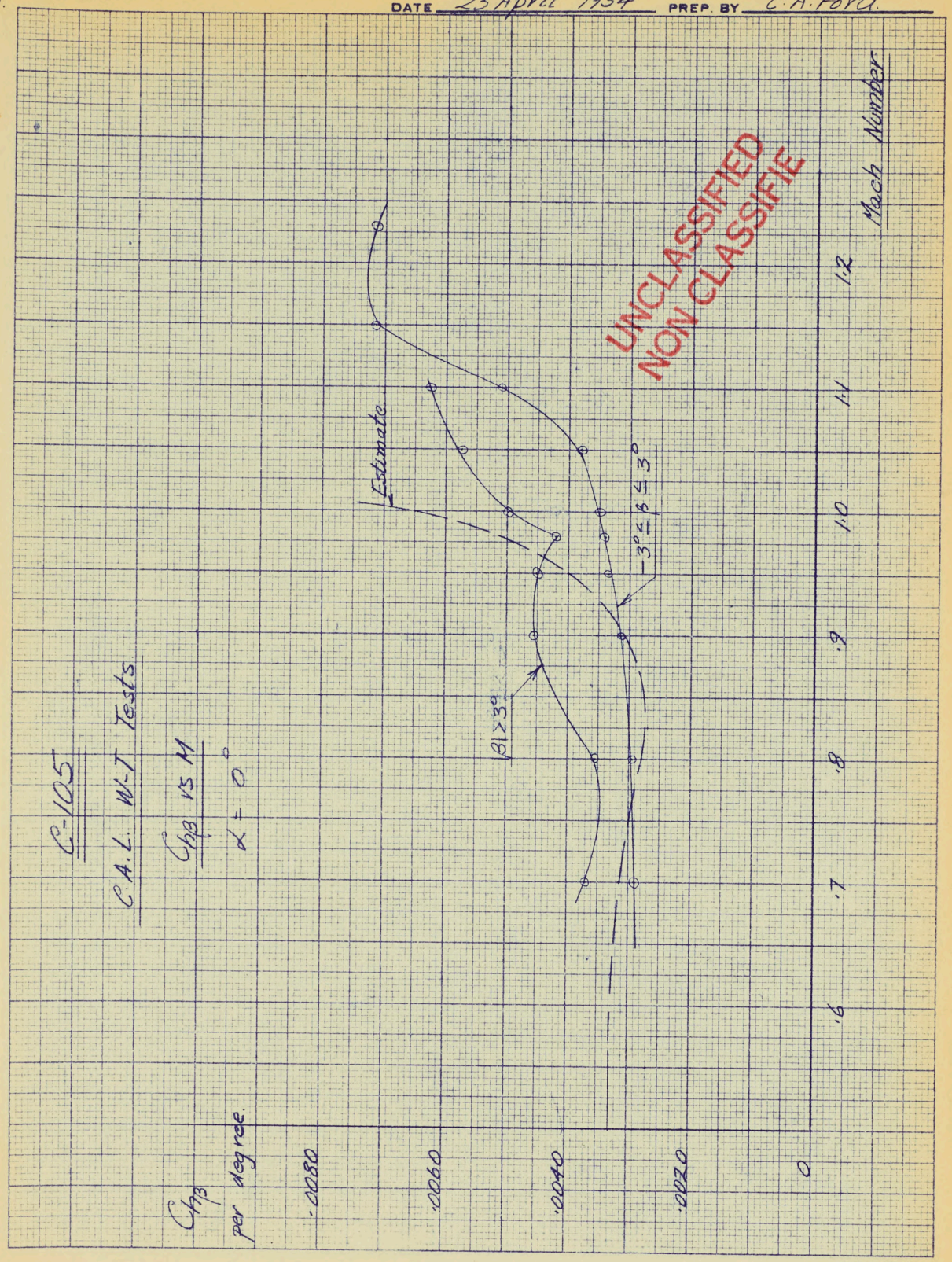
DATE 23 April 1954 PREP. BY C.A. Ford.

C-105

C.A.L. WLT Tests

C_{lq} vs M

$\alpha = 0°$



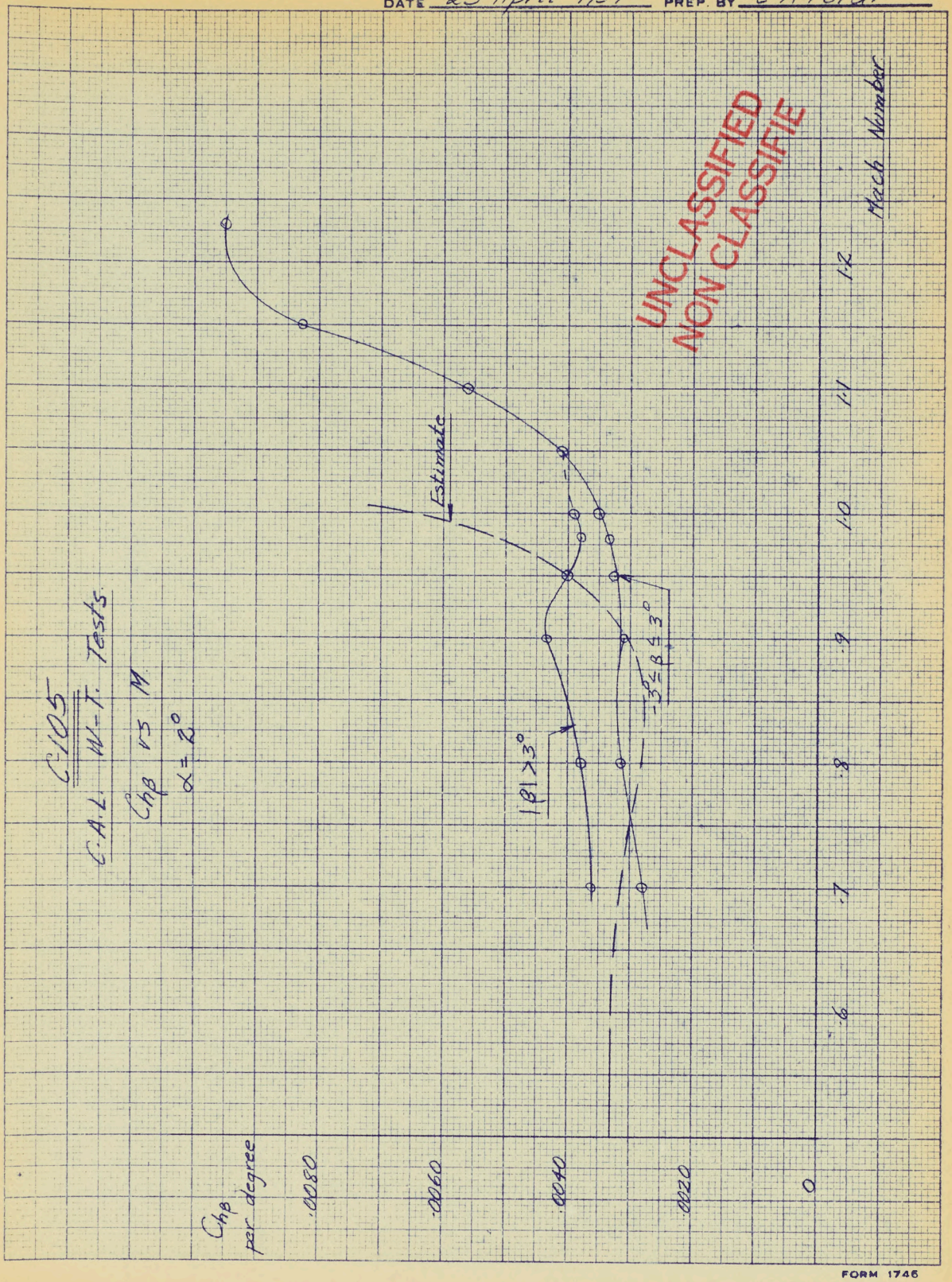
UNCLASSIFIED
NON CLASSIFIE

359-12 KEUFFEL & ESSER CO.
10 - 10 to the inch

FORM 1746

AIRCRAFT C-105 COMPONENT
A.U.W.

SHEET No. 3.2.5. REPORT No. P/W.T./20.
DATE 23 April 1954 PREP. BY C.A. Ford.



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NON CLASSIFIE

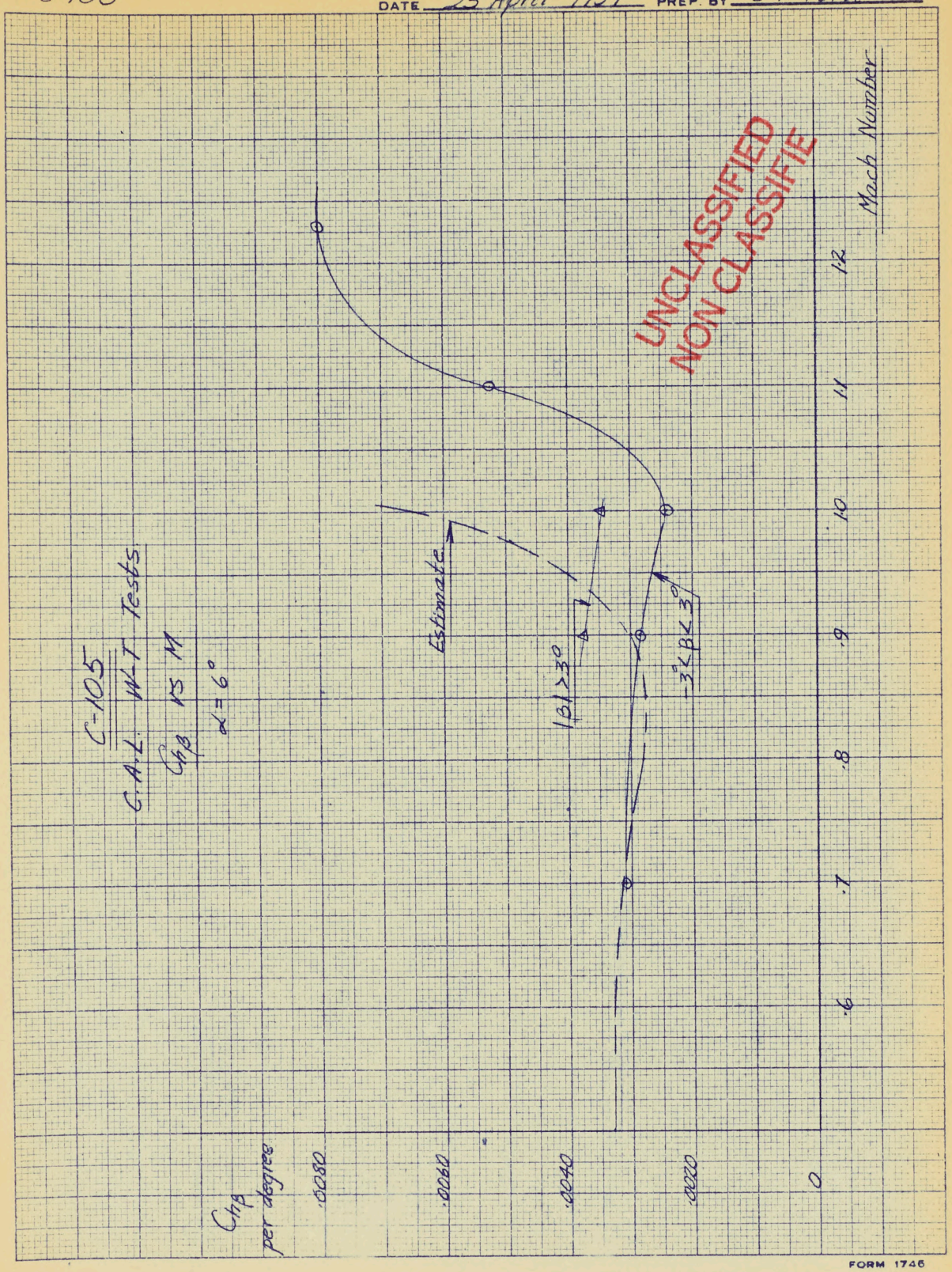
359-12 KEUFFEL & ESSER CO.

FORM 1746

AIRCRAFT A.U.W. C-105 COMPONENT

SHEET NO. 326. REPORT NO. P/W T/20.

DATE 23 April 1954 PREP. BY C.A. Ford



UNCLASSIFIED
NON CLASSIFIE

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

FORM 1746

AIRCRAFT C-105 COMPONENT

A. U. W.

SHEET No. 327. REPORT No. P/W.T./20.

DATE 23 April 1954 PREP. BY C.A. Ford.

UNCLASSIFIED
NON CLASSIFIE

C-105

C.A.L. W-T Tests

$\frac{C_{l\beta}\ (outer)}{C_{l\beta}\ (inner)}$ $\frac{a_{w}\ (outer)}{a_{w}\ (inner)}$

△ a_{w}

○ $C_{l\beta}$

2.0

1.5

1.0

.9

.8

.7

.6

Mach Number

$\alpha = 0°$

$\alpha = 0°$

$\alpha = 2°$

$\alpha = 0°, 2°$

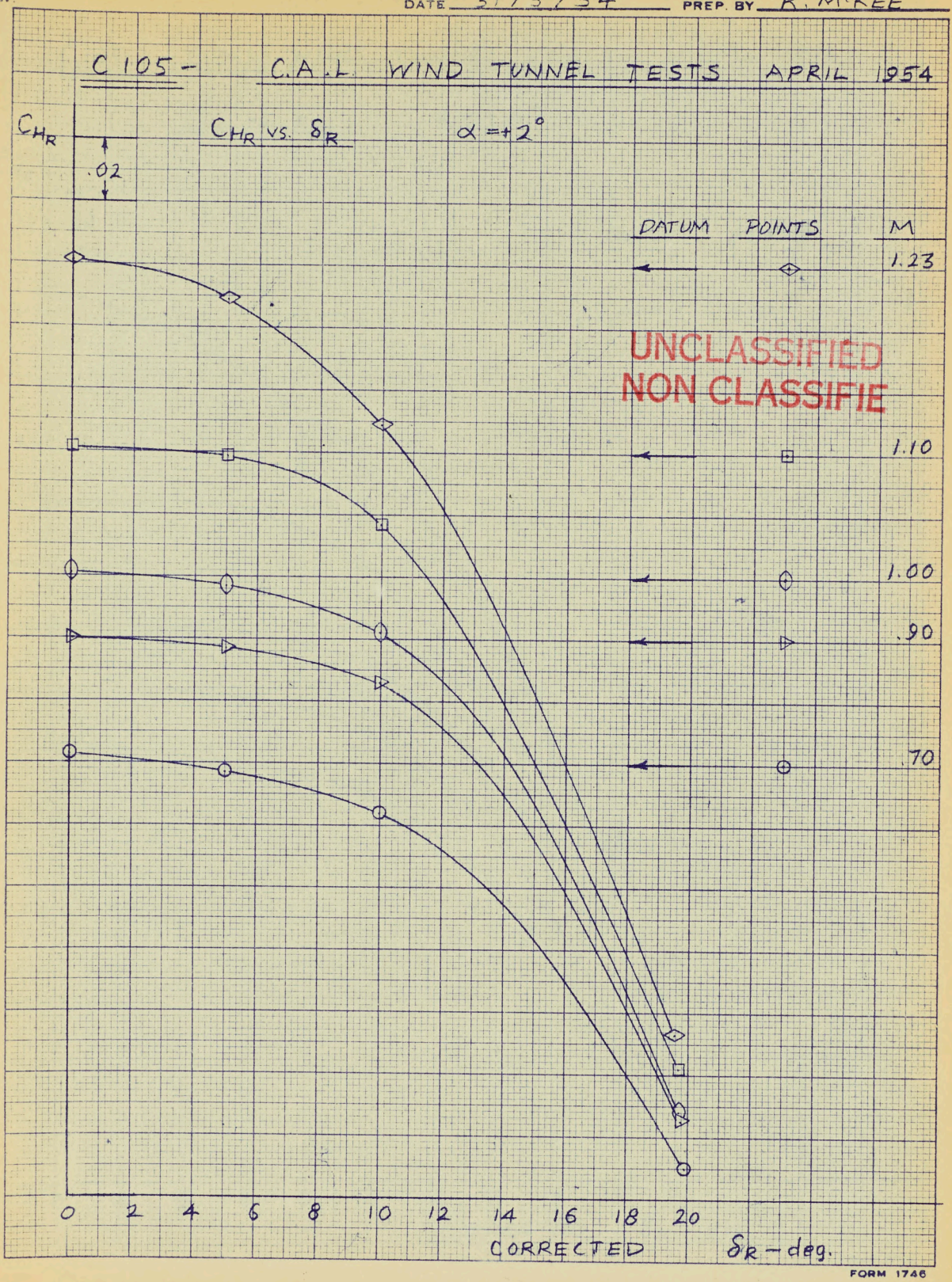
$\alpha = +2°$

$\alpha = -2°$

359-12 KEUFFEL & ESSER CO.
MADE IN U. S. A.

FORM 1746

AIRCRAFT C105 COMPONENT C_{H_R} VS. δ_R SHEET No. 3.3.1. REPORT No. P/WT/20
A.U.W. DATE 31/5/54 PREP. BY R. McKEE

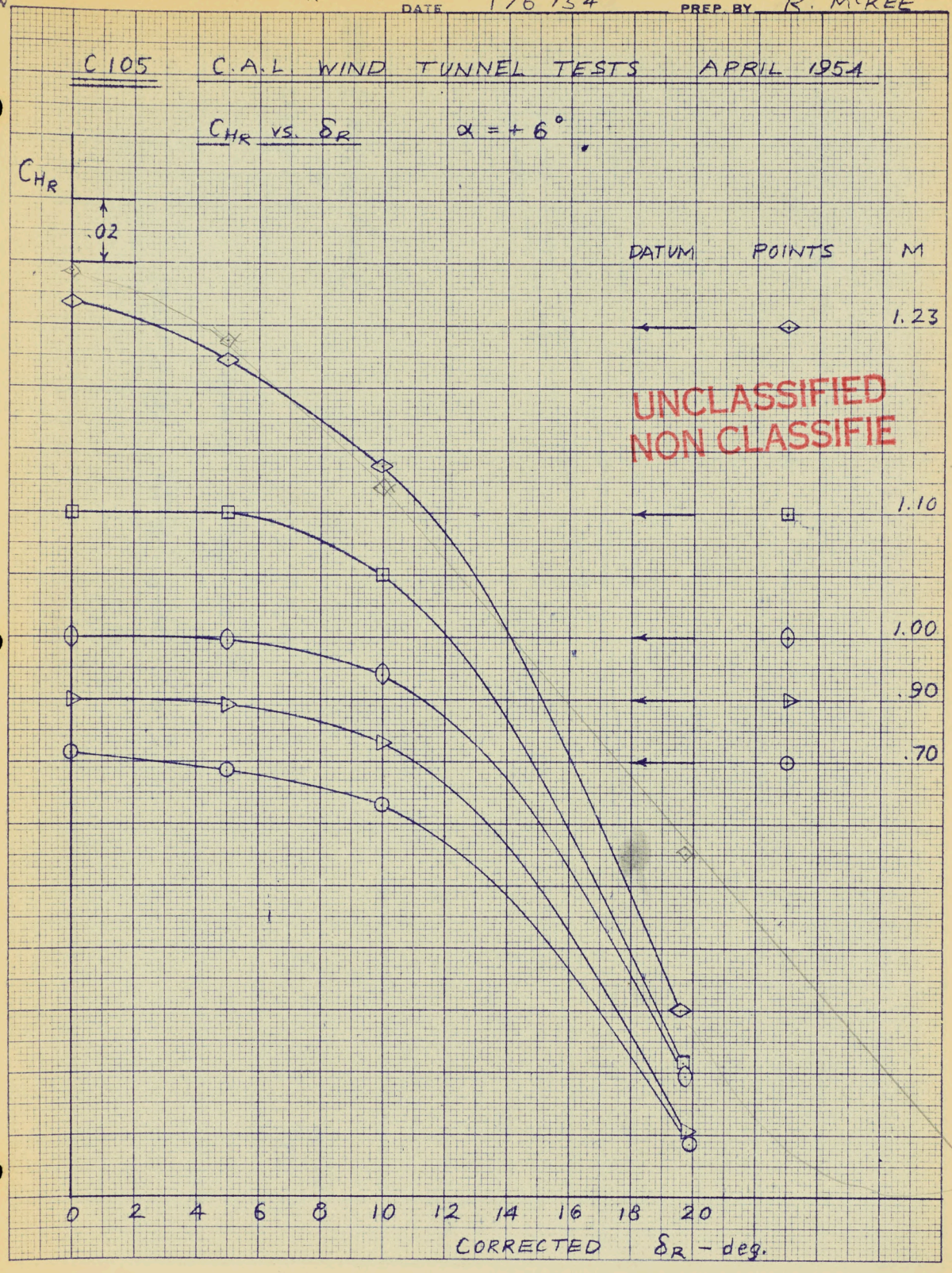


UNCLASSIFIED
NON CLASSIFIE

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

FORM 1746

AIRCRAFT A.U.W C 105 COMPONENT C_{H_R} vs δ_R SHEET No. 332. REPORT No. P/WT/120
DATE 1/6/54 PREP. BY R. McKEE

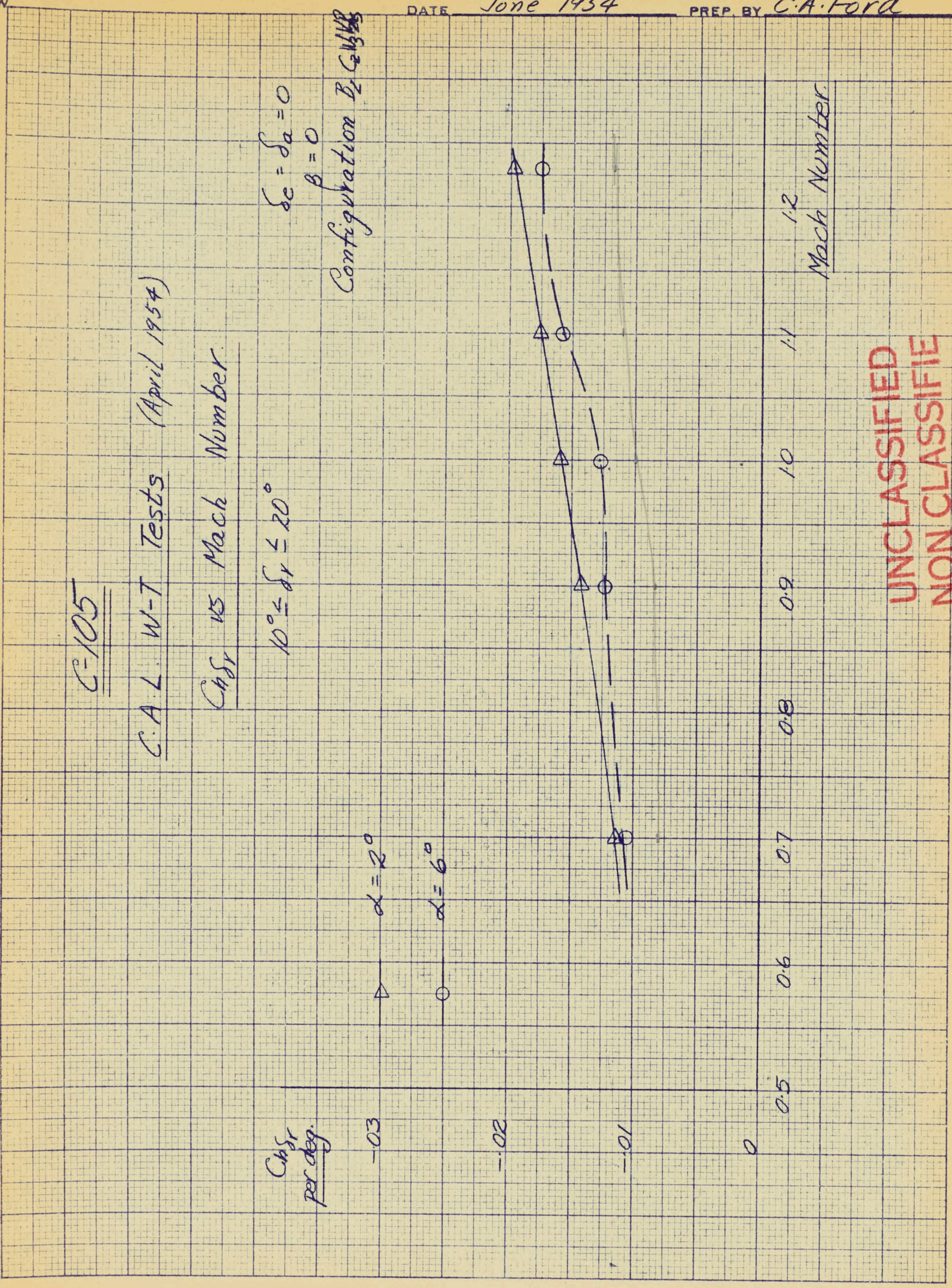


359-12 KEUFFEL & ESSER CO.
10 × 10 to the ½ inch. 5th lines accented.
MADE IN U.S.A.

FORM 1746

AIRCRAFT C-105 COMPONENT SHEET No. 333 REPORT No. P/W-T/120

A.U.W. DATE June 1954 PREP. BY C.A. Ford

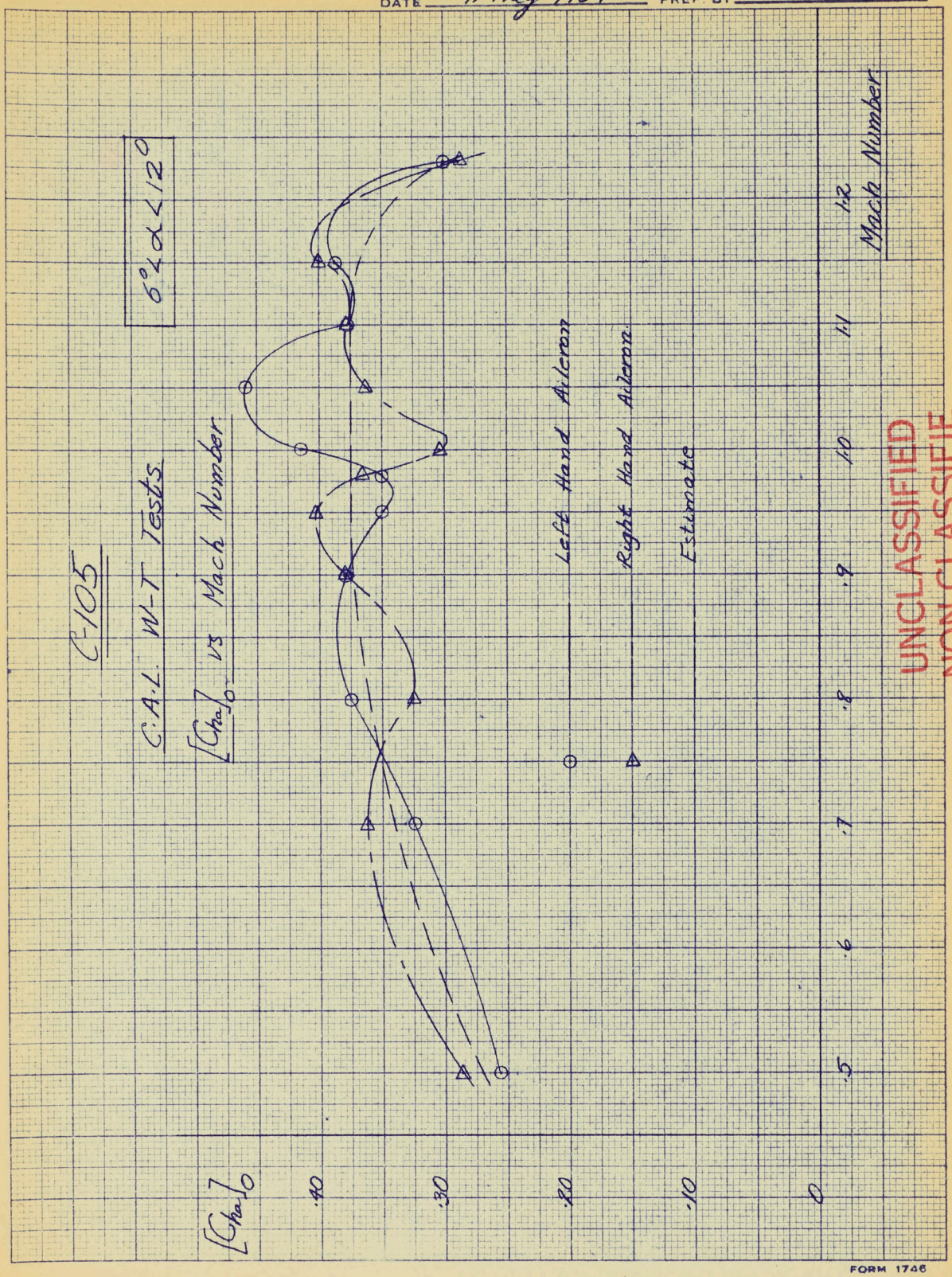


UNCLASSIFIED
NON CLASSIFIE

FORM 1746

AIRCRAFT C-105 COMPONENT
A. U. W.

SHEET No. 416. REPORT No. P/W-T/20
DATE 11 May 1954 PREP. BY C. A. Ford



UNCLASSIFIED
NON CLASSIFIE

FORM 1746

AIRCRAFT C-105 COMPONENT
A. U. W.

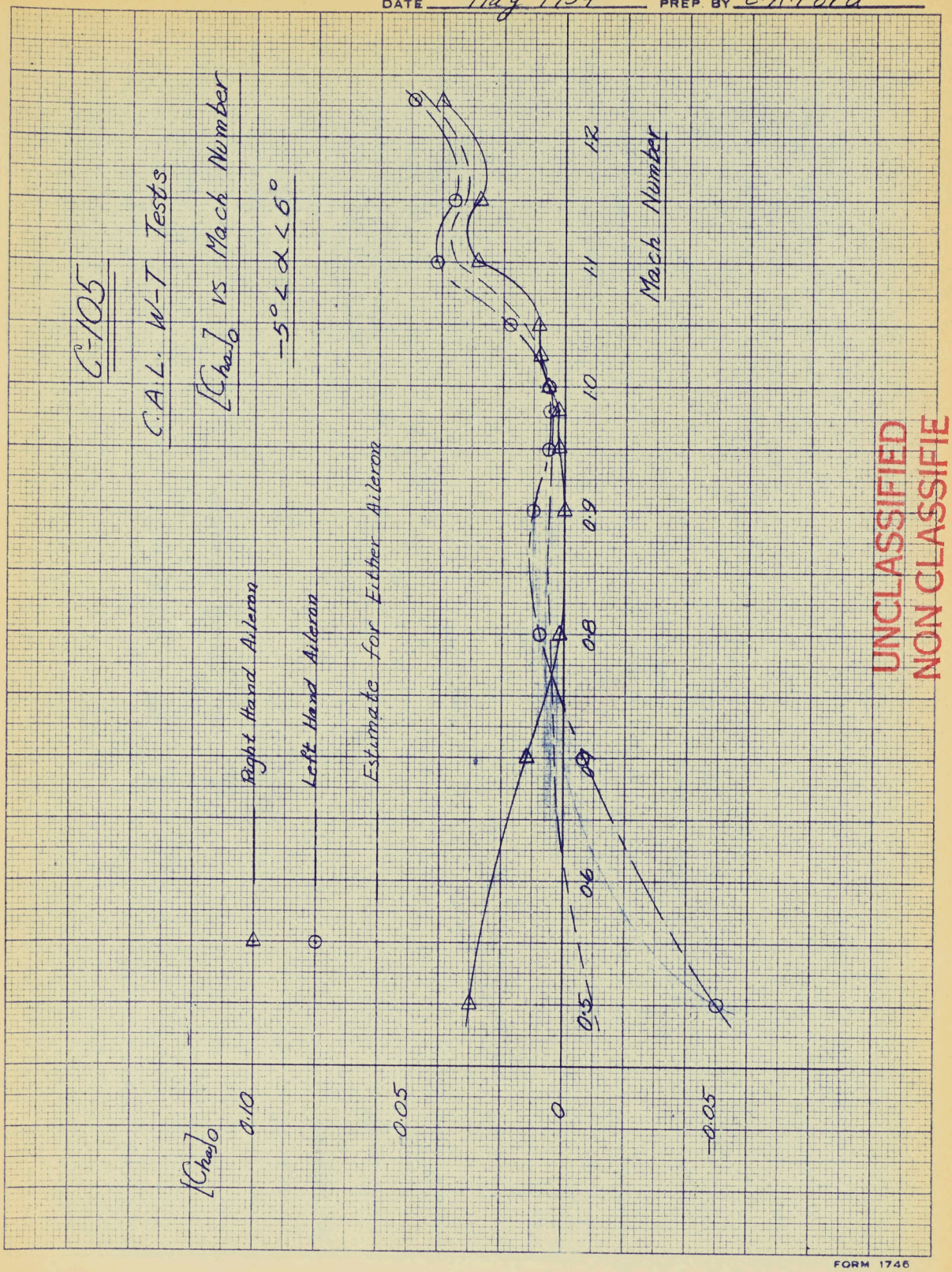
SHEET No. 417. REPORT No. P/W-T/120
DATE May 1954 PREP. BY C.A. Ford

C-105

C.A.L. W-T Tests

$[C_{hinge}]$ vs Mach Number

$-5° < \alpha < 6°$



UNCLASSIFIED
NON CLASSIFIE

359-12 KEUFFEL & ESSER CO.
10 × 10 to the 1/2 inch, 5th lines accented.
MADE IN U. S. A.

FORM 1746

AIRCRAFT
A.U.W.

COMPONENT

SHEET No. 121. REPORT No. PW-T/20

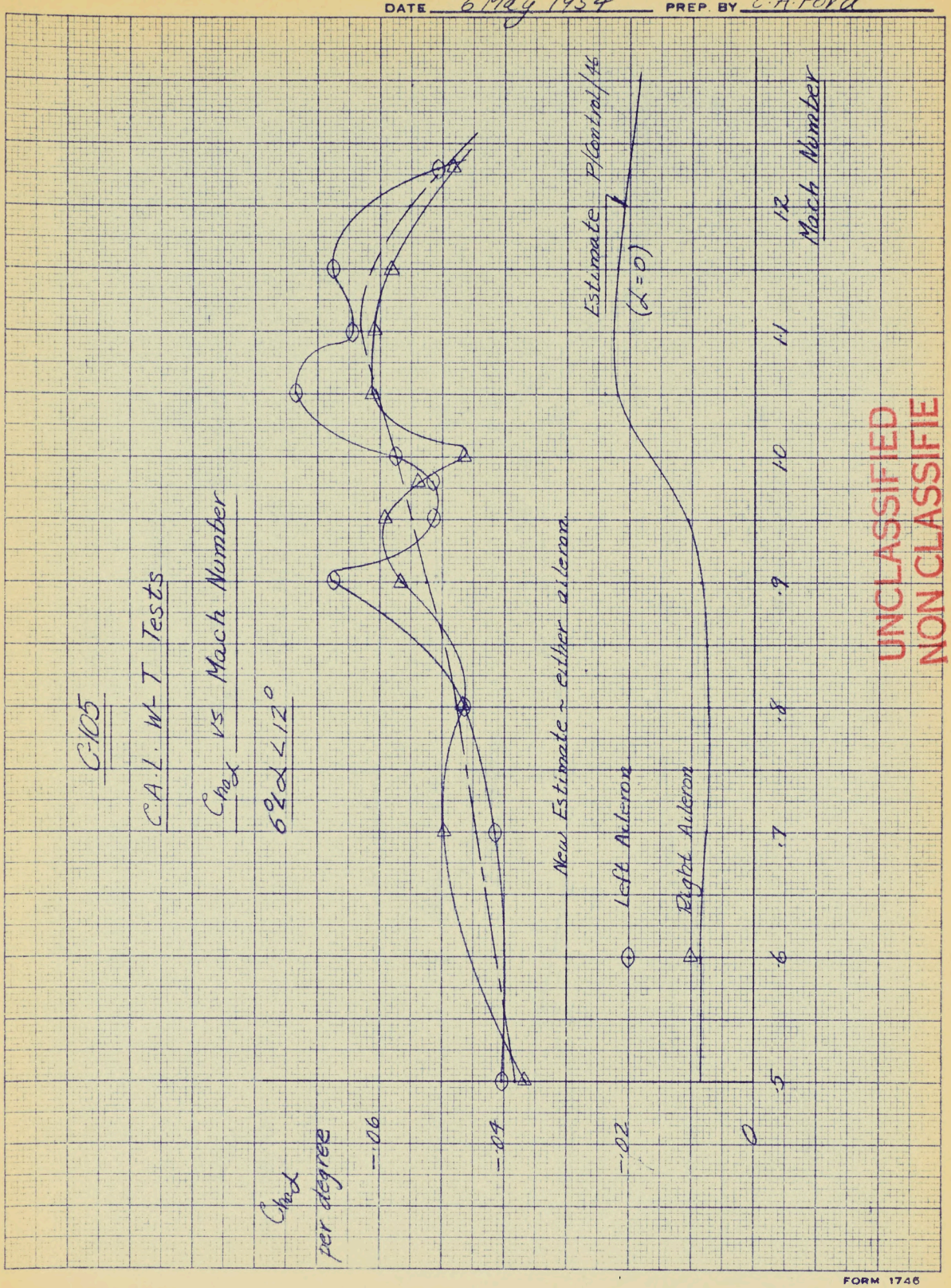
DATE 6 May 1954 PREP. BY C.A. Ford

C-105

C.A.L. W.T. Tests

C_{hinge} vs Mach Number

$6\delta_a < 12°$



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NON CLASSIFIE

FORM 1746

AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 122

REPORT No. P/W-T/20

DATE 6 May 1954

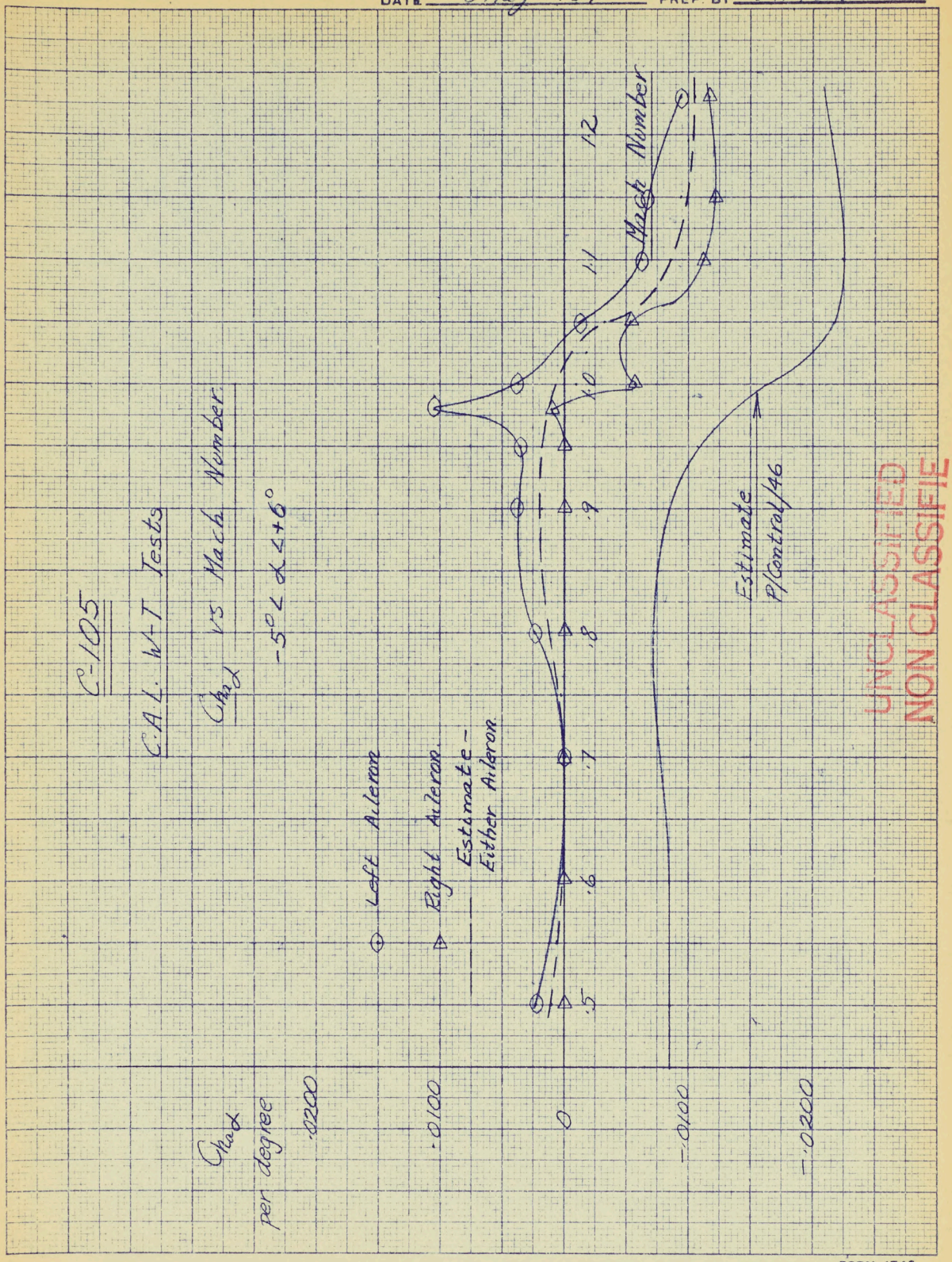
PREP. BY C.A. Ford

C-105

C.A.L. W+T Tests

C_{h_α} vs Mach Number

$-5^\circ < \alpha < +6^\circ$



UNCLASSIFIED
NON CLASSIFIE

FORM 1746

359-11L KEUFFEL & ESSER CO.
10 X 10 to the ½ inch. 5th heavy
MADE IN U.S.A.

C-105

C.A.L. W-T Tests

C_{h_a} vs. δ_a

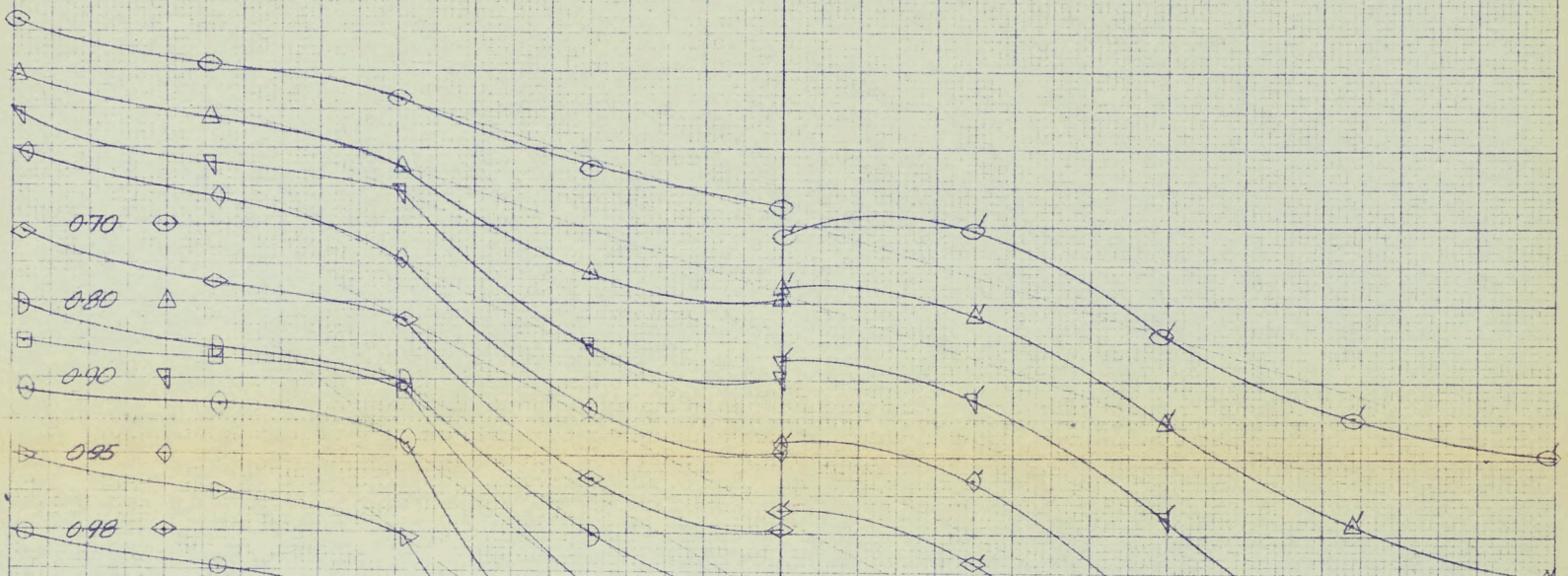
$\alpha = 2°$

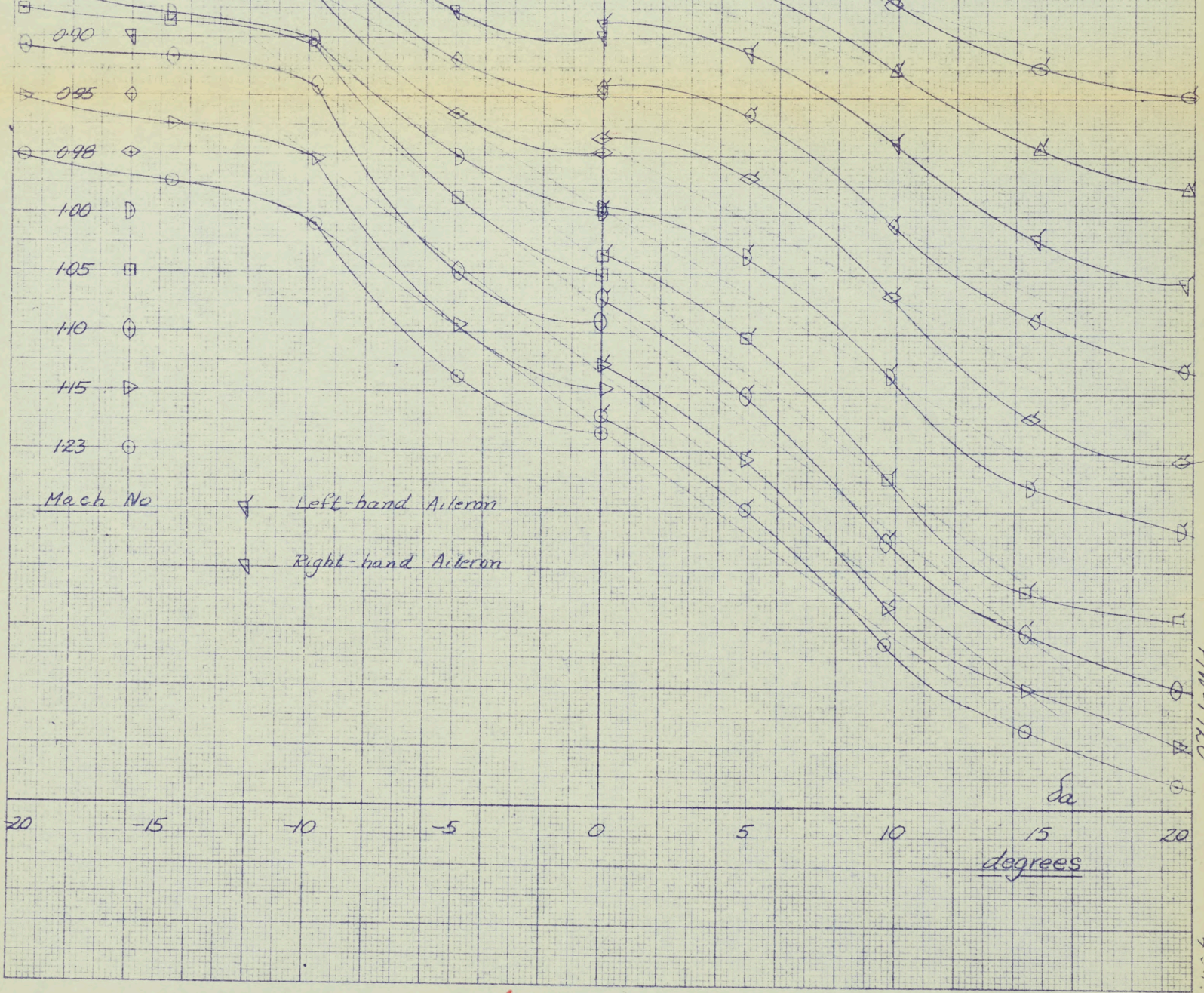
$\delta_e = \delta_r = 0°$

$\beta = 0°$

$-20° \leq \delta_a \leq +20°$

Configuration $B_2 C_2 W_3 V_2 R_2$





C.A. Ford
P.W.-T.120
May 1954
A.31.

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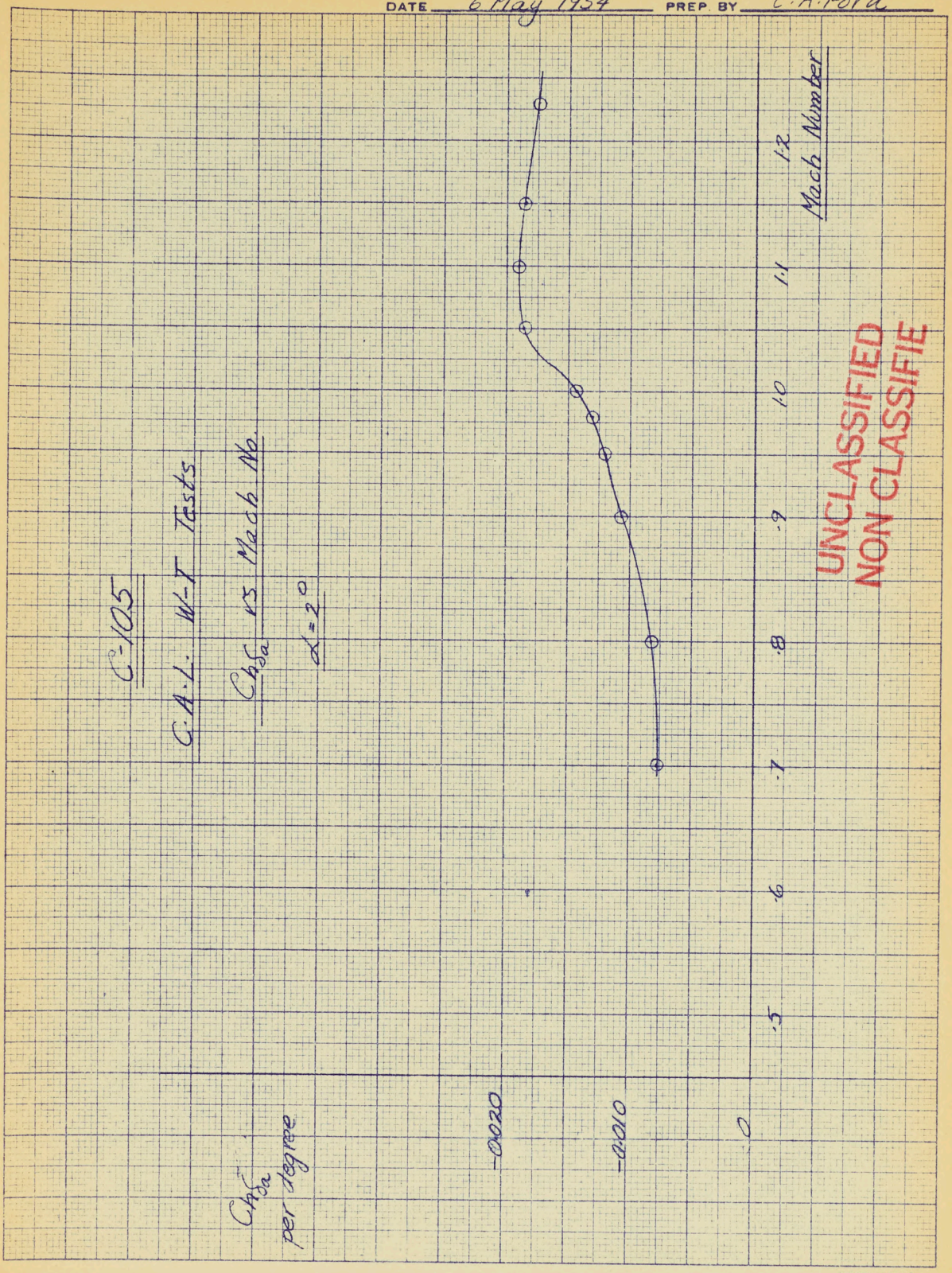
NON CLASSIFIE

AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 4.3.3. REPORT No. P/W-T/20

DATE 6 May 1954 PREP. BY C. A. Ford



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NON CLASSIFIE

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

FORM 1746

DUC-TANG
3558
MADE IN U.S.A.