

QC
Avro
C-105
P/WT-51

QCX
Avro
CF105
P-WT-51

(3)

FILE IN VAULT

C-105

P/Wind Tunnel/51

G.A.L. WIND TUNNEL TESTS

(OCTOBER 1954)

DERIVATIVES

COMPARISONS AND EXTRAPOLATIONS

Dec. 1954

SECRET UNCLASSIFIED
UNCLASSIFIED / NON CLASSIFIÉ

ANALYZED



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TO
A

DATE

Report no.: QCX-AVRO-CF105- P-WT-51

has been ☐ downgraded to: _____

☒ de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Auger
Signature



45109

12417869

TECHNICAL DEPARTMENT (Aircraft)

SHEET NO. 1

AIRCRAFT:

C-105

OCTOBER 1954

TESTS

UNCLASSIFIED / NON CLASSIFIÉ

PREPARED BY

DATE

J.P. Clark

December 1954

CHECKED BY

DATE

INDEX

Longitudinal Stability

Section

1. Lift

- | | |
|------------------|-----|
| 1. $C_{L\alpha}$ | 1.1 |
| 2. q_0 | 1.2 |

2. Pitching Moment

- | | |
|--------------|-----|
| 1. a.c. | 2.1 |
| 2. C_{M_0} | 2.2 |

3. Elevator Effectiveness

- | | |
|-----------------------------------|-----|
| 1. C_{L_δ} | 3.1 |
| 2. C_{M_δ} const. C_L | 3.2 |
| 3. C_{M_δ} const. α | 3.3 |
| 4. c.p. | 3.4 |

Lateral Stability

4. Sideslip Derivatives

- | | |
|-----------------|-----|
| 1. $C_{N\beta}$ | 4.1 |
| 2. $C_{l\beta}$ | 4.2 |
| 3. $C_{y\beta}$ | 4.3 |

5. Vertical Tail Effectiveness

- | | |
|------------------|-----|
| 1. a_1 | 5.1 |
| 2. a.c. | 5.2 |
| 3. $\eta_{a.c.}$ | 5.3 |

6. Aileron c.p.

- | | |
|-------------------|-----|
| 1. C_{M_δ} | 6.1 |
| 2. a_2 | 6.2 |
| 3. c.p. | 6.3 |
| 4. $\eta_{c.p.}$ | 6.4 |
| 5. $C_{l\delta}$ | 6.5 |

TECHNICAL DEPARTMENT (Aircraft)

REPORT NO. P/WIND TUNNEL/54

SHEET NO. 11

AIRCRAFT:

C-105

OCTOBER 1954

TESTS

PREPARED BY

DATE

J.P. Clark

December 1954

CHECKED BY

DATE

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Hinge Moments

Section

7. Elevator

1. C_{H_0}	7.1
2. C_{H_Q}	7.2
3. C_{H_δ}	7.3

8. Aileron

1. C_{H_0}	8.1
2. C_{H_Q}	8.2
3. C_{H_δ}	8.3

1.1.

P/WT/51

C-105

CAL WIT TESTS OCT 15-4

CL_α VS Mach N^oConfig B₄ C₃ W₄ V₂ R₂ Nas

0.7

0.6

CL_α

per degree

0.5

0.4

0.3

0.2

0.4

0.6

0.8

1.0

1.2

1.4

1.6

1.8

2.0

Mach N^o

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 $\alpha > 12^\circ$ $\alpha < 12^\circ$

87

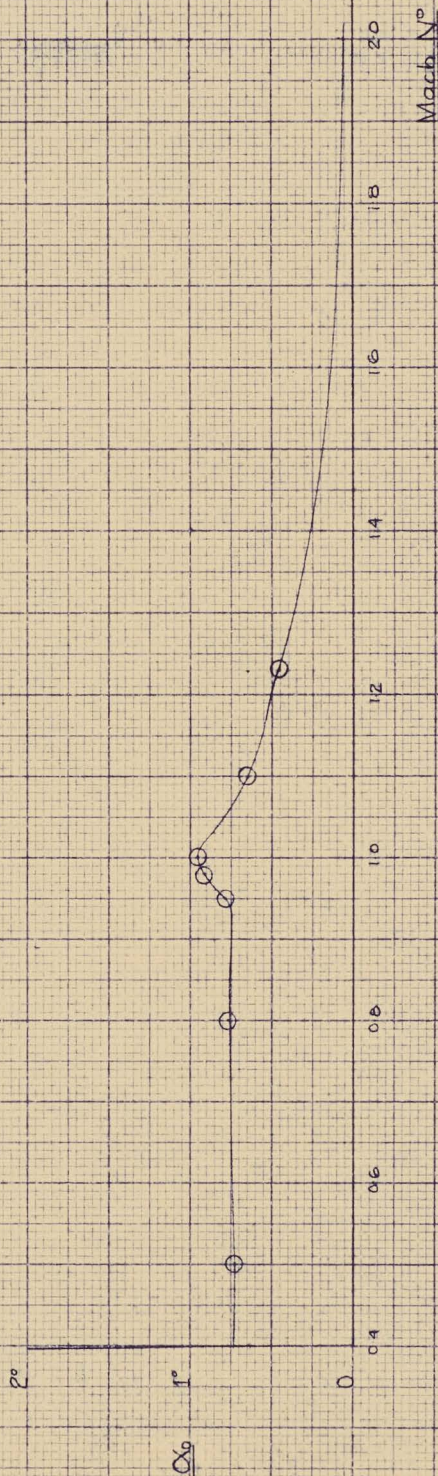
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C-105

EAL W/T TESTS OCT 54

Xo VS Mach No

Config B₁ C₂ W₁ V₂ P₃ V₄



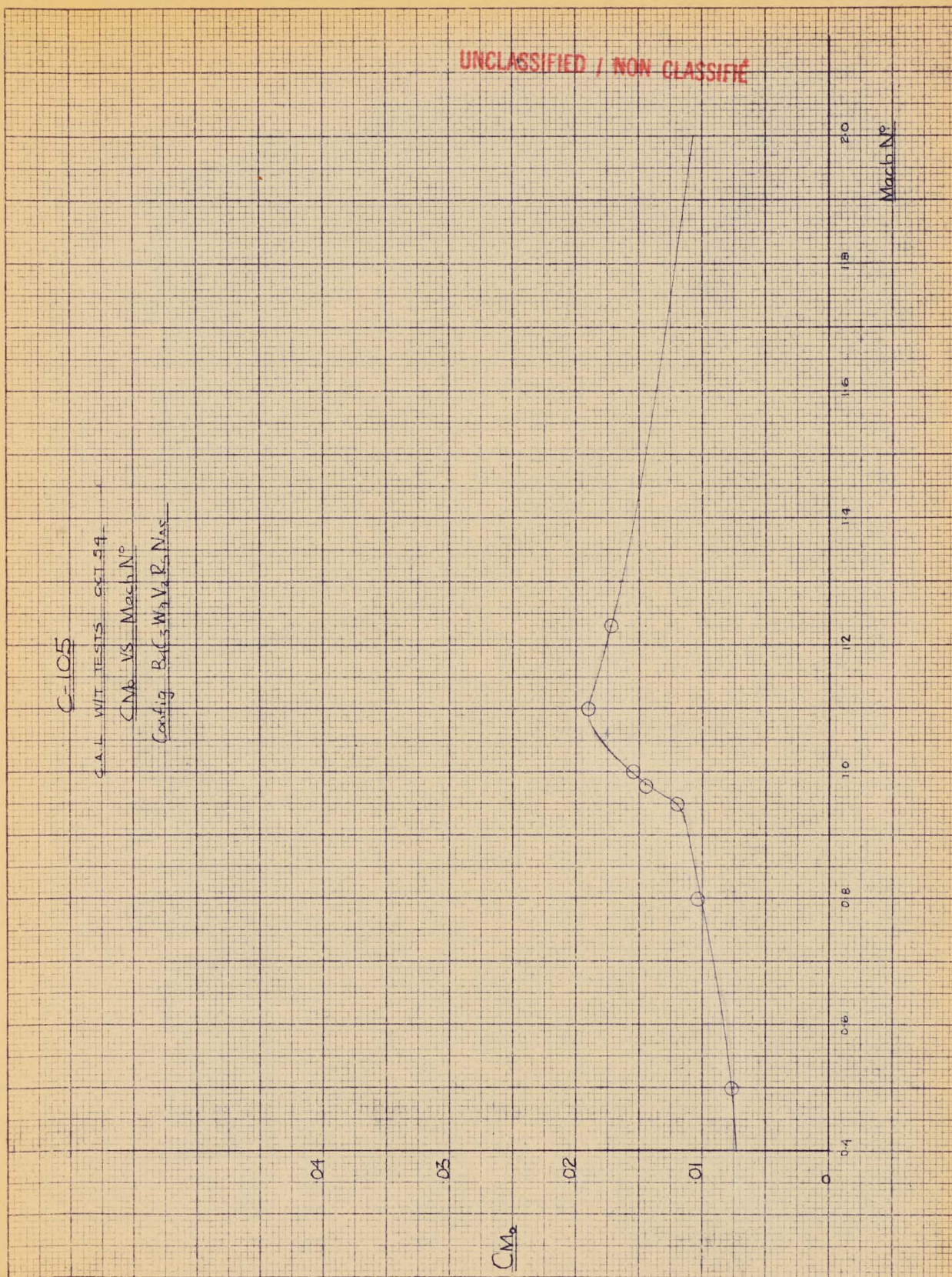
C-105

GALL WIT TESTS 581.54

CN₆ VS Mach N°

Config B₁ C₁ W₁ V₁ R₁ N₁ S₁

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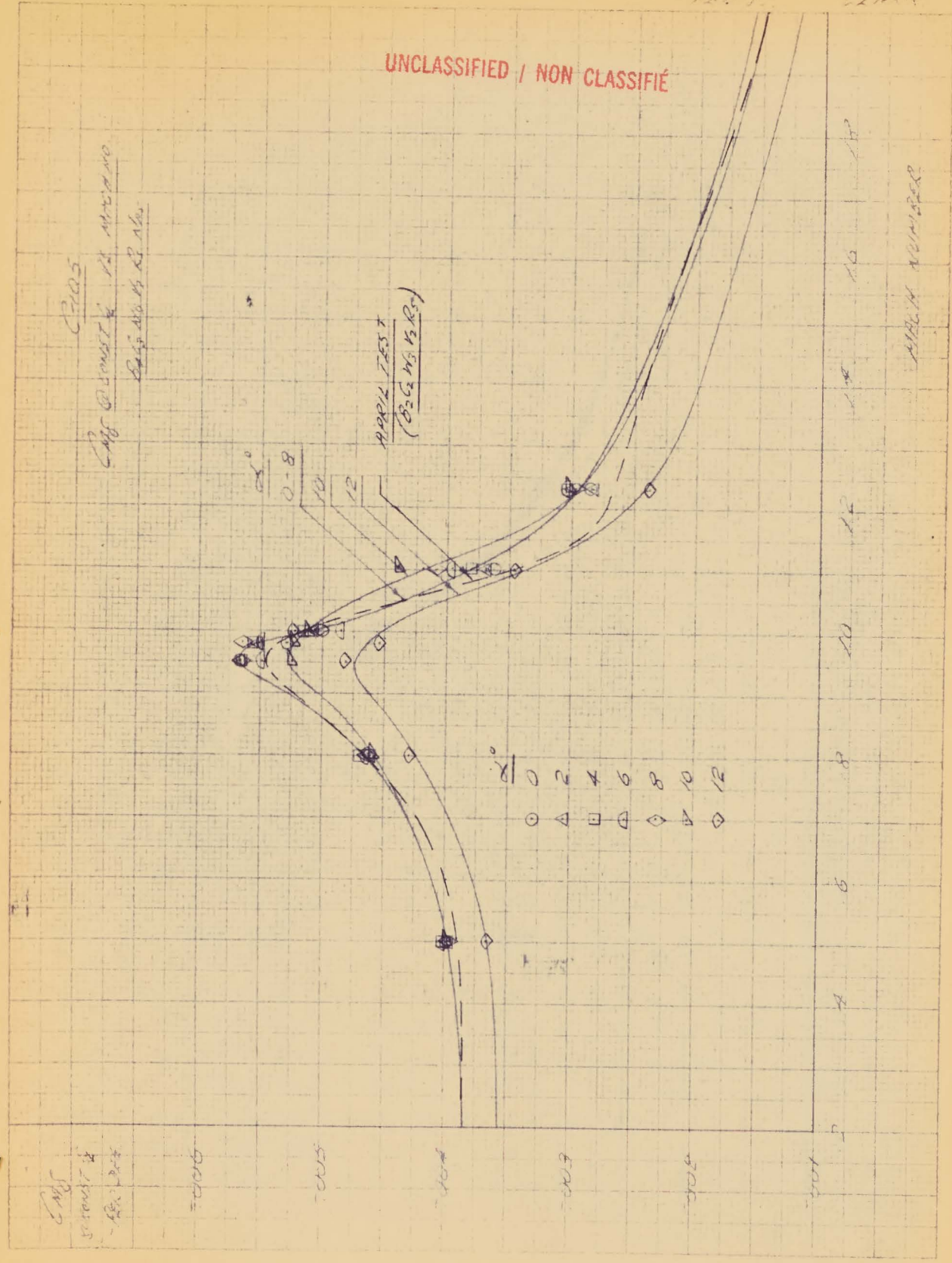
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2.3.2. P/W T/51.12.
 1985. 2.2.2.

C705
 Cylindrical 12 mm dia
 800 mm x 12 mm

APRIL TEST
 (826 N3 R3)

WAVE NUMBER



4.2. P/WIND TUNNEL/51
Dec /54. K. Mathias

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C105

$C_{L\beta}$ VS MACH NO
RIGID.
By $C_{L\beta}$ N_{β} N_{β}
MEAN VALUES
 $-10^\circ < \beta < +10^\circ$

$C_{L\beta}$
PER DEG

0050

0020

0010

0

0010

0020

20

18

16

14

12

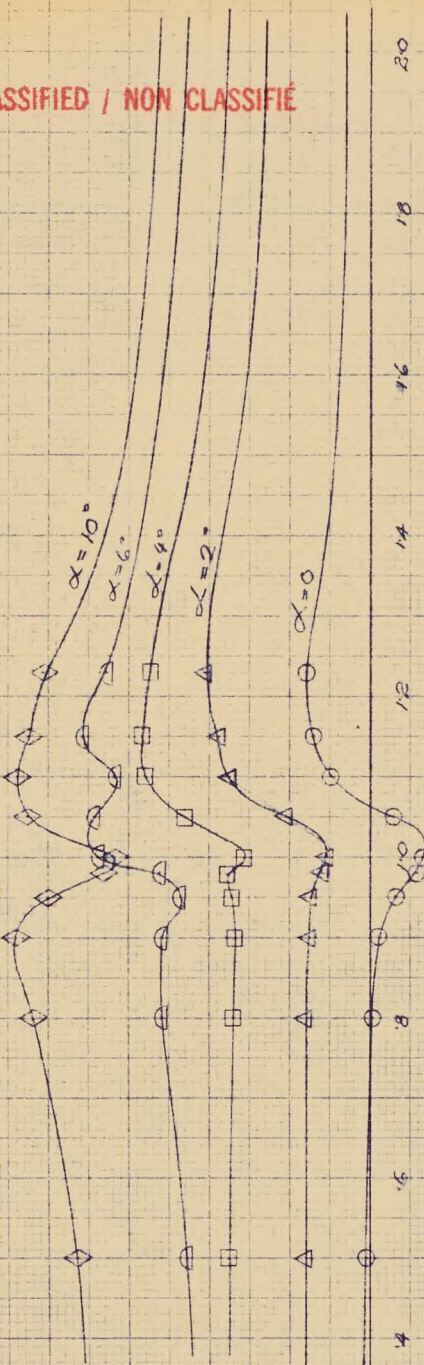
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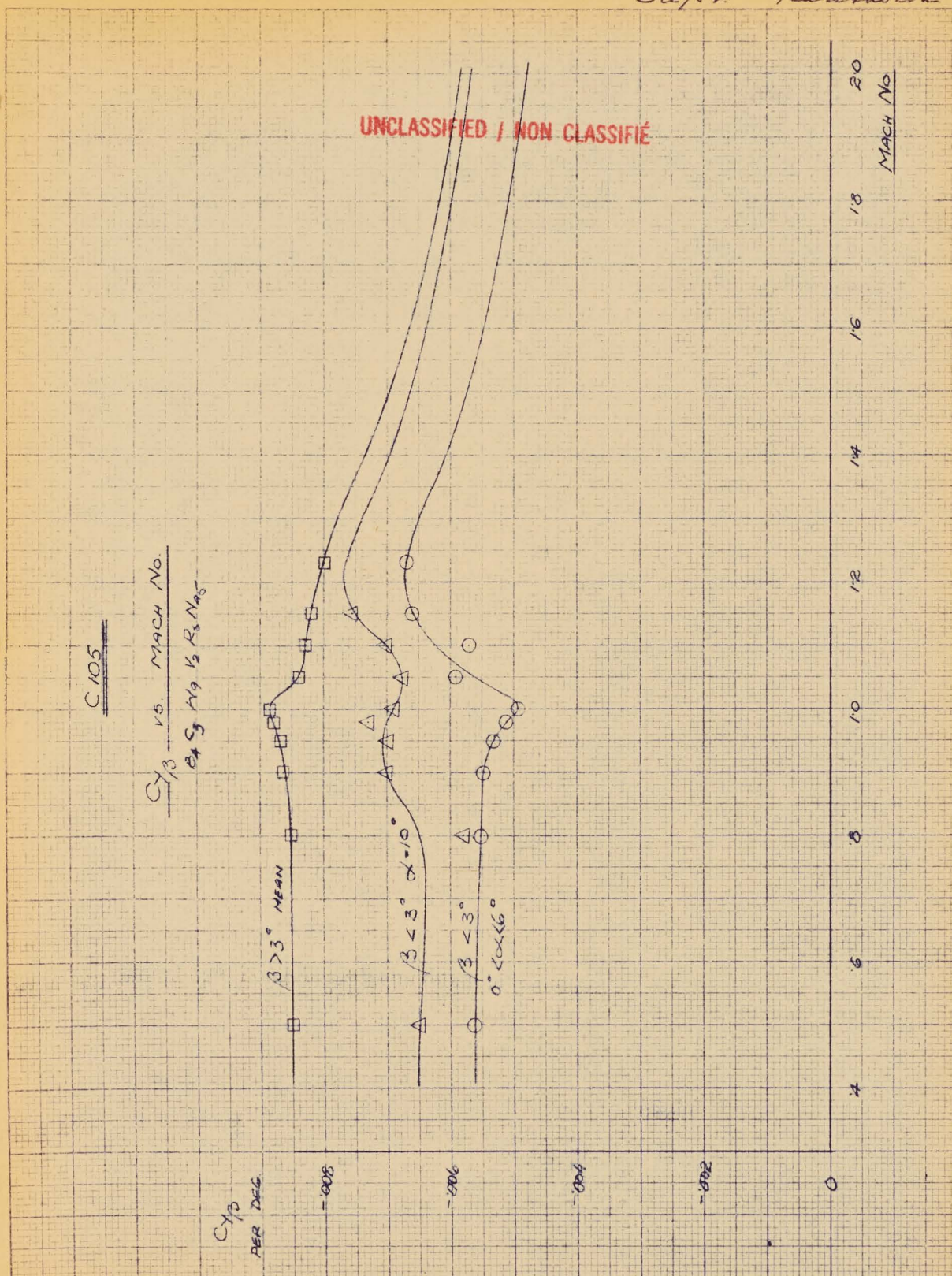
6

4

MACH NO



4.3. P/WIND TUNNEL /SI
Dec/54. Knathouk



-0
 -21
 -42
 -63

A.C.
~ 21 MPH

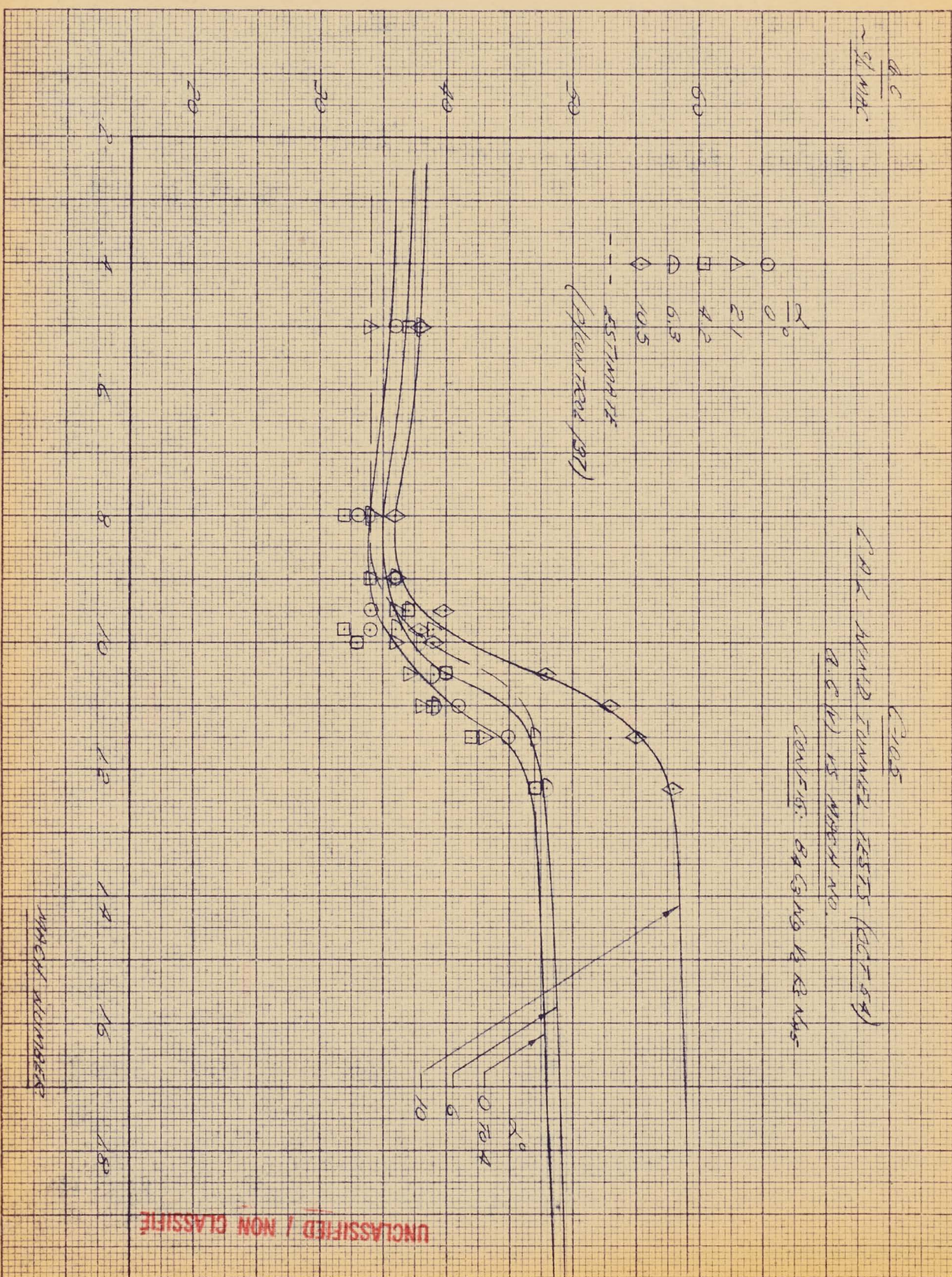
C.H.K. WIND TUNNEL TESTS (FAC 54)

A.C. (V) IS APPROX NO.

CONVERSION BASED ON 1/2 K.E. NO.

C.H.K.

--- ESTIMATE
(APPROX 1971)



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5.2. P/07/51
Nov. 87
Clark

C-105
CAL. WIND TUNNEL TESTS OCT '54

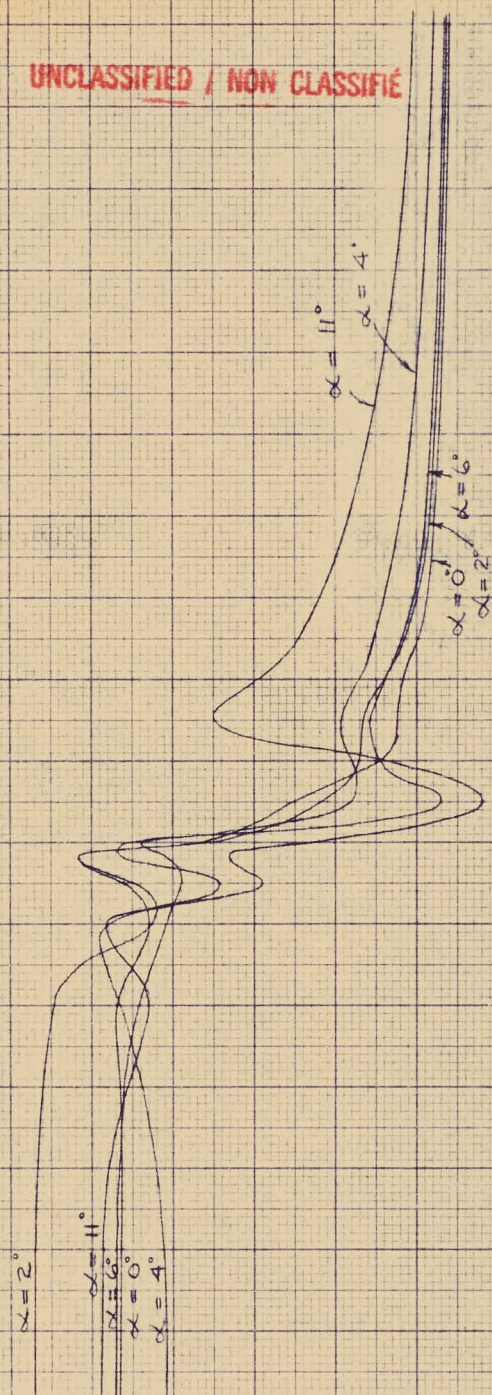
$C_{L_{8a}}$ VS MACH NO.

$0^\circ > \delta_{AR} > -10^\circ$

CONFIG. B₄C₃W₄N₄S₂R₃
ONLY RIGHT AILERON DEFLECTED

$C_{L_{8a}}$
PER DEG.

UNCLASSIFIED / NON CLASSIFIE



MACH NO.

3.42 5.05
($\alpha = 6^\circ$) ($\alpha = 11^\circ$)

C-105

C.A.L. WIND TUNNEL TESTS OCT. '54

CHORDWISE POSITION
OF AILERON LOAD

~ FRACTION OF OUTER
WING M.A.C. AFT OF
L.E.

$0^\circ > \delta_{NR} > -10^\circ$

CONFIG. $B_4 C_3 W_4 N A_5 V_2 R_3$

$\alpha = 2^\circ$
 $\alpha = 0^\circ$
 $\alpha = 6^\circ$
 $\alpha = 4^\circ$

UNCLASSIFIED / NON CLASSIFIE

$\alpha = 11^\circ$

$\alpha = 0^\circ$
 $\alpha = 4^\circ$
 $\alpha = 6^\circ$
 $\alpha = 11^\circ$
 $\alpha = 2^\circ$

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

X 2.0
MACH NO

C-105

C.A.L. WIND TUNNEL TESTS OCT. 54

SPANWISE LOAD	POSITION OF AILERON
SPAN	FROM NISBOARD END

CONFIG. $B_4 C_3 W_9 N_4 V_2 R_5$
RANGE $0^\circ > \delta_{AR} > -10^\circ$

UNCLASSIFIED / NON CLASSIFÉ

$\eta_{c.p.}$

1.5

1.0

5

0

$\alpha = 4^\circ$

$\alpha = 6^\circ$

$\alpha = 0^\circ$

$\alpha = 2^\circ$

$\alpha = 11^\circ$

$\alpha = 0^\circ$

$\alpha = 2^\circ$

$\alpha = 6^\circ$

$\alpha = 4^\circ$

$\alpha = 11^\circ$

2.0

1.8

1.6

1.4

1.2

MACH NO

C-105

C.A.L. WIND TUNNEL TESTS OCT. '54

$C_{L\delta_a}$ VS MACH NO.

$0^\circ > \delta_a > -10^\circ$

CONFIG. $\frac{3}{4}$ C₃W₄N₄S₂V₂R₈
ONLY RIGHT AILERON DEFLECTED.

$C_{L\delta_a}$ PER DEG.

$\alpha = 0^\circ$
 $\alpha = 2^\circ$
 $\alpha = 4^\circ$
 $\alpha = 6^\circ$

$\alpha = 11^\circ$

$\alpha = 0^\circ$
 $\alpha = 2^\circ$
 $\alpha = 4^\circ$
 $\alpha = 6^\circ$

UNCLASSIFIED / NON CLASSIFIED

MACH NO.

P/WT/51 Sheet. 6.5
D. Stewart Dec. '54.

71 P/WT/51
Doc 5A. CLARK

UNCLASSIFIED / NON CLASSIFÉ

Elevation

08

06

04

02

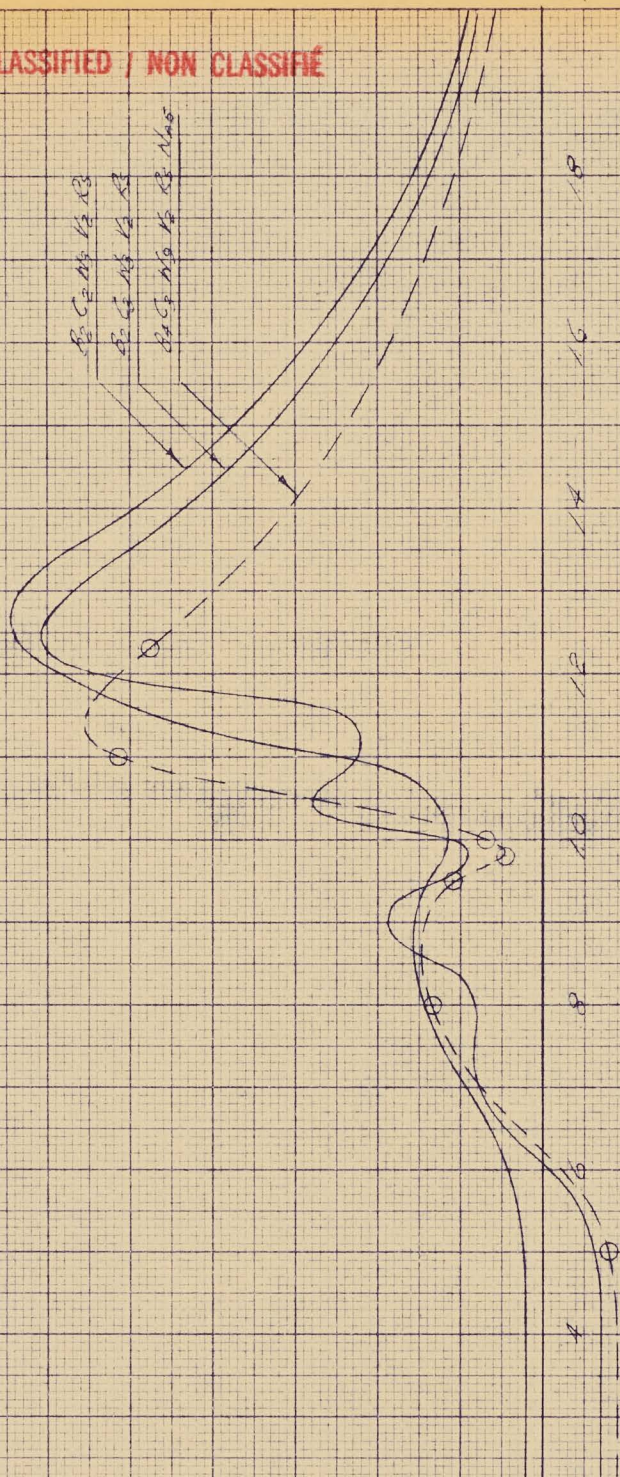
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-02

705
CH ELEVATOR IS MARKED

82 84 86 88 90
82 84 86 88 90
82 84 86 88 90

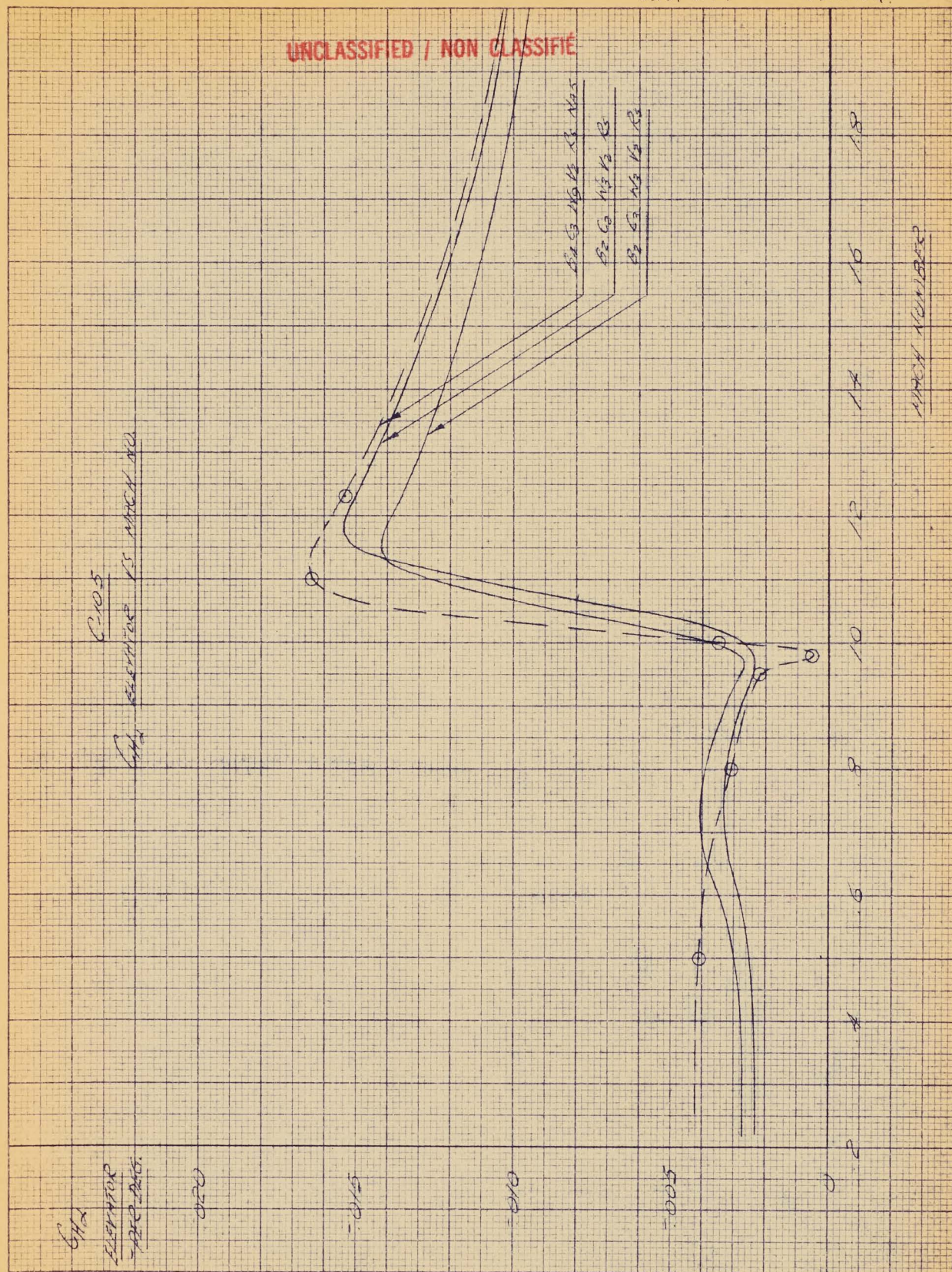
WICH NUMBER



7.2
DEC. 5A.

P/W.T. 101
CLARR.

UNCLASSIFIED / NON CLASSIFIE



642

EXAMINATOR
-DEC 2005

0220

-015

-010

-005

0

2

4

6

8

10

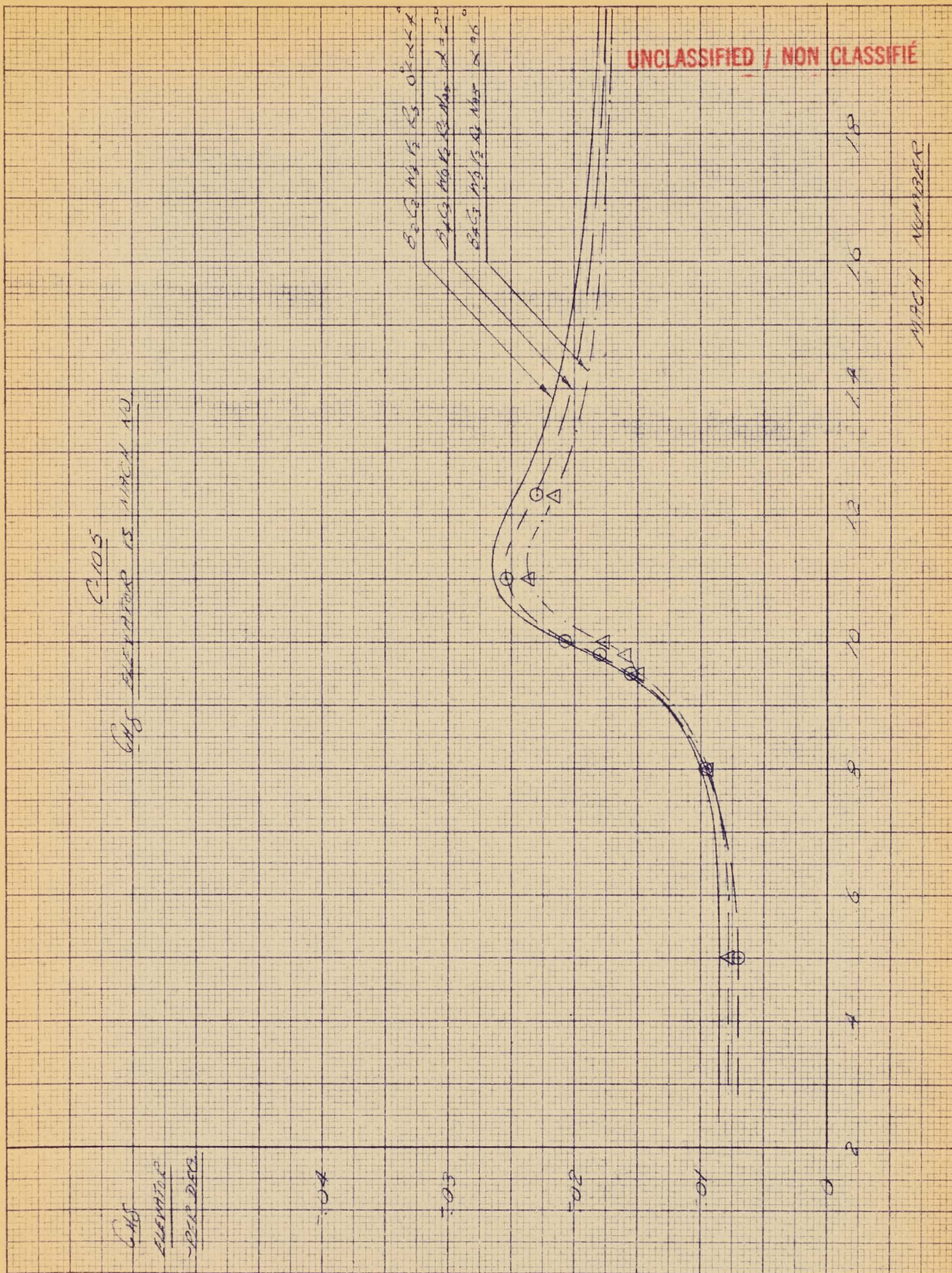
12

14

16

18

MARK NUMBERS



248

Heesen

五

50

102

52

162

105

○

2105

644 ALKALOID 55 ALKALOID

2018.1.5

24

198/10023 MW 2177 - 21411.57

826 W 31 St

Batz 19 12 1855

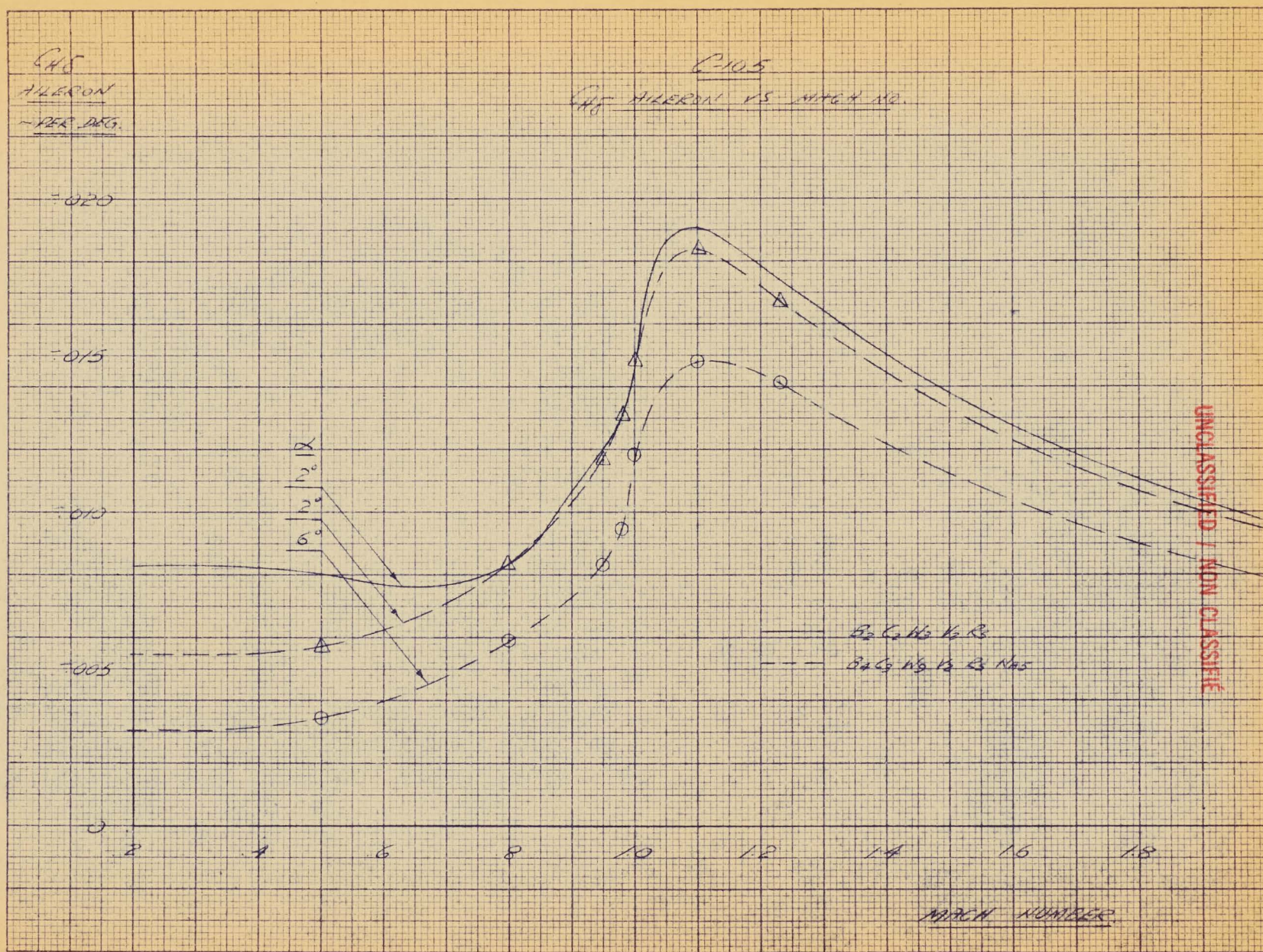
UNCLASSIFIED / NON CLASSIFIÉ

82

Net 54

P/WT/51

CLARK



83
22.54.
C-105
P/W/T/51

