

QC
Avro
C-105
P/AD/41

QC X
Avro
CF105
P-AD-41

(17)

FILE IN VAULT

C-105

ANALYZED

P/AERO/41

LONGITUDINAL DERIVATIVES

(RIGID)

EXTENDED WING

Copy

UNCLASSIFIED

Feb. 1955

ANALYZED



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Canada

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Mechanical

Engineering Library

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TO
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DATE

Dec. 7, 1992

Report no.: QCX - AVRO - CF105- P-AD-41

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



45128

12422337



UNCLASSIFIED

A. V. ROE CANADA LIMITED
MALTON - ONTARIO

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT: C-105

REPORT NO. P/AERO DATA/41

FILE NO:

NO OF SHEETS:

TITLE:

LONGITUDINAL STABILITY DERIVATIVES

RIGID - EXTENDED WING

confirmed as:
Classification ~~cancelled~~ / changed to: UNCLASSIFIED
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

PREPARED BY DATE

CHECKED BY DATE

SUPERVISED BY DATE

APPROVED BY DATE

ISSUE NO	REVISION NO	REVISED BY	APPROVED BY	DATE	REMARKS

TECHNICAL DEPARTMENT (Aircraft)

REPORT NO. P/AERO DATA/52 41

SHEET NO.

AIRCRAFT:

PREPARED BY

DATE

S. Kwiatkowski

August 1954.

CHECKED BY

DATE

C-105

LONGITUDINAL STABILITY DERIVATIVES AND DRAG DATA

3.5% WING

★ Measured in C.A.L. Wind Tunnel up to $M = 1.23$.

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Geometry

UNCLASSIFIED
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1

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AVRO AIRCRAFT LIMITED

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT

C-105

REPORT NO. P/AERO DATA/41

SHEET NO.

PREPARED BY

DATE

CHECKED BY

April 1955

DATE

RADII OF GYRATIONabout reference axis (A/G datum).C.G. = .31 $\bar{c}$

W = 47000 lb.

Yaw

 $k_z = 190.74"$

Roll

 $k_x = 74.99"$

Pitch

 $k_y = 177.76"$ Angle between principal and reference axes $\eta_o = 1035.5'$ UNCLASSIFIED
NON CLASSIFIED

25.
- 3/4 M4.

C-105
Q.C. 15 MARCH 1960
ELECT. B. 10.10.60

UNCLASSIFIED
NON CLASSIFIE

60

50

40

30

20

2

4

6

8

10

12

14

16

18

WATER NUMBER

11. 200.02. 200.02. 200.02.

Qx
15 MARCH 1941
FAC No 13 R3 M25

Qx
15 MARCH 1941

9

00

05

04

03

02

2

4

6

8

10

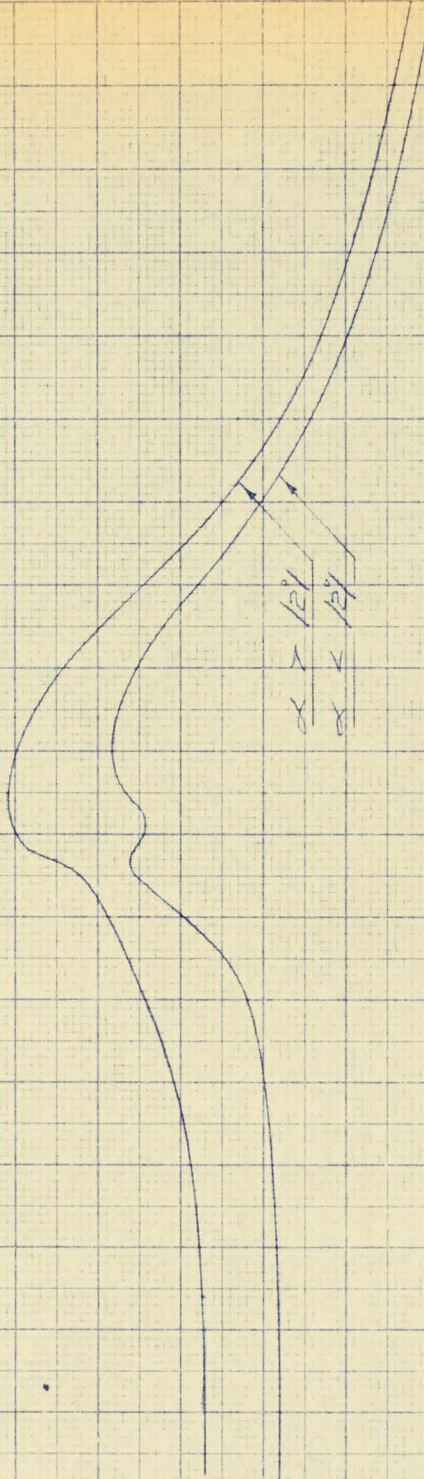
12

14

16

18

MARCH 1941



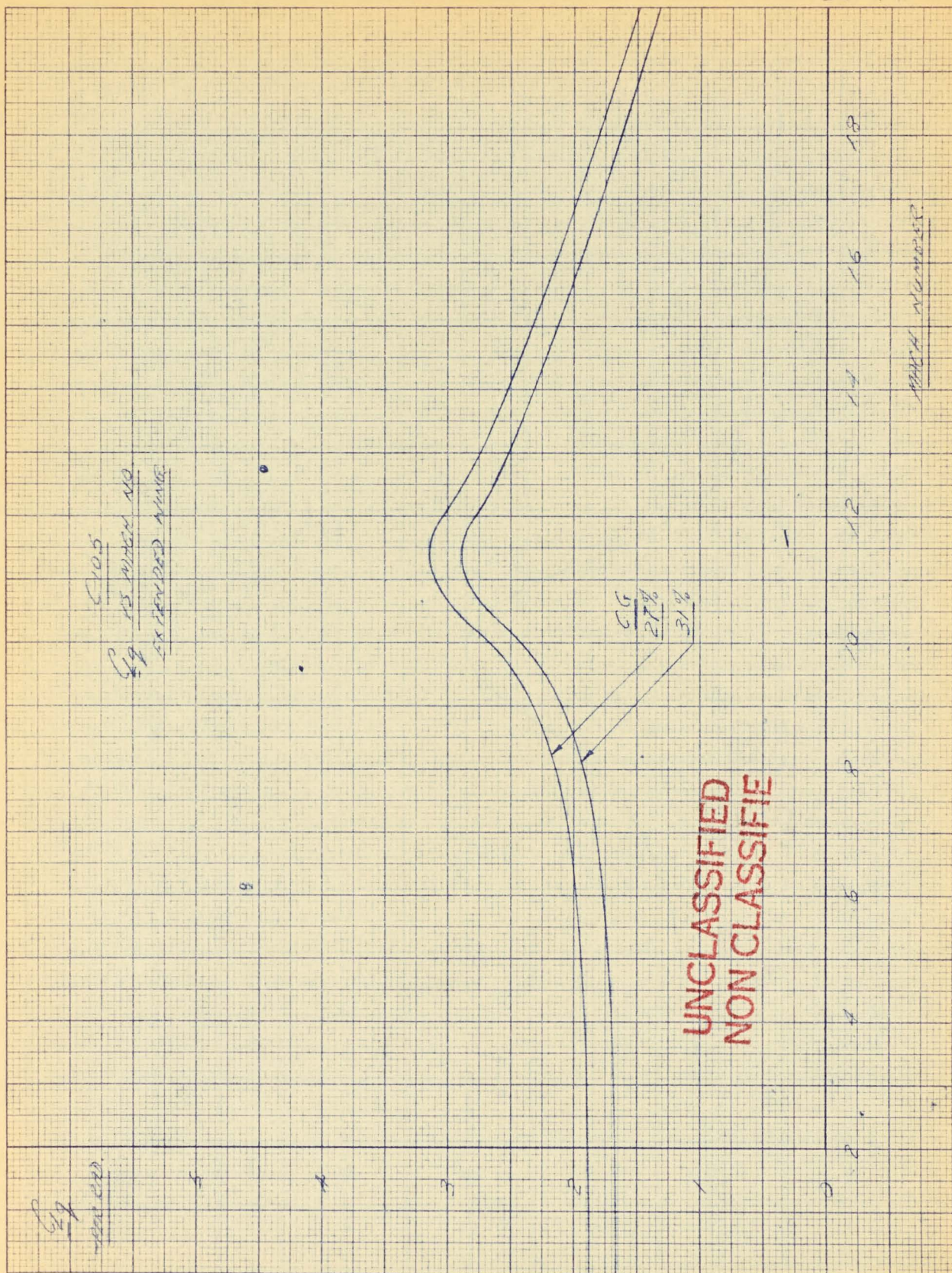
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1.3

MAR. 25

P/STAC/41

CLARK



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NON CLASSIFIE

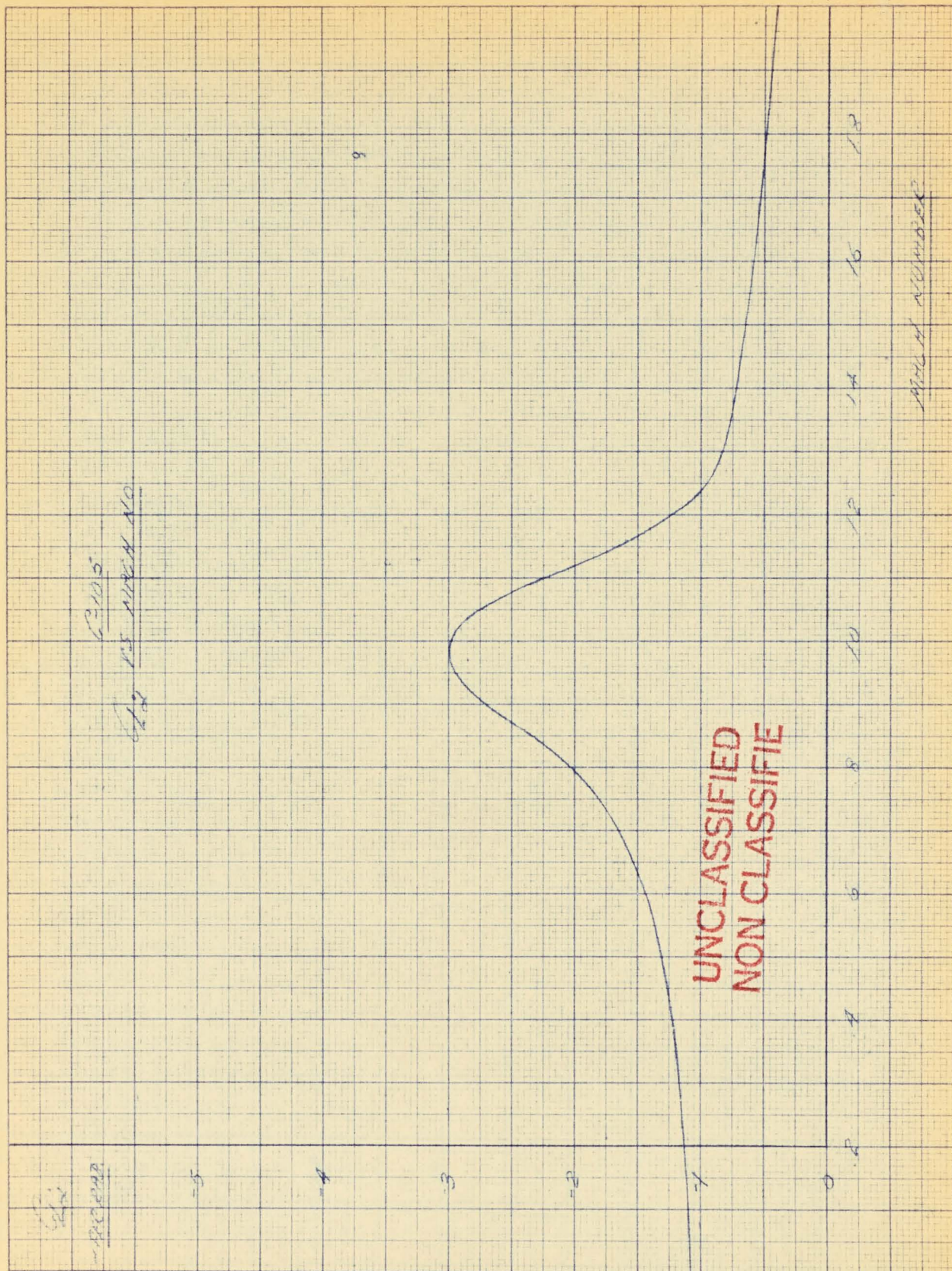
1.4

27

W/ST-2/41

POT 52.

2200K

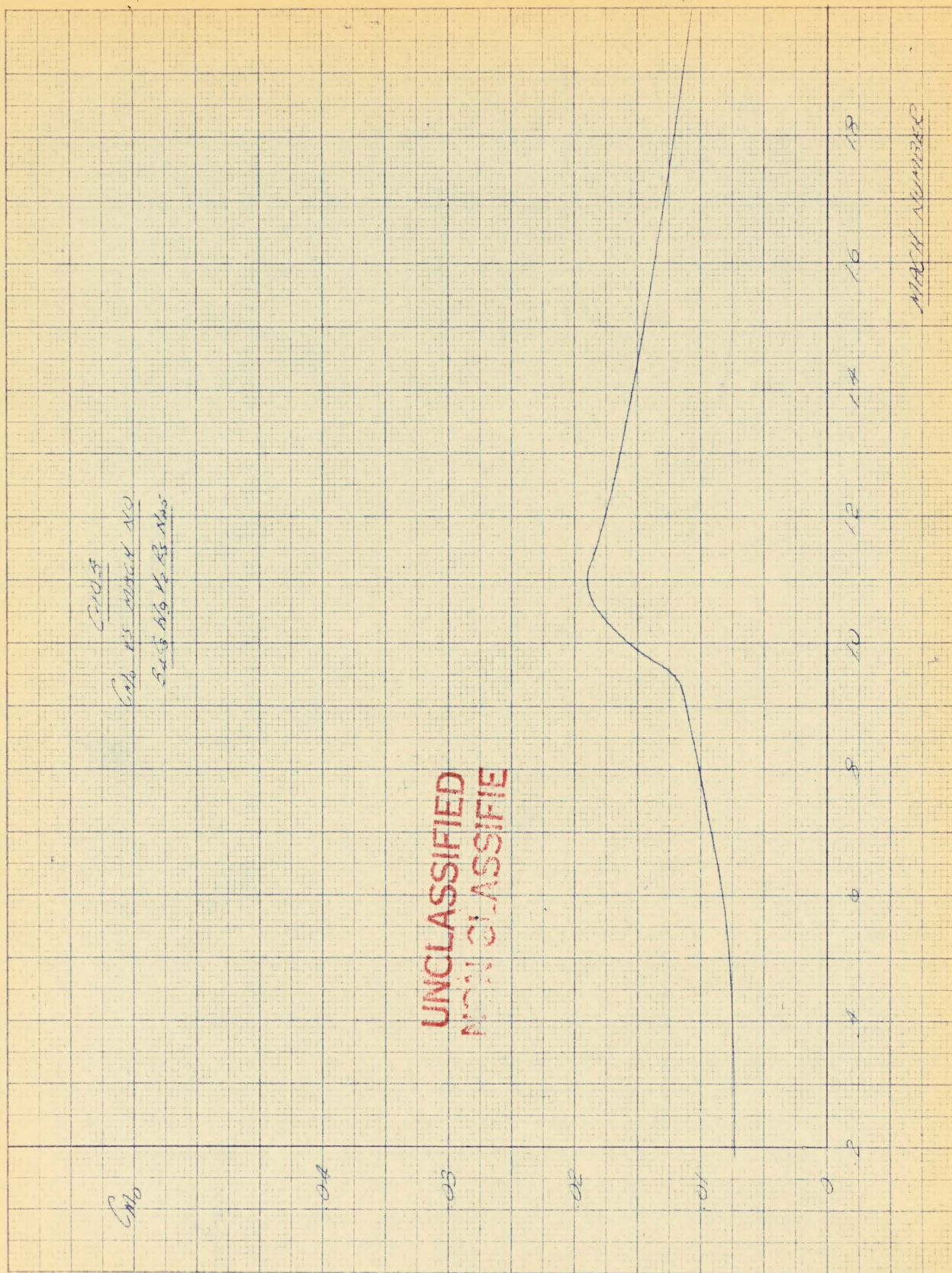


END
Caly R's MATCH NO
B-5 B-6 B-7 B-8

UNCLASSIFIED
NOT CLASSIFIED

1.5
DEC. 54

PI-DR-34TH/21
2.000



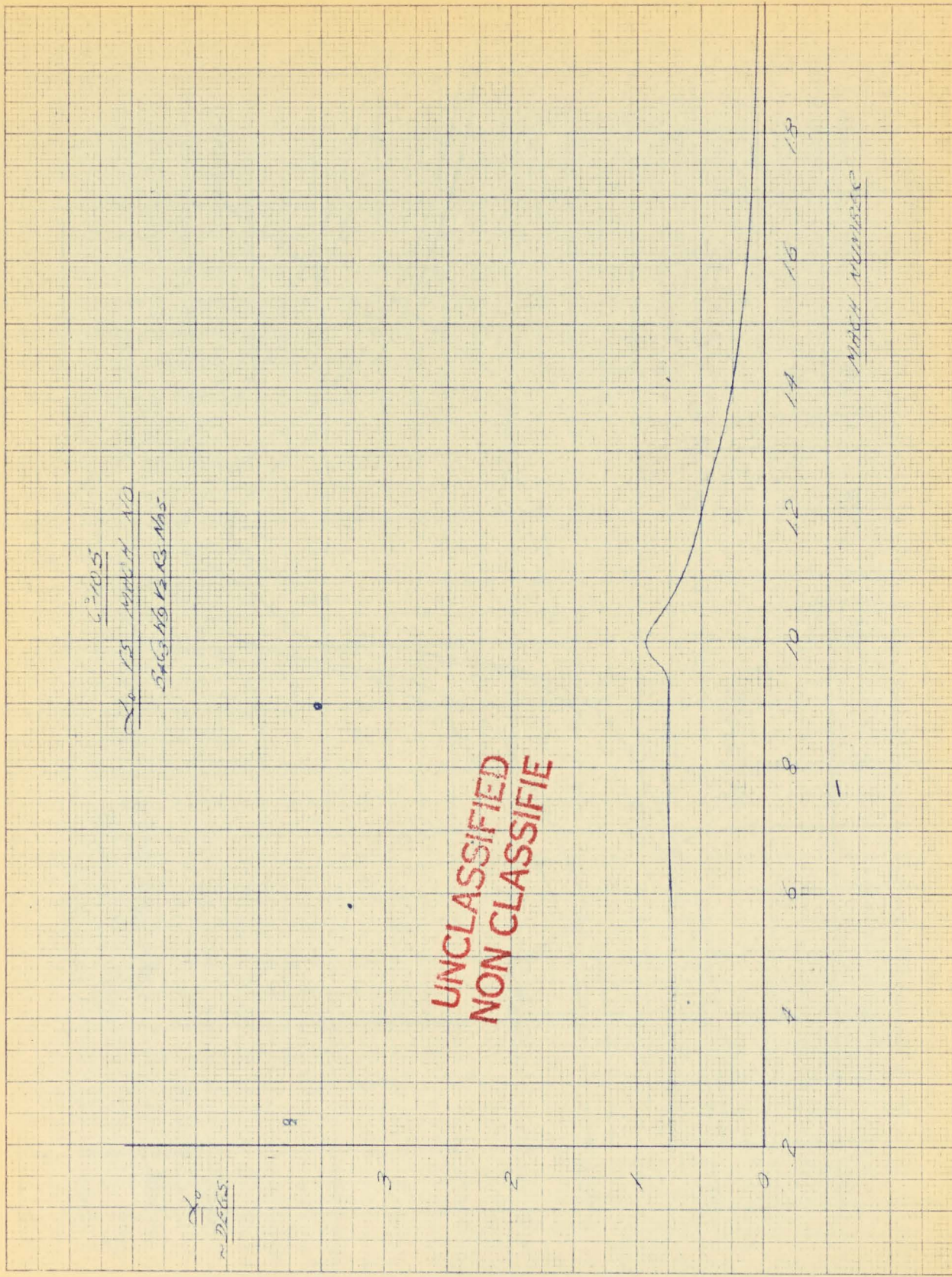
MATCH NUMBER

16. 2/20/54
DEC 54. G. 222K.

0-105
20 15 10 5
363 16 12 8 5

20
20 15 10 5

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NON CLASSIFIE

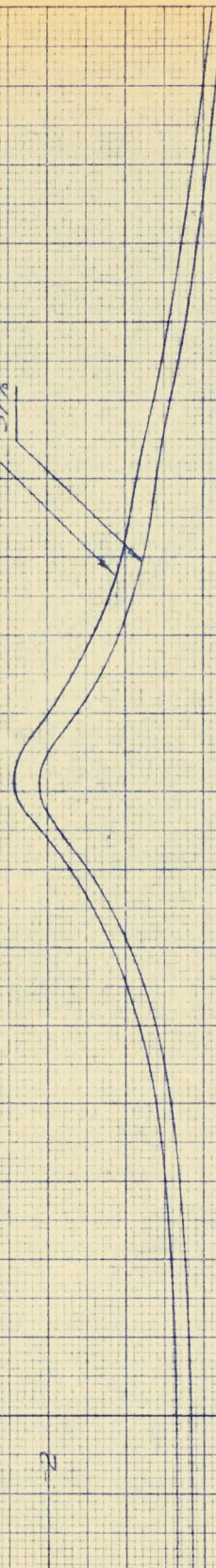


CLARK
2/15/76

CLARK
2/15/76
EXTENDED RANGE

UNCLASSIFIED
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CL
27 1/2
3 1/2



1.8

2/15/76

CLARK 41

CLARK NUMBER

AIRCRAFT
A. U. W.

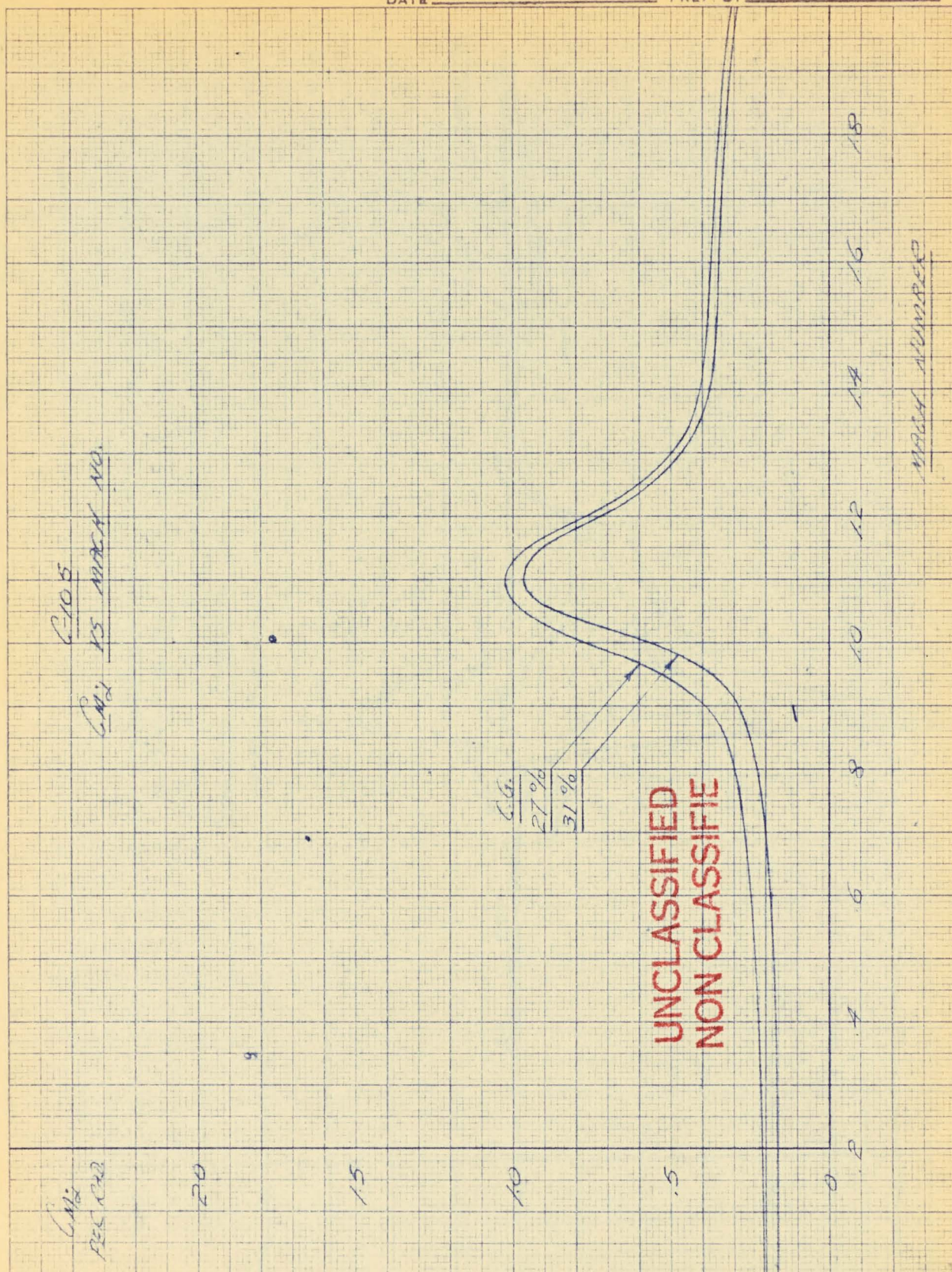
COMPONENT

SHEET NO. 3. 8. 119

REPORT NO. DLT-45/41

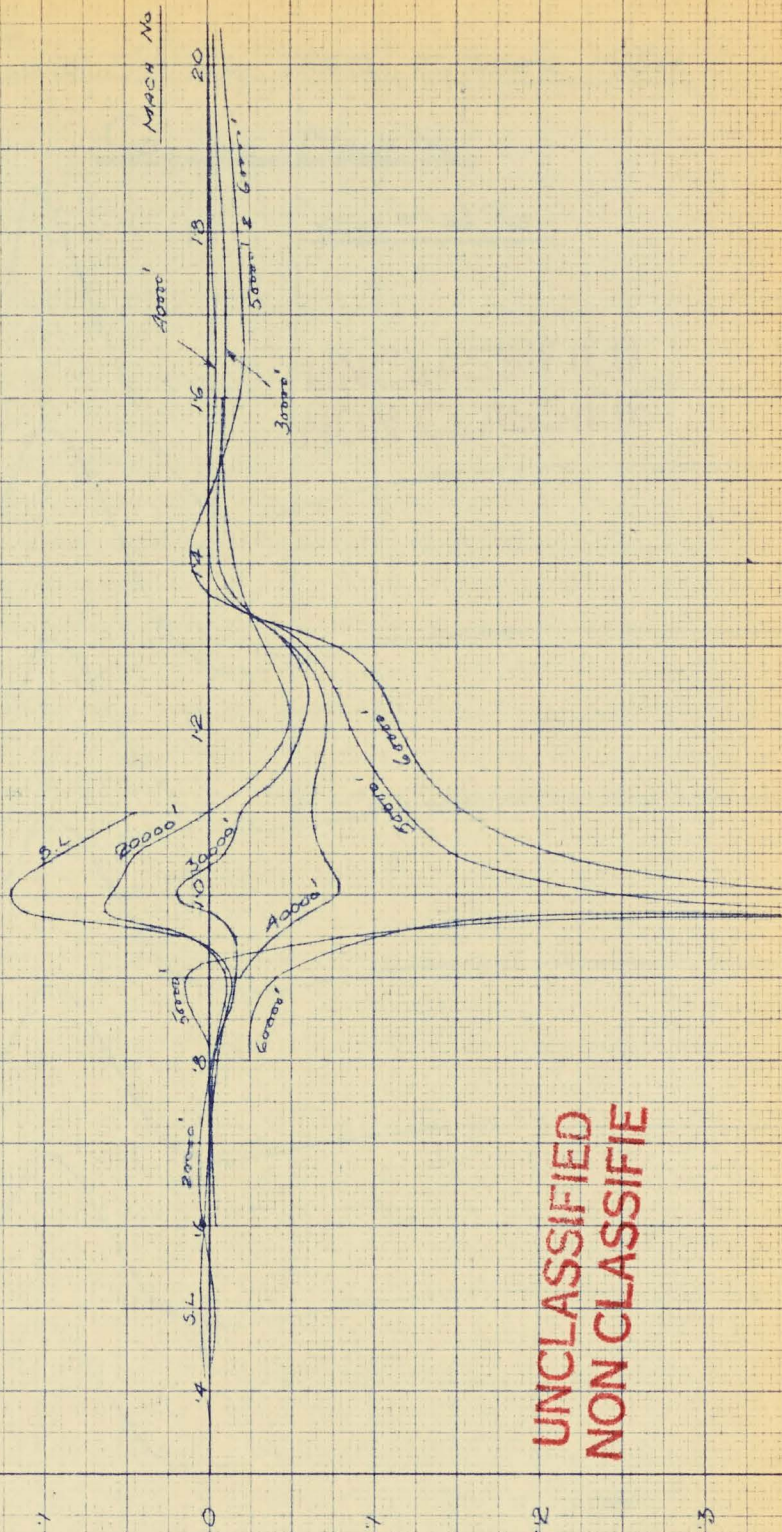
DATE Nov 52

PREP BY CLARK



350 12 KUPFER & ESSER CO.
10 - 1610 3rd St. East St. Louis, MO 63116
MADE IN U.S.A.

C 105

$$B_2 \quad C_3 \quad W_9 \quad V_2 \quad R_3 \quad Na_6^{--}$$
[illegible]

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110

P/57423 /47

~~√2.~~

Jan 5/11 Kunkhomb

1.11.1

5.30.

January 1955

P/STAB/H3

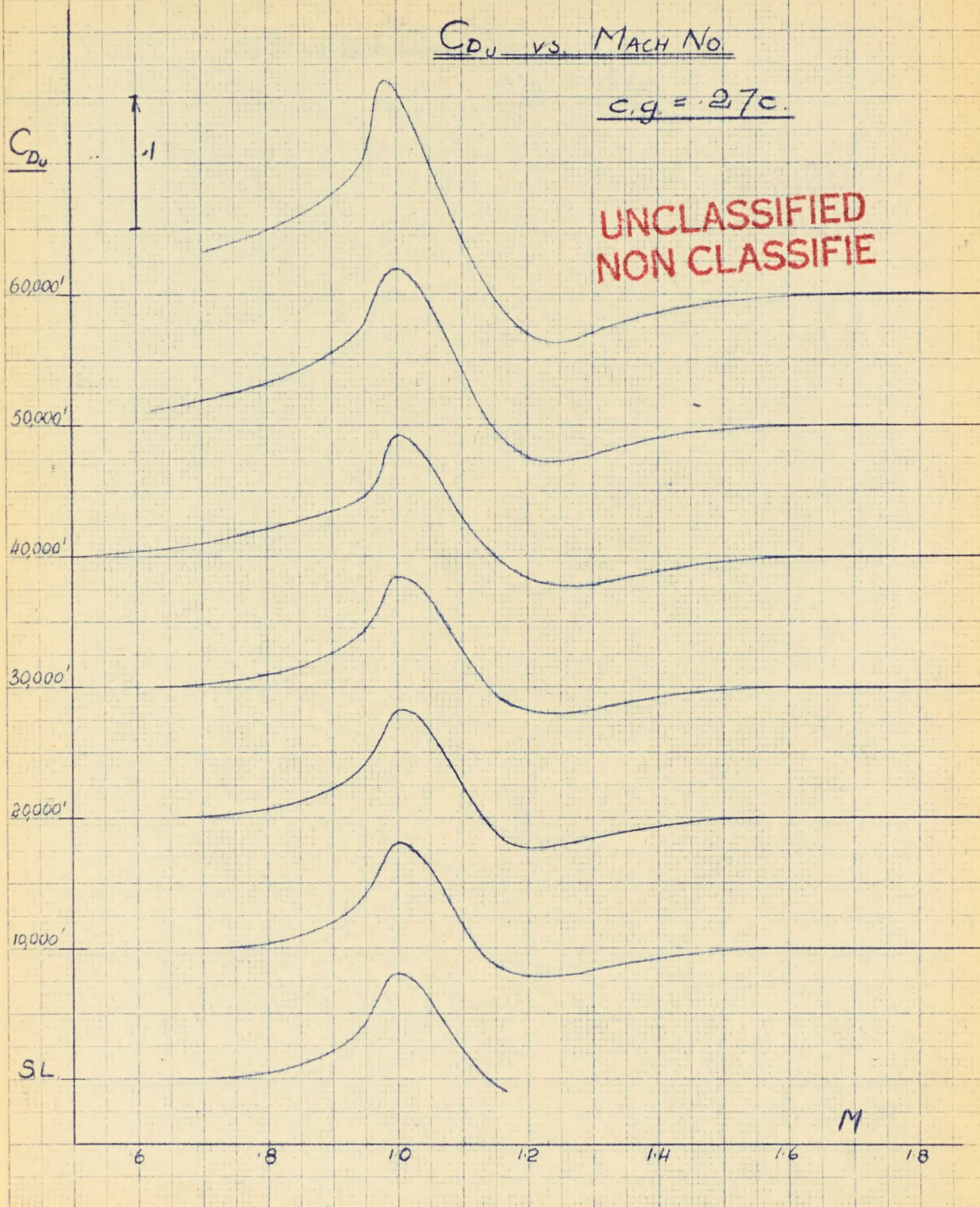
J. Papiris

C 105

CAL WIND TUNNEL TESTS, OCTOBER 1954.

C_{Du} vs. MACH No.

c.g. = .27c.



P100/41

531

P/STATS/43

January 1955

T. Papis.

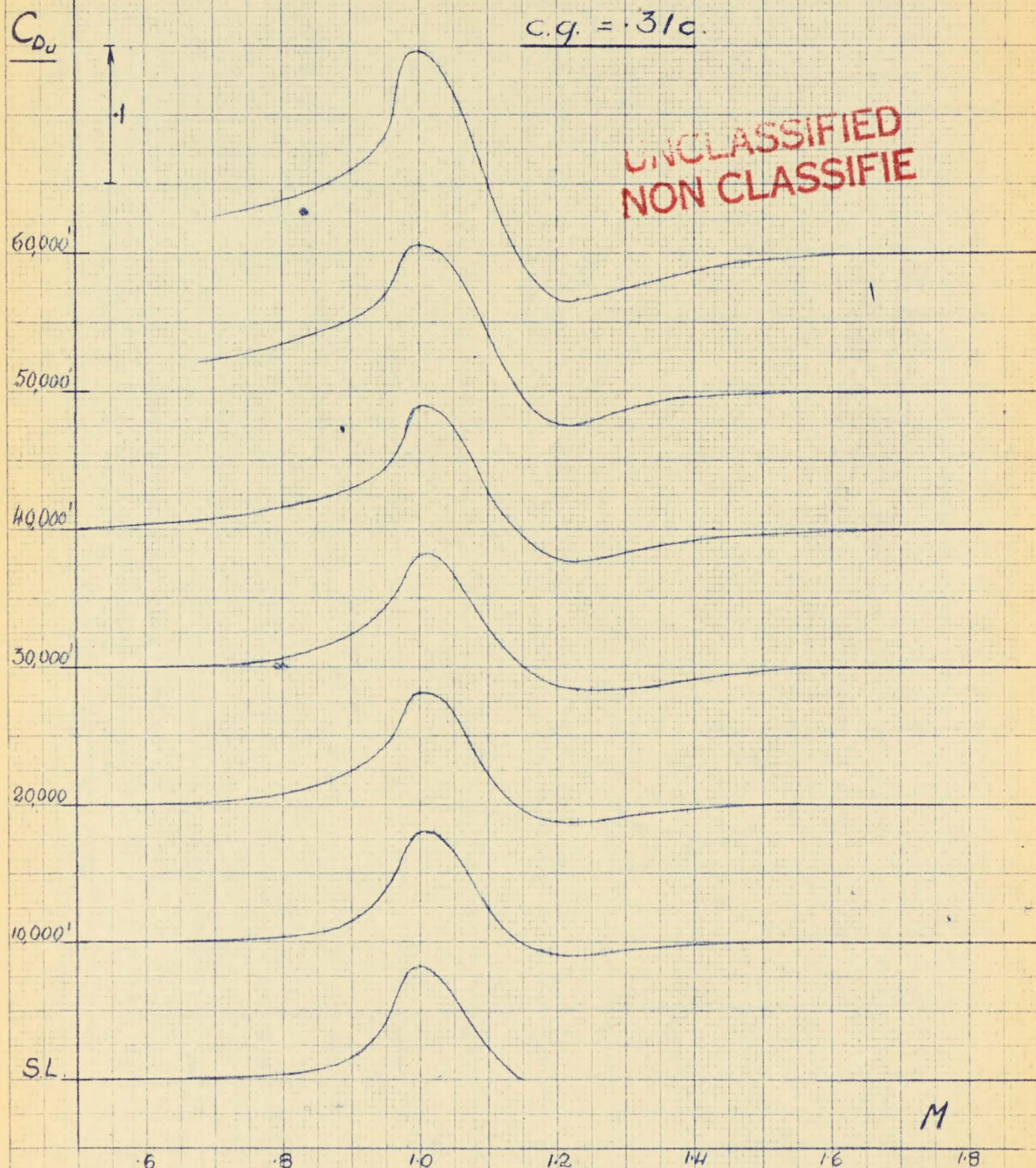
1.11.2

C105

CAL WIND TUNNEL TESTS, OCTOBER 1954

C_{Du} vs. MACH No.

c.g. = .31c.



1.11.3

C-105

FACTOR TO CORRECT WIND TUNNEL CDX RESULTS
FOR AIC POWER ON CONDITIONS

J-67 ENGINE + AFTERBURNER

ΔC_{Dx}

0.008

0.006

0.004

0.002

0

-0.002

-0.004

-0.006

-0.008

SEA LEVEL

3000'

4000' & 6000'

2.0

M

1.8

1.6

1.4

1.2

1.0

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C105

CAL WIND TUNNEL TESTS, OCTOBER 1954.

C_{D_L} / DEGREE

C_{D_α} VS MACH NUMBER.

$c_g = .312$

.024

.022

.020

.018

.016

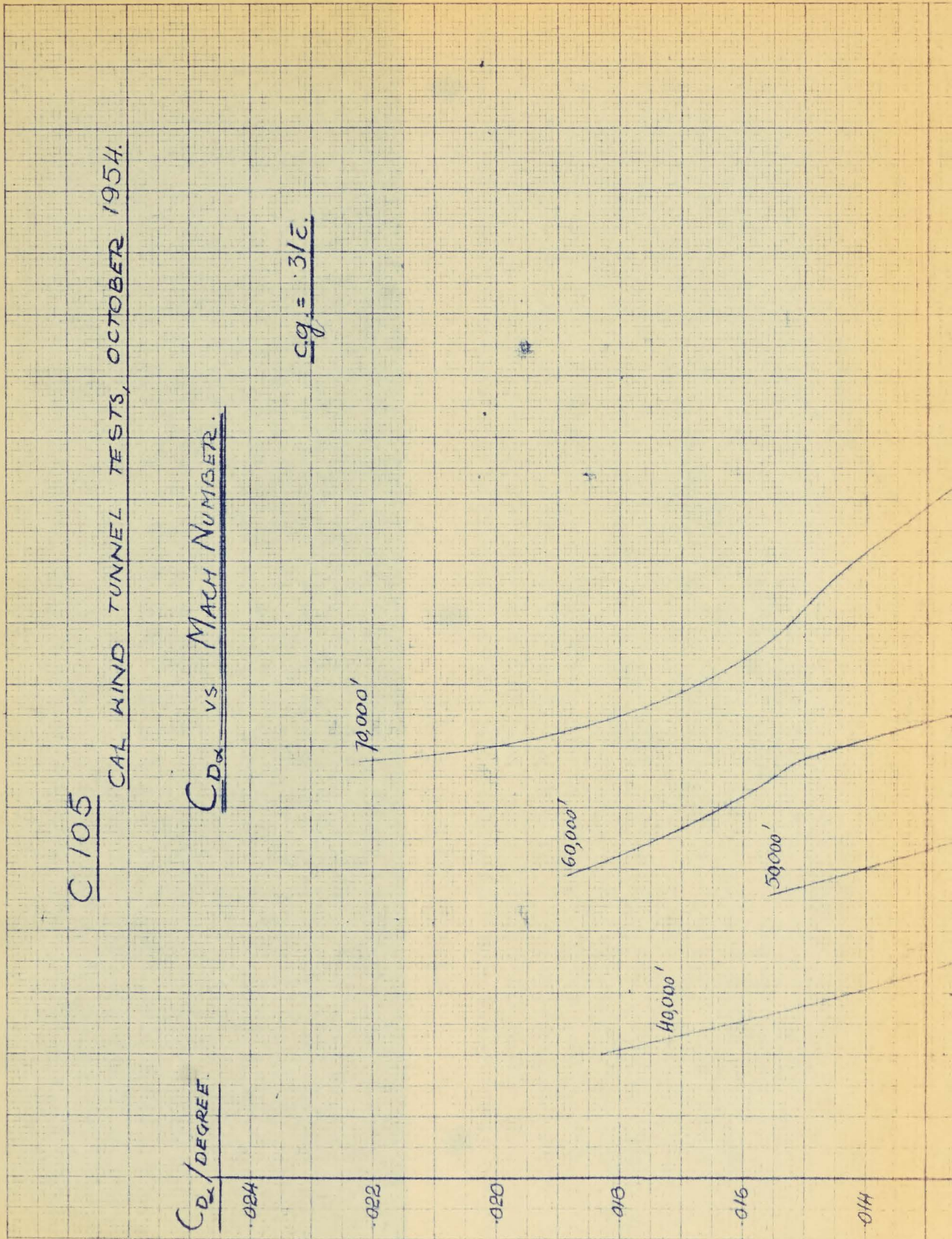
.014

70,000'

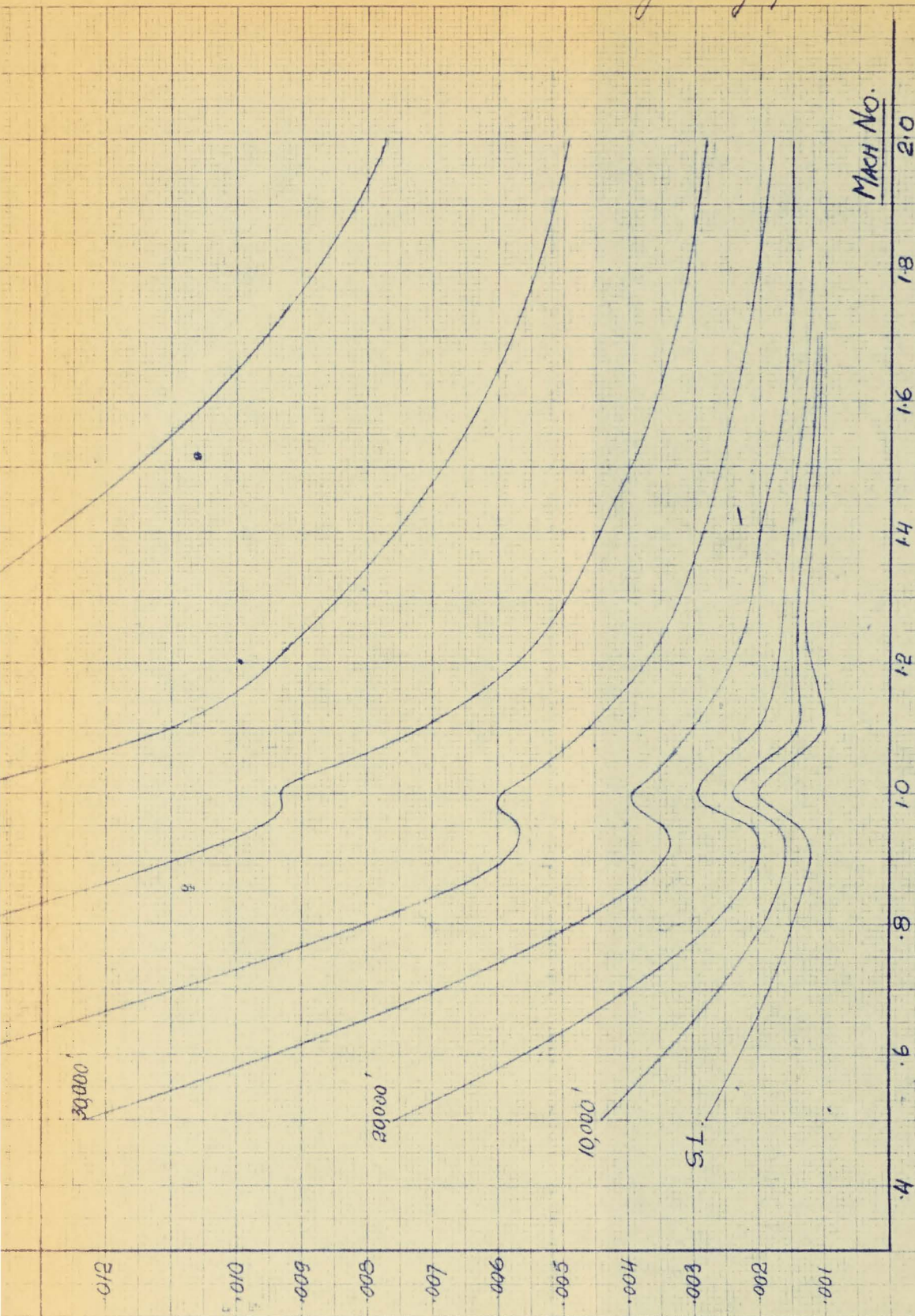
60,000'

50,000'

40,000'



SHT 6-11, P/STAB/H3 112.2
January 1955 J. Payson



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P100/41

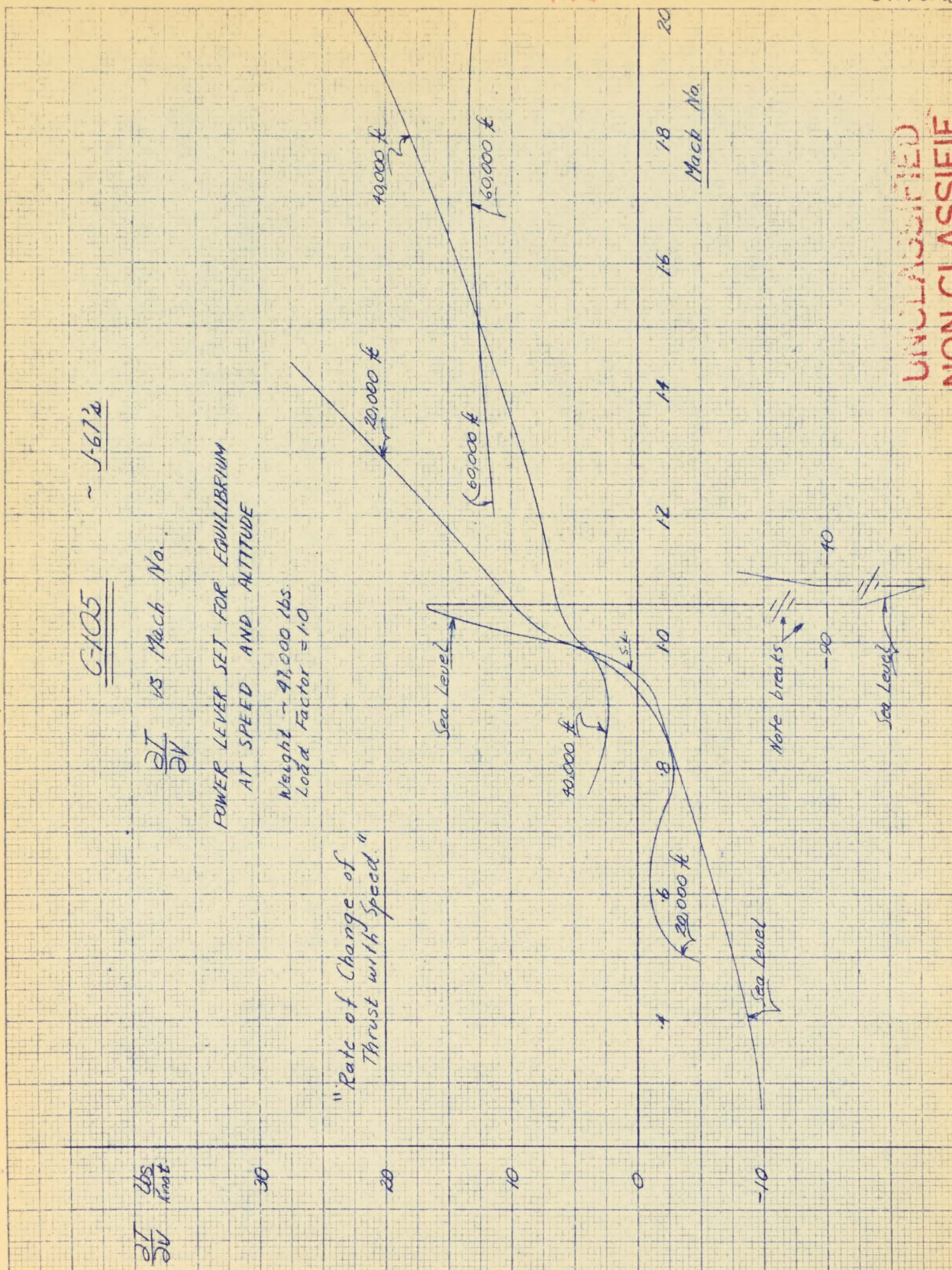
1.13

P/S Lab 426

128

Jan. 1955

C.A. Ford



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$N = 1.0$
 $W = 47,000 \text{ lbs}$

J-67 Engines

C-105

QI vs Mach Number
Box

for Altitudes Noted

(Power Lever Fixed for Trimmed Flight)

QI lbs
deg

300

200

100

0

-100

Sealevel

20

18

16

14

12

10

8

6

50,000 ft

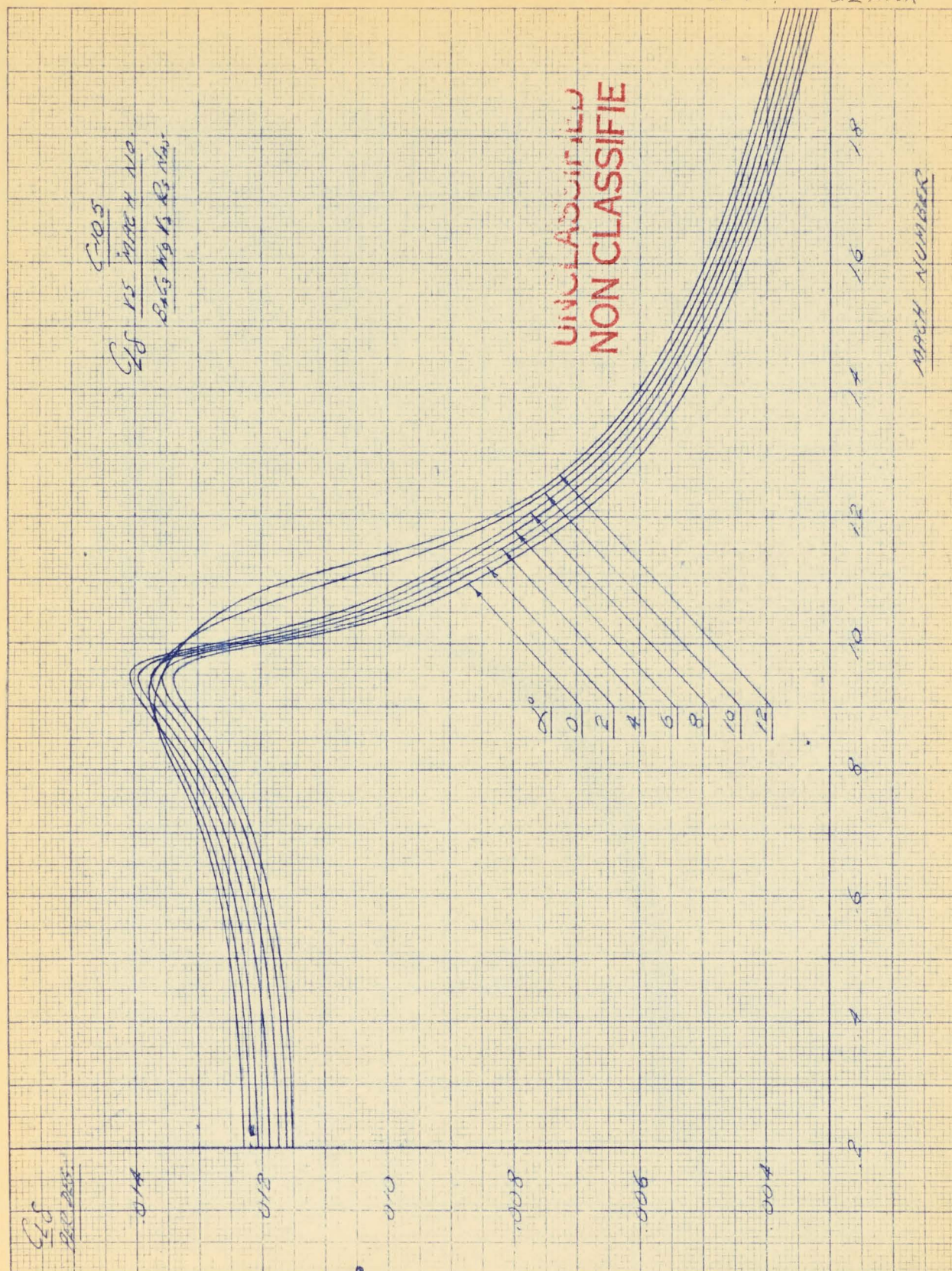
40,000 ft

30,000 ft

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FEB 25

6202



CMS

CONSTANT
- 12.000

C3105

CONSTANT 15 MARCH NO.
B-15 MARCH 15

0000

0005

0004

0003

0002

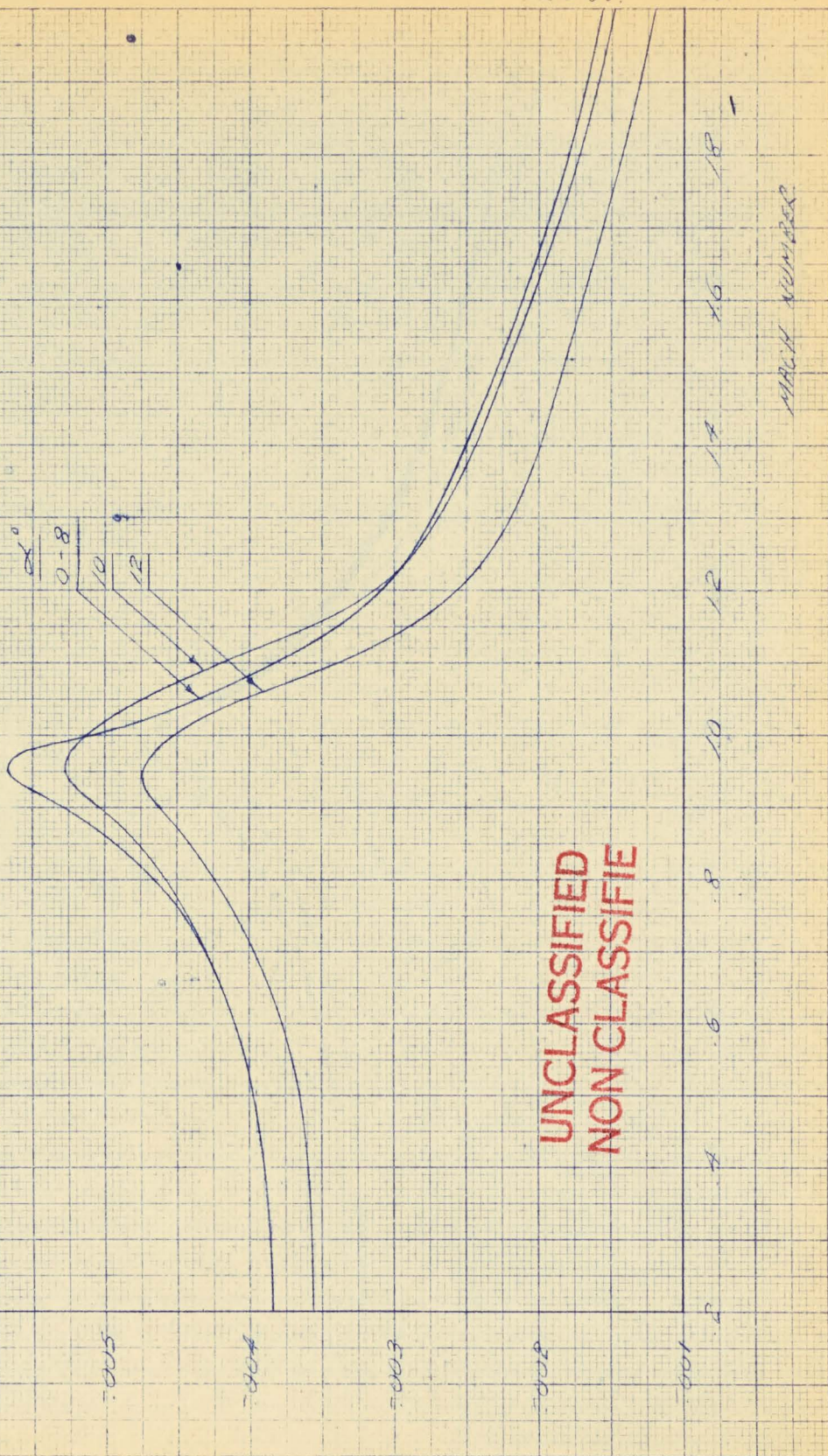
0001

α°

0-8

10

12



UNCLASSIFIED
NON CLASSIFIE

MARCH NUMBER

23. APRIL DATA 141
FEB. 55. CLARK

Kuakouh

20
18
16
14
12
10
8
6
4

MACH No

UNCLASSIFIED
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C/05
B4C3 K9 1/2 R3 N45

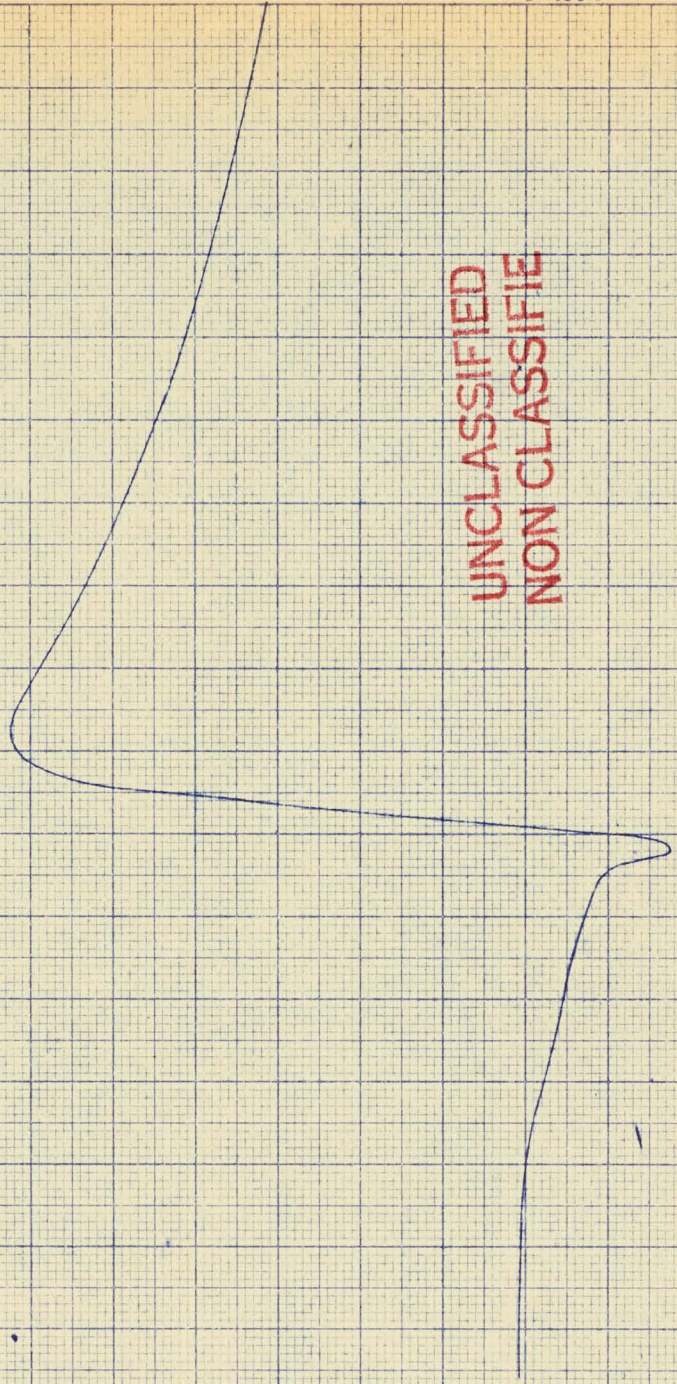
C₁₀ ELEVATOR VS. MACH No

C₁₀
ELEVATOR
PER DEG

-015

-010

-005

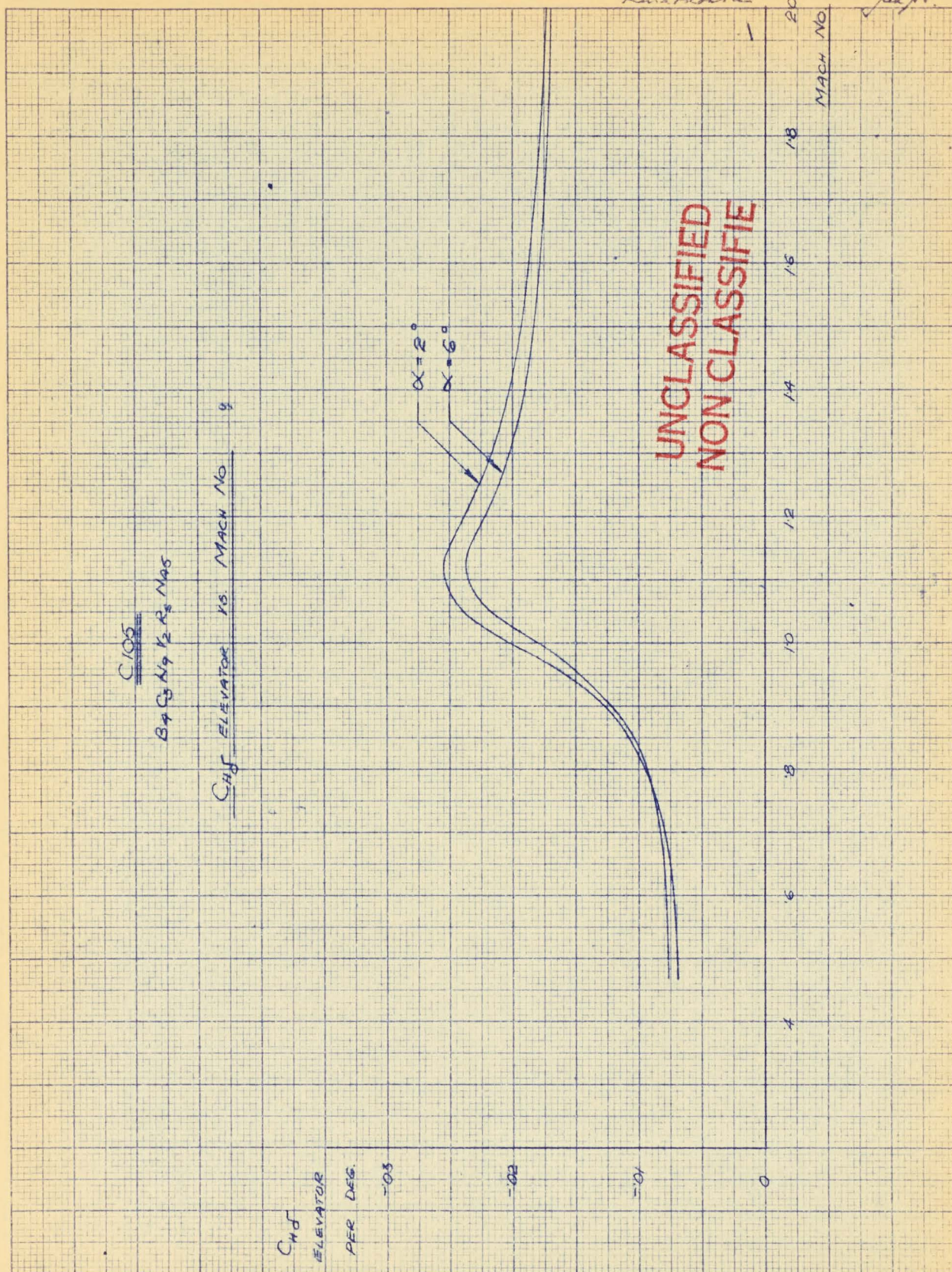


2.6.

P/AERO DATA/41

Kinoshita

Jan 41



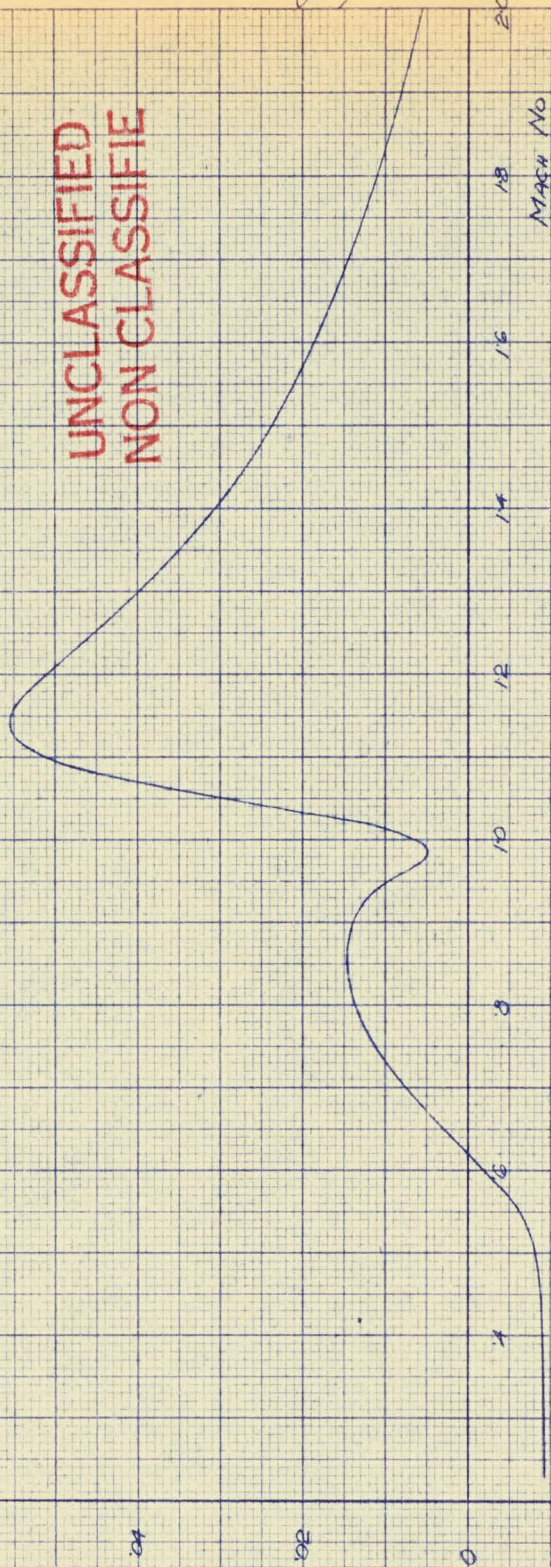
C_{H_0}
ELEVATOR

C105

$B \times C_3 \text{ at } 1/2 R_0 \text{ N}_45$

C_{H_0} ELEVATOR vs. MACH No

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NON CLASSIFIED



2.7

P/AERO DATA/41

Jan/55

K. K. K.

$\dot{\chi}_g$
per degree

$$\dot{\chi}_g = \frac{g}{2} \left(\frac{\dot{\chi}_g}{50} \right)$$

$$C_e = 5.25 \text{ ft.}$$

C-105

Elevator Damping

$\dot{\chi}_g$ vs Mach No.

Oscillation Amplitude = $\pm 3^\circ$

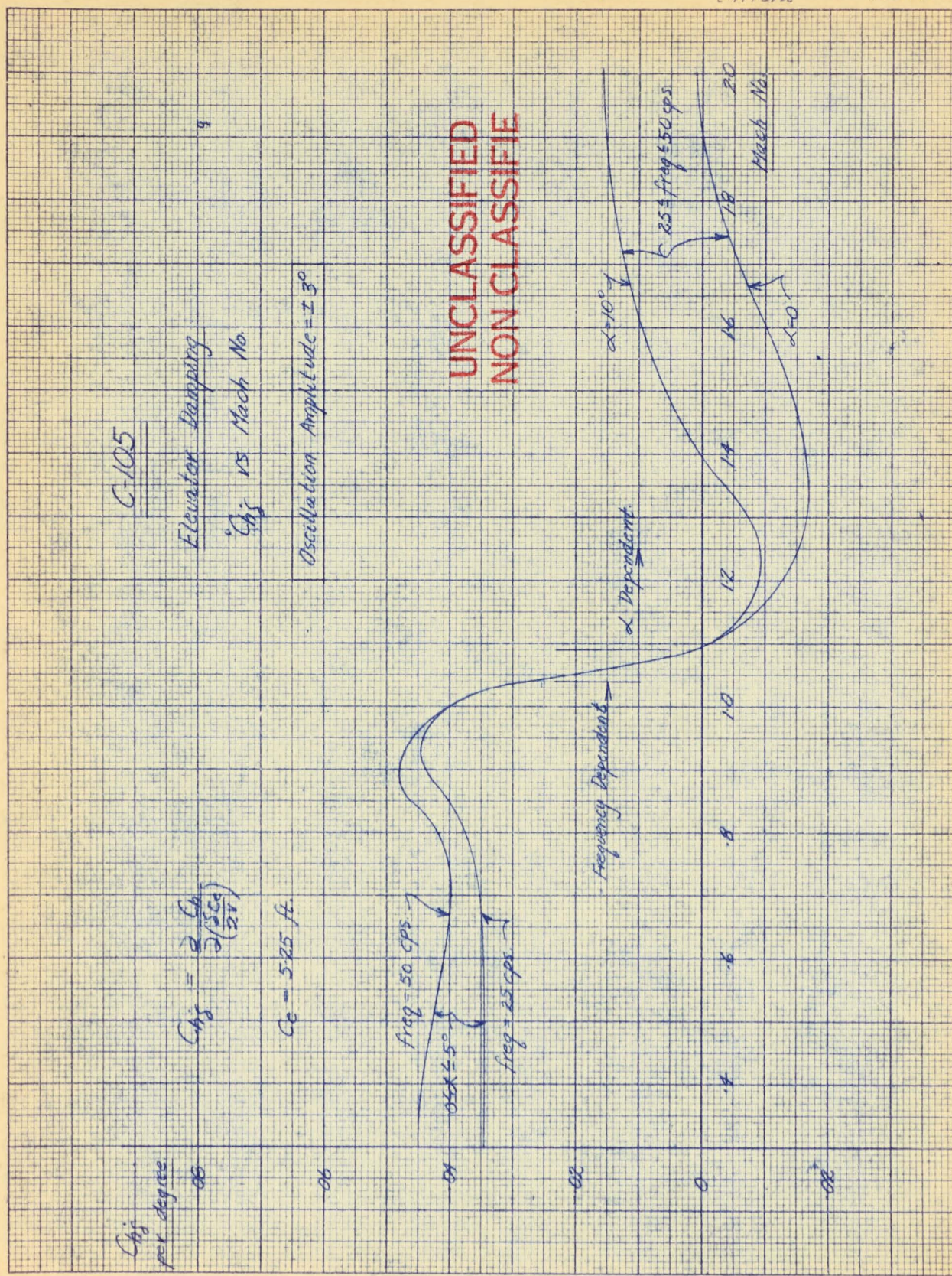
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freq = 50 cps
 $\alpha \approx 5^\circ$
freq = 25 cps

Frequency Dependent

α Dependent

$\alpha \approx 10^\circ$
25 cps freq 50 cps
18 20
Mach No.



P/AD/41

P/Contrast/71

2.9.3

C.A. Ford.

Feb. 55

C-105

Elevator Damping

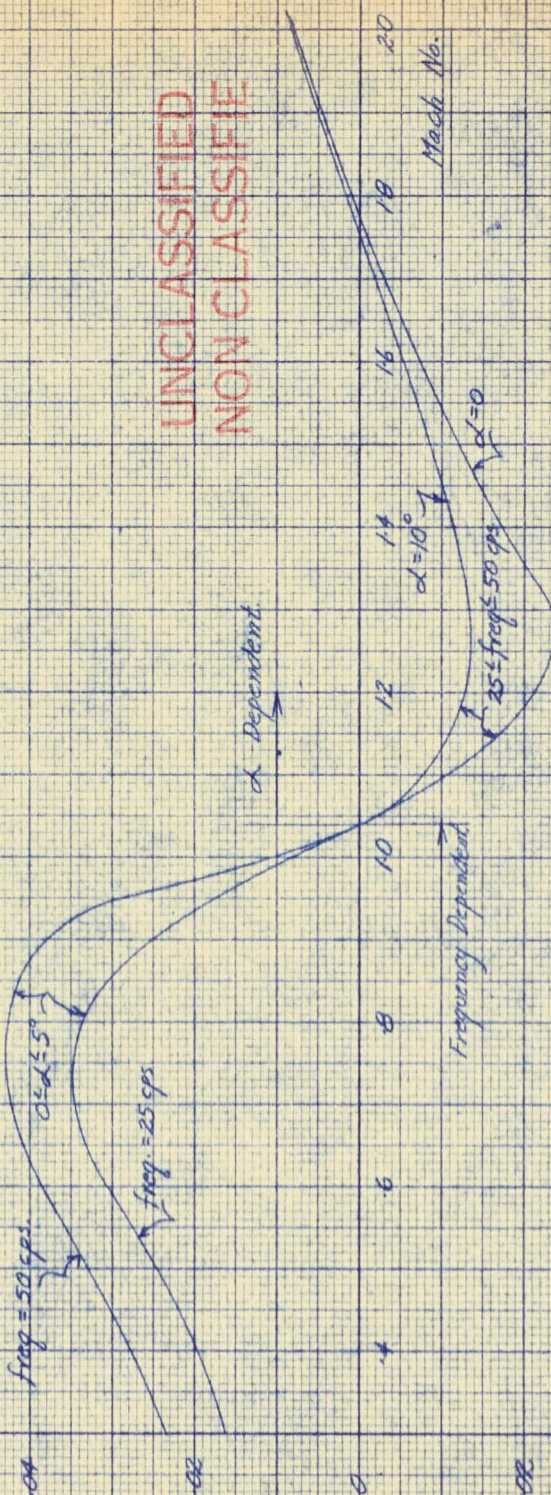
Chf vs Mach No.

Oscillation Amplitude 15°

Chf
per degree

$$Chf = \frac{\partial Ch}{\partial \left(\frac{\delta C_D}{2V}\right)}$$

$$C_D = 5.23 \text{ ft.}$$



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