C-105 P/Wind Tunnel/21

STABILITY DERIVATIVES

C.A.L. WIND TUNNEL

APRIL 1954

COMPARISON WITH ESTIMATES

27

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DATE

Report no.: QCX - AVRO - CF105 - P-WT-21

has been ☐ downgraded to :

☒ de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Drapeau
Signature

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A. V. ROE CANADA LIMITED

MALTON - ONTARIO

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT: C-105 REPORT NO. P/WIND TUNNEL/21

FILE NO: NO. OF SHEETS:

TITLE:

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

LONGITUDINAL AND LATERAL STABILITY DERIVATIVES

Extrapolated to M= 2.0

Comparison of Theoretical Estimates with C.A.L. Wind Tunnel Tests

April 1954.

PREPARED BY S. Kwiatkowski DATE May 1954.

CHECKED BY DATE

SUPERVISED BY DATE

APPROVED BY DATE

ISSUE NO.	REVISION NO.	REVISED BY	APPROVED BY	DATE	REMARKS

FORM 1316A

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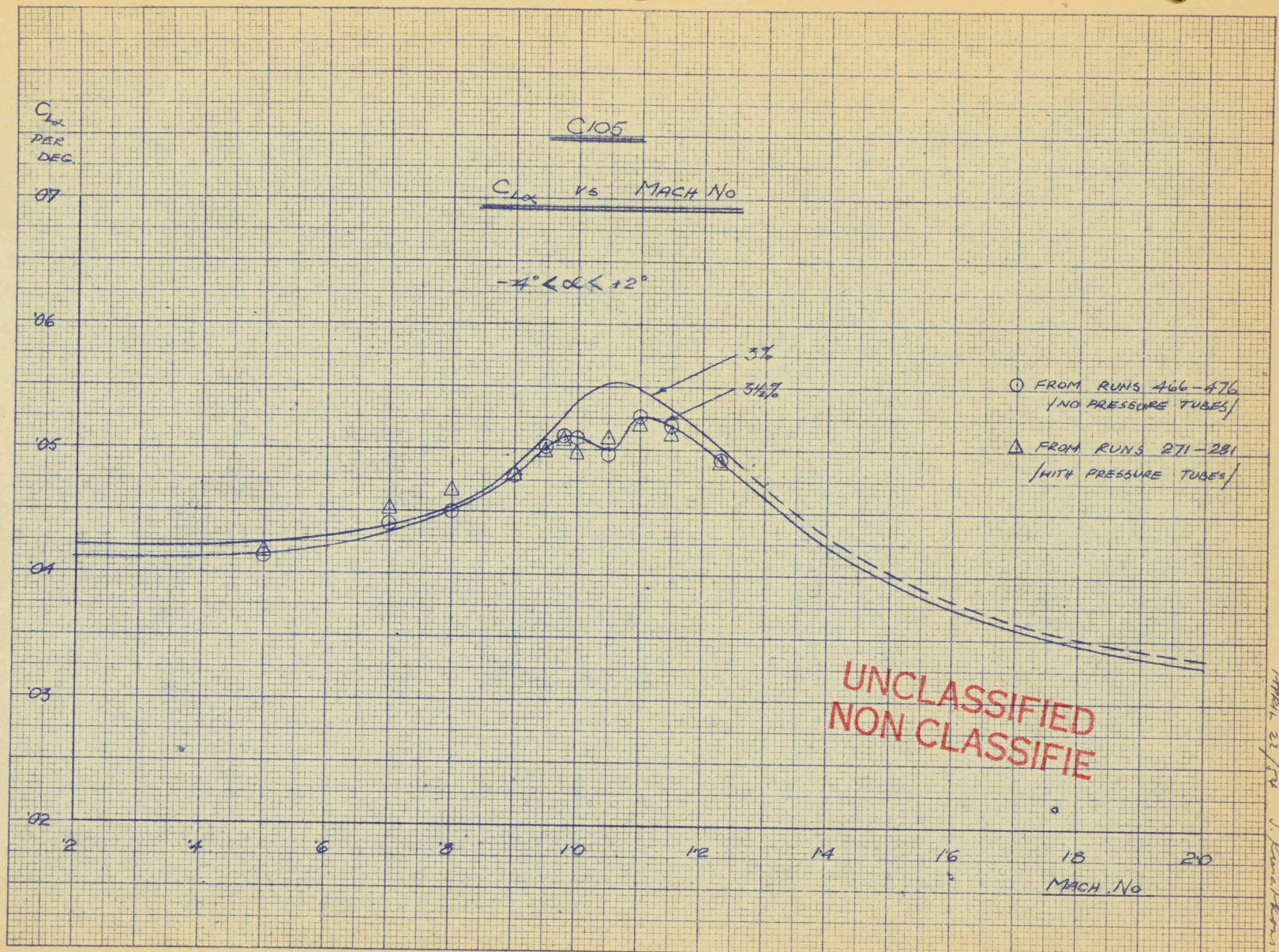
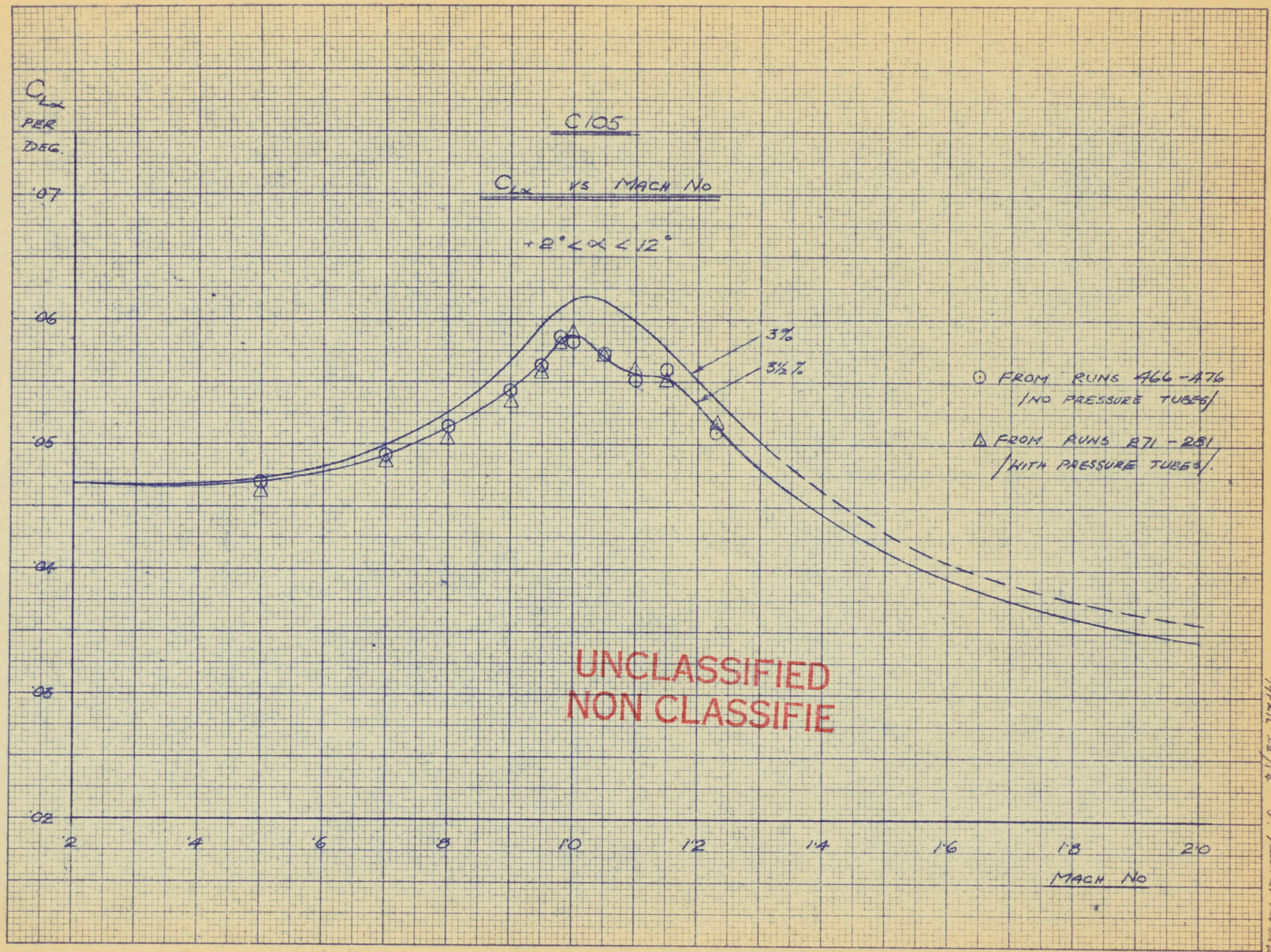


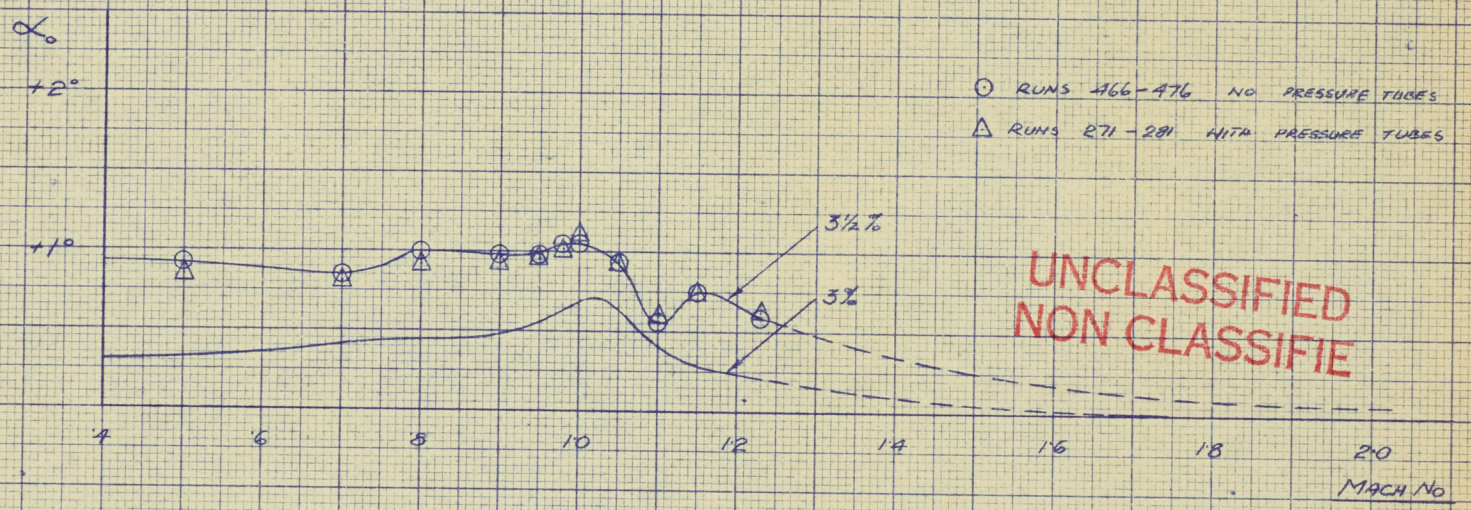
P/W.T./21 1.1.1.
APRIL 22/54 J. Kwiatkowski



P/N.T./21 1.12.
APRIL 22/52 J. Kuchemann.

C105

α_o VS MACH NO



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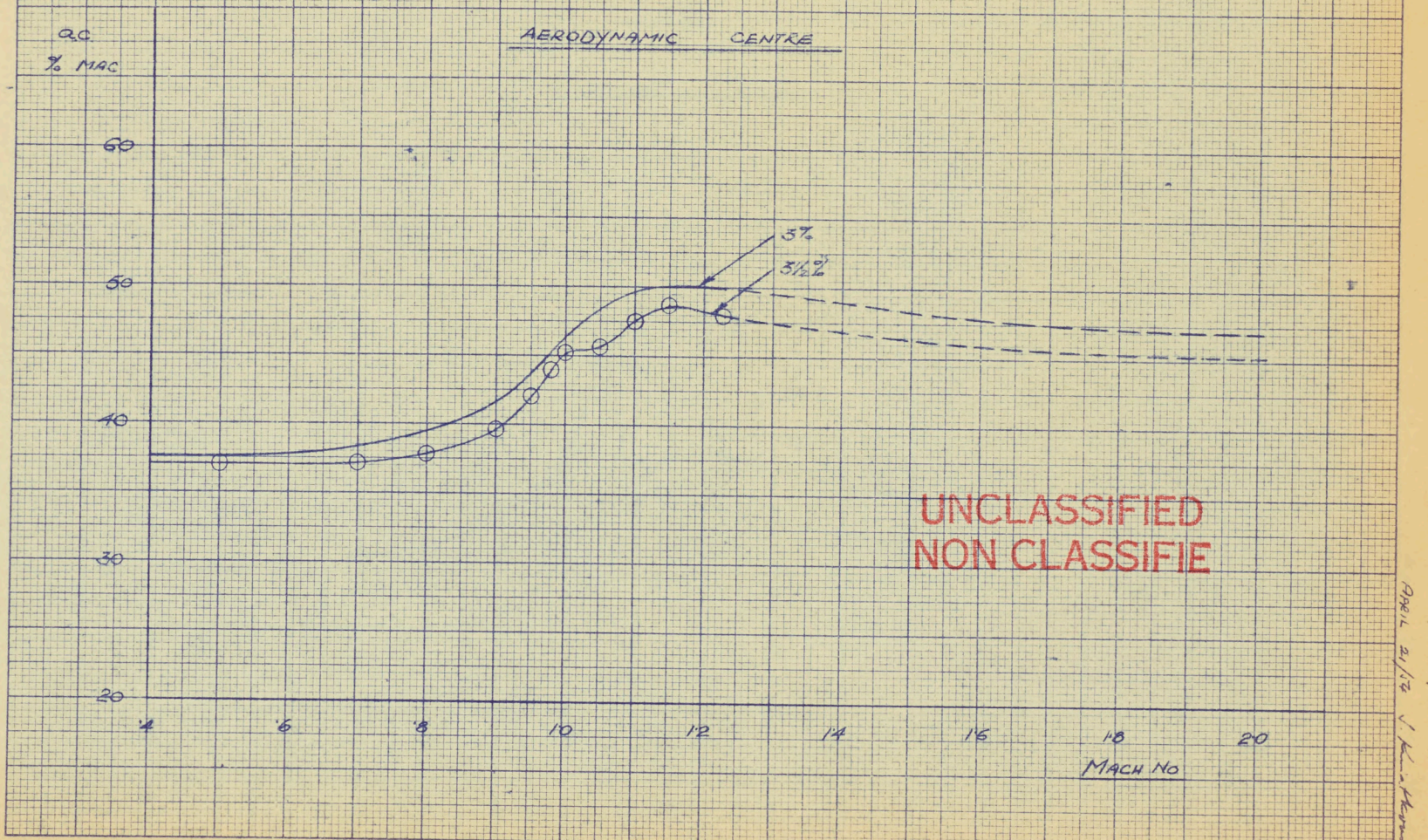
APRIL 21/58 J. Ann Hanks

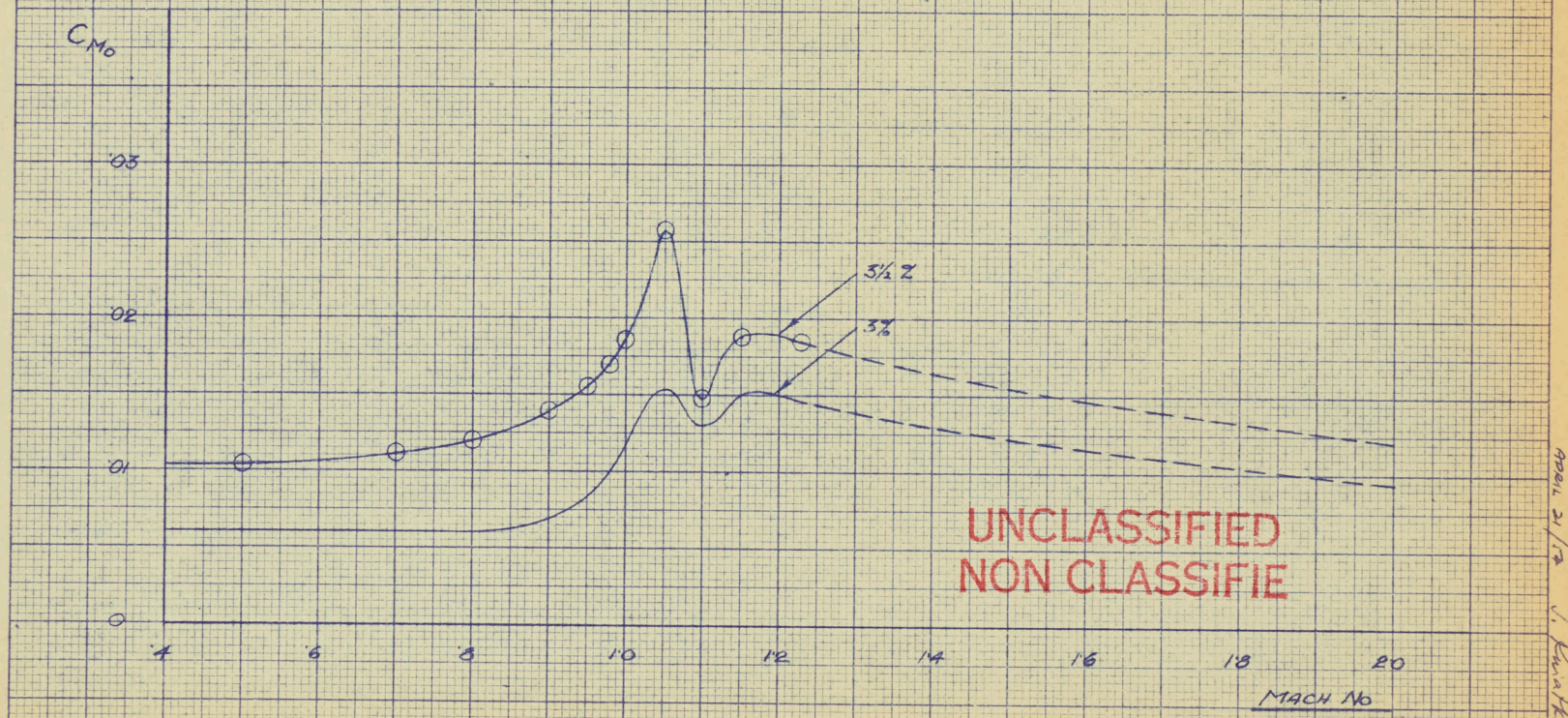
C105



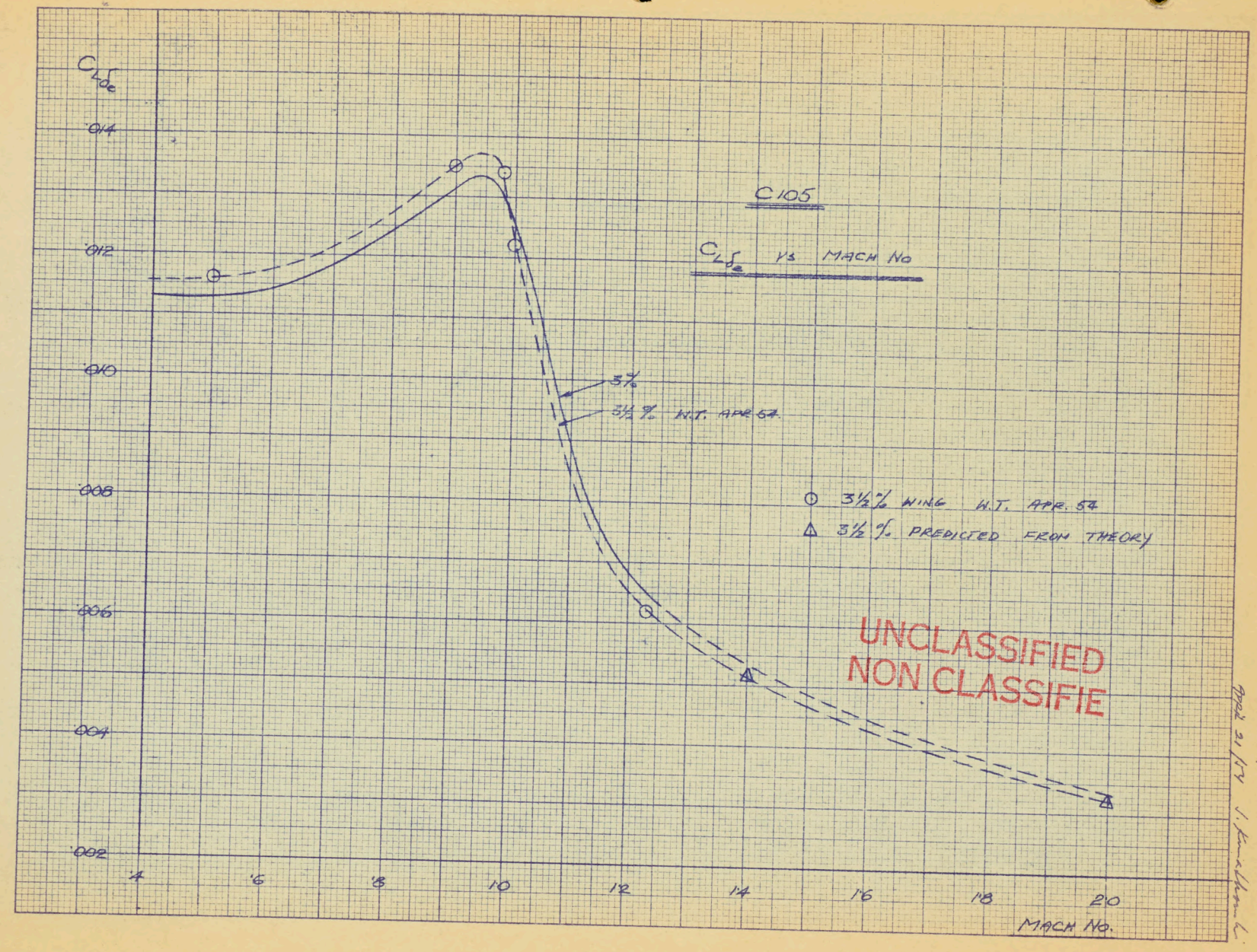
P/H.T./21 1.2.1
APRIL 2/57 J. K. Hemsworth

C 105

C_{M_0} vs. MACH No



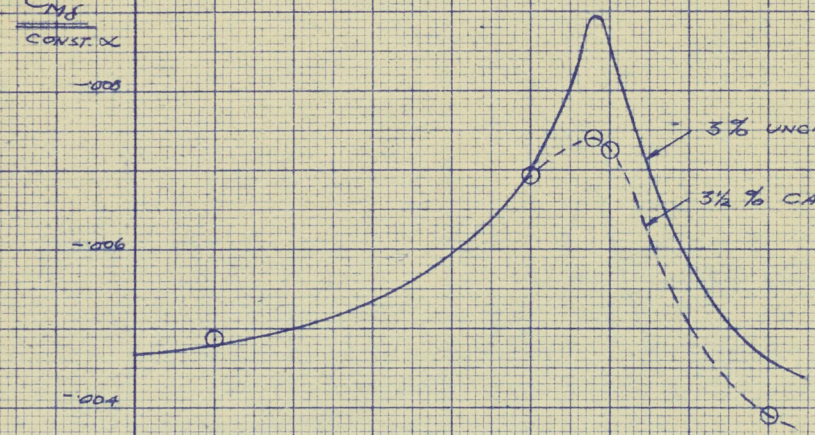
P/W.T./21 1.22.
APRIL 21/47 J. Kaufman.



P/W.T./21 1.3.1.
Appx 31/IV J. Kendall

C 105

C_{M_δ} AT CONST. α VS. MACH No

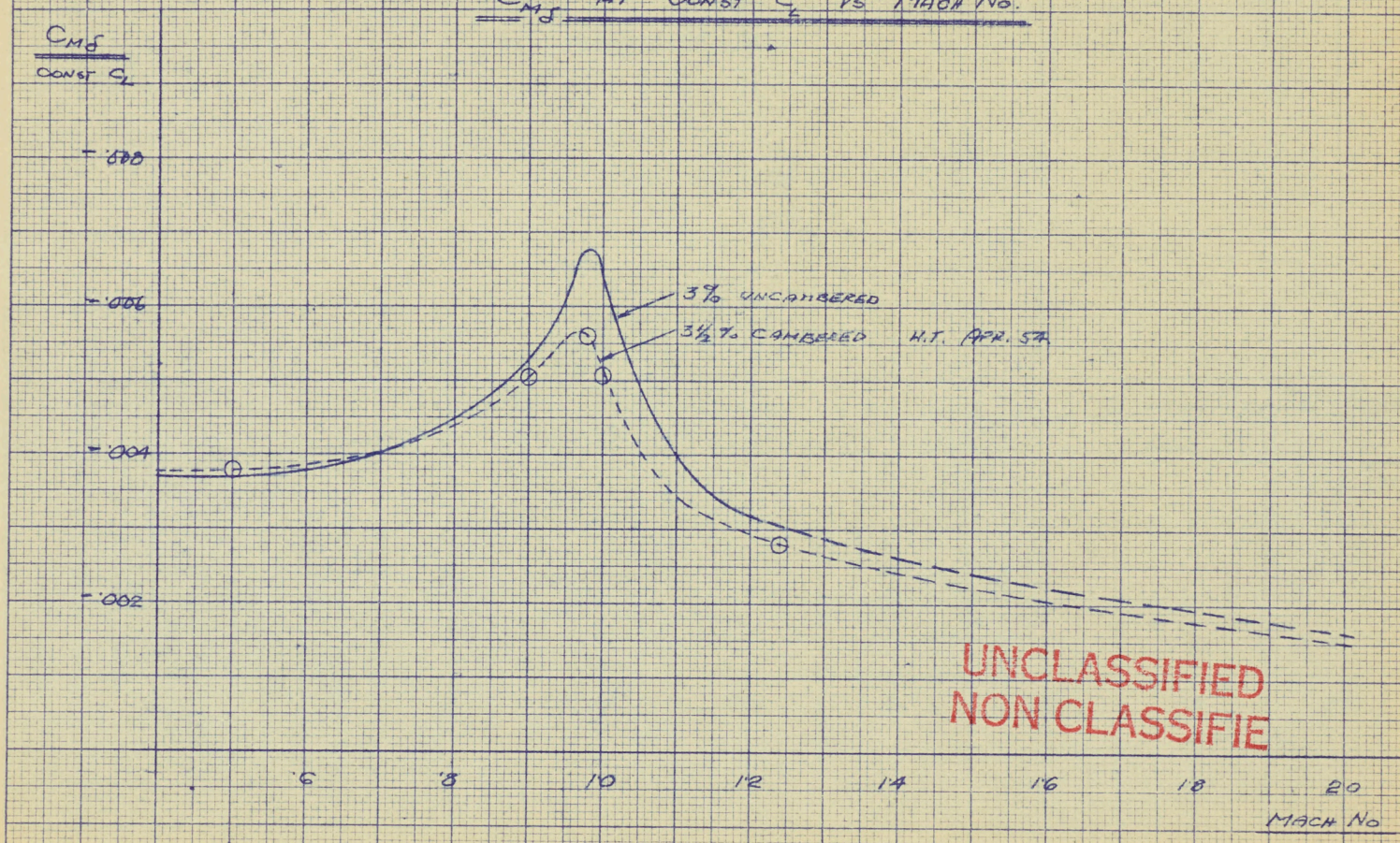


4 6 8 10 12 14 16 18 20

MACH No.

C105

$C_{M\delta}$ AT CONST C_L VS MACH NO.

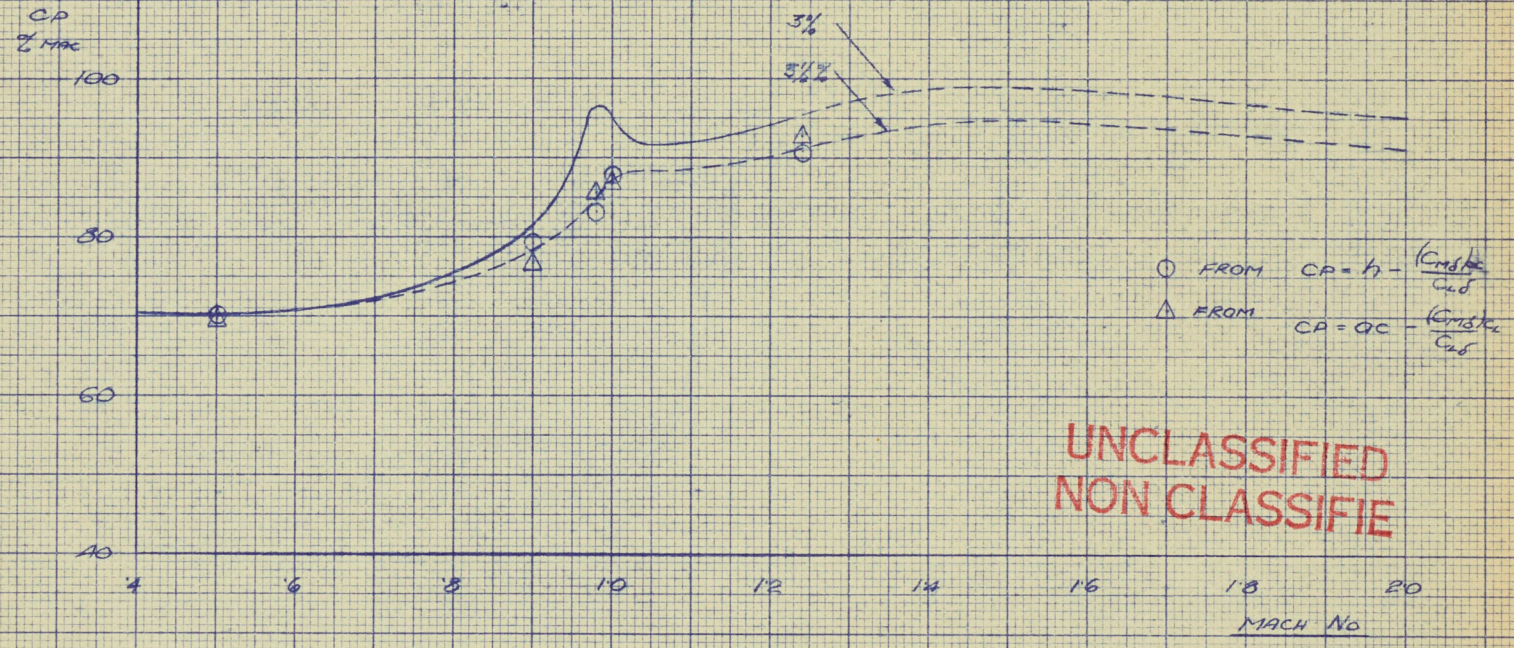


P/H.T./21 1.3.3.
APRIL 23/57 J. Kimberley

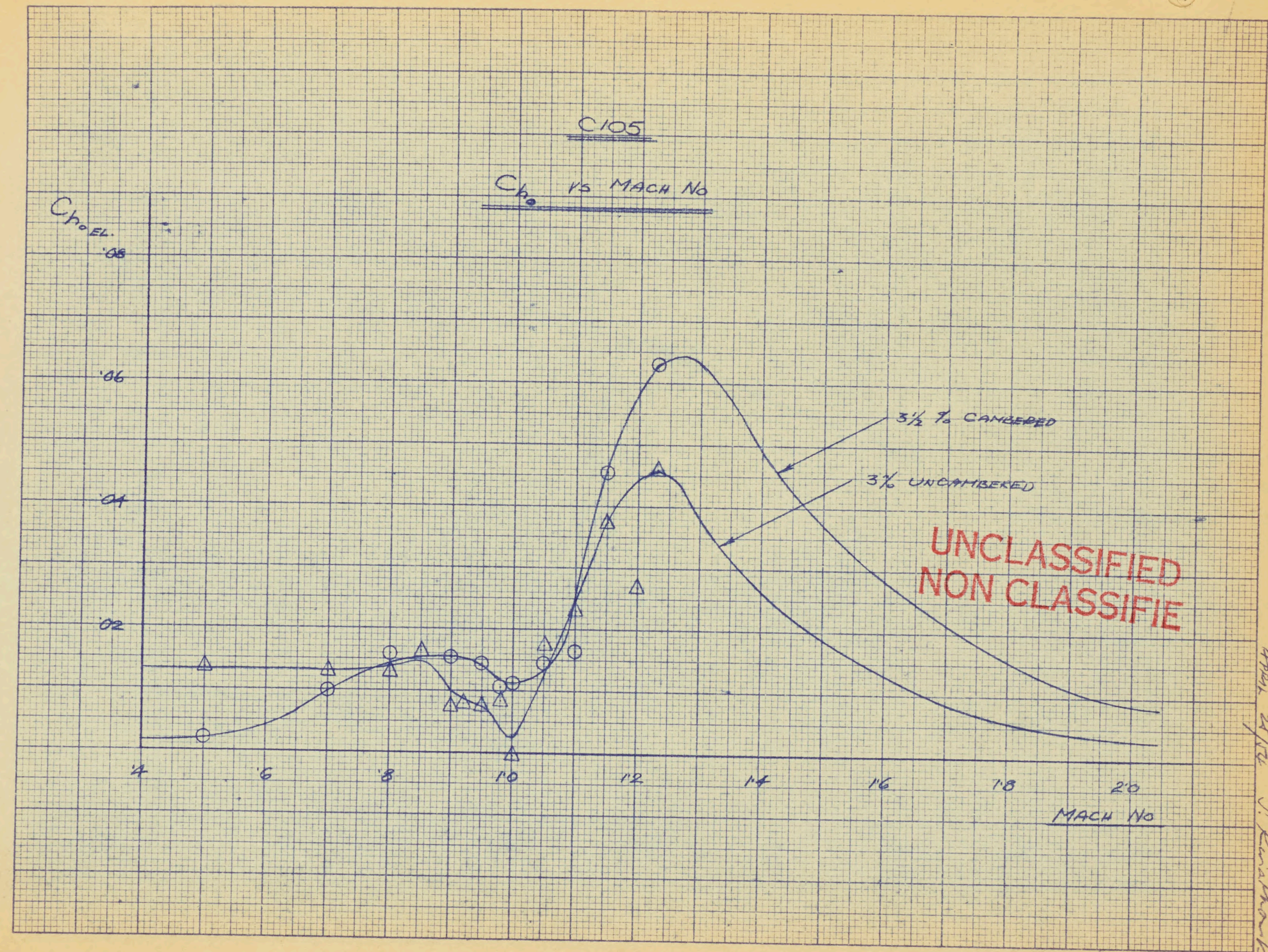
C105

CORNELL W.T. TESTS APR. 54.

ELEVATOR CP.

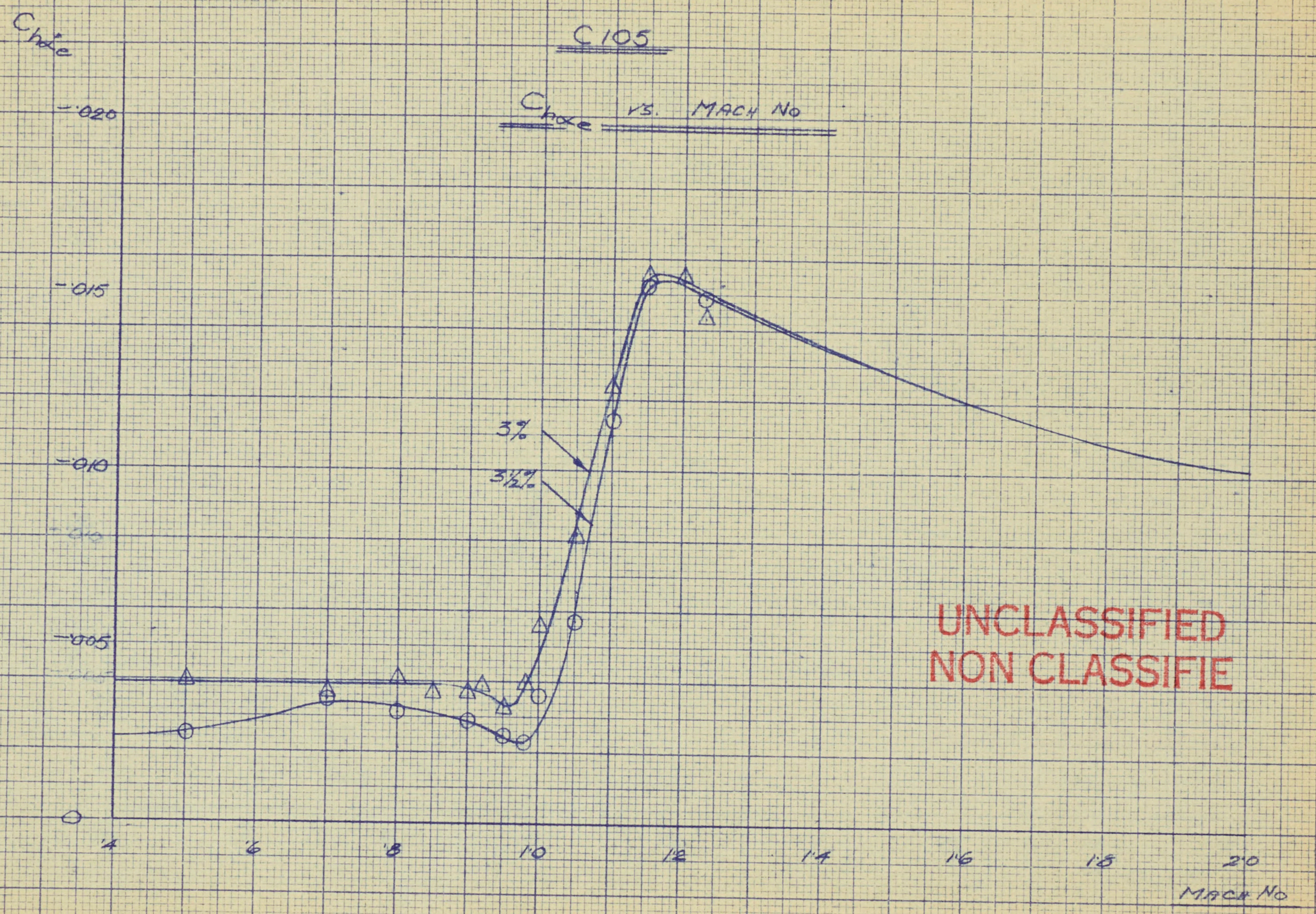


P/H, T, 121 1.3.4.
APRIL 21/17 J. Kerr Hemsh



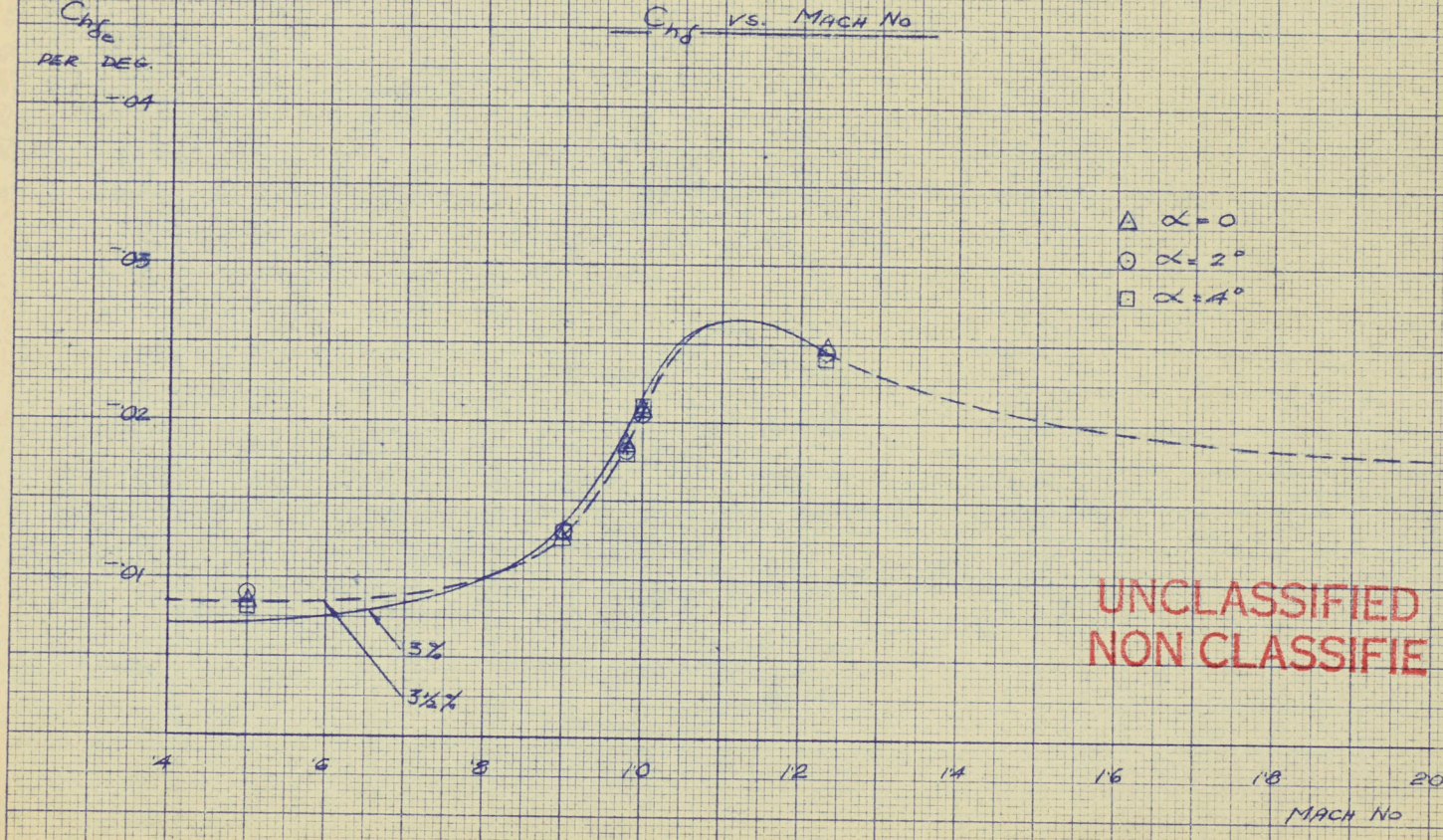
P/W.T./121 1.3.5.
APRIL 25/54 J. Kwiatkowski

P/H.T./21 1.3.6.
April 25/54 J. Kwiatkowski



C105

C_{n_δ} vs. MACH No



P/A.T./21 1.3.7.
April 23/47

AIRCRAFT A.U.W. COMPONENT SHEET NO. 2.1.1.

DATE Aug 31, 1954 REPORT NO. P/W T-121

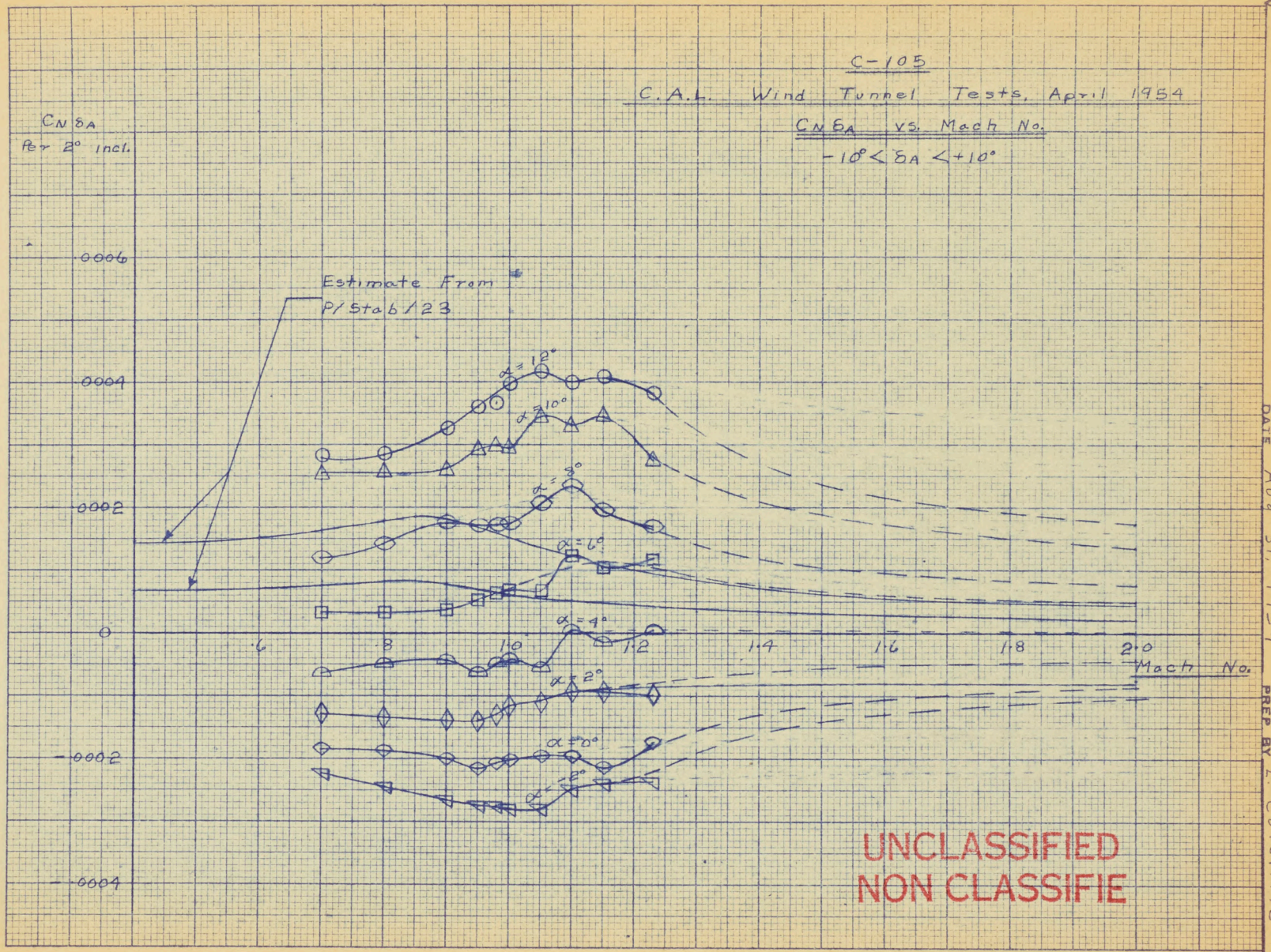
PREP BY L. Cutcliffe

C-105

C.A.L. Wind Tunnel Tests, April 1954

$C_N \delta_A$ vs. Mach No.

$-10° < \delta_A < +10°$



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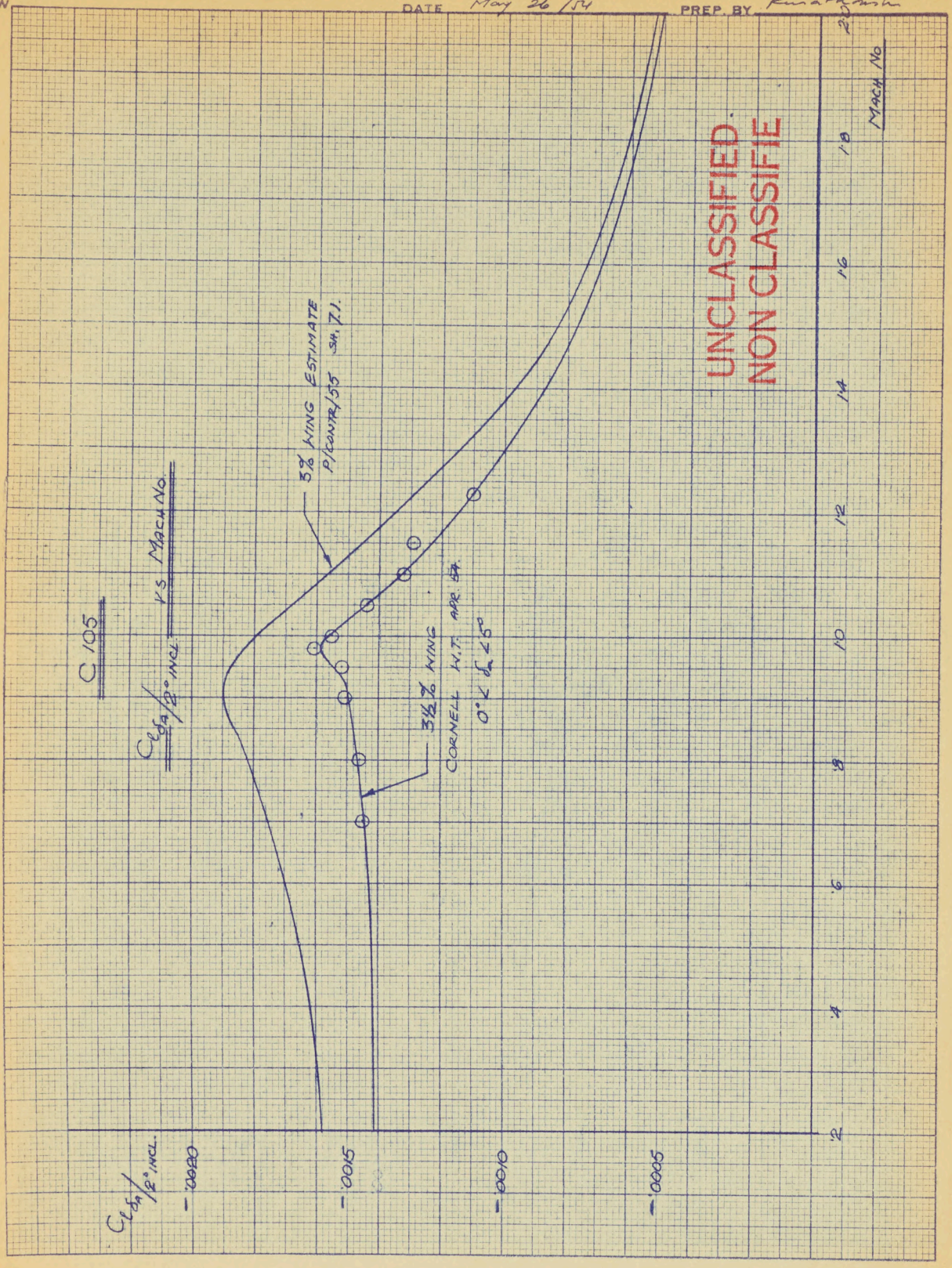
AIRCRAFT C105 COMPONENT SHEET No. 2.1.2. REPORT No P/W.T./21.

A.U.W. DATE May 26/54 PREP. BY Kuiathamshi



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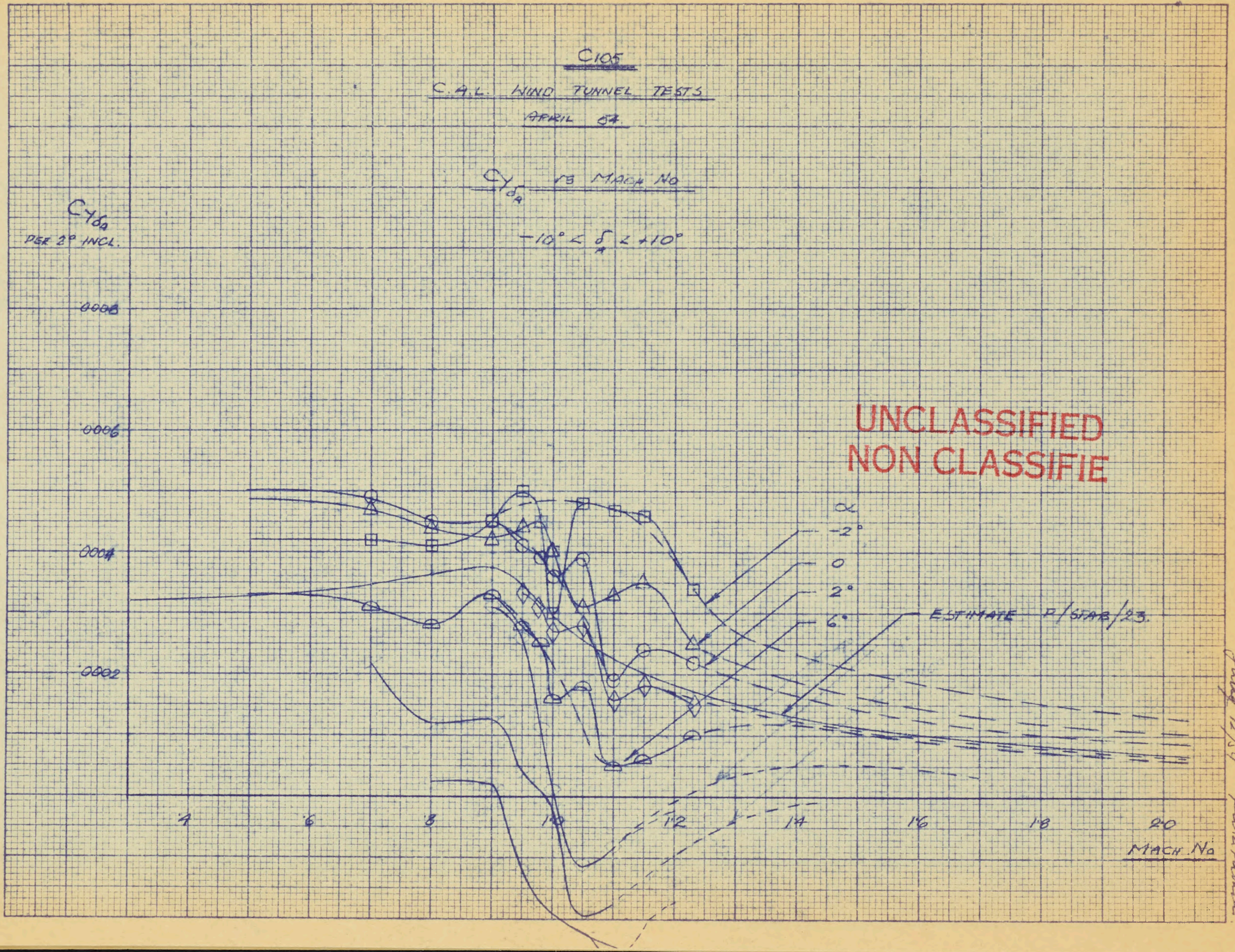


July 12/54 Kuriathouski
M.T.I. /21. 2.1.3

AIRCRAFT A.U.W. C-105 COMPONENT

SHEET No. 221

DATE 13 May 1954

REPORT No. PWT-121

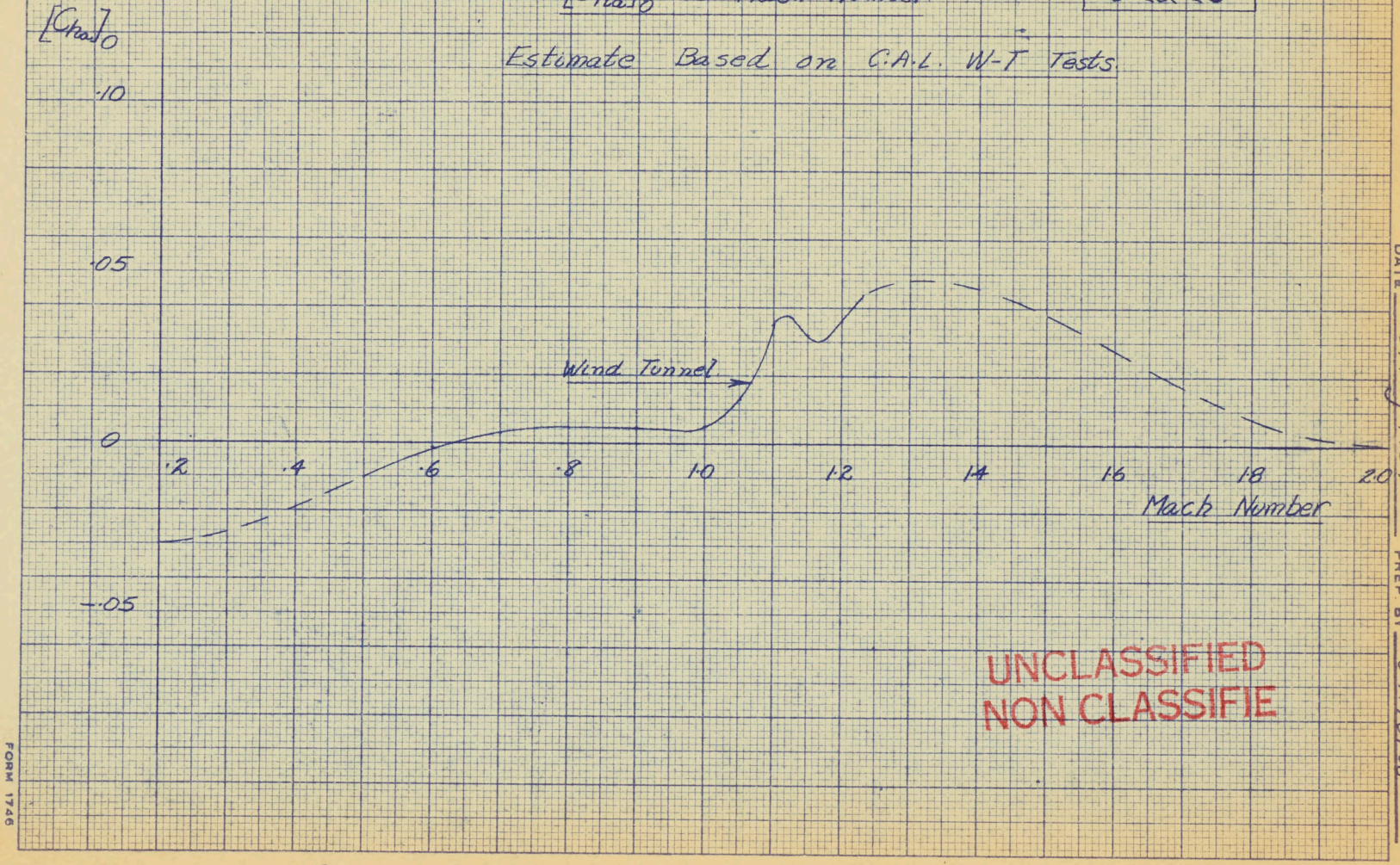
PREP BY C.A. Ford

C-105

$[C_{h\alpha}]_0$ vs Mach Number

$-5° < \alpha < 6°$

Estimate Based on C.A.L. W-T Tests.



AIRCRAFT C-105 COMPONENT A.U.W.

SHEET NO. 2.2.2.

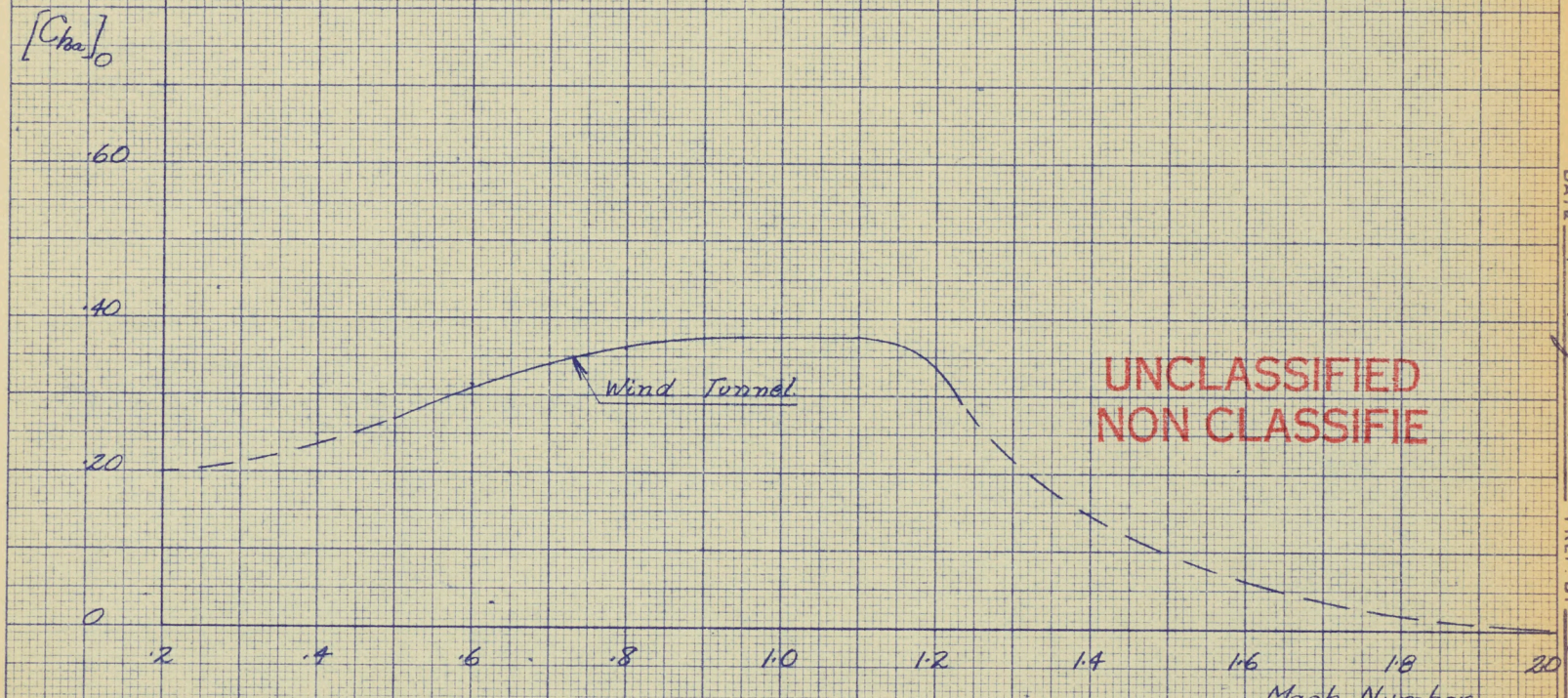
DATE 12 May 1954 PREP. BY C.A. Ford

REPORT NO P/W-T/21

C-105

$[C_{h_\alpha}]_0$ vs Mach Number $6° < \alpha < 12°$

Estimate Based on C.A.L. W-T Tests



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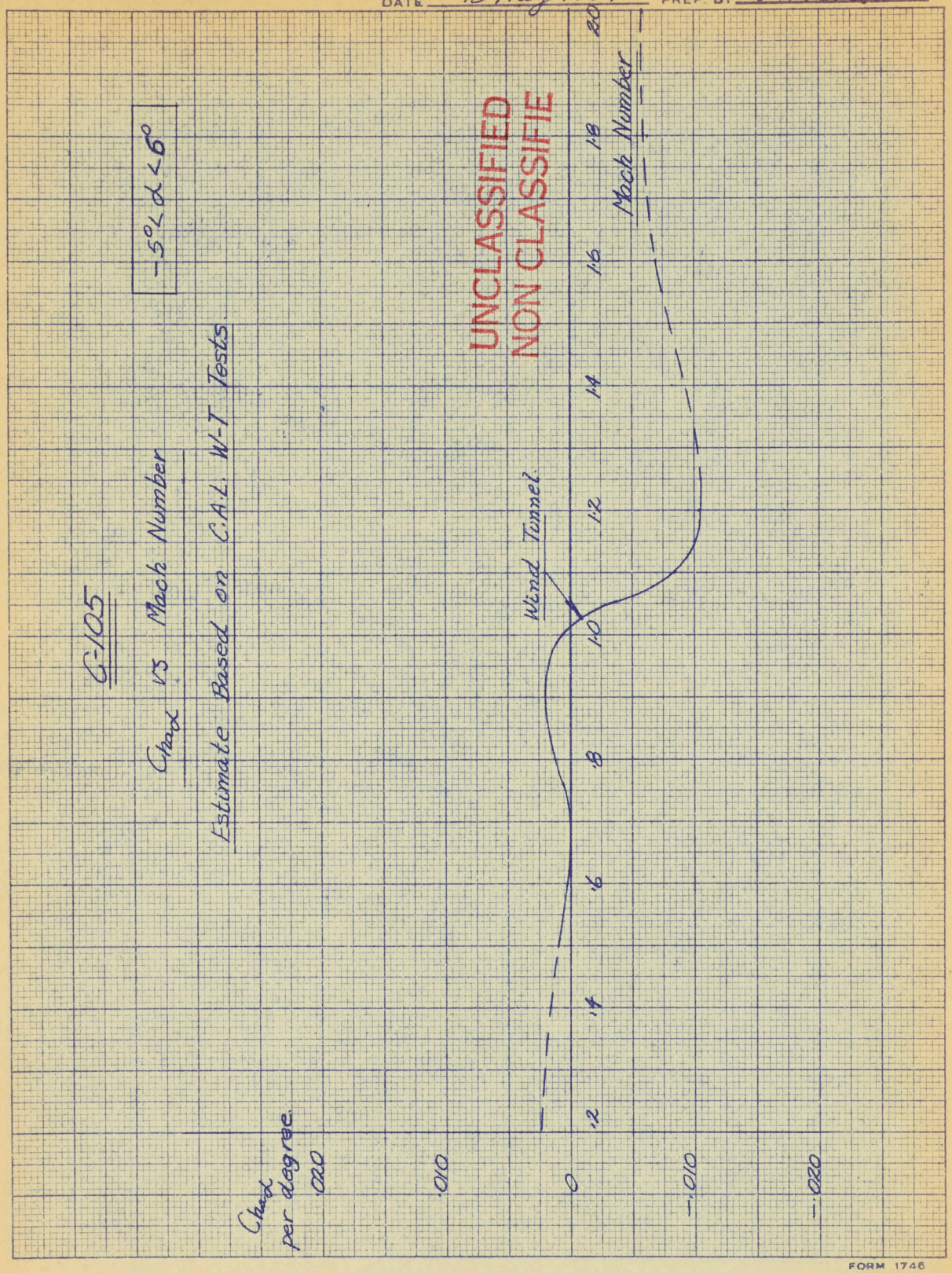
AIRCRAFT C-105 COMPONENT
A. U. W.

SHEET NO. 2.2.3 REPORT NO. P/W-T/121
DATE 13 May 1954 PREP. BY C.A. Ford



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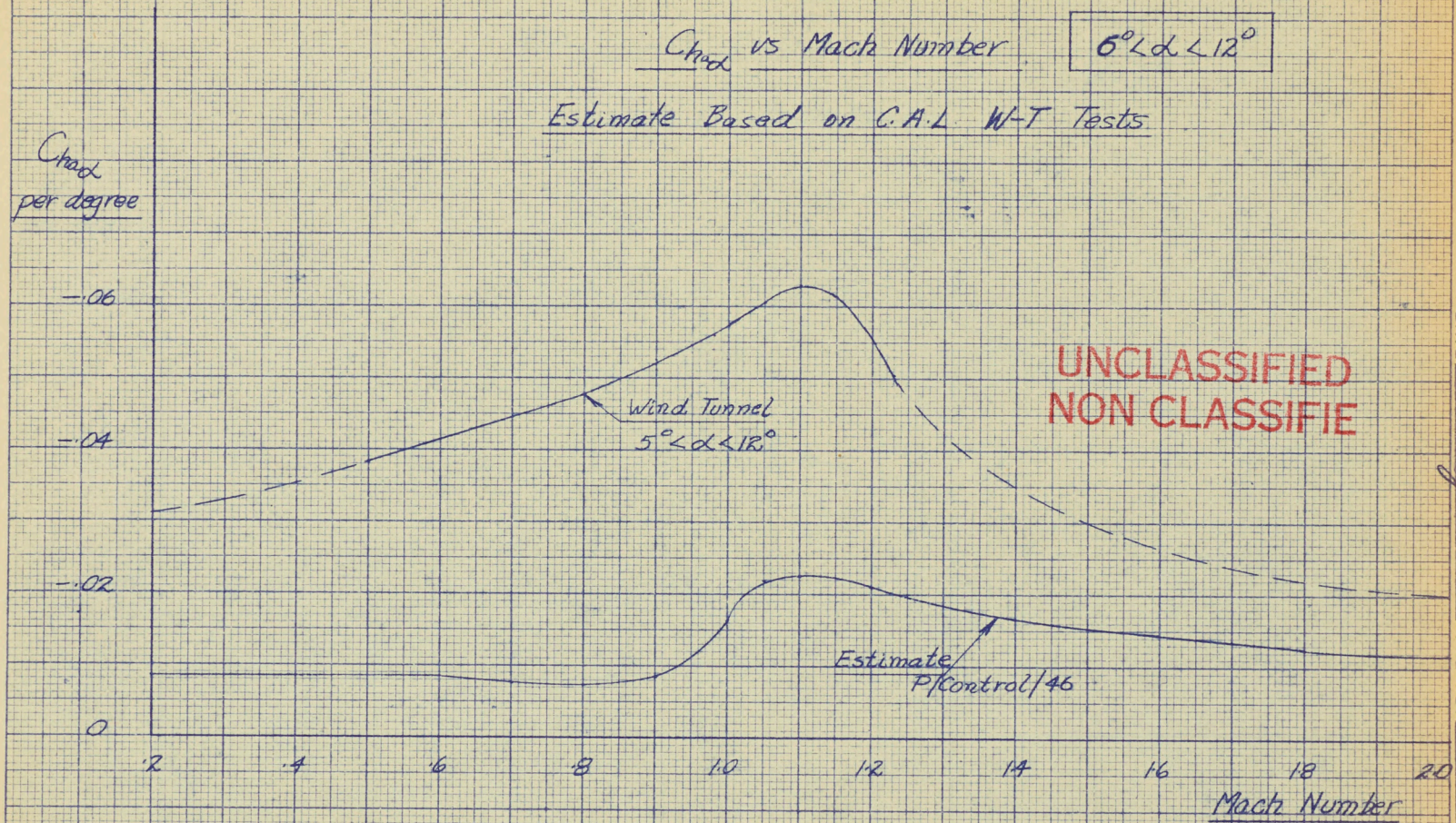
AIRCRAFT C-105 COMPONENT
A.U.W.
SHEET NO. 2.2.4
DATE 12 May 1959 REPORT NO. PIW-T121
PREP BY C.A. Ford

C-105

C_{h_α} vs Mach Number $\quad 6° < \alpha < 12°$

Estimate Based on C.A.L W-T Tests



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A. U. W.

COMPONENT

SHEET No. 2.2.5 REPORT No. P/W-T/121

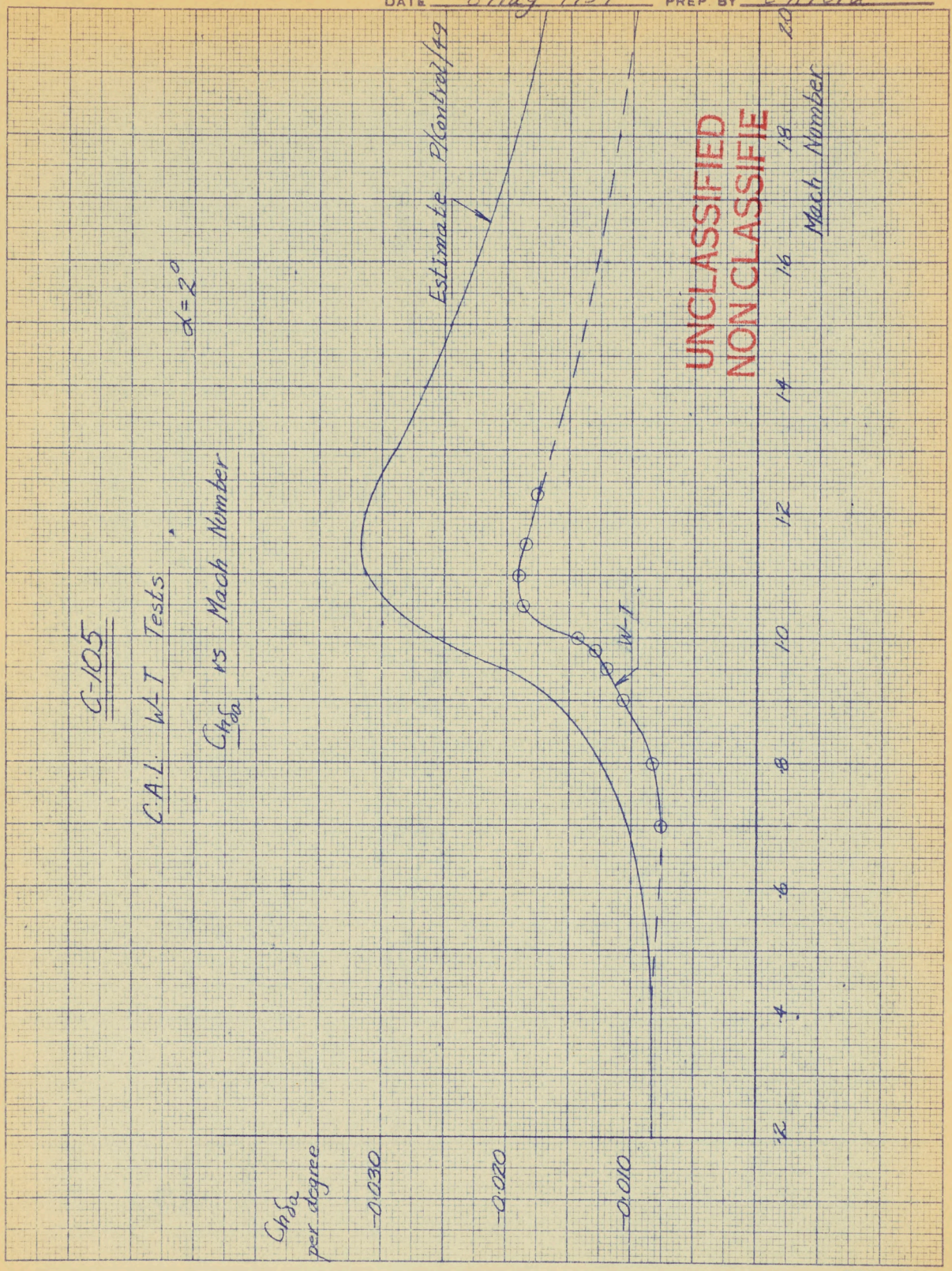
DATE 6 May 1954 PREP. BY C.A.Ford

C-105

C.A.L. WLT Tests

$C_{h_{\delta a}}$ vs Mach Number

$\alpha = 2°$



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AIRCRAFT A.U.W. C-105 COMPONENT

SHEET NO. 3.1.1.

DATE 27 April 1954

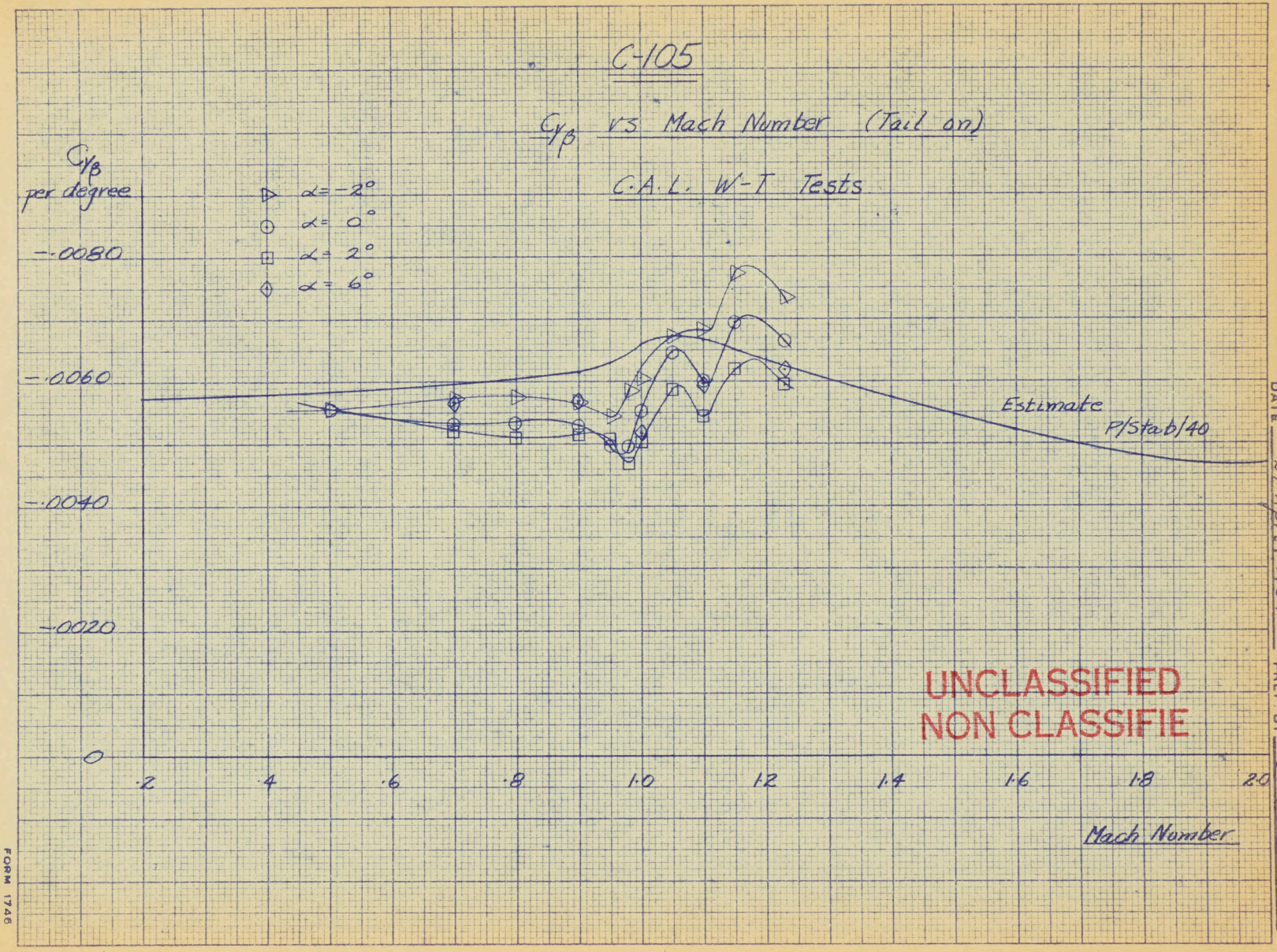
REPORT NO. P/W-T/21

PREP BY C.A. Ford.

C-105

C_{y_β} vs Mach Number (Tail on)

C.A.L. W-T Tests



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AIRCRAFT C105 COMPONENT SHEET NO. 3.12. REPORT NO. P/W.T./21

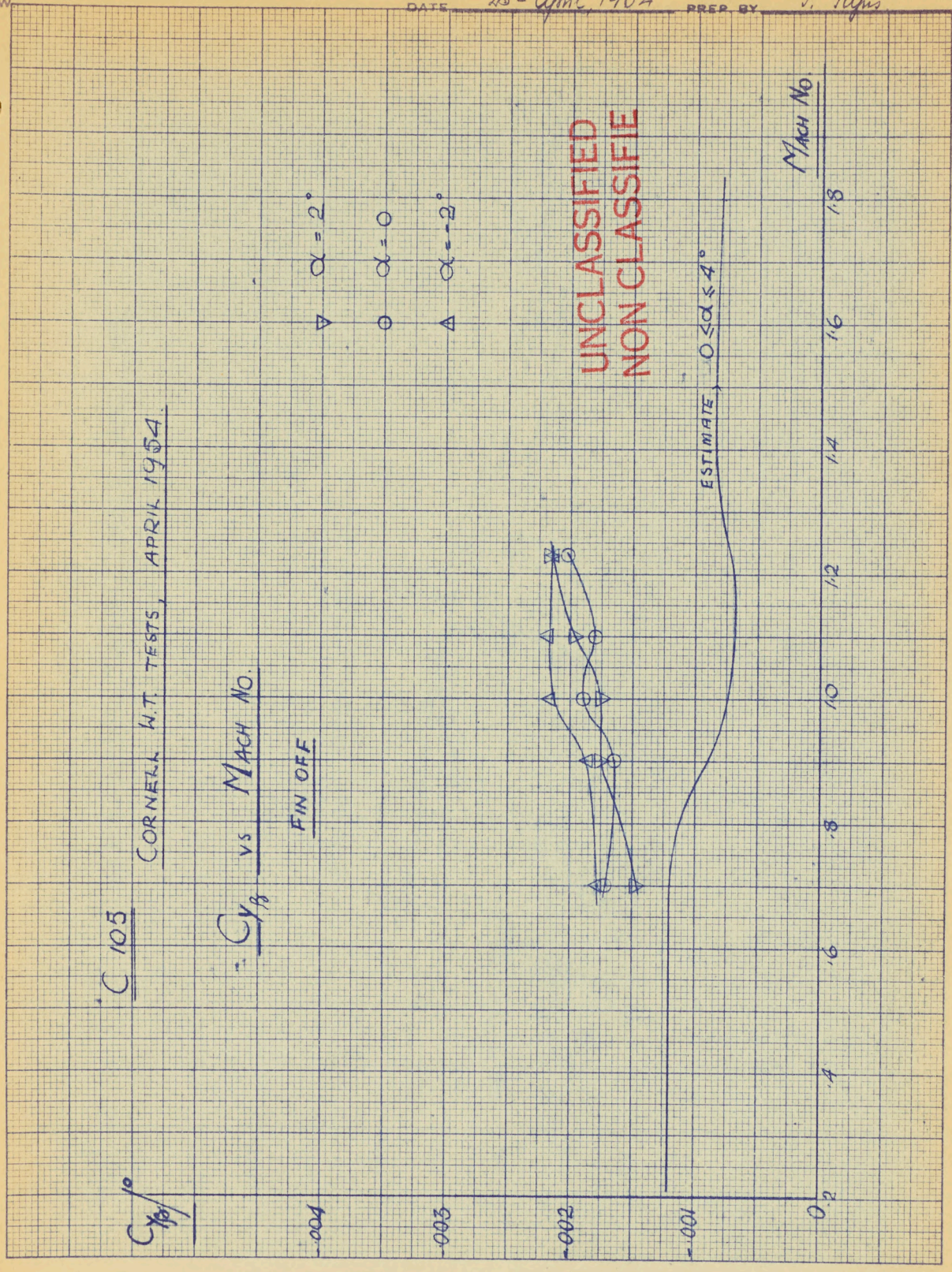
A. U. W. DATE 25th April, 1954 PREP BY J. Papis

C 105

CORNELL W.T. TESTS, APRIL 1954.

C_{Y_β} VS MACH NO.

FIN OFF



AIRCRAFT A U W | COMPONENT | SHEET NO. 3·2·1·1 | REPORT NO. P/WT/21

DATE July '54 | PREP BY

C-105

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

$C_{l_\beta}(V)$ VS MACH NO.

$C_{l_\beta}(V)$ PER DEG.

·08
·07
·06
·05
·04
·03
·02
·01
0

SIDESLIP RANGE $-10° < \beta < -2°$

$\alpha = -2°$

$\alpha = 2°$

ESTIMATED VALUE.

$\alpha = -2°$

$\alpha = 2°$

SIDESLIP RANGE $-2° < \beta < 2°$

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·4 ·6 ·8 1·0 1·2 1·4 1·6 1·8 2·0

MACH NO.

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AIRCRAFT
A. U. W.

COMPONENT

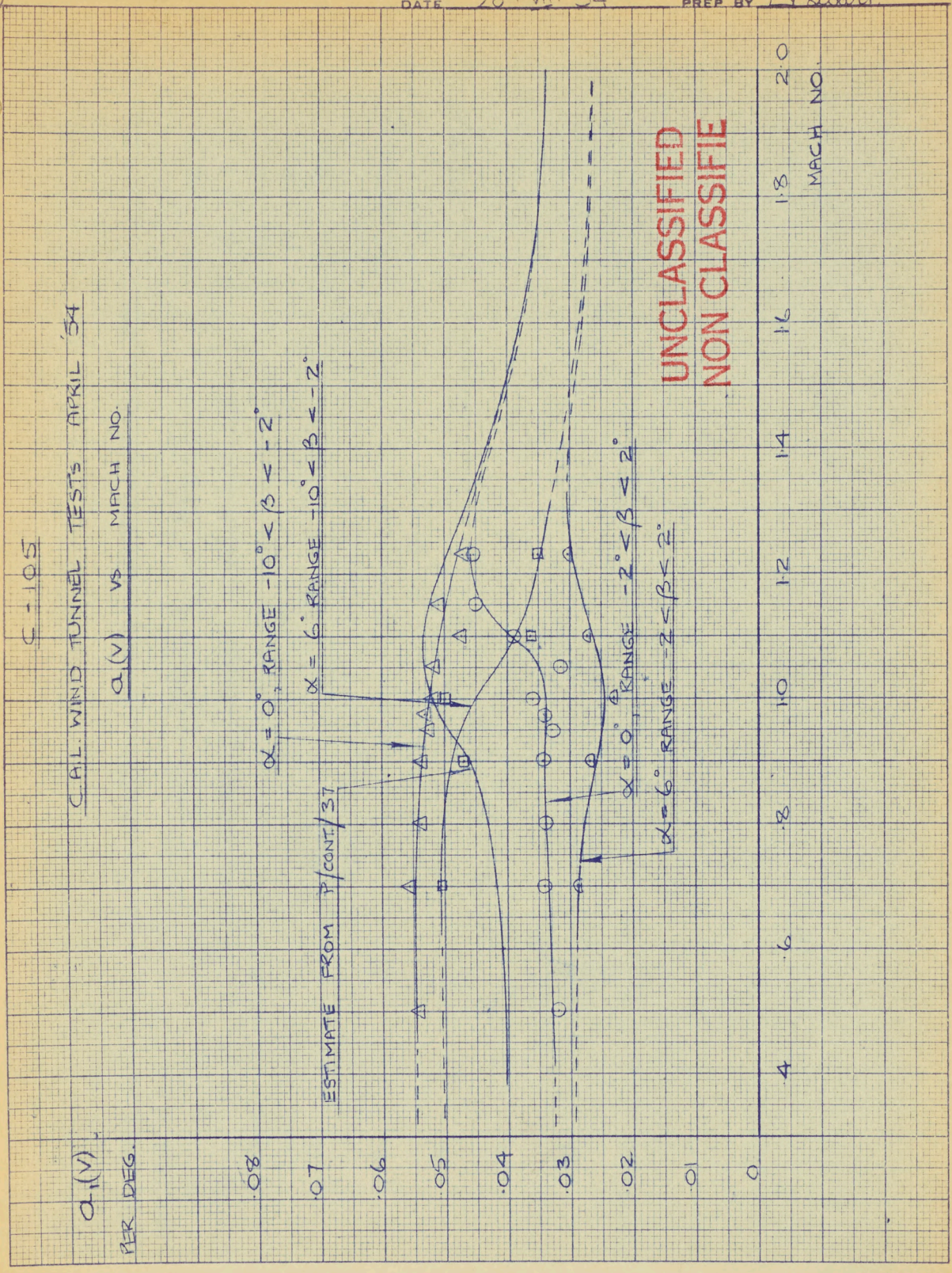
SHEET No. 3.2.1.2 REPORT No. P/WT/21

DATE 20. VII. 54 PREP. BY I. Stuart

C-105

CAL. WIND TUNNEL TESTS APRIL '54

$C_{l_\beta}(V)$ VS MACH NO.



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AIRCRAFT A.U.W. COMPONENT SHEET No. 3.2.2.1 REPORT No. P/WT/21
DATE JULY 1954 PREP BY DF Swan

C-105

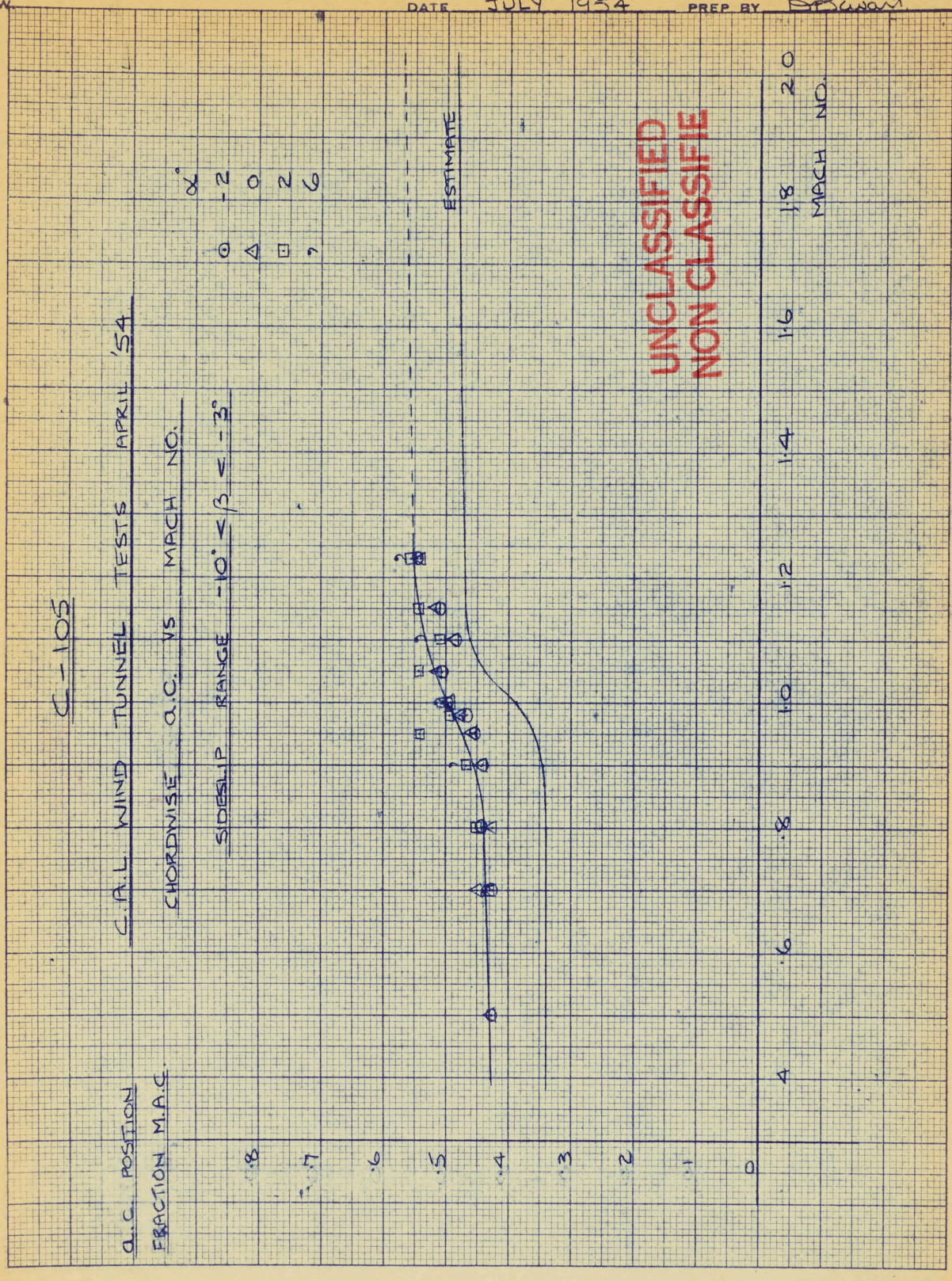
C.P.L. WIND TUNNEL TESTS APRIL '54

CHORDWISE A.C. VS MACH NO.

SIDESLIP RANGE $-10° < \beta < -3°$

A.C. POSITION

FRACTION M.A.C.



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AIRCRAFT A U W COMPONENT

SHEET No. 3.2.2.2.2 REPORT No. 12/WT/24

DATE July 1954 PREP BY I. Stewart

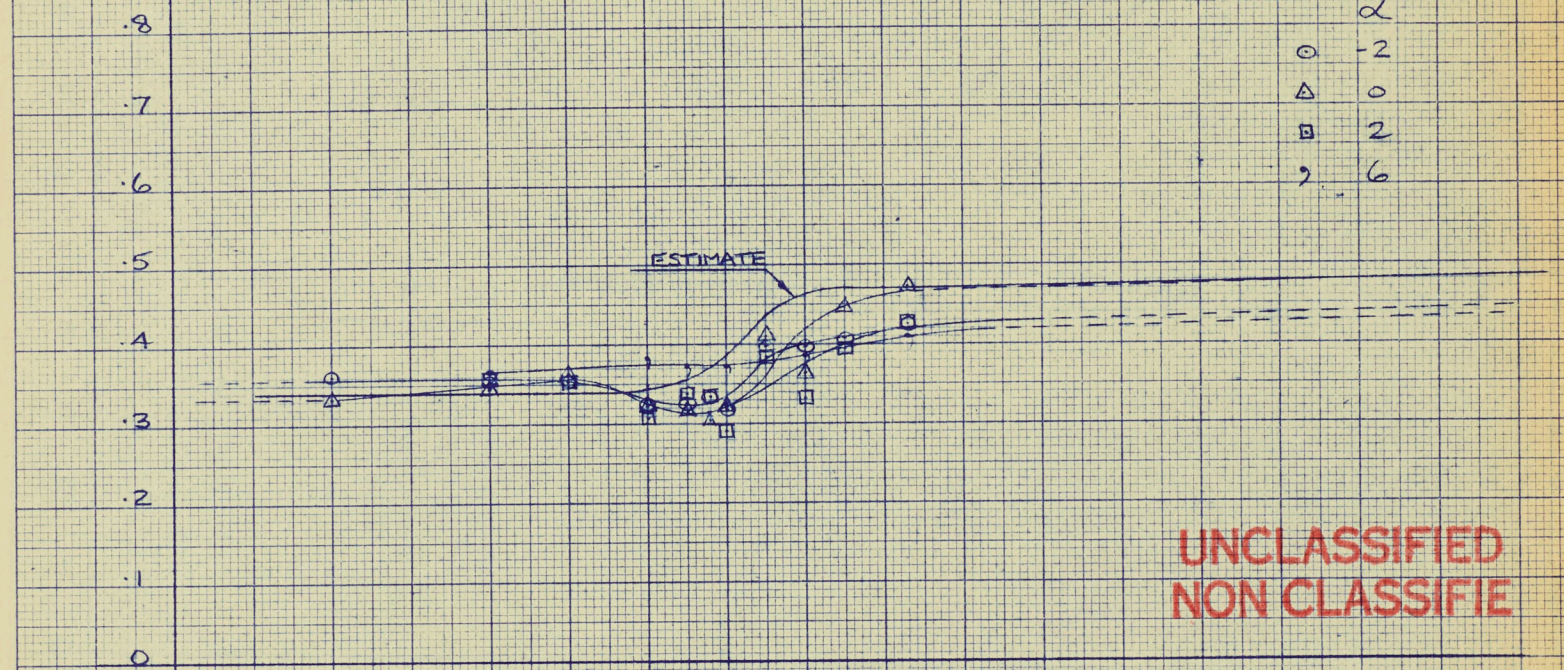
C-105

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

CHORDWISE a.c. VS. MACH NO.

SIDESLIP RANGE $-2° < \beta < +2°$

a.c. POSITION FRACTION M.A.C.



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A. U. W.

COMPONENT

SHEET No. 3.2.3 REPORT No. P/WT/21

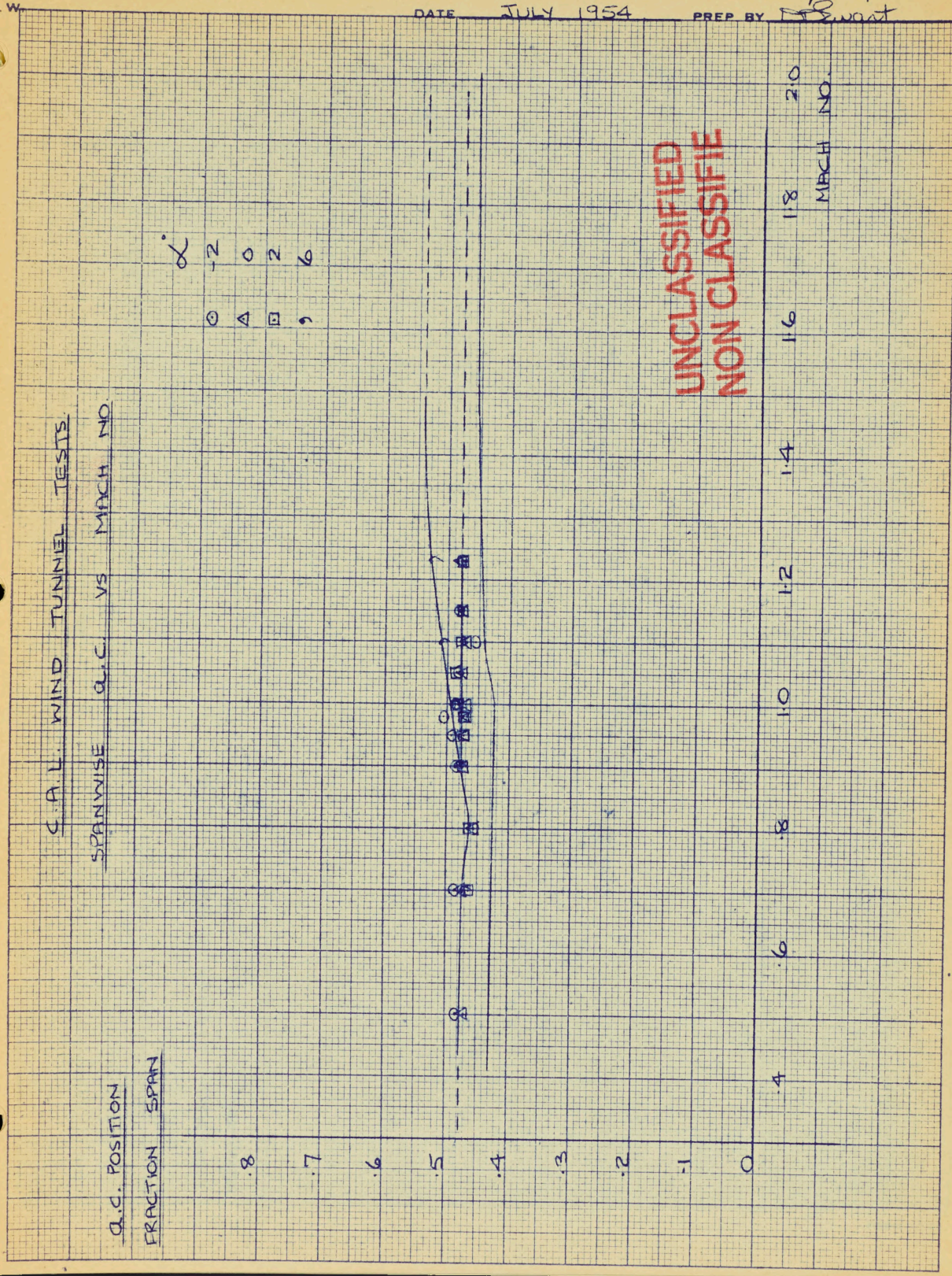
DATE JULY 1954 PREP BY D.E.Nevat

C.A.L. WIND TUNNEL TESTS

SPANWISE Q.C. VS MACH NO

Q.C. POSITION

FRACTION SPAN



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AIRCRAFT A.U.W.

COMPONENT

SHEET NO. B.3.1.1

DATE JULY 1954

REPORT NO. P/WT/21

PREP BY

C-105

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

$a_2(V)$ VS MACH NO.

$\delta_r = 5°$

$a_2(V)$ PER DEG.

	$\alpha°$
⊙	-2
△	0
□	2
,	6

.03
.02
.01
0

ESTIMATE

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

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AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 3.3.1.2

DATE JULY 1954

REPORT No. P/WT/21

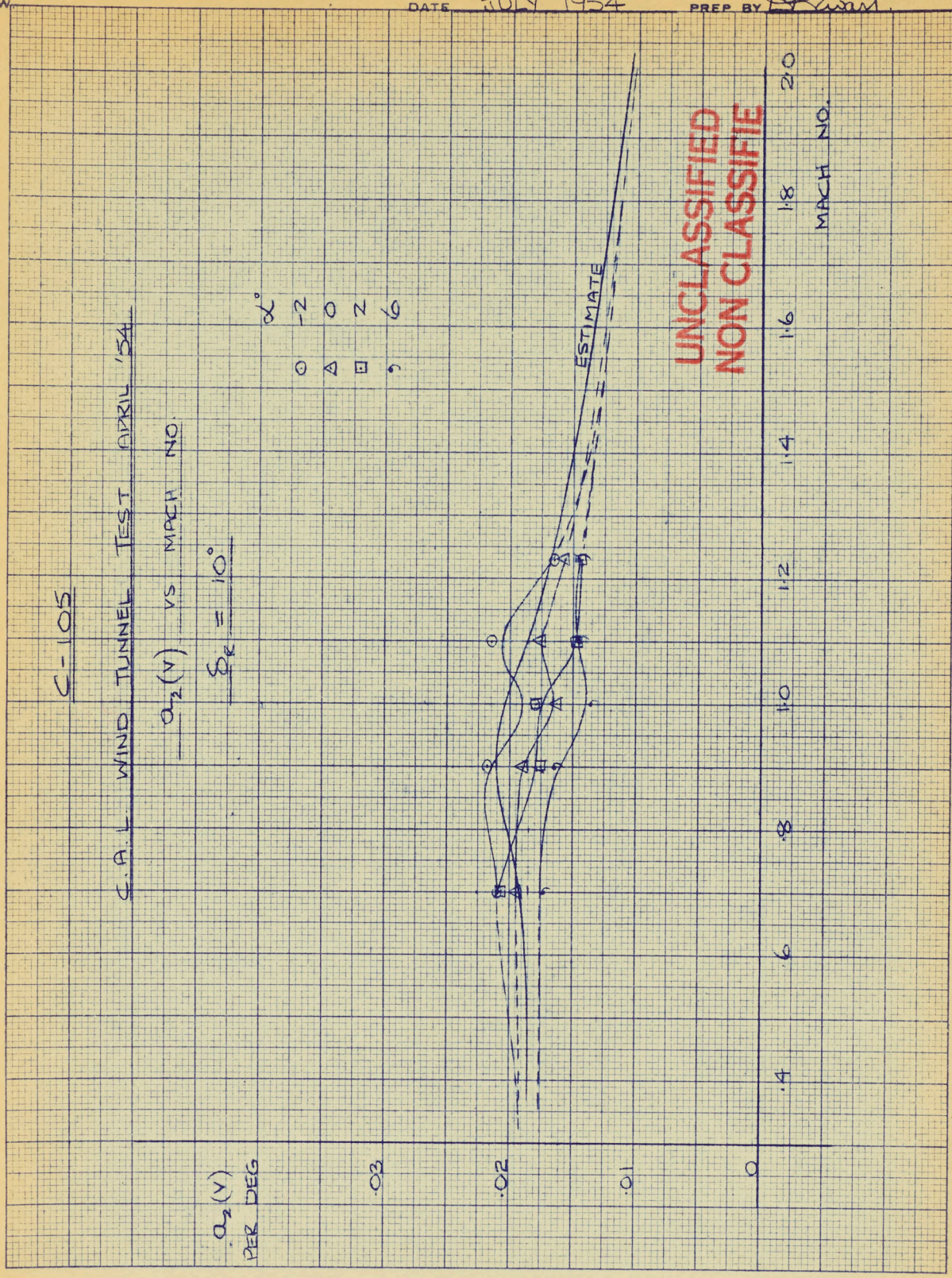
PREP BY E. T. Swart.

C-105

C. A. L. WIND TUNNEL TEST APRIL '54

$a_2(V)$ VS MACH NO.

$\delta_E = 10°$



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AIRCRAFT A.U.W. COMPONENT SHEET NO. 3.3.1.3 REPORT NO. P/WT/21

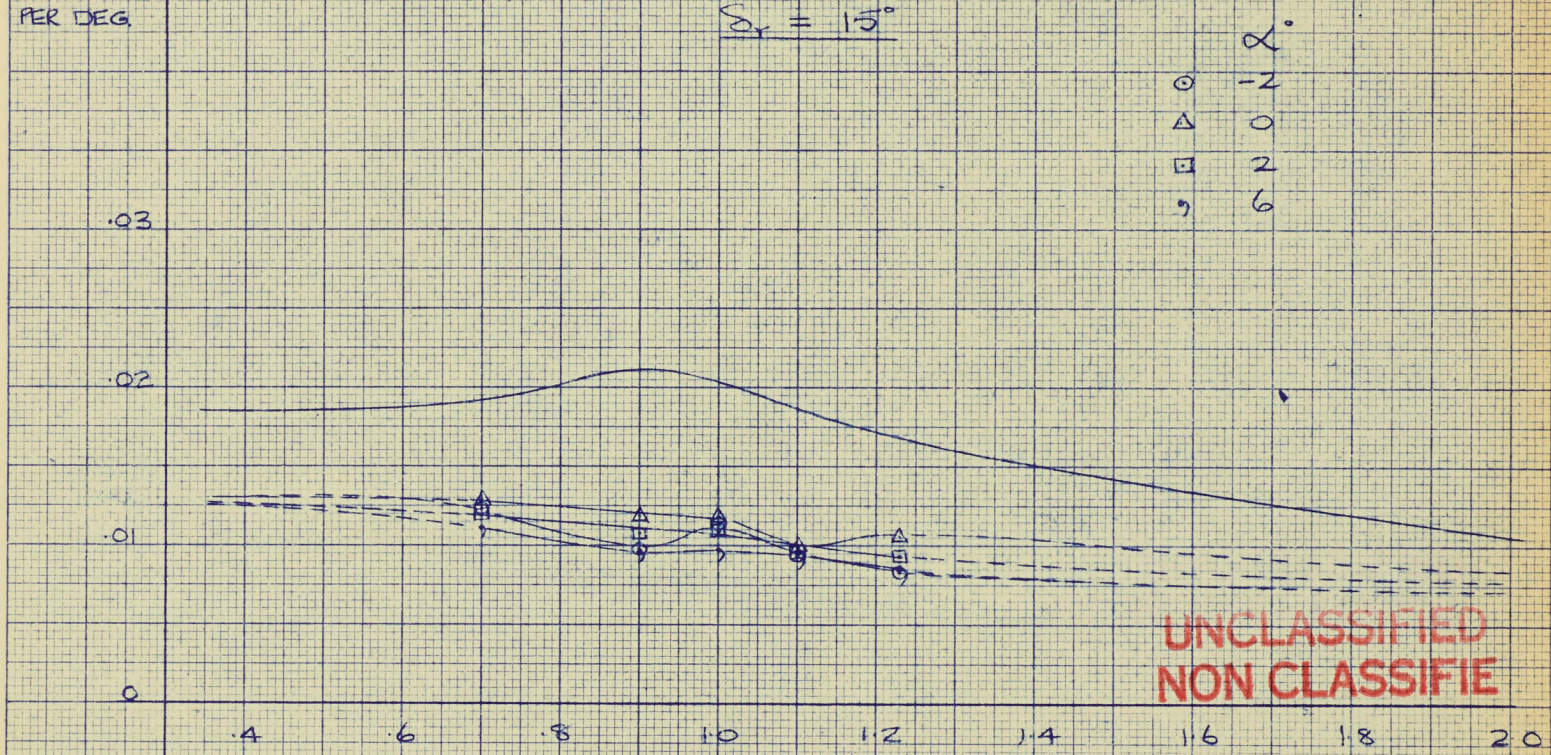
DATE JULY 1954 PREP BY

C-105

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

$a_2(V)$ vs. MACH NO.

$\delta_r = 15°$



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A. U. W.

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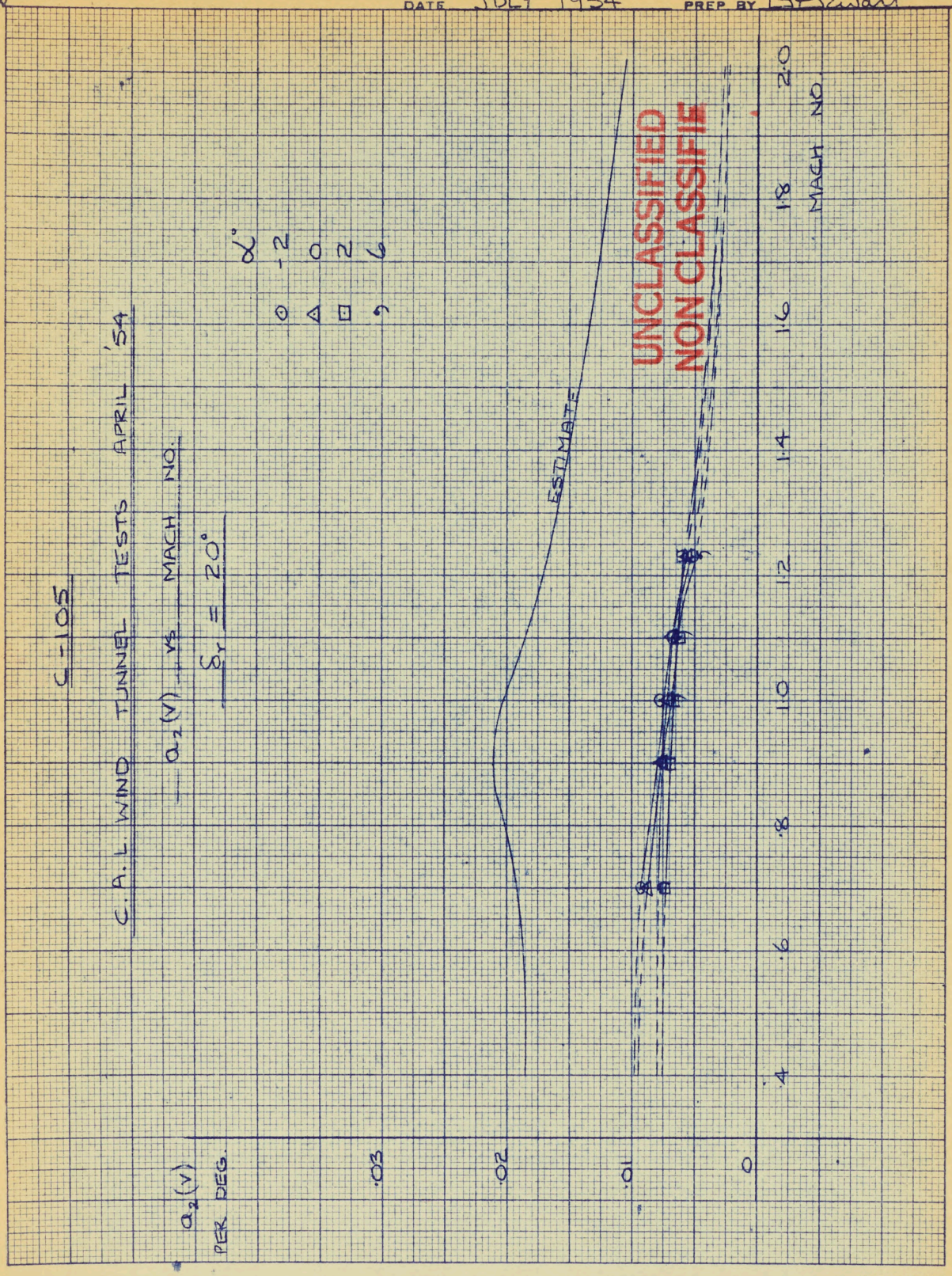
SHEET No. 3.3.1.4 REPORT No. P/WT/21

DATE JULY 1954 PREP BY [redacted] Ewart



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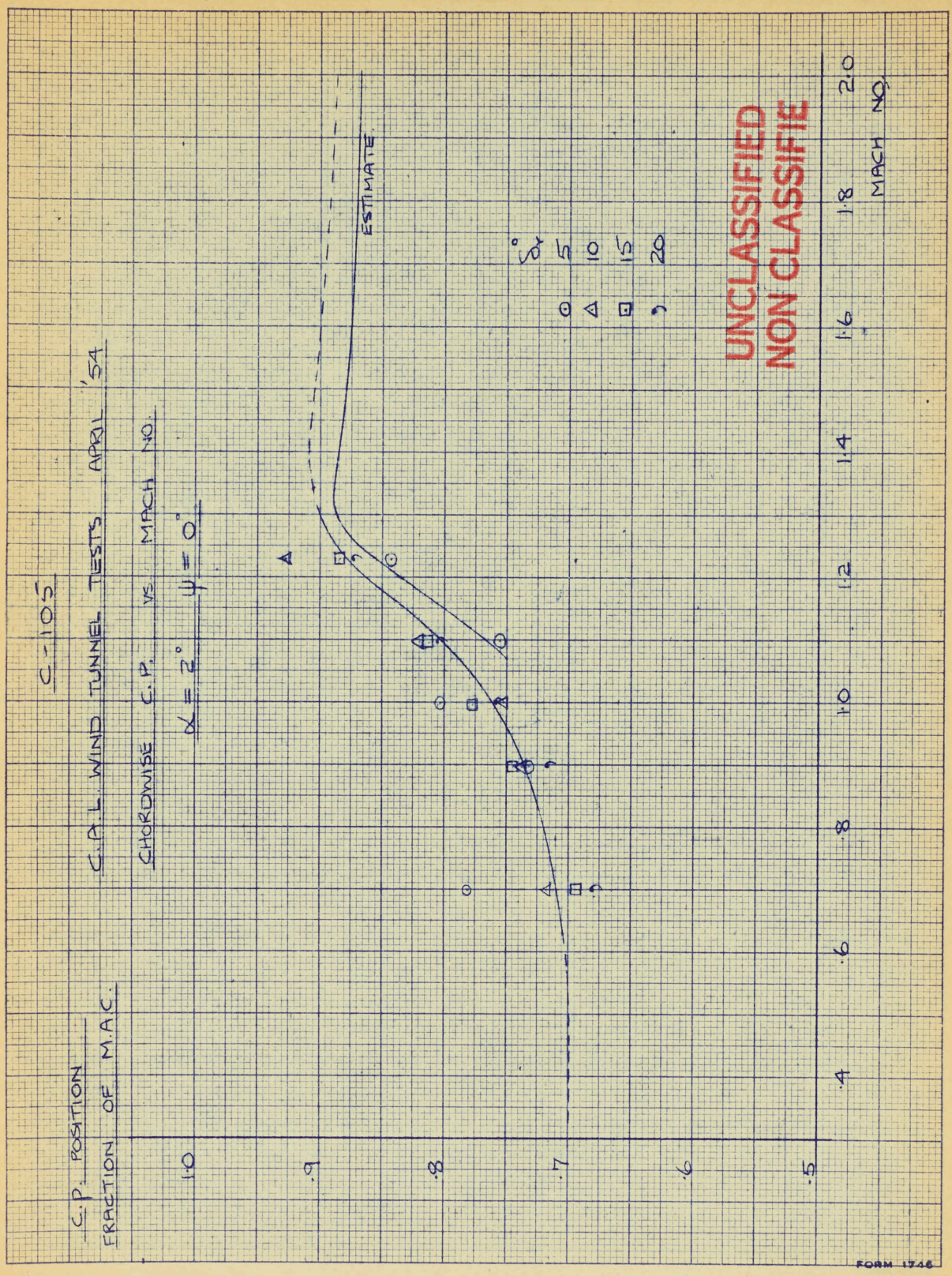
AIRCRAFT
A. U. W.

COMPONENT

SHEET No. 3.3.2. REPORT No. P/WT/21

DATE JULY 1954 PREP. BY I. T. Swart.



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AIRCRAFT
A. U. W.

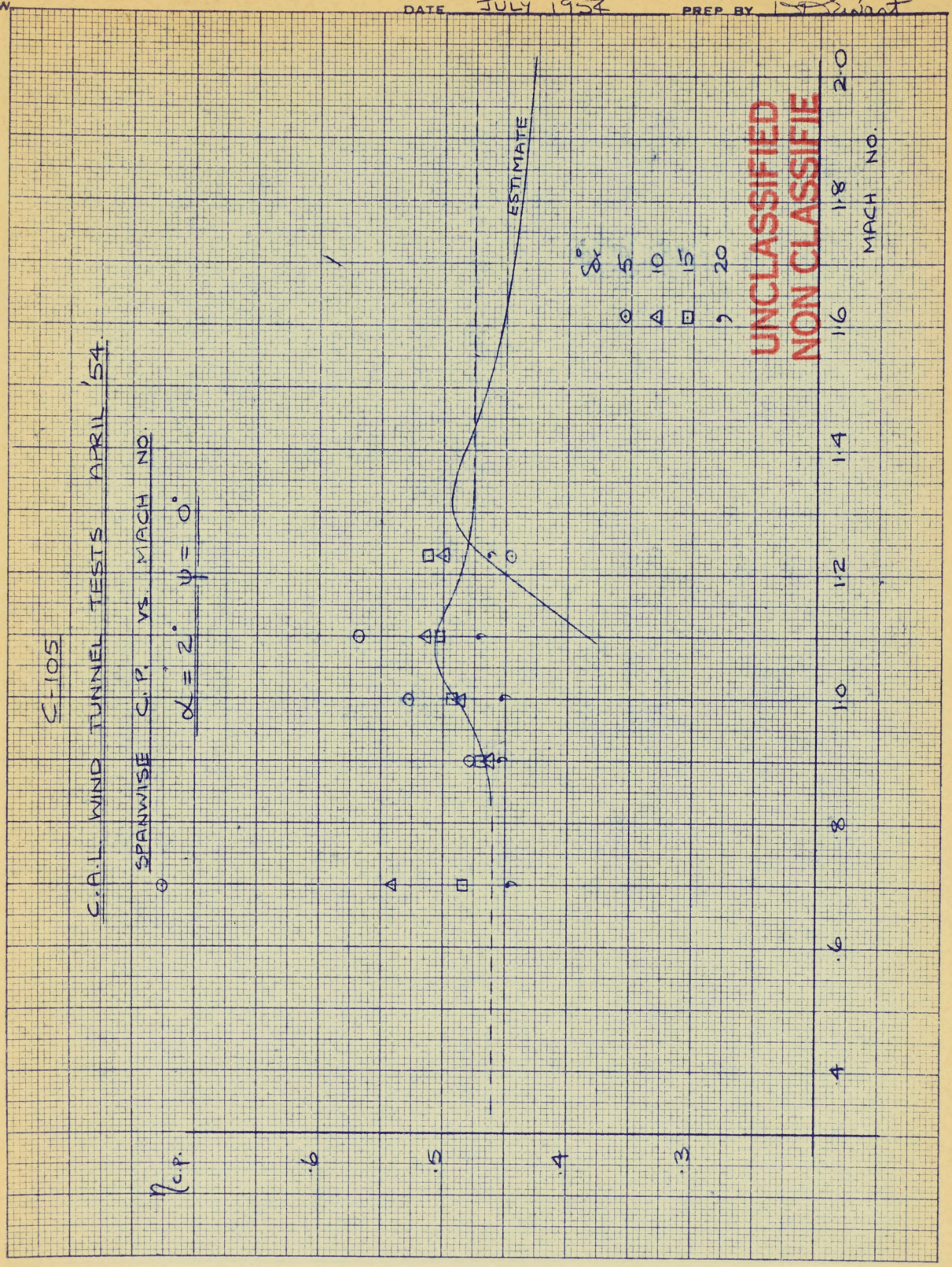
COMPONENT

SHEET No. 3.3.3

REPORT No. P/NT/21

DATE JULY 1952

PREP BY [illegible]



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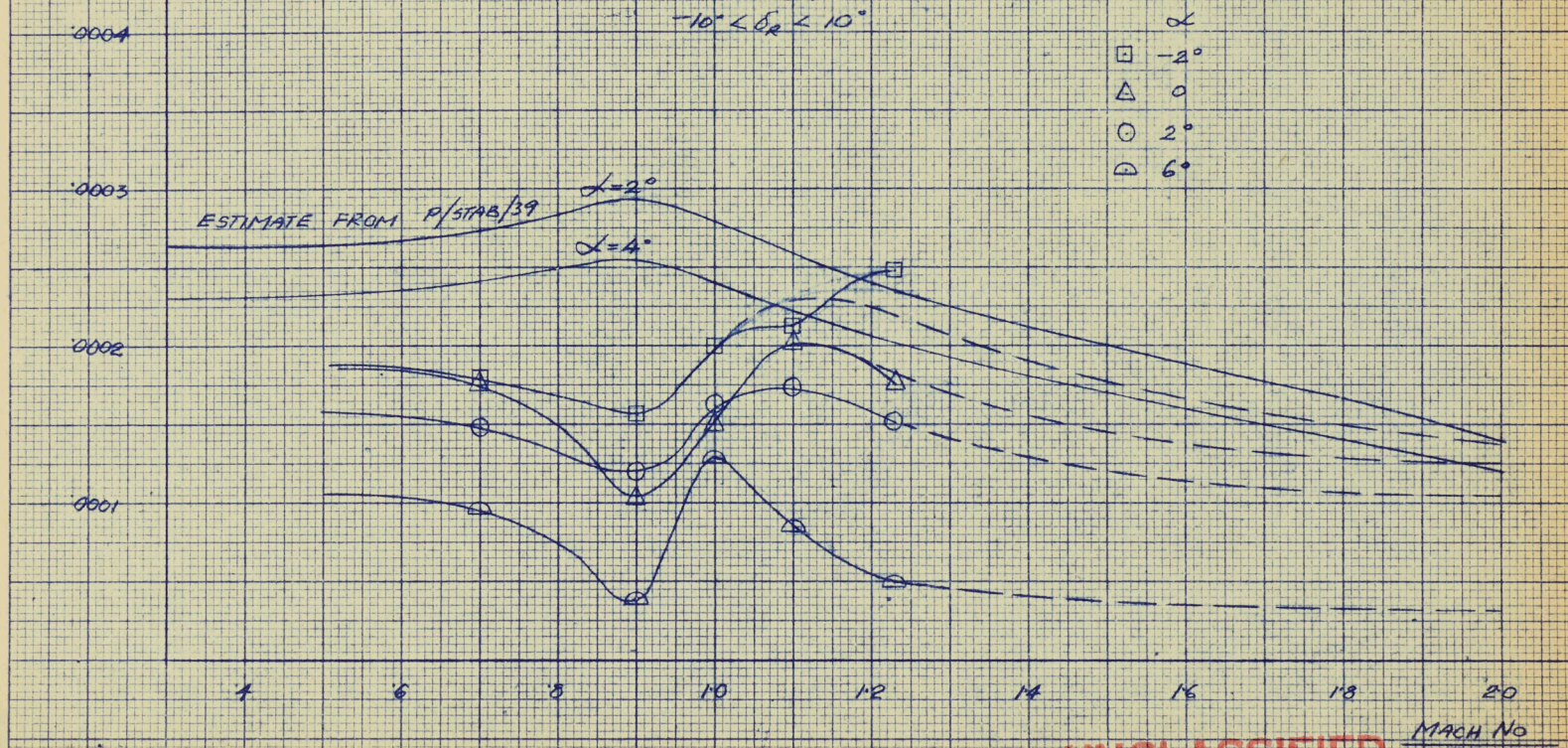
C105

C.A.L. WIND TUNNEL TESTS APRIL 54

$C_{l\delta_R}$ VS MACH NO

CLEAN a/c

$-10° < \delta_R < 10°$



July 7/54 Kuia Hung

P/A.T./21 3.3.4.

AIRCRAFT A.U.W. COMPONENT SHEET NO. 3.3.5.1 REPORT NO. Part II/21

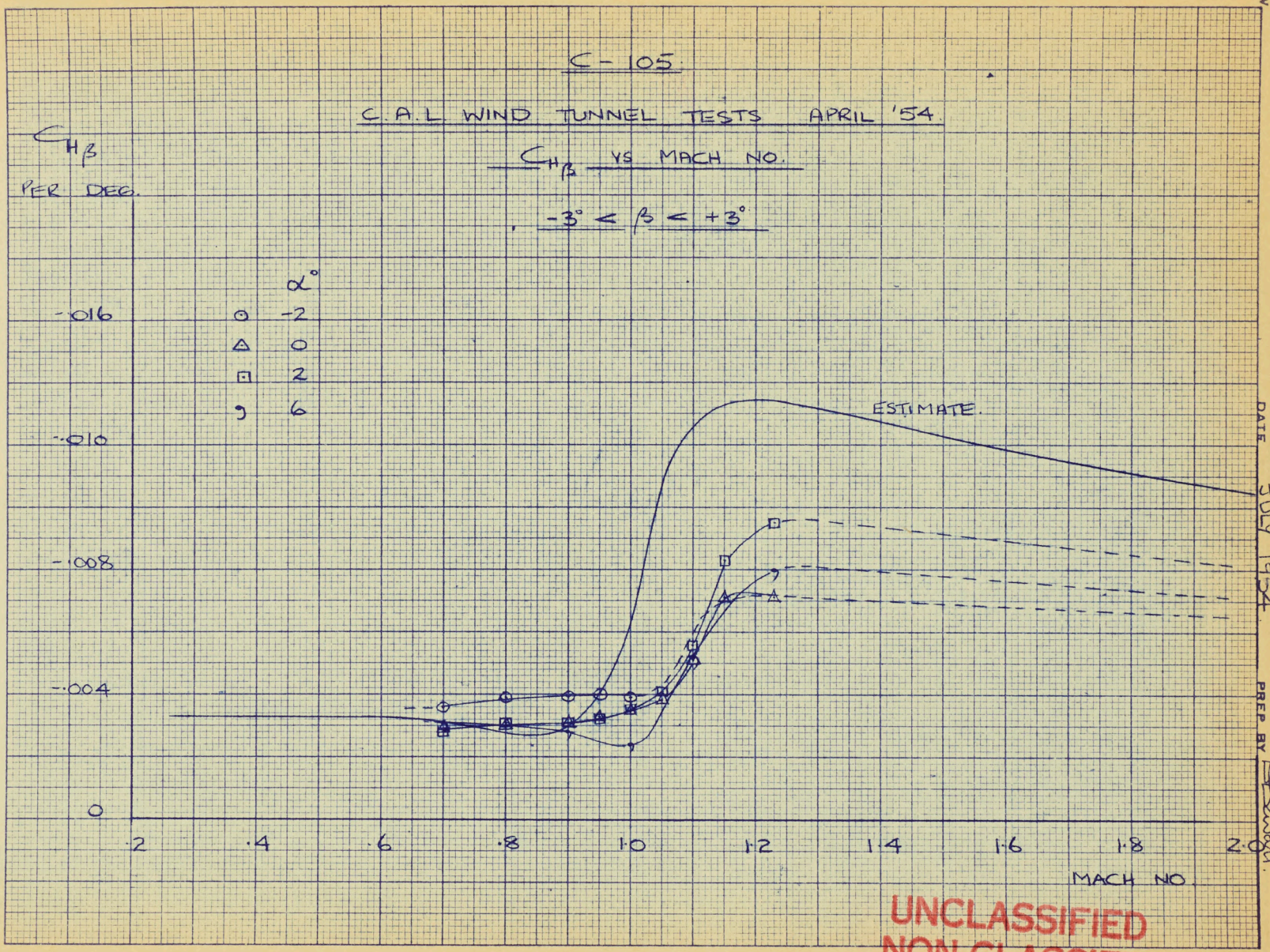
DATE JULY 1954 PREP BY E. Swagat.

C-105

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

C_{H_β} VS MACH NO.

$-3° < \beta < +3°$



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AIRCRAFT
A.U.W.

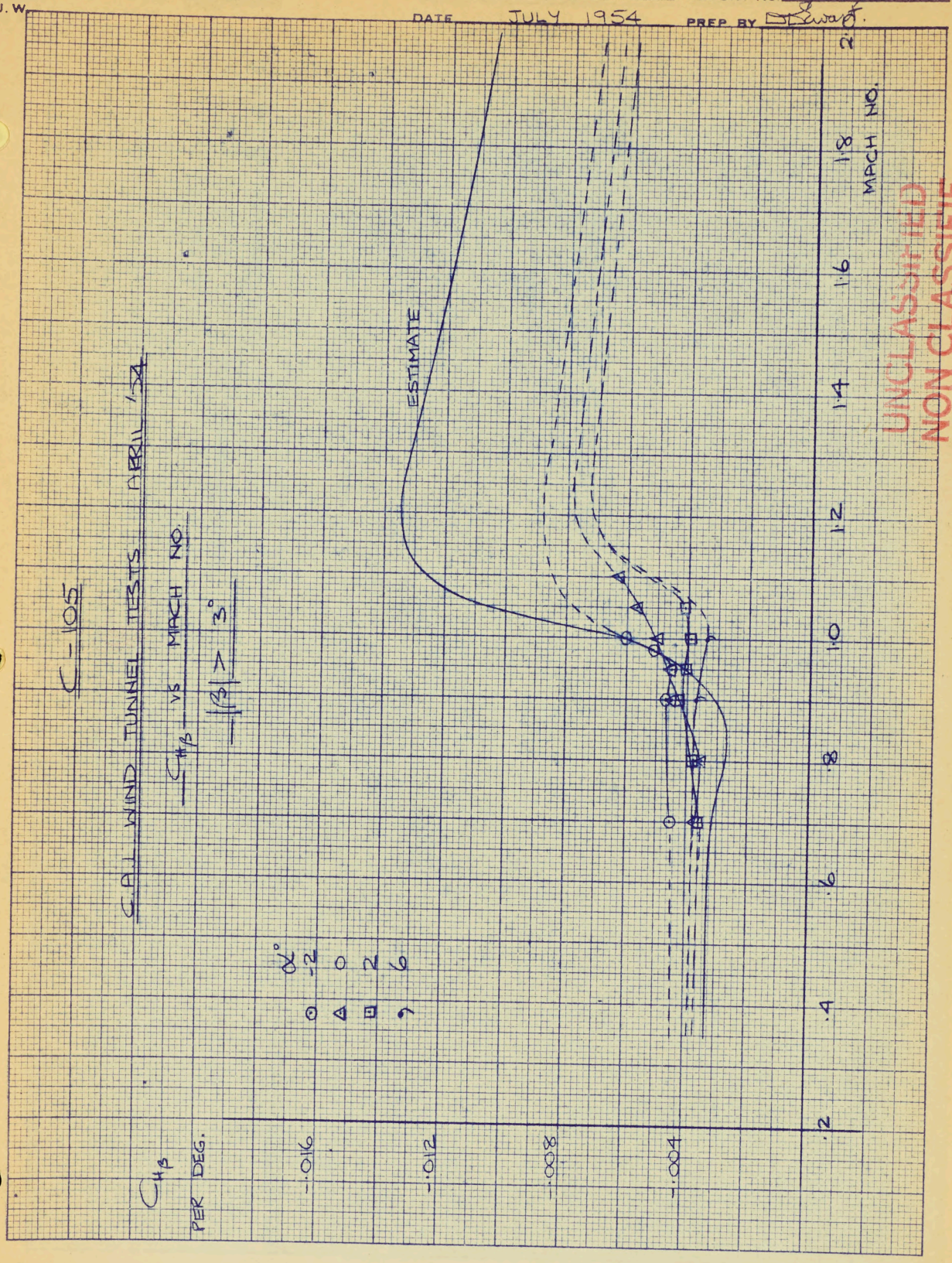
COMPONENT

SHEET No. 3.3.5.12.

REPORT No. P/WT/21

DATE JULY 1954

PREP BY D. Swart.



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AIRCRAFT C-105 COMPONENT

A. U. W.

SHEET No. 3.3.6. REPORT No. PW-T/21

DATE 11 May 1954 PREP. BY C.A. Ford

C-105

C.A.L. W-T Tests

C_{hs} vs Mach Number

$\delta_e = \delta_a = 0$

$\beta = 0$

Configuration BGWB

$10° \pm \delta_r \pm 20°$

Estimate PControl 2/37

C_{hs} per degree

-.04

-.03

-.02

-.01

0

$\alpha = 2°$

$\alpha = 6°$

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

Mach Number

UNCLASSIFIED

NON CLASSIFIE

FORM 1746