

QC  
Avro  
C-105  
P/AD/55

QC X  
Avro  
CF105  
P-AD-55

(21)

FILE IN VAULT

C-105 ANALYZED P/Aero Data/55

LATERAL STABILITY DERIVATIVES

IN 4 'G' FLIGHT

WING NOTCHED AND EXTENDED 21

COPY 5 UNCLASSIFIED April 1955



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TO  
A

DATE

Report no.: QCX - AVRO - CF105 - P-AD-55

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



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A.V. ROE CANADA LIMITED  
MALTON - ONTARIO

TECHNICAL DEPARTMENT (Aircraft)

AIRCRAFT:

REPORT NO. P/AERO DATA/55

FILE NO:

NO. OF SHEETS: \_\_\_\_\_

TITLE:

ANALYZED

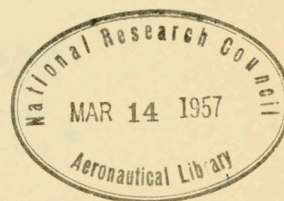
C-105

LATERAL STABILITY DERIVATIVES

IN 4 "G" FLIGHT

WING NOTCHED AND EXTENDED

*confirmed as*  
 Classification ~~cancelled~~ / changed to: UNCLASSIFIED  
 By authority of: DRDA 7/DARET 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 April 1955

CHECKED BY

DATE

SUPERVISED BY

DATE

APPROVED BY

DATE

ISSUE NO	REVISION NO	REVISED BY	APPROVED BY	DATE	REMARKS
					45124
					12422576



AIRCRAFT: \_\_\_\_\_

PREPARED BY \_\_\_\_\_

DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_

DATE \_\_\_\_\_

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NON CLASSIFIEINDEX

\* G-105

LATERAL STABILITY DERIVATIVESIN 4 G' FLIGHT

	<u>Section</u>		
1. <u>Aileron Derivatives and Hinge Moments</u>			
$C_{l\delta_a}$ *	1.1		
$C_{N\delta_a}$	1.2		
$C_{y\delta_a}$	1.3		
$C_{h\delta}$ *	1.4		
$C_{nq}$	1.5		
$C_{h\delta}$	1.6		
2. <u>Rudder Derivatives and Hinge Moments</u>			
	<u><math> \beta  &lt; 3^\circ</math></u> <u><math> \beta  &gt; 3^\circ</math></u>		
$C_{N\delta_r}$ ( $\delta_R < 10^\circ$ )	2.1.1	2.1.2	2.1
( $\delta_R > 10^\circ$ )	2.1.3	2.1.4 *	
$C_{l\delta_r}$ ( $\delta_R < 10^\circ$ )	2.2.1	} 2.2.2	2.2
( $\delta_R > 10^\circ$ )	2.2.3		
$C_{y\delta_r}$ ( $\delta_R < 10^\circ$ )	2.3.1	2.3.2	2.3
( $\delta_R > 10^\circ$ )	2.3.3 *	2.3.4 *	
$C_{h\beta}$ *			2.4
$C_{h\delta}$ *			2.5

\* Derivative independent of Angle of Attack.



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PREPARED BY \_\_\_\_\_

DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_

DATE \_\_\_\_\_

3. Sideslip Derivatives

	<u><math>\beta &lt; 3^\circ</math></u>	<u><math>\beta &gt; 3^\circ</math></u>	
$C_{N\beta}$	3.1.1	3.1.2	3.1
$C_{l\beta}$		3.2.1	3.2
$C_{y\beta}$	3.3.1	3.3.2 *	3.3

UNCLASSIFIED  
NON CLASSIFIE4. Yawing Derivatives

	<u><math>\beta &lt; 3^\circ</math></u>	<u><math>\beta &gt; 3^\circ</math></u>	
$C_{N_r}$	4.1.1	4.1.2	4.1
$C_{l_r}$	4.2.1	4.2.2	4.2
$C_{y_r}$	4.3.1	4.3.2	4.3

5. Rolling Derivatives

	<u><math>\beta &lt; 3^\circ</math></u>	<u><math>\beta &gt; 3^\circ</math></u>	
$C_{N_p}$	5.1.1	5.1.1	5.1
$C_{l_p}$ *		5.2.1 *	5.2
$C_{y_p}$	5.3.1	5.3.1	5.3

\* Derivatives independent of Angle of Attack

P/AD/55

1.2

~~R/Stab/75~~  
GUSH

~~6.14~~

C-105

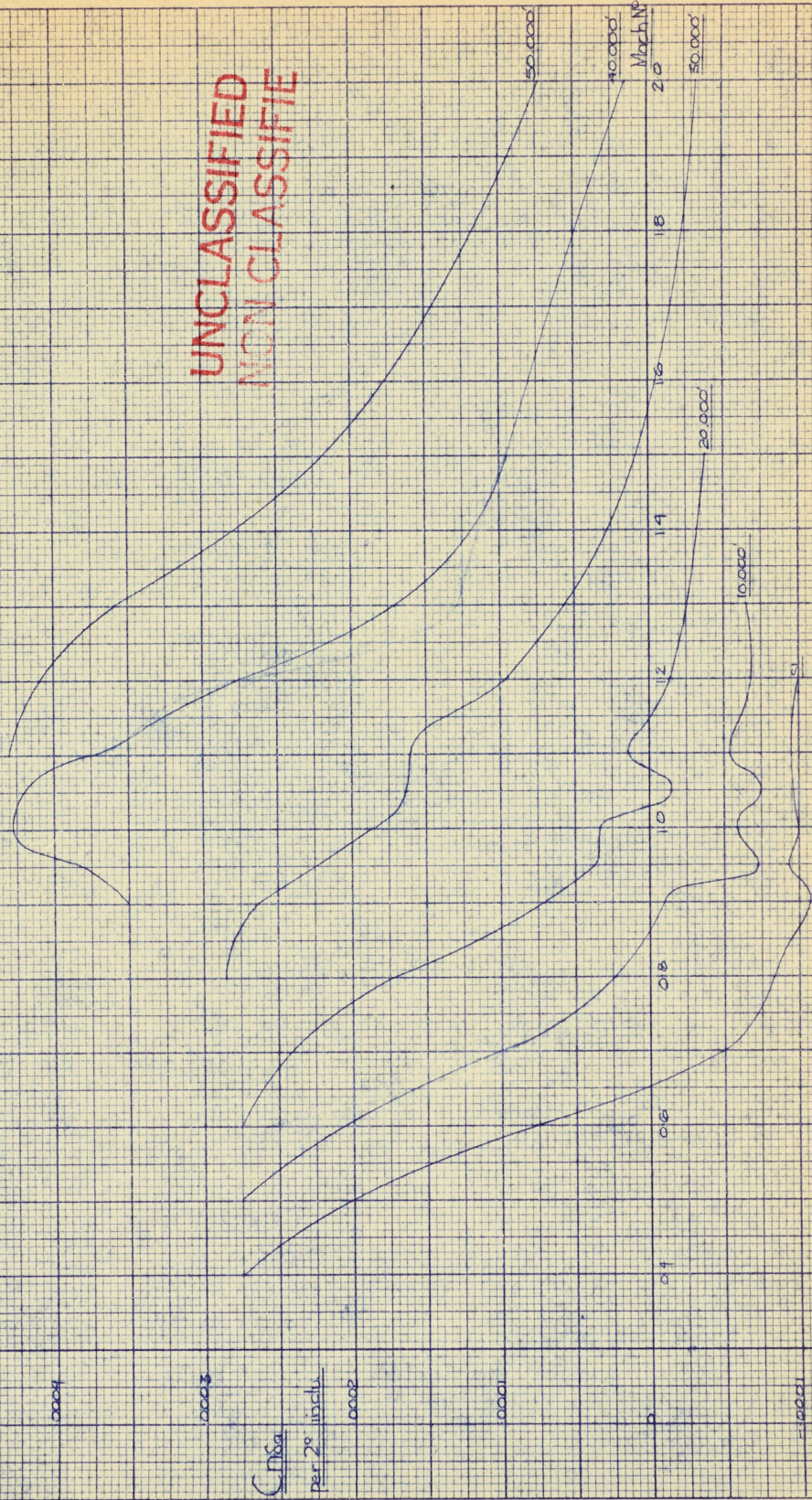
$C_{N\delta}$  VS Mach No

Elastic

4g Flight

Wing Notched and Extended

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P/AD155

1.3

APRIL 17

P/STAB/15 6.2.4.

Kriethson

C105

ELASTIC CYCLE 15. MARCH NO  
IN 45' FLIGHT

WING NOTICED & EXTENDED.

CYCLES  
PER 2"  
INCLUDED  
2003

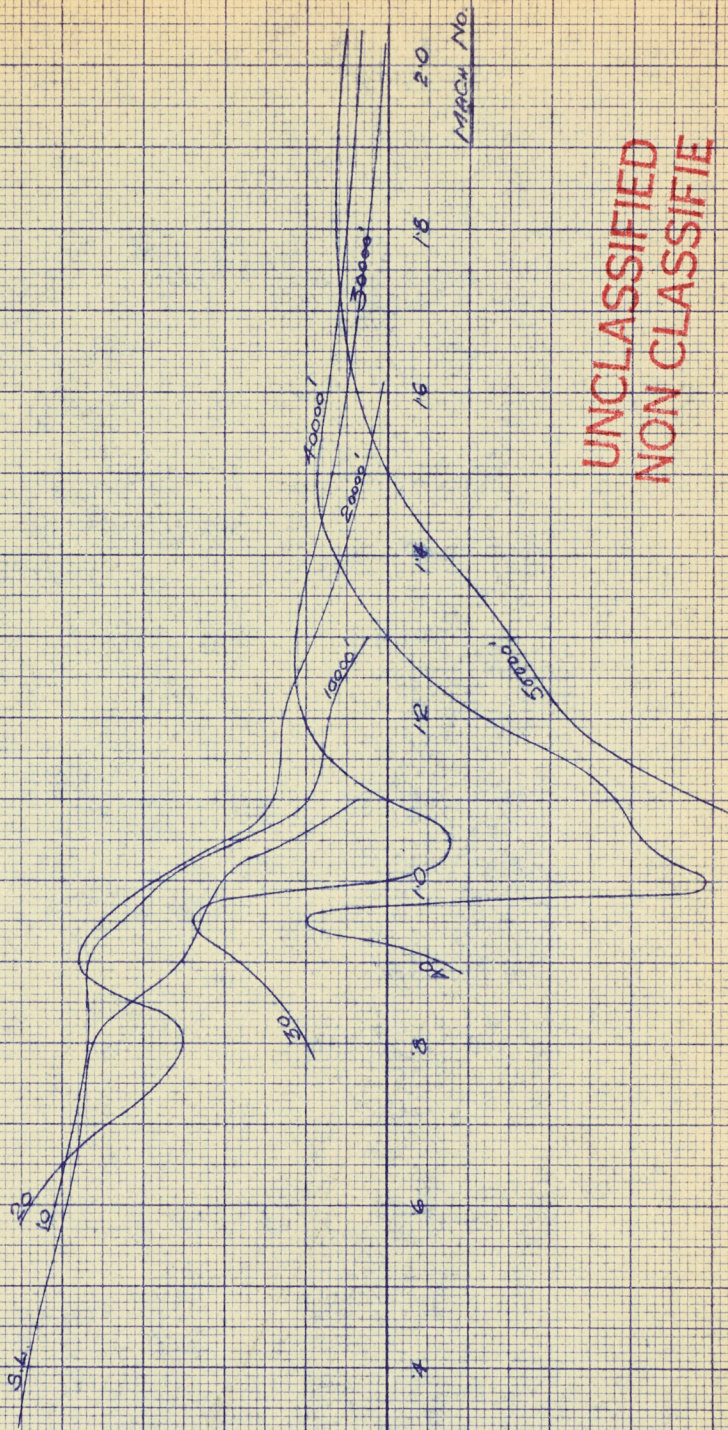
6002

6001

0

-6001

-6002



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PIAD155

2.1.1

~~PIAD175~~  
GASH 3.3.7

C-105

Center 15 Mach No

Elastic

1/2 g Flight

18K3° BK10°

c.g. 0.312  
Wing notched and extended

-0.0007

0.0006

-0.0005

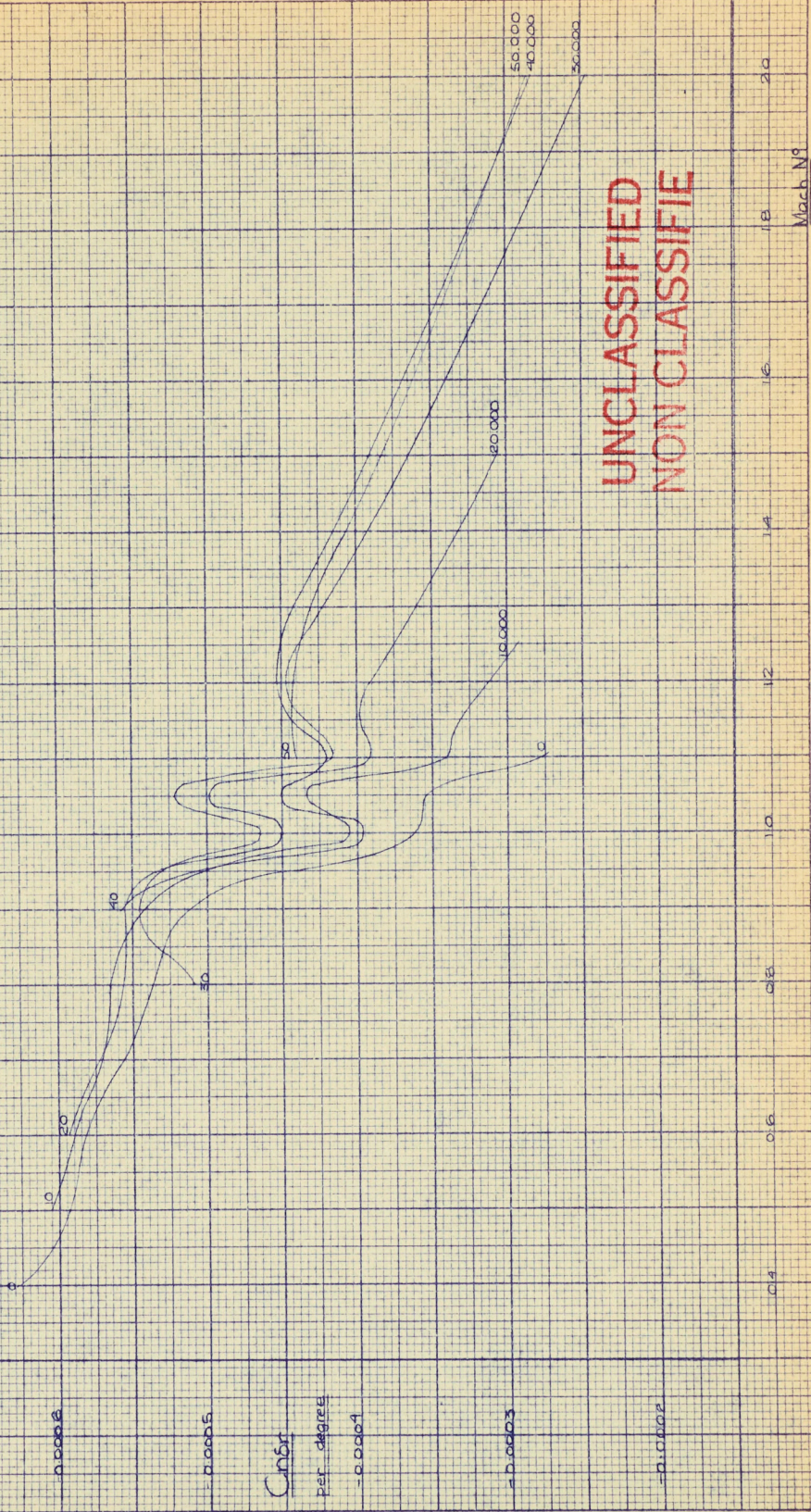
Center

per degree

-0.0004

-0.0003

-0.0002



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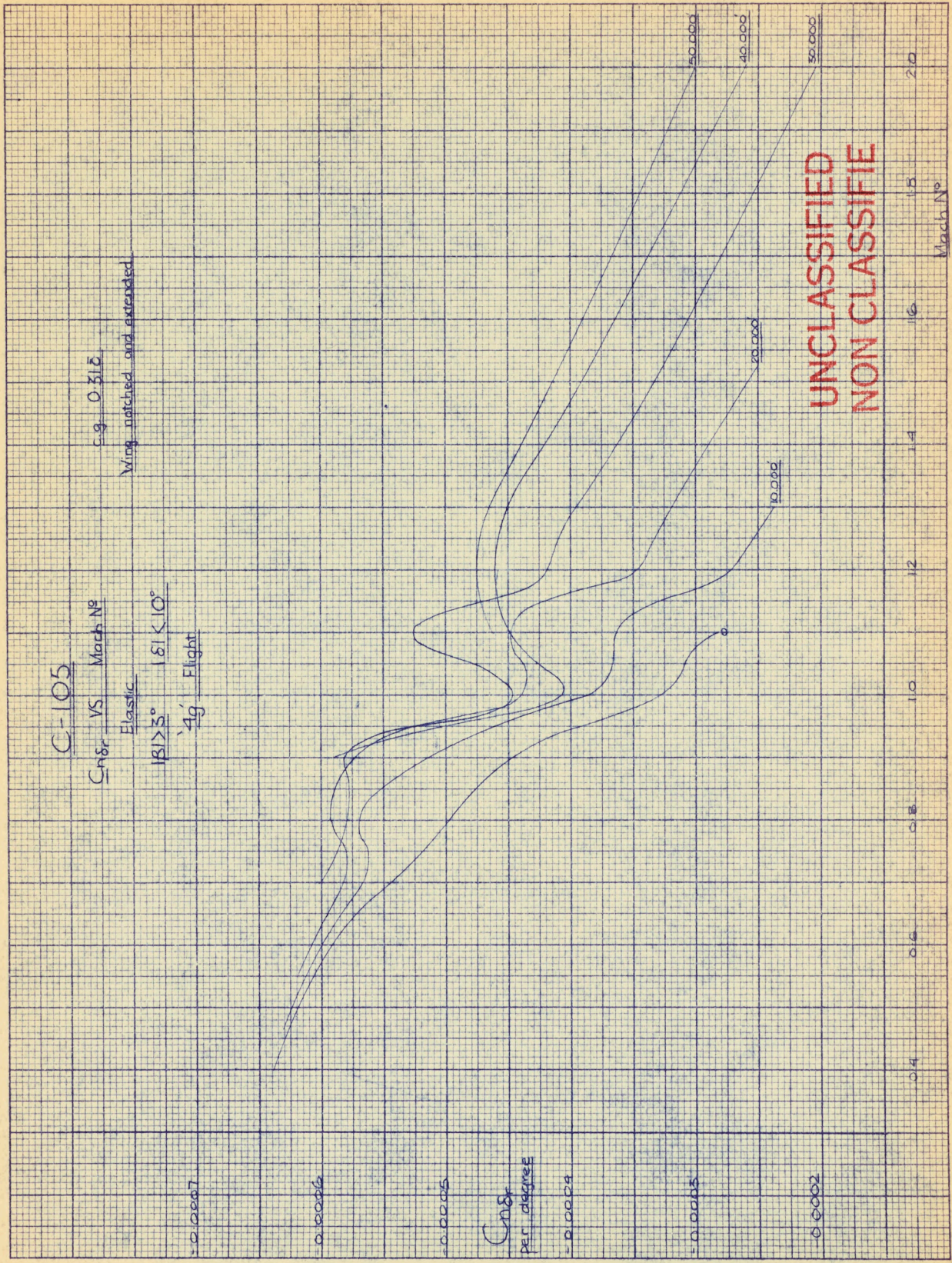
0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0  
Mach No

P/A D155

2.1.2

P/S Lab 75  
GSH

~~3.4.7~~



-0.0007

-0.0006

-0.0005

Cnδr  
PER DEGREE

-0.0004

-0.0003

-0.0002

0.4

0.6

0.8

1.0

1.2

1.4

1.6

1.8

2.0

Mach No

PIAD155

2.1.3

P/Stab/75

GSH

~~12.22~~

C-105

Cnδr vs Mach No

Elastic

181.3° | δr | 10°

2g Flight

-0.0007

-0.0005

Cnδr  
per degree

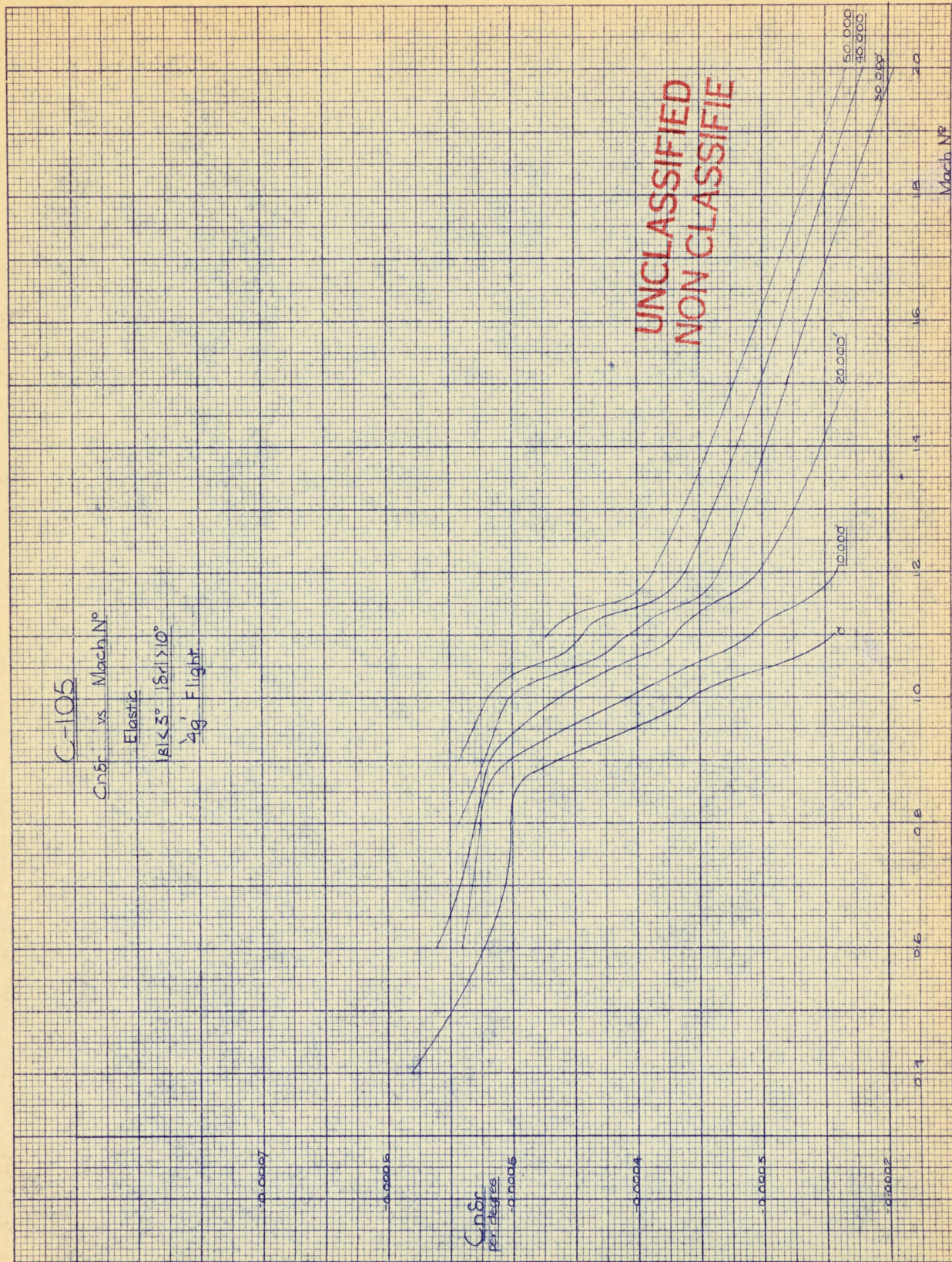
-0.0005

-0.0004

-0.0003

-0.0002

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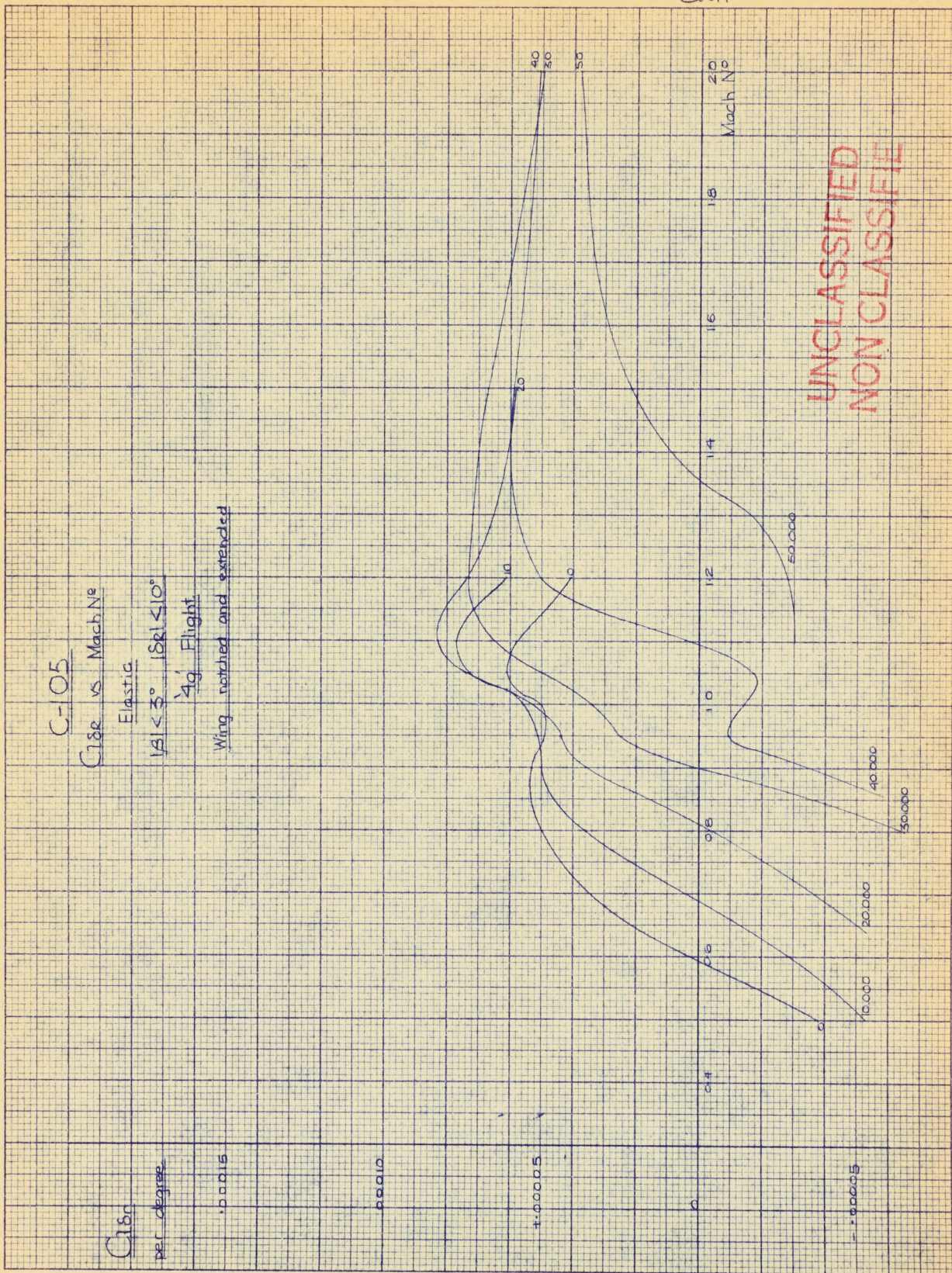
PIAD/55

2.2.1

P/Stab/75

GSH

49



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PIAD155

2.2.2

SHT. 4.4. P/STAB/75

March 1955 J. Papiris.

C105

B<sub>2</sub>C<sub>3</sub>N<sub>3</sub>V<sub>3</sub>R<sub>3</sub> - WING NOTCHED AND EXTENDED.

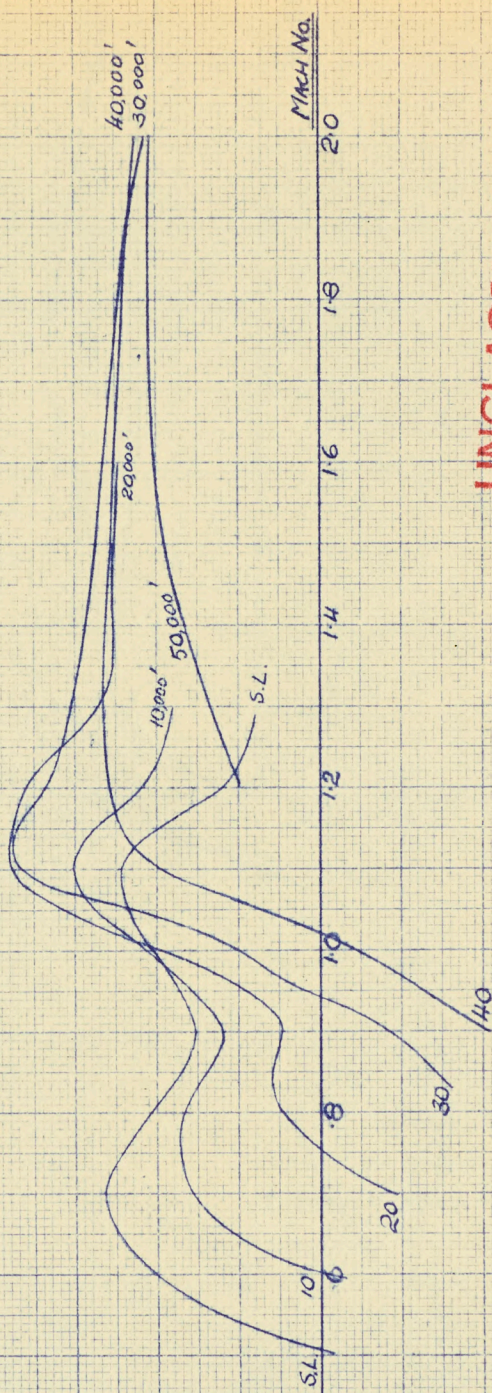
ELASTIC C<sub>DF</sub> VS. MACH NO. - IN "4G" FLIGHT

1/β > 3°

FULL σ<sub>r</sub> RANGE.

C<sub>DF</sub>  
PER DEG.

0.00012  
 0.00010  
 0.00008  
 0.00006  
 0.00004  
 0.00002  
 0  
 -0.00002  
 -0.00004  
 -0.00006

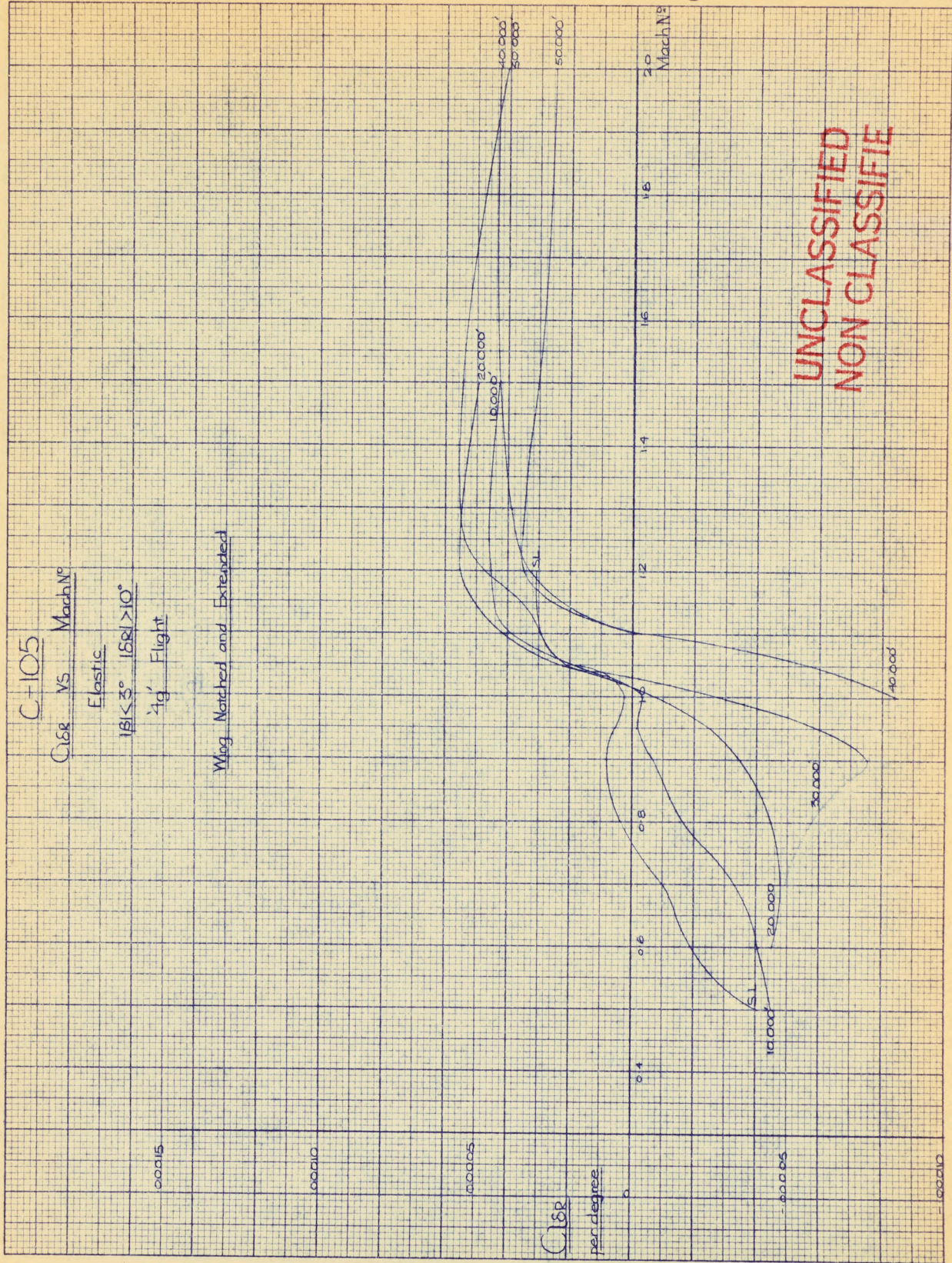


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 NON CLASSIFIE

PIADISS 2.2.3 P/Stabils EAST 4.13

C-105  
 Cl<sub>18</sub> vs Mach<sup>No</sup>  
 Elastic  
 18° < α < 18.8° > 10°  
 4g' Flight

Wing Natched and Extended



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DIADISS

2.3.1 ~~P/STARS/75~~ 416

Hand/ST Kriatlenki

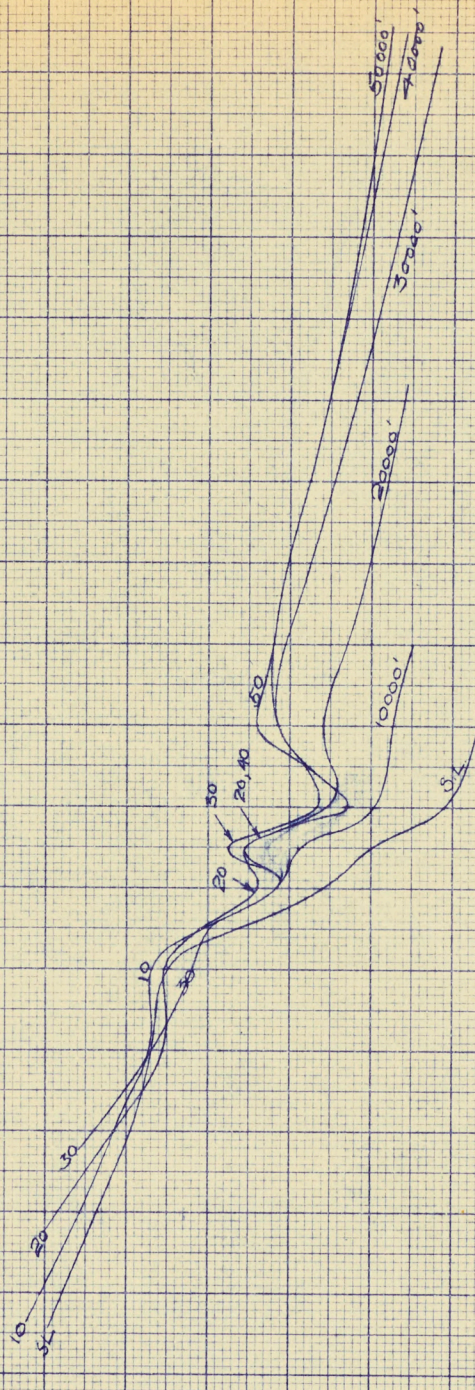
C105  
 ELASTIC CY<sub>02</sub> VS MACH NO  
 IN 4 G FLIGHT  
 HING NOTCHED AND EXTENDED  
 $|\beta| < 3^\circ$  CG = 31.8  
 $|\alpha| < 10^\circ$

CY<sub>02</sub>  
 PER DEG

0005

0010

0020



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MACH NO

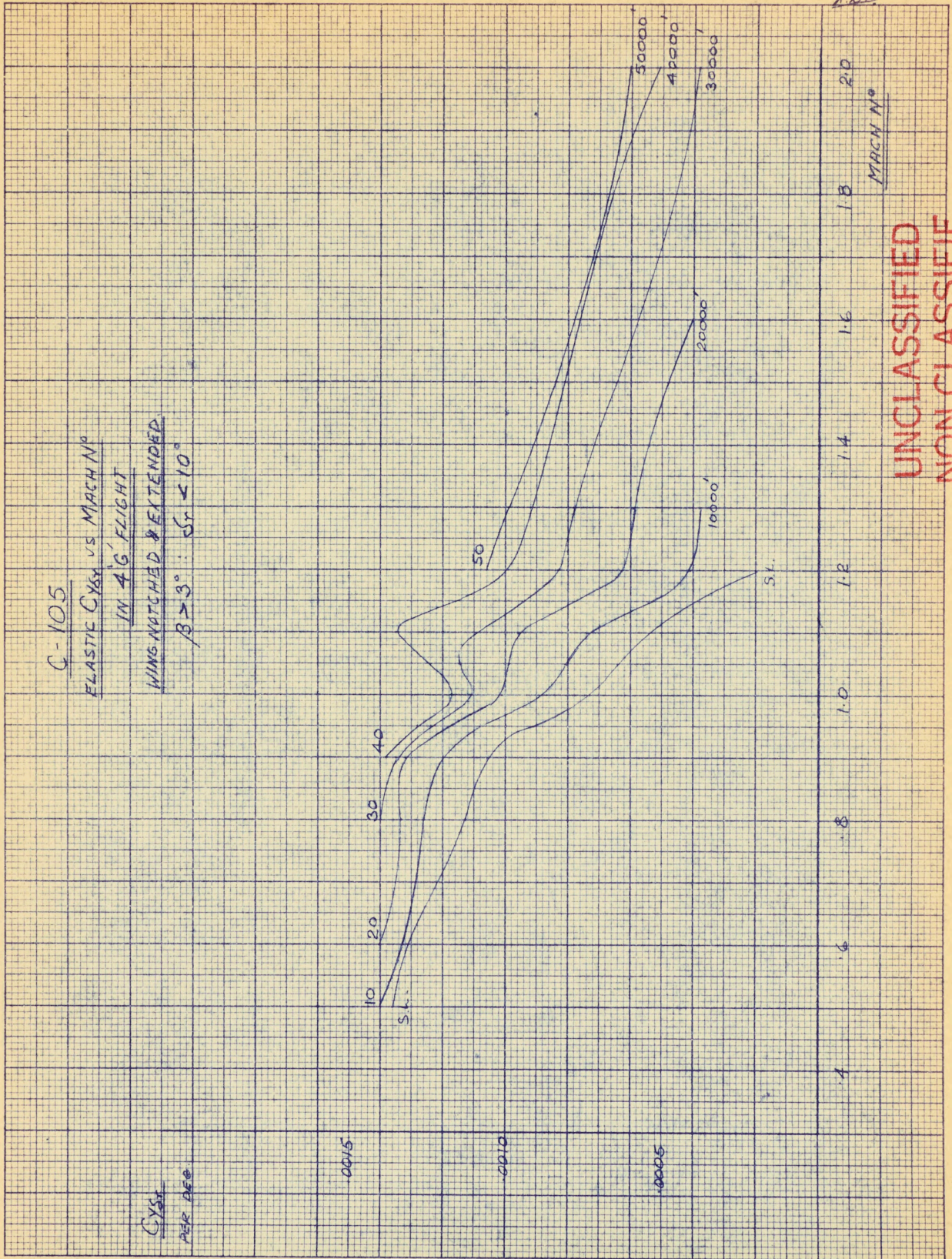
P/A0155

2.3.2

P/STAB/75 410  
MARCH 55

RBB

C-105  
ELASTIC CYSS VS MACH N°  
IN 4 G FLIGHT  
WING NOTCHED & EXTENDED  
 $\beta > 3^\circ$ ;  $\alpha < 10^\circ$



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DIAD/55

3.1.1

~~P/STTB/TX 2.18.~~  
Hand/IT Karathroubi

C105  
VS MACH No  
IN A B' FLIGHT

1/31 < 5°  
CG = 1312

WING RETRACTED & EXTENDED

Cm's  
PER DEG

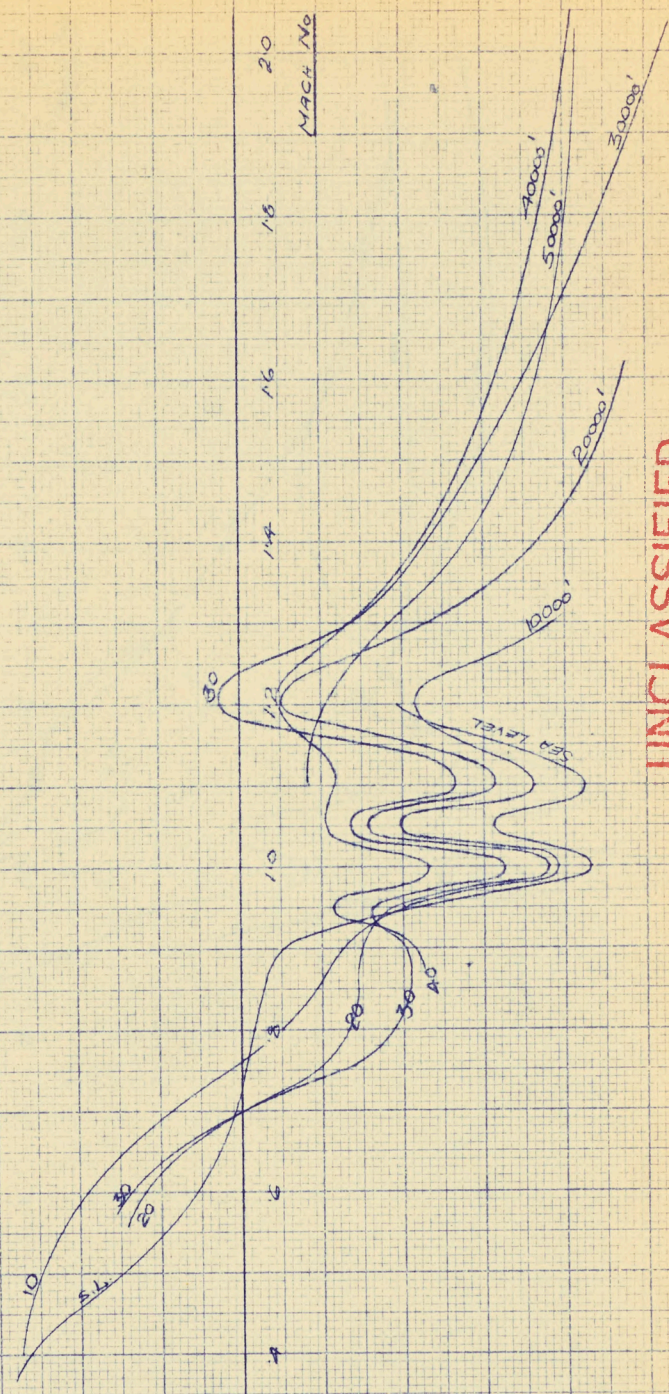
0004

0002

0

-0002

-0004



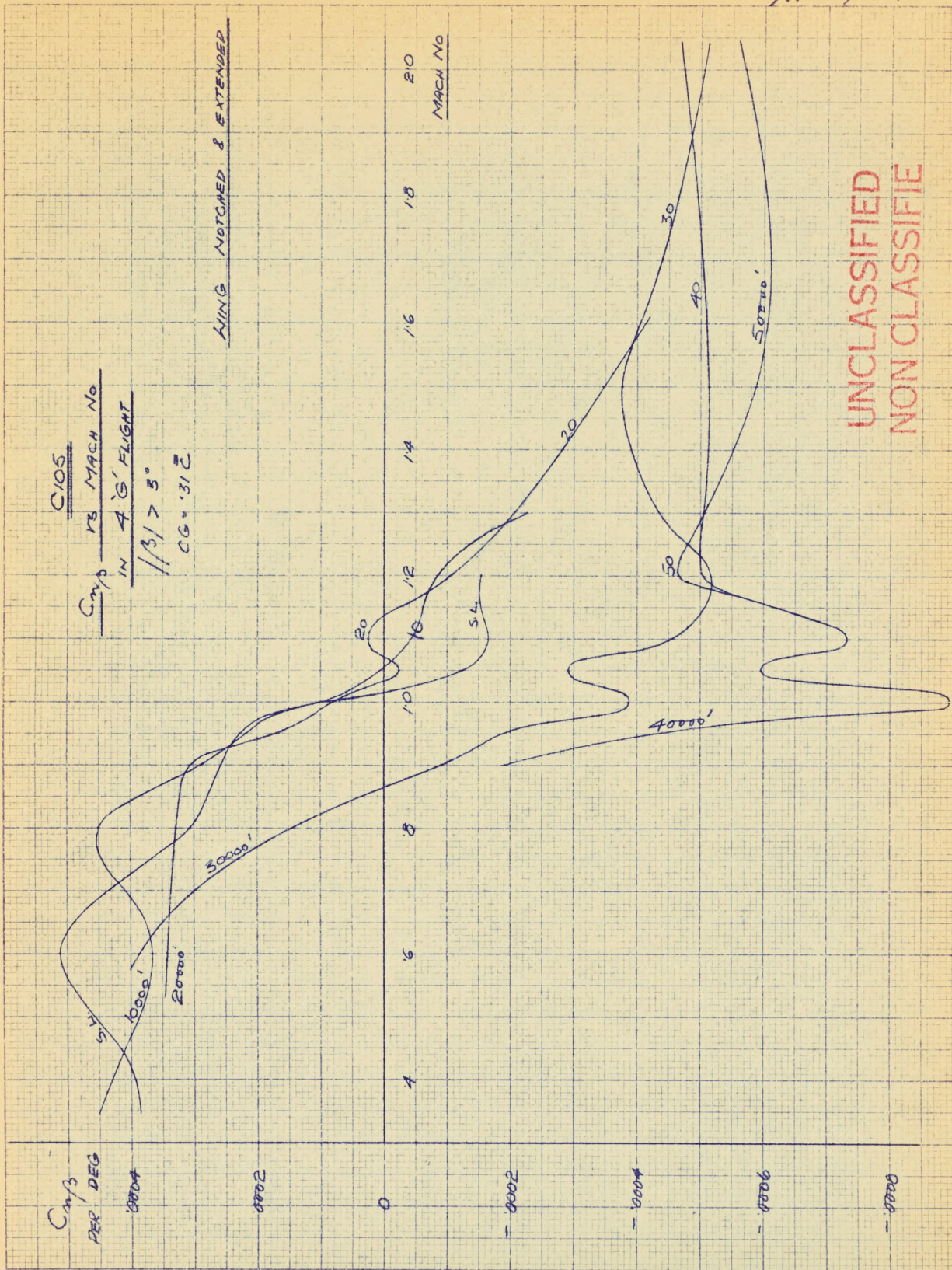
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NON CLASSIFIED

PIAD155 3.1.2 ~~P/37713/75~~ 2.34  
Hard/JS Kriethack

$C_m/\beta$   
PER DEG

$C_{105}$   
VS MACH No  
IN 4 G' FLIGHT  
//  $\beta > 3^\circ$   
CG = .312

WING NOTCHED & EXTENDED



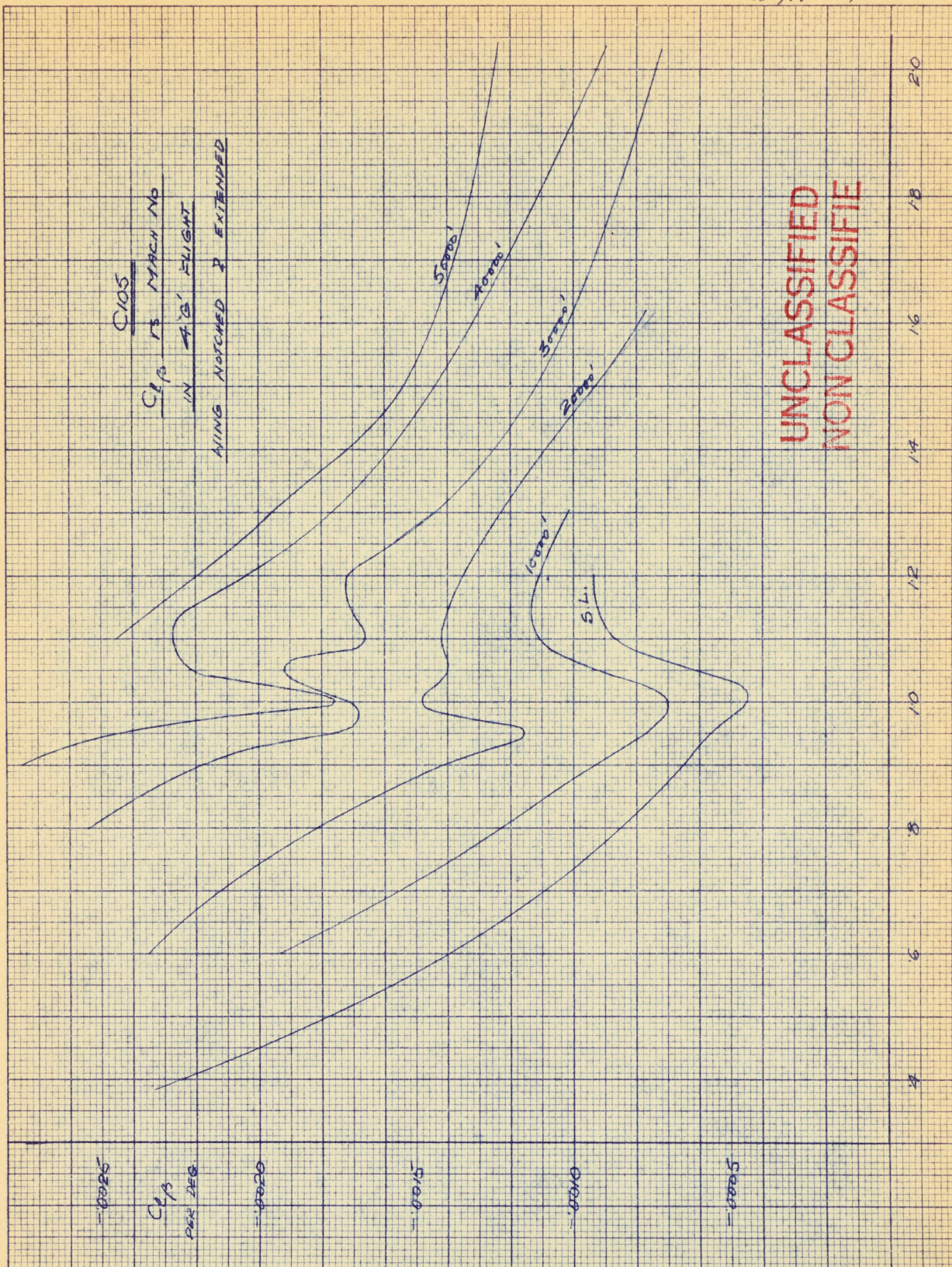
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P/AD155

3.2.1

~~P/STAB/15~~ 5-5

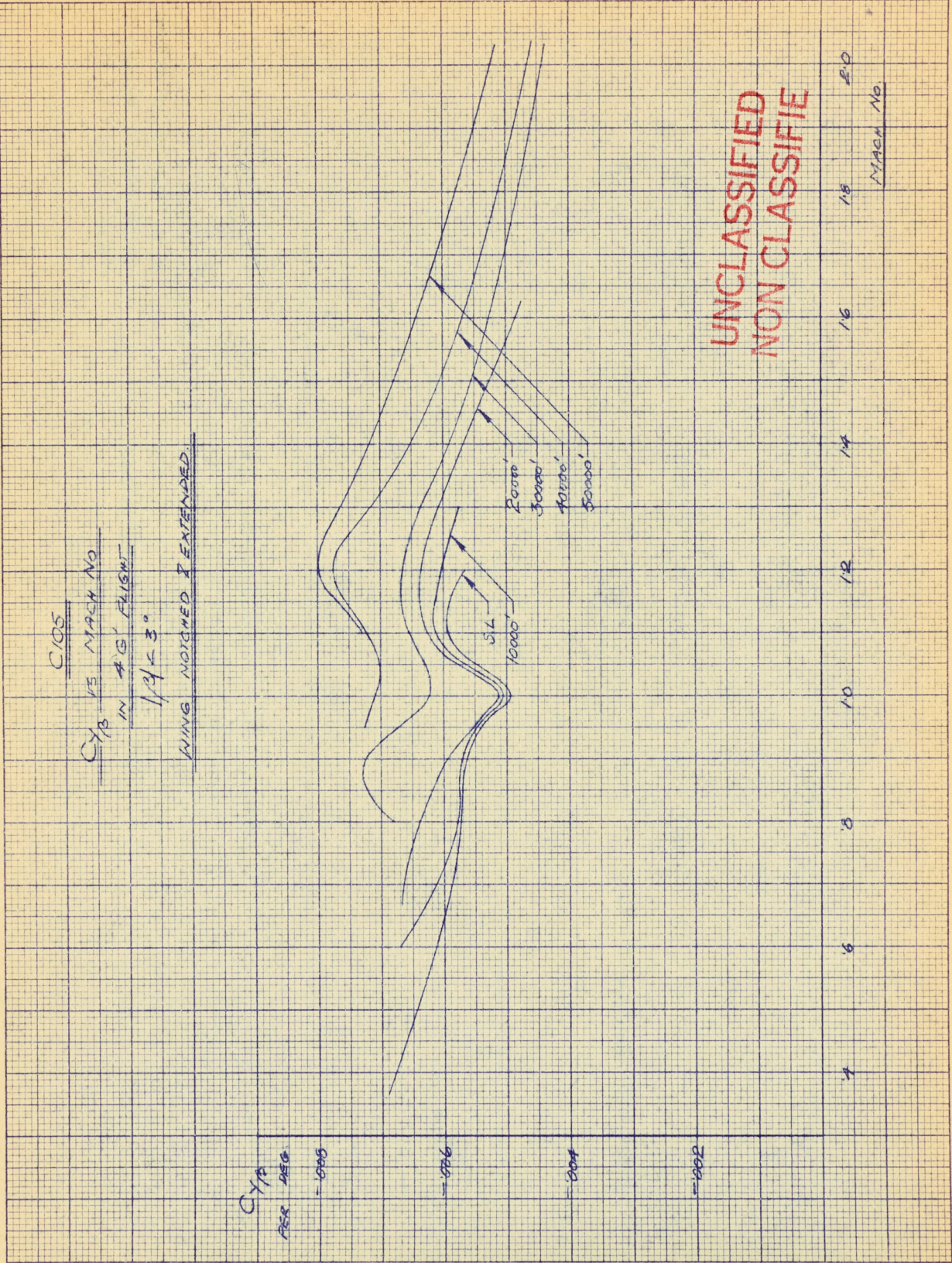
March/15 Kuala Lumpur



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PIADISS 3.3.1 P/5742/76 J.13

March 10 T Kina Mounts

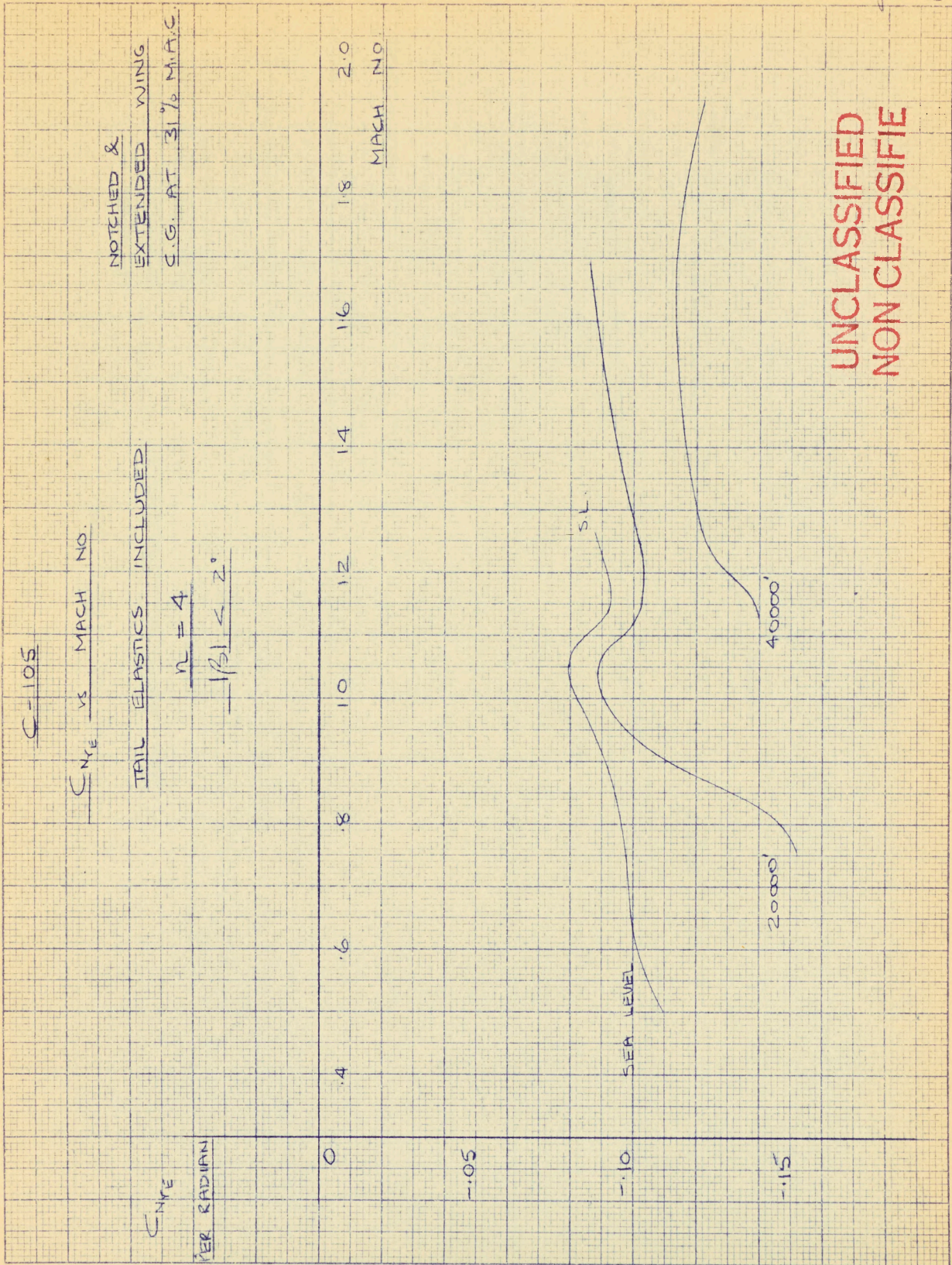


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MACH No

PIAD/55

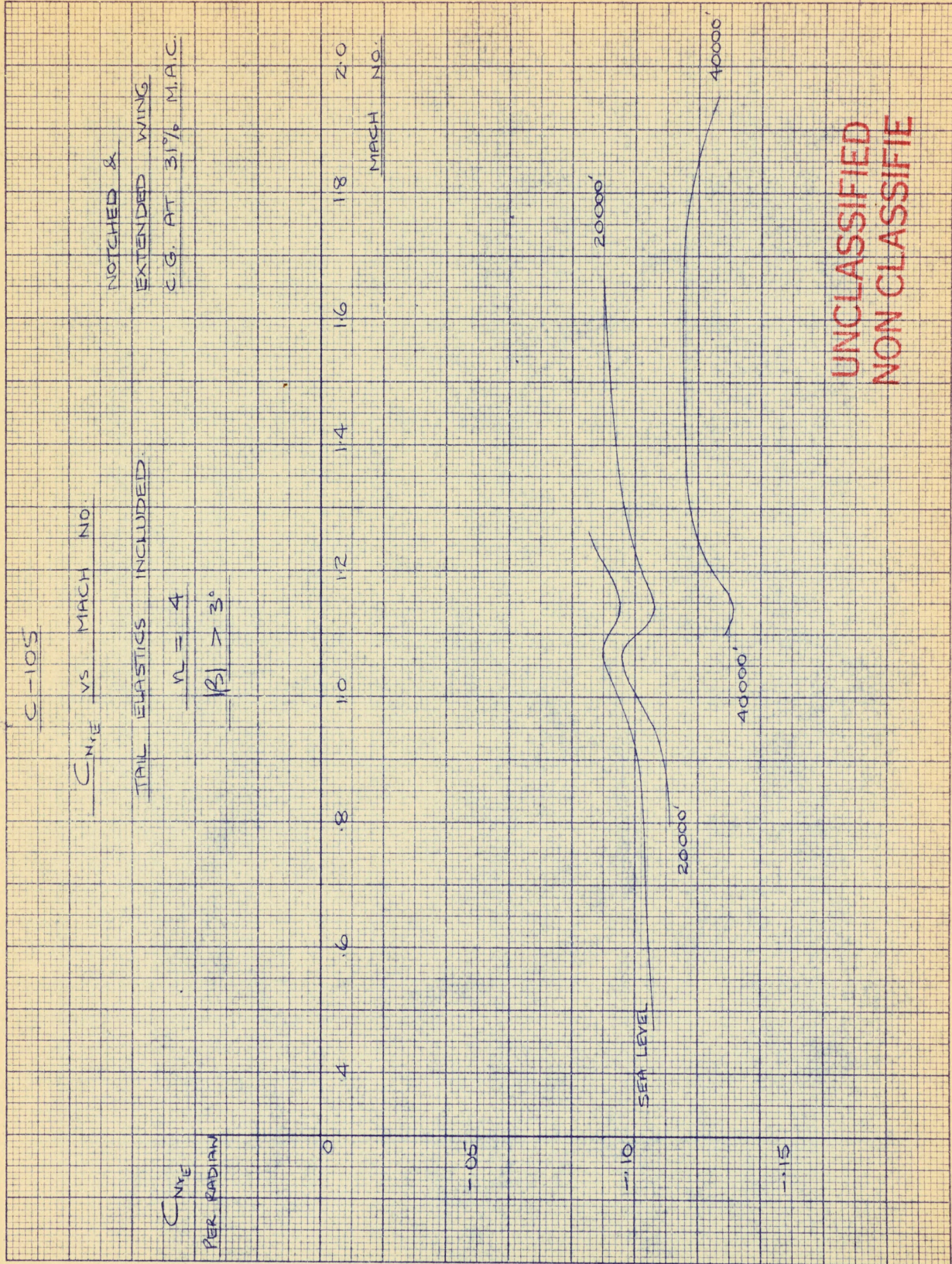
4.1.1 ~~P/S 5100/10~~  
DDO Apr '55



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NON CLASSIFIE

PIAD155

4.1.2 ~~P/State/10~~ 92  
 DDB Apr. '55



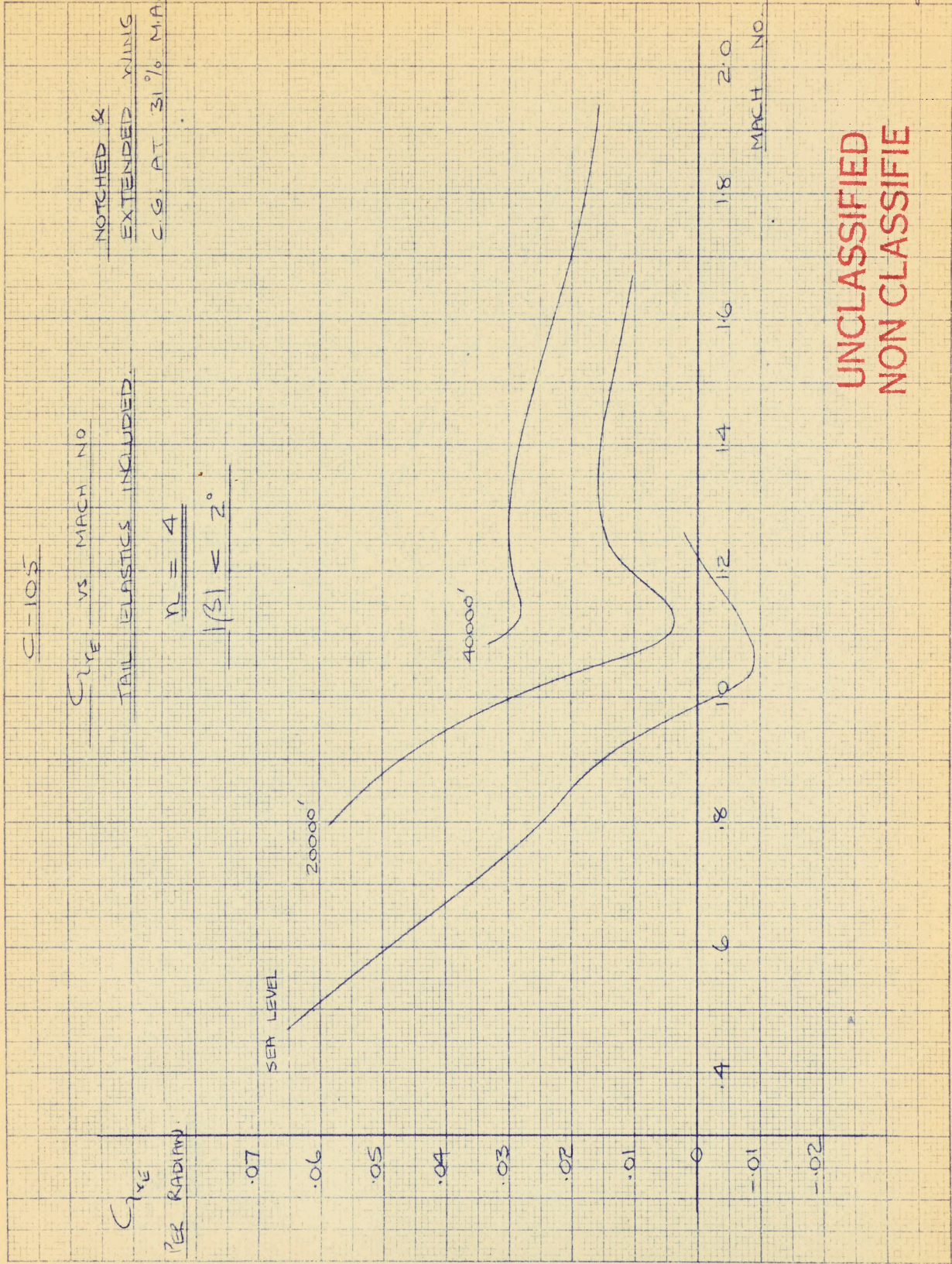
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 NON CLASSIFIED

PIAD/55

4.2.1

~~V/Study/70~~

BDG. Apr '55



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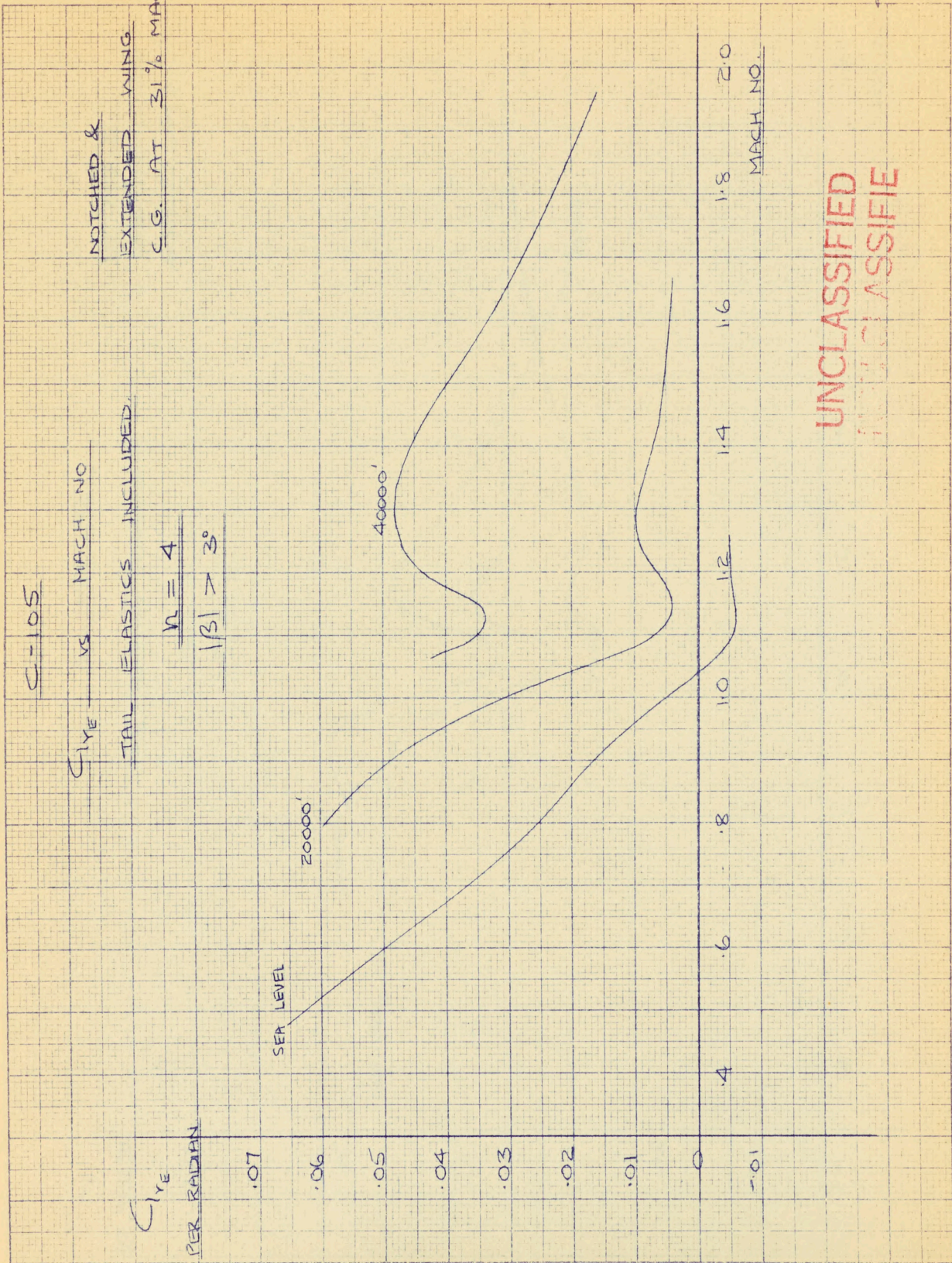
PA/D/55

A.2.2

~~2/5-Sub/70~~

DBE

Apr. 55



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UNRECLASSIFIED

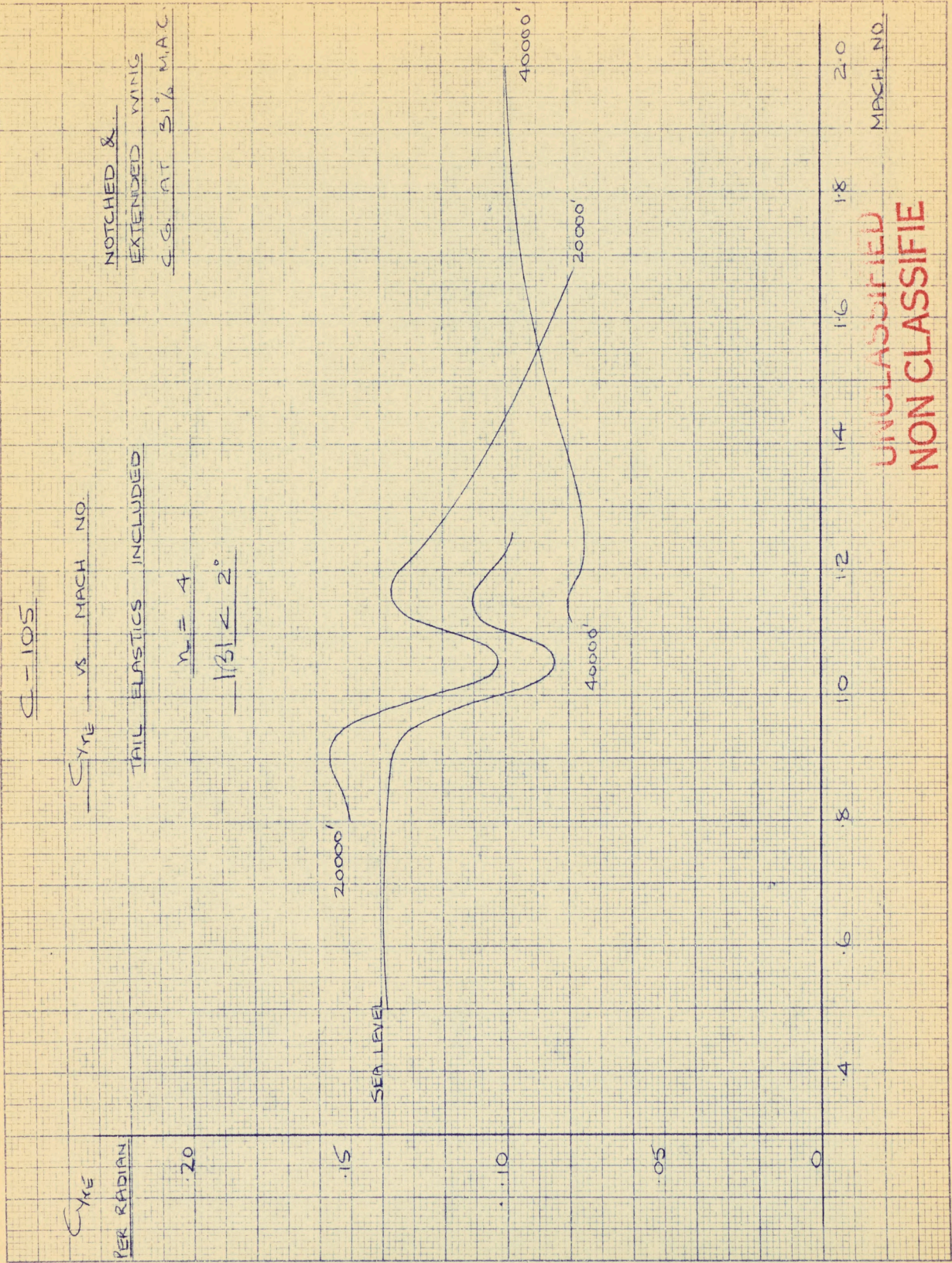
PIAD155

4.3.1

~~P/8 Feb /70~~

~~DDG~~

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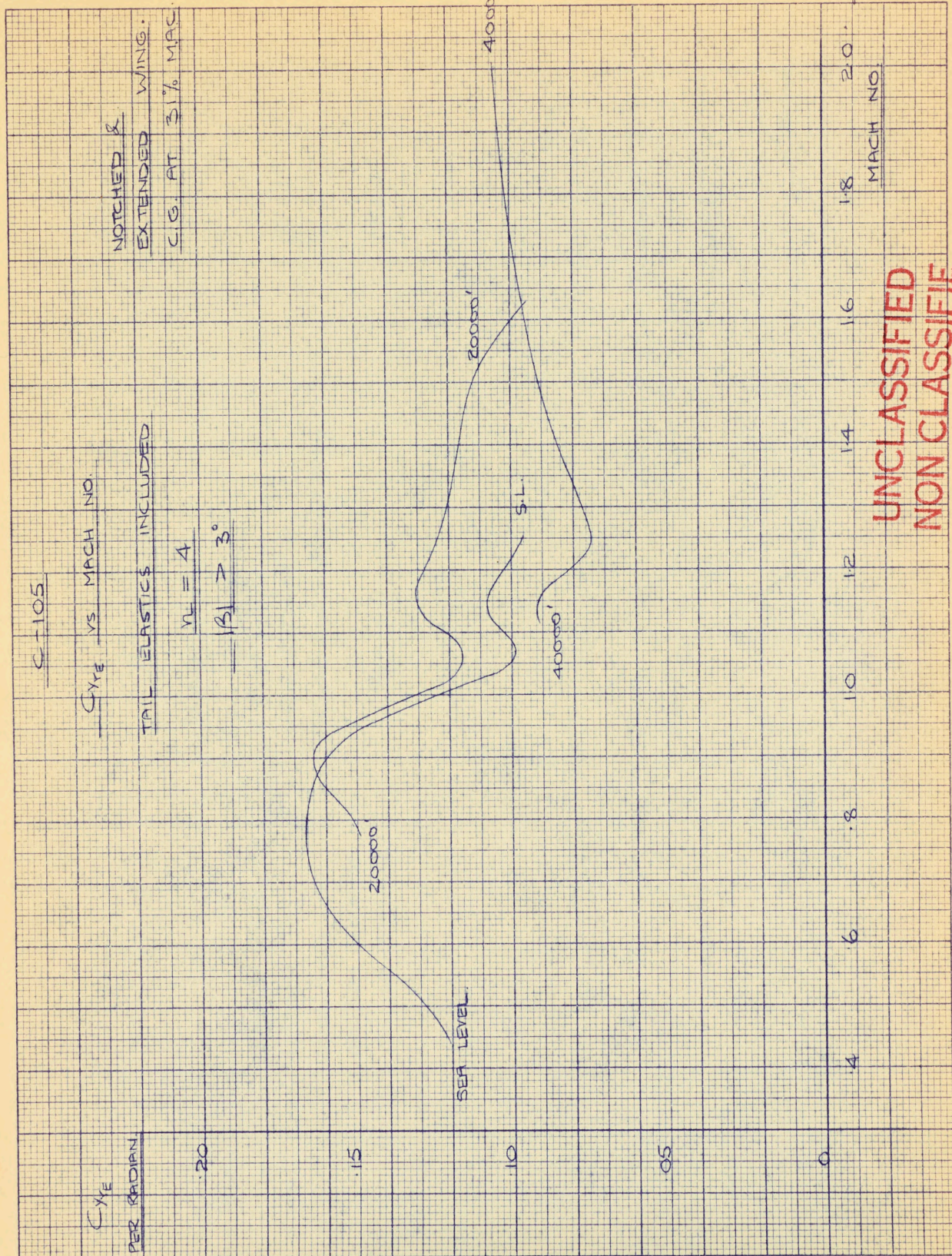
PIAD/55

4.3.2

2/Stat/76

558

Per. '55



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P/AD/55

5.3.1

May 1935 ~~P/51ab/76~~  
C.A Ford ~~21B~~

C-105

Yawing-in - Roll

Crp vs Mach No.

Plan, Notched, or  
Notched and Extended Wing

$M_0 = 4.0$

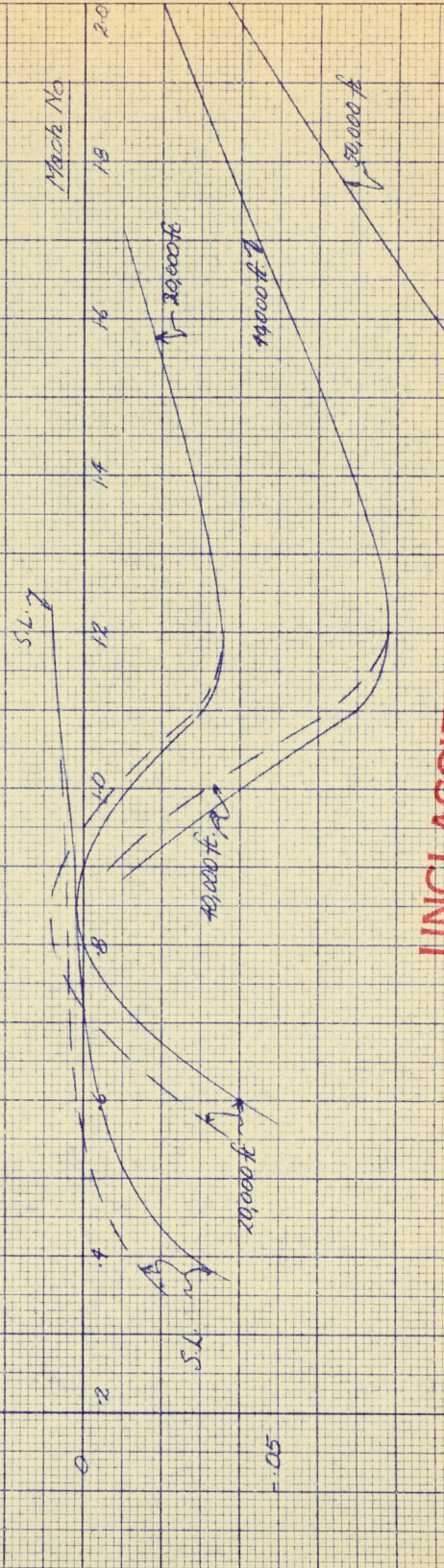
Crp  
per radian

Complete Elastic  
Aircraft

Load Factor = 4.0  
Weight  $W = 43,000$  lbs  
C.G. at .31E

131 x 3°

131 x 3°



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PIADISS

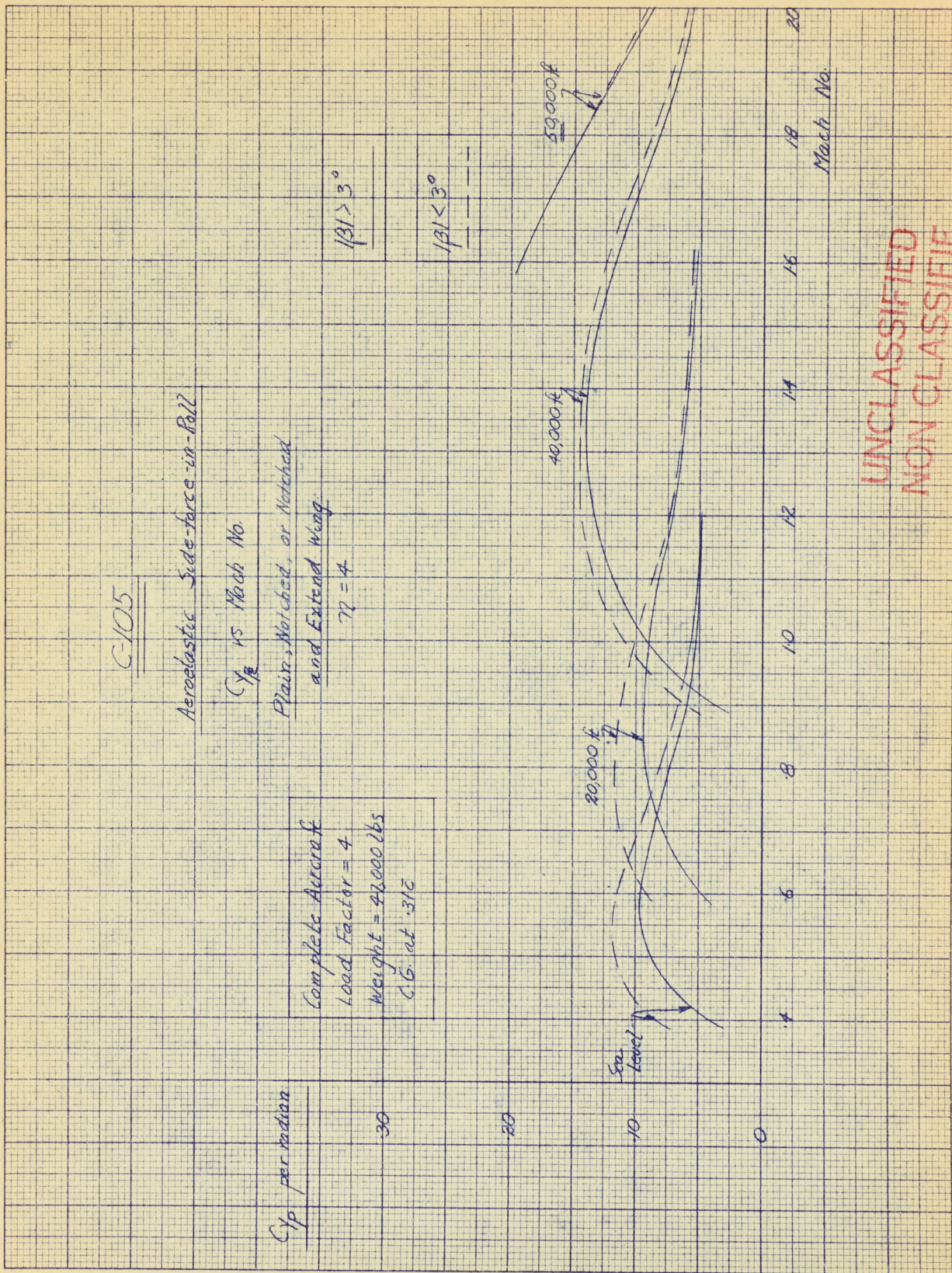
5.1.1

25/3/55

CA Ford.

P/Stub/76

216



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343  
A. S. LEON  
MADE IN U.S.A.