

QC
Avro
C-105
P/WT/39

FILE IN VAULT

QCX
Avro
CF105
P-WT-39

(7)

C-105

P/WIND TUNNEL/39

~~UNCLASSIFIED~~
C.A.L. WIND TUNNEL TESTS AUGUST 1954.

ANALYZED

CORRECTED PLOTS

~~NON CLASSIFIÉ~~



National Research Council
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Aeronautical and
Mechanical
Engineering Library

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Canada
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Bibliothèque
d'aéronautique
et de génie mécanique

TO
A

DATE

Report no.: QCX - AVRO - CF105 - P-WT-39

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

C.A.I. WIND TUNNEL TESTS

JULY 1954.

M = 0.50

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INDEX

	1	2	3	4	5	6	7	8	9	10
Run No.	925	926	930	949	933	935	960	957	937	941
δ_e°	-10	-10	-10	-10	0	0	0	0	0	0
δ_a°	0	0	0	0	0	0	0	0	0	0
δ_r°	0	0	0	0	0	0	0	0	0	0
δ_D°	0	0	0	0	0	0	0	0	0	0
q°	- 6 to + 40 Ap prox.)									
β°	0	0	0	0	4	2	0	-2	-4	-6
Configuration	B'W ₃ V ₂	B'W ₄ V ₂	B'W ₅ V ₂	B'W ₆ V ₂	B'W ₅ V ₂					
Section	Effect of Notches				Directional Stability					
	Sheet No. 1				2					
1 C _M vs C _L	X	X	X	X						
2 C _D vs C _L	X	X	X	X						
3 C _D vs C _L ²										
4 C _L	X	X	X	X						
5 C _M	X	X	X	X						
6 C _D										
7 C _N			X		X	X	X	X	X	X
8 C _Y			X		X	X	X	X	X	X
9 C _L					X	X	X	X	X	X
10 C _{Nf}					X	X	X	X	X	X
11 C _{MfLE}					X	X	X	X	X	X
12 C _{MfR}					X	X	X	X	X	X
13 C _{He}										
14 C _{Ha}										
15 C _{Hr}										
16 C _{MfLE} vs C _{Nf}					X	X	X	X	X	X
17 C _{MfR} vs C _{Nf}					X	X	X	X	X	X

DEX

CONFIGURATION

$B' = B_3 C_3 R_8$
 $T_1 = \text{Tank}$
 $W_3 = \text{No Notch}$
 $W_4 = 6 \frac{1}{2}\% \text{ Notch}$
 $W_5 = 8\% \text{ Notch}$
 $W_6 = 10\% \text{ Notch}$

A. V. ROE CANADA LIMITED

MALTON, ONTARIO
ENGINEERING DIVISION - AIRCRAFT

AIRCRAFT C-105

WEIGHT -

C. G. POSITION 28% M.A.C.

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
941	939	932	935	937	939	991	993	942	956	962	943	958	963	96
0	0	0	0	0	0	0	0	-5	-5	-5	-20	-20	-20	10
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	-	-	-	-	-	-	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-6	-10	4	2	-2	-4	-6	-10	-6	-2	0	-6	-2	0	0
B'W ₅					B'W ₅ V ₂									
Directional Stability					Tail Off					Effect of δ_e on Directional Stability				
3					4					5				
								X			X			X
														X
														X
														X
														X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X	X													
X	X													
X	X													
X	X													
X	X													

Classification cancelled / changed to: UNCL

By authority of: DRDA 7/DARET 5-S/DAS Eng 6

Date: 5 Nov 1992

Signature: *B. Aubrey*

Unit / Rank / Appointment: DSIS 3, Secretary

B' = B₃C₃R₃
T₁ = Tank
W₃ = No Notch
W₄ = 6 1/2% Notch
W₅ = 8% Notch
W₆ = 10% Notch

MALTON, ONTARIO
ENGINEERING DIVISION -- AIRCRA

WEIGHT _____

C. G. POSITION . 28% M.A.C.

1.347229: 1701

[illegible]

CAL WIND TUNNEL TESTS.

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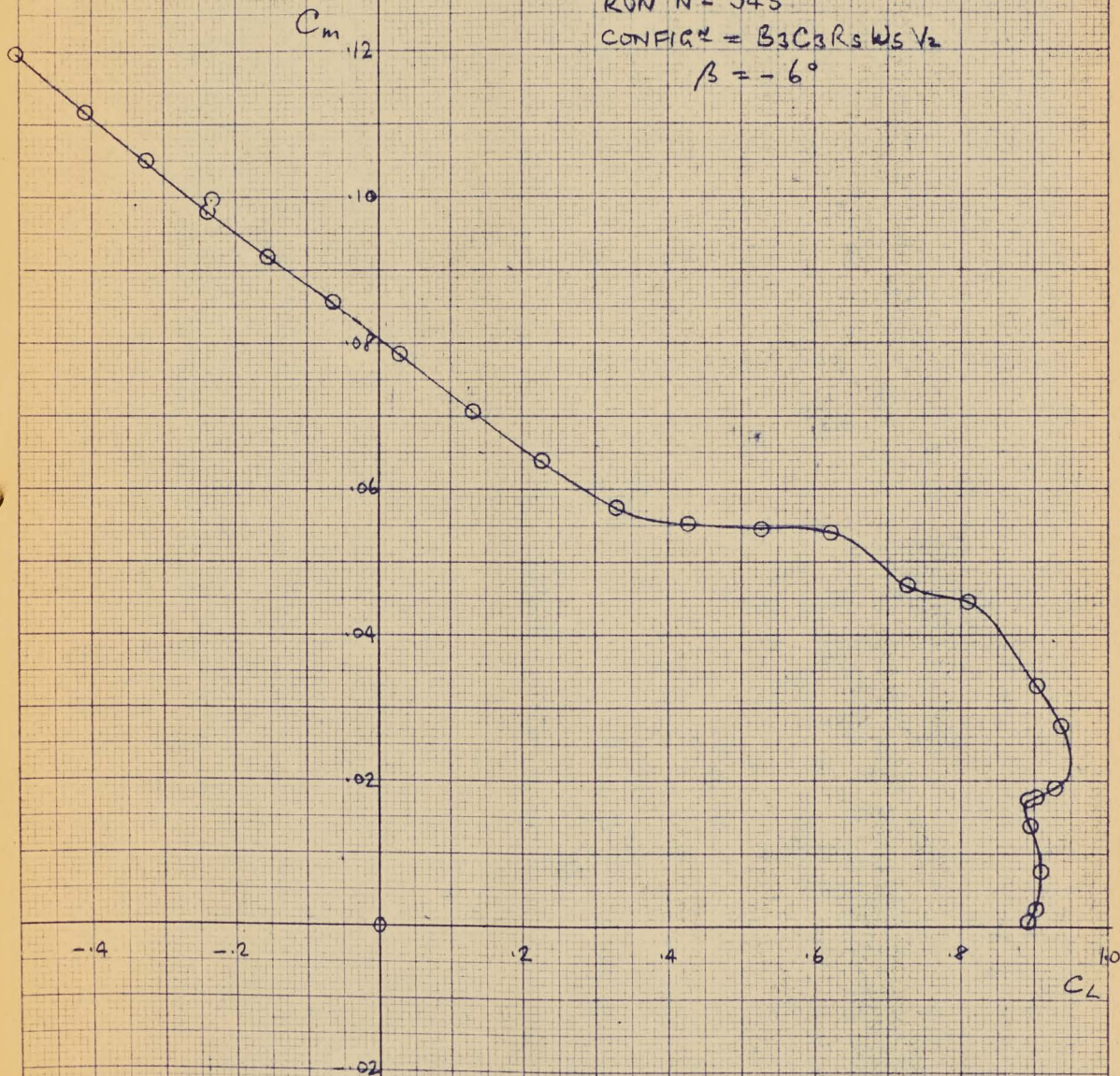
C_m vs C_L

MACH $N^o = 0.5$

RUN N^o 943

CONFIG n = B3C3R5WS V2

$\beta = -6^o$



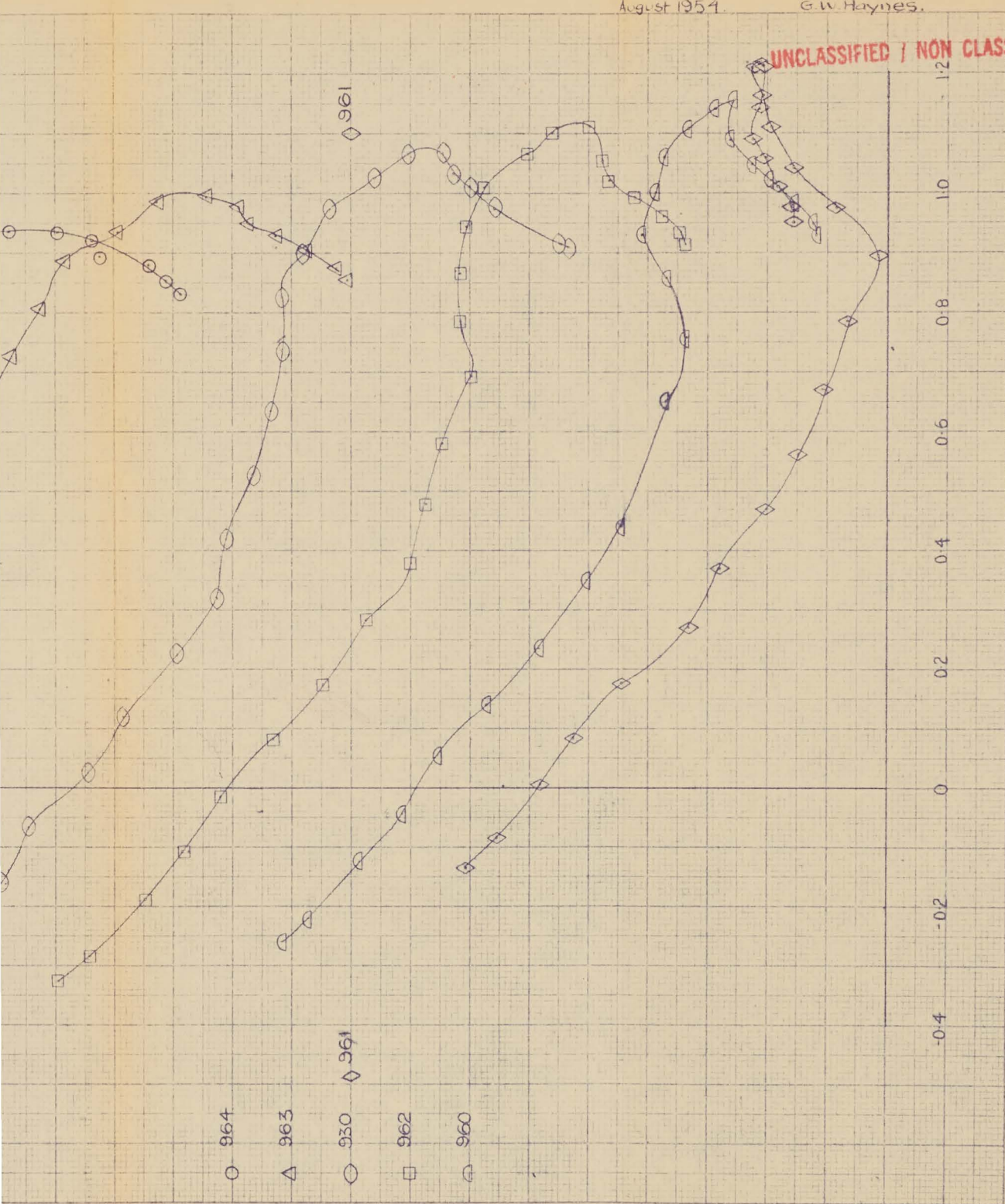
P/WT/39

146

August 1954

G.W. Haynes

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C.A.L. WIND TUNNEL TESTS

C_M vs. C_L

MACH N° = 0.5

$\delta_D = 60^{\circ}$

$\beta = 0^{\circ}$

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RUN SYMBOL AND ORIGIN δ_e°

978

Δ

-20

976

$\square$

-20

975

$\diamond$

0

973

$\circ$

-02

-6 -4 -2 0 2 4 6 8 10 12
 C_L

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550-111 KEUFFEL & ESSER CO.
1 1/2 inch, 5th lines accounted,
MADE IN U.S.A.

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C.A.L. WIND TUNNEL TESTS

$C_L \sim \alpha$

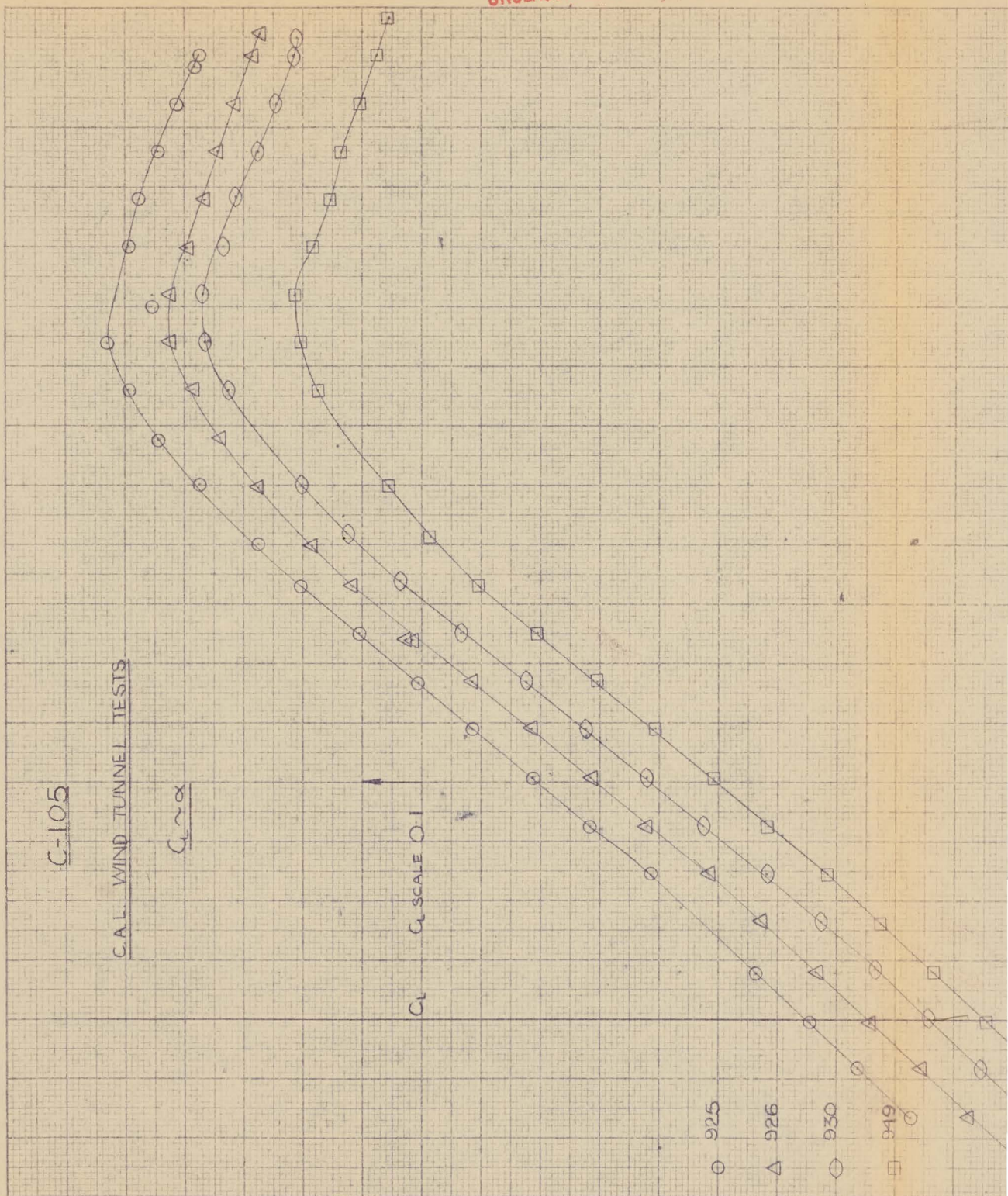
C_L SCALE 0.1

○ 925

△ 926

◇ 930

□ 949

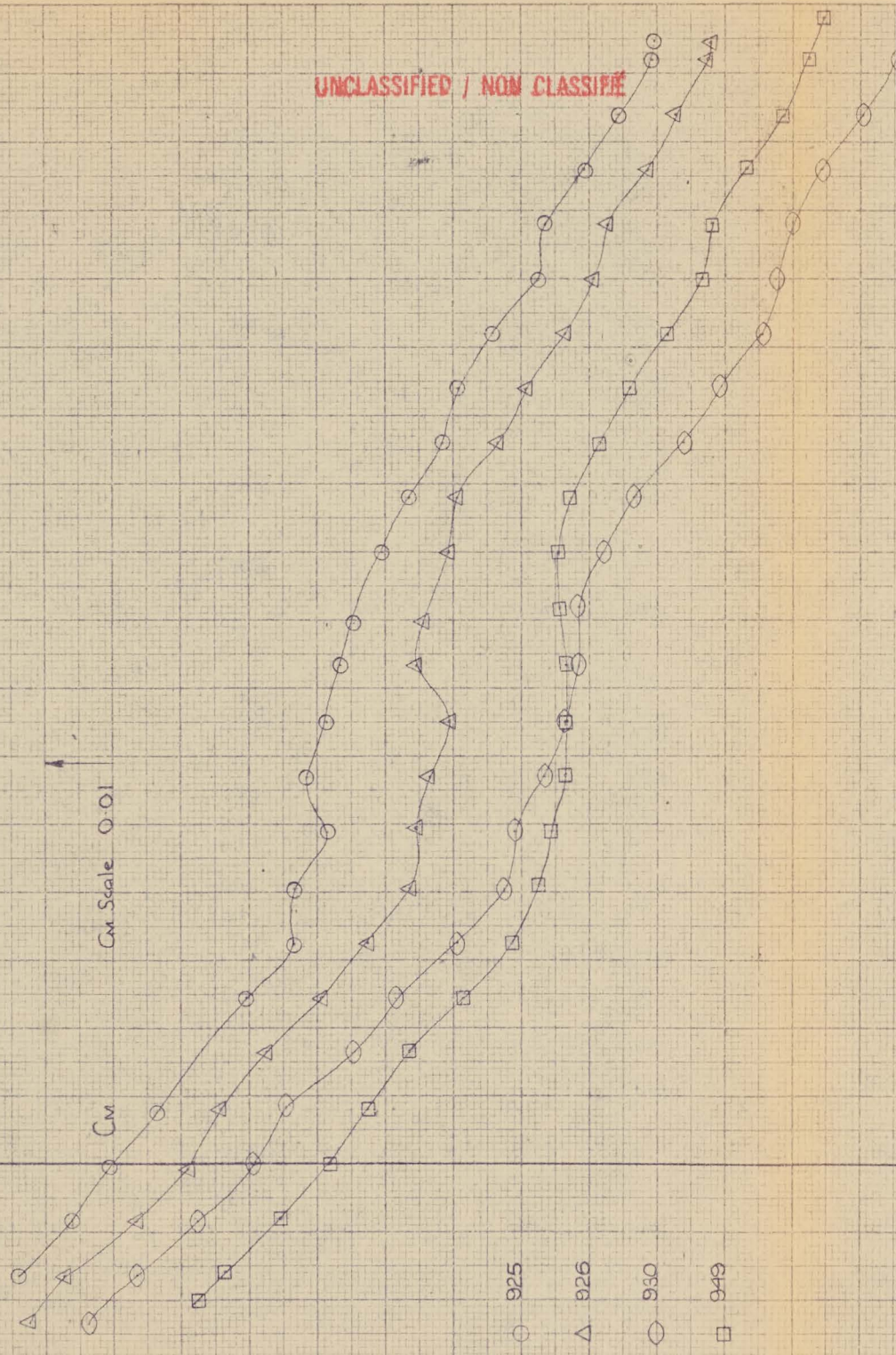


C-105

C.A.L. WIND TUNNEL TESTS

$C_m \sim \alpha$

C_m Scale 0.01



C.105.

C.A.L. WIND TUNNEL TESTS

C_m vs. α

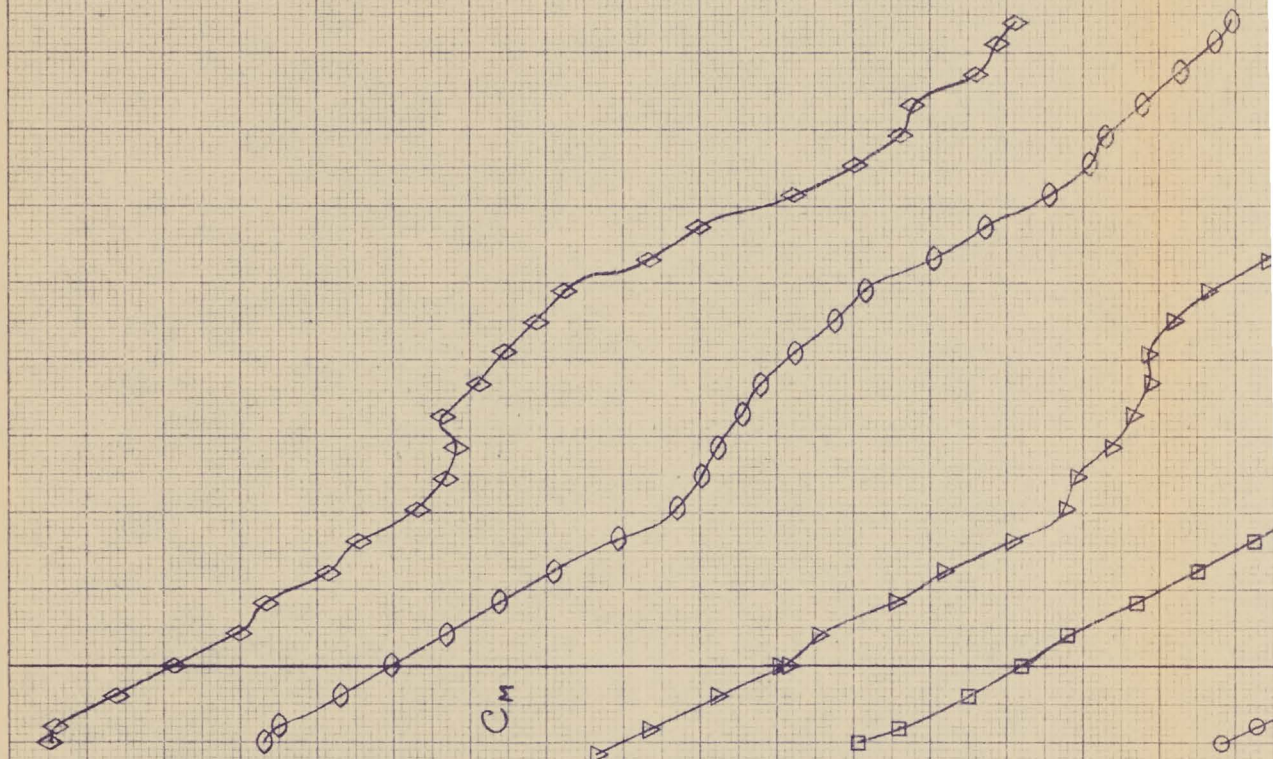
MACH $N_2 = 0.5$

CONFIG $N = B_3 C_2 R_5 W_5 V_2$

$\beta = 0^\circ$

D. BROWN,
11 AUG. '59.

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RUN N ₂	SYMBOL AND ORIGIN
964	-30
963	-20
930	-10

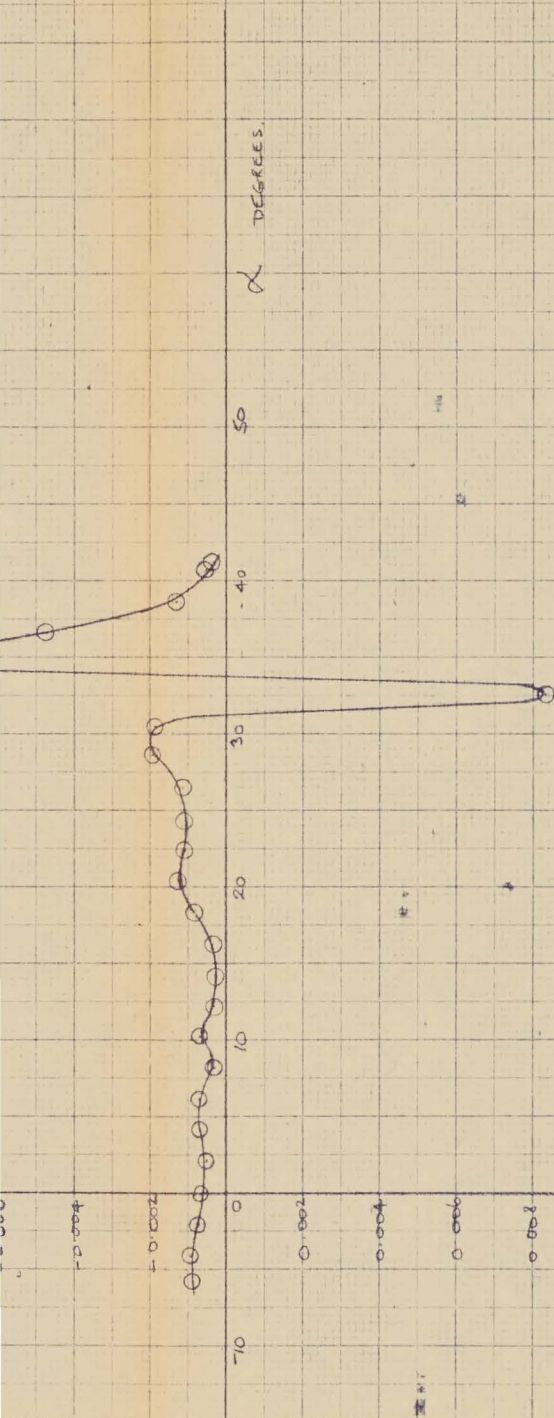
7.1

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AUG. '54

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D.W. HAYWARD
AUG. '54



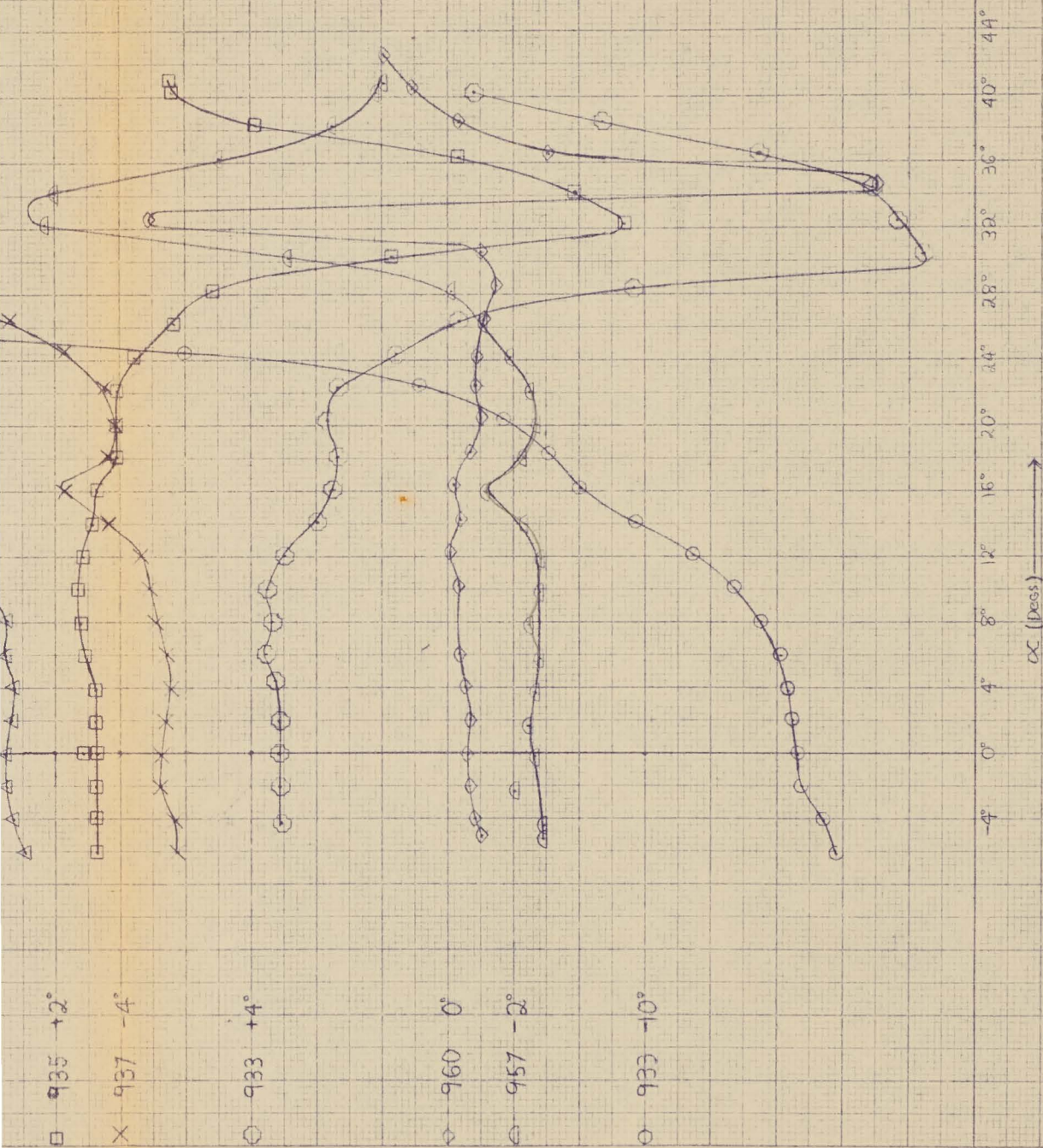
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7.2

Aug 54

GD Manichal

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C.A.L. WIND TUNNEL TESTS

C_n

C_n vs. α

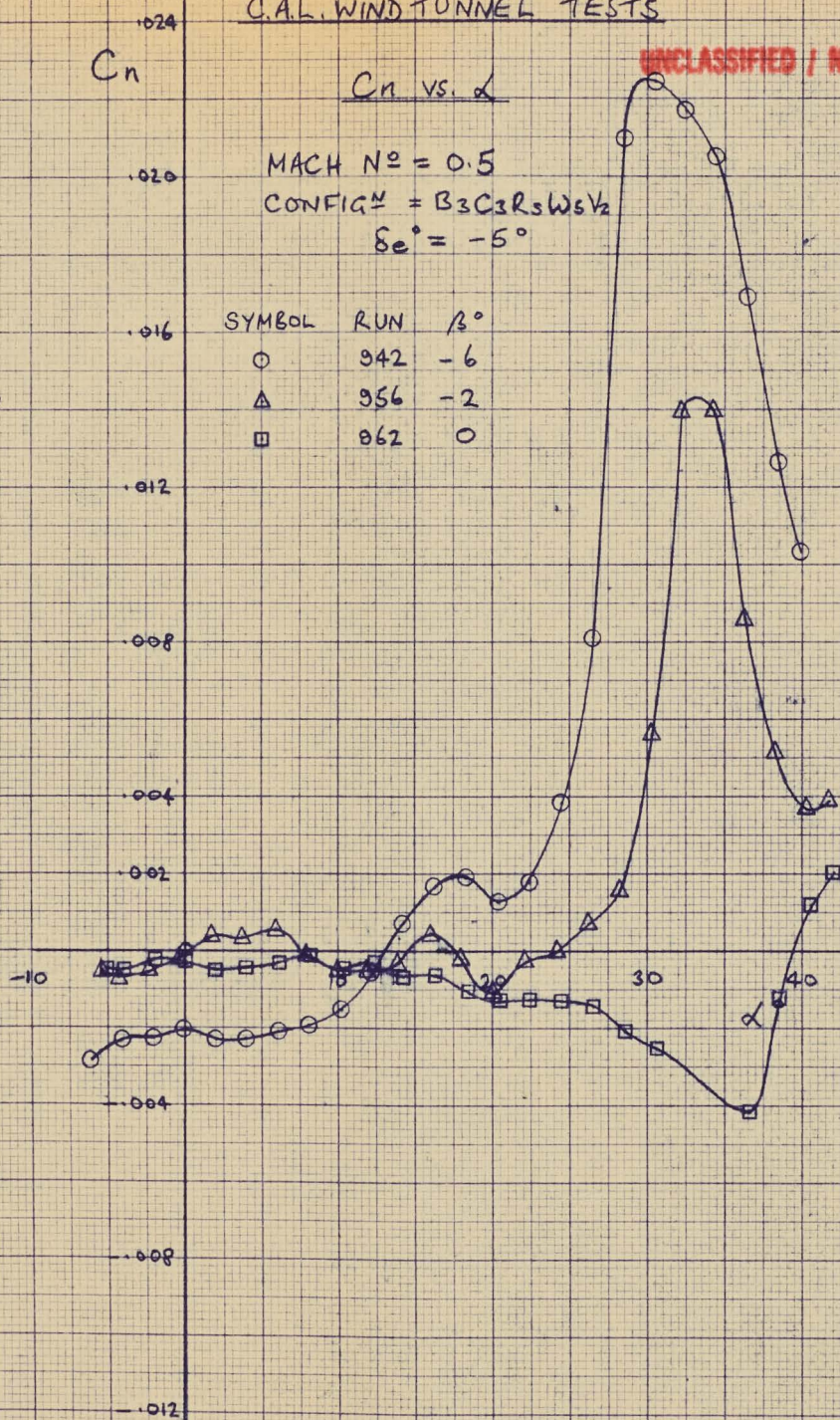
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MACH $N^2 = 0.5$

CONFIGⁿ = B3C3R5W5 1/2

$\delta e^{\circ} = -5^{\circ}$

SYMBOL	RUN	β°
○	942	-6
△	956	-2
□	862	0



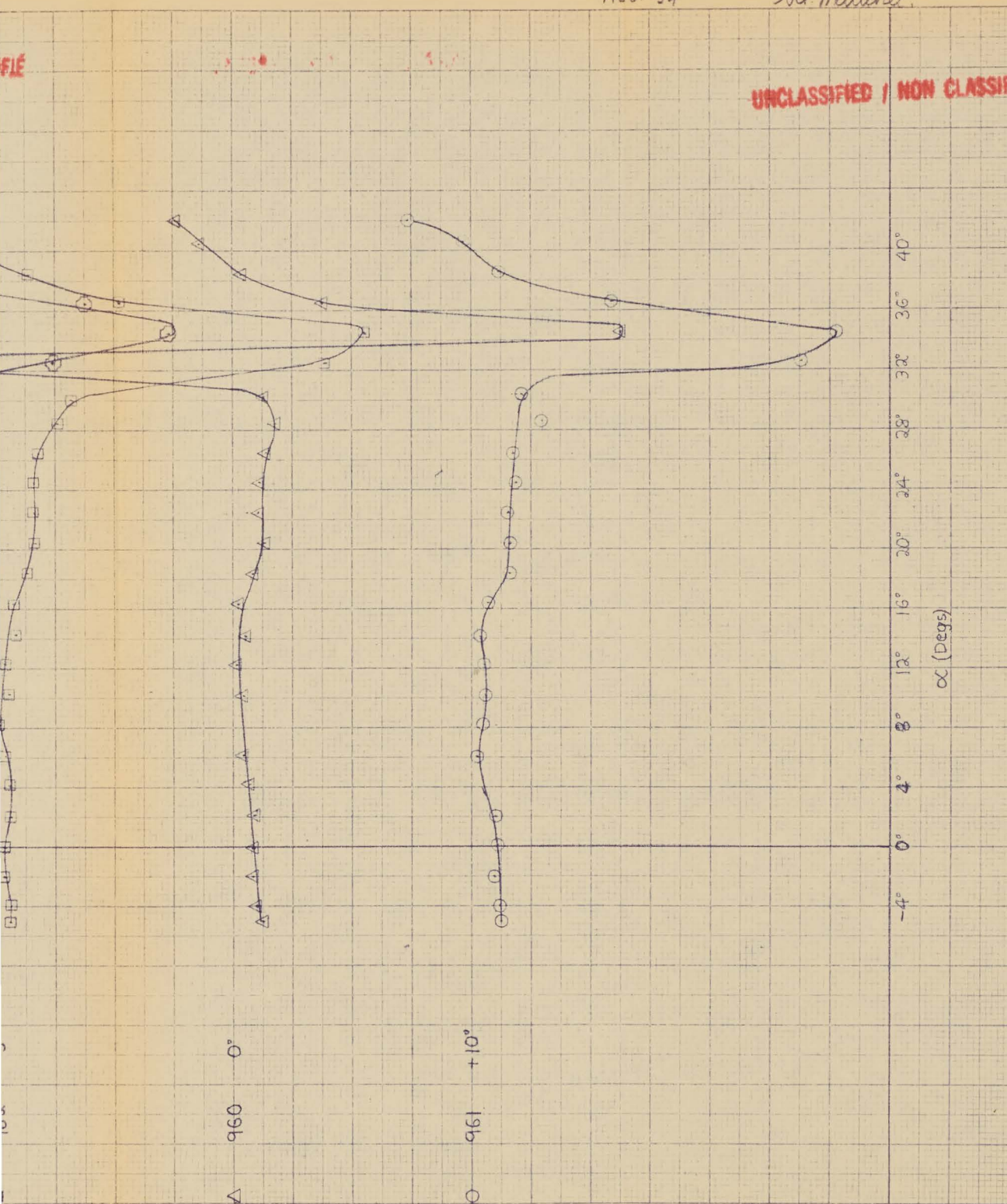
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7.6

GA Munchel

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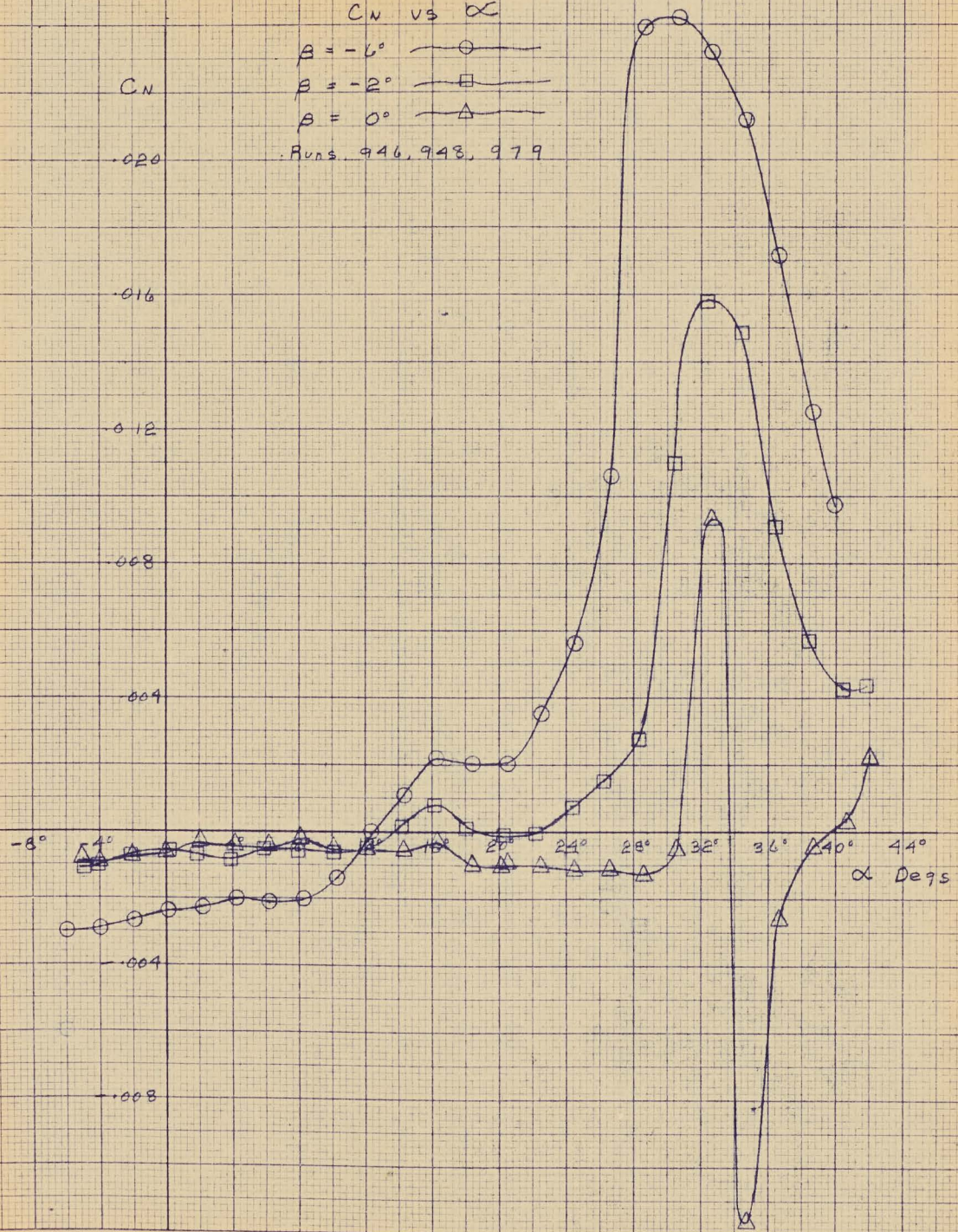
C.A.L. Wind Tunnel Tests July 1954

CN vs α

$\beta = -6^\circ$ —○—
 $\beta = -2^\circ$ —□—
 $\beta = 0^\circ$ —△—

CN

Runs 946, 948, 979



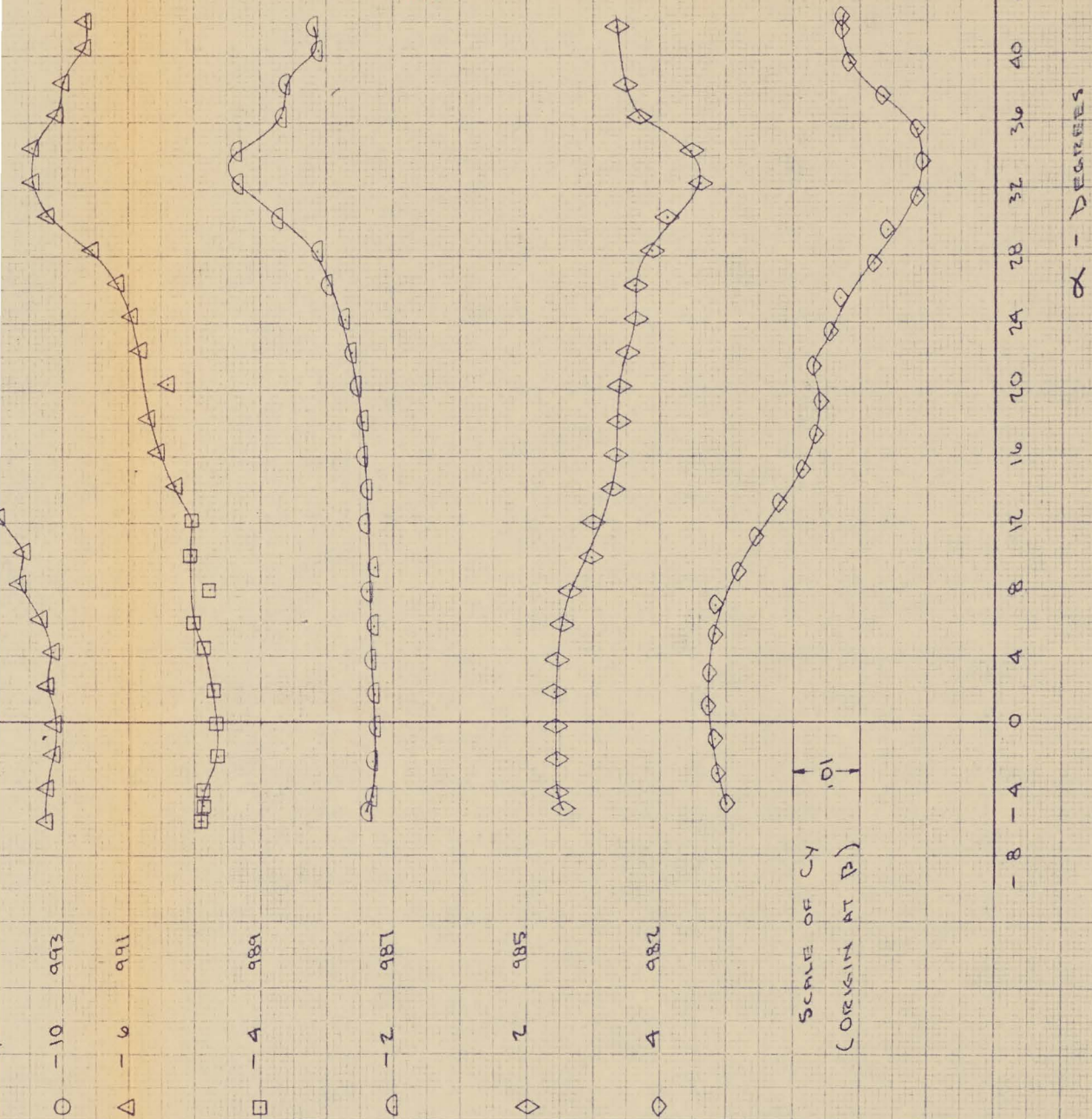
8.3

P/W.T. 139

Aug. '59

G.K. DIMOCK

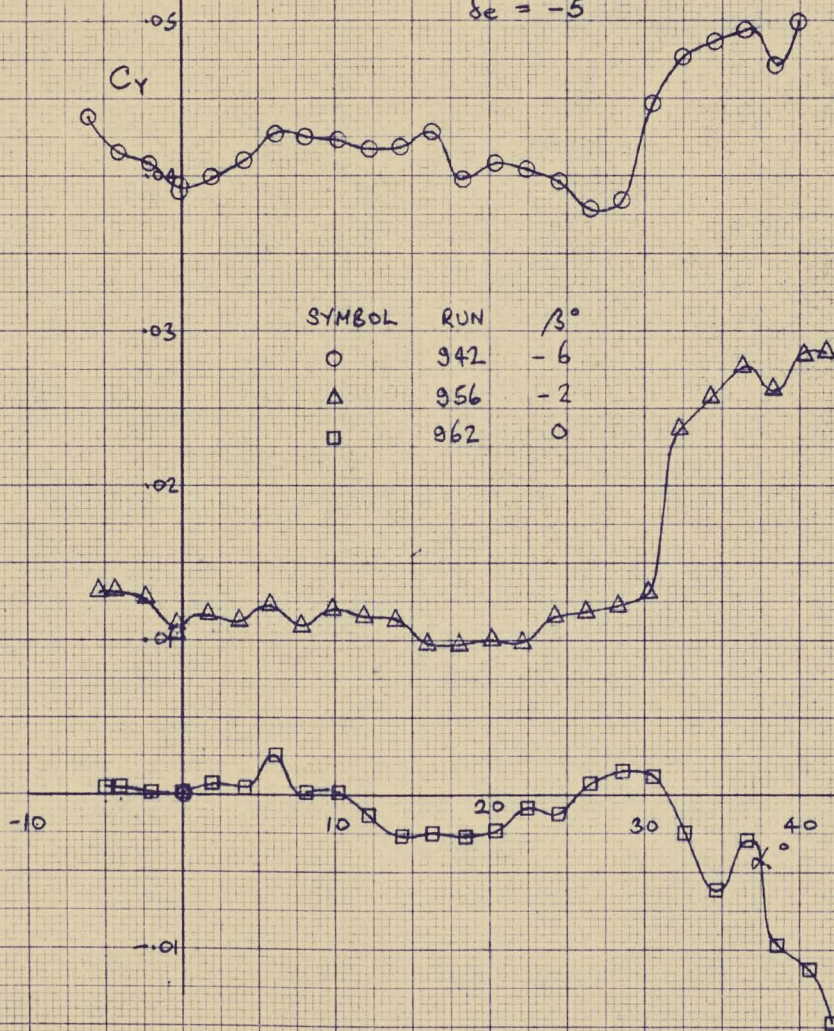
UNCLASSIFIED / NON CLASSIFIED



C.A.L. WIND TUNNEL TESTS.

C_y vs. α° UNCLASSIFIED / NON CLASSIFIED

MACH $N^\circ = 0.5$
CONFIG = B3C3R5W5V2
 $\delta e^\circ = -5$



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

C_x vs α

$\beta = -6^\circ$ —○— Run 945

$\beta = 0^\circ$ —△— Run 980

C_x

0.6

0.5

0.4

0.3

0.2

0.1

8°

16°

24°

32°

40°

α Degs

AIRCRAFT
A. U. W.

COMPONENT

SHEET NO. 8-8

REPORT NO. PIWIT 139

DATE Aug 1954

PREP BY Cutcliffe

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C-105

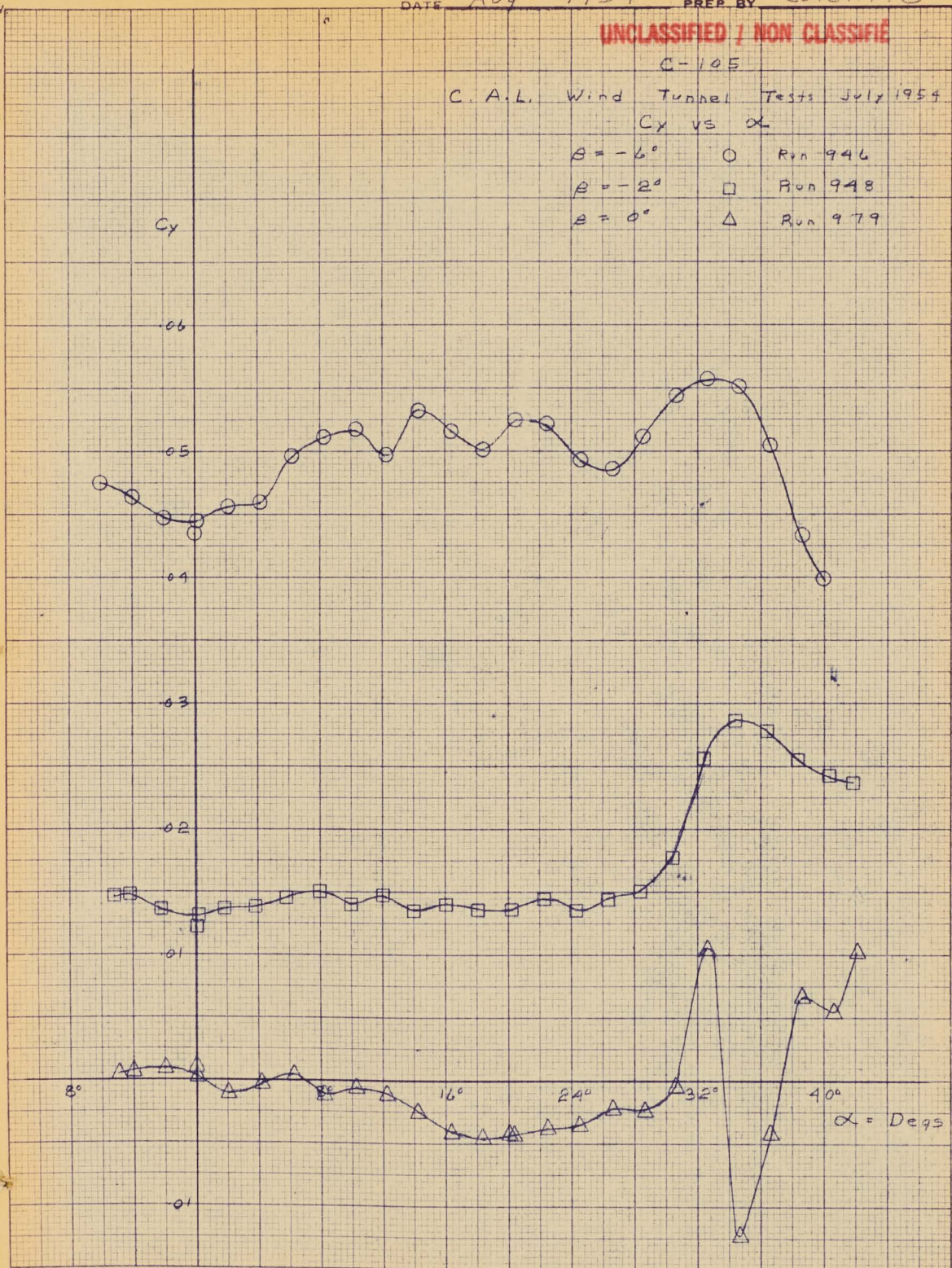
C. A. L. Wind Tunnel Tests July 1954

C_y vs α

$\beta = -6^\circ$ ○ Run 946

$\beta = -2^\circ$ □ Run 948

$\beta = 0^\circ$ △ Run 979



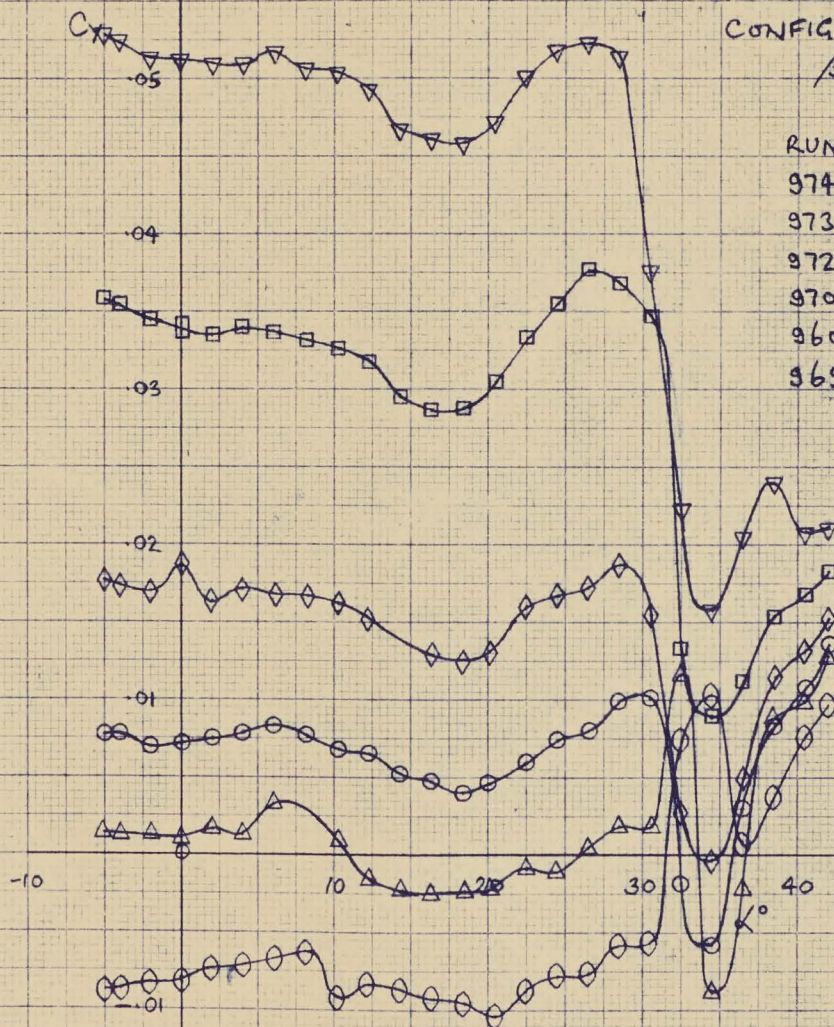
C105.

UNCLASSIFIED 8.12 NON CLASSIFIED

13 AUG. '54

P/W.T./39

D. BROWN

CAL. WIND TUNNEL TESTSCy vs. α MACH N² = 0.5CONFIG^N = B3C3R5W5V2 $\beta = 0^\circ$ 

8.14
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C.105

CAL WIND TUNNEL TESTS
JULY 1954.

⊙ RUN N° 931 - $B_3 C_3 R_3 W_5 V_2$

□ RUN N° 950 - $B_3 C_3 R_3 W_5 V_2 T_1$

C_y vs β

CONF. $B_3 C_3 R_3 W_5 V_2$

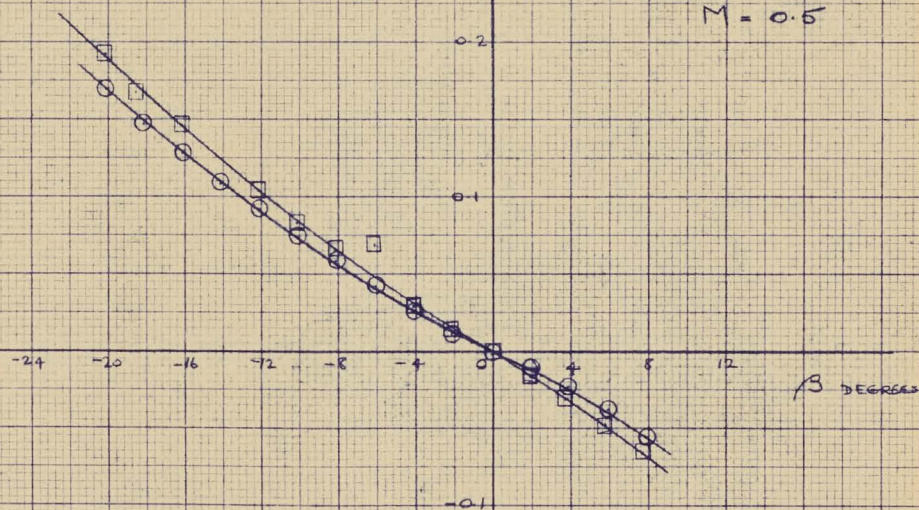
+ $B_3 C_3 R_3 W_5 V_2 T_1$

$\alpha = 6.0^\circ$

RUN N° 931 + 950

$\delta_a = \delta_b = \delta_c = \delta_r = 0^\circ$

$M = 0.5$



309.12 KUPFER & ESSER CO.
10 x 10 to the 1/2 inch, 5th lines uncut.
MADE IN U.S.A.

DW HAYWARD
AUG '54

AIRCRAFT C 105 COMPONENT
A U. W.

SHEET NO. 8.16
DATE 10 AUG. '54

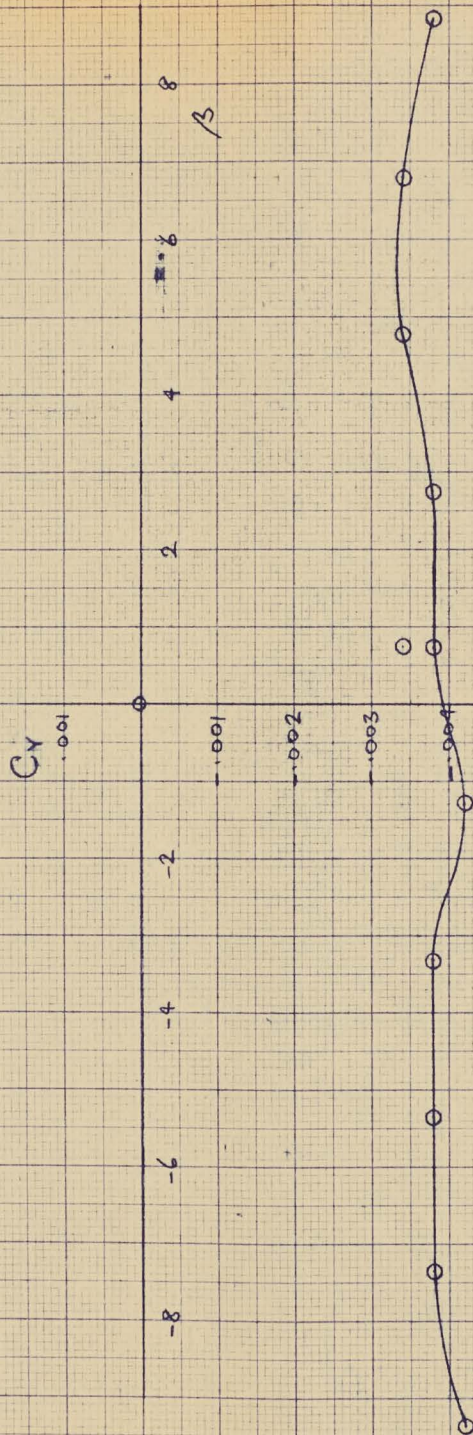
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PREP BY D. BROWN.

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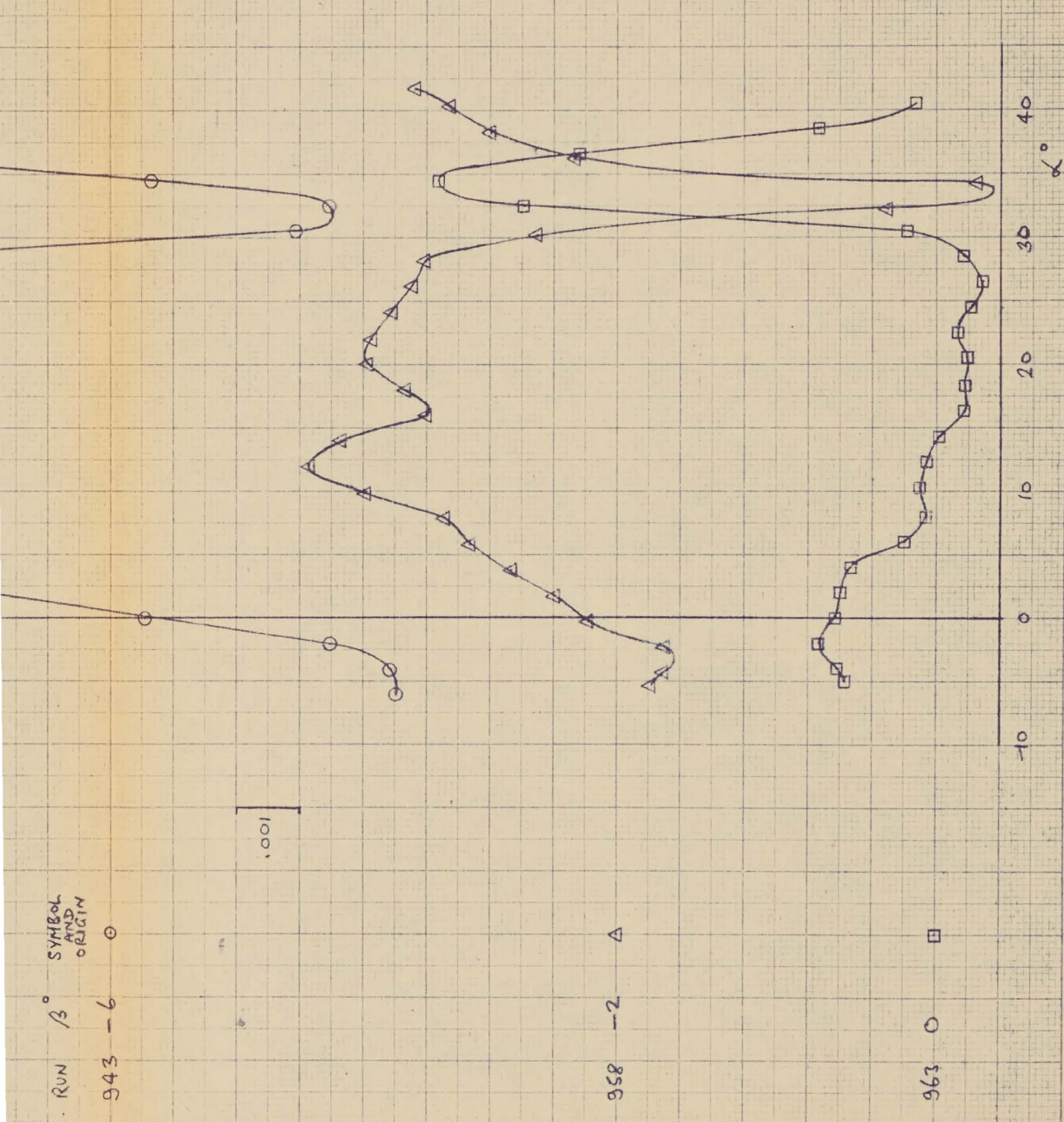
CAL. WIND TUNNEL TESTS

CY VS. β

MACH N° = 0.5
RUN N° 995 - HIGH RN.
CONFIG = B3C3R5WS1/2
 $\alpha = +4^\circ$



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 C_{nf} C.105

C.A.L. WIND TUNNEL TESTS.

JULY 1954

 C_{nf} vs β

CONF. $B_3 C_3 R_5 W_3 V_2$
 $B_3 C_3 R_5 W_4 V_2$
 $B_3 C_3 R_5 W_5 V_2$

 $\Delta = 6.0^\circ$

RUN NOS 928, 929, 931

 $\delta_a = \delta_b = \delta_c = \delta_d = 0^\circ$ $M = 0.5$ β DEGREES◇ RUN N° 929 - $B_3 C_3 R_5 W_3 V_2$ ▷ RUN N° 928 - $B_3 C_3 R_5 W_4 V_2$ ○ RUN N° 931 - $B_3 C_3 R_5 W_5 V_2$ D.W. HAYWARD
AUG '54

10.14
AUG '54

P/WT/39

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C_{Nf}

1.0

0.9

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0.0

-0.1

-0.2

-0.3

-0.4

C.105

C.A.L. WIND TUNNEL TESTS

JULY 1954

C_{Nf} vs β

CONF: $B_3 C_3 R_5 W_5 V_2$

* $B_3 C_3 R_5 W_5 V_2 T_1$

$\alpha = 6.0^\circ$

RUN N° 931, 950

$\delta a = \delta b = \delta c = \delta d = 0.1$

$M = 0.5$

-24

-20

-16

-12

-8

-4

0

4

8

12

DEGREES

○ RUN N° 931 - $B_3 C_3 R_5 W_5 V_2$

□ RUN N° 950 - $B_3 C_3 R_5 W_5 V_2 T_1$

D.W. HAYWARD

AUG 1954

AIRCRAFT C 105 COMPONENT
A. U. W.

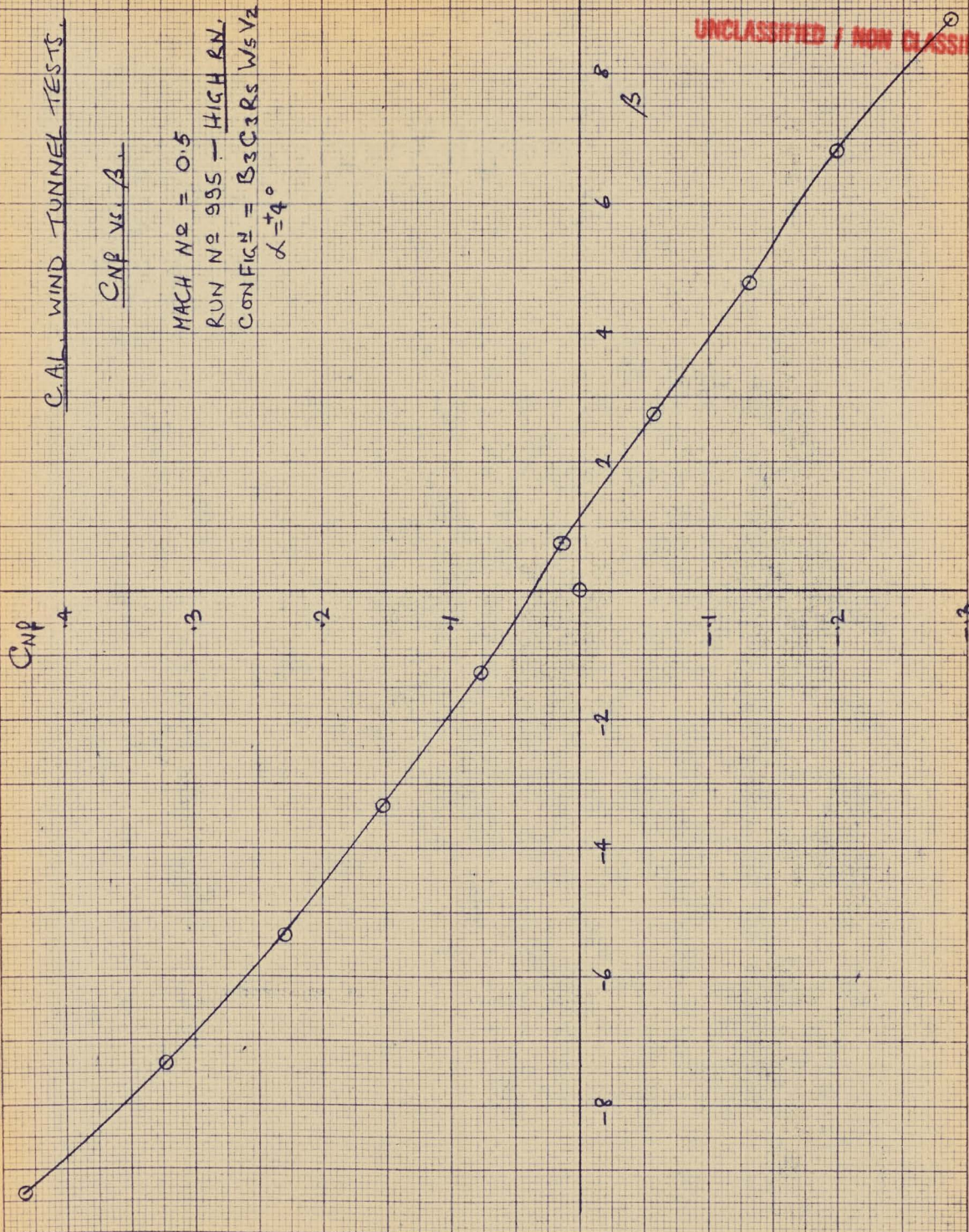
SHEET No. 10.15
DATE 10 AUG. '54.

REPORT No. P/W.T./39
PREP BY D. BROWN.

CAL. WIND TUNNEL TESTS.

CNP vs. β

MACH NR = 0.5
RUN NR 995 - HIGH RN.
CONFIG = B3C3RS W5V2
 $\alpha = 4^\circ$



C-105
C.A.L. WIND TUNNEL TESTS AUG. '54
CM_{FL} VS α

$\cdot 1$ CM_{FL}

Run β
 939 -10°

941 -6°

937 -4°

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11.14

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AUG '54

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○ Run N° 931 - $B_3 C_3 R_3 W_5 V_2$ □ Run N° 950 - $B_3 C_3 R_3 W_5 V_2 T_1$ $C_{M/LR}$ -24 -20 -16 -12 -8 -4 4 8 12 β DEGREESC.105

CAL. WIND TUNNEL TESTS

JULY 1954

 $C_{M/LR}$ V_2 β CONF: $B_3 C_3 R_3 W_5 V_2$ + $B_3 C_3 R_3 W_5 V_2 T_1$ $\alpha = 6.0^\circ$

Run N° 931, 950

 $\delta_a = \delta_b = \delta_c = \delta_r = 0^\circ$ $M = 0.5$

D.W. HAYWARD

AUG '54

12. 13

P/WT/39

AUG '54.

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C. 105

C.A.L. WIND TUNNEL TESTS.

JULY 1954

 $C_{M/R}$

0.4

 $C_{M/R}$ vs β CONF: $B_3 C_3 R_5 W_3 V_2$ $B_3 C_3 R_5 W_4 V_2$ $B_3 C_3 R_5 W_5 V_2$ $\alpha = 6.0^\circ$ RUN N^o 928, 929, 931 $\delta_a = \delta_b + \delta_c + \delta_r = 0^\circ$ $M = 0.5$ -24 -20 -16 -12 -8 -4 0 4 8 12 β DEGREES◇ RUN N^o 929 - $B_3 C_3 R_5 W_3 V_2$ ▷ RUN N^o 928 - $B_3 C_3 R_5 W_4 V_2$ ○ RUN N^o 931 - $B_3 C_3 R_5 W_5 V_2$ D.W. HAYWARD
AUG. '54

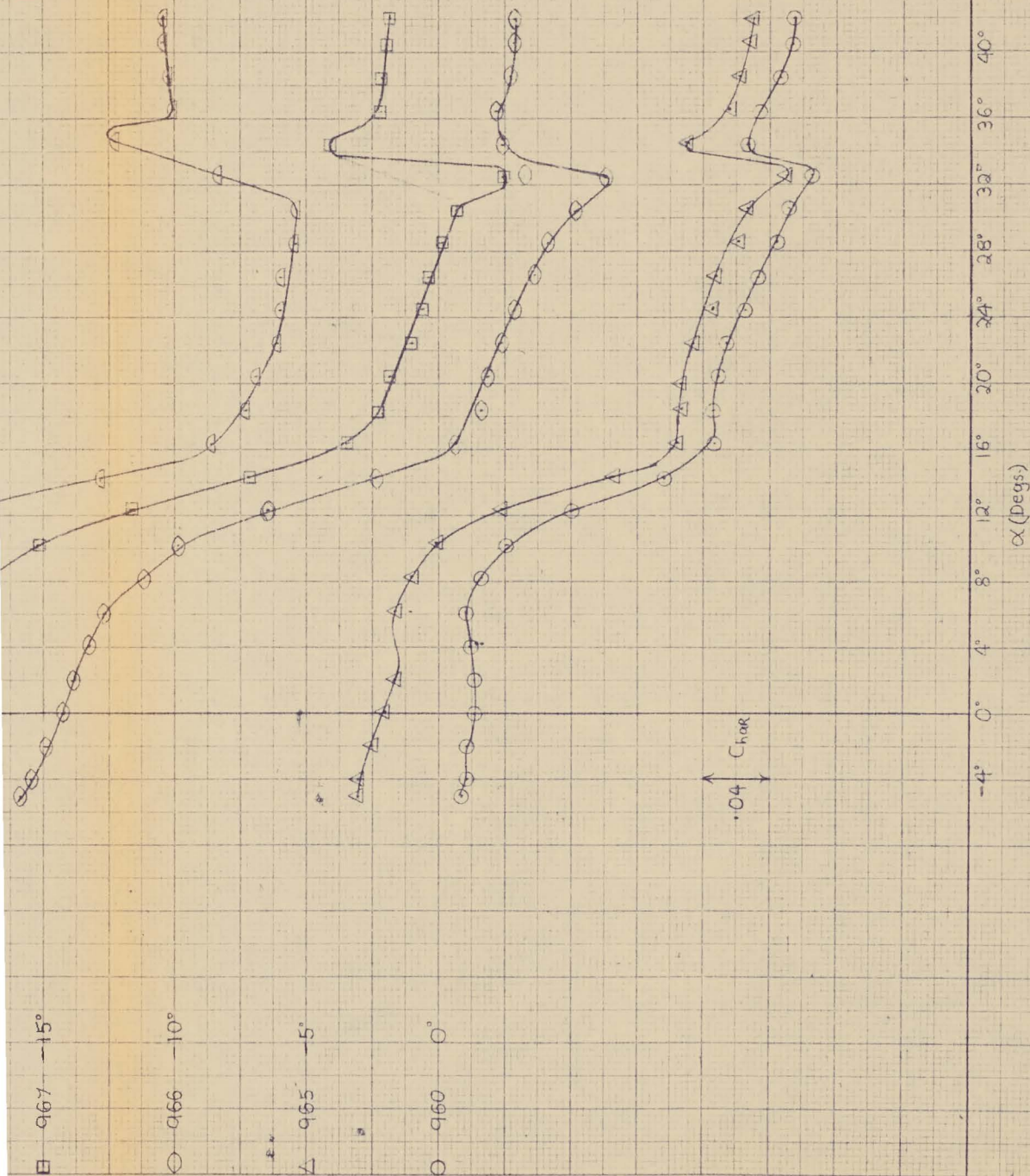
P/W.T./39

#14.11.1

AUG. '54

BA Marchel

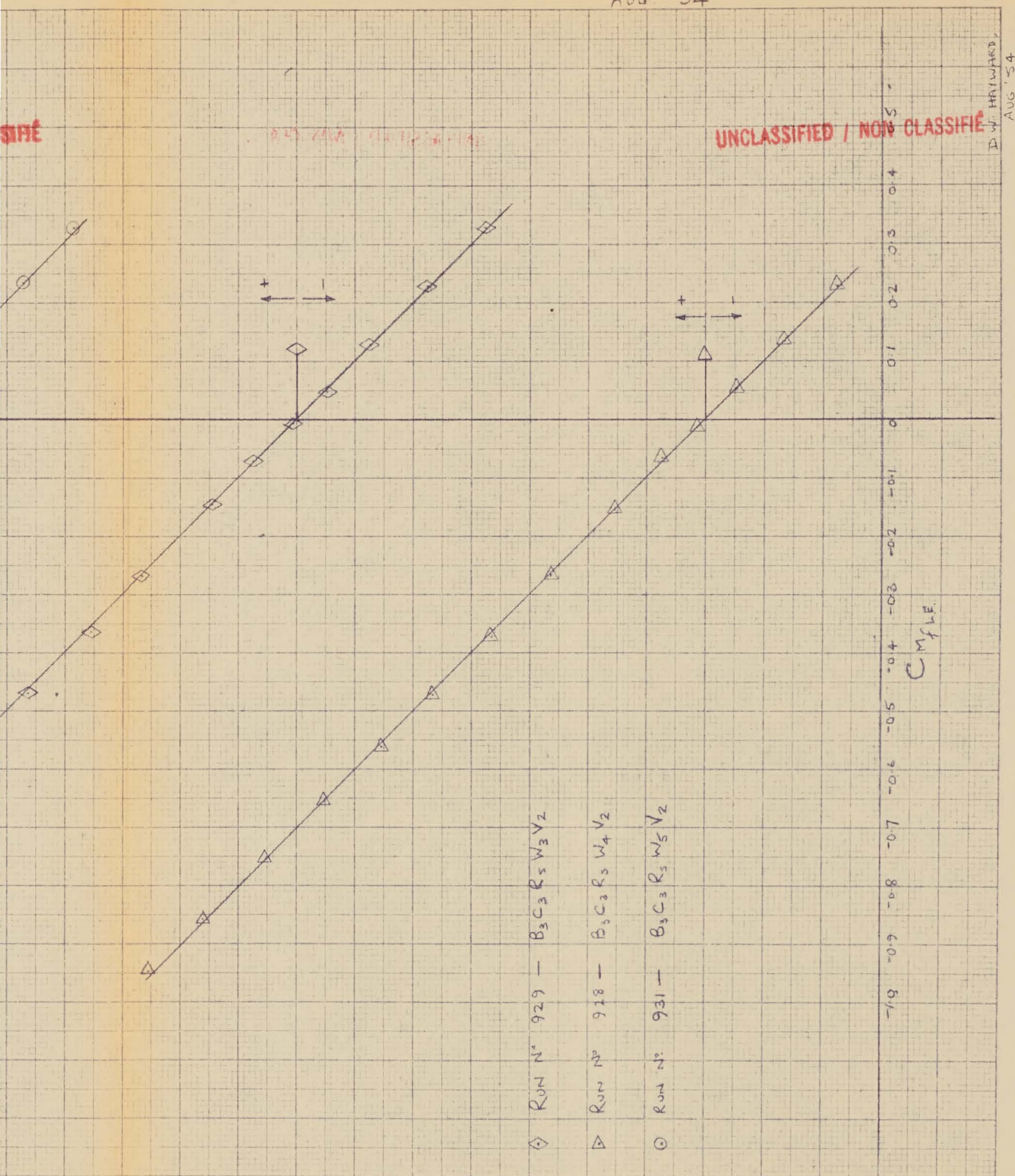
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16.13

P/WT/39

Aug. '54

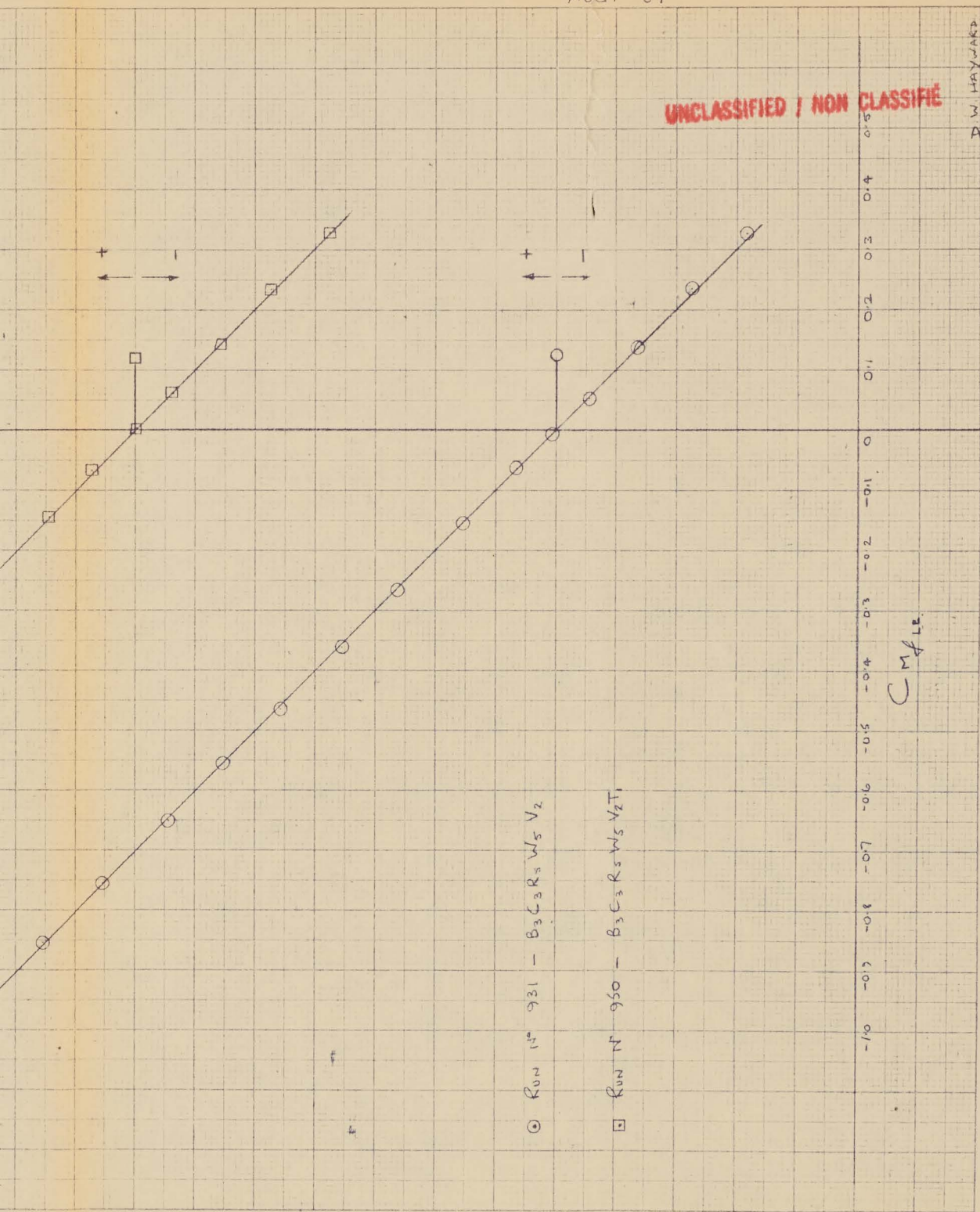


16. 14
Aug. '54

P / WT / 39

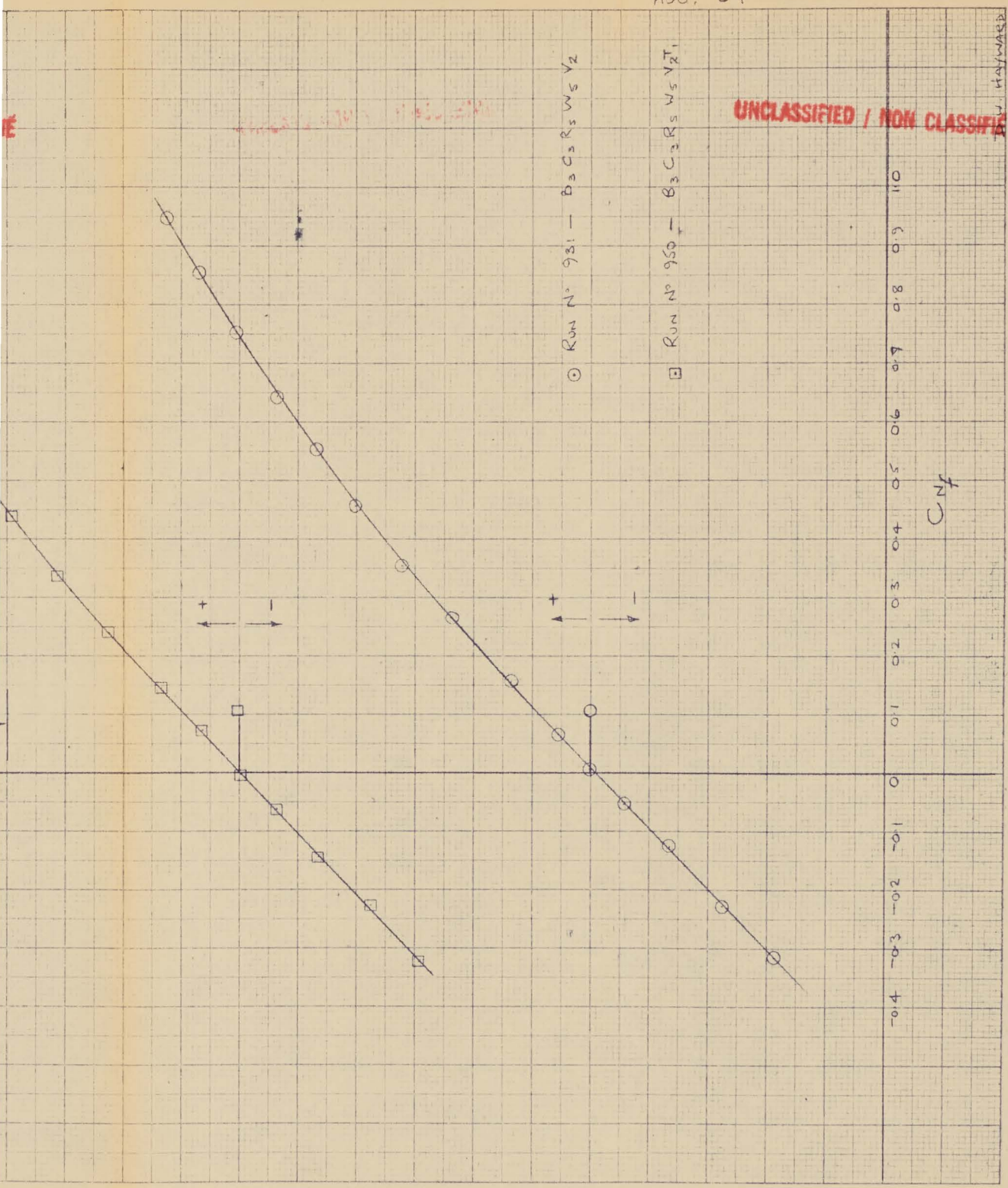
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A
 2
 3
 2
 1
 3
 A



17.14
AUG. '54

P/WT /39



J. HAYWARD
AUG '54

AIRCRAFT C 105 COMPONENT
A. U. W.

SHEET NO. 15-12
DATE 10 AUG. '54

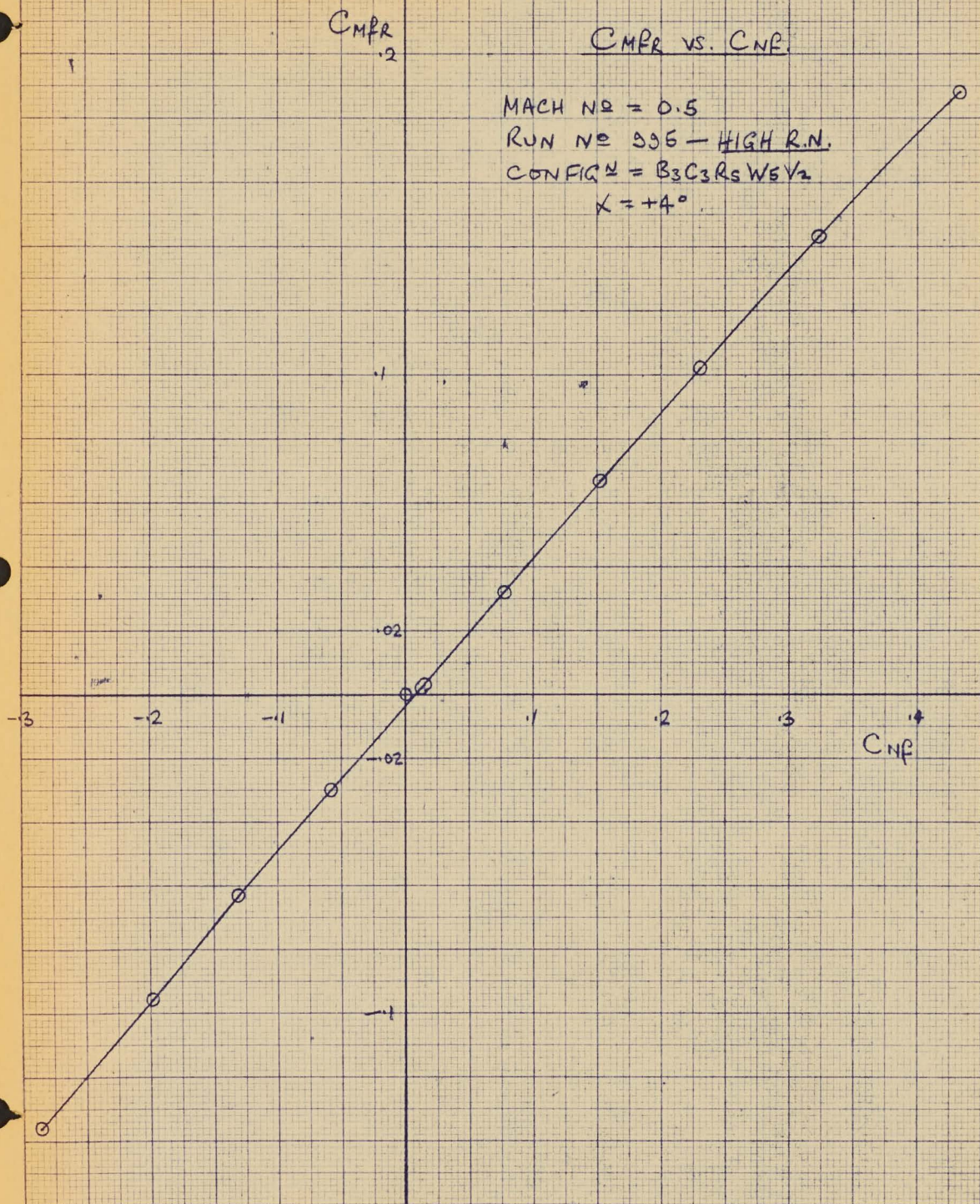
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PREP BY D. BROWN.

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C.A.L. WIND TUNNEL TESTS.

CMPR VS. CNF.

MACH NR = 0.5
RUN NO 336 - HIGH R.N.
CONFIGN = B3C3R5W5V2
 $\alpha = +4^\circ$



AIRCRAFT C 105 COMPONENT
A. U. W.

SHEET NO. 16.15

REPORT NO. P/W.T./39

DATE 10 AUG. '54.

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G.A.L. WIND TUNNEL TESTS.

CNP VS CMPL

MACH NO = 0.5
RUN NO 995 - HIGH RN.
CONFIG = B3C3R3 W5V2
 $\alpha = +4^\circ$

