QCX
Avro
CF105
P-WT-111
ANALYZED

C-105

Classification cancelled / Changed to P/WT/111 UNCLAS
By authority of AVRO
0.03 LANGLEY W/T TESTS
Date 2 Sept 56
M = 1.41 - APRIL 1956
Signature
(HSAL)
Copy 2
Unit / Rank / ~~Appointment~~ PILOTS AVRO

Templin

N.A.C.A. LANGLEY W/T TESTS

.03 SCALE C-105

M = 1.41

APRIL 1956

	1	2	3	4	5	6	7	8	9	10
RUN NO.	1	3	4	13	14	15	16	11	12	9
POINTS	14 to 23	1 to 10	1 to 11	1 to 11	1 to 10	1 to 10	1 to 10	1 to 10	1 to 10	1 to 11
δ_e° L	0	0	0	0	-30.0	0	0	0	0	0
δ_a° R	0	0	0	0	+ 4.2	0	0	0	0	+4.2
δ_R°	0	0	0	0	0	-	-	+9.7	+20.0	0
α°	-4 to +12	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14
β°	0	0	0	0	0	0	0	0	0	0
CONFIGURATION	B_1 V_1 W_1 E_{10} N_5 D8.4	B_1 V_1 W_1 E_{10} N_5 D8.4 F_D	B_1 V_1 W_1 E_{10} N_5 D8.4 R_N	B_1 -1 V_1 W_1 E_{10} N_5 D8.4	B_1 V_1 W_1 E_{10} N_5 D8.4	B_1 W_1 E_{10} N_5 D8.4 F_4	B_1 W_1 E_{10} N_5 D8.4	B_1 V_1 W_1 E_{10} N_5 D8.4		
SECTION SHEET NO.	Also 5,	1			2	3	4	5		
1 C_M vs C_L	X	X	X	X			X		X	
2 C_D vs C_L	X	X	X	X			X			
3 C_D vs C_L^2	X			X						
4 C_L	X (Also Sht 7)	X	X							
5 C_M	X									
6 C_D										
7 C_n	X (Sht 5)							X	X	
8 C_y	X (Sht 5)							X	X	
9 C_l	X (Sht 5)							X	X	X
10 C_{N_f}				X (Sht 7)				X	X	
11 $C_{M_{f_{LE}}}$				X (Sht 7)				X	X	
12 $C_{M_{f_R}}$				X (Sht 7)				X	X	
13 C_{H_e}			X (Sht 7)	X (Sht 7)						
14 C_{H_a}	X (Sht 6)				X					X (Also Sht 7)
15 C_H				X (Sht 5)				X	X	
16 $C_{M_{f_{LE}}}$ vs C_{N_f}										
17 $C_{M_{f_R}}$ vs C_{N_f}										
18	BASIC	FAIRED DUCTS	TRANSITION FIXED	30° NOSE	ELEVS -30° R.AIL'N +4.2°	TAIL OFF FAIRED DUCTS	TAIL OFF BASIC	RUDDER EFFECT		AILE EFF

FORM 1544

A. V. ROE C
MALT
ENGINEERIN

AIRCRAFT
WEIGHT
C. G. POSITION

INDEX

CONFIGURATION

B_1		50° Nose	N_5 5% Notch
B_{1-1}		30° Nose	$D_{8.4}$ Droops
V_1		Vert. Tail	F_D Faired Ducts
W_1		3 1/2% Wing	R_N Transition Fixed
E_{10}		10% Extns.	

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	11	12	9	10	5	6	8	1	2	3	4	8	10	12	
	1 to 10	1 to 10	1 to 11	1 to 11	1 to 11	1 to 11	1 to 10	24 to 39	3 to 56	11 to 80	12 to 42	11 to 33	12 to 78	11 to 65	
	0	0	0	0	-4.6	-10.1	-30.0					-30.0			
	0	0	+4.2	+19.8	0	0	0						+19.8		
	+9.7	+20.0	0	0	0	0	0							+20.0	
	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	-4 to +14	0	4,8,12,14	0,4,8,12,14	0,8	0,8	0,4,8, 12,14.	0,4,8 12	
	0	0	0	0	0	0	0	←					-14 to +14		
	B_1 V_1 W_1 E_{10} N_5 $D_{8.4}$							B_1 V_1 W_1 E_{10} N_5 $D_{8.4}$		B_1 V_1 W_1 E_{10} N_5 $D_{8.4}$ F_D	B_1 V_1 W_1 E_{10} N_5 $D_{8.4}$ R_N	B_1 V_1 W_1 E_{10} N_5 $D_{8.4}$			
	← 5 →		← 6 →		← 7 →			← 8 →		9	10	11	12	13	
		X		X	X	X	X								
					X	X	X								
					X	X	X								
					X	X	X	←		sheet 1.8 & 1.9					
	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 (ALSO SHT 2)	X											
	X	X												X	
										X					
										X					
	RUDDER EFFECT		AILERON EFFECT		ELEVATOR EFFECT			BASIC		FAIRED DUCTS	TRANSITION FIXED	ELEVATOR EFFECT	AILERON EFFECT	RUDDER EFFECT	

5% Notch
.4 Droops
Faired Ducts
Transition Fixed

A. V. ROE CANADA LIMITED

MALTON, ONTARIO
ENGINEERING DIVISION — AIRCRAFT

AIRCRAFT — C-105
WEIGHT —
C. G. POSITION — .28 $\bar{c}$

REPORT NO. — P/WT./111
SHEET — (1)
DATE — April 1956
PREPARED BY — D. Ewart

17	18	19	20	21	22	23	24	25	26	27	28	29
3	4	8	10	12	13	14	15	16				
to 80	12 to 42	11 to 33	12 to 78	11 to 65	12 to 66	11 to 76	11 to 49	12 to 75				
		-30.0				-30.0						
			+19.8			+ 4.2						
				+20.0								
4,8,12,14	0,8	0,8	0,4,8, 12,14.	0,4,8 12	0,4,8, 12	0,4,8 12	0,4,8, 12,14	0,4,8, 12,14	0,4,8, 12,14	0,4,8, 12,14	0,4,8, 12,14	
			-14 to+14									
V_1 W_1	B_1 V_1 W_1	B_1 V_1 W_1			B_1-1 V_1 W_1	B_1 V_1 W_1	B_1 W_1	B_1 W_1				
$_{10}$ N_5 $_{.4}{}^{F}D$	E_{10} N_5 D8.4 ^{R}N	E_{10} N_5 D8.4			E_{10} N_5 D8.4	E_{10} N_5 D8.4	E_{10} N_5 D8.4 ^{F}D	E_{10} N_5 D8.4				
9	10	11	12	13	14	15	16	17				
eet	1.8 & 1.9											
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							
IRED UCTS	TRANSITION FIXED	ELEVATOR EFFECT	AILERON EFFECT	RUDDER EFFECT	30° NOSE	AILERON & ELEVATOR	TAIL OFF FAIRED DUCTS	TAIL OFF BASIC				

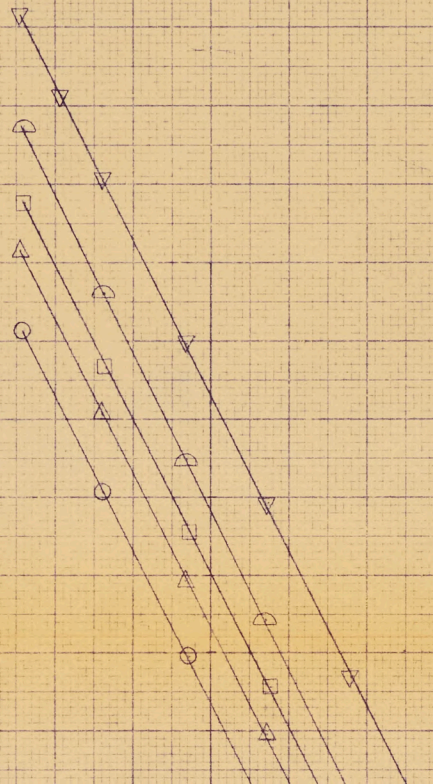
C-105

.03 LANGLEY MODEL

C_m vs C_L

M = 1.41

RUN	CONFIGURATION	RADOME	INTAKES
1	$B_1V_1W_1E_{10}N_5D_{8-4}$	5°	OPEN
4	$B_1V_1W_1E_{10}N_5D_{8-4}R_N$	5°	OPEN TRANS. FIXED
16	$B_1W_1E_{10}N_5D_{8-4}$	5°	OPEN TAIL OFF
3	$B_1V_1W_1E_{10}N_5D_{8-4}F_D$	5°	FAIRED
13	$B_{1-4}V_1W_1E_{10}N_5D_{8-4}$	3°	OPEN

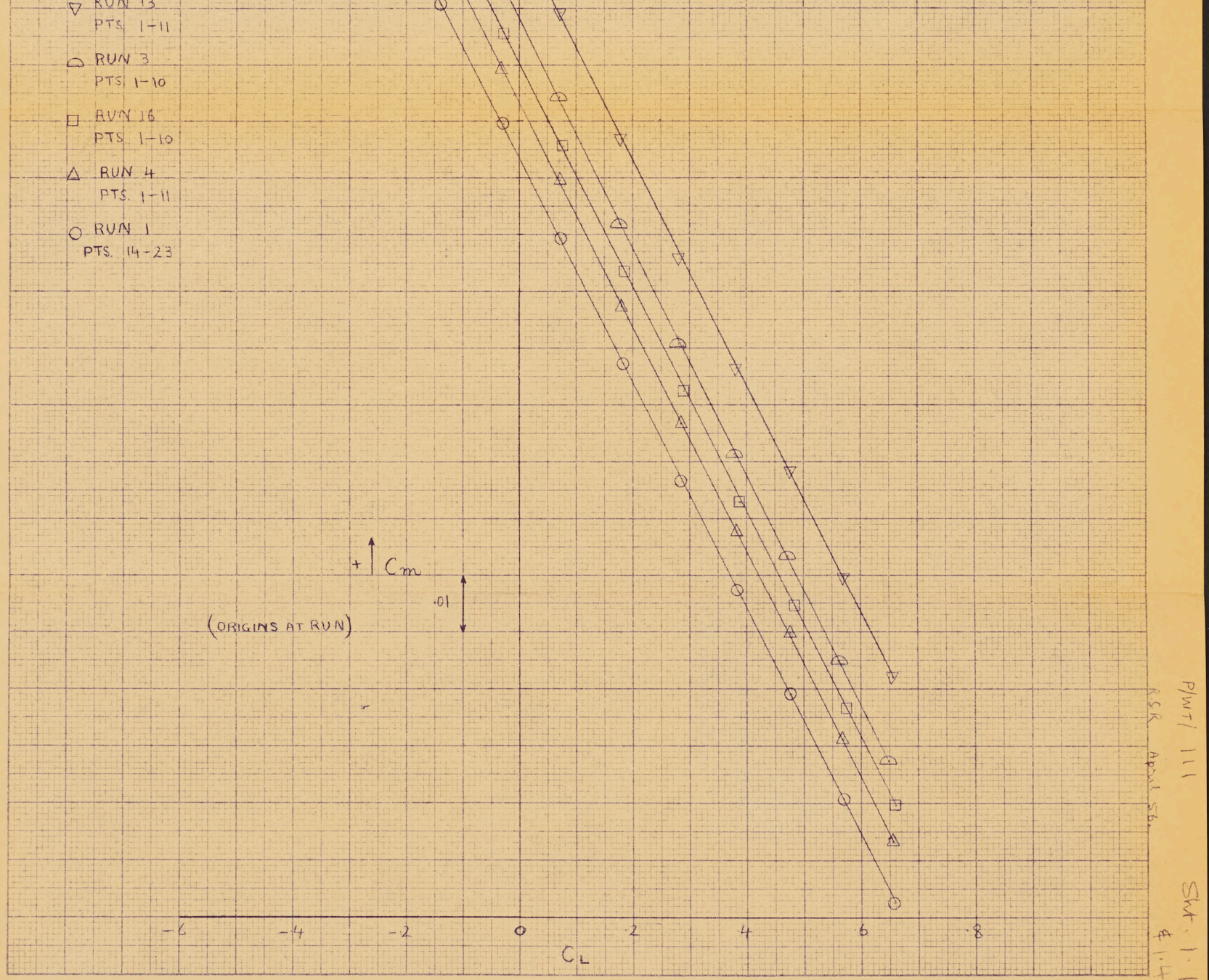


▽ RUN 13
PTS. 1-11

⌓ RUN 3
PTS. 1-10

□ RUN 16
PTS. 1-10

△ RUN 4
PTS. 1-11



P/WT/ 111
RSR April 56.
Sht. 1.1
1.4

C-105

.03 LANGLEY MODEL

C_m vs C_L

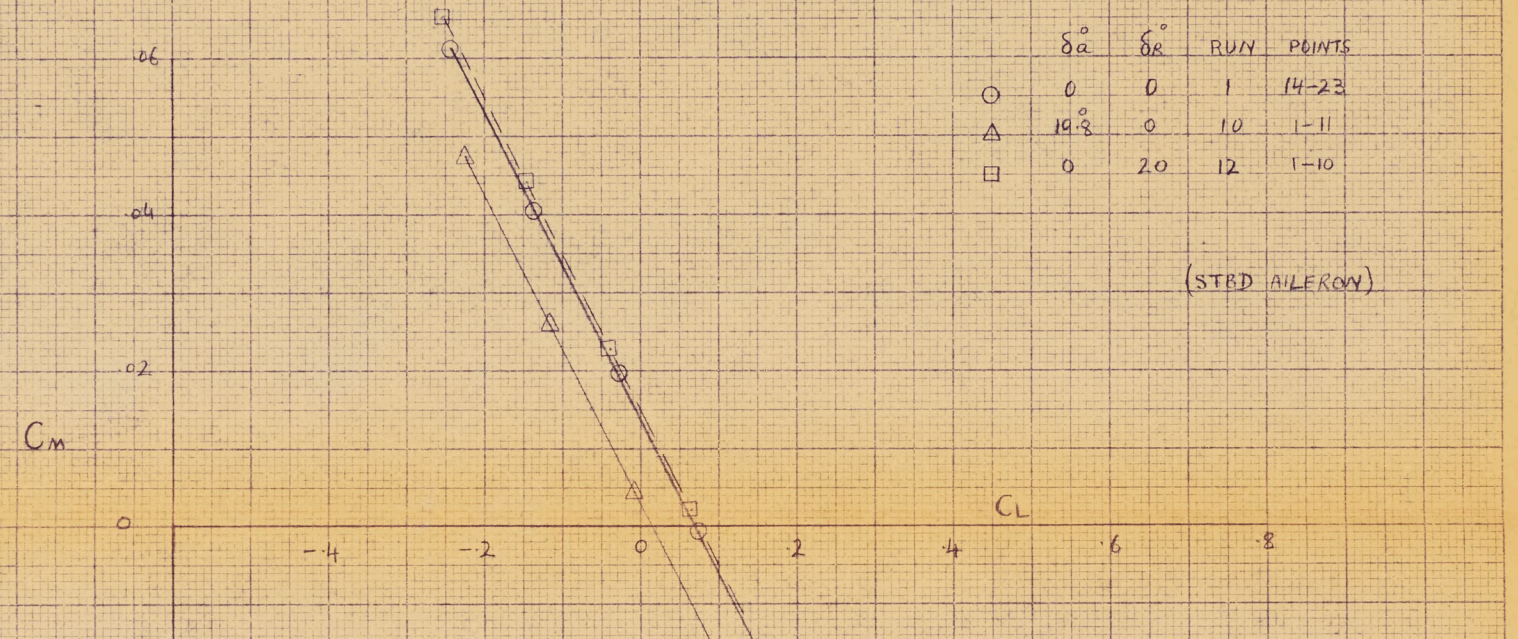
RUDDER AND AILERON EFFECT

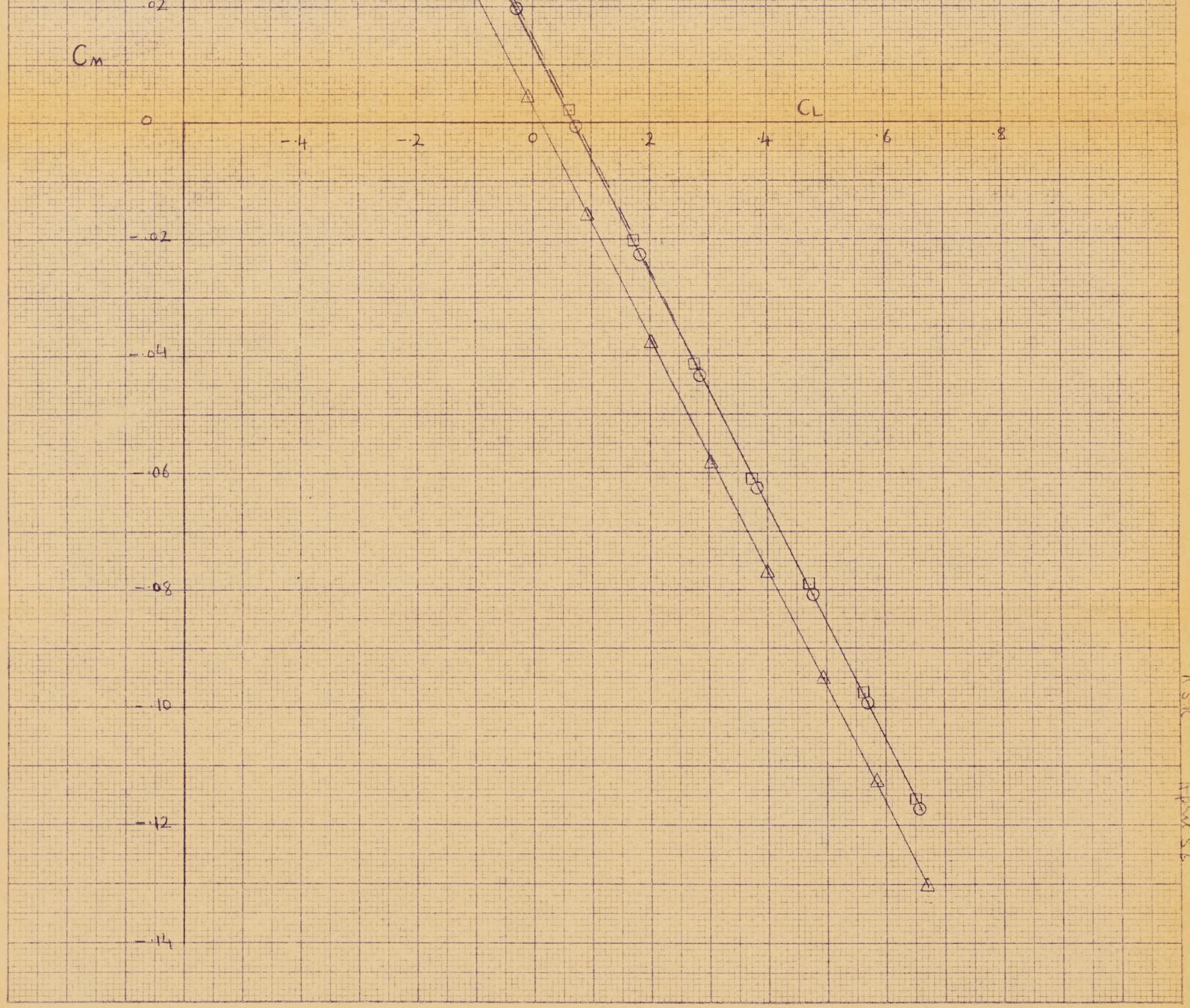
$M = 1.41$

CONFIG. $B_1 V_4 W_1 E_{10} N_5 D_{8=4}$
50° CONICAL RADOME, INTAKES OPEN

	δ_a°	δ_R°	RUN	POINTS
○	0	0	1	14-23
△	19.8°	0	10	1-11
□	0	20	12	1-10

(STBD AILERON)





P/WT/ 111 Sht. 1.5 f 6

RSR Appd SB

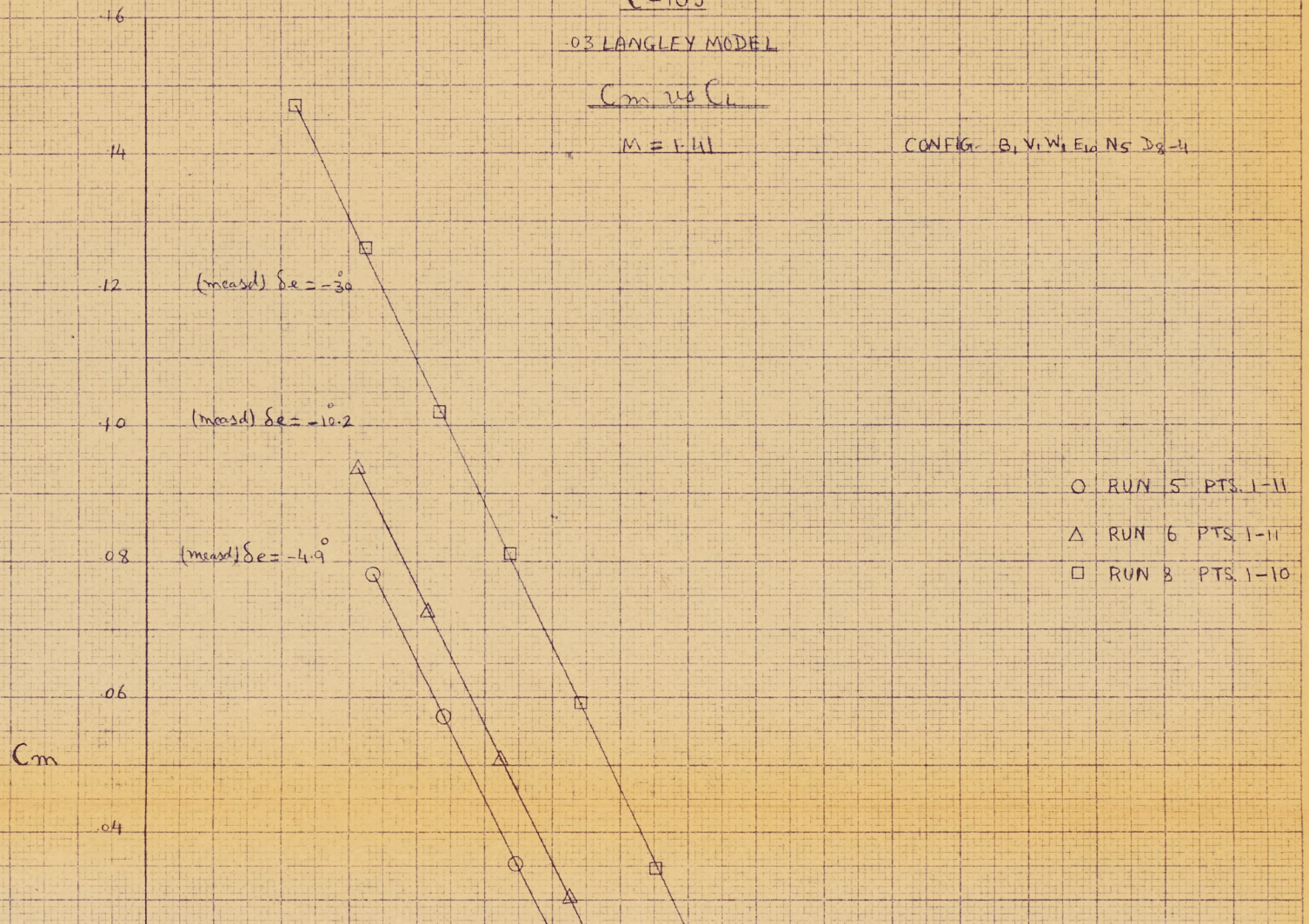
C-105

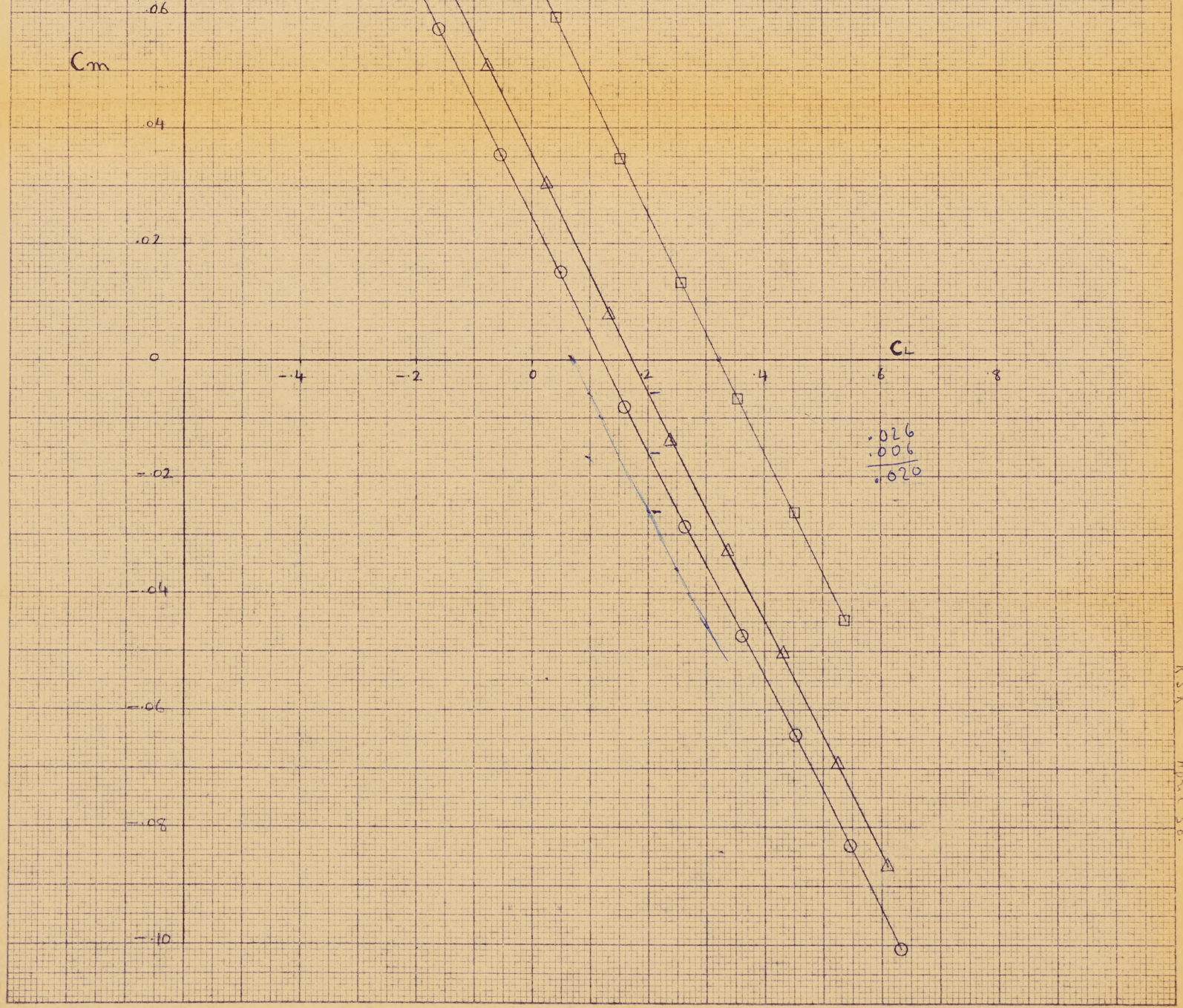
.03 LANGLEY MODEL

Cm vs C_L

M = 1.111

CONFIG. $B_1 V_1 W_1 E_{10} N_5 D_{8-4}$





PIWT/111
R.S.K. April 58.
Str. 1.7

C-105

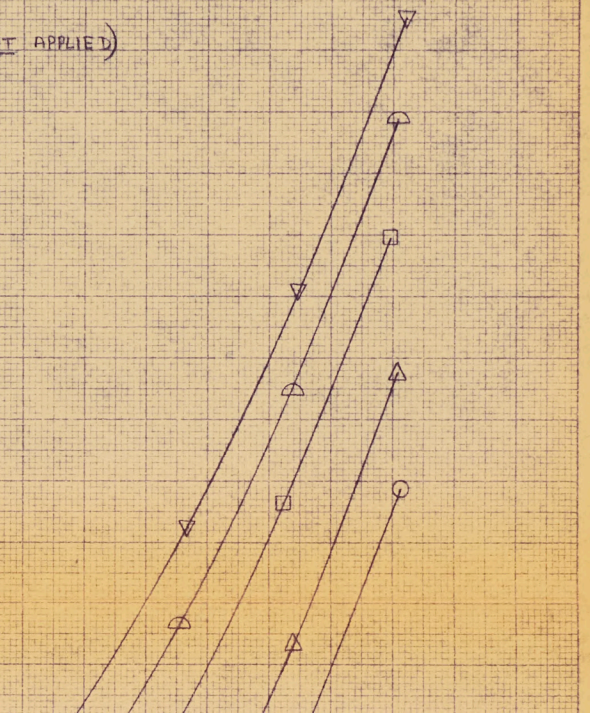
.03 LANGLEY MODEL

C_D vs C_L

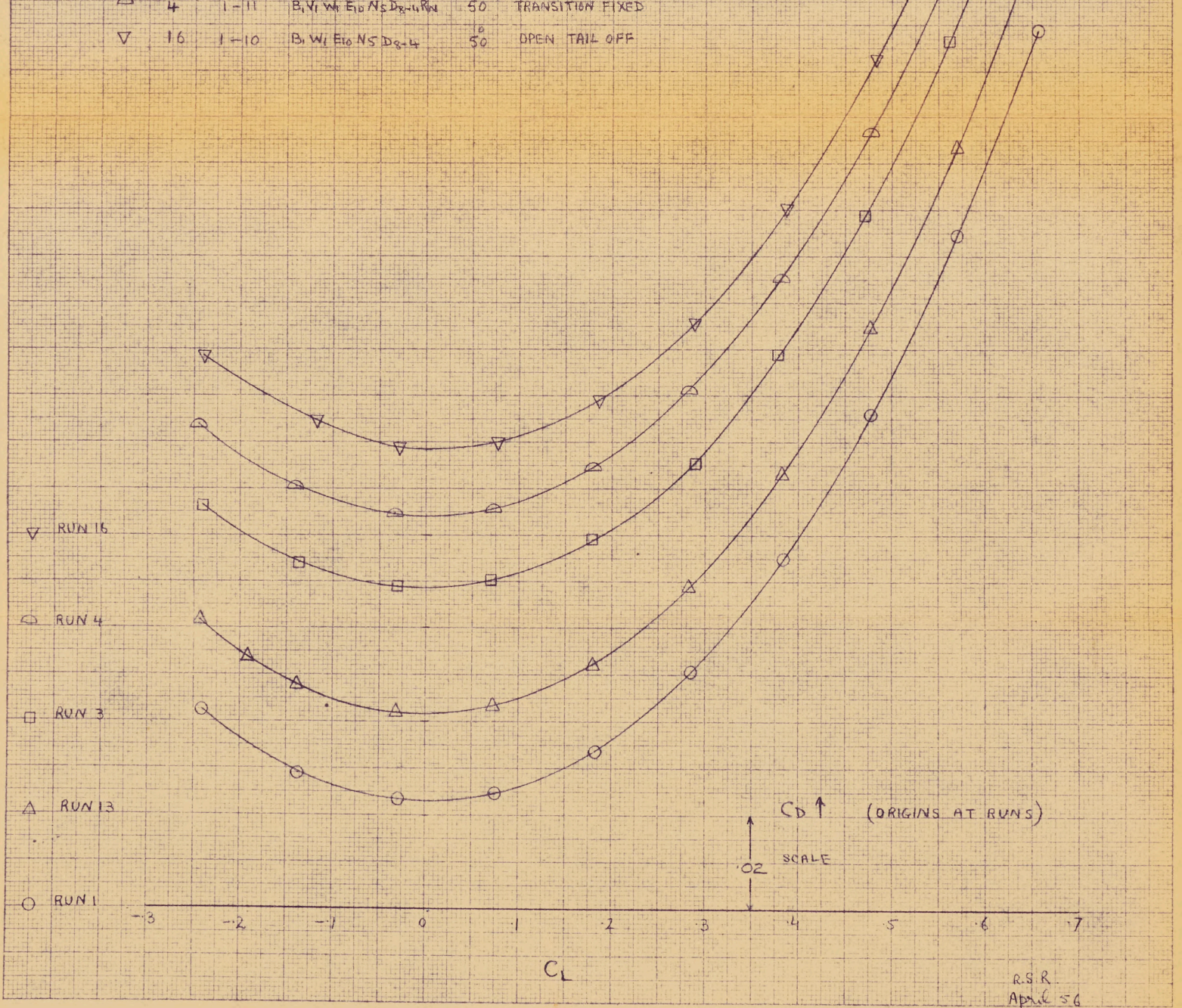
M = 1.41

(BASE PRESSURE CORRECTION NOT APPLIED)

	RUN	POINTS	CONFIGURATION	RADOME	INTAKES
○	1	14-23	$B_1V_1W_1E_{10}N_5D_{8-4}$	50°	OPEN
△	13	1-11	$B_{1-1}V_1W_1E_{10}N_5D_{8-4}$	30°	OPEN
□	3	1-10	$B_1V_1W_1E_{10}N_5D_{8-4}F_D$	50°	FAIRED
⌓	4	1-11	$B_1V_1W_1E_{10}N_5D_{8-4}R_N$	50°	TRANSITION FIXED
▽	16	1-10	$B_1W_1E_{10}N_5D_{8-4}$	50°	OPEN TAIL OFF



□	4	1–11	$B_1 V_1 W_1 E_{10} N_5 D_{8-4} R_N$	50	TRANSITION FIXED
▽	16	1–10	$B_1 W_1 E_{10} N_5 D_{8-4}$	50	OPEN TAIL OFF



P/WT/111 Shr. 2.1 #2.4

C-105

03 LANGLEY MODEL

C_D vs C_L

M = 1.41

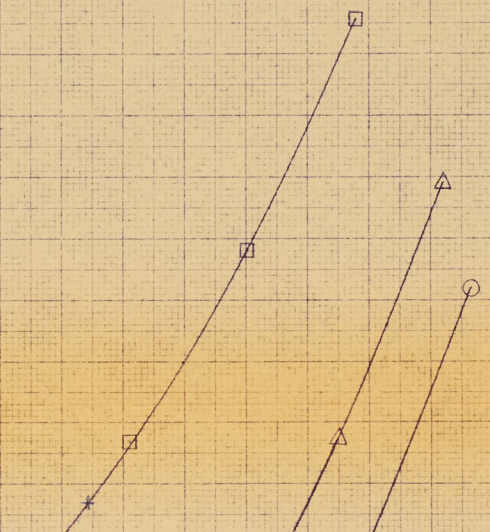
CONFIGURATION

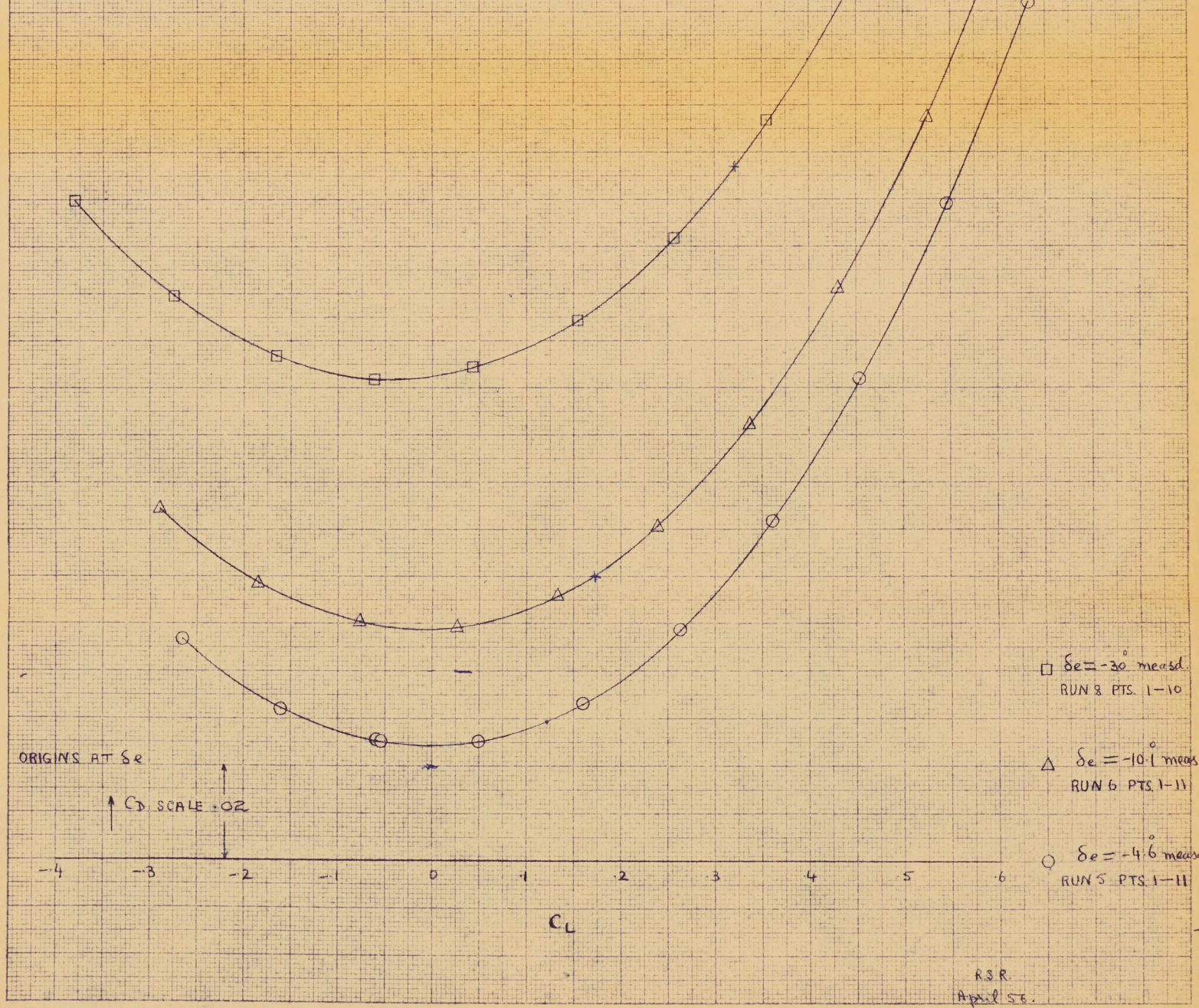
(BASE PRESSURE CORRECTION NOT APPLIED)

$B_1 V_1 W_1 E_{1a} N_5 D_{8-4}$

50° CONICAL RADOME

INTAKES OPEN





RSR P/WT/111 Sheet 2.7 April 56

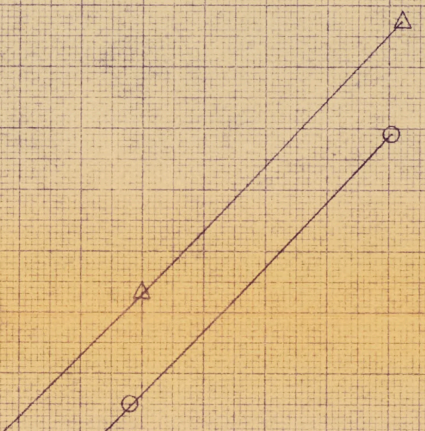
C-105

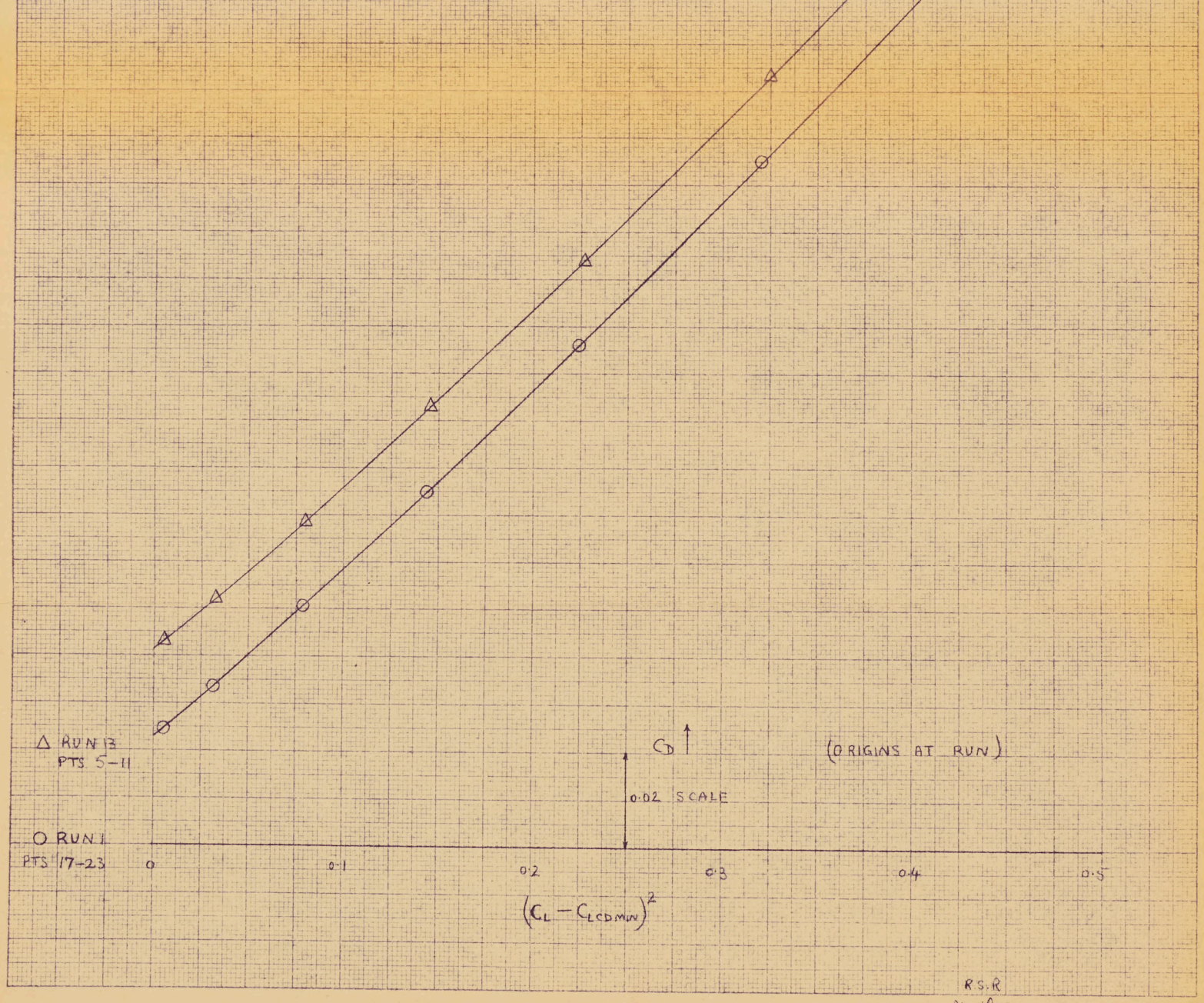
.03 LANGLEY MODEL

C_D vs $(C_L - C_{L_{CDMIN}})^2$

M = 1.41

RUN	CONFIGURATION	RADOME	INTAKE
1	$B_1 V_1 W_1 E_{10} N_5 D_{8-4}$	50°	OPEN
13	$B_{1-1} V_1 W_1 E_{10} N_5 D_{8-4}$	30°	OPEN





R.S.R
April 56

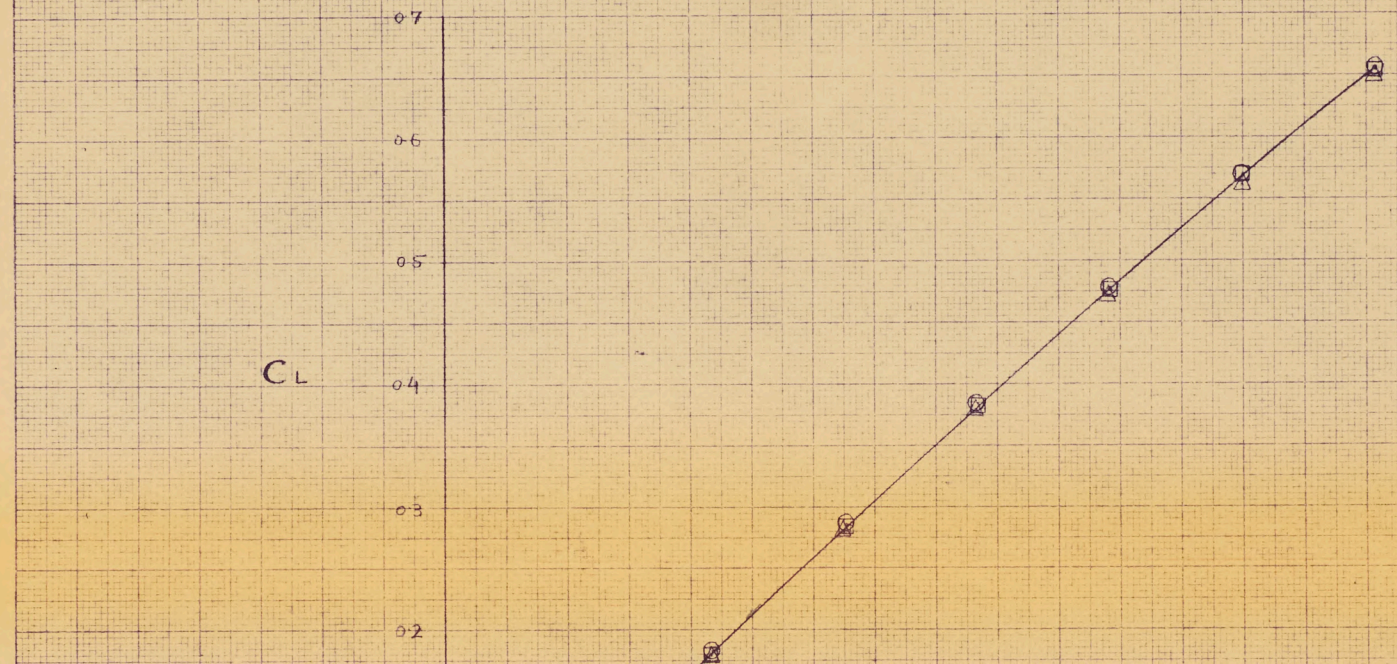
P/WT/111 Sht. 3.1

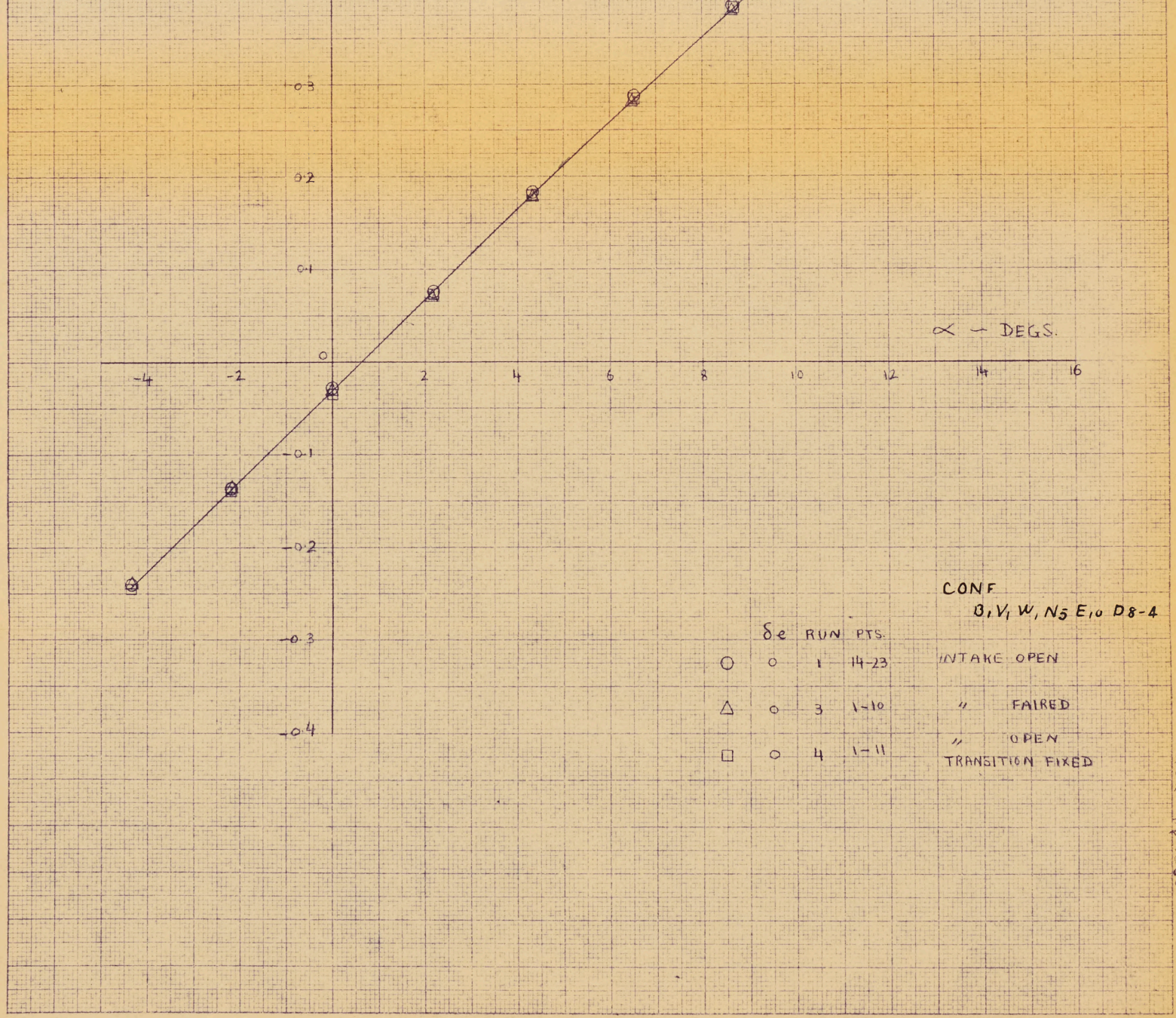
C-105

.03 LANGLEY MODEL

C_L vs α

M = 1.61





P/WT/111 Sht. 4.1.

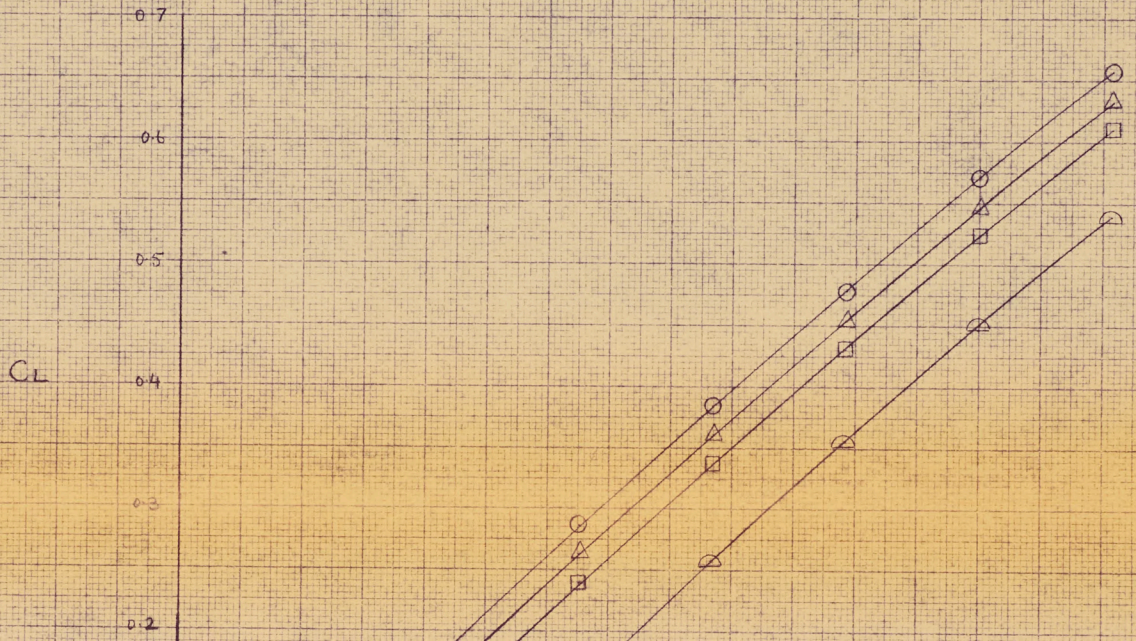
RSK April 63

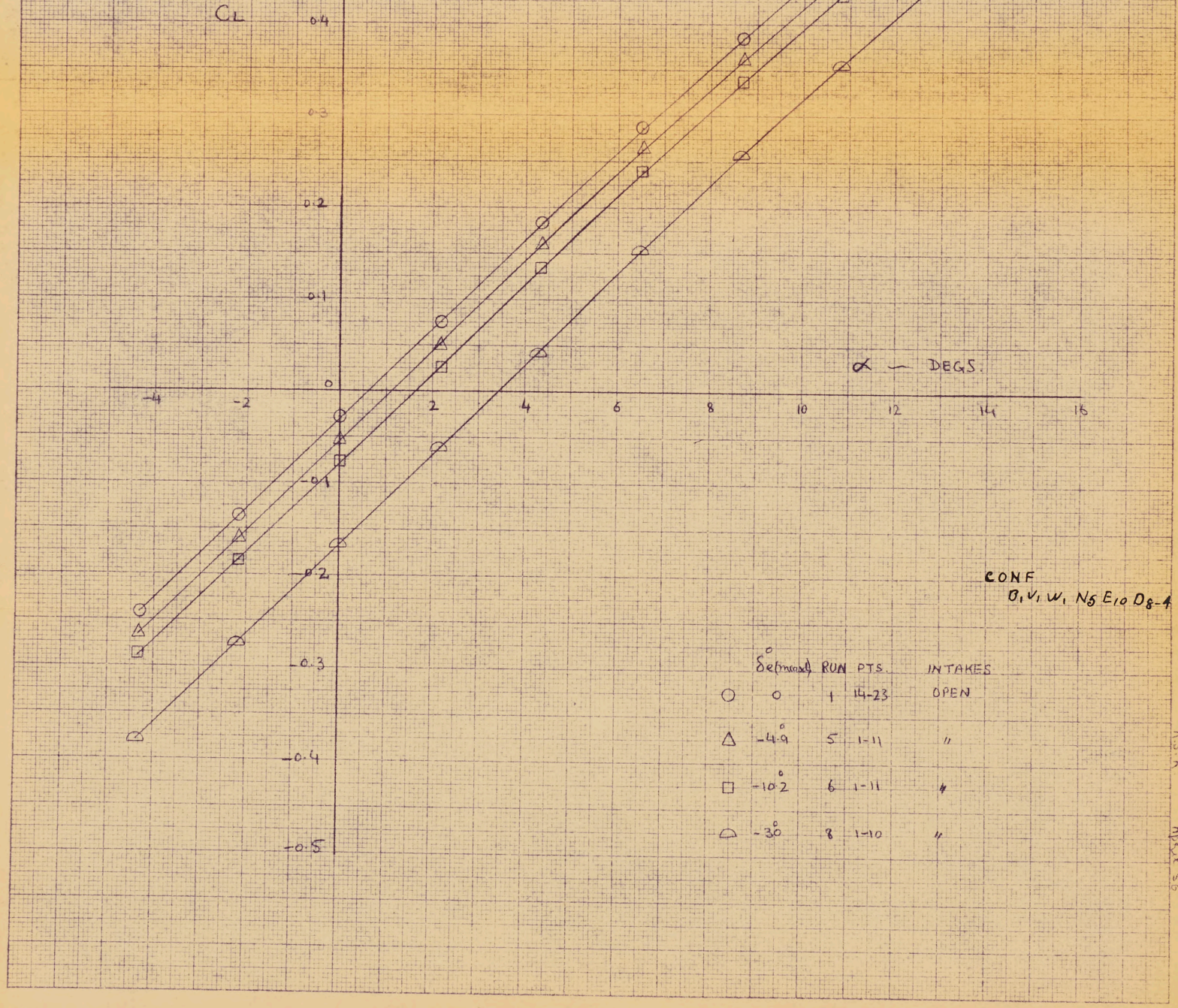
C-105

03 LANGLEY MODEL

C_L vs α

M = 1.91





P/WT/111 Sht. 4.7

RSR April 56

C-105
.03 LANGLEY MODEL

CONFIG. B, V, W, E_{10} N_5 D_{8-4}
50° CONICAL RADOME
INTAKES OPEN

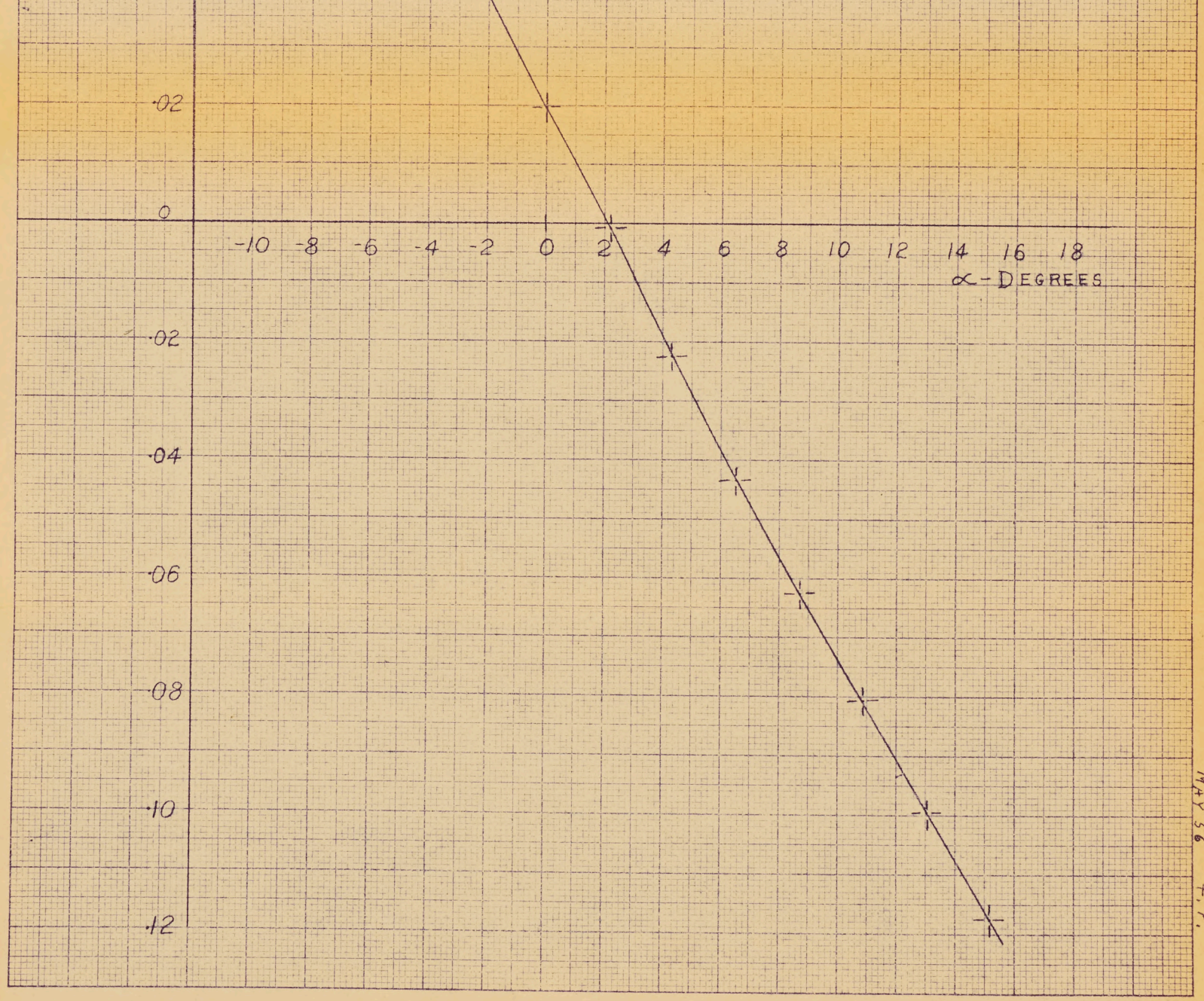
C_M vs. α

M = 1.41

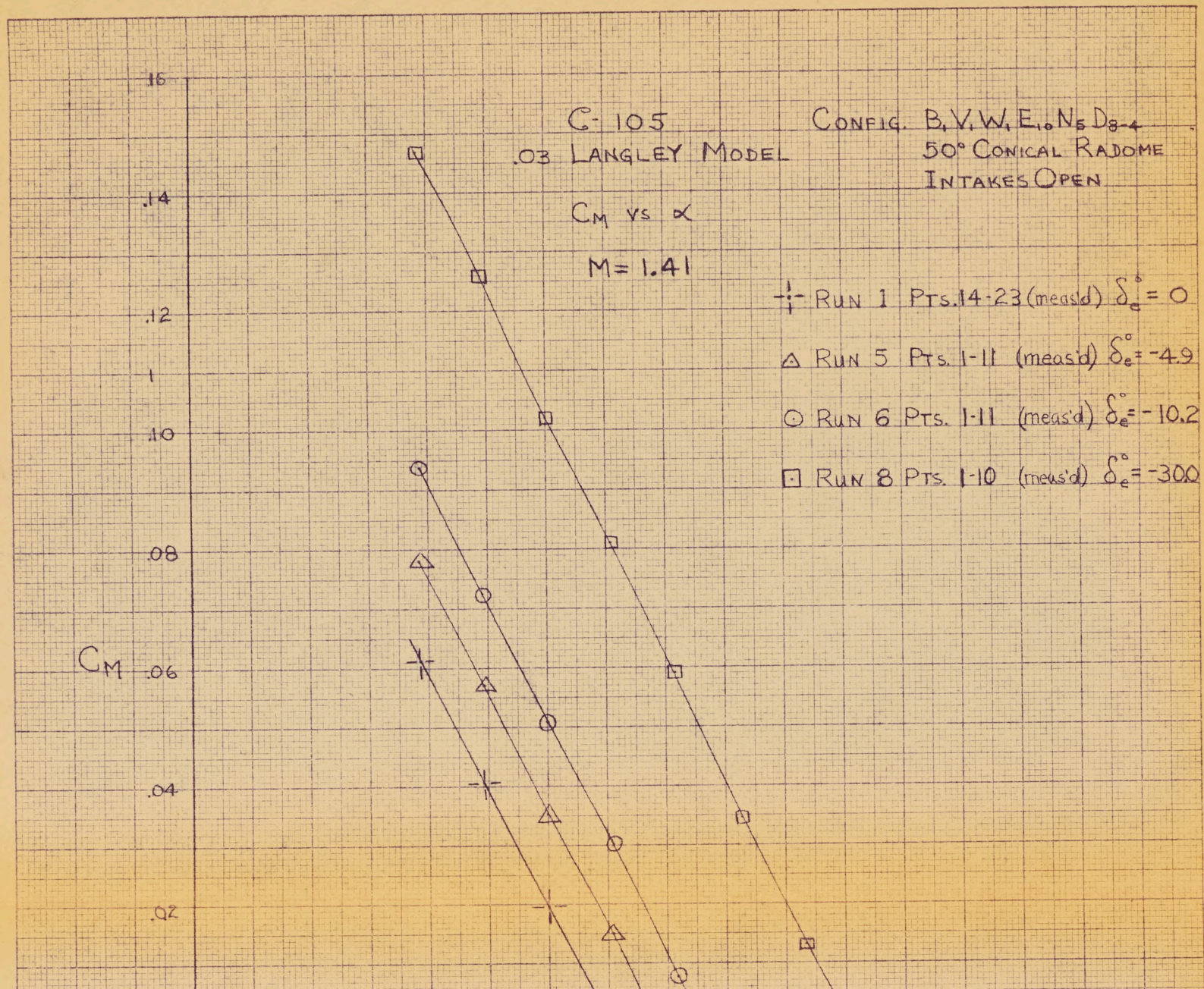
RUN 1 PTS. 14-23 (meas'd) $\delta_e^\circ = 0$

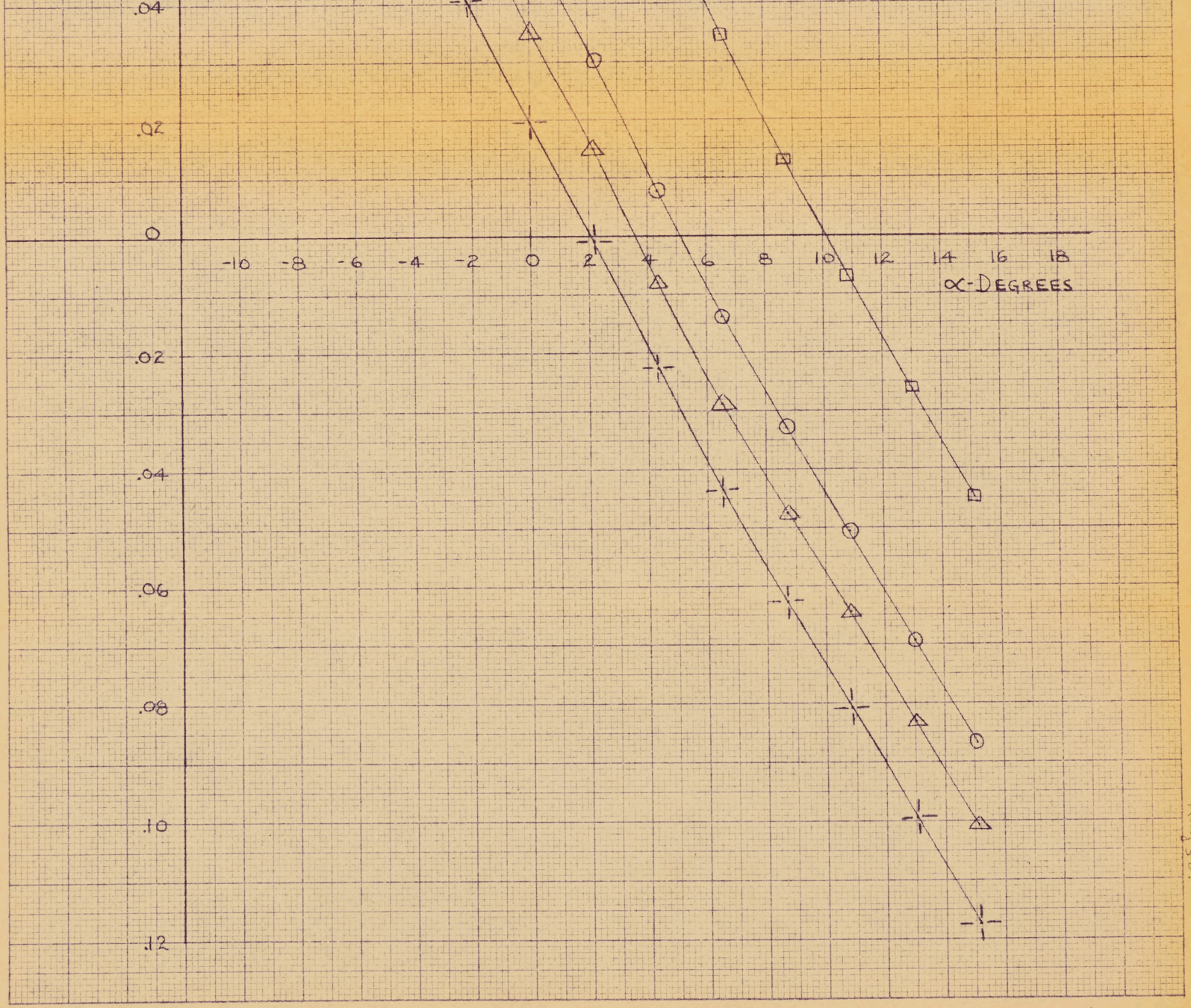
C_M

.16
.14
.12
.10
.08
.06
.04
.02
0



P/WT/111 SH. 5.1
M+Y 5.6 F.P.7





P/WT/111 SHT 5.7
may 52.
PAM.

C-105

.03 LANGLEY MODEL

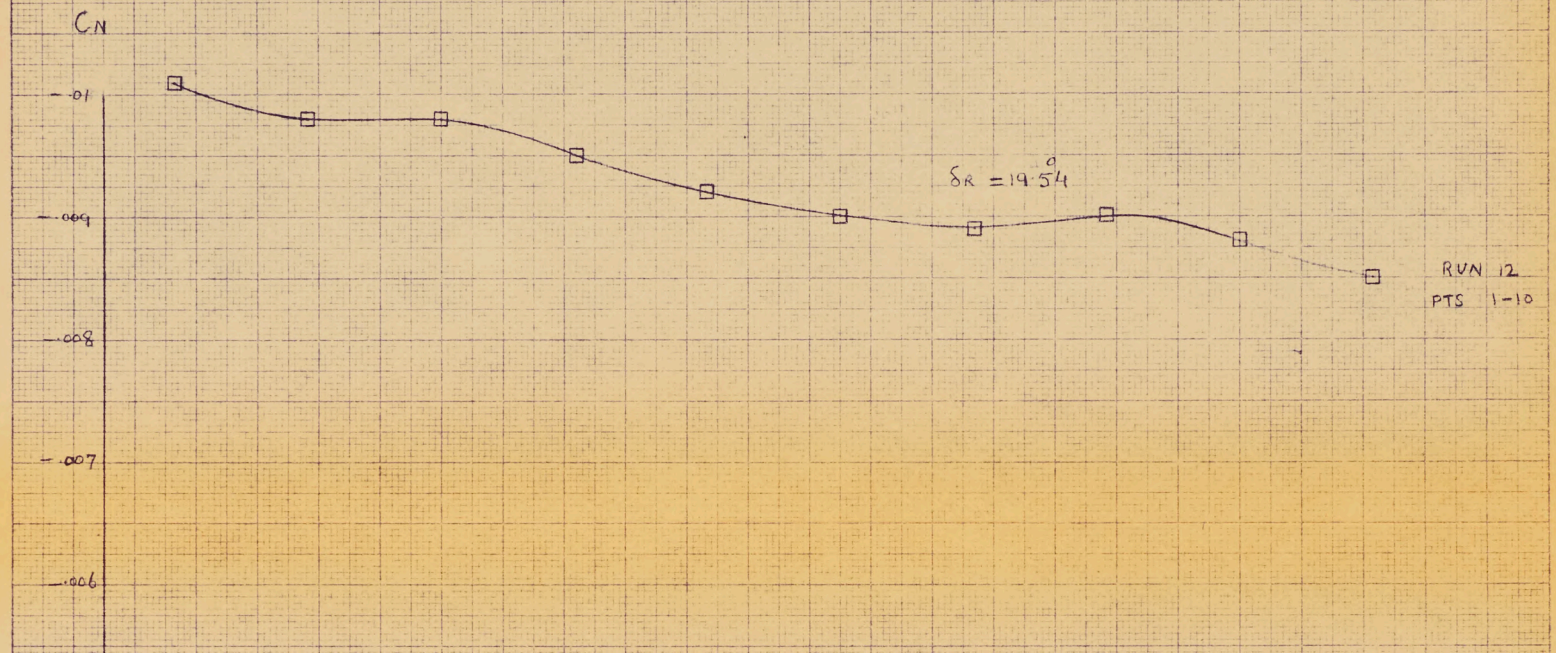
C_N vs α

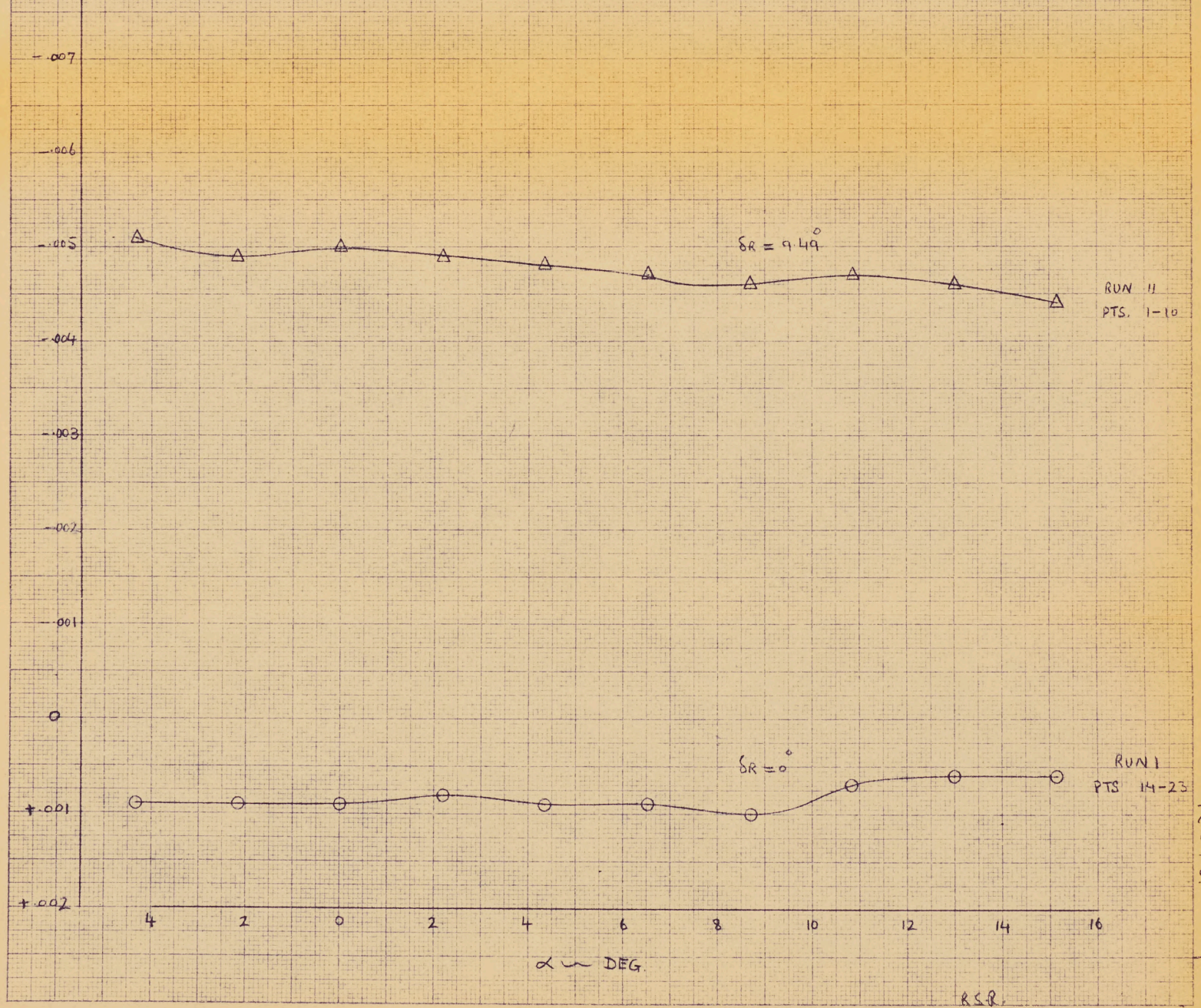
M=1.41

CONFIG. B, V, W, E, D, N, S, P_{8-4}

50° CONICAL RADOME

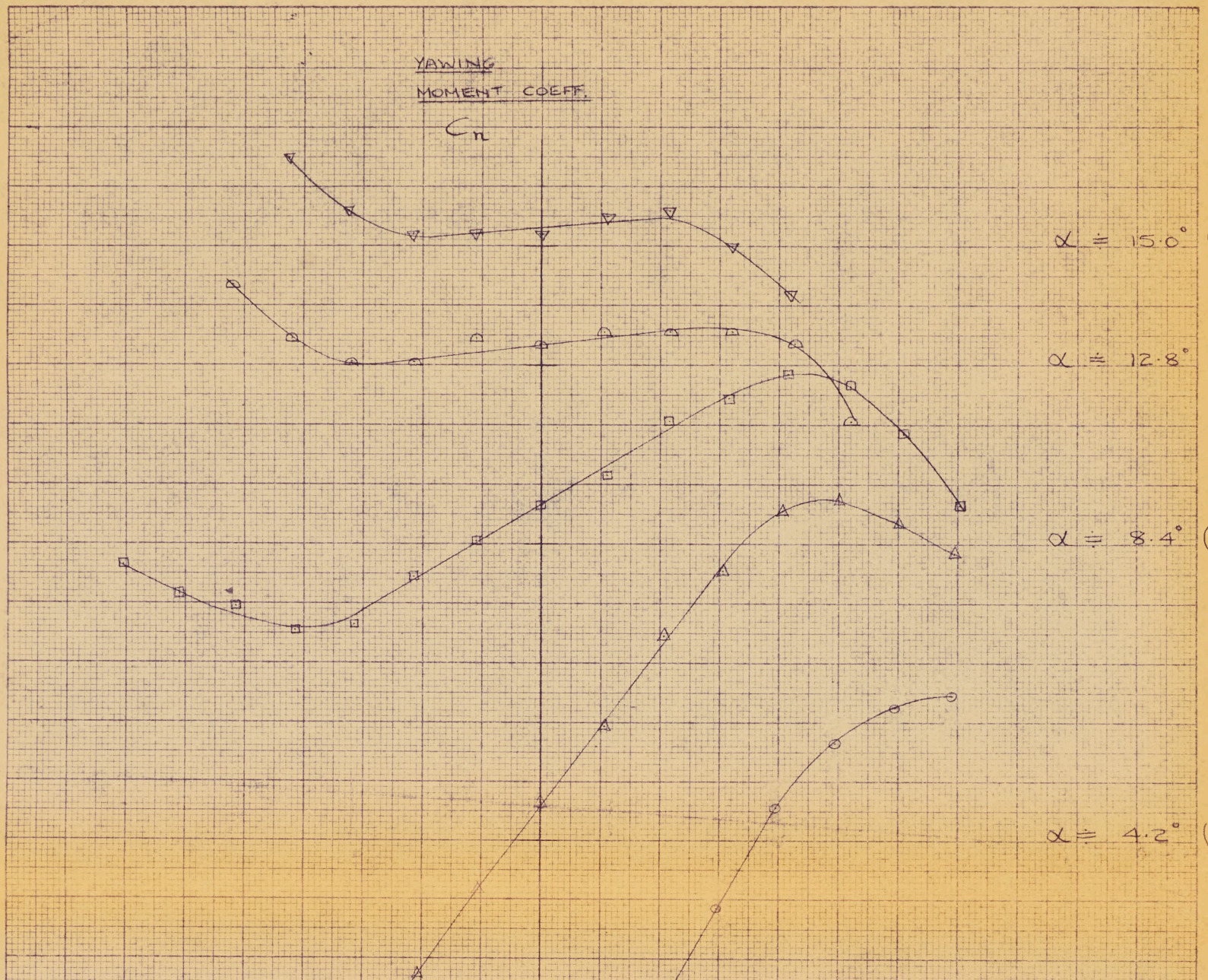
INTAKES OPEN

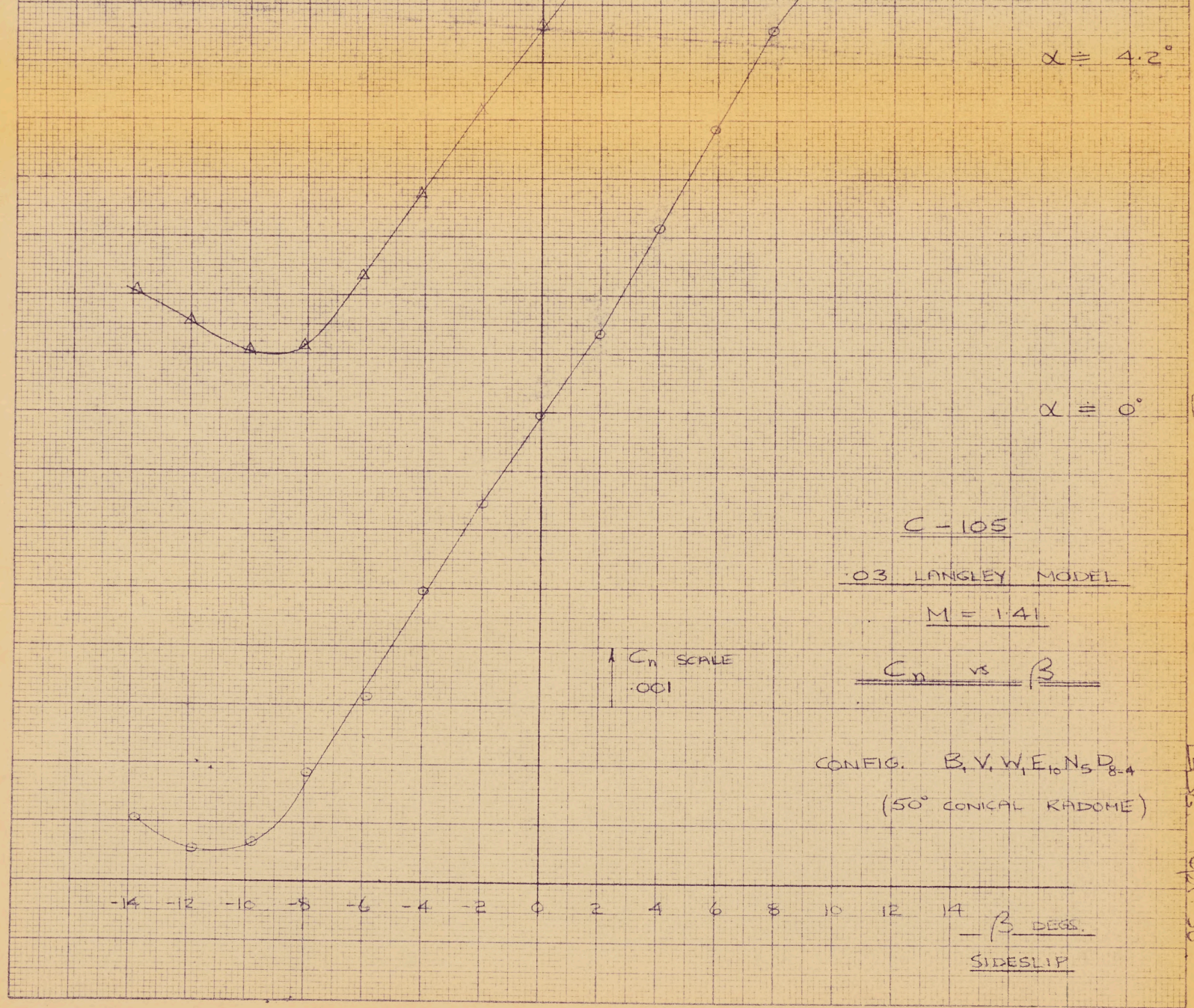


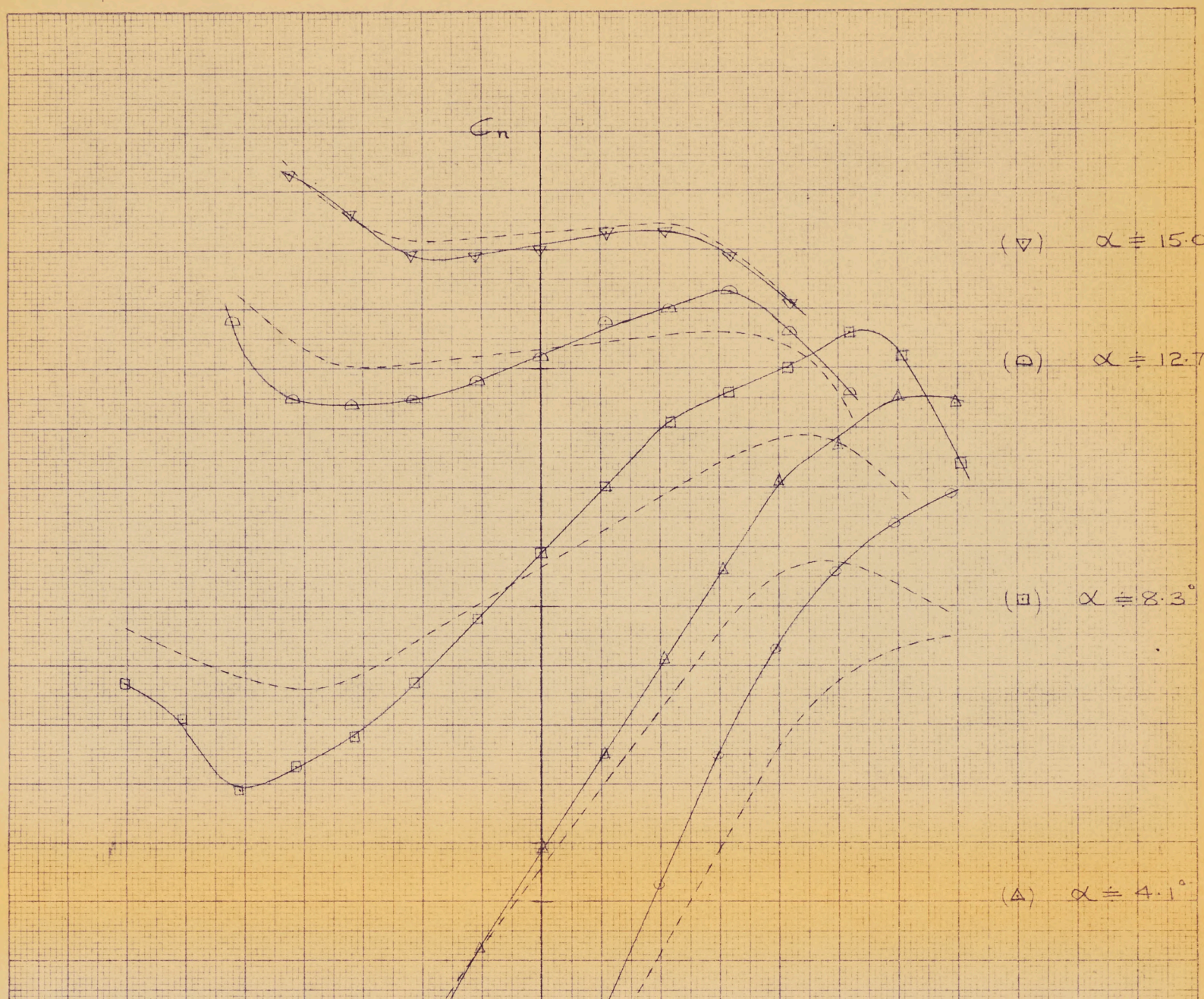


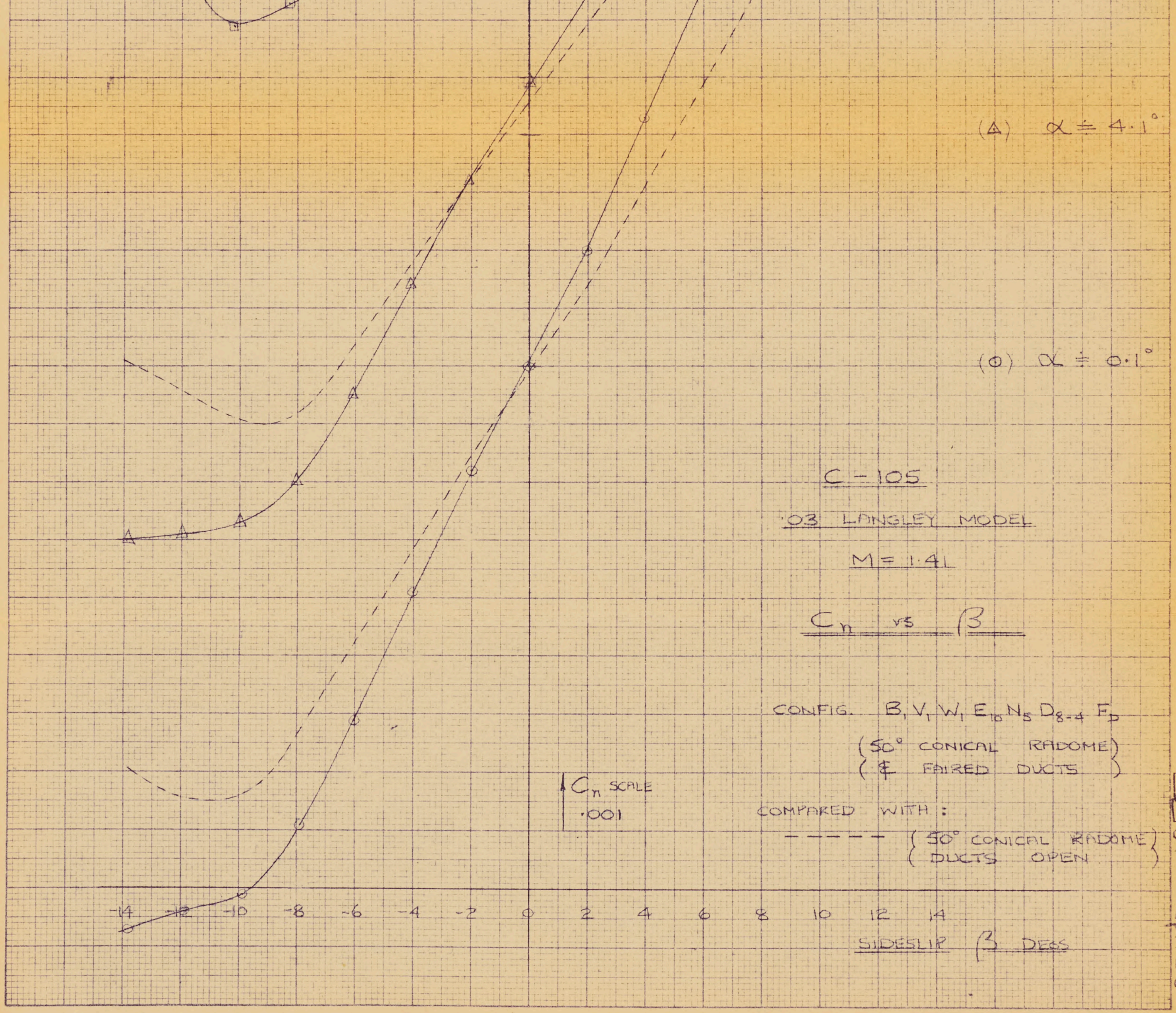
RSR.
April 56

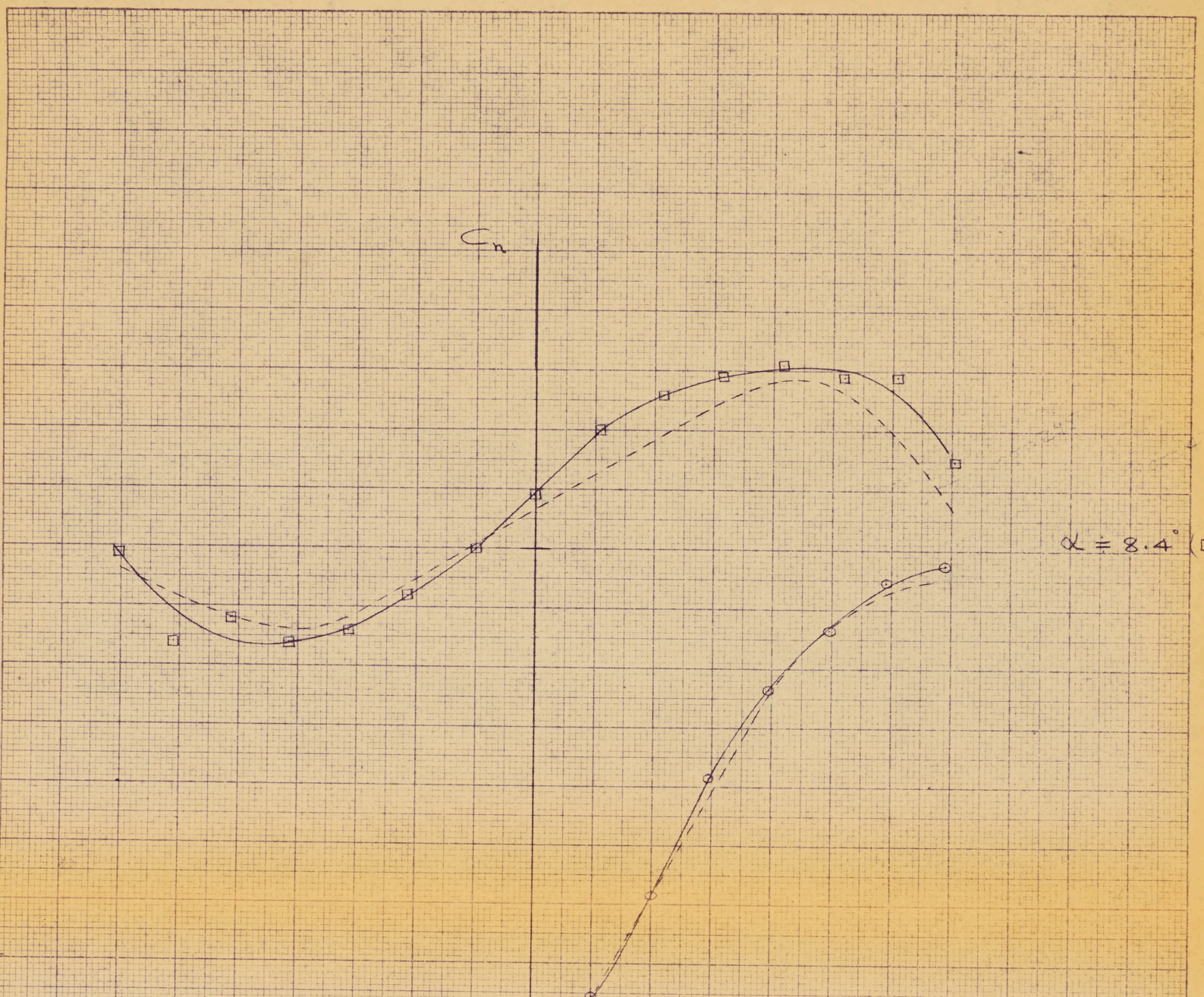
P/WT/111 Sht 7.5
RSR. Apr. 56.

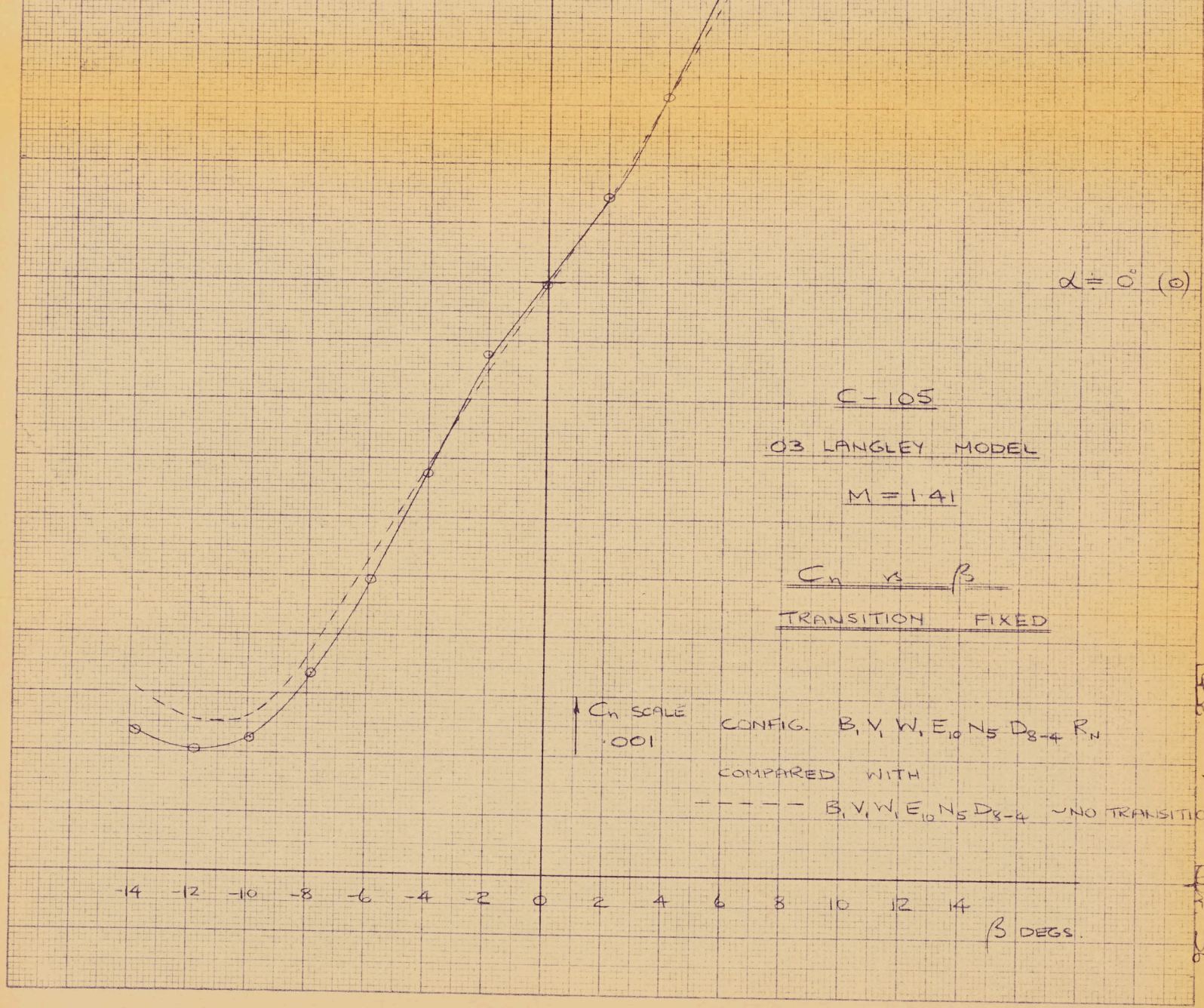



α = 4.2° (Δ)
α = 0° (○)
C - 105
.03 LANGLEY MODEL
M = 1.41
C_n vs β
C_n SCALE
.001
CONFIG. B, V, W, E_{10} N_5 D_{8-4}
(50° CONICAL RADOME)
-14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14
β DEGS.
SIDESLIP

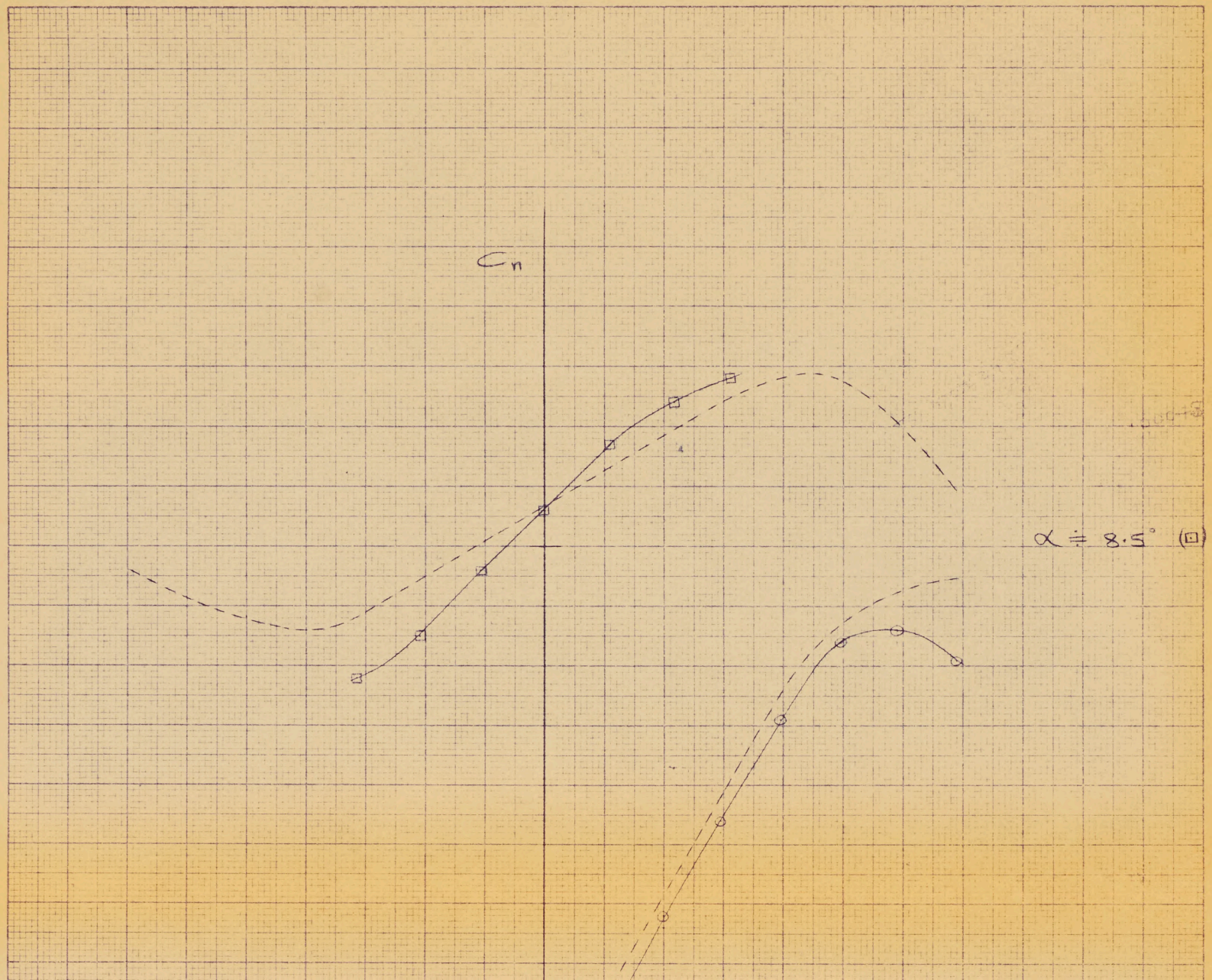


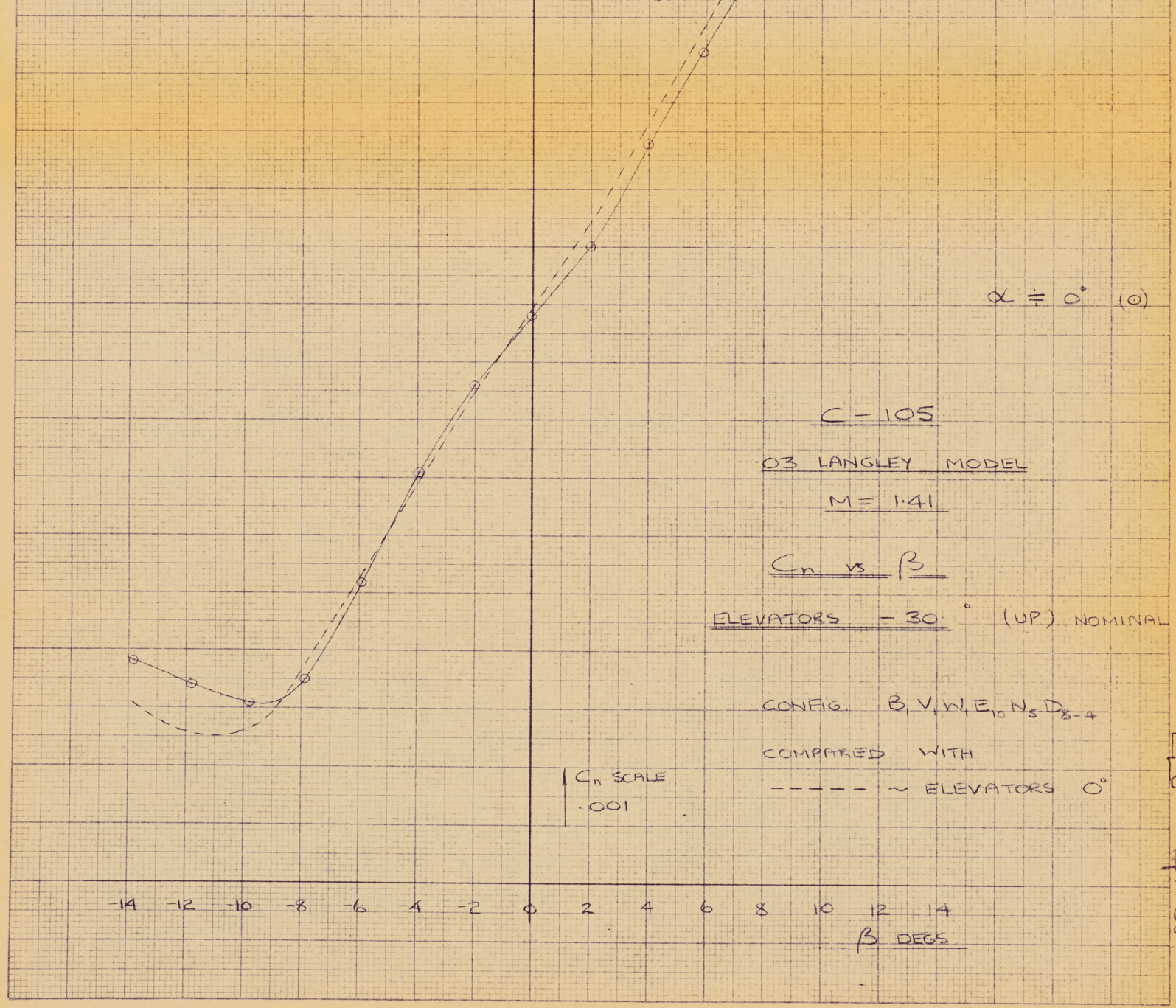

(Δ) α ≐ 4.1°
(⊙) α ≐ 0.1°
C-105
·03 LANGLEY MODEL
M = 1.41
Cn vs β
CONFIG. B1 V1 W1 E10 N5 D8-4 FP
(50° CONICAL RADOME)
(& FAIRED DUCTS)
COMPARED WITH :
- - - - - (50° CONICAL RADOME)
(DUCTS OPEN)
Cn SCALE
·001
-14
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
14
SIDESLIP β DEGS



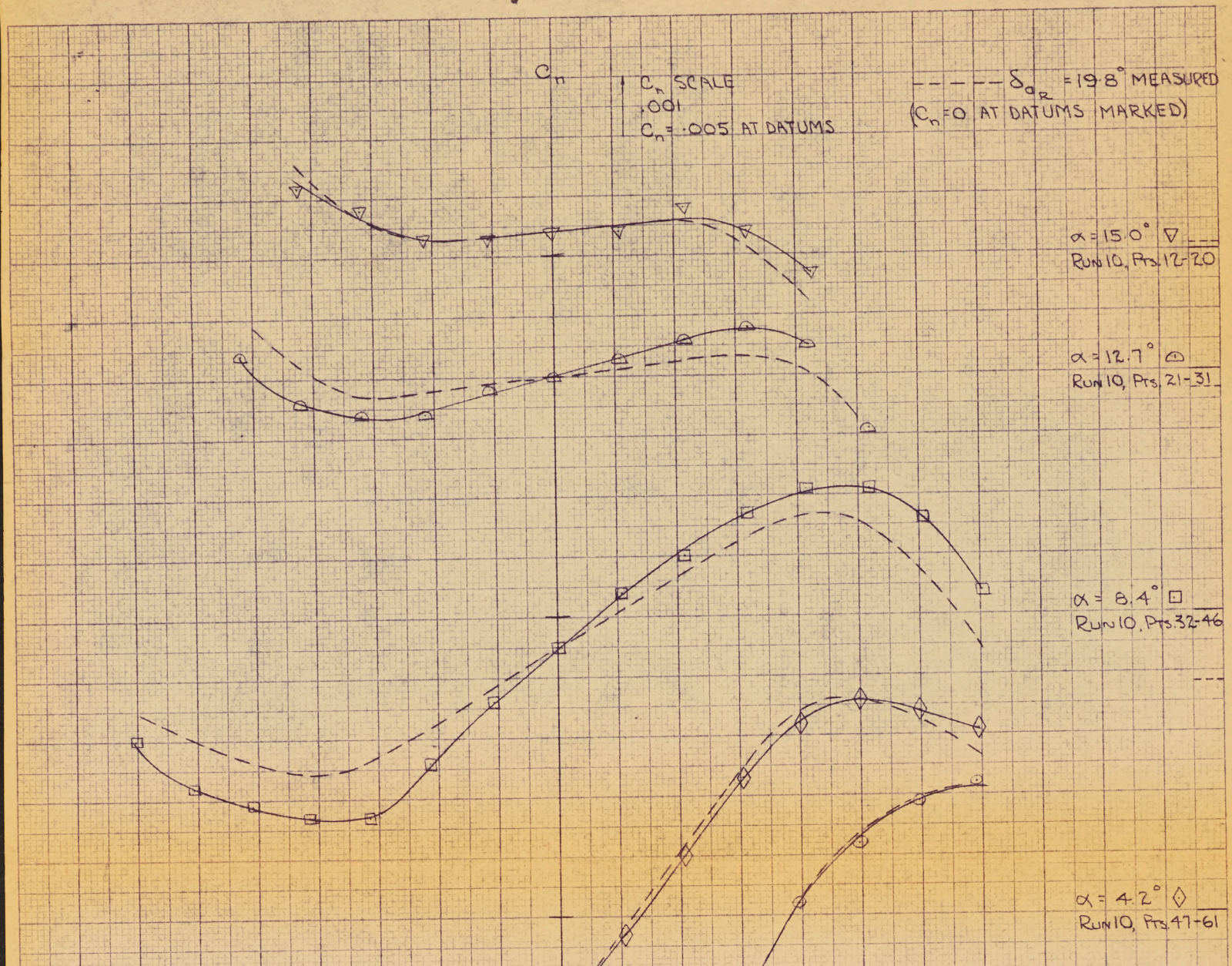


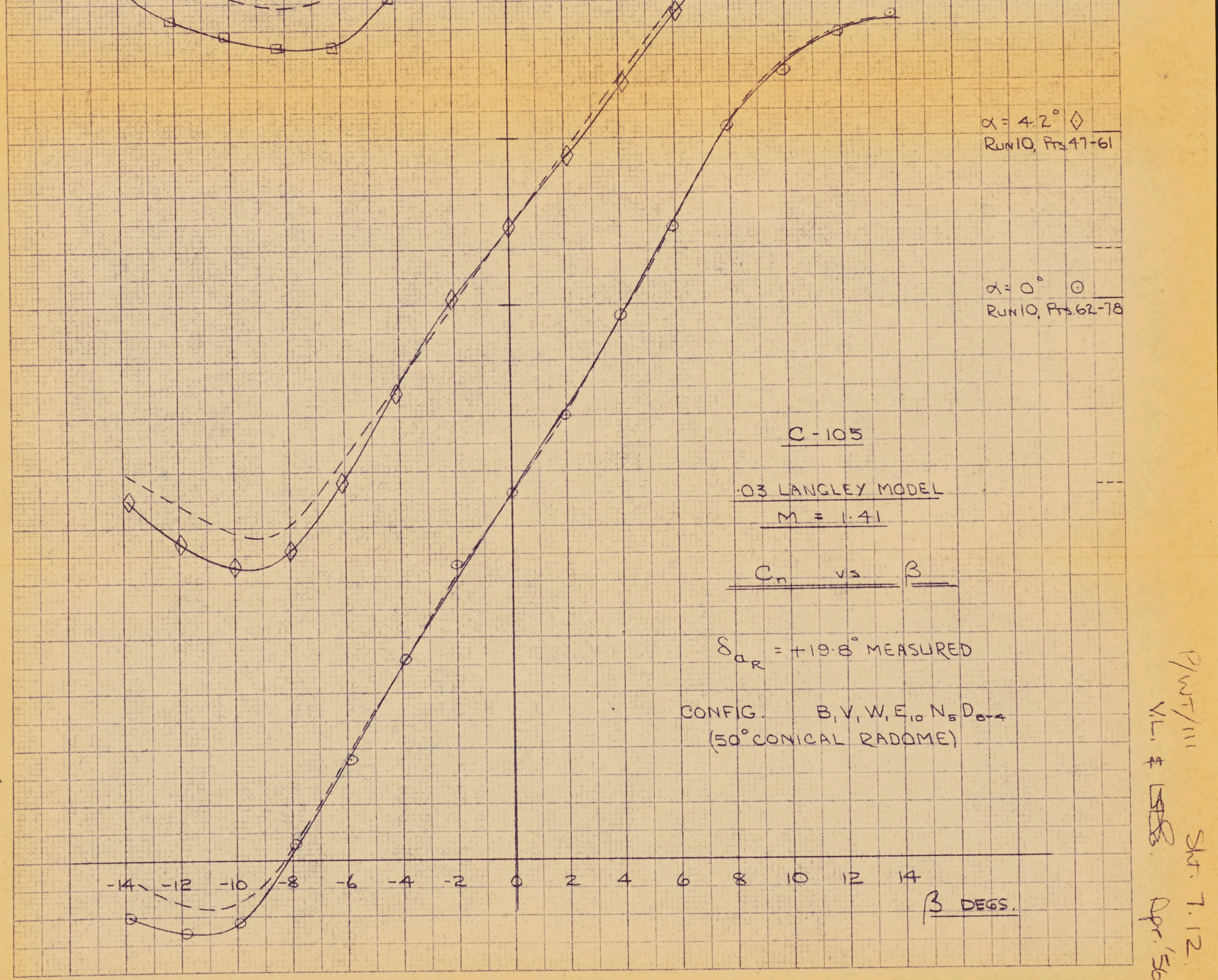
P/WT/111 Sht. 7.10 Rev. 5b



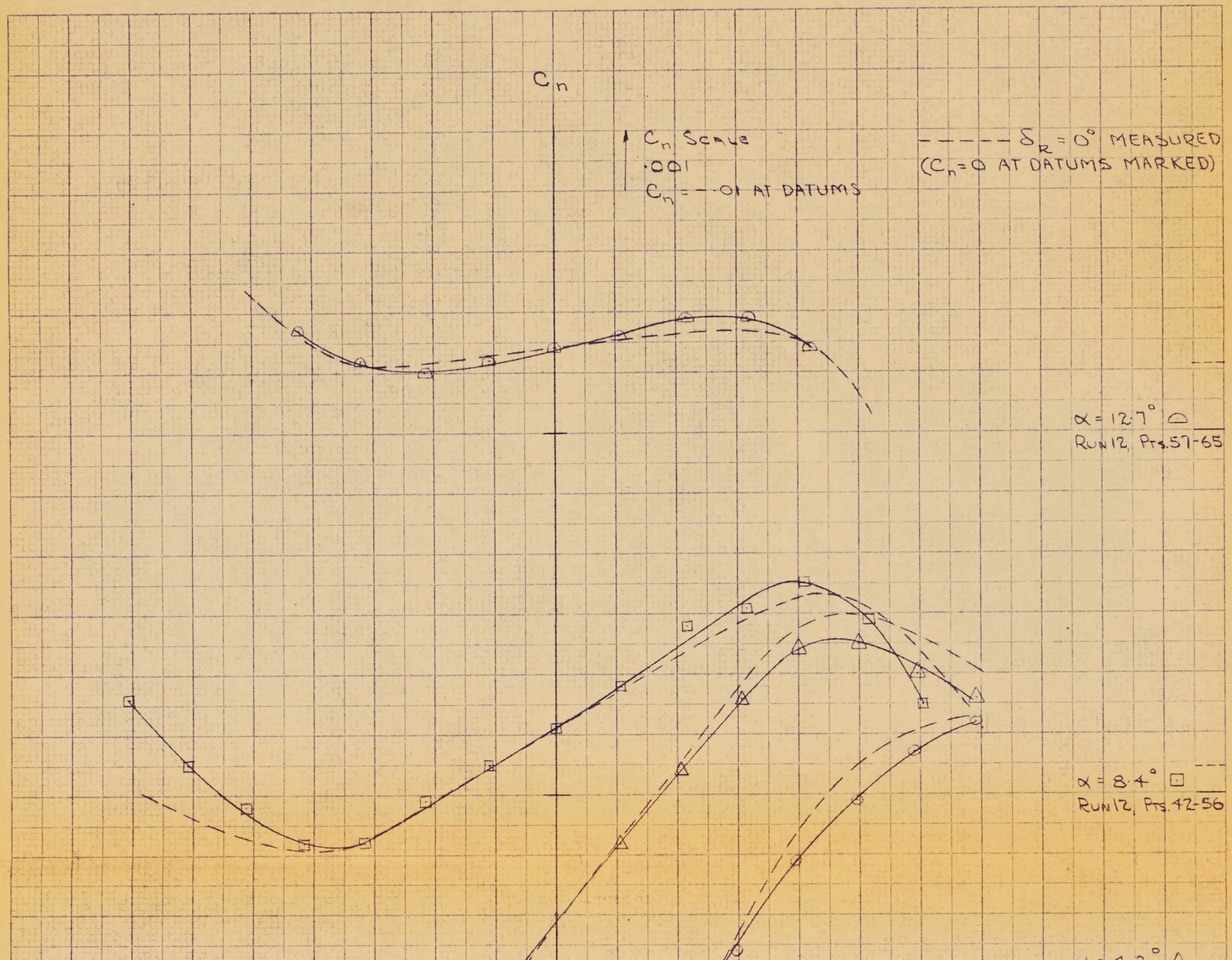


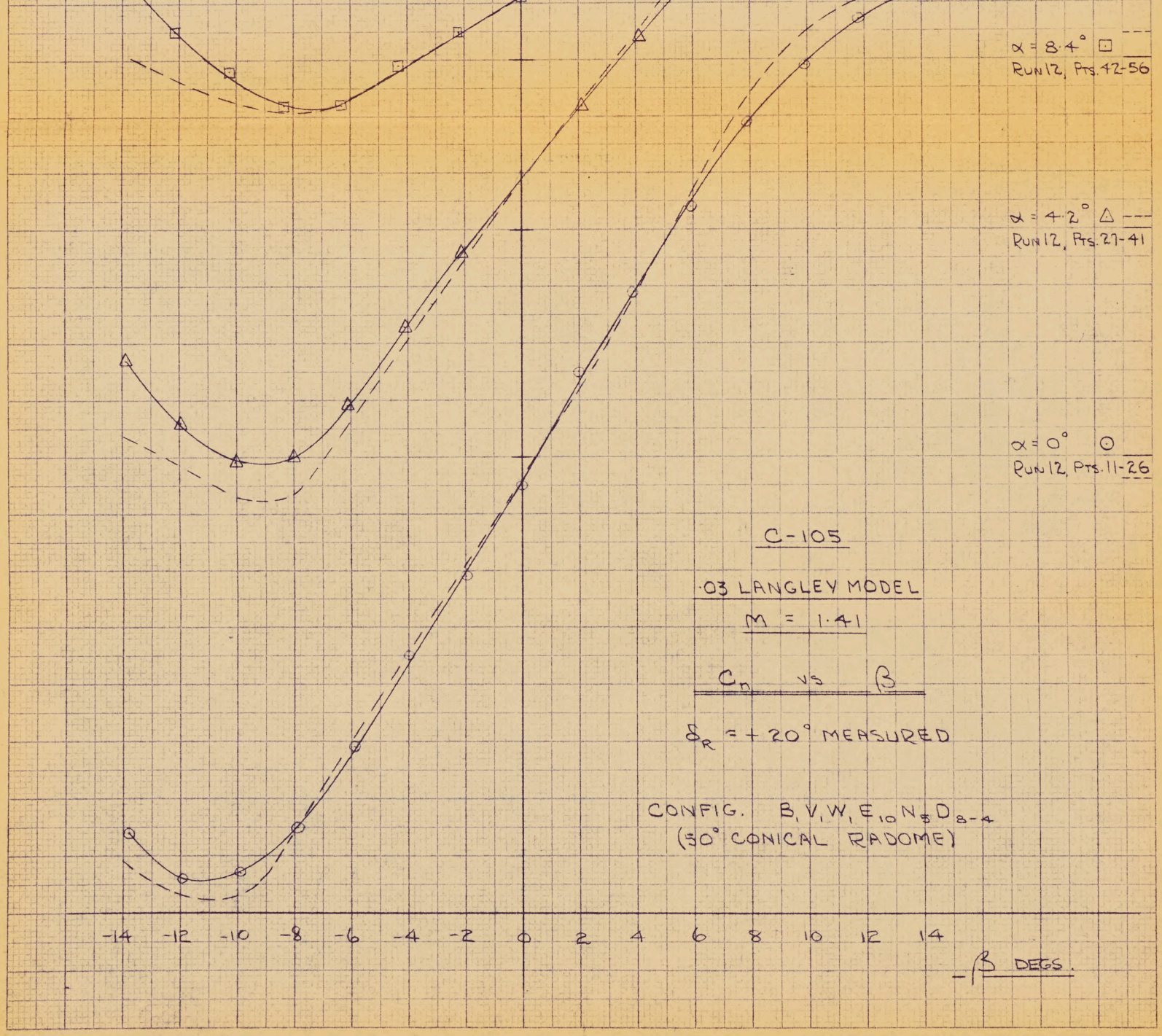
P/WT/111 Sht 7.11 Apr 56



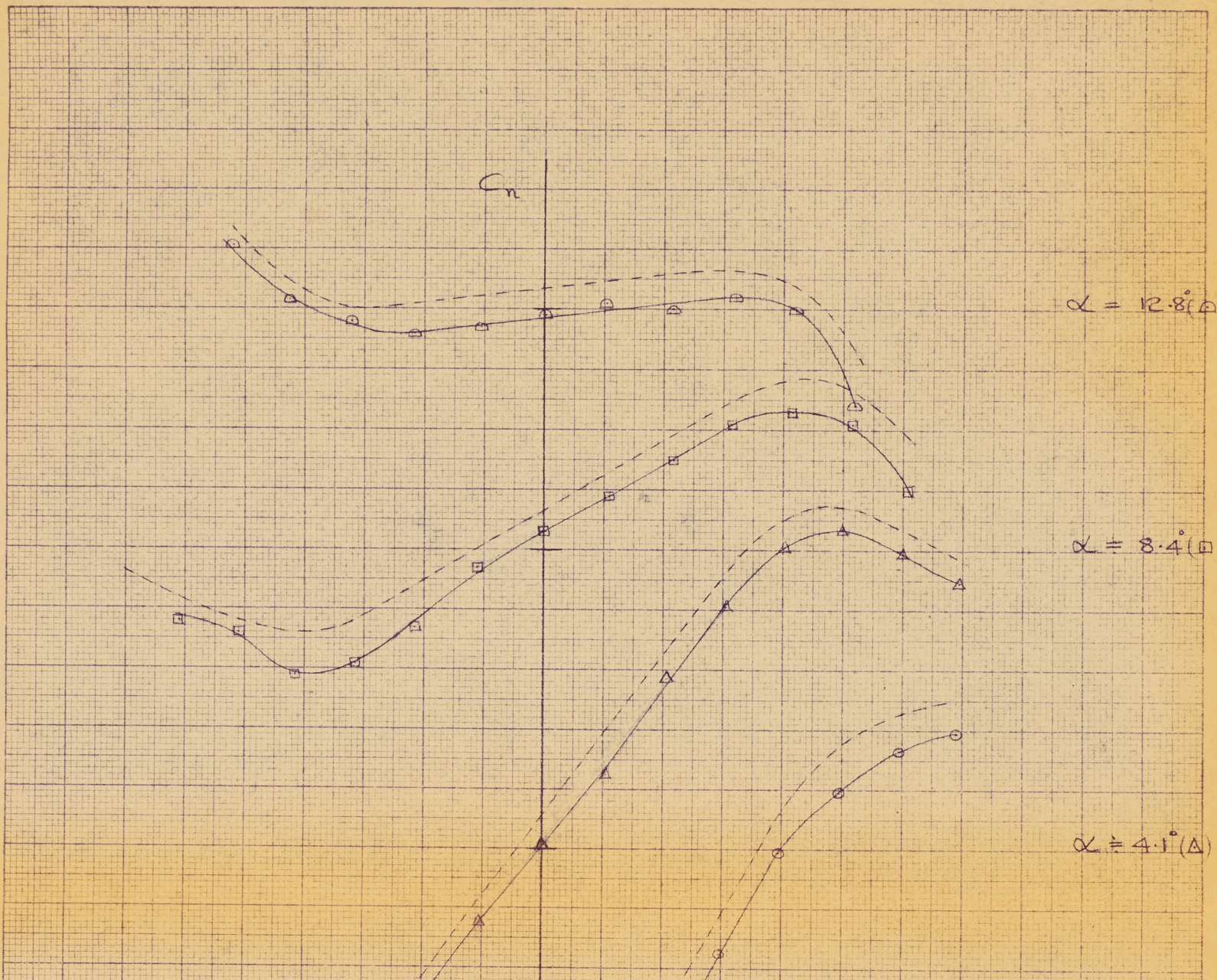


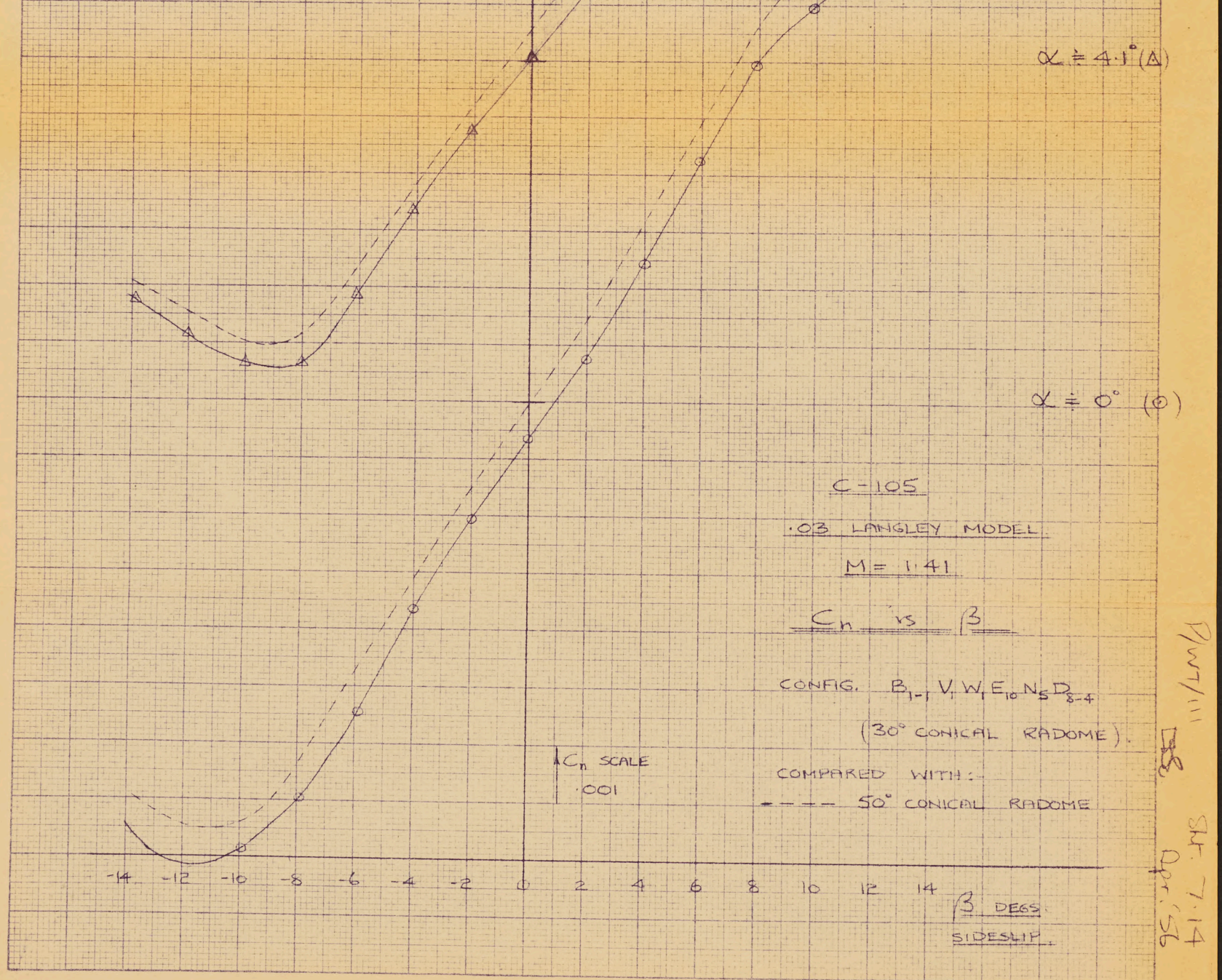
P/WT/111
Vol. # 1
Sht. 7.12.
Apr. '56.





PWT/111 Shr. 7.13.
V.L. & LTSD. Apr. 56.





P/WT/111 BS Apr. '56 SM. 7.14

C-105

.03 LANGLEY MODEL

C_n vs β ABOUT STABILITY AXES

M = 1.41

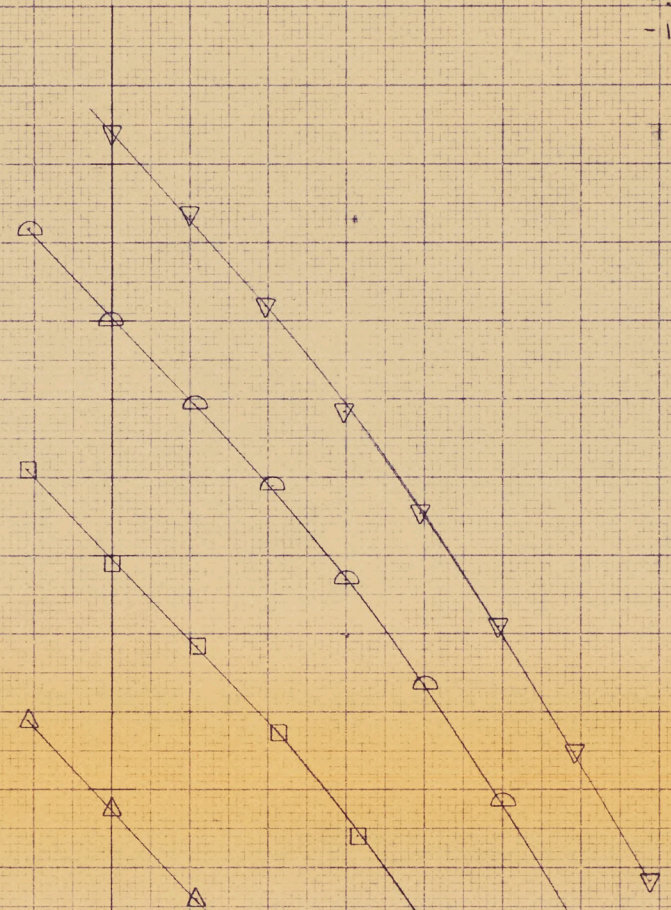
CONF. - $B, W, E_{10} N_5 D_{8-4} F_0$
- 50° CONICAL RADOME
- INTAKES FAIRED

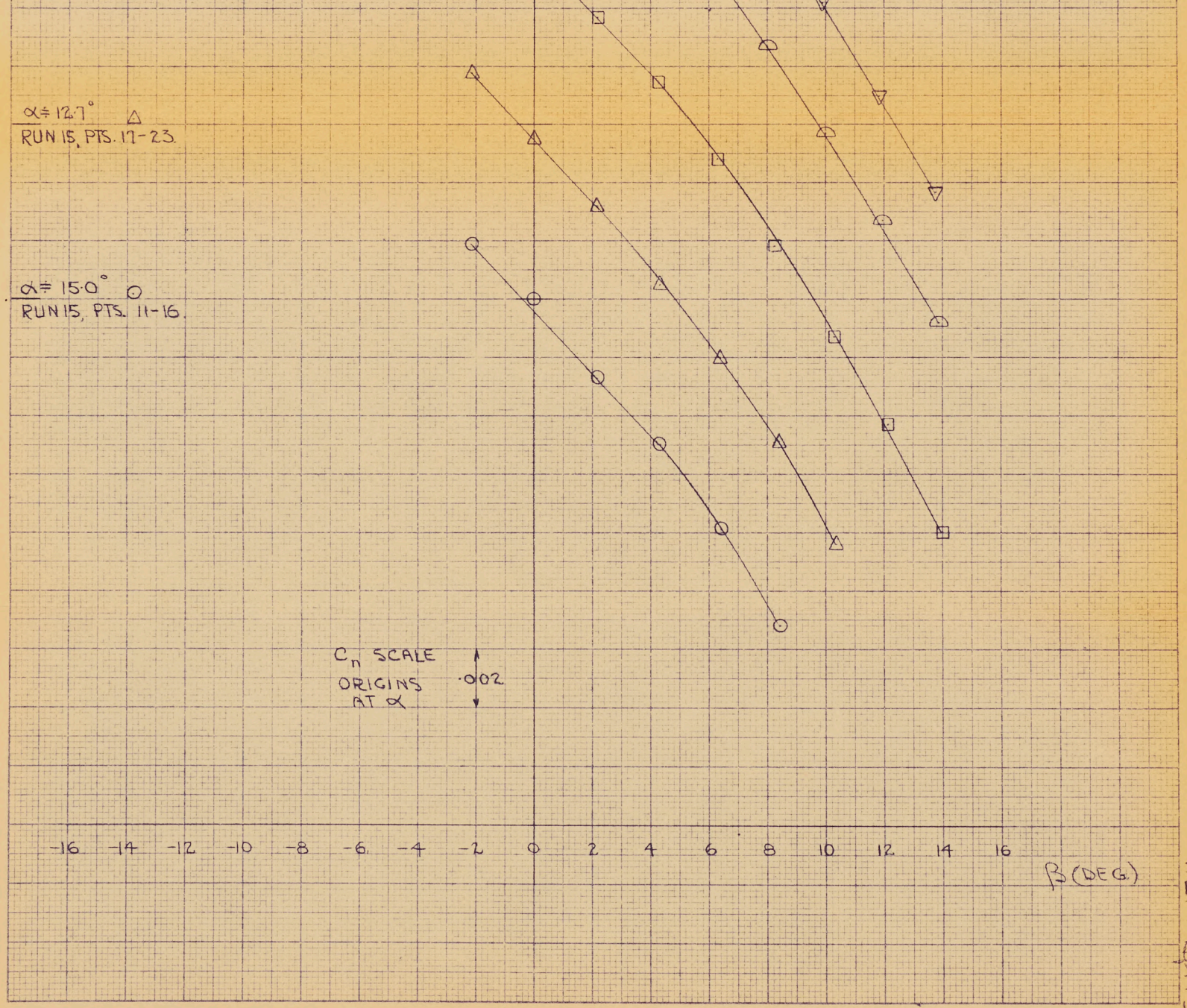
$\alpha = 0°$ ▽
RUN 15, PTS. 42-49.

$\alpha = 4.2°$ ⌓
RUN 15, PTS. 33-41.

$\alpha = 8.4°$ □
RUN 15, PTS. 24-32.

$\alpha = 12.7°$ △
RUN 15, PTS. 17-23.





APRIL 18/58

P/WT/111 Sht 7.16 V.L. Apr. 58

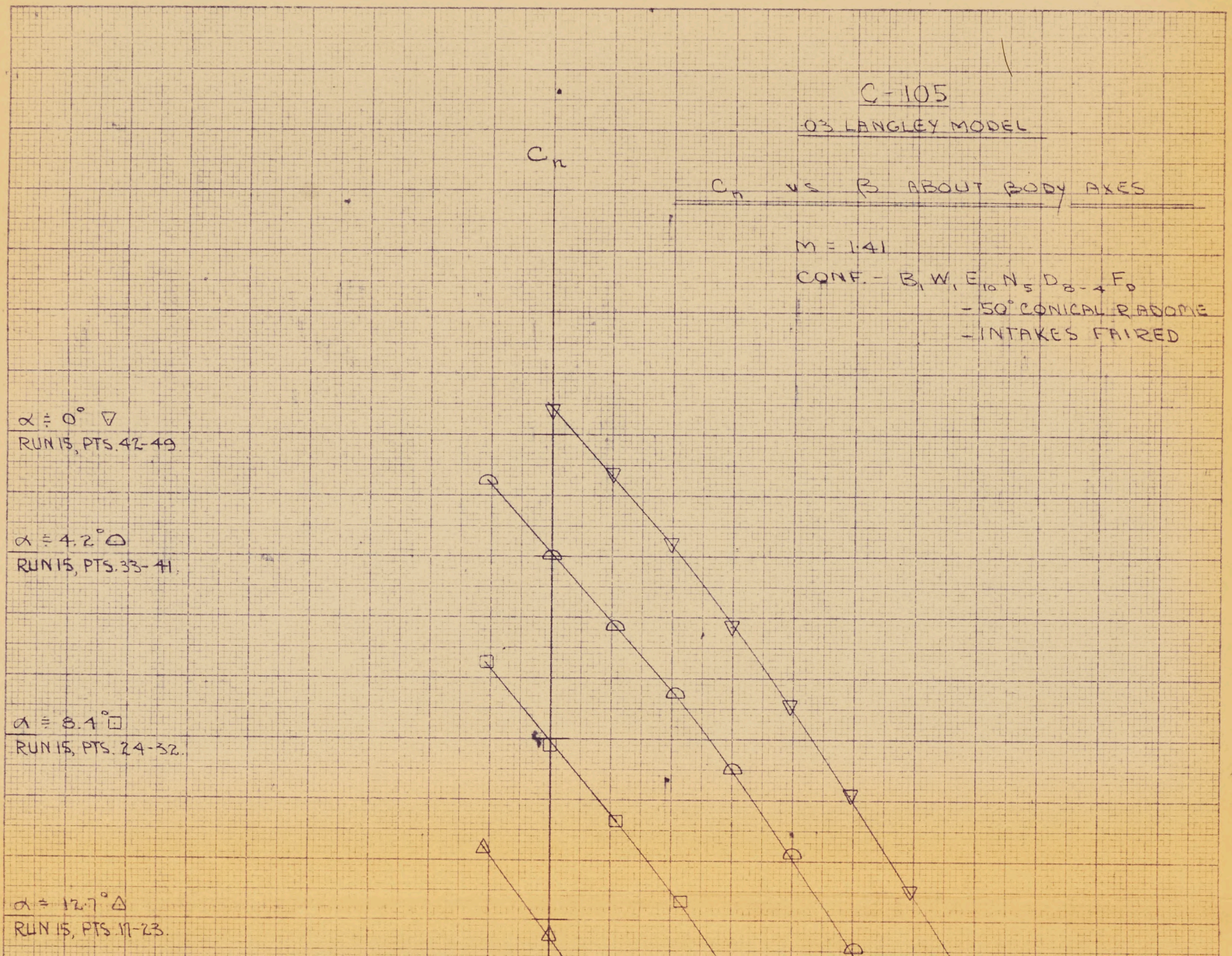
C-105

03 LANGLEY MODEL

C_n vs β ABOUT BODY AXES

M = 1.41

CONF. - $B_1 W_1 E_{10} N_5 D_{8-4} F_0$
- 50° CONICAL RADOME
- INTAKES FAIRED



RUN 15, PTS. 24-32.

α = 12.7° △

RUN 15, PTS. 17-23.

α = 15.0° ○

RUN 15, PTS. 11-16.

C_n SCALE

ORIGINS AT α

.002

-16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16

β (DEG.)

7-16-A.

P/WT/111

APRIL 18/56

C-105

.03 LANGLEY MODEL

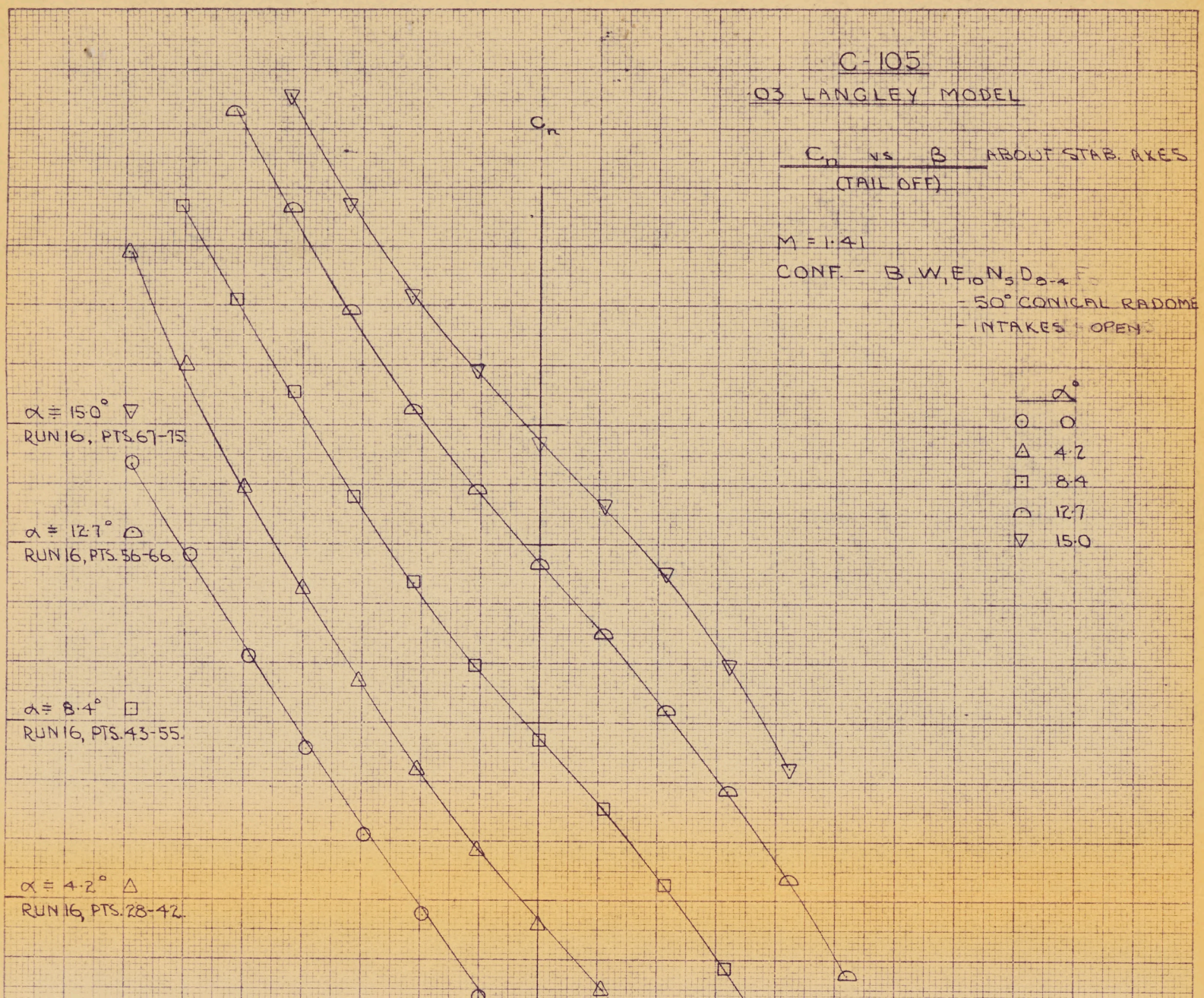
C_n vs β ABOUT STAB. AXES

(TAIL OFF)

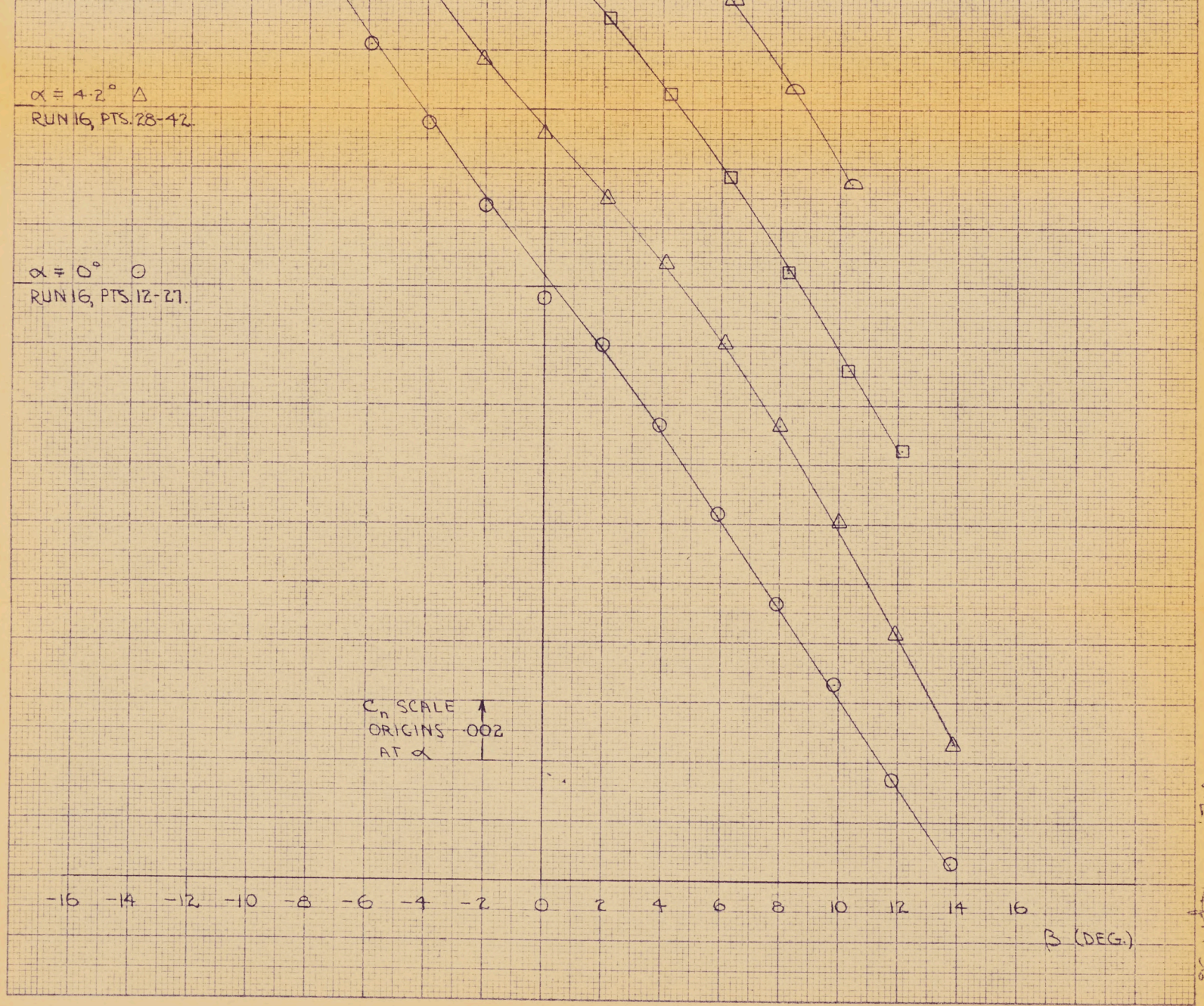
M = 1.41

CONF. - $B, W, E_{10} N_5 D_{8-4}$

- 50° CONICAL RADOME
- INTAKES OPEN



	α°
⊙	0
△	4.2
□	8.4
⌓	12.7
▽	15.0



P/NT/111 V.L. SHT 7.17 Apr. 56

APR. 17/56 DL

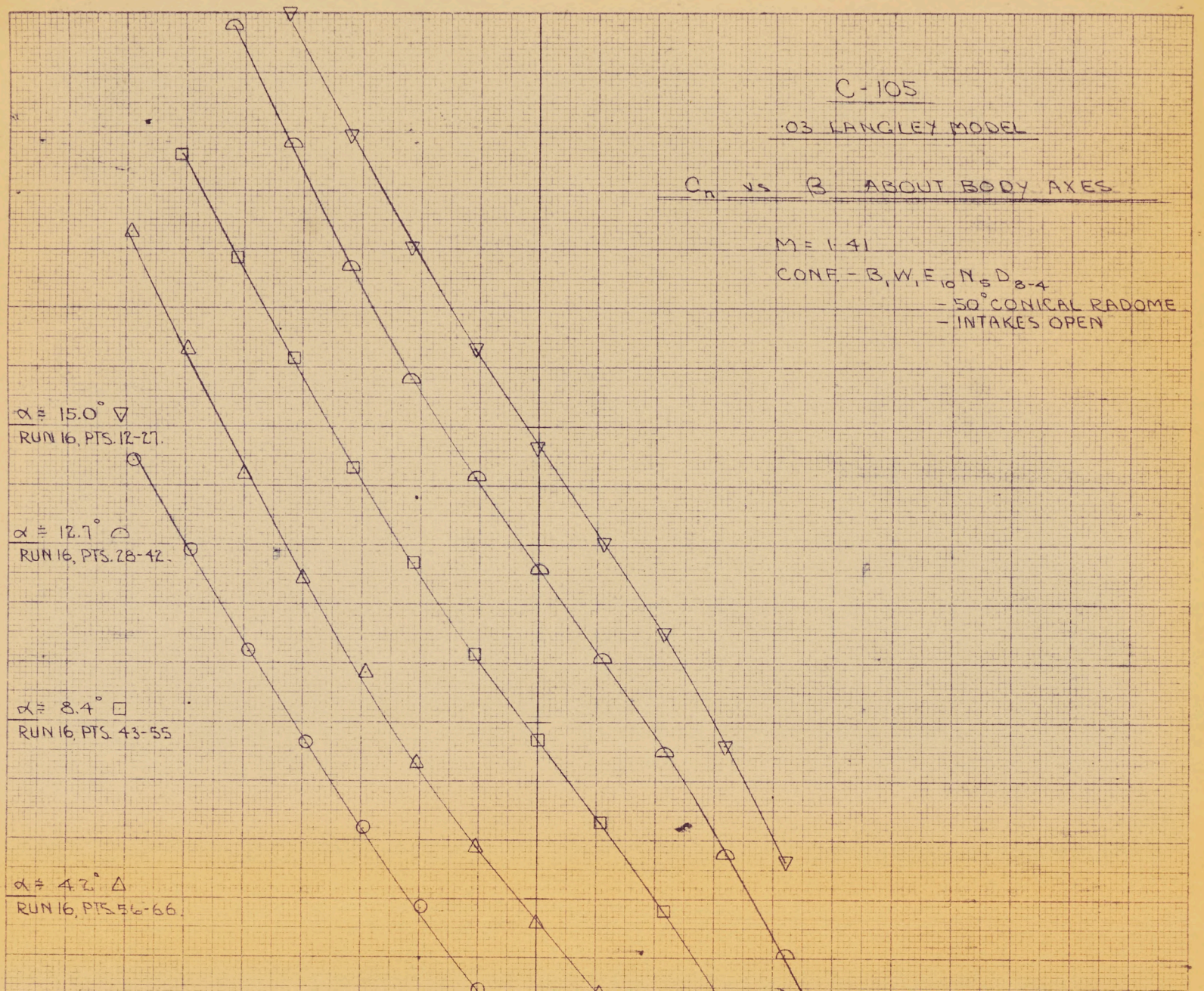
C-105

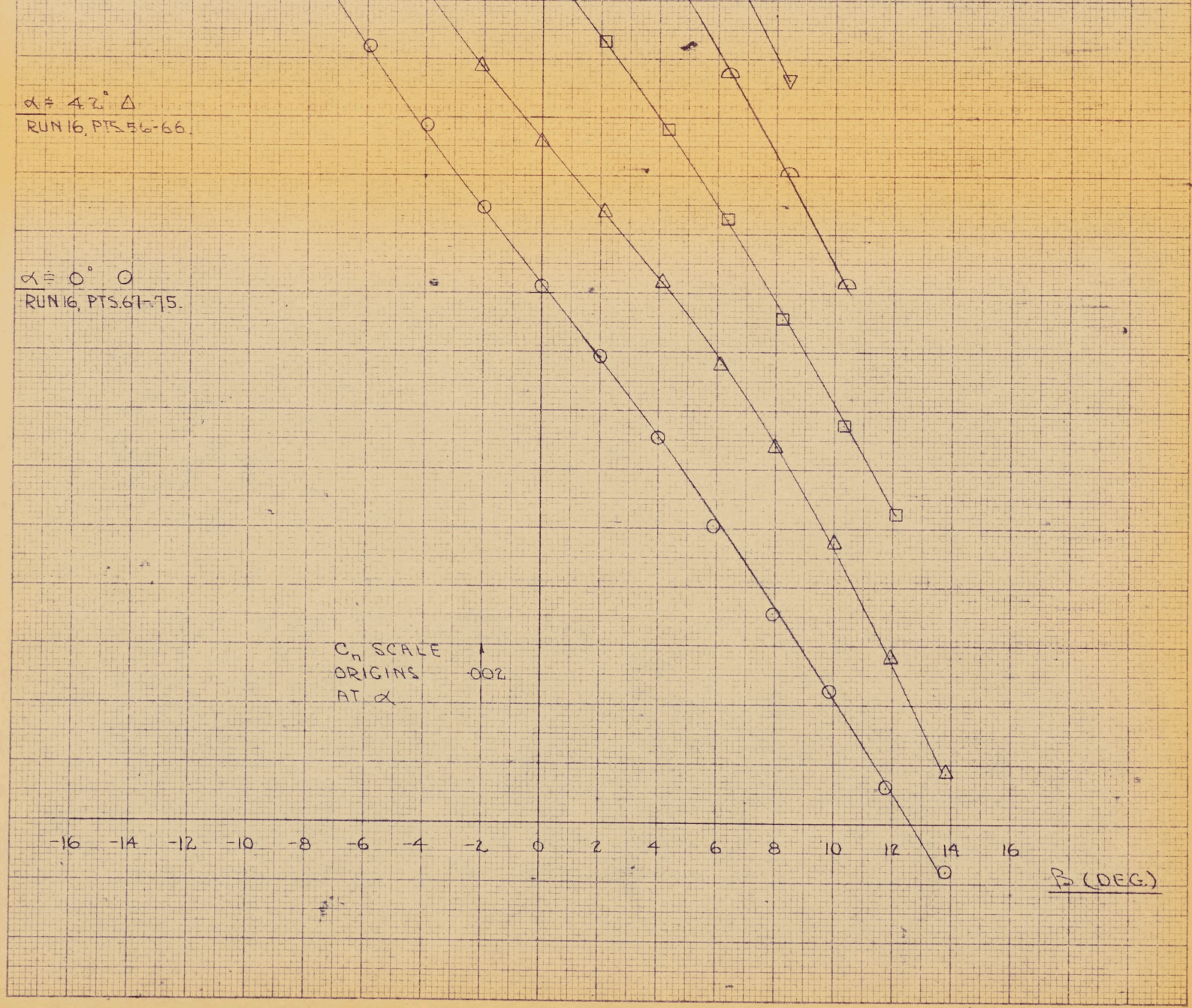
.03 LANGLEY MODEL

C_n vs β ABOUT BODY AXES

M = 1.41

CONF. - $B, W, E_{10} N_5 D_{8-4}$
- 50° CONICAL RADOME
- INTAKES OPEN





T-17A

PLATE III

APR. 18/56

C-105

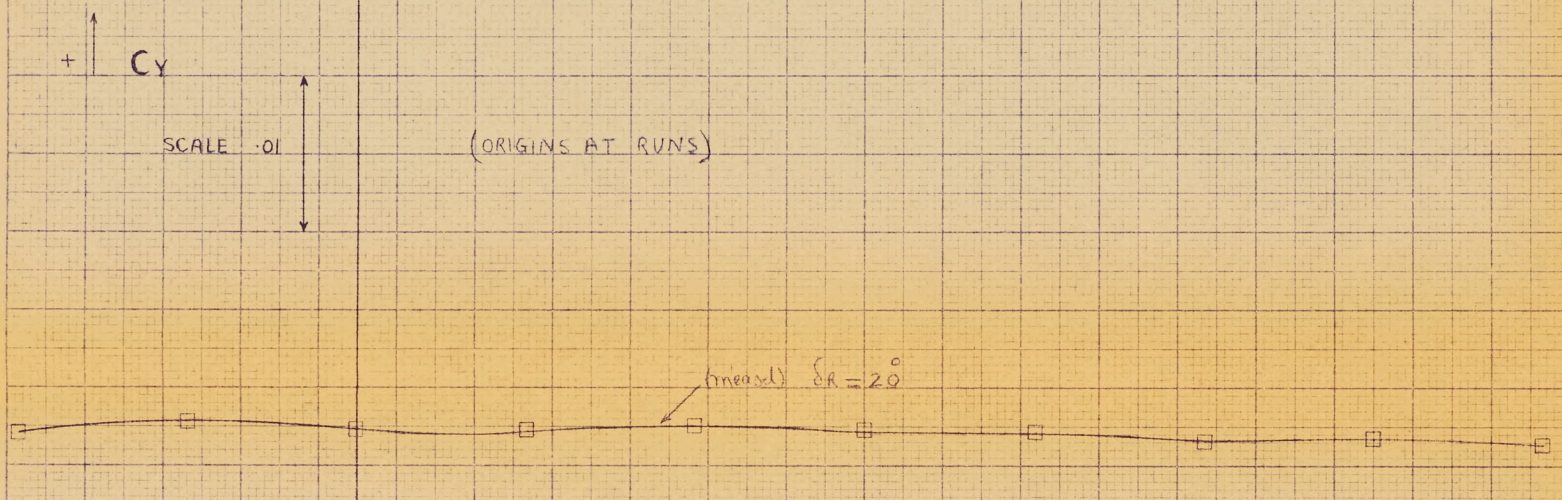
.03 LANGLEY MODEL

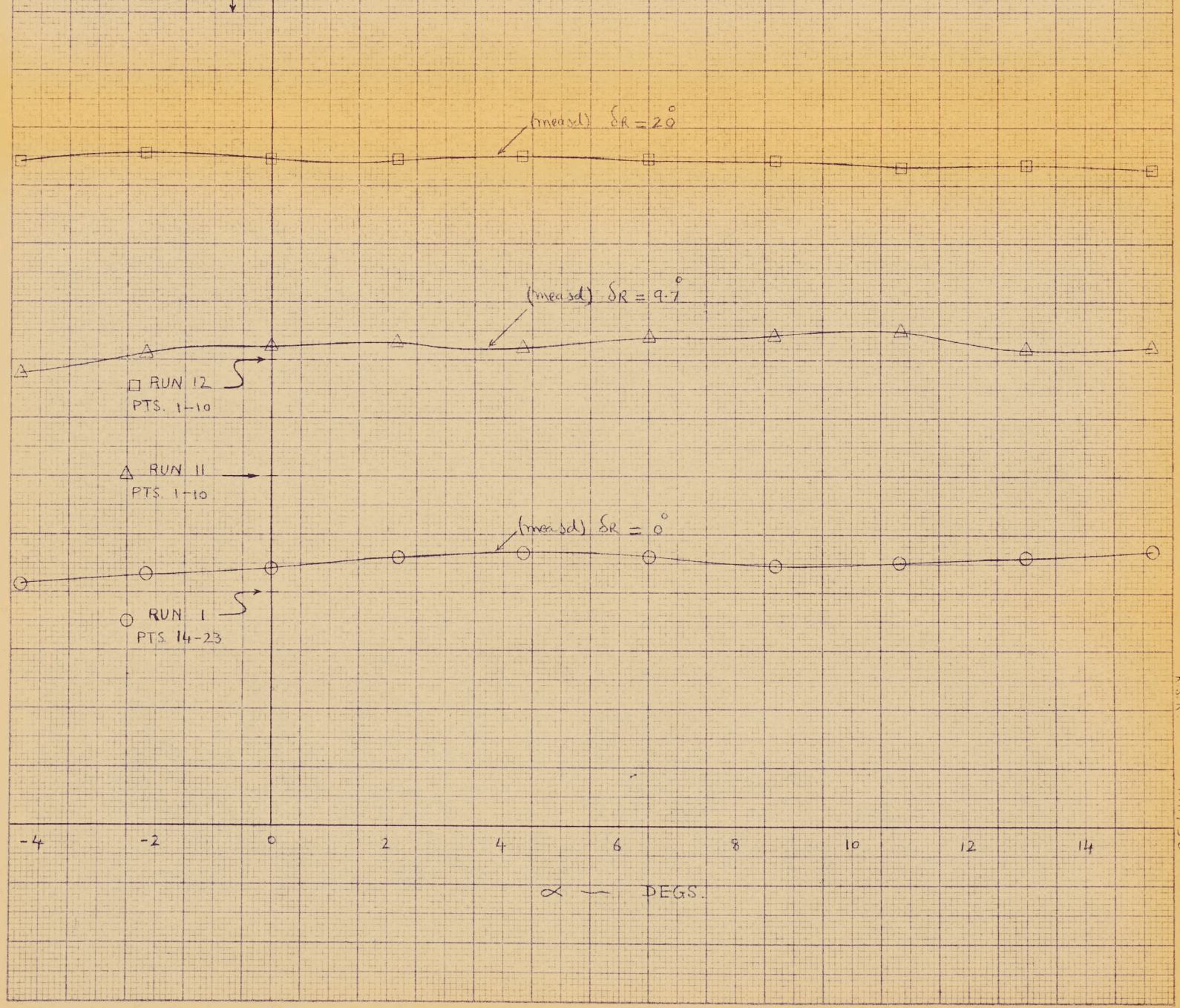
C_Y vs α

M = 1.41

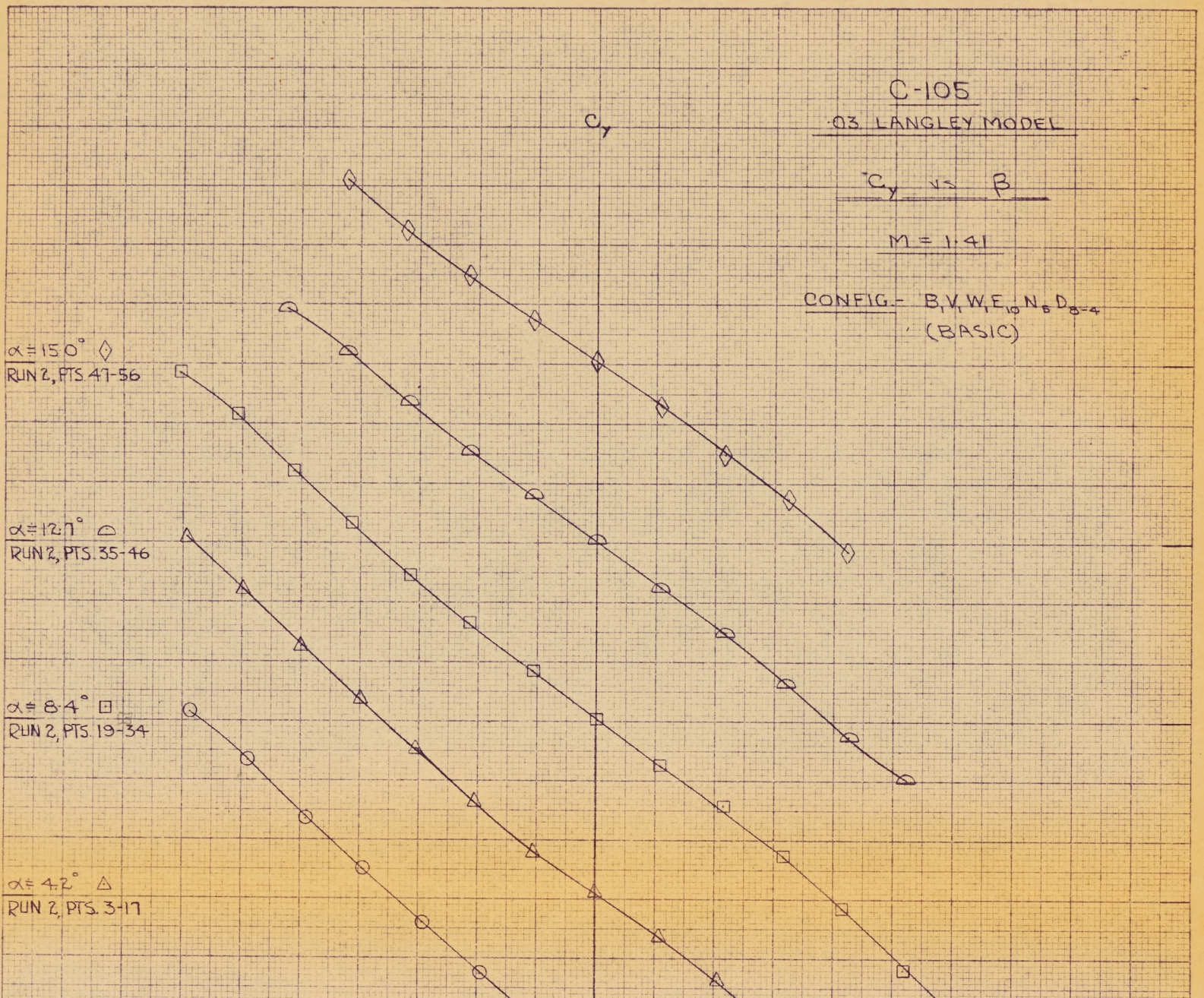
CONFIG. $B_L V_L W_L E_{10} N_S D_{S-4}$

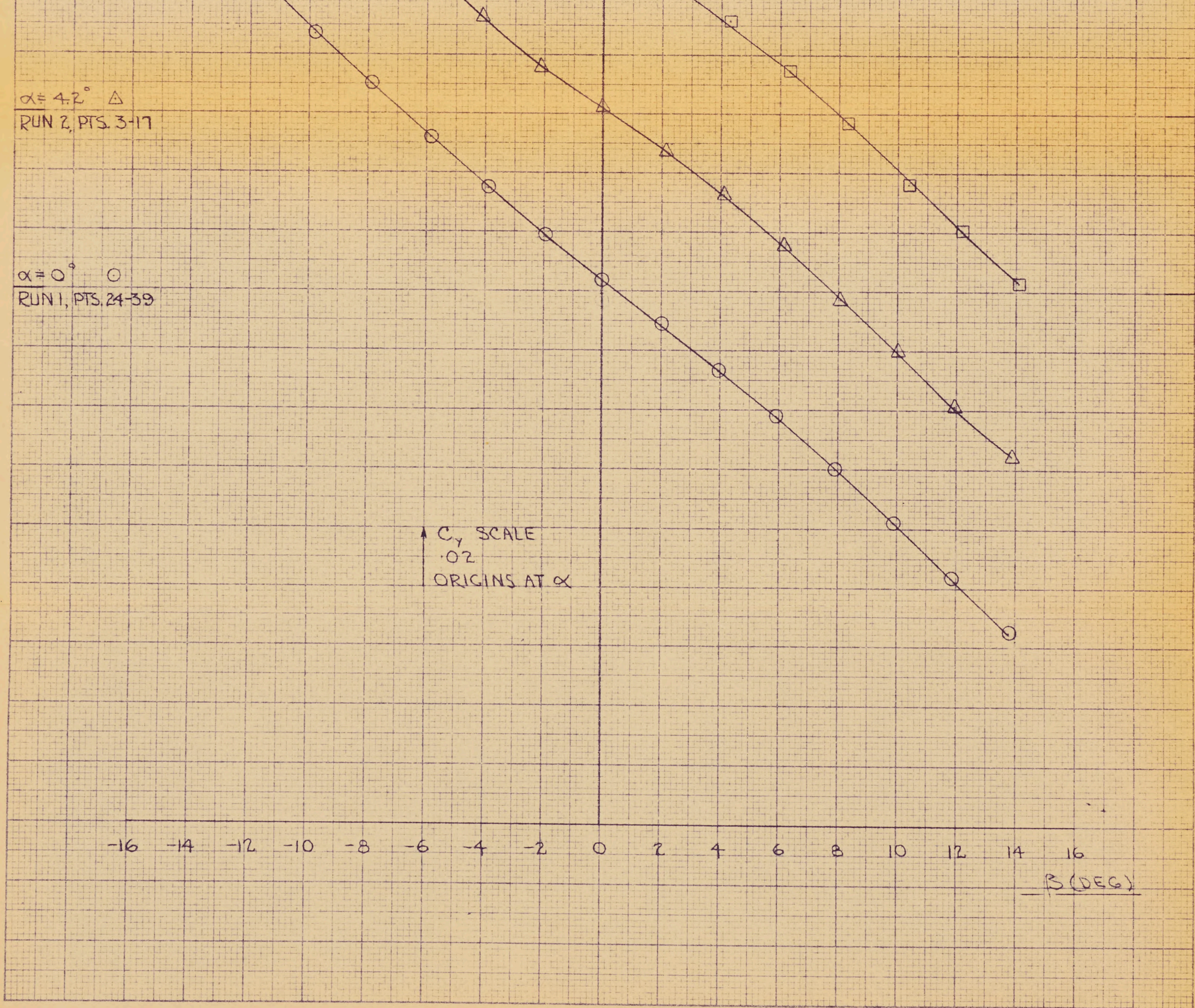
50° CONICAL RADOME INTAKES OPEN





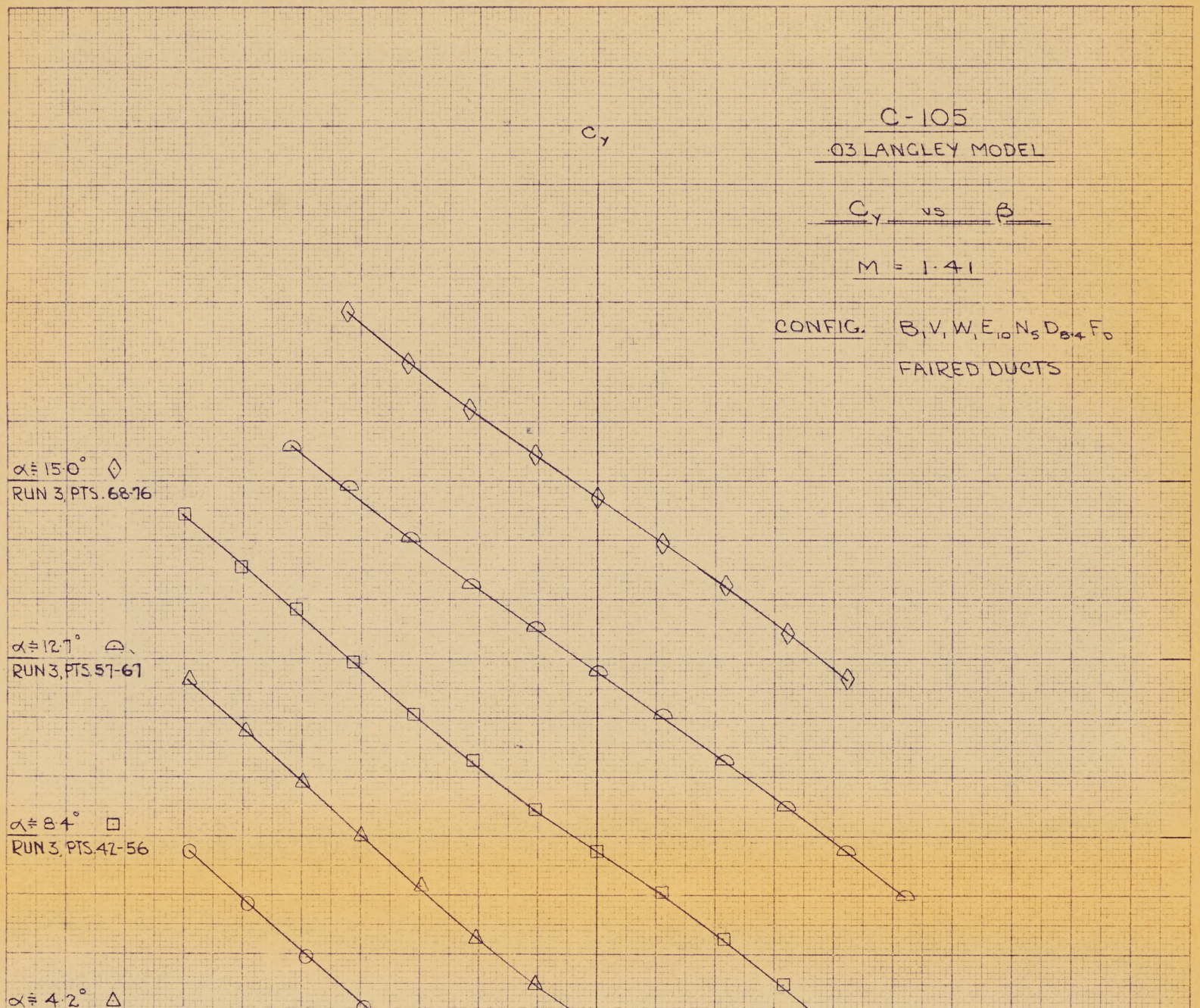
P/WT/111
RSR
MAY 52
Sheet 8.5.

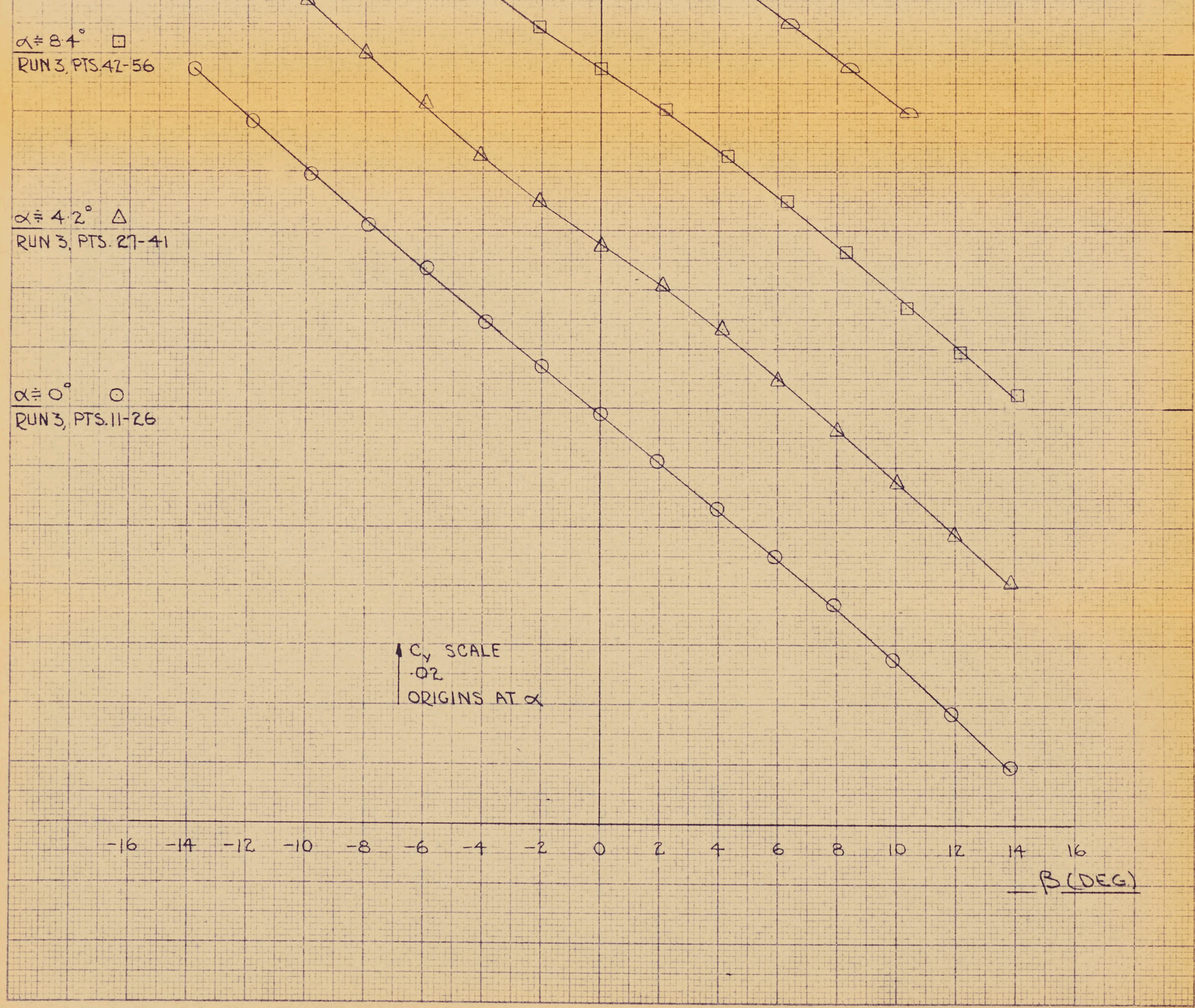




P/WT/111 Sht. 8·8

May 4/56




α ≑ 8.4° □
RUN 3, PTS. 42-56
α ≑ 4.2° △
RUN 3, PTS. 27-41
α ≑ 0° ○
RUN 3, PTS. 11-26
C_Y SCALE
·02
ORIGINS AT α
-16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16
β (DEG)

May 4/56 Uh

C-105

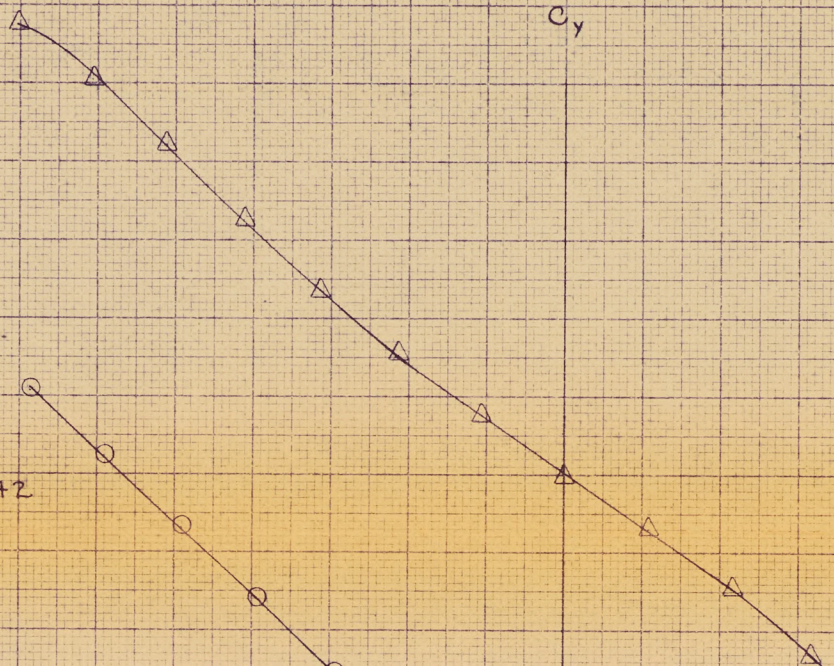
.03 LANGLEY MODEL

C_y vs β

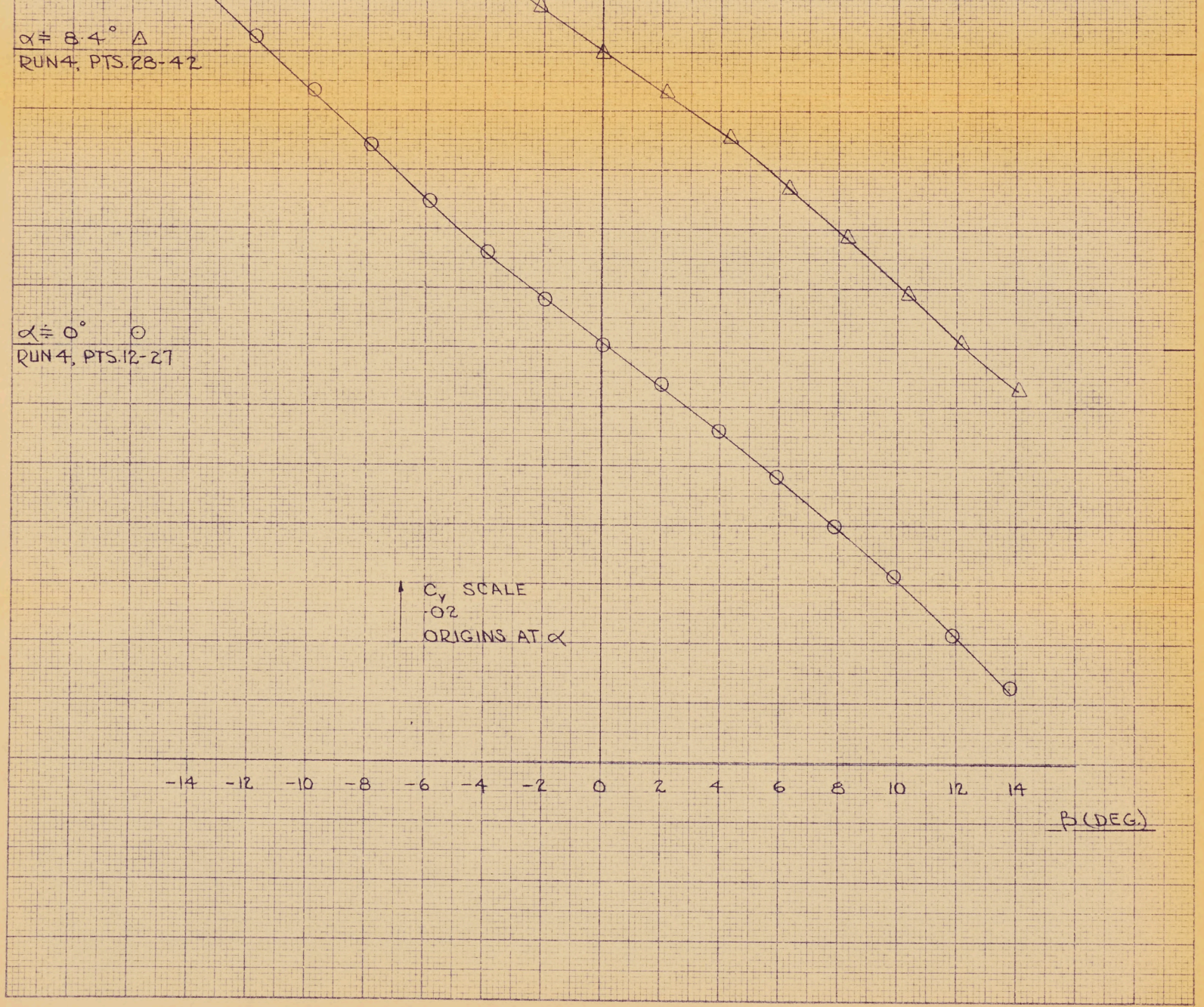
M = 1.41

CONFIG. $B, V, W, E_{10} N_5 D_{8.4} R_N$

TRANSITION FIXED



$\alpha = 8.4°$ △
RUN 4, PTS. 28-42



P/NT/111 SHT 8.10

May 8/56 bR

C-105

.03 LANGLEY MODEL

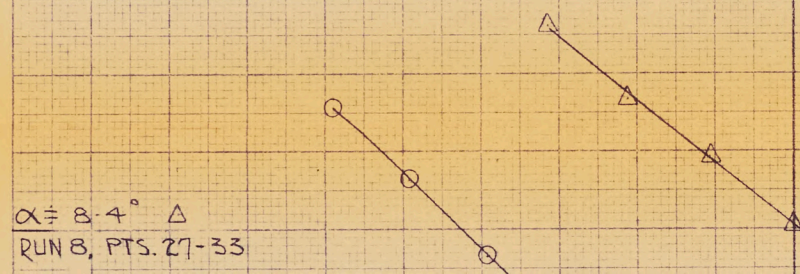
C_y vs β

M = 1.41

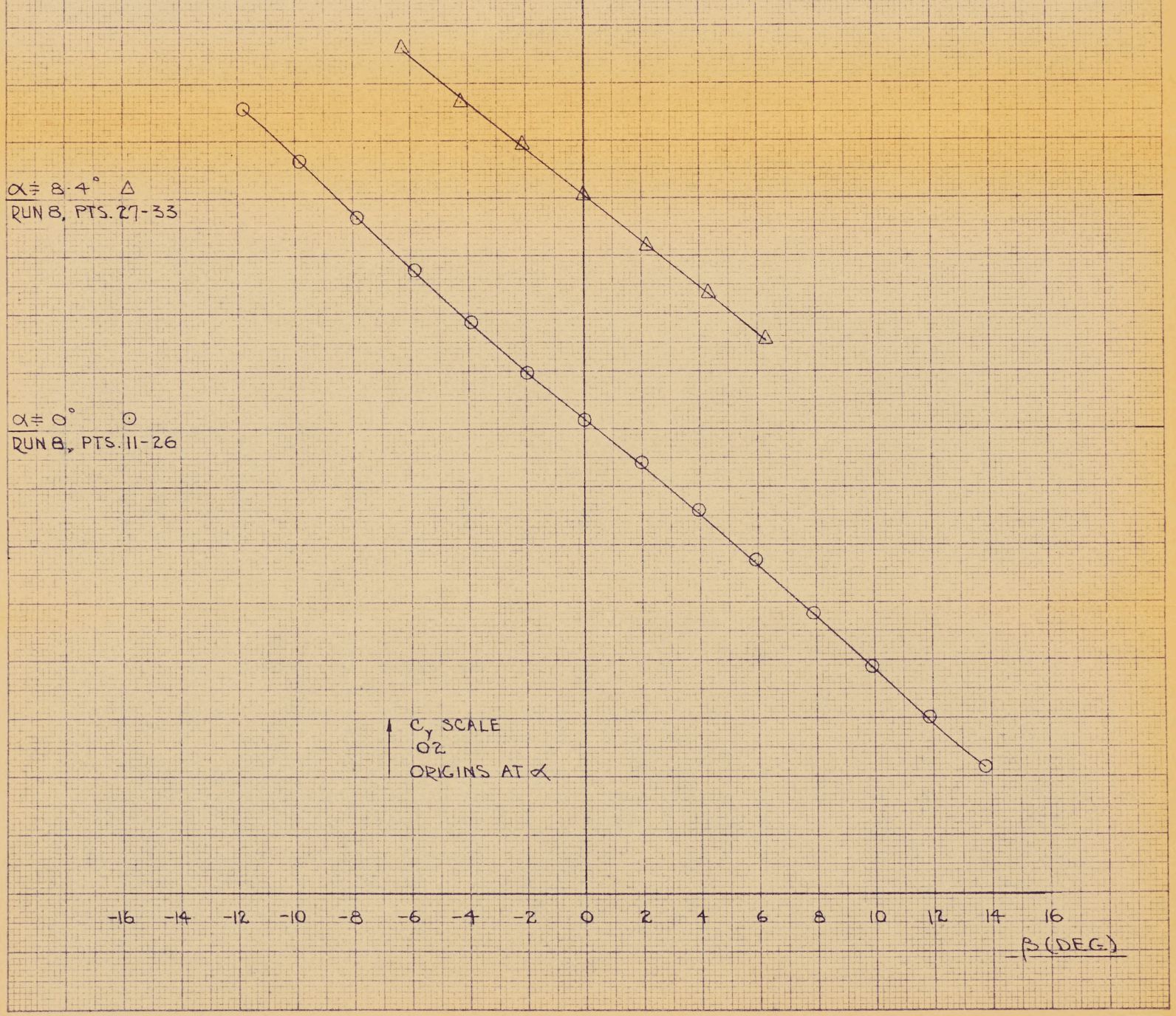
CONFIG. $B, V, W, E_{10} N_5 D_{8.4}$

ELEVATORS -30.0° MEAS'D

C_y



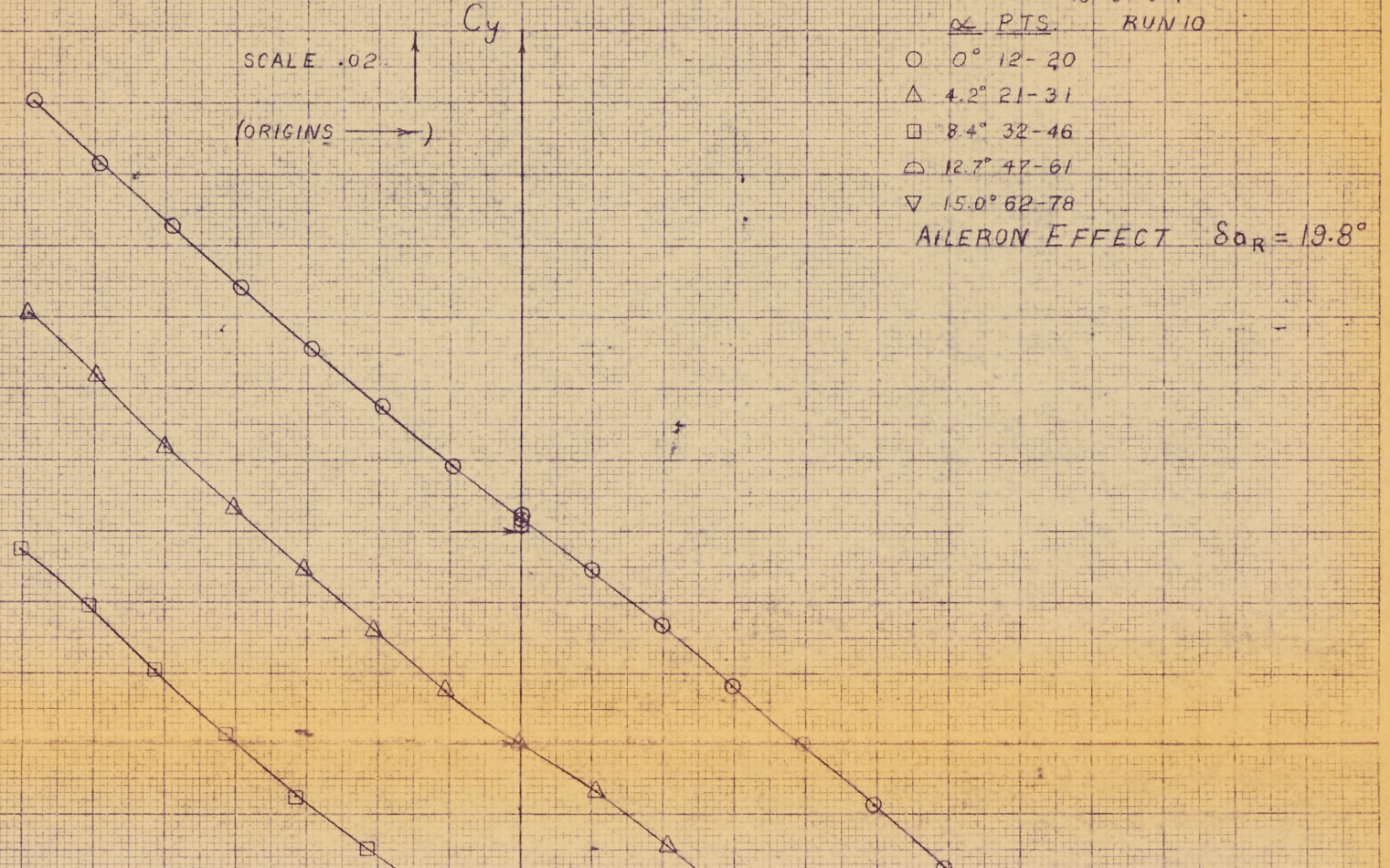
$\alpha \doteq 8.4°$ △
RUN 8, PTS. 27-33



P/WT/111 SLT 8.11

May 7/56 UL

C-105
.03 LANGLEY MODEL
C_y vs. β
$M = 1.41$



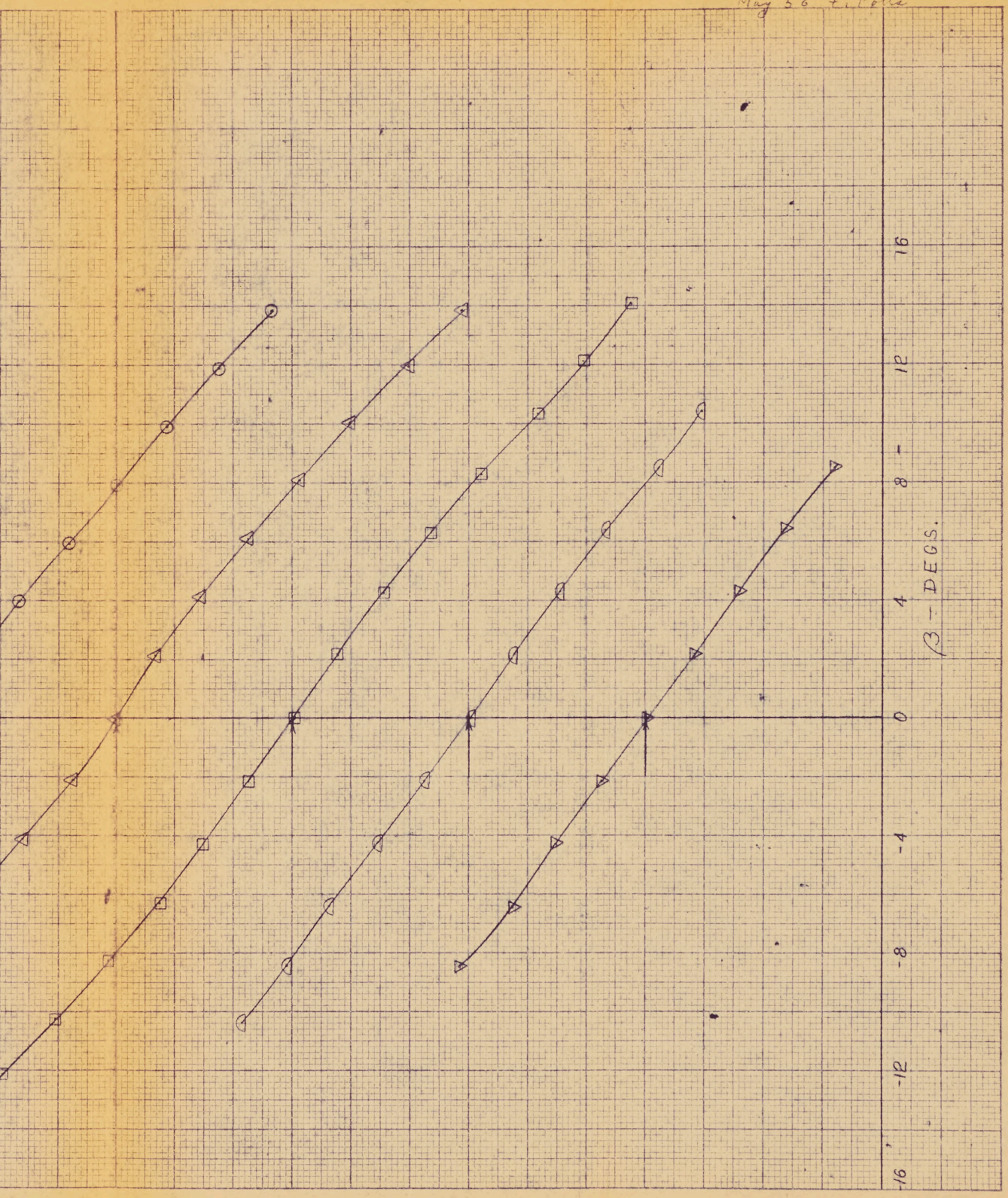
CONFIGURATION
B, V, W, E_{10} N_5 D_{8-4}

α	PTS.	RUN 10
○	0°	12-20
△	4.2°	21-31
⊞	8.4°	32-46
⌓	12.7°	47-61
▽	15.0°	62-78

AILERON EFFECT $\delta a_R = 19.8°$

P/WT/111 Sht 8·12

May 56 F. Potts



C-105

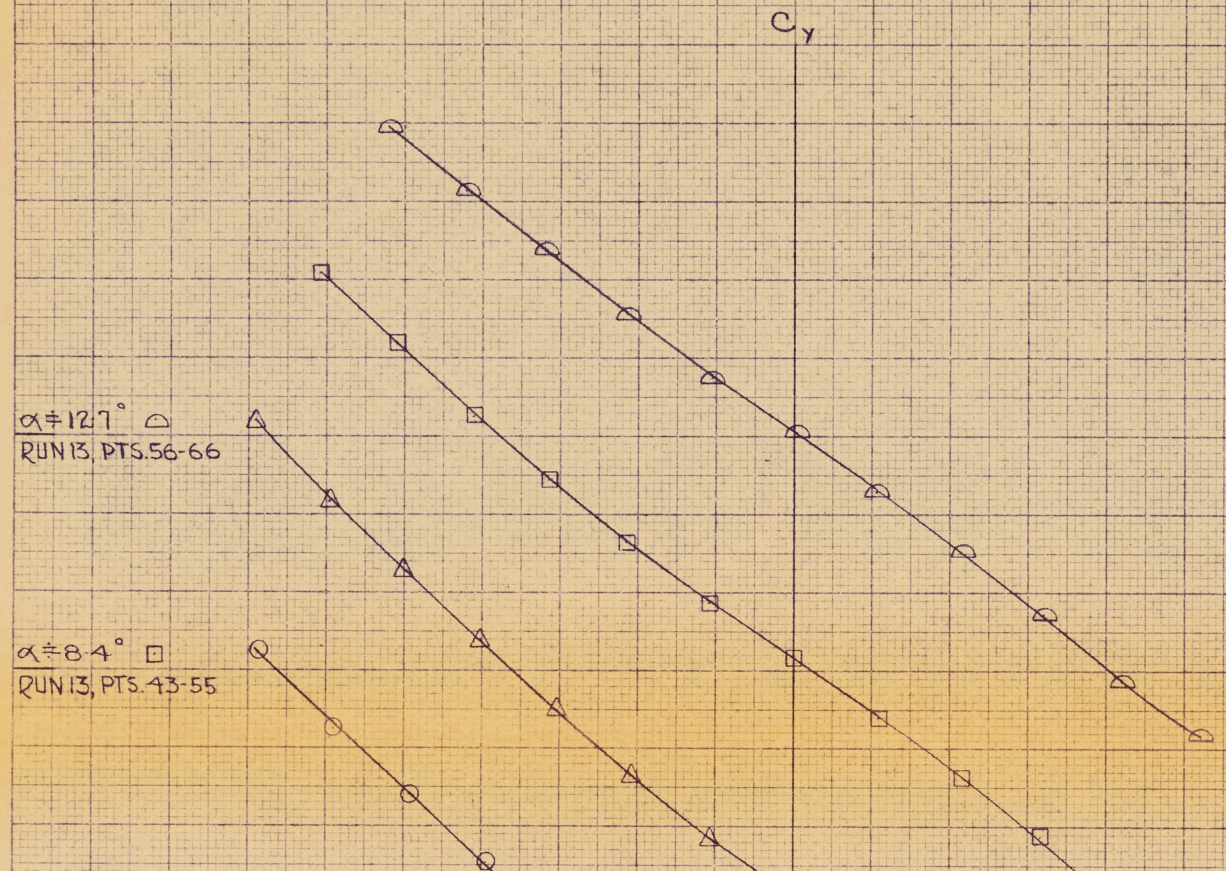
.03 LANGLEY MODEL

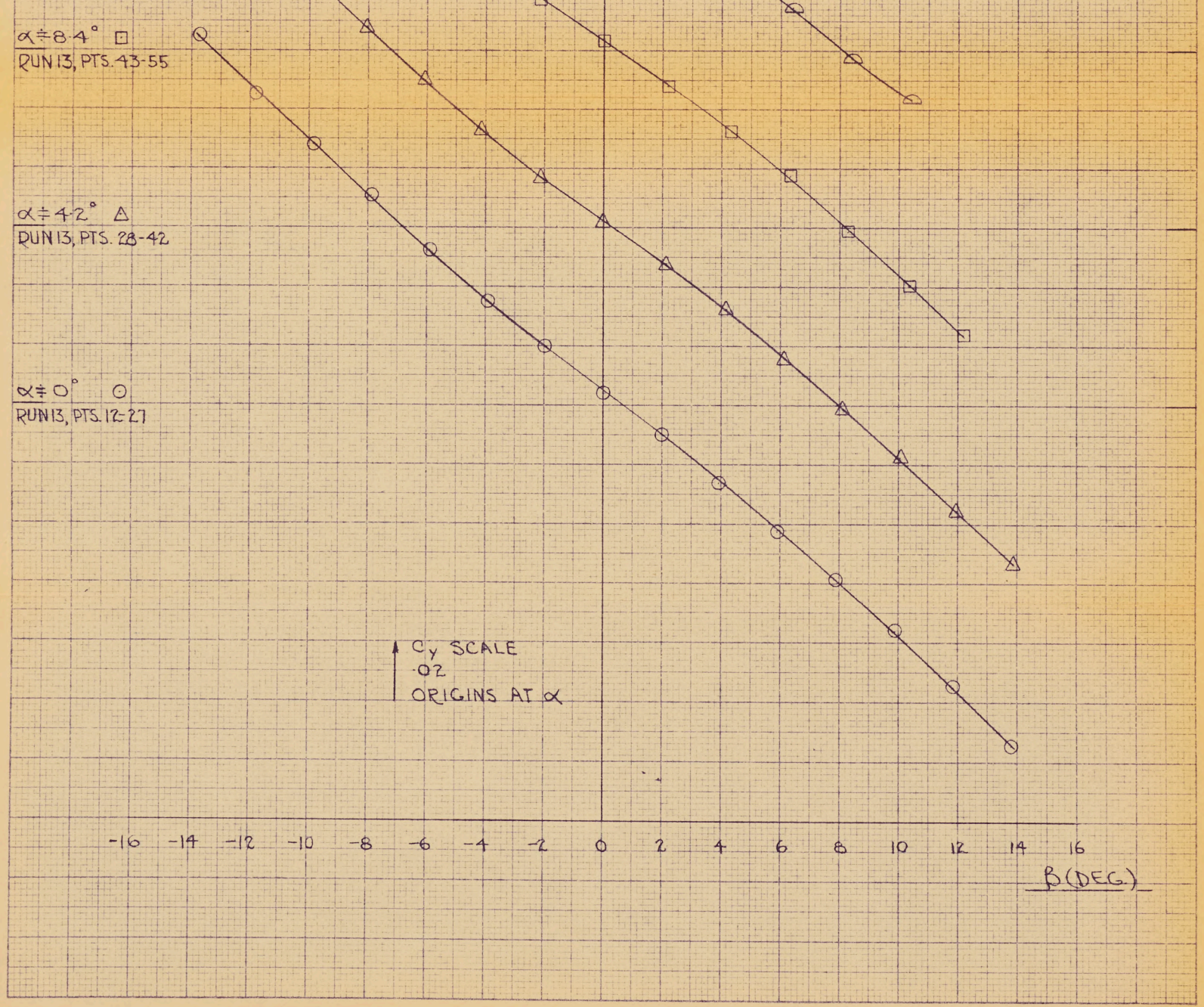
C_Y vs β

M = 1.41

CONFIG. $B_{1-1} V_1 W_1 E_{10} N_5 D_{8.4}$

30° CONICAL RADOME





PMT/111 SHT. 8.14

MAY 7/56 dR

C-105

.03 LANGLEY MODEL

C_y vs β

M = 1.41

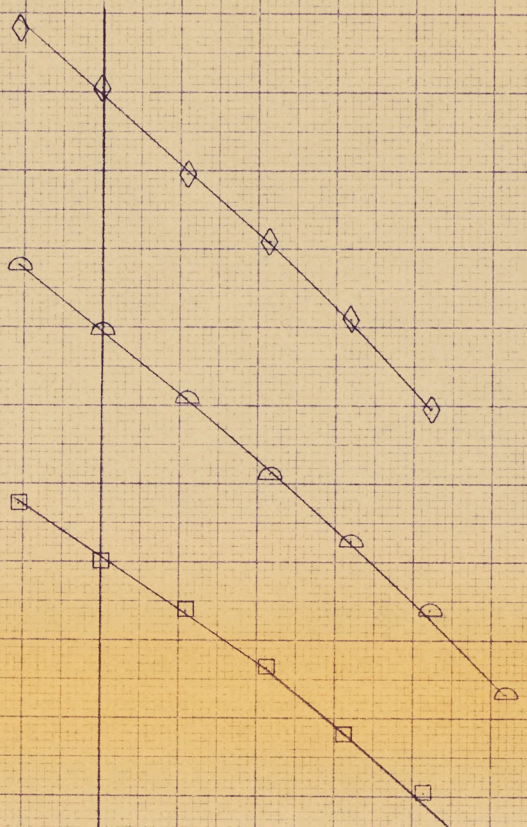
CONFIG. $B, W, E_{10} N_5 D_{8.4} F_D$

TAIL OFF, FAIRED DUCTS

$\alpha \doteq 15.0°$ ◇
RUN 15, PTS. 11-16

$\alpha \doteq 12.7°$ ⌓
RUN 15, PTS. 17-23

$\alpha \doteq 8.4°$ □
RUN 15, PTS. 24-32



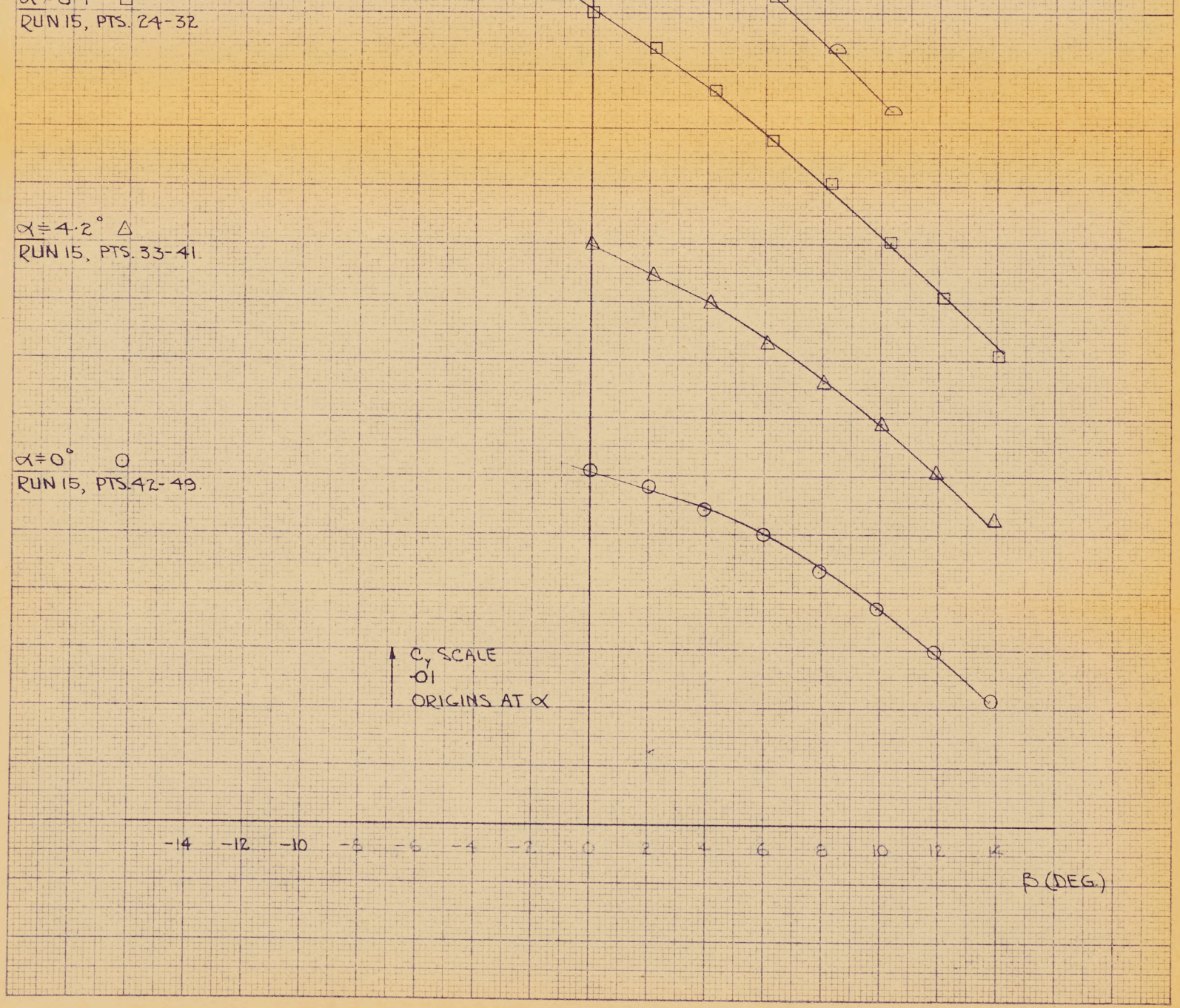
RUN 15, PTS. 24-32

$\alpha \doteq 4.2°$ △

RUN 15, PTS. 33-41.

$\alpha \doteq 0°$ ○

RUN 15, PTS. 42-49.



PWT/111 Sht 8.16

May 7/56 JR

C-105

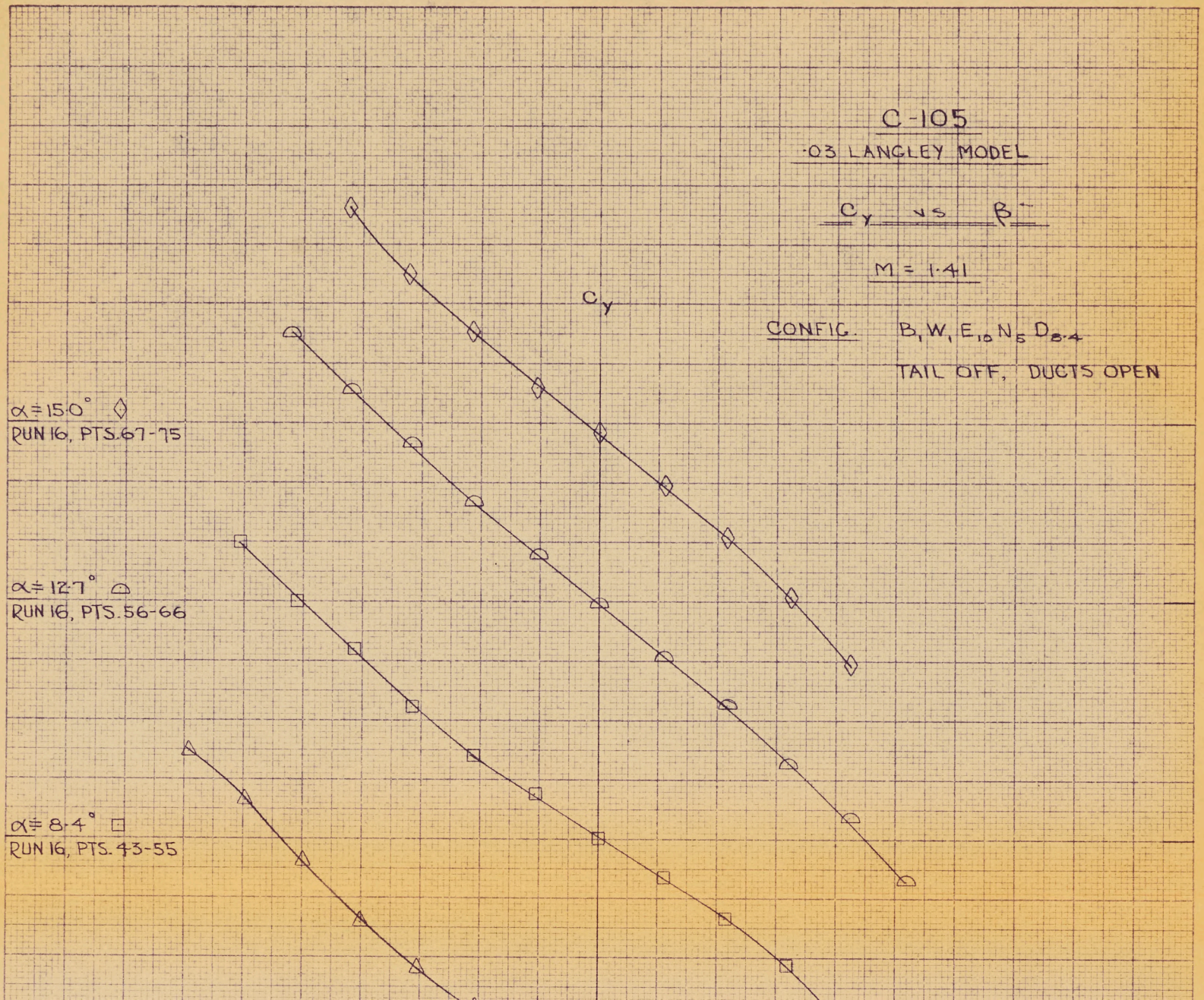
·03 LANGLEY MODEL

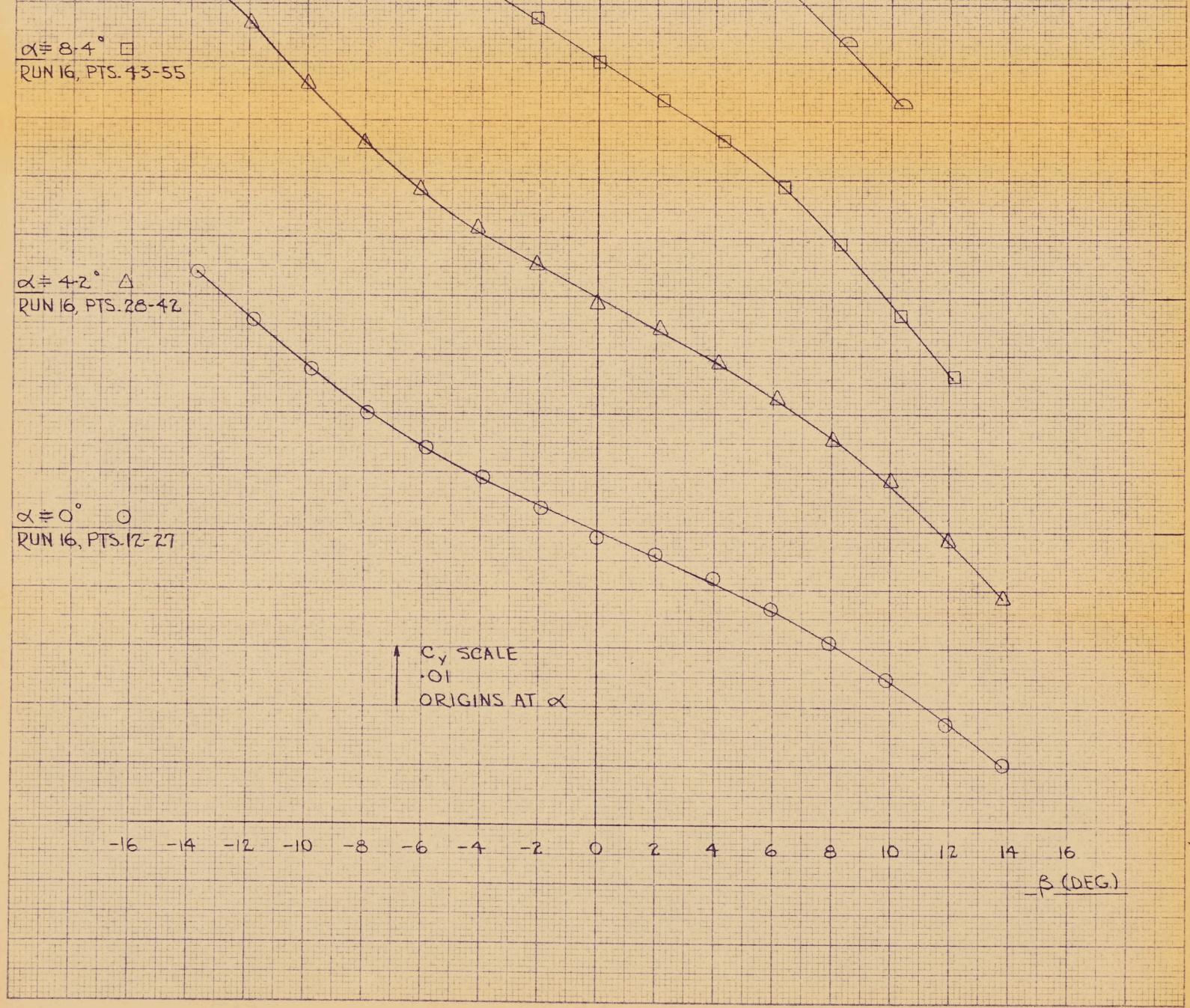
C_Y vs β

M = 1.41

CONFIG $B_1 W_1 E_{10} N_5 D_{8.4}$

TAIL OFF, DUCTS OPEN





P/WT/III SUE. 8.17

May 8/56 Sh

C-105

.03 LANGLEY MODEL

C_l vs α

M = 1.41

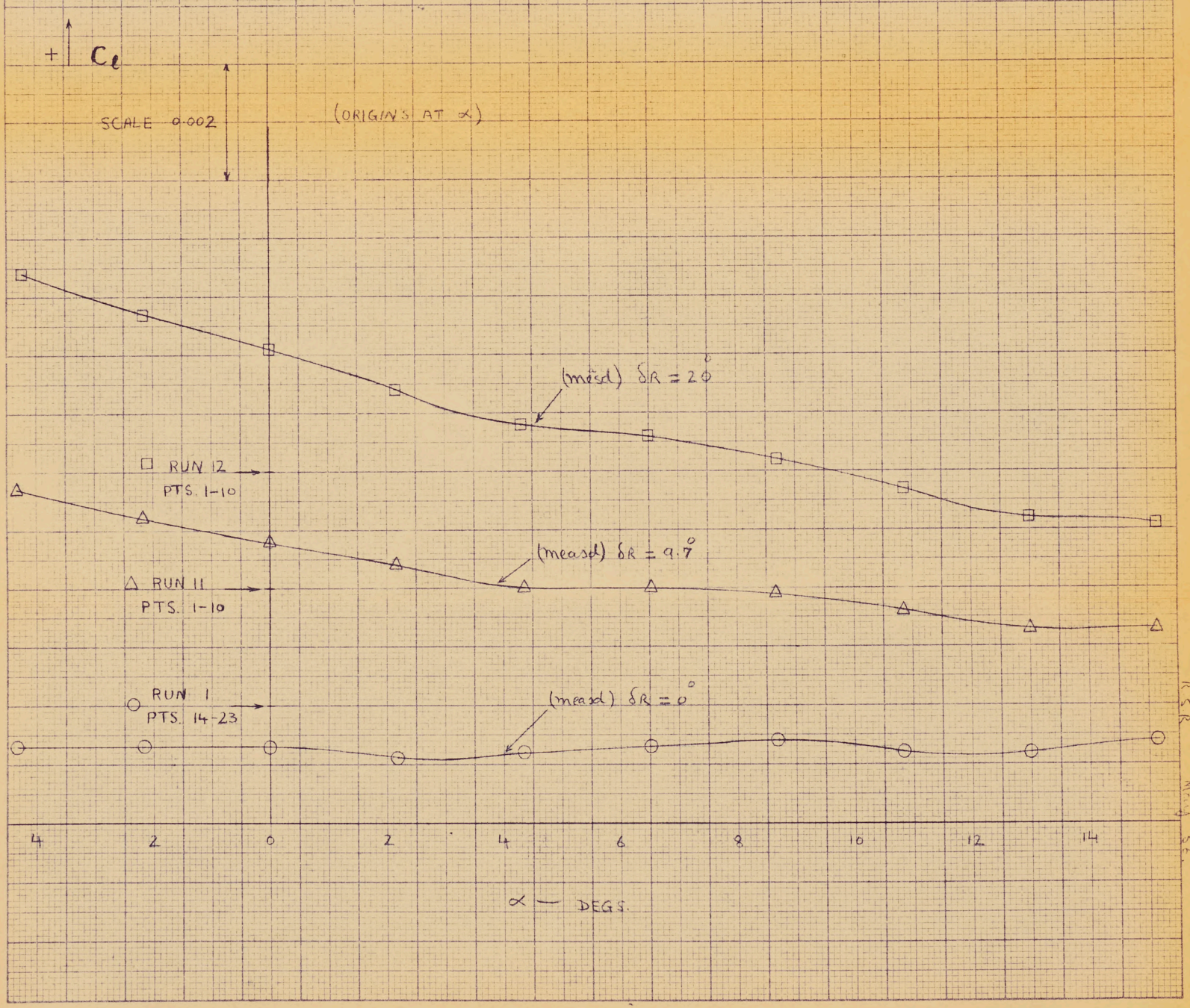
CONF.

B, V, W, N_5 E_{10} D_{8-4}

+ C_l

SCALE 0.002

(ORIGINS AT α)



P/WT/111 Sheet 9.5
R.S.R. May 57.

C-105

.03 LANGLEY MODEL

C_{ℓ} vs α

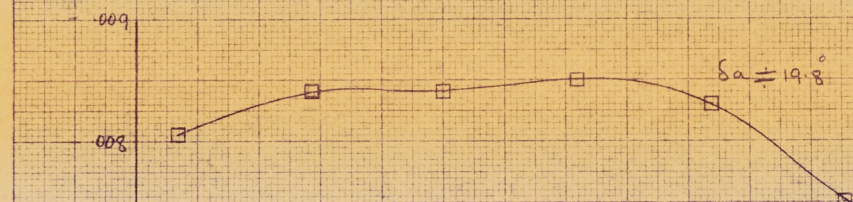
$M = 1.41$

CONFIG. B, V, W, E10N5 D8-4

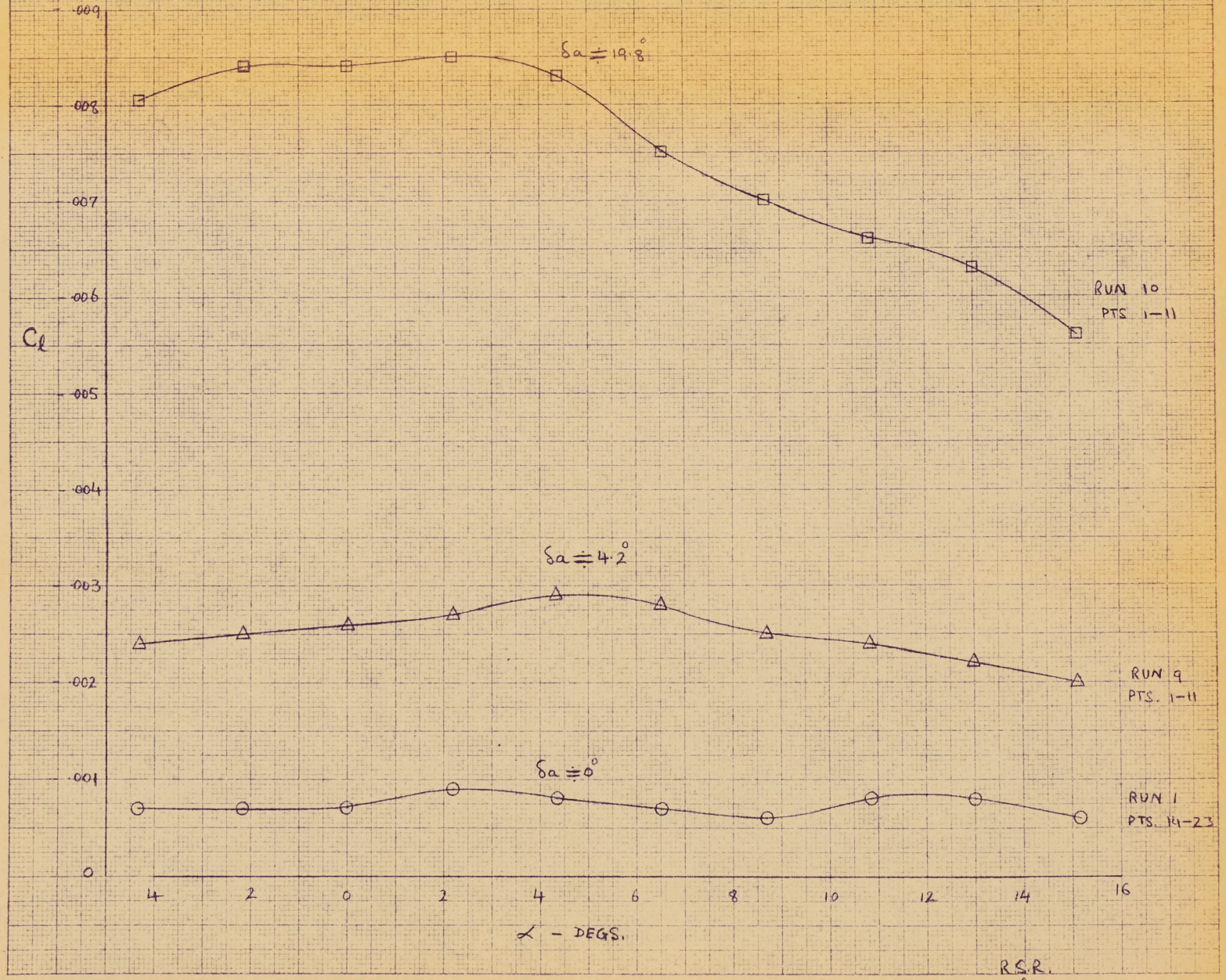
50° CONICAL RADOME

INTAKES OPEN

MEASURED ON
STBD. AILERON



INTAKES OPEN



R.S.R.
April 56

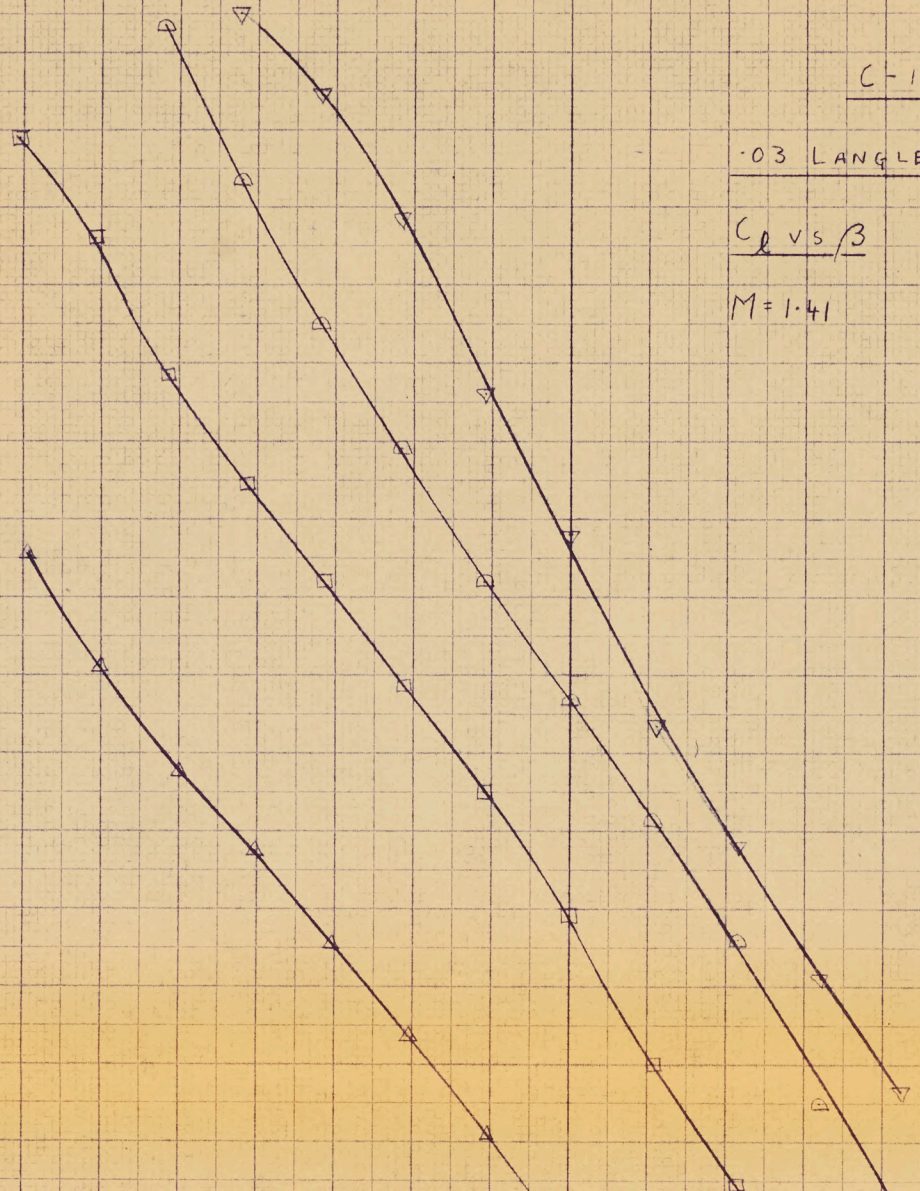
P/WT/111 Sheet 9.6

C-105

·03 LANGLEY MODEL

C_l vs β

M = 1.41

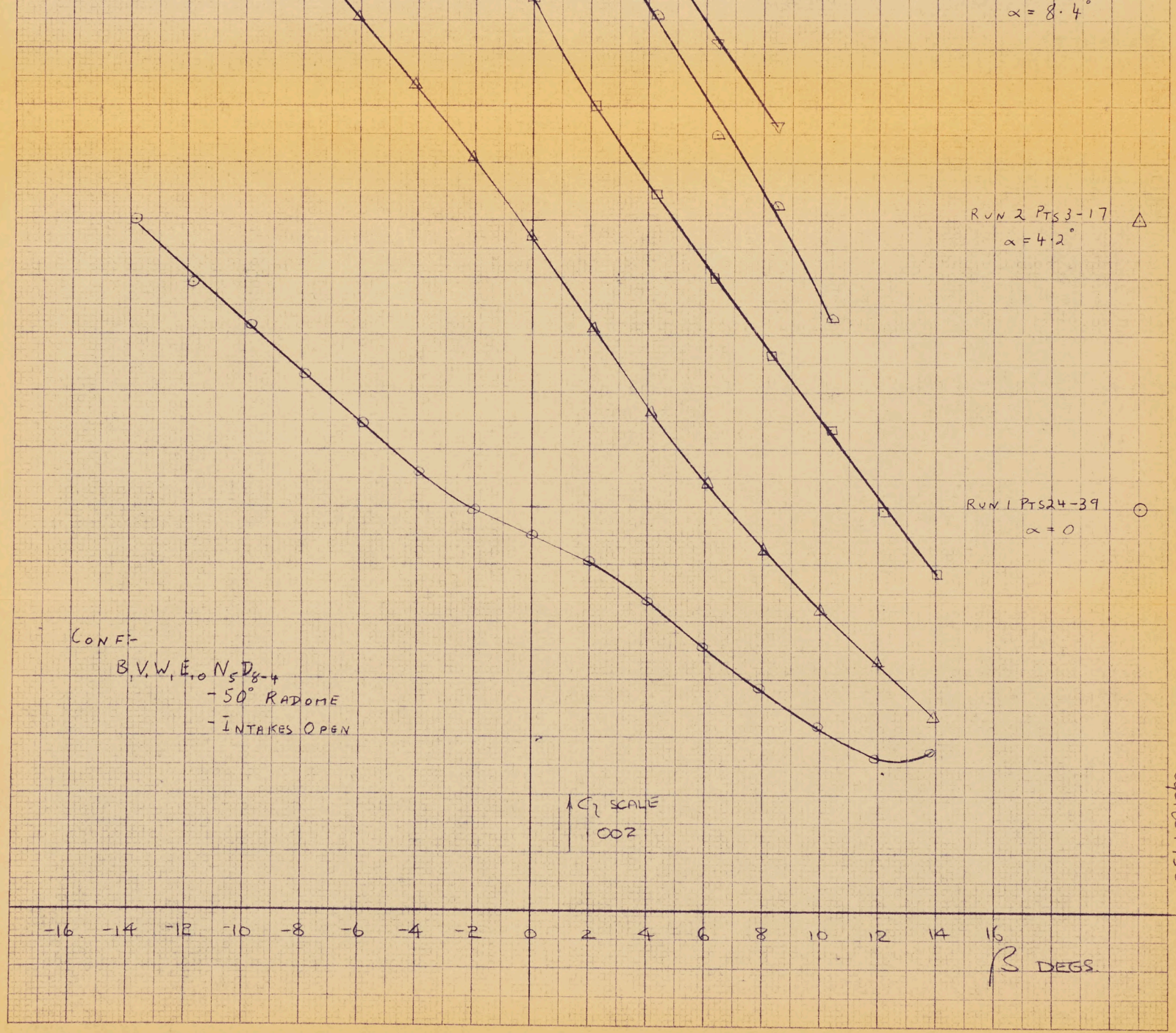


ORIGINS

RUN 2 PTS 47-56 ▽
$\alpha = 15.0°$

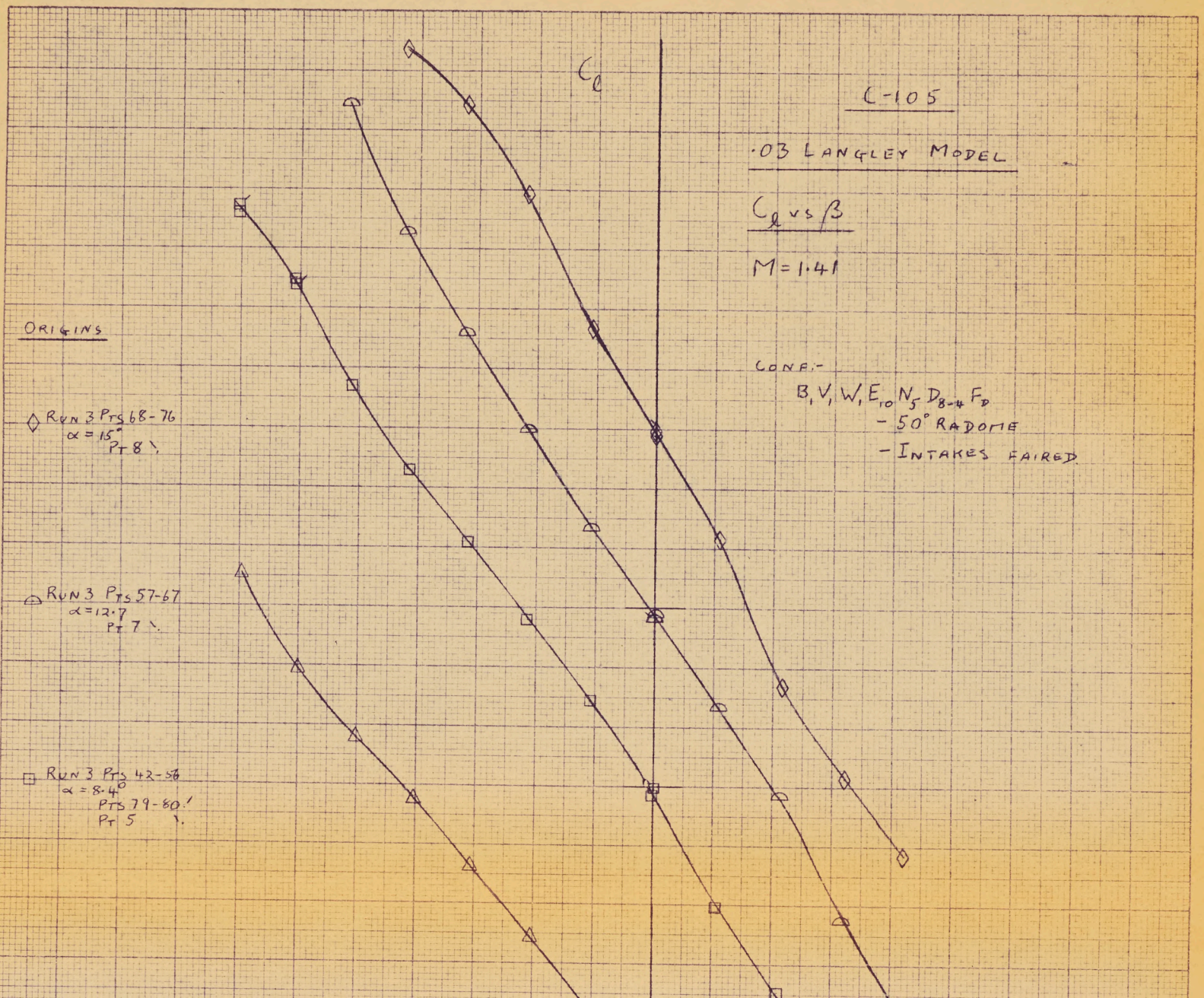
RUN 2 PTS 35-46 ⌓
$\alpha = 12.7°$

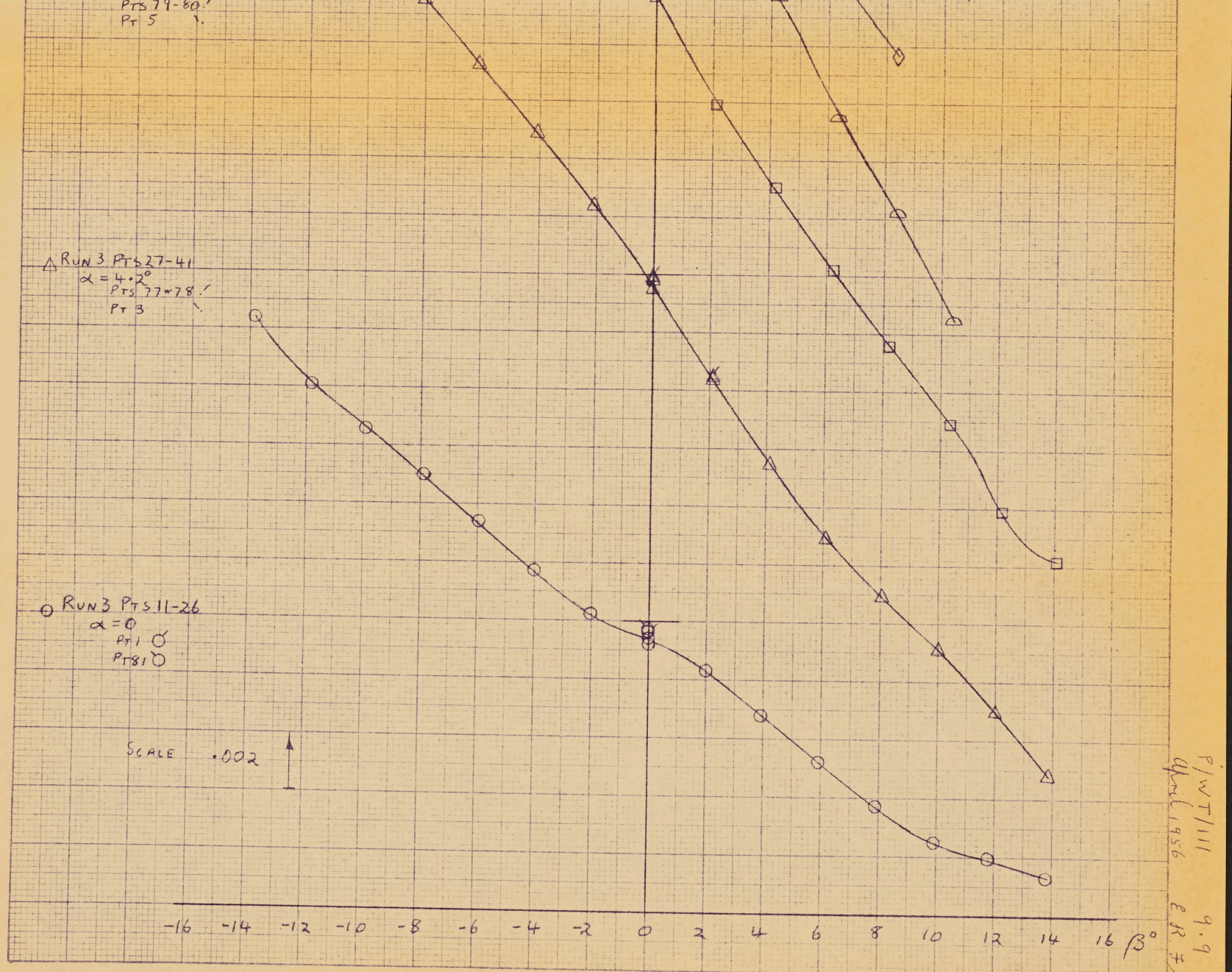
RUN 2 PTS 19-34 □
$\alpha = 8.4°$



P/WT/111 9.8
April 1956

KEUFFEL & ESSER CO. N.Y.



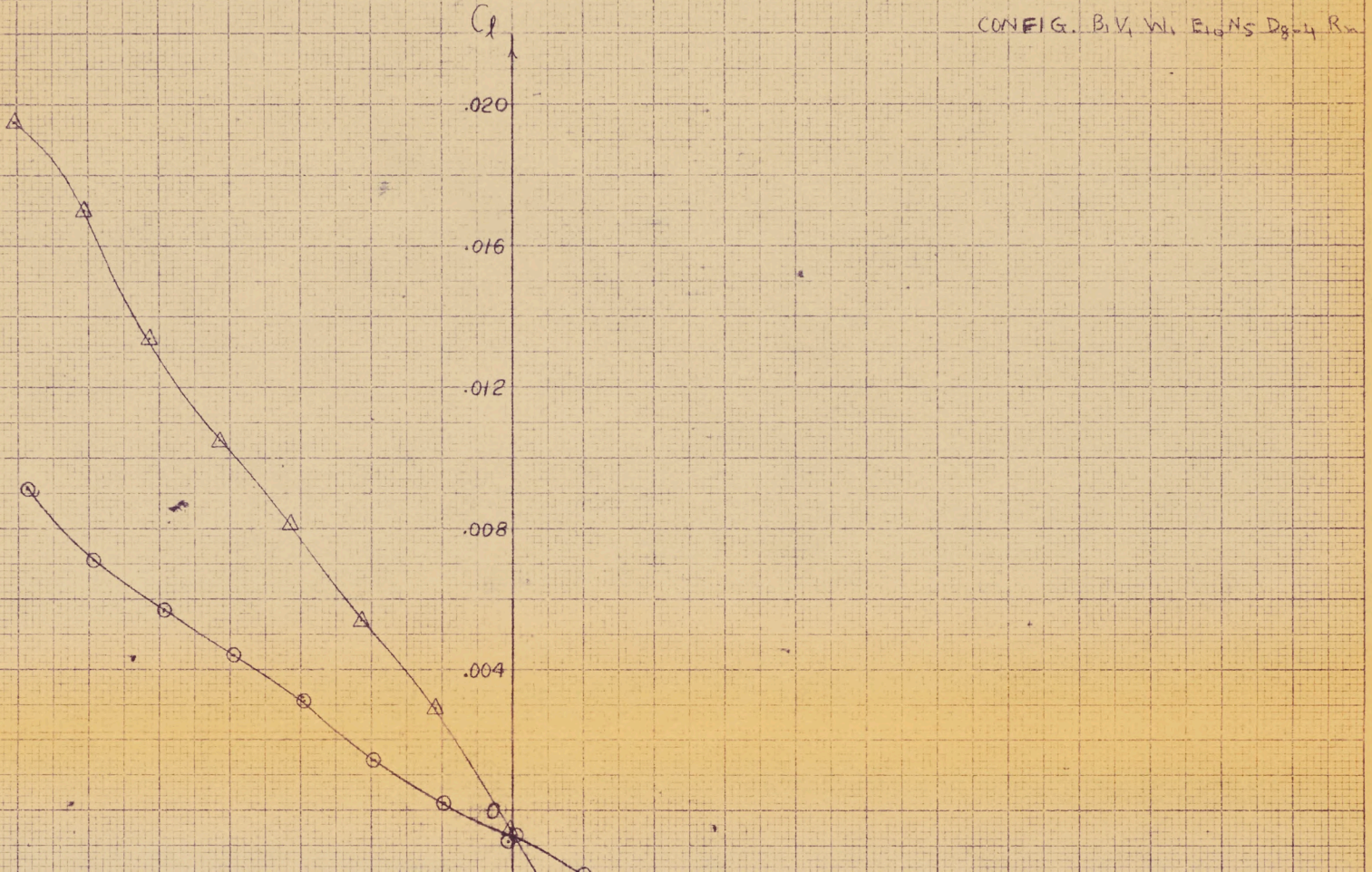


P/WT/111 9.9
April 1956 E.R. Fish.

C-105
.03 LANGLEY MODEL
C_l vs. β
M = 1.41

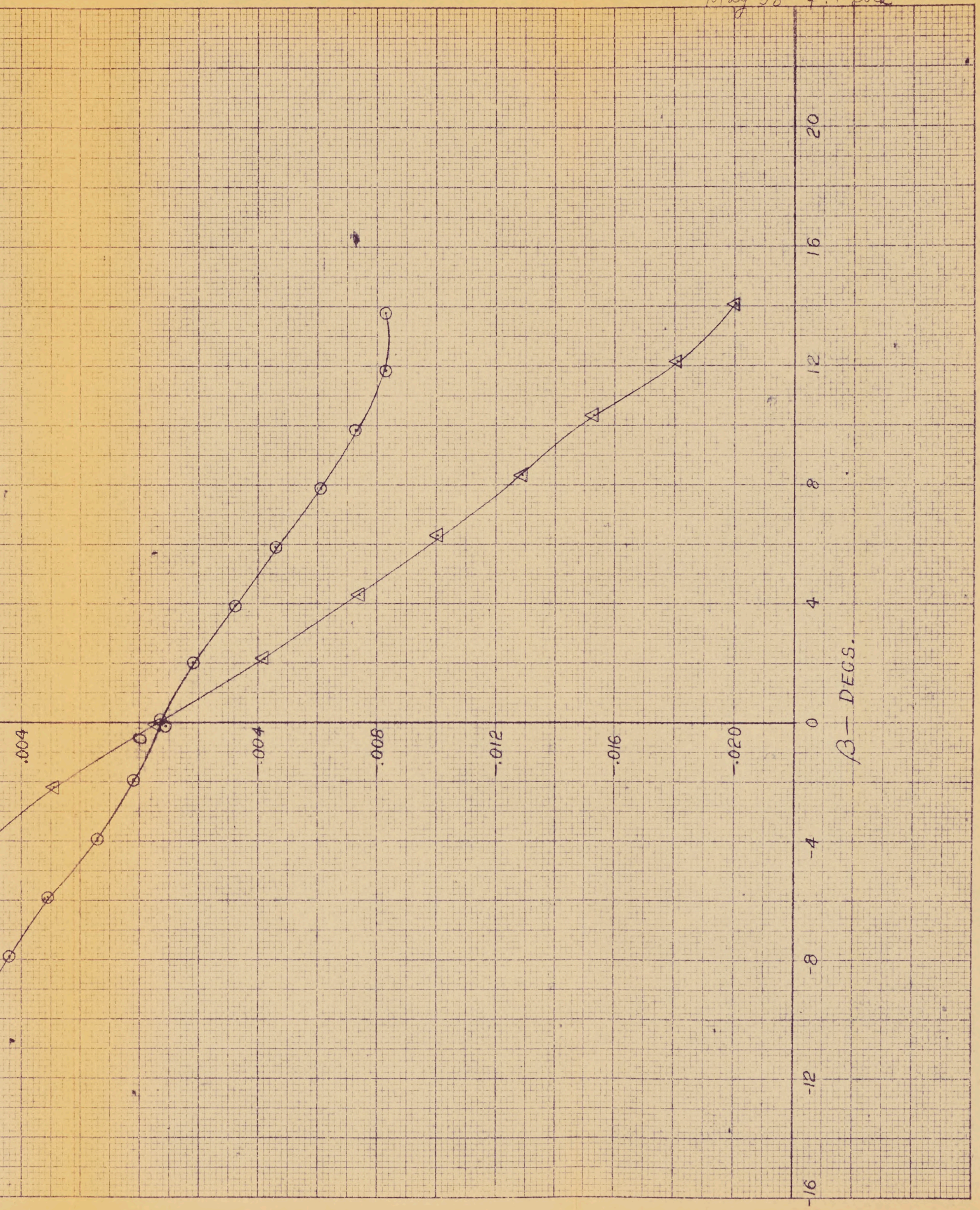
RUN 4 PTS. 12-42
○ $\alpha = 0°$
△ $\alpha = 8.4°$

CONFIG. B, V, W, E_{10}, N_5 D_{8-4} R_m



P/WT/111 Sht 9·10

May 56 F. Potts



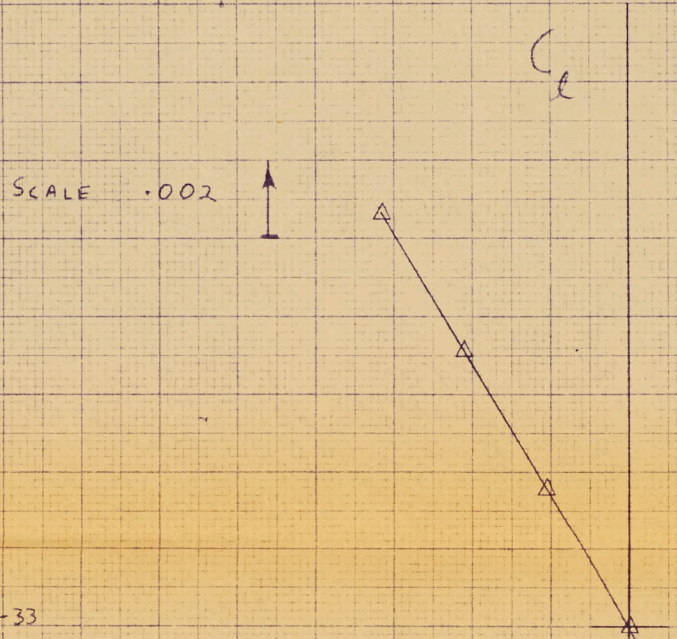
C-105

·03 LANGLEY MODEL

C_ℓ vs β $\quad \delta_e = -30°$

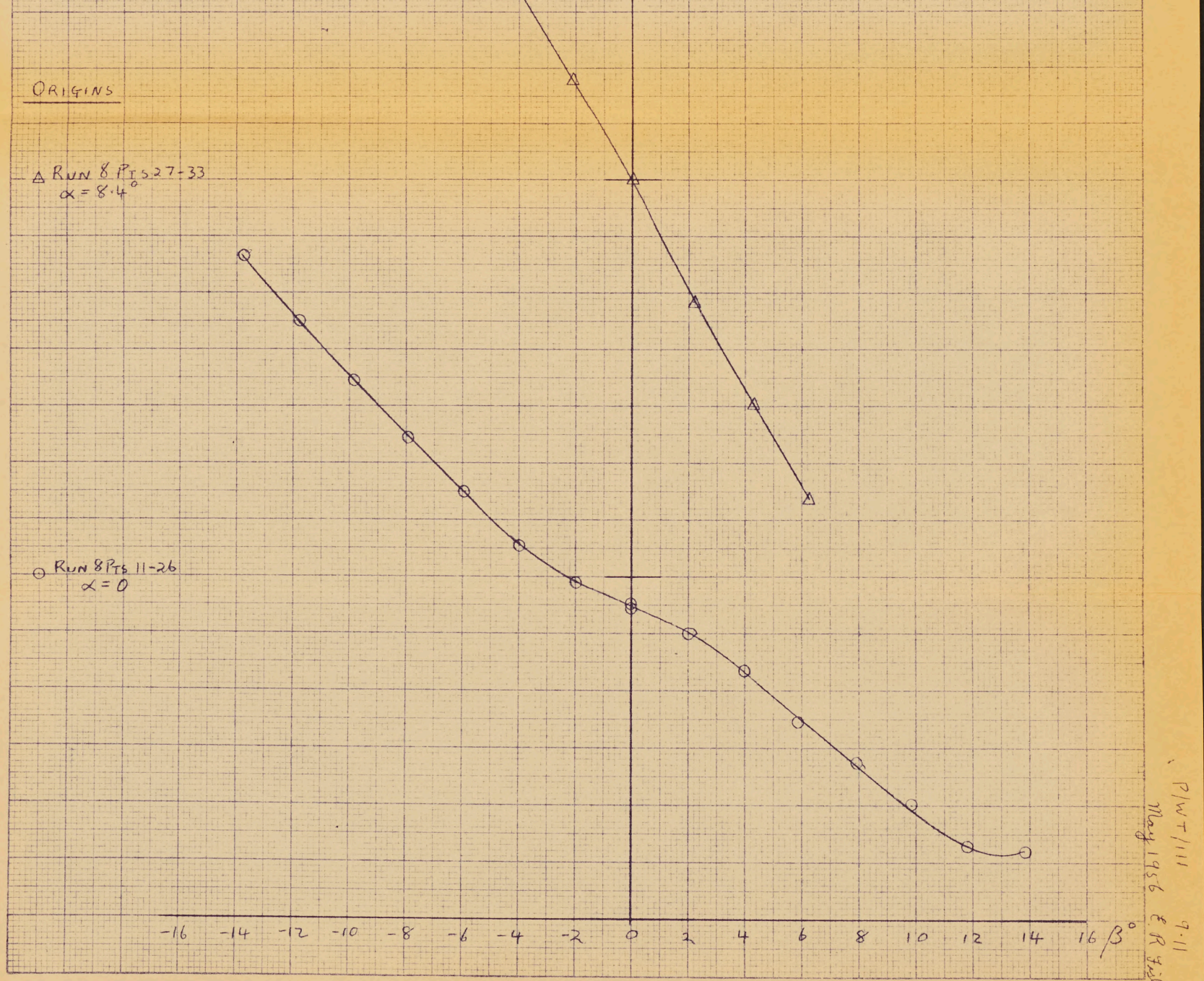
M = 1·41

CONFIGURATION:-
B, V, W, E_{10}, N_5 D_{8-4}
– 50° RADOME
– INTAKES OPEN



ORIGINS

△ RUN 8 P_{T_0} 27-33



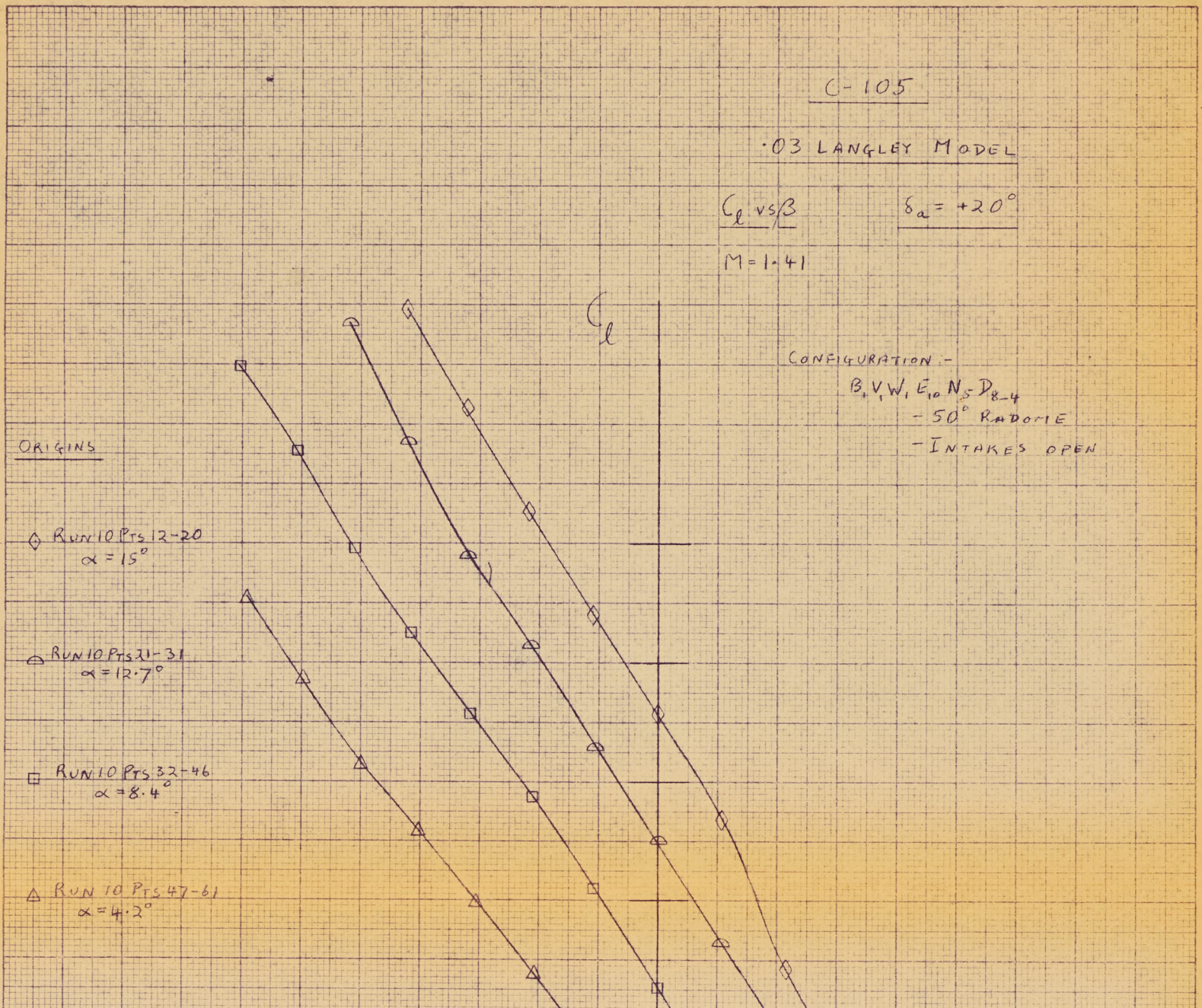
P/WT/111 9.11
May 1956 E.R. Firth

C-105

·03 LANGLEY MODEL

C_l vs β $\delta_a = +20°$

M = 1.41



CONFIGURATION :-
$B_1 V_1 W_1 E_{10} N_5 D_{8-4}$
- 50° RADOME
- INTAKES OPEN

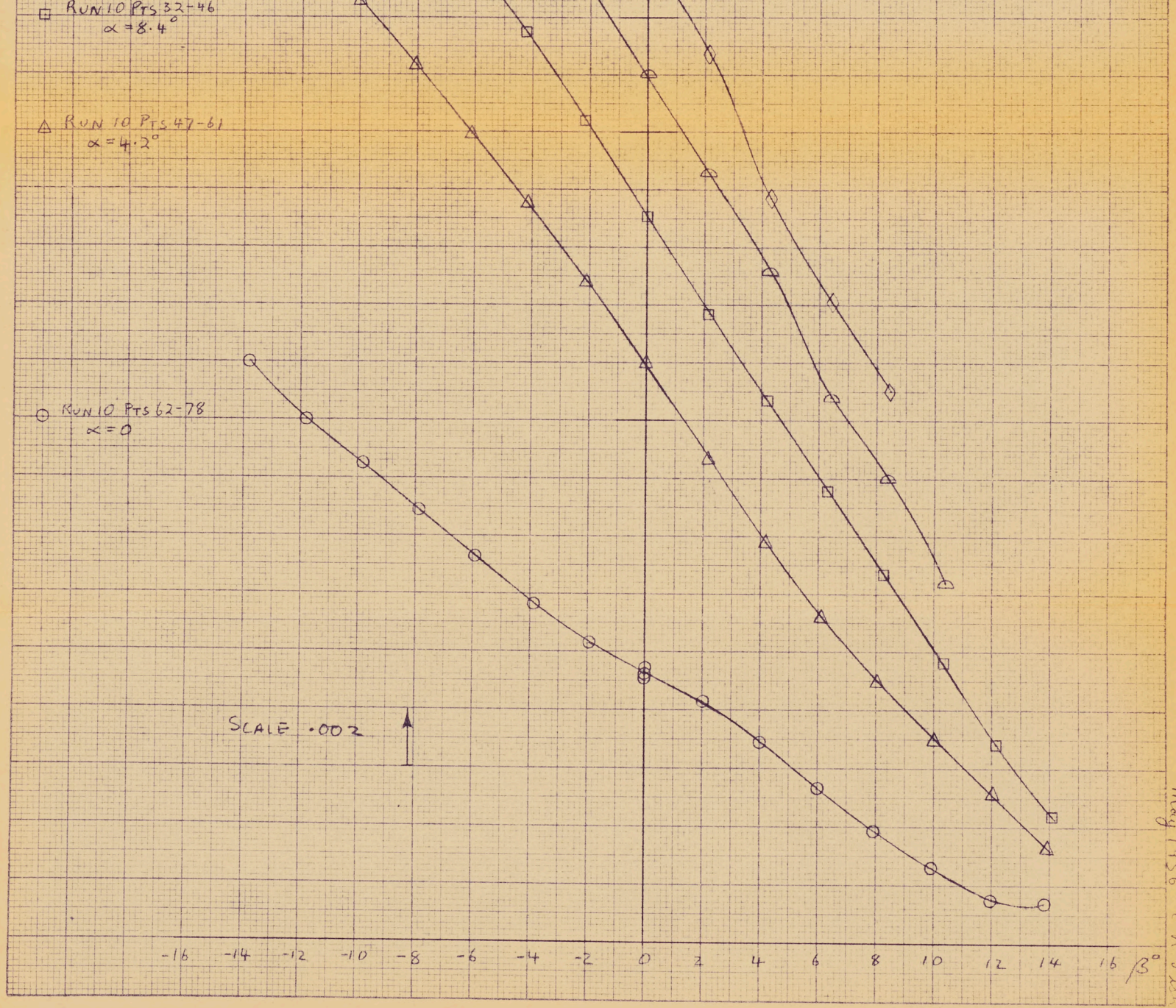
ORIGINS

◇ RUN 10 PTS 12-20
$\alpha = 15°$

⌓ RUN 10 PTS 21-31
$\alpha = 12.7°$

□ RUN 10 PTS 32-46
$\alpha = 8.4°$

△ RUN 10 PTS 47-61
$\alpha = 4.2°$



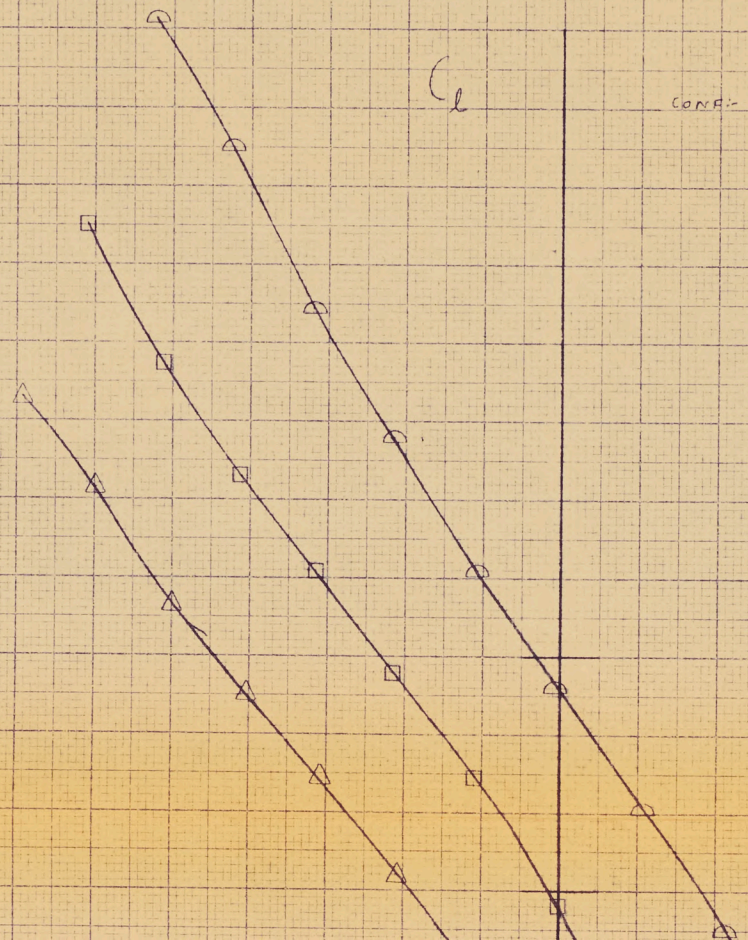
P/WT/111
May 1956 E R Tuck
9.12

C-105

·03 LANGLEY MODEL

C_l vs β

M = 1·41

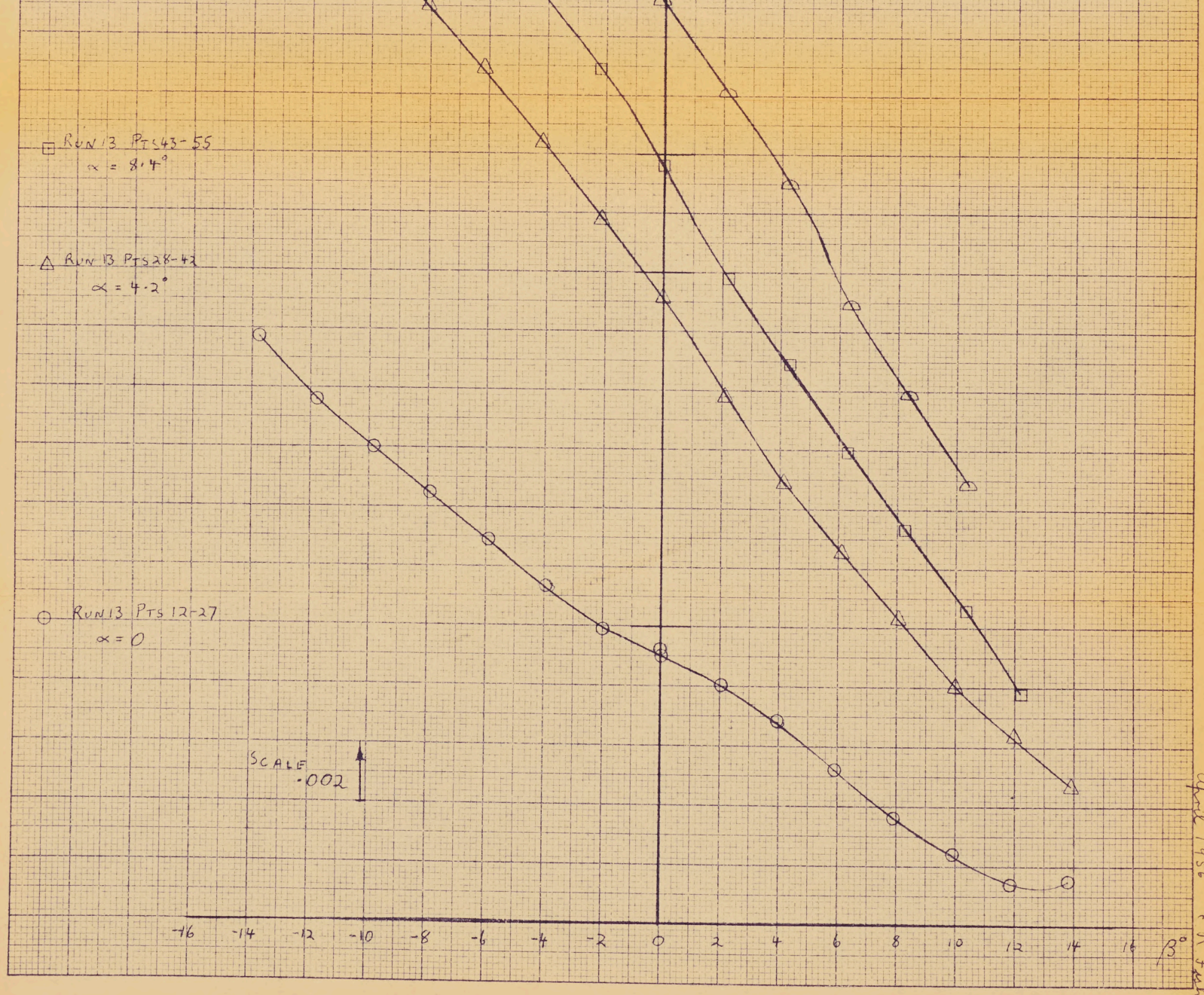


CONF:- B_{1-1} V_1 W_1 E_{1-0} N_5 D_{8-4}
-30° RADOME
-INTAKES OPEN.

ORIGINS

△ RUN 13 PTS 56-66
α = 12·7°

□ RUN 13 PTS 43-55
α = 8·4°



P/WT/111
April 1956
9.14
F R Fish

C-105

·03 LANGLEY MODEL

C_l vs β TAIL OFF

M = 1.41

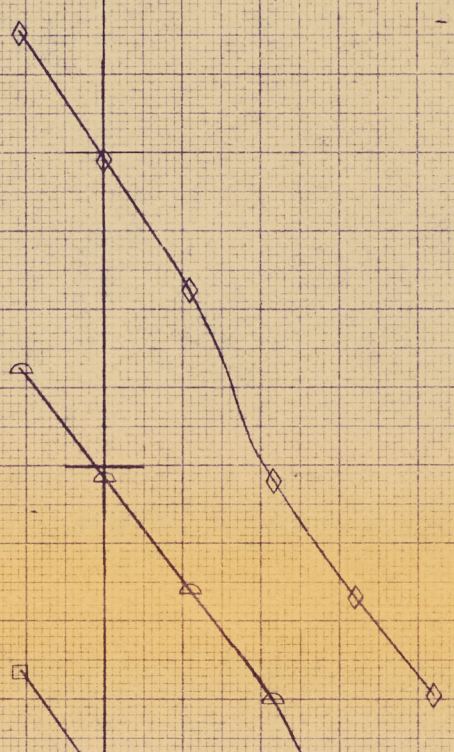
CONF:-
$B_1 W_1 E_{10} N_5 D_{8-4} F_D$
-50° RADOME
-INTAKES FAIRED

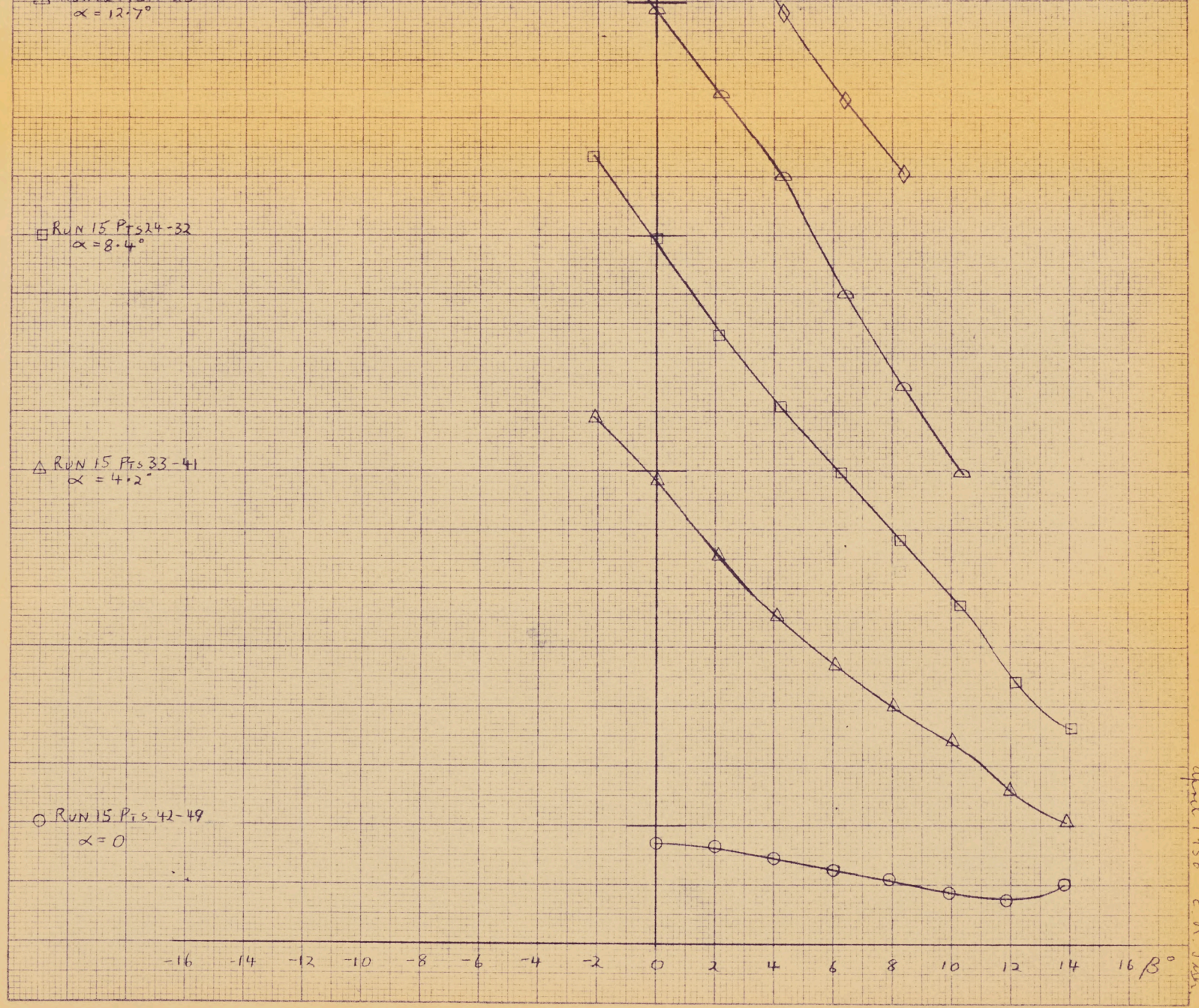
ORIGINS

SCALE ·002 C_l

◇ RUN 15 PTS 11-16
$\alpha = 15°$

△ RUN 15 PTS 17-23
$\alpha = 12.7°$





P/WT/111
9.15
April 1956 E.R. Tisb.

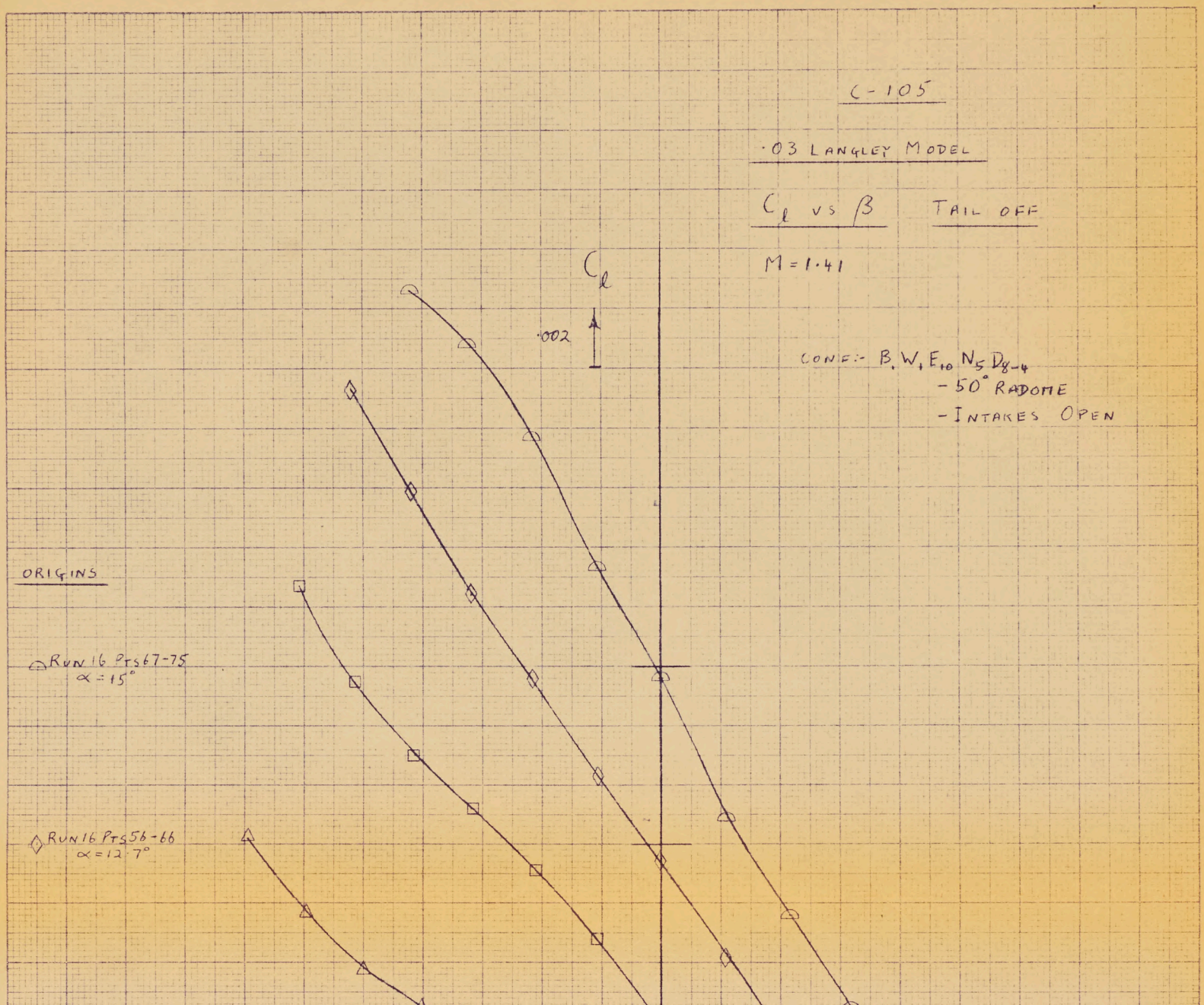
C-105

·03 LANGLEY MODEL

C_l vs β TAIL OFF

M = 1·41

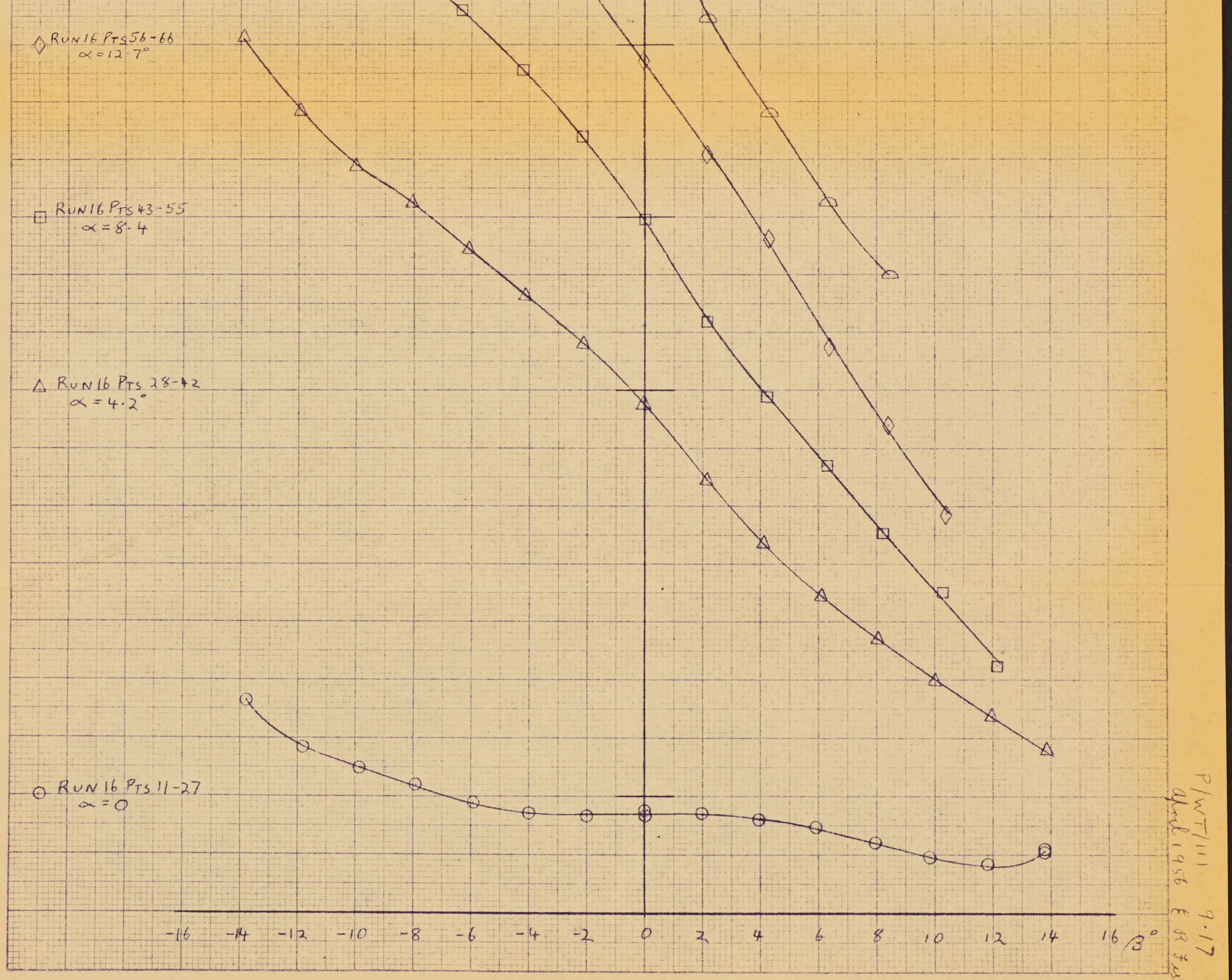
CONF:- B, W, E_{10} N_5 D_{8-4}
- 50° RADOME
- INTAKES OPEN



ORIGINS

△ RUN 16 PTS 67-75
α = 15°

◇ RUN 16 PTS 56-66
α = 12·7°



P/WT/111 9.17
April 1956 E R Tech

C-105

.03 LANGLEY MODEL

C_{Nf} vs α

M = 1.41

RUN.	CONFIG.	RADOME	INTAKES
11	$B_2V_1W_1E_{10}NSD_{8.4}$	5°	OPEN
12	"	5°	"
13	$B_{-1}V_1W_1E_{10}NSD_{8.4}$	3°	"

RUN WITH 5° RADOME AND $\delta R = 0$ NOT AVAILABLE

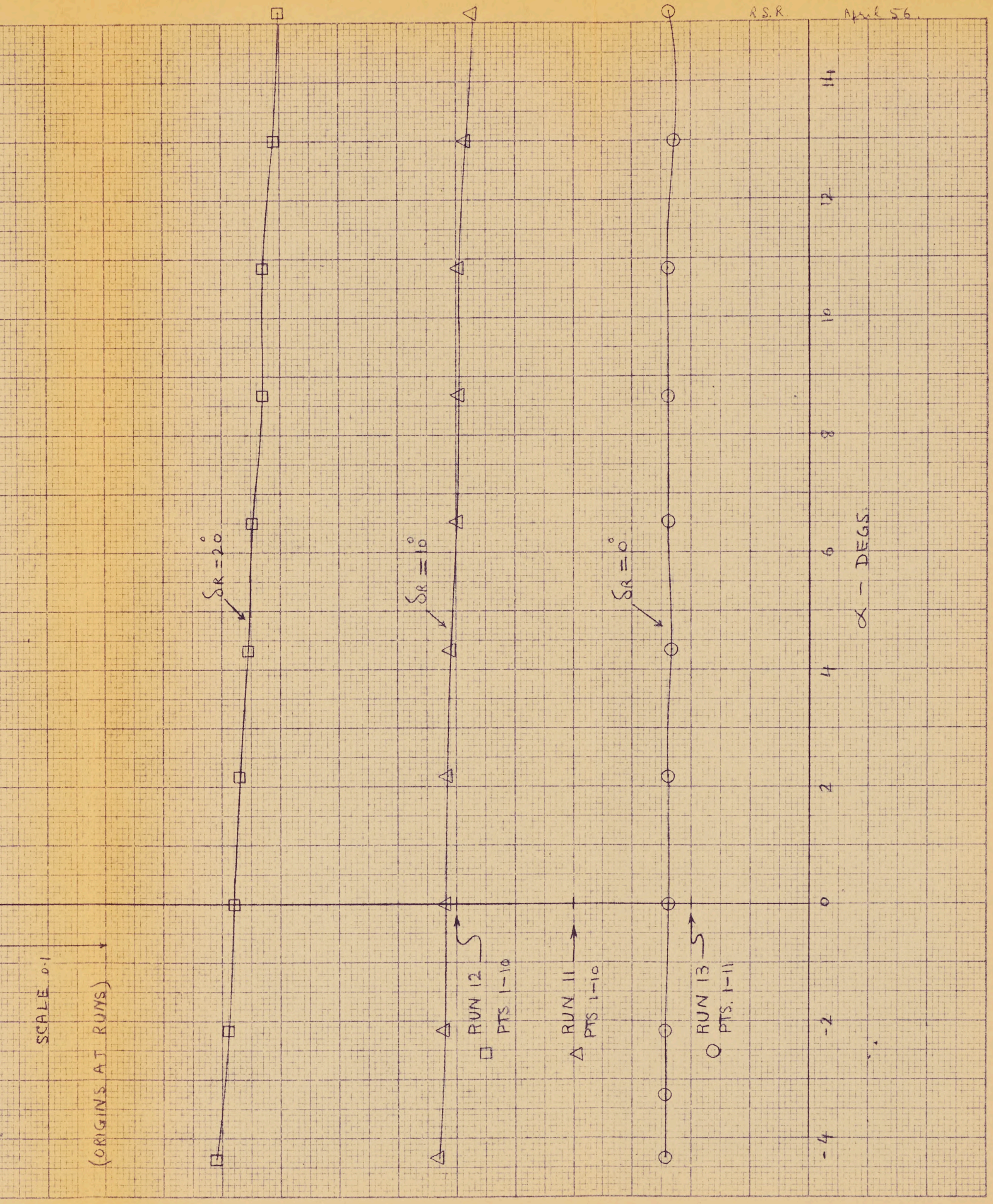
+| C_{Nf}

SCALE 0.1

(ORIGINS AT RUNS)

P/WT/111 Sheet. 10·5

R.S.R April 56.



C-105

03 LANGLEY MODEL

C_{Nf} vs. β°

M = 1·41

CONFIG. B, V, W, E_0, N_5, D_{8-4}, F_D
50° CONICAL RADOME
INTAKES FAIRED

$\alpha \doteq 15^\circ$
RUN 3 PTS. 68 TO 76

$\alpha \doteq 12·7^\circ$
RUN 3 PTS. 57 TO 67

$\alpha \doteq 8·4^\circ$
RUN 3 PTS. 42 TO 56

$\alpha \doteq 4·2^\circ$
RUN 3 PTS. 27 TO 41

$\alpha \doteq 0^\circ$
RUN 3 PTS. 11 TO 26

(ORIGINS AT α)

C_{Nf} SCALE 0·1

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

β — DEG.

P/WT/111 Sht 10 14
April 52 R.S.R.

C-105

·03 LANGLEY MODEL

C_{Nf} vs β

M = 1·41

CONFIG. $B_{1-1} V_1 W_1 E_{10} N_5 D_{3-1}$

30° CONICAL RADOME

INTAKES OPEN

□ $\alpha = 8.4°$

RUN 13 PTS. 43 TO 55

△ $\alpha = 4.2°$

RUN 13 PTS. 28 TO 42

○ $\alpha = 0°$

RUN 13 PTS. 12 TO 27

⊙ $\alpha = 12.7°$

RUN 13 PTS. 56 TO 66

C_{Nf}

SCALE 0·1

(ORIGINS AT α)

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

β – DEGS.

C-105

.03 LANGLEY MODEL

$C_{mf_{LE}}$ vs α

M = 1.41

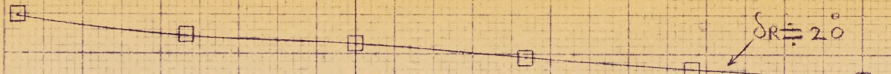
RUN	CONFIG	RADOME	INTAKES
11	$B_1V_1W_1F_{12}N_5D_{8-11}$	5°	OPEN
12	"	"	"
13	$B_{1-1}V_1W_1F_{10}N_6D_{8-11}$	3°	"

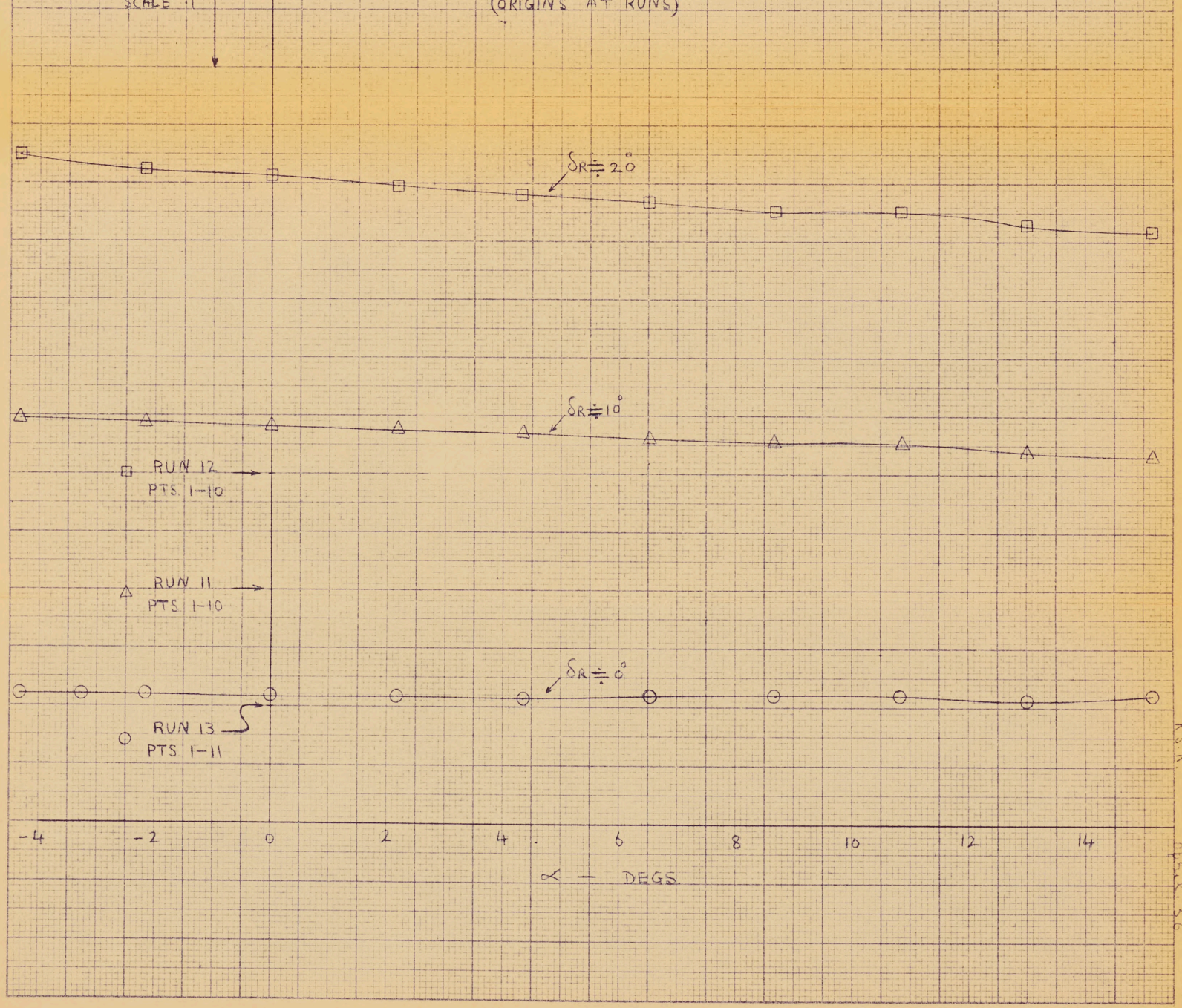
RUN WITH 5° RADOME AND δ_R=0 NOT AVAILABLE.

-tive $C_{mf_{LE}}$

SCALE 1

(ORIGINS AT RUNS)





P/WT/111
R.S.R.
Sheet 115

C-105

.03 LANGLEY MODEL

C_{mfR} vs α

M = 1.41

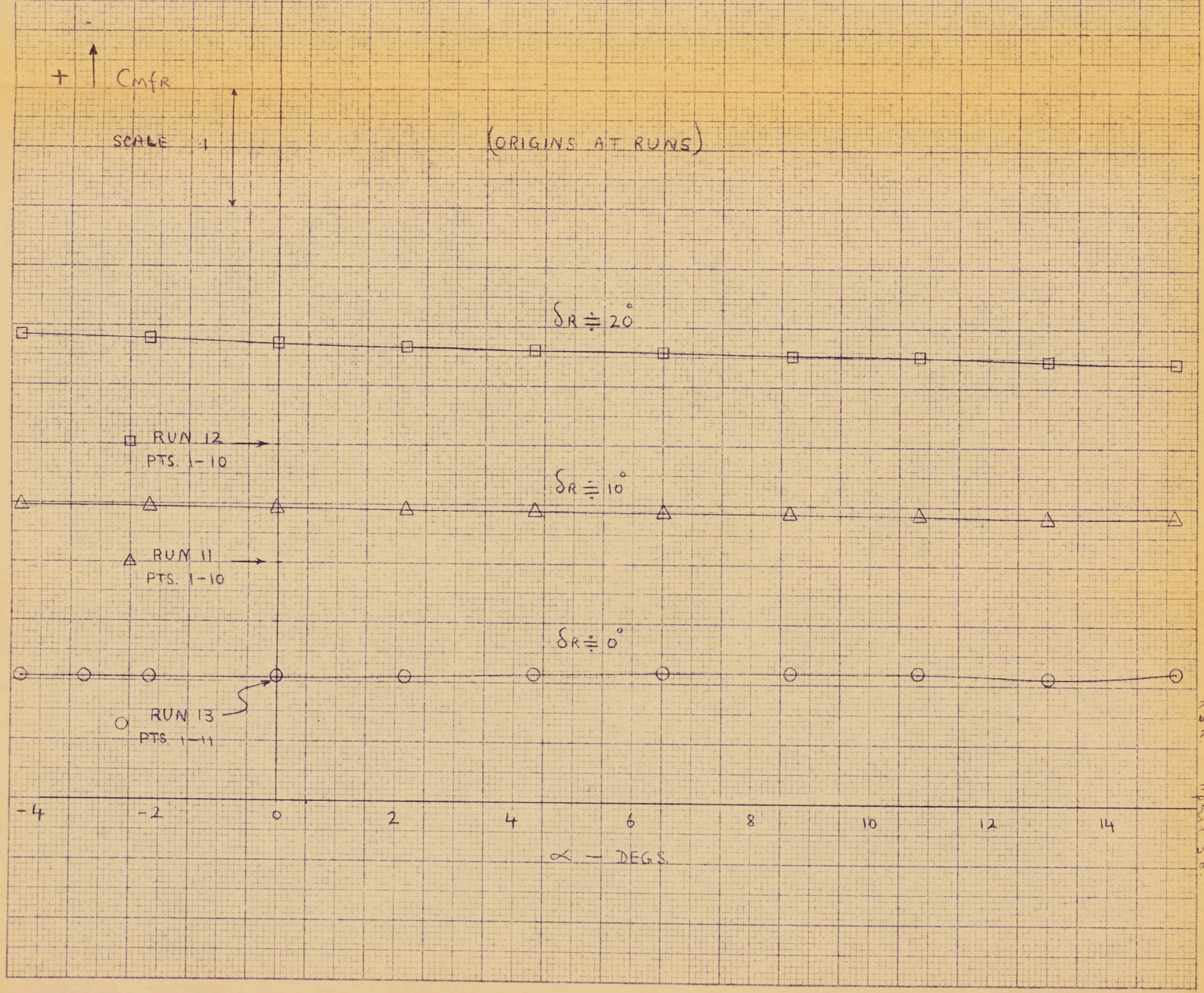
RUN	CONFIG.	RADOME	INTAKES
11	$B_1 V_1 W_1 E_{10} N_5 B_{3-4}$	5.0	OPEN
12	"	"	"
13	$B_{1-1} V_1 W_1 E_{10} N_5 B_{3-1}$	3.0	"

RUN WITH 5.0 RADOME AND $\delta_R = 0$
NOT AVAILABLE

+ C_{mfR}

SCALE 1

(ORIGINS AT RUNS)



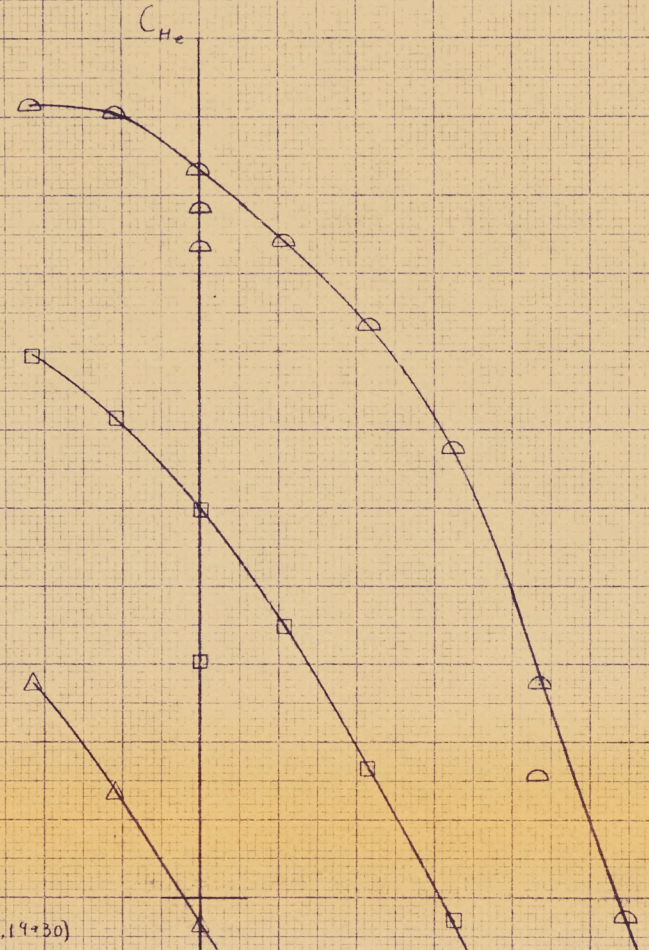
P/NT/111
Sheet 12.5
RSR April 56.

C-105

.03 LANGLEY MODEL

C_{H_e} VS α

M = 1.41



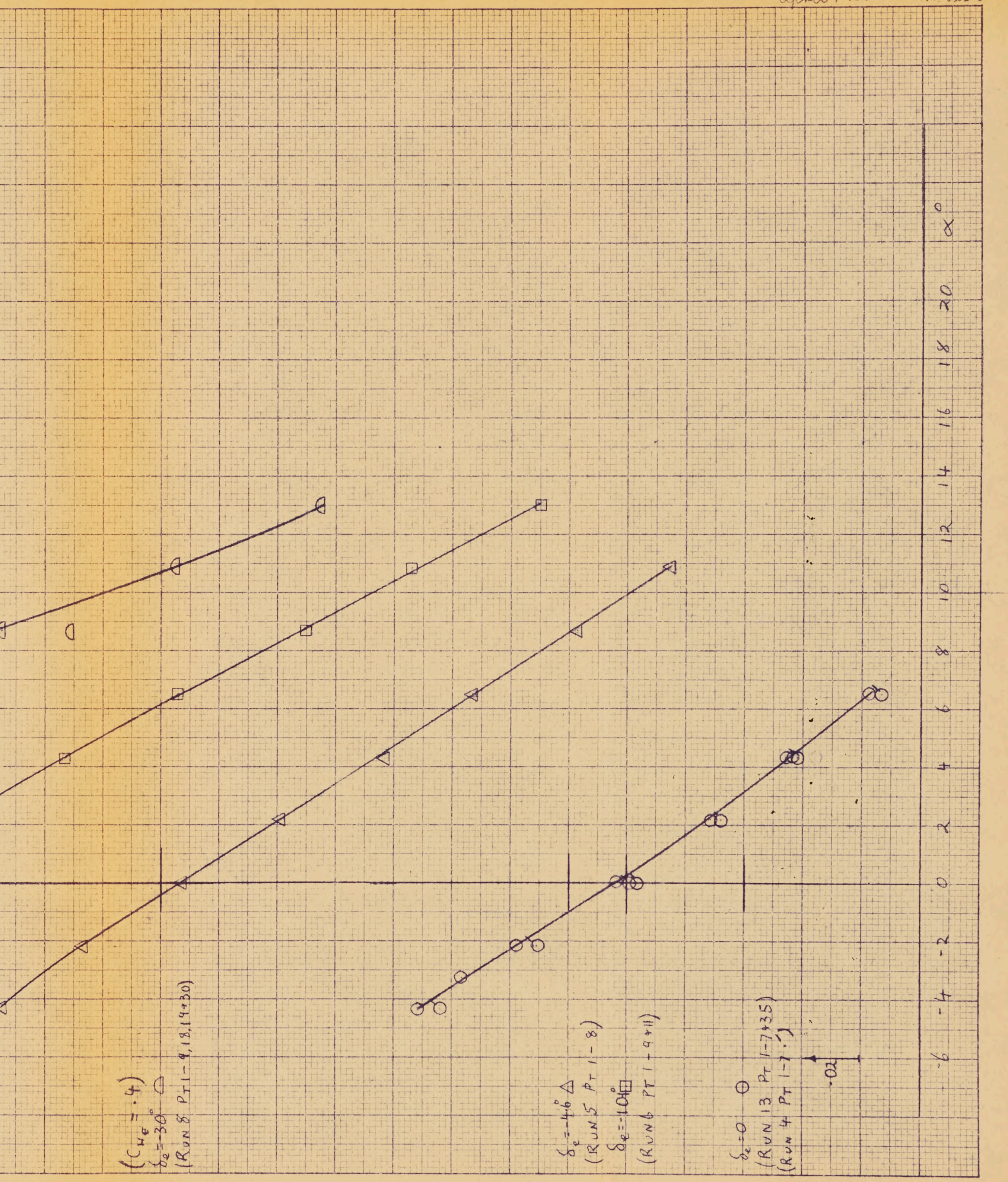
RUNS 5, 6 & 8 — CONF: $B, V, W, E_{10} N_5 D_{8-4}$
- 50° CONICAL RADOME
- INTAKES OPEN

RUN 4 — CONF: $B, V, W, E_{10} N_5 D_{8-4} R_N$
- TRANSITION

RUN 13 — CONF: $B_{1-1} V, W, E_{10} N_5 D_{8-4}$
- 30° CONICAL RADOME

P/WT/111 Sht. 13.7

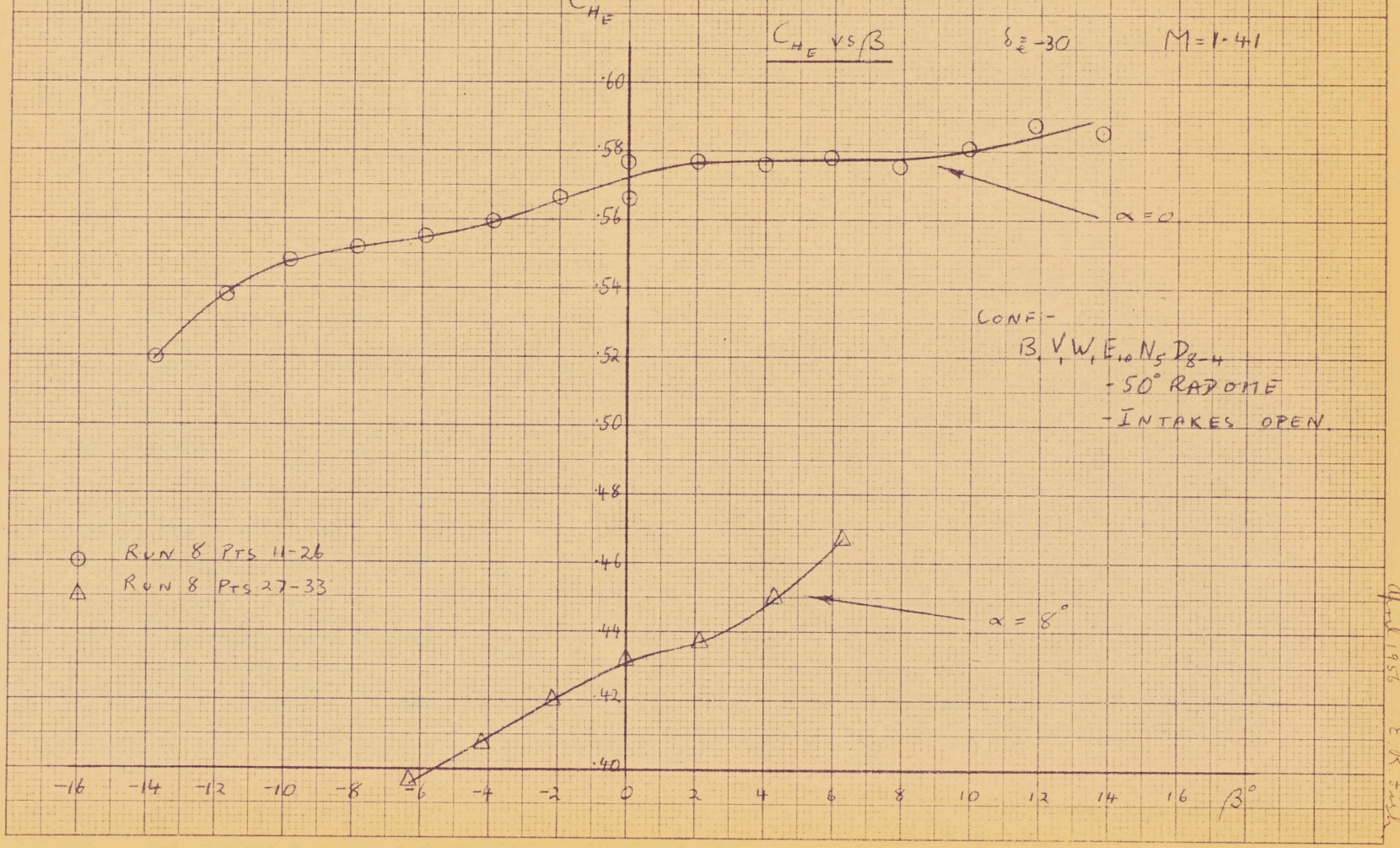
April 1956 E.R. Fish



C-105

.03 LANGLEY MODEL

C_{H_E} vs β δ_E -30 M = 1.41



CONFI-
B, V, W, E_{10} N_5 D_{8-4}
+ 50° RADOME
- INTAKES OPEN.

○ RUN 8 PTS 11-26
△ RUN 8 PTS 27-33

P/WT/111 Sht. 13.11

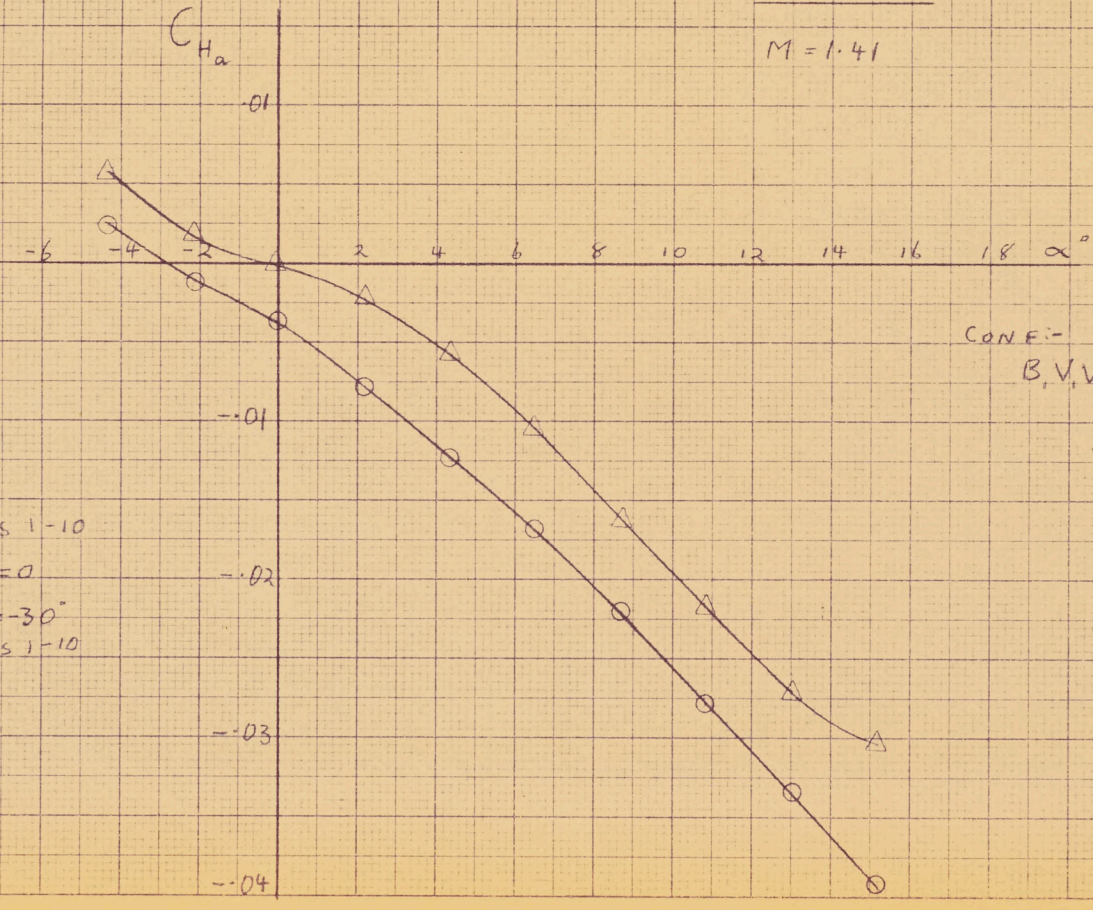
April 1956 E.R. Fisk

C-105

.03 LANGLEY MODEL

C_{H_α} VS α :- δ_A (MEASURED) = 4.2°

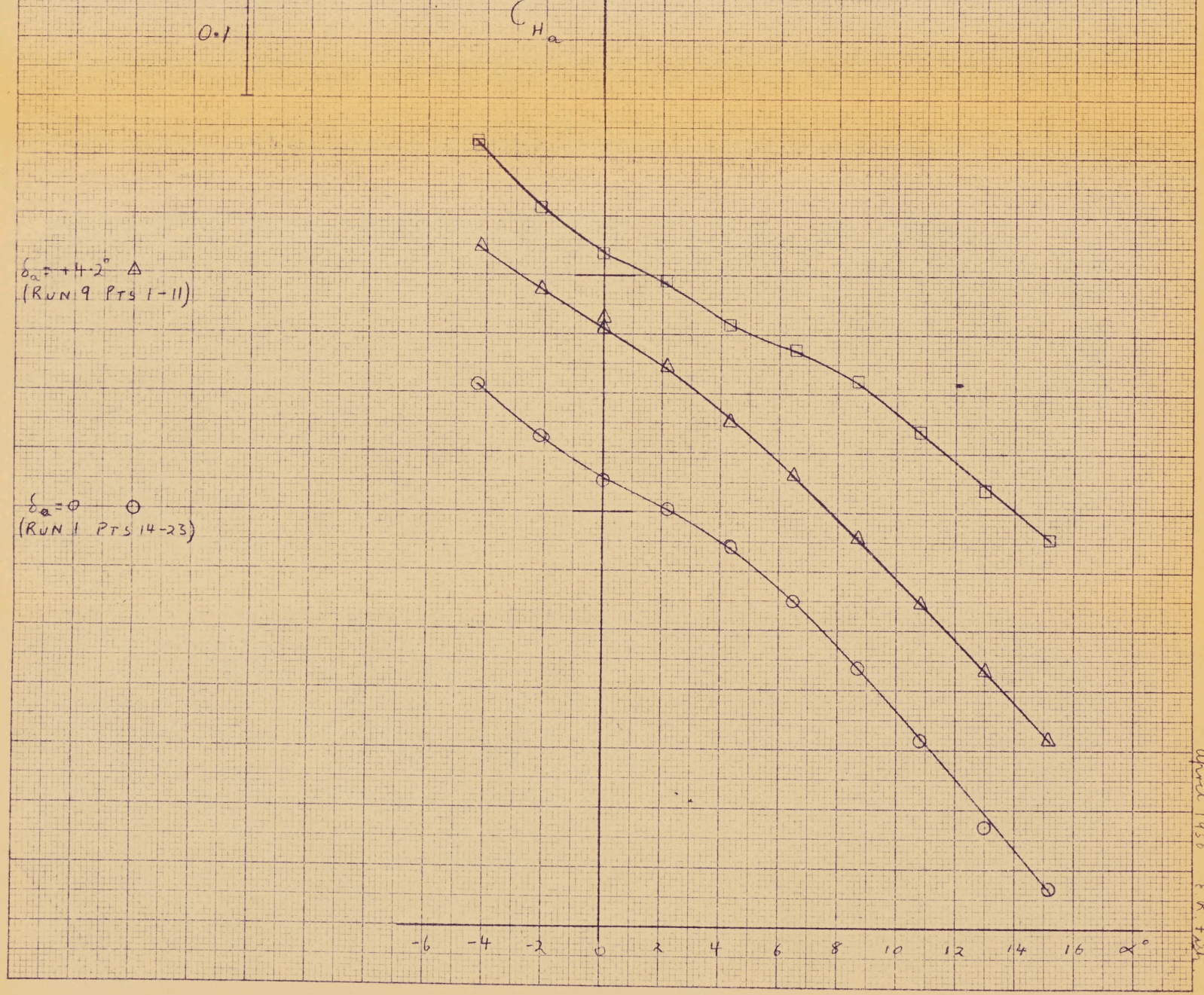
M = 1.41



CONF:-
B, V, W, E_{10} N_5 D_{8-4}
-50° RADOME
- INTAKES OPEN

RUN 9 PTS 1-10
○ δ_e = 0
△ δ_e = -30°
RUN 14 PTS 1-10

P/WT/111 Sht 14.2
April 1956 ERH



P/WT/111 Sht. 146
April 1956 F.R.F.ltd

C-105

·03 LANGLEY MODEL

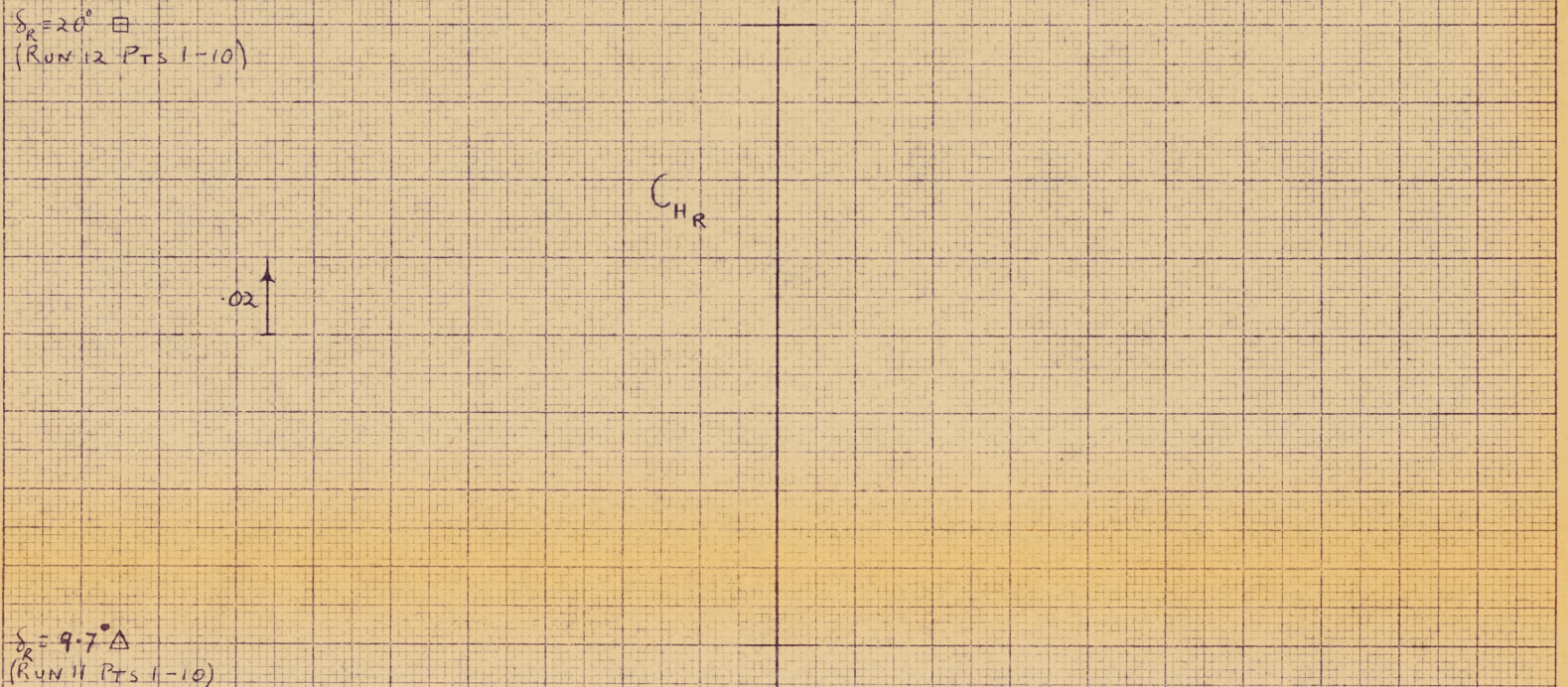
C_{HR} VS α

M = 1·41

CONF:- $B_1 V_1 W_1 E_{10} N_5 D_{8-4}$
- 50° CONICAL RADOME
- INTAKES OPEN

ORIGINS

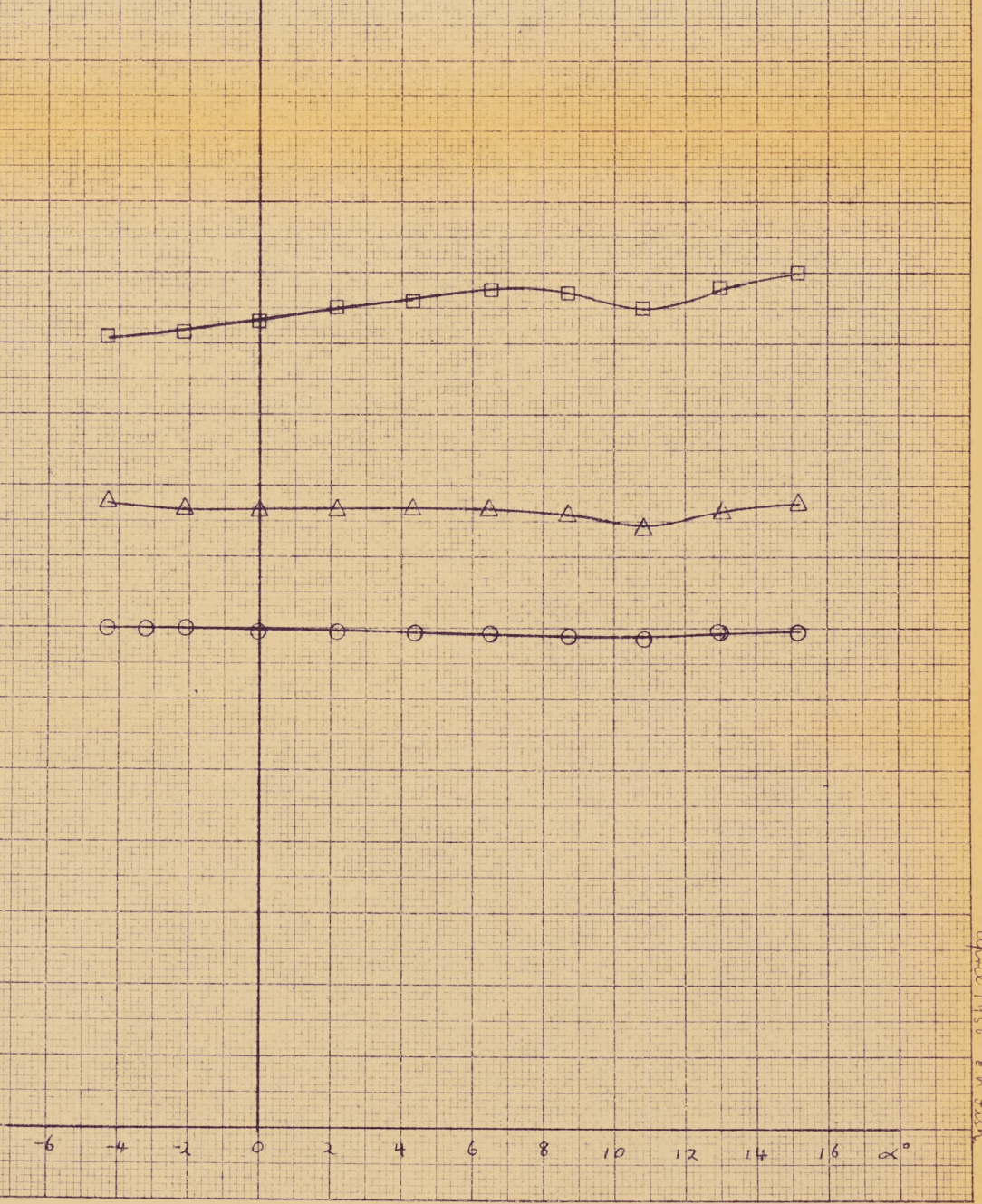
δ_R = 20° ⊞
(RUN 12 PTS 1-10)



δ_R = 9·7° △
(RUN 11 PTS 1-10)

$\delta_R = 9.7°$ △
(RUN 11 PTS 1-10)

$\delta_R = 0$ ○
(RUN 13 PTS 1-11)



P/WT/111 Sht. 15.5
Aprl 1956 ER Fish

C-105

.03 LANGLEY MODEL

C_{H_R} vs β $\quad \delta_R = 20°$

M = 1.41

CONF:- B, V, W, E_{10} N_5 D_{8-4}
- 50° CONICAL RADOME
- INTAKES OPEN

ORIGINS

$\alpha = 12.7°$ ⊖
(RUN 12 PTS 57-65)

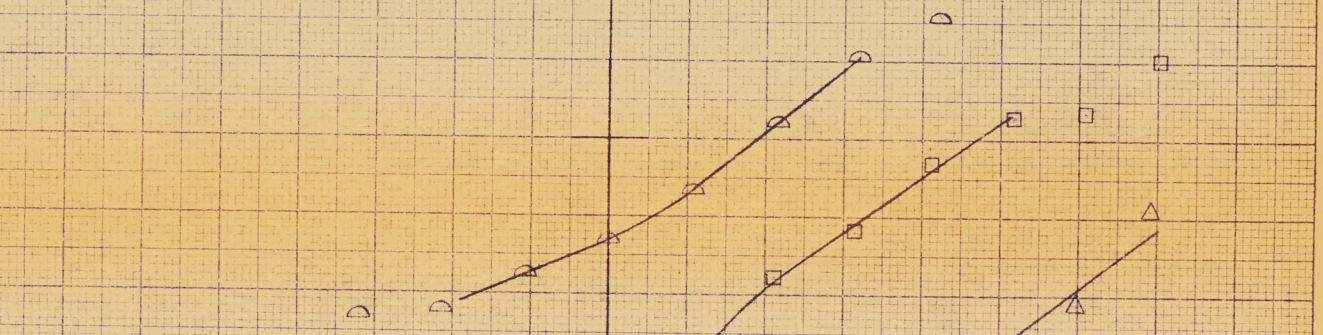
.02

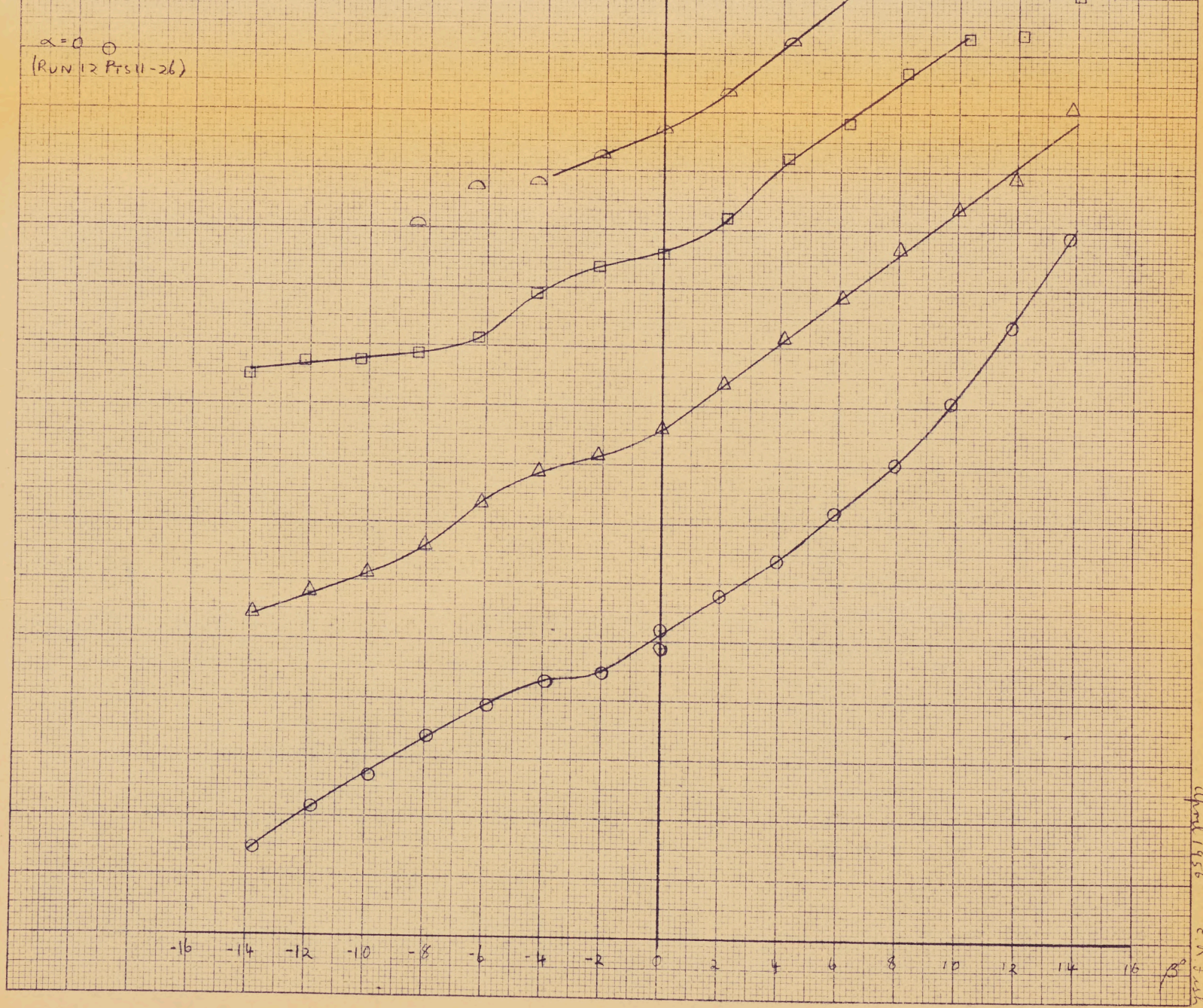
$\alpha = 8.4°$ ⊞
(RUN 12 PTS 42-56)

$\alpha = 4.2°$ △
(RUN 12 PTS 27-41)

$\alpha = 0$ ○
(RUN 12 PTS 11-26)

C_{H_R}





P/WT/111 Str. 15.13
April 1956
E.R. Fish.

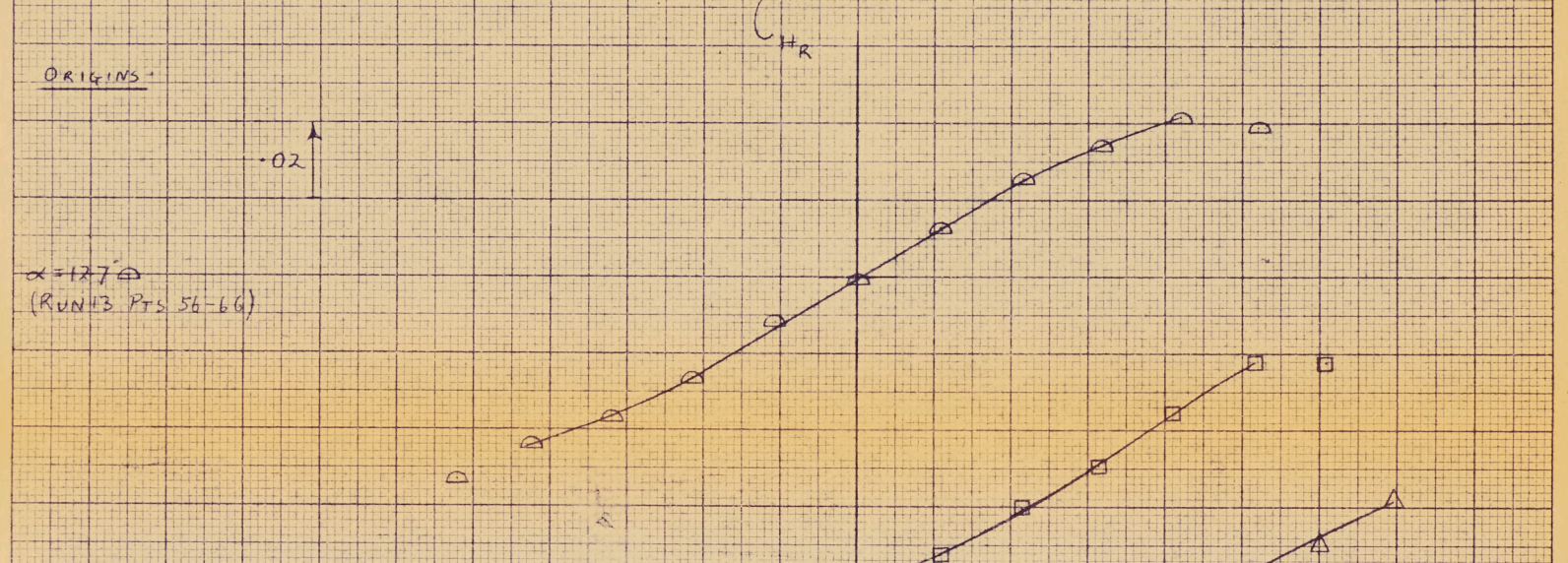
C-105

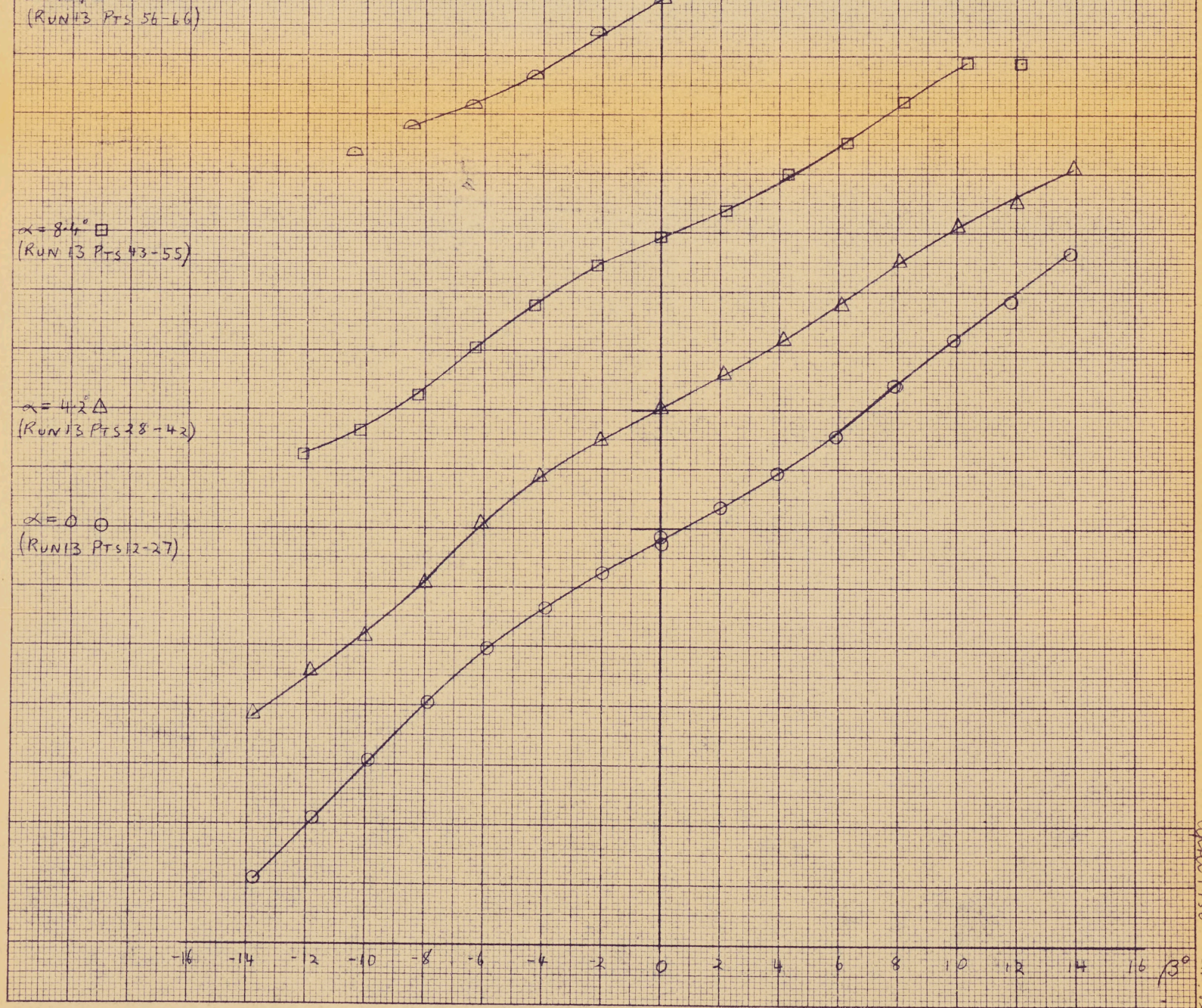
.03 LANGLEY MODEL

C_{H_R} VS β $\quad \delta_R = 0$

M = 1.41

CONF: B, V, W, E_{10}, N_5, D_{4-4}
-30° CONICAL RADOME
- INTAKES OPEN





P/WT/111 Sht. 15.14

Amdl 1956 E.R Fish.

P/WT/111 Sheet 16·9

April 56 RSR.

C-105

03 LANGLEY MODEL

C_{mfLE} vs C_{Nf}

$M = 1.41$

CONFIG. B, V_1 W_1 E_{10} N_5 D_{8-4} F_D

50° CONICAL RADOME

INTAKES FAIRED

▽ $\alpha \doteq 15°$

RUN 3 PTS. 68 TO 76

⌓ $\alpha \doteq 12.7°$

RUN 3 PTS. 57 TO 67

□ $\alpha \doteq 8.4°$

RUN 3 PTS. 42 TO 56

△ $\alpha \doteq 4.2°$

RUN 3 PTS. 27 TO 41

○ $\alpha \doteq 0°$

RUN 3 PTS. 11 TO 26

(ORIGINE AT α)

C_{mfLE}

SCALE ·1

-6 -5 -4 -3 -2 -1 0 ·1 ·2 ·3 ·4 ·5 ·6

C_{Nf}

C-105

.03 LANGLEY MODEL

C_{mfLE} VS C_{Nf}

$M = 1.41$

CONFIG. B_{-1} V, W, E_{10} N_5 D_{8-1}

30° CONICAL RADOM

INTAKES OPEN

△ $\alpha = 12.7°$

RUN 13 PTS. 56 TO 66

□ $\alpha = 8.4°$

RUN 13 PTS. 43 TO 55

△ $\alpha = 4.2°$

RUN 13 PTS. 28 TO 42

○ $\alpha = 0°$

RUN 13 PTS. 12 TO 27

(ORIGINS AT α)

C_{mfLE}

SCALE 0.1

-.6 -.5 -.4 -.3 -.2 -.1 0 .1 .2 .3 .4 .5 .6

C_{Nf}

April 56 RSR

C-105

·03 LANGLEY MODEL

C_{mfR} vs C_{Nf}

M = 1·41

CONFIG. $B_1 V_1 W_1 E_{10} N_5 D_{8-4} F_D$

50° CONICAL RADOME

INTAKES FAIRED

▽ $\alpha \doteq 15^\circ$

RUN 3 PTS. 68 TO 76

⌓ $\alpha \doteq 12{\cdot}7^\circ$

RUN 3 PTS. 57 TO 67

□ $\alpha \doteq 8{\cdot}4^\circ$

RUN 3 PTS. 42 TO 56

△ $\alpha \doteq 4{\cdot}2^\circ$

RUN 3 PTS. 27 TO 41

○ $\alpha \doteq 0^\circ$

RUN 3 PTS. 11 TO 26

C_{mfR} (ORIGINS AT α)

0·1 SCALE

-·6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

C_{Nf}

C-105
0.3 LANGLEY MODEL
C_{mfR} vs C_{Nf}
M = 1.41

CONFIG. $B_{+}, V, W, E_{10}, N_5, D_{8-4}$
30° CONICAL RADOME
INTAKES OPEN

△ $\alpha \doteq 12.7°$
RUN 13 PTS. 56 TO 66

□ $\alpha \doteq 8.4°$
RUN 13 PTS. 43 TO 55

△ $\alpha \doteq 4.2°$
RUN 13 PTS. 28 TO 42

○ $\alpha \doteq 0°$
RUN 13 PTS. 12 TO 27

C_{mfR} (ORIGINS AT α)

0.1 SCALE

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

C_{Nf}