

BOOK86R

Notes:

"Tinker Toy Experiments Series II" on front
"~25 kgU/unit" on front

"Series II" on spine
"II" on spine

Blank pages: inside front cover sheets, 2, 3, 36-152, inside back cover sheets

- photo(s) on following pages: 4, 6, 14(2), 18, 22, 26, 28, 30, 32
- pages 16 & 20 have a graph taped to each page
- pages 25/26 have a paper clip on side of page
- page 34 appears to have had a photo glued there at one time, but gone now
- pages 34/35 has a blank piece of lined paper between pages

Scanned by:

Sheila Finch

RSICC /Oak Ridge National Lab.

August 31, 1999

V₀ = 85, 74271

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FOR ITS FINE WRITING LEDGER SURFACE



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M A D E I N T H E U . S . A .

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TINKER TOY EXPERIMENTS

SERIES II ~26 kg units

Contents

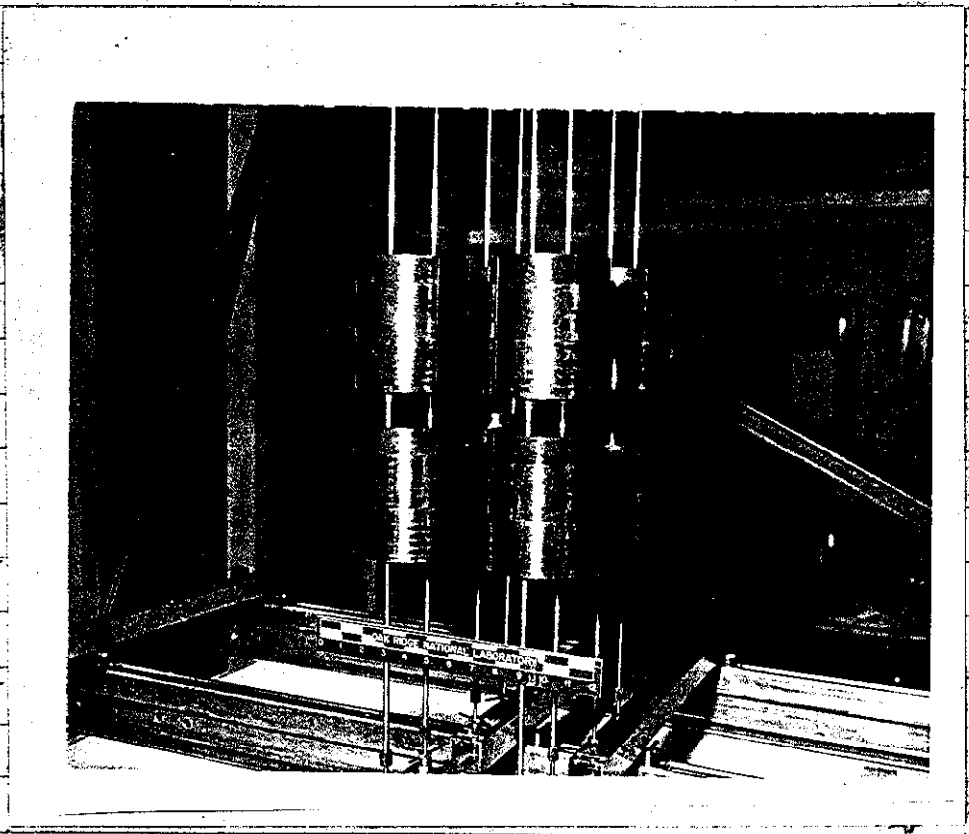
Expr	Description	Summary	Page
1	8 units ; 26.218 kg/unit	6	4
2	8 units ; 26.218 kg/unit cf of CTC and STS	8	8
3	8 units ; 4-26.218 kg/unit + 4-20.960 kg/unit	10	10
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Expt 1

Sub Assembly

①	②	③	④
211 2452	212 2456	221 2460	222 2463
5.262 ⁷	5.252	5.250	5.258 ⁸
2158	2168	2170	2162
10.467	10.490	10.491	10.519
2178	2193	2152	2190
10.442	10.473	10.469	10.443
26.224	26.215	26.210	26.220
111 2466	112 2288	121 2467	122 2458
5.252 ²	5.259 ⁹	5.251	5.259 ⁹
2189	2195	2156	2172
10.486	10.486	10.498	10.506
2205	2196	2200	2197
10.486	10.474	10.461	10.455
26.224	22.224	26.210	26.220

Average of 26.218 kg U/unit \Rightarrow 24.435 kg U²³⁵/unit

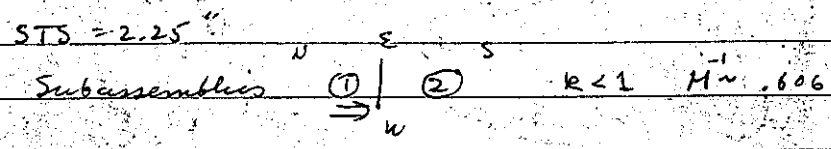


TINKER TOY
 Series II $\sim 25 \text{ kgU}$ Expt 1
 unit

8 units surface to surface separation came in 3 directions,

Instrument Check on 3-18-63 Source 10 mCi

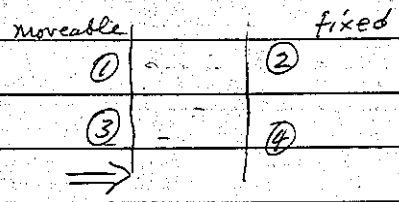
PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-11}$	Motor Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-11}$	Motor Trip	OK		
IC-3		Calibration			clock 2406
IC-4	Responds	Calibration	JH		M-230
CRM	Motor Trip				check list V

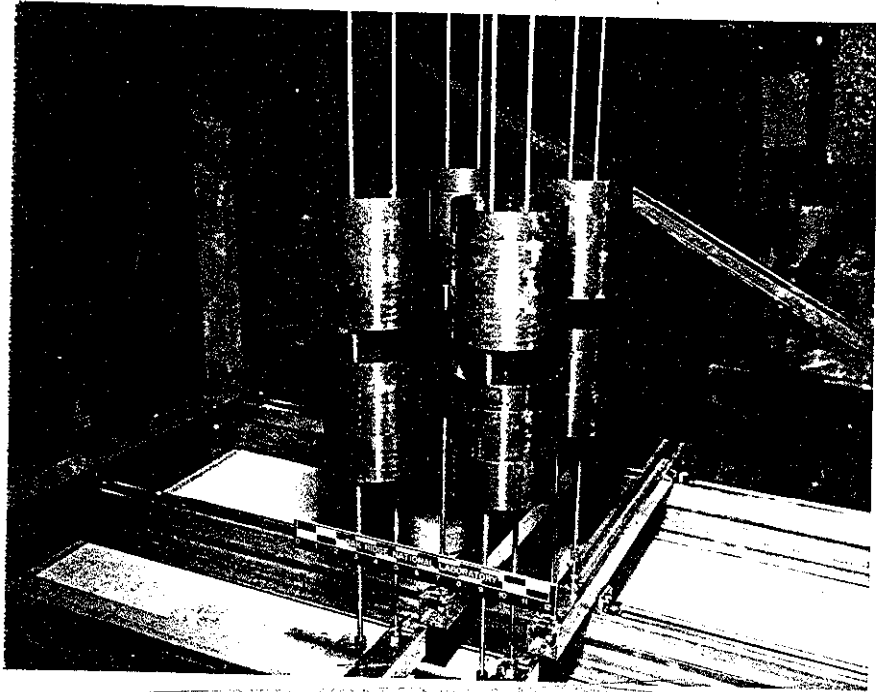


Placed 12 x 12 x 30" stack of polyethylene $\frac{1}{4}$ " from E surface
 of subassemblies; $k < 1$ $M \sim .532$

Placed ③ and ④ on tables $k < 1$

React spacing to 2.00"
 $k < 1$ $M < 2$





Expt 3d

Summary:

8 units, 26.217 $\frac{R_g U}{unit}$

S.T.S. = 1.395 ± 0.005

3.573 cm.

$V_L = 3.8520 R$

$R_u = 6.506 \frac{R}{L}$

$V_L = 235.032 \text{ in}^3$

$F = 0.36481$

$F = 1.36281$

Exp 1

Instrument Check on 3-19-63 Source 10 mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2409
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JH		check list ✓
CRM		Meter Trip			

Spacing set at $1 \frac{2}{32}$ " $k < 1$
 Reset EW and NS spacing to 1.576" $k < 1$

Reset spacing to $1 \frac{9}{16}$ $k < 1$ 3.4×10^{-4}
 Reset spacing to $1 \frac{2}{64}$ $k < 1$

Instrument Check on 3-20-63 Source 10 mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2410
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JH		check list ✓
CRM		Meter Trip			

Moved EW and NS planes closer by .070" $k = 2$ at 0.031" tables sep. $\pm 2 \frac{2}{10}$
 positive period of ~ 152 sec. tables together.

Reset spacing to $1 \frac{25}{64}$ " $k = 1$ tables at .073
 positive period of ~ 48 sec. tables at .049"

Moved EW planes ~~closer~~ ^{set} by .010" $k = 1$ at .041"
 positive period of ~ 48 sec. with tables together

Based upon experiment 1 and experiments of Series I
 Spacing necessary to have $R=1$ would be 1.702" between
 cylindrical surfaces. This gives a cell volume of

$$\frac{(4.53 + 1.702)^2}{6.232} (5.300 + 0.875) = 239.8 \text{ in}^3$$

The center-to-center distance to give this cell volume
 is 6.212". This small difference is a small effect on R .

$$15.778 \text{ cm}; V_L = 3.9278 \text{ l}; R_A = 6.675 \text{ } \mu\text{m}; F = .35521$$

Conclusion: CTC spacing is more reactive than STS
 spacing for 26.2 K_gO - units. The increase in cell
 volume required in changing from STS to CTC is
 2.1%.

Expr 2

8 units with center-to-center distance same in 3 dimensions.

UTC = 6.172" (STS flat set at 0.875 and cyl. 1.650")

Instrument Check on 20-21-63 Source 10mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		clock 24V
IC-3		Calibration			H-230
IC-4	Responds	Calibration	JTT		Check list ✓
CRM		Meter Trip			

$R > 1$, $k = 1$ when tables sep. 0.168"; $R > 1$ pos. period ~ 48 sec @ 0.134"

changed spacing in E-W & N-S planes: .020" out.

$R > 1$, $k = 1$ when tables sep 0.132"; $R > 1$ pos. period ~ 60 sec @ 0.088"

changed spacing in E-W and N-S planes: .030" out.

$R > 1$, $k = 1$ when tables sep. 0.055"; $R > 1$ pos. period ~ 73 sec @ 0.000
 $p = 12.34$

Summary:

8 units 26.218 kg/unit

STS between flat surfaces 0.875 } $k > 1$
 STS " cyl. " 1.700 }

Expr 3

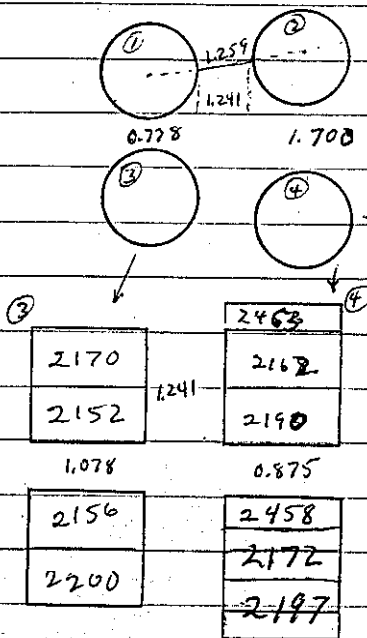
From Expr 38 of Series I 8 units, 20960 RU/unit , at a CTC $\sim 5.318 \text{ in.}$ (Cell dimensions: sep between cyl. surfaces 0.778 in. , sep. between flat surfaces 4.078 in.) the array had a $k > 1$ and a period (pos.) of $\sim 76 \text{ sec}$ when tables were together.

From Expr 2 of series II, 8 units 26.218 kg U/unit , at a CTC $\sim 6.212 \text{ in.}$ (Cell dimensions: sep between cylindrical surfaces 1.700 in. , sep between flat surfaces 0.875 in.) the array had a $k > 1$ and a positive period of $\sim 73 \text{ sec.}$

Question what is result of half of each of these two arrays being together?

3-21-63

Expt 3.



$k < 1$ by ≥ 1.00

Expt 4 subassemblies

①

311	
2467	5.252
2186	10.365
2194	10.507
211	26.124
2455	5.223
2170	10.491
2182	10.392

111

2268	5.259
2162	10.519
2160	10.340
	26.118

④

321	
2459	5.244
2159	10.380
2156	10.498
221	26.122
2464	5.219
2184	10.404
2195	10.483
	26.106

121

2454	5.252
2161	10.365
2172	10.506
	26.123

⑦

331	
2460	5.250
2165	10.412
2191	10.360
	26.022

231

2473	5.210
2168	10.490
2198	10.395
	26.095

131

2458	5.259
2199	10.523
2174	10.322
	26.104

②

312	
2461	5.223
2152	10.469
2166	10.422
212	26.114
2287	5.227
2158	10.469
2177	10.424
	26.120

112

2468	5.224
2173	10.428
2155	10.462
	26.114

⑤

322	
2472	5.242
2196	10.479
2153	10.420
222	26.141
2462	5.237
2197	10.455
2202	10.445
	26.137

122

2474	5.233
2193	10.473
2185	10.427
	26.133

⑧

332	
2469	5.217
2190	10.443
2200	10.461
	26.121

232

2471	5.226
2181	10.422
2205	10.486
	26.134

132

2290	5.213
2154	10.454
2167	10.439
	26.106

③

313	
2470	5.247
2178	10.493
2187	10.386
213	26.126
2457	5.222
2169	10.403
2204	10.480
	26.105

113

2463	5.258
2171	10.311
2201	10.544
	26.113

⑥

323	
2451	5.242
2179	10.495
2192	10.385
223	26.122
2289	5.221
2164	10.458
2176	10.480
	26.109

123

2456	5.252
2175	10.371
2180	10.501
	26.124

⑨

333	
2466	5.252
2163	10.353
2203	10.515
	26.120

233

2453	5.204
2189	10.486
2157	10.400
	26.090

133

2452	5.262
2183	10.529
2188	10.318
	26.107

ave. 26.1132 kg/unit or 24.3375 kg U²³⁵/unit

EXPR. 4

27 units; 26.218 Rg/unit; unreflected. STS = 3.328"

Instrument Check on 3-22-63 Source 10 mCV

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2411
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JIT		Check list ✓
CRM		Meter Trip			

$R=1$ at 0.320" separation of tables

Increased spacing between E-W planes by .010"

$R=1$ at 0.244" sep.

$R>1$ positive period ~ 75 sec @ .188"

Increased spacing between E-W planes by .010" and N-S planes by .020"

$R>1$ positive period of ~ ⁴⁴ sec at .044"; $R=1$ at 0.122"

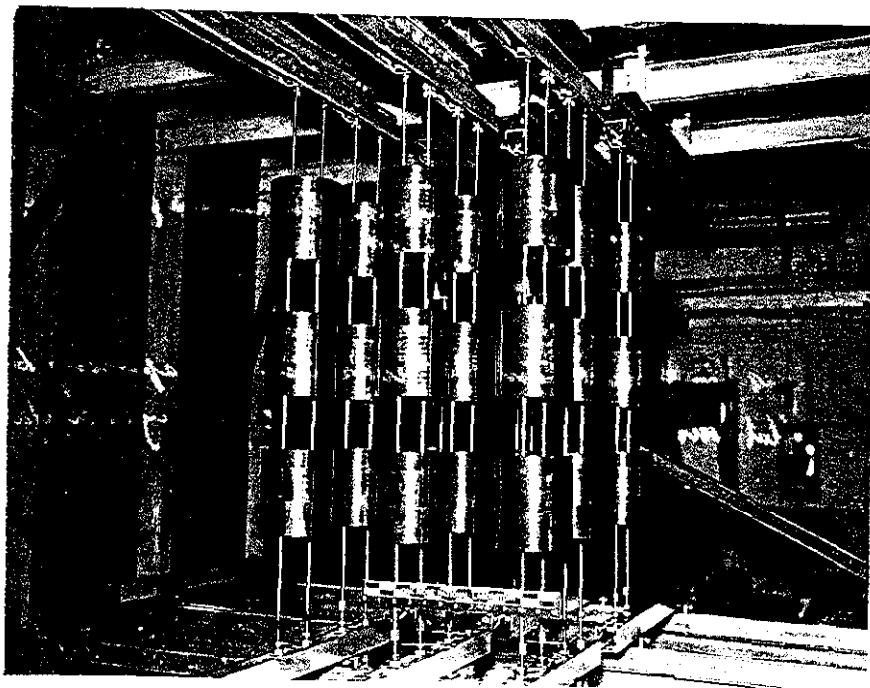
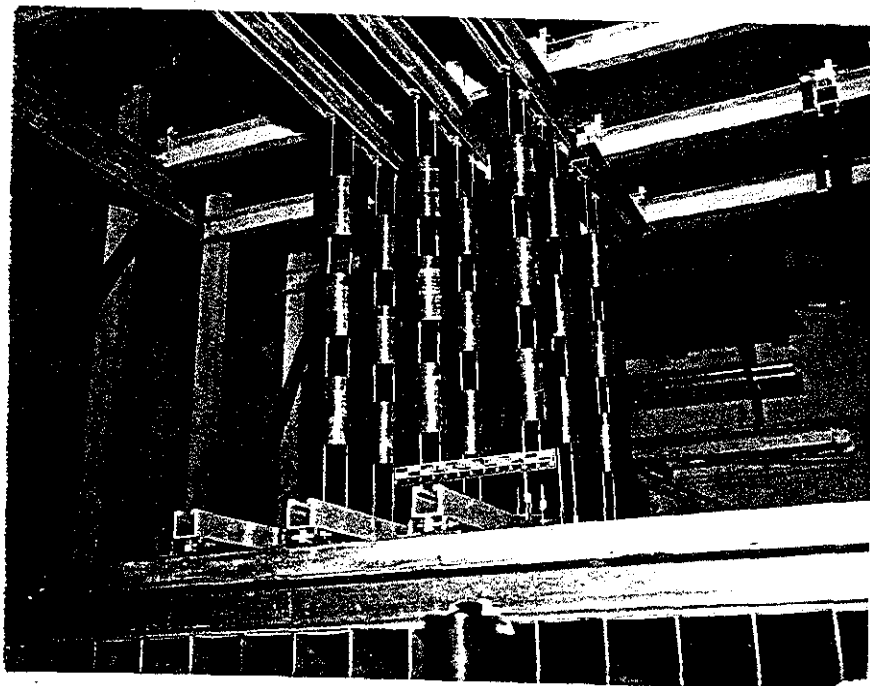
Increased E-W spacing by .015"

$R=1$ at 0.092"; positive period ~ 65 sec at 0.000"

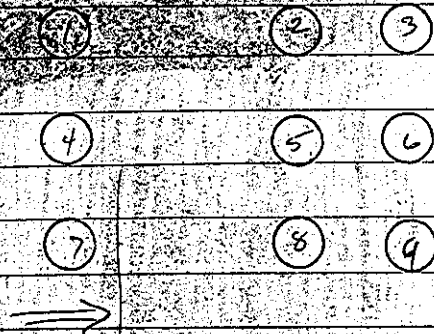
Extrapolate: $R=1$ when E-W and N-S planes sep. further by 0.034"

This is equivalent to increase in spacing between flat surfaces by .015" and same for cyl. surfaces.

Expt A.



Expt 4

location of
subassemblies
 $k=1$ when $STS = 3.344 \pm .005$

3-22-63

Summary
27 units; 26.113 kg/unit
STS = 3.344 \pm .005 in
- - 8.494 cm.

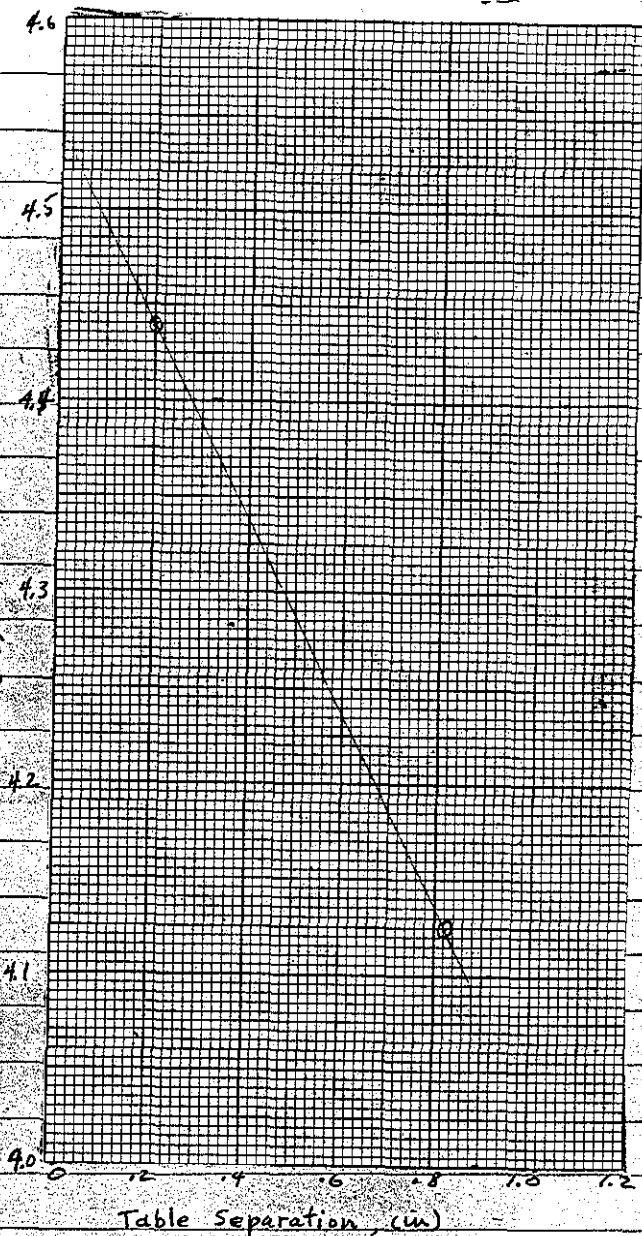
$$V_L = 535.927 \text{ in}^3$$

$$F = 0.15998$$

$$V_L = 8.7636 \text{ L}$$

$$P_w = 2.979718\%$$

$$F = .15883$$



Summary

8 units

26.2 kgU/unit

1 1/2" paraffin Reflector

S.T.S. = 4.540 ± .005 in

11.532 cm.

$V_L = 13.2674 R$

$V_A = 1.9761287cc$

$F = .10533$

$V_L = 808.487 m^3$

$F = 0.10592$

Expr. 5.

8 units 26.2 kg U/unit $1\frac{1}{2}$ " - paraffin reflector STS = $4\frac{1}{2}$ "Instrument Check on 3-26-63 Source 10 mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2413
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		checklist ✓
CRM		Meter Trip			

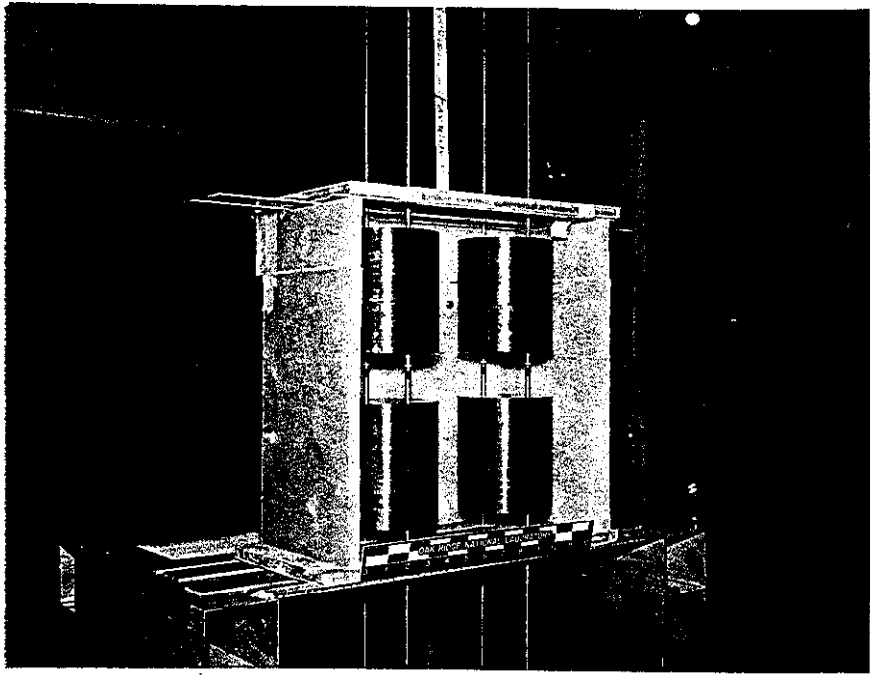
 $R=1$ when tubes separated by 0.821 " $R>1$, positive period of ~ 89 sec at 0.782 "Instrument Check on 3-27-63 Source 10 mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2413
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		checklist ✓
CRM		Meter Trip			

Changed STS to 4.438 " $R=1$: tubes sep. by 0.200 " $R>1$ pos. period ~ 43 sec at 0.128

523

Experiment 6



Exp. 6

Units: 26.2 kgU/unit; 1/2" paraffin reflector STS = 2.109" (27/64)

Instrument Check on 3-28-63 Source 10mc V

PM-1	Low Trip	OK	Alarm Trip	OK
PM-2			Alarm Trip	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK	clock 2414
IC-3		Calibration		M-230
IC-4	Response	Calibration	JII	check list ✓
CRM		Meter Trip		

k=1; tables separated by 0.180 in.

10 AM k > 1; " " " 0.094 positive period ~ 32.5 sec.

10:20 AM k=1 tables sep by 0.195

k > 1 " " " 0.134 positive period ~ 65

k > 1 " " " 0.152 " " ~ 72

1:30 pm Reset Spacing to 2.242"

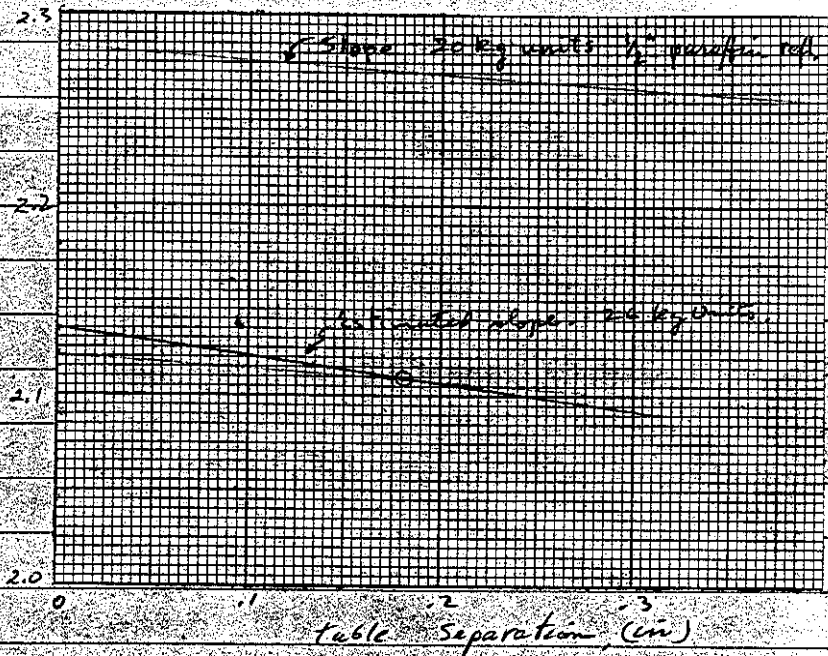
k < 1 by more than 1.00 Bottom reflector prevents box from closing. Readjusted reflector and moved z-w plane closer by 0.625"

Now STS E-W 2.117"

- N-S 2.242"

flats 2.242

k < 1 by more than 1.00



Summary
 8 units 26.218 kg U(93.2)/unit
 1/2-in-thick paraffin reflector
 STS = 2.135 in ± 0.010
 5.423 cm.

$V_L = 330.279 \text{ in}^3$
 $R = 0.25960$

$V = 5.41333 \text{ l}$
 $\rho_0 = 4.84322 \text{ g/cc}$ $F = .25816$

Experiment 6

8 units, 26.2 kv/unit, 1/2" paraffin reflector STS = 2.179

Instrument Check on 3-29-63 Source 10 mc X

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-11}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-11}$	Meter Trip	OK		Clock 2914
IC-3		Calibration			M=43
IC-4	Responde	Calibration	JIT		check list ✓
CRM		Meter Trip			

10^{4M} R < 1, gap in top reflector

10³⁰ km corrected gap.

R < 1 neg. period ~ 85 sec

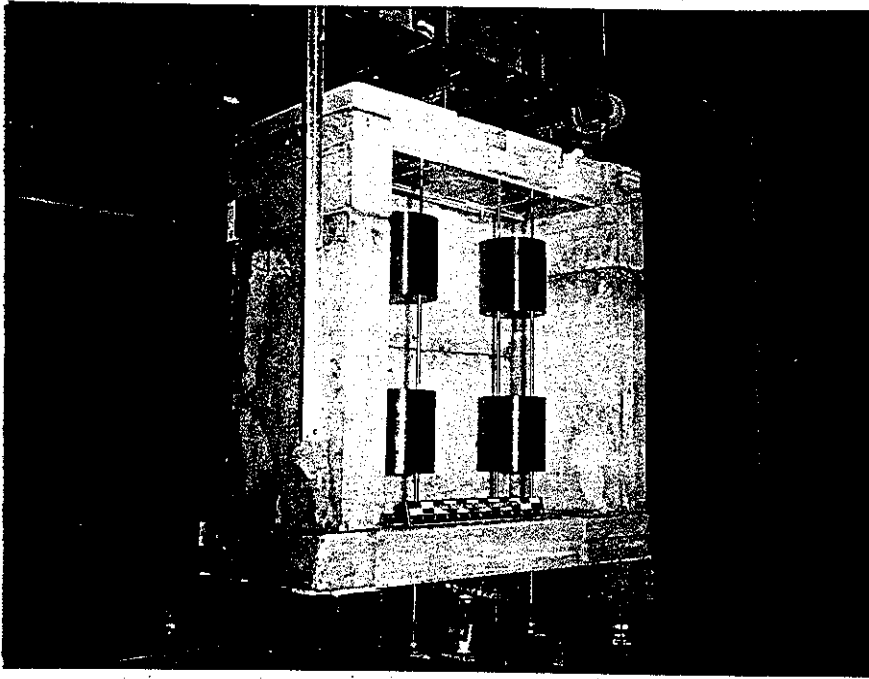
Extrapolated critical STS is 2.135 in.

9 in³

0

22

Experiment 7



4-10-63

Expr. 7

Units 2.62×10^{-4} / unit ; 3" paraffin reflector STS $6 \frac{3}{8}$ "

Instrument Check on 4-1-63 Source 10mcY

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	2.3×10^{-4}	Meter Trip	OK	Fast Trip	OK
IC-2	2.3×10^{-4}	Meter Trip	OK		Clock 2416
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		check list ✓
CRM		Meter Trip			

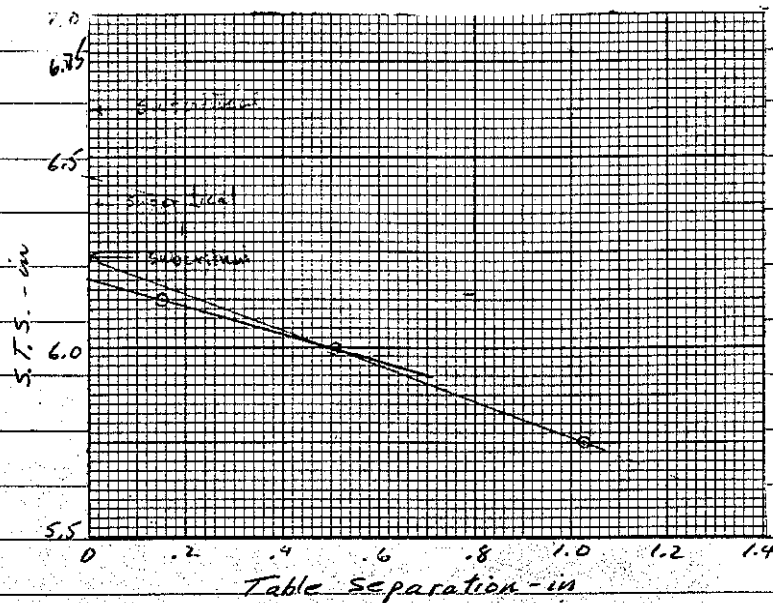
R21

4-2-63 Reset spacing to $6 \frac{3}{8}$ "

Instrument Check on 4-2-63 Source 10mcY

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	2.3×10^{-4}	Meter Trip	OK	Fast Trip	OK
IC-2	2.3×10^{-4}	Meter Trip	OK		Clock 2416
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		check list ✓
CRM		Meter Trip			

R21



Summary
 8 units; 26.2 kgU/unit
 3" paraffin reflector
 S.T.S. = 6.280 ± 0.005
 15.697 cm.

$V_1 = 1316.803 \text{ in}^3$
 $F = 0.06511$
 $V_2 = 21.5803 \text{ l}$
 $P_0 = 1.2149 \text{ g/g}$ $F = 0.06476$

Instrument Check on 4/10/63 Source 10 mcd

React opening to 6"8"

Instrument	Setting / Action	Result	Notes
PM-1	Low Trip	OK	Alarm Trip OK
PM-2			Alarm Trip OK
IC-1	$> 3 \times 10^{-11}$ Meter	OK	Fast Trip OK
IC-2	$> 3 \times 10^{-11}$ Meter	OK	
IC-3	Calibration		clock 2448
IC-4	Responds Calibration	OK	H-230
CRM	Meter Trip		check list ✓

$k > 1$ positive period ≈ 51 sec. tables together } Top reflector and $1/3$ sides
 $k = 1$ at 0.146 in. separation } not closed

React reflector

$k > 1$ positive period ≈ 46 sec. tables together.
 $k = 1$ at 0.155 in. separation

Experiment 7

Reset Spacing to 5.750"

Instrument Check on 4-3-63 Source 10 meV

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock - 2417
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		check list ✓
CRM		Meter Trip			

$k > 1$; positive period of 43 sec at 0.935" 2 R=1
13.8 17 1/2

$k > 1$; " " " 108 " at 0.975" 5 13.8 9 1/2

R=1 at 1.025" table separation.

Reset Spacing to 6.000"

$k > 1$; positive period of ~ 67 sec at 0.430" 13

$k > 1$; " " " ~ 143 sec at 0.768" 69 1/2

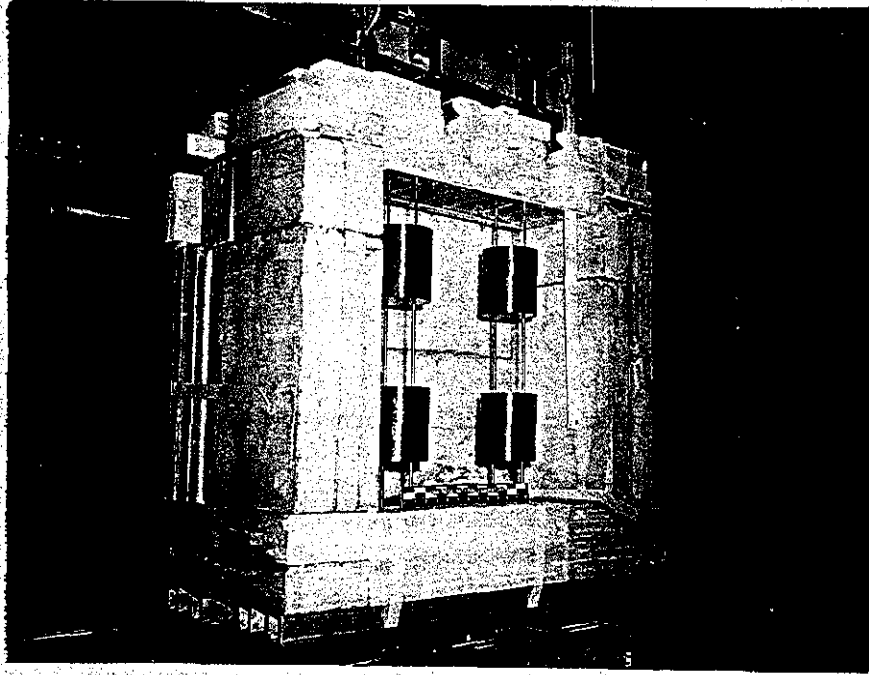
$k = 1$; tubes separated 0.508"

Instrument Check on 4-8-63 Source 10 meV

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clock 2418
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JII		check list ✓
CRM		Meter Trip			

Reset spacing to 6 15/64", $k < 1$ ~ 1.00

Experiment 8



$$V_L = 1415.828$$

$$F = 0.06056$$

Summary

8 units; 26.2 kg U^{235} /unit

6-in-thick paraffin Reflector

S.T.S. = 6.448 ± 0.010 in.

16.378 cm.

$$V_L = 23,203.8 \text{ l}$$

$$P_n = 1.12970$$

Extrapolation
parallel to line
for Expt 7.

cf Series I

Expts. 30, 31, 32

$$F = 0.06023$$

Experiment 8

8 units, 26.2 kgU/unit; 6"-thick paraffin reflector; STS = $6\frac{3}{8}$ "

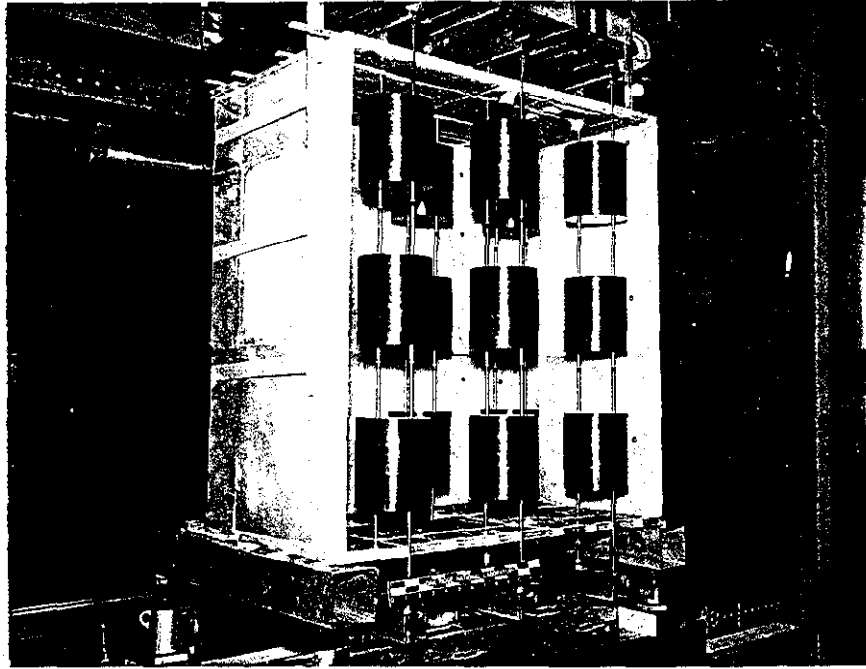
Instrument Check on 4-9-63 Source 10 mcV

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	23×10^{-11}	Meter Trip	OK	Fast Trip	OK
IC-2	23×10^{-11}	Meter Trip	OK		clock
IC-3		Calibration			M-230
IC-4	Responds	Calibration	J11		check list ✓
CRM		Meter Trip			

$k > 1$; tables together positive period ~ 82 sec.

$k = 1$ at 0.201 in separation; however this is separation at bottom reflector, top and $\frac{2}{3}$ of sides are together.

Experiment 9



Experiment 9

27 units 26.113 kg U^{235} /unit, $\frac{1}{2}$ "-thick paraffin reflector; STS = $4.29/64$

Instrument Check on 4-15-63 Source = 10 μ ci

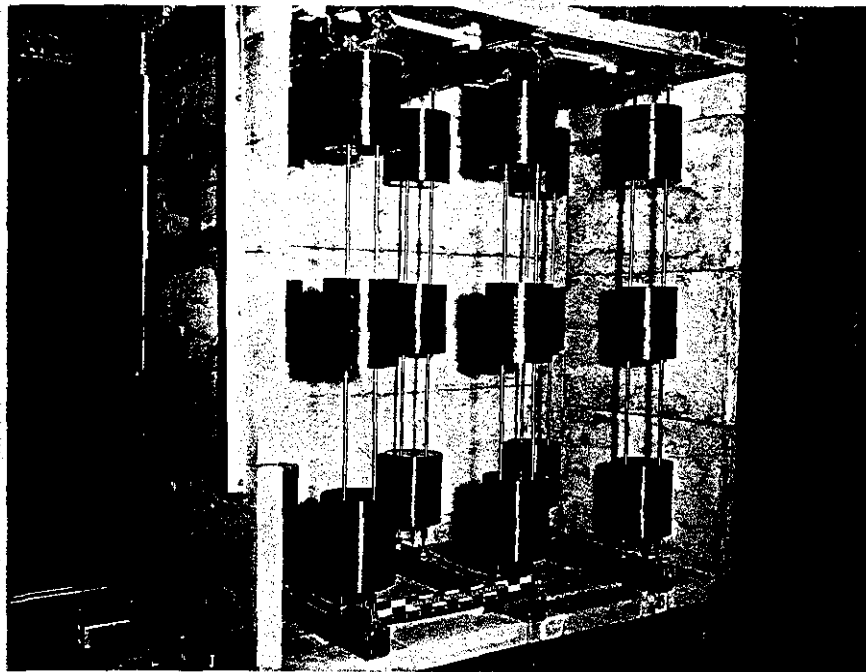
PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Low Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$		OK	Clock	2419
IC-3				M-23	
IC-4	Responds.		JH	check list	<input checked="" type="checkbox"/>
CRM					

$k > 1$ positive period of ca 147 sec tables together v6.8f
 $k = 1$ when tables separated by 0.086"

Summary
 27 units @ 26.113 kg U^{235} /unit
 $\frac{1}{2}$ -in-thick paraffin reflector
 S.T.S. = 4.458 ± 0.010 in.
 11.323 cm.

$V_1 = 786.292 \text{ in}^3$
 $F = 0.10877$

$V_2 = 12.8928 \text{ l}$
 $F = 0.10796$
 $\rho_0 = 2.0254 \text{ g/cc}$



Summary

27 units 26.113 kg (93.2) / unit

$$V_1 = 1953.385 \text{ in}^3$$

1 1/2-in-thick paraffin reflector

$$F = 0.04389$$

STS = 7.719 ± 0.010 in

19.606 cm.

$$V_L = 31.9643 \text{ L.}$$

$$F = 0.04354$$

$$\rho_c = 0.81674 \text{ g/L}$$

Experiment 10

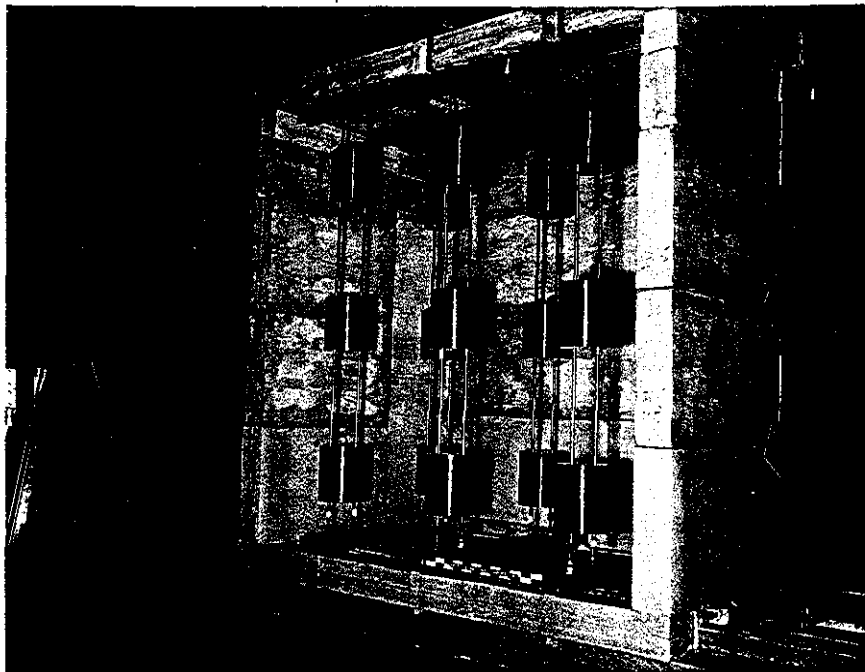
27 units ; 26.113 kg U(93.2)/unit ; $1\frac{1}{2}$ -in-thick paraffin refl. STS = $7\frac{51}{64}$

Instrument Check on 4-17-63 Source 10 mc

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-4}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-4}$	Meter Trip	OK		Clack 2419
IC-3		Calibration			M-230
IC-4	Responds	Calibration	JT		checklist ✓
CRM		Meter Trip			

$k < 1$ negative period ≈ 97 sec

Comparison with Exp 37 (p77) of Series I, 27 units $1\frac{1}{2}$ "-paraffin reflector indicates a reduction in spacing of slightly less than $5/64$ " would compensate for negative period. The slope of the line for STS vs table separation is less for the 26 kg units than it is for the 20 kg units, therefore $5/64$ less would definitely provide a critical array in this case.



EXPERIMENT II

27 units ; 26.113 kgU(93.2) per unit, 3-in-thick paraffin reflector STS = $9\frac{31}{64}$ "

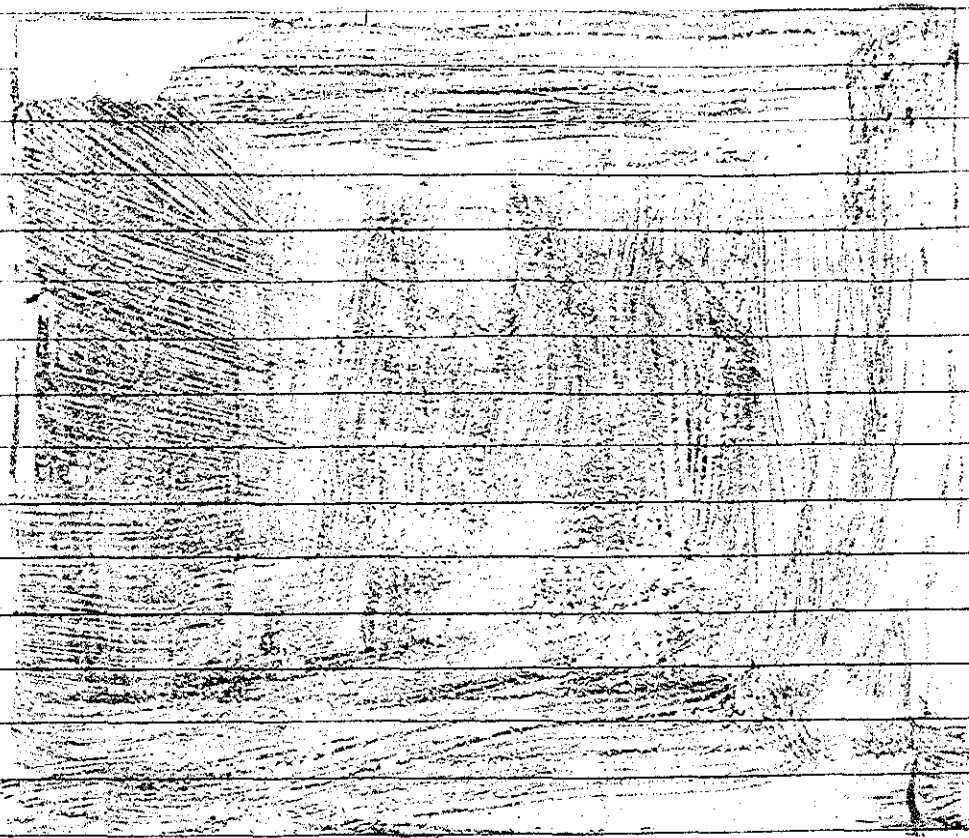
Instrument Check on 12-19-63 Source 10 mCi

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-11}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-11}$	Meter Trip	OK		Clock 2501
IC-3	Responds	Calibration	JII		11-230
IC-4		Calibration			check list.
CRM		Meter Trip			

$k > 1$	positive period	94.2 sec	(10.114)	(.316")	(6.00 Revs)
$k = 1$				(0.477")	(7.60 Revs)
$k < 1$	negative period	156 sec	(-11.314)	0.580"	(9.00 Revs)
$k = 1$				(0.488)"	(7.75 Revs)
$k > 1$	positive period	138.2 sec	(7.454)	(0.385")	(6.48 Revs)
$k = 1$				(0.480)"	(7.65 Revs)

Summary
 27 units
 26.113 kgU(93.2) per unit
 3-in-thick paraffin reflector
 STS = 9.645 ± 0.010 in,
 24.498 cm.

$V_L = 49,14856 \text{ d.}$
 $F = 0.02832$
 $P = 0.5313$



EXPERIMENT 12

27 units 26.113 kg U(93.2) per unit 6-in-thick paraffin + Polyethylene Reflector
 STS = $9^{27/32}$

Instrument Check on 12-31-63 Source 10mcX

PM-1	Low Trip	OK	Alarm Trip	OK	
PM-2			Alarm Trip	OK	
IC-1	$> 3 \times 10^{-11}$	Meter Trip	OK	Fast Trip	OK
IC-2	$> 3 \times 10^{-11}$	Meter Trip	OK	Clock	2502
IC-3	Responds	Calibration	J11	M-230	
IC-4		Calibration		Check list	✓
CRM		Meter Trip			

Table prevented from closing by protruding block of Polyethylene or Pa.
 $R \approx 1$ negative period 204.4 sec ($\rho = -7.84$) (.013 in) (0.60 Revs)

Difficulty was protruding instrument - corrected

$k \approx 1$ negative period 253.4 sec ($\rho = 5.974$) (0.00 Revs)

Summary

27 units

26.113 kg U(93.2) per unit

6-in-thick homogeneous reflector

STS = $9.839 \text{ in} \pm 0.010 \text{ in}$.

24.971 cm.

$$V_c = 51.1605 \text{ L}$$

$$F = 0.02720$$

$$\rho = 0.5104 \text{ } \frac{1}{\text{cm}}$$