BOOK14R

Notes:
-This is a "paper copy" of a logbook previously copied by someone other than myself.

-"Book 3" hand-written on page 1.

Blank pages: 8, 40, 58, 68-70, 82, 120, 134, 150, 206, 216, 250, 251, 261, 278, 298, 299.

Scanned by:
Sheila Finch
RSICC /Oak Ridge National Lab.
July 30, 1999

Book 3

CARBON

— Polyetyelene — Reflector

	13" X 9", REFL + CORE	201
→	13" SOLID CYLINDER	202
	15" X 11", REFL	207
	" , REFL + CORE	210
	15" X 9", REFL	212
	" + CORE	214
	15" X 7", REFL	217
	" " + CORE	220
→	15" Solid CYL. Refl.	224
	11" X 7", REFL	229
	" " + CORE	232
	11" X 9", REFL and REFL + CORE	237
→	11" Solid CYL, Refl.	238
→	9" Solid CYL. "	243
→	7" Solid CYL, "	247

13" x 7", 6" Graphite (C) Reflector	252
, 6" C Refl + C Core	262
13" x 7", 8" C Refl	270
, 8" C " + C Core	274
7" cyl, Bore	279
15" x 7", 7" C Refl	280
" " + C Core	286
11" x 7", 9 C Refl	290 +296
" " + C Core	292

Rossi ∝ p. 279 - only

96

NOV 13 1963

C.A. 15" x 11" Expr. I Run 1
1" C Reflector Date 19 Time 11:05 AM
Purpose Critical Condition.

1a H = 5 ½"

Sub Critical

1b H = 6 $\frac{1}{16}$" All Available Fuel.

Sub Critical

15" x 11" Expr. II 1c
1" C Reflector
C Core 11-13-63 1:10

Critical Codition

1c H = 6 $\frac{1}{16}$" ; 1" C Reflector ; C Core

Sub Critical

15" x 11" Exp III Run 1a
2" C Reflector 11-13-63 2:25
Critical Condition

1a H = 5" - Sub Critical

1b H = 5 1/2" - Super Critical #1 = 22,64

1c H = 5 3/8" - Super Critical #1 = 22,715

INSTRUMENT CHECK NOV 14 1963

8^{30} M-228 & h

F

Hi & Lo $^{10}/_{1000}$ CPR x $^{10}/_{1000}$ 1050V

OK 4" 0" 12" 0° 10"

OK 60 OK 100 40° 100+

BF_3 – OK

TABLES — OK
LIGHTS — OK
AREA CLEARED @ 8^{30} AM

15"x11" III Run 1d

2" C. REFLECTOR NOV 14 1963

CRITICAL CONDITION

2" Fuel on Ram

Up Positions
#1 = 19.836
2 = 19.785
3 = +4.2
4 = 0.0

1d H = $5\frac{1}{4}$" – Sub Critical

1e* H = $5\frac{5}{16}$" – Positive Period.

Log N = 80.6 sec = 11.38 ¢
BF_3 = 77.5 sec = 11.72 ¢

* Fuel = $3\frac{5}{16}$" [3.3125" on depth]

			Low
17" X 15"	C Ring ($1\frac{1}{2}$" + 1" + $\frac{3}{4}$")	= 3.2661	.0464"
19" X 17"	" "	= 3.2896	.0229"

C.A. 15" X 11" Expr. LK Run 1
2" C Refl
~~S~~ C Core Date 11-14-63
Purpose Critical Condition
2" Fuel on Ram

1a H = 5 1/4", 2" C Refl ; C Core
Super Crit #H19.500

1b H = 5 1/8" - Super Critical #1 = 19.570

1c H = 4 7/8" - Pos Period - Log N = 13.7 sec
Top 17" X 15" C = 4 3/4"
" 19" X 17 C = 5 3/4"

1d H = 4 7/8" Fuel - Sub Critical
Top 17" X 15" C = 4 3/4"
" 19" X 17" C = 3 1/4"

C
(19" X 17")

15" x 9" V 1

2" C Reflector 2:25

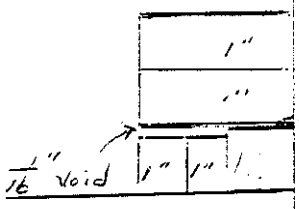
Critical Condition

2" Fuel on Ram

1a H = 3" Sub Critical

1b H = 3 1/16" Fuel - Sub Critical

Top 19" x 17" & 17" x 15" C = 1"



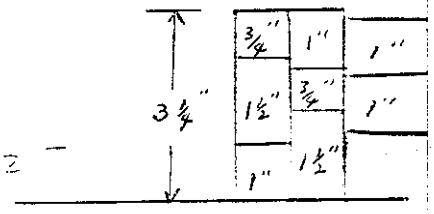
1c H = 3 3/16" Fuel

Top 19" X 17" & 17" x 15" C = 3 1/4"

Positive Period

Log N = 22.69

BF_3 = 22.75



1d Removed top outer (19" x 17") x 3/4" C ring

Positive Period

Log N = 102 sec

BF_3 = 98 sec

NOV 15 1963

TABLES OK
LIGHTS OK
AREA CLEARED

INSTRUMENT CHECK

Time 8:15 AM

Source M-228 ϕ 8

	F	A	B	C	D	E
	Hi&Lo	10/1000	OPR	X	10/1000	1050V
Source	OK	3"	0"	8"	0"	12"
% F.S. Trip	OK	65	OK	100	60	100+

BF₃ OK

Tables - ok
Lights - ok
Area cleared

15" x 9"   Expr. V   1e

2" C Refl   NOV 15 1963

Purpose: Repeat of 1d - after checking of Contact and up position

Micrgh. Contact
#1 = 19.798
#2 = 19.7478

up positions

#1 = 19.872
#2 = 19.819
#3 = +8.2
#4 = +1.8

Position Period -

log N = 85.2 sec = 10.92
BF_3 = 83.6 " = 11.08

C/A 15" x 9" Exp VI 1a
2" C Refl
C Core 11-15 63 12:45

Critical Condition

1a H = 3 1/16" - Sub Critical

1b H = 3 1/8" - Sub Critical

1c H = 3 1/16" - Super Crit #1 = 19.75
Same Refl Condition as Run 1c p. 13

798
7478

15" X 7" Exp. V Run 1

2" C Reflector 11-15-63 4:00

Critical Condition

1" on Ram

JW
JR

1a H = 2½" — Super Critical #1 = 20.81

[redacted]

NOV 18 1963

J.J. Lynn
J.R. Taylor

INSTRUMENT CHECK

Time 10:30 — Source M-226 & 8

	F	A ✓	B	C	D
Range	Ni & ho	10/1000	OPR	X	10/1000 1050V
Source Dist	OK	12"	0"	30"	3" 10"
R.S.S. Trip		85	OK	100	85 100+

BFs 1 & 2 - OK

Table needed micro-switch adj. and is now OK
LIGHTS - OK
AREA CLEARED

15" x 7" Type V Run 1 b
2" C Reflector NOV 18 1963 Time 11:00

Purpose: Critical Condition

up Positions
#1 = 20.872
2 = 20.883
3 = +6.2
4 = -11.0

1b. H = 15" X 13" & 13" X 11" ring - 2 7/16"
11" X 9" & 9" X 7" ring = 2 1/2"

Sub Critical

1C H = 15" X 13" ring = 2 7/16"
Remaining fuel = 2 1/2"

19" X 17" C ring = 4" (1/2" High)
17" X 15" C " = 3 1/2" (OK)

just Crit (slight negative)

C.A. 15" x 7" Expr. VI Run 1a
2" C Reflector
~~Sh~~ C Core Date 11-18-1963 Time 12:53 ~~AM~~ PM
Purpose critical condition

1a. H = same as Run 1c p. 17
C Core added –

Sub critical –

1b. H = 2½" ✓
Refl same as 1c p. 17

Pos Period —

Log 152 sec pd = 6.88 s ± 5.76
BF_3 159 " = 6.63

NOV 1 9 1963

INSTRUMENT CHECK

M-226 & 8

Time 8:35 AM

$\frac{15}{1000}$	off	x	$\frac{10}{1000}$	1056 V

Same As Pg 17

Tables OK
Lights - OK
area Cleared
JJS

11" x 7" V Run 38a
1" C Refl. NOV 1963
Critical Condition

38a $H = 6\frac{15}{16}$" — Radial Reflector 7" High

Measured Negative Period —

Log N = 122.7 sec - 16.78
BF_3 = 121.8 sec = - 17.08 — 16.93

38b Support Ring Evaluation.

Measured Negative Period —

Log N = 144.6 sec - 12.69 ¢
BF_3 = 145.9 " - 12.49 ¢ — 12.59

Supp. + Ring = + 4.34

38c Support Stand Evaluation (Rings & stand up)

Measured Negative period -

Log N = 4,200 sec ped - 0.30 -0.25 ✓
BF_3 = 6,504 sec - 0.20

Support Stand = +12.3 ✓

38d Support Ring Evaluation (Support stand up)
by removing see p. 19.

Neg Period -

Log N = 194? sec 8.32 ✓
BF_3 = 223,6 = -6.97

38e Diaphragm Evaluation (38c vs 38d)

Negative Period —

Log N = 201.4 sec = -7.95 -7.94
BF_3 = 212 sec -7.42

Diaphragm = -7.44

38f Repeat of 38 d (Support stand up)

Negative Period

Log N = 233.4 sec -6.60

BF_3 = 241.9 -6.32 = -6.46

Range = +6.31 +

38 g Repeat of 38a.

Negative Period -

Log N = 110.7 sec 20.75

BF_3 = 112.0 sec 20.25

38h Added $\frac{1}{8}$" to 11"x9" fuel ring.

Level ∞

Adding $\frac{1}{8}$" (11" x 9") = +20.5 ¢

38i H = $7\frac{1}{16}$" ; Radial Refl = 7"

Positive Period — Chain Critical

Log N = 7.1 sec = 45.5 ¢

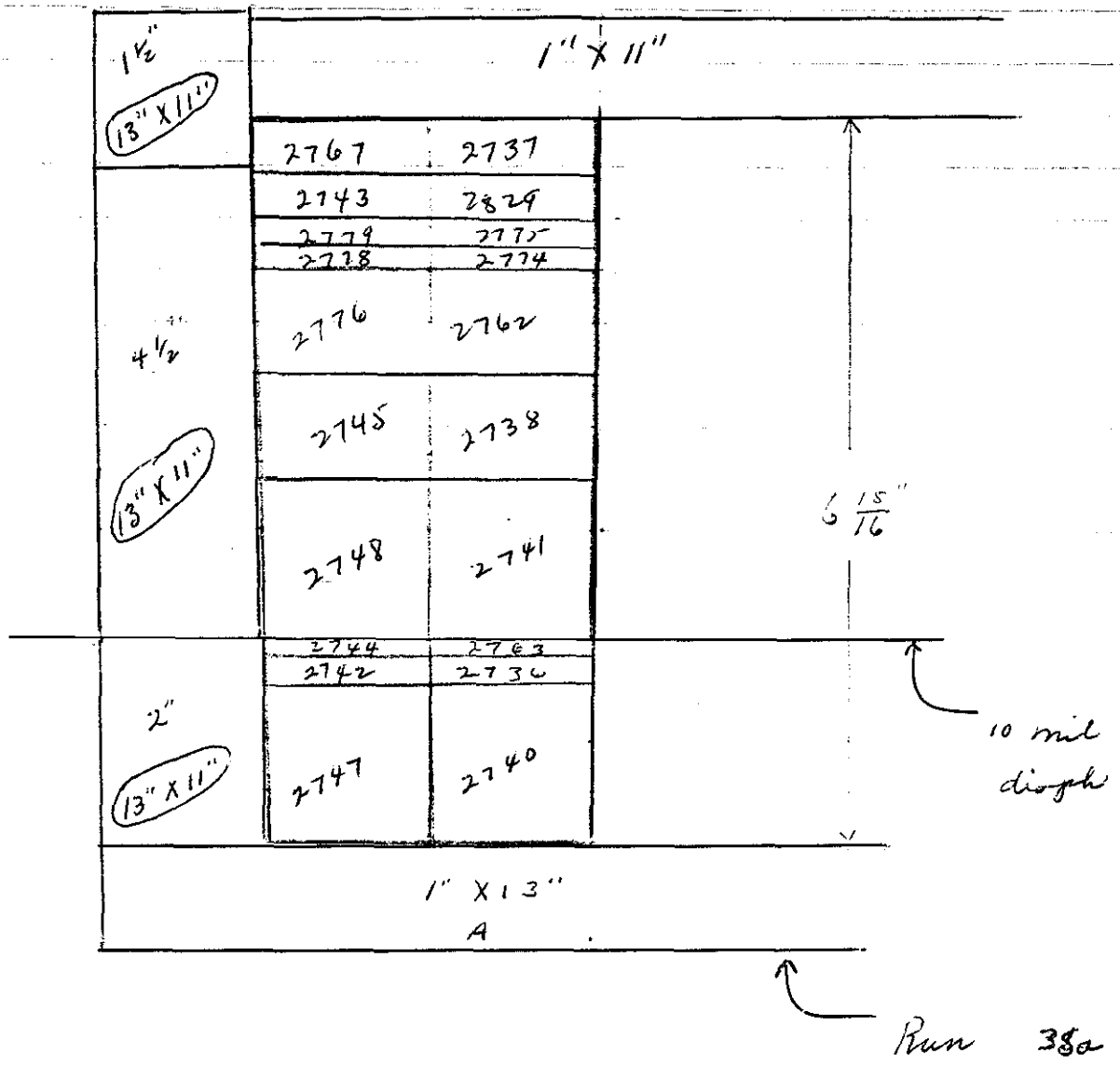
38j Removed $\frac{1}{8}$" from 9"x 7" fuel ring.

Pos Period —

Log N = 77.4 sec = 11.73 - +.77

BF_3 = 76.8 sec = 11.80

Removing $\frac{1}{8}$" (9" x 7") = -33.73 ¢


1½"
13" X 11"
1" X 11"
2767
2737
2743
2829
2779
2775
2778
2774
4½"
2776
2762
2745
2738
13" X 11"
2748
2741
6 15/16"
2744
2763
2742
2736
2"
13" X 11"
2747
2740
10 mil
diaph
1" X 13"
A
Run 38a

[redacted]

NOV 2 0 1963

INSTRUMENT CHECK

Time 9:00 AM   Source M236 # 8

Tables OK

	F	A	B	C	D	E
			Channel			✓
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	9"	0"	33"	3"	10"
% F.S. Trip	OK	95	OK	100	85	100+

BF3 1 & 2 - counts

Channel "A" not tripping properly. A tube change + Voltage adjustment corrected the problem.

Curr. 11" x 7"   Exp. V   1

2" C Reflector   11-20-63   AM

Critical Condition

1a H = 5 1/2" - super Critical #1 = 17.50

b H = 5 1/4" - super Critical #1 = 17.62

c H = 5 1/8" - Positive Period - Crane Out.

Log N = 28.0 sec = 23.08+   + 23.3?
BF_3 = 26.8 sec = 23.684

up Positions   #1 = 17.92   #3 = 0
#2 = 17.924   #4 = -5.0

d Diaphragm Evaluation (d vs c)

Positive Period –

Log N = 88.5 sec = 10.51 ⊥ 10.55 ‡
BF_3 = 88.8 = 10.58

Diaphragm = – [illegible].83 F

e Rings Evaluation (Diaph & Rings up) (d vs e)

Positive Period –

Log N = 52.5 sec = 15.48 ‡ ⊥ 15.27 ‡
BF_3 = 54.7 sec = 15.05 ‡

Rings = 4.72 F

f Support Stand Evaluation (Diaph & Stand up) (d vs f)

Positive Period –

Log N = 44.9 sec = 17.20 ⊥ 17.0[illegible] ‡
BF_3 = 45.9 sec = 16.95

Support & Stand = 6.[illegible] F

g Removed 1/16" fuel from 9" x 7" ring.

sub critical

1:10 PM h Added support stand & support rings. (11.25¢)

Rem C +23.38

Negative Period –

Log N = 324 sec – -4.47¢ – 4.4 –

BF_3 = 330 sec – -4.38¢

Removing 1/16 from 9"x7" = -39.06¢

i Added 1/16" fuel to 9" x 7" ring.

Removed 1/16" " from 11" x 9" "

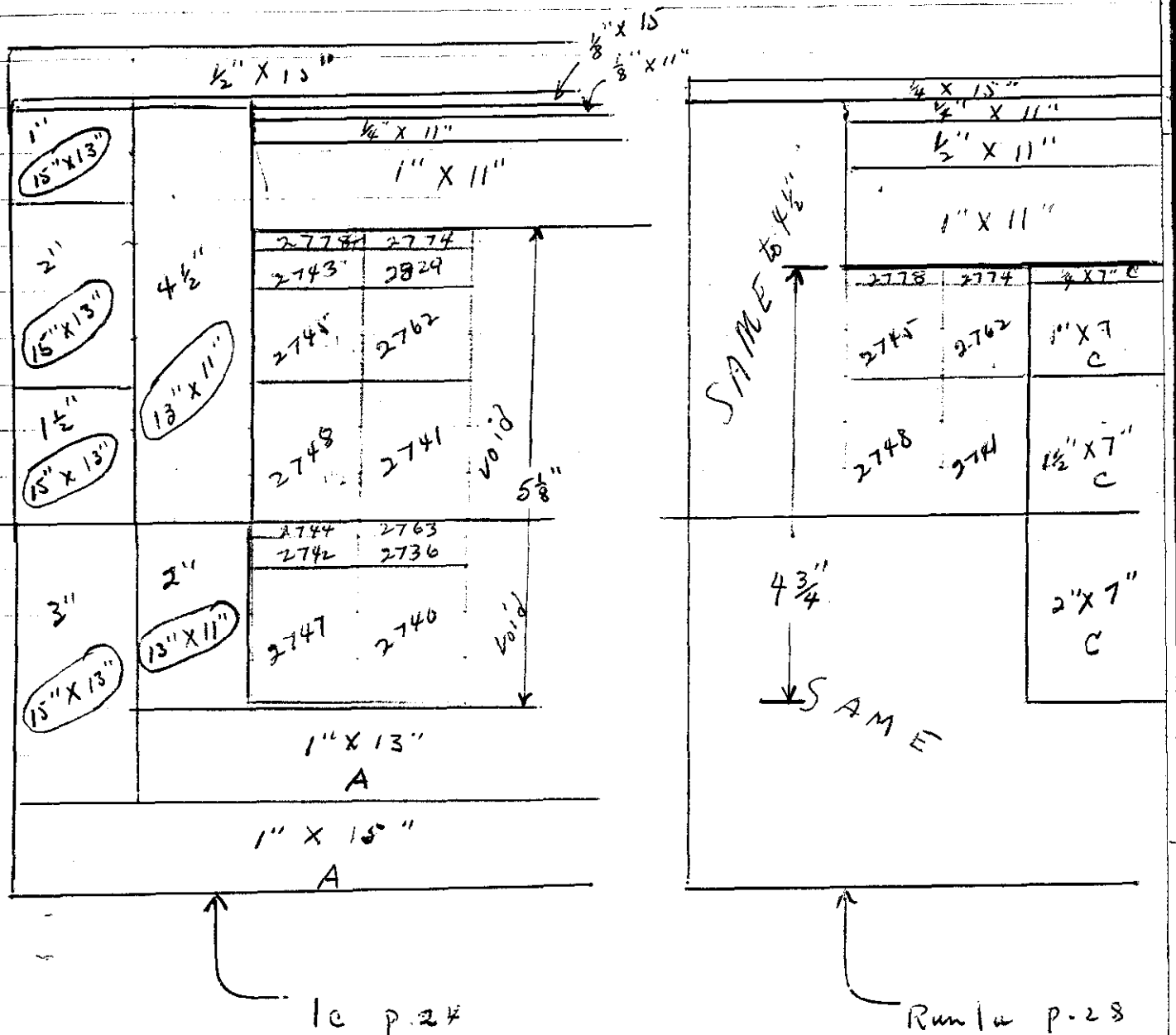
Negative Period –

Log N = 977 = -1.35 = 1.35

BF_3 = 974 = -1.35

Exchanging 9x7 and 11x9 = 3.02¢

11" X 7" with 2" c Refl.



C.A. 11" x 7" VI 1
2" C Reflector
~~Sheer~~ C Core 11-20 63 PM
Purpose Critical condition

1a H = 4 3/4" - Positive Period - Near Critical

Log N = 49.4 sec 16.14 + 16.03 #
BF3 = 51.4 sec = 15.92 #

Diaphragm Evaluation -

Positive Period -

log N = 369.1 sec = 3.15 # + 3.15 #
BF3 = 370 sec = 3.15 #

Diaphragm = 3.88 #

c Rings Evaluation (High & Rings up)

Positive Period -

log N = 141.1 sec 7.32 # + 7.[illegible]
BF3 = 132.2 " 7.68 #

[illegible] Rings = 7.35

d Support Stand Evaluation (High & Stand up)

Positive Period -

log N = 102.8 sec 9.44 #
BF3 = 104.2 sec 9.34 # + 9.[illegible]

[illegible]

NOV 21 1963

INSTRUMENT CHECK

Time 10⁰⁰ AM   Source M-226 & P

	F	✓ A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	x	10/1000	1050V
Source Dist.	OK	8"	0"	30"	3"	10"
% F.S. Trip		90	OK	100	90	100+

BF_3 #2 -OK

Tables -OK
Lights -OK
Area Cleared 9 $\frac{45}{AM}$

Core 11"X7" Exp. VI Run No. 1e
2" C Refl.
C Core Date NOV 21 1963

Purpose Fuel Evaluation

Channel "A" trip circuit power supply needed repair. Power was drifting causing erratic "trip" conditions. Correction made (tubes bad) and is OK.

1e Removed $\frac{1}{16}$" fuel from 11"X 9" ring. (Run 1a 16.03#)
Support Stand & Support Rings up (10.59#)
26.62#

negative Period —

Log N = 135.5 sec = -14.09   -13.3
BF_3 = 145.9 sec = -12.49

= ... 1 ... 11 ... = -13.73

If Added $\frac{1}{16}$" removed for run 1e.
Removed $\frac{1}{16}$" from "9" x 7" fuel ring.

Negative Period –

$\log N = 127.6$ sec $= -10.64$
$B F_3 = 119.4$ sec $= -17.70$ -16.67 ¢

Removing 9" x 7" Ring $= -43.29$ ¢

NOV 22 1963

J.J. Lynn
J.R. Taylor

INSTRUMENT CHECK

Time 9 15 AM

Source M-226 # 4

Channel ✓

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	12"	0"	36"	3"	8"
% F.S. Trip	OK	80	OK	100	80	100+

BF_3 - OK

Tables OK
Lights OK
Area Cleared @ 9 35 AM

C.A. 13" x 9" Expr. V Run 1a

~~Ref~~ 2" C Reflector Date NOV 22 1963 Time 9:45 AM

Purpose Critical Condition

2" on Rom

up #1 19,940
#2 19,948
#3 -2.5
#4 -11.

1a H = 4 3/4" - sub critical

1b H = 5" - sub Critical

1c H = 5 1/8" - sub critical

1d H = 5 3/16 - Positive Period → Power Reflector

Log N = 78.7 sec 11.58¢ = 11.40¢

BF_3 = 82.1 sec 11.22¢

1e H = 5 3/16" - Positive Period — Clean Critical

Log N = 40.2 sec 18.48 ϕ + 18.34 ϕ
BF3 = 41.2 sec 18.19 ϕ

1f Diaphragm Evaluation - Positive Period

Log N = 245.4 sec 4.56 ϕ + 4.75 ϕ
BF3 = 225.8 sec 4.90 ϕ

Diaphragm = −13.61 ϕ

g Rings Evaluation - (Diaph + Rings up)

Positive Period —

Log N = 84.8 = 10.95 ϕ + 10.1 ϕ
BF3 = 85.9 = 10.85 ϕ

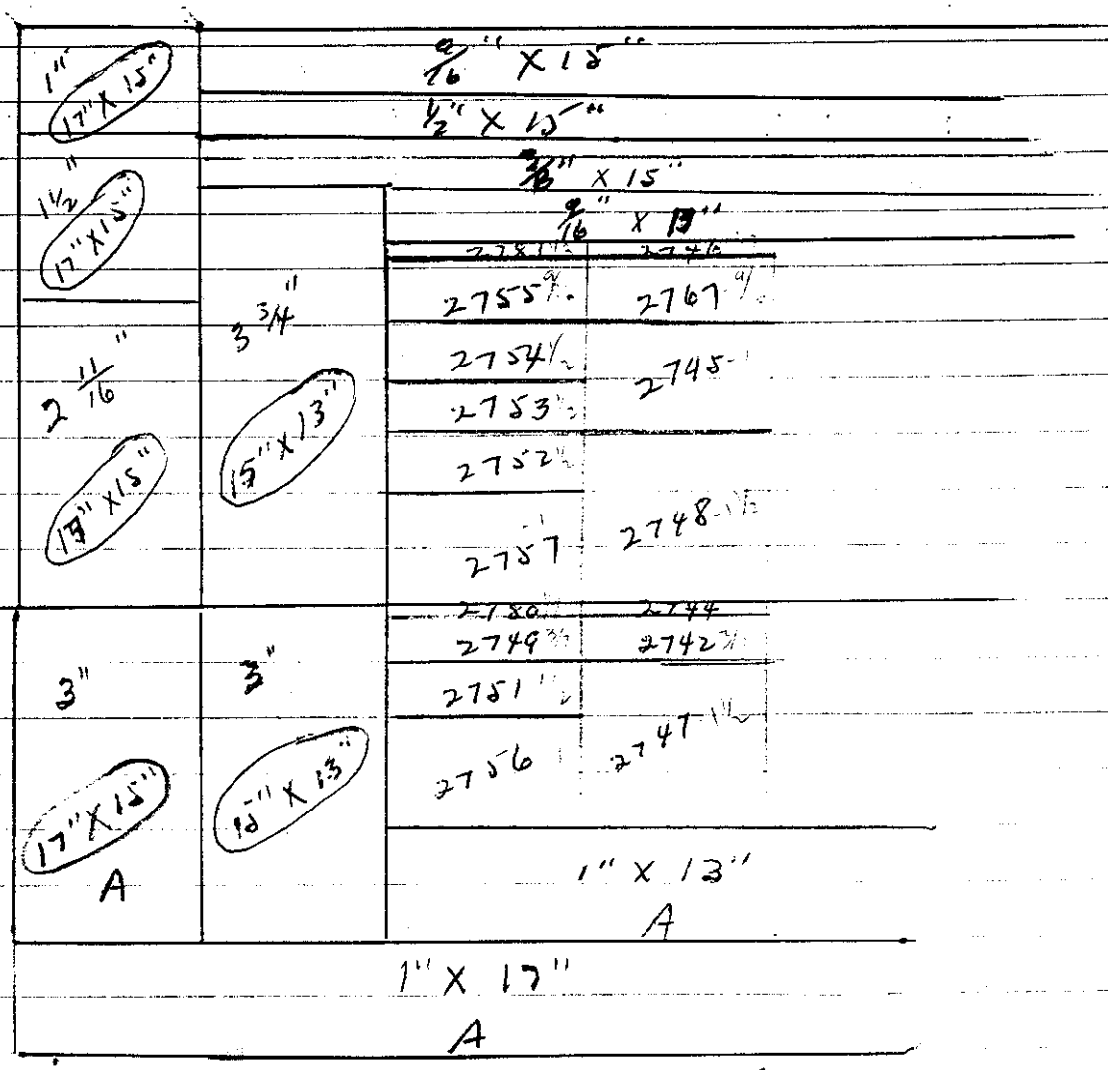
Rings = 6.71 ϕ

h Support Stud Evaluation (Diaph & Studs up)

Pos Period —

Log N = 56.7 sec 14.68 ϕ = 14.1
BF3 = 58.6 sec 14.34

Support Studs = 9.17 ϕ


1" 17" X 15"
1½" 17" X 15"
2 1/16" 17" X 15"
3" 17" X 15"
A
3 3/4" 15" X 13"
3" 10" X 13"
A
9/16" X 15"
½" X 15"
⅜" X 15"
9/16" X 13"
2755
2767
2754
2745
2753
2752
2757
2748
2749
2742
2751
2756
2747
1" X 13"
A
1" X 17"
A

Run 1 E
p. 32

[redacted]

NOV 26 19

J. Mihalczo
J. Lynn
J. Taylor

INSTRUMENT CHECK

Time 8^{30} AM ~~PM~~ S. M226 & P

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	P50 ✓
Source Dist.	OK	15"	0"	36"	3"	8"
% F.S. Trip	OK	90	OK	100	90	100+

BG - OK

Tables OK
Lights OK
Area Cleared 8^{35} AM

C.A. 13" x 9" Expr. VI Run 1a
2" C Reflector
~~Sheet~~ ~~C Core~~ Date 11-26-1963 Time 8:40 AM
Purpose Critical Condition

2" on Ram

1a H = 5 3/16" - super Critical #1 = 19.515 (~~[illegible]~~)

b H = 5 1/16" - super Critical #1 = 19.610

c H = 4 7/8" - super Critical #1 = 19.730

d H = 4 3/4" - sub Critical

e H = 4 13/16" - Position Period -

Log N = 10.42 sec = 38.44 ¢ ?

f Removed to" fuel from 13" x 11" ring.

Positive Period — Clean Critical { 13"x11" = 4 3/4" ; 11"x9" = 4 13/16" }

Log N = 50.2 sec = 15.96 ¢ + 15.99 ¢

BF_3 = 49.9 sec = 16.02 ¢

g Diaphragm Evaluation

Positive Period —

Log N = 33.7 sec 3.42 ¢ = + 3.56 ¢

BF_3 = 31.1 sec 3.69 ¢

Diaphragm = −12.43 ¢

h Rings Evaluation (diaph & Rings up)

Positive Period —

Log N = 113.3 sec 8.75 ¢ + 8.87 ¢

BF_3 = 109.4 sec 8.99 ¢

Rings = + 5.31 ¢

i Support Stand Evaluation (stand & diaph up)

Positive Period —

Log N = 66.9 sec 13.07 = 1 13.00 ¢

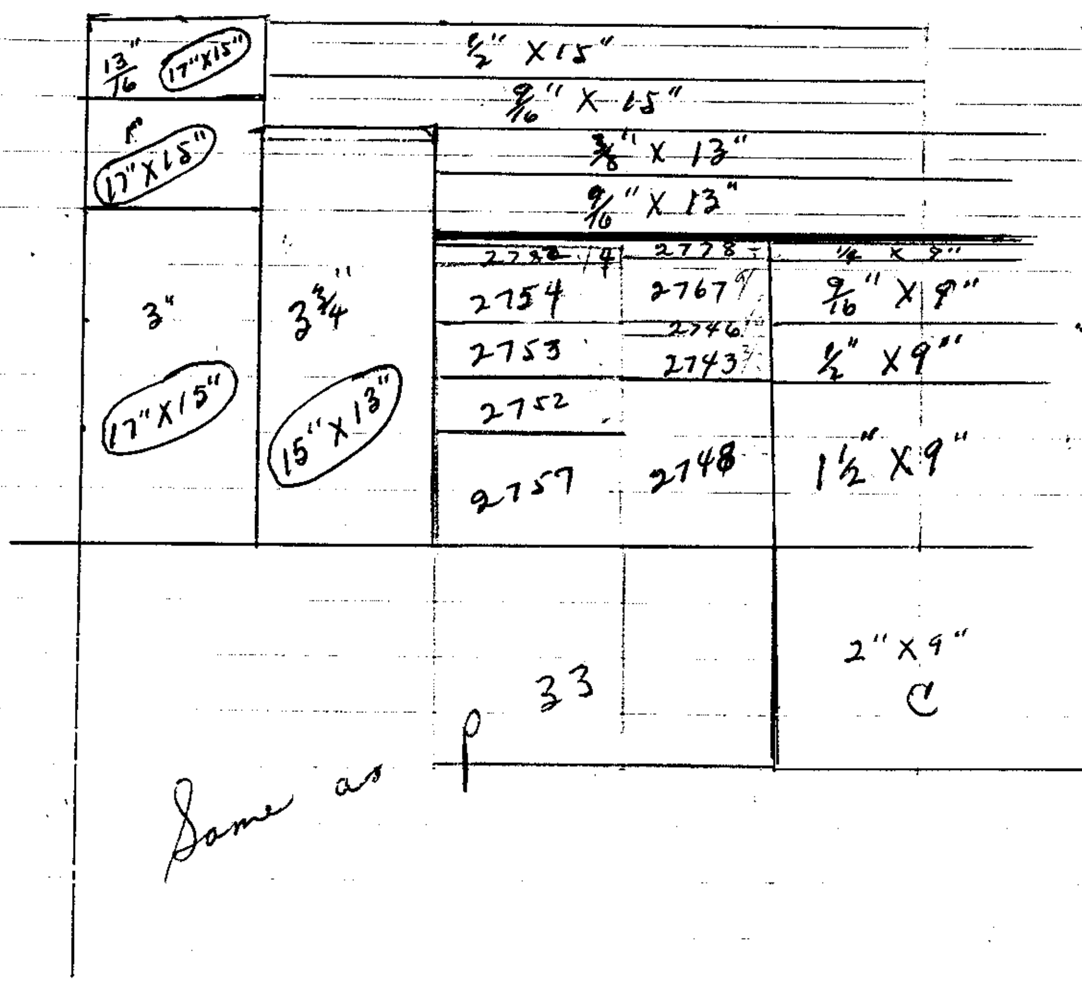
BF_3 = 67.3 sec 13.00

Support Stand = + 7.+c ¢

j. $H = 4\frac{3}{4}''$ – negative Period.

Log N = 93 sec ~ 35# + 29#
BF_3 = 106 sec 23#

∴ 11" x 9" + 1/16" C Core = ~ -45#



Run 1f
p. 35

NOV 27 1963

J. Lynn
J. Taylor

INSTRUMENT CHECK

Time 10^{40} AM ~~PM~~ Source M226 & [illegible]

	Channel					
	✓ F	A	B	C	D	E
Range	Ai & ho	1%/1000	OPR	X	1%/100	1050 V
Source Dist	OK	15"	0"	40"	3"	8"
% F.S. Trip	OK	90	OK	100	95	100+

BF₃ OK

Tables OK
Lights OK
Area Cleared 10^{43} AM

C.A. 13" x 7" Expr. V Run 1a
2" C Reflector Date NOV 27 1963 Time ___ AM/PM
Purpose Critical Condition.

1" on Ram

Up Position
#1 = 20.935
2 = 20.947
3 = +0.5
4 = +5.5

1a H = $2\frac{7}{8}$" - sub critical

1b H = $3\frac{1}{16}$" - sub critical

c H = $3\frac{1}{8}$" - Positive Period - Clean Critical

Log N = 46.4 sec 16.83 + [illegible] ¢

BF_3 = 48.8 sec = 16.27 ¢

d Diaphragm Evaluation

Positive Period

Log N = 1211 sec = 1.02 ¢ = + 1.07 ¢

BF_3 = 1107 sec 1.12 ¢

Diaphragm = -15.48 ¢

1e Support Rings Evaluation (Rings & Diaph up)

Positive Period —

Log N = 255.1 sec 4.40 ¢
BF₃ = 241.0 sec 4.63 ¢ + 4.52

Rings = 3.45 ¢

1f Support Stand Evaluation (Rings, Stand + Diaph up)

Positive Period —

Log N = 43.2 sec 17.64 + 17.59 ¢
BF_3 = 43.6 sec 17.54

Support Stand = 13.07 ¢

1g Removed 1/16" fuel from 13" x 11" ring (Rings & Stand up)
~~[illegible]~~ 16.52 ¢

Negative Period —

Log N = 127 sec = 15.76 ¢ − 15.48
#2 BF_3 = 129.6 sec = 15.22 ¢

1.526
1.0015
.8121
.7755

1/16 Removed from 13" x 11" = −46.[illegible]

1h 16" removed from 9"x7" fuel ring (Stand & Rings up)

Negative Period –

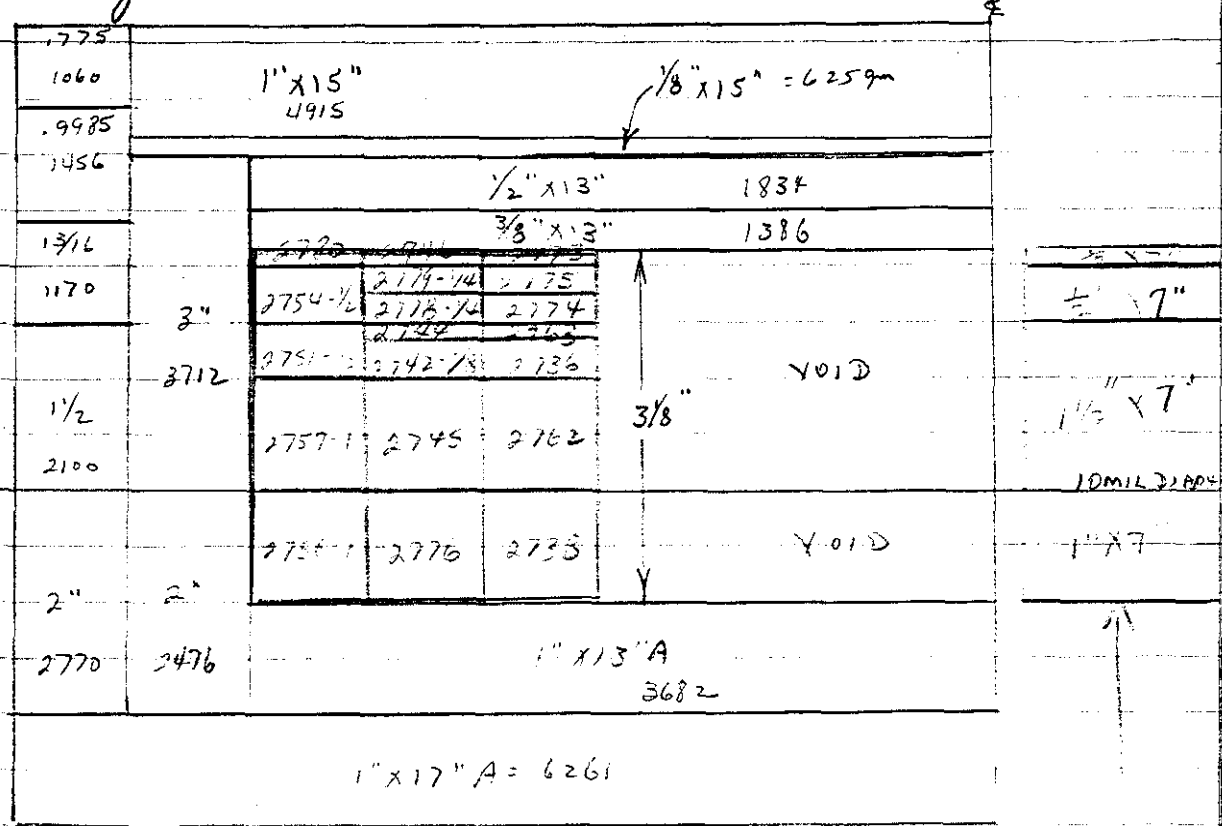
Log N = 128 sec = -15.54 ¢

#2 BF_3 = 121.8 sec = 17.00 ¢ – 16.27 ¢

Removing 1/16 from 9"x7" = 49.34 ¢

up) 1i 16" fuel removed from 11"x9" ring (Stand & Rings up)

Negative Period – Too Much



Run # 1C Pg 37

TOTAL MASS FUEL = 90.484 Kg

TOTAL MASS GRAPHITE = 33.447 Kg

INSTRUMENT CHECK

DEC 2 1963

Time 8 35 AM

Source M-226 ¢ h

J. MIHALCZO
J. LYNN
J. TAYLOR

Channel

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050 V
Source Diff	OK	12"	0"	36"	2"	10"
P.S. Trip	OK	95	OK	100	90	100+

Tables → OK
Lights → OK
Area Cleared 8 40 AM

#1 & #2 BF_3 → OK

C.A. 13" x 7" Expr. VI Run 1a

Sig. 2" C Reflector
C Core Date DEC 2 1963

Purpose Critical Condition

1a H = 36" super critical ℳ = 19.78

¢ Removed 1/16" from 13" x 11" fuel ring. (Cont. p. 39)

Positive Period –

Log N = 38.1 sec = 19.12 ¢ + 12.77 ¢
BF = 39.1 " 18.81 ¢

c Diaphragm Evaluation –

Positive Period =

Log N = 177.2 sec = 6.05⁻ ¢ + 6.15 ¢
#2 BF_3 = 173.6 " = 6.15⁻ ¢

Linear sum = −12.87 ¢

1d Support Ring Evaluation (diaph & Rings up)

Positive Period -

Log N =	105.1 sec	9.28 ¢	
BF_3 #1 =	110.7 "	8.91 ¢	+ 9.06 ¢
#2 =	109.4 "	8.99 ¢	
		27.18	

Support Rings = +2.96 ¢

e Support Stand Evaluations (Stand + diaph up)

Positive Period -

log N =	37.1 sec	19.45 ¢	
BF_3 #1 =	38.7 "	18.93	+19.18 ¢
#2 =	38.0 "	19.16	

Stand = +13.22

f Removed to from 9" x 7" fuel ring (Support Stand up)

Rings = 18.97 ¢

stand = 13.08

32.05 ¢

Negative Period -

Log N =	102.8 sec	25.15 ¢	
#1 =	104.2 "	-24.00 ¢	-25.10 =
#2 =	101.2 "	-26.15 ¢	

+ (7 x 7) = -57.15 ¢

3" C Reflector

C.A. 13" x 7" Expr. VII Run 1a

Shot 3" C Reflector Date 12-2-63 Time ~~AM~~ PM

Purp: Critical Condition

up Positions
#1 = 19.9
2 =
3 = +2.0
4 = 1

1a H = 2 5/8" - sub Critical

+ 7+ = 2 11/16" - Super Critical

Pos Period < 10 sec.

Top Reflector = 3 1/8"

DEC 3 1963

J.M
J.J.L.
J.R.T.

INSTRUMENT CHECK

Time 13¹² AM ~~PM~~ Source M-226 & γ

	F	A	B	C	D	E
~~Channel~~					✓	
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050X
Source Dist.	OK	8"	0"	30"	2"	10"
% F.S. Trip	OK	100	OK	100	95	100+

BF_3 1 & 2 OK

MAGNET TRIPS – OK
Tables – OK
Lights – OK
Area Cleared 1²⁰ PM

Tested Building Alarm "F" @ 1315 HRS

C.A. 13" X 7" Expr. VII Run 2a
~~Shot~~ 3" C Reflector Date DEC 3 1963 Time 1:30 ~~AM~~ PM
Purpose Clean Critical

1" on Ram

2a $H = 2\frac{11}{16}$" = Clean Critical

Positive Period =

Log N = 27.1 sec = 23.5 ¢
BF_3 #1 = 29.3 " = 22.47 + 22.70 ¢
#2 = 28.7 " = 22.75 ¢

b Diaphragm Evaluation –

Positive Period –

Log N = 173.4 sec. = 6.16 ¢
BF_3 #1 = 180.2 " = 5.96 ¢ + 6.0[illegible]
#2 = 177.2 " = 6.05

DIAPHRAGM = –16.[illegible]4 ¢

c Support Ring Evaluation (Diaph & Rings up)

Positive Period —

Log N = 106.8 sec = 9.23 ¢
BF_3 #1 = 106.4 " = 9.19 ¢ + 9.25 ¢
#2 = 104.2 " = 9.34 ¢

Rings = +3.19 ¢

d Support Stand Evaluation (Stand & diaph up)

Positive Period —

Log N = 51.0 sec = 15.79 ¢
#1 = 50.6 " = 15.88 ¢ + 15.90 ¢
#2 = 49.9 " = 16.02 ¢

Support Stand = 9.64 ¢

e Removed 1/16" fuel from 13" x 11". (Stand & Rings up)

13.03 ¢
Run 2a 22.90 ¢
35.93

Negative Period —

Log N = 106.4 sec − 22.85 ¢
#1 = 110.7 " − 20.75 ¢ − 22.08
#2 = 107.2 " − 22.65 ¢

1/16" Fuel (13" x 11") = 58.01 ¢

[redacted]

f Removed $\frac{1}{16}$" fuel from ring 9"X7". Ref. Run 2a. {Stand & Rings up 35.93 ¢}

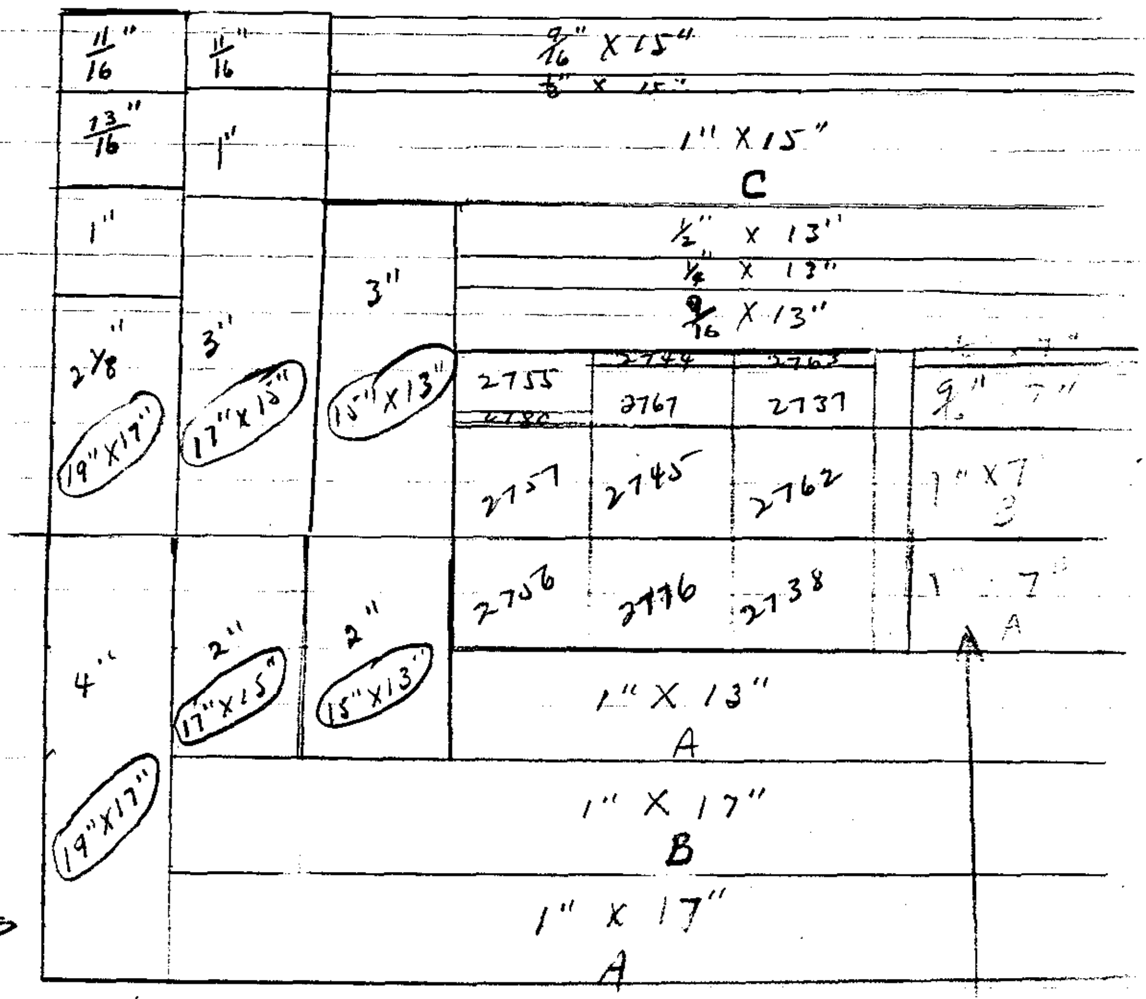
Negative Period –

Log r = 95.5

#1 = 93.4 Avg-94.37sec. -32.0 ¢

#2 = 94.2

$\frac{1}{16}$" (9"X7") = 67.93 ¢



Run 2a p.44

C core
D... [illegible]

DEC 4 1963

INSTRUMENT CHECK

Time 8:40 AM ~~PM~~ Source M-226 & 1

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	8"	0"	40"	2"	10"
% F.S. Trip	OK	95	OK	100	90	100+

BF_3 1 & 2 OK

Tables — OK
Lights — OK
Area Cleared 8:12 AM
JWH & JRT

C.A. 13" X 7" Expr. VIII Run 1
3" C Refl.
~~Sheet~~ C Core Date DEC 1963 Time AM PM
Purpose Critical Condition

1" on Rom

Up Position
VDT # 3 = -1.0
4 = -6.5
Sel # 1 = 19.952
2 = 19.945

1a $H = 2\frac{1}{16}$", except the 9" X 7" ring; = $2\frac{5}{8}$".

Level ∞ Clean Critical

b Support Stand Evaluation —

Positive Period —

Log N = 102.3 sec = $9.48^{¢}$

BF_3 #1 = 104.2 = 9.35 = $9.44^{¢}$

#2 = 102.0 $9.50^{¢}$

Support Stand ...

1c Support Rings Evaluation (Stand & Rings up)

Pos Period —

Log N	= 66.9 sec = 13.05		
BF_3 #1	= 67.3 " = 13.00		+12.98 ¢
#2	= 68.2 "	12.88	

Rings = 3.54 ¢

d Diaphragm (all up)

Negative Period —

Log N =	915 sec	−1.45 ¢	
#1 =	974 "	−1.35 ¢	−1.37 ¢
#2 =	1000 "	−1.32 ¢	

Diaphragm = −14.35 ¢

e. Fuel ring Comparison (¢ value) [vs. 1a]

H = 2 $\frac{11}{16}$", except for 11"×9" = 2 $\frac{5}{8}$"

Negative Period —

Log N =	247.8 sec	−6.14	
#1 =	241.0 "	−6.35	−6.16
#2 =	252.7 "	−6.00	

f Fuel Ring Comparison (+ Value) [vs 1a]

12:45 PM H = 2 11/16", except 13" x 11" = 2 7/8"

Positive -

Log N = 121.6 sec = + 8.27 ¢

#1 = 121.1 " = 8.29 ¢ + 8.32 ¢

#2 = 189.4 " = 8.39 ¢

g Removed 1/8" x 15" C from top (15" dia)
Sub-critical

h. Remove 1/16" x 15" C from top (relative to 1a)

Negative

Log N:	-177.5 sec	-9.41	
BF_3 #1 =	-182 sec	-9.10	- 9.20' Don't use
#2 =	-182 sec	-9.10	see ...3

i. H = 2 11/16" - Ref l = 3" less 1/16" x 15" on top diaph up -14.35"

Pos Period -

Log N	= 22.1	26.41 ¢	
#1	= 22.15	26.38 ¢	+ 26.11 ¢
#2	= 23.45	25.56	

j. repeat of Run 1 h. (Due to Fuel moving on displ.)

Neg Period —

log N	= 187.8	sec =	−8.72¢	
#1	= ~~203.9~~ 198.0	"	−8.13¢	
#2	= 203.9	"	−7.83	−8.22¢

$\frac{1}{16}$" (13" × 11") = 48.68¢

$\frac{1}{16}$ (11" × 9") = 63.16¢

$\frac{1}{16}$" (9" × 7") = 57.00¢

DEC 5 1963

INSTRUMENT CHECK

Time 9 25 AM ~~PM~~ Source M-226 # 1

Channel

F	A	B	C	D	E
Range Hi # Lo	10/1000	OPR	X	10/1000	1050V
Source Dist. OK	8"	0"	40"	2"	8"
% F.S. Trip OK	95	OK	100	95	100++

BF_3 1 # 2 - OK

Jabbs - OK
Lights - OK
Area Cleared
SRO & HP

C.A. 13" x 9" Expr. VII Run 1

~~Short~~ 3" C Reflector

~~Date~~ DEC 1963 Time 9:40 ~~PM~~ AM

Purpose Critical Condition

1" on Ram

1a H = 4 5/16" - Super Crit #1 = 19.72

b H = 4 1/4" - Super Crit #1 = 19.77.

c H = 4 1/8" - Sub Crit #1 = up (19.952)

d H = 4 3/16" - Sub Crit - up

e Added 1/16" fuel to 11" x 9" ring - Sub.

f H = 4 1/4" - Positive Period - CLEAN CRITICAL

Log N =	24.0 sec	25.2	
BF_3 #1 =	24.8 "	24.76	+ 24.71
#2 =	25.0 "	24.64	

EXCESS

Some Reflector change from Run 1 b

g. diaphragm evaluation —

Positive Period —

Log N	= 53.2 sec	15.34 ¢	
BF_3 #1	= 56.0 "	14.81 ¢	+15.08 ¢
#2	= 54.7 "	15.09 ¢	

diaph = -9.79 ¢

h. Support Rings Evaluation (diaph & rings up)

Positive Period —

Log N	= 32.5 sec	21.11 ¢	
BF_3 #1	= 32.5 "	21.11 ¢	+21.15 ¢
#2	= 32.2 "	21.23 ¢	

Rings = +6.07 ¢

i. Support Stand Evaluation (Stand & diaph up)

Positive Period —

Log N	= 27.8 sec: 23.18 ¢		
BF_3 #1	= 26.7 "	23.73 ¢	+ 23.23 ¢
#2	= 28.6 "	22.80 ¢	

Stand = +8.15 ¢

j Removed 1/16" fuel from 13"x11" ring. [Stand & Rings up]

14,224

Negative Period — Run f = 24.87 / 39.09

Log N = 217 sec 7.23 ϕ

B F 3 #1 = 224 " 6.95 − 7.04 ϕ

#2 = 224 " 6.95

1/16" (13" x 11") = 46.13 ϕ

, up)

k Added 1/16" removed for above run.

Removed 1/16" (11" x 9") fuel ring [39.09 ϕ]

Negative Period —

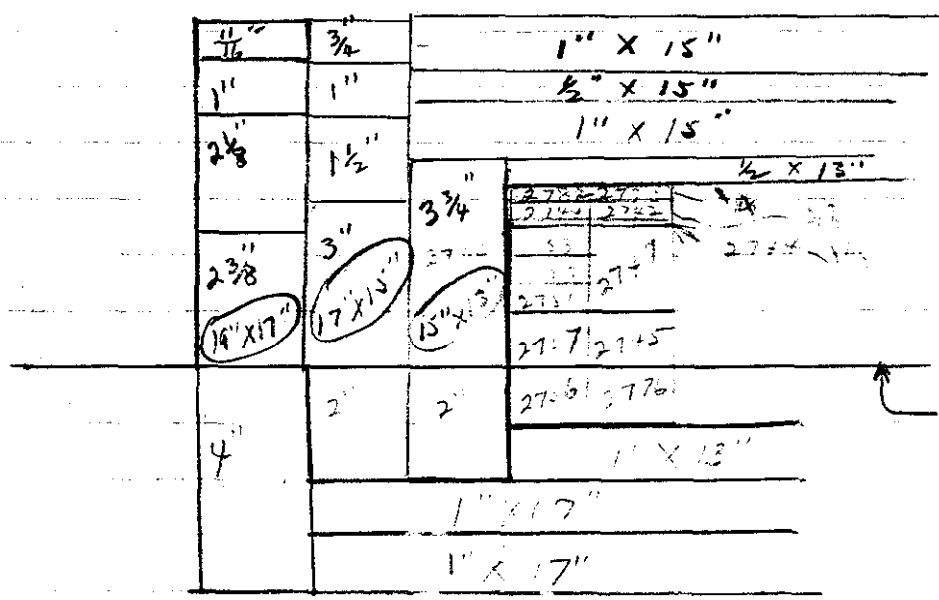
Log N = 146.6 sec 12.41 ϕ

#1 = 147.2 " 12.35 ϕ − 12.56 ϕ

#2 = 142.7 " 12.93 ϕ

1/16 (11" x 9") = 51.65 ϕ

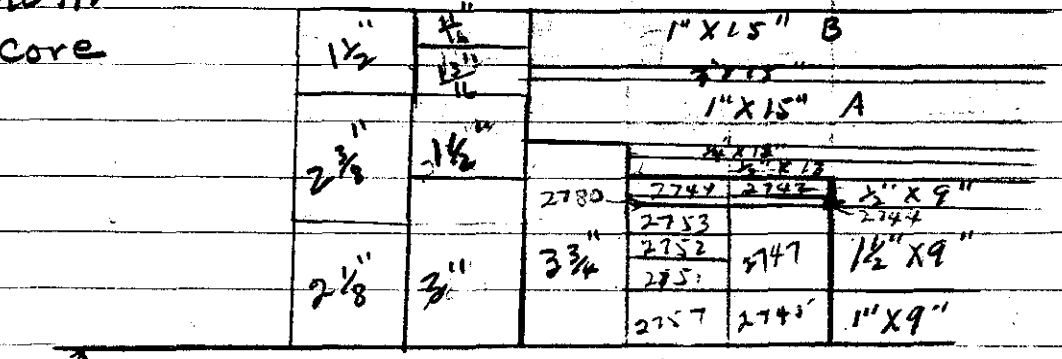
ph up)



10 mil diaph

54

13" x 9"
3" Refl.
C Core



10 mil diaph Bottom Same as p. 53 + 1" X 9" A

Run 1a p. 55

DEC 6 1963

INSTRUMENT CHECK

Time 9[40] AM   Source M-226 #8

Channel	F	A	B	C	D	E
Range	HisLo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	8"	OK	40"	2"	10"
% F.S. Trip	OK	100+	OK	100	95	100+

BF_3 #1 & #2 = OK

Tables - OK
Lights - OK
Area Cleared
JJL - JRT

C.A. 13" x 9"   Expr. VIII   Run 1 a
3" C Reflector
C Core   Date DEC 6 1963   Time 9:50 AM
Purpose Critical Condition

up
#1 19.95
#2 19.949
#3 -1.0
#4 -9.0

1a H = 4" - Negative Period - Clean Critical

Log N = 136.8 sec - 13.87¢
BF_3 #1 = 143.3 " - 12.87¢   - 13.58¢
#2 = 135.9 " - 14.00¢

b Support Rings Evaluation

Negative Period

Log N = 229.3 sec   - 6.75
BF_3 #1 : 235.9 "   - 6.52   - 6.62¢
#2 : 233.7 "   - 6.59

Rings = 6.9¢

c Support Stand Evaluation [stand & Rings up]

Positive Period –

Log N = 10.5⁻3 sec 1.17 ¢

BF_3 #1 = 12.55 " 0.99 ¢ +1.13 ¢

#2 = 10.12 " 1.22 ¢

Support Stand = 7.75 ¢

d Diaphragm Evaluation [Stand, Rings & diaph up]

Negative Period –

Log N = 183.5 sec 9.00 ¢

#1 = 208.4 " 7.62 ¢ − 8.16 ¢

#2 = 203.0 " 7.87

Diaphragm = − 7.29 ¢

e Top Reflector Evaluation $\frac{1}{8}$" X 15" [Rings up]

Added US Run 1b = -.662

Positive Period –

log N = 25.8 sec = +24.20 ¢

$\frac{1}{8}$" X 15" C = 30.82 ¢

f Removed 1/16" fuel from 13" x 11" ring [Rings & Stand up]
-6.96 6.04

Negative Period — 13¢

Log N = 107.5 sec -22.27
#1 = 112.0 " -20.24 -22.10¢
#2 = 104.7 " -23.80

1/16" (13" x 11") ring = 52.34¢

g Support Stand Evaluation with top reflector = 3 1/8"
[diaph up]
-9.29¢

Positive Period —

Log N = 60.4 sec +14.04¢
#1 = 60.6 " 14.01 +13.99¢
#2 = 61.2 " 13.91

Support stand with top at 3 1/8 = +6.04¢

-662 h Removed 1/16" (11"x9") fuel [Rings & Stand up]
13¢

Negative Period —

Log N = 97.4 = -28.5¢
#1 = 98.6 = 27.5¢ = — 27.32¢
#2 = 101.6 = 25.98¢ =

1/16" (x) ring = 51.36¢

DEC 9 1963

INSTRUMENT CHECK

Time 11⁰⁵ AM Source M-226 & Y

	Channel F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist	OK	4"	0	4'	2"	8"
% E.S. Trip	OK	90		100	90	100+

BF₃ #1 & #2

Tables - Lights - Area Cleared

C.R. ______ Supr. ______ Run ______

Sheet ______ Date DEC 9 1963 Time ______ AM/PM

Purpose ______

No Run

Log N "sick" up scale.
To be repaired see 10 Dec 63

DEC 10 1963

INSTRUMENT CHECK

Time 1:50 PM   Source M-226 A J

Channel

	F	A		B		
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist	OK	4"	0"	48"	3"	8"
% F.S. Trip	OK	100+	OK	100	95	100+

BF_3 OK

Tables OK
Lights OK
Area Closed
~~1:50~~ PM
JJL

C.A. 11" X 7"   Expr. VII   1a
3" C Reflector   Date DEC 10 1963   1:55 PM
Purpose: Critical Condition

1" on Ram

Channel B repaired and in good working order.

1a ~~J~~+ = 4 ¼" - Pos Period @ ~ 6.5 sec = 47¢

& H = 11"X9" = 4 3/16" - Positive Period - Above Critical
9"X7" = 4 ¼"

Log N = 1234 sec = 1.01¢
BF_3 #1 = 1170 sec = 1.05¢ } 1.04¢
#2 = 1180 sec = 1.05¢

c Support Rings Evaluation

Positive Period –

Log N	= 206.2 sec.	5.31	
BF_3 #1	= 212.3 "	5.18	+ 5.31 ϕ
#2	= 200.6 "	5.43	

Rings = - 4.27 ϕ

d Support Stand Evaluation (Stand & Rings up)

Positive Period –

Log N	= 76.9 sec.	11.79 ϕ	
BF_3 #1	= 74.9 "	12.02 ϕ	+ 11.82 ϕ
#2	= 78.1 "	11.65 ϕ	

Support Stand = 6.01 ϕ

e diaphragm evaluation (all up)

Pos Period –

Log N	= 523.0 sec	2.28 ϕ	
BF_3 #1	= 525.5 "	2.27 ϕ	+ 2.28 ϕ
#2	= 524.7	2.28 ϕ	

diaphragm = - 9.54 ϕ

DEC 1963

INSTRUMENT CHEC[K]

Time 8²⁵ AM ~~PM~~ Source M-226, & J

Channel

	F	A	B			
Range	Hi & Lo	10/1000	OFF	X	1/1000	1050 V
Source Dist.	OK	7"	0"	46"	2"	10"
% F.S. Trip	OK	100+	OK	100	95	100+

BF₃ 1 & 2 OK

Tables-OK
Lights-OK
Magnet-OK
Area Cleared 9⁰⁰ AM
JA & JJL.

C.A. 11" X 7" Expr. VII Run 1 f
3" C Reflector Date DEC 1963 Time 8:50
Purpose Fuel Evaluation

11"X9" = 4 3/16"
H = 9"X7" = 4 1/4"

Up Positions
VDT #3 = -1.0
VDT #4 = -18.0
Sel #1 = 19.955
Sel #2 = 19.962

f. Removed 1/16"X15" C from top [Ring up = +5.31¢]

Negative Period —

Log N = 178.1 sec = -9.36¢
#1 = 171.3 " = -9.89 — 9.76¢
#2 = 169.3 " = 10.04

1/16"X15" C = 16.11¢

g. H = 4 1/4" - Pos. Period

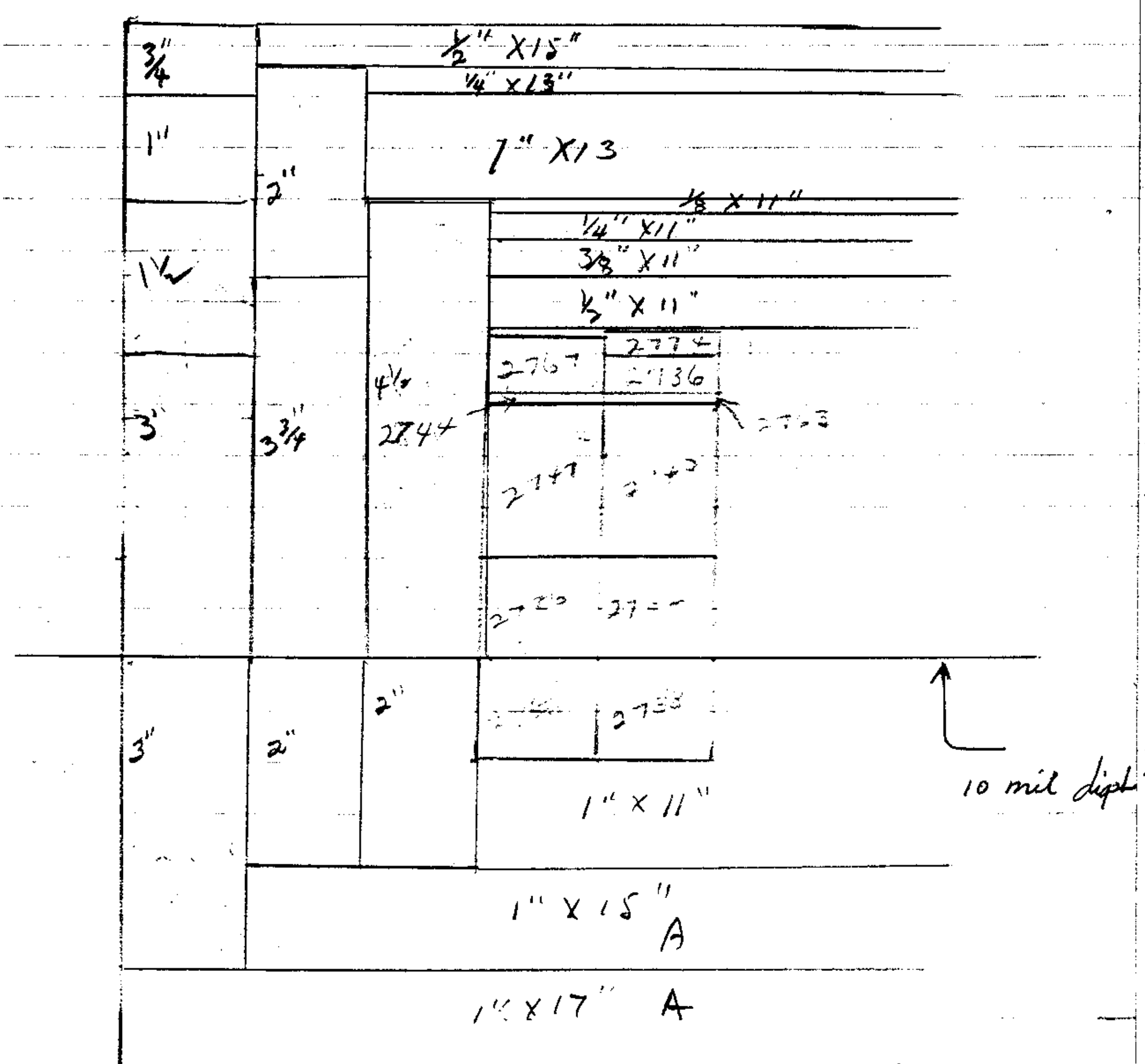
Log N = 11.67 sec = 36.48¢

(... 11 X 7) = 4 . . ¢

h H — 11"×9" = 4 $\frac{?}{?}$" / 9"×7" = 4 $\frac{3}{16}$", Rings up, Top Refl (15") = 2 $\frac{15}{16}$"

Negative Period —

Log N	= 131.9 sec	14.75 ¢	
9$^{00}_{AM}$ BF_3 #1	= 125 "	16.22 ¢	−15.92 ¢
#2	= 122.4 "	16.80 ¢	



C.A. 11" x 7" Expr. VIII Run 1a
3" C Reflector
Sh C Core Date 12-11-63 Time 12:53 ~~AM~~ PM
Purpose Critical Conditions

1" on Rom

1a H = 4" Negative Period -

Log N = 114.0 sec 19.47
#1 = ~~109.8~~ 110.3 " 20.95 = - 20.65 ¢
#2 = 109.0 " 21.54

b Support Ring Evaluation

negative Period -

Log N = 142.8 sec = 12.93 ¢
#1 = 147.2 = 12.35 ¢ - 12.11 ¢
#2 = 139.4 = 13.45 ¢

Rings = + 7.74 ¢

c Support Stand Evaluation (Stand & Rings up)

Negative Period -

Log N = 270.3 sec = - 5.53
#1 = 265.7 " = - 5.64 - [illegible] ¢
#2 = 276.4 " = - 5.39

Stand = + 7.39 ¢

& diaphragm evaluation (all up)

Negative period –

Log N = 123.1 sec 16.71 ¢

#1 = 125.7 " 16.07 ¢ = -16.34 ¢

#2 = 125.0 " 16.23 ¢

Diaphragm = -10.82 ¢

e Fuel Evaluation (diaphragm up)

added 1/16" (11"x9") fuel -10.82 ¢

" 1/16" to C Core

Pos Period –

Log N = 70.9 sec 12.52 ¢

#1 = 72.1 " 12.36 ¢

#2 = 73.6 " 12.18 ¢

DEC 1 2 1963

TABLES - OK
LIGHTS - OK
AREA CLEARED
@ 10 30 AM
Lynn & Taylor

INSTRUMENT CHECK

Time 10 30 AM PM Source M-226 d d

Channel	F	A	B	C	D	E
Range	1Hz & 1o	10/1000	OPR	X	1%/100	1060V
Source Dist.	OK	8"	OK	40"	2"	10"
% F.S. Trip	OK	100+	OK	100	95	100+

BF3 #1 & 2 OK

C.A. 11" x 7" Expr. VIII Run 1f
3" C Reflector
~~Start~~ C Core Date 12 1963 Time AM PM
Purpose Fuel Evaluation

H (11" x 9") = 4 1/16"
(9" x 7") = 4"

f Removed 1/8" x 15" C from Top. [diaph up]

Negative Period —

Log N = 135.2 sec -14,14 ¢
#1 = 139.4 -13.44 ¢ - 14,03 ¢
#2 = 133.2 -14.50 ¢

1/8" x 15" C = 26.38 ¢

g H = 4 1/16" Top Refl 2 7/8" [diaph up]

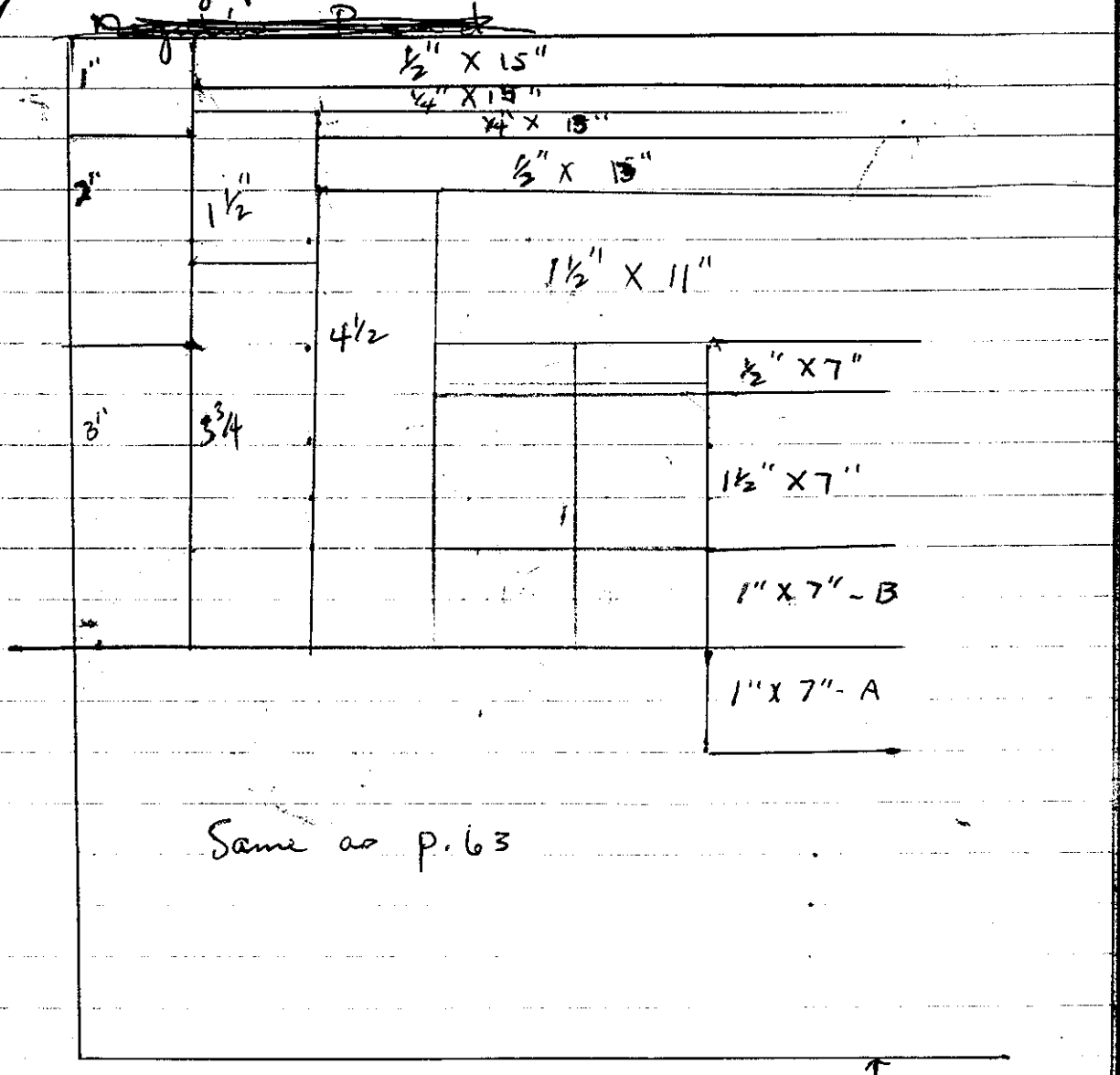
Positive Period —

Log N = 10.3 sec 38.60 ¢ + 38.53 ¢
#2 = 10.36 sec 38.53 ¢

Ind 1/16" (9" x 7") = 52.59 ¢

h Removed 1/16" (11" x 9") fuel assy. (Top Refl 2 3/8") [diagh up]

bottom of page



Same as p. 63

Run 1a

up] h negation Period

Log ν = 269 sec = -5.56

#1 = 261.8 " = -5.74 -5.65

* 2 = 265. " = 5.66

1/2 (11" x 1") pcl = 45.31 #

"Polyethylene Core"

DEC 13 1963

INSTRUMENT CHECK

Time 9:45 AM — Source M-226 & f

Channel	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050 V
Source Dist.	OK	8"	0"	5'	2"	8"
% F.S. Trip	OK	100+	OK	100	90	100+

BF_3 #1 & #2 - OK

MAGNETS – OK
TABLES – OK
LIGHTS – OK
AREA CLEARED @ 9:42 AM
[signatures] & [signatures]

C.A. 15" x 9"	Expr. I	Run 1	
P'thylene Core	Date DEC 13 1963	Time 10:00 AM	
Purpose Critical Condition			

2" on Ram

1 H = 5 1/16" – sub critical

2 H = 5 1/8" – super critical ① #1 = 19.79

3 Removed 1/16" fuel from 15" x 13" ring.
Clean Critical
Positive Period – Log N = 13.9 sec = 33.58 ¢

4 Diaphragm Evaluation

Pos Period – Log N 47.8 sec 16.50
#1 = 46.9 " 16.71 = 16.74
#2 = 45.6 " 17.02

Weight = –16.84 ¢

5 Ring Evaluation [diagh & Rings up]

Pos Period _ Log N = 29.5 sec 22.38
#1 = 29.3 " 22.47 + 22.16 ¢
#2 = 31.2 " 21.64

Rings = + 5.42 ¢

6 Fuel Support Evaluation [diagh & Support]

Pos Period _ Log N = 21.8 sec 26.60
#1 = 20.7 " 27.36 + 26.77 ¢
#2 = 22.2 " 26.34

(15" Stand) Support Stand = 10.03 ¢

7 H - 11"X9" = 5 1/8" Poly Core = 5 1/8"
15"X13" & 13"x11" = 5 1/16"

Pos Period _ Log N = 94.1 sec = 10.11 ¢
#1 = 95.1 " = 10.03 + 10.09
#2 = 93.8 " = 10.14
1/16 (13" x 11") Fuel = 23.44 ¢

8 H = 13" x 11" = 5 1/8" Poly Core = 5 1/8"
15" X 13 & 11" X 9" = 5 1/16"

Pos Period _ Log N = 110.7 sec 8.91 ¢
#1 = 106.8 " 9.16 ¢ = + 8.97 ¢
#2 = 112.0 " 8.82 ¢
1/16 (11" x 9") Fuel = 7.11 ¢

9. H = 15" x 13" ∓ 13" x 11" = 5⅛"

11" x 9" = 5 1/16" Poly. Core = 5⅛"

Bar Period – Log N = 33.9 sec = 20.57

#1 = 33.8 " = 20.61 + 20.62#

#2 = 33.6 " = 20.69

1/16 (15" x 13") Fuel = 11.65#

2766	2754	2743	1" X 9
~~2835~~	~~2782~~		B
2785	2750	2745	
2784	2749		1⅛" X 9"
2787	2753		
2786		2748	
2760	2787		1" X 9"
			A
2739	2752	2742	2744
	2751		
2735	~~2756~~ 2741	2740	2" X 9"
			A

Run 3 p. 71 (15" x 9")

Polyethylene 10 mil diaph

DEC 16 1963

C.A. 15" × 7" Expr. II Run 1

Polyethylene Core Date DEC 16 1963 Time 8:40 AM

Purpose Critical Condition

2" on Ram

Magnets OK
Tables OK
Lights OK
Area Cleared
@ 8:35

INSTRUMENT CHECK

Time 8:35 AM Source M226 & F

Up Position
#1 = 20.03
#2 = 20.032
#3 = +6
#4 = +1

	F	A	B	C	D	E
Range	1/2 ¢ ho	10/1000	OPR	×	10/1000	100%
Source Diff.	OK	7"	0"	35"	3"	10"
% F.S. Trip	OK	100+	OK	100	95	100+

BF3 #2 OK

1 ΔH = 4"

Positive Period — Clean Critical
Log N = 264 sec 4.27 ¢
#1 = 241 " 4.63 ≈ 4.51 ¢
#2 = 241 " 4.63

2 Support Ring Evaluation
Pos Period — Log N = 131.4 sec 7.76
#1 = 120.[illegible] " [illegible] + 8.06
#2 = [illegible] " 8.36
Rings = +3.55 ¢

3 Support Stand Evaluation

Pos Period — Log N = 26.5 sec 23,83 ¢
#1 = 26.7 " 23,73 +23.81
#2 = 26.4 " 23,88 ¢

Stand = +15.75 ¢

4 Diaphragm Evaluation (all up)

Pos Period — log N = 191.1 sec +5.67
#1 = 177.2 sec +6.05 +5.85 ¢
#2 = 185.0 " +5.82

Diaphragm = −17.1₂ ¢

5. Fuel Evaluation - Added ⅙ (15" X 13") fuel. (vs Run 1)

Pos Period — Log N = 45.3 sec 17,10
#1 = 44.6 17,17 +17.13
#2 = 45.6 17,02

⅙ (15" x 13") = 12.6 ¢

6. Added ⅙ (13" X 11") fuel. (vs Run 1)

Pos Period — Log N = 16.28 sec 31.1 ¢
#1 =
#2 =

⅙ (13" x 11") = 26.59 ¢

7. added $\frac{1}{16}$" (11" x 9") fuel (vs Run 1)

Pos Period — log N = 10.6 sec 38.11
#1 = 11.02 " 37.46 + 37.68
#2 = 11.0 37.48

$\frac{1}{16}$" (11" x 9") = 33.17 ¢

8. added $\frac{1}{16}$" (9" x 7") fuel (vs Run 1)

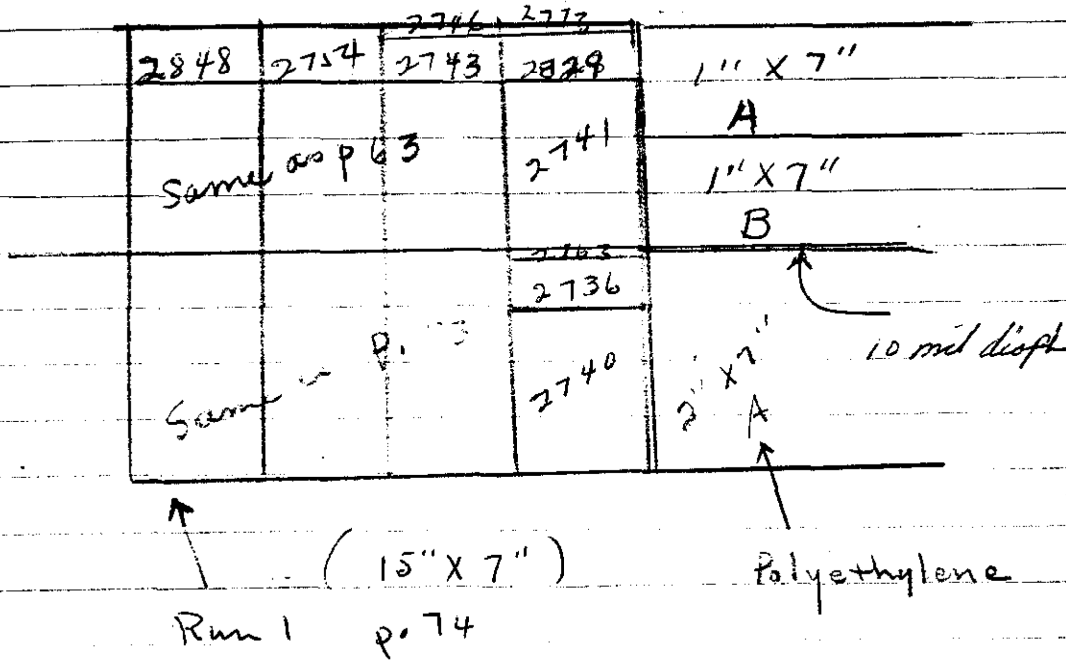
Pos Period — Log N = 13.6 sec + 33.93
#1 = 14.57 " 32.85 + 33.42
#2 = 13.87 " 33.66

$\frac{1}{16}$" (9" x 7") = 28.77 ¢

9. Removed $\frac{1}{16}$" (15" x 13") fuel (vs Run 8)

Pos Period — log N — 36.0 = 19.82
#1 = 37.5 = 19.32 + 19.68
#2 = 35.8 = 19.89

$\frac{1}{16}$ (15" x 13") = [illegible] ¢


2746 2773
2848
2754
2743
2828
1" X 7"
A
Same as p 63
2741
1" X 7"
B
2736
10 mil diaph
2740
2" X 7"
A
(15" X 7")
Polyethylene
Run 1 p. 74

C.A. 13" X 7" I 1

Polyethylene Core 1:40

Purpose - Critical Condition

2" on Ram

1 H = $4\frac{7}{8}$" - Sub-Critical.

2 H = 5" = Super #1 = 19,73

3 H = $4\frac{15}{16}$" - ~~Sub-Critical~~ ~~27~~

4 H = $4\frac{15}{16}$" (11" x 9") full

5" (13" X 11" & 9" X 7") full

Pos Period ~ 2.7 sec (Log N)

DEC 17 1963

INSTRUMENT CHECK

Time 8:10 AM ~~PM~~ Source PuBe & 8

	F	A	B	C	D	E
Channel		15	0	4	0 / 1	12
Range	Hi 8 Lo	10/1000	OPR	X	10/1000	1050 V
Source Dist	OK	6"	0'	4'	4"	8"
% F.S. Trip	OK	100+	OK	100	90	100+

BF_3 #1 & 2 - OK

Magnets OK
Tables OK
Lights OK
Area Cleared 8:05 AM

C.A. 13" x 7" Expt. I Run 5 0

Sheet ______ Date DEC 17 1963 Time 8:30 A.M.

Purpose Critical

2" on Ram

50 Repeat of Run 4 p. 78. Clean Critical

Pos Period - Log N = 31.9 sec - 21.35
#1 = 32.8 " - 21.00 + 21.22¢
#2 = 32.0 " - 21.31

6 Diaphragm Evaluation -

Pos Period - Log N = 304 sec - 3.76
#1 = 321 " 3.58 + 3.69
#2 = 307 " 3.73

Diaphragm = -17.53¢

7 Support Ring Evaluation – (diaph & Rmg up)

Pos Period – log N = 131.4 sec 7.76 ¢
#1 = 131.5 " 7.76 +7.84 ¢
#2 = 126.4 " 8.01

Ring = 4.15 ¢

8. Support Stand Evaluation (stand & diaph up)

Pos Period – Log N = 54.9 sec 15.00 ¢
#1 = 52.1 " 15.36 +15.37 ¢
#2 = 52.1 " 15.36

Stand = 11.68 ¢

9. Fuel Evaluation – (vs Run 5)
Removed 1/16" (13" x 11") fuel ring.

Pos Period – Log N = 100.6 sec 9.61
#1 = 102.9 " 9.43 +9.55 ¢
#2 = 96. " 9.90

1/16 (13" x 11") = 11.57 ¢

10 Removed 1/16" (9" x 7") fuel ring (vs Run 5)

Negative Period – Log N = 255 sec -5.93
#1 = 237 " -6.84 -6.15 ¢
#2 = 260 " -5.74

1/16" (9" x 7") = 27.40 ¢

-p up) 11 Added $\frac{1}{16}$" (11" x 9") fuel ring (Vs Run 5)

Pos Period - Log N = 33.5 sec 20.72

#1 = 33.5 " 20.72 + 20.71

#2 = 33.6 " 20.68

$\frac{1}{16}$" (11" x 9") = 26.89 #

h up)

2782		2829	
2750	2767	2773	
2749	2743	2738	2" X 7"
2754	2779		#B
	2778		

Same as p. 77

10 mil diaph

13x11 11x9 7x7

JAN 9 1964 83

JAN 9 1964

J. T. Mihalczo
J. J. Lynn
J. R. Taylor

INSTRUMENT CHECK

Time 8:20 AM ~~PM~~ Source M-226 E 8

	Channel					
	F	A	B	C	D	E
Range	HV = 800	10/1000	Opr	X	10/1000	1050 V.
Source Dist.	OK	15"	0	4'	1"	12"
% F.S. Trip		100	OK	100	90	100+

ctr 1 + 2 OK.

Lights - OK
Tables - OK
area cleared

C.A. 13" X 9" Expr. III Run 21
Sheet 1" C Refl. Date JAN 9 1964 Time AM PM
Purpose Critical Condition -

2" on Ram

Up
#1 = 21.04
2 = 21.043
3 = + ~~60~~
4 = + 10

a $H = 6\frac{11}{32}"$ - sub critical.

b $H = 9" \times 11" = 6\frac{5}{8}"$
$11" \times 13" = 6\frac{15}{32}"$ - sub Critical.

C.A. 13" x 9" Expr. IV Run 22 a
1" C Reflector
Sheet C Core Date 1-9 1964 Time AM PM
Purpose Critical Condition
2" on Ram

a H = $6\frac{3}{32}$" Fuel
$6\frac{1}{16}$" C Core
$1\frac{1}{32}$" Top Reflector

Negative Period - Log N = 100.6 sec
- 26.85 ¢

b H = 11" x 9" = $6\frac{3}{16}$" Repeat of P. 290 Bk 2
13" x 11" = $6\frac{1}{16}$"
C Core = $6\frac{3}{16}$" Refl = 1"

Positive Period -
Log N = 77.4 sec 11.73 ¢ = + 11.8 ¢
#2 = 76.2 sec 11.87 ¢

c $H = 13" \times 11" = 6\frac{3}{32}"$ C Core $= 6\frac{1}{3}"$

$11" \times 9" = 6\frac{1}{8}"$ Refl $= 1"$ (same as b)

Negative period =

Log N = 271 sec 5.51 ¢

#1 = 287 " 5.15

#2 = 260 " 5.80 — 5.49 ¢

d Repeat of Run c. (Same top Reflector change) Clean Critical

Negative period —

log N = 106 sec 23.64

#1 = 100 " 27.1 — 25.00 ¢

#2 = 104 " 24.25

e Support Stand Evaluation

log N = 175.8 sec = 9.57 ¢

#1 = 170.2 " 9.97 ¢ — 9.65

#2 = 177.6 " 9.42 ¢

2

Supp Stand = +0.35 ¢

f Rings Evaluation (stand & Rings up)

Negative Period —

log N = 482 sec. 2.87 ¢

#1 = 566 sec 2.41 ¢

#2 = 517 sec 2.66 ¢ - 2.65 ¢

¢

Rings = +7.0 ¢

g. Diaphragm Evaluation (all up)
negative period –

Log N = 157.4 sec 11.16 ♯
#1 = 159.6 " 10.93 ♯
#2 = 154.7 " 11.85 ♯ -11.18 ♯

Uiph = -8.53 ♯

h Added ⅛" to 11"x9" fuel and to C core –
vs Run d.

Positive Period - Log N = 12.92 sec = 34.8 ♯

adding ⅛ (11"x9") + ⅛" C Core = +59.8 ♯
-24.4 =
35.4 =

i Added ⅛" to 13"x11" fuel and to C core
vs Run d.

Positive Period –

Log N = 16.94 sec – 30.42
#1 = 18.2 sec – 29.31
#2 = 17.2 sec – 30.18 29.97 ♯

adding ⅛ (13"x 11") fuel + ⅛" C Core = 54.97 ♯

j. Removed ⅛" x 9" from C Core.
Positive Period –

Log N = 220 sec 5.00
#1 = 187 sec 5.76
#2 = 181 sec 5.94 5.52 ♯ Rem ⅛" (
– ⅛" x 9" C = 24.4 ♯ –

JAN 10 1964

INSTRUMENT CHECK

Time 10[20] AM   Source M-226 & h

	F	A	B	C	D ✓	E
Range	HV 800	1%/1000	OPR	X	1%/1000	1050V
Source Dist.	OK	12"	0	4'	2"	12"
% F.S. Trip	OK	100+	OK	100	90	100+

BF3 1 #2: OK

Lights OK
Tables OK
Magnets OK
Area Cleared 10[15] AM

JTM
JJL
JRT

C.A. 15" x 11" Expr. IV Run 2

1" C Reflector
~~Shape~~ C Core Date 1-10-1964 Time 10:25 AM

Purpose Critical Condition.

2" on Ram

4.8¢

a Ht = $6\frac{11}{32}$" fuel (All Available Fuel)
$6\frac{5}{16}$" C Core
1" C Reflector

Positive Period - Log N = 10.9 sec
37.6¢

b Ht = (13" x 11") $6\frac{11}{32}$"   C Core = $6\frac{5}{16}$"
(15" x 13") $6\frac{7}{32}$"   1" C Refl.

Positive Period -

Log N = 142.4 sec = 7.26¢
#1 = 149.8 " 6.97¢
#2 = 138.1 " 7.44¢

7.22¢

Removing
1/8" (15" x 13") fuel

57¢

c Support rings evaluation —

Positive Period —

Log N =	45.6 sec	17.02 ϕ	
#1 =	46.6 sec	16.78 ϕ	
#2 =	46.2 sec	16.88 ϕ	16.89 ϕ

Rings = +9.67 ϕ

d Diaphragm Evaluation [Ring ϕ diaph up]

Positive Period —

Log N =	118.3 sec	8.44 ϕ	
#1 =	~~121.3~~ "	8.28 ϕ	
#2 =	110.7 "	8.91 ϕ	8.54 ϕ

diaph = − 2.35 ϕ

e Support Stand Evaluation [all up]

Positive Period —

Log N =	39.1 sec	18.81	
#1 =	38.8 "	18.90	18.92 ϕ
#2 =	38.3 "	19.06	

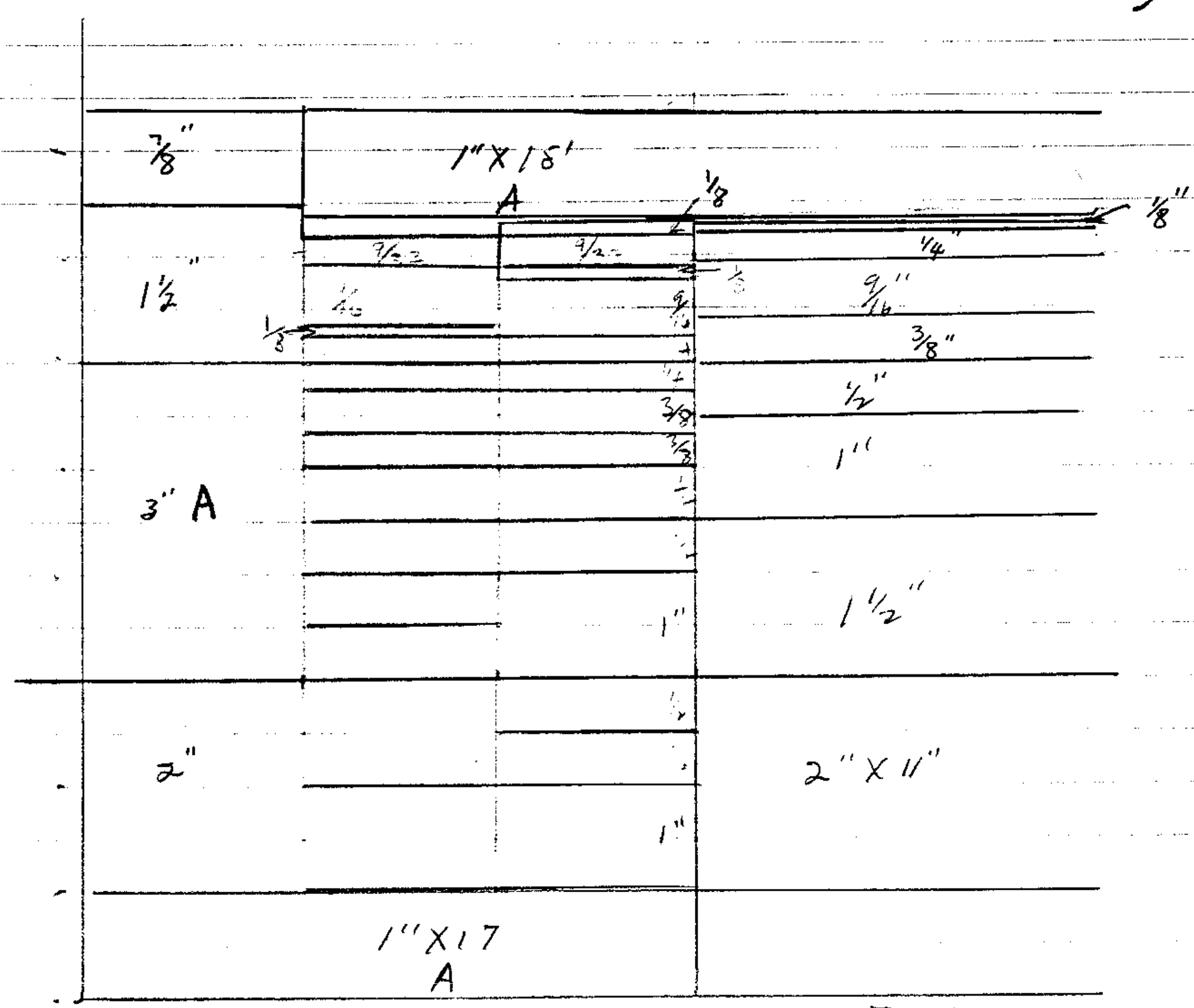
Stand = 10.38 ϕ

7 H = (13"x11") $6\frac{7}{32}$" C Core = $6\frac{5}{16}$"
(15"X13") $6\frac{11}{32}$" 1" C Refl.

Positive Period –

Log N = 253 sec 4.43 ¢
#1 = 247 " 4.53 ¢
#2 = 234 " 4.75 ¢ + 4.57 ¢

37.6 ¢ − 4.57 ¢ = 33.03 ¢ (13"X11")



↖ Run 2 –

p. 87

[redacted]

JAN 13 1964

INSTRUMENT CHECK

Time 835 AM

Time 8^{35} AM — Source M-226 # 1

	Channel					
	F	A	B	C	D	E
Range	HV 800	10/1000	OPR	X	10/1000	1050 V
Source Dist.	OK	15"	OK	4'	2"	4"
% F.S. Trip	OK	95	OK	100	70	100+

BF3 #1 & 2 OK

Lights - OK
Tables - OK
Magnets - OK
Area Cleared @ 8^{30} AM

C.A. 15" × 11" Expr. V Run 2
2" C Reflector Date 1-13-64 Time ___ AM/PM
Purpose Critical Condition

2" on Ram

up
#1 = 20.045
2 = 20.045
3 = +7.5
4 = +8.9

2a 7+ = 5 5/16" - Clean Critical

Positive Period -
Log N = 36.8 sec = 19.55¢
#1 = 36.2 " = 19.75¢
#2 = 36.2 " = 19.75¢ [illegible]

b Diaphragm Evaluation -

Positive Period -
Log N = 171.0 sec = 6.21¢
#1 = 185 " = 5.82¢
#2 = 184 " = 5.86¢ = 5.[illegible]

Dioph = 13.72¢

c Rings Evaluation [Illegible # Rings up]

Positive Period —

Log N	= 60.8 sec	= 13.98	
#1	= 60.6 "	14.01	
#2	= 61.2 "	= 13.91	13.97 ¢

Rings = 8.01 ¢

d Support Stand Evaluation [stand ¢ drop up]

Pos Period —

Log N	= 50.8 sec	-	15.83
#1	= 50.5 "	-	15.68
#2	= 49.5 "	-	16.11 15.84 ¢

Stand = 7.88 ¢

e Fuel Evaluation [Rings up] 8.01 ¢

Removed 1/16" (13"X 11") fuel [vs Run 20] 19.68 ¢

27.69 ¢

Negative Period -

Log N	= 283 sec	5.23 ¢
#1	= 281 "	5.28
#2	= 286 "	5.17 - 5.23 ¢

1/16" (13" x 11") = 33.92

92

Evaluate 1/32" (15" x 11") [Rings up = 8.01 #]

Run 2a 19.68 #

27.69 #

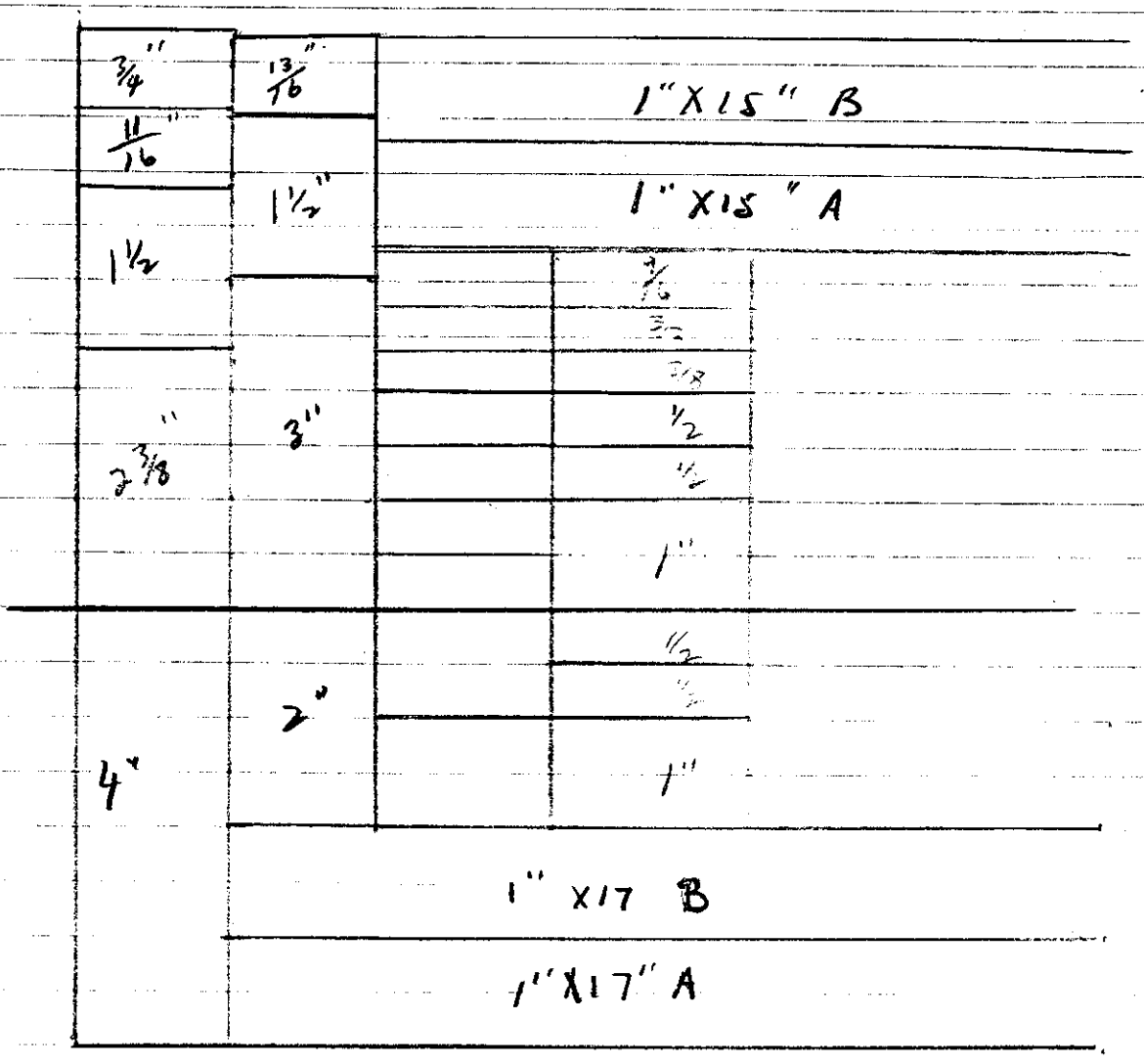
Negative Period —

log N = 369 sec - 3.86

#1 = 378 " - 3.75

#2 = 355 " - 4.03 - 3.88 #

1/32" (15" x 11") = 31.57 #



C.A. 15" X 11" Expr. VI Run 2
2" C Reflector
~~Sheet~~ C Core Date 1-13-1964 Time ~~AM~~ PM
Purpose Critical Condition -

2" on Ram

2a H = 4 27/32" fuel 2" C Reflector
4 26/32" C Core

b Negative Period - Clean Critical

Log N = 149.8	sec	12.00 ¢	
#1 = 153.0	"	11.64 ¢	
#2 = 153.9	"	11.53 ¢	- 11.72 ¢

c Rings Evaluation

Negative Period -

Log N	=	349	sec	- 4.11 ¢
#1	=	~~336~~ 332	"	- 4.35 ¢
#2	=	~~337~~ 337	"	- 4.28 ¢ - 4.25 ¢

Rings = 7.17 ¢

d Support Stand Evaluation - [Rings + Stand]

Positive Period -

Log N	=	204	sec	5.36
#1	=	197	"	5.52
#2	=	212	"	5.18 + [illegible] ¢

Stand = +9.6 ¢

94

e. Diaphragm Evaluation [All up]

Negative Period

Log N = ~~220~~ 188	sec pd	~~7.11~~ ~~8.71~~	
#1 = 208	" "	-7.63	-7.48
#2 = 206.5		-7.70	~~8.01~~ ±

Diaph = ~~12.33~~ -15.36 ±

f. Fuel Evaluation (Rings & Stand Ups) f vs d.
Removed 1/32" from 15-13 ring. +5.35

Negative Period

Log N = -161.7	sec. pd.	= 10.75	
BF_3 #1 = -168.1	" "	10.16	-10.3 ±
#2 = -168.1	" "	10.16	

1/32" 15-13 ring = +12.70 ±

9/16 +

95

JAN 14 1964

INSTRUMENT CHECK

Time 9:10 AM PM

Source M-226 #1

	F	Channel A	B	C	D	E
Range	OK	10/1000	OPR	X	50/1010	1050V
Source Dist.	0	16"	OK	4'	1"	10"
% F.S. Trip	OK	95	OK	100	95	100+

BF-1 & 2 OK

Lights OK
Tables OK
Magnets OK
Ora Clouds

1"	7/8"	1" X 15 B
1 1/2"	1"	1" X 15 A
2 3/8"	3"	9/32 1/4" 1/2" 1/2" 1"

1/4" 9/16" 2" X 11" 1/2" X 11" 1 1/2" X 11"

9/16 + 9/32 = .841

See p. 92

(Same)

9/16 = .5625 9/32 = .281

Run 2b p. 93

96

C.A. 15" x 9" Expr. To Run 2
~~Shock~~ 2" C Refl Date 1-14 1964 Time ~~AM~~ ~~PM~~
Purpo Critical Condition.

2" on Ram

2a H = 3 3/16" — Clean Critical

Positive Period —

Log N = 24.3 sec 25.04
#1 = 24.7 " 24.81
#2 = 24.7 " 24.81 + 24.24 F

b Diaphragm Evaluation —

Positive Period —

Log N = 163.9 sec 6.46 ~
#1 = 153.0 " 6.84 ~
#2 = 172.6 " 6.18 ~ 6.41

Diaph = -18.4 F

c Rings Evaluation [Diaph & Rings on]

Positive Period —

Log N = 89.4 sec 10,52
#1 = 87.3 " 10,72
#2 = 85.5 " +10.89 10.71 F

d Support Stand [Stand & [illegible] on]

Positive Period —

Log N	= 36.8 sec	19.55 ¢		
#1	= 35.1 "	20.13 ¢		
#2	= 36.1 "	19.78 ¢	+19.82	

Stand = 13.33 ¢

e Fuel Evaluation 1/32" (15" x 9") [Stand +13.33 / Rings up 4.22 ¢]

vs Run 2a 24.89

~~29.11~~ ¢

42.44 ¢

Negative Period —

Log N	= 113.5 sec	-19.65		
#1	= 112.3 "	20.10		
#2	= 110.7 "	20.70	-20.15	

1/32 (15 x 9) = 62.59 ¢ ?

Support Stand value in question after fuel change.

f Fuel Evaluation 1/32" (11" x 9") [vs Run 2a]

Positive Period —

Log N	= 352 sec	= 3.29 ¢	
#1	= 325.7 "	= 3.54 ¢	
#2	= 335.4 "	= 3.44	3.42 ¢

1/32 (11 x 9) = 21.67 ¢

g Evaluate $\frac{1}{32}$" (13" x 11") (VS Run 2a + 24.89)

Negative Period — Log N 447 sec - 3.12 ¢

#1 = 413 " - 3.40

#2 = 378 " - 3.75 - 3.46 ¢

$\frac{1}{32}$" (13 x 11) fuel = 28.35 ¢

h Evaluate $\frac{1}{32}$" (15" x 13") fuel (VS Run 2a + 24.89)

~~Negative~~ Positive Period —

Log N = 267 sec 4.22 ¢

#1 = 238 " 4,68 ¢

#2 = 263 " 4.28 ¢ 4.39 ¢

$\frac{1}{32}$ (15" x 13") fuel = 20.50 ¢

i Repeat g Run 2-a - [illegible] tical.

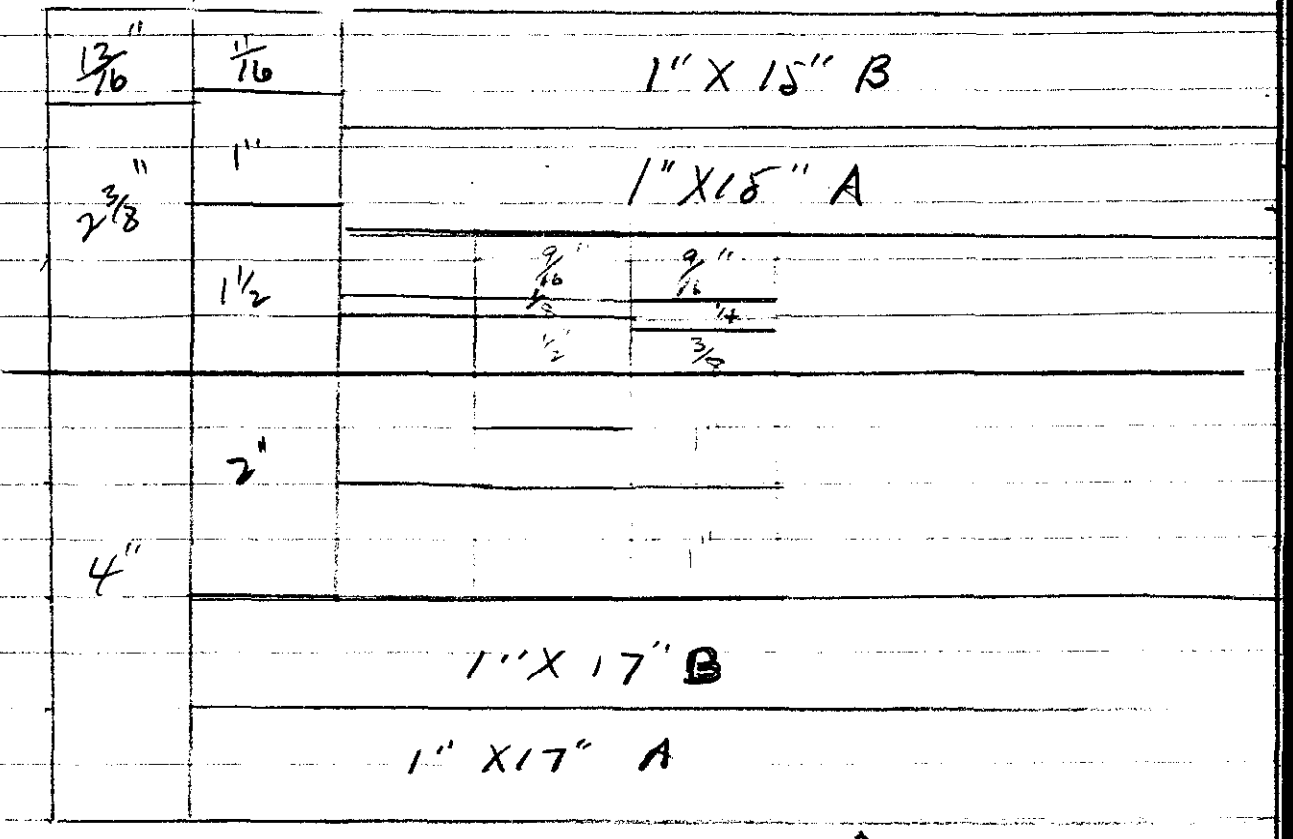
H = 3 3/16" ; 2" C Reflector.

Pos Period - Log N = 25.6 sec 24.31

#1 = 26.05 " 24,06

#2 = 25.4 " 24,42 +24.26

2 [illegible] = 24.56 ¢



↑ Run 2a p. 96

Mihalczo
Lynn
Taylor

JAN 15 1964

INSTRUMENT CHECK

Time 8:15 AM   Source M-226 & 8

Channel

	F	A	B	C	D	E
[illegible]	OK	10/1000	OPR	X	10/000	1050
Scanner Dev.	OK	12"	OK	4'	1"	12"
% F.S. [illegible]		100+	OK	100	95	100+

BF3 1&2 OK

Lights OK
Tables OK
Area Cleared @ 8:10 AM

2" on Ram

Purpose: Critical Conditions

Sheet C core   Date 1-15-1964   Time 8:30 AM

2" C Reflector

C.A. 15" X 9"   Expt. III   Run 2

2a $H = 3\frac{5}{32}$ Fuel $= 3.156''$

$3\frac{1}{8}$ C Core

Positive Period — Clean Critical

Log N = 19.3 sec = 28.41¢

#1 = 20.6 " = 27.44¢   27.93¢

b Diaphragm Evaluation —

Pos Period - Log N = 61.8 sec 13.82¢

#1 = 59.9 " 14.12¢

#2 = 61.2 " 13.91¢   13.95

[illegible] = -13.[illegible]¢

c Rings Evaluation — [Uliaph & Rings on]

Positive Period —

Log N = 42.0 sec 17.96 ¢
#1 = 41.7 " 18.05
#2 = 41.0 " 18.25 ¢ 18.09 ¢

Rings = +4.14 ¢

d Support Stand Evaluation [Uliaph & Stand on]

Pos Period — Log N = 21.5 sec 26.81
#1 = 20.8 " 27.29
#2 = 20.8 " 27.29 27.13 ¢

Stand = 13.18 ¢

e Fuel Evaluation $\frac{1}{32}$" (15" x 18") [US Run 2a]

Pos Period — Log N = 150.9 sec 6.91
#1 = 151.1 " 6.92
#2 = 147.2 " 7.07 ¢ 6.17 ¢

$\frac{1}{32}$ (15" X 13") = 20.74 ¢

f $\frac{1}{32}$" (13" x 11") [US Run 2a]

Pos Period — Log N = 215 sec 5.11
#1 = 212.3 " 5.18
#2 = 211 " 5.20 5.16

$\frac{1}{32}$ (13" x 11") = 22.77 ¢

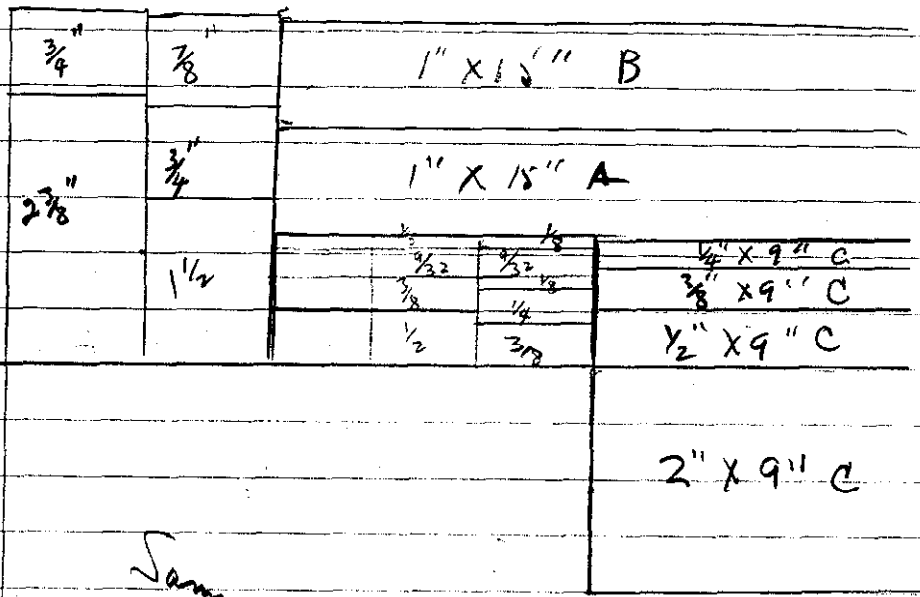
g $\frac{1}{32}$" (11" x 9") (US Rum 2a")

Pos Period Log N = 206 arc 5.31

μ_1 = 203.2 5.38

μ_2 = 199.3 5.47 5.39 ¢

$\frac{1}{32}$" (11" x 9") = 22.54 ¢



Same as p. 99

↑ Rum 2a p. 100

C.A. 15" x 7" Expr. [redacted] Run 2

Sheet 2" C Reflector Date 1-15-1964 Time 2:18 ~~AM~~ PM

Purpose Critical Condition.

2" on Ram

H = 2½" - Super Critical

[redacted]

INSTRUMENT CHECK

JM
JdL
[illegible]

Time 8^{10} AM ~~PM~~ Source ~~M-226- p~~

	F	A	B	C	D	E
		Channel				
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050
Source Dist.	OK	out	OK	4'	2"	10"
% F.S. Trip	OK		OK	100	95	100+

BF_3 #1&2 : OK

JAN 16 1964
Lights – OK
Tables – OK
Magnets – OK
Area Cleared 8^{15}_{AM}

Channel "A" was tripped when I came in this morning. Is unusable. Is being worked on.

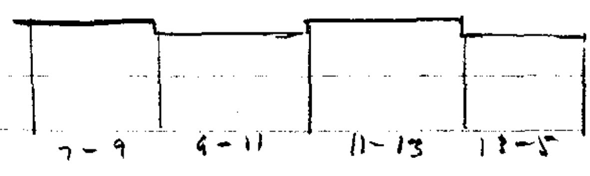
C.A. 15" X 7" Expr. V Run 3
~~Shim~~ 2" Refl Date 1-16 1964 Time AM ~~PM~~
Purpose Critical Condition

$1\frac{1}{2}$" on Ram

3a H = $2\frac{15}{32}$" – sub Critical.

b H = $2\frac{1}{2}$" (~~9" x 7"~~) & (13" x 11")
$2\frac{15}{32}$" (11" x 9") & (15" x 13")

Negative –
Log N = 119.2 sec = 17.75
#1 = 114.6 " 19.23
#2 = 121.6 " 17.10 —18.02¢

Fuel Top 

accel top | 7-9 | 9-11 | 11-13 | 13-15 |

c addid $\frac{1}{32}$" (15" x 13") fuel — H = $2\frac{1}{2}$" except (11"x9") = $2\frac{15}{32}$"

Positive Period — Clean Critical

Log N = 543 sec 2.20 ¢
#1 = 521 " 2.29 ¢
#2 = 511 " 2.33 ¢ +2.27 ¢

$\frac{1}{32}$" (15" x 13") = 20.29 ¢

d Rings Evaluation —

Neg Period —

Log N = 217 sec 5.07 ¢
#1 = 213.7 " 5.05 ¢
#2 = 216.4 " 5.09 ¢ +5.07 ¢

Rings = +5.80 ¢

e Support Stand Evaluation [stand + Rings]

Positive Period —

Log N = 19.89
#1 = 20.10
#2 = 19.89 +19.96
Stand = +13.89 ¢

f Diaphragm Evaluation [all on]

Neg Period —

Log N = 980 sec 1.25 ¢
#1 = 700 " 1.73
#2 = 1000 " 1.23 +1.4 ¢
Diaph = -18.56 ¢

g. Fuel Evaluation. H = 2½" [Diaph. on T = -18,56

Vs Run 3c +2.27

-16.29

Pos Period - Log N = 64.7 sec 13.39

#1 = 64.5 " 13.41

#2 = 65.1 " 13.32 +13.37 ¢

$\frac{1}{32}$" (11" x 9") = 29.66 ¢

h Removed $\frac{1}{32}$" (13" x 11") fuel = Removed diaph.

Fuel Top

7-9	9-11	11-13	13-15

Pos Period -

Log N = 620 sec 1.94 ¢

#1 = 477 " 2.49 ¢

#2 = 573 " 2.09 ¢ + 2.17 ¢

$\frac{1}{32}$" (13" x 11") = 29.76 ¢

i added $\frac{1}{32}$" (13" x 11")

Removed $\frac{1}{32}$" (9" x 7")

7-9	9-11	11-13	13-15

Pos Period -

Log N = 53.7 = 15.24

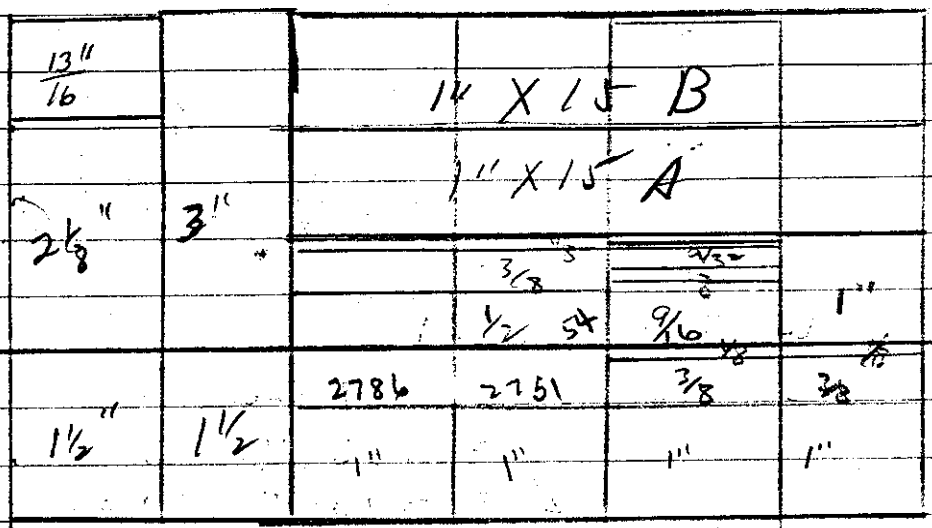
#1 = 52.7 = 15.48

#2 = 52.4 = 15.50 + 12.39 ¢

$\frac{1}{32}$" (9" x 7") = 16.5 ¢ ±

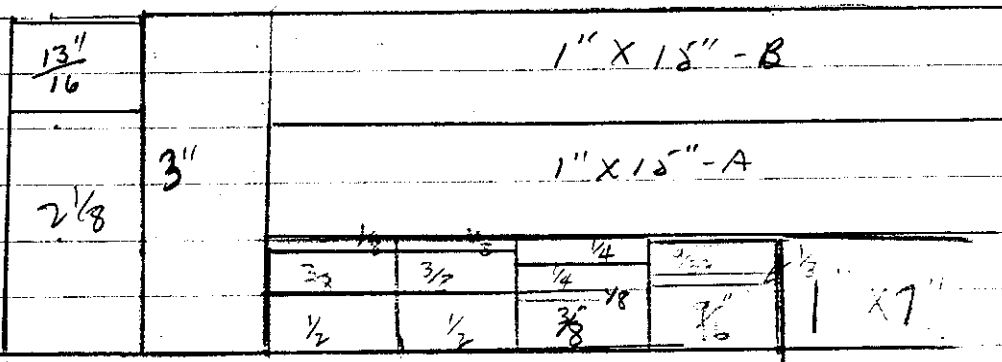
8.56
.27
.29

Run 2c
p. 105



1" X 19" B

1" X 19" A



Run 2a
p. 108

Same as above

108

C.A. ~~25~~ 15" x 7" Expr. VI Run 2
2" Reflector
~~Start~~ Core Date 1-16-1964 Time 2:20 ~~AM~~ PM
Purpose Critical Condition

1½" on Raw

2a H = 2½", except (9" x 7") = 2 15/32"

Negative Period — Clean Critical

Log N = 267 sec -5.61 ¢
#1 = 286 " -5.16 ¢
#2 = 270 " 5.53 ¢ -5.43 ¢

& Support Stand Evaluation -

Poo Period —

Log N = 98.4 +9.77
#1 = 95.1 +10.04
#2 = 95.1 +10.04 9.95 ¢

Stand = 5.38 ¢

[redacted]

JAN 17 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK JAN 17 1964

Time 8:00 AM Source M226 Ch

	F	A	B	C	D	E
Channel						
Range	Hi & Lo	10/1020	OPR	X	10/100	1050
Source Dist.	OK	Out	OK	4'	2"	10"
% F.S. Trip	OK	0	OK	100	95	100
BF3 1 & 2	OK					

Lights OK
Tables OK
Magnets OK
Area Cleared @ 8:15 AM

C.A. 15" X 7" Expr. VI Run 2c
2" C Reflector
C Core Date 1964 Time AM PM
Purpose Con't Evaluations

c Rings Evaluations — [Rings & stand on]

Pos Period — log N = 71.9 sec 12.39 ¢
#1 = 69.05 " 12.75 ¢
#2 = 69.7 " 12.67 ¢ + 12.60 ¢

Rings = −2.60 ¢

d diaphragm evaluation (all on)

Neg Period — log N = 457 sec 3.04 ¢
#1 = 438 " 3.19 ¢
#2 = 441.5 " 3.16 ¢ −3.13 ¢

diaph = −15.73 ¢

e Fuel Evaluation $\frac{1}{32}$" (9"x7")
H = 2 $\frac{1}{2}$" [VS Run 2a p.108]

Poo Period - Log N = 44.5 sec 17.30
#1 = 46.9 " 16.71
#2 = 42.6 " 17.80 +17.27

$\frac{1}{32}$" [9"x7"] = 22.7 ℔

f Removed $\frac{1}{32}$ (15"x13") = 17.27 ℔ [VS Run 2e]

Level ∞ 17.27 ℔

g Removed $\frac{1}{32}$ (13"x11") [VS Run 2e]

Negative Period - Log N = 117.2 sec -8.51
#1 = 116 " -8.59
#2 = 117.2 " -8.51 -8.54

$\frac{1}{32}$" (13"x11") = 25.81 ℔

h Removed $\frac{1}{32}$" (11"x9") [VS Run 2e]

Negative Period - Log N = 120. sec 8.36
#1 = 117.2 8.51
#2 = 123 7 8.15 -8.3 +

$\frac{1}{32}$" (11"x9") = 15.61 ℔

[redacted]

JAN 20 1964

INSTRUMENT CHECK

Time 11^10 AM ~~PM~~ Source M226 & ?

	Channel F	A	B	C	D	E
Range	Hi & Lo	Out	OPR	x	10/1000	1050 V.
Source Dist.	OK		OK	4'	2"	12"
% F.S. Trip BF_3 #1 & 2	OK		OK	100	95	100+

Lights
Tables – OK
Magnets –
Area Cleared

JM
JJH
JRT

C.A. 15" x 7 Expr. VII Run 2

Sheet 3" C Refl. Date JAN 20 1964 Time ____ AM PM

Purpose Critical Condition

1" on Rom

2a H = 2 1/8" – Sub Critical

b Added 1/32 (9" x 7") & 1/32" (13" x 11") fuel

Slight Positive

[redacted]

JAN 21 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:25 AM   Source M-226 #1

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	x	10/1000	1050V
Source Dist	OK	4"	OK	4'	3"	12"
% F.S. Trip	OK	100+	OK	100	95	100+

BF_3 #1 & #2 OK

Lights OK
Tables OK
Magnets OK
Area Cleared @ 8:20 AM

C.A. 15" x 7" Expr. VII Run 2C
3" C Reflector Date JAN 21 1964 Time
Purpose Critical Condition

1" on Ram 15-13 13-11 11-9 9-7

2c H = { 9"X7" & 13"X13" = 2 5/32" ; 11"X9" & 15"X13" = 2 1/8" } Fuel

✓ { (17"X15") = 4.173" ; (19"X17") = 4" ; (21"X19") = 4.127" } Top Carbon Rings   Clean Critical

Pos Period — LogN = 886 sec   1.38 ¢
#1 = 928 sec   1.32
#2 = 823 sec   1.48   + 1.39 ¢

d Support Stand Evaluation (29" dia)
Pos Period - LogN - 91.2 sec 10.36 ¢
#1 = 88.5 " 10.51 ¢
#2 = 93.8 " 10.14   + 10.34 ¢
Support Stand = + 11.73 ¢

e Ringo Evaluation (Stand & Bango on)

Pos Period — log N = 63.5 sec = 13.53 ¢
#1 = 59.9 " 14.12 ¢
#2 = 59.9 " 14.12 ¢ + 13.93 ¢

20/AM

Ringo = +3.59 ¢

f Diaphragm Evaluation (all up)

Negative Period —
log N = 239 sec 6.41 ¢
#1 = 223 " 6.98 ¢
#2 = 253 " 5.97 ¢ −6.45 ¢

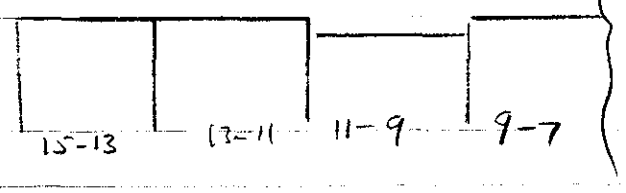
Diaph = −20.38 ¢

g Fuel Evaluation 3/2 (15" x 13") added

{ diaph up −20.38
{ VS Rum 2c +1.39
−18.99

Pos Period —
Log N = 175.8 sec 6.09 ¢
#1 = 173.1 " 6.16 ¢
#2 = 178. " 6.02 +6.09 ¢

3/2 (15" x 13") = 25.08 ¢



114

h. Removed $\frac{1}{32}$" (13" X 11") fuel (Weigh Removed)

15-13	13-11	11-9	9-7

Negative Period –

Log N = 220.4 sec -7.09 ¢
#1 = 211.1 " -7.49 ¢
#2 = 207.5 " -7.65 ¢ -7.41 ¢

$\frac{1}{32}$ [13" X 11"] = 33.88 ¢

12:45 PM h. Added $\frac{1}{32}$" (11" X 9") (vs Rm 2h)

15-13	13-11	11-9	9-7

Pos. Period –

Log N = 47.4 sec +16.59 ¢
#1 = 47.9 sec 16.47
#2 = 47.7 sec 16.52 +16.53 ¢

$\frac{1}{32}$ (11" X 9") = 23.94

j. Removed $\frac{1}{32}$" (9" X 7") ([vs Rm 2i])

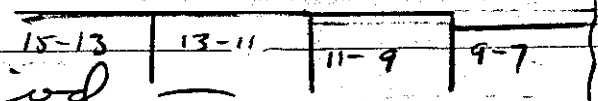
15 13	13-11	9	9-7

Negative Period

Log N = 224 sec 6.95
#1 = 216.4 " 7.26
#2 = 216.4 " 7.26 -7.17 ¢

$\frac{1}{32}$ (9" X 7") = 27.00 ¢

K Added $\frac{1}{32}$" (13" X 11") (vs Run 2j)



Pos Period

Log N =	19.9 sec	27.95
#1 =	19.1 "	28.57
#2 =	18.7 "	28.89 + 28.47

$\frac{1}{32}$" (13" X 11") = 35.64 #

L Removed $\frac{1}{32}$" (11" X 9") (vs Run 2K)

Pos Period —

Log N =	475 sec	2.50 #
#1 =	489 "	2.43
#2 =	497 "	2.39 + 2.44 #

$\frac{1}{32}$" (X 1") = 26.03 #

M. See Run 2c

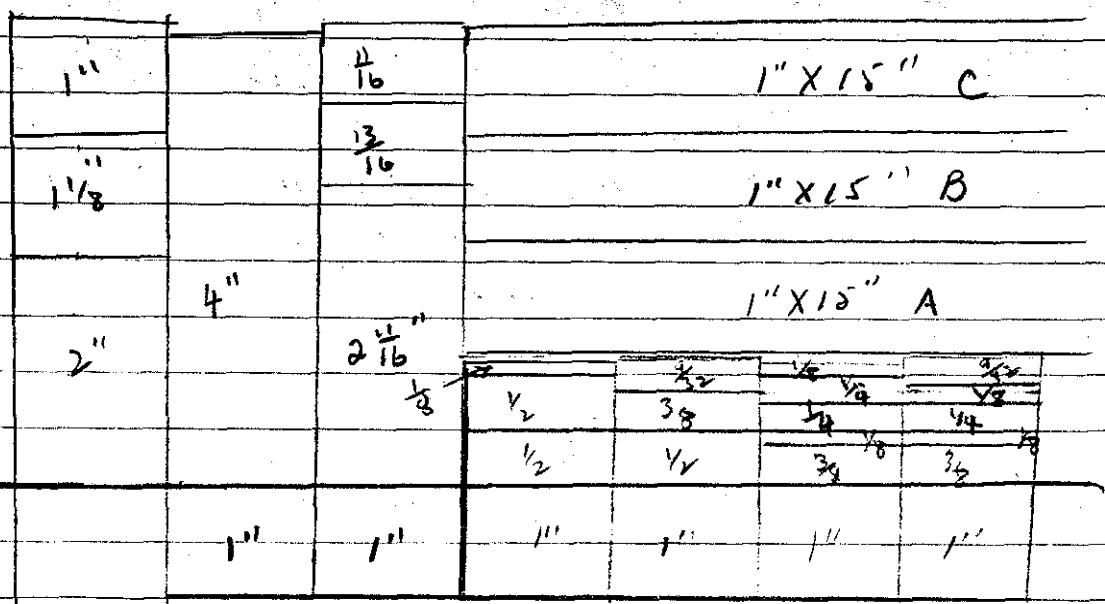
19" X 17" C Ring replaced the 4" with 2 $\frac{1}{8}$" + 1.5" + $\frac{11}{16}$" =

Pos Period (vs Run 2L)

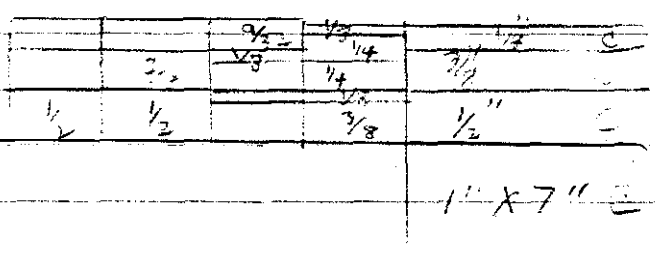
Log N =	155.3 sec	6.82 #
#1 =	151.9 "	6.90 #
#2 =	154.4 "	6.80 # 6.84 #

$\frac{1}{4}$ (19" X 17") C = 1.46 1

Run 2c p. 112



Same as above



Same as above

Run 1a p. 117

JAN 2 2 1964

JM
JJL
JRT

INSTRUMENT CHECK

Time 9^{25} AM

Source M-226 & L

Channel ✓

	F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050 V
Source Dist.	OK	~~3~~4"	OK	6'	4"	8"
% F.S. Trip	OK	100+	OK	100+	95	100+

BF₃ #1 & 2 OK

LIGHTS - OK
TABLES - OK
MAGNETS - OK
AREA CLEARED 9^{20} AM

C.A. 15" X 7" Expr. VIII Run 1
3" C Reflector
Sheet C Core Date JAN 2 2 1964 Time 9:35 AM
Purpose Critical Condition

1" on Ram

1a H = 15" x 13", 13" x 11" & 11" x 9" = $2\frac{5}{32}$"
9" x 7" = $2\frac{1}{8}$" [same as 2K p. 115]
Top Carbon Rings = Same as 2c p. 112

Pos Period - Log N = 50.5 sec 15.94 ¢ above critical
#1 = 51.4 " 15.70
#2 = 52.7 " 15.44 + 15.69 ¢

b Diaph Evaluation
Negative Period - Log N = 3660 sec 0.35 ¢
#1 = 2800 " 0.46 ¢
#2 = 3050 " 0.43 ¢ - 0.41

diaph = -16.10 ¢

c Support Stand Evaluation [Diaph & stand on]

Positive Period — Log N = 107.8 sec 9.10 ¢
#1 = 109.4 " 8.99 ¢
#2 = 103 " 9.43 ¢ +9.17 ¢

Support Stand = 9.58 ¢

d Rings Evaluation [All on]

Poo Period - Log N = 73.8 sec 12.15 ¢
#1 = 73.6 " 12.18
#2 = 75.5 " 11.95 +12.09 ¢

Rings = +12.92 ¢

e Fuel Evaluation - diaph up -16.10
Added $\frac{1}{32}$ (9" x 7") Run 1a +15.69
H = $2\frac{5}{32}$" -.41
Poo Period - Log N = 32.1 sec 21.27
#1 = 32.2 " 21.23
#2 = 33.8 " 20.61 21.04 ¢

15 13 11 9

$\frac{1}{32}$" (9" x 7") = 21.45 ¢

12:50 PM ¢ Removed $\frac{1}{32}$ (15" x 13") diaph off 12.10
Run 1e +21.04
+37.14 ¢

Poo Period - Log N = 72.2 sec 12.35 ¢
#1 = 67.8 " 12.93 ¢
#2 = 67.1 " 13.02 ¢ +12.76

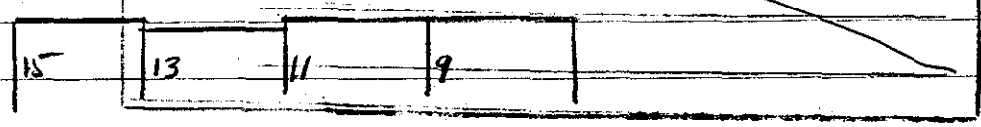
15 13 11 9

$\frac{1}{32}$" (15" x 13") = 24.3 ¢

C.A. _____ Expr. _____ Run _____

Sheet _____ 19 ___ Time _____ AM PM

Purpose _____



g. Removed $\frac{1}{32}$" (13" x 11") Vs Run 1e 21.04

Diaph off 16.10

37.14 ¢

Pos Period - Log N = 354 sec 3.27 ¢

#1 = 333 " 3.46

#2 = 346 " 3.34 + 3.36

$\frac{1}{32}$" (13" x 11") = 33.78 ¢

h Removed $\frac{1}{32}$" (11" x 9") Vs Run 1e 21.04 ¢

Diaph off 16.10

37.14 ¢

Pos Period - Log N = 146.6 sec 7.10 ¢

#1 = 141.9 " 7.28 ¢

#2 = 140.7 " 7.34 7.24 ¢

$\frac{1}{32}$" (11" x 9") = 29.70 ¢

JAN 2 3 1964

INSTRUMENT CHECK

Time 9 45 AM PM Source M-226 & 1

		Channel F	A	B	C	D	E
Range	Hi & Lo		1%000	OPR	X	1%000	1050V
Source Dist.	OK		4"	OK	6'	1"	12"
% F.S. Trip	OK		100t	OK	100	95	100t
BF_3 1 & 2	OK						

Lights OK
Tables OK
Magnets OK
Area Cleared @ AM

C.A. 15"X 9" Expr. VII Run 2
Size 3" C Refl Date JAN 23 1964 Time 10:00 AM PM
Purpose Critical Condition

1½" on Ram

up Position
# 1 = 23.37
2 = 23.411
3 = ~~4~~
4 -3

2a H = $2\frac{23}{32}$" = 2. Chrom Critical

Pos Period - Log N = 23.5 sec 25.52 ¢
#1 = 24.2 " 25.10
#2 = 23.5 " 25.52 + 25.38

& Diaphragm Evaluation -

Pos Period - Log N = 187.8 sec 5.75 ¢
#1 = 196.7 " 5.53 ¢
#2 = 179. " 5.99 + 5.76 ¢

Diaph = 11.62 ¢

c Support Rings Evaluation [Diaph & Rings on] 1:2

Pos Period Log N = 96.3 sec 9.94 ¢
#1 = 96.9 " 9.93
#2 = 97.7 " 9.83 +9.90 ¢

Rings = 4.14 ¢

d Support Stand Evaluation (Stand & Diaph on)

Pos Period Log N = 60.5 ¢ 14.02 ¢
#1 = 59.9 ¢ 14.13 ¢
#2 = 59.9 ¢ 14.13 ¢ 14.09 ¢

Stand = 8.33 ¢

e Fuel Evaluation, Removed $\frac{1}{32}$" (15" x 13") vs Run 2a - +25.38¢

Pos Period - Log N = 374. sec 3.11
#1 = 390.4 / 190.2 sec 3.07 ¢
#2 = 330.4 / 215.2 sec 3.31 ¢ +3.16 ¢

$\frac{1}{32}$" (15" x 13") = 22.22 ¢

1:25 PM

15 13 11

7 Removed $\frac{1}{32}$" (13" X 11") . vs Run 2a

+25.38 ¢

Negative Period - Log N = 265 sec 5.66 ¢

#1 = 268.3" 5.58 ¢

#2 = 265 " 5.66 ¢ − 5.63 ¢

$\frac{1}{32}$" (13" X 11") = 31.01 ¢

(4 on)

9 Removed $\frac{2}{32}$"(11" − 9") vs Run 2a

15 13 11

+25.38 ¢

Pos Period - Log N = 893 sec 1.77 ¢

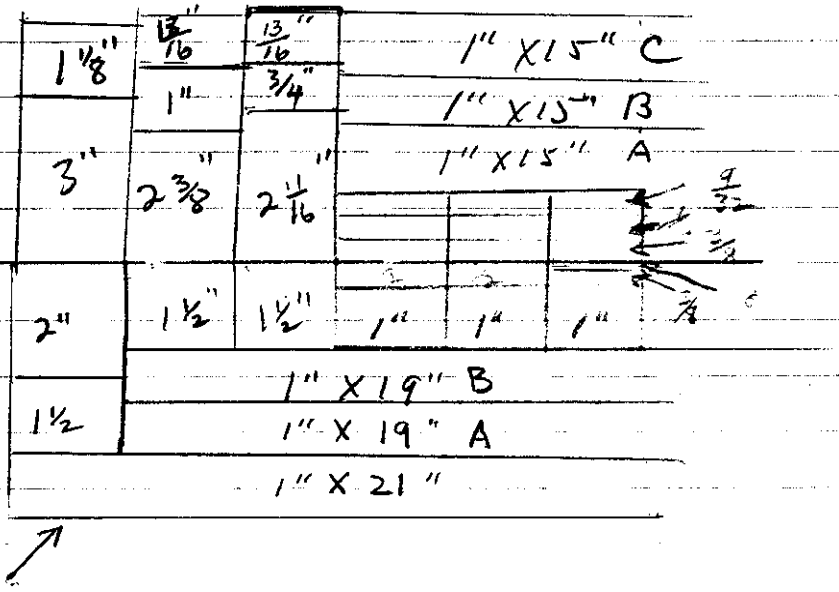
#1 = 780 " 1.56 ¢

#2 = 940 " 1.30 ¢ + 1.41 ¢

$\frac{1}{32}$(11" X 9") = 23.97

2a -
.38 ¢

¢



Run 2a p. 121

C.A. 15" x 9" Expr. VIII Run 2a
3" C Reflector
~~Sheet~~ C core Date 1-23 1964 Time 3:05 PM
Purpose Critical Condition

1½" on Ram

2a H = 2 11/16" = 2.70 Clean Critical

Pos Period - Log N = 144.4 sec 7.18 ¢
#1 = 147.2 " 7.07
#2 = 147.2 " 7.07 + 7.11 ¢

b Rings Evaluation -

Pos Period - Log N = 79.6 sec 11.49 ¢ ~~7.18~~
#1 = 85.9 " 10.85
#2 = 82.1 " 11.22 11.18 ¢
Rings = + 4.07 ¢

c Support Stand Evaluation,

Pos Period - Log N = 53.5 sec 15.28 ¢
#1 = 53.4 sec 15.30 ¢
#2 = 53.4 sec 15.30 ¢ + 15.29
Stand = 8.18 ¢

d Diaphragm Evaluation [~~Rings~~ Stand on]
Negative Period - Log N = 826 sec 1.61 ¢
#1 = 692 " 1.95 ¢
#2 = 718 " 1.87 ¢ - 1.81 ¢
Diaph = - 17.10 ¢

JAN 24 1964

INSTRUMENT CHECK

Time 8[30] AM ~~PM~~ Source N-226 & V

JM
JL
JRT

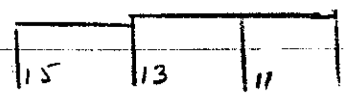
	Hi-Flo	A	B	C	D	E
		Channel				
Range	OK	1/1000	OPR	K	1/1000	1050V
Source Dist.	OK	4"	OK	4'	4"	12"
% F.S. Trip		100+	OK	100	95	100+

BF3 OK OK

Lights OK
Talk OK
Area Cleared
@ 8[15] AM

2 e Fuel Evaluation [Support Stand & Rings on]
Removed $\frac{1}{32}$"(15" x 13") vs 2a

12.25
7.11
+ 19.36¢

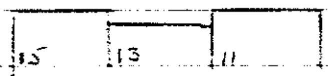


Negative Period — Log N = 152 sec 11.75¢
#1 = 153 " 11.63¢
#2 = 151.8 " 11.79¢ −11.72¢

$\frac{1}{32}$"(15" x 13") = 31.08¢

f Removed $\frac{1}{32}$"(13" x 11"). [Support Stand & Rings on vs Run 2] + 19.36

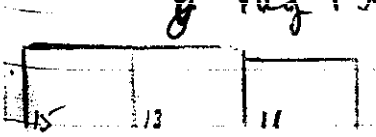
Neg. Period — Log N = 178.1 sec 9.37¢
#1 = 171.9 " 9.86¢
#2 = 177.2 " 9.43¢ − 1.55¢



$\frac{1}{32}$ (13" x 11") = 28.91¢

g Removed $\frac{1}{32}$"(11" x 9") [Rings & Stand vs Run 2a] +19.36

g Neg Period — Log N = 280 sec 5.30¢
#1 = 276.2 " 5.38¢
#2 = 281.3 " 5.28¢ − 5.32¢



$\frac{1}{32}$ (11" x 9") = 24.68

126

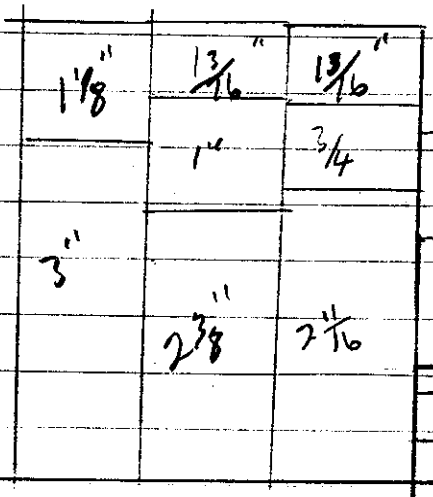
h Zero Run [Rings & Stand up]

H = 2 11/16"

Poo Period _ Log N = 38.0 sec 19.16

#1 = 38.04 " 19.15

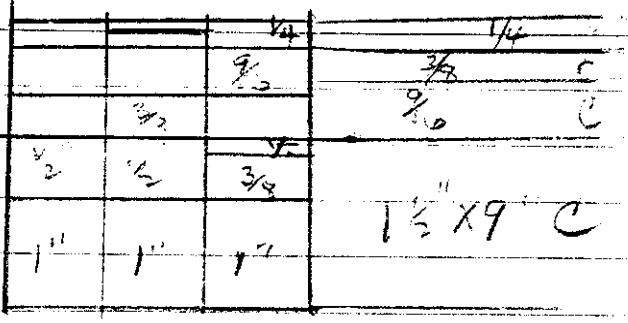
#2 = 38.5 " 19.00 +19.16 ¢



1" X 15" C

1" X 15" B

1" X 15" A



1½" X 9" C

Same as P. 123

C.A. 15" x 11" Expr. VII Run 1
~~Sheet~~ 3" C Reflector Date 1-24-1969 Time 2:20 ~~AM~~ PM
Purpose Critical Condition.

1½" on Ram

1a H = 4 7/16" - Super Crit #1 = 23.08

b H = 4 3/8" — Super Crit #1 = 23.11

c H = 4 1/8" - Sub Crit -

d H = 4 1/4" - Sub Crit -

128

JAN 27 1964

INSTRUMENT CHECK

Time 9:20 AM ~~PM~~ Source M-226 ℄ f

	Channel F	A	B	C	D	E
Range	Ni & Ho	1/1000	OPR	X	1/1000	1050V
Source Disc.						
F.S. Trip						

Tables - OK
Lights - OK
area cleared
magnets - OK

e 4 9/32" - sub Critical

f 4 5/16" - clean Critical

15

Pos Period - Log N = 21.28 sec 26,97
#1 = 21.35 " 26.90
#2 = 20.17 " 27.78 ± 27.22

g Diaphragm Evaluation -

Pos Period - Log N = 79.9 sec 11.45 ℄
#1 = 78.2 " 11.64 ℄
#2 = 77.5 " 11.72 ℄ ± .00 ℄

Diaph. = 15.12 ℄

h Rings Evaluation - [Diaph & Rings on]

Pos Period - Log N = 38.2 sec 19.09 ℄
#1 = 39.0 " 18.84 ℄
#2 = 38.4 " 19.03 ± 19.15 ℄

Rings = 7.38 ℄

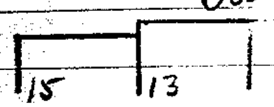
i. Support Stand - [Diaph & Stand on]

Poo Period – Log N = 41.4 sec 18.13¢
#1 = 39.1 " 18.81¢
#2 = 40.4 " 18.42 18.45¢

Stand = 6.85¢

j. Fuel Evaluation
Removed $\frac{1}{32}$" (15" X 13") [vs Run 1f]

Poo Period – Log N = 266 sec 4.24¢
#1 = 255 " 4.40¢
#2 = 242 " 4.59¢ +4.43¢

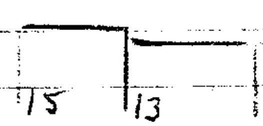


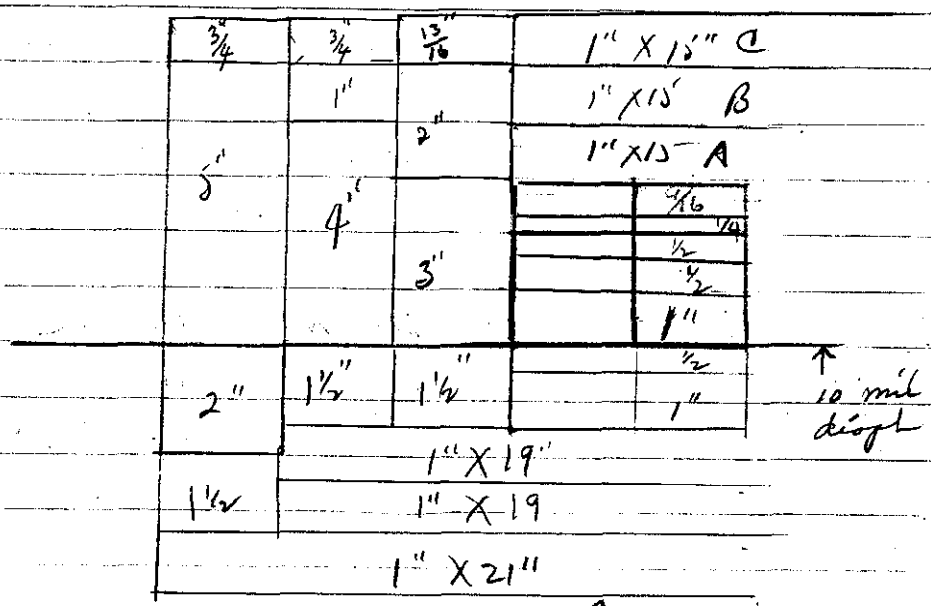
$\frac{1}{32}$" (15 [illegible]) = 22.79¢

k $\frac{1}{32}$ (13" x 11") [vs Run 1f]

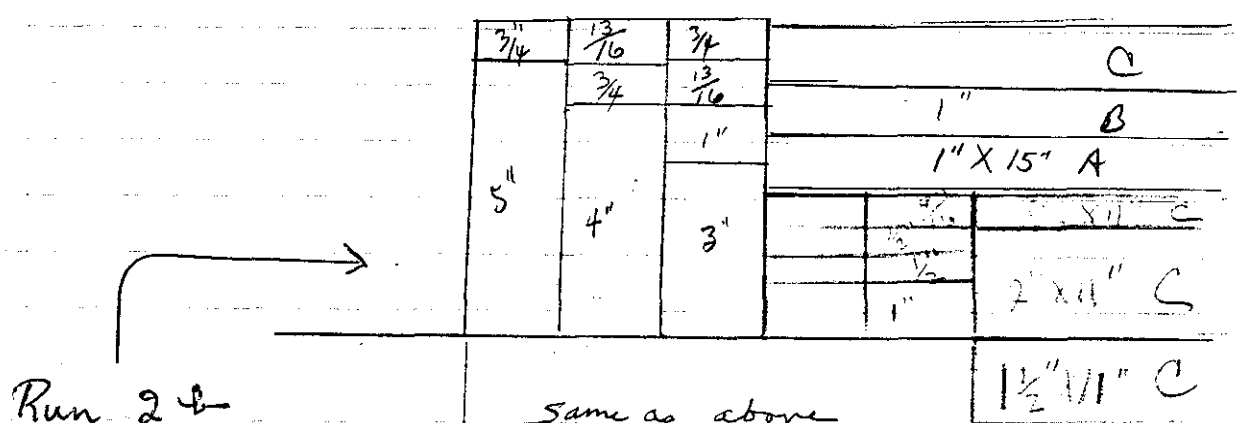
Poo Period – Log N = 318 sec = 3.61¢
#1 = 309 " = 3.70¢
#2 = 336 " = 3.43¢ +3.58¢

$\frac{1}{32}$" (13" x 11") = 23.64¢





Run 1f
p. 128



Run 2b
p. 131

same as above

C.A. 15" x 11" Expr. VIII Run 2
Shot 3" C Roff. C Core Date 1-27-1964 Time 1:45 AM PM
Purpose Critical Condition

1½" on Ram

2a H = 4 3/16" - Super Critical.

b 7# = 4 1/16" - Clean Critical - see drawing for C Condition
Pos Period —

Log N = 42.1 sec 17.94 #
#1 = 42.3 " 17.88 #
#2 = 41.7 " 18.05 # +17.96 #

c Diaphragm Evaluation —
Pos Period —

Log N — 217 sec 5.07 #
#1 — 208 " 5.26 #
#2 = 199 " 5.45 # + 5.26

diaph = 12.70 #

d Rings Evaluation [Rings & diaph on]
Pos Period —

Log N = 76.8 sec 11.80 #
#1 = 76.2 " 11.87 #
#2 = 75.6 " 11.94 # + 11.87 #
Rings = 6.61 #

e C Reflector Evaluation
Removed ¾" (21" x 19") C [vs Run 2 b]

Pos Period —

Log N = 78.2 sec 11.64 ¢
#1 = 75.5 " 11.95 ¢
#2 = 71.6 " 12.42 ¢ +12.00 ¢

¾" (21" x 19") C = 5.96 ¢

f Support Stand — [vs Run 2e]
Pos Period —

Log N = 43.4 ¢ 17.58 ¢
#1 = 43.6 ¢ 17.53 ¢
#2 = 42.9 ¢ 17.72 ¢ +17.61 ¢

Stand = 5.61 ¢

g Fuel Evaluation —
Removed 1/32" (15" x 13") [vs Run 2f]

Neg Period —

Log N = 339.8 sec -4.24 ¢
#1 = 349 " 4.11 ¢
#2 = 318 " 4.57 ¢ -4.31 ¢

1/32" (15" x 3") = 22.27 ¢

h Removed $\frac{1}{32}$" (13" x 11") [vs Run 2b]

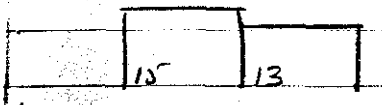
Neg. Period –

Log N = 187.8 rec 8.72 ¢

#1 = 182.4 " 9.06

#2 = 192.8 " 8.46 -8.75 ¢

$\frac{1}{32}$" (13" x 11") = 26.71 ¢



JAN 28 1964

INSTRUMENT CHECK

Time 12:40 ~~AM~~ PM Source M-226 ¢ γ

	F	✓ A	B	C	D	E
		Channel				
Range	o/c	10 / 1000	Opr	X	10 / 1000	1050V
Source Dist.		4"	0	4'	1"	8"
F.S. Trip	o/c	100+	oK	100	100+	100+

BF_3 #2 o/c

C.A. 13" X 9" Expr. IX Run 1

4" C Refl 1-28-64

Purpose Critical Condition

1" on Ram

up Positions
#1 = 22.775
#2 = 21.815
#3 = +4.0
#4 = −2.0

1a H = 13" X 11" = 3 5/8"
11" X 9" = 3 19/32" – Sub Critical

b added 1/8" Fuel – Super Critical 22.58

c H = 3 21/32" = 3.656"
(15" X 13") C = 6.756"
(17" X 15") C = 6.717
(19" X 17") C = 6.816"
(21" X 19") C = 6.765"

Pos Period –

Log N = 18.58 sec 29.00¢
#1 = 17.61 " 29.81¢
#2 = 18.4 29.14¢ +21.32¢

d (19" x 17") C = 6.695 diff = 0.121"

Pos Period — Clean Critical

Log N = 19.37 sec 28.38 ¢
#1 = 19.88 " 27.98 ¢
#2 = 19.78 " 28.05 ¢ + 28.14 ¢
~1/8" (19" x 17") C = 1.18 ¢

e Diaphragm Evaluation —
Pos Period —

log N = 47.4 sec 16.59 ¢
#1 = 46.9 " 16.71 ¢
#2 = 47.5 " 16.56 ¢ + 16.62 ¢

Diagh = 11.52 ¢

f Rings Evaluation [Diagh & Rings up]
Pos Period —

Log N = 30.9 sec 21.72 ¢
#1 = 30.6 " 21.89 ¢
#2 = 31.2 " 21.64 ¢ + 21.77 ¢

Rings = 5.15 ¢

g Support Stand (Stand & diagh up]
Pos Period —

Log N = 31.2 sec 21.64 ¢
#1 = 32.2 " 21.23 ¢
#2 = 31.5 " 21.51 ¢ + 21.46 ¢
Stand = 4.81 ¢

h Fuel Evaluation [vs Run 1d]

Removed $\frac{3}{32}$" (11" x 9")

cal

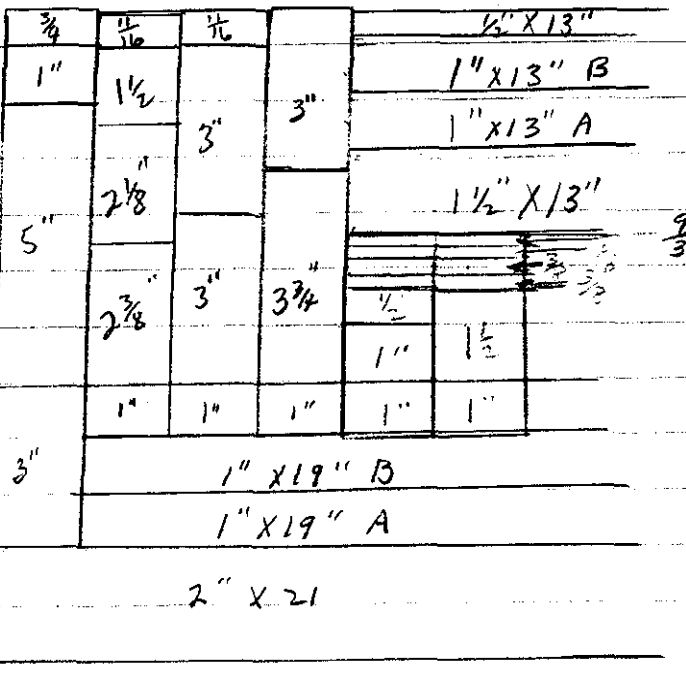
Coo Period —

Log N = 648 sec 1.86 ¢

#1 = 627 sec 1.92 ¢

#2 = 736 " 1.65 ¢ +1.81 ¢

$\frac{3}{32}$ (11" x 9") = 26.33 ¢



Run 1d p. 136

JAN 29 1964

MIHALCZO
LYNN
~~TAYLOR~~

INSTRUMENT CHECK

Time 8^{17} AM

Source M-226 ¢t

Channel	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OFF	x	10/1000	1050V
Source Dist	OK	4"	0"	5'	1"	8"
% F.S. Trip BF3 #1 & 2	OK	100+	OK	100	100+	100+

LIGHTS OK
TABLES OK
MAGNETS OK
AREA CLEARED @ 8^{15} AM

i $\frac{1}{32}$"(13" X 11") removed. [VS Run 1d]

Pos Period – Log N = 217 sec 5.07¢
#1 = 244 " (4.58¢) ✓
#2 = 203 " 5.37¢ + 5.01¢

$\frac{1}{32}$ (5" x 11") = 23.13¢

CA 13" x 9" Expr. X Run 1
4" C Refl.
Sta C Core Date JAN 29 1964 Time 10:20 AM
Purpose
critical condition

8 15 AM

a H = 3½" Fuel Clean Critical

(21" x 19") C = 6,507" (17" x 15") C = 6.498"
(19" x 17") C = 6,377" (15" x 13") C = 6.525"

Positive Period –

Log N = 241 sec 4.62 ¢
#1 = 244 " 4.58 ¢
#2 = 235 " 4.73 ¢ + 4.67 ¢

b Rings Evaluation
Pos Period –

Log N = 104.2 sec 9.34
#1 = 101. " 9.59
#2 = 104 " 9.36 + 9.43 ¢

Rings = +4.77 ¢

c Support Stand Evaluation (Stand & Rings on)
Positive Period –

Log n = 60.1 sec 14.09 ¢
#1 = 61.2 " 13.91 ¢
#2 = 60.6 " 14.01 ¢ + 14.00 ¢

Stand = + 4.57 ¢

d Diaphragm Evaluation [all on]

Positive Period –

Log N = 344 sec 3.36
#1 = 323 " 3.56
#2 = 326 " 3.53 + 3.48 ¢

Diaph = 10.52 ¢

e Fuel Evaluation –

Removed $\frac{1}{32}$" (13" x 11") [vs Run 1c]
+ 14.00 ¢

Negative Period –

Log N = 129.2 sec 15.29 ¢
#1 = 128.3 " 15.48 ¢
#2 = 130.2 " 15.08 ¢ - 15.28 ¢

$\frac{1}{32}$" (13" x 11") = 29.28 ¢

f Removed $\frac{1}{32}$" (11" x 9") [vs Run 1c]
+ 14.00 ¢

Negative Period –

Log N = 109.7 sec 21.18 ¢
#1 = 106.8 " 22.68 ¢
#2 = 105.5 " 23.35 ¢ - 22.40 ¢

$\frac{1}{32}$" (11" x 9") 36.68

g Reflector Evaluation — [vs Run 1a]

Added 0.319" (19" X 17") C +4.69 ¢

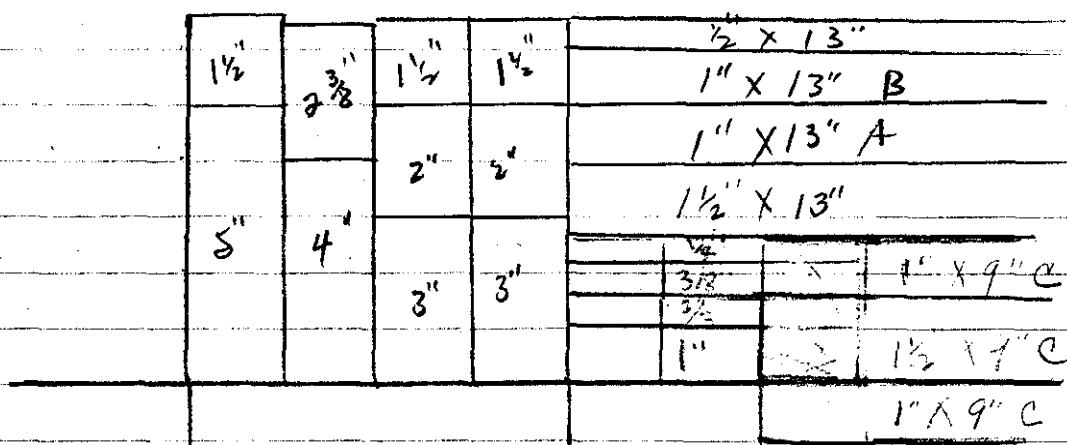
Pos Period —

Log N = 161.8 sec 6.53 ¢

#1 = 158.9 " 6.63 ¢

#2 159.0 " 6.62 ¢ 6.59 ¢

0.319" (19" X 17") C = 1.95 ¢



Same as p. 137

JAN 30 1964

INSTRUMENT CHECK

Time 10⁰⁰ AM Source Al 226 & ⅄

Channel ✓

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	–	4"	0"	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BF₃ OK 1 & 2

Light OK
Area Cleared
Magnet OK

C.A. 13" x 7" Expr. IX Run 3

4" C Refl. Date 1-30-1964 Time 10:30 AM

Purpose Critical Conditions

1" on Ram

3a $H = 2\frac{13}{32}"$ – Super Critical – 22.6¢
2.406"

b Removed $\frac{1}{32}"$ (11" x 9") Fuel.

Pos Period – Log N = 8.49 sec – 13" + 9" 42.0¢

c Diaphragm Evaluation –

Pos Period – Log N = 22.8 sec – 25.95¢
#1 = 23.45" – 25.55¢
#2 = 23.8" – 25.34¢ + 25.61¢

Diaph = 16.39¢

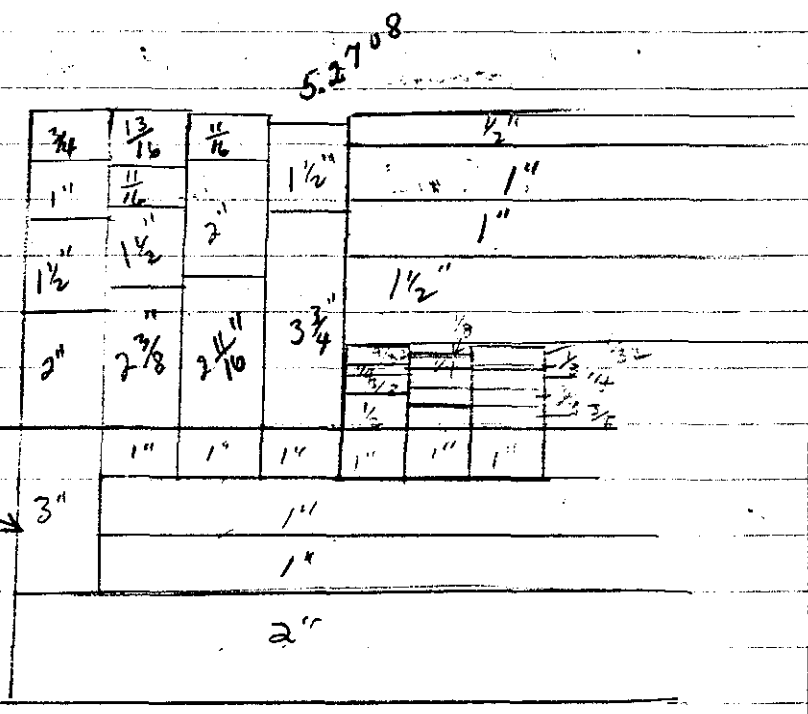
d Rings Evaluation [Weight & Rings on]

Pos Period – Log N = 18.57 sec   29.04 ¢
#1 = 18.1 "   29.39 ¢
#2 = 17.97 "   29.49 ¢   + 29.31 ¢

Rings = 3.70 ¢

e Support Stand
Pos Period –
Log N = 15.63 sec – 31.71 ¢
#1 = 16.2 "   31.12 ¢
#2 = 15.9 "   31.41 ¢   + 31.41 ¢

Stand = 7.04 ¢



Run 3b
p. 142

144

f FUEL EVALUATION-

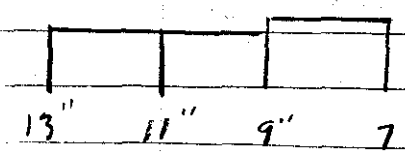
REMOVED $\frac{1}{32}$" (13" X 11") [VS RUN 3b]

+42.0 ¢

POS PERIOD - LOG N = 38.9 sec 18.87 ¢

#1 = 34 [ON SCALER 3]

#2 = 38.4 " 19.03 +18.95 ¢



$\frac{1}{32}$" (13" X 11") = 23.05 ¢

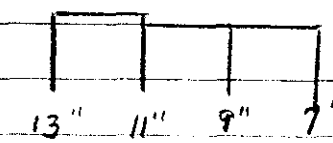
g REMOVED $\frac{1}{32}$" (9" X 7") [VS RUN 3b]

+42.0 ¢

POS PERIOD - LOG N = 68.4 sec = 12.85 ¢

#2 = 70.3 " = 12.59 ¢

#1 = 62.1 +12.72 ¢



$\frac{1}{32}$" (9" X 7") = 29.28 ¢

h REMOVED $\frac{1}{32}$ (11" X 9") [This ring now is Lower than the other 2]

[VS RUN 3b]

42.0 ¢

LEVEL ∞ 42.0 ¢

$\frac{1}{32}$" (11" X 9")

JAN 3 1 1964

LYNN TAYLOR

INSTRUMENT CHECK

Time 8 15 AM

Source M-236 # 6

	F	A	B	C	D	E
Range Hi & Lo	✓	10/1000 OPE	✓	✓	10/1000	1050V
Source Dist.	OK	4"	0"	8'	1"	9"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF_3 #2 #3	OK					

Lights OK
Tables OK
Magnets OK
Area Clear 8 10 AM

i. REFLECTOR EVALUATION - [Vs RUN 3b]

(15"X13")C = 5.757 (diaph ON) = 16.39 ¢

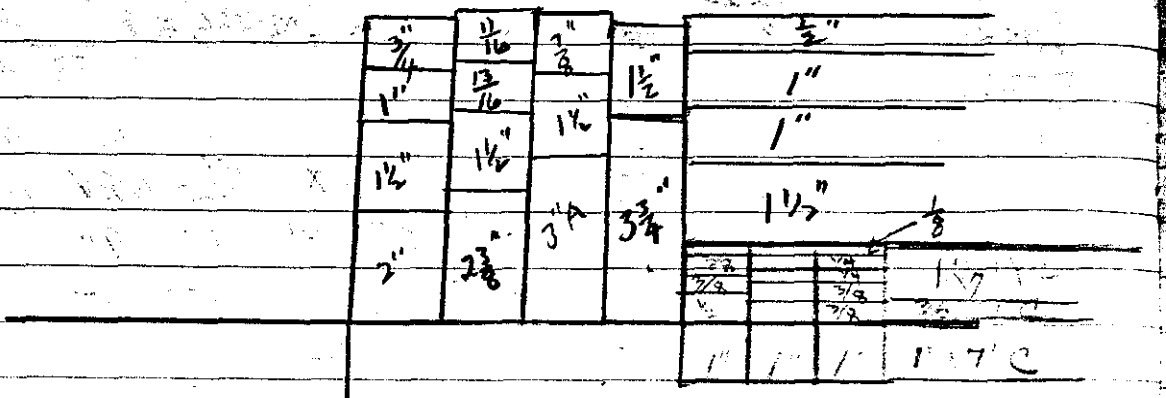
POS PERIOD - LOG N = 11.53 sec = 36.67 ¢
#2 = 11.83 " = 36.20 ¢
#1 = 11.84 " = 36.18 ¢ + 36.35 ¢

j. CLEAN CRITICAL - See ~~RERUN~~ RUN 3b

(Diaph ON) = 16.39 ¢

POS PERIOD - LOG N = 25.0 sec 24.64
#2 = 25.8 " 24.20
#1 = 25.4 " 24.42 24.42 ¢

0.426" (15"X13") C = 11.93 ¢



Same as p. 143

Run 3A p. 147

C.A. 13" X 7" Expr. X Run 3
4" C REFLETOR
~~Shot~~ C CORE Date 1-30-1964 Time 10:45 ~~PM~~ AM
Purpose CRITICAL CONDITION

1" ON RAM

3a H = 2 3/8" CLEAN CRITICAL

POS PERIOD — LOG N = 13.~~52~~ sec 34.17¢
#2 = 12.98 " 34.78
#1 = 13.07 " 34.64 + 34.53¢

& DIAPHRAGM EVALUATION —

POS PERIOD — LOG N = 37.1 sec 19-45¢
#2 = 37.9 " 19.19
#1 = 38.4 " 19.03 + 19.22¢

DIAPH = 15.31¢

C RINGS EVALUATION [DIAPH ON]

POS PERIOD — LOG N = 28.3 sec 22.93¢
#2 = 28.6 " 22.79¢
#1 = 29.1 " 22.56¢ + 22.76¢

Rings = +3.54¢

148

12:50 PM d SUPPORT STAND EVALUATION — [DIAPH ON]

POS PERIOD - LOG N = 23.37 sec ~~25.62~~ 25.62 ¢
#2 = 22.9 " 25.89
#1 = 23.9 " 25.28 + 25.60

Stand + 2.89 ¢

E, FUEL EVALUATION — [VS RUN 3a]
REMOVED $\frac{1}{32}$" (13" X 11")

POS PERIOD - LOG N = 182 sec 5.90 ¢
#2 = 166 " 6.37 ¢
#1 = 172 " 6.19 ¢ + 6.15 ¢

$\frac{1}{32}$" (13" X 11") = 28.38 ¢

F REMOVED $\frac{1}{32}$" (11" X 9") — [VS RUN 3a]

NEG PERIOD - LOG N = 267 sec 5.61
#2 = 270 " 5.53
#1 = 251 " 6.04 − 5.73

$\frac{1}{32}$" (11" X 9") = 40.26 ¢

N] G Removed 1/32" (9" x 7") [vs Run 3a]

Pos Period – Log N = 166.1 sec · 6.39¢
#2 = 163.8 " · 6.46¢
#1 = 161.9 " · 6.49 · 6.45¢

-5.60

1/32" (9" x 7") = 28.08¢

] 3:12 PM Reflector Evaluation – [vs Run 3 G]
H Added 0.130" (21" x 19") C

Pos Period – Log N = 165.10 sec · 6.42¢
#2 = 153.1 " · 6.84¢
#1 = 163.6 " · 6.47¢ · 6.58¢

0.130" (21" x 19") C = 0.13¢

I Added 0.486" (15" x 13") C [vs Run 3G]

Pos Period – Log N = 38.65 sec = 18.95¢
#2 = 38.9 " = 18.84
#1 = 39.08 = 18.82 · ±18.87

13

J. ~~Added~~ Removed 0.426" (15" x 13") = 12.42¢ or 0.0256¢/mil
0.242" (15" x 13") C [vs Run 3G]
Neg Period – Log N = 797 sec · 1.70¢
#2 = 688 " · 1.96
#1 = 589 " · 2.31 · −1.14¢

0.242" (15" x 13") C = 8.44¢ or 0.0373¢/mil

FEB 3 1964

INSTRUMENT CHECK

Time 11:00 AM Source M-226 & J

	F	A ✓	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050
Source Dist.	OK	5"	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BF3 1&3 OK

Lights OK
Magnets OK
Tables OK

C. 11" X 7" Expr. IX Run 1

4" C Refl Date 2-3-1964 Time 11:15 AM

Purpose Critical Condition

1" on Ram

up positions
#1=22.775
#2=22.816
#3=+4
#4=0

1a $H = 3\frac{5}{8}"$ Sub Critical

2:10 PM b $H = 3\frac{21}{32}$ Fuel - CLEAN CRITICAL

(19"X17") C = (15"X13") C =

(17"X15") C = (13"X11") C =

NEG. PERIOD - LOG N = 320 sec 4.54

#2 = 349 " 4.11

#1 = 323 " 4.49 - 4.38 ¢

c RINGS EVALUATION - ~~NEG~~ ∞ PERIOD -

LOG N =

#1 =

#2 =

RINGS = +4.38 ¢

d SUPPORT STAND EVALUATION — [STAND & RINGS ON]

POS PERIOD — LOG N = 220 Rec 5.01

#2 = 224 " 4.94

#1 = 217.5 " 5.07 + 5.01 ✝

SUPPORT STAND = +5.01 ✝

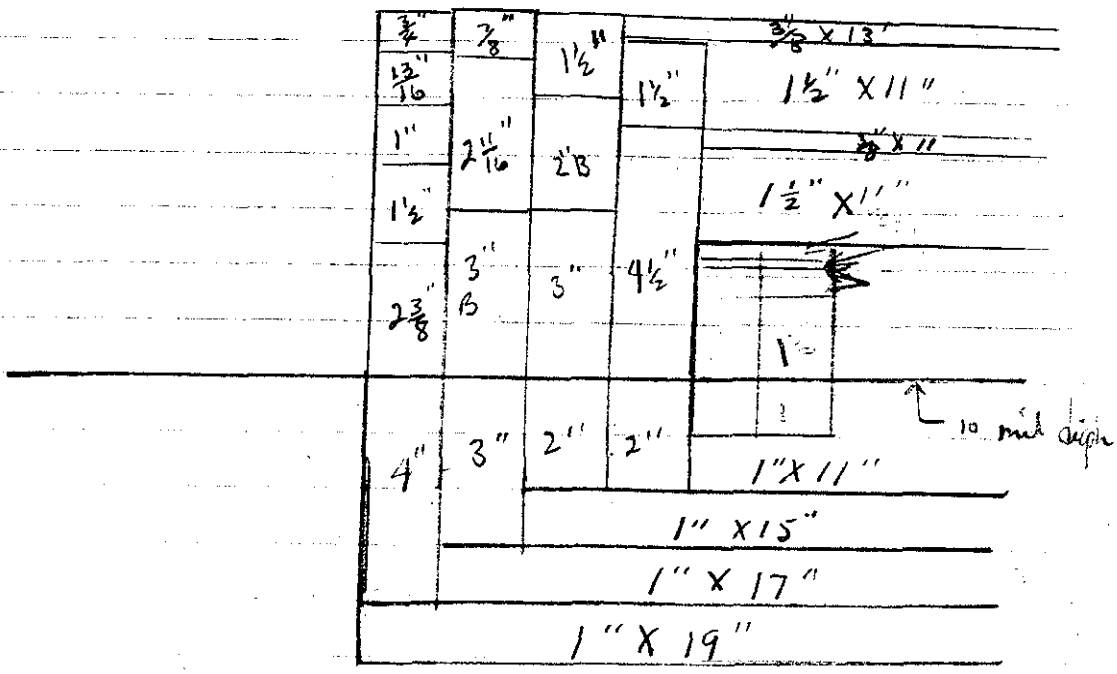
e DIAPHRAGM EVALUATION — [ALL ON]

NEG PERIOD — LOG N = 264 rec 5.68 ✝

#2 = 247.5 " 6.14

#1 = 227 " 6.81 −6.00 ✝

DIAPH. = 11.01 ✝



FEB 4 1964

INSTRUMENT CHECK

Time 8^{15} AM

Source M-226 & λ

MIHALCZO
LYNN
TAYLOR

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050 V
Source Dist	OK	5"	0"	5'	1"	8"
% F.S. Trip (BF_3 #2 & 3)	OK	100+	OK	100	100+	100+

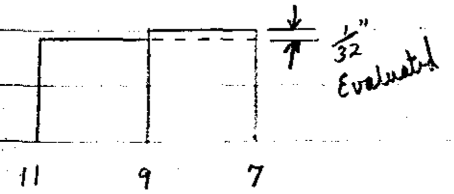
LIGHTS OK
MAGNETS OK
TABLE OK
AREA CLEARED @ 8^{15} AM

F FUEL EVALUATION – [SUPPORT STAND & RINGS ON]
REMOVED 1/32" (9" x 7") [VS RUN 1d : + 5.01 ¢]

NEG PERIOD – LOG N = – 94.5 sec (Too Fast) = -31.0 ¢
#2 = 97.7 " = -28.6 ¢
#1 = 93.1 " = -31.7 ¢ -30.4 ¢
1/32" (9" x 7") = ~~36.41~~

G Added 1/32" (9" x 7") [VS RUN 1 b] [illegible] 21/32" -4.38 ¢

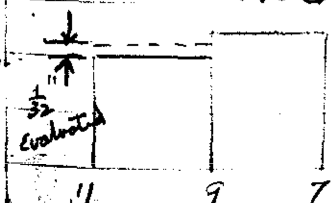
POS PERIOD – LOG N – 78.44 sec = 11.62 ¢
#2 = 79.4 " 11.51 ¢
#1 = 76 " 11.89 ¢ 11.67 ¢



1/32" (9" x 7") = 16.[illegible] ¢

H REMOVED 1/32" (11" x 9") [VS RUN 1G]

NEG PERIOD – LOG N = 123.2 sec = -16.67 ¢
#2 = 119.8 " 17.59
#1 = 127 " 15.76 -16.[illegible]
1/32" (11" x 9") = 23.34 ¢



154

CARBON REFL. EVALUATION — [VS RUN 1H]
Added 0.238" (15" x 13")

NEG PERIOD — LOG N = 162.3 sec -10.67
#2 = 161.5 -10.74
#1 = 157.6 -11.12 -10.84

0.238" (15" x 13") C = 5.83 ft or .024 ft/mil

C.A. 11" x 7" Expr. X Run 1a
4" C REFLECTOR
~~4" C~~ CORE Date 2-4-1964 Time 12:45 ~~AM~~ PM
Purpose CRITICAL CONDITION

1" ON RAM

1a H = 3½" - SUB CRITICAL.

& H = 3 17/32" - FUEL CLEAN CRITICAL

POS PERIOD - LOG = 58.46 sec 14.72 ¢
#2 = 59.6 " 14.17 ¢
#1 = 59.5 " 14.19 ¢ +14.36 ¢

c RINGS EVALUATION - LOG N = 48.21 sec 16.40
POSITIVE PERIOD #2 = 48.2 " 16.40
#1 = 46.9 " 16.71 +16.51

RINGS = +2.15 ¢

d SUPPORT STAND EVALUATION - [STAND & RINGS]
POSITIVE PERIOD - LOG N = 28.95 sec 22.63
#2 = 26.8 " 23.68
#1 = 29.2 " 22.51 +22.27

STAND 5.76 ¢

E DIAPHRAGM EVALUATION —

POS PERIOD — LOG N = 717 sec 12.41 ¢
#2 = 749 " 12.02
#1 = 757 " 11.93 +12.12 ¢

DIAPHRAGM = -10.15 ¢

F FUEL EVALUATION — [VS RUN 1d] +22.27 ¢
REMOVED $\frac{1}{32}$"(11"X9") RINGS & STAND =

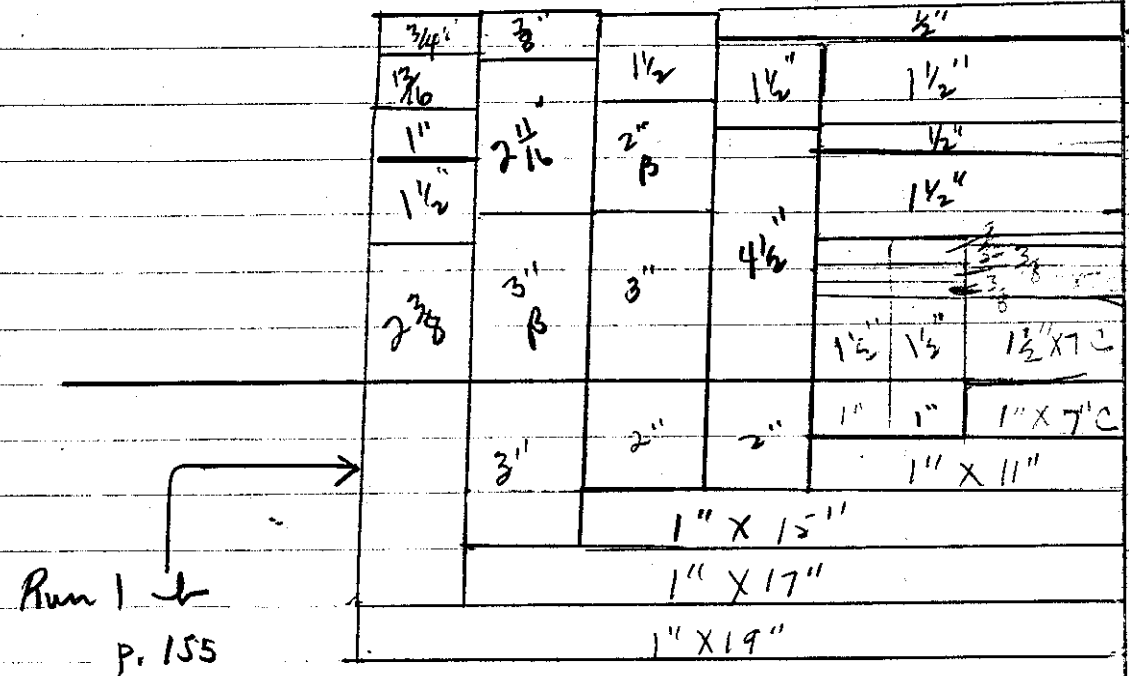
NEGATIVE PERIOD · LOG N = 350 sec — 4.09 ¢
#2 = 333.2 4.33 ¢
#1 = 334.8 4.31 ¢ - 4.24 ¢

$\frac{1}{32}$" (11" X 9") = 26.51 ¢

G REMOVED $\frac{1}{32}$"(9"X7") [VS RUN 1d] + 22.27 ¢

NEGATIVE PERIOD — LOG N = 476 sec 2.91
#2 = 502 " 2.75
#1 = 521 " 2.69 -2.77 ¢

$\frac{1}{32}$" (9" X 7) = 25.04 ¢


3/4"
13/16
1"
1½"
2 3/8
3/8
2 11/16
3"
1½
2"
3"
2"
3"
1½"
4½"
2"
½"
1½"
½"
1½"
1½"
1½"
1½"X7"C
1"
1"
1"X7"C
1"X11"
1"X15"
1"X17"
1"X19"

Run 1 ↓
p. 155

158

FEB 5 1964

JM
JJL
JRT

INSTRUMENT CHECK

Time 11 00 AM PM Source M-226 ✓

	F	Channel A	B	C	D ✓	E
Range Hi - Lo		19/1000 OPR	X		19/1000	1050V
Source Dist. OK		5"	0"	5'	0"	8"
% F.S. Trip OK		100+	OK	100	100+	100+
BF_3 243 OK						

Lights OK
Magnets OK
Tables OK
Area Cleared @ 11 05 AM

C.A. 9"X7" Expr. XL Run 1
S. 6" C REFL To 2-5-64 Time AM PM
Purpose Critical Condition

Up. Positions
#1 = 19.800
#2 = 19.815

1a H = 6½" Fuel
6" Less Top C Sub Crit.

b H = 6½" Fuel + 6" C Refl.
Sub Critical

1:55 PM c H = 7 27/32 ; 6" C Refl.
11/32
Sub Critical.

= 7.843"

d H = $7\frac{27}{32}$", 6" C on Bottom

$7\frac{11}{32}$" ? 8" C Radial & Top.

Sub Critical – noticable multiplication

11 05 AM

e Added C Core to Run 1d

#1 = 19.02

Super Critical – #2 = 19.060

lions

00

5

$\frac{12}{32} = \frac{3}{8}$ $\frac{11}{32}$

t,

6.344 = $6\frac{11}{32}$"

$\frac{16}{32}$

160

FEB 10 1964

INSTRUMENT CHECK

Time AM PM Source M-226 & 1

	Channel F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	4"	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF_3 #394 - OK						

Lights OK
Tables OK
Magnute OK
Area Cleared @ 8:30 AM

CA 15" X 7" Expr. XT Run 1
Sheet 5" C REFL. Date FEB 10 1964 Time 9:05 AM PM
Purpose Critical Condition

½" on Ram

by Positions
#1 = 22.345
#2 = .386
#3 = +9
#4 = -6

1a H = 1 7/8" - Super Critical #1 = 21.78

& H = 1 13/16 - Super Crit #1 = 21.91

C H = (11"x9") & (9"x7") = 1 21/32"
(15"x13") & (13"x11") = 1 3/4"

Sub Critical

2:15 PM H = 1 23/32" Fuel

d. (17"x15") C = 6.206"
(19"x17") C = 6.194"
(21"x19") C = 6.135"
(25"x21") C = 5.589"

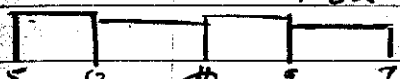
Super Crit.
#1 = 22.13

e Removed $\frac{1}{32}$" (13" x 11") & $\frac{1}{32}$" (9" x 7") Fuel

N = $1\frac{1}{16}$" (13" x 11") & (9" x 7") = 1.6875" VS Rmvd

$1\frac{23}{32}$" (15" x 13") & (11" x 9") = 1.7187" LEAN

CRITICAL



Loc Period – Log N = 369 sec 3.19 ϕ

#2 = 349 " 3.32

#1 = 399 " 3.32 + 3.28 ϕ

f Support Rings Evaluation –

Positive Period – Log N = 152 sec 6.88 ϕ

#2 = 149.8 " 6.97 ϕ

#1 = 151.1 " 6.92 ϕ + 6.91 ϕ

RINGS = 3.63 ϕ

g Support Stand Evaluation – [Stand & Rings on]

Pos Period – Log N = 71.65 sec 12.92 ϕ

#2 = 72.9 " 12.26 ϕ

#1 = 71.6 " 12.42 ϕ + 12.37 ϕ

Stand = 5.26 ϕ

h Diaphragm Evaluation – (All on)

Neg. Period – Log N = 926 sec -1.43

#2 = 750 " 1.79

#1 = 917 " 1.44 - 1.55 ϕ

DIAPHRAGM = 13.92 ϕ

[redacted]

FEB 11 1964

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INSTRUMENT CHECK

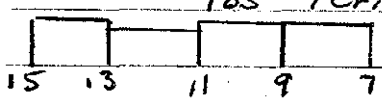
Time 9^00 AM ~~PM~~ Source M-226 & ϕ

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	1/1000	1050 V
Source Dist.	OK	4"	OK	6'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF_3 #2 & 3	OK					

Magnets OK
Tables OK
Lights OK
Area Cleared 9^10 Am

i Fuel Evaluation — [vs Run 1e +3.28]
added 1/32" (9" X 7") — Diaph on −13.92
−10.64

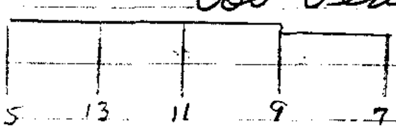
Pos Period — Log N = 40.61 sec 18.36¢
#2 = 41.0 " 18.25
#1 = 41.7 " 18.05 +18.22¢



1/32" (9" X 7") = 28.86¢

j. added 1/32" (13" X 11") — −10.64

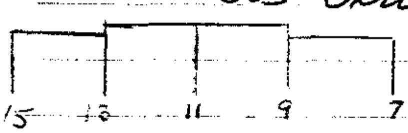
Pos Period — Log N = 21.35 sec 26.91¢
#2 = 22.56 " 26.11¢
#1 = 23.93 " 25.24¢ +26.12¢



1/32" (13" X 11") = 36.76¢

k Removed 1/32" (15" X 13") [vs Run 1j +26.12]
Diaph off −13.92
40.04¢

Pos Period — Log N = 71.2 sec 12.48¢
#2 = 69.7 " 12.67
#1 = 71.6 " 12.43 +12.53¢



1/32" (15" X 13") = 27.51¢

l Removed $\frac{1}{32}$" (11" X 9") ~~[VS Run 1g 3.28¢]~~

Poo Period – Log N = 432 sec 2.73 40.04

#2 = 396 " 2.95

3 10/Am #1 = 393 " 2.97 + 2.88¢

$\frac{1}{32}$" (11" X 9") = 37.16¢

m Added ~0.6" (25" X 21") C [Removed 1.2" / Added 1.0 ¢ .8]

.28]

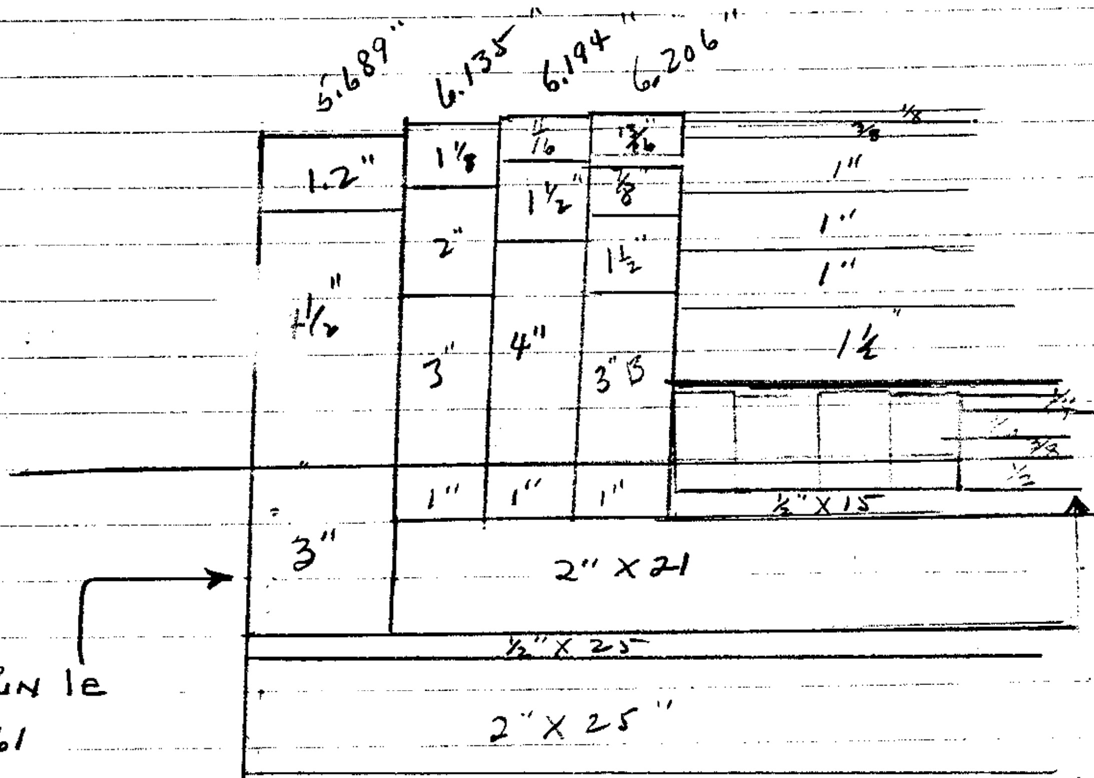
.92 Poo Period – Log N = 122.3 sec 8.23¢

64 #2 = 118.5 " 8.44¢

#1 = 123.8 " ~~8.14¢~~ + 8.27¢

¢

~0.6" (25" X 21") = 5.39¢ .00898¢/mil



2¢

26.12]
13.92
40.04¢

3¢

Run 1e p.161

Run 1a p.164

C.A. 15" x 7" Expr. XII Run 1a
5" C REFLECTOR
Sheet C CORE Date 2-11-1964 Time 1:05 AM PM
Purpose CRITICAL CONDITION

½" ON RAM

1a Added Carbon Core to Conditions as 1e p.161.
H = 1 11/16" (13"x11") & (9"x7") CLEAN CRITICAL
1 23/32" (15"x13") & (11"x9")

Pos Period _ Log N = 831 sec 1.47 ¢
#2 = 625 " 1.92
#1 = 703 " 1.72 +1.70 ¢

b Support Rings Evaluation
Pos Period _ Log N = 206 sec 5.31 ¢
#2 = 205.8 " 5.32 ¢
#1 = 211. " 5.21 ¢ + 5.28 ¢
Rings = +3.52 ¢

c Support Stand Evaluation - [Stand & Rings on]
Pos Period _ Log N = 85.4 sec 10.90 ¢
#2 = 85.3 " 10.91 ¢
#1 = 89.0 " 11.03 ¢ +10.95
Stand = + 5.67 ¢

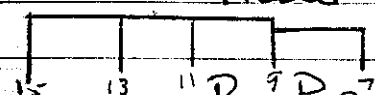
d Diaphragm Evaluation [all on]

NEGATIVE PERIOD — Log N = 345 sec 9.16
#2 = 327 " 9.42
#1 = 340 " 4.23 — 4.27¢

Diaphragm = −15.22 ¢

e FUEL EVALUATION — [vs Run 1a +1.70
Added $\frac{1}{32}$" (13" X 11") Diaph. on −15.22]
−13.52 ¢

p.161, Cil

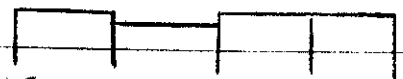


POS PERIOD — Log N = 23.45 ¢ 25.55 ¢
#2 = 24.5 ¢ 24.93 ¢
#1 = 24.3 ¢ 25.04 ¢ + 25.17 ¢

$\frac{1}{32}$"(13" X 11") = 38.69 ¢

f Added $\frac{1}{32}$"(9" X 7") — [vs Run 1a +1.70
Diaph on −15.22
−13.52 ¢

Positive Period —

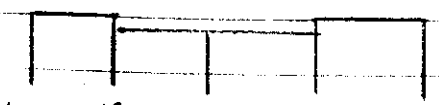


Log N = 44.5 sec 17.35 ¢
#2 = 46.9 " 16.71 ¢
#1 = 49.5 " 16.11 ¢ + 16.73 ¢

$\frac{1}{32}$"(9" X 7") = 30.25 ¢

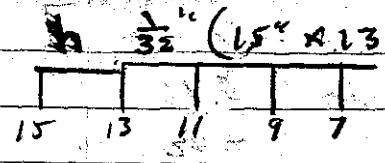
g Removed $\frac{1}{32}$"(11" X 9") — vs Run 1f +16.73
Diaph off −15.22
31.95 ¢

~~POS~~ NEG. PERIOD —



Log N = 173.7 sec 9.69
#2 = 171.9 " 9.84
#1 = 182.0 " 9.09 — 9.54 ¢

$\frac{1}{32}$" (11" X 9") 41.31 ¢



$\frac{1}{32}$" (15" x 13")

VS Run 1 f
Diaph on -15.22

Run f = 16.73 ¢

Pos Period Log N = 25.3 sec = 24.47
#1 = 26.7 " 23.73
#2 = 25.9 " 24.16 + 24.12 ¢

7.39 ¢

$-\frac{1}{32}$" (15" x 13") = 31.30 ¢

FEB 12 1964

INSTRUMENT CHECK

Time 10[15] AM PM Source M-226 & h

	Channel A	B	C	D	E
F	✓				
Range Hi & lo	10/1000 CPE		X	10/1000	1050V
Source Dist. OK	4" OK	5'		1"	8"
% F.S. Trip OK	100+ OK	100		100+	100+

BF = 2.3 OK

Magneto OK
Tables OK
Lights OK
Area Cleared 10[20] AM

SM
JJL
JRT

22

f = 16.73 ¢

2 ¢

7.39 ¢

C.A. 15" X 7" Expr. XII A Run 1
5" C REFL-
~~Shim~~ C CORE Date 2-12-64 Time 10:20 AM PM

Purpose CRITICAL CONDITION

NO FUEL ON RAM.

1a REPEAT OF ~~FUEL~~ Run 1a p. 164 except for ~~placing~~ all fuel on diaphragm. adjust Graphite See p. 168 for Bottom Reflector

Poo Period – Log N = 122.1 sec 8.24 ¢
#1 = 122.5 " 8.22
#2 = 120.5 " 8.33 + 8.26 ¢

1b Diaphragm Evaluation –

Poo Period – Log N = 114.4 sec 8.68 ¢
#2 = 108.7 " 9.04 ¢
#1 = 112.6 " 8.79 ¢ + 8.84

Diaph = + 0.58 ¢

TOP CARBON RINGS
(25" X 21") = 6.301"
(21" X 19") = 6.642"
(19" X 17") = 6.696"
(17" X 15") = 6.720"

168

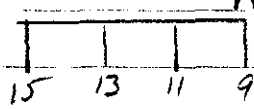
C.A. 15"X9" Expr. XI Run 1a
Sheet 5"C REFL Date 2-12 1964 Time 1:25 AM PM
Purpose CRITICAL CONDITION

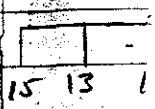
O FUEL ON RAM

1a H = $2\frac{5}{32}$" - Super Critical #1 = 22.60

b H = $2\frac{1}{8}$" - CLEAN CRITICAL

NEG. PERIOD - LOG N = 143.3 sec 12.87¢
#2 = 140.7 " 13.22¢
#1 = 135.5 " 14.09¢ - 13.39¢

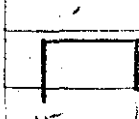




c Rings Evaluation -

NEG. PERIOD - Log N = 199.8 sec 8.03¢
#2 = 198.7 " 8.09
#1 = 196 " 8.24 - 8.12¢

Rings = +5.25¢



d Support Stand -

NEG. PERIOD - LOG N = 692 sec 1.94¢
#2 = 714 " 1.88¢
#1 = 580 " 2.35¢ - 2.05¢

Stand = +6.07¢

e Diaphragm Evaluation [All on]

NEG. PERIOD - Log N = 802 sec 1.66
#2 = 856 " 1.55
#2 = 899 " 1.47 - 1.56¢

Diaph = 0.49¢

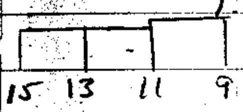
FEB 13 1964

FEB 13 1964

INSTRUMENT CHECK						
Time 8:25 AM ~~PM~~				Source M-226 ε γ		
		Channel				
	F	A	B	C	D	E
Range	High	10/1000	oper	X	10/1000	1050 V.
~~Source Dist.~~	OK	4"	ok	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 2 & 3 OK						

Area cleared
Lights ok
magnet ok

f. FUEL EVALUATION - Vs Run 1b -13.39¢

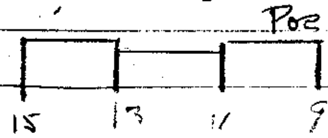


$\frac{1}{32}$" (11" X 9") Added

Pos PERIOD - Log N = 133.5 sec 7.66¢
#2 = 133.5 " 7.66¢
#1 = 137. " 7.50¢ + 7.61¢

g Added $\frac{1}{32}$" (15" X 13") Vs Run 1f + 7.61

Pos Period - Log N = 11.33 sec - 36.95¢



#2 = 9.83 " -
#1 = 9.52 " - + 36.95¢

$\frac{1}{32}$" (15 X 13) = 29.34¢

h Removed $\frac{1}{8}$" (15" ⌀ disc) from top -

POS PERIOD - Log N = 52.3 sec 15.52¢
#2 = 49.5 " 16.11
#1 = 50.8 " 15.83 + 15.82¢

$\frac{1}{8}$ X 15 ⌀ = 21.13¢

i Removed $\frac{1}{32}$" (15" X 13") vs Run 1h
Added $\frac{1}{32}$" (13" X 11")

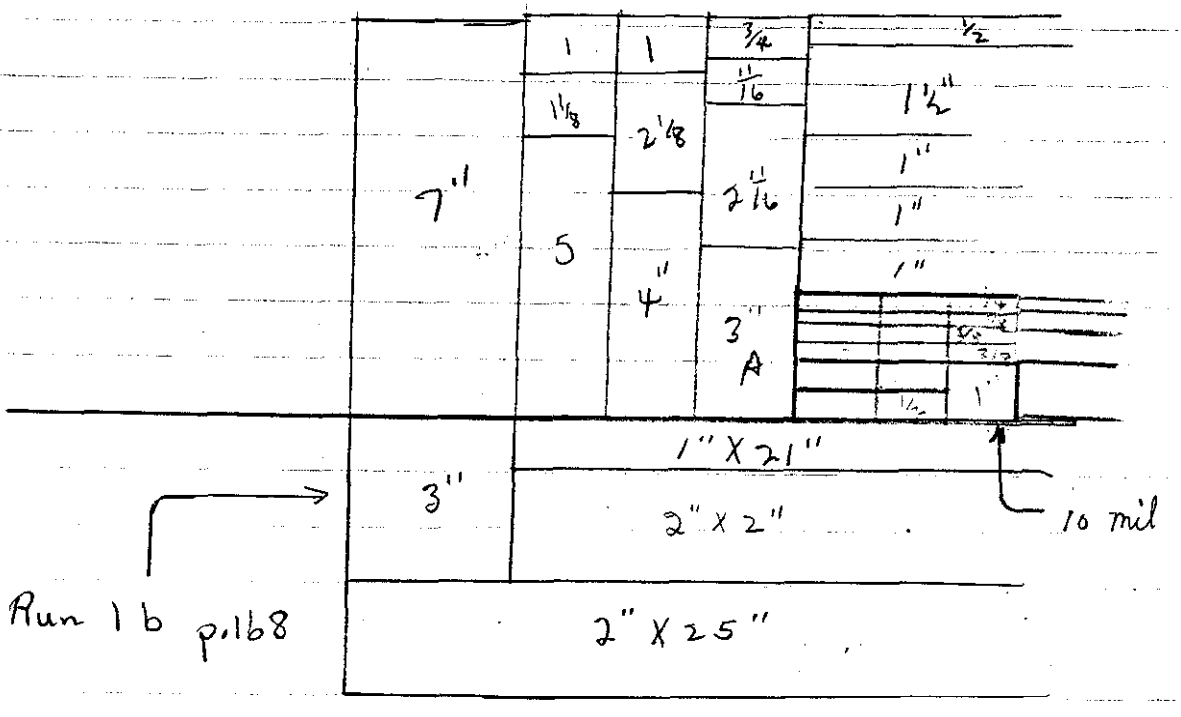
Positive Period - Log N = 39.1 sec 18.81
#2 = 41.0 " 18.25
#1 = 41.0 " 18.25 +18.44#

$\frac{1}{32}$" (13" X 11") = 31.96#

j Removed $\frac{1}{32}$" (11" X 9") vs Run 1i
Added $\frac{1}{32}$" (15" X 13")

Pos Period - Log N = 55.6 sec 14.88#
#2 = 55.0 " 14.99
#1 = 56.0 " 14.81 +14.79

$\frac{1}{32}$" (11" X 9") = 23.41#



CA 15" x 19" Expr. XII Run 1a
5" C REFL
~~Sheet~~ C Core Date 19 Time 12:25 PM
Purpose CRITICAL CONDITION

o Fuel on Room

.4¢

			Core
1a	Added C core to Run 1j. p. 170.		25.6¢

Pos Period ~ 9 sec = 40.5¢

b H = 2 1/8", 5" REFL + C CORE. CLEAN CRITICAL

Pos PERIOD -	LOG N = 45.05	sec	17.15¢	
	#2 = 46.9	"	16.71	
	#1 = 44.3	"	17.35	+17.07¢

c. Ring evaluation	Log N	+ 30.4	21.99¢	
	#1	~~28~~ + 30.2	22.07¢	
	#2	+ 28.1	23.04¢	+22.36¢

RINGS = + 5.29¢

d) Support strand pos period

LOG N	21.06 sec	27.13¢	+27.33¢
1	+ 20.32 sec	27.60¢	
2	20.85	27.26¢	

S. STR. = +4 ?¢

e) Diaphragm added pos period

Log N	21.06	27.13¢	+27.33
1	20.85	27.26¢	
2	20.[illegible]	27.60¢	

mil

DIAPHRAGM 0.0¢

5. Fuel Evaluation with Al rings in place

Log N	-320	-4.54¢ center ring	-1/32
#1	-315	-4.62¢	-4.57¢
#2	-318	-4.57¢	

1/32" Fuel 15-13 = 26.93¢

g) Center ring fuel evaluation -1/32

Log N	-116.7	-18.50¢	-18.38¢
#1	-117.3 sec	-18.32¢	
#2	-117.3 sec	-18.32¢	

1/32" Fuel 13-11 = 40.74¢

h. Center ring fuel evaluation -1/32"

LN	-122.7	-16.78¢	-17.53¢
1	-119.8	-17.60¢	
2	-119.8	-17.60¢	

1/32" Fuel 11-9 = 39.61¢

FEB 14 1964

JJL
JRT

INSTRUMENT CHECK

Time ~~9~~ 9[50] AM ~~PM~~ Source M-226 & h

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	1%/1000	1050V
Source Dist.	OK	4"	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF_3 2 & 3 — OK						

magneto OK
Lights OK
Tables OK
Area Cleared @ 10[00] AM

C.A. 15" x 11" Expr. XI Run 1a
5" C REFL. Date 2-14-1964 Time 10:05 AM up Positions
Purpose CRITICAL CONDITION

5" REFL ON RAM
No FUEL ON RAM

1a H = 3 1/4" CLEAN CRITICAL

Positive Period – Log = 14.66 sec 32.72¢
#2 = 14.81 " 32.55¢
#1 = 14.25 " 33.16¢ +32.81¢

& Support Rings Evaluation –

Positive Period – Log N = 9.50 sec 40.00¢
#2 = 10.30 " 38.60¢
#1 = 9.86 " 39.50¢ + 39.37¢

Rings = +6.56¢

c Support Stand Evaluation

Positive Period — Log N = 11.29 sec 37.04 ¢

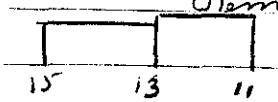
#2 = 10.95 " 37.55 ¢

#1 = 11.29 " 37.04 ¢ 37.21 ¢

Stand = + 4.40 ¢

d Fuel Evaluation — vs Run 1a

Removed $\frac{1}{32}$" (15" x 13")



Pos Period — Log N = 146.0 sec 7.12

#2 = 141.3 " 7.30

#1 = 140.7 " 7.34 + 7.25 ¢

$\frac{1}{32}$" (15" x 13") = 25.56 ¢

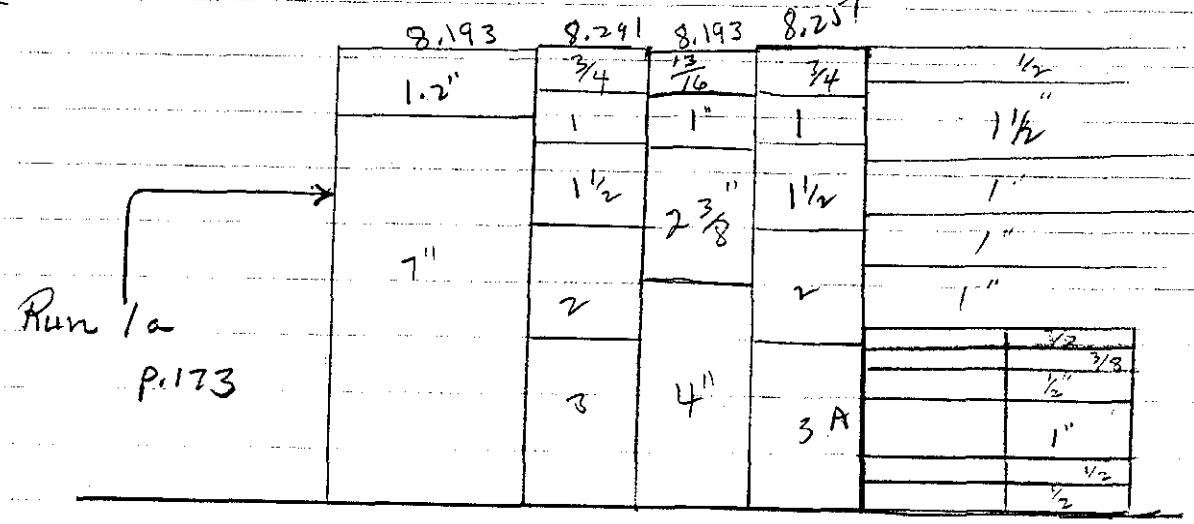
e Removed $\frac{1}{32}$" (13" x 11") vs Run 1a

Positive Period — Log N = 106.4 sec 9.19 ¢

#2 = 106.8 " 9.16 ¢

#1 = 105.5 " 9.25 ¢ + 7.20 ¢

$\frac{1}{32}$" (13" x 11") = 23.61 ¢



Run 1a p. 173

Bottom Same as p. 170

C.A. 15" x 11" Expr. XII Run 1a
5" ℄ Refl
℄ Core Date 2-14-1967 Time 2:10 ~~AM~~ PM
Purpose Critical Condition

5" Refl on Ram

1a H = 3 1/8" CLEAN CRITICAL

Positive Period - Log N = 54.3 sec 15.12 ℄
#2 = 53.1 " 15.36 ℄
#4 = 55.2 " 14.95 ℄ + 15.14 ℄

5 ℄

b Support Stand + Support Rings Evaluation -

Pos Period - Log N = 21.7 sec 26.67 ℄
#2 = 22.1 sec 26.40
#1 = 22.3 sec 26.27 + 26.45 ℄

Stand + Rings = + 11.31 ℄

c Diaphragm Evaluation - [vs Run 1b all on]

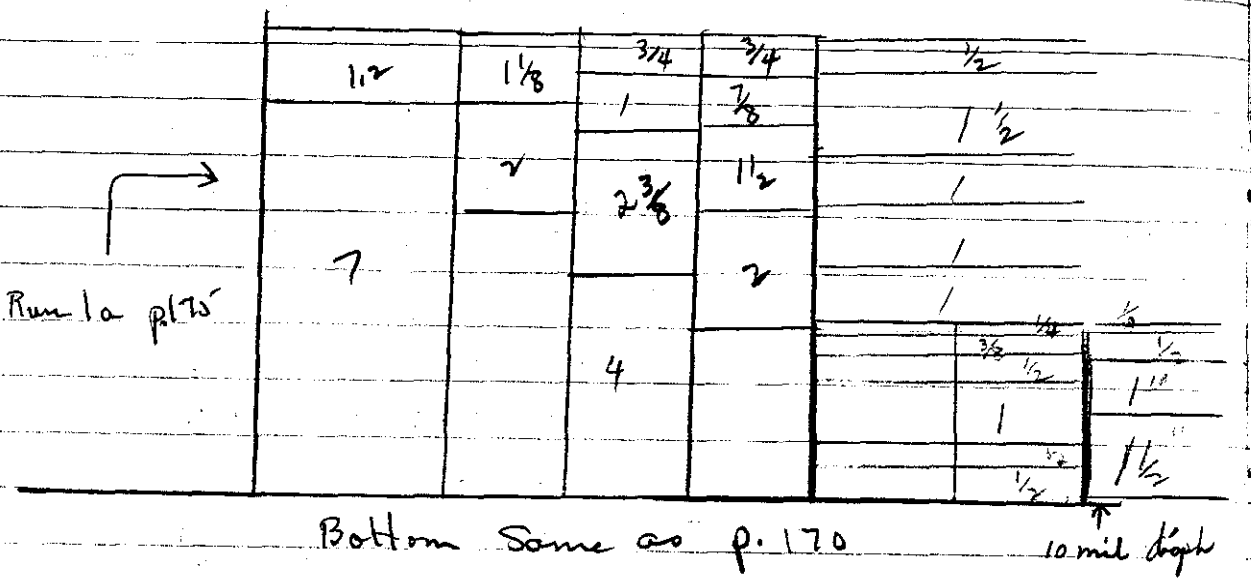
Positive Period - Log N = 24.3 sec 25.04 ℄
#2 = 23.8 " 25.34 ℄
#1 = 25.4 " 24.42 ℄ + 24.93 ℄

Diaph = -1.52 ℄

d Diaph Evaluation [vs Run 1a]

Pos Period - Log N = 54.3 sec 15.12 ℄
#2 = 53.1 " 15.36 ℄
#1 = 53.1 " 15.36 ℄ + 15.28 ℄

Diaph = + 0.14 ℄



e Fuel Evaluation - [vs Run 1a]

Removed $\frac{1}{32}$" (15" X 13")

NEG PERIOD - Log N = 118.3 = 18.05 ¢

#2 = 124.1 = 17.22

#1 = 121.1 = 17.22 -17.50 ¢

$\frac{1}{32}$" (15" X 13") = 32.64 ¢

177

FEB 17 196

FEB 17 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8 40 AM PM Source M-226 # 6

	Channel F	A	B	C	D	E	
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V	Magnets OK
Source Dist. OK		4"	OK	5'	1"	8"	Lights OK
% F.S. Trip OK BF3 293 OK		100+	OK	100	100+	100+	Tables OK

Area Cleared @ 847 AM

f 15" X 11", 5" C REFL + C Core.

Removed $\frac{1}{32}$" (13" X 11") fuel [vs Run 1a]

NEGATIVE PERIOD — LOG N = 102.6 sec 25.18 ¢

2 = 98.3 "

1 = 104.8 " 23.52 - 24.35 ¢

$\frac{1}{32}$" (13" X 11") = 39.49 ¢

C.A. 11" x 7" Expr. XL Run 1a
7"C REEL Date 2-16 1964 Time 12:45 PM
Purpose Critical Condition

7" Refl on Ram

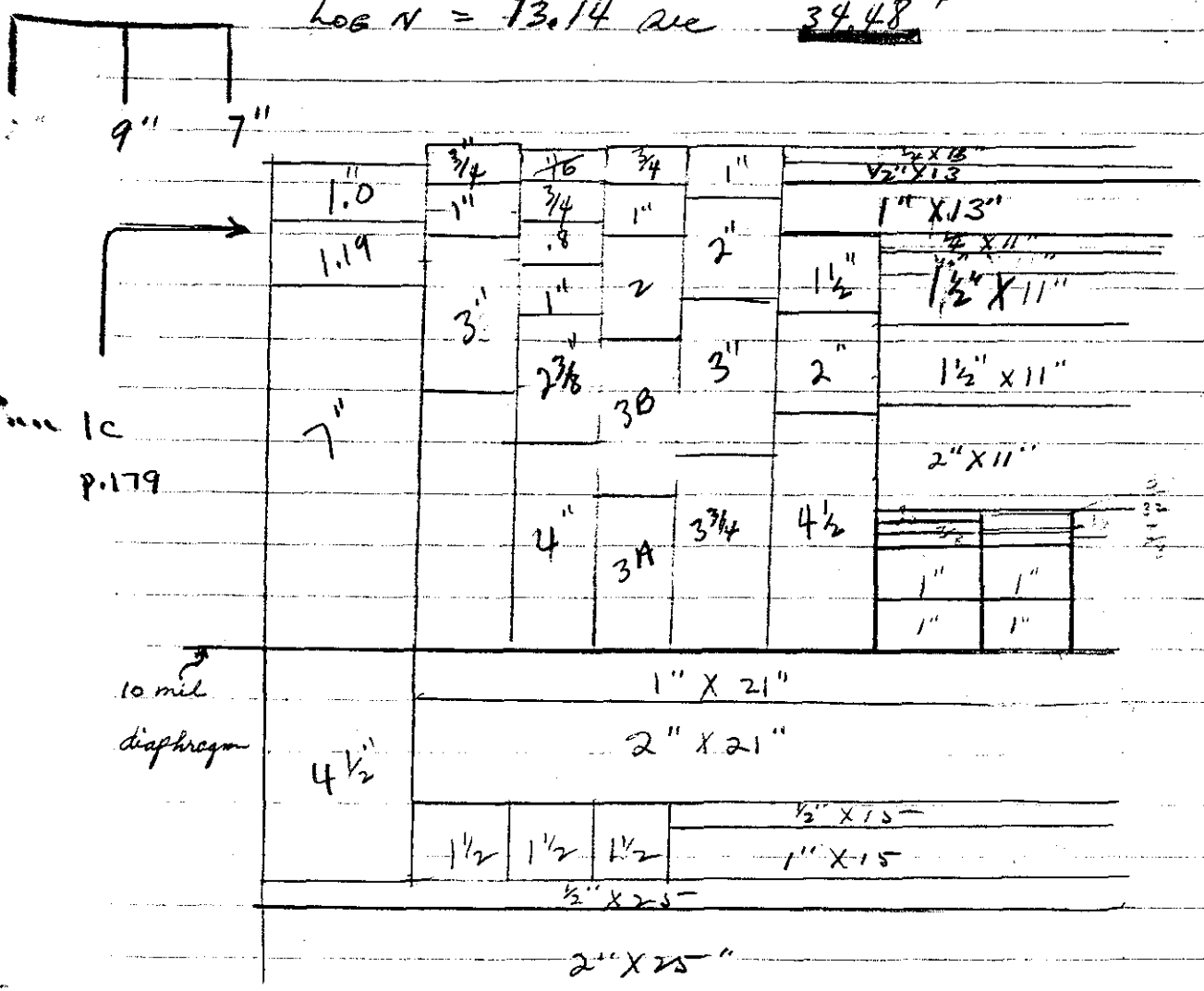
Up Positions
#1 = 20.81
#2 = 20.856
#3 = -2
#4 = -10

1a $H = 2\frac{3}{4}"$ Sub Critical

b $H = 2\frac{25}{32}" = 2.78125"$

Positive Period —

Log N = 13.14 ave 34.48 #



See 1c p.179

FEB 18 1964

INSTRUMENT CHECK

Time 12^{50} PM   Source M-226 & 1

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	F	A ✓	B	C	D	E
Range	Hi & Lo	1%/1000	OPR	X	1%/1000	1050 V
Source Dist.	OK	4"	OK	6'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BF$_3$ #2 & 3 OK

Magnets OK
Lights OK
Tables OK
Area Cleared 12^{45} PM

C.A. 11" X 7" Expr. XI Run 1 a
7" C Refl Date 2-18-1964 Time 1:00 PM
Purpose Clean CRITICAL

C H = $2\frac{25}{32}$" (9" X 7") clean CRITICAL
$2\frac{3}{4}$" (11" X 9") $2\frac{49}{64}$ ~~2.778~~ 2.7656

NEGATIVE PERIOD - LOG N = 445 sec 3.13¢
(#1 Scaler Returned) #1 = 439.7 " 3.18¢
Y 100364 #2 = 436 " 3.20¢ -3.17¢

$\frac{1}{32}$" (11" x 9") = 37.65¢

11" & 9" 7" Support Rings + Support Stand Evaluation

Positive PERIOD - LOG N = 302 Sec 3.78¢
#1 = 312 " 3.68¢
#2 = 310 " 3.69¢ +3.72

Rings + Stand = +6.89¢

e Additional Support Structure Evaluation [vs Run 1d]
[added for 7" Refl]

Positive Period - Log N = 235 sec 4.74 ¢
#1 = 207 " 5.28 ¢
#2 = 223 " 4.95 ¢ +4.99 ¢

Extra Support = 1.27 ¢

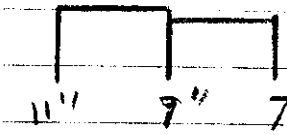
f Diaphragm Evaluation [vs Run 1e]

Positive Period - Log N = 387 sec 3.02 ¢
#1 = 397 " 2.95 ¢
#2 = 386 " 3.02 ¢ + 3.00

Diaphragm = -1.99 ¢

g Remond $\frac{1}{32}$"(9"x7") [vs Run 1f]

Negative Period - Log N = 662 sec 2.04 ¢
#1 = 573 " 2.38 ¢
#2 = 666 " 2.03 ¢ -2.15 ¢



$\frac{1}{32}$"(9"x7") = 36.63 ¢

h added .8043"(25"x21") C [vs Run 1g]

Pos Period - Log N = 1520 sec 0.82
#2 = 1846 " 0.68 +0.75

.8043"(25"x21") = +2.90 ¢

FEB 19 1964

1d]

JM
JdL
JRT

INSTRUMENT CHECK

Time 8^45 AM Source M-226 & h

	F	A	B	C	D	E
Range	Hi sho	19/100	OPR	✓		
Source Dist.	oK	4"	OK	5'	1"	8"
% F.S. Trip	012	100+	OK	100	100+	100+

BF3 OK

Tables OK
Lights OK
Magnets OK
Area Cleared 8^48 AM

C.A. 11" X 7" Expr. XII Run 1a
7" C REFLECTOR
C. CORE Date 19 Time 8:55 AM

Purpose CRITICAL CONDITION

7" REFL ON RAM

1a $H = 2\frac{3}{4}$" – Super Critical #1 = 20.51

b $H = 2\frac{11}{16}$" – Sub Critical

c $H = 2\frac{23}{32}$" (11" x 9")
$2\frac{11}{16}$" (9" x 7")

NEGATIVE PERIOD – LOG N = 3800 sec 0.33
#1 = 3100 " 0.41
#2 = 4400 " 0.29 – 0.34¢

d Supports Evaluation [Rings, Stand + additional]
Pos Period – Log N = 166.4 sec 6.37¢
#2 = 161.2 " 6.55¢
#1 = 160.2 " 6.58¢ + 6.50¢

supports = + 6.84

e Diaphragm Evaluation [vs Run 1e]

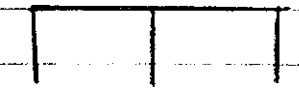
Pos Period – Log N = 2.87 sec 396
#2 = 255 " 4.40
#3 = 280 " 4.04 + 4.13

Diaph = -2.71 ¢

f Fuel Evaluation –
Added $\frac{1}{32}$" (9" X 7")

[vs Run 1e -0.34
Diaph on -2.71
-3.05

Positive Period – Log N = 15.63 sec 31.68 ¢
#2 = 16.16 " 31.15 ¢
#1 = 14.87 " 32.60 +31.81 ¢



$\frac{1}{32}$" (9" X 7") = 34.86 ¢

g Removed $\frac{1}{32}$" (11" X 9")

[vs Run 1f +31.81
Diaph off -2.71
+34.52

NEGATIVE PERIOD –
LOG N = 1.295 sec 1.01 ¢
#1 = 1490 " 0.90 ¢
#2 = 1560 " 0.83 -0.91 ¢

$\frac{1}{32}$" (11" X 9") = 35.43

Ph Reflector Evaluation — [Vs Run 1g] = -0.91 ¢

Added 0.311" (19" X 17") C

[2 3/8" for 1" + 13/16"]

Positive Period — Log N = 2256 sec 0.55 ¢

#2 = 1800 " .70 ¢

#1 = 1980 " .63 ¢ +0.63 ¢

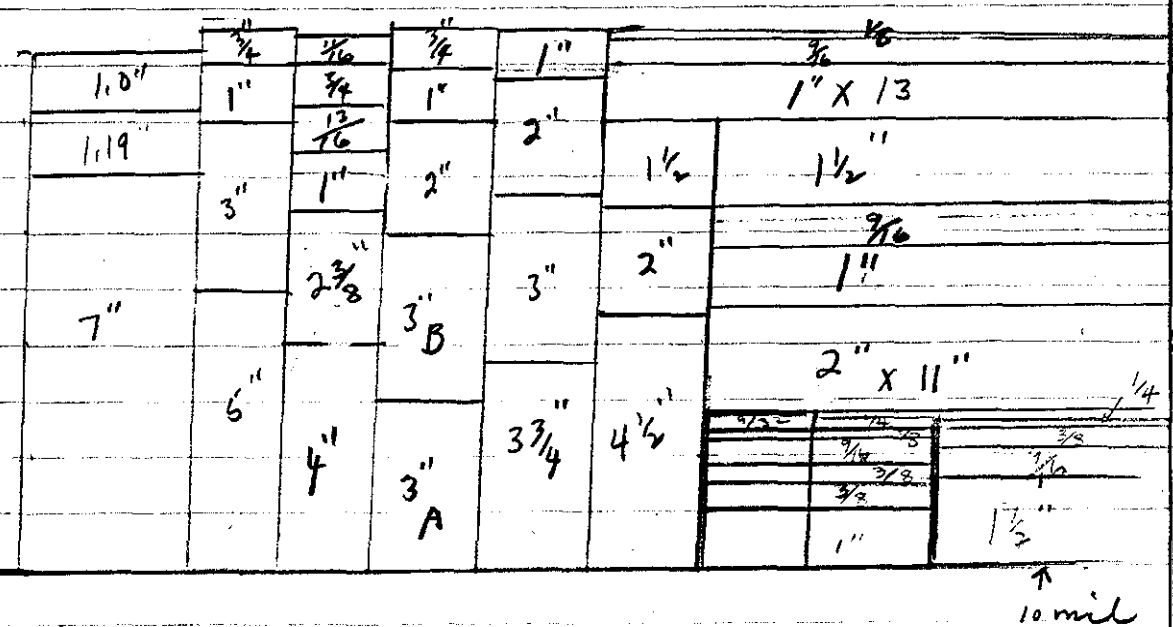
0.311" (19" X 17") C = 1.54 ¢ or .0049 ¢/mil

-0.34
-2.71
3.05

.81 ¢

31.81
2.71
4.52

¢



Bottom Same as p. 178

Run 1c
p. 181

[redacted]

FEB 28 1964

4:00 PM

Tables OK
Lights OK
Magnets OK
Area Cleared

INSTRUMENT CHECK

Time 3:00 ~~AM~~ PM — Source M-226 & L

	F	A	B	C	D	E
Range	10 & 20	10/100	OPR	X	10/1000	1050X
Source Dist.	OK	4"	OK	4"	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BF3 1 & 2 OK

C.A. 13" x 11" Expr. PR-1 Run 1a
Polyethylene Reflector Date 2-28-1964 Time 3:15 PM
Purpose
Multiplication Curve.
Source M-226 in fuel Core

1a on diaphragm support.
Polyethylene - OD = 24.75" and OD = 24.75"
ID = 13.15" Ht = 10.5"
See p. 186
Ht = 13.2"

on Ram.
Polyethylene - OD = 12.99" Fuel (13" x 11")
Ht = 11.78" 4"

~~00~~ 1 min Cts.

Table Pos.	#1 Cts	#2
0" (down)	14.7 (X256)	5.15
	14.1	5.00
	14.3	4.8
11"	5.8	2.7
15"	4.0	1.3
17"	3.9	1.4
up	3.9, 4.0 4.1	1.5 and 1.4

4:00 PM B. Added 1" fuel & Ram (13"x11") x 5"

1 min cts -	Table Pos	#1	cts	#2
	11"	6.6	x256	3.2 x256
	15"	5.3		1.8
	up	5.2		1.8
		5.0		1.8

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INSTRUMENT CHECK

MAR 2 1964

Time 8:50 AM

Source 227 #4

		Channel A	B	C	D	E
Range	Hi #no.	10/1000	OPR	X	10/1000	1050 V.
Source Dist.	OK	4"	OK	6'	1"	7"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 #1 & 2	OK					

Table OK
Lights OK
Magnet OK
Area Cleared

C.A. 13"x11" Expr. PR-1 Run 1c

Poly. Refl. Date 3-2-1964 Time 9:15 AM

Purpose Cont multiplication

.75"
5"

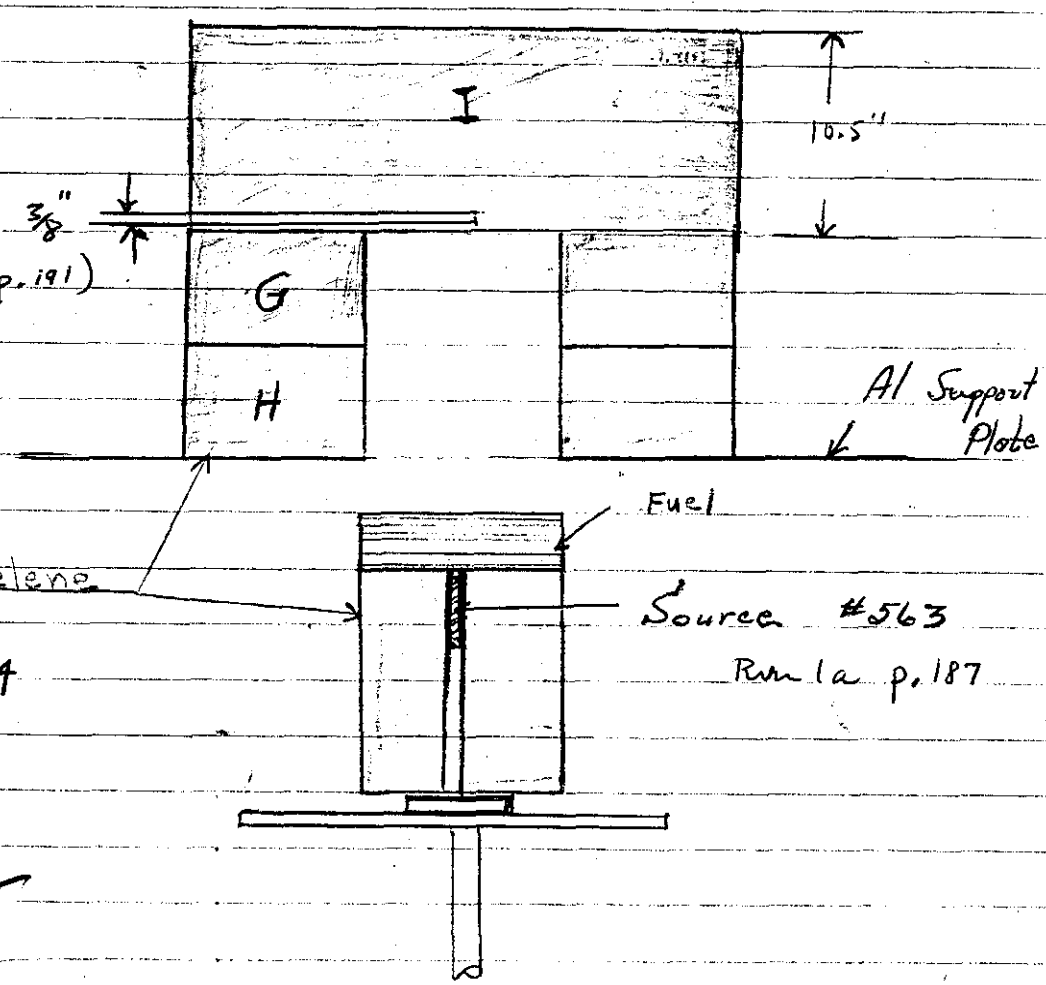
c added $\frac{27}{32}$" fuel. H = $5\frac{27}{32}$"

1 min cts -	Table Pos.	#1	cts	#2
2	11"	8.2	(x256)	3.9
15	15"	6.5		2.4
00	up	6.8		2.7
8		6.8		2.3
7				
3				
4				
5				

avg 1.4

d added $\frac{1}{2}$" fuel - H = $6\frac{11}{32}$" (All available 13"x11")

1 Min cts -	Table Pos.	#1 cts	#2
	11"	9.1	4.4
	15.3"	7.5	2.8
Sub -	up	8.3	2.95
		7.9	2.85



ID (G) = 13.0~~73~~"
.087
.076
.078
13.0785

OD (Rim) = 13.000"
12.992
12.994
12.994
12.994

C.A. 13" X 11" Expr. PRC-1 Run 1a
Polyethylene Refl and Core Date ____ 19 __ Time ____ AM PM
Purpose Multiplication Curve

Source #563 plotted on p. 186

1a H = 5"

1 min ctr - Table Pos	#1 ctr	(x16)	#2
down	2.0		1.0
11"	2.0		0.9
15"	0.62		.5
17.1"	.75		.5
up	—		.45
	—		.25

8 H = 5 31/32"

1 min ctr Pos	#1 ctr	(x16)	#2
11"	1.7		1.2
15"	1.0		.4
up	1.5		.65
	1.45		.45

13" X 11" - Sub crit with core @ 6"

C.A. 13" x 9" Expr. PR-2 Run 1a
Poly. Resl. Date ____ 19 __ Time 1:20 ~~AM~~ PM
Purpose Multiplication Curve.

See p. 186

1a H = 2½"

1 min cts	Pos.	#1 cts	#2
	down	2.62 (x16)	2.0
		3.0	0.8
	11"	1.5	1.5
	15"	1.5	0.8
	18"	1.25	0.6
	up.	1.25	0.8
		1.25	0.6

b H = 3"

1 min cts	Pos	#1 cts	#2
	down	3.6	1.0
	11"	2.2 (x16)	1.9
	15"	2.0	0.8
	18"	2.9	1.0
	19"	3.5	1.0
	up	3.8	2.6
		5.1	1.1

c H = 3¼"

	11"	3.6	1.45
	15"	2.4	1.2
	18"	7.6	2.4
	18.2"	10.2	4.25
	18.68" (x64)	22.5	8.8

Period

+ #1 = 18.78"
+ #1 = 18.73 — 80 mils = 37 sec
∞ #1 = 18.70 — ~ 20 ¢

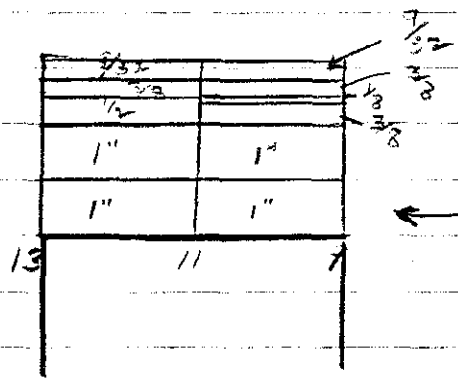
up P_{oo} = 19.14"

d H = $3\frac{3}{16}$" #1 = 19.13 P_{oo} Period
up = 19.20

e H = $3\frac{5}{32}$"

#1 = 19.241 P_{oo} Period + 114 sec
#2 = 19.289 " + 8 ¢

#1 = 19.215 ∞
#2 = 19.260 "



← Run 1 h p. 191

[redacted]

MAR 3 1964 INSTRUMENT CHECK

Time 8^{10} AM ~~PM~~ Source M-226 & L

Channel

	F	A	B	C	D	E
Range	Hi & Lo	1/1000	OPR	X	19/1000	1050V
Source Dist.	OK	4"	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 1 & 2	OK					

Tables OK
Lights OK
Magnets OK
Area Cleared 8^{05} AM

105^{PM}

C.n. 13" x 9" Expr. PR-2 Run 1f
Poly. REFL. Date 3-3-1964 Time AM ~~PM~~
Purpose Check of Instrument response after moving source to the outside of assembly (on normal drive)

H = 3 3/32"

f. 2 min cts

	#1	#2
down	77	81
19"	103	101

up. Pos Period -
Log N = 104 sec 9.36¢
ctr #2 = 108.5 " 9.06¢ +9.21¢

g. H = 3 5/32"
Increased Reflector Thickness 2"

Pos Period - Log N = 96.6 sec 9.91¢
#2 = 92.6 " 10.24¢
+10.08

2" Additional Refl = 0.87¢

1:05 PM h Instruments moved closer to assembly
["A", "B", "C" + "D"]
Bored 3/8" hole 13½" horizontally into top reflector
(see p.186) for source entrance.

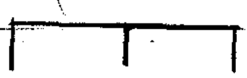
1:05 AM

See p. 189

Pos Period – [Clean Critical]

LogN = 117.3 sec 8.50¢
#2 = ~~—~~ " ~~8~~
#1 = 119.8 " 8.36¢ + 8.43¢

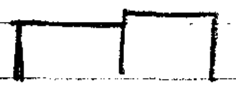
($3\frac{5}{32}$")



i added $\frac{1}{32}$" (11" X 9") –
Pos Period – Log N = 31.1 sec 21.68
#2 = 33.2 " 20.84 + 21.26

i_2 Lowered Tables return same period
to check reproducibility –

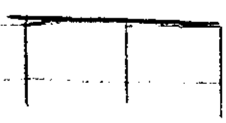
Pos Period – LogN = 32.2 sec 21.23¢
#2 = 33.6 " 20.68¢ + 20.96¢



$\frac{1}{32}$" (11" X 7") Fuel = 12.83¢ ✓

j. added $\frac{1}{32}$" (13" X 11") – H = $3\frac{3}{16}$"
Pos Period – LogN = 7.76 sec
+ 73.5¢
– 21.26

8.43
12.83
21.26



($\frac{1}{32}$" (13" X [illegible]) = 2[illegible].[illegible]¢)

3:08

$\frac{1}{32}$" (13" X 7") = 35.1¢ (j [illegible])

↑

C.A. 13" x 9" Polyethylene Refl Expr. PRC-2 Run 1a
" Core Date 3-3-64 Time 3:10 ~~AM~~ PM
Purpose Critical Condition

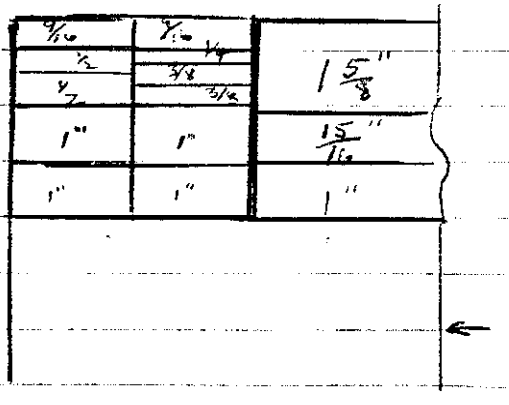
MIH
LYJ
TA:

1a H = 3" - Sub Critical

b H = 3 1/8" - Sub Critical

c H = 3 1/4" - Sub Critical

d H = 3 3/8" - Sub Critical



Run 1g p. 193

MIHALCZO
LYNN
TAYLOR

MAR 4 1964 INSTRUMENT CHECK

Time 8^{10} AM ~~PM~~ Source #226 & ...

	F	Channel A	B	C	D	E
Range	Hi & Lo	10/1000	OFF	X	10/1000	1050V
Source Dist.	OK	4"	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 #2 & 3	OK					

Tables OK
Lights OK
Magnets OK
Area Cleared 8^{00} AM

1e Cont'd 13" X 9", Polyethylene Reflector 2d Case –
H = 3 ½" – Sub Crit. cts #1 #2
1 min 104 316 ~~...~~
107 400 ~~...~~

f H = 3 21/32" – Super

g. H = 3 9/16" – Clean Critical
Positive Period –
Log N = 65.8 sec 13.21¢
#2 = 66.4 " 13.12¢
#1 = 66.4 " 13.12¢ + 13.15¢

h Removed 1/32" (13" X 11") fuel –
No way to obtain power.
~ ∞

i Separated Reflector pieces G + H
(see p. 186) 3/16"
H = 3 9/16"
Pos Period – Log N = 60.4 sec 14.04¢
#2 = 61.2 " 13.91¢
#1 = 61.9 " 13.80¢ + 13.88

... increase (?)

j. Repeat of Run [redacted] - 18

Pos Period - Log N = 58.2 sec 14.41
#2 = 60.2 " 14.07
#1 = 63.8 " 13.51 +14.00 ¢

k Separated pieces (I + G) 1/8" (see p.186.)

Pos Period - Log N = 46.7 sec 2.54 ¢
#2 = 41.2 " 2.85
#1 = 45.3 " 2.61 +2.67 ¢

11.33 ¢

l added 1/32" (13" X 11") fuel - (vs Run 1 k)

Pos Period - Log N = 42.7 sec 17.77 ¢
#2 = 40.6 " 18.36 ¢
#1 = 39.6 " 18.66 ¢ +18.26 ¢

1/32" (13 X 11) = 15.59 ¢

m added 1/32" (11" X 9") fuel - (vs Run 1 k)

Pos Period - Log N = 38.7 sec 18.94 ¢
#2 = 40.1 " 18.51 ¢
#1 = 38.6 " 18.97 ¢ +18.81

1/32 (11 X 9) = 16.3 ¢

MAR 5 1964 INSTRUMENT CHECK

Time 840 AM ~~PM~~ Source M-226 # 1

		Channel A	B	C	D	E
Range Hi & Lo		10/1000	DPR	X	1%000	1056 V
Source	OK	4"	0	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	80	100+
BS #2 #3 OK						

Tables OK
Lights OK
Magnet OK
Area Cleared 840 AM

C.A. 13" x 7" Expr. PR[illegible]-3 Run 1a
Poly. Refl. Date 3-5-1964 Time 8:55 AM ~~PM~~
Purpose Critical Condition

[See p. 186]

(I + G still Separated & as per p. 194)

1a	H = 2" –	1 min cts	#2	#1
		Selsyn @ 19"	0 23 (x256)	0 70
		20"	0 30	0 97
		up 20.52"	0 82	0 183
b	H = 2 1/32" –	19"	0 21	0 67
		20"	0 41	0 106
		up 20.48"	0 113	0 297
c	H = 2 1/16" –	19"	0 44	0 92
		20"	0 63	0 108
		up. 20.45"	0 208	2 142
			0 218	2 145

d Removed $\frac{1}{8}$" Shims between G and I.

H = $2\frac{1}{16}$" – up 20.33 #2 #1
1 min cto 1 +24 2 +126

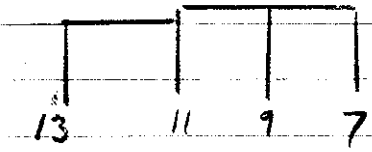
& H = $2\frac{3}{32}$" – (19" 0.41 0.94
20" 0.96 0.220)

Poo Period – Log N = 19.98 sec 27.90 ¢
clear critical up #1 = 20.298 #2 = 20.6 " 27.44 ¢
#1 = 19.3 " 28.41 ¢ + 27.92

f Removed $\frac{1}{32}$" (13" x 11") fwd – (vs Rule)

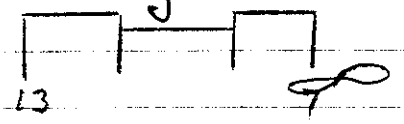
up #1 = 20.300
#2 = 20.340
#3 = -6
#4 = 0

Poo Period – Log N = 237 sec 4.69 ¢
#2 = 230 " 4.82 ¢
#1 = 224 " 4.93 ¢ + 4.81 ¢



$\frac{1}{32}$" (13" x 11") = 23.11 ¢

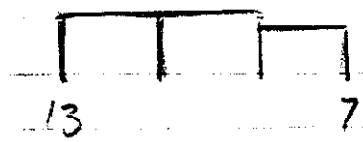
g Removed $\frac{1}{32}$" (11" x 9") – (vs Rule)



$\frac{1}{32}$" (11" x 9") = 27.9 ¢

12:45 PM h Removed $\frac{1}{32}$" (9" x 7") – [vs Rule]

Poo Period – Log N = 717 sec 1.69
#2 = 708 " 1.71
#1 = 694 " 1.74 + 1.71



$\frac{1}{32}$" (9" x 7") = 26.21 ¢

C.A. 13" X 7" Expr. PRC-3 Run 1a
Polyethylene Refl
" Core Date 3-5 1964 Time ~~AM~~ PM
Purpose

1a added Core (2 1/16") to Run 1h p. 196.

H = 1h p. 196	1 min up.	#2	#1
		29	57
		29	42
b H = 2 7/32".	1 min up.	70	170
		68	124

c H = 2 9/32 Fuel Close
2 7/32" Poly. Core slightly sub-

d H = (13" X 11") & (11" X 9") = 2 9/32"
(9" X 7") = 2 5/16"
Core = 2 5/16"
Subc.

About Same as previous Run.

e $H = (13'' \times 11'') = 2\frac{9}{32}''$
$(11'' \times 9'')$; $(9'' \times 7'')$ & Core $= 2\frac{9}{16}''$

Pos Period Log N = ~~Log N~~ 48.3 sec 16.38 ¢
#2 = 48.8 " 16.27 ¢
#1 = 48.8 " 16.27 ¢ +16.31 ¢

f Separated pieces (G & I) $\frac{1}{8}''$. (p. 186)

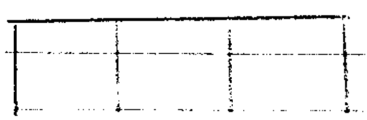
Pos Period – Log N = 318 sec 3.61 ¢
#2 = 313 " 3.66 ¢
#1 = 318 " 3.61 ¢ +3.63


13 11 9 7

$\frac{1}{8}''$ Separation of (G + I) = −12.68 ¢

g Added $\frac{5}{32}''$ (13" × 11") fuel. H = 2 9/16"

Pos Period – Log N = 19.98 sec 27.80
#2 = 21.84 " 26.56
#1 = 20.5 " 27.51 +27.32


13 11 9 7

$\frac{1}{32}''$ (13" × 11") = 23.69 ¢

#3215	3216	3217
9/32	9/32	9/32
9/16 35	9/16 67	9/16 37
1/4 82	1/4 78	1/4 74
#2756 1"	2745 1"	2738 1"

13 11 9 7

Run 1e p. 196

No Core

9/16		9/16	
1/4		3/8	1 3/8"
1/2		3/8	
1"		1"	15/16"

13 9 7

Run 1g above

Clean Critical with Core = 2 5/16" with

MAR 6 1964 INSTRUMENT CHECK

Time 9[15] AM Source M226 #1

Table OK
Lights OK
Magnet OK
Area Cleared

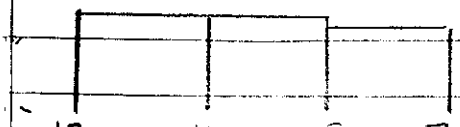
	F	Channel A	B	C	D	E
Range	Hi & Lo	10/1000	OK	X	10/1000	1050V
Source Dist.	OK	4	OK	5'	1"	8"
% F.S. Trip	OK	100+	OK	100+	75	100+

BF3 OK

CA 13" x 7" Expr. PRC-3 Run 1 h
Polyethylene Refl
Core Date 3-6-1964 Time 9:25
Purpose Can't fuel Evaluation

1h Removed $\frac{1}{32}$" (9" x 7") fuel. [vs Run 1g]

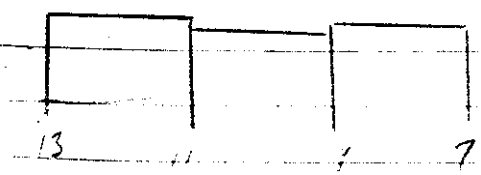
Positive Period - Log N = 213.8 sec 5.14 ¢
#2 = 211. " 5.20 ¢
#1 = 215.6 " 5.11 ¢ + 5.15 ¢



$\frac{1}{32}$"(9"X7") = 22.17 ¢

i Removed $\frac{1}{32}$" (11" x 9") fuel [vs Run 1g]

Pos Period - Log N = 394 sec - 2.97 ¢
#2 = 387 " - 3.02 ¢
#1 = 416 " - 2.82 ¢ + 2.14 ¢



(illegible) = 24.32 ¢

+ 40.0 ¢ Excess

200/

C.A. 13" x 9" Expr. PRC-2 Run 1 n
Poly. Refl. Core Date 3-6 1964 Time 11:20 AM PM
Purpose Repeat Run 1g p. 193
Reactivity Check using Piette

n # = 3 9/16"

up Position
#1 = 18.82
#2 = 18.8
#3 = -6
#4 = 0

Pos Pos - up. #1 = 18.820
Log N = 59.4
#2 = 61.01
#1 = 49.18

∞ #1 = 18.110

Neg. Period #1 = 17.765
Log N = -138.4 sec
#2 =
#1 =

o Same as above
up 1:00 PM up + down until 4:07 PM
Log N .001 → .015

Fuel after Shutdown = 1 r @ 1 ft
10 r @ Contact

MAR 9 1964

INSTRUMENT CHECK

Time 8^{30} AM ~~PM~~ Source M-226 & 1

Channel

	Hidio	A	B	C	D	E ✓
Range	ok	10/100r	OPR	X	10/1000	750V
Source Dist.	ok	8"	ok	6'	2"	1"
% F.S. Trip		100+	ok	100	100+	100+

AFs OK

Tables OK
Magnets OK
Lights OK
Area Cleared

C.A. 13" x 9" Expr. PRC-2 Run 1p

Same Date 3-9-1964 Time 9:45 AM ~~PM~~

Purpose Repeat of p. 200

1p Raised power to Log N = .046 (~~.046~~)
~~[illegible]~~ up position #1 = 18,820
∞ #1 = 18,200
Cut Magnet Current. #1 = 9.70
by pushing trip to magnet.

measured reactivity with Pette.

(Solid)

C.A. 13" cyl Expr. PR-4 Run 1
Poly. Refl. Date 3-9- 1964 Time 1:55 ~~AM~~ PM
Purpose Multiplication Curve.

H=1 7" dia) = 1"
(13"x7") = 7/8"

1a	1 min	cts	selym down	#2	43
			"	33	40
			20.2 (slow speed)	13	27
			21.0	11	45
2:07 PM			up (21.38)	8	26
b	H = 1"		20.2	14	25
			21.0	7	34
			up	19	36
				18	46

c H = (7" dia) = 1 1/8"
(13"x7") = 1"

20.04	14		30
21.0	10		33
	20		50
	14		50

d = H = 1⅛"	SELSYN	#2	#1
	20.02	15	38
	21.00	15	40
	up	51	77
		35	69 ✓
e H = (7" dia) = 1⅛"	19.93	15	26
(13" x 7") = 1 5/32"	21.00	32	68
	(up) 21.22	43	72
		38	91
f H = (7" dia) - 1 3/16"	21.0	38	88
(13" x 7") = 1 5/32"	up (21.19)	52	125
		59	126
g H = 1 3/16" (1.1875")			
4:08 PM	21.0	39	90
	up (21.19)	85	176
		73	187

204

MAR 10 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:25 AM ~~PM~~ Source M-226 # 1

		Channel A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	8"	0"	5'	1"	8"
% F.S. Trip	OK	100+	OK	100	70 ~~100+~~	100+
BF 1 & 2 OK						

Lights OK
Tables OK
Magnets OK
Area Cleared

C.A. 13" dia Cyl. PR-4 1 gr
Poly: Refl Date 3-10-64 Time 8:35 ~~PM~~ AM
Purpose Con't multiplication

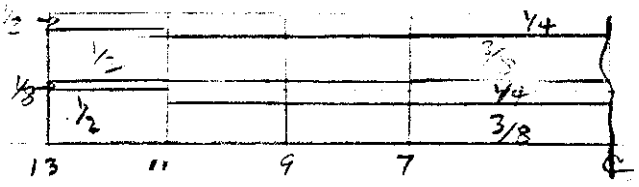
1 gr H = 7" dia = 1 1/4"
13" x 7" = 1 3/16"

	#1	Otr	#2
at Slow Speed	19		33
up - 0.2	55		109
up	148		1 +48 (256)
	125		1 +45

i H = 1 1/4"
CLEAN CRITICAL,

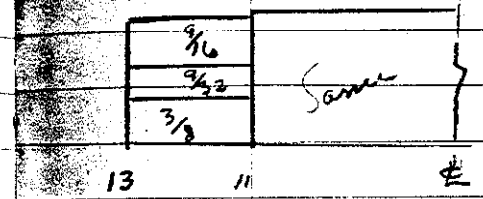
at Slow Speed	#1	38	
up - 0.2	85	222	

Positive Period - Log N = 7.71 sec 43.4 #
#2 = 7.12 " 45.2 #
#1 = 7.40 " 44.5 #
+44.2 t



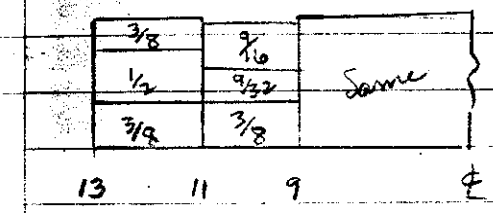
j Removed $\frac{1}{32}$" (13" x 11") fuel — [Vs Run i]

Positive Period — Log N = 18.67 sec 28.96 ¢
#2 = 19.15 " 28.53 ¢
#1 = 18.76 " 28.85 +28.78
$\frac{1}{32}$" (13" x 11") = 15.42 ¢



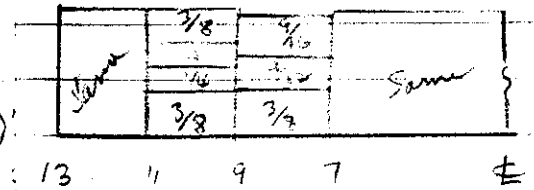
k Removed $\frac{1}{32}$" (11" x 9") fuel [Vs Run i]

Pos Period — Log N = 29.67 sec = 22.30 ¢
#2 = 29.95 " = 22.18 ¢
#1 = 29.9 " = 2220 ¢ +22.23
$\frac{1}{32}$ (11" x 9") = 21.97 ¢



l Removed $\frac{1}{32}$" (9" x 7") fuel [Vs Run i]

Pos Period — Log N = 35.8 sec 19.89 ¢
#2 = 34.5 " 20.35 ¢
#1 = 34.5 " 20.35 ¢ +20.20 ¢
$\frac{1}{32}$" (9" x 7") = 24.0 ¢
= .77 ¢/mil



MAR 20 1964

INSTRUMENT CHECK

Time 2^{30} ~~AM~~ PM — Source M-226 & Pu

Channel	F	A	B	C	D	E
Range	Hi Tho	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	5"	OK	5'	2'	8"
% F.S. Trip	OK	100+	OK	100	80	100+

BF3 1-2-3 = OK

C.A. 15" × 11" Expr. PR-5 Run 1

Poly Refl. Date 3-20-1964 Time ~~AM~~ PM

Purpose Critical Height determination

1a H = 3"

1 min Cts	#1	(×256)	#2	#3
Sel. down	0^{34}		0^{61}	1^{51}
Slow (18.17)	0^{38}		0^{87}	1^{81}
up	0^{50}		0^{101}	1^{131}
	0^{36}		0^{138}	1^{185}

b H = 3 1/8" Slow ~~18.17~~ 0^{41} 0^{101} 1^{132}

up 0^{66} 0^{251} 2^{19}

c H = 3 5/32" Slow ~~18.17~~ 0^{44} 0^{108} 1^{152}

Log N begins to respond 1" from up.

up 0^{97} 1^{91} 2^{213}

208

d H = 3 7/32"

(x256)

	#1	#2	#3
Slow	0.51	0136	#164

Positive Period - Log N = 63.0 sec 13.65#

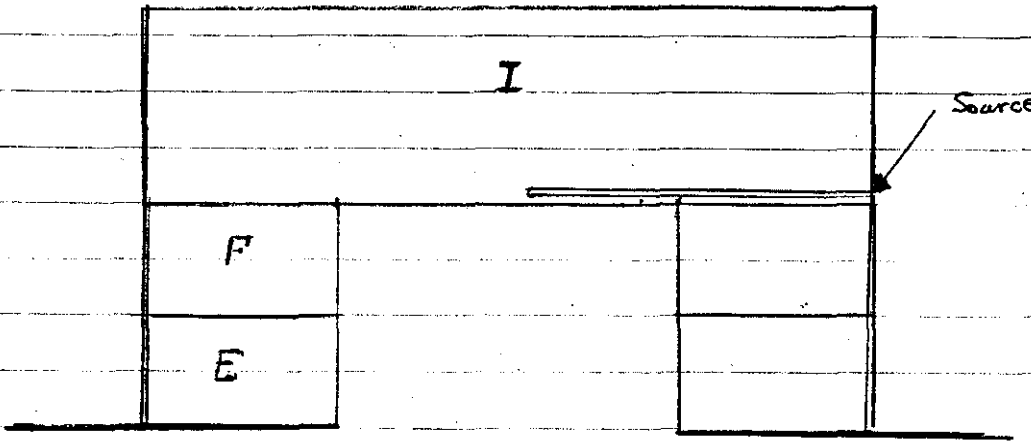
#3 59.2 " 14.29#

#1 60.9 " 13.96

13.94#

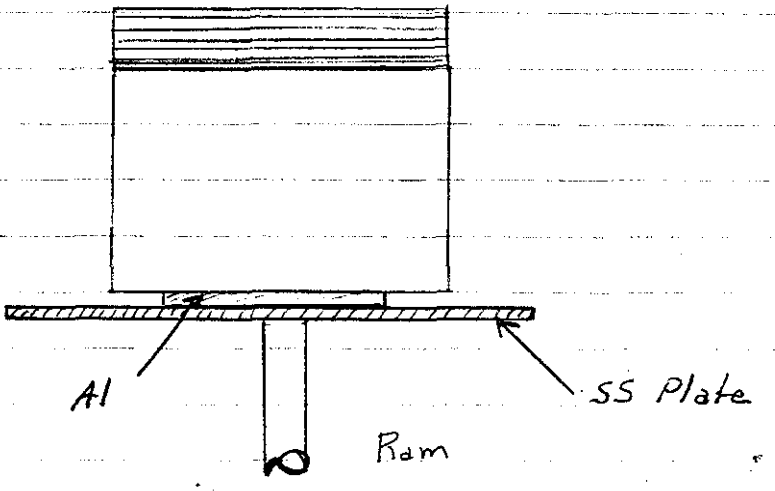
Clean Critical

Counters need to be moved closer Ex...



ID(F) = 15.078"
.073
.077
.081
.076
15.0770

OD (Ram) = 15.002"
.002
.000
.000
15.001



MAR 2 3 1964

MIHALCZO
LYNN
TAYLOR

63¢
28¢
96
94¢

INSTRUMENT CHECK

Time 8:35 AM PM Source M-226 # 4

Lights OK
Tables OK
Magnets OK
Area Cleared

	F	Channel A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	5"	OK	8'	2"	8"
% F.S. Trip	OK	100+	OK	100	95	100+

BF3 1-2-3 — OK

C.A. 15" X 11" Expr. PR-5 Run 1e
Polly. Refl Date 3-23 1964 Time 8:40 AM PM
Purpose Fuel Evaluation

up Position
#1 = 19.533
#2 = 19.589
#3 = +2
#4 = -3

e H = (15 x 13) = 3 1/4"
(13 x 11) = 3 7/32"

Positive Period - Log N = 15.9 sec 31.41¢
#1 = 15.5 " 31.82¢
#2 = 15.1 " 32.23¢ 31.82

1/32" (15" X 13") fuel = 17.88¢

g H = (15 X 13) = 3 7/32"
(13 X 11) = 3 1/4"

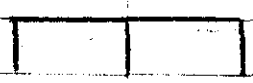
Pos Period - Log N = 19.5 sec 28.26¢
#1 = 19.3 " 28.41¢
#3 = 20.5 " 27.51¢
1/32" (13" X 11") fuel = 14.12¢ +28.06

C.A. 15" X 11" Expr. PRC - 3 Run 1a
Polyethylene
Refl + Core Date 3-23 19 64 Time 9:30 AM PM
Purpose Critical Condition.

1a H = 3 5/8" - Sub Critical

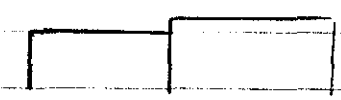
b H = 3 21/32" - Clean Critical
3 5/8" = Core

Positive Period - Log N = 32.9 sec 20.95 ¢
#1 = 32.3 " 21.19 ¢
#2 = 33.9 " 20.57 ¢
#3 = 32.8 " 20.99 ¢ 20.92 ¢



c Removed 1/32" (15" X 13") fuel - [VS Run 1b]

Positive Period - Log N = 379 sec = 3,080
#1 = 350 " = 3,31
#2 = 378 " = 3,08
#3 = 391 " = 2,99 + 3,12 ¢



1/32" (15" X 13") fuel = 17.8 ¢

d Removed 1/32" (13" X 11") fuel [VS Run 1 ¢]

Positive Period - Log N = 230 sec 4.82 ¢
#1 = 225 " 4.91 ¢
#2 = 228 " 4.86 ¢
#3 = 228 " 4.86 ¢ + 4.85 ¢

1/32" (13" X 11") fuel = 15.07 ¢

3214

9/32	3215
9/16" 66	55
3/8" 84	49
1/2" 86	52
1/2" 60	51
1" 2735	2756

15 13 11 Run 1d p. 208

3214

9/32	3215	
1/2" 2848	54	1 5/8" × 11"
1/2" 2787	53	
3/8" 2784	49	
1/2" 2786	52	
1/2" 2760	2751	2" × 11" B
1" 2735	2756	

15 13 11 ↑

Run 1b p 210

C.A. 15" x 9" Expr. PR-6 Run 1a
Polyethylene Reflector Date 3-23 19 64 Time 1:20 ~~AM~~ PM
Purpose CRITICAL CONDITION

See p. 208

up Positive
#1 = 20.41
#2 = 20.45
#3 = 0
#4 = -18

1a H = 2 1/8" –

Positive Period – LogN = 107.8 sec 9.09 ¢
#1 = 108.8 " 9.03 ¢
#3 = 115.7 " 8.60 ¢ + 8.93 ¢

15" 13 11 9"

b Fuel Evaluation Added 1/32"(15"x11") fuel. [vs Run 1a]

Positive Period – LogN = 24.66 sec 24.85
#1 = 25.1 " 24.39
#2 = 24.6 " 24.87
#3 = 25.4 " 24.42 + 24.68 ¢

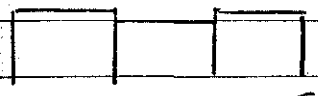
15" 13 11 9"

1/32"(15"x11") = 15.75 ¢
A low value, because of the gap [1/32"(15"x11")].

c Separated polyethylene pieces [I+F] 3/16".
Period = ∞ Pos indication.
3/16" separation = 24.68 ¢

d Added $\frac{1}{32}$" (11" x 9") fuel [vs Run 1c]

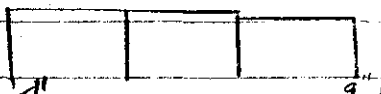
Positive Period - Log N = 26.1 sec 24.04 ¢
#1 = 26.9 " 23.62 ¢
#2 = 28.8 " 22.70 ¢
#3 = 28.1 " 23.03 ¢ + 23.26 ¢



$\frac{1}{32}$" (11" x 9") fuel = 23.26 ¢

e added $\frac{1}{32}$" (13" x 11") fuel [vs Run 1c]

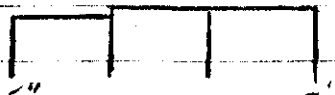
Positive Period - Log N = 27.7 sec 23.23 ¢
#1 = 27.9 " 23.13 ¢
#2 = 27.6 " 23.28 ¢ + 23.21 ¢



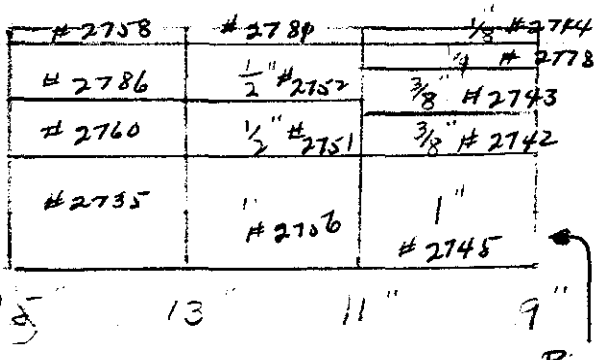
$\frac{1}{32}$" (13" x 11") fuel = 23.21 ¢

f. added $\frac{1}{32}$" (11" x 9") fuel -
Removed $\frac{1}{32}$" (15" x 13") fuel [vs Run 1c]

Positive Period - Log N = 25.6 sec 24.31 ¢
#1 = 25.3 " 24.48 ¢
#2 = 25.75 " 24.23 ¢ + 24.34 ¢



$\frac{1}{32}$" (13" x 13") = 22.13 ¢



Run 1a p. 212

MAR 24 1964

INSTRUMENT CHECK

Time 8^{15} AM ~~PM~~ Source M-226 8 h

	Channel F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	5"	OK	6'	2"	8"
% F.S. Trip	OK	100+	OK	100	75	100+
BF_3 1-2-3	-OK					

C.A. 15" x 9" Polyethylene Refl + Core Expr. PRC - 4 Run 1a

Date 3-24-64 Time AM ~~PM~~

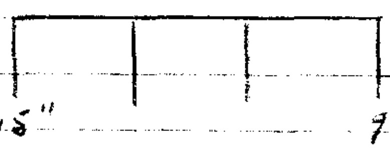
Purpose Critical Condition

See p. 208

up Positions
#1 = 20.120
#2 = 20.208
#3 = +5
#4 = -2

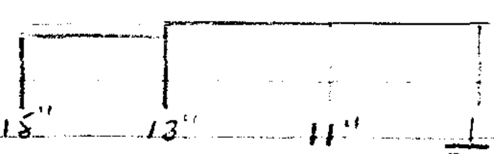
1a H = 2 3/8" - Clean Critical

Positive Period - Log N = 32.7 sec 21.03¢
#1 = 32.3 " 21.19¢
#2 = 33.4 " 20.76¢
#3 = 31.3 " 21.60¢ + 21.15¢



b Fuel Evaluation.
Removed 1/32" (15" x 13") fuel [US Run 1a]

Positive Period - Log N = 407 sec 2.88¢
#1 = 400 " 2.93¢
#2 = 458 " 2.58¢
#3 = 382 " 3.05¢ + 2.86¢



1/32" (15" x 13") fuel = 18.29¢

c Removed $\frac{1}{32}$" (13" x 11") fuel [vs Run 1a]

Negative Period – Log N = -265 sec = -5.65 ϕ

#1 = -315 " -4.62

#2 = -345 " -4.16

~~#3 = -394 "~~ -4.61 ϕ

$\frac{1}{32}$" (13" x 11") fuel = 25.76 ϕ

d Removed $\frac{1}{32}$" (11" x 9") fuel [vs Run 1a]

Negative Period – Log N = 643 sec - 2.10 ϕ

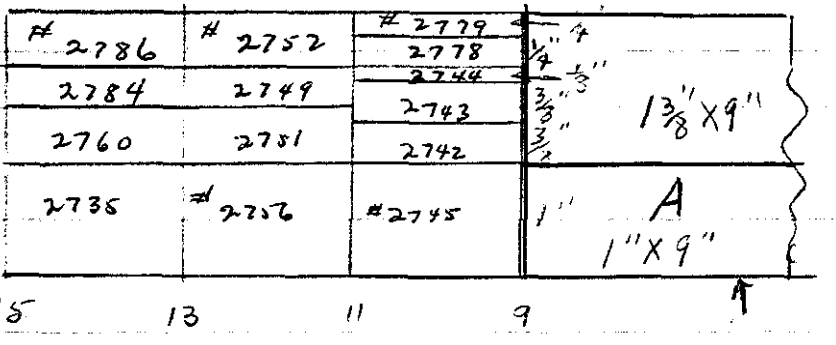
#1 = 724 " -1.85 ϕ

#2 = 709 " -1.89 ϕ

#3 = 753 " -1.78 ϕ

-1.90 ϕ

$\frac{1}{32}$" (11" x 9") fuel = 23.05 ϕ



Run 1a

p. 214

C.A. 15" x 7" Expr. PR-7 Run 1a
Polyethylene Reflector Date 3-24- 1964 Time 10:50 AM PM
Purpose Critical Condition

1a up #1 = 20.795"

See p. 208

Closed

1a H = 1 3/4" - Super Critical #1 = 20.32 -475 mils
~ 20 Sec pd.

b H = 1 11/16" = Super Critical = 20.69 -167 mils

c H = 1 21/32" - Clean Critical

Positive Period - Log N = 17.4 sec 30.0 ¢
#1 = 16.7 " 30.64 ¢
#2 = 18.2 " 29.31 ¢
#3 = 17.3 " 30.09 ¢ 30.01 ¢

d Removed 1/32" (15" x 13") foil [vs Run 1c]

Positive Period - Log N = 101.6 sec 9.53 ¢
#1 = 100.0 " 9.65 ¢
#2 = 103.1 " 9.42 ¢
#3 = 103.1 " 9.42 ¢ + 9.51 ¢

1/32" (15" x 13") foil = 20.5 ¢

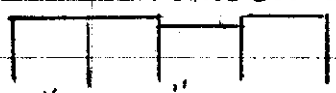
e Removed $\frac{1}{32}$" (13" x 11") fuel [US Run 1c]

Positive Period – Log N = 189.5 sec 5.71 ¢
#1 = 167 " 6.37 ¢
#2 = 176 " 6.08 ¢
#3 = 177 " 6.05 ¢ +6.07 ¢

$\frac{1}{32}$" (13" x 11") fuel = 23.94 ¢

f Removed $\frac{1}{32}$" (11" x 9") fuel [US Run 1c]

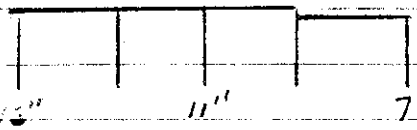
~~Positive~~ Period – Log N =



$\frac{1}{32}$" (11" x 9") fuel = 30.01 ¢

g Removed $\frac{1}{32}$" (9" x 7") fuel [US Run 1c]

Positive Period – Log N = 110 sec 8.95 ¢
#1 = 113.3 " 8.75 ¢
#2 = 114.6 " 8.66 ¢
#3 = 114.1 " 8.70 ¢ 8.77 ¢



$\frac{1}{32}$" (9" x 7") fuel = 21.24 ¢

9/32"	3214	3215	3216	3217
1/8"	2758	81	44	2773
1/4"	2885	82	79	75
1/2"	2786	52	78	74
			43	2829
1/2"	2760	2751		
			2742	2736

↑ Run 1c p. 217

]

C.A. 15" X 7" Polyethylene Refl + Core Expr. PRC-5 Run 1a
Date ____ 19 __ Time ____ ~~AM~~ PM
Purpose Critical condition

6.07

See p.208

1a] 1a H = 1 3/4" (13" X 11") + (9" X 7") End Core
1 25/32" (15" X 13") + (11" X 9")

Sub Critical.

c]

.77

[redacted]

220

MAR 25 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:25 AM PM — Source M-226 & h

Channel	F	A	B	C	D	E
Range	Hi & lo	10/1000	OPR	X	10/1000	1050 V
Source Dist.	OK	5"	0"	6'	3"	9"
% F.S. Trip	—	100+	OK	100	70	100+

BF_3 1-2-3 – OK

Tables OK
Lights OK
Magnets OK
Area Cleared

C.A. 15" X 7" Polyethylene Refl + Core — Expr. PRC-5 — Run 1-b
Date 3-25-1964 Time ____ AM PM

Purpose: Critical Condition

up #1 = 20.716
#2 = 20.763
#3 = +5
#4 = −6

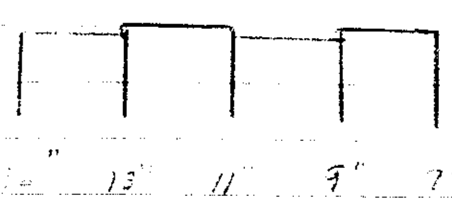
1-b H = 1 13/16 Fuel
= 1 3/4 Core

Super Critical #1 = 20.60 −116 mils
~ 20 sec period

c H = 1 13/16 (13" X 11") + (9" X 7")
1 25/32 (15" X 13") + (11" X 9")
1 3/4 Core

Clean Critical

Positive Period – Log N = 26.06 sec 24.09¢
#1 = 25.35 " 24.47¢
#2 = 25.9 " 24.15¢
#3 = 25.0 " 24.64¢
+2.34



Ex 218

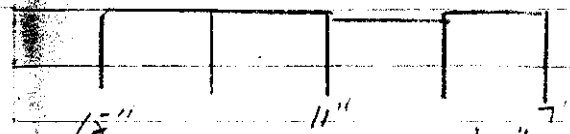
d Separated polythylene pieces [I + F]; 3/16"
see p. 208
up #1 = 20.909

Positive Period - Log N - 131.9 sec 7.74 ¢
#1 = 136.7 " 7.51 ¢
#2 = 142.2 " 7.27 ¢
#3 = 143.5 " 7.22 ¢ + 7.44 ¢

3/16" GAP = 16.90 ¢

e ~~Added~~ 1/32" (15" X 13") fuel [vs Run 1c]

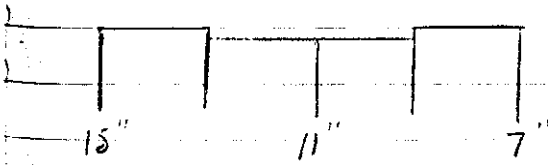
Positive Period - Log N = 19.9 sec 27.95 ¢
#1 = 18.9 " 28.75 ¢
#2 = 18.0 " 29.48 ¢
#3 = 19.2 " 28.49 ¢ + 28.66 ¢



1/32" (15" X 13") fuel = 21.22 ¢

f Removed 1/32" (13" X 11") fuel [vs Run 1a]

Positive Period - Log N = 299 sec 3.82 ¢
#1 = 281 " 4.04 ¢
#2 = 302 " 3.78 ¢
#3 = 299.6" 3.81 ¢ 3.86 ¢



1/32" (13" X 11") fuel = 27.20

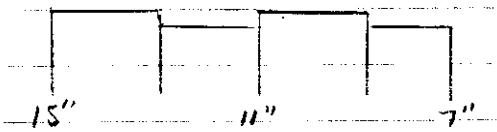
g. added $\frac{1}{32}$" (11"x9") fuel [vs Run 1f]

Positive Period - Log N = 24.2 sec 25.10¢
#1 = 24.4 " 24.98¢
#2 = 26.5 " 23.83¢
#3 = 25.5 " 24.36¢ + 24.57¢

$\frac{1}{32}$" (11"x9") fuel = 20.71¢

h Removed $\frac{1}{32}$" (9"x7") fuel [vs Run 1g]

Positive Period - Log N = 420 sec 2.80¢
#1 = 432 " 2.72¢
#2 = 442 " 2.67¢
#3 = 422 " 2.78¢ + 2.75¢



$\frac{1}{32}$" (9"x7") fuel = 21.82¢

i Removed Shims from Lectern (I + F) see Run 1d.

Positive Period - Log N = 35.5 sec 19.99¢
#1 = 35.4 " 20.03¢
#2 = 37.5 " 19.32¢
#3 = 38.0 " 19.16¢ + 1.63¢

Closing $\frac{3}{16}$" gap = 16.88¢

j. Removed $\frac{1}{32}$"(11" x 9") fuel. [US Run 1i]

Negative Period — Log N = -775 sec -1.72

#1 = -865 " -1.54

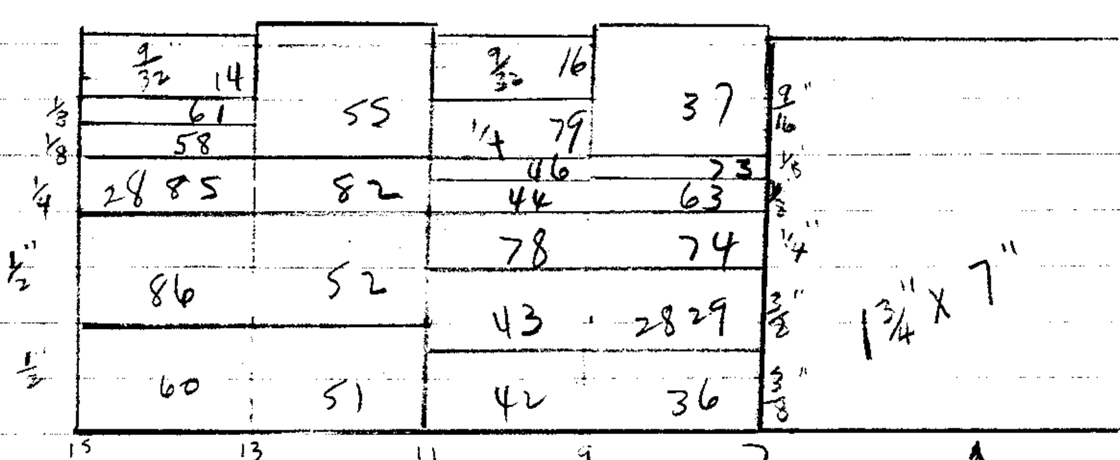
#2 = -917 " -1.45 -1.57 ¢

7 ¢

$\frac{1}{32}$"(11" x 9") fuel = 21.20 ¢

]

Run 1d.



Run 1c p.220

224

MAR 26 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:30 AM PM Source M-226 & b

Channel	F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V
Source Dist.	OIC	4"	OK	6'	2"	8"
% F.S. Trip	OIC	100+	OK	100	80	100+

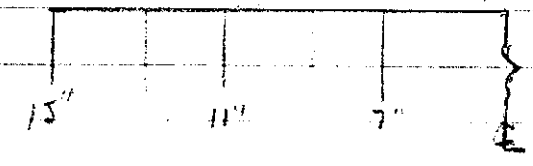
BF₃ #1-2-3 - OK

Tables OIC
Lights OK
Magneto OK
Area Cleared

CA. 15" cyl Expr. PR-8 Run 1a
Poly. Refl Date 3-26-1964 Time 8:25 AM PM
Purpose Critical Condition

See p. 208

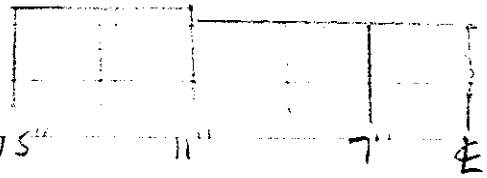
1a H = 1⅛" - Clean, Critical



Positive Period - Log N = 112.2 sec 8.81 ¢
#1 = 111.7 " 8.84 ¢
#2 = 113.4 " 8.74 ¢
#3 = 114.5 " 8.70 ¢

8.77 ¢
Excess

b added 1/32" (15" x 13") + (13" x 11") fuel



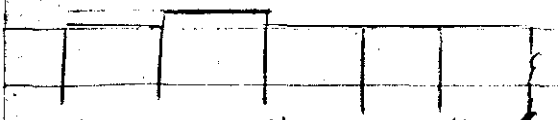
Positive Period - Log N = 48.6 sec 16.31 ¢
#1 = 50.2 " 15.96 ¢
#2 = 49.2 " 16.18 ¢
#3 = 49.3 " 16.16 ¢

-16.15 ¢

c Separated polyethylene pieces 3/16" [I + F], p. 208

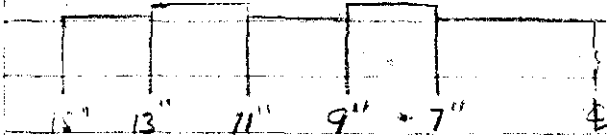
Positive Period - Log N = 46.7 sec 16.75 ¢
#1 = 47.9 " 16.47 ¢
#2 = 47.3 " 16.61 ¢
#3 = 49.3 " 16.16 ¢ +16.50 ¢

d Removed shims added for Run 1c.
Removed 1/32" (15" x 13") fuel. [Vs Run 1b]



Positive Period - Log N = 128.1 sec - 6.02 ¢
#1 = 124.5 " 6.13 ¢
#2 = 126.6 " 6.06 ¢
#3 = 130 " 5.96 ¢ +6.04 ¢
1/32" (15" x 13") = 10.46 ¢

e Added 1/32" (9" x 7") fuel [Vs Run 1d]



Positive Period - Log N = 15.2 sec - 32.13 ¢
#1 = 14.36 " 33.05 ¢
#2 = 13.91 " 33.05 ¢
#3 = 14.57 " 32.84 ¢ +32.89 ¢
1/32" (9" x 7") fuel = 26.85 ¢

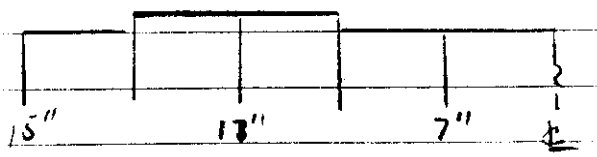
1/8"	58	80	41	63	68	1/8
1/2"	86	52	78	74	70	1/4
			43	2829	29	3/8
1/2	60	51	42	36	28	3/8
	15	13	11	9	7	

↑ Run 1a p. 224

226

2:20 PM f added $\frac{1}{32}$" (11" x 9") fuel [vs Run 1d]

Positive Period - Log N = 20.6 sec 27.44 ¢



#1 = 21.1 " 27.08 ¢

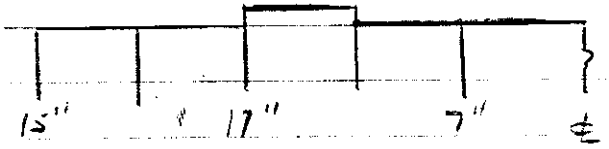
#2 = 20.8 " 27.29 ¢

#3 = 22.0 " 26.47 ¢ + 27.09

$\frac{1}{32}$" (11" x 9") fuel = 21.05 ¢

g Removed $\frac{1}{32}$" (13" x 11") fuel = [vs Run 1f]

Positive Period - Log N = 68.4 sec 12.85 ¢



#1 = 68.8 " 12.89 ¢

#2 = 68.5 " 12.84 ¢

#3 = 71.0 " 12.50 ¢ + 12.75 ¢

$\frac{1}{32}$" (13 x 11") fuel = 14.34 ¢

C.A. 15" X 11" Expr. PR-5 Run 1g
Poly. RERL Date 3-26-1964 Time 3:20 PM
Purpose Reflector Evaluation

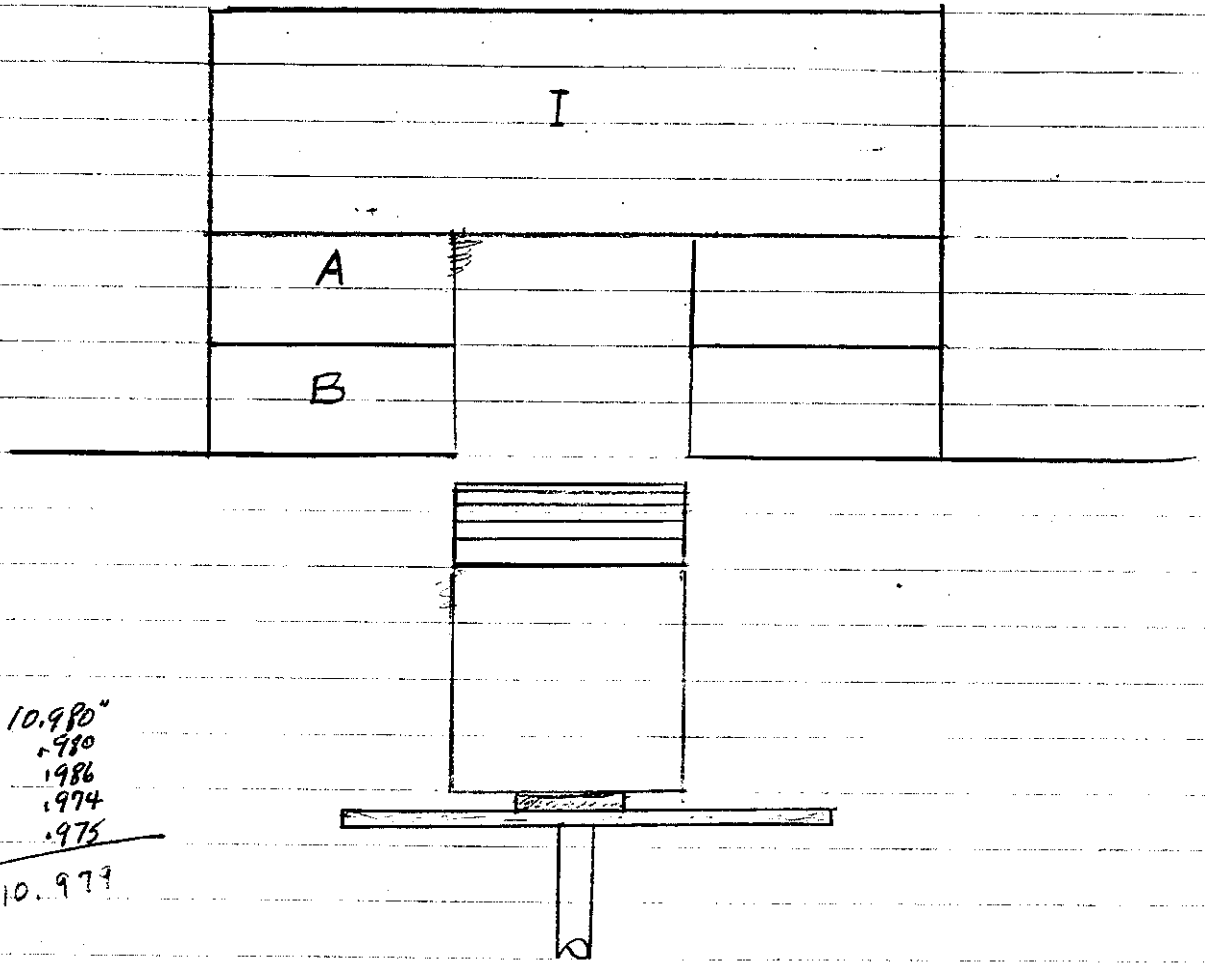
1g Repeat of Run 1d p. 208

Positive Period Log N = 60.4 sec 14.04 sec
#1 = 58.9 " 14.30 "
#2 = 59.4 " 14.21 "
#3 = 64.0 13.48 " +14.01 ¢

h Added ~ 4" Polythylene Reflector to ⅔ of Circumference of Assembly

Positive Period - Log N = 50.4 sec 15.92
#1 = 55.7 " 14.86
#2 = 52.6 " 15.46
#3 = 52.6 " 15.46 +15.42

Additional Refl = +1.41 ¢



OD (Rmm) = 10.980"
.980
.986
.974
.975
10.979

ID (A): 11.010
.016
.025
.032
11.020

11.021
10.979

APR 2 1964 229

APR 2 1964

INSTRUMENT CHECK

Time 11:30 AM PM Source M-22 L + R

	Channel A	B	C	D	E	
Range	10/1000	oper	X	10/1000	1050 ✓	Area Cleared
Source Dist.	5"	OK	8'	1"	8"	Lights
% C.S. Trip	100+	✓	100	100+	60+	OK

1:00 PM

C.A. 11" x 7" Expr. PR-9 Run 1a

Polyethylene Date APR 2 1964 Time 2:15 PM

Purpose REFLECTOR

Critical Condition

up. #1 = 21.29

1a H = 3 1/4" - Super Critical #1 = 20.96

or @ - 330 mils

up = 21.352

b H = 3 3/16" - Super Critical #1 = 21.245

or @ - 107 mils

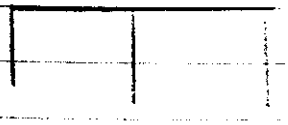
c H = 3 5/32 - Pos Period - ~~23.60~~ Clean Critical

log N = 26.96 sec 23.60

H1 = 26.82 " 23.66

H2 = 28.14 " 23.00

+ 23.40



d Removed $\frac{1}{32}$ (9"x7") fuel — vs Run 1c

Period ∞ (neg trend).

$\frac{1}{32}$" (9" x 7") = 23.4 ¢ ✓

e Separated polythylene pcs I + A, $\frac{3}{16}$"
See p. 228
[vs Run 1c]

Negative Period —

Log N = 619 sec −2.19
#1 = 588 " −2.32
#2 = —

−2.25¢

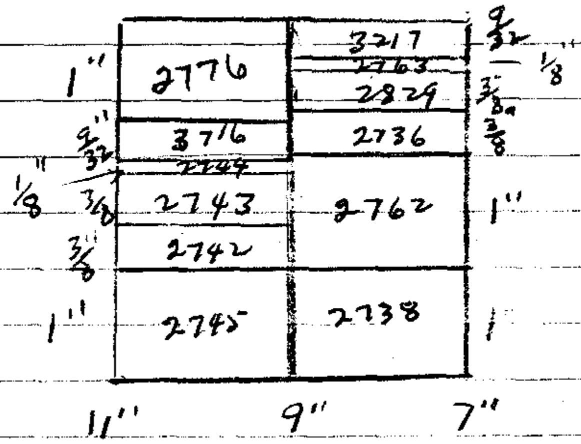
f add $\frac{1}{32}$" (11"x9") fuel —

Poo Period. Log N = 94.1 ≠ 10.12 ¢
#1 = 92.8 " = 10.23.
#2 = 93.8 " 10.14

+10.1⅝ ¢

$\frac{1}{32}$" (11"x9") = 12.41 ¢

See p. 232


1"
2776
3217
2763
2829
2736
9/32"
3776
2744
1/8"
3/8"
2743
2762
2742
2745
2738
11"
9"
7"

[redacted]

APR 6 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:30 AM ~~PM~~ Source M-226 & F

	F	✓ A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	4"	0"	8'	2"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 1-2-3	OK					

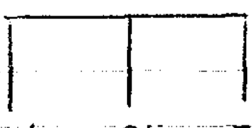
Tables OK
Magnets OK
Lights
Area Cleared

C.A. 11" X 7" Polyethylene ~~Reflector~~ Expr. PR-9 Run 8
Date 19 Time AM PM
Purpose Clean Critical

up #1 = 21.39

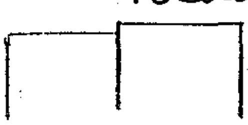
1g Repeat of 1c p.229 H = 3 5/32"

Positive Period – Log N = 21.06 sec 27.15
#1 = 21.99 " 26.49
#2 = 21.83 " 26.56 + 26.80 ¢

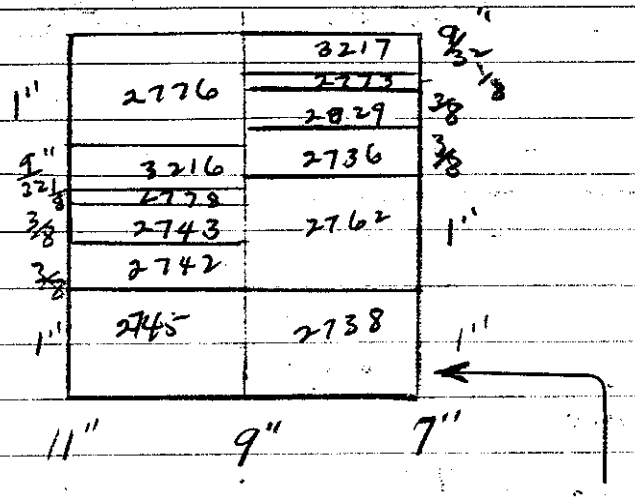

11" 9" 7"

h Removed 1/32" (11"X9") fuel –

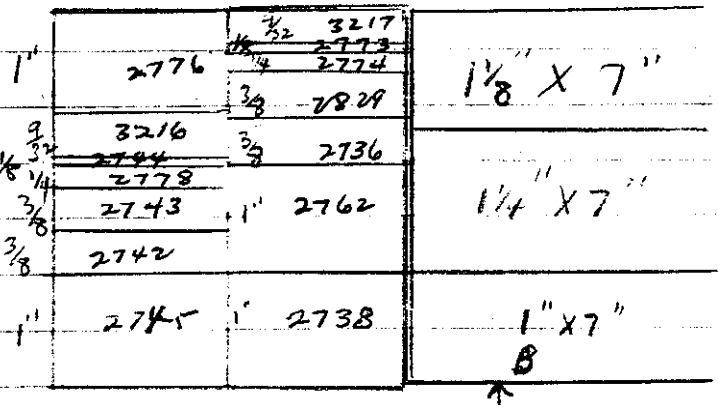
Positive Period – Log N = 743 sec = 1.64 ¢
#1 = 653 " – 1.84 ¢
– 1.74 ¢


11" 9" 7"

1/32 (11 X 9) – 25.06 ¢



Run 1g p.232
1c p.229



Run 1g p.236

CA 11"x7" Expr. PRC-6 Run 1a
Polyethylene
Refl + Core Date 4-6-1964 Time 10:40 AM ~~PM~~
Purpose Critical Condition.

1a H = 3 9/16" -

System Scramed while on fast speed.
at ~ 10:56 AM Ch "A" and Ch "E" tripped.
Log N ≅ 0.13

& Repeat of Run 1a.
Moved Slow Speed Flange up 2"
Position
on ~ 30 sec period # 1 = 18.71
up position #1 = 20.99

2.28"
from closed

Ext cloud

c $H = 3\frac{1}{4}$" up #1 = 21.302"

Sub Critical — #1 = 21.235
(not up)

d $H = 3\frac{5}{16}$" — Sub Critical #1 = 21.23
Closed

e $H = 3\frac{3}{8}$" — Sub Critical #1 = 21.17
Some multiplication

d. d. d $H = 3\frac{13}{32}$" — Sub Critical #1 = 21.150
Close

e $H = 3\frac{7}{16}$" — Super Critical #1 = 21.00

f $H = 3\frac{7}{16}$" (9" x 7")
$3\frac{13}{32}$" (11" x 9")
$3\frac{3}{8}$" Core

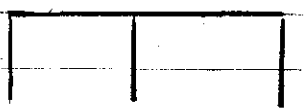
up. #1 = 21.115
@ #1 = 20.65 still poo.

Poo Period — Log N = 50.2 sec = 15.96 ¢
#1 = 49.25 " = 16.17 ¢
#2 = 50.6 " = 15.87 ¢

+16.0 ¢

g H = 3 13/32" Fuel — Chon Critical
3 3/8" Polyethylene Core

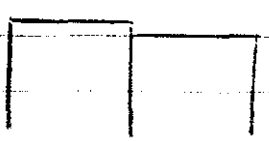
Negative Period — Log N = 667 sec 2.03¢
#1 = 695 " 1.94¢
#2 = -1.97¢



1/32" (9" X 7") = 17.97¢

R H = 3 13/32" (9" X 7") fuel
3 7/16" (11" X 9") "
3 3/8" Core

Positive Period _ Log N = 55.4 sec 14.92¢
#1 = 54.7 " 16.05¢
#2 = 54.2 " 15.15¢
+15.34¢



1/32" (11" X 9") = 17.01¢

APR 7 1964

INSTRUMENT CHECK

Time 8 55 AM / PM Source M-226 # 1

Channel	F	A	B	C	D	E
Range Hi & Lo		10/1000	DPR	X	10/1000 C	1050 V
Source	OK	4"	0"	6'	0"	7"
% F.S. Trip	OK	100+	OK	100	100+	100+

D_3 1-2-3

LIGHTS OK
MAGNETS OK
TABLE OK
AREA CLEARED

C.A. 11" x 9" Expr. PR-10 Run 1a
Polyethylene Reflector Date 4-7-1964 Time 9:05 AM / PM
Purpose Critical Conditions

up #1 = 18,345

See P. 228

1a H = 6" - Sub Critical
No Counter Increase

4 H = $7\frac{11}{32}$" - Sub Crit
No Counter increase

C H = $7\frac{11}{32}$" with polyethylene Core.
Sub Critical
No Counter increase

C.A. 11" Cyl Expr. PR-11 Run 1a
Polyethylene
Reflector Date 4-7-64 Time 10:50 AM PM

Purpose

Critical Condition

1a H = 1 5/16" (7" center disc)
1 11/32" (11" x 7")

1 min (x256) ctr #1 = 0.72 / 0.79 #2 = 0.81 / 0.41

1b H = 1 3/8" (7" center disc)
11:15 AM 1 11/32" (11" x 7")

#1 = 0.111 / 0.97 #2 = 0.61 / 0.51

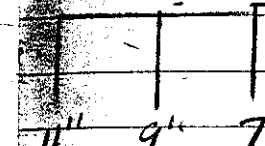
1c H = same (7")
= 1 13/32 (11" x 7")

#1 = 0 +179 #2 = 0 +81

[11" cyl x 1 3/8" thick = 40.1 Kg
or 29.18 Kg/in]

1d $H = 1\frac{7}{16}$" (7" dia disc) — rep. #1 = 23.10
$1\frac{13}{32}$ (11" x 7") — #2 = 23.149
Clean Critical — #3 = +2
#4 = -12

Positive Period.



Log N = 23.67 sec 25.44¢
#1 = 22.93 " 25.87¢
#2 = 23.97 " 25.26¢ + 25.52¢

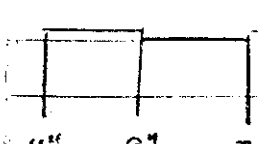
e Separated Polyethylene pieces A and I, $\frac{3}{16}$" (p. 228)

Positive Period - Log N = 120.8 sec 8.30¢
#1 = 119.8 " 8.36¢
#2 = 126.3 " 8.01¢ + 8.22¢

$\frac{3}{16}$" Separation = 17.30¢

f Added $\frac{1}{32}$" (11" x 9") fuel — [vs Run 1e]

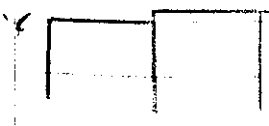
Poo Period Log N = 19.17 sec 28.57¢
#1 = 19.15 " 28.53¢
#2 = 19.1 " 28.57¢ + 28.53¢



$\frac{1}{32}$" (11" x 9") fuel = 20.31¢

g Added $\frac{1}{32}$" (9" x 7") fuel — [vs Run 1e]

Poo Period - Log N = 12.59 sec. 35.20¢
#1 = 12.97 " 36.04¢
#2 = 12.1 " 35.87¢
+ 35.70¢



$\frac{1}{32}$" (9" x 7") = 27.78¢

11" Solid cylinder

3/8" 2743	2829	9/16" 2730
1/4" 2778	2774	1/8" 2768
9/32 3216	3217	3/8" 2729
1/8 2744	2773	
3/8" 2742	2736	3/8" 2728
11"	9"	7"

Run 1 d p. 239

APR
JM
NL
NCT

APR S 1964

JM
AH
JRT

C.A. 9" Cylinder (Solid) Expr. PR-12 Run 1a
Polyethylene Reflector Date 4-8-1964 Time 2140 AM PM
Purpose
Critical Condition

See p. 246

INSTRUMENT CHECK

Time 2 30 AM PM Source M-226 AT

	F	A	B	C	D	E
Range	Hi #10	1%000	OFF	X	1%000	
Source Dist.	0/2	5"	0"	8'	1"	8"
% F.S. Trip		100+	OK	100	100+	100+

BF = 1.2-3 OK

Lights OK
Cables OK
Magnet OK
Area Cleared

1a H = 1 9/16" - Sub Critical

	#1	#2	#3
1 min	0 +28	0 +23	0 +16
(x256)	0 +33	0 +20	0 +16

1b H = 1 5/8" (7" dia)
1 9/16" (9"x7")

1 min	0 +63	0 +23	0 +19
(x256)	0 +55	0 +22	0 +31

[9" dia = 19.55 Kg/1" thickness]

242

1c $H = 1\frac{5}{8}$"

	#1	#2	#3
1 min	0^{+77}	0^{+36}	0^{+26}
(x256)	0^{+68}	0^{+34}	0^{+38}

1d $H = 1\frac{11}{16}$" – Sub Crit Close

1 min	0^{+247}	0^{+144}	0^{+127}

1e $H = 1\frac{3}{4}$" (7" dia)
$1\frac{11}{16}$" (9"x7")

Super Critical – 56 mils from closed

APR 9 1964

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INSTRUMENT CHECK

Time 8:20 AM ~~PM~~ Source M-226 4 h

	F ✓	Channel A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	5"	0"	6'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BF₃ 1-2-5

Tables OK
Lights OK
Magnets OK
Area Cleared

Solid

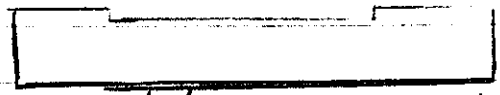
9" cyl. Expr. PR-12 Run 1 f
Poly Refl. Date ____ 19 ____ Time 8:40 AM ~~PM~~

Cont'd from p. 242

ap #1 = 22.73
#2 = 22,783
#3 = 0
#4 = -9

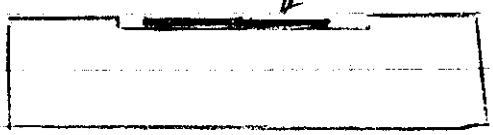
1f H = 1 11/16" (7" dia)
1 3/4" (9"x7")

Sub critical



1g Added 2 - 2½" x 2½" x 1/32" (120.6 gms) to center top g stack.

~~top #1 = 22.762~~



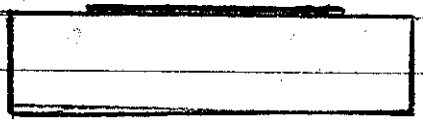
Sub Critical

1 min (X256)	#1	#2	#3
	8 +178	1 +216	1 +94
	3 +203	2 +6	1 +143

244

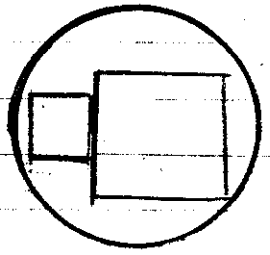
1h H = $1\frac{11}{16}$" + 1 pc 5"x 5"x $\frac{1}{32}$" [240 gms] on Center top of stack.

up #1 = 22.762



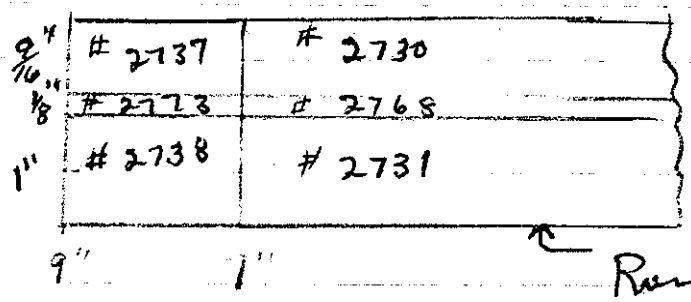
1 min (x256)	#1	#2	#3
	3 +81	1 +178	1 +64
	3 +48	1 +186	1 +96

1i added 1 pc $2\frac{1}{2}$"x$2\frac{1}{2}$"x $\frac{1}{32}$" [60.3 gms] to top.



neg. Period — log N = 1123 sec 1.18 ¢
#1 = 1080 sec 1.32 ¢
— 1.25 ¢

Crit Height ≅ 1.703" [$1\frac{45}{64}$"]
(1.745")



C.A 9" X 7" Expr. PR-13 Run 1a
Poly Refl.
Date 4-9- 1964 Time 11:10 AM PM
Purpose
Critical Condition

62

1a H = $7\frac{11}{32}$" [All available fuel]

Sub Critical

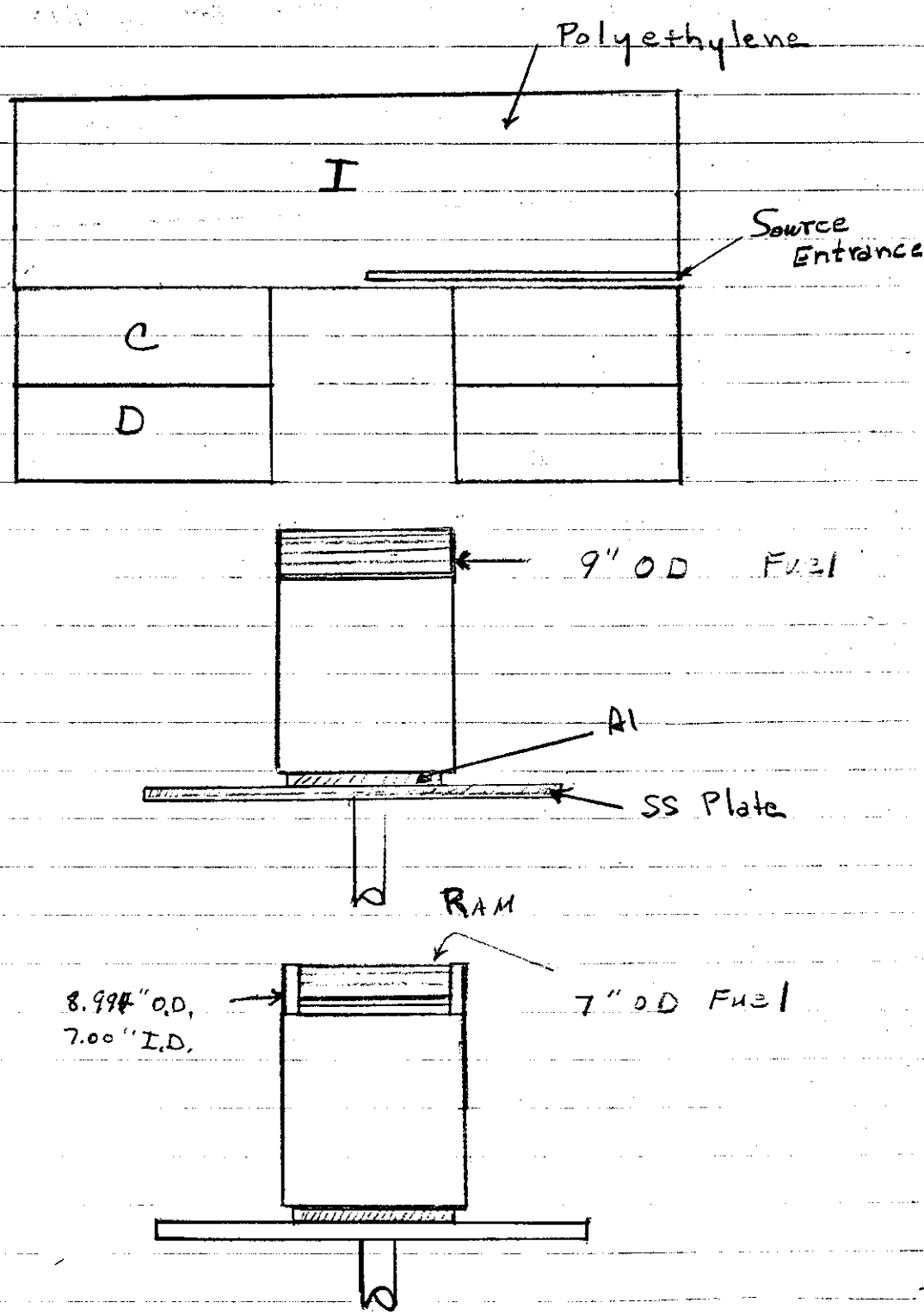
45 sec (X256)	#1	#2	#3
	0 + 20	0 + 26	0 + 16
	0 + 27	0 + 24	0 + 15

1b Added Polyethylene Core ~~to~~ 9" X 7"

Sub Critical

45 sec (X256)	#1	#2	#3
	0 + 40	0 + 30	0 + 22
	0 + 35	0 + 35	0 + 26

OD(Ram) = 9.000"
9.000
8.998
9.001



APR 2 0 1964

INSTRUMENT CHECK

Time 9 30 AM Source M-226 #1

Table OK
Lights OK
Magnet OK
Area Clear

		Channel A	B	C	D	E
	F					
Range	Hi-Lo	10/1000	OPR	X	10/100	1050V
Source Dist.	OK	5"	0"	8'	1"	7"
% F.S. Trip	OK	100+	OK	100	100	100+

BF 1-2-3 OK

7" Cyl. Polythylene Reflector Expr. PR-14 Run 1a

Date 7-20-1964 Time 9:55 AM ~~PM~~

Purp

Critical Condition

up. #1 21.445

1a H = 2 3/8" - Super Critical @ 21.18
or - 265 mil

2b H = 2 1/4" - sub Critical

up = 21.490

3c H = 2 5/16" - Super Critical @ 21,42

Fuel pieces # 2733
2770
2730

wt = 27,383 gms.

Same polythylene pieces as shown on p. 245 plus an annulus 9" OD x 7" ID x 3" high and necessary 7" dia pcs to raise the fuel to 3"

APR 2 1 1964

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INSTRUMENT CHECK

Time 9^00 AM ~~PM~~ Source M-226 ok

	F	A	B	C	D	E
				Channel		
Range	Hi & lo	10/1000	OPR.	X	10/1000	1050 V
Source Dist.	ok	5"	0"	6'	1"	7"
% F.S. Trip	ok	100+	ok	100	100+	100+

BF3 1-2-3- ok

TABLES OK
LIGHTS OK
MAGNETS OK
AREA CLEARED

CA 7" Cyl Polyethylene Reflector Expr. PR-14 Run 1 d

Date 4-21-1964 Time 9:00 AM ~~PM~~

Purpose Critical Height determination

			wt
1d H = 2 5/16" – pc	# 2732		11,814
	# 2728		4,435
	# 2770		2,916
	# 2769		1,481
	# 2730		6,646
			27,292 gms

Super Crit @ 21.42
Same as Run 1 c.

1/32" X 7" = ~ 368 gms.

1c H = 2¼" + 5"X5" X 1/32" (246 gms)

Positive Period - Log N = 182 pcs. 5.91 ϕ
#2 = 184 5.85 ϕ
#3 = 188 5.75 ϕ 5.84 ϕ
Excess

Fuel pcs # 2731 = 11,841 1
2728 = 4,435 3/8
2729 = 4,440 3/8
2770 = 2,955 1/4
2768 = 1,481 1/8
2769 = 1,495 1/8
26,647 gms.
+ 246 "
26,893

246/368 = 67%

368 gm X 1.33 = 489 gms

27,383 Run 1c {Heavy pcs used in both Runs}
- 26,893
490 gms.

252

APR 22 1964

APR 22 1964

INSTRUMENT CHECK

Time 12:50 PM Source M-226 + 8

	Channel F	A	B	C	D	E
Range	OK	10/1000	off	X	10/1000	1050
Source Dist.		8"	o/c	8'	1/2"	8"
% F.S. Trip		100+	___	100	100+	100+

C.A. 13" X 9" Expr. XI Run 1a

6" C Reflector Date APR 22 1964 Time 1:00 PM

Purpose Critical Condition

16 mil SS diaphragm

5 1/2" graphite on Ram

Remaining C + all fuel on graph.

1 min etc to down position #1 = 163 etc

see p. 13

1a H = 1 15/16 Fuel 6" Graphite Reflector

Sub Critical 45 sec etc #1 = 413

#2 = 177

1b H = 1 31/32" (13"X 11" + 11"X 9")

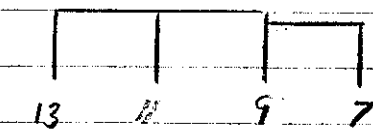
1 15/16" (9"X 7")

Removed 5" (2.5" x 21") graphite from ~~bottom~~ Ram, ~~to~~ Check magnet ability to hold load until Closure

Sub Critical. (Magnet gave NO Trouble)

1c Added C removed from Bam for previous Run.
Sub Critical (~ 150 sec. ?)

1d. Added additional plexiglas shim in order to reach power for period meas.



exp. # 1 = 13.538
2 = 13.592
3 = +1
4 = -11

Negative Periods -

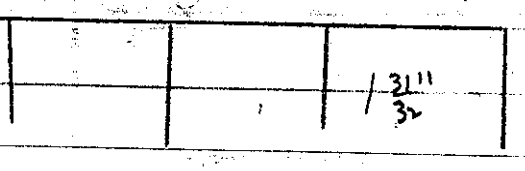
Log N = 110 sec		-21.1	
#1 = 107 "		-22.5	
#2 = 105 "		-23.6	-22.4

254

13"x7" No Core

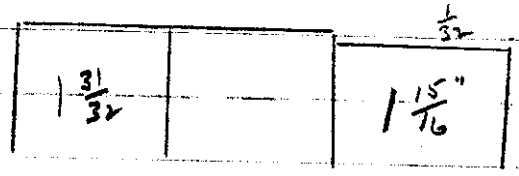
11" 9" 7"

Reactivity



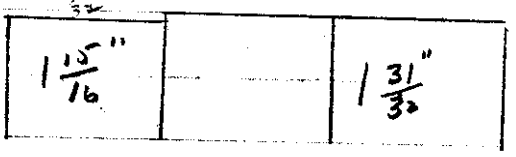
+15.71

38.11 ¢



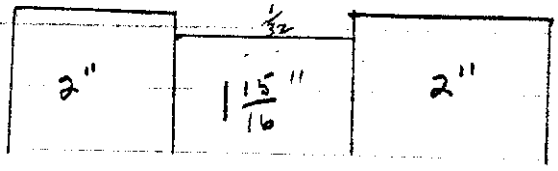
−22.4

31.56 ¢



−15.85

62.17 ¢

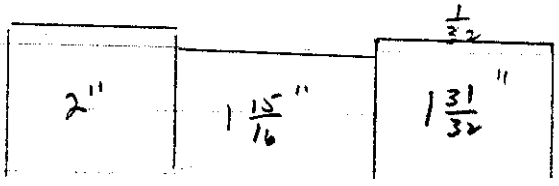


+23.21

15.71

Excess

35.39 ¢



−12.18 ¢

13

a) $\frac{35.39}{38.11} = .9286$ 92.86% [5 vs 2]

b) If a is correct then .9286 times (4) is 57.7 ¢

¢

¢

¢

.85 ¢

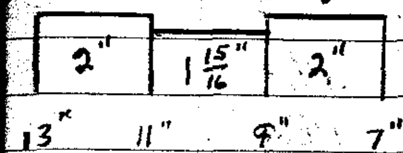
2

1/32 (13 X 11") full = 31.56 ¢

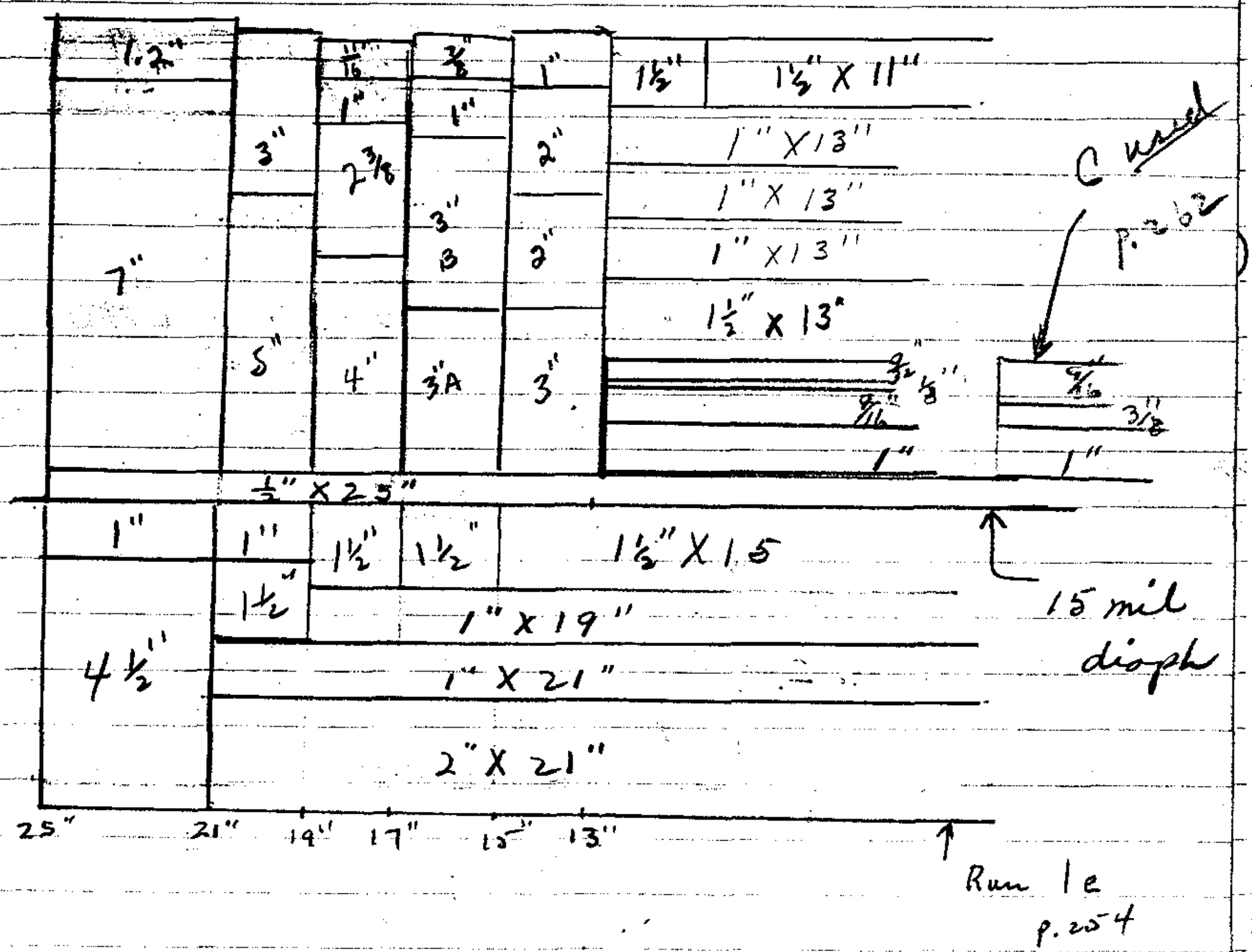
[redacted]

1g added $\frac{1}{32}$" (13"X11") and (9"X7") (vs Run 1e)
Removed $\frac{1}{32}$" (11"X9")

Pos period – Log N = 26.9 sec 23.62¢
#1 = 28.5 " 22.84¢
#2 = 30.0 " 22.16¢ + 23.21



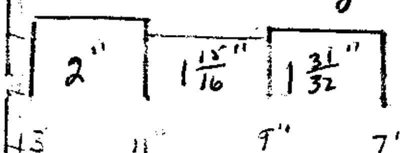
$\frac{1}{32}$ (11" X 9") = 62.17 ¢ ?



l.

5.71
sec

1h Removed $\frac{1}{32}$" (9"X7") [vs Run 1g]
Neg Period – Log N = 149.8 sec –12.01¢
#1 = 148.5 " 12.17¢
#2 = 147.2 " 12.35¢ –12.18¢



$\frac{1}{32}$" (9" X 7") = 35.37

256

Graphite Reflector Evaluation

i Repeat of Run 1e; H = 1 31/32" ; Clean Critical.

Positive Period _ Log N = 57.5 sec 14.53 ¢

#1 = 56.7 " 14.68 ¢ +14.44

#2 = 59.9 " 14.12

and → +14.51 ¢

j Removed .389" (25" x 21") Carbon [vs 1i]

Positive Period _ Log N = 69.3 sec 12.72 ¢

#1 = 67.4 " 12.98 ¢

#2 = 69.0 " 12.77 ¢ +12.82

.389" (25" x 21") = 1.69 ¢

or .004344 ¢/mil

k Removed .227" (21" x 19") Carbon [vs 1i]

Positive Period _ Log N 67.8 sec = 12.93 ¢

#1 = 65.7 " = 13.22 ¢

#2 = 66.4 " = 13.13 ¢ +13.09 ¢

.227" (21" x 19") C = 1.42 ¢

or .006255 ¢/mil

l. l Removed .248" (19" X17") Carbon [vs 1i]

Positive Period - Log N = 76 sec 11.89 ¢
#1 = 75.9 " 11.90 ¢
#2 = 75.2 " 11.98 ¢ + 11.92 ¢
.248" (19" X 17") C = 2.59 ¢
or .01044 ¢/mil

m Removed .193" (17" X 15") C [vs 1i]

Positive Period - Log N = 80.9 sec 11.35 ¢
#1 = 78.1 " 11.65 ¢
#2 = 79.5 " 11.50 ¢ + 11.50 ¢
.193" (17" X 15") = 3.01 ¢
or .015591 ¢/mil

n Removed .244" (15" X 13") C [vs 1i]

Positive Period - Log N = ~~80.8~~ 112.2 sec 8.81
#1 = 114. " 8.70
#2 = 106.8 " 9.16 + 8.89
.244" (15" X 13) = 5.62 ¢
or .02303 ¢/mil

o added 10 mil diaph [vs 1n]

Positive Period - Log N = 1490 sec 0.86 ¢
#1 = 1035 " 1.18 ¢
#2 = 1000 " 1.23 ¢ + 1.09
10 mil diaph = -7.80 ¢
15 " " = 1 .0 ¢

[redacted]

APR 24 1964

INSTRUMENT CHECK

Time 8 45 AM ~~PM~~ Source M-226 & h

	Channel					
	F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	x	10/1000	1050V
Source Dist.	OK	4"	0"	6'	1"	10"
% F.S. Trip	OK	100+	OK	100	100	100+

BF_3 1-2-3 -OK

Magnets OK
Tables OK
Light OK
Area Cleared.

C.A. 13"X7" Expr XI Run 1-q
6 C Refl. Date 4-24-64 Time
Purpose: Carbon Reflector Evaluations

1 p Removed 1/8" (.125") (13"X11") Carbon [vs Run 1 i]

Positive Period - Log N = 125.9 sec 8.02¢
#1 = 125.1 " 8.08¢
#2 = 126.3 " 8.01¢ + 8.04
.125" (13"X11") = 6.47¢
or .05176 ¢/mil

q Removed 1/8" (11"X9") Carbon. [vs Run 1 i]

Positive Period - Log N 269 sec 4.19¢
253 " 4.44¢
249 " 4.50¢ + 4.38
1/8" .125" (11"X9") = 10.13¢
or .08104 ¢/mil

r Removed $\frac{1}{8}$" (9" X 7") Carbon — VS Run 1 q

Positive Period – Log N = 1300 sec 0.95¢
#1 = 1160 " 1.12¢
#2 = 1058 " 1.17¢ +1.08¢

.125 (9" X 7") = 3.30¢
or .0264¢/mil

s Removed $\frac{1}{8}$" X 7" Carbon disc (VS Run 1 r)

Negative Period – Log N = 332 sec −4.35¢
#1 = 325.7 sec −4.45¢
#2 = 321.8 sec 4.51¢
−4.44¢

.125 X 7" = 5.52¢
or .04416

t Added $\frac{1}{8}$" X 11" Carbon disc (VS Run 1 s)

Pos Period – Log N = 142 sec 7.28¢
#1 = 133.5 " 7.66¢
#2 = 139.4 " 7.39¢ + 7.44¢

.125" X 11" C disc = 11.[illegible]¢

↑
Lower value than expected, [illegible] due to the disc lying on (11" or 9" X 7") rings [illegible] some voids.

[redacted]

7.44¢

1:25 PM U Support Stand Evaluation (vs Run 1 t)

Removed ~389" (25" x 21") C (Run j. p.256) = -1.69¢ +5.75¢

Positive Period – Log N = 118.3 sec 8.44¢

#1 = 117. " 8.52¢

#2 = 117 " 8.52¢ +8.49¢

Support Stand = +2.74¢

V Support Rings + Support plate (~ 1/3 plate)
(vs Run 1 u)

Positive Period – Log N = 85.4 sec 10.90¢

#1 = 82.1 " 11.22¢

#2 = 82.1 " 11.22¢ +11.11¢

Support Ring + plate = 2.62¢

W Support Rings Removed (vs Run 1 v)

Positive Period – Log N = 103.5 sec 9.39¢

#1 = 104.2 " 9.34¢

#2 = 105.5 " 9.26¢ + 9.33¢

Support Ring = +1.68¢

Supports Ring minus simulated (1/3) [illegible] support = 0.74¢

x 3

Support Plate 2.62¢

[redacted]

C.A. 13"X7" Expr. XII Run 1a

6" C Reflector

C Core Date 4-24-1964 Time 3:25 ~~AM~~ PM

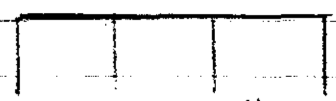
Purpose Critical Condition

Clean critical

1a $H = 1\frac{31}{32}$" Fuel ; $1\frac{15}{16}$" Carbon Core, Reflector Conditions same as p. 255, except 0.8043" (25" X 21") used, replacing the 1.1937".

Positive Period - Log N = 16.17 sec 31.14¢

#1 = 16.85 " 30.50¢ + 30.82¢



13" 11" 9" 7"

+ Support Evaluations [diaph, Support Stand and Ring]

Log N = 19.54 sec 28.22¢

19.4 " 28.33¢

20.18 " 27.78¢ + 28.11¢

Supports = − 2.71¢

c Support plate (simulated $\frac{1}{3}$).

Pos Period – log N = 18.24 sec 29.28 ϕ
#1 = 17.98 " 29.50 ϕ
#2 = 16.7 " 30.69 ϕ + 29.81 ϕ

$\frac{1}{3}$ plate = 1.70 ϕ
× 3
5.10 ϕ

See p. 268

upt
737".

2.82 ϕ

Ring

.11 ϕ

264

APR 27 1964

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INSTRUMENT CHECK

Time 8 45 AM PM Source M-226 & h

	Channel F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	~~10~~	10/1000	1050V
Source Dist.	OK	5"	0"	8'	1"	8"
% F.S.	OK	100+	OK	100	100+	100+
BF3 1-2-3	OK					

Safety OK
Lights OK
Magnets OK
Area Cleared

C.A. 13" X 7" Expr XII Run 2a
6" C Refl.
C. Core Date 19 Time 8:25 AM PM
Purpose Fuel Evaluation.

10:5

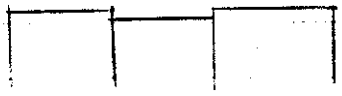
2a Removed $\frac{1}{32}$" (13" X 11") fuel [vs Run 1a]

Positive Period - Log N = 1676 sec 0.74 ¢
#1 = 1450 " - 0.85 ¢
#2 = 1370 " 0.91 ¢ + 0.83

$\frac{1}{32}$"(13" X 11") fuel = 30.0 ¢

2b Removed $\frac{1}{32}$" (11" X 9") fuel (vs Run 1a)

Negative Period - Log N = 164.5 sec - 10.46 ¢
#1 = 156.3 - 11.27 ¢
#2 = 158.9 10.99 ¢ -10,72



$\frac{1}{32}$" (11" X 9") fuel = 41.74 ¢

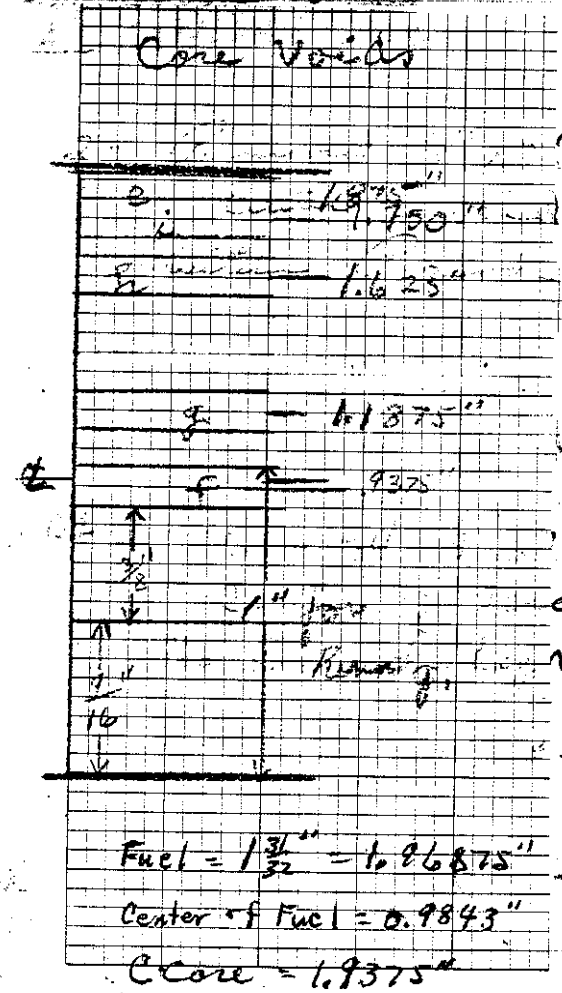
2c Removed $\frac{1}{32}$" fuel from (9" x 7") [vs Run 1a]

Positive Period - Log N 676 sec 1.79 ¢
" #1 680 " 1.75 ¢
" #2 685 " 1.93 ¢ +1.82 ¢

$\frac{1}{32}$" (9" X 7") = 29.0 ¢

10:50 AM 2d Removed $\frac{1}{4}$" x 7" graphite from Core. [vs Run 2c]

Sub Critical.



C from Core 1.8750" [vs Run 1a]
is ~~1.8125"~~ from bottom of fuel
Log N = 28.5 sec 22.84 ¢
#1 = 31.9 21.35 ¢
#2 = 32.6 21.07 ¢ +21.75 ¢
vs Run ƒ = -10.71 ¢

" C from Core
d is 0.9375" from bottom of fuel.
N = 16.45 sec - 29.10 ¢
1 = 16.6 " - 30.73 ¢
2 = 15.0 " - 32.34 ¢ +30.71 ¢

ƒ = -1.75 ¢

g Removed $\frac{1}{8}$" x 7" C from Core.
Void 1.0875" from bottom of fuel.

Poo Period - Log N = 17.59 sec 29.83 #
#1 = 16.8 " 30.37
#2 = 17.78 " 29.68 +30.02

VS Run f = -2.44 #

h Removed $\frac{1}{8}$" x 7" C from Core
Void 1.625" from bottom of fuel

Poo Period - Log N 20.6 sec = 27.44
#1 20.7 " = 27.36
#2 20.1 " = 27.80 +27.53

VS Run f = -4.73 #

i Removed $\frac{1}{8}$" x 7" C from Core
Void 1.750 from bottom of fuel

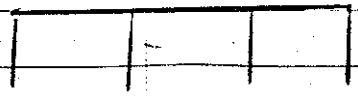
Poo Period - Log N = 26.4 sec 23.88
#1 = 27.3 " 23.42
#2 26.77 " 23.70 +23.67

VS Run f = -8.79 #

Σ g voids = 28.62 #

j. Clean Critical. ($1\frac{31}{32}$") 1.96875"
Repeat j 1a p. 262.

Pos Period - log 14.76 sec 32.60 ϕ
#1 = 15.01 " 32.33 ϕ +32.46 ϕ



268

APR 2 8 1964

JM
JJL
JRT

INSTRUMENT CHECK

Time 9 45 AM ~~PM~~ Source M-226 ¢

	F	Channel A	B	C	D	E
Range	Hi & lo	1%000	OPR	X	1%000	1050V
Source Dist.	OK	5"	0"	7'	1"	8"
~~%~~ F.S. Trip	OK	70	OK	100+	100+	100+
BF3 1-2-3	OK					

Tables OK
Lights (need green lite at East gate).
Magnets OK
Area Cleared

C.A. 13"X7" 6" C Reflctn Expr. XII Run 3a
C Case Date 4-28-1964 Time 10:00 AM ~~PM~~
Purpose: Support plate Evaluation. (AI)

Duplicate AL Support plate Now available. 48" x 44" X ½" with 30" diamter Center hole for diophragm

3a 15 Mil diph in place. [vs Run 2j]

Poo Period Log N = 23.3 sec 25.64 ¢
#1 = 24.17 " 25.11 ¢
#2 = 23.7 " 25.40 ¢

+ 25.38

15 mil diph = -7.08 ¢

b Duplicate Support Plate in place.

Poo Period - Log N = 20.6 sec 27.44 ¢
#1 = 20.9 " 27.22
#2 = 21.4 " 26.88 + 7.18 ¢

Support Plate = +1.80 ¢

c. Support Ring [vs Run 3b]

Poo Period - Log N = 19.98 sec - 27.90 ϕ
#1 = 19.6 " - 28.18 ϕ
#2 = 19.15 " - 28.53 ϕ +28.20 ϕ

Support Ring = +1.02 ϕ

d Support Stand [vs Run 3c]

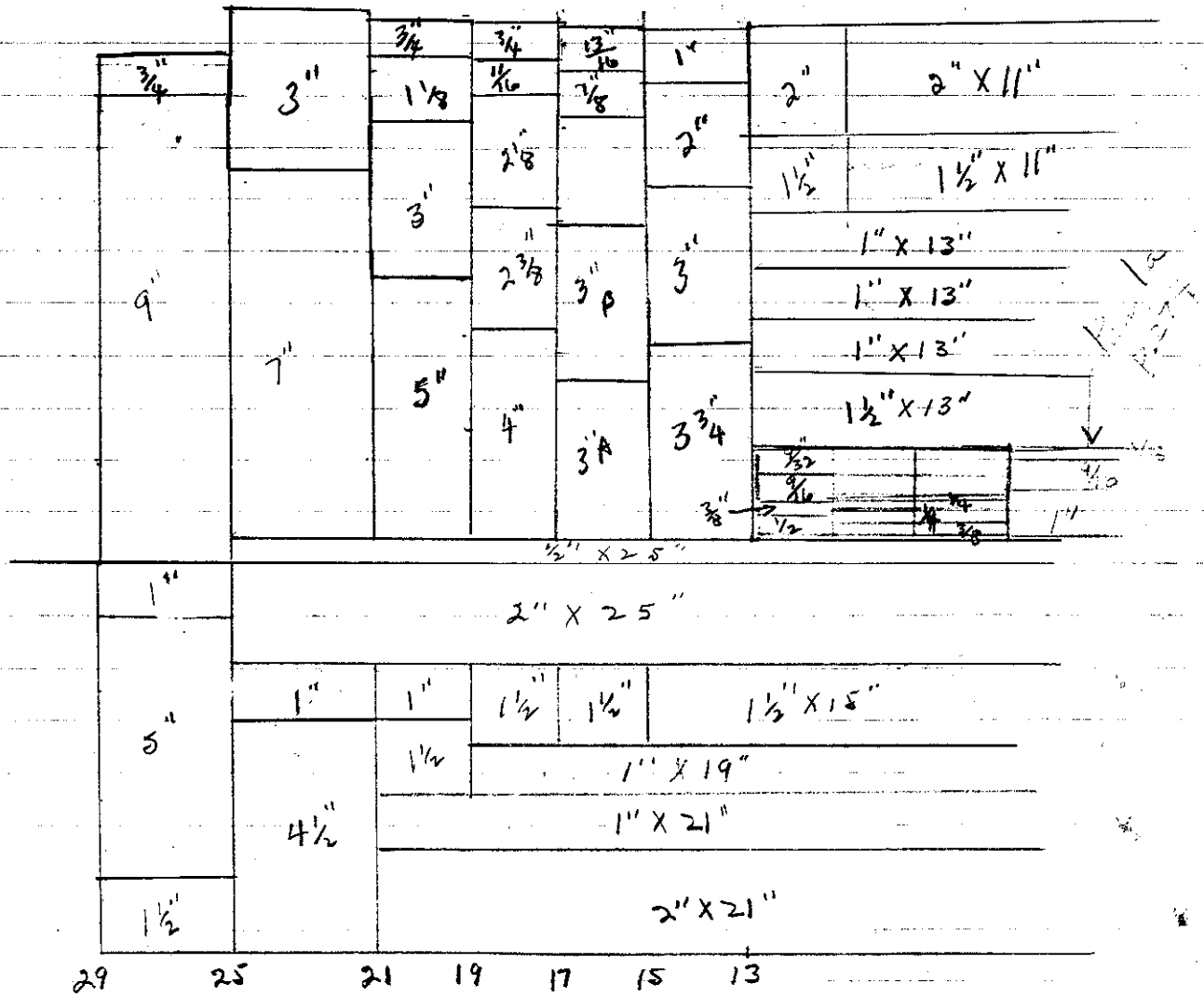
Poo Period - Log N = 14.98 sec 32.36 ϕ
#1 = 15.38 " 31.94 ϕ
#2 = 15.35 " 31.97 ϕ +32.08 ϕ

Support stand: +3.88 ϕ

C.A. 13" x 7" Expr. XIII Run 1a
8" C Refl. Date 4-28-1964 Time 3:40 ~~AM~~ PM
Purpose Critical Condition.

1a H = $1\frac{23}{32}$" Fucl ; 8" Carbon Refl.

Super Crit. ~ 10 sec period;



APR 29 1964

INSTRUMENT CHECK

Time 8:20 AM

Source M-226 & F

		A	B	C	D	E
Range	Hi & lo	10/1000	OPR	X	10/100	1050 V
Source Dist.	OK	5"	0"	7'	1"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+

BFs 1-2-3 → OK

Lights OK
Magnets OK
Tables OK
Area Cleared

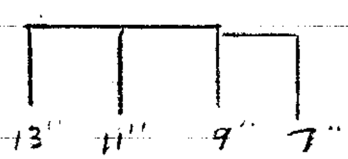
C.A. 13" X 7" Expr. XIII Run 1 b
8" C Refl. Date 4-29-1964 Time 8:25 AM
Purpose p. 270 Cont'd

1b Added 15 mil diaph to Run 1a.

Pos Period – Log N = 18.8 sec 28.81 ¢
#1 = 18.46 " 29.11 ¢
#2 = 17.90 " 29.56 ¢ + 29.16 ¢

c Removed 1/32" (9" x 7") fuel [vs Run 1b]

Negative Period – Log N = 153.1 sec -11.62 ¢
#1 = 148.5" -12.17 ¢
#2 = 148.5" 12.17 ¢ -11.99 ¢

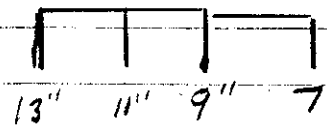


1/32" (9" x 7") fuel = 41.15 ¢

d Removed 15 mil depth [vs Run 1c]

Positive Period - Log N = 1480 sec = 0.83¢
#1 = 1430 " = 0.87¢
#2 = 1370 " = 0.91¢ + 0.87¢

Clean Critical



15 mil depth = -12.86¢

e Added Support Plate and Support Ring [vs Run 1d]

Positive Period - Log N = 293 sec 3.89¢
#1 = 284 " 4.00¢
#2 = 286.6 " 3.97¢ + 3.95¢

Plate + Ring = 3.03¢

f added $\frac{1}{32}$" (9" x 7") fuel = 41.18¢
Removed $\frac{1}{32}$" (13" x 11") fuel [vs Run 1e]

Pos Period - Log N = 94.0 sec 10.12¢
#1 = 95.1 " 10.03¢
#2 = 93.8 " 10.14¢ + 10.10¢

$\frac{1}{32}$" (13" x 11") fuel = 35.00¢

Est. Support to Stand = 2.5¢

[illegible Run Temp]

g Added $\frac{1}{32}$" (13" x 11") fuel = 35.00 ¢
Removed $\frac{1}{32}$" (11" x 9") fuel [vs Run 1f]

Pos Period — 204 sec 5.35 ¢
208 " 6.27 ¢
205.8 " 5.32 ¢ +5.31

$\frac{1}{32}$" (11" x 9") fuel = 39.79 ¢

d]

h Added $\frac{1}{32}$" (11" x 9") fuel
Added 15 mil diaph = - 12.86 ¢ [vs Run 1g]

Pos Period — Log N = 17.2 sec 30.18
#1 = 16.53 " 30.80
#2 = 16.96 " 30.40 +30.44 ¢

]

$\frac{1}{32}$ (11" x 9") fuel = 37.99 ¢

Avg = 38.89 ¢

[redacted]

APR 30 1964

JM
JJL
JBT

INSTRUMENT CHECK

Time 8^{30} AM ~~PM~~ Source M-226 & h

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist	OK	4"	0	8'	1/2"	8"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF3 1-2-3	OK					

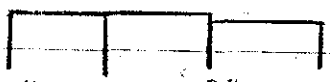
Lights OK
Tables OK
Magnets OK
Area Cleared

C.A. 13" X 7" Expr. XIV Run: 1a
8" C Reflector
C Core Date: 4-30-64 8:30 AM ~~PM~~

Purpose: Critical Condition

1a H = $1\frac{23}{32}$" (13" X 11") + (11" X 9") Fuel
= $1\frac{11}{16}$ (9" X 7") fuel and C core. See p. 270 13

Pos Period - Log N = 49.9 Sec = 16.02¢
Chan Critical #1 = 48.7 " 16.29¢
#1 = 48.3 " 16.38¢ + 16.23¢



13" 11" 7" 7"

& added 15 mil SS diaph [vs Run 1a]
Pos Period - Log N = 504 sec 2.36¢
#1 = 467.5 " 2.53¢
#2 = 497.8 " 2.39¢ + 2.43¢

15 mil diaph = -13.80¢
This run made 7 mils below up position. 13

Reduced up pos readings 10 more mils (-17 mils)

Log N = 807 sec - 1.51 ¢
#1 = 780 " - 1.56 ¢ + 1.54 ¢

-27 mils = ∞
-47 " = -337 sec

1c Added $\frac{1}{32}$"(9"X7") fuel
Removed $\frac{1}{32}$"(11"X9") " [vs Run 1b]

Pos Period Log N = 369 sec 3.15 ¢
#1 = 341 " 3.39 ¢
#2 = 354 " 3.27 ¢ + 3.27 ¢

.270 13" 11" 9" 7"

1d added $\frac{1}{32}$"(11"X9") fuel
Removed $\frac{1}{32}$"(13"X11") fuel [vs Run 1c]

Pos Period Log N = 100.2 sec 9.63 ¢
#1 = 99.7 " 9.67 ¢
#2 = 101.6 " 9.62 ¢ + 9.64 ¢

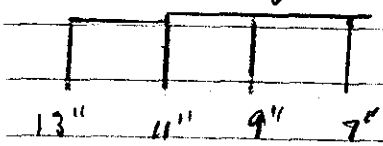
13" 11" 9" 7"

$\frac{1}{32}$"(11"X9") = 39.71 ¢
$\frac{1}{32}$"(9"X7") = 40.75 ¢

276

1c Removed 1.8" (25" X 21") C Top Refl.
0.758" (29 X 25") C "

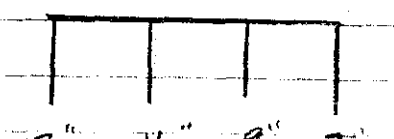
Negative period _ Log N = 121.6 sec 17.10 ¢
#1 = 117.2 " 18.34 ¢
#2 = 118.5 " 17.97 ¢ - 17.80 ¢



C = 27.44 ¢

1d added $\frac{1}{32}$" (13" X 11") fuel [VS Run 1e]

Pos Period _ Log N = 52.1 sec 15.56 ¢
#1 = 52.11 " 15.56 ¢
#2 = 49.5 " 16.11 ¢ - 15.74 ¢



$\frac{1}{32}$" (13" X 11") fuel = 33.54 ¢

1e Removed 15 mil disph _

Pos Period _ Log N = 19.5 sec = 28.22 ¢
#1 = 20.0 = 27.88 ¢
#2 = 20.3 27.65 ¢
+ 27.92 ¢

15 mil Disph = -12.12 ¢

If added Support Plate, Support Ring and Support Stand [US Rund]

Pos Period — log N = 30.0 sec 22.16 ℔
#1 = 29.8 " 22.24 ℔
#2 = 30.5 " 21.94 ℔ +21.11 ℔

Supports = +5.37 ℔

[redacted]

MAY 1 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 10^{30} AM

Source M-226 at

Channel	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	x	10/1000	1050V
Source Dist.	OK	4"	0"	7'	1"	8"
% F.S. Trip	OK	90	OK	100	100+	100+

BF_3 #2 — OK

Tables OK
Lights OK
Magnets OK
Area Cleared

C.A. 7" cyl Expr. XV Run ______

BARE Date 5-1-1964 Time 11:15 AM

Purpose To Check Rossi & Counters. [Log N at Top of Stairway]

$4\frac{15}{16}$"

$H = 4.943" + [(5"\times5"\times\frac{1}{32}") + 2[2\frac{1}{2}"\times2\frac{1}{2}"\times\frac{1}{32}]]$

Shim close to stack ~ 9¢

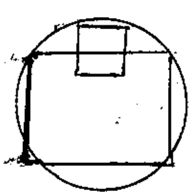
A Scintillation ~ ½" from stack, on diaphragm.
2 small fission Counters under stack

Super critical ~ 7¢ Excess.

B Moved Scintillation ~ 1½" from stack.

Super Crit ~ 3¢ Excess

C Removed 1 pc $2\frac{1}{2}"\times2\frac{1}{2}"\times\frac{1}{32}"$.
data collection started 12:32 PM
down @ 4:10 PM



Top View

Log N = .00065 ∞
Ch A = 34 @ 100/100
D = 69 @ 10/500 on servo demand = 6.30

[redacted]

MAY 4 1964

INSTRUMENT CHECK

Time 3^{15} AM ~~PM~~ Source M-226 # 1

	F	A ✓	B	C	D	E
		Channel				
Range	Hi & Lo	10/1000	OPR	Low X	10/1000	1050V
Source Dist.	OK	4"	OK	18'	1"	10"
% F.S. Trip	OK	100+	OK	100	95	100+
BF_3 1 & 2	OK					

Lights OK
Tables OK
Magnet OK
Area Cleared

C.A. 15" X 7" Expr. XVI Run 1a
7" C Refl. Date 5-4- 1964 Time 3:30 PM
Purpose Critical Condition

1a H = $1\frac{15}{32}$" Fuel. C Refl = 7", except Top$_\wedge$ = 1" (15" dia)

Top Refl -

2 min cts (x 256)	#1	#2	
	0 +45	0 +73	1"
	0 +44	0 +57	

b added 2" X 15" C to top

0 + 47	0 +64	3"
0 + 48	0 + 75	

c added 2" X 15" C to top. 5"

0 + 45	0 +70
0 + 46	0 + 53

MAY 5 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8:45 AM ~~PM~~ Source M-226 & h

Channel

	F	A	B	C	D	E
Range Hi & Lo		10/1000	OPR	X	10/1000	1050 V
Source Dist.		4"	0	15'	4"	10"
% F.S. Trip		100+	OK	100	100+	100+

BF3 1&2

Lights
Magneto
Tables
Area Cleared

C.A. 15" x 7" Expr. XVI Run 1d

7" C Refl Date 5-5-1964 Time 8:50 AM ~~PM~~

Purpose p. 280 Cont'd

Exp. #1 = 17.00

1d H = 1 15/32" Fuel, Graphite Reflector = 7"

Refl - Super Critical #1 = 16.66 or -340 mils

" 1e Removed 1/32" (9"x7") + (13"x11") fuel.

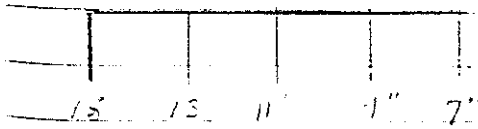
Super Critical #1 = 16.830 or -170 mils

1f H = 1 7/16" Fuel, C = 7" Clean Critical

Poo Period Log N = 43.4 sec 17.58 ¢

#1 = 42.5 " 17.83 ¢

#2 = 44.7 " 17.25 ¢ +17.55 ¢



[redacted]

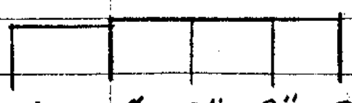
Fuel Evaluation

1g Removed $\frac{1}{32}$" (15" x 13") fuel [vs Run 1 f] Excess +17.55¢

Negative Period – Log N – 108.1 sec 24.8¢

#1 = 99.5 ~~[illegible]~~ ¢

#2 = 102.6 25.32 – 25.06¢



$\frac{1}{32}$(15" X 13") = 42.61¢

h Added Support Plate + Support Ring.

Negative Period – Log N = 111.8 sec 20.32¢

#1 = 110.4" 20.76

#2 = 109.4" 21.15 – 20.74

Support Plate + Ring = + 4.32¢

i added $\frac{1}{8}$" X 13" graphite to Top. [vs Run h]

Negative Period – Log N = 421 sec 3.33¢

#1 = 404 sec 3.49¢

#2 = 383 " 3.70¢ – 3.50¢

$\frac{1}{8}$" X 13" C = 17.24¢

j. Added $\frac{1}{32}$" (15" X 13") fuel –
Removed $\frac{1}{32}$" (13" X 11") fuel [vs Run i]

Neg. Period – Log N = 105.9 sec

#1 = 99.7 "

#2 = 100.9 "

100.5 sec = -2?.75

$\frac{1}{32}$" (13" X 11") = 65.86¢

55¢

k Removed $\frac{1}{32}$" (11" x 9") foil —
Added $\frac{1}{32}$" (13" x 11") foil (vs Run j)

Negative Period — Log N = 203 sec
#1 = 195.9 "
#2 = 186.3 "
195.1 = −8.29¢

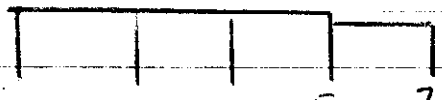
$\frac{1}{32}$" (11" x 9") = 47.40¢

l Removed $\frac{1}{32}$" (9" x 7") foil
Added $\frac{1}{32}$" (11" x 9") foil [vs Run k]

74

Negative Period — Log N = 673 sec
#1 = 753 "
#2 = 737 "

1.80¢ 2.00¢
1.61¢ 1.78¢
1.64 1.82¢
− 1.87¢



$\frac{1}{32}$" (9" x 7") = ~~47.47¢~~
−0.98¢

[redacted]

MAY 6 1964

INSTRUMENT CHECK

Time 9:25 AM/PM   Source M-226 #1

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist	OK	4"	0"	6'	1"	10"
% F.S. Trip	OK	100+	OK	100	100+	100+
BF_3 1&2	OK					

Tables
Lights (one in hall (green) was replaced). OK
Magnets
Area Cleared

SA 15" X 7"   Expt. XVI   Run 1m
7" C Refl.   Date 5-6-1,64   Time 8:40 AM
Purpose Evaluations.

1m Removed 3/4" (21"X19") C from Top. [vs Run 1l]

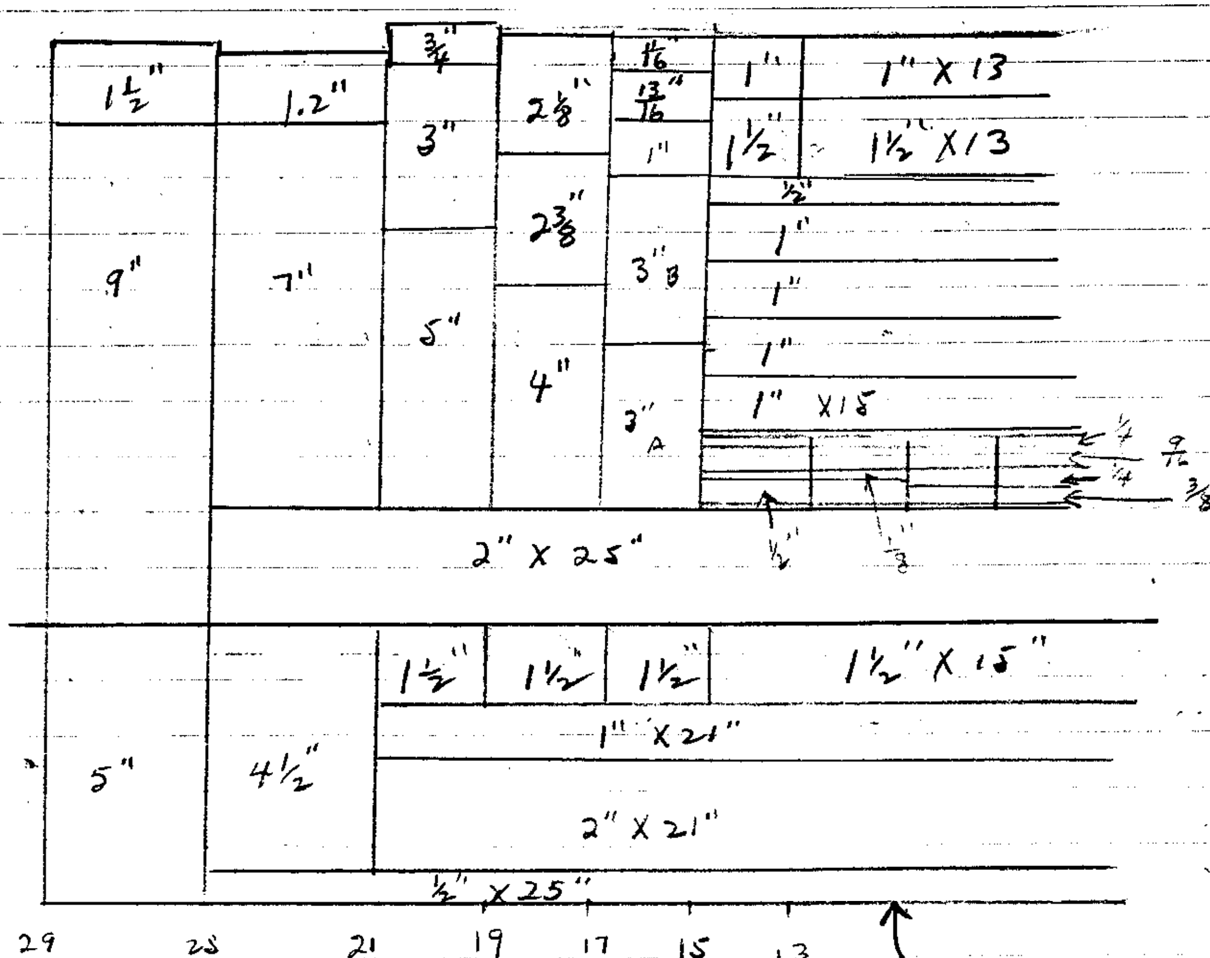
Negative Period - Log N = 162.8 sec - 10.63 ¢
#1 = 156.3 " - 11.28
#2 = 162.8 " 10.63 ¢ - 10.84 ¢

3/4" (21" X 19") C = 8.97 ¢
.7736" or .01159 ¢/mil

n Added support stand and 15 mil diaph.
negative period - Log N = 180.2 sec - 9.18 ¢
#1 = 182.4 " 9.07 ¢
#2 = 179.1 " 9.31 ¢ - 9.19 ¢

Stand + diaph = -1.65 ¢

6/
3/8" 4
1/4" 9
9/16" 4
1/4" 23/16
1 7/16"



Run 1 f
Pg 281

C.A. 15" x 7" XVII 1
7" C Reflector
C Core MAY 6 1964 10:40 AM

Purpose

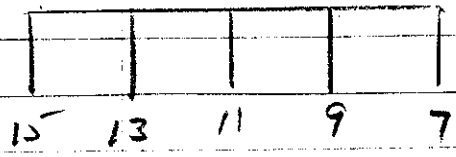
Critical Condition

C Core see P. 285

3/8" X 7"
9/16" X 7"
1/2" X 7"

1 H = 1 7/16", 7" C Refl, C Core - clean Critical

Positive Period - Log N = 39.8 sec 18.60 ϕ
#1 = 41.0 " 18.35 ϕ
#2 = 40.5 " 18.39 ϕ + 18.41 ϕ



2 15 mil diaph added [vs Run 1]

Positive Period - Log N = 52.4 sec 15,30 ϕ
#1 = 50.8 15,83 ϕ
#2 = 50.8 15,83 ϕ + 15,73 ϕ

diaph = - 2.68 ϕ

3 Removed 3/4" (21" X 19") C ring. [vs Run 1]
added 1/8" X 13" C disc.

Pos Period - Log N = 29.0 sec 22,61 ϕ
#1 = 30.2 " 22.07
#2 = 29.7 " 22.29 + 22.32 ϕ

= -3,71 ϕ

4 Support Stand, Support Plate & Support Ring [vs Run 3]

Pos Period - Log N = 19.32 sec 28.38 ¢
#1 = 19.30 " 28.41
#2 = 20.57 " 27.40 + 28.06 ¢

Supports = +5.74

Fuel Evaluation -

5 Removed 1/32" (15" X 13") fuel [vs Run 4]

∞ Period - [Pos Trend]

1/32" (15" X 13") = 28.0 ¢

6 Removed 1/32 (13" X 11") fuel [vs Run 4]
" Support Stand

NEGATIVE PERIOD - Log N = 106.4 Sec 22.84 ¢
#1 = 104.9 " 23.70 ¢
#2 = 106.1 " 23.01 ¢ - 23.18 ¢

7. Support Stand added [vs Run 6]

NEGATIVE PERIOD - Log N = 111.3 Sec ~~17.92~~ 20.40
#1 = 111.5 " 20.44
#2 = 108.3 " 21.96 - 20.95

S. Stand = + 21.23 ¢

∴ 1/32" (13" X 11") = 47.01 ¢

288

8. Removed $\frac{1}{32}$" (11" x 9") fuel. [US Run 4]

Negative Period - Log N = 228 Sec -6.79 ¢
#1 = 235 " -6.54
#2 = 248 " -6.13 -6.49 ¢

$\frac{1}{32}$" (11" x 9") fuel = 34,855 ¢

MAY 7 1964

INSTRUMENT CHECK

Time 8 15 AM PM Source M-226 #1

	Channel F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	8"	0	20'	1"	8"
F.S. Trip	OK	100+	OK	100	100+	100+
BF 1 & 2	OK					

Light OK
Magnet OK
Table OK
Area Cleared

9+

C.A. 15" x 7" Expr. XVII Run 9
9" C Reflector
C. Core Date MAY 7 1964 Time 8:30 AM

Purpose: Cont'd Fuel Evaluation

9. Removed $\frac{1}{32}$" (9"X7") fuel [US RUN 4]

NEGATIVE PERIOD -

LOGN = 158.5 SEC 11.04 +
#1 = 169.1 " 10.50 +
#2 = 154.5 " 11.47 + -11.00 +

$\frac{1}{32}$" (9"X7") = 39.0 +

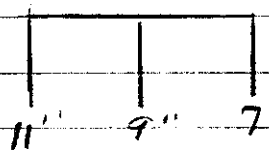
290

9" C

EA 11" x 7" Expr. XVIII Run 1
9" C REFL Date 5-7-1964 Time 11:25 PM
Purpose Critical Condition

1. H = 2 7/16" Fuel, 9" C REFLECTOR
Clean Critical

NEGATIVE PERIOD — LOG N = 163.9 -10.52 ¢
#1 = 169.3 10.05 ¢
#2 = 164.1 10.47 ¢ = -10.35 ¢



2. Support Plate, Support Ring, Support Stand and diaphragm (15 mil). [VS Run 1]

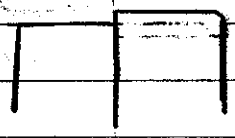
NEGATIVE PERIOD — Log N = 12716 sec -15.67 ¢
#1 = 130.2 " 15.08 ¢
#2 = 126.3 " 15.95 ¢ -15.57 ¢

Supp ¢ = -5.22 ¢

FUEL EVALUATION —

3 [redacted] Added $\frac{1}{32}$" (9"X7") Fuel. [vs Run 1]

POSITIVE PERIOD - LOG N = 69.5 SEC 12.70 ¢
#1 = 68.3 " 12.86 ¢
#2 = 69.3 " 12.73 ¢ 12.76 ¢



11" 9" 7" $\frac{1}{32}$"(9"X7") fuel = 23.11 ¢

4 Added $\frac{1}{32}$" (11"X9") fuel [vs Run 1]

¢ POSITIVE PERIOD - LOG N = 66.8 SEC 13.07 ¢
#1 = 67.1 " 13.03 ¢
#2 = 67.1 " 13.03 ¢ + 13.04 ¢

1] 11" 9" 7" $\frac{1}{32}$" (11"X9") fuel = 23.39 ¢

¢ SEE PAGE 296

[redacted]

~~MAY 8 1964~~

HL
JRT

INSTRUMENT CHECK

Time 9^{50} AM ~~PM~~ Source M-226 ϕ

	F	✓ A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist.	OK	8"	0	8'	1"	10"
% F.S. Trip	OK	100+	OK	100+	100+	100+
BF_3 1 & 2	OK					

Tables OK
Lights OK
Magnets OK
Area Cleared

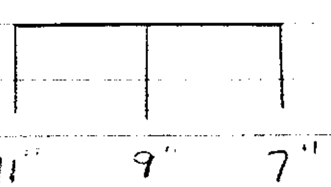
C.A. 11" x 7" Expr. XIX Run 1
9" C Reflector
C core Date 5-8-1964 Time 10:00 AM ~~PM~~
Purpose Critical Condition

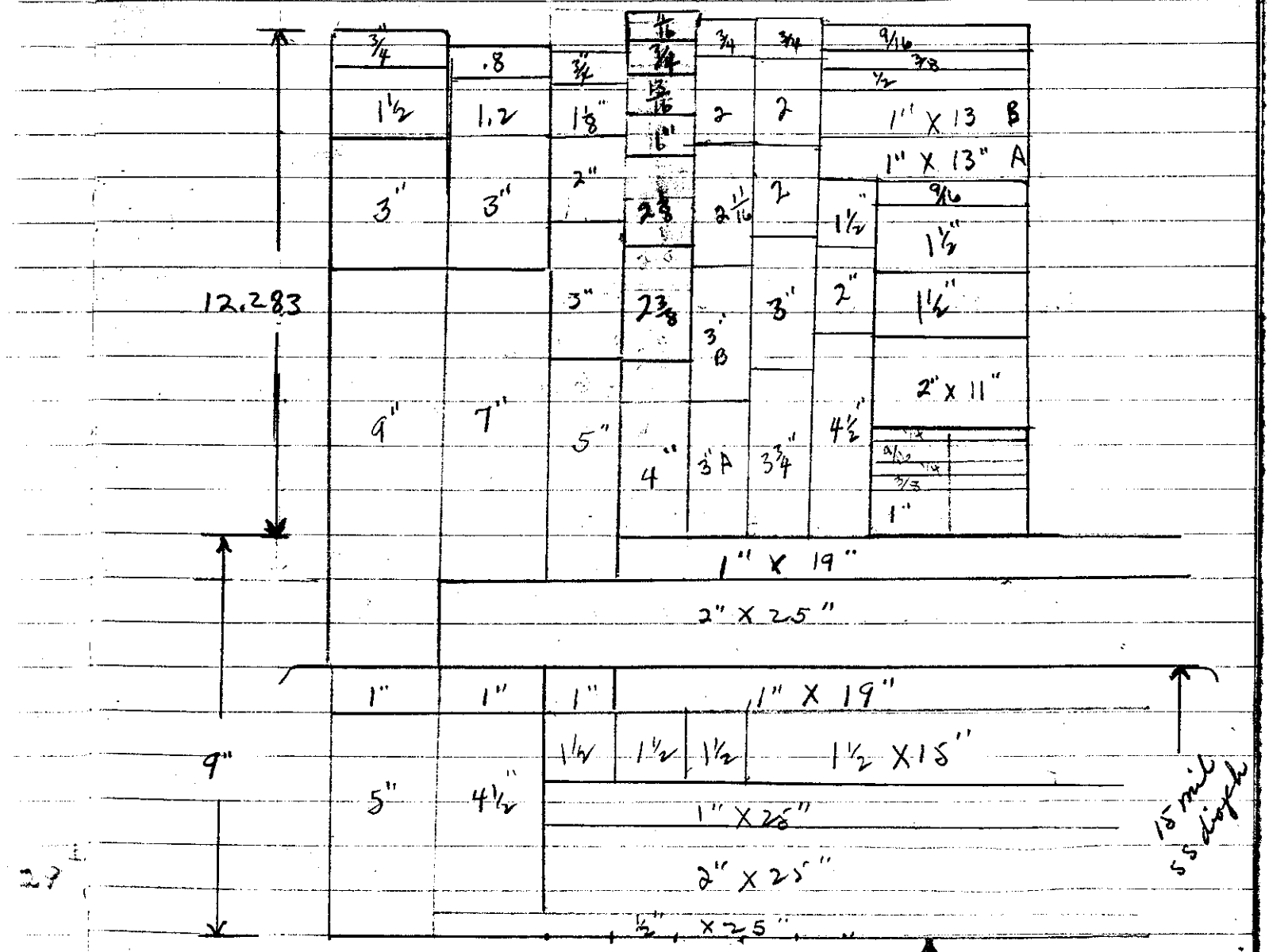
1 H = $2\frac{7}{16}$" Fuel + C Core
9" C Refl.

Super Critical

2 H = $2\frac{13}{32}$" Fuel 9" C Refl.
See p. 295 $2\frac{3}{8}$" C Core Clean Critical

Pos Period - Log N = 53.2 sec 15.52¢
#1 = 54.3 " 15.12¢
#2 = 54.0 " 15.18¢ + 15.29




12.283
9"
29"
3/4
1 1/2
3"
9"
.8
1.2
3"
7"
3/4
1 1/8"
2"
3"
5"
1/16
3/4
15/16
1"
2 3/8
2 1/16
3"
4"
3/4
2
2
2
3"
3/4
9/16
3/8
1/2
1" X 13" B
1" X 13" A
1 1/2"
9/16
1 1/2"
2"
1 1/2"
4 1/2"
2" X 11"
1"
1" X 19"
2" X 25"
1"
1"
1"
1" X 19"
1/4
1 1/2
1 1/2
1 1/2 X 15"
5"
4 1/2"
1" X 25"
2" X 25"
1/2" X 25"
29
25
21
19
17
15
13
11
15 mil
5 depth
Run 1
p. 290

294

3 Support Plate, Support Ring, Support Stand and 16 mil diaph!

Pos Period - Log N = 81.0 Sec 11.34 ¢
#1 = 79.5 " 11.50 ¢
#2 = 87.3 " 11.10 ¢ + 11.31 ¢

Support = - 3.98 ¢

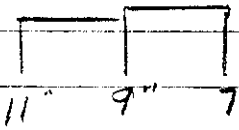
FUEL EVALUATION -

4 Removed $\frac{1}{32}$" (11" X 9") fuel [vs Run 2]

NEG PERIOD - Log = 92.3 Sec
#1 = 87.9 "
#2 = 86.6 " ~ - 35 ¢

5 Added $\frac{1}{8}$" x 13" C to Top.

NEG PERIOD - Log N = 105.3 Sec - 23.53 ¢
#1 = 101.6 " - 25.89 ¢
#2 = 107.4 " - 22.20 ¢ - 23.87



6 Removed $\frac{1}{32}$" (9" X 7") fuel
Added $\frac{1}{32}$" (11" X 9") fuel [vs Run 5]

NEG PERIOD - Log N = 103.1 Sec 24.82 ¢
#1 = 98.3 " 28.0 ¢
#2 = 99.0 " 27.5 ¢ - 26.77

7. added $\frac{1}{8}$" x 13" C to top. (vs Run 2)

POSITIVE PERIOD – LOG N = 33.4 SEC 20.76 ¢
#1 = 35.2 " 20.10 ¢
#2 = 32.1 " 21.27 ¢ + 20.71 ¢

$\frac{1}{8}$" x 13" C = 5.42 ¢

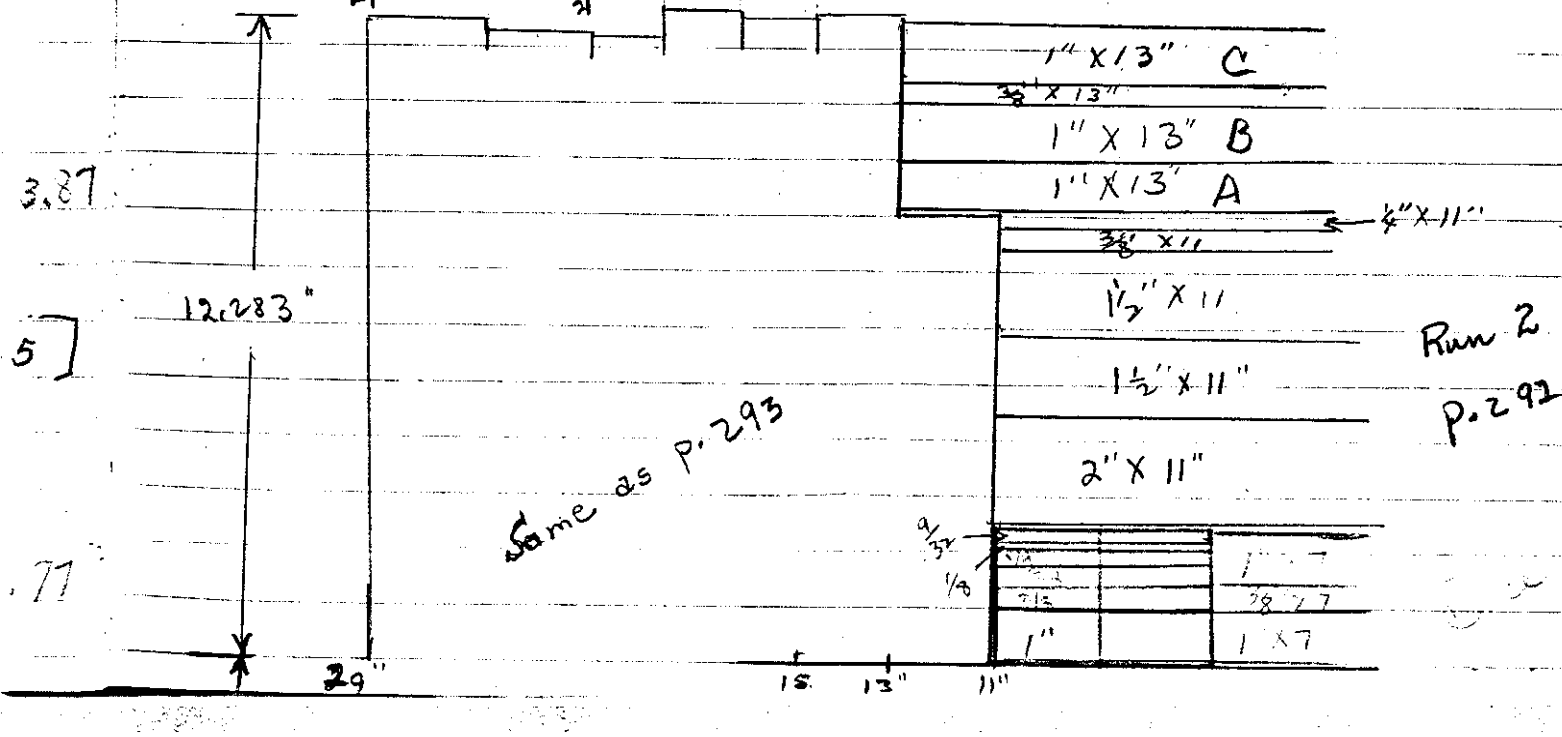
$\frac{1}{32}$" (9" x 7") = 47.48 ¢
$\frac{1}{32}$" (11" x 9") = 44.58 ¢.

8. Remond $\frac{13}{16}$" (19" x 17") C [vs RUN 7]

.814"
Positive Period – LOG N = 49.5 SEC 16.11 ¢
#1 = 50.8 " 15.83 ¢
#2 = 49.8 " 16.05 ¢ + 16.00 ¢

(.814")

$\frac{13}{16}$" (11" x 17") = 4.71 ¢ or .00578 ¢/in²



[redacted]

MAY 12 1964

MIHALCZO
LYNN
TAYLOR

INSTRUMENT CHECK

Time 8^{30} AM ~~PM~~ Source M226 & P

Channel

	F	A	B	C	D	E
Range	Hi & Lo	10/1000	OPR	X	10/1000	1050V
Source Dist	OK	4"	0"	4'	2"	8"
% F.S. Trip	OK	100$^+$	OK	100	100$^+$	100$^+$

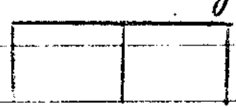
BF_3 1&2 OK

Lights OK
Magnets OK
Tables OK
Area Cleared

S.A. 11" X 7" Expr. XVIII Run 5
9" C Refl. Date ______ 19 ___ Time ______ AM PM
Purpose Repeat of Run 1 p. 290

5. Conditions same except ~~3~~ 3/4" (19" X 17") C ring removed.

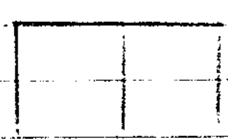
Neg Period – Log N = 110.7 sec 20.78¢
#1 = 106.2 " 22.93¢
#2 = 104.9 " 23.58¢ - 22.43¢



H = 2 7/16"

11" 9" 7"

6. Added 1/32" (11" ~~X 9"~~ and 9" X 7") fuel, [VS RUN ~~8~~ 5]



~~H = 2 15/32"~~

11" 9" 7"

Super Crit.

> 10 sec

7. Removed $\frac{1}{32}$" (11" x 9") fuel [vs Run 6]

Pos Period Log N = 182.4 sec 5.90 ¢
#1 = 190.2 " 5.69 ¢
#2 = 173.2 " 6.16 ¢ + 5.92 ¢

$\frac{1}{32}$" (11" x 9") fuel = 28.35 ¢

8. Added 15 mil dish [vs Run 7]

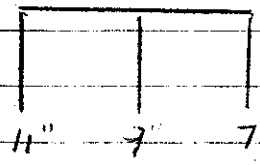
Neg. Period — Log N = 1515 sec 0.87 ¢
#1 = 2230 " 0.58 ¢
#2 = 1454 " 0.92 ¢ - 0.79 ¢

dish = - 6.71 ¢

9. added $\frac{1}{32}$" (11" x 9") fuel [vs Run 8]

Pos Period Log N = 10.04 sec 39.0
#1 = 7.05 sec 45.5 ¢ + 42 ¢

43 ¢



$\frac{1}{32}$" (11" x 9") = 72.8 ¢

$\frac{1}{32}$" (9" x 7") = 28.3 ¢

$\frac{1}{32}$" (11" x 9") + (9" x 7") = 71.1

= 5.