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FROM: Carolina Power & Light Co. Raleigh, N. C. 27602 E. E. Utley			DATE OF DOC 10-30-73	DATE REC'D 11-2-73	LTR X	MEMO	RPT	OTHER
TO: A. Giambusso			ORIG 3 signed	CC	OTHER	SENT AEC PDR X SENT LOCAL PDR X		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 40		DOCKET NO: 50-261		

DESCRIPTION:

Ltr trans the following:

ENCLOSURES:

BIWEEKLY REPORT: Results of incore surveillance
for the peroid 10-17-73

ACKNOWLEDGED

DO NOT REMOVE

(3 Orig & 37 cys rec'd)

PLANT NAME: H. B. Robinson

FOR ACTION/INFORMATION 11-2-73 GC

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INTERNAL DISTRIBUTION

<u>REG FILE</u> ✓AEC PDR OGC, ROOM P-506A ✓MUNTING/STAFF CASE GIAMBUSSO BOYD MOORE (L) (BWR) DEYOUNG(L) (PWR) SKOVHOLT (L) P. COLLINS	<u>TECH REVIEW</u> HENDRIE SCHROEDER ✓MACCARY KNIGHT PAWLICKI SHAO ✓STELLO HOUSTON NOVAK ROSS IPPOLITO ✓TEDESCO LONG LAINAS BENAROYA VOLLMER	<u>DENTON</u> GRIMES GAMMILL ✓KASTNER BALLARD SPANGLER <u>ENVIRO</u> MULLER DICKER KNIGHTON YOUNGBLOOD REGAN PROJECT LDR ✓DITTMAN HARLESS	<u>LIC ASST</u> DIGGS (L) GEARIN (L) GOULBOURNE (L) LEE (L) MAIGRET (L) SERVICE (L) SHEPPARD (E) SMITH (L) ✓TEETS (L) WADE (E) WILLIAMS (E) WILSON (L)	<u>A/T IND</u> BRAITMAN SALTZMAN B. HURT <u>PLANS</u> MCDONALD DUBE <u>INFO</u> C. MILES
✓ <u>REG OPR</u> FILE & REGION(2) ✓MORRIS(2) ✓STEELE				

EXTERNAL DISTRIBUTION

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1 - ASLB(YORE/SAYRE/ WOODARD/"H" ST.	1-CONSULTANT'S	1-ACMED(Ruth Gussman)
✓16 - CYS ACRS XXXXXX SENT TO LIC. ASST.	NEWARK/BLUME/AGBABIAN	RM-B-127, GT.
11-2-73 TEETS	1-GERALD ULRIKSON...ORNL	✓1-RD..MULLER..F-309 GT



50-261

Carolina Power & Light Company

Regulatory Docket File

October 30, 1973

File: NG-3514

Serial: NG-73-530

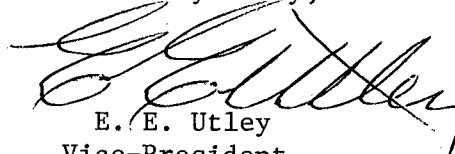
Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Giambusso:

H. B. ROBINSON UNIT NO. 2
LICENSE DPR-23
BIWEEKLY REPORT OF RESULTS OF INCORE SURVEILLANCE

In accordance with the requirements of the "Interim Conditions for Operation, H. B. Robinson Unit No. 2," dated July 25, 1973, we hereby submit as an attachment the biweekly report of the results of incore surveillance for the period October 4 - 17, 1973.

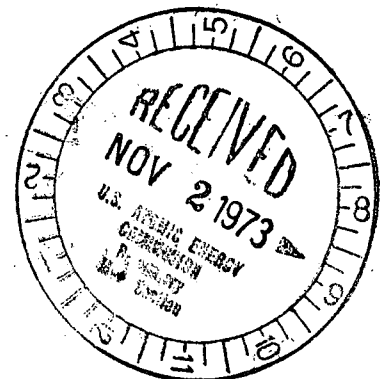
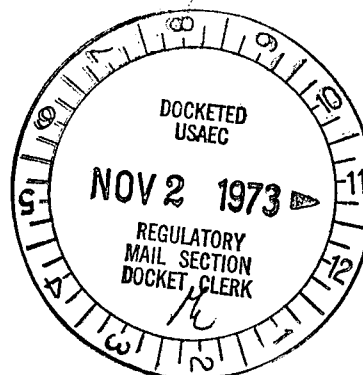
Yours very truly,



E. E. Utley
Vice-President
Bulk Power Supply

DBW:mvp
Attachment

cc: Messrs. C. D. Barham
N. B. Bessac
T. E. Bowman
B. J. Furr
D. V. Menscer
D. B. Waters



Received w/Ltr Dated 10-30-73


H. B. ROBINSON STEAM ELECTRIC PLANTUNIT NO. 2OCTOBER 18, 1973INCORE SURVEILLANCE DATA SUMMARY

Robinson File No. 2-A-7


Surveillance of the $F S_z$ was performed at one to two hour intervals from October 4, 1973, through October 17, 1973. Data taken during the surveillance was then graphed and copies of these graphs are attached to this report.

During this reporting period there were two valve tests, (October 7 and October 14). APDMS scans were made before a return to power in both cases. Also during this period, little maintenance was required on the APDMS, leaving it available to the operators almost 100% of the time.

Compiled By:


R. H. Chambers

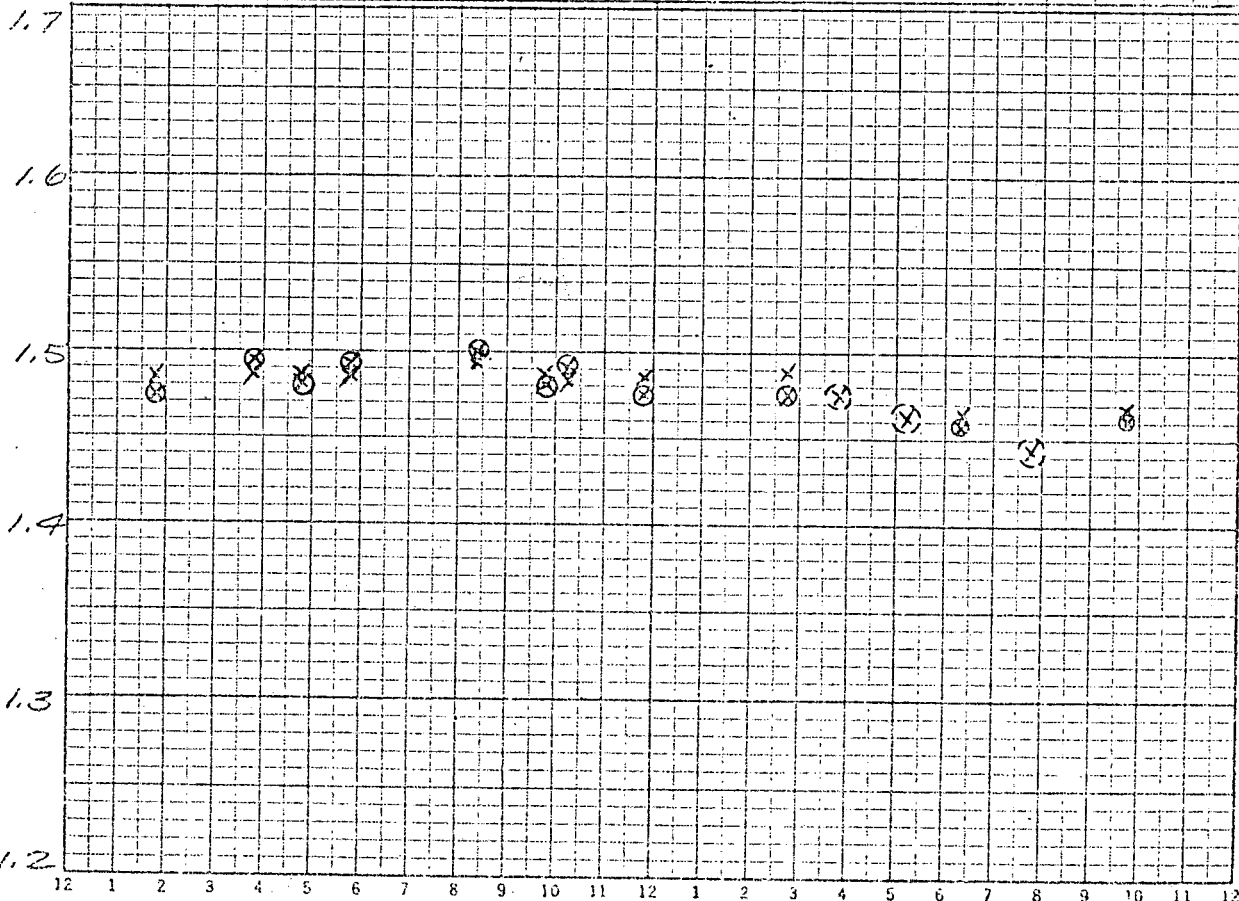
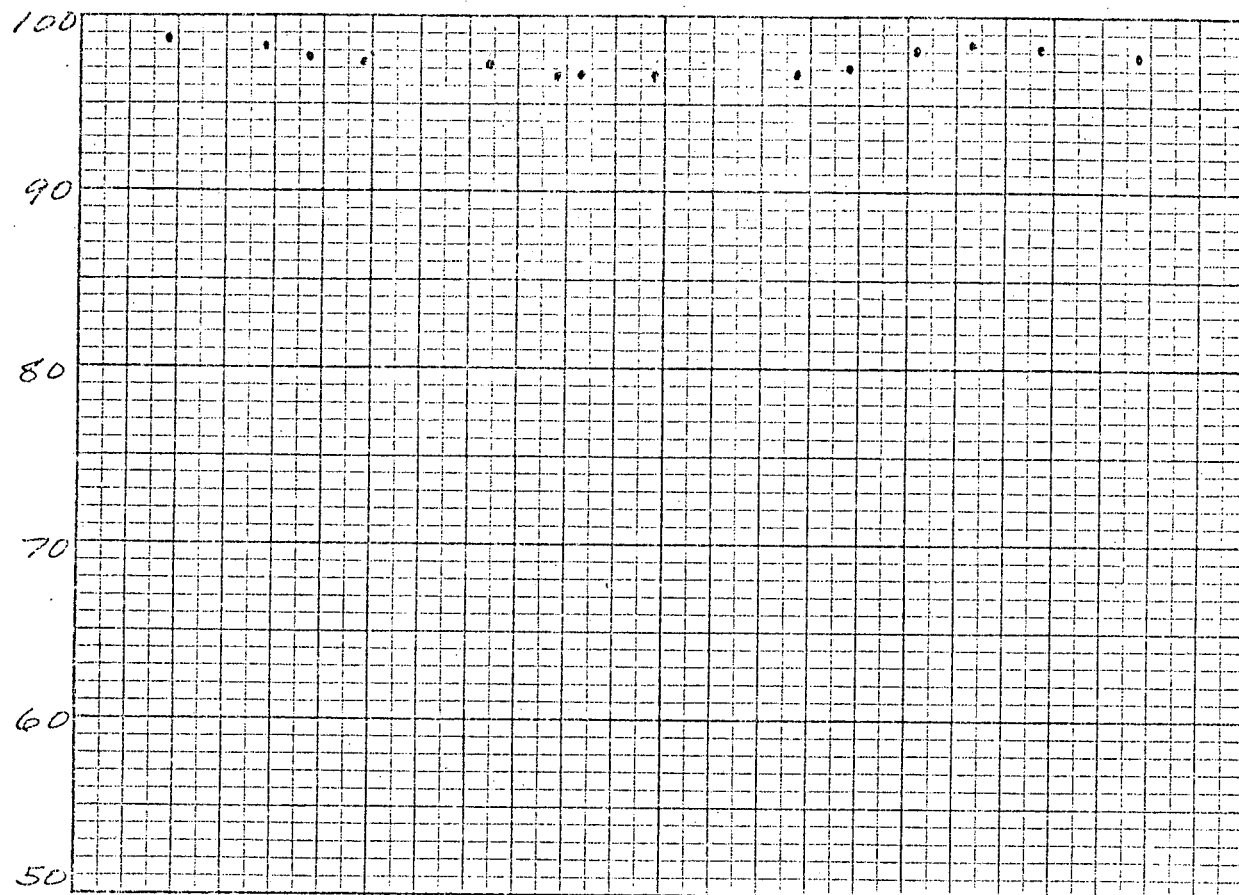
Approved By:


Benny J. Furr

RHC:sr

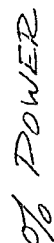
LEGEND: POWER • INDICATES F-13 AND N-10
 F-13 X APPEAR AS THE SAME POINT
 N-10 ⊗

% POWER



OCTOBER 4, 1973

④



h¹⁰
L¹⁰

OCTOBER 5, 1973

LEGEND: POWER •

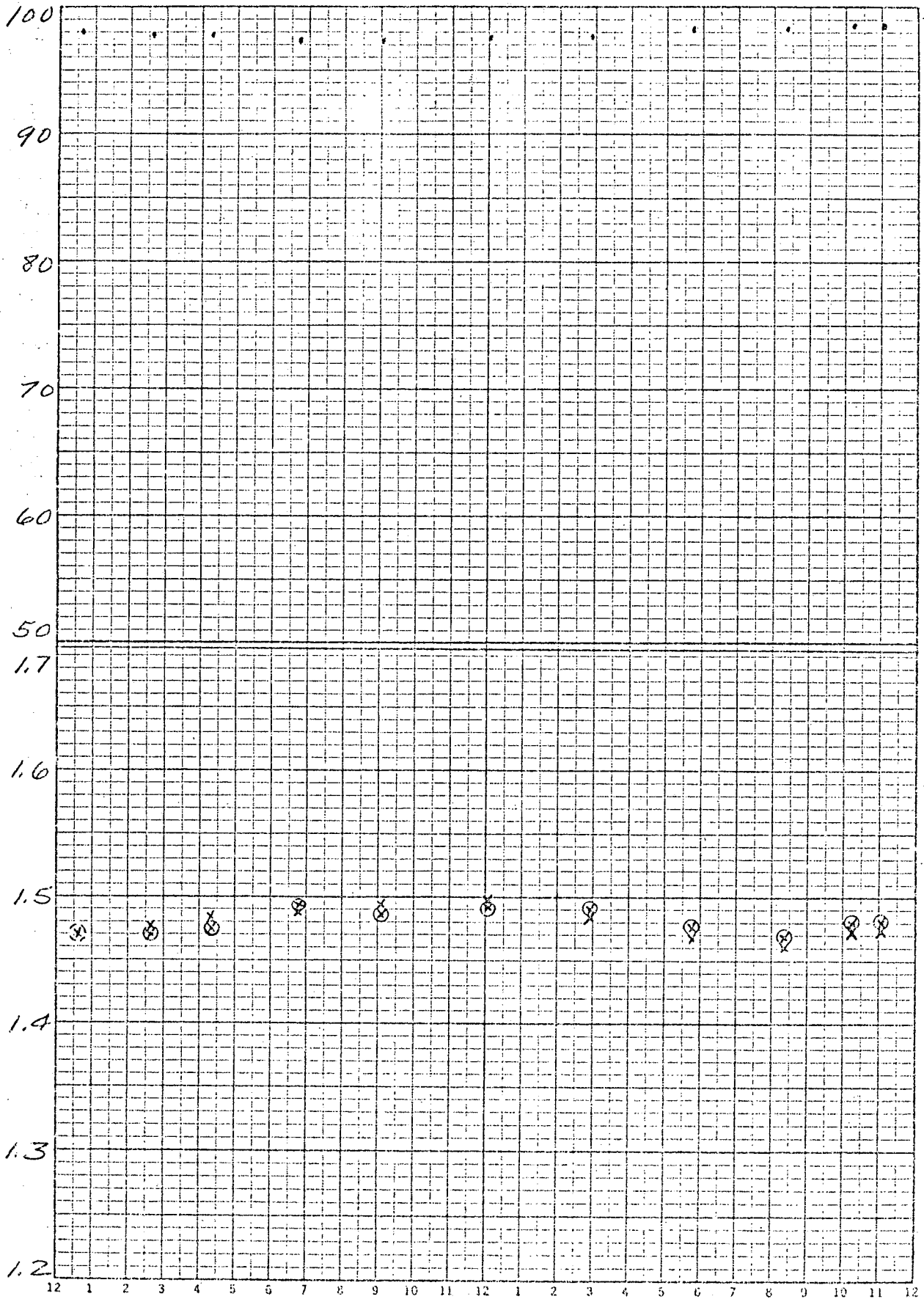
● F-13 X

N-10 ⊗

F-13 AND N-10

APPEAR AS THE SAME
POINT ⊗

% POWER



K02 1 DAY BY HOURS 46 2090
K02 X 100 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

F25

OCTOBER 6, 1973

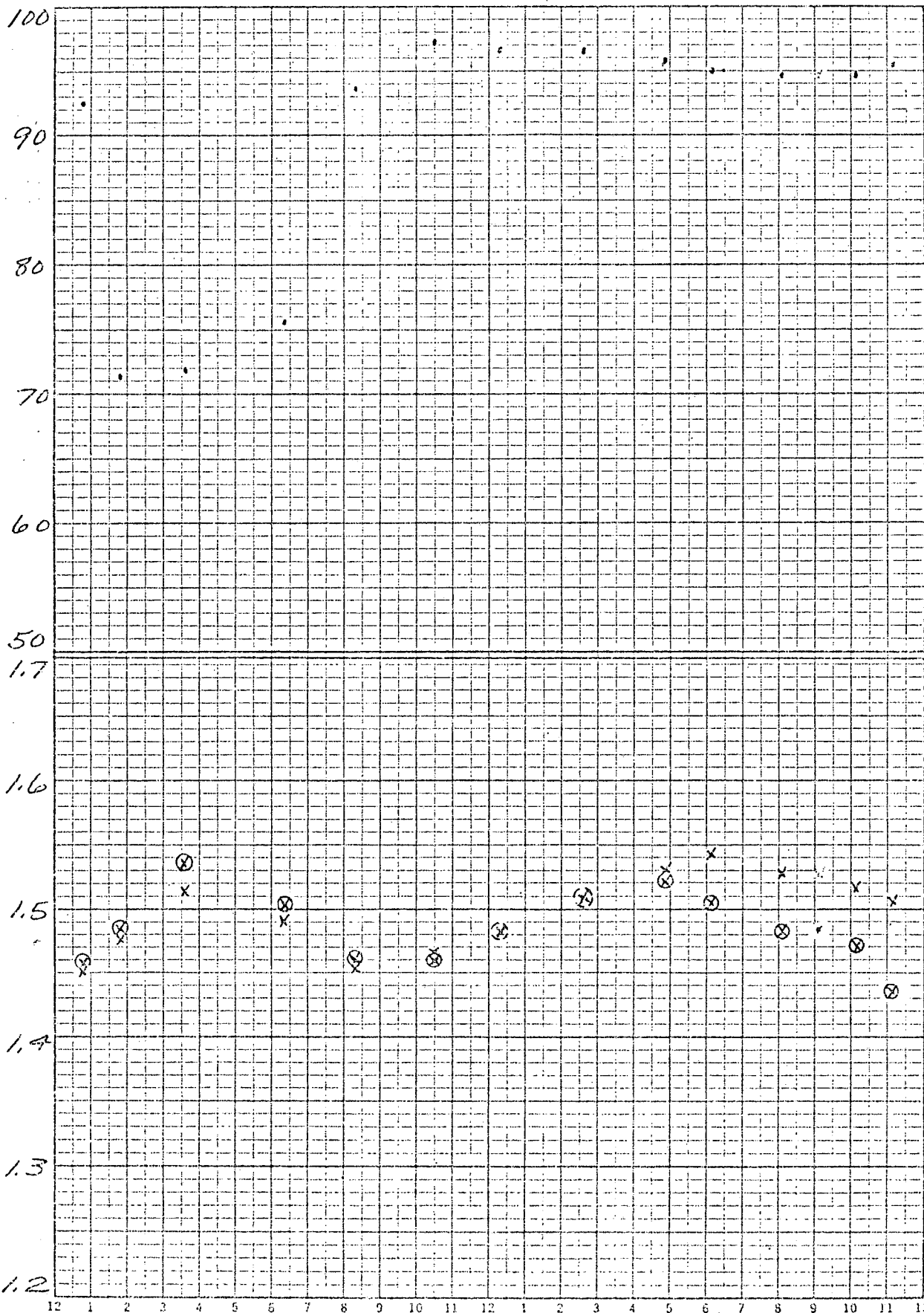
LEGEND: POWER

F-13 X

N-10 ⊗

F-13 AND N-10 APPEAR
AS THE SAME POINT ⊗

% POWER

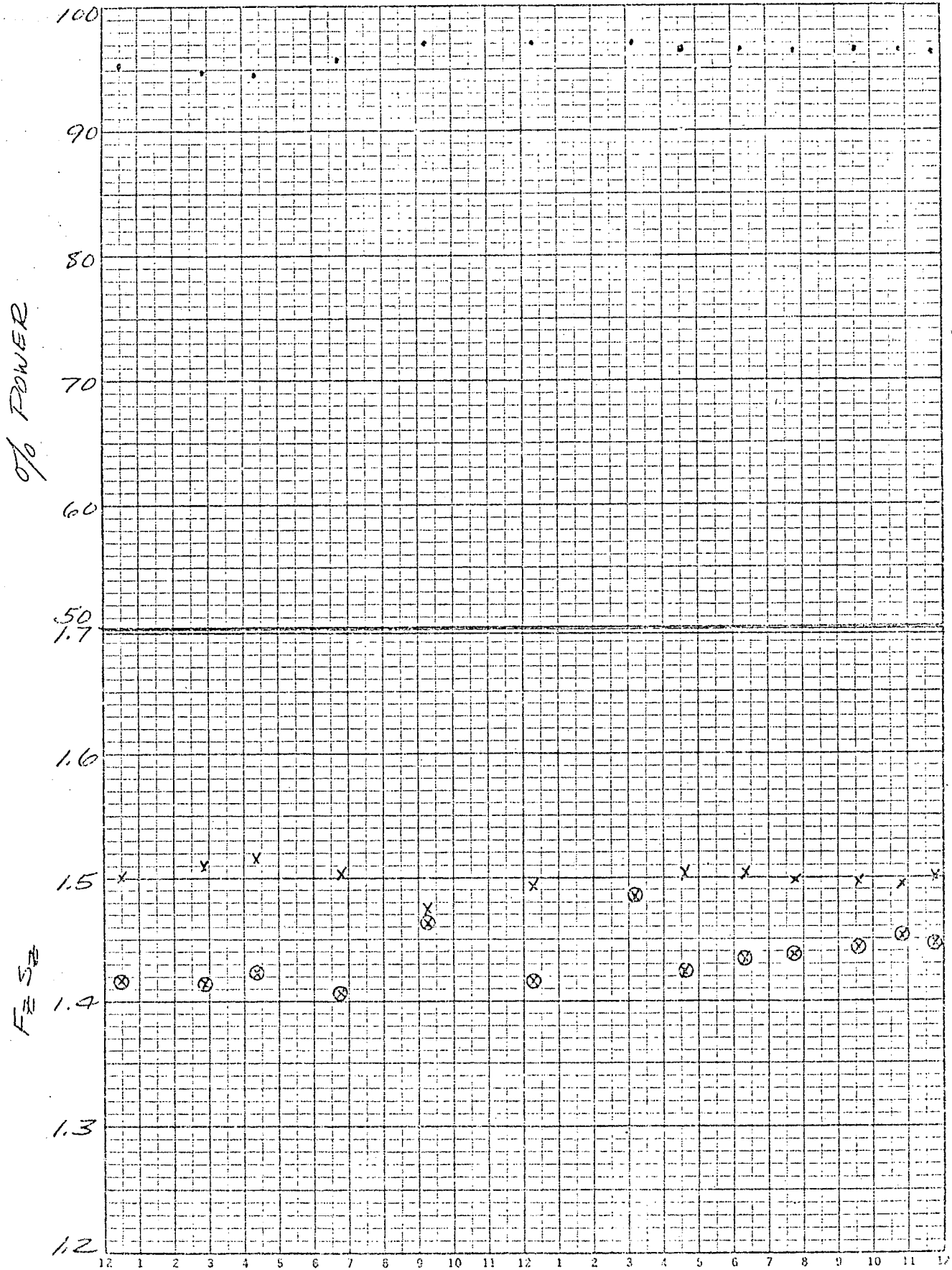


OCTOBER 7, 1973

LEGEND: POWER

F-13 X

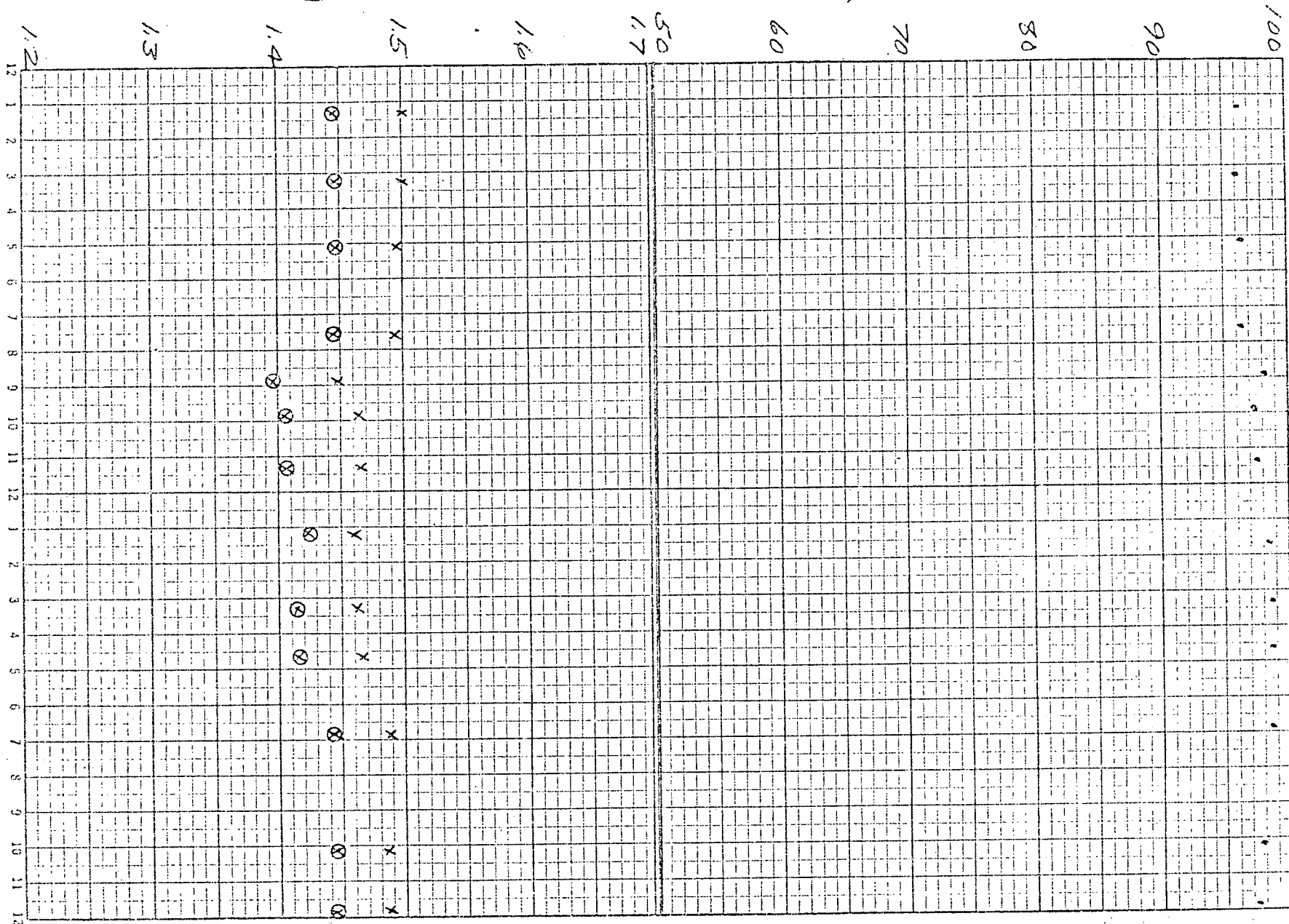
N-10 ⊗



OCTOBER 8, 1973

$F_{\Sigma} S_{\Sigma}$

% POWER



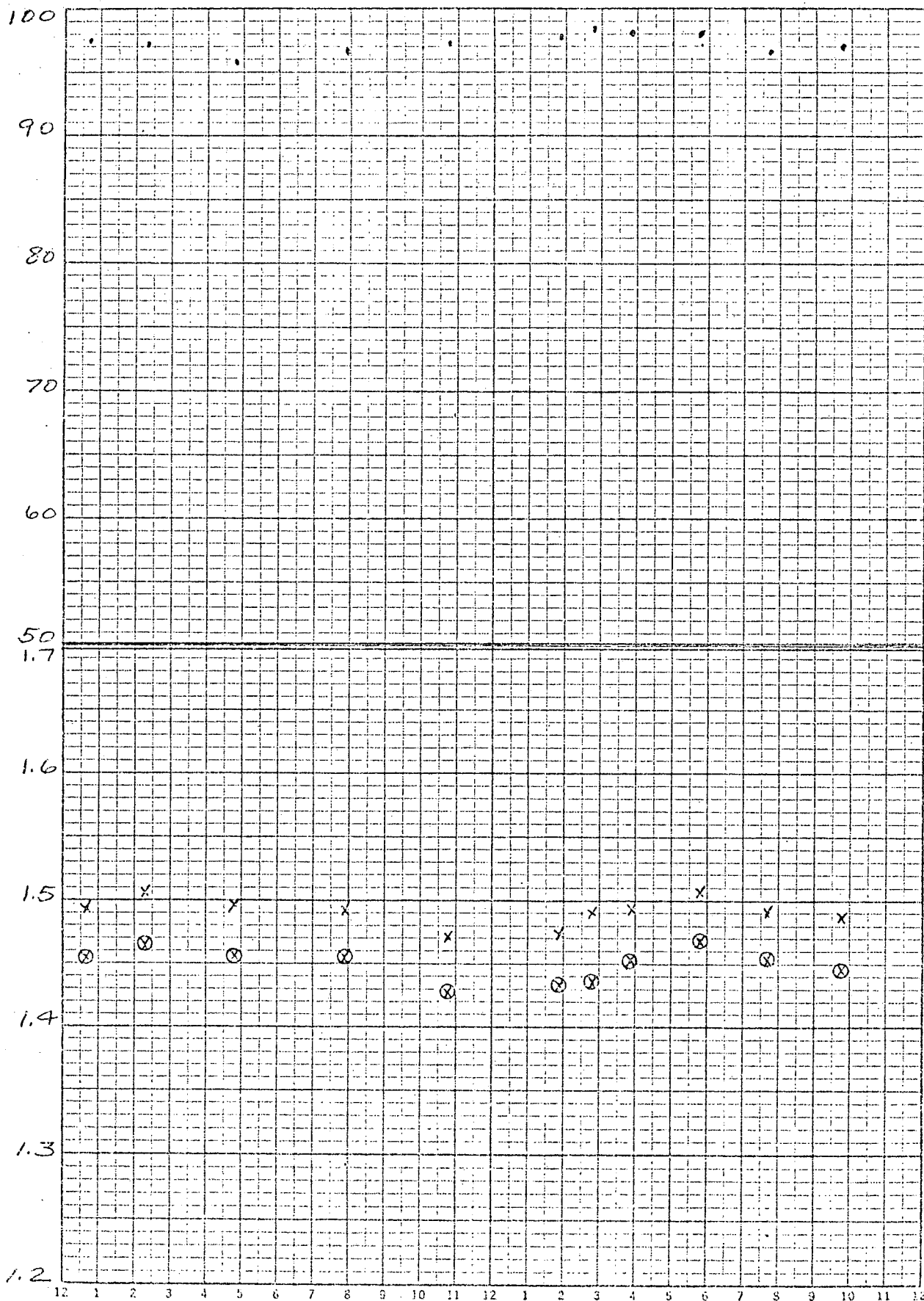
LEGEND:
F-13 x
N-10 ⊗

OCTOBER 9, 1973

LEGEND: POWER.

F-13 x

N-10 ⊗



OCTOBER 10, 1973

1 DAY BY HOURS 46 2090
X 100 DIVISIONS
MADE IN U.S.A.
KEUFFEL & ESSER CO.

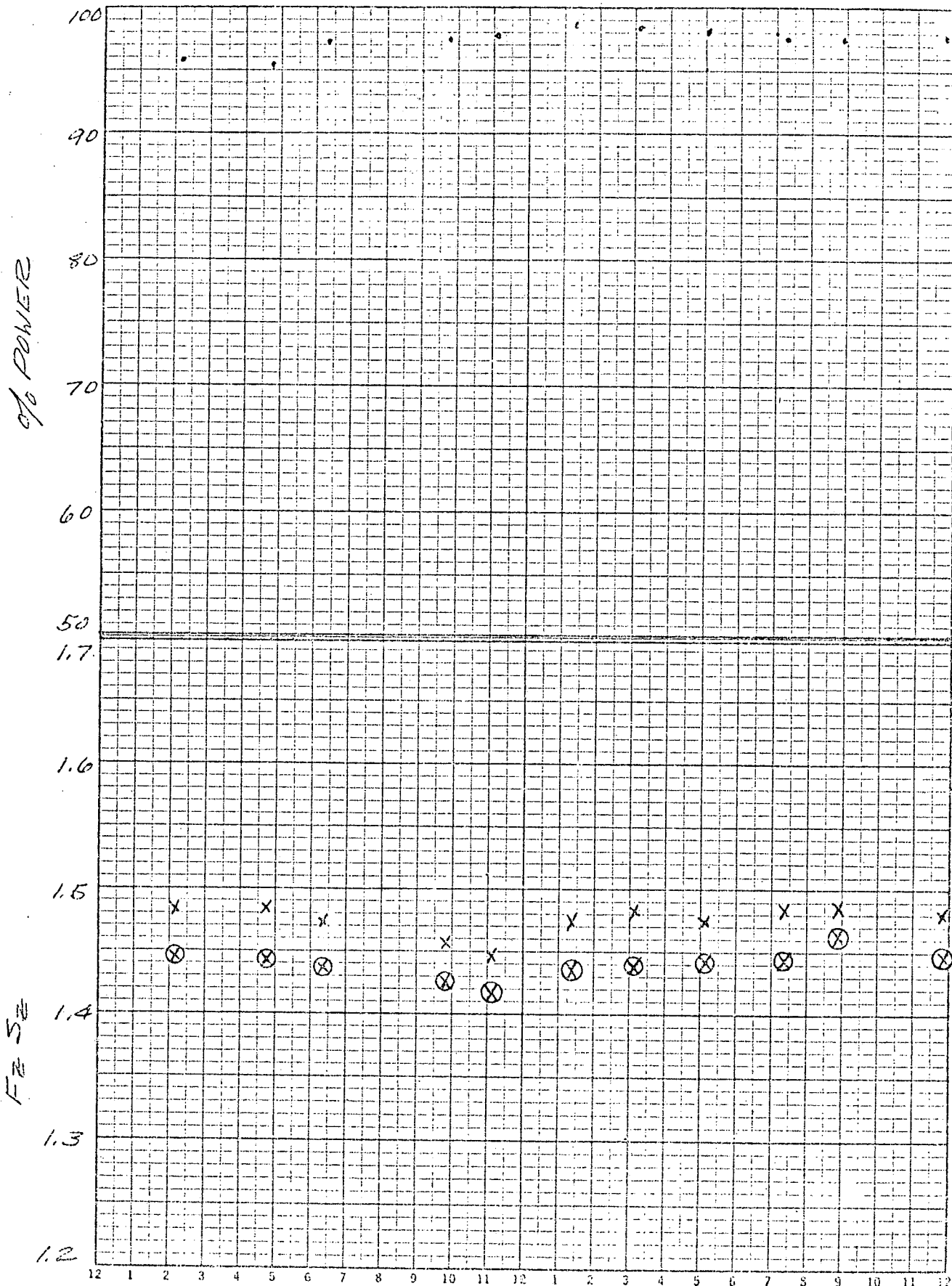
F₄ 52

% POWER

LEGEND: POWER

F-15 X

N-10 ⊗



KE 1 DAY BY HOURS 46 2090
X 100 DIVISIONS
MADE IN U.S.A.
KEUFFEL & ESSER CO.

OCTOBER 11, 1973

LEGEND: POWER.

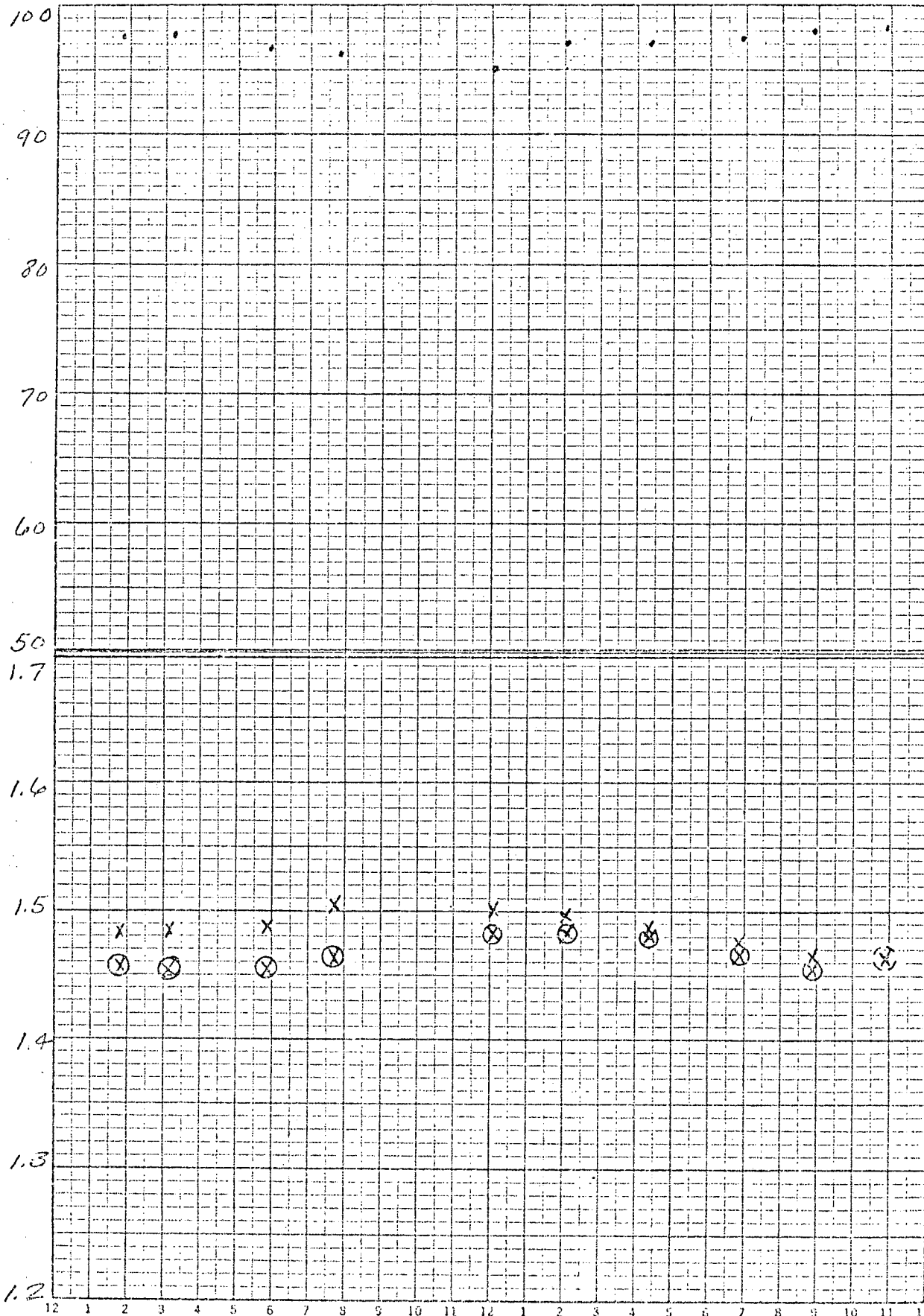
F-13 AND N-10 APPEAR
AS THE SAME POINT

F-13 x

N-10 ⊗

⊗

0% POWER



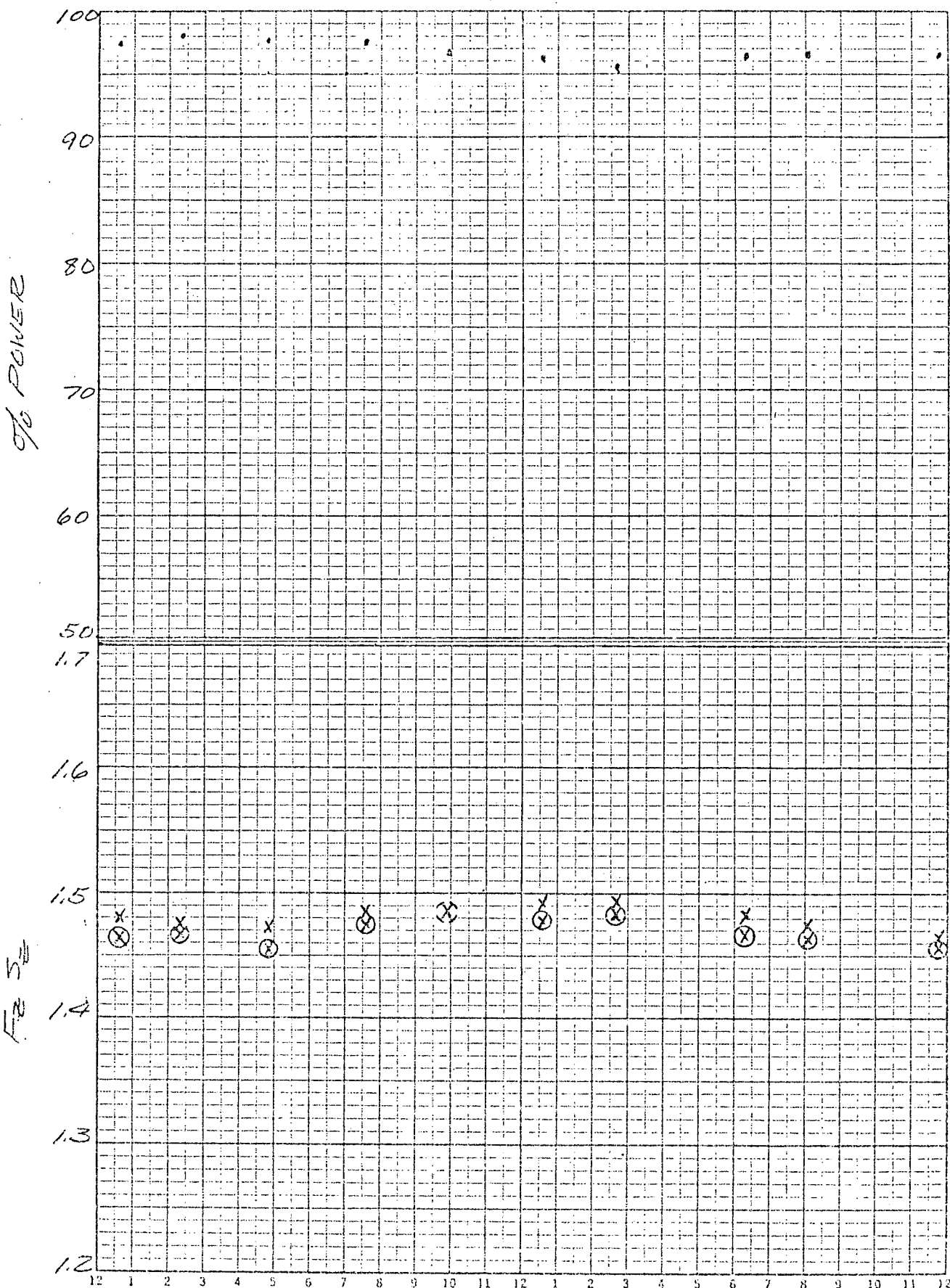
OCTOBER 12, 1973

LEGEND: POWER.

F-13 X

N-10 ⊗

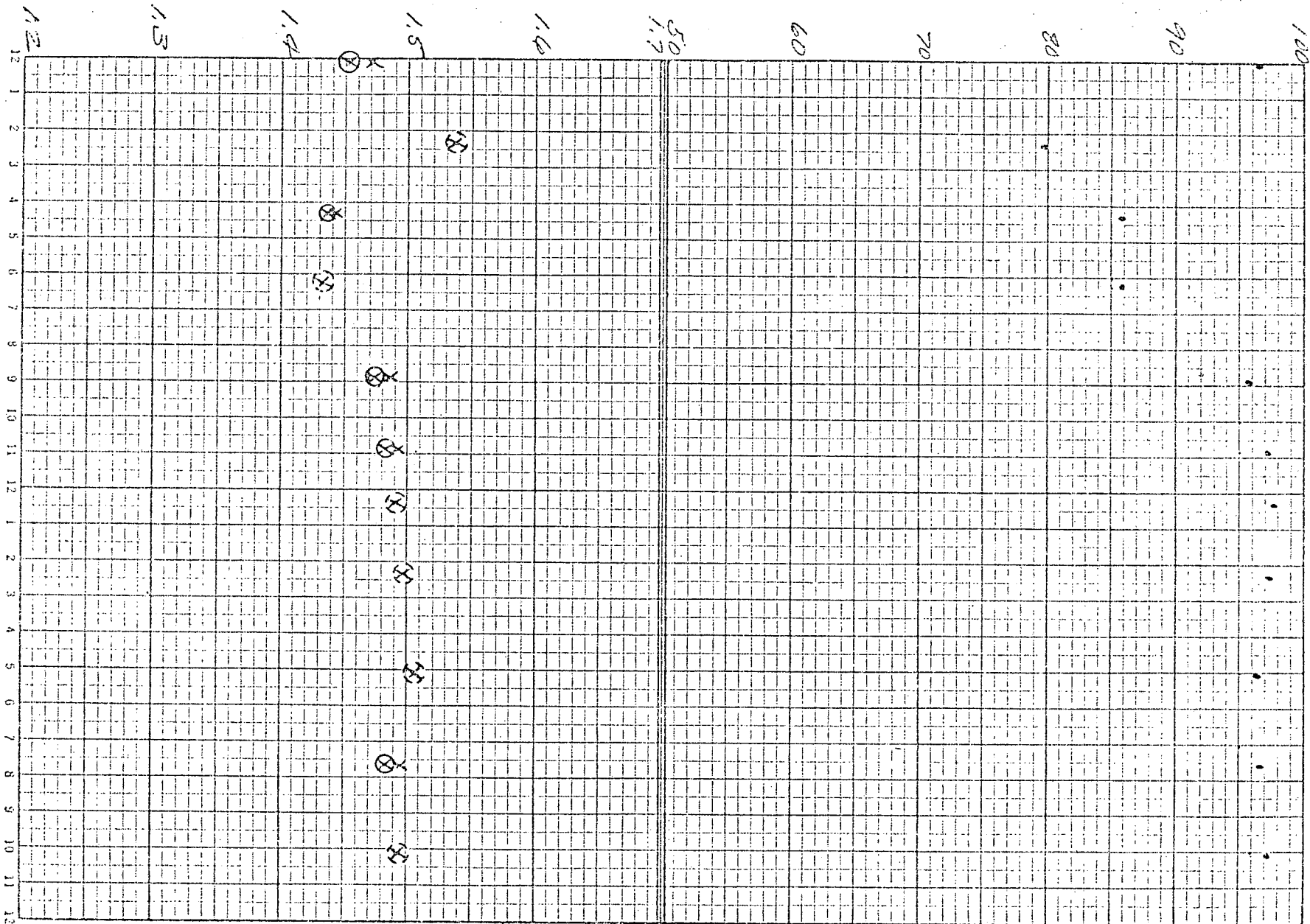
F-13 AND N-10 APPEAR
AS THE SAME POINT



OCTOBER 13, 1973

F_{10} S_{10}

% POWER



OCTOBER 14, 1973

N-10 x

F-15 x

F-15 AND N-10 APPEAR AS
 SAME POINT x

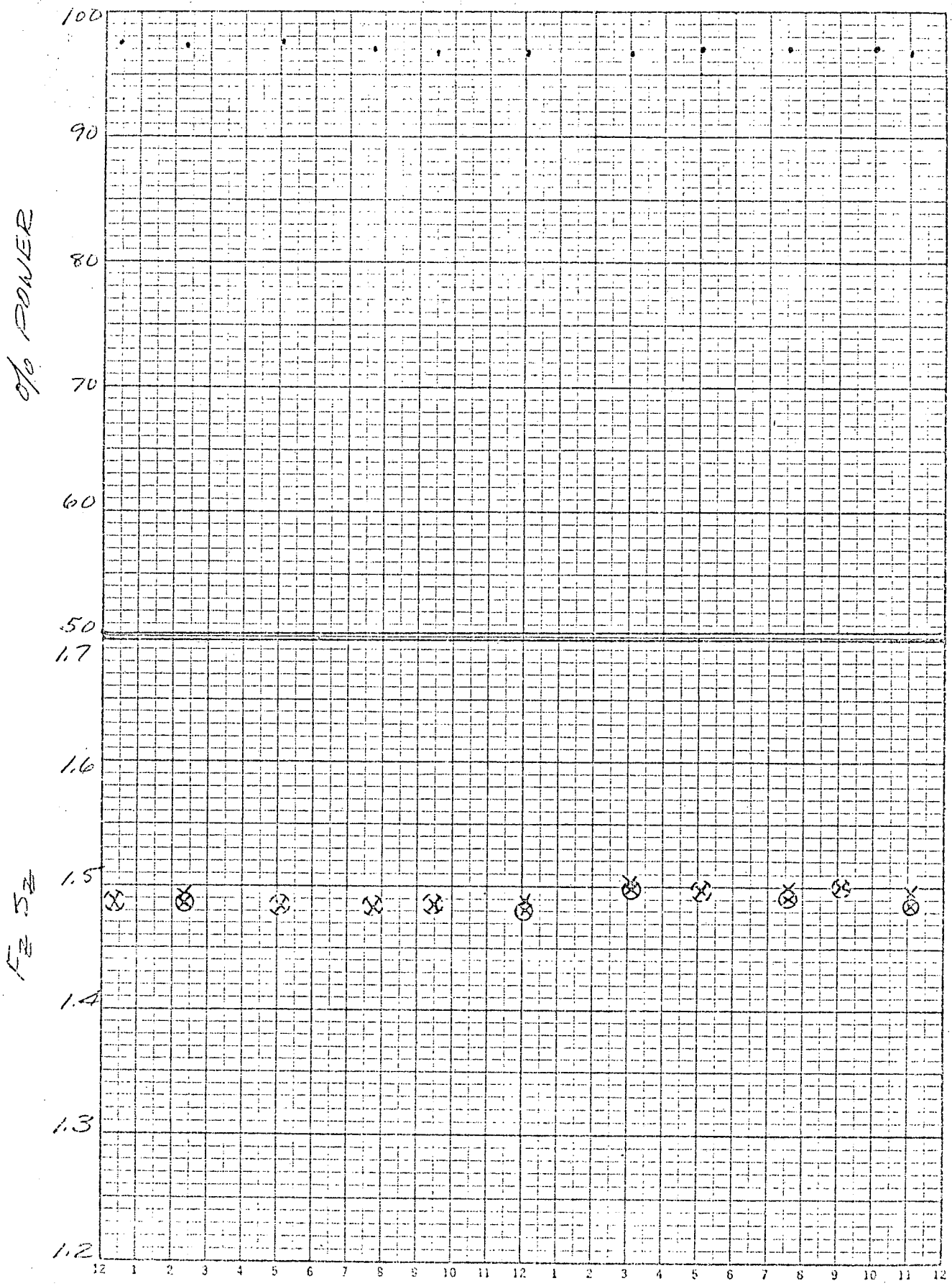
LEGEND: POWER.

F-13 X

N-10 ⊗

F-13 AND N-10 APPEAR
AS THE SAME POINT

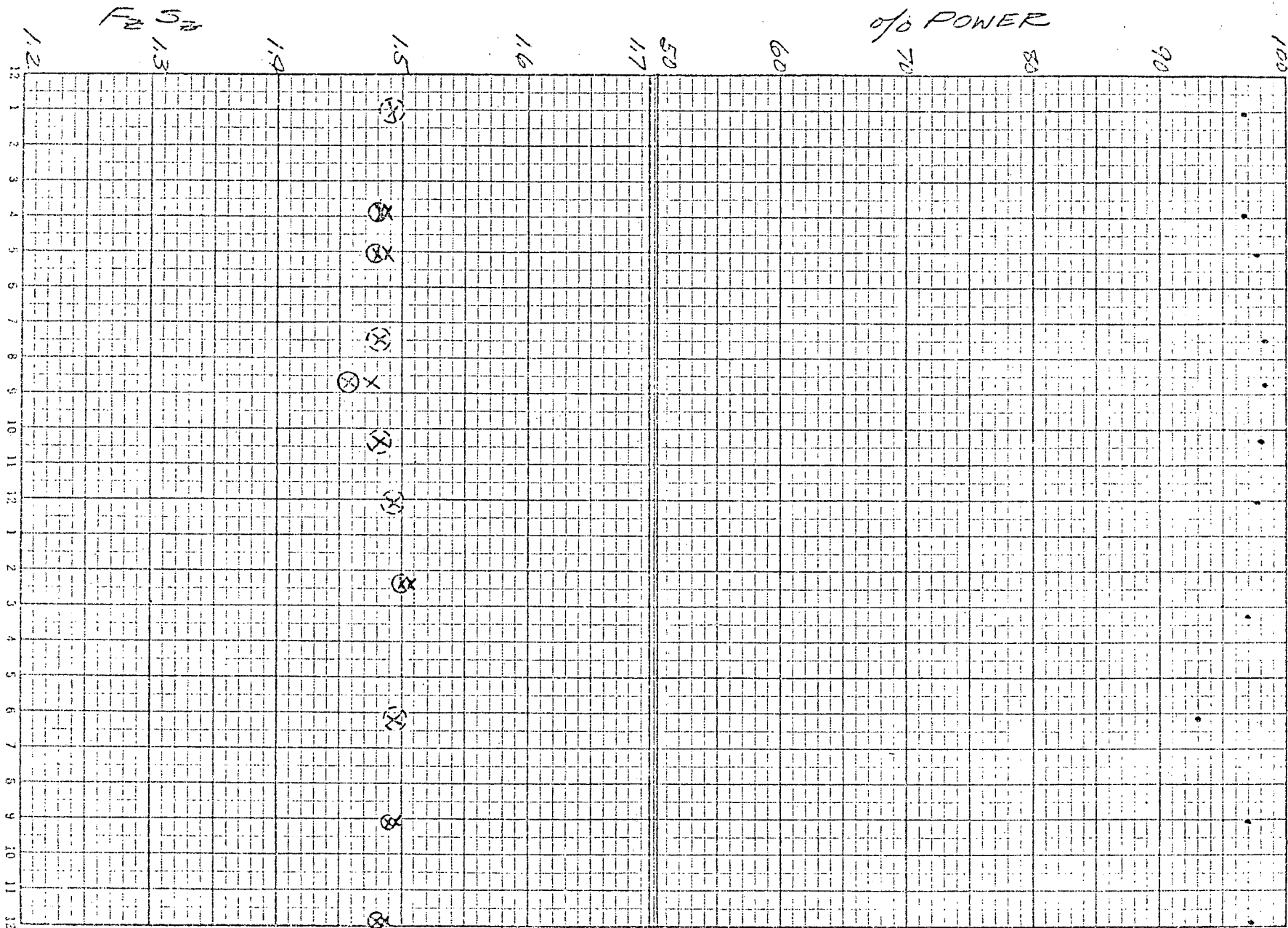
⊗



OCTOBER 15, 1973

1 DAY BY HOURS 46 2090
X 100 DIVISIONS
MADE IN U.S.A.
KEUFFEL & ESSER CO.

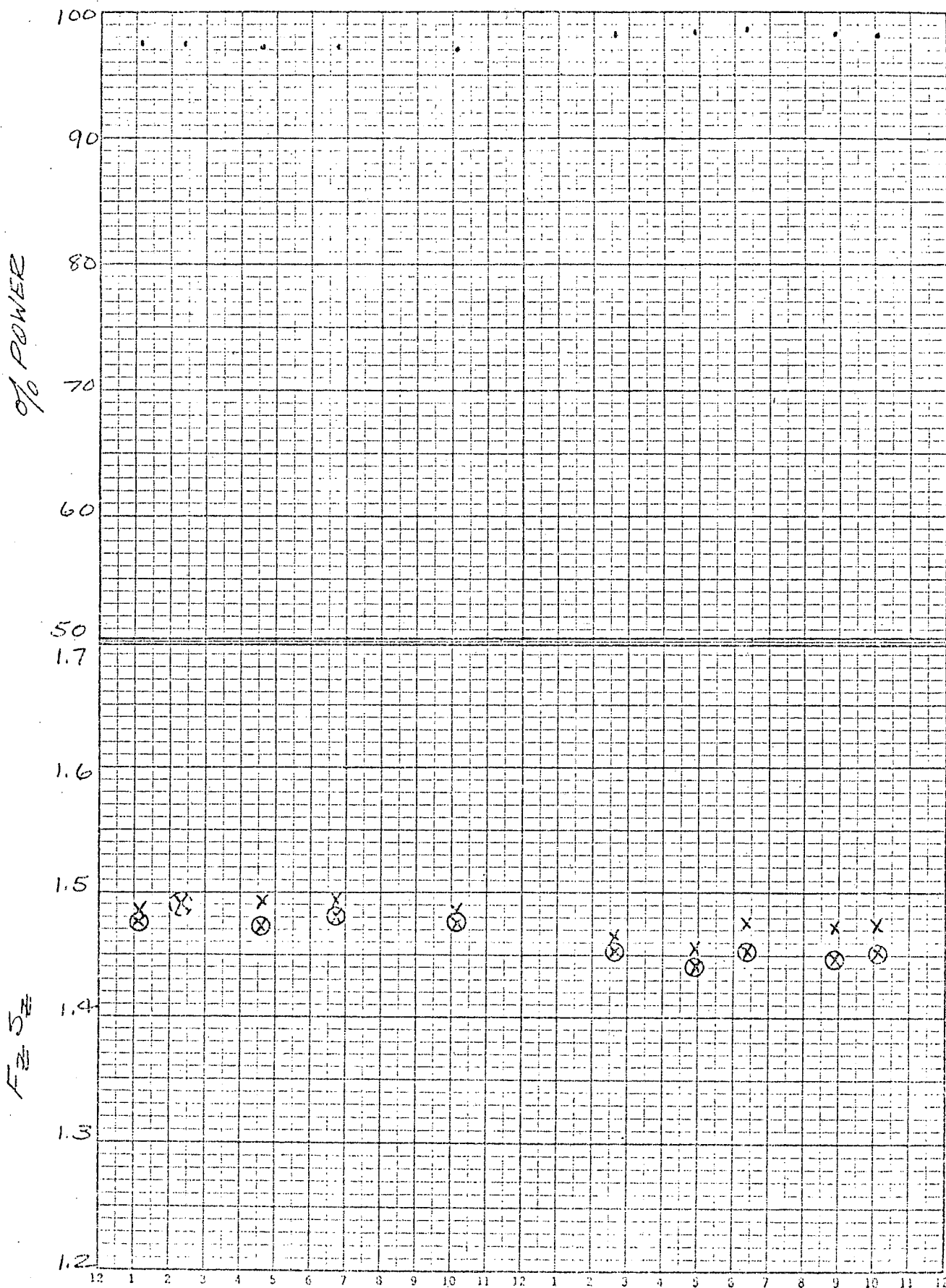
LEGEND: POWER.
F-13 AS TR. SAME POINT
N-10



OCTOBER 16, 1973

LEGEND: POWER
 F-13 X
 N-10 ⊗

F-13 AND N-10 APPEAR
 AS THE SAME POINT ⊗



OCTOBER 17, 1973

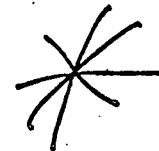
AVG AXIAL CONDITIONS

HRR2 MAP 120 10/58 BANKD 178 1KLOCAL 3KTHIMBLE NEW OPTIONS 2

AVERAGE SOURCE PER FOOT = 0.142916E-17 AVERAGE KW/FT = 0.557545E 01 AVERAGE KW/SOURCE = 0.390119E 19

POWER LEVEL EDITED AT = 2142.80 MEGAWATTS THERMAL

POINT	KW/FT	NORMALIZED KW/FT	POINT	KW/FT	NORMALIZED KW/FT
1	3.438185	0.616665	30	6.006467	1.077307
2	2.723059	0.488402	31	6.055941	1.086180
3	3.149199	0.564834	32	6.095691	1.093309
4	3.727279	0.668517	33	6.120979	1.097845
5	4.086551	0.732955	34	6.130424	1.099539
6	4.167515	0.747476	35	6.121124	1.097871
7	4.655611	0.835020	36	6.019654	1.079672
8	5.081651	0.911434	37	5.650537	1.013468
9	5.323546	0.954820	38	5.727578	1.027286
10	5.472164	0.981476	39	6.056840	1.086341
11	5.586926	1.002058	40	6.185762	1.109465
12	5.576337	1.000159	41	6.247773	1.120586
13	5.549581	0.995379	42	6.296262	1.129284
14	5.587665	1.002191	43	6.331621	1.135626
15	5.559115	0.997071	44	6.356094	1.140015
16	5.318542	0.953922	45	6.352260	1.139327
17	5.249521	0.941543	46	6.302865	1.130467
18	5.570141	0.999048	47	6.057383	1.086438
19	5.740932	1.029680	48	5.718657	1.025685
20	5.801936	1.040623	49	6.077303	1.090012
21	5.845358	1.048464	50	6.251912	1.121329
22	5.976145	1.053932	51	6.224711	1.116450
23	5.895837	1.057464	52	6.117118	1.097153
24	5.897631	1.058145	53	5.900504	1.058301
25	5.880813	1.054770	54	5.550863	0.995591
26	5.672979	1.017493	55	5.040507	0.904055
27	5.410382	0.970394	56	4.275577	0.766858
28	5.712959	1.024664	57	3.253981	0.583627
29	5.928745	1.063367			

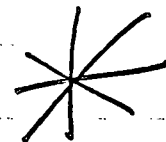


PEAK ROD ENTHALPY RISE

HBR2 MAP 120 10/58 BANKD 178 1KLOCAL 3KTHIMBLE NEW OPTIONS 2

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A	
1							1.266	1.396	1.266							1
2					1.215	1.360	1.459	1.111	1.459	1.360	1.215					2
3				1.200	1.430	1.042	0.994	1.162	0.994	1.042	1.430	1.200				3
4			1.188	1.103	1.027	1.260	1.022	1.097	1.022	1.260	1.027	1.103	1.188			4
5		1.256	1.405	1.023	1.196	1.053	1.121	0.958	1.121	1.053	1.196	1.023	1.405	1.256		5
6		1.357	1.048	1.270	1.045	1.248	1.179	1.180	1.179	1.248	1.045	1.270	1.048	1.357		6
7	1.144	1.437	1.017	1.023	1.118	1.165	1.156	0.930	1.156	1.165	1.118	1.023	1.017	1.437	1.144	7
8	1.204	1.073	1.260	1.127	0.957	1.175	0.919	0.969	0.919	1.175	0.957	1.127	1.260	1.073	1.204	8
9	1.144	1.437	1.017	1.023	1.118	1.165	1.156	0.930	1.156	1.165	1.118	1.023	1.017	1.437	1.144	9
10		1.357	1.048	1.270	1.045	1.248	1.179	1.180	1.179	1.248	1.045	1.270	1.048	1.357		10
11		1.256	1.405	1.023	1.196	1.053	1.121	0.958	1.121	1.053	1.196	1.023	1.405	1.256		11
12			1.188	1.103	1.027	1.260	1.022	1.097	1.022	1.260	1.027	1.103	1.188			12
13				1.200	1.430	1.042	0.994	1.162	0.994	1.042	1.430	1.200				13
14					1.215	1.360	1.459	1.111	1.459	1.360	1.215					14
15							1.266	1.396	1.266							15

R P N M L K J H G F E D C B A



SUMMARY OF KEY PERFORMANCE PARAMETERS

MAXIMUM PEAK KW/FT OF 9.93 OCCURRED IN ASSEMBLY 2 LOCATED AT H 1
PEAK KW/FT IN REGION 1 OF 7.00 OCCURRED IN ASSEMBLY 79 AT LOCATION H 8
PEAK KW/FT IN REGION 2 OF 7.48 OCCURRED IN ASSEMBLY 7 AT LOCATION H 2
PEAK KW/FT IN REGION 3 OF 8.51 OCCURRED IN ASSEMBLY 74 AT LOCATION N 8
PEAK KW/FT IN REGION 4 OF 9.93 OCCURRED IN ASSEMBLY 2 AT LOCATION H 1

MAXIMUM AXIAL PEAKING FACTOR OF 1.26 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM AXIAL PEAKING FACTOR IN REGION 1 OF 1.26 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM AXIAL PEAKING FACTOR IN REGION 2 OF 1.18 OCCURRED IN ASSEMBLY 85 LOCATED AT B 8
MAXIMUM AXIAL PEAKING FACTOR IN REGION 3 OF 1.25 OCCURRED IN ASSEMBLY 133 LOCATED AT H12
MAXIMUM AXIAL PEAKING FACTOR IN REGION 4 OF 1.24 OCCURRED IN ASSEMBLY 156 LOCATED AT H15

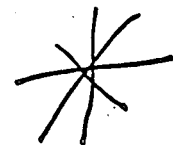
MAXIMUM RADIAL PEAKING FACTOR OF 1.27 OCCURRED IN ASSEMBLY 6 LOCATED AT J 2
MAXIMUM RADIAL PEAKING FACTOR IN REGION 1 OF 0.89 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM RADIAL PEAKING FACTOR IN REGION 2 OF 1.00 OCCURRED IN ASSEMBLY 151 LOCATED AT H14
MAXIMUM RADIAL PEAKING FACTOR IN REGION 3 OF 1.15 OCCURRED IN ASSEMBLY 110 LOCATED AT F10
MAXIMUM RADIAL PEAKING FACTOR IN REGION 4 OF 1.27 OCCURRED IN ASSEMBLY 152 LOCATED AT G14

AVERAGE AXIAL OFFSET (PERCENT) -6.78

MAXIMUM GROSS PEAKING (FQN) FACTOR OF 1.73 OCCURRED IN ASSEMBLY 2 LOCATED AT H 1
MAXIMUM GROSS PEAKING FACTOR IN REGION 1 OF 1.22 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM GROSS PEAKING FACTOR IN REGION 2 OF 1.30 OCCURRED IN ASSEMBLY 151 LOCATED AT H14
MAXIMUM GROSS PEAKING FACTOR IN REGION 3 OF 1.48 OCCURRED IN ASSEMBLY 84 LOCATED AT C 8
MAXIMUM GROSS PEAKING FACTOR IN REGION 4 OF 1.73 OCCURRED IN ASSEMBLY 156 LOCATED AT H15

CENTER ASSEMBLY AVERAGE POWER FRACTION	0.883
REGION 2 AVERAGE POWER FRACTION	0.931
REGION 3 AVERAGE POWER FRACTION	1.065
REGION 4 AVERAGE POWER FRACTION	0.961

END OF INCORE RUN IBM VERSION 1 06-01-73



AVG AXIAL CONDITIONS HBR2 CYCLE 2 MAP 121 10/12/73 D BANK 178 1K LOCAL 3K THIMBLE

AVERAGE SOURCE PER FOOT = 0.142978E-17 AVERAGE KW/FT = 0.557545E-01 AVERAGE KW/SOURCE = 0.389950E-19

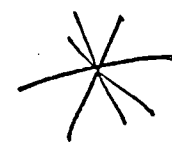
POWER LEVEL EDITED AT = 2142.80 MEGAWATTS THERMAL

POINT	KW/FT	NORMALIZED KW/FT	POINT	KW/FT	NORMALIZED KW/FT
1	3.527341	0.632656	30	5.994893	1.075231
2	2.652975	0.475832	31	6.041500	1.083590
3	3.091447	0.554475	32	6.079877	1.090473
4	3.707744	0.665013	33	6.105617	1.095090
5	4.113876	0.737856	34	6.114618	1.096704
6	4.183017	0.750257	35	6.098794	1.093866
7	4.700479	0.843068	36	6.033591	1.082171
8	5.165243	0.926427	37	5.690530	1.020640
9	5.423625	0.972770	38	5.551244	0.995659
10	5.583824	1.001502	39	5.949382	1.067068
11	5.698013	1.021983	40	6.118692	1.097435
12	5.685693	1.019773	41	6.182429	1.108867
13	5.654521	1.014182	42	6.234909	1.118279
14	5.691291	1.020777	43	6.273182	1.125144
15	5.668602	1.016707	44	6.293270	1.128747
16	5.400028	0.968537	45	6.300071	1.129967
17	5.245226	0.940772	46	6.261720	1.123088
18	5.636185	1.010894	47	6.061251	1.087132
19	5.810525	1.042163	48	5.639801	1.011542
20	5.871805	1.053154	49	5.933240	1.064173
21	5.906713	1.059415	50	6.174233	1.107397
22	5.931450	1.063851	51	6.179543	1.108349
23	5.941143	1.065590	52	6.088280	1.091980
24	5.940097	1.065402	53	5.897400	1.057744
25	5.919357	1.061683	54	5.569337	0.998904
26	5.747540	1.030866	55	5.074345	0.910123
27	5.363890	0.962056	56	4.361232	0.782221
28	5.658334	1.014866	57	3.381361	0.606474
29	5.911503	1.060274			



PEAK ROD ENTHALPY RISE HBR2 CYCLE 2 MAP 121 10/12/73 D BANK 178 1K LOCAL 3K THIMBLE

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A	
1							1.213	1.421	1.213							1
2					1.222	1.371	1.456	1.111	1.456	1.371	1.222					2
3				1.173	1.423	1.050	1.005	1.165	1.005	1.050	1.423	1.173				3
4			1.190	1.090	1.025	1.271	1.025	1.103	1.025	1.271	1.025	1.090	1.190			4
5		1.197	1.394	1.022	1.195	1.056	1.124	0.961	1.124	1.056	1.195	1.022	1.394	1.197		5
6		1.350	1.044	1.270	1.048	1.254	1.184	1.186	1.184	1.254	1.048	1.270	1.044	1.350		6
7	1.164	1.446	1.027	1.034	1.128	1.176	1.163	0.935	1.163	1.176	1.128	1.034	1.027	1.446	1.164	7
8	1.229	1.080	1.275	1.140	0.963	1.182	0.925	0.972	0.925	1.182	0.963	1.140	1.275	1.080	1.229	8
9	1.164	1.446	1.027	1.034	1.128	1.176	1.163	0.935	1.163	1.176	1.128	1.034	1.027	1.446	1.164	9
10		1.350	1.044	1.270	1.048	1.254	1.184	1.186	1.184	1.254	1.048	1.270	1.044	1.350		10
11		1.197	1.394	1.022	1.195	1.056	1.124	0.961	1.124	1.056	1.195	1.022	1.394	1.197		11
12			1.190	1.090	1.025	1.271	1.025	1.103	1.025	1.271	1.025	1.090	1.190			12
13				1.173	1.423	1.050	1.005	1.165	1.005	1.050	1.423	1.173				13
14					1.222	1.371	1.456	1.111	1.456	1.371	1.222					14
15							1.213	1.421	1.213							15
	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A	



SUMMARY OF KEY PERFORMANCE PARAMETERS

MAXIMUM PEAK KW/FT OF 10.01 OCCURRED IN ASSEMBLY 2 LOCATED AT H 1
PEAK KW/FT IN REGION 1 OF 6.92 OCCURRED IN ASSEMBLY 79 AT LOCATION H 8
PEAK KW/FT IN REGION 2 OF 7.49 OCCURRED IN ASSEMBLY 7 AT LOCATION H 2
PEAK KW/FT IN REGION 3 OF 8.48 OCCURRED IN ASSEMBLY 74 AT LOCATION N 8
PEAK KW/FT IN REGION 4 OF 10.01 OCCURRED IN ASSEMBLY 2 AT LOCATION H 1

MAXIMUM AXIAL PEAKING FACTOR OF 1.24 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM AXIAL PEAKINGFACTOR IN REGION 1 OF 1.24 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM AXIAL PEAKINGFACTOR IN REGION 2 OF 1.17 OCCURRED IN ASSEMBLY 151 LOCATED AT H14
MAXIMUM AXIAL PEAKINGFACTOR IN REGION 3 OF 1.23 OCCURRED IN ASSEMBLY 133 LOCATED AT H12
MAXIMUM AXIAL PEAKINGFACTOR IN REGION 4 OF 1.23 OCCURRED IN ASSEMBLY 156 LOCATED AT H15

MAXIMUM RADIAL PEAKING FACTOR OF 1.27 OCCURRED IN ASSEMBLY 6 LOCATED AT J 2
MAXIMUM RADIAL PEAKING FACTOR IN REGION 1 OF 0.89 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM RADIAL PEAKING FACTOR IN REGION 2 OF 1.00 OCCURRED IN ASSEMBLY 151 LOCATED AT H14
MAXIMUM RADIAL PEAKING FACTOR IN REGION 3 OF 1.15 OCCURRED IN ASSEMBLY 110 LOCATED AT F10
MAXIMUM RADIAL PEAKING FACTOR IN REGION 4 OF 1.27 OCCURRED IN ASSEMBLY 152 LOCATED AT G14

AVERAGE AXIAL OFFSET (PERCENT) -6.06

MAXIMUM GROSS PEAKING (FQN) FACTOR OF 1.74 OCCURRED IN ASSEMBLY 2 LOCATED AT H 1
MAXIMUM GROSS PEAKING FACTOR IN REGION 1 OF 1.20 OCCURRED IN ASSEMBLY 79 LOCATED AT H 8
MAXIMUM GROSS PEAKING FACTOR IN REGION 2 OF 1.30 OCCURRED IN ASSEMBLY 151 LOCATED AT H14
MAXIMUM GROSS PEAKING FACTOR IN REGION 3 OF 1.48 OCCURRED IN ASSEMBLY 84 LOCATED AT C 8
MAXIMUM GROSS PEAKING FACTOR IN REGION 4 OF 1.74 OCCURRED IN ASSEMBLY 156 LOCATED AT H15

CENTER ASSEMBLY AVERAGE POWER FRACTION 0.886
REGION 2 AVERAGE POWER FRACTION 0.935
REGION 3 AVERAGE POWER FRACTION 1.070
REGION 4 AVERAGE POWER FRACTION 0.956