



Westinghouse
Electric Corporation

Water Reactor
Divisions

Nuclear Technology Division

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NS-TMA-2166

November 20, 1979

Mr. Derwood T. Ross, Jr.
Deputy Director
Division of Project Management
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Ross:

The attachments contain preliminary input and model modifications for the Westinghouse prediction of the LOFT small break test L3-1. Currently, we plan to use the Westinghouse evaluation model, with an update to the WFLASH computer code to model the steam control valve. Additional modifications may be deemed necessary to arrive at a workable input deck. A nodding diagram is provided, together with geometric input.

Very truly yours,

T. M. Anderson, Manager
Nuclear Safety Department

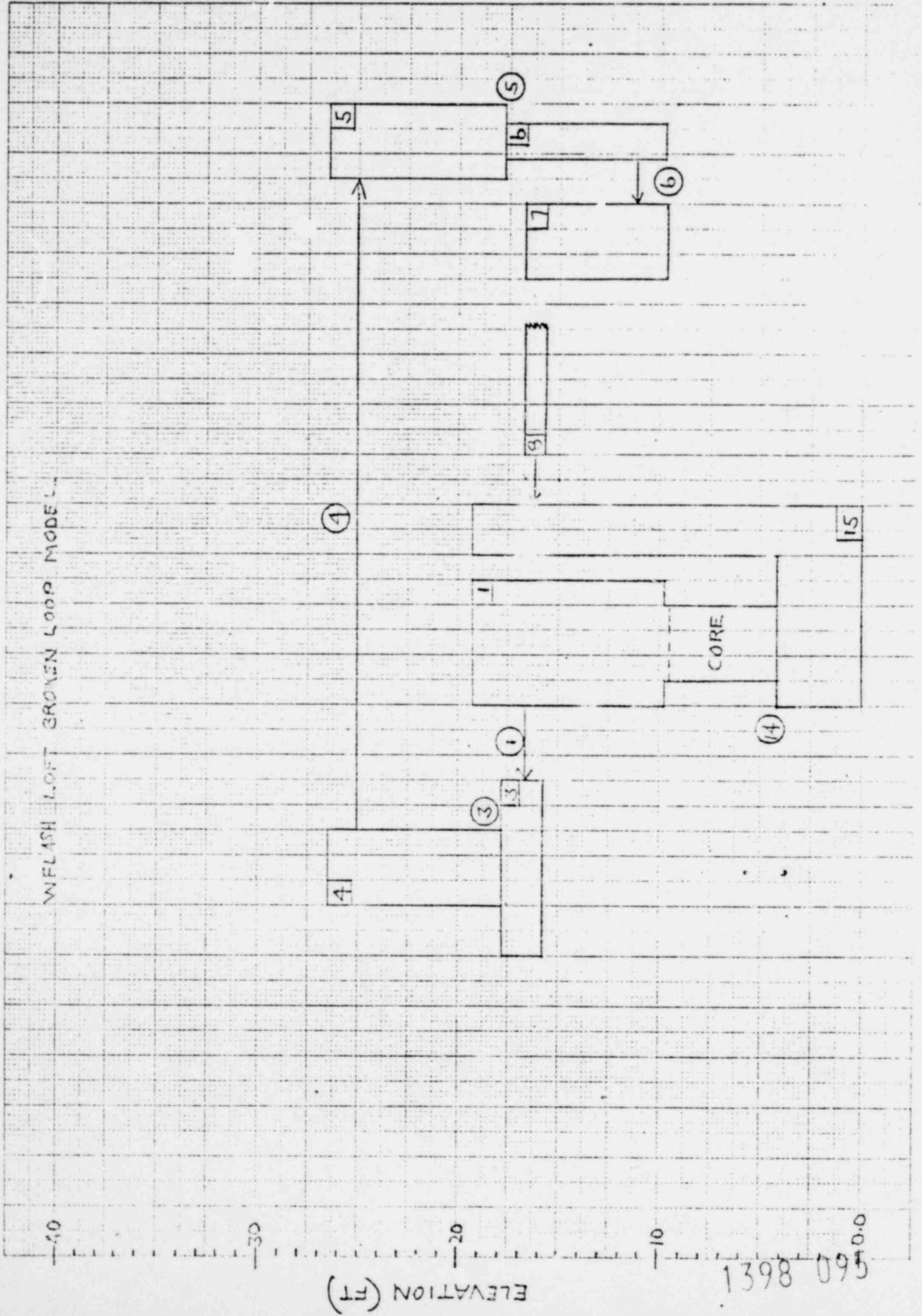
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1398 093
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POOR ORIGINAL

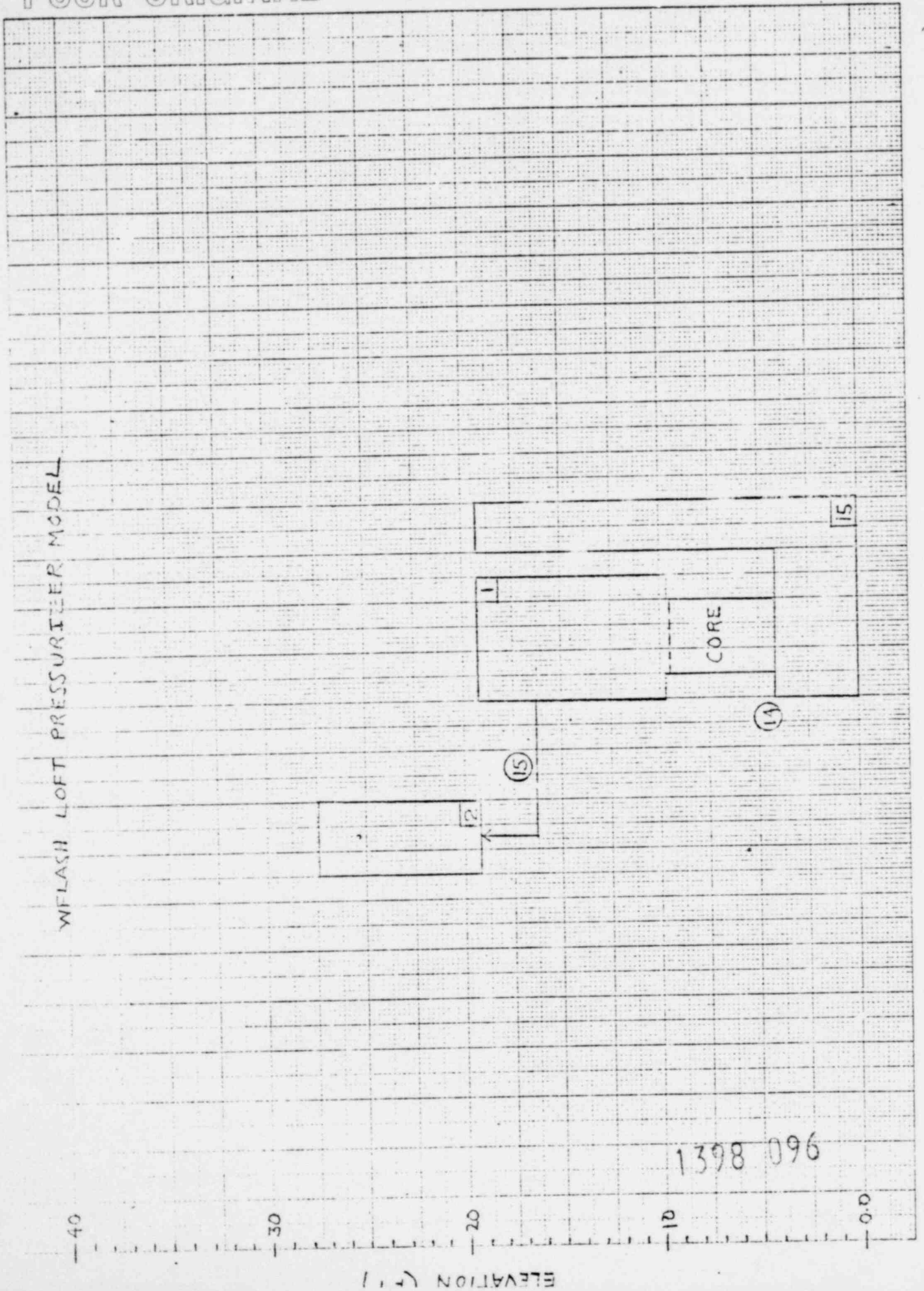
WFLASH LOFT BROKEN LOOP MODEL



560 8651 0950.0

POOR ORIGINAL

WFLASH LOFT PRESSURIZER MODEL



1398 096

ELEVATION (ft)

POOR ORIGINAL

WFLASH OCTOBER 1975 VERSION

A. TIME INFORMATION CARD SERIES 1001-2001

ENDTIME = 3.00000E+03 RUPTURE TIME = 0. LEAKAGE OPENING TIME = 0.

RESTART TIMES = 5.00000E+02 1.00000E+03 1.50000E+03 2.00000E+03 2.50000E+03

FILE IDENTIFICATIONS = REST000500 REST001000 REST001500 REST002000 REST002500

TIME STEP	END OF INTERVAL	TIME STEP	END OF INTERVAL	TIME STEP	END OF INTERVAL
1.00000E-03	1.00000E+01	1.00000E-02	2.00000E+02	1.00000E-02	5.00000E+02
1.00000E-02	1.00000E+03	1.00000E-02	2.00000E+03	1.00000E-02	4.00000E+03

AUTOMATIC TIME STEP

RANGE OF ALLOWABLE DEVIATION OF TIME STEP = 1.00000E+02

FACTOR OF CONSERVATISM = 5.00000E-02

NUMBER OF STEPS BETWEEN TIME STEP RECALCULATION = 1

B. CONTROL VOLUMES CARD SERIES 3001-3800

NODE	AREA	HEIGHT	EXIT ELEVATION	INLET ELEVATION	BOTTOM ELEVATION
1	2.9860	15.2600	16.3700	4.2100	4.1100
2	4.9780	6.8300	20.7200	20.7200	20.6200
3	2.4940	2.0260	17.8300	16.3700	15.9040
4	1.3660	8.7300	26.5600	18.0300	17.9300
5	1.3660	8.7300	18.1300	26.5600	17.9300
6	.2424	5.9900	12.0400	17.8300	11.9400
7	.2294	4.7700	16.6100	12.0400	11.9400
8	6.1650	.9320	16.3700	16.3700	15.9040
9	6.9100	3.8460	19.6500	16.3700	15.9040
10	1.3950	8.9600	28.6100	19.8500	19.7500
11	1.3950	8.9600	19.8500	28.6100	19.7500
12	2.3800	7.7300	12.4860	19.6500	12.0200
13	3.1250	4.8150	16.3700	12.4860	12.0200
14	13.1300	.9320	16.3700	16.3700	15.9040
15	2.7330	19.3700	4.0100	16.3700	0.0000
16	12.0500	19.9000	39.1500	30.0000	19.7500

CJRE CONTROL VOLUMES CARD SERIES 30001-30010

1398 097

POOR ORIGINAL

BOTTOM CORE CONTROL VOLUME NUMBER = 1
 NUMBER OF CORE CONTROL VOLUMES IN STACK = 1
 NUMBER OF INTERIOR FLOW PATHS IN STACK = 0
 INITIAL CONTROL VOLUME IN WHICH MIXTURE HEIGHT OCCURS = 1
 MIXTURE HEIGHT IN EACH CORE CONTROL VOLUME

SUPER HEATED STEAM FLOW IN PATHS OPTION CARD SERIES 2999
 THE STEAM FLOWING PAST THE UNCOVERED PART OF THE REACTOR CORE IS SUPERHEATED.
 HEAT RELEASED BY THE UNCOVERED PART OF THE CORE IS ADDED TO FLOW PATHS LEAVING THE CORE.

HEAT CAPACITY (BTU/DEG F.) CARD SERIES 3911 - 3950

NODE	CAPACITY	NODE	CAPACITY	NODE	CAPACITY	NODE	CAPACITY	NODE	CAPACITY	NODE	CAPACITY
1	1.69930E+03	2	2.07103E+03	3	2.80000E+02	4	3.73800E+02	5	3.73800E+02	6	3.33750E+02
7	2.68100E+02	8	3.27800E+02	9	9.73100E+02	10	1.00000E-01	11	1.00000E-01		
12	4.92200E+02	13	5.70800E+02	14	4.82200E+02	15	2.36910E+04	16	1.00000E-01		

GROSS HEAT TRANSFER COEFFICIENTS (BTU/SEC*DEG F.) CARD SERIES 3951

NODE	COEFFICIENT	NODE	COEFFICIENT	NODE	COEFFICIENT	NODE	COEFFICIENT	NODE	COEFFICIENT	NODE	COEFFICIENT
1	0.	2	2.77000E+00	3	2.55700E+00	4	5.84000E+00	5	5.84000E+00	6	4.71300E+00
7	1.73300E+00	8	2.93000E+00	9	2.06400E+00	10	0.	11	0.		
12	1.75000E+00	13	2.31000E+00	14	1.90150E+00	15	6.89700E+02	16	0.		

MOMENTUM FLUX OPTION CARD SERIES 3991
 THE MOMENTUM FLUX TERMS ARE NOT INCLUDED IN THE MOMENTUM EQUATION.

FORCE TAPE OPTION CARD SERIES 3995
 TAPE 14 IS NOT CREATED FOR FORCE CALCULATIONS.

1398 098

13 9.3250E-01 14 1.5210E-01 15 1.4090E-01 16 1.0000E-01
 CONTINUOUS FLOW PATH DIAMETERS-(FT) CARD SERIES 68001 - 68100
 PATH DIAMETER PATH DIAMETER PATH DIAMETER PATH DIAMETER
 1 9.3200E-01 2 9.3200E-01 3 0. 4 1.2030E+00 5 0.1 6 3.3860E-01
 7 9.3200E-01 8 0. 9 0. 10 0. 11 9.9200E-01 12 9.3200E-01
 13 9.3200E-01 14 0. 15 0. 16 0.1

STEAM GENERATOR DRIVING FORCE INDICATOR CARD SERIES 51000
 THE AVERAGE TEMPERATURE BETWEEN THE STEAM GENERATOR AND INLET NODE IS USED FOR CALCULATING
 THE DRIVING FORCE BETWEEN SECONDARY AND PRIMARY.

LEAK FLOW --- ZALOUDEK OPTICAL FLOW OPTION CARD SERIES 60000
 ZALOUDEK CRITICAL FL. CALCULATION PERFORMED
 ZALOUDEK COEFFICIENT .9000

WILSON MODEL FOR BUBBLE RISE OPTION CARD SERIES 63000, 63100 - 63200, 63300 - 63400
 WILSON MODEL NOT USED

HEAT TRANSFER COEFFICIENT FOR THE LIQUID ON THE PRIMARY SIDE IS A FUNCTION OF FLOW RATE CARD SERIES 50501 - 50503
 STEAM GENERATOR FLAG PATH
 CONTROL VOLUME NUMBER

10	B
11	10
000	000
000	000
000	000
000	000
000	000
000	000

AXIAL LENGTHS FOR HEAT TRANSFER RATIO CARD SERIES 7112
 STEAM GENERATOR LOCATION OF TUBE TOP HEIGHT OF TUBES
 NUMBER TUBE BOTTOM TUBE TOP
 1 0. 6.9600E+00 3.9600E+00

POOR ORIGINAL

CONDENSATION HEAT TRANSFER COEFFICIENT FOR STEAM CARD SERIES 50010 - 50319

PRIMARY

TEMPERATURE DEGREES F	320.000	350.000	400.000	450.000	500.000	550.000	600.000
320.000	140.000	5.116	5.116	5.116	5.000	5.000	5.000
350.000	140.000	190.000	5.000	5.000	5.000	5.000	5.000
400.000	140.000	195.000	210.000	5.000	5.000	5.000	5.000
450.000	140.000	165.000	180.000	225.000	5.000	5.000	5.000
500.000	140.000	157.000	172.000	193.000	230.000	5.000	5.000
550.000	140.000	140.000	165.000	180.000	209.000	240.000	5.000
600.000	140.000	140.000	150.000	165.000	179.000	190.000	240.000

T-MODEL OPTION CARD SERIES 69111 - 69116

VOLUME NO.	ELEVATION CHANGE	LOWER AREA	UPPER AREA
1	5.56000E+00	2.92600E+00	3.59703E+00
19	4.1110 E+00	6.38516E+00	1.69553E+00