BALTIMORE
GAS AND
ELECTRIC

CHARLES CENTER · P. O. BOX 1475 · BALTIMORE, MARYLAND 21203

ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

March 31, 1981

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Subject: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 & 2, Docket Nos. 50-317 & 50-318
Adequacy of Station Electric Distribution
Systems Voltages
Supplementary Information

References: (a) NRC IE Information Notice No. 79-04 Dated 2/16/79
(b) NRC IE Information Notice No. 79-04 Follow-up Letter: Adequacy of Station Electric Distribution Systems Voltages Dated 8/8/79
(c) NRC Request for Additional Information Dated 2/3/81 Regarding IE Information Notice No. 79-04

Dear Mr. Clark:

In response to the request for additional information per reference (c) above, please find Attachment 1 to this letter and the enclosed computer print-out.

Very truly yours,

A. E. Lundvall Jr.

cc: J. A. Biddison, Esquire
G. F. Trowbridge, Esquire
Mr. E. L. Conner, Jr. - NRC

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ATTACHMENT 1

Pursuant to your request for additional information regarding IE Information Notice No. 79-04, Adequacy of Station Electric Distribution System Voltages, analyses were completed and the results are provided below.

1. The voltage analysis submitted in Ref. 2 was performed using both service transformers (P-13000-1 and P-13000-2) supplying the Class 1E buses. Ref. 1 requests that an analysis be completed for the worst case. Submit an analysis assuming only one service transformer is in service prior to an accident (Guideline 2, Ref. 1). After the transients of the emergency loading, calculations showing the effect of starting a large non-safety load should be made (Guideline 3, Ref. 1). Also, confirm that the second-level of undervoltage protection relays will not give a spurious trip for this condition.

Analyses were completed assuming only one service transformer was in service supplying power to both units prior to an accident. The Engineered Safety Features Actuation System Loads (ESFAS) were started on Unit #1. Immediately after the starting transient, a large non-safety related motor was started.

The allowable voltage range for the switchyard during normal operation with both service transformers P 13000-1 and P 13000-2 available is 97% to 103%.

The allowable voltage range for the switchyard during normal operation with only one service transformer is 100% to 103%. However, in order to start a large non-safety related load with both units at full load and ESFAS loads running, the switchyard voltage must be adjusted to 103% prior to the start.

For the following cases, P 13000-2 transformer is out of service, the switchyard voltage is at 103% and both units are operating at full loads.

Case 1. Full load both units.

2. Full load both units with ESFAS loads on Unit #1 starting.

   Full load both units with ESFAS loads on Unit #1 running.

3. Full load both units with ESFAS loads on Unit #1 running and the 3rd condensate booster pump starting.

   Full load both units with ESFAS loads on Unit #1 running and the 3rd condensate booster pump running.

4. Full load both units with ESFAS loads on Unit #1 running and a reactor coolant pump starting.

   Full load both units with ESFAS loads on Unit #1 running and all reactor coolant pumps running.

For the following cases P 13000-2 transformer is out of service, the switchyard voltage is at 100% and both units are operating at full loads.

Case 5. Full load both units.

6. Full load both units with ESFAS loads on Unit #1 starting.

Full load both units with ESFAS loads on Unit #1 running.

For each case, the voltage on every safety related bus is calculated and listed in the following table. The figures shown are per unit bus voltages using the nominal bus voltage as a basis.

The second level of undervoltage protection relays are set to operate at 87.2% ± .8% of 4160 volts after a time delay of 6 seconds. There is an additional 2 second time delay in the ESFAS logic, for a total operating time delay of 8 seconds. These relays are located on 4160V buses 11, 14, 21 and 24. The starting transients in case 4 do not degrade the voltages on the 4160V buses to a level sufficient to give a spurious trip. The starting transients in cases 2 and 3 degrade the voltages on 4160 volt buses 11 and 21 below 88.0% which is the setpoint plus 0.8% error, but, the time delay on the undervoltage relays prevent the relays from operating during the load starting transients. In case 2, the ESFAS load starting transient is less than 4 seconds and has been verified by test. In case 3, the condensate booster pump load starting transient is also less than 4 seconds.

2. Ref. 2 provided calculations and test for 4160 volt buses and 480 volt buses. Submit calculated voltages for all low-voltage AC (less than 480 volts) Class 1E buses or distribution terminals or document that all low-voltage AC Class 1E equipment will be operating within their required voltage ratings for each case analyzed. Do these buses supply any instruments or control circuits required by GDC-13? If so, is all equipment capable of sustaining the analyzed voltages without blowing fuses, overheating, etc., and without affecting the equipment's ability to perform the required function.

The Class 1E 120 volt AC panels are powered from 125 volt station batteries through inverters. The voltages on these panels will not vary due to starting transients on the 480 volt, 4160 volt or 13,800 volt system.

3. Ref. 3, Enclosure 1, page 1 refers to "safety related" buses 4160-14, 480-14A, and 480-14B. Are these buses Class 1E supplying Class 1E equipment? If so, submit an analysis for these buses and equipment as submitted for buses 11, 11A and 11B.

Yes, buses 4160-14, 480-14A and 480-14B are Class 1E buses supplying Class 1E equipment. Analyses are being provided for these buses as well as for all Class 1E buses on Unit 2 for each of the cases reviewed.

Enclosure: Computer printout for cases 1 through 6.

ATTACHMENT 1

	Bus No.	Nominal Voltage	Case 1 Full Load	Case 2 +ESFAS Starting	Case 2 +ESFAS Running	Case 3 +CBP Starting	Case 3 +CBP Running	Case 4 +RCP Starting	Case 4 +RCP Running
Unit #1	11	(308) 4.16KV	.9383	.8547	.9293	.8407	.9187	.8807	.9293
	14	(361) 4.16KV	.9475	.8679	.9392	.9199	.9366	.8911	.9392
	11A	(400) 480V	.9223	.7813	.9048	.8113	.8937	.8536	.9048
	11B	(401) 480V	.9265	.8074	.9162	.8239	.9052	.8657	.9162
	14A	(457) 480V	.9388	.8200	.9250	.9049	.9222	.8749	.9250
	14	(458) 480V	.9521	.8513	.9445	.9248	.9418	.8954	.9445
	104R	(566) 480V	.9334	.8106	.9186	.8986	.9159	.8687	.9186
	114R	(502) 480V	.9193	.7959	.9078	.8162	.8969	.8577	.9078
Unit #2	21	(311) 4.16KV	.9431	.9147	.9399	.9210	.9373	.8920	.9399
	24	(358) 4.16KV	.9452	.9170	.9420	.9233	.9394	.8946	.9420
	21A	(408) 480V	.9282	.8987	.9249	.9053	.9222	.8751	.9249
	21B	(407) 480V	.9288	.9074	.9333	.9138	.9306	.8840	.9333
	24A	(451) 480V	.9464	.9176	.9431	.9240	.9405	.8945	.9431
	24B	(450) 480V	.9392	.9106	.9359	.9169	.9333	.8877	.9359
	204R	(552) 480V	.9404	.9118	.9372	.9181	.9346	.8889	.9372
	214R	(516) 480V	.9303	.9012	.9270	.9076	.9243	.8780	.9270

*Number in parentheses is name of bus in computer program.
For example: 4.16KV Bus 11 is Bus 308 in the computer program.

ATTACHMENT 1

	Bus*No.	Nominal Voltage	Case 5 Full Load	Case 6 +ESFAS Starting	Case 6 +ESFAS Running
Unit #1	11(308)	4.16KV	.9027	.8215	.8930
	14(361)	4.16KV	.9121	.8349	.9033
	11A(400)	480V	.8852	.7486	.8667
	11B(401)	480V	.8899	.7744	.8785
	14A(457)	480V	.9022	.7871	.8876
	14B(458)	480V	.9162	.8186	.9079
	104R(566)	480V	.8970	.7780	.8814
	114R(502)	480V	.8829	.7634	.8704
Unit #2	21(311)	4.16KV	.9077	.8798	.9042
	24(358)	4.16KV	.9101	.8825	.9066
	21A(408)	480V	.8914	.8624	.8878
	21B(407)	480V	.9001	.8714	.8965
	24A(451)	480V	.9104	.8822	.9069
	24B(450)	480V	.9035	.8754	.9000
	204R(552)	480V	.9047	.8766	.9012
	214R(516)	480V	.8940	.8655	.8904

*Number in parentheses is name of bus in computer program.
For example: 4.16kV Bus 11 is 308 in the computer program.

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UXILIARY SYSTEM DESIGN OPTIMIZATION PROGRAM
UKE POWER CO., CHARLOTTE, N.C.

O YOU WANT TO MAKE ANY DIMENSION CHANGES?  (0=NO, 1=YES)
RESENT DIMENSIONS:
                          DIMENSIONED
 BUSES                     #BUS=  75
 PATHS(RLL)                #PA= 150
 DL ELEMENTS               #DL= 200
 CIRCUIT BREAKERS          #CB=  35
 MOTORS                    #MOT= 100
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  10
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  20
 MOTOR STARTS              #MS=   7
    INPUT THE VARIABLE NAME AS GIVEN ABOVE,EQUAL SIGN(=), AND
    THE DESIRED NEW VALUE.  ANY NUMBER OF CHANGES CAN BE ENTERED ON THE SAME LINE.
***END OF CHANGES IS INDICATED BY A SEMICOLON(;)****
                          DIMENSIONED
 BUSES                     #BUS= 150
 PATHS(RLL)                #PA= 220
 DL ELEMENTS               #DL= 400
 CIRCUIT BREAKERS          #CB=  99
 MOTORS                    #MOT= 200
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  70
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  40
 MOTOR STARTS              #MS=  14
NY MORE CHANGES? (0=NO, 1=YES)
ASEFILE CREATED: 04:11:80  KRT:PJH
ALVERT CLIFFS STATION REP TEST
ATA HAS BEEN READ IN FROM THE BASEFILE
HIS IS A HIGH VOLTAGE STUDY.
HE BASE VOLTAGE IS    0.000 KV ON BUS     0.
ELEASE 9, 10/1/79
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED BATCH
NTER COMMAND
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CASES 1 & 2

BRANCH ELEMENTS

INPUT CODE-	TYPE	++++CABLE OR BUS++++ ----X----	----R----	+++++CABLE++++++ NO.-SIZE	--FT--	++++++++++++BUS++++++++++++ ---X/FT--	---R/FT--	--FT--	++REACTOR OR CAPACITOR+++ --X(PU)--	--IR--	--KV
3200-207- 1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0						
3200-206- 1A	CAB	2.04E-02*	1.37E-02*	1-750	660.0						
3200-205- 1A	CAB	1.95E-02*	1.31E-02*	1-750	632.0						
3200-204- 1A	CAB	1.99E-02*	1.34E-02*	1-750	645.0						
3200-257- 1A	CAB	2.29E-02*	1.54E-02*	1-750	741.0						
3200-256- 1A	CAB	2.37E-02*	1.59E-02*	1-750	766.0						
3200-255- 1A	CAB	2.24E-02*	1.51E-02*	1-750	726.0						
3200-254- 1A	CAB	2.30E-02*	1.55E-02*	1-750	745.0						
3210-260- 1A	CAB	2.51E-03*	1.69E-03*	3-750	244.0						
3200-210- 1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0						

3210-201- 1A	CAB	8.36E-03*	5.63E-03*	3-750	812.0
3210-202- 1A	CAB	4.15E-03*	2.79E-03*	3-750	403.0
3210-203- 1A	CAB	6.54E-03*	4.40E-03*	3-750	635.0
3300-306- 1A	CAB	3.28E-03*	2.21E-03*	4-750	425.0
3304-383- 1A	CAB	1.74E-03*	1.17E-03*	4-750	225.0
3383-358- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
3383-360- 1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
3301-356- 1A	CAB	3.63E-03*	2.44E-03*	4-750	470.0
3306-318- 1A	CAB	1.79E-03*	3.20E-03*	1- 4/0	50.0
3308-312- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
3308-313- 1A	CAB	2.15E-03*	3.84E-03*	1- 4/0	60.0
3302-386- 1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
3386-309- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
3386-308- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
3309-314- 1A	CAB	3.44E-03*	6.14E-03*	1- 4/0	96.0
3309-315- 1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
3303-380- 1A	CAB	2.16E-03*	1.46E-03*	4-750	280.0
3380-310- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
3380-361- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
3310-316- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
3310-317- 1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
3305-381- 1A	CAB	2.06E-03*	1.39E-03*	4-750	267.0
3381-311- 1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
3381-359- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
3311-319- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
3311-320- 1A	CAB	3.94E-03*	7.04E-03*	1- 4/0	110.0
3400-500- 1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0
3401-502- 1A	CAB	4.80E-03*	4.19E-03*	2-500	287.0
3401-504- 1A	CAB	3.09E-03*	2.70E-03*	2-500	185.0
3402-503- 1A	CAB	4.70E-03*	4.10E-03*	2-500	281.0
3402-505- 1A	CAB	4.51E-03*	3.94E-03*	2-500	270.0
3403-506- 1A	CAB	3.75E-03*	3.27E-03*	2-500	224.0
3403-507- 1A	CAB	3.66E-03*	3.20E-03*	2-500	219.0
3404-508- 1A	CAB	5.02E-03*	4.38E-03*	2-500	300.0
3404-509- 1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
3404-510- 1A	CAB	1.50E-03*	1.31E-03*	2-500	90.0
3405-511- 1A	CAB	5.75E-03*	5.02E-03*	2-500	344.0
3406-513- 1A	CAB	9.20E-03*	8.03E-03*	2-500	550.0
3406-514- 1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
3406-515- 1A	CAB	1.00E-03*	8.76E-04*	2-500	60.0
3407-516- 1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
3407-520- 1A	CAB	3.34E-03*	2.92E-03*	2-500	200.0
3408-517- 1A	CAB	4.46E-03*	3.90E-03*	2-500	267.0
3250-257- 1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
3250-256- 1A	CAB	1.93E-02*	1.30E-02*	1-750	625.0
3250-255- 1A	CAB	1.77E-02*	1.19E-02*	1-750	573.0
3250-254- 1A	CAB	1.89E-02*	1.28E-02*	1-750	613.0
3250-207- 1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
3250-206- 1A	CAB	2.49E-02*	1.67E-02*	1-750	805.0
3250-205- 1A	CAB	2.44E-02*	1.65E-02*	1-750	791.0
3250-204- 1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0
3250-260- 1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0
3260-251- 1A	CAB	1.03E-02*	6.95E-03*	3-750	1002.0
3260-252- 1A	CAB	4.48E-03*	3.02E-03*	3-750	435.0
3260-253- 1A	CAB	6.64E-03*	4.47E-03*	3-750	645.0
3350-356- 1A	CAB	3.47E-03*	2.34E-03*	4-750	450.0
3351-306- 1A	CAB	3.49E-03*	2.35E-03*	4-750	452.0
3356-368- 1A	CAB	1.83E-03*	3.26E-03*	1- 4/0	51.0
3358-362- 1A	CAB	2.51E-03*	4.48E-03*	1- 4/0	70.0
3358-363- 1A	CAB	4.19E-03*	7.49E-03*	1- 4/0	117.0

352-382- 1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
382-360- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
382-358- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
360-364- 1A	CAB	2.80E-03*	4.99E-03*	1- 4/0	78.0
360-365- 1A	CAB	3.30E-03*	5.89E-03*	1- 4/0	92.0
353-384- 1A	CAB	2.03E-03*	1.37E-03*	4-750	263.0
384-311- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
384-359- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
354-387- 1A	CAB	1.86E-03*	1.25E-03*	4-750	241.0
387-308- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
387-309- 1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
359-366- 1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
359-367- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
355-385- 1A	CAB	1.78E-03*	1.20E-03*	4-750	230.0
385-310- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
385-361- 1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
361-369- 1A	CAB	4.48E-03*	8.00E-03*	1- 4/0	125.0
361-370- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
450-550- 1A	CAB	4.01E-03*	3.50E-03*	2-500	240.0
450-562- 1A	CAB	1.34E-03*	1.17E-03*	2-500	80.0
451-552- 1A	CAB	5.10E-03*	4.45E-03*	2-500	305.0
452-561- 1A	CAB	5.52E-03*	4.82E-03*	2-500	330.0
453-558- 1A	CAB	4.98E-03*	4.35E-03*	2-500	298.0
453-559- 1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
453-560- 1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
454-556- 1A	CAB	3.01E-03*	2.63E-03*	2-500	180.0
454-557- 1A	CAB	2.79E-03*	2.44E-03*	2-500	167.0
455-553- 1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
455-555- 1A	CAB	6.02E-03*	5.26E-03*	2-500	360.0
456-564- 1A	CAB	1.84E-03*	1.61E-03*	2-500	110.0
456-565- 1A	CAB	1.09E-03*	9.49E-04*	2-500	65.0
457-566- 1A	CAB	4.35E-03*	3.80E-03*	2-500	260.0
458-567- 1A	CAB	4.43E-03*	3.87E-03*	2-500	265.0
458-570- 1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0

2-WINDING TRANSFORMERS

INPUT CODE-	--XT--	--KV1-	--KV2-	--KVAT-	--KVAB-	-X/R-
100-200- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
312-400- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
313-401- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
314-402- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
315-403- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
316-404- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
317-405- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
318-406- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
319-407- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
320-408- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
100-250- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
362-450- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
363-451- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
364-452- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
365-453- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
366-454- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
367-455- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
368-456- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
369-457- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
370-458- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16

3-WINDING TRANSFORMERS

-INPUT CODE-	XT(H-X)	XT(H-Y)	XT(X-Y)	KV(H)-	KV(X)-	KV(Y)-	KVAT(H)	KVAT(X)	KVAT(Y)	-X/R-	-KVATB-

201-300-301	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
202-302-303	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
203-304-305	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
251-350-351	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
252-352-353	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
253-354-355	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00

STATIC LOADS

INPUT CODE	KV	KVA	PFL	LEAD/LAG
0-308-13	4.16	300.00	0.90	LAG
0-311-13	4.16	500.00	0.90	LAG
0-400- 7	0.48	80.00	0.90	LAG
0-400- 8	0.48	85.00	0.90	LAG
0-400- 9	0.48	150.00	1.00	LEAD
0-401- 5	0.48	85.00	0.90	LAG
0-401- 6	0.48	75.00	1.00	LEAD
0-402- 6	0.48	85.00	0.90	LAG
0-403- 7	0.48	275.00	1.00	LEAD
0-405- 8	0.48	4.00	0.90	LAG
0-406- 6	0.48	85.00	1.00	LEAD
0-407- 5	0.48	85.00	0.90	LAG
0-407- 6	0.48	75.00	1.00	LEAD
0-408- 7	0.48	80.00	0.90	LAG
0-408- 8	0.48	150.00	1.00	LEAD
0-408- 9	0.48	85.00	0.90	LAG
0-500- 1	0.48	201.30	0.90	LAG
0-502- 1	0.48	310.38	0.90	LAG
0-503- 1	0.48	302.90	0.90	LAG
0-504- 1	0.48	300.00	1.00	LEAD
0-505- 1	0.48	178.90	0.90	LAG
0-506- 1	0.48	300.00	1.00	LEAD
0-507- 1	0.48	512.20	0.90	LAG
0-508- 1	0.48	457.60	0.90	LAG
0-509- 1	0.48	317.60	0.90	LAG
0-510- 1	0.48	300.00	1.00	LEAD
0-511- 1	0.48	69.00	0.90	LAG
0-513- 1	0.48	56.25	0.90	LAG
0-514- 1	0.48	526.25	0.90	LAG
0-515- 1	0.48	329.19	0.90	LAG
0-516- 1	0.48	219.97	0.90	LAG
0-517- 1	0.48	206.20	0.90	LAG
0-520- 1	0.48	300.00	1.00	LEAD
0-360-13	4.16	852.00	0.90	LAG
0-450- 9	0.48	75.00	1.00	LEAD
0-450-10	0.48	85.00	0.90	LAG
0-451- 8	0.48	150.00	1.00	LEAD
0-451- 9	0.48	85.00	0.90	LAG
0-452- 6	0.48	4.00	0.90	LAG
0-454- 5	0.48	275.00	1.00	LEAD
0-454- 6	0.48	250.00	1.00	LEAD
0-455- 5	0.48	1.00	1.00	LEAD
0-456- 3	0.48	85.00	1.00	LEAD
0-457- 9	0.48	150.00	1.00	LEAD
0-457-10	0.48	85.00	0.90	LAG
0-458- 7	0.48	75.00	1.00	LEAD
0-458- 8	0.48	85.00	0.90	LAG
0-550- 1	0.48	384.40	0.90	LAG
0-552- 1	0.48	234.00	0.90	LAG
0-553- 1	0.48	357.45	0.90	LAG
0-555- 1	0.48	82.10	0.90	LAG

0-556- 1	0.48	300.00	1.00	LEAD
0-557- 1	0.48	559.45	0.90	LAG
0-558- 1	0.48	505.92	0.90	LAG
0-559- 1	0.48	177.40	0.90	LAG
0-560- 1	0.48	300.00	1.00	LEAD
0-561- 1	0.48	83.90	0.90	LAG
0-562- 1	0.48	300.00	1.00	LEAD
0-564- 1	0.48	645.20	0.90	LAG
0-565- 1	0.48	329.05	0.90	LAG
0-566- 1	0.48	250.93	0.90	LAG
0-567- 1	0.48	247.50	0.90	LAG
0-570- 1	0.48	300.00	1.00	LEAD

MOTORS

INPUT CODE-	---HP--	--VM-	-DF-	-RPM	--KVA-	--LRC--	LRCPF	-XD"-	--X/R-	-PFM	TYPE
0-204- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-205- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-206- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-207- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-308- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-308- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-308- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-308- 6	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-308-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-309- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-309- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-309- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-309- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-310- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-310- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 4	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-311- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-311- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-311- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-311-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-400- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-400- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-400- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-400- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-400- 5	100.0	460	1.00*	3600*	100.0*	760.0	0.25*	0.160*	9.20*	0.85*	IND
0-400- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-400-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-401- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 3	100.0	460	1.00*	3600*	100.0*	800.0	0.25*	0.152*	9.20*	0.85*	IND
0-401- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-401- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-401- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-402- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-402- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND

0-402- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-402- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-402- 5	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-403- 1	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-403- 2	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-403- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-403- 4	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-403- 5	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-403- 6	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-403- 8	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-404- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-404- 4	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-404- 5	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-404- 7	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-404- 8	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-405- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-405- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-405- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-405- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-405- 5	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-405- 6	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-405- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-406- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 2	73.5	460	1.00*	3600*	73.5*	550.0	0.25*	0.162*	8.51*	0.85*	IND
0-406- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-406- 4	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 5	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-407- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-407- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-407- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-407- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-407- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-407- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-408- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-408- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-408- 5	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-408- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-408-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-502- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-306- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-254- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-255- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-256- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-257- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-358- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-358- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-358- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-358- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND

0-358- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 9	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-359- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-359- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-359- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-359- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-360- 9	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-360-10	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-11	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-12	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-361- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-361- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-361- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-361- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-450- 1	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-450- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-450- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-450- 5	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-450- 6	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-450- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-451- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-451- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-451- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-451- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-451- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-451- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-451- 7	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-455- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-455- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-455- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-455- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-457- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-457- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-457- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-457- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-457- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-457- 6	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-457- 7	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-457- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-458- 1	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-458- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 4	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-458- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-458- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-454- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-454- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-454- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-454- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-453- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-453- 2	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-452- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-452- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-452- 3	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND

0-452- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-452- 5	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-456- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-456- 2	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-566- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-356- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN

INPUT CODE-	SYSTEM EQUIVALENT --FMVA--	--KV--	-X/R--
0-100- 1	10826.45	500.00	46.0

ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
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ADD RCBL ELEM.
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ADD PCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
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ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ENTER BASE VOLTAGE (KV) AND THE RELATED BUS

NOW IN RUN MODE
ENTER COMMAND

	DIMENSIONED	ACTUAL
BUSES	150	124

PATHS(RLL)	220	181
DL ELEMENTS	400	381
CIR. BRK.(BRANCH PCB)	99	92
CIR. BRK.(OPEN/CLOSE CB)	99	19
MOTORS	200	175
CHANGES	1	
POINTS	1	
STATIC LOADS	70	63
NON-ADJACENT LINES	5	0
TAPS	40	
MOTOR STARTS	14	0

ENTER COMMAND
THE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS

CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
204	0	1	CLOSED
308	0	3	OPENED
308	0	4	OPENED
308	0	5	OPENED
308	0	6	OPENED
308	0	10	OPENED
308	0	11	OPENED
308	0	12	OPENED
309	0	4	OPENED
310	0	4	OPENED
311	0	3	OPENED
311	0	4	OPENED
311	0	5	OPENED
311	0	10	OPENED
311	0	11	OPENED
311	0	12	OPENED
400	0	3	OPENED
400	0	10	OPENED
401	0	8	OPENED
401	0	9	OPENED
402	0	2	OPENED
403	0	5	OPENED
403	0	6	OPENED
404	0	1	OPENED
404	0	2	OPENED
404	0	3	OPENED
404	0	4	OPENED
404	0	5	OPENED
405	0	2	OPENED
405	0	5	OPENED
405	0	7	OPENED
406	0	4	OPENED
406	0	5	OPENED
407	0	8	OPENED
407	0	9	OPENED
408	0	3	OPENED
408	0	10	OPENED
502	0	2	OPENED
0	570	1	CLOSED

3	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

THE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
ANY BASE CASE BREAKERS.
THE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
210	260	1	OPENED
350	356	1	OPENED
351	306	1	OPENED
50	257	1	OPENED
250	256	1	OPENED
250	255	1	OPENED
250	254	1	OPENED
250	207	1	OPENED
250	206	1	OPENED

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50    205       1    OPENED
50    204       1    OPENED
85    361       1    OPENED
84    359       1    OPENED
82    358       1    OPENED
82    360       1    OPENED
84    311       1    OPENED
85    310       1    OPENED
87    308       1    OPENED
87    309       1    OPENED
NTER COMMAND
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD W P13000-2 OOS
NTER SWING BUS DATA:
    BUS NUMBER.............#
    PER-UNIT VOLTAGE.......V(PU)
    ANGLE IN DEGREES.......THETA
WING BUS= 100 V=  1.030 ANGLE=  0.000
IST GENERATOR BUSES:
    BUS NUMBER.....................................................#
    REAL POWER.....................................................MW
    REACTIVE POWER.................................................MVAR
    PER-UNIT VOLTAGE(SET V(PU)=0.0 FOR NON VOLTAGE-CONTROLLED BUS)....V(PU)
NTER 9999 TO INDICATE END OF DATA.
IST TAP CHANGING XFMRS:
    FROM-BUS NUMBER WHERE TAP IS LOCATED.........FB
    TO-BUS NUMBER(TB=-1 FOR 3-WINDING XFMR)......TB
    % TAP ABOVE/BELOW NOMINAL VOLTAGE............%
NTER 9999 TO INDICATE END OF DATA.
ROM-BUS      TO-BUS       %TAP      LINE NO.
  100         200        -1.450        1
  201         300        -2.170        2
  201         301        -2.170        3
  202         302        -2.170        4
  202         303        -2.170        5
  203         304        -2.170        6
  203         305        -2.170        7
  312         400        -2.520        8
  313         401        -2.520        9
  314         402        -2.520       10
  315         403        -2.520       11
  316         404        -2.520       12
  317         405        -2.520       13
  318         406        -2.520       14
  319         407        -2.520       15
  320         408        -2.520       16
  100         250        -1.450       17
  251         350        -2.170       18
  251         351        -2.170       19
  252         352        -2.170       20
  252         353        -2.170       21
  253         354        -2.170       22
  253         355        -2.170       23
  362         450        -2.520       24
  363         451        -2.520       25
  364         452        -2.520       26
  365         453        -2.520       27
  366         454        -2.520       28
  367         455        -2.520       29
  368         456        -2.520       30
```

369	457	-2.520	31
370	458	-2.520	32

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 5
BS VOLTAGE ERROR= 0.000008 0.000002

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	MVAR	MVA	LINE CURRENT MAG(KA)
204	200	-4.620	-2.370	5.192	0.226
200	204	4.622	2.373	5.195	0.226
200	207	4.618	2.379	5.195	0.226
200	206	4.620	2.381	5.198	0.226

200	205	4.622	2.383	5.201	0.226
200	257	4.624	2.384	5.202	0.226
200	256	4.625	2.385	5.204	0.226
200	255	4.627	2.386	5.206	0.227
200	254	4.628	2.387	5.207	0.227
200	210	76.946	40.756	87.073	3.789
200	100	-82.659	-38.522	91.195	3.968
207	200	-4.616	-2.376	5.191	0.226
206	200	-4.618	-2.378	5.194	0.226
205	200	-4.620	-2.380	5.197	0.226
257	200	-4.621	-2.380	5.198	0.226
256	200	-4.622	-2.381	5.200	0.226
255	200	-4.624	-2.383	5.202	0.227
254	200	-4.626	-2.383	5.204	0.227
210	200	-76.946	-40.755	87.073	3.789
210	201	13.700	1.946	13.837	0.602
210	202	16.076	8.963	18.406	0.801
210	203	15.970	8.585	18.132	0.789
100	200	83.112	54.042	99.137	0.111
100	250	0.001	0.000	0.001	0.000
201	210	-13.694	-1.937	13.830	0.602
201	MIDPOINT	13.682	1.941	13.819	0.602
202	210	-16.070	-8.955	18.397	0.801
202	MIDPOINT	16.034	8.928	18.352	0.799
203	210	-15.962	-8.573	18.119	0.789
203	MIDPOINT	15.914	8.530	18.056	0.786
250	100	-0.001	-0.000	0.001	0.000
250	260	0.000	-0.000	0.001	0.000
260	250	-0.000	0.000	0.001	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.789	-0.607	6.816	0.974
300	306	6.800	0.610	6.827	0.976
301	MIDPOINT	-6.835	-0.585	6.860	0.980
301	356	6.844	0.588	6.869	0.981
302	MIDPOINT	-8.610	-4.258	9.605	1.419
302	386	8.626	4.264	9.622	1.421
303	MIDPOINT	-7.336	-3.368	8.072	1.181
303	386	7.348	3.373	8.086	1.183
304	MIDPOINT	-7.817	-3.559	8.589	1.260

304	383	7.830	3.564	8.603	1.262
305	MIDPOINT	-8.030	-3.733	8.856	1.301
305	381	8.040	3.737	8.866	1.303
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	0.000	-0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	0.000	-0.000	0.000	0.000
253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	0.000	-0.000	0.000	0.000
306	300	-6.793	-0.600	6.820	0.976
306	318	1.015	0.597	1.178	0.169
356	301	-6.837	-0.578	6.861	0.981
356	368	1.058	0.574	1.203	0.172
386	302	-8.617	-4.251	9.609	1.421
386	309	5.706	2.778	6.346	0.939
386	308	2.980	1.541	3.355	0.496
380	303	-7.342	-3.364	8.076	1.183
380	310	5.240	2.347	5.741	0.841
380	361	4.167	1.759	4.523	0.663
383	304	-7.824	-3.556	8.594	1.262
383	358	2.975	1.305	3.249	0.477
383	360	5.687	2.514	6.218	0.913
381	305	-8.033	-3.727	8.855	1.303
381	311	2.430	1.261	2.738	0.403
381	359	6.835	3.028	7.475	1.100
318	306	-1.015	-0.597	1.178	0.169
318	406	1.005	0.598	1.169	0.167
368	356	-1.057	-0.574	1.203	0.172
368	456	1.050	0.575	1.197	0.171
309	386	-5.706	-2.778	6.346	0.939
309	314	1.176	0.769	1.405	0.208
309	315	1.087	0.535	1.211	0.179
308	386	-2.980	-1.541	3.355	0.496
308	312	0.921	0.485	1.041	0.154
308	313	0.928	0.419	1.018	0.151
310	380	-5.240	-2.347	5.741	0.841
310	316	1.014	0.455	1.112	0.163
310	317	0.610	0.383	0.720	0.106
361	380	-4.167	-1.759	4.523	0.663
361	369	0.818	0.390	0.907	0.133
361	370	0.630	0.208	0.664	0.097
358	383	-2.975	-1.305	3.249	0.477
358	362	0.836	0.346	0.905	0.133

358	363	0.619	0.261	0.672	0.099
360	383	-5.686	-2.512	6.216	0.913
360	364	0.598	0.375	0.706	0.104
360	365	0.814	0.312	0.871	0.128
311	381	-2.430	-1.261	2.737	0.403
311	319	0.834	0.351	0.905	0.133
311	320	0.908	0.472	1.024	0.151
359	381	-6.835	-3.028	7.475	1.100
359	366	1.152	0.435	1.231	0.181
359	367	0.870	0.540	1.024	0.151
350	MIDPOINT	-0.000	-0.000	0.000	0.000
351	MIDPOINT	-0.000	-0.000	0.000	0.000
352	MIDPOINT	-0.000	-0.000	0.000	0.000
352	382	-0.000	0.000	0.000	0.000
353	MIDPOINT	-0.000	-0.000	0.000	0.000
353	384	-0.000	0.000	0.000	0.000
354	MIDPOINT	-0.000	-0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	-0.000	-0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.989	-0.515	1.115	1.413
406	513	0.045	0.022	0.051	0.064
406	514	0.424	0.206	0.471	0.597
406	515	0.266	0.129	0.296	0.375
456	368	-1.033	-0.488	1.143	1.447
456	564	0.520	0.254	0.579	0.733
456	565	0.267	0.129	0.296	0.375
314	309	-1.175	-0.769	1.404	0.208
314	402	1.170	0.769	1.400	0.207
315	309	-1.086	-0.534	1.210	0.179
315	403	1.081	0.535	1.206	0.178
312	308	-0.921	-0.485	1.041	0.154
312	400	0.919	0.485	1.040	0.154
313	308	-0.928	-0.419	1.018	0.151
313	401	0.926	0.419	1.017	0.150
316	310	-1.014	-0.455	1.111	0.163
316	404	1.010	0.455	1.108	0.162
317	310	-0.610	-0.383	0.720	0.106
317	405	0.606	0.384	0.717	0.105
369	361	-0.818	-0.390	0.906	0.133
369	457	0.817	0.390	0.906	0.133

370	361	-0.630	-0.208	0.663	0.097
370	458	0.629	0.208	0.663	0.097
362	358	-0.836	-0.346	0.905	0.133
362	450	0.833	0.347	0.902	0.133
363	358	-0.619	-0.261	0.672	0.099
363	451	0.618	0.261	0.671	0.099
364	360	-0.598	-0.375	0.706	0.104
364	452	0.596	0.375	0.704	0.103
365	360	-0.813	-0.312	0.871	0.128
365	453	0.812	0.312	0.870	0.128
319	311	-0.833	-0.351	0.904	0.133
319	407	0.831	0.352	0.903	0.133
320	311	-0.908	-0.472	1.023	0.151
320	408	0.906	0.473	1.022	0.150
366	359	-1.151	-0.435	1.231	0.181
366	454	1.150	0.436	1.230	0.181
367	359	-0.870	-0.540	1.024	0.151
367	455	0.869	0.540	1.023	0.151
382	352	0.000	-0.000	0.000	0.000
384	353	0.000	-0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.045	-0.022	0.050	0.064
514	406	-0.422	-0.204	0.469	0.597
515	406	-0.266	-0.129	0.295	0.375
564	456	-0.517	-0.251	0.575	0.733
565	456	-0.266	-0.129	0.296	0.375
402	314	-1.146	-0.642	1.313	1.751
402	503	0.220	0.107	0.245	0.327
402	505	0.131	0.064	0.145	0.194
403	315	-1.062	-0.441	1.150	1.507
403	506	0.252	0.001	0.252	0.330
403	507	0.384	0.188	0.427	0.560
400	312	-0.906	-0.415	0.996	1.300
400	500	0.154	0.075	0.171	0.223
401	313	-0.913	-0.352	0.979	1.271
401	502	0.238	0.116	0.264	0.343
401	504	0.257	0.001	0.257	0.333

404	316	-0.995	-0.377	1.064	1.372
404	508	0.353	0.173	0.394	0.507
404	509	0.247	0.120	0.275	0.354
404	510	0.261	0.001	0.261	0.336
405	317	-0.600	-0.351	0.695	0.888
405	511	0.055	0.027	0.061	0.078
457	369	-0.807	-0.338	0.875	1.121
457	566	0.198	0.096	0.220	0.282
458	370	-0.624	-0.180	0.650	0.821
458	567	0.201	0.098	0.223	0.282
458	570	0.271	0.001	0.271	0.343
450	362	-0.823	-0.295	0.874	1.120
450	550	0.302	0.148	0.336	0.431
450	562	0.264	0.001	0.264	0.338
451	363	-0.612	-0.233	0.655	0.832
451	552	0.187	0.091	0.208	0.265
452	364	-0.590	-0.343	0.683	0.874
452	561	0.066	0.032	0.074	0.095
453	365	-0.803	-0.264	0.845	1.080
453	558	0.397	0.195	0.442	0.565
453	559	0.141	0.068	0.156	0.200
453	560	0.265	0.001	0.265	0.339
407	319	-0.821	-0.300	0.874	1.122
407	516	0.172	0.084	0.192	0.246
407	520	0.262	0.001	0.262	0.337
408	320	-0.893	-0.406	0.981	1.271
408	517	0.159	0.077	0.177	0.229
454	366	-1.131	-0.339	1.181	1.529
454	556	0.258	0.001	0.258	0.334
454	557	0.430	0.210	0.479	0.620
455	367	-0.856	-0.473	0.978	1.272
455	553	0.271	0.133	0.302	0.393
455	555	0.063	0.031	0.070	0.091
503	402	-0.219	-0.106	0.243	0.327
505	402	-0.130	-0.063	0.145	0.194
506	403	-0.251	-0.000	0.251	0.330
507	403	-0.381	-0.184	0.423	0.560
500	400	-0.153	-0.074	0.171	0.223
502	401	-0.236	-0.114	0.262	0.343
504	401	-0.256	-0.000	0.256	0.332
508	404	-0.350	-0.170	0.389	0.507

509	404	-0.245	-0.119	0.273	0.354
510	404	-0.260	-0.000	0.260	0.336
511	405	-0.055	-0.027	0.061	0.078
566	457	-0.197	-0.095	0.219	0.282
567	458	-0.200	-0.097	0.222	0.282
570	458	-0.271	-0.000	0.271	0.343
550	450	-0.300	-0.145	0.334	0.431
562	450	-0.264	-0.000	0.264	0.338
552	451	-0.186	-0.090	0.207	0.265
561	452	-0.066	-0.032	0.074	0.095
558	453	-0.393	-0.190	0.436	0.565
559	453	-0.140	-0.068	0.156	0.200
560	453	-0.264	-0.000	0.264	0.339
516	407	-0.171	-0.083	0.190	0.246
520	407	-0.261	-0.000	0.261	0.337
517	408	-0.158	-0.077	0.176	0.229
556	454	-0.257	-0.000	0.257	0.334
557	454	-0.427	-0.207	0.475	0.620
553	455	-0.269	-0.130	0.299	0.393
555	455	-0.063	-0.030	0.070	0.091

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9608	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0087	0.0056
00	1H02	0.9614	-8.05	13.800	0.00	0.00	0.00	0.00	0.00	0.00	31.2717	21.2919
07	1H06	0.9608	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0043	-0.0009
06	1H05	0.9608	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0066	-0.0030
05	1H04	0.9608	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0092	-0.0048
57	2H06	0.9607	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0099	-0.0050
56	2H05	0.9607	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0112	-0.0063
55	2H04	0.9608	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0130	-0.0077
54	2H03	0.9607	-8.07	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0144	-0.0082
10	1H01	0.9614	-8.05	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-31.1998	-21.2599

00	1X03-HS	1.0300	0.00	500.000	83.11	54.13	0.00	0.00	-0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9609	-8.08	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0120	0.0033
02	1X05-HS	0.9610	-8.06	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0364	-0.0272
03	1X06-HS	0.9607	-8.07	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0485	-0.0435
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0006	-0.0007
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0003
00	1X04-LS1	0.9712	-11.12	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0104	0.0029
01	1X04-LS2	0.9713	-11.14	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0090	0.0028
02	1X05-LS1	0.9396	-11.89	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0157	0.0064
03	1X05-LS2	0.9486	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0123	0.0050
04	1X06-LS1	0.9462	-11.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0124	0.0052
05	1X06-LS2	0.9445	-11.64	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0096	0.0036
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	-0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0003	-0.0000
06	1A05,06	0.9702	-11.19	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0002	-0.0031
56	2A05,06	0.9702	-11.22	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0015	-0.0032
86	1A02-AUX	0.9383	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0692	0.0681
80	1A04-AUX	0.9475	-11.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	2.0646	0.7427
83	2A04-AUX	0.9452	-11.57	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.8384	0.2635
81	2A02-AUX	0.9433	-11.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	1.2320	0.5626
18	15-HS	0.9700	-11.19	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0103	0.0005
68	25-HS	0.9700	-11.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0072	0.0007
09	1A02	0.9383	-11.94	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.1395	0.0148
08	1A01	0.9383	-11.94	4.160	0.00	0.00	0.68	0.43	0.24	0.12	-0.2105	-0.0902
10	1A03	0.9475	-11.35	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0323	-0.0201
61	1A04	0.9475	-11.35	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-2.0361	-0.7289
58	2A04	0.9452	-11.57	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.8370	-0.2652
60	2A03	0.9449	-11.59	4.160	0.00	0.00	3.58	1.49	0.68	0.33	-0.0066	-0.0047
11	2A01	0.9431	-11.68	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0054	-0.0046
59	2A02	0.9433	-11.68	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-1.2300	-0.5638
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
06	1B05	0.9489	-14.43	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0001	0.0001
56	2B05	0.9499	-14.63	0.480	0.00	0.00	0.17	0.11	0.08	0.00	-0.0000	0.0001
14	12A-HS	0.9377	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0048	0.0003
15	12B-HS	0.9379	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0056	0.0005
12	11A-HS	0.9379	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0015	0.0002
13	11B-HS	0.9380	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0018	0.0002
16	13B-HS	0.9470	-11.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0036	0.0006
17	13A-HS	0.9472	-11.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0037	0.0005
69	14A-HS	0.9470	-11.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	0.0001
70	14B-HS	0.9472	-11.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0006	0.0003
62	24B-HS	0.9449	-11.58	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0027	0.0003
63	24A-HS	0.9449	-11.58	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0015	0.0002
64	23A-HS	0.9446	-11.59	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0016	0.0005
65	23B-HS	0.9445	-11.59	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0013	0.0003
19	21B-HS	0.9428	-11.69	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0021	0.0006
20	21A-HS	0.9426	-11.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0016	0.0004
66	22B-HS	0.9429	-11.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0013	0.0007
67	22A-HS	0.9429	-11.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0011	0.0005
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9463	-14.49	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000

14 1B008	0.9436	-14.56	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	-0.0000
15 1B007	0.9472	-14.47	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0001
64 2B008	0.9439	-14.79	0.480	0.00	0.00	0.00	0.00	0.52	0.25	-0.0000	-0.0000
65 2B007	0.9481	-14.68	0.480	0.00	0.00	0.00	0.00	0.27	0.13	0.0000	-0.0000
02 1B02A	0.9022	-15.28	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0005	0.0003
03 1B02B	0.9178	-15.74	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0002	0.0001
00 1B01A	0.9223	-15.13	0.480	0.00	0.00	0.50	0.28	0.25	0.06	0.0001	0.0001
01 1B01B	0.9265	-15.20	0.480	0.00	0.00	0.35	0.20	0.07	0.03	0.0001	0.0001
04 1B03B	0.9331	-14.84	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0002	0.0001
05 1B03A	0.9414	-13.34	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0001	0.0001
57 1B04A	0.9388	-14.14	0.480	0.00	0.00	0.41	0.21	0.20	0.03	0.0000	0.0000
58 1B04B	0.9521	-13.54	0.480	0.00	0.00	0.08	0.05	0.07	0.03	0.0000	0.0000
50 2B04B	0.9392	-14.66	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0001	0.0001
51 2B04A	0.9464	-13.71	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	0.0000
52 2B03A	0.9393	-13.5[illegible]	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53 2B03B	0.9411	-14.42	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
07 2B01B	0.9366	-14.58	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0001	0.0001
08 2B01A	0.9282	-14.80	0.480	0.00	0.00	0.48	0.27	0.26	0.06	0.0000	0.0000
54 2B02B	0.9288	-15.76	0.480	0.00	0.00	0.23	0.13	0.22	0.00	0.0000	0.0000
55 2B02A	0.9246	-14.61	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0001	1.0000
03 1B002	0.8954	-16.16	0.480	0.00	0.00	0.00	0.00	0.22	0.11	-0.0002	-0.0001
05 1B005	0.8983	-16.08	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0002	-0.0001
06 1B010	0.9139	-16.02	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0001	-0.0000
07 1B006	0.9088	-15.98	0.480	0.00	0.00	0.00	0.00	0.38	0.18	-0.0001	-0.0001
00 1B001A	0.9200	-15.19	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0001	-0.0001
02 1B014	0.9193	-15.39	0.480	0.00	0.00	0.00	0.00	0.24	0.11	-0.0000	-0.0000
04 1B009	0.9233	-15.42	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0001	-0.0000
08 1B016	0.9219	-15.14	0.480	0.00	0.00	0.00	0.00	0.35	0.17	-0.0000	-0.0000
09 1B003	0.9266	-15.01	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	-0.0000
10 1B012	0.9315	-14.95	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0001	-0.0001
11 1B015	0.9394	-13.39	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0001	-0.0000
66 1B004	0.9334	-14.28	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
67 1B001B	0.9466	-13.68	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
70 1B011	0.9495	-13.71	0.480	0.00	0.00	0.00	0.00	0.27	0.00	-0.0000	-0.0000
50 2B001B	0.9315	-14.66	0.480	0.00	0.00	0.00	0.00	0.30	0.15	-0.0000	-0.0000
62 2B011	0.9377	-14.56	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0001	-0.0001
52 2B004	0.9404	-13.85	0.480	0.00	0.00	0.00	0.00	0.19	0.09	-0.0000	-0.0000
61 2B015	0.9370	-13.62	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	-0.0000
58 2B016	0.9286	-14.74	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
59 2B003	0.9374	-14.51	0.480	0.00	0.00	0.00	0.00	0.14	0.07	0.0000	-0.0000
60 2B012	0.9389	-14.57	0.480	0.00	0.00	0.00	0.00	0.26	0.00	0.0000	-0.0000
16 2B014	0.9303	-14.74	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20 2B009	0.9331	-14.83	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0001	-0.0000
17 2B001A	0.9237	-14.92	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
56 2B010	0.9256	-15.98	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
57 2B006	0.9212	-15.96	0.480	0.00	0.00	0.00	0.00	0.43	0.21	-0.0000	-0.0000
53 2B002	0.9145	-14.88	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
55 2B005	0.9222	-14.67	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

RELEASE 9, 10/1/79
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND
ADD RCBL ELEM.
ENTER COMMAND

DD RCBL ELEM.
DD RCBL ELEM.
NTER COMMAND
DD RCBL ELEM.
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DD RCBL ELEM.
NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS

CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
204	0	1	CLOSED
308	0	3	OPENED
308	0	4	OPENED
308	0	5	OPENED
308	0	6	OPENED
308	0	10	OPENED
308	0	11	OPENED
308	0	12	OPENED
309	0	4	OPENED
310	0	4	OPENED
311	0	3	OPENED
311	0	4	OPENED
311	0	5	OPENED
311	0	10	OPENED
311	0	11	OPENED
311	0	12	OPENED
400	0	3	OPENED
400	0	10	OPENED
401	0	8	OPENED
401	0	9	OPENED
402	0	2	OPENED
403	0	5	OPENED
403	0	6	OPENED
404	0	1	OPENED
404	0	2	OPENED
404	0	3	OPENED
404	0	4	OPENED
404	0	5	OPENED
405	0	2	OPENED
405	0	5	OPENED
405	0	7	OPENED
406	0	4	OPENED

06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

THE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
ANY BASE CASE BREAKERS.
THE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
210	269	1	OPENED
350	356	1	OPENED

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51     306       1     OPENED
50     257       1     OPENED
50     256       1     OPENED
50     255       1     OPENED
50     254       1     OPENED
50     207       1     OPENED
50     206       1     OPENED
50     205       1     OPENED
50     204       1     OPENED
85     361       1     OPENED
84     359       1     OPENED
82     358       1     OPENED
82     360       1     OPENED
84     311       1     OPENED
85     310       1     OPENED
87     308       1     OPENED
87     309       1     OPENED
 0     570       1     OPENED
 0     504       1     OPENED
 0     308       3     CLOSED
 0     308       4     CLOSED
 0     308       5     CLOSED
 0     400       3     CLOSED
 0     400      10     CLOSED
 0     502       2     CLOSED
 0     566       2     CLOSED
 0     361       3     CLOSED
 0     361       4     CLOSED
 0     361       5     CLOSED
 0     401       9     CLOSED
 0     457       4     CLOSED
 0     458       1     CLOSED
NTER COMMAND
O YOU WANT TO MODIFY THE LOAD-FLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
NTER SWING BUS DATA:  (BUS#,V(PU),ANGLE)
WING BUS= 100 V=  1.030 ANGLE=  0.000
IST GENERATOR BUSES:  (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS:  (FB,TB,%TAP)
ROM-BUS      TO BUS       %TAP      LINE NO.
  100         200        -1.450        1
  201         300        -2.170        2
  201         301        -2.170        3
  202         302        -2.170        4
  202         303        -2.170        5
  203         304        -2.170        6
  203         305        -2.170        7
  312         400        -2.520        8
  313         401        -2.520        9
  314         402        -2.520       10
  315         403        -2.520       11
  316         404        -2.520       12
  317         405        -2.520       13
  318         406        -2.520       14
  319         407        -2.520       15
  320         408        -2.520       16
  100         250        -1.450       17
  251         350        -2.170       18
  251         351        -2.170       19
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252	352	-2.170	20
252	353	-2.170	21
253	354	-2.170	22
253	355	-2.170	23
362	450	-2.520	24
363	451	-2.520	25
364	452	-2.520	26
365	453	-2.520	27
366	454	-2.520	28
367	455	-2.520	29
368	456	-2.520	30
369	457	-2.520	31
370	458	-2.520	32

J YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000010 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52

320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.622	-2.372	5.195	0.227
200	204	4.624	2.375	5.198	0.227
200	207	4.614	2.379	5.191	0.227
200	206	4.614	2.379	5.191	0.227
200	205	4.614	2.379	5.191	0.227
200	257	4.615	2.379	5.192	0.227
200	256	4.615	2.380	5.193	0.227
200	255	4.615	2.380	5.193	0.227
200	254	4.616	2.380	5.193	0.227
200	210	47.834	24.084	53.555	2.338
200	100	-84.046	-39.827	93.005	4.060
207	200	-4.611	-2.376	5.187	0.227
206	200	-4.612	-2.376	5.188	0.227
205	200	-4.612	-2.376	5.188	0.227
257	200	-4.613	-2.376	5.189	0.227
256	200	-4.613	-2.376	5.189	0.227
255	200	-4.613	-2.376	5.189	0.227
254	200	-4.613	-2.376	5.190	0.227
210	200	-47.834	-24.084	53.555	2.338
210	201	13.689	1.945	13.827	0.604
210	202	17.504	10.275	20.297	0.886
210	203	15.938	8.578	18.100	0.790
100	200	84.520	56.072	101.428	0.114
100	250	0.001	0.000	0.001	0.000
201	210	-13.683	-1.936	13.819	0.604
201	MIDPOINT	13.684	1.933	13.819	0.604
202	210	-17.497	-10.266	20.286	0.886
202	MIDPOINT	17.484	10.260	20.272	0.885
203	210	-15.930	-8.565	18.087	0.790
203	MIDPOINT	15.919	8.559	18.074	0.790
250	100	-0.001	-0.000	0.001	0.000
250	260	0.001	-0.000	0.001	0.000
260	250	-0.001	0.000	0.001	0.000
260	251	-0.000	0.000	0.000	0.000
260	252	-0.000	0.000	0.000	0.000
260	253	-0.00	0.000	0.000	0.000
300	MIDPOINT	-6.784	-0.604	6.811	0.976
300	306	6.786	0.605	6.813	0.977

301	MIDPOINT	-6.830	-0.583	6.854	0.983
301	356	6.831	0.583	6.856	0.983
302	MIDPOINT	-9.352	-4.791	10.508	1.567
302	386	9.354	4.792	10.510	1.567
303	MIDPOINT	-7.994	-3.849	8.872	1.309
303	380	7.996	3.849	8.874	1.310
304	MIDPOINT	-7.800	-3.553	8.570	1.261
304	383	7.801	3.553	8.572	1.262
305	MIDPOINT	-8.015	-3.729	8.840	1.303
305	381	8.016	3.729	8.841	1.304
251	260	0.000	-0.000	0.000	0.000
251	MIDPOINT	0.000	0.000	0.000	0.000
252	260	0.000	-0.000	0.000	0.000
252	MIDPOINT	0.000	0.000	0.000	0.000
253	260	0.000	-0.000	0.000	0.000
253	MIDPOINT	0.000	0.000	0.000	0.000
306	300	-6.780	-0.596	6.806	0.977
306	318	1.002	0.594	1.165	0.167
356	301	-6.824	-0.573	6.848	0.983
356	368	1.046	0.572	1.192	0.171
386	302	-9.344	-4.777	10.494	1.567
386	309	5.751	2.769	6.383	0.953
386	308	3.554	2.001	4.079	0.609
380	303	-7.988	-3.838	8.862	1.310
380	310	5.185	2.327	5.683	0.840
380	361	3.116	1.723	3.560	0.526
383	304	-7.795	-3.545	8.563	1.262
383	358	2.302	1.079	2.542	0.375
383	360	5.669	2.507	6.198	0.913
381	305	-8.009	-3.719	8.830	1.304
381	311	2.416	1.257	2.723	0.402
381	359	5.636	2.572	6.195	0.915
318	306	-1.001	-0.594	1.164	0.167
318	406	1.000	0.595	1.164	0.167
368	356	-1.045	-0.572	1.191	0.171
368	456	1.044	0.572	1.191	0.171
309	386	-5.751	-2.769	6.383	0.953
309	314	1.163	0.766	1.393	0.208
309	315	1.069	0.531	1.194	0.178
308	386	-3.554	-2.001	4.079	0.609
308	312	1.053	0.590	1.207	0.180
308	313	0.755	0.456	0.882	0.132

310	380	-5.185	-2.327	5.683	0.840
310	316	0.996	0.450	1.093	0.161
310	317	0.606	0.384	0.717	0.106
361	380	-3.116	-1.723	3.560	0.526
361	369	0.904	0.458	1.013	0.150
361	370	0.412	0.227	0.470	0.070
3	383	-2.302	-1.079	2.542	0.375
	362	0.829	0.346	0.898	0.132
	363	0.615	0.261	0.668	0.098
	383	-5.667	-2.504	6.196	0.913
0	364	0.596	0.375	0.704	0.104
360	365	0.807	0.310	0.865	0.127
311	381	-2.415	-1.256	2.723	0.402
311	319	0.828	0.351	0.899	0.133
311	320	0.904	0.472	1.020	0.151
359	381	-5.636	-2.572	6.195	0.915
359	366	1.144	0.434	1.224	0.181
359	367	0.867	0.539	1.021	0.151
350	MIDPOINT	-0.000	-0.000	0.000	0.000
351	MIDPOINT	-0.000	-0.000	0.000	0.000
352	MIDPOINT	-0.000	-0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	-0.000	-0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	-0.000	-0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	-0.000	-0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.984	-0.512	1.109	1.411
406	513	0.045	0.022	0.050	0.064
406	514	0.421	0.205	0.468	0.595
406	515	0.264	0.128	0.294	0.374
456	368	-1.028	-0.486	1.137	1.444
456	564	0.517	0.252	0.575	0.730
456	565	0.265	0.129	0.294	0.374
314	309	-1.162	-0.766	1.392	0.208
314	402	1.162	0.766	1.391	0.208
315	309	-1.069	-0.531	1.193	0.178
315	403	1.068	0.531	1.192	0.178
312	308	-1.053	-0.590	1.207	0.180
312	400	1.052	0.590	1.207	0.180
313	308	-0.755	-0.456	0.882	0.132

313	401	0.754	0.456	0.881	0.132
316	310	-0.995	-0.449	1.092	0.161
316	404	0.995	0.449	1.092	0.161
317	310	-0.606	-0.384	0.717	0.106
317	405	0.605	0.384	0.717	0.106
369	361	-0.903	-0.457	1.012	0.150
369	457	0.903	0.457	1.012	0.150
370	361	-0.412	-0.227	0.470	0.070
370	458	0.412	0.227	0.470	0.069
362	358	-0.829	-0.345	0.898	0.132
362	450	0.829	0.345	0.898	0.132
363	358	-0.615	-0.261	0.668	0.098
363	451	0.615	0.261	0.668	0.098
364	360	-0.596	-0.375	0.704	0.104
364	452	0.596	0.375	0.704	0.104
365	360	-0.807	-0.310	0.864	0.127
365	453	0.807	0.310	0.864	0.127
319	311	-0.828	-0.351	0.899	0.133
319	407	0.828	0.351	0.899	0.133
320	311	-0.903	-0.472	1.019	0.151
320	408	0.903	0.472	1.019	0.151
366	359	-1.144	-0.434	1.223	0.181
366	454	1.143	0.434	1.223	0.181
367	359	-0.867	-0.539	1.021	0.151
367	455	0.866	0.539	1.020	0.151
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.045	-0.022	0.050	0.064
514	406	-0.419	-0.203	0.465	0.595
515	406	-0.264	-0.128	0.293	0.374
564	456	-0.514	-0.249	0.571	0.730
565	456	-0.264	-0.128	0.294	0.374
402	314	-1.137	-0.638	1.304	1.757
402	503	0.215	0.105	0.240	0.323
402	505	0.128	0.062	0.142	0.191

403	315	-1.050	-0.437	1.137	1.505
403	506	0.247	0.001	0.247	0.326
403	507	0.376	0.184	0.419	0.554
400	312	-1.034	-0.494	1.146	1.523
400	500	0.148	0.072	0.164	0.219
401	313	-0.744	-0.404	0.847	1.112
401	502	0.266	0.135	0.298	0.392
401	504	0.000	0.000	0.000	0.000
404	316	-0.980	-0.372	1.048	1.363
404	508	0.347	0.170	0.387	0.503
404	509	0.242	0.118	0.270	0.351
404	510	0.256	0.001	0.256	0.333
405	317	-0.599	-0.350	0.694	0.895
405	511	0.054	0.026	0.060	0.077
457	369	-0.890	-0.391	0.972	1.264
457	566	0.226	0.115	0.253	0.329
458	370	-0.409	-0.213	0.461	0.587
458	567	0.197	0.096	0.220	0.280
458	570	0.000	0.000	0.000	0.000
450	362	-0.819	-0.294	0.870	1.118
450	550	0.300	0.147	0.334	0.429
450	562	0.262	0.000	0.262	0.337
451	363	-0.609	-0.232	0.652	0.832
451	552	0.186	0.091	0.207	0.264
452	364	-0.590	-0.343	0.682	0.877
452	561	0.066	0.032	0.073	0.094
453	365	-0.797	-0.262	0.839	1.076
453	558	0.394	0.194	0.439	0.563
453	559	0.140	0.068	0.152	0.199
453	560	0.263	0.001	0.263	0.338
407	319	-0.817	-0.299	0.870	1.122
407	516	0.171	0.083	0.190	0.245
407	520	0.260	0.001	0.260	0.336
408	320	-0.890	-0.405	0.978	1.272
408	517	0.158	0.077	0.176	0.228
454	366	-1.125	-0.338	1.174	1.526
454	556	0.256	0.001	0.256	0.333
454	557	0.427	0.209	0.475	0.618
455	367	-0.853	-0.472	0.975	1.273
455	553	0.269	0.132	0.300	0.392
455	555	0.063	0.030	0.070	0.091
503	402	-0.214	-0.104	0.238	0.323
505	402	-0.127	-0.062	0.141	0.191

506	403	-0.246	-0.000	0.246	0.326
507	403	-0.373	-0.181	0.414	0.554
500	400	-0.148	-0.071	0.164	0.219
502	401	-0.264	-0.133	0.296	0.392
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.344	-0.167	0.382	0.503
509	404	-0.241	-0.117	0.268	0.351
510	404	-0.256	-0.000	0.256	0.333
511	405	-0.054	-0.026	0.060	0.077
566	457	-0.225	-0.113	0.252	0.329
567	458	-0.196	-0.095	0.218	0.280
570	458	-0.000	-0.000	0.000	0.000
550	450	-0.298	-0.144	0.331	0.429
562	450	-0.262	-0.000	0.262	0.337
552	451	-0.185	-0.090	0.206	0.264
561	452	-0.066	-0.032	0.073	0.094
558	453	-0.390	-0.189	0.433	0.563
559	453	-0.139	-0.067	0.155	0.199
560	453	-0.263	-0.000	0.263	0.338
516	407	-0.170	-0.082	0.189	0.245
520	407	-0.259	-0.000	0.259	0.336
517	408	-0.157	-0.076	0.175	0.228
556	454	-0.255	-0.000	0.255	0.333
557	454	-0.424	-0.205	0.471	0.618
553	455	-0.267	-0.129	0.297	0.392
555	455	-0.062	-0.030	0.069	0.091

BUS DATA

	VOLTAGE	GENERATION	LOAD: MOTOR	LOAD: STATIC	MISMATCH

O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0109	0.0032
00	1H02	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.7152	3.2878
07	1H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0004
06	1H05	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0004	-0.0004
05	1H04	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0009	-0.0006
57	2H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0016	-0.0006
56	2H05	0.9576	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0017	-0.0008
55	2H04	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0017	-0.0010
54	2H03	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0022	-0.0013
10	1H01	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.7026	-3.2859
00	1X03-HS	1.0300	0.00	500.000	84.52	56.16	0.00	0.00	-0.00	0.00	0.0000	-0.0000
01	1X04-HS	0.9578	-8.24	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0006	-0.0030
02	1X05-HS	0.9579	-8.22	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0129	-0.0057
03	1X06-HS	0.9577	-8.23	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0111	-0.0060
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0008
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	0.0004
00	1X04-LS1	0.9681	-11.30	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0015	0.0006
01	1X04-LS2	0.9682	-11.32	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0004
02	1X05-LS1	0.9307	-12.43	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0022	0.0009
03	1X05-LS2	0.9405	-11.79	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0018	0.0005
04	1X06-LS1	0.9430	-11.71	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	0.0007
05	1X06-LS2	0.9412	-11.81	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0004
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
06	1A05,06	0.9671	-11.37	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0001	-0.0012
56	2A05,06	0.9671	-11.40	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0003	-0.0008
86	1A02-AUX	0.9293	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0382	-0.0069
80	1A04-AUX	0.9392	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.3124	0.2120
83	2A04-AUX	0.9420	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1753	0.0403
81	2A02-AUX	0.9401	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0423	0.1097
18	15-HS	0.9668	-11.37	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0014	0.0007
68	25-HS	0.9668	-11.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	0.0004
09	1A02	0.9293	-12.48	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0641	0.0175
08	1A01	0.9293	-12.48	4.160	0.00	0.00	1.49	0.83	0.23	0.11	-0.0252	-0.0114
10	1A03	0.9392	-11.84	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0002	-0.0046
61	1A04	0.9392	-11.84	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.3127	-0.2077
58	2A04	0.9420	-11.75	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.1746	-0.0402
60	2A03	0.9417	-11.76	4.160	0.00	0.00	3.58	1.49	0.68	0.33	-0.0009	-0.0006
11	2A01	0.9399	-11.86	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0009	-0.0011
59	2A02	0.9401	-11.86	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0417	-0.1091
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
06	1B05	0.9457	-14.61	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56	2B05	0.9467	-14.82	0.480	0.00	0.00	0.17	0.11	0.08	0.05	-0.0000	0.0000
14	12A-HS	0.9287	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0008	0.0000
15	12B-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0000
12	11A-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	-0.0001
13	11B-HS	0.9290	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0006	-0.0000
16	13B-HS	0.9388	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
17	13A-HS	0.9389	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
69	14A-HS	0.9387	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
70	14B-HS	0.9390	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
62	24B-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0001
63	24A-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001

64	23A-HS	0.9414	-11.76	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0001
65	23B-HS	0.9413	-11.77	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
19	21B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
20	21A-HS	0.9394	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
66	22B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
67	22A-HS	0.9397	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9431	-14.68	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
14	1B008	0.9404	-14.75	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	-0.0000
15	1B007	0.9440	-14.65	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
64	2B008	0.9408	-14.97	0.480	0.00	0.00	0.00	0.00	0.51	0.25	0.0000	-0.0000
65	2B007	0.9449	-14.86	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
02	1B02A	0.8927	-16.57	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0001	0.0000
03	1B02B	0.9085	-16.31	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.9048	-16.22	0.480	0.00	0.00	0.64	0.36	0.24	0.06	0.0000	0.0000
01	1B01B	0.9162	-15.10	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04	1B03B	0.9249	-15.34	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.9327	-13.87	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.9250	-14.98	0.480	0.00	0.00	0.47	0.24	0.19	0.03	0.0000	0.0000
58	1B04B	0.9445	-13.22	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	0.0000
50	2B04B	0.9359	-14.64	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0000	0.0000
51	2B04A	0.9431	-13.88	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	0.0000
52	2B03A	0.9359	-13.75	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.9379	-14.59	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07	2B01B	0.9333	-14.76	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0000	0.0000
08	2B01A	0.9249	-14.99	0.480	0.00	0.00	0.48	0.27	0.26	0.06	0.0000	0.0000
54	2B02B	0.9255	-15.94	0.480	0.00	0.00	0.23	0.13	0.21	0.00	0.0000	0.0000
55	2B02A	0.9213	-14.80	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03	1B002	0.8860	-16.75	0.480	0.00	0.00	0.00	0.00	0.21	0.10	-0.0000	-0.0000
05	1B005	0.8888	-16.67	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
06	1B010	0.9047	-16.59	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
07	1B006	0.8996	-16.55	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
00	1B001A	0.9026	-16.28	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
02	1B014	0.9078	-15.31	0.480	0.00	0.00	0.03	0.02	0.23	0.11	-0.0000	-0.0000
04	1B009	0.9162	-15.10	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08	1B016	0.9137	-15.63	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	-0.0000
09	1B003	0.9184	-15.51	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	-0.0000
10	1B012	0.9233	-15.45	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
11	1B015	0.9307	-13.92	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0000	-0.0000
66	1B004	0.9186	-15.14	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	-0.0000
67	1B001B	0.9390	-13.37	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
70	1B011	0.9445	-13.22	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50	2B001B	0.9283	-14.84	0.480	0.00	0.00	0.00	0.00	0.30	0.14	-0.0000	-0.0000
62	2B011	0.9345	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
52	2B004	0.9372	-14.03	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
61	2B015	0.9336	-13.81	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	-0.0000
58	2B016	0.9255	-14.92	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
59	2B003	0.9342	-14.69	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
60	2B012	0.9357	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
16	2B014	0.9270	-14.93	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20	2B009	0.9298	-15.01	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
17	2B001A	0.9204	-15.11	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
56	2B010	0.9224	-16.16	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
57	2B006	0.9179	-16.14	0.480	0.00	0.00	0.00	0.00	0.42	0.21	-0.0000	-0.0000
53	2B002	0.9111	-15.07	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
55	2B005	0.9189	-14.86	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

NTER COMMAND
O YOU WANT TO MODIFY THE LOADFLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
ULL LOAD & ESFAS START W P13000-2 OOS
NTER SWING BUS DATA: (BUS#,V(PU),ANGLE)
WING BUS= 100 V= 1.030 ANGLE= 0.000
IST GENERATOR BUSES: (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS: (FB,TB,%TAP)

ROM-BUS	TO-BUS	%TAP	LINE NO.
100	200	-1.450	1
100	250	-1.450	2

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)
IST MOTORS TO BE STARTED:
BRANCH NUMBER......................BR
BUS NUMBER.........................#
NTER 9999 TO INDICATE END OF DATA.

UKE POWER COMPANY DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES.CURRENTS,AND POWER FLOWS

ASE TITLE:FULL LOAD & ESFAS START W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000003 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52

365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

SUMMARY OF MOTORS STARTED

BUS NO.	BRANCH NO.
308	3
308	4
308	5
400	3
400	10
566	2
361	3
361	4
361	5
401	9
457	4
458	1
502	2

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.624	-2.373	5.197	0.233
200	204	4.626	2.377	5.201	0.233
200	207	4.613	2.379	5.191	0.232
200	206	4.614	2.379	5.191	0.232
200	205	4.614	2.379	5.192	0.232
200	257	4.615	2.379	5.192	0.232
200	256	4.615	2.379	5.193	0.232
200	255	4.615	2.379	5.192	0.232
200	254	4.616	2.379	5.193	0.232
200	210	46.270	32.989	56.825	2.544
200	100	-84.151	-51.469	98.643	4.417
207	200	-4.611	-2.376	5.187	0.232
206	200	-4.612	-2.376	5.188	0.232
205	200	-4.612	-2.376	5.188	0.232
257	200	-4.613	-2.375	5.188	0.232
256	200	-4.613	-2.376	5.189	0.232
255	200	-4.613	-2.376	5.189	0.232
254	200	-4.613	-2.375	5.189	0.232
210	200	-46.270	-32.988	56.825	2.544
210	201	13.611	1.933	13.748	0.616
210	202	17.939	21.985	28.375	1.270
210	203	15.689	8.520	17.853	0.799
100	200	84.711	70.693	110.334	0.124
100	250	0.001	0.001	0.001	0.000
201	210	-13.605	-1.923	13.740	0.616
201	MIDPOINT	13.596	1.924	13.732	0.615

202	210	-17.925	-21.965	28.351	1.270
202	MIDPOINT	17.911	21.956	28.335	1.270
203	210	-15.681	-8.507	17.840	0.799
203	MIDPOINT	15.673	8.492	17.825	0.799
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	0.000	0.000	0.000
260	250	0.000	0.000	0.000	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.747	-0.584	6.772	0.996
300	306	6.747	0.585	6.773	0.996
301	MIDPOINT	-6.785	-0.561	6.808	1.001
301	356	6.786	0.561	6.809	1.002
302	MIDPOINT	-9.426	-9.882	13.657	2.212
302	386	9.427	9.883	13.658	2.212
303	MIDPOINT	-8.187	-8.750	11.983	1.912
303	380	8.187	8.750	11.983	1.912
304	MIDPOINT	-7.664	-3.501	8.425	1.274
304	383	7.664	3.501	8.426	1.274
305	MIDPOINT	-7.897	-3.692	8.718	1.321
305	381	7.898	3.692	8.718	1.321
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	0.000	-0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	0.000	0.000	0.000	0.000
253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	0.000	0.000	0.000	0.000
306	300	-6.741	-0.576	6.765	0.996
306	318	0.963	0.573	1.126	0.165
356	301	-6.779	-0.550	6.801	1.002
356	368	1.000	0.549	1.141	0.168
386	302	-9.406	-9.852	13.621	2.212
386	309	5.585	2.766	6.233	1.012
386	308	3.790	7.094	8.043	1.306
380	303	-8.171	-8.727	11.955	1.912
380	310	5.048	2.268	5.534	0.885
380	361	3.263	6.326	7.117	1.138
383	304	-7.659	-3.493	8.418	1.274
383	358	2.100	0.897	2.284	0.346
383	360	5.586	2.472	6.109	0.924

381	305	-7.891	-3.682	8.707	1.321
381	311	2.365	1.241	2.671	0.405
381	359	5.569	2.398	6.064	0.920
318	306	-0.962	-0.573	1.120	0.165
318	406	0.962	0.575	1.120	0.165
368	356	-1.000	-0.549	1.141	0.168
368	456	1.000	0.550	1.141	0.168
309	386	-5.585	-2.766	6.233	1.012
309	314	1.096	0.741	1.323	0.215
309	315	0.967	0.499	1.088	0.177
308	386	-3.790	-7.093	8.042	1.306
308	312	0.996	1.220	1.575	0.256
308	313	0.723	0.884	1.142	0.185
310	380	-5.048	-2.267	5.534	0.885
310	316	0.868	0.398	0.955	0.153
310	317	0.598	0.384	0.711	0.114
361	380	-3.263	-6.326	7.117	1.138
361	369	0.856	0.888	1.234	0.197
361	370	0.388	0.505	0.637	0.102
358	383	-2.100	-0.897	2.284	0.346
358	362	0.795	0.335	0.863	0.131
358	363	0.594	0.254	0.646	0.098
360	383	-5.585	-2.470	6.106	0.924
360	364	0.592	0.375	0.701	0.106
360	365	0.765	0.294	0.819	0.124
311	381	-2.365	-1.240	2.670	0.405
311	319	0.801	0.344	0.872	0.132
311	320	0.881	0.465	0.996	0.151
359	381	-5.569	-2.398	6.064	0.920
359	366	1.095	0.420	1.172	0.178
359	367	0.848	0.531	1.001	0.152
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	-0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.946	-0.494	1.067	1.394
406	513	0.043	0.021	0.048	0.062

406	514	0.399	0.194	0.444	0.580
406	515	0.251	0.122	0.279	0.364
456	368	-0.984	-0.466	1.088	1.420
456	564	0.490	0.239	0.545	0.711
456	565	0.251	0.122	0.279	0.364
314	309	-1.095	-0.740	1.322	0.215
314	402	1.095	0.741	1.322	0.215
315	309	-0.967	-0.498	1.087	0.177
315	403	0.967	0.499	1.088	0.177
312	308	-0.995	-1.219	1.574	0.256
312	400	0.996	1.220	1.574	0.256
313	308	-0.723	-0.884	1.142	0.186
313	401	0.723	0.884	1.142	0.186
316	310	-0.868	-0.398	0.955	0.153
316	404	0.868	0.398	0.955	0.153
317	310	-0.598	-0.384	0.710	0.114
317	405	0.597	0.384	0.710	0.114
369	361	-0.855	-0.888	1.233	0.197
369	457	0.855	0.887	1.232	0.197
370	361	-0.388	-0.505	0.636	0.102
370	458	0.388	0.505	0.636	0.102
362	358	-0.795	-0.335	0.863	0.131
362	450	0.795	0.334	0.862	0.131
363	358	-0.594	-0.254	0.646	0.098
363	451	0.594	0.254	0.646	0.098
364	360	-0.592	-0.375	0.701	0.106
364	452	0.592	0.375	0.701	0.106
365	360	-0.764	-0.294	0.819	0.124
365	453	0.764	0.294	0.819	0.124
319	311	-0.800	-0.344	0.871	0.132
319	407	0.800	0.344	0.871	0.132
320	311	-0.880	-0.464	0.995	0.151
320	408	0.880	0.464	0.995	0.151
366	359	-1.094	-0.420	1.172	0.178
366	454	1.094	0.420	1.172	0.178
367	359	-0.848	-0.531	1.000	0.152
367	455	0.848	0.531	1.000	0.152
382	352	0.000	-0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000

385	355	0.000	0.000	0.000	0.000
513	406	-0.043	-0.021	0.047	0.062
514	406	-0.397	-0.192	0.441	0.580
515	406	-0.250	-0.121	0.278	0.364
564	456	-0.488	-0.236	0.542	0.711
565	456	-0.251	-0.122	0.279	0.364
402	314	-1.069	-0.605	1.228	1.815
402	503	0.179	0.087	0.199	0.294
402	505	0.106	0.052	0.118	0.174
403	315	-0.949	-0.407	1.032	1.493
403	506	0.207	0.001	0.207	0.299
403	507	0.315	0.154	0.351	0.507
400	312	-0.958	-1.026	1.404	2.162
400	500	0.110	0.054	0.123	0.189
401	313	-0.704	-0.782	1.052	1.568
401	502	0.221	0.250	0.334	0.497
401	504	0.000	0.000	0.000	0.000
404	316	-0.854	-0.329	0.916	1.290
404	508	0.296	0.145	0.329	0.464
404	509	0.206	0.101	0.230	0.324
404	510	0.218	0.000	0.218	0.307
405	317	-0.590	-0.346	0.684	0.960
405	511	0.046	0.022	0.051	0.071
457	369	-0.833	-0.773	1.136	1.666
457	566	0.194	0.241	0.309	0.453
458	370	-0.382	-0.474	0.609	0.860
458	567	0.160	0.078	0.178	0.252
458	570	0.000	0.000	0.000	0.000
450	362	-0.785	-0.284	0.835	1.103
450	550	0.284	0.139	0.316	0.418
450	562	0.248	0.000	0.248	0.328
451	363	-0.589	-0.225	0.630	0.826
451	552	0.176	0.086	0.196	0.257
452	364	-0.586	-0.341	0.678	0.897
452	561	0.062	0.030	0.069	0.092
453	365	-0.755	-0.249	0.795	1.048
453	558	0.374	0.183	0.416	0.548
453	559	0.132	0.064	0.147	0.194
453	560	0.250	0.001	0.250	0.329
407	319	-0.790	-0.292	0.843	1.117
407	516	0.162	0.079	0.180	0.238

407	520	0.246	0.001	0.246	0.326
408	320	-0.867	-0.397	0.954	1.276
408	517	0.149	0.073	0.166	0.222
454	366	-1.076	-0.326	1.124	1.502
454	556	0.242	0.001	0.242	0.324
454	557	0.404	0.197	0.450	0.601
455	367	-0.835	-0.463	0.954	1.283
455	553	0.254	0.125	0.283	0.381
455	555	0.059	0.029	0.066	0.088
503	407	-0.178	-0.086	0.198	0.294
505	402	-0.106	-0.051	0.117	0.174
506	403	-0.206	0.000	0.206	0.299
507	403	-0.313	-0.151	0.347	0.507
500	400	-0.110	-0.053	0.122	0.189
502	401	-0.218	-0.246	0.329	0.497
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.293	-0.142	0.325	0.464
509	404	-0.205	-0.099	0.228	0.324
510	404	-0.218	-0.000	0.218	0.307
511	405	-0.045	-0.022	0.050	0.071
566	457	-0.191	-0.238	0.305	0.453
567	458	-0.160	-0.077	0.177	0.252
570	458	-0.000	-0.000	0.000	0.000
550	450	-0.282	-0.137	0.314	0.418
562	450	-0.248	0.000	0.248	0.328
552	451	-0.175	-0.085	0.195	0.257
561	452	-0.062	-0.030	0.069	0.092
558	453	-0.370	-0.179	0.411	0.548
559	453	-0.132	-0.064	0.147	0.194
560	453	-0.249	-0.000	0.249	0.329
516	407	-0.161	-0.078	0.179	0.238
520	407	-0.245	-0.000	0.245	0.326
517	408	-0.148	-0.072	0.165	0.222

556	454	-0.241	-0.000	0.241	0.324
557	454	-0.401	-0.194	0.446	0.601
553	455	-0.252	-0.122	0.280	0.381
555	455	-0.059	-0.029	0.065	0.088

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9338	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0125	0.0017
00	1H02	0.9344	-8.39	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.9518	0.5493
07	1H06	0.9338	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0005
06	1H05	0.9338	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0007	-0.0004
05	1H04	0.9338	-8.41	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0011	-0.0005
57	2H06	0.9337	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0013	-0.0003
56	2H05	0.9337	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0016	-0.0003
55	2H04	0.9337	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0015	-0.0005
54	2H03	0.9337	-8.42	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0019	-0.0001
10	1H01	0.9344	-8.39	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.9697	-0.5507
00	1X03-HS	1.0300	0.00	500.000	84.71	70.79	0.00	0.00	0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9339	-8.43	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0085	0.0012
02	1X05-HS	0.9336	-8.40	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0145	-0.0086
03	1X06-HS	0.9337	-8.42	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0083	-0.0155
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0010
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
00	1X04-LS1	0.9434	-11.63	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0009	0.0009
01	1X04-LS2	0.9436	-11.65	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0008	0.0006
02	1X05-LS1	0.8570	-12.88	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0004	0.0003
03	1X05-LS2	0.8700	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0006	0.0002
04	1X06-LS1	0.9187	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0009	0.0002
05	1X06-LS2	0.9161	-12.14	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0008	0.0000
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06	1A05,06	0.9424	-11.71	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0002	-0.0024
56	2A05,06	0.9424	-11.74	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0004	-0.0017
86	1A02-AUX	0.8547	-12.91	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0310	0.0080
80	1A04-AUX	0.8679	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1393	-0.1334
83	2A04-AUX	0.9170	-12.06	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0277	-0.1241
81	2A02-AUX	0.9149	-12.18	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0437	-0.0427
18	15-HS	0.9421	-11.71	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0006	0.0015
68	25-HS	0.9422	-11.74	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0011
09	1A02	0.8547	-12.91	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0606	-0.0380
08	1A01	0.8547	-12.91	4.160	0.00	0.00	0.68	0.43	1.36	4.58	-0.0306	0.0277
10	1A03	0.8679	-12.25	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0014	0.0044
61	1A04	0.8679	-12.25	4.160	0.00	0.00	0.68	0.43	1.20	4.63	-0.1409	0.1290
58	2A04	0.9170	-12.06	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0277	0.1240
60	2A03	0.9167	-12.07	4.160	0.00	0.00	3.58	1.49	0.64	0.31	-0.0002	0.0004
11	2A01	0.9147	-12.19	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0006	0.0009
59	2A02	0.9149	-12.18	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0434	0.0420
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000

51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.9209	-14.99	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56	2B05	0.9221	-15.18	0.480	0.00	0.00	0.17	0.11	0.07	0.00	0.0000	0.0000
14	12A-HS	0.8541	-12.90	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0007
15	12B-HS	0.8543	-12.91	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0009
12	11A-HS	0.8541	-12.89	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0004	0.0001
13	11B-HS	0.8544	-12.90	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0004	0.0002
16	13B-HS	0.8675	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
17	13A-HS	0.8676	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
69	14A-HS	0.8672	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
70	14B-HS	0.8677	-12.24	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	-0.0002
62	24B-HS	0.9168	-12.06	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0002
63	24A-HS	0.9167	-12.06	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
64	23A-HS	0.9165	-12.07	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
65	23B-HS	0.9164	-12.08	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
19	21B-HS	0.9144	-12.19	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
20	21A-HS	0.9142	-12.19	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
66	22B-HS	0.9144	-12.19	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
67	22A-HS	0.9145	-12.18	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9183	-15.06	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	-0.0000
14	1B008	0.9157	-15.12	0.480	0.00	0.00	0.00	0.00	0.40	0.19	-0.0000	-0.0000
15	1B007	0.9193	-15.03	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	-0.0000
64	2B008	0.9164	-15.33	0.480	0.00	0.00	0.00	0.00	0.49	0.24	-0.0000	-0.0000
65	2B007	0.9204	-15.22	0.480	0.00	0.00	0.00	0.00	0.25	0.12	0.0000	-0.0000
02	1B02A	0.8136	-17.49	0.480	0.00	0.00	0.73	0.44	0.05	0.02	0.0001	0.0000
03	1B02B	0.8316	-17.01	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.7813	-16.70	0.480	0.00	0.00	0.50	0.28	0.35	0.69	0.0000	-0.0000
01	1B01B	0.8074	-15.57	0.480	0.00	0.00	0.35	0.20	0.13	0.33	0.0000	0.0000
04	1B03B	0.8535	-15.82	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.8571	-14.60	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.8200	-15.45	0.480	0.00	0.00	0.41	0.21	0.23	0.32	0.0000	0.0000
58	1B04B	0.8513	-13.55	0.480	0.00	0.00	0.08	0.05	0.14	0.35	0.0000	0.0000
50	2B04B	0.9106	-14.99	0.480	0.00	0.00	0.19	0.11	0.06	0.03	0.0000	0.0000
51	2B04A	0.9176	-14.23	0.480	0.00	0.00	0.22	0.11	0.19	0.03	0.0000	0.0000
52	2B03A	0.9096	-14.16	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.9130	-14.91	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07	2B01B	0.9074	-15.15	0.480	0.00	0.00	0.32	0.18	0.06	0.03	0.0000	0.0000
08	2B01A	0.8987	-15.41	0.480	0.00	0.00	0.48	0.27	0.24	0.06	0.0000	0.0000
54	2B02B	0.9001	-16.31	0.480	0.00	0.00	0.23	0.13	0.20	0.00	0.0000	0.0000
55	2B02A	0.8950	-15.23	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03	1B002	0.8075	-17.67	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
05	1B005	0.8102	-17.59	0.480	0.00	0.00	0.00	0.00	0.11	0.05	-0.0000	-0.0000
06	1B010	0.8281	-17.28	0.480	0.00	0.00	0.00	0.00	0.21	0.00	-0.0000	0.0000
07	1B006	0.8234	-17.24	0.480	0.00	0.00	0.00	0.00	0.31	0.15	-0.0000	-0.0000
00	1B001A	0.7794	-16.76	0.480	0.00	0.00	0.00	0.00	0.11	0.05	-0.0000	0.0000
02	1B014	0.7959	-15.58	0.480	0.00	0.00	0.00	0.00	0.22	0.25	-0.0000	-0.0000
04	1B009	0.8074	-15.57	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08	1B016	0.8432	-16.12	0.480	0.00	0.00	0.00	0.00	0.29	0.14	-0.0000	-0.0000
09	1B003	0.8475	-15.99	0.480	0.00	0.00	0.00	0.00	0.21	0.10	-0.0000	-0.0000
10	1B012	0.8520	-15.93	0.480	0.00	0.00	0.00	0.00	0.22	0.00	-0.0000	-0.0000
11	1B015	0.8553	-14.65	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
66	1B004	0.8106	-15.42	0.480	0.00	0.00	0.00	0.00	0.19	0.24	-0.0000	-0.0000

67 1B001B	0.8464	-13.69	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
70 1B0_1	0.8513	-13.55	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50 2B001B	0.9032	-15.19	0.480	0.00	0.00	0.00	0.00	0.28	0.14	-0.0000	-0.0000
62 2B011	0.9092	-15.09	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	0.0000
52 2B004	0.9118	-14.38	0.480	0.00	0.00	0.00	0.00	0.18	0.08	-0.0000	-0.0000
61 2B015	0.9074	-14.22	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000
58 2B016	0.9009	-15.23	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
59 2B003	0.90[illegible]	-15.00	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
60 2B012	0.9109	-15.06	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
16 2B014	0.9012	-15.31	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
20 2B009	0.9039	-15.40	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
17 2B001A	0.8944	-15.53	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
56 2B010	0.8970	-16.53	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
57 2B006	0.8927	-16.51	0.480	0.00	0.00	0.00	0.00	0.40	0.19	-0.0000	-0.0000
53 2B002	0.8852	-15.49	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	-0.0000
55 2B005	0.8927	-15.29	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
ONFIRM END: ENTER 1 FOR END, 2 FOR SAVE AND END, OR 3 TO CONTINUE RUN.

ND OF DRIVER

```
UXILIARY SYSTEM DESIGN OPTIMIZATION PROGRAM
UKE POWER CO., CHARLOTTE, N.C.

O YOU WANT TO MAKE ANY DIMENSION CHANGES?  (0=NO, 1=YES)
RESENT DIMENSIONS:
                          DIMENSIONED
 BUSES                     #BUS=  75
 PATHS(RLL)                #PA= 150
 DL ELEMENTS               #DL= 200
 CIRCUIT BREAKERS          #CB=  35
 MOTORS                    #MOT= 100
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  10
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  20
 MOTOR STARTS              #MS=   7
    INPUT THE VARIABLE NAME AS GIVEN ABOVE,EQUAL SIGN(=), AND
    THE DESIRED NEW VALUE.  ANY NUMBER OF CHANGES CAN BE ENTERED ON THE SAME LINE.
***END OF CHANGES IS INDICATED BY A SEMICOLON(;)****
                          DIMENSIONED
 BUSES                     #BUS= 150
 PATHS(RLL)                #PA= 220
 DL ELEMENTS               #DL= 400
 CIRCUIT BREAKERS          #CB=  99
 MOTORS                    #MOT= 200
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  70
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  40
 MOTOR STARTS              #MS=  14
NY MORE CHANGES? (0=NO, 1=YES)
ASEFILE CREATED: 04:11:80  KRT:PJH
ALVERT CLIFFS STATION REP TEST
ATA HAS BEEN READ IN FROM THE BASEFILE
HIS IS A HIGH VOLTAGE STUDY.
HE BASE VOLTAGE IS    0.000 KV ON BUS     0.
ELEASE 9, 10/1/79
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED BATCH
NTER COMMAND
```

CASE 3

BRANCH ELEMENTS

INPUT CODE-	TYPE	++++CABLE OR BUS++++ ----X----	----R----	+++++CABLE++++++ NO.-SIZE	--FT--	++++++++++++BUS++++++++++++ ---X/FT--	---R/FT--	--FT--	++REACTOR OR CAPACITOR+++ --X(PU)--	--IR--	--KV--
200-207- 1A	CAB	2.0.E-02*	1.39E-02*	1-750	670.0						
200-206- 1A	CAB	2.04E-02*	1.37E-02*	1-750	660.0						
200-205- 1A	CAB	1.95E-02*	1.31E-02*	1-750	632.0						
200-204- 1A	CAB	1.99E-02*	1.34E-02*	1-750	645.0						
200-257- 1A	CAB	2.29E-02*	1.54E-02*	1-750	741.0						
200-256- 1A	CAB	2.37E-02*	1.59E-02*	1-750	766.0						
200-255- 1A	CAB	2.24E-02*	1.51E-02*	1-750	726.0						
200-254- 1A	CAB	2.30E-02*	1.55E-02*	1-750	745.0						
210-260- 1A	CAB	2.51E-03*	1.69E-03*	3-750	244.0						
200-210- 1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0						

210-201-	1A	CA[illegible]	8.36E-03*	5.63E-03*	3-750	812.0
210-202-	1A	CAB	4.15E-03*	2.79E-03*	3-750	403.0
210-203-	1A	CAB	6.54E-03*	4.40E-03*	3-750	635.0
300-306-	1A	CAB	3.28E-03*	2.21E-03*	4-750	425.0
304-383-	1A	CAB	1.74E-03*	1.17E-03*	4-750	225.0
383-358-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
383-360-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
301-356-	1A	CAB	3.63E-03*	2.44E-03*	4-750	470.0
306-318-	1A	CAB	1.79E-03*	3.20E-03*	1- 4/0	50.0
308-312-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
308-313-	1A	CAB	2.15E-03*	3.84E-03*	1- 4/0	60.0
302-386-	1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
386-309-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
386-308-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
309-314-	1A	CAB	3.44E-03*	6.14E-03*	1- 4/0	96.0
309-315-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
303-380-	1A	CAB	2.16E-03*	1.46E-03*	4-750	280.0
380-310-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
380-361-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
310-316-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
310-317-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
305-381-	1A	CAB	2.06E-03*	1.39E-03*	4-750	267.0
381-311-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
381-359-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
311-319-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
311-320-	1A	CAB	3.94E-03*	7.08E-03*	1- 4/0	110.0
400-500-	1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0
401-502-	1A	CAB	4.80E-03*	4.19E-03*	2-500	287.0
401-504-	1A	CAB	3.09E-03*	2.70E-03*	2-500	185.0
402-503-	1A	CAB	4.70E-03*	4.10E-03*	2-500	281.0
402-505-	1A	CAB	4.51E-03*	3.94E-03*	2-500	270.0
403-506-	1A	CAB	3.75E-03*	3.27E-03*	2-500	224.0
403-507-	1A	CAB	3.66E-03*	3.20E-03*	2-500	219.0
404-508-	1A	CAB	5.02E-03*	4.38E-03*	2-500	300.0
404-509-	1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
404-510-	1A	CAB	1.50E-03*	1.31E-03*	2-500	90.0
405-511-	1A	CAB	5.75E-03*	5.02E-03*	2-500	344.0
406-513-	1A	CAB	9.20E-03*	8.03E-03*	2-500	550.0
406-514-	1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
406-515-	1A	CAB	1.00E-03*	8.76E-04*	2-500	60.0
407-516-	1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
407-520-	1A	CAB	3.34E-03*	2.92E-03*	2-500	200.0
408-517-	1A	CAB	4.46E-03*	3.90E-03*	2-500	267.0
250-257-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-256-	1A	CAB	1.93E-02*	1.30E-02*	1-750	625.0
250-255-	1A	CAB	1.77E-02*	1.19E-02*	1-750	573.0
250-254-	1A	CAB	1.89E-02*	1.28E-02*	1-750	613.0
250-207-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-206-	1A	CAB	2.49E-02*	1.67E-02*	1-750	805.0
250-205-	1A	CAB	2.44E-02*	1.65E-02*	1-750	791.0
250-204-	1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0
250-260-	1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0
260-251-	1A	CAB	1.03E-02*	6.95E-03*	3-750	1002.0
260-252-	1A	CAB	4.48E-03*	3.02E-03*	3-750	435.0
260-253-	1A	CAB	6.64E-03*	4.47E-03*	3-750	645.0
350-356-	1A	CAB	3.47E-03*	2.34E-03*	4-750	450.0
351-306-	1A	CAB	3.49E-03*	2.35E-03*	4-750	452.0
356-368-	1A	CAB	1.83E-03*	3.26E-03*	1- 4/0	51.0
358-362-	1A	CAB	2.51E-03*	4.48E-03*	1- 4/0	70.0
358-363-	1A	CAB	4.19E-03*	7.49E-03*	1- 4/0	117.0

352-382- 1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0	
382-360- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0	
382-3 8- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0	
360-364- 1A	CAB	2.80E-03*	4.99E-03*	1- 4/0	78.0	
360-365- 1A	CAB	3.30E-03*	5.89E-03*	1- 4/0	92.0	
353-384- 1A	CAB	2.03E-03*	1.37E-03*	4-750	263.0	
384-311- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0	
384-359- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0	
354-387- 1A	CAB	1.86E-03*	1.25E-03*	4-750	241.0	
387-308- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0	
387-309- 1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0	
359-366- 1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0	
359-367- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0	
355-385- 1A	CAB	1.78E-03*	1.20E-03*	4-750	230.0	
385-310- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0	
385-361- 1A	CAB	6 95E-04*	4.68E-04*	4-750	90.0	
361-369- 1A	CAB	4.48E-03*	8.00E-03*	1- 4/0	125.0	
361-370- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0	
450-550- 1A	CAB	4.01E-03*	3.50E-03*	2-500	240.0	
450-562- 1A	CAB	1.34E-03*	1.17E-03*	2-500	80.0	
451-552- 1A	CAB	5.10E-03*	4.45E-03*	2-500	305.0	
452-561- 1A	CAB	5.52E-03*	4.82E-03*	2-500	330.0	
453-558- 1A	CAB	4.98E-03*	4.35E-03*	2-500	298.0	
453-559- 1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0	
453-560- 1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0	
454-556- 1A	CAB	3.01E-03*	2.63E-03*	2-500	180.0	
454-557- 1A	CAB	2.79E-03*	2.44E-03*	2-500	167.0	
455-553- 1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0	
455-555- 1A	CAB	6.02E-03*	5.26E-03*	2-500	360.0	
456-564- 1A	CAB	1.84E-03*	1.61E-03*	2-500	110.0	
456-565- 1A	CAB	1.09E-03*	9.49E-04*	2-500	65.0	
457-566- 1A	CAB	4.35E-03*	3.80E-03*	2-500	260.0	
458-567- 1A	CAB	4.43E-03*	3.87E-03*	2-500	265.0	
458-570- 1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0	

2-WINDING TRANSFORMERS

-INPUT CODE-	--XT--	--KV1-	--KV2-	--KVAT-	--KVAB-	-X/R-
100-200- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
312-400- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
313-401- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
314-402- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
315-403- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
316-404- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
317-405- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
318-406- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
319-407- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
320-408- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
100-250- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
362-450- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
363-451- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
364-452- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
365-453- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
366-454- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
367-455- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
368-456- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
369-457- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
370-458- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16

3-WINDING TRANSFORMERS

-INPUT CODE-	XT(H-X)	XT(H-Y)	XT(X-Y)	KV(H)-	KV(X)-	KV(Y)-	KVAT(H)	KVAT(X)	KVAT(Y)	-X/R-	-KVATB-

201-300-301	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
202-302-303	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
203-304-305	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
251-350-351	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
252-352-353	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
253-354-355	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00

STATIC LOADS

INPUT CODE-	--KV--	---KVA--	-PFL-	LEAD/LAG
0-308-13	4.16	300.00	0.90	LAG
0-311-13	4.16	500.00	0.90	LAG
0-400- 7	0.48	80.00	0.90	LAG
0-400- 8	0.48	85.00	0.90	LAG
0-400- 9	0.48	150.00	1.00	LEAD
0-401- 5	0.48	85.00	0.90	LAG
0-401- 6	0.48	75.00	1.00	LEAD
0-402- 6	0.48	85.00	0.90	LAG
0-403- 7	0.48	275.00	1.00	LEAD
0-405- 8	0.48	4.00	0.90	LAG
0-406- 6	0.48	85.00	1.00	LEAD
0-407- 5	0.48	85.00	0.90	LAG
0-407- 6	0.48	75.00	1.00	LEAD
0-408- 7	0.48	80.00	0.90	LAG
0-408- 8	0.48	150.00	1.00	LEAD
0-408- 9	0.48	85.00	0.90	LAG
0-500- 1	0.48	201.30	0.90	LAG
0-502- 1	0.48	310.38	0.90	LAG
0-503- 1	0.48	302.90	0.90	LAG
0-504- 1	0.48	300.00	1.00	LEAD
0-505- 1	0.48	178.90	0.90	LAG
0-506- 1	0.48	300.00	1.00	LEAD
0-507- 1	0.48	512.20	0.90	LAG
0-508- 1	0.48	457.40	0.90	LAG
0-509- 1	0.48	317.60	0.90	LAG
0-510- 1	0.48	300.00	1.00	LEAD
0-511- 1	0.48	69.00	0.90	LAG
0-513- 1	0.48	56.25	0.90	LAG
0-514- 1	0.48	526.25	0.90	LAG
0-515- 1	0.48	329.19	0.90	LAG
0-516- 1	0.48	219.97	0.90	LAG
0-517- 1	0.48	206.20	0.90	LAG
0-520- 1	0.48	300.00	1.00	LEAD
0-360-13	4.16	852.00	0.90	LAG
0-450- 9	0.48	75.00	1.00	LEAD
0-450-10	0.48	85.00	0.90	LAG
0-451- 8	0.48	150.00	1.00	LEAD
0-451- 9	0.48	85.00	0.90	LAG
0-452- 6	0.48	4.00	0.90	LAG
0-454- 5	0.48	275.00	1.00	LEAD
0-454- 6	0.48	250.00	1.00	LEAD
0-455- 5	0.48	1.00	1.00	LEAD
0-456- 3	0.48	85.00	1.00	LEAD
0-457- 9	0.48	150.00	1.00	LEAD
0-457-10	0.48	85.00	0.90	LAG
0-458- 7	0.48	75.00	1.00	LEAD
0-458- 8	0.48	85.00	0.90	LAG
0-550- 1	0.48	384.40	0.90	LAG
0-552- 1	0.48	234.00	0.90	LAG
0-553- 1	0.48	357.45	0.90	LAG
0-555- 1	0.48	82.10	0.90	LAG

0-556- 1	0.48	300.00	1.00	LEAD
0-557- 1	0.48	559.45	0.90	LAG
0-558- 1	0.48	505.92	0.90	LAG
0-559- 1	0.48	177.40	0.90	LAG
0-560- 1	0.48	300.00	1.00	LEAD
0-561- 1	0.48	83.90	0.90	LAG
0-562- 1	0.48	300.00	1.00	LEAD
0-564- 1	0.48	645.20	0.90	LAG
0-565- 1	0.48	329.05	0.90	LAG
0-566- 1	0.48	250.93	0.90	LAG
0-567- 1	0.48	247.50	0.90	LAG
0-570- 1	0.48	300.00	1.00	LEAD

MOTORS

INPUT CODE-	---HP--	--VM-	-DF-	-RPM	--KVA-	--LRC--	LRCPF	-XD"-	--X/R-	-PFM	TYPE
0-204- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-205- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-206- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-207- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-308- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-308- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-308- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-308- 6	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-308-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-309- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-309- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-309- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-309- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-310- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-310- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 4	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-311- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-311- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-311- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-311-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-400- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-400- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-400- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-400- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-400- 5	100.0	460	1.00*	3600*	100.0*	760.0	0.25*	0.160*	9.20*	0.85*	IND
0-400- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-400-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-401- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 3	100.0	460	1.00*	3600*	100.0*	800.0	0.25*	0.152*	9.20*	0.85*	IND
0-401- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-401- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-401- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-402- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-402- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND

0-402- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	.151*	12.73*	0.85*	IND
0-402- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-402- 5	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-403- 1	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-403- 2	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-403- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-403- 4	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-403- 5	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-403- 6	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-403- 8	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-404- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-404- 4	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-404- 5	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-404- 7	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-404- 8	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-405- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-405- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-405- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-405- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-405- 5	110.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-405- 6	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-405- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-405- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 2	73.5	460	1.00*	3600*	73.5*	550.0	0.25*	0.162*	8.51*	0.85*	IND
0-406- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-406- 4	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 5	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-407- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-407- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-407- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-407- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-407- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-407- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-408- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-408- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-408- 5	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-408- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-408-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-502- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-306- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-254- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-255- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-256- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-257- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-358- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-358- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-358- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-358- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND

0-358- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 9	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-359- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-359- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-359- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-359- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-360- 9	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-360- 10	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360- 11	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-12	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-361- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-361- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-361- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-361- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-450- 1	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-450- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-450- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-450- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.165*	9.20*	0.86	IND
0-450- 6	125.0	460	1.00*	3600*	112.0	820.6	0.25*	0.148*	9.97*	0.90	IND
0-450- 7	100.0	460	1.00*	3600*	100.0	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-451- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-451- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-451- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-451- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-451- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-451- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-451- 7	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-455- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-455- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-455- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-455- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-457- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-457- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-457- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-457- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-457- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-457- 6	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-457- 7	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-457- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-458- 1	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-458- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 4	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-458- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-458- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-454- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-454- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-454- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-454- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-453- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-453- 2	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-452- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-452- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-452- 3	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND

0-452- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-452- 5	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-456- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-456- 2	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-566- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-356- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN

	SYSTEM EQUIVALENT		
INPUT CODE-	--FMVA--	--KV--	-X/R--
0-100- 1	10826.45	500.00	46.0

ENTER COMMAND
ADD RCBL ELEM.
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DD RCBL ELEM.
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NTER COMMAND
NTER BASE VOLTAGE (KV) AND THE RELATED BUS

OW IN RUN MODE
NTER COMMAND
                                DIMENSIONED      ACTUAL
 BUSES                              150            124
 PATHS(RLL)                         220            181
 DL ELEMENTS                        400            381
 CIR. BRK.(BRANCH PCB)               99             92
 CIR. BRK.(OPEN/CLOSE CB)            99             39
 MOTORS                             200            175
 CHANGES                              1
 POINTS                               1
 STATIC LOADS                        70             63
 NON-ADJACENT LINES                   5              0
 TAPS                                40
 MOTOR STARTS                        14              0
NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS
   CIRCUIT BREAKER LIST
SB      EB      BR     STATUS
 0     504       1     CLOSED
 0     311      13     OPENED
 0     401       6     OPENED
 0     403       7     OPENED
 0     406       6     OPENED
 0     407       6     OPENED
204      0       1     CLOSED
308      0       3     OPENED
308      0       4     OPENED
308      0       5     OPENED
308      0       6     OPENED
```

08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED
06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED

51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED
51	306	1	OPENED
50	257	1	OPENED
50	256	1	OPENED
50	255	1	OPENED
50	254	1	OPENED
50	207	1	OPENED
50	206	1	OPENED
50	205	1	OPENED
50	204	1	OPENED
85	361	1	OPENED
84	359	1	OPENED
82	358	1	OPENED
82	360	1	OPENED
84	311	1	OPENED
85	310	1	OPENED
87	308	1	OPENED
87	309	1	OPENED
0	570	1	OPENED
0	504	1	OPENED
0	308	3	CLOSED
0	308	4	CLOSED
0	308	5	CLOSED
0	400	1	CLOSED
0	400	2	CLOSED
0	400	3	CLOSED
0	400	4	CLOSED
0	400	5	CLOSED
0	400	6	CLOSED
0	400	10	CLOSED
0	502	2	CLOSED
0	566	2	CLOSED
0	361	3	CLOSED
0	361	4	CLOSED

```
 0     361       5     CLOSED
 0     401       9     CLOSED
 0     457       4     CLOSED
 0     458       1     CLOSED
NTER COMMAND
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
NTER SWING BUS DATA:
    BUS NUMBER.............#
    PER-UNIT VOLTAGE.......V(PU)
    ANGLE IN DEGREES.......THETA
WING BUS= 100 V=  1.030 ANGLE=  0.000
IST GENERATOR BUSES:
    BUS NUMBER.....................................................#
    REAL POWER.....................................................MW
    REACTIVE POWER.................................................MVAR
    PER-UNIT VOLTAGE(SET V(PU)=0.0 FOR NON VOLTAGE-CONTROLLED BUS)....V(PU)
NTER 9999 TO INDICATE END OF DATA.
IST TAP CHANGING XFMRS:
    FROM-BUS NUMBER WHERE TAP IS LOCATED.........FB
    TO-BUS NUMBER(TB=-1 FOR 3-WINDING XFMR).....TB
    % TAP ABOVE/BELOW NOMINAL VOLTAGE............%
NTER 9999 TO INDICATE END OF DATA.
ROM-BUS     TO-BUS      %TAP     LINE NO.
  100         200      -1.450       1
  201         300      -2.170       2
  201         301      -2.170       3
  202         302      -2.170       4
  202         303      -2.170       5
  203         304      -2.170       6
  203         305      -2.170       7
  312         400      -2.520       8
  313         401      -2.520       9
  314         402      -2.520      10
  315         403      -2.520      11
  316         404      -2.520      12
  317         405      -2.520      13
  318         406      -2.520      14
  319         407      -2.520      15
  320         408      -2.520      16
  100         250      -1.450      17
  251         350      -2.170      18
  251         351      -2.170      19
  252         352      -2.170      20
  252         353      -2.170      21
  253         354      -2.170      22
  253         355      -2.170      23
  362         450      -2.520      24
  363         451      -2.520      25
  364         452      -2.520      26
  365         453      -2.520      27
  366         454      -2.520      28
  367         455      -2.520      29
  368         456      -2.520      30
  369         457      -2.520      31
  370         458      -2.520      32
OO YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY                                          DATE = 03/25/81
```

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000010 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

		LINE POWER FLOW			LINE CURRENT
ROM-BUS	TO-BUS	MW	MVAR	MVA	MAG(KA)
204	200	-4.622	-2.372	5.195	0.227
200	204	4.625	2.375	5.199	0.227
200	207	4.614	2.378	5.191	0.227
200	206	4.614	2.378	5.191	0.227
200	205	4.615	2.378	5.191	0.227
200	257	4.615	2.379	5.192	0.227
200	256	4.615	2.379	5.192	0.227
200	255	4.616	2.379	5.193	0.227
200	254	4.616	2.379	5.193	0.227
200	210	47.834	24.084	53.555	2.338

200	100	-84.046	-39.827	93.005	4.060
207	200	-4.612	-2.375	5.187	0.227
206	200	-4.612	-2.375	5.188	0.227
205	200	-4.613	-2.375	5.188	0.227
257	200	-4.613	-2.376	5.189	0.227
256	200	-4.613	-2.376	5.189	0.227
255	200	-4.613	-2.376	5.189	0.227
254	200	-4.613	-2.376	5.189	0.227
210	200	-47.834	-24.084	53.555	2.338
210	201	13.690	1.945	13.827	0.604
210	202	17.504	10.275	20.297	0.886
210	203	15.939	8.577	18.100	0.790
100	200	84.520	56.073	101.428	0.114
100	250	0.001	0.000	0.001	0.000
201	210	-13.684	-1.935	13.820	0.604
201	MIDPOINT	13.676	1.935	13.812	0.603
202	210	-17.497	-10.266	20.286	0.886
202	MIDPOINT	17.492	10.258	20.278	0.886
203	210	-15.931	-8.564	18.087	0.790
203	MIDPOINT	15.917	8.552	18.069	0.789
250	100	-0.001	-0.000	0.001	0.000
250	260	0.001	-0.000	0.001	0.000
260	250	-0.001	0.000	0.001	0.000
260	251	-0.000	0.000	0.000	0.000
260	252	-0.000	0.000	0.000	0.000
260	253	-0.000	0.000	0.000	0.000
300	MIDPOINT	-6.784	-0.604	6.811	0.976
300	306	6.786	0.605	6.813	0.977
301	MIDPOINT	-6.830	-0.583	6.854	0.983
301	356	6.831	0.583	6.856	0.983
302	MIDPOINT	-9.352	-4.791	10.508	1.567
302	386	9.354	4.792	10.510	1.567
303	MIDPOINT	-7.994	-3.849	8.872	1.309
303	380	7.996	3.849	8.874	1.310
304	MIDPOINT	-7.800	-3.553	8.571	1.261
304	383	7.801	3.553	8.572	1.262
305	MIDPOINT	-8.015	-3.729	8.840	1.303
305	381	8.016	3.729	8.841	1.304
251	260	0.000	-0.000	0.000	0.000

251	MIDPOINT	0.000	-0.000	0.000	0.000
252	260	0.000	-0.000	0.000	0.000
252	MIDPOINT	0.000	-0.000	0.000	0.000
253	260	0.000	-0.000	0.000	0.000
253	MIDPOINT	0.000	-0.000	0.000	0.000
306	300	-6.780	-0.596	6.806	0.977
306	318	1.002	0.594	1.165	0.167
356	301	-6.824	-0.573	6.848	0.983
356	368	1.046	0.572	1.192	0.171
386	302	-9.343	-4.776	10.493	1.567
386	309	5.751	2.769	6.383	0.953
386	308	3.562	2.008	4.089	0.611
380	303	-7.988	-3.838	8.862	1.310
380	310	5.185	2.327	5.683	0.840
380	361	3.116	1.723	3.560	0.526
383	304	-7.795	-3.545	8.563	1.262
383	358	2.227	1.006	2.444	0.360
383	360	5.669	2.507	6.198	0.913
381	305	-8.009	-3.718	8.830	1.304
381	311	2.416	1.257	2.723	0.402
381	359	5.711	2.644	6.293	0.929
318	306	-1.001	-0.594	1.164	0.167
318	406	1.000	0.595	1.164	0.167
368	356	-1.045	-0.571	1.191	0.171
368	456	1.044	0.572	1.191	0.171
309	386	-5.751	-2.769	6.383	0.953
309	314	1.163	0.766	1.393	0.208
309	315	1.069	0.531	1.194	0.178
308	386	-3.562	-2.008	4.089	0.611
308	312	1.053	0.590	1.207	0.180
308	313	0.755	0.456	0.882	0.132
310	380	-5.185	-2.327	5.683	0.840
310	316	0.996	0.449	1.092	0.161
310	317	0.606	0.384	0.717	0.106
361	380	-3.116	-1.723	3.560	0.526
361	369	0.903	0.457	1.013	0.150
361	370	0.412	0.227	0.470	0.070
358	383	-2.227	-1.006	2.444	0.360
358	362	0.830	0.346	0.899	0.132
358	363	0.615	0.261	0.668	0.098
360	383	-5.667	-2.504	6.196	0.913
360	364	0.596	0.375	0.704	0.104
360	365	0.807	0.310	0.865	0.127

311	381	-2.415	-1.256	2.723	0.402
311	319	0.828	0.351	0.900	0.133
311	320	0.904	0.472	1.020	0.151
359	381	-5.711	-2.644	6.293	0.929
359	366	1.144	0.434	1.224	0.181
359	367	0.867	0.539	1.021	0.151
350	MIDPOINT	-0.000	-0.000	0.000	0.000
351	MIDPOINT	-0.000	-0.000	0.000	0.000
352	MIDPOINT	-0.000	-0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	-0.000	-0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	-0.000	-0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	-0.000	-0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.984	-0.512	1.109	1.411
406	513	0.045	0.022	0.050	0.064
406	514	0.421	0.205	0.468	0.595
406	515	0.264	0.128	0.294	0.374
456	368	-1.028	-0.486	1.137	1.444
456	564	0.517	0.252	0.575	0.730
456	565	0.265	0.129	0.294	0.374
314	309	-1.163	-0.766	1.392	0.208
314	402	1.162	0.766	1.391	0.208
315	309	-1.069	-0.531	1.193	0.178
315	403	1.068	0.531	1.192	0.178
312	308	-1.053	-0.590	1.207	0.180
312	400	1.052	0.590	1.207	0.180
313	308	-0.755	-0.456	0.881	0.132
313	401	0.754	0.456	0.881	0.132
316	310	-0.995	-0.449	1.092	0.161
316	404	0.995	0.449	1.092	0.161
317	310	-0.606	-0.384	0.717	0.106
317	405	0.605	0.384	0.717	0.106
369	361	-0.903	-0.457	1.012	0.150
369	457	0.903	0.457	1.012	0.150
370	361	-0.412	-0.227	0.470	0.070
370	458	0.412	0.227	0.470	0.069
362	358	-0.829	-0.345	0.898	0.132
362	450	0.829	0.345	0.898	0.132

363	358	-0.615	-0.261	0.668	0.098
363	451	0.615	0.261	0.668	0.098
364	360	-0.596	-0.375	0.704	0.104
364	452	0.596	0.375	0.704	0.104
365	360	-0.807	-0.310	0.864	0.127
365	453	0.807	0.310	0.864	0.127
319	311	-0.828	-0.351	0.899	0.133
319	407	0.828	0.351	0.899	0.133
320	311	-0.903	-0.472	1.019	0.151
320	408	0.903	0.472	1.019	0.151
366	359	-1.143	-0.434	1.223	0.181
366	454	1.143	0.434	1.223	0.181
367	359	-0.866	-0.539	1.020	0.151
367	455	0.866	0.539	1.020	0.151
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.045	-0.022	0.050	0.064
514	406	-0.419	-0.203	0.465	0.595
515	406	-0.264	-0.128	0.293	0.374
564	456	-0.514	-0.249	0.571	0.730
565	456	-0.264	-0.128	0.294	0.374
402	314	-1.137	-0.638	1.304	1.757
402	503	0.215	0.105	0.240	0.323
402	505	0.128	0.062	0.142	0.191
403	315	-1.050	-0.437	1.137	1.505
403	506	0.247	0.001	0.247	0.326
403	507	0.376	0.184	0.419	0.554
400	312	-1.034	-0.494	1.146	1.523
400	500	0.148	0.072	0.164	0.219
401	313	-0.744	-0.404	0.847	1.112
401	502	0.266	0.135	0.298	0.392
401	504	0.000	0.000	0.000	0.000
404	316	-0.980	-0.372	1.048	1.363
404	508	0.347	0.170	0.387	0.503
404	509	0.242	0.118	0.270	0.35
404	510	0.256	0.001	0.256	0.333
405	317	-0.599	-0.350	0.694	0.895

405	511	0.054	0.026	0.060	0.077
457	369	-0.890	-0.391	0.972	1.264
457	566	0.226	0.115	0.253	0.329
458	370	-0.409	-0.213	0.461	0.587
458	567	0.197	0.096	0.220	0.280
458	570	0.000	0.000	0.000	0.000
450	362	-0.819	-0.294	0.870	1.118
450	550	0.300	0.147	0.334	0.429
450	562	0.262	0.000	0.262	0.337
451	363	-0.609	-0.232	0.652	0.832
451	552	0.186	0.091	0.207	0.264
452	364	-0.590	-0.343	0.682	0.877
452	561	0.066	0.032	0.073	0.094
453	365	-0.797	-0.262	0.839	1.076
453	558	0.394	0.194	0.439	0.563
453	559	0.140	0.068	0.155	0.199
453	560	0.263	0.001	0.263	0.338
407	319	-0.817	-0.299	0.870	1.122
407	516	0.171	0.083	0.190	0.245
407	520	0.260	0.001	0.260	0.336
408	320	-0.890	-0.405	0.978	1.272
408	517	0.158	0.077	0.176	0.228
454	366	-1.125	-0.338	1.174	1.526
454	556	0.256	0.001	0.256	0.333
454	557	0.427	0.209	0.475	0.618
455	367	-0.853	-0.472	0.975	1.273
455	553	0.269	0.132	0.300	0.392
455	555	0.063	0.030	0.070	0.091
503	402	-0.214	-0.104	0.238	0.323
505	402	-0.127	-0.062	0.141	0.191
506	403	-0.246	-0.000	0.246	0.326
507	403	-0.373	-0.181	0.414	0.554
500	400	-0.148	-0.071	0.164	0.219
502	401	-0.264	-0.133	0.296	0.392
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.344	-0.167	0.382	0.503
509	404	-0.241	-0.117	0.268	0.351
510	404	-0.256	-0.000	0.256	0.333
511	405	-0.054	-0.026	0.060	0.077

566	457	-0.225	-0.113	0.252	0.329
567	458	-0.196	-0.095	0.218	0.280
570	458	-0.000	-0.000	0.000	0.000
550	450	-0.298	-0.144	0.331	0.429
562	450	-0.262	-0.000	0.262	0.337
552	451	-0.185	-0.090	0.206	0.264
561	452	-0.066	-0.032	0.073	0.094
558	453	-0.390	-0.189	0.433	0.563
559	453	-0.139	-0.067	0.155	0.199
560	453	-0.263	-0.000	0.263	0.338
516	407	-0.170	-0.082	0.189	0.245
520	407	-0.259	-0.000	0.259	0.336
517	403	-0.157	-0.076	0.175	0.228
556	454	-0.255	-0.000	0.255	0.333
557	454	-0.424	-0.205	0.471	0.618
553	455	-0.267	-0.129	0.297	0.392
555	455	-0.062	-0.030	0.069	0.091

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
NO.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
204	1H03	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0112	0.0035
200	1H02	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.7166	3.2854
207	1H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0004	-0.0001
206	1H05	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0007	-0.0001
205	1H04	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0013	-0.0003
257	2H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0016	-0.0006
256	2H05	0.9576	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0015	-0.0005
255	2H04	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0020	-0.0007
254	2H03	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0022	-0.0008
210	1H01	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.7007	-3.2876
100	1X03-HS	1.0300	0.00	500.000	84.52	56.16	0.00	0.00	-0.00	0.00	0.0000	0.0000
201	1X04-HS	0.9578	-8.24	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0076	-0.0005
202	1X05-HS	0.9578	-8.22	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0055	-0.0075
203	1X06-HS	0.9577	-8.23	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0139	-0.0125
250	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0008
260	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	0.0004

100	1X04-LS1	0.9681	-11.30	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0015	0.0006
101	1X04-LS2	0.9682	-11.32	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	0.0005
102	1X05-LS1	0.9307	-12.43	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0019	0.0006
103	1X05-LS2	0.9405	-11.79	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0018	0.0005
104	1X06-LS1	0.9430	-11.71	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	0.0007
105	1X06-LS2	0.9412	-11.81	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0010	0.0001
151	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
152	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
153	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
106	1A05,06	0.9671	-11.37	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0001	-0.0012
156	2A05,06	0.9671	-11.40	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0000	-0.0012
186	1A02-AUX	0.9293	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0305	0.0005
180	1A04-AUX	0.9392	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.3124	0.2120
183	2A04-AUX	0.9420	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1006	-0.0326
181	2A02-AUX	0.9401	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1173	0.1826
118	15-HS	0.9668	-11.37	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0014	0.0007
168	25-HS	0.9668	-11.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0011	0.0007
109	1A02	0.9293	-12.48	4.160	0.00	0.00	3.58	1.49	0.00	0.00	1.0642	0.0175
108	1A01	0.9293	-12.48	4.160	0.00	0.00	1.49	0.83	0.23	0.11	-0.0329	-0.0185
110	1A03	0.9392	-11.84	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0001	-0.0046
161	1A04	0.9392	-11.84	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.3128	-0.2078
158	2A04	0.9420	-11.75	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0997	0.0328
160	2A03	0.9417	-11.76	4.160	0.00	0.00	3.58	1.49	0.68	0.33	-0.0011	-0.0005
111	2A01	0.9399	-11.86	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0006	-0.0010
159	2A02	0.9401	-11.86	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.1168	-0.1818
150	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
151	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
152	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
153	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
154	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
155	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
106	1B05	0.9457	-14.61	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
156	2B05	0.9467	-14.82	0.480	0.00	0.00	0.17	0.11	0.08	0.00	0.0000	0.0000
114	12A-HS	0.9287	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0009	-0.0000
115	12B-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0000
112	11A-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	-0.0001
113	11B-HS	0.9290	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0001
116	13B-HS	0.9388	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0000
117	13A-HS	0.9389	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
169	14A-HS	0.9387	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
170	14B-HS	0.9390	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
162	24B-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0002
163	24A-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
164	23A-HS	0.9414	-11.76	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
165	23B-HS	0.9413	-11.77	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
119	21B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0000
120	21A-HS	0.9394	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0001
166	22B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
167	22A-HS	0.9397	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
182	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
184	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
187	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
185	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
513	1B013	0.9431	-14.68	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
514	1B008	0.9404	-14.75	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	-0.0000
515	1B007	0.9440	-14.65	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
564	2B008	0.9408	-14.97	0.480	0.00	0.00	0.00	0.00	0.51	0.25	-0.0000	-0.0000
565	2B007	0.9449	-14.86	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
402	1B02A	0.8927	-16.57	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0001	0.0000
403	1B02B	0.9085	-16.31	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000

00 1B01A	0.9048	-16.22	0.480	0.00	0.00	0.64	0.36	0.24	0.06	0.0000	0.0000
01 1B01B	0.9162	-15.10	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04 1B03B	0.9249	-15.34	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05 1B03A	0.9327	-13.87	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57 1B04A	0.9250	-14.98	0.480	0.00	0.00	0.47	0.24	0.19	0.03	0.0000	0.0000
58 1B04B	0.9445	-13.22	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	0.0000
50 2B04B	0.9359	-14.64	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0000	0.0000
51 2B04A	0.9431	-13.88	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	0.0000
52 2B03A	0.9359	-13.75	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53 2B03B	0.9379	-14.59	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07 2B01B	0.9333	-14.76	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0000	0.0000
08 2B01A	0.9249	-14.99	0.480	0.00	0.00	0.48	0.27	0.26	0.06	0.0000	0.0000
54 2B02B	0.9255	-15.94	0.480	0.00	0.00	0.23	0.13	0.21	0.00	0.0000	0.0000
55 2B02A	0.9213	-14.80	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03 1B002	0.8860	-16.75	0.480	0.00	0.00	0.00	0.00	0.21	0.10	-0.0000	-0.0000
05 1B005	0.8888	-16.67	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
06 1B010	0.9047	-16.59	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
07 1B006	0.8996	-16.55	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
00 1B001A	0.9026	-16.28	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
02 1B014	0.9078	-15.31	0.480	0.00	0.00	0.03	0.02	0.23	0.11	-0.0000	-0.0000
04 1B009	0.9162	-15.10	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08 1B016	0.9137	-15.63	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	-0.0000
09 1B003	0.9184	-15.51	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	-0.0000
10 1B012	0.9233	-15.45	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
11 1B015	0.9307	-13.92	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0000	-0.0000
66 1B004	0.9186	-15.14	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	-0.0000
67 1B001B	0.9390	-13.37	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
70 1B011	0.9445	-13.22	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50 2B001B	0.9283	-14.84	0.480	0.00	0.00	0.00	0.00	0.30	0.14	-0.0000	-0.0000
62 2B011	0.9345	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
52 2B004	0.937?	-14.03	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
61 2B015	0.9336	-13.81	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	-0.0000
58 2B016	0.9255	-14.92	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
59 2B003	0.9342	-14.69	0.480	0.00	0.00	0.00	0.00	0.14	0.07	0.0000	-0.0000
60 2B012	0.9357	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
16 2B014	0.9270	-14.93	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20 2B009	0.9298	-15.01	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
17 2B001A	0.9204	-15.11	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
56 2B010	0.9224	-16.16	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
57 2B006	0.9179	-16.14	0.480	0.00	0.00	0.00	0.00	0.42	0.21	-0.0000	-0.0000
53 2B002	0.9?11	-15.07	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
55 2B005	0.918?	-14.86	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
DD RCBL ELEM.
NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS

CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
204	0	1	CLOSED
508	0	3	OPENED
508	0	4	OPENED
508	0	5	OPENED
508	0	6	OPENED

08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED
06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED

51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED
51	306	1	OPENED
50	257	1	OPENED
50	256	1	OPENED
50	255	1	OPENED
50	254	1	OPENED
50	207	1	OPENED
50	206	1	OPENED
50	205	1	OPENED
50	204	1	OPENED
85	361	1	OPENED
84	359	1	OPENED
82	358	1	OPENED
82	360	1	OPENED
84	311	1	OPENED
85	310	1	OPENED
87	308	1	OPENED
87	309	1	OPENED
0	570	1	OPENED
0	504	1	OPENED
0	308	3	CLOSED
0	308	4	CLOSED
0	308	5	CLOSED
0	400	1	CLOSED
0	400	2	CLOSED
0	400	3	CLOSED
0	400	4	CLOSED
0	400	5	CLOSED
0	400	6	CLOSED
0	400	10	CLOSED
0	502	2	CLOSED
0	566	2	CLOSED
0	361	3	CLOSED
0	361	4	CLOSED

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 0     361        5     CLOSED
 0     401        9     CLOSED
 0     457        4     CLOSED
 0     458        1     CLOSED
 0     309        4     CLOSED
ENTER COMMAND
DO YOU WANT TO MODIFY THE LOAD-FLOW DATA? (1=YES,0=NO)
GIVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
LOAD-FLOW FULL LOAD & ESFAS & COND BOOST PP 12 W/ P13000-2 OOS
ENTER SWING BUS DATA:  (BUS#,V(PU),ANGLE)
SWING BUS= 100 V=  1.030 ANGLE=  0.000
LIST GENERATOR BUSES:  (BUS#,P(MW),Q(MVAR),V(PU))
LIST TAP CHANGING XFMRS:  (FB,TB,%TAP)
FROM-BUS      TO-BUS       %TAP      LINE NO.
   100         200        -1.450        1
   201         300        -2.170        2
   201         301        -2.170        3
   202         302        -2.170        4
   202         303        -2.170        5
   203         304        -2.170        6
   203         305        -2.170        7
   312         400        -2.520        8
   313         401        -2.520        9
   314         402        -2.520       10
   315         403        -2.520       11
   316         404        -2.520       12
   317         405        -2.520       13
   318         406        -2.520       14
   319         407        -2.520       15
   320         408        -2.520       16
   100         250        -1.450       17
   251         350        -2.170       18
   251         351        -2.170       19
   252         352        -2.170       20
   252         353        -2.170       21
   253         354        -2.170       22
   253         355        -2.170       23
   362         450        -2.520       24
   363         451        -2.520       25
   364         452        -2.520       26
   365         453        -2.520       27
   366         454        -2.520       28
   367         455        -2.520       29
   368         456        -2.520       30
   369         457        -2.520       31
   370         458        -2.520       32
DO YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

DUKE POWER COMPANY                                                    DATE = 03/25/81

                                AUXILIARY SYSTEM DESIGN
                                  OPTIMIZATION PROGRAM
                                       (ASDOP)
                              BASE CASE: CALVERT CLIFFS REP
                             ENDS AT CC 500KV SYSEQV NO CC GEN
-------------------------------------------------------------------------------------------------

                              BUS VOLTAGES,CURRENTS,AND POWER FLOWS
CASE TITLE:LOAD-FLOW FULL LOAD & ESFAS & COND BOOST PP 12 W/ P13000-2 OOS
NO. OF BUSES= 124     NO. OF LINES= 123
SWING BUS NO.= 100
```

O. OF ITERATIONS= 7
BS VOLTAGE ERROR= 0.000001 0.000000

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

ROM-BUS	TO-BUS	LINE POWER FLOW MW	MVAR	MVA	LINE CURRENT MAG(KA)
204	200	-4.623	-2.372	5.196	0.228
200	204	4.625	2.375	5.199	0.228
200	207	4.613	2.378	5.190	0.227
200	206	4.613	2.378	5.190	0.227
200	205	4.613	2.378	5.190	0.227
200	257	4.614	2.379	5.191	0.227
200	256	4.614	2.379	5.191	0.227
200	255	4.614	2.379	5.191	0.227
200	254	4.614	2.379	5.191	0.227
200	210	44.135	22.472	49.526	2.168
200	100	-85.582	-40.791	94.806	4.149
207	200	-4.611	-2.375	5.187	0.227
206	200	-4.611	-2.375	5.187	0.227
205	200	-4.611	-2.375	5.187	0.227
257	200	-4.611	-2.375	5.187	0.227

256	200	-4.611	-2.375	5.187	0.227
255	200	-4.611	-2.375	5.187	0.227
254	200	-4.611	-2.375	5.187	0.227
210	200	-44.134	-22.472	49.526	2.168
210	201	13.683	1.944	13.820	0.605
210	202	19.076	11.248	22.145	0.969
210	203	15.914	8.572	18.076	0.791
100	200	86.077	57.760	103.661	0.116
100	250	0.001	0.001	0.001	0.000
201	210	-13.677	-1.935	13.813	0.605
201	MIDPOINT	13.665	1.931	13.801	0.604
202	210	-19.068	-11.236	22.133	0.969
202	MIDPOINT	19.057	11.231	22.120	0.969
203	210	-15.906	-8.559	18.063	0.791
203	MIDPOINT	15.896	8.554	18.051	0.791
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	-0.000	0.000	0.000
260	250	-0.000	0.000	0.000	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.781	-0.602	6.807	0.978
300	306	6.781	0.602	6.807	0.979
301	MIDPOINT	-6.825	-0.580	6.850	0.984
301	356	6.825	0.580	6.850	0.984
302	MIDPOINT	-10.897	-5.407	12.165	1.834
302	386	10.897	5.408	12.165	1.834
303	MIDPOINT	-7.985	-3.845	8.862	1.312
303	380	7.985	3.846	8.863	1.312
304	MIDPOINT	-7.785	-3.547	8.555	1.263
304	383	7.785	3.547	8.555	1.263
305	MIDPOINT	-8.003	-3.725	8.827	1.305
305	381	8.003	3.725	8.827	1.305
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	-0.000	0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	-0.000	0.000	0.000	0.000
253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	-0.000	0.000	0.000	0.000
306	300	-6.774	-0.593	6.800	0.979
306	318	0.996	0.593	1.159	0.167

356	301	-6.818	-0.570	6.842	0.984
356	368	1.040	0.570	1.186	0.171
386	382	-10.882	-5.387	12.143	1.834
386	309	7.274	3.370	8.017	1.211
386	308	3.513	1.985	4.035	0.610
380	303	-7.977	-3.835	8.851	1.312
380	310	5.178	2.318	5.673	0.841
380	361	2.816	1.566	3.222	0.478
383	304	-7.780	-3.539	8.547	1.263
383	358	2.077	0.998	2.305	0.340
383	360	5.658	2.502	6.187	0.914
381	305	-7.996	-3.715	8.816	1.305
381	311	2.410	1.254	2.717	0.402
381	359	5.554	2.474	6.080	0.900
318	306	-0.996	-0.593	1.159	0.167
318	406	0.996	0.593	1.159	0.167
368	356	-1.040	-0.570	1.186	0.171
368	456	1.040	0.570	1.185	0.171
309	386	-7.274	-3.370	8.017	1.211
309	314	1.153	0.762	1.382	0.209
309	315	1.054	0.526	1.178	0.178
308	386	-3.513	-1.985	4.035	0.610
308	312	1.043	0.588	1.198	0.181
308	313	0.747	0.452	0.874	0.132
310	380	-5.178	-2.318	5.673	0.841
310	316	0.990	0.448	1.087	0.161
310	317	0.605	0.384	0.717	0.106
361	380	-2.816	-1.566	3.222	0.478
361	369	0.901	0.457	1.010	0.150
361	370	0.410	0.226	0.469	0.069
358	383	-2.077	-0.998	2.305	0.340
358	362	0.825	0.344	0.894	0.132
358	363	0.613	0.260	0.666	0.098
360	383	-5.657	-2.500	6.185	0.914
360	364	0.596	0.375	0.704	0.104
360	365	0.802	0.309	0.860	0.127
311	381	-2.410	-1.254	2.716	0.402
311	319	0.825	0.350	0.896	0.133
311	320	0.901	0.471	1.017	0.151
359	381	-5.554	-2.474	6.080	0.900
359	366	1.139	0.433	1.218	0.180
359	367	0.865	0.538	1.019	0.151
350	MIDPOINT	0.000	0.000	0.000	0.000

351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.980	-0.511	1.105	1.409
406	513	0.045	0.022	0.050	0.064
406	514	0.418	0.204	0.465	0.594
406	515	0.263	0.128	0.292	0.373
456	368	-1.023	-0.484	1.132	1.441
456	564	0.514	0.251	0.572	0.728
456	565	0.263	0.128	0.293	0.373
314	309	-1.152	-0.762	1.381	0.209
314	402	1.152	0.762	1.381	0.209
315	309	-1.053	-0.526	1.177	0.178
315	403	1.053	0.526	1.177	0.178
312	308	-1.043	-0.587	1.197	0.181
312	400	1.043	0.587	1.197	0.181
313	308	-0.747	-0.452	0.873	0.132
313	401	0.747	0.452	0.873	0.132
316	310	-0.990	-0.447	1.086	0.161
316	404	0.990	0.447	1.086	0.161
317	310	-0.605	-0.384	0.716	0.106
317	405	0.605	0.384	0.716	0.106
369	361	-0.901	-0.456	1.010	0.150
369	457	0.901	0.457	1.010	0.150
370	361	-0.410	-0.226	0.468	0.069
370	458	0.410	0.226	0.469	0.069
362	358	-0.825	-0.344	0.894	0.132
362	450	0.825	0.344	0.894	0.132
363	358	-0.613	-0.260	0.666	0.098
363	451	0.613	0.260	0.666	0.098
364	360	-0.595	-0.375	0.704	0.104
364	452	0.595	0.375	0.704	0.104
365	360	-0.802	-0.309	0.859	0.127
365	453	0.802	0.309	0.859	0.127
319	311	-0.825	-0.350	0.896	0.133

319	407	0.825	0.350	0.896	0.133
320	311	-0.901	-0.471	1.016	0.151
320	408	0.901	0.471	1.016	0.151
366	359	-1.138	-0.432	1.218	0.180
366	454	1.138	0.432	1.218	0.180
367	359	-0.864	-0.538	1.018	0.151
367	455	0.864	0.538	1.018	0.151
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.045	-0.022	0.050	0.064
514	406	-0.417	-0.202	0.463	0.594
515	406	-0.263	-0.127	0.292	0.373
564	456	-0.511	-0.248	0.568	0.728
565	456	-0.263	-0.127	0.292	0.373
402	314	-1.127	-0.633	1.293	1.764
402	503	0.210	0.102	0.234	0.319
402	505	0.124	0.061	0.138	0.189
403	315	-1.035	-0.432	1.121	1.503
403	506	0.241	0.091	0.241	0.323
403	507	0.367	0.180	0.409	0.548
400	312	-1.024	-0.491	1.136	1.529
400	500	0.144	0.070	0.160	0.216
401	313	-0.737	-0.401	0.839	1.115
401	502	0.261	0.132	0.292	0.388
401	504	0.000	0.000	0.000	0.000
404	316	-0.975	-0.371	1.043	1.360
404	508	0.345	0.169	0.384	0.501
404	509	0.241	0.118	0.268	0.350
404	510	0.255	0.000	0.255	0.332
405	317	-0.598	-0.350	0.693	0.897
405	511	0.054	0.026	0.060	0.077
457	369	-0.888	-0.390	0.970	1.265
457	566	0.225	0.114	0.252	0.329
458	370	-0.407	-0.212	0.459	0.587
458	567	0.196	0.096	0.218	0.279
458	570	0.000	0.000	0.000	0.000
450	362	-0.815	-0.293	0.866	1.116

450	550	0.298	0.146	0.332	0.428
450	562	0.261	0.000	0.261	0.336
451	363	-0.607	-0.231	0.650	0.831
451	552	0.185	0.090	0.206	0.263
452	364	-0.589	-0.343	0.682	0.879
452	561	0.066	0.032	0.073	0.094
453	365	-0.793	-0.261	0.835	1.073
453	558	0.392	0.193	0.437	0.562
453	559	0.139	0.068	0.155	0.199
453	560	0.262	0.001	0.262	0.337
407	319	-0.815	-0.298	0.867	1.121
407	516	0.170	0.083	0.189	0.245
407	520	0.259	0.001	0.259	0.335
408	320	-0.888	-0.404	0.975	1.272
408	517	0.1[illegible]	0.076	0.175	0.228
454	366	-1.120	-0.336	1.169	1.523
454	556	0.255	0.001	0.255	0.332
454	557	0.425	0.207	0.473	0.616
455	367	-0.851	-0.471	0.973	1.274
455	553	0.268	0.131	0.298	0.391
455	555	0.062	0.030	0.069	0.090
503	402	-0.209	-0.101	0.232	0.319
505	402	-0.124	-0.060	0.138	0.189
506	403	-0.240	-0.000	0.240	0.323
507	403	-0.364	-0.176	0.405	0.548
500	400	-0.144	-0.070	0.160	0.216
502	401	-0.259	-0.130	0.290	0.388
504	401	0.000	0.000	0.000	0.000
508	404	-0.342	-0.166	0.380	0.501
509	404	-0.240	-0.116	0.266	0.350
510	404	-0.254	0.000	0.254	0.332
511	405	-0.053	-0.026	0.059	0.077
566	457	-0.223	-0.113	0.250	0.329
567	458	-0.195	-0.095	0.217	0.279
570	458	0.000	0.000	0.000	0.000
550	450	-0.296	-0.144	0.329	0.428
562	450	-0.261	-0.000	0.261	0.336

552	451	-0.184	-0.089	0.204	0.263
561	452	-0.065	-0.032	0.073	0.094
558	453	-0.388	-0.188	0.431	0.562
559	453	-0.139	-0.067	0.154	0.199
560	453	-0.261	-0.000	0.261	0.337
516	407	-0.169	-0.082	0.188	0.245
520	407	-0.258	-0.000	0.258	0.335
517	408	-0.156	-0.076	0.174	0.228
556	454	-0.254	-0.000	0.254	0.332
557	454	-0.422	-0.204	0.469	0.616
553	455	-0.266	-0.129	0.295	0.391
555	455	-0.062	-0.030	0.069	0.090

BUS DATA

		VOLTAGE		GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
NO.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
204	1H03	0.9553	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0118	0.0034
200	1H02	0.9559	-8.38	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-4.5287	0.7045
207	1H06	0.9553	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0004	0.0000
206	1H05	0.9553	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0003	-0.0000
205	1H04	0.9553	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0002	0.0003
257	2H06	0.9552	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0000	0.0000
256	2H05	0.9552	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0001
255	2H04	0.9552	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	0.0001
254	2H03	0.9552	-8.40	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	0.0000
210	1H01	0.9559	-8.38	13.800	0.00	0.00	0.00	0.00	0.00	0.00	4.5382	-0.7080
100	1X03-HS	1.0300	0.00	500.000	86.08	57.85	0.00	0.00	-0.00	0.00	0.0000	0.0000
201	1X04-HS	0.9554	-8.41	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0118	-0.0034
202	1X05-HS	0.9553	-8.39	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0111	-0.0050
203	1X06-HS	0.9552	-8.40	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0100	-0.0057
250	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0010
260	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
300	1X04-LS1	0.9655	-11.49	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	0.0001
301	1X04-LS2	0.9656	-11.51	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	-0.0001
302	1X05-LS1	0.9204	-13.38	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0004
303	1X05-LS2	0.9378	-11.98	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0004
304	1X06-LS1	0.9404	-11.90	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0003
305	1X06-LS2	0.9386	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0003
251	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
252	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
253	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
306	1A05,06	0.9645	-11.56	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0000	-0.0003

56	2A05,06	0.9645	-11.59	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0000	0.0001
86	1A02-AUX	0.9187	-13.44	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0950	-0.0315
80	1A04-AUX	0.9366	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0171	0.0495
83	2A04-AUX	0.9394	-11.93	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0446	-0.0386
81	2A02-AUX	0.9375	-12.04	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0318	0.0136
18	15-HS	0.9643	-11.56	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0002
68	25-HS	0.9643	-11.59	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0000
09	1A02	0.9187	-13.44	4.160	0.00	0.00	5.1	2.12	0.00	0.00	0.1025	0.0353
08	1A01	0.9187	-13.44	4.160	0.00	0.00	1.49	0.83	0.23	0.11	-0.0070	-0.0043
10	1A03	0.9365	-12.03	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0005	0.0026
61	1A04	0.9366	-12.03	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.0174	-0.0523
58	2A04	0.9394	-11.93	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0440	0.0382
60	2A03	0.9391	-11.95	4.160	0.00	0.00	3.58	1.49	0.68	0.33	0.0007	0.0001
11	2A01	0.9373	-12.05	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0007	-0.0000
59	2A02	0.9375	-12.04	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0327	-0.0140
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.9431	-14.80	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	-0.0000
56	2B05	0.9442	-15.01	0.480	0.00	0.00	0.17	0.11	0.08	0.00	-0.0000	0.0000
14	12A-HS	0.9181	-13.43	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
15	12B-HS	0.9183	-13.44	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0000
12	11A-HS	0.9182	-13.44	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0001
13	11B-HS	0.9184	-13.44	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0001
16	13B-HS	0.9361	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
17	13A-HS	0.9363	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
69	14A-HS	0.9360	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
70	14B-HS	0.9364	-12.03	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
62	24B-HS	0.9392	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
63	24A-HS	0.9391	-11.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
64	23A-HS	0.9389	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
65	23B-HS	0.9388	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
19	21B-HS	0.9370	-12.05	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
20	21A-HS	0.9368	-12.05	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
66	22B-HS	0.9370	-12.05	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
67	22A-HS	0.9371	-12.04	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9405	-14.87	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	0.0000
14	1B008	0.9379	-14.94	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	0.0000
15	1B007	0.9415	-14.84	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	0.0000
64	2B008	0.9383	-15.16	0.480	0.00	0.00	0.00	0.00	0.51	0.25	-0.0000	0.0000
65	2B007	0.9424	-15.05	0.480	0.00	0.00	0.00	0.00	0.26	0.13	0.0000	-0.0000
02	1B02A	0.8815	-17.59	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0000	0.0000
03	1B02B	0.8976	-17.30	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.8937	-17.23	0.480	0.00	0.00	0.64	0.36	0.24	0.06	0.0000	0.0000
01	1B01B	0.9052	-16.09	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04	1B03B	0.9222	-15.53	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	-0.0000
05	1B03A	0.9298	-15.27	0.480	0.00	0.00	0.54	0.32	0.00	0.00	-0.0000	0.0000
57	1B04A	0.9222	-15.53	0.480	0.00	0.00	0.47	0.24	0.19	0.03	0.0000	0.0000
58	1B04B	0.9418	-14.86	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	-0.0000
50	2B04B	0.9333	-15.15	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0000	0.0000
51	2B04A	0.9405	-14.91	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	-0.0000
52	2B03A	0.9332	-13.94	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.9353	-14.78	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000

07 2B01B	0.9306	-14.95	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0000	0.0000
08 2B01A	0.9222	-15.18	0.480	0.00	0.00	0.48	0.27	0.25	0.06	0.0000	0.0000
54 2B02B	0.9229	-16.13	0.480	0.00	0.00	0.23	0.13	0.21	0.00	0.0000	0.0000
55 2B02A	0.9186	-15.00	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	-0.0000
03 1B002	0.8749	-17.77	0.480	0.00	0.00	0.00	0.00	0.21	0.10	-0.0000	-0.0000
05 1B005	0.8777	-17.69	0.480	0.00	0.00	0.00	0.00	0.12	0.06	-0.0000	-0.0000
06 1B010	0.8938	-17.58	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
07 1B006	0.8888	-17.54	0.480	0.00	0.00	0.00	0.00	0.36	0.18	-0.0000	0.0000
00 1B001A	0.8915	-17.29	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
02 1B014	0.8969	-16.31	0.480	0.00	0.00	0.03	0.02	0.22	0.11	-0.0000	-0.0000
04 1B009	0.9052	-16.09	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
08 1B016	0.9111	-15.83	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	0.0000
09 1B003	0.9157	-15.70	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	-0.0000
10 1B012	0.9206	-15.64	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	0.0000
11 1B015	0.9279	-14.12	0.480	0.00	0.00	0.00	0.00	0.05	0.03	0.0000	-0.0000
66 1B004	0.9159	-15.34	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	0.0000
67 1B001B	0.9363	-13.56	0.480	0.00	0.00	0.00	0.00	0.20	0.09	-0.0000	-0.0000
70 1B011	0.9418	-13.42	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
50 2B001B	0.9257	-15.03	0.480	0.00	0.00	0.00	0.00	0.30	0.14	0.0000	-0.0000
62 2B011	0.9319	-14.93	0.480	0.00	0.00	0.00	0.00	0.26	0.00	0.0000	-0.0000
52 2B004	0.9346	-14.22	0.480	0.00	0.00	0.00	0.00	0.18	0.09	0.0000	0.0000
61 2B015	0.9309	-14.00	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	0.0000
58 2B016	0.9230	-15.10	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
59 2B003	0.9317	-14.87	0.480	0.00	0.00	0.00	0.00	0.14	0.07	0.0000	-0.0000
60 2B012	0.9332	-14.93	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
16 2B014	0.9243	-15.12	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20 2B009	0.9271	-15.20	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
17 2B001A	0.9177	-15.30	0.480	0.00	0.00	0.00	0.00	0.16	0.08	0.0000	-0.0000
56 2B010	0.9198	-16.35	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
57 2B006	0.9153	-16.33	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	-0.0000
53 2B002	0.9085	-15.26	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	0.0000
55 2B005	0.9162	-15.06	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	0.0000

ELEASE 9. 10/1/79
NTER COMMaND
O YOU WANT TO MODIFY THE LOADFLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
ULL LOAD & ESFAS & COND BOOST PP 12 START W/ P13000-2 OOS
NTER SWING BUS DATA: (BUS#,V(PU),ANGLE)
WING BUS= 100 V= 1.030 ANGLE= 0.000
IST GENERATOR BUSES: (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS: (FB,TB,%TAP)

FROM-BUS	TO-BUS	%TAP	LINE NO.
100	200	-1.450	1
100	250	-1.450	2

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)
IST MOTORS TO BE STARTED:
BRANCH NUMBER.....BR
BUS NUMBER.....#
NTER 9999 TO INDICATE END OF DATA.

UKE POWER COMPANY DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS
ASE TITLE:FULL LOAD & ESFAS & COND BOOST PP 12 START W/ P13000-2 OOS

O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 7
BS VOLTAGE ERROR= 0.000002 0.000000

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

SUMMARY OF MOTORS STARTED

BUS NO.	BRANCH NO.
309	4

LINE FLOWS

ROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.624	-2.373	5.197	0.231
200	204	4.626	2.376	5.200	0.231
200	207	4.613	2.378	5.190	0.231
200	206	4.613	2.379	5.190	0.231
200	205	4.613	2.378	5.190	0.231
200	257	4.614	2.379	5.191	0.231
200	256	4.614	2.379	5.191	0.231
200	255	4.613	2.379	5.191	0.231
200	254	4.614	2.379	5.191	0.231
200	210	43.074	30.542	52.804	2.349
200	100	-85.358	-48.406	98.129	4.366
207	200	-4.611	-2.375	5.187	0.231
206	200	-4.611	-2.375	5.187	0.231

205	200	-4.611	-2.375	5.187	0.231
257	200	-4.611	-2.375	5.187	0.231
256	200	-4.611	-2.375	5.187	0.231
255	200	-4.611	-2.375	5.187	0.231
254	200	-4.611	-2.375	5.187	0.231
210	200	-43.074	-30.542	52.804	2.349
210	201	13.630	1.935	13.767	0.612
210	202	19.064	18.906	26.849	1.194
210	203	15.750	8.533	17.914	0.797
100	200	85.906	67.189	109.061	0.122
100	250	0.001	0.001	0.001	0.000
201	210	-13.624	-1.926	13.759	0.612
201	MIDPOINT	13.619	1.927	13.755	0.612
202	210	-19.052	-18.888	26.828	1.194
202	MIDPOINT	19.042	18.882	26.817	1.194
203	210	-15.742	-8.521	17.900	0.797
203	MIDPOINT	15.736	8.514	17.891	0.797
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	-0.000	0.000	0.000
260	250	-0.000	0.000	0.000	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.756	-0.589	6.782	0.991
300	306	6.756	0.589	6.782	0.991
301	MIDPOINT	-6.796	-0.566	6.820	0.997
301	356	6.796	0.566	6.820	0.997
302	MIDPOINT	-10.809	-11.699	15.928	2.621
302	386	10.809	11.699	15.928	2.621
303	MIDPOINT	-7.929	-3.824	8.803	1.326
303	380	7.929	3.825	8.803	1.326
304	MIDPOINT	-7.697	-3.514	8.461	1.271
304	383	7.697	3.514	8.461	1.271
305	MIDPOINT	-7.926	-3.701	8.748	1.316
305	381	7.926	3.702	8.748	1.316
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	0.000	0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	0.000	0.000	0.000	0.000

253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	0.000	0.000	0.000	0.000
306	300	-6.750	-0.580	6.774	0.991
306	318	0.972	0.580	1.132	0.166
356	301	-6.789	-0.555	6.812	0.997
356	368	1.011	0.555	1.154	0.169
386	302	-10.780	-11.656	15.877	2.621
386	309	7.237	9.624	12.041	1.988
386	308	3.329	1.963	3.864	0.638
380	303	-7.921	-3.813	8.791	1.326
380	310	5.138	2.317	5.636	0.850
380	361	2.701	1.603	3.140	0.474
383	304	-7.691	-3.506	8.452	1.271
383	358	2.047	1.120	2.333	0.351
383	360	5.606	2.481	6.130	0.921
381	305	-7.919	-3.691	8.737	1.316
381	311	2.376	1.246	2.683	0.404
381	359	5.465	2.414	5.974	0.900
318	306	-0.971	-0.580	1.131	0.166
318	406	0.971	0.580	1.131	0.166
368	356	-1.011	-0.555	1.153	0.169
368	456	1.011	0.555	1.153	0.169
309	386	-7.237	-9.624	12.041	1.988
309	314	1.064	0.738	1.312	0.217
309	315	0.949	0.494	1.070	0.177
308	386	-3.329	-1.963	3.864	0.638
308	312	0.978	0.572	1.132	0.187
308	313	0.698	0.431	0.821	0.135
310	380	-5.138	-2.317	5.636	0.850
310	316	0.960	0.435	1.054	0.159
310	317	0.603	0.384	0.715	0.108
361	380	-2.701	-1.603	3.140	0.474
361	369	0.887	0.453	0.996	0.150
361	370	0.401	0.222	0.458	0.069
358	383	-2.047	-1.120	2.333	0.351
358	362	0.804	0.337	0.871	0.131
358	363	0.599	0.255	0.652	0.098
360	383	-5.604	-2.479	6.128	0.921
360	364	0.593	0.375	0.702	0.106
360	365	0.775	0.298	0.830	0.125
311	381	-2.376	-1.245	2.683	0.404
311	319	0.807	0.346	0.878	0.132
311	320	0.886	0.466	1.002	0.151
359	381	-5.465	-2.414	5.974	0.900

359	366	1.107	0.424	1.185	0.179
359	367	0.853	0.533	1.006	0.152
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.956	-0.499	1.078	1.398
406	513	0.043	0.021	0.048	0.063
406	514	0.404	0.197	0.450	0.584
406	515	0.254	0.123	0.282	0.366
456	368	-0.994	-0.471	1.100	1.426
456	564	0.497	0.242	0.552	0.716
456	565	0.255	0.124	0.283	0.367
314	309	-1.083	-0.738	1.311	0.217
314	402	1.083	0.737	1.310	0.216
315	309	-0.949	-0.494	1.070	0.177
315	403	0.948	0.494	1.069	0.177
312	308	-0.977	.571	1.132	0.187
312	400	0.977	0.572	1.132	0.187
313	308	-0.698	-0.431	0.820	0.135
313	401	0.698	0.431	0.820	0.135
316	310	-0.959	-0.435	1.053	0.159
316	404	0.959	0.435	1.053	0.159
317	310	-0.603	-0.384	0.715	0.108
317	405	0.603	0.384	0.715	0.108
369	361	-0.886	-0.452	0.995	0.150
369	457	0.886	0.452	0.995	0.150
370	361	-0.401	-0.222	0.458	0.069
370	458	0.401	0.222	0.458	0.069
362	358	-0.803	-0.337	0.871	0.131
362	450	0.803	0.337	0.871	0.131
363	358	0.599	-0.255	0.651	0.098
363	451	0.599	0.255	0.651	0.098
364	360	-0.593	-0.375	0.701	0.106
364	452	0.593	0.375	0.702	0.106

365	360	-0.775	-0.298	0.830	0.125
365	453	0.775	0.298	0.830	0.125
319	311	-0.807	-0.346	0.878	0.132
319	407	0.807	0.346	0.878	0.132
320	311	-0.886	-0.466	1.001	0.151
320	408	0.886	0.466	1.001	0.151
366	359	-1.106	-0.423	1.184	0.179
366	454	1.106	0.423	1.184	0.179
367	359	-0.852	-0.533	1.005	0.152
367	455	0.852	0.533	1.005	0.152
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.043	-0.021	0.048	0.063
514	406	-0.403	-0.195	0.447	0.584
515	406	-0.254	-0.123	0.282	0.366
564	456	-0.494	-0.239	0.549	0.716
565	456	-0.254	-0.123	0.282	0.367
402	314	-1.056	-0.599	1.214	1.829
402	503	0.172	0.084	0.192	0.289
402	505	0.102	0.050	0.114	0.171
403	315	-0.931	-0.401	1.013	1.492
403	506	0.199	0.001	0.199	0.294
403	507	0.304	0.149	0.339	0.498
400	312	-0.957	-0.468	1.065	1.580
400	500	0.119	0.058	0.132	0.196
401	313	-0.688	-0.377	0.784	1.145
401	502	0.222	0.113	0.249	0.363
401	504	0.000	0.000	0.000	0.000
404	316	-0.945	-0.360	1.011	1.343
404	508	0.333	0.163	0.371	0.492
404	509	0.232	0.113	0.259	0.344
404	510	0.246	0.000	0.246	0.326
405	317	-0.596	-0.349	0.691	0.911
405	511	0.052	0.025	0.057	0.076
457	369	-0.873	-0.386	0.955	1.269
457	566	0.218	0.111	0.244	0.325

458	370	-0.398	-0.208	0.449	0.584
458	567	0.189	0.092	0.210	0.274
458	570	0.000	0.000	0.000	0.000
450	362	-0.793	-0.286	0.844	1.107
450	550	0.288	0.141	0.321	0.420
450	562	0.252	0.000	0.252	0.330
451	363	-0.594	-0.227	0.636	0.828
451	552	0.178	0.087	0.199	0.258
452	364	-0.587	-0.342	0.679	0.891
452	561	0.063	0.031	0.070	0.092
453	365	-0.766	-0.252	0.806	1.055
453	558	0.379	0.186	0.422	0.552
453	559	0.134	0.065	0.149	0.195
453	560	0.253	0.001	0.253	0.331
407	319	-0.797	-0.294	0.849	1.118
407	516	0.164	0.080	0.182	0.240
407	520	0.250	0.001	0.250	0.329
408	320	-0.873	-0.399	0.960	1.275
408	517	0.151	0.074	0.168	0.223
454	366	-1.088	-0.329	1.137	1.508
454	556	0.246	0.001	0.246	0.326
454	557	0.410	0.200	0.456	0.605
455	367	-0.839	-0.465	0.960	1.280
455	553	0.258	0.126	0.287	0.383
455	555	0.060	0.029	0.067	0.089
503	402	-0.171	-0.083	0.190	0.289
505	402	-0.102	-0.049	0.113	0.171
506	403	-0.199	-0.000	0.199	0.294
507	403	-0.302	-0.146	0.335	0.498
500	400	-0.119	-0.057	0.132	0.196
502	401	-0.220	-0.111	0.247	0.363
504	401	0.000	0.000	0.000	0.000
508	404	-0.330	-0.160	0.366	0.492
509	404	-0.231	-0.112	0.257	0.344
510	404	-0.245	0.000	0.245	0.326
511	405	-0.051	-0.025	0.057	0.076
566	457	-0.216	-0.109	0.242	0.325
567	458	-0.188	-0.091	0.209	0.274

570	458	0.000	0.000	0.000	0.000
550	450	-0.286	-0.139	0.318	0.420
562	450	-0.251	-0.000	0.251	0.330
552	451	-0.178	-0.086	0.197	0.258
561	452	-0.063	-0.031	0.070	0.092
558	453	-0.375	-0.181	0.416	0.552
559	453	-0.134	-0.065	0.149	0.195
560	453	-0.252	-0.000	0.252	0.331
516	407	-0.163	-0.079	0.181	0.240
520	407	-0.249	-0.000	0.249	0.329
517	408	-0.151	-0.073	0.167	0.223
556	454	-0.245	-0.000	0.245	0.326
557	454	-0.407	-0.197	0.452	0.605
553	455	-0.256	-0.124	0.284	0.383
555	455	-0.060	-0.029	0.066	0.089

BUS DATA

		VOLTAGE			GENERATION		LOAD				MISMATCH	
							MOTOR		STATIC			
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9398	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0125	0.0025
00	1H02	0.9404	-8.47	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-5.3643	1.1632
07	1H06	0.9398	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0004	0.0002
06	1H05	0.9398	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0003	-0.0002
05	1H04	0.9398	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0004	-0.0002
57	2H06	0.9397	-8.50	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0000	-0.0001
56	2H05	0.9397	-8.50	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0001
55	2H04	0.9397	-8.50	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0002	-0.0003
54	2H03	0.9397	-8.50	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0000	-0.0001
10	1H01	0.9404	-8.47	13.800	0.00	0.00	0.00	0.00	0.00	0.00	5.3700	-1.1677
00	1X03-HS	1.0300	0.00	500.000	85.90	67.28	0.00	0.00	0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9399	-8.51	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0045	0.0011
02	1X05-HS	0.9396	-8.48	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0096	-0.0061
03	1X06-HS	0.9397	-8.49	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0061	-0.0071
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0011
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
00	1X04-LS1	0.9496	-11.67	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	-0.0002
01	1X04-LS2	0.9497	-11.69	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	0.0001
02	1X05-LS1	0.9434	-13.65	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0000
03	1X05-LS2	0.9212	-12.17	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
04	1X06-LS1	0.9242	-12.07	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0003

05 1X06-LS2	0.9223	-12.18	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0005
51 2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52 2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53 2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06 1A05,06	0.9486	-11.75	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0000	0.0005
54 2A05,06	0.9486	-11.78	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0002	-0.0002
86 1A02-AUX	0.8407	-13.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.2142	-0.0693
80 1A04-AUX	0.9199	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0825	0.1065
83 2A04-AUX	0.9233	-12.11	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0384	0.0952
81 2A02-AUX	0.9212	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0777	-0.0319
18 15-HS	0.9483	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0004
68 25-HS	0.9483	-11.78	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
09 1A02	0.8407	-13.68	4.160	0.00	0.00	3.58	1.49	1.81	7.01	0.1893	0.1076
08 1A01	0.8407	-13.68	4.160	0.00	0.00	1.49	0.83	0.19	0.09	0.0256	-0.0373
10 1A03	0.9199	-12.22	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0082	-0.0087
61 1A04	0.9199	-12.22	4.160	0.00	0.00	1.49	0.83	0.00	0.00	0.0745	-0.0978
58 2A04	0.9233	-12.11	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0387	-0.0949
60 2A03	0.9230	-12.12	4.160	0.00	0.00	3.58	1.49	0.65	0.32	0.0003	-0.0009
11 2A01	0.9210	-12.23	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0003	-0.0008
59 2A02	0.9212	-12.23	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0776	0.0322
50 2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
51 2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52 2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53 2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54 2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55 2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06 1B05	0.9271	-15.02	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56 2B05	0.9283	-15.21	0.480	0.00	0.00	0.17	0.11	0.07	0.00	0.0000	0.0000
14 12A-HS	0.8401	-13.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0005
15 12B-HS	0.8403	-13.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0006
12 11A-HS	0.8402	-13.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
13 11B-HS	0.8404	-13.68	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
16 13B-HS	0.9195	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
17 13A-HS	0.9196	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
69 14A-HS	0.9193	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
70 14B-HS	0.9197	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
62 24B-HS	0.9230	-12.11	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
63 24A-HS	0.9229	-12.11	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
64 23A-HS	0.9227	-12.12	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
65 23B-HS	0.9226	-12.12	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
19 21B-HS	0.9207	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
20 21A-HS	0.9205	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0001
66 22B-HS	0.9207	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
67 22A-HS	0.9208	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
82 2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84 2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87 1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85 1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13 1B013	0.9245	-15.08	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	-0.0000
14 1B008	0.9219	-15.15	0.480	0.00	0.00	0.00	0.00	0.40	0.19	-0.0000	-0.0000
15 1B007	0.9254	-15.06	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	-0.0000
64 2B008	0.9225	-15.36	0.480	0.00	0.00	0.00	0.00	0.49	0.24	-0.0000	-0.0000
65 2B007	0.9265	-15.26	0.480	0.00	0.00	0.00	0.00	0.25	0.12	0.0000	-0.0000
02 1B02A	0.7986	-18.37	0.480	0.00	0.00	0.73	0.44	0.05	0.02	0.0000	0.0000
03 1B02B	0.8171	-17.84	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00 1B01A	0.8113	-17.93	0.480	0.00	0.00	0.54	0.36	0.20	0.05	0.0000	0.0000
01 1B01B	0.8239	-16.65	0.480	0.00	0.00	0.41	0.24	0.05	0.03	0.0000	-0.0000
04 1B03B	0.9055	-15.74	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	-0.0000
05 1B03A	0.9123	-14.32	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57 1B04A	0.9049	-15.43	0.480	0.00	0.00	0.47	0.24	0.19	0.03	0.0000	0.0000

58 1B04B	0.9248	-13.62	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	-0.0060
50 2B04B	0.9169	-15.03	0.480	0.00	0.00	0.19	0.11	0.06	0.03	0.0000	0.0000
51 2B04A	0.9243	-14.27	0.480	0.00	0.00	0.22	0.11	0.19	0.03	0.0000	0.0000
52 2B03A	0.9162	-14.18	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53 2B03B	0.9192	-14.95	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07 2B01B	0.9138	-15.18	0.480	0.00	0.00	0.32	0.18	0.06	0.03	0.0000	0.0000
08 2B01A	0.9053	-15.43	0.480	0.00	0.00	0.48	0.27	0.24	0.06	0.0000	0.0000
54 2B02B	0.9065	-16.34	0.480	0.00	0.00	0.23	0.13	0.21	0.00	0.0000	0.0000
55 2B02A	0.9016	-15.24	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03 1B002	0.7926	-18.55	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
05 1B005	0.7952	-18.47	0.480	0.00	0.00	0.00	0.00	0.10	0.05	-0.0000	-0.0000
06 1B010	0.8136	-18.12	0.480	0.00	0.00	0.00	0.00	0.20	0.00	-0.0000	-0.0000
07 1B006	0.8090	-18.08	0.480	0.00	0.00	0.00	0.00	0.30	0.15	-0.0000	-0.0000
00 1B001A	0.8092	-17.99	0.480	0.00	0.00	0.00	0.00	0.12	0.06	-0.0000	-0.0000
02 1B014	0.8162	-16.87	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	0.0000
04 1B009	0.8239	-16.65	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
08 1B016	0.8946	-16.03	0.480	0.00	0.00	0.00	0.00	0.33	0.16	-0.0000	-0.0000
09 1B003	0.8992	-15.91	0.480	0.00	0.00	0.00	0.00	0.23	0.11	-0.0000	0.0000
10 1B012	0.9040	-15.85	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	0.0000
11 1B015	0.9103	-14.38	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
66 1B004	0.8986	-15.59	0.480	0.00	0.00	0.03	0.02	0.18	0.09	0.0000	-0.0000
67 1B001B	0.9195	-13.76	0.480	0.00	0.00	0.00	0.00	0.19	0.09	-0.0000	-0.0000
70 1B011	0.9248	-13.62	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
50 2B001B	0.9095	-15.22	0.480	0.00	0.00	0.00	0.00	0.29	0.14	-0.0000	-0.0000
62 2B011	0.9155	-15.13	0.480	0.00	0.00	0.00	0.00	0.25	0.00	0.0000	-0.0000
52 2B004	0.9181	-14.42	0.480	0.00	0.00	0.00	0.00	0.18	0.09	0.0000	-0.0000
61 2B015	0.9139	-14.24	0.480	0.00	0.00	0.05	0.00	0.06	0.03	0.0000	-0.0000
58 2B016	0.9071	-15.27	0.480	0.00	0.00	0.06	0.00	0.37	0.18	-0.0000	-0.0000
59 2B003	0.9156	-15.05	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
60 2B012	0.9171	-15.10	0.480	0.00	0.00	0.00	0.00	0.25	0.00	0.0000	-0.0000
16 2B014	0.9076	-15.34	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	0.0000
20 2B009	0.9104	-15.42	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
17 2B001A	0.9009	-15.54	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
56 2B010	0.9034	-16.56	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
57 2B006	0.8990	-16.54	0.480	0.00	0.00	0.00	0.00	0.41	0.20	-0.0000	0.0000
53 2B002	0.8917	-15.51	0.480	0.00	0.00	0.00	0.00	0.26	0.12	-0.0000	0.0000
55 2B005	0.8992	-15.31	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
ONFIRM END: ENTER 1 FOR END, 2 FOR SAVE AND END, OR 3 TO CONTINUE RUN.

ND OF DRIVER

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UXILIARY SYSTEM DESIGN OPTIMIZATION PROGRAM
UKE POWER CO., CHARLOTTE, N.C.

O YOU WANT TO MAKE ANY DIMENSION CHANGES?  (0=NO, 1=YES)
RESENT DIMENSIONS:
                          DIMENSIONED
 BUSES                     #BUS=  75
 PATHS(RLL)                #PA= 150
 DL ELEMENTS               #DL= 200
 CIRCUIT BREAKERS          #CB=  35
 MOTORS                    #MOT= 100
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  10
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  20
 MOTOR STARTS              #MS=   7
    INPUT THE VARIABLE NAME AS GIVEN ABOVE,EQUAL SIGN(=), AND
    THE DESIRED NEW VALUE.  ANY NUMBER OF CHANGES CAN BE ENTERED ON THE SAME LINE.
***END OF CHANGES IS INDICATED BY A SEMICOLON(;)****
                          DIMENSIONED
 BUSES                     #BUS= 150
 PATHS(RLL)                #PA= 220
 DL ELEMENTS               #DL= 400
 CIRCUIT BREAKERS          #CB=  99
 MOTORS                    #MOT= 200
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  70
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  40
 MOTOR STARTS              #MS=  14
NY MORE CHANGES? (0=NO, 1=YES)
ASEFILE CREATED: 0?:11:80  KRT:PJH
ALVERT CLIFFS STATION REP TEST
ATA HAS BEEN READ IN FROM THE BASEFILE
HIS IS A HIGH VOLTAGE STUDY.
HE BASE VOLTAGE IS   0.000 KV ON BUS    0.
ELEASE 9, 10/1/79
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED BATCH
NTER COMMAND
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CASE 4

BRANCH ELEMENTS

INPUT CODE-	TYPE	++++CABLE OR BUS++++ ----X----	----R----	+++++CABLE+++++ NO.-SIZE	--FT--	++++++++++++BUS++++++++++++ ---X/FT--	---R/FT--	--FT--	++REACTOR OR CAPACITOR+++ --X(PU)--	--IR--	--KV--
200-207- 1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0						
200-206- 1A	CAB	2.04E-02*	1.37E-02*	1-750	660.0						
200-205- 1A	CAB	1.95E-02*	1.31E-02*	1-750	632.0						
200-204- 1A	CAB	1.99E-02*	1.34E-02*	1-750	645.0						
200-257- 1A	CAB	2.29E-02*	1.54E-02*	1-750	741.0						
200-256- 1A	CAB	2.37E-02*	1.59E-02*	1-750	766.0						
200-255- 1A	CAB	2.24E-02*	1.51E-02*	1-750	726.0						
200-254- 1A	CAB	2.30E-02*	1.55E-02*	1-750	745.0						
210-260- 1A	CAB	2.51E-03*	1.69E-03*	3-750	244.0						
200-210- 1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0						

210-201-	1A	CAB	8.36E-03*	5.63E-03*	3-750	812.0
210-202-	1A	CAB	4.15E-03*	2.79E-03*	3-750	403.0
210-203-	1A	CAB	6.54E-03*	4.40E-03*	3-750	635.0
300-306-	1A	CAB	3.28E-03*	2.21E-03*	4-750	425.0
304-383-	1A	CAB	1.74E-03*	1.17E-03*	4-750	225.0
383-358-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
383-360-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
301-356-	1A	CAB	3.63E-03*	2.44E-03*	4-750	470.0
306-318-	1A	CAB	1.7[illegible]-03*	3.20E-03*	1- 4/0	50.0
308-312-	1A	CAB	3.6[illegible]-03*	5.44E-03*	1- 4/0	85.0
308-313-	1A	CAB	2.15E-03*	3.84E-03*	1- 4/0	60.0
302-386-	1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
386-309-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
386-308-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
309-314-	1A	CAB	3.44E-03*	6.14E-03*	1- 4/0	96.0
309-315-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
303-380-	1A	CAB	2.16E-03*	1.46E-03*	4-750	280.0
380-310-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
380-361-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
310-316-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
310-317-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
305-381-	1A	CAB	2.06E-03*	1.39E-03*	4-750	267.0
381-311-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
381-359-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
311-319-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
311-320-	1A	CAB	3.94E-03*	7.04E-03*	1- 4/0	110.0
400-500-	1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0
401-502-	1A	CAB	4.80E-03*	4.19E-03*	2-500	287.0
401-504-	1A	CAB	3.09E-03*	2.70E-03*	2-500	185.0
402-503-	1A	CAB	4.70E-03*	4.10E-03*	2-500	281.0
402-505-	1A	CAB	4.51E-03*	3.94E-03*	2-500	270.0
403-506-	1A	CAB	3.75E-03*	3.27E-03*	2-500	224.0
403-507-	1A	CAB	3.66E-03*	3.20E-03*	2-500	219.0
404-508-	1A	CAB	5.02E-03*	4.38E-03*	2-500	300.0
404-509-	1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
404-510-	1A	CAB	1.50E-03*	1.31E-03*	2-500	90.0
405-511-	1A	CAB	5.75E-03*	5.02E-03*	2-500	344.0
406-513-	1A	CAB	9.20E-03*	8.03E-03*	2-500	550.0
406-514-	1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
406-515-	1A	CAB	1.00E-03*	8.76E-04*	2-500	60.0
407-516-	1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
407-520-	1A	CAB	3.34E-03*	2.92E-03*	2-500	200.0
408-517-	1A	CAB	4.46E-03*	3.90E-03*	2-500	267.0
250-257-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-256-	1A	CAB	1.93E-02*	1.30E-02*	1-750	625.0
250-255-	1A	CAB	1.77E-02*	1.19E-02*	1-750	573.0
250-254-	1A	CAB	1.89E-02*	1.28E-02*	1-750	613.0
250-207-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-206-	1A	CAB	2.49E-02*	1.67E-02*	1-750	805.0
250-205-	1A	CAB	2.44E-02*	1.65E-02*	1-750	791.0
250-204-	1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0
250-260-	1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0
260-251-	1A	CAB	1.03E-02*	6.95E-03*	3-750	1002.0
260-252-	1A	CAB	4.48E-03*	3.02E-03*	3-750	435.0
260-253-	1A	CAB	6.64E-03*	4.47E-03*	3-750	645.0
350-356-	1A	CAB	3.47E-03*	2.34E-03*	4-750	450.0
351-306-	1A	CAB	3.49E-03*	2.35E-03*	4-750	452.0
356-368-	1A	CAB	1.83E-03*	3.26E-03*	1- 4/0	51.0
358-362-	1A	CAB	2.51E-03*	4.48E-03*	1- 4/0	70.0
358-363-	1A	CAB	4.19E-03*	7.49E-03*	1- 4/0	117.0

352-382- 1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
382-360- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
382-358- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
360-364- 1A	CAB	2.80E-03*	4.99E-03*	1- 4/0	78.0
360-365- 1A	CAB	3.30E-03*	5.89E-03*	1- 4/0	92.0
353-384- 1A	CAB	2.03E-03*	1.37E-03*	4-750	263.0
384-311- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
384-359- 1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
354-387- 1A	CAB	1.86E-03*	1.25E-03*	4-750	241.0
387-303- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
387-309- 1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
359-366- 1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
359-367- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
355-385- 1A	CAB	1.78E-03*	1.20E-03*	4-750	230.0
385-310- 1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
385-361- 1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
361-369- 1A	CAB	4.48E-03*	8.00E-03*	1- 4/0	125.0
361-370- 1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
450-550- 1A	CAB	4.01E-03*	3.50E-03*	2-500	240.0
450-562- 1A	CAB	1.34E-03*	1.17E-03*	2-500	80.0
451-552- 1A	CAB	5.10E-03*	4.45E-03*	2-500	305.0
452-561- 1A	CAB	5.52E-03*	4.82E-03*	2-500	330.0
453-558- 1A	CAB	4.98E-03*	4.35E-03*	2-500	298.0
453-559- 1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
453-560- 1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
454-556- 1A	CAB	3.01E-03*	2.63E-03*	2-500	180.0
454-557- 1A	CAB	2.79E-03*	2.44E-03*	2-500	167.0
455-553- 1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
455-555- 1A	CAB	6.02E-03*	5.26E-03*	2-500	360.0
456-564- 1A	CAB	1.84E-03*	1.61E-03*	2-500	110.0
456-565- 1A	CAB	1.09E-03*	9.49E-04*	2-500	65.0
457-566- 1A	CAB	4.35E-03*	3.80E-03*	2-500	260.0
458-567- 1A	CAB	4.43E-03*	3.87E-03*	2-500	265.0
458-570- 1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0

2-WINDING TRANSFORMERS

INPUT CODE-	--XT--	--KV1-	--KV2-	--KVAT-	--KVAB-	-X/R-
100-200- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
312-400- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
313-401- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
314-402- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
315-403- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
316-404- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
317-405- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
318-406- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
319-407- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
320-408- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
100-250- 1	0.1035	500.00	13.80	100000.00	60000.00	34.30
362-450- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
363-451- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
364-452- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
365-453- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
366-454- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
367-455- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
368-456- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
369-457- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
370-458- 1	0.0599	4.16	0.48	1000.00	1000.00*	5.16

3-WINDING TRANSFORMERS

INPUT CODE-	XT(H-X)	XT(H-Y)	XT(X-Y)	KV(H)-	KV(X)-	KV(Y)-	KVAT(H)	KVAT(X)	KVAT(Y)	-X/R-	-KVATB-

201-300-301	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
202-302-303	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
203-304-305	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
251-350-351	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
252-352-353	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
253-354-355	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00

STATIC LOADS

INPUT CODE-	--KV--	---KVA--	-PFL-	LEAD/LAG
0-308-13	4.16	300.00	0.90	LAG
0-311-13	4.16	500.00	0.90	LAG
0-400- 7	0.48	80.00	0.90	LAG
0-400- 8	0.48	85.00	0.90	LAG
0-400- 9	0.48	150.00	1.00	LEAD
0-401- 5	0.48	85.00	0.90	LAG
0-401- 6	0.48	75.00	1.00	LEAD
0-402- 6	0.48	85.00	0.90	LAG
0-403- 7	0.48	275.00	1.00	LEAD
0-405- 8	0.48	4.00	0.90	LAG
0-406- 6	0.48	85.00	1.00	LEAD
0-407- 5	0.48	85.00	0.90	LAG
0-407- 6	0.48	75.00	1.00	LEAD
0-408- 7	0.48	80.00	0.90	LAG
0-408- 8	0.48	150.00	1.00	LEAD
0-408- 9	0.48	85.00	0.90	LAG
0-500- 1	0.48	201.30	0.90	LAG
0-502- 1	0.48	310.38	0.90	LAG
0-503- 1	0.48	302.90	0.90	LAG
0-504- 1	0.48	300.00	1.00	LEAD
0-505- 1	0.48	178.90	0.90	LAG
0-506- 1	0.48	300.00	1.00	LEAD
0-507- 1	0.48	512.20	0.90	LAG
0-508- 1	0.48	457.60	0.90	LAG
0-509- 1	0.48	317.60	0.90	LAG
0-510- 1	0.48	300.00	1.00	LEAD
0-511- 1	0.48	69.00	0.90	LAG
0-513- 1	0.48	56.25	0.90	LAG
0-514- 1	0.48	526.25	0.90	LAG
0-515- 1	0.48	329.19	0.90	LAG
0-516- 1	0.48	219.97	0.90	LAG
0-517- 1	0.48	206.20	0.90	LAG
0-520- 1	0.48	300.00	1.00	LEAD
0-360-13	4.16	852.00	0.90	LAG
0-450- 9	0.48	75.00	1.00	LEAD
0-450-10	0.48	85.00	0.90	LAG
0-451- 8	0.48	150.00	1.00	LEAD
0-451- 9	0.48	85.00	0.90	LAG
0-452- 6	0.48	4.00	0.90	LAG
0-454- 5	0.48	275.00	1.00	LEAD
0-454- 6	0.48	250.00	1.00	LEAD
0-455- 5	0.48	1.00	1.00	LEAD
0-456- 3	0.48	85.00	1.00	LEAD
0-457- 9	0.48	150.00	1.00	LEAD
0-457-10	0.48	85.00	0.90	LAG
0-458- 7	0.48	75.00	1.00	LEAD
0-458- 8	0.48	85.00	0.90	LAG
0-550- 1	0.48	384.40	0.90	LAG
0-552- 1	0.48	234.00	0.90	LAG
0-553- 1	0.48	357.45	0.90	LAG
0-555- 1	0.48	82.10	0.90	LAG

0-556- 1	0.48	300.00	1.00	LEAD
0-557- 1	0.48	559.45	0.90	LAG
0-558- 1	0.48	505.92	0.90	LAG
0-559- 1	0.48	177.40	0.90	LAG
0-560- 1	0.48	300.00	1.00	LEAD
0-561- 1	0.48	83.90	0.90	LAG
0-562- 1	0.48	300.00	1.00	LEAD
0-564- 1	0.48	645.20	0.90	LAG
0-565- 1	0.48	329.05	0.90	LAG
0-566- 1	0.48	250.93	0.90	LAG
0-567- 1	0.48	247.50	0.90	LAG
0-570- 1	0.48	300.00	1.00	LEAD

MOTORS

INPUT CODE-	---HP--	--VM-	-DF-	-RPM	--KVA-	--LRC--	LRCPF	-XD"-	--X/R-	-PFM	TYPE
0-204- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-205- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-206- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-207- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-308- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-308- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-308- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-308- 6	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-308-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-309- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-309- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-309- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-309- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-310- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-310- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 4	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-311- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-311- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-311- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-311-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-400- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-400- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-400- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-400- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-400- 5	100.0	460	1.00*	3600*	100.0*	760.0	0.25*	0.160*	9.20*	0.85*	IND
0-400- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-400-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-401- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 3	100.0	460	1.00*	3600*	100.0*	800.0	0.25*	0.152*	9.20*	0.85*	IND
0-401- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-401- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-401- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-402- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-402- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND

0-402- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-402- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-402- 5	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-403- 1	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-403- 2	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-403- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-403- 4	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-403- 5	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-403- 6	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-403- 8	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-404- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-404- 4	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-404- 5	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-404- 7	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-404- 8	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-405- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-405- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-405- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-405- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-405- 5	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-405- 6	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-405- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-406- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 2	73.5	460	1.00*	3600*	73.5*	550.0	0.25*	0.162*	8.51*	0.85*	IND
0-406- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-406- 4	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 5	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-407- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-407- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-407- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-407- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-407- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-407- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-408- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-408- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-408- 5	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-408- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-408-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-502- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-306- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-254- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-255- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-256- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-257- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-358- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-358- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-358- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-358- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND

0-358- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 9	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-359- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-359- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-359- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-359- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-360- 9	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-360-10	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-11	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-12	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-361- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-361- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-361- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-361- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-450- 1	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-450- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-450- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-450- 5	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-450- 6	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-450- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-451- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-451- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-451- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-451- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-451- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-451- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-451- 7	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-455- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-455- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-455- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-455- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-457- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-457- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-457- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-457- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-457- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-457- 6	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-457- 7	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-457- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-458- 1	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-458- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 4	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-458- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-458- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-454- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-454- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-454- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-454- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-453- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-453- 2	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-452- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-452- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-452- 3	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND

0-452- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-452- 5	150.0	460	1.00*	3600*	136.0	1035.0	0.25*	0.152*	10.60*	0.89	IND
0-456- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-456- 2	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-566- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-356- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.15[illegible]	23.00*	1.00	SYN

SYSTEM EQUIVALENT

INPUT CODE-	--FMVA--	--KV--	-X/R--
0-100- 1	10826.45	500.00	46.0

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NTER COMMAND
NTER BASE VOLTAGE (KV) AND THE RELATED BUS

OW IN RUN MODE
NTER COMMAND

	DIMENSIONED	ACTUAL
BUSES	150	124
PATHS(RLL)	220	181
DL ELEMENTS	400	381
CIR. BRK.(BRANCH PCB)	99	92
CIR. BRK.(OPEN/CLOSE CB)	99	40
MOTORS	200	175
CHANGES	1	
POINTS	1	
STATIC LOADS	70	63
NON-ADJACENT LINES	5	0
TAPS	40	
MOTOR STARTS	14	0

NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS
CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
[illegible]	504	1	CLOSED
6	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
04	0	1	CLOSED
08	0	3	OPENED
08	0	4	OPENED

08	0	5	OPENED
08	0	6	OPENED
08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED
06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED

51	0	1	OPENED
51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED
51	306	1	OPENED
50	257	1	OPENED
50	256	1	OPENED
50	255	1	OPENED
50	254	1	OPENED
50	207	1	OPENED
50	206	1	OPENED
50	205	1	OPENED
50	204	1	OPENED
85	361	1	OPENED
84	359	1	OPENED
82	358	1	OPENED
82	360	1	OPENED
84	311	1	OPENED
85	310	1	OPENED
87	308	1	OPENED
87	309	1	OPENED
0	204	1	OPENED
0	570	1	OPENED
0	504	1	OPENED
0	308	3	CLOSED
0	308	4	CLOSED
0	308	5	CLOSED
0	400	1	CLOSED
0	400	2	CLOSED
0	400	3	CLOSED
0	400	4	CLOSED
0	400	5	CLOSED
0	400	6	CLOSED
0	400	10	CLOSED
0	502	2	CLOSED

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 0     566       2     CLOSED
 0     361       3     CLOSED
 0     361       4     CLOSED
 0     361       5     CLOSED
 0     401       9     CLOSED
 0     457       4     CLOSED
 0     458       1     CLOSED
NTER COMMAND
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS,ONLY 3 RCP'S RUNNING
NTER SWING BUS DATA:
    BUS NUMBER.............#
    PER-UNIT VOLTAGE.......V(PU)
    ANGLE IN DEGREES.......THETA
WING BUS= 100 V=  1.030 ANGLE=  0.000
IST GENERATOR BUSES:
    BUS NUMBER.....................................................#
    REAL POWER.....................................................MW
    REACTIVE POWER.................................................MVAR
    PER-UNIT VOLTAGE(SET V(PU)=0.0 FOR NON VOLTAGE-CONTROLLED BUS)....V(PU)
NTER 9999 TO INDICATE END OF DATA.
IST TAP CHANGING XFMRS:
    FROM-BUS NUMBER WHERE TAP IS LOCATED.....FB
    TO-BUS NUMBER(TB=-1 FOR 3-WINDING XFMR).....TB
    % TAP ABOVE/BELOW NOMINAL VOLTAGE.........%
NTER 9999 TO INDICATE END OF DATA.
ROM-BUS     TO-BUS      %TAP     LINE NO.
  100       200       -1.450       1
  201       300       -2.170       2
  201       301       -2.170       3
  202       302       -2.170       4
  202       303       -2.170       5
  203       304       -2.170       6
  203       305       -2.170       7
  312       400       -2.520       8
  313       401       -2.520       9
  314       402       -2.520      10
  315       403       -2.520      11
  316       404       -2.520      12
  317       405       -2.520      13
  318       406       -2.520      14
  319       407       -2.520      15
  320       408       -2.520      16
  100       250       -1.450      17
  251       350       -2.170      18
  251       351       -2.170      19
  252       352       -2.170      20
  252       353       -2.170      21
  253       354       -2.170      22
  253       355       -2.170      23
  362       450       -2.520      24
  363       451       -2.520      25
  364       452       -2.520      26
  365       453       -2.520      27
  366       454       -2.520      28
  367       455       -2.520      29
  368       456       -2.520      30
  369       457       -2.520      31
  370       458       -2.520      32
)O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)
```

UKE POWER COMPANY

DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS,ONLY 3 RCP'S RUNNING
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000008 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

		LINE POWER FLOW			LINE CURRENT
ROM-BUS	TO-BUS	MW	MVAR	MVA	MAG(KA)
204	200	-0.012	0.003	0.012	0.001
200	204	0.012	-0.003	0.012	0.001
200	207	4.614	2.379	5.191	0.225
200	206	4.614	2.379	5.191	0.225
200	205	4.614	2.379	5.191	0.225
200	257	4.615	2.379	5.192	0.225
200	256	4.615	2.380	5.193	0.225
200	255	4.615	2.379	5.192	0.225
200	254	4.616	2.380	5.193	0.225

200	210	47.346	23.991	53.077	2.302
200	100	-79.569	-37.473	87.951	3.815
207	200	-4.612	-2.376	5.187	0.225
206	200	-4.612	-2.376	5.188	0.225
205	200	-4.612	-2.376	5.188	0.225
257	200	-4.613	-2.376	5.189	0.225
256	200	-4.613	-2.376	5.189	0.225
255	200	-4.613	-2.376	5.189	0.225
254	200	-4.613	-2.376	5.189	0.225
210	200	-47.346	-23.990	53.077	2.302
210	201	13.711	1.949	13.849	0.601
210	202	17.554	10.281	20.343	0.882
210	203	16.005	8.594	18.166	0.788
100	200	79.987	51.816	95.304	0.107
100	250	0.001	0.000	0.001	0.000
201	210	-13.705	-1.940	13.842	0.601
201	MIDPOINT	13.694	1.936	13.830	0.600
202	210	-17.547	-10.271	20.332	0.882
202	MIDPOINT	17.537	10.265	20.321	0.882
203	210	-15.997	-8.581	18.153	0.788
203	MIDPOINT	15.984	8.570	18.136	0.787
250	100	-0.001	-0.000	0.001	0.000
250	260	-0.001	0.000	0.001	0.000
260	250	0.001	-0.000	0.001	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.794	-0.610	6.820	0.972
300	306	6.795	0.610	6.823	0.972
301	MIDPOINT	-6.841	-0.588	6.866	0.978
301	356	6.842	0.589	6.868	0.978
302	MIDPOINT	-9.381	-4.801	10.538	1.560
302	386	9.383	4.802	10.540	1.561
303	MIDPOINT	-8.016	-3.857	8.896	1.304
303	380	8.017	3.858	8.897	1.304
304	MIDPOINT	-7.835	-3.566	8.608	1.256
304	383	7.836	3.566	8.610	1.259
305	MIDPOINT	-8.046	-3.738	8.872	1.299
305	381	8.047	3.739	8.873	1.299

251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	0.000	0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	0.000	0.000	0.000	0.000
253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	0.000	0.000	0.000	0.000
306	300	-6.789	-0.601	6.816	0.972
306	318	1.012	0.600	1.176	0.168
356	301	-6.835	-0.578	6.869	0.978
356	368	1.057	0.578	1.205	0.172
386	302	-9.372	-4.[illegible]	10.524	1.561
386	309	5.766	2.842	6.428	0.953
386	308	3.567	2.012	4.095	0.607
380	303	-8.010	-3.847	8.886	1.304
380	310	5.199	2.332	5.698	0.836
380	361	3.120	1.615	3.514	0.516
383	304	-7.831	-3.558	8.601	1.259
383	358	2.233	1.033	2.460	0.360
383	360	5.690	2.515	6.221	0.910
381	305	-8.040	-3.728	8.862	1.299
381	311	2.428	1.260	2.735	0.401
381	359	5.651	2.641	6.238	0.915
3.8	306	-1.011	-0.600	1.176	0.168
318	406	1.010	0.600	1.175	0.168
368	356	-1.057	-0.578	1.204	0.172
368	456	1.056	0.578	1.204	0.172
309	386	-5.766	-2.842	6.428	0.953
309	314	1.169	0.769	1.399	0.208
309	315	1.078	0.534	1.203	0.178
308	386	-3.567	-2.011	4.095	0.607
308	312	1.059	0.592	1.213	0.180
308	313	0.759	0.458	0.886	0.131
310	380	-5.199	-2.332	5.698	0.836
310	316	1.008	0.454	1.105	0.162
310	317	0.607	0.384	0.718	0.105
361	380	-3.120	-1.615	3.514	0.516
361	369	0.909	0.459	1.018	0.149
361	370	0.416	0.229	0.475	0.070
358	383	-2.233	-1.033	2.460	0.360
358	362	0.838	0.348	0.908	0.133
358	363	0.621	0.263	0.674	0.099
360	383	-5.689	-2.513	6.219	0.910
360	364	0.597	0.375	0.705	0.103
360	365	0.818	0.315	0.876	0.128

311	381	-2.428	-1.259	2.735	0.401
311	319	0.835	0.353	0.907	0.133
311	320	0.910	0.474	1.026	0.150
359	381	-5.671	-2.641	6.237	0.915
359	366	1.157	0.438	1.237	0.181
359	367	0.872	0.541	1.026	0.150
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.994	-0.517	1.120	1.416
406	513	0.046	0.022	0.051	0.064
406	514	0.426	0.208	0.474	0.599
406	515	0.268	0.130	0.298	0.376
456	368	-1.039	-0.491	1.149	1.450
456	564	0.523	0.255	0.582	0.735
456	565	0.268	0.130	0.298	0.376
314	309	-1.168	-0.768	1.398	0.208
314	402	1.168	0.768	1.398	0.207
315	309	-1.078	-0.534	1.203	0.178
315	403	1.077	0.534	1.202	0.178
312	308	-1.059	-0.592	1.213	0.180
312	400	1.058	0.592	1.212	0.180
313	308	-0.759	-0.458	0.886	0.131
313	401	0.759	0.458	0.886	0.131
316	310	-1.007	-0.454	1.105	0.162
316	404	1.007	0.454	1.105	0.162
317	310	-0.606	-0.383	0.718	0.105
317	405	0.606	0.384	0.717	0.105
369	361	-0.908	-0.459	1.018	0.149
369	457	0.908	0.459	1.018	0.149
370	361	-0.415	-0.229	0.474	0.070
370	458	0.415	0.229	0.474	0.070
362	358	-0.838	-0.348	0.907	0.133
362	450	0.838	0.348	0.907	0.133

363	358	-0.621	-0.262	0.674	0.099
363	451	0.620	0.262	0.674	0.099
364	360	-0.597	-0.375	0.705	0.103
364	452	0.597	0.375	0.705	0.103
365	360	-0.818	-0.315	0.876	0.128
365	453	0	0.315	0.876	0.128
319	311	-	-0.353	0.906	0.133
319	407	0.[illegible]	0.353	0.906	0.133
320	311	-0.[illegible]09	-0.474	1.025	0.150
320	408	0.909	0.474	1.025	0.150
366	359	-1.156	-0.437	1.236	0.181
366	454	1.156	0.438	1.236	0.181
367	359	-0.871	-0.541	1.026	0.150
367	455	0.871	0.541	1.026	0.150
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.046	-0.022	0.051	0.064
514	406	-0.425	-0.206	0.472	0.599
515	406	-0.268	-0.130	0.297	0.376
564	45[illegible]	-0.521	-0.252	0.579	0.735
565	456	-0.268	-0.130	0.298	0.376
402	314	-1.143	-0.641	1.311	1.752
402	503	0.219	0.107	0.243	0.325
402	505	0.130	0.063	0.144	0.193
403	315	-1.0[illegible]	-0.440	1.147	1.507
403	506	0.250	0.001	0.250	0.329
403	507	0.382	0.187	0.425	0.558
400	312	-1.040	-0.496	1.152	1.520
400	500	0.150	0.073	0.167	0.220
401	313	-0.749	-0.407	0.852	1.110
401	502	0.270	0.136	0.302	0.394
401	504	0.000	0.000	0.000	0.000
404	316	-0.992	-0.376	1.061	1.370
404	508	0.352	0.173	0.392	0.506
404	509	0.246	0.120	0.274	0.353
404	510	0.260	0.001	0.260	0.336

405	317	-0.600	-0.351	0.695	0.889
405	511	0.055	0.027	0.061	0.078
457	369	-0.896	-0.393	0.978	1.263
457	566	0.229	0.116	0.256	0.331
458	370	-0.413	-0.215	0.465	0.588
458	567	0.200	0.098	0.223	0.282
458	570	0.000	0.000	0.000	0.000
450	362	-0.828	-0.296	0.879	1.122
450	550	0.304	0.149	0.339	0.432
450	562	0.266	0.000	0.266	0.340
451	363	-0.615	-0.234	0.658	0.833
451	552	0.189	0.092	0.210	0.266
452	364	-0.591	-0.344	0.683	0.872
452	561	0.067	0.032	0.074	0.095
453	365	-0.808	-0.266	0.851	1.084
453	558	0.400	0.196	0.445	0.567
453	559	0.142	0.069	0.158	0.201
453	560	0.267	0.001	0.267	0.340
407	319	-0.825	-0.300	0.878	1.123
407	516	0.173	0.085	0.193	0.247
407	520	0.264	0.001	0.264	0.338
408	320	-0.896	-0.407	0.984	1.271
408	517	0.160	0.078	0.178	0.230
454	366	-1.137	-0.341	1.187	1.532
454	556	0.240	0.001	0.260	0.335
454	557	0.433	0.212	0.482	0.622
455	367	-0.858	-0.474	0.981	1.271
455	553	0.273	0.134	0.304	0.395
455	555	0.063	0.031	0.071	0.091
503	402	-0.217	-0.105	0.241	0.325
505	402	-0.129	-0.063	0.144	0.193
506	403	-0.249	-0.000	0.249	0.329
507	403	-0.379	-0.183	0.421	0.558
500	400	-0.150	-0.073	0.167	0.220
502	401	-0.268	-0.134	0.299	0.394
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.349	-0.169	0.387	0.506
509	404	-0.244	-0.118	0.272	0.353
510	404	-0.259	-0.000	0.259	0.336

511	405	-0.055	-0.026	0.061	0.078
566	457	-0.227	-0.115	0.255	0.331
567	458	-0.199	-0.096	0.221	0.282
570	458	-0.000	-0.000	0.000	0.000
550	450	-0.302	-0.146	0.336	0.432
562	450	-0.266	-0.000	0.266	0.340
552	451	-0.188	-0.091	0.208	0.266
561	452	-0.067	-0.032	0.074	0.095
558	453	-0.395	-0.191	0.439	0.567
559	453	-0.141	-0.068	0.157	0.201
560	453	-0.266	-0.000	0.266	0.340
516	407	-0.173	-0.084	0.192	0.247
520	407	-0.263	-0.000	0.263	0.338
517	408	-0.160	-0.077	0.177	0.230
556	454	-0.259	-0.000	0.259	0.335
557	454	-0.430	-0.208	0.478	0.622
553	455	-0.271	-0.131	0.301	0.395
555	455	-0.063	-0.031	0.070	0.091

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9645	-7.72	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0121	0.0028
00	1H02	0.9645	-7.72	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0924	3.1691
07	1H06	0.9639	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0003	-0.0004
06	1H05	0.9639	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0007	-0.0005
05	1H04	0.9639	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0010	-0.0006
57	2H06	0.9638	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0015	-0.0005
56	2H05	0.9638	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0015	-0.0008
55	2H04	0.9639	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0013	-0.0009
54	2H03	0.9638	-7.74	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0022	-0.0009
10	1H01	0.9645	-7.72	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0761	-3.1676
00	1X03-HS	1.0300	0.00	500.000	79.99	51.91	0.00	0.00	-0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9640	-7.75	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0114	-0.0032
02	1X05-HS	0.9640	-7.73	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0096	-0.0055
03	1X06-HS	0.9638	-7.74	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0135	-0.0111
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0015	-0.0001

50	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0005	-0.0004
00	1X04-LS1	0.9744	-10.77	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0010	0.0006
01	1X04-LS2	0.9745	-10.80	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0011	0.0004
02	1X05-LS1	0.9373	-11.90	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0017	0.0007
03	1X05-LS2	0.9470	-11.27	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0014	0.0006
04	1X06-LS1	0.9494	-11.19	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0010	0.0004
05	1X06-LS2	0.9477	-11.29	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	0.0004
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06	1A05,06	0.9734	-10.85	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0004	-0.0011
56	2A05,06	0.9734	-10.88	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0003	-0.0008
86	1A02-AUX	0.9358	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0394	0.0666
80	1A04-AUX	0.9457	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.3091	0.1007
83	2A04-AUX	0.9484	-11.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0925	-0.0101
81	2A02-AUX	0.9466	-11.33	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0388	0.1727
18	15-HS	0.9732	-10.85	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0013	0.0006
66	25-HS	0.9731	-10.88	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0008	0.0004
09	1A02	0.9358	-11.95	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0648	-0.0503
08	1A01	0.9358	-11.95	4.160	0.00	0.00	1.49	0.83	0.24	0.11	-0.0251	-0.0167
10	1A03	0.9457	-11.31	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0012	-0.0047
61	1A04	0.9457	-11.31	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.3083	-0.0965
58	2A04	0.9484	-11.23	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0916	0.0101
60	2A03	0.9481	-11.24	4.160	0.00	0.00	3.58	1.49	0.69	0.33	-0.0013	-0.0003
11	2A01	0.9464	-11.34	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0002	-0.0005
59	2A02	0.9465	-11.33	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0395	-0.1728
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.9521	-14.07	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56	2B05	0.9530	-14.28	0.480	0.00	0.00	0.17	0.11	0.08	0.00	-0.0000	0.0000
14	12A-HS	0.9352	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0006	-0.0000
15	12B-HS	0.9354	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0008	-0.0001
12	11A-HS	0.9354	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
13	11B-HS	0.9356	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0000
16	13B-HS	0.9453	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0000
17	13A-HS	0.9454	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	0.0001
69	14A-HS	0.9452	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
70	14B-HS	0.9455	-11.31	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
62	24B-HS	0.9482	-11.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0000
63	24A-HS	0.9481	-11.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
64	23A-HS	0.9479	-11.24	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
65	23B-HS	0.9478	-11.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
19	21B-HS	0.9461	-11.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
20	21A-HS	0.9459	-11.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
66	22B-HS	0.9461	-11.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0002
67	22A-HS	0.9462	-11.33	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9495	-14.14	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
14	1B008	0.9468	-14.21	0.480	0.00	0.00	0.00	0.00	0.42	0.21	-0.0000	-0.0000
15	1B007	0.9504	-14.12	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
64	2B008	0.9471	-14.44	0.480	0.00	0.00	0.00	0.00	0.52	0.25	-0.0000	-0.0000
65	2B007	0.9512	-14.33	0.480	0.00	0.00	0.00	0.00	0.27	0.13	0.0000	-0.0000
02	1B0?A	0.8996	-16.00	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0001	0.0000

03 1B02B	[illegible]9153	-15.76	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00 1B01A	[illegible]9117	-15.65	0.480	0.00	0.00	0.64	0.36	0.25	0.06	0.0000	0.0000
01 1B01B	[illegible]9230	-14.54	0.480	0.00	0.00	0.41	0.24	0.07	0.03	0.0000	0.0000
04 1B03B	0.9314	-14.81	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05 1B03A	0.9395	-13.31	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57 1B04A	0.9318	-14.43	0.480	0.00	0.00	0.47	0.24	0.20	0.03	0.0000	0.0000
58 1B04B	0.9512	-12.69	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	0.0000
50 2B04B	0.9424	-14.12	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0000	0.0000
51 2B04A	0.9497	-13.35	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	0.0000
52 2B03A	0.9427	-13.20	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53 2B03B	0.9443	-14.07	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07 2B01B	0.9400	-14.22	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0000	0.0000
08 2B01A	0.9316	-14.44	0.480	0.00	0.00	0.48	0.27	0.26	0.06	0.0000	0.0000
54 2B02B	0.9321	-15.40	0.480	0.00	0.00	0.23	0.13	0.22	0.00	0.0000	0.0000
55 2B02A	0.9280	-14.25	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03 1B002	0.8928	-16.18	0.480	0.00	0.00	0.00	0.00	0.22	0.11	-0.0000	-0.0000
05 1B005	0.8957	-16.10	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
06 1B010	0.9114	-16.03	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
07 1B006	0.9062	-16.00	0.480	0.00	0.00	0.00	0.00	0.38	0.18	-0.0000	-0.0000
00 1B001A	0.9094	-15.71	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
02 1B014	0.9146	-14.76	0.480	0.00	0.00	0.03	0.02	0.23	0.11	-0.0000	-0.0000
04 1B009	0.9230	-14.54	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08 1B016	0.9201	-15.10	0.480	0.00	0.00	0.00	0.00	0.35	0.17	-0.0000	-0.0000
09 1B003	0.9248	-14.98	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	-0.0000
10 1B012	0.9298	-14.92	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
11 1B015	0.9376	-13.36	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0000	-0.0000
66 1B004	0.9254	-14.59	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	-0.0000
67 1B001B	0.9457	-12.83	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
70 1B011	0.9512	-12.69	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50 2B001B	0.9348	-14.31	0.480	0.00	0.00	0.00	0.00	0.30	0.15	-0.0000	-0.0000
62 2B011	0.9410	-14.22	0.480	0.00	0.00	0.00	0.00	0.27	0.00	-0.0000	-0.0000
52 2B004	0.9437	-13.50	0.480	0.00	0.00	0.00	0.00	0.19	0.09	-0.0000	-0.0000
61 2B015	0.9404	-13.26	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	-0.0000
58 2B016	0.9318	-14.40	0.480	0.00	0.00	0.00	0.00	0.40	0.19	-0.0000	-0.0000
59 2B003	0.9406	-14.17	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
60 2B012	0.9421	-14.22	0.480	0.00	0.00	0.00	0.00	0.27	0.00	-0.0000	-0.0000
16 2B014	0.9336	-14.39	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20 2B009	0.9364	-14.47	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
17 2B001A	0.9271	-14.56	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
56 2B010	0.9289	-15.63	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
57 2B006	0.9244	-15.60	0.480	0.00	0.00	0.00	0.00	0.43	0.21	-0.0000	-0.0000
53 2B002	0.9178	-14.52	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
55 2B005	0.9256	-14.32	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
EMOVE RCBL[illegible]LEM
NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS
CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
04	0	1	CLOSED
08	0	3	OPENED
08	0	4	OPENED
08	0	5	OPENED

08	0	6	OPENED
08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED
06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED

51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED
51	306	1	OPENED
50	257	1	OPENED
50	256	1	OPENED
50	255	1	OPENED
50	254	1	OPENED
50	207	1	OPENED
50	206	1	OPENED
50	205	1	OPENED
50	204	1	OPENED
85	361	1	OPENED
84	359	1	OPENED
82	358	1	OPENED
82	360	1	OPENED
84	311	1	OPENED
85	310	1	OPENED
87	308	1	OPENED
87	309	1	OPENED
0	570	1	OPENED
0	504	1	OPENED
0	308	3	CLOSED
0	308	4	CLOSED
0	308	5	CLOSED
0	400	1	CLOSED
0	400	2	CLOSED
0	400	3	CLOSED
0	400	4	CLOSED
0	400	5	CLOSED
0	400	6	CLOSED
0	400	10	CLOSED
0	502	2	CLOSED
0	566	2	CLOSED
0	361	3	CLOSED

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 0     361       4     CLOSED
 0     361       5     CLOSED
 0     401       9     CLOSED
 0     457       4     CLOSED
 0     458       1     CLOSED
NTER COMMAND
O YOU WANT TO MODIFY THE LOAD-FLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD & ESFAS W/ P13000-2 OOS,ALL 4 RCP'S RUNNING
NTER SWING BUS DATA:  (BUS#,V(PU),ANGLE)
WING BUS= 100 V=  1.030 ANGLE=  0.000
IST GENERATOR BUSES:  (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS:  (FB,TB,%TAP)
ROM-BUS      TO-BUS       %TAP      LINE NO.
   100         200       -1.450        1
   201         300       -2.170        2
   201         301       -2.170        3
   202         302       -2.170        4
   202         303       -2.170        5
   203         304       -2.170        6
   203         305       -2.170        7
   312         400       -2.520        8
   313         401       -2.520        9
   314         402       -2.520       10
   315         403       -2.520       11
   316         404       -2.520       12
   317         405       -2.520       13
   318         406       -2.520       14
   319         407       -2.520       15
   320         408       -2.520       16
   100         250       -1.450       17
   251         350       -2.170       18
   251         351       -2.170       19
   252         352       -2.170       20
   252         353       -2.170       21
   253         354       -2.170       22
   253         355       -2.170       23
   362         450       -2.520       24
   363         451       -2.520       25
   364         452       -2.520       26
   365         453       -2.520       27
   366         454       -2.520       28
   367         455       -2.520       29
   368         456       -2.520       30
   369         457       -2.520       31
   370         458       -2.520       32
O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY                                                    DATE = 03/25/81

                                AUXILIARY SYSTEM DESIGN
                                  OPTIMIZATION PROGRAM
                                       (ASDOP)
                              BASE CASE: CALVERT CLIFFS REP
                             ENDS AT CC 500KV SYSEQV NO CC GEN
-------------------------------------------------------------------------------------------------

                                BUS VOLTAGES,CURRENTS,AND POWER FLOWS
ASE TITLE:LOAD-FLOW FULL LOAD & ESFAS W/ P13000-2 OOS,ALL 4 RCP'S RUNNING
O. OF BUSES= 124     NO. OF LINES= 123
WING BUS NO.= 100
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O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000010 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.622	-2.372	5.195	0.227
200	204	4.624	2.375	5.198	0.227
200	207	4.614	2.379	5.191	0.227
200	206	4.614	2.379	5.191	0.227
200	205	4.614	2.379	5.191	0.227
200	257	4.615	2.379	5.192	0.227
200	256	4.615	2.380	5.193	0.227
200	255	4.615	2.380	5.193	0.227
200	254	4.616	2.380	5.193	0.227
200	210	47.834	24.084	53.555	2.338
200	100	-84.046	-39.827	93.005	4.060
207	200	-4.611	-2.376	5.187	0.227
206	200	-4.612	-2.376	5.188	0.227
205	200	-4.612	-2.376	5.188	0.227
257	200	-4.613	-2.376	5.189	0.227

256	200	-4.613	-2.376	5.189	0.227
255	200	-4.613	-2.376	5.189	0.227
254	200	-4.613	-2.376	5.190	0.227
210	200	-47.834	-24.084	53.555	2.338
210	201	13.689	1.945	13.827	0.604
210	202	17.504	10.275	20.297	0.886
210	203	15.938	8.578	18.100	0.790
100	200	84.520	56.072	101.428	0.114
100	250	0.001	0.000	0.001	0.000
201	210	-13.683	-1.936	13.819	0.604
201	MIDPOINT	13.684	1.933	13.819	0.604
202	210	-17.497	-10.266	20.286	0.886
202	MIDPOINT	17.484	10.260	20.272	0.885
203	210	-15.930	-8.565	18.087	0.790
203	MIDPOINT	15.919	8.559	18.074	0.790
250	100	-0.001	-0.000	0.001	0.000
250	260	0.001	-0.000	0.001	0.000
260	250	-0.001	0.000	0.001	0.000
260	251	-0.000	0.000	0.000	0.000
260	252	-0.000	0.000	0.000	0.000
260	253	-0.000	0.000	0.000	0.000
300	MIDPOINT	-6.784	-0.604	6.811	0.976
300	306	6.786	0.605	6.813	0.977
301	MIDPOINT	-6.830	-0.583	6.854	0.983
301	356	6.831	0.583	6.856	0.983
302	MIDPOINT	-9.352	-4.791	10.508	1.567
302	386	9.354	4.792	10.510	1.567
303	MIDPOINT	-7.994	-3.849	8.872	1.309
303	380	7.996	3.849	8.874	1.310
304	MIDPOINT	-7.800	-3.553	8.570	1.261
304	383	7.801	3.553	8.572	1.262
305	MIDPOINT	-8.015	-3.729	8.840	1.303
305	381	8.016	3.729	8.841	1.304
251	260	0.000	-0.000	0.000	0.000
251	MIDPOINT	0.000	0.000	0.000	0.000
252	260	0.000	-0.000	0.000	0.000
252	MIDPOINT	0.000	0.000	0.000	0.000
253	260	0.000	-0.000	0.000	0.000
253	MIDPOINT	0.000	0.000	0.000	0.000
306	300	-6.780	-0.596	6.806	0.977
306	318	1.002	0.594	1.165	0.167

356	301	-6.824	-0.573	6.848	0.983
356	368	1.046	0.572	1.192	0.171
386	302	-9.344	-4.777	10.494	1.567
386	309	5.751	2.769	6.383	0.953
386	308	3.562	2.008	4.089	0.611
380	303	-7.988	-3.838	8.862	1.310
380	310	5.185	2.327	5.683	0.840
380	361	3.116	1.723	3.560	0.526
383	304	-7.795	-3.545	8.563	1.262
383	358	2.302	1.079	2.542	0.375
383	360	5.669	2.507	6.198	0.913
381	305	-8.009	-3.719	8.830	1.304
381	311	2.416	1.257	2.723	0.402
381	359	5.636	2.572	6.195	0.915
318	306	-1.001	-0.594	1.164	0.167
318	406	1.000	0.595	1.164	0.167
368	356	-1.045	-0.572	1.191	0.171
368	456	1.044	0.572	1.191	0.171
309	386	-5.751	-2.769	6.383	0.953
309	314	1.163	0.766	1.393	0.208
309	315	1.069	0.531	1.194	0.178
308	386	-3.562	-2.008	4.089	0.611
308	312	1.053	0.590	1.207	0.180
308	313	0.755	0.456	0.882	0.132
310	380	-5.185	-2.327	5.683	0.840
310	316	0.996	0.450	1.093	0.161
310	317	0.606	0.384	0.717	0.106
361	380	-3.116	-1.723	3.560	0.526
361	369	0.904	0.458	1.013	0.150
361	370	0.412	0.227	0.470	0.070
358	383	-2.302	-1.079	2.542	0.375
358	362	0.829	0.346	0.898	0.132
358	363	0.615	0.261	0.668	0.094
360	383	-5.667	-2.504	6.196	0.913
360	364	0.596	0.375	0.704	0.104
360	365	0.807	0.310	0.865	0.127
311	381	-2.415	-1.256	2.723	0.402
311	319	0.828	0.351	0.899	0.133
311	320	0.904	0.472	1.020	0.151
359	381	-5.636	-2.572	6.195	0.915
359	366	1.144	0.434	1.224	0.181
359	367	0.867	0.539	1.021	0.151
350	MIDPOINT	-0.000	-0.000	0.000	0.000

351	MIDPOINT	-0.000	-0.000	0.000	0.000
352	MIDPOINT	-0.000	-0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	-0.000	-0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	-0.000	-0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	-0.000	-0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.984	-0.512	1.109	1.411
406	513	0.045	0.022	0.050	0.064
406	514	0.421	0.205	0.468	0.595
406	515	0.264	0.128	0.294	0.374
456	368	-1.028	-0.486	1.137	1.444
456	[illegible]	0.517	0.252	0.575	0.730
456	[illegible]65	0.265	0.129	0.294	0.374
314	309	-1.163	-0.766	1.392	0.208
314	402	1.162	0.766	1.391	0.208
315	309	-1.069	-0.531	1.193	0.178
315	403	1.068	0.531	1.192	0.178
312	308	-1.053	-0.590	1.207	0.180
312	400	1.052	0.590	1.207	0.180
313	308	-0.755	-0.456	0.881	0.132
313	401	0.754	0.456	0.881	0.132
316	310	-0.995	-0.449	1.092	0.161
316	404	0.995	0.449	1.092	0.161
317	310	-0.606	-0.384	0.717	0.106
317	405	0.605	0.384	0.717	0.106
369	361	-0.903	-0.457	1.012	0.150
369	457	0.903	0.457	1.012	0.150
370	361	-0.412	-0.227	0.470	0.070
370	458	0.412	0.227	0.470	0.069
362	358	-0.829	-0.345	0.898	0.132
362	450	0.829	0.345	0.898	0.132
363	358	-0.615	-0.261	0.668	0.098
363	451	0.615	0.261	0.668	0.098
364	360	-0.596	-0.375	0.704	0.104
364	452	0.596	0.375	0.704	0.104
365	360	-0.807	-0.310	0.864	0.127
365	453	0.807	0.310	0.864	0.127
319	311	-0.828	-0.351	0.899	0.133

319	407	0.828	0.351	0.899	0.133
320	311	-0.903	-0.472	1.019	0.151
320	408	0.903	0.472	1.019	0.151
366	359	-1.144	-0.434	1.223	0.181
366	454	1.143	0.434	1.223	0.181
367	359	-0.867	-0.539	1.021	0.151
367	455	0.866	0.539	1.020	0.151
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.045	-0.022	0.050	0.064
514	406	-0.419	-0.203	0.465	0.595
515	406	-0.264	-0.128	0.293	0.374
564	456	-0.514	-0.249	0.571	0.730
565	456	-0.264	-0.128	0.294	0.374
402	314	-1.137	-0.638	1.304	1.757
402	503	0.215	0.105	0.240	0.323
402	505	0.128	0.062	0.142	0.191
403	315	-1.050	-0.437	1.137	1.505
403	506	0.247	0.001	0.247	0.326
403	507	0.376	0.184	0.419	0.554
400	312	-1.034	-0.494	1.146	1.523
400	500	0.148	0.072	0.164	0.219
401	313	-0.744	-0.404	0.847	1.112
401	502	0.266	0.135	0.298	0.392
401	504	0.000	0.000	0.000	0.000
404	316	-0.980	-0.372	1.048	1.363
404	508	0.347	0.170	0.387	0.503
404	509	0.242	0.118	0.270	0.351
404	510	0.256	0.001	0.256	0.333
405	317	-0.599	-0.350	0.694	0.895
405	511	0.054	0.026	0.060	0.077
457	369	-0.890	-0.391	0.972	1.264
457	566	0.226	0.115	0.253	0.329
458	370	-0.409	-0.213	0.461	0.587
458	567	0.197	0.096	0.220	0.280
458	570	0.000	0.000	0.000	0.000
450	362	-0.819	-0.294	0.870	1.118

450	550	0.300	0.147	0.334	0.429
450	562	0.262	0.000	0.262	0.337
451	363	-0.609	-0.232	0.652	0.832
451	552	0.186	0.091	0.207	0.264
452	364	-0.590	-0.343	0.682	0.877
452	561	0.066	0.032	0.073	0.094
453	365	-0.797	-0.262	0.839	1.076
453	558	0.334	0.194	0.439	0.563
453	559	0.140	0.068	0.155	0.199
453	560	0.263	0.001	0.263	0.338
407	319	-0.817	-0.299	0.870	1.122
407	516	0.171	0.083	0.190	0.245
407	520	0.260	0.001	0.260	0.336
408	320	-0.890	-0.405	0.978	1.272
408	517	0.158	0.077	0.176	0.228
454	366	-1.125	-0.338	1.174	1.526
454	556	0.256	0.001	0.256	0.333
454	557	0.427	0.209	0.475	0.618
455	367	-0.853	-0.472	0.975	1.273
455	553	0.269	0.132	0.300	0.392
455	555	0.063	0.030	0.070	0.091
503	402	-0.214	-0.104	0.238	0.323
505	402	-0.127	-0.062	0.141	0.191
506	403	-0.246	-0.000	0.246	0.326
507	403	-0.373	-0.181	0.414	0.554
500	400	-0.148	-0.071	0.164	0.219
502	401	-0.264	-0.133	0.296	0.392
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.344	-0.167	0.382	0.503
509	404	-0.241	-0.117	0.268	0.351
510	404	-0.256	-0.000	0.256	0.333
511	405	-0.054	-0.026	0.060	0.077
566	457	-0.225	-0.113	0.252	0.329
567	458	-0.196	-0.095	0.218	0.280
570	458	-0.000	-0.000	0.000	0.000
550	450	-0.298	-0.144	0.331	0.429
562	450	-0.262	-0.000	0.262	0.337

552	451	-0.185	-0.090	0.206	0.264
561	452	-0.066	-0.032	0.073	0.094
558	453	-0.390	-0.189	0.433	0.563
559	453	-0.139	-0.067	0.155	0.199
560	453	-0.263	-0.000	0.263	0.338
516	407	-0.170	-0.082	0.189	0.245
520	407	-0.259	-0.000	0.259	0.336
517	408	-0.157	-0.076	0.175	0.228
556	454	-0.255	-0.000	0.255	0.333
557	454	-0.424	-0.205	0.471	0.618
553	455	-0.267	-0.129	0.297	0.392
555	455	-0.062	-0.030	0.069	0.091

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0109	0.0032
00	1H02	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.7155	3.2881
07	1H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0004
06	1H05	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0007	-0.0008
05	1H04	0.9578	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0009	-0.0006
57	2H06	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0016	-0.0006
56	2H05	0.9576	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0017	-0.0008
55	2H04	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0017	-0.0010
54	2H03	0.9577	-8.23	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0022	-0.0013
10	1H01	0.9584	-8.21	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.7026	-3.2859
00	1X03-HS	1.0300	0.00	500.000	84.52	56.16	0.00	0.00	-0.00	0.00	0.0000	-0.0000
01	1X04-HS	0.9578	-8.24	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0006	-0.0030
02	1X05-HS	0.9579	-8.22	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0129	-0.0057
03	1X06-HS	0.9577	-8.23	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0111	-0.0060
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	-0.0008
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0005	0.0004
00	1X04-LS1	0.9681	-11.30	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0015	0.0006
01	1X04-LS2	0.9682	-11.32	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0004
02	1X05-LS1	0.9307	-12.43	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0022	0.0009
03	1X05-LS2	0.9405	-11.79	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0018	0.0005
04	1X06-LS1	0.9430	-11.71	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0012	0.0007
05	1X06-LS2	0.9412	-11.81	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0004
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
06	1A05,06	0.9671	-11.37	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0001	-0.0012

56	2A05,06	0.9671	-11.60	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0003	-0.0008
86	1A02-AUX	0.9293	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0307	0.0002
80	1A04-AUX	0.9392	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.3124	0.2120
83	2A04-AUX	0.9420	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1753	0.0403
81	2A02-AUX	0.9401	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0423	0.1097
18	15-HS	0.9668	-11.37	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0014	0.0007
68	25-HS	0.9668	-11.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	0.0004
09	1A02	0.9293	-12.48	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0642	0.0175
08	1A01	0.9293	-12.48	4.160	0.00	0.00	1.49	0.83	0.23	0.11	-0.0330	-0.0186
10	1A03	0.9392	-11.84	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0002	-0.0046
61	1A04	0.9392	-11.84	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.3127	-0.2077
58	2A04	0.9420	-11.75	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.1746	-0.0402
60	2A03	0.9417	-11.76	4.160	0.00	0.00	3.58	1.49	0.68	0.33	-0.0009	-0.0006
11	2A01	0.9399	-11.86	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0009	-0.0011
59	2A02	0.9401	-11.86	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0417	-0.1091
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
06	1B05	0.9457	-14.61	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56	2B05	0.9467	-14.82	0.480	0.00	0.00	0.17	0.11	0.08	0.00	-0.0000	0.0000
14	12A-HS	0.9287	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0009	-0.0000
15	12B-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0000
12	11A-HS	0.9288	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0000
13	11B-HS	0.9290	-12.48	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0001
16	13B-HS	0.9388	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
17	13A-HS	0.9389	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
69	14A-HS	0.9387	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
70	14B-HS	0.9390	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
62	24B-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0001
63	24A-HS	0.9417	-11.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
64	23A-HS	0.9414	-11.76	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0001
65	23B-HS	0.9413	-11.77	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
19	21B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
20	21A-HS	0.9394	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
66	22B-HS	0.9396	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
67	22A-HS	0.9397	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0000
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9431	-14.68	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
14	1B008	0.9404	-14.75	0.480	0.00	0.00	0.00	0.00	0.42	0.20	-0.0000	-0.0000
15	1B007	0.9440	-14.65	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
64	2B008	0.9408	-14.97	0.480	0.00	0.00	0.00	0.00	0.51	0.25	0.0000	-0.0000
65	2B007	0.9449	-14.86	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
02	1B02A	0.8927	-16.57	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0001	0.0001
03	1B02B	0.9085	-16.31	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.9048	-16.22	0.480	0.00	0.00	0.64	0.36	0.24	0.06	0.0000	0.0000
01	1B01B	0.9162	-15.10	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04	1B03B	0.9249	-15.34	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.9327	-13.87	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.9250	-14.98	0.480	0.00	0.00	0.47	0.24	0.19	0.03	0.0000	0.0000
58	1B04B	0.9445	-13.22	0.480	0.00	0.00	0.14	0.08	0.07	0.03	0.0000	0.0000
50	2B04B	0.9359	-14.64	0.480	0.00	0.00	0.19	0.11	0.07	0.03	0.0000	0.0000
51	2B04A	0.9431	-13.88	0.480	0.00	0.00	0.22	0.11	0.20	0.03	0.0000	0.0000
52	2B03A	0.9359	-13.75	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.9379	-14.59	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000

07 2B01B	0.9333	-14.76	0.480	0.00	0.00	0.32	0.18	0.07	0.03	0.0000	0.0000
08 2B01A	0.9249	-14.99	0.480	0.00	0.00	0.48	0.27	0.26	0.06	0.0000	0.0000
54 2B02B	0.9255	-15.94	0.480	0.00	0.00	0.23	0.13	0.21	0.00	0.0000	0.0000
55 2B02A	0.9213	-14.80	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03 1B002	0.8860	-16.75	0.480	0.00	0.00	0.00	0.00	0.21	0.10	-0.0000	-0.0000
05 1B005	0.8888	-16.67	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
06 1B010	0.9047	-16.59	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
07 1B006	0.8996	-16.55	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
00 1B001A	0.9026	-16.28	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
02 1B014	0.9078	-15.31	0.480	0.00	0.00	0.03	0.02	0.23	0.11	-0.0000	-0.0000
04 1B009	0.9162	-15.10	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08 1B016	0.9137	-15.63	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	-0.0000
09 1B003	0.9184	-15.51	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	-0.0000
10 1B012	0.9233	-15.45	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
11 1B015	0.9307	-13.92	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0000	-0.0000
66 1B004	0.9186	-15.14	0.480	0.00	0.00	0.03	0.02	0.19	0.09	-0.0000	-0.0000
67 1B001B	0.9390	-13.37	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
70 1B011	0.9445	-13.22	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50 2B001B	0.9283	-14.84	0.480	0.00	0.00	0.00	0.00	0.30	0.14	-0.0000	-0.0000
62 2B011	0.9345	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
52 2B004	0.9372	-14.03	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
61 2B015	0.9336	-13.81	0.480	0.00	0.00	0.00	0.00	0.07	0.03	-0.0000	-0.0000
58 2B016	0.9255	-14.92	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
59 2B003	0.9342	-14.69	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
60 2B012	0.9357	-14.74	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
16 2B014	0.9270	-14.93	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
20 2B009	0.9298	-15.01	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
17 2B001A	0.9204	-15.11	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
56 2B010	0.9224	-16.16	0.480	0.00	0.00	0.00	0.00	0.26	0.00	-0.0000	-0.0000
57 2B006	0.9179	-16.14	0.480	0.00	0.00	0.00	0.00	0.42	0.21	-0.0000	-0.0000
53 2B002	0.9111	-15.07	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
55 2B005	0.9189	-14.86	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
O YOU WANT TO MODIFY THE LOADFLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
ULL LOAD & ESFAS & W/ P13000-2 OOS, RCP START
NTER SWING BUS DATA: (BUS#,V(PU),ANGLE)
WING BUS= 100 V= 1.030 ANGLE= 0.000
IST GENERATOR BUSES: (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS: (FB,TB,%TAP)

FROM-BUS	TO-BUS	%TAP	LINE NO.
100	200	-1.450	1
100	250	-1.450	2

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)
IST MOTORS TO BE STARTED:
BRANCH NUMBER.....BR
BUS NUMBER.....#
NTER 9999 TO INDICATE END OF DATA.

UKE POWER COMPANY DATE = 03/25/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:FULL LOAD & ESFAS & W/ P13000-2 OOS, RCP START

O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 7
BS VOLTAGE ERROR= 0.000002 0.000000

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

SUMMARY OF MOTORS STARTED

BUS NO.	BRANCH NO.
204	1

LINE FLOWS

ROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.712	-24.155	24.610	1.132
200	204	4.763	24.232	24.695	1.132
200	207	4.613	2.379	5.191	0.238
200	206	4.613	2.379	5.191	0.238
200	205	4.613	2.379	5.191	0.238
200	257	4.614	2.379	5.192	0.238
200	256	4.614	2.380	5.192	0.238
200	255	4.614	2.379	5.191	0.238
200	254	4.614	2.379	5.192	0.238
200	210	42.129	22.578	47.797	2.190
200	100	-83.212	-61.542	103.497	4.743
207	200	-4.611	-2.375	5.187	0.238
206	200	-4.611	-2.376	5.187	0.238

205	200	-4.611	-2.376	5.187	0.238
257	200	-4.612	-2.375	5.187	0.238
256	200	-4.611	-2.376	5.187	0.238
255	200	-4.611	-2.376	5.187	0.238
254	200	-4.612	-2.375	5.187	0.238
210	200	-42.129	-22.577	47.797	2.190
210	201	13.542	1.925	13.678	0.627
210	202	17.148	10.254	19.980	0.916
210	203	15.468	8.473	17.637	0.808
100	200	83.858	83.714	118.491	0.133
100	250	0.001	0.001	0.001	0.000
201	210	-13.536	-1.915	13.670	0.627
201	MIDPOINT	13.521	1.917	13.657	0.626
202	210	-17.141	-10.244	19.968	0.916
202	MIDPOINT	17.130	10.245	19.960	0.915
203	210	-15.460	-8.460	17.623	0.808
203	MIDPOINT	15.456	8.460	17.619	0.808
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	-0.000	0.000	0.000
260	250	-0.000	0.000	0.000	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.713	-0.567	6.737	1.015
300	306	6.714	0.567	6.737	1.015
301	MIDPOINT	-6.747	-0.542	6.768	1.019
301	356	6.747	0.542	6.768	1.019
302	MIDPOINT	-9.144	-4.718	10.289	1.619
302	386	9.144	4.718	10.289	1.619
303	MIDPOINT	-7.835	-3.790	8.703	1.354
303	380	7.835	3.790	8.703	1.354
304	MIDPOINT	-7.544	-3.456	8.298	1.286
304	383	7.544	3.456	8.298	1.286
305	MIDPOINT	-7.794	-3.661	8.611	1.338
305	381	7.794	3.661	8.611	1.338
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	-0.000	0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	-0.000	0.000	0.000	0.000

253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	-0.000	0.000	0.000	0.000
306	300	-6.707	-0.557	6.730	1.015
306	318	0.929	0.557	1.083	0.163
356	301	-6.739	-0.530	6.760	1.019
356	368	0.961	0.530	1.098	0.166
386	302	-9.133	-4.702	10.272	1.619
386	309	5.693	2.765	6.329	0.997
386	308	3.433	1.955	3.951	0.623
380	303	-7.827	-3.778	8.691	1.354
380	310	5.091	2.288	5.581	0.869
380	361	2.761	1.541	3.162	0.492
383	304	-7.538	-3.447	8.289	1.286
383	358	1.986	1.080	2.261	0.351
383	360	5.514	2.443	6.031	0.936
381	305	-7.786	-3.650	8.599	1.338
381	311	2.320	1.230	2.626	0.408
381	359	5.443	2.459	5.972	0.929
318	306	-0.929	-0.557	1.083	0.163
318	406	0.928	0.557	1.082	0.163
368	356	-0.961	-0.530	1.097	0.166
368	456	0.961	0.530	1.097	0.166
309	386	-5.693	-2.765	6.329	0.997
309	314	1.118	0.750	1.346	0.212
309	315	1.001	0.510	1.124	0.177
308	386	-3.433	-1.955	3.951	0.623
308	312	1.011	0.579	1.165	0.184
308	313	0.723	0.442	0.847	0.134
310	380	-5.090	-2.288	5.581	0.869
310	316	0.908	0.415	0.999	0.156
310	317	0.600	0.384	0.712	0.111
361	380	-2.761	-1.541	3.162	0.492
361	369	0.863	0.446	0.971	0.151
361	370	0.385	0.214	0.440	0.069
358	383	-1.986	-1.080	2.261	0.351
358	362	0.765	0.325	0.831	0.129
358	363	0.576	0.248	0.627	0.097
360	383	-5.513	-2.441	6.029	0.936
360	364	0.589	0.374	0.698	0.108
360	365	0.728	0.280	0.779	0.121
311	381	-2.319	-1.230	2.625	0.408
311	319	0.777	0.338	0.847	0.132
311	320	0.861	0.459	0.975	0.152
359	381	-5.443	-2.459	5.972	0.929

359	366	1.051	0.407	1.128	0.175
359	367	0.832	0.524	0.983	0.153
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.913	-0.478	1.030	1.379
406	513	0.041	0.020	0.045	0.061
406	514	0.380	0.185	0.422	0.566
406	515	0.239	0.116	0.265	0.355
456	368	-0.945	-0.449	1.046	1.398
456	564	0.467	0.228	0.519	0.694
456	565	0.239	0.116	0.266	0.356
314	309	-1.118	-0.749	1.345	0.212
314	402	1.117	0.749	1.345	0.212
315	309	-1.001	-0.510	1.123	0.177
315	403	1.001	0.510	1.123	0.177
312	308	-1.010	-0.579	1.164	0.184
312	400	1.010	0.579	1.164	0.184
313	308	-0.723	-0.441	0.847	0.134
313	401	0.723	0.442	0.847	0.133
316	310	-0.908	-0.414	0.998	0.156
316	404	0.908	0.414	0.998	0.156
317	310	-0.600	-0.384	0.712	0.111
317	405	0.600	0.384	0.712	0.111
369	361	-0.862	-0.445	0.971	0.151
369	457	0.862	0.445	0.971	0.151
370	361	-0.385	-0.214	0.440	0.069
370	458	0.385	0.214	0.440	0.069
362	358	-0.765	-0.325	0.831	0.129
362	450	0.765	0.325	0.831	0.129
363	358	-0.576	-0.247	0.627	0.097
363	451	0.576	0.248	0.627	0.097
364	360	-0.589	-0.374	0.698	0.108
364	452	0.589	0.374	0.698	0.108

365	360	-0.727	-0.280	0.779	0.121
365	453	0.727	0.280	0.779	0.121
319	311	-0.776	-0.338	0.847	0.132
319	407	0.776	0.338	0.847	0.132
320	311	-0.860	-0.458	0.975	0.152
320	408	0.860	0.458	0.974	0.152
366	359	-1.051	-0.407	1.127	0.175
366	454	1.051	0.407	1.127	0.175
367	359	-0.832	-0.524	0.983	0.153
367	455	0.832	0.524	0.983	0.153
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.041	-0.020	0.045	0.061
514	406	-0.378	-0.183	0.420	0.566
515	406	-0.238	-0.115	0.265	0.355
564	456	-0.464	-0.225	0.516	0.694
565	456	-0.239	-0.116	0.266	0.356
402	314	-1.092	-0.616	1.254	1.792
402	503	0.191	0.093	0.213	0.304
402	505	0.113	0.055	0.126	0.180
403	315	-0.983	-0.417	1.068	1.496
403	506	0.220	0.001	0.220	0.308
403	507	0.336	0.164	0.374	0.524
400	312	-0.991	-0.480	1.101	1.551
400	500	0.132	0.064	0.146	0.206
401	313	-0.712	-0.389	0.812	1.128
401	502	0.241	0.123	0.271	0.376
401	504	0.000	0.000	0.000	0.000
404	316	-0.896	-0.343	0.958	1.314
404	508	0.312	0.153	0.347	0.477
404	509	0.218	0.106	0.242	0.333
404	510	0.230	0.000	0.230	0.316
405	317	-0.593	-0.347	0.687	0.937
405	511	0.048	0.023	0.054	0.073
457	369	-0.849	-0.378	0.930	1.278
457	566	0.206	0.105	0.231	0.317

458	370	-0.382	-0.200	0.431	0.579
458	567	0.177	0.086	0.197	0.265
458	570	0.000	0.000	0.000	0.000
450	362	-0.756	-0.276	0.804	1.090
450	550	0.270	0.132	0.300	0.407
450	562	0.236	0.000	0.236	0.320
451	363	-0.570	-0.220	0.611	0.822
451	552	0.167	0.082	0.186	0.250
452	364	-0.582	-0.340	0.674	0.916
452	561	0.059	0.029	0.066	0.089
453	365	-0.719	-0.257	0.757	1.022
453	558	0.355	0.175	0.396	0.535
453	559	0.126	0.061	0.140	0.189
453	560	0.237	0.001	0.237	0.321
407	319	-0.766	-0.287	0.818	1.113
407	516	0.153	0.075	0.171	0.232
407	520	0.234	0.001	0.234	0.318
408	320	-0.847	-0.390	0.932	1.282
408	517	0.141	0.069	0.157	0.216
454	366	-1.033	-0.316	1.081	1.482
454	556	0.230	0.001	0.230	0.315
454	557	0.384	0.187	0.427	0.585
455	367	-0.818	-0.455	0.936	1.292
455	553	0.241	0.118	0.268	0.370
455	555	0.056	0.027	0.062	0.086
503	402	-0.190	-0.092	0.211	0.304
505	402	-0.113	-0.055	0.126	0.180
506	403	-0.219	-0.000	0.219	0.308
507	403	-0.333	-0.161	0.370	0.524
500	400	-0.131	-0.064	0.146	0.206
502	401	-0.239	-0.121	0.268	0.376
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.309	-0.150	0.343	0.477
509	404	-0.217	-0.105	0.241	0.333
510	404	-0.230	-0.000	0.230	0.316
511	405	-0.048	-0.023	0.053	0.073
566	457	-0.204	-0.104	0.229	0.317
567	458	-0.177	-0.085	0.196	0.265

570	458	-0.000	-0.000	0.000	0.000
550	450	-0.268	-0.130	0.298	0.407
562	450	-0.236	-0.000	0.236	0.320
552	451	-0.166	-0.081	0.185	0.250
561	452	-0.059	-0.029	0.066	0.089
558	453	-0.352	-0.170	0.391	0.535
559	453	-0.126	-0.061	0.140	0.189
560	453	-0.237	-0.000	0.237	0.321
516	407	-0.153	-0.074	0.170	0.232
520	407	-0.233	-0.000	0.233	0.318
517	408	-0.141	-0.068	0.156	0.216
556	454	-0.229	0.000	0.229	0.315
557	454	-0.381	-0.185	0.423	0.585
553	455	-0.239	-0.116	0.265	0.370
555	455	-0.056	-0.027	0.062	0.086

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9098	-8.38	13.800	0.00	0.00	0.00	0.00	4.70	24.16	-0.0111	0.0034
00	1H02	0.9129	-8.46	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-4.0227	1.9216
07	1H06	0.9122	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0003
06	1H05	0.9123	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0002	-0.0004
05	1H04	0.9123	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0004
57	2H06	0.9122	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0004	-0.0003
56	2H05	0.9121	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0002	-0.000
55	2H04	0.9122	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0000	-0.0005
54	2H03	0.9122	-8.49	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0004	-0.0002
10	1H01	0.9129	-8.46	13.800	0.00	0.00	0.00	0.00	0.00	0.00	4.0295	-1.9255
00	1X03-HS	1.0300	0.00	500.000	83.86	83.81	0.00	0.00	0.00	0.00	0.0000	-0.0000
01	1X04-HS	0.9124	-8.50	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0141	0.0016
02	1X05-HS	0.9124	-8.48	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0103	0.0016
03	1X06-HS	0.9122	-8.49	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0041	-0.0002
50	2H02	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0011
60	2H01	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
00	1X04-LS1	0.9213	-11.84	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0003	0.0000
01	1X04-LS2	0.9214	-11.86	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	0.0002
02	1X05-LS1	0.8822	-13.04	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0003
03	1X05-LS2	0.8924	-12.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
04	1X06-LS1	0.8955	-12.21	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0001

05	1X06-LS2	0.8934	-12.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
51	2X04-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53	2X05-HS	1.0452	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06	1A05,06	0.9202	-11.92	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0001	-0.0002
56	2A05,06	0.9203	-11.95	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0000	-0.0002
86	1A02-AUX	0.8807	-13.09	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0065	0.0187
00	1A04-AUX	0.8911	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0247	0.0513
83	2A04-AUX	0.8946	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0378	0.0751
81	2A02-AUX	0.8922	-12.39	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0238	0.0392
18	15-HS	0.9200	-11.92	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0002
68	25-HS	0.9200	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0001
09	1A02	0.8807	-13.09	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0100	-0.0167
08	1A01	0.8807	-13.09	4.160	0.00	0.00	1.49	0.83	0.21	0.10	-0.0028	-0.0022
10	1A03	0.8911	-12.40	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0009	-0.0007
61	1A04	0.8911	-12.40	4.160	0.00	0.00	1.49	0.83	0.00	0.00	-0.0256	-0.0507
58	2A04	0.8946	-12.25	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0382	-0.0752
60	2A03	0.8942	-12.27	4.160	0.00	0.00	3.58	1.49	0.61	0.30	0.0002	-0.0003
11	2A01	0.8920	-12.39	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0005	-0.0007
59	2A02	0.8922	-12.39	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0236	-0.0383
50	2X04-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
51	2X04-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.8985	-15.24	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	-0.0000
56	2B05	0.9000	-15.42	0.480	0.00	0.00	0.17	0.11	0.07	0.00	0.0000	-0.0000
14	12A-HS	0.8801	-13.09	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
15	12B-HS	0.8803	-13.09	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
12	11A-HS	0.8802	-13.09	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
13	11B-HS	0.8804	-13.09	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
16	13B-HS	0.8907	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
17	13A-HS	0.8908	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
69	14A-HS	0.8905	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
70	14B-HS	0.8909	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0001
62	24B-HS	0.8943	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
63	24A-HS	0.8942	-12.25	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
64	23A-HS	0.8940	-12.26	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
65	23B-HS	0.8939	-12.27	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
19	21B-HS	0.8917	-12.40	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
20	21A-HS	0.8915	-12.39	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
66	22B-HS	0.8918	-12.39	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
67	22A-HS	0.8918	-12.39	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	-0.0001
82	2A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0683	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.8961	-15.31	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	0.0000
14	1B008	0.8935	-15.38	0.480	0.00	0.00	0.00	0.00	0.38	0.18	-0.0000	-0.0000
15	1B007	0.8970	-15.29	0.480	0.00	0.00	0.00	0.00	0.24	0.12	0.0000	0.0000
64	2B008	0.8944	-15.57	0.480	0.00	0.00	0.00	0.00	0.46	0.22	0.0000	-0.0000
65	2B007	0.8983	-15.46	0.480	0.00	0.00	0.00	0.00	0.24	0.12	-0.0000	0.0000
02	1B02A	0.8413	-17.49	0.480	0.00	0.00	0.73	0.44	0.05	0.03	0.0000	0.0000
03	1B02B	0.8584	-17.09	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.8536	-17.09	0.480	0.00	0.00	0.64	0.36	0.22	0.05	0.0000	0.0000
01	1B01B	0.8657	-15.89	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04	1B03B	0.8767	-15.95	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.8817	-14.64	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.8749	-15.74	0.480	0.00	0.00	0.47	0.24	0.17	0.03	0.0000	0.0000

58	1B04B	0.8954	-13.84	0.480	0.00	0.00	0.14	0.08	0.06	0.03	0.0000	0.0000
50	2B04B	0.8877	-15.21	0.480	0.00	0.00	0.19	0.11	0.06	0.03	-0.0000	0.0000
51	2B04A	0.8945	-14.46	0.480	0.00	0.00	0.22	0.11	0.18	0.03	0.0000	0.0000
52	2B03A	0.8858	-14.45	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.8906	-15.10	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07	2B01B	0.8840	-15.41	0.480	0.00	0.00	0.32	0.18	0.06	0.03	0.0000	0.0000
08	2B01A	0.8751	-15.70	0.480	0.00	0.00	0.48	0.27	0.23	0.06	0.0000	0.0000
54	2B02B	0.8771	-16.55	0.480	0.00	0.00	0.23	0.13	0.19	0.00	-0.0000	0.0000
55	2B02A	0.8713	-15.53	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03	1B002	0.8350	-17.67	0.480	0.00	0.00	0.00	0.00	0.19	0.09	-0.0000	-0.0000
05	1B005	0.8377	-17.59	0.480	0.00	0.00	0.00	0.00	0.11	0.05	-0.0000	-0.0000
06	1B010	0.8548	-17.37	0.480	0.00	0.00	0.00	0.00	0.22	0.00	-0.0000	-0.0000
07	1B006	0.8500	-17.33	0.480	0.00	0.00	0.00	0.00	0.33	0.16	-0.0000	-0.0000
00	1B001A	0.8515	-17.15	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	-0.0000
02	1B014	0.8577	-16.10	0.480	0.00	0.00	0.03	0.00	0.21	0.10	-0.0000	-0.0000
04	1B009	0.8657	-15.89	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08	1B016	0.8661	-16.25	0.480	0.00	0.00	0.00	0.00	0.31	0.15	-0.0000	-0.0000
09	1B003	0.8706	-16.12	0.480	0.00	0.00	0.00	0.00	0.22	0.10	-0.0000	-0.0000
10	1B012	0.8752	-16.06	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
11	1B015	0.8799	-14.69	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
66	1B004	0.8687	-15.90	0.480	0.00	0.00	0.03	0.02	0.17	0.08	-0.0000	0.0000
67	1B001B	0.8902	-13.98	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
70	1B011	0.8954	-13.84	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
50	2B001B	0.8805	-15.41	0.480	0.00	0.00	0.00	0.00	0.27	0.13	0.0000	-0.0000
62	2B011	0.8864	-15.31	0.480	0.00	0.00	0.00	0.00	0.24	0.00	0.0000	-0.0000
52	2B004	0.8889	-14.62	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
61	2B015	0.8836	-14.51	0.480	0.00	0.00	0.00	0.00	0.06	0.03	0.0000	-0.0000
58	2B016	0.8788	-15.42	0.480	0.00	0.00	0.00	0.00	0.35	0.17	-0.0000	0.0000
59	2B003	0.8871	-15.19	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	0.0000
60	2B012	0.8886	-15.25	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
16	2B014	0.8780	-15.58	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
20	2B009	0.8806	-15.66	0.480	0.00	0.00	0.00	0.00	0.23	0.00	0.0000	-0.0000
17	2B001A	0.8709	-15.82	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	0.0000
56	2B010	0.8741	-16.78	0.480	0.00	0.00	0.00	0.00	0.23	0.00	0.0000	0.0000
57	2B006	0.8699	-16.75	0.480	0.00	0.00	0.00	0.00	0.38	0.18	0.0000	0.0000
53	2B002	0.8617	-15.80	0.480	0.00	0.00	0.00	0.00	0.24	0.12	0.0000	-0.0000
55	2B005	0.8690	-15.59	0.480	0.00	0.00	0.00	0.00	0.06	0.03	0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
ONFIRM END: ENTER 1 FOR END, 2 FOR SAVE AND END, OR 3 TO CONTINUE RUN.

ND OF DRIVER

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UXILIARY SYSTEM DESIGN OPTIMIZATION PROGRAM
UKE POWER CO., CHARLOTTE, N.C.

O YOU WANT TO MAKE ANY DIMENSION CHANGES?  (0=NO, 1=YES)
RESENT DIMENSIONS:
                          DIMENSIONED
 BUSES                     #BUS=  75
 PATHS(RLL)                #PA= 150
 DL ELEMENTS               #DL= 200
 CIRCUIT BREAKERS          #CB=  35
 MOTORS                    #MOT= 100
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  10
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  20
 MOTOR STARTS              #MS=   7
    INPUT THE VARIABLE NAME AS GIVEN ABOVE,EQUAL SIGN(=), AND
    THE DESIRED NEW VALUE.  ANY NUMBER OF CHANGES CAN BE ENTERED ON THE SAME LINE.
***END OF CHANGES IS INDICATED BY A SEMICOLON(;)****
                          DIMENSIONED
 BUSES                     #BUS= 150
 PATHS(RLL)                #PA= 220
 DL ELEMENTS               #DL= 400
 CIRCUIT BREAKERS          #CB=  99
 MOTORS                    #MOT= 200
 CHANGES                   #CH=   1
 POINTS                    #PT=   1
 STATIC LOADS              #SL=  70
 NON-ADJACENT LINES        #NA=   5
 TAPS                      #TAP=  40
 MOTOR STARTS              #MS=  14
NY MORE CHANGES? (0=NO, 1=YES)
ASEFILE CREATED: 04:11:80  KRT:PJH
ALVERT CLIFFS STATION REP TEST
ATA HAS BEEN READ IN FROM THE BASEFILE
HIS IS A HIGH VOLTAGE STUDY.
HE BASE VOLTAGE IS   0.000 KV ON BUS    0.
ELEASE 9, 10/1/79
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED COMMENT
NTER COMMAND
XECUTED BATCH
NTER COMMAND
```

CASES 5 & 6

BRANCH ELEMENTS

INPUT CODE-	TYPE	++++CABLE OR BUS++++ ----X----	----R----	++:::CABLE++++++ NO.-SIZE	--FT--	++++++++++++BUS++++++++++++ ---X/FT--	---R/FT--	--FT--	++REACTOR OR CAPACITOR+++ --X(PU)--	--IR--	--KV--
200-207- 1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0						
200-206- 1A	CAB	2.04E-02*	1.37E-02*	1-750	660.0						
200-205- 1A	CAB	1.95E-02*	1.31E-02*	1-750	632.0						
200-204- 1A	CAB	1.99E-02*	1.34E-02*	1-750	645.0						
200-257- 1A	CAB	2.29E-02*	1.54E-02*	1-750	741.0						
200-256- 1A	CAB	2.37E-02*	1.59E-02*	1-750	766.0						
200-255- 1A	CAB	2.24E-02*	1.51E-02*	1-750	726.0						
200-254- 1A	CAB	2.30E-02*	1.55E-02*	1-750	745.0						
210-260- 1A	CAB	2.51E-03*	1.69E-03*	3-750	244.0						
200-210- 1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0						

210-201-	1A	CAB	8.36E-03*	5.63E-03*	3-750	812.0
210-202-	1A	CAB	4.15E-03*	2.79E-03*	3-750	403.0
210-203-	1A	CAB	6.54E-03*	4.40E-03*	3-750	635.0
300-306-	1A	CAB	3.28E-03*	2.21E-03*	4-750	425.0
304-383-	1A	CAB	1.74E-03*	1.17E-03*	4-750	225.0
383-358-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
383-360-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
301-356-	1A	CAB	3.63E-03*	2.44E-03*	4-750	470.0
306-318-	1A	CAB	1.79E-03*	3.20E-03*	1- 4/0	50.0
308-312-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
308-313-	1A	CAB	2.15E-03*	3.84E-03*	1- 4/0	60.0
302-386-	1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
386-309-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
386-308-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
309-314-	1A	CAB	3.44E-03*	6.14E-03*	1- 4/0	96.0
309-315-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
303-380-	1A	CAB	2.16E-03*	1.46E-03*	4-750	280.0
380-310-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
380-361-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
310-316-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
310-317-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
305-381-	1A	CAB	2.06E-03*	1.39E-03*	4-750	267.0
381-311-	1A	CAB	8.49E-04*	5.72E-04*	4-750	110.0
381-359-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
311-319-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
311-320-	1A	CAB	3.94E-03*	7.04E-03*	1- 4/0	110.0
400-500-	1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0
401-502-	1A	CAB	4.80E-03*	4.19E-03*	2-500	287.0
401-504-	1A	CAB	3.09E-03*	2.70E-03*	2-500	185.0
402-503-	1A	CAB	4.70E-03*	4.10E-03*	2-500	281.0
402-505-	1A	CAB	4.51E-03*	3.94E-03*	2-500	270.0
403-506-	1A	CAB	3.75E-03*	3.27E-03*	2-500	224.0
403-507-	1A	CAB	3.66E-03*	3.20E-03*	2-500	219.0
404-508-	1A	CAB	5.02E-03*	4.38E-03*	2-500	300.0
404-509-	1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
404-510-	1A	CAB	1.50E-03*	1.31E-03*	2-500	90.0
405-511-	1A	CAB	5.75E-03*	5.02E-03*	2-500	344.0
406-513-	1A	CAB	9.20E-03*	8.03E-03*	2-500	550.0
406-514-	1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
406-515-	1A	CAB	1.00E-03*	8.76E-04*	2-500	60.0
407-516-	1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
407-520-	1A	CAB	3.34E-03*	2.92E-03*	2-500	200.0
408-517-	1A	CAB	4.46E-03*	3.90E-03*	2-500	267.0
250-257-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-256-	1A	CAB	1.93E-02*	1.30E-02*	1-750	625.0
250-255-	1A	CAB	1.77E-02*	1.19E-02*	1-750	573.0
250-254-	1A	CAB	1.89E-02*	1.28E-02*	1-750	613.0
250-207-	1A	CAB	1.89E-02*	1.27E-02*	1-750	611.0
250-206-	1A	CAB	2.49E-02*	1.67E-02*	1-750	805.0
250-205-	1A	CAB	2.44E-02*	1.65E-02*	1-750	791.0
250-204-	1A	CAB	2.07E-02*	1.39E-02*	1-750	670.0
250-260-	1A	CAB	1.03E-05*	6.93E-06*	3-750	1.0
260-251-	1A	CAB	1.03E-02*	6.95E-03*	3-750	1092.0
260-252-	1A	CAB	4.48E-03*	3.02E-03*	3-750	435.0
260-253-	1A	CAB	6.64E-03*	4.47E-03*	3-750	645.0
350-356-	1A	CAB	3.47E-03*	2.34E-03*	4-750	450.0
351-306-	1A	CAB	3.49E-03*	2.35E-03*	4-750	452.0
356-368-	1A	CAB	1.83E-03*	3.26E-03*	1- 4/0	51.0
358-362-	1A	CAB	2.51E-03*	4.48E-03*	1- 4/0	70.0
358-363-	1A	CAB	4.19E-03*	7.49E-03*	1- 4/0	117.0

352-382-	1A	CAB	2.08E-03*	1.40E-03*	4-750	270.0
382-360-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
382-358-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
360-364-	1A	CAB	2.80E-03*	4.99E-03*	1- 4/0	78.0
360-365-	1A	CAB	3.30E-03*	5.89E-03*	1- 4/0	92.0
353-384-	1A	CAB	2.03E-03*	1.37E-03*	4-750	263.0
384-311-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
384-359-	1A	CAB	7.72E-05*	5.20E-05*	4-750	10.0
354-387-	1A	CAB	1.86E-03*	1.25E-03*	4-750	241.0
387-308-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
387-309-	1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
359-366-	1A	CAB	2.87E-03*	5.12E-03*	1- 4/0	80.0
359-367-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
355-385-	1A	CAB	1.78E-03*	1.20E-03*	4-750	230.0
385-310-	1A	CAB	7.72E-06*	5.20E-06*	4-750	1.0
385-361-	1A	CAB	6.95E-04*	4.68E-04*	4-750	90.0
361-369-	1A	CAB	4.48E-03*	8.00E-03*	1- 4/0	125.0
361-370-	1A	CAB	3.05E-03*	5.44E-03*	1- 4/0	85.0
450-550-	1A	CAB	4.01E-03*	3.50E-03*	2-500	240.0
450-562-	1A	CAB	1.34E-03*	1.17E-03*	2-500	80.0
451-552-	1A	CAB	5.10E-03*	4.45E-03*	2-500	305.0
452-561-	1A	CAB	5.52E-03*	4.82E-03*	2-500	330.0
453-558-	1A	CAB	4.98E-03*	4.35E-03*	2-500	298.0
453-559-	1A	CAB	4.18E-03*	3.65E-03*	2-500	250.0
453-560-	1A	CAB	2.01E-03*	1.75E-03*	2-500	120.0
454-556-	1A	CAB	3.01E-03*	2.63E-03*	2-500	180.0
454-557-	1A	CAB	2.79E-03*	2.44E-03*	2-500	167.0
455-553-	1A	CAB	5.85E-03*	5.11E-03*	2-500	350.0
455-555-	1A	CAB	6.02E-03*	5.26E-03*	2-500	360.0
456-564-	1A	CAB	1.84E-03*	1.61E-03*	2-500	110.0
456-565-	1A	CAB	1.09E-03*	9.49E-04*	2-500	65.0
457-566-	1A	CAB	4.35E-03*	3.80E-03*	2-500	260.0
458-567-	1A	CAB	4.43E-03*	3.87E-03*	2-500	265.0
458-570-	1A	CAB	2.34E-03*	2.04E-03*	2-500	140.0

2-WINDING TRANSFORMERS

INPUT CODE-		--XT--	--KV1-	--KV2-	--KVAT-	--KVAB-	-X/R-
100-200-	1	0.1035	500.00	13.80	100000.00	60000.00	34.30
312-400-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
313-401-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
314-402-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
315-403-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
316-404-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
317-405-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
318-406-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
319-407-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
320-408-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
100-250-	1	0.1035	500.00	13.80	100000.00	60000.00	34.30
362-450-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
363-451-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
364-452-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
365-453-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
366-454-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
367-455-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
368-456-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
369-457-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16
370-458-	1	0.0599	4.16	0.48	1000.00	1000.00*	5.16

3-WINDING TRANSFORMERS

INPUT CODE-	XT(H-X)	XT(H-Y)	XT(X-Y)	KV(H)-	KV(X)-	KV(Y)-	KVAT(H)	KVAT(X)	KVAT(Y)	-X/R-	-KVATB-

201-300-301	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
202-302-303	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
203-304-30[illegible]	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
251-350-35[illegible]	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
252-352-353	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00
253-354-355	0.0900	0.0900	0.1800	13.80	4.16	4.16	20000.00	10000.00	10000.00	10.69	12000.00

STATIC LOADS

INPUT CODE-	--KV--	---KVA--	-PFL-	LEAD/LAG
0-308-13	4.16	300.00	0.90	LAG
0-311-13	4.16	500.00	0.90	LAG
0-400- 7	0.48	80.00	0.90	LAG
0-400- 8	0.48	85.00	0.90	LAG
0-400- 9	0.48	150.00	1.00	LEAD
0-401- 5	0.48	85.00	0.90	LAG
0-401- 6	0.48	75.00	1.00	LEAD
0-402- 6	0.48	85.00	0.90	LAG
0-403- 7	0.48	275.00	1.00	LEAD
0-405- 8	0.48	4.00	0.90	LAG
0-406- 6	0.48	85.00	1.00	LEAD
0-407- 5	0.48	85.00	0.90	LAG
0-407- 6	0.48	75.00	1.00	LEAD
0-408- 7	0.48	80.00	0.90	LAG
0-408- 8	0.48	150.00	1.00	LEAD
0-408- 9	0.48	85.00	0.90	LAG
0-500- 1	0.48	201.30	0.90	LAG
0-502- 1	0.48	310.38	0.90	LAG
0-503- 1	0.48	302.90	0.90	LAG
0-504- 1	0.48	300.00	1.00	LEAD
0-505- 1	0.48	178.90	0.90	LAG
0-506- 1	0.48	300.00	1.00	LEAD
0-507- 1	0.48	512.20	0.90	LAG
0-508- 1	0.48	417.60	0.90	LAG
0-509- 1	0.48	317.60	0.90	LAG
0-510- 1	0.48	300.00	1.00	LEAD
0-511- 1	0.48	69.00	0.90	LAG
0-513- 1	0.48	56.25	0.90	LAG
0-514- 1	0.48	526.25	0.90	LAG
0-515- 1	0.48	329.19	0.90	LAG
0-516- 1	0.48	219.97	0.90	LAG
0-517- 1	0.48	206.20	0.90	LAG
0-520- 1	0.48	300.00	1.00	LEAD
0-360-13	4.16	852.00	0.90	LAG
0-450- 9	0.48	75.00	1.00	LEAD
0-450-10	0.48	85.00	0.90	LAG
0-451- 8	0.48	150.00	1.00	LEAD
0-451- 9	0.48	85.00	0.90	LAG
0-452- 6	0.48	4.00	0.90	LAG
0-454- 5	0.48	275.00	1.00	LEAD
0-454- 6	0.48	250.00	1.00	LEAD
0-455- 5	0.48	1.00	1.00	LEAD
0-456- 3	0.48	85.00	1.00	LEAD
0-457- 9	0.48	150.00	1.00	LEAD
0-457-10	0.48	85.00	0.90	LAG
0-458- 7	0.48	75.00	1.00	LEAD
0-458- 8	0.48	85.00	0.90	LAG
0-550- 1	0.48	384.40	0.90	LAG
0-552- 1	0.48	234.00	0.90	LAG
0-553- 1	0.48	357.45	0.90	LAG
0-555- 1	0.48	82.10	0.90	LAG

0-556- 1	0.48	300.00	1.00	LEAD
0-557- 1	0.48	559.45	0.90	LAG
0-558- 1	0.48	505.92	0.90	LAG
0-559- 1	0.48	177.40	0.90	LAG
0-560- 1	0.48	300.00	1.00	LEAD
0-561- 1	0.48	83.90	0.90	LAG
0-562- 1	0.48	300.00	1.00	LEAD
0-564- 1	0.48	645.20	0.90	LAG
0-565- 1	0.48	329.05	0.90	LAG
0-566- 1	0.48	250.93	0.90	LAG
0-567- 1	0.48	247.50	0.90	LAG
0-570- 1	0.48	300.00	1.00	LEAD

MOTORS

INPUT CODE-	---HP--	--VM-	-DF-	-RPM	--KVA-	--LRC--	LRCPF	-XD"-	--X/R-	-PFM	TYPE
0-204- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-205- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-206- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-207- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-308- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-308- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-308- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-308- 6	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-308-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-308-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-308-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-309- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-309- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-309- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-309- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-310- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-310- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-310- 4	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-311- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311- 3	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-311- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-311- 5	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-311-10	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-311-11	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-311-12	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-400- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-400- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-400- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-400- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-400- 5	100.0	460	1.00*	3600*	100.0*	760.0	0.25*	0.160*	9.20*	0.85*	IND
0-400- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-400-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-401- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-401- 3	100.0	460	1.00*	3600*	100.0*	800.0	0.25*	0.152*	9.20*	0.85*	IND
0-401- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-401- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-401- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-402- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-402- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND

0-402- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-402- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-402- 5	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-403- 1	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-403- 2	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-403- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-403- 4	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-403- 5	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-403- 6	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-403- 8	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-404- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-404- 3	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-404- 4	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-404- 5	75.0	460	1.00*	3600*	75.0*	542.5	0.25*	0.168*	8.55*	0.85*	IND
0-404- 7	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-404- 8	78.9	460	1.00*	3600*	78.9*	594.2*	0.25*	0.161*	8.67*	0.85*	IND
0-405- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-405- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-405- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-405- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-405- 5	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-405- 6	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-405- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-406- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 2	73.5	460	1.00*	3600*	73.5*	550.0	0.25*	0.162*	8.51*	0.85*	IND
0-406- 3	25.0	460	1.00*	3600*	25.0*	188.3*	0.25*	0.161*	7.90*	0.85*	IND
0-406- 4	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-406- 5	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-407- 1	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-407- 2	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-407- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-407- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-407- 8	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-407- 9	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-408- 2	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-408- 3	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-408- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-408- 5	75.0	460	1.00*	3600*	75.0*	564.8*	0.25*	0.161*	8.55*	0.85*	IND
0-408- 6	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-408-10	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-502- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-306- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-306- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-254- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.39	IND
0-255- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-256- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-257- 1	6000.0	13200	1.00	900	5187.0	1190.0	0.19	0.187*	41.51*	0.89	IND
0-358- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-358- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-358- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-358- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-358- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND

0-358- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-358- 9	500.0	4000	1.00*	3600*	500.0*	433.0*	0.25*	0.161*	19.35*	0.85*	IND
0-359- 1	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-359- 2	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-359- 3	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-359- 4	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-360- 9	1250.0	4000	1.00	1800	1102.0	1130.0	0.25*	0.136*	27.52*	0.91	IND
0-360-10	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-11	1250.0	4000	1.00	1200	1072.0	764.0	0.25*	0.196*	27.52*	0.93	IND
0-360-12	2000.0	4000	1.00	1800	1707.0	1367.0	0.25*	0.175*	31.71*	0.93	IND
0-361- 1	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 2	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-361- 3	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 4	200.0	4000	1.00*	3600*	184.0	184.0	0.25*	0.140*	12.10*	0.88	IND
0-361- 5	400.0	4000	1.00*	3600*	357.0	312.0	0.25*	0.160*	17.36*	0.90	IND
0-361- 6	400.0	4000	1.00	1200	364.0	294.0	0.25*	0.173*	17.36*	0.87	IND
0-361- 7	400.0	4000	1.00*	3600*	357.0	351.0	0.25*	0.142*	17.36*	0.90	IND
0-361- 8	450.0	4000	1.00	600	445.0	405.0	0.25*	0.154*	18.41*	0.82	IND
0-450- 1	75.0	460	1.00*	3600*	70.0	558.0	0.25*	0.152*	8.55*	0.86	IND
0-450- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 3	60.0	460	1.00*	3600*	60.0*	451.8*	0.25*	0.161*	8.17*	0.85*	IND
0-450- 4	150.0	460	1.00*	3600*	135.0	990.0	0.25*	0.166*	10.60*	0.90	IND
0-450- 5	100.0	460	1.00*	3600*	96.0	708.0	0.25*	0.165*	9.20*	0.86	IND
0-450- 6	125.0	460	1.00*	3600*	112.0	920.0	0.25*	0.148*	9.97*	0.90	IND
0-450- 7	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-450- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-451- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-451- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-451- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-451- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-451- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-451- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-451- 7	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-455- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-455- 2	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-455- 3	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-455- 4	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-457- 1	100.0	460	1.00*	3600*	89.0	670.2*	0.25*	0.161*	9.20*	0.92	IND
0-457- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-457- 3	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-457- 4	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-457- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-457- 6	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-457- 7	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-457- 8	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-458- 1	75.0	460	1.00*	3600*	70.0	527.1*	0.25*	0.161*	8.55*	0.86	IND
0-458- 2	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-458- 4	150.0	460	1.00*	3600*	135.0	1016.6*	0.25*	0.161*	10.60*	0.90	IND
0-458- 5	100.0	460	1.00*	3600*	96.0	722.9*	0.25*	0.161*	9.20*	0.86	IND
0-458- 6	125.0	460	1.00*	3600*	112.0	843.4*	0.25*	0.161*	9.97*	0.90	IND
0-454- 1	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-454- 2	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-454- 3	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-454- 4	100.0	460	1.00*	3600*	100.0*	753.1*	0.25*	0.161*	9.20*	0.85*	IND
0-453- 1	125.0	460	1.00*	3600*	125.0*	941.3*	0.25*	0.161*	9.97*	0.85*	IND
0-453- 2	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-452- 1	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND
0-452- 2	150.0	460	1.00*	3600*	150.0*	1127.0	0.25*	0.162*	10.60*	0.85*	IND
0-452- 3	250.0	460	1.00*	3600*	250.0*	1882.7*	0.25*	0.161*	13.59*	0.85*	IND

0-452- 4	220.0	460	1.00*	3600*	220.0*	1775.0	0.25*	0.151*	12.73*	0.85*	IND
0-452- 5	150.0	460	1.00*	3600*	136.0	1085.0	0.25*	0.152*	10.60*	0.89	IND
0-456- 1	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-456- 2	200.0	460	1.00*	3600*	200.0*	1450.0	0.25*	0.168*	12.10*	0.85*	IND
0-566- 2	40.0	460	1.00*	3600*	40.0*	301.2*	0.25*	0.161*	7.90*	0.85*	IND
0-356- 1	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 2	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 3	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 4	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 5	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN
0-356- 6	1250.0	4000	1.00*	N/A	963.0	N/A	0.25*	0.150	23.00*	1.00	SYN

SYSTEM EQUIVALENT

INPUT CODE-	--FMVA--	--KV--	-X/R--
0-100- 1	10826.45	500.00	46.0

NTER COMMAND
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NTER COMMAND
NTER BASE VOLTAGE (KV) AND THE RELATED BUS

OW IN RUN MODE
NTER COMMAND

	DIMENSIONED	ACTUAL
BUSES	150	124

PATHS(RLL)	220	181
DL ELEMENTS	400	381
CIR. BRK.(BRANCH PCB)	99	92
CIR. BRK.(OPEN/CLOSE CB)	99	19
MOTORS	200	175
CHANGES	1	
POINTS	1	
STATIC LOADS	70	63
NON-ADJACENT LINES	5	0
TAPS	40	
MOTOR STARTS	14	0

NTER COMMAND
HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS

CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
04	0	1	CLOSED
08	0	3	OPENED
08	0	4	OPENED
08	0	5	OPENED
08	0	6	OPENED
08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED
06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED

9	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
58	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED
51	306	1	OPENED
50	257	1	OPENED
50	256	1	OPENED
50	255	1	OPENED
50	254	1	OPENED
50	207	1	OPENED
50	206	1	OPENED

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50     205       1     OPENED
50     204       1     OPENED
85     361       1     OPENED
84     359       1     OPENED
82     358       1     OPENED
82     360       1     OPENED
84     311       1     OPENED
85     310       1     OPENED
87     308       1     OPENED
87     309       1     OPENED
NTER COMMAND
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD W P13000-2 003
NTER SWING BUS DATA:
    BUS NUMBER.............#
    PER-UNIT VOLTAGE.......V(PU)
    ANGLE IN DEGREES.......THETA
WING BUS= 100 V=  1.000 ANGLE=  0.000
IST GENERATOR BUSES:
    BUS NUMBER.....................................................#
    REAL POWER.....................................................MW
    REACTIVE POWER.................................................MVAR
    PER-UNIT VOLTAGE(SET V(PU)=0.0 FOR NON VOLTAGE-CONTROLLED BUS)....V(PU)
NTER 9999 TO INDICATE END OF DATA.
IST TAP CHANGING XFMRS:
    FROM-BUS NUMBER WHERE TAP IS LOCATED.........FB
    TO-BUS NUMBER(TB=-1 FOR 3-WINDING XFMR).....TB
    % TAP ABOVE/BELOW NOMINAL VOLTAGE............%
NTER 9999 TO INDICATE END OF DATA.
ROM-BUS     TO-BUS      %TAP     LINE NO.
  100       200       -1.450       1
  201       300       -2.170       2
  201       301       -2.170       3
  202       302       -2.170       4
  202       303       -2.170       5
  203       304       -2.170       6
  203       305       -2.170       7
  312       400       -2.520       8
  313       401       -2.520       9
  314       402       -2.520      10
  315       403       -2.520      11
  316       404       -2.520      12
  317       405       -2.520      13
  318       406       -2.520      14
  319       407       -2.520      15
  320       408       -2.520      16
  100       250       -1.450      17
  251       350       -2.170      18
  251       351       -2.170      19
  252       352       -2.170      20
  252       353       -2.170      21
  253       354       -2.170      22
  253       355       -2.170      23
  362       450       -2.520      24
  363       451       -2.520      25
  364       452       -2.520      26
  365       453       -2.520      27
  366       454       -2.520      28
  367       455       -2.520      29
  368       456       -2.520      30
```

369	457	-2.520	31
370	458	-2.520	32

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY DATE = 03/26/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 7
BS VOLTAGE ERROR= 0.000001 0.000000

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

ROM-BUS	TO-BUS	LINE POWER FLOW MW	MVAR	MVA	LINE CURRENT MAG(KA)
204	200	-4.623	-2.372	5.196	0.234
200	204	4.625	2.375	5.199	0.234
200	207	4.613	2.379	5.190	0.234
200	206	4.613	2.379	5.190	0.234

200	205	4.613	2.379	5.190	0.234
200	257	4.614	2.379	5.191	0.234
200	256	4.614	2.379	5.192	0.234
200	255	4.614	2.379	5.191	0.234
200	254	4.614	2.379	5.191	0.234
200	210	41.114	21.032	46.181	2.083
200	100	-81.889	-38.377	90.436	4.078
207	200	-4.611	-2.375	5.187	0.234
206	200	-4.611	-2.375	5.187	0.234
205	200	-4.611	-2.376	5.187	0.234
257	200	-4.612	-2.375	5.187	0.234
256	200	-4.612	-2.375	5.188	0.234
255	200	-4.611	-2.376	5.187	0.234
254	200	-4.612	-2.376	5.187	0.234
210	200	-41.114	-21.032	46.181	2.083
210	201	13.589	1.931	13.724	0.619
210	202	15.766	8.911	18.110	0.817
210	203	15.620	8.505	17.786	0.802
100	200	82.367	54.769	98.914	0.114
100	250	0.001	0.001	0.001	0.000
201	210	-13.583	-1.921	13.718	0.619
201	MIDPOINT	13.579	1.917	13.714	0.619
202	210	-15.761	-8.903	18.101	0.817
202	MIDPOINT	15.755	8.897	18.094	0.816
203	210	-15.612	-8.493	17.772	0.802
203	MIDPOINT	15.606	8.483	17.763	0.802
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	0.000	0.000	0.000
260	250	0.000	0.000	0.000	0.000
260	251	0.000	-0.000	0.000	0.000
260	252	0.000	-0.000	0.000	0.000
260	253	0.000	-0.000	0.000	0.000
300	MIDPOINT	-6.736	-0.579	6.761	1.002
300	306	6.736	0.579	6.761	1.002
301	MIDPOINT	-6.773	-0.555	6.796	1.007
301	356	6.773	0.555	6.796	1.007
302	MIDPOINT	-8.434	-4.199	9.422	1.446
302	386	8.434	4.199	9.422	1.446
303	MIDPOINT	-7.197	-3.322	7.927	1.205
303	380	7.197	3.322	7.927	1.205
304	MIDPOINT	-7.626	-3.487	8.386	1.277

304	383	7.626	3.487	8.386	1.277
305	MIDPOINT	-7.865	-3.683	8.684	1.326
305	381	7.865	3.682	8.684	1.326
251	260	-0.000	0.000	0.000	0.000
251	MIDPOINT	-0.000	0.000	0.000	0.000
252	260	-0.000	0.000	0.000	0.000
252	MIDPOINT	-0.000	0.000	0.000	0.000
253	260	-0.000	0.000	0.000	0.000
253	MIDPOINT	-0.000	0.000	0.000	0.000
306	300	-6.730	-0.569	6.754	1.002
306	318	0.952	0.569	1.109	0.165
356	301	-6.766	-0.544	6.788	1.007
356	368	0.988	0.544	1.128	0.167
386	302	-8.426	-4.186	9.408	1.446
386	309	5.666	2.745	6.296	0.968
386	308	2.672	1.426	3.029	0.466
380	303	-7.191	-3.313	7.917	1.205
380	310	5.121	2.309	5.618	0.855
380	361	2.090	1.037	2.334	0.355
383	304	-7.620	-3.479	8.377	1.277
383	358	2.017	0.957	2.232	0.340
383	360	5.564	2.463	6.084	0.928
381	305	-7.857	-3.671	8.673	1.326
381	311	2.351	1.238	2.656	0.406
381	359	5.536	2.507	6.077	0.929
318	306	-0.952	-0.569	1.109	0.165
318	406	0.951	0.569	1.108	0.164
368	356	-0.988	-0.543	1.127	0.167
368	456	0.988	0.544	1.127	0.167
309	386	-5.666	-2.745	6.296	0.968
309	314	1.138	0.757	1.367	0.210
309	315	1.031	0.519	1.155	0.178
308	386	-2.672	-1.426	3.029	0.466
308	312	0.888	0.476	1.007	0.155
308	313	0.883	0.407	0.972	0.149
310	380	-5.121	-2.309	5.618	0.855
310	316	0.946	0.430	1.039	0.158
310	317	0.602	0.384	0.714	0.109
361	380	-2.090	-1.037	2.334	0.355
361	369	0.788	0.381	0.875	0.133
361	370	0.589	0.197	0.621	0.095
358	383	-2.017	-0.957	2.232	0.340
358	362	0.786	0.331	0.853	0.130

358	363	0.589	0.252	0.640	0.098
360	383	-5.562	-2.460	6.082	0.928
360	364	0.591	0.375	0.700	0.107
360	365	0.753	0.290	0.807	0.123
311	381	-2.350	-1.237	2.656	0.406
311	319	0.793	0.342	0.864	0.132
311	320	0.874	0.46.	0.989	0.151
359	381	-5.536	-2.507	6.077	0.929
359	366	1.081	0.416	1.158	0.177
359	367	0.843	0.529	1.995	0.152
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	-0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	-0.000	0.000	0.000	0.000
406	318	-0.936	-0.489	1.056	1.390
406	513	0.042	0.020	0.047	0.062
406	514	0.393	0.191	0.437	0.575
406	515	0.247	0.120	0.274	0.361
456	368	-0.972	-0.461	1.075	1.413
456	564	0.483	0.235	0.537	0.706
456	565	0.248	0.120	0.275	0.362
314	309	-1.137	-0.756	1.366	0.210
314	402	1.137	0.756	1.366	0.210
315	309	-1.031	-0.519	1.154	0.178
315	403	1.031	0.519	1.154	0.178
312	308	-0.887	-0.476	1.007	0.155
312	400	0.887	0.476	1.007	0.155
313	308	-0.883	-0.406	0.972	0.149
313	401	0.883	0.406	0.972	0.149
316	310	-0.945	-0.429	1.038	0.158
316	404	0.945	0.429	1.038	0.158
317	310	-0.602	-0.384	0.714	0.109
317	405	0.602	0.384	0.714	0.109
369	361	-0.787	-0.381	0.874	0.133
369	457	0.787	0.381	0.874	0.133

370	361	-0.589	-0.197	0.621	0.095
370	458	0.589	0.197	0.621	0.095
362	358	-0.786	-0.331	0.853	0.130
362	450	0.786	0.331	0.853	0.130
363	358	-0.589	-0.252	0.640	0.098
363	451	0.588	0.252	0.640	0.098
364	360	-0.591	-0.375	0.700	0.107
364	452	0.591	0.374	0.700	0.107
365	360	-0.753	-0.290	0.806	0.123
365	453	0.753	0.290	0.806	0.123
319	311	-0.793	-0.342	0.863	0.132
319	407	0.793	0.342	0.863	0.132
320	311	-0.874	-0.463	0.989	0.151
320	408	0.874	0.463	0.989	0.151
366	359	-1.081	-0.416	1.158	0.177
366	454	1.081	0.416	1.158	0.177
367	359	-0.843	-0.529	0.995	0.152
367	455	0.843	0.529	0.995	0.152
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	-0.000	0.000	0.000
385	355	0.000	-0.000	0.000	0.000
513	406	-0.042	-0.020	0.047	0.062
514	406	-0.391	-0.189	0.435	0.575
515	406	-0.247	-0.119	0.274	0.361
564	456	-0.480	-0.233	0.534	0.706
565	456	-0.247	-0.120	0.275	0.362
402	314	-1.112	-0.626	1.276	1.775
402	503	0.202	0.099	0.225	0.313
402	505	0.120	0.058	0.133	0.185
403	315	-1.013	-0.426	1.099	1.500
403	506	0.232	0.001	0.232	0.317
403	507	0.354	0.173	0.394	0.538
400	312	-0.884	-0.405	0.963	1.308
400	500	0.142	0.069	0.157	0.214
401	313	-0.870	-0.340	0.934	1.263
401	502	0.219	0.107	0.244	0.330
401	504	0.237	0.001	0.237	0.320

404	316	-0.931	-0.356	0.997	1.335
404	508	0.327	0.160	0.364	0.488
404	509	0.228	0.111	0.254	0.341
404	510	0.241	0.000	0.241	0.323
405	317	-0.595	-0.349	0.690	0.918
405	511	0.051	0.025	0.056	0.075
457	369	-0.777	-0.328	0.843	1.125
457	566	0.183	0.089	0.203	0.271
458	370	-0.584	-0.171	0.609	0.799
458	567	0.186	0.090	0.207	0.271
458	570	0.251	0.001	0.251	0.330
450	362	-0.776	-0.281	0.825	1.099
450	550	0.280	0.137	0.311	0.414
450	562	0.245	0.000	0.245	0.326
451	363	-0.583	-0.224	0.624	0.825
451	552	0.173	0.084	0.193	0.255
452	364	-0.585	-0.341	0.677	0.902
452	561	0.061	0.030	0.068	0.091
453	365	-0.744	-0.245	0.783	1.040
453	558	0.368	0.181	0.410	0.544
453	559	0.130	0.063	0.145	0.193
453	560	0.246	0.001	0.246	0.326
407	319	-0.783	-0.291	0.835	1.116
407	516	0.159	0.078	0.177	0.237
407	520	0.242	0.001	0.242	0.324
408	320	-0.861	-0.395	0.947	1.278
408	517	0.147	0.071	0.163	0.220
454	366	-1.063	-0.323	1.111	1.496
454	556	0.238	0.001	0.238	0.321
454	557	0.398	0.194	0.442	0.596
455	367	-0.830	-0.460	0.949	1.286
455	553	0.250	0.123	0.279	0.377
455	555	0.058	0.028	0.065	0.087
503	402	-0.201	-0.097	0.223	0.313
505	402	-0.119	-0.058	0.133	0.185
506	403	-0.231	-0.000	0.231	0.317
507	403	-0.351	-0.170	0.390	0.538
500	400	-0.141	-0.068	0.157	0.214
502	401	-0.218	-0.105	0.242	0.330
504	401	-0.236	-0.000	0.236	0.320
508	404	-0.324	-0.157	0.360	0.488

509	404	-0.227	-0.110	0.252	0.341
510	404	-0.241	0.000	0.241	0.323
511	405	-0.051	-0.024	0.056	0.075
566	457	-0.182	-0.088	0.202	0.271
567	458	-0.185	-0.090	0.205	0.271
570	458	-0.251	-0.000	0.251	0.338
550	450	-0.278	-0.135	0.309	0.414
562	450	-0.244	-0.100	0.244	0.326
552	451	-0.172	-0.083	0.192	0.255
561	452	-0.061	-0.030	0.068	0.091
558	453	-0.364	-0.176	0.404	0.544
559	453	-0.130	-0.063	0.144	0.193
560	453	-0.245	0.000	0.245	0.326
516	407	-0.158	-0.077	0.176	0.237
520	407	-0.241	-0.000	0.241	0.324
517	408	-0.146	-0.071	0.162	0.220
556	454	-0.238	0.000	0.238	0.321
557	454	-0.395	-0.191	0.439	0.596
553	455	-0.248	-0.120	0.276	0.377
555	455	-0.058	-0.028	0.064	0.087

BUS DATA

		VOLTAGE			GENERATION		LOAD MOTOR		LOAD STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9271	-8.53	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0114	0.0030
00	1H02	0.9277	-8.51	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-3.8545	1.6837
07	1H06	0.9271	-8.53	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0004	-0.0002
06	1H05	0.9271	-8.53	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0001
05	1H04	0.9271	-8.53	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0004
57	2H06	0.9270	-8.54	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0004	-0.0003
56	2H05	0.9270	-8.54	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0005	-0.0002
55	2H04	0.9270	-8.53	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0000	-0.0003
54	2H03	0.9270	-8.54	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0003	-0.0004
10	1H01	0.9277	-8.51	13.800	0.00	0.00	0.00	0.00	0.00	0.00	3.8624	-1.6850

00	1X03-HS	1.0000	0.00	570.000	82.37	54.86	0.00	0.00	-0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9272	-8.55	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0034	-0.0041
02	1X05-HS	0.9273	-8.53	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0052	-0.0057
03	1X06-HS	0.9270	-8.53	13.800	0.00	0.00	0.00	0.00	0.60	0.00	-0.0059	-0.0094
50	1H02	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0005
50	2H01	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
00	1X04-LS1	0.9366	-11.79	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0002	-0.0001
01	1X04-LS2	0.9367	-11.81	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0001
02	1X05-LS1	0.9040	-12.57	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
03	1X05-LS2	0.9133	-11.95	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0003	0.0001
04	1X06-LS1	0.9110	-12.18	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0006
05	1X06-LS2	0.9090	-12.30	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0003
51	2X04-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53	2X05-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06	1A05,06	0.9355	-11.87	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0001	0.0003
56	2A05,06	0.9356	-11.90	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0001	-0.0002
86	1A02-AUX	0.9027	-12.62	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0877	-0.0146
80	1A04-AUX	0.9121	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0207	0.0336
83	2A04-AUX	0.9101	-12.21	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0397	-0.0592
81	2A02-AUX	0.9079	-12.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0294	0.0731
18	15-HS	0.9353	-11.87	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0002
68	25-HS	0.9353	-11.90	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0001
09	1A02	0.9027	-12.62	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0864	0.0201
08	1A01	0.9027	-12.62	4.160	0.00	0.00	0.68	0.43	0.22	0.11	0.0020	-0.0054
10	1A03	0.9121	-12.00	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0100	-0.0065
61	1A04	0.9121	-12.00	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0309	-0.0272
58	2A04	0.9101	-12.21	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0405	0.0583
60	2A03	0.9097	-12.23	4.160	0.00	0.00	3.58	1.49	0.63	0.31	-0.0003	0.0004
11	2A01	0.9077	-12.35	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0002	0.0003
59	2A02	0.9078	-12.34	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0291	-0.0728
50	2X04-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
51	2X04-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.9139	-15.16	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	-0.0000
56	2B05	0.9153	-15.35	0.480	0.00	0.00	0.17	0.11	0.07	0.00	0.0060	0.0000
14	12A-HS	0.9021	-12.61	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
15	12B-HS	0.9023	-12.62	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
12	11A-HS	0.9023	-12.62	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
13	11B-HS	0.9024	-12.62	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
16	13B-HS	0.9117	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
17	13A-HS	0.9119	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
69	14A-HS	0.9116	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
70	14B-HS	0.9119	-12.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0000
62	24B-HS	0.9098	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
63	24A-HS	0.9097	-12.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
64	23A-HS	0.9095	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
65	23B-HS	0.9094	-12.23	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
19	21B-HS	0.9074	-12.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
20	21A-HS	0.9072	-12.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
66	22B-HS	0.9074	-12.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
67	22A-HS	0.9075	-12.34	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
82	2A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
85	1A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
13	1B013	0.9114	-15.23	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	0.0000

14 1B008	0.9089	-15.30	0.480	0.00	0.00	0.00	0.00	0.39	0.19	0.0000	-0.0000
15 1B007	0.9123	-15.20	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	0.0000
64 2B008	0.9095	-15.50	0.480	0.00	0.00	0.00	0.00	0.48	0.23	-0.0000	-0.0000
65 2B007	0.9135	-15.39	0.480	0.00	0.00	0.00	0.00	0.25	0.12	0.0000	-0.0000
02 1B02A	0.8646	-16.87	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0000	0.0000
03 1B02B	0.8812	-16.53	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00 1B01A	0.8852	-15.95	0.480	0.00	0.00	0.50	0.28	0.23	0.06	0.0000	-0.0000
01 1B01B	0.8899	-15.97	0.480	0.00	0.00	0.35	0.20	0.06	0.03	0.0000	0.0000
04 1B03B	0.8978	-15.53	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	-0.0000
05 1B03A	0.9040	-14.14	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	-0.0000
57 1B04A	0.9022	-14.90	0.480	0.00	0.00	0.41	0.21	0.18	0.03	0.0000	0.0000
58 1B04B	0.9162	-14.21	0.480	0.00	0.00	0.08	0.05	0.06	0.03	0.0000	0.0000
50 2B04B	0.9035	-15.15	0.480	0.00	0.00	0.19	0.11	0.06	0.03	0.0000	0.0000
51 2B04A	0.9104	-14.40	0.480	0.00	0.00	0.22	0.11	0.19	0.03	0.0000	0.0000
52 2B03A	0.9022	-14.34	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53 2B03B	0.9061	-15.06	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
07 2B01B	0.9001	-15.32	0.480	0.00	0.00	0.32	0.18	0.06	0.03	-0.0000	0.0000
08 2B01A	0.8914	-15.59	0.480	0.00	0.00	0.48	0.27	0.24	0.06	-0.0000	0.0000
54 2B02B	0.8930	-16.48	0.480	0.00	0.00	0.23	0.13	0.20	0.00	0.0000	0.0000
55 2B02A	0.8877	-15.41	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03 1B002	0.8581	-17.05	0.480	0.00	0.00	0.00	0.00	0.20	0.10	-0.0000	-0.0000
05 1B005	0.8609	-16.97	0.480	0.00	0.00	0.00	0.00	0.12	0.06	-0.0000	-0.0000
06 1B010	0.8774	-16.81	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
07 1B006	0.8725	-16.77	0.480	0.00	0.00	0.00	0.00	0.35	0.17	-0.0000	-0.0000
00 1B001A	0.8830	-16.01	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	0.0000
02 1B014	0.8829	-16.16	0.480	0.00	0.00	0.00	0.00	0.22	0.11	-0.0000	0.0000
04 1B009	0.8868	-16.20	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
08 1B016	0.8869	-15.82	0.480	0.00	0.00	0.00	0.00	0.32	0.16	-0.0000	-0.0000
09 1B003	0.8915	-15.70	0.480	0.00	0.00	0.00	0.00	0.23	0.11	0.0000	0.0000
10 1B012	0.8962	-15.64	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	0.0000
11 1B015	0.9021	-14.19	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	0.0000
66 1B004	0.8970	-15.04	0.480	0.00	0.00	0.00	0.00	0.18	0.09	-0.0000	-0.0000
67 1B001B	0.9109	-14.35	0.480	0.00	0.00	0.00	0.00	0.18	0.09	0.0000	0.0000
70 1B011	0.9138	-14.38	0.480	0.00	0.00	0.00	0.00	0.25	0.00	-0.0000	-0.0000
50 2B001B	0.8961	-15.35	0.480	0.00	0.00	0.00	0.00	0.28	0.13	-0.0000	-0.0000
62 2B011	0.9021	-15.25	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
52 2B004	0.9047	-14.55	0.480	0.00	0.00	0.00	0.00	0.17	0.08	0.0000	-0.0000
61 2B015	0.9000	-14.40	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000
58 2B016	0.8941	-15.38	0.480	0.00	0.00	0.00	0.00	0.36	0.18	0.0000	0.0000
59 2B003	0.9025	-15.16	0.480	0.00	0.00	0.00	0.00	0.13	0.06	-0.0000	0.0000
60 2B012	0.9040	-15.21	0.480	0.00	0.00	0.00	0.00	0.25	0.00	0.0000	0.0000
16 2B014	0.8940	-15.49	0.480	0.00	0.00	0.00	0.00	0.16	0.08	0.0000	0.0000
20 2B009	0.8967	-15.57	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
17 2B001A	0.8871	-15.71	0.480	0.00	0.00	0.00	0.00	0.15	0.07	0.0000	-0.0000
56 2B010	0.8899	-16.70	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	0.0000
57 2B006	0.8856	-16.68	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	-0.0000
53 2B002	0.8779	-15.68	0.480	0.00	0.00	0.00	0.00	0.25	0.12	0.0000	-0.0000
55 2B005	0.8853	-15.48	0.480	0.00	0.00	0.00	0.00	0.06	0.03	0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
DD RCBL ELEM.
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HE FOLLOWING LIST CONTAINS THE BASE CASE BREAKERS
CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
0	504	1	CLOSED
0	311	13	OPENED
0	401	6	OPENED
0	403	7	OPENED
0	406	6	OPENED
0	407	6	OPENED
04	0	1	CLOSED
08	0	3	OPENED
08	0	4	OPENED
08	0	5	OPENED
08	0	6	OPENED
08	0	10	OPENED
08	0	11	OPENED
08	0	12	OPENED
09	0	4	OPENED
10	0	4	OPENED
11	0	3	OPENED
11	0	4	OPENED
11	0	5	OPENED
11	0	10	OPENED
11	0	11	OPENED
11	0	12	OPENED
00	0	3	OPENED
00	0	10	OPENED
01	0	8	OPENED
01	0	9	OPENED
02	0	2	OPENED
03	0	5	OPENED
03	0	6	OPENED
04	0	1	OPENED
04	0	2	OPENED
04	0	3	OPENED
04	0	4	OPENED
04	0	5	OPENED
05	0	2	OPENED
05	0	5	OPENED
05	0	7	OPENED
06	0	4	OPENED

06	0	5	OPENED
07	0	8	OPENED
07	0	9	OPENED
08	0	3	OPENED
08	0	10	OPENED
02	0	2	OPENED
0	570	1	CLOSED
0	450	9	OPENED
0	454	5	OPENED
0	458	7	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	5	OPENED
58	0	6	OPENED
53	0	7	OPENED
58	0	8	OPENED
58	0	9	OPENED
60	0	11	OPENED
59	0	4	OPENED
61	0	3	OPENED
61	0	4	OPENED
61	0	5	OPENED
61	0	6	OPENED
61	0	7	OPENED
61	0	8	OPENED
50	0	1	OPENED
50	0	2	OPENED
50	0	3	OPENED
50	0	4	OPENED
50	0	6	OPENED
50	0	7	OPENED
51	0	1	OPENED
51	0	2	OPENED
51	0	4	OPENED
51	0	5	OPENED
51	0	7	OPENED
52	0	2	OPENED
52	0	3	OPENED
53	0	1	OPENED
53	0	2	OPENED
54	0	3	OPENED
54	0	4	OPENED
55	0	2	OPENED
56	0	2	OPENED
57	0	2	OPENED
57	0	4	OPENED
57	0	5	OPENED
57	0	8	OPENED
58	0	1	OPENED
58	0	2	OPENED
58	0	3	OPENED
58	0	4	OPENED
58	0	6	OPENED
66	0	2	OPENED

HE FOLLOWING LIST CONTAINS THE RUN MODE BREAKERS. THESE BREAKERS WILL OVERRIDE
NY BASE CASE BREAKERS.
HE RUN CIRCUIT BREAKER LIST

SB	EB	BR	STATUS
10	260	1	OPENED
50	356	1	OPENED

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51     306       1     OPENED
50     257       1     OPENED
50     256       1     OPENED
50     255       1     OPENED
50     254       1     OPENED
50     207       1     OPENED
50     206       1     OPENED
50     205       1     OPENED
50     204       1     OPENED
85     361       1     OPENED
84     359       1     OPENED
82     358       1     OPENED
82     360       1     OPENED
84     311       1     OPENED
85     310       1     OPENED
87     308       1     OPENED
87     309       1     OPENED
 0     570       1     OPENED
 0     504       1     OPENED
 0     308       3     CLOSED
 0     308       4     CLOSED
 0     308       5     CLOSED
 0     400       3     CLOSED
 0     400      10     CLOSED
 0     502       2     CLOSED
 0     566       2     CLOSED
 0     361       3     CLOSED
 0     361       4     CLOSED
 0     361       5     CLOSED
 0     401       9     CLOSED
 0     457       4     CLOSED
 0     458       1     CLOSED
NTER COMMAND
O YOU WANT TO MODIFY THE LOAD-FLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
OAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
NTER SWING BUS DATA:  (BUS#,V(PU),ANGLE)
WING BUS= 100 V=  1.000 ANGLE=  0.000
IST GENERATOR BUSES:  (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS:  (FB,TB,%TAP)
ROM-BUS     TO-BUS       %TAP      LINE NO.
  100       200        -1.450        1
  201       300        -2.170        2
  201       301        -2.170        3
  202       302        -2.170        4
  202       303        -2.170        5
  203       304        -2.170        6
  203       305        -2.170        7
  312       400        -2.520        8
  313       401        -2.520        9
  314       402        -2.520       10
  315       403        -2.520       11
  316       404        -2.520       12
  317       405        -2.520       13
  318       406        -2.520       14
  319       407        -2.520       15
  320       408        -2.520       16
  100       250        -1.450       17
  251       350        -2.170       18
  251       351        -2.170       19
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252	352	-2.170	20
252	353	-2.170	21
253	354	-2.170	22
253	355	-2.170	23
362	450	-2.520	24
363	451	-2.520	25
364	452	-2.520	26
365	453	-2.520	27
366	454	-2.520	28
367	455	-2.520	29
368	456	-2.520	30
369	457	-2.520	31
370	458	-2.520	32

O YOU WANT ALL BUSES OUTPUTED? (0=NO,1=YES,2=DEFAULT)

UKE POWER COMPANY DATE = 03/26/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:LOAD-FLOW FULL LOAD & ESFAS W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 7
BS VOLTAGE ERROR= 0.000001 0.000000

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52
365	453	-2.52
319	407	-2.52

320	408	-2.52
366	454	-2.52
367	455	-2.52

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.623	-2.372	5.196	0.235
200	204	4.625	2.376	5.199	0.235
200	207	4.614	2.379	5.191	0.235
200	206	4.614	2.379	5.191	0.235
200	205	4.614	2.379	5.191	0.235
200	257	4.614	2.379	5.191	0.235
200	256	4.614	2.379	5.191	0.235
200	255	4.614	2.379	5.191	0.235
200	254	4.614	2.379	5.192	0.235
200	210	42.750	22.695	48.401	2.190
200	100	-83.315	-39.715	92.296	4.177
207	200	-4.611	-2.375	5.187	0.235
206	200	-4.611	-2.375	5.187	0.235
205	200	-4.611	-2.375	5.187	0.235
257	200	-4.611	-2.375	5.187	0.235
256	200	-4.612	-2.375	5.187	0.235
255	200	-4.611	-2.375	5.187	0.235
254	200	-4.612	-2.376	5.187	0.235
210	200	-42.750	-22.695	48.401	2.190
210	201	13.579	1.929	13.715	0.621
210	202	17.236	10.256	20.057	0.908
210	203	15.586	8.498	17.752	0.803
100	200	83.816	56.910	101.311	0.117
100	250	0.001	0.001	0.001	0.000
201	210	-13.572	-1.919	13.707	0.621
201	MIDPOINT	13.565	1.921	13.700	0.620
202	210	-17.230	-10.246	20.046	0.908
202	MIDPOINT	17.221	10.243	20.037	0.907
203	210	-15.578	-8.485	17.738	0.803
203	MIDPOINT	15.571	8.473	17.727	0.803
250	100	-0.001	-0.001	0.001	0.000
250	260	0.000	0.000	0.000	0.000
260	250	0.000	0.000	0.000	0.000
260	251	-0.000	0.000	0.000	0.000
260	252	-0.000	0.000	0.000	0.000
260	253	-0.000	0.000	0.000	0.000
300	MIDPOINT	-6.731	-0.576	6.756	1.005
300	306	6.731	0.576	6.756	1.005

301	MIDPOINT	-6.767	-0.552	6.790	1.010
301	356	6.767	0.552	6.790	1.010
302	MIDPOINT	-9.196	-4.736	10.344	1.605
302	386	9.196	4.736	10.344	1.605
303	MIDPOINT	-7.874	-3.804	8.745	1.342
303	380	7.874	3.805	8.745	1.342
304	MIDPOINT	-7.608	-3.480	8.366	1.279
304	383	7.608	3.480	8.366	1.279
305	MIDPOINT	-7.849	-3.678	8.668	1.328
305	381	7.849	3.678	8.668	1.328
251	260	0.000	-0.000	0.000	0.000
251	MIDPOINT	-0.000	0.000	0.000	0.000
252	260	0.000	-0.000	0.000	0.000
252	MIDPOINT	-0.000	0.000	0.000	0.000
253	260	0.000	-0.000	0.000	0.000
253	MIDPOINT	-0.000	0.000	0.000	0.000
306	300	-6.725	-0.566	6.748	1.005
306	318	0.947	0.566	1.103	0.164
356	301	-6.760	-0.541	6.781	1.010
356	368	0.982	0.540	1.121	0.167
386	302	-9.185	-4.720	10.327	1.605
386	309	5.639	2.796	6.294	0.978
386	308	3.457	1.962	3.975	0.618
380	303	-7.866	-3.793	8.733	1.342
380	310	5.109	2.294	5.601	0.860
380	361	2.730	1.486	3.108	0.478
383	304	-7.602	-3.471	8.357	1.279
383	358	2.085	1.016	2.320	0.355
383	360	5.553	2.459	6.073	0.930
381	305	-7.842	-3.667	8.657	1.328
381	311	2.344	1.236	2.650	0.407
381	359	5.451	2.409	5.959	0.915
318	306	-0.946	-0.566	1.103	0.164
318	406	0.946	0.566	1.103	0.164
368	356	-0.982	-0.540	1.121	0.167
368	456	0.981	0.541	1.120	0.167
309	386	-5.639	-2.796	6.294	0.978
309	314	1.129	0.753	1.358	0.211
309	315	1.018	0.515	1.141	0.177
308	386	-3.457	-1.962	3.975	0.618
308	312	1.021	0.582	1.175	0.183
308	313	0.731	0.445	0.856	0.133

310	380	-5.109	-2.294	5.600	0.860
310	316	0.930	0.423	1.022	0.157
310	317	0.601	0.384	0.713	0.110
361	380	-2.730	-1.486	3.108	0.478
361	369	0.873	0.449	0.982	0.151
361	370	0.392	0.217	0.448	0.069
358	383	-2.085	-1.016	2.320	0.355
358	362	0.781	0.330	0.848	0.130
358	363	0.586	0.251	0.637	0.098
360	383	-5.551	-2.456	6.071	0.930
360	364	0.592	0.375	0.700	0.107
360	365	0.747	0.288	0.801	0.123
311	381	-2.344	-1.235	2.649	0.407
311	319	0.789	0.341	0.860	0.132
311	320	0.871	0.462	0.986	0.151
359	381	-5.451	-2.409	5.959	0.915
359	366	1.074	0.414	1.151	0.177
359	367	0.841	0.528	0.993	0.152
350	MIDPOINT	-0.000	-0.000	0.000	0.000
351	MIDPOINT	-0.000	-0.000	0.000	0.000
352	MIDPOINT	-0.000	-0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	-0.000	-0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	-0.000	-0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	-0.000	-0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.931	-0.487	1.050	1.387
406	513	0.042	0.020	0.047	0.061
406	514	0.390	0.190	0.434	0.573
406	515	0.245	0.119	0.272	0.360
456	368	-0.966	-0.458	1.069	1.410
456	564	0.479	0.234	0.533	0.703
456	565	0.246	0.119	0.273	0.360
314	309	-1.129	-0.753	1.357	0.211
314	402	1.128	0.753	1.357	0.211
315	309	-1.018	-0.515	1.140	0.177
315	403	1.017	0.515	1.140	0.177
312	308	-1.021	-0.582	1.175	0.183
312	400	1.021	0.582	1.175	0.183
313	308	-0.730	-0.445	0.855	0.133

313	401	0.730	0.445	0.855	0.133
316	310	-0.930	-0.423	1.021	0.157
316	404	0.930	0.423	1.021	0.157
317	310	-0.601	-0.384	0.713	0.110
317	405	0.601	0.384	0.713	0.110
369	361	-0.873	-0.448	0.981	0.151
369	457	0.873	0.448	0.981	0.151
370	361	-0.392	-0.217	0.448	0.069
370	458	0.391	0.217	0.448	0.069
362	358	-0.781	-0.330	0.848	0.130
362	450	0.781	0.330	0.848	0.130
363	358	-0.586	-0.251	0.637	0.098
363	451	0.586	0.251	0.637	0.098
364	360	-0.591	-0.374	0.699	0.107
364	452	0.591	0.374	0.699	0.107
365	360	-0.747	-0.287	0.800	0.123
365	453	0.747	0.287	0.800	0.123
319	311	-0.789	-0.341	0.860	0.132
319	407	0.789	0.341	0.860	0.132
320	311	-0.871	-0.462	0.986	0.151
320	408	0.871	0.462	0.986	0.151
366	359	-1.074	-0.414	1.151	0.177
366	454	1.074	0.414	1.151	0.177
367	359	-0.840	-0.528	0.992	0.152
367	455	0.840	0.528	0.992	0.152
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000
385	355	0.000	0.000	0.000	0.000
513	406	-0.042	-0.020	0.046	0.061
514	406	-0.388	-0.188	0.431	0.573
515	406	-0.245	-0.119	0.272	0.360
564	456	-0.477	-0.231	0.530	0.703
565	456	-0.245	-0.119	0.273	0.360
402	314	-1.103	-0.622	1.266	1.782
402	503	0.197	0.096	0.219	0.309
402	505	0.117	0.057	0.130	0.183

403	315	-0.999	-0.422	1.085	1.498
403	506	0.227	0.001	0.227	0.313
403	507	0.346	0.169	0.385	0.531
400	312	-1.001	-0.483	1.112	1.543
400	500	0.136	0.066	0.151	0.209
401	313	-0.720	-0.393	0.820	1.123
401	502	0.247	0.126	0.278	0.380
401	504	0.000	0.000	0.000	0.000
404	316	-0.915	-0.350	0.980	1.326
404	508	0.321	0.157	0.357	0.483
404	509	0.224	0.109	0.249	0.337
404	510	0.237	0.000	0.237	0.320
405	317	-0.594	-0.348	0.689	0.926
405	511	0.050	0.024	0.055	0.074
457	369	-0.860	-0.381	0.940	1.274
457	566	0.211	0.107	0.236	0.320
458	370	-0.389	-0.203	0.439	0.581
458	567	0.182	0.089	0.203	0.269
458	570	0.000	0.000	0.000	0.000
450	362	-0.771	-0.280	0.821	1.097
450	550	0.277	0.136	0.309	0.413
450	562	0.243	0.000	0.243	0.324
451	363	-0.580	-0.223	0.621	0.824
451	552	0.172	0.084	0.191	0.254
452	364	-0.584	-0.341	0.676	0.905
452	561	0.061	0.030	0.068	0.090
453	365	-0.738	-0.243	0.777	1.036
453	558	0.365	0.179	0.407	0.542
453	559	0.129	0.063	0.144	0.192
453	560	0.244	0.001	0.244	0.325
407	319	-0.779	-0.290	0.831	1.115
407	516	0.158	0.077	0.176	0.236
407	520	0.240	0.001	0.240	0.322
408	320	-0.858	-0.394	0.944	1.279
408	517	0.145	0.071	0.162	0.219
454	366	-1.056	-0.321	1.104	1.493
454	556	0.237	0.001	0.237	0.320
454	557	0.394	0.193	0.439	0.594
455	367	-0.827	-0.459	0.946	1.287
455	553	0.248	0.122	0.276	0.376
455	555	0.058	0.028	0.064	0.087
503	402	-0.196	-0.095	0.218	0.309
505	402	-0.117	-0.056	0.129	0.183

506	403	-0.226	-0.000	0.226	0.313
507	403	-0.343	-0.166	0.381	0.531
500	400	-0.135	-0.066	0.150	0.209
502	401	-0.246	-0.124	0.275	0.380
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.318	-0.154	0.353	0.483
509	404	-0.223	-0.108	0.247	0.337
510	404	-0.236	-0.000	0.236	0.320
511	405	-0.050	-0.024	0.055	0.074
566	457	-0.209	-0.106	0.235	0.320
567	458	-0.181	-0.088	0.202	0.269
570	458	0.000	0.000	0.000	0.000
550	450	-0.276	-0.134	0.306	0.413
562	450	-0.242	-0.000	0.242	0.324
552	451	-0.171	-0.083	0.190	0.254
561	452	-0.061	-0.029	0.067	0.090
558	453	-0.361	-0.175	0.401	0.542
559	453	-0.129	-0.063	0.143	0.192
560	453	-0.243	0.000	0.243	0.325
516	407	-0.157	-0.076	0.174	0.236
520	407	-0.239	-0.000	0.239	0.322
517	408	-0.145	-0.070	0.161	0.219
556	454	-0.236	-0.000	0.236	0.320
557	454	-0.392	-0.190	0.435	0.594
553	455	-0.246	-0.119	0.273	0.376
555	455	-0.057	-0.028	0.064	0.087

BUS DATA

	VOLTAGE	GENERATION	LOAD MOTOR	LOAD STATIC	MISMATCH

O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9238	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0114	0.0030
00	1H02	0.9244	-8.69	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-3.6424	2.0083
07	1H06	0.9238	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0000	-0.0000
06	1H05	0.9238	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0000
05	1H04	0.9238	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0003	-0.0003
57	2H06	0.9237	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0002	-0.0001
56	2H05	0.9237	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0003	-0.0001
55	2H04	0.9237	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0001	-0.0001
54	2H03	0.9237	-8.71	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0003	-0.0004
10	1H01	0.9244	-8.69	13.800	0.00	0.00	0.00	0.00	0.00	0.00	3.6510	-2.0121
00	1X03-HS	1.0000	0.00	500.000	83.81	57.00	0.00	0.00	-0.00	0.00	0.0000	0.0000
01	1X04-HS	0.9239	-8.73	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0070	0.0021
02	1X05-HS	0.9239	-8.70	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0088	-0.0034
03	1X06-HS	0.9237	-8.71	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0064	-0.0116
50	2H02	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0005
60	2H01	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
00	1X04-LS1	0.9331	-11.99	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0003	0.0002
01	1X04-LS2	0.9333	-12.01	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0001
02	1X05-LS1	0.8945	-13.17	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0003
03	1X05-LS2	0.9046	-12.50	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0004
04	1X06-LS1	0.9076	-12.37	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0002
05	1X06-LS2	0.9055	-12.49	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0001
51	2X04-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
52	2X06-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
53	2X05-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
06	1A05,06	0.9321	-12.07	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0001	-0.0002
56	2A05,06	0.9322	-12.10	4.160	0.00	0.00	5.78	0.00	0.00	0.00	0.0004	-0.0003
86	1A02-AUX	0.8931	-13.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0883	0.0381
80	1A04-AUX	0.9033	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0274	-0.0[illegible]
83	2A04-AUX	0.9066	-12.41	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0359	0.0034
81	2A02-AUX	0.9044	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0466	-0.0221
18	15-HS	0.9319	-12.07	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0000
68	25-HS	0.9319	-12.10	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	0.0002
09	1A02	0.8931	-13.22	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0914	-0.0387
08	1A01	0.8930	-13.22	4.160	0.00	0.00	1.49	0.83	0.22	0.10	-0.0026	0.0001
10	1A03	0.9033	-12.55	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0055	0.0021
61	1A04	0.9033	-12.54	4.160	0.00	0.00	1.49	0.83	0.00	0.00	0.0223	0.0104
58	2A04	0.9066	-12.41	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0354	-0.0028
60	2A03	0.9063	-12.42	4.160	0.00	0.00	3.58	1.49	0.63	0.31	-0.0003	-0.0002
11	2A01	0.9042	-12.54	4.160	0.00	0.00	0.68	0.43	0.00	0.00	-0.0007	0.0002
59	2A02	0.9044	-12.54	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0473	0.0220
50	2X04-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
51	2X04-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
52	2X06-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
53	2X06-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
54	2X05-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
55	2X05-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
06	1B05	0.9105	-15.37	0.480	0.00	0.00	0.25	0.16	0.00	0.00	-0.0000	0.0000
56	2B05	0.9119	-15.55	0.480	0.00	0.00	0.17	0.11	0.07	0.00	0.0000	0.0000
14	12A-HS	0.8924	-13.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
15	12B-HS	0.8926	-13.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0001
12	11A-HS	0.8926	-13.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
13	11B-HS	0.8928	-13.22	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
16	13B-HS	0.9029	-12.55	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
17	13A-HS	0.9030	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
69	14A-HS	0.9028	-12.55	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
70	14B-HS	0.9032	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
62	24B-HS	0.9063	-12.41	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0000
63	24A-HS	0.9063	-12.41	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000

64	23A-HS	0.9060	-12.42	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
65	23B-HS	0.9059	-12.43	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0001
19	21B-HS	0.9039	-12.55	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0000
20	21A-HS	0.9037	-12.55	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	-0.0001
66	22B-HS	0.9039	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	-0.0001
67	22A-HS	0.9040	-12.54	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0001	0.0000
82	2A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.9080	-15.43	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	-0.0000
14	1B008	0.9054	-15.50	0.480	0.00	0.00	0.00	0.00	0.39	0.19	0.0000	-0.0000
15	1B007	0.9089	-15.41	0.480	0.00	0.00	0.00	0.00	0.24	0.12	0.0000	-0.0000
64	2B008	0.9062	-15.70	0.480	0.00	0.00	0.00	0.00	0.48	0.23	-0.0000	0.0000
65	2B007	0.9101	-15.60	0.480	0.00	0.00	0.00	0.00	0.25	0.12	-0.0000	-0.0000
02	1B02A	0.8544	-17.53	0.480	0.00	0.00	0.73	0.44	0.06	0.03	0.0000	0.0000
03	1B02B	0.8712	-17.17	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.8667	-17.15	0.480	0.00	0.00	0.64	0.36	0.22	0.05	0.0000	0.0000
01	1B01B	0.8785	-15.97	0.480	0.00	0.00	0.41	0.24	0.06	0.03	0.0000	0.0000
04	1B03B	0.8889	-16.08	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.8947	-14.73	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.8876	-15.83	0.480	0.00	0.00	0.47	0.24	0.18	0.03	0.0000	0.0000
58	1B04B	0.9079	-13.97	0.480	0.00	0.00	0.14	0.08	0.06	0.03	0.0000	-0.0000
50	2B04B	0.9000	-15.36	0.480	0.00	0.00	0.19	0.11	0.06	0.03	0.0000	0.0000
51	2B04A	0.9069	-14.60	0.480	0.00	0.00	0.22	0.11	0.19	0.03	0.0000	0.0000
52	2B03A	0.8986	-14.55	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.9026	-15.26	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
07	2B01B	0.8965	-15.53	0.480	0.00	0.00	0.32	0.18	0.06	0.03	0.0000	0.0000
08	2B01A	0.8878	-15.80	0.480	0.00	0.00	0.48	0.27	0.24	0.06	0.0000	0.0000
54	2B02B	0.8894	-16.68	0.480	0.00	0.00	0.23	0.13	0.20	0.00	0.0000	0.0000
55	2B02A	0.8840	-15.63	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03	1B002	0.8480	-17.72	0.480	0.00	0.00	0.00	0.00	0.20	0.09	-0.0000	-0.0000
05	1B005	0.8507	-17.64	0.480	0.00	0.00	0.00	0.00	0.12	0.06	-0.0000	-0.0000
06	1B010	0.8675	-17.45	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
07	1B006	0.8626	-17.41	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	0.0000
00	1B001A	0.8645	-17.21	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
02	1B014	0.8704	-16.19	0.480	0.00	0.00	0.03	0.02	0.21	0.10	-0.0000	0.0000
04	1B009	0.8785	-15.97	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08	1B016	0.8782	-16.38	0.480	0.00	0.00	0.00	0.00	0.32	0.15	-0.0000	-0.0000
09	1B003	0.8827	-16.25	0.480	0.00	0.00	0.00	0.00	0.22	0.11	-0.0000	-0.0000
10	1B012	0.8874	-16.19	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
11	1B015	0.8928	-14.78	0.480	0.00	0.00	0.00	0.00	0.05	0.02	-0.0000	-0.0000
66	1B004	0.8814	-15.99	0.480	0.00	0.00	0.03	0.02	0.18	0.08	-0.0000	-0.0000
67	1B001B	0.9026	-14.11	0.480	0.00	0.00	0.00	0.00	0.18	0.09	0.0000	0.0000
70	1B011	0.9079	-13.97	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
50	2B001B	0.8927	-15.55	0.480	0.00	0.00	0.00	0.00	0.25	0.13	-0.0000	-0.0000
62	2B011	0.8986	-15.45	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
52	2B004	0.9012	-14.75	0.480	0.00	0.00	0.00	0.00	0.17	0.08	-0.0000	-0.0000
61	2B015	0.8964	-14.61	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	0.0000
58	2B016	0.8907	-15.58	0.480	0.00	0.00	0.00	0.00	0.36	0.17	0.0000	0.0000
59	2B003	0.8991	-15.35	0.480	0.00	0.00	0.00	0.00	0.13	0.06	0.0000	0.0000
60	2B012	0.9006	-15.41	0.480	0.00	0.00	0.00	0.00	0.24	0.00	0.0000	0.0000
16	2B014	0.8904	-15.70	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	0.0000
20	2B009	0.8931	-15.78	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
17	2B001A	0.8835	-15.92	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
56	2B010	0.8864	-16.90	0.480	0.00	0.00	0.00	0.00	0.24	0.00	-0.0000	-0.0000
57	2B006	0.8821	-16.88	0.480	0.00	0.00	0.00	0.00	0.39	0.19	-0.0000	0.0000
53	2B002	0.8743	-15.90	0.480	0.00	0.00	0.00	0.00	0.25	0.12	0.0000	0.0000
55	2B005	0.8817	-15.69	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	0.0000

NTER COMMAND
O YOU WANT TO MODIFY THE LOADFLOW DATA? (1=YES,0=NO)
IVE TITLE OF RUN. IT HAS TO BE <80 CHARACTERS
ULL LOAD & ESFAS START W P13000-2 OOS
NTER SWING BUS DATA: (BUS#,V(PU),ANGLE)
WING BUS= 100 V= 1.000 ANGLE= 0.000
IST GENERATOR BUSES: (BUS#,P(MW),Q(MVAR),V(PU))
IST TAP CHANGING XFMRS: (FB,TB,%TAP)

ROM-BUS	TO-BUS	%TAP	LINE NO.
100	200	-1.450	1
100	250	-1.450	2

O YOU WANT ALL BUSES OUTPUTTED? (0=NO,1=YES,2=DEFAULT)
IST MOTORS TO BE STARTED:
BRANCH NUMBER ....BR
BUS NUMBER.........................#
NTER 9999 TO INDICATE END OF DATA.

UKE POWER COMPANY DATE = 03/26/81

AUXILIARY SYSTEM DESIGN
OPTIMIZATION PROGRAM
(ASDOP)
BASE CASE: CALVERT CLIFFS REP
ENDS AT CC 500KV SYSEQV NO CC GEN

BUS VOLTAGES,CURRENTS,AND POWER FLOWS

ASE TITLE:FULL LOAD & ESFAS START W P13000-2 OOS
O. OF BUSES= 124 NO. OF LINES= 123
WING BUS NO.= 100
O. OF ITERATIONS= 6
BS VOLTAGE ERROR= 0.000005 0.000001

SUMMARY OF TAPS

FROM-BUS	TO-BUS	%TAPS
100	200	-1.45
100	250	-1.45
MIDPOINT	300	-2.17
MIDPOINT	301	-2.17
MIDPOINT	302	-2.17
MIDPOINT	303	-2.17
MIDPOINT	304	-2.17
MIDPOINT	305	-2.17
MIDPOINT	350	-2.17
MIDPOINT	351	-2.17
MIDPOINT	352	-2.17
MIDPOINT	353	-2.17
MIDPOINT	354	-2.17
MIDPOINT	355	-2.17
318	406	-2.52
368	456	-2.52
314	402	-2.52
315	403	-2.52
312	400	-2.52
313	401	-2.52
316	404	-2.52
317	405	-2.52
369	457	-2.52
370	458	-2.52
362	450	-2.52
363	451	-2.52
364	452	-2.52

365	453	-2.52
319	407	-2.52
320	408	-2.52
366	454	-2.52
367	455	-2.52

SUMMARY OF MOTORS STARTED

BUS NO.	BRANCH NO.
308	3
308	4
308	5
400	3
400	10
566	2
361	3
361	4
361	5
401	9
457	4
458	1
502	2

LINE FLOWS

FROM-BUS	TO-BUS	LINE POWER FLOW MW	LINE POWER FLOW MVAR	LINE POWER FLOW MVA	LINE CURRENT MAG(KA)
204	200	-4.623	-2.374	5.197	0.241
200	204	4.625	2.377	5.200	0.241
200	207	4.614	2.379	5.191	0.241
200	206	4.614	2.379	5.191	0.241
200	205	4.615	2.379	5.192	0.241
200	257	4.616	2.379	5.193	0.241
200	256	4.616	2.380	5.193	0.241
200	255	4.616	2.379	5.193	0.241
200	254	4.616	2.380	5.194	0.241
200	210	47.788	32.138	57.590	2.673
200	100	-83.267	-50.463	97.365	4.519
207	200	-4.611	-2.376	5.187	0.241
206	200	-4.612	-2.376	5.188	0.241
205	200	-4.612	-2.376	5.188	0.241
257	200	-4.613	-2.375	5.189	0.241
256	200	-4.613	-2.376	5.189	0.241
255	200	-4.613	-2.375	5.189	0.241
254	200	-4.614	-2.376	5.189	0.241
210	200	-47.788	-32.138	57.589	2.673
210	201	13.505	1.923	13.641	0.633
210	202	17.493	21.059	27.376	1.271
210	203	15.353	8.451	17.525	0.813
100	200	83.854	70.592	109.612	0.127
100	250	0.001	0.001	0.002	0.000
201	210	-13.498	-1.913	13.633	0.633
201	MIDPOINT	13.497	1.917	13.632	0.633

202	210	-17.479	-21.039	27.352	1.271
202	MIDPOINT	17.472	21.021	27.334	1.270
203	210	-15.344	-8.438	17.511	0.813
203	MIDPOINT	15.355	8.423	17.496	0.813
250	100	-0.001	-0.001	0.002	0.000
250	260	0.000	0.000	0.000	0.000
260	250	0.000	0.000	0.000	0.000
260	251	-0.000	0.000	0.000	0.000
260	252	0.000	0.000	0.000	0.000
260	253	0.000	0.000	0.000	0.000
300	MIDPOINT	-6.696	-0.558	6.719	1.025
300	306	6.697	0.559	6.720	1.026
301	MIDPOINT	-6.726	-0.531	6.747	1.030
301	356	6.727	0.532	6.748	1.030
302	MIDPOINT	-9.186	-9.399	13.142	2.214
302	386	9.188	9.399	13.144	2.214
303	MIDPOINT	-7.982	-8.303	11.518	1.910
303	380	7.983	8.304	11.519	1.910
304	MIDPOINT	-7.481	-3.432	8.231	1.293
304	383	7.483	3.432	8.233	1.293
305	MIDPOINT	-7.739	-3.645	8.554	1.347
305	381	7.741	3.645	8.556	1.348
251	260	0.000	-0.000	0.000	0.000
251	MIDPOINT	-0.000	0.000	0.000	0.000
252	260	0.000	0.000	0.000	0.000
252	MIDPOINT	-0.000	0.000	0.000	0.000
253	260	0.000	0.000	0.000	0.000
253	MIDPOINT	-0.000	0.000	0.000	0.000
306	300	-6.690	-0.548	6.713	1.026
306	318	0.912	0.546	1.063	0.162
356	301	-6.719	-0.520	6.739	1.030
356	368	0.941	0.519	1.075	0.164
386	302	-9.167	-9.369	13.108	2.214
386	309	5.469	2.652	6.078	1.027
386	308	3.626	6.628	7.555	1.276
380	303	-7.967	-8.280	11.491	1.910
380	310	4.984	2.244	5.466	0.909
380	361	3.144	5.984	6.759	1.124
383	304	-7.477	-3.424	8.224	1.293
383	358	1.964	0.910	2.165	0.340
383	360	5.477	2.426	5.990	0.942

381	305	-7.733	-3.633	8.544	1.348
381	311	2.297	1.222	2.602	0.410
381	359	5.527	2.375	6.015	0.949
318	306	-0.912	-0.545	1.062	0.162
318	406	0.911	0.547	1.062	0.162
368	356	-0.941	-0.519	1.074	0.164
368	456	0.940	0.520	1.074	0.164
309	386	-5.469	-2.652	6.078	1.027
309	314	1.069	0.732	1.295	0.219
309	315	0.925	0.486	1.045	0.176
308	386	-3.625	-6.628	7.554	1.276
308	312	0.958	1.155	1.501	0.254
308	313	0.695	0.835	1.087	0.184
310	380	-4.984	-2.244	5.465	0.909
310	316	0.813	0.376	0.896	0.149
310	317	0.595	0.385	0.708	0.118
361	380	-3.144	-5.984	6.759	1.124
361	369	0.822	0.842	1.177	0.196
361	370	0.365	0.471	0.596	0.099
358	383	-1.964	-0.910	2.165	0.340
358	362	0.750	0.320	0.816	0.128
358	363	0.567	0.245	0.617	097
360	383	-5.476	-2.424	5.988	0.942
360	364	0.588	0.375	0.697	0.110
360	365	0.708	0.273	0.759	0.119
311	381	-2.297	-1.222	2.601	0.410
311	319	0.764	0.335	0.834	0.132
311	320	0.850	0.455	0.965	0.152
359	381	-5.526	-2.375	6.015	0.949
359	366	1.029	0.401	1.104	0.174
359	367	0.824	0.521	0.974	0.154
350	MIDPOINT	0.000	0.000	0.000	0.000
351	MIDPOINT	0.000	0.000	0.000	0.000
352	MIDPOINT	0.000	0.000	0.000	0.000
352	382	0.000	0.000	0.000	0.000
353	MIDPOINT	0.000	0.000	0.000	0.000
353	384	0.000	0.000	0.000	0.000
354	MIDPOINT	0.000	0.000	0.000	0.000
354	387	0.000	0.000	0.000	0.000
355	MIDPOINT	0.000	0.000	0.000	0.000
355	385	0.000	0.000	0.000	0.000
406	318	-0.895	-0.469	1.011	1.372
406	513	0.040	0.019	0.044	0.060

406	514	0.370	0.180	0.411	0.558
406	515	0.232	0.113	0.258	0.350
456	368	-0.925	-0.440	1.024	1.387
456	564	0.455	0.222	0.506	0.685
456	565	0.233	0.113	0.259	0.351
314	309	-1.068	-0.732	1.294	0.219
314	402	1.067	0.732	1.294	0.219
315	309	-0.924	-0.486	1.044	0.176
315	403	0.924	0.486	1.044	0.177
312	308	-0.957	-1.155	1.500	0.254
312	400	0.957	1.155	1.500	0.254
313	308	-0.695	-0.835	1.086	0.184
313	401	0.695	0.836	1.087	0.184
316	310	-0.813	-0.376	0.895	0.149
316	404	0.812	0.376	0.895	0.149
317	310	-0.594	-0.385	0.708	0.118
317	405	0.594	0.385	0.708	0.118
369	361	-0.822	-0.841	1.176	0.196
369	457	0.822	0.841	1.176	0.196
370	361	-0.365	-0.471	0.596	0.099
370	458	0.365	0.471	0.596	0.099
362	358	-0.750	-0.320	0.815	0.128
362	450	0.749	0.320	0.815	0.128
363	358	-0.567	-0.244	0.617	0.097
363	451	0.566	0.244	0.617	0.097
364	360	-0.588	-0.375	0.697	0.110
364	452	0.588	0.374	0.697	0.110
365	360	-0.708	-0.272	0.759	0.119
365	453	0.708	0.272	0.758	0.119
319	311	-0.764	-0.335	0.834	0.132
319	407	0.764	0.335	0.834	0.132
320	311	-0.850	-0.455	0.964	0.152
320	408	0.849	0.455	0.964	0.152
366	359	-1.028	-0.400	1.104	0.174
366	454	1.028	0.400	1.103	0.174
367	359	-0.823	-0.520	0.974	0.154
367	455	0.823	0.520	0.974	0.154
382	352	0.000	0.000	0.000	0.000
384	353	0.000	0.000	0.000	0.000
387	354	0.000	0.000	0.000	0.000

385	355	0.000	0.000	0.000	0.000
513	406	-0.040	-0.019	0.044	0.060
514	406	-0.368	-0.178	0.409	0.558
515	406	-0.2[illegible]	-0.112	0.258	0.350
564	456	-0.452	-0.219	0.503	0.685
565	456	-0.233	-0.113	0.259	0.351
402	314	-1.040	-0.591	1.196	1.849
402	503	0.164	0.080	0.182	0.281
402	505	0.097	0.047	0.108	0.167
403	315	-0.906	-0.394	0.988	1.491
403	506	0.190	0.001	0.190	0.286
403	507	0.290	0.142	0.322	0.486
400	312	-0.921	-0.965	1.334	2.143
400	500	0.101	0.049	0.[illegible]	0.181
401	313	-0.676	-0.736	[illegible]	1.552
401	502	0.204	0.230	[illegible]307	0.477
401	504	0.000	0.000	0.000	0.000
404	316	-0.800	-0.311	0.858	1.258
404	508	0.273	0.134	0.304	0.446
404	509	0.191	0.093	0.212	0.311
404	510	0.202	0.000	0.202	0.296
405	317	-0.586	-0.344	0.680	0.995
405	511	0.042	0.020	0.047	0.068
457	369	-0.800	-0.728	1.082	1.653
457	566	0.178	0.222	0.285	0.435
458	370	-0.359	-0.442	0.569	0.837
458	567	0.148	0.072	0.165	0.242
458	570	0.000	0.000	0.000	0.000
450	362	-0.740	-0.271	0.788	1.083
450	550	0.263	0.128	0.292	0.401
450	562	0.230	0.000	0.230	0.315
451	363	-0.561	-0.216	0.601	0.820
451	552	0.163	0.079	0.181	0.247
452	364	-0.581	-0.339	0.672	0.926
452	561	0.057	0.028	0.064	0.088
453	365	-0.700	-0.230	0.736	1.008
453	558	0.346	0.170	0.385	0.528
453	559	0.123	0.060	0.136	0.187
453	560	0.231	0.001	0.231	0.316
407	319	-0.754	-0.284	0.805	1.112
407	516	0.149	0.073	0.166	0.229

407	520	0.227	0.001	0.227	0.313
408	320	-0.836	-0.387	0.921	1.285
408	517	0.137	0.067	0.153	0.213
454	366	-1.011	-0.311	1.057	1.471
454	556	0.224	0.001	0.224	0.311
454	557	0.373	0.182	0.415	0.577
455	367	-0.810	-0.451	0.927	1.298
455	553	0.234	0.115	0.261	0.365
455	555	0.054	0.026	0.060	0.085
503	402	- .163	-0.079	0.181	0.281
505	402	-0.097	-0.047	0.107	0.167
506	403	-0.189	-0.000	0.189	0.286
507	403	-0.287	-0.139	0.319	0.486
500	400	-0.101	-0.049	0.112	0.181
502	401	-0.201	-0.226	0.303	0.477
504	401	-0.000	-0.000	0.000	0.000
508	404	-0.271	-0.131	0.301	0.446
509	404	-0.190	-0.092	0.211	0.311
510	404	-0.201	-0.000	0.201	0.296
511	405	-0.042	-0.020	0.046	0.068
566	457	-0.176	-0.219	0.281	0.435
567	458	-0.148	-0.071	0.164	0.242
570	458	0.000	0.000	0.000	0.000
550	450	-0.261	-0.126	0.290	0.401
562	450	-0.229	-0.000	0.229	0.315
552	451	-0.162	-0.078	0.180	0.247
561	452	-0.057	-0.028	0.064	0.088
558	453	-0.342	-0.166	0.380	0.528
559	453	-0.122	-0.059	0.136	0.187
560	453	-0.231	-0.000	0.231	0.316
516	407	-0.148	-0.072	0.165	0.229
520	407	-0.226	-0.000	0.226	0.313
517	408	-0.137	-0.066	0.152	0.213

556	454	-0.223	-0.000	0.223	0.311
557	454	-0.370	-0.179	0.412	0.577
553	455	-0.232	-0.112	0.258	0.365
555	455	-0.054	-0.026	0.060	0.085

BUS DATA

		VOLTAGE			GENERATION		LOAD: MOTOR		LOAD: STATIC		MISMATCH	
O.	NAME	MAG(PU)	ANG(DEG)	BASE(KV)	MW	MVAR	MW	MVAR	MW	MVAR	MW	MVAR
04	1H03	0.9007	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0117	0.0015
08	1H02	0.9013	-8.87	13.800	0.00	0.00	0.00	0.00	0.00	0.00	1.4520	0.7076
07	1H06	0.9007	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	0.0001	-0.0005
06	1H05	0.9007	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0005	-0.0004
05	1H04	0.9007	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0010	-0.0004
57	2H06	0.9006	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0016	-0.0002
56	2H05	0.9006	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0020	-0.0004
55	2H04	0.9006	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0019	-0.0003
54	2H03	0.9006	-8.90	13.800	0.00	0.00	4.61	2.38	0.00	0.00	-0.0024	-0.0004
10	1H01	0.9013	-8.87	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-1.4371	-0.7058
00	1X03-HS	1.0000	0.00	500.000	83.85	70.68	0.00	0.00	0.00	0.00	0.0000	-0.0000
01	1X04-HS	0.9008	-8.91	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0009	0.0042
02	1X05-HS	0.9005	-8.88	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0068	-0.0179
03	1X06-HS	0.9006	-8.90	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0091	-0.0150
50	2H02	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	-0.0011
60	2H01	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
00	1X04-LS1	0.9094	-12.33	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0014	0.0010
01	1X04-LS2	0.9095	-12.35	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0011	0.0006
02	1X05-LS1	0.8238	-13.60	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0009
03	1X05-LS2	0.8370	-12.91	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0013	0.0001
04	1X06-LS1	0.8834	-12.69	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0018	0.0002
05	1X06-LS2	0.8812	-12.83	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0014	0.0000
51	2X04-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
52	2X06-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
53	2X05-HS	1.0147	-0.00	13.800	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	0.0000
06	1A05,06	0.9083	-12.41	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0002	-0.0028
56	2A05,06	0.9084	-12.44	4.160	0.00	0.00	5.78	0.00	0.00	0.00	-0.0000	-0.0018
86	1A02-AUX	0.8215	-13.63	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0725	-0.0886
80	1A04-AUX	0.8349	-12.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.1605	-0.0526
83	2A04-AUX	0.8825	-12.73	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0362	-0.0872
81	2A02-AUX	0.8800	-12.87	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0906	-0.0360
18	15-HS	0.9081	-12.41	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0012	0.0018
68	25-HS	0.9081	-12.44	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0010	0.0012
09	1A02	0.8215	-13.63	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.1076	0.0548
08	1A01	0.8215	-13.63	4.160	0.00	0.00	0.68	0.43	1.25	4.24	-0.0365	0.0311
10	1A03	0.8349	-12.94	4.160	0.00	0.00	3.58	1.49	0.00	0.00	0.0067	0.0072
61	1A04	0.8349	-12.94	4.160	0.00	0.00	0.68	0.43	1.11	4.28	-0.1681	0.0454
58	2A04	0.8825	-12.73	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0359	0.0862
60	2A03	0.8821	-12.74	4.160	0.00	0.00	3.58	1.49	0.60	0.29	0.0003	0.0015
11	2A01	0.8798	-12.88	4.160	0.00	0.00	0.68	0.43	0.00	0.00	0.0004	0.0011
59	2A02	0.8800	-12.87	4.160	0.00	0.00	3.58	1.49	0.00	0.00	-0.0911	0.0352
50	2X04-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000

51	2X04-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
52	2X06-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
53	2X06-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
54	2X05-LS1	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
55	2X05-LS2	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
06	1B05	0.8865	-15.76	0.480	0.00	0.00	0.25	0.16	0.00	0.00	0.0000	0.0000
56	2B05	0.8881	-15.92	0.480	0.00	0.00	0.17	0.11	0.07	0.00	-0.0000	0.0000
14	12A-HS	0.8209	-13.63	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	0.0007
15	12B-HS	0.8211	-13.63	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	0.0008
12	11A-HS	0.8209	-13.61	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0003	0.0002
13	11B-HS	0.8212	-13.62	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0005	0.0003
16	13B-HS	0.8345	-12.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0000
17	13A-HS	0.8346	-12.94	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0001
69	14A-HS	0.8342	-12.92	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	0.0000
70	14B-HS	0.8347	-12.93	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0001	-0.0000
62	24B-HS	0.8822	-12.73	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0007	-0.0001
63	24A-HS	0.8821	-12.73	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	-0.0001
64	23A-HS	0.8819	-12.74	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0003
65	23B-HS	0.8818	-12.75	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0001
19	21B-HS	0.8795	-12.88	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	-0.0000
20	21A-HS	0.8793	-12.88	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0004	-0.0001
66	22B-HS	0.8796	-12.88	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0003	-0.0000
67	22A-HS	0.8796	-12.87	4.160	0.00	0.00	0.00	0.00	0.00	0.00	-0.0002	-0.0001
82	2A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
84	2A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
87	1A01-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
85	1A03-AUX	1.0372	-0.00	4.160	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
13	1B013	0.8841	-15.83	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	0.0000
14	1B008	0.8816	-15.89	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
15	1B007	0.8850	-15.80	0.480	0.00	0.00	0.00	0.00	0.23	0.11	-0.0000	-0.0000
64	2B008	0.8826	-16.08	0.480	0.00	0.00	0.00	0.00	0.45	0.22	0.0000	-0.0000
65	2B007	0.8864	-15.97	0.480	0.00	0.00	0.00	0.00	0.23	0.11	0.0000	-0.0000
02	1B02A	0.7781	-18.48	0.480	0.00	0.00	0.73	0.44	0.05	0.02	0.0001	0.0001
03	1B02B	0.7972	-17.88	0.480	0.00	0.00	0.43	0.25	0.00	0.00	0.0000	0.0000
00	1B01A	0.7486	-17.61	0.480	0.00	0.00	0.50	0.28	0.32	0.64	0.0000	-0.0000
01	1B01B	0.7744	-16.43	0.480	0.00	0.00	0.35	0.20	0.12	0.30	-0.0000	0.0000
04	1B03B	0.8204	-16.55	0.480	0.00	0.00	0.13	0.08	0.00	0.00	0.0000	0.0000
05	1B03A	0.8220	-15.47	0.480	0.00	0.00	0.54	0.32	0.00	0.00	0.0000	0.0000
57	1B04A	0.7871	-16.28	0.480	0.00	0.00	0.41	0.21	0.21	0.30	0.0000	0.0000
58	1B04B	0.8186	-14.27	0.480	0.00	0.00	0.08	0.05	0.13	0.32	-0.0000	-0.0000
50	2B04B	0.8754	-15.71	0.480	0.00	0.00	0.19	0.11	0.06	0.03	0.0000	0.0000
51	2B04A	0.8822	-14.96	0.480	0.00	0.00	0.22	0.11	0.18	0.03	0.0000	0.0000
52	2B03A	0.8730	-14.98	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
53	2B03B	0.8786	-15.58	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
07	2B01B	0.8714	-15.93	0.480	0.00	0.00	0.32	0.18	0.06	0.03	0.0000	0.0000
08	2B01A	0.8624	-16.24	0.480	0.00	0.00	0.48	0.27	0.22	0.05	0.0000	0.0000
54	2B02B	0.8648	-17.06	0.480	0.00	0.00	0.23	0.13	0.19	0.00	0.0000	0.0000
55	2B02A	0.8585	-16.07	0.480	0.00	0.00	0.52	0.31	0.00	0.00	0.0000	0.0000
03	1B002	0.7723	-18.66	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
05	1B005	0.7748	-18.58	0.480	0.00	0.00	0.00	0.00	0.10	0.05	-0.0000	-0.0000
06	1B010	0.7938	-13.15	0.480	0.00	0.00	0.00	0.00	0.19	0.00	-0.0000	-0.0000
07	1B006	0.7894	-18.12	0.480	0.00	0.00	0.00	0.00	0.29	0.14	-0.0000	-0.0000
00	1B001A	0.7467	-17.67	0.480	0.00	0.00	0.00	0.00	0.10	0.05	-0.0000	0.0000
02	1B014	0.7634	-16.43	0.480	0.00	0.00	0.00	0.00	0.20	0.23	-0.0000	-0.0000
04	1B009	0.7744	-16.43	0.480	0.00	0.00	0.00	0.00	0.00	0.00	-0.0000	-0.0000
08	1B016	0.8105	-16.85	0.480	0.00	0.00	0.00	0.00	0.27	0.13	-0.0000	-0.0000
09	1B003	0.8146	-16.72	0.480	0.00	0.00	0.00	0.00	0.19	0.09	-0.0000	-0.0000
10	1B012	0.8190	-16.67	0.480	0.00	0.00	0.00	0.00	0.20	0.00	-0.0000	-0.0000
11	1B015	0.8203	-15.52	0.480	0.00	0.00	0.00	0.00	0.04	0.02	-0.0000	-0.0000
66	1B004	0.7780	-16.25	0.480	0.00	0.00	0.00	0.00	0.18	0.22	-0.0000	-0.0000

67 1B001B	0.8139	-14.41	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	0.0000
70 1B011	0.8166	-14.27	0.480	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
50 2B001B	0.8683	-15.91	0.480	0.00	0.00	0.00	0.00	0.26	0.13	-0.0000	-0.0000
62 2B011	0.8741	-15.81	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
52 2B004	0.8766	-15.12	0.480	0.00	0.00	0.00	0.00	0.16	0.08	-0.0000	-0.0000
61 2B015	0.8709	-15.04	0.480	0.00	0.00	0.00	0.00	0.06	0.03	-0.0000	-0.0000
58 2B016	0.8670	-15.90	0.480	0.00	0.00	0.00	0.00	0.34	0.17	-0.0000	-0.0000
59 2B003	0.8751	-15.67	0.480	0.00	0.00	0.00	0.00	0.12	0.06	-0.0000	-0.0000
60 2B012	0.8766	-15.73	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
16 2B014	0.8655	-16.10	0.480	0.00	0.00	0.00	0.00	0.15	0.07	-0.0000	-0.0000
20 2B009	0.8681	-16.18	0.480	0.00	0.00	0.00	0.00	0.23	0.00	-0.0000	-0.0000
17 2B001A	0.8582	-16.36	0.480	0.00	0.00	0.00	0.00	0.14	0.07	-0.0000	-0.0000
56 2B010	0.8618	-17.29	0.480	0.00	0.00	0.00	0.00	0.22	0.00	-0.0000	-0.0000
57 2B006	0.8577	-17.26	0.480	0.00	0.00	0.00	0.00	0.37	0.18	-0.0000	-0.0000
53 2B002	0.8491	-16.34	0.480	0.00	0.00	0.00	0.00	0.23	0.11	-0.0000	-0.0000
55 2B005	0.8563	-16.14	0.480	0.00	0.00	0.00	0.00	0.05	0.03	-0.0000	-0.0000

ELEASE 9, 10/1/79
NTER COMMAND
ONFIRM END: ENTER 1 FOR END, 2 FOR SAVE AND END, OR 3 TO CONTINUE RUN.

ND OF DRIVER