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***Measurements and
Preparations
For A Power Factor Study
With Harmonic Review***

C. Forster

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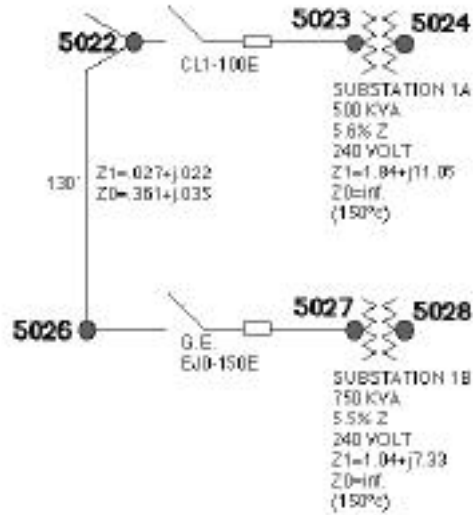
Gather Field Data

More on that later...

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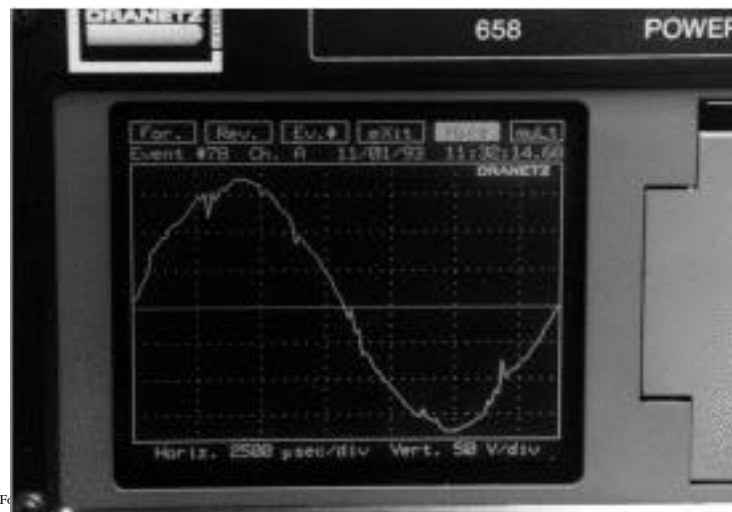
Make a One-Line Diagram



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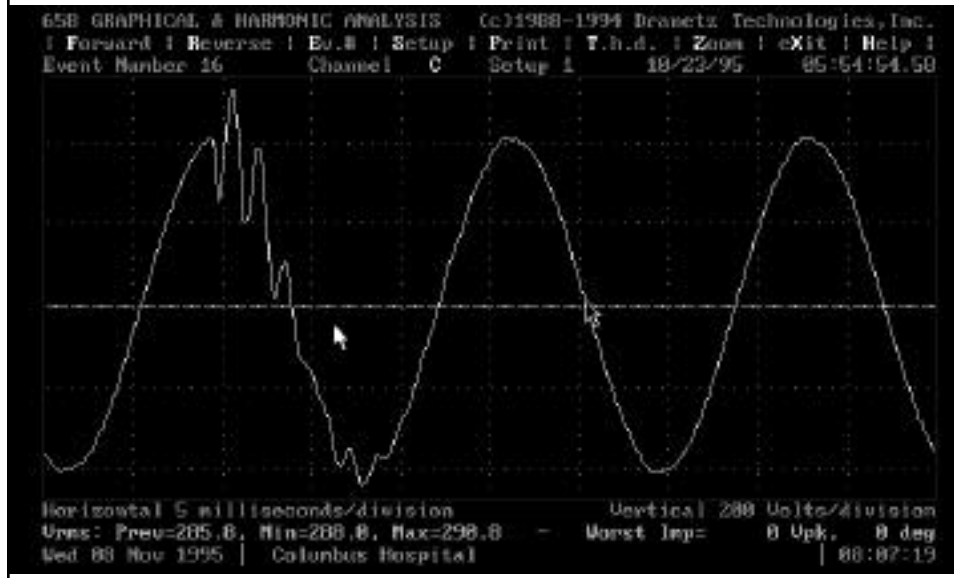
Measure Harmonic Sources



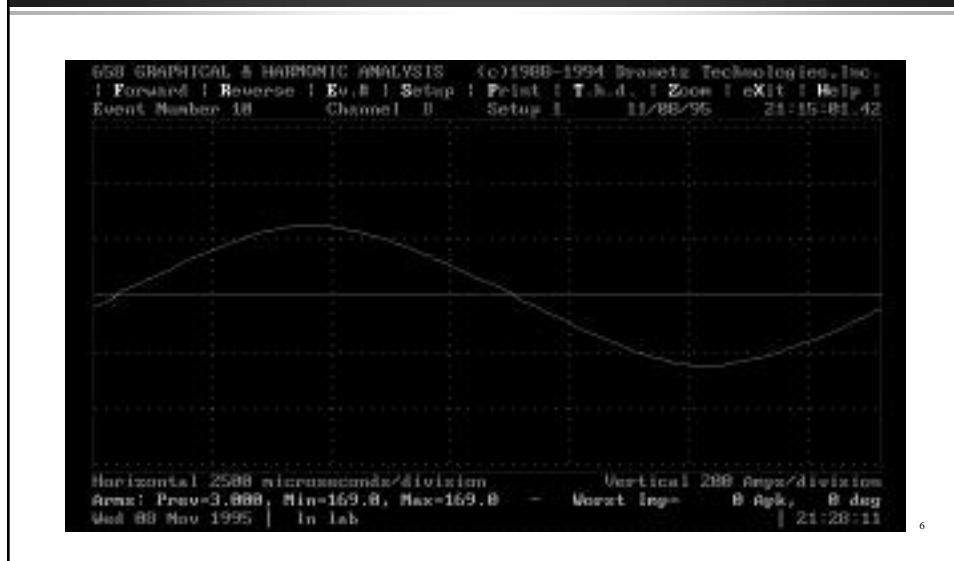
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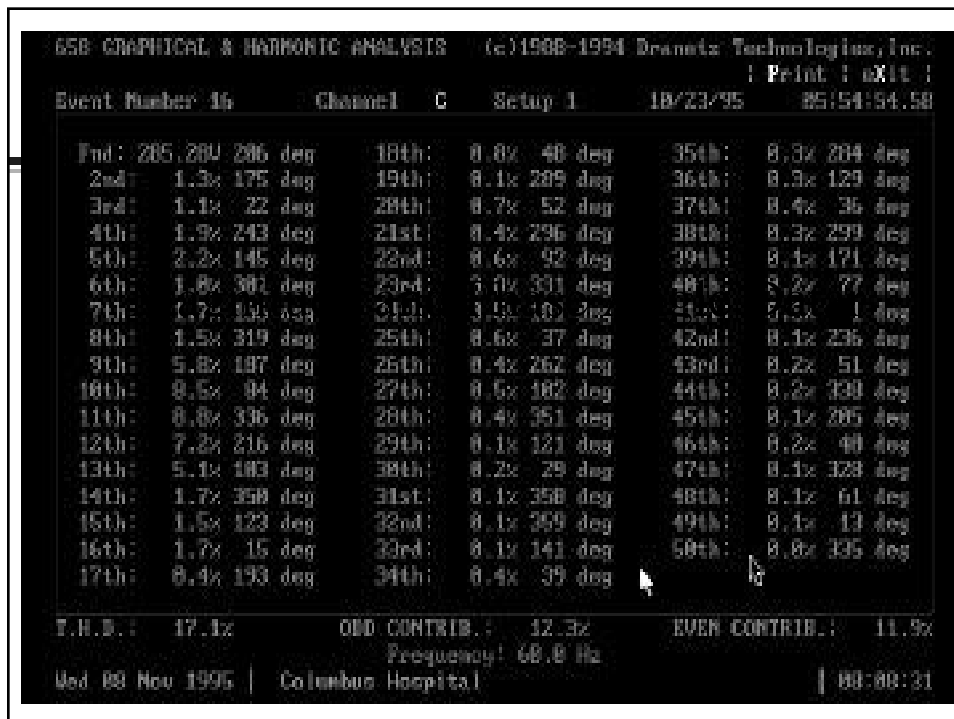
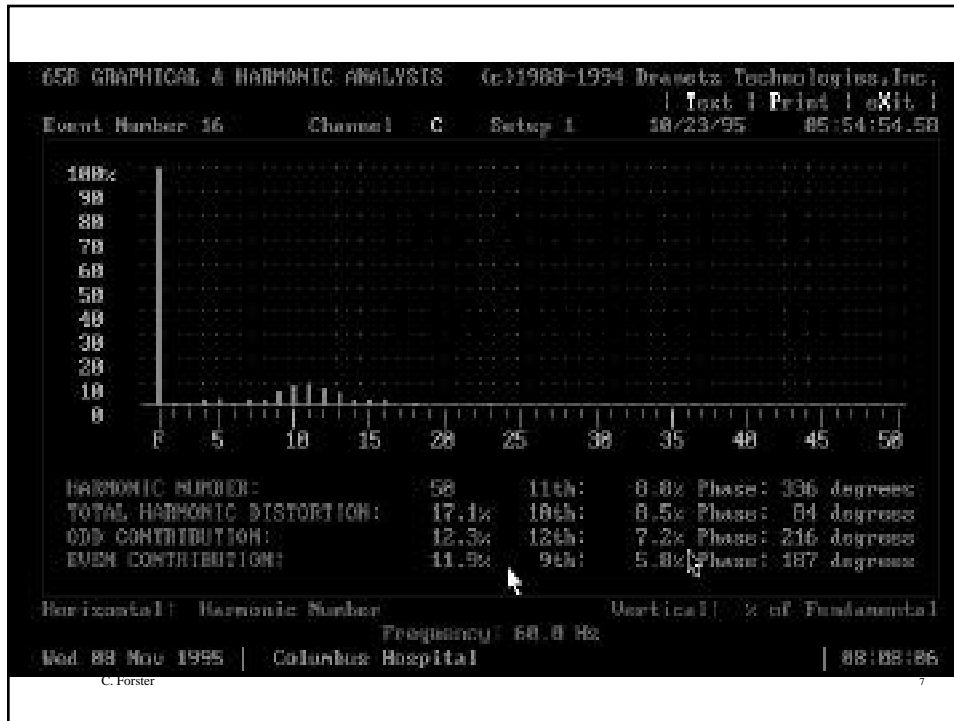
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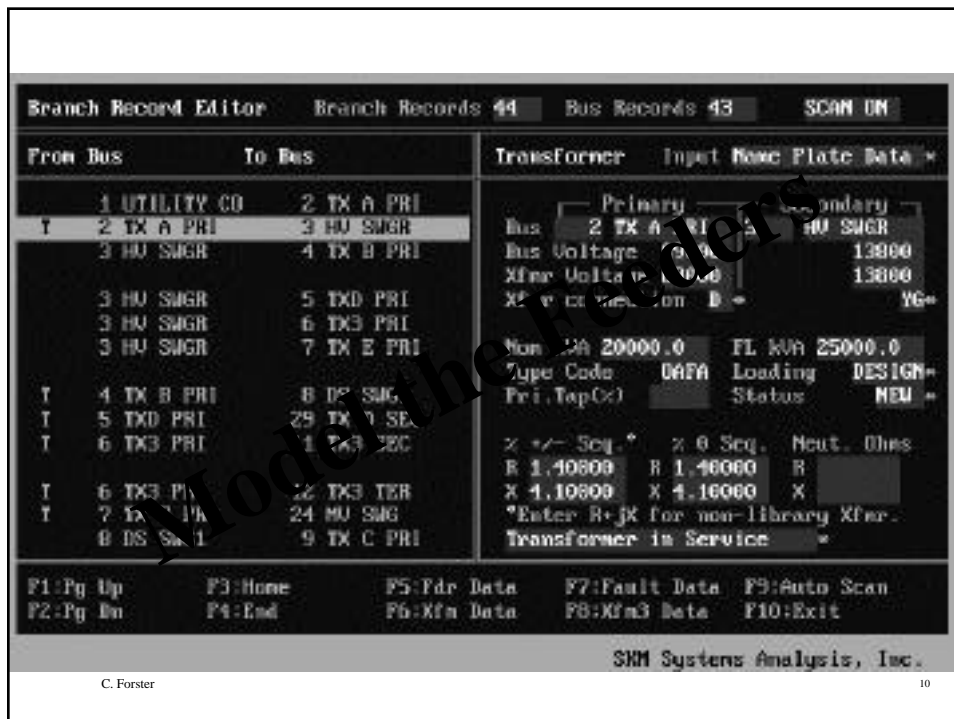
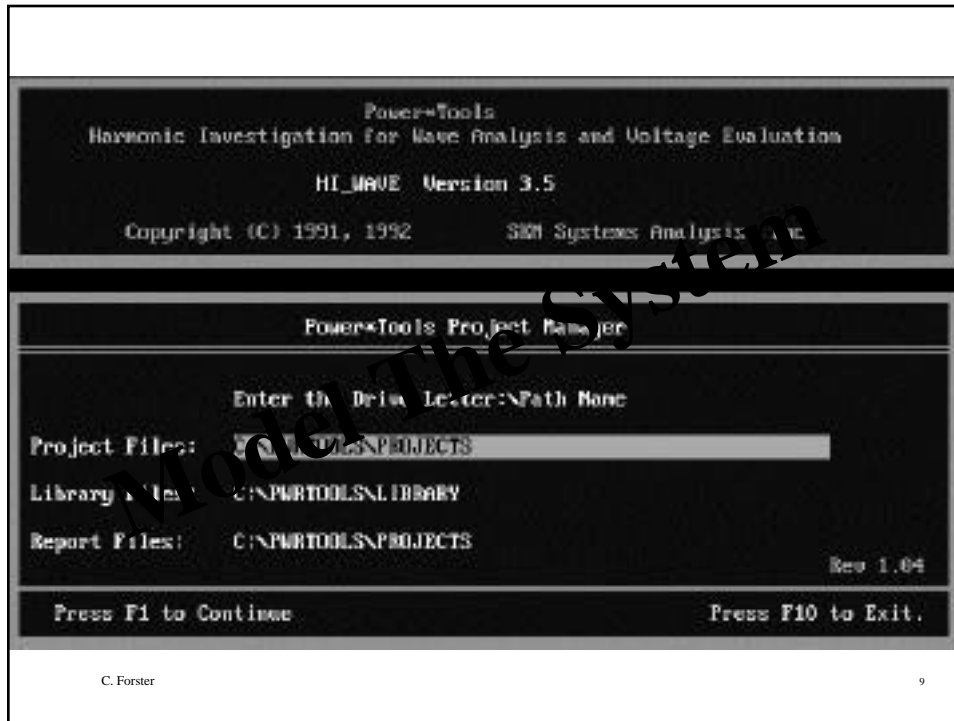
Measure System VOLTAGE Waveforms For Reference



Measure System CURRENT Waveforms For Modeling





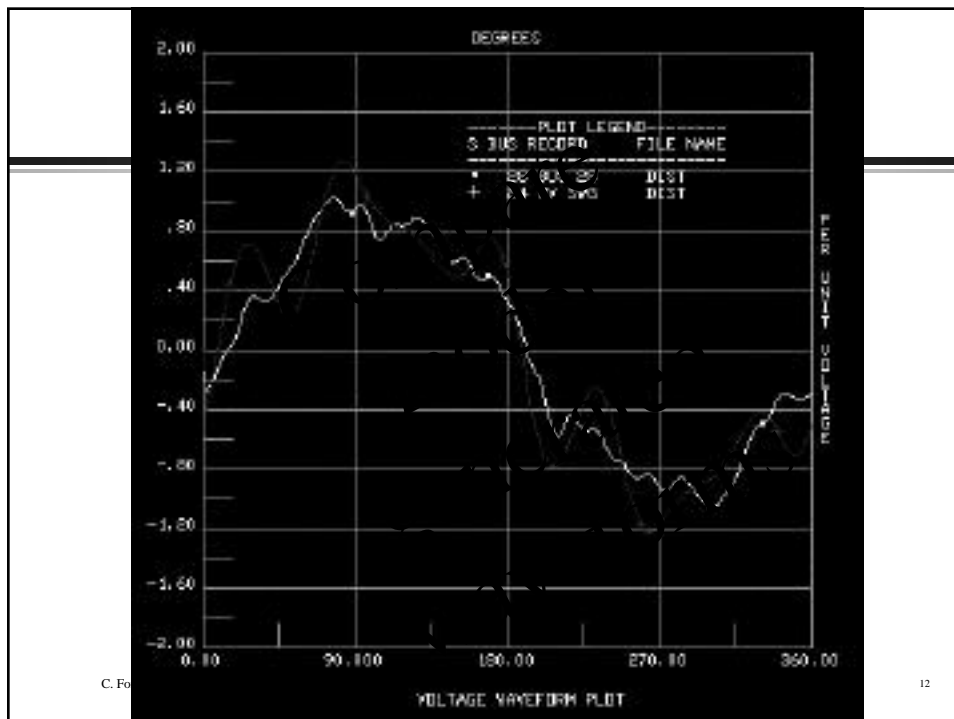


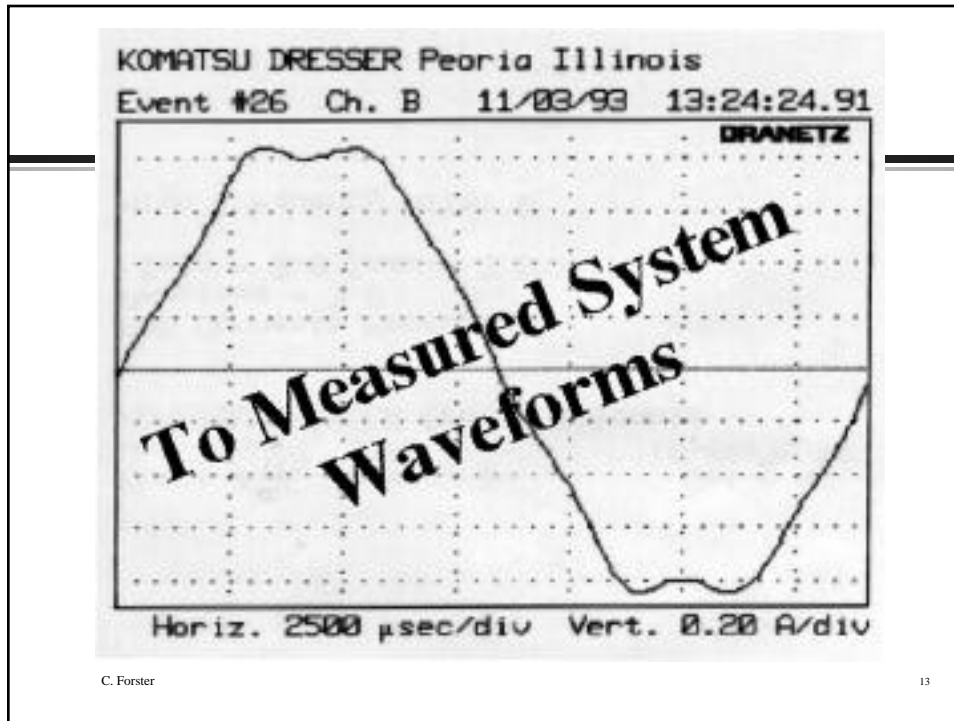
HI_WAVE Bus Records Bus Records: 43 FILTER/CONVERTER

Bus Records	Filter Design for Single Tuned or High Pass
13 BS SWG2	Filter Type: <u>Single Tuned</u> Corner Frequency: 60*
14 BSB 1	Tuning of Filter: <u>5.00</u> Capacitor Connected: <u>Y</u> *
15 MCC 1A	Capacitor Size (kVAR): <u>500.00</u> Voltage Rating: <u>560.0</u>
16 H2A	Filter Q: <u>50.0</u> System Bus Voltage: <u>480.0</u>
17 H3A	Reactor X/R(1): X/R(2): X/R(3):
18 BA	Calculated R: <u>0.00</u> $\mu\Omega$ <u>0.03</u> $-\mu\Omega$ <u>0.63</u> Ohms
19 H3A	RVAC considering Capacitor Voltage Rating: <u>367.3</u>
20 BS SWG3	RVAC considering Reactor Boost Voltage: <u>428.6</u>
21 TX F PRI	
22 BSB 2	
23 HTR 23	
24 BU SWG	
25 BUS 25	
26 TX G PRI	
27 TX B PRI	
28 BUS 2B	

F5:Calculate Filter or Capacitor F7:Delete
 F6:Calculate Filter or Capacitor & Return Data F10:Exit

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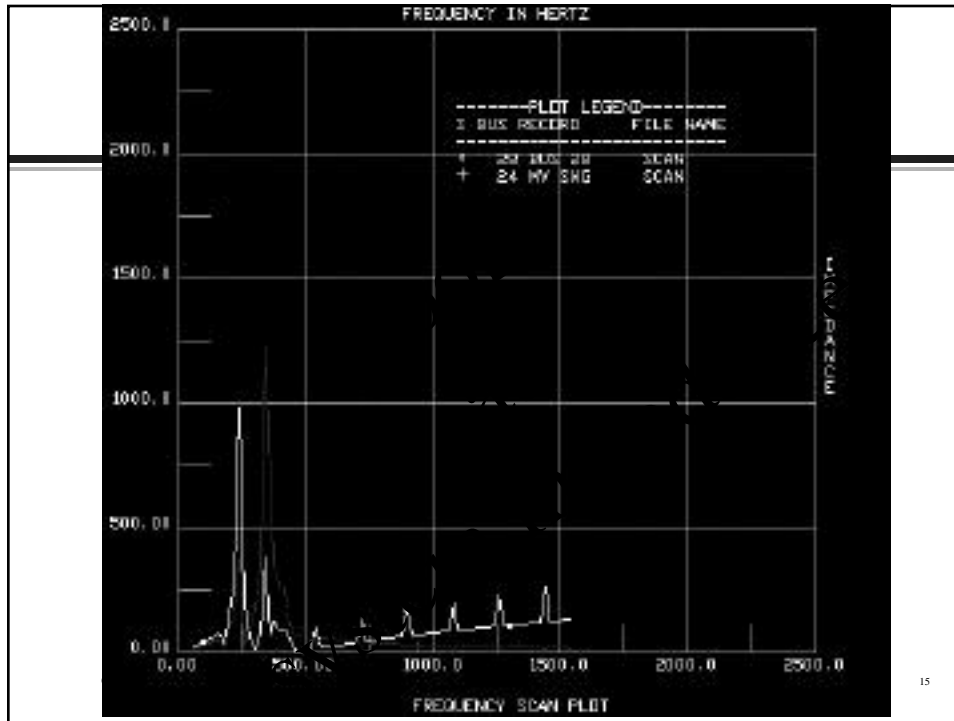
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HI_WAVE Bus Records		Bus Records: 43	FILTER/CONVERTER
Bus Records:		Filter Design for Single Tuned or H _v Pass	
13 BS SNG2	14 DSB 1	Filter Type: <u>Single Tuned</u>	Power Frequency: 60
15 MCC 1A	16 H2A	Tuning ω F ₁ var: 5000	Capacitor λ induct: 7
17 H1A	18 RA	Capacitor Size (KVAR): 500.0	Voltage Rating: 550.0
19 H3A	20 BS SNG3	Filter Q: 5	System Bus Voltage: 480.0
21 TX F PRI	22 DSB 2	Freq. F ₁ (Hz):	F ₂ :
23 HTR 23	24 MV SNG	X/R(1):	X/R(2):
25 BUS 25	26 TX G PRI	Calculated R: 6 μ L	0.03 μ C
27 TX B PRI	28 BUS 2B	KVAC considering Capacitor Voltage Rating:	362.3
		KVAC considering Reactor Boost Voltage:	428.6
F5: Calculate Filter or Capacitor		F7: Delete	
F6: Calculate Filter or Capacitor & Return Data		F10: Exit	

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Summarize Your Findings

Power Factor Study with Harmonic Analysis

Study No. 320

Project No. K3-93A

April 2000

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Double Check System Operation



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