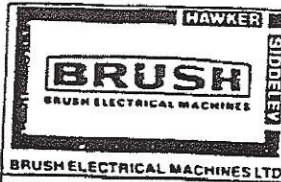


15 JAN 1993



GENERATOR AND AVR GENERAL DATA

SECTION QC. 48

SUB SECT. 01

PAGE 1 of 1

CONTRACT NO. 09/64926	DES. ENG. N.J. CLARKE	DATE: 21-12-92
SERIAL NO. 09/64926/01	TEST ENG. H.N. JOHNSON	DATE: 7/1/93
CTC 016	CUSTOMER: WESTINGHOUSE AUBURNDALE	

Issued  
Reissued  
Jan 88

Revised

GENERATOR

Machine Contract No. 01161710A-1G  
 Frame BDAX 7-340ERH.  
 Rating 57778 KVA  
 P.F. 0.9  
 Volts 13800 V  
 Amps 2417 A  
 Frequency 60 Hz  
 Operating Chart No. HEP 8586  
 C.T. Ratio 3000/5A  
 Nominal P.T. Secondary Volts 115 V

Excitation Data

PMG Frequency 480 Hz O/C Volts 265 V

	N/L Cold	F/I Hot	2.5 PU S/C
Exciter Field Current	2A	5A	8.8 A

Exciter Field Resistance 5.34  $\Omega$  Cold 7.44  $\Omega$  Hot

EXCITATION SYSTEM

AVR Contract Nos. 09/64926  
 AVR System AUTO TRIP TO MANUAL  
 Circuit Diagram B9620443  
 SUAVR Fitted ~~YES~~ NO  
 D.C. Supply Voltage 125 V  
 MAVR Card Fitted YES/NO

	MAIN	STAND BY	NOTES
Control	✓		Frequency 480 Hz
Excitation Limiter	✓		Temp. Comp. required/not required
P F Control	✓		
Hand Power	NO		
Auto Power	✓		
Excitation Monitor	✓		Temp. Comp. required/not required
Volts Monitor	✓		

Auxiliary Rack .....  
 Contract Test Specification.....  
 Non-Standard Features .....

# Generator Technical Data Sheet

APX-GTD.M

<b>Customer:</b>	Westinghouse for Auburndale				
<b>Contract No:</b>	01/61710A				<b>No. Off: 1</b>
<b>Machine Serial No's:</b>	61710A - 1G				
<b>Frame Size:</b>	BDAX 7-340 ERH	<b>Enclosure:</b>	CACW		
<b>1 RATING</b>					
<b>Output</b>	57.778MVA at 35°C cooling water				
<b>Power Factor</b>	0.9				
<b>Voltage</b>	13800V				
<b>Frequency</b>	60Hz				
<b>Speed</b>	3600 rpm				
<b>Specification</b>	ANSI C50.13				
<b>2 REACTANCES to a base of 57.778MVA (Calculated)</b>					
<b>Synchronous Reactance</b>	167%				
<b>Transient Reactance</b>	13.5%				
<b>Sub-Transient Reactance</b>	9.7%				
<b>Negative Sequence Reactance</b>	11.9%				
<b>3 CURVES</b>		<b>Issue</b>			
<b>Output/Coolant Temperature</b>	H.E.P. 8585	1			
<b>Reactive Capability Diagram</b>	H.E.P. 8586	1			
<b>Open Circuit/Short Circuit</b>	H.E.P. 9769	1			
<b>Efficiency</b>	H.E.P. 6404	2			
<b>Negative Sequence Capability</b>	H.E.P. 1216	8			
<b>Volts/Hertz</b>	H.E.P. 4727	6			
<b>4 RECOMMENDED ALARM AND TRIP SETTINGS</b>					
	<b>Alarm</b>	<b>Trip</b>		<b>Alarm</b>	<b>Trip</b>
Stator Winding Temp °C	150	160	Exciter Air Outlet Temp °C	105	
Bearing Metal Temp °C	92	95	Peak to Peak Displacement mm	0.1	0.15
Generator Air Outlet Temp °C	105	-	*Shaft Relative Vibration x 10 <sup>-3</sup> inches	4	6

For oil pressure settings see oil system schematic drawing in Appendix B.

\* If vibration is measured in terms of amplitude:

$$\text{Zero to peak amplitude } (\mu\text{m}) = \frac{\text{peak velocity (mm/sec)} \times 9550}{\text{R.P.M.}}$$

**5c WATER COOLED AIR COOLER**

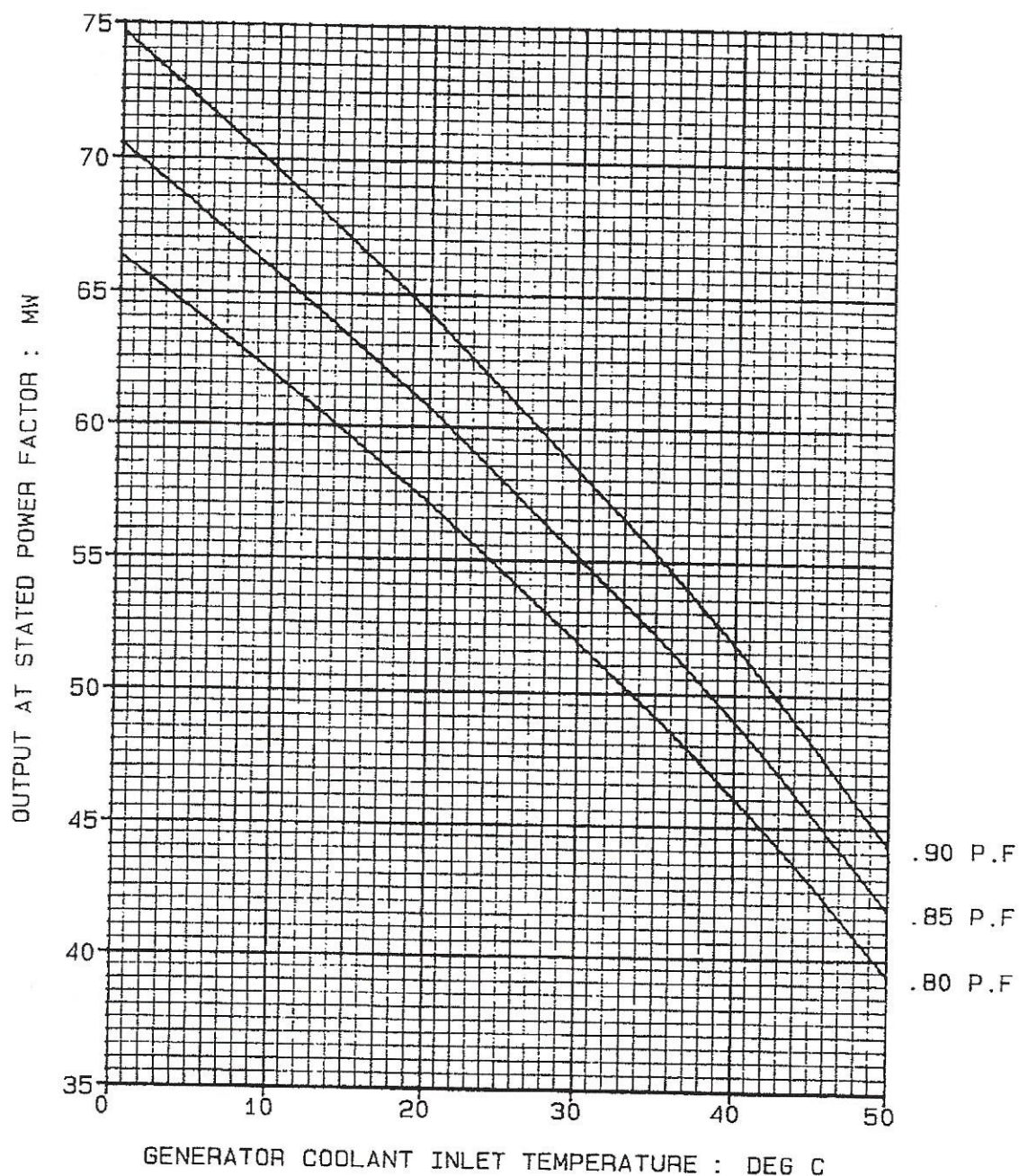
Type	Tube and fin - 4 sections
Coolant	Freshwater
Coolant Flow (total per machine)	20.76 litres/second
Coolant Resistance	0.2 Bar
Coolant Inlet Temperature °C	35.0
Coolant Output Temperature °C	47.0
Air Outlet Temperature (generator Inlet) °C	44.0
Design Codes (where applicable)	ASME VIII DIV I and TEMA 'C'
Design Static Pressure	6.9 Bar gauge
Hydraulic Test Pressure	10.35 Bar gauge

**MATERIALS FOR WATER COOLED AIR COOLER**

Tubes	90/10 Cupro-nickel
Fins	Aluminium
Tubeplate	Carbon Steel (epoxy coated)
Water Boxes	Carbon Steel (epoxy coated)
Waterside Connections	Carbon Steel (epoxy coated)



VARIATION OF GENERATOR OUTPUT WITH COOLANT TEMP



BDAX 7.340R  
13.80KV, 3Ph, 60.Hz.

Up to 1000. meters ASL

Coolant: Fresh Water

IN ACCORDANCE WITH  
ANSI C50.14.

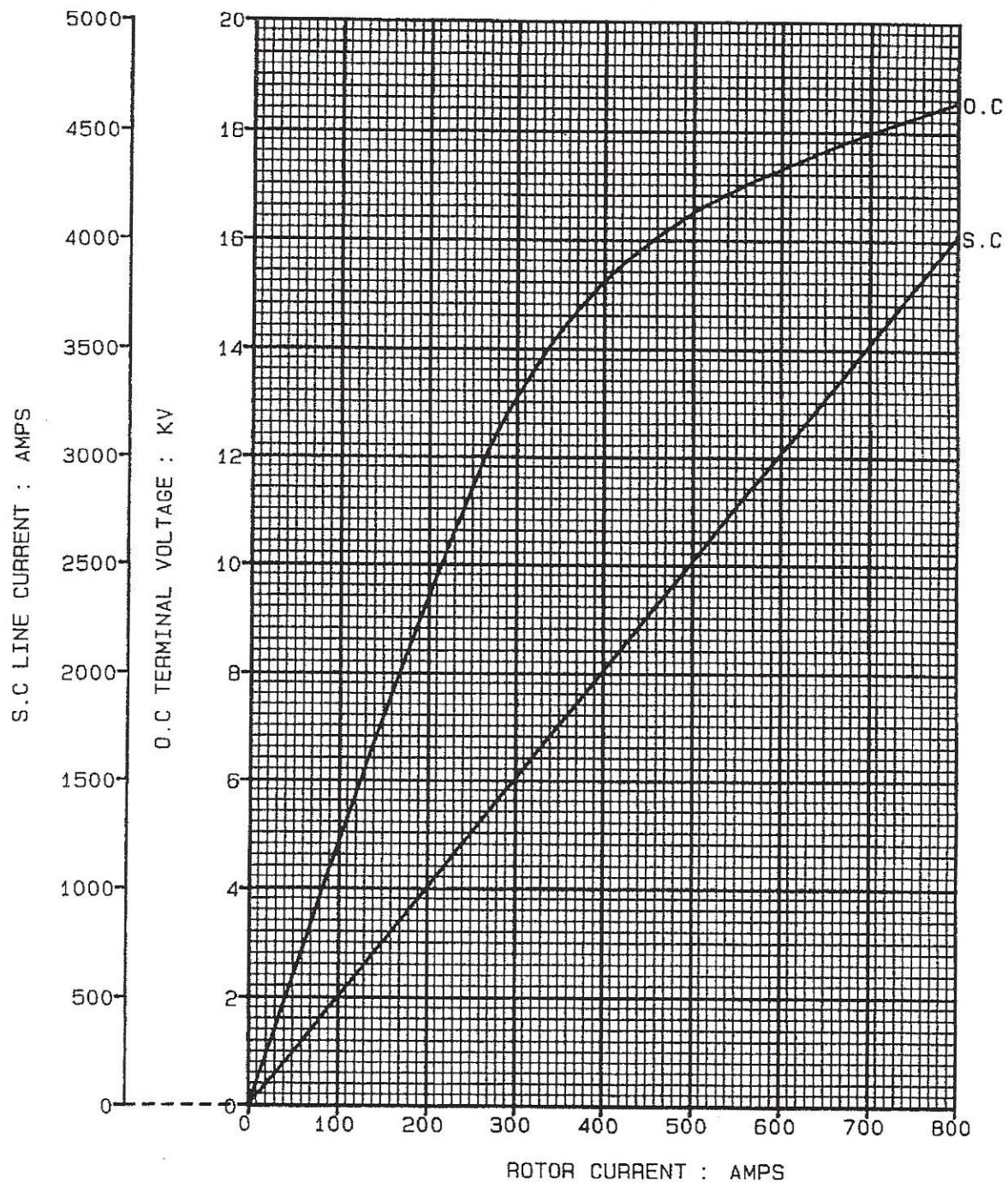
Class B temperatures.

Curves show base outputs.

Peak outputs are 8% higher.



OPEN CIRCUIT AND SHORT CIRCUIT CHARACTERISTIC

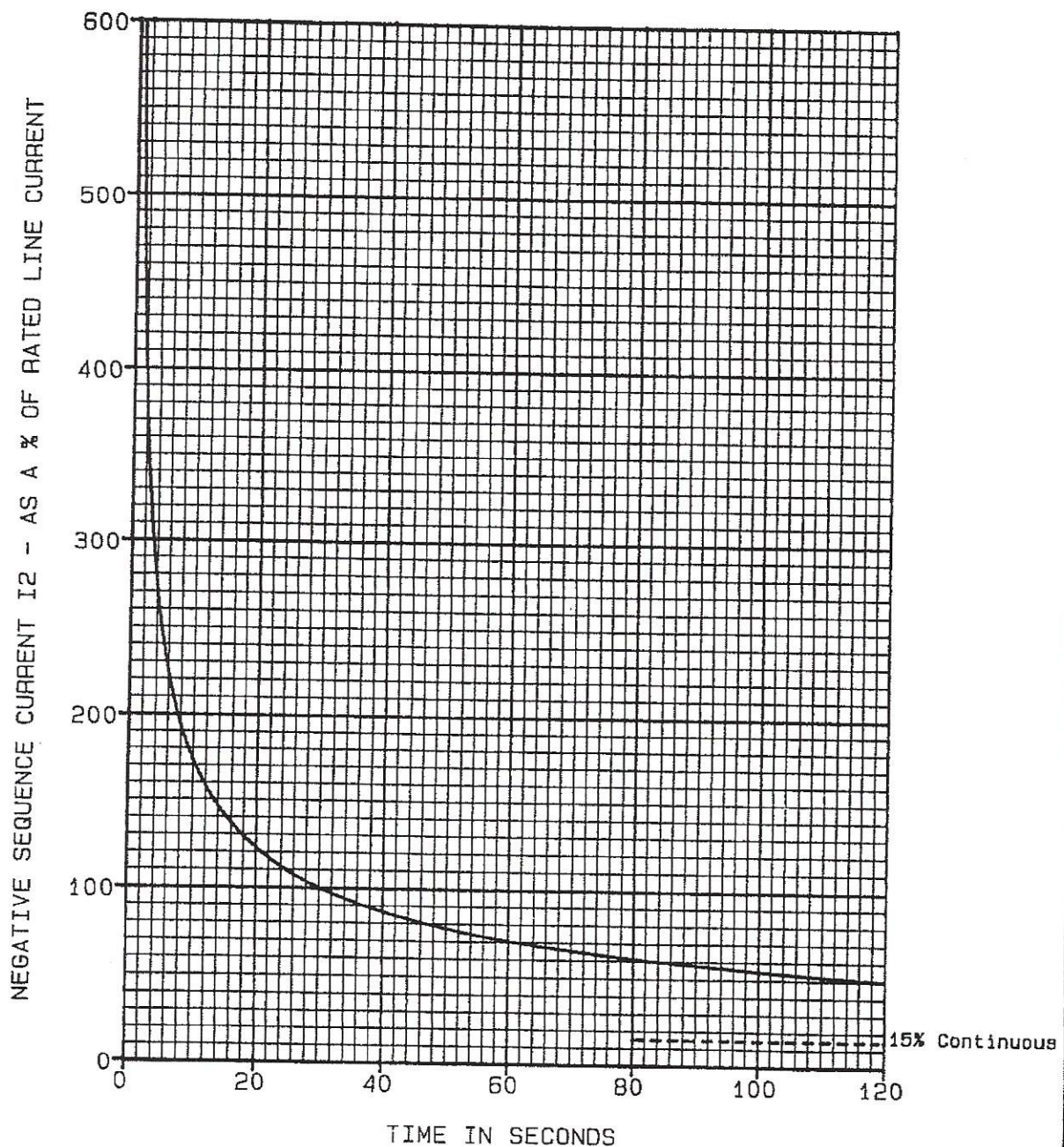


BDAX 7-340R  
3Ph. 60.Hz. 3600. RPM.



PERMISSIBLE DURATION OF NEGATIVE SEQUENCE CURRENT

$$\frac{I_2^2}{2} t = 30$$

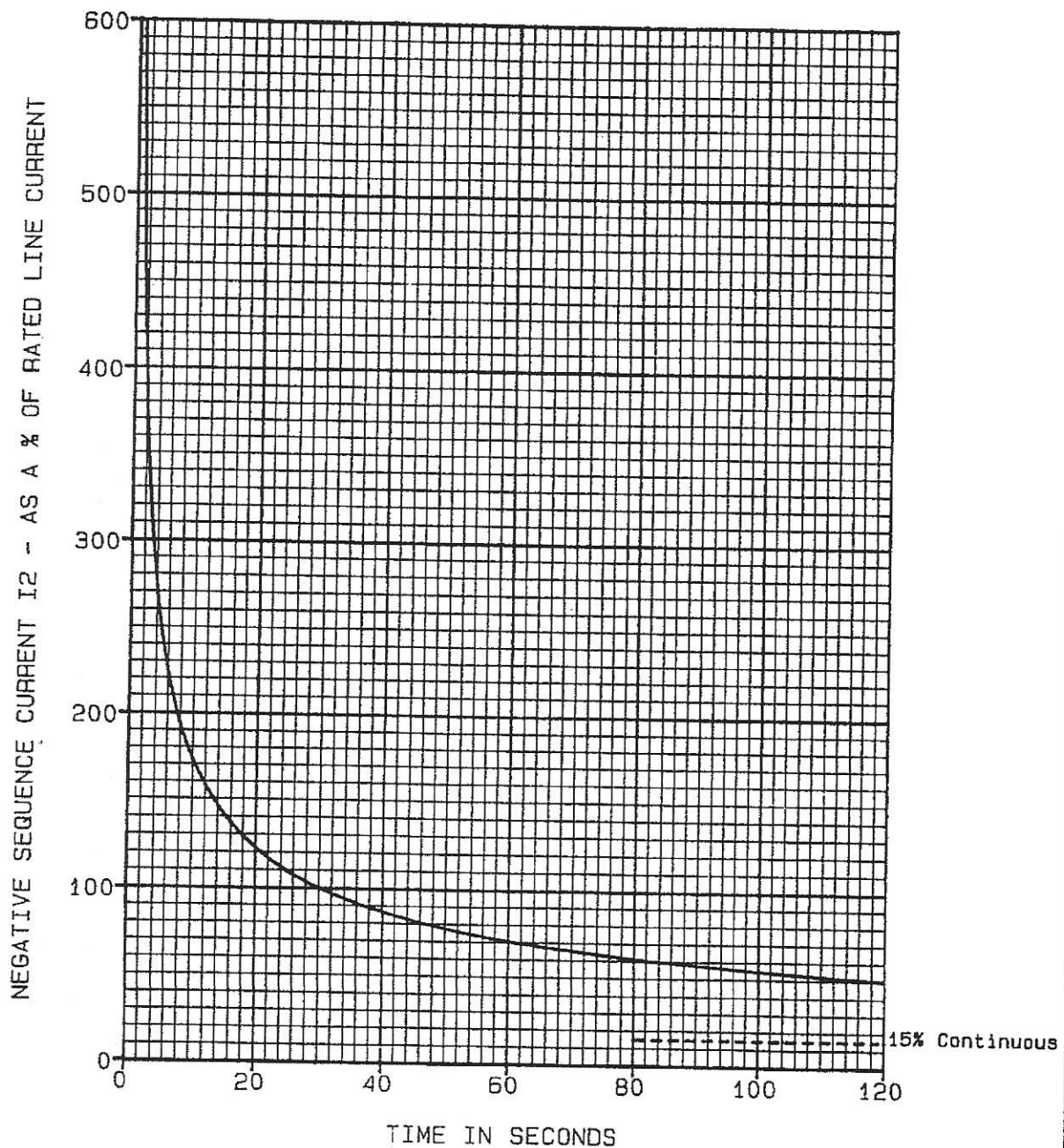


NOTE: For continuous operation  
rated current must not be  
exceeded in any one phase.



PERMISSIBLE DURATION OF NEGATIVE SEQUENCE CURRENT

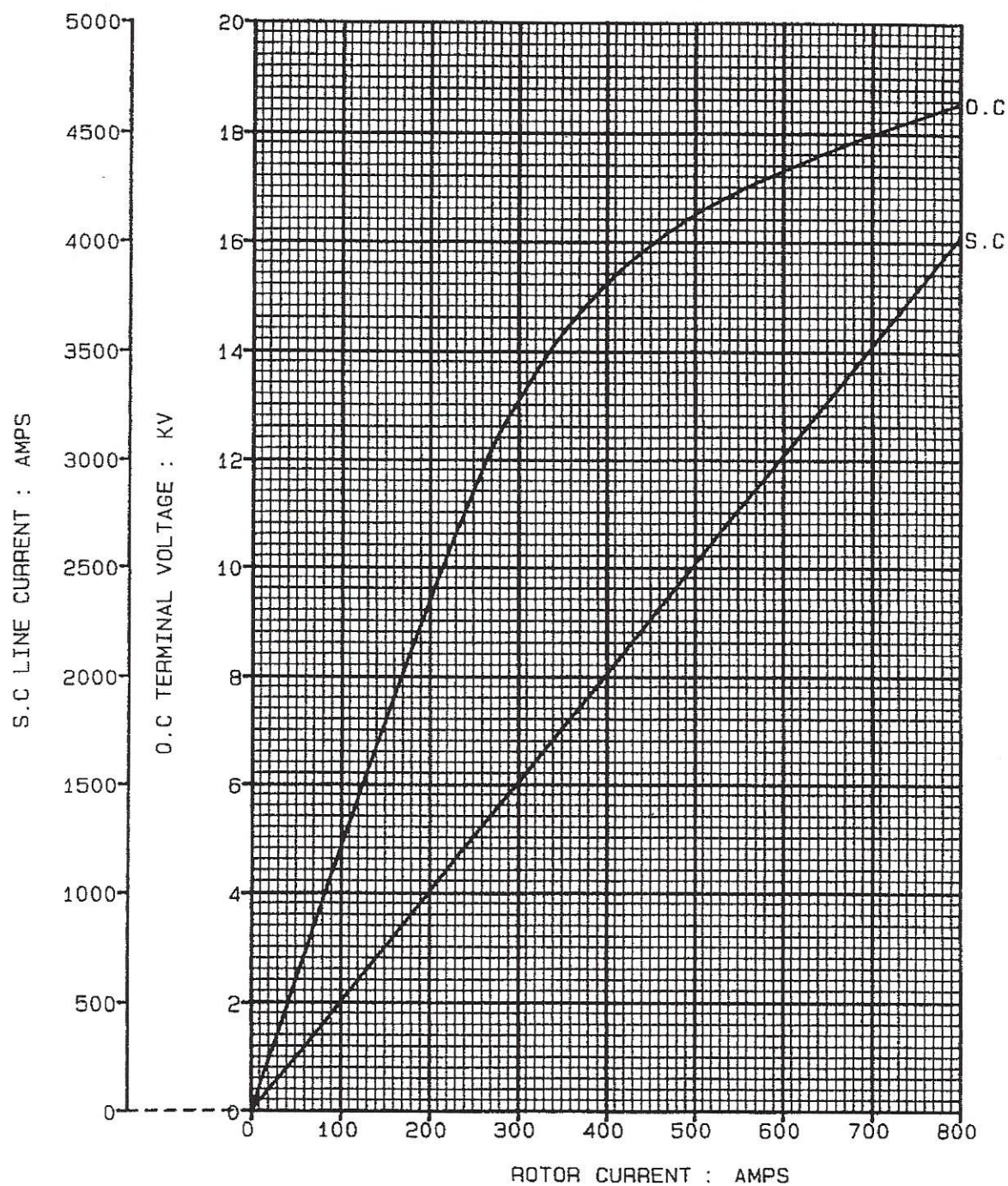
$$\frac{I_2^2}{2} t = 30$$



NOTE: For continuous operation  
rated current must not be  
exceeded in any one phase.



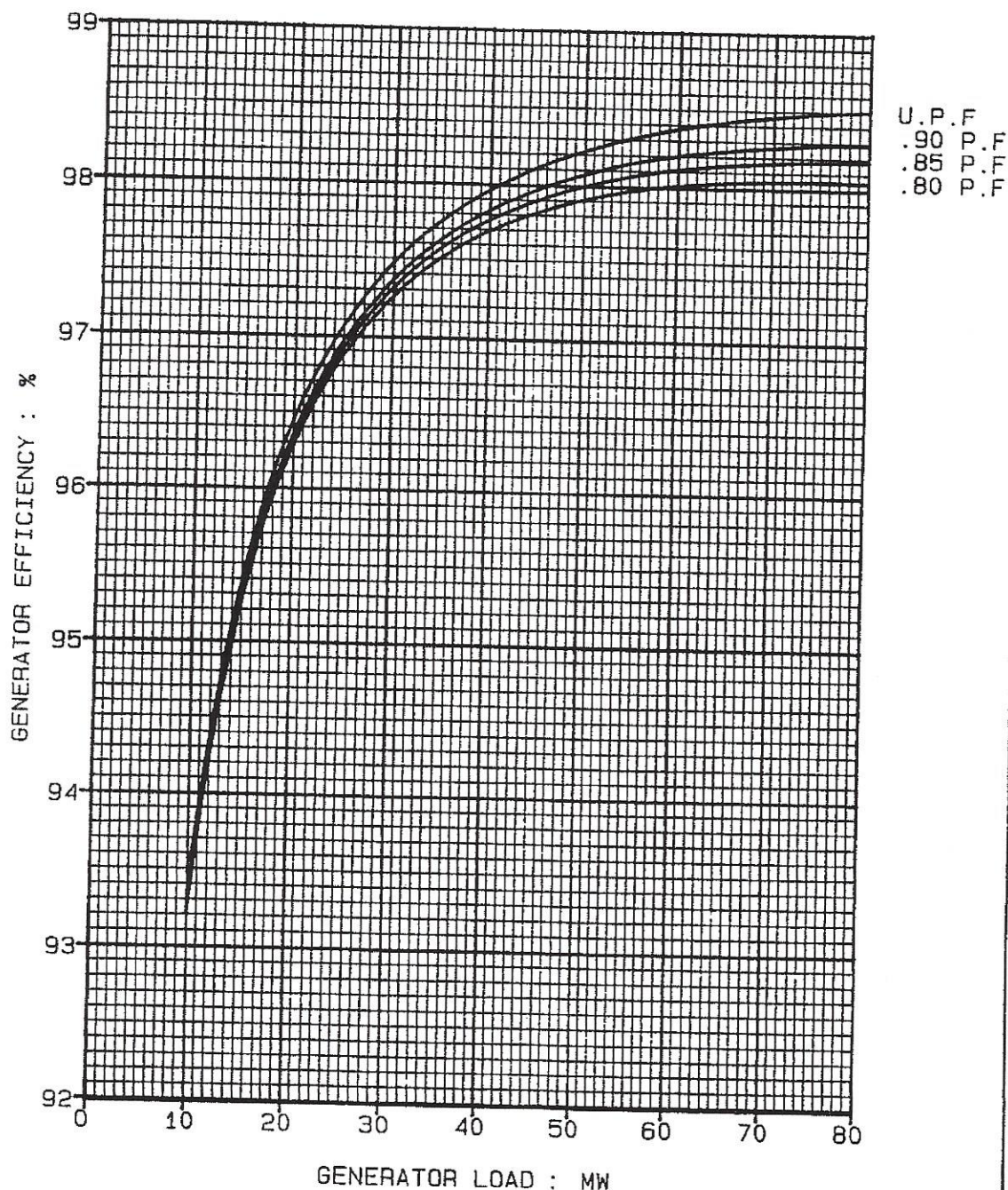
OPEN CIRCUIT AND SHORT CIRCUIT CHARACTERISTIC



BDAX 7-340R  
3Ph, 60.Hz, 3600. RPM.



VARIATION OF GENERATOR EFFICIENCY WITH LOAD

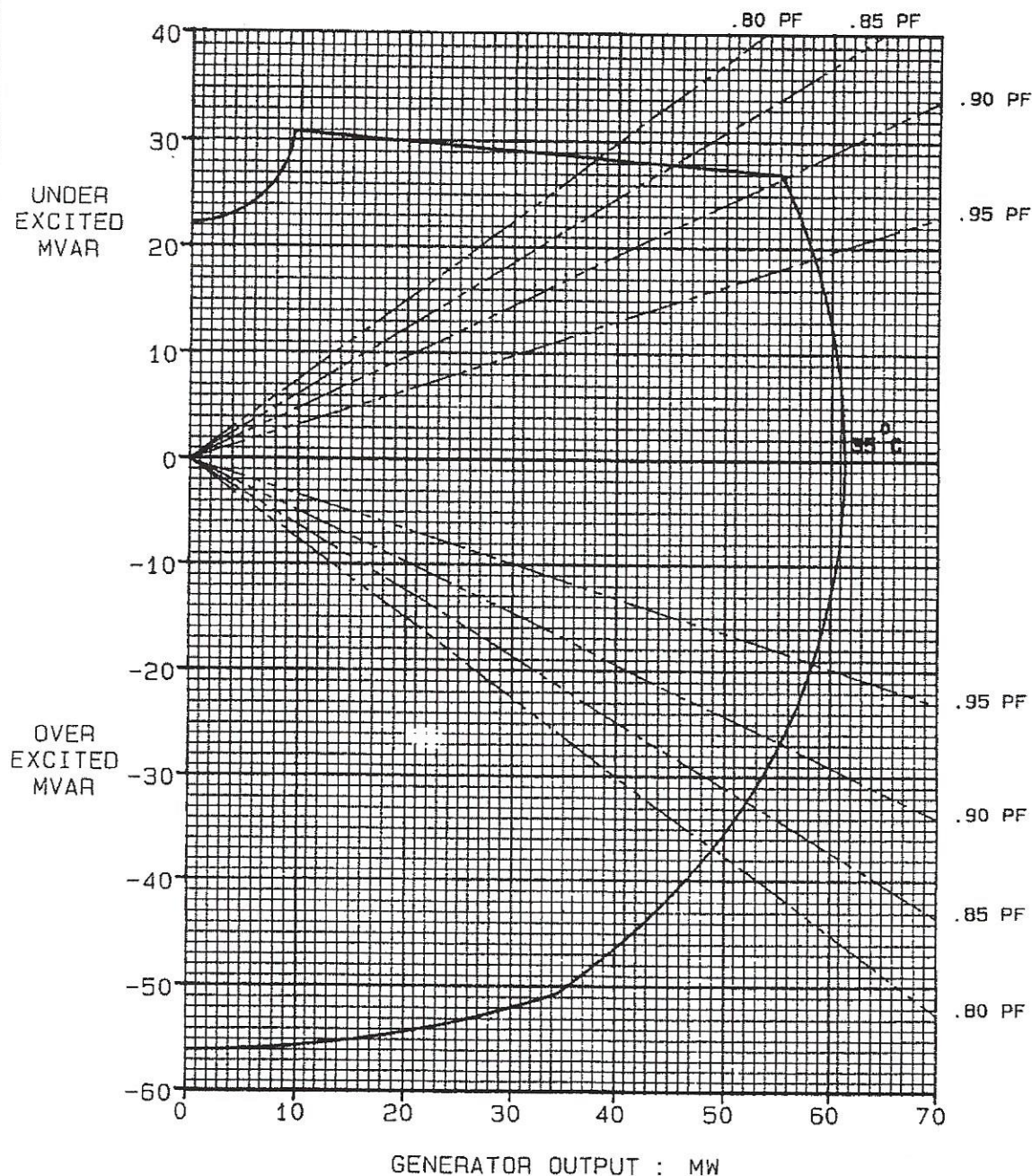


BDAX 7.340R  
13.80KV, 3Ph, 60.Hz.

Efficiencies shown are calculated  
and subject to tolerance as  
I.E.C 34.1  
Minimum efficiencies are  
0.1(100-calculated efficiency)%  
lower.



# GENERATOR CAPABILITY DIAGRAM



BDAX 7.340R  
13.80KV, 3Ph, 60.Hz.

Up to 1000. meters ASL

Coolant: Fresh Water

IN ACCORDANCE WITH  
ANSI C50.14.  
Class B temperatures.  
Curves show base outputs.  
Peak outputs are 8% higher.

Coolant inlet temperatures are as shown on the diagram