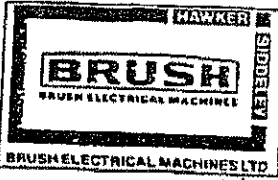


15 JAN 1993



GENERATOR AND AVR GENERAL DATA

SECTION QC. 48
SUB SECT. 01
PAGE 1 of 1

Issued
Reissued
Jan 88

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

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/L Hot | 2.5 PU s/c |
| Exciter Field Current | 2A | 5A | 8.8 A |

Exciter Field Resistance 5.34 Ω Cold 7.44 Ω 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-9TD.M

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

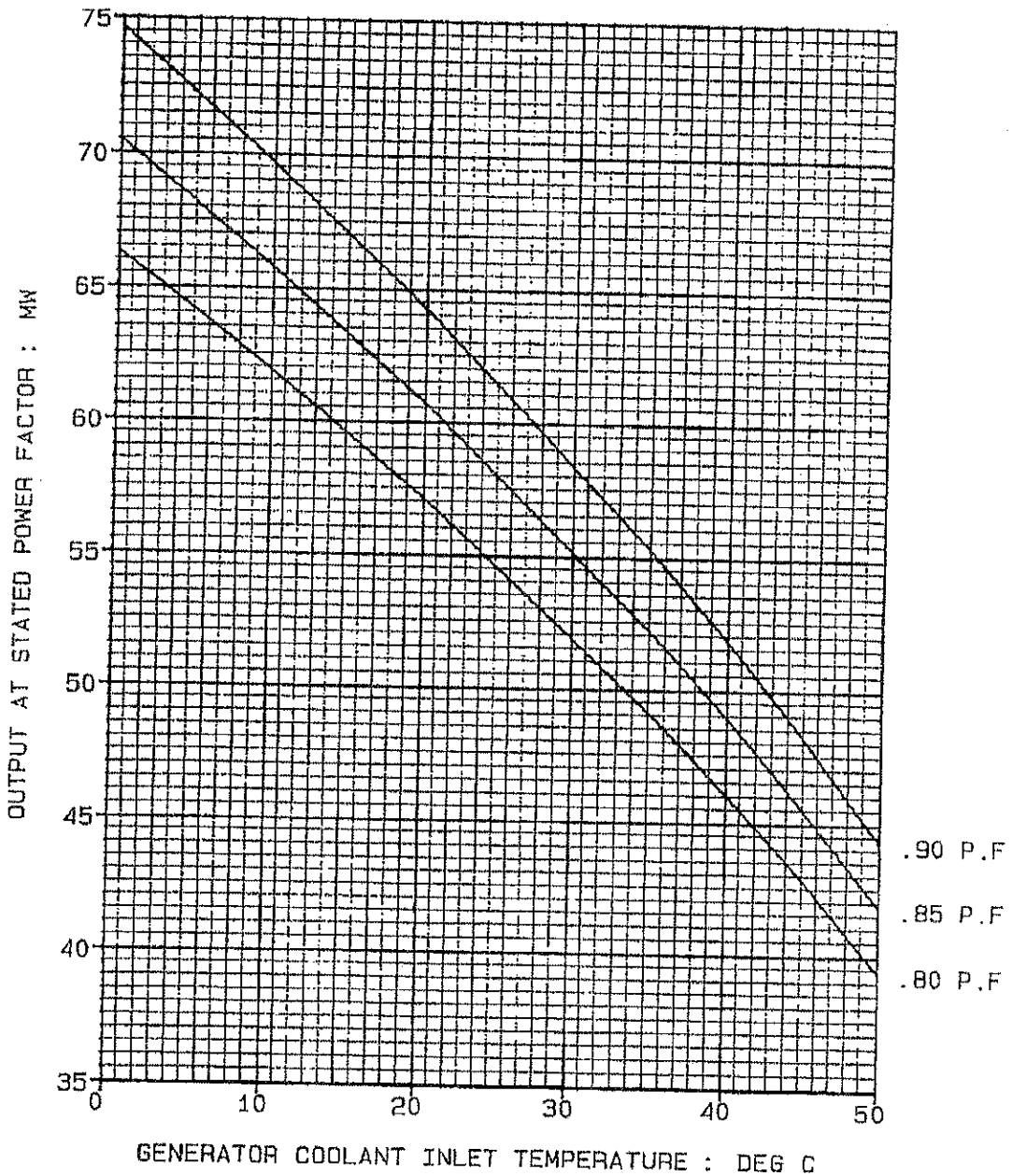
For oil pressure settings see oil system schematic drawing in Appendix B.

* If vibration is measured in terms of amplitude:
 Zero to peak amplitude (µm) = $\frac{\text{peak velocity (mm/sec)} \times 9550}{\text{R.P.M.}}$

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) |
| Water-side Connections | Carbon Steel (epoxy coated) |

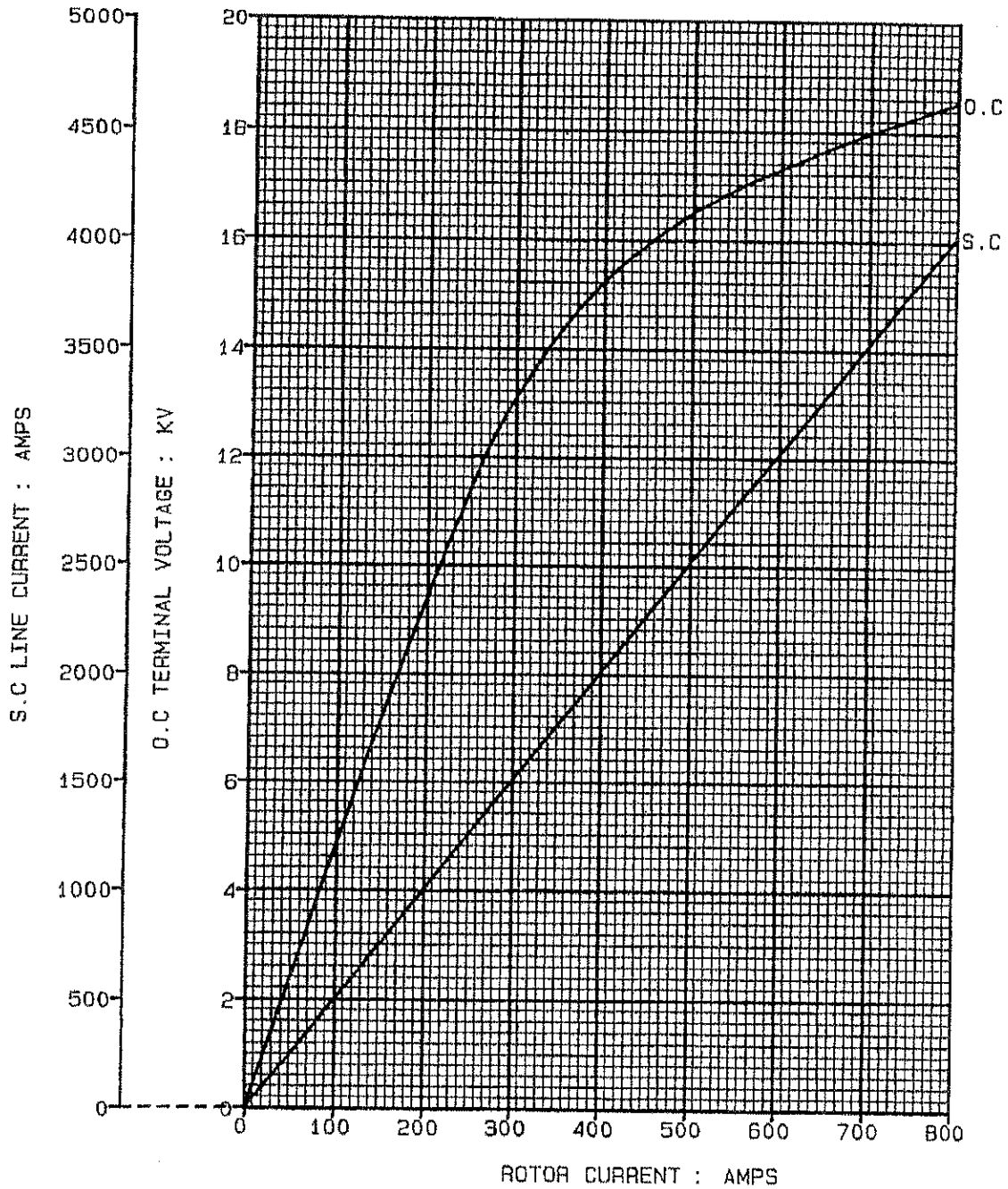
VARIATION OF GENERATOR OUTPUT WITH COOLANT TEMP



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.

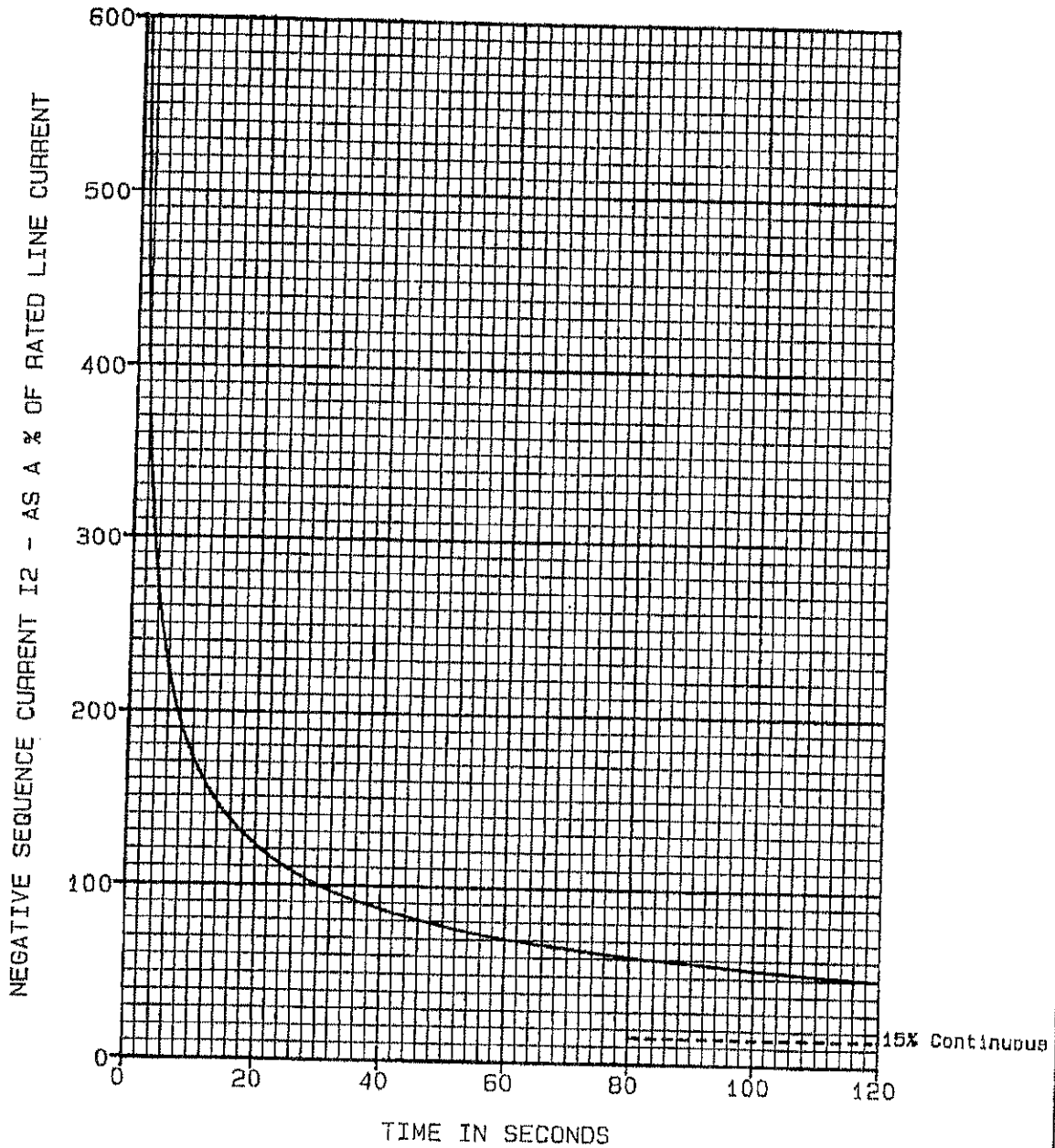
OPEN CIRCUIT AND SHORT CIRCUIT CHARACTERISTIC



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

PERMISSIBLE DURATION OF NEGATIVE SEQUENCE CURRENT

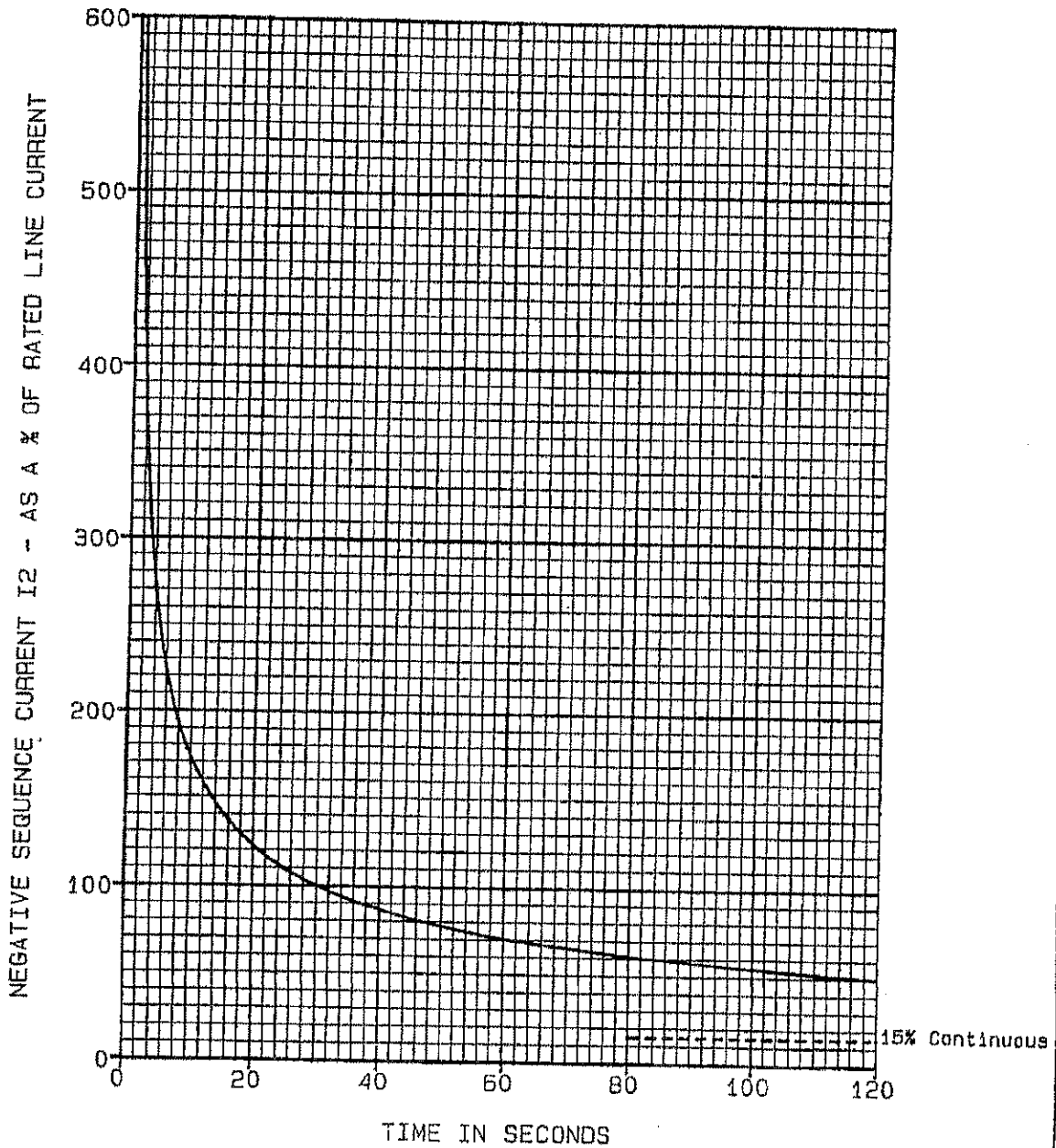
$$\frac{I_2^2}{I^2} t = 30$$



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

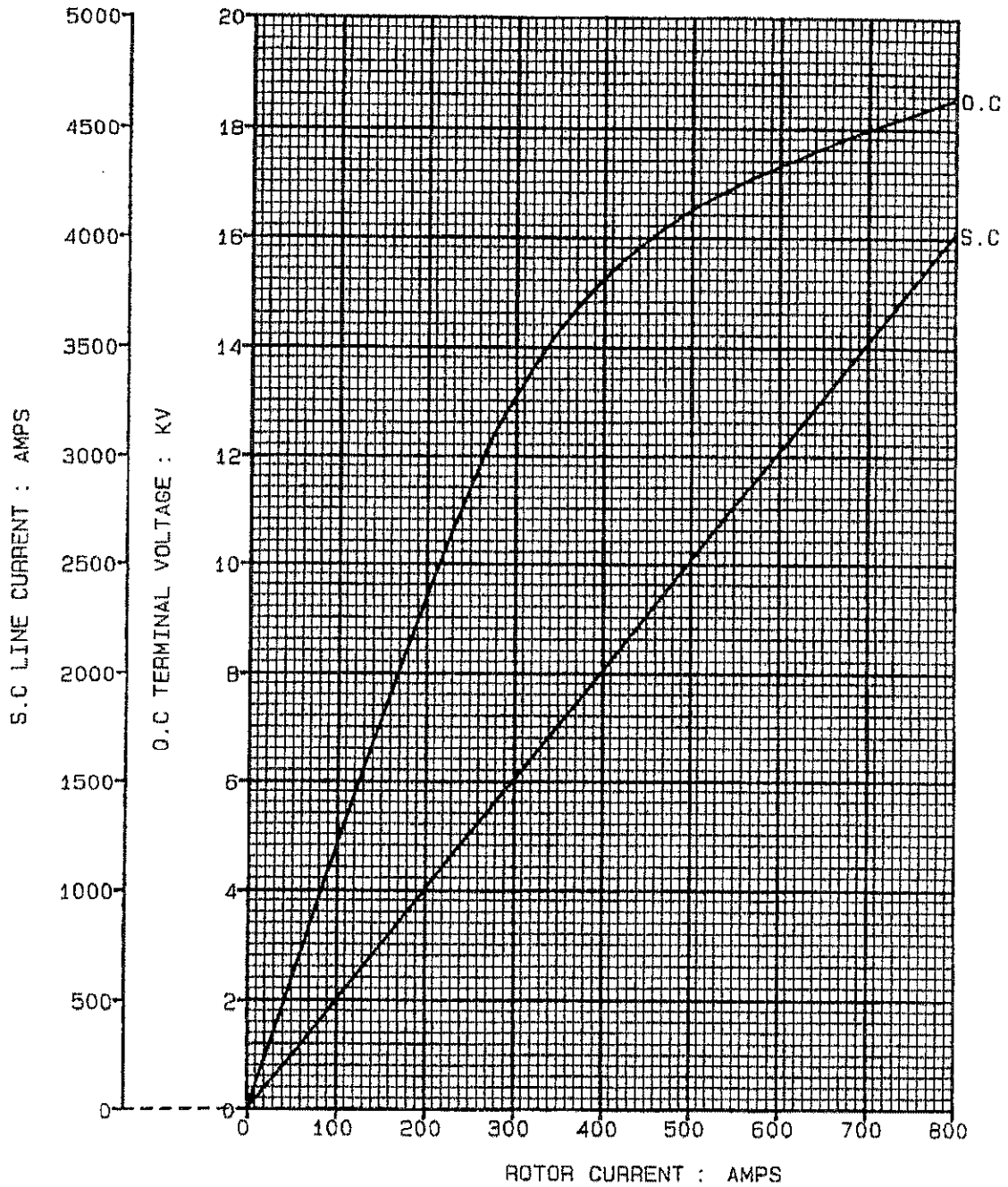
PERMISSIBLE DURATION OF NEGATIVE SEQUENCE CURRENT

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



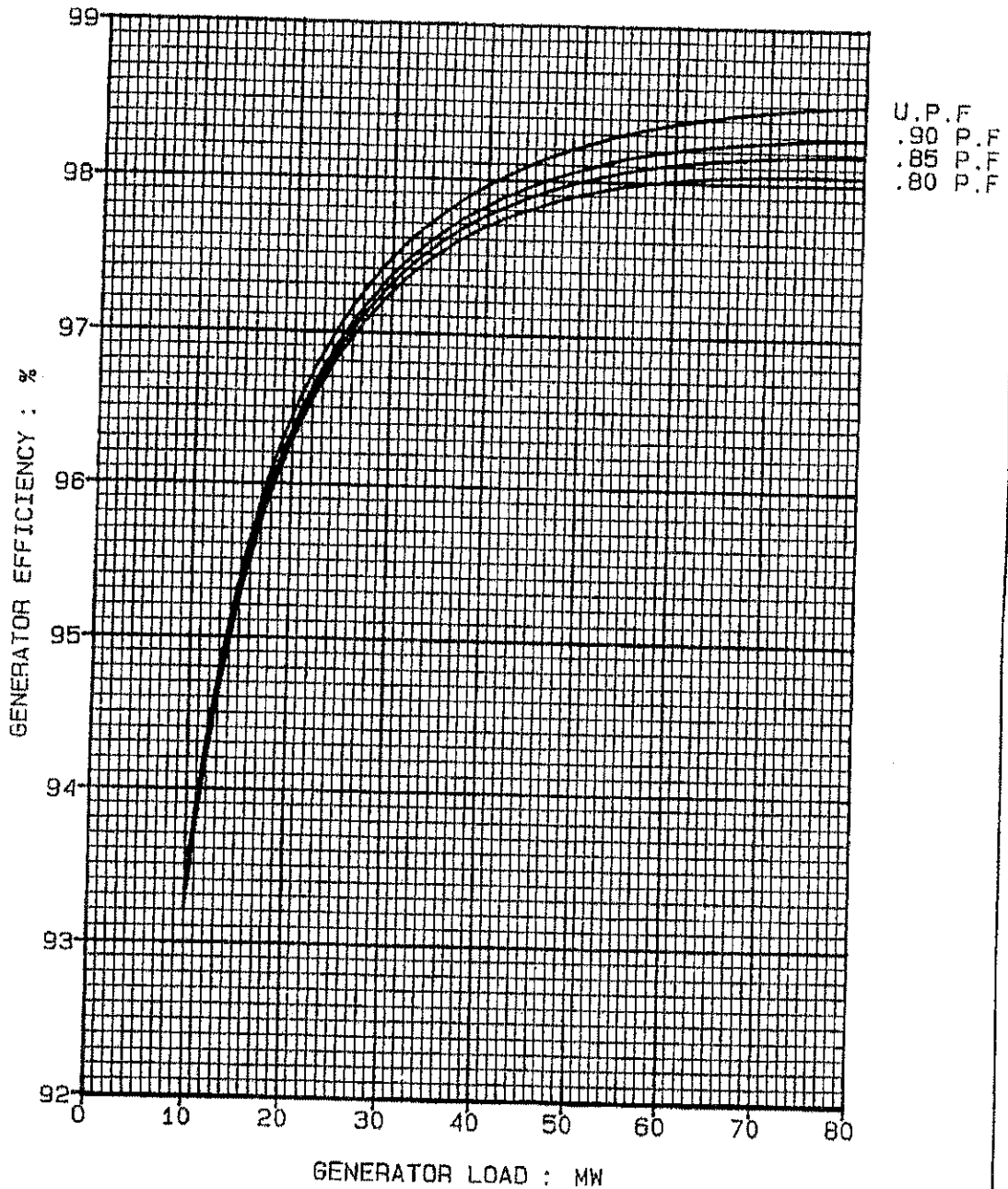
NOTE: For continuous operation
rated current must not be
exceeded in any one phase.

OPEN CIRCUIT AND SHORT CIRCUIT CHARACTERISTIC



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

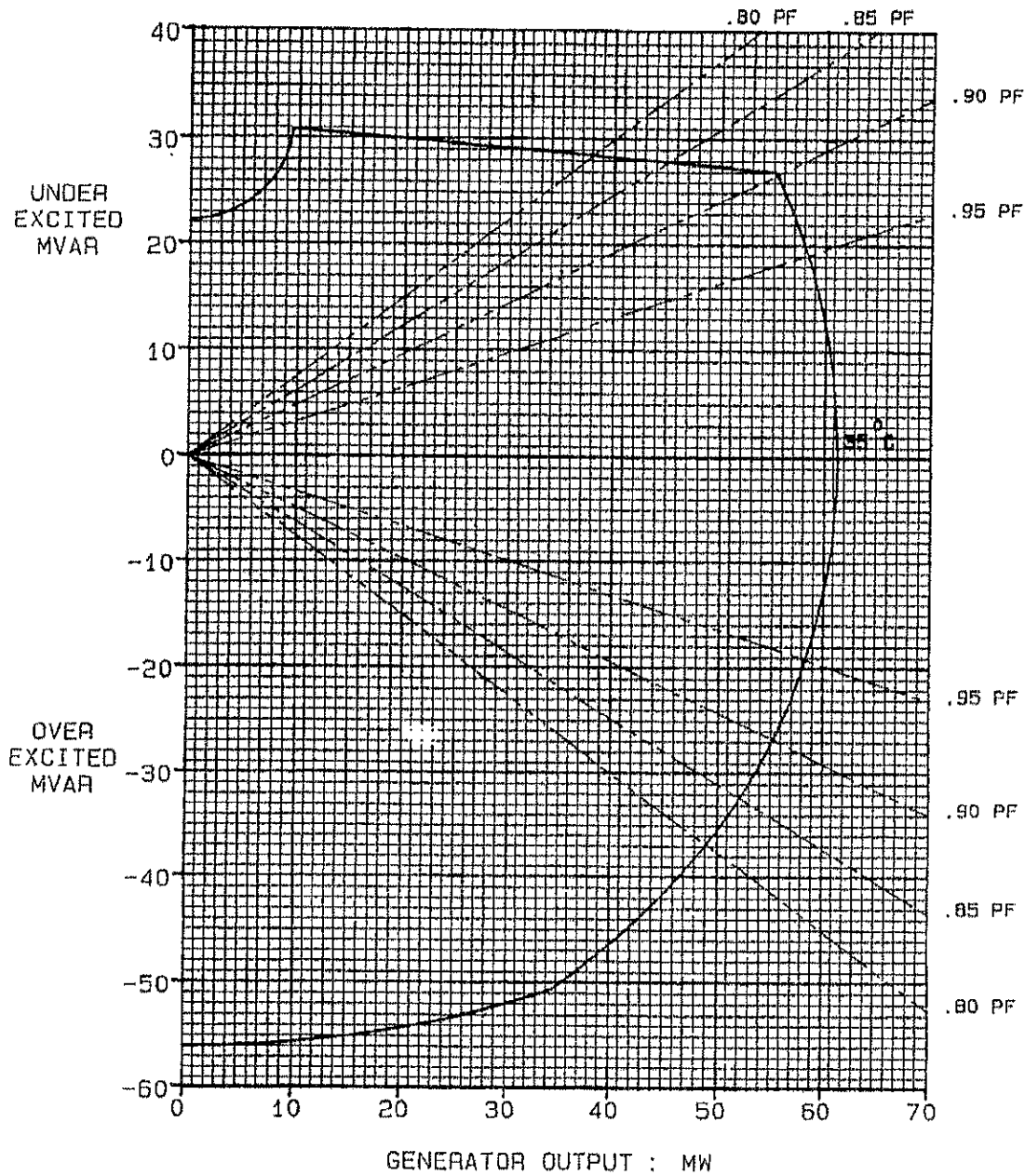
VARIATION OF GENERATOR EFFICIENCY WITH LOAD



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