Test Number : [redacted]

Brushless DC Motor Test Report

Date : 08/09/05

Frame : ST-37	**HP/kW:** 6	**Enclosure :** TENV		**Model Number :**	style 3D 51056G02
Bus Volts : 144	**rms I :** 32	**Rotor Type :**	PM	**Winding Spec:**	
Insulation : F	**Amb:** 40	**Magnet Type:**	NEO	**Serial Number:**	
CTSR :	**RPM :** 1000	**Rotor Flux:**		**Key Code**	
Blower Size : N/A	**SF:** 1	**VRMS input to drive:**		**Drive Mfgr. & Model # :**	[redacted]
Winding Connection :	**Filter :**	**Filter % taped off :**		**Tester :**	E.L. & T.M.

Test Instrument :							
Serial #							
Remarks		Torque lb. in.	Speed in rpm	V BUS	I rms to mtr	KW into mtr	HP OUT
LB-FT							
4.2 lb-ft	a:	53	1000	147			0.841
8.875	b:	106.5	987	147	9		1.668
12.417	c:	149	977	147	12		2.31
17.958	d:	215.5	961	146	15		3.286
22.083	e:	265	948	146	17		3.986
25.958		311.5	935	145	21		4.621
29.083		349	925	144	23		5.122
33.667		404	910	143	26		5.83
38.042		456.5	916	145	29		6.635
42.583		511	901	144	32		7.305
47.125		556.5	887	143	35		7.83

Heat Run Data

Thermocouple Location	pos	Temp	Temp	Temp	Temp	Temp	
Time Intervals		a:	b:	c:	d:	e:	
Ambient							
Drive end top							
Drive end middle							
Drive end bottom							
Opp drive end top							
Opp drive end middle							
Opp drive end bottom							
MPT Measured Motor Winding Temp.							
Top of frame							
Losses (Il)							
Losses (Ir)							
Bus Volts (Bv)							
Cold generated voltage @ 1000 rpm		114					
Hot Generated voltage @ 1000 rpm							
Cold Amb. resistance		R1 - R2	R2 - R3	R3 - R1	Amb.Temp		
		0.0957	0.095	0.0954	24		
Hot Amb. resistance		R1 - R2	R2 - R3	R3 - R1	Amb.Temp		

Breakaway torq 82.14 **LB.IN.**

rotating torq 15.54 **LB.IN.**

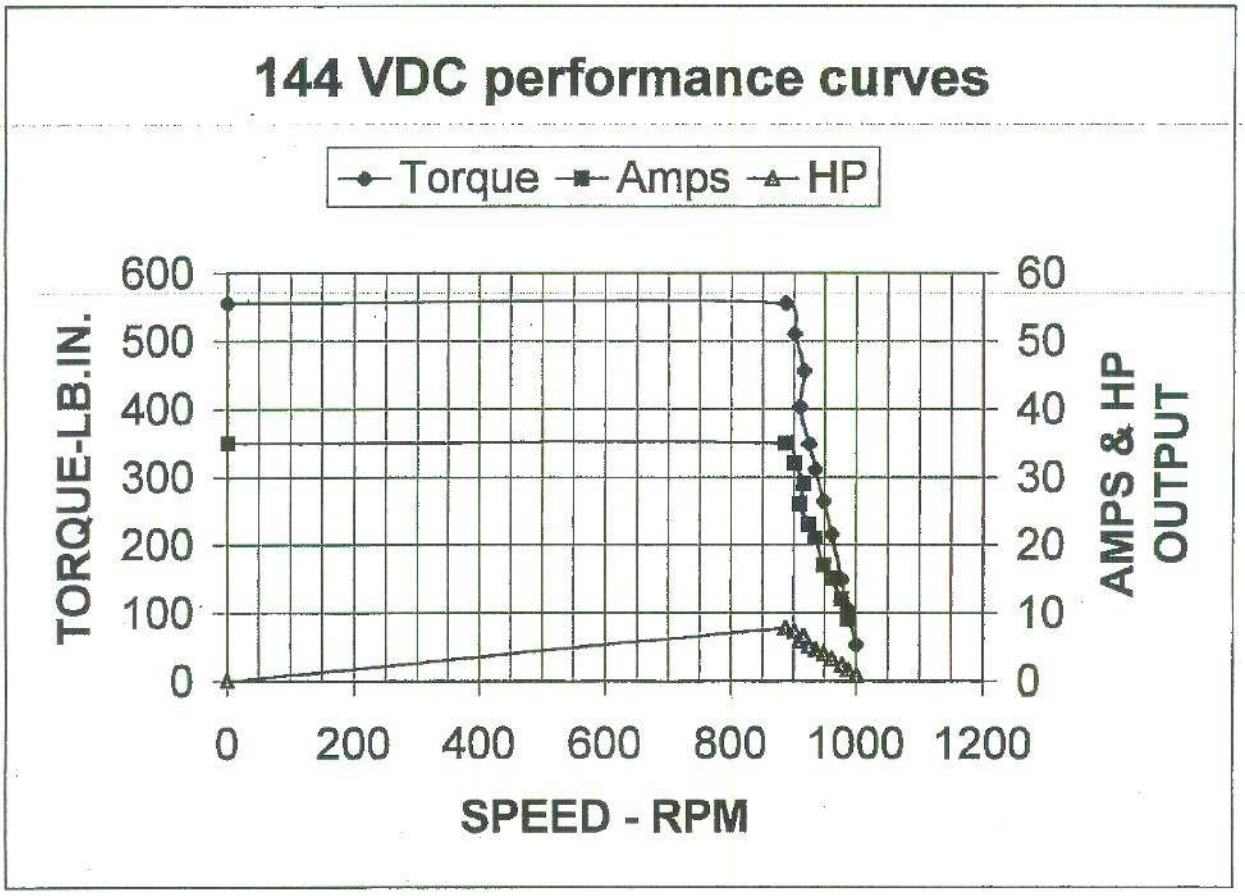
Inductances:

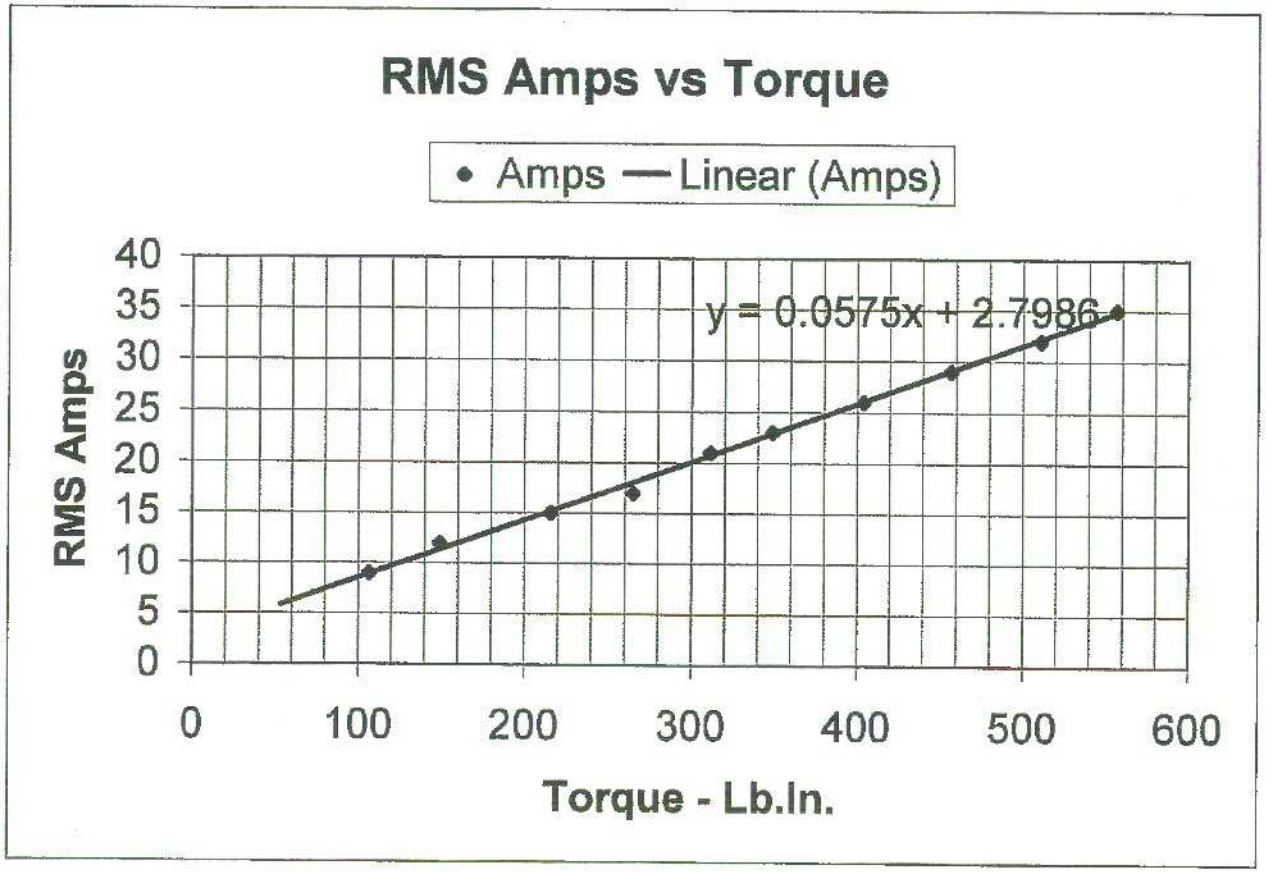
L1-2	.447 mH
L2-3	.504 mH
L3-1	.442 mH
L1-2&3	.319 mH

Solomon Technologies model ST-37 [redacted]

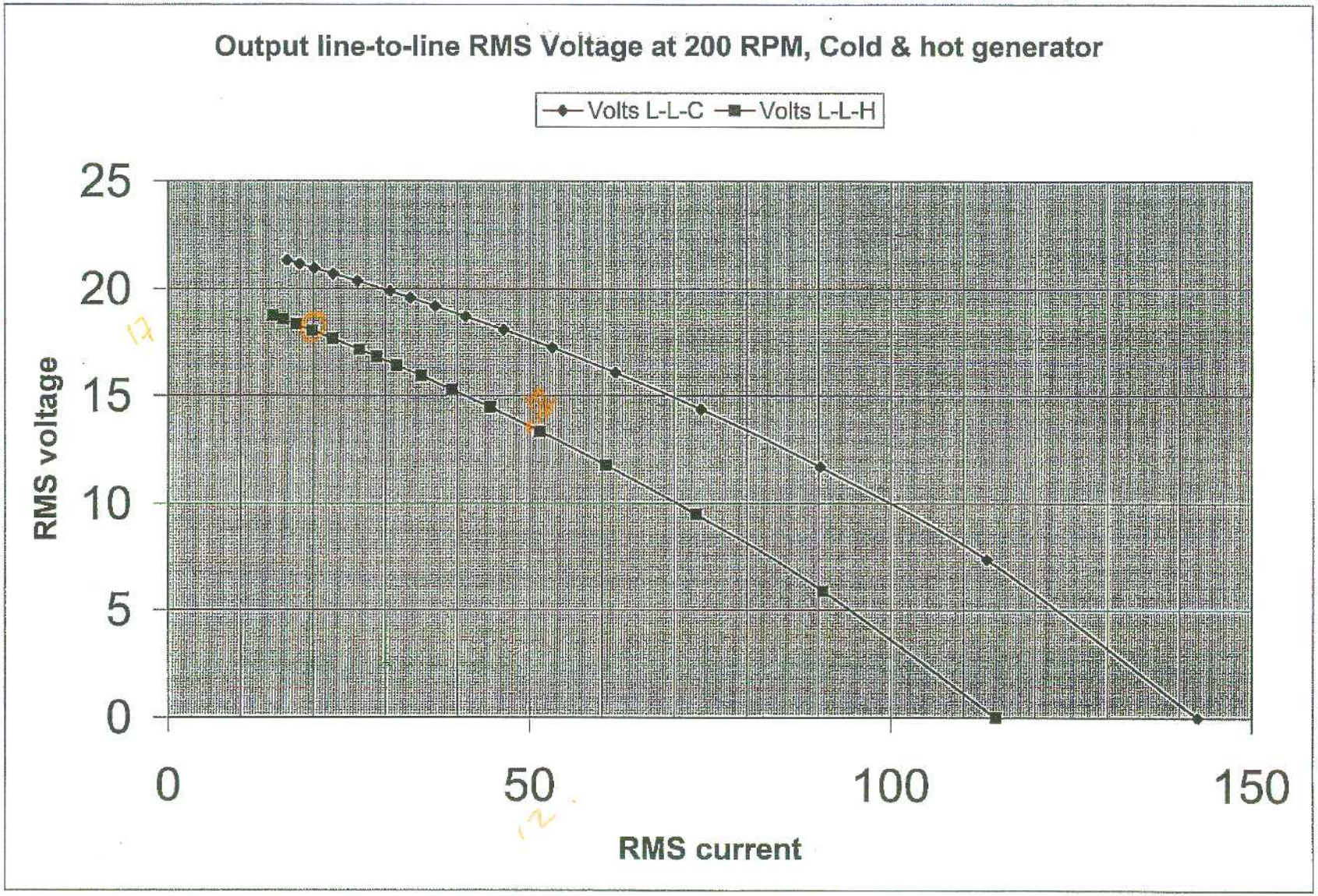
Tested 8/9/2005 [redacted]

Speed	Torque	Amps	HP
1000	53		0.841
987	106.5	9	1.668
977	149	12	2.31
961	215.5	15	3.286
948	265	17	3.986
935	311.5	21	4.621
925	349	23	5.122
910	404	26	5.83
916	456.5	29	6.635
901	511	32	7.305
887	556.5	35	7.83
0	556.5	35	0




RMS Amps vs Torque
• Amps — Linear (Amps)
y = 0.0575x + 2.7986
RMS Amps
40
35
30
25
20
15
10
5
0
0
100
200
300
400
500
600
Torque - Lb.In.

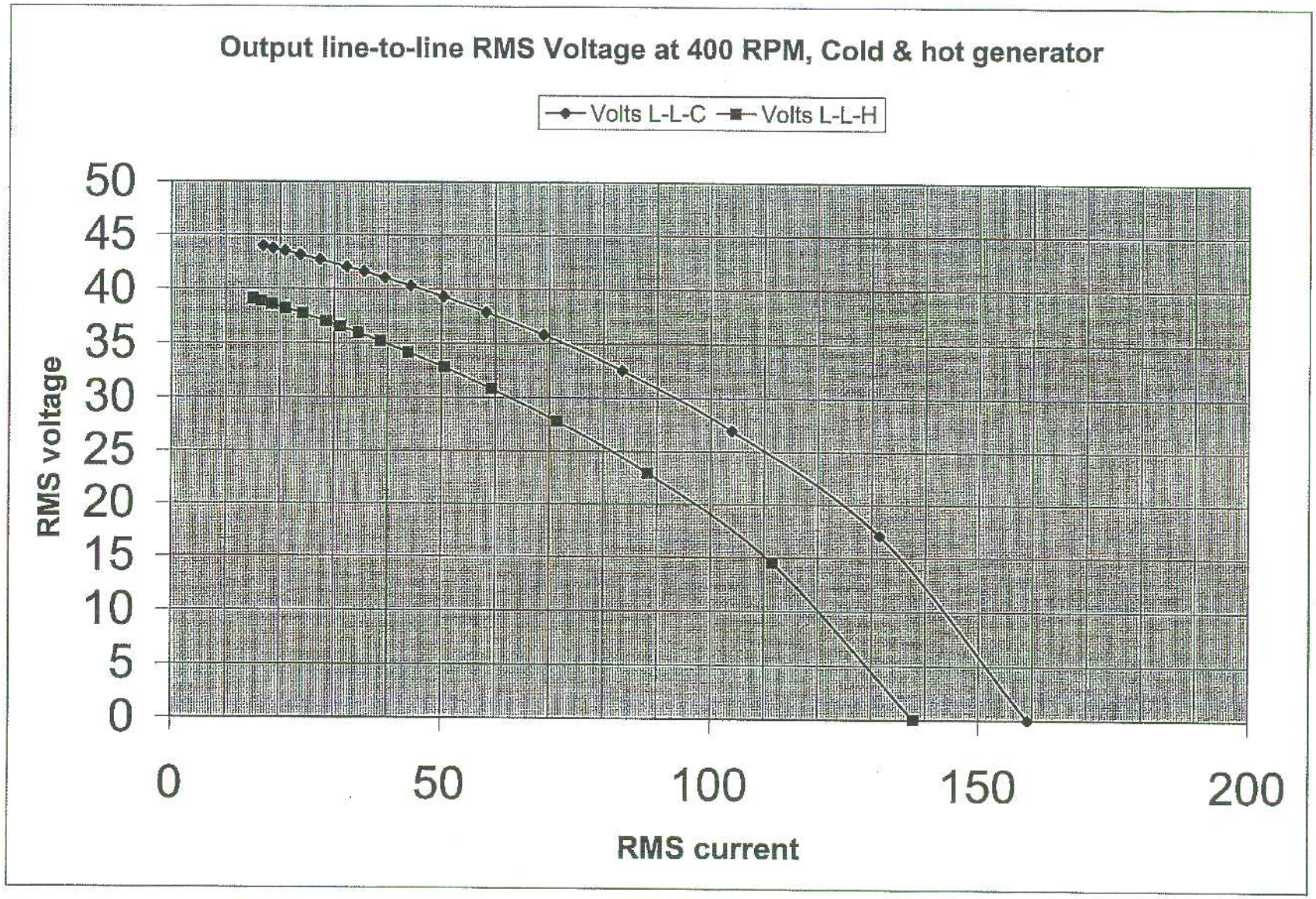
[redacted]



VOLTAGE Chart 1

8/17/2005

[redacted]



VOLTAGE Chart 1

8/17/2005

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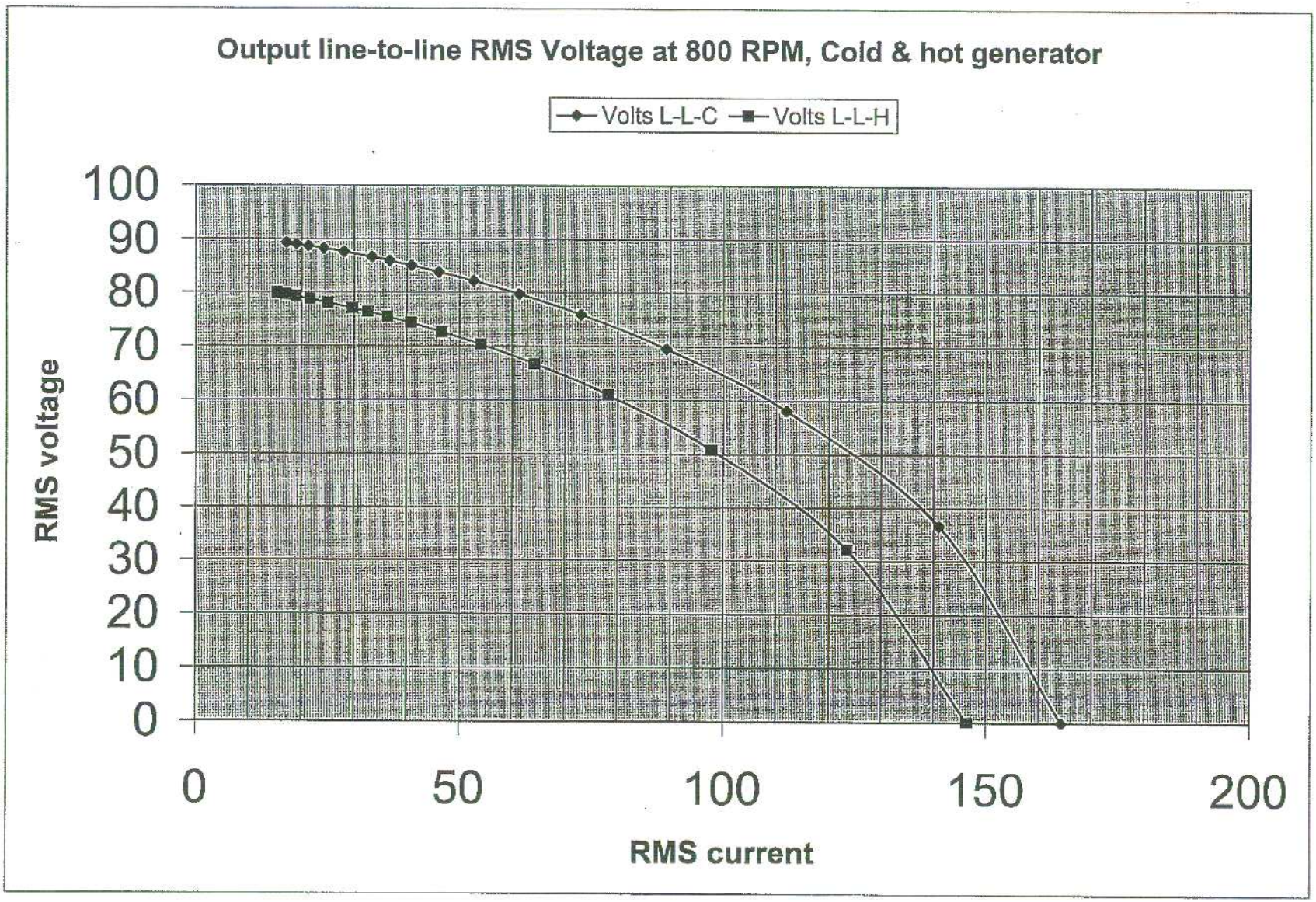

VOLTAGE Chart 1

8/17/2005

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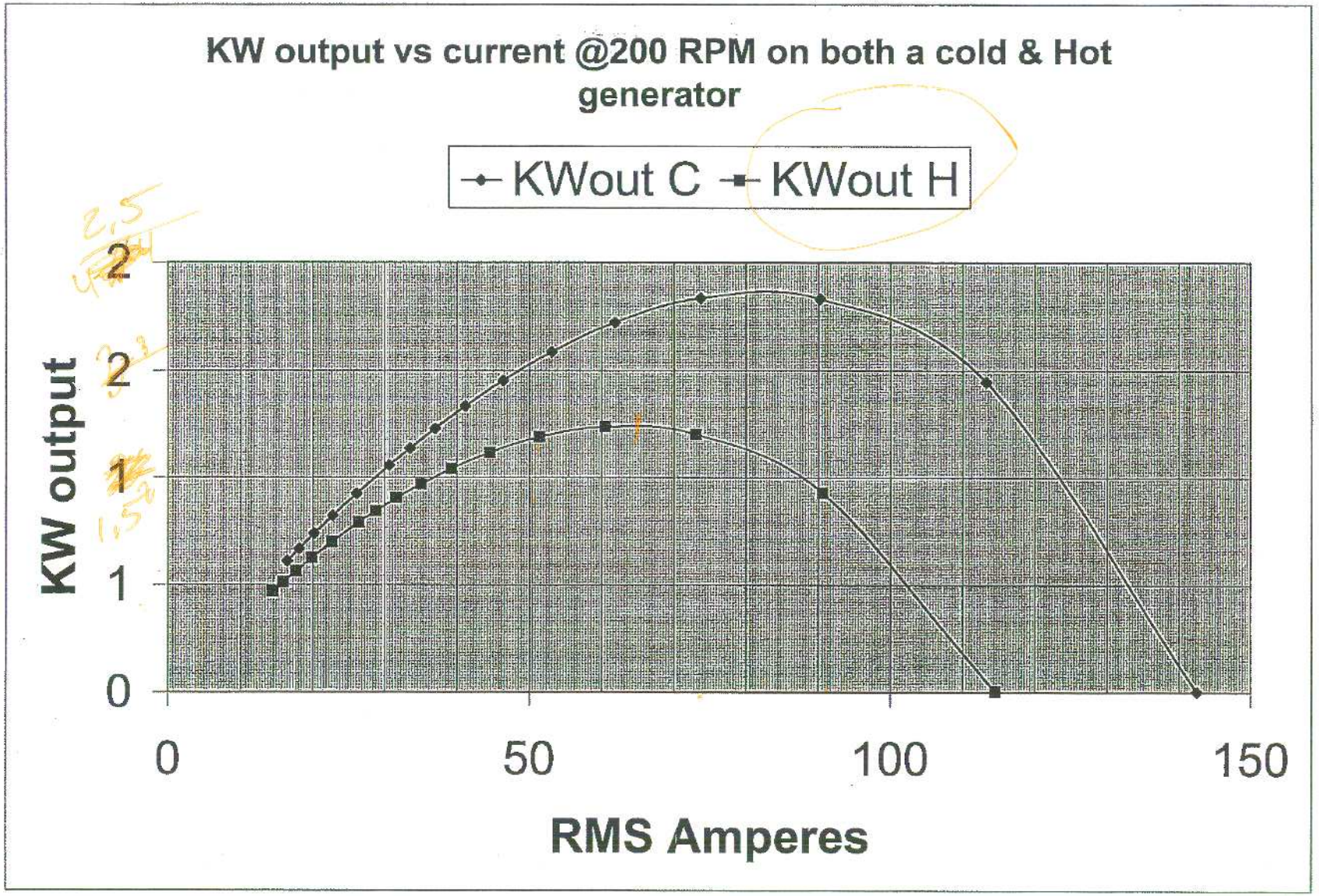


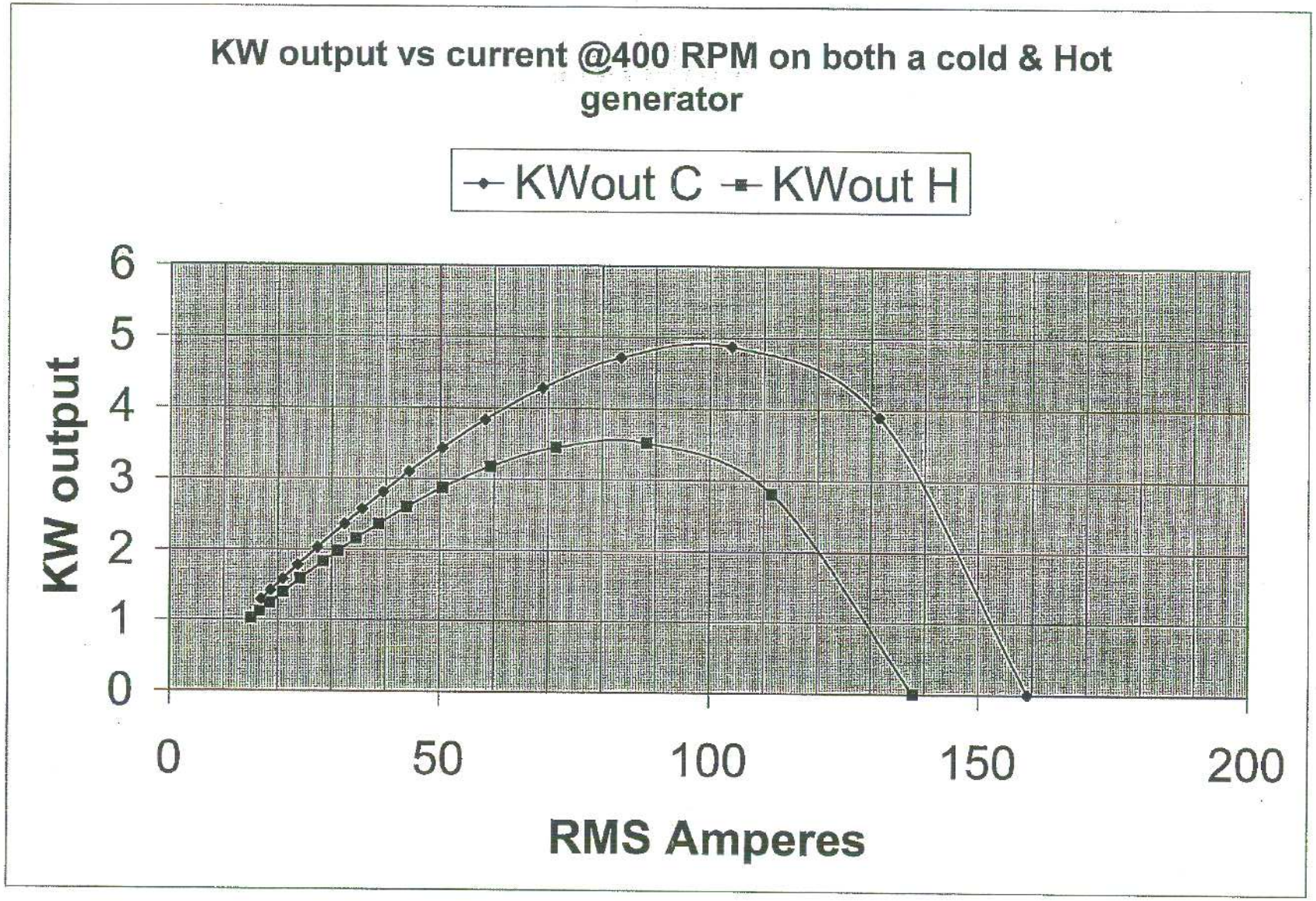
KW OUT Chart 1

8/17/2005

ST 37.

[redacted]

[redacted]

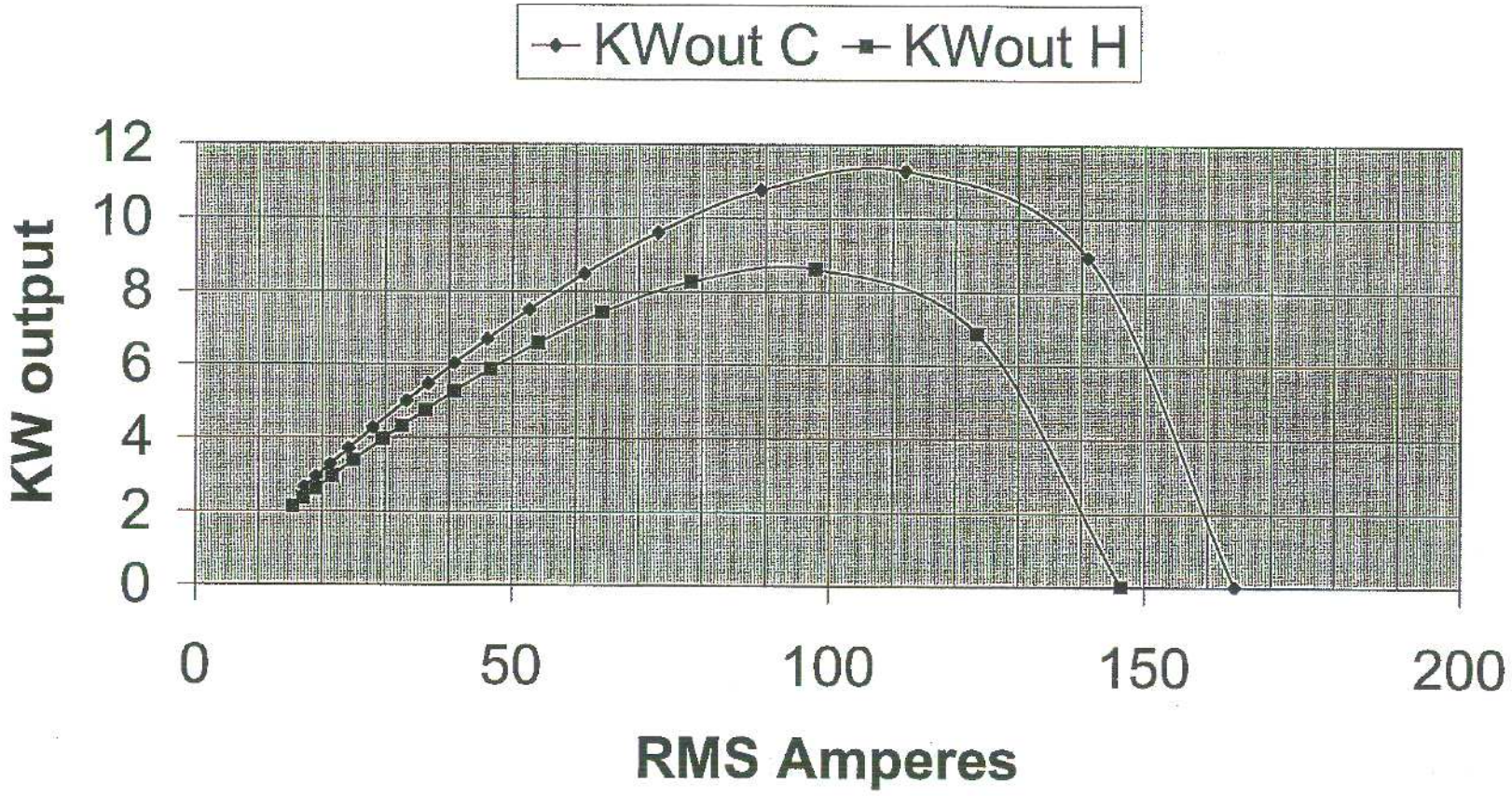


KW OUT Chart 1

8/17/2005

[redacted]

KW output vs current @800 RPM on both a cold & Hot generator



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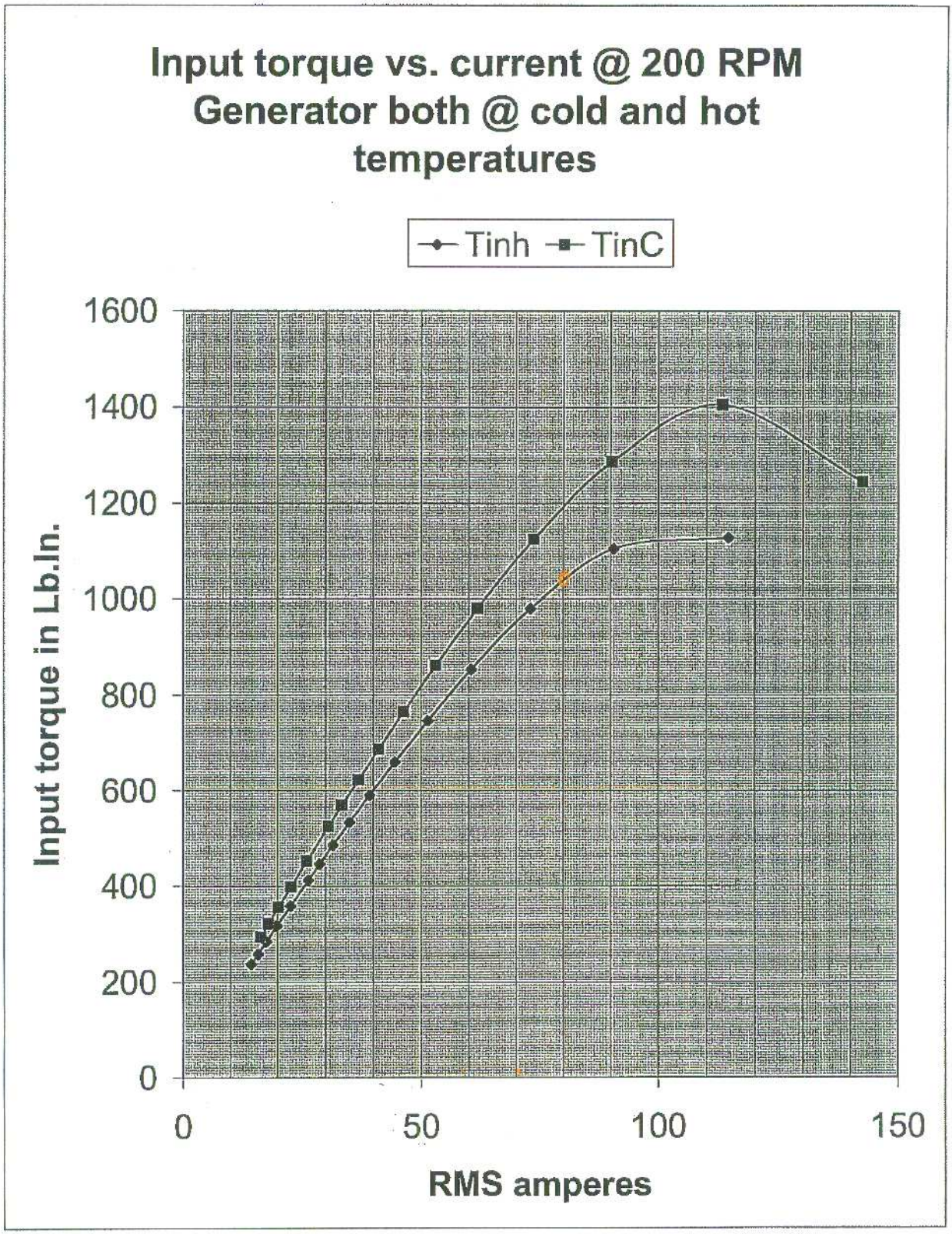
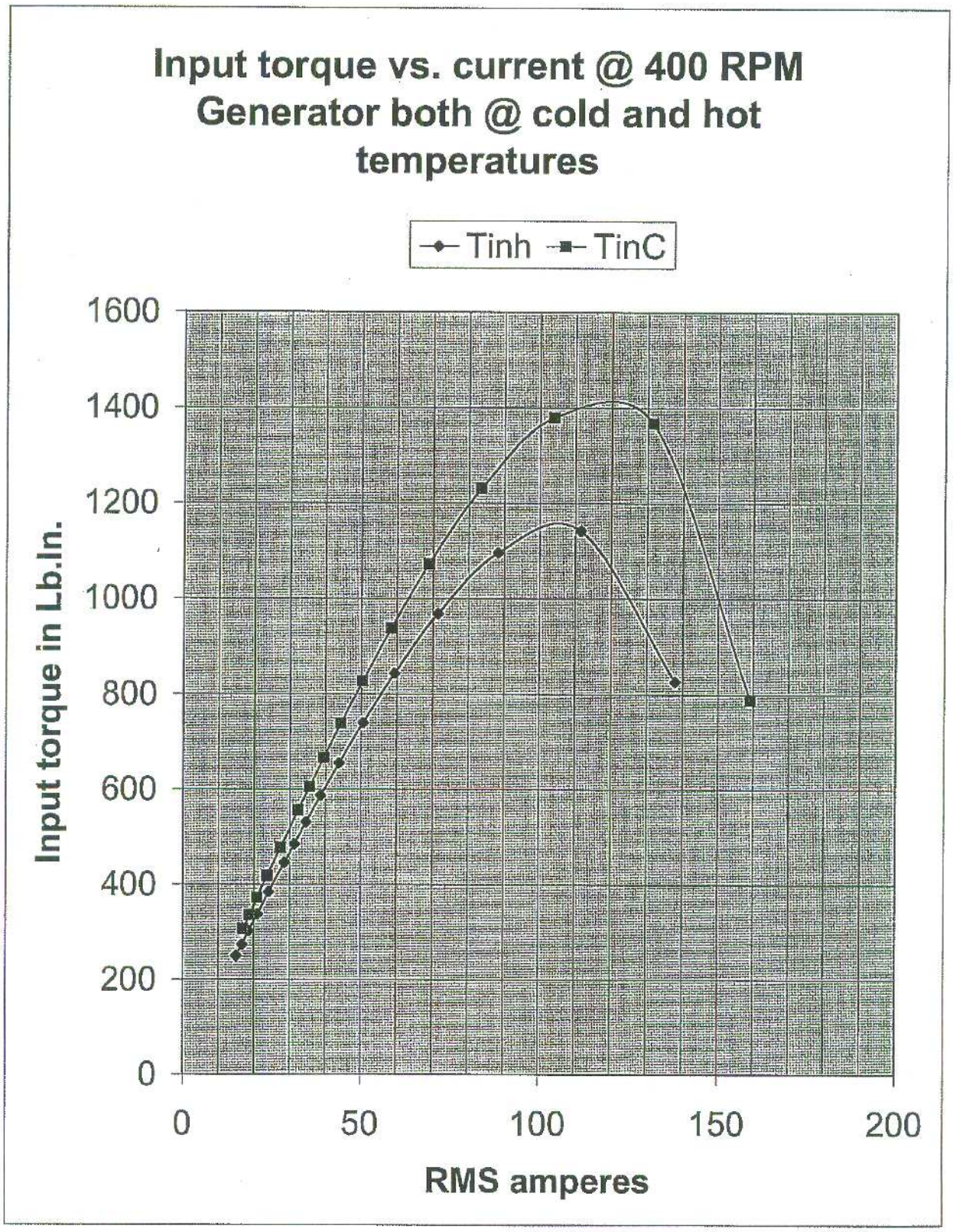
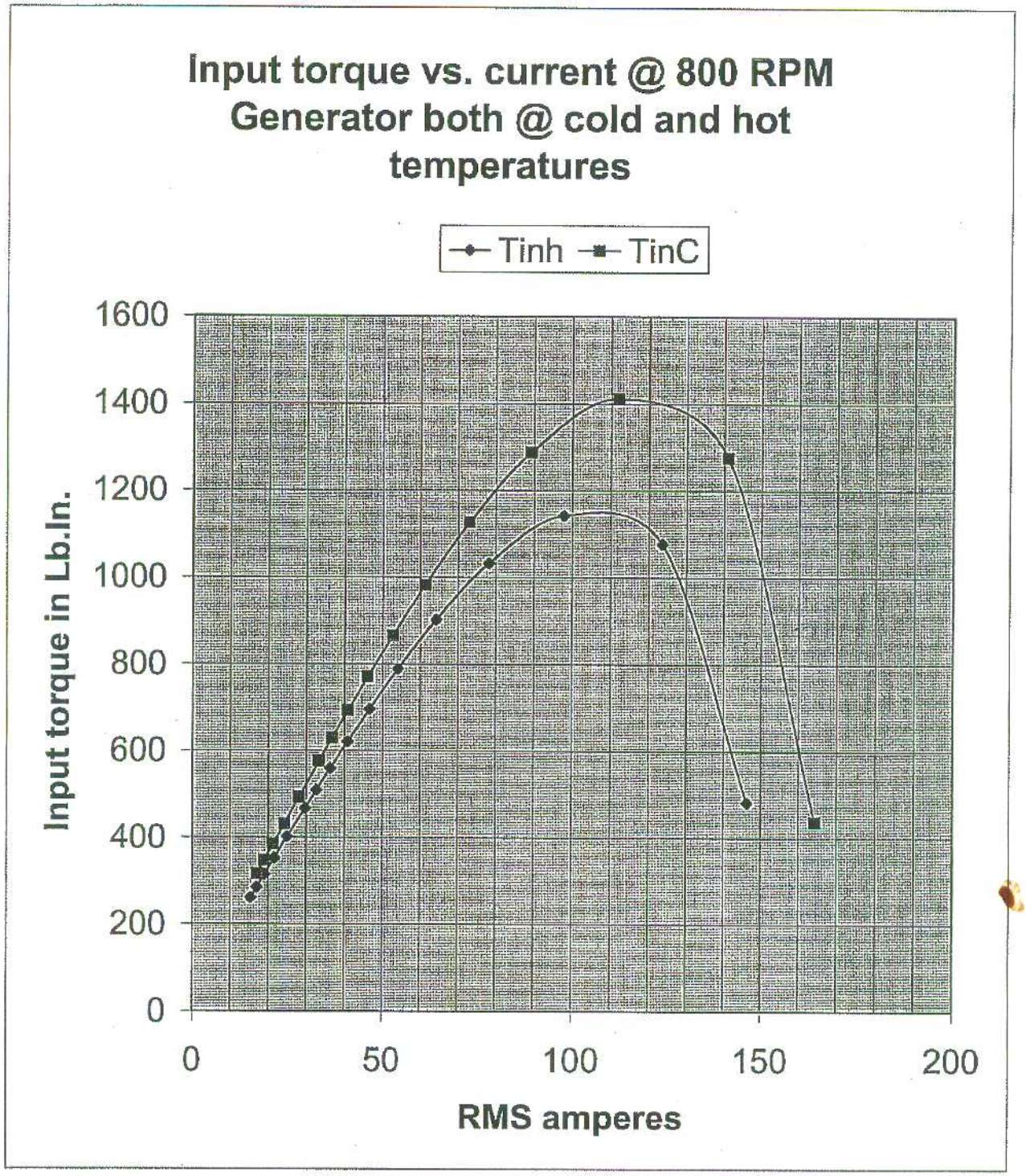
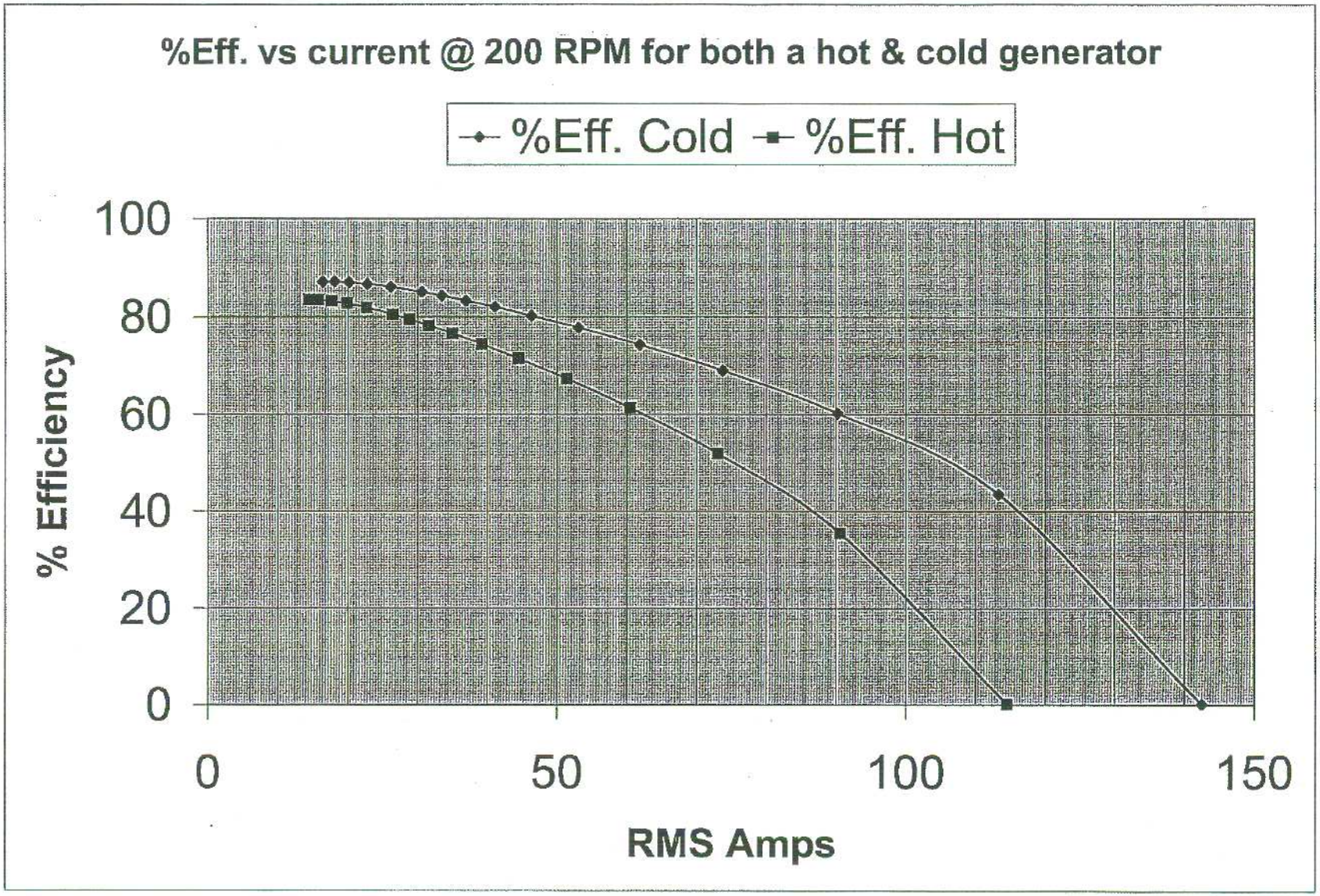

Input torque vs. current @ 200 RPM Generator both @ cold and hot temperatures
Tinh
TinC
Input torque in Lb.In.
1600
1400
1200
1000
800
600
400
200
0
0
50
100
150
RMS amperes

[redacted]

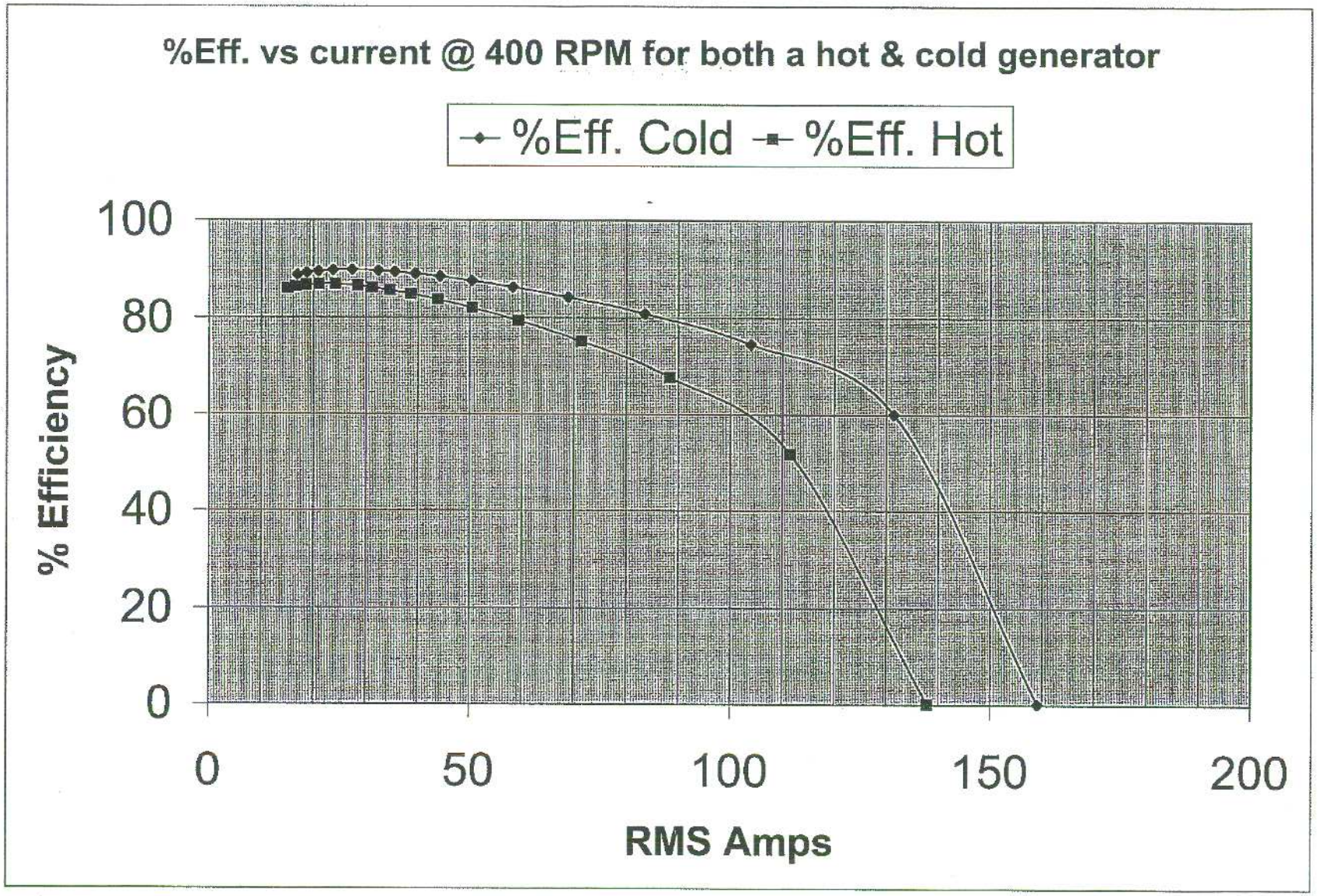

Input torque vs. current @ 400 RPM Generator both @ cold and hot temperatures
Tinh
TinC
Input torque in Lb.In.
1600
1400
1200
1000
800
600
400
200
0
0
50
100
150
200
RMS amperes


Input torque vs. current @ 800 RPM
Generator both @ cold and hot temperatures
Tinh
TinC
Input torque in Lb.In.
1600
1400
1200
1000
800
600
400
200
0
0
50
100
150
200
RMS amperes

[redacted]


%Eff. vs current @ 200 RPM for both a hot & cold generator
%Eff. Cold
%Eff. Hot
100
80
60
40
20
0
% Efficiency
0
50
100
150
RMS Amps

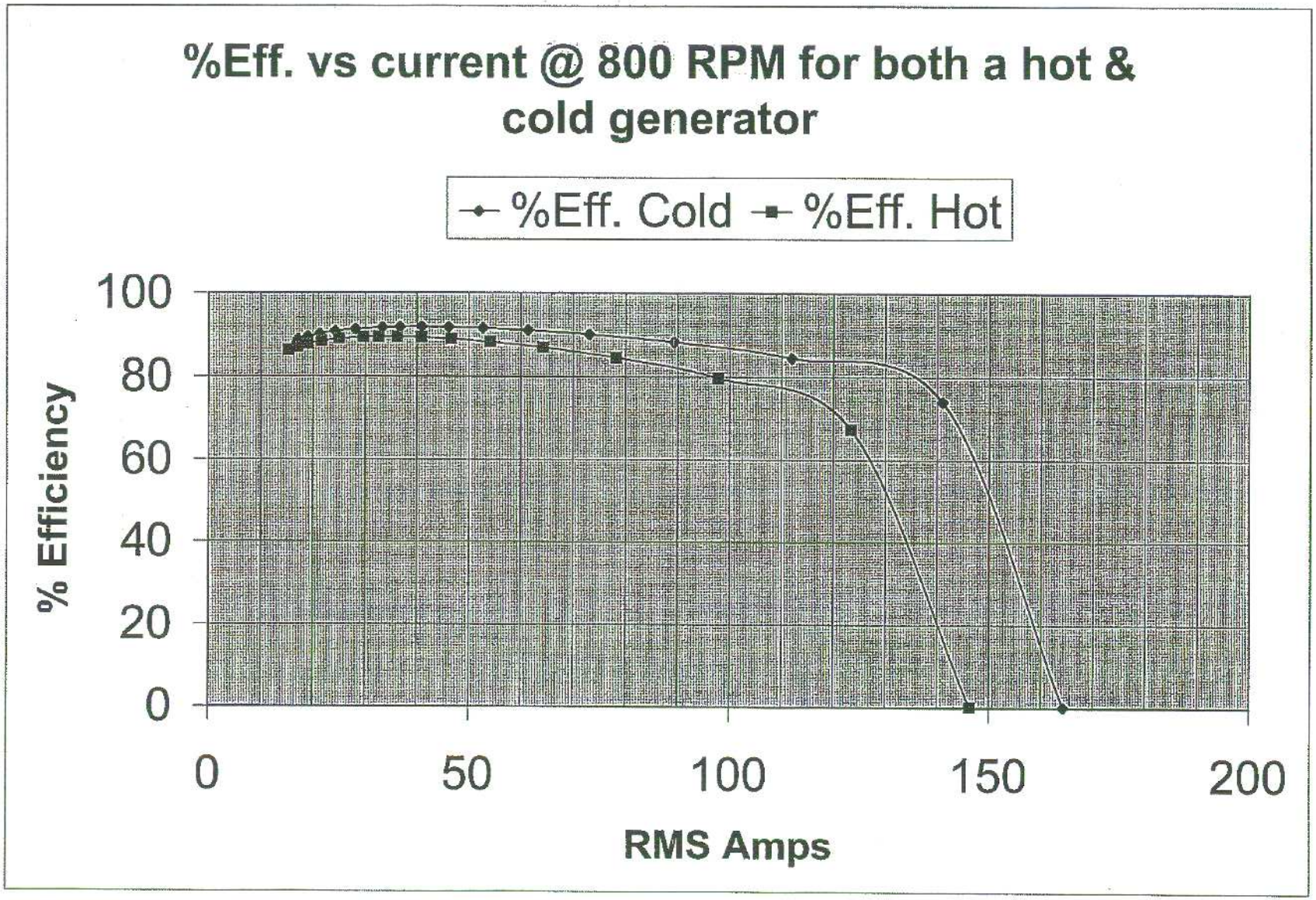
[redacted]



%EFF Chart 1

8/17/2005

[redacted]


%Eff. vs current @ 800 RPM for both a hot & cold generator
%Eff. Cold
%Eff. Hot
100
80
60
40
20
0
% Efficiency
0
50
100
150
200
RMS Amps