



113 West Dudley Town Rd. Bloomfield, CT 06002 860-243-1737 Fax 860-242-8283

## **INSPECTION DATA FOR 63 MW TWIN PAK GENERATOR**

### **GENERATOR NAMEPLATE DATA**

#### **EM BRUSHLESS SYNCHRONOUS GENERATOR**

**SERIAL # 771195701** **KVA – 63,000** **VOLTAGE – 13,800**

**AMPERAGE – 2,640** **FREQUENCY – 60Hz** **PHASE – 3**

Test	Test Equipment	Calibration
Megger	AMPROBE Megatest 1	26 August 2010
Polarization Index	AMPROBE Megatest 5000	26 August 2010
High Voltage	PHENIX 460-5 DC Dielectric Test Set	26 August 2010

**Table 1: 63 MW Twin Pak Arrival Megger Readings**

Leads	Phase	Megger	Ambient Temp	Ambient Humidity
T1 – T4	A	3945 Meg $\Omega$	95.7° F	15%
T2 – T5	B	3111 Meg $\Omega$	95.7° F	15%
T3 – T6	C	2452 Meg $\Omega$	95.7° F	15%



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63MW DC Absorption and Current Leakage Test(Arrival)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%

Leads/Phase Tested: T1 – T4/Phase A

Temperature: 96.7/95.4°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	7		
30 seconds	5	10 Kv (1 Min)	4.2
45 seconds	4	10 Kv (2 Min)	2.9
1 minute	3.7	12 Kv	2.6
2 minute	2.7	14 Kv	3.2
3 minute	2.2	16 Kv	3.3
4 minute	1.9	18 Kv	3.5
5 minute	1.7	20 Kv	4.5
6 minute	1.5	22 Kv	5.5
7 minute	1.4	24 Kv	6.0
8 minute	1.3	26 Kv	6.5
9 minute	1.3	28 Kv	8.5
10 minute	1.2	30 Kv	8.5

P.I. Ratio: (1 minute) 3.7 ÷ (10 minute) 1.2 = 3.08

P.I. Ratio: (10 minute) 8.5 ÷ (1 minute) 4.2 = 2.02

Test Performed by: Kevin Lazzari Date: 10/12/09



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63MW DC Absorption and Current Leakage Test(Arrival)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%/13%

Leads/Phase Tested: T2 – T5/Phase B

Temperature: 95.2/98.3°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	7.5		
30 seconds	5.5	10 Kv (1 min)	3.1
45 seconds	4.9	10 Kv (2 min)	2.4
1 minute	3.8	12 Kv	2.5
2 minute	2.8	14 Kv	2.8
3 minute	2.0	16 Kv	2.5
4 minute	1.9	18 Kv	3.5
5 minute	1.6	20 Kv	3.7
6 minute	1.4	22 Kv	3.6
7 minute	1.3	24 Kv	4
8 minute	1.2	26 Kv	4.3
9 minute	1.2	28 Kv	4
10 minute	1.2	30 Kv	5

P.I. Ratio: (1 minute) 3.80 ÷ (10 minute) 1.2 = 3.16

P.I. Ratio: (10 minute) 5.0 ÷ (1 minute) 3.1 = 1.61

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63 MW DC Absorption and Current Leakage Test(Arrival)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%/12%

Leads/Phase Tested: T3 – T6/Phase C

Temperature: 95.9°F/101.0°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	7.0		
30 seconds	5.9	10 Kv (1 min)	4.5
45 seconds	4.5	10 Kv (2 min)	3.1
1 minute	3.9	12 Kv	3.8
2 minute	2.8	14 Kv	4.3
3 minute	2.3	16 Kv	5
4 minute	2.1	18 Kv	7
5 minute	1.9	20 Kv	9
6 minute	1.8	22 Kv	11
7 minute	1.6	24 Kv	13
8 minute	1.5	26 Kv	15.5
9 minute	1.5	28 Kv	17
10 minute	1.5	30 Kv	22

P.I. Ratio: (1 minute) 3.90 ÷ (10 minute) 1.5 = 2.60

P.I. Ratio: (10 minute) 22 ÷ (1 minute) 4.5 = 4.88

Test Performed by: Kevin Lazzari Date: 10/21/2009



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63MW Polarization Index (T1 – T4/Phase A) Arrival

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,235 MΩ

P&I Test @ 5000 Volts

P&I= 6.79

30 Seconds: 568 MΩ

1 Minute: 1.24 GΩ

2 Minutes: 2.14 GΩ

3 Minutes: 3.31 GΩ

4 Minutes: 4.60 GΩ

5 Minutes: 5.49 GΩ

6 Minutes: 6.98 GΩ

7 Minutes: 7.34 GΩ

8 Minutes: 7.83 GΩ

9 Minutes: 12.4 GΩ

10 Minutes: 8.42 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts

Phase Comparison N/A

1 Minute: N/A

2 Minutes: N/A

3 Minutes: N/A

4 Minutes: N/A

5 Minutes: N/A

Surge Test Printed: NO

Test Performed by: Kevin Lazzari

Date: 10/12/2009



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63MW Polarization Index (T2 – T5/Phase B) Arrival

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,312 MΩ

P&I Test @ 5000 Volts

P&I= 6.54

30 Seconds: 717 MΩ

1 Minute: 1.31 GΩ

2 Minutes: 2.74 GΩ

3 Minutes: 3.53 GΩ

4 Minutes: 4.65 GΩ

5 Minutes: 5.29 GΩ

6 Minutes: 6.28 GΩ

7 Minutes: 7.12 GΩ

8 Minutes: 8.79 GΩ

9 Minutes: 11.43 GΩ

10 Minutes: 8.57 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts

Phase Comparison N/A

1 Minute: N/A

2 Minutes: N/A

3 Minutes: N/A

4 Minutes: N/A

5 Minutes: N/A

Surge Test Printed: NO

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63MW Polarization Index (T3 – T6/Phase C) Arrival

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,043 MΩ

P&I Test @ 5000 Volts

P&I= 5.125

30 Seconds: 678 MΩ

1 Minute: 1.51 GΩ

2 Minutes: 2.34 GΩ

3 Minutes: 3.67 GΩ

4 Minutes: 4.11 GΩ

5 Minutes: 4.98 GΩ

6 Minutes: 5.76 GΩ

7 Minutes: 6.83 GΩ

8 Minutes: 7.54 GΩ

9 Minutes: 9.08 GΩ

10 Minutes: 7.74 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts

Phase Comparison N/A

1 Minute: N/A

2 Minutes: N/A

3 Minutes: N/A

4 Minutes: N/A

5 Minutes: N/A

Surge Test Printed: NO

Test Performed by: Kevin Lazzari

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Title DC Absorption & Current Leakage Test Data		Document	
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63MW DC Absorption and Current Leakage Test (Final)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%

Leads/Phase Tested: T1 – T4/Phase A

Temperature: 96.7/95.4°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	8		
30 seconds	6	10 Kv (1 Min)	4.5
45 seconds	5	10 Kv (2 Min)	3.2
1 minute	4.6	12 Kv	2.8
2 minute	3.8	14 Kv	3.4
3 minute	3.4	16 Kv	3.5
4 minute	2.7	18 Kv	4.2
5 minute	2.3	20 Kv	4.8
6 minute	2.1	22 Kv	5.6
7 minute	1.9	24 Kv	6.5
8 minute	1.7	26 Kv	7.2
9 minute	1.7	28 Kv	9.5
10 minute	1.5	30 Kv	9.7

P.I. Ratio: (1 minute) 3.7 ÷ (10 minute) 1.2 = 3.06

P.I. Ratio: (10 minute) 9.7 ÷ (1 minute) 4.5 = 2.15

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63MW DC Absorption and Current Leakage Test (Final)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%/13%

Leads/Phase Tested: T2 – T5/Phase B

Temperature: 95.2/98.3°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	8.4		
30 seconds	6.5	10 Kv (1 min)	3.4
45 seconds	5.8	10 Kv (2 min)	3.2
1 minute	4.7	12 Kv	2.9
2 minute	3.8	14 Kv	3.5
3 minute	2.9	16 Kv	3.9
4 minute	2.5	18 Kv	4.3
5 minute	2.1	20 Kv	4.8
6 minute	1.8	22 Kv	5.4
7 minute	1.7	24 Kv	5.9
8 minute	1.6	26 Kv	6.6
9 minute	1.4	28 Kv	7.9
10 minute	1.4	30 Kv	8.3

P.I. Ratio: (1 minute) 4.70 ÷ (10 minute) 1.4 = 3.35

P.I. Ratio: (10 minute) 8.3 ÷ (1 minute) 3.4 = 2.44

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63MW DC Absorption and Current Leakage Test (Final)

Customer Name: Wood Group

Job Number: 50807

Unit Voltage Rating: 13,800

Humidity: 15%/12%

Leads/Phase Tested: T3 – T6/Phase C

Temperature: 95.9°F/101.0°F

DC Absorption Test		Current Leak Test	
Time	μamps	Voltage	μamps
15 seconds	9.0		
30 seconds	7.5	10 Kv (1 min)	5.3
45 seconds	6.9	10 Kv (2 min)	3.4
1 minute	6.1	12 Kv	3.7
2 minute	5.7	14 Kv	4.2
3 minute	4.9	16 Kv	4.9
4 minute	4.1	18 Kv	5.8
5 minute	3.6	20 Kv	6.8
6 minute	3.1	22 Kv	8.1
7 minute	2.6	24 Kv	9.3
8 minute	2.1	26 Kv	10.5
9 minute	1.8	28 Kv	11
10 minute	1.8	30 Kv	12.4

P.I. Ratio: (1 minute) 6.10 ÷ (10 minute) 1.8 = 3.38

P.I. Ratio: (10 minute) 12.4 ÷ (1 minute) 5.3 = 2.34

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63 MW Polarization Index (T1 – T4/Phase A) Final

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,815 MΩ

P&I Test @ 5000 Volts

P&I= 5.20

30 Seconds: 768 MΩ

1 Minute: 1.83 GΩ

2 Minutes: 3.28 GΩ

3 Minutes: 4.39 GΩ

4 Minutes: 5.61 GΩ

5 Minutes: 6.40 GΩ

6 Minutes: 7.01 GΩ

7 Minutes: 7.78 GΩ

8 Minutes: 8.41 GΩ

9 Minutes: 15.4 GΩ

10 Minutes: 9.51 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts

Phase Comparison N/A

1 Minute: N/A

2 Minutes: N/A

3 Minutes: N/A

4 Minutes: N/A

5 Minutes: N/A

Surge Test Printed: NO

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Date: 10/20/2009



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63 MW Polarization Index (T2 – T5/Phase B) Final

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,642 MΩ

P&I Test @ 5000 Volts

P&I= 5.225

30 Seconds: 948 MΩ  
1 Minute: 1.91 GΩ  
2 Minutes: 4.37 GΩ  
3 Minutes: 4.54 GΩ  
4 Minutes: 5.55 GΩ  
5 Minutes: 6.41 GΩ

6 Minutes: 7.28 GΩ  
7 Minutes: 8.02 GΩ  
8 Minutes: 8.69 GΩ  
9 Minutes: 9.31 GΩ  
10 Minutes: 9.98 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts  
Phase Comparison N/A

1 Minute: N/A  
2 Minutes: N/A  
3 Minutes: N/A  
4 Minutes: N/A  
5 Minutes: N/A

Surge Test Printed: NO

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63MW Polarization Index (T3 – T6/Phase C) Final

Customer Name Wood Group

Job Number 50807

Megger Test @ 1000 Volts

Megohms: 1,643 MΩ

P&I Test @ 5000 Volts

P&I= 3.010

30 Seconds: 981 MΩ

1 Minute: 2.01 GΩ

2 Minutes: 3.22 GΩ

3 Minutes: 4.36 GΩ

4 Minutes: 5.22 GΩ

5 Minutes: 5.93 GΩ

6 Minutes: 6.55 GΩ

7 Minutes: 7.16 GΩ

8 Minutes: 7.76 GΩ

9 Minutes: 8.20 GΩ

10 Minutes: 8.97 GΩ

HI POT Test @ N/A Volts

Surge Test @ N/A Volts

Phase Comparison N/A

1 Minute: N/A

2 Minutes: N/A

3 Minutes: N/A

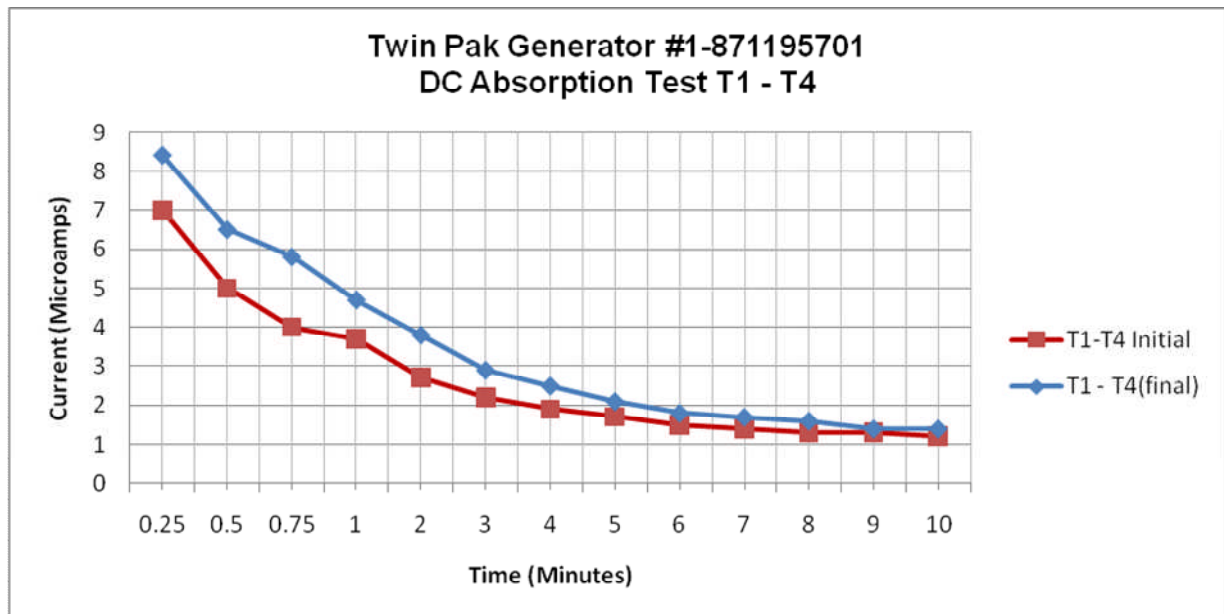
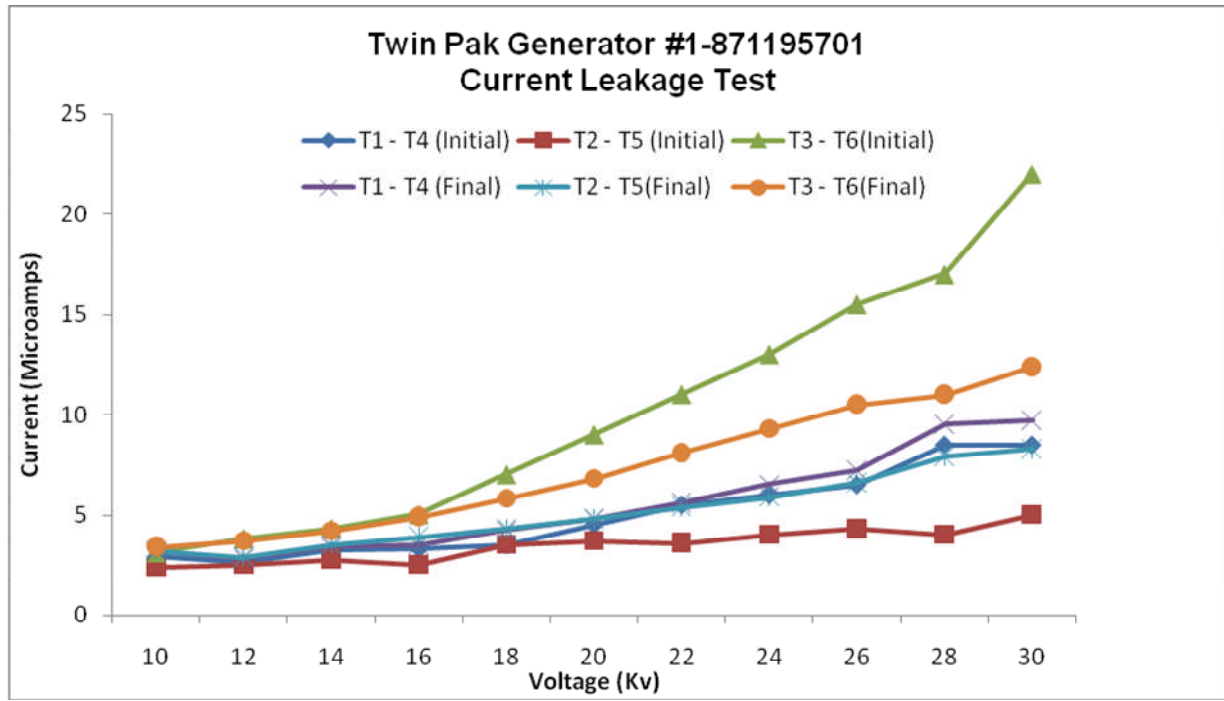
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5 Minutes: N/A

Surge Test Printed: NO

Test Performed by: Kevin Lazzari

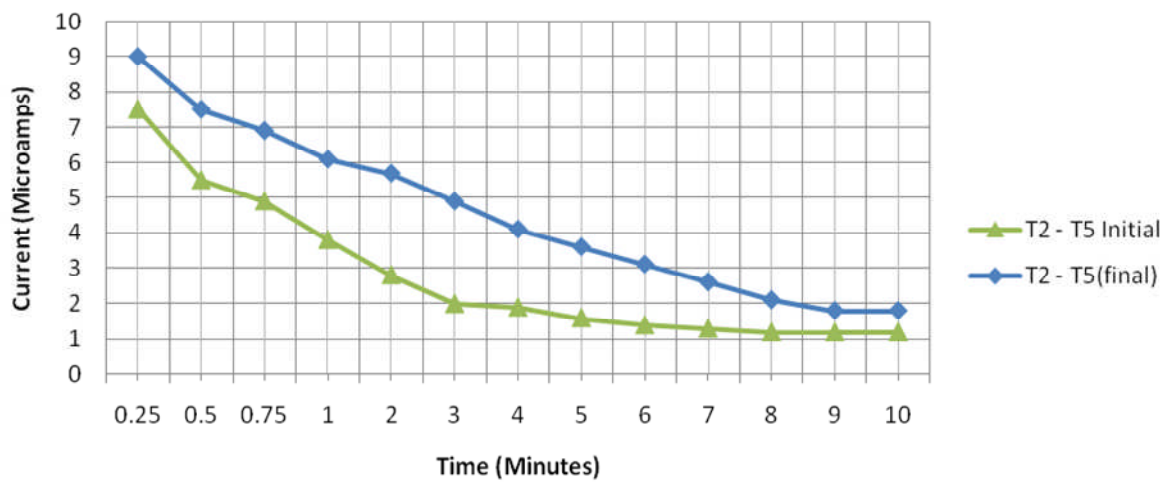
Date: 10/20/2009





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**Twin Pak Generator #1871195701**  
**DC Absorption Test T2 - T5**



**Twin Pak Generator #1-871195701**  
**DC Absorption Test T3 - T6**

