

GENERATOR DATA**APRIL 02, 2025**For Help Desk Phone Numbers [Click here](#)**Selected Model**

Engine: 3516 **Generator Frame:** 1866 **Genset Rating (kW):** 2000.0 **Line Voltage:** 400
Fuel: Natural Gas **Generator Arrangement:** 3605494 **Genset Rating (kVA):** 2500.0 **Phase Voltage:** 230
Frequency: 50 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 0.8 **Rated Current:** 3608.4
Duty: CONTINUOUS **Connection:** SERIES STAR **Application:** EPG **Status:** Current
Version: 41205 /40749 /40382 /9202

Spec Information

Generator Specification			Generator Efficiency		
Frame:	Type:	No. of Bearings:	Per Unit Load	kW	Efficiency %
1866	SR5	2	0.25	500.0	94.8
Winding Type: FORM WOUND Flywheel: 21.0			0.5	1000.0	96.5
Connection: SERIES STAR Housing: 00			0.75	1500.0	96.8
Phases: 3 No. of Leads: 6			1.0	2000.0	96.7
Poles: 4 Wires per Lead: 8			1.1	2200.0	96.6
Sync Speed: 1500 Generator Pitch: 0.6667					

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.1219	0.0078
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1172	0.0075
TRANSIENT - SATURATED X'_d	0.1828	0.0117
SYNCHRONOUS - DIRECT AXIS X_d	2.8750	0.1840
SYNCHRONOUS - QUADRATURE AXIS X_q	1.2734	0.0815
NEGATIVE SEQUENCE X_2	0.1203	0.0077
ZERO SEQUENCE X_0	0.0078	0.0005

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	5.2140
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.3318
OPEN CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_{d0}	0.0077
SHORT CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_d	0.0068
OPEN CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0070
SHORT CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_q	0.0062
EXCITER TIME CONSTANT T_e	0.2580
ARMATURE SHORT CIRCUIT T_a	0.0534

Short Circuit Ratio: 0.42	Stator Resistance = 9.0E-4 Ohms	Field Resistance = 1.044 Ohms
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Voltage Regulation		Generator Excitation		
Voltage level adjustment: +/-	5.0%	No Load	Full Load, (rated) pf	
Voltage regulation, steady state: +/-	0.5%		Series	Parallel
Voltage regulation with 3% speed change: +/-	0.5%	Excitation voltage:	11.32 Volts	53.01 Volts Volts
Waveform deviation line - line, no load: less than	3.0%	Excitation current	1.04 Amps	4.01 Amps Amps
Telephone influence factor: less than	50			

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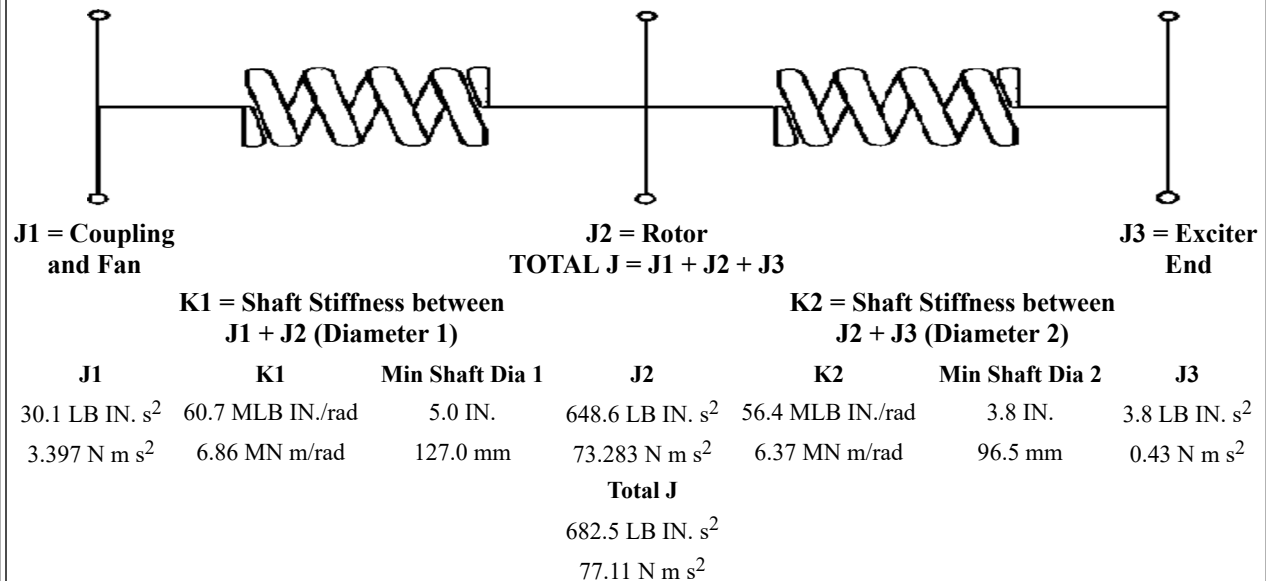
Generator Mechanical Information**Center of Gravity**

Dimension X	-1204.0 mm	-47.4 IN.
Dimension Y	0.0 mm	0.0 IN.
Dimension Z	0.0 mm	0.0 IN.

- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 5592 kg * Rotor WT = 2086 kg * Stator WT = 2869 kg
12,328 LB 4,599 LB 6,325 LB

Rotor Balance = 0.0508 mm deflection PTP
Overspeed Capacity = 150% of synchronous speed

Generator Torsional Data

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**Generator Cooling Requirements -
Temperature - Insulation Data**

Cooling Requirements:	Temperature Data: (Ambient 40 °C)
Heat Dissipated: 68.3 kW	Stator Rise: 105.0 °C
Air Flow: 226.8 m ³ /min	Rotor Rise: 105.0 °C

Insulation Class: H

Insulation Reg. as shipped: 100.0 MΩ minimum at 40 °C

Thermal Limits of Generator

Frequency:	50 Hz
Line to Line Voltage:	400 Volts
B BR 80/40	2063.0 kVA
F BR -105/40	2625.0 kVA
H BR - 125/40	2750.0 kVA
F PR - 130/40	2750.0 kVA
H PR - 150/40	3000.0 kVA

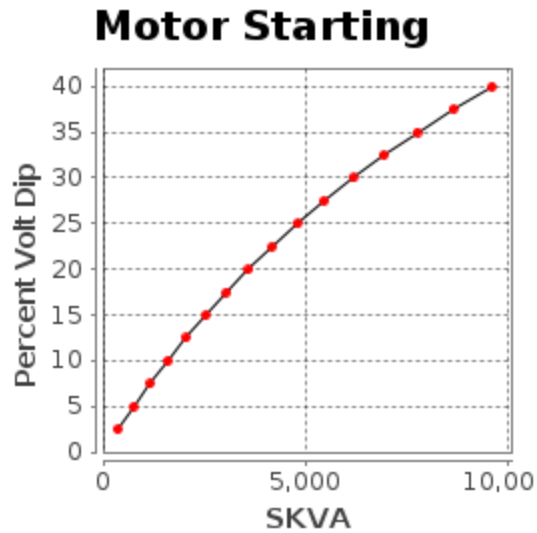
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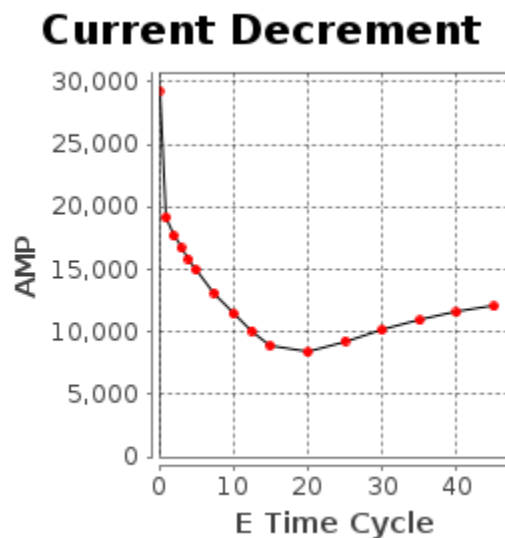
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Starting Capability & Current Decrement**Motor Starting Capability (0.4 pf)**

SKVA	Percent Volt Dip
370	2.5
760	5.0
1,171	7.5
1,604	10.0
2,062	12.5
2,548	15.0
3,062	17.5
3,609	20.0
4,191	22.5
4,812	25.0
5,476	27.5
6,187	30.0
6,951	32.5
7,774	35.0
8,662	37.5
9,625	40.0

**Current Decrement Data**

E Time Cycle	AMP
0.0	29,324
1.0	19,186
2.0	17,689
3.0	16,720
4.0	15,830
5.0	14,994
7.5	13,111
10.0	11,491
12.5	10,098
15.0	8,900
20.0	8,368
25.0	9,287
30.0	10,178
35.0	10,925
40.0	11,571
45.0	12,049



Instantaneous 3 Phase Fault Current: 29324 Amps

Instantaneous Line - Line Fault Current: 25634 Amps

Instantaneous Line - Neutral Fault Current: 42898 Amps

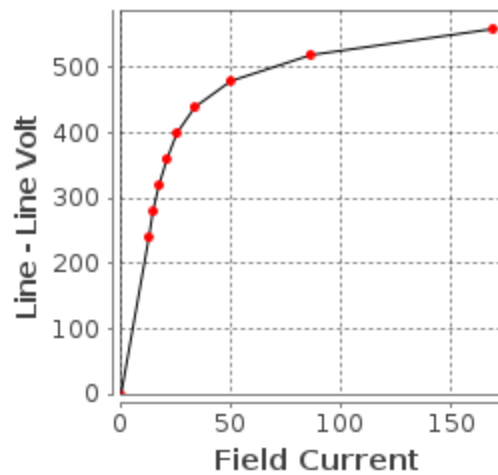
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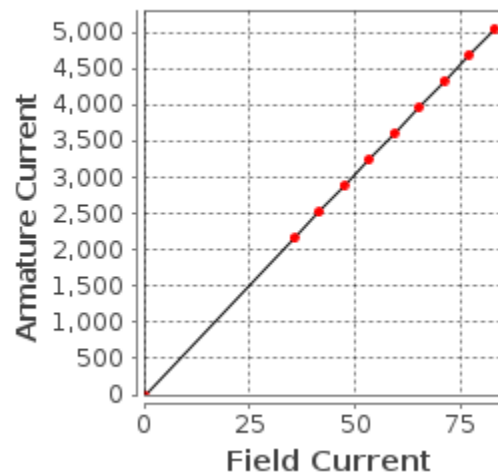
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Generator Output Characteristic Curves
Open Circuit Curve**Open Circuit**

Field Current	Line - Line Volt
0.0	0
13.0	240
15.3	280
17.9	320
21.1	360
25.7	400
33.8	440
50.1	480
86.1	520
169.0	560

**Short Circuit Curve****Short Circuit**

Field Current	Armature Current
0.0	0
35.6	2,165
41.5	2,526
47.4	2,887
53.3	3,248
59.3	3,608
65.2	3,969
71.1	4,330
77.0	4,691
83.0	5,052



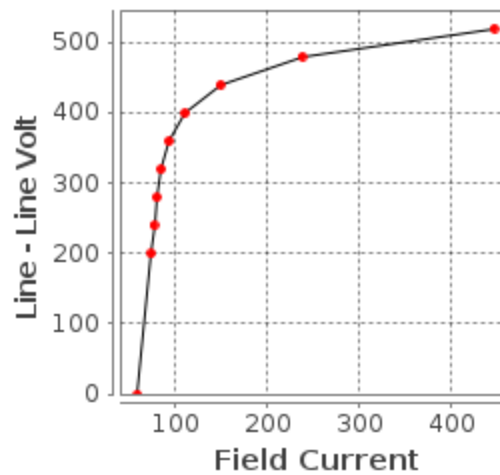
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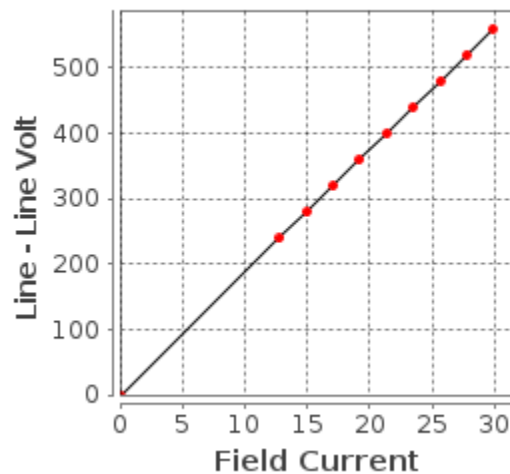
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Generator Output Characteristic Curves
Zero Power Factor Curve**Zero Power**

Field Current	Line - Line Volt
59.3	0
74.2	200
76.9	240
80.2	280
85.0	320
93.6	360
110.9	400
149.3	440
237.8	480
446.2	520

**Air Gap Curve****Air Gap**

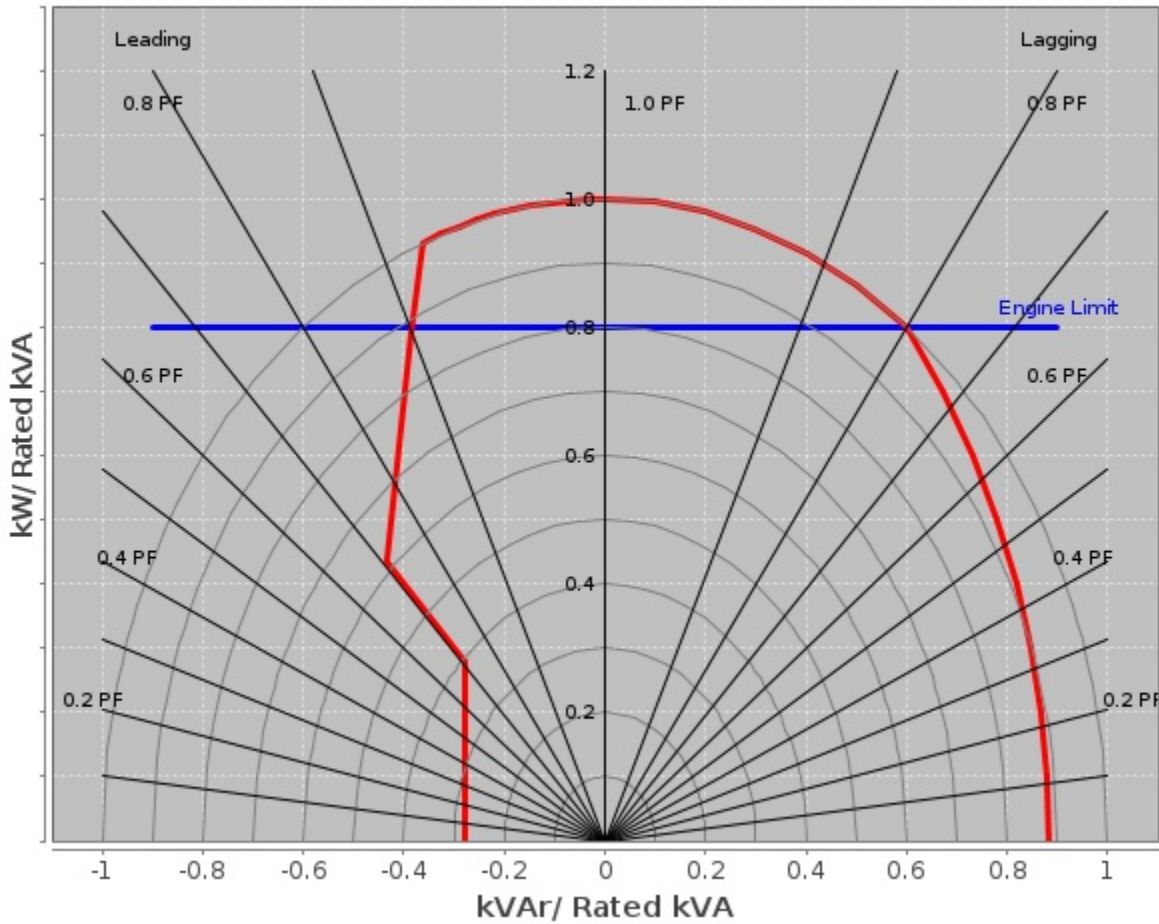
Field Current	Line - Line Volt
0.0	0
12.8	240
15.0	280
17.1	320
19.2	360
21.4	400
23.5	440
25.7	480
27.8	520
29.9	560



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**Reactive Capability Curve
Operating Chart**

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General Information

DM7825 Caterpillar SR5 Generators (50 Hz, 60 Hz)
Data for 1400, 1600, 1700, 1800 and 1900 frames Caterpillar SR5
generators built by Leroy Somer - USA and Leroy Somer France.

Refer to DM7821 for explanation of all generator data in Technical
Marketing Information (TMI) except generator efficiency for which the
explanation is given below.

GENERATOR EFFICIENCY

Generator efficiency is the percentage of engine flywheel (or other
prime mover) power that is converted into electrical output. The
generator efficiency shown is calculated by the summation of all
losses method, and is determined in accordance with the IEC Standard
60034. The efficiency considers only the generator. There is no
consideration of engine or parasitic losses here.

Refer to DM7829 for low and medium voltage protective setting values a
nd limits.

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