Spec Info Mechanical Data Cooling Data Motor Starting Curve Open Circuit Curve
Zero Power Factor Curve Reactive Capability Chart General Information

Selected Model

Engine: 3512 **Generator Frame:** 1622 **Genset Rating (kW):** 1360.0 **Line Voltage:** 400
Fuel: Diesel **Generator Arrangement:** 2523932 **Genset Rating (kVA):** 1360.0 **Phase Voltage:** 230
Frequency: 50 **Excitation Type:** Permanent Magnet **Pwr. Factor:** 1.0 **Rated Current:** 1963
Duty: PRIME **Connection:** SERIES STAR **Application:** EPG **Status:** Current
Version: 20232 /20232 /20232 /660441

Spec Information

Generator Specification

Frame: 1622 **Type:** SR5 **No. of Bearings:** 1
Winding Type: FORM WOUND **Flywheel:** 21
Connection: SERIESSTAR **Housing:** 00
Phases: 3 **No. of Leads:** 6
Poles: 4 **Wires per Lead:** 4
Sync Speed: 1500 **Generator Pitch:** 0.67

Generator Efficiency

Per Unit Load	kW	Efficiency %
0.25	340	92.7
0.5	680	95.5
0.75	1020	96.2
1	1360	96.2
1.1	1496	96.2

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.1046	0.0123
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1309	0.0154
TRANSIENT - SATURATED X'_d	0.1725	0.0203
SYNCHRONOUS - DIRECT AXIS X_d	1.7680	0.2080
SYNCHRONOUS - QUADRATURE AXIS X_q	1.0608	0.1248
NEGATIVE SEQUENCE X_2	0.1173	0.0138
ZERO SEQUENCE X_0	0.0247	0.0029

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	1.6600
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.1910
OPEN CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_{d0}	0.0200
SHORT CIRCUIT SUBSTRANSIENT - DIRECT AXIS T''_d	0.0120
OPEN CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0760
SHORT CIRCUIT SUBSTRANSIENT - QUADRATURE AXIS T''_q	0.0110
EXCITER TIME CONSTANT T_e	0.0940
ARMATURE SHORT CIRCUIT T_a	0.0300

Short Circuit Ratio: 0.66 | Stator Resistance = 0.002Ohms | Field Resistance = 0.427 Ohms

Voltage Regulation

Voltage level adjustment: +/-	5.0%
Voltage regulation, steady state: +/-	0.5%
Voltage regulation with 3% speed change: +/-	0.5%
Waveform deviation line - line, no load: less than	2.0%
Telephone influence factor: less than	50

Generator Excitation

	No Load	Full Load, (rated) pf	
		Series	Parallel
Excitation voltage:	15.3 Volts	35.0 Volts	Volts
Excitation current	1.6 Amps	3.0 Amps	Amps

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Generator Mechanical Information

Center of Gravity

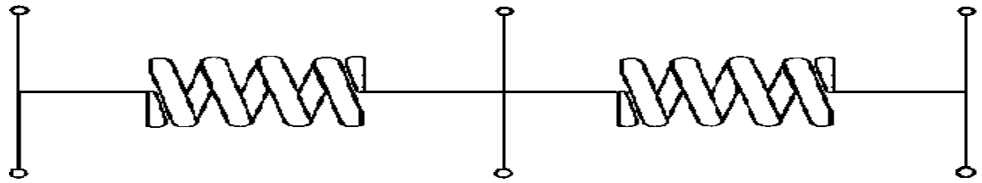
Dimension X	-897.6 mm	-35.3 IN.
Dimension Y	0 mm	0.0 IN.
Dimension Z	0 mm	0.0 IN.

- "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 = 3480 kg * Rotor WT = 1346 kg * Stator WT = 1697 kg
7,672 LB 2,967 LB 3,741 LB

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

Generator Torsional Data



J1 = Coupling and Fan **J2 = Rotor** **J3 = Exciter End**
TOTAL J = J1 + J2 + J3

K1 = Shaft Stiffness between J1 + J2 (Diameter 1)
K2 = Shaft Stiffness between J2 + J3 (Diameter 2)

J1	K1	Min Shaft Dia 1	J2	K2	Min Shaft Dia 2	J3
58.4 LB IN. s^2	245.2 MLB IN./rad	7.8 IN.	283.3 LB IN. s^2	53.2 MLB IN./rad	5.9 IN.	10.3 LB IN. s^2
6.603 N m s^2	27.7 MN m/rad	198 mm	32.005 N m s^2	6.01 MN m/rad	151 mm	1.161 N m s^2

Total J
352.0 LB IN. s^2
39.769 N m s^2

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Generator Cooling Requirements -
Temperature - Insulation Data

Cooling Requirements:
Heat Dissipated: 53.7 kW
Air Flow: 150 m^3/min

Temperature Data: (Ambient 40 ^{0}C)
Stator Rise: 80 ^{0}C
Rotor Rise: 80 ^{0}C

Insulation Class: H

Insulation Reg. as shipped: 100MΩ minimum at 40 ^{0}C

Thermal Limits of Generator

Frequency:	50 Hz
Line to Line Voltage:	400 Volts
B BR 80/40	1400 kVA
F BR -105/40	1593 kVA
H BR - 125/40	1750 kVA
F PR - 130/40	1750 kVA
H PR - 150/40	1855 kVA

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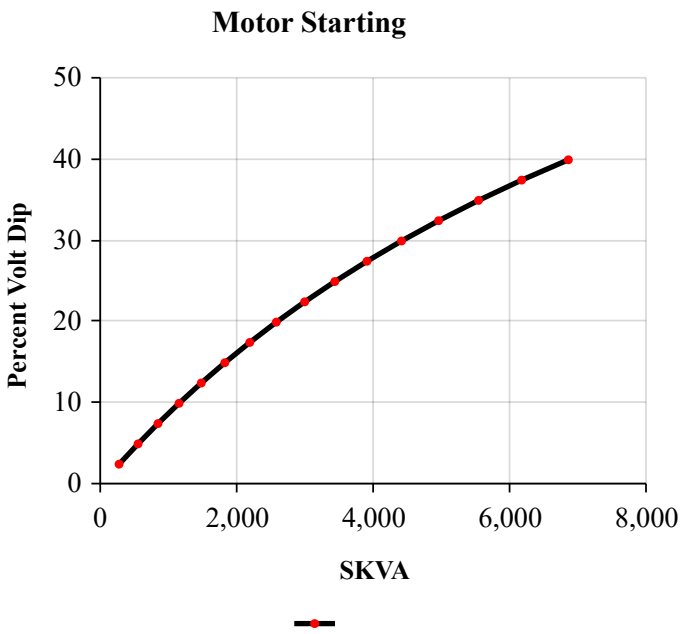
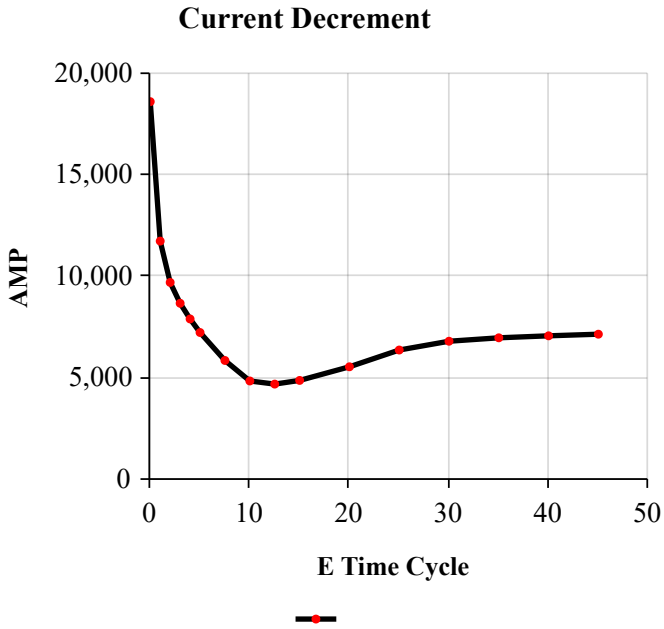
Starting Capability & Current Decrement
Motor Starting Capability (0.4 pf)

SKVA	Percent Volt Dip
263	2.5
541	5.0
833	7.5
1,142	10.0
1,468	12.5
1,813	15.0
2,179	17.5
2,568	20.0
2,983	22.5
3,425	25.0
3,897	27.5
4,403	30.0
4,947	32.5
5,532	35.0
6,164	37.5
6,849	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	18,643
1.0	11,771
2.0	9,734
3.0	8,707
4.0	7,934
5.0	7,266
7.5	5,888
10.0	4,878
12.5	4,724
15.0	4,905
20.0	5,577
25.0	6,403
30.0	6,836
35.0	7,005
40.0	7,103
45.0	7,183



Instantaneous 3 Phase Fault Current: 18643 Amps **Instantaneous Line - Line Fault Current:** 15217 Amps
Instantaneous Line - Neutral Fault Current: 23722 Amps

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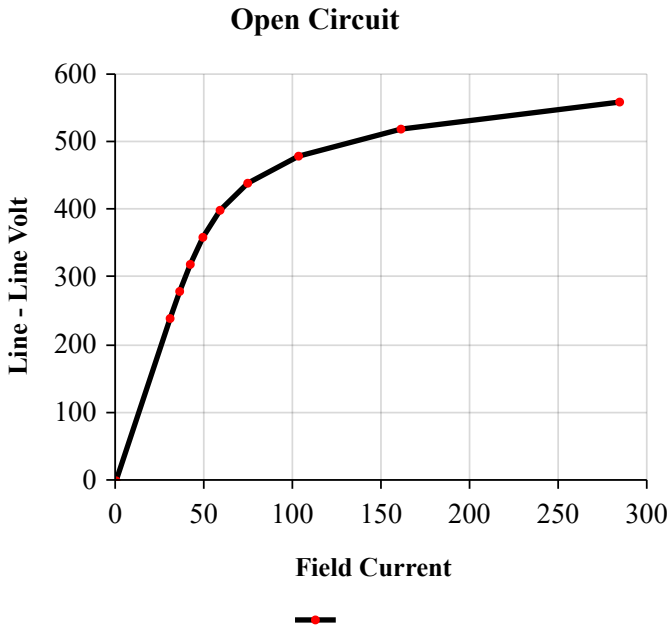
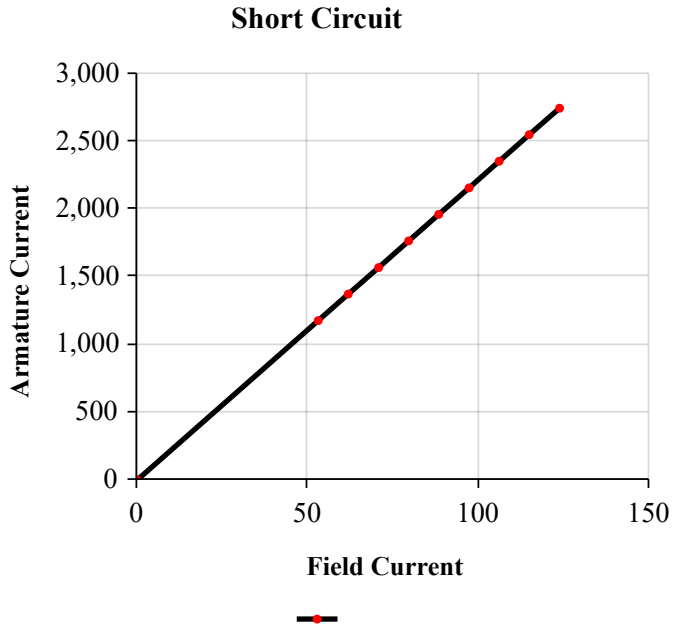
Generator Output Characteristic Curves
Open Circuit Curve

Field Current	Line - Line Volt
0.0	0
30.5	240
35.9	280
41.9	320
49.0	360
58.7	400
74.3	440
103.0	480
160.8	520
284.2	560



Short Circuit Curve

Field Current	Armature Current
0.0	0
53.0	1,178
61.8	1,374
70.7	1,570
79.5	1,767
88.3	1,963
97.2	2,159
106.0	2,356
114.8	2,552
123.7	2,748



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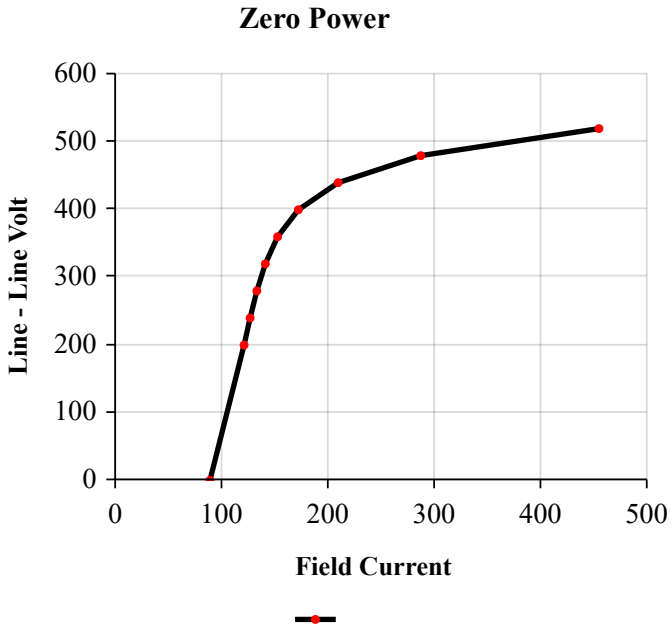
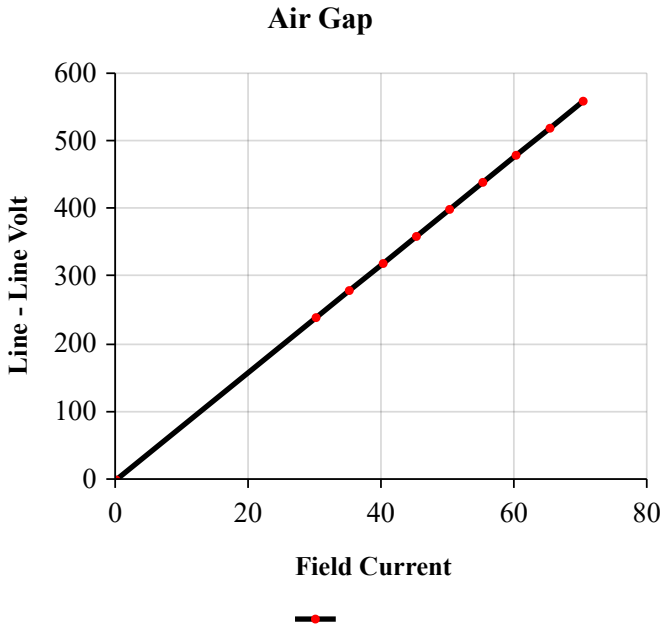
Generator Output Characteristic Curves
Zero Power Factor Curve

Field Current	Line - Line Volt
88.3	0
120.4	200
126.1	240
132.4	280
140.4	320
151.9	360
171.5	400
208.9	440
286.6	480
454.2	520



Air Gap Curve

Field Current	Line - Line Volt
0.0	0
30.1	240
35.1	280
40.2	320
45.2	360
50.2	400
55.2	440
60.2	480
65.3	520
70.3	560



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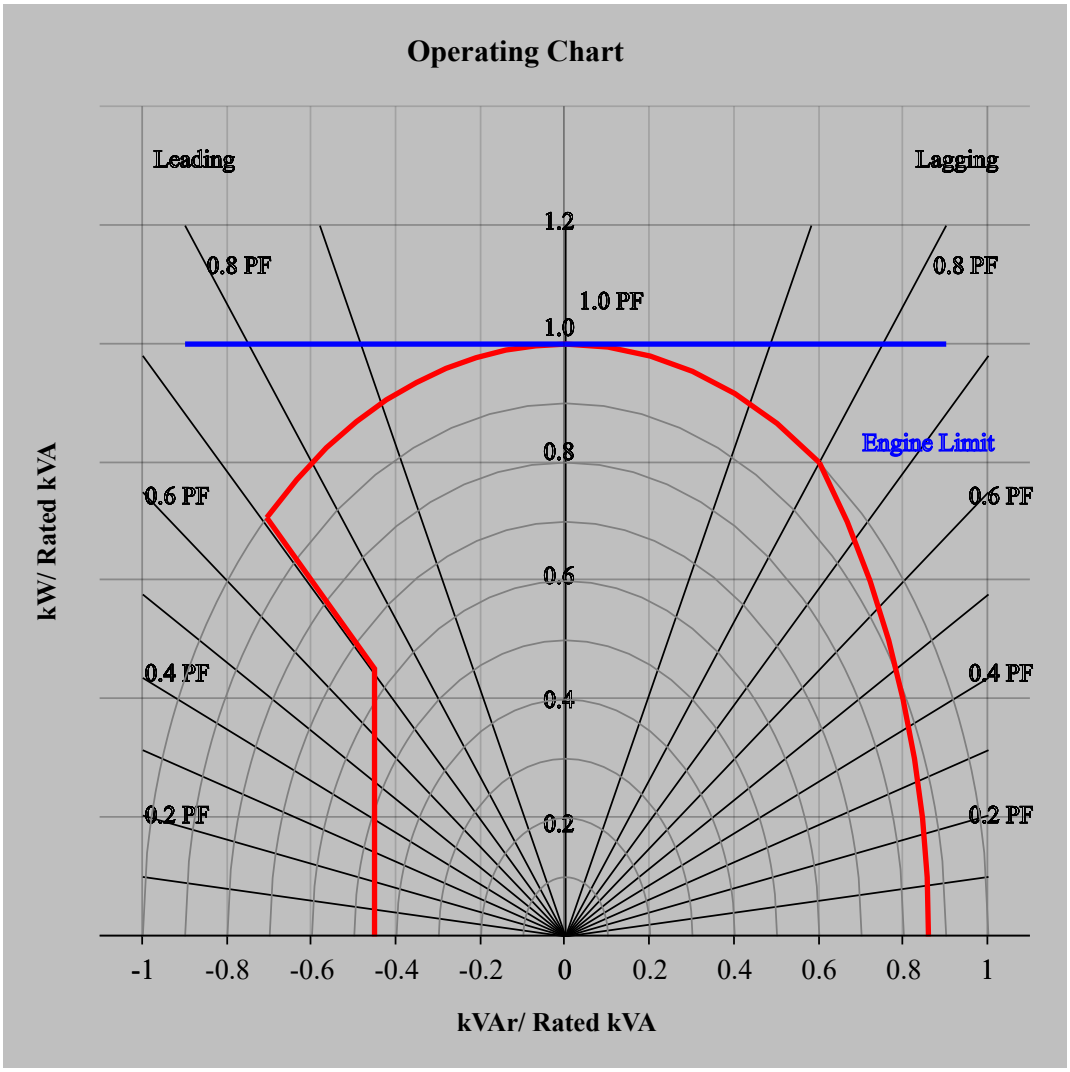
Reactive Capability Curve



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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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