

SG ModPL Charge Test

Revised 4/8/2016 Added runs 5 to 8

Wheel 1 Board 1 8 Trans 21 Magnets

Created 3/29/2016

Test #	Gap	RPM	Resistor	Charge Amps	Primary Amps	Charge Volts	Primary Volts	Discharge Volts	Charge Hrs	Discharge Hrs	Primary Watt-Hrs	Charge Watt-Hrs	Discharge Watt-Hrs	D/C Ratio	D/P Ratio
1	0.160"	194	w/R12	0.22	0.73	13.35	24.28	12.33	1.40	1.73	24.72	7.58	14.53	1.92	0.59

D/(C+P)
0.45

SG Standard Configuration

Tested 3/21/2016

2	0.160"	257	w/R12	0.66	1.35	13.02	12.36	12.31	1.40	1.20	23.30	12.03	9.90	0.82	0.42
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Wheel #2 Mod PL Run

Tested 4/6/2016

3	0.135"	274	w/R12	0.32	1.09	13.81	24.25	12.35	0.75	1.38	19.82	5.75	11.61	2.02	0.59
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0.45

Wheel #2 Standard Configuration

Tested 3/28/2016

4	0.130"	300	w/R12	0.87	1.79	13.10	12.32	12.31	1.40	1.63	30.93	15.90	13.67	0.86	0.44
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Wheel #2 Mod PL Run

Tested 4/7/2016

5	0.220"	259	w/R12	0.33	1.07	13.62	24.52	12.35	1.00	1.85	26.33	8.12	15.54	1.91	0.59
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0.45

Wheel #2 Standard Configuration

6	0.220"	272	w/o	0.99	1.97	13.26	12.26	12.32	1.40	1.77	33.81	18.38	14.83	0.81	0.44
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Wheel #1 Mod PL Run

Tested 4/8/2016

7	0.215"	203	w/o	0.32	0.98	13.49	24.44	12.35	1.00	1.67	23.98	7.70	13.99	1.82	0.58
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0.44

Wheel #1 Standard Configuration

8	0.215"	231	w/o	0.82	1.62	12.90	12.37	12.33	1.40	1.57	28.06	14.81	12.94	0.87	0.46
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Charge battery discharged down to 12.19 volts with noted time (Discharge Hrs). Discharge Load 0.68 amp.

Primary watt-hrs calculated from average Primary amps and run voltage - same steps for Charge watt-hrs. All power calcs based on 24 volt value

D/C equals (Discharge Watt hrs)/(Charge Watt hrs). This ratio can be interpreted as the Charge efficiency for standard SG configuration. Not relevant for PL

Mod due to added run battery charging effect.

D/P equals ((Discharge Watt hrs)/(Primary Watt hrs)). This ratio can be interpreted as the overall power efficiency (COP) for standard SG configuration.

D/(C+P) equals ((Discharge watt hrs)/(Charge watt hrs + Primary watt hrs)). This ratio is the total battery efficiency.

Watt hours can be converted to Joules by multiplying by 3600, however the result is a large number within the spreadsheet cell - too cumbersome