Enter your data into the yellow highlighted cells, everything else is automatically calc

Battery Data (enter Amp Hours to get C20 rate)			
Type	Amp hours	Age	C20 Rate (Amps)
LA	9.0	NEW	0.460

Test Information	
1st Run date	Last Run date
17-Jan-10	3/5/2010

Experimenter

Charging Energy Calculation

Run	Start Resting Voltage	Charge Start Date/Time	Primary Draw Amps	Charge Input Amps	Charge Term. Voltage	Charge End Date/Time	Rest End Date/Time	End Resting Voltage	Average Resting Voltage	Charge Input Watts	Charge Time Seconds	Charge Input Joules	Charge Input Amp Hours
1	12.45	1/17/2010 13:47	0.260	0.051	14.50	1/19/2010 16:40	1/19/2010 17:10	13.04	12.75	0.65	183,180	119,066	2.60
2	12.42	1/20/2010 11:21	0.300	0.053	14.50	1/22/2010 12:53	1/22/2010 17:43	13.01	12.72	0.67	178,320	120,169	2.63
3	12.39	1/23/2010 11:40	0.275	0.048	14.50	1/25/2010 22:02	1/26/2010 8:45	12.98	12.69	0.61	210,120	127,938	2.80
4	12.42	1/26/2010 15:00	0.250	0.049	14.50	1/28/2010 4:05	1/28/2010 4:50	12.95	12.69	0.62	133,500	82,979	1.82
5	12.46	1/28/2010 11:00	0.160	0.053	14.50	1/30/2010 8:50	1-30-2010 3:00pm	12.93	12.70	0.67	165,000	111,018	2.43
6	12.40	1/30/2010 20:47	0.225	0.075	15.00	2/1/2010 9:50	2/1/2010 10:45	12.93	12.67	0.95	133,380	126,694	2.78
7	12.39	2/1/2010 19:50	0.290	0.083	15.09	2/3/2010 5:47	2/3/2010 8:37	13.11	12.75	1.06	122,220	129,339	2.82
8	12.22	2/3/2010 17:35	0.300	0.081	14.59	2/5/2010 16:13	2/5/2010 16:43	13.09	12.66	1.03	167,880	172,086	3.78
9	12.34	2/6/2010 8:37	0.280	0.082	14.50	2/7/2010 21:30	2/8/2010 8:06	13.08	12.71	1.04	132,780	138,386	3.02
10	12.27	2/8/2010 21:42	0.280	0.080	14.50	2/10/2010 12:26	2/10/2010 13:00	13.28	12.78	1.02	139,440	142,508	3.10
11	12.23	2/10/2010 20:37	0.300	0.079	14.34	2/12/2010 8:12	2/12/2010 11:58	13.18	12.71	1.00	128,100	128,573	2.81
12	12.23	2/12/2010 18:47	0.290	0.081	14.67	2/14/2010 5:20	2/14/2010 9:00	13.15	12.69	1.03	124,380	127,849	2.80
13	12.23	2/14/2010 15:42	0.300	0.075	14.52	2/16/2010 3:00	2/16/2010 10:15	13.09	12.66	0.95	127,080	120,662	2.65
14	12.30	2/16/2010 21:15	0.300	0.076	14.50	2/18/2010 3:40	2/18/2010 8:38	13.10	12.70	0.97	109,500	105,689	2.31
15	12.25	2/18/2010 14:45	0.300	0.079	14.42	2/19/2010 22:40	2/20/2010 8:21	13.02	12.64	1.00	114,900	114,689	2.52
16	12.26	2/20/2010 14:00	0.300	0.078	14.50	2/21/2010 21:40	2/22/2010 8:30	12.96	12.61	0.98	114,000	112,128	2.47
17	12.25	2/22/2010 15:17	0.295	0.079	14.62	2/24/2010 0:18	2/24/2010 10:30	12.96	12.61	1.00	118,860	118,360	2.61
18	12.28	2/25/2010 10:20	0.290	0.078	14.50	2/27/2010 0:10	2/27/2010 17:44	12.92	12.60	0.98	136,200	133,857	2.95
19	12.29	2/28/2010 8:19	0.290	0.078	14.50	3/1/2010 19:25	3/2/2010 7:35	12.94	12.62	0.98	126,360	124,334	2.74
20	12.29	3/2/2010 22:45	0.180	0.053	14.37	3/5/2010 11:10	3/5/2010 14:24	12.97	12.63	0.67	217,500	145,592	3.20

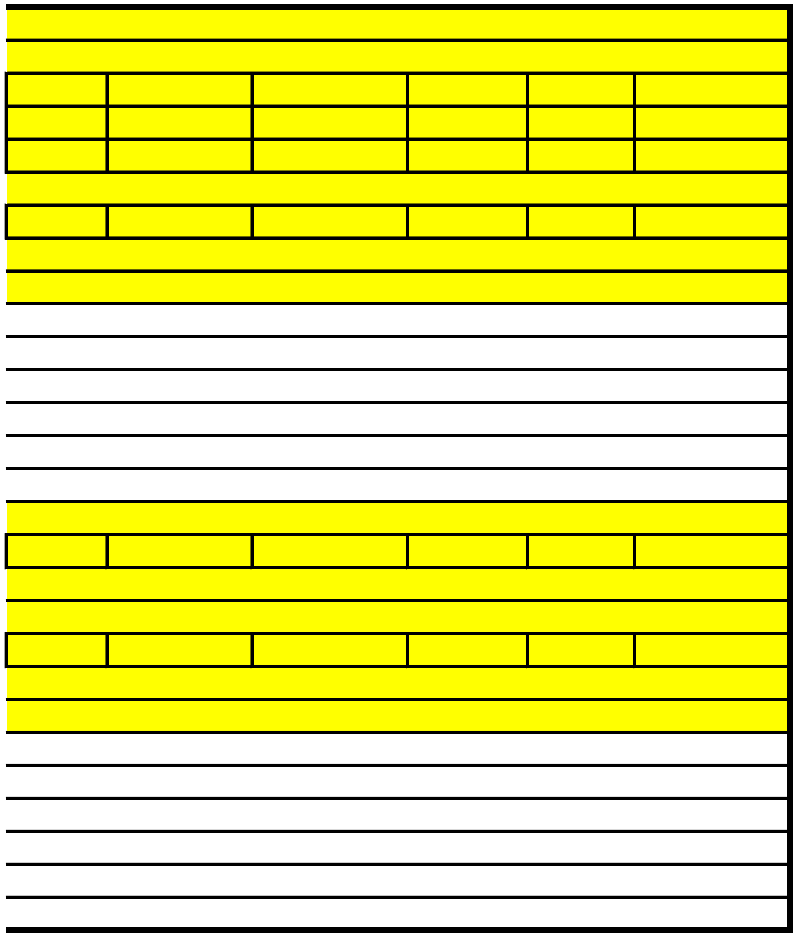
Instructions:

Run	Enter the number of the charge/discharge cycle
Start Resting Voltage	Enter the resting voltage of the battery before charging.
Charge Start Date/Time	Enter the date and time that charging started.
Primary Draw Amps	Enter the draw current from the primary battery.
Charge Input Amps	Enter the charging current into the secondary battery.
Charge Term. Voltage	Enter the voltage of the charging battery when the charge cycle is completed with the SSG running. Charge to 14.5V or the voltage recommended by battery manufacturer.
Charge End Date/Time	Enter the date and time that the charge termination voltage was reached.
Rest End Date/Time	Enter the date and time that the rest period finished (recommended 60 minutes after Charge End Date/Time)
End Resting Voltage	Enter the voltage of the charging battery after the rest period.
Average Resting Voltage	The average of the Start and End resting voltages, automatically calculated.
Charge Input (Watts)	The conventional power measured into the battery during charging, automatically calculated
Charge Time Seconds	The total charging time, automatically calculated.
Charge Input Joules	The amount of conventional energy (in Joules) input into the charge battery, automatically calculated
Charge Input Amp Hours	The amount of conventional energy (in Amp Hours) input into the charge battery, automatically calculated
System Input Amp Hours	The amount of conventional energy (in Amp Hours) taken from the primary battery, automatically calculated.
Start Resting Voltage	Enter the resting voltage of the battery before discharging.
Load Start Date/Time	Enter the date and time that discharging started.
Discharge Load (Amps)	Enter the conventional current measured from the battery during discharging. Do not exeeced the C20 rate and keep the same for all runs.
Load Term. Voltage	Enter the voltage of the charging battery when the discharge cycle is completed with the SSG running. Recommended discharge voltage is 12.0V
Load End Date/Time	Enter the date and time that the load termination voltage was reached.
Rest End Date/Time	Enter the date and time that the rest period finished (recommended 60 minutes after Load End Date/Time)
End Resting Voltage	Enter the voltage of the charging battery after the rest period.
Average Resting Voltage	The average of the Start Resting Volateg and End Resting Voltage, automatically calculated.
Discharge Load (Watts)	The conventional power measured from the battery during discharging, automatically calculated
Discharge Time (Seconds)	The total discharging time, automatically calculated.
Discharge Output Joules	The amount of conventional energy taken from the battery during discharging, automatically calculated
Battery COP	The Coefficient of Performance of the charging battery, automatically calculated
System COP	The Coefficient of Performance of the system, automatically calculated

ulated!

15:50:32 1/20/2010 9:00

	Discharging Energy Calculation												
System Input Amp Hours	Start Resting Voltage	Load Start Date/Time	Discharge Load (Amps)	Load Term. Voltage	Load End Date/Time	Rest End Date/Time	End Resting Voltage	Average Resting Voltage	Discharge Load (Watts)	Discharge Time (Seconds)	Discharge Output Joules	Load Output Amp Hours
13.23	13.04	1/19/2010 17:10	0.460	12.17	1/19/2010 22:44	1/20/2010 11:20	12.42	12.73	5.86	20,040	117,350	2.56
14.86	13.01	1/22/2010 17:43	0.460	12.12	1/22/2010 23:07	1/23/2010 11:32	12.39	12.70	5.84	19,440	113,568	2.48
16.05	12.98	1/26/2010 8:45	0.460	12.06	1/26/2010 14:30	1/26/2010 15:00	12.28	12.63	5.81	20,700	120,263	2.64
9.27	12.95	1/28/2010 4:50	0.460	12.03	1/28/2010 10:00	1/28/2010 11:00	12.39	12.67	5.83	18,600	108,405	2.38
7.33	12.93	1/30/2010 14:00	0.460	12.00	1/30/2010 19:33	1/30/2010 20:47	12.40	12.67	5.83	19,980	116,401	2.55
8.34	12.93	2/1/2010 10:45	0.460	12.00	2/1/2010 17:00	2/1/2010 19:50	12.39	12.66	5.82	22,500	131,031	2.88
9.85	13.11	2/3/2010 8:37	0.460	12.00	2/3/2010 17:05	2/3/2010 17:35	12.22	12.67	5.83	30,480	177,573	3.89
13.99	13.09	2/5/2010 16:43	0.460	12.06	2/6/2010 0:17	2/6/2010 8:37	12.34	12.72	5.85	27,240	159,324	3.48
10.33	13.08	2/8/2010 8:06	0.460	12.00	2/8/2010 15:25	2/8/2010 21:42	12.27	12.68	5.83	26,340	153,575	3.37
10.85	13.28	2/10/2010 13:00	0.460	12.00	2/10/2010 20:03	2/10/2010 20:37	12.23	12.76	5.87	25,380	148,912	3.24
10.68	13.18	2/12/2010 11:58	0.460	12.00	2/12/2010 18:16	2/12/2010 18:47	12.23	12.71	5.84	22,680	132,549	2.90
10.02	13.15	2/14/2010 9:00	0.490	12.00	2/14/2010 15:12	2/14/2010 15:42	12.23	12.69	6.22	22,320	138,788	3.04
10.59	13.09	2/16/2010 10:15	0.490	12.00	2/16/2010 16:01	2/16/2010 21:15	12.30	12.70	6.22	20,760	129,139	2.83
9.13	13.10	2/18/2010 8:38	0.490	12.00	2/18/2010 14:15	2/18/2010 14:45	12.25	12.68	6.21	20,220	125,581	2.75
9.57	13.02	2/20/2010 8:21	0.490	12.00	2/20/2010 13:30	2/20/2010 14:00	12.26	12.64	6.19	18,540	114,829	2.52
9.50	12.96	2/22/2010 8:30	0.490	12.00	2/22/2010 14:27	2/22/2010 15:17	12.25	12.61	6.18	21,420	132,300	2.92
9.74	12.96	2/24/2010 10:30	0.490	12.00	2/24/2010 16:43	2/25/2010 10:20	12.28	12.62	6.18	22,380	138,393	3.05
10.97	12.92	2/27/2010 17:44	0.490	12.00	2/27/2010 23:52	2/28/2010 8:19	12.29	12.61	6.18	22,080	136,376	3.01
10.18	12.94	3/2/2010 7:35	0.490	12.00	3/2/2010 13:10	3/2/2010 22:45	12.29	12.62	6.18	20,100	124,245	2.74
10.88	12.97	3/5/2010 14:24	0.490	12.00	3/5/2010 21:10	3/5/2010 23:00	12.27	12.62	6.18	24,360	150,637	3.32



Battery COP	System COP
0.99	0.19
0.95	0.17
0.94	0.16
1.31	0.26
1.05	0.35
1.03	0.34
1.37	0.40
0.93	0.25
1.11	0.33
1.04	0.30
1.03	0.27
1.09	0.30
1.07	0.27
1.19	0.30
1.00	0.26
1.18	0.31
1.17	0.31
1.02	0.27
1.00	0.27
1.03	0.30