Marine Electronics, Power

Eric Steinberg - Farallon Electronics

Agenda

- Common Problems - usually have common sense solutions

- The **Power Plan**

Common Problems and Solutions

- 80% of failures are installation related
  - If it were a car, we would call it a lemon
  - Keep the water out
- Inspect everything
  - EVERYTHING
- Workmanship
  - Dishes in your cupboard (whaaat?)
- Keep complexity below your pain threshold
- Know your systems, labels and drawings are helpful!

VHF antenna connector in the bilge area


Open terminal strip
near the floor
STEAMING LIGHT
WINDEX LIGHT

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Chaos

Peace and harmony

Ta Da

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Pac Cup Power Plan

- Power Plan Template
  - www.pacificcup.org >
    RESOURCES >
    Knowledgebase >
    Energy Management
- How to find the information you need
  - Forget the spec sheets, test it yourself
  - Energy monitor with shunt
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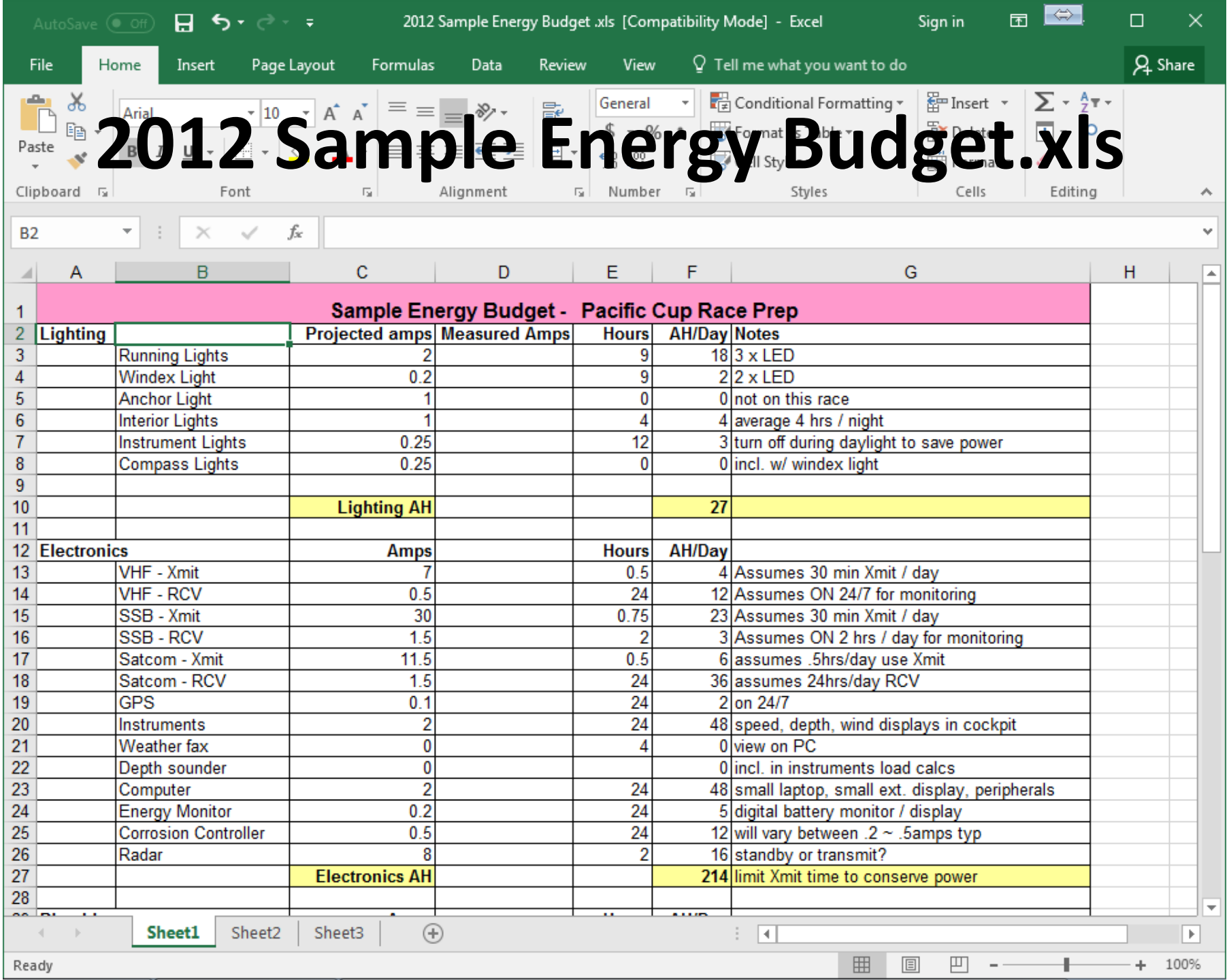

	A	B	C	D	E	F	G	H
1			Sample Energy Budget - Pacific Cup Race Prep					
2	Lighting		Projected amps	Measured Amps	Hours	AH/Day	Notes	
3		Running Lights	2		9	18	3 x LED	
4		Windex Light	0.2		9	2	2 x LED	
5		Anchor Light	1		0	0	not on this race	
6		Interior Lights	1		4	4	average 4 hrs / night	
7		Instrument Lights	0.25		12	3	turn off during daylight to save power	
8		Compass Lights	0.25		0	0	incl. w/ windex light	
9								
10			Lighting AH			27		
11								
12	Electronics		Amps		Hours	AH/Day		
13		VHF - Xmit	7		0.5	4	Assumes 30 min Xmit / day	
14		VHF - RCV	0.5		24	12	Assumes ON 24/7 for monitoring	
15		SSB - Xmit	30		0.75	23	Assumes 30 min Xmit / day	
16		SSB - RCV	1.5		2	3	Assumes ON 2 hrs / day for monitoring	
17		Satcom - Xmit	11.5		0.5	6	assumes .5hrs/day use Xmit	
18		Satcom - RCV	1.5		24	36	assumes 24hrs/day RCV	
19		GPS	0.1		24	2	on 24/7	
20		Instruments	2		24	48	speed, depth, wind displays in cockpit	
21		Weather fax	0		4	0	view on PC	
22		Depth sounder	0			0	incl. in instruments load calcs	
23		Computer	2		24	48	small laptop, small ext. display, peripherals	
24		Energy Monitor	0.2		24	5	digital battery monitor / display	
25		Corrosion Controller	0.5		24	12	will vary between .2 ~ .5amps typ	
26		Radar	8		2	16	standby or transmit?	
27			Electronics AH			214	limit Xmit time to conserve power	
28								

Mas

Moore 24 - Mas Energy Consumption Plan 2016 Pac Cup				Actual Energy Consumption 2016 Pac Cup		
Description	Hours per day	Amps per hour	Total Amps per day	Hours per day	Amps per hour	Total Amps per day
Instruments Day Time	14	-0.5	-7.0 Amps	0	-0.5	.0 Amps
Instruments Night Time	10	-0.4	-4.0 Amps	10	-0.4	-4.0 Amps
Nav Lights	10	-0.3	-3.0 Amps	10	-0.3	-3.0 Amps
Iridium Go & Laptop	1	-1.3	-1.3 Amps	1	-1.3	-1.3 Amps
VHF	1	-1	-1.0 Amps	0	-1	.0 Amps
Total Draw			**-16.3 Amps**			**-8.3 Amps**
1st Solar Panel - 23W Solbian			7.5 Amps			2.5 Amps
Peak (10am - 3pm)	5	1.1	5.5 Amps	5	0.5	2.5 Amps
Non-peak (8am-10am, 3pm-6pm)	5	0.40	2.0 Amps	0	0.40	.0 Amps
2nd Solar Panel - 23W Solbian			7.5 Amps			
Peak (10am - 3pm)	5	1.1	5.5 Amps			
Non-peak (8am-10am, 3pm-6pm)	5	0.40	2.0 Amps			
Total Charge			**15.0 Amps**			**2.5 Amps**
Total Overage/(Deficit)			**-1.3 Amps**			**-5.8 Amps**
Lithium Battery :			**120 Amps**			**120 Amps**
Percent of usable battery capacity			**50%**			**50%**
Total days sustainable with deficit			**46 Days**			**10 Days**

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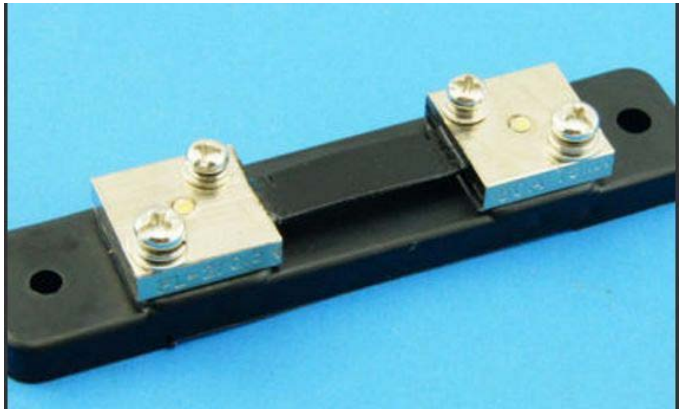
BMV-700
BATTERY MONITOR
victron energy
164 Wh
HISTORY
SETUP
SELECT


xantrex
75.9 %
MAIN
manual synchronize
V
A / Ah
setup
%
LinkLITE
battery monitor


victron energy
... overview
Inverting
Grid
0W
AC Power
615W
575W
Battery
28.1V
8W
100%
PV Power
621W
color control


House Battery (Ah)
12.6V
+23.0A
215AH
6/7
ESC
ENT


BLUE SEA SYSTEMS
M2
1830 DC STATE-OF-CHARGE MONITOR
House Battery
12.07 V
57 %
-9.8 A
2 12.14 V
12.06 V 3
ALARM



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Testing and Seatrials

- Test test test
  - Alternator output rating
  - Seatrials
  - Seat time, email, radios, AIS, computer

- Get it done early

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- Get it done early

Notes

- **Lemon Law** requires a vehicle manufacturer that is unable to repair a vehicle … after a reasonable number of repair attempts to replace or repurchase the vehicle.

Thanks!

info@farallon.us