

## Electrical Systems Worksheet

**12 V Demand (per 24 hr period)**

Table 1

Device	Amperage Draw	* Hours Operated	Consumption amps * hours
Refrigeration			
Heater			
Interior Lights			
Running Lights			
Lectra San			
Anchor Lights			
Instruments			
Stereo			
Fans			
Anchor Windlass			
Other DC #1			
Other DC #2			
Other DC #3			
Water Pump			
Inverter Load (table 2)			
<b>Total 12 V consumption per day</b>			

**120 V AC Demand via Inverter (per 24 hr period)**

Table 2

Device	Wattage	* Hours Operated	=Consumption watts * hours	12 V Cons. Amp Hours (divide watt-hrs by 10)
Microwave				
TV / VCR				
Coffee Maker				
Refrigerator				
Trash Compactor				
Computer				
Hair Dryer				
Other AC Load #1				
Other AC Load #2				
Other AC Load #3				
Other AC Load #4				
Other AC Load #5				
Other AC Load #6				
Other AC Load #7				
<b>Total DC Consumption: (insert into table 1)</b>				

Daily Consumption Total Amp Hours (aH) required in a 24 hour period \_\_\_\_\_  
 Battery Bank Size (aH) Multiply Total aH times 3 equals the total bank size required \_\_\_\_\_

Component Sizing  
 Battery Charger To charge the batteries in less than 8 hours (battery size (aH) / 10) \_\_\_\_\_ amp charger  
 To charge the batteries in less than 16 hours (battery size (aH) / 20) \_\_\_\_\_ amp charger  
 Alternator To charge the banks w/in 90 minutes utilizing a smart regulator \_\_\_\_\_ amp alternator  
 install an alternator which is the same size as the daily DC demand in aH  
 Inverter Inverter size is determined by summing the combined wattage consumption \_\_\_\_\_ watt inverter  
 The battery bank should be 5x the total inverter wattage \_\_\_\_\_ battery bank size

(see back side for typical draw rates)

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### Typical Amperage Draws

Device	Amps Drawn/ hour	Device	Amps Drawn/ hour
Anchor Light	1.0	Plotter	4.5
Anchor Windlass	80.0	Propane Valve	1.0
Autopilot	4.0	Radar	4.0
Bilge Blower	2.5	Refrigerator	5.6
Bilge Pumps	5.0	Running Lights (3)	3.6
Blender (110 V)	50.0	Spot Light	10.0
Cabin Fan	1.0	Spreader Lights	8.0
Cabin Light	1.0	SSB receive	1.5
Depth Sounder	1.0	SSB xmit	28.0
Fresh water pump	5.0	Steaming Light	1.2
Fuel pump	3.0	Stereo	2.2
GPS	0.3	VHF receive	1.0
Head Pump	18.0	VHF xmit	5.0
Knotmeter	0.1	Washdown Pump	10.0
Laptop Computer (110V)	10.0	Windspeed	0.3
Microwave (110V)	100.0		

### Amp-Hour Consumptions:

Amp-Hr Use	House Bank	Alternator	Smart Charger	Max Invertors Size
50	1 - 4D (150 aH)		50 15	750w
75	1 - 8D (220 aH)		75 20	1000w
100	2 - 4D (300 aH)		100 30	1500w
150	2 - 8D (440 aH)		150 40	2500w
200	3 - 8D (660 aH)		150 60	3000w