

Electrical Budget Worksheet (Harrier - Finn Flyer 31)

1 Calculate your DC Loads:

Lighting	Amps	Hours	AH/Day
Running Lights			0.0
Masthead Tricolor Light			0.0
Anchor Light			0.0
Strobe Light			0.0
Spreader Lights			0.0
Cabin Light (small)			0.0
Cabin Light (big incandescent)			0.0
Cabin Light (fluorescent)			0.0
Instrument Lights			0.0
Handheld Spot Light			0.0
Other			0.0

1.1 Lighting AH = lighting sum

Galley	Amps	Hours	AH/Day
Refrigeration			0.0
Prop Solenoid			0.0
Other			0.0

1.2 Galley AH = galley sum

Electronics	Amps	Hours	AH/Day
Autopilot			0.0
VHF (receive)			0.0
VHF (transmit)			0.0
SSB (receive)			0.0
SSB (transmit)			0.0
SSB Digital controller			0.0
GPS			0.0
Instruments			0.0
Weather fax receiver			0.0
Radar (standby)			0.0
Radar (transmit)			0.0
AIS			0.0
Energy Monitors			0.0
Stereo			0.0
Computer (screen off)			0.0
Computer (screen on)			0.0
Computer (serial adapter)			0.0
Other			0.0

1.3 Electronics AH = electronics sum

Plumbing	Amps	Hours	AH/Day
Fresh Water Pump			0.0
Bilge Pump(s)			0.0
Other			0.0

1.4 Plumbing AH = plumbing sum

Calculate using average water consumption. This should be zero unless the boat leaks.

Inverter	Watts	Hrs/day	AH/Day
Microwave			0.0
Chargers (nicad)			0.0
Other			0.0

1.5 Inverter AH = inverters sum

All values assume inverter efficiency = 85%. Power factor may mess up this estimate.

Gross Energy Consumption AH/Day = Lines 1.1+1.2+1.3+1.4+1.5

2 Alternative Energy Sources

Device	Amps	Hrs/day	AH/day
Solar, avg			0.0
Wind, avg			0.0
Water, avg.			0.0
Contribution of AES AH/Day			<input type="text"/>

Assumes one large panel. Assumes AIR Marine wind turbine in good location.

= sum of alternative energy sources

3 Net Energy Consumption, AH/Day = gross energy consumption - contribution from AES

4 Desired Hours Between Charging

5 Range of Battery Use

For example, from 50-85% state of charge.

6 Recommended Battery Capacity = (Line 3 x Line 4 / 24) / Line 5

7 Alternator Output, Amps

Target would be 25% flooded, 40% gel, of capacity.

8 Charge Efficiency Factor

Gels = 95%, flooded cells = 85%

9 Minimum Minutes to Charge = (((Line 3 x Line 4 / Line 8) / Line 7) / 24) x 60
Assumes alternator runs at full output.