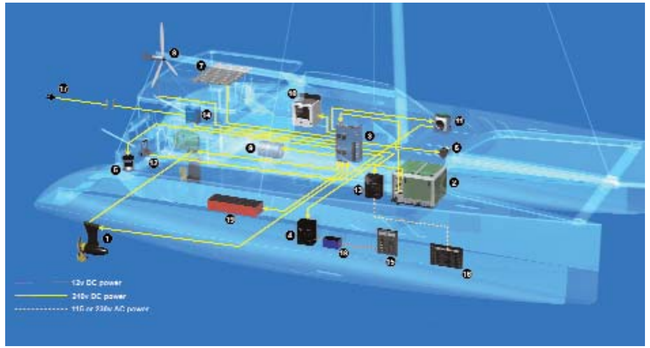
comprehensively integrated marine diesel-electric power systems

System Diagram

Glacier Bay's marine power system delivers the promise of seamless integration. From the generator, power flows outward, routed efficiently through distribution panels, to all reaches of the vessel. Power needed for the propulsion motors is coordinated with smaller loads, such as an oven or hot water heater, with no loss in performance. And alternative power sources are readily accepted into the system, from solar and wind energy to battery banks and fuel cells.



1. Permanent magnet propulsion motor
2. Variable-speed diesel DC generator
3. Power distribution and safety system
4. Low voltage battery charger
5. Electric winch
6. Electric windlass
7. Solar panels
8. Wind generator
9. Hot water heater
10. Stove/ Oven
11. HVDC Variable speed air-conditioning
12. Throttle and digital controls
13. DC/AC inverter
14. Isolation transformer
15. Low voltage panel
16. High voltage panel
17. Shore power
18. Low voltage battery bank
19. High voltage battery bank

Glacier Bay generators and motors are hand wound and individually tested.

marine power re-defined

ABOUT GLACIER BAY

Glacier Bay Inc. is an internationally recognized leader in advanced energy technologies, designing and manufacturing refrigeration and air conditioning systems, DC power management platforms, and high tech insulation products. Since 1990, Glacier Bay has built a reputation for engineering excellence in thermal management and has been at the forefront of developing variable speed compressor technology. We have designed rugged, reliable, fully integrated systems for the likes of IBM, NASA, Hewlett-Packard, Westinghouse, Northrup Grumman, United Defense, Lockheed-Martin, DARPA and others. With a focus on superior performance, eco-friendliness, and innovation, Glacier Bay delivers quality products designed to withstand the most rigorous environments.

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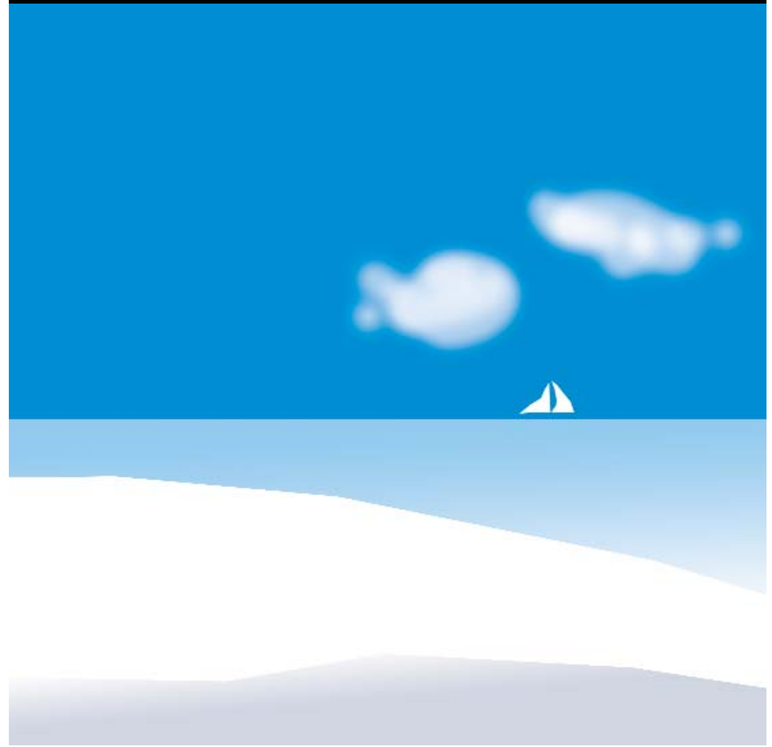
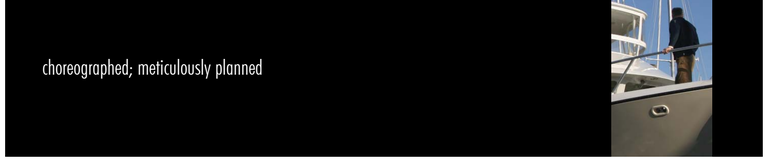
electric power *choreographed*



Uniquely integrated electric propulsion and distribution systems



OSSA POWERLITE

The Glacier Bay Diesel-Electric Propulsion System is the unique, innovative solution to marine propulsion. With all components networked together to cooperatively vary their speed, capacity, and power characteristics, the system can continually self-optimize for changing environmental and load conditions. *Whether those changes come from the onset of a storm, a slight shift in the pattern of waves, or the arrival of guests for dinner, the system adjusts, hundreds of times per second, to perfectly and efficiently match the new conditions.* No other system can offer such a combination of comfort, craftsmanship, performance, and efficiency.

Imagine a marine power and propulsion system that couples impressive performance with remarkable efficiency. A system with uncompromised reliability, designed to thrive in harsh marine environments. A system so well integrated, the components actually communicate with each other and coordinate their behavior to achieve seamless operation. Glacier Bay brings this dream to life in a complete, elegant package.

The Glacier Bay Diesel-Electric Propulsion System is a fully integrated approach to marine propulsion and power. It combines lightweight, high efficiency permanent magnet generators and motors with advanced power distribution and a wide range of carefully matched and fully integrated accessories. Our equipment sets a new standard of performance for power generation and utilization on modern yachts of all types and sizes.

Glacier Bay's innovative OSSA Powerlite® technology, an intelligent power management platform designed to maximize efficiency and performance, is at the core of our marine systems. This technology delivers full system integration, along with unparalleled levels of adaptability, flexibility, and comfort directly to your boat.

Integrated Electric Propulsion and Power

System Benefits & Features:

- high fuel efficiency
- low emissions; low-odor operation
- highly flexible; customizable to fit specific needs
- lightweight, compact components
- components can be arranged to provide optimal weight distribution and on-board space savings
- precise, easy maneuverability
- superior performance in extreme weather
- extremely quiet, low vibration operation
- true variable-speed components ensure efficiency and optimum performance
- user-friendly touch screen displays
- suitable for both new construction and retrofit
- custom components can be designed for unique needs

Variable Speed Brushless DC Generators

With OSSA Powerlite technology, it is now possible to effectively harness the remarkable performance of neodymium permanent magnet generators. No power conditioning is needed to achieve their incomparable power density and high efficiency. Lightweight, compact, and powerful, Glacier Bay generators are like nothing else on the market.

Our generators:

- are always rated for continuous duty
- feature variable-speed technology which provides dramatic reductions in fuel consumption, noise, and engine wear
- use fresh water stator cooling systems to ensure long-term stator reliability
- have greatly reduced risk of fire and shock compared to high current / AC systems

Synchronous Permanent Magnet Propulsion Motors

Glacier Bay electric propulsion motors are the result of over 15 years of research in advanced permanent magnet motor technology. Developed specifically for use in yachts, they have been designed from the ground up to be at sea, featuring robust components for uncompromised reliability. Of course, any brushless DC motor is only as good as the electronic control which powers it. We are one of very few manufacturers to also design and build our own motor controllers. You can be sure your motors will function seamlessly under even the most challenging conditions.

Glacier Bay electric propulsion motors:

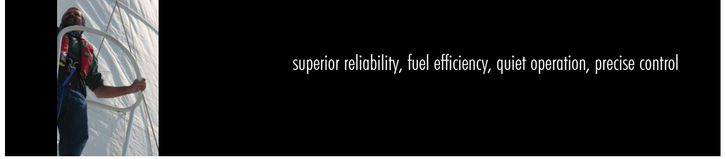
- do not require a transmission or other gear reduction
- are available in a wide range of powers for vessels of varying sizes
- develop their rated torque from startup to maximum RPM
- feature hand-wound and individually tested stators which are 100% encapsulated in ceramic epoxy
- will retain their high electrical integrity in every possible environment

Power Distribution System

With every Glacier Bay diesel-electric system comes robust and innovative power distribution, based around a simple idea: fixed components in a power system are harmful to efficiency since they restrict the ability of that system to be optimized for changing conditions. Glacier Bay power distribution is designed for variable-voltage DC power, providing freedom from the limitations of fixed frequency and creating a truly dynamic power system. Glacier Bay manufactures a complete line of DC power distribution components, for a system as basic or as intricate as you need it to be. And customer safety is our highest priority; every panel features our proprietary Ground Fault Safety (GFS) technology. The GFS monitors the entire power system, communicates safety status to all user interfaces, and alerts you to any faults while letting you know the seriousness of the problem. So you can count on an extremely powerful system which never sacrifices safety for performance.

Glacier Bay panels offer the following features and benefits:

- capacities from 120 - 1,000 v DC and 150 - 2,000 amps
- electronic and electromechanical circuit protection
- single and multiple generator input ports



- high and low power circuits for propulsion motors and accessories
- on-board AC shore power rectification
- thermostatically controlled forced air cooling
- infinitely expandable circuit quantity using separate sub-panels
- built-in programmable voltage spike dissipation circuit
- designed to meet the international standards established for diesel-electric commercial marine systems
- GFS provides 24/7 monitoring of the entire DC power bus

System Displays & User Interfaces

The elegant integration present throughout the Glacier Bay diesel-electric system is also obvious in the graphical touch-screen displays. As user-friendly two-way devices, these interfaces allow the user to set up and change operational parameters of any component on the network, as well as communicating the status of all networked devices to the user. Since all devices share a common power interface, any touch screen can receive data from, and send data to, any component on the network. Detailed information and control capability is at your fingertips - anywhere on the vessel.

Glacier Bay Marine Accessories

Key to Glacier Bay's integrated system concept is the development of a wide range of innovative accessories which seamlessly integrate with our generators. These accessories typically feature our proprietary brushless DC motor technology, and offer tremendous weight and space savings over conventional products.

While specific features vary from product to product, all offer:

- guaranteed compatibility with all other Glacier Bay marine components
- reliable compatibility with virtually any power source
- dependable starting, no inductive start-up surge
- true variable-speed operation
- lower size and weight than conventional AC-powered counterparts
- low voltage DC power operation
- able to operate from AC shore power, via distribution panel rectification

Accessories that are truely integrated into the system operate and communicate seamlessly with each other and with the main generator(s).

Accessories include:

- auxiliary motors
- bow/stern thrusters
- air conditioning (Micro Air™)
- battery chargers
- DC - AC power converters
- stovetops, ovens, refrigeration, watermakers, water heaters, windlass, etc.