

# DC TRAVELLER 12 - 24 VOLT

## The DC alternative from HFL

- Suitable for boats and vehicles
- Diesel powered battery charger
- Heat exchanger cooled
- Quiet running with variable speed
- Self regulating DC output
- Use DC power for airconditioning, watermakers, lights, refrigeration and other electrical systems.

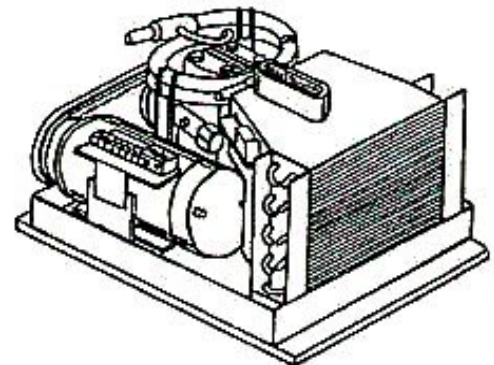


DC power is the traditional source of energy on commercial and pleasure boats, both power and sail. Many boats have been built and many still are built with purely DC systems. However, the continuous development and improvement of small marine engines has resulted in volume sales of compact AC diesel generator sets. The advantages of AC on board are many, enabling boat owners to power heavy electric consumers such as water heaters, air conditioners, water makers, power tools and household electrical consumers such as hair driers.

Both AC and DC systems have their advantages, very often depending on the application, thus it is necessary to find the correct solution for each application.

When using AC power it is essential that the prime mover, the diesel engine, is running at a constant speed of 1500rpm or 3000rpm in order to obtain 230v at 50Hz. With modern high speed diesel technology and correct maintenance it is possible to get many running hours from an HFL diesel marine generator. These units suit many applications, especially on larger boats with airconditioning systems and many other AC users.

With many other craft the priority is simply replenishment of the batteries, thus making it more appropriate to run a DC generator, rather than running an AC generator just to convert the AC energy back to DC via a battery charger. The batteries then power the many DC systems on board, for example on a blue water cruising yacht, an inverter being used to efficiently convert DC to AC for light loads.



## Innovation

The new DC alternative from HFL is based on a regulation system whereby the operation of the diesel charger is automatically controlled by the state of the battery. Whenever 12 or 24v consumers are used the battery voltage will drop dramatically. Once the batteries have reached a preset voltage, the diesel charger will automatically cut in, replenishing the batteries up to 14v or 28v respectively, then switch off again automatically. A DC generator is capable of providing output via its alternator over a wide set of operating conditions, with the engine speed being variable offering fuel economy and lower service requirements.

## Application

The HFL diesel charger can be used anywhere on board marine craft and is also suitable for road vehicle usage, such as RV's and demonstration vehicles. Naturally for non-marine applications a dry exhaust should be employed, dry exhaust systems are also suitable for canal and narrow boats. Using a battery system with sufficient storage capacity would allow long periods on board with no combustion engine in operation. Thus a variety of DC consumers can be used with confidence with the owner knowing he can efficiently and cheaply recharge batteries with his HFL DC charger. Considering these advantages it becomes apparent that the new DC charger from HFL is most suitable for smaller craft, such as cabin cruisers from 18' onwards and sailing boats from 25' upwards.

## Inverters

This new technology allows easy conversion from DC power into AC 230v. By using rectified sign wave inverters, microwave ovens can be powered with input voltages of 230v and very accurate electronic controls. Other consumers such as televisions, CD players and communication equipment can be powered and charged as and when required to suit individual owners demand.

## Exhaust

In many cases the exhaust systems on board are noisy and therefore objectionable. The introduction of the HFL exosilent has greatly contributed in achieving quiet wet exhaust systems both internally and externally. Together with a diesel charger in the cocooned version it is fair to say that the DC generator charger will be almost inaudible, with the ability to operate with total quiet both inside and outside the boat.

## Costs

It is obvious that the simpler DC diesel charger is less in price since the technological requirements are lower than those of AC generators. HFL have established that building small cocooned diesel generators below 4kva is not cost effective, with the outputs so low as to be pointless to install. The DC alternative is therefore the choice for modern boats employing battery systems in conjunction with a small inverter. The accommodation of this equipment on board small boats is easy and since costs are no longer the main issue, we feel that the DC alternative is shaping the future in small boat power generation.

Model	Voltage	A	Weight kg
H1D12-65K	12V	65	45
H1D12-100KC	12V	100	56
H1D24-50KC	24V	50	58

SPECIFICATIONS	
Engine	Kubota
Output	4HP/2.9KW/2600rpm
Bore / Stroke mm	66 x 62
Displacement cm <sup>3</sup>	212
Cooling	Heat Exchanger
Inclination Angle	25
Starter	12V x 0.8KW
Combustion	TVCS

## Engine

Horizontal type diesel engine with horizontal cylinder. Rating to ISO 8528. Low build with side-belt driving power take off to provide minimum overall dimensions. Direct fuel injection based on Kubota three vortex unique super-efficient fuel spray combustion system for low vibration and clean exhaust emissions.

## Alternator

Small case alternator designed for high output at high operating temperatures in heavy duty environment. Hand wound, high output stator, precision balanced rotor. High speed bearings and heavy duty diodes, marine certified.

## Regulator

- Three step charging with bulk absorption and float modes
- Starting delay timer · Stepped voltage on turn on
- Short circuit protection
- Over voltage protection
- Duty cycle current limiting
- Gel cell battery protection
- LED signal lamp for:
  - Turn on delay
  - Float mode
  - Short circuit
  - Missing or blown fuse

## Traveller DC Generator

The engine and belt driven DC alternator are mechanically coupled. Engine cooling via plate type marine heat exchanger and circulating fresh water pump. Belt driven self priming sea water pump with raw water injection in to dry exhaust. Oil, fuel and aircleaner internally mounted. 12V electric fuel delivery pump, diesel system self bleeding. Set wired in failsafe configuration for cooling water temperature too high and low oil pressure.

The complete generator is mounted in a GRP enclosure (with the exception of HD12-65K) for quiet operation incorporating forced air circulation in cocoon. Internal and external resilient mounts to prevent transmission of structure borne noise.

All sensitive electric and electronic components mounted in separate enclosure to facilitate easy service access, also to ensure electromechanical suppression of interface radiation. Heavy duty DC terminals and loom connections for remote control panel.

Specifications may be altered without notice.

