

The Green RIG – Info For Tyre-Kickers



It's big, it's green and it's full of cool stuff! Here's the low-down on Horizons' big Green RIG environmental education vehicle:

A custom-built semi-trailer: 13.9m from tip to toe, 14 tonnes gross weight, and 4.0m high. Running on a dual wheel, tandem axle chassis, the trailer has remote-controlled auto-stabilising hydraulics, electric landing legs and air suspension. The low-rider chassis was built by Jacksons Enterprises in Pahiatua and the trailer construction and fit out was carried out by Custom Coaches, Palmerston North.

It's towed by a: Mitsubishi Fuso Shogun, six tonne, 4 x 2 tractor unit. The 370 horsepower, 6-cylinder diesel intercooled turbo engine is compliant with strict Euro 3 emission standards. With a 10 speed synchromesh gearbox and rear air suspension, the 3-seater sleeper cab has a range of driver safety features (e.g. side intrusion bars). Custom additions include a propeller plate deck, stainless steel mudguards, LED lights, a rear storage locker and loading hoist.

The RIG is powered by: three alternate sources (mains power, solar and generator) depending on availability and location. A series of roof-mounted solar panels deliver power to the on-board battery system

when the sun shines. If demand exceeds solar input, the mains and/or generator sources deliver energy to the battery system. The onboard power system is fully automated.

A charger/inverter converts mains/generator power into the batteries; supplies all mains power (made from the batteries) for use in the trailer; and makes a direct connection from the mains/generator supply when charging the batteries. Power consumption, battery status and solar gain are all recorded by on-board displays to promote energy monitoring and power saving.

The power system is made up of:

A Mains Power Connection: 10, 16 or 32 amp plug socket connection via an 18m cable.

Roof-Mounted Photovoltaic Panels: Eight roof-mounted Sharp 123 watt tempered glass panels. Maximum generation capacity approximately 1kW.

Energy storage: A bank of twelve 2-volt lead acid gel cell batteries. Total energy storage 20kWh

Generator: A fuel-efficient (eco-throttle), quiet running, low-emission Honda 6.5kVA Petrol Generator.



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On-board features include: A portable water supply (250L tank), wastewater dump tank, gas heating and faucet hot water. Ventilation is provided by a forced air fan and window/hatch for natural air flow.



RIG with Genesis Energy inflatable dome

External trailer features include: A 'push-out' 3.4m wide main entrance (that extends 1m) with detachable folding alloy steps and handrails. A pull-out 3-burner gas BBQ and servery area is covered by an electric winch-operated 3m adjustable shade umbrella. Extensive chassis storage is provided via a series skirt lockers equipped with gas struts. An educational stream table slides out from the trailer rear (complete with self-contained (non-potable) recycling water system). Exterior scene lighting for night-time events is fitted along the full length of the vehicle.

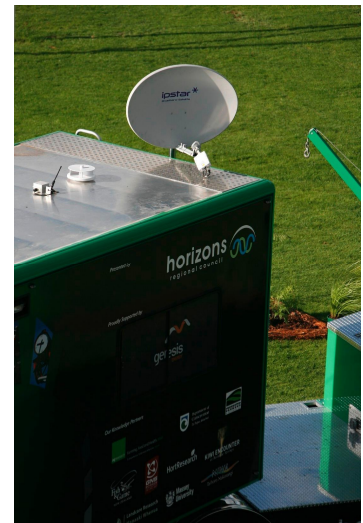
Inside, the roof and walls are fitted with energy efficient LED display and working lights. The secure office space over the gooseneck provides for extensive storage, and holds the audio and computer control systems, power switchboard, and fridge.

Trailer construction: Comprises a fibreglass shell over a steel frame with aluminium roof and plywood floor. The walls are lined with Autex polyester Green Stuf thermal insulation and ceiling with Quiet Stuf acoustic insulation. Internal walls are clad with Aluco-bond graphic panels and the ceiling with Autex Vertiface.

Technology: In the RIG Office, rack-mounted PCs drive 3 multimedia touch screens and a 40" LCD screen in the main display area. A DVD/Video system

is also routed to the big screen and 3 roof-mounted speakers. In the ESI Lab area at the rear of the trailer, there are two iMAC all-in-one computers that provide public internet kiosk access and a video macroscope for invertebrate and natural history studies. The view from the macroscope can also be routed onto the big screen for a super close look! A portable digital projector, screen and PA system are also carried for outdoor use (in the Genesis Energy dome).

Communications: A mobile internet connection is provided by an IPSTAR broadband satellite system, with the satellite dish mounted on the front of trailer using a telescopic gas mount. The backup system is a Vodafone 3G/GPRS unit. On-board video conferencing is available through the satellite connection. The tractor unit has an RT operating on Horizons' Teamtalk network, a Smarttrack GPS tracking unit and dash-mounted webcam. The trailer is equipped with a series of Civil Defence communications aerials operating at different frequencies (Police, Marine VHF, ES Band) with a radio patch panel in the office. This will allow the Green RIG to operate as a back-up mobile communications centre during a civil defence emergency.



Mobile satellite broadband

Outdoor Venue: The Genesis Energy Dome. The RIG carries an inflatable 10m diameter, 5m high PVC dome shelter and groundsheet structure that can either be assembled stand-alone or connected to the push-out entrance of the vehicle via a special gusset. The dome is kept inflated by an energy efficient electric blower unit and has removable walls with windows. For events, the RIG carries a small catering kits, 6 folding tables and 30 folding chairs.