f-POD ECO
General Operators Instructions

30-07-2024

ESSENTIAL EQUIPMENT CONSORTIUM

Performance Systems

Contents

Safety Instructions

The f-POD has been designed with total safety a priority including a sealed fuel system with a Vacuum/Pressure relief valve and Vapour Capture Device and a fully sealed electrical system, to reduce spark risk.
However, it is your responsibility to read and adhere to the instructions in this manual carefully. It is recommended when filling or emptying into a fuel that you use a sealed safety drum adaptor with an ATEX approved flame trap vent.

This f-POD is only intended for the adding or removal of fuel into or out of race cars and should only be filled or drained with fuel from and to approved fuel drums. It must not be used for any other application unless approved by the manufacturer.

Fire extinguishers, suitable for the type of fuel being used must be adjacent to the f-POD during use. Suitable 'spill kits' should be available in the event of a leakage or spillage of fuel.

This f-POD must not be operated in the vicinity of naked flames or heat sources.

There must be no smoking whilst in the vicinity of the f-POD.

Operators must stay with the f-POD during all automatic procedures.

The Grounding Cable, must always be attached to the f-POD and connected to the chassis of the race car or fuel container being filled or emptied, **before** the hoses are connected.

The f-POD must be emptied fully after end of day use and before charging the battery.

The f-POD must not be used to store fuel. Do not climb on or stand on the f-POD

The f-POD must be fully emptied before transportation. Please study the Transport instructions carefully.

The f-POD must be regularly inspected for any leaks. EEC will not be responsible for any damage or considered pollution from any leakage.

If an operator comes into bodily contact with any fuel they should rinse thoroughly with water and seek immediate medical attention.

Only fully trained operators can use the f-POD.

Maintenance and repairs should only be carried out on the f-POD by persons trained and qualified to work in explosive atmospheres.

General

Read this manual carefully before using the f-POD. This manual contains essential information and instructions for the correct and safe use of the f-POD. If problems arise that could have been avoided by referring to this manual, your warranty could be affected.

Please contact us if you have any problems or questions.

Environment

The f-POD must at all times be kept in an upright position, including when in transport or storage.

The f-POD, is designed to be used indoors in a dry environment. It may be used outside as long as it is protected from precipitation.

For correct and accurate operation, it must be placed on a flat and level floor.

Recommended ambient temperature for operation should be between 0 and 40 degrees C.

Do not use around other systems that emit RF in the range of 10^4Hz to 3x10^11Hz

Do not use near sources of ionizing radiation.

The old parts and the f-POD itself, should be returned to EEC Performance Systems for correct and safe disposal at the end of its serviceable life.

Maintenance and Cleaning

Cleaning of the f-POD should be with a damp cloth. Be careful that no cleaning agents containing solvents are used. Do not use high pressure cleaning hoses on the f-POD.

Hoses, couplings and the grounding cable should be regularly inspected for damage. Control panel switches condition and operation should be intact and working correctly. Damaged hoses must be reported and changed. Do not repair or shorten hoses. This is not considered safe and will also affect the accuracy of your machine.

Outer covers can be removed to remove dust from component surfaces and inspect for leaks.

Hose and pipe line couplings must not be undone.

There are no operator serviceable parts inside the electrical box of the f-POD.

Any malfunctions must be reported to EEC Performance Systems for advice.

Only original spare parts can be fitted, only available from EEC Performance Systems.

The f-POD must be serviced annually, by EEC Performance Systems or by their nominated service agent.

Maintenance and repairs may only be carried out by persons with training and qualification of working in explosive atmospheres

General Specification f-POD ECO

General Construction:	Aluminium & Ply Flightcase Construction Mounted on Antistatic Castors. IP65 Sealed Steel Electrical Cabinet.
Dimensions:	640w x 680d x 950h mm
Gross Weight Empty:	91kg
Power Source:	Internal 12Vdc 33Ahr AGM Battery
Max Current Draw:	15Adc
Max Power:	180W
Suitable Fuels:	Petrol up to 15% alcohol blends (E15), Diesel up to 20% bio-diesel blends (B20), and Kerosene. For other application contact EEC Performance Systems for advice.
Ambient Temperature:	0 – 40 degree C
Maximum Use Per Day:	3 Hours overall
IP Rating:	Control Panel IP65
Noise:	Less than 70db(A)
Vibration:	Does Not Exceed 2.5m/s²

Preparing the f-POD for use

Before the f-POD is switched on, you must have a suitable fire extinguisher available and kept adjacent to the machine.

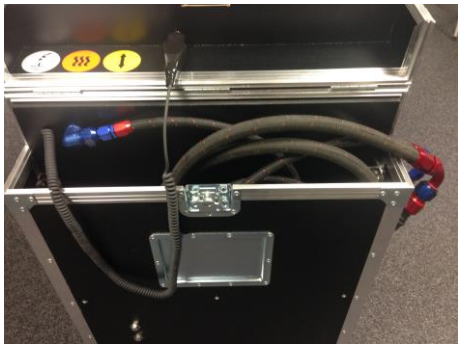
In the unlikely event of fire inside the machine, switch the battery isolator to 'OFF', then perform your usual fire evacuation procedure.

Release the Loadcell locking knob underneath the bowser. (See P.10)

Open the rear cupboard and identify the Grounding Cable, Fuel Hose and Vent Hose

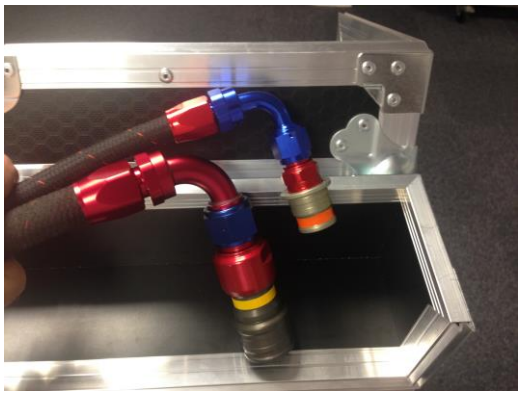
The Fuel Hose is identified with a FUEL label and maybe a -12 or -08 size pipe, The Vent Hose is identified with an Orange VENT and is usually a -8 size pipe, but can for some applications also be a -12.

The Grounding cable has a large spring clip to attach to a suitable earth point on the vehicle chassis or fuel drum



Hoses and connectors must be regularly inspected for cuts, damage and leakage.

Grounding Cable



Fuel & Vent Hose

Always connect the Grounding Lead to the chassis of the car or fuel container BEFORE connecting the hoses!

When the machine is idle, curl and return hoses into the rear cupboard.

REMOVE HOSES CONNECTED TO A VEHICLE OR FUEL CAN IMMEDIATELY AFTER FUEL TRANSFER AS AUTO-SIPHONING WILL OCCUR!

To switch the f-POD on (Internal Battery)

Turn the Control Switch from ‘OFF’ to ‘ON INT’

f-POD OFF

f-POD ON
LED INDICATOR ILLUMINATED

To switch the f-POD on (External Battery)

If the f-POD has insufficient charge left in the internal battery, a slave battery can be connected via the red ‘Anderson’ type connector on the top left hand side of the Control Panel.

ANDERSON CONNECTOR FOR EXTERNAL BATTERY

Plug a suitable 12Vdc battery into the external battery socket. Please ensure your slave battery connections are the correct polarity with respect to the Anderson connector and make sure the connector on your battery connector is in good condition and makes a good electrical connection. Poor intermittent connections can corrupt the f-POD ECO software.

Turn the Control Switch from ‘OFF’ to ‘ON EXT’

f-POD OFF

f-POD ON
EXTERNAL BATTERY

Operation

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At switch on, the red LED indicator screen will briefly show some numbers as the f-POD initiates itself then will display the weight of the contents in the internal fuel tank.

Connect the Grounding Cable and the Vent and Fuel Hoses to the Fuel Drum Adaptor. Press the RED PUMP Button and hold until the required amount is transferred into the f-POD. If you remove your finger from the button the pumping will stop instantly. Press again to resume as required. When the Fuel Drum nearly empty, you will hear the pump begin to suck air. You can continue to press the RED PUMP button until the display value ceases to increase, this is usually about about 5 seconds.

The f-POD has a maximum capacity of 80kg, so pumping will automatically stop if you reach that capacity.

Pressing the YELLOW TARE Button will set the f-POD ready for dispensing fuel. It will set the display to 00.0 and the READY Lamp will illuminate.

If you press the YELLOW TARE Button again it will change back to display the amount of fuel inside the f-POD again.

You can now dispense fuel into your Race Car or back into a Fuel Drum for storage.

Make sure you first connect the Grounding Cable, Vent Hose and Fuel Hose correctly

Pressing the GREEN PUMP Button will transfer fuel out of the f-POD into the Race Car The display will start to show a negative value as fuel is pumped out. If you remove your finger from the button the pumping will stop instantly. Press again to resume as required.

This examples indicates that 20kg has been transferred out of the f-POD.

Pressing the YELLOW TARE Button again will show the remaining amount of fuel in the f-POD.

In this example it shows that 60kg remain inside the f-POD.

It must be noted that the f-POD ECO does not compensate for whether the Fuel Hose is empty or full.
If the Fuel Hose is empty when you are pumping out of the f-POD ECO, it takes approximately 0.5kg to prime the 2 metre hose.
If the FUEL Hose is empty when you are pumping into the f-POD ECO, it takes approximately 0.5kg to prime the 2 metre hose.

Car Pump – Pump Out (Optional)

As an option, for cars with fuel tanks that do not have the ability for the fuel to be drawn out directly from the tank with the f-POD's pump.

This option includes a dedicated dry break connection located inside the f-POD hose compartment which passes through a solenoid valve to the top of the bowser fuel tank.

Connect the pump out hose, supplied, between a suitable dry break from the cars own fuel pump to the dry break in the hose compartment.

Press the black & white 'Arrow' button on the f-POD control panel to open the valve.

Switch on the cars fuel pump, fuel will flow into the bowser from the car.

Observe the weight display until the required amount is pumped out, or until the car runs dry and the weight change stops.

Press the red 'Stop' switch to close the valve. Remove the hose.

If during pump out, the f-POD tank becomes full, to capacity, the valve will automatically close to prevent overflow.

Enable Pump Out Valve

Close Pump Out Valve

Car Pump – Pump Out Connector

E-Stop Switch Operation

There is a red E-Stop or Emergency Stop button located on the far right hand side of the Control Panel.

If you have a need to stop the pumping procedure urgently, releasing either of the PUMP Buttons will stop the process. If for any reason the f-POD ECO fails to stop then push the red E-Stop button.

This will cut power to the pump immediately. When it is safe to continue, release the E-Stop button by gently twisting the red knob clockwise and select the appropriate PUMP Button to restart pumping.

E-STOP BUTTON

To switch the f-POD off

At the end of the day or you are wishing to charge the battery, you must empty the f-POD of fuel first.

Once the f-POD ECO is empty you can turn the Control Switch to ‘OFF’

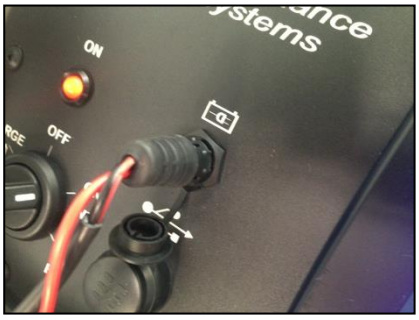
Charging The f-POD Internal Battery

The battery must be charged regularly between use and overnight after use.

The f-POD internal battery must only be charged with the EEC supplied & approved battery charger. The battery charging circuit or procedure must not be modified in any way! Never power the battery charger from a generator. Do not recharge the machine when in direct sunlight.

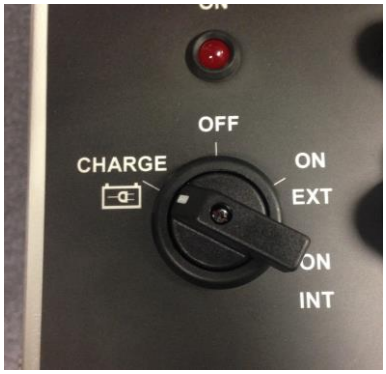
With the Control Switch set to ‘OFF’, connect the battery charger to the connector on the control panel

CHARGER SOCKET



BATTERY CHARGER CONNECTED

Plug the battery charger into a mains socket then turn the Control Switch to ‘Charge’ to begin charging.



The battery charger has indicator lamps to provide the following status information

RED lamp, to indicate the power is on.

The GREEN/YELLOW lamp: When yellow indicates charging is in progress and when green indicates battery is fully charged.

When the battery is fully charged, unplug the charger from the mains, turn the battery isolation switch to ‘OFF’, disconnect the charger connector from the control panel and secure its sealing cap.

Do not attempt repair to a failed or damaged battery charger. Only order a replacement from your supplier or EEC Performance Systems direct

Transportation & Storage

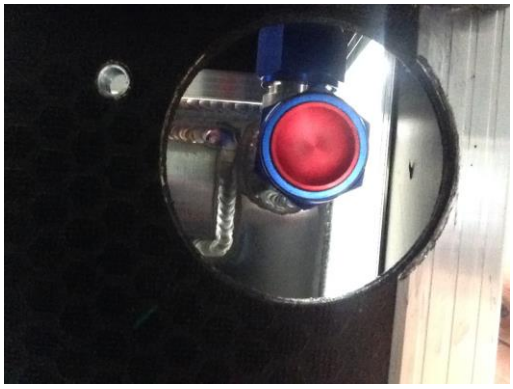
The f-POD must always be emptied and switched off before transportation or storage and must never be used to transport or store fuel.

There is a knob located under the bowser designed to limit the movement of the loadcell during transportation. To activate this, turn the knob clockwise until it stops. To release, turn the knob full anti-clockwise. Always check it is released before using the bowser. **Do not over-tighten.**

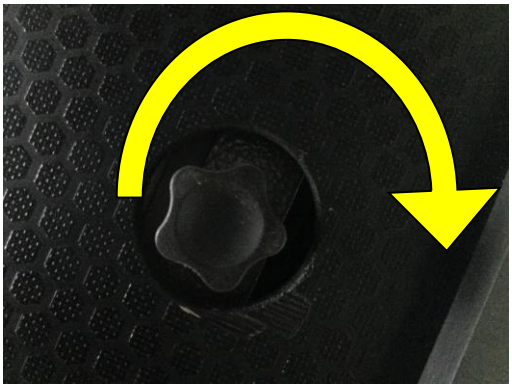
The f-POD must always be kept upright. **Do not use forklifts.**

For transportation by flight, the internal battery must be disconnected and the battery terminals must be insulated. Also, the tank must be fully drained. There is a -12 drain cap accessed under the bowser to completely drain the fuel tank. DO NOT OVER-TIGHTEN THE DRAIN PLUG as you may damage the tank. **To vent the tank for flight you must remove the dry break connector from the vent hose.**

Please consult your shipping operator for further requirements.



TANK DRAIN CAP



LOADCELL LOCK

DO NOT OVER TIGHTEN

EC Declaration of Conformity

In accordance with BS EN ISO/IEC 17050-1:2010

We: Essential Equipment Consortium Ltd

Of: Unit C6 Optimus Way, Leicester, LE3 8JR. United Kingdom

declare that:

Equipment: Intelligent Race Fuel Bowser
Model name/number: f-POD ECO™ FPE080/FPE100/FPE145

in accordance with the following Directives:

2014/30/EC	Conforms with the essential performance requirements of the Electromagnetic Compatibility Directive and its amending directives
2006/42/EC	Conforms with the essential health and safety requirements of the Machinery Directive and its amending directives
2015/863/EU	Conforms with the requirements of the RoHS Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment

has been designed and manufactured to the following specifications:

EN ISO 12100:2010
Safety of machinery - General principles for design - Risk assessment and risk reduction

EN 1127-1:2019
Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology

EN 61326-1:2013
Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements

EN 61000-3-2:2006
Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A per phase)

EN 61000-3-3:2008
Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection

I hereby declare that the equipment named above has been tested and found to comply with the relevant sections of the above referenced specifications. The unit complies with all relevant essential requirements of the Directives.

Signed by: .....

Name**: Derek Hodder**

Position: **Director**

Done at: **LE3 8JR**

On: .....

This declaration of conformity is issued under the sole responsibility of Essential Equipment Consortium Ltd

Essential Equipment Consortium Ltd

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