



## Empire Hydrogen introduces Shock Absorption Springs

**July 20, 2023: Ucluelet, BC:** Fishing boats on the open Pacific Ocean fall off of twelve foot high, steep, sharp wave peaks and slam into wave troughs on a regular basis. These high G-forces result in mechanical stresses that the Empire Hydrogen Fuel Enhancement System has not faced with any land based installation and the rubber engine mounts typically used have not sufficiently absorbed these enormous shocks.

Empire has worked with Godwin Industries to design and produce cable springs that can handle the 95 pound weight of our fully loaded FES under these strenuous conditions.

The cable springs are being tested under on-the-ocean conditions on the “My Lady Jane” and “Arctic Ocean” fishing boats operated by Pacific Seafood. Crews on these boats have a strong incentive to ensure the Fuel Enhancement System operates under the roughest conditions because the cost of fuel for each trip is split between the crew and the company. With 30L engines running 24-hours a day and diesel above \$2.00 per litre, this fuel cost can easily run at \$10,000 over six days at sea.

We have a saying at Empire Hydrogen: *Electrolysis is easy; electrolysis on a moving truck in a Canadian winter is much, much harder.* We can now add that electrolysis on an open ocean fishing boat takes us to an entirely new requirement for robustness with our system.

The Empire Hydrogen Fuel Enhancement System injects a small amount of hydrogen/oxygen gas into any large diesel engine, resulting in reductions of 10%-25% in fuel consumption, 28% in CO2 greenhouse gases, 47% in smog causing NOx and 2/3 in diesel particulates.



Cable springs provide shock absorption when the Empire Hydrogen Fuel Enhancement System is subjected to enormous mechanical stress.



The *My Lady Jane* is being used as testing Ground for the new custom designed cable spring shock absorbers

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