



# TOTAL FUEL AND OIL SOLUTIONS

SOLPOWER INDIA PVT. LTD.





TOTAL FUEL MANAGEMENT

# INNOVATIONS WE USE



American based  
products manufactured  
under Make in India  
Program

Japanese based Fuel  
Catalyst Product



Dieselcraft Fuel Purifiers



Dieselcraft Oil Centrifuge



Dieselcraft Fuel Stabilizers



SOLTRON Enzyme Catalyst



# BENEFITS

- Fuel savings by **5-15%**
- Reduction in Carbon emission by **50-80%**
- Reduction in maintenance costs due to eliminating fuel and oil related engine failure by **30-40%**
- Reduction in Oil Consumption due to complete combustion of fuel, improved piston ring tightness and less oil burnt off by **70-80%**
- **Increase** in revenue due to fewer engine breakdowns and increased availability of vehicles for operation. It is effective for Petrol, Diesel, Marine Gasoil and residual fuel oil for boilers and shipping.



# OUR TOTAL FUEL AND OIL MANAGEMENT PROGRAMME

SOLPOWER INDIA PVT. LTD.

# DIESELCRAFT FUEL PURIFIER



- Dieselcraft Purifier is used to make sure clean fuel is stored in fuel storage tanks
- Install the Dieselcraft purifier at each dispensing unit which will ensure clean fuel supply to transport vehicles such as buses and trucks.
- Installing Dieselcraft purifier on each bus and truck will ensure clean fuel from the fuel tank to the engine.



# DIESELCRAFT FUEL STABILIZER



- Fuel stabilizer enhance the fuel efficiency and keeps fuel nozzles clean
- Install Fuel stabilizer after the primary fuel filter(preferably).
- Fuel passes through the magnetic field and is ionized which helps in proper atomization of fuel at the burner which results in improved combustion. Also keeps fuel nozzle clean



# SOLTRON ENZYME CATALYST



- The **SOLTRON** enzyme should be added to the fuel at a ratio of 1:10,000 Litres.
- The catalytic properties of **SOLTRON** enzymes break long chain hydrocarbon chains into smaller chains.
- The increased surface area of each fuel molecule will absorb more oxygen and combust completely which increases combustion efficiency.
- It reduces fuel consumption, pollution and maintenance.





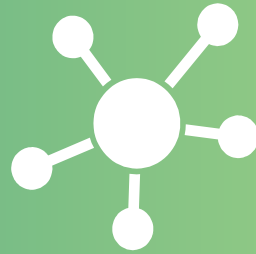
# DIESELCRAFT OIL CENTRIFUGE



- Dieselcraft Oil Centrifuge removes particles that regular filters miss. It removes carbon particles and maintains oil quality for a long period of time.
- It also removes free water and some dissolved water as well.
- Increases oil life by 50%
- It is cost effective.

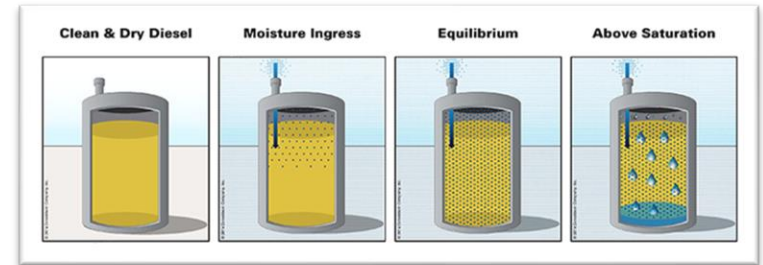


# Diesel-Water Chemistry



# CONCEPT

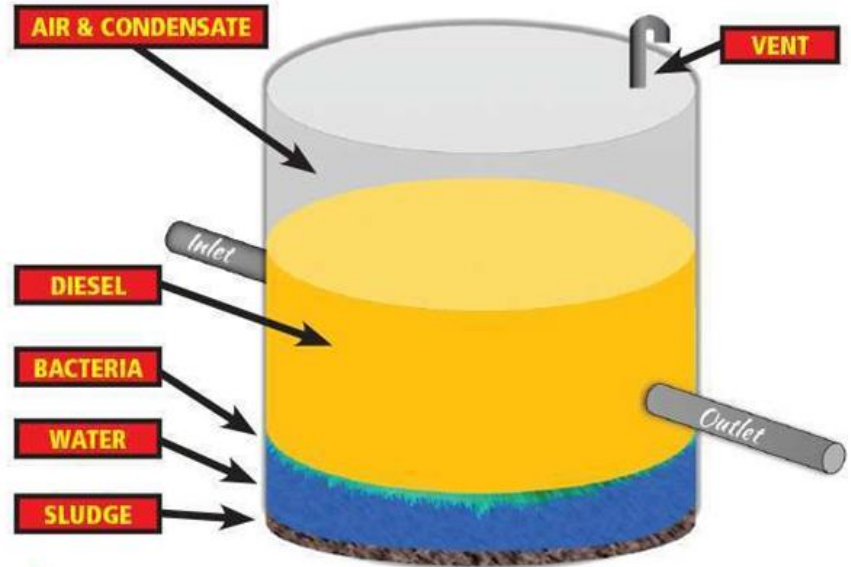
- Engines need **CLEAN** fuel without sediments and moisture.
- Diesel is **Hygroscopic** in nature where moisture will form naturally.
- Unnatural Water** exists in fuel due to poor fuel handling and unscrupulous mixing.
- Diesel Blending is carried out for Cost Management purposes.



# WATER AND SLUDGE INSIDE A FUEL TANK

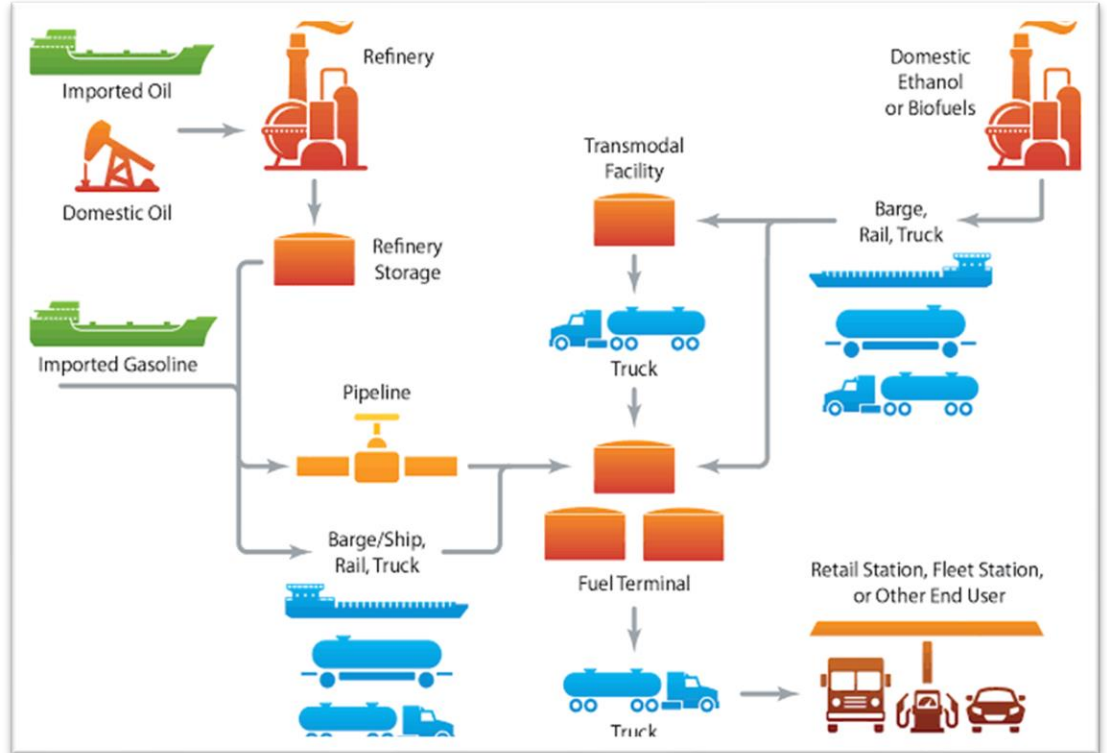


## LAYERING EFFECT IN A FUEL TANK



A typical diesel storage tank requires fuel monitoring and good maintenance practices to keep sludge, water, and bacteria from becoming a problem.

# FUEL DELIVERY PROCESS



# PROBLEMS?

- **Microbial Growth, Corrosion (MIC) and Fuel Deterioration** within the storage tank.
- **Unpredictable performance** of Machines / Diesel Generators.
- **Deterioration** of Engine Components such as Nozzles, Pumps and Seals.
- Frequent Filter **Clogging** & Replacements.



# CONSEQUENCES

- The Maintenance or Ownership cost **increases**
- Pollution **increases**
- Machine Availability **decreases**
- Productivity **decreases**

**Impacted Systems** include all Integrated Chip engines, Automobiles such as Buses and Trucks, Generators, Heavy Earth moving equipment, Heavy Cranes and various other machinery.

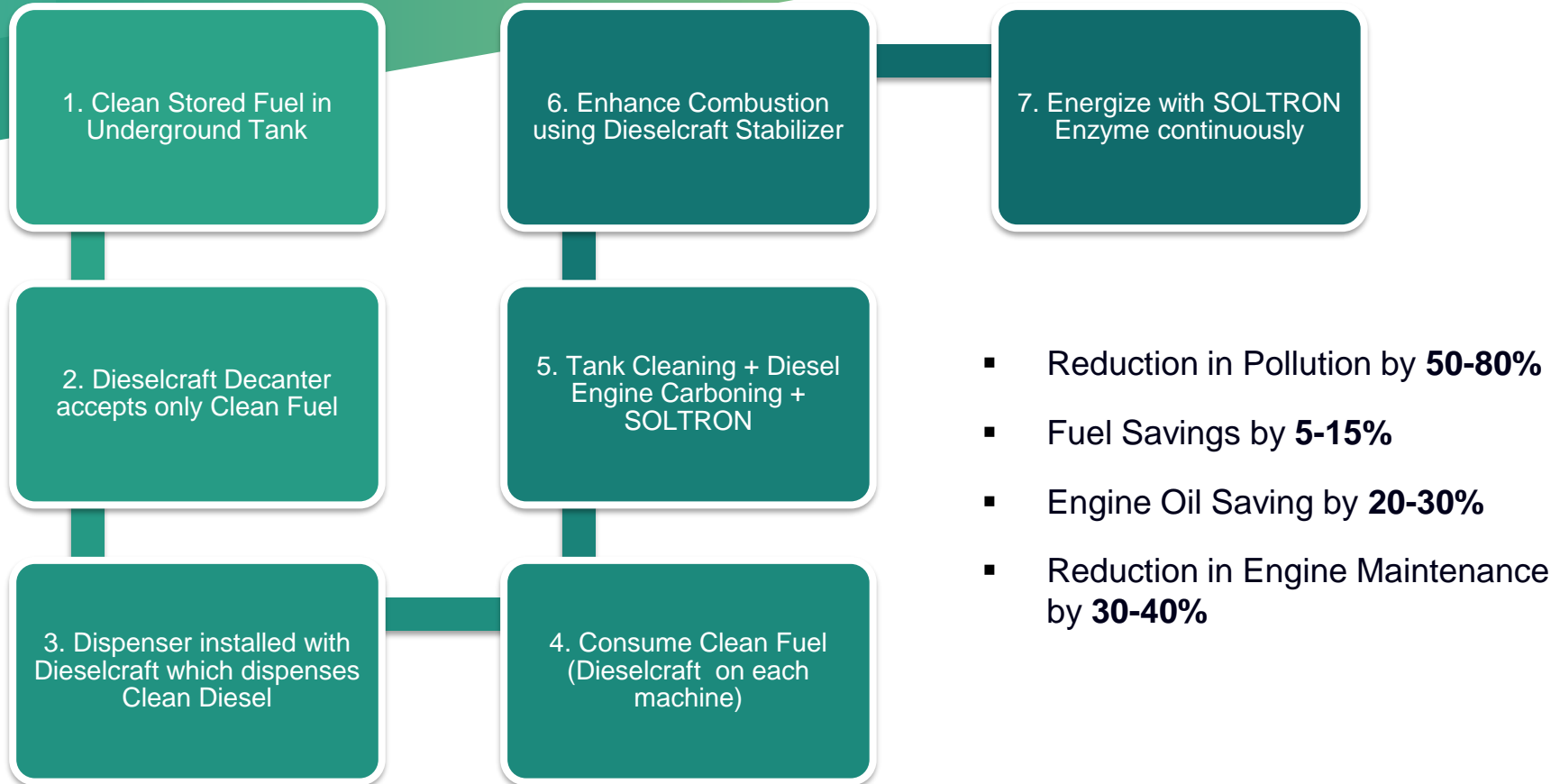
# OUR SOLUTION

*TOTAL FUEL SOLUTIONS (TFS)*



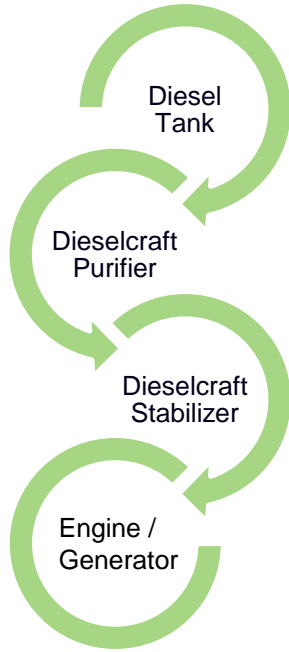


# TFS Process



# IMPLEMENTATION

## DIESEL MANAGEMENT



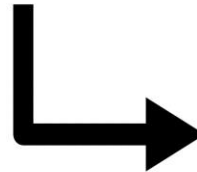
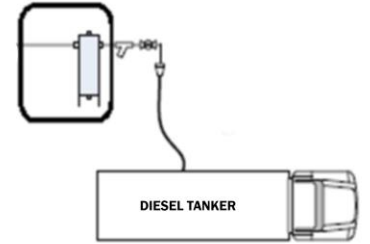
### DISPENSER & DISTRIBUTION



(DIESEL CRAFT PURIFIER)

PIPELINE

### DECANTING UNIT (DIESEL CRAFT PURIFIER)



UNDERGROUND STORAGE TANK



INSIDE VEHICLE / GENERATOR



# DIESEL CRAFT PURIFIER

# DIESEL CRAFT FUEL PURIFIER

## PRINCIPLE OF TECHNOLOGY

- Dieselcraft Fuel Purifier is based on two Principles - **Surface Tension** and **Residence Time**.
- Since Diesel and Water have different surface tensions and density, when a mixture of diesel and water is spread over a large area, water droplets and large solids separate from the fuel. Larger the surface area the better it is in Fuel Water Separation.
- Dieselcraft purifiers are engineered for maximum “residence time” based on flow rate.
- Residence time is a broadly useful concept that expresses how fast things move through a system in equilibrium. The longer the residence time the better is the cleaning.





# DIESELCRAFT PURIFIER INSTALLATIONS



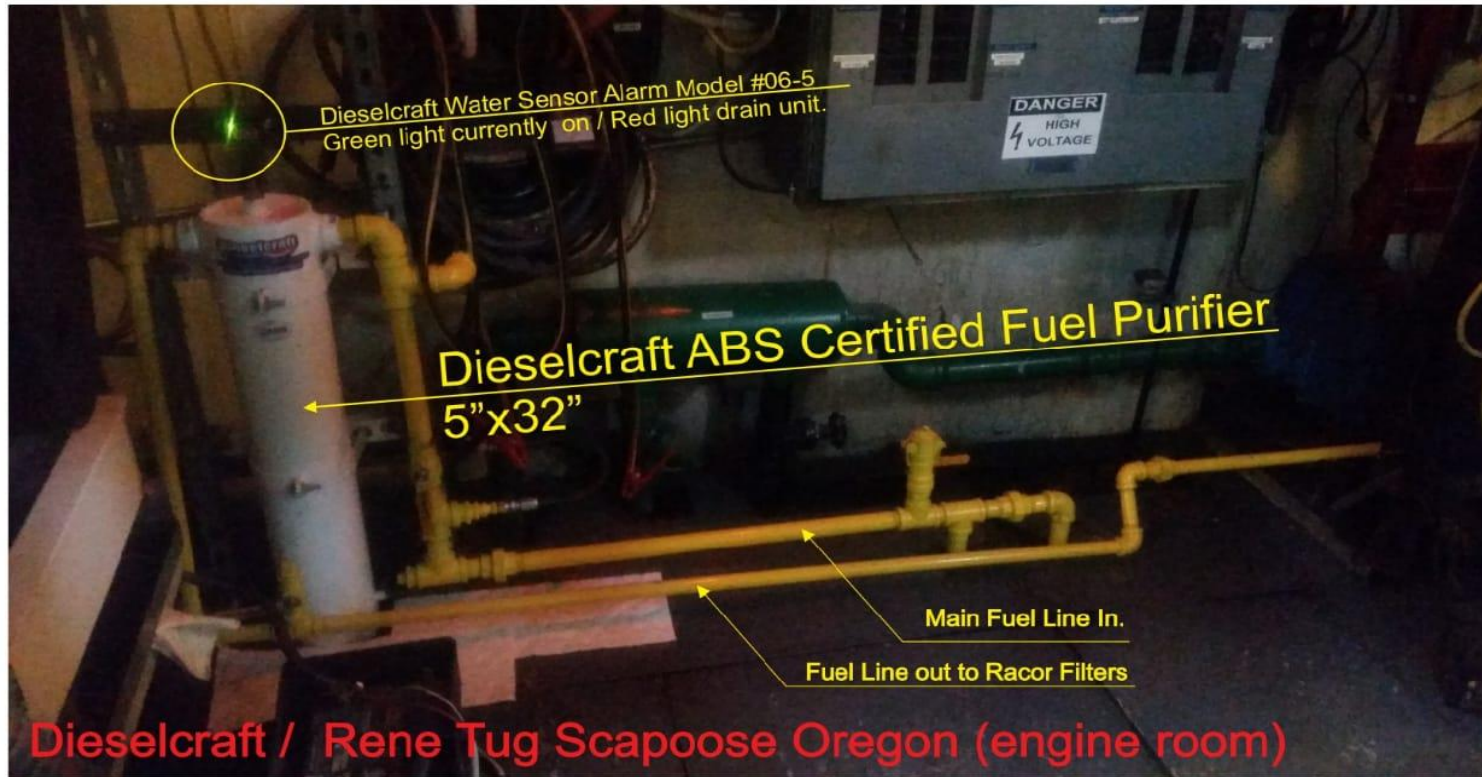
**ON COMPRESSOR (USA)**

**Dieselcraft / Rene Tug Scapoose Oregon**

Rene Tug  
 15,000 gal Fuel tank  
 Detroit diesel Engines 750 hp (two engines) 1500 hp  
 Two Generators additional 350 hp  
 Total HP = 1850 hp

**Dieselcraft Fuel Purifier 5"x32" ABS Certified**  
 Captains comments: "We were going through a filter a day and we have not put one on in the last week".  
 The Fuel Purifier was plumbed in from the main tank fuel line and before the Racor fuel filters. The Fuel Purifier has been installed for few weeks.

**DIESELCRAFT PURIFIER INSTALLATIONS**



Purifier On Fueling Truck Phu Bia Mine

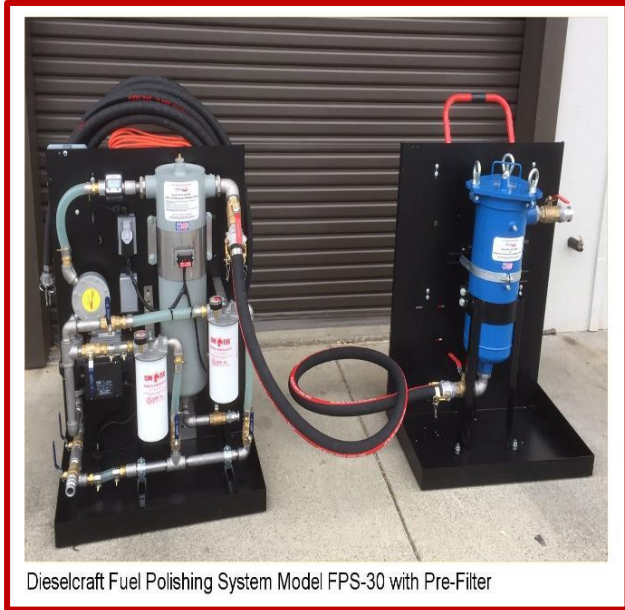


Purifier On CAT 777 Haul truck



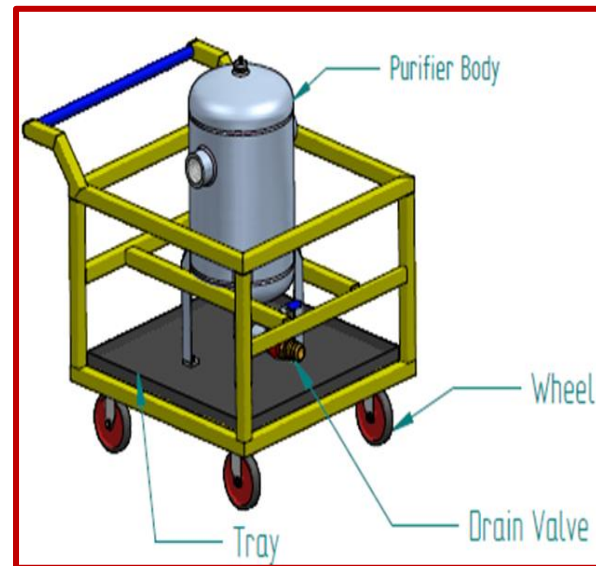


# FUEL TANK CLEANING (UNDERGROUND/STORAGE)



# DECANTING PROCESS

- It is a **Portable** Unit. Specially designed for oil companies petrol pumps. Make sure fuel delivered to pumps are clean
- **No power** required. It flows due to natural gravity.
- Connect the unit to the incoming Fuel Truck for Fuel Passage.
- Fuel gets purified **before** entering underground tank.
- All free water & impurities in the incoming truck will be trapped & drained through the drain valve.



# Tank Cleaning and Engine De carboning



## Tank Cleanup - Removing Fuel Impurities

- Remove Water & Sediments from Fuel Tank
- Analyze the quantum & quality of impurities
- Plan future actions accordingly



## Enzyme Treatment - Energize the Fuel \*\*

- Dosing & treating the fuel with Japanese Enzyme
- Fuel Recovery – Converting sludge into Fuel
- Transferring usable fuel back to tank



## Engine Decarboning - Engine cleaning

- Re-dosing fuel with Enzyme
- Idle run for system cleanup
- Fuel Lines upto combustion chamber cleaned





# DIESELCRAFT FUEL STABILIZER

# DIESEL CRAFT FUEL STABILIZER

- Non-Additive MFC Technology (Magnetic Fuel Conditioning) is used.
- Uses **High Power Magnets**.
- **Cleans** Fuel Injectors.
- More Power, Less Smoke, **Saves Fuel!**



MMI Engineered Systems Division - Report of Navy Fuel Analysis			
Specification	Spec Max.	Before Treatment	After Treatment
Water & Sediment % Volume	.05%	.05%	0%
Total Particulate Contamination	20 PPM	31 PPM	11 PPM
Non-combined Particulates	10 PPM	4 PPM	<0.1 PPM
Bacterial Culture Present	no detect	slight detect	no detect
Fungi Culture Present	no detect	heavy contamination	no detect

**Dieselcraft**  
Diesel Performance Products

Improve Performance with  
*Non-Additive Fuel Technology*

**MORE POWER**

**Less Smoke**

**CLEAN FUEL INJECTORS**

# TYPES OF DIESEL CRAFT FUEL STABILIZERS



**Stabilizer: 5-29ST**



**Stabilizer: 30-200ST**



**Stabilizer: 200-900ST**



**Stabilizer: 900-1500ST**



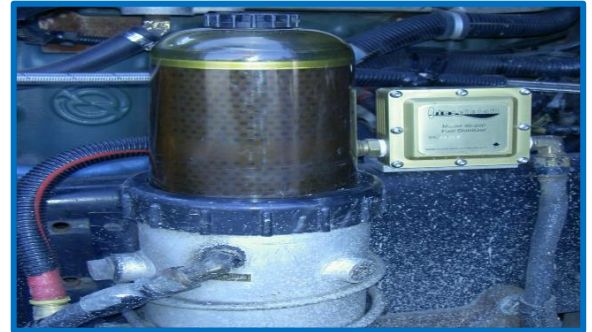
**Stabilizer: 1500-2500ST**



# DIESELCRAFT STABILIZER INSTALLATIONS



**INSTALLATION IN DIAMOND BUS TOURS**



**INSTALLATION IN LUXURY BUSES (USA)**





# SOLTRON ENZYME

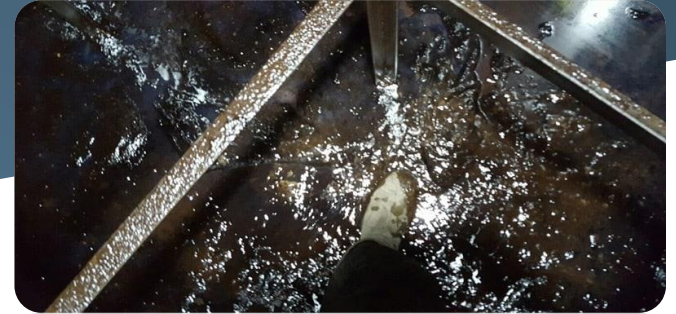
# WHAT IS SOLTRON?

- **Soltron** is an advanced enzyme compound that increases fuel efficiency, power output and reduces green house gas emissions.
- It was originally discovered by a Japanese research team who were studying how enzyme-based solutions combining biotechnology and natural enzymes could reduce sludge build-up in water pipes and tanks.
- It was soon discovered that **Soltron**, proved to be highly effective at treating bottom sludge in fuel tanks by converting the hydrocarbon elements in the sludge back into certified fuel.



- Since then, **Soltron** has delivered appreciable benefits in terms of improved combustion from spark ignition engines, road diesel engines, gas turbines, heavy marine diesels and commercial and power station boilers.
- When added to fossil fuel oils, in miniscule amounts, **Soltron** enzymes break up the long chain hydrocarbons and contaminants that prevent clean efficient combustion.
- The concept is simple. A more complete burn gives a greater power output. A cleaner burn proportionately reduces CO<sub>2</sub>, CO, HC, SO<sub>x</sub>, NO<sub>x</sub> & particulate emissions.

# PROBLEMS IN FUEL SYSTEMS



- The **exposure** of fuel surfaces to oil over a period will change the desired characteristics of fuel in terms of flow and pressure.
- **Fuel sludge** (Mainly Asphaltenic Compounds) is formed at the bottom of the fuel tanks.
- **Fuel filter fouling** and **glazing** (by resins, waxes and gums in fuel pumps and injectors) affects the atomisation (spray formation) ignition quality and combustion of the fuel droplet.
- This will lead to **improper fuel air mixing**. Hence Incomplete combustion occurs in the combustion chamber.
- The carbon which deposits in the engine imposes **extra strain** on the engine and its parts.
- The exhaust blowby gases and soot contaminating engine oil will **increase** the **rate of ware** of moving parts and hence the cost of the engine maintenance and overhaul.

# SOLTRON IS THE SOLUTION



## **SOLTRON** acts:

- **As a Fuel Soluble Biocide** : Microbial contamination is broken down at a cellular level and burned with the fuel.
- **As a Combustion Catalyst** : Enzymes influence both aromatic hydrocarbons and olefinic hydrocarbons which tend to smoke.
- **As a Stabilizer and Conditioner** : The Enzyme action of **SOLTRON** shears Asphaltene Molecules, restoring fuel stability and reducing tank sludge.

# BENEFITS OF SOLTRON



Save Fuel



Increase Pulling Power



Reduce Carbon Build Up



Reduce Toxic Emission



Protect Diesel Pump



Protect Plugs and Nozzles



Reduce Carbon Footprint



Enhanced Fuel Quality



Eliminates Fuel Bug



Increase Performance



Eliminates Slug Buildup

# ENZYME FUEL TREATMENT



An **Enzyme** is a catalytic protein produced in nature by living cells which has no after-effects and no by-products.

**SOLTRON** carries an enzyme package extracted from microbes living in soil, plants (including marine) and crude oil to do many functions in the fuel to enhance fuel combustion quality. They are harmless to the human bodies as well as for the engines.

Enzymes initiate or increase the rate of chemical reactions that may normally occur but at a slow rate, or not at all. Enzymes do not affect thermodynamics, and do not increase the calorific value of the substrate fuel it only helps to extract maximum number of calories from the fuel and convert it into productive mechanical energy.

Enzymes lower the activation energy necessary to initiate or sustain chemical reactions, thereby increasing the rate of reaction during combustion.

All fossil fuels are made up of hydrocarbons of different size and configuration and these structural differences are the root cause for incomplete combustion Soltron reforms fuel hydrocarbon structures at molecular level to make the combustion reactions more complete and faster, which improve the performance of all fuel firing systems irrespective of the type, size and application.

These improvements include increased fuel economy, reduced emission and increased power.





# DIESEL CRAFT OIL CENTRIFUGE

# WHY FINER CLEANING OF OIL IS ESSENTIAL?

As we know, oil degrades on use over its lifetime.

- Fuel combustion products such as soot, carbolic acid and atmospheric dirt get added to the engine oil which **increases oil viscosity.**
- Carbon soot and wear particles coagulate to form hard particles that often get in the running clearances of engine parts and cause **engine component wearing.**
- Circulating dirty oil through engine further causes **engine wear.**
- Debris in oil causes **layering** on oil passages in engine **reducing oil flow** to critical engine components.
- Oil Filters fitted on engines have a **limitation** to particle size they remove from the oil.
- **Cleaning engine oil to a very fine level solves the problem.**

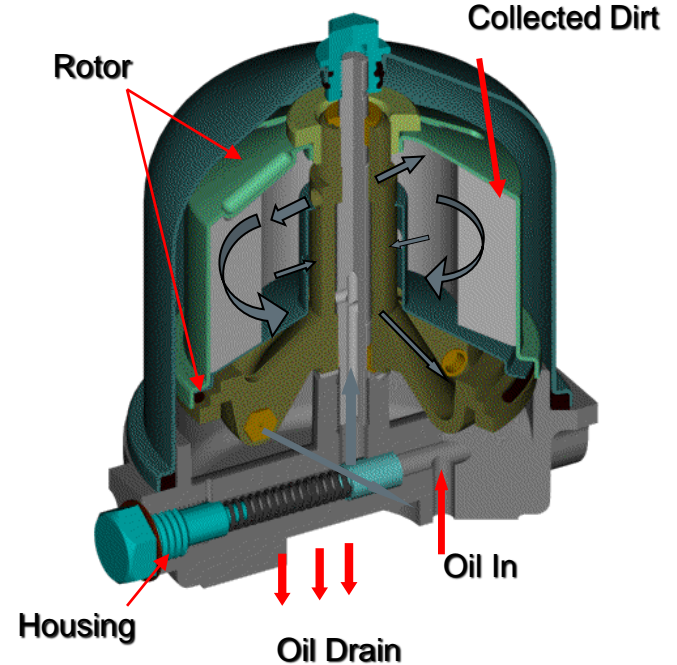
# DIESEL CRAFT OIL CENTRIFUGE IS THE SOLUTION!

- Dieselcraft Oil Centrifuge cleans engine oil to a very fine level, arresting degradation of oil.
- **Improves** life of engine oil by additional **50%**
- Arrests build-up of carbon soot and **maintains** oil viscosity.
- Keeps engine oil passages **clean** ensuring oil supply to vital engine components.
- **Reduces** wear rate of engine components
- Has **zero replacement cost** at every service interval.



# WORKING

- **Centrifuge Cleaner** contains a rotor which rotates at very high speed about a central hardened shaft located in housing.
- Oil at engines working pressure enters the cleaner, passes through inlet valve and enters rotor space as shown.
- Oil under pressure is sprayed out through nozzles at the bottom of the rotor and the rotor rotates at very high speed.
- The dirt in oil gets thrown out and sticks on rotor cover walls. The dirt is removed periodically by opening the rotor assembly.



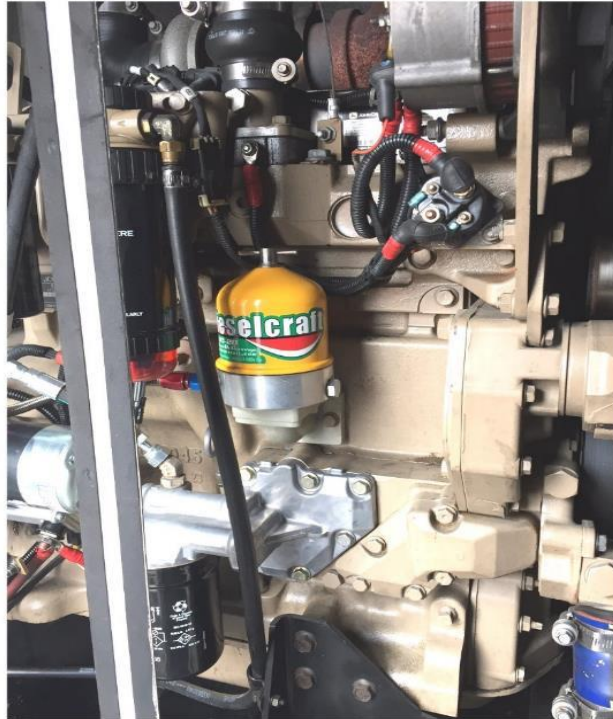


# DIESELCRAFT OIL CENTRIFUGE INSTALLATIONS

# INSTALLATIONS ON BUSES AND TRUCKS



Dieselcraft Oil Centrifuge  
Model OC-20 on Cummins 24 valve 6 cyl.  
with universal mounting plate



John Deere Generator 4045T with  
Dieselcraft OC-20 Bypass Oil Centrifuge System.  
Removes Soot and contamination to 1 micron



**Dieselcraft**  
Model OC-20

# INSTALLATIONS ON FARM AND MARINE ENGINES

**OC 25 Oil Centrifuge  
on John Deere  
9430 Tractor**



*Model 180/ OC-50 in Fishing Vessel "Midnight Sun"  
Gloucester, MA*



# INSTALLATIONS ON EARTH-MOVING AND MARINE ENGINES



Oil pressure is taken from the "sampling port" on the right side of the engine.



Centrifuge mounting



Oil return is done by adding one 1 1/4 hose nipple to the oil filled tube and then connecting the two with an 1 1/4 ID rubber hose as pictured below



McAllister Towing  
 Now installing into their entire fleet,  
 Dieselcraft 250 centrifuges for cleaning  
 CAT3500 engines.

Designed to bolt directly onto a CAT3500 engine

Dieselcraft 250 Centrifuge

McAllister policy is to change Oil every 1000 hrs. Now after testing Dieselcraft Centrifuges, they change oil every 1500 hrs.



McAllister Towing  
 Established in 1864 McAllister Towing is one of the oldest and largest family-owned marine towing and transportation companies in the United States. Currently working out of the following ports: Portland ME, Baltimore MD, Wilmington NC, Georgetown SC, Jacksonville FL, Port Everglades FL and San Juan, Puerto Rico. Currently run 80+ boats.

Dieselcraft - the best choice for clean oil & clean fuel



# APPLICATIONS OF TFS

- Mining Industry
- Marine Industry
- Automobiles used for Transportation
- Generators
- Fishery
- Petroleum Industry
- Construction



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