



***Whitsunday Cruise 2022
Diesel***

May 2022 – November 2022

Agenda

Rendezvous	9:00 – 9:30
Navigation	9:30 – 10:30
Coffee Break and Discussion	10:30 – 11:00
Engine and Electrical	11:00 – 11:30
Communications	11:30 – 12:00
Provisioning, Hunting and Gathering	12:00 – 12:20
Seamanship	12:20 – 12:40
Panel Q&A and lunch	12:40 – 1:00



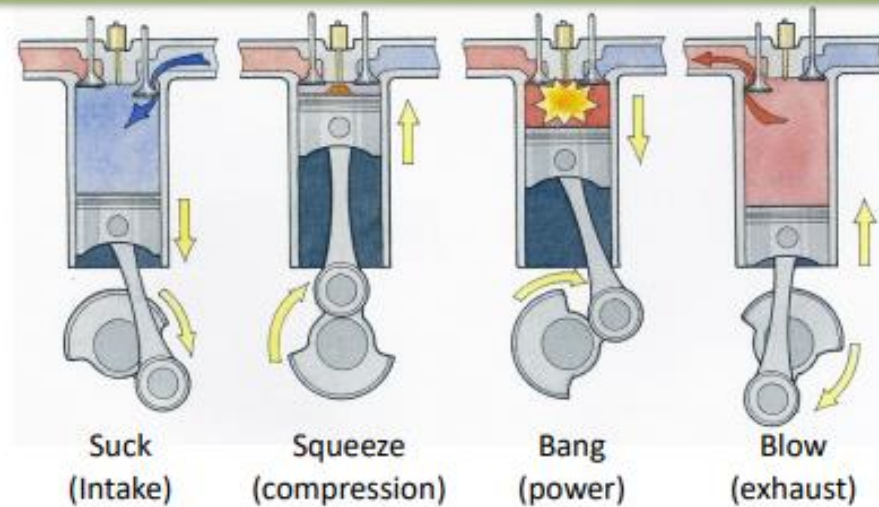
Diesel Engine – Basic Operation

The Diesel engine requires air and fuel as input, producing, power, heat and noise

It operates on a pressure ignition principal, and once started requires no external energy source such as electricity

To operate, it compresses air thus heating the air, injects fuel at the top of the compression cycle which combusts and expands

The 4 stroke cycle is expressed as;



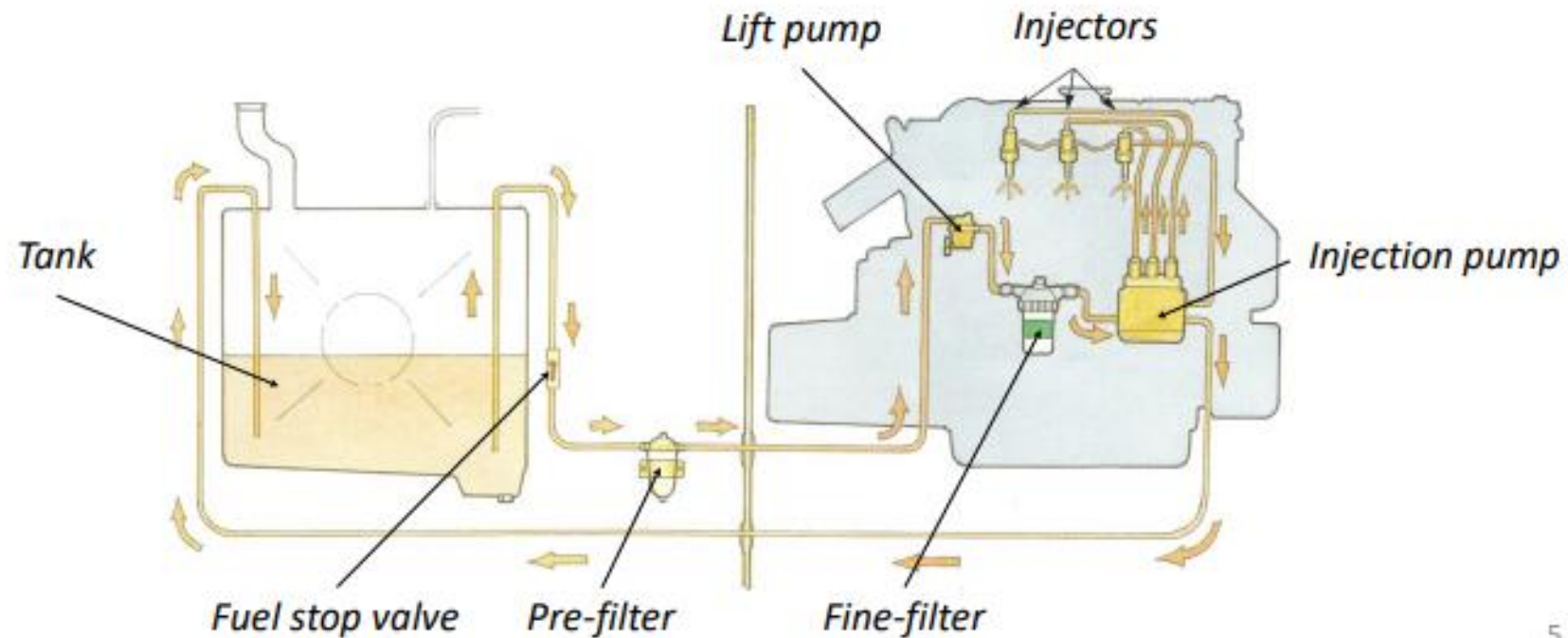
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Diesel Engine – Basic Operation

The diesel fuel system forms a continuous circuit from tank through filters, lift pump, injector pump and injectors, with unused fuel being returned to the tank

The lift pump, fine filter, injection pump and injectors are components of the engine

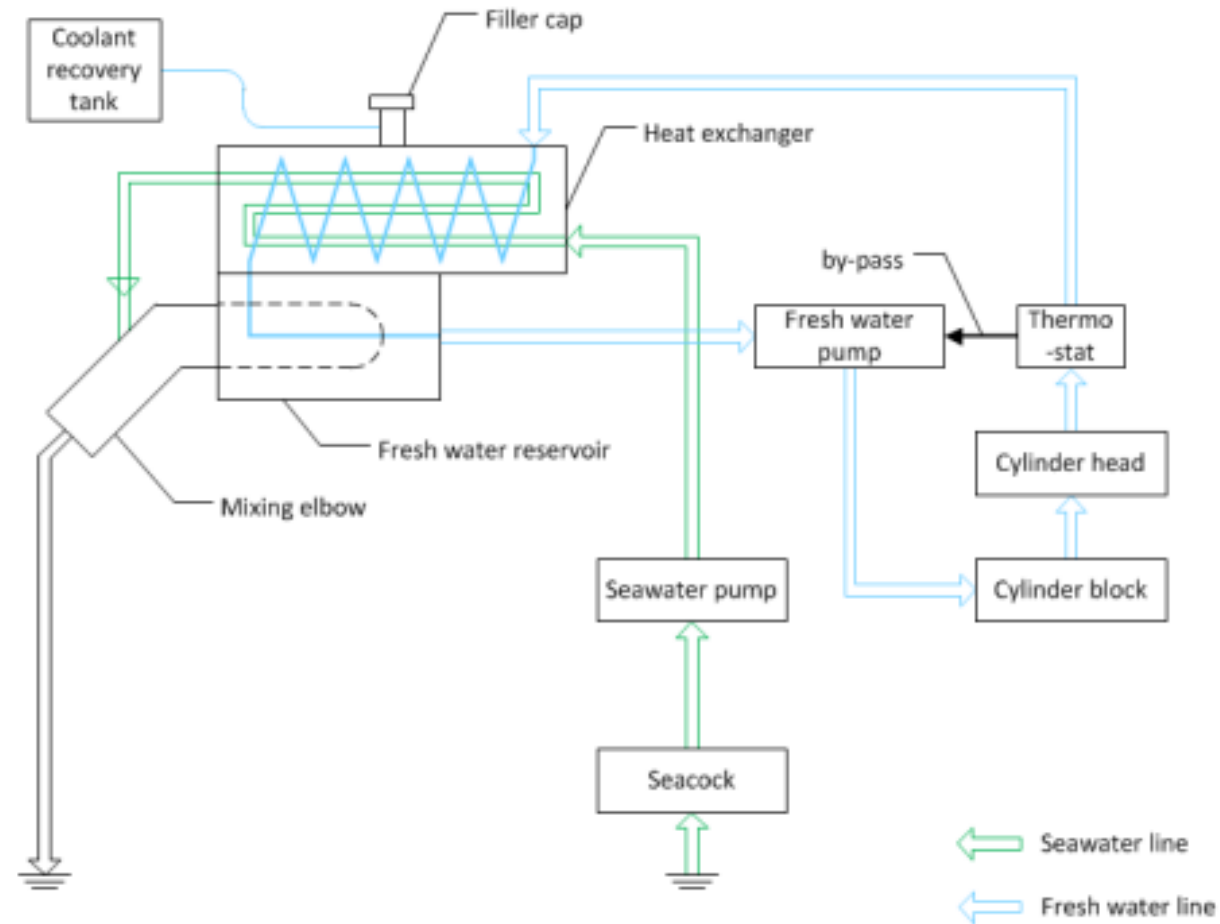
Tank, stop valve and pre filter are external components



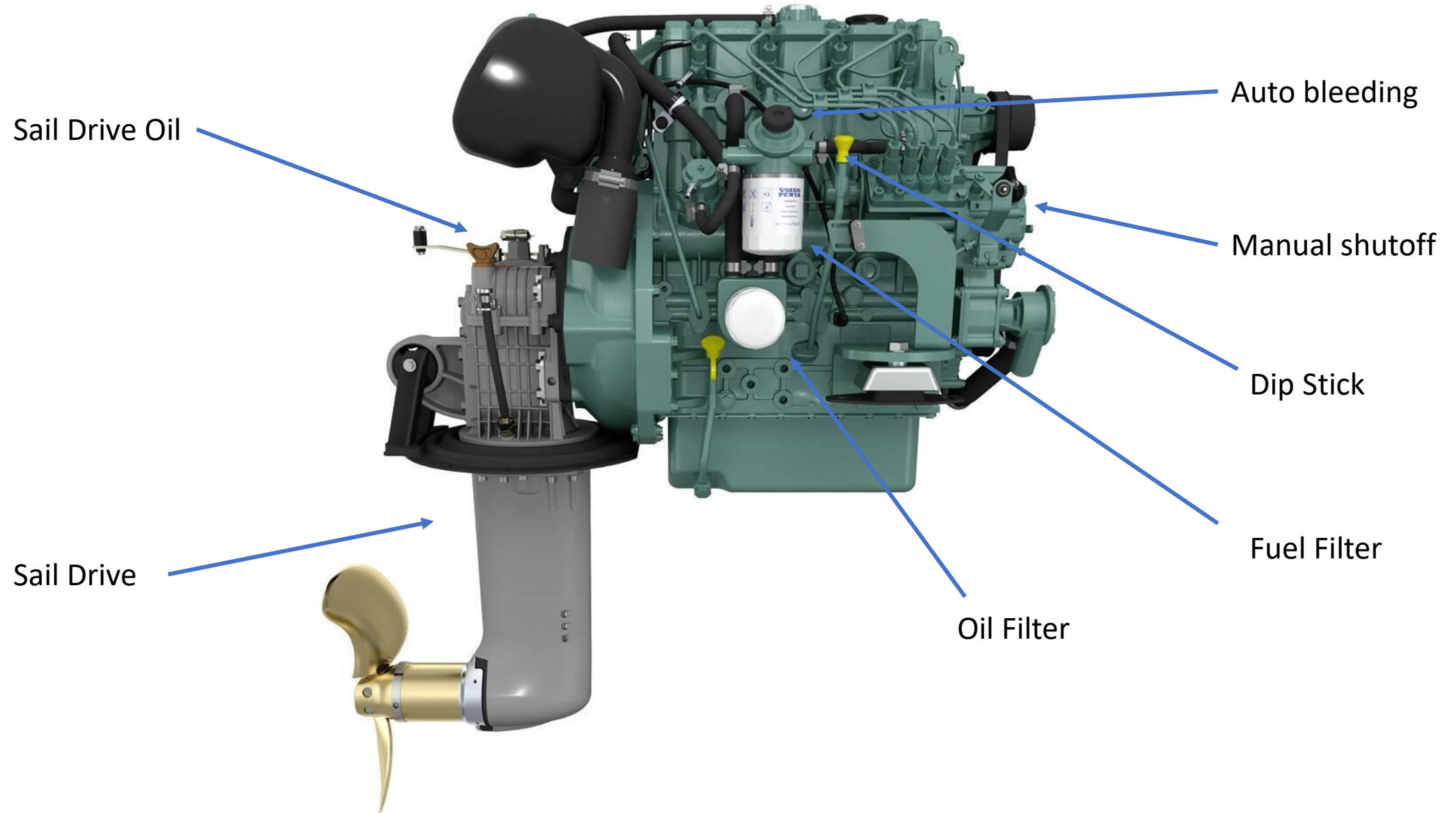
Diesel Engine – Cooling system

Cool seawater is circulated by the seawater pump cooling the fresh water as it is directed through the heat exchanger.

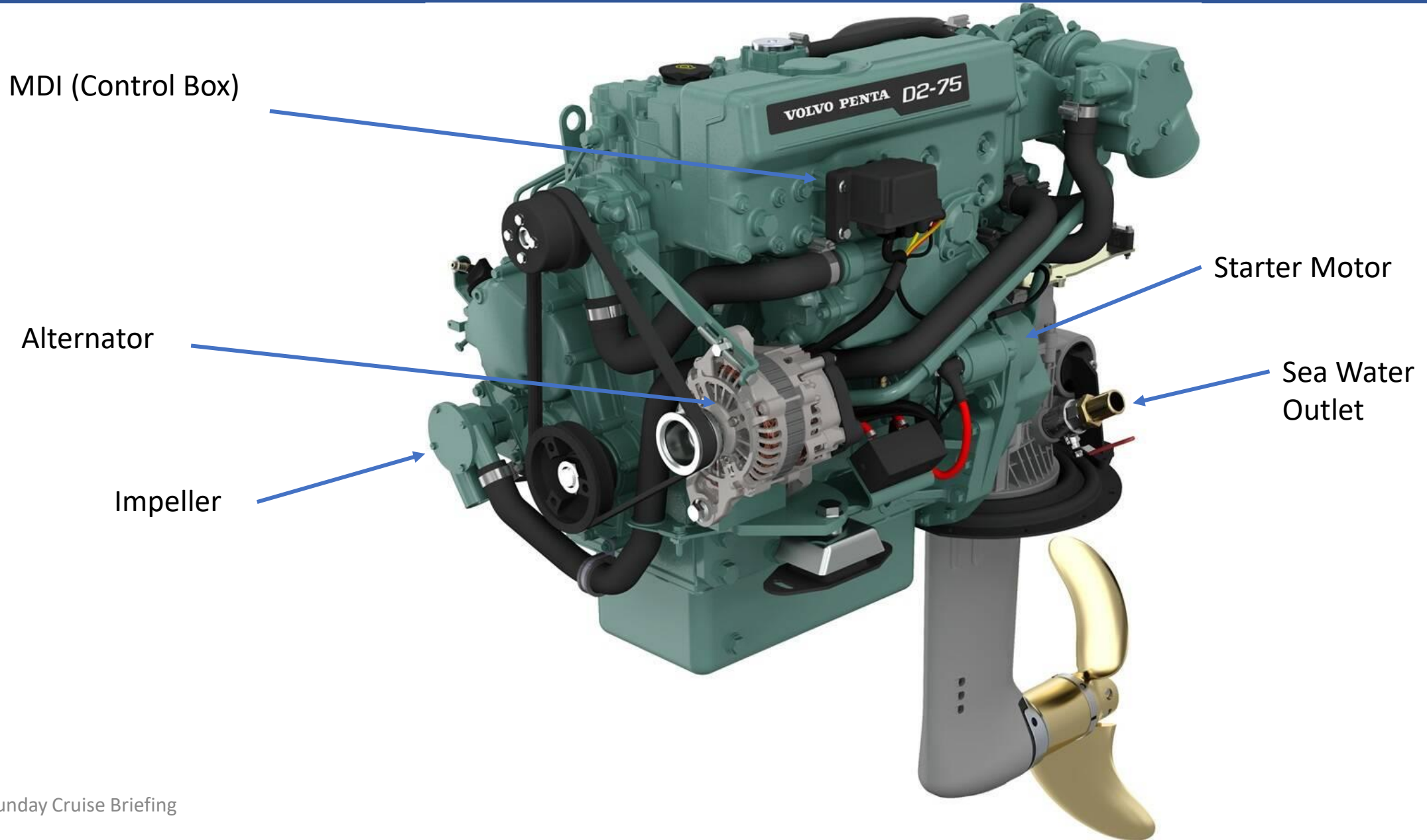
Fresh water coolant from the heat exchanger is circulated around the cylinder block and cylinder head by the engine coolant pump.



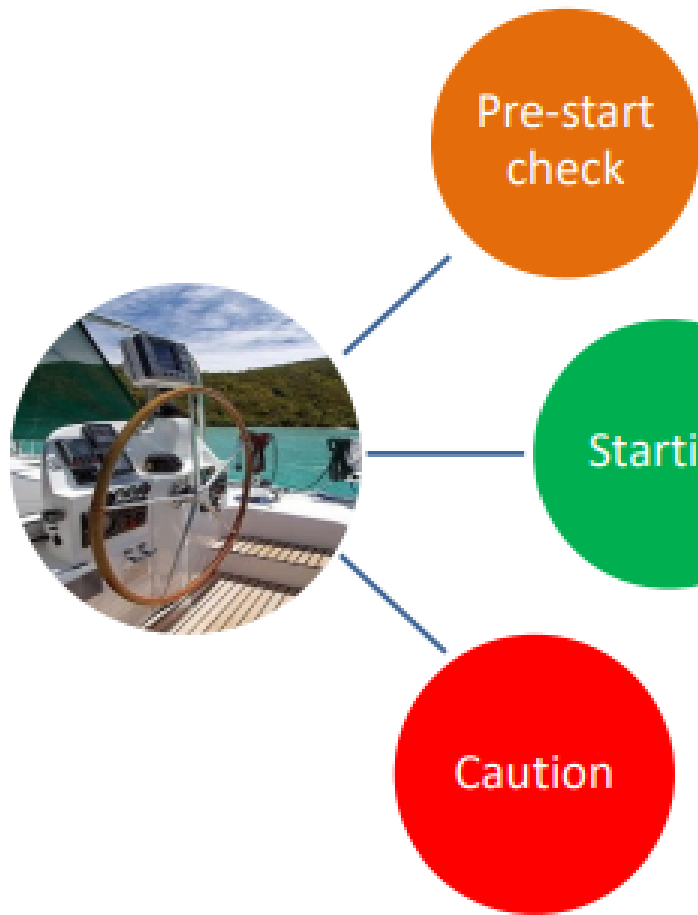
Volvo D2-75 Engine



Volvo D2-75 Engine



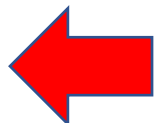
Diesel Engine – Basic Operation



- Check for sufficient fuel and enable fuel stop cock
- Check crankcase oil level and top up if necessary
- Check fresh water coolant reservoir and top up if necessary
- Check v-belt to alternator and cooling pumps
- Check primary fuel filter bowl for water, drain if necessary
- Check raw water inlet filter and open main stop cock

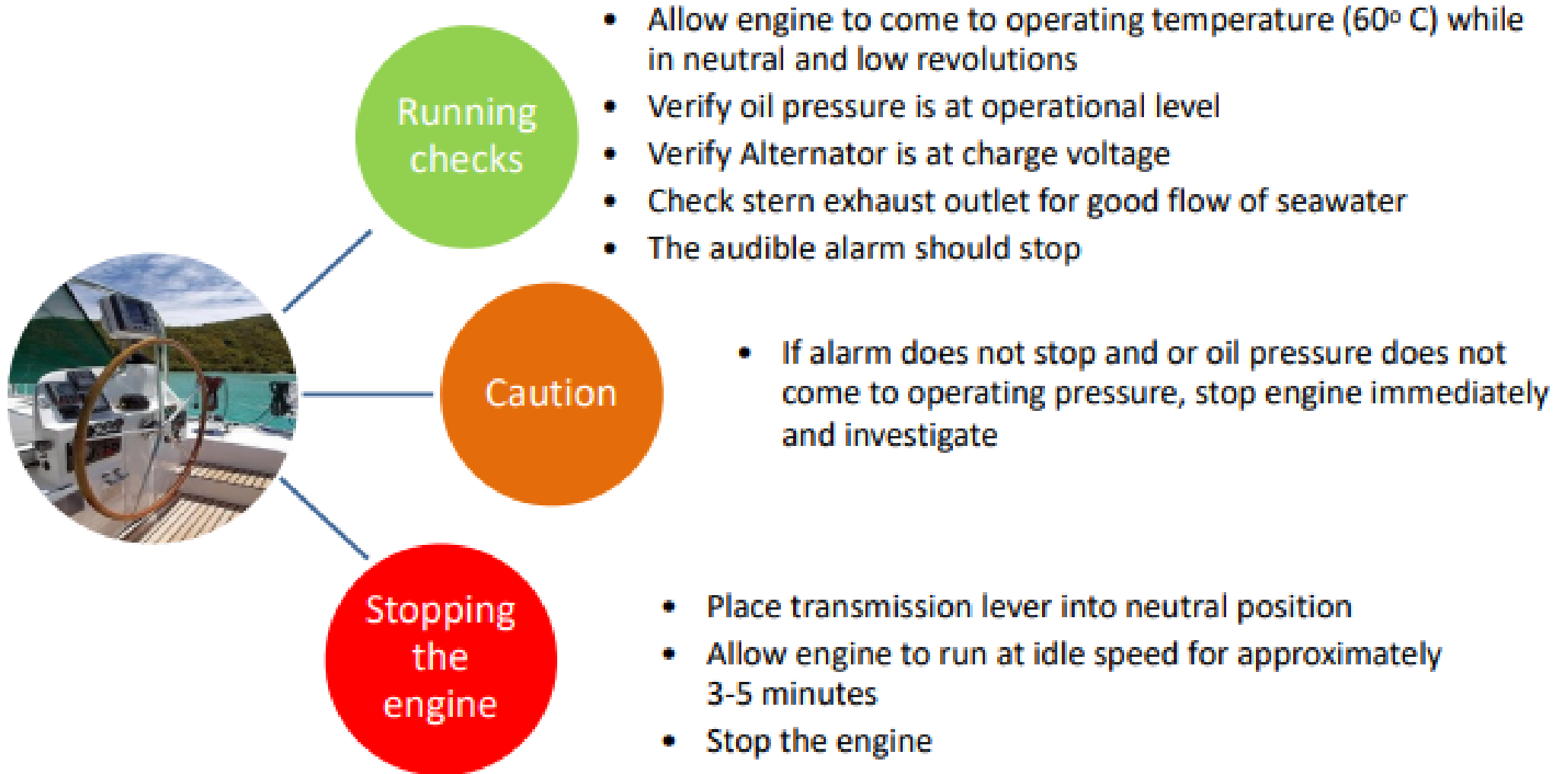
- Turn main battery switch to on
- Move transmission lever to neutral
- Push and hold the start button until the engine fires

- Do not crank the engine more than three times without starting, sea water is discharged through the exhaust system by the exhaust pressure
- Sea water can back fill into the manifold and cylinders
- Should engine not fire, turn the seawater cock to off until the engine does fire, once the engine fires, turn seawater cock on immediately



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Diesel Engine – Basic Operation



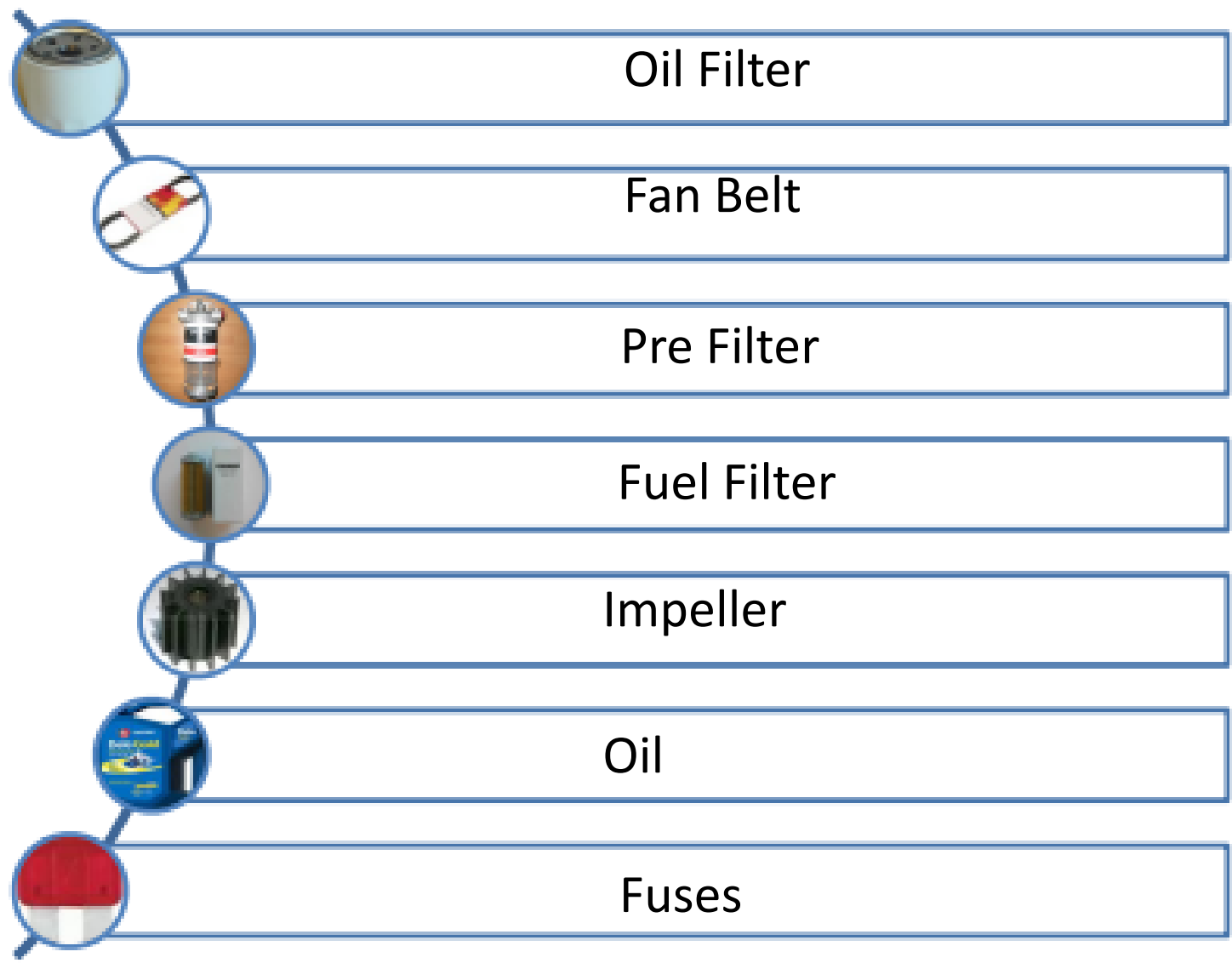
Diesel Engine – Basic Operation

System	Item	Before Starting	150 hrs	300 hrs
Fuel System	Check fuel level	⊙		
	Drain fuel filter		⊙	
	Replace fuel filter			⊙
Lubricating system	Check crankcase oil level	⊙		
	Check gearbox oil level	⊙		
	Replace crankcase oil		⊙	
	Replace gearbox oil		⊙	
	Check oil pressure	⊙		
	Replace oil filter			⊙
Cooling system	Seawater outlet	⊙		
	Cooling water level	⊙		
	Tension cooling water pump drive belt			⊙
	Replace seawater pump impeller			⊙
	Replace fresh water cooling			⊙
	Replace anticorrosion zinc			⊙
Air intake and exhaust system	Clean air intake element			⊙
	Clean exhaust/water mixing elbow			⊙
	Clean breather pipe			⊙
	Check exhaust gas condition	⊙		
Electrical system	Check charge lamp	⊙		
	Adjust alternator drive belt			⊙
	Check wiring connections			⊙

Know the service intervals for your engine



Diesel Engine – Recommended Spare Parts



Tools

- Spanners
- Sockets
- Screw Drivers
- Filter Wrench
- Spare hose clamps



Summary

- Familiarise yourself with your engine
- If possible be on board when a service is done
- Check the engine regularly for leaks
- Carry complete set of spare parts
- During a major cruise you most probably will need a service

