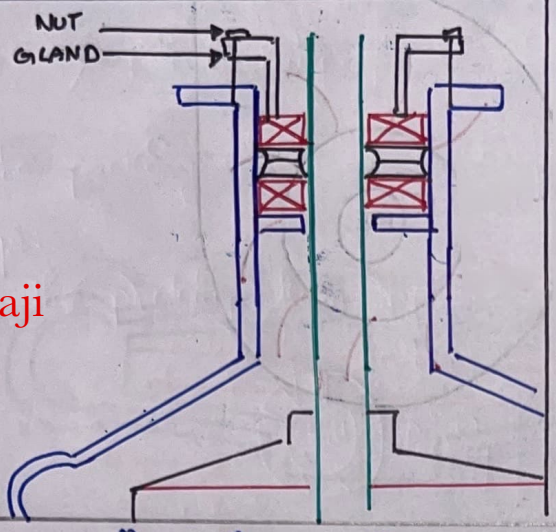
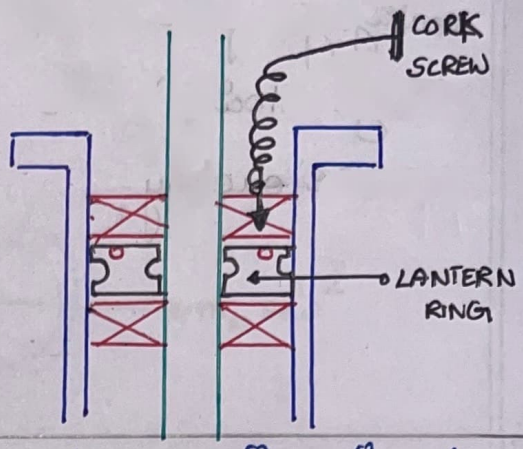
GLAND PACKING REMOVAL

→ Slacken nut and remove gland.
→ use a cork screw (with flexible extension) and remove the packing.





→ After removing the packing, to remove Lantern ring, insert 2 screws in the 2 holes on the Lantern ring and remove it (Normally, Lantern
→ Remove bottom packing using cork screw as discussed

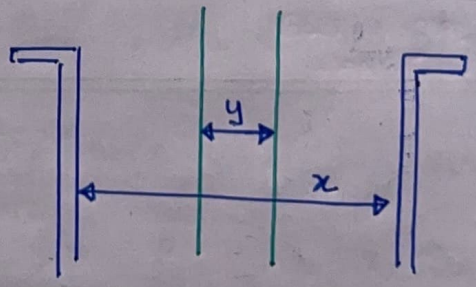
To Replace gland:

- Normally gland packing size is mentioned in Manual
- otherwise, Consider

outer Diameter of the shaft/sleeve : y
Inner diameter of gland casing : x

i.e; $\frac{x-y}{2}$

Suppose, $x = 60$
$y = 40$



then,

gland Packing size $= \frac{x-y}{2}$

$= \frac{60-40}{2} = \frac{20}{2} = 10$ mm

GLAND PACKING MATERIAL:

Earlier: Asbestos (found to be carcinogenic)

Now: a) High temperature Use: Graphite - Impignated gland (Boiler FW)

b) Water (SW) : Hemp packing

c) Oil Packing

- Cut the packing with sharp knife

2 ways:

a) stuff the packing from top and cut it

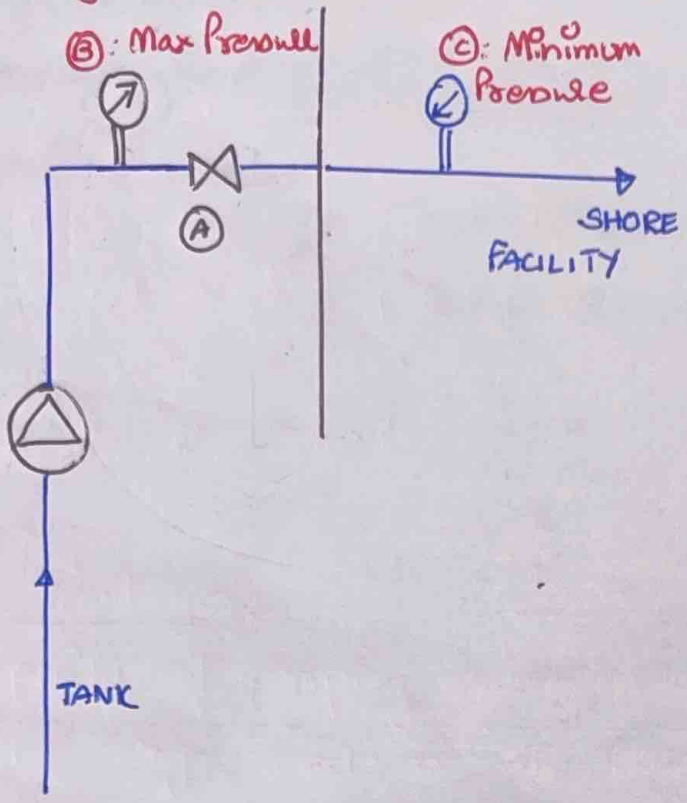
b) If not removed: Take a pipe and then roll it aloud, and then make a cut.

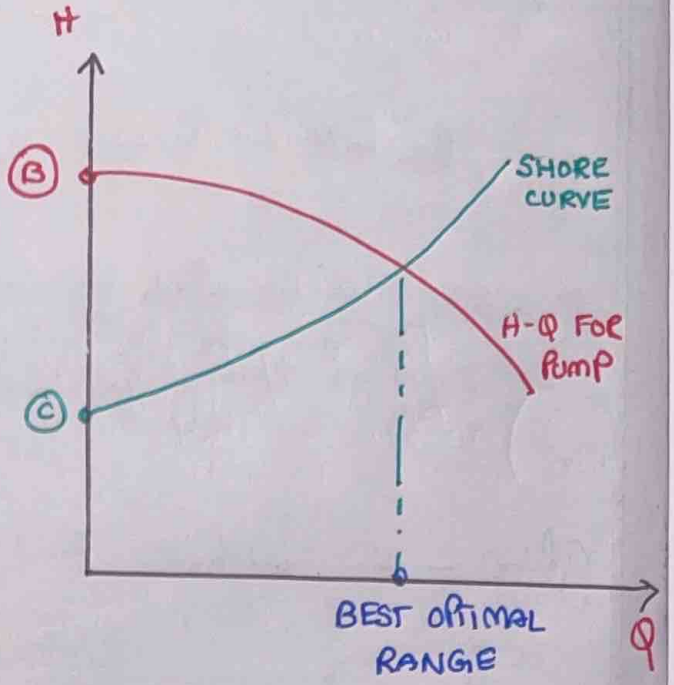
UNDERSTANDING PUMP - SHORE CHARACTERISTICS:

Suppose, Pump (cargo) is run with discharge valve shut (A)

Its pressure will be maximum:

* Discharge Valve (A) : shut.





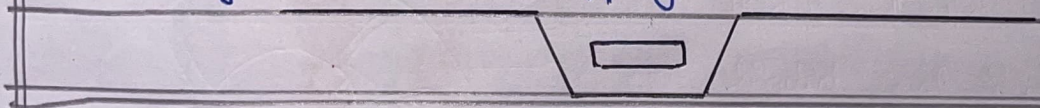
* When the discharge Valve (A) is opened,
Pressure at (B) decreases & due to flow, pressure at (flow) (C) Increases
* At one point of time, these both curves co-incide.

∴ When at Port; Cargo foreman comes with a shore curve and we match it with the ship curve to attain at what capacity the pump is to be run

FRAMO SYSTEM:

When discharge to be started,

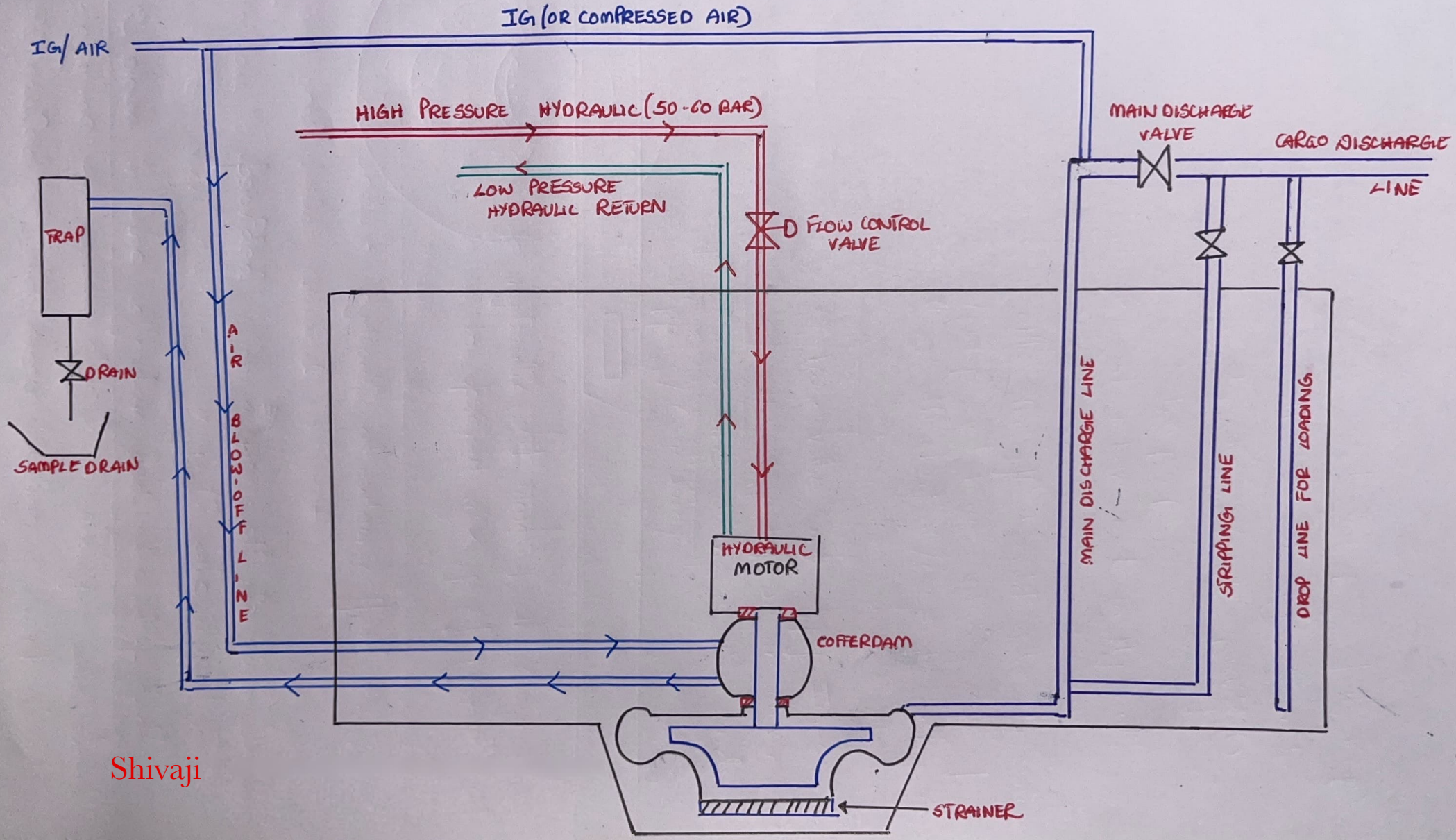
- Open the flow control valve (can control the speed of the Pump)
- High pressure oil (45-60 BAR) will drive the hydraulic motor
- Pump takes suction through the strainer (well is provided)
- Every tank shall have one or two pumps
- The low pressure hydraulic oil returns back to Hydraulic power pack
- When level reduces, throttle the flow contrd valve to reduce the speed of the motor/pump and hence reducing rate of discharge: This is to allow all chemical/cargo to gather in the well for stripping
- For stripping: Shut Main Discharge Valve and supply IG or compressed air (depends on the cargo type). The air now pressurises the cargo through the discharge line and discharges into the stripping/Cargo line.



* Seals are provided for Hydraulic Oil Motor & the Cargo Pump (with a cofferdam) so as to prevent mixing of hydraulic oil and cargo
* If Motor Seal leaks: Hydraulic oil enters cofferdam.
* If Pump Seal leaks: Chemical

The cofferdam is provided with a blow-off air line so as to indicate which seal is leaking. (in the Hap drain)

* Air is blown in the cofferdam and the Hap drain will determine the nature of leak or mixing.
* This is carried out after every loading & discharging.


IG (OR COMPRESSED AIR)
IG/ AIR
HIGH PRESSURE HYDRAULIC (50-60 BAR)
LOW PRESSURE HYDRAULIC RETURN
FLOW CONTROL VALVE
MAIN DISCHARGE VALVE
CARGO DISCHARGE LINE
TRAP
DRAIN
SAMPLE DRAIN
AIR BLOW-OFF LINE
HYDRAULIC MOTOR
COFFERDAM
MAIN DISCHARGE LINE
STRIPPING LINE
DROP LINE FOR LOADING
STRAINER

Shivaji