Fault	Cause	Action
I) Pump has no Suction	1) Incorrect Rotation	Check rotation. If necessary change connections on motor
	2) Pump is dry	Fill pump initially with oil
	3) Suction line is not tight	Tighten all nuts and bolts on suction side. If necessary pressure test suction line, attach vacuum gauge which should show approximately 0.6 kg/cm2 when suction valve is closed
I. A) In the case of working against closed discharge	4)Evacuated air cannot pass through the pressurized oil column and streams back into the	Arrange desertion coke on discharged side of pump. When pump is started open this coke until all air is exhausted and then close. If this is the case, a non return valve is necessary on the discharge line and a foot valve is recommended on the suction line so that when the pump is switched off it will remain full.
II)Loss of output	1) Relief valve opens too soon	Remove valve cap and tighten screw. Replace spring if worn-out.
	3) Loss in output due to air in stuffing box	
	4) Suction line friction too great	Feet vacuums gauge and check suction lift. Should not be greater than 16-20 feet.
	a)Suction pipe too narrow	In the case of items a), b) and c) only a wider suction line or reduction in length can help
	b)Suction pipe too long	
	c)Suction filter blocked	
	d)viscosity is too high	
III) Pump is noisy		
a) Mechanical Noise	1) Misaligned coupling	Disconnect motor from pump and align coupling
	2) Spindle not running	Strip motor rotor and remove main spindle (should be done by expert). Test with dial gauge between centers
	3) Gear blanks are damaged by foreign object	Remove gear and correct damaged blanks with oil stone. Finish grinding by hand
	4) Delivery against low pressure in the case of thin liquid	Load gear blanks by closing discharge valve giving approximately 15-20 psi, noise will be eliminated
b) Hydraulic or pneumatic	5) Pumped medium contains air	Determine whether air is drawn through leak (see also fault II items 2 and 3) or whether return line is unsuitable
	6.a) Cavitation due to too high suction lift	Reduce the suction lift

	6.b) Cavitation in the case of very viscous liquids	Is impermissible
IV)	1)Wrong connection of motors or only two phase	Connect motor according to name plate and check voltage in all three phases
	2) Motor overloaded	Check Amps with ammeter
	3) Pump Seizing	Disconnect motor and check that the pump can be turned by hand
	4) Delivery pressure too high	Connect pressure gauge on the discharge branch and check whether delivery pressure is in accordance with the pump
	5) Viscosity too high	Check viscosity at pumping temperature and compare with name plate on pump
	6) Misalignment	Re-align coupling
V) Fluctuating	1) Frothing Medium	Avoid air entry into oil. (In the case of circulating pumps, see that the return line is well below the oil level)
VI) Pump seized	1) Excessive pressure due to wrongly adjusted relief valve	Check relief valve pressure at closed discharge valve, re-adjust relief valve and see that it opens at 100% above working pressure
	2) Foreign body in pumped	Dismantle pump. Remove foreign body. Smooth seized area with oil stone. If necessary, fit new bearing and provide suction filter
	3) Dry running	Remove seized area as above, fill with oil and wet rotors. In some circumstances, before starting up, check exertion.
	4) In-sufficient lubricating quality of pumped medium	Check is pumped medium has lost its lubricating quality due to elevated temperature
VII) Relief level chattering	1) Valve is jammed	Fit new spring, check valve for easy movement in valve sheet

Maintenance

Periodical:

a) Alignment of the pump and motor should be checked.
b) Suction line should be checked for no air leakage or debris jamming the filter
c) If there is a pressure drop, the relief valve should be tightened until desired pressure is achieved. If this does not achieve result then there
d) Check for leakage on end covers and tighten bolts
e) If mechanical seal is leaking:
    1. Check for scratches on lapped faces of stationary seat or face housing due to foreign particles. Scratched part should be replaced or thoroughly cleaned
    2. If 'O' rings are broken, remove obstruction, smooth out or replace if damage is great

Yearly:

a) If the pressure drop is too much the gears on the wear plate
b) Dismantle the body and check for wear. If heavily worn, replace. This will be in very long run only.

Important:

a) If the pump gets jammed in running position, loosen all bolt covers by a half turn and try to rotate then start pump and allow it to run smoothly and tighten bolts slowly till there is no jamming
b) If the motor does not rotate, the pump must be dismantled
c) Where the pump is excessively heated in the initial running and jamming is caused, allow it to cool down to temperature where jamming is eliminated