

SLICKLINE ASSISTANT WORKBOOK

IMPORTANT NOTE:

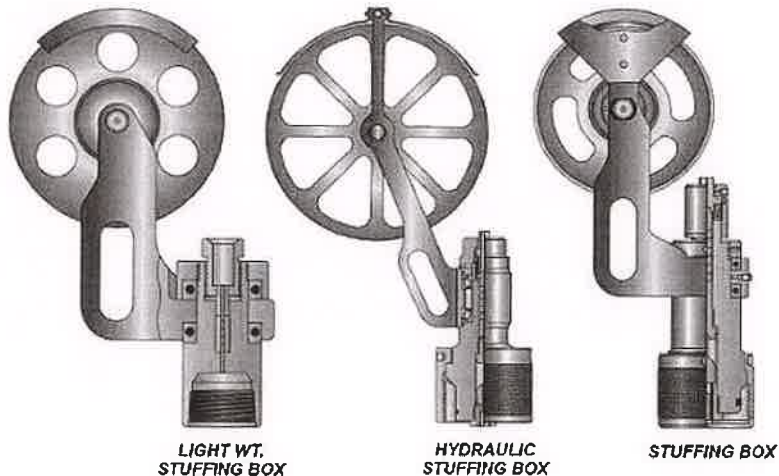
1. Your point of reference to complete this workbook may be obtained from the following
 - Training Manual and any other training materials provided together with this workbook
 - Your Trainer, Assessor (Slickline Operator), Verifier (FSM) or senior colleagues
 - SOP / Quality Procedures & Processors
2. The completion of this Workbook is a joint effort and responsibility between you and your assessor therefore you have the obligation to request from your assessor to be assessed upon your completion of each topic
3. The completion of this Workbook is part of the MANDATORY requirements which you must fulfill to qualify for a promotion
4. Your training program is mostly self-driven, including this Workbook. It requires individual initiatives, dedication and commitment to complete the process.

NAME	MUHAMMAD AOB HAZIM B. ROZALI
DATE OF JOIN	13/03/2022
CONTACT NO.	012-9071599
RECEIVED DATE	05/04/2022
DATE COMPLETED	24/9/23



B. SURFACE EQUIPMENT

1. Stuffing Box



What is Stuffing Box

- ✓ Stuffing box is to ensure sealing off around moving or stationary solid wireline at the upper end of the lubricator during wireline operations.

What is the purpose of stuffing Box

- ✓ Allows the wireline to enter the well under pressure and provide a seal should be wireline break and be blow out of packing. Is a primary pressure barrier.

How to operate Stuffing Box

- ✓ Positioned at the uppermost point of the PCE string. A male quick union assembly are supplied with the stuffing box as standard. Available for a full range of wire sizes, and from 5,000 psi to 15,000 psi working pressure. Consist of a chamber which contains packing with an external adjustable nut. Wire passes through the packing and the nut is hydraulically tightened to the point. Packing nut and gland located at top of stuffing box can be adjusted to compress the packing and seal on wireline. When hydraulic pressure is applied to area above piston, piston forces downward against force of spring. Piston is transmitted to upper packing gland.

What is maintenance required for Stuffing Box

- ✓ Packings not worn out. Sheave the correct size. Upper and lower glands packing check for wear, if worn oversized should replace. BOP plunger checks for freedom of vertical movement. Sheave staff check for freedom of swivel movement. Sheave bearing check for free spinning. Sheave guard make sure tight and adjustable to close.

What is safety precaution required for Stuffing Box

- ✓ Check the O'ring before use it.

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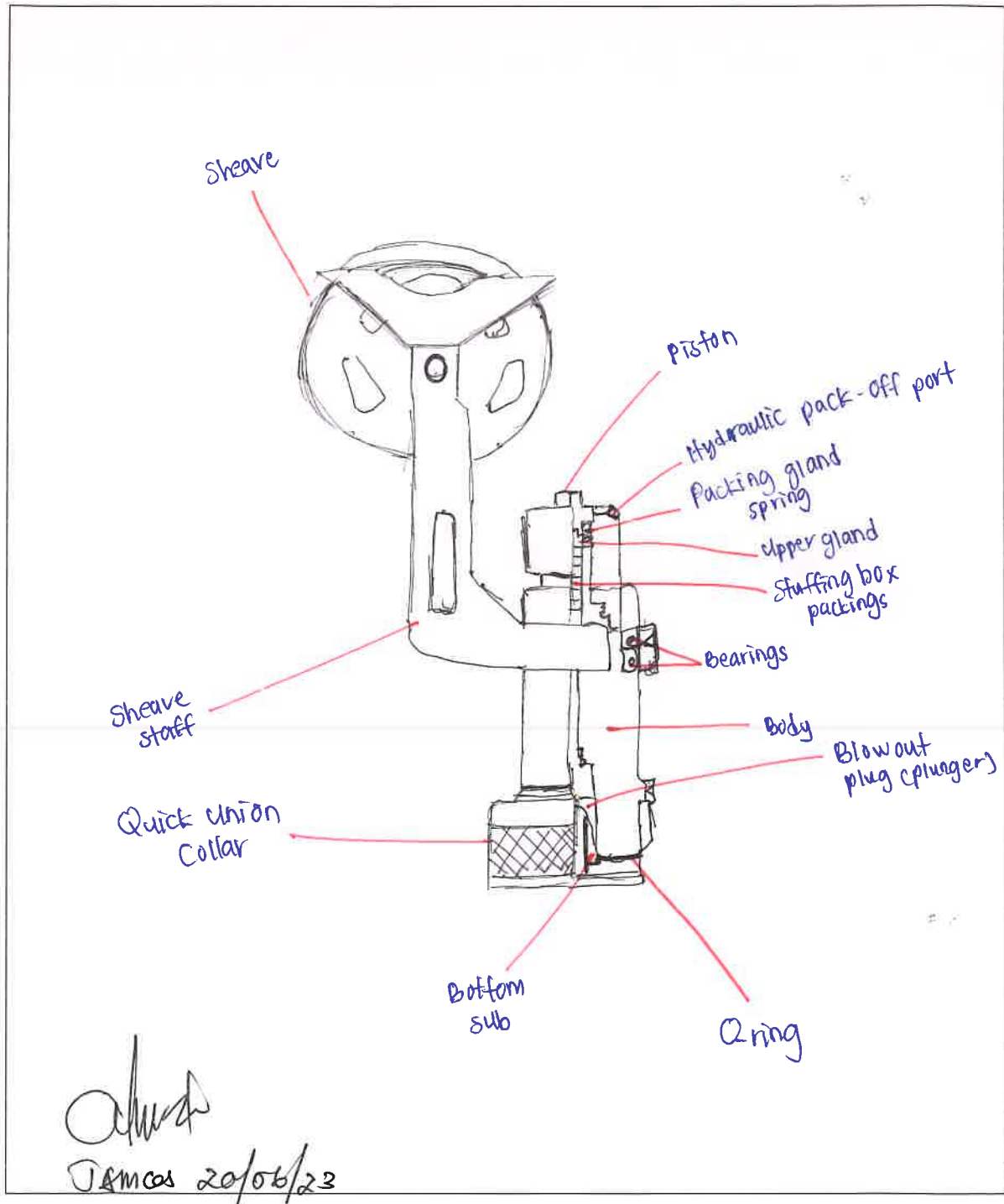
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What is potential hazard during handling Stuffing Box

- Back pain
- Pinch point

Draw & name each part of stuffing box





2. Lubricator

What is Lubricator

- ✓ * Lubricators (also known as risers) are a series of inter-connected lengths of pipe.

What is the purpose of Lubricator

- ✓ * To provide a space for the tool to be contained in under pressure when opening and closing the wellhead.

How to operate Lubricator

- ✓ - Primary test period (low pressure) - raise pressure to 300 psi + 20 psi
- ✓ - Hold pressure for a minimum of 5 min
- ✓ - Secondary Test period (high pressure) - raise pressure to maximum working pressure
- ✓ - Hold pressure for a ~~min~~ minimum of 15 minutes

What is maintenance required for Lubricator

- ✓ ① General damage and corrosion
- ✓ ② The condition of the needle valves on the lower sections. If necessary, redress or replace the valve
- ✓ ③ Visual inspection of the internal bore for corrosion and "wire tracking" wear grooves.

What is safety precaution required for Lubricator

- ✓ - lubricator should be enclosed in protective cage during use and transportation and stored in the transport frame

What is potential hazard during handling Lubricator

- ✓ - Back pain
- ✓ - pinch point

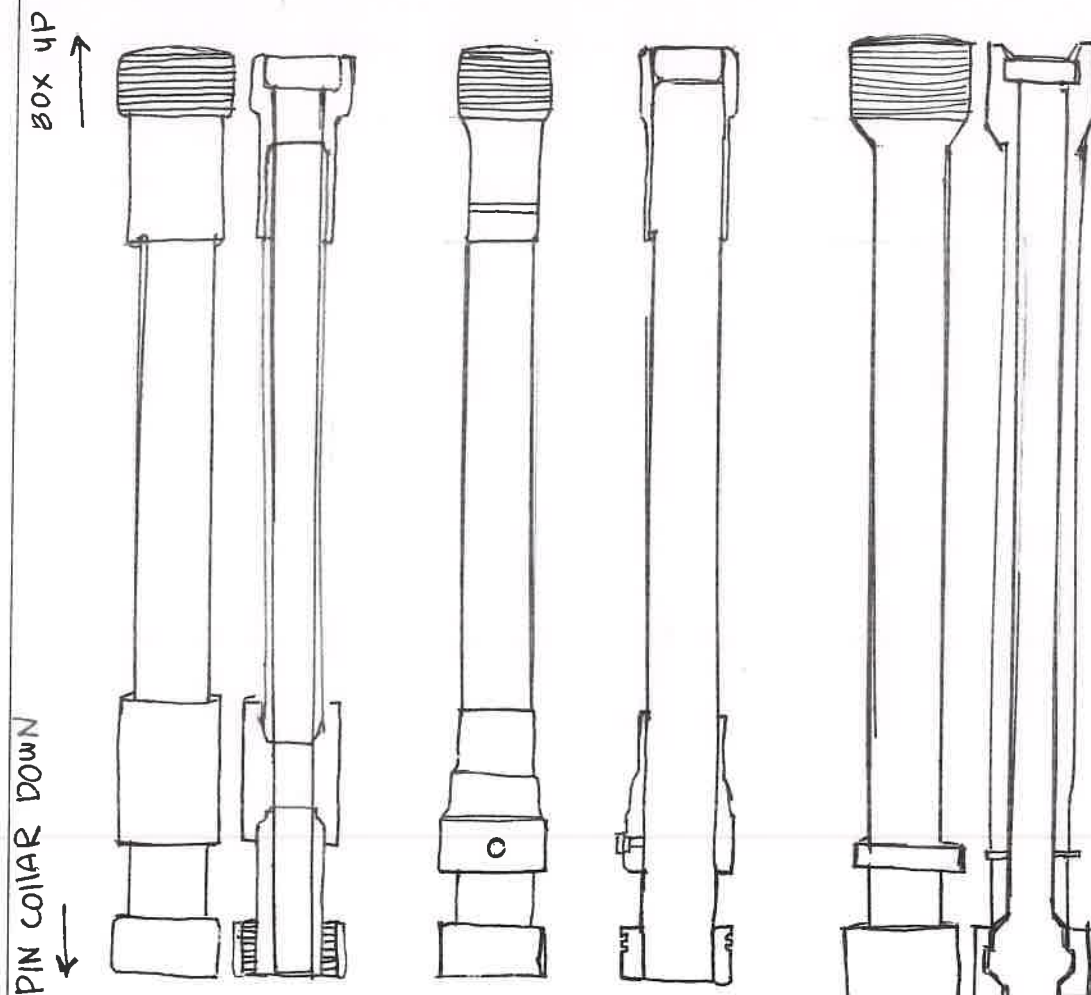
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Draw & name each part of Lubricator

NOTES:-

ID - 0.15"/0.25" larger than OD tool-

LENGTH - 8ft (Lubricator) - 4ft, 2ft (pup)



Conventional
Lubricators
(non ported)

Slimline Lubricators
(ported)

Lightweight
Lubricators
(ported)

Pressure Rating of Lubricator

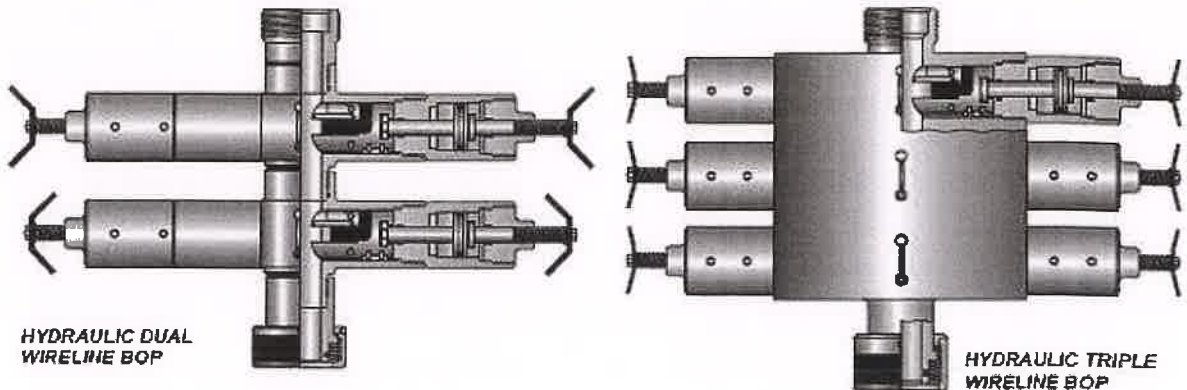
Working Pressure (WP) psi	Test Pressure (TP) psi
3000	4500
5000	7500
10,000	15,000
15,000	22,500

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3. Blowout Preventer (BOP)



What is BOP

- A BOP (also known as a wireline valve) is installed between the tree connection and lower lubricator section.

What is the purpose of BOP

- Enable the well pressure to be isolated without cutting the wire by closing the master valve
- Permit the assembly of the wireline cutter above the BOP rams and dropping it if the toolstring becomes stuck in the well.

How to operate BOP

- A pressure differential acting on cross-section of the rams creates a force that makes opening the rams extremely difficult.

What is maintenance required for BOP

- To be carried out after every job
- To be carried out once a year
- To be carried out every 5 year

What is safety precaution required for BOP

- Ensure the rod has an enlarged diameter below the ram to prevent it being blown out during testing.

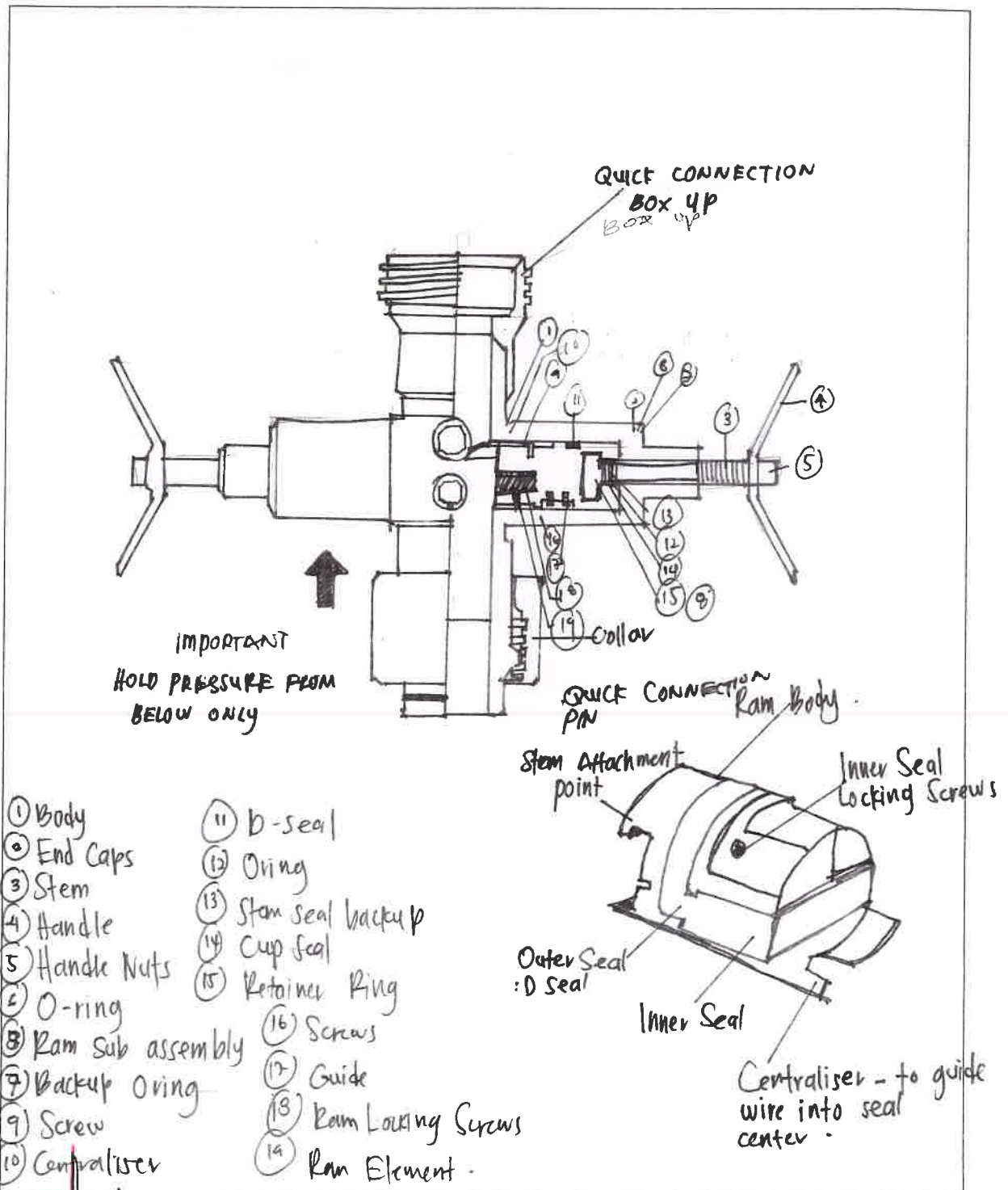
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What is potential hazard during handling BOP

- ✓ - Heavy equipment
- ✓ - Pinch point

Draw & name each part of BOP



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4. X-Mas Tree

What is x-mas tree

- ✓ Valve installed on the wellhead to control the flow fluids from the well.

What is the purpose of x-mas tree

- ✓ - Surface valves manifold used to control flow of well fluids & access for well intervention activities.

How to operate x-mas tree

- ✓ - Do not over tighten the valves during opening and closing. Many types have a shear pin between the handle and stem, valve's internal components. Never use the master valve to shut in the flowing well, except in emergency situation. Use swab or wing valves.

What is maintenance required for x-mas tree

- ✓ - Greasing valve

What is safety precaution required for x-mas tree

- ✓ - Always count before and after open or close the valve. to make sure the valve fully open and fully close

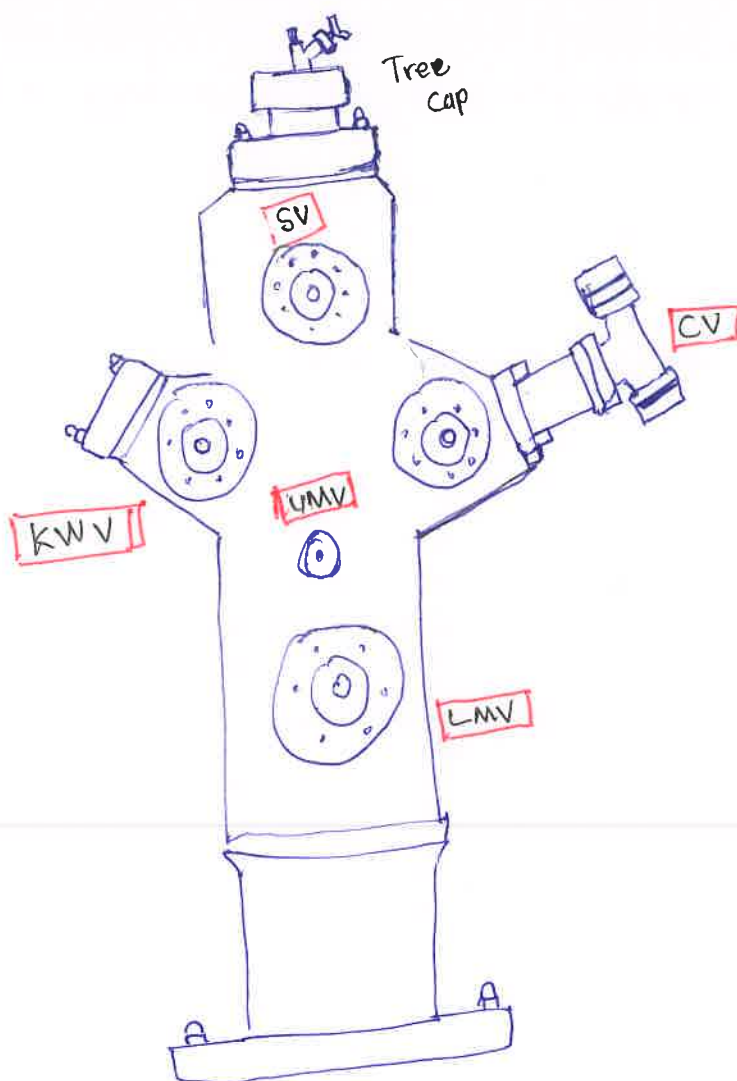
What is potential hazard during handling x-mas tree

- ✓ - Line of fire
- ✓ - Flammable release

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Draw & name each part of x-mas tree



- LMV (Lower Master Valve)
 - manual, not working valve optimum conditions
- UMV or SSV (Upper Master Valve)
 - Emergency valve
- FWV (Flow wing Valve)
 - Permits passage of well fluids to CV
- CV (choke valve)
 - Restrict, control or regulate flow of well fluids
- KWV (kill wing valve)
 - Permits entry of kill fluids into tubing or equalize
- SV (swab valve)
 - Permits entry of well interventions

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5. Wireline Reel Skid Unit (RSU) / Winch – Single Drum and Double Drum

What is RSU

- ✓ To deliver and retrieve tool down hole by using slickline wire

What is the purpose of RSU

- ✓ To turn the wire drum to lower and rise tool strings in the wells that require wireline servicing.

How to operate RSU

- ✓ operate by power pack
- ✓ manual control gear and valve

What is maintenance required for RSU

- ✓ check gear box condition
- ✓ hydraulic hose good condition
- ✓ visual check on body part and frame
- ✓ greasing

What is safety precaution required for RSU

- ✓ moving part
- ✓ make sure connection hose is tighted
- ✓ use whip check
- ✓ make sure no back on hose

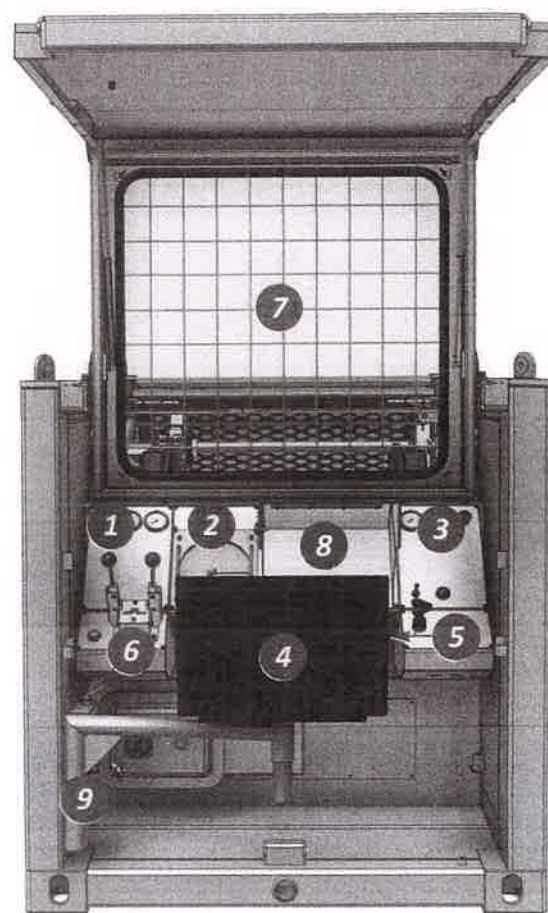
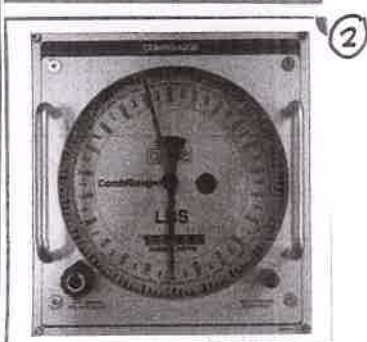
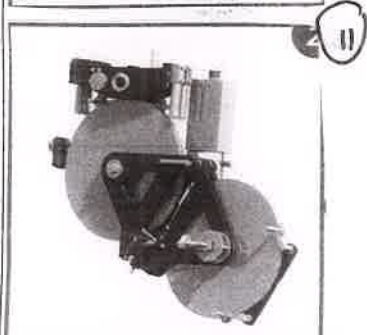
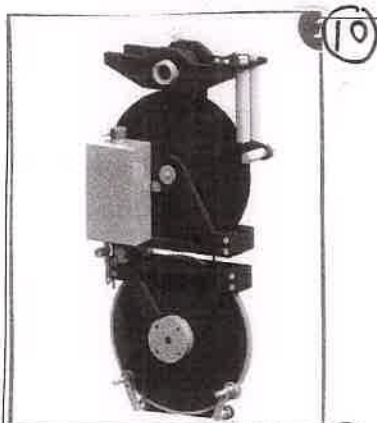
What is potential hazard during handling RSU

- ✓ hose burst
- ✓ manual handling
- ✓ moving part
- ✓ pinch point

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Draw & name each part of RSU



- ✓ 1 Left Control Panel . ✓ 10 MP 16 IV
- ✓ 2 Combi Gauge . ✓ 11 MP 20
- ✓ 3 Right Control Panel .
- ✓ 4 Operator chair .
- ✓ 5 Levelwind wheel (in front of chair) .
- ✓ 6 Operator Seat . Scoring pin .
- ✓ 7 Operator Safety Screen with optional protective grating .
- ✓ 8 Line Minder (optional) .
- ✓ 9 Line Minder power supply switch (optional) .

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6. Odometer

What is Odometer

- ✓ Use to measuring depth into the well

What is the purpose of Odometer

- ✓ For operator look depth well and know about depth in well.

How to operate Odometer

- ✓ Can be operated when connect odometer cable to the right angle drive.
Right angle drive connect to counter wheel and odometer perform when ~~quality~~ counter wheel start spinning.

What is maintenance required for Odometer

- ✓ Greasing
- ✓ Checking meter odometer makesure it function.

What is safety precaution required for Odometer

- ✓ Glass odometer should be clear
- ✓ Make sure odometer number can read
- ✓ Pin broken

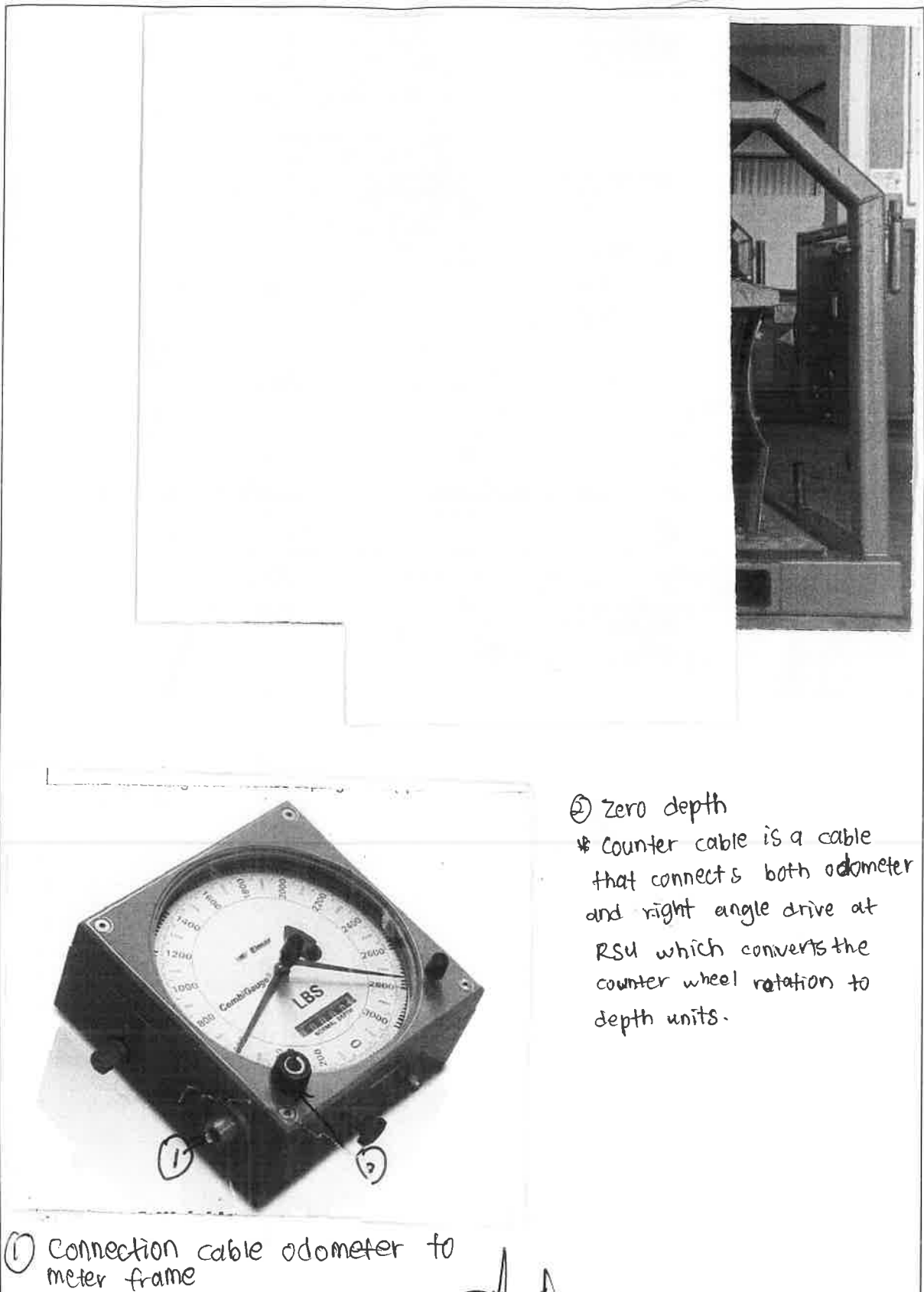
What is potential hazard during handling Odometer

- ✓ Pinch point
- ✓ Glass odometer broke
- ✓ Reading not accurate

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Draw & name each part of Odometer



① Connection cable odometer to meter frame

② Zero depth

* Counter cable is a cable that connects both odometer and right angle drive at RSU which converts the counter wheel rotation to depth units.

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7. Weight indicator (200 lbs and 4000 lbs)

What is Weight Indicator

- ✓ Weight indicator is systems are designed to provide accurate measurement of downhole tool weight during wireline operation.

What is the purpose of Weight Indicator

- ✓ As a guide operation during running tool into the well.

How to operate Weight Indicator

- ✓ Connect weight indicator with load cell
- ✓ Load all connect with hay pulley.

What is maintenance required for Weight Indicator

- ✓ Calibrate gauge
- ✓ Remove bubble in the hose
- ✓ Top up oil

What is safety precaution required for Weight Indicator

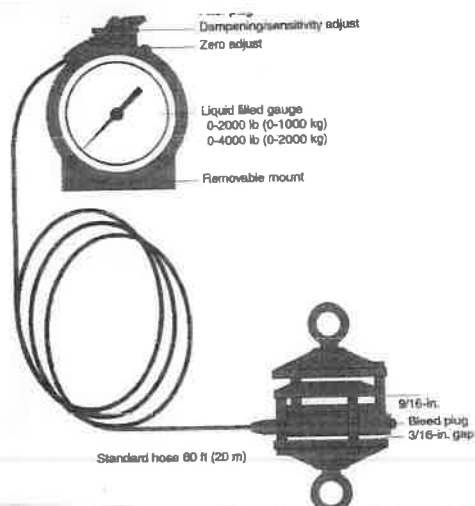
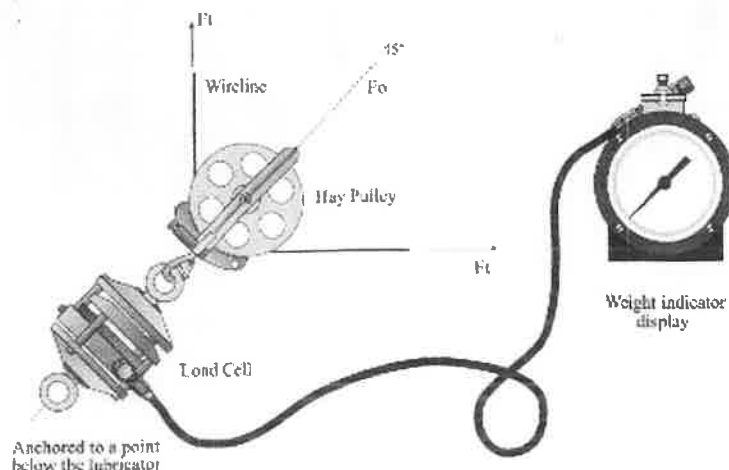
- ✓ Secure proper gauge
- ✓ Secure hose properly

What is potential hazard during handling Weight Indicator

- ✓ Incorrect reading gauge
- ✓ Hose burst

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Draw & name each part of Weight Indicator



*To determine the total weight of tools hung in tubing string

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8. Spooling Device

What is Spooling Device

- ✓ - Spooling device is device to spool new wire from reel to drum or drum wire to another drum

What is the purpose of Spooling Device

- ✓ - Purpose to tension wire while spool new unit into the drum

How to operate Spooling Device

- ✓ - Must connect power pack hose to spooling device

What is maintenance required for Spooling Device

- ✓ - Check hydraulic regulator
- ✓ - Check gear oil

What is safety precaution required for Spooling Device

- ✓ - Baricade work site area
- ✓ - Full PPE

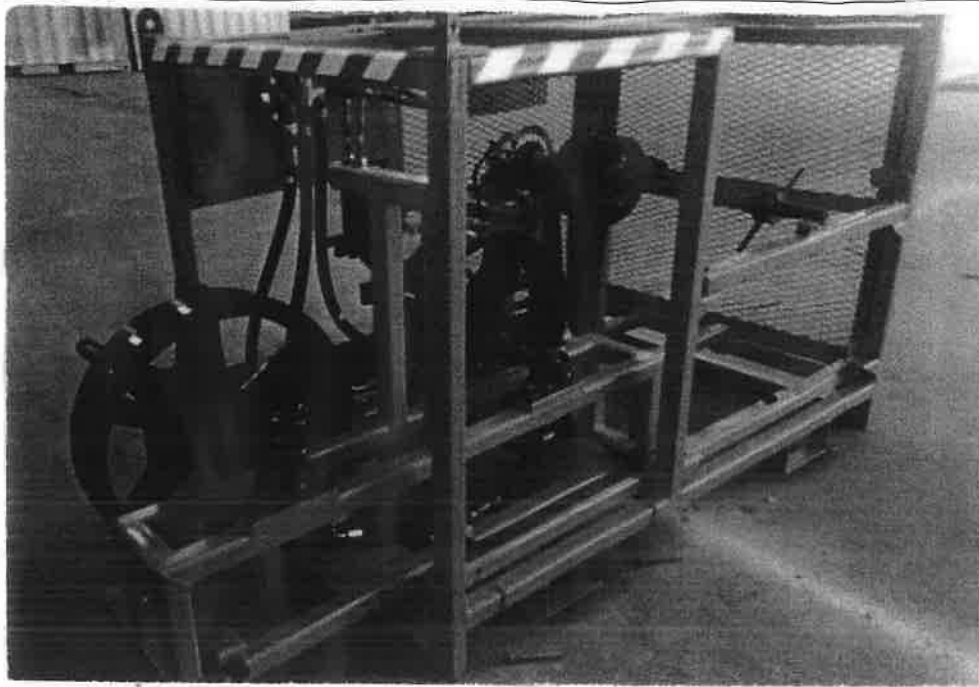
What is potential hazard during handling Spooling Device

- ✓ - Hose burst
- ✓ - Line of fire
- ✓ - High tension wire

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Draw & name each part of Spooling Device



- Spooler drum
- Drive Spocket
- Pre-set spooling
- Double brake in parallel

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9. Control Panel

What is Control Panel

- ✓ Control panel are supply hydraulic

What is the purpose of Control Panel

- ✓ used to operate a number of valves normally operated in slickline operations. (HMV, SSV).

How to operate Control Panel

- ✓ connect ac to supply air for control panel
- ✓ using regulator to pressure up line

What is maintenance required for Control Panel

- ✓ Check gauge
- ✓ Check hose
- ✓ Check all tubing and connection
- ✓ Check hydraulic oil

What is safety precaution required for Control Panel

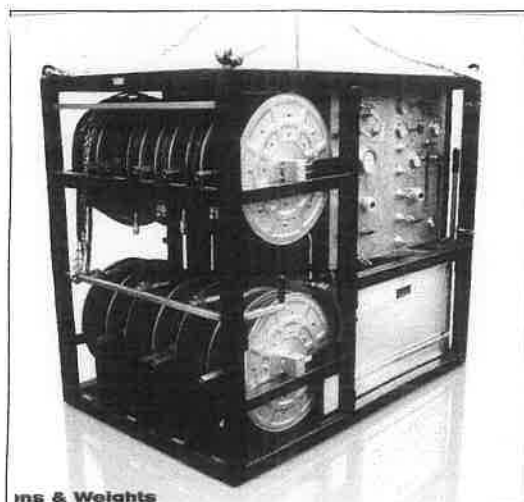
- ✓ Secure all hoses connection
- ✓ Don't stand at line of fire
- ✓ Check all connection and fitting

What is potential hazard during handling Control Panel

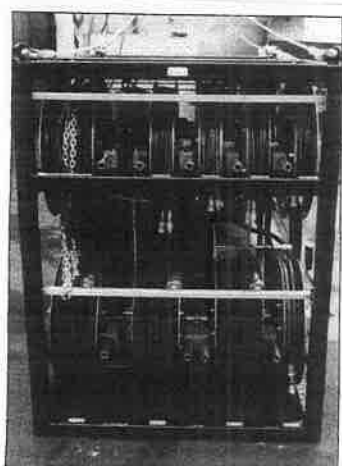
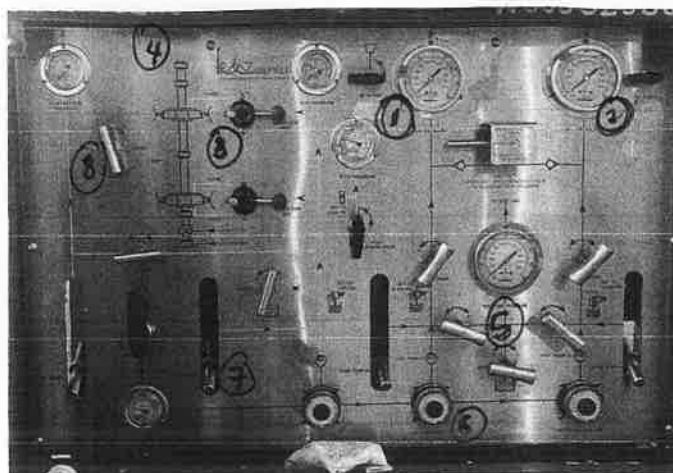
- ✓ Hose burst
- ✓ Tubing leaking / parted
- ✓ High pressure

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Draw & name each part of Control Panel



ins & Weights



- ⑥ Regulator
- ⑦ Manual Hand Pump
- ⑧ Bleed off

	SYSTEM	PUMP TYPE	WORKING PRESSURE
①	SCSSV	AIR/HYDRAULIC	0-10,000 PSI (690 BAR)
②	HMV	" "	0-6,000 PSI (413 BAR)
③	TWO BOP	" "	0-5,000 PSI (344 BAR)
④	STUFFING BOX	MANUAL/HYDRAULIC	0-5,000 PSI (344 BAR)
⑤	TEST LINE	AIR/HYDRAULIC	0-10,000 PSI (690 BAR)

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10. Huskel Drum

What is Huskel Drum

✓ Generate fluid pump

What is the purpose of Huskel Drum

✓ To connect air supply to hydraulic pressure / fluid pressure

How to operate Huskel Drum

✓ Air supply control by air regulator

What is maintenance required for Huskel Drum

✓ Service pump
✓ Redress kit

What is safety precaution required for Huskel Drum

✓ Barricade area while function test

What is potential hazard during handling Huskel Drum

✓ Air hose burst
✓ Trap pressure
✓ Line of fire

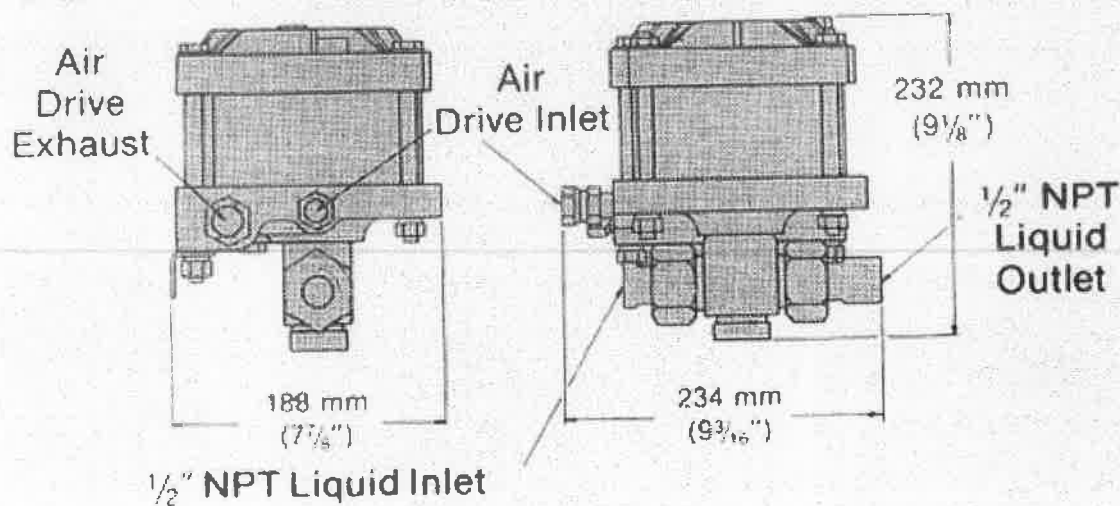
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Draw & name each part of Huskel Drum



Test Pump:
Maximator -
TP1, 2, 3 .
Huskel Pump -
TP4, 5, 6

Net weight 9.5 kg
Boxed weight 10 kg
Box size 25 x 26 x 22 cm



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11. Power Pack (Electrical & Diesel)

What is Power Pack

✓ Power pack have a engine and use diesel

What is the purpose of Power Pack

✓ supply hydraulic to RSM

How to operate Power Pack

- ✓ Keep engine stop cable fully "IN" which is mounted on the control panel
- ✓ Keep diesel cut off valve in start position.
- ✓ Keep winch unit drum directional control valve in neutral or center position.
- ✓ Start engine by pulling and holding inlet overspeed shut down valve and depressing the pedal starter switch.

What is maintenance required for Power Pack

- ✓ Change engine oil filter and check drain water on tank.
- ✓ service when running hour.

What is safety precaution required for Power Pack

- ✓ Check hose in good condition
- ✓ check engine oil, water before start
- ✓ check engine in good condition

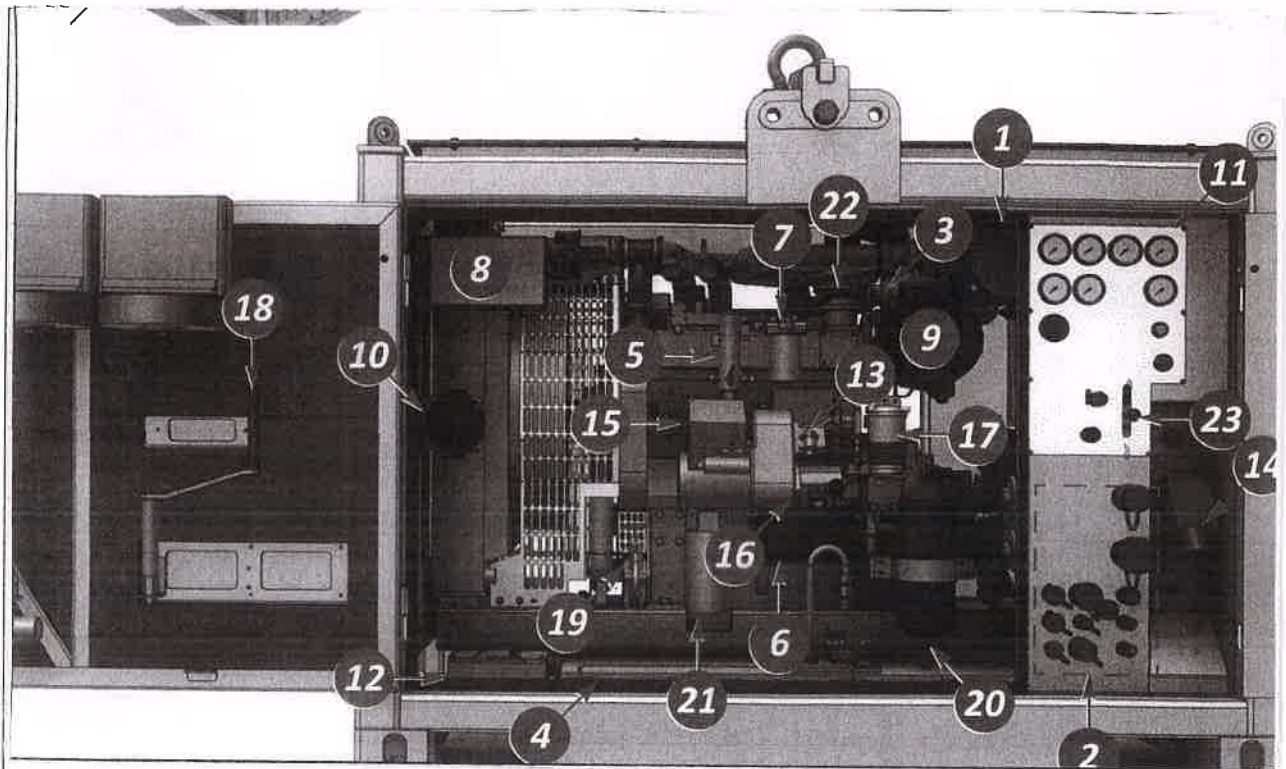
What is potential hazard during handling Power Pack

- ✓ High pressure
- ✓ Noise sound
- ✓ Rotating part
- ✓ Hot equipment

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Draw & name each part of Power Pack



- | | |
|--|----------------------------------|
| ① Exhaust silencer | ② Fuel Purifier |
| ③ Pneumatic and hydraulic connectors | ③ Engine Oil Filter |
| ④ Engine Flame Trap Breather (zone 2 only) | ④ Engine Air Intake Safety Valve |
| ⑤ Fuel Tank | ⑤ Air Inlet Valve Control Handle |
| ⑥ Fuel Safety (sentinel) valve | |
| ⑦ Spring starter | |
| ⑧ Fuel Fine Filter | |
| ⑨ Electric Junction Box | |
| ⑩ Engine Air Intake Filter (Naturally aspirated powerpack) | |
| ⑪ Battery Isolation Switch | |
| ⑫ Control Panel | |
| ⑬ Fuel Pre filter & water separator | |
| ⑭ Spring starter Crank Handle | |
| ⑮ Engine Oil Sump Pump | |

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12. Air Compressor

What is Air Compressor

✓ Air compressor has a engine and use diesel

What is the purpose of Air Compressor

✓ Air Compressor to supply compressed air

How to operate Air Compressor

✓ Keep diesel cut off valve in start position

✓ Recoil spring starter by turning on clock wise direction until the indicator turns red.

✓ Start engine by pulling and holding inlet overspeed shut down valve and releasing the spring starter start lever.

✓ keep and continue holding the inlet overspeed shut down valve until oil pressure is built.

What is maintenance required for Air Compressor

✓ change engine oil, filter, air cooler and water

✓ check hose in good condition

What is safety precaution required for Air Compressor

✓ make sure engine in good condition

✓ Beware when rotating equipment / part

What is potential hazard during handling Air Compressor

✓ Noise sound

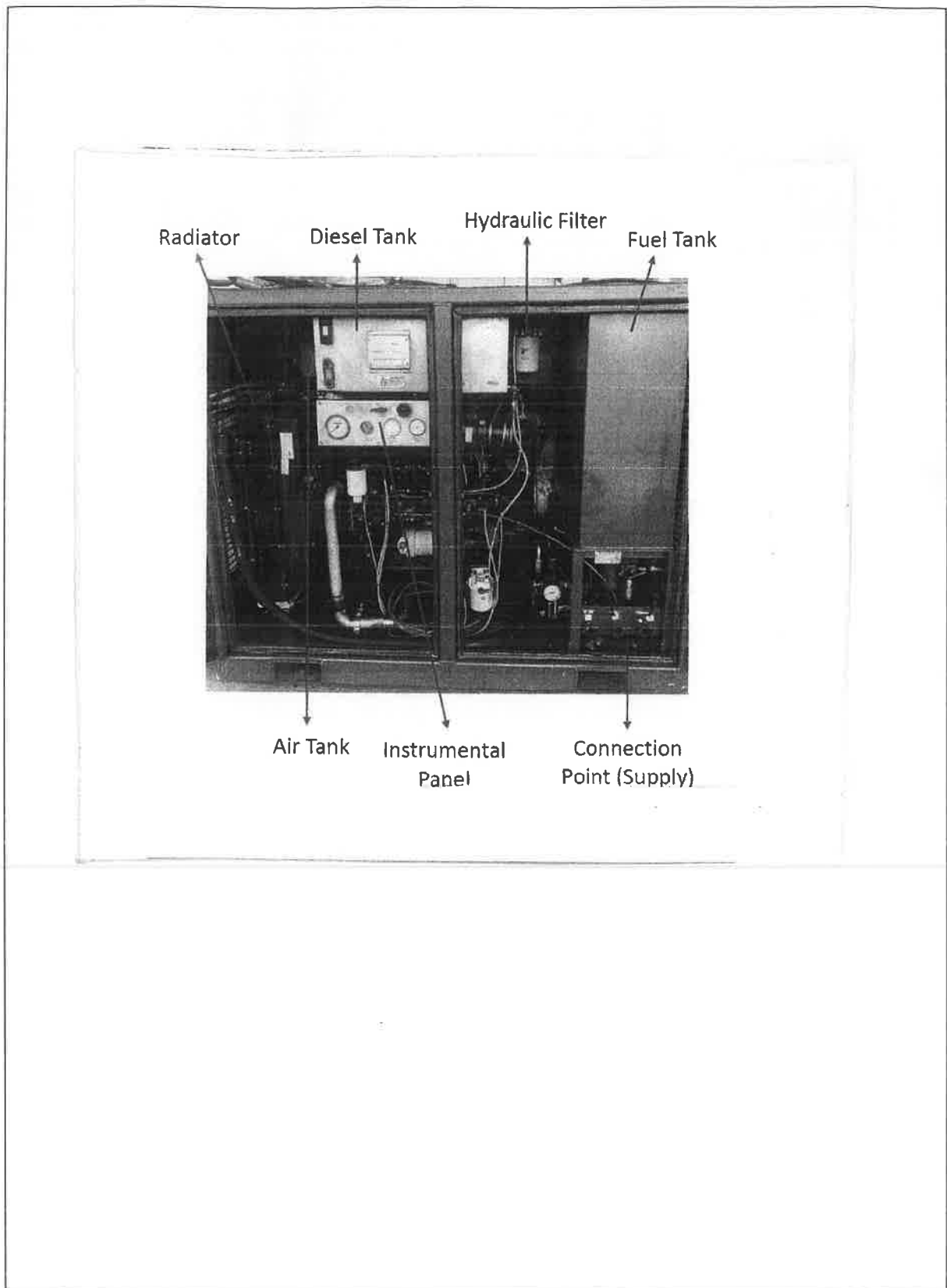
✓ High pressure air

✓ Hose burst

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Draw & name each part of Air Compressor



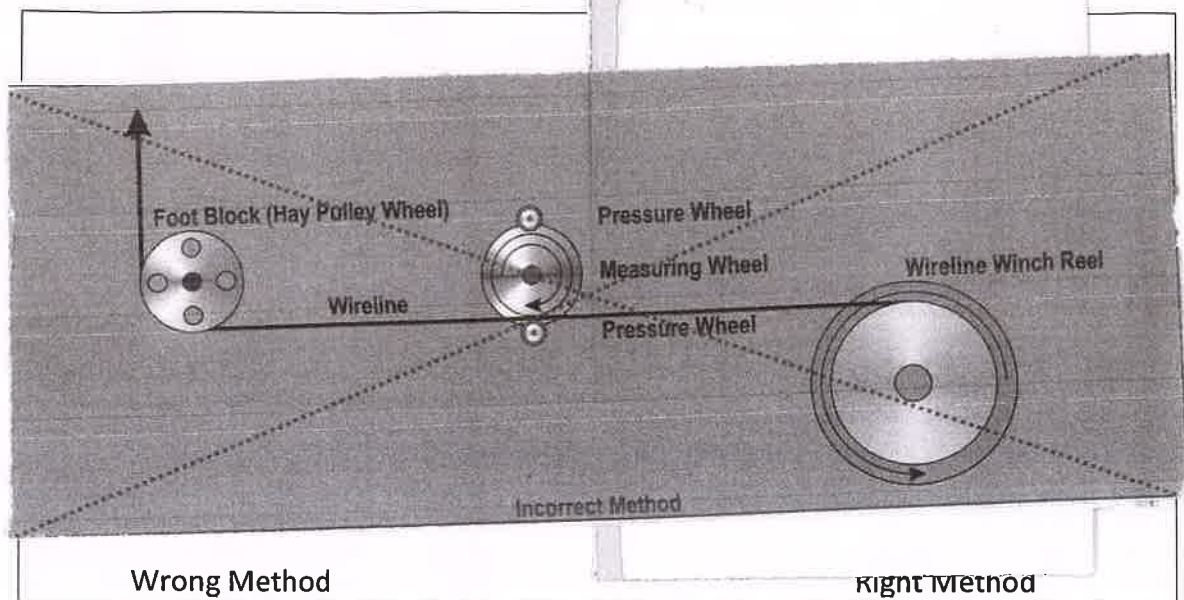


13. Drum

What is the purpose of Drum

✓ To drum can be single or double to running wireline operations pull in / out and brake.

Do the right and wrong wire arrangement from drum to haw pulley



What is maintenance required for Drum

✓ - Greasing bearing

What is safety precaution required for Drum

✓ - Rotating equipment

What is potential hazard during handling Drum

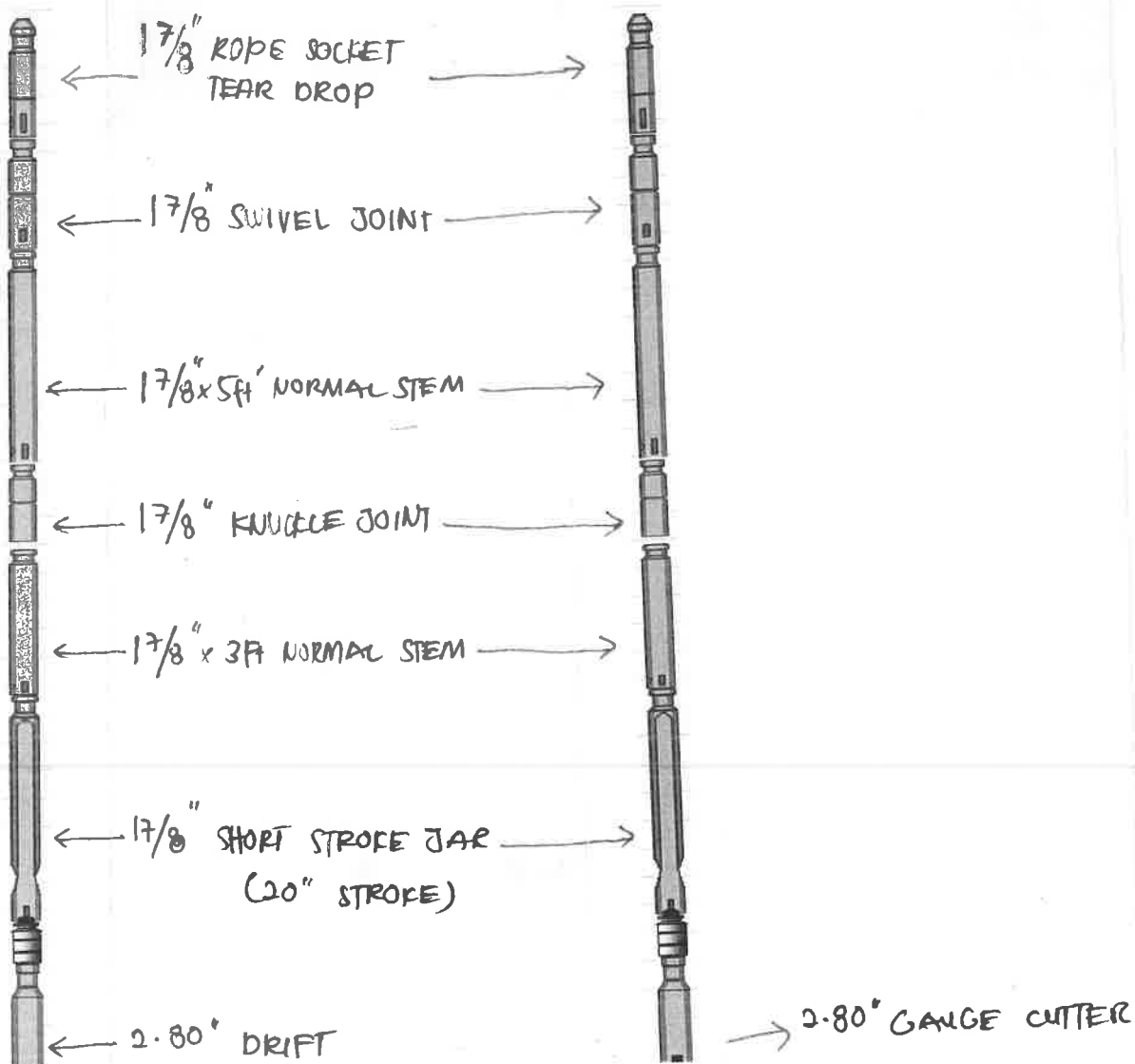
✓ - Pitch point

✓ - Sharp edge

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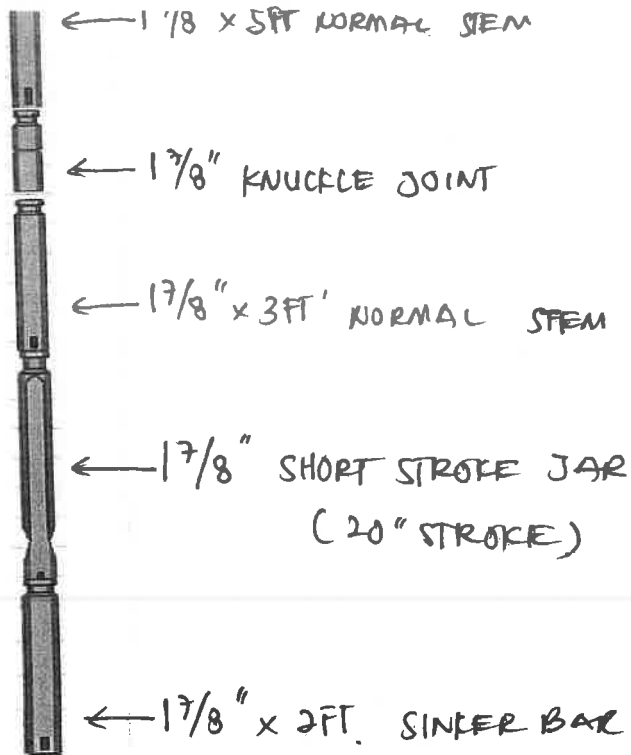
Please draw/sketch the toolstring configuration for:

- 1) Drift run/tubing clearance check
- 2) Sinker bar run
- 3) Set and retrieve plug
- 4) Set and retrieve insert valve



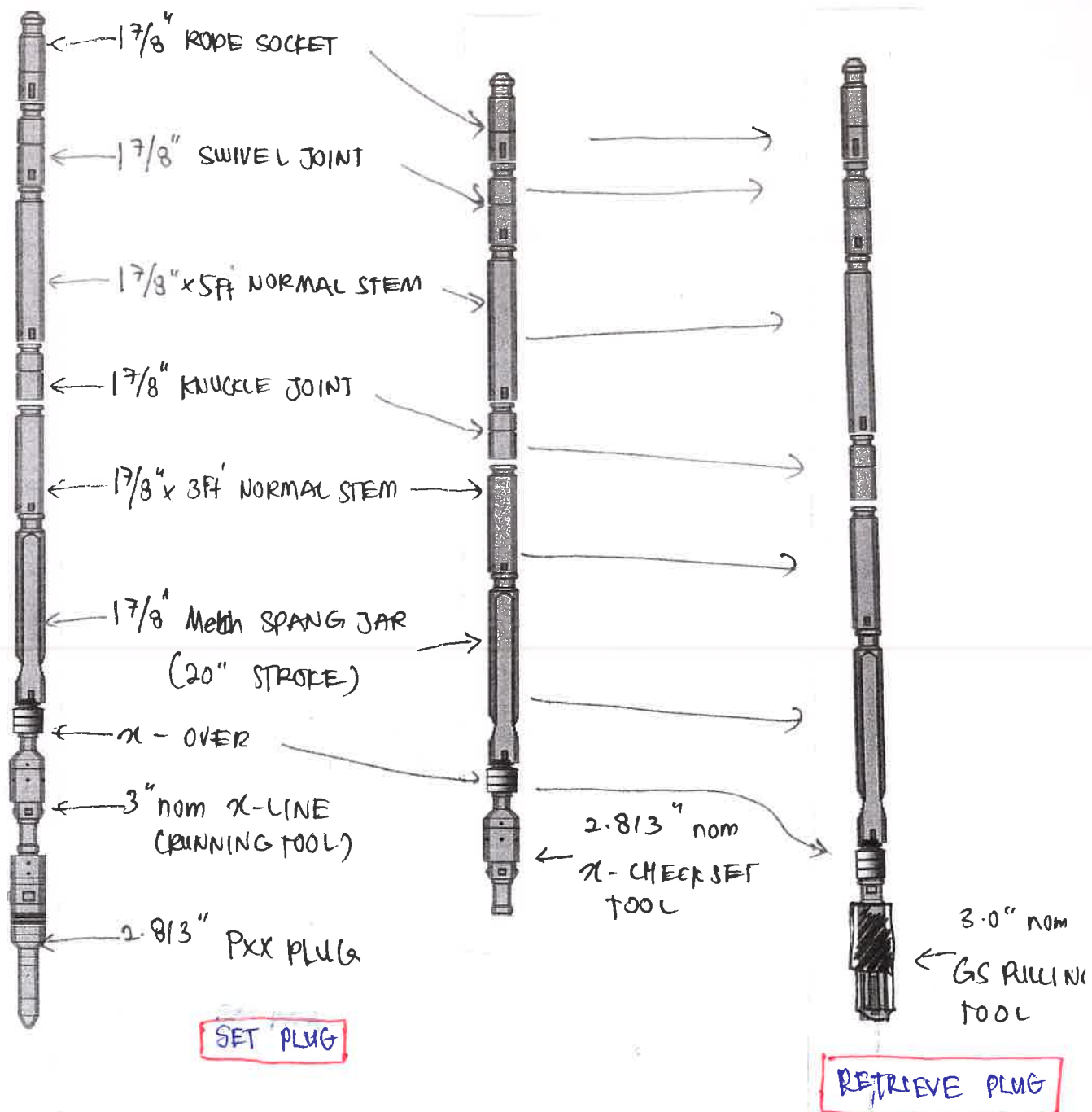
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✓ 2) SINKER BAR



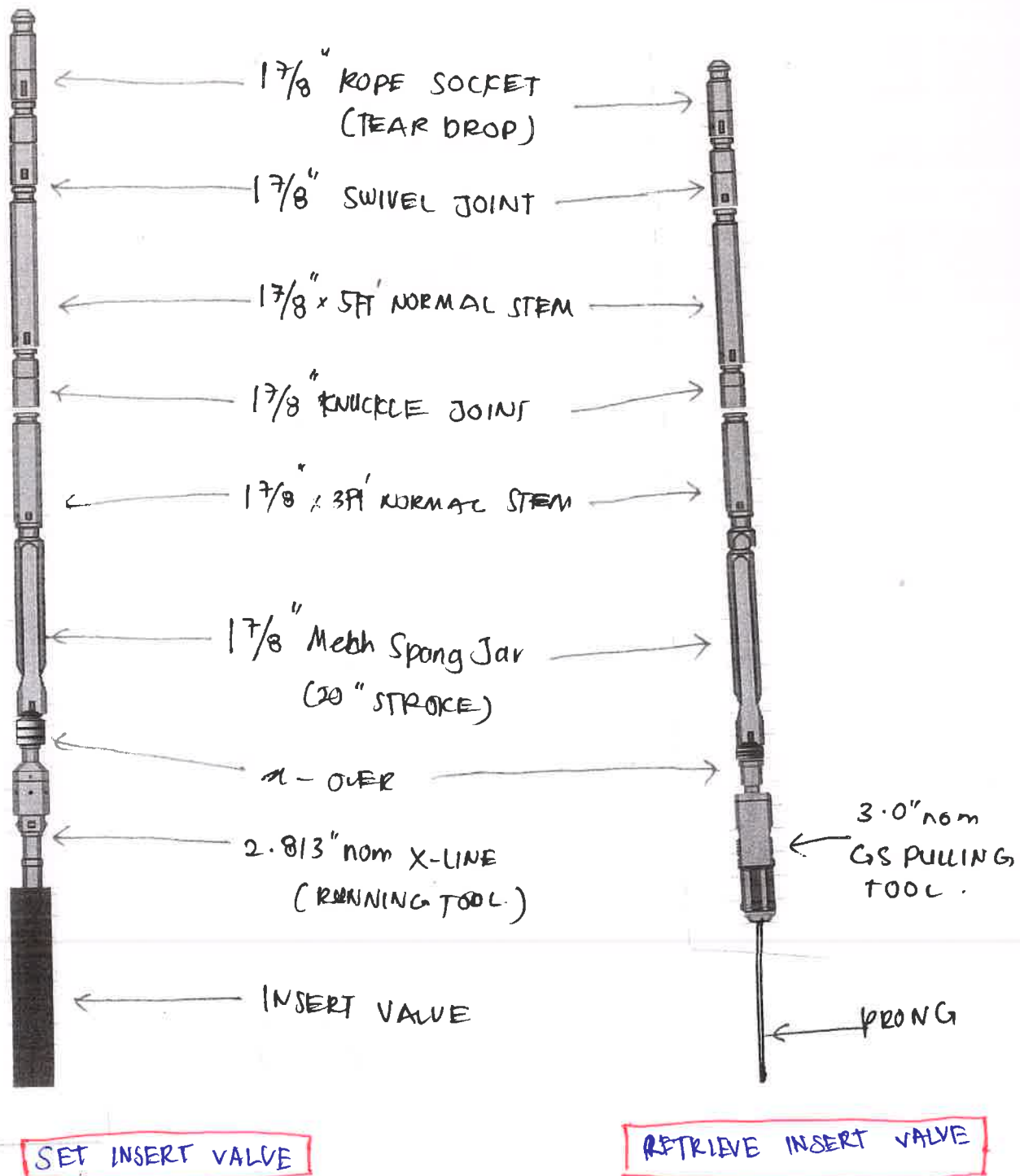
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✓ 3) SET AND RETRIEVE PLUG



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4) SET AND RETRIEVE INSERT VALVE



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