

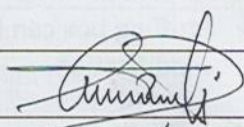


# SLICKLINE ASSISTANT WORKBOOK

## 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.

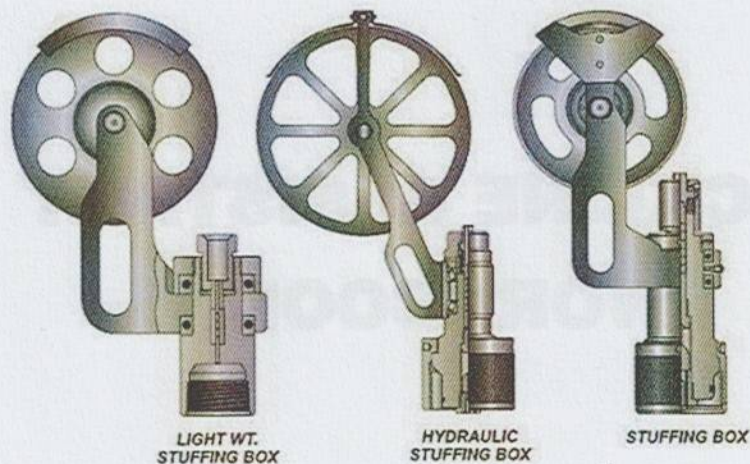
NAME	GEONELDIN CHAUHIN
DATE OF JOIN	02/02/2024
CONTACT NO.	0145509732
RECEIVED DATE	12/03/2024
DATE COMPLETED	08/06/2024

  
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## B. SURFACE EQUIPMENT

### B.1. STUFFING BOX



#### What is Stuffing Box

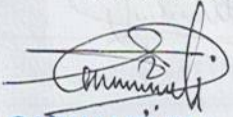
- Stuffing Box is the primary barrier during slickline operations and is used during work on wells with pressure.

#### What is the purpose of stuffing Box

- guiding the slickline from the bottom hay pulley into the top of the lubricator rig-up and containing well pressure whilst the slickline is either moving or stationary.

#### How to operate Stuffing Box

- Stuffing box can be operated either manually or hydraulically without part modification.

  
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What is maintenance required for Stuffing Box

- Packings – Not worn out.
- Sheave – Use the correct size (16" for 0.125", or 20" for 0.140").
- Upper and Lower packing Gland – Check for wear.
- BOP Plunger – check for wear and freedom of vertical movement.
- Sheave Bearings – check for free spinning.
- Sheave Staff – check for freedom of swivel movement.
- Sheave guard – tight and adjusted close to the sheave.

What is safety precaution required for Stuffing Box

- Check the packing whether worn out or not.
- Check out the correct size of the Sheave.

What is potential hazard during handling Stuffing Box

- Drop object
- Pinch point
- Back injury

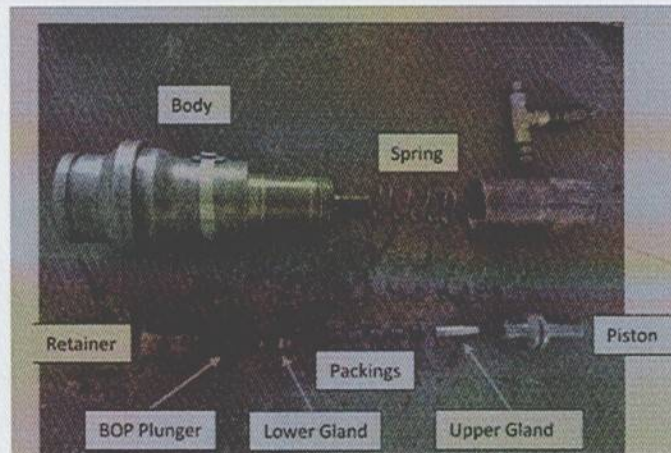
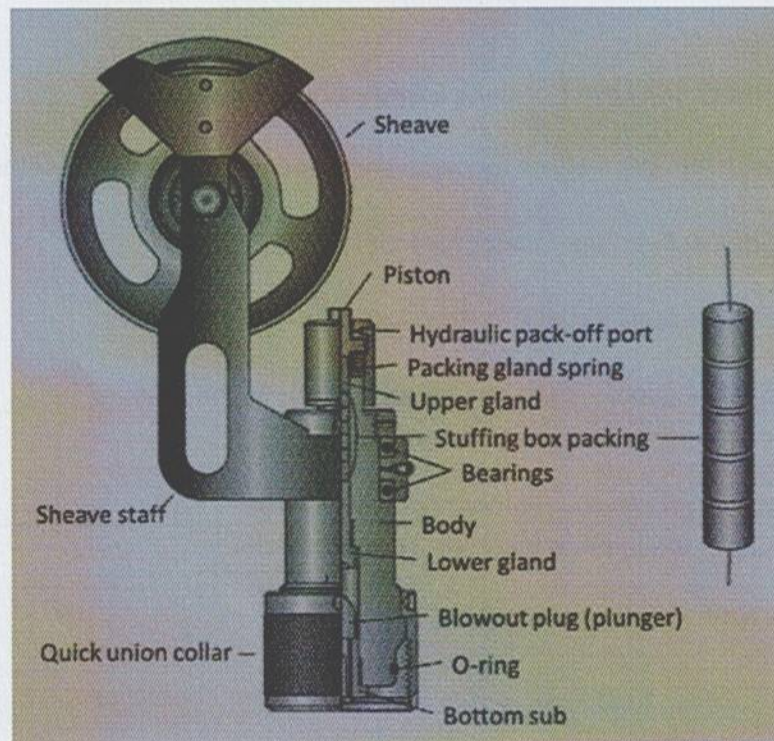
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Draw & name each part of stuffing box



*Gazali Mehry*  
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## B.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

- Connect the lubricator section using:
  - Chain Block
  - Wireline Mast
  - Crane
  - Gin Pole

What is maintenance required for Lubricator

- Check for any cracks.
- Check thread pin and box connection.
- Visual inspection at the regular interval.
- Check all the O-ring and make sure didn't worn out.

  
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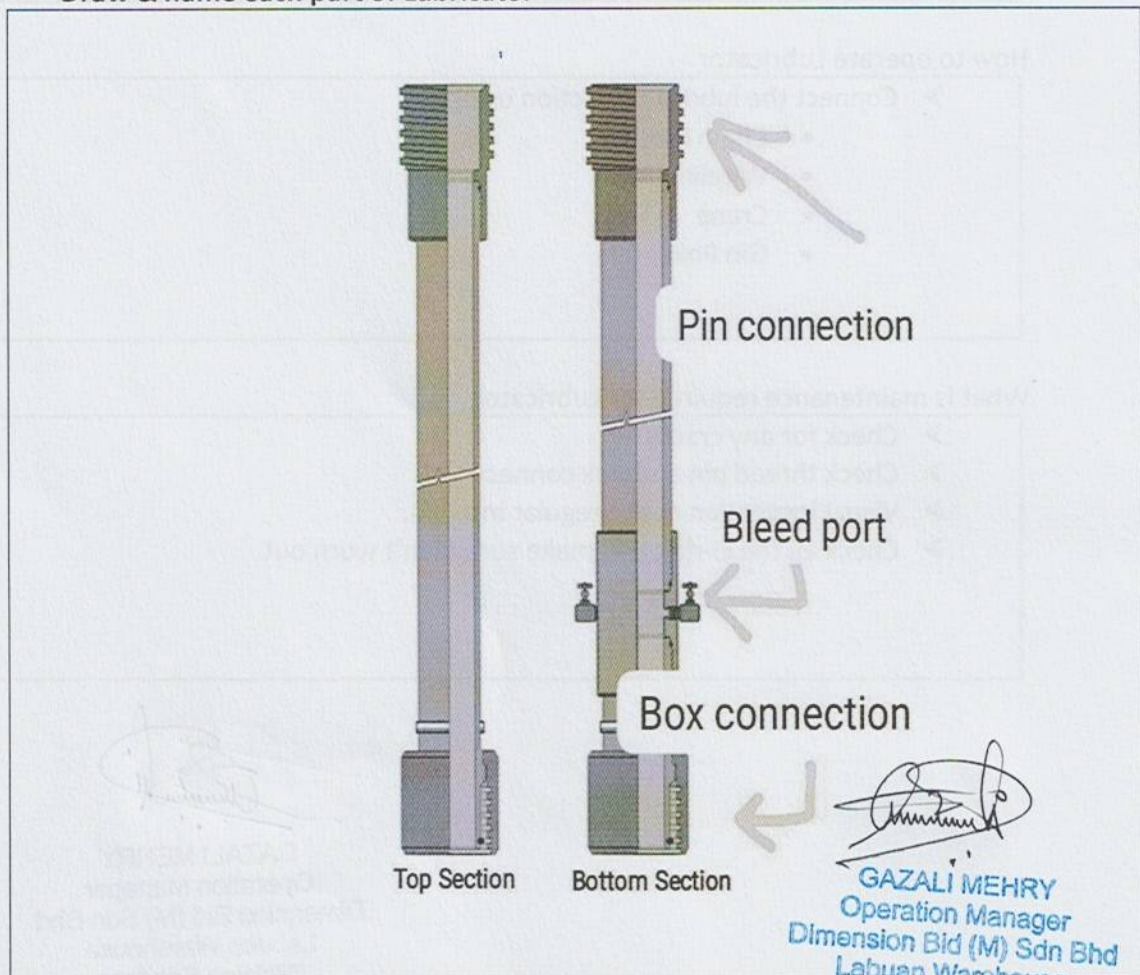
What is safety precaution required for Lubricator

- Lubricator must have a bleed port to blow out the pressure inside lubricator.
- Lubricator must hydrotest before operation.

What is potential hazard during handling Lubricator

- Drop object.
- Pinch point
- Back injury

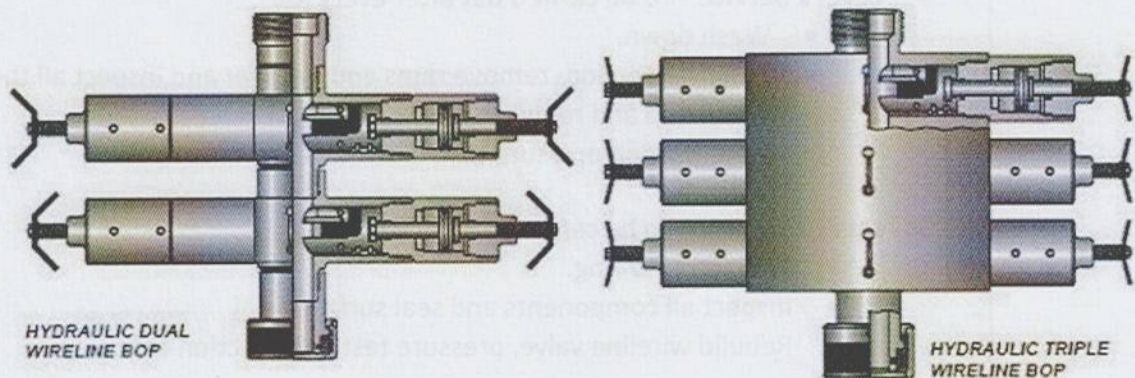
Draw & name each part of Lubricator







### B.3. BLOWOUT PREVENTER (BOP)



#### What is BOP

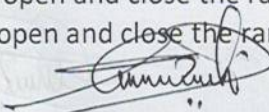
- A BOP (also known as a wireline valve) is generally installed between the tree connection and lower lubricator section. The BOP provides facilities for contingency and emergency procedures and must be included in all rig-ups.

#### 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 tool string becomes stuck in the well.
- Allow slickline work under the well pressure on surface equipment, while wire in the wellbore.

#### How to operate BOP

- Using hydraulic:
  - Connect the BOP with RSU to open and close the ram.
  - Connect the control panel to open and close the ram.

  
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What is maintenance required for BOP

- **Level 1 Service** - To be carried out after every job
  - Wash down.
  - Initial inspection- remove rams and cylinder and inspect all the seal.
  - Grease up and rebuild.
  - Function and pressure test.
- **Level 2 Service** - To be carried out once a year.
  - Replace all O-ring.
  - Inspect all components and seal surface.
  - Rebuild wireline valve, pressure test and function test.
- **Level 3 Service** - To be carried out every 5 years.
  - Carry out Levels 1 and 2 service procedure.
  - Strip Wireline Valve to component parts discarding all 'O' rings/back-up rings.
  - MPI (Magnetic Particle Inspection) of all parts.
  - Rebuild using seal kit and any necessary new parts.
  - Rebuild Wireline Valve and pressure test to Test Pressure.
  - Function test at Working Pressure.
  - Third party certificate of final test and inspection, certificate of conformity and lifting certification.

What is safety precaution required for BOP

- Keep the equalizing valve closed. In emergency, BOP will hold pressure as soon as the rams are close.

What is potential hazard during handling BOP

- High pressure

- Back injury

- Hose burst

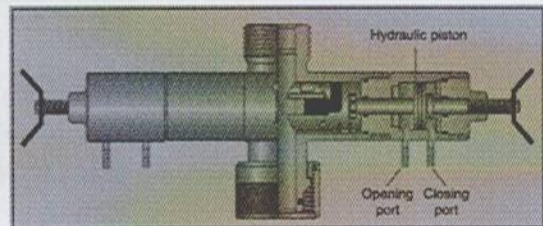
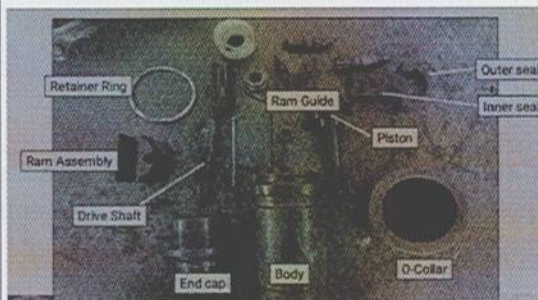
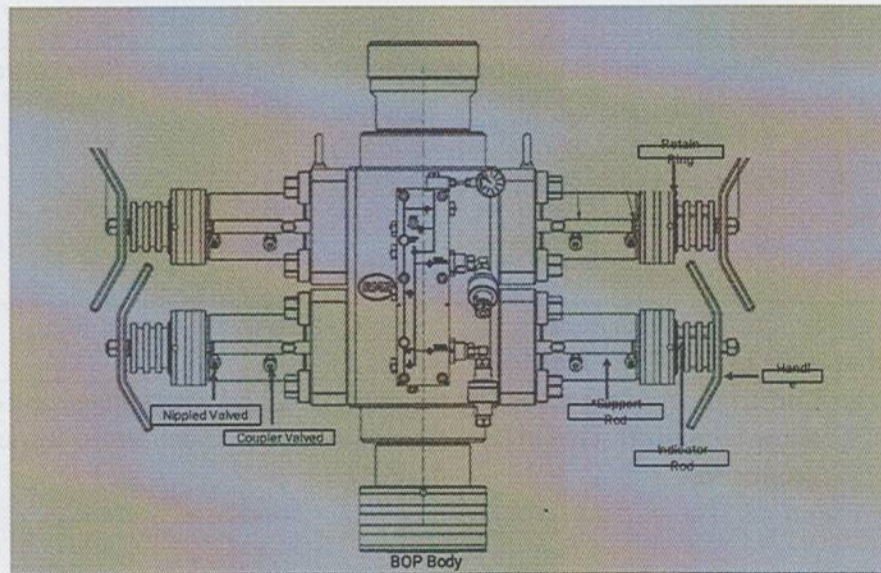
  
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Draw & name each part of BOP



  
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## B.4. X-MAS TREE

What is x-mas tree

- A Christmas tree is a piece of equipment that provides flow control on the oil or gas well.
- Located on top of wellhead.

What is the purpose of x-mas tree

- Christmas trees are a vertical assembly of valves with gauges and chokes that allow for adjustments in flow control as well as injections to stimulate production.

How to operate x-mas tree

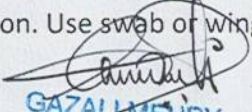
- The valves that comprise some of the decorations on the Christmas tree are opened when the oil or gas well is ready to produce and the processing and storage facilities are ready to receive.

What is maintenance required for x-mas tree

- Physical inspection of Christmas Tree component.
- Injection of grease and sealant into Valve Body cavities.
- Do Critical Device Function Test (CDFT) using well bore pressure on all Christmas tree valves.

What is safety precaution required for x-mas tree

- Do not overtightened the valves during opening and closing.
- Never use the master valve to shut in the flowing well, except in an emergency situation. Use swab or wing valves.

  
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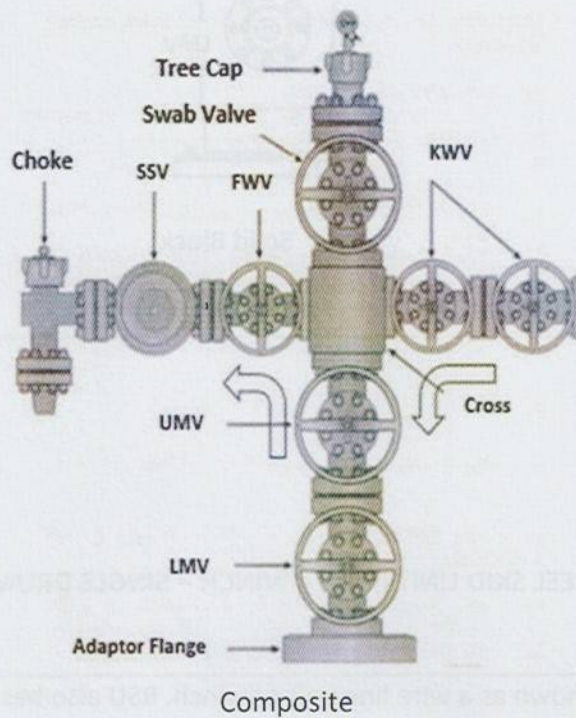




What is potential hazard during handling x-mas tree

- Pinch point
- High pressure
- Work under suspended load.
- Line of fire

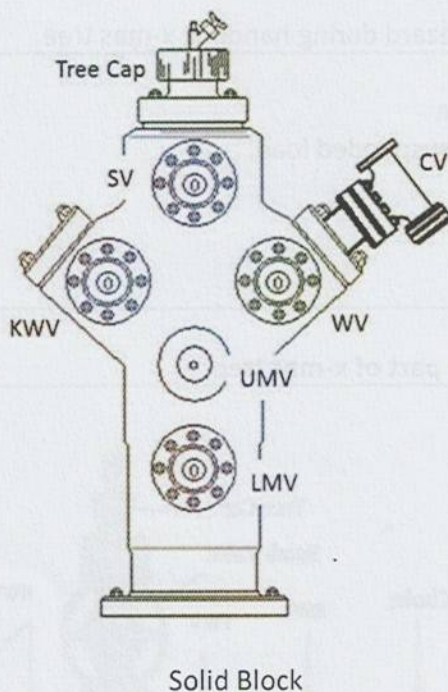
Draw & name each part of x-mas tree



  
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#### B.5. WIRELINE REEL SKID UNIT (RSU) / WINCH – SINGLE DRUM AND DOUBLE DRUM

What is RSU

- Also known as a wire line unit or winch. RSU also has penal control, single or double drum for wire, and counter wheel.

What is the purpose of RSU

- It is used to send a tool string using a wire into a well that requires wireline servicing.

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How to operate RSU

- Connect the power pack to the RSU and winch hydraulic system.

What is maintenance required for RSU

- Check that the drive chain is well lubricated (apply general grease).
- Check the condition of counter cable.
- Check for hydraulic leaks.
- Check brake band adjustment.

What is safety precaution required for RSU

- Be careful with the wire (rotating drum winch when running) because it might break.

What is potential hazard during handling RSU

- Wire breaks off
- Pinch point
- Rotating drum winch

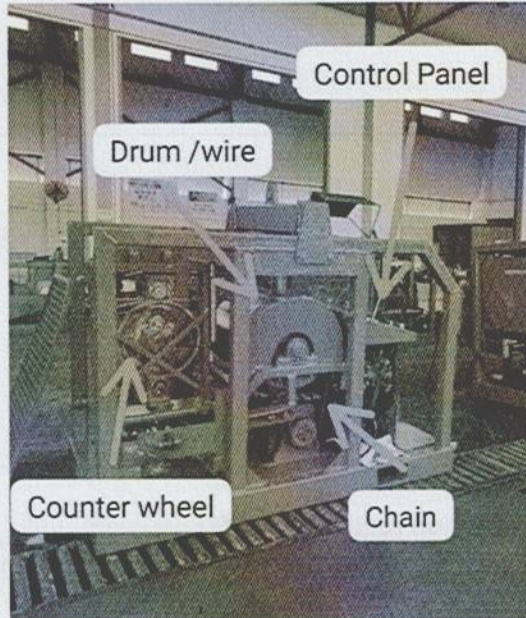
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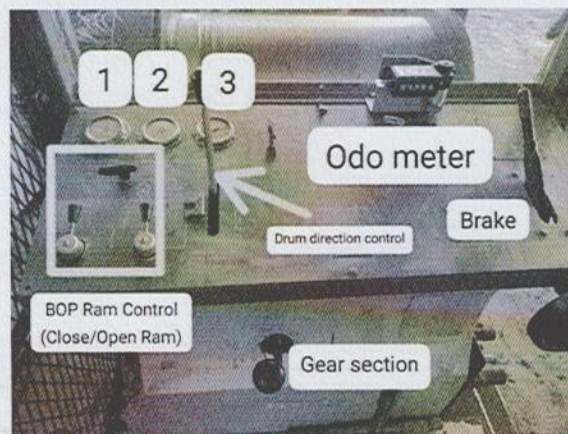




Draw & name each part of RSU



SOP Reel Skid Reel



SOP RSU Control Panel

- |                          |
|--------------------------|
| 1. BOP System Pressure   |
| 2. Accumulator Pressure  |
| 3. Winch System Pressure |

  
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## B.6. ODOMETER

What is Odometer

- Also known as Depth Counter / Depth Measuring device.

What is the purpose of Odometer

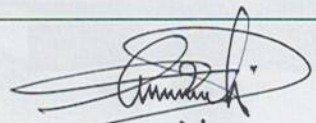
- To indicate the depth of slickline tool string hanging in a tubing string in feet or meters.

How to operate Odometer

- Prior to operation, this device should be manually set to zero and start reading from tubing hanger.
- Connect the end of the counter cable to the odometer on the control panel. other end cable, connect it to the right-angle drive installed on the counter wheel.

What is maintenance required for Odometer

- Ensure the counter wheel is free to rotate.
- Check the rotation is being transmitted freely to odometer.
- Ensure the direction of rotation is correct.
- Check the cable has no kinks as it passes through the system.
- Check the odometer is fully engaged after zeroing.

  
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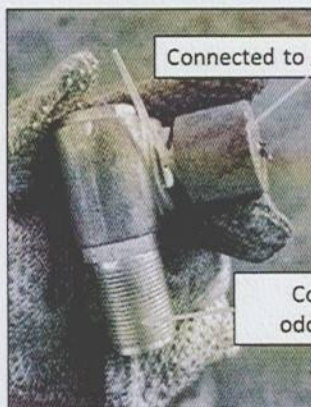
What is safety precaution required for Odometer

- Wear appropriate PPE.

What is potential hazard during handling Odometer

- Sharp edges
- Pinch point

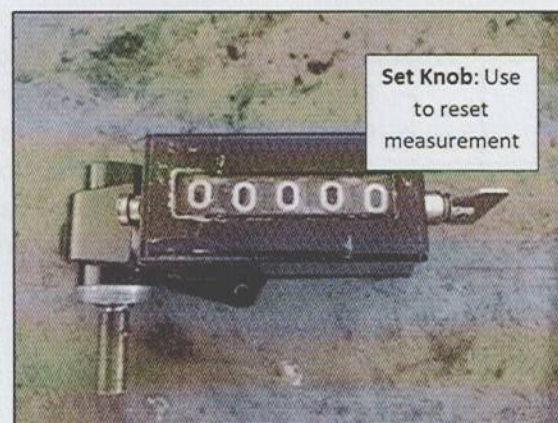
Draw & name each part of Odometer



Connected to counter head

Connected to  
odometer cable

Right Angle Drive



Set Knob: Use  
to reset  
measurement

  
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## B.7. WEIGHT INDICATOR (200 LBS AND 4000 LBS)

### What is Weight Indicator

- A device or system used to measure, display, and record the weight of a tubing string, slickline string or coiled tubing string in the wellbore.

### What is the purpose of Weight Indicator

- To determine the total weight of tools hung in tubing string.

### How to operate Weight Indicator

- The load cell is connected to the hay pulley and Xmas tree forming a pull at 90°, each side.
- Calibrated in lbs. Available in 2000 LBS (0 – 1000kg), 4000 LBS (0 – 2000 kg), 5000 lbs.
- If the fluid leaks out, the plated of load cell will close.
- If this occurs, the reading on the gauge will be incorrect.
- If the plates close sufficiently to touch, the gauge will no longer show the actual line tension.
- The gap should be approximately 7/16" or 11mm.

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What is maintenance required for Weight Indicator

- change the old fluid in the hose weight indicator (All Purpose Fluid W15).
- remove the air from the hose weight indicator using YA-2 pump.
- The gap should be approximately 7/16" or 11mm on the load cell.

What is safety precaution required for Weight Indicator

- Do not crash the hose Secure gauge and fittings because the load cell is made of aluminum alloy and reasonably strong rough handling can damage it.

What is potential hazard during handling Weight Indicator

- Drop object.
- the wire maybe under tension and will break.

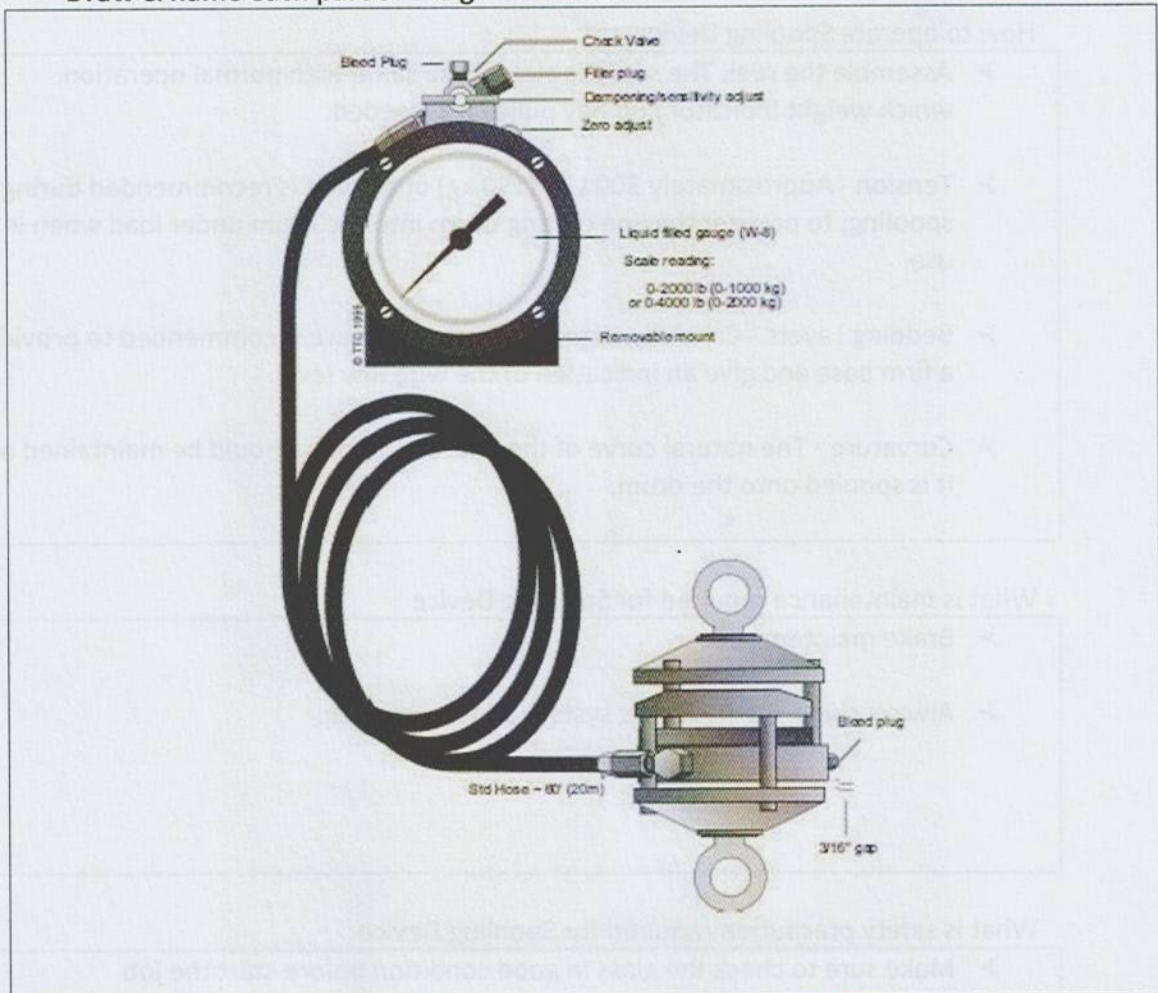
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## Draw & name each part of Weight Indicator



## B.8. SPOOLING DEVICE

What is Spooling Device

- A device designed to provide a spooling system to transfer wire from one wire drum to an empty drum.

What is the purpose of Spooling Device

- to be spooled under controlled tension from a standard shipping drum onto the wireline drum or from the wireline unit onto the shipping drum (unspooling).

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#### How to operate Spooling Device

- Assemble the reel. The setup is almost the same with normal operation, which weight indicator and hay pulley are needed.
- Tension - Approximately 300 LBS (150 kg) of tension is recommended during spooling, to prevent the line cutting down into the drum under load when in use.
- Bedding Layers - Carefully aligned wraps of wire are recommended to provide a firm base and give an indication of the wire low level.
- Curvature - The natural curve of the line, as shipped, should be maintained as it is spooled onto the drum.

#### What is maintenance required for Spooling Device

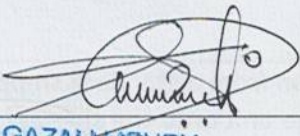
- Brake maintenance.
- Always check the hydraulic system if have any leak.

#### What is safety precaution required for Spooling Device

- Make sure to check the glass in good condition before start the job
- Bolts and nuts (shaft) are in good condition

#### What is potential hazard during handling Spooling Device

- Pinch point
- Rotating device

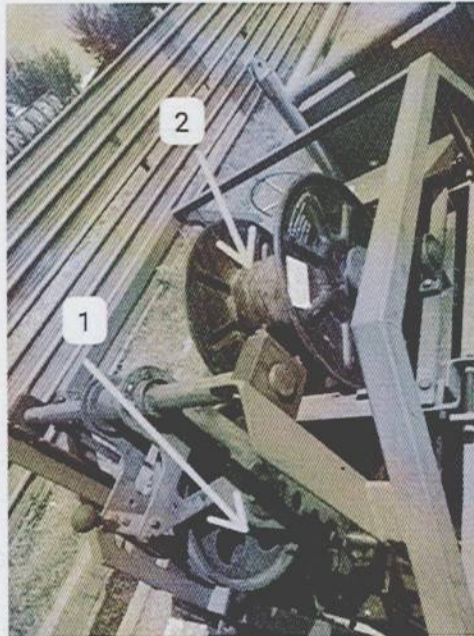
  
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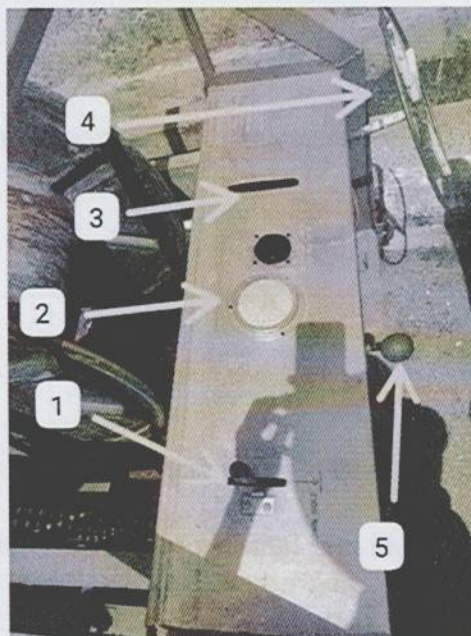




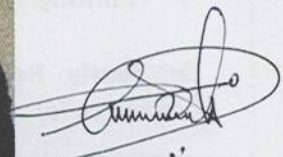
## Draw & name each part of Spooling Device



- |                  |
|------------------|
| 1. Counter Wheel |
| 2. Drum          |



- |                           |
|---------------------------|
| 1. Drum Direction Control |
| 2. System Pressure        |
| 3. Hand brake             |
| 4. Level Wind Wheel       |

  
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5. Gear

**B.9. CONTROL PANEL**

What is Control Panel

- Device used to operate BOP, safety valve and other PCE equipment

What is the purpose of Control Panel

- Control Panel (CP) – To operate BOP rams
- Single Well Control Panel (SWCP) – To operate Master Valve and SCSSV
- Well Control Panel (WCP) – An integrated CP that can operate BOP, Stuffing Box, MV & SCSSV

How to operate Control Panel

- Connect the control panel (CP) to the equipment (BOP).
- Open air supply, use air regulator to control pump out pressurized the line.

What is maintenance required for Control Panel

- **Daily** - Check hydraulic fluid level.
- **Monthly** - Disassembly air, filter and clean thoroughly.
- **Yearly** - Renew hydraulic tank and return filters, disassembly hydraulic pump, check for corrosion and wear.

  
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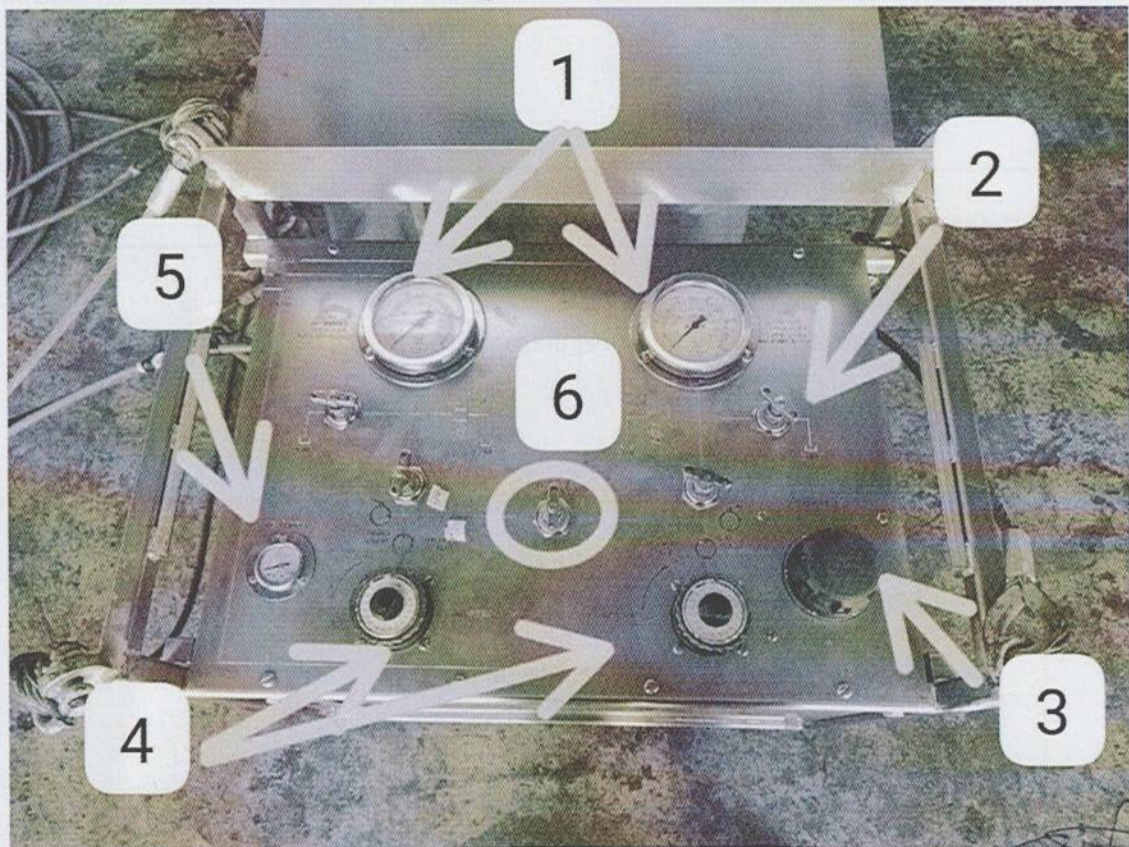
What is safety precaution required for Control Panel

- Use appropriate PPE equipment under high pressure.
- Do not tighten or loose the connection when under pressure.

What is potential hazard during handling Control Panel

- Connection loosens
- Hose burst by high pressure

Draw & name each part of Control Panel



- |                             |
|-----------------------------|
| 1. Hydraulic Pressure Gauge |
| 2. Relief Valve             |

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3. Tank Filler
4. Air Regulator
5. Air Supply Gauge
6. Crossover Valve

## B.10. HUSKEL DRUM

What is Huskel Drum

- The Huskel drum is an air driver pump on Control Penal(CP).

What is the purpose of Huskel Drum

- To converts compressed air into hydraulic power in the control penal and transfer the hydraulic to any section in control penal (BOP and Stuffing Box).

How to operate Huskel Drum

- Connect the air supply to the control panel.
- Operate from the knob or regulator of the panel.

What is maintenance required for Huskel Drum

- Check the condition of the O-ring.
- Service huskel pump.
- Hydraulic check valve and liquid seal repair.

  
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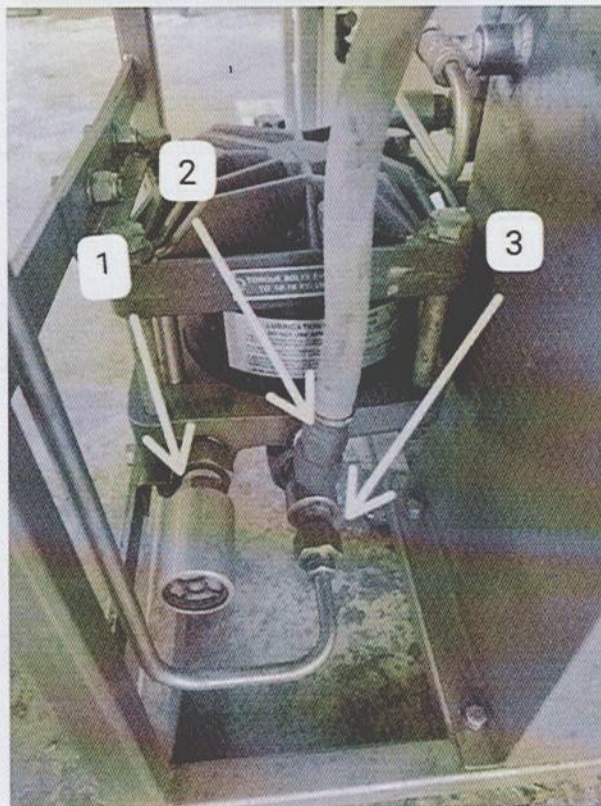
What is safety precaution required for Huskel Drum

- Check O-ring condition.
- Make sure connection tubing is in good condition.

What is potential hazard during handling Huskel Drum

- Pinch point
- Tubing burst
- High pressure

Draw & name each part of Huskel Drum

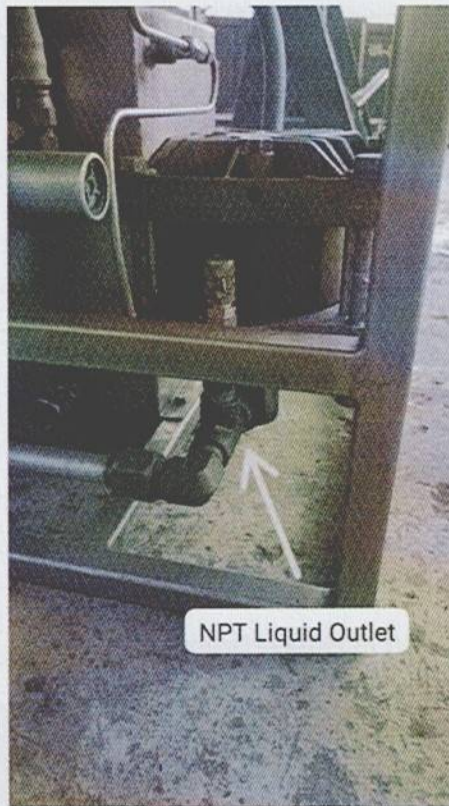


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|----------------------|
| 1. Air Drive Exhaust |
| 2. Air Drive Inlet   |
| 3. NPT Liquid Inlet  |

  
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#### B.11. POWER PACK (ELECTRICAL & DIESEL)

What is Power Pack

- Power Pack is a single-piece configuration, skid mounted with an integral crash frame, constructed in carbon steel with single-point lifting

What is the purpose of Power Pack

- To supply driving hydraulic power to equipment (Mast and RSU).

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## 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 hold inlet overspeed shut down valve and pressing the foot/pedal starter switch.
- Keep and continue hold the inlet overspeed shut down valve (10sec) until oil pressure is built.
- Release foot/pedal switch and the inlet overspeed shut down valve.

## What is maintenance required for Power Pack

- Check oil level.
- Check water level on radiator.
- Check diesel level on diesel tank.
- Check hydraulic oil on hydraulic tank.
- Check condition of belting.
- Check any leaking.

## What is safety precaution required for Power Pack

- Wear appropriate PPE when changing hydraulic oil/ engine oil.
- Beware of rotating fan when engine is running.
- Do not open radiator cap while power pack is still running.

## What is potential hazard during handling Power Pack

- Hose burst
- Hand injury
- Rotating fan

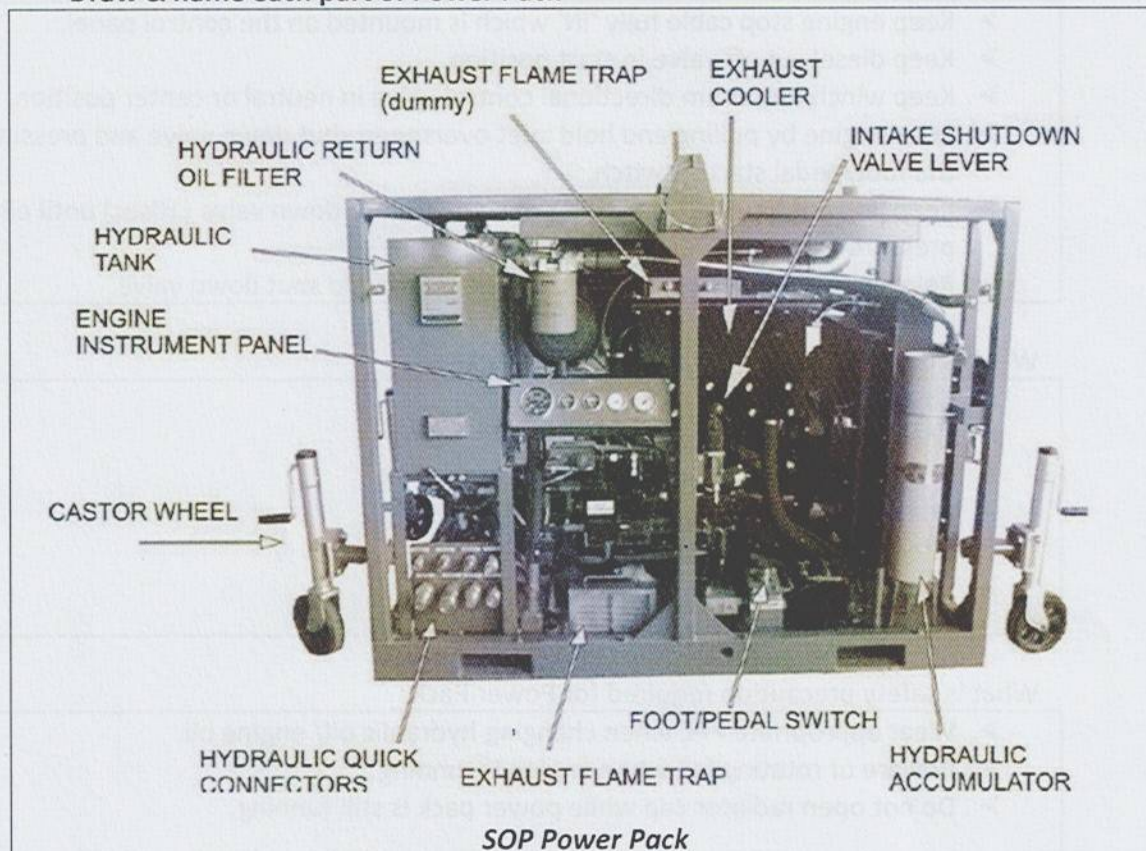
  
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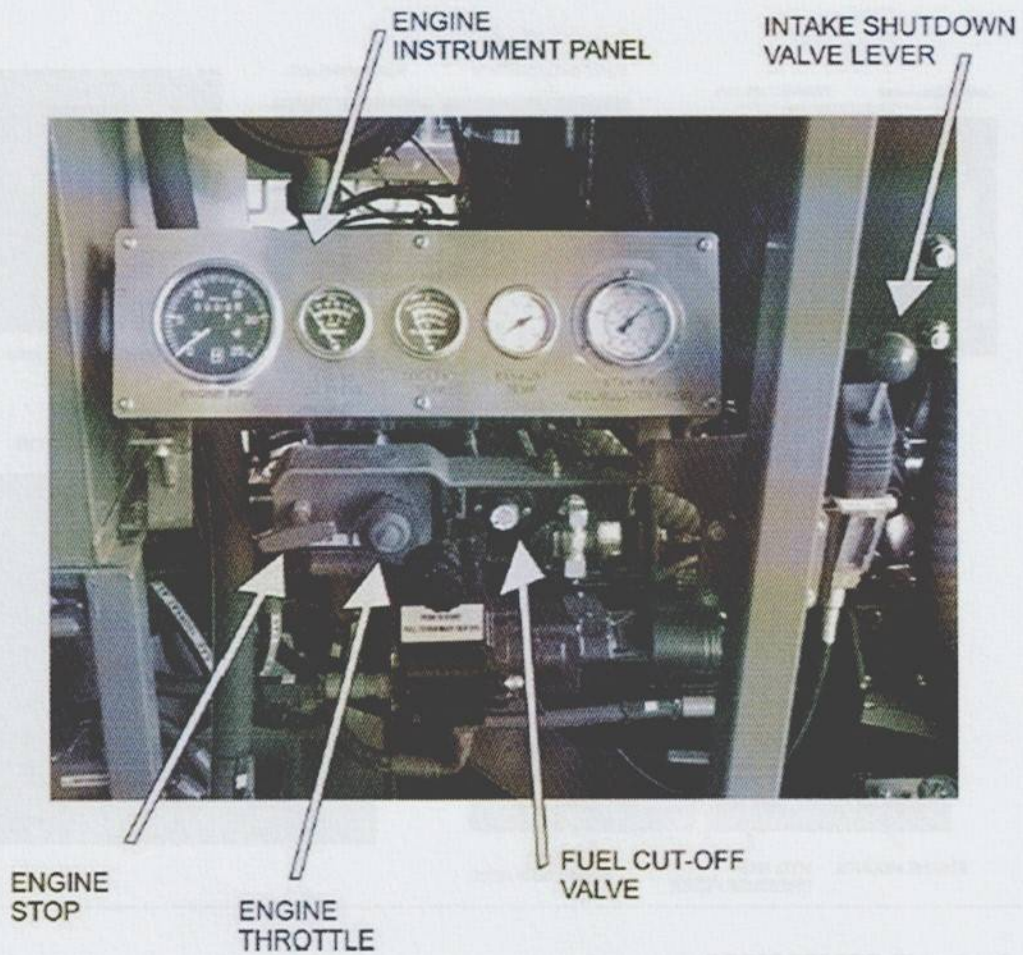
## Draw & name each part of Power Pack



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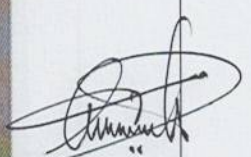
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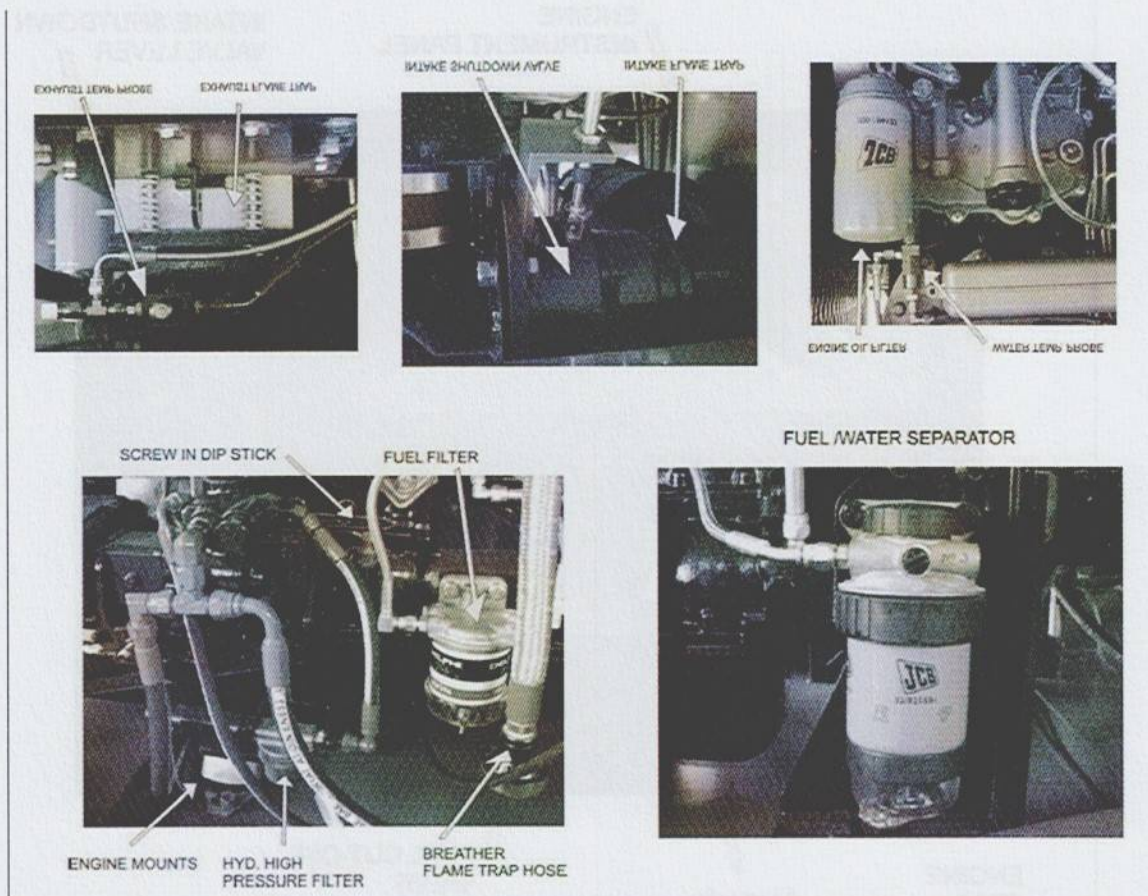
## HYDRAULIC QUICK CONNECTORS



  
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## B.12. AIR COMPRESSOR

What is Air Compressor

- A device is supplied with compressed air by a diesel engine.

What is the purpose of Air Compressor

- Used to supply compressed air to Control Panels when there is no supply on site.

*[Signature]*  
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## How to operate Air Compressor

- Starting procedure for Zone 2 rated Spring Starter Air Compressor.
- Keep diesel cut off valve in start position.
- Recoil spring starter by turning on clockwise 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 (10 sec.) until oil pressure is built.

## What is maintenance required for Air Compressor

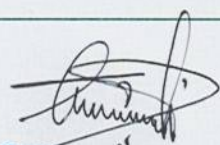
- Exhaust gas cooler - should at an interval of 1200 hrs.
- Exhaust the flametrap – remove the flametrap element. Soak in the cleaning agent for at least 2 hours.
- Spark arrestor – visually examine outer case for damage.
- Automatic engine shut down control system – check action of air inlet shut down valve.

## What is safety precaution required for Air Compressor

- Make sure all hoses connection no leaking
- Make sure fan is covered

## What is potential hazard during handling Air Compressor

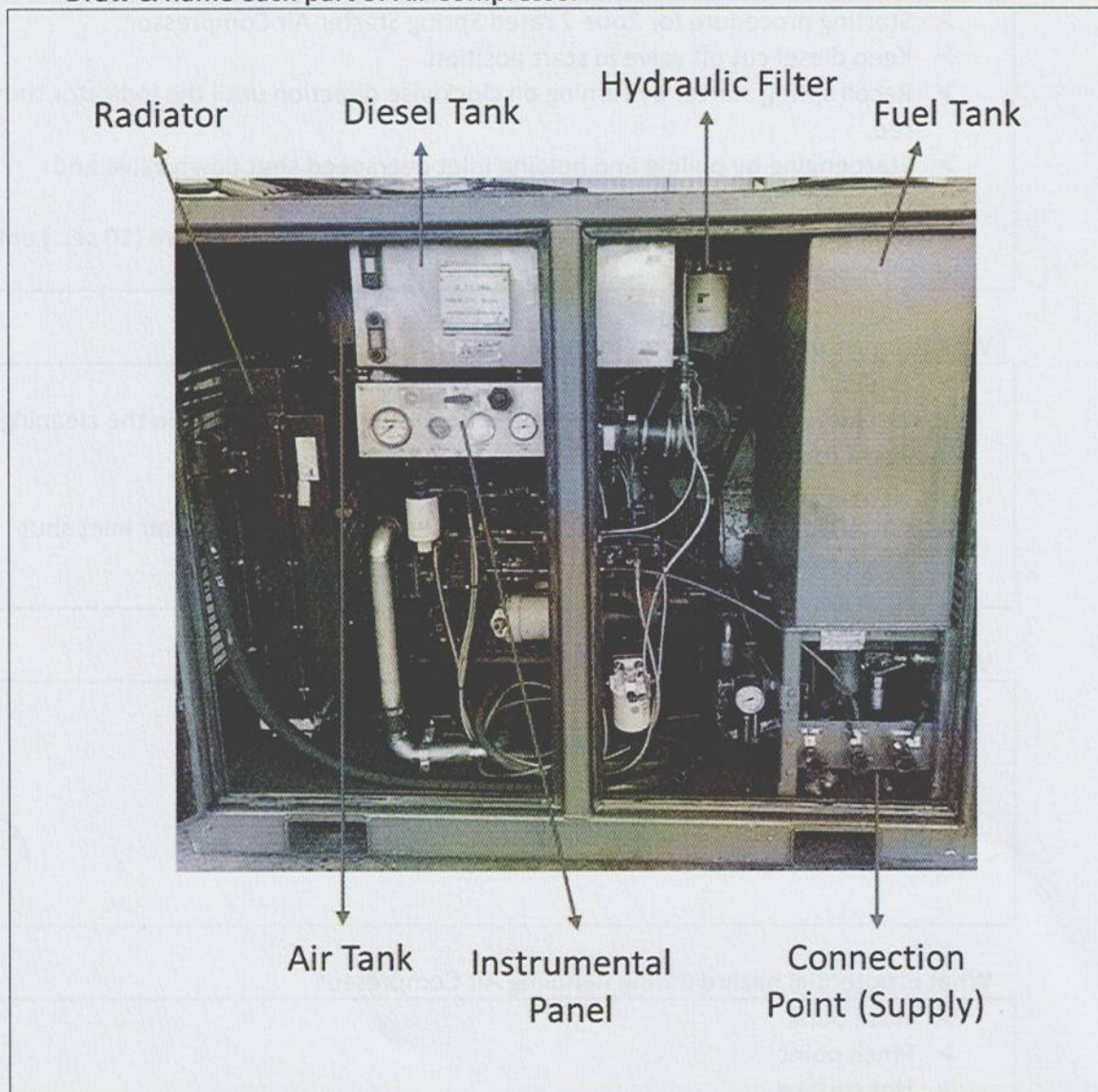
- Hose burst
- Pinch point
- Hot surface

  
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Draw & name each part of Air Compressor



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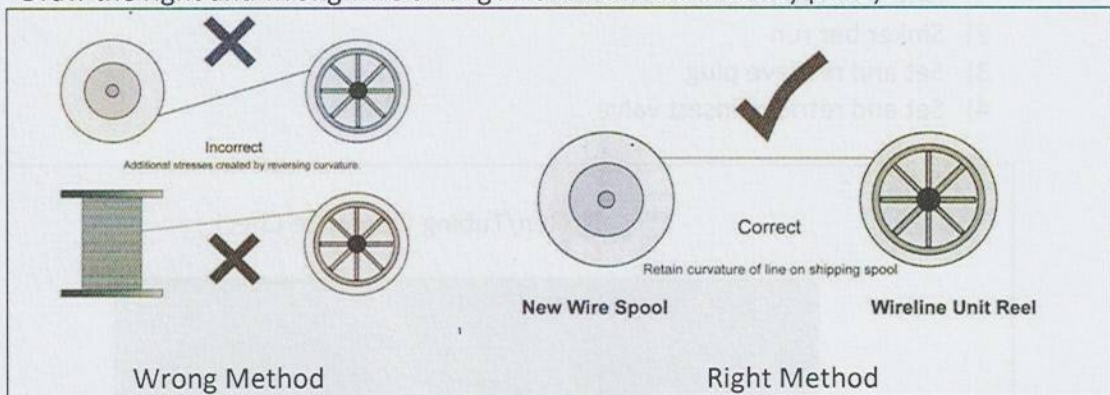


### B.13. DRUM

What is the purpose of Drum

- To spool the wireline wire.

Draw the right and wrong wire arrangement from drum to hay pulley



What is maintenance required for Drum

- Check and service the drum bearing
- Buffing and coating use hydraulic oil if have rusty.

What is safety precaution required for Drum

- Use tag line or push pull stick
- Make sure use the safety glasses and appropriate PPE

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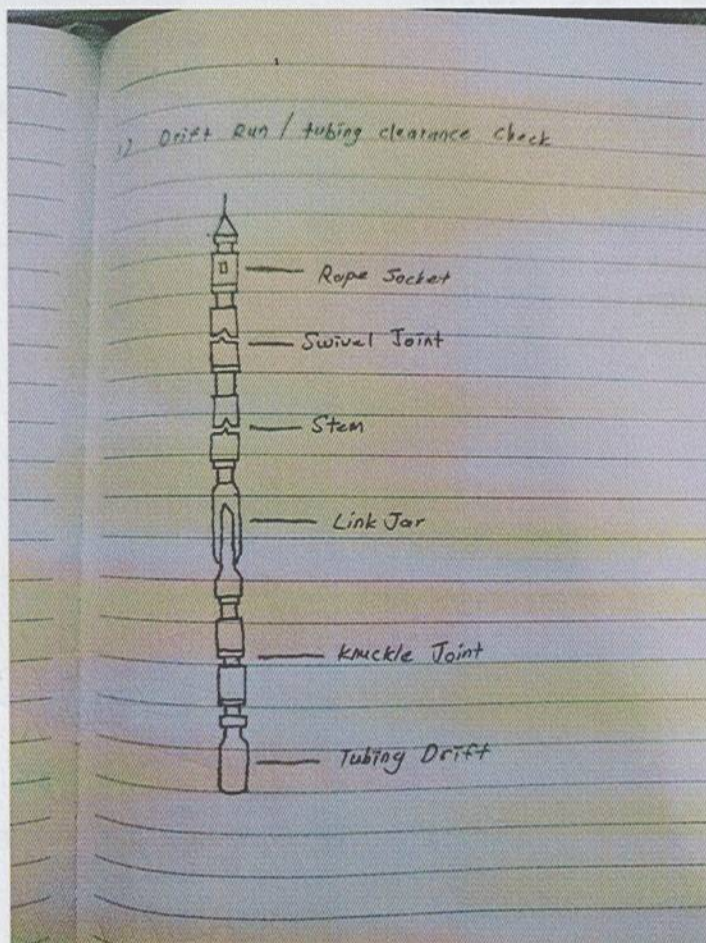
What is potential hazard during handling Drum

- Rotating device
- Pinch point
- Back injury

Please draw/sketch the Tool string configuration for:

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

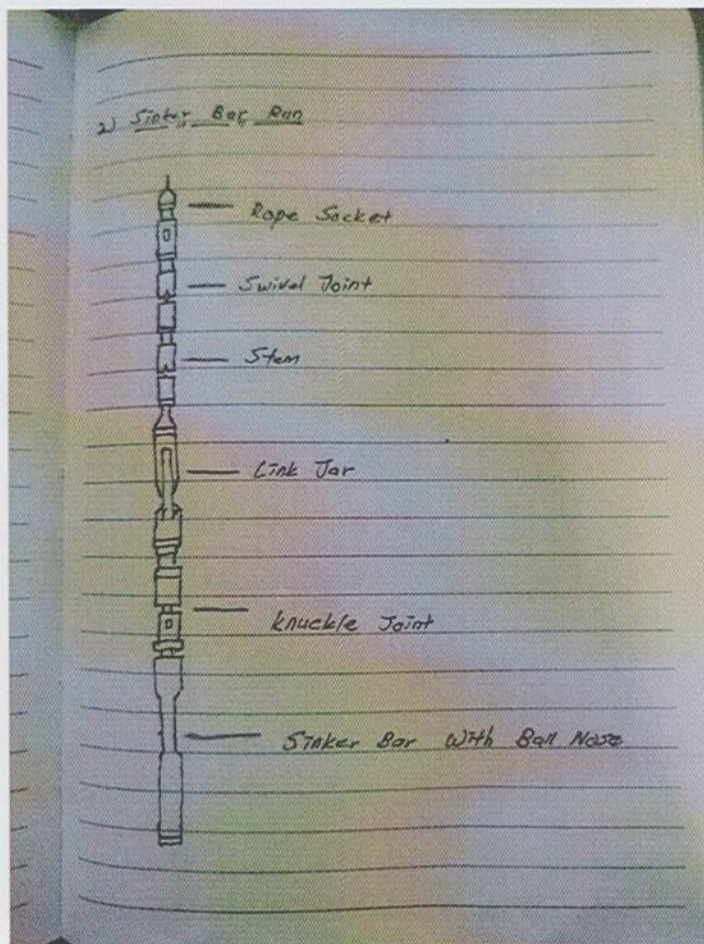
1) Drift Run/Tubing Clearance Check







2) Sinker Bar Run



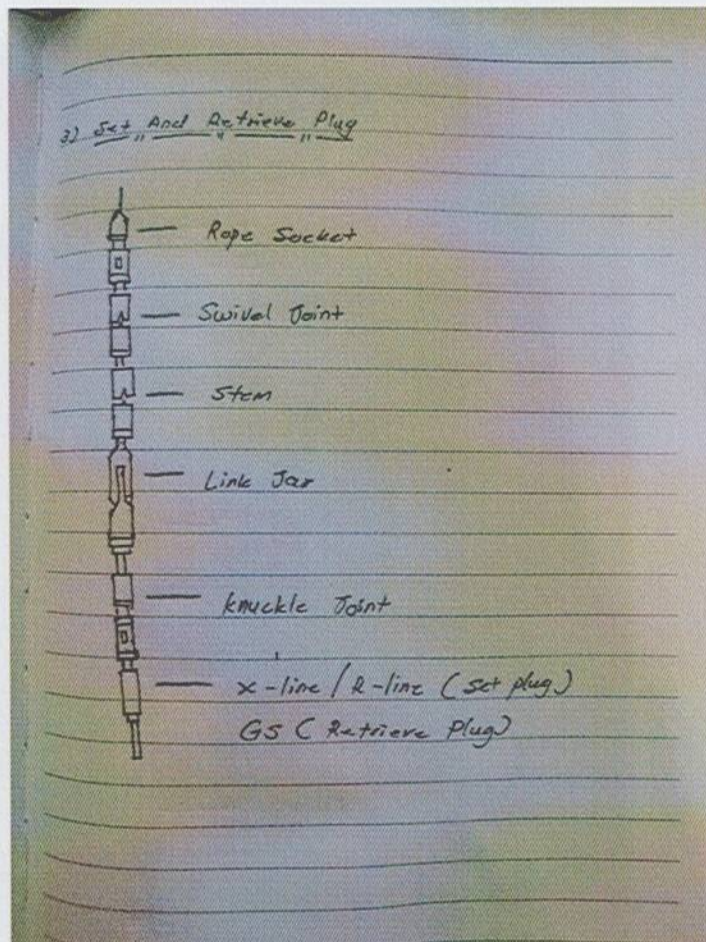
  
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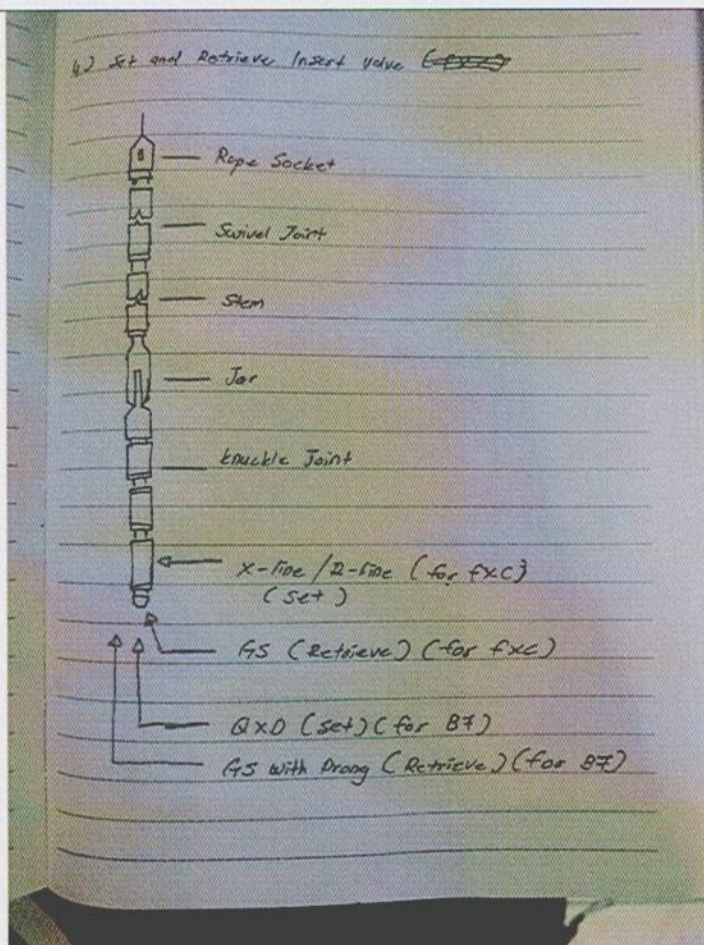
3) Set And Retrieve Plug



4) Set And Retrieve Insert Valve

  
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