Casing Running Operations Core

Rigging Up Casing Running Equipment

Learning Objectives

By the end of this lesson, you will learn to:

✓ explain how and why wear bushings are used in the process of running casing.

✓ describe the purpose and function of casing running equipment, including casing spiders, casing elevators, power tongs, and stabbing boards.

✓ explain the purpose and critical elements of a Job Safety Analysis document (JSA).

✓ determine the proper makeup torque for different sizes and strengths of casing.
Team Introduction

Joe
Drilling Supervisor

Billy Joe Bob
Toolpusher

Juan Carlos
Casing Prep
Crew Chief

Sue
HSE Rep

Checklist Headings

- Last trip out of hole
- Handling Casing
- Rig Up Casing Running Equipment
- Make Up Shoe Track
- Running Casing
Checklist Comments

- Be sure to pull the wear bushing.
- Double check the casing joint count.
- Have contingency plan for if the casing won’t go to the bottom.

Checklist Comments

Wear bushing (aka wear sleeve and bowl protector): A retrievable bushing (sleeve) that protects the sealing surface and load bearing shoulders of a casing head or casing spool. This device prevents the damage from the drillpipe while tripping the drillpipe or from wear cause by the rotation of the drill pipe.

A series of different size wear bushings are required based on the casing spools that are planned to be installed. These sleeves (bushings) are installed to protect the seal areas and the load bearing shoulder inside the casing spool, where the casing hanger will be installed after the cementing operation. The wear bushing running and retrieving tools are run on a drillpipe.

**THE WEAR BUSHINGS MUST BE PULLED PRIOR TO RUNNING CASING!**

WITH CASING HANGING THROUGH THE CASING SPOOL, THERE IS **NO WAY** TO REMOVE THE WEAR BUSHING.
Sue just came from a presentation about casing running safety.
- There’s a large percentage of accidents associated with running casing.
- Very important to go thoroughly through this JSA.

Discuss the roles and responsibilities of:
- Casing Crew.
- Drilling Crew.

Topics to Cover – Running Casing

- Handling Casing
- Rigging up the Casing Running Equipment
- Making Up Shoe Track
- Running Casing
Topics to Cover – Running Casing

Running Casing

• Is done with the help of a Casing Crew.
• The Casing Crew is called out to the rig to provide additional manpower to pick up the casing, screw it together with power tongs and lower the casing into the wellbore.
• The Casing Crew also brings special casing slips called spiders and special elevators.
Topics to Cover – Running Casing

- Running Casing
  - Getting Pipe to Rig Floor
  - Casing Handling Tools
  - Stabbing
  - Makeup Torque
  - Filling Casing
  - Getting Casing to Bottom

Casing Handling Tools

Spider (Slips):
- Sets on rig floor.
- Slip type (integral or manual removable).
- Wrap-around (must open for each joint).

Elevator:
- Attached to traveling block bails.
- Slip type (always integral).
- Wrap-around type (must open for each joint).
Manual Casing Slips

For first few joints only!

1000 Ton Spider
500 Ton Elevator

Compact Spider
**Elevators and Spiders**

**Precautions**

- High capacity tools open very easily with light casing load.
- Care must be taken to prevent accidental opening.
- Some air systems prevent opening if the other component is already open.
- Good practice:
  - Start string in hole with low capacity tools.
  - Switch to high capacity once there is sufficient casing weight to prevent accidental opening.
**Stabbing Board**

- Elevator
- Fall Prevention Safety Line
- Stabbing Board

**Stabbing Casing**

- Stabbing board:
  - Stable.
  - Properly positioned.
- Stabbing arm.
- Guide on bottom of elevator to prevent damage.
- Wind can cause stabbing problems.
- Do not rush the stabbing procedure.
Floor Hand Stabbing the Casing

Next Joint of Casing

Collar of Previous Joints

Rig up to Fill the Casing

- Rig up to be able to fill the casing as it is run.
- Verify fill visually.
- Large diameter casing requires large capacity fill line.
Have a swage that matches the casing thread.

Using chiksan or high pressure hose rig up to circulate mud through the casing as it is run.

It is common to circulate the mud before the casing enters the open hole section below the last casing string.

Break circulation slowly by reciprocating the casing slowly to break the gel strength of the mud, which has been static now for a number of hours.

You will circulate again after getting casing run to bottom.
Make-up Torque

- Determine proper makeup torque for connections.
- Use only approved thread lubricants on clean threads.
- Look up correct make up torque values in *Baker Hughes Tech Facts Engineering Handbook*.
- Proper number of turns can also be measured.

Thread Lubricant

- Apply to box, not pin.
- Do not use drill pipe (DP) or drill collar (DC) dope.
- Standard is API Modified.
- Proprietary threads – check manufacturer.
- Environmental Considerations:
  - Special formulations available.
  - Some threads specially coated for self lube.
- Friction factor – specified relative to API Mod, adjust make-up torque accordingly.
Learning Objectives

You have now learned how to:

✓ explain how and why wear bushings are used in the process of running casing.
✓ describe the purpose and function of casing running equipment, including casing spiders, casing elevators, power tongs, and stabbing boards.
✓ explain the purpose and critical elements of a Job Safety Analysis document (JSA).
✓ determine the proper makeup torque for different sizes and strengths of casing.

Make-up Torque Assignment

- Find the torque make up values for the following casing string.
- How will the changing torque values effect the casing tong operator?