

xBolt

Picking Up xBolt

EXTREME™



Objectives

- Learn xBolt BHA components
- Safely and effectively install three different hardware configurations into BHA

xBolt BHA Make Up

Pre-Tool Insertion

Pre-Tool Insertion – BHA Make Up HSE

- Always wear steel toed boots, hard hat, safety glass, FR clothing and metatarsal gloves during BHA make up
- Use proper SIPP during all assembly operations
- Use one person per 10ft of tool length to carry tool
- Always use hole cover when loading/unloading tool



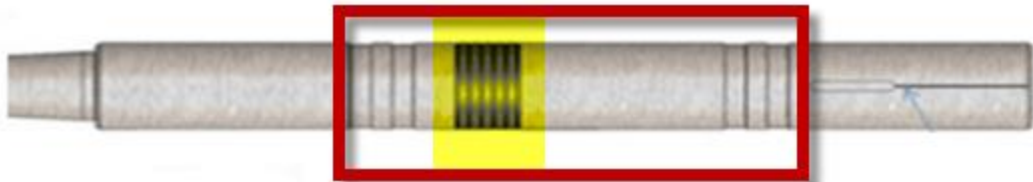
Pre-Tool Insertion – BHA

- Notify Driller and DD where tool will go in BHA
- Pickup iron from top most xBolt piece downwards
- Torque all iron to specifications
 - Refer to ITC#[7386445](#)

| Schlumberger | | | | | | | | | | OXY |
|--|-----------------------------------|---------------|--------------------|------------------------------------|----------------------|--------------------------|-------------|------------------|------------------------|-----|
| Field Name | NM Eddy County (NAD 83) | | Borehole Name | Original Borehole | | Hole Size (in) | 6.750 | | | |
| Structure Name | Oxy Length CC 6-7 Federal Com 25H | | BHA Name | BHA006 6.75in Lateral - Orbit475 - | | Depth In (ft) | 8949.00 | | | |
| Well Name | Oxy Length CC 6-7 Federal Com 25H | | MOTOR Athens 1 | | Depth Out (ft) | 0.00 | | | | |
| Desc. | Manu. | Serial Number | OD (in) ID (in) | Max OD (in) | Bot Type Top Type | Bot Gender Top Gender | Length (ft) | Cum. Length (ft) | Cum. Weight (1000 lbm) | |
| 1 6.75" PDC D506T (6x10'S) | Baker | 5300920 | 5.000 3.250 | 6.750 | 3-1/2 REG | Pin | 1.00 | 1.00 | 0.2 | |
| 2 4-3/4" PD Orbit Stabilized | SLB | 95669 | 4.750 3.640 | 6.625 | 3-1/2 REG ATHenS | Box | 14.83 | 15.83 | 0.9 | |
| 3 5" NMPC | DTI | DR40348 | 4.875 2.750 | 4.875 | ATHenS | Pin | 10.15 | 25.98 | 1.4 | |
| 4 Stabilizer 1/4" UG | DTI | DR42119 | 5.000 2.750 | 5.350 | ATHenS | Pin | 5.96 | 31.94 | 1.6 | |
| 5 5" NMPC | DTI | DR34504 | 4.812 2.687 | 4.812 | ATHenS | Pin | 6.47 | 38.41 | 1.9 | |
| 6 5" NMPC | DTI | DR40213 | 4.875 2.750 | 4.875 | ATHenS | Pin | 14.75 | 53.16 | 2.5 | |
| 7 Gap Sub | SLB | GSAR0507 | 4.750 2.688 | 4.750 | ATHenS | Pin | 3.22 | 56.38 | 2.6 | |
| 8 4.75" xBolt Hanger Sub | SLB | 40001-6 | 4.750 2.000 | 4.750 | ATHenS | Box | 4.78 | 61.16 | 2.9 | |
| 9 4-3/4" Filter Sub | DTI | DR38614 | 4.875 2.750 | 4.875 | ATHenS | Pin | 2.95 | 64.11 | 3.0 | |
| 10 5-1/4" Motor 7:8 8.4 0.70 rev/gal Slick | Rival | 50048 | 5.000 3.489 | 5.000 | ATHenS | Pin | 29.46 | 93.57 | 4.2 | |

Pre-Tool Insertion – Gap Sub Handling

- When setting slips on the Gap Sub, be sure to avoid contact with the grooves on the Gap Sub
 - If damaged, there is the potential for loss of signal
- In DT mode, install castle ring prior to making box of gap sub up
 - Use Loctite 603 (green) on castle ring
- Ensure ground plug set screw is removed



“Green on the Ring , Blue on the Screw”

Pre-Tool Insertion – Scribing

- xBolt – R
 - Scribe from motor bend to top of muleshoe sub
 - Muleshoe sleeve may be oriented to motor highside on insertion or toolface offset calculation may be used
- xBolt – L
 - Scribe from motor bend to top of pulser sub
 - Tool may be oriented to motor highside on insertion or toolface offset calculation may be used
- xBolt – EM
 - Scribe from motor bend to top of gap sub
 - Must always use toolface offset calculation for EM only

***Always verify drill offset is entered correctly into surface software and that correct drill offset shows in receiver prior to drilling.**

****Enter 0° for drill offset if tool is oriented to motor highside or if using RSS BHA.**

*****In Heisenberg, enter drill offset into motor component on BHA**



Tool Corrections

North Reference

Grid North Total Correction Degree

Toolface Offset Angle / Drill Degree

Gamma Corr. Factor

Gamma Offset Feet

Bit to Survey Offset Feet

What Where Who Survey Offsets Corrections

| EXTREME | |
|---------------------|---------------|
| Gamma Offset | 23.38 ft |
| D&I Offset | 27.07 ft |
| Drill Offset | 135.2° |
| DPG Offset | 0.00 ft |

xBolt BHA Make Up

Tool Insertion

Tool Insertion – xBolt-R

- Install muleshoe sleeve into muleshoe sub after scribe complete
- Hammer muleshoe sleeve into sub using knockout bar (774-91208 or 774-91209)
- Turn sleeve to orient key seat to motor highside with orienting tool (774-91163)
- Install set screws
 - Wrap set screws with Teflon tape
 - Torque both set screws to specification (120ft-lbs)

| Muleshoe OD | Sleeve OD | Set Screw Size | OD O-Ring Size | ID O-Ring Size | Jam Nut O-Ring Size | Orifice O-Ring Size | Orifice Cup O-Ring Size |
|-------------|-----------|-------------------|----------------|----------------|---------------------|---------------------|-------------------------|
| 9 ½" – 7 ¾" | 3 ¾" | ¾" OD x 1 ¼" Long | #238 | #148 | #151 | N/A | N/A |
| 7 ¼" – 6 ¼" | 3 ¾" | ¾" OD x 1 ¼" Long | #238 | #148 | #151 | N/A | N/A |
| 4 ¾" | 3 ¾" | ¾" OD x ¾" Long | #234 | #144 | #144 | N/A | N/A |

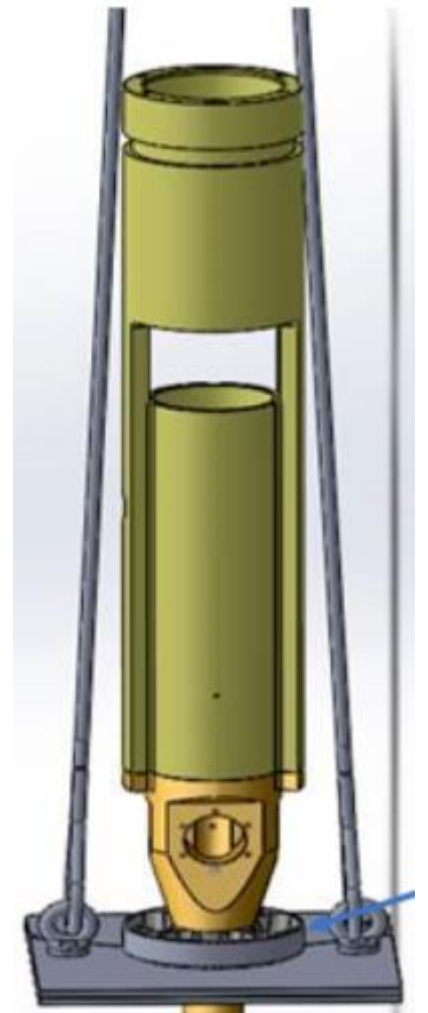
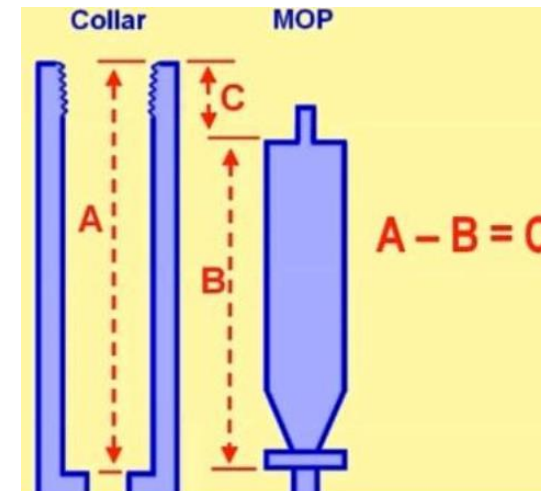
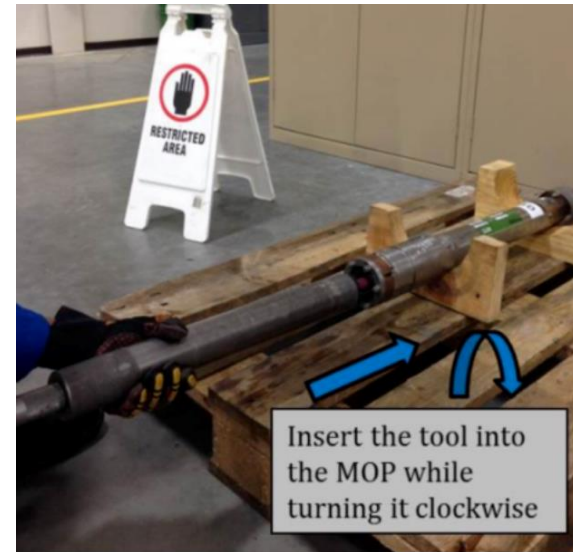
Tool Insertion – xBolt-R (cont.)

- Install R-Pulser protector sleeve
- Carry tool to catwalk using 1 person per 10ft of tool
- Use yellow SlimPulse style lifting plate (100910137) to lift tool from catwalk
- Remove R-Pulser protector sleeve and insert into collar until lifting plate rests on NMDC box
- Install SlimPulse pulling and setting tool (B036290 or 101088407) onto fishing head
- Lift tool up with hoist to remove lifting plate
- Slowly lower tool into muleshoe collar until seated
- Mark setting tool for seating reference level to collar box
- Pick up tool to fishing head and re-install lifting plate
- Pull tool out of collar to inspect tattle tale shows key seat marking
- Re-install tool using same procedure
- Verify line on pulling/setting tool matches initial seating depth



Tool Insertion – xBolt-L

- Carry tool to catwalk using 1 person per 10ft of tool
- Use MOP lifting tool (779-03885 or 775-03880) or orange MOP lifting plate (102678880) to lift tool to rig floor
- If using lifting plate, seat plate down on box of collar and install MOP lifting tool
- Seat tool completely down into pulser sub, measure “C” depth to ensure MOP has seated properly



Tool Insertion – xBolt-L (cont.)

- Orient tool using MOP orienting tool (775-70126 or 775-70131)
- Torque bolts down in star pattern to proper spec
 - LF MOP - 90 ft-lbs
 - Mini-MOP – 35 ft-lbs
- Install Venturi sleeve if needed for run using lifting and orienting tools
 - It is not recommended to run a Venturi sleeve when MWD is below motor



Tool Insertion – xBolt-EM

- Carry tool to catwalk using 1 person per 10ft of tool
- Use green SlimPulse style lifting plate (100800112) to lift tool from catwalk and insert tool into collar until plate rests on box of gap sub
- Install XEM orienting overshoot (02JIGS0037) with overshoot adapter (102994558) onto EM fishing head and lift tool up to remove lifting plate
- Lower tool slowly into collar with EM fishing head high side slightly offset from gap sub scribe line
- Once tool has landed on key, slowly turn tool until alignment slot drops into key seat. Tap top of overshoot with hammer to ensure tool fully seated
- Remove overshoot assembly
- Install castle ring using green Loctite (603), castle tool and castle hand
- Torque up castle ring by hand and then hammer on handle to verify torque



Tool Insertion – xBolt – All Configurations

xBolt Uses Same Gap Subs as XEM

- Non-Ported Ground Plugs must always be inserted into Gap Sub and torqued to **40 ft/lbs** prior RIH
- Ground plugs do not make EM contact with tool like XEM, instead they are simply there to plug the hole.
- Always insert tool prior to installing ground plug
- Always Use Blue Loctite (243) on Ground Plug and install snap ring
- Ensure the o-rings are in good condition and replace if damaged



Summary

- Learn xBolt BHA components
- Safely and effectively install three different hardware configurations into BHA