Technical specification for XJ250 Workover rig and unitized parts

1.0 Environmental operating conditions

1.1 Temperature

The rig will be operated in weather variation: Ø Maximum Ambient Temperature: 40°C Ø Minimum Ambient Temperature: -19°C

1.2 General requirements

The ambient temperature at the place where the rig will be used is about -40°C, the following design will be considered: the weatherproof shield should be designed for operator and air slips; the mud pump should be designed with house as well as the insulation measurements; the workover rig is designed as per normal temperature, but with warming & preheating device.

1.3 Design standard and codes

API Spec 4F (3rd edition) Drilling Structures

API Spec Q1 (8th edition) Quality Programs

API Spec 8C (5th edition) Drilling Hoisting Equipment

API Spec 7K (5th edition) Drilling Equipment Specs

API Spec 7-2006  Rotary Drill Stem Elements

API Spec 9A (26th edition) Wire Rope Specs

API Spec 7F (8th edition) Chain and Sprocket

ISO9001-2008 Quality Control System
1.4 Main technical specifications

Structure: Double drum, truck-mounted, self-propelled

Service depth: 3200m (φ2-7/8” tubing) Workover depth: 2000m (φ2-7/8” DP)

Engine HP: 322hp/2200rpm

Drawworks gears: 5F+1R

Reeving system: 3×4 Ø Dia.,

wirelines: Ø22mm

Mast height: 21.6m

Max. static hook load: 675KN

Min. turning radius: 20m

Min. ground clearance: 290mm

Max. climbing gradient: 32%

Drive type: 10×6 Ø Max. speed: 80km/h

Working temperature: -19°C~ 40°C

Overall dimensions in transportation: 21.435mX3.2mX4.28m

Total weight of main rig in transportation: ~40t

Weight on front axles: ~16t

Weight on rear axles: ~24t
2.0 Carrier requirements

2.1 General description

The drive type of the carrier is 10×6. The 1\textsuperscript{st} and 2\textsuperscript{nd} axles are 10t steering axles, hydraulic aid steering, steel plate spring suspension. The 3\textsuperscript{rd}, 4\textsuperscript{th} and 5\textsuperscript{th} axles are 13t driving axles, air suspension, fitted with interaxle and interwheel differential lock. All controls of the carrier are centralized in the COE single-seat cab.

1\textsuperscript{st} to 2\textsuperscript{nd} axle spacing: 1300mm

2\textsuperscript{nd} to 3\textsuperscript{rd} axle spacing: 5750mm

Center of the front two axles to center of the rear three axles: 7900 mm

3\textsuperscript{rd} to 5\textsuperscript{th} axle spacing: 3000mm

Wheel track: 2180mm

Drive type: 10×6

Approaching angle: 34°

Departure angle: 11°

Min. turning radius: 20m

Max. climbing gradient: 32%

Min. ground clearance: 290mm

Max. speed: 80km/h
Front tire: Michelin 455/55R22.5 X One XZU S
Rear tire: Michelin 11R22.5 XZY3

2.2 Suspension and drive system
Brake: All axles are equipped with WABCO pneumatic ABS braking system.

2.3 Positioning
Front: 2 hydraulic leveling jacks behind the 2nd axle
Rear: 2 hydraulic leveling jacks at the rear of the frame
Freestanding outriggers: Foldaway freestanding stabilizing arms w/ manual mechanical jacks. Design as per mfg’s specification and to API 4F.
Total width is 10m when operation

2.4 Highway equipment
Tow hooks: one front and one rear, attached to the rig frame
Plates: front and rear license plate mounts

2.5 Cab
Type: single seat cab over engine, heat insulated
Auxiliaries: heater, defroster, engine preheating device, windshield washer and wiper, dual external mirrors, air seat, safety glass, seatbelt
Instruments and controls: oil gauge, engine electronic display module EDM, transmission oil temperature, oil
pressure, throttle, ignition switch, start button, indicator, transmission shift etc. **3.0 Drive Unit (main power system is purchased from**

**3.1 Engine**

Type: DDC MTU 926  
Rating: 322hp@2200rpm  
Starter: Electric: 12 Volt  
Batteries: 12 Volt  
Alternator: 12 Volt  
Flywheel Housing: SAE #1  
Complete with engine shutdown device to shutdown the engine at both sand drum and control panel.

**3.2 Transmission**

Type: Allison 4700 OFS  
Speeds: 6 forward / 1 reverse  
Complete with drop box COTTA TRI397  
Not complete with downslope retarder

**3.3 Air system**

Compressor: Engine mounted  
Displacement: 28cfm  
Tank Capacity: 0.155 m³
Dryer: Bendix

3.4 Fuel system

Tank Capacity: 2×400L
Drains: Low point valved
Pump: installed on engine
Flow: Complete with suction line check valve

3.5 Engine and driving system

Type: steel framing/ Sheet metal cover/Engine hood and drive shaft guard

3.6 Tool box

Overall dimension: 1200 x 1100 x 200 mm

3.7 Hydraulic tong (XYQ6B)

Model: XYQ6B
Suitable range: φ60, φ73, φ89, φ114 tubing
Rated torque: 6kN.m Ø Qty.: 1 set

3.8 Elevator link

Model: DH75
Rated load: 735kN Ø Qty.: 1 pair
3.9 Traveling block
   Model: YG70
   Max. static load: 700kN
   Qty.: 1 pc

3.10 Winch line
   Qty.: 1 set

3.11 Drill line
   Dia.: φ22mm Ø Length: 200m

3.12 Escaping device: SALA

3.13 PROTECTA fall arrestor
   Qty.: 1 pc

3.14 Weight indicator JZ75
   Structure: Lever type Ø Qty.:1 set
4.0 Hydraulic System

4.1 Hydraulic power unit

   Drive: PTO from transmission
   Pump: Main oil pump (for main rig hydraulic system)
   Reservoir: Volume of hydraulic fuel tank: 870L
   Instrumentation: Temperature gauge, filter, tank level
   Auxiliaries: Complete with return filters
   Maximum ambient temp: 40°C
   Maximum pressure open loop: 14Mpa

   Overflow valves: Mounted near the discharge port of main oil pump

4.2 Standpipe and rotary hose

4.2.1 Standpipe, 1 pc Diameter 2”, working pressure 35 MPa, end thread 2”NPT male

4.2.2 Rotary hose, 1 pc

   Diameter 2”, working pressure 35 MPa, the end thread connected to swivel is 2”NPT male

5.0 Mast

5.1 General description

   Derrick, 21.6m single stage mast, free-standing type, raised by hydraulic cylinder. Inclination angle can be adjusted by screw rod.
Mast is placed integrally on the carrier to facilitate transportation. It can also be shipped separately when it is difficult to transport integrally or in long-distance transport.

As per API Spec 4F standard

Include racking board, rod hanger, guyline, raising cylinder, etc.

C/w emergency exit door

All devices mounted on the mast are fastened to avoid looseness.

C/w escaping device on racking board.

**Technical parameter**

Max. hook: 675kN

Mast height: 21.6m

Height of racking board: 7.7m

Capacity: 2500m (ϕ2-7/8” tubing)

Height of rod hanger: 16.76m (55’)

Capacity: 2500m (ϕ1” rod)

Max. wind rate: 110km/h

**5.2 Mast feature**

Clear height: 21.6m

Qty. of drill line: 6

Hook load: 675kN
Standard: API 4F

Hydraulic raising system: as per manufacturer’s design (mfg)

Load guylines: 2 internal-load guylines, 2 racking board windload guylines

Mast ladder: mounted on driller’s side to mast crow

Racking board: tubing φ2-7/8”, single tubing 2500m

Rod hanger: rod φ5/8”~φ1”, double stand 2500m

Racking board/rod hanger: stretched and folded simultaneously by hydraulic cylinder.

5.3 Safety device

C/w fall arrester on mast crown platform and rod hanger. Static load: 2270 kg (5000 lb). Racking board is equipped with escape door and escape way, c/w SALA escape device.

5.4 Spare parts of mast

Drill line: 22 mm (7/8”)

Drill line reel support: suitable for φ28”×21” reel

Crown: Bottom diameter, crown sheave: φ450 Bottom diameter, fastline sheave: φ525 Bottom diameter, sand sheave: φ450

Deadline anchor: mounted on the carrier frame

Hydraulic winch: 2ton double winch
Drawwork control: driller controlled

Hydraulic winch control: air controlled

Standpipe: 2” bore diameter, 35Mpa working pressure, complete with 2” NPT male thread on both ends.

5.5 Circuit and lighting system Basic description

Include traveling system and lighting system

Traveling system uses 12V DC, supplied from battery and silicon rectification alternator driven by the engine, mainly including engine start-up, light signals of motoring gauges on the carrier and various lights and acoustic signals during traveling etc.

C/w distribution box to provide mast and carrier with 110V, 60Hz power

Mast top is equipped with red light (with shield), lighting cable are protected by steel tube.

All lighting equipments are vapor-proof and shockproof. Technical parameters Ø Power for carrier: 12V DC Ø Carrier and mast: explosion-proof

6.0 Drawwork

6.1 General description

Maximum fastline pull, main drum: 140kN
Type: dual drum drawworks

Grooving: Lebus: 22 mm wirelines

Drill line spool capacity: 240 m

Drive: mechanical right angle gear box

Main brake: band brake

Speeds: 5 forward / 1 reverse

Brake cooling tank: 227 L (60 gal)

Brake cooling: water spray

Crown saver: overwinding valve crown saver

Complete with electronic crown saver

6.2 Main drum

Basic description Main drum is designed with φ22mm LEBUS groove.

ATD-224H thrust disk clutch is used on the main drum

Main brake is band brake

Overwinding valve crown saver is set above main drum.

Water spray cooling for brake rim.

All lubrication points for the drawworks are outside the guard, central lubricated.

Chain box is installed outside the drawwork frame, complete with oil level observation hole and oil leakage protection device to ensure dismantling and mounting for several
times.

**Technical parameters**

Maximum fastline pull: 140kN

Dia. × length, main drum: Φ344×690mm Ø Dia × width, brake drum: Φ970×260mm

**6.3 Sand line drum Basic description**

ATD-124H thrust disk clutch is used on sandline drum. Ø Waters pray cooling for brake rim.

**Technical parameters**

Groovedia. × length, sandlinedrum: φ324mm×812mm

Dia×width, brakedrum: φ970mm×210mm

Maximum fastline pull: 115KN

Sandline: 14.5mm×2800m

**6.4 Right angle gear box Basic description:**

Driven by Gleason helical beval gear, taking advantages in large transmission torque, stable running and long service life.

**Technical parameters:**

Gear ratio, right angle gear box: 1:1.895

6.5 Drive shaft

Drive shaft on deck and under deck 1set
7.0 Work Platform

7.1 Work floor

   Height to workfloor: adjustable 1.5~ 3 m

   Area: during operation, the area is 3 m x 2.4 m with handrails.

7.2 Mast support base

Fixed type A-base and design to API 4F standards. The front inclination angle of mast can be adjusted through screw rods at mast leg.

7.3 Access

   Walkways: foldable (with handrails and kickplates) walks, 660 mm on driller’s side.

   Surface: anti-slip

   Stairs: two stairs to access walkway at driller’s side, one stair to access driller’s console and one stair to access the work floor. All stairs are complete with double handrails and have steel mesh at back. Handrails are removable, designed with pin connection.

8.0 Crown

   Model: TC70

   Max. hook load: 675kN
9.0 F18-21 BOP stack

9.1 Annual BOP 7-1/16", 3000Psi (FH18-21)

Bore size: 179.4mm (7 1/16”)

Working pressure: 21MPa (3000Psi)

Hydraulic control pressure: ≤10.5MPa

Lock range: 0 ~ 179.4mm

End connections: Upper end 7 1/16”x3000psi, thread connection  Lower end 7 1/16”x3000psi, flanged connection

Can mount ball type rubber core

Four pad eyes are provided on the top cap, and each pad eye is marked rated load and equipped with four nut type shackles.

Hydraulic control connection type: 1” NPT

9.2 Double ram BOP 7-1/16", 3000Psi (2FZ18-21)

Bore size: 179.4mm (7 1/16”)

Working pressure: 21MPa (3000Psi)

Hydraulic control pressure: ≤10.5MPa

Lock range: manually

End connections: Upper end 7 1/16”x3000psi, thread
connection  Lower end 7 1/16”x3000psi, flanged connection

Hydraulic control connection type: 1” NPT

Ram BOP is equipped with manual-locking device used to shut down ram in case that hydraulic control fails.

The upper section of ram BOP is equipped with 3 1/2” ram, and the lower section is equipped with blind ram.

9.3 FS18-21 drilling spool

Main diameter: 179.4mm (7 1/16”)

Working pressure: 21MPa (3000Psi)

Ends connections: 7 1/16”x3000Psi, flange connection

Side outlet connection: 4 1/16”x3000Psi, flange connection
### 9.4 Configuration

<table>
<thead>
<tr>
<th>S/N</th>
<th>Description</th>
<th>Model</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Annual BOP</td>
<td>7-1/16&quot;, 3000psi</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Double ram BOP</td>
<td>7-1/16&quot;, 3000psi</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Drilling spool</td>
<td>7-1/16&quot;, 3000psi</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Ram assy.</td>
<td>7-1/16&quot;, 3000psi 1\frac{1}{2}&quot;</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Ram assy.</td>
<td>7-1/16&quot;, 3000psi blind ram</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Reducing ram assy.</td>
<td>7-1/16&quot;, 3000psi 2\frac{3}{8}&quot;-3\frac{1}{2}&quot;</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>BOP hoisting device</td>
<td>Suitable for 7-1/16&quot;, 3000psi BOP stack</td>
<td>1</td>
</tr>
</tbody>
</table>

### 10.0 HP Fireproof hose

<table>
<thead>
<tr>
<th>S/N</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GNG HP fireproof hose</td>
<td>Φ25×35MPa</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2 Universal self-sealing fitting  Φ25×35MPa  
3 HP union (self-sealing)  Φ25×35MPa  
4 Cable tray (mesh type)  10m  

11.0 Electronic ignition device

Electronic ignition device and its pipelines (length=25m); it can ignite automatically. The diameter of the pipelines is 4”, with flanged connection.

12.0 FKQ320-4G Accumulator

12.1 Remote console

1 no. remote console, including the following components which are installed on the base

1 no. 790L oil tank, w/ electric heating device

8 nos. 40L 21MPa (3000 psi) accumulator, side placed

1 no. electric triplex pump, w/ pressure controller and overflow valve. The flow rate of the pump is 35L/min under 21MPa (3000 psi). The motor is 15kW 460V/60 Hz

1 no. pneumatic oil pump, the displacement of the pneumatic oil pump is 60ml/stroke

1 no. air source manifolds, including relief valve, atomized lubricator, water filter, bypass valve and hydraulic & air switch.

1 no. control manifolds
12.2 Driller’s console

1 no. driller’s console, used for BOP control; 1 no. explosive-proof junction box, used for the wiring of alarm light and display light

12.3 Air cable

1 no. air cable used for connecting remote console and driller’s console, length=50m

1 no. air cable used for connecting remote console and auxiliary console, length=50m

The air cable is with the features of high temperature resistant and oil immersion resistant

12.4 Air source pipelines

W/ 1 no. 25m air source pipelines, used for connecting the air source of remote console pneumatic pump

W/ 2 nos. 30m air source pipelines, used for connecting the air source of auxiliary driller’s console

W/ 1 no. 10m air source pipelines, used for connecting the air source of driller’s console

Each end of the air source pipelines is equipped with 1 no. crossover connector and quick connector.

12.5 Protection house Used for protecting of remote console
12.6 Alarming device

The unit is equipped with alarming device, including 1 on. Cable (50m) used for connecting the remote console and driller’s console. The alarming device can have audible and visual alarm under the following circumstances:

The alarming can be cleared at remote console.

The alarming device includes alarmer, liquidometer, explosive-proof pressure controller, explosive-proof plug device etc.

1 group of explosive-proof alarming light is set on the roof of remote console protection house, which is used for displaying the alarming items.

The alarming cables and its connector are with the features of high temperature & oil immersion resistance, explosive-proof and waterproof.

13.0 Pipe handling system

The power catwalk assy. mainly consists of power catwalk, hydraulic pipe rack and tubular box, which can realize the mechanical transferring of the tubular between tubular boxes / ground pipe rack area and rig floor. The catwalk can realize the tubular raising via hydraulic cylinder; and the end of the tubular will be pushed beside the mouse hole. The power catwalk has 2 nos. control modes: wireless remote control by hand box, emergency control locally. The hydraulic pipe rack has 4 pieces which are installed separately on each side of power catwalk. The distance from pipe rack surface to ground is 1200mm. The tubular can be placed in single layer and can be rolled in / out automatically.
by controlling its inclination angle. The tubular box can accommodate 800m 3-1/2" tubing. It can be butt jointed with hydraulic pipe rack, realizing tubular rolling out / back automatically from tubular box to hydraulic pipe rack.

**Basic parameters**

- Max height, rig floor: 4m
- Max. length, transferring tubular: 11m
- Max. dia., transferring tubular: Φ508mm (20")
- Max. weight, transferring tubular: 30kN
- Transportation dimension: 9.2m×1.5m×1.6m

**14.0 Raised driller’s console 14.1 Specification**

Hydraulic leveling jack console layout:

Control at rear of carrier deck

Drillers Console Arrangement:

Single person unitized controls for all related functions on carrier and mast.

About 1300mm from the driller’s console to the deck

Drillers Controls:

- Drawworks brake
- Drawworks clutch
- Engine throttle
Engine emergency shutdown

Hydraulic pump control

Hydraulic winch

Gauges

Reset for crown saver

For explosion-proof purpose, the controls for electrical devices, such as engine start-up and transmission gear-shift are set at the back of the drawworks instead of on the driller’s console. For safety, one (1) alarming unit to avoid the rig from tilting is added.

15.0 Explosion-proof control cabinet and wellsight electric system

15.1 Explosion-proof control cabinet

The explosion-proof control cabinet is mounted in the generator house and supplies power to the following equipments:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Rated load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply of basic rig</td>
<td>100A</td>
</tr>
<tr>
<td>2</td>
<td>Power supply of well control house</td>
<td>60A</td>
</tr>
<tr>
<td>3</td>
<td>Pipe handling system</td>
<td>60A</td>
</tr>
<tr>
<td>4</td>
<td>Backup</td>
<td>100A</td>
</tr>
</tbody>
</table>
5  Backup  

A set of 208V/110V illuminated panel, three-phase four-line system, current of main breaker: 150A.

<table>
<thead>
<tr>
<th>No.</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>25A illumination of basic rig</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>16A illumination of generator house</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Spare 25A illumination</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>Spare 16A illumination</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>25A, 208V power supply of electric heater</td>
</tr>
</tbody>
</table>

15.2 Wellsite AC power supply system

Lower temperature power and control cable include: 1) all low temperature power, lighting and control cables. 2) low temperature power and lighting cables from explosion-proof control cabinet to each area of wellsite. 3) low temperature cable from explosion-proof control cabinet to generator house. All low temperature, lighting and control cables have good performance.
All cables are with good performance of corrosion prevention, oil resistance, high temperature resistance and aging resistance which could be suitable for humid and dry environment.

Control unit and low temperature cable of electric equipment in wellsite are protected by cable tray. Lighting circuit and lamps of mast, carrier and mud tank are anti-explosive. Lamp holder in mud tank area is adjustable and can be lay down horizontally. Mast lighting cable are protected by galvanize pipe. C/w anti-explosive distribution box. All anti-explosive wireline ports are equipped with water-proof sealing clamp.

**15.3 Scope of supply**

<table>
<thead>
<tr>
<th>No.</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Explosion-proof control cabinet</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Illuminating panel</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Lower temperature power and control cable</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Wellsite explosion proof circuit</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Cable tray</td>
</tr>
</tbody>
</table>

**16.0 Generator set**

Model: WQ30 diesel generator set

Continuous output: 32kW/41kVA @60Hz
Standby output: 35kW/45kVA @60Hz

17.0 Dog house on the wellsite

It include generator house, changing room, washroom, BOP control house, all are powered by generator. Changing room and washroom are completed with air conditioning, emergent lighting system and heating system.

18.0 Plough type tool

It includes BOP pressure test board.

19.0 Color

<table>
<thead>
<tr>
<th>Components</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind shield</td>
<td>Dark grey</td>
</tr>
<tr>
<td>Engine shield-inner</td>
<td>Dove grey</td>
</tr>
<tr>
<td>Engine shield-outer</td>
<td>Dove grey</td>
</tr>
<tr>
<td>Engine</td>
<td></td>
</tr>
<tr>
<td>Cab lower section 3’</td>
<td>Dark grey (CLR 4573)</td>
</tr>
<tr>
<td>Cab upper section</td>
<td>Dove grey (CLR 10588)</td>
</tr>
<tr>
<td>Drawworks</td>
<td>Dove grey (CLR 4573)</td>
</tr>
<tr>
<td>Tool box (on deck)</td>
<td>Dove grey (CLR 10588)</td>
</tr>
<tr>
<td>Tool box inside</td>
<td>White</td>
</tr>
</tbody>
</table>
Handrails for ladders and walkway | Dove grey (CLR 10588)
---|---
Ladder | Dark grey (CLR 4573)
Mast foundation A frame and outrigger | Dark grey (CLR 4573)
Chassis handrail | Dark grey (CLR 4573)
Chassis deck | Dark grey (CLR 4573)
**XJ450T-18**

<table>
<thead>
<tr>
<th>Component</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front safety belt</td>
<td>White</td>
</tr>
<tr>
<td>Rim</td>
<td>White</td>
</tr>
<tr>
<td>Mast</td>
<td>White</td>
</tr>
<tr>
<td>Crown</td>
<td>Orange (CLR 13885)</td>
</tr>
<tr>
<td>Sucker rod basket</td>
<td>Orange (CLR 13885)</td>
</tr>
<tr>
<td>Racking board</td>
<td>Orange (CLR 13885)</td>
</tr>
<tr>
<td>Operation platform</td>
<td>Orange (CLR 13885)</td>
</tr>
<tr>
<td>Cab 3” tape</td>
<td>Orange (CLR 13885)</td>
</tr>
</tbody>
</table>

**20.0 Tools come-along with the rig**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Description and size</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tire box spanner 32X34</td>
<td>1 pc</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>2</td>
<td>2 pound ball face hammer</td>
<td>1 pc</td>
</tr>
<tr>
<td>3</td>
<td>Hacksaw 300mm</td>
<td>1 pc</td>
</tr>
<tr>
<td>4</td>
<td>Steel chisel 150mm</td>
<td>1 pc</td>
</tr>
<tr>
<td>5</td>
<td>16t oil jack</td>
<td>1 pc</td>
</tr>
<tr>
<td>6</td>
<td>Grease gun 400CC</td>
<td>1 pc</td>
</tr>
<tr>
<td>7</td>
<td>Pressure oil can 0.5kg</td>
<td>1 pc</td>
</tr>
<tr>
<td>8</td>
<td>Clearance gauge 100mm</td>
<td>1 set</td>
</tr>
<tr>
<td>9</td>
<td>Level bar 600mm</td>
<td>1 pc</td>
</tr>
<tr>
<td>10</td>
<td>Working lamp</td>
<td>1 pc</td>
</tr>
<tr>
<td>11</td>
<td>Tire pressure gauge</td>
<td>1 pc</td>
</tr>
<tr>
<td>12</td>
<td>Gas filling hose</td>
<td>1 set</td>
</tr>
<tr>
<td>13</td>
<td>Straight clamp plate</td>
<td>2 sets</td>
</tr>
<tr>
<td>14</td>
<td>Bent clamp plate</td>
<td>2 sets</td>
</tr>
<tr>
<td>15</td>
<td>Long crow bar</td>
<td>1 pc</td>
</tr>
<tr>
<td>16</td>
<td>Short crow bar</td>
<td>1 pc</td>
</tr>
</tbody>
</table>
17  Spring location rod 6 pcs
18  Puller 1 set
19  Rubber appliance, stabilizer beam 1 set
20  Chain spanner 1 set
21  Hook spanner (5 in 1) 1 set

21.0 Document come-along with the rig

S/N  Description
1    Operation and maintenance manual for the rig
2    Operation and maintenance for the engine
3    Operation and maintenance for the transmission
4    Certificate
5    Packing list
6    Copy of API certificates
7    Copy of ISO9001 certificate
8 Quality assurance report for main components

9 Operation and maintenance manuals, as well as certificates of outsourcing parts