



BOURNEDRILL PTY. LTD.

A.C.N. 75 009 863 094
(Incorporated in Queensland)

PO BOX 99, BRISBANE MARKET 4106
133 BEATTY ROAD, ARCHERFIELD, 4108
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OUR SPECIFICATION NO: 25/04

FOR THE SUPPLY OF

ONE (1)

BOURNEDRILL 1250R DIRECT CIRCULATION DRILLING RIG

FOR MOUNTING TO A STANDARD 8 x 4 TRUCK

FOR

CENTRAL QUEENSLAND EXPLORATION

PO BOX 1027

YEPPOON 4703

SERIAL No. 1250R/04/654

JUNE 18 2004



AS/NZS ISO 9001:2000
REGN. NO. 467



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BOURNEDRILL 1250R DRILLING RIG

INDEX

1.	DRILLING RIG
1.1	DESCRIPTION
1.2	FRAME
1.3	STABILISING JACKS
1.4	MAST
1.5	KELLY
1.6	SWIVEL
1.7	POWER TAKE OFF
1.8	TRANSFER CASE
1.9	ROTARY GEARBOX
1.10	ROTARY TABLE
1.11	DRAWWORKS
1.12	PULLDOWN
1.13	MUD PUMP
1.14	AIR COMPRESSOR
1.15	LUBRICATOR
1.16	INJECTION PUMP
1.17	HYDRAULIC SYSTEM
1.18	CONTROLS
1.19	LIGHTS
1.20	PAINTING
1.21	MANUALS
1.22	CARRIER



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1. DRILLING RIG

1.1 DESCRIPTION The **BOURNEDRILL 1250R** rotary table type rig is suitable for water well drilling, mineral, coal exploration and seismic / geophysical drilling.

It is designed primarily for direct mud rotary drilling with air and mud, aerated foam, DTH hammer and small and large diameter coring, when fitted with suitable options.

The unit is truck mounted and driven by the truck engine through a power take-off.

The Bournedrill 1250R has a rated depth capacity of 549 metre (1800 ft) with 60.4 mm (2 3/8 inch) diameter drill pipes and 427 metre (1400 ft) with 73 mm (2 7/8 inch) pipes, when operated by competent personnel in ideal conditions.

1.2 FRAME

Frame is fabricated from HD RSJ's, channel and RHS tubular steel sections electrically welded and reinforced to support the mechanical and hydraulic components of the rig.

Hydraulically extending pipe rack as previously built with dual core barrel and drill collar slide, one (1) internal and one (1) on the inner pipe rack frame, complete with one (1) electric winch to pull 4C core barrel and drill collars along the slides. Front external section to be plated in to prevent pipes from exiting.

All open deck areas are plated with non-slip checker plate, with the frame securely fastened to the truck chassis with HD steel brackets and U-bolts.

OUR SPECIFICATION NO: 25/04

1.3 STABILISING JACKS

Four (4) 88.9 mm (3 ½ inch) diameter corner mounted hydraulic jacks with 609 mm (24 inch) stroke are fully enclosed in tubing to protect the rods from lateral thrust and dirt.

Large size foot pads.

Note: Previous foot plates on 1500R too small & fell off.

Each jack is independently controlled and protected with safety locking valves.

1.4 MAST

The mast is constructed of hot drawn square tubular steel electrically welded 350 mPa strength material. It has a gross load capacity of 20430 kg (45000 lb). Overall length of 10.6 metre (34.75 ft) provides a minimum clearance above the rotary table of 9.25 metre (30.35 ft).

Main and sandline sheaves to be 300 mm (11.81 inch) diameter.

It is raised and lowered by two (2) double acting, chrome plated hydraulic cylinders complete with fail-safe check valves.

The mast is also fitted with guide channels to retract kelly and swivel to the rear of the mast, when running large diameter casing or tools.

1.5 KELLY

The round fluted kelly, 95.2 mm (3 ¾ inch) OD 7 metre (23 ft) long, is reversible and fitted with a kelly head adaptor and kelly saver sub and drive bushing.

1.6 SWIVEL

The rig is fitted with a heavy duty 50.8 mm (2 inch) internal diameter swivel mounted on a steel split type yoke.

Wash pipe and packing are easily replaceable. Capacity 1454 kg (3200 lb).

OUR SPECIFICATION NO: 25/04

1.7 POWER TAKE OFF

Full torque, split shaft, eight (8) strand 3/4 inch pitch roller chain, heat treated sprockets on alloy steel shafts mounted on roller bearings. Mounted following the carrier gearbox, delivers engine power either to rear axle or rig drives.

The PTO is fully enclosed with air shift engagement from the driver's position in the cabin; lubrication is by oil bath, with chain tension controlled by eccentric adjustment.

1.8 TRANSFER CASE

The power from the PTO is directed within this case to the rig's components including drawworks, rotary table, and air compressor.

The fully enclosed three (3) shaft design case consists of a steel housing, precision machined and fitted with an eight (8) strand 3/4 inch pitch roller chain, heat treated sprockets on alloy steel shafts mounted on roller bearings.

Lubrication is by oil bath and chain tension is controlled by eccentric adjustment.

Unitised with the transfer case is the rotary clutch housing, the housing contains a 356 mm (14 inch) friction disc clutch immersed in an oil bath. Slip control, if required, can be selected and adjusted at the driller's control to limit the maximum rotational torque of the rotary table when using the down-the-hole tools at slow RPM.

1.9 ROTARY GEARBOX

Fitted directly to the clutch housing on the transfer case is an eight (8) speed forward and one (1) speed reverse manual type transmission, giving a choice of rotary speeds ranging from 10 to 180 RPM.

Rotary speeds are selected at the driller's control.

1.10 ROTARY TABLE

The rig is fitted with 190.5 mm (7 1/2 inch) opening rotary table. The table can be hydraulically retracted to give a 510 mm (20 inch) clearance. It is made of a heavy duty bevel ring gear and pinion, mounted on tapered roller bearings, enclosed in a cast steel housing with oil bath and splash lubrication.

OUR SPECIFICATION NO: 25/04

1.10 ROTARY TABLE - Continued

The table is mechanically driven from the transfer case by a high torque, multi-speed gearbox, via a splined retractable tailshaft.

Accessories

- * Master bushing to adapt the Kelly bushing to the rotary table.
- * Break-out slips for drill pipes.
- * The heavy duty Bournedrig manual tong is positioned at the right hand rear of the mast, above the rotary table and swings out of the way when drilling or running casing. The tong is supplied with interchangeable jaws to grip from 60 mm (2 3/8 inch) to 120.65 mm (4 3/4 inch) diameter pipes and collars.
- * Breakout tong to be identical to #645 photo

1.11 DRAWWORKS

The rig is equipped with heavy-duty double drum type drawworks with a maximum bare drum single line pull capacity of 4540 kg (10000 lb).

Drawworks shaft is driven by precision machined bevel gears mounted on taper roller bearings completely enclosed in an oil bath cast housing.

Identical drums mounted on taper roller bearings are individually activated by air clutches. Each drum is fitted with a single 152.4 mm x 406 mm (6 inch x 16 inch) brake rims and mechanical brakes.

A-Frame Brace above drawworks to be removable.

1.12 PULLDOWN

The two (2) speed hydraulic/mechanical powered feed system has a pulldown pressure infinitely variable to 9090 kg (20000 lb). It is actuated by means of a 50.8 mm (2 inch) heavy duty roller chain attached to the swivel yoke with 12 mm (1/2" inch) NRWR hold back cables and 5/8" turnbuckles attached to the swivel yoke.

OUR SPECIFICATION NO: 25/04

1.13 MUD PUMP The rig is fitted with a rebuilt 5 ½" x 8" duplex reciprocating power mud pump set up for slush services. It is equipped with 127 mm (5 ½ inch) diameter liners and has a 203.2 mm (8 inch) stroke. It has a maximum volume of 1200 litre per minute (317 US GPM) at 23.76 kPa (338 PSI).

Pump is fitted with discharge manifold incorporating a shear relief valve with discharge to ground, surge chamber, mud mixing hose outlet valve and oilfield pressure gauge.

Pump is driven from the power take off via an air operated Twin Disc friction clutch. Drive remains idle while mud pump is not running.

- Accessories**
- * 1 x 6.1 metre (20 ft) heavy duty 101.6mm (4 inch) ID suction hose with strainer/foot valve.
 - * 1 x 8.1 metre (20 ft) heavy duty 31.75 mm (1 ¼ inch) ID mud mixing hose complete with fittings
 - * 1 x set of mud pump liner and valve seat pullers.

1.14 AIR COMPRESSOR Second hand LeRoi SDS 256 reciprocating air compressor, shaft driven from the transfer case and controlled with an air controlled Twin Disc clutch.

Compressor is complete with reservoir with safety valve and has the maximum delivery capacity of 14.44 m³/min (510 cfm) @ 17.24 bar (250 psi).

1.15 LUBRICATOR The rig is fitted with a positive displacement type lubricator for down-the-hole hammer operation with direct injection into the airline with adjustable oil flow between 0.5 and 1.2 litres per hour at pressures up to 24.60 kg/cm² (350 PSI). The reservoir capacity is sufficient for a minimum of 12 hours operation.

1.16 INJECTION PUMP The rig is fitted with a hydraulically driven 'Bertolini' injection pump for injecting water, foam and other agents into the delivery line. Delivery rate is adjustable from 0 up to 180 litres (0 – 39.6 GPM) per minute at a maximum pressure of at least 50.97 kg/cm² (725 PSI).

OUR SPECIFICATION NO: 25/04

1.16 INJECTION PUMP - Continued

The pump delivery is fitted with a surge chamber; adjustable relief valve, check valve and 6.1 metre (20 ft) x 32 mm (1 1/4 inch) suction hose complete with all fittings.

1.17 HYDRAULIC SYSTEM

The hydraulic system is supplied by a variable displacement pump for the pulldown and a fixed displacement for the auxiliary functions, driven directly from the rig transfer case.

The hydraulic oil reservoir is fitted with suction strainer, return line filter, temperature/level gauge and breather cap.

1.18 CONTROLS

All drilling controls are conveniently grouped and located at the driller's control position at the left hand rear of the main frame. All drilling, hydraulic and engine gauges and controls are clearly identified in English.

1.19 LIGHTS

Heavy duty, low volt, weather proof lights are fitted in strategic positions on the mast and frame for night operation and are powered from the truck's electrical system.

1.20 PAINTING

The drill rig will be painted, after thorough cleaning and careful preparation, using highest grade primers and finish coats of white mast over 'Galmet Metal Hammer Finish' jade green deck.

1.21 MANUALS

Three (3) sets of manuals covering operation, service, maintenance and spare parts are supplied on delivery.

1.22 CARRIER

Mercedes Benz 1999 Accoss 3240 8 x 4 supplied from Select Trucks, Jim Wong.

Maximum RPM of Air Compressor and Mud Pump to be achieved with the truck engine running at 1800 RPM.

Additional Core Barrel slide to suit 4C barrel with electric winch to pull along slide.