



FAILING • SPEEDSTAR • KING OIL TOOLS

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17 March 2010

### GEFCO Model SS-1100 Carrier Mounted

#### Mounting

New Kimble C3100 5-Axle oilfield type carrier with two (2) front steering axles, and a tridem (3 axle) rear drive. One (1) 125 gallon (473 liter) fuel tank. Carrier is equipped with a Caterpillar C-18 industrial engine to allow use of high sulphur content diesel fuel. The engine is also equipped with a "Jake" brake for use on steep downhill grades. Single person cab with left hand drive, air suspension seat, heater, defroster, windshield wiper, air horn, LH/RH exterior mirrors and full instrumentation. 12-Volt starting system, spark arrest muffler, alternator and all required ancillary components and attachments. Fuller 18 speed manual transmission.

#### Main Frame:

Structural steel, constructed integral with the carrier I-beam frame, reinforced and electrically welded. Includes mast hinge posts, mast rewet, steel deck plate and full length folding walkways with railings.

#### Rig Hydraulics:

The rig hydraulic system is powered by remote controlled skid mounted hydraulic power pack. The power pack consists of two (2) Caterpillar C-18 industrial diesel engines rated at 550 HP each. The package is self contained with all hydraulic pumps and pump drives included. The system is designed for complete redundancy so that the drill rig can be operated with only one (1) engine operational. One engine operation still gives the maximum hook load capability but with reduced tophead travel speed. The engines and hydraulic pumps can be monitored and remote controlled from the driller's cabin.

Customer Initial



GEFCO Initial

**Driller's Cabin:**

Complete climate controlled driller's station, enclosed with Class 1, Division 2 explosion proof rating. It is fresh air purged with positive air displacement of the cabin. The cabin incorporates the following features. Electronic remote controls of all hydraulic functions of the rig. Remote monitoring and control of the hydraulic power pack and engines. Two (2) remote controlled cameras mounted in the rig mast can be operated (rotated, pan and zoom) and viewed on a monitor in the cabin so the driller can monitor drilling and drill location from the cabin. Two (2) touch screen monitors are included to monitor a variety of drilling parameters (ROP, tophead position, string weight, WOB etc). A microphone/speaker system so the driller can communicate with the drill crew from the cabin. If internet service is available on the drill location real time drilling parameters can be monitored via internet from anywhere in the world.

**Mast and Crown:**

Structural steel rectangular tubing electrically welded with a maximum hook load of 300,000 lbs from the table to the crown. Raised and lowered by two (2) hydraulic cylinders. 62 feet 5 inches overall length with 49 ft working space above the table area and below the tophead sub Table is mounted in the carrier frame allowing the mast to be lowered with pipe or casing in the table. Table has standard API dimensions for accepting standard API slips. There is a 26" opening through the table with the bushings and adapter bushings removed. The table is completely removable for setting of large diameter conductor pipe if needed.

**Tophead:**

Hydrostatically powered top head drive with variable rotations speeds and 3" ID water course through the head.

Rotation 0 to 60 RPM at 23,000 ft/lbs of torque

Rotation 0 to 120 RPM at 11,500 ft/lbs of torque

Infinite rotation control with indicated RPM and Torque

Top Head "Lock-up" to assist in directional drilling

Hydraulic elevator links "kick-out" controlled from the driller's cabin.

**Hoist System:**

Twin hydraulic cylinders and heavy duty cables hydraulically actuated to raise and lower the tophead. Hoist speeds of 0 to 160 feet per minute with a maximum hook load of 300,000 lbs. Maximum static pulldown capacity from 0 to 50,000 lbs.

**Winches:**

Main winch, hydraulically powered, speed of 0 to 120 FPM, 8,000 lb capacity on the first layer with 5/8" wireline. Tool handling winch, hydraulically powered, 4000 lb capacity with 1/2" wireline.

Customer Initial \_\_\_\_\_



GEFCO Initial \_\_\_\_\_



**Hydraulic Floor Hand:**

For "make-up" and "break-out" of drill pipe and drill collars. Also includes a pipe spinner attachment. Independent controls, capable of 80,000 ft/lbs maximum breakout torque and 65,000 ft/lbs maximum make-up torque. Size range from 3 1/2" drill pipe to 8" drill collars.

**Tongs:**

Type C tongs included with latch jaws from 2 3/8" up to 10 3/4"

**Slips:**

Hydraulically actuated drill pipe slips, controlled from the driller's cabin. Customer must specify slip size.

**Leveling Jacks:**

Four (4) hydraulically actuated jacks with integrated mechanical locks.

**Fluid Piping:**

4" piping to the tophead swivel rated at 5,000 PSI with necessary remote controlled valves to control mud flow.

**Rig Lighting:**

Class 1 Division 2 explosion proof LED lighting in the mast

**Water Injection:**

Hydraulically powered Myers 40 GPM water injection pump

**Lubricator:**

Seventeen (17) Gallon venturi style lubricator for DHH drilling

**Pipe Racking Board:**

Racking board can be positioned for Range II or Range III drill pipe.

Capacity of 7,000' of 3 1/2" Range II drill pipe or

Capacity of 10,000' of 3 1/2" Range III drill pipe

Customer must specify drill pipe size for finger spacing of racking board

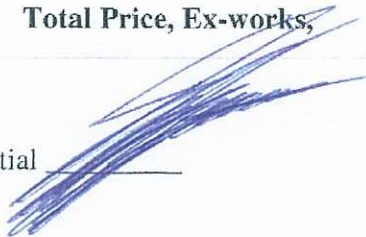
**Substructure:**

System consists of two (2) hydraulic lift structures. One structure "ramp style" to mount and lift the drill rig with a height of 14 feet below the table to ground level. The second structure to support the drillpipe, driller's cabin, and working floor. The substructure has a standalone hydraulic system to that rig can be set up without the prime hydraulic power pack.

\*GEFCO reserves the right to change or improve any of the specifications due to advances in engineering and design.

**Total Price, Ex-works,**

Customer Initial



GEFCO Initial





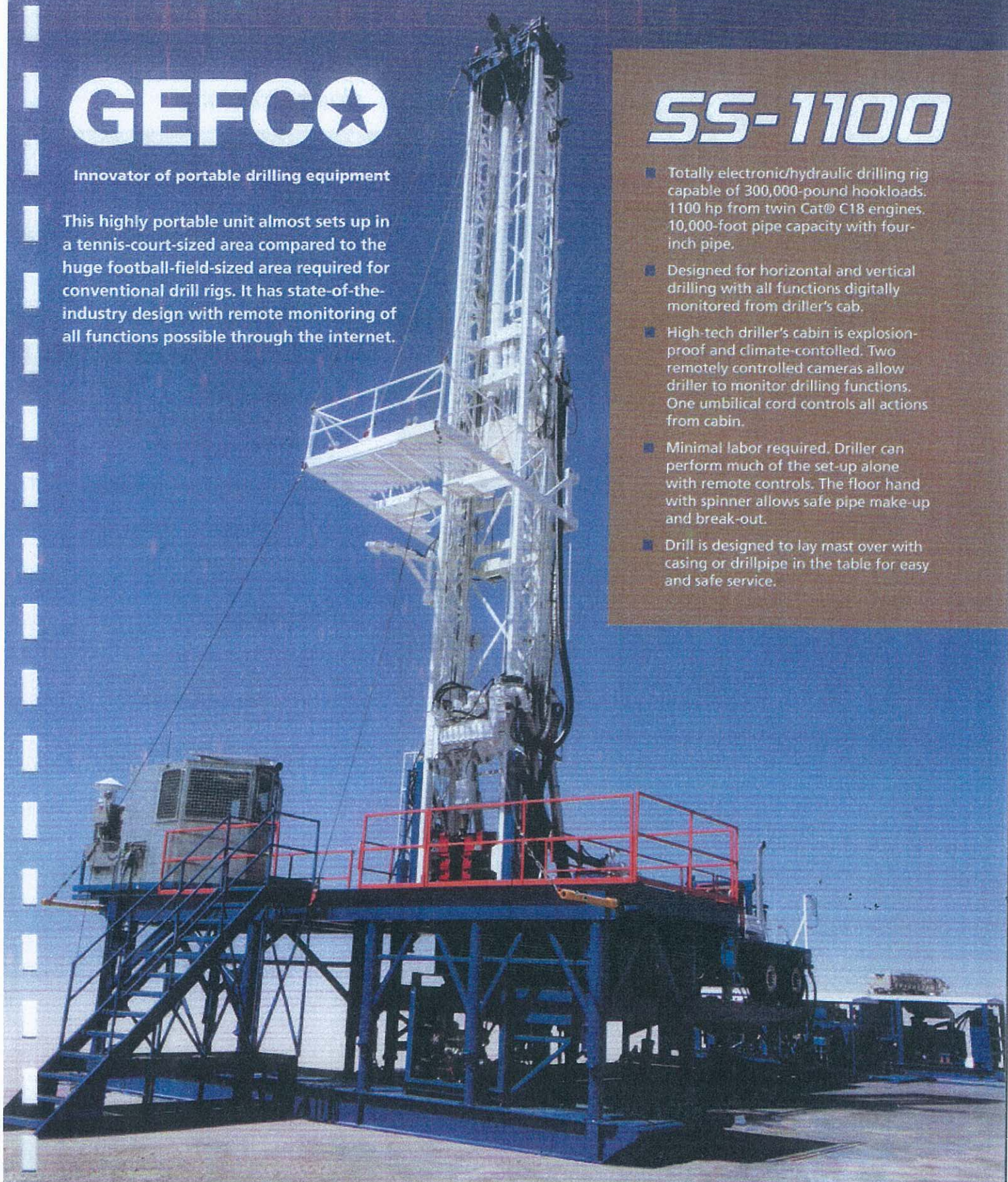
# GEFCO

Innovator of portable drilling equipment

This highly portable unit almost sets up in a tennis-court-sized area compared to the huge football-field-sized area required for conventional drill rigs. It has state-of-the-industry design with remote monitoring of all functions possible through the internet.

## ***SS-1100***

- Totally electronic/hydraulic drilling rig capable of 300,000-pound hookloads. 1100 hp from twin Cat® C18 engines. 10,000-foot pipe capacity with four-inch pipe.
- Designed for horizontal and vertical drilling with all functions digitally monitored from driller's cab.
- High-tech driller's cabin is explosion-proof and climate-controlled. Two remotely controlled cameras allow driller to monitor drilling functions. One umbilical cord controls all actions from cabin.
- Minimal labor required. Driller can perform much of the set-up alone with remote controls. The floor hand with spinner allows safe pipe make-up and break-out.
- Drill is designed to lay mast over with casing or drillpipe in the table for easy and safe service.







Driller's cabin is climate-controlled with enhanced electric over hydraulic controls for all rig functions. Monitors capture all drilling parameters from two remote-cameras. Information can be viewed via the internet.



Cabin is equipped with a climate-controlled fresh-air purge system so it meets Class I Division I explosion-proof standards.



Hydraulically operated floor hand makes and breaks drill rod and collars in an extremely safe manner. Unit retracts to back of derrick to provide easy clearance of the drill string.



Traditional racking board provides space-saving storage of drill string and can handle range two and three super-single drill pipe. Package increases tripping speed.



Telescoping substructure allows for ten-foot standard clearance between ground level and bottom of the table. Rig uses hydraulic leveling jacks which are mechanically locked for safety.



All electronic controls feature manual back-up controls to give the operator redundancy in case of an electrical failure.



Large, uncluttered, non-skid, synthetic rubber flooring.



1100 HPU separate power pack is remote-controlled and powered by two 550 hp CAT C-18 engines. One engine can operate all rig functions. Unit is connected through a series of quick-connected hydraulic hoses.

## Specifications

### HOISTING CAPACITY (Hookload)

- 300,000 pounds hookload capacity for full hookload capacity from table to crown

### TOPHEAD

- Two speeds rated at 0-60 rpm up to 23,000 ft/lb torque; 0-120 rpm up to 11,500 ft/lb torque
- Rotary brake for directional drilling

### TOPHEAD TRAVEL

- Adequate working space for Range-3 drillpipe and casing
- Tophead hoist speed 109 ft/minute
- Tophead travel down speed 133 ft/minute
- Tophead equipped to handle elevators and links

Rig is hard-piped with 5,000 PSI rating for mud or air plumbing, complete with remote-control-actuated valves.

## Summary

Although this unit is specially designed for drilling in a confined space, it is a great package for multiple applications.

- All electric over hydraulic controls for safe operation with minimal labor requirements.
- All functions and digital video from the two remote-controlled cameras can be monitored by the internet from anywhere in the world.
- Excellent for horizontal and vertical drilling.

# GEFCO

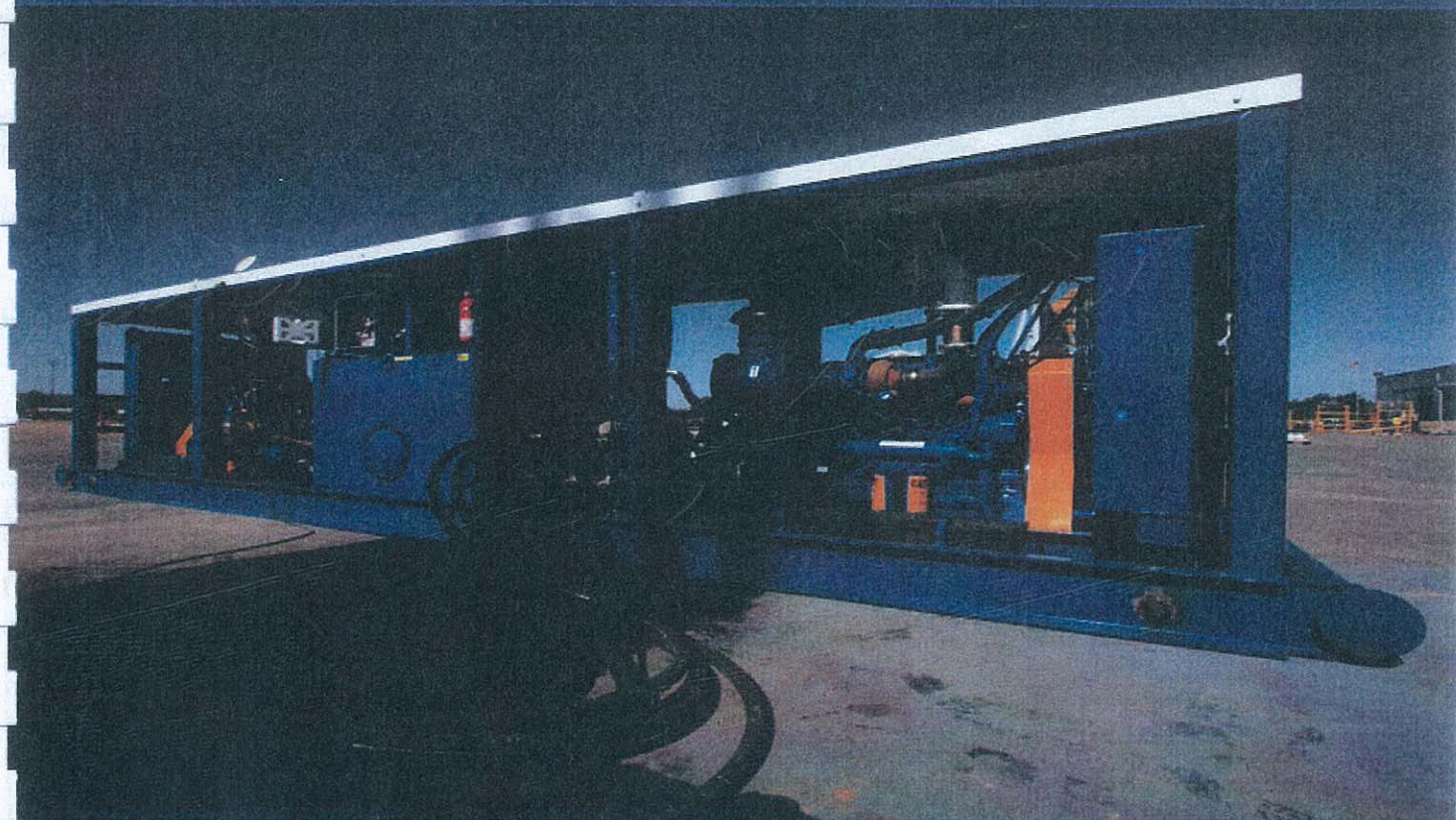
Innovator of portable drilling equipment

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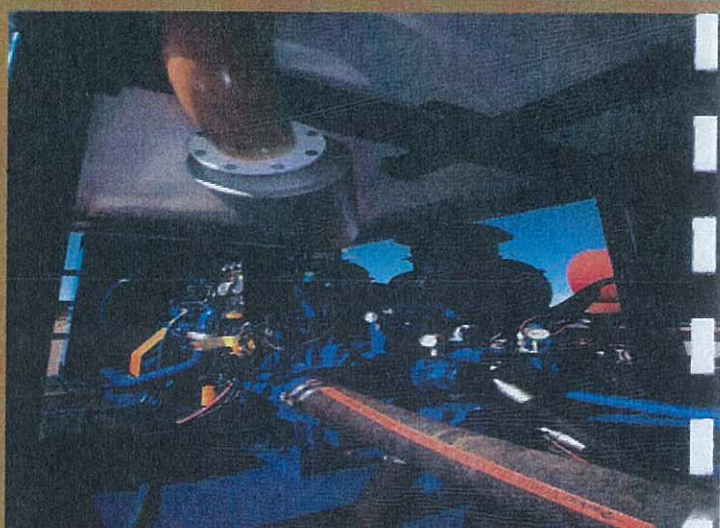
SS-1100 HPU SEPARATE POWER PACK



SS-1100



## SS-1100 HPU SEPARATE POWER PACK



### *Features*

DUAL ENGINE DRIVEN HYDRAULIC POWER UNIT.  
IQAN REMOTE CONTROLLED OPERATION FROM DRILLERS CABIN.  
POWERED BY TWO 575 hp CAT C-18 ENGINES.  
2 60 GALLON DIESEL FUEL TANKS  
ONE ENGINE CAN OPERATE ALL RIG FUNCTIONS INDEPENDANTLY.  
700 GALLON HYDRAULIC RESERVOIR, 4 PARKER PV18 VARIABLE  
PISTON PUMPS .  
A 5,000PSI HYDRAULIC CIRCUIT WITH A FLOW OF 340 GPM.  
UNIT IS CONNECTED TO THE RIG THRU A SERIES OF QUICK-CONNECT  
HYDRAULIC HOSES

SS-1100

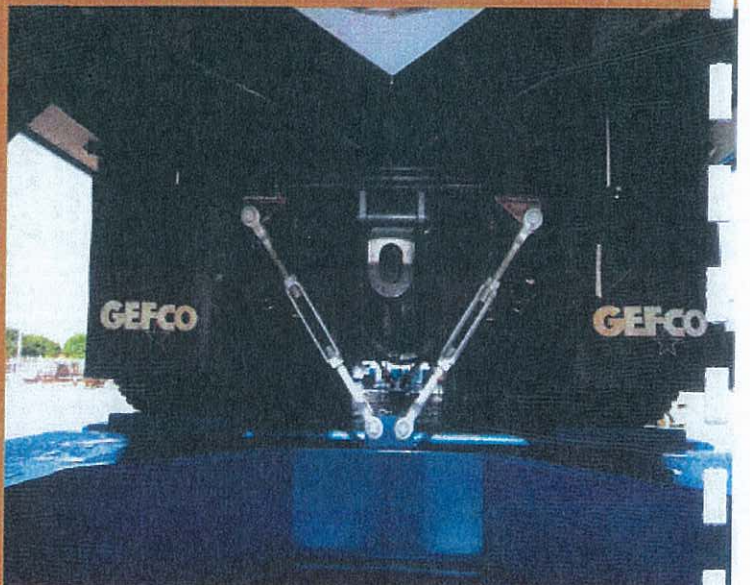




SS-1100



## SS-1100 SUB STRUCTURE



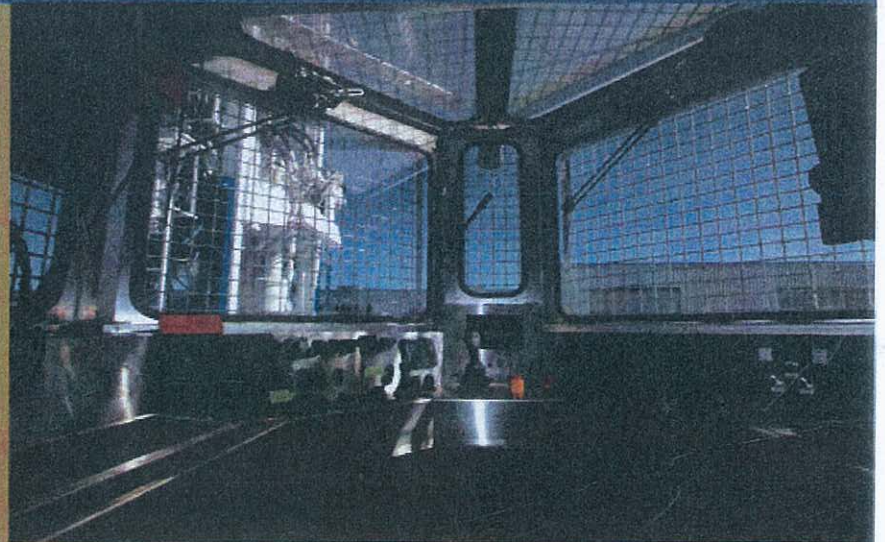
### *Features*

TELESCOPING SUB STRUCTURE ALLOWS FOR TEN FOOT STANDARD CLEARANCE BETWEEN GROUND LEVEL AND TOP OF TABLE  
HAS INDEPENDENT ENGINE AND HYDRAULIC SYSTEM FROM RIG  
RIG USES HYDRAULIC LEVELING JACKS WHICH ARE MECHANICALLY LOCKED FOR SAFETY

SS-1100



## SS-1100 DRILLERS CABIN



### Features

ALL ELECTRIC OVER HYDRAULIC CONTROLS MANY AUTOMATED FOR SAFE OPERATION WITH MINIMAL LABOR REQUIREMENTS .

CABIN IS EQUIPPED WITH A CLIMATE CONTROLLED FRESH AIR PURGE SYSTEM SO IT MEETS CLASS 1 DIVISION 1 EXPLOSION PROOF STANDARDS .

DUAL FLAT TOUCH SCREEN ADVANCED MONITORING SYSTEM (ADMS)

3 – MAIN SERVICE LINE VALVES ( OPEN/CLOSED )

DEPTH ENCODER

TOP HEAD ROTATION DIRECTION , TOP HEAD TORQUE , TOP HEAD RPM

HYDRAULIC PRESSURE UP / HYDRAULIC PRESSURE DOWN

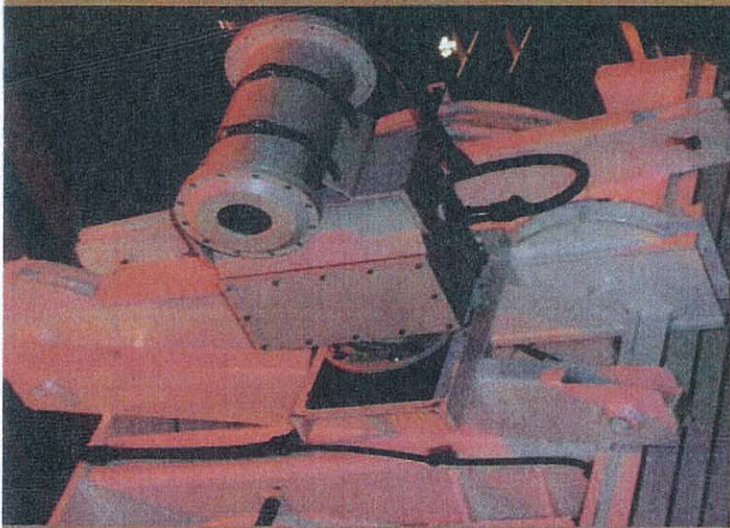
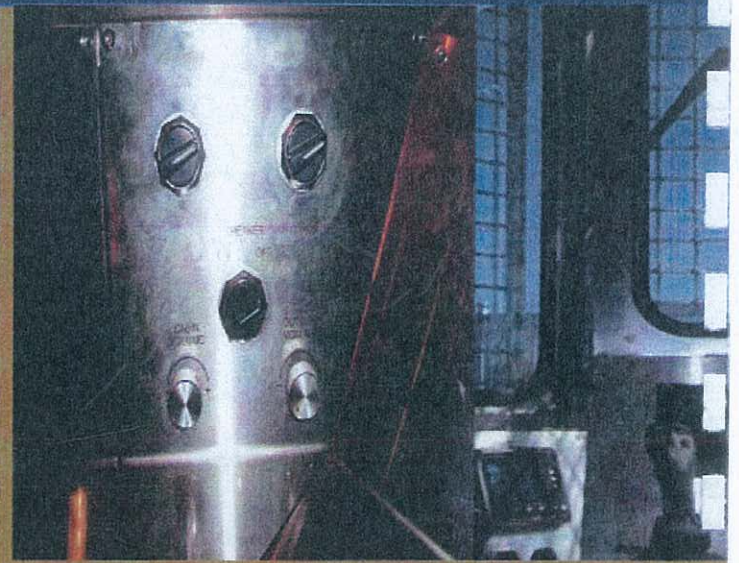
TONG MAKEUP / TONG BREAKOUT

WATER FLOW / WATER PRESSURE / RIG AIR

ALL OTHER CUSTOM CHANNELS BY HYDRADYNE



## SS-1100 DRILLERS CABIN



### Features

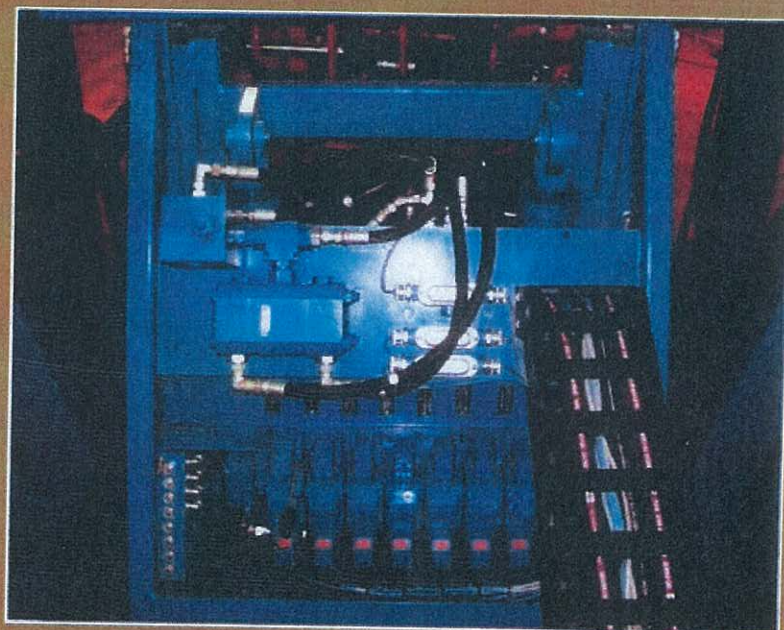
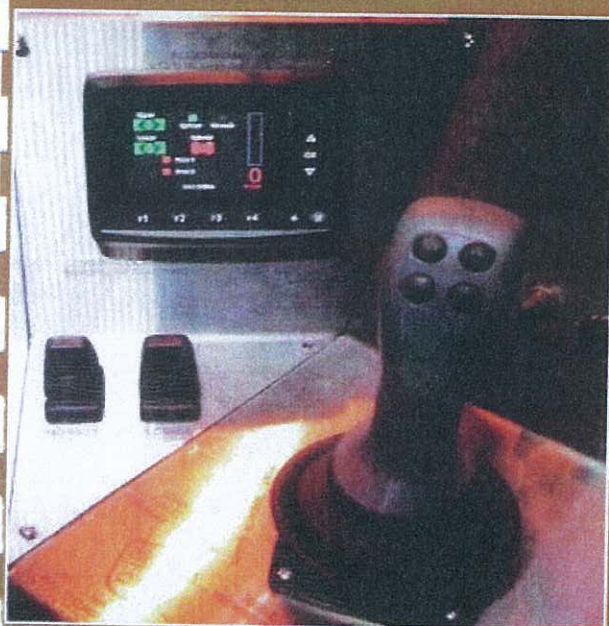
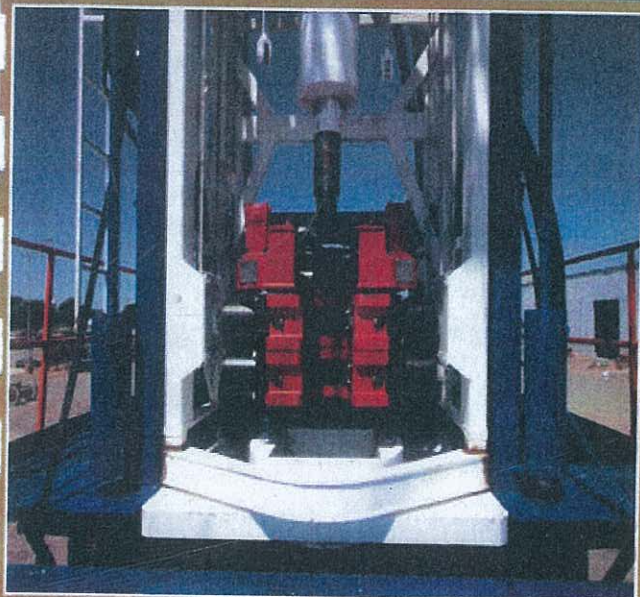
FORUM/AOI CUSTOM CCTV SYSTEM WITH ONE 10.4" COLOR FLAT MONITOR

TWO 1/3" FORMAT DIGITAL CAMERAS . ONE WITH A 8X80 mm  
MOTORIZED ZOOM LENS WITH AUTOMATLOOR IC IRIS AND WHITE  
BALANCE . ONE WITH A 6.3X30 mm LENS, AUTOMATIC IRIS AND WHITE  
BALANCE , MOUNTED IN A PAN AND TILT EXPLOSION PROOF DERRICK  
MOUNTED ENCLOSURE ASSEMBLY WITH SAFETY CABLE

TWO WAY CAB TO SUB FLOOR COMMUNICATION SYSTEM



## FLOOR HAND WITH HYDRAULIC MAKE UP AND BREAKOUT WRENCH AND SPINNER COMBO



### Features

Range is 3-1/2" Drill Pipe to 8-1/2" Drill Collars.

65,000 FT-LBS of make up torque.

80,000 FT-LBS of break out torque.

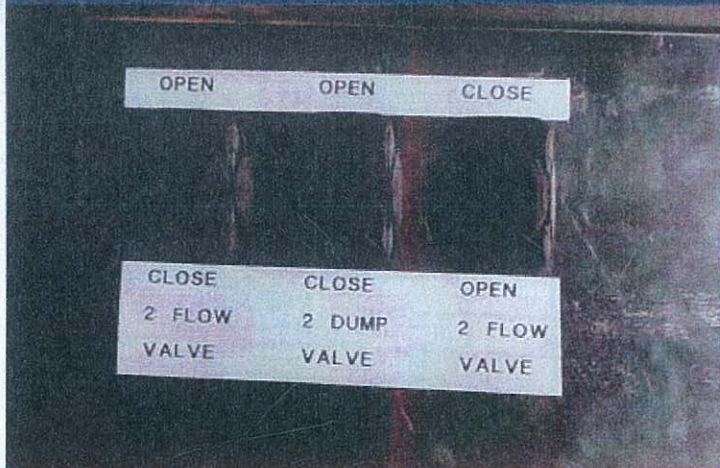
Electrically controlled from drillers cabin with IQAN.

Equipped with explosion proof proportional solenoids and cable.

SS-1100



## SS-1100 FLOW CONTROL VALVES



### Features

REMOTE CONTROL OPERATION  
HARD PLUMBED FOR 5,000 PSI MUD OR AIR

SS-1100