

# DRILLING STRUCTURES INTERNATIONAL, INC.

2431 Kelly Lane  
Houston, TX  
77066

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Fax: 281/631-9140  
dsi45@aol.com

## “New” National 1320 2000 HP Drill Rig

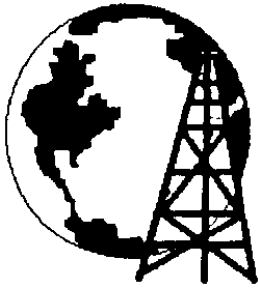
This Drilling Structures International Inc. 2000 H.P. Rig Package is designed to meet the demands of our customers for today’s competitive market, When designing rig packages we try to meet three simple goals. All rig components must:

1. Operate Properly.
2. Rig up quickly.
3. Transport in the fewest loads possible.

Using these principles, we have designed this rig package to meet or exceed all of our customers needs. Drilling Structures Int’l Inc. is pleased

### **I. Hoisting Equipment**

- A. “New” DSII 147’ x 13’ x 1,000,000# Three Section Hydraulic Elevating Mast
  - a. The DSII three section hydraulically elevating mast is designed to raise using two (2) 16” bore, single stage, dual acting hydraulic cylinders. The mast has been designed to:
    - i. Transport in one, two or three loads. The mast is designed to meet road restrictions for any rig move. The mast can be totally assembled using eight (8) rig pins.
    - ii. Incorporate top drive and guide rails.
    - iii. Incorporate block and hook dolly.
    - iv. Incorporate transportation beams.
- B. “New” DSII 30’ x 13’ x 1,000,000# Winch Raising Substructure
  - a. The DSII winch raised substructure is designed to raise using two (2) hydraulic winch. The substructure is designed to:
    - i. Transport in three compact loads.
    - ii. Transport using no removable flooring.
    - iii. Incorporate an independent rotary table (Rotary table, transmission and traction motor) without removal during transport.
    - iv. Incorporate cable trays and a grasshopper into the substructure.
    - v. The drawworks is set at the ground level, decreasing the need for a crane.



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C. Drawworks.

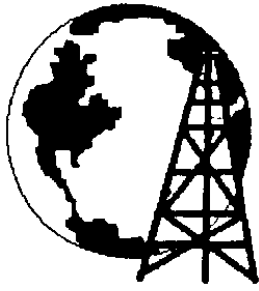
- Model – “Completely Rebuilt” Oilwell 1320
- Rated Horsepower – 2000
- Drilling Line – 1-1/2”
- Auxiliary Brake – Witchita 336
- Power – Two rebuilt (2) DC Motors GE 752 (1000 HP each intermittent, 750 HP continuous)
- Brake Radiator – Heat Exchangers & Brake Circulation Tank

D. Substructure Accessories

- B.O.P Handling System – Tracking beams mounted in the substructure with two (2) Ingersol-Rand 25 Ton Air Hoists
- 32’ Telescoping Headache Rack
- Rig Floor Stairways – All stairs to meet OSHA standards with no slip grip strut stair treads.
  - Three (3) 30’-0” stairways from substructure floor to ground level. Stairs to be built on a 45-degree angle.
  - One (1) 20’-6” stairway from top of the substructure to top of trip tank. Stairs to be built on a 45-degree angle.
- V-Door Ramp.
- Catwalk
- Air Hoist
  - Ram Winch Model K5UL20MX1G – 5000lb Rig Winch
  - Ram Winch Model K5UR50DML14AM1G – 5000 lb. Man Rider Winch.
- Rig Hydraulics – Self Sufficient Diesel Electric Hydraulic Power Unit – 70 GPM @ 3000 PSI capable.
  - Substructure will raise and lower level and system allows for individual winch operation if they are out of level. Sub will rise in 10-15 minutes. All functions have adjustments for speed control, if a different speed is desired.
  - Mast will raise and lower level and system allows for individual cylinder operation if they are out of level. Mast will rise in 10-12 minutes. All functions have adjustments for speed control, if a different speed is desired.
  - Required hoses, adapter fittings, and plumbing for connecting from HPU to above valve control stands, and from valve control stand to the appropriate functions.

E. 500 Ton Traveling Block and Hook

- a. Rebuilt (National, Ideco, etc.) or New American Block available.



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- F. Drilling Line
- a. 7500 ft of 1 ½” class 6 x 19 EIPS-IWRC cable c/w hospel and air spooler.
- G. Doghouse
- a. House (40’ x 10’ x 10’) to be fabricated on an oilfield type skid with loading hitches on both ends for tailboarding. House complete with the following:
- Dual 4’-0” porch.
  - 2’-0” walkway on the back-side of the doghouse running to full length.
  - Handrails around house perimeter.
  - One sliding doorway to rig side.
  - Two swing type doorways on both ends.
  - Two (2) windows on the back side wall
  - Knowledge box
  - Four compartment work bench

## **II. Prime Mover Drive**

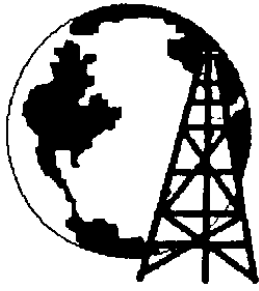
### A. SCR System

One (1) International Electric Company SCR. The system will be manufactured, designed and equipped to control and power the following loads:

- a. Four (4) A/C Engine/generator sets
- b. One (1) 2000 hp Drawworks, driven by two (2) x 1000 hp (Series) DC Motors.
- c. Three (3) x 1600 hp Mud Pumps, each driven by two (2) x 800 hp (Series) DC Motors
- d. One (1) Independent Rotary drive driven by one (1) x 1000 HP (Series) DC Motor.

### B. Engine/Generator Package

- a. Four (4) New Mustang/Caterpillar Model 3512C with Direct Injection Turbocharged and Separate Circuit After cooled Land Electric Diesel Engine, Rated 1476 H.P. at 1200 R.P.M. 2007 EPA Non-Road Emission Certified.
- b. Generator – Caterpillar SR4B 1750 KVA or Volvo generator, two bearing, 1225 KW, 867 frame, .7 PF, 600 volt complete with Stator RTD’s, Space heater, Bus bar and cable access box.
- c. Radiators – Updraft radiators with two circuits for engine jacket water and after-cooler. Includes: 78” Blower fan, fan drive, fan pulleys, belt guard, fan guard, fuel cooler and Water connections.
- d. Master Skids – Four (4) Three-runner oilfield type skids (40’ x 10’-0” x 18”) with loading hitches on both ends for tail boarding. Complete with Removable arched type roofs.
- e. Air Compressor & Receiver



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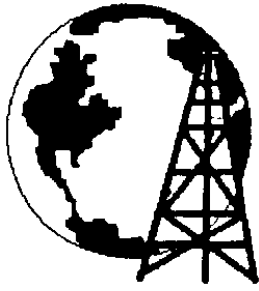
- i. Two (2) Gardner Denver, ST-30, Electra-Saver II, rotary screw air compressor, Model EBE99Q. 30 HP, 460 volts, 3 phase, 60 HZ, TEFC, with NEMA 4 Control Enclosure.
- ii. Two (2) Steel Fab, 400 gallon, vertical air receivers with full skirt, 200 psi working pressure. Part # A12614. Unit is California Coded.
- iii. One (1) Gardner Denver – 9 HP Cold Start.
- iv. One (1) RNC250 air dryer for 250 CFM.

### **III. Rotating Equipment**

- A. Rotary Table and Accessories
  - b. Rebuilt (National, Ideco, etc.) or New 37 ½” American Block available
  - c. 1 set of solid and split master bushing
  - d. Independent Rotary drive with transmission and traction motor.
- B. 500 Ton Rotary Swivel
  - a. Rebuilt (National, Ideco, etc.) or New 500 Ton American Block available
- C. Top Drive
  - a. “Completely Rebuilt” Tesco TD 143 500 ton top drive. (90 Day operational warranty from tesco included)

### **IV. Circulating Systems**

- A. Mud Pumps
  - a. Three (3) Weatherford Triplex Mud Pumps, 1600 HP, Liners 6 ¼” x 10”, 600 gpm each @ 3300 psi driven by 6 each GE-752, 1000 hp traction motors, furnished with:
    - ii. Unitized on a two-runner oilfield type skid with loading hitches on both ends for tailboarding.
    - iii. High pressure pulsation dampener, 5000 psi.
    - iv. Vibration dampener 4” x 12 ft 5000 psi.
    - v. SPM meter (0-200)
    - vi. Pressure gauge & pressure relief valve
    - vii. Pressure and Suction Manifold
    - viii. Discharge line 4” – 5000 psi.
    - ix. Centrifugal charging pump 5 x 6 x 11 driven by 75 HP motor
- C. 1500 bbl Round Bottom Mud System
  - a. Three (3) tank round bottom mud system with all piping valves and fittings for standard operation. Mud System Equipment to be furnished:
    - i. Six (6) 6 x 5 x 11 magnum with a 10.5 inch impeller, mechanical seal and hard iron material, all mounted on a mission fabricated steel base with



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woods style coupling, OSHA type coupling guard and a 75 HP 1750 RPM, 3 PH, 230/460 Volt, 60 Hz explosion proof electric motor.

- ii. Seven (7) Derrick DE-AG-10 Agitators complete with 10 HP, 1800 RPM explosion proof C-face motor bolted to a gear box. Including shaft stabilizer, shaft and impeller.
- iii. Two (2) Derrick DE-AG-15 Agitators complete with 15 HP, 1800 RPM explosion proof C-face motor bolted to a gear box. Including shaft stabilizer, shaft and impeller.
- iv. One (1) Derrick 3 in 1, 1200 GPM, Mud Cleaner.
- v. Two (2) Hoppers with venturi. Mounted on mud mix skid.
- vi. One (1) Derrick Vacuum degasser 1200 GPM.
- vii. Three (2) Derrick Flo-Line Cleaner 503 Shale Shakers with Weir Feed complete with three panel screen frame, support structure, and explosion proof electrics.

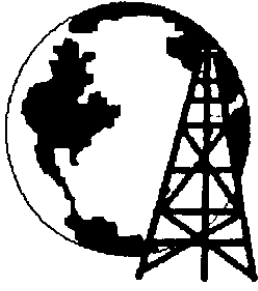
#### D. Combo Skid

- a. 100 BBL Trip Tank.
  - i. Galvanized grating on top of tank.
  - ii. Skid porch with provisions for mounting:
  - iii. One (1) 2 x 3 x 30 HP centrifugal pump
- b. Brake Water Tank.
  - i. Two (2) 2 x 3 x 25 H.P. centrifugal pumps
  - ii. Heat exchanger
  - iii. Safety alarm package.
- c. 48" Mud Gas Separator.
  - i. 48" Pipe with weld caps on both ends.
  - ii. Internal baffles.
  - iii. All piping and pipe brackets.
  - iv. Gas buster to elevate to working condition to allow operation under half full conditions.
  - v. Gas buster to be mounted in lay down position for transport and to be raised by truck for operation.

## **V. Blow Out Preventer**

### A. Accumulator Unit

- a. 7 station closing unit with 2 remotes, 1 each 150' and 1 each 60' umbilical for 10K Stack.
  - i. 24 each new 11 gallon accumulator
  - ii. 3 each new 60:1 pneumatic pumps
  - iii. 1 each new triplex pump with 1 1/4" plungers
  - iv. 1 each new 30 HP Motor
  - v. 1 each new Barksdale electric hydraulic pressure control switch.



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- vi. 2 each new 1500 PSI pressure regulators
- vii. 7 each new 1" Barksdale selector valves
- viii. 1 each new 1" Barksdale bypass valve (high/low pressure)
- ix. 8 each new 3 x 4 air cylinders (select valves)
  - x. 3 each new 6" glycerin filled pressure gauges (1 x 3000psi, 2 x 6000psi)
  - xi. 1 each new pneumatic/hydraulic pressure switch
  - xii. 3 each new directional check valves (1 x 1", 2 x 1/2")
  - xiii. 2 each new 3500 psi pressure relief valves
  - xiv. 1 each 16-function fixed plate
  - xv. 5 each new 1" 3000 psi ball valves
  - xvi. 1 each new moisture separator and oiler (air inlet)

## **XII. Fabrications**

### **A. Accumulator/Junk Box**

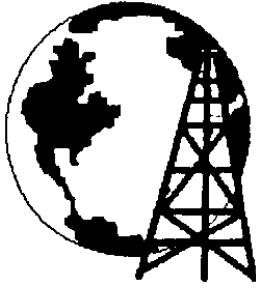
- a. Three runner oilfield type skid (40' x 10' x 12") covered with 1/4" check plate. Skids complete with:
  - i. Removable arched type roof.
  - ii. Two (2) vertical air receivers
  - iii. One (1) accumulator unit (see above)

### **B. 500 bbl Water Tank**

- a. 500 bbl water tank fabricated on oilfield type skids with loading hitches on both ends for tailboarding. Skid ends to be covered with 1/4" check plate. Tanks complete with the following:
  - i. Two (2) 3 x 2 x 11 Centrifugal pumps with 25 HP Motors
  - ii. Suction and Discharge Piping.
  - iii. Two (2) ladder rung to top of tank (In and Out)
  - iv. 4" Fill, 2" Outlet , 8" Drain

### **C. Two (2) 12,000 gallon Fuel Tank**

- a. Two (2) 12,000 gallon fuel tank fabricated on oilfield type skids with loading hitches on both ends for tailboarding. Tanks complete with the following:
  - i. Two (2) fuel transfer pumps
  - ii. One (1) filter system. Raycor or equivalent
  - iii. Suction and Discharge Piping.
  - iv. Two (2) ladder rung to top of tank (In and Out)
  - v. Top and Side man ways, 4" Fill cap, 2" Outlet, and 1 1/2" Drain



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D. One (1) Catwalk (50' x 7'-0" x 18").

E. Dual Compartment Cable Trays

- a. Cable trays to be fabricated as follows:
  - i. Two (1) 40'-0" sections
  - ii. One (1) 35'-0"
  - iii. One (1) 20'-0"