MAERSK ENDURER

Harsh environment jack-up

Year-round operation in water depths up to 350 ft

HP / HT drilling

MAERSK DRILLING

MAERSK ENDURER

1997 Refurbishment features

The "MAERSK ENDURER" was significantly refurbished in 1997. Below listed are the main areas of the Rig where refurbishments took place.

NEW CANTILEVER

Existing beams were reused, but height of cantilever was increased by adding a box on the bottom part

- Reach aft from/to: 0 – 55 ft
- Transverse port/starboard: +/- 16 ft

LEG STRENGTHENING / HULL STRENGHTENING

- Legs were re-inforced to operate at North Sea locations in 90 meters of water
- Hull was also re-inforced to deal with the increased loadings from e.g. the cantilever

CRANES

- 2 New Dreco 72 DNS diesel hydraulic cranes (140ft. reach and 47.7t capacity) were installed port side and starboard side

HELICOPTER LANDING AREA

- Helideck refurbished, 70ft. diameter and suitable for Sikorsky S-61N helicopters

NEW DRILLFLOOR/DERRICK

- New derrick installed along with upgrading all hardware/ software on the drill floor
- New Driller's Cabin Installed, incl. new instrumentation
- New Top drive installed
- New Iron roughneck installed
- Drawworks replaced

MAIN GENERATORS

- 4 new engines installed with a maximum continuous power of 2850hp and 1200rpm (rotation speed)

MAIN SWITCHOARD

- Emergency shutdown switches installed for the complete system (AC & DC). Switches located at lifeboat stations, Radio room and emergency control center

MUD LABORATORY

- Separate room installed as Mud Laboratory

RIG COMMUNICATION SYSTEM

- New communication system installed on rig

LIFE BOATS

- New lifeboats installed

MUD PUMPS

- 3 new mud pumps – Continental Emsco FC-2200, rated for 7,500 psi

BOP

- 2 Shaffer BOP stacks installed (a 13 ⅝", 15,000psi and a 21 ¼", 5,000 psi)

ACCOMMODATION

- New accommodation block installed to house 98 persons in two-man cabins

All systems onboard the Rig were updated to fully undertake HPHT drilling operations

MAERSK ENDURER

TYPE
BMC JU-350 IC, harsh environment jack-up drilling rig

BUILT
Nippon Kokan K.K., 1984, upgraded 1997

CLASS
American Bureau of Shipping

FLAG
Singapore

The **MAERSK ENDURER** is one of the harsh environment jack-ups in Maersk Drilling's fleet. The rig is fully equipped for high pressure/high temperature drilling (HP/HT) and has been upgraded for year-round operation in the North Sea, in water depths up to 350 ft, with an available leg length below hull of 400 ft.

Maersk Drilling acquired the **MAERSK ENDURER** in 1996 and the rig has since then been operating in the North Sea and latest in the Egyptian Mediterranean.

THE MAIN FEATURES OF THE MAERSK ENDURER INCLUDE:

- New accommodation block for 98 persons
- Derrick rated for 1,500,000 lbs and with 30 x 36 ft base
- Varco TDS-4S top drive rated for 750 t
- Varco PRS-3 pipe handling system
- Varco AR3200 iron roughneck
- MI SWACO Mongoose 4 x PT Platform Shakers
- 15,000 psi, 13 5/8" and 5,000 psi, 21 1/4" BOPs with Minuteman pod and touchscreen control
- Continental Emsco FC2200, 7,500 psi mud pumps with large I/D standpipes
- Cantilever drilling envelope of 55 x 32 ft
- Wärtsilä main engines, 4 x 2,100 kW

MAIN PARTICULARS

DIMENSIONS	IMPERIAL	METRIC
Length overall	236 ft	72 m
Width overall	236 ft	72 m
Depth	30 ft	9 m
Length of legs	479 ft	146 m
Cantilever – max. reach: aft of stern	55 ft	16.8 m
transverse to each side	16 ft	4.88 m
Draught	17.1 ft	Max. 5.21 m

WEATHER/DESIGN CRITERIA	IMPERIAL	METRIC
Water depth	350 ft	106.5 m
Wind speed	68 knots	35 m/sec
Penetration	16.4 ft	5 m
Wave height	78 ft	23.8 m
Current (surface)	½ knots	0.27 m/sec
Air gap	100 ft	30.5 m

PARTICULARS	IMPERIAL	METRIC
Rated drilling depth	30,000 ft	9,144 m
Hook load static w/top drive	1,500,000 lb	680,400 kg
Rotary load	1,500,000 lb	680,400 kg
Setback load	590,000 lb	267,600 kg
Variable load (incl. hook load)	3,250 t	3,250 t
Derrick, beam leg type	160 ft x 36 ft x 30 ft	49 m x 11 m x 9 m
Jacking speed	1 ft/min	0.305 m/min
Drill water capacity	7,012 bbl	1,114 m^3
Fuel oil capacity	3,121 bbl	496 m^3
Nontoxic oil capacity	1,857 bbl	295 m^3
Brine	1,510 bbl	240 m^3
Potable water capacity	4,840 bbl	769 m^3
Liquid mud	3,568 bbl	567 m^3
Bulk cement capacity	5,014 ft^3	142 m^3
Bulk mud capacity	5,014 ft^3	142 m^3
Accommodation	98 persons	98 persons

DRAWWORKS
Continental Emsco C-3 Type II, 3,000 hp.

TRAVELLING EQUIPMENT
Continental Emsco RA 60-7-750T travelling block, 750 t capacity.

TOP DRIVE AND PIPE HANDLING
Varco TDS-4S with PH 85 pipe handler and block retract system.
Varco PRS-3 pipe racking system with automatic fingerboards.
Varco AR3200 iron roughneck.
Varco fully interlocked zone management system (ZMS).

ROTARY TABLE
Continental Emsco T4950-65 driven by Rexroth Mr-3600 hydraulic motor. Opening 49 ½".

MUD PUMPS
Three Continental Emsco FC-2200, 2,200 hp, rated for 7,500 psi.

CEMENTING EQUIPMENT
Dowell skid-mounted CPS 601 cement unit. 15,000 psi wp.
On free placement agreement.

WELL CONTROL EQUIPMENT
21¼" – 5,000 psi BOP consisting of one annular
+ two single ram preventers.
NL Shaffer 13 ⅝" – 15,000 psi BOP consisting of one annular
+ two double ram preventers.
ABB Vetco Gray KFDJ 500 diverter.

MUD RETURN SYSTEM
Four MI Swaco Mongoose PT Platform shakers. Swaco mud degasser 1,000 gpm capacity. Mud/gas seperator type Smedvig MGS 2000. Solids removal system with four tanks total 370 bbl. Trip tank 35 bbl.

DRIVE PIPE SUPPORT DECK
Hinged deck for conductor support 25 ft aft of transom. For sizes 30" to 36".

TENSIONER SYSTEM
Conductor tensioning system consisting of 4 x 81 t hydraulic cylinders.
BOP tensioning system consisting of 4 x 43.75 t hydraulic cylinders, suspended below drill floor.

DRILLING INSTRUMENTATION
MD Totco Spectrum 1000 system with multi-parameter and alarm settings.

POWER SUPPLY
Four Wärtsilä W 200, 2,100 kW each, diesel engines each driving one LeRoy Somer 3,168 KVA NRW 54 VL cont AC generator, marine, 600 volts, 60 Hz, three-phase, with static exitation.
Caterpillar D-379 TA radiator cooled diesel engine driving one 398 kW AC generator for emergency power.

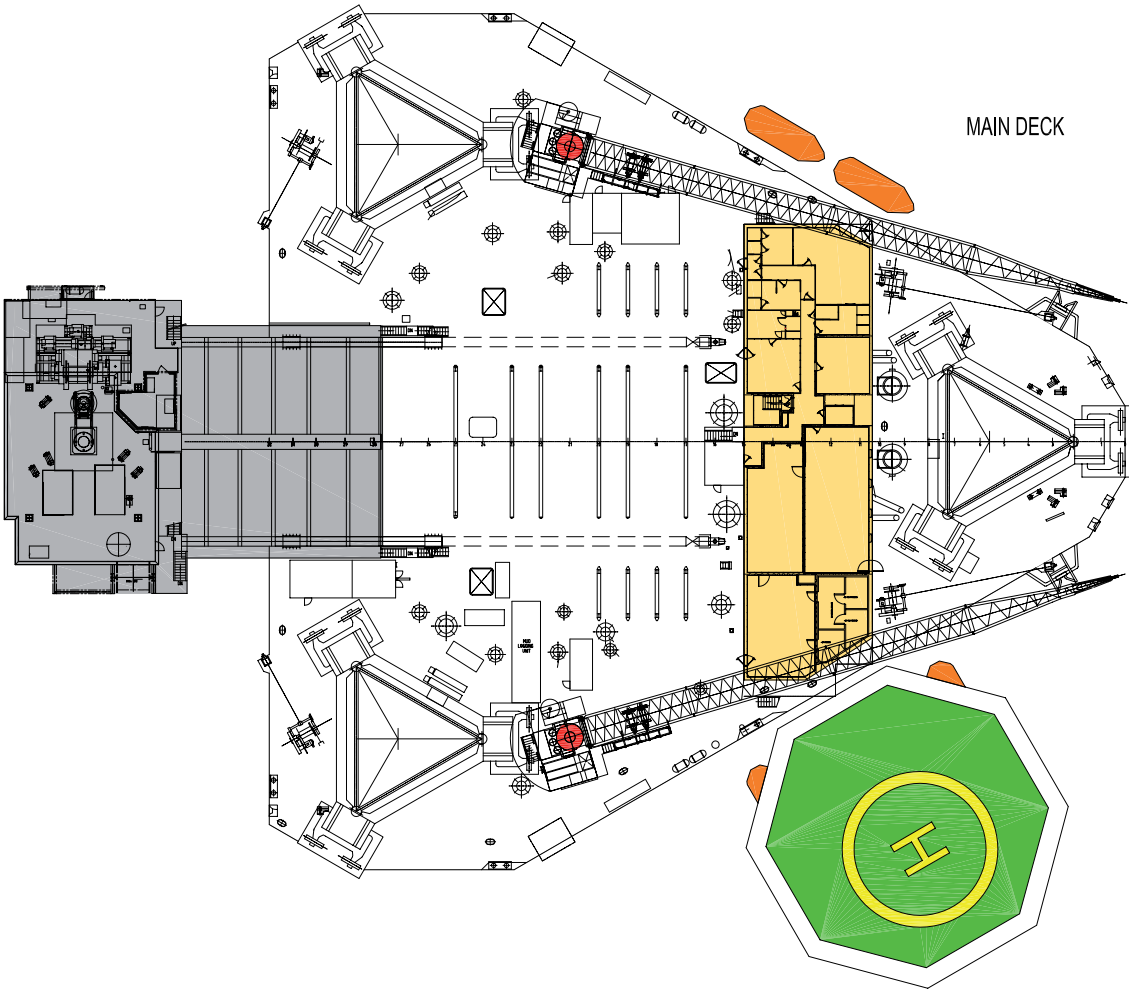
SCR SYSTEM
ABB SCR system.

CRANES
Two Dreco 72 DNS diesel hydraulic cranes, 47.6 t capacity at 12 m (39.5 ft) radius. 43 m (140 ft) boom length, starboard and port side.

HELICOPTER DECK
21.3 m (70 ft) diameter helicopter deck suitable for Sikorsky S-61N helicopter.

SAFETY EQUIPMENT
Lifesaving and fire fighting equipment in accordance with Isle of Man U.K. regulations, IMO and SOLAS regulations. The rig holds a vessel specific safety case which has been approved by HSE UK.

ACCOMMODATION
49 two-man rooms with full facilities.
Five offices.
Two recreation rooms.


MAIN DECK
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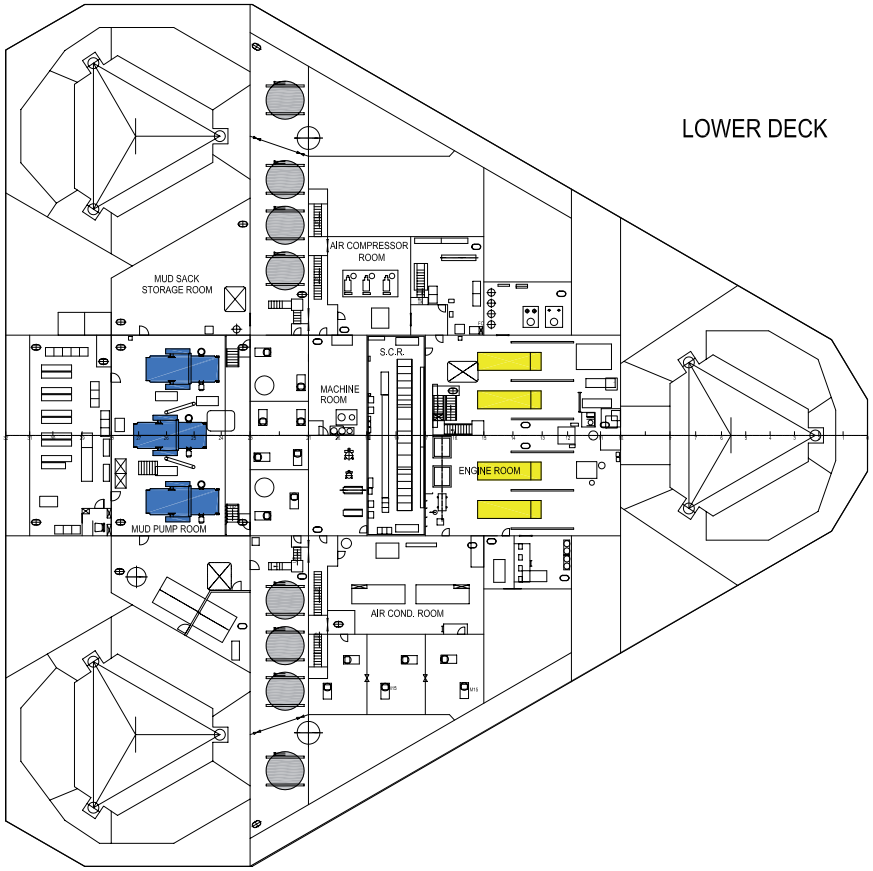
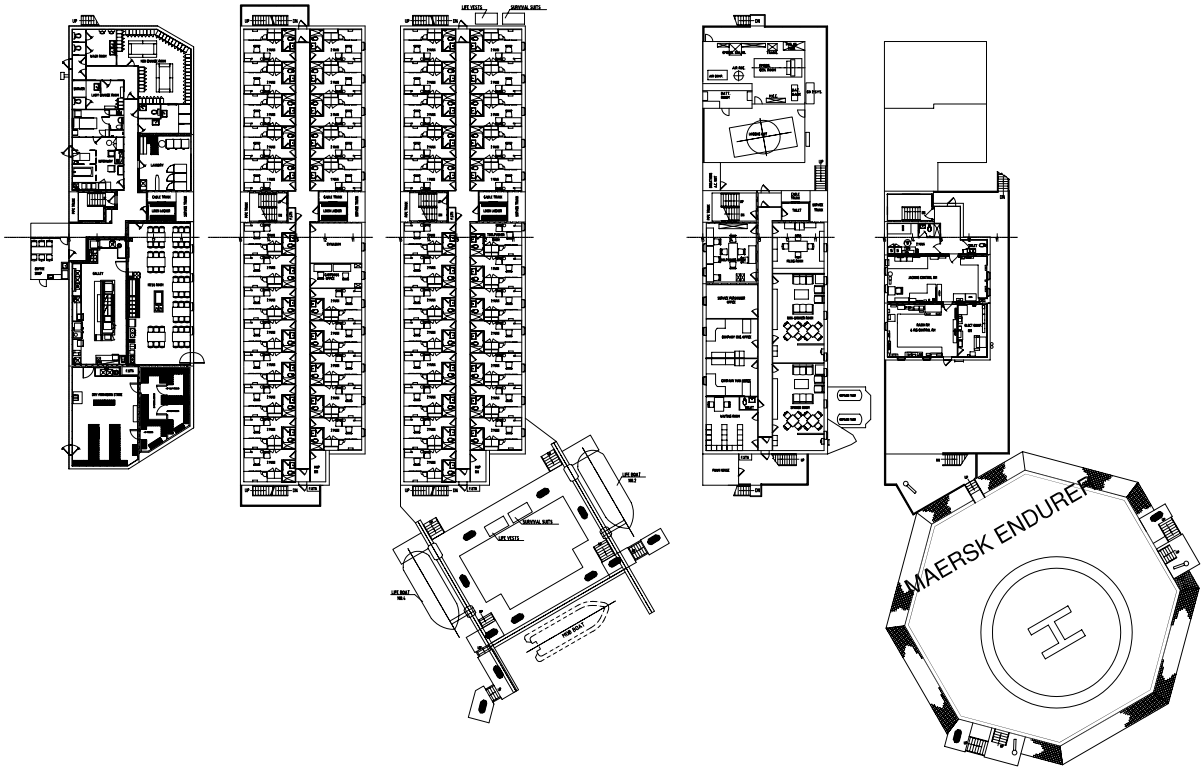
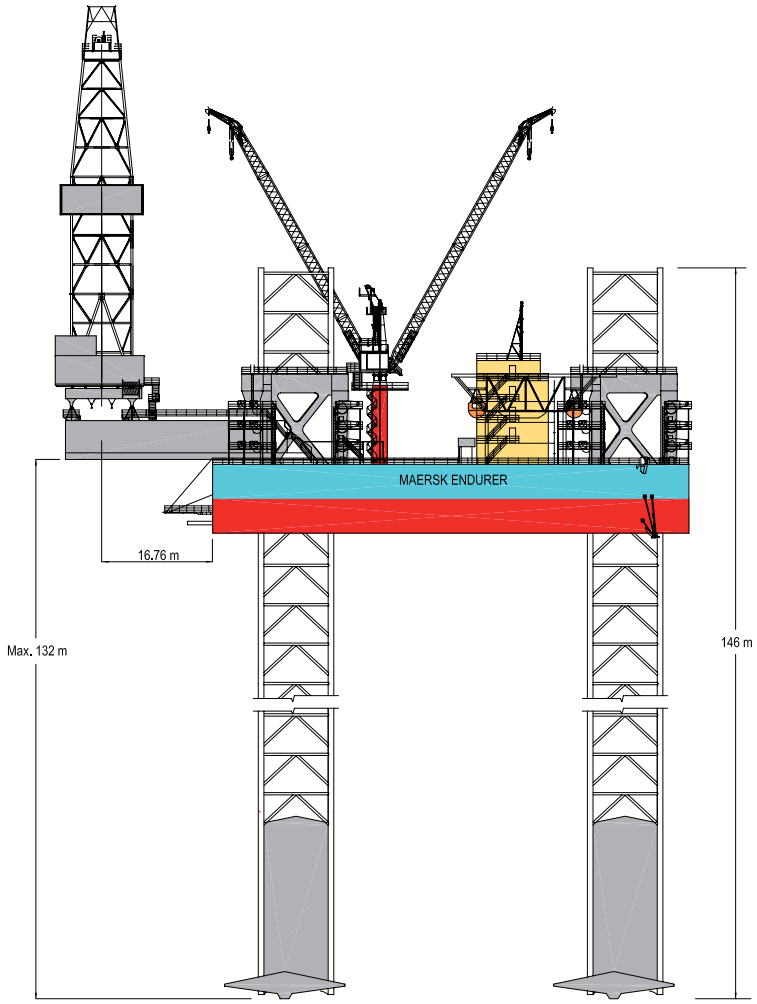

LOWER DECK
AIR COMPRESSOR ROOM
MUD SACK STORAGE ROOM
S.C.R.
MACHINE ROOM
ENGINE ROOM
MUD PUMP ROOM
AIR COND. ROOM



MAIN DECK A DECK B DECK C DECK D DECK



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