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Ref dc1081

JACK UP BARGE

Year:

2004





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1 General

1.1 Units

<i>description</i>	<i>value</i>	<i>unit</i>
Overall length	25.02	m
Length between loadlines	23.99	m
Moulded breadth	19.0	m
Moulded depth	2.5	m
Minimum draft (Light ship)	1.133	m
Maximum draft (SEP with maximum payload)	1.544	m
Block coefficient	1.0	-
Maximum water depth on site	20	m
Light ship weight (including legs)	526	ton
Maximum payload	200	ton
Frame spacing	0.500	m
Design temperature	-10	°C
Thickness of keel	8	mm
Thickness of shell	8	mm
Thickness of deck	10	mm
Thickness of crane deck / reinforced deck	15	mm
Steel grade at least	AH36	
Yield strength	355	N/mm ²
Used for all steel in hull except bulb profiles, side shell and bulkheads		
Steel grade at least	Grade A	
Yield strength	235	N/mm ²
Used for bulb profiles, side shell and bulkheads		
Leg length	33.45	m
Maximum stroke cylinders	1.26	m
Diameter leg including racks	1.358	m
Diameter leg excluding racks	1.238	m
Weight of one leg	40	ton
Maximum lifting force per leg	185	ton
Maximum holding force per leg	260	ton



1.2 Definitions

Airgap	is defined as the distance between the underside of the hull and the lowest astronomical tide (LAT) during operations.
Current	The current profile is taken as a constant from seabed to sea level.
Minimum clearance:	must be the smallest of 10% of the height of the design wave crest above the mean water level (MWL), including astronomical and storm tide, or 1,2 meters.
Still water level (SWL)	Lowest astronomical tide (LAT) + Tide + Surge.
Wind speed	wind speed at 10 m above sea level, 1 minute averaging time.

2 Description and particulars of the Self Elevating Unit

All personnel working on board must read the applicable chapters of this manual.

2.1 Description

Self Elevating Platform, designed and build to serve as a construction / maintenance / pile driving / repair or service platform.

The platform is jacked up on four legs. The jacking is performed by two hydraulic cylinders per leg, in combination with two locking rings.

In jacked up position the SEP should always hang on its upper ringframes. The lower ringframe is only used to hold the SEP in elevated position to be able to make a new stroke with the upper ringframe.

During transit the legs of the SEP should rest on the lower ringframe.

The Self Elevating Platform has a classification under DNV as an offshore Self Elevating Unit with the following Marks and Mentions:

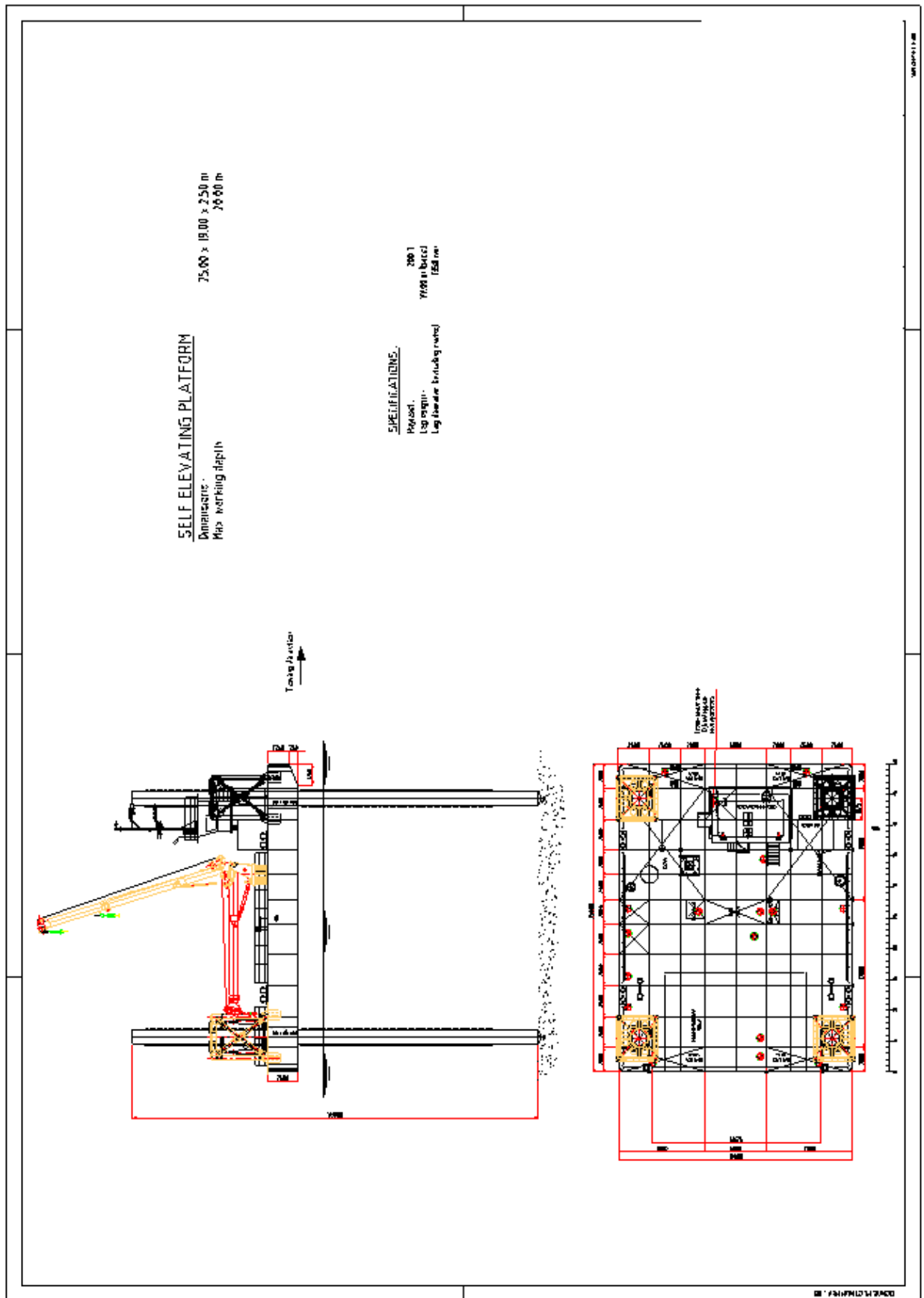
I 3/3 E
≅ Offshore Self-Elevating Unit / Non Propelled
Special service
Deep sea, Transit with criteria

It is designed for use in waters with a maximum still water level of 20,0 meters.

The maximum dead-weight lifting capacity of the platform is 566 tons (i.e. 366 ton of light ship + 200 ton payload). The maximum lifting force per leg is 185,0 tons and the maximum holding force per leg is 260,0 tons.

The minimum design air temperature is -10°C. Ice and snow are not allowable on deck.

2.2 General arrangement





3 General responsibilities during normal operation

The instructions and limits mentioned in this manual must be fully respected by all personnel on board.

All work on board must be done by qualified personnel.

Maximum four (4) persons are allowed to be on board on basis of the present safety plan, and thus number(s) of safety equipment's. If more persons might be on board, than additional safety appliances must be brought on board in advance.

Before installation of the SEP site, environmental and geotechnical data must be compared to the design parameters in this manual.

All the legs must be pre-loaded to avoid punching through the seabed of a leg during working. Pre-loading must be done before lifting the SEP to its minimum airgap. Pre-loading, installation and retrieval operations may only be executed by experienced and qualified personnel.

Operations on deck are allowed till wind force Beaufort 6 (wind speed ≤ 14 m/s).

When the wind force increases to a level above Beaufort 8 (wind speed ≤ 20 m/s) all necessary precautions must be taken to ensure the safety of the vessel and personnel.

These precautions can be like relocating the dead weight to divide as equally as possible, installing all sea fastening, closing doors and hatches etc.

All personnel not required for work on board must be moved to shore or other shelter.

All site, environmental and geotechnical data must be compared to the design parameters of the SEP written in this manual..

Welding on the leg or any other part of the lifting arrangement is strictly prohibit and may not be executed without written permission of the designer and class agreement.

Settings of the hydraulic systems may not be altered and can only be done by the designer and class agreement with written confirmation towards the owner.

All work on the equipment, electrically, mechanically or else, must be executed in respect of the requirements of these specific equipment and in respect of the safety of the vessel and its personnel.

Marine growth will result in increased hydrodynamic loadings on the leg especially during storms and areas of high currents. The maximum allowable thickness of the marine growth on the legs is 12,5 mm. Above this value the legs should be cleaned.

4 Limiting design data for each mode of operation

4.1 Specification of the modes of operations

Installation

When putting the legs on the seabed the SEP should be held on position by a tugboat. To avoid high impact loads on the legs the SEP must lie still and the roll motion should be as low as possible. The platform inclusive the payload should be lifted just above the sea level to a minimum required airgap. The total weight of the platform, including possible deck load, is as equally as possible divided over the four legs.

Pre-loading

Pre-loading should be done with the hull of the SEP out of the water above the waves. When the legs are pushed onto the seabed an initial maximum force is put on the legs to settle them on/in the sea bottom. Pre-loading is done with two legs placed diagonally. This operation is done to avoid unexpected soil settlement during working.

Working

During working the platform is above sea level at a minimum required airgap. The SEP should be kept as straight as possible. The max. force on the leg during working/operations should not



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be higher than the pre-load force. Check that the legs are pre-loaded and that the airgap is sufficient.

Retrieval

During this operation the platform is lowered to the sea level and the legs will be pulled out of the sea bottom. To avoid high impact loads on the legs the SEP the retrieval must be done in calm weather, high roll motion of the SEP should be avoided.

Precaution level

Above this level precautions have to be taken such as lowering the crane, moving the crane closer to the middle of the SEP to divide the vertical forces equally over the four legs, sea fastening the payload, reducing the payload.

Survival conditions

During these conditions all precautions should be taken (such as lowering the cranes etc.) to minimise the effects of the environment, e.g. wind.

Transit operations

During transit the platform is towed by a tugboat to a desired working area.

Accidental loads

Accidental loads are caused by collisions.

As criteria the collision of an assistance tender is taken, with a total weight of approx. 300 tons and a speed of 1,5 m/s during working conditions.

Before arrival on location the following information shall be known:

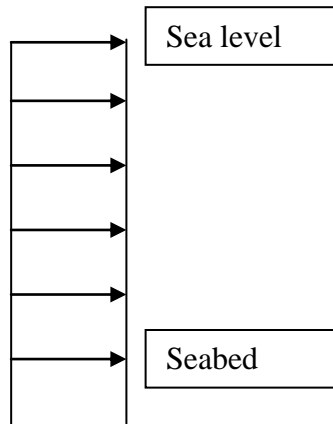
- 1) The lowest astronomical tide, the maximum high tide and the surge at the site shall be known.
- 2) Environmental conditions; maximum wave height with its associated period, maximum current and maximum wind speed expected at the operating site during the working period shall be known.
- 3) Geotechnical and geophysical information at the operating site shall be known. Leg penetration, risk of punch through and potential scour problems shall be predicted.
- 4) Maximum total weight of vessel and its centre of gravity during the operation at site.
- 5) Maximum total weight of the payload and its centre of gravity during the operation at site.
- 6) The loads and their direction due to the operations performed at site.

4.2 Limiting design data for installation

During installation of the SEP the following environmental conditions shall not be exceeded:

Windspeed: 14 m/s (up to and including Beaufort 6)
Significant wave height: 0,75 meter (associated wave period: 4,2 s)
Maximum wave height: 1,4 meter (associated wave period: 4,5 s)
Current: 1,0 m/s (2 knots), current profile taken as a constant from seabed to sea level

Current profile



The sea bottom should be level to eliminate the risk of sliding and/or a pre-bottom survey should be carried out in order to determine the slope and sliding resistance of the sea bottom. The SEP can not stand for example on a slope of 35 degrees on hard soil in which the legs do not penetrate.

The SEP must have no trim and no list.

All four legs must be lowered at highest speed.

Verify that good weather will prevail throughout the installation.

Check wind, wave and current directions and position the SEP with a tug or other positioning unit to minimise swing and/or drift. The amplitude of roll motion during installation should be less than 3° to avoid high impact loads on the legs.

If all four legs have made contact with the seabed, level the SEP. The platform must be lifted to an airgap as small as possible so that if punch through occurs, *and* the SEP will get an considerable trim or list angle, the hull will contact sea surface and regain some buoyancy and thus reduce trim/list.

During installation the platform must be protected against any type of collision or shock.

During installation no more personnel as needed for the work are allowed on board.

During installation crane operations are not allowed.

The way of the lifting movement must be free of any restriction.

All loads must be placed in such a way that all legs are equally loaded.

Before lifting the platform to its working height the legs must be pre-loaded (see paragraph 4.3).

During the installation the force on the legs must be monitored. When any large unequal force may occur, the operation must be stopped.

All loads must be placed in such a way that the best load distribution over the four legs is achieved. The (maximum) load and support point must be placed above the longitudinal or transverse bulkheads and webframes.



4.3 Limiting design data for pre-loading

During pre-loading operations the following environmental conditions shall not be exceeded:

Windspeed:	14 m/s (up to and including Beaufort 6)
Significant wave height:	0,75 meter (associated wave period: 4,2 s)
Maximum wave height:	1,4 meter (associated wave period: 4,5 s)
Current:	1,0 m/s (2 knots)

The current profile is taken as a constant from seabed to sea level. The velocities at the seabed, at the sea level and in between are taken the same.

Pre-loading should be accomplished prior to jacking up the hull of the unit to the elevated position.

The legs must be pre-loaded with a force of 260 tons each at the jacking mechanism. Thus the maximum leg footing reaction or leg reaction will be 260 tons plus the buoyancy weight of the leg below the lower guiding.

During pre-loading the platform should be out of the water. When the platform arrives at the desired site, all four legs must be lowered at highest speed. This lifting is done with equal forces on each leg. The platform must be lifted with as small an airgap as possible so that if punch through occurs, *and* the SEP will get an considerable trim or list angle, the hull will contact sea surface and regain some buoyancy and thus reduce trim/list. However the SEP is less likely to take on a dangerous or alarming angle of heel / trim should punch through occur due to its symmetry (unloaded legs will take over the weight).

The pre-loading is done diagonally, two legs a time. When the dead weight is not sufficiently to achieve the pre-load force, ballast has to be taken in. During pre-loading of one pair of the legs, the other pair is still loaded by a minimum of 170 tons (for two legs).

The barge should never be out of level more than 0,50 degree.

The pre-load force has to be maintained ten (10) minutes after the last leg settlement stopped. When pre-loading of the second pair of legs is performed, the first pair of legs may not be moved.

During pre-load operations the platform must be protected against any type of collision or shock.

During pre-loading no more personnel as needed for the work are allowed on board.

During pre-loading no crane operations are allowed.

All weights must be placed in such a way that all legs are equally loaded.

Before the legs are lowered it must be made sure that the movement of the legs and platform can be done without any restriction and that all electric, hydraulic and mechanic equipment is in good shape.

Action to take after punch through with considerable increased heel or trim of the SEP

1. Stop all jacking and pre-load operations
2. Dump all ballast
3. Commence lowering the high side of the barge
4. Do not move the leg which has punched through.
5. When the SEP is afloat, pull the punched through leg. Make a thorough check for damage.

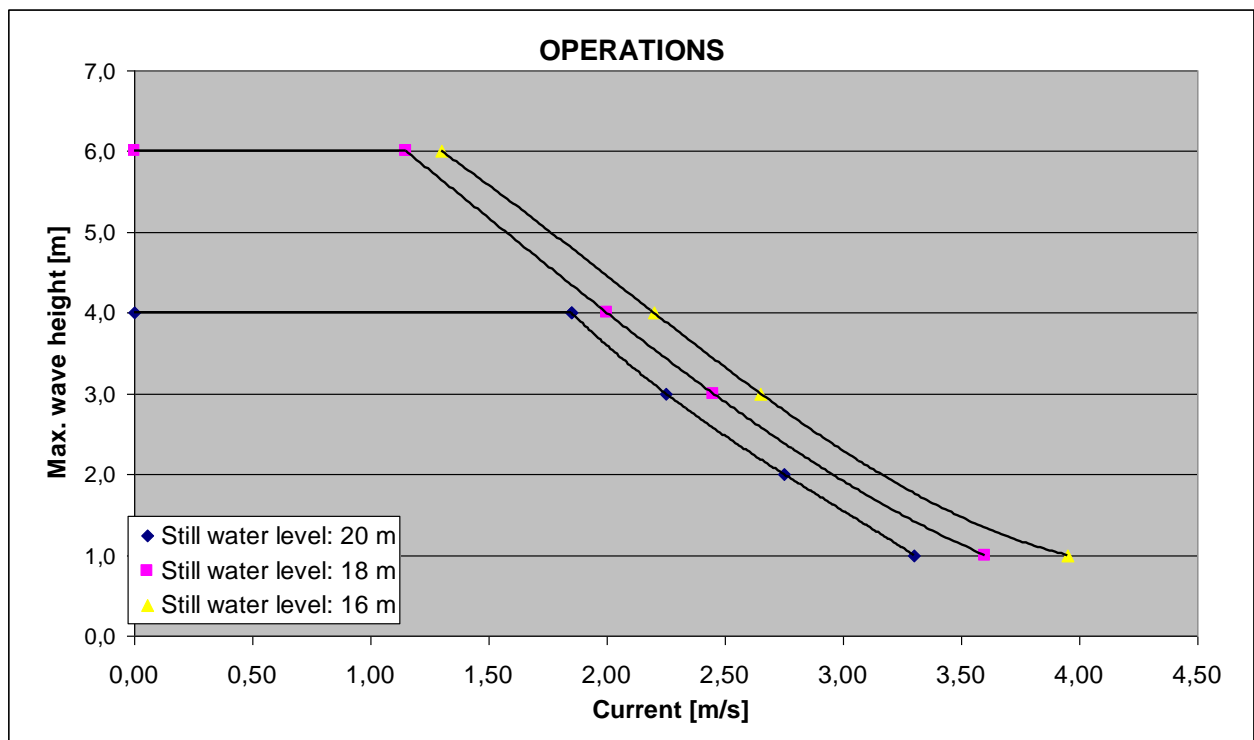
4.4 Limiting design data for working/operation

The elevated SEP is subjected to the forces of wind, wave and current acting on the hull and legs. The effect of these forces is to cause an overturning moment and an increase in the leg footing force which must be resisted by the seabed on which the legs are standing. If these environmental forces cannot be resisted, the legs or legs on the loaded side may penetrate further, slide or buckle and cause the structure to capsize.

The max. wind speed is during working 14 m/s (up to and including Beaufort 6).

The maximum wave height and the maximum current for water depths (SWL) up to 20 meter can be found in the figure below.

As an example: During operations at a water depth (SWL) of 20 meter and a current of 1,85 m/s the maximum wave height is 4,0 meter.



Note that for the figures above:

The maximum wave height is 1,86 times the significant wave height.

The wave period of the maximum wave height is 1,28 times the wave period of the significant wave period.

The water depth is at Still Water Level.

The current profile is taken as a constant from seabed to sea level.

The windspeed is taken at a height of 10 m above sea surface and with an averaging time of 1 minute.

Check that the leg footing reaction force during operation is always lower than the pre-load force.

Thus the maximum force on the jacking mechanism during the work may not be more than 260 tons. The maximum force of 260 tons should be *lowered* with the difference in buoyancy weight of the leg between pre-loading and operations, if the buoyancy weight of the leg is higher during operations than during pre-loading (depending on high and low tide).

The angle of heeling of the platform due to settlement of the soil underneath the legs may not be more than 0,25 degree, in any direction.

The payload should not exceed 200 ton.



When more personnel than four is on board, additional safety appliances must be brought on board in advance.

If forecast weather is likely to exceed the allowable leg reaction force, the operations must cease and loads dumped or moved to get the SEP with the criteria mentioned above.

4.5 Limiting design data for retrieval

During retrieval the following environmental specifications may not be exceeded:

Windspeed:	maximum 14 m/s (up to and including Beaufort 6)
Significant wave height:	0,75 meter (associated wave period: 4,2 s)
Maximum wave height:	1,4 meter (associated wave period: 4,5 s)
Current:	1,0 m/s (2 knots)

Check wind, wave and current directions and position the SEP with a tug or other positioning unit to minimise swing and/or drift.

During retrieval the platform must be protected against any type of collision or shock.

During retrieval, no more personnel as needed for the work are allowed on board.

During retrieval, no crane operations are allowed.

The SEP should never be out of level more than 0,25 degree.

The way of the lowering movement must be free of any restriction.

All loads must be placed in such a way that all legs are equally loaded.

4.6 Limiting design data for precaution level

The max. wind speed is during precaution level 20 m/s (up to and including Beaufort 8). The other limiting design criteria are the same as during working (see paragraph 4.4).

Above this level precautions have to be taken such as

- Lowering the crane
- Moving the crane (closer to the middle of the SEP) to divide the vertical forces equally over the four legs
- Sea fastening the payload
- Reducing the payload.
- Reducing areas exposed to wind
- If the barge has been lifted far above its minimum required airgap during operations, the barge should be lowered to its minimum required airgap.
- Closing all watertight and weathertight closures/openings (see chapter 6)

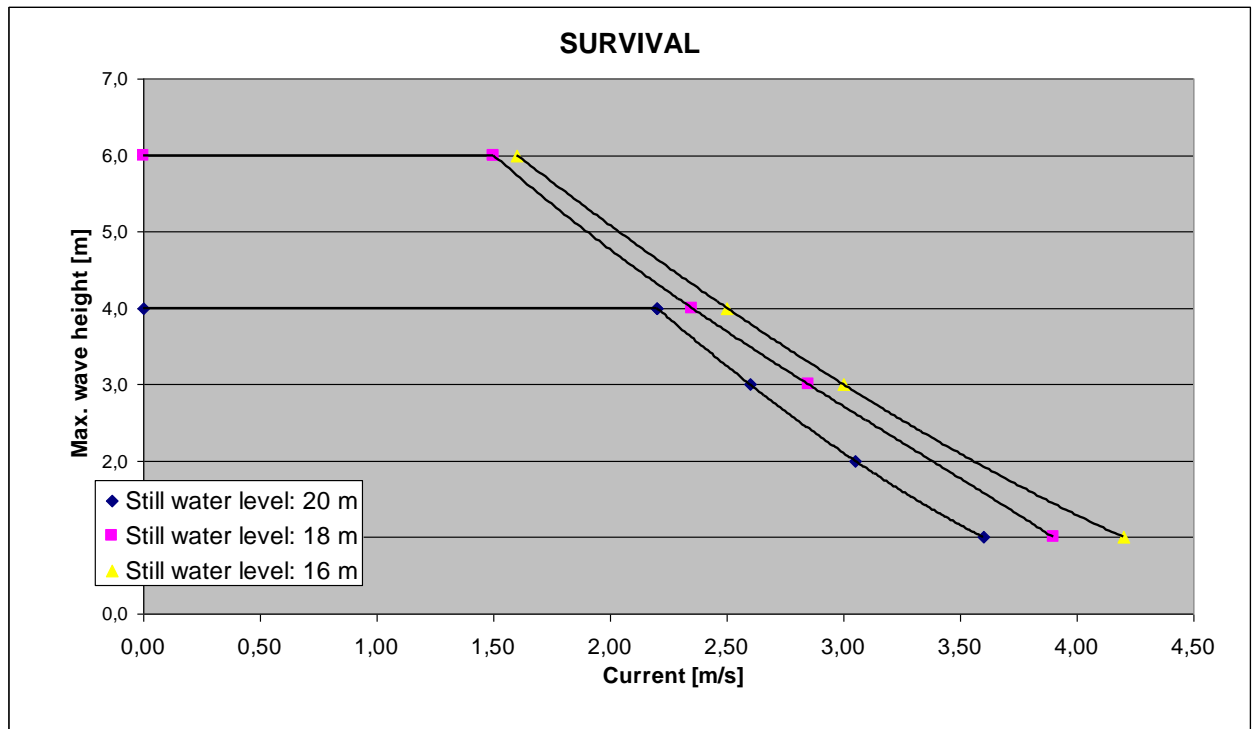
The SEP should be prepared for the survival condition.

4.7 Limiting design data for survival condition

The max. wind speed is 25 m/s during survival (up to and including Beaufort 9).

The maximum wave height and the maximum current for water depths up to 20 meter can be found in the figure below.

As an example: During survival condition at a water depth (SWL) of 20 meter and a wave height of 4,0 meter the maximum current is 2,2 m/s.



Note that for the figures above:

The maximum wave height H is 1,86 times the significant wave height H_s .

The current profile is taken as a constant from seabed to sea level.

The windspeed is taken at a height of 10 m above sea surface and with an averaging time of 1 minute.

During survival all precautions must be taken to minimise the effects of the environment.

- Lowering the crane
- Moving the crane (closer to the middle of the SEP) to divide the vertical forces equally over the four legs
- Sea fastening the payload
- Reducing the payload.
- Reducing areas exposed to wind
- If the barge has been lifted far above its minimum required airgap during operations, the barge should be lowered to its minimum required airgap.
- Closing all watertight and weathertight closures/openings (see chapter 6)



4.8 Limiting design data for transit

The SEP must be towed by a tugboat.

- For deep sea towing, the Self Elevating Unit and its legs are designed to withstand a 15° single amplitude of motion around any axis of the unit, with an associated period of 10s.
- For field moves, the legs are designed for a 6° amplitude roll at the natural period of the unit (+/- 7,5s).

The maximum wind velocity is 30 m/s.

The legs should be skimmed with wooden blocks at the upper guides to prevent leg / guide shocks.

The maximum payload is 200 tons.

No persons are allowed to be on board during transit.

4.9 Limiting design data for accidental loads

As design criteria for an accidental load it is assumed that a ship of 300 ton (including added mass) collides against a leg or against the hull of the self elevating platform during working. The velocity of the ship is assumed to be 1,5 m/s.

$m_s = 300 \text{ ton}$ (mass of ship including added mass)
 $v = 1,5 \text{ m/s}$ (ship velocity before collision)

The maximum environmental design data are taken the same as during working (see paragraph 4.4).

After an accident working with a crane is prohibited. A thorough check for damage should be made. Any damage should be repaired first before continuing with working.

5 Description of any inherent operational limitations for each mode of operation and for each change in mode of operation

5.1 Minimum required leg length

The minimum required leg length is equal to the total of:

- Bottom penetration
- Low astronomical tide (LAT)
- High tide and surge
- Wave crest
- Clearance = 1,20 meter or 10% of highest wave crest whichever is less.
- Length in guiding = 7,25 meter
- Reserve for leg settlement and uneven seabed = 1,20 meter (= 1 stroke of the Jacking cylinder).

The available leg length including spud point is 33,45 m.



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5.2 Configuration of the unit for each wave data associated with water depth (LAT)

Leg length: 33.45m						
Bottom penetration	[m]	2,00	2,00	2,00	2,00	2,00
Lowest astronomical tide (LAT)	[m]	18,00	18,00	18,00	17,50	16,50
High tide + surge	[m]	2,00	2,00	2,00	2,00	2,00
Wave height	[m]	2,00	3,00	4,00	5,00	6,00
Crest elevation above SWL divided by wave height	[-]	0,56	0,58	0,60	0,62	0,64
Crest elevation above SWL	[m]	1,12	1,74	2,40	3,10	3,84
Min. required clearance	[m]	0,31	0,37	0,44	0,51	0,58
Min. required airgap	[m]	3,43	4,11	4,84	5,61	6,42
Hull depth	[m]	2,50	2,50	2,50	2,50	2,50
Top plate fixed to leg support	[m]	4,50	4,50	4,50	4,50	4,50
Recommended reserve leg length (one stroke)	[m]	1,20	1,20	1,20	1,20	1,20
Total leg length needed	[m]	31,63	32,31	33,04	33,31	33,12
Available clearance	[m]	2,13	1,51	0,85	0,65	0,91
Available airgap	[m]	5,25	5,25	5,25	5,75	6,75



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6 Location of watertight and weathertight boundaries and closures, and the location of downflooding points

List of special points Self Elevating Platform

Description	Length	Breadth	Height	Type of point
Entrance accommodat	17.600	0.500	3.750	Waterticht
Entrance engineroom	17.000	7.500	3.200	Waterticht
Hatch store	15.750	-3.750	2.100	Waterticht
Manhole 1	23.250	-5.750	2.500	Waterticht
Manhole 2	23.250	-1.750	2.500	Waterticht
Manhole 3	23.250	5.750	2.500	Waterticht
Manhole 4	21.500	-1.750	2.500	Waterticht
Manhole 5	16.250	2.250	2.500	Waterticht
Manhole 6	12.250	-8.750	2.500	Waterticht
Manhole 7	12.000	-3.000	2.500	Waterticht
Manhole 8	12.000	2.000	2.500	Waterticht
Manhole 9	12.000	3.000	2.500	Waterticht
Manhole 10	12.250	8.750	2.500	Waterticht
Manhole 11	10.250	8.750	2.500	Waterticht
Manhole 12	10.000	1.500	2.500	Waterticht
Manhole 13	6.750	8.750	2.500	Waterticht
Manhole 14	4.250	8.750	2.500	Waterticht
Manhole 15	4.250	-8.750	2.500	Waterticht
Manhole 16	-0.250	-6.750	2.500	Waterticht
Manhole 17	1.750	2.000	2.500	Waterticht
Manhole 18	0.250	2.000	2.500	Waterticht
Manhole 19	-0.250	6.750	2.500	Waterticht
Airation 1	22.500	-9.000	3.400	Waterticht
Airation 2	21.000	-2.300	3.400	Waterticht
Airation 3	22.500	9.000	3.400	Waterticht
Airation 4	15.800	-2.700	3.400	Waterticht
Airation 5	15.800	2.500	3.400	Waterticht
Airation 6	11.600	-8.750	3.400	Waterticht
Airation 7	11.000	-8.750	3.400	Waterticht
Airation 8	-0.400	-9.000	3.400	Waterticht
Airation 9	-0.400	9.000	3.400	Waterticht
Exhaust pipe 1	19.700	5.268	8.050	Opening
Exhaust pipe 2	20.100	5.268	8.050	Opening
Exhaust pipe 3	19.900	5.553	8.050	Opening
Exhaust pipe 4	19.900	4.824	6.400	Opening
Exhaust pipe 5	17.570	5.265	5.200	Opening
Ventilation store	14.000	-8.460	3.400	Waterticht
Vent. entr. enginer	18.500	6.500	5.660	Waterticht
Vent. engineroom	14.500	8.500	3.400	Waterticht



7 Permanent ballast installed on the unit

Permanent ballast is not installed on the SEP.

8 Signals used in general alarm, public address, fire and gas alarm systems

Location	Type of alarm	Signal	Number
Engine room	Smoke detection	Audible	4
Store	Smoke detection	Audible	2
Accommodation	Smoke detection	Audible	2
Operation room	Smoke detection	Audible	1
Entrance engine room	Temperature detection	Audible	1
Accommodation	Temperature detection	Audible	1
Engine room	Audible fire alarm	Audible	1
Store	Audible fire alarm	Audible	1
Accommodation	Audible fire alarm	Audible	1
Engine room	Manual call point	Audible	1
Entrance engine room	Manual call point	Audible	1
Store	Manual call point	Audible	1
Accommodation	Manual call point	Audible	1
Operation room	Manual call point	Audible	1
Operation room	ANX-95 Control panel	-	1

A description of the alarms used on the displays in the wheelhouse can be found in the OPERATOR MANUAL.

9 Preparation of SEU to avoid structural damage

All hydraulic equipment must be maintained according the prescriptions of the manufacturer.

All guidings, bushes, axes and bearings must be greased before any pre-loading, lifting or lowering operation.

Before any pre-loading, lifting or lowering operation the wear of the guiding of the legs must be checked. If the total tolerance is greater than 25 mm, the wearing plates must be replaced.

The maximum allowable thickness of the marine growth on the legs is 12,5 mm. Above this value the legs should be cleaned.



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10 Light ship data and semi-permanent equipment

Light ship weight	366,0 ton
Max. payload	200,0 ton
The maximum dead-weight when lifting	566,0 tons
The maximum force downward of the lifting system (holding force)	260,0 tons per leg
The maximum retract force, upward	130,0 tons per leg
The weight of a leg	40,0 tons

The weight of the fluids is a part of the available payload

- 2 ballast tanks are situated on port- and starboard side in front of the collision bulkhead and 2 ballast tanks are situated on port- and starboard side behind the aft peak bulkhead.
- the fuel tank is in the centre of the ship and the fresh water tank is directly under the accommodation.
- The SEP is designed with a crawler crane (weight of crane 120 ton, part of the payload) on deck that can lift a weight of max. 40 ton at 11 meters out board with the restriction that the load per square meter will be less than 5 ton/m².
- Furthermore a fixed Heila Marine crane is on board, this crane is included in the light ship weight and thus not a part of the payload.

Maximum weight tank contents

Fresh water	15,3	tons
Fuel	22,5	tons
Fuel day tank	4,5	tons
Sewage	12,6	tons
Dirty oil	14,1	tons
Ballast aft	35,0	tons per tank
Ballast fwd	30,4	tons per tank



11 Stability information

11.1 Stability criteria used

General

The stability calculation is performed with the computer program PIAS, i.e. “ Program for the Intergral Approach of Ship design”.

This program calculates the stability with a free liquid surface in tanks.

The results of this calculation are checked according the rules given in the “Rules and regulations for the classification of **Mobil Offshore Drilling Units**”

Wind forces

The maximum wind pressure is equal to 0,54 kPa (wind speed = 30 m/s).

Stability criteria

- The area under a righting lever curve up to the angle of maximum righting lever should not be less than 0.08 metre-radian.
- The static angle of heel due to a uniformly distributed wind load of 0.54 kPa should not exceed an angle corresponding to half the freeboard for the relevant loading condition.

Freeboard with windpressure should be more than freeboard divided by 2. Freeboard with windpressure is more than freeboard divided by:

- The minimum range of stability should be 20° for pontoons with a length $L \leq 100$ m.

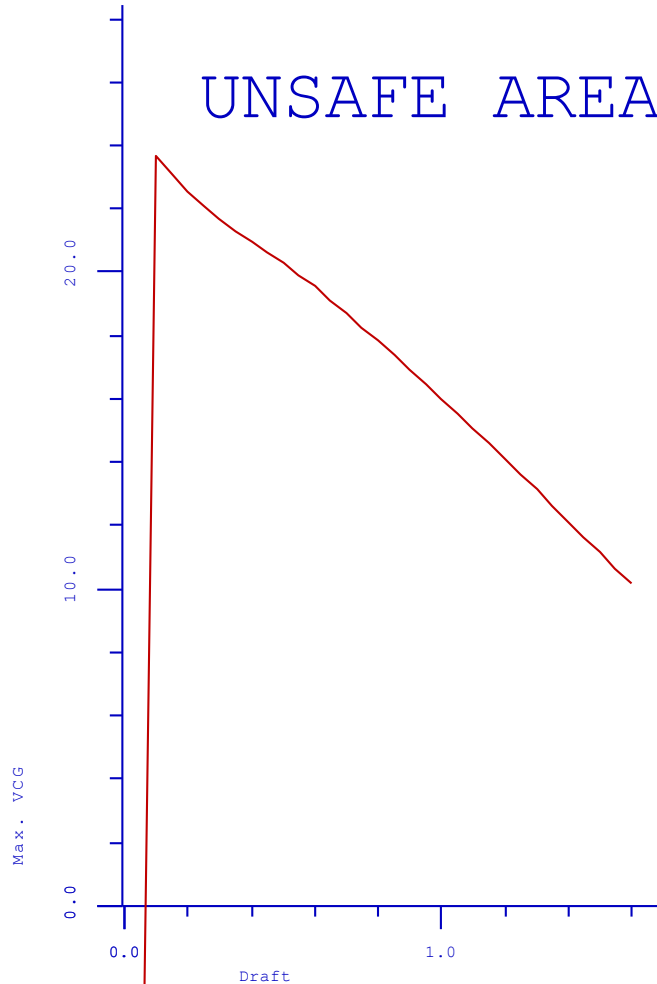
Conclusion:

In all loading situations, intact examined; the vessel is stable enough.

More detailed data and calculations are available in the stability booklet.
Stability calculations



11.2 Allowable maximum height of centre of gravity in relation to the draught



Self Elevating Platform 04902

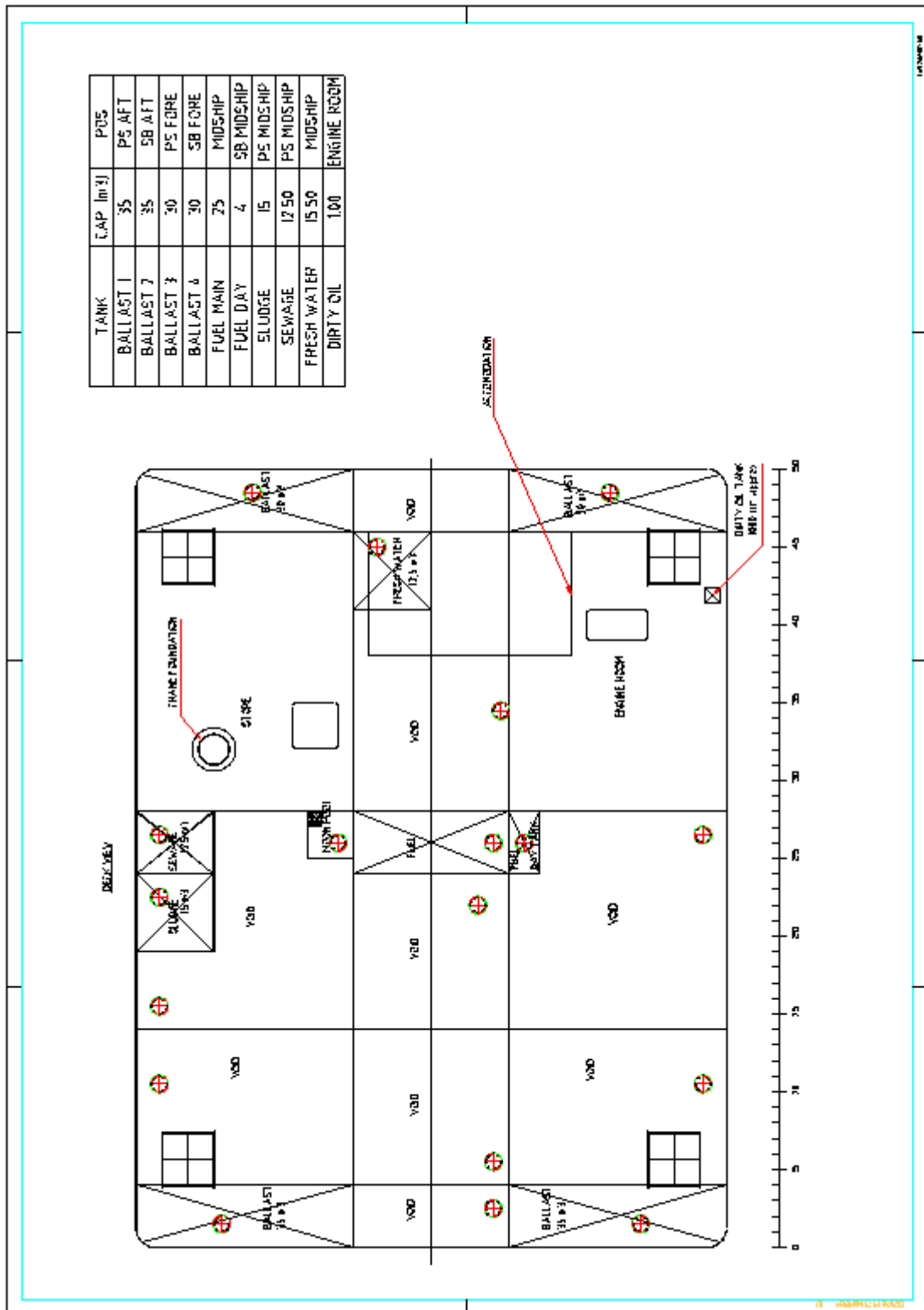
Initial trim = 0.0

The trim is modified to meet constant LCB.

Calculation valid for wind contour : Loaded SEP (windspeed=30m/s)

SAFE AREA

12 Capacity plan





13 Tank sounding tables

The sounding are given as volume fluid (in m³) per fluid level from the bottom of the tank. All tanks are linear, so intermediate soundings may be interpolated.

	Description	Sounding	
		Volume (m ³)	sounding (mm)
1	Fuel tank	24.5	2480
2	Fuel day tank	4.9	2480
3	Fresh water tank	15.3	2480
4	SB Ballast Aft	34.1	2480
5	SB Ballast Fwd	29.7	2480
6	PS Ballast Aft	34.1	2480
7	PS Ballast Fwd	29.7	2480
8	Sludge tank	15.3	2480
9	Sewage tank	12.3	2480



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

FUEL TANK
Specific weight = 0.870 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	12.000	0.000	0.000	0.000	0.000	0.000
0.050	0.030	0.490	12.000	0.000	0.025	20.416	17.762	0.426
0.100	0.080	0.980	12.000	0.000	0.050	20.416	17.762	0.853
0.150	0.130	1.470	12.000	0.000	0.075	20.416	17.762	1.279
0.200	0.180	1.960	12.000	0.000	0.100	20.416	17.762	1.705
0.250	0.230	2.450	12.000	0.000	0.125	20.416	17.762	2.131
0.300	0.280	2.940	12.000	0.000	0.150	20.416	17.762	2.558
0.350	0.330	3.430	12.000	0.000	0.175	20.416	17.762	2.984
0.400	0.380	3.920	12.000	0.000	0.200	20.416	17.762	3.410
0.450	0.430	4.410	12.000	0.000	0.225	20.416	17.762	3.837
0.500	0.480	4.900	12.000	0.000	0.250	20.416	17.762	4.263
0.550	0.530	5.390	12.000	0.000	0.275	20.416	17.762	4.689
0.600	0.580	5.880	12.000	0.000	0.300	20.416	17.762	5.116
0.650	0.630	6.370	12.000	0.000	0.325	20.416	17.762	5.542
0.700	0.680	6.860	12.000	0.000	0.350	20.416	17.762	5.968
0.750	0.730	7.350	12.000	0.000	0.375	20.416	17.762	6.394
0.800	0.780	7.840	12.000	0.000	0.400	20.416	17.762	6.821
0.850	0.830	8.330	12.000	0.000	0.425	20.416	17.762	7.247
0.900	0.880	8.820	12.000	0.000	0.450	20.416	17.762	7.673
0.950	0.930	9.310	12.000	0.000	0.475	20.416	17.762	8.100
1.000	0.980	9.800	12.000	0.000	0.500	20.416	17.762	8.526
1.050	1.030	10.290	12.000	0.000	0.525	20.416	17.762	8.952
1.100	1.080	10.780	12.000	0.000	0.550	20.416	17.762	9.379
1.150	1.130	11.270	12.000	0.000	0.575	20.417	17.763	9.805
1.200	1.180	11.760	12.000	0.000	0.600	20.417	17.762	10.231
1.250	1.230	12.250	12.000	0.000	0.625	20.416	17.762	10.657
1.300	1.280	12.740	12.000	0.000	0.650	20.417	17.763	11.084
1.350	1.330	13.230	12.000	0.000	0.675	20.416	17.762	11.510
1.400	1.380	13.720	12.000	0.000	0.700	20.416	17.762	11.936
1.450	1.430	14.210	12.000	0.000	0.725	20.417	17.763	12.363
1.500	1.480	14.700	12.000	0.000	0.750	20.417	17.763	12.789
1.550	1.530	15.190	12.000	0.000	0.775	20.417	17.763	13.215
1.600	1.580	15.680	12.000	0.000	0.800	20.416	17.762	13.642
1.650	1.630	16.170	12.000	0.000	0.825	20.417	17.763	14.068
1.700	1.680	16.660	12.000	0.000	0.850	20.417	17.763	14.494
1.750	1.730	17.150	12.000	0.000	0.875	20.417	17.763	14.920
1.800	1.780	17.640	12.000	0.000	0.900	20.417	17.763	15.347
1.850	1.830	18.130	12.000	0.000	0.925	20.416	17.762	15.773
1.900	1.880	18.620	12.000	0.000	0.950	20.417	17.763	16.199
1.950	1.930	19.110	12.000	0.000	0.975	20.416	17.762	16.626
2.000	1.980	19.600	12.000	0.000	1.000	20.416	17.762	17.052
2.050	2.030	20.090	12.000	0.000	1.025	20.416	17.762	17.478
2.100	2.080	20.580	12.000	0.000	1.050	20.416	17.762	17.905
2.150	2.130	21.070	12.000	0.000	1.075	20.416	17.762	18.331
2.200	2.180	21.560	12.000	0.000	1.100	20.416	17.762	18.757
2.250	2.230	22.050	12.000	0.000	1.125	20.416	17.762	19.183
2.300	2.280	22.540	12.000	0.000	1.150	20.416	17.762	19.610
2.350	2.330	23.030	12.000	0.000	1.175	20.416	17.762	20.036
2.400	2.380	23.520	12.000	0.000	1.200	20.416	17.762	20.462
2.450	2.430	24.010	12.000	0.000	1.225	20.416	17.762	20.889
2.500	2.480	24.499	12.000	0.000	1.250	0.000	0.000	21.314



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

FUEL DAY TANK

FUEL DAY TANK

Specific weight = 0.870 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	12.000	3.000	0.000	0.000	0.000	0.000
0.050	0.030	0.098	12.000	3.000	0.025	0.163	0.142	0.085
0.100	0.080	0.196	12.000	3.000	0.050	0.163	0.142	0.171
0.150	0.130	0.294	12.000	3.000	0.075	0.163	0.142	0.256
0.200	0.180	0.392	12.000	3.000	0.100	0.163	0.142	0.341
0.250	0.230	0.490	12.000	3.000	0.125	0.163	0.142	0.426
0.300	0.280	0.588	12.000	3.000	0.150	0.164	0.143	0.512
0.350	0.330	0.686	12.000	3.000	0.175	0.164	0.142	0.597
0.400	0.380	0.784	12.000	3.000	0.200	0.164	0.142	0.682
0.450	0.430	0.882	12.000	3.000	0.225	0.163	0.142	0.767
0.500	0.480	0.980	12.000	3.000	0.250	0.164	0.142	0.853
0.550	0.530	1.078	12.000	3.000	0.275	0.164	0.143	0.938
0.600	0.580	1.176	12.000	3.000	0.300	0.163	0.142	1.023
0.650	0.630	1.274	12.000	3.000	0.325	0.164	0.142	1.108
0.700	0.680	1.372	12.000	3.000	0.350	0.163	0.142	1.194
0.750	0.730	1.470	12.000	3.000	0.375	0.163	0.142	1.279
0.800	0.780	1.568	12.000	3.000	0.400	0.163	0.142	1.364
0.850	0.830	1.666	12.000	3.000	0.425	0.163	0.142	1.449
0.900	0.880	1.764	12.000	3.000	0.450	0.163	0.142	1.535
0.950	0.930	1.862	12.000	3.000	0.475	0.163	0.142	1.620
1.000	0.980	1.960	12.000	3.000	0.500	0.163	0.142	1.705
1.050	1.030	2.058	12.000	3.000	0.525	0.164	0.143	1.790
1.100	1.080	2.156	12.000	3.000	0.550	0.164	0.142	1.876
1.150	1.130	2.254	12.000	3.000	0.575	0.163	0.142	1.961
1.200	1.180	2.352	12.000	3.000	0.600	0.164	0.143	2.046
1.250	1.230	2.450	12.000	3.000	0.625	0.164	0.142	2.132
1.300	1.280	2.548	12.000	3.000	0.650	0.163	0.142	2.217
1.350	1.330	2.646	12.000	3.000	0.675	0.163	0.142	2.302
1.400	1.380	2.744	12.000	3.000	0.700	0.164	0.142	2.387
1.450	1.430	2.842	12.000	3.000	0.725	0.164	0.143	2.473
1.500	1.480	2.940	12.000	3.000	0.750	0.163	0.142	2.558
1.550	1.530	3.038	12.000	3.000	0.775	0.163	0.142	2.643
1.600	1.580	3.136	12.000	3.000	0.800	0.163	0.141	2.728
1.650	1.630	3.234	12.000	3.000	0.825	0.164	0.143	2.814
1.700	1.680	3.332	12.000	3.000	0.850	0.163	0.142	2.899
1.750	1.730	3.430	12.000	3.000	0.875	0.164	0.142	2.984
1.800	1.780	3.528	12.000	3.000	0.900	0.163	0.142	3.069
1.850	1.830	3.626	12.000	3.000	0.925	0.164	0.143	3.155
1.900	1.880	3.724	12.000	3.000	0.950	0.164	0.143	3.240
1.950	1.930	3.822	12.000	3.000	0.975	0.164	0.143	3.325
2.000	1.980	3.920	12.000	3.000	1.000	0.163	0.142	3.410
2.050	2.030	4.018	12.000	3.000	1.025	0.163	0.142	3.496
2.100	2.080	4.116	12.000	3.000	1.050	0.163	0.142	3.581
2.150	2.130	4.214	12.000	3.000	1.075	0.163	0.142	3.666
2.200	2.180	4.312	12.000	3.000	1.100	0.164	0.143	3.751
2.250	2.230	4.410	12.000	3.000	1.125	0.162	0.141	3.837
2.300	2.280	4.508	12.000	3.000	1.150	0.165	0.144	3.922
2.350	2.330	4.606	12.000	3.000	1.175	0.162	0.141	4.007
2.400	2.380	4.704	12.000	3.000	1.200	0.164	0.143	4.092
2.450	2.430	4.802	12.000	3.000	1.225	0.162	0.141	4.178
2.500	2.480	4.900	12.000	3.000	1.250	0.000	0.000	4.263



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

FRESH WATER TANK

FRESH WATER TANK

Specific weight = 1.000 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	20.750	-1.250	0.000	0.000	0.000	0.000
0.050	0.030	0.306	20.750	-1.250	0.025	3.190	3.190	0.306
0.100	0.080	0.613	20.750	-1.250	0.050	3.190	3.190	0.613
0.150	0.130	0.919	20.750	-1.250	0.075	3.190	3.190	0.919
0.200	0.180	1.225	20.750	-1.250	0.100	3.190	3.190	1.225
0.250	0.230	1.531	20.750	-1.250	0.125	3.190	3.190	1.531
0.300	0.280	1.838	20.750	-1.250	0.150	3.190	3.190	1.838
0.350	0.330	2.144	20.750	-1.250	0.175	3.190	3.190	2.144
0.400	0.380	2.450	20.750	-1.250	0.200	3.190	3.190	2.450
0.450	0.430	2.756	20.750	-1.250	0.225	3.190	3.190	2.756
0.500	0.480	3.063	20.750	-1.250	0.250	3.190	3.190	3.063
0.550	0.530	3.369	20.750	-1.250	0.275	3.190	3.190	3.369
0.600	0.580	3.675	20.750	-1.250	0.300	3.190	3.190	3.675
0.650	0.630	3.981	20.750	-1.250	0.325	3.190	3.190	3.981
0.700	0.680	4.287	20.750	-1.250	0.350	3.190	3.190	4.287
0.750	0.730	4.594	20.750	-1.250	0.375	3.190	3.190	4.594
0.800	0.780	4.900	20.750	-1.250	0.400	3.190	3.190	4.900
0.850	0.830	5.206	20.750	-1.250	0.425	3.190	3.190	5.206
0.900	0.880	5.512	20.750	-1.250	0.450	3.190	3.190	5.512
0.950	0.930	5.819	20.750	-1.250	0.475	3.190	3.190	5.819
1.000	0.980	6.125	20.750	-1.250	0.500	3.190	3.190	6.125
1.050	1.030	6.431	20.750	-1.250	0.525	3.190	3.190	6.431
1.100	1.080	6.737	20.750	-1.250	0.550	3.190	3.190	6.737
1.150	1.130	7.044	20.750	-1.250	0.575	3.190	3.190	7.044
1.200	1.180	7.350	20.750	-1.250	0.600	3.190	3.190	7.350
1.250	1.230	7.656	20.750	-1.250	0.625	3.190	3.190	7.656
1.300	1.280	7.962	20.750	-1.250	0.650	3.191	3.191	7.962
1.350	1.330	8.269	20.750	-1.250	0.675	3.190	3.190	8.269
1.400	1.380	8.575	20.750	-1.250	0.700	3.190	3.190	8.575
1.450	1.430	8.881	20.750	-1.250	0.725	3.190	3.190	8.881
1.500	1.480	9.187	20.750	-1.250	0.750	3.190	3.190	9.187
1.550	1.530	9.494	20.750	-1.250	0.775	3.190	3.190	9.494
1.600	1.580	9.800	20.750	-1.250	0.800	3.190	3.190	9.800
1.650	1.630	10.106	20.750	-1.250	0.825	3.191	3.191	10.106
1.700	1.680	10.412	20.750	-1.250	0.850	3.190	3.190	10.412
1.750	1.730	10.719	20.750	-1.250	0.875	3.190	3.190	10.719
1.800	1.780	11.025	20.750	-1.250	0.900	3.190	3.190	11.025
1.850	1.830	11.331	20.750	-1.250	0.925	3.190	3.190	11.331
1.900	1.880	11.637	20.750	-1.250	0.950	3.190	3.190	11.637
1.950	1.930	11.944	20.750	-1.250	0.975	3.190	3.190	11.944
2.000	1.980	12.250	20.750	-1.250	1.000	3.190	3.190	12.250
2.050	2.030	12.556	20.750	-1.250	1.025	3.190	3.190	12.556
2.100	2.080	12.862	20.750	-1.250	1.050	3.190	3.190	12.862
2.150	2.130	13.169	20.750	-1.250	1.075	3.190	3.190	13.169
2.200	2.180	13.475	20.750	-1.250	1.100	3.190	3.190	13.475
2.250	2.230	13.781	20.750	-1.250	1.125	3.190	3.190	13.781
2.300	2.280	14.087	20.750	-1.250	1.150	3.191	3.191	14.087
2.350	2.330	14.394	20.750	-1.250	1.175	3.190	3.190	14.394
2.400	2.380	14.700	20.750	-1.250	1.200	3.190	3.190	14.700
2.450	2.430	15.006	20.750	-1.250	1.225	3.191	3.191	15.006
2.500	2.480	15.312	20.750	-1.250	1.250	0.000	0.000	15.312



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

SB BALLAST AFT

SB BALLAST AFT

Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	0.005	5.981	0.000	0.000	0.000	0.000
0.050	0.030	0.682	0.005	5.981	0.025	55.147	56.526	0.699
0.100	0.080	1.364	0.005	5.981	0.050	55.145	56.523	1.398
0.150	0.130	2.046	0.005	5.981	0.075	55.139	56.517	2.097
0.200	0.180	2.728	0.005	5.981	0.100	55.133	56.512	2.797
0.250	0.230	3.411	0.005	5.981	0.125	55.143	56.521	3.496
0.300	0.280	4.093	0.005	5.981	0.150	55.144	56.522	4.195
0.350	0.330	4.775	0.005	5.981	0.175	55.139	56.518	4.894
0.400	0.380	5.457	0.005	5.981	0.200	55.141	56.520	5.593
0.450	0.430	6.139	0.005	5.981	0.225	55.144	56.523	6.292
0.500	0.480	6.821	0.005	5.981	0.250	55.142	56.521	6.992
0.550	0.530	7.503	0.005	5.981	0.275	55.139	56.518	7.691
0.600	0.580	8.185	0.005	5.981	0.300	55.141	56.520	8.390
0.650	0.630	8.867	0.005	5.981	0.325	55.137	56.516	9.089
0.700	0.680	9.550	0.005	5.981	0.350	55.141	56.520	9.788
0.750	0.730	10.232	0.005	5.981	0.375	55.140	56.518	10.487
0.800	0.780	10.914	0.005	5.981	0.400	55.145	56.524	11.187
0.850	0.830	11.596	0.005	5.981	0.425	55.139	56.517	11.886
0.900	0.880	12.278	0.005	5.981	0.450	55.137	56.515	12.585
0.950	0.930	12.960	0.005	5.981	0.475	55.141	56.519	13.284
1.000	0.980	13.642	0.005	5.981	0.500	55.147	56.526	13.983
1.050	1.030	14.324	0.005	5.981	0.525	55.141	56.520	14.682
1.100	1.080	15.006	0.005	5.981	0.550	55.141	56.520	15.382
1.150	1.130	15.689	0.005	5.981	0.575	55.140	56.519	16.081
1.200	1.180	16.371	0.005	5.981	0.600	55.145	56.523	16.780
1.250	1.230	17.053	0.005	5.981	0.625	55.148	56.527	17.479
1.300	1.280	17.735	0.005	5.981	0.650	55.142	56.520	18.178
1.350	1.330	18.417	0.005	5.981	0.675	55.122	56.500	18.877
1.400	1.380	19.099	0.005	5.981	0.700	55.144	56.523	19.577
1.450	1.430	19.781	0.005	5.981	0.725	55.149	56.528	20.276
1.500	1.480	20.463	0.005	5.981	0.750	55.144	56.523	20.975
1.550	1.530	21.145	0.005	5.981	0.775	55.142	56.521	21.674
1.600	1.580	21.828	0.005	5.981	0.800	55.135	56.513	22.373
1.650	1.630	22.510	0.005	5.981	0.825	55.139	56.518	23.072
1.700	1.680	23.192	0.005	5.981	0.850	55.134	56.512	23.772
1.750	1.730	23.874	0.005	5.981	0.875	55.141	56.520	24.471
1.800	1.780	24.556	0.005	5.981	0.900	55.147	56.526	25.170
1.850	1.830	25.238	0.005	5.981	0.925	55.141	56.520	25.869
1.900	1.880	25.920	0.005	5.981	0.950	55.144	56.523	26.568
1.950	1.930	26.602	0.005	5.981	0.975	55.142	56.520	27.267
2.000	1.980	27.284	0.005	5.981	1.000	55.136	56.514	27.967
2.050	2.030	27.967	0.005	5.981	1.025	55.139	56.517	28.666
2.100	2.080	28.649	0.005	5.981	1.050	55.141	56.520	29.365
2.150	2.130	29.331	0.005	5.981	1.075	55.144	56.523	30.064
2.200	2.180	30.013	0.005	5.981	1.100	55.143	56.522	30.763
2.250	2.230	30.695	0.005	5.981	1.125	55.139	56.517	31.462
2.300	2.280	31.377	0.005	5.981	1.150	55.138	56.516	32.162
2.350	2.330	32.059	0.005	5.981	1.175	55.137	56.515	32.861
2.400	2.380	32.741	0.005	5.981	1.200	55.133	56.512	33.560
2.450	2.430	33.423	0.005	5.981	1.225	55.150	56.529	34.259
2.500	2.480	34.104	0.005	5.981	1.250	0.000	0.000	34.957



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

SB BALLAST FWD

SB BALLAST FWD

Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	22.194	6.000	0.000	0.000	0.000	0.000
0.050	0.030	0.129	22.194	6.000	0.025	10.505	10.767	0.132
0.100	0.080	0.257	22.194	6.000	0.050	11.545	11.833	0.264
0.150	0.130	0.495	22.279	6.000	0.087	19.776	20.270	0.507
0.200	0.180	0.748	22.313	6.000	0.118	21.205	21.735	0.767
0.250	0.230	1.008	22.334	6.000	0.146	21.203	21.734	1.033
0.300	0.280	1.267	22.346	6.000	0.172	21.204	21.734	1.299
0.350	0.330	1.615	22.388	6.000	0.206	33.614	34.454	1.655
0.400	0.380	2.008	22.423	6.000	0.241	32.149	32.953	2.058
0.450	0.430	2.421	22.455	6.000	0.275	35.236	36.117	2.482
0.500	0.480	2.863	22.486	6.000	0.305	40.385	41.394	2.935
0.550	0.530	3.369	22.524	6.000	0.339	41.791	42.836	3.453
0.600	0.580	3.917	22.563	6.000	0.372	45.825	46.971	4.015
0.650	0.630	4.504	22.601	6.000	0.405	49.527	50.765	4.617
0.700	0.680	5.128	22.639	5.999	0.438	53.404	54.739	5.256
0.750	0.730	5.786	22.675	5.998	0.471	54.000	55.350	5.930
0.800	0.780	6.468	22.709	5.996	0.503	55.119	56.497	6.629
0.850	0.830	7.150	22.736	5.994	0.534	55.120	56.498	7.328
0.900	0.880	7.832	22.759	5.993	0.563	55.121	56.499	8.027
0.950	0.930	8.514	22.778	5.992	0.592	55.121	56.499	8.726
1.000	0.980	9.196	22.794	5.991	0.621	55.120	56.498	9.425
1.050	1.030	9.878	22.808	5.990	0.649	55.125	56.503	10.124
1.100	1.080	10.560	22.820	5.990	0.676	55.119	56.497	10.824
1.150	1.130	11.241	22.830	5.989	0.703	55.118	56.496	11.523
1.200	1.180	11.923	22.840	5.989	0.730	55.116	56.494	12.222
1.250	1.230	12.605	22.848	5.988	0.757	55.116	56.494	12.921
1.300	1.280	13.287	22.856	5.988	0.784	55.117	56.495	13.620
1.350	1.330	13.969	22.862	5.987	0.810	55.115	56.492	14.319
1.400	1.380	14.651	22.869	5.987	0.836	55.125	56.503	15.018
1.450	1.430	15.333	22.874	5.987	0.863	55.121	56.499	15.717
1.500	1.480	16.015	22.879	5.986	0.889	55.118	56.496	16.416
1.550	1.530	16.697	22.884	5.986	0.915	55.118	56.496	17.115
1.600	1.580	17.379	22.888	5.986	0.941	55.119	56.497	17.814
1.650	1.630	18.061	22.892	5.986	0.966	55.118	56.496	18.513
1.700	1.680	18.743	22.896	5.986	0.992	55.122	56.501	19.212
1.750	1.730	19.425	22.900	5.985	1.018	55.119	56.497	19.911
1.800	1.780	20.107	22.903	5.985	1.044	55.069	56.445	20.610
1.850	1.830	20.789	22.906	5.985	1.069	55.122	56.500	21.309
1.900	1.880	21.471	22.909	5.985	1.095	55.120	56.498	22.008
1.950	1.930	22.153	22.911	5.985	1.120	55.067	56.444	22.707
2.000	1.980	22.835	22.914	5.985	1.146	55.122	56.500	23.406
2.050	2.030	23.517	22.916	5.985	1.171	55.117	56.495	24.105
2.100	2.080	24.199	22.918	5.984	1.197	55.132	56.510	24.804
2.150	2.130	24.881	22.921	5.984	1.222	55.129	56.507	25.503
2.200	2.180	25.563	22.922	5.984	1.248	55.121	56.499	26.202
2.250	2.230	26.245	22.924	5.984	1.273	55.118	56.496	26.901
2.300	2.280	26.927	22.926	5.984	1.298	55.130	56.509	27.600
2.350	2.330	27.609	22.928	5.984	1.324	55.116	56.494	28.299
2.400	2.380	28.291	22.929	5.984	1.349	55.125	56.503	28.998
2.450	2.430	28.973	22.931	5.984	1.375	55.120	56.498	29.697
2.500	2.480	29.655	22.932	5.984	1.400	0.000	0.000	30.391



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

PS BALLAST AFT

PS BALLAST AFT

Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	0.005	-5.981	0.000	0.000	0.000	0.000
0.050	0.030	0.682	0.005	-5.981	0.025	55.147	56.526	0.699
0.100	0.080	1.364	0.005	-5.981	0.050	55.145	56.523	1.398
0.150	0.130	2.046	0.005	-5.981	0.075	55.139	56.517	2.097
0.200	0.180	2.728	0.005	-5.981	0.100	55.133	56.512	2.797
0.250	0.230	3.411	0.005	-5.981	0.125	55.143	56.521	3.496
0.300	0.280	4.093	0.005	-5.981	0.150	55.144	56.522	4.195
0.350	0.330	4.775	0.005	-5.981	0.175	55.139	56.518	4.894
0.400	0.380	5.457	0.005	-5.981	0.200	55.141	56.520	5.593
0.450	0.430	6.139	0.005	-5.981	0.225	55.144	56.523	6.292
0.500	0.480	6.821	0.005	-5.981	0.250	55.142	56.521	6.992
0.550	0.530	7.503	0.005	-5.981	0.275	55.139	56.518	7.691
0.600	0.580	8.185	0.005	-5.981	0.300	55.141	56.520	8.390
0.650	0.630	8.867	0.005	-5.981	0.325	55.137	56.516	9.089
0.700	0.680	9.550	0.005	-5.981	0.350	55.141	56.520	9.788
0.750	0.730	10.232	0.005	-5.981	0.375	55.140	56.518	10.487
0.800	0.780	10.914	0.005	-5.981	0.400	55.145	56.524	11.187
0.850	0.830	11.596	0.005	-5.981	0.425	55.139	56.517	11.886
0.900	0.880	12.278	0.005	-5.981	0.450	55.137	56.515	12.585
0.950	0.930	12.960	0.005	-5.981	0.475	55.141	56.519	13.284
1.000	0.980	13.642	0.005	-5.981	0.500	55.147	56.526	13.983
1.050	1.030	14.324	0.005	-5.981	0.525	55.141	56.520	14.682
1.100	1.080	15.006	0.005	-5.981	0.550	55.141	56.520	15.382
1.150	1.130	15.689	0.005	-5.981	0.575	55.140	56.519	16.081
1.200	1.180	16.371	0.005	-5.981	0.600	55.145	56.523	16.780
1.250	1.230	17.053	0.005	-5.981	0.625	55.148	56.527	17.479
1.300	1.280	17.735	0.005	-5.981	0.650	55.142	56.520	18.178
1.350	1.330	18.417	0.005	-5.981	0.675	55.122	56.500	18.877
1.400	1.380	19.099	0.005	-5.981	0.700	55.144	56.523	19.577
1.450	1.430	19.781	0.005	-5.981	0.725	55.149	56.528	20.276
1.500	1.480	20.463	0.005	-5.981	0.750	55.144	56.523	20.975
1.550	1.530	21.145	0.005	-5.981	0.775	55.142	56.521	21.674
1.600	1.580	21.828	0.005	-5.981	0.800	55.135	56.513	22.373
1.650	1.630	22.510	0.005	-5.981	0.825	55.139	56.518	23.072
1.700	1.680	23.192	0.005	-5.981	0.850	55.134	56.512	23.772
1.750	1.730	23.874	0.005	-5.981	0.875	55.141	56.520	24.471
1.800	1.780	24.556	0.005	-5.981	0.900	55.147	56.526	25.170
1.850	1.830	25.238	0.005	-5.981	0.925	55.141	56.520	25.869
1.900	1.880	25.920	0.005	-5.981	0.950	55.144	56.523	26.568
1.950	1.930	26.602	0.005	-5.981	0.975	55.142	56.520	27.267
2.000	1.980	27.284	0.005	-5.981	1.000	55.136	56.514	27.967
2.050	2.030	27.967	0.005	-5.981	1.025	55.139	56.517	28.666
2.100	2.080	28.649	0.005	-5.981	1.050	55.141	56.520	29.365
2.150	2.130	29.331	0.005	-5.981	1.075	55.144	56.523	30.064
2.200	2.180	30.013	0.005	-5.981	1.100	55.143	56.522	30.763
2.250	2.230	30.695	0.005	-5.981	1.125	55.139	56.517	31.462
2.300	2.280	31.377	0.005	-5.981	1.150	55.138	56.516	32.162
2.350	2.330	32.059	0.005	-5.981	1.175	55.137	56.515	32.861
2.400	2.380	32.741	0.005	-5.981	1.200	55.133	56.512	33.560
2.450	2.430	33.423	0.005	-5.981	1.225	55.150	56.529	34.259
2.500	2.480	34.104	0.005	-5.981	1.250	0.000	0.000	34.957



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

PS BALLAST FWD

PS BALLAST FWD

Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	22.194	-6.000	0.000	0.000	0.000	0.000
0.050	0.030	0.129	22.194	-6.000	0.025	10.505	10.767	0.132
0.100	0.080	0.257	22.194	-6.000	0.050	11.545	11.833	0.264
0.150	0.130	0.495	22.279	-6.000	0.087	19.776	20.270	0.507
0.200	0.180	0.748	22.313	-6.000	0.118	21.205	21.735	0.767
0.250	0.230	1.008	22.334	-6.000	0.146	21.203	21.734	1.033
0.300	0.280	1.267	22.346	-6.000	0.172	21.204	21.734	1.299
0.350	0.330	1.615	22.388	-6.000	0.206	33.614	34.454	1.655
0.400	0.380	2.008	22.423	-6.000	0.241	32.149	32.953	2.058
0.450	0.430	2.421	22.455	-6.000	0.275	35.236	36.117	2.482
0.500	0.480	2.863	22.486	-6.000	0.305	40.385	41.394	2.935
0.550	0.530	3.369	22.524	-6.000	0.339	41.791	42.836	3.453
0.600	0.580	3.917	22.563	-6.000	0.372	45.825	46.971	4.015
0.650	0.630	4.504	22.601	-6.000	0.405	49.527	50.765	4.617
0.700	0.680	5.128	22.639	-5.999	0.438	53.404	54.739	5.256
0.750	0.730	5.786	22.675	-5.998	0.471	54.000	55.350	5.930
0.800	0.780	6.468	22.709	-5.996	0.503	55.119	56.497	6.629
0.850	0.830	7.150	22.736	-5.994	0.534	55.120	56.498	7.328
0.900	0.880	7.832	22.759	-5.993	0.563	55.121	56.499	8.027
0.950	0.930	8.514	22.778	-5.992	0.592	55.121	56.499	8.726
1.000	0.980	9.196	22.794	-5.991	0.621	55.120	56.498	9.425
1.050	1.030	9.878	22.808	-5.990	0.649	55.125	56.503	10.124
1.100	1.080	10.560	22.820	-5.990	0.676	55.119	56.497	10.824
1.150	1.130	11.241	22.830	-5.989	0.703	55.118	56.496	11.523
1.200	1.180	11.923	22.840	-5.989	0.730	55.116	56.494	12.222
1.250	1.230	12.605	22.848	-5.988	0.757	55.116	56.494	12.921
1.300	1.280	13.287	22.856	-5.988	0.784	55.117	56.495	13.620
1.350	1.330	13.969	22.862	-5.987	0.810	55.115	56.492	14.319
1.400	1.380	14.651	22.869	-5.987	0.836	55.125	56.503	15.018
1.450	1.430	15.333	22.874	-5.987	0.863	55.121	56.499	15.717
1.500	1.480	16.015	22.879	-5.986	0.889	55.118	56.496	16.416
1.550	1.530	16.697	22.884	-5.986	0.915	55.118	56.496	17.115
1.600	1.580	17.379	22.888	-5.986	0.941	55.119	56.497	17.814
1.650	1.630	18.061	22.892	-5.986	0.966	55.118	56.496	18.513
1.700	1.680	18.743	22.896	-5.986	0.992	55.122	56.501	19.212
1.750	1.730	19.425	22.900	-5.985	1.018	55.119	56.497	19.911
1.800	1.780	20.107	22.903	-5.985	1.044	55.069	56.445	20.610
1.850	1.830	20.789	22.906	-5.985	1.069	55.122	56.500	21.309
1.900	1.880	21.471	22.909	-5.985	1.095	55.120	56.498	22.008
1.950	1.930	22.153	22.911	-5.985	1.120	55.067	56.444	22.707
2.000	1.980	22.835	22.914	-5.985	1.146	55.122	56.500	23.406
2.050	2.030	23.517	22.916	-5.985	1.171	55.117	56.495	24.105
2.100	2.080	24.199	22.918	-5.984	1.197	55.132	56.510	24.804
2.150	2.130	24.881	22.921	-5.984	1.222	55.129	56.507	25.503
2.200	2.180	25.563	22.922	-5.984	1.248	55.121	56.499	26.202
2.250	2.230	26.245	22.924	-5.984	1.273	55.118	56.496	26.901
2.300	2.280	26.927	22.926	-5.984	1.298	55.130	56.509	27.600
2.350	2.330	27.609	22.928	-5.984	1.324	55.116	56.494	28.299
2.400	2.380	28.291	22.929	-5.984	1.349	55.125	56.503	28.998
2.450	2.430	28.973	22.931	-5.984	1.375	55.120	56.498	29.697
2.500	2.480	29.655	22.932	-5.984	1.400	0.000	0.000	30.391



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

SLUDGE TANK

SLUDGE TANK

Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	9.750	-8.250	0.000	0.000	0.000	0.000
0.050	0.030	0.306	9.750	-8.250	0.025	3.194	3.274	0.314
0.100	0.080	0.612	9.750	-8.250	0.050	3.186	3.265	0.628
0.150	0.130	0.919	9.750	-8.250	0.075	3.189	3.268	0.942
0.200	0.180	1.225	9.750	-8.250	0.100	3.191	3.271	1.256
0.250	0.230	1.531	9.750	-8.250	0.125	3.189	3.269	1.570
0.300	0.280	1.838	9.750	-8.250	0.150	3.194	3.274	1.883
0.350	0.330	2.144	9.750	-8.250	0.175	3.188	3.268	2.197
0.400	0.380	2.450	9.750	-8.250	0.200	3.187	3.267	2.511
0.450	0.430	2.756	9.750	-8.250	0.225	3.191	3.271	2.825
0.500	0.480	3.063	9.750	-8.250	0.250	3.187	3.267	3.139
0.550	0.530	3.369	9.750	-8.250	0.275	3.188	3.268	3.453
0.600	0.580	3.675	9.750	-8.250	0.300	3.192	3.272	3.767
0.650	0.630	3.981	9.750	-8.250	0.325	3.189	3.269	4.081
0.700	0.680	4.287	9.750	-8.250	0.350	3.188	3.268	4.395
0.750	0.730	4.594	9.750	-8.250	0.375	3.187	3.266	4.709
0.800	0.780	4.900	9.750	-8.250	0.400	3.190	3.270	5.022
0.850	0.830	5.206	9.750	-8.250	0.425	3.189	3.269	5.336
0.900	0.880	5.512	9.750	-8.250	0.450	3.191	3.271	5.650
0.950	0.930	5.819	9.750	-8.250	0.475	3.191	3.270	5.964
1.000	0.980	6.125	9.750	-8.250	0.500	3.191	3.271	6.278
1.050	1.030	6.431	9.750	-8.250	0.525	3.193	3.272	6.592
1.100	1.080	6.737	9.750	-8.250	0.550	3.192	3.272	6.906
1.150	1.130	7.044	9.750	-8.250	0.575	3.191	3.270	7.220
1.200	1.180	7.350	9.750	-8.250	0.600	3.197	3.277	7.534
1.250	1.230	7.656	9.750	-8.250	0.625	3.192	3.272	7.848
1.300	1.280	7.962	9.750	-8.250	0.650	3.191	3.271	8.162
1.350	1.330	8.269	9.750	-8.250	0.675	3.190	3.270	8.475
1.400	1.380	8.575	9.750	-8.250	0.700	3.193	3.273	8.789
1.450	1.430	8.881	9.750	-8.250	0.725	3.186	3.266	9.103
1.500	1.480	9.187	9.750	-8.250	0.750	3.193	3.273	9.417
1.550	1.530	9.494	9.750	-8.250	0.775	3.198	3.278	9.731
1.600	1.580	9.800	9.750	-8.250	0.800	3.197	3.277	10.045
1.650	1.630	10.106	9.750	-8.250	0.825	3.178	3.257	10.359
1.700	1.680	10.412	9.750	-8.250	0.850	3.189	3.269	10.673
1.750	1.730	10.719	9.750	-8.250	0.875	3.195	3.275	10.987
1.800	1.780	11.025	9.750	-8.250	0.900	3.202	3.282	11.301
1.850	1.830	11.331	9.750	-8.250	0.925	3.195	3.275	11.615
1.900	1.880	11.637	9.750	-8.250	0.950	3.179	3.259	11.928
1.950	1.930	11.944	9.750	-8.250	0.975	3.191	3.271	12.242
2.000	1.980	12.250	9.750	-8.250	1.000	3.189	3.269	12.556
2.050	2.030	12.556	9.750	-8.250	1.025	3.187	3.267	12.870
2.100	2.080	12.862	9.750	-8.250	1.050	3.177	3.256	13.184
2.150	2.130	13.169	9.750	-8.250	1.075	3.202	3.282	13.498
2.200	2.180	13.475	9.750	-8.250	1.100	3.188	3.268	13.812
2.250	2.230	13.781	9.750	-8.250	1.125	3.200	3.280	14.126
2.300	2.280	14.087	9.750	-8.250	1.150	3.183	3.263	14.440
2.350	2.330	14.394	9.750	-8.250	1.175	3.189	3.269	14.754
2.400	2.380	14.700	9.750	-8.250	1.200	3.185	3.264	15.067
2.450	2.430	15.006	9.750	-8.250	1.225	3.190	3.269	15.381
2.500	2.480	15.312	9.750	-8.250	1.250	0.000	0.000	15.695



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TANK VOLUME TABLE
Self Elevating Platform

13-08-2003 11:40
Trim = 0.000 m

SEWAGE TANK

SEWAGE TANK

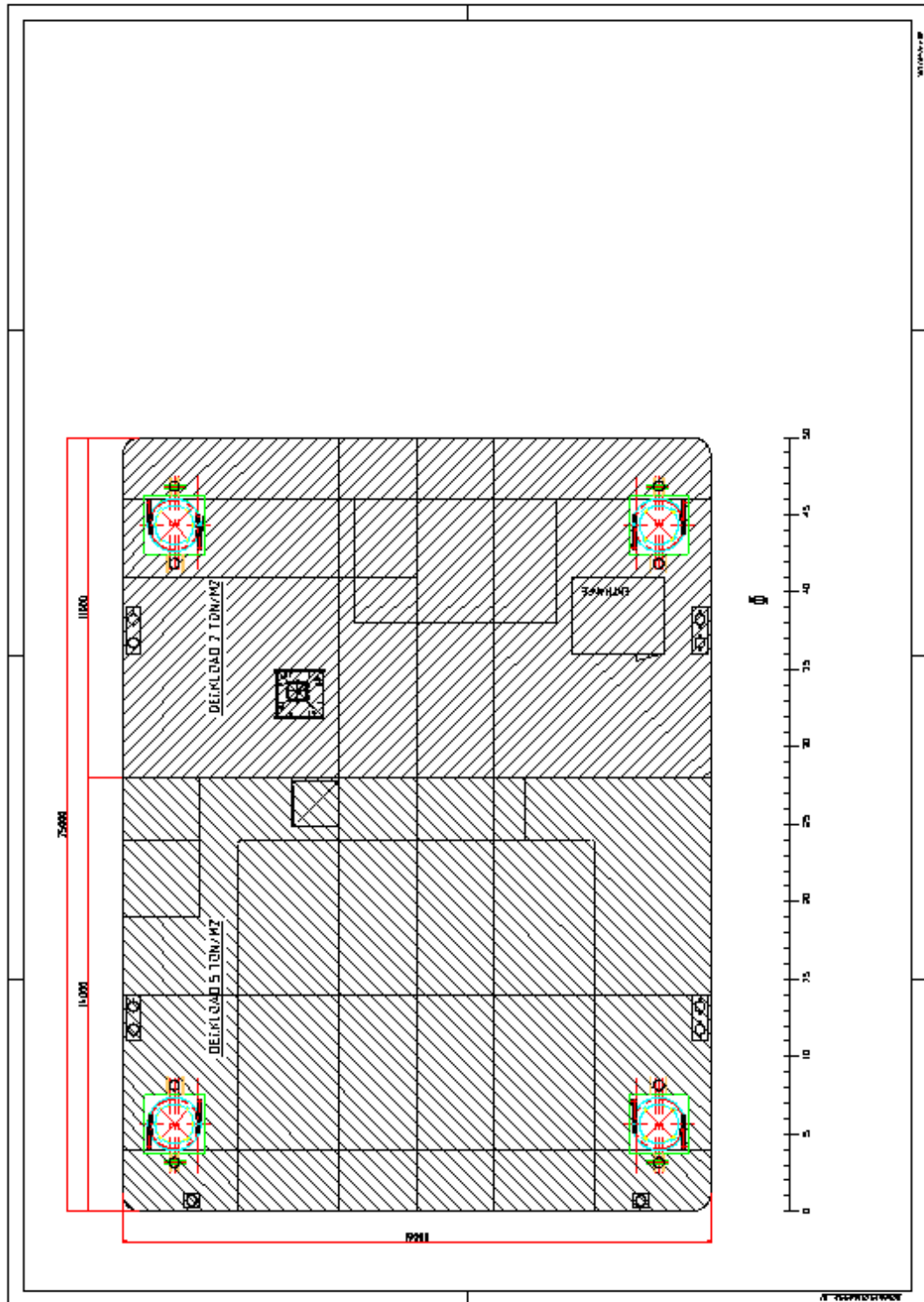
Specific weight = 1.025 ton/m³

Height m	Sounding m	Volume m ³	LCG m	TCG m	VCG m	Mom.In.T m ²	FSM-T Tonm	Weight ton
0.000	-	0.000	12.000	-8.250	0.000	0.000	0.000	0.000
0.050	0.030	0.245	12.000	-8.250	0.025	2.556	2.620	0.251
0.100	0.080	0.490	12.000	-8.250	0.050	2.549	2.612	0.502
0.150	0.130	0.735	12.000	-8.250	0.075	2.551	2.615	0.753
0.200	0.180	0.980	12.000	-8.250	0.100	2.553	2.617	1.005
0.250	0.230	1.225	12.000	-8.250	0.125	2.553	2.617	1.256
0.300	0.280	1.470	12.000	-8.250	0.150	2.551	2.614	1.507
0.350	0.330	1.715	12.000	-8.250	0.175	2.549	2.613	1.758
0.400	0.380	1.960	12.000	-8.250	0.200	2.551	2.615	2.009
0.450	0.430	2.205	12.000	-8.250	0.225	2.554	2.618	2.260
0.500	0.480	2.450	12.000	-8.250	0.250	2.552	2.615	2.511
0.550	0.530	2.695	12.000	-8.250	0.275	2.551	2.615	2.762
0.600	0.580	2.940	12.000	-8.250	0.300	2.551	2.615	3.013
0.650	0.630	3.185	12.000	-8.250	0.325	2.550	2.613	3.265
0.700	0.680	3.430	12.000	-8.250	0.350	2.552	2.616	3.516
0.750	0.730	3.675	12.000	-8.250	0.375	2.548	2.612	3.767
0.800	0.780	3.920	12.000	-8.250	0.400	2.554	2.618	4.018
0.850	0.830	4.165	12.000	-8.250	0.425	2.550	2.614	4.269
0.900	0.880	4.410	12.000	-8.250	0.450	2.555	2.619	4.520
0.950	0.930	4.655	12.000	-8.250	0.475	2.552	2.616	4.771
1.000	0.980	4.900	12.000	-8.250	0.500	2.550	2.614	5.022
1.050	1.030	5.145	12.000	-8.250	0.525	2.554	2.618	5.274
1.100	1.080	5.390	12.000	-8.250	0.550	2.552	2.616	5.525
1.150	1.130	5.635	12.000	-8.250	0.575	2.553	2.616	5.776
1.200	1.180	5.880	12.000	-8.250	0.600	2.554	2.618	6.027
1.250	1.230	6.125	12.000	-8.250	0.625	2.545	2.609	6.278
1.300	1.280	6.370	12.000	-8.250	0.650	2.555	2.619	6.529
1.350	1.330	6.615	12.000	-8.250	0.675	2.554	2.617	6.780
1.400	1.380	6.860	12.000	-8.250	0.700	2.551	2.615	7.031
1.450	1.430	7.105	12.000	-8.250	0.725	2.549	2.612	7.283
1.500	1.480	7.350	12.000	-8.250	0.750	2.554	2.618	7.534
1.550	1.530	7.595	12.000	-8.250	0.775	2.561	2.625	7.785
1.600	1.580	7.840	12.000	-8.250	0.800	2.557	2.621	8.036
1.650	1.630	8.085	12.000	-8.250	0.825	2.549	2.613	8.287
1.700	1.680	8.330	12.000	-8.250	0.850	2.549	2.613	8.538
1.750	1.730	8.575	12.000	-8.250	0.875	2.554	2.617	8.789
1.800	1.780	8.820	12.000	-8.250	0.900	2.557	2.621	9.040
1.850	1.830	9.065	12.000	-8.250	0.925	2.556	2.620	9.292
1.900	1.880	9.310	12.000	-8.250	0.950	2.546	2.610	9.543
1.950	1.930	9.555	12.000	-8.250	0.975	2.553	2.617	9.794
2.000	1.980	9.800	12.000	-8.250	1.000	2.552	2.615	10.045
2.050	2.030	10.045	12.000	-8.250	1.025	2.552	2.616	10.296
2.100	2.080	10.290	12.000	-8.250	1.050	2.539	2.602	10.547
2.150	2.130	10.535	12.000	-8.250	1.075	2.562	2.626	10.798
2.200	2.180	10.780	12.000	-8.250	1.100	2.553	2.617	11.049
2.250	2.230	11.025	12.000	-8.250	1.125	2.560	2.624	11.301
2.300	2.280	11.270	12.000	-8.250	1.150	2.546	2.610	11.552
2.350	2.330	11.515	12.000	-8.250	1.175	2.542	2.605	11.803
2.400	2.380	11.760	12.000	-8.250	1.200	2.551	2.615	12.054
2.450	2.430	12.005	12.000	-8.250	1.225	2.552	2.616	12.305
2.500	2.480	12.249	12.000	-8.250	1.250	0.000	0.000	12.556

14 Deck loads

The maximum load that can be placed on deck is:

- 5 ton/m² on aft deck from 0 to 14 meter
- 2 ton/m² on fore deck from 14 to 25 meter





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The loads are shown in the figure below.

Concentrated deck loads must be placed on sufficiently thick wooden protections in order to obtain the above mentioned maximum loads per square meter.

In case the load can be moved (cranes), the path over which the load is moving must be sufficiently protected by wooden protections.

Special attention must be paid to the tip of the crane crawlers when the crane is lifting. The crawler tips must be in the near area of a bulkhead or webframe. Underneath them sufficient wood must divide the high peak loads.

The maximum payload is 200 tons. The load on deck can be calculated by retracting the loads in the stores, tanks and loose equipment from the maximum payload. The weight of the heila marine crane should not be included in the payload, it is all ready included in the light ship weight.

Loads on deck must be as equal divided as possible in order to obtain equal divided leg loads.

High concentrated loads should be preferably located above bulkheads and webs.

In case of bad weather all loads on deck must be secured. For this purpose eye pads must be welded on deck, directly above the bulkheads or webframes.

15 Identification and classification of hazardous areas on the unit

FUEL TANK	ZONE 0
FUEL DAY TANK	ZONE 0

The fuel tank and the fuel day tank are classified as hazardous areas, zone 0.

Zone 0 means a zone in which an explosive gas/air mixture is continuously present or present for long periods.

In chapter 11 the positions of these tanks are given.

It is strictly prohibited to weld in the surrounding area of the fuel tank and the fuel day tank.



16 Description and limitations of on-board computers

See operator manual.

17 Description of towing arrangement

For each voyage a certified sworn-in expert must issue a tow certificate, indicating that the tow and tug are adequate for the voyage.

The tow has to be unmanned.

All seafastenings have to be carried out.

All fluid tanks have to be 100% full or almost empty.

All hatches, entrances and openings must be closed and secured carefully.

All loose materials must be well secured.

The legs must rest on its lower locking ring. The lifting cylinders must be in their most "in" position. The electrical parts must all be covered.

The legs must be secured in such a way that movement due to waves is reduced to a minimum. Wooden blocks must be placed between the leg and the upper guiding to prevent shocks.

18 Description of the main power system

The main power system on the SEP consists of the following components:

- 1) Main generator, Deutz engine, BF4M1013M, 81kW
 - 2) Harbour generator, Deutz engine, F4L912, 35kW
 - 3) Emergency power by battery bank, 600Ah
 - 4) Hydraulic powerpack, Deutz engine, BF6M1013M, 160kW
-
- 1) The main generator will deliver all the power for heating, lights, powerpoints, fans, oil circulation pump, bilge/ballast pump, etc. Only hydraulic power necessary for the lifting cylinders is delivered by a separate hydraulic powerpack with its own diesel engine.
 - 2) When the SEP is in the harbour less power will be consumed. In this situation the harbour generator should be used as power system.
 - 3) The total load of emergency lights is about 330 Watt (24V, 13,75A). The operating time of the battery with a capacity of 600Ah is about 40 hours.
 - 4) The hydraulic powerpack delivers the hydraulic pressure for the lifting/lowering cylinders. If the diesel engine of the hydraulic power pack fails, it is still possible to operate the SEP with the E-driven hydraulic backup pump of 22kW.



19 List of key plans and schematics

Drawings

5.1	General arrangement	G-001
5.2	Safety plan	G-013
5.3	Freeboard drawing	G-015
5.4	Safety plan	G-070
5.5	Ballast-, bilge and fire fighting scheme / Sewage discharge scheme	P-001
5.6	Fuel-oil scheme	P-004
5.7	Towing bit and towing chain guiding	C-510
5.8	Railings on main deck	C-470
5.9	Cathodic protection	C-820
	<i>Electrical diagrams</i>	
5.10.1	Generator control room	E-100-1
5.10.2	Generator control engine room	E-100-2
5.10.3	Distribution panel 415/240 VAC engine room	E-101
5.10.4	Switch board 415/240 VAC engine room	E-102
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5.10.11	General alarm wiring diagram	E-204
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5.10.13	Distribution panel ups 240V, 50Hz	E-500

20 Inspection procedure locking rings

After each 50 installations of the SEP one of the upper locking rings must be inspected. This inspection includes:

Complete visual inspection
Magnetic particle inspection in the local area near the slot

If a defect is found on the subject upper locking ring all other locking rings, the upper as well as the lower locking rings, must be inspected.

For the next inspection an upper locking ring should be chosen which has not been inspected yet. So after 200 installations each upper locking ring will be inspected at least one time.

During the special survey each 5 years all four upper and lower rings (including wedges - see drawing C-052) are to be carefully inspected.

This inspection includes:

Complete visual inspection
Magnetic particle inspection in the local area near the slot

If a defect is found on one of the subject upper locking rings all lower locking rings must be inspected as well.

After the inspection of the locking rings during the special survey each 5 years the counting of the installations will start at 0 again.



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To investigate/inspect an upper locking ring put the leg on the lower locking ring.
Put the main cylinder in the position "in".
Lock the upper locking ring.
Make sure that the leg still rests on its lower locking ring.
Remove the bolts from the box of the upper locking ring.
Push the box up with the main cylinder.
The upper locking ring is free for inspection.

To investigate/inspect a lower locking ring put the leg on the upper locking ring.
Put the main cylinder in the position "in".
Lock the lower locking ring.
Make sure that the leg still rests on its upper locking ring.
Remove the wedge from the box of the lower locking ring.
Push the box up with the main cylinder.
Remove the bolts from the box of the lower locking ring.
The lower locking ring is free for inspection.

Note:

All upper locking rings will be inspected at least one time during an interval of 200 installations. With a maximum number of 25 movements of the cylinder to lift the SEP and 25 movements to lower the SEP the total number of load / stress cycles is 10000. This number of stress cycles is still at the threshold for low cycle fatigue.

This procedure guarantees that each locking ring has been inspected before the low cycle fatigue threshold is reached.

