M.V. SANTOS

Reederei
HEYO
JANSSEN

2 RO/RO SISTERVESSELS

mv RAD BOD

&

mv ONN

RO/RO ship which really satisfy all requirements of today and tomorrow.

HEYO JANSSEN SHIPPING, founded 1956, well-known through worldwide activities with container and sophisticated multi-purpose-ships, now operates under its management also two modern RoRo-vessels.
These ships offer a new concept for the shipment of rolling stock. The MV **SANTOS** can load / carry all kinds and sizes of heavy rolling stock / goods / merchandize put on trailers / wheels, such as earth moving equipment, roadbuilding machinery, either tracked vehicles or on tires, dismantled plants, forest products, long steel products, pipes, boilers, construction material, general cargo, containers, heavy loads etc. Due to the great variety the whole spectrum cannot be listed in detail. In short, everything from railway cars to busses, heavy goods, trucks as well as portable buildings.

Everything that can be brought into a trailer- / Ro/Ro- or Lo/Lo-system can be loaded on board. From the 4 clear decks the under-deck space (3 decks) of the vessels can be changed into a floating warehouse, whereby loading / unloading is carried out by fork-lifts / trailers, whereas the remaining deck (weather deck) can be used for any alternative cargo, like high and over-dimensioned unit loads etc. The efficiency and suitability of the vessels is even more increased by taking into consideration the Ro/Ro capacity under deck and the possibility to take a large number of containers on weather deck (519 TEU = 3 tiers high / 4 tiers possible = total abt. 690 TEU).
Great importance was placed to a high permissible axle load for forklifts and trailers. The overall height of the non-obstructed cargo decks is min. 4,20 m and partly up to abt. 7,50 m, ideal for trailers, road trailers, lorries, trucks, caterpillars, tractors etc. Nearly no space is left void.
In our opinion, containers should not be placed under deck of such a sophisticated Ro/Ro ship, rather carried by self-sustained container ships.
The semi-slewing ramp with a capacity of 160 to, which however, in case of need can be increased to 320 to, can be brought into position regardless whether the ship is moored portside, starboard or with her stern. 2-way traffic is possible in order to effect quick loading and discharging operation simultaneously. Due to this ramp, the large stern door, and not to forget the two side doors, the turnaround of the ships in port is greatly reduced and facilitating faster loading and discharging operations, thus avoiding – among other advantages – cargo damages.

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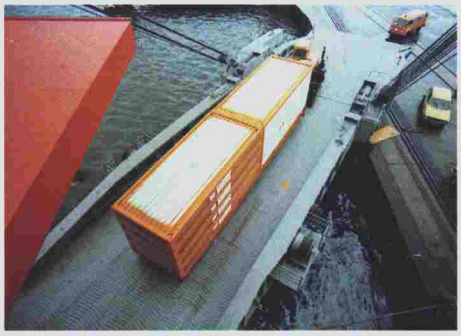

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Heavy duty slewing ramp 35 m

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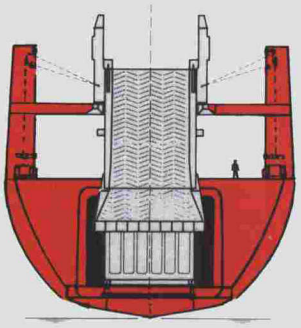

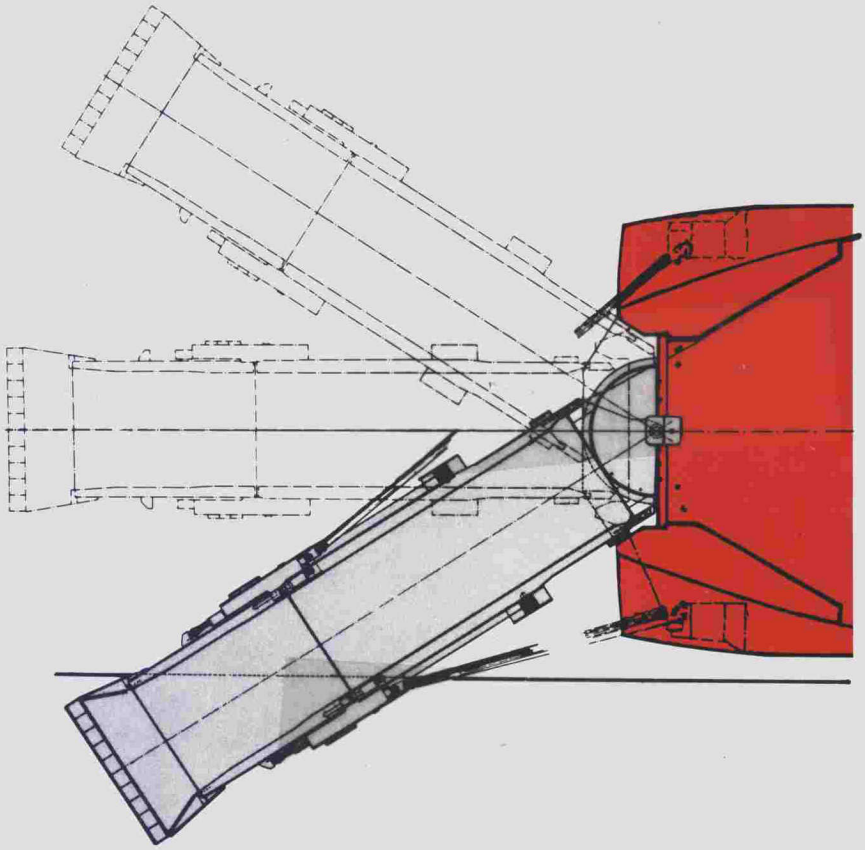

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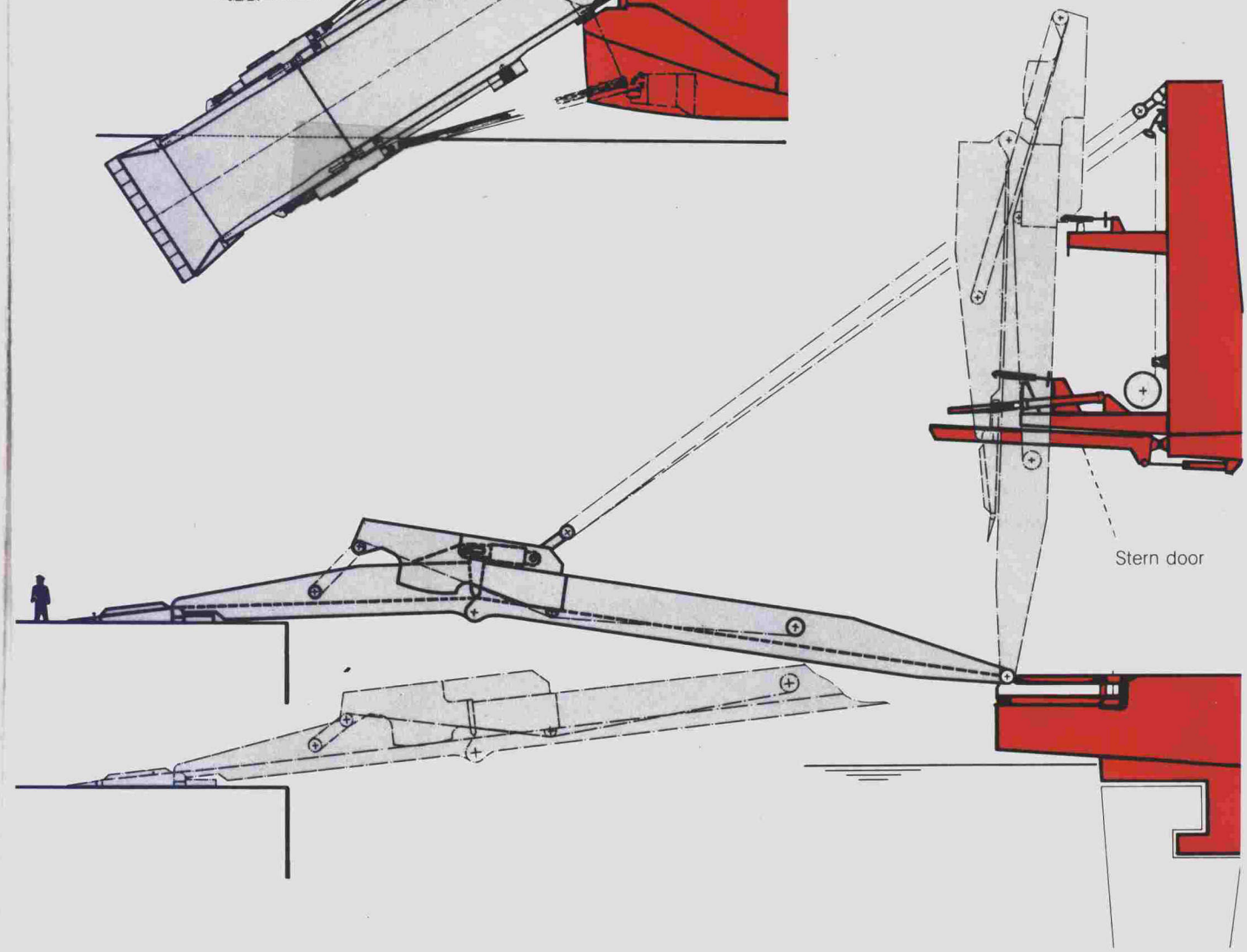

mv"RADBOD" and mv"O

This all being a great financial advantage for the shipper / charterer.
This fast and easy cargo handling results in saving labour-, stevedore- and cargo-protection-expenses. In the spacious decks, stevedores are able to work and move about freely. Furthermore, 2 tugmasters secure independent trailer handling on board. For distribution of lashing material, which is on board in sufficient quantities to secure a full load of heavy trucks, a forklift and a pickup-car are at hand. All decks are connected with ramps, except deck No. 4, where there are 2 lifts.
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On sea turns, a shaft generator supplies the required auxiliary power, thus no MDO is consumed by the vessels during this time.
Vessels' consumption can be seen from the information herein, wehreby the economic speed (15 kn) only requires abt. 36 to / day, which in fact is low for such type of ship, and economic counter value timecharterers receive from these vessels.
Good ventilation is necessary for loading trucks / rolling cargo. On board of MV "RADBOD" and MV "ONNO" are well-functioning special air circulation systems (dirivent vans) which also work in dead areas. During transport of trucks / rolling cargo and the like, it is therefore possible to leave fuel / gas in the tanks of said rolling stock.
12 drivers or other persons accompanying the trucks / cargo can also be accomodated on board.
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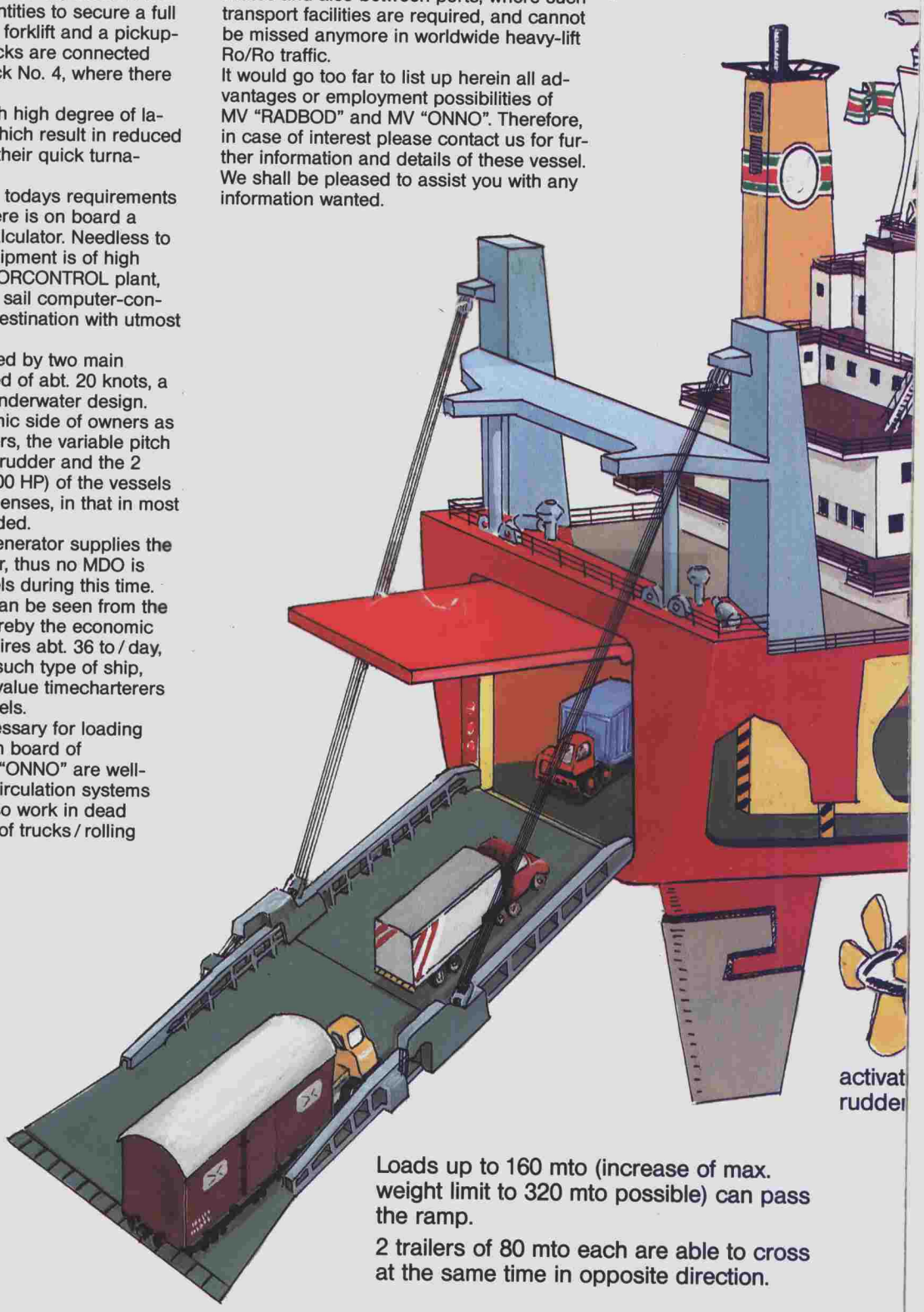
It would go too far to list up herein all advantages or employment possibilities of MV "RADBOD" and MV "ONNO". Therefore, in case of interest please contact us for further information and details of these vessel. We shall be pleased to assist you with any information wanted.



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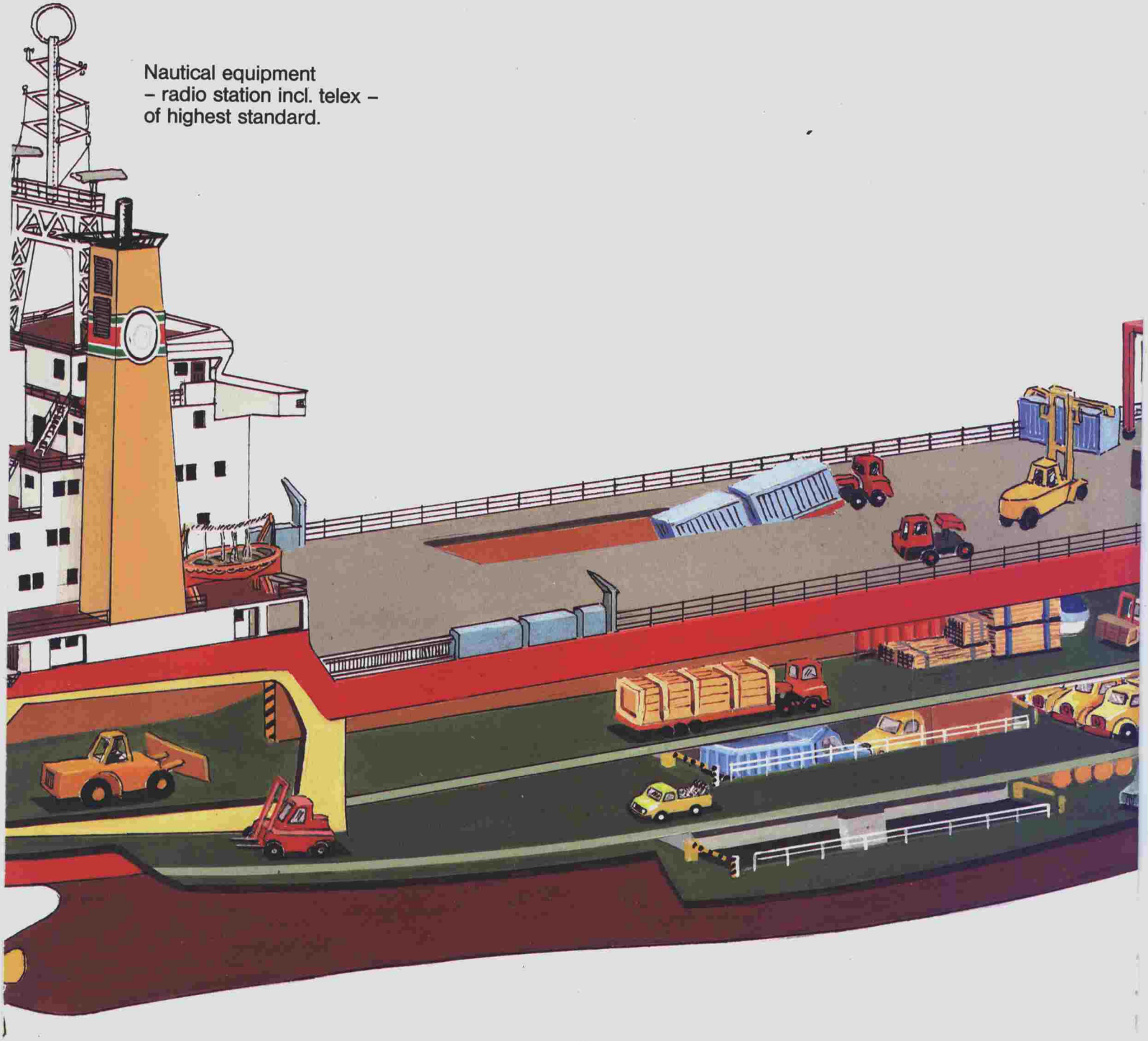

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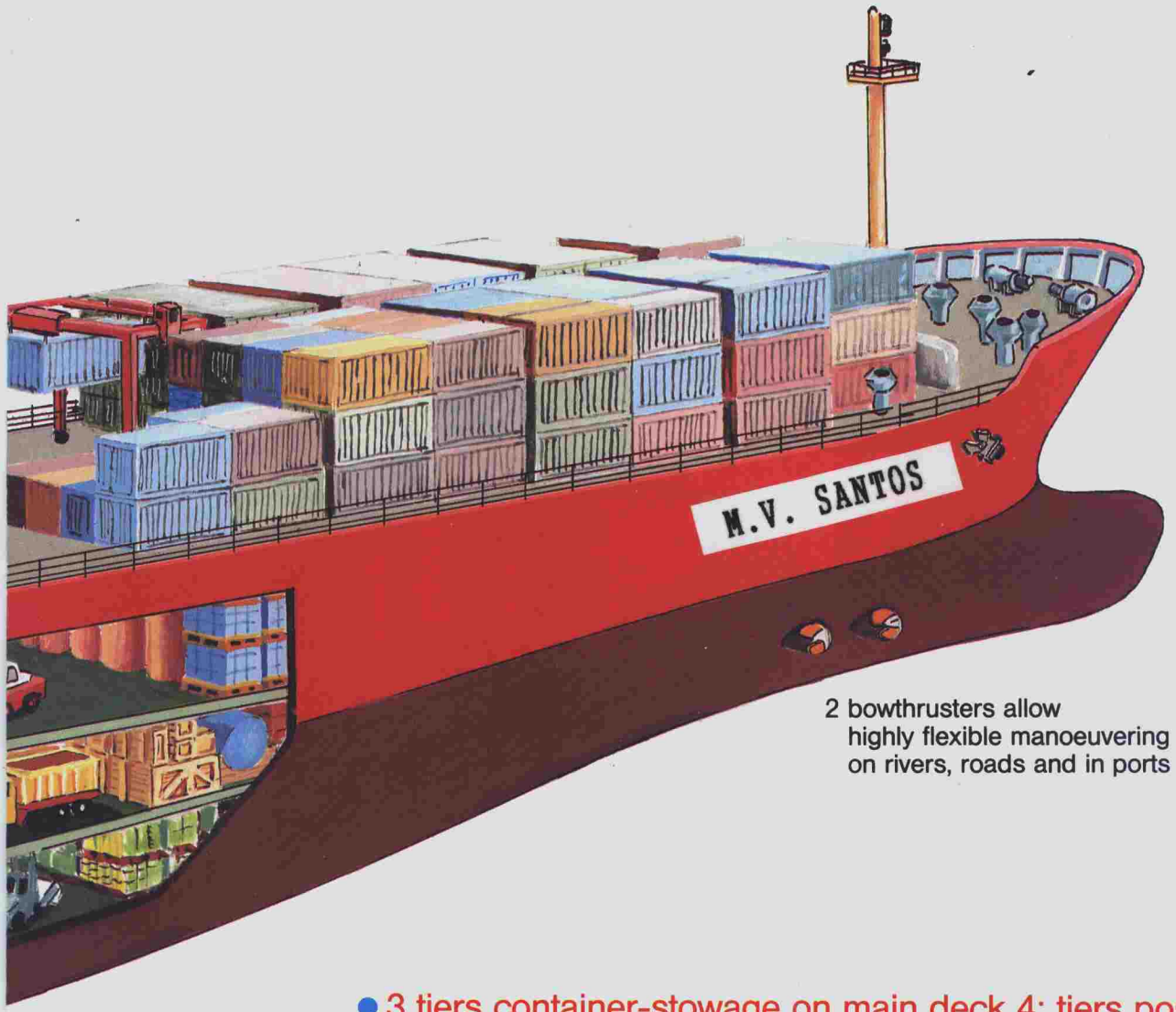


2 bowthrusters allow highly flexible manoeuvering on rivers, roads and in ports

- 3 tiers container-stowage on main deck 4; tiers possible
- High grade handling of all kinds of cargo
- wide non-obstructed cargo decks
- Every deck min 4.20 m high
- Fast, safe, easy and clear cargo handling
- Extensive ventilation allowing quickest truckloading
- Own tugmasters and forklift on board
- Minimum of quai space required in case of stern mooring

Description and technical details of

M.V. SANTOS

same details; particulars on request.)

Description and technical details:
Vessel was built and delivered by Howaldtswerke-Deutsche Werft AG, Kiel, December 1977;
Classification: GL + 100 A 4 E; + MC AUT – 24/24; Ro-Ro Schiff

Length over all:
193,32 m;

Length between pp.:
178,00 m;

Breadth mld.:
27,00 m;

Depth to weather deck, mld.:
17,60 m;

Depth to upper trailer deck:
12,40 m;

Draft:
8,62 m sfb;

Displacement:
24,955 mto fw.

Tonnage:
International GRT: 14187,67; NRT: 7167,82
Suez GRT: 22993,10; NRT: 19014,04
Panama GRT: 23372,05; NRT: 17481,97
DWAT: 15.075 mto.

Truck meter:
abt. 3600 m total

Lane meter:
3260 m, whereof 2302 m under deck and 958 m on deck.

Square meter:
all decks: 10470 m²

Trailer intake:
259 trailers 40', whereof 82 on deck, or 177 trailers 40', under deck and 519 containers 20' (3 tiers) on weather deck;

Max. Container intake:
1127 TEU with 4 tiers on deck

Container intake with 3 tiers on deck:
954 TEU, whereof 519 TEU on deck and 436 TEU under deck,
or 434 FEU + 47 TEU, whereof 252/15 FEU/TEU on deck, and 182/32 FEU/TEU under deck;

Stack load containers:
40 mto/20' stack – 70 mto/40' stack

Speed and consumption:
(speed/power/consumption/ISO conditions) basis vessel fully laden:
19 kn on 65 mto IF 180 cst. plus 4 mto MDO*
18 kn on 55 mto IF 180 cst. plus 4 mto MDO*
17 kn on 45 mto IF 180 cst. plus 4 mto MDO*

*) Vessel is equipped with shaft generator and consumes no MDO at sea, if shaft generator in operation, but in such case reduction of speed abt. 0,5 kn. Port consumption 6 mto MDO if all gear/ventilators working.

Main Engine:
2 MAN Diesels; Type 9 L 52/55 A, 9.494 shaft hp each total 18990 shaft hp.

Propeller:
1 controllable pitch propeller

Alternator-Sets:
2 Diesel engines, maker: MaK,
Type: 6M 282 AK
Output: 1320 HP;
1 port diesel/emergency diesel 415 HP;

Generators:
2 shaft generators, 1250 kW each;
2 diesel generators, 920 kW each;
1 emergency diesel generator, 250 kW.

Deck Machines:
2 combined windlass and automatic mooring winches; 8 automatic mooring winches;

Steering gear/Berthing equipment:
2 v. p. p. bow thrusters (Lips), 1200 HP each;
1 rotor activated, 72° rudder (Jastram);

Ventilation:
All decks mechanically ventilated incl. dead space ventl. to allow truck operations and shipment with full tanks.

Safety Installation:
In accordance with all national and international rules incl. a CO^2 fire extinguishing plant for all decks and engine room.

Nautical Equipment:
All modern equipment on board, such as: NORCONTROL data bridge with data sailing and anti-collision system, 2 radar sets, 2 Satnav units, Loran C navigator, speed log, course printer, anemometer, autopilot etc.; radio plant with 2 VHF units, telex, and weather fax.

Evaporator:
Capacity of fresh water evaporator: 25 mto/day.

Ramps and Lifts:
One stern ramp, slewing type (on 2nd deck), 160 mto cap., length: 35,00 m, breadth: 7,00 m, slewing angle 33° each side of centre line, max. capacity can be increased to twice the normal load (2 x 160 mto = 320 mto) under special conditions.
One stern door clear height 7,50 m, clear breadth 11,00 m, hydr. operated.
One side door each side (on 2nd deck) with turntable, cap. 40 mto.
One weather deck ramp (from 2nd deck to weather deck) capacitiy 40 mto, length: 37,54 m, breadth: 3,54 m, 8°.
Ramp can be operated under load (two trailers of 40 mto gross weight if flush to weather deck, or one trailer of 40 mto gross weight if used as a ramp).
One fixed ramp (from 2nd to 3rd deck) cap. 80 mto, breadth: abt. 5,20 m 8°, ramp opening in 2nd deck can be closed by hydr. operated cover.
Two lifts: one portside and one starboard side on centreline from 3rd to 4th deck, cap. 80 mto each, length: 15,50 m, breadth: 3,40 m, lift openings in No. 3 deck can be closed by hydr. operated covers. Lift platforms in stowed position flush to No. 4 deck.
All covers of ramp and lift openings can be loaded with the same weight as adjacent deck areas.

Heights in all decks:
Clear height in all decks 4,20 m, exempt aft part of No. 2 deck (entrance area) measured from aft 7,50 m height over a length of abt. 10 m and abt. 5,00 m height over a length of abt. 19,00 m.

Loading equipment/Lashing material:
Loadmaster; anti-heeling equipment, abt. 1.900 lashing chains available on board; 2 Tugmasters, goosenecks, ~~1 forklift, 1 Pick-up~~

Length of lanes per deck:

1st deck:	958 m
2nd deck:	1176 m
3rd deck:	692 m
4th deck:	434 m (tanktop)
Total lane meters:	3260 m
Total truck meters:	3600 m

Deck areas

1st deck:	**3270 m²**
2nd deck:	3800 m²
3rd deck:	2000 m²
4th deck:	1400 m² (tanktop)
Total sqm on board:	10470 m²

Hold Volume:

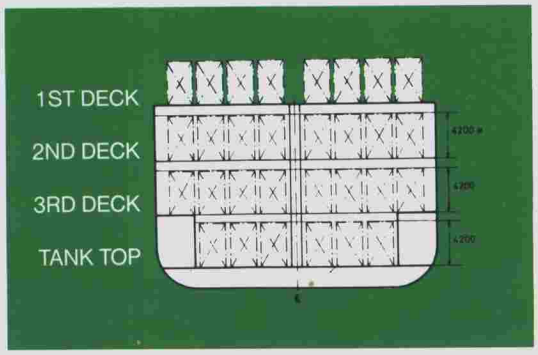
2nd deck:	23500 m³
3rd deck:	12700 m³
4th deck/tanktop	8200 m³
Total hold volume:	44400 m³

Tank Capacities:

Fuel Oil:	3058 m³
Diesel Oil:	355 m³
Ballast Water:	6334 m³
Fresh Water:	138 m³
Lubricating Oil:	132 m³

Remark:
All particulars herein are "about" and given in good faith, but without guarantee. Owners' time-charter descriptions always prevailing.

Notes: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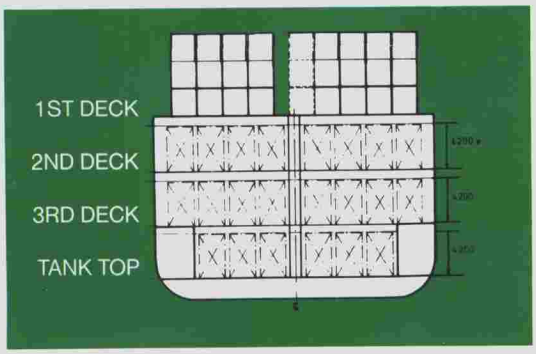
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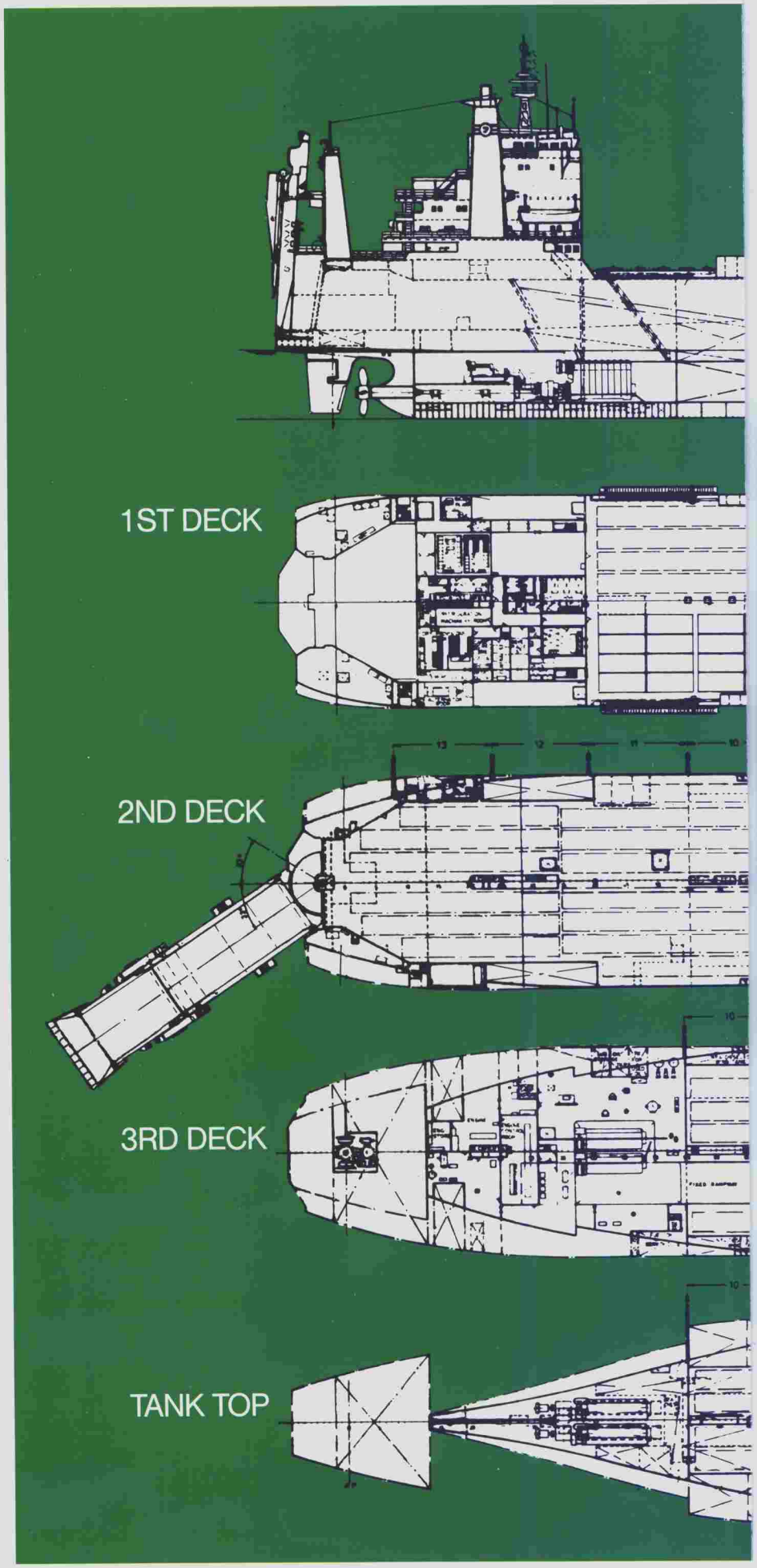
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GENERAL ARRANGEMENT

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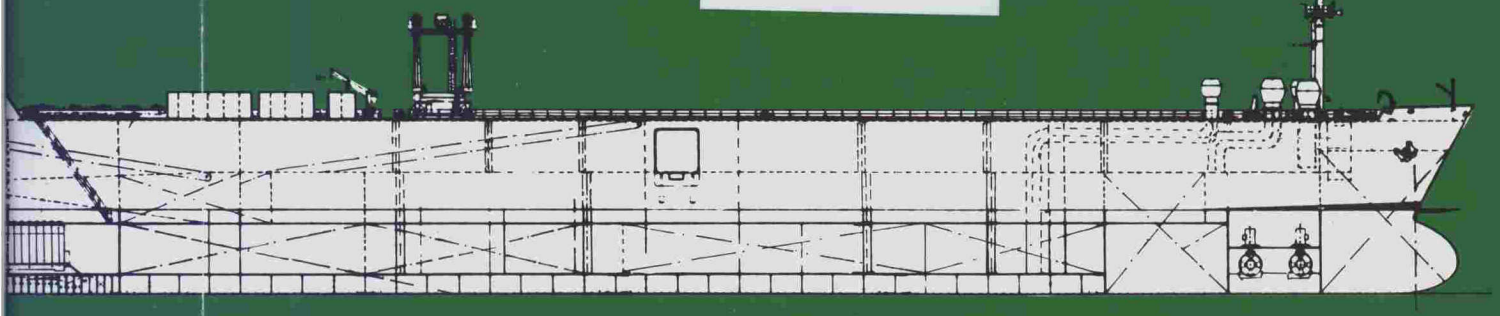

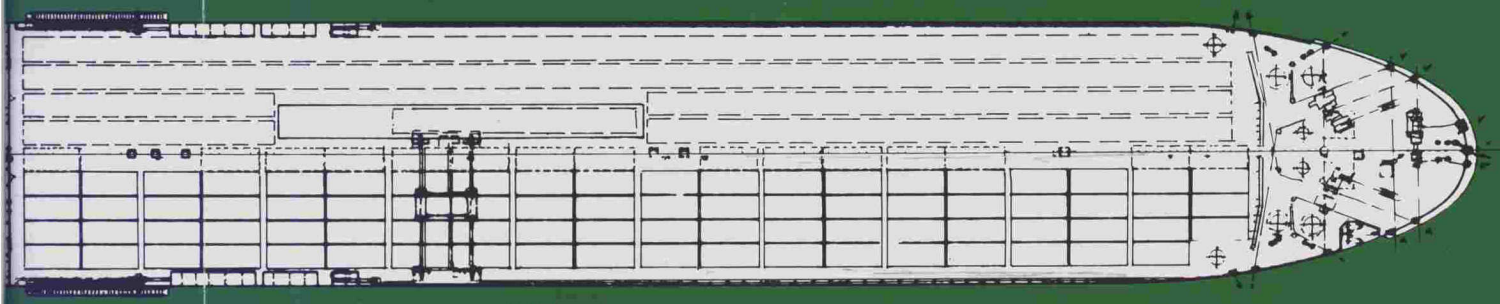

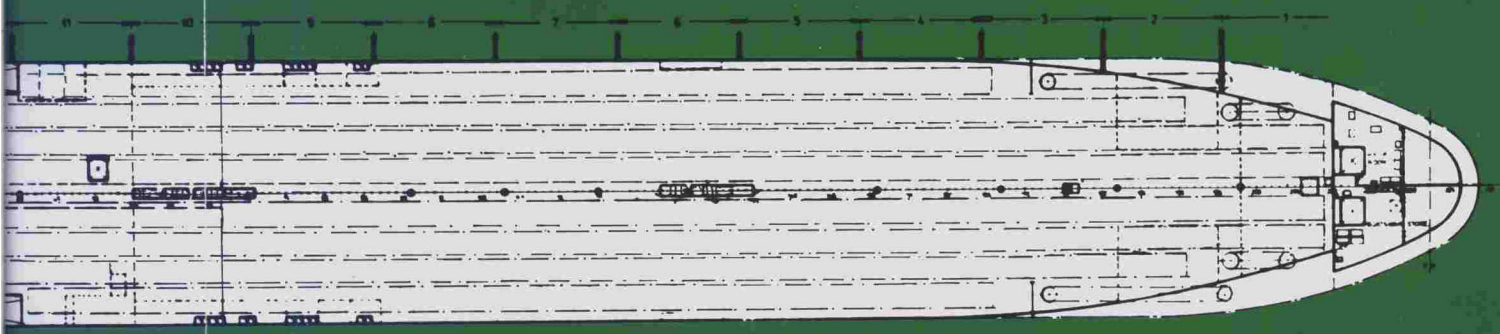

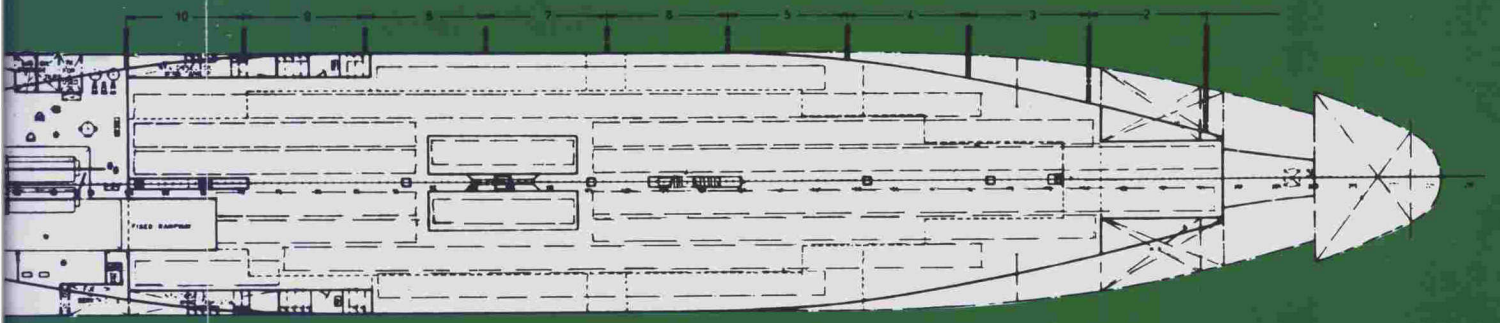

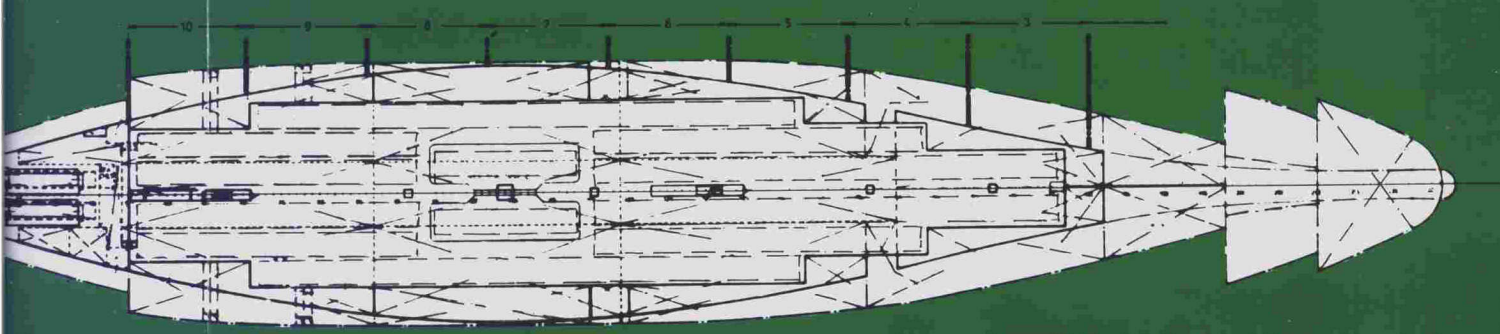

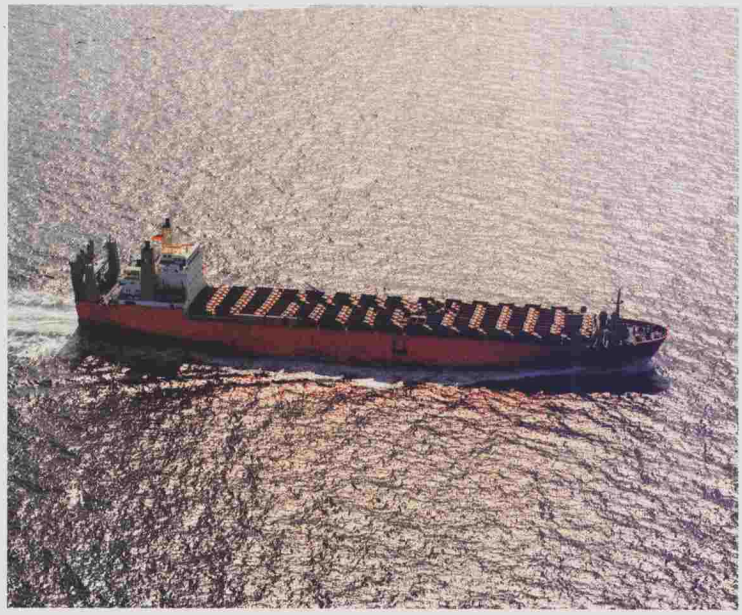

Design & layout Klippenbroek Werbung, Bremen Printed by Zemani, Bremen

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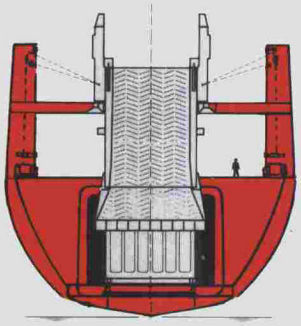

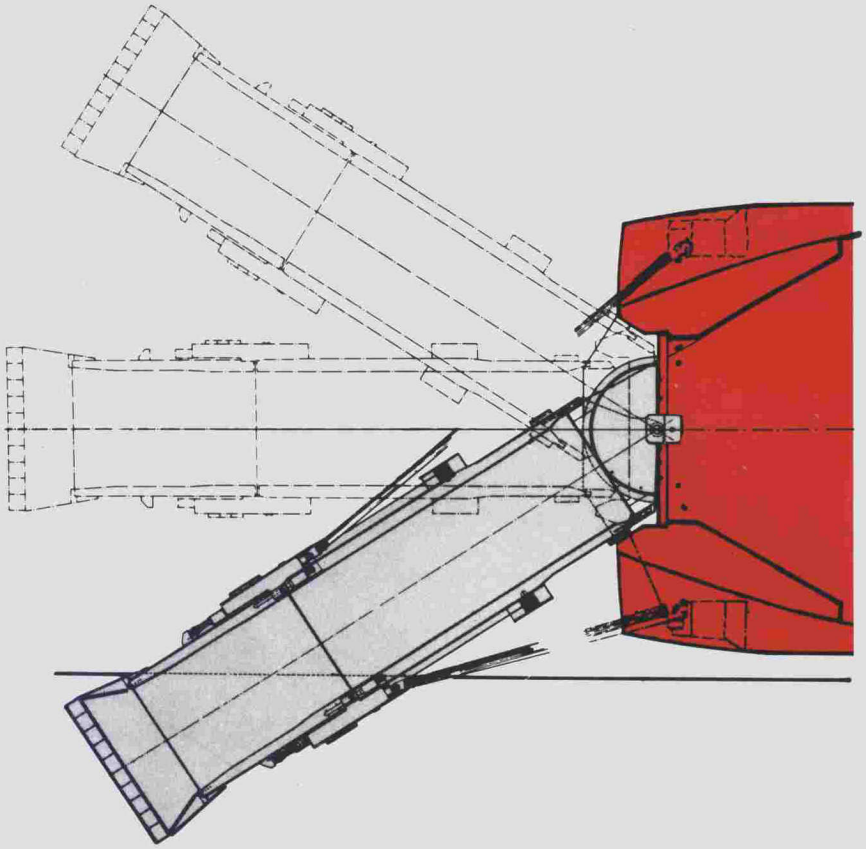

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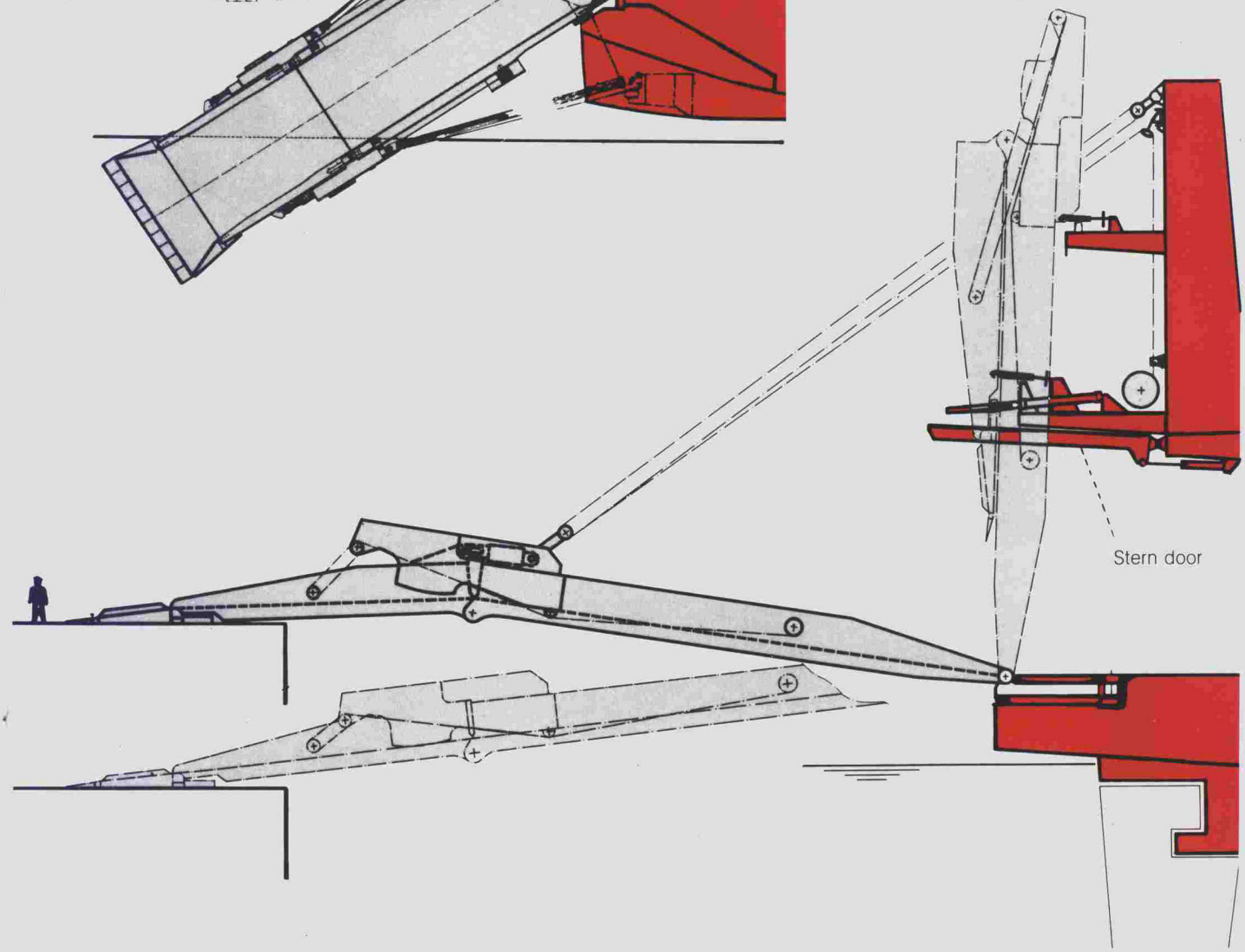

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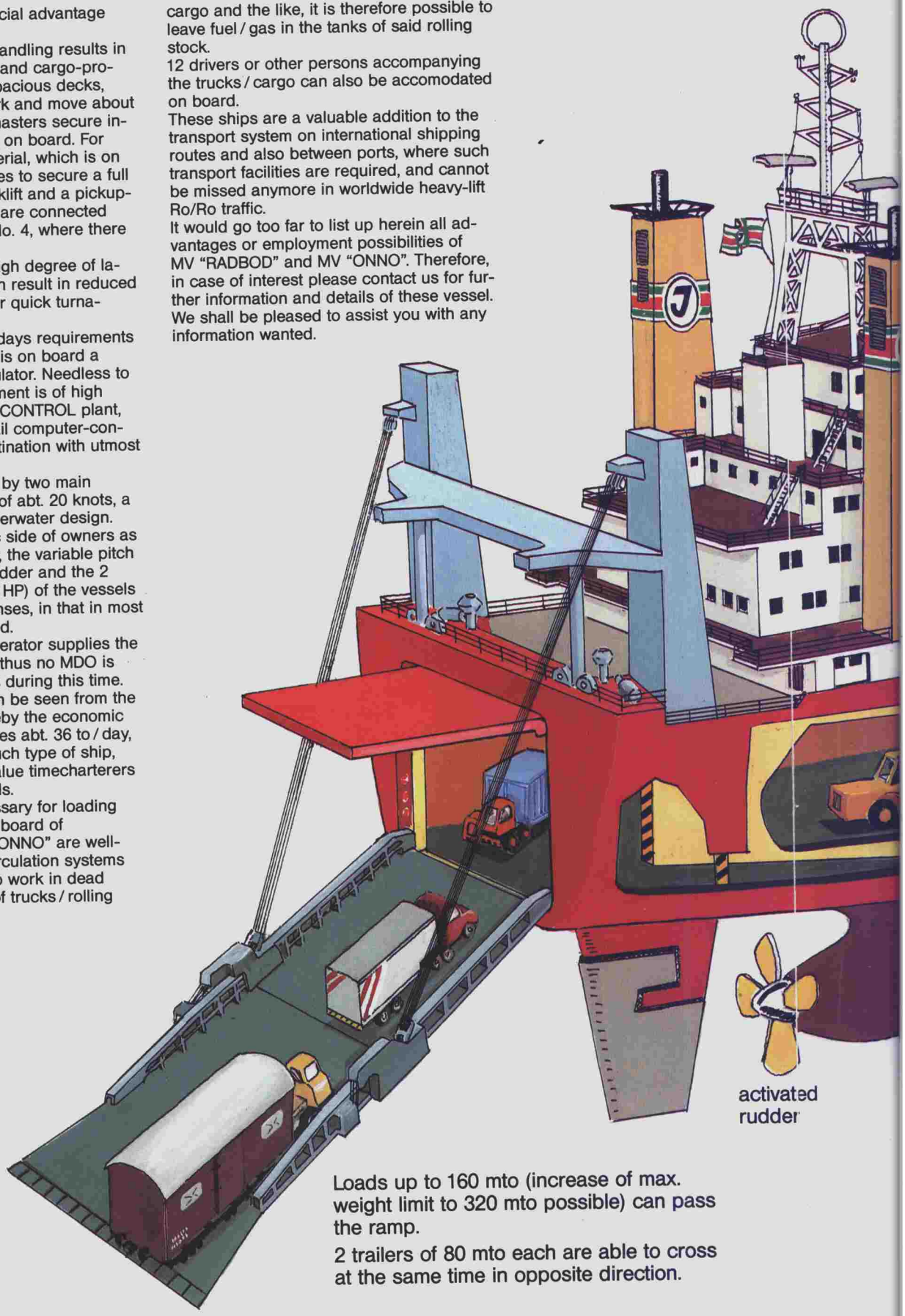

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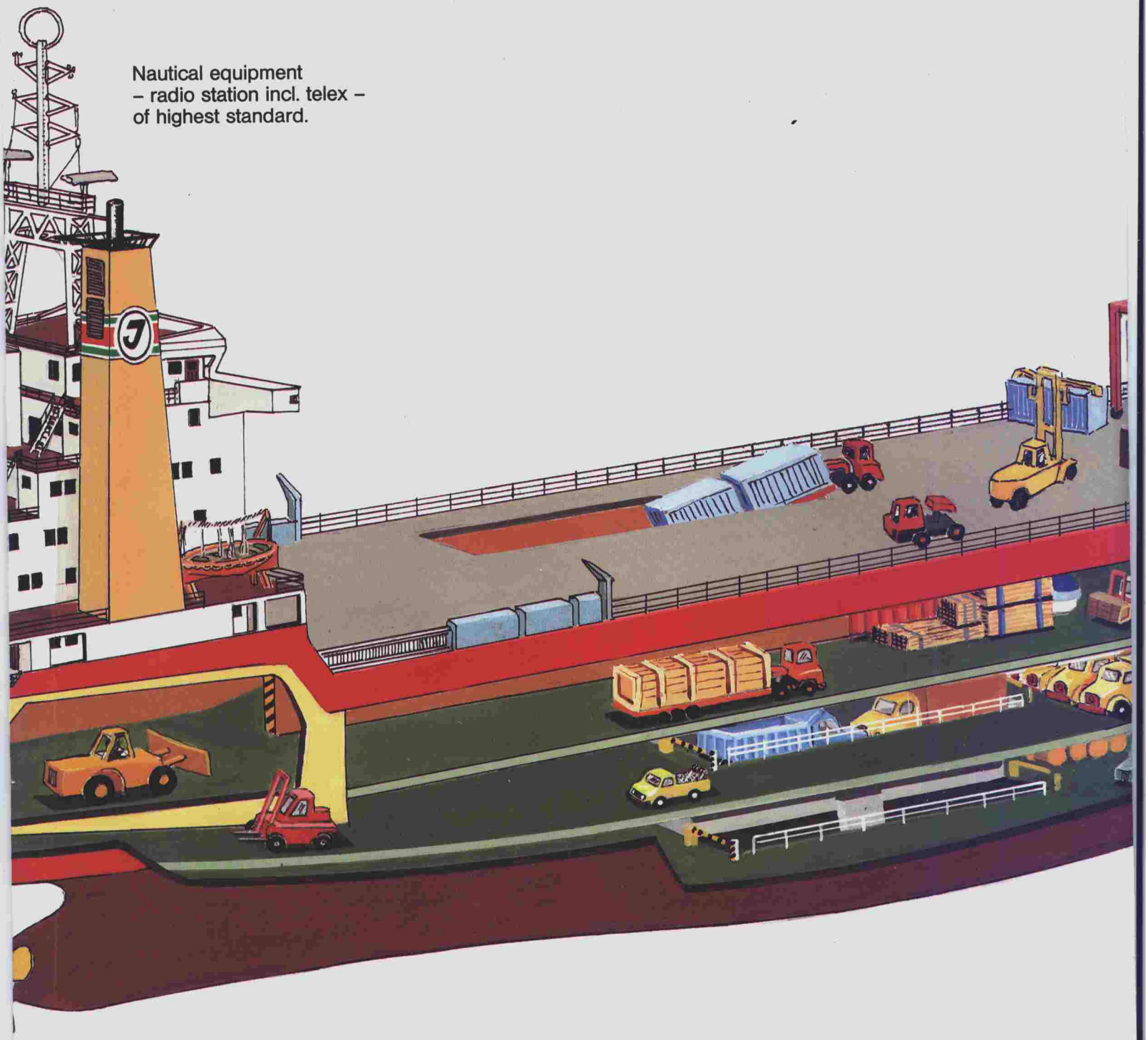

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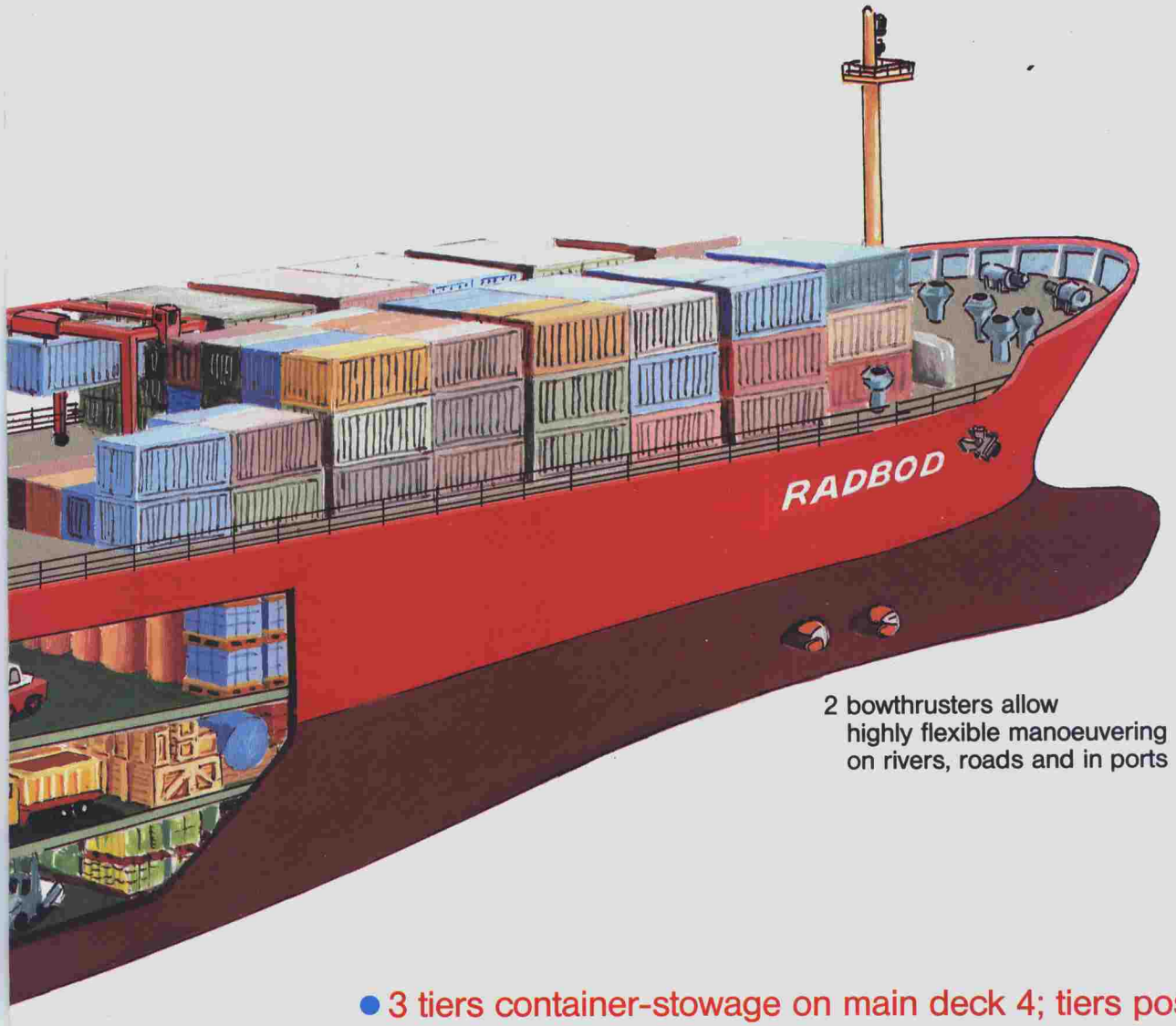

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- Own tugmasters and forklift on board
- Minimum of quai space required in case of stern mooring

Description and technical details of mv "RADBOD" (mv "ONNO", a sister of mv "RADBOD" has abt. the same details; particulars on request.)

Description and technical details:
Vessel was built and delivered by Howaldtswerke-Deutsche Werft AG, Kiel, December 1977;
Classification: GL + 100 A 4 E; + MC AUT – 24 / 24; Ro-Ro Schiff

Length over all:
193,32 m;

Length between pp.:
178,00 m;

Breadth mld.:
27,00 m;

Depth to weather deck, mld.:
17,60 m;

Depth to upper trailer deck:
12,40 m;

Draft:
8,62 m sfb;

Displacement:
24,955 mto fw.

Tonnage:
International GRT: 14187,67; NRT: 7167,82
Suez GRT: 22993,10; NRT: 19014,04
Panama GRT: 23372,05; NRT: 17481,97
DWAT: 15.075 mto.

Truck meter:
abt. 3600 m total

Lane meter:
3260 m, whereof 2302 m under deck and 958 m on deck.

Square meter:
all decks: 10470 m²

Trailer intake:
259 trailers 40', whereof 82 on deck, or 177 trailers 40', under deck and 519 containers 20' (3 tiers) on weather deck;

Max. Container intake:
1127 TEU with 4 tiers on deck

Container intake with 3 tiers on deck:
954 TEU, whereof 519 TEU on deck and 436 TEU under deck,
or 434 FEU + 47 TEU, whereof 252 / 15 FEU / TEU on deck, and 182 / 32 FEU / TEU under deck;

Stack load containers:
40 mto / 20' stack – 70 mto / 40' stack

Speed and consumption:
(speed / power / consumption / ISO conditions) basis vessel fully laden:
19 kn on 65 mto IF 180 cst. plus 4 mto MDO*
18 kn on 55 mto IF 180 cst. plus 4 mto MDO*
17 kn on 45 mto IF 180 cst. plus 4 mto MDO*

*) Vessel is equipped with shaft generator and consumes no MDO at sea, if shaft generator in operation, but in such case reduction of speed abt. 0,5 kn. Port consumption 6 mto MDO if all gear / ventilators working.

Main Engine:
2 MAN Diesels; Type 9 L 52 / 55 A, 9.494 shaft hp each total 18990 shaft hp.

Propeller:
1 controllable pitch propeller

Alternator-Sets:
2 Diesel engines, maker: MaK,
Type: 6M 282 AK
Output: 1320 HP;
1 port diesel / emergency diesel 415 HP;

Generators:
2 shaft generators, 1250 kW each;
2 diesel generators, 920 kW each;
1 emergency diesel generator, 250 kW.

Deck Machines:
2 combined windlass and automatic mooring winches; 8 automatic mooring winches;

Steering gear / Berthing equipment:
2 v. p. p. bow thrusters (Lips), 1200 HP each;
1 rotor activated, 72° rudder (Jastram);

Ventilation:
All decks mechanically ventilated incl. dead space ventl. to allow truck operations and shipment with full tanks.

Safety Installation:
In accordance with all national and international rules incl. a CO^2 fire extinguishing plant for all decks and engine room.

Nautical Equipment:
All modern equipment on board, such as: NORCONTROL data bridge with data sailing and anti-collision system, 2 radar sets, 2 Satnav units, Loran C navigator, speed log, course printer, anemometer, autopilot etc.; radio plant with 2 VHF units, telex, and weather fax.

Evaporator:
Capacity of fresh water evaporator: 25 mto/ day.

Ramps and Lifts:
One stern ramp, slewing type (on 2nd deck), 160 mto cap., length: 35,00 m, breadth: 7,00 m, slewing angle 33° each side of centre line, max. capacity can be increased to twice the normal load (2 x 160 mto = 320 mto) under special conditions.
One stern door clear height 7,50 m, clear breadth 11,00 m, hydr. operated.
One side door each side (on 2nd deck) with turntable, cap. 40 mto.
One weather deck ramp (from 2nd deck to weather deck) capacitiy 40 mto, length: 37,54 m, breadth: 3,54 m, 8°.
Ramp can be operated under load (two trailers of 40 mto gross weight if flush to weather deck, or one trailer of 40 mto gross weight if used as a ramp).
One fixed ramp (from 2nd to 3rd deck) cap. 80 mto, breadth: abt. 5,20 m 8°, ramp opening in 2nd deck can be closed by hydr. operated cover.
Two lifts: one portside and one starboard side on centreline from 3rd to 4th deck, cap. 80 mto each, length: 15,50 m, breadth: 3,40 m, lift openings in No. 3 deck can be closed by hydr. operated covers. Lift platforms in stowed position flush to No. 4 deck.
All covers of ramp and lift openings can be loaded with the same weight as adjacent deck areas.

Heights in all decks:
Clear height in all decks 4,20 m, exempt aft part of No. 2 deck (entrance area) measured from aft 7,50 m height over a length of abt. 10 m and abt. 5,00 m height over a length of abt. 19,00 m.

Loading equipment / Lashing material:
Loadmaster; anti-heeling equipment, abt. 1.900 lashing chains available on board; 2 Tugmasters, goosenecks, 1 forklift, 1 Pick-up

Length of lanes per deck:

1st deck:	958 m	
2nd deck:	1176 m	
3rd deck:	692 m	
4th deck:	434 m	(tanktop)
Total lane meters:	3260 m	(abt.)
Total truck meters:	3600 m	

Deck areas (abt.):

1st deck:	**3270 m²**	
2nd deck:	3800 m²	
3rd deck:	2000 m²	
4th deck:	1400 m²	(tanktop)
Total sqm on board:	10470 m²	(abt.)

Hold Volume:

2nd deck:	23500 m³
3rd deck:	12700 m³
4th deck / tanktop	8200 m³
Total hold volume:	44400 m³

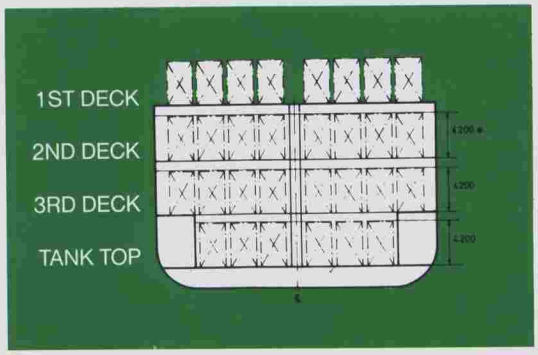
Tank Capacities:

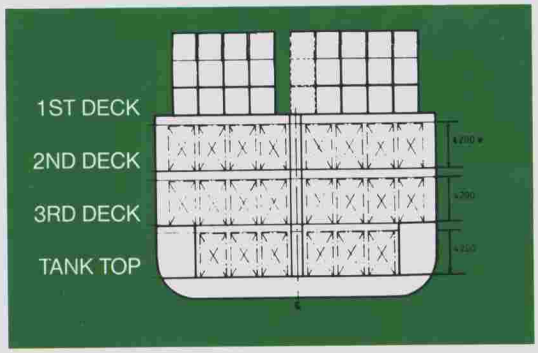
Fuel Oil:	3058 m³
Diesel Oil:	355 m³
Ballast Water:	6334 m³
Fresh Water:	138 m³
Lubricating Oil:	132 m³

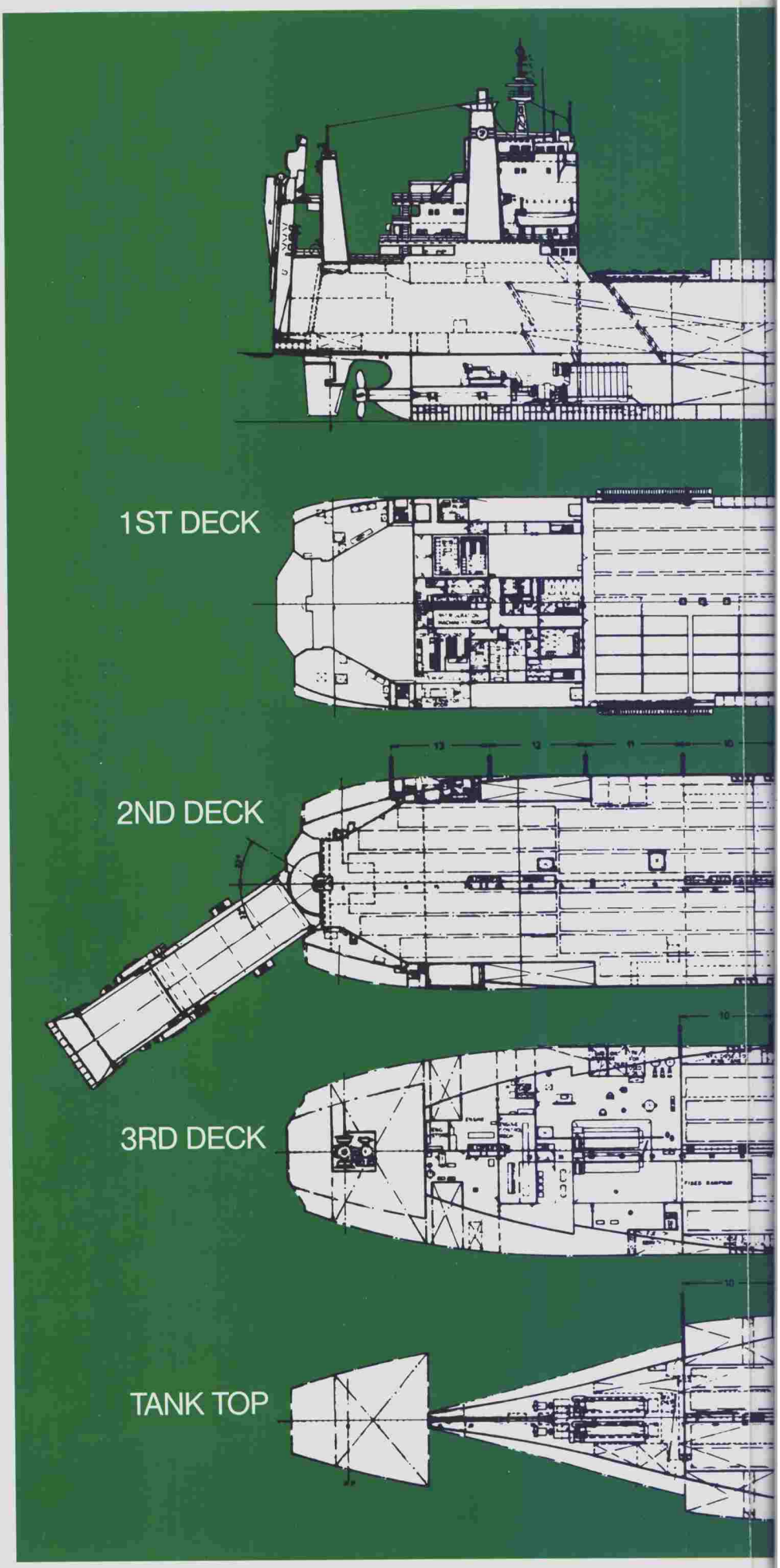
Operating range:
On basis of a speed of 16 knots = abt. 29.000 sm.

Remark:
All particulars herein are "about" and given in good faith, but without guarantee. Owners' time-charter descriptions always prevailing.

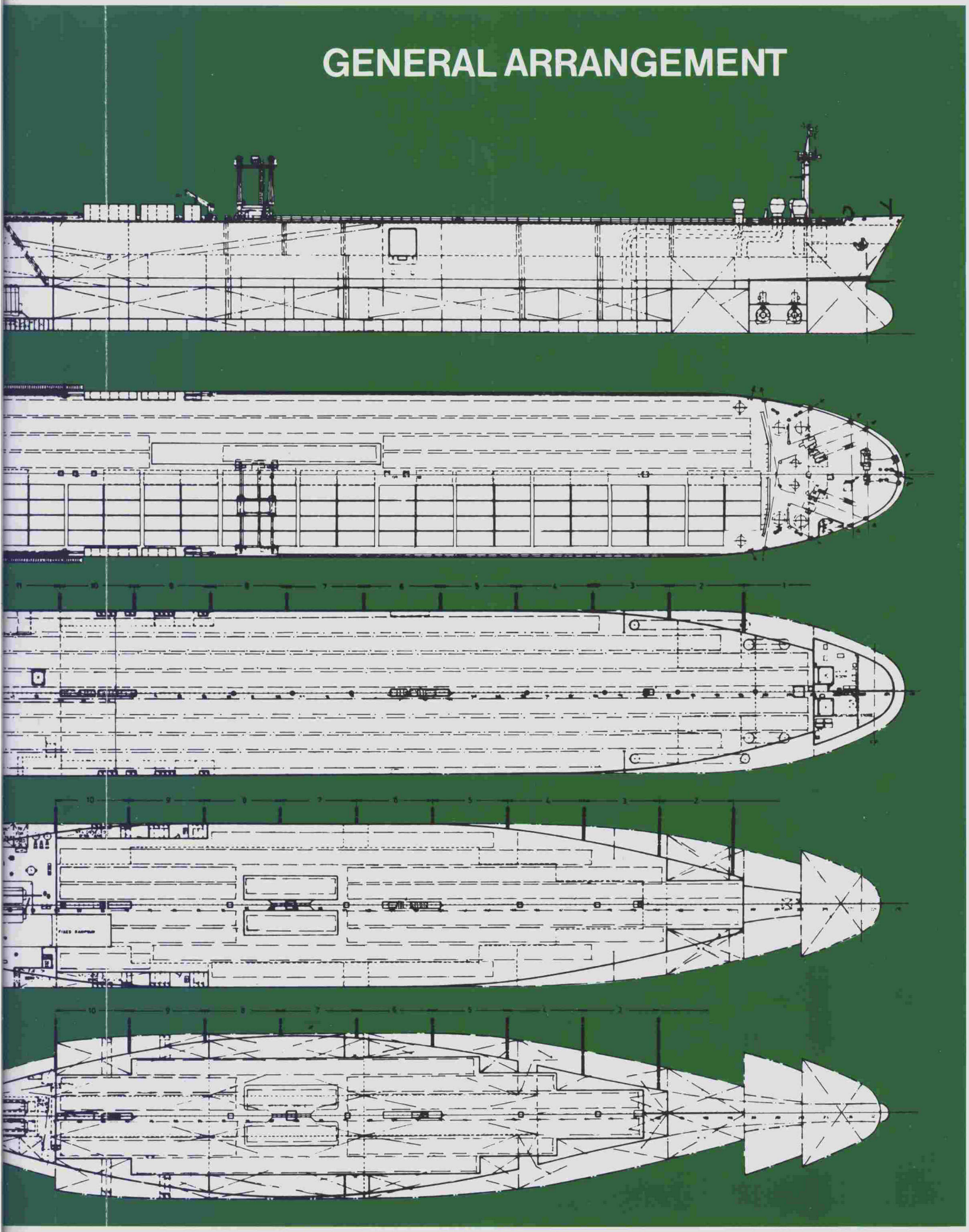
Notes:

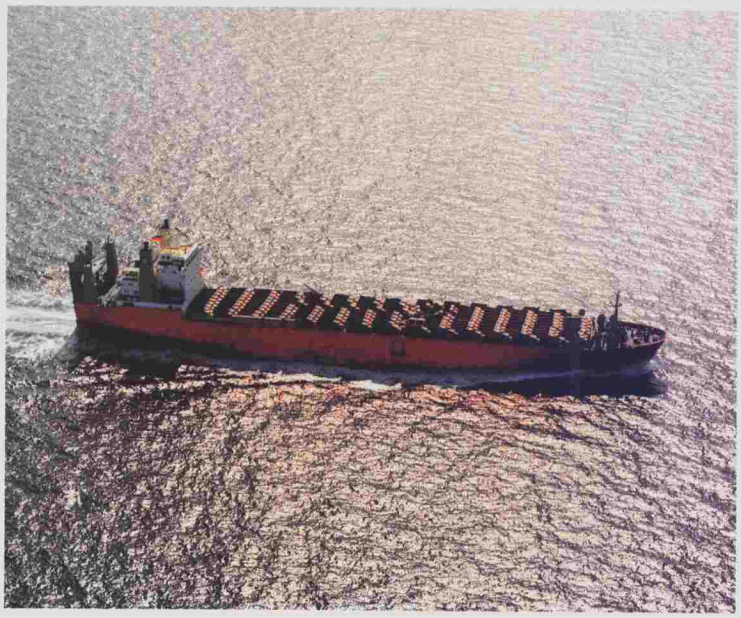

1ST DECK
2ND DECK
3RD DECK
TANK TOP

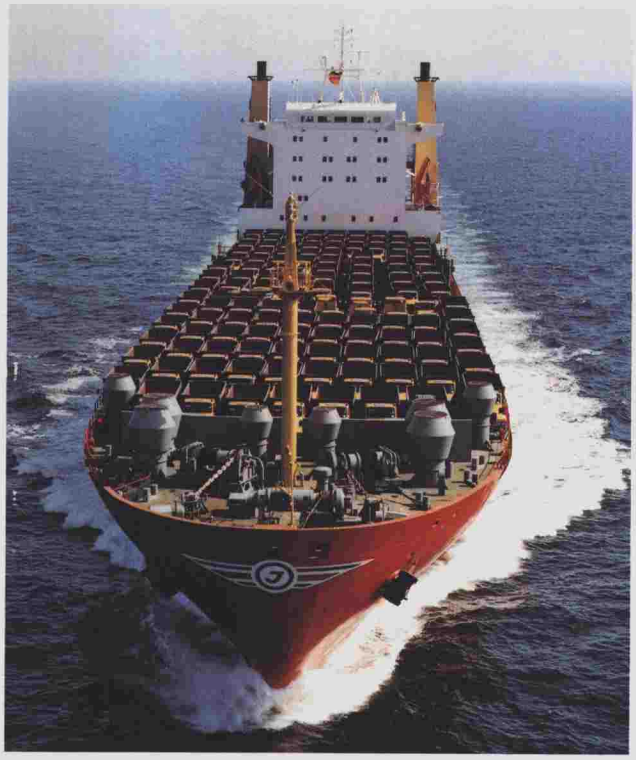

1ST DECK
2ND DECK
3RD DECK
TANK TOP


1ST DECK
2ND DECK
3RD DECK
TANK TOP

GENERAL ARRANGEMENT







Design & layout Kippenbroek Werbung, Bremen. Printed by Zertani, Bremen

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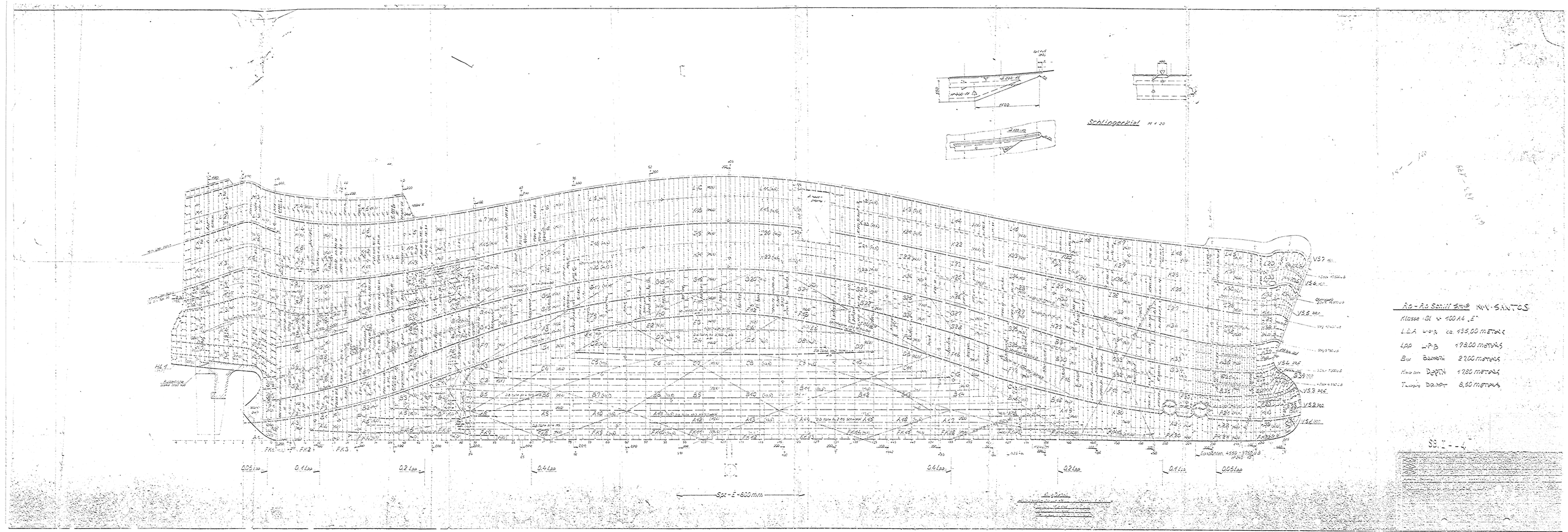
Schlingerkiel M 1:20
Ro-Ro Schiff Bau NV SANTOS
Klasse GL + 100 A4 „E"
L.O.A. LOA ca. 185,00 METERS
Lpp LPP 178,00 METERS
Bw BREADTH 27,00 METERS
Hw DEPTH 17,80 METERS
Tw DRAFT 8,50 METERS
Spt - E - 800 mm
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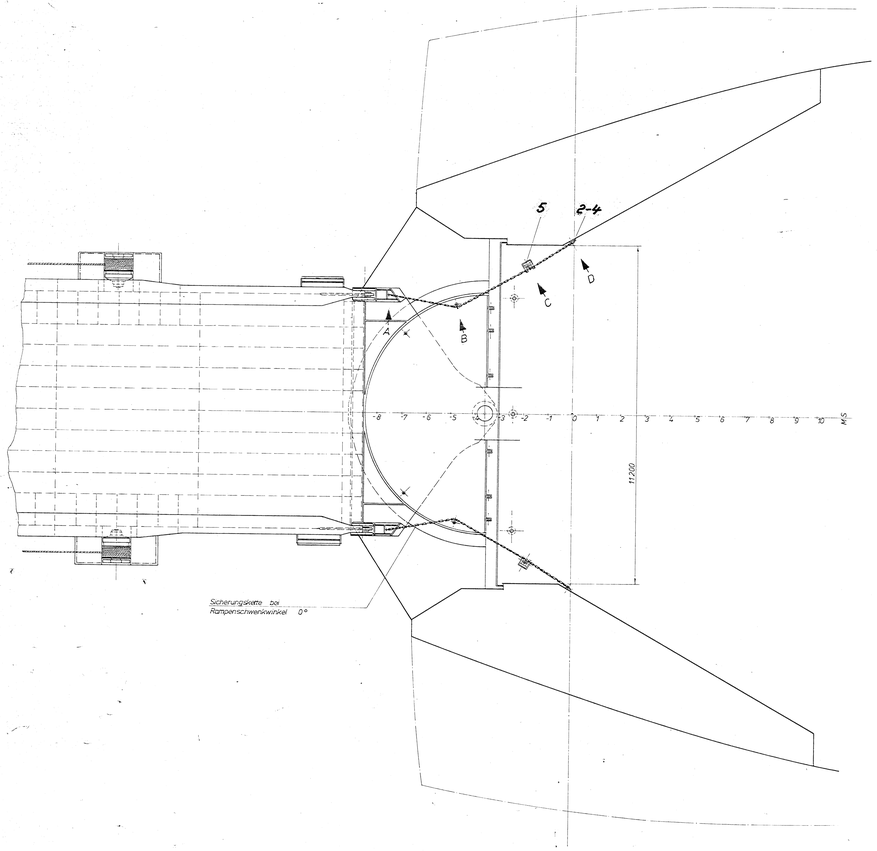
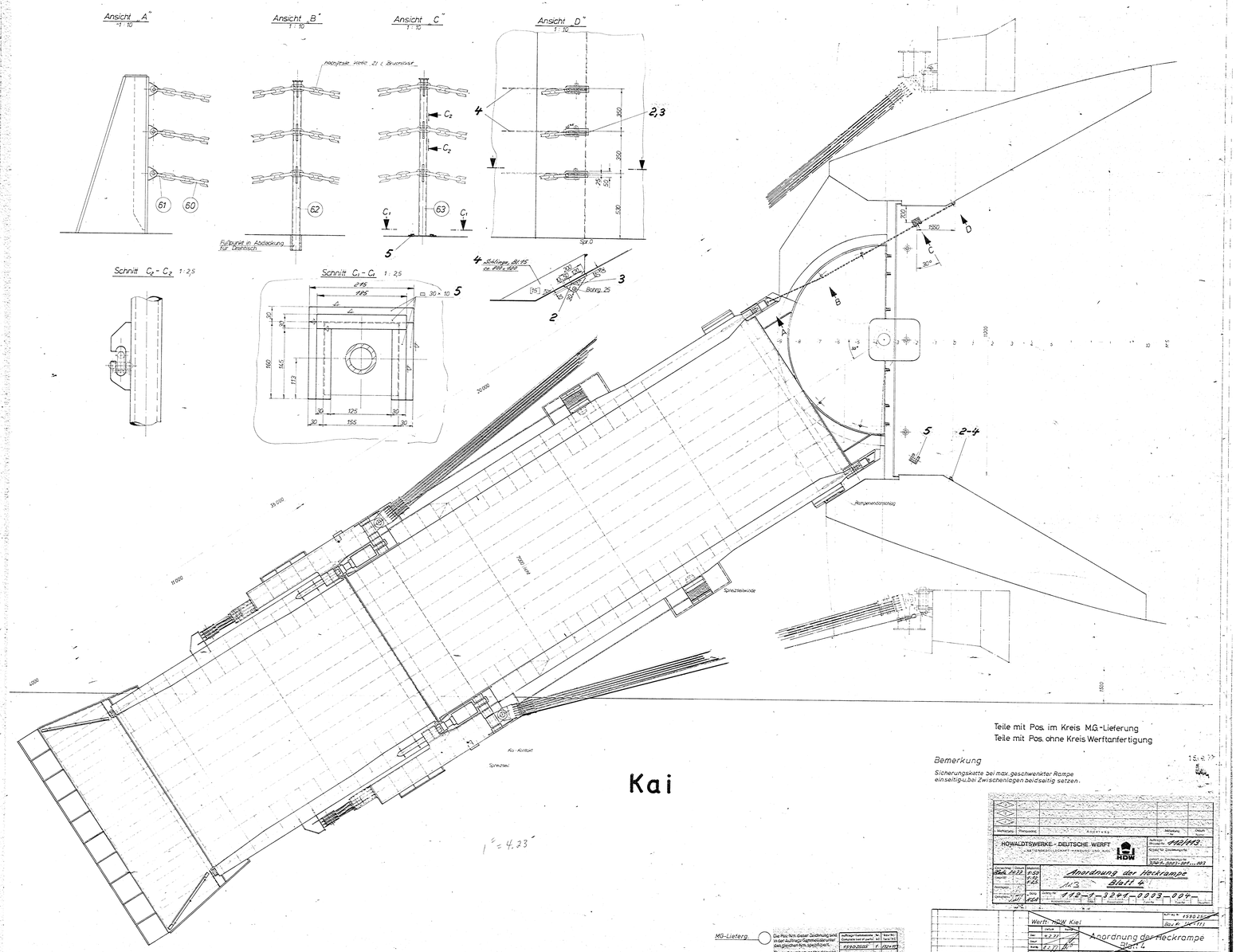
0,9 Lpp
0,95 Lpp



~~Ansicht A, B, C, D siehe Zchng. 0340045, Z. A~~



Teile mit Pos. im Kreis MG.-Lieferung
Teile mit Pos. ohne Kreis Werftanfertigung

Bemerkung

Sicherungskette bei max. geschwenkter Rampe einseitig, bei Zwischenlagen beidseitig setzen.

MG-Lieferg.

Die Pos.-Nrn. dieser Zeichnung sind in der Auftrags-Stammdatei unter dem gleichen Nrn. spezifiziert.
The part numbers on this drawing are specified under the same numbers on the complete list of parts.

Auftrags-Stammdatei Complete list of parts	Nr.	Benennung
1980-2985	1	12×25

Anordnung der Heckrampe
Blatt 5
Z.-Nr. 0340045 0
A
Deutsche M. MacGREGOR GmbH

Auftrags-Nr. 1540 / 1545
Maßstab 1:50 / 1:10
Blatt 1 / 2

Werftanfertigung | Fertigungs | Angeleg. | Änderung | Datum

HOWALDTSWERKE - DEUTSCHE WERFT
AKTIENGESELLSCHAFT HAMBURG UND KIEL
HDW
Auftrags-Stammdatei 1140/1145
Kunden-Zeichnungsnr.
Schiff-Nr. 1047-1051 ... 1053

Anordnung der Heckrampe
1053 Blatt 4
112-1-3244-0003-004-
Werft-Nr. 1112 Schiff-Nr. 1053 Blatt-Nr. 4 Zeichnungs-Nr. 0003 Änderungs-Index 004

Werft: HDW Kiel
Anordnung der Heckrampe
Blatt 4
Z.-Nr. 0340045 0
A
Deutsche MacGREGOR GmbH