

STAR 50 : A Technical Evolution Process of Handy Max Bulk Carrier

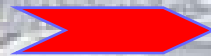
Marx Jefferson
PT. PAL Indonesia

The 4th ASEF - Kyoto, Japan
17-18 November 2010

TRANSFORMATION PROCESS



GENERAL CARGO 3000 DWT



DCV 18.500 DWT



OHBC 43,000 DWT



DSBC STAR 50

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GENERAL FEATURES

- For Bulk Cargoes, such as grain, ore, cement, coal, wooden pulp also paper rolls, hot coil and package timber and lumber. Earlier design can carrying containers 20 ft and 40 ft.
- **Class Experience and Notation : GL, LR, NK, DNV**
 - + 100 A5 Bulk Carrier MC E1 AUT (24 hours unmanned)
 - LR : ✕ 100 A1 Bulk Carrier strengthened for heavy cargo no. 2, and 4 holds may be empty LMC, UMS (24 hours unmanned) IWS.
 - ✕ 1A1 Bulk Carrier ESP, BC-A Nauticus (New building) ib(+) no. 2 and 4 holds may be empty, EO NS * (BCM-A) (ESP) MNS* (MO), IWS

With Tank top to be strengthened for discharge by grabs
- **Double Skin Bulk Carrier with Box Shaped Midship Section for increasing loading and unloading rates**
- **Five Cargo Holds and Seven Cargo Holds on First Generation**

RULES & REGULATIONS

Comply with :

- SOLAS/Grain Regulations**
- Safety of Life at Sea (SOLAS) 1974, protocol 1978, 1981, 1982**
- International Load Line 1966**
- GMDSS - Area 3**
- MARPOL**
- International Tonnage Regulation 1969**
- Panama & Suez Canal Regulations**
- USCG Rules and Regulations for Foreign Vessel**
- Australian Waterside Worker's Federation (AWWF)**
- Other Rules & Regulations which has to be complied with IMO**

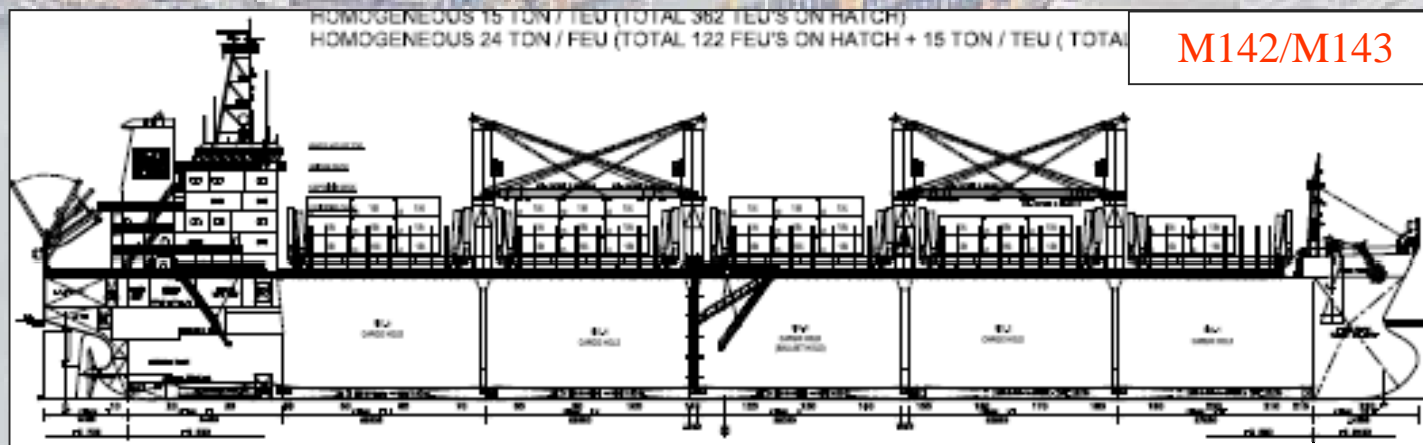
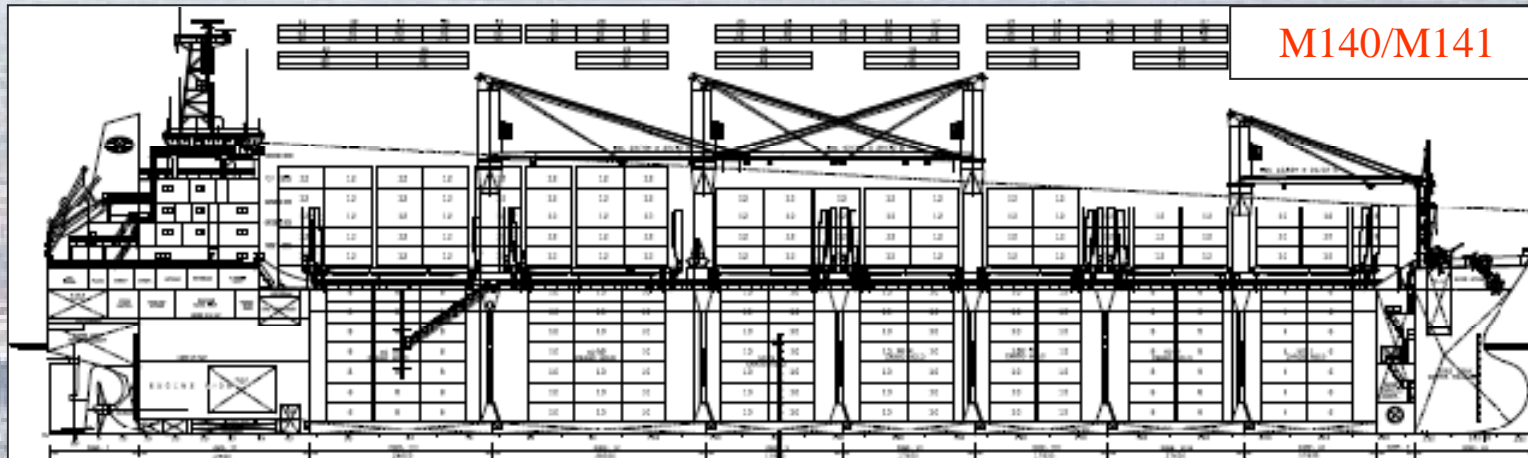
DELIVERED SHIPS

PAL Hull Number	Ship's Name	Ship's Type	Class Notation	Max. Deadweight (tons)
M000140	MV Ramin	OHBC	GL	43,000
M000141	MV Eboni	OHBC	GL	43,000
M000142	MV Cemara	DSBC	LR	45,000
M000143	MV Cendana	DSBC	LR	45,000
M000229	MV Serpentine	DSBC (STAR 50)	DNV	50,000
M000230	MV Saturnus	DSBC (STAR 50)	DNV	50,000
M000231	MV Erlyne	DSBC (STAR 50)	DNV	50,000
M000236	MV Larch Arrow	DSBC (STAR 50)	NK	50,000
M000237	MV Birch Arrow	DSBC (STAR 50)	NK	50,000

PRINCIPAL PARTICULARS

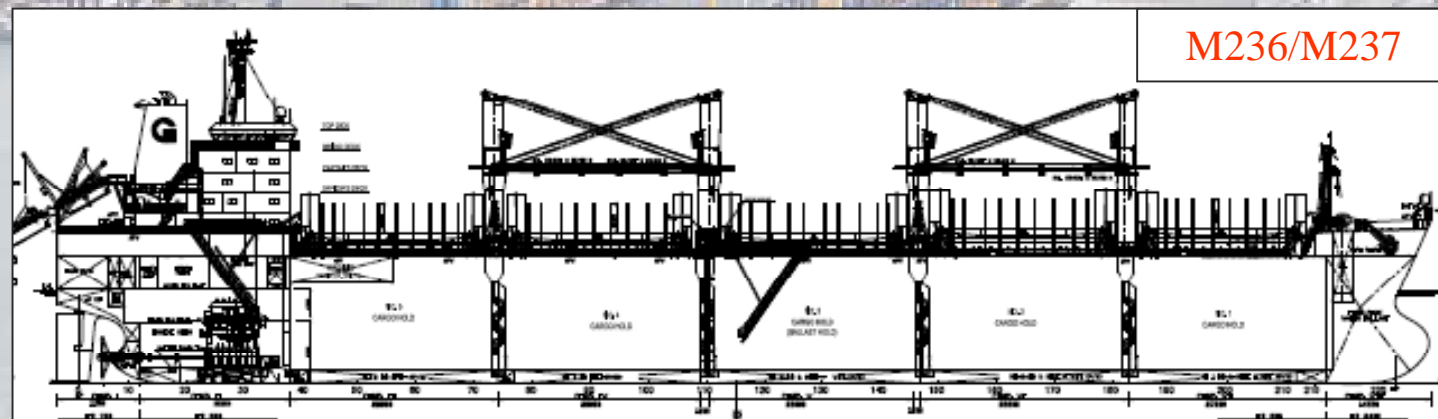
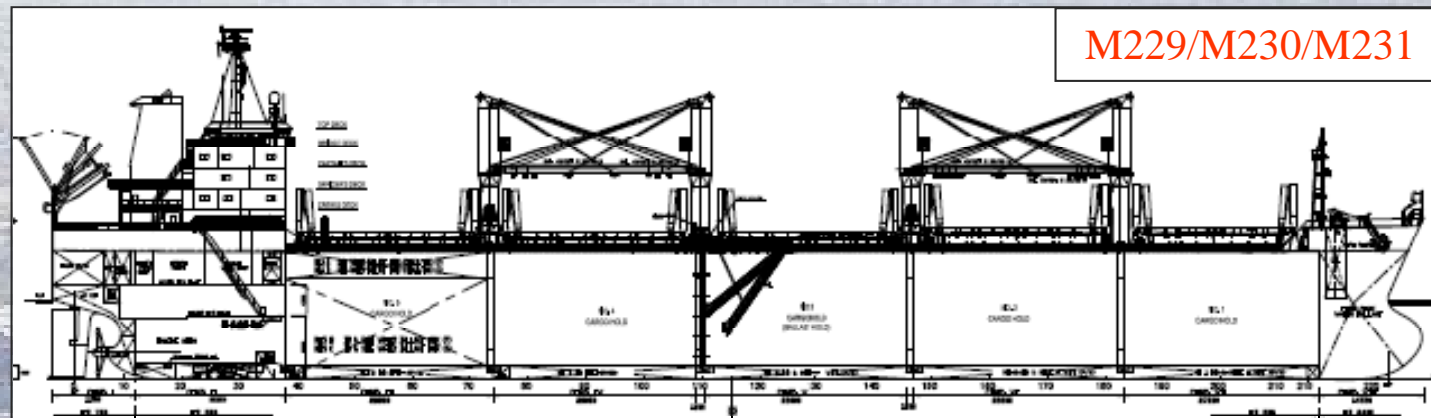
PARTICULARS	M140/M141	M142/M143	STAR 50
LOA (m)	195.00	189.90	189.90
LPP (m)	185.00	182.00	182.71
B (m)	30.50	30.50	30.50
D (m)	19.00	16.90	17.50
T design (m)	11.50	11.00	11.00
T scantling (m)	12.045	11.80	12.80
Vs (knots)	15.0 at T = 12 m	14.0 at T = 11 m	14.5 at T = 11 m
Cargo Holds (m ³)	59,905	57,711	60,000
Main Engine	Hyundai BW 6S60MC-6	MAN BW S60MC-6	STX 6S50MC-C

SIDE VIEW ARRANGEMENT



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SIDE VIEW ARRANGEMENT



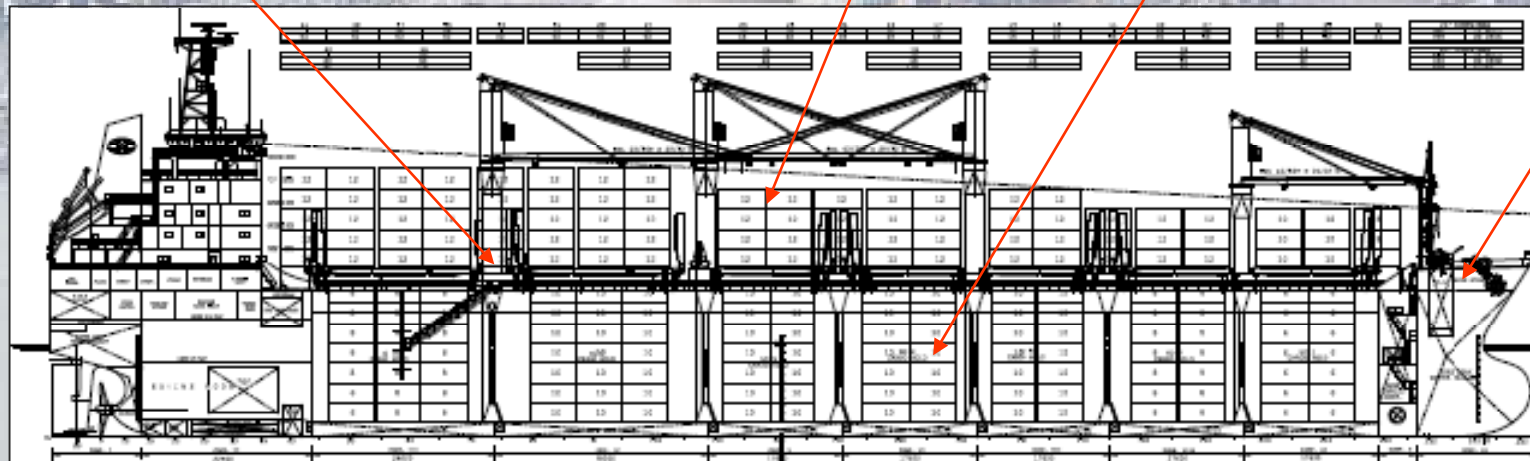
FIRST GENERATION (M140/M141)

20 ft container : 340 TEU
40 ft container : 824 TEU

Class 1 E Ice Strengthening

7 CARGO HOLDS

Type B
Freeboard



OPEN HATCH BULK CARRIER

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SECOND GENERATION (M141/M142)

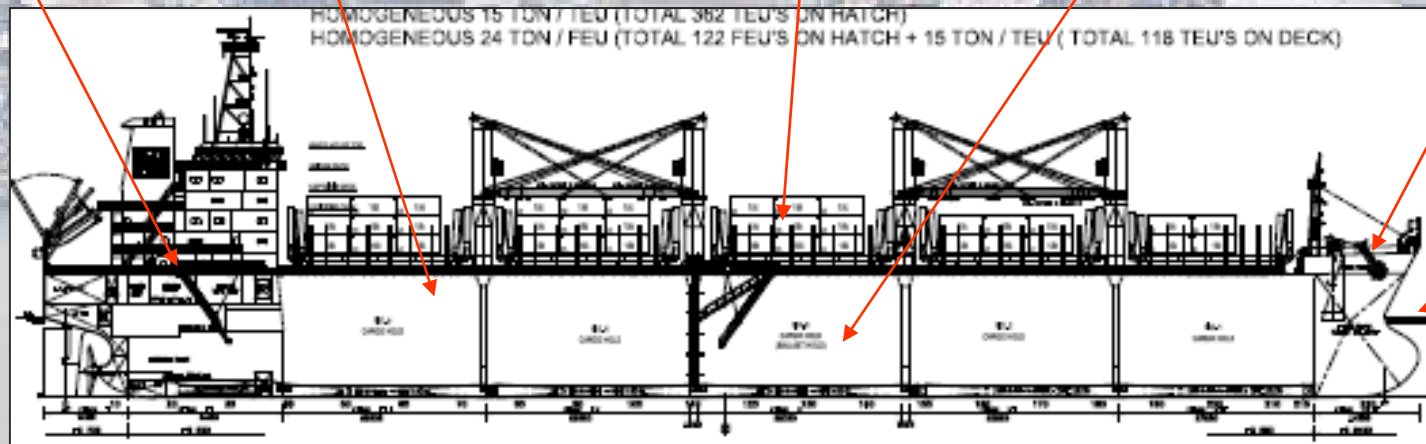
No Class 1 E Ice
Strengthening

20 ft container : 362 TEU
40 ft container : 122 TEU

No Poop Deck

5 Cargo Holds

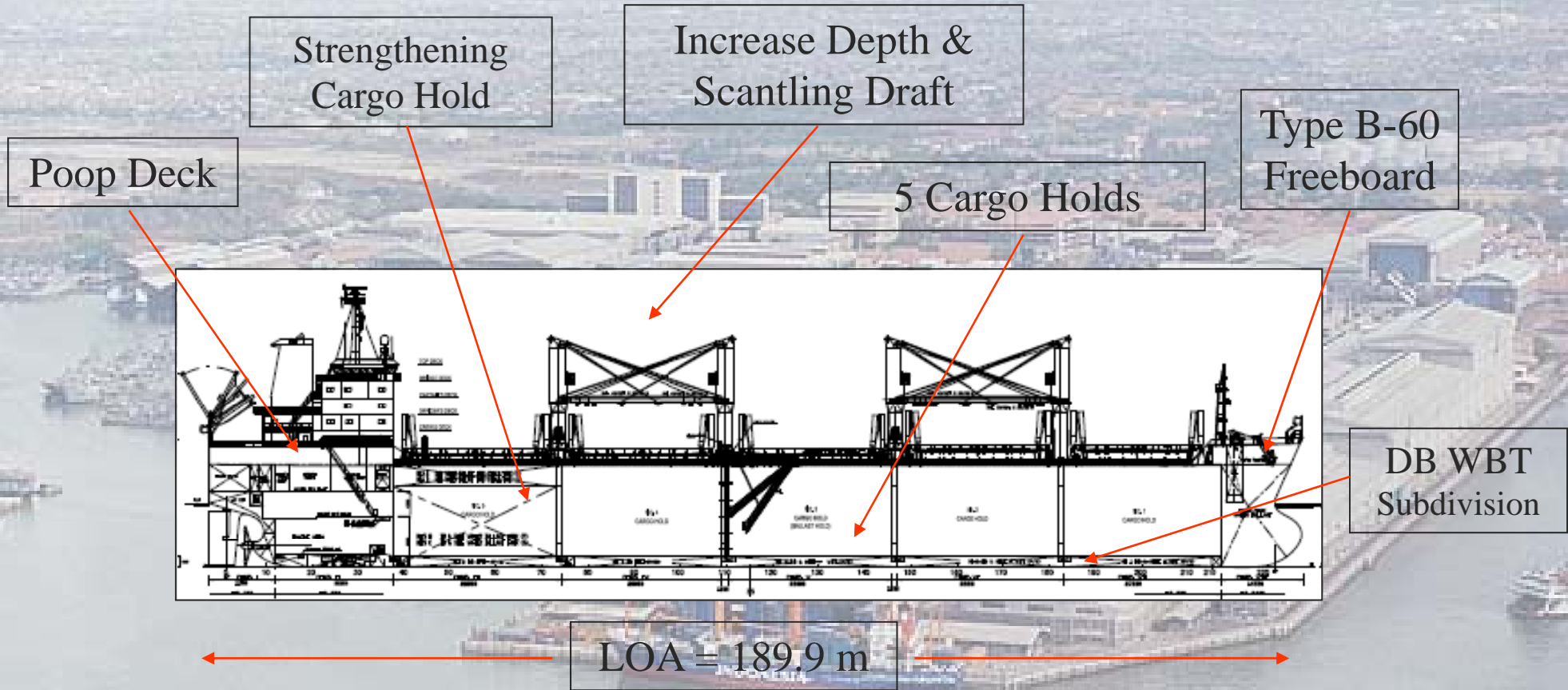
Type B
Freeboard



Reduced
D & T

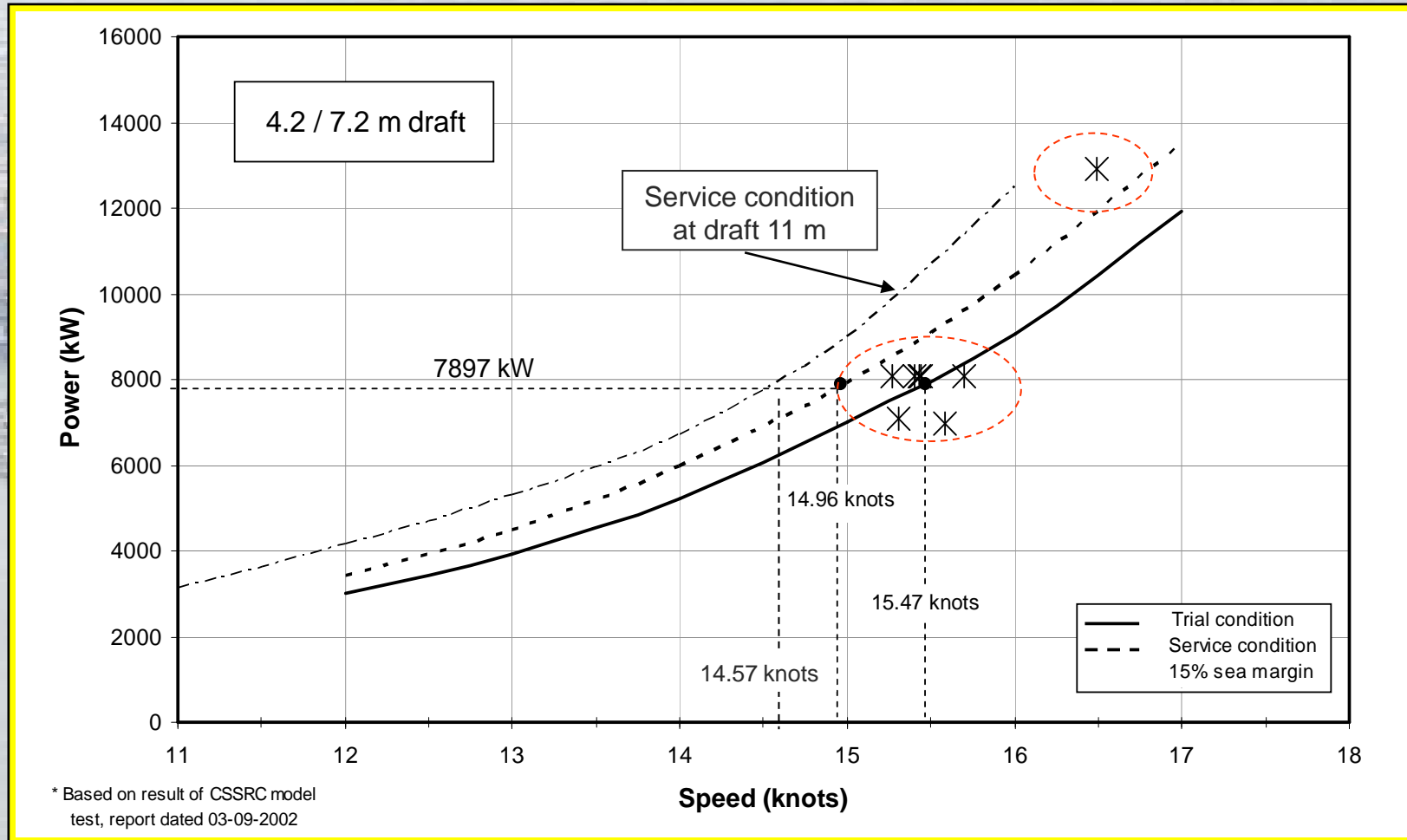
Shortened LOA

THIRD GENERATION (STAR 50)



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RESULT OF SEA TRIALS

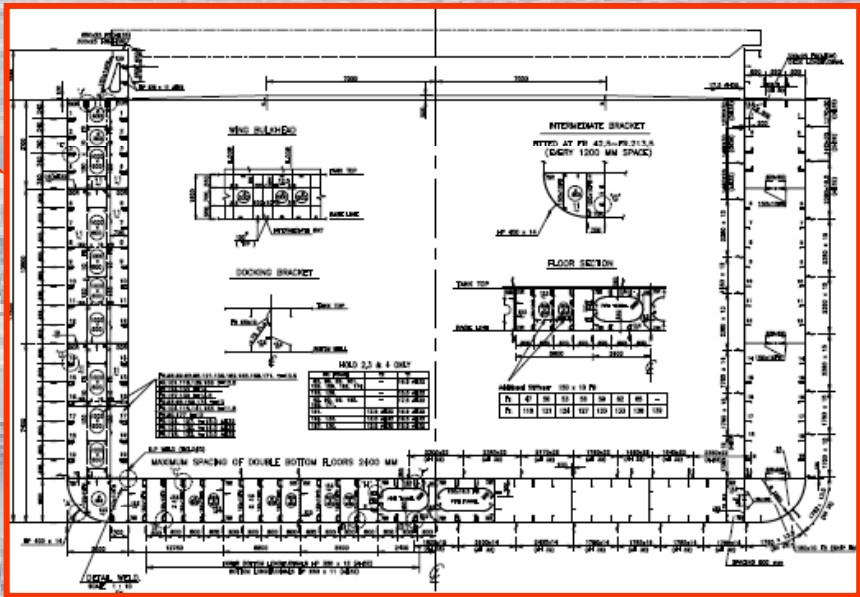


MAIN ISSUES

DEFINITIONS
 IACS UR Z11
 IACS UR S25
 IMO MSC81/8/3
 SOLAS IX
 IACS CSR

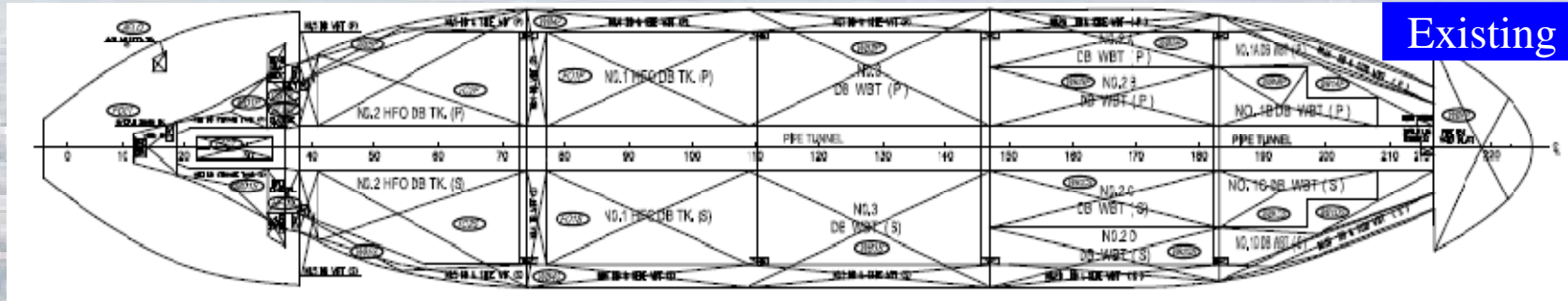
MARPOL REG. 12A
 IMO RES.
 A8689(20)

COMPLY
 IACS UR S21, 25 - 28
 SOLAS II, XII
 ILLC REG. 39

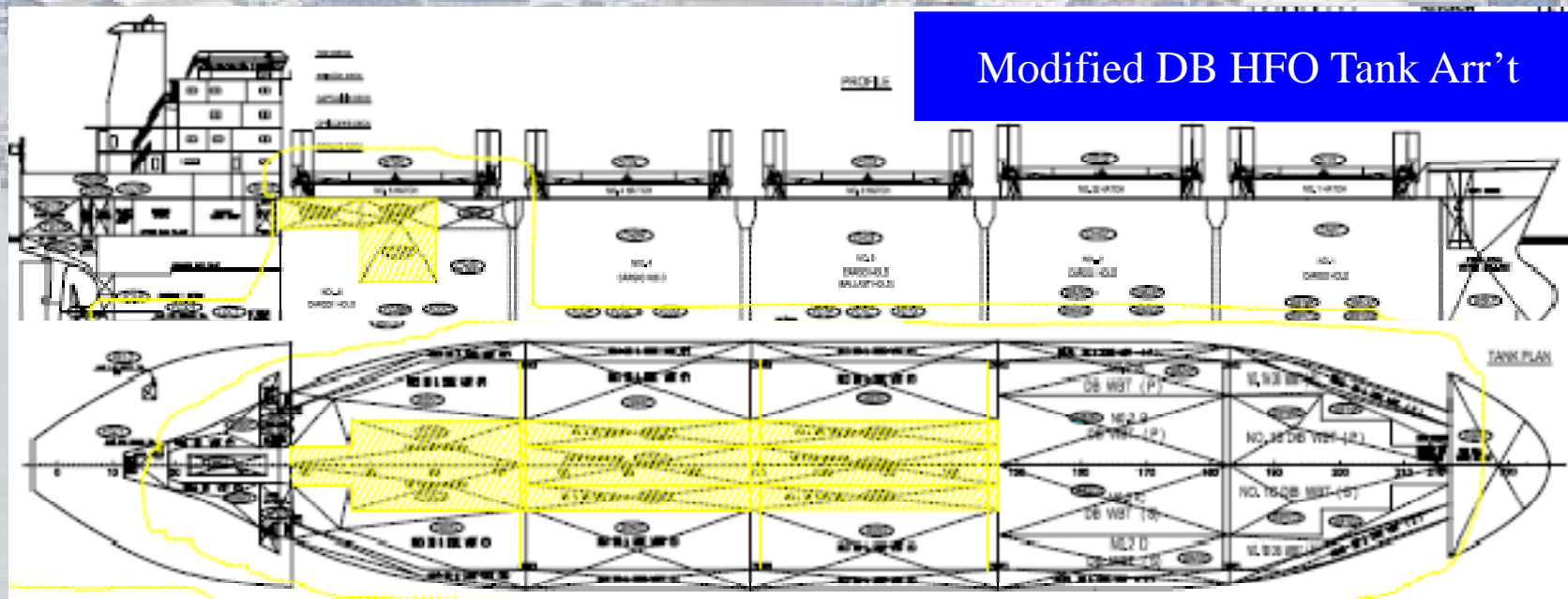


BOX SHAPED

MARPOL REGULATION 12A



Existing

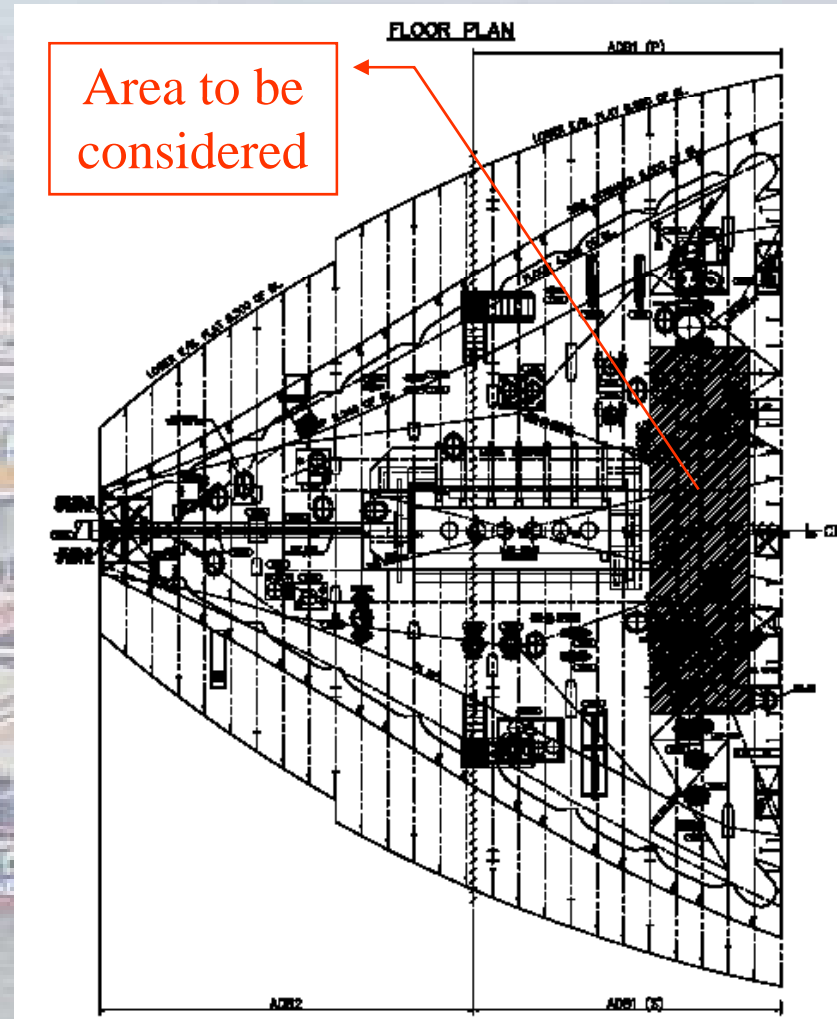


Modified DB HFO Tank Arr't

IMO RESOLUTION A.868(20)

❖ EXISTING :
SEQUENTIAL METHOD

➤ NEXT SHIP :
AFTER 2012, USES D-2



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THANK YOU

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