

# M.V. "RAKAIA"

## NEW ZEALAND SHIPPING COMPANY LIMITED

### HISTORY

- 1945 Built for the Ministry of War Transport by Harland and Wolff Limited, Belfast, and named "Empire Abercorn". Managed by the New Zealand Shipping Company Limited.
- 1946 Acquired by the New Zealand Shipping Company Limited and renamed "Rakaia".
- 1950 Converted to a cadet training ship and first sailed in this role on 10<sup>th</sup> June.
- 1953 Carried the second consignment of wool from Australia to Odessa during a dock strike that closed UK ports.
- 1957 In rough seas and 700 miles out from New York, a main engine piston rod snapped, putting the ship out of action. Tarpaulin sails were set at the No. 2 hatch derrick posts and between the derricks at No. 5 hatch. A staysail was also erected at the forecastle. With these sails and the engine operating at only 50 rpm, it took a further 11 days to reach Liverpool.
- 1966 Transferred to the Federal Steam Navigation Company on 28<sup>th</sup> December – but remained under the management of the New Zealand Shipping Company Limited.
- 1968 Last voyage as a cadet training ship ended on 28<sup>th</sup> March.
- 1971 Sold to the Lee Sing Company, Hong Kong, for breaking up.

### GENERAL

OFFICIAL NUMBER	168539
CODE LETTERS	GFGW
PORT OF REGISTRY	London

## **TONNAGES**

GROSS TONNAGE BRITISH	8213.05
NET TONNAGE BRITISH	4503.51
GROSS TONNAGE PANAMA	8716.38
NET TONNAGE PANAMA	5543.86
GROSS TONNAGE SUEZ	6698.74
NET TONNAGE SUEZ	5885.20

## **PRINCIPAL DIMENSIONS**

LENGTH OVERALL	474' - 2.0"
LENGTH BETWEEN PERPENDICULARS	450' - 0.0"
BREADTH MOULDED	63' - 0.0"
DEPTH MOULDED TO UPPER DECK	37' - 8.5"
SUMMER DRAFT	29' - 2.0"

## **DESIGN**

CONSTRUCTION	Steel
ACCOMMODATION	Originally for 45 passengers then, on conversion, for 40 cadets.

## CAPACITY

INSULATED CARGO						CHANGE OF TRIM DUE TO ADDING 100 TONS AT CENTRE OF SPACE	
COMPARTMENT	SPARRING*	CUBIC FEET	TONS @ 40 ]	VCG	LCG	FORWARD	AFT
No. 2 HOLD	1020	31530	788	11.36	329.95	+ 7.44"	- 2.96"
3		42650	1066	10.26	267.84	+ 4.50"	- 0.26"
4	770	63777	1594	17.32	123.63	- 2.33"	+ 6.02"
5	640	24357	609	23.50	58.80	- 5.40"	+ 8.85"
TOTAL HOLDS	2430	162314	4057				
No. 2 LOWER TWEEN DK.		27815	695	22.98	329.49	+ 7.41"	- 2.95"
3		39473	987	21.73	267.96	+ 4.50"	- 0.27"
TOTAL LOWER TWEEN DECKS		67288	1682				
No. 2 UPPER TWEEN DK. LOCK UP SPACE		4830	123	33.93	353.9	+ 7.41"	- 2.94"
2 AFTER SPACE		24197	603		326.0		
3		39803	995	32.87	272.92	+ 4.73"	- 0.49"
4		38950	974	32.92	123.87	- 2.31"	+ 6.02"
5		30520	763	34.54	54.61	- 5.59"	+ 9.04"
TOTAL UPPER TWEEN DECKS		138300	3458				
TOTAL INSULATED CARGO		367902	9197				

\*The capacity occupied by sparring on floor of holds [air space] is not deducted from hold capacities but is included in the figures above. See notes on measurement of cargo spaces below.

INSULATED STORES				
COMPARTMENT	CUBIC FEET	TONS @ 40 ]	VCG	LCG
MEAT ROOM	1820	46	42.27	213.32
VEGETABLE ROOM	1170	29	42.09	192.20
HANDING ROOM	640	16	42.50	191.60
TOTAL INSULATED STORES	3630	91	42.25	202.69

GENERAL CARGO							CHANGE OF TRIM DUE TO FILLING SPACE AT 50 CUBIC FEET PER TON	
COMPARTMENT	CUBIC FEET GRAIN	TONS @ 40 ]	CUBIC FEET BALE	TONS @ 40 ]	VCG	LCG	FORWARD	AFT
No. 1 HOLD	19357	484	16660	416	13.05	388.89	+ 34.02"	- 18.78"
No. 1 LOWER TWEEN DECK	18085	452	15834	396	25.78	390.44	+ 32.83"	- 18.08"
No. 1 UPPER TWEEN DECK	23705	592	21058	526	36.83	392.44	+ 44.14"	- 24.37"
No. 3 BRIDGE TWEEN DECK	39395	985	34900	872	41.52	272.39	+ 32.96"	- 3.28"
No. 2 HATCH	1397	35	1305	33	41.29	328.50	+ 1.91"	- 0.76"
No. 4 HATCH	1397	35	1305	33	40.55	118.50	- 0.67"	+ 1.62"
No. 5 HATCH	1397	35	1305	33	41.83	55.50	- 1.44"	+ 2.34"
TOTAL GENERAL CARGO	104733	2618	92367	2309				

All LCGs are measured from the AP in these tables.

#### MEASUREMENT OF CARGO SPACES

##### Insulated Cargo Capacities

Hold spaces are measured from face to face of battens on all surfaces and from underside of beams [or insulation where fitted] overhead to insulation on tank top.

Tween deck spaces are measured from face to face of battens, or screens, and from underside of insulation, or beams, to top of deck.

##### General Cargo Capacities

Bale capacities are measured from face to face of frames and stiffeners and from underside of beams to top of deck.

Grain capacities are measured from steel to steel at shell, deck and tank top.

TANKS						CHANGE OF TRIM DUE TO FILLING TANKS	
COMPARTMENT	OIL FUEL	FR WATER	W BALLAST	VCG	LCG	FORWARD	AFT
No. 1 DOUBLE BOTTOM	56		65	2.48	388.52	+ 6.62"	- 3.60"
No. 2 DOUBLE BOTTOM P & S	133		155	2.01	327.55	+ 11.34"	- 4.44"
No. 3 DOUBLE BOTTOM P & S	290		339	2.01	263.86	+ 14.60"	- 0.30"
No. 4 DOUBLE BOTTOM P & S		142		3.12	214.19	+ 2.78"	+ 2.95"
No. 5 DOUBLE BOTTOM P	79		93	3.10	172.29	- 0.02"	+ 3.63"
No. 5 DOUBLE BOTTOM S	111		130	3.13	178.19	+ 0.33"	+ 4.74"
No. 6 DOUBLE BOTTOM P & S		155		1.99	128.29	- 3.26"	+ 9.03"
TOTAL DOUBLE BOTTOM	669	297	782				
FWD MIDSHIP BUNKER P	187			17.30	171.00	- 0.17"	+ 7.40"
FWD MIDSHIP BUNKER S	181			16.89	171.00	- 0.15"	+ 7.17"
AFT MIDSHIP BUNKER P	48			8.41	159.07	- 0.31"	+ 2.15"
AFT MIDSHIP BUNKER S	42			8.32	158.98	- 0.27"	+ 1.89"
AFTER BUNKER P	156		182	9.28	71.42	- 8.74"	+ 15.10"
AFTER BUNKER S	128		150	9.19	71.79	- 7.17"	+ 12.43"
FORE PEAK			27	16.00	432.92	+ 3.32"	- 2.02"
AFT PEAK		136	140	26.65	11.13	- 10.69"	+ 15.32"
SETTLING TANKS P & S	[50]			38.50	168.00	- 0.11"	+ 2.05"
TOTAL ABOVE DOUBLE BOTTOM	742	136	499				
TOTAL TANK CAPACITIES	1411	433	1281				

Oil fuel capacities are taken at 0.88 specific gravity or 40.86 cubic feet per ton 100% full.

Oil fuel in double bottom overflow tank port is taken at 0.88 specific gravity or 40.86 cubic feet per ton 100% full 27 tons.

Lubricating oil in double bottom drain tanks port and starboard is taken at 0.899 specific gravity or 40.00 cubic feet per ton 100% full 32 tons.

STORE ROOMS						
COMPARTMENT	CUBIC FEET GRAIN	TONS @ 40 ]	CUBIC FEET BALE	TONS @ 40 ]	VCG	LCG
DRY STORE	2160	54	1800	45	42.10	143.44
BEER STORE	660	17	600	15	42.22	157.75
BONDED STORE	450	11	330	8	41.74	157.88
BULK STORE	870	22	710	18	41.94	176.25
LINEN LOCKER	600	15	500	13	41.94	167.06
FORE PEAK UPPER	1180	30	760	19	50.05	443.90
FORE PEAK MIDDLE	1220	31	740	18	39.92	430.28
FORE PEAK LOWER	690	17	310	8	29.25	429.50
STORE IN FORE CASTLE PORT	940	23	760	19	48.15	425.22
STORE IN FORE CASTLE STARBOARD	1100	27	850	21	48.27	427.63
PAINT ROOM	700	18	590	15	47.16	409.75
ACID ROOM	600	15	500	12	47.60	416.63
LAMP ROOM	520	13	480	12	47.33	409.88
MAIL AND SPECIE ROOM	260	6	260	6	67.00	244.75
DECK STORE IN POOP [FORWARD PORT]	290	7	280	7	45.13	22.69
DECK STORE IN POOP [AFT PORT]	460	12	440	11	45.43	13.50
DECK STORE	480	12	460	12	45.38	14.75
STORE ON MAIN DECK AFT	1360	34	1140	29	37.50	9.60 AFT
STORE BELOW MAIN DECK AFT	1090	27	880	22	30.25	4.97 AFT
TOTAL STORE ROOMS	15630	391	12390	310	43.14	226.26

## **ENGINE**

BUILDER	Harland and Wolff Limited
TYPE	2 Cycle – Double Acting [Burmeister and Wain]
CYLINDERS	8
BORE	550 mm
STROKE	1200 + 400 mm
BHP	7500 at 115 rpm
STARTED BY	Compressed Air – maximum pressure 25 atmospheres

## **AUXILIARY BOILER**

BUILDER	Harland and Wolff Limited
TYPE	Clarkson Cylindrical
DIMENSIONS	7' - 11" diameter x 20' - 9" high
WORKING PRESSURE	100 pounds
FUEL	Waste Heat or Oil
SURFACE AREA	850 square feet

## **ELECTRICAL INSTALLATION [SHIP'S PLANT AND REFRIGERATION PLANT]**

MAIN GENERATORS	4 x Diesel
OUTPUT	250 kW – 220 Volts
CYLINDERS	6
BORE	316 mm
STROKE	380 mm
BHP	335 at 420 rpm
AUXILIARY GENERATOR	1 x Diesel
OUTPUT	15 kW – 220 Volts
CYLINDERS	3
BHP	30 at 1000 rpm

## **WIRELESS INSTALLATION**

TRANSMITTER	Siemens HF and MF
RECEIVERS	Siemens SB 173A and Marconi Yeoman
DF	Siemens Type SB 139
AUTO ALARM	Siemens Type SB 218
ECHOMETER	Hughes Type MS 12
RADAR	Type 268



## REFRIGERATION

REFRIGERATION MACHINES	J and E Hall Limited
UNITS	3
COMPRESSORS	6
COMPRESSOR BORE	4.75"
COMPRESSOR STROKE	10"
COMPRESSOR RPM	300
REFRIGERATING MEDIUM	Brine and Air
MOTORS	Harland and Wolff Limited
BHP	147
AMPS	550
VOLTS	220
RPM	300/200
INSULATION	Harland and Wolff Limited
LINING	12 WG Galvanised Steel
INSULATING MEDIUM	Granulated Cork Generally

## MASTS

FOREMAST – HEEL TO HOUNDS	53' - 0"
FOREMAST – HOUNDS TO HEAD [TELESCOPIC TOPMAST FITTED]	32' - 0"
MAINMAST – HEEL TO HOUNDS	54' - 4"
MAINMAST – HOUNDS TO HEAD [TELESCOPIC TOPMAST FITTED]	32' - 0"

## DERRICKS

NO.	POSITION	MATERIAL	HATCH	LENGTH
2	FOREMAST P & S	STEEL	No. 1	46' - 0"
2	FOREMAST P & S	STEEL	No. 2	53' - 0"
1	FOREMAST CENTRE	STEEL	No. 2	52' - 6"
2	POSTS P & S	STEEL	No. 3	46' - 9"
2	MAINMAST P & S	STEEL	No. 4	46' - 0"
1	MAINMAST CENTRE	STEEL	No. 4	52' - 5"
2	MAINMAST P & S	STEEL	No. 5	46' - 0"

## SPARS

LOG AND SOUNDING BOOM P & S	25' - 0"
SIGNAL MAST	48' - 0"

## PERFORMANCE

SERVICE SPEED            14.5 kts

MAXIMUM SPEED

MAXIMUM RANGE

## SHIP'S COMPLEMENT

DECK OFFICERS	5
SCHOOL MASTER	1
APPRENTICES	40
RADIO OFFICERS	2
DOCTOR	1
ENGINEER OFFICERS	8
REFRIGERATION ENGINEER OFFICERS	2
ELECTRICAL ENGINEER OFFICERS	2
BOSUN	1
CARPENTER	1
PTI	1
SEAMANSHIP INSTRUCTOR	1
COOKS	3
PANTRY MAN	1
BAKER	1
BUTCHER	1
STEWARDS	8
DONKEY MAN	1
STORE KEEPER	1
ABLE SEAMEN	4
GREASERS	10
LAMP TRIMMER	1
TOTAL	96