

12 SEP 1932

Index. No. 29694
(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having 1 deck and Shelter Deck.

Complete superstructure with tonnage opening aft.
(Type of Superstructures.)

Port of Survey Sydney, N.S.W.

Date of Survey 23rd & 25th July 3rd & 4th August 1932.Name of Surveyors Jas. C. Iskhane
Barton P. Fielden.

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build	
S. S. "MANGOLA"	British. S. S. Nip. Sydney N.S.W.	137223	3352	1920-9.	
Moulded Dimensions: Length	330.5 ✓	Breadth	47.75 ✓	Depth	26.1 ✓
Moulded displacement at moulded draught = 85 per cent. of moulded depth	7868 ✓			tons	
Coefficient of fineness for use with Tables	.787 ✓				

Particulars of Classification + 100 A.1.
S.S. Syd No. 2.28. Shelter deck with freeboard.

Depth for Freeboard (D)	
Moulded depth	26.08
Stringer plate	0.42
Sheathing on exposed deck	
$T \left(\frac{L-S}{L} \right) =$	
Depth for Freeboard (D) =	26.115

Depth correction	
(a) Where D is greater than Table depth (D - Table depth) R =	2.542 = 10.37
(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	4.085 = 10.38
If restricted by superstructures	

Round of Beam correction	
Moulded Breadth (B)	47.75
Standard Round of Beam = $\frac{B \times 12}{50}$	11.46
Ship's Round of Beam	12.0
Difference	0.54
Restricted to	.54 (1 - .9932)
Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right)$	NIL

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	28.0	28.0	7'-3 ³ / ₄ "		28.0
" overhang ...	1.0	0.5			0.5
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	271.5	271.5	7'-7"		271.5
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	26.0	26.0	7'-1"		26.0
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	4.0	2.0			2.25
" forward ...					
Total ...	330.5	328.25			328.25

Standard Height of Superstructure	6.805
" " R.Q.D.	6.966
Deduction for complete superstructure	37.37
Percentage covered $\frac{S}{L} =$	1.00
" " $\frac{S_1}{L} =$.9932
" " $\frac{E}{L} =$.9932
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	99.46
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction =	37.06

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	43.05	1		43.05	62.25	71.33	1		43.05
$\frac{1}{4}$ L from A.P. ...	19.16	4		76.64	13.25	19.83	4		76.64
$\frac{2}{4}$ L " ...	4.74	2		9.48	0	0	2		9.48
Amidships ...	0	4		0	0	0	4		0
$\frac{3}{4}$ L from F.P. ...	9.48	2		18.96	0	0	2		0
$\frac{1}{4}$ L " ...	38.32	4		153.28	20.0	30.08	4		120.32
F.P. ...	86.10	1		86.10	100.0	109.08	1		109.08
Total ...				387.51					358.57

Mean actual sheer aft =	8.023
Mean standard sheer aft	
Mean actual sheer forward =	8.233
Mean standard sheer forward	
Length of enclosed superstructure forward of amidships =	25
" aft of " =	488
Actual $\frac{1}{4}$ L from A.P. =	7.562
Standard " " =	6.805
	7.57
	12
	9.084

Standards	Actual
43.05	71.33
19.16	19.83
4.74	0
0	0
9.48	0
38.32	30.08
86.10	109.08
229.50	199.32

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{387.51 - 358.57}{18} \left(\frac{75-50}{2} \right) = +.49$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 $\frac{1}{2}$ ins. per 100 ft.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck =	26.11
Summer freeboard =	2.40
Moulded draught (d) =	23.71

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.93 = 6"

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line	8552
Tons per inch immersion at summer load water line	32.58
Deduction = $\frac{\Delta}{40T}$ inches	6.57 = 6 $\frac{1}{2}$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

Depth Correction ...	10.37
Deduction for superstructures ...	37.06
Sheer correction ...	4.0
Round of Beam correction ...	tail
Correction for Thickness of Deck amidships ...	-
Other corrections, scantlings, etc. ...	-
Summer Free	10.77

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:

Tropical Fresh Water Line above Centre of Disc ...	12.5
Fresh Water Line " " ...	6.5
Tropical Line " " ...	6
Winter Line below " " ...	6
Winter North Atlantic Line " " ...	

Tropical Fresh Water Freeboard ...	1.42
Fresh Water " " ...	1.10
Tropical " " ...	1.1
Winter " " ...	1.1
Winter North Atlantic " " ...	

Can be manipulated from both sides.

15 SEP 1932

24 JAN 1933

10 AUG 1932

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
SUPERSTRUCTURE DECK					FREEBOARD DECK					
Description of Hatchway	No. 1	No. 2	No. 3	No. 4	No. 5	No. 1	No. 2	No. 3	No. 4	No. 5
Dimensions of Hatchway	24'-0" x 23'-0"	33'-4 1/2" x 23'-0"	8'-7 1/2" x 18'-0"	33'-4 1/2" x 23'-0"	21'-3" x 23'-0"	24'-0" x 23'-0"	33'-4 1/2" x 23'-0"	11'-1 1/2" x 18'-0"	33'-4 1/2" x 23'-0"	24'-3" x 23'-0"
COAMINGS	Height above Deck	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"
	Thickness	.60	.60	.60	.60	.60	.60	.60	.60	.60
	Sides	44	44	44	44	44	44	44	44	44
	Ends	44	44	44	44	44	44	44	44	44
HATCH BEAMS	Stiffeners	7" Sides & Ends	8" Sides & Ends	7" Sides & Ends	8" Sides & Ends	7" Sides & Ends	8" Sides & Ends	7" Sides & Ends	8" Sides & Ends	7" Sides & Ends
	Brackets, Stays	None	1 aft.	None	1 aft.	None	1 aft.	None	1 aft.	None
	Number	4	5	1	5	4	5	1	5	4
	Spacing	4'-10"	5'-7"	4'-4"	5'-7"	4'-10"	5'-7"	4'-4"	5'-7"	4'-10"
FORE AND AFTERS	Scantling and Sketch	ALL BEAMS 38 PLATE.								
	Bearing Surface	D = 21" d = 10 1/2"	21" 10 1/2"	16" 8"	21" 10 1/2"	21" 10 1/2"	21" 10 1/2"	16" 8"	21" 10 1/2"	21" 10 1/2"
		L = 3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 44	3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 44	3 1/2 x 3 1/2 x 56	3 1/2 x 3 1/2 x 44
		3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
HATCH COVERS	Material	WOOD								
	Thickness	2 1/2"								
	How fitted	FORE & AFT.								
	Bearing Surface	3 1/2"								
Spacing of Cleats	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"
Number of Tarpaulins	3	3	3	3	3	2	2	2	2	2

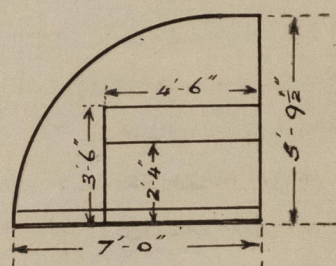
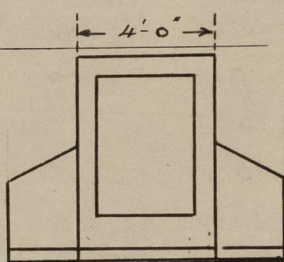
*Are wood fore and afters steel shod at all bearing surfaces? NONE FITTED.
 Are battens and wedges efficient and in good condition? YES.
 Are tarpaulins in good condition and in accordance with rule requirements? YES.
 Are lashings provided in accordance with rule requirements? YES.

Particulars of fiddle, funnel and ventilator coamings:— On top of erections on Superstructure deck.
 Engine Room fitted with strong steel skylights and fiddle gratings with efficient steel storm covers permanently attached. Funnel casing carried to full height of funnel. Ventilators of strong and efficient construction, well supported and secured and passing through casings.

Particulars of Flush Bunker Scuttles:— None.

Particulars of Companionways:—

One aft on Superstructure Deck as per sketch, with strong steel skylight on each side.
 Steel plate 32", Angles 3" x 3" x 32".
 Door 4'-2" x 3'-4" Leak 1 5/8" thick. Sill 16"



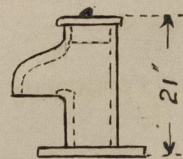
Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

6-20", 2-16", 1-12", 1-10", and 16-9" dia.

All coamings 36" high of substantial construction riveted to deck and supplied with wood plugs and canvas covers.

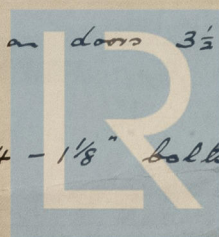
Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

4" dia, Cast Iron, as per sketch, to Fore & After Peak tanks.
 4" dia x 24" high, 4-2 1/2" dia and 8-2" dia, 19" high, of steel swan neck type with perforated roses at ends.



Particulars of Cargo and Coaling Ports:—

cattle doors each side: 5'-4 1/2" x 3'-4"
 on shell 10" x 3 1/2" channel. Angle frame on doors 3 1/2" x 3 1/2" x 5"
 doors with rubber joints.
 d by two 6" x 3" channel strongbacks and 4-1 1/8" bolts.



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Particulars of Scuppers and Sanitary Discharge Pipes

Each side: 8-4" scuppers on shelter deck and 8-4" scuppers on upper deck with short cast steel open bends.
 all sanitary discharges fitted with one cast steel automatic storm valve.
 Port side: 3-3½" and 4-2" discharges. Starboard side 2-3½" and 2-2" discharges.
 lowest outlet 1'-6" below freeboard deck at side amidships.

Inner end of scupper framing the shelter deck space provided with wood planks.

Particulars of Side Scuttles:

Each side: 7 in poop and 1 in forecastle, all 10" dia with frames of bronze and all fitted with cast iron hinged dead lights.

No side scuttles below freeboard deck.

Particulars of Guard Rails:—

Open rails with 3 bars, 3'-3" in height and bulwarks 3'-0" in height as shown on sketch.

Particulars of Gangways, Lifelines, etc.:—

Complete superstructure vessel.

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well Tonnage... OPENING.	5' - 0"	7' - 1½"	2'-3" x 1'-3"	1	2.81 sq. ft.	
Forward Well						

State position of each freeing port ... } After Well: Tonnage Opening. Port 11" above deck edge.
 (F. and A. position and height above deck edge) } Forward Well:—

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— hinged shutter and one horizontal bar.

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

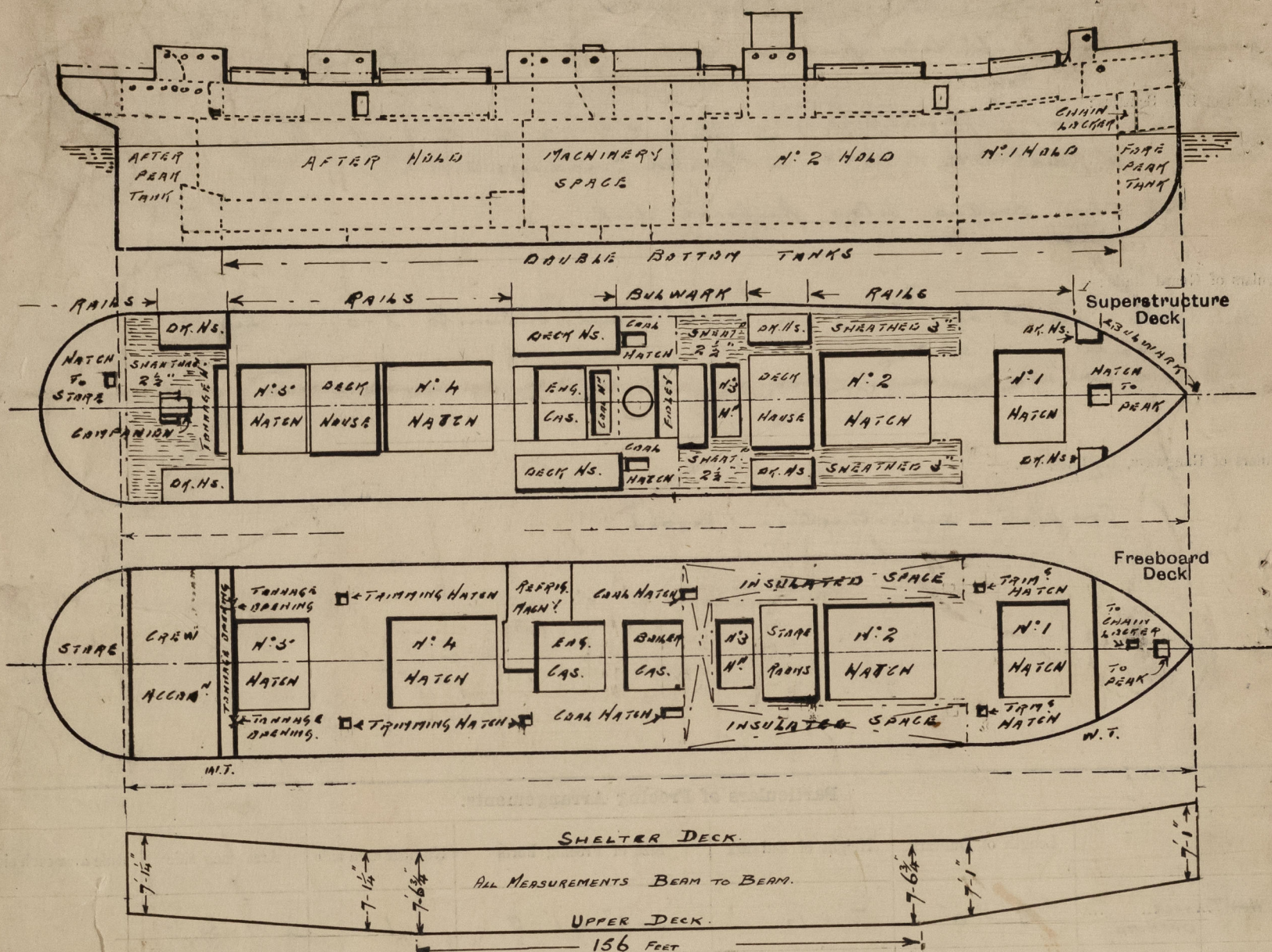
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...	50	38	4 x 3 x 42	3' - 9"	Brackets at top.	NONE.	✓	7' - 1½"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...	50	38	4 x 3 x 42	3 - 0"	NONE.	4'-6" x 3'-0"	16"	7' - 1½"
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead ...	44	38	4 x 3 x 38	2' - 9"	Brackets at top.	NONE.	✓	7' - 1½"
Trunk, Aft ...								
Trunk, Forward ...								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks ...	✓	32	3 x 3 x 38	2' - 6"	NONE.	4'-9" x 2'-2"	18"	7' - 3"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	✓	32	3 x 3 x 38	2' - 6"	NONE.	4'-5" x 2'-0"	21"	7' - 7"
Deckhouses on Flush Deck Ships ...	✓	32	3 x 3 x 38	3' - 0"	NONE.	5'-0" x 2'-0"	18"	7' - 3"

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead ...	No OPENINGS.
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead ...	3" shifting boards in channels, full height of opening. Can be manipulated from both sides.
Bridge, Forward Bulkhead ...	
Forecastle Bulkhead ...	No OPENINGS.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	
Exposed Machinery Casings on Superstructure Decks ...	Engine Room doors 1½" hardwood. Fiddle doors 32" steel stiffened by 2½" x 38 plate frames. Can be manipulated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	Steel doors 32" thick stiffened by 2½" x 38 plate frames.
Deckhouses on Flush Deck Ships ...	1½" hardwood doors. Can be manipulated from both sides.

Mangola.

Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



State any special features in the construction of the ship:—

Cargo vessel, usually trading between Melbourne and Singapore via Porto.
 Surveyed afloat by Vessel now undergoing Special Survey.
 There is no sheer for 156 feet amidships on freeboard deck, and the sheer lines at ends are straight. The shelter tween decks are not of uniform height, but as shown in sketch. The sheers measured on upper deck are as follows:—
 at A.P. 67.75, at $\frac{1}{8}$ from A.P. 16.25, at $\frac{1}{8}$ from F.P. 26.75, at F.P. 105.75
 The sheers measured on Shelter Deck are as given on page 1.
 Tonnage Hatch: 4'-0" x 23'-0". Coaming 9" B.A. Wood hatches 2 3/4". Bearing surface 3 1/2".
 Bunker hatch on top of casing on Superstructure Deck: 17'-0" x 8'-0". Coamings 8" B.A. Wood hatches 2 1/2".
 Bearing surface 3". Cleats spaced 24". Two tarpaulins, battens and wedges. and hatch beam 8 3/8" B.A.
 Hatches on Superstructure Deck:—
 Hatch to Fore Peak: 4'-0" x 4'-0". Coamings 24" x 32". } all fitted with cleats maximum spacing 24".
 Two Bunker Hatches: 7'-0" x 2'-9". Coamings 30" x 44". } Wood hatches 2 1/2" with bearing surface 1 1/2".
 Hatch to stern aft: 3'-0" x 2'-0". Coamings 8" B.A. } each supplied with 2 tarpaulins, battens & wedges.
 Hatches on Freeboard Deck:—
 Forward of collision bulkhead: Hatch to Fore Peak 4'-5" x 4'-5". 3" x 3" x 38 angle frame } Wood hatches 2 1/2" with bearing surface 2 1/2".
 Hatch to Chain locker 2'-5" x 2'-2". 3" x 3" x 38 angle frame }
 4 Coamings removed & openings pealed in } No tarpaulins or battening arrangements.
 2 Bunker Hatches. Port 2'-10" x 2'-6". } Coamings 8" B.A. with one tarpaulin and efficient battening arrangements.
 Starboard 3'-8" x 2'-6". }
 Displacements and Tons per inch from Builders

	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"
Draught.	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"
Displacement	7032	7417	7804	8193	8585
Tons per inch.	31.9	32.07	32.24	32.41	32.58

Builder's name and yard number. Commonwealth Naval Dockyard. Sydney N. S. W. 35.

Names of sister ships. Iron Crown, Iron Knob, Iron Master, Iron Prince, Iron Warrior, Echunga, Maranoa, Maraba, Mildura, Milora, Mungana and Murada.

Owners. Burns Philp & Co. Ltd.

Fee £ 13 : 13 : 0 Received by me



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