

GOVT. COPY ISSUED 28 JUN 1959
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Index No.
(For London Office only.)SIMILAR TO:
ESSO DURHAM
(A6246)Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.
(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

No. 751

Ship's Name ESSO NORWICH	Official Number 300900	Nationality and Port of Registry BRITISH. LONDON,	Gross Tonnage 23997.36	Date of Build 1959.	Port of Survey BREST (NANTES)
Moulded Dimensions: Length 660' Breadth 90' Depth 47' <i>To E of RUDDER STOCK</i>					Date of Survey WHILE BUILDING.
Moulded displacement at moulded draught = 85 per cent. of moulded depth 51,200 METRIC tons					Surveyor's Signature W. L. Adamson
Coefficient of fineness for use with Tables 0.735 0.796					Particulars of Classification 100 A1 "CARRYING PETROLEUM IN BULK"

DEPTH FOR FREEBOARD (D).		DEPTH CORRECTION.		ROUND OF BEAM CORRECTION.	
Moulded depth ...	47'	(a) Where D is greater than Table depth (D - Table depth) R = (47-44.00)3 = +9.33"		Moulded Breadth (B)	90'
Stringer plate ...	1.34"	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$ =	21.60"
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	✓			Ship's Round of Beam (see sketch) =	22.21.14"
Depth for Freeboard (D) =	47.11	If restricted by superstructures ✓		Difference	+ 0.46"
				Restricted to	5795
				Correction = $\frac{\text{Diff}^{\circ}}{4} \times \left(1 - \frac{S_1}{L} \right)$ =	0.46" (1-0.4305) = +0.07"

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	LEAST Height Bm. to Bm.	Height Correction	Effective Length (E)
Poop enclosed <i>Equin</i>	146.92	146.92	8.5'	✓	146.92
" overhang ...	✓	✓			
R.Q.D. enclosed ...	✓	✓			
" overhang ...	✓	✓			
Bridge enclosed <i>Equin</i>	49.76	49.76	8.0'	✓	49.76
" overhang aft ...	✓	✓			
" overhang forward ...	✓	✓			
F'cle enclosed <i>Equin</i>	86.39	86.39	8.5'	✓	86.39
" overhang ...	2.13	1.07		✓	1.07
Trunk aft ...	✓	✓			
" forward ...	✓	✓			
Tonnage opening aft ...	✓	✓			
" " forward ...	✓	✓			
Total	285.20	284.14			284.14

Standard Height of Superstructure	7.50'
" " R.Q.D.	42.00"
Deduction for complete superstructure	43.21
Percentage covered $\frac{S}{L} =$	43.05
" " $\frac{S_1}{L} =$	43.05
" " $\frac{E}{L} =$	34.05
Percentage from Table, Line A. TANKER	34.05
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction = $42.00" \times 0.3405 =$	14.30"

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate INCHES	Effective Ordinate	S	M	Product
A.P. ...	76.00	1	✓	76.00	19.13	54.72	1	✓	54.72
$\frac{1}{8}L$ from A.P. ...	33.82	4	✓	135.28	2.00	7.07	4	✓	28.28
$\frac{3}{8}L$ " ...	8.36	2	✓	16.72	0	0	2	✓	0
Amidships ...	0	4	✓	0	0	0	4	✓	0
$\frac{3}{8}L$ from F.P. ...	16.72	2	✓	33.44	0	0	2	✓	0
$\frac{1}{8}L$ " ...	67.64	4	✓	270.56	1.77	1.77	4	✓	7.08
F.P. ...	152.00	1	✓	152.00	21.97	47.38	1	✓	47.38
Total				684.00					137.46

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{546.54}{18} (0.75 - 0.2161) = +16.21"$
If limited on account of midship superstructure.

Mean actual sheer aft =
Mean standard sheer aft =
Mean actual sheer forward =
Mean standard sheer forward =

DEFICIENT

Length of enclosed superstructure forward of amidships =
aft of " =
DEFICIENT SHEERS

0.5339

+16.21"

If limited to maximum allowance of 1½ ins. per 100 ft.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = **47.11**
Summer freeboard = **11.73**
Moulded draught (d) = **35.38**

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = **8.85 = 8¾"**Addition for Winter North Atlantic Freeboard (if required) = **8.85 + 6.60 = 15.45 = 15½"**

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ = **48,350 Tons**

Tons per inch immersion at summer load water line

T = **122.56**Deduction = $\frac{\Delta}{40 T}$ inches= **9.86"**= **9¾"**

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{0.796 + 0.08}{1.36} = 1.476/1.36$

Depth Correction	9.33	✓
Deduction for superstructures	14.30	✓
Sheer correction	16.21	✓
Round of Beam correction	0.07	✓
Correction for Thickness of Deck amidships	✓	✓
Other corrections, scantlings, etc.	✓	✓
25.61	14.30	+ 11.31

Summer Freeboard = **140.79"**

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

Tropical Fresh Water Line above Centre of Disc ... **18 1/2"**
Fresh Water Line " " ... **9 3/4"**
Tropical Line " " ... **8 3/4"**
Winter Line below " " ... **8 3/4"**
Winter North Atlantic Line " " ... **12 1/2"**

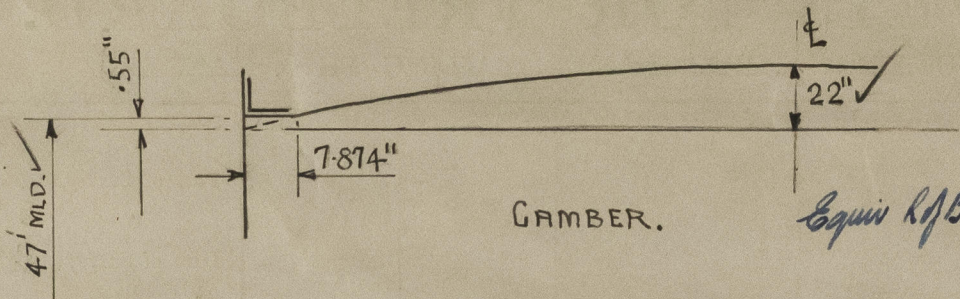
Tropical Fresh Water Freeboard

Fresh Water " **10' - 2 1/4"**Tropical " **11' - 0"**Winter " **12' - 3 1/2"**Winter North Atlantic " **13' - 0 1/4"**

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Esso Norwich.

A new form should be prepared if any alterations that affect the freeboard have been made. If no such alterations have been made, the Surveyor should endorse the form on this side with his signature and the date.



$$\text{Equiv R/B} = \frac{21.45''}{45.00'} \times 44.34' = 21.14''$$

POOP
 Length @ side = 140.00'
 122.75
 Plus: $\frac{(88.75 + 34.00) 10}{2 \times 88.75} = 6.92'$
 Equiv: 146.92'

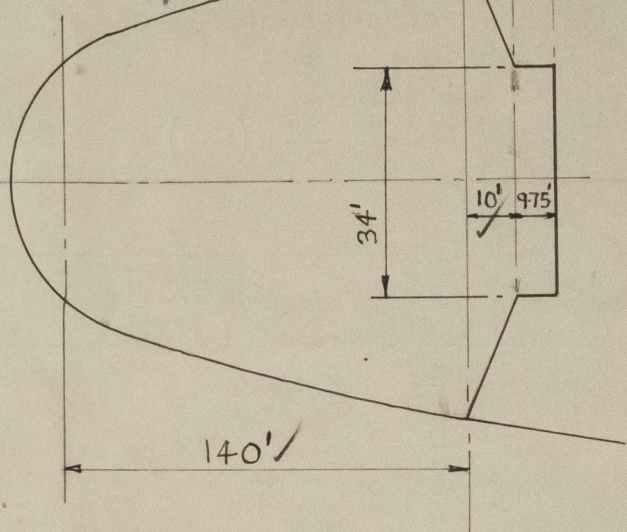
BRIDGE
 Length @ side = 40.00'
 Plus fwd: $\frac{2}{3} \times 16.33 = 10.89'$
 Equiv: $\frac{50.89' \times 88}{90} = 49.76'$

FORECASTLE:-

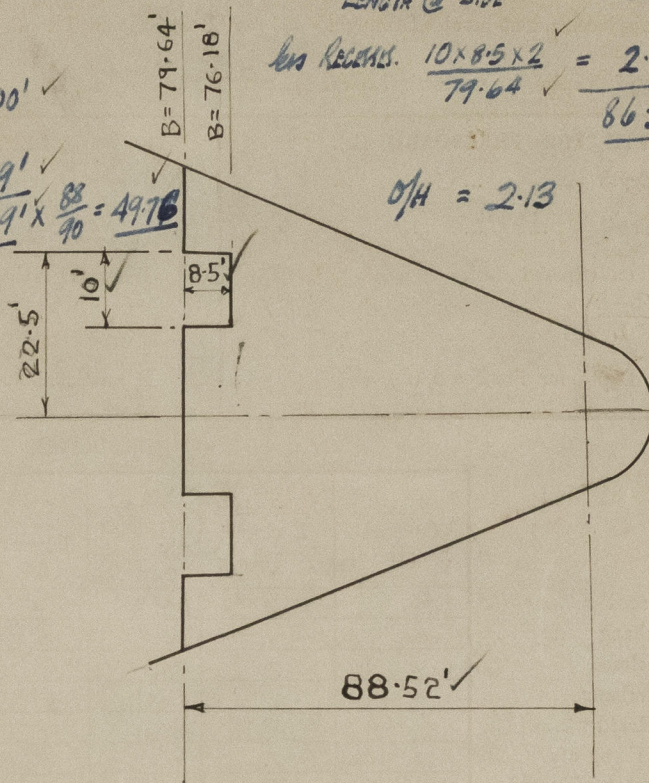
Length @ side 88.52'

Less RECENTS. $\frac{10 \times 8.5 \times 2}{79.64} = 2.13'$
 86.39'

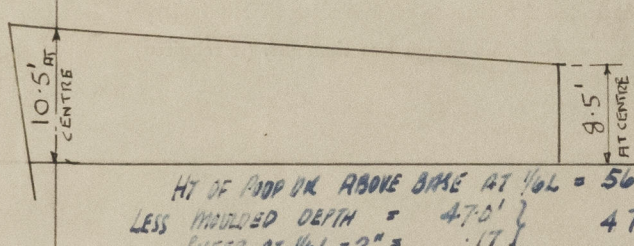
O/H = 2.13



POOP.



F' C' L E.



Ht of POOP ON ABOVE GRADE AT 1/6 L = 56.93
 LESS Moulded DEPTH = 47.0' } 47.17
 SHEER AT 1/6 L = 2" = .17'
 Ht of POOP @ 1/6 L = 47.34'

9.76' = 117.12" X

Ht at POOP (AT SIDE) AT FRONT.
 (AS PER SISTER SHIP ESSO DORSET) = 9' 5.11" = 113.11"

THE FOLLOWING PLANS ARE FORWARDED HERewith (PLEASE RETURN.)

- 1 HYDROSTATIC CURVES.
- 2 CURVES OF CAMBERS.
- 3 MIDSHIP SECTION.
- 4 PROFILE & DECKS.
- 5 GENERAL ARRGT.

SHEERS:- AFT.

~~At AP = 59.06' - 47.00' = 12.06'~~

At AP = $\left[59.06' - \left(\frac{4.56}{54.50'} \times 47.00' \right) \right] = 54.72'$

1/6 L = $2.00' + \left(\frac{4.01''}{117.12''} \times 113.11'' \right) + \left(\frac{23.11''}{113.11'' - 90''} \times \left(\frac{30}{140} \right)^2 \right)$
 = 2.00' + 4.01' + 1.06' = 7.07'

SHEER AT FP:
 ACTUAL SHEER AT FP = 21.97"
 PLUS Fwd Ht of FP = 13.41" } 25.41"
 " " FR 133 = 11.10" } 47.38"

TANKER.

Trade of ship

Names of sister ships

Builder's name and yard number

ATELIERS & CHANTIERS DE FRANCE, DUNKERQUE - N° 227. (SUB-CONTRACTED TO NAVAL DOCKYARD, BREST.)

Owners

ESSO PETROLEUM COMPANY, LTD., LONDON.

Fee £

(CHARGED WITH F.E.)



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