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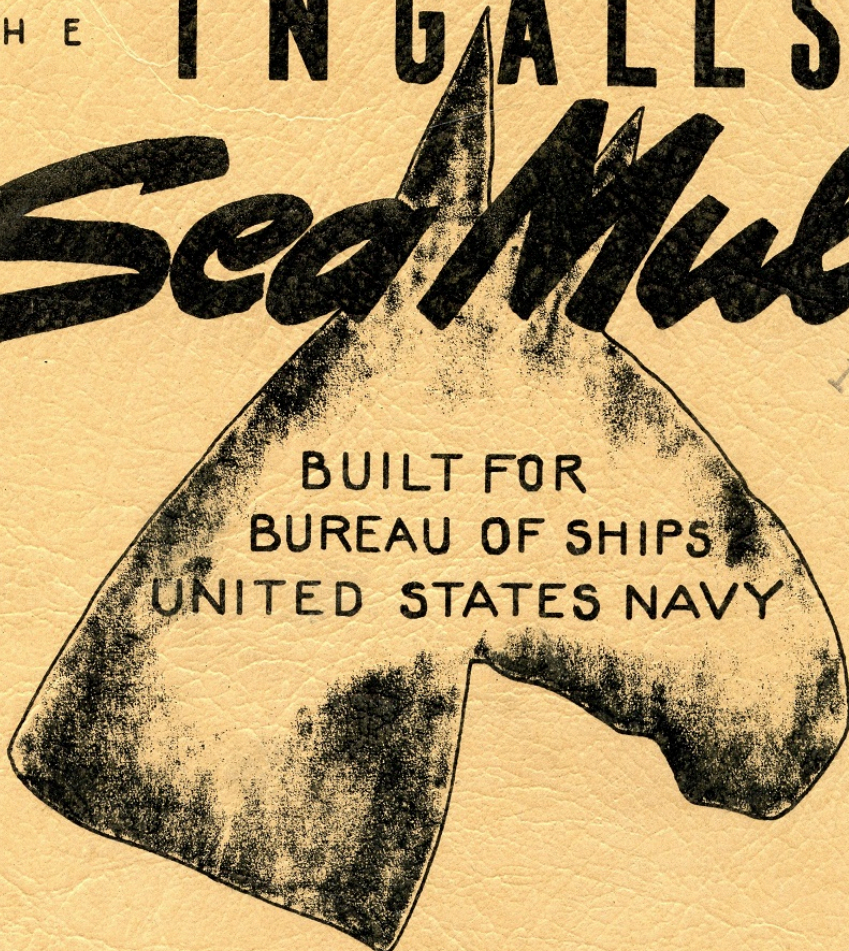
THE

INGALLS

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Sea Mule

A-6027



19 AUG 1946

BUILT FOR
BUREAU OF SHIPS
UNITED STATES NAVY

CONTRACT NUMBER NObs-1807

40 FT. PONTON TUGS

YTL- 632 - 639 INCL., 611 - 616 INCL.

ASSEMBLY INSTRUCTION

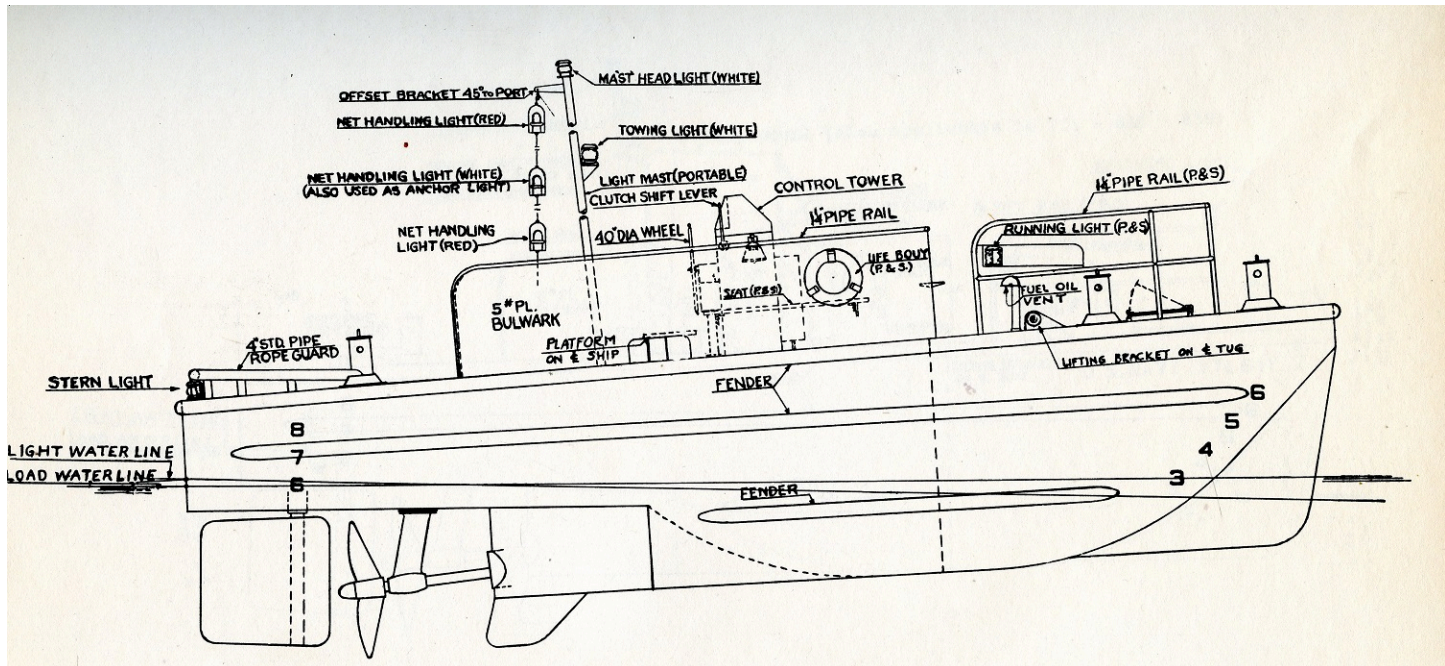
MANUAL

THE **INGALLS**

IRON WORKS COMPANY • BIRMINGHAM, ALA

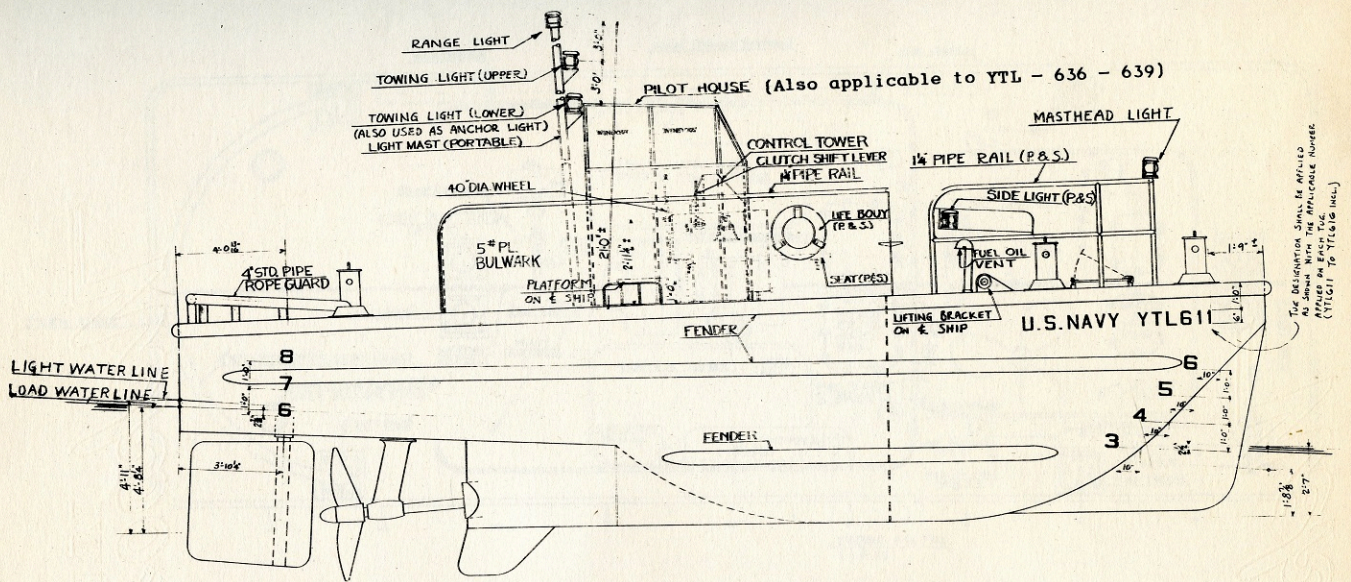
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OUTBOARD PROFILE

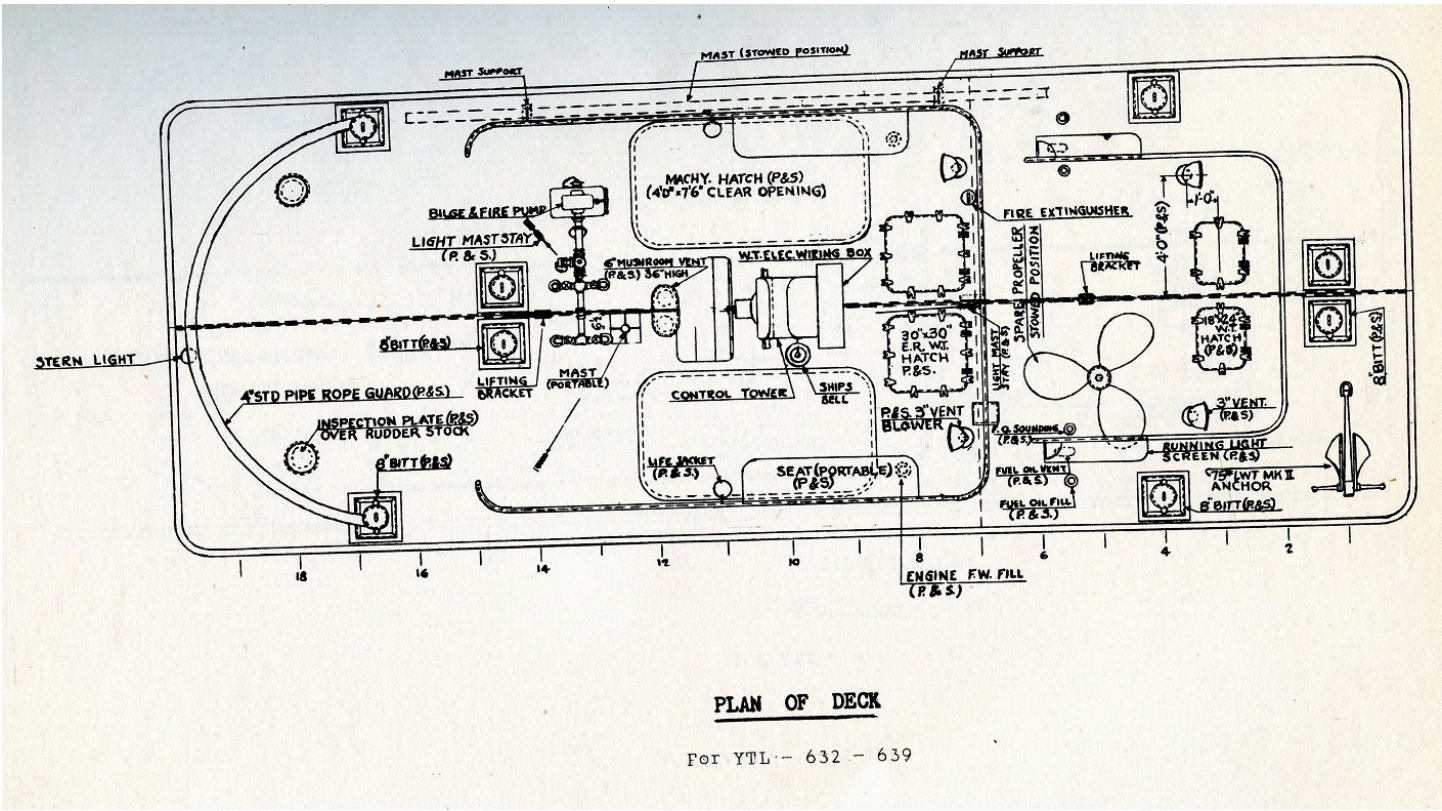
For YTL-- 632.- 639



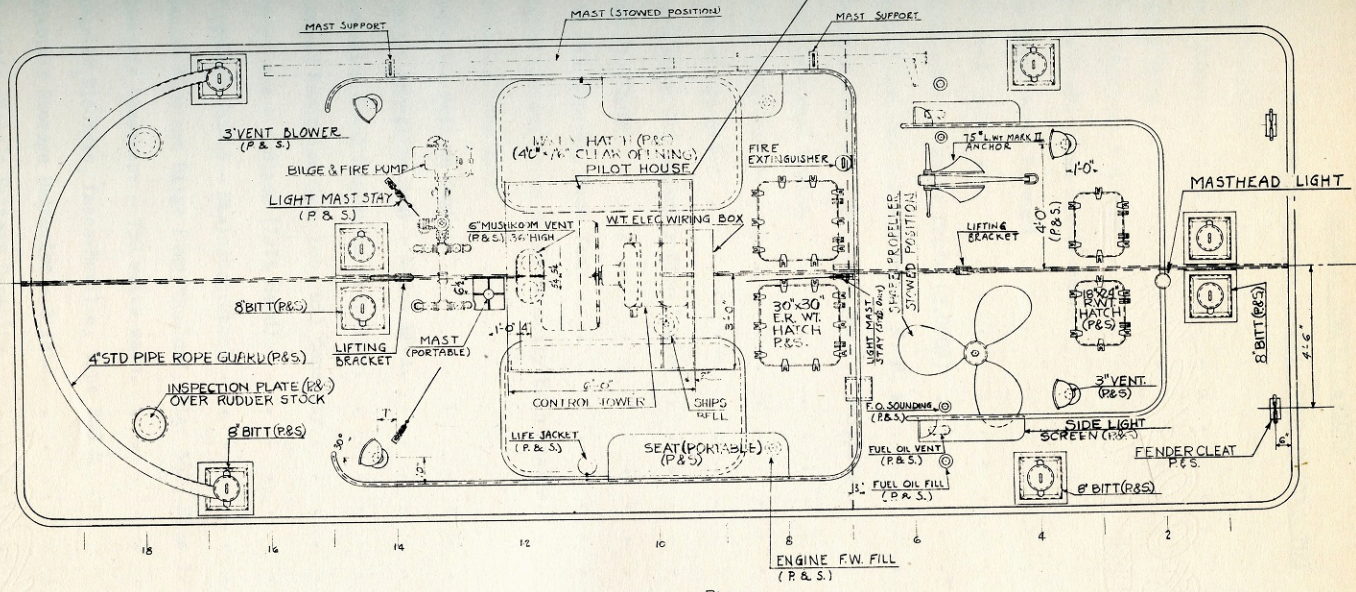
THE DESIGNATOR SHIP IS APPLIED AS SHOWN WITH THE APPROPRIATE NUMBER APPLIED IN EACH OF THE APPROPRIATE SQUARES (YTL611 TO YTL616 INCL.)

OUTBOARD PROFILE

YTL - 611 - 616



(Also applicable to YTL - 636 - 639)



PLAN OF DECK

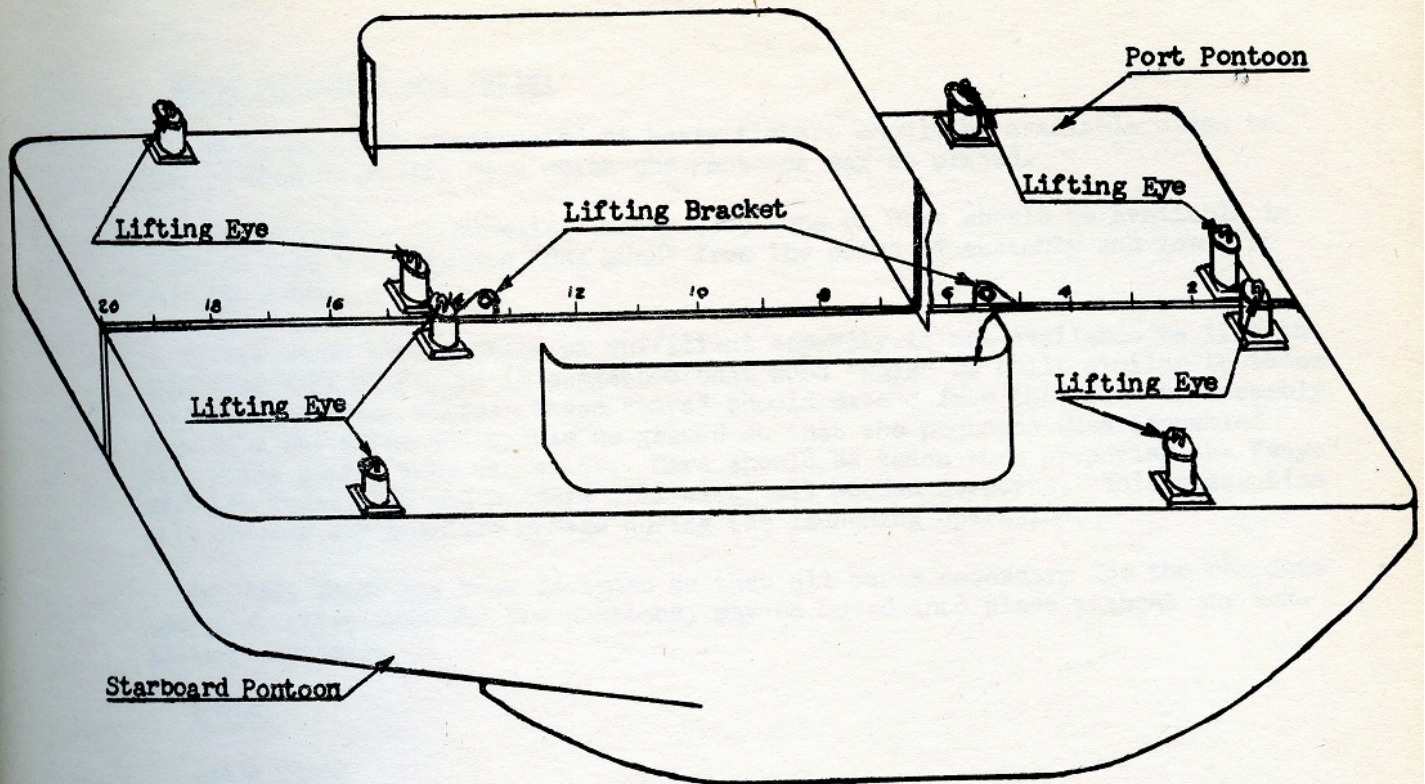
FOR YTL - 644 - 646

GENERAL SPECIFICATIONS

TWIN SCREW 40 FOOT DIESEL STEEL PONTOON TUG

| | |
|--|----------------|
| 1. Length Overall. | 41' 0" |
| 2. Molded Beam. | 15' 0" |
| 3. Extreme Beam | 15' 7" |
| 4. Molded Depth at Midships | 8' 2-1/2" |
| 5. Extreme Draft (Load Displacement) | |
| A-At Draft Marks Forward | 3' 2-1/2" |
| B-At Draft Marks Aft. | 6' 2-3/8" |
| 6. Displacement at above Draft (2,000#) | 37 ton |
| 7. Shaft Horsepower @ 2,000 Engine R. P. M. | total 550 |
| 8. Clearance over car Floor Required for Shipping | 14' 0" |
| 9. Hercules Diesel Engine | model DNX-2 |
| 10. Number of Cylinders | 6 |
| 11. Cycle of Operation | 4 |
| 12. Lubrication Oil Capacity Each Engine | 32 quarts |
| 13. Fuel Oil Tanks. | 2 |
| 14. Fuel Oil Capacity Each Tank | 500 gallons |
| 15. Engine Cooling Fresh Water Capacity Each Engine. | 17 gallons |
| 16. Reversing thru Gear | |
| 17. Reduction Gear on Engine | 3:1 ratio |
| 18. Packard Reduction Gear - Model BP-1. | 2:1 ratio |
| 19. Reduction Total Engine to Propeller. | 6:1 ratio |
| 20. Packard Reduction Gear Lub. Oil Capacity | 10 gallons |
| 21. Propellers - 3 Blade (Left Hand). | 60" X 40" |
| 22. Propeller Shafts - Stainless Steel | 4" diameter |
| 23. Manual Fire and Bilge Pump, "Goulds", Fig. 562, Size 12, all brass | |
| 24. Electric Generator - 750 watts each. | 32 volts |
| 25. Starter, Electric, Leece-Neville, Type 808 M | |
| 26. Electric Storage Batteries - 2 sets. | 30 volts |
| 27. Electric Storage Battery Capacity | 175-Amp. hours |

GENERAL INTRODUCTION



LIFTING EYE AND BRACKET LOCATION

This Assembly Instruction Manual incorporates all necessary information required to completely assemble the Ingalls "SEA MULE".

The Headings of the assemblies have been arranged in the order for the most efficient sequence of assembly.

The various parts listed constitute a complete "SEA MULE".

The two major parts consist of a Port Pontoon and a Starboard Pontoon, each shipped as an individual unit. All other parts necessary to complete the "SEA MULE" are packed in individual boxes. Each box contains all necessary parts for a particular assembly.

The Port and Starboard Pontoons are equipped with "Lifting Eyes" located on each bit. These "Lifting Eyes" are used for handling each pontoon individually. Each Pontoon weighs sixteen (16) tons.

On the center line of the Pontoon assembly are located two "Lifting Brackets". These "Lifting Brackets" are for the purpose of lifting the "SEA MULE" when the pontoons are assembled.

FUEL OIL AND FRESH WATER SYSTEM

The Fuel Oil System of the "SEA MULE" consists of two separate systems, one for each engine. Each Fuel Oil Tank has a capacity of 537 gallons.

The Tanks are filled from Deck Plugs located Fw'd Port and Starboard. The bottom of the tanks have a Sump to catch the oil sediment, and a Screwed Plug is provided at the bottom of the Sump for cleaning out.

Immediately under the Fuel Oil Tank is the Fuel Oil Supply Valve, to shut off the Oil System when the "SEA MULE" is laid up for long periods.

In the engine room directly adjacent to the Fw'd Bulkhead is the Auxilliary Oil Valve. This Valve is used to shut off the Fuel Oil Supply System within the engine room.

The Primary Strainer is located immediately after the Auxilliary Fuel Oil Valve, and at the low point on the Fuel Oil Supply Line, this Strainer should be cleaned once a month of water and sediment. The Fuel Oil Supply Line then goes directly to the Fw'd Transfer Pump thru a flexible hose connection. The Fuel Oil Return is connected at the by-pass discharge on the engine thru a short length of flexible hose, then to a 1/2" pipe, which goes directly to the top of the Fuel Oil Tank.

Fuel Oil Specification recommended for the engine:
Bureau of Ship Specification 7-0-2 (INT)
or
Diesel Fuel Oil A.S.T.M. Specification, Grade No-1-D

Sounding Plugs are provided on the Deck for each tank to determine the Fuel Oil level.

Insert F. O. Gauge Measure to bottom of F. O. Tank and note the fuel oil mark made on F. O. Gauge Measure. The following capacity chart gives the conversion of the inch gauge reading in fuel oil gallons.

CAPACITY CHART for FUEL OIL TANK

| Depth of Oil inches | Number of Gallons | Depth of Oil inches | Number of Gallons | Depth of Oil inches | Number of Gallons |
|---------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
| 1 | 5 | 17 | 187 | 33 | 432 |
| 2 | 11 | 18 | 202 | 34 | 445 |
| 3 | 18 | 19 | 217 | 35 | 458 |
| 4 | 26 | 20 | 233 | 36 | 471 |
| 5 | 35 | 21 | 249 | 37 | 483 |
| 6 | 45 | 22 | 265 | 38 | 495 |
| 7 | 56 | 23 | 281 | 39 | 506 |
| 8 | 67 | 24 | 297 | 40 | 516 |
| 9 | 78 | 25 | 313 | 41 | 526 |
| 10 | 90 | 26 | 329 | 42 | 535 |
| 11 | 103 | 27 | 345 | 43 | 543 |
| 12 | 116 | 28 | 360 | 44 | 550 |
| 13 | 130 | 29 | 375 | 45 | 557 |
| 14 | 144 | 30 | 390 | 46 | 562 |
| 15 | 158 | 31 | 404 | 47 | 565 |
| 16 | 172 | 32 | 418 | | |

Note-
95% Capacity = 537 Gallons.

HULL PAINTS OUTSIDE

1. Bottom to light water line, including Skegs, Rudders and exposed portion of Propeller Shaft
One (1) Coat Zinc Cromate Primer Navy Formula No. 84
Two (2) Coats Anti-Corrosive Navy Formula No. 14 RC
One (1) Coat Anti-Fouling Navy Formula No. 15 RC

2. Boot Topping
Light load water line to 6" above full load water line
One (1) Coat Zinc Cromate Primer Navy Formula No. 84
Two (2) Coats Anti-Corrosive Navy Formula No. 14 RC
One (1) Coat Boot Topping Navy Formula No. 3A

3. Vertical Surface above Boot Topping
Including inboard and outboard sides and ends of Pontoons, Hand Railing, Bulwarks (inside and outside), Bitts, Light Poles, Control Tower and all other exterior Vertical Surfaces
Two (2) Coats Zinc Cromate Primer Navy Formula No. 84
Two (2) Coats Ocean Gray Navy Formula No. 5-0

4. Horizontal Surfaces
Including top surfaces of Deck Machinery Hatch and Raised Water Tight Hatches
One (1) Coat Zinc Cromate Primer Navy Formula No. 84
One (1) Coat (1-32"thick) Hortell Non-Slip Decking. Color to conform with Navy Formula No. 20-B

5. Anchor, Bilge Pump, Deck Fittings, Piping and all horizontal surfaces above deck not previously listed
Two (2) Coats Zinc Cromate Primer Navy Formula No. 84
Two (2) Coats Deck Blue Navy Formula No. 20-B

6. Inside surfaces of running light screens
Port - Two (2) Coats Red-Navy Formula No. 40
Starboard - Two (2) Coats Green-Navy Formula No. 39

7. Draft Marks
Two (2) Coats White-Navy Formula No. 6 (Below top edge of Boat Topping)
Two (2) Coats Black-Navy Formula No. 13 (Above Boot Topping)

8. Distinguishing Letters and Numerals
Two (2) Coats White-Navy Formula No. 6