

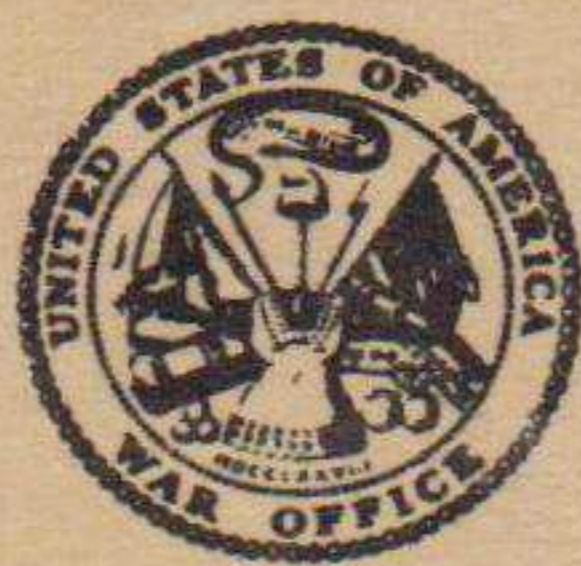
TM 5-8025

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

GEREGISTREERD
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**BOAT
BRIDGE ERECTION
GASOLINE-POWERED
ALUMINUM, TWIN-
SCREW, 2-SECTION
27-FOOT
(LESS ENGINES)**



DEPARTMENT OF THE ARMY • FEBRUARY 1955

SAFETY PRECAUTIONS

Never leave a stranded boat overnight.

Operate at reduced speed in unfamiliar areas.

At least two manila lines of one-half inch minimum size must be used to anchor the boat in a current. Restrict the boat movement as much as possible.

Never anchor the boat in a current above a floating bridge.

Keep the engine speed under 2,500 rpm except in an emergency.

Never operate the boat less than 1,000 feet above a floating bridge in currents exceeding 3 feet per second.

Never leave shore with a dead engine in a current.

Never beach the boat on rocks. Always stop the boat dead before beaching it.

Operate the boat slowly and use a sounding stick frequently in shallow water.

To extricate a grounded boat, operate the engines alternately in forward and reverse. Do not race the engines.

Examine the slings carefully to make sure they are in good condition before attempting to lift the boat.

Be careful when operating the boat near lines and cables in the water to prevent fouling the propellers.

A second man must accompany the operator at all times to handle lines.

Be careful to secure anchored rafts offshore in such a manner that changes in the water level will not ground them.

Life preservers must be worn by all personnel boarding the boat.

Always disconnect the propeller shaft from the engine at the coupling before launching or hoisting the boat from the water.

TECHNICAL MANUAL }
 No. 5-8025 }

DEPARTMENT OF THE ARMY
 WASHINGTON 25, D. C., 18 February 1955

**BOAT, BRIDGE ERECTION, GASOLINE POWERED, ALUMINUM,
 TWIN-SCREW, 2-SECTION, 27-FOOT (LESS ENGINES)**

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the information and guidance of the personnel to whom this 27-foot bridge erection boat is issued. They contain information on the operation, organizational maintenance, and field and depot maintenance of the boat, as well as a description of the major units and their functions in relation to other components of the materiel. They apply to boat serial number 50-190 and other boats of the 50 and 51 series manufactured by Higgins, Incorporated.

b. Supply manuals, technical manuals, and other publications applicable to the equipment covered by this manual are listed in Appendix I. Appendix II tabulates the replaceable parts available for the equipment. Appendix III lists the tools and publications issued with and carried on or with the boat.

c. In general, the prescribed maintenance procedures will apply as reflected by the allocation of spare parts in the appropriate columns of the current ENG 7 & 8 supply manual pertaining to this boat. In all cases, however, personnel should confirm the availability of spare parts before proceeding with organizational or depot maintenance.

2. Record and Report Forms

Maintenance record forms listed and briefly described in *a* through *k* below will be used in the maintenance of this equipment.

a. *DD Form 110, Vehicle and Equipment Operational Record.* This form is used by equipment operators for reporting the accomplishment of daily preventive maintenance services, and for reporting any equipment deficiencies observed during operation.

b. *DA Form 464, Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment.* This form is used by personnel of the using organization and higher echelons for reporting the results of preventive maintenance services and technical inspections.

c. *DA Form 460, Preventive Maintenance Roster.* This form is used for scheduling preventive maintenance services at proper intervals.

d. *DA Form 478, Organizational Equipment File.* Major repairs or rebuilding, replacement of major unit assemblies, and accomplishment of equipment modifications are recorded on this form.

e. *DA Form 468, Unsatisfactory Equipment Report.* This form is used for reporting manufacturing, design, or operational defects in the materiel, with a view to correcting such defects; it is also used for recommending modifications of the materiel. DA Form 468 is not used for reporting failures, isolated materiel defects, or malfunctions of materiel resulting from fair wear and tear or accidental damage. DA Form 468 is not used to report issue of parts and equipment, or for reporting replacement and/or repairs.

f. *DD Form 6, Report of Damaged or Improper Shipment.* This form is used for reporting damages incurred in shipment.

g. *DA Form 9-81, Exchange Part or Unit Identification Tag.* This form is used to accomplish the direct exchange of unserviceable for serviceable parts.

h. *DA Form 811, Work Request and Job Order.* This form is used to request work done by higher echelon organizations.

i. *DA Form 867, Status of Modification Work Order.* This form is used to maintain records of all modification work performed on equipment.

j. *DA Form 5-13, Spot Check Inspection Report of Organizational Maintenance of Engineer Equipment.* Organizations having engineer field maintenance responsibility use this form for reporting the results of seminannual spot check inspections.

k. *DA Form 5-14, Annual Technical Inspection Report of Engineer Equipment.* Organizations having engineer field maintenance responsibility use this form for reporting the results of annual technical inspection.

Section II. DESCRIPTION AND DATA

3. Description

a. *Boat Nomenclature.* The terms "left," "right," "front," and "rear" as used in this manual refer to the helmsman sitting in his normal position in the helmsman's seat. The left side of the boat is the port side; the right side is the starboard side; the front is the bow, fore, or forward end; the rear is the stern, aft, or after end.

b. *General Information.* This manual is written specifically for the 27-foot bridge erection boat, serial number 50-190 (figs. 1 and 2), but also covers other boats of the 50 series, and boats of the 51 series (fig. 3). These boats are built to push and tow floating bridge sections into place during bridge erection operations. The boats are fabricated of aluminum alloy and are built in two sections for lightness and ease of transportation. The two sections of the boat are trans-

ported separately and are coupled together manually in the water when the boat is ready to be used.

c. Stern Section. The stern section of the boat (fig. 4) contains the two engine compartments, the operating controls, the towing bitt (20, fig. 3), and a bilge pump. The stern section normally is coupled to the bow section when in use but may be used independently.

d. Bow Section. The bow section of the boat (fig. 5) contains a small forward cargo hatch (5, fig. 1), the two pushing knees (1) and a bilge pump. The cargo hatch in the 51 series boats (fig. 3) is wider than that in the 50 series boats. In addition the 51 series boats contain a mooring bitt (3) mounted at the forward end of the cargo hatch.

e. Engines. The boat is powered by two gasoline driven, six-cylinder, four-cycle, liquid-cooled, L-head engines. A generator, starting motor, distributor, oil filter, carburetor, and other accessories are mounted on each engine. A planetary-type reverse gear and clutch, and a reduction gear are mounted on the rear of each engine.

4. Identification Information

a. Engine Nameplate. The engine nameplate (fig. 6) is located between the engine and the reduction gear on top of the reverse gear housing cover. It lists the manufacturer, engine serial number, and model.

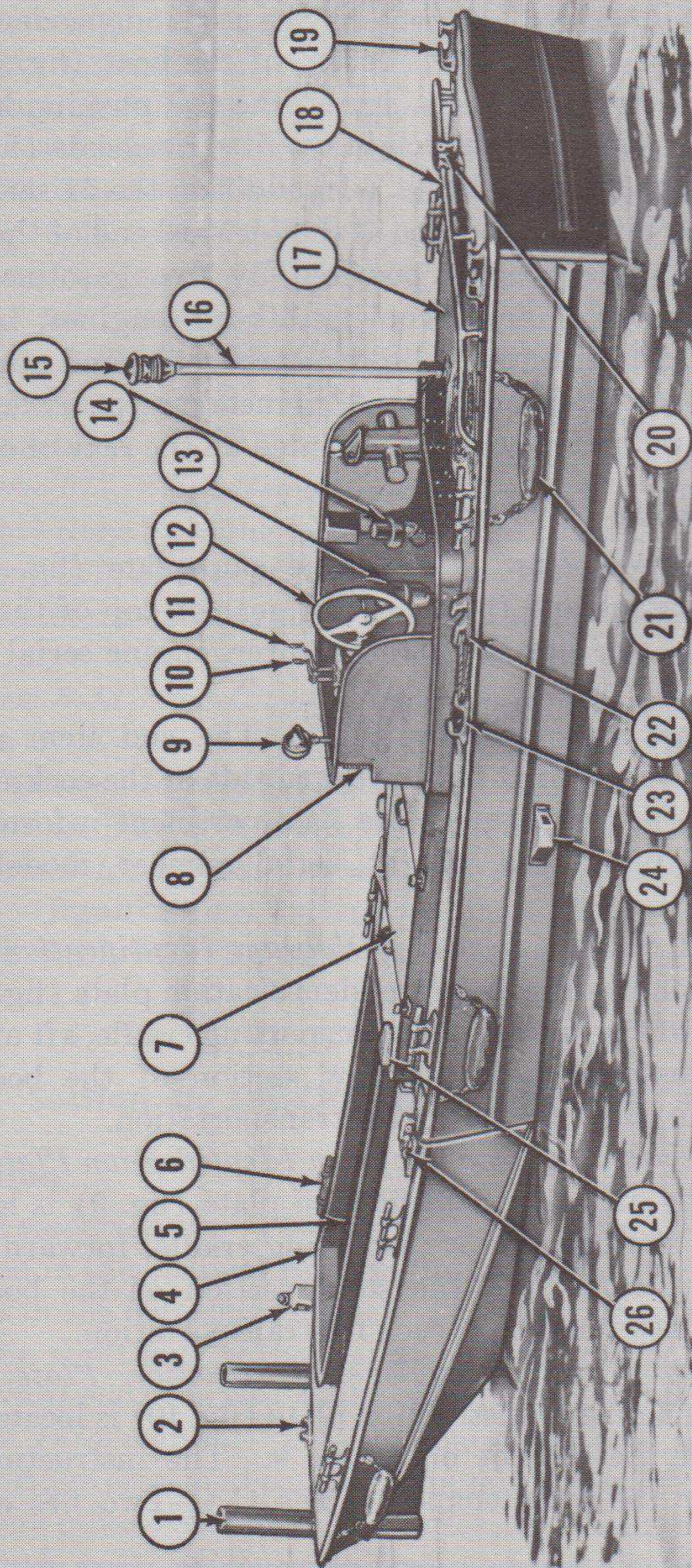
b. End Item Nomenclature Plate. The end item nomenclature plate (fig. 7) is located at the starboard side of the cockpit on frame 9. The end item nomenclature plate lists pertinent information on the boat such as dimensions, weight, serial number, model, and manufacturer.

c. Forward Section Loading Diagram Identification Plate. The forward section loading diagram identification plate (fig. 8) is located on the frame of the bow section transporting cradle, aft of the forward sling. It illustrates how the bow section of the boat should be mounted on its pole-type trailer for transportation.

d. Stern Section Loading Diagram Identification Plate. The stern section loading diagram identification plate (fig. 9) is located on the frame of the stern section transporting cradle, forward of the stern sling. It illustrates how the stern section of the boat should be mounted on a 2½-ton dump truck for transportation.

e. C-O-Two Fire Extinguisher Instruction Plate. The C-O-TWO fire extinguisher instruction plate (fig. 10) is located at the starboard side of the cockpit on frame 9. The instruction plate lists directions for the maintenance of the C-O-Two fire extinguishing system.

f. Blower-Caution Identification Plate. The blower-caution identification plate (fig. 11) is located on the electrical panel below the steering wheel. The blower-caution identification plate warns the operator to run the blower for 5 minutes before starting the engines.

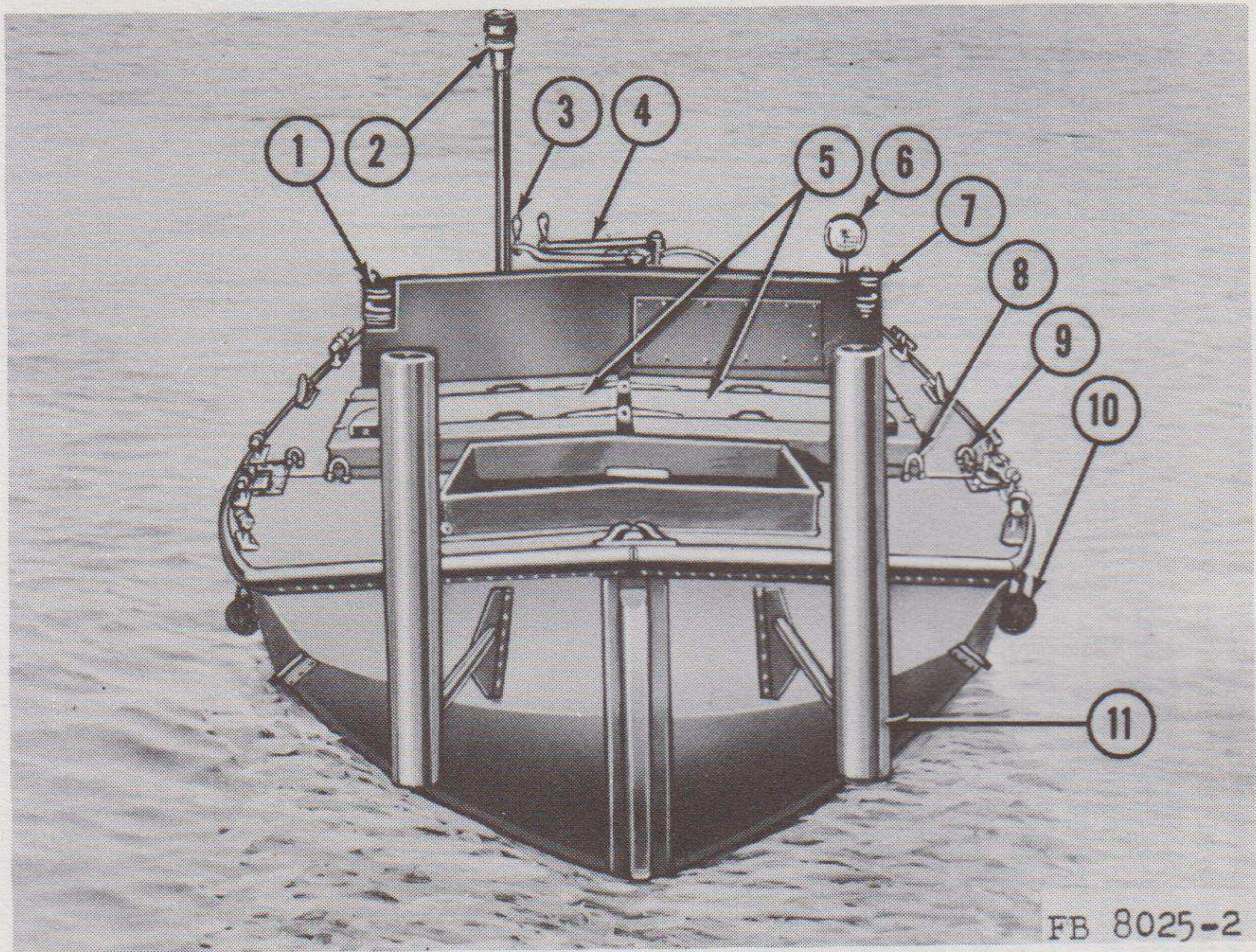


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Figure 1. 27-foot bridge erection boat, 50-190, three-quarter port side view.

- | | | | |
|----|---|----------------------------|--|
| 1 | Pushing knee | | |
| 2 | Bow chock | | |
| 3 | Bow oil light | | |
| 4 | Deck coaming | | |
| 5 | Forward hatch | | |
| 6 | Cleat | | |
| 7 | Engine hatch cover | | |
| 8 | Port side running light | | |
| 9 | Searchlight | | |
| 10 | Port reverse lever crank | | |
| 11 | Starboard reverse lever crank | | |
| 12 | Steering wheel | | |
| 13 | C-O-Two fire extinguisher | | |
| 14 | Engine compartment vent blower assembly | | |
| 15 | Mast light assembly | | |
| 16 | Stern light mast | | |
| 17 | Stern hatch cover | | |
| 18 | | Stern rail | |
| 19 | | Roller chock | |
| 20 | | Stern chock and slide bolt | |
| 21 | | Fender | |
| 22 | | Haul chock | |
| 23 | | Haul tackle jam cleat | |
| 24 | | Exhaust deflector | |
| 25 | | Engine hatch cover vent | |
| 26 | | Deck coupling | |

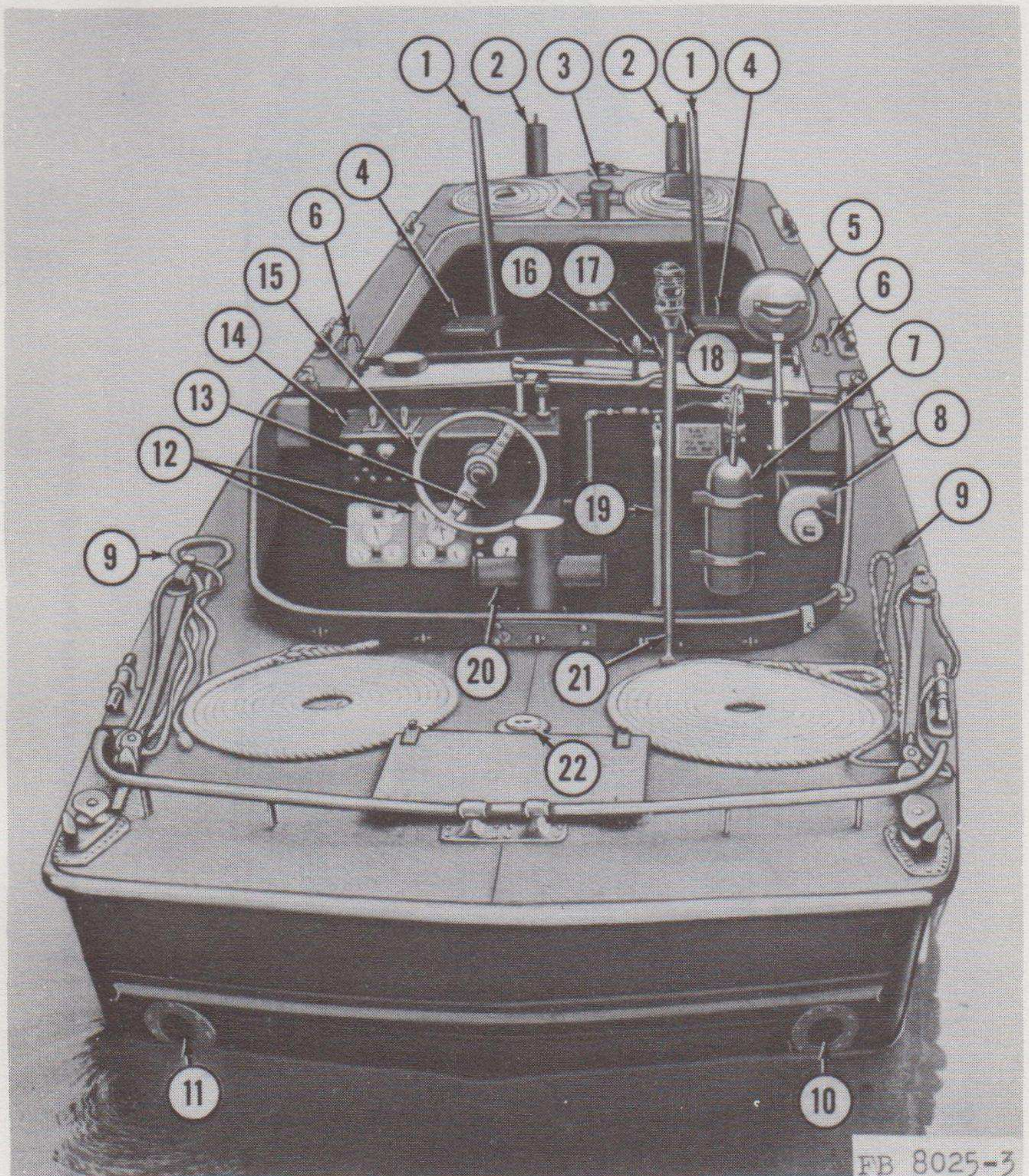
Figure 1—Continued.



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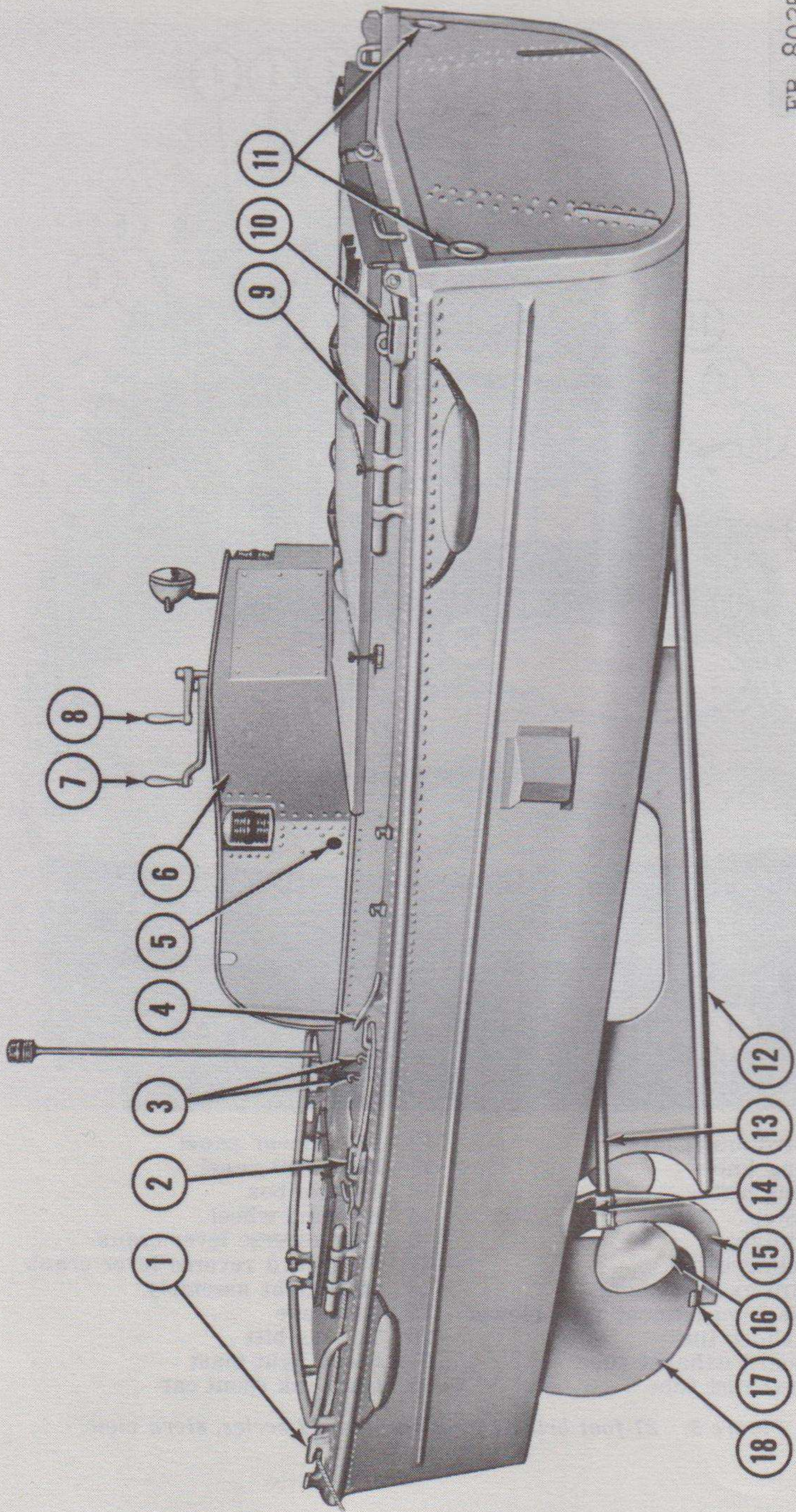
- | | |
|---------------------------------|---------------------------|
| 1 Starboard side running light | 7 Port side running light |
| 2 Mast light assembly | 8 Bow sling U-bolt |
| 3 Starboard reverse lever crank | 9 Stern sling U-bolt |
| 4 Port reverse lever crank | 10 Fender |
| 5 Engine hatch cover | 11 Pushing knee |
| 6 Searchlight | |

Figure 2. 27-foot bridge erection boat, 50-190, bow view.



- | | |
|-------------------------------------|----------------------------------|
| 1 Forward assist post | 12 Instrument panel |
| 2 Pushing knee | 13 Electrical panel |
| 3 Mooring bitt | 14 Control box |
| 4 Bow Step | 15 Steering wheel |
| 5 Searchlight | 16 Port reverse lever crank |
| 6 Bow sling U-bolt | 17 Starboard reverse lever crank |
| 7 CO ₂ fire extinguisher | 18 Mast light assembly |
| 8 Engine compartment vent blower | 19 Gas gage |
| 9 Haul chock line | 20 Towing bitt |
| 10 Starboard exhaust tube | 21 Stern light mast |
| 11 Port exhaust tube | 22 Gas tank spout cap |

Figure 3. 27-foot bridge erection boat, 51 series, stern view.

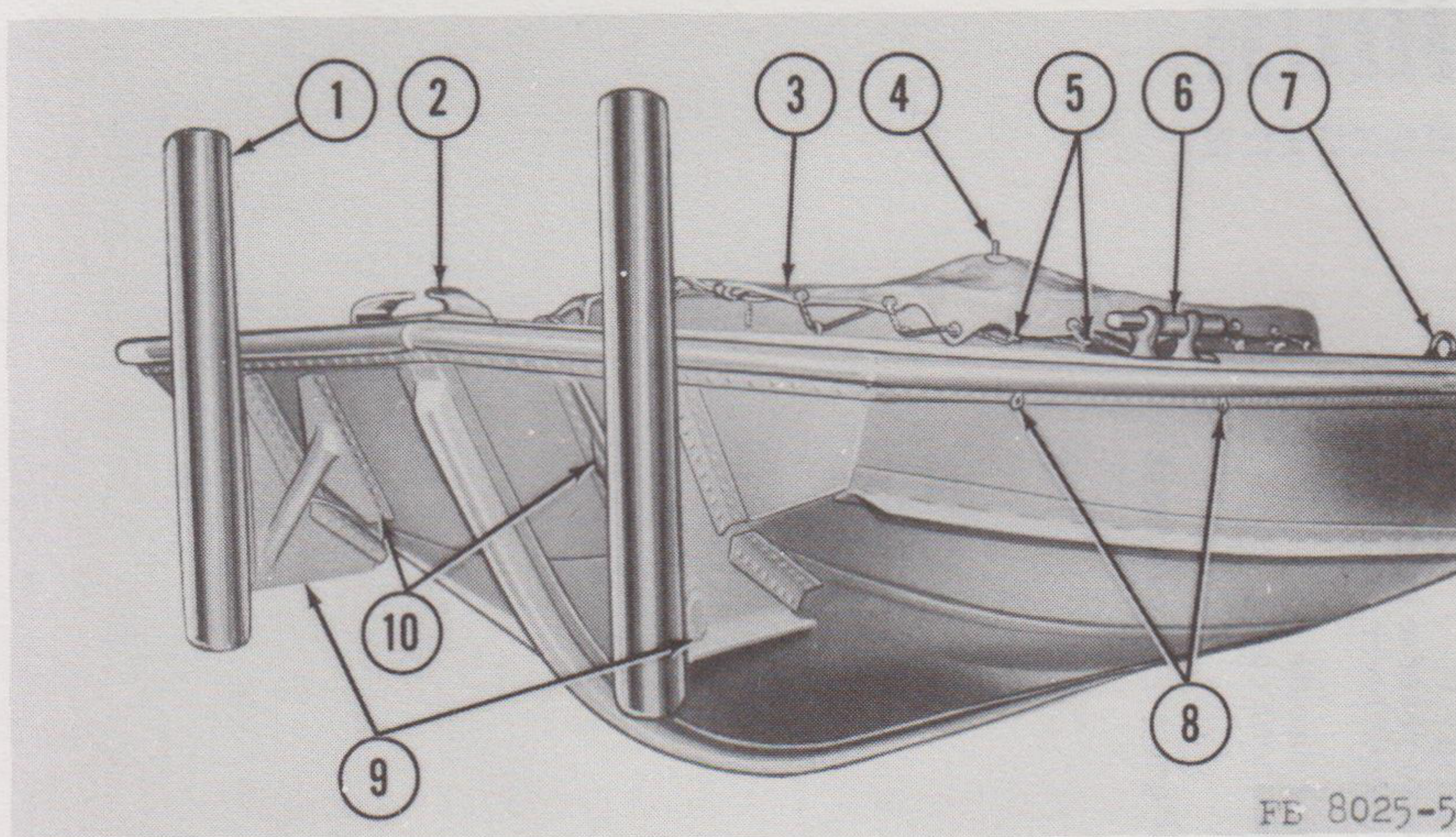


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Figure 4. Stern section, three-quarter starboard side view.

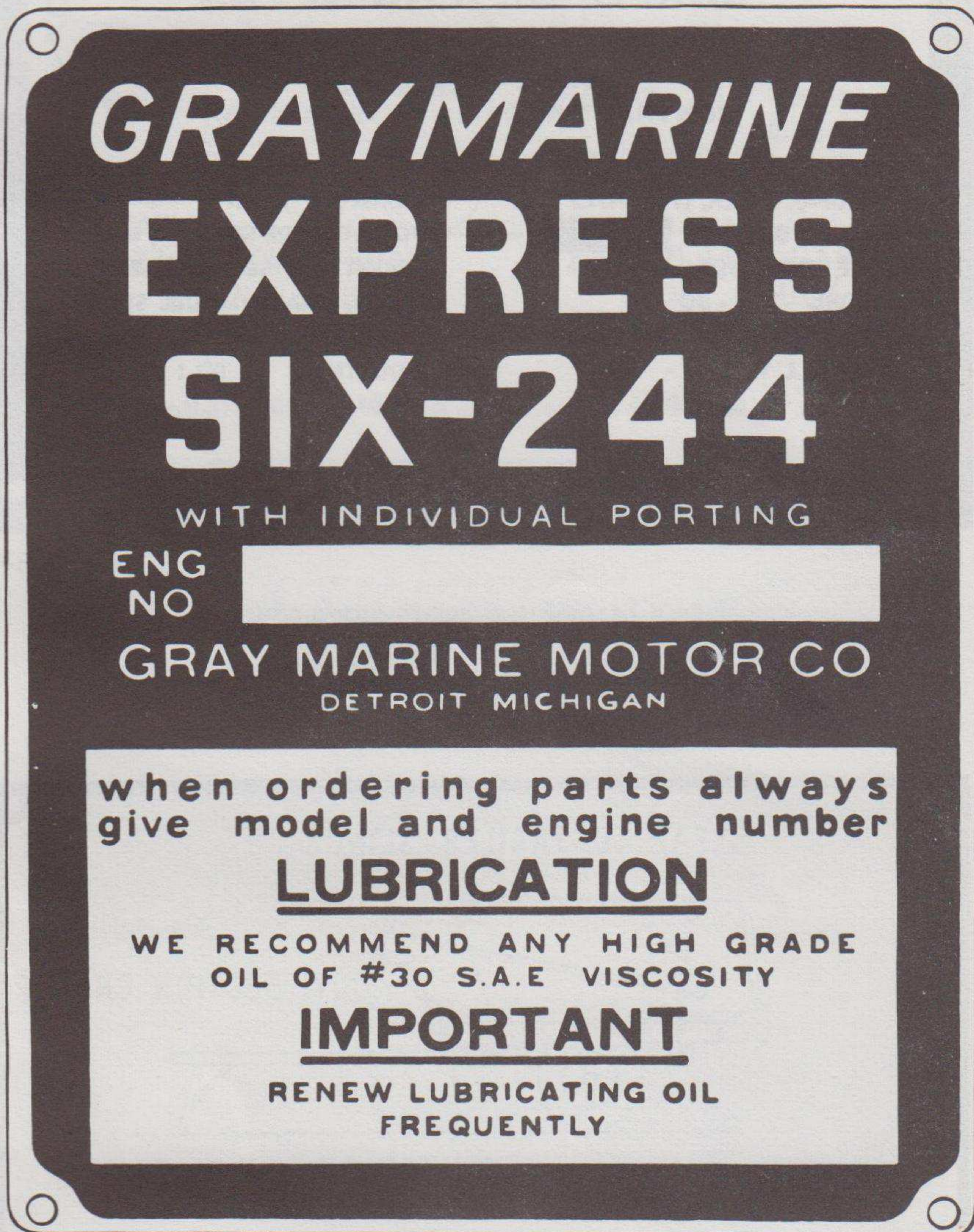
- | | | | |
|----|---------------------------------------|--|--|
| 1 | Roller chock | | |
| 2 | Haul chock | | |
| 3 | Cover lashing hook | | |
| 4 | Haul tackle jam cleat | | |
| 5 | Engine compartment vent blower outlet | | |
| 6 | Windshield | | |
| 7 | Starboard reverse lever crank | | |
| 8 | Port reverse lever crank | | |
| 9 | Cleat | | |
| 10 | Coupling handle | | |
| 11 | Female shear cup | | |
| 12 | Skeg | | |
| 13 | Propeller shaft | | |
| 14 | Propeller strut | | |
| 15 | Rudder strut | | |
| 16 | Propeller | | |
| 17 | Rudder pivot | | |
| 18 | Rudder plate | | |

Figure 4—Continued.



- | | | | |
|---|-----------------------|----|------------------------------|
| 1 | Pushing knee | 6 | Cleat |
| 2 | Bow chock | 7 | Bow sling U-bolt |
| 3 | Forward walkway cover | 8 | Shouldered eyebolt |
| 4 | Cover pole | 9 | Pushing knee outside support |
| 5 | Cover lashing hook | 10 | Pushing knee inside support |

Figure 5. Bow section, three-quarter starboard side view.



FB 8025-6

Figure 6. Engine nameplate.

**CORPS OF ENGINEERS
U S ARMY**

SERIAL - [REDACTED]

CONTRACT N° DA-11-184-ENG-4468

MANUFACTURER, *Higgins* INC.

HIGGINS BOAT N° [REDACTED]

DATE OCT. 1950.

MODEL T-1-50

OVERALL LENGTH 27'-0 $\frac{1}{2}$ "

OVERALL WIDTH - 8'-2"

PROPELLER

MAXIMUM DRAFT 2'-10"

WEIGHT (FORE SECTION) 1150 LB.

WEIGHT (AFT SECTION) 4700 LB.

ENGINE, GRAY - MODEL SIX 244

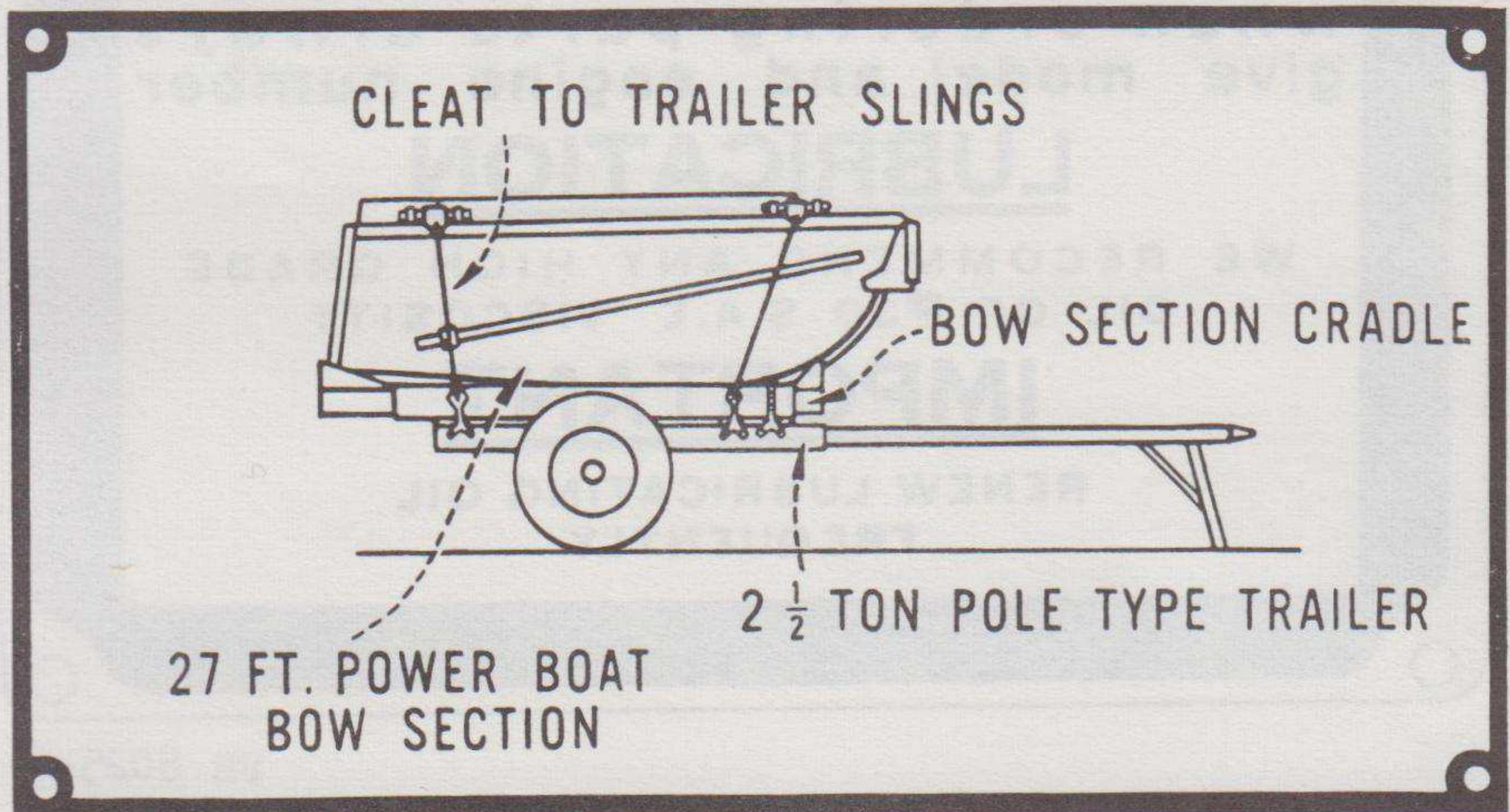
EXPRESS - 102 H.P. @ 3200 R.P.M.

REDUCTION 3 TO 1

29" DIA. X 19 PITCH - R.H.

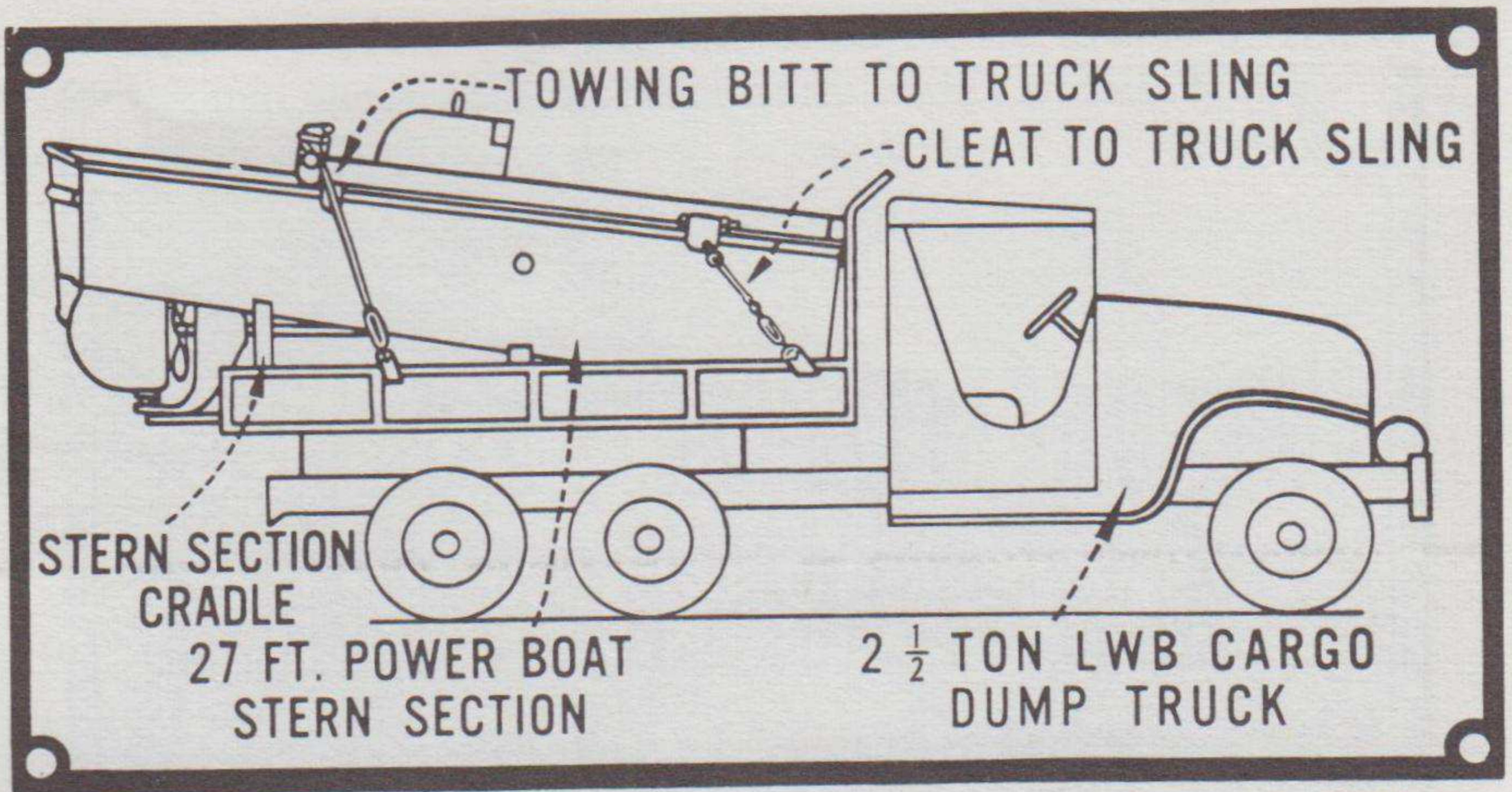
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Figure 7. End item nomenclature plate.



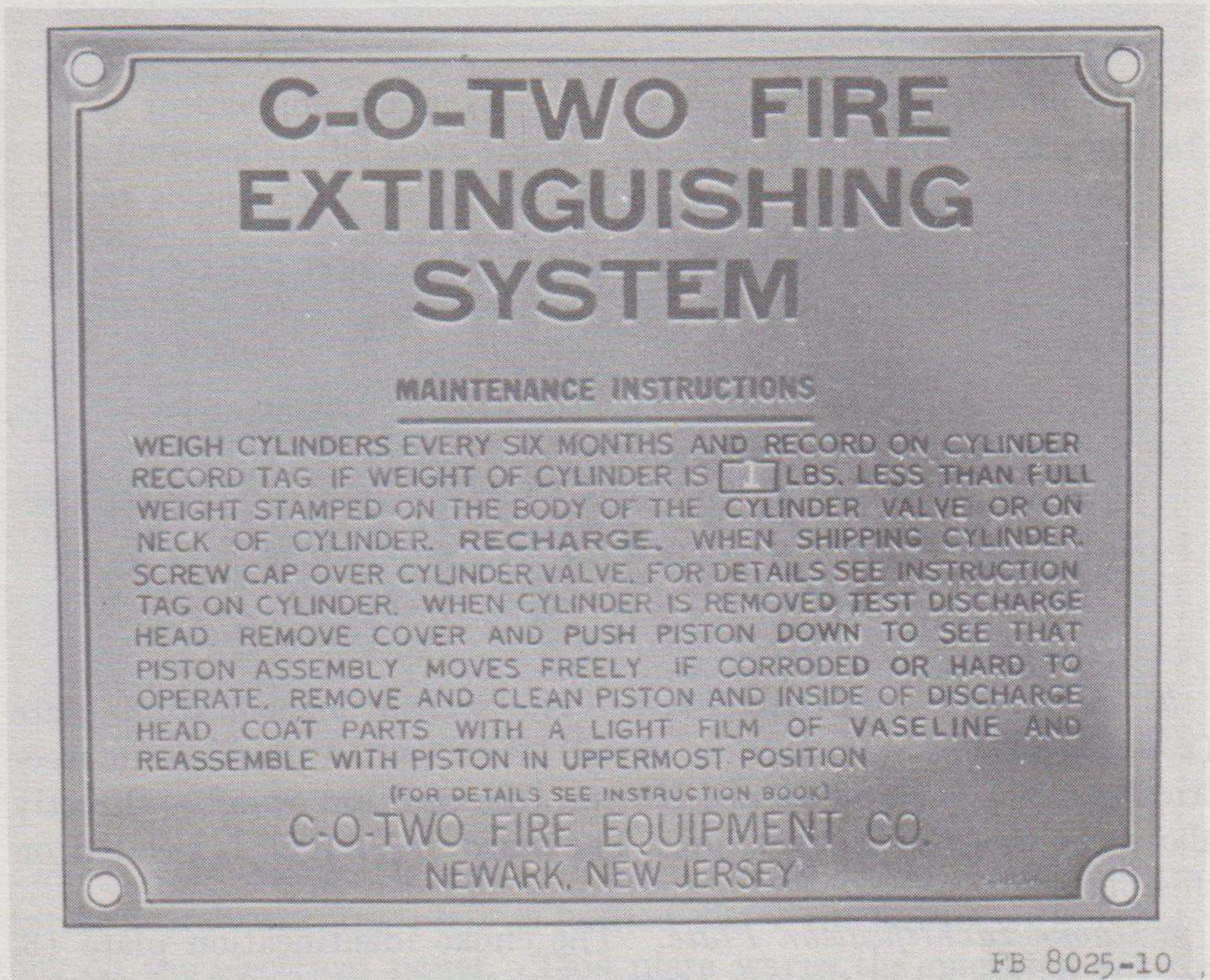
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Figure 8. Forward section loading diagram identification plate.



FB 8025-9

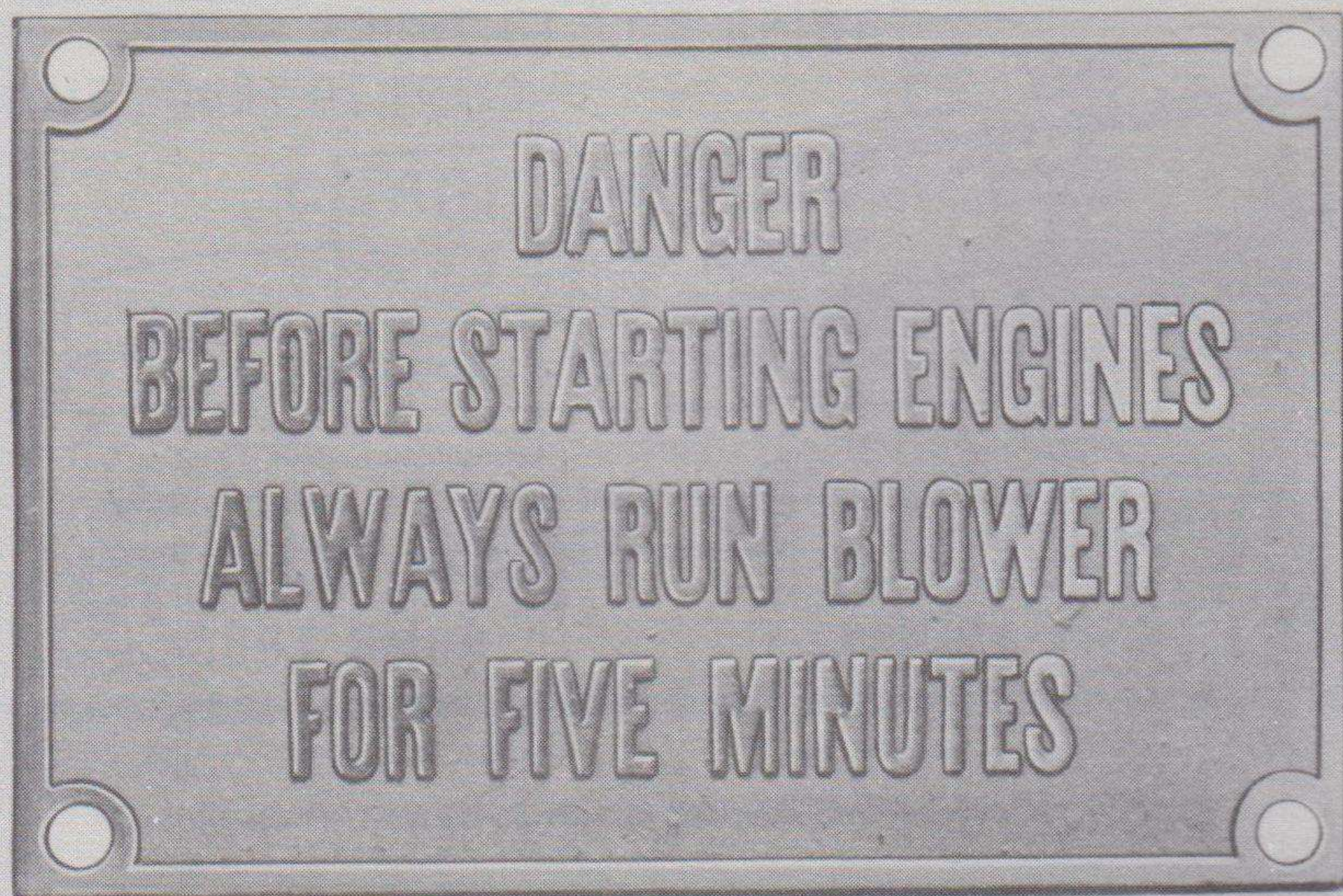
Figure 9. Stern section loading diagram, identification plate.



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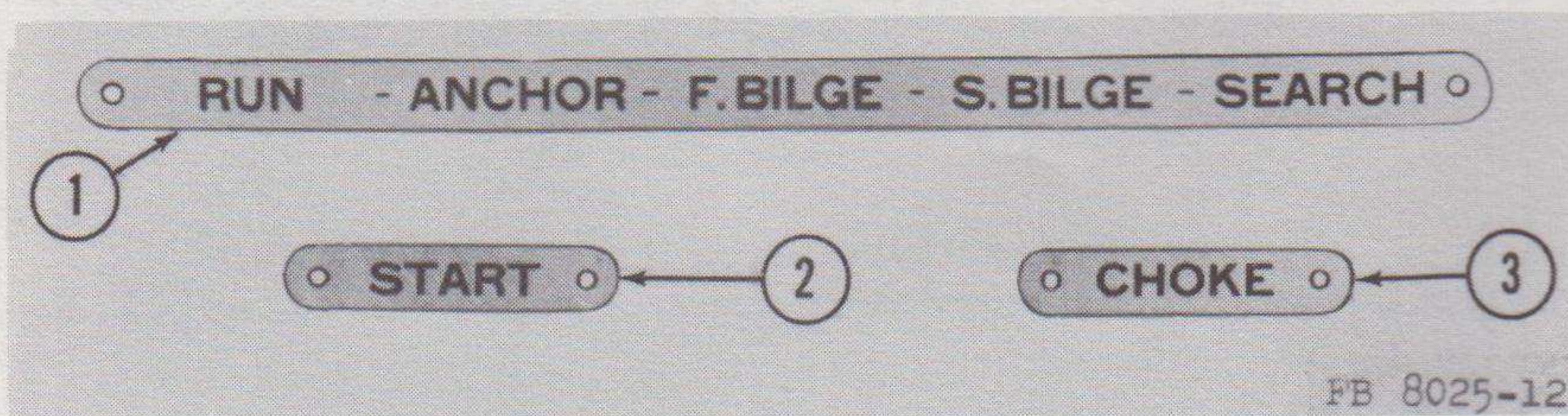
Figure 10. C-O-Two fire extinguisher instruction plate.

g. Run, Anchor, F. Bilge, S. Bilge, Search Identification Plate. The Run, Anchor, F. Bilge, S. Bilge, Search identification plate (1, fig. 12) is located on the electrical panel below the steering wheel. The respective light and pump switches are located below the words "RUN," "ANCHOR," "F. BILGE," "S. BILGE," and "SEARCH" on the plate.



FB 8025-11

Figure 11. Blower-caution identification plate.



FB 8025-12

- | | |
|---|---------------------------------|
| 1 Run, Anchor, F. Bilge, S. Bilge, Search identification plate. | 2 Starter identification plate. |
| | 3 Choke identification plate. |

Figure 12. Switch, starter, and choke identification plates.

h. Starter Identification Plate. The starter identification plate (2, fig. 12) is located below the switch identification plate on the electrical panel. It is positioned between the ignition switches directly above the two starter switches. The word "START" is printed on this plate.

i. Choke Identification Plate. The choke identification plate (3, fig. 12) is located at the top center of the two instrument panels between the two choke controls. The word "CHOKE" is printed on this plate.

j. Ignition Identification Plate. The two ignition identification plates are located on the electrical panel directly above the ignition and blower switch levers (14, fig. 31). The word "IGNITION" is printed on these plates.

k. Bow Section Loading Instruction Plate. The bow section load-

ing instruction plate (fig. 13) is located on the frame of the cradle below the pad eye. This plate indicates which end of the boat should face the pole of the trailer during transportation.

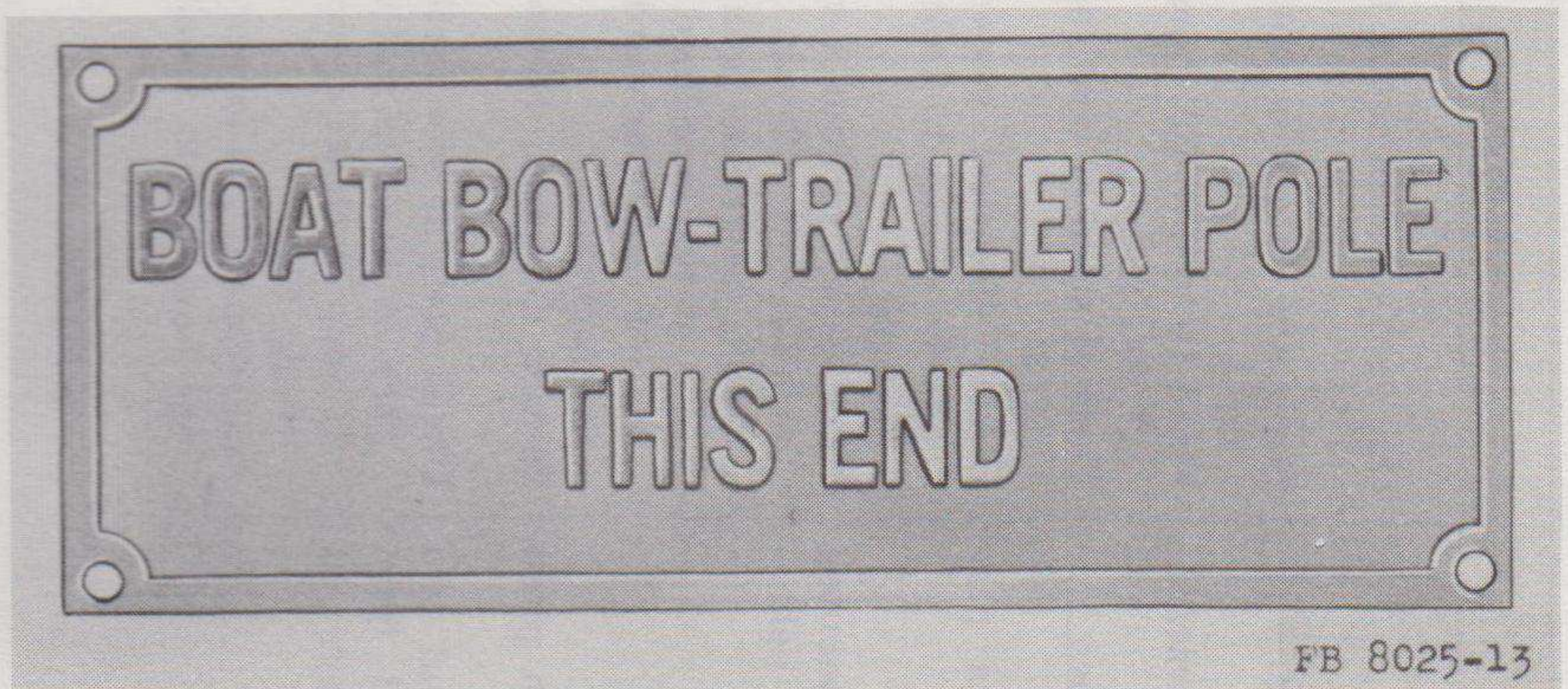


Figure 13. Bow section loading instruction plate.

l. *Stern Section Loading Instruction Plate.* The stern section loading instruction plate (fig. 14) is located on the frame of the cradle forward of the stern sling. This plate indicates which end of the boat should face the cab of the truck during transportation.

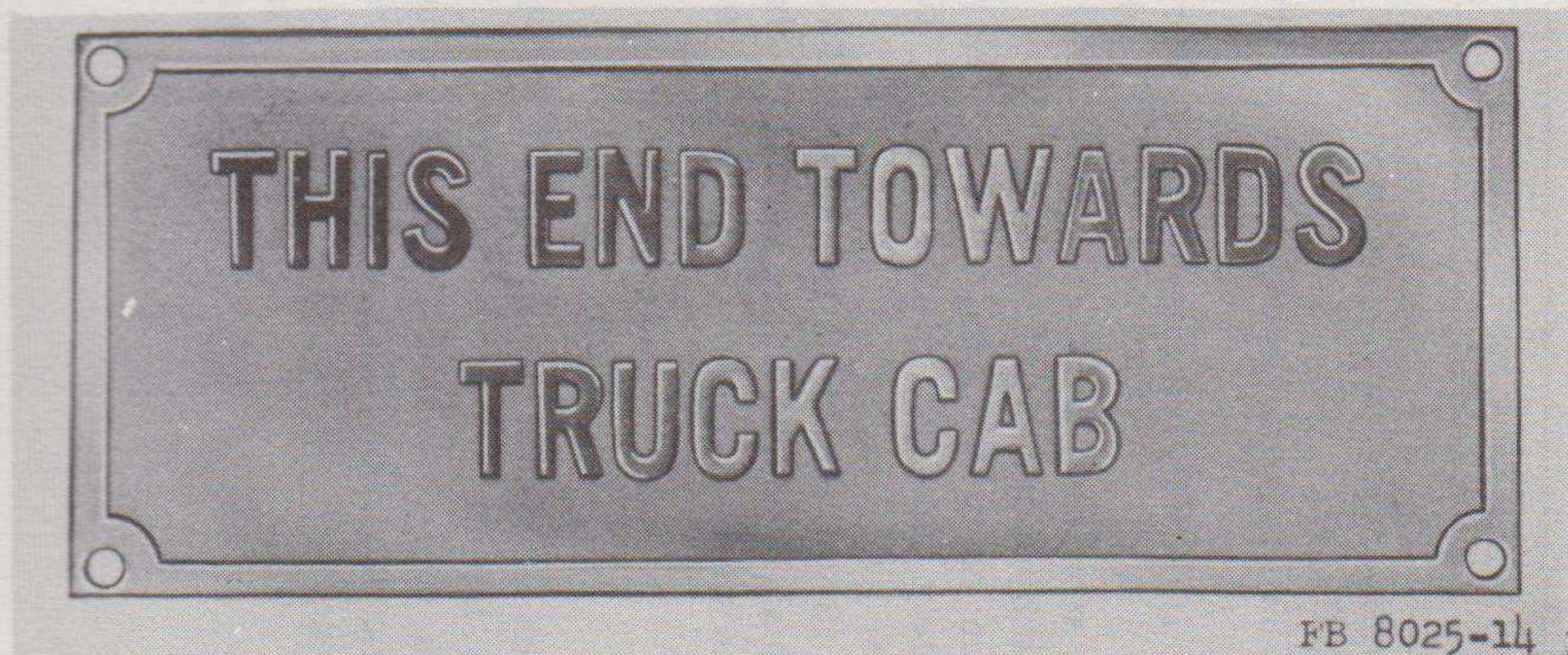


Figure 14. Stern section loading instruction plate.

m. *Starter Switch Warning Plate.* On 51 series boats only, a starter switch warning plate is located above the starter switch buttons on the electrical panel. This plate warns the operator not to press the starter switches if the starting motors are still turning.

5. Differences in Models

Table I indicates the differences in models of 27-foot bridge erection boats. This table covers boat 50-190, other boats of the 50 series, and boats of the 51 series. All boats in the 50 and 51 series do not necessarily have all of the features listed in table I. Individual boats may incorporate features from all three columns.

Table I. Differences in Models

Item	Boat No. 50-190	Other boats 50 series	51 series
Engine hatch cover vents-----	One vent on each cover, forward (25, fig. 1).	No vents-----	One vent on each cover, forward.
Blower location-----	Starboard corner of cockpit (14) (fig. 1).	Forward cockpit coaming-----	Starboard corner of cockpit (8, fig. 3).
Fire extinguisher-----	Fixed 10 lb CO ₂ full release type-	Portable 2 qt carbon tetrachloride hand type.	Fixed 10 lb CO ₂ full release type (7, fig. 3).
Exhaust system-----	Ports at sides of boat, each covered by a deflector (24, fig. 1).	Ports at sides of boat, open-----	Ports at stern of boat, open (11, fig. 3).
Radio suppression shielding-----	Engine electrical system completely shielded, Hallet system.	Engine electrical system partially shielded.	Engine electrical system completely shielded, Delco-Remy system.
Batteries, and battery mountings--	Two 12-volt batteries mounted in lead lined tray under helmsman's seat.	Two 12-volt batteries mounted in unlined tray under helmsman's seat.	Two 12-volt or four 6-volt batteries. One 12-volt or two 6-volt batteries mounted in each of two lead lined trays at the port and starboard sides of the cockpit.
Propellers-----	29-inch diameter, 19-inch pitch (16, fig. 4).	27-inch diameter, 17-inch pitch--	25-inch diameter, 19-inch pitch.
Bow section sling connection points.	Check plate at bow and two sling U-bolts at deck coupling castings (8, fig. 2).	Check plate at bow and two sling U-bolts inboard from deck coupling castings at cargo hatch coaming.	Check plate at bow further back than on 50 series and two sling U-bolts at cleats on frame five (6, fig. 3).
Forward mooring bitt-----	None-----	None-----	Amidships at the forward end of the bow section hatch (3, fig. 3).

Assist posts-----	None-----	None-----	Two at the forward corners of the bow section hatch (1, fig. 3).
Pushing knees-----	Tubes, 3 ft 3 in. long, capped at both ends. Caps drilled to accommodate a davit (11, fig. 2).	Tubes, 3 ft 3 in. long, capped solidly at both ends.	Tubes, 4 ft long, open at both ends except for bracing blocks (2, fig. 3).
Bow step-----	None-----	None-----	Two, at the forward corners of the bow section hatch (4, fig. 3).
Gratings-----	Five in cockpit, two in bow section hatch.	Three in cockpit, two in bow section hatch.	Three in cockpit, two (large) in bow section hatch.
Bow section side lockers-----	Two, one on each side of bow section hatch.	Two, one on each side of bow section hatch.	None.
Assist post stowage bracket and clip.	None-----	None-----	Forward end of bow section hatch coaming.
Rudder shaft deck bearing-----	None-----	One at the top of each rudder shaft.	One at the top of each rudder shaft.
Rudder strut-----	Extends from propeller strut to bottom of rudder (22, fig. 87).	Extends from propeller strut around rudder and up to stern of boat.	Extends from propeller strut around rudder and up to stern of boat (22, fig. 88).
Strut brace-----	Two braces, one from each propeller strut to the skeg plate (26 and 31, fig. 87).	One brace between the two propeller struts. Brace passes through skeg plate.	One brace between the two propeller struts (31, fig. 88).
Skeg-----	One wide skeg plate in center of boat with a skeg tube running along the bottom (23, fig. 87).	One wide skeg plate in center of boat. Three skeg tubes, one from each rudder strut to the hull and one along the bottom of the skeg plate.	Two narrow skeg plates in line with the propeller shafts, with skeg tubes running along the bottom of each (26, fig. 88).
Fuel tank--	Feeds at bottom front on each side.	Feeds at bottom front on each side.	Feeds at top center.
Helmsman's seat-----	Port side of cockpit-----	None-----	None.

Table I. Differences in Models—Continued

Item	Boat No. 50-190	Other boats 50 series	51 series
Towing bitt-----	Lifting eye on top (1, fig. 44). Bolted to bracket at the base.	Flat cap on top. Secured at the bottom by a lock bar.	Flat cap on top (20, fig. 3). Secured at the bottom by a lock bar.
Stern sling-----	Three fiege fittings, one for each sling U-bolt and one for towing bitt lifting eye.	Two fiege fittings, one for each sling U-bolt and one loop to fit over the towing bitt.	Two fiege fittings, one for each sling U-bolt and one loop to fit over the towing bitt.
Searchlight-----	Port side of control box-----	Windshield, starboard of the control box.	Starboard corner of cockpit.
Cockpit step-----	None-----	None-----	Starboard side of cockpit.
Heat exchanger guards-----	Four, one fore and aft of both sets of heat exchangers.	None-----	Four, one fore and aft of both sets of heat exchangers. A zinc plate is secured to each guard.
Stern chock closure-----	Slide bolt-----	Slide bolt-----	Yoke.
Steering wheel knob-----	None-----	None-----	On wheel rim.
Throttle levers-----	On face of control box-----	On top of control box-----	On face of control box.
Operating switches-----	On electrical panel mounted on control box.	On face of control box. No electrical panel.	On electrical panel mounted on control box (13, fig. 3). Arrangement of switches different from that on boat 50-190.
Rudder levers-----	Square hole to fit rudder shaft--	Round hole keyed to rudder shaft.	Round hole keyed to rudder shaft.
Lashing hooks-----	Quantity 32 (5, fig. 5)-----	Quantity 32-----	Quantity 35.
End item nomenclature nameplate.	In cockpit-----	None-----	In cockpit.
Starter switch warning plate-----	None-----	None-----	Above starter switches on electrical panel.

Hour meters-----	None-----	None-----	Two, one for each engine, on the electrical panel.
Battery paralleling switch-----	None-----	None-----	On electrical panel.
Choke controls-----	Two, one above each instrument panel.	Two, one above the other, below the steering wheel.	Two, both above the port instrument panel.

6. Tabulated Data

a. Boat.

Dimensions :

Overall length ----- 27 ft.
Beam ----- 8 ft.

Draft (from base line) :

Bow ----- 5 in.
Mid (unloaded) ----- $13\frac{3}{4}$ in.
Stern (unloaded) ----- $21\frac{1}{4}$ in.
Stern (maximum load) ----- 40 in.

Weight (without accessories) :

Bow section ----- 1,150 lb.
Stern section ----- 4,700 lb.
Total displacement ----- 5,850 lb.

Center of gravity (in operating condition) :

Unit assembled ----- 9 in. forward of frame 8.

b. Engine.

Number of cylinders ----- 6.
Bore ----- $3\frac{7}{16}$ in.
Stroke ----- $4\frac{3}{8}$ in.
Displacement ----- 244 cu in.
Brake horsepower ----- 102 at 3,200 rpm.
Compression ratio ----- 7.7 : 1
Firing order ----- 1-5-3-6-2-4.
Rotation (facing rear of engine) ----- Clockwise.
Oil pressure (at full throttle) ----- 40 lb.
Weight (dry—with accessories) ----- 950 lb.
Height (with accessories) :
 Above shaft ----- $16\frac{3}{16}$ in.
 Below centerline ----- $11\frac{1}{16}$ in.
Length overall (with reduction gear) ----- $55\frac{11}{16}$ in.
Width (with accessories) ----- $23\frac{11}{16}$ in.

c. Reverse Gear.

Make ----- Paragon.
Model ----- 3XE-90.
Type ----- Planetary.
Lubrication ----- Engine pressure system.

d. Engine Accessories.

Generator :

Make ----- Delco-Remy.
Model ----- 1102991.
Rotation (facing drive end) ----- Counterclockwise.
Rated output (at 1,175 rpm) :
 Voltage ----- 12 volts.
 Current ----- 10 amp.
 Voltage and current control ----- Generator regulator.
 Bearings (both ends) ----- Ball.
 Brush spring tension (with new brushes) ----- 25 oz.
 Field current (at 12 volts) ----- 2.7-3.0 amp.

Generator—Continued

Starting motor:

Make ----- Delco-Remy.
Model ----- 1108138.
Rotation (facing drive end) ----- Clockwise.
Rated input:
Voltage ----- 12 volts.
Current:
No load (maximum with 11.3 volts input) ----- 70 amp.
Locked armature (with 6.7 volts input) ----- 530 amp.
Brush spring tension (with new brushes) ----- 24-28 oz.
Bearings (1 at each end and 1 in Bendix drive) ----- Absorbent bronze.
Torque (armature locked) ----- 16.0 ft.-lb.
Starter switch:
Type ----- Solenoid.
Location ----- On starting motor.
Motor drive ----- Right-hand outboard Bendix.
Gears:
Number of teeth on flywheel ----- 140.
Number of teeth on starter pinion ----- 9.
Reduction ratio ----- 15.5:1.

Generator regulator:

Make ----- Delco-Remy.
Model ----- 1118708.
Type ----- Three step vibrating.

Ignition switch:

Make ----- Clum.
Model ----- 8889.

Radio interference suppression:

Make:
Boat 50-190 ----- Hallet.
Boats 51 Series ----- Delco-Remy.
Model:
Boat 50-190 ----- 1660.
Boats 51 Series ----- 1111575.

Carburetor:

Make ----- Zenith.
Model:
Boat 50-190 ----- 63M2E12.
Boats 51 series (with governor) ----- 63M2E12R.
Type ----- Updraft.
Throat size ----- 1¹¹/₁₆ in.

Oil cooler:

Make ----- Harrison.
Type ----- Plate.

Exhaust cooling water pump:

Make ----- Marine Products.
Model ----- L30.
Type ----- Impeller.

Engine cooling water pump:

Make ----- Gray Marine.
Model ----- 55097.
Type ----- Impeller.
Capacity (at 3,200 rpm) ----- 55 gpm.
Pump to engine speed ratio ----- 1.27:1.

Heat exchangers :

Engine cooling system :

Make ----- Gray Marine.
Model ----- B842x5.
Type ----- Tubular.

Exhaust cooling system :

Make ----- Gray Marine.
Model ----- B542x5.
Type ----- Tubular.

Oil filter :

Make ----- Fram.
Type ----- Replaceable element.

e. Batteries.

Make ----- Exide.
Model ----- 6-LXWG.
Group size ----- 4B.
Type ----- Lead acid.
Voltage ----- 12 volts.

f. Reduction Gear.

Make ----- Paragon.
Model ----- RC 30.
Type ----- Internal gear.
Reduction ratio ----- 3:1.
Lubrication ----- Engine pressure system.

g. Bilge Pumps.

Make ----- Wilcox-Crittenden.
Model ----- 8002.
Type ----- Impeller.

h. Blower.

Make ----- Wilcox-Crittenden.
Model ----- 8780.
Type ----- Centrifugal.

i. Lights.

Searchlight :

Make ----- Kilborn Sauer.
Model :
Head ----- 1927.
Clevis and handle ----- 1400.

Bow light :

Make ----- Wilcox-Crittenden.
Model ----- 136-A.

Anchor light :

Make ----- Wilcox-Crittenden.
Model ----- 935.

Running lights, port and starboard :

Make ----- Wilcox-Crittenden.
Model ----- 33.

j. Steering System.

Steerer :
Make ----- Kainer.
Model ----- 9005.
Intermediate gear box :
Make ----- Kainer.
Model ----- 9000.
Steering quadrant :
Make ----- Kainer.
Model ----- B.

k. Cutless Propeller Shaft Bearings.

Make ----- B. F. Goodrich.
Model ----- 46M6e.

l. Boat Performance Data.

Speed :
With no load ----- 20 mph.
With 3,000 lb load ----- 17.5 mph.
Towline pull :
Astern (at zero speed) ----- 2,600 lb.
Ahead :
At zero speed ----- 3,900 lb.
At 5 mph ----- 3,200 lb.
At 8 mph ----- 2,600 lb.
At 10 mph ----- 2,000 lb.
At 12 mph ----- 1,500 lb.
At 15 mph ----- 800 lb.
Turning circle :
Full speed ahead ----- 70 ft.
Full speed astern ----- 25 ft.
Fuel consumption per hour per engine ----- 7.5 gal.

m. Capacities.

Cooling system (per engine) ----- 8 gal.
Crankcase (per engine) ----- 10 qt.
Fuel tank ----- 85 gal.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

7. New Equipment

a. General. Protective materials were applied to the various surfaces of the boat before shipment to protect from the harmful effects of rust, corrosion, and fungus action. These protective materials must be removed before the boat is operated. If not removed, they may cause sticking or jamming of working parts. In some cases proper lubrication of the parts may be prevented if the protective material is not removed. After all protective material has been removed, the boat can be assembled and completely lubricated. All parts removed for shipment and a packing list enumerating them are packed in a crate stowed in forward cargo hatch.

b. Removal of Protective Material.

- (1) Remove the storage batteries and battery electrolyte from the stern section crate base through the service door in the crate.
- (2) Remove the crates from around the skid mounted bow and stern sections of the boat.
- (3) Remove the type P-1 preservative from the threaded surfaces on the tie rods, adjusting rods, clevises, bolts, and nuts. Use cleaning solvent.

Note. Unless otherwise specified, all preservative types mentioned are as listed in Specification JAN-P-116.

- (4) Remove the type P-1 preservative from the unpainted surfaces of the linkages, nameplates, grease fittings, anchor, heat exchangers, hose clamps, propeller shafts, boat hook, engine starting hand cranks, cockpit canvas support poles, and other ferrous surfaces which have been exposed by disassembly. Use cleaning solvent.
- (5) Remove the type P-6 preservative from the carburetor linkages, pins, chokes, and throttles. Use cleaning solvent.
- (6) Remove the pressure sensitive tape from the distributors.
- (7) Remove the pressure sensitive tape and greaseproof barrier-material from the battery cables.
- (8) Remove the type P-1 preservative from the unpainted exterior surfaces of the exhaust pipes, elbows, and water tank filler caps. Use cleaning solvent.