4-1944

Photographic Interpretation Handbook, United States Forces: Section 14 Ships and Shipping

Robert L. Bolin Depositor
University of Nebraska-Lincoln, rbolin2@unl.edu

Follow this and additional works at: http://digitalcommons.unl.edu/dodmilintel

http://digitalcommons.unl.edu/dodmilintel/17

This Article is brought to you for free and open access by the U.S. Department of Defense at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in DOD Military Intelligence by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
**DEFINITION OF HARBOR TERMS**

**Basin.** - A small protected area of water between piers, quays, mole, or natural features.

**Berthing space.** - Space along which vessels can secure.

**Breakwater.** - A structure, usually of rubble, built into the water to influence tides or currents or to protect a harbor. Vessels cannot secure alongside.

**Degaussing.** - The process of reducing the magnetism of a ship.

**Dock.** - The water space between piers.

**Dry dock.** - A water tight basin which after pumping out excludes the water leaving bottom of vessel exposed.

**Floating dry dock.** - A floating structure so designed that it may be partially submerged to permit entrance of floating vessel.

**Fitting out.** - The final completion of a vessel after launching.

**Graving dock.** - A dry dock usually walled with stone.

**Marine railway.** - Inclined rail extending into water, carrying a cradle which moves on wheels; used for repair work.

**Mole.** - A structure usually of stone or concrete built into the water for protection and convenience in loading and unloading.

**Net defense.** - A system of nets and buoys used to protect a harbor entrance or ships from submarine and torpedo attacks.

**Pier.** - Wharf like structure projecting into a stream or fairway.

**Quay.** - See Wharf.

**Seawall.** - A structure of stone or concrete built along coast to protect the land area.

**Slip.** - See dock.

**Ways.** - a) Ground ways - stationary inclined timbers upon which ship is built.

- b) Sliding or launching ways are located on ground ways.

**Wharf.** - General term for landing place for vessels usually parallel to shore.
The establishment of a standard method of merchant ship identification has been the object of constant study. Two manuals: namely, ONI 209 (World's Merchant Ships) and ONI 208-J (Japanese Merchant Ships) represent a complete codification of the basic types with graphic indices. These reference books should be accessible to an interpreter as an aid in identification. Because of the complete photographic detail needed to satisfactorily use these manuals in first phase interpretation, a simpler method known as J.M.S.T. was developed for use in the South and Southwest Pacific Areas. A similar method is now being developed for use in the European Theater.

J.M.S.T. (Japanese Merchant Shipping Tonnage) was designed originally for use by aviators in reporting sightings. Its purpose is to transmit, by a call signal, generalized information on the type and gross tonnage of Japanese ships. As it is considered particularly applicable to first phase reports, where convoys or a number of ships in a harbor are encountered, its use is explained in this handbook.

**SHIPS AND SHIPPING**

**MERCHANT VESSEL IDENTIFICATION**

**MERCHANT SHIP TYPES AND TERMINOLOGY**
JAPANESE MERCHANT SHIPPING TONNAGE

Listed below are the four call signals for the basic Merchant Vessel divisions. On reporting a ship, the following procedure is to be used:

1. Select a similar deckhouse from this sheet for determination of a division.
2. From the right hand page in the selected division column determine the sub-division or group.
3. Ship will then be reported with the call signal listed opposite the selected sub-division. All reports should begin with the number of the type observed, for example, 1 Fox-Tare Baker, 5 Fox-Baker, etc.
4. When a ship cannot be classified into any of the four divisions, it should be reported as Mike Victor (merchant vessel) with an estimate of tonnage.
5. When a ship can be classified as to division but not as to group, it should be reported as, for example, Fox-Tare Uncle (unidentified), with an estimate of tonnage.

FOX 1
(Freighter Division)
Split deckhouse

FOX TARE 2
(Freighter Transport Division)
Short composite deckhouse

TARE 3
(Transport Division)
Long composite deckhouse
1/3 the length of the ship

SUGAR 4
(Stack Aft Division)
**FOX TARE**

**FOX TARE ABLE**

- Minimum of four masts, any or all may be goalposts
- No storm deck (No breaks in deck at masts No. 2 and 3 positions)
- Speed, N.C., 14/15
- Speed, A.M., 16/16

**FOX TARE BAKER**

- Minimum of four masts, any or all may be goalposts
- Speed, N.C., 16
- Speed, A.M., 16/16

**FOX TARE ABLE**

- Minimum of four masts, any or all may be goalposts
- Storm decks (Breaks in deck at masts No. 2 and 3 positions)
- Speed, N.C., 14/15
- Speed, A.M., 16/16

**FOX TARE BAKER**

- Minimum of four masts, any or all may be goalposts
- Speed, N.C., 16
- Speed, A.M., 16/16

**FOX TARE CHARLIE**

- Two masts centered on forward and aft decks (80% of this Group fall in this section)
- Three masts, two forward and one aft with No. 2 on break in deck
- Four masts, foremast on forecastle deck, mainmast on poop, and goalposts against deckhouse
- Speed, N.C., 10/10
- Speed, A.M., 12/13

**FOX TARE DOG**

- 2 or 3 masts with foremast on forecastle deck, with 3 masts No. 2 against deckhouse
- Deckhouse aft midships
- Speed, N.C., 10

**FOXTARE ABLE**

- 4-5 lifeboats per side on deckhouse
- 1. Minimum of three masts
- Speed, N.C., 14/15
- Speed, A.M., 16/16

**TARE BAKER**

- 4 lifeboats to a side on deckhouse
- Speed, N.C., 14
- Speed, A.M., 16/16

**TARE ABLE TWO STACKS**

- 8/10,000 G.T.

**TARE ABLE**

- 9000/12,000 G.T.

**TARE ABLE BAKER**

- 1. No bridge amidships
- 2. Two lifeboats
- 1. Minimum of 4 lifeboats to a side on deckhouse
- Speed, N.C., 15
- Speed, A.M., 18
- Asama, Tatuta Maru, 7 lifeboats-17,000 G.T.
- Tei Maru has square stacks-13,000 G.T.

**TARE BAKER TWO STACKS**

- 17,000 G.T.

**TARE ABLE ABLE**

- 4000/6000 G.T.

**TARE ABLE BAKER**

- 1500/2500 G.T.

**TARE ABLE**

- 700/1300 G.T.

**SUGAR ABLE**

- 7000/10,300 G.T.

**SUGAR STACKS AFT**

- 1. Catwalks create heavy fore and aft line
- 2. No hatches
- 3. Foremast center of forward well
- Speed, N.C., 16 large - 12 small
- Speed, A.M., 19 large - 14 small

This division composed entirely of tankers

**SUGAR CHARLIE**

- 300/700 G.T.

**SUGAR CHARLIE ABLE**

- 70/150 G.T.

**SUGAR CHARLIE TWO STACKS**

- 1. No bridge amidships, only a mast
- 2. One hatch
- Speed, N.C., 10
- Speed, A.M., 13

**SUGAR CHARLIE**

- 1500/2500 G.T.

**TARE ABLE ABLE**

- 8/10,000 G.T.

**TARE ABLE**

- 9000/12,000 G.T.

**TARE ABLE BAKER**

- 17,000 G.T.

**TARE ABLE ABLE**

- 4000/6000 G.T.

**TARE BAKER TWO STACKS**

- 17,000 G.T.
SHIPS AND SHIPPING
M/V LENGTH TONNAGE

Graphs used for:
Estimating Gross or Deadweight tonnage when the ship can be classified into one of the three M/V groups and its overall length measured. They are useful for first phase reporting on small scale vertical photographs when there is not sufficient detail for the J.M.S.T. or other methods.

Definitions of Tonnage
GROSS - Measure of cubic capacity: 100 cu. ft. of permanently enclosed space equals one gross ton. Most commonly used for merchant vessels.
DEADWEIGHT - Measure of ships weight carrying capacity: Equals the difference between ship's displacement loaded and light.
DISPLACEMENT - Designates the size of Naval combat vessels and equals the weight of water displaced by a ship in tons of 2,240 lbs. Displacement may be either loaded or light.
SHIPS AND SHIPPING

METHOD 1: Measurement of stern waves:
Taking an average of 5-10 waves, measure the wave spacing astern at "A.A." in feet (Fig. 1). The speed can be determined from the graph (Fig. 3).

METHOD 2: Measurement of lateral waves:
(a) Set up an angle of 19°28' on the bow, as in (Fig. 1), and taking an average as before, measure the wave spacing at "B.B." in feet. Using the value obtained, the speed in knots can be read from (Fig. 2).
(b) If the waves are not visible along the 19°28' line but can be seen at a smaller angle, proceed as follows: Measure the angle along the line on which the waves can be seen, and, using the graph (Fig. 4), determine the appropriate multiplying factor. Measure the wave spacing, and then multiply by the factor obtained above: determine the speed from the graph (Fig. 2), as before.

METHOD 3: Measurement from a fixed point, using a stereo pair:
On each photograph erect a perpendicular to the course of the vessel passing through the fixed point (See Fig. 5). Measure the distance between a clearly defined point on the vessel and the perpendiculars. Since the scale of the photos is known, the difference in the measurements can be translated into terms of actual distance. By dividing the time interval between photos, the speed in feet per second is ascertained, and can be converted into knots:

\[
\text{Speed (in knots)} = \frac{\text{Distance traversed by ship in feet}}{10 \times \text{Time interval in seconds}}
\]

Where the land does not appear in the photographs, tide marks, windrows, oil slicks, floating objects, peculiar markings of the ship's own wake, or tracks left by other vessels, may be used as points of reference.

METHOD 4: Estimation of the ground speed of plane using a stereo pair:
The accuracy of the computed speed of the ship is directly proportional to the accuracy in estimating the ground speed of the plane:

\[
\text{Ground speed in knots} \times \text{Distance traveled by plane in knots} = \text{Speed of ship Distance traveled by ship in knots}
\]

In estimating ground speed, type of aircraft, type of target, and weather conditions as seen by the condition of the surface of the sea should be considered. By plotting the linear distance traversed by the aircraft on two photographs, lateral drift can be determined. Advantages of this method are that it is not necessary to know the scale of the photograph nor the intervalometer setting.