

Report Date: 14 Apr 2014

**Summary Report for Individual Task
551-88K-4718
Conduct Plotting Techniques to Determine a Vessel Position
Status: Approved**

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

Condition: Assigned as a mate or a boatswain aboard an Army vessel, you are required conduct plotting techniques to determine a vessel position. Given: a complete risk assessment,dividers, compass, triangles or like, stopwatch, protractor, nautical slide rule, azimuth/bearing circle, gyrocompass repeater, no. 2 pencil, paper, gummed eraser, nautical chart, DMA chart No. 1, and hand-held calculator (optional), in all weather conditions day or night and all MOPP levels in an operational environment scenario. Some iterations of this task should be performed in MOPP 4.

Standard: On orders, you must properly conduct plotting techniques to determine a vessel position. Standards of accuracy are: bearing +/-0.5 deg., course +/-0.5 deg., speed +/-0.5 kt., variation and deviation +/- 0.5 deg., time DR +/-1 min., latitude and longitude +/- 1 min distance +/-0.5 mile.

Special Condition: None

Safety Level: Low

MOPP: Sometimes

Task Statements

Cue: None

DANGER

Be aware of aid to navigation danger signals.

WARNING

Be aware of aid to navigation warning signals.

CAUTION

Be aware of aid to navigation caution signals.

Remarks: None

Notes: None

Performance Steps

1. Ensure chart layout and all navigation used in piloting instruments is available.

Note: Remember for every fix you must have a DR plotted.

2. Draw an LOP and correct labeling procedures of a DR.

a. Label the course, the intended horizontal direction of travel starting from a known position.

b. Above and parallel to the course line, place a capital C and three digits to indicate the true course (C 007 degree).

c. Under the course line and below the direction label, place a capital S and two digits for the speed (in Knots).

3. Plot the LOP and correctly labels it.

a. Plot the assumed position (AP) first.

b. Plot the azimuth line from the AP toward or away from the geographic position (GP).

c. Measure altitude intercept along this line.

4. Demonstrate the procedures for taking fixes.

a. Lay out the chart in a suitable working area.

b. Plot the DR course line on the chart.

c. From the chart identify and select well-defined objects for taking bearing.

d. Place the azimuth circle on the gyro-repeater and raise the sight vanes.

e. Look through the peep vane while turning the azimuth circle until the object is sighted through the far vertical wire sight vane.

f. When the object is lined up with the two sight vanes, take the bearing reading that is reflected in the mirror located under the far vertical wire sight vane, record the azimuth bearing and time.

g. Plot the bearing on the chart.

Note: The fix is established at the point where two bearing lines cross, the most reliable being those that differ by 90 degrees.

h. Repeat the procedure when plotting the second bearing.

Note: Repeat the above procedure for each object selected.

5. Demonstrate the procedures for taking running fixes, including the following:

- Use the same method as above except:

a. You may have to make more frequent observations of the one landmark or may lose sight of the available landmark.

b. A new navigational aid will have to be sighted.

c. If able to compute distances during these observations, you may easily establish a fix.

d. If unable to establish a fix cause of different times, than a position that only partially takes into account the current.

e. This position is the running fix, identified by the same symbol as the fix except that the time label is followed by the abbreviation "R. Fix." It is better than a DR position, but less desirable than a fix.

6. Demonstrate the use of danger bearings.

a. From the course line observe a prominent landmark. (CD)

b. Bearing observed on the right-hand edge of a projection on land, the bearing is a right tangent, on the left-hand edge of a projection of land viewed by the observer is a left tangent.

c. Observe a land mark ahead and take a bearing (A).

d. Take another bearing on the outer edge of the danger, danger bearing (B).

e. Line (AB) is drawn from the landmark to point A tangent to the outer edge of the danger.

f. If the bearing of point (A) remains greater than the danger bearing, the ship is in safe water as with CA and DA.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any steps is failed (F), If the soldier fails any step, show what was done wrong and how to do it correctly.

Evaluation Preparation: Ensure that all information, references and equipment required to perform the task are available. Use the FM and the evaluation guide to score the soldier's performance. Brief the soldier. Tell the soldier what he is required to do IAW the task conditions and standards.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Ensured chart layout and all navigation used and piloting instruments is available. Note: Remember for every fix you must have a DR plotted.			
2. Draw an LOP and correct labeling procedures of a DR.			
3. Plotted an LOP and correctly labels it.			
4. Demonstrated taking fixes.			
5. Demonstrated taking running fixes, including the following: - Use the same method as above except:			
a. You may have to make more frequent observations of the one landmark or may lose sight of the available landmark.			
b. A new navigational aid will have to be sighted.			
c. If able to compute distances during these observations, you may easily establish a fix.			
d. If unable to establish a fix cause of different times, than a position that only partially takes into account the current.			
e. This position is the running fix, identified by the same symbol as the fix except that the time label is followed by the abbreviation "R. Fix." It is better than a DR position, but less desirable than a fix			
6. Demonstrated the use of danger bearings			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	PUB. NO. 9	The American Practical Navigator - Bowditch	Yes	No
	TC 4-15.51	MARINE CREWMAN'S HANDBOOK	Yes	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. All operations will conform to the Army Environmental Policy, local, state and federal environmental regulations, AR 385-10, the Clean Air Act (CAA) and CAA amendments.

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. All operations will be performed to protect and preserve Army personnel and property against accidental loss. Procedures will provide for public safety incidental to Army operations and activities and safe and healthful workplaces, procedures, and equipment. Observe all safety and/or environment precautions regarding electricity, cable, and lines. Provide ventilation for exhaust fumes during equipment operation and use hearing protection when required IAW AR 385-10, the Clean Air Act (CAA) and the CAA amendments, and the OSHA Hazard Communication standard.

Prerequisite Individual Tasks :

Task Number	Title	Proponent	Status
551-88K-2709	Maintain Vessel Nautical Charts and Publications Onboard a Class B Vessel	551 - Transportation (Individual)	Approved
551-88K-2710	Conduct Operation of Navigational Equipment Onboard a Class B Vessel	551 - Transportation (Individual)	Approved
551-88K-2708	Interpret Magnetic Compass Onboard a Class B Vessel	551 - Transportation (Individual)	Approved
551-88K-2713	Conduct Plotting Techniques Onboard a Class B Vessel	551 - Transportation (Individual)	Approved
551-88K-2714	Compute Tide and Current Using References	551 - Transportation (Individual)	Approved
551-88K-2711	Perform Dead Reckoning(DR) Techniques Onboard a Class-B Vessel	551 - Transportation (Individual)	Approved
551-88K-2712	Perform Vessel Movements Using Aids to Navigation (ATONS)	551 - Transportation (Individual)	Approved
551-88K-2715	Apply Navigational Rules Onboard a Class B Vessel	551 - Transportation (Individual)	Approved

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
551-88K-3706	Monitor a Vessel Electronic Gyro System	551 - Transportation (Individual)	Approved
551-88K-3708	Monitor Navigational Duties Onboard a Vessel	551 - Transportation (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status
551-88K-3710	Comply With Aids to Navigation Standards	551 - Transportation (Individual)	Approved

551-88K-3709	Enforce Navigational Rules Onboard a Vessel	551 - Transportation (Individual)	Approved
551-88K-3706	Monitor a Vessel Electronic Gyro System	551 - Transportation (Individual)	Approved

Supported Collective Tasks :

Task Number	Title	Proponent	Status
55-2-0049	Provide Vessel Support for Offshore Cargo Operations	55 - Transportation (Collective)	Approved
55-2-0014	Perform Recovery Operations from a Trailer Transfer Point	55 - Transportation (Collective)	Approved
55-2-0047	Perform Search and Rescue Operations	55 - Transportation (Collective)	Approved

ICTL Data :

ICTL Title	Personnel Type	MOS Data
MOS 88K Watercraft Operator SL 4	Enlisted	MOS: 88K, Skill Level: SL4, Duty Pos: TFJ