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GUIDANCE ON SHIPBOARD ASSESSMENTS OF PROFICIENCY

1 The Maritime Safety Committee, at its sixty-ninth session (11 to 20 May 1998), when considering how assessment of competence of seafarers should be conducted, recalled that the STCW Convention allows for the assessment of competence of seafarers to be carried out on board ship and that those responsible for such assessments shall be appropriately qualified in accordance with the provisions of section A-I/6 of the STCW Code for the type of assessment involved.

2 The process of assessment is through a quality standards system, subject to verification to ensure validity, reliability and consistency of results. Therefore, if evidence of competence is to be assessed as part of on-board training, each ship would have to be approved as an assessment centre or be part of another approved establishment's quality standards arrangement.

3 In view of the above, the Committee considered that the formal assessment of competence of seafarers would have to take place, with some exceptions, under the authority of an approved centre, but that evidence of having achieved proficiency in certain competencies may be obtained from approved in-service experience on board ship.

4 To assist Member Governments and STCW Parties in providing the necessary information to companies and shipboard assessors, the Committee, having considered recommendations made by the Subcommittee on Standards of Training and Watchkeeping (STW) at its twenty-ninth session, approved the document for Guidance on Shipboard Assessments of Proficiency, given at annex, which may be used in conjunction with the training record book in the assessment of competence of seafarers in carrying out given shipboard tasks.

5 The annexed Guidance document may equally be used by Member Governments for training shipboard assessors.

6 Member Governments and STCW Parties are invited to bring the annexed Guidance on the Shipboard Assessments of Proficiency to the attention of their Administrations, training institutes and shipping companies.

ANNEX

GUIDANCE ON SHIPBOARD ASSESSMENTS OF PROFICIENCY

This guidance is in three parts. The first part provides an outline of the six steps that comprise the shipboard assessment process. The second part provides definitions and examples central to the discussion of the shipboard assessment process. The final part outlines the issues and factors that should be taken into account the conduct of each of the six steps.

Part one: The Shipboard Assessment

The shipboard assessment should be carried out in accordance with Regulation I/6 of the STCW Convention. The assessment process can be viewed as a series of six sequential steps. The first four steps involve the development of assessment procedures and the assessment package and should be conducted by shore based personnel as part of the approved training program in which the training record book is to be used. A qualified individual aboard a ship should conduct the assessment. The individual who conducted the assessment should prepare the performance improvement plan. The six steps are listed below.

1. **Identify performance objectives**
2. **Identify performance objectives for shipboard assessment**
3. **Determine performance measures and standards**
4. **Prepare assessment package**
5. **Conduct assessment**
6. **Develop a performance improvement plan**

Part two: Definitions and Example

Shipboard assessment is a process by which shipboard performance is observed, measured, and compared to standards of performance in order to determine a mariner's proficiency.

A *performance objective* is performance, representing an aspect of mariner skill or knowledge that is necessary for successful completion of a shipboard task.

A *performance measure* is an observable action, or indication of an action, that is recordable.

A *performance standard* is an established minimum level or boundary of performance based on relevant assessment criteria.

An example of the shipboard assessment process is given in the appendix.

Part three: Outline of Guidance

For each of the six steps comprising shipboard assessment, certain issues, factors and implications should be taken into account, as outlined below.

1 Identify performance objectives

Identification of performance objectives involve the following three sub-steps:

1.1 Identify the critical performance objectives by considering the consequences of performance failure with respect to

- personal injury and loss of life;
- environmental damage and pollution; and
- economic costs.

1.2 Review available resources to identify performance objectives, including

- STCW tables of standards of competence;
- IMO Model Training Record Books;
- ship's operating procedures;
- international, national and local regulations;
- company instructions and procedures;
- technical equipment and technical equipment manuals;
- task analysis; and
- subject matter expert advice.

1.3 Ensure that performance objectives are tied to STCW competencies.

Performance objectives appropriate for shipboard assessment should be selected by reviewing the following four general factors.

2 Select performance objectives for shipboard assessment

2.1 Safety implications of conducting the assessment

2.2 Current shipboard operating conditions, including

- environmental conditions;
- location;
- equipment status;
- workload; and
- personnel schedules.

2.3 The ability to establish adequate controls over shipboard operations.

2.4 The candidates current skill level, taking into account

- prior training; and
- experience.

3 Determine performance measures and standards

The determination of performance measures and standards involve the following three sub-steps:

3.1 Determine the methods of measuring the steps or components of the practical test, which may include

- observation of whether or not a step was completed;
- recording a value from an indicator or gauge (such as a compass); or
- monitoring performance with respect to an established metric (such time to complete a step).

3.2 Identify the standard corresponding to each step or component.

3.3 Determine how the overall performance objective is met (i.e., what critical factors must be applied).

4 Prepare assessment package

Several potential components of an assessment package should be considered in developing such a package. There are three necessary components of such a package. First, a student workbook should be prepared, including reference material for use by the student in preparing for the assessment. Second, a guide should be prepared that includes detailed instructions for conducting the assessment. Additional components of an assessment package include various aids for recording observed performance (checklists, worksheets, and workforms) and a means of documenting the results (a summary form). Finally, a scheme must be provided to determine whether the summarized performance constitutes competent performance.

4.1 Prepare an assessment package, which may include:

- student workbook;
- guide to assessment;
- instructions for the assessor and candidate;
- checklists;
- worksheets;
- work forms; and
- record of observed performance.

5 Conduct assessment

The conduct of the assessment should involve the following five sub-steps.

5.1 Prepare for the assessment by

- gathering materials;
- preparing the staging area;
- preparing and arranging equipment;
- conducting any necessary safety checks; and
- informing affected personnel.

5.2 Conduct a pre-assessment briefing with the candidate, addressing

- the scope (what and how much);
- procedures (rules);
- standards (goal to be met); and
- the outcome and consequences of the assessment.

5.3 Observe the candidate's performance and record the results, while

- avoiding coaching;
- remaining objective;
- maintaining positive control of the situation;

- ensuring realistic assessment conditions and providing appropriate information;
- avoiding unnecessary interference; and
- maintaining records in accordance with the assessment guidelines.

5.4 After observing performance, evaluate the process and determine the assessment outcome, by

- recording performance for the individual performance steps;
- applying the evaluation instructions; and
- determining and documenting the assessment outcome.

5.5 Conduct an assessment debrief, adhering to the following guidance

- Conduct the debrief as soon as possible;
- Focus on positive outcomes first;
- Identify areas needing improvement;
- Specify the assessment results (pass or fail); and
- Close with a recommendation.

6 Develop a performance improvement plan

The first step in developing an assessment summary and performance improvement plan is to determine the need for such a plan. If the assessment (1) was conducted according to plan, (2) appeared to result in a fair and valid assessment, and (3) the candidate passed without any areas for improvement being identified, then there will be no need for this step. If, however, any of the three conditions were not met, some form of a performance improvement plan should be developed.

This step in the shipboard assessment process is comprised of five sub-steps, as summarized below.

6.1 Take time to review and analyze the assessment process and outcome, considering

- the individual's results;
- how these results compare with prior assessment results; and
- whether the assessment accurately reflected realistic shipboard operations.

6.2 Prepare a preliminary improvement plan, which may address

- areas of additional candidate training;
- changes in shipboard procedures and tasks;
- changes to ship equipment; and
- changes in the assessment process.

6.3 Communicate (face to face) the contents of the plan.

6.4 Revise and finalize.

6.5 Document written and signed recommendations, ensuring that requirements are being met.

APPENDIX

An example of shipboard assessment process

1 The following is an example of a STCW competency with test objectives, performance measures, and performance standards. The example is for a hypothetical shipboard assessment of a task associated with "steering control systems," an area of knowledge, understanding and proficiency identified in the standard of competence for officer in charge of a navigational watch (Table A-II/1 in the STCW Code. A candidate for certification as officer in charge of a navigational watch will normally be trained and assessed in steering ability during the period of required seagoing service when watchkeeping duties are being performed pursuant to paragraph 2.3 of STCW regulation II/1. In the table below, the STCW competence comes directly from the *Competence* column of STCW Table A-II/4. The performance objectives are derived from a consideration of the *Knowledge, Understanding and Proficiency* column of Table A-II/4. The performance measures and performance standards are derived from an analysis and elaboration of the *Criteria for Evaluating Competence* column of Table A-II/4. The reader should note that this example is for illustrative purposes only.

2 This example assumes that the candidate understands:

- .1 the general mechanics of steering, including relationship of the propeller to the rudder, and between the wheel turn, rudder position and ship's heading;
- .2 standard commands, standard responses, and essential terminology, in English;
- .3 the principle of momentum and how it must be taken into account when steering;
- .4 the significance of steerage way and losing steerage way;
- .5 the effects on steering from outside forces such as weather, wind and sea state;
- .6 The relationship of speed to steering (slower speed, increased helm; sea speed, minimum helm);
- .7 operational differences between magnetic and gyro-compasses;
- .8 use of the automatic pilot, and response of wheel when autopilot is engaged; and use of non-follow-up switch;
- .9 steering with master and pilot on the bridge (understands master/pilot roles, communicates clearly with pilot; requests repetition of helm orders when not understood);
- .10 standard emergency procedures, including execution of the Williamson turn;

- .11 steering during narrow channel transits, including dredged channels in open water, with emphasis on relationship of vessel speed to rudder applied; use of ranges (to mark centre/right of channel; steer forward range to correct); effects of squat and bottom suction (minimized rudder response); effects of bank suction and sheer (correct rudder response to steer; possible necessity to steer in direction of another vessel to keep to channel); effects of bow suction/cushion (correct rudder response to meeting situation); turn rate (hearing gyro gearing; relationship of staff and buoy; turn rate indicator); steering failure (communicate immediately with watch officer as in "Helm not responding?" and procedures to follow including non-follow-up switch); and
- .12 proper procedures for relieving the watch, with emphasis on visual environment (need to allow 15-20 minutes for sight adjustment; use of red goggles); night orders (understands effect on watch; watch transit assessment/voyage plan); status of steering mode and engines (understands hand or autopilot mode and requirements of both; understands use of port and starboard steering engines; and communicates with watch officer as to responsibilities in each mode); completion of evolution (understands not to relieve during turn, crossing or meeting situations without permission of watch officer); duties of relieving helmsperson (Gyro course steered, magnetic course checked, rudder angle/helm carried; effect of leeway and current); proper relief communicated to watch officer (communicates course to steer, and magnetic course, steering mode, engine, helm response).

On-board assessment of competence in steering should be based on the following table:

STCW Competence	Performance Objectives	Performance Measures	Performance Standards
Steer the ship and comply with helm orders also in the English language	Demonstrate knowledge of magnetic and gyro-compass operations	Report current course by reference to magnetic and gyro-compass when questioned	Response to questions regarding present course are correct, prompt and clear.
	Demonstrate ability to steer and follow helm orders	Proper protocol is followed when demonstrating ability in a full range of standard commands during 30 minutes of helm time at sea speed. <u>Proper response to:</u> .1 "port/starboard? rudder; .2 steering by LCD display; .3 use of rudder angle indicator, "port/starboard? 10, 20, etc.; .4 "shift rudder? .5 "hard a port/starboard" .6 "ease rudder-port/starboard more? .7 "meet her? .8 "nothing to starboard or port of...? <u>Practical helmsmanship</u> .1 rudder angle indicator - no course given; .2 meet ordered course - course given; .3 steady course on range or landmark; .4 checking magnetic; .5 ability to hold order course over time; .6 turn/rate awareness.	Helm orders are repeated exactly, and watch officer is notified when order has been followed and completed. .1 directional distinction; .2 degrees increase to starboard decrease to port; .3 appropriate rudder response; .4 appropriate rudder response; .5 35 degrees; .6 appropriate rudder response; .7 ability to slow, but not stop vessel swing; .8 appropriate rudder response. .1 call out passing each 10 degrees; .2 check swing within 5/10 degrees of course to steer (CTS); apply necessary counter rudder; correct to CTS accordingly. .3 range correctly identified +/- 2 degrees; able to use forward range as guide; .4 at each course change, and every 15 minutes; .5 +/- 3 degrees on compass, minimal rudder use 5-10 degrees of rudder angle and then steady up; deviations are promptly reported to the watch officer. .6 Hear gyro gearing, use buoy/ staff; use rate of turn indicator; rudder is taken off before the new course is reached in time to control momentum.
	Demonstrate ability to change-over from automatic pilot to hand steering and vice versa	Execute orders to change-over	Change-overs are executed properly and OOW is notified when each change-over is completed