Paper No. 3/2019

High Speed Craft Consultative Committee

Proposed Modification of the Type Rating Certificate Revalidation Arrangement

Purpose

This paper seeks members' view on the proposed modification of the revalidation arrangements for the Type Rating Certificate (TRC) system of High Speed Craft (HSC).

Background

2. There are currently 367 River Trade Certificate of Competency (CoC) holders, accounting for 555 TRCs. In accordance with the "Certificates of Competency and Licences for Deck Officers Determinations" and the "Determinations for marine engineer officers", officers serving on board HSC are required to hold a valid TRC. The two Determinations further stipulate that TRCs should be revalidated every two years.

3. The existing certification mechanism for the TRC comprises examinations for the initial issuance of TRC; examinations every four years for revalidation; and assessments of safe sea services every two years. The examination for both the initial issuance of TRC and revalidation every four years consists of an oral and a practical handling test conducted by a MD examiner on board the type of vessel which the TRC refers to.

4. By way of comparison, other administrations with large number of HSC fleets, such as the United Kingdom, Australia, Finland and Singapore do not require candidates to pass an examination for the revalidation of TRCs. In general, they will accept either sea service or completion of an approved course as proof of maintaining proficiency and familiarity with the vessel for revalidation purpose. A table setting

out the revalidations requirements of these administrations is at **Annex A**.

Review of the TRC revalidation arrangements

5. We have conducted a review of the current TRC revalidation arrangements. We note that the International Maritime Organisation (IMO) has recognised that a large number of casualties are attributed to human errors and has made Maritime Resource Management (MRM)[1] training a mandatory requirement under STCW-2010. The predominant method to deliver Maritime Resource Management knowledge is to analyze case studies and study human behavioral patterns under guidance in a structured course. Moreover, as seen from overseas experience as detailed at Annex A, the trend nowadays is to accept training course attendance and sea service in lieu of examination for the revalidation of TRC. We therefore consider that there is a case to modify our existing TRC revalidation arrangements to keep pace with the global trend and to better ensure maritime safety.

Proposed new arrangements

6. Since serving officers who regularly operate a particular type of HSC should be highly familiar with the operations and layout of the vessel, from a maritime safety angle, instead of focusing on their competence in operating the vessel by way of examination, it will be more appropriate to require the candidates seeking TRC revalidation to undergo a course with contents focused on the human element and accident prevention/handling skills, namely situational awareness, crisis management and maritime resource management.

7. Drawing reference from the MRM course, we consider that the revalidation course should include the following elements -.

[1] Maritime Resource Management (MRM) is a human factors training programme aimed at the maritime industry. The MRM training programme is recognized by STCW and the objective is to prevent accidents at sea caused by human error.

- Updated information on operating conditions and restrictions imposed by MD, including Marine Department Notices and other publications
- Lessons or experience learned from recent casualties, accidents and breakdowns
- Failure modes of shipboard systems and their contingencies
- *Judgment, Decision Making and Leadership in Emergencies*
- *Crisis and Crowd Management*
- *Communication and briefings*
- *Situational Awareness*
- *Human Involvement in Error*
- *Attitudes and Management Skills*

(* MRM elements are put in italics)

8. The proposed course framework is at **Annex B**. In addition, the course should include provisions to assess a candidate's understanding of the above syllabus. The assessment will also serve to verify a candidate's familiarity with the type of vessel on which he/she serves. Some sample questions for assessment upon completion of the course are at **Annex C**.

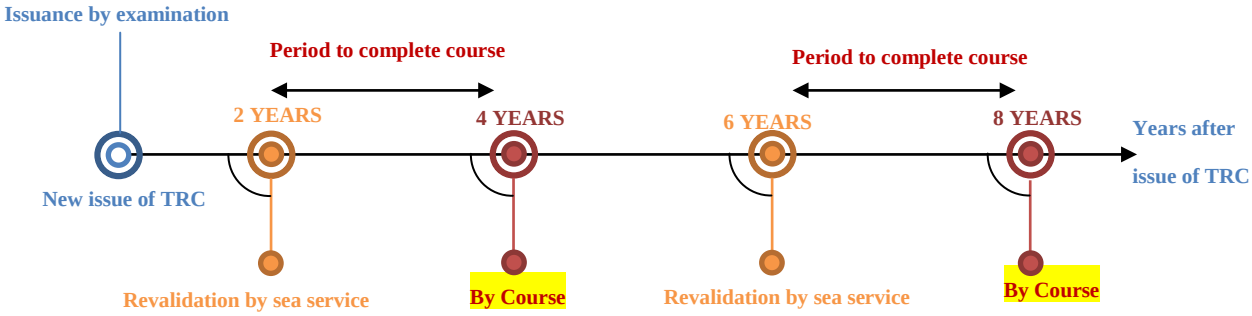
9. Under the proposed new regime, candidates who seek to revalidate their TRCs must attend an approved course within two years before the revalidation at the fourth year. Other pre-requisites for revalidation as stated in the Determinations will continue to apply, viz -

(a) produce evidence of at least 5 months' service at the appropriate rank in the type and model of DSC or HSC to which the TRC applies during the preceding two years;

(b) produce a valid certificate of medical fitness (including an eye sight certificate in the case of deck officers]issued by a recognized medical practitioner; and

(c) pay the appropriate fee.

10. The proposed revalidation cycle is as follows –



Monitoring of the TRC Revalidation Training Course

11. Course providers will be required to submit the intended course arrangements including syllabus, contents, tutors' qualification and experience, etc. to MD for course approval. MD will monitor to ensure that the course is delivered according to the framework at Annex B. Course providers will also be required to submit assessment results of the candidates who have attended the course to MD for vetting before MD endorses the revalidation of the TRCs concerned. In addition, MD will conduct on-board non-intrusive visits to monitor seafarers' competency. Seafarers will be selected on a random basis for such visits. MD will adopt a risk based approach and will require a candidate to undergo a TRC revalidation examination if he/she –

(a) is involved in a serious marine accident or incident;

(b) performed poorly in the TRC course assessment; or

(c) demonstrates risky behaviour during MD's monitoring visits.

12. MD plans to implement the new TRC revalidation arrangements once the relevant training courses are available.

Advice Sought

13. Members' views are sought on the proposed new TRC revalidation arrangements.

Shipping Division
Marine Department
December 2019

Annex A

Revalidations requirements of administrations with large number of HSCs

Administration	Revalidation Requirement					Reference
	By Sea Time		By Course		Examination	
United Kingdom	3 out of 24 months	OR	Complete course by HSC company OR Training Organisation		Not Required	UK MCA MSN 1740(M)
Australia	6 out of 24 months	OR	Complete course within one year before revalidation		Not Required	Marine Order 70 (Seafarer certification) 2014 made under the Navigation Act 2012
Singapore	20 voyages in previous 2 years. (Requirement Subject to Examiner)				Not Required	SRS e-bulletin issue 2 of 2017
Finland	6 out of 24 months	OR	Approved Course		Not Required	Regulation 1 (14) TRAFI/13222/03.04.01.00/2013

Annex B

Type Rating Certificate Revalidation Course Framework

■ Aim

The Type Rating Certificate (TRC) revalidation course aims to refresh the knowledge of operation and sustain vigilance of High Speed Craft operators. The course will serve as a prerequisite for the Marine Department (MD) to revalidate TRC licences.

■ Objective

Those who successfully complete the course should be able to demonstrate knowledge which include but are not limited to the following:

- updated information on operating conditions and restrictions imposed by HKMD, including;
- Marine Department Notices and other publications;
- how to recognize chain of events leading to accidents;
- how to analyse sequence of events leading to accidents;
- what actions to take to prevent accidents;
- how to handle marine accidents; and
- how to communicate effectively and work effectively as a team.

■ Entry Requirements

Those attending the course should be serving HSC operators.

■ Course Delivery

The outcome of this course may be achieved through various means, including classroom training, distance learning, computer-based training, in-service training or a combination of the aforementioned methods. The course should make use of case studies of accidents which are applicable to HSC operators.

■ Staff Requirements

The instructor in charge of the course should have adequate experience in HSC operations and have knowledge of Maritime Resource Management. Instructors should also have adequate knowledge in course delivery and teaching methods.

■ Syllabus

- ✧ Failure Mode Effect Analysis Contingencies
- ✧ Judgment, Decision Making and Leadership in Emergencies
- ✧ Crisis and Crowd Management
- ✧ Communication and briefings
- ✧ Situational Awareness
- ✧ Human Involvement in Error
- ✧ Attitudes and Management Skills
- ✧ Lessons or experience learned from recent casualties, accidents and breakdowns.

■ Assessment

The course should assess each candidate's familiarity with the type/types of vessel he/she is serving. If a candidate fails the assessment, he/she may be allowed to have one more attempt. Results of all assessments, including failed attempts, should be submitted to MD.

■ Course monitoring

Approved courses will be subject to the MD course monitoring program. MD will conduct annual audit to assess if the course is carried out according to the above framework.

Annex C

Sample questions for assessment upon completion of the training course

TRI CAT

1. **What is the purpose of Purging?**

A:	**Clear turbine of combustible gas**
B:	**Reduce stress on turbine blades**
C:	**Ensure good thermal conductivity of parts**
D:	**All of the above**

2. **What is the danger associated with not purging the Gas Turbine before starting?**

A:	**Accumulation of Flammable gas can cause hazardous combustion.**
B:	**Pressure sensor will be damaged**
C:	**Gas coupling will not operate**
D:	**Turbine inlet temperature will be too high**

3. **Which is the correct sequence to start the gas turbine?**

A:	**PrePost Lube pump > Crank up > Purge > Fuel Injection > Ignition**
B:	**Crank up > Purge > PrePost Lube pump > Fuel Injection >Ignition**
C:	**Crank up > Purge > Fuel Injection > Ignition**
D:	**PrePost Lube pump > Crank up > Fuel Injection> Purge > Ignition**

4. **What is the purpose of test crank?**

A:	**Purge accumulated fuel after ignition failure of malfunction stop.**
B:	**Purge accumulated fuel before ignition failure of malfunction stop.**
C:	**Check if there is obstruction to turbine rotation.**
D:	**Monitor shaft after overhaul.**

]

5. **In case of serious ingress of water in Engine Room, what are your possible actions?**

A:	**Start bilge pump**
B:	**Open emergency bilge suction**
C:	**Turn off machinery in affected chamber**
D:	**All of the above**

6. **Where are the fuel (firesafe) shut off valves?**

A:	**Main Cabin Forward**
B:	**Bridge**
C:	**Aft main deck by engine room access door**
D:	**Engine Room**

7. Which is the correct sequence for operation of Fixed Firefighting CO2 system?

A:	**Stop all machinery Shut off Fuel > > Check head count > Ensure all openings are closed > Initiate CO2 Release panel > Release CO2**
B:	**Shut off Fuel > Stop all machinery > Initiate CO2 Release panel > Check head count > Ensure all openings are closed > Release CO2**
C:	**Report to MARDEP > Ensure all openings are closed >Shut off Fuel > Initiate CO2 Release panel > Release CO2> Stop all machinery > Check head count**
D:	**Initiate CO2 Release panel > Check head count > Ensure all openings are closed > Release CO2 > Shut off Fuel > Stop all machinery**

8. What is the corrective action for "Failure of STBD Electrical lube oil pump" ?

A:	**Open V21 valve and give movement to nozzle for bearing lubrication.**
B:	**Shut down STBD side Engine and engage brakes.**
C:	**Proceed on journey at reduced speed**
D:	**None of the above**

9. What are the corrective actions for "Failure of Gas Turbine Lube Oil Pump - Port" ?

A:	**Revert to single engine operation.**
B:	**Apply brake to port engine**
C:	**Switch on Pre/Post lube oil pump**
D:	**All of the above**

10. What are the indications for "Failure of Gas Turbine Speed Sensor - Starboard" ?

A:	**Stbd Engine GP Speed loss shutdown**
B:	**Engine Speed zero in displays**
C:	**FL_GP Speed Loss Alarm displayed in HMI display**
D:	**All of the above**