Small Passenger Vessel Inspector Performance and Qualification Standard

Sail Addendum (TIS)

This Performance and Qualification Standard (PQS) workbook is an addendum to the Small Passenger Vessel "T" Inspector (TI) PQS. It is your responsibility to document all completed unit training items and keep track of all inspections completed during this process by filling out the Inspection Log located in appendix C of the TI PQS workbook.

This PQS workbook contains the necessary tasks and steps to conduct an Inspection for Certification and drydock examination on a sailing vessel as defined by regulation in two categories: (1) Sailing Vessel (46 CFR 175.400) and/or; (2) Auxiliary Sailing Vessel (46 CFR 170.055). Those members who will be conducting inspections on T-boats with sail or auxiliary sail propulsion are required to complete all tasks and steps in this PQS workbook.

The TIS PQS addendum may be completed concurrently with the TI PQS or subsequent to receiving a TI qualification. In either case a Certification Board must be satisfactorily completed prior to receiving the "Sail" notation on the TI Letter of Certification/ Designation.

Additional References:

http://www.schoolofsailing.net/terminology.html

Revision Date: 18 June 2018



Certificate of Inspection

Certificates and Documents (CD)

Sailing Vessel (T)

Task: TIS-CD01 Review Master's Merchant Mariner Credential (MMC)

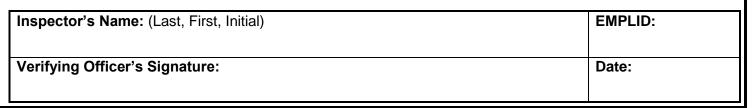
Condition: While validating certificates and documents

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 15 Manning Requirements

	Steps	References	Initials
CD01.1	Verify sail endorsement	46 CFR 15.901(c)	
CD01.2	Verify auxiliary sail endorsement	46 CFR 15.901(d)	

Verifying Officer Guidance: Trainees should understand that to operate a auxiliary sail vessel, the master is required to hold a credential endorsed for "Auxiliary Sail" of appropriate tonnage and route. To operate a sail vessel that is not equipped with an auxiliary engine, the operator must hold a credential endorsed for "Sail" or "Auxiliary Sail" of appropriate tonnage and route.



Certificate of Inspection

Certificates and Documents (CD)

Sailing Vessel (T)

Task: TIS-CD02 Review Rigging Plan

Condition: While validating certificates and documents

Standard: In compliance with applicable policies, laws, regulations and standards

References:

- 1. Title 46, Code of Federal Regulations Part 176 SPV-T Inspection & Certification
- 2. Title 46, Code of Federal Regulations Part 177 SPV-T Construction & Arrangement
- 3. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels
- 4. Marine Safety Center Plan Review Guide for Review of Rigging Systems for Sailing Vessels (PRG H1-15)

	Steps	References	Initials
CD02.1	Verify vessel information and structure particulars	46 CFR 177.202 (b)(12) 46 CFR 177.202 (c) NVIC 02-16 Section IV	
CD02.2	Verify marked "examined"	46 CFR 177.202 (b)(12)	
CDO2.3	Verify design, materials construction of spars and standing rigging suitable for intended service	46 CFR 177.330 NVIC 02-16 Section IV PRG H1-15	
CDO2.4	Verify rigging repair or alteration	46 CFR 176.700 NVIC 02-16 Section IV	

Verifying Officer Guidance: Trainees shall be aware that not all sailing vessels will have "Rigging Plans" marked "Examined," however new sailing vessels should be required to submit plans for MSC review. Sailing Vessels that have a "Examined" stamp from the Marine Safety Center will reference an approval letter, which should be available for OCMI verification. Plans should also be submitted when the suitability of the rig for intended service is questioned by the OCMI and in all cases when a rig fails in service.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Certificates and Documents (CD)

Sailing Vessel (T)

Task: TIS-CD03 Review Sail Area Plan (Sail Plan)

Condition: While validating certificates and documents

Standard: In compliance with applicable policies, laws, regulations and standards

References:

1. Title 46, Code of Federal Regulations Part 177 SPV-T - Construction & Arrangement

2. Title 46, Code of Federal Regulations Part 178 SPV-T - Intact Stability & Seaworthiness

3. Vessel's Stability letter

	Steps	References	Initials
CD03.1	Verify Sail Plan arrangement in Rigging Plan	46 CFR 177.202(b)(12)(ii)	
CD03.2	Verify approved Sail Plan referenced in	46 CFR 178.210	
	stability letter	Stability Letter	

Verifying Officer Guidance: Trainees shall understand that the term "Rigging Plan" is used in regulation. However, "Sail Plan" is more commonly used in the field to identify the sails a vessel is authorized to use when carrying passengers for hire IAW the stability letter. All Marine Safety Center issued stability letters will state the sails that may be set IAW a sail plan bearing their approval stamp and date.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Logs and Manuals Inspection (LM)

Sailing Vessel (T)

Task: TIS-LM01 Examine Preventative Maintenance Plan (PMP)

Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
LM01.1	Verify general description	NVIC 02-16 Section II	
LM01.2	Verify examination / maintenance schedule	NVIC 02-16 Section II	
LM01.3	Verify inventory of rigging components	NVIC 02-16 Section II	
LM01.4	Verify documenting of exams and maintenance	NVIC 02-16 Section II	

Verifying Officer Guidance: Trainees should understand that a Preventive Maintenance Program (PMP) is objective evidence that the owner or operator is managing the condition of the rig. The marine inspector will evaluate the maintenance plan against the condition of the visible rigging. If they don't comport, there may be cause for issuing corrective action (CG-835s) or requiring a third party rigging survey. The PMP should be vessel specific.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Logs and Manuals Examination (LM)

Sailing Vessel (T)

Task: TIS-LM02 Verify Third Party Rigging Survey

Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
LM02.1	Verify type of third party survey (voluntary/for cause)	NVIC 02-16 Section III b.	
LM02.2	Identify need for third party survey	46 CFR 176.840 NVIC 02-16 Section III b.	
LM02.3	Conduct screening of third party rigging surveyor	NVIC 02-16 Section III b.	
LM02.4	Identify need for surveyor to conduct underway survey	NVIC 02-16 Section III b.	

Verifying Officer Guidance: Trainees should ensure the survey addresses the elements of the PMP, and if the survey was ordered for cause, help determine the suitability of the sail rigging and components for intended service. The marine inspector shall vet the third party, attend the survey, review the findings/recommendations, then move the process to collaborative solution. A comprehensive survey aloft and allow is the alternative to ordering the rig to the ground.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Logs and Manuals Inspection (LM)

Sailing Vessel (T)

Task: TIS-LM03 Verify sail and rigging inspection documentation (MISLE /

Permanent File)

Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing

Vessels

	Steps	References	Initials
LM03.1	Review description of the rig and associated gear	NVIC 02-16 Section III a.iv	
LM03.2	Review drawings and/or pictures of rig	NVIC 02-16 Section III a.iv	
LM03.3	Review location of key components	NVIC 02-16 Section III a.iv	
LM03.4	Review manufacturer, purchase, and installation dates of all components	NVIC 02-16 Section III a.iv	
LM03.5	Review types of furlers and tensioning systems	NVIC 02-16 Section III a.iv	
LM03.6	Review sea trials, tests of sail configurations, and condition of running rigging	NVIC 02-16 Section III a.iv	

Verifying Officer Guidance: Trainees should be aware that Appendix (1) to Enclosure (1) of NVIC 02-16 provides a generic list of key components that should be included in this documentation.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Logs and Manuals Inspection (LM)

Sailing Vessel (T)

Task: TIS-LM04 Verify Vessel Enrollment in a Rig Certification Program

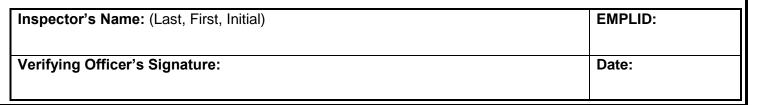
Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
LM04.1	Verify proof of enrollment	NVIC 02-16 Section III b.vii	
LM04.2	Review maintenance logs	NVIC 02-16 Section III b.vii	

Verifying Officer Guidance: Trainees should be aware that vessels enrolled in a Coast Guard reviewed (CG-CVC) rig certification program will be considered as meeting an equivalent standard to the inspection regime recommended in NVIC 02-16.



Certificate of Inspection

Logs and Manuals Inspection (LM)

Sailing Vessel (T)

Task: TIS-LM05 Verify intervals for unstepping of the rig

Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
LM05.1	Identify hull type	NVIC 02-16 Section III g.	
LM05.2	Identify mast material type	NVIC 02-16 Section III g.	
LM05.3	Identify deck/keel stepped	NVIC 02-16 Section III g.	
LM05.4	Evaluate alternative inspection timeframes	NVIC 02-16 Section III g.	

Verifying Officer Guidance: Trainees should understand that the purpose of unstepping the rig is close-up visual inspection of the entire rig including mast, mast step, and critical attachments of shrouds and stays at both the mast and the hull. The goal is to get masts down before they come down or ensure there is an equivalent regime in place. Some interval is appropriate for all masts. Vessels with multiple masts can be put on a schedule instead of pulled all at once.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Logs and Manuals Inspection (LM)

Sailing Vessel (T)

Task: TIS-LM06 Verify standing rigging and component(s) replacement cycles

Condition: During inspection

Standard: In accordance with current policies, procedures and processes

References: 1. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
LM06.1	Review variables	NVIC 02-16 Section 1 b.	
LM06.2	Examine material used for rigging, terminals, and fittings	NVIC 02-16 Section III d.	
LM06.3	Verify replacement requirements	NVIC 02-16 Section III d.	

Verifying Officer Guidance: Trainees should note the industry published guidelines focused to geography and salinity of operating environment as identified in NVIC 02-16, Section III.d.i. Owners should use empirical data to establish replacement intervals. The OCMI may approve intervals outside these guidelines on a case-by-case basis, in consideration of design, condition and service history.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Topside Equipment Inspection (TE)

Sailing Vessel (T)

Task: TIS-TE01 Inspect spar(s) &fittings

Condition: During topside equipment inspection

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 176 SPV-T - Inspection & Certification

2. Vessel's Approved Rigging Plan (when applicable)

3. Vessel's Stability Letter

	Steps	References	Initials
TE01.1	Verify rig arrangement and design	46 CFR 176.802(a)(3) & 177.330 Approved Rig Plan Stability Letter	
TE01.2	Examine materiel condition of masts, yards, booms and gaffs	46 CFR 176.802(a)(3)	
TE01.3	Examine mast, yard, boom and gaff fittings	46 CFR 176.802(a)(3)	
TE01.4	Examine head rig (bow sprit/jib boom) spars and fittings	46 CFR 176.802(a)(3)	

Verifying Officer Guidance: Trainees should understand that the regulatory standard with respect to sail vessel rigging is "suitable for intended service." Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and maintained as designed to ensure the safety of passengers and crew. Use of manufacturer and/or industry standards as a guideline for the OCMI is strongly encouraged. Implementation of NVIC 02-16 informs the suitability for intended service.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Topside Equipment Inspection (TE)

Sailing Vessel (T)

Task: TIS-TE02 Inspect standing rigging components (stays and shrouds)

Condition: During topside equipment inspection

Standard: In compliance with applicable policies, laws, regulations and standards

References:

1. Title 46, Code of Federal Regulations Part 176 SPV-T - Inspection & Certification

2. NVIC 02-16 Inspection Guidance for Sail Rigging and Masts on Inspected Sailing Vessels

	Steps	References	Initials
TE02.1	Examine materiel condition of shrouds/stays	46 CFR 176.802(a)(3)	
TE02.2	Examine shroud/stay terminal end fittings (swaged/swageless)	46 CFR 176.802(a)(3)	
TE02.3	Examine fittings associated with rig tune (turnbuckles, cotter & clevis pins)	46 CFR 176.802(a)(3)	
TE02.4	Examine fittings associated with rig alignment (tangs, toggles, point loads)	46 CFR 176.802(a)(3)	
TE02.5	Examine shroud/stay attachment to hull (chainplates, stem fittings)	46 CFR 176.802(a)(3)	
TE02.6	Examine furler fittings and verify	46 CFR 176.802(a)(3)	
	operation/serviceability	NVIC 02-16 Section III.e	
TE02.7	Examine spreaders, spreader attachments and extremities	46 CFR 176.802(a)(3)	

Verifying Officer Guidance: Trainees should understand that the regulatory standard with respect to sail vessel rigging is "suitable for intended service." Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and maintained as designed to ensure the safety of passengers and crew. Implementation of NVIC 02-16 informs the suitability for intended service. Use of manufacturer and/or industry standards as a guideline for the OCMI is strongly encouraged. See Appendix 5 to enclosure (1) of NVIC 02-16.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Topside Equipment Inspection (TE)

Sailing Vessel (T)

Task: TIS-TE03 Inspect rail configuration

Condition: During topside equipment inspection

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 177 SPV-T - Construction &

Arrangement

	Steps	References	Initials
TE03.1	Verify approval for rail height and location	46 CFR 177.900(d),(3) & (f)	
TE03.2	Verify configuration IAW with OCMI approval	46 CFR 177.900(d),(3) & (f)	

Verifying Officer Guidance: Trainees should understand that the rig configuration is vessel specific and must always be taken into account when determining rail height on sail vessels, with due consideration given to rails not being an impediment to the safe and handy operation of the rig. Further, the regulatory standard with respect to sail vessel rigging and particularly in this case, running rigging, is "suitable for intended service". Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and maintained as designed to ensure the safety of passengers and crew. Use of manufacturer and or industry standards as a guideline to the OCMI is strongly encouraged. Implementation of NVIC 02-16 informs the suitability for intended service.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Topside Equipment Inspection (TE)

Sailing Vessel (T)

Task: TIS-TE04 Inspect running rigging components (used to handle sails and

movable spars)

Condition: During topside equipment inspection in port and under sail

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 176 SPV-T - Inspection & Certification

	Steps	References	Initials
TE04.1	Examine sheets (lines, blocks, shackles, cleats)	46 CFR 176.802(a)(3)	
TE04.2	Examine halyards (lines, blocks, shackles, cleats)	46 CFR 176.802(a)(3)	
TE04.3	Examine topping lift	46 CFR 176.802(a)(3)	
TE04.4	Examine sail control system (lazyjack, dutchman)	46 CFR 176.802(a)(3)	
TE04.5	Examine furler control sheets/cleats	46 CFR 176.802(a)(3)	
TE04.6	Examine cars, tracks, winches, vangs and travelers	46 CFR 176.802(a)(3)	

Verifying Officer Guidance: Trainees should understand that the regulatory standard with respect to sail vessel rigging is "suitable for intended service." Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and maintained as designed to ensure the safety of passengers and crew. Use of manufacturer and/or industry standards as a guideline for the OCMI is strongly encouraged. Implementation of NVIC 02-16 informs the suitability for intended service. See NVIC 02-16, Section III.f.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Topside Equipment Inspection (TE)

Sailing Vessel (T)

Task: TIS-TE05 Inspect rigging/hull components under sail

Condition: While vessel is underway

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 176 SPV-T - Inspection & Certification

2. Title 46, Code of Federal Regulations Part 177 SPV-T - Construction &

Arrangement

	Steps	References	Initials
TE05.1	Examine condition of sails	46 CFR 176.802(a)(3)	
	(stitching/grommets/reinforcements)	46 CFR 176.802(c)	
TE05.2	Witness crew's ability to set/strike sails	46 CFR 176.404(a)	
TE05.3	Examine wire tension and fittings on standing	46 CFR 176.802(a)(3)	
	rigging	46 CFR 176.802(c)	
TE05.4	Examine operation of running rigging	46 CFR 176.802(a)(3)	
	components	46 CFR 176.802(c)	
TE05.5	Examine hull/mast internal structure and	46 CFR 176.802(a)(3)	
	reinforcement associated with mast and	46 CFR 176.802(c)	
	standing rigging installations		

Verifying Officer Guidance: Trainees should understand that the regulatory standard with respect to sail vessel rigging is "suitable for intended service." Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and mantained as designed to ensure safety of passengers/crew. Use of manufacturer and/or industry standards as a guideline for the OCMI is strongly encouraged. Implementation of NVIC 02-16 informs the suitability for intended service.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Emergency Drill (ED)

Sailing Vessel (T)

Task: TIS-ED01 Evaluate man overboard drill underway

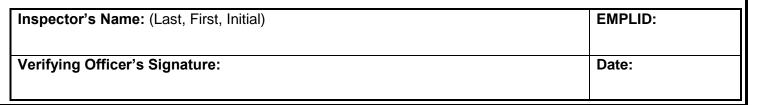
Condition: While conducting emergency drills

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 185 SPV-T - Operations

	Steps	References	Initials
ED01.1	Verify crew's ability to perform duties	46 CFR 185.420	
		46 CFR 185.510	
ED01.2	Witness drill	46 CFR 185.512	
		46 CFR 185.520	

Verifying Officer Guidance: Trainee should ensure that if the vessel's emergency procedures call for the striking or reefing of the sails that they have sufficient manning onboard to perform those operations in addition to recovering the man overboard.



Certificate of Inspection

Internal Structural Examination (IS)

Sailing Vessel (T)

Task: TIS-IS01 Inspect hull/mast internal support structure

Condition: During inspection

Standard: In compliance with applicable policies, laws, regulations and standards

References: 1. Title 46, Code of Federal Regulations Part 176 SPV-T - Inspection & Certification

	Steps	References	Initials
IS01.1	Examine mast partner	46 CFR 176.802(a)(3)	
IS01.2	Examine mast step structure	46 CFR 176.802(a)(3)	
IS01.3	Examine chain plate backing/reinforcement to hull	46 CFR 176.802(a)(3)	

Verifying Officer Guidance: Trainees should understand that the regulatory standard with respect to sail vessel rigging is "suitable for intended service." Currently there are no prescriptive regulations to further guide inspections outlined in these steps, but the intent is that rigging systems be intact and maintained as designed to ensure the safety of passengers and crew. Use of manufacturer and/or industry standards as a guideline for the OCMI is strongly encouraged. Implementation of NVIC 02-16 informs the suitability for intended service.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Stability (ST)

Sailing Vessel (T)

Task: TIS-ST01 Witness Simplified Stability Test

Condition: During inspection

Standard: In compliance with applicable policies, laws, regulations and standards

References:

- Title 46, Code of Federal Regulations Part 178 SPV-T Intact Stability & Seaworthiness
- 2. CG-4006 Small Passenger Vessels Simplified Stability Test (SST) Procedure Form (Rev. 12-12)
- 3. Marine Safety Center Plan Review Guide for Sailing Catamaran Small Passenger Vessels (T); PRG H1-17

	Steps	References	Initials
ST01.1	Confirm monohull configuration	46 CFR 178.325 PRG H1-17	
ST01.2	Verify tumblehome/beam percentage	46 CFR 178.325(b)	
ST01.3	Verify wind healing moment calculations	CG-4006	
ST01.4	Verify location of immersion mark of flush deck type vessels	CG-4006	

Verifying Officer Guidance: Trainees shall understand that only monohull sail vessels may undergo a simplified stability test and that it is not permitted for a catamaran sailing vessel to undergo a simplified stability proof test to meet stability requirements.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date:

Certificate of Inspection

Stability (ST)

Sailing Vessel (T)

Task: TIS-ST02 Conduct operational tests to determine adequate stability and

satisfactory handling characteristics

Condition: During operational stability test

Standard: In compliance with applicable policies, laws, regulations and standards

References:

 Title 46, Code of Federal Regulations Part 178 SPV-T - Intact Stability & Seaworthiness

2. Marine Safety Center Plan Review Guide for Sailing Catamaran Small Passenger Vessels (T); PRG H1-17

	Steps	References	Initials
ST02.1	Confirm monohull configuration	PRG H1-17 - Applicability	
ST02.2	Review written test procedures	46 CFR 178.325	
ST02.3	Witness test	46 CFR 178.325(c)	
ST02.4	Draft stability letter	46 CFR 178.210	
	(0)	46 CFR 178.230	

Verifying Officer Guidance: Trainees shall understand that the operational and handling characteristics of the vessel shall be provided from the owner/operator in writing along with any proposed vessel specific operational parameters or restrictions. Information provided needs to be validated by the Marine Inspector before being provided to the OCMI for consideration. Trainees should also understand that it is not permitted for a catamaran sailing vessel to undergo an operational test to meet stability requirements.

Inspector's Name: (Last, First, Initial)	EMPLID:
Verifying Officer's Signature:	Date: