How to Conduct an Inspection of a Small Passenger Vessel

Under the Communications Act of 1934, as amended, 47 U.S.C. 151 *et seq*, a small passenger vessel is defined as a vessel that transports more than six passengers but no more than twelve passengers for hire that is navigated in the open sea or any tidewater within the jurisdiction of the United States adjacent or contiguous to the open sea. A vessel that carries more than twelve passengers for hire is deemed a passenger ship. See 47 U.S.C. §§ 153, 381.

Radio carriage requirements for small passenger vessels depend on the area of operation and the distance from the nearest land. A small passenger vessel's area of operation is specified on the Coast Guard's Certificate of Inspection (COI). Generally, a small passenger vessel must carry radio equipment to meet the communication requirements in the area of operation specified by the Coast Guard.

1. Small passenger vessels that sail only on inland lakes and waterways (other than the Great Lakes) are exempt from radio carriage regulations. Likewise, small passenger vessels of less than 50 gross tons that sail in the open ocean or in bays, sounds, and other tidewater areas bordering on the open sea but never more than 300 meters (1000 feet) from shore are also exempt from radio carriage regulations. If vessels of this class carry a radio, no inspection of the radio is required and, if the radio operates only on VHF frequencies and if the vessel does not sail to a foreign port, the radio is exempt from the licensing requirement.

2. Small passenger vessels that sail on the Great Lakes must meet the radio carriage requirements of the Great Lakes Agreement. This is a treaty between the United States and Canada governing radio carriage requirements for ships navigating on the Great Lakes. Those rules are contained in Subpart T of Part 80 of FCC Rules, Sections 80.951 through 80.971. The Coast Guard also requires carriage of an EPIRB if the vessel sails more than 3 miles from shore on the Great Lakes.

3. Small passenger vessels that sail in bays, harbors, rivers and sounds adjacent to the open ocean or in the open ocean not more than 20 nautical miles from the nearest land but always within communication of a VHF coast station that maintains a continuous watch on VHF Channel 16 (156.8 MHz) must carry a VHF radio installation and a Navigation receiver as specified in 80.1085(c). The Coast Guard also requires carriage of an EPIRB if the vessel sails more than 3 nautical miles from shore in the open sea.

4. Small passenger vessels that sail in the open sea more than 20 nautical miles but not more than 100 nautical miles from the nearest land must also carry a medium frequency (MF) radio installation providing communication capability on 2182 kHz, 2638 kHz, 2670 kHz and a public coast station frequency in the 1710-2850 kHz band[2].

5. Small passenger vessels sailing more than 100 nautical miles but not more than 200 nautical miles from shore must, in addition to the EPIRB, VHF, Navigational Receiver and MF installations mentioned above, carry <u>either:</u>

   a single sideband radiotelephone installation capable of operating on all of

[1] See 46 CFR 175 for a more precise definition.

[2] Note USCG discontinued 2182 kHz watchkeeping in 2013 and does not provide Sea Area A2 service. However Sea Area A1 VHF service does extend as much as 100 nm in many locations. See Sea Area A1 coverage at https://www.navcen.uscg.gov/?pageName=mtNds. Vessels in this category not meeting the requirements of paragraph 5 may need to request a waiver.

the medium frequency (MF) and high frequency (HF) channels used for distress and safety communications listed in Section 80.905(a)(3)(iii)(A) and capable of DSC operation

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a satellite ship earth station through which continuous distress alerting by satellite is available.

The vessel must also carry:

A NAVTEX receiver for receipt of maritime safety information

A reserve source of power capable of powering all fitted equipment including the navigation receiver. If a ship earth station is elected in lieu of the single sideband combined MF/HF installation described above, the reserve source of power must be capable of powering the associated peripheral equipment necessary for the full functioning of the ship earth station.

The vessel must participate in the AMVER System

6. Small passenger vessels operating more than 200 nautical miles from shore must carry, in addition to all of the equipment specified above:

A second VHF

The U.S. Coast Guard released Marine Safety Alert 13-18 describing the potential for radio frequency interference from LED navigation and other above deck lighting to VHF marine radios and AIS[3]. FCC regulation 47 CFR §15.103 states that "The operator of the exempted device (i.e. LED) shall be required to stop operating the device upon a finding by the Commission or its representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected." An RFI test has therefore been included.

As per 47 CFR Part 80.59 (a) (1), the following table illustrates the minimum licensing requirements for Inspectors (only one license required in case of multiples):

	General radiotelephone operator license	GMDSS radio maintainer's license	Radiotelegraph operator's license	First class radiotelegraph operator's certificate
Radiotelephone equipped vessels subject to 47 CFR part 80, subpart R or S	**X**	**X**	**X**	**X**
GMDSS equipped vessels subject to 47 CFR part 80, subpart W or subpart Q		**X**		

[3] See https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/INV/Alerts/1318.pdf?ver=2018-08-16-091109-630

Ship's Particulars

Vessel Name_____

Date of survey_____ Survey location_____

Port of registry_____ Gross Tonnage_____ GT _____ GRT

USCG 46 CFR Subchapter Type (K) or (T)_____ Number of passengers_____

Specify exemption (if applicable) _____ Exemption expiration date: _____

Call Sign_____ MMSI Number _____

IMO Number_____ USCG Number_____

Satellite Number(s)_____ Additional ID numbers_____

Sea area(s) in which vessel is certified to operate:

Less than 20 NM miles from shore	☐
20 to 100 NM from shore	☐
100 to 200 NM from shore	☐
200 NM from shore	☐

Surveying Test Equipment:

The following test instruments used:	YES	NO	N/A
Frequency counter	☐	☐	
Watt meter covering MF, HF and VHF	☐	☐	
Ampere/Volt/Ohm meter.	☐	☐	
Instrument for decoding the ID-signal of satellite EPIRBs	☐	☐	
Acid tester (specific gravity).	☐	☐	
Insulation resistance tester.	☐	☐	☐
GMDSS Test Set or Service Monitor	☐	☐	☐
Spectrum analyzer.	☐	☐	☐
Oscilloscope.	☐	☐	☐
Deviation meter.	☐	☐	☐

Ship's sources of energy

a) Batteries used for Mains and Reserve power must supply the required equipment for a minimum of three (3) hours (80.919)

b) A reserve power supply. Specific requirements are documented in §80.917.

c) The reserve power supply must supply the associated peripheral equipment needed for ship earth station as applicable. (80.905 (3) (iv))

d) When the reserve source of energy consists of batteries, equipment must be provided for automatically recharging them to minimum required capacity in not more than 10 hours.

e) When the reserve source of energy consists of batteries, the battery capacity must be checked at intervals not exceeding 12 months. If not completed within past 12 months, this must be done during inspection.

f) Storage batteries provided as a reserve source of energy must be installed in accordance with applicable electrical codes and good engineering practice. They must be protected from adverse weather and physical damage. They must be readily accessible for maintenance and replacement.

The following items were checked and tested as necessary and found satisfactory:	YES	NO	N/A
1. Checked main source of energy available in accordance with requirements.	☐	☐	
2. If main or reserve source of energy is a battery: specify make and model:_____	☐		☐
If main and/or reserve source of energy is a generator: specify make and model:_____	☐		☐
1) Checked the integrity of the installation. Specify location:_____			
2) Checked for defects including all cables.	☐	☐	
3) Calculated and checked there is sufficient capacity to operate the required equipment for three (3) hours	☐	☐	
4. Checked the battery condition by specific gravity measurement or voltage measurement: Specify voltage:_____or specific gravity:_____			
5. With battery off charge, and the calculated radio installation current load connected to the main or reserve source of energy for three hours, checked the battery voltage and discharge current (if possible) Specify maximum discharge current:_____voltage at the end of the test_____			
6. Checked that the charger(s) are capable of recharging the reserve battery to the minimum capacity needed within 10 hours	☐	☐	
7. Checked that the battery charging current and polarity is displayed.	☐	☐	
8. The capacity of battery(s) has been checked at intervals not exceeding 12 months.	☐	☐	
Minimum capacity is calculated as: (½ transmitter currents + all receiver currents + emergency light + bridge to bridge VHF + GNSS receiver + all other devices) times the number of hours necessary to power the station.			

		YES	NO	N/A

Radio Installations

1.	Checked for FCC Certification and/or GMDSS compliance labels.	☐	☐	
2.	Equipment installed fulfills the functional requirements for the vessel's areas of operation.	☐	☐	
3.	Permanently installed lighting sufficient to illuminate the operating controls of the radio installation and powered from a source independent of the ship's main power sources must be provided. (80.925)	☐	☐	
4.	Radiotelephone Station Clock or timepiece is near the operating position (80.935)	☐	☐	
5.	Radio installation is clearly marked with call sign, ship station identity, and other applicable codes	☐	☐	
6.	Must be able to initiate distress alert from position from which the vessel is normally navigated (80.907)	☐	☐	
7.	Radio equipment is located at:_____			
8.	VHF remote control at each steering station (not docking or maneuvering stations)	☐	☐	☐
9.	Was a visual inspection made of all MF/HF, VHF, INMARSAT, GPS antennas and coaxial feeders for satisfactory placement (including consideration of any possible interference)?	☐	☐	
10.	Checked that the MF/HF transmitting antennas are protected against being touched accidentally.	☐	☐	☐

Publications and documents

a)	Valid station license and posted (80.405)	☐	☐	
b)	Operator license(s) (80.407(b)			

One (1) radio operator minimum with a Marine Radio Operator Permit or higher depending upon MF/HF transmitter output:

Power output on MF/HF < 250 watts = MP License Power
output on MF/HF > 250 watts = General License

Operator license(s) (80.159 (e)) (MP or General License)

Number of radio operators ____
Operators name_____ License number _____
Operators name_____ License number _____
Operators name_____ License number _____

c)	Station log (80.409 (a), (b) (e) and (f) and 80.931))with correct entries	☐	☐	
d)	Publications			
	FCC Rules & Regulations Part 80 (§ 80.401).	☐	☐	

(*)Onboard or at a convenient location on shore

Equipment Checklists

Small passenger vessels that sail in bays, harbors, rivers and sounds adjacent to the open ocean or in the open ocean not more than 20 nautical miles from the nearest land but always within communication of a VHF coast station that maintains a continuous watch on VHF Channel 16 (156.8 MHz) must carry a VHF radio installation and a Navigational Receiver. The Coast Guard also requires carriage of an EPIRB if the vessel sails more than 3 nautical miles from shore in the open sea.

YES NO N/A

VHF transceivers

	#1	#2 (if fitted for vessels operating beyond 200 miles)
Make / Model		

1. Checked for operation on all marine channels.[4] ☐ ☐
2. Checked that equipment is within frequency tolerance (10 Hz per MHz). ☐ ☐
3. Checked RF power output (between 15 & 25 watts) and VSWR (<1.5:1) on channels 6, 13, and 16. ☐ ☐
4. Checked correct operation of all controls including priority of main control unit (if remotes are installed) ☐ ☐
5. Checked that the equipment operates from the main, emergency (if provided) and reserve sources of energy. ☐ ☐
6. Checked for correct operation by on-air contact with a coast station or a ship. ☐ ☐
7. Confirm that the VHF radio does not have a public address mode capable of disrupting required continuous watch on channels 16 and 13 while underway (§80.148 and §80.309). ☐ ☐ ☐

   Remarks: _____

8. Checked for absence of VHF interference with LED navigation and other above decks lighting activated.

NOTE: The use of a VHF handheld near AIS VHF antenna is suggested. Turn off LED light(s). Tune the radio to a weak NOAA weather radio station. Turn on the LED light(s) one at a time, and then all on. If the NOAA channel vanishes after a lamp is energized, it's generating RF interference.

As an alternative to tuning to a weak NOAA weather channel, tune the VHF radio to some quiet channel. Adjust the VHF radio's squelch control until the radio outputs audio noise. Re-adjust the squelch until the audio noise is quiet, only slightly above the noise threshold. If the radio does now output audio noise, then the LED light(s) have raised the noise floor.

[4] As a minimum check channels 1A (1001), 5A (1005), 6, 11, 12, 13, 14,16, 22A (1022), 67, 73, 74

Category 1. 406 MHz EPIRB. (All vessels beyond 3 NM from land)

a) The installation must be such that the EPIRB will not be caught up in any rigging or structure if the ship should capsize. The unit must be capable of automatic release when submerged and automatic activation when placed in water. Additionally, the unit must also be capable of manual release and manual activation.

b) The battery date must not be expired.

c) The EPIRB(s) must be registered with NOAA

d) FCC certified for GMDSS (must have a label so stating). (§ 80.1103(e))

e) Must have a self test capability.

406 MHZ EPIRB Checklist	YES	NO	N/A
#1 EPIRB Make and Model:_____ #2 EPIRB(if fitted) Make and Model:_____			
1. Checked position and mounting for float free operation. Verified that EPIRB is installed in an easily accessible position and is ready to be manually released and capable of being carried by one person into a survival craft. Location(s):_____	☐	☐	
2. Verified that the lanyard is firmly attached, in good condition, neatly stowed, and not tied to the vessel or the mounting bracket.	☐	☐	
3. Carried out visual inspection for defects.	☐	☐	
4. Carried out the self-test routine.	☐	☐	
5. Checked that the EPIRB ID and other information (include call sign and MMSI of the ship) is clearly marked on the outside of the equipment.	☐	☐	
6. Decoded the EPIRB identity number and other information confirming it is correct and the same as that marked on the EPIRB. 15 Digit Hexadecimal Number:_____	☐	☐	
7. Checked the registration through documentation (sticker) or directly with NOAA	☐	☐	
8. Checked battery expiry date(s): _____			
9. Checked hydrostatic release(s) expiration dates(s): _____			
10. Checked the emission in the 406 MHz band using the self-test mode or an appropriate device to avoid transmission of a distress call to satellites.	☐	☐	
11. If possible, checked emission on the 121.5 MHz frequency using the self-test mode or an appropriate device to avoid activating the satellite system.	☐	☐	☐
12. Checked that no transmission has been started after the test and remounting of the EPIRB in its bracket.	☐	☐	

13. The presence of beacon operating instructions was verified. ☐ ☐

Global Navigation Satellite System Receiver (80.905 (a) (5))

Make / Model	

	YES	NO	N/A
1. Information on the ship's position is continuously and automatically provided to all relevant distress equipment.	☐	☐	
2. The navigation receiver is supplied from a source of energy ensuring continuous supply of the ship's position information in the event of failure of the ship's main or emergency source of energy.	☐	☐	
3. Confirm that position information is being updated in DSC-equipped radios from the interconnected navigation receiver.	☐	☐	

Bridge to Bridge Requirements (As per 80.1001 – All vessels > 20 meters in length and SPV > 100 GT)

1. The installation is functional and capable of operating on Channel 16, Channel 13, Channel 67 and Channel 22A (1022) at minimum. ☐ ☐

Make / Model	

2. The Certificate is endorsed for five (5) years in agreement with the SPV Certificate ☐ ☐

In addition to the equipment required above, all Small Passenger Vessels that sail in the open sea more than 20 nautical miles but not more than 100 nautical miles from the nearest land must also carry a medium frequency (MF) radio installation providing communication capability on 2182 kHz, 2638 kHz, 2670 kHz and a public coast station frequency in the 1710-2850 kHz band.[5]

	YES	NO	N/A

MF radiotelephone equipment

	#1	#2 (if fitted)
Make / Model		

1. Checked that the equipment operates satisfactorily from the main, emergency (if provided), and/or reserve sources of energy.	☐	☐	
2. Checked antenna tuning on all frequencies noted above.	☐	☐	
3. Checked that equipment is within frequency tolerance (10 Hz).	☐	☐	
4. Checked for correct operation by measuring RF power output (> 60 watts) and VSWR and by contact with another station.	☐	☐	
5. Checked receiver performance by monitoring known stations on all appropriate bands.	☐	☐	
6. Checked that the control unit on the bridge has first priority for the purpose of initiating distress alerts, if control units are provided outside the navigational bridge.	☐	☐	☐
7. Checked that the vessel is able to watch 2182 kHz and transmit the 2 tone alarm signal (if so equipped)	☐	☐	

Small passenger vessels sailing more than 100 nautical miles but not more than 200 nautical miles from shore must, in addition to the EPIRB, VHF, Navigational Receiver and MF installations mentioned above, carry <u>either:</u>

a single sideband radiotelephone installation capable of operating on all of the medium frequency (MF) and high frequency (HF) channels used for distress and safety communications listed in Section 80.905(a)(3)(iii)(A) and capable of DSC operation

or

an INMARSAT ship earth station through which continuous distress alerting by satellite is available.

The vessel must also carry:

A NAVTEX receiver for receipt of maritime safety information

The vessel must participate in the AMVER System

A reserve source of power capable of powering all fitted equipment including the navigation receiver. If a ship earth station is elected in lieu of the single sideband combined MF/HF installation described above, the reserve source of power must be capable of powering the associated peripheral equipment necessary for the full functioning of the ship earth station.

[5] Note MF radiotelephone services including 2182 kHz watchkeeping by the USCG has been discontinued in the U.S. See footnote 2 on first page.

YES NO N/A

MF/HF radiotelephone equipment (vessels operating beyond 100 nautical miles or as an alternative to Inmarsat)

This unit can be the same unit used for the MF Radiotelephone compliance

	#1	#2 (if fitted)
Make / Model		

1. Checked that the equipment operates from the main, emergency (if provided), and reserve sources of energy. ☐ ☐

2. Checked antenna tuning in all appropriate bands. ☐ ☐

3. Checked that equipment is within frequency tolerance on all appropriate bands (10 Hz). ☐ ☐

4. Checked for correct operation by measuring RF power output (>120 watts) and VSWR and by contact with a coast station. ☐ ☐

5. Checked receiver performance by monitoring known stations on all appropriate bands. ☐ ☐

6. Checked that the control unit on the bridge has first priority for the purpose of initiating distress alerts, if control units are provided outside the navigational bridge. ☐ ☐ ☐

MF/HF DSC controller(s) if provided ☐ **Not Provided**

	#1	#2 (if fitted)
Make / Model		

1. Checked that equipment operates from the main, emergency (if provided), and reserve sources of energy. ☐ ☐

2. Confirmed that the correct Maritime Mobile Service Identity is programmed in the equipment. ☐ ☐

3. Checked the off air self test program (if provided) ☐ ☐ ☐

4. Checked operation by means of a test call on MF and/or HF to a coast radio station if the rules of the berth permit the use of MF/HF transmissions. ☐ ☐

5. Checked the audibility of the MF/HF DSC alarm. ☐ ☐

6. Checked that the ship's position in the distress alert is automatically provided with this information from an internal or external navigation receiver (e.g. GPS) ☐ ☐

7. Checked DSC alerting is available from the conning position. ☐ ☐

	YES	NO	N/A

Satellite Ship Earth Station(s) (vessels beyond 100 nautical miles as an alternative to MF/HF)

Make and Model		

1. Checked that each equipment operates from the main, emergency (if provided), and reserve sources of energy	☐	☐	
2. Where an uninterrupted supply of information from the ship's navigational or other equipment is required, ensure that such information remains available in the event of failure of the ship's main or emergency source of electrical power.	☐	☐	☐
3. Checked the distress function by means of the approved performance verification test procedure with a land earth station.	☐	☐	
4. Checked terminal is operable by sending an email from the terminal and confirming reception.	☐	☐	☐
5. Checked terminal is operable by making a telephone call to or from the terminal.	☐	☐	☐

AMVER Participation (§ 80.905 (a) (3) (vii))

1. Checked for evidence of participation in the AMVER system	☐	☐	

Navtex receiver) (§ 80.905 (a) (3) (v))

a) Must be a dedicated receiver

b) FCC Certified for GMDSS (must have a label so stating). (§ 80.1103(e))

c) Capable of receiving MSI information in all areas in which the ship operates

Navtex Checklist

Make and Model:_____

1. Checked for correct operation by monitoring incoming messages or inspecting recent hard copy.	☐	☐	
2. Successfully performed self-test program, if provided.	☐	☐	☐

Small passenger vessels operating more than 200 nautical miles) from shore must carry, in addition to all of the equipment specified above:

A second VHF

The second VHF installation should be noted in the VHF equipment section above.

Radio Surveyor's Remarks and Equipment Deficiencies:

It is suggested that one copy of this report be left onboard and one copy kept with the Surveyor

Master's Signature and Ship's Stamp

Radio Surveyor's Signature

Radio Surveyor's Printed Name and License Number

Surveyor's Company, City, State

Date

NOTE: Logbook Entry to be made by Surveyor along with Master's comments (§ 80.59 (2))