

MSC Guidelines for the Review of OSV General Arrangement

Procedure Number: C1-05

Revision Date: May 2, 2012



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Purpose

To establish a procedure for reviewing general arrangement plans for an Offshore Supply Vessel (OSV) regulated under 46 CFR Subchapters I or L, operating on domestic and/or international voyages.

References

- a. 46 CFR, Subchapter I
- b. 46 CFR, Subchapter L
- c. 46 CFR Subchapter S
- d. MTN 03-00, "Means of Escape from Main Machinery Spaces on OSV's"
- e. MTN 01-95, "Permissible Locations of Class 1 Watertight Doors"
- f. MTN 01-00, "SOLAS Double Bottom Requirements for Cargo Vessels, other than Tankers", dated February 18, 2000
- g. MTN 02-00, Change 1, "Longitudinal Extent of Machinery Spaces on OSV's and other SOLAS Cargo Vessels"
- h. MVI Policy letter N0. 21-93, Carriage of Methanol (Methyl Alcohol) on Offshore Supply Vessels (OSVs)
- i. International Convention for the Safety of Life at Sea (SOLAS), Consolidated Edition 2004 and Amendments 2003, 2004 & 2005
- j. D8 Policy letter 09-2001, Certification of Multi-Service Offshore Supply Vessels (OSV's)
- k. Navigation Vessel Inspection Circular 01-78, Change 1, "Automation of Offshore Supply Vessels of 100GT and Over."

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- l. Navigation and Vessel Inspection Circular 8-91, “Initial and Subsequent Inspection of Existing, Non-certificated Offshore Supply Vessels, Including Liftboats.”
 - m. CG-522 Policy Letter 09-01, Rev.1, “Guidance on Implementation of IMO Resolution A.673(16) for New and Existing U.S. Offshore Supply Vessels”, dated 4/5/2010
 - n. International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), 2007 Edition
 - o. International Maritime Organization MARPOL Consolidated Edition 2006
 - p. MSC Guidelines for Review of Major Conversion Determinations
 - q. D8 Policy letter 16613, dated November 12, 1998, Rescue Boat Requirements on Offshore Supply Vessels
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Contact Information

If you have any questions or comments concerning this document, please contact the Marine Safety Center (MSC) by email or phone. Please refer to the Procedure Number C1-05.

Email: MSC@uscg.mil

Phone: 202-475-3403

Website: <http://homeport.uscg.mil/msc>

Responsibilities

Using applicable portions of references (a) through (q), the submitter shall provide sufficient documentation and plans to indicate compliance with the applicable requirements. The submission shall be made electronically to the above email address or, if paper, in triplicate to the MSC’s address found on the above website. To facilitate plan review and project management, all plans and information specified in these guidelines should be submitted as one complete package through a single point of contact for the project.

General Guidance

- If the vessel is new and not a sister vessel, has the Application for Inspection submitted? In general no plan review may occur until receipt of a copy of the Application.
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- ❑ Is it clear stated what is desired from the MSC? Are all plans requiring Coast Guard review and/or approval submitted in triplicate? Are there any special or unusual requests involved?
- ❑ Verify the applicability of Regulations. See 46 CFR 90.05 (Subchapter I), 46 CFR 125.100 (Subchapter L), SOLAS I/2, I/3, and II-1/1, MARPOL Reg. 12A, and IMO Resolution A.673. If questions arise relating to “grandfather” provisions of older OSVs, see NVIC 8-91.
- ❑ Are all spaces identified and designated on the plan?
- ❑ Does the vessel fit the definition of an OSV, as detailed in 46 USC 2101 (19) and 46 CFR 125.160: “a motor vessel of more than 15 GT but less than 500 GT (RTC) (as measured under part 69 subpart C, D, or E, of this chapter) or less than 6000 GT (ITC) (as measured under the Convention Measurement System under part 69, subpart B of this chapter) that regularly carries goods, supplies, or equipment in support of exploration, exploitation, or production of offshore mineral or energy resources and is not a small passenger vessel.”
- ❑ Vessels in service within CG District 8 desiring multi service (I/L) status should also refer to references (j) and (q). Please contact the local OCMI or Eighth CG District 8 Commander for additional guidance. The most stringent standards shall be applied during plan review.

For OSVs certificated under 46 CFR Subchapter I, verify compliance with the following:

- ❑ Extended Machinery Spaces
 - Verify the boundaries of the Machinery Space. By referring to reference (g), extended machinery spaces are authorized per CFR and SOLAS regulations depending on the classification of space included in the extended space. Note: The CFR’s for extended machinery spaces are less stringent than SOLAS regulated vessels.
 - Sub I requires the installation of a fire suppression system, which must be installed throughout and have a capacity to flood the entire extended machinery space.
 - Additional W/T Doors may not be installed within extended machinery spaces.
- ❑ Means of Escape (46 CFR 92.10)

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- On vessels where members of the crew are not employed in the machinery spaces or where the engineering spaces are unmanned/unattended, alternative arrangements providing a level of safety equivalent to the means of escape requirements outlined in 46 CFR 92.10 may be approved by the MSC.

Note: Where such vessels are more than 500 GRT and maintain unmanned/unattended machinery spaces, the automation requirements for unattended machinery spaces, outlined in 46 CFR 62.50 will apply.

- Two widely separated means of escape in all general areas accessible to passengers
 - No dead-end corridors > 40'
 - Public spaces > 300 sq ft, must have 2 means of escape
 - Direct access/route to lifeboats
 - Ladder to scuttle unacceptable as one of the two required means of escape, unless stairway is impractical
- Accommodations for Officers and Crew (46 CFR 92.20)
 - Locations of crew quarters not forward of 5% length, no easy access to chain lockers and machinery spaces, no crew spaces below deepest load WL
 - Sleeping accommodations: no more than 4 crew/room, 30 sq ft deck area per person, 1 berth per person, 1 locker per person
 - 1 toilet, 1 sink and 1 shower required for every 8 persons using facilities
 - Collision Bulkhead: must meet 46 CFR 171.085(c)(1),(d),(e)(2), and (f)
 - 5% LPP aft of FP
 - < 5% LPP + 10' aft of FP
 - Collision bulkhead must extend to the deck above the bulkhead deck, if superstructure extends from fwd of collision bulkhead to >15% LPP aft of collision bulkhead (check specific requirements of 171.085(e)(2))
 - For vessels that are undergoing a mid-body extension, the collision bulkhead must be designed in accordance with the new length between perpendiculars if it is determined that it is a major conversion.
 - Mess rooms (46 CFR 92.20-30)
 - Hospital Space (46 CFR 92.20-35)
 - Rails and Guards (46 CFR 92.25)
 - 46 CFR 92.25-90 applies for vessels contracted for prior to 1969

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- Rails required for decks and bridges, height > 39.5”
- 3 rail courses with < 9” opening below lower course, for exposed peripheries of freeboard and superstructure decks

- Class 1 watertight doors (46 CFR 170.248)
 - Applies to vessels with watertight doors in bulkheads that have been made watertight to comply with the flooding or damage stability regulations in subchapter S. Since certain Subchapter I vessels (500GRT and over, which are designed primarily for carriage of dry cargoes) must comply with the damage stability requirements of 46 CFR 174.350, the watertight door requirements of 46 CFR 170.248 may apply. See reference (d) for additional guidance on acceptable locations of Class 1 doors.

For OSVs certificated under 46 CFR, Subchapter L, verify compliance with the following:

- Extended Machinery Spaces.
 - Verify the boundaries of the Machinery Space. By referring to MTN 00-02, extended machinery spaces are authorized per CFR and SOLAS regulations depending on the classification of spaced included in the extended space. Note: Domestic rules for extended machinery spaces are less stringent than SOLAS regulated vessels.
 - If the vessel has a fire suppression system installed within the extended machinery space, even though Subchapter L does not require them, it must be Commandant approved, designed and installed in accordance with 46 CFR 95.15, and must have a capacity to flood the entire extended machinery space.
 - Additional W/T Doors may not be installed within extended machinery spaces.

- Means of Escape (46 CFR 127.240)
 - On vessels where members of the crew are not employed in the machinery spaces or where the engineering spaces are unmanned/unattended, alternative arrangements providing a level of safety equivalent to the means of escape requirements outlined in 46 CFR 127.240 may be approved by the MSC.

Note: Where such vessels are more than 100GT and maintain unmanned/unattended machinery spaces, 46 CFR Part 130, Subpart D or reference (k) will apply.

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- 2 means required for each space accessible to offshore workers or where crew normally employed (if area > 300 ft², or max. dimension > 20 ft); does not include windows or portholes
 - 1 of 2 means must be independent of WT doors and lead directly to open deck
 - Widely separated
 - Vertical ladder to a deck scuttle may be a means of escape if the primary escape is a stairway/passageway, installation of another stairway/passageway is not practicable, and scuttle can't be covered with deck cargo
 - Dead-end passageways must be < 40'
- Location of accommodations and pilothouse (46 CFR 127.270)
 - No openings from fuel or cargo oil tanks may open into quarters
 - Quarters for crew and offshore workers must be separate, unless authorized by the OCMI
 - Quarters and pilothouse must be aft of collision bulkhead.
 - Except as specified, no part of deck with accommodations may be below the design waterline.
 - No hawse pipe or chain pipe through accommodations.
 - No direct access between accommodations and chain lockers, cargo spaces, or machinery spaces.
 - Construction and Arrangement of Quarters for Crew Members and Accommodations for Offshore Workers (46 CFR 127.280)
 - Crew quarters (applies for >100 GRT)
 - Max 4 berths/room, no more than 4 crew/room, 30 sq ft deck area per person, 1 berth per person, 1 locker per person
 - Max 8 crew per toilet, WC, and shower
 - Accommodations for offshore workers (applies for > 100 GRT)
 - If vessel will carry offshore workers overnight, then quarters must:
 - Max. 6 berths/room
 - Max. 8 OSW per toilet, WC, and shower
 - For OSVs more than 100 GRT, see more details in 46 CFR 127.280 except (c).
 - For OSVs less than 100 GRT, verify compliance with 46 CFR 127.280(c).

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- Maximum number of offshore workers permitted (46 CFR 126.170):
 - As designated on the vessel's COI but not to exceed 36.
 - 12 for international voyages, unless the vessel holds a valid passenger-ship-safety certificate in compliance with SOLAS.
 - For OSVs less than 100 GT, verify compliance with 46 CFR 127.280(c).

Note: Under the definitions of SOLAS, an OSV that carries more than 12 off-shore workers or passengers on an international voyage is a "Passenger Vessel". As a result, the vessel will be required to comply with all SOLAS Passenger Vessel rules.

- Collision Bulkhead (46 CFR 174.190): same as listed above for 46 CFR, Subchapter I.

Note: For vessels that are undergoing a mid-body extension, the collision bulkhead must be designed in accordance with the new length between perpendiculars if it is determined that it is a major conversion.

- Machinery space bulkheads required to be watertight (46 CFR 174.210)
- Watertight doors must be in compliance with 46 CFR 174.210.
- Rails and Guards (46 CFR 127.310-30)
- Damaged Stability (46 CFR 174.200)
 - Check for 30" side protection around the engine room. Boundary longitudinal bulkheads must be located at least 30" from the vertical plane taken at the side shell at the load line, or else the engine room must be considered flooded in damaged stability calculations. If this is the case, make a comment on the return correspondence to notify the submitter of the possible impact on damaged stability.
- Cargo Restriction (46 CFR 125.110)
 - May carry <20% deadweight of Grade D and E combustible/flammable cargoes in integral tanks. Excess Grade D and E fuel oils and drilling fluids may be carried without limit in integral tanks.
- Carriage of Liquid Mud (Drilling Mud) (applies to vessels over 500GT REG).

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- Petroleum based liquid mud may be carried in the side shell tanks of an OSV since OSV's are not regulated under OPA 90 (see 60 FR 13319).
- Carriage of Methanol:
 - Existing domestic OSV's may carry Methanol provided they comply with various Subchapter D requirements outlined in reference (h).
- Carriage of NLS's (46 CFR 125.120):
 - MSC will review vessel plans for compliance with reference (m).

For OSVs certificated under SOLAS (Cargo Vessels over 500 GT INT), verify compliance with the following:

- The vessel must have peak and machinery space bulkheads as required by (SOLAS II-1/11). See MSC policy letter serial H1-9602789 dated 9/18/96.
- Location of collision bulkhead.
- Requirement for extension of collision bulkhead above freeboard deck, if forward superstructure is located above collision bulkhead.
- Machinery space bulkhead to the freeboard deck.
- Double bottoms for cargo ships (SOLAS II-1/12-1)
 - Applicable for vessels constructed after February 1, 1992.
 - Required throughout length of the vessel, from collision bulkhead to after peak bulkhead.
 - Wells allowed in some areas with special restrictions.
 - Double bottom not required in way of watertight compartments used to carry liquids.
 - Review reference (f) for additional requirements.

Note: If the fitting of a full double bottom from collision bulkhead to after-peak bulkhead grossly interferes the design and proper operation of the vessel, the requirements of double bottom may be exempted case by case by CG-5432, if the client can prove that the fitting of double bottom is not practicable and compatible with the design and proper working of the vessel. Reference (f) is under update by the ADC.

- Means of escape (SOLAS II-2/13)*

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- Stairways and ladders from all accommodation and normally employed spaces, with ready means of escape to the open deck
 - From each level of accommodation, 2 widely separated means of escape
 - Below lowest open deck, stairway is the primary and trunk or stairway is the secondary means of escape
 - No dead-end corridors longer than 23 feet
 - Two means of escape from Category A machinery spaces (see definition in SOLAS II-2/3, bow thruster rooms may qualify as Category A space); one of the following two provisions required.
 - Two sets of steel ladders widely separated, leading to separate egress doors in the upper part of the space; one ladder must have a continuous fire shelter, with a self-closing, gas-tight steel door at the lower end.
 - One steel ladder leading to the upper part of the space, and a door from the lower part of the space, well separated, that leads to a safe escape route to the open deck.
- On vessels where members of the crew are not employed in the machinery spaces or where the engineering spaces are unmanned/unattended, 2 means of escape complying with SOLAS II-2 Part D ARE REQUIRED. In addition, for SOLAS vessels, SOLAS II-1 Part E, “Requirements for periodically unattended machinery spaces”, will also apply.
 - Doors bounding Category A machinery spaces must be gas-tight and self-closing (SOLAS II-2/9-4.2). If the information is not indicated on the general arrangements plan, make a comment in the return correspondence addressing this requirement.

For OSVs certificated under IMO RES A.673 (16), verify compliance with the following:

- Reference (m) Part 2.2: Cargo tanks shall be located at least 760 mm (30 inches) inboard from the side of the vessel at the level of summer load water line.
- Reference (m) Part 3.1.2: Cargoes which react in a hazardous manner with other cargoes or oil fuels should be segregated from such other cargoes or fuel oils by means of a cofferdam, void space, cargo pump room, pump room, empty tank or tank containing a mutually compatible cargo.
- Reference (m) Part 3.1.6: Where not bounded by bottom shell plating, fuel oil tanks, a cargo pump room, or a pump room, the cargo tanks should be

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surrounded by cofferdams. Tanks for other purposes (except fresh water and lubricating oils) may be accepted as cofferdams for these tanks.

- Reference (m) Part 3.1.7: For access to all spaces: A minimum of 460mm (18”) between cargo tank boundaries and adjacent ship’s structures must be maintained for inspection and access purposes. This requirement applies to all cargo tanks, including tanks carrying pollution only substances having a flash point exceeding 60 deg C (closed cup test).
- Reference (m) Part 3.1.9: Cargoes subject to **IMO RES A.673 (16)** shall not be carried in either the fore or aft peak tanks.
- Reference (m) Part 3.2.: The accommodation, service and machinery spaces and control stations should not be located within the cargo area. Unless they are spaced at least 7 meter away from the cargo area containing flammable products, entrances, air inlets and openings to accommodation, service and machinery spaces and control stations should not face the cargo area. This requirement applies only for flammable and safety hazard products. For pollution hazard only substances having a flash point exceeding 60 deg C (closed cup test), this requirement does not apply. To check an NLS cargo if it is a pollution hazard or a safety hazard cargo, see Chapter 17 in reference (n).
- Reference (m) Part 3.3: For access to spaces within cargo area: Access to spaces within the cargo area should meet the requirements of 3.4 of reference (n). For carriage of non-flammable cargoes and non-safety hazard cargoes (i.e. pollution hazard only cargoes) the dimensions of horizontal and vertical openings within cargo area *may be less than* the minimum dimensions stipulated by 3.4 of IBC Code, as specified below.
 - For vertical and horizontal openings, such as those accessing a cargo tank, the minimum size for vertical openings for the manholes shall be 22 inches by 24 inches. With openings reduced to 22 inches by 24 inches, entry into all confined spaces within the cargo area must only take place when the vessel is in the shipyard or at shore side facility and only after applicable confined space entry procedures have been performed.

COI Endorsement: For those ships that have access into spaces with openings reduced to 22 inches by 24 inches the COI must hold the following statement:

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“Entry into all confined spaces onboard (provide a list of tanks) with openings reduced to 22 inches by 24 inches must only take place when the vessel is at shipyard or shore side facility and only when that facility is equipped with surface air supply equipment readily available.”

For OSVs certificated under IMO MARPOL Annex I, Regulation 12A, verify applicability and requirement compliance with the following:

- ❑ Reference (o) Regulation 12A: Oil Fuel Tank Protection
 - ❑ Reference (o) Regulation 2: Application
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Disclaimer

This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard’s current thinking on this topic and may assist industry, mariners, the general public, and the Coast Guard, as well as other federal and state regulators, in applying statutory and regulatory requirements. You can use an alternative approach for complying with these requirements if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative, you may contact the MSC, the unit responsible for implementing this guidance.