AMOSC
Australian Marine
Oil Spill Centre Pty Ltd

Standard Operating Procedure

BOOMS – Offshore RO-BOOM / Lamor HD boom


Equipment description

SOP intended for the use and deployment of Lamor HD 1300 and Desmi Ro-clean 1500 offshore boom. The boom reel holds 200m of offshore boom designed for the containment of hydrocarbons on water. Offshore boom is deployed from the stern of a suitable vessel or suitable land-based structure ie wharf or jetty.

If a vessel is being used for deployment it is should have the following features:

- A large deck space with clear work area and at least 5m between the reel and the transom
- A roller or cofferdam style transom free from obstructions
- Sufficient power to safely tow offshore boom
- A crane for the deployment of other associated equipment such as skimmers.

Technical Specification

Weight: in excess of 2000kg (item specific)
Boom Length: 200m (Generally per reel)
Drive type: hydraulic / chain

Health and Safety

To safely operate this equipment a minimum of 4 people are required.

Safe Operating Requirements

- All personnel are to be trained or under the close supervision of a trained operator
- Job Safety Analysis (JSA) to be conducted prior to work commencing. Identification of the following safety factors are critical, but not limited to:
  - Manual Handling,
  - Slips/Trips/Falls,
  - Vehicle/Vessel Movements,
  - Pinch Points and Personnel
  - Contamination/Decontamination.
- Ensure adequate Personal Protective Equipment (PPE) is worn – as detailed above.
- * Life jackets must be worn near water depending on operation.

- For AMOSC Response purposes, ensure an operational plan is completed and briefed to ensure correct strategy.
- Ensure the boom reel is secured correctly. Secure the reel/s to the deck by welding, or chains secured downward and back.
- A full safety brief must be conducted.
- A communication plan must be decided upon to ensure clear and concise communication between operators at all times.
    - The captain of the trail vessel is in charge of the operation.
    - The captain on any assisting vessel must follow the instructions from the main vessel captain.
    - A person located in the working area of the main vessel should be appointed Team Leader. They are responsible for the practical deployment of the equipment.
    - This person should be part of the radio communication chain.
- All incidents, accidents and near misses must be reported as per AMOSC HSSE Plan.

Operational Instructions

Emergency shutdown

In the event that an emergency shutdown is required, the following measures should be taken:

- Stop operation of all equipment including power pack and boom reel if safe to do so.
- Shut down power pack.
- Communicate to bridge according to pre-designated communication plan.

Pre-start checks

- Prepare the deployment site by removing any rubbish or objects that may impede deployment operations.
- The deployment area required between the reel and the stern needs to be a minimum of 4 metres wide and 6-10 metres long (8 metres is preferable). There should sufficient area behind the first reel for one or two reels depending on the amount of boom to be deployed.
- Set up the reels one behind the other.
- Secure the reel/s to the deck by welding, or chains secured downward and back (see “Additional Information” below).

Note: Details of the securing type will depend on the vessel.

- If the surface over which the boom is to be deployed is rough, use an anti-chaff mat. This mat should be secured at both ends to ensure that it does not bunch-up or move as the boom slides over it.
- Position the power-pack and inflator on the starboard side of the vessel (Ro-boom) / port side of the vessel (Lamor) and aft of the reel and secure appropriately.
- Check all fluid levels on power pack
- Prepare midpoint anchoring brackets (if required).

Deployment

- Set up and attach tow bridle to boom, and tow rope to the bridle.
- Attach a float to the tow rope and mouse all associated shackles and pins. (can use cable ties for a quick mouse)
- Vessel is to start moving slowly ahead at less than one knot through the water
- Safely pay the towline into the water.
- Commence reeling boom off the reel, inflating each chamber as it comes off the reel.

- Initially the boom will need to be manhandled off the stern of the vessel, however after about 10-20 m of the boom has been launched, the speed of the ship through the water will pull out the rest of the oil boom.

Note: It is preferable to find a suitable constant, low speed for the reel rather than periodically starting and stopping of the reel to allow time to fill the air chambers.

- When deploying more than one boom, 200 m, (from more than one reel), the booms shall be attached to each other on deck and the deployment continues over the top of the empty reel.
- When the last chamber is off the reel and on the deck, attach the safety line.
- Continue winding the reel to allow the removal of the two boom securing wires.
- Attach a tow bridle and tow rope to the end of the boom, mousing the joining pin and all shackles.
- Transfer the weight of the boom back onto the reel to allow the removal of the safety line.
- Transfer the weight of the towline onto a vessel bollard.

Note: The method for doing these last two steps will depend on the vessel type and sea conditions.

Connect the boom to the assisting vessel

- When the last section of boom is deployed and the tow rope is secured to a bollard or similar, the free-floating tow rope attached to the first deployed section of the boom should be picked up and secured to the second vessel.
- The boom is now ready to be set in formation for containment of oil (see additional information, towing formations).
- For collection refer to relevant skimmer SOP.

Recovery

- The recovery operation is normally performed in the reverse order of deployment.
- The tow rope is released into the water from the assisting vessel so that the boom is only connected to the main vessel.
- The vessel steams slowly against the current. This is to ensure that the boom forms a straight line behind the vessel.
- The boom is recovered onboard using the hydraulic winder.
- The tow rope, which is part of the towing equipment, is turned 2-3 times around the reel drum and then the boom can be pulled onboard the vessel.
- Deflate the boom chambers as they move towards the reel.
- During winding there must be 1-2 operators guiding the boom straight on the winder.
- The recovery continues until all boom is recovered.

Caution If the boom has been contaminated with oil, care must be exercised when retrieving the boom to minimise secondary contamination, using sorbent booms and/or sorbent pads.

Post operation – Contaminated boom

- If the boom is no longer required for operations then wrapping of the boom and reel with plastic sheeting is advisable to reduce secondary contamination.
- Remove the contaminated boom and transport to a bunded cleaning station.

Note - Maintenance of the boom is to be performed as listed below.

Post operation – Non-Contaminated boom

- Hose down the reel and boom thoroughly with fresh water.
- Boom to be dry prior to maintenance inspection, re-stowage and storage

Note - Maintenance of the boom is to be performed as listed below.

Additional Information

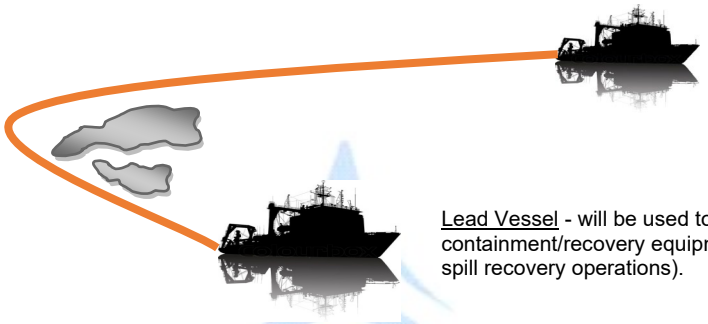
Securing the reel(s)

The boom reel must be secured in a manner that will not allow it to move during heavy sea states and operation. It is recommended that the reel is lashed securely using appropriate chains or straps to rated fixings on the deck of the vessel. It is acceptable to weld either directly to the deck or by means of brackets to secure the reel. In the event of welding a full risk assessment must be conducted and only fully qualified welders are to be used to undertake this work.

Generic offshore deck plan

Towing formation

Dependent on resources and operational requirements there are several formations that can be utilised by recovery vessels. The most commonly used formation used with offshore boom is called the "J Formation" (depicted below). The formation requires a Lead Vessel in overall control of the operation (including the deployment of boom and other oil spill equipment) and a Tow Vessel which is connected to the boom and is responsible for its positioning ahead of the Lead Vessel. Manoeuvring of the two vessels in this formation allows hydrocarbons to collect in the apex of the boom where it can then be recovered.



Tow Vessel – manoeuvres as directed by the "Lead Vessel"

Lead Vessel - will be used to deploy all containment/recovery equipment (controls all oil spill recovery operations).

Maintenance

All maintenance and repairs are to be completed in accordance with the manufacturer or AMOSC procedures.
All equipment must be left in an operational condition when not in use.
All defects must be repaired immediately or the equipment be "tagged out" for maintenance and repair.

Related Documents

AMOSC HSSE Plan
PN08 - HSSE Policy
AMOSC JSA Template
PN 11 AMOSC Vehicle Use Policy (AMOSC Vehicle Checklist / AMOSC Load Assessment Checklist)
SOP 1001 Ops; Forklift Operations
SOP 1002 Ops; Loading and Securing of Cargo
SOP 1003 Ops; Transporting Equipment To/From Warehouse