



STANDARD SAFETY

SETTING THE STANDARD FOR SERVICE AND SECURITY

July 2010

125 years
1885~2010

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√Two ships carrying out ship-to-ship transfer operations



PERSONNEL TRANSFER USING SHIP'S CRANES

This edition of *Standard Safety* highlights the dangers and precautions to consider when transferring personnel offshore using a ship's crane. The transfer of personnel at sea or offshore has been practised for a long time. In the past, it was often done only in an emergency, but the practice has been carried out offshore from oil platforms and construction units. This has decreased with the onset of helicopter transfers, but is still regularly practised in some areas.

This edition of *Standard Safety* does not address the procedures applicable to offshore rigs and installations, where different regulations and practices apply, although most of the issues and dangers are similar to those for a ship-to-ship transfer. The transfer of personnel from an oil rig, for example, is often dictated by the procedures and guidelines laid down by the jurisdiction applicable to the unit. Also, the difference with a ship-to-ship transfer, as opposed to a rig-to-ship transfer, is the fact that both ships are likely to be moving significantly. The regulations that apply to ships are much less clear. This edition addresses the issue of ship-to-ship transfer using ships' cranes.

The club has seen a number of recent incidents that have occurred during the transfer of personnel from a ship engaged in offshore loading or discharging operations. The consequences of these incidents have led to fatalities and severe injuries, which have resulted in substantial compensation claims.

Reported incidents include:

- back injuries when personnel were landed heavily on deck
- fatality when crane wire parted
- fatality when a person fell into the sea without wearing a life vest
- knee injuries – slipping on wet deck when disembarking the basket
- bruising injury caused by the basket swinging relative to the ship being transferred to and hitting the crash barrier
- injury caused as the basket hits an accommodation railing on the tug
- leg injury as the basket is accidentally swung against the boom of the crane of the ship being transferred to
- personnel tipped from the basket as the basket is trapped beneath an obstruction on the ship being transferred to

In recent years, more and more cargo transfer operations are being carried out offshore, many times outside a territorial state's waters. Due to the nature of the operations, these are often being carried out in deep water, with exposure to the weather and sea swell.

If the ship-to-ship transfer is within port limits, the port itself may have certain personnel transfer procedures that should be complied with. If the ship-to-ship transfer is taking place outside port limits but within a territorial jurisdiction then that state's laws may apply.

These offshore operations require personnel to be transferred from one ship to another, or from a ship to a launch or tendering anchor handler or tug. These personnel can be crew, mooring masters, surveyors, agents or customs officials. They are usually experienced, but not always.

Ships, usually tankers, that engage in such transfer operations may do so infrequently and therefore the ships' personnel are not necessarily as experienced, trained and equipped as those on offshore oil or construction platforms.

Transferring crew or personnel at sea is a dangerous activity. The Oil and Gas Producers (OGP) Safety Committee's recommended practice document lists three essential principles for lifting personnel:

- avoid doing so 'unless the risk has been demonstrated as being as low as reasonably practicable'
- carry out the lift according to a specific personnel lifting plan
- properly secure lifted personnel with lanyards

In locations that are within a harbour authority's jurisdiction, the preferred method of ship-to-ship transfer is often by a harbour authority launch. This option is not usually available when operating a long way offshore in open waters.

POLICY

The Safety Management System (SMS) must address the issue if ships are engaged in ship-to-ship transfers. It is not sufficient to allow such a high-risk operation to take place without a comprehensive policy, approved by the highest levels within the company. All ships must have proper procedures for critical operations. Transferring personnel falls into the category of critical operations. The consequences of not getting it right could be fatal.

The policy and procedures should consider the possible dangers, which include, but are not limited, to the following:

Dangers of offshore personnel transfer

- poor communication between ships, on deck or with the person being transferred, and language problems
- insufficient or inexperienced crew
- pendulum effect, where the basket starts to swing and injuries can occur
- back and neck injuries occurring when the basket is landed heavily on deck – particularly in poor weather
- poor crane performance
- crane failure, wires, blocks, hooks, hydraulics, brakes
- poor, inexperienced or untrained crane operator
- weather, sea state including swell, wave height and period, rain squalls, wind, poor visibility, air and sea water temperature or ice
- inability of ship to remain in position
- sudden movement of other ship
- night-time transfers: lighting, not being able to see the sea/weather
- crane driver not being able to see the lift when over the side
- not using the appropriate transfer equipment/basket
- not wearing the appropriate clothing and/or life-saving appliances
- commercial pressures



^ Offtake tanker preparing for ship-to-ship transfer operations

OFFSHORE STORAGE TANKERS

These ships are usually large seagoing tankers that are converted, equipped with large 'Yokohama'-type fenders and permanently moored by anchor/s or to a buoy. Tankers come alongside or use a floating hose to transfer cargo. Often these units are moored in benign waters.

These units, because they are permanently moored, should ensure that they have the policies, proper equipment and trained personnel for transferring personnel, if appropriate.

These will cover the same or similar issues that affect normal tankers engaged in ship-to-ship operations.

SHIPS NOT DESIGNATED AS OFFSHORE STORAGE TANKERS – CONVENTIONAL SHIPS

These ships would not normally call at offshore locations to load or discharge. The officers and crew may or may not be experienced in this type of operation. This is therefore a non-routine but potentially high-risk operation.

Ships should ensure that they have proper procedures, equipment and trained crew for transferring personnel.

These will include:

- company approved procedures for transferring personnel
- a crane designated for transferring personnel – this should be Class inspected if used on a regular basis
- survey and maintenance plans to ensure operational reliance
- trained crane operators
- designated and trained personnel as banksmen

v Two large tankers on ship-to-ship transfer operations



ROLES AND RESPONSIBILITIES

AUTHORITY – MASTER'S ROLE

Due to the high-risk nature of offshore personnel transfer using a crane, the master must be in charge of, or at least aware of, the transfer taking place and be confident that the procedures are being followed. The master should be the only person to authorise or permit personnel transfers to take place using personnel baskets and/or the ship's cranes.

He must confirm and/or satisfy himself about:

- the fitness and training of the people being transferred
- the suitability of the equipment and the ship being transferred to, including its station-keeping capability, the size, freeboard, lighting and whether there are any obstructions
- the limitations of wind speed, visibility and sea state
- the limitations and risks associated with night-time transfers
- the suitability of the crane being used: speed of lift, and condition of maintenance, wires and brakes
- that good, uninterrupted communication exists with the other ship
- that the operation has been discussed with the master of the other ship and that the procedure has been agreed
- that deck crews have been fully briefed
- that personnel being transferred have been fully briefed and are wearing life vests
- Personal Protective Equipment (PPE) and life-saving equipment is positioned and operational, including the fast rescue craft if fitted

COMMERCIAL PRESSURE

During these operations, considerable commercial pressure can be applied (directly or indirectly) to the master. There may be situations where the work or cargo transfer cannot start until a surveyor or mooring master has embarked, or the ship cannot complete cargo operations until the cargo surveyor has completed his readings or calculations, etc. The master may be trying to satisfy a number of interested parties. The transfer guidelines should unequivocally state and empower him to make a decision in the interest of safety.

Members should ensure that charterparty clauses are used that make this clear.

AUTHORITY – CRANE OPERATOR'S ROLE

The crane operator must be trained and experienced. If he is neither trained nor experienced in operating the crane then the transfer should not take place.

The crane operator should establish that:

- the risk assessment has been carried out
- the permit to work or equivalent is in place
- the master has authorised the operation
- the crane is fully operational
- the wind speed, sea state and visibility are satisfactory for the operation
- he has an unobstructed view of the transfer area and/or the banksman
- there is good communication with the banksman, duty officer and bridge

AUTHORITY – THE BANKSMAN AND OFFICER IN CHARGE

This person should be an experienced seaman, with full understanding of the operation. Ideally, this should be a responsible officer in charge of the deck.

The banksman is the person guiding the crane driver with directions (hand signals) when the crane driver does not have a full and clear view of the whole operation. The banksman must have a clear sighting at all times of both the person being transferred and the crane driver. The officer in charge may also be the banksman so long as he does not have any other duties at the time.

The banksman or officer in charge should ensure that:

- all the duties of the crane driver (see above) have been addressed
- the transfer procedure is understood
- he is clearly identified to the crane driver and all personnel involved
- the personnel transfer basket has been inspected
- the persons being transferred are briefed and understand the procedure
- common hand signals have been agreed and good communication exists with the crane driver and duty officer
- he has an unobstructed view of the crane driver and the ship to which the personnel are being transferred

PERSONNEL BEING TRANSFERRED – RESPONSIBILITIES

The personnel being transferred, whoever they report to or work for, must obey the procedures as directed by the master.

They must:

- ensure that the transfer procedure is understood
- confirm and agree that the transfer is to take place
- agree to wear a life vest
- agree and confirm that they will correctly use the safety equipment provided
- agree to abide to the instructions of the personnel in charge
- confirm that they are fit and well and not under the influence of alcohol or drugs

SUITABILITY OF THE SHIP BEING TRANSFERRED TO OR FROM

Before the transfer, the master must assess the suitability of the ship that personnel are being transferred to or from. This should include the:

- condition of the ship
- station-keeping ability of the ship (ability of the ship to remain stationary alongside in the prevailing conditions)
- availability of clear deck space, with no obstructions likely to injure personnel

Two ships carrying out ship-to-ship transfer operations



PROCEDURES

WEATHER

Even though the master can call off an operation at any time, most offshore operations should establish weather parameters that provide the master with guidance. These may be explicit instructions from the company (or charterer) stating that the operation should cease or not take place when the weather exceeds these specified conditions.

Examples of weather parameters may be as follows depending upon the circumstances and conditions:

- maximum wind strength of 20 knots
- combined sea/swell height of 3 metres
- minimum visibility of 300 metres
- maximum ship rolling of 3 degrees

COMMUNICATIONS

Visual and radio communication must be established by all parties involved, including the bridge.

Agreed hand signals must be used. Included with this *Standard Safety* is a copy of the hand signals agreed by the EU directive 92/58 EEC which are in common usage. There are other accepted national signals which may be used, so long as all parties know and accept the signals being used.



^ The crane driver should be trained and have a clear view of operations
Photo courtesy of Thome Offshore Management Pte Ltd (Singapore)

TRAINING OF KEY PERSONNEL, INCLUDING THE CRANE DRIVER

In view of the critical nature of the transfer operation, it is imperative that the person driving the crane has been trained and is experienced in its use. Normally, the crane driver is a member of the ship's crew. On an offshore oil rig, for example, the crane driver will have attended an offshore crane driver's course, which may involve weeks of instruction.

Driving the cranes has always been a part of the deck crew's duties, and crew members should be trained in the use and capabilities of all cranes onboard. This can be done ashore and/or by a company-approved shipboard training programme. The deck crew's training should be recorded.

The banksman also should be trained and have his training recorded. His training should include agreed hand signals with the crane driver and officer on deck. Inexperienced officers should not be placed in charge of this critical operation.

PERSONNEL LIFTING PROCEDURES AND INSTRUCTIONS

The personnel lifting procedures should be clear and easily understood and include:

- an understanding that only the master can authorise the transfer
- clearly designated tasks for key personnel
- clear guidelines and restrictions
- a risk assessment
- a permit to work system
- a final personnel transfer checklist for those carrying out the transfer
- guidelines for transfers in the hours of darkness: transfer operations should preferably be conducted during the hours of daylight; basket transfers in the hours of darkness should be done only in exceptional circumstances. If personnel transfer is to be done in darkness, good lighting must be available throughout and the master should explicitly agree to the transfer

Procedures for personnel riding on the basket

1. Have you been advised of the procedure?
2. Are you in good health, not suffering from vertigo or seasickness, and your capability not impaired by alcohol or drugs?
3. Always wear PPE and a life vest while riding a basket. In cold water conditions an immersion suit should be considered. Do not board a basket without a life vest.
4. Carry nothing in your hands when boarding or riding the basket.
 - Do not wear gloves or backpacks while riding in the basket, or be carrying or be burdened with equipment or heavy packs.
5. Place small hand carried items in the netted baggage area if fitted or have them passed down separately. Heavy or sharp items should always be passed down separately in an approved and safe manner such as crane lift, roped pallet/sling.
6. Hold the outer ropes, step onto the basket and position your feet as indicated by painted footprints if fitted on the basket floor.
7. Attach the safety lanyard. The safety lanyard serves as a fall restraint.
8. Pass your arms around the inner rigging ropes and cross your arms for more grip.
9. Bend your knees slightly to absorb any sudden movement or jarring of the basket. The basket should be equipped with cushion material to reduce jarring when landed.
10. If the basket contacts the boat at the top of a swell DO NOT STEP OUT OF THE BASKET. When the boat falls in the swell you could find a large drop from the basket.
11. The basket should contact the boat at the bottom of a swell if possible. Once it has landed securely on the boat jump clear.

OTHER PERSONNEL BASKET SAFETY PRECAUTIONS:

- be ready for the unexpected
- never stand under a suspended load
- never load the basket with more than the allowed maximum
- only transfer two passengers at a time during rough weather
- ensure a clear deck space in the landing area

PERSONNEL BASKETS

Personnel baskets should be examined regularly by a competent authority. Ideally, this should be an approved contractor from ashore. The Safe Working Load (SWL) should be clearly marked on all personnel baskets together with clear instructions for their use.

Guidance should be available for the maintenance, storage and care of personnel baskets. Refer to the manufacturer's recommendations.

The rigging of the transfer basket should be checked by a competent officer immediately before its use. The security of all shackles, safety slings and hooks should be checked. The crane hook pennant should be long enough to be clear of the personnel being transferred.



^Personnel being transferred should always be wearing PPE and life vests
Photo courtesy of Thome Offshore Management Pte Ltd (Singapore)



^Ensure that the personnel baskets are included in the planned maintenance programme

Photo courtesy of Thome Offshore Management Pte Ltd (Singapore)



^Ship's stores crane used for transferring personnel

Photo courtesy of Thome Offshore Management Pte Ltd (Singapore)

SAFETY EQUIPMENT AND RESCUE PROCEDURES

Personnel being transferred must wear life vests. If personnel being transferred refuse to wear a life vest then the transfer should not take place. Suitable approved life vests (complete with lights and sound signal equipment) should be available for the transfer of personnel. Consideration should be given to having these life vests regularly tested and certified by a competent shore authority.

Life-saving equipment should be on hand, including lifebuoys with lights, heaving lines and boathooks.

The ship should carry out a 'man overboard' rescue drill in the context of a ship-to-ship transfer operation if personnel transfers are likely to be carried out.

EQUIPMENT

CRANES

Cranes must be suitable for lifting personnel. Freefall or non-powered lowering arrangements should not be used.



^ Assess whether the crane is suitable for transferring personnel



^ Check the crane before the transfer of personnel to avoid an accident happening

A crane is a lifting appliance. On a ship, a lifting register is maintained, recording inspections, tests and overhauls of the equipment. The International Labour Organisation (ILO), a United Nations agency, governs the testing and examination of lifting gear on board ships of those flags that are signatories to the ILO convention, unless otherwise regulated by the Flag State. The ILO Occupational Safety and Health (Dock work) Convention 1979 (No. 152) applies to most ships. The convention lays down the regime for inspecting and testing wire rope, and maintaining records.

Cranes are, by their nature, subject to heavy usage, and the component parts – wires, blocks, hooks, brakes, operating controls, levers and handles, and hydraulics – are subject to damage. Rigorous inspection and testing is required to ensure that the equipment is maintained in good order. Company procedures with respect to lifting gear should be clear and unambiguous.

Because the ILO convention dictates the requirements for lifting appliances, there is a grey area regarding the use of lifting equipment normally fitted to lift cargo or cargo hoses being used for the purposes of transferring personnel.



^ Crane wires used for the transfer of personnel should be renewed regularly. European Community directives 89/655/EEC and 95/63/EC, for example, do not prescribe measures to be taken by an employer, but instead place the onus on the employer to ensure that all the lifting equipment fitted on a ship is appropriate for the intended purpose and is safe to use. The hose cranes used for offshore basket transfers for example should be reviewed to determine whether they are fit for the purpose of transferring personnel. The UK Maritime and Coastguard Agency, for example, in the Marine Guidance Note MGN 332 – Merchant Shipping Lifting Operations and Lifting Equipment Regulations 2006, regulation 7, states:

“Lifting Equipment for lifting persons.

1. The employer shall ensure that, except under the conditions required in (2), no lifting equipment shall be used for the lifting of persons unless it is designed for the purpose.
2. If in exceptional circumstances it is necessary to use lifting equipment which has not been specifically designed for the purpose, to lift persons, the employer shall ensure that:
 - the control position of the lifting equipment is manned at all times; and
 - persons being lifted have a reliable means of communication, whether direct or indirect, with the operator of the lifting equipment”

MGN 332 continues to state under regulation 9 – guidance note:

“The lifting of persons must only be carried out using appropriately designated and marked equipment. No other equipment should be used for the purpose.”

Therefore any lifting equipment or crane that has been designated for lifting personnel should be:

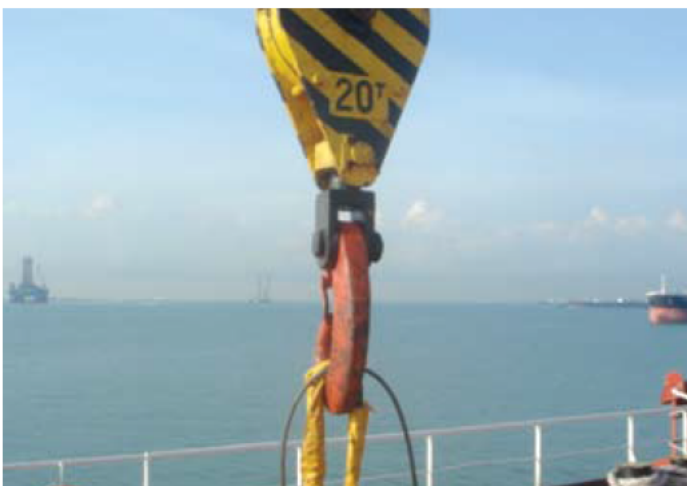
- reviewed that it is fit for transfer of personnel
- clearly marked that it is also used for that purpose
- included in the ship's planned maintenance system
- given enhanced inspection and testing, including by competent authorities ashore – this could include a routine changing of the hoisting wires and hooks, for example



^Hose handling crane – driver unable to see over ship's side



^Cargo hose handling crane



^Ship's stores crane hook; note the safety wire attached

Members should consider approaching Class to inspect and test cranes, particularly where the cranes are used for transferring personnel. Class would have to be specifically requested to classify such a crane as this would not normally be done.

RISK ASSESSMENT

In addition to the above, the following factors should be taken into account when carrying out the risk assessment:

- the necessity of the transfer
- the viable alternatives
- the limitations of the crane being used (reach/speed of lift, luffing raising/lowering)
- the presence of any obstructions during the lift

CONCLUSION

The issue of transferring personnel at sea is not a normal operation for most ships. It is also an operation that has not been regulated for and therefore if a personnel transfer has to go ahead good practices should prevail.

Using lifting equipment for transferring personnel is a high-risk operation. It should not be undertaken lightly and all of the above should be considered by ships engaged in transferring personnel at sea using the ship's lifting equipment.

References

- HSE offshore information sheet no/2007 – Guidance on procedures for the transfer of personnel by carriers
- HSE offshore information safety notice 10/80 APR
- 2001 – Guidance on procedures for the transfer of personnel by carriers
- IMCA & IADC – Guidelines on procedures for the transfer of personnel by basket
- MCA – CODE OF SAFE WORKING PRACTICES FOR MERCHANT SEAMEN
- MCA – Marine Guidance Note – MGN 20 (Health & Safety at Work Regs)
- Australian Offshore Support Vessel Code of Safe Working Practice – Appendix D Transfer of Personnel by Basket

SHIP-TO-SHIP PERSONNEL BASKET TRANSFER CHECK LIST

IF THE ANSWER TO ANY QUESTIONS IS NO, THE MASTER SHOULD BE ADVISED AND THE PERSONNEL TRANSFER RE-EVALUATED.

	YES	NO
1. Does the company have a personnel basket transfer procedure? _____		
2. Is the personnel transfer necessary? _____		
3. Has the master authorised the personnel transfer? _____		
4. Is the person being transferred in good health? _____		
5. Is the person being transferred wearing PPE and life vest? _____		
6. Has the person being transferred been briefed? _____		
7. Is the transfer basket in good condition with an inspection certificate? _____		
8. Is the crane suitable for personnel transfer in the prevailing conditions? _____		
9. Has the company approved the crane for lifting personnel? _____		
10. Are the crane wire and hooks in good condition? _____		
11. Has the crane, crane wire and fittings been inspected by a competent body? _____		
12. Is the crane driver experienced? _____		
13. Is the crane driver, banksman, duty officer aware of the hand signals? _____		
14. Is there good VHF radio communication between all involved parties? _____		
15. Is there communication with the ship being transferred to/from? _____		
16. Does the crane driver have a clear view of the banksman? _____		
17. Is there a competent officer overseeing the operation? _____		
18. Is the destined deck area free and clear of obstructions? _____		
19. Are the weather conditions within the company approved guidelines? _____		
—maximum wind _____		
—maximum sea and swell height _____		
—visibility _____		
—maximum vertical movement _____		
—maximum rolling of both ships _____		
—minimum sea temperature _____		
20. Is safety and rescue equipment available? _____		
21. Is the transfer being done in daylight? _____		

Standard Safety is published by the managers' London agents:

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