

SCHEDULE 6

Regulations 2(3), 5 and 6

LAUNCHING APPLIANCES AND EMBARKATION LADDERS

PART I

GENERAL

Launching Appliances – General Requirements

1.

1.1. Each survival craft and rescue boat launching appliance, together with all its launching and recovery gear, shall be so arranged that the fully equipped survival craft or rescue boat it serves can be safely lowered at a list of up to 20° either way and against a trim of up to 10°.

1.2. Davits, winches, falls, blocks and all other launching gear provided in accordance with these Regulations shall comply with the requirements of Parts II, III or IV this Schedule:

(1.2.1) after being boarded by its full complement of persons at the stowed position or from an embarkation deck, as appropriate;

(1.2.2) without persons in the survival craft or rescue boat.

Launching appliances using falls and a winch

2.

2.1. An efficient hand gear shall be provided for recovery of each survival craft and rescue boat.

2.2. Where davit arms are recovered by power, safety devices shall be fitted which will automatically cut off the power before the davit arms reach the stops in order to avoid overstressing the falls or davits, unless the motor is designed to prevent such overstressing.

2.3. A lifeboat launching appliance shall be capable of recovering and stowing the lifeboat with its launching crew.

2.4. Every rescue boat launching appliance shall be fitted with a powered winch motor of such capacity that the rescue boat, or lifeboat if it has been accepted as a rescue boat, can be raised from the water with its full rescue boat complement of persons and equipment to a position where the persons can be safely disembarked.

2.5. Every rescue boat launching appliance shall be capable of hoisting the rescue boat, or lifeboat in rescue boat mode, when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 metre per second.

2.6. Except in the case where a rescue boat is fitted with a single point suspension, every rescue boat carried in compliance with these Regulations shall be provided with means for facilitating the attachment of the lower fall blocks to the lifting arrangements of the boat when the boat is recovered from the sea in adverse weather conditions. For this purpose a recovery strop of adequate strength and suitable length shall be provided for each davit, and one end of the strop shall be attached to the lower fall block and the other end to the lifting arrangement on the boat. In addition means shall be provided for hanging off the boat after hoisting to enable the lower fall block to be attached directly to the lifting hook.

2.7. Every survival craft and rescue boat launching appliance shall be fitted with brakes, or equivalent devices, capable of stopping the descent of the survival craft or rescue boat and holding

it securely when loaded with its full complement of persons and equipment; brake pads shall, where necessary, be protected from water and oil.

2.8. Manual brakes shall be so arranged that the brake is always applied unless the operator, or a mechanism actuated by the operator, holds the brake control in the “OFF” position.

Float-free launching

3.

3.1. Where a survival craft requires a launching appliance and is also designed to float free, the float-free release of the survival craft from its stowed position shall be automatic.

Evacuation-slide launching and embarkation

4.

4.1. Every evacuation-slide launching appliance shall, in addition to complying with the applicable requirements of paragraph 1 also comply with the requirements of Schedule 5.

Instructions and Information

5.

5.1. Instructions and information required for inclusion in the training manual specified in Part I of Schedule 11 and in the instructions for on-board maintenance specified in Part II of Schedule 11 shall be in a form suitable for inclusion in such training manual and instructions for on-board maintenance. Instructions and information shall be in English in a clear and concise form and shall include the following:

- (5.1.1) description of launching appliance and winch, where provided;
- (5.1.2) operation for launching and recovery; and
- (5.1.3) maintenance.

Regulations 2(3), 5 and 6

PART II

LIFEBOAT AND RESUE BOAT LAUNCHING APPLIANCES

General

Definition of “Working Load”

1.

1.1. In this Part the expression “Working Load” means:

(1.1.1) in relation to davits to which paragraphs 2.1 and 2.2 apply, the sum of the weight of the lifeboat, its full equipment, the blocks and falls, and the maximum number of persons which the lifeboat is deemed fit to carry, the weight of each person being taken to be 75 kg.;

(1.1.2) in relation to winches the maximum pull exerted by the fall or falls at the winch drum during lowering, hoisting or stowing which in any case is to be taken as not less than the working load on the davit or davits divided by the velocity ratio of the lowering tackle.

Construction

General

2.

2.1. Every set of davits for a lifeboat or rescue boat shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship's crew shall be readily accessible and easily maintained.

2.2. A set of davits for a lifeboat and rescue boat shall not depend on any means other than gravity or stored mechanical power which is independent of the ship's power supplies to launch the lifeboat or rescue boat it serves in the fully loaded and equipped condition and also in the light condition. If the rescue boat is dedicated rescue boat the mechanical power need not be independent of the ship's power supplies.

2.3. The arrangements of the davits shall be such as to enable safe boarding of the lifeboat in accordance with the requirements of paragraph 3.11 of Part I of Schedule 1.

2.4. If partially enclosed lifeboats are carried, a davit span shall be provided, fitted with not less than two lifelines of sufficient length to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim and with the ship listed not less than 20° either way.

Strength

3.

3.1. Every davit serving a lifeboat which is required to be boarded and launched from the stowed position and put into the water when loaded with its full complement of persons shall, together with its winch, falls, blocks and all other associated launching equipment, be of such strength that the lifeboat with its full equipment can be turned out and then safely lowered into the water from the stowed position with its full complement of persons, when the ship has a list of up to 20° either way and a trim up to 10°.

3.2. Every davit serving a lifeboat which is required to be boarded and launched from an embarkation position and put into water when loaded with its full complement of persons shall, together with its winch, falls, blocks and all other associated lowering gear, be of such strength that the lifeboat with its full equipment and manned by a launching crew of not less than two persons can be turned out and then safely lowered into the water from the embarkation position with its full complement of persons, when the ship has a list of up to 20° either way and a trim of up to 10°.

3.3. Every set of davits, davit or other means of launching to which a lifeboat is attached, together with its winch and associated gear shall be of such strength that the lifeboat can be hoisted with launching crew of at least two persons and its full equipment at a rate of not less than 0.05 metre per second when a powered winch is fitted. When an unpowered winch is fitted the hoisting rate shall be not less than 0.01 metre per second.

3.4. Every set of davits, davit or other means of launching to which a rescue boat is attached shall be fitted with a powered winch and shall, together with its associated gear, be of such strength that the boat to which it is attached can be hoisted when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 metre per second. When a lifeboat is designated as a rescue boat, the davits, davit or other means of launching shall be capable of hoisting the boat to a disembarkation position at a rate of not less than 0.3 metre per second when loaded with its full rescue boat complement, or 6 persons whichever is the greater, and its full lifeboat equipment.

Gravity davits

4.

4.1. All gravity davits shall be so designed that there is a positive turning out moment during the whole of the davit travel from the inboard to the outboard position when the vessel is upright and also when the vessel is listed at any angle up to and including 30° either way from upright, or 10° more than the angle required by paragraph 1.2 of Part I of this Schedule. In the case of gravity type davits comprising arms mounted on rollers which engage with and travel down fixed inclined trackways, the trackways shall be inclined at an angle of not less than 35° to the horizontal when the vessel is upright.

Luffing davits

5.

5.1. The operating gear of all luffing type davits shall be of sufficient power to ensure that the lifeboats or rescue boats fully equipped and carrying:

(5.1.1) the total number of persons they are certified to carry; or

(5.1.2) a launching crew of not less than two persons when boarded at an embarkation deck can be turned out against a list of at least 20°.

Stresses

6.

6.1. Structural members and all block falls, padeyes, links, fastenings and all other fittings used in connection with launching equipment shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and bowsing tackle and tricing pendants where required and a minimum factor of safety of 6 shall be applied to falls, suspension chains, links and blocks.

Static load test

7.

7.1. Each davit, and its attachments, shall, with its arm in any position which gives a maximum stress concentration be capable of withstanding a static test load, in a direction simulating a 20° list or such greater angle as required by paragraph 2.1 of Part I of this Schedule and 10° trim, of not less than 2.2 times that part of the working load supported by the arm, or attachment.

Attachments at the davit head

8.

8.1. The attachments at the davit head from which the blocks are suspended shall be capable of withstanding a proof load test of not less than 2.2 times the maximum load on them.

Blocks

9.

9.1. Lower blocks, when fitted, shall be non-toppling and in the case of rescue boats provision shall be made to prevent the falls from cabling. The size of blocks shall be commensurate with the size of the falls.

9.2. The blocks shall be capable of withstanding a proof load test of not less than 2.2 times the maximum load it is intended to carry in service. The clearance between the sheaves and the cheeks of the blocks in which wire rope is used shall be kept to a practical minimum to prevent the rope from overriding the rim of the sheave of any block or load sheave. Component parts of blocks other than their sheaves shall be of ductile material.

Wire ropes

10.

10.1. Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

10.2. The breaking tensile load of each wire rope used for lowering lifeboats or rescue boats shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

10.3. Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the lifeboat or rescue boat is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

10.4. Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

10.5. Lifeboats and rescue boats attached to davits shall have the falls ready for service, and the falls shall be at least long enough to reach the water with the ship at her lightest sea-going draught under unfavourable conditions of trim and listed to 20° either way. Disengaging gear complying with the requirements of Part III of Schedule 1 or Part IV of Schedule 2, shall be provided for detaching the lifeboat or rescue boat from the falls.

Winches

11.

11.1. In the case of a multiple drum winch, unless an efficient compensatory device is fitted, the falls shall be so arranged as to wind off the drums at the same rate when lowering, and to wind on to the drums evenly at the same angle when hoisting and the lead blocks shall be arranged to give a fleet angle or angle of lead of not more than five degrees for grooved drums and three degrees for ungrooved drums. In the case of mechanically controlled single-arm davits, the lead of the wire rope fall shall be such that the fall winds evenly on the drum.

11.2. Winch breaks shall be of robust construction and afford complete control and limitation of speed in the operation of lowering. The hand brake shall be so arranged that it is normally in the "ON" position and returns to the "ON" position when the control handle is not being operated. The mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes shall be of sufficient strength to withstand:

(11.2.1) a static test with a proof load of not less than 1.5 times the maximum working load; and

(11.2.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at maximum lowering speed.

11.3. The speed at which the fully laden lifeboat or rescue boat with its equipment and launching crew is lowered into the water shall be not less than that obtained from the formula:

$$S = 0.4 \sqrt{0.02 \times H}$$

where

S= speed of lowering in metres per second and

H=height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition.

In the case of a ship where “H” exceeds 30 metres the lowering speeds need not exceed 1 metre per second. The lowering speed of the light craft shall be within 70% of the speed required above.

11.4. Notwithstanding the requirements of paragraph 11.3 the speed of lowering shall not exceed 1.3 metres per second.

11.5. The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 11.3 and 11.4. A ratchet gear shall be incorporated in these winches.

11.6. Hand gear handles shall not be rotated by moving parts of the winch when the lifeboat or rescue boat is being lowered or when it is being hoisted by power. Provision shall be made to allow the falls to be manually unwound.

11.7. The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship’s deck. The launching and recovery arrangements shall be such that the winch operator on the ship’s deck is able to observe the craft at all times during launching and recovery. Regulations 2(3), 5 and 6

PART III

LIFERAFT LAUNCHING APPLIANCES

General

Definition of “Working Load”

1.

1.1. In this Part the expression “working load” means:

(1.1.1) the sum of the mass of the liferaft and its equipment, all other associated gear that is supported by the launching appliance during the lowering operation and the maximum number of persons which the liferaft is deemed fit to carry, the mass of each person being taken to be 75 kg.

Construction

General

2.

2.1. Each liferaft launching appliance shall be so constructed that a minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship’s crew shall be readily accessible and easily maintained.

2.2. A liferaft launching appliance shall not be solely dependent on the use of means other than manual effort, gravity or stored mechanical power which is independent of the ship’s power supplies to launch the liferaft. The arrangements shall be such that the liferaft can be lowered in the fully loaded and equipped condition by gravity.

2.3. The arrangements of the launching appliance shall be such as to enable safe boarding of the liferaft in accordance with the requirements of paragraph 6.3 of Part I of Schedule 4.

Strength

3.

3.1. Every launching appliance serving a liferaft which is required by these Regulations to be put into the water when loaded with its full complement of persons shall, together with its winch, falls, blocks and all other associated launching equipment, be of such strength that the liferaft with its full equipment can be safely lowered into the water from the embarkation position with its full complement of persons, when the ship has a list of up to 20° either way and a trim of up to 10°.

Stresses

4.

4.1. Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with a launching appliance shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all davit and winch structural members, and a minimum factor of safety of 6 shall be applied to falls, links and blocks.

Static load test

5.

5.1. Every launching appliance and its attachments other than the winch brakes shall be capable of withstanding a static test load, in a direction simulating a 20° list and 10° trim of not less than 2.2 times the maximum working load.

Wire ropes

6.

6.1. Falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

6.2. The braking tensile load of each wire rope used for lowering shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

6.3. Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the liferaft is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

6.4. Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

6.5. The falls of a liferaft launching appliance shall be at least long enough to reach the water with the ship at her lightest sea-going draught under unfavourable conditions of trim and listed to 20° either way.

Winches

7.

7.1. Winch brakes shall be of robust construction and afford complete control and limitation of speed in the operation and lowering. The hand brake shall be so arranged that it is normally in the "ON" position and returns to the "ON" position when the control handle is not being operated. The mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes of a launching appliance shall be of sufficient strength to withstand:

(7.1.1) a static load test with a proof load of not less than 1.5 times the maximum work load; and

(7.1.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at the maximum lowering speed.

7.2. The speed at which the fully laden liferaft is lowered into the water shall be not less than that obtained from the formula:

$$S = 0,4 + (0,02 \times H)$$

where

S= speed of lowering in meters per second and

H= height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition.

In the case of a ship where “H” exceeds 15 metres the lowering speeds need not exceed 0.7 metre per second.

7.3. Notwithstanding the requirements of paragraph 7.2 the speed of lowering shall not exceed 1 metre per second.

7.4. The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 7.2 and 7.3. A ratchet gear shall be incorporated in these winches.

7.5. Hand gear handles shall not be rotated by moving parts of the winch when the liferaft is being lowered or hoisted by power.

7.6. The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship’s deck. It shall also be operable by one person from within the liferaft. The launching arrangements shall be such that the winch operator on the ship’s deck is able to observe the liferaft at all times during the lowering.

7.7. If the lowering of the liferaft is actuated from within the raft by means of a control wire paid off from an auxiliary drum on the winch:

(7.7.1) the mass of the control wire shall be sufficient to overcome the friction of the various pulleys on the control wire;

(7.7.2) the winch brake shall be operable from within the liferaft;

(7.7.3) the winch brake shall not be affected by the mass of the fully extended control wire nor the wind effects on it; and

(7.7.4) there shall be sufficient length of control wire available at the liferaft during all stages of lowering.

Release of the liferaft

8.

8.1. The launching appliance shall be so arranged as to prevent premature release during the lowering of the liferaft but shall be such that on becoming waterborne the raft shall be automatically released from the release hook which shall comply with requirements of Part V of Schedule 4. Regulations 2(3), 5 and 6

PART IV

INFLATED BOAT LAUNCHING APPLIANCES

General

Definitions

1.

1.1. In this Part the expression “working load” means the sum of the masses of:

(1.1.1) the inflated boat and its full equipment;

(1.1.2) the blocks and falls;

(1.1.3) a launching crew of 2 persons each of mass 75 kg.; and

(1.1.4) a mass of 60 kg. or the mass of the engine together with its fuel tank and sufficient fuel for two hours operation, whichever is the greater.

1.2. In this Part the expression “inflated boat” means any inflated boat or rigid inflated boat other than a dedicated rescue boat.

Construction

General

2.

2.1. Every inflated boat launching appliance shall be so constructed to be:

(2.1.1) capable of recovering the inflated boat and bringing it on board the ship;

(2.1.2) readily available and not stowed or used for any purpose other than the launching of the inflated boat whilst the ship is at sea; and

(2.1.3) provided with a suitable means for manual operation.

2.2. Each launching appliance shall be so constructed that the minimum amount of routine maintenance is necessary. All parts requiring regular maintenance by the ship’s crew shall be readily accessible and easily maintained.

2.3. A launching appliance shall be dependent only on manual effort, gravity or stored mechanical power which, if the boat is part of the ship’s statutory live saving appliances, is independent of the ship’s power supplies when used to launch the inflated boat. The arrangement shall be such that the inflated boat can be lowered by gravity when loaded in accordance with paragraph 1.1.3 and 1.1.4 and with its full equipment.

Strength

3.

3.1. Every launching appliance serving an inflated boat shall, together with its winch if fitted, falls, blocks and other associated lowering gear be of such strength that the inflated boat with its full equipment can be safely lowered into the water from the embarkation position with a complement of 2 persons, when the ship has a list of up to 20 degrees either way and a trim of up to 10 degrees.

Stresses

4.

4.1. Structural members and all blocks, falls, padeyes, links, fastenings and all other fittings used in connection with a launching appliance shall be designed with not less than a minimum factor of safety on the basis of the maximum working load assigned and the ultimate strength of the material used for construction. A minimum factor of safety of 4.5 shall be applied to all structural members and a minimum factor of safety of 6 shall be applied to the falls, links and blocks.

Static load test

5.

5.1. Every launching appliance and its attachments other than the winch brakes shall be capable of withstanding a static test load, in a direction simulating a 20° list and 10° trim of not less than 2.2 times the maximum working load.

Winches

6.

6.1. Every such launching appliance shall be provided with a winch when the inflated boat is situated more than 4.5 metres above the lightest sea going waterline.

6.2. Winch brakes shall be of robust construction and afford complete control and limitation of speed in the operation of lowering. The hand brake shall be so arranged that it is normally in the “ON” position and returns to the “ON” position when the control handle is not being operated. The mass of the brake lever shall be sufficient to operate the brake effectively without additional pressure. The winch brakes of a launching appliance shall be of sufficient strength to withstand:

(6.2.1) a static load test with a proof load of not less than 1.5 times the maximum working load; and

(6.2.2) a dynamic test with a proof load of not less than 1.1 times the maximum working load at the maximum lowering speed.

6.3. The speed at which the inflated boat is lowered into the water shall be not less than that obtained from the formula:

$$S = 0.4 + (0.02 \times H)$$

where

S= speed of lowering in metres per second and

H= height in metres from davit head, at the outboard position, to the waterline at the lightest seagoing condition

In the case of a ship where “H” exceeds 30 metres the lowering speeds need not exceed 1 metre per second.

6.4. Notwithstanding the requirements of paragraph 6.3 the speed of lowering shall not exceed 1.3 metres per second.

6.5. The brake gear of the winch shall include means for automatically controlling the speed of lowering to within the limits specified in paragraphs 6.3 and 6.4. A ratchet gear shall be incorporated in the winch.

6.6. Hand gear handles shall not be rotated by moving parts of the winch when the inflated boat is being lowered or hoisted by power.

6.7. The launching mechanism shall be so arranged that it may be actuated by one person from a position on the ship's deck. The launching arrangements shall be such that the winch operator on the ship's deck is able to observe the boat at all times during the lowering.

Wire rope falls

7.

7.1. Wire rope falls shall be of rotation-resistant and corrosion-resistant steel wire rope.

7.2. The breaking tensile load of each wire rope used for lowering shall be not less than six times the maximum load on the wire rope when lowering, hoisting or stowing.

7.3. Wire ropes shall be securely attached to the drum of the winch, and the end attachments of the wires and other parts from which the inflated boat is to be suspended shall be capable of withstanding a proof load of not less than 2.2 times the load on such attachments and other parts.

7.4. Where wire rope splices or ferrule-secured eye terminals are used they shall be capable of withstanding a proof test of not less than 2.2 times the load imposed on them in service.

7.5. The falls of the inflated boat launching appliance shall be at least long enough to reach the water with the ship at her lightest sea-going condition under unfavourable conditions of trim and listed to 20° either way.

Cordage rope falls

8.

8.1. Cordage rope falls shall be of manila or some other suitable material and shall be durable, unkinkable, firm laid and pliable. They shall be able to pass freely under any conditions through a hole 10 millimetres larger than the nominal diameter of the rope. The breaking load of each rope used for lowering inflated boats shall be not less than 6 times the maximum load on the rope when lowering or hoisting. Winding reels or flaking boxes for the manila rope falls shall be provided.

8.2. Such falls shall be at least long enough to reach the water with the ship at her lightest sea-going condition and listed to 20° either way.

Bollards

9.

9.1. Suitable bollards or other equally effective appliances for lowering any inflated boat shall be provided in all cases where cordage rope falls are used. Such bollards or other appliances shall be sited so as to ensure that the inflated boat served by them can be safely lowered, the fairleads or lead sheaves shall be fitted so as to ensure that it shall not be lifted during the process of turning out or swinging out.

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PART V

EMBARKATION LADDERS

Construction

1.

1.1. The steps of the embarkation ladder shall be:

(1.1.1) made of hardwood, free from knots or other irregularities, smoothly machined and free from sharp edges and splinters, or of suitable material of equivalent properties;

(1.1.2) provided with an efficient non-slip surface either by longitudinal grooving or by the application of an approved non-slip coating;

(1.1.3) not less than 480 mm long, 115 mm wide and 25 mm in depth, excluding any non-slip surface or coating; and

(1.1.4) equally spaced not less than 300 mm or more than 380 mm apart and secured in such a manner that they will remain horizontal.

1.2. The side ropes of the embarkation ladder shall consist of two uncovered manila ropes not less than 65 mm in circumference on each side. Each rope shall be continuous with no joints below the top set. Other materials may be used provided the dimensions, breaking strain, weathering, stretching and gripping properties are at least equivalent to those of manila rope. All ends shall be seized or secured to prevent unravelling.