CARGO HANDLING GEAR

GENERAL REGULATIONS

1. All cargo handling gear is to be designed for a boom angle of 15 degrees with the horizontal for booms up to 8 tons working load (2240 lbs. per ton). For booms and derricks over 8 tons, the minimum boom angle shall be 25 degrees with the horizontal plane.

2. All masts, kingposts, booms, pins, shackles, chains, fittings, and other gear are to be designed with a factor of safety of 5.0, including standing and running rigging.

3. Steel of uniform quality and to requirements and approval of the American Bureau of Shipping is to be used throughout.

4. Chafing between fittings caused by swinging booms or loads shall be avoided wherever possible in order to prevent gradual decrease of sectional area. Fittings for topping lift blocks and/or similar attachments, shall consist of swivels and pins of ample size to prevent undue wear by chafing, binding, or bending.

5. Allowable margins of wear and tear: Chains, shackles, bolts, swivels, chainplates, eyebolts and other forgings should be renewed if the dimensions have diminished more than 15%.

Steel plates or angle constructions should be renewed if the dimensions have diminished more than 25%.

If it should appear that the part has originally been constructed heavier than required in these rules, a larger margin of wear and tear may be allowed in special cases.

Steel wire should be renewed in case of serious rust formation or if more than 10% of the composing wires have been broken within a distance of 10 times the circumference of the cable.

Boom topping lifts of steel wire may in no case be used for a period of time longer than 8 years.

(a) In case of important alterations or renewals, as well as after an accident, the retesting of rigging or gear is required before it is put back into use.

6. No single links or any chain shall be used unless it is machine tested and entered into the Certificate, Form M.C.H. III.

BOOM TEST

7. All cargo handling gear including booms, derricks, cranes, winches, etc., are to be tested before delivery of new vessels and once every four years thereafter in the manner described below:

8. The tests are to be conducted in the presence and to the satisfaction of a Government Inspector.

9. At testing time the entire cargo handling equipment, including winches, electrical equipment, boom stowage, etc., must be complete.

10. Current for winch operation during the test must be taken from the ship's generators and through the ship's cables. Shore wiring or temporary wiring will not be permitted.

GENERAL REGULATIONS (CONT.)

11. Booms are to be tested with an overload of 25% for loads up to 50 tons, but this overload not to exceed 5 tons.

Pig iron, water filled tanks, or any other load that can be safely attached to the cargo hook may be employed as the test load.

12. Every boom up to 8 tons is to be tested with a boom angle of 15 degrees to the horizontal, the full test load specified in paragraph 11 is to be swung inboard and outboard as far as obstructions permit.

Only one boom at each hatch will be required to lower its full test load to the tank top and back again.

The vang-tackles for booms up to 8 tons may be operated by hand or by winch power during the tests at the discretion of the inspectors.

13. Hook speed is required to be tested only for booms up to 8 tons and for one winch only, provided all winches are from the same manufacturer.

14. Both the electro-magnetic and mechanical brakes must be able to stop and hold the load, instantly and independently from each other, in any position of the hook.

15. The heavy goods boom (over 8 tons) shall be tested in substance as described above and as detailed below:

(a) Top the boom at a 25 degree angle to the horizontal.

(b) Lift load as prescribed in paragraph 11 from either deck, lighter, or pier.

(c) Top the boom high enough to clear obstructions and swing load over the hatch.

(d) Top the boom under full load to the last quarter of the hatch nearest the boom.

(e) Test both brakes separately and diligently to avoid accidental slipping of the load.
Avoid sudden stops.
Lower the test load to deck, lighter or pier.

(f) Vang tackles must be winch operated.
For booms over 30 tons the vang purchase is to be made of steel blocks and wire rope.

(g) Lifting and swinging tests as under (a) to (e) only are required, no other lifting or lowering into the hold, etc.

16. It must be demonstrated that all topping lifts are long enough to lower the boom into the boom crotch with at least three turns of the wire rope still on the gypsy head or winch drum. The end of the wire rope must be hooked to or otherwise securely fastened to the gypsy head or winch drum.

17. The cargo whip must be long enough to lower the hook to the tank top at the last quarter of the hatch nearest to the boom, with at least three turns of the rope still remaining on the drum, and with the end of the wire rope securely fastened to the drum.

18. If wire rope instead of long lift topping chains is used, demonstrate the transfer of the topping lift wire from the gypsy head to cleats by means of the wire clamp and tackle.

This demonstration is required for one boom at each hatch only, but the Inspector must be definitely sure

GENERAL REGULATIONS (CONT.)

that the pads and cleats for all other booms are in their proper location and of the proper size.

Cleats and bitts for belaying topping lift wires are to be of ample proportions to avoid accidental slipping of the wire rope.

19. After the completion of these tests as described above, a thorough and careful examination is to be made of all gear to assure that no permanent deformation, chafing or scoring of pins, pads, cleats and other fittings or gear has taken place; nor must there be any other evidence of overstraining, faulty design or poor workmanship.

20. The capacity must be clearly marked on all booms, winches, blocks, chains, etc., either by stamping, center punching, or similar indelible and durable methods.

These capacities are to be underlined with a white paint line about 1" wide, or framed by a white square.

In addition, the minimum angle to the horizontal at which the safe working load may be applied, must be marked on all booms.

21. A Certificate of standard form No. M.C.H. II of the tests as conducted above is to be attached to the Register of Cargo Gear.

A stress diagram shall accompany this Certificate, giving the size, length, diameter, etc., of the masts, kingposts and booms; also the diameter of wire rope, pins, blocks, and all important fittings.

The diagram shall show the stresses at 15-degree and 25-degree angles to the horizontal as described in paragraph 1, these angles being the lowest practicable angles producing the maximum stresses.

In addition to the Certificate of complete cargo handling gear, Form M.C.H. II, one Certificate of blocks, chains, etc., Form M.C.H. III, and one Certificate of wire rope, Form M.C.H. IV, shall be included in the Register of Cargo Gear.

22. A thorough inspection of the entire cargo handling goar, including winches, is to be made once a year in the presence of a Government Inspector. The dates of these inspections shall be entered in this Register.

23. All chains attached to the booms and lifting gear and all rings, hooks, shackles and swivels used in hoisting or lowering in connection with the loading or unloading of the ship shall be effectively annealed by a competent plant as follows:

(a) All chains, rings, hooks, shackles and swivels in general use, once every twelve months.

(b) A record shall be kept in the Register Of Cargo Gear, indicating the dates of each annealing and the names of the annealing plants.

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