

## **SCHEDULE- I.**

[See rules 56(a), 70(a) and 71]

Manner of test and examination before taking lifting appliance, lifting gear and wire rope into use for the first time.

### **Test Loads:**

1. **Lifting appliances.** - Every lifting appliance with its accessory gear, shall be subjected to a test load which shall exceed the safe working load (SWL) as specified in the following table: -

**Table**

<b>Safe Test load.</b>	<b>Test load.</b>
Up to 20 tonnes	25 percent in excess of safe working load.
20 to 50 tonnes	5 tonnes in excess of safe working load
Over 50 tonnes.	10 percent in excess of safe working load

2. **Lifting gear.** - (a) Every ring, hook, chain, shackle, swivel, eye- bolt, plate clamp, triangular plate or pulley block except single sheave block shall be subjected to a test load which shall not be less than the load as specified in the following table: -

**Table**

<b>Safe Working Load(in tonnes)</b>	<b>Test load (in tonnes)</b>
Up to 25	2x safe working load
above 25	(1.22 x safe working load) + 20

(b) In case of a single sheave block, the safe working load shall be the maximum load which can safely be lifted by the block when suspended by its head fitting and the load is attached to a rope which passes around the sheave of the block and a test load not less than four times the proposed safe working load shall be applied to the head of the block.

(c) In the case of a multi sheave block the test load shall not be less than the Load as specified in the following table: -

**Table**

Safe Working Load(in tonnes)	Test load (in tonnes)
Up to 25	2x safe working load
above 25	2x safe working load
25 to 160	$(0.9933 \times \text{safe working load}) + 27$
above 160	1.1 x safe working load.

(d) In the case of hand- operated pulley blocks used with pitched chains and rings, hooks, shackles or swivels, permanently attached thereto, a test load not less than 50 per cent in excess of safe working load shall be applied.

(e) In the case of a pulley block fitted with a bucket, the bucket shall be tested and the load applied to the bucket when testing that block will be accepted as test load of the bucket.

(f) In the case of a sling having two legs, the safe working load shall be calculated when the angle between the legs is 90 degree. In case of multi- legged slings the safe working load shall be calculated as per national standards.

(g) Every lifting beam lifting frame, container spreader, buckets tub, or other similar devices shall be subjected to a test load which shall not less than the load as specified in the following: -

**TABLE**

Safe Working Load(in tonnes)	Test load (in tonnes)
Up to 10	2x safe working load
10 to 160	$(1.04) \times \text{safe working load} + 9.6$
above 160	1.1x safe working load.

(h) Wire ropes. - In the case of wire ropes a sample shall be tested to destruction. The test procedure shall be in accordance with recognized national standards. The safe working load of the rope is to be determined by dividing the load at which the sample broke by a coefficient of utilization, determined as specified in the following table: -

**TABLE**

Item	Co- efficient of utilisation.
(1)	(2)
(a) Wire rope forming part of sling safe working load of the Sling: Safe working load up to and equal to ten tonnes. Safe working load above ten tonnes and up to and equal to 160 tonnes.	5 <hr/> 10 (8.85x SWL)+1910
(1)	(2)
(b) Safe working load above 160 tonnes. Wire rope as integral part of lifting appliance: SWL of the lifting appliance; Safe working load upto and equal to 160 tonnes	3 10 <hr/> (8.85x SWL)+1910

(i) Before any test is carried out, a visual inspection of the lifting appliance or lifting gear involved shall be conducted and any visible defective gear shall be replaced or renewed.

(j) After being tested, all the lifting gears shall be examined to see whether any parts have been injured or permanently deformed by the test.

**Procedure for testing.** -

- (3) **Derricks.** - (a) A derrick shall be tested with its boom at the minimum angle to the horizontal for which the derrick is designed (generally 15 degrees) or at such greater angle as may be agreed. The angle at which the test has been carried out shall be mentioned in the test certificate. The test load shall be applied by hoisting moveable weights. During the test, the boom shall be swung with the test load, as far as practicable in both directions.
- (b) A derrick boom, designed to be raised with power, with the load suspended, shall, in addition to the tests at (a) be raised (with the load suspended) to its maximum working angle to the horizontal and the two outermost positions.
- (c) While test loading of a heavy lift derrick, the competent person responsible for tests using moveable weights shall ascertain from the owner of the vessels or floating platform that the stability of the vessel or platform is adequate for the test.
- (4) The derricks tested under clause (3) shall not be used in union purchase rig unless:
- (a) The derricks rigged in union purchase are tested with the test load appropriate to the SWL in union purchase (at the designed headroom and with the derrick booms in their approved working position): -
- (b) The safe working load of that derrick in union purchase rig has also been specified by a competent person in a report in Form- V.
- (c) Any limitations or conditions specified in the said report are complied with :  
and
- (d) The two hoist ropes are coupled together by a suitable swivel assembly.
- Note.* - The safe working loads of derricks (for each method of rig including union purchase) shall be shown on the certificate of test and marked on the derrick booms.
- (5) **Lifting appliances.** - (a) the test load shall be lifted and swung, as far as possible, in both directions. If the jib or boom of the crane has a variable radius, it shall be tested with test loads at the maximum and the minimum radii. In case of hydraulic cranes when owing to the limitation of pressure, it is impossible to lift a test load in

accordance with table under item (1), it will be sufficient to lift the greatest possible load which shall be more than safe working load.

(b) the test shall be performed at maximum/ minimum and intermediate radius points as well as such points in the arc of rotation as the competent person may decide. The test shall consist of hoisting, lowering, breaking and swinging through all positions and operations normally performed. An additional test shall be made by operating the machinery at maximum working speed with the SWL suspended.

(6) **Use of spring or hydraulic balances, etc. for the test loading.** - All tests shall normally be carried on with the help of dead weights. In use of periodical test, replacements or renewals, test load may be applied by means of a suitable springs or hydraulic balances. In such case, test load shall be applied with the boom as for out as practicable in both directions. The test shall not be taken as satisfactory unless the balance has been certified for accuracy by the competent authority within 2.0 % and the pointer of the machine has remained constant at the test load for a period of at least five minutes.

(7) **Testing machine and dead weights.** - (a) a suitable testing machine shall be used for testing of chains, wire ropes and other lifting gears.

(b) testing machines and balances to be used in test loading , testing and checking shall not be used unless they have been certified for accuracy at least once in the proceeding 12 months by the competent authority.

(c) Moveable weights used for the test loading of the lifting appliances having a safe working load not exceeding 20 tones shall be checked for accuracy by means of suitable weighing machine of certified accuracy.

(8) **Through examination after testing or test loading.** - After tested or test loaded, every lifting appliances and associated gear shall be thoroughly examined to see that no part has been damaged or permanently deformed during the test. For this purpose, the lifting appliance or gear shall be dismantled to the extent considered necessary by the competent person.