EXTRA ORDINARY **REGISTERED NO. P.111**

GOVERNMENT **G A Z E T T E.**

NORTH- WEST FRONTIER PROVINCE

Published by Authority.

PESHAWAR, WEDNESDAY, 30TH JUNE, 1976.

GOVERNMENT OF NORTH -WEST FRONTIER PROVINCE LABOUR DEPARTMENT.

———

NOTIFICATION.

28th June, 1976.

No. SOL-V-240/ 75—In exercise of the powers conferred by section 46 of the North-West Frontier Province Standard Weights and Measures Enforcement Act, 1976 (N. W. F. P. Act III of 1976), the Government of the North-West Frontier Province, after taking into consideration draft rules previously published under this Department's Notification No. SOL-V-240/75, dated the 22nd May, 1975, in the Extra-ordinary Issue of the Government Gazette, dated the 28th May, 1976, are pleased to make the following rules, namely:-

THE N.W.F.P. STANDARD WEIGHTS AND MEASRUES ENFORCEMENT RULES, 1976.

RULES.

1. Short title, extent and commencement - (1) These rules may be called the North-West Frontier Province Standard Weights and Measures Rules, 1976.

(2). They shall apply to such area or in respect of such undertaking and goods to which the North-West Frontier Province Standard Weights and Measures Enforcement Act, 1976, applies.

(3) They shall come into force on such date as Government may, by notification, appoint.

2. Definitions- In these rules, unless there is anything repugnant in the subject or context,-

(a) "Act" means the North-West Frontier Province Standard Weights and Measures Enforcement Act, 1976;

*1 "(aa). 'Calibration' means the set of operations which establish, under specified conditions, the relationship between values indicated by a measuring instrument or measuring system or values represented by a material measure, and the corresponding known values of the measurand;

*2 (ab). 'Certification' means the activity to indicate in the transaction of trade and commerce that a certain fact is true and includes the act of certifying the result of calibration or a verification of any weight or measure, or weighing instrument or measuring instrument;

*3 (ac). 'Legal metrology' means that part of metrology which:-

(i). relates to units of weights and measures, methods of measurement, and weighing and measuring instruments, and

(ii). is concerned with the technical requirements and statutory provision to safeguard the public from the point of view of security and accuracy of measurement;"

*4 (ad). 'Measurand' means the quantity intended to be measured;

*5 (ae). 'Measurement standards' means physical representation of the SI Units of measurement or Units of the International System of Weights and Measures and shall include the International Standards, Primary National Standards, Secondary Standards, Reference Standards, Working Standards and Commercial Standards of the Weights and Measures

*6 (af). 'Protection' means the utilization of any weight or measure, or any reading obtained with the help of any weight or measure, for the purpose of determining whether or not any step is required to be taken to safeguard the well being of any human being or animal, or to protect any commodity, vegetation or thing, whether individually or collectively.

(b). "Provincial Laboratory" means the laboratory established by Government;

---

*1, *2, *3,*4,*5,*6 New parts inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009.

(c) "Schedule" means a Schedule appended to these rules.

*1 "(ca) 'Transaction' means

(i). any contract, whether for sale, purchase, exchange or any other purpose, or

(ii). any assessment of royalty, toll, duty or other dues, or

(iii). any assessment of any work done, wages due or services rendered.

*2 '(cb) 'Verification' with its grammatical variations and cognate expression, means in relation to any weight or measure, the process of comparing, checking, testing, or adjusting such weight or measure with a view to ensuring that such weight or measure conforms to the standards established by or under the Act and these rules and also includes re-verification and calibration".

3. Reference Standard- (1) The Controller shall maintain in duplicate sets of references standards of weights and reference standards of measures in the provincial Laboratory.

(2) The originals of such sets shall be used for reference and for verifications of the accuracy of the duplicate sets and the duplicate sets shall be used for verification of the secondary standards.

4. ***Secondary Standards***- (1). The secondary standards shall conform, as regards denomination, material used in construction and design, to the specifications laid down in Schedule I.

(2) One set of secondary standards shall be kept at such places in such custody and in such manner as the Controller may direct.

(3) The secondary standards shall, after every five years, be verified with the reference standards, adjusted, if necessary, stamped and marked with the date of such verification by the Controller.

(4) The limits of error which may be tolerated in the secondary standards on verification or re-verification shall be as specified in Schedule I.

(5) The secondary standards shall be authenticated by the Controller before they are put to actual use.

5. Working Standards- (1) The working standards shall conform, as regards denomination material used in construction and designs, to the specifications laid down in Schedule II.

---

*1,*2 New parts inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

(2) The working standards shall be kept in the custody of the Inspector of the area concerned at such place and in such manner as the Controller may direct; and the Inspector shall maintain such standards in good and clean working condition so that their accuracy cannot be tempered with.

(3) The working standards shall, at least once a year, be verified with the secondary standards, adjusted, if necessary, stamped and marked with the date of such verification by the Controller or any other officer authorized by him in this behalf**:**

Provided that in the case of bullion and precious stones, the working standards shall be verified with the reference standards.

(4) The limits of error which may be tolerated in the verification or re-verification after adjustment shall be as specified in Schedule II.

(5) The working standards shall be authenticated by the Controller before being put to actual use.

6. Secondary standard balances **–** (1) A set of secondary standard balances shall be kept and maintained at every place where the secondary standards are kept.

(2) The number, types and specifications of such balances shall be as laid down in Schedule III.

(3) The Controller or an Officer authorized by him shall, at least once in a year, verify such balances, adjust then, if necessary, ensuring their correctness within limited sensitiveness and stamp them with the date of verification.

7. ***Working standard balances*** – (1) A set of working standard balances shall be kept with the Inspector for the purpose of verifying the commercial weights.

(2) The number, types and specifications of such balances shall be as laid down in Schedule IV.

8. Commercial weights and measures – All commercial weights, measures of length and measures of capacity shall conform, as regards denomination, material used in preparation, construction and designs, to the specification laid down in Schedule V.

9. Weighing and measuring instruments- (1) All weighing instruments and measuring instruments used or intended to be used in transactions of trade and commerce shall conform, as regards capacities, material and designs to the specifications laid down in schedule VI.

(2) The limits of error which may be tolerated in such weighing and measuring instruments at the time of verification and inspection shall be as specified in Schedule VI.

(3) A beam scale used in transactions in trade and commerce shall be suspended to a stand or to a chain by a hook;

Provided that this sub-rule shall not apply to hawkers and persons other than shopkeepers, selling goods in weekly bazaars.

*[1] *"**10. Weights, measures etc to be verified periodically.*** (1) All weights, measures, weighing instruments and measuring instruments used or intended to be used in transaction of trade and commerce in bullion and precious stones or in any other transaction or by a factory within the meaning of the Factories Act, 1934 (XXV of 1934) or by any industrial unit or by a shop or by any establishment, or by the Railways Administration or by Utility Stores Corporation or by any other utilities supplying service in public or private sector or by Pakistan Postal Services Corporation or by any postal or courier service in public or private sector or by Water and Power Development Authority or any other electricity generation or distribution authority or company in public or private sector or by a natural gas marketing or distribution company or any other fuel gas supplying service or organization in public or private sector or by an airlines or any air service for cargo or any other purpose or by a telecommunication administration or company or service in public or private sector or by a municipal corporation or a metropolitan authority or by any local authority or by a Government or private transport service or by Food Department or by any other Government Department or Semi-Government or Autonomous bodies or used or intended to be used in connection with the collection of tolls and duties or any service rendered by the Government including land measurement or any industrial production or for protection or any service rendered , shall be verified and stamped in accordance with the provisions of these rules at least once in a year.

Explanation :- For the purpose of these rules, the weights, measures, weighing instruments or measuring instruments used or intended to be used

by a factory or an industrial unit or an establishment in manufacturing process or industrial production or in the service rendered, shall also include all those weights, measures, weighing instruments or measuring instruments which are used at any stage of the manufacturing or production process or activities or service, whether for internal use or external use or any other purpose within the premises of the factory or industrial unit or an establishment or at its sale, distribution or purchase center or point.

---

*1 Rule-10 replaced by new Rule-10 vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

(2) All weigh-bridges, platform machines and all such other weighing instruments and measuring instruments as the Controller may specify in this behalf, shall be verified and stamped in accordance with the provisions of the Act and these rules at-least once in every year.

(3) All Petrol or Diesel or Kerosene oil or CNG (Compressed Natural Gas) or LPG (Liquefied Petroleum Gas) or LNG (Liquefied Natural Gas) or and any other fuel dispensers (pumps), flow meters, bulk flow meters, dip-rods, dip tapes, tanks of tanker lories, and proving tanks or master measures, shall be verified and stamped in accordance with the provision of the Act and these Rules, at least once in every year.

(4) All energy (electric) meters, gas meters and water meters, shall be verified or re-verified and stamped in accordance with the provisions of the Act and these rules at least once in three years.

(5) All clinical thermometers used for measuring temperature and aneroid barometers used for measuring blood pressure of human body in hospitals or medical center, clinics, in Government or public or private sectors or by a doctor, shall be verified and stamped in accordance with the provision of the Act and these rules, at least once in two years.

(6) All the thermal gauges and pressure gauges including those used for measuring the pressure of tyres of a vehicle during air filling, shall be verified or re-verified and stamped in accordance with the provisions of the Act and these rules at least once in two years.

(7) All weights, measures, weighing instruments or measuring instruments used or intended to be in transaction of trade or commerce or any other transaction or for the purpose other than those mentioned above, so notified in official gazette by the Controller, as he may think fit, shall be verified or re-verified and stamped in accordance with the provisions of the

Act and these rules at least once within the period mentioned in the notification.

(8). Notwithstanding any thing contained in Sub Rule-1 to Sub Rule-7 and Rule-18, a weight, measure, weighing or measuring instrument which has been verified previously under the provision of Rule-10 but willfully repaired or modified or adjusted or their official stamp has been tempered with or removed or willfully diminished or decreased or increased these weights, measures etc or in respect of which an offence has been committed, shall be re-verified and stamped, if found correct, in accordance with the provision of this rule and Rule-17.

Explanation-I. If a weight, measure, weighing instrument or measuring instrument
which has been verified and stamped under the Act or rules previously, is repaired or modified or adjusted without prior permission of the Controller or Inspector or any other officer appointed under the Act and so authorized by the Controller or willfully decreased or increased or its official stamp has been tempered with or totally removed or removed once but reaffixed or reinserted in the same or in any other weight or measure, at any stage of the validity period prescribed under this rule, shall be subject to verification or re-verification and stamping under rule 10 and the person or owner or user thereof shall have to pay full verification fee under rule 17."

Explanation-II. When an energy meter, a gas meters, a water meter or any flow meter installed at the premises of a consumer or customer, is once removed because of a fault or disconnection of service or for want of repair or testing or for any other reason by the user or service provider, the same shall not be used or re-installed for use at the premises of the same or any other consumer or costumer unless it is re-verified and stamped under this rule on payment of full fee under rule 17.

(9). The user or owner of a weight or measure or weighing instrument or measuring instrument shall, before presenting it to the Inspector or any other officer appointed under the Act, for verification or re-verification and stamping, produce a written proof or a certificate to the effect that the weight or measure or weighing instrument or measuring instrument presented for verification and stamping, has been checked or calibrated by a person registered as repairer under the Act or these rules or so authorized by the Controller in this behalf.

Explanation: - Before presenting a weight or measure, or weighing or measuring instrument or measuring system or equipment, it shall be binding on the user or owner thereof to get it checked or calibrated and also conduct necessary repair or adjustment or modification if so required, from a person registered as repairer under the Act or these rules or so authorized by the Controller in this behalf, and he shall also produce a written proof or a

certificate, in original, issued by the repairer or authorized person to this effect.

11. Inspection and verification of weights etc,- (1) An Inspector shall visit every factory and place under his jurisdiction, where weights and measures, weighing instruments and measuring instrument are used or kept for use in transactions of trade and commerce, for verifying the same at least once in a year, and also from time to time may make surprise visits which may be necessary for the proper discharge of his duties.

(2) All weights, measures, weighing instruments and measuring instruments shall be verified and tested in clean condition, and the Inspector may require the owner or user of such instruments to clean them before such verification and test.

(3) Where a weight, measure, weighing instrument or measuring instrument is brought to an Inspector for re-verification, the Inspector shall proceed with the verification in the same manner as in the case of verification, but it shall not be necessary for him to verify a glass or earthenware measure unless the original stamp has been defaced.

(4). The denomination or capacity of weights and measures weighing instruments and measuring instruments if not marked in full, shall, be indicated by using the abbreviations as specified in Schedule VII.

12. Stamping of commercial weights, etc. (1)- Before stamping any weight, measure, weighing instrument or measuring instrument used or intended to be used in transaction of trade and commerce, the Inspector shall satisfy himself that such weight or measure, weighing instrument or measuring instrument complies with the provisions of the Act and these rules.

(2) Every weight, measure, weighing instrument or measuring instrument presented for verification shall be complete and shall not bear any mark which may be mistaken for the Inspector's stamp.

(3) The Inspector shall stamp every weight, measure, weighing instrument or measuring instrument with a uniform stamp supplied by the Controller, indicating clearly the area or district in which it has been stamped or the Inspector by whom it has been stamped or both**:**

Provided that no weight, measure, weighing instrument or measuring instrument shall be stamped which, in the opinion of the Inspector, is no sufficiently strong to withstand the wear and tear of its ordinary normal use in the trade**:**

Provided further that no weighing instrument or measuring instrument, other than beam scales of Class "A" as specified in Schedule VI manufactured after the coming into force of these rules, shall be so stamped unless a plug or stud of soft metal on which to place Inspector's stamp is so made by the manufacturer that it can not be removed by under cutting or in any other manner.

(4) The Inspector shall mark the date of stamping on all weights, measures (other than glass, earthenware or enamelled metal measures), weighing instruments or measuring instruments verified and stamped by him except where the size of such weight, measure, weighing instrument or measuring instrument makes it impracticable to do so.

(5) Where a weighing instrument has inter-changeable or reversible parts, it shall not be stamped, unless the inter-Change or Reversal does not affect the accuracy of the instrument.

(6) No weighing instrument with removable parts, the removal of which affects the accuracy of the instrument, shall be stamped, unless the parts are such that the instrument can not be used without them.

(7) On completion of verification and stamping, the Inspector shall issue a certificate of verification in the form specified in Schedule VIII.

*₁ "(8). In case of Compressed Natural Gas dispensers, the Inspector shall, in addition to the verification certificate issued in the form of Schedule-VIII under sub rule-7, also issue a Statement of Inspection in the form specified in Schedule-VIII (A).

*₂ (9). In case of other weights, measures, weighing and measuring instruments as the Controller may specify in an official gazette notification, the Inspector shall, in addition to the verification certificate issued under sub- rule 7, also issue a Statement of Inspection in the form as specified by the Controller in the Notification.".

13. Requirement for verification **-** No weight, measure, weighing instrument or measuring instrument for which no special provision is made in these rules shall be verified and stamped unless it is of a pattern approved by the Controller.

14. Margin of errors- (1) Permissible margin of error on re-verification of weights, measures, weighing instruments or measuring instruments shall be the same as provided for verification.

(2) For capacities not stipulated in these rules, the permissible margin of error shall be proportional.

15. Procedure for Inspector, etc- In the discharge of his duties of inspection, verification and stamping of weights, measures, weighing instruments or measuring instrument, the Inspector shall observe the procedure laid down in Schedule IX.

*3 ***"15-(A). Standards, procedures etc. not mentioned under the rules.***

Notwithstanding anything contained in rule-3 to rule-15, where no specific physical standards of secondary standards, reference standards, working standards and commercial weights, measures, weighing instruments or measuring instruments are specified or specification of, or procedures for inspection, verification, re-verification and stamping of secondary standards, reference standards, working standards and commercial weights, measures, weighing instruments or measuring instruments are not mentioned under these rules, the physical standards specified and the specifications and procedures for inspection, verification, re-verification and stamping of secondary standards, reference standards, working standards and commercial weights and measures, weighing instruments or measuring instruments mentioned in the Pakistan Standards (PS) or international standards of International Standards Organization (ISO) or recommendations of General Conference of Weights and Measures(CGPM), or International Organization of Legal Metrology (OIML), shall be deemed to have been adopted under these rules and shall be followed for the purpose of these Rules".

---

*1,*2,*3 New sub-rule 8,9 and rule5-A inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

16. Monthly report of Inspector- The Inspector shall submit a monthly report to the Controller showing the work done by him in such form as the Controller may specify.

*1 ***"17. Fee for verification and stamping*** **(**1) The fee payable for verification, re-verification and stamping of weights, measures, weighing or measuring instruments at the Headquarter Office of the Inspector or any other officer appointed under the Act shall be as specified in Schedule-X.

(2). If verification or re-verification and stamping of weights and measures is done by the Inspector or the officer at a place other than his Headquarter Office or at the premises of any person, owner or user thereof, or a camp office specifically set up for the purpose or for which the Inspector or the officer leaves his Headquarter Office or makes a visit to that place, an additional fee at half the rate specified in Schedule-X shall be charged from such person, owner or user thereof as the case may be and he shall also pay the actual traveling expenses incurred by the Inspector or the officer in visiting the premises or place outside the Headquarter of the Inspector or the officer and also the cost of transport of the working standards balances and other equipments:

Provided that no additional fee shall be charged for verification or re-verification and stamping at the site of:

(i) measuring instruments for petrol, diesel oil or gaseous fuel (CNG or LNG or LPG) and lubricants etc, weigh bridges, dormant platform machines and such other instruments which cannot be taken easily to the office of the Inspector or officer because of their weight, volume or structure or construction as may be specified by the Controller; and

(ii) weights, measures, weighing instrument or measuring, in the premises of manufacturer or dealer or stockist of such weights, measures, weighing instruments or measuring instruments, but he shall pay the actual traveling expenses incurred by the Inspector or the officer in visiting the premises or place outside the Head quarter of the Inspector or other officer and other expenses as aforesaid:

Provided further that if the weights, measures, weighing instruments and measuring instruments being verified or re-verified and stamped in a single visit, belong to more than one persons, the Inspector shall recover the said charges proportionally from all the persons concerned or involved.

***Explanation*:-** Such traveling expenses shall include any traveling and daily allowances payable to the Inspector or the officer in accordance with the Traveling Allowances Rules for the time being in force, to which the said Inspector would be entitled, if the verification or stamping is carried out at a place outside the Headquarters of such Inspector or the officer.

---

*1 Rule-17 replaced by new rule-17 vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

(4). A weight, measures, weighing instruments or measuring instruments which on verification, is found to be incorrect shall be returned by the Inspector to the person concerned for necessary adjustment or repair or modification and when the necessary adjustment or repair or modification has been carried out, such weight, measure, weighing instrument or measuring instrument shall be re-verified on payment of fifty per cent of the fee prescribed for verification in Schedule-X within a period of thirty days and shall, if found correct, be stamped:

Provided that the person concerned or user or owner of a rejected weight, measure, weighing instrument or measuring on returning for repair or adjustment or modification by the Inspector or any other officer, shall not use it in any transaction or transaction of trade or commerce or for industrial production or for protection unless it is re-verified and stamped by the Inspector within the specified period. In case, the person, user or owner or his representative or his servant working on behalf of the person, user or

owner of a rejected weight or measure, is found using such weight or measure in any transaction or transaction of trade or commerce or for industrial production or protection, without re-verification and stamping by the Inspector, after necessary adjustment or repair, the Inspector, or any other officer appointed under the Act, not withstanding any other punishment provided under the Act or these rules in this regard, shall seize such rejected weight or measure from him which shall not be returned again to him under any circumstance and shall be forfeited to the Government by the Controller upon receiving report from the Inspector."

18. No fee payable for re-stamping within a specified period- Notwithstanding anything contained in rule 19, no fee shall be payable for re-stamping of weights, measures, weighing instruments or measuring instruments within the period specified in rule 10 from the date on which it was last stamped.

*[1] ***"18(A). Fee to be paid for re-stamping where rules are violated.*** Notwithstanding anything contained in rule-18, the Inspector shall charge full fee as specified under rule-17 for re-verification or re-stamping of those weights and measures in respect of which an offence has been committed, or willfully diminished or increased or the official seal or stamp thereon has been tempered with, within the period specified in rule-10 from the date on which it was last verified or re-verified and stamped."

19. Collection of fee and deposit into the treasury:- (1) Before commencing the work of verification or re-verification, the Inspector shall receive the prescribed fee from or on behalf of the person concerned and issue a receipt in the form to be laid down by the Controller, and two copies of such receipt shall be kept on record.

---

*[1] New rule-18 (A) inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

(2) The Inspector shall maintain a register in the form to be laid down by the Controller and shall fill it daily showing the amount of fee and carriage charges collected during the day.

(3) The fee including the additional fee and other charges, if any, collected by the Inspector shall be paid into the Government treasury on every Monday and the treasury receipt shall be pasted in the accounts register to be maintained by the Inspector and intimation to this effect shall be sent by him to the Controller.

20. Seizure, detention and disposal of unauthorized weights, measures and instruments:- (1) An Inspector shall seize and detain any weight, measure, weighing instrument, measuring instrument, beam scales, spring balance, counter machine and steelyard used or intended to be used in transactions of trade and commerce if he is satisfied that-

(i) they are not of the same denominations as are specified in Schedules V and VI and do not fulfill any of the requirements of the Act, or these rules;
(ii) they are false or defective;
(iii) fraud is committed in using them;
(iv) they are unstamped; and
(v) they stamp on them is forged or transferred.

(2) Anything seized and detained under these rules which is not the subject matter of any proceedings in a Court, shall, after the expiry of sixty days, be dealt with in accordance with the general or special orders of the Controller or, where on appeal or revision has been filled against such seizure and detention, after the decision of the appeal or revision, if any, in accordance with the decision in appeal or revision.

(3) Anything which is liable to seizure and detention under these rules and is or is likely to be required in connection with the proceedings in a court shall be seized and detained by the Inspector for being produced before the Court, and, on the conclusion of the proceedings, be dealt within accordance with the instructions issued by the Controller in this behalf.

*[1] ***21. Qualification of Inspector-*** "(1) No person shall be appointed as Inspector by initial recruitment, unless-

(i) he possesses bachelor's degree with Physics, Chemistry or Mathematics as one of the subjects, from a recognized university; or

(ii) Diploma in Mechanical or Instrumentation Engineering with three years course from a recognized institute; and

(i) after selection as Inspector, he has successfully completed the prescribed training in the Training Institute for Inspectors of Weights and Measures".

---

*[1] Rule-21(1) amended vide Govt. of NWFP notification No: SOL.1-11 dated 16th July, 1981

(2) Nothing in sub-rule (1) shall apply to persons who were working as Inspectors immediately before the coming into force of these rules.

22. Duties of Inspectors - The duties of an Inspector shall be as follows :-

(i) Verification, re-verification and stamping of weights, measures, weighing instruments and measuring instrument;

(ii) Inspections as provided in these rules;

(iii) Collection of fees and other charges and the deposit or such amount into Government treasury;

(iv) Preparation and submission of such reports and returns as are required by these rules or as may be directed by the Controller;

(v) Keeping and maintaining such books, records and forms as may be supplied by the Controller**;**

(vi) Safe and proper custody of the working standards and other instruments, equipments and articles entrusted to him or seized and detained by him in connection with the discharge of his duties;

(vii) Popularising the enforcement of the standards of weights and measures;

(viii) Surveyings of traders, industrial establishments, manufacturers, repairers and other dealers coming within th purview of the Act, and these rules;

(ix) Conducting of prosecution under the Act; and

(x) any other duty that may be assigned to him by the Controller.

23. Articles to be provided to Inspectors- (1) Every Inspector shall be provided with working standards, scale beams and balances for verifying weights, measures, weighing instruments, measuring instruments adequate instrumental equipment and travelling kit and such other material and forms as the Controller may consider necessary for inspection.

(2) Every Inspector shall be provided with such dies, punches, stencil plates, branding irons, etching and engraving and other implements as may be necessary for affixing the local verification stamp, the design and number of which shall be specified by the Controller.

24. *Licensing of manufacturers, repairers and dealers of weights and measures, etc.-* (1) Every manufacturers or repairer of or dealer in weights, measures, weighing instruments or measuring

instruments shall obtain a licence from the Controller in the appropriate form specified in Schedule XI.

(2) The fee payable for such licences and for their renewal shall be as specified in Schedule XII.

(3) The Controller may, by order in writing, refuse to grant or renew a licence, or suspend or cancel the licence of a manufacturer or, repairer of or dealer in, weights, measures, weighing instruments and measuring instruments if he is satisfied that such manufacturer, repairer or dealer has no proper and adequate workshop facilities or staff, or is otherwise incompetent failed to comply with any provision of the Act, or these rules;

Provided that no such orders shall be made without giving the aggrieved person a reasonable opportunity of being beared.

(4) The Controller shall maintain a register of licenced manufacturers and repairers of, and dealers in, weights, measures, weighing instruments and measuring instruments in the form set out in Schedule XIII.

*[1] **"24A. Security.-** (1) A person who has been granted a licence under rule 24 shall, if so required by the Controller, furnish security equivalent to ten times of the licence fee, for the time being prescribed, within fourteen days of the demand.

(2) The security shall be furnished in the name of the Controller of Weights and Measures in the form of Bank guarantee or Defence Savings Certificates of the denomination of rupees hundred each, as the Controller may direct.

(3) Where a licence granted under rule 24 is suspended or cancelled, or its renewal is refused, for breach of any of the conditions of the licence, or for contravention of any of the provisions of the Act or these rules, or for non-compliance of any order or instructions lawfully made or issued in this behalf, then notwithstanding any other penalty to which he may be liable under the Act or the rules made thereunder, the Controller may order the confiscation of the security, in whole or in parts, as he may deem fit: provided that no such order shall be made unless the aggrieved person is given an opportunity of being heard.

(4) Where a person granted a licence under these rules fails to renew the licence within sixty days of its expiry, the security if any, deposited by him shall be liable to confiscation and his licence shall also stand cancelled.

(5) If a person to whom a licence is granted under these rules is no more interested in carrying on the trade of manufacturing, repairing or dealing in weights and measures, weighing instruments or measuring instruments, he may apply to the Controller for cancellation of his licence and refund of the security, if any, deposited by him, at least thirty days before the expiry of the licence; whereupon his licence shall be cancelled and the security, if any, shall be refunded to him on surrendering the licence in original to the Controller.

(6) If an application referred to in sub-rule(5) is made not earlier than thirty days of the expiry of the licence, but is made within sixty days of the expiry of the licence, the security, if any, deposited by the licencee shall be refunded to him after deducting the annual renewal fee for the time being prescribed.

(7) In no case the security or part thereof shall be refunded, unless the licencee has surrendered the licence in original to the Controller".

---

*1 New Rule-24(A) inserted vide Govt. of NWFP notification No: SOL.1-11 dated 11th August, 1980.

25. Revision.- Any person aggrieved by an order made by the Controller in appeal under section 24 of the Act, or these rules may, within thirty days of such order, apply for revision to the Director.

26. ***Records to be maintained by manufacturers, etc.-*** Every manufacturer or repairer of , of dealer in, weights, measures, weighing instruments or measuring instruments shall maintain such records in such forms and submit such returns, as the Controller may direct.

27. ***Certificate of verification to be exhibited:-*** Every person to whom a certificate of verification is issued shall exhibit the same at a conspicuous place in the premises where the weights, measures, weighing instruments or measuring instruments to which the certificate relates are used, and, in the case of a hawker, such certificate shall be kept on his person.

28. ***Pre-packed articles to bear net weight on its wrapper-*** No person shall sell, or have in his possession for sale, any pre-packed article unless the wrapper or container bears thereon a true statement in plain characters of the net weight of the article contained therein.

29. ***Conversion tables-***The value expressed in terms of any weight or measure, other than in terms of standards of measure, may be converted according to the conversion Table given in Schedule XIV.

30. ***Receipt to be given by Inspector -*** An Inspector shall issue a receipt in the form prescribed in Schedule XV in respect of all articles seized and detained by him and shall maintain a record thereof in a prescribed register.

31. ***Penalty –***Any person who contravenes any provision of these rules shall be punishable with fine which may extend to two thousand rupees.

Sd/- X X X
Secretary to Government of N.-W.F.P.
Industries, Commerce, Labour, Mineral Development
and Transport Department.

SCHEDULE I

(See rule 4)

Denomination, material, design and permissible errors of secondary standards of weights and measures.

1. **Secondary Standard of Weights**.

1.1 **Denominations.**

Kilogram series (kg)	**Gram series (g)**	**Milligram series (mg)**
10	500	500
5	200	200
	200	200
	100	100
2	50	50
2	20	20
	10	10
1	5	5
	2	2
	2	2
	1	1

1.2. Material.

1.2.1. Weight of 10 kg to 1 kg shall be cast from bronze of the following composition :-

Constituent		Per cent
Copper	.. .. ..	87.5 to 88.5
Tin	.. .. ..	9.5 to 10.5
Zinc	.. .. ..	1.5 to 2.5

1.2.2 Weights of 500 mg to 100 mg shall be made of cupronickel having a nominal composition of 75 per cent copper and 25 per cent nickel.

1.2.3 Weights of 50 mg to 1 mg shall be made of commercial aluminum sheets.

1.3. Shape of Weights.

1.3.1. 10 kilogram**. -** Cylindrical body cored on top for adjustment with separate handle, screwed down to body and sealed.

1.3.2. 5 kilogram to 20 gram. - Basically cylindrical with a knob on top and cast integrally, and at the bottom a screwed core with the plug duly scaled, dimensions relative to the capacity of each weight.

1.3.3. 10 gram to 1 gram. - Cylindrical, solid body with integral knob without locking arrangements.

1.3.4. Milligram series. - Square sheets, with one corner bent right angles.

1.4. Limits of error to be tolerated. - The limits of error to be tolerated in excess and in deficiency shall be as follows:-

Denomination	Limits of error to be tolerated (mg)
10 kg	50
5 kg	25
2 kg	10
1 kg	5
500 g	2.5
200 g	1.0
100 g	0.5
50 g	0.3
20 g	0.25
10 g	0.20
5 g	0.15
2 g	0.12
1 g	0.10
500 mg	0.08
200 mg	0.06
100 mg	0.05
50 mg	0.04
20 mg	0.03
10 mg	0.025
5 mg	0.020
2 mg	0.02
1 mg	0.02

11. Secondary Standard of Linear Measures.

(1) Denomination

1 metre.

(2) Detailed requirements.

2.1. The standard shall be in the form of a bar with one bevelled edge as per sketch given below. The bevel shall carry the graduations and shall be sloped about 30^0 from the horizontal. The outside edge formed by the inter-section of the bevelled face and the underneath surface shall have a vertical face not more than 0.4 mm wide. The bar may be hollowed from the underneath to reduce the weight and seating area and shall provide for a total depth of section not less than 18 mm. There shall be an un-graduated portion extending beyond the terminal graduation on either side by about 30 to 40 mm.

2.2. A slider bar shall be secured to the top of the standard with a magnifying lence to facilitate reading the finer scales.

2.3. The method of securing the slider bar to the standard shall be such as to prevent distortion of the later should unequal expansion takes place.

2.4. Suitable handles of the same material as given in paragraph 2.8 shall be provided so that contact between hand and metal can be avoided.

2.5. The supporting points (where handles are fixed) shall be between 0.55 and 0.60 of the length of the blank apart and shall be symmetrically placed relative to the length of the blank.

2.6. The measure shall be quite robust, straight and free from flaws.

2.7. The graduated surface shall be highly polished and free from surface irregularities in the neighborhood of the graduated lines. If plated, the surface shall be free from undesirable degree of crazing in the neighborhood of lines.

2.8. The metal shall be rustless iron (e.g chromium iron) or stainless steel (nickel chromium steel) or high nickel (25% or more) iron. Carbon steel with low or high carbon percentage suitably protected against corrosion by chromium plating or hard brass (tropicalised brass) of the composition. Copper 56-60%. Lead 2.0 to 2.35% and Zinc remainder can also be used. In the later case the measures are to be lacquered.

3. Graduations.

3.1. A measure shall be divided into ten decimeters and hundred centimeters. The zero graduation shall be marked 'O' and the final graduation shall be marked 'METRE'.

The numbers and other markings shall read progressively from left to right with the zero at the extreme left and the bevel nearest to the observer,

and the graduation shall extend to the then edge nearest to the observer. The first and the last cm shall be sub-divided into mm.

3.1.1. Graduation shall be suitably figured and marked at convenient intervals using abbreviations, namely:-

decimeter = dm

centimeter = cm

milimetre = mm

3.1. In addition to the graduated metre intervals a cm before zero shall be sub-divided into mm and read from right to left from the zero graduation, the cm before zero shall be marked 'cm' at the outermost graduation.

3.2. The graduation lines shall be well defined, of symmetrical section and have clean edges.

3.3. The width of each graduation line shall be constant ±10% of average width.

3.4. The graduation lines shall not differ in width, one from the other.

±10% of average
width of all the line.

3.5. The width of graduation lines shall be between 0.005 to 0.015 mm (5 microns to 15 microns).

3.6. The graduation lines shall be straight.

3.7. The graduation lines shall be parallel to one another.

3.8. The graduation lines shall be square to the scale axis.

3.9. In the case of finer graduations, the spacings shall be such that any
interval from one line to another is at the correct nominal position and spacing.

4. **Limits of error to be tolerated**. - The limits of error in excess and deficiency to be tolerated shall be as follows:-

(a) upto 1 mm .. .. = ± 0.015 mm (15 microns).

(b) Above 1 mm and not exceeding 1 cm. = ± 0.075 mm (75 microns)

(c) Upto 1 metre (overall tolerance) = ±0.4 mm (400 microns).

Note:- (i) Each working standard shall bear the serial No., the name of the region / authority to which it belongs and stamp of its standardization.

(ii). These working standards shall be submitted for verification against the secondary and reference standards within the specified time limit.

III. *Secondary Standard Measures of Capacity*.

1.1. *Denominations.*

Litre series (L)		**Millilitre Series (ml)**
10	..	500
5	..	200
2	..	100
1	..	50
		20
		10

1.2. *Material*

Secondary standard measures of capacity shall be cast of bronze of the same composition as in the case of secondary standard weights.

1.3. *Shape of Capacity Measures*.

1.3.1. 10 and 5 litre.- Cylindrical with inside diameters approximately equal to the height of the measures, and two handles attached securely to their sides.

1.3.2. -2 litres and below: Same shape as above but shall have one handle only.

1.3.3. The denominations of the measures shall be engraved on the outside surface.

1.3.4. Each set of measure shall be supplied with specially selected stricking glasses.

1.4. ***Limits of error to be tolerated*****. –** The limits of error in excess and deficiency to be tolerated shall be as follow:-

Denomination		**Limits of error to be tolerated.**
		(ml)
10 l	.. .. ..	4
5 l	.. .. ..	2
2 l	.. .. ..	1
1 l	.. .. ..	0.8
500 ml	.. .. ..	0.5
200 ml	.. .. ..	0.4
100 ml	.. .. ..	0.3
50 ml	.. .. ..	0.2
20 ml	.. .. ..	0.1
10 ml	.. .. ..	0.1

SCHEDULE II

(See rule 5).

Denominations, material, designs and permissible errors of working standards of weights and measures.

I. Working Standard of Weights.

1. Denominations.

Kilogram series		**Gram series**	**Milligram series**
-	.. .. ..	500	500
20	.. .. ..	200	200
10	.. .. ..	200	200
5	.. .. ..	100	100
2	.. .. ..	50	50
2	.. .. ..	20	20
	.. .. ..	20	20
1	.. .. ..	10	10
	.. .. ..	5	5
	.. .. ..	2	2
	.. .. ..	2	2
	.. .. ..	1	1

2. Material

2.1. Weights of 20 kg to 1 kg shall be cast from bronze of the following composition :-

Constituent	.. ..	Percent
Copper	.. ..	87.5 to 88.5
Tin	.. ..	9.5 to 10.5

Zinc	.. ..	Remainder

2.2. Weights of 500g to 100mg shall be made out of cupronickel of the following composition :-

Copper	.. ..	75 percent
Nickel	.. ..	25 percent

2.3. Weights of 50 mg to 1 mg shall be made out of commercially pure aluminum sheets.

3.4. Shape.

3.1. Weights of 20 kg and 10 kg shall be cylindrical in shape with screwed handle from top duly sealed and cored from bottom for adjustments with locking screw duly sealed. To make a distinction between secondary and working standards, a small 'w' within a circle "w" shall be stamped at the base of each of the working standard weights.

3.2. Weights of 5 kg to 20g shall be cylindrical in shape with integral knob handle at the top and cored from base with screw and lead sealing arrangements. To distinguish it from secondary standard a small 'w' within a circle "w" shall be stamped at the base of the working standard.

3.3. Weights of 10g to 1g shall be solid cylindrical in shape with integral knobs and no locking arrangements.

3.4 For milligram series, the weights shall be in the form of square with one of the sides bent at right angles to the flat surface for ease of handling.

4. Limits of error to be tolerated:- The limits of error in excess, and in deficiency to be tolerated shall be as follows:-

Denomination		**Limits of error to be tolerated**
1	.. ..	2
	.. ..	+(mg)
20 kg	.. ..	1000
10 kg	.. ..	500
5 kg	.. ..	250
2 kg	.. ..	100
1 kg	.. ..	50
500g	.. ..	25

200g	.. ..	10
100g	.. ..	5
50g	.. ..	3
20g	.. ..	2.5
10g	.. ..	2.0
5g	.. ..	1.5
2g	.. ..	1.2
1g	.. ..	1.0
500mg	.. ..	0.8
200mg	.. ..	0.6
100mg	.. ..	0.5
50mg	.. ..	0.4
20mg	.. ..	0.3
10mg	.. ..	0.25
5mg	.. ..	0.20
2mg	.. ..	0.20
1mg	.. ..	0.20

II. Working Standards for linear Measures.

I. Denomination

1 metre.

2. Detailed requirements.

2.1. The standard shall be in the form of a bar with one beveled edge. The bevel carries the graduations and shall be sloped about 30 degree from the horizontal. The outside edge formed by the intersection of the beveled face and the underneath surface shall have a vertical face not more than 0.4 mm wide. The bar may be hollowed from underneath to reduce the weight and seating area and shall provide for total depth of section not less than 18mm. There shall be an ungraduated portion extending beyond the terminal graduations on either side by about 38-40 mm.

2.2. A slider bar is to be secured to the top of the standard with a magnifying lens to facilitate reading the finer divisions.

2.3. The method of securing the slider bar to the standard shall be such as to prevent distortion of the later should unequal expansion takes place.

2.4. Suitable handles of the same material as give in paragraph 2.8 shall be provided so that compact between hands and metal can be avoided.

2.5. The supporting points (where handles are fixed) shall be between 0.55 and 0.60 of the blank part and shall be symmetrically placed relative to the length of the blank.

2.6. The measure shall be quite robust, straight and free from flaws.

2.7. The graduated surface shall be highly polished and free from surface irregularities in the neighbourhood of the graduated lines. If plated, the surface shall be free from undesirable degree of crazing in the neighborhood of
lines.

2.8. The material shall be rustless iron (chromium iron) or stainless steel (nickel chromium steel) or high nickel iron (25 % nickel or more). Carbon steel with low or high carbon percentage suitable protected against corrosion by chromium plating or hard brass (tropicalised brass) of the composition copper 50-60% lead 2.0 to 2.35 % and zinc remainder can also be used. In the later case the measures are to be lacquered.

3. **Graduation**

3.1. The measures shall be divided into 10 decimeters and 100 centimeters, The zero graduation shall be marked 'O' and final graduation marked 'METRE'.

The numbers and other markings shall read progressively from left to right with the zero at the extreme left and the bevel nearest to the observer. The first and the last cm shall be sub-divided into mm.

3.1.1. Graduation shall be suitably figured and marked at convenient intervals using abbreviations, namely:-

decimeter = dm;
centimeter = cm;
millimeter = mm;

3.1.2 In addition to the graduated metre, interval, a cm before zero shall be sub-divided into millimeters and read from right to left from the zero graduation. The cm before zero shall be marked 'cm' at the outermost graduation.

3.2. The graduation lines shall be well defined, of symmetrical section and have clean edges.

3.3. The width of each graduation line shall be constant. ±10% of average width.

3.4. The graduation lines shall not differ in width, ±10% of

one from the other — average width of all the lines.

3.5. The width of graduation lines shall be between 0.003 to 0.015mm (3 to 15 microns).

3.6. The graduation lines shall be straight.

3.7. The graduation lines shall be parallel to one another.

3.8. The graduation lines shall be square to scale axis.

3.9. In case of finer graduations (i.e, cm. before zero ± 10mm (10 microns) to 1 cm and 99th cm to 1 metre) spacing shall be such that any interval from one line to another is at the correct nominal position.

4. Limits of errors to be tolerated.- The limits of error in excess and deficiency to be tolerated shall be as follows:-

(a) Upto 1 mm = ± 0.01 mm (10 microns)

(b) Above 1 mm =± 0.05 mm (50 microns) not exceeding mm 1 cm

(c) Up to 1 metre = ±0.25 mm (250 microns) (overall tolerance).

Note:-(i) Each working standard shall bear the serial number of the region / authority to which it belongs and stamp of its standardization.

(ii). These working standards shall be submitted for verification against the secondary standard within the specified time limit. If they are not sent up for re-verification within the specified time limit, they shall no longer be legal standards.

III. *Working Standard of Capacity Measures.*

1.1. Denominations.

Litre series	**Millitre series**
(*l*)	(ml)
10	500
5	200
2	100
1	50

	20
	10

1.2. ***Material of Construction,-*** Working standard of capacity measures shall be prepared out of oxygen free, deoxidized annealed copper sheet of deep drawing quality.

1.3. Shape.

1.3.1. Working standard of capacity measures of 10 litres shall be cylindrical with two handles securely fixed to the sides. The diameter of the measure shall be approximately equal to its height.

1.3.2. All other working standards of capacity measures shall also be cylindrical but shall not be provided with handles. The diameter of each measures shall be suitability reinforced.

1.3.3. The denominations of the working standards of capacity measures shall be engraved on the outside surface.

1.3.4. The outside of the body of the working standard of capacity measure shall oxidized to give a smooth dull black surface and the inside shall be tinned.

1.3.5. Each set of working standard of capacity measures shall be supplied with specially selected striking glasses and the measures and glasses shall be securely packed in velvet lined teak-wood boxes.

2. Limits of error to be tolerated;- The limits of error in excess and deficiency to be tolerated shall be as follows:-

Denomination		**Limits of error to be tolerated**
		(ml)
10 l	.. ..	8
5 l	.. ..	4
2 l	.. ..	2
1 l	.. ..	1.5
500 ml	.. ..	1.0
200 ml	.. ..	0.8
100 ml	.. ..	0.6

50 ml	.. ..	0.4
20 ml	.. ..	0.2
10 ml	.. ..	0.2

SCHEDULE III

(See rule 6)

Specifications, with permissible limits of sensitiveness of secondary standard balances.

Capacity		**Sensitiveness mg / division of scale.**
20 kg	.. .. ..	5
5 kg	.. .. ..	1
1 kg	.. .. ..	0.5
200 g	.. .. ..	0.05
20 g	.. .. ..	0.01
2 g	.. .. ..	0.005

Note.-1. Secondary Standard Balances shall be used only for indoor work in laboratories and shall be handled carefully by competent trained personnel.

Note 2.- The specifications of secondary balances shall be according to international recommendations.

SCHEDULE IV

(See rule 7).

Specifications with permissible limits of sensitiveness of working standard balances.

1. Range of balances-

Capacity	Sensitiveness mg/ division of scale

50 kg	100
20 kg	40
5 kg	10
1 kg	1
200 g	1
20 g	1
2 g	0.02

2. ***Types*.-** The working standard balances shall be both of indoor and outdoor types.

3. *Design and construction*.- The balances shall be constructed of nonmagnetic materials and shall be robust in construction. They shall be capable of being easily assembled. Outdoor type balances shall be fitted in suitable carrying cases so that they may withstand transport conditions. Smaller balances of 5 kg capacity and below shall be provided with glass cases. Portable balances of 5 kg capacity and below shall be fitted in one carrying case for case of transportation.

SCHEDULE V

(See rule 8).

Specifications, denominations, material and designs of commercial weights and measures.

COMMERCIAL WEIGHTS

1. Rectangular bar weights.

1.1. Denominations. – 5, 10, 20 and 50 kilograms.

1.2. *Material:*

Body, Grey cast iron conforming to BS 1452-1956.

Handle. Type 1 Seamless steel tube.

Type 2 Cast iron integral with body.

Type 3 Cast in handle made of mild steel.

1.3. Method of Manufacture.- Any satisfactory casting or foundry method.

1.4. Shape.- It must be in one single piece in the shape of rectangular parallel- pide with rounded edges and a rigid handle. The shapes and dimensions shall conform to figures 1 and 2 read with tables I and II.

1.5. Adjusting cavity.- One rectangular loading hole on the under surface tapering outside along the width.

1.6. Adjustments.- The weights provided with loading holes shall be adjusted by pouring the required weighed quantity of molten lead into the loading hole and pressing the lead firmly. The lead used for adjusting may preferably confirm to grade per cent of BS 334-1934.

1.7. Marking and distinctive signs.- Information relating to nominal value and trade mark etc. both in English and Urdu must appear in relief either on top of the sides or on face of the central part of the weight. The nominal value of the weight must be indicated in the form of 5 kg, 10 kg, 50 kg. The letter k and g must be small.

Seamless Steel Tube handle (shown) but mild steel handle may also be used.

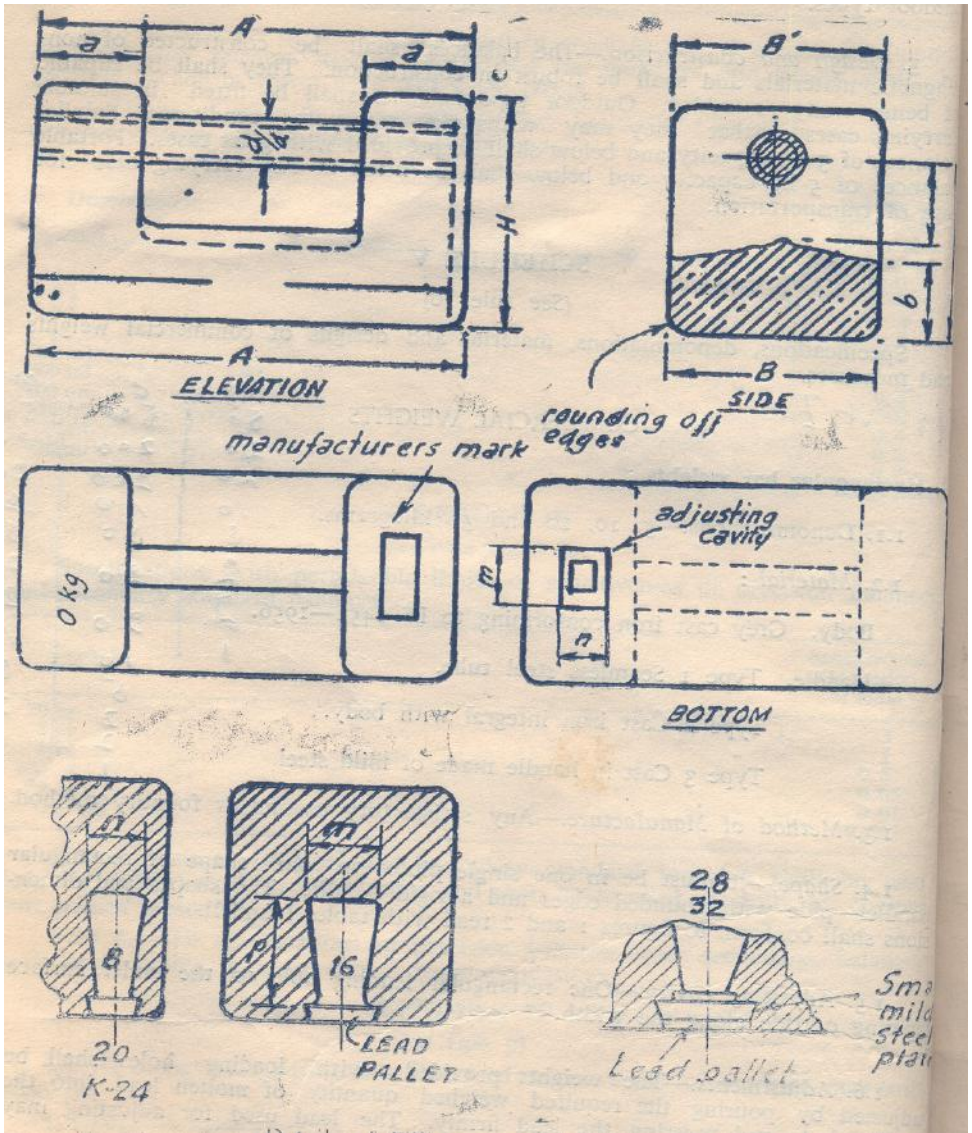
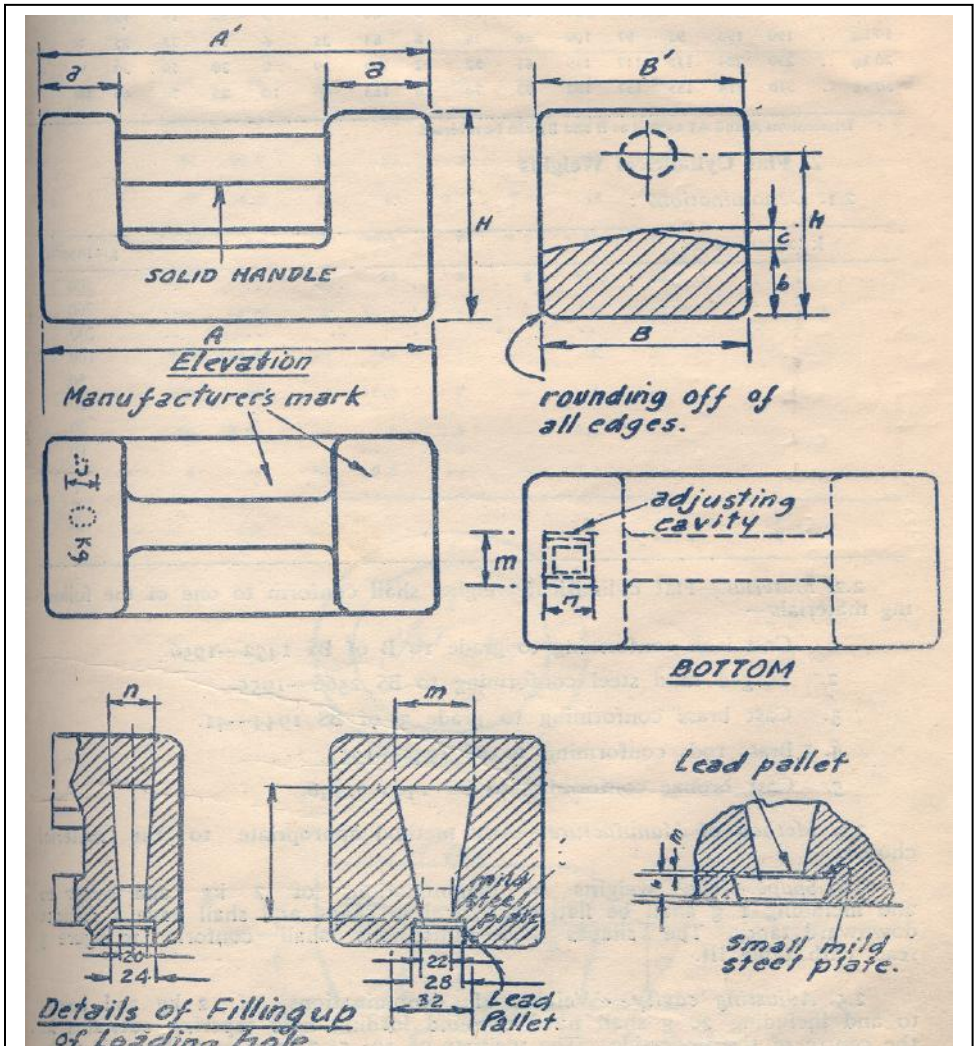


TABLE- 1 OF DIMENSIONS OF RECTANGULAR BAR WEIGHT (IN MILLIMETRES).

TYPE I

Nominal Value		A	AI	B	BI	H	a	b	c	d	d/d	I	r	o	m	N	p
5 kg		150	152	75	77	84	36	30	6	66	11/20	145	5	12	16	13	36
10 kg		190	193	95	97	109	46	38	8	84	12/30	185	6	16	35	25	46
20 kg		230	234	115	117	139	61	52	12	109	24/32	220	8	20	50	30	64
50 kg		310	314	155	157	192	83	72	16	152	24/32	300	10	25	70	40	90



-

Fig:-2 Rectangular bar weight with cast iron handle.

TABLE II

TABLE OF DIMENSIONS IN RESPECT OF FIG-2

(in millimeters)

Nominal Value		A	AI	B	BI	H	a	b	c	h	d	R	o	m	n	P
5 kg		150	152	75	77	84	36	30	6	66	19	5	12	16	13	55
10 kg		190	193	95	97	109	46	38	8	84	25	6	16	35	25	70
20 kg		230	234	115	117	139	61	52	12	109	29	8	20	50	30	95
50 kg		310	314	155	157	192	83	74	16	152	40	10	25	70	40	148

Dimensions A and A_1 as Band B_1 can be reversed.

2. Flat Cylindrical Weights.

2.1. Denominations:-

Kilogram series		**Gram series**
1	.. ..	500
2	.. ..	200
2	.. ..	200
		100
		50
		20
		20
		10
		5
		2
		2
		1

2.2. **Material**, - Flat cylindrical weights shall conform to one of the following materials-

1. Cast iron conforming to grade 10 B of BS 1452-1956.
2. Forged mild steel conforming to BS 2566-1955.
3. Cast brass conforming to grade 3 of BS 1944-41.
4. Brass rods conforming to BS 1949-1953.
5. Cast bronze conforming to BS 1400-1948.

2.3. *Method of Manufacture*.- Any method appropriate to the material chosen.

2.4. Shape.- The weights of denominations of 2 kg and below to and including 1 g shall be flat, cylindrical in shape and shall have a distinct downward taper. The shapes and dimensions shall conform to figure 3 read with table III.

2.5. *Adjusting cavity*.- Weights of denominations of 2 kg and below to and including 20 g shall have a round loading hole tapering outwards in

the centre of the underside. The weights of 10,5,2,1 g must be solid without adjusting cavity.

TABLE III- DIMENSIONS OF FLAT CYLINDRICAL WEIGHTS.

(All dimensions in millimeter).

Denomination	A	B	C	D	E	F	G	H
2 kg	101	76	30	94	5	18	40	34
1 kg	84.5	58	16	76	4	15	25.5	20
500 g	64	46.5	16	56	3	14	23	20
200 g	50	34.5	13	45	2.5	9.5	15	15
100 g	38	26	11	53.5	2	9.5	13	13
50 g	29	20.5	10	25	2	8	11.5	12
20 g	22	16.5	8	19.5	1	4	8	10
10 g	17.5	12.5	-	16	1	-	6	-
5 g	13	10	-	11.0	1	-	5	-
2 g	10	7.5	-	9	0.5	-	3.5	-
1 g	8	..	-	6.5	-	-	2	-

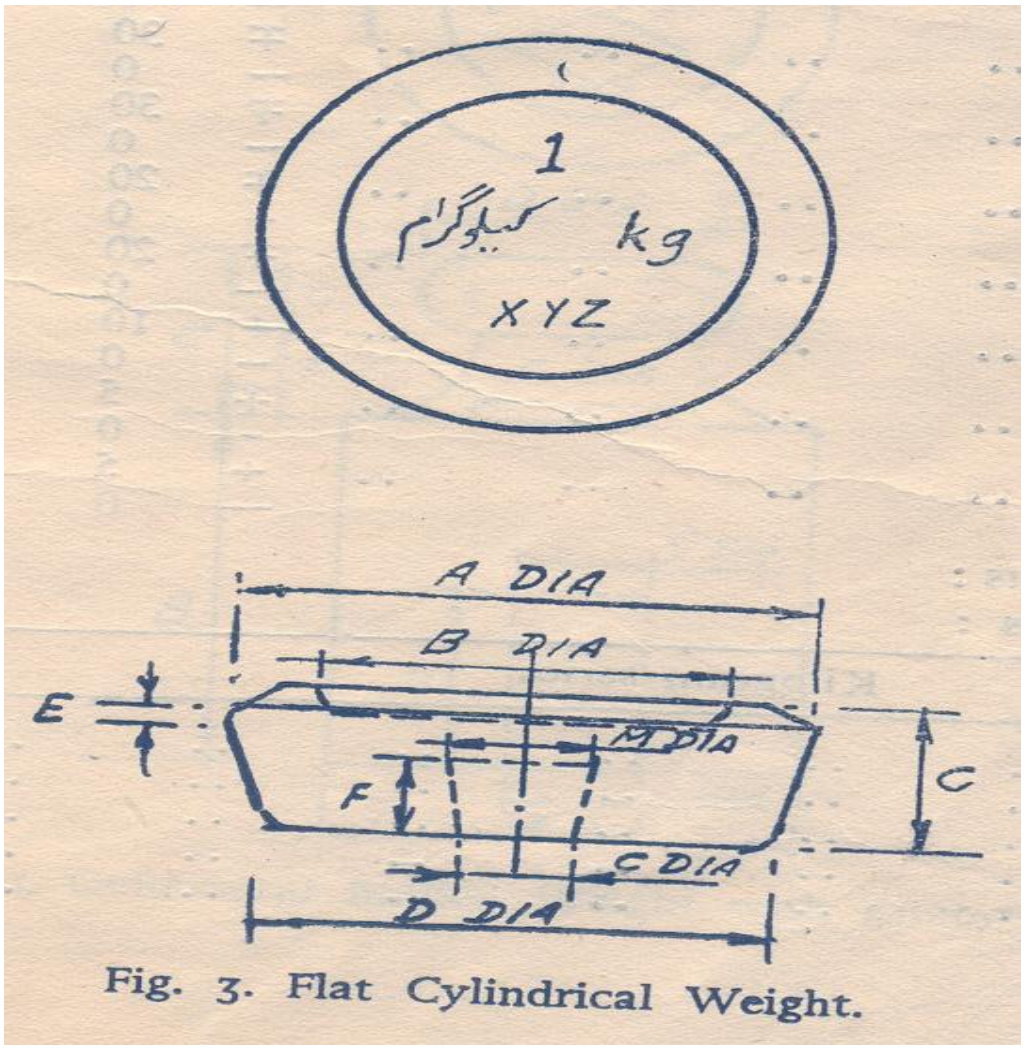


Fig. 3. Flat Cylindrical Weight.

3.1. Adjustments-

The weights provided with loading holes shall be adjusted by pouring the required weighed quantity of molten lead into the loading hole and pressing the lead firmly. The lead used for adjusting may preferably conform to grade per cent of BS 334-1934.

3.2. Permissible margin of error for rectangular Bar weights and fat cylindrical weights:-

Nominal value		**Permissible error on (mg)**	
		On verification,	**on Inspection**
50 kg	..	+8000 - 0	±8000
20 kg	..	+3200 - 0	± 32000
10kg	..	+1600 - 0	±1600
5 kg	..	+800 - 0	±800
2 kg	..	+400 - 0	±400
1 kg	..	+200 - 0	±200
500 g	..	+100 - 0	±100
200 g	..	+50 - 0	±50
100 g	..	+30 - 0	±30
50 g	..	+30 - 0	±30
20 g	..	+20 - 0	±20
10 g	..	+20 - 0	±20
5 g	..	+10 - 0	±10
2 g	..	+5 - 0	±5
1 g	..	+5 - 0	±5

4. Bullion Weights:

4.1 Denominations:

Kilogram series		**Gram series**
10	..	500
5	..	200
2	..	100
2	..	50
1	..	20
	..	20
	..	10
	..	5
	..	2
	..	2

		1

TABLE IV - DIMENSIONS OF CYLINDRICAL BULLION WEIGHTS WITH HANDLE.

Denomination	A	B	C	D	E	F	G	H	L	J	K	S
20 kg	133	157	71	106	41	16	55	51	25	26	14	25
10 kg	106	130	64	85	33	14	50	49	25	26	13	2

All dimensions in millimeters.
Tolerance on dimensions ± 5 percent.

TABLE V- DIMENSIONS OF CYLINDRICAL BUILLION WEIGHTS WITH KNOB.

Denomination		A	B	C	D	E	F	G	H	L	J
5 kg		86	88	41	56	37.5	22.5	18.5	38	19	20
2 kg		64	67	27	39	24	14	13	27	17	17.5
1 kg		50	50	23.5	33	21	12	11.5	25	16	17
500 g		41	39	20	25	17	10.5	8.5	19	16	17
200 g		32	29	16	20	12	9	7	13.5	13	13.5
100 g		24	24	12	17	9.5	6	6	11	11	12
50 g		19	19	10	14	8	5	5	9	9.5	10.5
20 g		14	14	6	10	6	3	3	6	6	7
10 g		11	11	5	8	5	3	2	-	-	-
5 g		9	9	4	6	4	2	2	-	-	-
2 g		6	6	3	4	2	1.5	1.5	-	-	-
1 g		6	6	2	3	1	1	1	-	-	-

All dimensions in millimeters.
Tolerance on dimensions: (a) for weights above 1 kg ± percent
(b) for weights 1 kg and below ± 10 percent

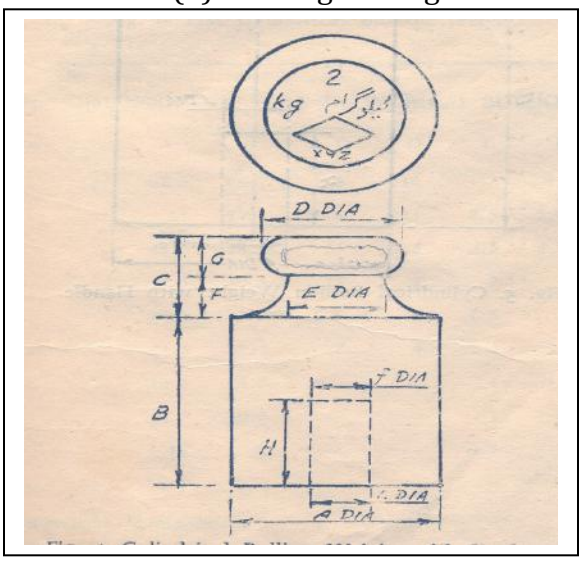


Fig.4 Cylindrical Bullion Weight with knob.

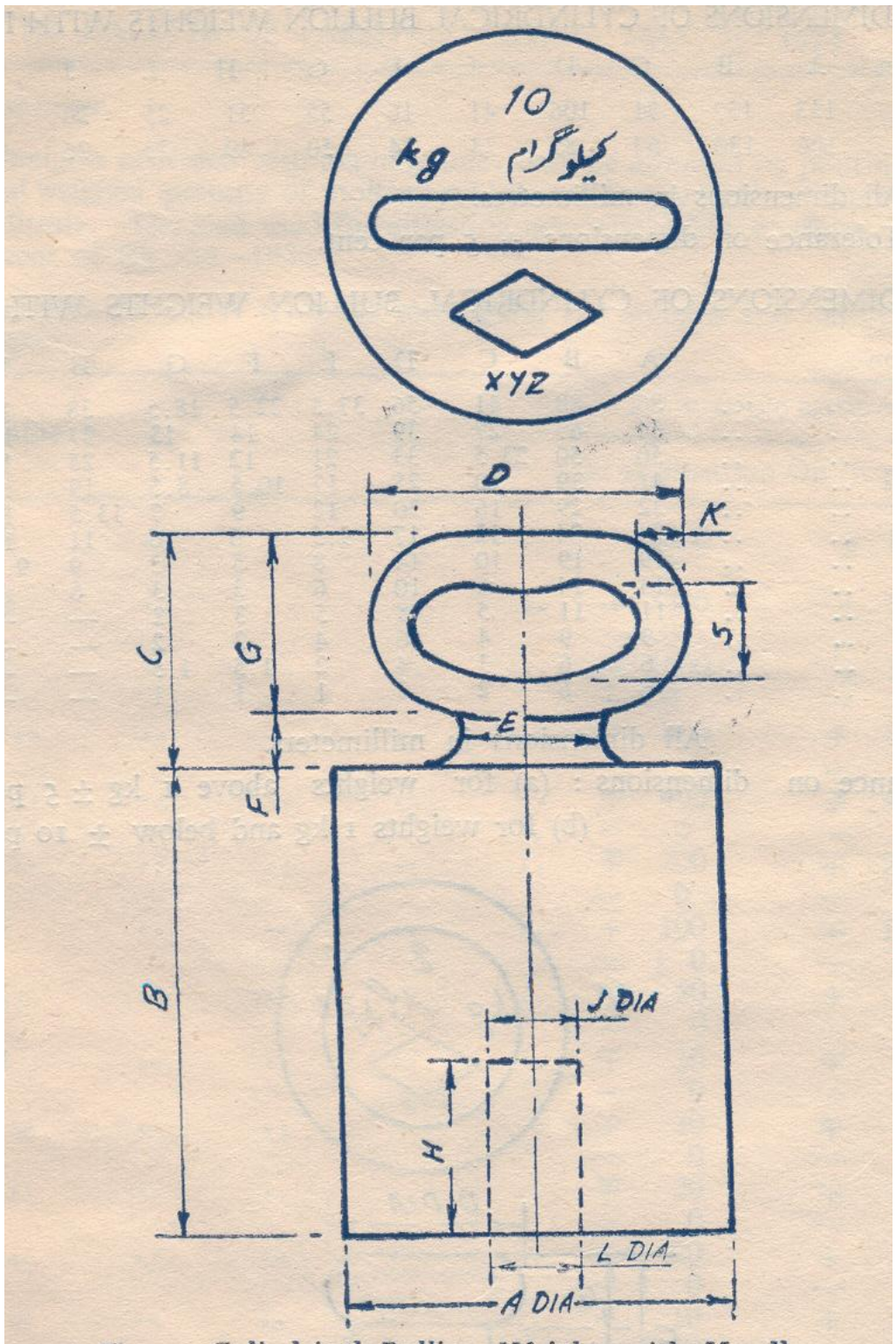


Fig. 5. Cylindrical Bullion Weight with Handle.

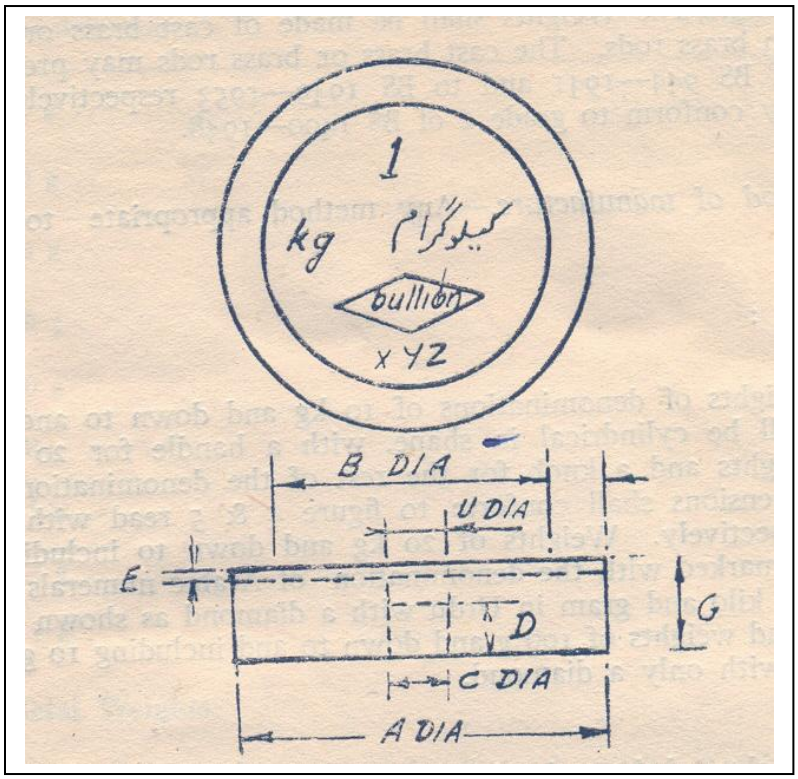


Fig: 6 Flat Cylindrical Bullion Weight.

TABLE VI - DIMENSIONS OF FLAT CYLINDRICAL BULLION WEIGHTS.

Denomination	A	B	C	D	E	F	G	H
1 kg	82.5	66.5	16	16	3	8.0	24	17
500 g	65	49.5	16	13	2.5	7.75	19	17
200 g	48.0	38.5	13	9.5	2.5	4.75	14	14
100 g	37.5	19.5	11	7	2	4	15.5	12
50 g	28.5	22.5	9.5	6	1.5	3	10.5	10
20 g	21.5	17.5	8	1	1.5	2.0	7	8
10 g	16.5	13.5	-	-	1	1.5	6	-
5 g	12.5	10.5	-	-	1	1	5	-
2 g	10	8	-	-	0.5	1	4	-
1 g	7.5	-	-	-	-	-	2.5	-

All dimensions in millimeters.

Tolerance on dimensions ± 10 percent.

4.2. **Material.-** The weights shall be made of cast brass or cast bronze or processed from brass rods. The cast brass or brass rods may preferably conform to grade 3 of BS 944-1941 and to BS 1949-1953 respectively. Bronze may preferably conform to Grade 2 of BS 1400-1948.

4.3. Method of manufacturer.- Any method appropriate to the material chosen.

4.4. Shapes.

4.4.1 Weights of denominations of 10 kg and down to and including 1 g shall be cylindrical in shape, with a handle for 20 kg and 10 kg weights and a knob for the rest of the denominations. Shapes and dimensions shall conform to Figures 4 and 5 read with table IV and V respectively. Weights of 20 kg and down to including 200g shall be marked with the denominations of Arabic numerals in Latin Script and Kilo and gram in Urdu with a diamond as shown in Figures 4 and 5 and weights of 100 g and down to and including 10 g shall be marked with only a diamond.

4.4.2. Weights of denominations of 1 kg and down to an including 1 g shall be flat cylindrical in shape (without a knob) and shall nest with each other. Shapes and dimensions shall conform to figure 6 read with Table VI Weights of 1 kg and below down to and including 20 g shall be marked with the denominations of Arabic numerals and kilo and gram in Urdu and English within a diamond as shown in Figure 6 and weights of 10 g and below down to and including 1 g shall be marked with only diamond.

4.5. Adjusting cavity.- Weights of denominations of 10 kilogram and down to including 20g shall have a round loading hole tapering outwards in the centre of the underside.

4.6. Permissible margin of error.

Denomination	**Permissible margin of error (mg)**
20 kg	+ 500 - 0
10 kg	+250 - 0
5 kg	+150 - 0
2 kg	+80 - 0

1 kg	+50 -0

Denomination	Permissible margin of error (mg)
500 g	+30 -0
200 g	+20 -0
100 g	+ 16 -0
50 g	+ 12 -0
20 g	+ 10 -0
10 g	+ 8 -0
5 g	+ 6 -0
2 g	+ 4 -0
1 g	+2 -0

5. Sheet Metal Weights.

5.1. Denomination.- The denomination of sheet metal weights shall be 500,200,200,100,50,20,20,10,5,2,2,1 mg.

5.2. Material - Sheet metal weights shall be made of stainless steel, aluminum, brass or nickel silver sheets. The aluminum and brass sheets may preferably conform respectively to BS: Designation NS 3 of BS: 1470-1955 and Grade 4 of BS: 713-1836.

5.2.1. Nickle silver sheets. – Nickle silver sheet should preferably have the following composition:-

Constituent		Per cent by weight.
Copper	..	63.0 to 66.5
Nickle	..	17.5 to 19.5
Zinc	..	Remainder.

5.2.2. Stainless steel sheet.- Stainless steel sheet should preferably conform to the following composition:-

Constituent	Per cent by weight.
Carbon, maximum.	0.16
Silicon, minimum.	0.20
Maganese, maximum	2.00
Nickle	7.0 to 10.0*.
Chromium	17.0 to 20.0*
Sulphur, maximum	0.045
Phosphorous, maximum	0.045

* Nickel plus chromium not less than 25.00 per cent.

5.3. Shapes and dimensions.

5.3.1. Other than bullion weights.- After bending along one of the sides (see Fig.7) the weights shall have the dimensions given in Table VII and the following shapes:-

Denomination (mg)	Shape.
500,50,5	Hexagon
200,20, 2	Square.
100,10,1	Triangle.

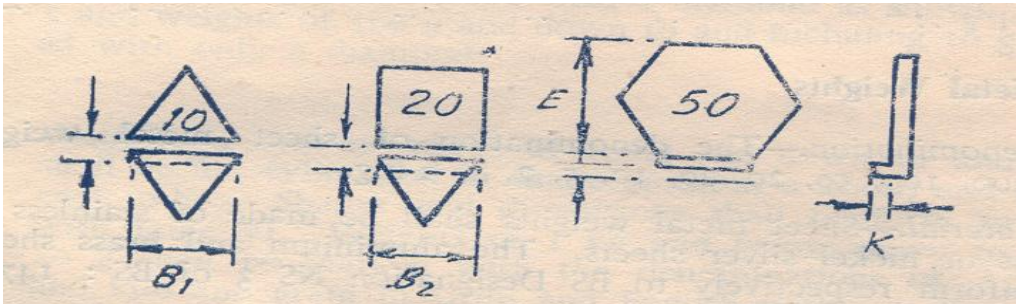


Fig. 7. Sheet Metal Weights.

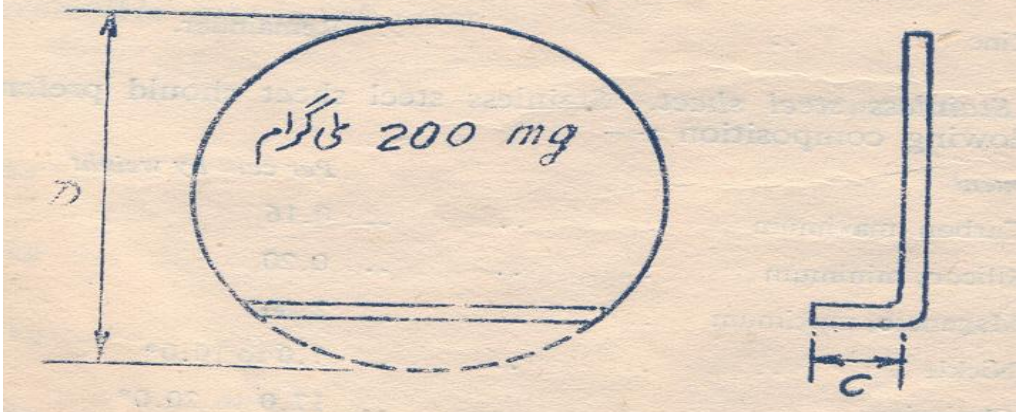


Fig. 8. Sheet Metal Bullion Weight.

TABLE VII- DIMENSIONS OF SHEET METAL WEIGHTS.

Denomination (mg)		B1	B2	B3	H	C
500	..	-	-	12	4	2
200	..	-	9.0	-	3.5	2
100	..	9.0	-	--	3.5	2
20	..	-	-	9.0	3	1.5
20	..	-	6.4	-	2.5	1.5
10	..	6.4	-	-	2	1.5
5	..	-	-	6.3	2	1
2	..	-	3.6	-	2	1
1	..	3.6	-	-	2	1

All dimensions in millimeters
Tolerance on dimensions ± 10 per cent.

TABLE VIII- DIMENSIONS OF SHEET METAL WEIGHTS BULLION.

Denomination (mg)		**D**	**C**	**H**
500	..	11.0	2	2
200	..	10.0	2	2
100	..	9.0	2	2
50		8.0	1.5	2
20	..	6.3	1.5	1.6
10	..	5.6	1.5	1.6
5	..	5.0	1.0	1
2	..	4.0	1.0	1.0
1	..	3.2	1.0	1.0

All dimensions in millimeters.
Tolerance on dimensions ± 10 per cent

5.3.2. Bullion weights- when intended for use in the bullion trade, sheet metal weights shall, after bending, have circular shape, their diameters shall be as given in Figure 8 read with Table VIII.

5.4 Permissible errors.- The errors in excess permissible for new weights shall not exceed the following limits:-

Denomination (mg)	**Other than bullion weights (mg)**	**Bullion weights (mg)**
500	8.0	1.6
200	6.0	1.2
100	4.0	0.8
50	2.0	0.4
20	2.0	0.4
10	1.0	0.1
5	0.4	0.2
2	0.2	0.2
1	0.1	0.1

5.4.1. The maximum permissible error in deficiency for used weights shall not exceed 50 per cent of the values prescribed for permissible errors in excess.

5.4.2. The deficiency figures are only for the information of users of weights and that the permissible error on new weights shall be only on the excess side.

6. Manufacture and finish.

6.1 General.- When the weights are cast, the castings shall be reasonably smooth, free from dross, pits, blow-holes and other defects. When weights are made by machining or forging, the surface shall be reasonably smooth. Sheet metal weights shall be clearly sheared and shall be free from burrs. Cast iron and forged weights shall be coated with a thin film of suitable black paint or varnish.

6.2. The raised markings on weights shall be clean and legible. The stamped markings on sheet metal weights shall be legible and deep enough to ensure indelibility over a long period, but not so deep as to crack the sheet.

6.3. When lead is used in adjusting weights, it shall be so fitted as to ensure that it does not dislodge itself under normal conditions of use.

6.4. The steel handles of cast iron weights shall be rigidly fixed.

7. Marking.

7.1. Every weight, except weights of 10 g and lower denominations shall have the name of the manufacturer his initial or trade mark indelibly cast or stamped on it.

7.2. The denominations on the weights shall be indicated in Urdu and English in an indelible manner, with the abbreviations 'kg' to indicate kilogram, 'g' to indicate gram, 'mg' indicate milligram. The numerals used shall only be in Arabic figures and the size of numerals and (letters need not be stamped on weights of 50 mg and below and on bullion weights, with knobs, of denominations of 5 g and below) indicating denominations of weights shall be at least twice the size of letters indicating the name or trade-marks of the manufacturer.

8. Adjustments.- The weights provided with loading holes shall be adjusted by pouring the required with quantity of molten lead into the loading hole and pressing the lead firmly. The approximate distance of the lead from the surface shall not be less than 20 per cent of the maximum

thickness of the weight when new. The lead used for adjusting may preferably conform to Grade per cent of BS: 334-1934.

PART-II

COMMERCIAL CARAT WEIGHTS.

1. Denominations.

1.1. The denominations of the carat weights shall be as given below (the gram and milligram equivalents are shown against each for ready reference).

1.1.1. Knob Weights.

Denomination Carat (c)	Equivalent. (g)
500	100
200	40
100	20
50	10
20	4
10	2
5	1

1.1.2. Sheet metal weights.

Denomination Carat (c)	Equivalent. (mg)
2	400
1	200
50/100	100
20/100	40
10/100	20
5/100	10
2/100	..
1/100	2
0.5/100	1

2. Knob weights:

2.1. Denominations.- The denominations of different types of knob weights shall be the same as laid down in paragraph 1.1.1.

2.2. Materials:

2.2.1. The weights shall be made from robed, drawn or extruded material and shall not be cast.

2.2.1. The weights shall be made from brass, bronze, nickel silver non- magnetic nickel chromium or non- magnetic stainless steel which may preferably conform to the following:-

(a) **Brass-BS: 1949-1963**

(b) Bronze:

Constituent	per cem
Copper	89.0 to 91.0
Tin	Remainder.
Impurities	
Lead, maximum.	0.05
Iron, maximum	0.05
Other (total), maximum ..	0.13

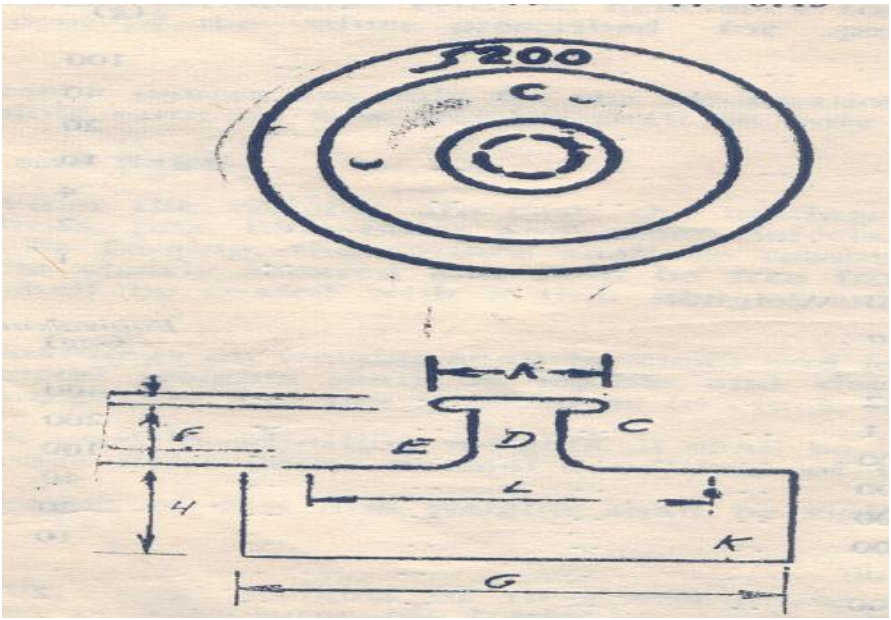


Fig. 1 Knob Carat Weight.

(c)	Nickle Silver: Constituent Copper Nickle Zinc Impurities Iron, maximum Manganese, maximum. Lead, maximum.		 Percent 63.0 to 66.5 17.5 to 19.5 Remainder. 0.25 0.50 0.05
(d)	Non-magnetic Nickle Chromium Constituent Carbon, maximum Manganese, maximum Chromium Silicon, maximum Copper, maximum Iron, maximum.		 Percent 0.10 0.50 19.0 to 21.0 0.80 0.20 1.20
(e)	Non-magnetic Stainless Steel: Constituent Carbon, maximum Silicon		 Percent 0.08 0.02

TABLE I.- NOMINAL DIMESIONS OF KNOB CARAT WEIGHTS.
(All dimensions in mm**)**

Denomination Carat (c)			**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**K**
500	..	..	12	2.5	1.25	5.0	1.5	8.0	32.2	13.26	0.40
200	..	..	10	2.2	1.10	4.5	1.5	6.5	24.4	9.60	0.30
100	..	..	9	2.0	1.00	4.0	1.0	19.1	7.63	7.63	0.30
50			8	1.8	0.90	3.5	1.0	5.5	15.0	5.95	0.25
20			7	1.7	0.85	3.0	1.0	5.0	10.8	4.13	0.25
10			6	1.6	0.80	2.5	1.0	4.5	8.2	3.26	0.20
5			5	1.5	0.75	2.0	1.0	4.0	6.3	2.49	0.20

Note.- the above nominal dimensions are related to a material with a density of 8.4 g/cc . to take into account variations in materials and

manufacturing practices, a tolerance of +5 percent is permitted on the obligatory dimensions (that is, other than C.E. and K).

Constituent	Percent
Manganese, maximum	2.00
Nickle	8.0 to 11.0
Chromium	17.5 to 20.0
Sulphur, maximum	0.045
Phosphorus, maximum	0.045

2.3 Shape and dimensions- The shape and dimensions of the weights shall be as shown in Figure 1 and Table 1.

2.4 Permissible errors. – The errors in excess for new weights shall not exceed the following limits. No errors in deficiency shall be permitted.

Denomination Carat (c)	Permissible error in excess (mg)
500	8
200	6
100	5
50	4
20	3
10	2
5	1

2.4.1. The maximum permissible errors in deficiency for used weights shall not exceed 50 percent of the values prescribed for permissible errors in excess.

2.4.2 It should be noted that the deficiency figures are only for the information of users of weights and that the permissible error on new weights shall be only on the excess side.

3. Sheet metal weights:

3.1. ***Denominations.-*** The denominations of different types of sheet metal weights shall be as laid down in paragraph 1.1.2

3.2. ***Materials.-*** Weights of denominations 2/100 carat and below shall be made of aluminum sheet which may preferably conform to NS 3 of BS : 1470-1955. Weights of higher denominations shall be made of sheets of brass aluminium, nickel silver, chromium or bronze, which may preferably conform to the following:-

3.2.1. Brass – Grade 4 of BS: 713=1936.
3.2.2. Bronze – As in 2.2.2. (b).
3.2.3. Nickle Silver – As in 2.2.2. (c).
3.2.4. Non-magnetic Nickle Chromium – As in 2.2.2. (d).
3.2.5. Non magnetic Stainless Steel – As in 2.2.2. (e)
3.2.6. Aluminium – BS: 1470 – 1955.

3.3. ***Shape and dimensions.*** **–** Sheet metal weights shall be square with a raised corner to facilitate manipulation (see fig 2). They shall have the dimensions given in Table II.

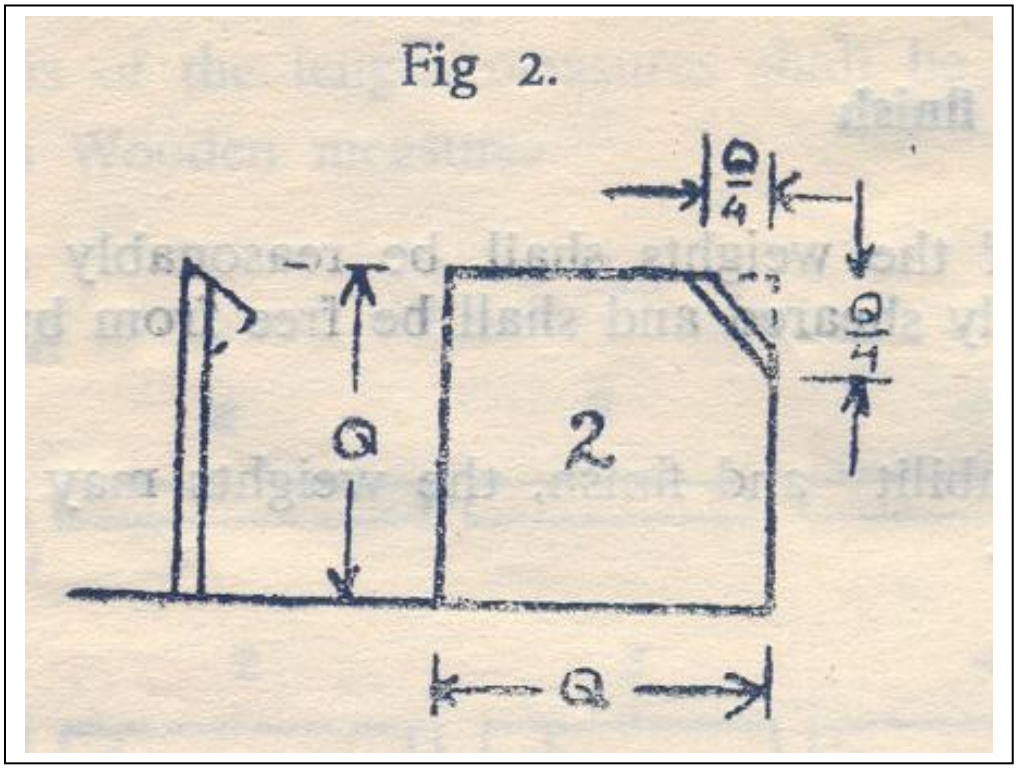


Fig 2 Sheet Metal Carat Weight.

Table II. –Nominal Dimensions of sheet metal carat weights.

Denomination Carat (c)	**Size (a) mm**
2	12
1	10
50/100	9
20/100	8
10/100	7
5/100	6
2/100	5
1/100	4
0.5/100	3

Tolerance + 10 Percent

3.4. Permissible errors. –The errors in excess for new weights shall not exceed the values given below. No errors in deficiency shall be permitted.

Denomination Carat. (c)	**Permissible errors in excess (mg)**
2	0.8
1	0.6
50/100	0.4
20/100	0.2
10/100	0.2
5/100	0.1
2/100	0.1
1/100	0.1
0.5/100	0.1

3.4.1. The maximum permissible errors in deficiency for used weights shall not exceed 50 percent of the values prescribed for permissible errors in excess.

3.4.2. It should be noted that the deficiency figures are only for the information of users of weights and that the permissible errors on new weights shall be only on the excess side.

4. **Manufacturer and finish:**

4.1. The surface of the weights shall be reasonably smooth. Sheet metal weights shall be smoothly sheared and shall be free from burrs.

4.2. For better durability and finish, the weights may be nickel, chromium, gold or chrodium plated.

5. **Marking:**

5.1. Every weight, except weights of 50 carat and lower denominations, shall have the manufacturer's name, initial or trade mark and the denomination indelibly stamped on it.

5.2. The denomination shall consist of the Arabic numerals in Latin Script, 'kilo' and 'gram' in Urdu within a diamond, except that in the case of weights below 50 carat, only the numerals shall be marked. The size of numerals and letters indicating denominations of weights shall be at least twice the size of letters indicating the manufacturer's name or trade marks.

5.3. The marking shall be legible and deep enough to ensure indelibility over a long period of use.

6. **Packing:**

6.1. Each set of carat weights shall, in addition to the series of denominations specified under paragraph 2, consist of an additional piece of weight of the relevant decimal multiple of two.

6.2. The weights shall be supplied in a suitable velvet-lined box. The small sheet metal weights shall be so housed and provided with a cover of glass of or any other transparent material so that they will not get dislodged from their proper places. The box shall also contain a pair of forceps for lifting the weights.

PART III – COMMERCIAL LINEAR MEASURES.

(non-flexible)

1. General:

1.1. This part deals with the non-flexible type of commercial length measures made of metal or wood. Metallic measures are usually used for measuring textiles, ribbons and similar materials and wooden measures generally in the timber trade.

2. Denominations:

The denominations of the length measures shall be as follows:-

Metallic measures wooden measures.

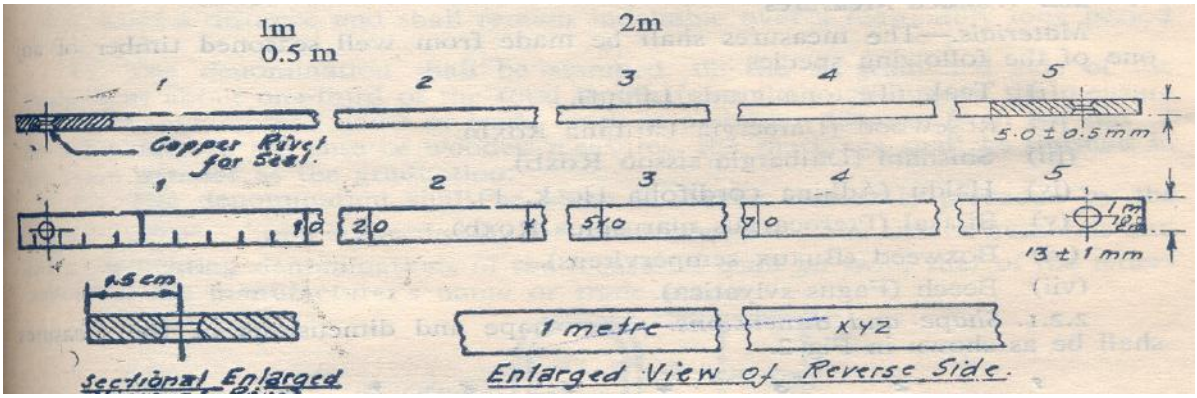


Fig-1

2.1. **Metallic measures:**

2.1.1. ***Materials.-*** The measures shall be made of mild steel or brass plated with nickel and chromium or of stainless steel. The mild steel rods and brass bars may preferably conform to Designation B of IS: 226-1955 and Grade A of IS: 319-1951 respectively.

2.1.2. ***Shape and dimensions.-*** The shape and dimensions of the measures shall be as shown inFig.1

2.1.3. Graduation.- The graduation marks shall be made at every centimeter for the first ten centimeters and thereafter at every five centimeters. The graduation marks at every ten centimeters shall be numbered. The marks at the centimeter divisions shall extend over half the breadth and those at five centimeters divisions over full breadth of the measures. A cross mark shall be provided at 25 centimeters in the case of 0.5m measures and at 25, 50 and 75 cm in the case of 1 m measure (see Fig 1). The graduations shall be only on one side of the measures.

2.1.4. Limits of error to be tolerated- The mark at every five centimeters shall not exceed or be deficient by more than 0.25 mm and further the error from the beginning of the measure to any line mark shall

not exceed 1.0 mm provided that the errors on the full length of the measures shall not exceed the following limits:-

Denomination		Verification		Inspection	
		Excess	Deficiency	Excess	Deficiency
1 m	..	1.0 mm	0.5 mm	1.0 mm	0.5 mm
0.5 m	..	0.5 mm	0.25 mm	0.5 mm	0.5 mm

2.1.5. Provision for stamping.- The measures shall be provided with a copper rivet near each end (see Fig.1) firmly fixed in a hole, countersunk on both sides, for the Inspector's stamp. An arrow head shall be marked at each end of the measure to provide the points for checking the length.

2.2. **Wooden measures**:-

Materials.- The measures shall be made from well seasoned timber of any one of the following species:-

(i) Teak (Tectona grads Linn.f).
(ii) Roswood (DalbergiaLatialia ROXB).
(ii) shiham (Dalbergia sissoo Roxb).
(iii) Haldu (Adhina cordifolia Hock, F)
(iv) Bijasal (Pterocarous maruspius Roxb).
(v) Boxweed (Buxus sempervirens).
(vi) Beech (Fagus svlvatica).

2.2.1. Shape and dimensions.-The shape and dimensions of the measures shall be as shown in Fig.2.

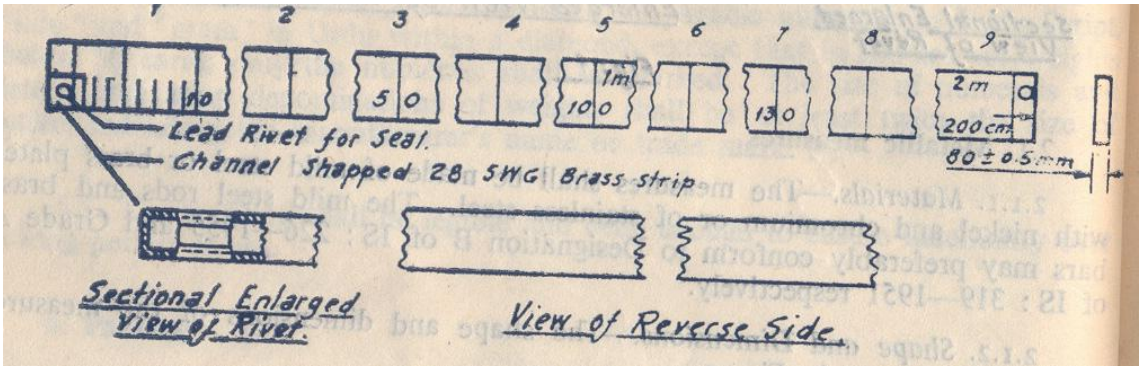


Fig-2

2.2.2. Graduation.-The graduation marks hall be made at every centimeter for the first ten centimeters and thereafter at every five centimeters. The graduation marks at every ten centimeters shall be numbered. The marks at the centimeter divisions shall extend over half the breadth and those at the five centimeter division over the full breadth of the measures. A cross mark shall be provided at every 25 cm, excluding the one metre and two metre graduation (see Fig.2). The graduations shall be on one side of the measures only.

2.2.3. Limits of error to be tolerated.-The mark at every five centimeters shall not exceed or be deficient by more than 1 mm, and further the error from the beginning of the measures to any line marks shall not exceed 2mm, provided that the errors on the full length of the measures hall not exceed the following limits:-

Denomination	**Verification**		**Inspection**	
	Excess	**Deficiency**	**Excess**	**Deficiency**
2m	4mm	2mm	4mm	4mm

2.2.4. Provision for stamping.-Each measure shall be provided at each end with a metal tip not less than 1 cm, in width, securely riveted with two rivets at each end as shown in Fig.2, for receiving the Inspector's stamp. The width of the tips shall be included in the total length of the measure.

3. Manufacture and finish:-

3.1. The measure shall be evenly finished and shall be reasonably straight.

3.2. In the case of metallic measure, the graduation marks and the cross marks shall be legible and deep enough to ensure indelibility over a reasonably long period of use, but not so deep as to mark the measures liable to be easily bent. In the case of wooden measures, the markings shall be finished neatly, sharply and legibly, in the colour contrasting with the wood finish. They shall be visible from a distance and shall remain indelible over a reasonably long period of use.

4.1. The denomination shall be stamped, on the un-graduated side of the measure at about one-third of the total length from the beginning of the measure and the manufacture's name or trade mark at a similar distance from the end of the measure. In the case of wooden measurer the markings shall be finished in the same manner as the graduation.

4.2. The denomination shall be given in Arabic numerals preceded by the word: , and succeeded y the word 'metre'. The size of numerals and letters, indicating denominations of the measures, shall be twice that of the letters indicating the manufacturer's name or trade marks.

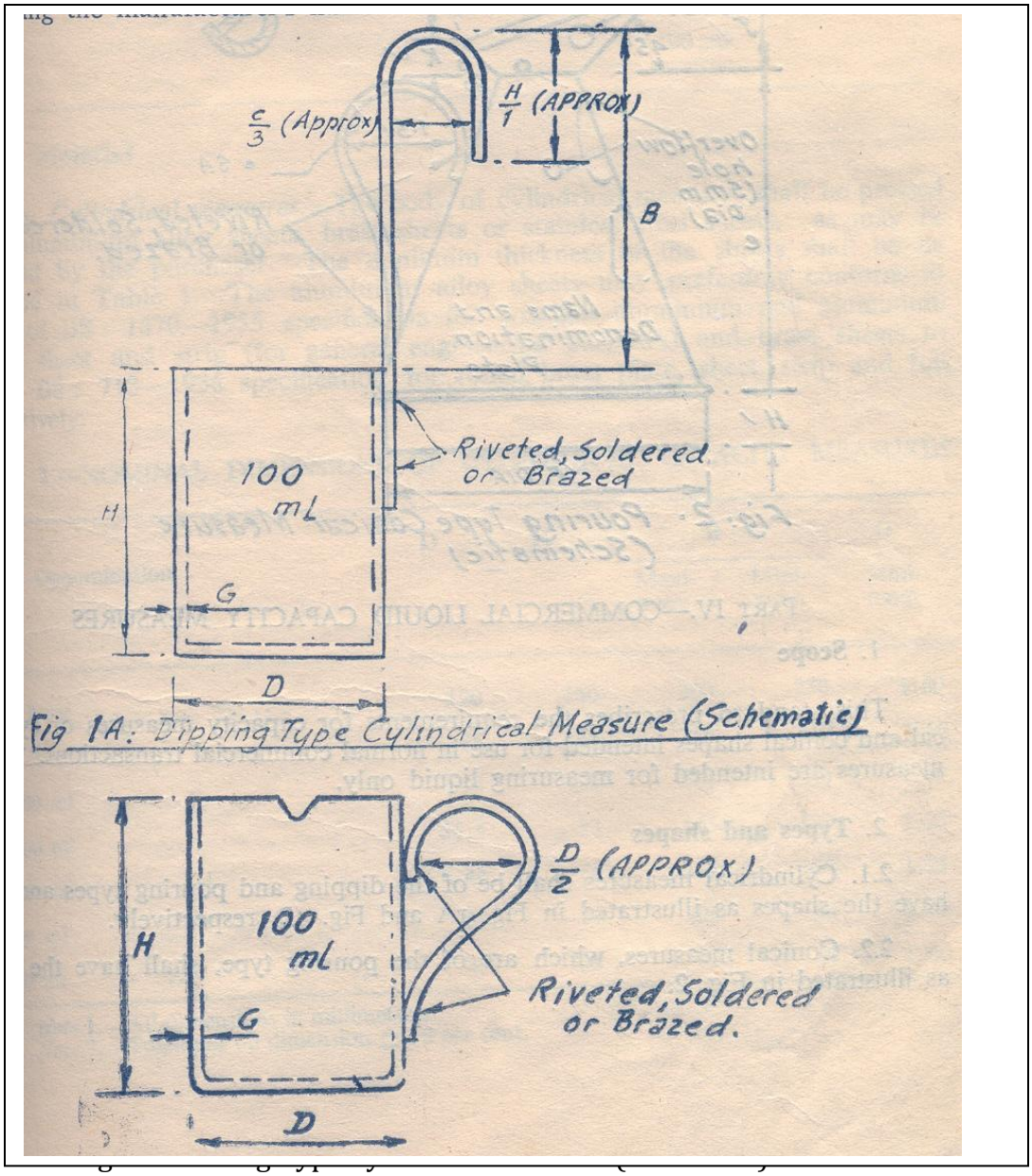


Fig 1A: Dipping Type Cylindrical Measure (Schematic)

Fig-1B Pouring type cylindrical measures (Schematic)

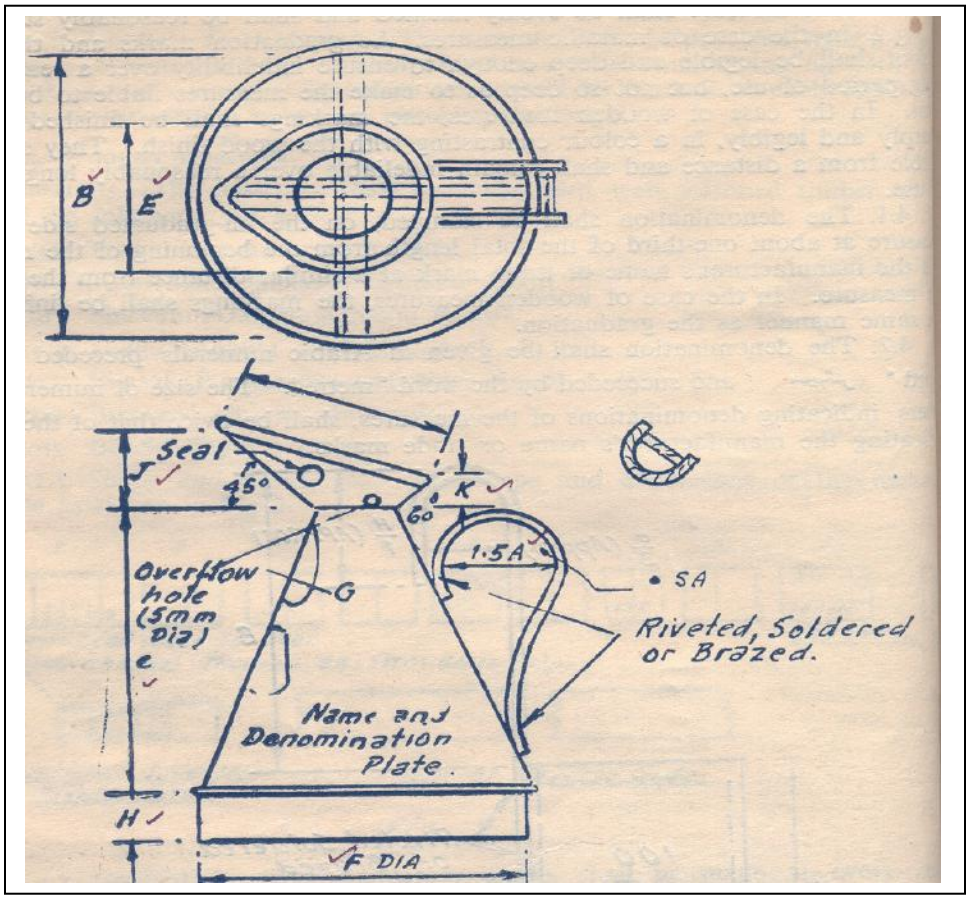


Fig. 2 Pouring Type Conical Measure (schematic)

PART IV- COMMERCIAL LIQUID CAPACITY MEASURES

1. Scope:

This standard prescribes the requirements for capacity measures of cylindrical and conical shapes intended for use in normal commercial transactions. These measures are intended for measuring liquid only.

2. Type and shapes.

2.1. Cylindrical measures shall be of the dipping and pouring types and shall have the shapes as illustrates in Fig 1A and Fig. 1B respectively.

2.2. Conical measures, which are of the pouring type, shall have the shape as illustrated in Fig.2.

3. **Denominations**.

The denominations of the different types of measures shall be as follows:-

Cylindrical Measures	**Conical Measures.**	
Dipping Type.	**Pouring Type.**	
1 litre	2 litres.	20 litres
500 ml	1 litre	1 litres
200 ml	500 ml	5 litres
100 ml	200 ml	2 litres
50 ml	100 ml	1 litres
20 ml	50 ml	500ml
	20 ml	200 ml
		100 ml

4. Material:

4.1. Cylindrical measures. - The body of cylindrical measures shall be pressed from aluminum alloy sheets, brass sheets or stainless steel sheets, as may be specified by the purchaser. The minimum thickness of the sheets shall be as specified (Table 1). The aluminum alloy a sheets may preferably conform to NS 3 of BS: 1470-1955 specification for wrought aluminum and aluminum alloys, sheet and strip (for general engineering purposes) and brass sheets to Grade BS: 713-1936 specification for rolled brass plate, sheet strip and foil respectively.

TABLE 1 – NOMINAL DIMENSIONS OF CYLINDRICAL CAPACITY MEASURES.

Denomination	**D**	**H**	**B**		**G**
			Maximum	Minimum	Minimum
2 litres	120	180	360	250	1.60
1 litres	95	142	254	210	1.60
500ml	75	114	224	160	1.60
200 ml	55.5	83	166	120	1.25
100 ml	44	66	132	100	1.25
50 ml	35	52	104	80	1.25
20 ml	26	38	76	60	1.00

Note 1. All dimensions in millimeters.
Note.2. Tolerance on dimension ± 10 percent.

4.2. Conical measures.—The conical measures shall be fabricated from galvanized steel sheets, aluminum alloy sheets, copper sheets, brass sheets stainless steel sheets or tin-plate, as specified by the purchaser. The minimum thickness of the sheets shall be as specified in Table II. The galvanized steel sheets, aluminum alloy sheets, brass sheets and tin-plate may preferably conform to Class 1 of BS: 3033 -1959 specification for galvanized steel sheets (plain and corrugated), NS 3 of BS: 1470-1955 specification for wrought alunimium and aluminum alloys sheets and strip (for general engineering purposes), Grade BS 60 of BS: 713-1936 Specification for rolled brass plate, sheet, strip and foil and Grade brass plate, sheet, strip and foil and Grade 1 (C1) of BS: 2980-1957 specification for black plate for tinning, and tin-plate respectively.

4.3. The handless for the measures shall be fabricated from the same material as that used for the body.

5. Dimensions.

5.1. The nominal dimensions of conical measures shall conform to Fig.1 read with Table 1 and Fig.2 read with Table II, respectively.

TABLE II- NOMINAL DIMENSIONS OF CONICAL CAPACITY MEASURES.

Denomination	A	B	C	D	E	F	G Min	H	J	K	M
20 litres	97	388	388	208	194	390	1.00	35	86	29	30
10 litres	77	308	307	174	154	309	1.00	30	75	26	25
5 litres	61	244	245	147	122	247	0.80	25	65.5	24	20
2 litres	45	180	180	118	90	182	0.63	20	56	22	16
1 litres	36	143	143	95.5	72	145	0.63	20	45	18	16
500 ml	28	114	113	74	56	116	0.63	15	35	14	12
200 ml	21	84	84	53	42	86	0.63	10	24.5	10	8
100 ml	17	66	67	41	34	69	0.63	10	18.5	7	8

Note. 1- All dimensions in millimeters.

Note 2- Tolerance on dimension ± 5 per cent for 20 litres and 10 litres and ± 10 per cent for litres and below.

6. Manufacture:

6.1. Measures made of brass sheet and copper sheets shall be well oinned, preferably with pure tin, uniformly all over the inside as well as the outside surface.

6.2. The handles shall be of robust construction and shall be well formed and generally shapped as shown in Fig. 1 and Fig.2 . They shall be securely fixed to the body by means of reverting, welding, soldering or brazing.

Note.1.- Capacity measures when used for measuring milk shall have the handle fixed either by welding, soldering or brazing so as not to provide any pockets for accumulation of dirt and unhygienic materials.

Note.2- Dipping type of cylindrical measures may have the handle substituted by two suitable but diagonally opposite brackets affixed to the walls of the measure by means of soldering, brazing or welding so as to hold the measure properly by a handle at right angles to the walls of the measure to facilitate its use in hot and boiled milk trade.

6.3. The measures shall be free from any surface defects and indentations and shall be smoothly finished.

6.4. Cylindrical measures shall be provided with a well formed and proportioned spout to facilitate pouring.

6.5. Conical measures shall be provided with a retaining lip to avoid spilling. The retaining lip shall be provided with a brass plug with a collar to receive the lead seal which shall be stamped by the Inspector at the time of verification and periodic inspection. A small hole, about 5 mm in diameter, shall be provided at the bottom of the retaining lip to indicate the level to which the measure shall be filled and the hole shall be located on the side at right angles to the handle.

6.6. The measure shall be so designed that when they are titled 120 degrees from the vertical, they shall become completely empty.

7. Permissible errors in capacities:-

7.1. The permissible errors in excess shall not exceed the limits given below. No errors in deficiency shall be permitted.

	Permissible errors in excess.	
Denomination	**Cylindrical Measures (ml)**	**Conical Measures (ml)**

20 litres	-	100
10 litres.	-	50
5 litres	-	30
2 liters	30	15
1 liters	20	10
500 ml	15	8
200 ml	8	4
100 ml	5	3
50 ml	3	-
20 ml	2	-

8. **Marking:**

8.1. Every cylindrical measure shall have the denomination and manufacturer's name or registered trade mark legibly and indelibly stamped on it. In the case of conical measures, the denomination and manufacturer's name or trade marks shall be either embossed on the body or indelibly marked on a name-plate securely fixed to the body.

8.2. The denomination shall consist of Latin Arabic numerals and the abbreviation 'I' to indicate litre, and 'ml' to indicate millilitre. The size of letters indicting denominations on the measures shall be twice the size of the letters indicating the manufacturer's name or trade mark.

PART IV- DISPENSING MEASURES.

1. General:

1.1. This part deals with two types of dispensing measures made of glass and transparent plastic materials used for dispensing purposes.

2. Types and denominations.

2.1. Dispensing measures shall be of the following types and denominations :-

2.1.1. Conical measures.- 200 ml, 100ml, 50 ml, 20 ml,10 ml, 5 ml,
2.1.2. Beaker measures.- 1000 ml and 500 ml.

3. Materials;

3.1. Glass measures.- The measures shall be made of clear and transparent glass. They shall be well annealed; free from stones, cracks and chippings; and as free as possible from blisters and other defects. Lead glass shall not be used for the measure.

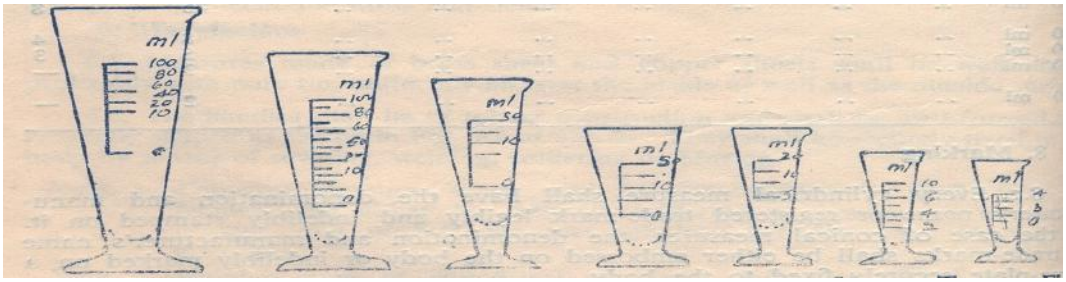
3.2. Transparent plastic measures.- The measures shall be made of clear and transparent plastic materials, manufactured from plasticized polyvinyl chloride or copolymer, the major constituents of which is polyvinyl chloride. The plastic material used shall not contain any constituents known to be injurious to health and likely to be extracted by contract with liquids.

4. Definition of capacity:-

4.1. The capacity corresponding to any graduation mark is defined as the volume of water at 27ºC, expressed in milli-litres, required to fill the measures to the graduation mark at 27ºC, the observer's eye being at level with the front graduation mark and the lowest point of the water meniscus appearing to touch the top edge of that mark.

5. Conical measures;

5.1. **Shape.-** The measures shall be conical as shown in Fig. 3A to 3G; the 50 ml, measures shall be either tall or squat as shown in Figs. 3C and 3D respectively.



Conical Dispensing Measures of SI Series- Tall and Squat Types Fig.3A, Fig 3B, Fig 3 C, 3D, (Fig, 3E, Fig. 3F. Fig.3G. 200 ml, 100 ml, 50 ml (Tall) 50 ml, 20 ml, 10 ml, 5 ml (Squat).

Fig. 13 – conical Measures

5.2. Constructions:

5.2.1. Each measures shall have a pouring lip. The form of the lip shall be such that when the measure is filled with water to the highest graduation mark, the contents may be poured from the lip in stream falling clear of the outside of the measure.

5.2.2. Each measure shall have a base on which it shall stand vertically without rocking when placed on a horizontal surface. The size of the base shall be such that the measure, when empty, shall not fall when placed on a plane inclined at 15º to the horizontal. The bottom of the measuring space shall be uniformly rounded and shall merge smoothly into the sides of the measures.

5.2.3. The wall thickness of the measures shall be sufficient to ensure study construction and shall not show any local departures from uniformity.

5.2.4. The external surface of the measures shall be a cone having an included angle of not less than 13º and not more than 14º.

5.2.5. The overall volume of the measure shall be such that when it is filled with water to the highest graduation mark and a volume of water equal to half its nominal capacity is added to it, there shall be no overflow. But the addition of a further quantity of water equal to quarter the nominal capacity shall result in water overflowing from the pouring lip.

5.3. Graduation:

5.3.1. The conical measures shall be graduated in accordance with Table 1.

TABLE III. – DETAILS OF CONICAL MEASURES.

Denomination	Graduated At	Numbered At	Back Lines At	Lowest Graduation Mark	Height of Lowest Graduation Mark above Bottom of Measuring space	Minimum Length Of Mark
1	2	3	4	5	6	7
ml	ml	ml	ml	ml	cm	cm
200	50,100,120,140, 160,180,200.	50,100,120, 140,160,180 ,200	50,100,200	50	6.5+0.5	2.0
100	Every 10 ml from 10 to 100 ml.	10,20,40,60, 80,100.	20,60,100	10	3.0+0.5	1.75
50(Tall)	Every 10 ml from 10 to 50 ml.	10,30,50.	30,50	10	4.5+0.5	1.5
50(Squat)	Every 10 ml from 10 to 50 ml	10,30,50	30,50	10	2.0+0.5	1.5
20	Every 5 ml from 5 to 20 ml	5,10,20	10,20	5	2.5+0.5	1.25
10	Every 2 ml from 2 to 10 ml.	2.4,6.8,10	2.,6,10	2	2.5+0.5	1.0
	Every 1 ml from 1 to 5 ml.	1,3,5	3.,5	1	2.5+0.5	0.75

5.3.2. With the pouring lip of measure facing to the right, the front graduation marks shall be placed at right angles to and on the right hand side of vertical line extending from above the top graduation mark to near the base of the measure and below the bottom graduation mark.

5.3.3. The graduation marks shall be marked as shown inFig.3A to 3G. The marks shall be engraved or etched and they shall be of a uniform thickness not exceeding 0.3 mm, provided that they may taper slightly towards the ends. The graduation marks shall lie in planes perpendicular to

the axis of the measure and shall be horizontal when the measure is standing on a horizontal surface.

5.3.4. Each graduation number shall be etched or engraved close to the end of the graduation mark to which it relates and in such a manner that it would be bisected by a prolongation of that graduation mark.

5.3.5. The numbered graduation marks shall have the minimum length specified in column 7 of Table III. The un-numbered graduation marks shall be at least two third the length of the numbered graduation marks and clearly shorter than the numbered marks.

5.3.6. The height of the lowest graduation mark above the lowest point of the bottom of the measuring space shall be within the limit given in column 6 of Table III.

5.3.7. Limits of error to be tolerated:- The limits of error to be tolerated in capacity shall not exceed the figures given below. The permissible errors in excess or deficiency shall be the same for verification or inspection.

TABLE IV.- PERMISSIBLE ERRORS IN CAPACITY OF CONICAL MEASURES.

Capacity corresponding to Graduation Mark		**Measures except 50 ml (Squat).**	**50 ml (Squat) Measures**
200,180,160	..	3.0	..
140,120,100	..	2.0	..
90,80,70,60	..	1.5	..
50,40	..	1.0	1.0
30	..	0.8	1.0

Capacity corresponding to Graduation Mark	**Measures except 50 ml (Squat).**	**50 ml (Squat) Measures**
20	0.6	0.8
15	0.5	..
10,9	0.4	0.6
8,7,6,	0.3	..
5	0.25	..

4	0.20	..
3	0.16	..
2	0.12	..
1	0.08	..

Note.- The permissible errors, apart from those of the 50 ml (Squat) measure, apply to graduation marks corresponding to the capacities stated irrespective of the nominal capacity of the conical measure concerned.

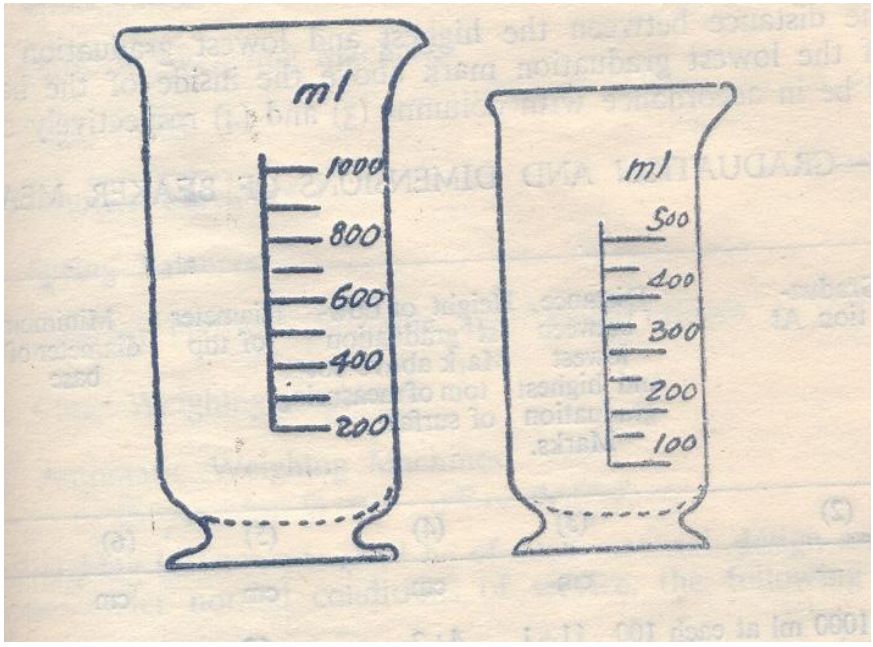


Fig.4A-1,000 ml Fig.4B -500ml

Fig.4- Beaker Measures.

6. Beaker measures:

6.1. Shape – The measures shall be in the form shown in Fig. 4-A and 4-B.

6.2. ***Construction:***

6.2.1. Each measure shall be provided with a pouring lip. The form of the lip shall be such that, when the measure is filled with water to the highest

graduation mark, the contents may be poured from the lip in a steam falling clear of the outside of the measure.

6.2.2. Each measure shall be provided with base on which it shall stand vertically without rocking when placed on a horizontal surface. The size of the base shall be such that the measure, when empty, shall not fall when placed on a plane inclined at 15º to the horizontal. The bottom of the measuring space shall be uniformly rounded and shall merge smoothly into the sides of the measures.

6.2.3. The overall volume of the measure shall be such that when the measure is filled with water to the highest graduation mark and a volume of water equal to quarter the denomination volume is added to it, the water shall not overflow.

6.3. ***Graduation:***

6.3.1. The graduation marks shall be marked as shown in Fig. 4-A and 4.B and Table V. - The marks shall be etched or engraved and shall be of a uniform thickness not exceeding 0.3, mm provided that they may taper slightly towards the ends. The graduation marks shall lie in plans perpendicular to the axis of the measure and shall be horizontal when the measure is standing on a horizontal surface.

6.3.2. Each graduation number shall be etched or engraved close to the end of the graduation mark to which to it is related and in such a manner that it would be bisected by a prolongation of that graduation marks.

6.3.3. The distance between the highest and lowest graduation marks and the height of the lowest graduation mark above the inside of the base of the measure shall be in accordance with columns (3) and (4) respectively of Table V.

TABLE V.- GRADUATION AND DIMENSIONS OF BEAKER MEASURES.

Denomin-Ation	Graduation at	Distance between Lowest and highest graduation Marks.	Height of Lowest graduation Mark above bottom of measuring of surface	Diameter of top	Minimum diameter of base	Overall height
1	2	3	4	5	6	7
ml		cm	cm	cm	cm	cm

1000	20 to 1000 ml at each 100 ml numbered at each 200 ml ; unnumbered back lines at 200, 600 and 100 ml	11±1	4±2	12	9	23
500	100 to 500 ml at each 50 ml numbered at each 100 ml unnumbered back lines at 100,300 and 500.	9±0.5	3±0.55	10	8	18

6.4. Limits of error to be tolerated.- The permissible errors in excess or in deficiency for verification or inspection shall not exceed 7 ml for 100 ml measure and 5 ml for 500 ml measure.

7. **Marking.**

7.1. Each measure shall have permanently and legibly engraved or etched on its denomination in Arabic numerals the abbreviation 'ml' being used to indicate millilitres. The manufacturer's name or trade mark shall be marked on the underside of the base of each measure.

SCHEDULE VI

(See rule 9).

Specifications for weighing instruments and measuring instruments for use in transactions of trade and commerce and limits of errors to be tolerated in verification or re-verification.

PART 1 - GENERAL REQUIREMENTS.

1.1. These specifications deal with all types of weighing instruments for commercial use and lay down broad essential constitutional requirements to ensure accuracy and long life. It also deals with markings, graduation methods and manner of verifying the tolerances, errors and sensitiveness.

1.2. Weighing instruments of the following categories are included in these specifications:-

(a). Beam Scales.
(b). Platform Weighing Machines.

(c). Steel Yards.
(d). Counter Machines.
(e). Spring Balances.
(f). Dormant Platform Machine and Weigh-bridges.
(g). Crane Weighing Machines.
(h). Automatic Weighing Machines.

2.1. Weighing instruments shall be of such material, design and construction as to ensure, under normal conditions of service, the following:-

2.1.1. Maintenance of accuracy.
2.1.2. Continued satisfactory functioning of operating parts.
2.1.3. Adjustments remaining reasonably permanent.
2.1.4. Prevention of the development of under stresses.

2.2. All weighing instruments shall be of the type commonly known as vibrating type. A vibrating type of instrument is an instrument which has its indicators oscillating on either side of the position of equilibrium.

2.3. Weighing instruments shall be of good workmanship and finish and shall be verified in clean conditions.

2.4. Weighing instruments with assembly parts, the assembly of which will affect the accuracy of the instruments, shall be so constructed as to make their use impossible without such parts. They will be suitably identified with the weighing instruments of which they form essential components.

2.5. Where an instrument has an interchangeable part, the interchange or reversal shall not affect the accuracy of the instrument.

2.6. *Knife edges and bearing*.- Knife edges and bearings used in weighing instruments shall be of such material as will have hardness not less than 62 Rc or equivalent. They shall be so fitted as to allow the beam or steelyard to move easily and to allow the knife edges to bear upon practically the whole length of the bearings.

2.7. All graduation shall consist of sharply defined uniform lines.

3. Marking:

3.1. All weighing machines shall be prominently, legibly and indelibly marked with manufacturer's name or the registered trade mark, capacity and class (wherever applicable).

3.2. The markings shall be both in Urdu and English.

3.3. The manufacturer's name or the registered trade mark specified in clause 3.1 shall be such as will not be mistaken for the stamp or the seal of the verifying authority.

3.4. The capacity of the weighing instruments shall be indicated in the following manner, namely:-

"To weigh .. .. (To be written in Urdu) kg

"To weigh .. .. "g"

4. **Sealing:**

4.1. All weighing instruments shall be provided by the manufacturer with a plug of stud of soft metal to receive the stamp or seal. Such plug or stud shall be provided in a conspicuous part of the instrument and shall be made in such a manner as to prevent its removal without obliterating the seal of the verifying authority.

5. **Verification:**

5.1. All weighing instruments shall be verified in the condition of their normal use wherever practicable. Non-portable weighing instruments shall be verified in situ in addition to any other test that may be taken at the manufacturer's or dealer's premises.

5.2. Weighing instruments shall be verified for sensitiveness (where ever applicable) and for greatest error at full load.

5.3. The terms "sensitiveness" and "error" mean as follows:-

Sensitiveness is the least weight required to be added or removed from the loading platform or, as the case may be, pan to cause an appreciable movement of the indicator from it position of equilibrium. Error is the least weight required to bring the indicator to the position of pose or equilibrium from its position of imbalance.

PART II.- BEAM SCALES.

1. **Definition**:

1.1 A beam scale is a weighing instrument with equal arms, having three knife edges three bearings, an indicator in the centre and pans suspended from the end knife edges.

2. **Classes of beam scales**.

Beam scales shall have the following four classes:-

2.1. Class 'A' shall include chemical and assay balances and other beam scales provided with means of relieving all the bearings and knife edges and satisfying the requirements of Table I.

2.2. Class 'B' shall include beam scales generally used in bullion trade, satisfying the requirement of Table II.

2.3. Class 'C' shall include beam scales satisfying the requirement of Table III.

2.4. Class 'D' shall cover beam scales satisfying the accuracy requirements of Table IV and distinguished from Class 'C' scales by the provision of two holes through the blade, one on higher side of the central knife edge.

2.5. This part does not prescribe the trades for which different classes of beam scales may be used. The following information may, however, serve as a guide:-

(i). Class 'A' beam scales are intended to be used for assay and for fine weighments.

(ii) Class 'B' scales are intended to be used in the trades mentioned below :-

(1). Bullion.

(2). Precious metals, precious stones and jewellery.

(3). Saffron and similar expensive commodities.

(4). Chemists and druggists.

(5). Perfumery.

(iii). Class 'C' scales are intended to be used in the trades mentioned below:-

(1). Base metals.

(2) relatively costlier commodities such as tea, coffee, tobacco, dry fruits, spices, oil-seeds, etc.

(iv). Class 'D' scales are intended to be used for weighment of relatively cheaper commodities, such as scrap iron, fuel, wood, charcoal, cotton waste, vegetables, cereals, etc.

3. **Materials:**

3.1. Beam scales shall be made of either mild steel, brass, bronze, aluminum alloy or stainless steel.

3.2. The pans shall be made of either mild steel, stainless steel, brass or bronze hardwood or leather. Wood and leather shall be permissible only in class 'C' and 'D' beam scales.

3.3. Pans shall be suspended from the beam by metal chains or metal stirrup supports.

3.4. Beam scales of capacities less than 100 kg, with wooden pans shall have metal sheets covering the pans.

4. **Beam fittings**:-

4. The knife edges and bearings used in beam scales shall be of one of the following types:-

4.1. "Agate-box" wherein agate bearings are fitted in brass or iron box, with side holes, which permit of the projecting ends of the knife edges passing into the boxes and resting on or rising to their bearings.

4.2. "Dutch end" wherein the end bearings are fixed inside plates bolted together across the beam to form a shackle.

4.3. "Swan-neck" wherein the ends are curved and slotted, the bottom of the slot forming a knife-edge, the extremities of the beam being widened in a direction at right angles to its length so that the base of the slot is parallel to the central knife-edges.

4.4.1. "Continuous knife-edges" wherein the knife-edges bear along their whole length.

5. **Construction:**

5.1. Beam scales shall not have a loaded weight pan.

5.2. Class 'A' scale shall be provided with a glass case. It shall also be provided with level indicator and leveling screws, to facilitate leveling of the beam scale.

5.3.1. A beam scale of classes 'C' and 'D' category may be provided with a balance ball or a balance box securely attached to one of the suspension chains or pans.

5.3.2. Beam scales with wooden pans shall be provided with balancing ball or box.

5.3.3. Any attachment for adjusting the balancing of beam scales shall be permanently fastened and where a balancing ball or box is used for occasional adjustments, it shall be so fixed that it cannot readily be tampered with.

5.3.4. Balance ball or box shall not be so large as to contain more loose material than an amount exceeding one percent in weight of the capacity of beam scale under 50 kg or an amount exceeding 1 kg for beam scale of capacity over 50 kg.

6. **Marking:**

Beam scale shall be conspicuously, legibly and indelibly marked so as to indicate their class, capacity and the manufacturer's name or initials or trade mark. The capacity and class shall be indicated in Urdu as well as English script.

7. **Verification:**

7.1. Beam scales shall be verified for sensitiveness and error at full load and shall comply with the requirements of Table, I,II,III & IV.

7.2. Beam scales shall also be verified with the pans loaded to half the capacity. At this load, the beam scales shall not have a difference exceeding 50 per cent of the permissible error at full load where the knife edges or bearings are moved laterally within their limits of movements. Similarly, when the load on the pan is moved to any position, the difference in weight shown shall not exceed 50 per cent of the error permissible at full load.

TABLE I-SENSITIVENESS AND ERRORS FOR BEAM SCALES CLASS 'A'

	Verification		Inspection	
Capacity	Sensitiveness per division of scale when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded	Sensitiveness per division of scale when fully loaded	Error to be tolerated either in excess or in deficiency when fully loaded
1	2	3	4	5
2 g	0.02 mg	0.1 mg	0.06mg	0.2mg
10 g	0.05 mg	0.5 mg	0.15mg	1.0mg
20 g	0.08 mg	0.8 mg	0.24mg	1.6mg
50 g	0.10 mg	1.0 mg	0.30mg	2.0mg
200 g	0.15 mg	1.2 mg	0.45mg	2.4mg
1 kg	5.0 mg	20.0 mg	15.0mg	40.0mg
5 kg	10.0 mg	40.0 mg	30.0mg	80.0mg
20 kg	20.0 mg	80.0 mg	60.0mg	160.0mg

TABLE II-SENSITIVENESS AND ERRORS FOR BEAM SCALES CLASS 'B'

Verification			Inspection	
Capacity	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded
1	2	3	4	5
20g	2.0 mg	4.0 mg	6.0 mg	8.0 mg
50 g	5.0 mg	10.0 mg	15.0 mg	20.0 mg
100 g	8.0 mg	10.0 mg	24.0 mg	32.0 mg
200 g	15.0 mg	30.0 mg	45.0 mg	60.0 mg
500 g	30.0 mg	60.0 mg	90.0 mg	120.0 mg
1 kg	60.0 mg	120.0 mg	180.0 mg	240.0 mg
2 kg	100.0 mg	200.0 mg	300.0 mg	400.0 mg
5 kg	200.0 mg	400.0 mg	600.0 mg	800.0 mg
10 kg	400.0 mg	800.0 mg	1200.0 mg	1600.0 mg
20 kg	650.0 mg	1300.0 mg	1950.0 mg	2600.0 mg
50 kg	1200.0 mg	2400.0 mg	3600.0 mg	4800.0 mg
100 kg	2500.0 mg	5000.0 mg	7500.0 mg	10000.0 mg

TABLE III-SENSITIVENESS AND ERRORS FOR BEAM SCALES CLASS 'C'

	Verification		Inspection	
Capacity	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded
1	2	3	4	5
100 g	100.0 mg	200.0 g	300.0 mg	400.0 mg
200 g	200.0 mg	400.0 g	600.0 mg	800.0 mg
500 g	300.0 mg	600.0 g	900.0 mg	1200.0 mg
1 kg	400.0 mg	800.0 g	1200.0 mg	1600.0 mg
2 kg	600.0 mg	1.2 g	1800.0 mg	2.4 g
5 kg	1.8 g	3.6 g	5.4 g	7.2 g
10 kg	4.5 g	9.0 g	13.5 g	18.0 g
20 kg	7.0 g	14.0 g	21.0 g	28.0 g
50 kg	10.5 g	21.0 g	31.5 g	42.0 g
100 kg	20.0 g	40.0 g	60.0 g	80.0 g
200 kg	27.0 g	54.0 g	81.0 g	108.0 g
300 kg	32.0 g	64.0 g	96.0 g	128.0 g
500 kg	55.0 g	110.0 g	165.0 g	220.0 g
1000 kg	105.0 g	210.0 g	315.0 g	420.0 g

TABLE IV-SENSITIVENESS AND ERRORS FOR BEAM SCALES CLASS 'D'

	Verification		Inspection	
Capacity	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded
1	2	3	4	5
200 g	800.0 mg	800.0 mg	2400.0 mg	1600.0 mg
500 g	1200.0 mg	1200.0 mg	3600.0 mg	2400.0 mg
1 kg	2.0 g	3.0 g	6.0 g	6.0 g
2 kg	3.0 g	4.5 g	9.0 g	9.0 g
5 kg	6.0 g	9.0 g	18.0 g	18.0 g
10 kg	12.0 g	18.0 g	36.0 g	36.0 g
20 kg	25.0 g	40.0 g	75.0 g	80.0 g
50 kg	30.0 g	45.0 g	90.0 g	90.0 g
100 kg	50.0 g	75.0 g	150.0 g	150.0 g

200 kg	70.0 g	100.0 g	210.0 g	200.0 g
300 kg	90.0 g	150.0 g	217.0 g	300.0 g
500 kg	130.0 g	250.0 g	390.0 g	500.0 g
1,000 kg	250.0 g	500.0 g	750.0 g	1000.0 g

PART III – PLATFORM MACHINES.

1. Definitions.

1. A platform weighing machine is a weighing instrument with compound levers and with the goods receptacle generally in the form of a plat-form. The capacity of these machines shall not exceed 3,000 kg. and weight of the load shall be indicated either with a steelyard or with any other form of indicator.

2. Capacities.

2. Platform weighing machines shall be of one of the capacities shown in Table V.

2.1. The steelyard in the plat form weighing machine shall not have any readily removabley parts except the support for counterpoise proportional weights. There shall be a stop or stops to prevent the sliding poise or poises from traveling behind the zero mark.

The minimum travel of a steelyard in platform machines shall be 10 mm either way.

2.2. If a movable butch, barrow, frame or bucket is used instead of the ordinary platform, it shall form an essential part of the machine without which the machine can not be balanced. The movable butch, barrow frame or bucket shall be identified with the machine.

2.3. Where a balance box is provided on the steelyard, the balance ball should not be easily accessible.

2.4. The balancing arrangement for daily wear and tear shall have range between 0.25 per cent and 0.5 percent of the capacity of the machine and not less than 0.125 per cent of the capacity each way. The balance box containing the balancing ball shall be securely attached to the steelyard, preferably by passing a bolt through the easing to the steelyard. The balancing ball shall be actuated by a detachable key (see Table VI).

2.5. In the case of the platform machines provided with dials:-

2.5.1 racks and pinions shall be of hard wearing material;
2.5.2 the extremity of the index shall, in no position, be at a greater distance from the graduated surface of the dial than-5 mm and

shall be made to meat but not to obscure the graduation marks; and

2.5.3 the dial shall be graduated into equal parts and the minimum width apart of the graduations shall not be less than 3 mm.

2.6. The permissible extension of the platform on either side of the box in the case of extended platform shall be not more than 25 per cent of the length of the box.

3. Counterpoise proportional weights:-

3.1. All loose counterpoise proportional weights in a platform machine shall be identified with machine by a number of any other suitable mark of identification, which shall be indelible. The counterpoise weights shall be marked with their equivalent weights in the following manner:-

(to be written in Urdu) = 100 kg.

3.2. The counterpoise weights shall be hexagonal in shape with the slot of a suitable size to allow them being placed on the counterbalance.

3.3. The counterpoise proportional weight shall be made of cast iron.

3.4. The proportional weights shall have one rectangular loading hole which should be undercut or tapered inside so as to hold lead securely for normal wear and tear. The surface of the lead in the loading hole, when new, shall be at least 3 mm inside from the bottom surface of the weight.

3.5. In the case of platform machines provided with proportional counterpoise weights, the smallest denomination of the counterpoise weight shall be equivalent to the maximum graduation on the minor steelyard.

3.6. The denomination of the proportional weights shall be in the ratio of 1:2 : 2 : 5 and the total equivalent weight of all the proportional weights provided shall not exceed the capacity of the weighing machine.

Note.- While arriving at the capacity of the platform machines, the maximum graduation shown on the steelyard in the case of loose weight platform machines and on the minor steelyard in the case of no-loose weight type machines shall not be taken into account.

4. Verification:-

4.1. The steelyard of the platform machines shall remain horizontal at no load. With one-quarter of the maximum load or as near thereto as is

practicable, the platform machine shall indicate the same weight within half the prescribed limits of error, whether the load is placed in the centre or on any of the four corners of the platform.

4.2. Platform machines shall be verified to test the accuracy of any graduation upto the total capacity. All loose counterpoise weights, here such are provided, shall be verified and suitably sealed to prevent tempering.

4.3. When a platform machine is fitted with relieving gear, the prescribed limits of error shall not be exceeded when the machine is put steadily out of and into gear. The plate or platform, shall be entirely disengaged from its bearings when the machine is in relief.

4.4. Dial machines shall be verified for error only. No sensitiveness test shall be taken on such machines. The error at any load shall not exceed the limits prescribed in Table V.

4.5. Platform machines with the steelyard arrangement shall be verified for error as well as for sensitiveness at full load. The permissible errors and sensitiveness are indicated in Table V.

4.6. Platform machines shall not be verified for sensitiveness at load less than full load.

Sealing.

A stud or a plug of soft metal shall be provided on the steelyard for receiving the seal in the case of Steelyard Weighing Machines. In the case of the case of dial machines, such a plug, shall be provided on the dial where it is accessible otherwise on the body of the machine.

TABLE V. SENSITIVENESS AND ERRORS FOR PLATFORM MACHINES.

		Verification			Inspection	
		Greatest error to be tolerated in excess or in deficiency when fully loaded			Greatest error to be tolerated in excess or in deficiency when fully loaded	
Capacity	Sensitiveness when fully loaded	Vibrating machines	Platform machines fitted with dials	Sensitiveness when fully loaded	Vibrating machine	Platform machine fitted with dials.
50 kg	15 g	30 g	One half the weight represented by the interval between consecutive graduation marks.	45 g	60 g	The weight presented by the interval between graduation mark
100 kg	25 g	50 g		75 g	100 g	
150 kg	30 g	60 g		90 g	120 g	

200 kg	35 g	70 g		105 g	140 g	
250 kg	45 g	90 g		135 g	180 g	
300 kg	50 g	100 g		150 g	200 g	
500 kg	90 g	180 g		270 g	360 g	
1,000 kg	150g	300 g		450 g	600 g	
1,500 kg	200 g	400 g		600 g	800 g	
2,000 kg	250 g	500 g		750 g	1,000 g	

Note:-- The capacities 150 and 250 kg are not preferred and shall not be used as far as possible.

TABLE VI. - RANGE OF BALANCING ARRANGEMENT FOR PLATFORM MACHINES.

Range of Balancing Arrangement.			
Capacity	Maximum 0.5 per cent of capacity	Minimum 0.25 per cent of capacity	0.125 per cent each way
50 kg	250 g	120 g	60 g
100 kg	500 g	250 g	120 g
150 kg	750 g	370 g	180 g
200 kg	1000 g	500 g	250 g
250 kg	1.3 kg	620 g	310 g
300 kg	1.5 kg	750 g	370 g
500 kg	2.5 kg	1.25 kg	620 g
1,000 kg	5.0 kg	2.50 kg	1.25 kg
1,500 kg	7.5 kg	3.75 kg	1.87 kg
2,000 kg	10.0 kg	5.00 kg	2.50 kg

PART IV – STEEL YARDS.

1. Definition:

1. A steelyard is an unequal arms balance.

2. Capacities:

Steelyards shall be of one of the capacities mentioned in Table VII.

3. Design and construction:

Steelyards shall be made of either mild steel or stainless steel. The shank shall be perfectly straight. Notches or graduations on the shank shall be cut in one plane and at right angles to the shank. All steelyards shall be provided with a stop or other suitable arrangement to prevent excessive oscillation of the shank. The sliding poise and suspending hooks shall be securely attached to the instrument. All end-fittings such as the nut attached to prevent the poise carrier riding off the steelyard shall be securely fixed to the shank. The slide poise shall be freely movable and there shall be a stop to prevent it from travelling behind the zero mark. Steelyards having a counterpoise or travelling poise shall be provided with a hole or suitable means for the further adjustment of the counterpoise or traveling pose, such

hole being under-cut. Wherever loose material is used in the travelling poise, it shall be securely enclosed. Steelyards, shall be neither reversible, nor have three hooks, and shall not be of counter type. Steelyards shall have a zero graduation.

4. Verification:

4.1. Steelyards shall be verified at full load for sensitiveness and error and shall comply with the requirements of Table VII.

4.2. The verification for sensitiveness is carried out by loading the instrument with the maximum testing load with the steelyard in horizontal position and ascertaining that it turns with addition of the amount shown in the table for sensitiveness.

4.3. Each numbered graduation shall be verified and the instrument shall be correct whether it is carried out with increasing or decreasing loads.

4.4. The intermediate graduations shall also be tested to see that they are correct and are at proper distance apart.

4.5. Steelyard shall be verified for error by ascertaining the weight in excess or deficiency (if any) required to ring the steelyard to a horizontal position when fully loaded.

4.6. No verification for sensitiveness at a lower load shall be made.

5. Sealing:

Each instrument shall be provided with a plug or stud of soft metal on the front face of the shoulder of the steelyard for receiving the seal, such a plug or stud should be made irremovable by undercutting it or in some other suitable manner.

TABLE VII. - SENSITIVENESS AND ERRORS FOR STEELYARDS.

	Verification		**Inspection**	
Capacity	Sensitiveness when fully loaded.	Greatest error to be tolerated either in excess or in deficiency when fully loaded.	Sensitiveness when fully loaded	Greatest error to be tolerated either in excess or in deficiency when fully loaded.
1	2	3	4	5
10 kg	5 g	7.5 g	15 g	15.0 g
20 kg	10 g	15.0 g	30 g	30.0 g
50 kg	25 g	50.0 g	75 g	100.0 g

100 kg	40 g	80.0 g	120 g	160.0 g
150 kg	60 g	120.0 g	180 g	240.0 g
200 kg	65 g	130.0 g	195 g	260.0 g
250 kg	80 g	160.0 g	240 g	320.0 g
300 kg	90 g	180.0 g	270 g	360.0 g

PART V. – COUNTER MACHINES.

1. Definition. - Counter machine is an equal armed weighing instrument of a capacity not exceeding 50 kg, the pans of which are above the beam.

2. Capacities. – Counter machines shall be one of the capacities mentioned in Table VIII.

3. Design and construction.

3.1 When the beam or body has two sides, they shall be connected together by not less than two crossbars. The supports for the pans shall be of a suitable rigid structure such as cross strengthened by straps. Central pieces or forks shall be fixed so that they cannot twist or get out of place.

3.2. Bearing surfaces and points of contract of all stays, hooks and loops shall be of hard steel or agate. The knife edges and bearings shall be so fitted as to allow the beam to move freely and the knife edges shall practically bear upon the whole length of their working parts.

3.3. A counter machine may have a balance box for minor adjustments. In such cases, the balance box shall be permanently fixed beneath the weight pan and shall be large enough to contain loose material to an amount not exceeding 1 per cent of the capacity be verified for error by ascertaining the weight in excess or deficiency (if any) required to bring the beam of the instrument to a horizontal position when fully loaded.

4.7. With the pan loaded to half the capacity, no appreciable difference in the accuracy of the counter machine shall result from moving the knife edges or bearing laterally or backwards and forwards with their limits of movement.

4.8. When the goods pan is not in the form of a scoop, the counter machines shall indicate the same weight within half the prescribed limits of error, if the centre of a load equal to half the capacity is placed on the goods pan anywhere within a distance from the centre equal to one third of the greatest length of the pan,

or if the pan has a vertical side, against the middle of the side, the weight being entirely on the weight pan, but in any position on it.

4.9. When the goods pan in the form of a scoop, the counter machine shall be correct if half of the full load is placed against the middle of the back of the scoop and the other half in any position on the scoop.

5. Sealing:

Each instrument shall be provided with a plug or stud of soft metal in a conspicuous part of the machine. No other adjusting contrivance shall be used.

3.4. The pans shall be made of mild steel, stainless steel, brass or bronze.

3.5. The minimum fall either way on counter machines shall be as under:-

Capacity	**Fall**
Not exceed in 2 kg	6 mm
Above 2 kg and not exceeding 15 kg	10 mm
Above 15 kg and not exceeding 25 kg	12 mm
50 kg	13 mm

4. **Verification:**

4.1. All counter machines shall be verified for sensitiveness and error at full load and shall comply with the requirement of Table VIII.

4.2. Counter machines shall be verified on a level plane.

4.3. Where an instrument has an interchangeable or reversible, part, the interchange or reversal shall not affect the accuracy of the instrument.

4.4. The counter machine shall be verified for sensitiveness at full load with the beam in horizontal position and for ascertaining that the addition of the amount specified in the Table shall cause the pointer to rise or fall to the limit of its range of movement.

4.5. No verification for sensitiveness at a lower load shall be made.

4.6. The counter machines shall be provided with a plug or stud of a soft metal in a conspicuous part of the beam or body for receiving a seal. Such a plug or stud shall be made irremovable by under cutting it or in some other suitable manner.

TABLE VIII. SENSITIVENESS AND ERRORS FOR COUNTER MACHINES.

Capacity of Machine.	Verification		Inspection	
	Sensitiveness when fully loaded	Greatest error to be tolerated in excess or in deficiency when fully loaded	Sensitiveness when fully loaded	Greatest error to be tolerated in excess or in deficiency when fully loaded
1	2	3	4	5
500 g	1.3 g	1.95 g	3.9 g	3.9 g
1 kg	1.8 g	2.65 g	5.4 g	5.3 g
2 kg	2.6 g	3.5 g	7.8 g	7.0 g
5 kg	4.5 g	6.25 g	13.5 g	12.5 g
10kg	6.0 g	9.0 g	18.0 g	18.0 g
15 kg	7.0 g	10.0 g	21.0 g	20.0 g
20 kg	8.5 g	15.0 g	25.5 g	26.0 g
25 kg	10.0 g	15.0 g	30.0 g	30.0 g
50 kg	14.0 g	28.0 g	42.0 g	56.0 g

PART VI,- SPRING BALANCES.

1. Definition:

Spring balance is an instrument which determines the weight of an object by the extension or compression of a spring such extension or compression being registered by means of a pointer on a dial or on a graduated scale.

2. Capacities:

Spring balances shall be of one of the capacities mentioned in Table IX.

3. Design and construction:

3.1. Spring balances with the pan below the spring shall be suspended permanently from stand, support or bracket.

3.2. The extremity of the index finger shall not exceed 1 mm in width and shall not be more than 3 mm from the scale or dial.

3.3. The scale shall be graduated into equal parts, and the width apart of the graduations shall not be less than 3 mm for a capacity of 15 kg and under, and not less than 3 mm for a capacity of 20 kg and above.

3.4. The weight corresponding the interval between consecutive graduation marks shall not exceed the values given in Table IX.

3.5. When the graduation commences at a fixed load, the position of the range of adjustment shall not exceed 1 per cent, of the capacity of the instrument except in the case of instrument used for mixing purposes where it shall not exceed 2 per cent.

3.6. The body shall be constructed either of brass, or cast iron, or any other suitable material, and shall be sufficiently robust in construction. If pans are provided for the balance, they shall be made of brass, bronze, cast iron, mild steel or stainless steel. Metal chains or metal stirrup supports shall be provided if pans are suspended. Rack and pinions, if provided, shall be made of hard wearing materials.

4. **Verification:**

4.1. When the pan is below the spring the prescribed limits of error shall not be exceeded wherever the load is placed on it.

4.2. Where the pan is above the spring.-

4.2.1 When the goods pan is not in the form of a scoop, the instrument shall indicate the same weight within half the prescribed limits of error, if the centre of a load equal to half the capacity is placed on the pan anywhere within the distance from the centre equal to the one third of the greatest length of the pan or if that pan has a vertical side against the middle of that side.

4.2.2. When the pan is in the form of a scoop, the spring balance shall be correct, if half the full load is placed against the middle of the back of the scoop and the other half in any position on the scoop.

4.3. Each numbered graduation shall be verified and the intermediate graduation may also be verified.

4.4. The instrument shall be correct whether the verification is made by increasing or decreasing loads provided that in either case the spring shall be allowed to vibrate before the reading is taken.

4.5. The instrument shall be verified for ability to recovery allowing the load equal to its maximum capacity remaining on the same for a period of 24 hours and then after the expiry of 4 hours tested for accuracy, the load being removed in the meantime.

4.6. Spring balances shall not be verified for sensitiveness.

5. Sealing:

Spring balances shall be fitted with a soft metal plug to receive a seal and, wherever practicable, this plug shall pass through the dial or frame. The plug or stud shall be so supported as to allow no risk of injury to the instrument.

TABLE IX - LIMITS OF ERRORS FOR SPRING BALANCES TO BE TOLERATED.

Capacity	Weight corresponding to interval between on consecutive graduations shall not exceed.	Maximum permissible error		Remarks
		Verification	Inspection	
500 g 1 kg 2 kg 3 kg 5 kg 10 kg 10 kg 15 kg 20 kg 30 kg 50 kg 100 kg 150 kg 200 kg 300 kg 500 kg	5.0 g 5.0 g 20 g 20 g 20 g 50 g 50 g 50 g 100 g 100 g 250 g 500 g 1.0 kg 1.0 kg 1.0 kg 2.0. kg	A weight corresponding to a quarter of the interval between successive graduation.	A weight, corresponding to half the interval between successive graduation.	While fixing the diameter of one effective circle on dial of one revolution a blank space of 20 mm at the end of graduation has to be provided. The minimum witdth apart to graduation shall not be less than 2 mm for capacities from 500 g to 15 kg and 3 mm for the rest of the size. In the case of multirevolution spring balances, the minimum blank space will not apply.

PART VII.- WEIGH-BRIDGES.

1. Definition:

Weigh-bridge means a weighing instrument constructed with compound levers with the indicator system carried on foundation, separate from the lever systems to weigh loads of a capacity of 3,000 kg. and over, through the medium of proportional weights or indicating mechanism.

Note:- - Weigh-bridges of 2,000 kg. and below, commonly known as Dormant Platform Machines, are also included in the part.

2. Capacities:

Weigh-bridges shall be of one of the capacities mentioned in Table X.

3. Design and Construction:

3.1. The steelyard of a weigh-bridge shall not involve any readily removabley parts except the support for the counterpoise. The shall be one or more steps to prevent the sliding poise or poises from traveling behind the zero mark.

3.2. The minimum travel of the steelyard in weigh-bridges shall be 13 mm both ways.

3.3. If a movable hutch, barrow, frame of bucket is used instead of the ordinary platform, it shall form an essential part of the machine without which it can not be balanced.

3.4. All loose counterpoise shall be identified with the machine by a number or other sufficient mark of identification which shall be indelible. They shall be marked with their equivalent weights in the following manner:-

(To be written in Urdu & English = 100 kg).

3.5. Proportional weights shall be of the hexagonal shape with a slot of a suitable size to allow them being placed on the counter balance.

3.6. The proportional weights shall be made of cast iron. The proportional weights shall have one rectangular loading hole which should be undercut or tapered so as to hold lead securely for adjustment. Surface of the lead in loading hole, when new, shall be at least 3 mm inside from the bottom surface of the weight.

3.7. The smallest denomination of the proportional weight shall be equivalent to the maximum graduation on the minor steelyard.

3.8. The denomination of the proportional weight shall be in the ratio of 1: 2 : 2: 5 and the total equivalent weight of all the proportional weights shall not exceed the total capacity of the weigh-bridge.

Note:- While arriving at the capacity of the weigh-bridge, the maximum graduation shown on the steelyard in the case of loose weight weigh-bridges and on the minor steelyard in the case of no loose weight type weigh-bridge shall not taken into account.

3.9. The balancing arrangement for daily wear and tear shall have a range between 0.25 per cent and 0.5 per cent of the capacity of the machine

and not less than 0.125 per cent of the capacity each way (see Table XI).
The balance box containing the balancing ball shall be securely attached to the steelyard, preferably by passing a bolt through the casing of the steelyard. The balancing ball shall be actuated by a detachable key.

3.10. The following provisions shall apply to weigh-bridges with dials.

3.10.1. Rack and pinions shall be of hard metal.

3.10.2. The extremity of the index shall in no position be at a greater distance from the graduated surface of the dial than 5 mm and shall be made to meet but not to obscure the graduation mark (except where dual graduation are made).

3.10.3. The dial shall be graduated into reasonably equal parts and minimum width apart from the graduation shall not be less than 3 mm.

3.11.1. The framework shall be built up of mild steel rolled sections or cast iron or steel casting. It shall be of rigid structure, strengthened suitably so that it will be capable of resisting any vibration and shall not throw the lever system out of alignment due to any subsidence of the foundation.

3.11.2. Brackets shall be cast on the side frames to support the frame-work.

3.12.1. Where relieving gear is fitted, the relieving apparatus shall dis-engage the under-lever and save the knife edges from shock or wear.

3.12.2. The plate or platform of the machine shall be entirely dis-engaged from its bearings when the machine is in relief.

3.13. All knife edges and steel bearings shall be special high quality steel accurately lapped to gauge after hardening and shall be inter-changeable (steel knife edges and bearings, which are welded into iron may also be permitted). Knife edges and steel bearings shall be readily replaceable without dismantling so that the weigh-bridges can be maintained in perfect working order. The knife edges and bearings shall be accurately and firmly secured in machine beds preferably by two shanks and nuts or alternatively by bolts, nuts or screws. All knife edges and bearings shall be protected against dirt and corrosion.

3.14. The platform shall be steel chequered plate and shall be rigid. Accessibility to the pit shall be ensured.

4. Verification:

4.1. All weigh-bridges shall be verified for sensitiveness and error at full load and shall comply with the requirements of Table X . When fully loaded, the load being equally distributed on the platform, it shall indicate the weight correctly with no greater error in excess or deficiency (if any) than permitted.

4.2. Spring crane machines shall not be verified for sensitiveness. The total capacity of the machine, or to such smaller capacities as the minimum graduation on the steelyard may indicate, shall be carried out.

4.3. Loose counterpoises, where they are provided, shall be verified.

4.4. The machines shall be verified by adding loads equal to the major divisions or notches, and then ascertaining that additional load equal to the value of one notch or division is correctly indicated.

4.5. The verification of dial machines shall be carried out in a similar manner with the exception of sensitiveness verification.

4.6. The verification for sensitiveness and error, other than in dial machines, is to be made at maximum load or as near thereto as possible.

4.7. With one quarter of the maximum load or as near thereto as is practicable the weigh-bridge shall indicate the same weight within half the prescribed limits of error whether the load is placed in the middle or at any of the corners of the platform.

4.8. When provided with a relieving gear, the prescribed limits of error shall not be exceeded when the machine is steadily put out of or into gear.

5. Marking:

All parts of each weight-bridge shall be indelibly numbered or marked so as to facilitate erection at site.

6. Sealing:

6.1. Dial machines shall be fitted with a soft metal plug to receive a seal and, wherever practicable, this plug shall be passed through the dial and frame. The plug or stud fitted on the dial shall be so supported as to allow no risk of injury to the instrument.

6.2. On weigh-bridges, other than dial machines, a plug or stud shall be provided in a conspicuous part on the indication lever or steelyard.

TABLE X.- SENSITIVENESS AND ERRORS FOR WEIGH-BRIDGES.

Capacity of machines	Sensitiveness when fully loaded	Verification		Sensitiveness when fully loaded	Inspection	
		Greatest error to be tolerated in excess			Greatest error to be tolerated in excess or in deficiency when fully loaded	
		Vibrating Machines	Machines fitted with dials.		Vibrating	Machines with dials
1,000 kg	700 g	700 g	One half of the weight represent interval between consecutive graduation marks.	2.1 kg	1.4 kg	The weigh represented by the interval between consecutive graduation marks.
2,000 kg	900 g	900 g		2.7 kg	1.8 kg	
3.000 kg	1.25 kg	1.25 kg		3.75 kg	2.5 kg	
5,000 kg	1.55 kg	1.8 kg		4.5 kg	3.6 kg	
10,000 kg	2.3 kg	2.7 kg		6.9 kg	5.4 kg	
15,000 kg	2.5 kg	3.0 kg		7.5 kg	9.0 kg	
20,000 kg	3.0 kg	4.5 kg		9.0 kg	9.0 kg	
25,000 kg	3.5 kg	5.4 kg		10.5 kg	10.8 kg	
30,000 kg	3.8 kg	6.1 kg		11.4 kg	12.2 kg	
40,000 kg	4.2 kg	7.3 kg		12.6 kg	14.6 kg	
60,000 kg	5.0 kg	9.0 kg		15.0 kg	18.0 kg	
80,000 kg	5.5 kg	10.5 kg		16.5 kg	21.0 kg	
1,00,000 kg	6.4 kg	12.7 kg		19.2 kg	25.4 kg	
2,00,000 kg	8.2 kg	19.0 kg		24.6 kg	38.0 kg	

TABLE XI - RANGE OF BALANCING ARRANGEMENT FOR WEIGH-BRIDGES

Capacity	Range of Balancing Arrangement		
	Maximum 0.25 per cent of capacity	Minimum 0.25 Per cent of capacity	0.125 per cent each way
1,000 kg	5 kg	2.5 kg	1.3 kg
2,000 kg	10 kg	5.0 kg	2.5 kg
3.000 kg	15 kg	7.5 kg	3.5 kg
5,000 kg	25 kg	12.5 kg	6.2 kg
10,000 kg	50 kg	25.0 kg	12.5 kg
15,000 kg	75 kg	37.5 kg	18.7 kg
20,000 kg	100 kg	50.0 kg	25.0 kg
25,000 kg	125 kg	62.5 kg	31.7 kg
30,000 kg	150 kg	75.0 kg	37.5 kg
40,000 kg	200 kg	100.0 kg	50.0 kg
60,000 kg	300 kg	150.0 kg	75.0 kg

80,000 kg	400 kg	200.0 kg	100.0 kg
1,00,000 kg	500 kg	250.0 kg	125.0 kg
2,00,000 kg	1,000 kg	500.0 kg	250.0 kg

PART VIII.- CRANE MACHINE.

1. Definition:

Crane machine means a weighing instrument specially constructed to be suspended from the hook of a crane and is fitted with a hook for lifting the loads and may be constructed upon the lever or spring principle.

2. Capacities:

Crane machines shall be of one of the capacities mentioned in Table XII.

3. Design and Construction:

3.1 A crane machine shall be sufficiently strong to withstand wear and tear in the exacting conditions under which it works.

3.2. No crane machine shall become a permanent link in the lifting gear. All working parts shall be suitably protected from the dust and damp of the atmosphere. In a lever machine, the steelyard shall be made of corrosion resisting steel to resist the atmospheric influence shall be sufficiently rigid and accurate.

3.3. In dial machine, the rack and pinions shall be of suitable hard wearing materials.

3.4. The range of balancing or adjusting arrangement shall not exceed 2 per cent of the capacity of the machine.

3.5. There shall be free movement of steelyard and on dial machine, the dial indicator shall work freely and return to its initial starting point after the load is removed.

4. Verification

4.1. Crane machines of the lever type shall be verified for sensitiveness and error at full load and shall comply with the requirements of Table XII.

4.2. Spring crane machines shall not be verified for sensitiveness.

4.3. For spring machines, the limits of error shall be double than those of lever machines and are given in Table XIII.

4.4. Each numbered graduation shall be tested as far as practicable.

5. Sealing.

Crane machines shall be fitted with a plug or stud in a conspicuous part either on the steelyard or on the dial of the machine to receive the seal.

TABLE XII- SENSITIVENESS AND ERRORS FOR CRANE WEIGHING MACHINES LEVER TYPE.

Capacity.	Verification.		Inspection	
	Sensitiveness when fully loaded	Greatest error to be tolerated in excess or in deficiency when fully loaded	Sensitiveness when fully loaded	Greatest error to be tolerated in excess or in deficiency when fully loaded.
1	2	3	4	5
500 kg	80 g	160 g	240 g	320 g
1,000 kg	700 g	700 g	2.1 kg	1.4 kg
2,000 kg	1.0 kg	1.0 kg	3.0 kg	2.0 kg
3.000 kg	1.0 kg	1.2 kg	3.6 kg	2.4 kg
5,000 kg	1.5 kg	1.5 kg	4.5 kg	3.0 kg
10,000 kg	2.5 kg	3.0 kg	7.5 kg	6.0 kg
15,000 kg	3.0 kg	3.5 kg	9.5 kg	7.0 kg
20,000 kg	3.5 kg	4.5 kg	10.5 kg	9.0 kg
30,000 kg	4.0 kg	6.0 kg	12.0 kg	12.0 kg
50,000 kg	5.5 kg	8.0 kg	13.5 kg	16.0 kg
100,000 kg	6.5 kg	13.0 kg	19.5 kg	26.0 kg
2,00,0000 kg	8.0 kg	18.0 kg	24.0 kg	36.0 kg

TABLE XIII.- SENSITIVENESS AND ERRORS FOR CRANE MACHINES – DIAL TYPE.
(Spring and Flexure)

Capacity	Weight corresponding to interval between successive graduation shall not exceed.	Permissible maximum error.		
		Verification	Inspection	Remarks
500 kg	5 kg	A weight corresponding to half the interval between successive graduations.	A weight corresponding to the interval between successive graduations	The maximum width apart of graduations shall not be less than 3 mm
1,000 kg	5 kg			
2,000 kg	5 kg			
3,000 kg	10 kg			
5,000 kg	25 kg			
10,000 kg	50 kg			
15,000 kg	100 kg			
20,000 kg	100 kg			
50,000 kg	250 kg			
1,00,000 kg	500 kg			

2,00,000 kg	500 kg			

PART IX.- AUTOMATIC WEIGHING MACHINES.

1. Definition:

An automatic weighing machine means any weighing scale which has an integral mechanism for automatically admitting and discharging a load, and may be fitted with an apparatus for counting or otherwise recording the number of loads handled.

2. Capacities:

Automatic machines shall be of the capacities as agreed upon between the purchaser and the seller.

3. Design and construction:

3.1. Automatic weighing machines and their integral part shall be identified with the machines by an indelible number or other mark of identification.

3.2. The adjusting mechanism shall be suitably secured or constructed so that it can not be tampered with.

3.3. The capacity of the automatic weighing machine shall be marked legibly on a conspicuous part of the machine.

4. Verification:

4.1. Automatic machines shall be verified for errors according to the requirements of Table XIV.

4.2. The accuracy of the out-put of the machine shall be verified by re-weighing in another weighing instrument not less than 20 continuous loads or, where practicable, the machine may be tested directly by the application of standard weights.

4.3. In verifying totalizing machines, not less than 50 loads shall be passed over the machine, namely, 10 minimum loads, 10 maximum loads and 30 loads of the mean between the minimum and the maximum.

5. Sealing:

Automatic machine shall be fitted with a plug on the beam, shank or dial of the machine to receive the seal.

TABLE XIV.- LIMITS OF ERRORS FOR AUTOMATIC MACHINES TO BE TOLERATED.

Use	Capacity	Error	(Verification or Inspection)
Weighing small loads of tea, coffee , etc.	20 g and upwards.	0.5 per cent of the load in excess only.	The allowance in the cases are subject to the provision that the error tolerated shall not exceed the weight represented by half a minimum divisions, marked the dial or steelyard.
Weighing grain, etc.	5 kg and upwards.	0.25 per cent of the load in excess or in deficiency.	
Weighing Coal etc.	50 kg and upwards.	0.5 per cent of the load in excess or in deficiency.	
"Totalising" machines used for weighing coal, etc.	500 kg and upwards.	0.5 per cent of the total load of 50 weighing in excess or in deficiency.	

SCHEDULE VII
(See rule 11)

ABBREVIATIONS OF DENOMINATIONS AND CAPACITY.

1. **Decimal Multiples and Sub Multiples**:					
Prefix			Value in terms of unit		Abbreviation
Kilo	..	..	1000		k
Centi	..	..	0.01 (10-2)		c
milli	..	..	0.001(10-3)		m
micro	..	..	0.000,001 (10-6)		m
2. **Weights:**					
Denomination			Value		Abbreviation
Tonne			1000 kg		t
quintal			100 kg		q
kilogram			1000 g		kg
gram			1 g		g
milligram			0.001 g or (10-3) g		mg
carat			200 mg		c
3. Capacity					
Denomination			Value		Abbreviation
kilolitre			1000 l		kl
litre			1 l		l
mililitre			0.001 ml (or 10-3) 1		ml

4. Volume					
Denomination			Value		Abbreviation
cubic metre			m^3		m^3 or cum*
cubic centimeter			cm^3		cm^3 or cu cm*
cubic millimetre			mm^3		mm 3 or cu mm*
5. Length:					
Denomination			Value		Abbreviation
kilometer			1000 m		km
metre			1 m		m
centimeter			0.01 m or (10-2) m		cm
millimeter			0.001 m or (10-3) m		mm
micron			0.01 mm or (10-6) m or 10-3 mm		mm

6. **Area:**					
Denomination			**Value**		**Abbreviation**
Square kiometre			km		km ^{2}or sq km*
Square metre			m ^{2}		m ^{2} or sq m*
Square centimeter			cm ^{2}		cm ^{2} or sq cm*
Square millimeter			mm ^{2}		mm ^{2} or sq mm*

* Both these abbreviations are current, but the first set should preferably be used.

Note- No change shall be made in the abbreviations to indicate plurality.

*1

SCHEDULE –VIII
(See Rule-12)

Sr.No:_____ Book No____ Dated___/___/_____

CERTIFICATE OF VERIFICATION

I hereby certify that I have this day verified and stamped/rejected the under mentioned Weights, Measures etc belonging to M/s _____ locality under the NWFP, Standard Weights & Measures Enforcement Act 1976 (NWFP Act.III of 1976).

Quantity No	*Item	Denomination / Capacity	Class & Maker	Identification No if any	Verification Fee			Carriage, conveyance etc (TA/DA, transport charges of equipment)
					Ordinary	Additional	Total	

*Items mean weights, measures, weighing instruments or measuring instruments to be verified.

Repaired by _____ Total Rs._____

Next Verification is due on _____ Grand Total _____

SIGNATURE.

_____

*1 Schedule VIII amended vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

***1 SCHEDULE –VIII-A**
(See Rule-12)

Sr.No:____ **Book No___**

INSPECTION STATEMENT FOR CNG DISPENSERS

I hereby certify that I have this day checked the under mentioned CNG Dispensers belonging to M/s _____ Enforcement Act 1976 (NWFP Act. III of 1976) for Verification / Inspection with the following observations:-

1		2			3			4			5			6			7			8		
Dispenser No:	Hose/Nozzle No:	Mass of Empty Cylinder (kg)			Mass of Filled Cylinder (kg)			Mass of CNG shown by the Dispenser (kg)			Mass of CNG Observed with the Equipment (kg)			Pressure shown by Dispenser (bars)			Pressure Observed with the Equipment (bars)			Diff: betwee Two masse (4&5)		
		(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(i
	A																					
	B																					
	A																					
	B																					
	A																					
	B																					
	A																					
	B																					
	A																					
	B																					

e:-Three readings must be taken in case of Gravimetric method only and recorded in sub-columns (i), (ii) & (

me & Signature of Owner/Manager with CNIC NO. ***Name,***

New Schedule VIII-A inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

SCHEDULE IX

(See rule 15)

Procedure to be followed for inspection, verification and stamping of commercial weights, measures, weighing instruments and measuring instruments.

PART 1. - WEIGHTS AND MEASURES.

1. Weights:

1.1. All weighs before stamping shall be verified for correctness against the corresponding working standard model weight in the appropriate working model balance subject to the permissible errors specified.

1.2. All weights shall be stamped on the lead in the loading hole at the bottom of the weights, provided that weights without and adjusting hole shall be stamped on the under surface.

1.3. No weights used in gold and silver trade shall be stamped unless they are carat weights.

1.4. No weights used in pearl and precious stone trade shall be marked unless they are carat weights.

2. **Liquid Measure of Capacity**:

2.1. Liquid measures of capacity standard shall be verified by filling the working model measures with water and emptying the contents of the working model into the measure under verification.

2.2. In verifying a glass measure, the capacity of which is not defined by the brim, the level of the water shall be taken at the bottom of the meniscus.

2.3. Where the capacity is indicated by a line, the measure shall be verified, to the bottom of the line.

3. **Measures for liquid fuel or lubricating oil, instruments, e.g. petrol pump flow metres, etc.**

3.1. A measuring instruments shall not be stamped unless provided with one or more plugs, seals for sealing devices of suitable form and material to protect all stops or other adjustable parts affecting the quantity delivered or with such alternative sealing arrangements as the Controller may direct.

3.2. A measuring instrument shall not be stamped unless it is complete with all parts and attachments concerned in the operation of measurement and delivery.

3.3. Every measuring instrument shall be legibly marked with the name of its maker or supplier.

3.4. A measuring instrument shall not be stamped if it bears any mark which might be mistaken for an Inspector's stamp or any statement or mark other than the stamp of Inspector which purports to be, or might be mistaken for, the expression of approval or guarantee of accuracy by any body or person.

3.5. Every making, notice, inscription or indication or a measuring instrument having reference to the method of operation or the quantity delivered shall be conspicuously and legibly marked in a suitable position in plain block characters on a plain background and in distinct contrast thereto.

3.6. Each stop or setting device of a measuring instrument shall be marked in such a manner as to indicate the capacity it represents or shall be associated with a suitable indicating device for the same purpose.

3.7. Every indication of quantity on a measuring instrument shall be denominated either in full or by means only of one other of the a bbreviation given in the rules: Provided that the indications of quantity on containers or on the dial of a sales indicator may be shown by figures only where the unit of measurement is boldly marked on the container or dial and no confusion can arise.

3.8. Every measuring instrument of fixed type shall be so disposed that the purchaser can readily obtain a clear and unobstructed view of all the operations and indications or measurement and delivery; and shall be verified and stamped when completely erected ready for use and in the situation in which it is to be used notwithstanding that it may have been previously verified or stamped in some other location.

3.9. No measuring instrument used for measurement in the presence of the purchaser shall be arranged to deliver measured quantities at more than one outlet.

3.10. Every individual sales indicator fitted to a measuring instrument shall be so arranged that it can be readily reset to "zero" and that it is not possible to advance the indication by means other than the proper operation of the instrument. In the instruments of the twin or multiple container type, the individual sales indicator shall be so arranged as not to

register any measurement before discharge from each container has commenced.

3.11. No audible or other signals of discharge which can be operated to signal before the movement of the individual sales indicator shall be fitted to any measuring instrument.

3.12. Every graduated sale or other indicating device of a measuring instrument shall be denominated in numerical sequence reading in the one direction only.

3.13. Where a measuring instrument is provided with a swing arm or rigid form of extension pipe such arm or pipe shall be so constructed as either-

(a) to empty itself completely through the delivery outlet, or
(b) to remain permanently filled up to its connection to the flexible hose.

In the later case, the sight glass shall be fitted at the highest point of the swing arm or extension pipe, immediately before the connection to the flexible hose.

3.14. No measuring instrument shall be fitted with a flexible discharged hose exceeding 4 meters in length.

3.15. No nozzle of a form liable when open to trap any portion of the liquid being delivered shall be attached to the discharge hose of any measuring instrument.

3.16. Before verifying any measuring instrument fitted with discharge hose, the Inspector shall see that the liquid has first been passed through the instrument so that the discharge hose has been wetted.

3.17. Every measuring instrument of the piston type shall be fitted with an adequate sight glass or other device approved by the Controller for showing clearly that the instrument is properly primed before use and shall bear, adjacent to the sight glass, a notice in one or other of the following forms indicating the priming level:

PRIMING LEVEL	OR	LIQUID MUST ALWAYS SHOWN AT THIS MARK.

Provided that this rule shall not apply to instruments used for the measurement of lubricant oil where the delivery system remains permanently full up to the extremity of the discharge pipe.

3.18. A measuring instrument of the piston type, before being tested for accuracy, shall be tested for leakage by being first primed. If it is evident after the lapse of a reasonable interval of time that no measurable leakage is occurring, the Inspector may proceed to test for accuracy.

3.19. On verification or re-verification the errors permissible in measuring instruments both on any individual delivery and on the total quantity delivered by a complete cycle of operation of the instrument shall not exceed 6 ml per liter. On inspection half the above error shall be allowed in deficiency and twice the above error in excess. The measuring instrument shall deliver correctly within the above limits of errors at any reasonable speed of operation, provided that for any single delivery the speed of operation shall be as uniform as practicable.

3.20. Any liquid fuel or lubricating oil withdrawn from any tank or container for the purpose of an Inspector's test of a measuring instrument shall be forthwith returned to the tank or container from which it was withdrawn, and the Inspector shall, if requested, furnish to the person in charge of the instrument a signed statement of the quantities so withdrawn and returned.

Note:- If any person refuses to an Inspector the use of such liquid fuel or lubricating oil as he may require for the purpose of testing any measuring instrument, such refusal shall be deemed to be obstruction in the discharge of the duties of the Inspector.

*1 **"3(A). Measures for Compressed Natural Gas (CNG) Fuel Instruments (Mass Flow Meter Dispensers)**

1. **Scope:**

This part specifies the metrological and technical requirements applicable to compressed gaseous fuel (i.e) CNG measuring system for vehicles**.** This is based on the Recommendation R-.No 139 (Edition E 2007) of the International Organization of Legal Metrology (OIML) that has been adopted by Pakistan (Pakistan Standards and Quality Control Authority) as Pak. Standard (PS). In this part, only those metrological and technical requirements from R No.139 or the concerned PS have been included which are applicable to initial and

subsequent verification of the compressed gaseous fuel (CNG) measuring system or instrument.

Note:- For type approval, self-service measuring system and other topics/tests which have not been covered here, the OMIL IR-139 or the concerned PS may be consulted**.**

2. Terminology:

The following terminology (based on the International Vocabulary of Metrology, VIM [1] and VML) [2]) shall apply to this part. The terminology is classified from functional point of view.

---

*1 New Part 3(A) inserted vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

2.1. Measuring system and its constituents.

2.1.1. Meter.

An instrument intended to measure, memorize and display the quantity of gas passing through the measurement transducer at metering conditions.

Note*:* A meter includes at least a transducer, a calculator (including adjustment or correction devices if present) and an indicating device.

2.1.2. Measurement Transducer.

A part of the meter, which transforms the flow of the gas to be measured, into signals, which are passed to the calculator. It may be autonomous or use an external power source.

Note*:* For the purpose of this part, the measurement transducer includes the flow or quantity sensor.

2.1.3. Calculator.

2.1.3.1. Metering calculator. A part of the meter that receives the output signals from the transducer(s) and, possibly, from associated measuring instruments, transforms them and, if appropriate, stores the results in memory until they are used.

2.1.3.2. Operational calculator. An optional part of the meter that receives the digital output signals from the metering calculator and, possibly, from associated measuring instruments, which processes them into data for the indicating device.

Note*:* The metering calculator and the operational calculator may be two separate elements or form a single unit. Except in the case of a particular need to dissociate the two kinds of calculators, the association of both functions is called the calculator for the purpose of this part.

2.1.4. Indicating device.

A part of the meter, which displays continuously the measurement results.

Note*:* A printing device, which provides an indication at the end of the measurement, is not an indicating device.

2.1.5. Ancillary device.

A device intended to perform a particular function, directly involved in elaborating, transmitting or displaying measurement results. Main ancillary devices are:

(a) Zero setting device;
(b) Repeating indicating device;
(c) Printing device;
(d) Memory device;
(e) Price indicating device;
(f) Totalizing indicating device;
(g) Pre-setting device;
(h) Self-service device.

2.1.6. Additional device.

A part or device, other than an ancillary device, required to ensure correct measurement or intended to facilitate the measuring operations, or which could in any way affect the measurement. Main additional devices are:

(a) Filter;
(b) Device used for the transfer point;
(c) Anti-swirl device;
(d) Branches or bypasses;
(e) Valves, hoses, and in general, all the gaseous piping.

2. 1.7. Measuring system.

A measuring system is a composite measuring instrument comprising the meter itself and all the ancillary devices and additional devices.

Note. The words, “measuring system” wherever are used in this part, shall mean the measuring as mentioned in under the Act or these rules and shall also include the measuring equipment.

2.1.8. Compressed gaseous fuel measuring systems for vehicles.

A measuring system intended for the refueling of motor vehicles with compressed gaseous fuel or CNG. Such an instrument is hereafter called a CNG measuring system or CNG Dispenser.

2.1.9. Pre-setting device.

A device that permits the selection of the quantity to be measured and which automatically stops the flow of the gas at the end of the measurement of the selected quantity.

Note: The pre-set quantity may be the mass or the related price to pay.

2.1.10. Adjustment device.

A device incorporated in the meter that only allows shifting of the error curve generally parallel to itself, with a view to bringing errors within the maximum permissible errors.

2.1.11. Associated measuring instruments.

Instruments connected to the calculator or the correction device, for measuring certain quantities that are characteristic of the gas, with a view to making a correction.

2.1 .12. Correction device.

A device connected to or incorporated in the meter for automatically correcting the mass, by taking into account the flow rate and/or the characteristics of the gas to be measured (viscosity, temperature, pressure, etc.) and the pre-established calibration curves.

2.1.13. Transfer Point.

A point at which the gas is defined as being delivered.

2.2. Metrological characteristics.

2.2.1. Primary indication.

An indication (displayed, printed or memorized) that is subject to legal metrology control.

Note*:* Indications other than primary indications are commonly referred to as secondary indications.

2.2.2. Maximum permissible errors.

The extreme values permitted by the present part for an error.

2.2 .3. Minimum measured quantity of a measuring system.

The smallest mass of gas for which the measurement is metro logically acceptable for that system.

Note: This smallest mass is also referred to as the minimum delivery.

2.2.4. Minimum specified mass deviation.

The absolute value of the maximum permissible error for the minimum measured quantity of a measuring system.

2. 2. 5. Durability.

The capability of the measuring system to keep its performance characteristics over a period of use, for electronic purposes.

2.3 Tests and test conditions.

2.3.1 Influence quantity.

A quantity which is not the subject of the measurement but which influences the value of the measurand or the indication of the measuring system.

2.3.2. Influence factor.

An influence quantity having a value within the rated operating conditions of the measuring system, as specified in this part.

2.3.3. Disturbance.

An influence quantity having a value outside the specified rated operating conditions of the measuring system.

Note*:* An influence quantity is a disturbance if for that influence quantity the rated operating conditions are not specified.

2. 3.4. Rated operating conditions.

The conditions of use, giving the range of values of influence quantities for which the metrological characteristics are intended to be within the maximum permissible errors.

2.3.5. Reference Conditions.

A set of specified values for influence factors that are fixed to ensure valid inter- comparison of results of measurements

2.3.6. Performance test.

A test intended to verify whether the measuring system under test (EUT) is capable of accomplishing its intended functions.

2.3.7. Endurance test.

A test intended to verify whether the meter or the measuring system is able to maintain its performance characteristics over a period of use.

2.3.8. Bank.

A test reservoir or a set of test reservoirs manifold together which forms part of a multi-segment gas storage system (Storage Cascade). The segments operate at different pressure levels from one another in refueling systems fitted with or using a sequential control device.(see 2.3.9)

Note: Testing using banks generate transient flow rates.

2.3.9. Sequential control device.

A device, which allows switching from one bank to another. This device may be included in a measuring system or may be part of the refueling station.

2. 4. Electronic or electrical equipment.

2.4.1. Electronic Device.

A device employing electronic sub-assemblies and performing a specific function. Electronic devices are usually manufactured as separate units and are capable of being tested independently.

Note: Electronic devices, as defined above, may be complete measuring systems or part of measuring systems, in particular such as those mentioned in 2.1.1 through 2.1.5.

2. 4. 2. Electronic sub-assembly.

A part of an electronic device, employing electronic components and having a recognizable function of its own.

2. 4. 3. Electronic component.

The smallest physical entity which uses electron or whole conduction in semiconductors, gases, or in a vacuum.

2. 4. 4. Checking facility.

A facility which is incorporated in a measuring system and which enables significant faults to be detected and acted upon.

Note: The checking of a transmission device aims at verifying that all the information which is transmitted (and only that information) is fully received by the receiving equipment.

2. 4. 5. Automatic checking facility.

A checking facility operating without the intervention of an operator.

2. 4. 6. Permanent automatic checking facility (type P).

An automatic checking facility operating during the entire measurement operation.

2.4.7. Intermittent automatic checking facility (type I)

An automatic checking facility operating at least once, either at the beginning or at the end of each measurement operation.

2.4.8. Power supply device.

A device which provides the electronic devices with the required electrical energy, using one or several sources of AC or DC.

3. General requirements.

3.1. Constituents of a measuring system.

3.1.1. A meter itself is not a measuring system .A measuring system includes at least:

(a). meter,

(b). a transfer point,

(c). the gas piping that has particular characteristics which can influence the metrological performances and which must be taken into account.

3 .1.2. The measuring system may be provided with other ancillary and additional devices (see 3.2).

3 .1.3. If several meters intended for separate measuring operations have common elements (calculator, filter, etc.) each meter is considered to form, with the common elements, a measuring system.

3.1.4. A measuring system shall include only one meter.

3.2. Ancillary and additional devices

3.2.1. Ancillary devices may be a part of the calculator or of the meter, or may be peripheral equipment, connected through an interface to the calculator. These ancillary devices may be optional or mandatory as notified by the Controller.

3.2.2. When these ancillary devices are mandatory in application of this part, they are considered as integral parts of the measuring system, they are subject to control, and they shall meet the requirements of this part.

3.2.3. When ancillary devices are not subject to control, one shall verify that these devices do not affect the correct operation of the measuring system. In particular, the system shall continue to operate correctly and its metrological functions shall not be affected when the peripheral equipment is connected or disconnected. In addition, these devices shall bear a legend that is clearly visible to the user to indicate that they are not controlled when they display a measurement result visible to the user. Such a legend shall be present on each printout likely to be made available to the customer.

3.2.4. The additional devices likely to be installed in a measuring system shall not corrupt the metrological behavior of the measuring apparatus.

3.3. Field of operation.

3.3.1. It shall be ensured that only those measuring system are used for compressed gaseous fuel or CNG which have been specified by the manufacturer on the basis of the following characteristics:

(a) Minimum measured quantity;

(b) Measuring range limited by the minimum flow rate, Q min, and the maximum flow rate, Q max;

(c) Maximum pressure of the gas in the refueling station gas storage, P st;

(d) Maximum fast fill pressure of the gas-fuelled vehicle, Pv;

(e) If critical, minimum pressure of the gas, P min,

(f) If appropriate, nature and characteristics of the gases to be measured;

(g) Maximum temperature of the gas, T max;

(h) Minimum temperature of the gas, T min;

(i) Environmental class.

3.3.2. The maximum and minimum temperatures of the gas are those in the measuring transducer when measuring.

3.3.3. The minimum measured quantity of a measuring system shall be of the form 1 × 10n, 2 × 10n or 5 × 10n kg, where n is a positive or negative whole number, or zero.

3.3.3.1.The measuring systems having a maximum flow rate not greater than 30 kg/min shall have a minimum measured quantity not exceeding 2 kg.

3.3.3.2.The measuring systems having a maximum flow rate larger than 30 kg/min but not greater than 70 kg/min shall have a minimum measured quantity not exceeding 5 kg.

3.3.3.3.The measuring systems having a maximum flow rate greater than 70 kg/min shall have a minimum measured quantity not exceeding 10 kg.

3.3.4. The measuring range shall satisfy the conditions of use of the measuring system; the latter shall be designed so that the flow rate is between the minimum flow rate and the maximum flow rate, except at the beginning and at the end of the measurement or during interruption.

3.3.4.1.In normal conditions of use, a flow control system shall prevent the delivery of flow rates smaller than the minimum flow rate of the measuring system. The measuring range of a measuring system shall be within the measuring range of each of its elements.

3.3.4.2.The ratio between the maximum flow rate and the minimum flow rate shall be at least 10.

3.3.5. A measuring system shall exclusively be used for measuring gas having characteristics within its field of operation, as specified in the type approval certificate. The field of operation of a measuring system shall be within the fields of measurement of each of its constituent elements, in particular the meter.

3.4. Indications.

3.4.1. The measuring systems shall be provided with an indicating device giving the mass of gas measured.

3.4.1.1. The measuring system may also be complemented with a secondary (informative) indication of volume, energy or any other quantity, but the status of this informative indication shall be clear and unambiguous and shall not cause misleading with respect to the actual amount. In this case, the conversion factor used for converting from mass to the secondary indication shall be displayed on the front face of the measuring system. Only rounding errors are permitted on conversion.

3.4.1.2. In case the system is fitted with a price indicating device:

(a) the indications of unit price and price to be paid shall be related only to mass; and

.

(b). these indications are displayed only when displaying the mass.

3.4.2. Mass shall only be indicated in the SI Unit of Mass "kilogram". The symbol or the name of the unit shall appear in the immediate vicinity of the indication. The secondary informative indications, if used, shall also be indicated only in their SI Units.

3.4.3. A measuring system may have several devices indicating the same quantity and each shall meet the requirements of this part. The scale intervals of the various indications shall be the same.

3.4.4. For any measured quantity relating to the same measurement, the indications provided by various devices shall not deviate one from another.

3.4.5. The use of the same indicating device for the indications of several measuring systems (which then have a common indicating device) is authorized provided that it is impossible to use any two of these measuring systems simultaneously, and that the measuring system providing the indication is clearly identified.

3.4.6. The scale interval shall be of the form 1 × 10n, 2 × 10n or 5 × 10n kg, where n is a positive or negative whole number, or zero.

3.4.6.1. The scale interval shall be equal to or smaller than half the minimum specified mass .

3.4.6.2. The non-significant scale intervals should be avoided. This does not apply to price indications.

3.4.7. The provisions relating to mass indications, when relevant, shall also apply by analogy to price indications and to the secondary indications of other quantities as well.

3.5. Suitability of additional devices.

3.5.1. Measuring systems shall incorporate a transfer point. This transfer point is located downstream of the meter.

3.5.2. No means shall be provided by which any measured gas can be diverted downstream of the meter during a filling operation.

3.5.3. Two or more delivery transfer points may be permanently installed and operated simultaneously or alternately provided so that any diversion of gas to other than the intended receiving receptacle(s) cannot be readily accomplished or is readily apparent. Such means shall include, physical barriers, visible valves or indications that make it clear which transfer points are in operation, and explanatory signs.

3.5.4. When only one transfer point is used during a delivery, and after the transfer point has been replaced, the next delivery shall be inhibited until the indicating device has been reset to zero.

3.5.4.1. When two or more transfer points are used simultaneously or alternately, and after the utilized transfer points have been replaced, the next delivery shall be inhibited until the indicating device has been reset to zero.

3.5.4.2. By design, the provisions of 3.5.3 shall be fulfilled.

3.5.5. The system shall be designed in order to ensure that the measured quantity is delivered.

3.5.5.1. In particular, if the hose downstream of the meter is likely to be depressurized between two deliveries this shall lead for instance to systematic correction or re-pressurizing before counting for the next delivery.

3.5.5.2. Whatever the operating principle is (depressurizing or not), in particular whatever constitutes the hose or the transfer point, in the worst measuring conditions, the mass which is measured but not delivered shall be smaller than or equal to half the minimum specified mass deviation if it is not corrected for.

Note: The purpose of this provision is not to allow a systematic deviation. This requirement is verified by design examination, tests and/or calculation.

3.5.6. If there is a risk that the supply conditions can provide a flow rate exceeding the Q max of the measuring system, a flow limiting device shall be provided. It shall be possible to seal it.

3.5.7. There shall be provision for fitting and removing a pressure gauge on the measuring system in order to check P max, and, if critical, P min.

4. Requirements for meters and ancillary devices of a measuring system.

The meter and ancillary devices of a measuring system shall meet the following requirements, whether or not they are subject to a separate pattern approval.

4.1. Meter.

4 .4.1. Field of operation.

4.1.1.1. The field of operation of a meter shall be specified by the manufacturer and is determined at least by the following characteristics:

(a). measuring range limited by the minimum flow-rate, Q min, and the maximum flow-rate, Q max;

(b). maximum pressure of the gas, P max;

(c). if critical, minimum pressure of the gas, *P* min;

(d). if appropriate, nature and characteristics of the gases to be measured;

(e). maximum temperature of the gas, *T* max,

(f). minimum temperature of the gas, *T* min.

4.1.1.2. The range shall cover at least + 10 °C to + 40 °C and unless otherwise specified, is assumed to be – 10 °C to + 50 °C. In any case the range shall suit the conditions of use.

4.1.2. Metrological requirements.

The metrological requirements shall be the same as defined in clause-7.

4.1.3. Connections between the flow sensor and the indicating device.

The connections between the flow sensor and the indicating device shall be reliable and, for electronic devices, durable, in accordance with 5.1.4, 5.3.2 and 5.3.4.

4.1.4. Adjustment device.

4.1.4.1. Meters may be provided with an adjustment device, which permits modification of the ratio between the indicated mass and the actual mass of gas passing through the meter, by a simple command.

4.1.4.2. When the adjustment device modifies this ratio in a discontinuous manner, the consecutive values of the ratio shall not differ by more than 0.001.

4.1.4.3. Adjustment by means of a bypass of the meter is prohibited.

4.1.5. Correction device.

4.1.5.1. Meters may be fitted with correction devices which shall always be considered as an integral part of the meter.

4.1.5.2. The whole of the requirements which apply to the meter, in particular the maximum permissible errors specified in clause-7 are therefore applicable to the corrected mass.

4.1.5.3. The aim of a correction device is to reduce the errors as close to zero as possible.

4.1.5.4. In normal operation, non-corrected mass shall not be displayed.

4.1.5.5. The use of correction device for adjusting the errors of a meter to values other than as close as practical to zero, even when these values are within the maximum permissible errors shall be forbidden.

4.1.5.6. The type approval certificate may prescribe the possibility of checking parameters that are necessary for correctness at the time of verification of the correction device.

4.1.5.7. The correction device shall not allow the correction of a pre-estimated drift in relation to time or mass,

4.2. Indicating device.

4.2.1. The measuring systems shall be equipped with digital indicating devices. The decimal sign shall appear distinctly.

4.2.2. During the period of measurement, the mass shall be displayed continuously.

4.2.3. The height for the figures of the indicating device shall be equal to or greater than 10 mm.

4. 3. Zero-setting device.

4.3.1. The measuring systems shall be equipped with a device for resetting the mass indicating device to zero.

4.3.1.1. The zero setting device shall not permit any change in the measurement result shown by the mass indicating device other than by making the result disappeared and displaying zeros.

4.3.1.2. Once the zeroing operation has begun, it shall be impossible for the mass indicating device to show a result different from that of the measurement which has just been made, until the zeroing operation has been completed.

4.3.1.3. The measuring system shall not be capable of being reset to zero during measurement.

4.3.2. If the system also includes a price indicating device, this indicating device shall be fitted with a zero resetting device.

4.3.3. The zero setting devices of the price indicating device and of the mass indicating device shall be designed in such a way that zeroing either indicating device shall automatically involve zeroing the other.

4.3.4. If the measuring system is fitted with a printing device, any printing operation shall not be possible in the course of a measurement and further delivery shall only be possible after a reset to zero has been performed. However, the printing operation shall not change the quantity indicated on the indicating device.

4.3.5. If the measuring system is designed so that registration of mass could occur without any effective flow rate, a device shall register this apparent flow rate and compensate the measurement result for it.

4.4. Price indicating device.

4.4.1. A mass indicating device may be complemented with a price indicating device which shall display both the unit price and the total price to be paid for an individual complete measurement or delivery. The monetary unit or its symbol used shall appear in the immediate vicinity of the indication.

4.4.2. The selected unit price shall be displayed by an indicating device before the start of the measurement.

4.4.2.1. The unit price shall be adjustable and change in the unit price may be carried out either directly on the measuring system or through peripheral equipment.

4.4.2.2. If the unit price is set from the peripheral equipment, a time of at least 5 seconds shall elapse between indicating a new unit price and before the next measurement operation can start.

4.4.2.3. The indicated unit price at the start of a measurement operation shall be valid for the whole transaction. A new unit price shall only be effective at the moment a new measurement operation may start.

4.4.3. Only rounded errors pertaining to the least significant digit of the price to be paid are authorized.

4.5. Printing device.

4.5.1. The mass printed shall be expressed in “kg”.

4.5.2. The figures, the unit used or its symbol and the decimal sign, if any, shall be printed on the ticket by the device.

4.5.3. The printing device may also print information identifying the measurement such as: sequence number, date, identification of the measuring system, type of gas, etc.

4.5.4. If the printing device is connected to more than one measuring system, it must print the identification of the relevant system.

4.5.5. If a printing device allows repetition of the printing before a new delivery has started, copies shall be clearly marked by printing device as "duplicate".

4.5.6. The printing device may print, in addition to the measured quantity, either the corresponding price or this price and the unit price.

4.5.7. The printing devices are also subject to the requirements in 5.3.5.

4.6. Memory device.

4.6.1. The Measuring systems may be fitted with a memory device to store measurement results until their use or to keep a trace of commercial transactions, providing proof in case of a dispute. The devices used to read stored information are considered as included in the memory devices.

4.6.2. The medium on which data are stored, shall have sufficient permanency to ensure that the data are not corrupted under normal storage conditions.

4.6.3. There shall be sufficient memory storage for any particular application (for roadside measuring systems, storage for three months corresponding to normal use is advisable).

4.6.4. When the storage is full, it is permitted to delete memorized data when both the following conditions are met:

(a). data are deleted in the same order as the recording order and the rules established for the particular application are respected,

(b). deletion is carried out after a special manual operation.

4.6.5. Memorization shall be such that it is impossible in normal use to modify stored values.

4.6.6. Memory devices shall be fitted with checking facilities according to 5.3.5. The aim of the checking facility is to ensure that stored data correspond to the data provided by the calculator and that restored data correspond to stored data.

4.7. Pre-setting device.

4.7.1. The measuring systems may be provided with a pre-setting device.

4.7.1.1. The selected quantity is pre-set by operating a digital device which indicates that quantity.

4.7.1.2. The preset quantity shall be indicated before the start of the measurement.

4.7.2. Where it is possible to simultaneously view the figures of the display device of the pre-setting device and those of the mass-indicating device, the former shall be clearly distinguishable from the latter.

4.7.3. Indication of the selected quantity may, during measurement, either remain unaltered or return progressively to zero. However, it is acceptable to indicate the preset value on the indicating device for mass by means of a special operation with the restriction that this value shall be replaced by the zero indication for mass before the measurement operation can start.

4.7.4. The difference found under normal operating conditions, between the pre-set quantity and the quantity shown by the mass indicating device at the end of the measurement operation, shall not exceed the minimum specified mass deviation.

4.7.5. The pre-set quantities shall be expressed in kilogram. This unit or its symbol (kg) shall be marked on the pre-setting device.

4.7.6. The scale interval of the pre-setting device shall be equal to the scale interval of the indicating device.

4.7.7. Pre-setting devices may incorporate a device to permit the flow of gas to be stopped quickly when necessary.

4.7.8. The measuring systems with a price indicating device may also be fitted with a price pre-setting device which stops the flow of the gas when the quantity delivered corresponds to the pre-set price.

4.8. Calculator.

4.8.1. The maximum permissible errors, positive or negative, on the gas quantity indications applicable for the calculators when they are checked separately are equal to 0.05 % of the true value. If applicable they apply to the metering calculator and to the operational calculator.

4.8.2. All parameters necessary for the elaboration of indications that are subject to legal metrology control, such as unit price, calculation table, correction polynomial, etc. shall be present in the calculator at the beginning of the measurement operation.

4.8.3. The calculator may be provided with interfaces permitting the coupling of peripheral equipment. When these interfaces are used, the instrument shall continue to function correctly and its metrological functions shall not be capable of being affected.

5. Technical requirements for electronic devices.

5.1. General requirements.

5.1.1. The electronic (digital) measuring systems shall be designed and manufactured such that their metrological functions are safeguarded and

their errors do not exceed the maximum permissible errors as defined in clause- 7 under rated operating conditions.

5.1.2. The electronic measuring systems shall be designed and manufactured such that, when they are exposed to the disturbances/ performance tests (A4) as mentioned in OIML R-139 or relevant Pak-Standard.

(a). either significant faults do not occur;

(b). or significant faults are detected and acted upon by means of checking facilities.

5.1.3. The provision 5.1.2 may apply separately to each individual cause of significant fault, and/or each part of the measuring system.

5.1.4. The requirements in 5.1.1 and 5.1.2 shall be met durably. For this purpose electronic measuring systems shall be provided with the checking facilities specified in sub clause 5.3.

5.2. Power supply device.

5.2.1. A measuring system shall be provided with an emergency power supply device allowing:

(a). either all measuring functions to be safeguarded during a failure of the principal power supply; or

(b). that data contained at the moment of a failure leading to stopping the flow are saved and displayable on an indicating device subject to legal metrology control for sufficient time to permit the conclusion of the current transaction.

The absolute value of the maximum permissible error for the indicated mass, in the second case, is increased by 5 % of the minimum measured quantity.

5.2.2. In case of a failure leading to stopping the flow, measuring systems shall be such that the minimum duration of operation of the display shall be either:

(a). continuously and automatically at least 15 min following immediately the failure of the principal electrical supply; or

(b). a total of at least 5 min in one or several periods controlled manually during one hour following immediately the failure.

5.3. Checking facilities.

5.3.1. Action of checking facilities.

The detection by the checking facilities of significant faults shall result in the following actions:

(a). automatic correction of the fault; or

(b). stopping only the faulty device, when the measuring system without that device continues to comply with the regulations; or

(c). stopping the flow.

5.3.2. Checking facilities for the measurement transducer

5.3.2.1. The objective of these checking facilities is to verify the presence of the transducer, its correct operation and the correctness of data transmission.

5.3.2.2. These checking facilities shall be of type P and the checking shall occur at time intervals not exceeding the duration of the measurement of an amount of gas equal to the minimum specified mass deviation.

5.3.2.3. It shall be possible during type approval to check that these checking facilities function correctly,

(a). by disconnecting the transducer; or

(b). by interrupting one of the sensor's pulse generators; or

(c). by interrupting the electrical supply of the transducer.

5.3.2.4. This checking shall also be possible at initial verification unless the presence and the efficiency of the checking facility is ensured by the conformity to type.

5.3.3. Checking facilities for the calculator

5.3.3.1. The objective of these checking facilities is to verify that the calculator system functions correctly and to ensure the validity of the calculations made. There are no special means required for indicating that these checking facilities function correctly.

5.3.3.2. The checking of the functioning of the calculation system shall be of types P or I. In the latter case, the checking shall occur at least every five

minutes in the course of a delivery but at least once during a delivery. The objective of the checking is to verify that:

(a). The values of all permanently memorized instructions and data are correct, by such means as:

(i). summing up all instruction and data codes and comparing the sum with a fixed value;
(ii).line and column parity bits (LRC and VRC);
(iii). cyclic redundancy check (CRC 16),
(iv). double independent storage of data,
(v). storage of data in "safe coding", for example protected by checksum,
(vi). line and column parity bits,

(b). All procedures of internal transfer and storage of data relevant to the measurement result are performed correctly, by such means as:

(i). write-read routine,
(ii). conversion and re-conversion of codes,
(iii). use of "safe coding" (check sum, parity bit),
(iv). double storage.

5.3.3.3. The checking of the validity of calculations shall be of type P. This consists of checking the correct value of all data related to the measurement whenever these data are internally stored or transmitted to peripheral equipment through an interface; this check may be carried out by such means as parity bit, check sum or double storage. In addition, the calculation system shall be provided with a means of controlling the continuity of the calculation program.

5.3.4. Checking facility for the indicating device.

5.3.4.1. The objective of this checking facility is to verify that the primary indications are displayed and that they correspond to the data provided by the calculator. In addition, it aims at verifying the presence of the indicating devices, when they are removable. The control may be performed according to either the first possibility in sub clause 5.3.4.3. or the second possibility in 5.3.4.4.

5.3.4.2. Unless the presence and the efficiency of the checking facility is ensured by the conformity to type, it shall be possible during verification to determine that the checking facility of the indicating device is working, either:

(a). by disconnecting all or part of the indicating device, or

(b). by an action which simulates a failure in the display, such as using a test button.

5.3.4.3. The first possibility is to control automatically the complete indicating device. The checking facility of the indicating device is of type P; however, it may be of type I if a primary indication is provided by another device of the measuring system, or if the indication may be easily determined from other primary indications (for example, in the case of the presence of a price indicating device it is possible to determine the price to pay from the mass and the unit price).Means may include:

(a). for indicating devices using incandescent filaments or LEDs, measuring the current in the filaments;

(b). for indicating devices using fluorescent tubes, measuring the grid voltage;

(c). for indicating devices using electromagnetic shutters, checking the impact of each shutter;

(d). for indicating devices using multiplexed liquid crystals, output checking of the control voltage of segment lines and of common electrodes, so as to detect any disconnection or short circuit between control circuits.

5.3.4.4. The second possibility is to check both:

(a). automatically the electronic circuits used for the indicating device except the driving circuits of the display itself, and
(b). the display.

5.3.4.4.1. The automatic checking facility of the electronic circuits used for the indicating device is of type P. It may be of type P , if a primary indication is provided by another device of the measuring system, or if the indication may be easily determined from other primary indications (for example, in the case of the presence of a price indicating device it is possible to determine the price to pay from the mass and the unit price).

5.3.4.4.2. The checking facility of the display shall provide visual checking of the entire display which shall meet the following description:

(a). displaying all the elements ("eights" test if appropriate);
(b). blanking all the elements ("blank" test);

(c). displaying "zeros".

5.3.5. Checking facilities for ancillary devices.

5.3.5.1. An ancillary device (repeating device, printing device, self-service device, memory device, etc.) with primary indications shall include a checking facility of type I or P. The object of this checking facility is to verify the presence of the ancillary device, when it is a necessary device, and to verify the correct transmission of data from the calculator to the ancillary device.

5.3.5.2. In particular, the checking of a printing device aims at ensuring that the printing controls correspond to the data transmitted by the calculator. At least the following shall be checked:

a). presence of paper;

(b). electronic control circuits (except the driving circuits of the printing mechanism itself).

5.3.6. Checking facilities for the associated measuring instruments Associated measuring instruments shall include a checking facility of type P. The aim of this checking facility is to ensure that the signal given by these associated instruments is inside a pre-determined measuring range like:

(a). four wire transmission for resistive sensors;

(b). frequency filters for density meters;

(c). control of the driving current for 4-20 m A pressure sensors.

6. Verification.

6.1. For verification or re-verification or inspection of CNG dispensers or measuring systems, any one of the following methods shall be used.

6.1.1. Gravimetric Testing Method.

6.1.1.1. Equipment.

The gravimetric equipment is in the of form of a kit consisting of a standard CNG cylinder mounted on a small platform fitted with arms and wheels for easy shifting to the desired point, a pressure gauge, a gas receptor or inlet valve with stopper for filling CNG into the cylinder, a special value for venting CNG from the cylinder and special metallic standard pipes of the same specification as that are installed in the dispensers, all fitted to the cylinder in the form of kit and a standard digital weighing balance. The gravimetric equipment is illustrated in Fig.1 and Fig. 2.

Fig.1

Fig.2

6.1.1.2. Procedures.

6.1.1.2.1. The following procedures shall be followed.

(a). First place the balance on a plan surface, level it by leveling screws and then set the zero.

(b). Take the Mass of the empty cylinder with the balance = M1 kg

(c).Fill the cylinder with CNG from the dispenser under testing (EUT).

(d). Record the reading of the meter of dispenser, which shows the Mass of CNG filled into the cylinder from the dispenser (EUT) =M2 kg

(e). Take the Mass of the filled cylinder with the balance = M3 kg

(f). Find out the Mass of the CNG filled in the cylinder by subtracting the mass of the empty cylinder from the mass of filled cylinder. (M.3 - M.1) = M 4 kg

(g). Find out the difference between the mass of the CNG recorded from the meter of dispenser (M2) and the mass of the CNG observed with the help of digital balance (M4) if any, which indicates the error in terms of the unit of mass (kg) = M5 kg

(h). Calculate the % error by the following equation:

$$\% \text{ Error (E)} = (M5 \div M2) \times 100$$

6.1.1.2.2. Empty the cylinder by venting the CNG into air with utmost care, in a safer place and off the road side where there are no people, vehicles or any source of fire, heat or ignition at all.

6.1.1.2.3. Repeat the above procedures at least three times to determine percentage errors %E1, % E2, % E3 and calculate the Average % Error (%EA) as under which shall not be more than plus or minus 1.5% for verification or re-verification and 2% for inspection, on the spot.

$$\text{Average \% Error (EA)} = (\%E1 + \%E2 + \%E3) \div 3$$

Note: This shall be the responsibility of the owner/user to take necessary measures to ensure safe disposal of the CNG taken out of a dispenser during checking, which is contained in the standard cylinder of the checking equipment and in case of any mishap leading to loss of life or property, the owner or user himself shall be responsible for it.

6.1.2. Master Meter Testing Method.

6.1.2.1. Equipment.

The Master Meter Equipment consists of a Digital Micro Motion Coriolis Master Meter, a pressure gauge and a thermal gauge fitted together in the form of a kit which is provided with a gas receptor or inlet valve along with a stopper, for fitting nozzle of the dispenser (Equipment Under Testing or EUT) into it for passing the CNG from the dispenser (EUT) through the master meter of the checking equipment, a hose pipe along with a nozzle (NGV-1 for smaller sized vehicles like motor cars etc or NGV-2 for larger sized vehicles like trucks, buses etc) for filling the CNG after measuring by the Master Meter of the equipment, into the vehicles instead of venting into the air as is occurred in the Gravimetric Testing Method. A Master Meter Kit is illustrated in Fig.3.

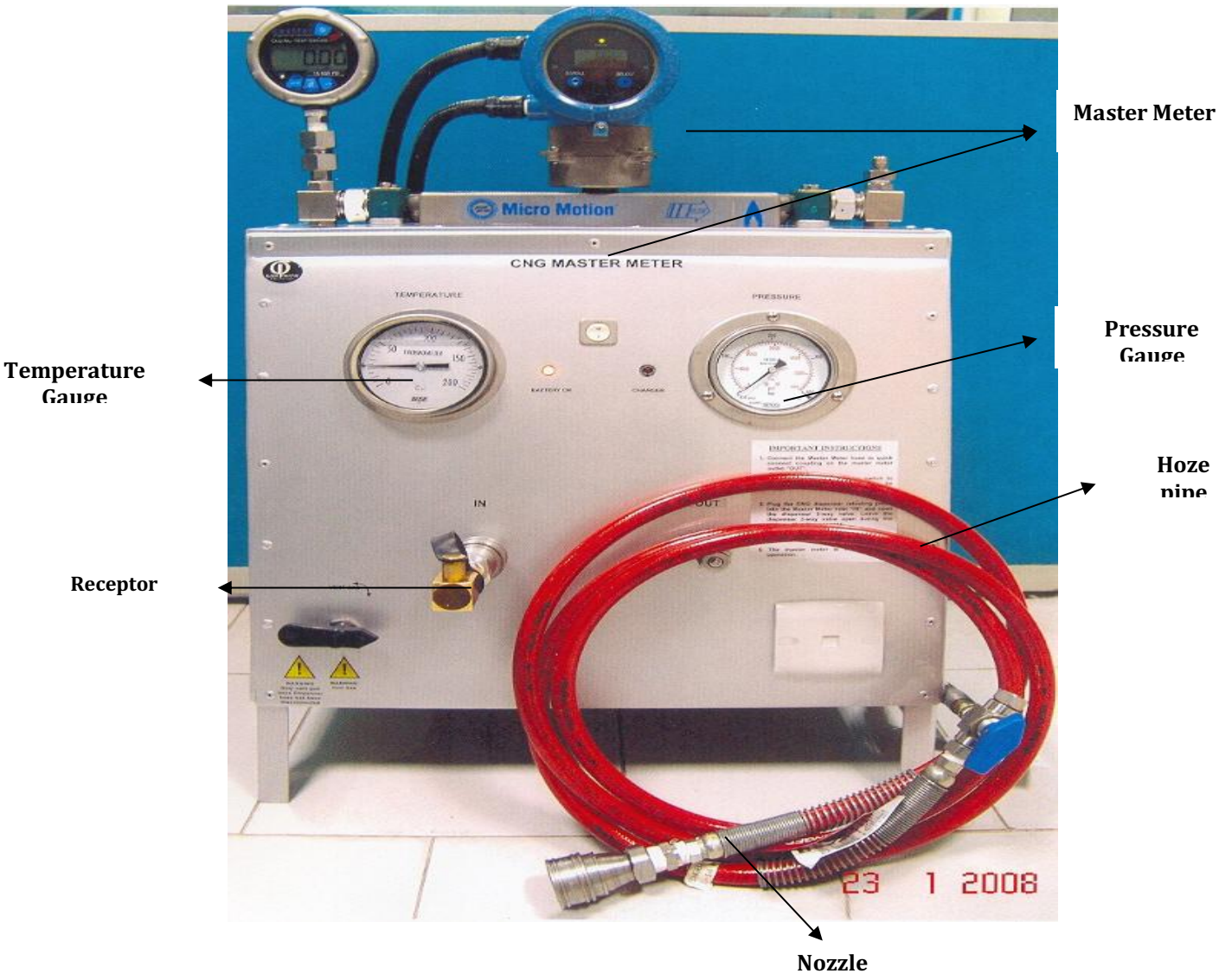


Fig.3

6.1.2.2. Procedures.

6.1.2.2.1. The following procedures shall be followed during verification, re-verification or inspections of CNG dispensers by the Master Meter Testing Method:

(a). the Master Meter Equipment shall be used in series with the CNG dispenser and the vehicle getting the CNG fuel on payment for its own consumption as shown in Fig.4 ;

(b). first place the Master Meter Equipment on a plan surface in leveled form and then connect the dispenser with the Master Meter

Equipment by fitting the nozzle of the dispenser (ETU) into the receptor of the equipment;

(c). connect the Master Meter with the vehicle receiving the CNG fuel by fitting its nozzle into the receptor (in-let) of the vehicle;

(d). ensure that both the meter of the dispenser (EUT) and the master meter of the equipment are at Zero, before starting;

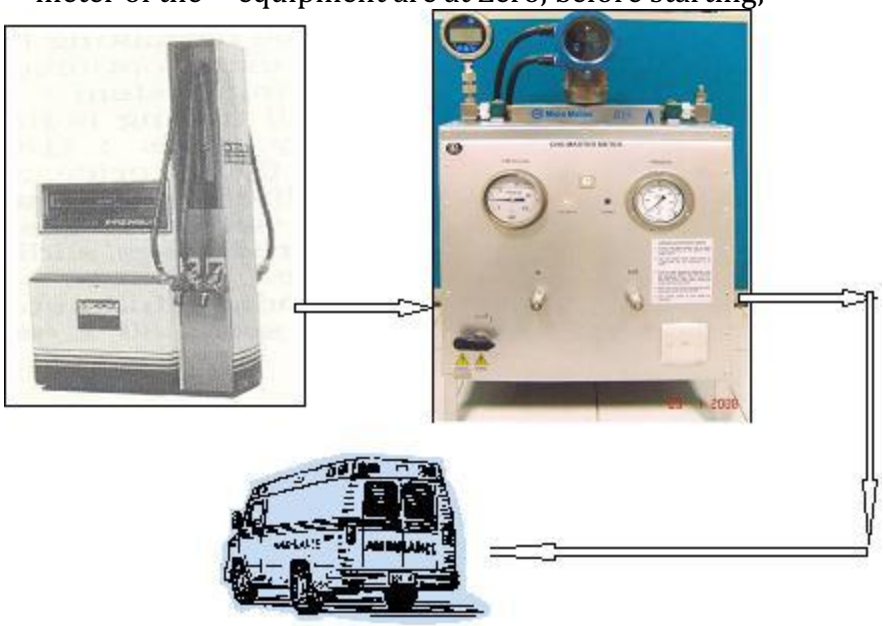


Fig.4

(e). start the dispenser and fill the vehicular cylinder with the CNG after passing it through the Master Meter Equipment;

(f). note the pressure from the pressure gauges of both the dispenser and the Master Meter Equipment at the time of filling CNG into the vehicle;

(g).on completion of the filling of CNG into the vehicle, note the mass of CNG first from the meter of the dispenser which may be denoted by M1kg, and then from the Master Meter of the equipment which may be denoted by M2 kg and find out the difference, if any, between the two masses (M1 kg and M2 kg) which indicates the error in terms of the unit of mass (kg) denoted by M3 kg;

(h). calculate the % Error by the following equation;

$$\% \text{ Error (E)} = (M3 \div M1) \times 100$$

(i). in the Master Meter Testing Method, because of high accuracy of the equipment one reading is sufficient but in case of any doubt or a dispute between the owner or user of CNG dispensers and the Inspector, the above procedures shall be repeated at least three times to know % E1, % E2 and % E3 for calculating the Average % Error (%EA) which shall not be more than plus or minus 1.5% for verification or re-verification and 2% for inspection, of the quantity measured.

$$\text{Average \% Error (Ea)} = (\%E1+\%E2+\%E3) \div 3$$

7. Maximum permissible errors (MPEs) and other metrological characteristics.

7.1. The maximum permissible error on mass indications, positive or negative, shall be, for verification performed on-site of use, equal to 1.5% and for subsequent inspection , equal to 2% of the quantity measured.

7.2. The maximum filling pressure at the time of delivery into vehicular cylinder or sale shall be maintained at 20 M Pa (200 bars or 2900 PSI) with permissible error of 1 M Pa (10 bars or 14. 5 PSI), in excess or deficiency.

8. Markings and sealing.

8.1. Marking.

8.1.1. Each measuring system, component or sub-system for which type approval has been granted shall bear, placed together legibly and indelibly either on the front face of the indicating device or on a special data plate, the following information:

(a). Type approval sign,

(b). Manufacturer's identification mark or trademark,

(c). Designation selected by the manufacturer, if appropriate,

(d). Serial number and year of manufacture,

(e). Characteristics as defined in 2.3.1 and 7.

(g). Where relevant, the maximum allowed speed of switching between banks for the sequential control device (the tested one).

Note: The indicated characteristics should be the actual characteristics of use, if they are known when the plate is affixed. When they are not known, the indicated characteristics are those allowed by the type approval certificate. However, the minimum and the maximum temperatures of the gas shall appear on the data plate only when they differ from - 10 °C and + 50 °C respectively. The minimum measured quantity of the measuring system shall in all cases be clearly visible on the front face of any indicating device visible to the user during the measurement. When a measuring system can be transported without being dismantled, the markings required for each component may also be combined on a single plate.

8.1.2. Any information, markings or diagrams specified by this part or possibly by the type approval certificate, shall be clearly visible on the front face of the indicating device or within proximity to it. The markings on the front face of the indicating device of a meter forming a part of a measuring instruments shall not contravene those on the data plate of the measuring system.

8.2. Sealing devices and stamping plate.

8.2.1. The CNG measuring system is sealed either by means of mechanical sealing devices or electronic sealing device.

8.2.1.1. Mechanical Sealing devices.

8.2.1.1.1. The mechanical sealing is carried out with lead metal seals to receive the official mark or stamp.

8.2.1.1.2. The seals shall, in all cases, be easily accessible.

8.2.1.1.3. Sealing shall be provided on all parts of the measuring system that cannot be materially protected in any other way against operations liable to affect the measurement accuracy.

8.2.1.1.4. Sealing devices shall prohibit the changing of any parameter that participates in the determination of measurement results (parameters for correction or adjustment and conversion in particular).

8.2.1.1.5. A plate, referred to as the stamping plate, aimed at receiving the control marks, shall be sealed or permanently attached on a support of the measuring system. It may be combined with the data plate of the measuring system referred to in 8.1.

8.2.1.2. Electronic Sealing Devices.

8.2.1.2.1. When access to parameters that participate in the determination of measurement results is not protected by mechanical sealing devices, the protection shall fulfill the provisions of sub clauses 8.2.1.2.1.1 through 8.2.1.2.17.2.

8.2.1.2.1.1. No person other than the Inspector or the Assistant Inspector or any other officer appointed under the Act, shall have access to the parameters that participate in the determination of measurement results by using a "password".

8.2.1.2.1.2. Not-withstanding any thing contained in sub-clause 8.2.1.2.1.1, a person so authorized or registered under the name of repairer or any other name, by the Controller under the Act, shall also have access to the parameters that participate in the determination of measurement results whenever so required for conducting necessary repair or service subject to the conditions that:

(a). he shall seek, in writing, prior permission from the Controller or Inspector or any other officer so authorized by the Controller ;

(b). he shall have no authority to put the measuring system into use by using a "password" and

(c). he shall, after changing the parameters or conducting repair, request the Inspector or any other officer appointed under the Act, in writing, to put the measuring system (dispenser) again into use by using a "password".

Note: Only the Inspector or any officer appointed under the Act, shall use or change a password.

8.2.1.2.1.3. The measuring system shall only be put into use "in sealed condition" again only by the Inspector or any other officer appointed under the Act by using a "password".

8.2.1.2.1.4. The "password" shall be changeable but it shall not be accessible to any un-authorized person, owner or user of the measuring system (instrument).

8.2.1.2.1.5. In addition to the use of a "password", the measuring system (dispenser) shall also be provided with a mechanical sealing device in the form of an access cover protected switch or key switch.

8.2.1.2.1.6. When it is in the configuration mode (a mode in which parameters can be changed), the device shall either not operate or it shall clearly indicate that it is in the configuration mode. This status shall remain

until the measuring system has been put into use “in sealed condition” in accordance with sub- Clause- 8.2.1.2.1.1.though 8.2.1.2.1.3.

8.2.1.2.1.7. For identification, data concerning the latest intervention(s) shall be automatically recorded into an event logger. The record shall include at least:

(a). an event counter;

(b). the date on which the parameter was changed (this is allowed to be entered manually);

(c). the new value of the parameter; and

(d). an identification of the person that implemented the intervention.

8.2.1.2.1.7.1. The tractability of the last intervention shall be assured for at least two years, if it is not over-written on the occasion of a further intervention.

8.2.1.2.1.7.2. The event logger may store many more than just one intervention provided the measuring system (dispenser) possess such technology. If more than one intervention is stored, and if deletion of a previous intervention must occur to permit a new record, the oldest record shall be deleted.

8.2.1.3. For measuring instruments with parts which may be disconnected one from another by the user and which are interchangeable, the following provisions shall be fulfilled:

(a). it shall not be possible to access parameters that participate in the determination of measurement results through disconnected points unless the provisions in 8.2.1.2.1 are fulfilled;

(b). interposing any device which may influence the accuracy shall be prevented by means of electronic and data processing securities or, if not possible, by mechanical means.

8.2.1.4. For measuring systems with parts which may be disconnected one from another by the user and which are not interchangeable, the provisions in 8.2.1.3 apply. Moreover, these measuring systems shall be provided with devices which do not allow them to operate if the various parts are not associated according to the manufacturer's configuration.

Note: Disconnections which are not allowed to the user may be prevented, for example by means of a device that prevents any measurement after disconnecting and reconnecting.

4. **Measure of length:**

4.1. Every measure of length shall be verified by comparison with the working standard model.

4.2. A link measure, or woven metallic or steel tape measure, shall be tested when subjected to a tension or pull as follows:-

Link Measure . .. . 8 kg

Woven Metallic Tape Measure. .. .. 1 kg

Steel Tape Measure. .. .. 5 kg

4.3. The measure under verification shall be supported throughout its whole length on a plane and even base.

4.4. Tape measure which are intended to be sued in cases may be accepted for verification and stamping if submitted even without the case.

4.5. All non-flexible measures of length shall be stamped on the rivets provided in the measure.

4.6. In the case of tape measure, the stamp shall be placed on the metal strip at the beginning of the measure.

4.7. In the case of link measures, the stamp shall be placed either on metal label or disc permanently attached to the measure or on the brass handle.

5. **Volume measures:-**

5.1. All measures of volume shall be examined with the object of discovering flaws or want of straightness and proper right angles at the corners.

5.2. Every measure of volume shall be verified by comparing length of each side against the work standard of length of or near the normal temperature.

5.3. The limits of errors in the case of lengths of the sides of measures of volume shall be the same as prescribed for linear measures.

5.4. All measures of volume shall be stamped near the top edge or brass plate securely fastened to them.

PART II - WEIGHING INSTRUMENTS AND MEASURING INSTRUMENTS.

1. General:

Weighing instruments and measuring instruments shall be verified to conform to the specification given in Schedule VI.

2. **Beam scales:**

2.1. On beam scales, the verification stamp shall be placed on the stud or plug on the beam, immediately under or over the central knife edge.

2.2. The Inspector may stamp the plug or stud in the same manner as he would stamp a weight.

3. **Counter machines, spring balances, steelyards and automatic machines:**

The verification stamp shall be placed upon the plug or stud provided in the instrument for that purpose.

4. **Platform machines and weigh-bridges**:

4.1. Weigh-bridges, platform machines and such other weighing instruments as the Controller may specify in this behalf, shall be verified and stamped in situ in addition to any preliminary test in the manufacturer or dealer's premises. Such a preliminary verification shall be made at the request of the manufacturer or dealer.

4.2. The verification stamp shall be placed upon the plug or stud provided for the purpose in the machine.

5. **Crane machine:**

5.1. Hydraulic machine in which it is necessary, in order to get a correct weigh indication, to twist the load book shall not be stamped unless a prominent notice to this effect is permanently affixed to the machine.

5.2. The verification stamp shall be placed upon the plug or stud provided for the purpose in the machine.

*1 SCHEDULE X

(See rule 17)

Fee payable for the verification and stamping of commercial Weights and Measures and weighing and measuring instruments.

Weights.

Denomination	Fee Per Piece.
(a). Bullion Weights	**Rs.**
20 kg	15/-
10kg	15/-
05 kg	10/-
02 kg	10/
01 kg	10/
500 g	5/-
200g	5/

100g	5/
50g	5/
20g	5/

---

*1 Schedule-X amended vide Govt: of N.W.F.P notification No.S.O.(B&A)IND/1-2/95-96 dated 14th November 1995

10g	5/-
05g	5/-
02g	5/-
01g	5/
500mg	3/-
200 mg	3/-
100 mg	3/-
50 mg	3/-
20 mg	3/-
10 mg	3/-
05 mg	3/-
02 mg	3/-
01 mg	3/-
(b).**Brass Weights (Other than bullion)**	Rs.
001 kg	10/-
500 g	10/-
200 g	5/-
100 g	5/-
50 g	5/-
20 g	5/-
10 g	5/-
05 g	5/-
02 g	5/-
01 g	5/-
(c). **Sheet Metal Weights (other than bullion)**	Rs.
500 mg	3/-
200 mg	3/-
100 mg	3/-
50 mg	3/-
20 mg	3/-
10 mg	3/-
05 mg	3/-
02 mg	3/-
01 mg	3/-

(d). **Iron and Steel Weights.**	Rs.
50 kg	15/-
20 kg	15/-
10 kg	10/-
05 kg	10/-
02kg	6/-

01 kg	6/-
500 g	4/-
200g	4/-
100g	4/-
(e) **Carat Weights**.	**Rs.**
500 c	5/-
200 c	5/
100 c	5/
50 c	5/
20 c	5/
10 c	5/
05 c	5/
02 c	5/
01 c	5/
50 / 100 c	5/
20 / 100 c	5/
10 / 100 c	5/
05 / 100 c	5/
01 / 100 c	5/
0.5 / 100 c	5/
2. Liquid capacity measures (including dispensing measures)	Rs.
Above 100 litre	Rs. 15/- for the first 100 litres and Rs. 15/- for every additional 100 litres or part thereof
100 litre	10/-
50 litre	10/-
20 litre	10/-
10 litre	10/-
05 litre	6/-
02 litre	6/-
01 litre	5/-
500 ml	5/-
200 ml	5/-
100 ml	5/-
50 ml	5/-
20 ml	5/-
10 ml	5/-
05 ml	5/-
02 ml	5/-

01 ml	5/-

3. Length Measures.	Rs.
Above 10 metre.	30/-
Above 1 metre to 09 metre.	20/-
1 metre and 0.5 metre	15/-
4. Weighing instruments other than Beam scale of Classes C, and D.	Rs.
Above 50 Metric tonne.	Rs.600/- for the 1st 50 Metric tonne and Rs. 100 for each 25 metric tonne or part therof.
Above 20 Metric tonne but not exceeding 50 metric tone.	600/-
Above 10 Metric tonne but not exceeding 20 metric tone.	500/-
Above 5 Metric tonne but not exceeding 10 metric tone.	300/-
Above 1 Metric tonne but not exceeding 5 metric tone.	300/-
Above 250 kg, but not exceeding 1 metric tonne.	200/-
Above 50 kg, but not exceeding 250 kg.	100/-
Above 20 kg, but not exceeding 50 kg.	50/-
Above 10 kg, but not exceeding 20 kg.	50/-
Above 500 g, but not exceeding 10 kg.	30/-
Not exceeding 500 g.	20/-

Note: (1) Whereas weighing instrument has two or more sets of graduation (one marked for seers and maunds or for lbs.cwts. and the other for metric units), the set marked for metric units only shall be verified and fees charged therefor.

(2) Where two weight tables or platforms are connected to one steelyard or office machines, two separate fees in accordance with the capacity of the respective weights tables or platforms are payable.

5. **Beam scales Classes C, and D.**	**Rs.**
Above 1 metric tonne.	100/-
Above 250 kg but not exceeding 1 metric tonne	80/-
Above 50 kg but not exceeding 250 kg	60/-
Above 20 kg but not exceeding 50 kg	40/-
Above 10 kg but not exceeding 20 kg	30/-

Above 500 g but not exceeding 10 kg	10/-
Not exceeding 500g	10/-

Sr.No.	Denomination / Capacity	Fee per piece / unit.
*1 **6**	**Measuring Instruments (Petrol & Fuel) Pumps.**	
a.	POL (Petrol / Fuel) Pumps	
	Upto 1000 litre	1000.00
	Above 1000 litre	1500.00
b	CNG Dispenser	3000.00
c.	LPG Dispenser	2000.00
d.	LNG Dispenser	2000.00
NOTE	Where two units are attached in twin form to the same assembly of a measuring instruments (Petrol or Fuel or CNG or LPG or LNG Dispensers) each having its separate / independent measuring device, delivery nozzle etc, each unit shall be considered to be a separate / independent unit and shall be verified separately and separate fee in accordance with the capacity of the respective unit in case of POL Pumps and per unit in case of CNG LPG and LNG, shall be charged.	
*1 **7.**	**Fuel Lorries, Tanks, Flow Meters etc.**	
a.	Fuel Lorries & Tanks	
	Upto 10000 litre	1500.00
	Above 10000 to 30000 litre	2000.00
	Above 30000 to 40000 litre	3000.00
	Above 40000 litre	4000.00
b.	Flow meter etc (including flowmeters installed at bulk oil Supply Depots or at any other place)	5000.00
c.	Master Measures	5000.00
d.	Proving Tanks	10000.00
e.	Dip rod Measure	200.00
	Dip tape Measures for measuring fuel or liquid in or storage tank	500.00
*1 **8**	**Energy meters, gas meters etc**	
a.	Energy meters	100.00
b.	Gas meters	100.00
c.	Water meters	100.00
d.	Taxi meters	200.00
e.	Thermal Guages	200.00
f	Pressure Guages, Barometers	300.00
***1 9**	**Clinical Instruments**	
a	Clinical Thermometer	50.00

b	Aneroid Barometer	100.00
c	Mano-meter	100.00

---

*1 Part-6 and 7 of the Schedule-X amended and new parts 8 and 9 added vide Govt: of N.W.F.P notification No.SO(L)IND/1-11/2008 dated 10th July 2009

SCHEDULE XI
[(See rule 24 (1)]

LICENSING FORMS.

(FORM 'A')

OFFICE OF THE CONTROLER OF WEIGHTS AND MEASURES.

……

Licence to manufacture/ repair weight, measures, weighing instruments or measuring instruments.

Licence No…….. Year ……

(1) The Controller of Weights and Measures …… hereby grants to / ……

(Name and address of the manufacture / repairer) ……

Licence to manufacture / repair the following :-

(Include details of the type of weights, measures, weighing instruments or measuring instruments that ……
……
……

are licenced to be manufactured or repaired by the party)……

(2) The licence is valid for the manufacturer / repairer named above in respect of his premises located at …… ……

(3). The licence is valid from …… to ……..

(4) The manufacturer / repairer shall comply with the conditions noted below. If he fails to comply with any one of these conditions, his licence is liable to be cancelled.

Signature.

Controller of Weights and Measures.

Date ……..
Place …… (Seal).

Note:- In the case of firm, its name with the names of all its members should be given in paragraph 1.

CONDITIONS OF LICENCE.

1. The person in whose favour this licence is issued shall -
   (a). comply with all the relevant provisions of the Act and the Rules for the time being in force;

   (b) not encourage or countenance any infringement of the provision of the Act, or the Rules for the time being in force and shall report without delay to the inspector any infringement that may come to his notice;

   (c) keep this licence exhibited in some conspicuous part of the premises to which it relates;

   (d). comply with any general or special directions that may be given by the Controller of Weights and Measures of ……

   (e). surrender the licence if and when required to do so by the Controller or any other officer / authorized in this behalf.

2. Every condition prescribed after the issue of this licence shall, if needed in the Official Gazette, be binding on the person / persons to whom the licence has been granted.

(FORM 'B')

OFFICE OF THE CONTROLLER OF WEIGHTS AND MEASURES.

Licence to a dealer in weights, measures, weighing instruments or measuring instruments.

Licence No. …….. Year ……..

(1) The Controller of Weighs and Measures ……..

hereby grants to ……

(Name and ……..

address of .....

dealer or .....

dealers) .....

a licence to deal in the following:-

(Indicate details of the types of weights , measures, weighing instruments or measuring instruments that are licensed to be dealt with by the dealer ……
……
……
……

(2) The licence is valid for the dealer named above is respect of his premised located at ……

……

(3). This licence is valid from …….. to ……

(4). The dealer shall comply with the conditions noted below. If he fails to comply with any one of these conditions, his licence is liable to be cancelled.

Signature
Controller of Weights and Measures
……

Date ……..

Place ……

(Seal)

Note . In the case of firms, its name with the names of all its members should be given in paragraph 1.

CONDITIONS OF LICENCE.

1. The person in whose favour this licence is issued shall -

(a). comply with all the relevant provisions of the Act and the Rules for the time being in force;

(b) not encourage or countenance any infringement of the provision of the Act, or the Rules for the time being inforce;

(c). report without delay to the inspector any such infringement that may come to his knowledge;

(d) keep this licence exhibited at some conspicuous place of the premises to which it relates;

(e). comply with any general or special directions that may be given to him by the Controller of Weighs and Measures of ……
……
……; and

(f). surrender the licence, if and when required to do so by the Controller or any other officer authorized in this behalf.

2. Any other condition that may be prescribed after the issue of this licence and notified in the Official Gazette, shall be binding on the person in whose favour the licence has been issued.

***1 PART-II SCHEDULE 'XII'**
==========
[See rule 24 (2)]

LICENSING AND RENEWAL FEES FOR MANUFACTURES, REPAIRERS AND DEALERS LICENCEES.

Licence fee	**Rs.**
Manufacturer	1000/- per annum.
Repairer	700/- per annum
Dealer	500/- per annum.

---

*1 Schedule-XII amended vide Govt: of N.W.F.P notification No.S.O.(B&A)IND/1-2/95-96 dated 14th November 1995

SCHEDULE XIII
[(See rule 24 (4)]

Register of licensed manufacturer, repairers and dealers.

OFFICE OF THE CONTROLLER OF WEIGHTS AND MEASURES.

Licence No.	Date of issue	Name of licensee, manufacturer, repairer or dealer with father's name and residential address.	Place where workshop store room, shop, or office is situated.	Articles for the manufacture / repair / sale of which licence was issued.	Trade mark or monogram used.	Orders regarding cancellation of licence, if any.	Result of appeal against cancellation of licence.
1	2	3	4	5	6	7	8

Treasury Challan No.	Date of Deposit	Amount deposited	Renewed upto	Remarks.
9	10	11	12	13

Note:- 1. In case of a firm, the name of the firm, with the names of all its partners are to be given in column 3.

2. Column 6 does not apply to repairers and dealers.

SCHEDULE XIV
[See rule 29]

TABLE NO.1

	Denomination		**Value**	**Abbreviations**
1.	**weights:**			
	tonne		1.000 kg	t
	quintal		100 kg	q
	kilogram		1,000 g	kg
	gram	..	1 g	g
	Milligram	..	0.001 or $(10)^{-3}$ g	mg
	Carat	..	200 mg	c
2.	**Length**			
	kilometer	..	1,000 m	km
	metre	..	1 m	m
	centimeter	..	0.01 or $(10)^{-2}$ m	cm
	millimeter	..	0.001 or $(10)^{-3}$ m	mm
3.	**Capacity.**			
	kilolitre	..	1,000 L	kl
	litre	..	1 L	l

	millitre		0.001 or $(10)^{-3}$ L	ml

TABLE NO.2

CONVERSION FACTORS.

I. **Weights:**

1 tola	..	..	11.6638 gram nearest to gram.
1 chattank	..	..	58.324 gram nearest to gram
1 seer	..	..	933.10 gram nearest to gram.
1 manud		..	.. 37.324 kg nearest to kilogram
1 ounce (AV)	..	..	0.373242 quintal 28.3495 gram.
1 lb	..	..	453.5924 gram.
1 cwt	..	..	50.802 kilogram.
1 ton	..	..	1 metric ton (+) 16 kilogram.
1 gram		..	.. 0.0352740 ounce = 0.085735 tola.
1 kilogram		..	2.20462 pounds = 1.07169 seers.
1 metric tonne.		..	0.98421 ton = 26.7923 munds.

---

1 2.

II. **Linear Measures**:

1 inch	..	..	25.40 millimetre.
1 foot	..	..	30.48 centimetre.
1 yard	..	..	0.9144 metre.
1 mile	..	..	1.609344 kilometre.
1 centimetre	..	..	0.393701 inch
1 metre.	..	..	1.09361 yard.
1 kilometre.	..	..	0.62137 mile.

III. **Capacity Measures:**

1 pint	..	..	..	0.56824 litre.
1 quart		..	..	.. 1.13649 litre
1 gallon (Imp)		..	..	.. 4.54596 litre.
1 gallon (US)	..	..	..	3.78533 litre.
1 litre.	..	..	..	1.75980 pint.
1 litre.	..	..	..	0.87990 quart.
1 litre.	..	..	..	0.219976 gallon (Imp)

TABLE NO. 3

TOLAS, CHHATTANKS, SEERS AND MAUNDS TO SI UNITS.

Conversion factors.	..	..	1 tola = 11.6638 gram.
	..	..	1 seer = 0.93310 kilogram.
	..	..	1 maund = 37.324 kg

Tola	Gram (g) + Milligram (mg)	
1	11	664
2	23	330
3	34	990
4	46	660
5	58	320

Chattank.	Gram (nearest to gram).
1	58
2	117
3	175
4	233
5	292
6	350
7	408
8	467
9	525
10	583
11	642
12	700
13	758
14	816
15	875
16	933

Seer	kilogram (kg)	+ Gram (g)
1	0	933
2	1	866
3	2	799
4	3	732
5	4	666
6	5	599
7 .. .. … ..	6	532
8 .. .. … ..	7	465
9	8	398
10	9	331
11	10	264
12	11	197
13	12	130
14	13	63
15	13	997
16	14	930
17	15	863
18	16	796
19	17	729
20	18	662
21	19	595
22 .. .. .. …	20	528
23	21	461

Seer					Kilogram (kg)	+ Gram (g)
24	..	..	..	..	22	395
25	..	..	..	..	23	328
26	..	..	..	..	24	261
27	..	..	..	..	25	194
28	..	..	..	..	26	127
29	..	..	..	..	27	60
30	..	..	..	..	27	993
31	..	..	..	..	28	926
32	..	..	..	..	29	859
33	..	..	..	..	30	792
34	..	..	..	..	31	726
35	..	..	..	..	32	659
36	..	..	..	..	33	592
37	..	..	..	..	34	525
38	..	..	..	..	35	458
39	..	..	..	..	36	391
40	..	..	..	..	37	324

Maund		Kilogram (kg)	+ Gram(g).
1	..	37	320
2	..	74	650
3	..	111	970
4	..	149	300
5	..	186	620
6	..	223	950
7	..	261	270
8	..	298	590
9	..	335	920
10	..	373	240
20		746	480
30	..	1119	730
40	..	1492	970
50	..	1866	210
60	..	2239	450
70	..	2612	690
80	..	2985	930
90	..	3359	180
100	..	3732	420

TABLE NO. 4

OUNCE (AV). TO SI UNITS.

(Conversion Factor 1 once = 283495 grams)

Ounce	Gram (g)	Milligram (mg)
1	28	350
2	56	699
3	85	49
4	113	39
5	141	748
6	170	97
7	198	447
8	226	796
9	255	146
10	283	495
11	311	845
12	340	194
13 .. …	368	544
14 .. …	396	893
15	425	243

16 .. .. 453 592.

TABLE NO.5

POUNDS, CWT, AND TONS TO SI UNUITS.

(Conversion Factor 1 lb= 0.4535924 kg).

Pound.	Kilogram (kg) + Gram (g).	
1	-	454
2	-	907
3	1	361
4	1	814
5	2	268
6	2	722
7	3	175
8	3	629
9	4	82
10	4	536
11	4	990
12	5	443
13	5	897
14	6	350
15	6	804

16	..	..	7	258
17	..	..	7	711
18	..	..	8	165
19	..	..	8	618

Pound.			Kilogram (kg) + Gram (g).	
20	..	..	9	72
21	..	..	9	525
22	..	..	9	979
23	..	..	10	433
24	..	..	10	886
25	..	..	11	340
26	..	..	11	793
27	..	..	12	247
28	..	..	12	701
29	..	..	13	154
30	..	..	13	608
31	..	..	14	61
32	..	..	14	515
33	..	..	14	969
34	..	…	15	422
35	..	..	15	876
36	..	..	16	329
37	..	..	16	783

38	..	..		17	236
39	..	..		17	690
40	..	..		18	144
41	..	..		18	597
42	..	..		19	51

Pound.				Kilogram (kg) + Gram (g).	
43	..	..	..	19	504
44	..	..		19	958
45	..	..	..	20	412
46	..	..	..	20	865
47	..	..	..	21	319
48	..	..	..	21	772
49	..	..		22	226
50	..	..		22	680
51	..	..		23	133
52	..	..		23	587
53	..	..		24	40
54				24	494
55	..	..		24	948
56	..	..		25	401
57	..	..		25	855
58	..	..		26	308
59		..		26	762

60	..	..	27	216
61	..	..	27	669
62	..	..	28	123
63	..	..	28	576
64	..	..	29	30
65	..	..	29	484

Pound.	Kilogram (kg) + Gram (g).	
66	29	937
67	30	391
68	30	844
69	31	298
70	31	751
71	32	205
72	32	659
73	33	112
74	33	566
75	34	19
76	34	473
77	34	927
78	35	380
79	35	834
80	36	287
81	36	741
82	37	195
83	37	648
84	38	102
85	38	555
86	39	9
87	39	463

88	39	916

Pound.	Kilogram (kg) + Gram (g).	
89	40	370
90	40	823
91	41	277
92	41	731
93	42	184
94	42	638
95	43	91
96	43	545
97	43	998
98	44	452
99	44	906
100	45	359
200	90	720
300	136	80
400	181	440
500	226	800
600	272	160
700	317	510
800	362	870
900	408	230
1000	453	590

Hundred weight.		Kilogram (kg) + Gram (g).	
1	.. .. ..	50	800
2	.. .. ..	101	600
3	.. .. ..	152	410
4	.. .. …	203	210
5	.. .. ..	254	10
6	.. .. ..	304	810
7	.. .. ..	355	620
8	.. .. ..	406	420
9	.. .. ..	457	220
10	.. .. ..	508	20
11	.. .. ..	558	830
12	.. .. ..	609	630
13	.. .. ..	660	430
14	.. .. ..	711	230
15	.. .. ..	762	40
16	.. .. ..	812	840
17	.. .. ..	863	640
18	.. .. ..	914	440
19	.. .. ..	965	250
20	.. .. ..	1016	50

Ton.	Metric tonne (t)	+ Kilogram(kg).
1	1	16
2	2	32
3	3	48
4	4	64
5	5	80
6	6	96
7	7	112
8	8	128
9	9	144
10	10	160
20	20	321
30	30	481
40	40	642
50	50	802
60	60	963
70	71	123
80	81	284
90	91	444
100	101	605
200	203	209
300	304	814

400	406	419

Ton.	Metric tonne (t) + Kilogram(kg).	
500	508	24
600	609	628
700	711	233
800	812	838
900	924	445
1000	1016	442

TABLE NO. 6

FL. OUNCES; GILLS, PINTS, QUARTS AND GALLONS TO SI UNITS.

(Conversion Factor 1 Gallon Imperial = 4.54596 Litre).

FL. oz	Milliliter(ml) (nearest to ml)
1 .. .. .. …	28
2 .. .. .. …	57
3 .. .. …	85
4 .. … …	114
5 .. … ..	142

Gill.	Milliliter (nearest to ml).

1	..	142
2	..	284
3	..	426
4	..	568

Pint.	Litre (1)	+ Milliliter (ml).
1	-	568
2	1	136

Quart.	Litre (1)	+ Milliliter (nearest to ml)
1	1	136
2	2	273
3	3	409
4	4	546

Gallon	Litre (1)	+ Milliliter (nearest to ml)
1	4	550
2	9	90
3	13	640
4	18	180
5	22	730
6	27	280
7	31	820

8	36	370
9	40	910

Gallon	Litre (1)	+ Milliliter (nearest to ml)
10	45	460
20	90	020
30	136	379
40	181	838
50	227	300
60	272	758
70	318	217
80	363	677
90	409	136
100	454	600

TABLE NO. 7

INCHES, FEET, YARDS, FURLONGS AND MILES TO SI UNITS.

(Conversion Factor 1 inch = 25.4 Millimeter).

Inches.	Centimeter + (cm)	Millimetre (nearest to mm) (mm)
1	2	5
2	5	1

3	..	..	…	..	..	..	7	6

Inches.				Centimetre + (Millimetre (nearest to mm)	
				(cm)	(mm)
4	..	..	..	10	2
5	..	..	..	12	7
6	..	..	..	15	2
7	..	..	..	17	8
8	..	..	..	20	3
9	..	..	..	22	9
10	..	..	..	25	4
11	..	..	..	27	9
12	..	..	..	30	5

Feet.				Metre + (m) + cm(nearest to (cm)	
1	..	..	..	-	30
2	..	..	..	-	61
3	..	..	..	-	91

Yards	Metre (m) + cm (nearest to cm).
1	91
2	1 83
3	2 74
4	3 66
5	4 57
6	5 49
7	6 40
8	7 32
9	8 23
10	9 14
20	18 29
30	27 43
40	36 58
50	45 72
60	54 86
70	64 1
80	73 15
90	82 30
100	91 44

Yards				Metres (m) (nearest to m)
100	..	..	..	91
200	..	..	..	183
300	..	..	…	274
400	..	..	…	366
500	..	..	…	457
600	..	..	..	549
700	..	…	..	640
800	..	…	…	732
900	..	…	…	823
1000	..	….	…	914

Furlongs.			Kilometre (km)	+	Metre (m) (nearest to m)
1	..	..	-		201
2	..	..	-		402
3	..	…	-		604
4	..	…	-		805
5	..	….	1		6
6	..	….	1		207

7	..	.....	1	408
8	..	.....	1	609

Miles					Kilometres (km)	+	Metre (m) (nearest to m)
1	..	..	..	...	1		610
2	..	..	..	...	3		220
3		..		...	4		830
4	..	..	...	...	6		440
5	..	...	...	...	8		050
6	..	....	....	....	9		660
7	..	....	....	....	11		270
8	..	....	....	...	12		870
9		...		...	14		480
10		..		...	16		090
20		...		....	32		190
30		..		....	48		280
40		..		...	64		370
50	..	...		....	80		470
60	..	...	...	....	96		560
70	..	....	...	...	112		650
80	..	....	...	....	128		750
90	..	....	...	....	144		840
100	..	....	....	.....	160		930
200	..	....	...	....	321		870

300	..	....	....	....	482	800
400	..	.....	.....	.....	643	740

Miles.			Kilometres (km)	+	Metre (m) (nearest to m)
500	..	...	804		670
600	..	....	965		610
700	..	....	1,126		540
800	..	....	1,287		470
900	..	....	1,448		410
1000	..	....	1,609		340

TABLE NO. 8

KILOGRAM TO SEERS AND TOLAS

(Conversion Factor 1 kg = 1.07169 seer).

Kilogram (kg)			Seers. +	Tolas.
1	..	..	1	6
2	..	..	2	11
3	..	...	3	17
4	..	...	4	23
5	..	...	5	29

6	..	…	6	34
7	..	…	7	40
8	..	…	8	46
9	..	…	9	52
10	..	…	10	57
20	..	…	21	35
30	..	…	32	12
40	..	…	42	69

Kilogram (kg)			Seers. +	Tolas.
50	..	..	53	47
60	..	..	64	24
70	..	..	75	1
80	..	…	85	59
90	..	…	96	36
100	..	…	107	14
110	..	…	117	71
120	..	…	128	48
130	..	….	139	26
140	..	….	150	3
150	..	…..	160	60
160	..	…	171	38
170	..	….	182	15
180	..	…..	192	72
190	..	…..	203	50
200	..	…..	214	27
300	..	…..	321	41
400	..	…..	428	54
500	..	….	535	68

600	..	....	643	1
700	..	....	750	15
800	..	....	857	28
900	..	....	964	42
1000	..	....	1071	55

TABLE NO. 9

KILOGRAM TO POUNDS AND OUNCES.

(Conversion Factor 1 kg = 2.20462 Ibs)

Kilogram (kg).			Pounds	+ Ounces.
1	..	..	2	3
2	..	..	4	7
3	..	..	6	10
4	..	..	8	13
5	..	..	11	0
6	..	..	13	4
7	..	..	15	7
8	..	..	17	10
9	..	..	19	13
10	..	..	22	1
20	..	..	44	1
30	..	..	66	2
40	..	..	88	3
50	..	..	110	4

60	..	..	132	4
70	..	..	154	5
80	..	..	176	6
90	..	..	198	7
100	..	..	220	7

Kilogram (kg).			Pounds	+ Ounces.
200	..	....	440	15
300	..	....	661	6
400	..	....	881	14
500	..	.....	1102	5
600	..	....	1322	12
700	..	.....	1543	4
800	..	.....	1763	11
900	..	.....	1984	3
1000	..	.....	2004	10

TABLE NO. 10

LITRE TO GALLONS (IMP.) AND PINTS.

(Conversion Factor 1 Litre = 0.21996 Gallons (Imp.)

Litre (1)	Gallons	+	Pints.

1	..	..	..	..	0	2
2		..	..	..	0	4
3	..	..	..	..	0	5
4	..		..		0	7
5	..	..	..	..	1	1
6	..	..	..	..	1	3
7	..	..	..	..	1	4
8	..	..	..	..	1	6

Litre (1)						Gallons	+	Pints.
9	..	..	..	..	..	2		0
10		..	..	..	..	2		2
20		..	..	..	..	4		3
30		..	..	..	..	6		5
40		..	..	..	..	8		6
50		..	..	..	..	11		0
60		..	..	..	..	13		2
70		..	..	..	..	15		3
80		..	..	..	..	17		5
90		..	..	..	..	19		6
100		..	..	..	..	22		0

TABLE NO. 11

METRE TO FEET AND INCHES.

(Conversion Factor 1 Metre = 1.09361 Yards).

Metre (m)				Feet	+	Inches.
1	..	..	..	3		3
2	..	..	..	6		7
3	..	..	..	9		10
4	..	..	..	13		1
5	..	..	..	16		5

Metre (m)				Feet	+	Inches.
6	..	..	..	19		8
7	..	..	..	23		0
8	..	..	..	26		3
9	..	..	..	29		6
10	..	..	..	32		10
20	..	..	..	65		7
30	..	..	..	98		5
40	..	..	..	131		3
50	..	..		164		1
60	..	..	..	196		10
70	..	..	..	229		8
80	..	..	..	262		6
90	..	..	..	295		3
100	..	..	..	328		1

200	..	..	..	656	2
300	..	..	..	984	3
400	..	..	..	1312	4
500	..	..	..	1640	5
600	..	..	..	1968	6
700	..	..	..	2296	7
800	..	..	..	2624	8
900	..	..	..	2952	9
1000	..	..	..	3280	10

TABLE NO.12

KILOMETRE TO MILES AND FURONGS.

(Conversion Factor 1 km = 0.62137 mile).

Kilometre.			Miles +	Furlong.
1	..	..	0	5
2	..	..	1	2
3	..	..	1	7
4	..	..	2	4
5	..	..	3	1
6	..	..	3	6
7	..	..	4	3
8	..	..	5	0
9	..	..	5	5

10	..	..	6	2
20	..	..	12	3
30	..	..	18	5
40	..	..	24	7
50	..	..	31	1
60	..	..	37	2
70	..	..	43	4
80	..	..	49	6
90		..	55	7

Kilometre.			Miles +	Furlong.
100	..	..	62	1
200	..	..	124	2
300	..	..	186	3
400	..	..	248	4
500	..	..	310	5
600	..	..	372	7
700	..	..	435	0
800	..	..	497	1
900	..	..	559	2
1000	..	..	621	3

SCHEDULE XV.

(See rule 30)

Seizure Receipt Form.

OFFICE OF THE CONTROLLER, WEIGHTS AND MEASURES, NORTH-WEST FRONTIER PROVINCE.

RECEIPTS.

I, Mr…….. Inspector / Assistant Inspector, Weights and Measures, herewith seize following weights / measures / weighing / measuring instruments found in possession of …….. for use in transaction of commerce at the time of inspection at …….. on …….. as there are inconsistent to rule …….. of section……. of the North West Frontier Province Weights and Measures Enforcement Act, 1976.

Signature of
Inspector / Assistant Inspector.

Printed and published by the Manager, Staty. & Ptg. Deptt.
Government of North-west Frontier Province.

SCHEDULE –VIII

(See Rule-12)

Book No:_____ **Serial No____**

Date of issue.....

CERTIFICATE OF VERIFICATION

I hereby certify that I have this day verified and stamped / rejected the under mentioned Weights, Measures etc belonging to M/s _____-

_____

locality under the Khyber Pakhtunkhwa Standard Weights & Measures Enforcement Act 1976 (Khyber Pakhtunkhwa Act.III of 1976).

Quantity	*item	Denomination / Capacity	Class & Maker	Identification No. if any	Verification Fee			Carriage, Conveyance etc (TA / DA, Transport Charges of Equipment
					Ordinary Fee Rs.	Additional Fee Rs.	Total Fee Rs.	

*Items mean weights, measures, weighing instruments or measuring instruments to be verified.

Repaired by _____

Next Verification is due on _____ Grand Total Rs._____

SIGNATURE with Seal

The Khyber Pakhtunkhwa Standard Weights and Measures Rules 1976

Receipt

(See Rule-12)

Book No. _____ Serial No._____

Date of issue _____

Received from

_____

_____

_____

_____ a sum of Rs. _____ Rupees _____ in cash on account of verification fee / Additional Fee / Travelling Expenses / Transportation Charges of equipment for verification in respect of the weights, measures, weighing or measuring instruments as verified vide verification

certification No. …… dated …… as per detail given below.

1	Verification Fee	Rs.
2	Additional Fee (if any)	Rs.
3	Travelling Expenses (if any)	Rs.
4	Transportation Charges of Equipment (if any)	Rs.
5	Other Charges.	Rs.

Name and Designation

EXTRAORDINARY REGISTERED NO. P.III

GOVERNMENT G A Z E T T E

KHYBER PAKHTUNKHWA

Published by Authority

PESHAWAR, WEDNESDAY, 9TH JANUARY, 2013

PROVINCIAL ASSEMBLY SECRETARIAT KHYBER PAKHTUNKHWA

Notification

Dated Peshawar, the 9th January 2013

No. PA/ Khyber Pakhtunkhwa / Bill / 2013-/ 754.- The Khyber Pakhtunkhwa Standard Weights and Measures Enforcement (Amendment) Bill, 2012 having been passed by the Provincial Assembly of Khyber Pakhtuhaw on 21st December, 2012 and assented to by the Provincial Legislature of the Khyber Pakhtunkhwa.

The Khyber pakhtunkhwa standard weights and measures Enforcement (Amendment) Act, 2012

(Khyber pakhtunkhwa Act No.1 of 2013)

(First published after having received the assent of the Governor of the Khyber Pakhtunkhwa in the Gazette of the Khyber Pakhtunkhwa, (Extraordinary), dated the 9th January 2013).

AN

ACT

To amend Khyber Pakhtunkhwa Standard Weights and Measures Enforcement Act, 1976.

Preamble. --- WHEREAS it is expedient to amend the Khyber Pakhtunkhwa Standard

Weights and Measures Enforcement Act, 1976, for the purposes hereinafter appearing;

It is hereby enacted as follow:

1. Short title and commencement.--- (1) This Act may be called the Khyber Pakhtunkhwa Standard Weights and Measures Enforcement (Amendment)Act, 2012.

(2) it shall come into force at once.

2. Amendment of section 26 of the Khyber Pakhtunkhwa Act No.III of 1976. --- In the Khyber Pakhtunkhwa Standard Weights and Measures Enforcement Act, 1976, (Act No.III of 1976), hereinafter referred to the said Act, in section 26:-

(a) in sub-section (1), for the word "two"' the word "twenty" shall be substituted; and

(b) In sub-section (2), for the words "one thousand and five hundred rupees", the words "twenty thousand rupees" shall be substituted.

3. **Amendment of section 27 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 27, for the word "two", the word "twenty" shall be substituted.

4. **Amendment of section 28 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 28, for the word "two", the word "twenty" shall be substituted.

5. **Amendment of section 29 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 29, for the word "two", the word "twenty" shall be substituted.

6. **Amendment of section 30 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 30, for the word "two", the word "twenty" shall be substituted.

7. **Amendment of section 31 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 31, for the word "two", the word "twenty" shall be substituted.

8. **Amendment of section 34 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 34, for the word "two", the word "twenty" shall be substituted.

9. **Amendment of section 36 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 36, for the word "two", the word "twenty" shall be substituted.

10. **Insertion of new section 45A in the Khyber Pakhtunkhwa Act No.III of 1976**.--- in the said Act after section 45, the following new section shall be inserted, namely:

"**45A. Act to override other laws**.- The provisions of this Act shall have an overriding effect notwithstanding anything to the contrary contained in any other law for the time being in force."

11. **Amendment of section 46 of the Khyber Pakhtunkhwa Act No. III of 1976**. ---in the said Act, in section 46, in sub-section (3), for the word "two", the word "twenty" shall be substituted.

BY ORDER OF MR. SPEAKER
PROVINCIAL ASSEMBLY OF
KHYBER
PAKHTUNKHWA

(Amanullah)
Secretary,
Provincial Assembly of Khyber
Pakhtunkhwa

Printed and published by the Managaer,
Staty. & Ptg. Deptt. Khyber Pakhtunkhwa. Peshawar

EXTRAORDINARY REGISTERED NO. P.III

GOVERNMENT G A Z E T T E

KHYBER PAKHTUNKHWA

Published by Authority

PESHAWAR, WEDNESDAY, 14TH MARCH, 2018

GOVERNMENT OF THE KHYBER PAKHTUNKHWA
LABOUR DEPARTMENT

NOTIFICATION

Peshawar, dated the 7/03/2018

No. SO(B&A)/ 2-4/ Resource/ 2016-17/ 1597-1600. In exercise of the powers conferred by section 46 of the Khyber Pakhtunkhwa Standard Weights and Measures Enforcement Act, 1976 (Khyber Pakhtunkhwa. Act No. III of 1976), the Government of Khyber Pakhtunkhwa, after taking into consideration the draft amendments previously published under this Department's Notification No. SO(B&A) / LD/ Notification / 929-30 dated 30th January, 2018 in the Extra –ordinary issue of the Government Gazette dated the 12th February, 2018 is pleased to direct that in the Khyber Pakhtunkhwa Standard Weights and Measures Enforcement Rules, 1976, the following further amendments shall be made, namely:-

AMENDMENTS

1. In rule 17,---
   (a). in the heading, after the word "verification" the comma and Word, "repairing" shall be inserted; and

   (b). in sub-rule (1), after the word "re-verification" the comma and Word, "repairing" shall be inserted.

2. In rule 31, for the word "two", the word "twenty" shall be substituted.

3. For Schedule-X, the following shall be substituted, namely:

4.

"SCHEDULE-X
[see rule 17]

1. Weights.

1	2	3	4
	Denomination	**Govt: verification & stamping fee per piece.**	**Rate / fee of repairing of weights & measures per piece.**
(a).	**Bullion Weights**	**Rs.**	**Rs.**
	20 kg, 10kg, 5kg, 2kg, 1kg, 500g, 200g	20/-	10/-
	100g, 50g, 20g, 10g, 05g, 02g, 01g, 500mg, 200mg, 100mg, 50mg, 20 mg, 10mg, 05mg, 02mg, 01mg	10/-	05/-
(b).	**Brass Weights (Other than bullion**)		
	001 kg	20/-	10/-
	500g, 200g, 100g, 50g, 20g, 10g, 05g, 02g, 01g	10/-	05/-
(c).	**Sheet Metal Weights (other than bullion)**		
	500mg, 200mg, 100mg, 50mg, 20mg, 10mg, 05mg, 02mg, 01mg	05/-	05/-
(d).	**Iron and Steel Weights.**		
	50kg, 20kg, 10kg, 05kg	20/-	10/-
	02kg, 01kg, 500g, 200g, 100g	10/-	05/-
(e)	**Carat Weights**.		
	500c, 200c, 100c, 50c, 20c, 10c, 05c, 02c, 01c, 50/100c, 20/100c, 10/100c, 05/100c, 01/100c, 0.5/100c	10/-	05/-

2. Liquid capacity measures (including dispensing measures)

1	2	3	4
	Denomination	**Govt: verification & stamping fee per piece.**	**Rate of repairing of weights & measures per piece.**
		Rs.	**Rs.**
a	Above 100 litre	Rs.300/- for the first 100 liter and Rs. 300/- for every additional 100 liters or part thereof	150/- for the first 100 litre and Rs. 150/- for every additional 100 liters or part thereof

b	100 litre	200/-	100/-
c	50 litre, 20 litre, 10 litre	50/-	25/-
d	05 litre, 02 litre, 01 litre, 500ml	40/-	20/-
e	200ml, 100ml, 50ml, 20ml, 10ml, 05ml, 2ml, 01ml	20/-	10/-

3. Length Measures.

1	2	3	4
	Denomination	**Govt: verification & stamping fee per piece.**	**Rate of repairing of weights & measures per piece.**
		Rs.	**Rs.**
a	10 meter and above.	Rs.80 for the 1st 10 meter and Rs.80 for every additional 10 meter or part thereof	Rs.40/- for the 1st 10 meter and Rs. 01 for every additional 1 meter
b	Above 1 meter upto 09 meter.	50/-	25/-
c	1 meter and 0.5 meter	40/-	20/-

4. **Weighing instruments other than Beam scale of Classes C, and D.**

1	2	3	4
	Denomination	**Govt: verification & stamping fee per piece.**	**Rate of repairing of weights & measures per piece.**
		Rs.	**Rs.**
a	Above 50 metric tone	Rs. 2000/- for the 1st 50 Metric ton and Rs. 250/- for each additional 25 metric tons or part thereof	1200/-
b	Above 20 Metric ton but not exceeding 50 metric tone	2000/-	1000/-
c	Above 10 Metric ton but not exceeding 20 metric tone	1500/-	800/-
d	Above 05 Metric ton but not exceeding 10 metric tone	1000/-	600/-
e	Above 01 Metric ton but not exceeding 05 metric tone	1000/-	600/-
f	Above 250 kg but not exceeding 01 metric tone	800/-	400/-
g	Above 50 kg but not exceeding 250 kg	300/-	150/-
h	Above 20 kg but not exceeding 50 kg	250/-	120/-
I	Above 10 kg but not exceeding 20 kg	150/-	80/-
J	Above 500 g but not exceeding 10 kg	100/-	50/-
K	Not exceeding 500g	80/-	40/-

Note: (1) Whereas weighing instrument has two or more sets of graduation (one marked for seers and maunds or for lbs. cwts. and the other for metric units), the set marked for metric units only shall be verified and fees charged therefor.

(2) Where two weight tables or platforms are connected to one steelyard or office machines, two separate fees in accordance with the capacity of the respective weights tables or platforms are payable.

5. Beam scales Classes C, and D.

1	2	3	4
	Denomination	**Govt: verification & stamping fee per piece.**	**Rate of repairing of weights & measures per piece.**
		Rs.	**Rs.**
a	Above 1 metric ton	500/-	250/-
b	Above 250 kg but not exceeding 01 metric ton	300/-	150/-
c	Above 50 kg but not exceeding 250 kg	200/-	100/-
d	Above 20 kg but not exceeding 50 kg	100/-	50/-
e	Above 10 kg but not exceeding 20 kg	80/-	40/-
f	Above 500g but not exceeding 10 kg	60/-	30/-
g	Not exceeding 500g	40/-	20/-

6. Measuring Instruments (Petrol & Fuel) Pumps.

1	2	3
Sr.No.	**Denomination / Capacity**	**Govt: verification & stamping fee per piece.**
		Rs.
a.	All types of POL (Petrol / Fuel) Pumps	1500/-
b	CNG Dispenser	3000/-
c.	LPG Dispenser	2000/-
d.	LNG Dispenser	2000/-
NOTE	Where two units are attached in twin form to the same assembly of a measuring instruments (Petrol or Fuel or CNG or LPG or LNG Dispensers) each having its separate / independent measuring device, delivery nozzle etc, each unit shall be considered to be a separate / independent unit and shall be verified separately and separate fee in accordance with the capacity of the respective unit in case of POL Pumps and per unit in case of CNG LPG and LNG, shall be charged.	

7. Fuel Lorries, Tanks, Flow Meters etc.

1	2	3
Sr.No.	**Denomination / Capacity**	**Govt: verification & stamping fee per piece.**
		Rs.
a.	Fuel Lorries & Tanks Upto 10000 liter Above 10000 to 20000 liter Above 2000 to 30000 liter Above 30000 to 40000 liter Above 40000 liter	 1500/- 2000/- 2500/- 3000/- 4000/-
b.	Flow meter etc (including flow meters installed at bulk oil Supply Depots or at any other place)	10000/-
c.	Master Measures	10,000/-
d.	Proving Tanks	15,000/-
e.	Dip rod Measure	500/-
	Dip tape Measures for measuring fuel or liquid in or storage tank	1,000/-

8. Energy meters, gas meters etc

1	2	3
Sr.No.	**Denomination / Capacity**	**Govt: verification & stamping fee per piece.**
		Rs.
a.	Energy meters	100/-
b.	Gas meters	100/-
c.	Water meters	100/-
d.	Taxi meters	200/-
e.	Thermal Gauges	200/-
f	Pressure Gauges, Barometers	300/-

9. Clinical Instruments

1	2	3
Sr.No.	**Denomination / Capacity.**	**Govt: verification & stamping fee per piece.**
		Rs.
a	Clinical Thermometer	50/-
b	Aneroid Barometer	100/-
c	Manometer	100/-

Note: The repairing rates at Serial No. 1 to Serial No.5, fixed above does not include cost of polishing, painting, spare parts etc required to be changed which will be charged by the repairer separately at the reasonable market rates".

4. For schedule –XII, the following shall be substituted, namely:

"SCHEDULE 'XII
[See rule 24(2)]

LECENSING AND RENEWAL FEES FOR MANUFACTUTES, REPAIRES AND DEALERS LICENCEES

Licence Fee.

	Licence	Fee
(1)	Manufacturer	2000/- per annum
(2)	Repairer	1500/- per annum
(3)	Dealer	1000/- per annum"

Sd/-x-x-x
(KHAYYAM HASAN KHAN)
SECRETARY TO
GOVERNMENT OF KHYBER PAKHTUNKHWA
LABOUR DEPARTMENT.

Printed and published by the Manager,
Staty. & Ptg. Deptt. Khyber Pakhtunkhwa, Peshawar