

**व्यापक परिचालन में मसौदा**

प्रलेख प्रेषण संज्ञापन	
संदर्भ	दिनांक
एम.ई.डी 16:2/टी-44	13-08-2010

तकनीकी समिति: **एम.ई.16:**

- 1 यॉंत्रिक इंजिनियरी विभाग परिषद के सभी सदस्य(यां.वि.प.) ।
- 2 गैस सिलिंडर विषय समिति एम.ई.डी. 16 एवं अल्प दाव गैस सिलिंडर उप समिति एम.ई.डी 16:2 के सभी सदस्य ।
- 3 अन्य रूचि रखने वाले ।

निम्नलिखित प्रलेख सलग्न है:

प्रलेख	विषय
एम.ई. 16 (1101)	भारतीय मानक मसौदा “आवधिक निरीक्षण एवं परीक्षण - द्रवित पेट्रोलियम गैस (एल. पी. जी) के लिए 5 लिटर से अधिक जल क्षमता वाले वेल्डित अल्प कार्बन इस्पात के सिलिंडर - रीति संहिता” (आई सी एस 23.060.40; 75.160.30)

कृपया इस मसौदे का अवलोकन करें और अपनी सम्मतियां यह बताते हुए भेजें कि अंततः यदि यह प्रकाशित हो जाएं तो इस पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाईयाँ आ सकती हैं ।

सम्मतियां भेजने की अन्तिम तिथि: **15-10-2010.**

यदि कोई सम्मति हो तो कृपया अगले पृष्ठ पर दिये पत्र में अद्योहस्ताक्षरी को उपरलिखित पते पर भेज दें ।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रलेख को यथावत अंतिम रूप दिया जायेगा । यदि कोई सम्मति तकनीकी प्रकृति की हुई तो विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रलेख को अंतिम रूप दे दिया जाएगा ।

**यह मसौदे हमारी वेब साईट [www.bis.org.in](http://www.bis.org.in) पर भी उपलब्ध हैं ।**

धन्यवाद,

हस्ताक्षर:

नाम : चि. कु. वेदा

पद : वैज्ञा. 'एफ'. एवं प्रमुख (यां.इंजि.)

प्रति: उपरलिखित

नोट - जहां एक संगठन के मुख्य और वैकल्पिक सदस्य एक ही स्टेशन पर हैं, मसौदे की एक प्रतिलिपि केवल मुख्य सदस्य को भेजी जा रही है। वो मसौदे को वैकल्पिक सदस्य के साथ साझा करने का कष्ट करें ।

**Doc: MED 16(1101)**  
**August 2010**

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**DRAFT INDIAN STANDARD IN  
WIDE CIRCULATION**

**DOCUMENT DESPATCH  
ADVICE**

Ref: ME 16 :2/T-44

Date: 13-08-2010

**Gas Cylinders, Sectional Committee, ME 16  
TO:**

- a) **The interested members of Mechanical Engineering Division Council, MEDC**
- b) **All members of Gas Cylinders Sectional Committee, ME 16 and Low Pressure Gas Cylinders Sub Committee,  
ME 16:2**
- c) **All others Interested**

Dear Sirs,

Please find enclosed the following document:

<b>Doc. No.</b>	<b>TITLE</b>
Doc: MED 16 (1101)	Draft Indian Standard Periodic inspection and testing - Welded low carbon steel cylinders exceeding 5 litre water capacity for liquefied petroleum gas (LPG) - Code of practice (ICS 23.060.40; 75.160.30)

**Kindly examine the Draft Standard and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted.**

Last date for receipt of comments: **15-10-2010.**

**Comments, if any, may please be made in the format as given overleaf and mailed to the undersigned at the above address.**

In case no comments are received or comments received are of editorial nature, you will kindly permit us to presume your approval for the above document as finalized. However, in case of comments of technical in nature are received then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional committee for further necessary action if so desired by the Chairman, Sectional Committee.

**The document is also hosted on BIS website [www.bis.org.in](http://www.bis.org.in).**

Thanking you,

Yours faithfully

Encl: As above  
Engg)

(C.K. Veda)  
Scientist 'F' & Head (Mech

**NOTE-WHERE PRINCIPAL AND ALTERNATE MEMBERS OF AN ORGANISATION ARE FROM THE SAME STATION, ONE COPY OF THE DOCUMENT IS SENT ONLY TO THE PRINCIPAL MEMBER WHO MAY KINDLY SHARE THIS WITH HIS ALTERNATE AS WELL.**

**For BIS Comments Only**

**Draft Indian Standard**  
**PERIODIC INSPECTION AND TESTING - WELDED LOW**  
**CARBON STEEL CYLINDERS EXCEEDING 5 LITRE**  
**WATER CAPACITY FOR LIQUIFIED PETROLEUM**  
**GAS (LPG) - CODE OF PRACTICE**

**ICS 23.060.40; 75.160.30**

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**Last date for receipt of  
comments is: 15 Oct 2010**

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**FOREWORD**

Adoption clause to be added later on.

This standard has been formulated as a guide to cylinder fillers for establishing their own cylinder inspection procedures and standards. It is of necessity general in nature although some specific limits are recommended. It should be distinctly understood that it will not cover all circumstances for each individual cylinder type. Rejection or acceptance for continued use in accordance with their cylinders are or are not dangerous or subject to impending failure, but represents practice which has been satisfactory to a cross section of the industry.

Experience in the inspection of cylinders is an important factor in determining the acceptability of a given cylinder for continued service. Users lacking this experience and having doubtful cylinders should return them to a manufacturer of the same type of cylinders for reinspection.

In the preparation of this standard considerable assistance has been taken from ISO 10464:2004 Gas cylinders - Refillable welded steel cylinders for liquefied petroleum gas (LPG) - Period inspection and testing.

While implementing this standard compliance with statutory regulations shall be ensured.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**1 SCOPE**

**1.1** This standard specifies the inspection and testing procedure for the periodic inspection of transportable refillable welded cylinders for LPG, of water capacity from 0.5 litre upto and including 250 litre, as per periodicity defined by Gas Cylinders Rules.

It does not apply to cylinders permanently installed in vehicles. The code is for mandatory testing of cylinders and not applicable for repair and reconditioning of LPG cylinders in use.

**1.2** This standard refers only to technical suitability and does not absolve the user from legal obligation relating to health and safety at any stage. It has been assumed that the inspection is entrusted appropriately qualified and experienced people or competent persons who have been trained specifically for the task.

## **2 REFERENCES**

The Indian Standards listed in Annex A are necessary adjuncts to this standard. At the time of publication, editions indicated are valid. For dated references, only the editions cited applies. All standards are subject to revisions and parties to agreement apply the most recent editions of the standards indicated in Annex A.

## **3 TERMINOLOGY**

For the purpose of this standard, the following definitions in addition to given in IS 7241 shall apply.

**3.1 Batch** - Batch means a lot of 400 cylinders of same capacity received from the cylinder owner company. The batch may comprise of cylinders from different Cylinder manufacturers, manufactured at different dates.

**3.2 Competent Person** - Person appointed by the Retesting Agency and who by a combination of training, experience and supervision is able to make objective judgments on a subject.

**3.3 Gross Weight** - Sum of the Tare weight of cylinder and the maximum weight of the LPG permitted in it.

**3.4 Periodic Inspection** - Activity carried out at defined intervals which includes examining, measuring, testing or gauging the characteristics of a cylinder, in line with Gas Cylinder Rules, 2004.

**3.5 Rejection** - Putting cylinder out of service until final disposition is defined.

**3.6 Retesting Agency** - Corporate body, approved by Statutory Body as per Gas Cylinders Rules, 2004 on the basis of combination of appropriate qualification, training, experience and resources for periodic inspection of cylinders.

**3.7 Route Card** - Format used for recording the details of the cylinders being tested at various work stations as defined in this code.

## **4 INTERVAL BETWEEN PERIODIC INSPECTIONS**

The interval between periodic inspections shall be as defined by Statutory Body.

## **5 PROCEDURES FOR PERIODIC INSPECTION**

### **5.1 General**

The periodic inspection procedures shall be in line with the written scheme approved by Statutory Body. Periodic inspection shall be carried out by retesting agency.

## **5.2 Test Procedures**

Procedures for periodic inspection shall essentially consist of the following processes and sequence:

- a) Preparation of cylinders for testing;
- b) External and internal visual inspection;
- c) Tare weight checking;
- d) Valve bung threads inspection;
- e) Hydraulic proof pressure test;
- f) External painting for surface protection;
- g) Tare weight checking;
- h) Stenciling and markings;
- j) Valve fixing;
- k) Pneumatic test; and
- l) Final certification.

Since the cylinders received at testing stations are of different serial numbers and from different manufactures, the recording and handling of cylinders should be done with proper care to ensure a systematic and batch- wise movement of cylinders to avoid mix up resulting into escape of few operations. On receipt of cylinders, a batch of suitable number of cylinders preferably one day's production or 400 cylinders which ever is less, shall be formed and the cylinders details shall be recorded in route card. Route card shall be signed by the competent person. Details for the procedure to be followed for handling route card are given in **5.14**.

## **5.3 Preparation of Cylinder for Periodic Inspection and Testing**

### **5.3.1 Removal of Valve**

All the cylinders identified for periodic testing shall be depressurized to atmospheric pressure in a safe and controlled manner at the site approved by Statutory Body. Residual LPG shall be cold flared by using a suitable adopter and shall be vented through a piping 1.5 meter above the eaves of the shed.

The valve shall be removed carefully after ensuring complete depressurization. While removing the valve a suitable adopter and proper fixture shall be used to ensure that the cylinder bung threads are not damaged.

### **5.3.2 Degassing of Cylinders**

The cylinder shall be degassed at a site approved by Statutory Body. Cylinders shall be degassed by purging it by inert gas, steaming or by filling water till it overflows. In case of degassing by water, the water shall be retained for not less than one hour to ensure that the cylinder is degassed. After emptying out the water, cylinders shall be kept in inverted position and be tapped gently by non-metallic hammer to remove dust, rust or any loose remnants in the cylinder. After degassing the inside of LPG Cylinder shall be checked by explosive meter to ensure that the Cylinder is gas free.

**5.3.3 External cleaning of cylinder**

Loose coatings, corrosion products, tar, oil or other foreign matter on the cylinder surface shall be removed by wire brushing, water jet cleaning, caustic soda cleaning or combination of these. Care shall be taken to avoid damaging the cylinder surface and metallising. During cleaning the cylinder opening shall be covered suitably with cap to prevent entry of foreign material, water, soap solution inside the cylinder.

**5.4 External and Internal Inspection**

**5.4.1 External Inspection**

The entire surface shall be inspected by a competent person for:

- a) Dents, cuts, gouges, bulges cracks, laminations or punctures, bottom shell thickness, foot ring bottom clearance applying the criteria for rejection given in Table 1.
- b) Corrosion, giving special attention to areas where water can be trapped, at the base of the cylinder, the junction between the body and the footring, the junction between the body and valve guard or shroud, applying the criteria for rejection given in Table 2.
- c) Other defects (for example, depressed bung or fire damage), applying the criteria for rejection given in Table 3.
- d) The integrity of all permanent attachments for example, VP ring and footring.

Any cylinder rejected by the competent person shall be segregated for repair or shall be rendered unservicable. The reasons for repair or declaring the cylinders as unservicable shall be recorded along with the Cylinder details, for example Sr.no., Name of manufacturer, Year of manufacturer.

**Table 1 Physical Defects In The Cylinder Wall**  
(Clause 5.4.1)

S.no	Defects	Description	Rejection Criteria
1	Bulge	Visible swelling of the cylinder	Rejection in all cases.
2	Dent	Depression in the cylinder that has neither penetrated nor removed the metal	1. Depth of dent is greater than 1/10th of the mean diameter of the dent. OR 2. Mean diameter of the dent is greater than one-quarter of the diameter of cylinder OR 3. Dent on or adjacent to weld
3	Cut or gouge	Sharp impression where metal has been removed or redistributed.	75mm or more in length or when the depth of cut is such that the undamaged (remaining) wall thickness is less than the minimum calculated wall thickness .
4	Intersecting cut or gouge	Point of intersection of two or more cuts or gouge	Rejection in all cases.
5	Dent containing cut or gouge	Depression in the cylinder within which there is cut or gouge	When the size of dent or cut or gouge exceeds the dimension for rejection as an individual defect.
6	Crack	A split or rift in the cylinder shell	Rejection in all cases.
7	Lamination	Layering of the material within the cylinder wall appearing as a discontinuity, crack. Lap or buldge at the surface	Rejection in all cases.
8	Dig	A sharp depression where the surface material has been penetrated	75mm or more in length and 4mm or more in width.
9	Bottom shell thickness	Thickness of the bottom of the cylinder surface	Less than minimum calculated wall thickness. <sup>2)</sup>
10	Footring bottom clearance	Clearance of the body bottom from the ground.	a) Less than 8mm for cylinders of water capacity upto 34l b) Less than 15mm for cylinders of water capacity exceeding 34l & upto 50 l c) Less than 25mm for cylinders of water capacity exceeding 50l.

**Table 2 Corrosion Defects In The Cylinder Wall**  
*(Clauses 5.4.1 and 5.4.2.2)*

S.no	Defects	Description	Rejection Criteria
1	Isolated corrosion pits	Pitting of metal occurring in isolated areas at a concentration not greater than 1 pit per 500mm <sup>2</sup> of surface area	Depth of penetration of any pit exceeds 0.4mm <sup>1)</sup>
2	Area Corrosion	Reduction in wall thickness over an area not exceeding 20 percent of the cylinder surface including the ends (top and bottom)	Depth of penetration of any pit exceeds 0.4mm <sup>1)</sup>
3	General Corrosion	Reduction in wall thickness over an area exceeding 20 percent of the cylinder surface	Rejection in all the cases
4	Line Corrosion	Series of pits or corroded cavities of limited width along the length or around corrosion circumference	a) Total length of corrosion in any direction exceeds 50% of the circumference of the cylinder. b) Depth of penetration exceeds 0.4mm <sup>1)</sup> c) Depth of corrosion cannot be measured
5	Service corrosion	Service corrosion occurs in the area of the intersection of the footing or stay plate with the cylinder	When the depth of penetration exceeds 0.4mm or when the depth of corrosion cannot be measured <sup>1)</sup>

<sup>1)</sup> Cylinders shall be rejected in case the observed thickness of the undamaged remaining wall in the affected portion is less than the minimum calculated wall thickness.

**Table 3 Other Defects**  
(Clause 5.4.1)

S.no	Defects	Description	Rejection Criteria
1	Depressed bung	Damage to the bung which alters the profile of the cylinder	Rejection in all cases.
2	Arc or torch burns	Burning of the cylinder base metal , a hardened heat affected zone , the addition of extaneous weld metal, or removal of metal by scarfing or cratering	Rejection in all cases.
3	Fire damage	Excessive general or localised heating of the cylinder usually indicated by :- - Charring or burning of paint <sup>1)</sup> - Fire damage of the metal - Distortion of the cylinder - Melting of metallic valve parts - Melting of safety cap	Rejection in all cases.

<sup>1)</sup> In case of superficial charring of paint cylinder may be accepted by inspecting officer.

#### **5.4.2 Internal Cleaning and Inspection**

##### **5.4.2.1 Internal cleaning**

Cylinder shall be first cleaned from inside by using vaccum pump. After internal cleaning, magnetic bar shall be used to remove any ferruos particle sticking at the bottom of the cylinder surface.

##### **5.4.2.2 Internal inspection**

The inside of the cylinder shall be visually inspected with appropriate internal illumination using low voltage lamp. Cylinder showing sign of internal corrosion shall be evaluated further in accordance with Table 2. If mechanical cleaning is required, care shall be taken to avoid damging the cylinder wall. Cylinders shall be reinspected after cleaning.

#### **5.5 Tare Weight Checking**

After external and internal cleaning, the cylinder shall be checked for tare weight. Cylinder having lost its weight by more than 5 percent of original tare weight shall be rejected.

### **5.6 Valve Pad (bung) Thread Inspection**

The valve pad thread shall be checked in line with Indian standard IS 9121 Code for inspection gauges for checking of taper threads of gas cylinders. Prior to checking, the threads shall be properly cleaned by soft wire brush and 3/4" 14 NGT thread cleaning tap.

The cylinder of which the valve pad thread is worn out or not meeting the requirements of IS 9121 shall be rejected.

### **5.7 Hydraulic Proof Pressure Test**

#### **5.7.1 Preparation of Cylinders**

The external surface of the cylinder shall be clean and completely dry so that any leak can be detected during the test.

#### **5.7.2 Test Equipments**

All pipework, flexible tubing, valves, fittings and other components forming the pressure system of the test equipment shall be designed to withstand a pressure of 1.5 times the maximum test pressure of cylinder to be tested. The design and the installation of the equipment and the cylinders connected to it shall ensure that no air is trapped in the system.

Equipment shall be either rotary type or invertible type to facilitate examination of complete surface of the cylinder. Equipment shall be provided with isolation valve to isolate the system once the test pressure is reached.

Dedicated pressure gauges for each cylinder to read the cylinder test pressure in accordance to relevant Indian standard shall be provided. In addition to this 2 nos. of main gauges shall also be provided on the inlet line of the equipment after the isolation valve.

The gauges shall be calibrated for accuracy against a master gauge at regular interval of minimum once in a month. The master gauge shall be recalibrated in accordance with Gas Cylinder Rules, 2004.

A device shall be fitted in the test equipment to ensure that no cylinder is subjected to pressure in excess of its test pressure by more than 10 percent.

#### **5.7.3 Procedure**

The cylinder shall be tested at the test pressure of 2.45 MPa ( 25 kgf/cm<sup>2</sup>).

Before applying pressure, the external surface of the cylinder shall be in such a condition that any leak can be detected. Cylinder shall be positioned so the welds are visible during the test. During test the pressure shall be increased gradually till the required test pressure is reached. Then the cylinder shall be isolated from the pumping system and the pressure shall be retained for a period of not less than 30 s. During the test, the cylinder shall be gently tapped with wooden/ nylon hammer near the weld joints.

The cylinder shall be thoroughly examined externally for any leak. Any reduction in pressure noticed during this retention period or leakage, visible bulge of deformation, sweating on cylinder body shall be treated as a case of failure in the test.

In case of a leakage in the pressure system, it shall be corrected and the cylinder retested.

#### **5.7.4 Internal Cleaning and Drying**

Subsequent to hydrolic proof pressure test, water inside the cylinder shall be completely removed. The internal surface shall be completely dried by dry compressed air and vaccum pump. Internal cleaning and drying shall be checked by low voltage lamp.

### **5.8 Painting**

#### **5.8.1 General Requirements For Painting**

Both the primer coating and enamel paint application on the external surface of cylinder shall be done by using spraying gun. While applying the primer coating and final painting, care should be taken to ensure that the shadow zones such as surfaces under foot ring, VP ring etc. are properly coated.

A uniform coating of primer and finish paint shall be applied, the minimum coat thick ness for both layers of primer and paint shall not be less than 30 microns. For measurement of paint thickness, procedure given in IS 3196 (Part 1) shall be followed.

Cylinder shall be dried as per paint manufacturer's recommendations after application of paint and primer.

#### **5.8.2 Primer Painting**

Cylinder found acceptable in all the tests described above shall be taken for primer coating. Before applying the primer coat , the external surface of cylinder shall be properly cleaned of dirt, dust and loose remnants of previous paints and dried. The bung threads should be closed by a plastic /rubber cap to prevent the entry of primer and paint in to the cylinder.

The Zinc chromate primer used shall conform to IS 2074 and shall be of brushing consistency and suitable for spraying.

#### **5.8.3 Enamel Painting**

After drying of primer, super synthetic enamel paint conforming to IS 2932, as per the colour scheme agreed upon between the cylinder owning company and retesting agency, shall be applied on the cylinder. The paint shall be of brushing consistency and suitable for application by spraying.

### **5.9 Tare Weighment**

The cylinder shall be weighed for Tare.

The weighing scale used shall have a least count of not more than 10 g and the value of tare weight may be rounded to the nearest 100g as per IS 2. The weighing scale shall be of weighing capacity not exceeding 50 kg.

### **5.10 MARKING / STENCILING**

After satisfactory completion of periodic inspection and testing, each cylinder found acceptable shall be marked with following on the vertical stays of cylinder:

- a) The Identification mark of the testing unit as registered with statutory body on the stay plate near the retest date punching.
- b) The new test date while retaining the previous test dates.
- c) New Tare weight of cylinder according to **5.9** and gross weight in kg shall be punched on the cylinder stay plate while retaining the old tare weight and gross weight. Details for punching are given in Annex B.
- d) Loss in tare weight, if observed under **5.5**. (within 5 percent of original Tare weight ) shall be punched at the footing . For example, if the loss in tare weight

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is 200g, it shall be punched as LTW 200.

The Next periodic inspection date and tare weight shall be stecilled on the cylinder as per the agreement between the cylinder owning company and retesting agency.

**5.11 Valve Fixing**

Valve suitable for intended use and conforming to IS 8737 shall be fitted to the cylinder using a sealing material to ensure a seal between valve and bung joint.

Before valve fixing operation the valve pad (bung) threads shall be cleaned by using ¾" – 14 NGT cleaning tap and wire brush.

**5.12 Pneumatic Test**

**5.12.1 General**

Each cylinder after it has been dried and fitted with valve shall be tested for leakage by subjecting to air pressure of not less than 1 180 Kpa (12kgf/cm<sup>2</sup>) for period of 1 min .

**5.12.2 Test Equipment**

All pipework, flexible tubing, valves, fittings and other components forming the pressure system of the test equipment shall be designed to withstand a pressure of 1.5 times of the pneumatic test pressure.

Equipment shall have facility to fully immerse the cylinder in water during the test by use of suitable pneumatic fixture. Equipment shall faciliate rotation of cylinder manually during the test.

Air drier (refrigeration type) of suitable capacity and capable of achieving dew point required for removal of water traces shall be provided in the line to remove moisture from the air before it enters the cylinder.

Pressure gauge of suitable capacity shall be provided at the air filling point to check the pressure of air in the cylinder prior to starting the test.

**5.12.3 Procedure**

Cylinder shall be filled with dry air upto the pressure of 12kgf/cm<sup>2</sup>. After that the cylinder shall be isolated from the presure source. The cylinder shall be immersed in water for a peirod of 60 sec.

The cylinder shall show no leakage from the body of cylinder and the joint between valve and bung. The test is to be carried out after fixing the safet y cap on the valve.

Any cylinder that fails the test shall be inspected for leakage cause. In case the leakge is due to improper tightening of valve, same shall be corrected and cylinder shall be rechecked.

Other wise the cylinder shall be rendered unservicable.

After testing, air shall be removed by press opening the valve using suitable adaptor. No cylinder shall be stored with Air pressure inside.

**5.13 Cylinders Segregated For Reconditioning or Rendered Unserviceable**

**5.13.1 Reconditioning**

Cylinders segregated during the visual inspection shall be returned to the owner for reconditioning or shall be reconditioned as per IS 13258 as per the agreement between the owner company and the retesting agency.

#### **5.13.2. *Deshaping***

Cylinder rendered unserviceable at any stage during periodic inspection procedure shall be returned to the owner for proper deshaping or shall be returned after deshaping as per the agreement between the owner company and the retesting agency. Complete record of such cylinders shall be maintained.

### **5.14 Records**

#### **5.14.1 *Route Card***

On receipt of cylinders, a batch of maximum of 400 cylinders shall be formed.

Recording of the cylinders details shall be done in route card as per format given in Annex C. The format is to be printed on thicker card, as this moves along with the batch, to avoid mutilation and tearing off at the shop floor. Recording of the various stages of periodic inspection shall be done in the route card. On completion of operation/inspection, the concerned inspecting staff shall sign on the route card with date and forward the same to the next stage.

It is advisable that the allotment of batch number is linked with year and month of testing. Eg. 09 A - XX which indicates 09 as the year of testing, A for the month of January, B for the month of February etc. and XX is the control number for the month as 1,2,3. This procedure provides necessary assistance in monitoring the control on the production as well as for easy access to a certain cylinder if any information is required in future.

#### **5.14.2 *Certification***

After completion of the testing, the retesting agency shall record the details for cylinders accepted and cylinders rejected/ recommended for repair as per the format given in Annex E and F respectively.

Retesting agency shall issue a certificate as per the Annex D towards periodic testing of cylinders. This certificate along with the list of cylinders accepted ( Annex E) and list of cylinders rejected/ recommended for repair ( Annex F) shall be sent to the cylinder owning company.

#### **5.14.3 *General Record Keeping***

The retesting agency shall maintain records of inspection reports and test data, calibration data and the reports concerning the qualification or approvals of the competent persons. Record shall be maintained for all tests and inspections for the cylinders by the retesting agency. All records pertaining to cylinder testing shall be stored in computer and shall be maintained till the life of the cylinder.

## **ANNEX A**

*(Clause 2)*

### **LIST OF REFERRED INDIAN STANDARDS**

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<i>IS no.</i>	<i>Title</i>
2:1960	Rules for rounding off numerical values
2074:1992	Ready mixed paint, air drying, red oxide zinc chrome, priming - Specification ( <i>second revision</i> )
2932:2003	Enamel, synthetic, exterior: (a) Undercoating (b) Finishing - Specification ( <i>third revision</i> )
3196 (Part1):2006	Welded low carbon steel gas cylinder exceeding 5 litres water capacity for low pressure liquefiable gases
4379:1981	Identification of contents of industrial gas cylinders
7241:1981	Glossary terms used in gas cylinder technology
8737:1995	Valve fittings for use with liquefied petroleum gas (LPG) cylinders of more than 5 litre water capacity - Specification ( <i>first revision</i> )
9121:2005	Inspection gauges for checking Type 1 (size 2) taper threads of gas cylinder valves, Taper 1 in 16 - Specification
13258:1991	Welded Low carbon steel cylinders exceeding 5 litre water capacity for Low Pressure Liquefiable Gases- Code of practice for inspection and reconditioning of used LPG cylinders.

**ANNEX B**  
*(Clause 5.10)*

**DETAILS OF MARKING ON STAY PLATE**

A) Test date and identification mark

OLD TEST DATE

TEST DATES

XXX YYY

XXX : IDENTIFICATION MARK OF TESTING STATION

YYY : MONTH AND YEAR OF RE-TEST DATE

B) Tare weight and Gross weight

TARE WT.    OLD    NEW

GROSS WT.    OLD    NEW

**Doc: MED 16(1101)**  
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Name of LPG Cylinder Testing Station :

**ROUTE CARD**

Owner of LPG Cylinders ...

Batch number ..... Batch Size ..... Date : .....

Control No.	1	2	.....
Sr. No. of LPG Cylinders			
Name of Manufacturer			
Date of Manufacture (i.e. first Test Date)			
Previous Test Dates			
Internal Inspection OK/Rej.			
External Inspection RT/HR/Rej (in case of rejection write code for rejection.			
Tare Weight Check OK/Rej.			
Bung thread inspection OK/ Rej.			
Hydrostatic test at 2.45 MPa (25.00 kg/cm <sup>2</sup> ) OK/ Rej.			
<b>Tare Weight</b>			
Old			
New			
Final Inspection for marking, painting, stenciling Accepted/Not accepted			
Any other defects			
Accepted /Not Accepted			
Pneumatic testing OK/Rej.			
Remarks, if Any			

Name & Signature of Inspector : \_\_\_\_\_

Date of Completion : \_\_\_\_\_

\* RT - Accepted for retesting, R- Repair, Rej.- Rejected.

The code used shall be as given below:

Bulge – E <sub>1</sub>	Burn - E <sub>2</sub>
Dent - E <sub>3</sub> ,	Dig-E <sub>4</sub> ,
Cut - E <sub>5</sub> ,	Pit - E <sub>6</sub> ,
Line Corrosion -E <sub>7</sub> ,	General Corrosion -E <sub>8</sub> ,
Bung thread damaged-E <sub>9</sub> ,	Loss in tare wt. – E <sub>10</sub>
Identity lost -E <sub>11</sub> ,	Bottom clearance less than limits: E <sub>12</sub>
Wall thickness less than limits- E <sub>13</sub>	Internal defect cannot be assessed –I <sub>1</sub> ,

**ANNEX D**  
*(Clause 5.14.2)*

**CERTIFICATE ON PERIODIC TESTING OF LPG CYLINDERS**



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**August 2010**

Owner of cylinders : \_\_\_\_\_

Certificate No. : \_\_\_\_\_

Date :

Sl. NO.	Cyl. No.	Name of Manufacturer	Date of Mfr	Tare weight	
				Old	New

1

2

3

Retesting agency signature & seal

**ANNEX F**  
*(Clause 5.14.2)*

**NAME OF TESTING STATION:**

**LIST 2: LPG CYLINDERS REJECTED/ RECOMMENDED FOR REPAIR**

Owner of cylinders : \_\_\_\_\_

Certificate No. : \_\_\_\_\_

Date :

Sl. NO.	Cyl. No.	Name of Manufacturer	Date of Mfr	Rejected/ For repair	Reason
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1

2

3

Retesting agency signature & seal