BUREAU OF INDIAN STANDARDS

भारतीय मानक ***मसौदा***

साइकिल हैंडल बार विशिष्टता
(*चौथा पुनरीक्षण*)

Draft Indian Standard

BICYCLES – HANDLE BAR – SPECIFICATION
(*Fourth revision*)

ICS 43.150

Bicycles Sectional Committee TED 16	Last Date of comments 06/02/2025

Bicycles Sectional Committee TED 16

FOREWORD
(*Formal clause will be added later*)

This standard was originally published in 1955 and subsequently revised in 1963, 1993 and 2006. In this current revision following significant changes have been made:

1) Test method for EPAC, BMX and Young children bicycles added
2) Handle bar end cap design revised

While preparing this standard, assistance has been drawn from the following:

1S0 4210-5 :2023	'Cycles - Safety requirements for bicycles' published by the International Organization for Standardization
1S0 6699:2016	'Cycles Handlebar centre and stem dimensions' published by the International Organization for Standardization
JIS D 9412:2019	'Handle bars and stems for bicycles' published by the Japanese Industrial Standards Committee

The composition of the Committee responsible for the formulation of this standard is given at **Annex A (Will be added later).**

For the purpose of deciding whether a particular requirement of this Standard is complied with the fina l 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 significa nt places retained in the rounded off value should be the same as that of the specified value in this Standard.

Notwithstanding what is stated in this standard, applicable National, State, Local bodies regulations shall apply. In case of exports corresponding regulations of exporting countries shall apply.

Draft *Indian Standard*

BICYCLES – HANDLE BAR – SPECIFICATION

1 SCOPE

This standard prescribes the requirements for handle bars used for bicycles.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IS No.	Title
210:2009	Grey iron castings - Specification (Fifth Revision)
1068:1993	Electroplated coatings of nickel plus chromium and copper. Plus nickel plus chromium *(third revision)*
2039 (Part 1 to 3):1991	Steel tubes for bicycle and cycle rickshaws — Specification *(second revision)*
2062:2011	Hot rolled medium and high tensile structural steel – Specification (Seventh Revision)
10613: 2023	Cycles - Safety and performance requirements for bicycles (third revision)
DOC: TED 16 (18837)	BMX bicycles – Safety requirements and test methods
DOC: TED (23113)	Cycles - Safety requirements for bicycles for young children (Second revision of IS 15533:2018/ISO 8098: 2014)
DOC: TED 16 (23339)	Cycles — Electrically power-assisted cycles (EPAC): Part 1 Pedal-Assisted Bicycles

3 MATERIALS

3.1 The tubes for bicycle handle bars shall conform to IS 2039 (Parts 1 to 3).

3.2 The material used in the manufacture of other components of handle bars shall comply with requirements given in Table 1

TABLE 1 Material Requirements for Components of Handle Bars
(*Clause* 3.2)

S No.	Component	Requirement
(1)	(2)	(3)
i	Handle bar lug; lever; down rod; handle bar lever washer handle bar lever tabs; eye bolt; expander bolt; washer for expander bolt and D-nuts, concave washer and stud for lever lug	Steel; having tensile strength and withstanding bend test as specified in IS 2062
ii	Lever spring	Spring steel having tensile strength 1550 Mpa (158 kgf/mm^2), Min.
iii	Expander cone	i) Steel having tensile strength 412 MPA (42 kgf/mm'0, Min, or ii) Cast iron of Grade FG 150 of IS 210

NOTE — In addition to the minimum physical properties specified, the material for the components shall have other metallurgical properties which would make them suitable for fabrication of that particular component.

4 CONSTITUTION AND CLASSIFICATION

4.1 Handle bar assemblies shall be constituted with handlebars (hereafter referred to as 'bar') and handle bar stems (including those combined into integral type, hereafter referred to as 'stem'). Types and Usages of Handle Bars are given in Table 2. Types of Handle Bars are illustrated in Fig.1.

5 DIMENSIONS

Handles shall comply with the following:

a) Handle bar outer diameter = 22.22 +0.03 / - 0.13 mm;

b) Handle stem outer diameter (coated/plated) = (22.20 +0/- 0.15 or 25.40 +0/-0.15):

c) The overall width of the handle bar shall be between 350 mm and 1 000 mm for City and Trekking / Roadster / SLR / Mountain Bike / BMX / Racing/EPAC bicycles and between 300 mm and 550 mm for young children's bicycles. The vertical distance between the top of the handle bar grips, when assembled to the highest riding position according to the manufacturer's instructions and the seat surface of the saddle in its lowest position shall not exceed 400 mm for bicycles for young children use;

d) The ends of the handlebars shall be fitted with handgrips or end plugs that will withstand a removal force of 70 N. Unless the handlebar has permanently closed ends (for example metal end plates, welded or otherwise permanently attached), each handlebar end shall be fitted with a handlebar end plug;

e) The outside diameter of the handlebar end plug shall match the outside diameter of the handlebar end. If made from plastic, the handlebar end plug shall have minimum 3 mm thickness for its end and have a minimum durometer of 65 Shore A. Alternatively, the handlebar end plug can be made from a durable material such as metal;

f) The handle bar stem shall contain a permanent mark that clearly indicates the minimum insertion depth of the handle bar stem into the fork stem or alternatively a positive and permanent means of ensuring the minimum insertion depth shall be provided. The insertion mark or insertion depth shall be not less than 2.5 times the shaft diameter from the lower end of the stem and there shall be at least one shaftt ddiameter length of contiguous circumferential shaft material below the mark. An insertion mark shall not affect the strength of the handle bar stem;

g) Expander bolt thread = 7.94 x 0.98 Bicycle thread or M8 x 1.0P / 1.25P;

h) Expander bolt nut thread =7.94 x 0.98 Bicycle thread M8 x 1.0P / 1.25P;

j) Thread forms of expander bolt and expander bolt nut shall be as illustrated in Fig. 2;

k) The diameter distortion at bends of the handle bar shall be not more than 2 mm;

m) When one side of the handgrip linear parts of bar is closely attached to the plane surface plate, the raised height of the other side shall not be more than 3 mm;

n) Inclination of Brazed 'Handles, expressed as (b/a) shown in Fig. 3, of the handle stem to the handle bar bend shall not be more than 1/50;

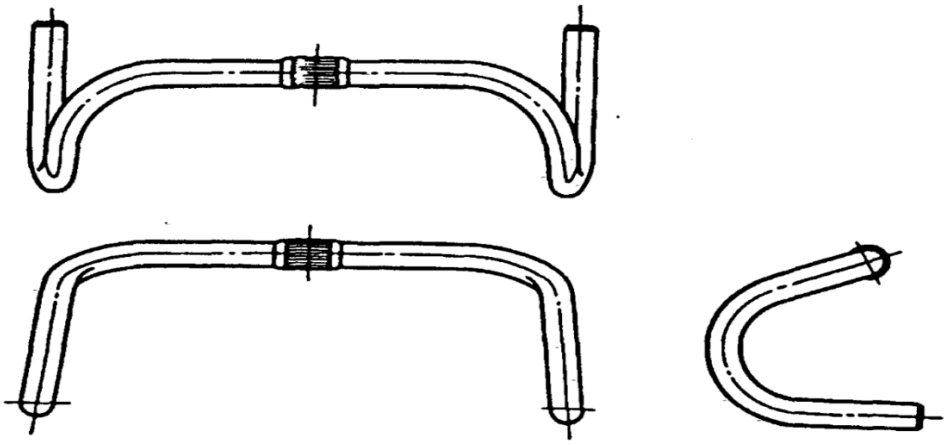
p) Inclination of all other handles shall be such that the difference between the heights at handle bar at its both ends 'P' and 'Q' as shown in Fig. 4 shall not be more than 10 mm; and

q) For the brake lever combined handle bars, clearance between the pivot block hole and the brake lever shall be not more than 0.5 mm.

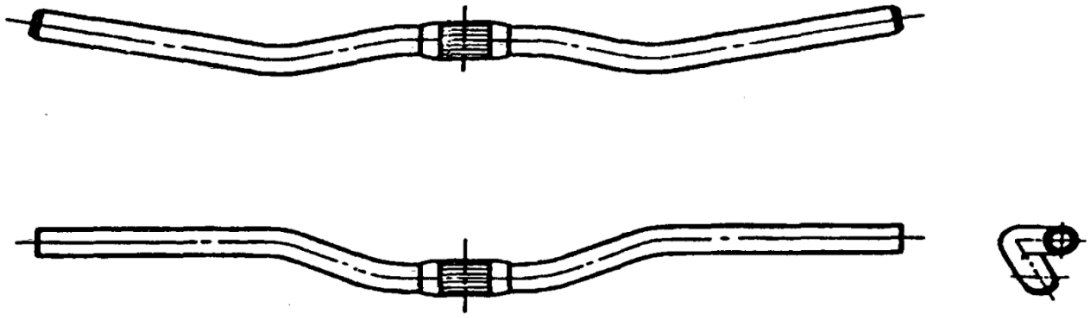
TABLE 2 Types and Usages of Handle Bars
(*Clause* 4.1)

Use of Handle Bars	**Assembling Formations**	**Types of Handle Bars**
(1)	(2)	(3)
Young Children's bicycles	a) Separate type b) Integral type c) Brake lever combined type	a) Drop type b) Flat type c) Upright type d) High rise type* e) Swaged type f) Others
City and Trekking / Roadster / SLR / Mountain / BMX / Racing and EPAC bicycles		

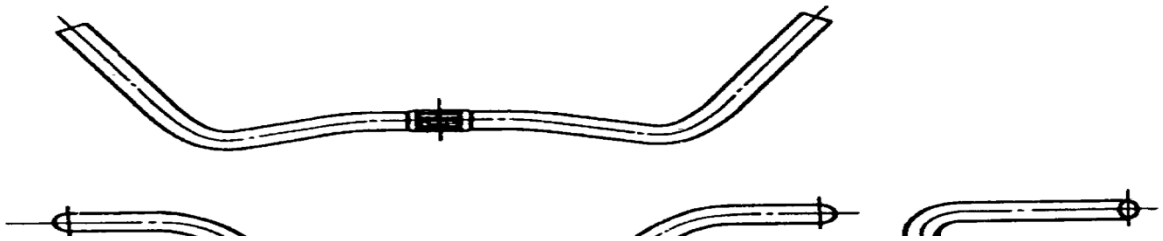
*Length of rising portion is longer than 250 mm



1A DROP TYPE - HANDLE BAR

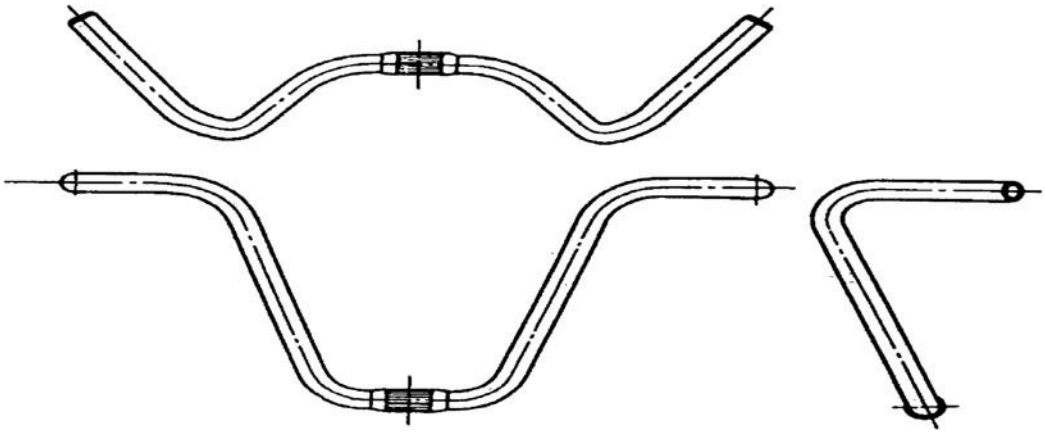


1B FLAT TYPE - HANDLE BA

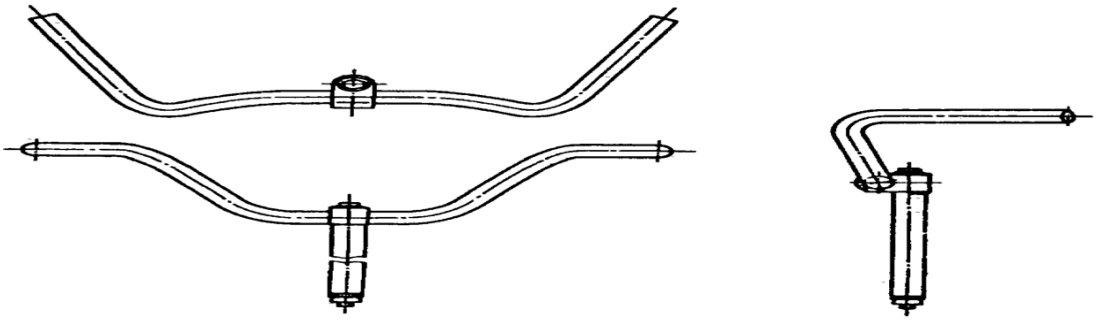


1C UPRIGHT TYPE - HANDLE BAR

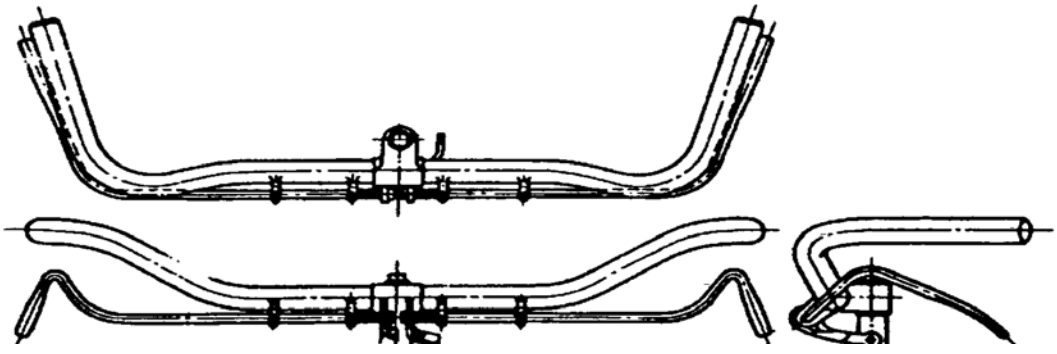
FIG. 1 TYPES OF HANDLE BARS (Continued)



1D HIGH RISE TYPE - HANDLE BAR

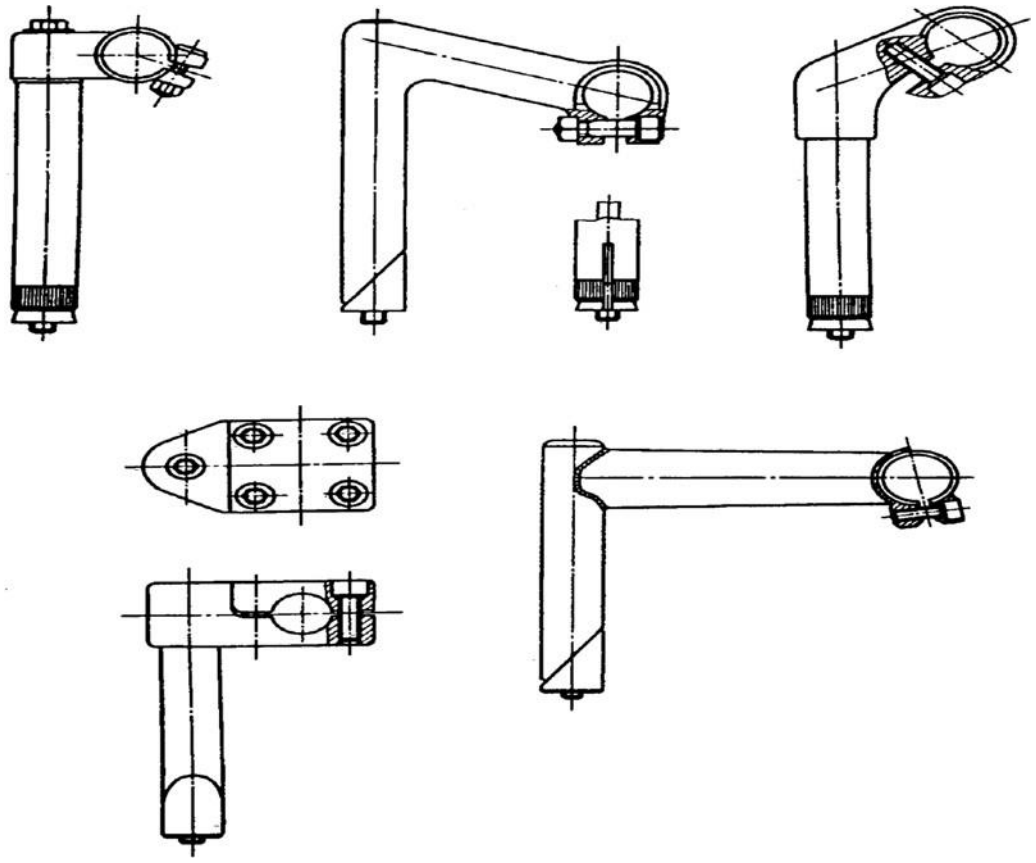


1E HANDLE BARS ASSEMBLY FOR YOUNG CHILDREN (INTEGRAL TYPE)



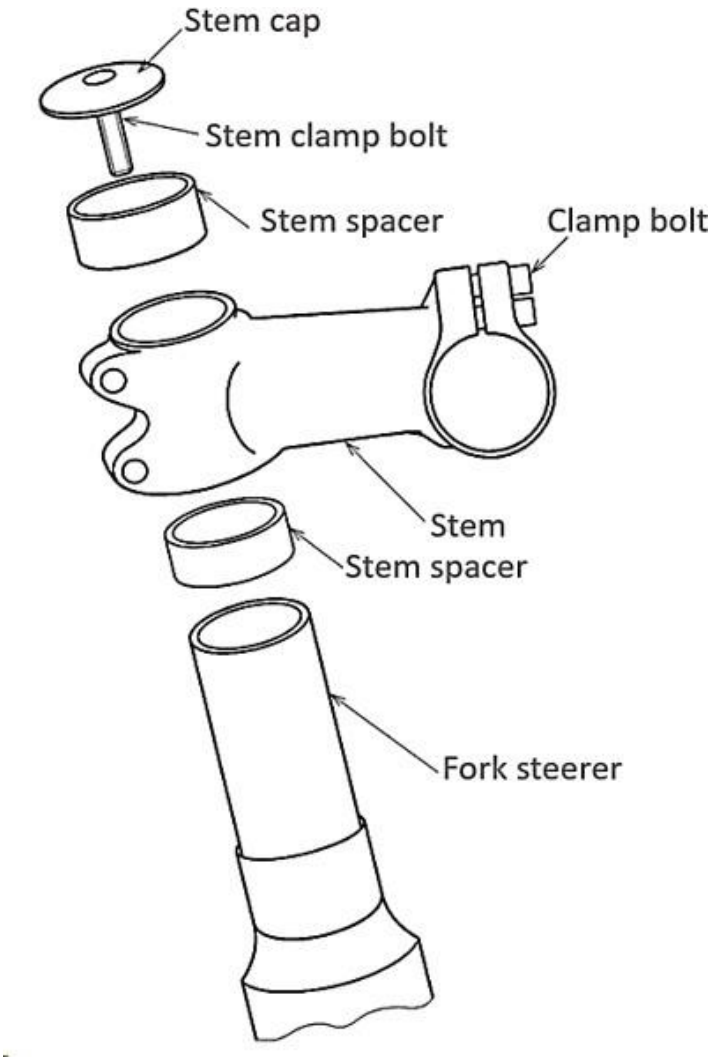
1F BRAKE LEVER COMBINED TYPE - HANDLE BAR ASSEMBLY

FIG. 1 TYPES OF HANDLE BARS (Continued)



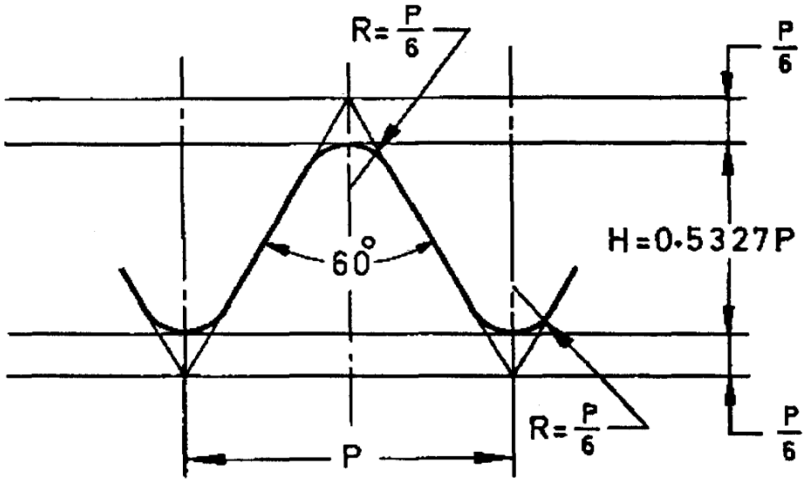
1G HANDLE BAR STEM

FIG. 1 TYPES OF HANDLE BARS (Continued)



1H HANDLE BAR STEM (FOR THREADLESS TYPE HANDLE ASSY.)

FIG. 1 TYPES OF HANDLE BARS (Concluded)



All dimensions in millimetres.

Size	*Pitch*	*Bolt*						*Nut*				
		Major Diameter		Effective Diameter		Minor Diameter		Major Diameter	Effective Diameter		Minor Diameter	
		Max	*Min*	*Max*	*Min*	*Max*	*Min*	*Min*	*Max*	*Min*	*Max*	*Min*
7.94 × 0.98	0.977	7.938	7.798	7.417	7.325	6.896	6.706	7.938	7.508	7.417	7.193	6.896

NOTE — Details of M8 × 1 will be as per relevant specification.

FIG. 2 FORM OF THREADS

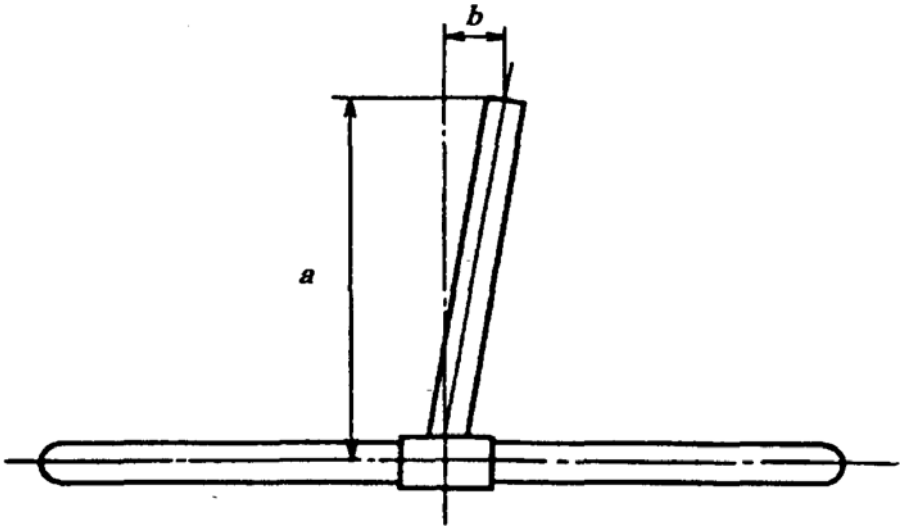


FIG. 3 LEANING OF STEM TO BAR

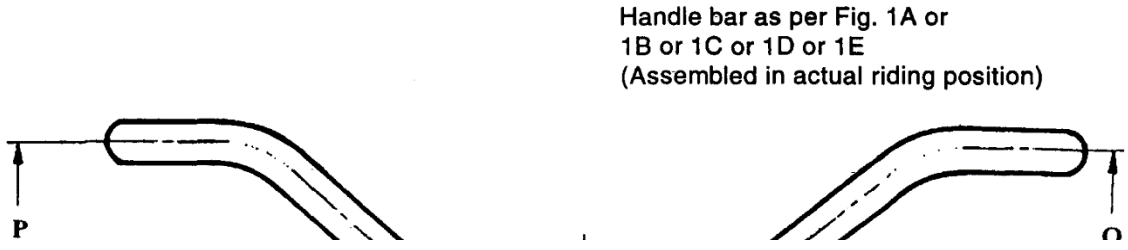


FIG. 4 HANDLE BAR INCLINATION FOR NON-BRAZED HANDLES

6 ACCEPTANCE TESTS

6.1 Handlebar Stem to Fork Steerer — Clamping Requirements

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.4** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.4** of DOC: TED 16 (23339) and BMX bicycles shall pass the test as specified in **4.9.4** of DOC: TED 16 (18837). This test is not applicable for young children's bicycles.

6.2 Steering Stability Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.5** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.5** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.4** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.5** of DOC: TED 16 (18837).

6.3 Handlebar stem —Lateral bending test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.1** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.6.2** of DOC: TED 16 (23339). This test is not applicable for BMX and Young children's bicycles.

6.4 Handlebar and stem assembly — lateral bending test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.2** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.1.1** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.5.1** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.6.1** of DOC: TED 16 (18837).

6.5 Handlebar Stem — Forward Bending Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.3** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.6.3** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.5.2** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.6.2** of DOC: TED 16 (18837).

6.6 Handlebar to Handlebar Stem — Torsional Security Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.4** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.6.4** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.5.3** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.6.3** of DOC: TED 16 (18837).

6.7 Handlebar Stem to Fork Steerer — Torsional Security Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.5** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.6.5** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.5.4** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.7** of DOC: TED 16 (18837).

6.8 Bar End to Handlebar — Torsional Security Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.6** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.6.6** of DOC: TED 16 (23339). This test is not applicable for bicycles for young children and BMX bicycles.

6.9 Aerodynamic Extensions to Handlebar — Torsional Security Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.6.7** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.8** of DOC: TED 16 (23339). This test is not applicable for bicycles for young children and BMX bicycles.

6.10 Handlebar and Stem Assembly — Fatigue Test

For 'Young adult bicycles', 'City and Trekking', 'Roadster', 'SLR bicycles', 'Mountain bicycles', and 'Racing bicycles', shall pass the Test as specified in **4.5.7** of IS 10613. For EPAC bicycles, shall pass the test as specified in **4.3.6.7** of DOC: TED 16 (23339). For young children bicycles shall pass the test as specified in **4.8.6** of DOC: TED (23113) and BMX bicycles shall pass the test as specified in **4.9.8** of DOC: TED 16 (18837).

6.11 Fatigue Test on Stem Alone

When the fatigue test is for the stem only, the manufacturer shall specify the types and sizes of handle bar for which the stem is intended, and the test shall be based on the most severe combination. For the brake lever combined handle bars, lever springs shall be such that when the lever is pressed fully and released 50 times, it shall return to its normal position.

7 FINISH

The handle bars and stems shall be nickel plus chrome plated and the electroplated coatings shall conform to Service Condition No. 1 with Classification Code Fe/Ni 10b Cr r of IS 1068 with provision that s Nickel may be substituted for b nickel, and mc or mp chromium may be substituted for r-chromium.

For powder coated handle bars and stems — Bright/Mat finish with thickness of 50 micron minimum shall be applied.

8 MARKING

8.1 Each handlebar shall be marked visibly, legibly and indelibly with the following minimum particulars:

a) Manufacturers name, initials or trade-mark;
b) Batch/Lot number;
c) Date of manufacture; and
d) Name of the country of origin.

8.2 The markings given at (a) shall be visibly and permanently marked by punching of sufficient depth for easy reading or by printing on the handlebar. All the markings including (a) shall be suitably indicated on the packing.

8.3 BIS Certification Marking

Each handlebar may also be marked with the Standard Mark.

8.3.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed there under, and the products may be marked with the Standard Mark.

ANNEX A
(*Foreword*)

COMMITTEE COMPOSITION

BICYCLES SECTIONAL COMMITTEE, TED 16

Will be added later