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Mazdoor Kisan Shakti Sangathan

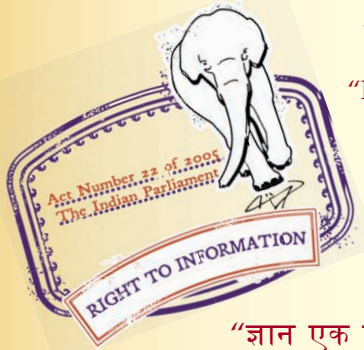
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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 6056 (1970): jointed wood poles for overhead power and telecommunication lines [CED 9: Timber and Timber Stores]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
JOINTED WOOD POLES FOR OVERHEAD POWER
AND TELECOMMUNICATION LINES

(First Reprint JANUARY 1983)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR
JOINTED WOOD POLES FOR OVERHEAD POWER
AND TELECOMMUNICATION LINES

Timber Sectional Committee, BDC 9

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(Continued on page 2)

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Indian Standard

SPECIFICATION FOR JOINTED WOOD POLES FOR OVERHEAD POWER AND TELECOMMUNICATION LINES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 18 September 1970, after the draft finalized by the Timber Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 The shortage of fairly long poles to be used as one solid pole for overhead power and telecommunication lines has led to the need for using shorter lengths (suitably jointed) to make up the required length. Requirements in regard to the jointed wood poles were covered earlier in the form of an Appendix in IS : 876-1961*. During the past ten years it has been found that at least wire bound lap type of jointed wood poles have been used satisfactorily by some states and their requirements could be made firm. Therefore, while revising IS : 876-1961* the information on this subject (jointed wood poles) has been deleted from the same and now prescribed separately in this standard.

0.3 Supports made of steel have been lately used in this country for overhead power transmission and distribution lines and for telecommunication lines. Wood poles, single or jointed, are often more economical than steel supports, particularly for distribution and telecommunication lines. This specification for wood poles has been prepared to make the best possible reduction in the ultimate cost of power and telecommunication facilities to the people of this country.

0.4 The main considerations governing the use of the jointed wood poles are:

- a) the suitability, its strength and durability of the species forming the components of joints;
- b) the size and section of the total pole and its constituents for the particular purpose;

*Specification for wood poles for overhead power and telecommunication lines (revised).

- c) the selection, seasoning and treatment of the species; and
- d) efficiency of the joints.

0.5 In the preparation of this standard, considerable assistance has been rendered by the Forest Research Institute, Dehra Dun; the Central Water and Power Commission and the Electricity and Forest Departments of the State Governments.

0.6 The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of producers, consumers and technologists, and has related the standard to the manufacturing and trade practices followed in the country in this field. Due weightage has also been given to the need for international co-ordination among standards prevailing in different countries of the world.

0.7 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*. 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 covers the specification of jointed wood poles made of both broad leaved, and coniferous species of timber, grown in India, and suitable for carrying overhead electric power transmission lines, telephone and telegraph circuits.

2. TERMINOLOGY

2.0 For the purpose of this standard, the definitions given in 2.1 and 2.2 and IS : 707-19 3† shall apply.

2.1 Jointed Pole — A pole which is obtained by joining short length members.

2.2 Section of a Pole — A piece of short length pole employed for making a full length jointed pole also known as component.

*Rules for rounding off numerical values (*revised*).

†Glossary of terms applicable to timber and timber products.

3. SPECIES OF TIMBER

3.1 Timbers suitable for wood poles are categorized into three groups, as indicated below, based on the modulus of rupture of small clear specimens (see IS: 1708-1969*) tested in the green condition, that is, more than 25 percent moisture content:

- Group A Very strong timbers having a modulus of rupture in bending of 850 kg/cm² and above, represented by sal (*Shorea robusta* Gaertn.f.).
- Group B Strong timbers having a modulus of rupture in bending of 630 to 850 kg/cm², represented by teak (*Tectona grandis* Linn.f.).
- Group C Moderately strong timbers having a modulus of rupture in bending 450 to 630 kg/cm², represented by chir (*Pinus roxburghii* Sargent).

3.2 Species of timber recommended for jointed wood poles categorized into above three groups are given in Appendix A.

4. CLASSIFICATION

4.1 There shall be seven classes based on strength as given below:

- Class 1 Ultimate breaking load not less than 1 350 kg.
- Class 2 Ultimate breaking load not less than 1 100 kg and not more than 1 350 kg.
- Class 3 Ultimate breaking load not less than 850 kg and not more than 1 100 kg.
- Class 4 Ultimate breaking load not less than 700 kg and not more than 850 kg.
- Class 5 Ultimate breaking load not less than 550 kg and not more than 700 kg.
- Class 6 Ultimate breaking load not less than 400 kg and not more than 550 kg.
- Class 7 Ultimate breaking load not less than 300 kg and not more than 400 kg.

4.1.1 The above loads are assumed to be applied at a distance 60 cm from the top of the jointed pole according to method of test given in IS : 1900-1961†.

4.2 The dimensions of jointed wood poles groupwise for various classes shall be as given in Table 1.

*Method of testing small clear specimens of timber (first revision).

†Method of testing wood poles.

TABLE 1 DIMENSIONS OF THE JOINTED WOOD POLES

(Clauses 4.2 and 9.2)

OVERALL HEIGHT OF FULL LENGTH OF JOINTED WOOD POLES	GROUND LINE POSITION FROM BUTT END OF LOWER COMPONENT	MINIMUM CIRCUMFERENCE AT GROUND LINE POSITION INDICATED IN COL 2 FOR THE LOWER COMPONENTS																							
		Class 1, Group			Class 2, Group			Class 3, Group			Class 4, Group			Class 5, Group			Class 6, Group			Class 7, Group					
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)			
m	m	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm	cm			
6	1.2	62	65	72	60	63	70	55	58	65	50	53	60	48	50	55	46	48	50	44	46	48			
7	1.2	65	69	76	63	67	74	60	63	70	55	57	64	51	53	60	48	50	52	46	48	50			
8	1.5	68	71	80	66	70	78	63	66	73	57	60	67	54	56	63	51	53	55	48	50	52			
9	1.5	72	76	84	70	74	82	66	70	76	60	63	70	56	59	66	53	56	59	50	53	56			
10	1.8	73	78	86	73	76	84	68	72	78	62	65	72	58	61	68	55	58	61	52	55	58			
12	1.8	78	84	94	78	82	92	73	76	85	67	70	78	63	66	72	58	61	63	53	56	59			
14	2.0	83	89	98	83	87	96	78	81	90	71	75	83	67	70	78	61	64	67	56	59	62			
MINIMUM CIRCUMFERENCE AT TOP OF UPPER COMPONENT FOR ALL HEIGHTS IN cm		50	52	57	43	46	51	41	43	48	36	38	42	30	32	35	29	31	34	26	28	30			

NOTE — The circumferences for different species at the joints of the components are covered under 8.1.1 and 8.1.2, and the lengths of the components are covered under individual types of joints.

5. PREPARATION OF COMPONENTS OF JOINTED POLES

5.1 The bark of the components shall be completely removed and all the branches shall be dressed down flush with the stem. The tops of the upper components shall be bevelled in the shape of an inverted 'V' for a length equal to top diameter or 10 cm whichever is less.

6. PRELIMINARY TREATMENT

6.1 The components prepared as in 5.1 shall be given, as soon as possible a prophylactic treatment specified in IS:401-1967* to prevent insect attack and fungal damage. The treated components shall be stacked on treated crossers at least 15 cm clear of the ground until they are ready for further preservative treatment. The ground under and around the stacks shall be properly drained and kept free from wood shavings, bark and other wood refuse.

7. PRESERVATIVE TREATMENT

7.1 All the components shall be treated with a preservative so as to impregnate completely the sapwood and as much of heartwood of non-durable species (*see* Appendix A) as possible. The pressure and the preservative treatment shall be as given in IS:401-1967*.

8. GENERAL REQUIREMENTS FOR JOINTED POLES

8.1 The requirements given in 8.1.1 and 8.1.2 shall apply to all types of joints covered in 11.

8.1.1 As far as possible the upper and lower sections shall be of the same species or at least species of the same group (*see* Appendix A). Jointing sections belonging to species of different groups is not recommended.

8.1.2 The sections being jointed shall have approximately same girth at the joint so as to have the taper uniform in both the pieces and conform to the given load class.

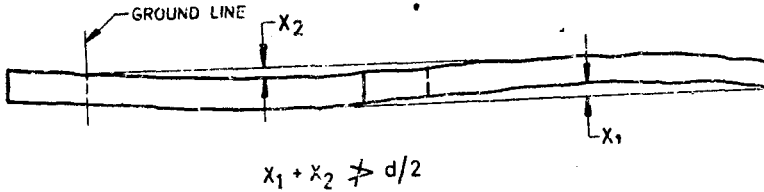
9. MEASUREMENTS

9.1 Length — The length of the jointed pole shall be measured between the extreme ends of jointed poles. Upper or lower components of poles shall be not more than 5 cm shorter or more than 10 cm longer than the specified length.

9.2 Circumference — Circumference at ground level of the lower components and at top of the upper components for the jointed poles shall be measured and shall not be less than as given in Table 1 for the appropriate class.

*Code of practice for preservation of timber (*second revision*).

9.3 Curvature — Curvature in the jointed wood pole shall be measured as indicated in Fig. 1.



NOTE — X_1 and X_2 are maximum deviations, and d is the mean diameter of the pole.

FIG. 1 MEASUREMENT OF CURVATURE IN JOINTED WOOD POLES

10. DEFECTS

10.1 The prohibited and permissible defects shall be as indicated in 10.2 and 10.3. The measurement of defects shall be done as given in IS : 3364-1965*.

10.2 Defects Totally Prohibited — The following defects shall be totally prohibited in any component of poles:

- a) Sap rot,
- b) Hollows in the top,
- c) Cross breaks,
- d) Large holes, and
- e) Short crooks.

10.3 Defects Permitted to a Limited Extent — The defects given in 10.3.1 to 10.3.11 shall be permitted in the section of pole as specified.

10.3.1 Dead Streaks — Components shall be free from dead streaks that are wider than one-fourth of the circumference of the pole at the point of measurement.

10.3.2 Decay — All sections of pole shall be free from decay and visible evidence of the presence of wood rotting fungi.

10.3.3 Splits or Checks — The lower section of the pole in the butt surface shall not have splits or checks extending from one point on the periphery to another point on the periphery and hence upward more than 60 cm.

10.3.4 Hollow Heart — The lower section of the pole shall not have hollow heart, the diameter of which exceeds one-third the butt diameter or the

*Methods of measurement and evaluation of defects in timber.

depth of which exceeds 60 cm. The depth of hollow heart shall be measured from the butt surface. No hollow heart is permitted in upper component.

10.3.5 Rot — Rot in pin may be permitted in the butt surface of the lower section of the pole provided the aggregate of rot and hollow heart does not exceed 30 percent of the entire butt surface.

10.3.6 Ring Shake — Complete ring shakes on the butt surface of the lower section of the pole may be permitted provided the diameter of the ring which they follow is not more than one-third of the diameter of the butt.

10.3.7 Grain — No section shall have more than one complete twist of grain or spiral in any 5 m of length or of proportionate twist for other lengths.

10.3.8 Insect Damage — All sections of pole shall be free from insect damage except that pin holes to the extent of 100 for every 1 000 cm² may be permitted and the concentration of the pin holes shall not be greater than 10 in any 25 cm².

10.3.9 Knots

10.3.9.1 Unsound knots — All sections of pole shall be free from unsound knots over 20 mm in diameter.

10.3.9.2 Sound knots — The diameter of any single sound knot or the sum of the diameters of all sound knots in any 50 cm portion of either components shall not exceed the following limits:

- a) Maximum diameter of any single sound knot 150 mm, provided in the same cross-section it is not more than 25 percent of the circumference at that cross-section.
- b) Sum of maximum diameters of all sound knots 300 mm, provided if all the knots occurring in any one cross-section, their sum does not exceed 25 percent of the circumference at that cross-section.

NOTE — Knots and knot cavities of diameter 10 mm and under shall be ignored in applying the limitations for the sum of diameters.

10.3.10 Scars — No part of a scar shall appear in the top one-tenth portion of the upper component and in one metre length above ground line in the lower component. Scar may be permitted elsewhere in the sections provided the width of the scar at its widest point is not more than one-fifth of the circumference of the pole at that point, subject to a maximum of 125 mm and provided it does not occur at the place of joint.

10.3.11 Shape and Straightness — Each section of poles shall be reasonably straight. Curvature in one or both components (see 9.3) may be

allowed in one plane and one direction only but they shall be assembled in such a way (see Fig. 1) that curvatures are in one plane and opposite directions and the sum of the maximum deviations from the tangents drawn as under shall not exceed the half of the mean diameter of the pole:

- a) From top of the pole to the lower convex side of the pole (X_1), and
- b) From the ground line to the upper convex side of the pole (X_2).

11. TYPES OF JOINTED POLES

11.1 Wire Bound Lap Jointed Pole

11.1.1 In this type of joints (see Fig. 2) the two surfaces which would come in contact at the lapped portion shall be adzed to 5-10 mm depth in order to ensure complete contact and avoid slipping, if any, of the upper sections when erected.

11.1.2 Table 2 indicates the length of each components, position of the joints and necessary overlap length for different pole heights, that is, overall length.

11.1.3 Two bands each of 8 to 12 turns of G.I. wire 8 to 10 SWG (ultimate tensile stress of 3 870 kg/cm² or breaking load of 816 kg and conforming to IS : 280-1962*) shall be used preferably at 15 cm from either end of the lap at the jointed portion, and the two ends of the wire shall be twisted together.

TABLE 2 LENGTHS OF COMPONENTS AND LOCATION OF LAP JOINTS FOR DIFFERENT LENGTHS OF POLES

(Clauses 11.1.2, 11.2.2 and 11.3.2)

All dimensions in metres.

OVERALL LENGTH OF JOINTED POLE	LENGTH OF TOP PORTION	LENGTH OF BOTTOM PORTION	OVERLAP LENGTH, Min
(1)	(2)	(3)	(4)
6	3.6 to 4.2	3.0 to 2.4	0.6
7	4.2 ,, 4.8	3.6 ,, 3.0	0.7
8	4.8 ,, 5.4	4.2 ,, 3.6	0.8
9	5.4 ,, 6.0	4.8 ,, 4.2	0.9
10	6.0 ,, 6.6	5.4 ,, 4.8	1.0
12	7.2 ,, 7.8	6.0 ,, 5.4	1.2
14	8.4 ,, 9.0	7.2 ,, 6.4	1.4

*Specification for mild steel wire for general engineering purposes (revised).

11.1.4 After binding necessary turns of the wire as recommended in 11.1.3 for each of the bands 4 to 6 twists with the help of a 16×2.5 cm M.S. pin (tapered at both ends) and a G.I. pipe shall be given to develop the required tension to hold the two jointed portions together firmly.

NOTE — The number of required turns in each of the two bands for particular length and expected load of a pole is given by:

$$N = \frac{PX}{KY}$$

where

N = number of turns required at each band,

P = anticipated load plus 30 percent to cover safety,

X = distance from the load point to the farthest point of the lap,

K = $1.8 t$ (where t = breaking load of the wire), and

Y = distance between central line of nearest band and the farthest point of the lap.

11.2 Z-Type Lap Jointed Poles (see Fig. 3)

11.2.1 In such type of joints the two surfaces which would come in contact at the lapped portion shall be adzed to 5-10 mm depth in order to ensure complete contact and avoid slipping, if any, of the upper sections when erected.

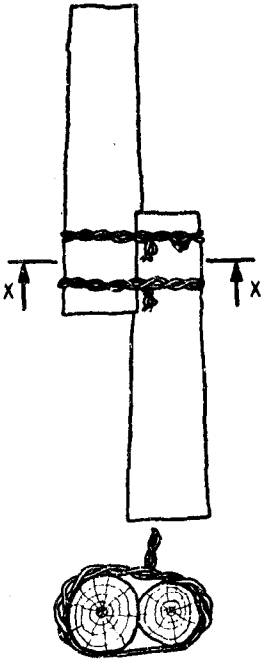
11.2.2 The position of the joints, the lengths of each component and necessary overlap length for different pole heights are given in Table 2.

11.2.3 The Z-type connection indicated in the figures shall be made by flat iron bars of size 50×5 mm on both the sides of the lap. The bolt holes passing through the flat shall be made through the centre line of the components of poles. The bolts shall be of the diameter not less than $1/10$ th of the diameter of the poles and corresponding to the standard size and shall be fastened by lock nuts.

11.3 V-Type Lap Jointed Poles (see Fig. 4)

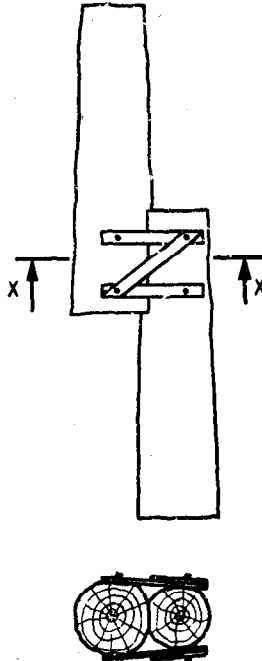
11.3.1 In such type of V-joints the two surfaces which would come in contact at the lapped portion shall be adzed to 5-10 mm depth in order to ensure complete contact and avoid slipping, if any, of the upper sections when erected.

11.3.2 The position of the joints, lengths of each component and necessary overlap length for different pole heights are given in Table 2.



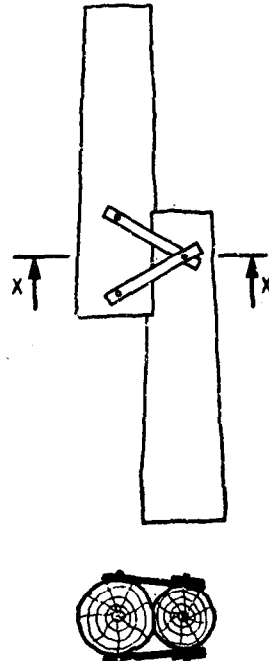
SECTION XX

FIG. 2 WIRE BOUND LAP JOINTED POLE



SECTION XX

FIG. 3 Z-TYPE LAP JOINTED POLE



SECTION XX

FIG. 4 V-TYPE LAP JOINTED POLE

11.3.3 The V-type connection indicated in the figure shall be made by flat iron bars of size 50×5 mm on both sides of the lap. The bolt hole passing through the flats shall be made through the centre line of components of poles. The bolts shall be of the diameter not less than $1/10$ th of the diameter of the poles and corresponding to the standard size and shall be fastened by lock nuts.

11.4 Angle Iron Butt Jointed Poles (see Fig. 5)

11.4.1 In such type of jointed poles the top and bottom sections shall be placed butt to butt and fixed by four angle irons of size $60 \times 60 \times 5$ mm. Two opposite angle iron shall be connected through bolts at the joint,

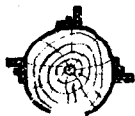
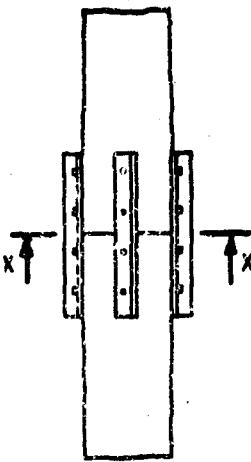
of diameter not less than $1/10$ th of the diameter of pole and corresponding to standard size at the joint and passing through the centre of the section as shown in Fig. 5. Care shall be taken that two vertical rows of bolt holes are slightly staggered, so as to allow crossing of bolts.

11.4.2 The length of components shall be such that the joint shall be in centre one-third of the jointed pole above ground line.

11.5 Half-Sleeve Half-Lap Jointed Poles (see Fig. 6)

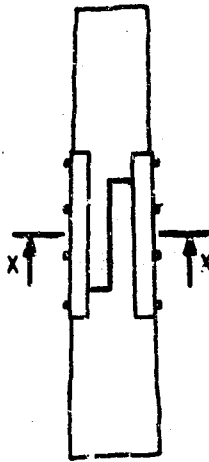
11.5.1 In such type of jointed poles the length of the sleeve shall be 1.5 times the diameter of the pole at the joint.

11.5.2 At the place of the joint the sections shall be covered by two semi-cylindrical iron sleeves of thickness 3 to 4 mm and curvature corresponding to the curvature of the sections being jointed.



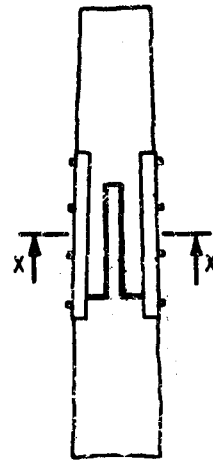
SECTION XX

FIG. 5 ANGLE IRON BUTT
JOINTED POLE



SECTION XX

FIG. 6 HALF-SLEEVE
HALF-LAP
JOINTED POLE



SECTION XX

FIG. 7 HALF-SLEEVE
TONGUE AND GROOVE
JOINTED POLE

APPENDIX A

(Clauses 3.2, 7.1 and 8.1.1)

SPECIES OF TIMBER FOR WOOD POLES

Sl. No.	SPECIES		SYMBOL	AREA FROM WHERE SPECIES ARE LIKELY TO BE AVAILABLE	AVERAGE WEIGHT AT 12 PERCENT MOISTURE CONTENT kg/m ³ (6)
	Botanical Name	Trade Name			
(1)	(2)	(3)	(4)	(5)	(6)
GROUP A					
1.	* <i>Bruguiera</i> spp.	bruguiera	BRU	Andamans	893
2.	<i>Hopea perviflora</i> Bedd.	hopea	HOP	Mysore, Tamil Nadu	995
3.	* <i>Kayaea assamica</i> King & Prain	kayaea	KAY	Assam	801
4.	<i>Mesua ferrea</i> Linn.	mesua	MES	Assam, Mysore, Tamil Nadu	995
5.	* <i>Pocillonuron indicum</i> Bedd.	ballagi	BAL	Mysore, Tamil Nadu	1 135
6.	<i>Shorea robusta</i> Gaertn.f.	sal	SAL	Assam, Bihar, Uttar Pradesh, Orissa, W. Bengal, Madhya Pradesh	815
GROUP B					
7.	* <i>Acrocarpus fraxinifolius</i> Wight et Arn.	mundani	MUN	Mysore	690
8.	* <i>Calophyllum tomentosum</i> T. Anders	poon	POO	Mysore	655
9.	* <i>Calophyllum wightianum</i> T. Anders	poon	PON	Mysore	685
10.	* <i>Casuarina equisetifolia</i> Forst	casuarina	GAS	Mysore	850
11.	<i>Albergia sissoo</i> Roxb.	sissoo	SIS	Assam, Bihar, [Orissa, Punjab, Uttar Pradesh, W. Bengal	770
12.	* <i>Dipterocarpus grandiflorus</i> Blanco.	gurjan	GUR	Andamans	785
13.	* <i>Dipterocarpus indicus</i> Bedd.	gurjan	GUR	Mysore, Kerala	785
14.	* <i>Dipterocarpus macrocarpus</i> Vesque	hollong	HOLL	Assam	735
15.	* <i>Dipterocarpus turbinatus</i> Gaertn.	gurjan	GUR	Andamans	785

16.	<i>Eucalyptus globulus</i> Labill.	blue gum	BGU	Tamil Nadu, Andhra Pradesh, Kerala, Mysore	850
17.	<i>Hardwickia pinnata</i> Roxb.	pinney	PIN	Kerala, Mysore, Tamil Nadu	635
18.	* <i>Heritiera minor</i> Lam.	sundri	SUN	West Bengal	1 038
19.	<i>Lagerstroemia lanceolate</i> Wall.	benteak	BEN	Kerala, Mysore, Andhra Pradesh, Tamil Nadu	610
20.	* <i>Lagerstroemia parviflora</i> Roxb.	lendi	LEN	Bihar, Assam	755
21.	<i>Palaquium polyanthum</i> (Wall.) Engler.	taii	TAI	Assam	734
22.	<i>Pterocarpus marsupium</i> Roxb.	bijasal	BIJ	Bihar, Bombay, Kerala, Madras, Madhya Pradesh, Mysore, Orissa, W. Bengal	800
23.	<i>Tectona grandis</i> Linn.f.	teak	TEA	Tamil Nadu, Andhra Pradesh, Kerala, Mysore	625
24.	* <i>Terminalia bialata</i> Steud.	white chuglum	WCM	Andamans	705
25.	* <i>Terminalia manii</i> King.	black chuglum	BCM	Andamans	800
26.	* <i>Terminalia paniculata</i> Koth	kindal	KIN	Mysore, Kerala	800
27.	* <i>Terminalia tomentosa</i> Wight et Arn.	laurei	LAU	Bihar, Orissa, Madhya Pradesh, Mysore	850
28.	<i>Xylia xylocarpa</i> Taub.	irul	IRU	Bihar, Orissa, Mysore	850

GROUP C

29.	* <i>Borassus flabellifer</i> Linn.	tad (palmyra)	TAD	Tamil Nadu, Andhra Pradesh, Kerala, Mysore	815
30.	<i>Cedrus deodara</i> D. Don.	deodar	DEO	Himachal Pradesh, Jammu & Kashmir	545
31.	* <i>Garuga pinnata</i> Roxb.	garuga	GAU	Himachal Pradesh	610
32.	* <i>Lagerstroemia flosreginae</i> Retz.	jarul	JAR	Assam, W. Bengal, Kerala, Mysore	625
33.	<i>Lagerstroemia hypoleuca</i> Kurz.	pyinma	PYI	Andamans	610
34.	* <i>Pinus roxburghii</i> Sargent	chir	CHR	Himachal Pradesh, Jammu & Kashmir	510
35.	* <i>Shorea assamica</i> Dyer.	makai	MAK	Assam	575
36.	* <i>Terminalia arjuna</i> W & A	arjun	ARJ	Assam	815
37.	* <i>Terminalia myriocarpa</i> Heurcl et Muell. Arg.	hollock	HOL	Assam	610
38.	* <i>Terminalia procera</i> Roxb.	white bombwe	WBO	Andamans	610

* These are non-durable species.

11.5.3 The joint shall be connected with the metal sleeves through four bolts, two of which shall pass through the joint and one through each section.

11.5.4 The bolt at the joint shall be of not less than 1/10th diameter of the pole and corresponding to the standard size at joint and shall be fastened by lock nuts.

11.5.5 The length of the components shall be such that the joint shall be in centre one-third of the jointed pole above the ground line.

11.6 Half-Sleeve Tongue and Groove Jointed Pole (see Fig. 7)

11.6.1 In such type of jointed poles the length and width of the tongue shall be $1\frac{1}{2}$ and $\frac{1}{2}$ time the diameter of pole at the joint, respectively.

11.6.2 At the place of the joint the sections shall be covered by two semi-cylindrical iron sleeves of thickness 3 to 4 mm and curvature corresponding to the curvature of the sections being jointed.

11.6.3 The joint shall be connected with the metal sleeves through 4 bolts, two of which shall pass through the joint and one through each section.

11.6.4 The bolt at the joint shall be not less than 1/16th diameter of the pole and corresponding to the standard size and shall be fastened by lock nuts.

11.6.5 The length of the components shall be such that the joint shall be in centre one-third of the jointed pole from ground line.

12. MARKING

12.1 Each jointed pole shall be marked legibly and indelibly with the following information at a distance of 2.5 m from the bottom end of the jointed pole:

- a) Class of pole and type of joint,
- b) Species of timber by symbol, and
- c) Year of preservative treatment.

12.1.1 The bottom section of jointed pole shall be marked with the class and length for identification of jointed poles, whenever required by the purchaser.

12.2 Each jointed pole may also be marked with the ISI Certification mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

AMENDMENT NO. 1 JANUARY 1976

TO

IS:6056-1970 SPECIFICATION FOR JOINTED
WOOD POLES FOR OVERHEAD POWER AND
TELECOMMUNICATION LINES

Alteration

*(Page 6, Table 1, col 1, third entry) -
Substitute '7.5 and 8' for '8'.*

Addendum

*(Page 5, clause 4.2) - Add the
following at the end:*

*'For poles of intermediate length in
Table 1, the circumference given for
the next larger pole shall be used.'*

(BDC 9)

Reprography Unit, ISI, New Delhi