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ANNEX A: **Technical Particulars** *(to be filled and signed by the Manufacturer for all clauses and submitted together with catalogues, brochures, drawings, technical data and test reports for tender evaluation)*

0.1 Circulation List

COPY NO.	COPY HOLDER
1	Research & Development Manager
2	Supplies Manager
3	Stores & Stock Control Manager
4	Distribution Manager
5	Assistant Manager, Technical Audit

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)

FOREWORD

This specification has been prepared by the Research and Development Department in liaison with the Distribution Department both of The Kenya Power and Lighting Company Limited (KPLC) and it lays down requirements for climbing iron for use by Linesmen in climbing wood poles. It is intended for use by KPLC in purchasing the equipment.

It shall be the responsibility of the manufacturer to ensure adequacy of the design and good engineering practice in the manufacture of the climbing irons for KPLC. The manufacturer shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification.

1. SCOPE

This specification is for climbing iron for use by Linesmen in climbing wood poles.

The climbing iron shall be used together with safety belt for positioning and support of the wearer at a height when working on wood poles.

2. REFERENCES

The following document was referred to during the preparation of this specification; in case of conflict the requirements of this specification shall take precedence.

ASTM F887-91: Standard Specifications for Personal Climbing Equipment

3. TERMS AND DEFINITIONS

The following definition together with the applicable definitions in ASTM F 887 shall apply:

Spur – a component of a pole climber permanently attached to the climber shank which is shaped to permit the secure penetration of the wood pole.

4. REQUIREMENTS

4.1. SERVICE CONDITIONS

The climbing irons shall be suitable for continuous use outdoors in tropical areas at altitudes of up to 2000m above sea level, humidity of up to 90%, average ambient

temperature of +30°C with a minimum of -1°C and a maximum of +40°C and Tropical Sunshine conditions.

4.2. DESIGN AND CONSTRUCTION

4.2.1. GENERAL REQUIREMENTS

4.2.1.1. The climbing iron shall be designed for use by linesmen required to climb wooden poles to work at heights in a supported position.

It shall be suitable for attachment to the shoes by straps to allow the wearer to work on wood poles for prolonged period.

4.2.1.2. The climbing iron shall be supplied in pairs (Left and Right). Each complete unit shall weigh no more than 1.5kg.

4.2.1.3. The climbing iron shall be suitable for wood poles of top diameters in the range 140mm to 230 mm.

4.2.1.4. The climbing iron shall be of sizes capable of being fitted on shoes of sizes 8, 10 and 12 (Kenya Standard).

4.2.1.5. The climbing iron shall be in accordance with the general arrangement drawing of sub-clause 4.3.

4.2.2. FOOTREST AND SPURS

4.2.2.1. The climbing iron shall be manufactured from forging quality alloy steel as per ASTM 887.

4.2.2.2. Specially shaped steel shall be permanently attached to the footrest to hook round the pole. Spurs (spikes) for pole gripping shall be attached permanently on the steel, as shown in the general arrangement drawing of sub-clause 4.3.

4.2.2.3. The climber shall be held in the climbing position by the spurs.

4.2.2.4. All metal parts shall be free of surface cracks and seams and shall be smoothly finished with a rust-resistant coating.

4.2.2.5. All fins or burrs shall be removed from the cutting edges of spurs and the spurs shall be finished with a rust-resistant coating.

4.2.3. STRAPPING

4.2.3.1. The strapping shall be so designed and constructed that an involuntary release of the work position is prevented.

4.2.3.2. In order to reduce the probability of involuntary opening, buckles shall be capable of being opened only by at least two consecutive deliberate actions.

4.2.3.3. Straps shall be a minimum of 25.4mm (1") in width and 3.18mm (1/8 ") in thickness.

4.2.3.4. The straps of the climbing iron shall be top grain cowhide leather and shall have a breaking strength of not less than 79kN/m of width with buckle holes as per ASTM 887. Straps in synthetic materials will be accepted only if supported by test certificates confirming equivalent or superior characteristics and suitability for service conditions specified.

4.2.3.5. The leather shall show no cracking on the grain side when bent slowly over a 12.7mm diameter mandrel, grain side out, through an angle of 180°. The leather shall not show piping or wrinkling of the grain side when bent over a mandrel 25.4mm in diameter with the grain side in, through an angle of 180°. These tests shall be as per ASTM F887.

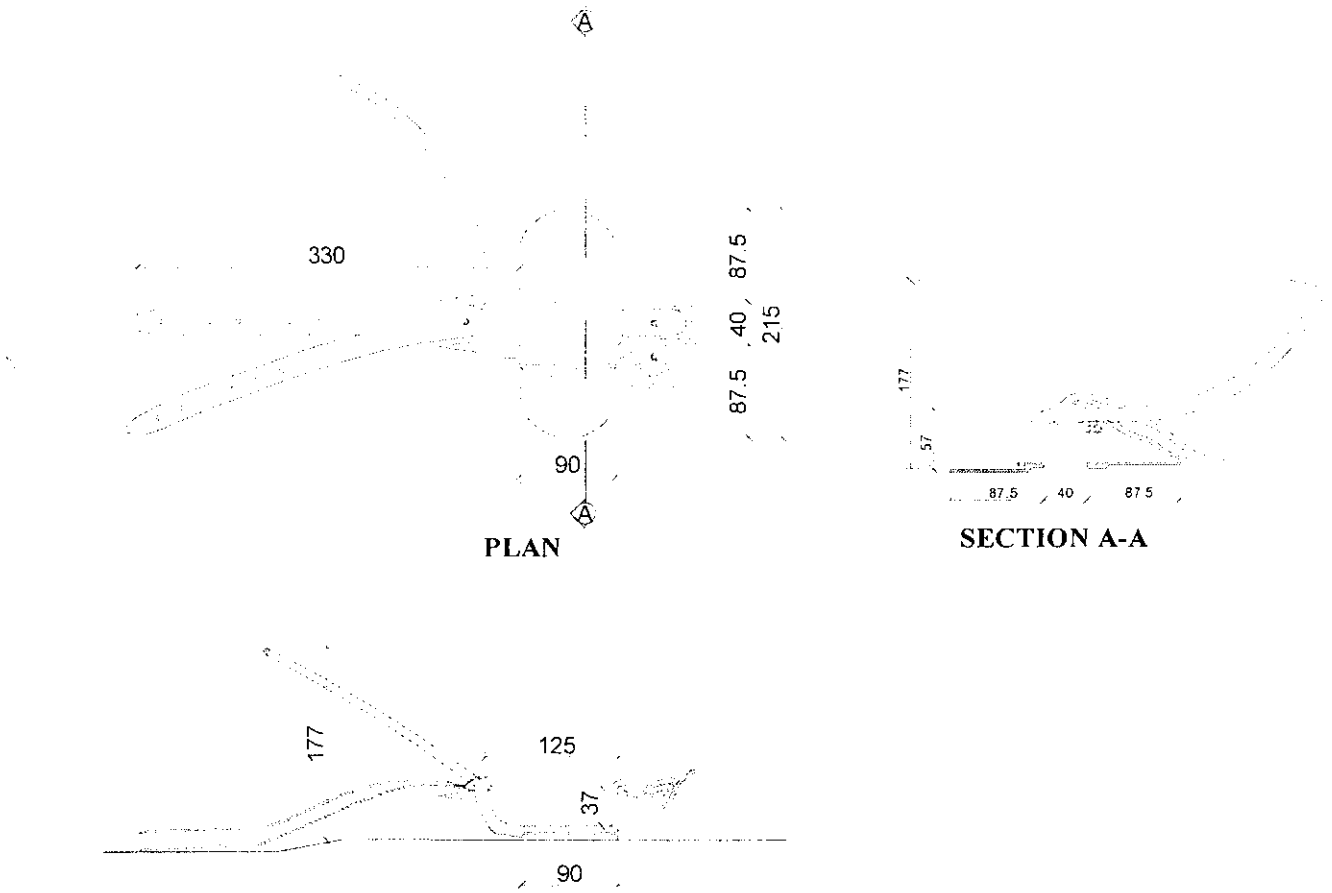
4.2.3.6. Buckle frames shall be of forged construction. Tongues shall be of an adequate gauge wire to meet the strength requirements in 4.2.3.8.

4.2.3.7. Buckle holes in the straps shall not exceed 4.76mm (3/16") in diameter. Straps shall be riveted to the buckles by at least two rivets with the strap keeper centered between the rivets.

4.2.3.8. The buckle holding strength of leather shall be not less than 90kg static load when tested in accordance with ASTM F887.

4.3. GENERAL ARRANGEMENT DRAWING

The design for the climbing iron shall be in accordance with the general arrangement drawing below. This design has been used by KPLC Linesmen for a long time and found to be most suitable for use on Eucalyptus Poles.



PLAN

SECTION A-A

ELEVATION

:Note
Dimentions are in cm

General Arrangement Drawing for Climbing Iron

5. TESTS AND INSPECTION

5.1 The climbing iron shall be inspected and tested in accordance with the requirement of this specification and the relevant sections of ASTM F887. It shall be the responsibility of the manufacturer to perform or to have performed all the tests specified.

5.2 Copies of previous Test Reports certified by the relevant International or National Testing/Standards Authority of the country of manufacture (or ISO/IEC 17025 accredited laboratory) shall be submitted with the tender (including certificate of

accreditation for laboratory) for the purpose of technical evaluation, all in English Language.

5.3 A sample of the climbing iron offered shall be submitted for evaluation. The sample (pair) shall be accompanied with details on application and instructions for use, all in English Language. It shall be demonstrated that the climbing iron offered is suitable for use on wood poles of eucalyptus species.

5.4 On receipt of the goods the purchaser (KPLC) shall perform or have performed any of the tests specified in order to verify compliance with specification.

5.5 The supplier shall replace without charge to the KPLC unused equipment which upon examination or test within six (6) months of initial delivery of the delivery fail to meet any of the requirements in the specification. Sampling and testing shall be in accordance with ASTM F887 and this specification.

6. MARKING, LABELLING AND PACKING

6.1 Instructions for use, care, storage and routine inspection/testing and sampling procedures shall be submitted (all in English Language).

6.2 Each climbing iron shall be complete with permanent and legible markings containing the following information (in English Language).

- Standard to which it complies.
- Name and trademark of manufacturer.
- Type (product identification) and size.
- Year and month of manufacture.
- Maximum permissible loading
- The words "PROPERTY OF KPLC"

6.3 The climbing irons shall be packed in pairs in moisture proof package. Each package shall be clearly marked with the size, name of manufacturer and product identification.

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ANNEX A: **Technical Particulars** *(to be filled and signed by the Manufacturer for all clauses and submitted together with* catalogues, brochures, drawings, technical data and test reports *for tender evaluation)*

Tender No.....

Clause Number	Bidder's offer	Manufacturer's catalogue, drawing, technical data or tests report Reference Page to support the offer.

NB: - This schedule does not in any way substitute for detailed information required elsewhere in the specification.

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Manufacturer's Name, Signature, Stamp and Date