

TABLE OF CONTENTS

0.1 Circulation List

0.2 Amendment Record

FOREWORD

1. SCOPE
2. REFERENCES
3. TERMS AND DEFINITIONS
4. REQUIREMENTS
5. TESTS AND INSPECTION
6. MARKING AND PACKING
7. DOCUMENTATION

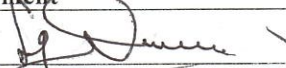
ANNEX A: Guaranteed Technical Particulars *(to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, details of manufacturing capacity, the manufacturer's experience and copies of complete type test reports for tender evaluation, all in English Language)*

Issued by: Head of Section, Tech Standards & Specifications

Signed: 

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed: 

Date: ~~2013-09-26~~



TITLE:
**SPECIFICATION FOR LIVE LINE
 TOOLS**
**Part 7: Live Working - Jumpers Sets,
 Insulated Hanger and Load Pick Up Tool
 Set**

Doc. No.	KP1/3CB/TSP/09/043-7
Issue No.	1
Revision No.	0
Date of Issue	2013-09-26
Page 2 of 19	

0.1 Circulation List

COPY NO.	COPY HOLDER
1	Research & Development Manager
2	Procurement Manager
Electronic copy (pdf) on Kenya Power Server (currently :Network-\\stima-fprnt-001\techstd&specs	

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
0	2013/09/26	New Issue	Michael Apudo 	G. Owuor

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

FOREWORD

This specification has been prepared by the Research and Development Department in collaboration with Common Services Section of The Kenya Power and Lighting Company Limited (abbreviated as KPLC) and it lays down requirements for Jumpers and Load Pickup Sets rated 15kV and 35kV for live line work. It is intended for use by Kenya Power in purchasing items

1. SCOPE

- 1.1. This specification is for jumpers and load pickup sets for use in Live Line work along power lines, in substations and electrical installations.
- 1.2. This specification covers the following individual items:
 - a) Insulated Jumper Set,
 - b) By-pass Jumper Set,
 - c) Insulated Hanger
 - d) Load Pick-Up Set.
- 1.3. The specification also covers inspection and test of the jumpers and load pickups as well as schedule of Guaranteed Technical Particulars to be filled, signed by the manufacturer and submitted for tender evaluation.
- 1.4. The specification stipulates the minimum requirements for jumpers and load pickup sets; acceptable for use in the company and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the jumpers and load pickup sets for The Kenya Power & Lighting Company.
- 1.5. **Brand names or catalogue numbers referred to in this specification are intended to be descriptive only and not restrictive. The Tenderer may adopt higher standards, brand names, and or catalogue numbers in its Tender, provided that it demonstrates to KPLC's satisfaction that the substitutions ensure equivalence to the requirements.**
- 1.6. The specification does not purport to include all the necessary provisions of a contract.

Issued by: Head of Section, Tech Standards & Specifications

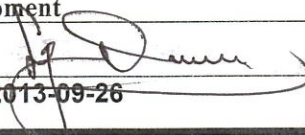
Signed:



Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:



Date: 2013-09-26

2. REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this specification. Unless otherwise stated, the latest edition of the referenced documents (including any amendments) applies.

ASTM F2321-03: Standard Specification for Flexible Insulated Temporary By-Pass Jumpers

ASTM B33: Standard Specification for Tinned Soft or Annealed Copper for Electrical Purposes

NEMA WC 74 5-46kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy.

ASTM F711-02: Standard Specification for Fiberglass-Reinforced Plastic (FRP) Rod and Tube Used in Live Line Tools

ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods.

OSHA Regulation standards 1910.269: Part J: Live Line Tools

ISO/IEC 17025: General Requirements for the Competence of Calibration and Testing Laboratories

ISO 9001-2008: Quality management systems – Requirements

3. TERMS AND DEFINITIONS

3.1. For the purpose of this specification, the definitions given in the reference standards shall apply.

3.2. Abbreviations

3.2.1. **IEC:** International Electro-technical Commission

3.2.2. **ISO:** International Standards Organization

3.2.3. **OSHA:** Occupational Safety and Health Administration

3.2.4. **ASTM:** American Society for Testing and Materials

3.2.5. **UL:** Underwriters Laboratories

3.2.6. **Hollow tube:** An insulating tube that is manufactured from material such as synthetic materials that may be reinforced with mineral or artificial fibers.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

- 3.2.6. Hollow tube:** An insulating tube that is manufactured from material such as synthetic materials that may be reinforced with mineral or artificial fibers.
- 3.2.7. Solid rod:** An insulating rod that is manufactured from material such as synthetic materials that may be reinforced with mineral or artificial fibers.
- 3.2.8. EPR - Ethylene-propylene rubber.**
- 3.2.9. UNC – Unified National Course Thread**

4. REQUIREMENTS

4.1. SERVICE CONDITION

4.1.1. Physical conditions

The Jumpers and Load Pickups shall be suitable for continuous use outdoors in tropical areas at;

- Altitudes of up to 2200m 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
- Heavy saline conditions along the coast.

4.1.2. Approach & Insulation Distance Information

- 4.1.2.1. MAD = Minimum Approach Distance** is the minimum air gap or summation of air gaps measured between any part of the operator and live electrical apparatus as per OSHA Regulation standards 1910.269: Part J.
- 4.1.2.2.** Detailed information can be found in OSHA guidelines in Table R-6 of the Federal Register. A small extraction from this standard is shown below for minimum standard distances based on ideal circumstances.

Table 1: Live Working Recommended Minimum Distances at a Glance

Nominal Voltage AC (kV) Auto-reclose Distance	Minimum Approach Distance (MAD)	
	Phase to Earth	Phase to Phase
	OFF (mm)	OFF (mm)
11	350	400
33	450	550
66	600	800
132	900	1300
220	1300	2000

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

4.2. GENERAL REQUIREMENTS

- 4.2.1.** Live working tools shall generically be made of fiberglass tubes with solid unicellular foam filled cores. They shall be factory tested to 100kV/300mm of insulation that conforms to ASTM F711-02 requirements.
- 4.2.2.** The jumpers and load pick-up sets shall be manufactured from insulation and conductor screen which meets NEMA WC 74 standard requirements.
- 4.2.3.** The jumper cables shall have extra flexible alloy-tin coated copper-stranded conductors, assembled in a unidirectional rope lay as per ASTM B-33 and meets the requirements of ASTM F2321-03.
- 4.2.4.** The cables shall possess a semiconducting shield surrounding it, to relieve it from voltage stresses and improve on its dielectric strength and service life.
- 4.2.5.** The cable outer sheath shall be natural orange in colour , mold-cured ethylene-propylene (EPR)-base coating to impart high visibility.
- 4.2.6.** The cable sizes (metric area (AWG)) and voltage ratings shall be embossed at 1.22m (4ft) intervals on the EPR insulated jacket of the cables for easy identification unless otherwise stated.
- 4.2.7.** The cable characteristics shall be as per the following tables. The type and size of jumper cable required shall be specified in each tender.

Table 2: Copper Jumper Cable – EPR Jacketed - Type I as per ASTM F2321 Standard Specification Jumper Cables.

No	kV rating	Cable Size		No. of strands	Lay up of strands	Approx. conductor diameter, mm	Approx. O.D mm	Approx. current rating, A	Weight, Kg/Km
		AWG	mm ²						
1	15	#2	35	259	7x37	8.2	19.8	200	650
2		1/0	50	259	7x37	10.3	22.0	250	900
3		2/0	70	259	7x37	11.6	23.1	300	1050
4		4/0	120	437	19x23	15.3	26.7	400	1550
5	35	1/0	50	413	7x59	10.26	32.2	260	1450

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

4.3. SPECIFIC REQUIREMENTS

4.3.1. Insulated Jumper Set

- 4.3.1.1. Insulated jumpers shall be manufactured to meet the requirements of ASTM F2321-03 standard specification.
- 4.3.1.2. Each set shall include one (1), 5m (16') cable with characteristics as shown in Table 2, assembled with two crimp connectors to the jumper clamps as shown in Fig. 1 and 1b.
- 4.3.1.3. The jumper cable shall be extremely flexible even at low temperatures with an insulation/jacket combination; resistant to abrasion, oil, heat, moisture and ozone.
- 4.3.1.4. The insulated jumper clamps shall be suitable for bypassing work areas where equipment is under repair and the line is being upgraded, and for making temporary or other emergency repairs.
- 4.3.1.5. The jumper clamps shall have:
 - a) A bearing type floating washer with lower contact to improve on the gripping action and prevent conductor scoring.
 - b) Metallic parts made of copper alloy to improve on resistance to oxidation
 - c) A high-impact polyethylene handles with wide hand guard flanges.
- 4.3.1.6. The jumpers clamps shall be of different types and sizes based on voltage ratings, namely:
 - a) Small 15kV clamp with 150mm handle below the hand guard;
 - b) Large 15 kV clamp with 190mm handle below the hand guard.
 - c) 35kV clamp with 220mm handle below the hand guard.
- 4.3.1.7. The clamps shall all be easy to assemble to the cable and the connector assemblies shall be interchangeable between the two sizes of 15 kV jumper clamps.
- 4.3.1.8. The ampacity ratings of the jumpers shall be based on 90°C conductor temperature at 40°C ambient. The set shall be pre-assembled in the factory ready for use in distribution-system voltages;

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

4.3.1.9. Based on cable the sizes, a continuous-current rating for the sets shall range from 200A to 400A.



Fig. 1a: Insulated jumper set



Fig. 1b: Crimp connector

4.3.2. By-pass Jumpers (15kV & 35kV).

4.3.2.1. Bypass Jumper Set rated 15kV.

4.3.2.1.1. By-pass jumper design shall feature a mid-span rigid-orange 4mm outer diameter, 2.44m (8') long epoxy-resin, fiberglass-reinforced-plastic (FRP) tube manufactured and tested to ASTM F711-02. The general arrangement and components shall be as per Fig. 2.

4.3.2.1.2. The cable rating shall be of Type I as per ASTM F2321-03 standard specification and values given in Table 2.

4.3.2.1.3. The tube shall be able to provide support for easy handling of the jumper sets by rubber gloves or hot-line tools. This shall enable the unit to come handy when jumpering switchgear, reclosers or cutting in double dead-ends.

4.3.2.1.4. This particular insulated by-pass jumper set shall consist of two "C" type aluminum alloy grounding clamps with smooth jaws and bronze eye screws with fine threads- Main Line Range shall be 75mm²-150mm² ACSR conductor.

4.3.2.1.5. The two clamps shall be installed with cable strain-relief clamps to complete the by-pass jumper set.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

[Signature]

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

[Signature]

4.3.2.1.6. The recommended torque of the clamps shall be 30Nm with 5/8" - 8 unified course (UNC) terminal threads plus cable strain-relief clamps.

4.3.2.1.7. The by-pass jumper set shall include the following parts::

- a) Two non-metallic hangers as specified in clause 4.3.3— one at each end of the FRP support tube — to provide parking for the by-pass clamps while moving the jumper set into or out of the work area.
- b) A 5m (16') long jumper cable manufactured to ASTM B-33 (with EPR jacket) secured where it exits the FRP tube. 1.22m (4') length of the cable shall extend from both ends of the rigid support.

4.3.2.1.8. The connection to the set shall be through a threaded compression assembly — each comprising a connector, nut and lock washer, all of tinned copper — applied at the cable ends.

4.3.2.1.9. They shall possess two shrouded ferrules manufactured of 99.5% pure copper with industry standard 5/8"-11 UNC threads.

4.3.2.1.10. The ferrules shall be topped with a brass hex jam nut and toothed stainless steel lock washer. The threaded copper compression ferrules shall be installed on the cable and assembled to the clamps

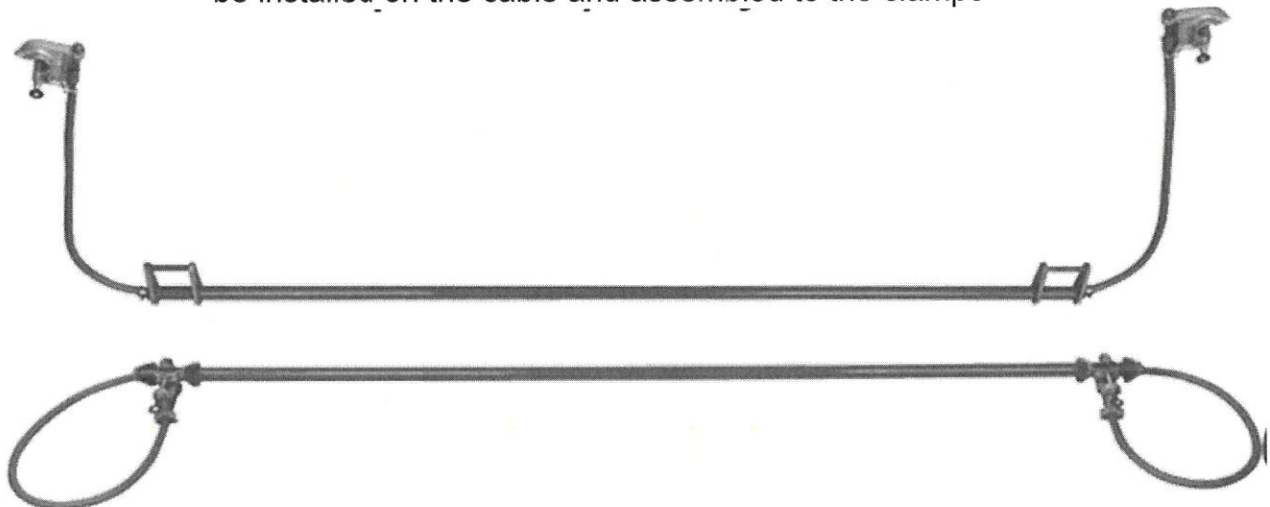


Figure 2: By-pass jumper set with clamp - 15kV

4.3.2.2. **By-Pass Jumper Set rated 35kV.**

4.3.2.2.1. This by-pass jumper set rated 35kV shall consist of solid aluminum rod, epoxy-sealed inside a polypropylene tube.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

- 4.3.2.2.2. The tube shall be silicone-sealed inside a 38mm (1 1/2") diameter hot stick handle.
- 4.3.2.2.3. It shall be supplied complete with brass couplings which are threaded onto the end of the solid rod, pinned and a 914mm (3') cable of 120mm² cross sectional area having a clear - jacketed grounding, threaded into the coupling.
- 4.3.2.2.4. The total length of the jumper shall be 5.486m (18') with 3.66m (12') epoxy glass rod incorporated.
- 4.3.2.2.5. The cable ampacity rating shall be 400A based on 90°C conductor temperature at 40°C ambient.

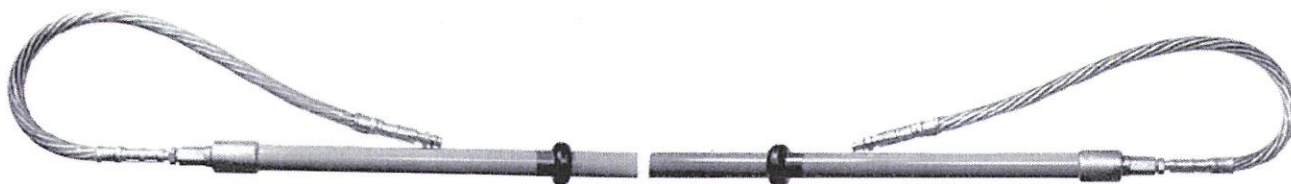


Fig. 3: 35 kV by-pass jumper set.

4.3.3. Insulated Hanger

- 4.3.3.1. The insulated hanger shall serve as a convenient parking stand while linesmen are installing jumper clamps or grounding clamps on lines up to 35 kV. General design arrangement is as per Fig. 4.
- 4.3.3.2. It shall be designed complete with a 400mm (15") long epoxy glass pole with outer diameter of 32mm (1 1/4"), manufactured and tested as per ASTM F711 02 to provide the insulated section.
- 4.3.3.3. The design shall include a stud fitting of about 12.5mm (1/2") in diameter protruding by 88.9mm (3 1/2") on each side made of bronze. It shall be suitable for use in conductor sizes ranging from 75mm² - 150mm².

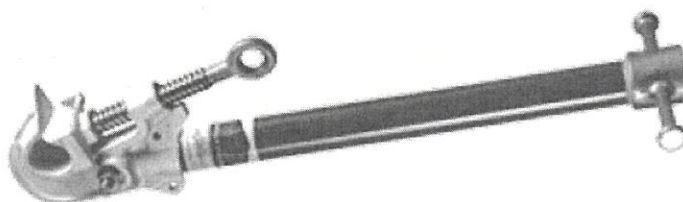


Fig. 4: Insulated Hanger

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

4.3.4. Load Pick Up Tool Set

- 4.3.4.1. This tool shall be factory pre-assembled for 15kV and 35kV systems ratings complete with a load-pickup device, jumper clamp, and 15/35kV cable (manufactured to ASTM B33).
- 4.3.4.2. The tool shall be rated for loads of up to 250A and shall be fit for 75mm²-150mm² ACSR conductors. This model shall only be used to pick up loads and carry 250A at 15kV and 35kV.
- 4.3.4.3. It shall be used to pick up loads in cases of broken jumper repairs such that current is bypassed as the permanent jumper is done live.
- 4.3.4.4. It shall be supplied in four standard sets as shown in the Table 3. The type and size of set required shall be specified in each tender.

Table 3: Load pick up set ratings

No.	Cable Length		Cable size	Voltage rating	Continuous current
	ft.	m			
1	10	3.048	35	15	200
2	12	3.6576	70	15	250
3	15	4.572	50	35	250

- 4.3.4.5. The design shall include a head with a floating washer to minimize conductor damage as the jaws are installed.
- 4.3.4.6. The contacts shall be spring loaded and shall only close by pulling an insulated lanyard attached to a fiberglass rod. This shall allow the operator to have enough clearance away from the tool during pickup operations.
- 4.3.4.7. This tool shall not be used as a load-break tool; hence the contacts shall not be opened while the tool is attached on the live conductor.
- 4.3.4.8. The fiberglass rod, attached to the end of the lanyard, shall be used to recock the contacts and because it must be inserted through head of the tool, the tool shall be removed from the conductor before recocking.
- 4.3.4.9. The tool shall have a nylon hand guard to be used to keep the operator's hand away from energized area.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

4.3.4.10. During inspection and maintenance of the tool, the disassembly shall simply involve removing the screws in hand guard.

4.3.4.11. All current carrying parts shall be made of copper or copper alloy and the contacts shall be silver plated

4 3 4 12. It is recommended that the load-pickup tool shall be inspected and cleaned after 25 operations or after 90 days. The cleaning of all plastic parts shall be done with a soft cloth and a damp with ethyl alcohol only; all to be supplied with the tool.

4.3.4.13. Design Features

- a) **Arc resistant** – integral completely enclosed quick make contacts that minimize arcing between conductor and clamp.
- b) **Fast, positive load make** – heavy duty closing spring ensures positive connection up to 300 A.
- c) **Easy inspection** – a unique transparent, yellow tinted polycarbonate handle permits easy inspection of the contact and affords high dielectric, impact strength and durability.
- d) **Secure connection** – the knurled, floating washer-type upper contact offers greater contact area and a secure connection to the conductor when the clamp is tightened during installation.

4.3.4.14. Construction Features

The load pick up tool sets shall comprise of load pick-up tool, jumper clamp, jumper cable and other operational components as per Fig. 5a & b. The key component parts shall have the following features:

a) Load-Pickup Tool:

- The tool shall be made of an orange-tinted clear polycarbonate resin housing that permits easy visual inspection
- Current-carrying parts shall be made of Copper or Copper alloy
- The contact points shall be Silver plated.
- The hand guard shall be of high-impact Nylon to keep the hands away from energized area

b) Jumper Clamp:

- Current-carrying parts shall be made of copper alloy,
- The handles shall be made of high-impact polyethylene,

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

- The hand guard shall have wide flange to keep the hands away from energized area.

c) Jumper Cable:

- The cable shall be manufactured to ASTM F 2321-03 and ASTM B33 and have the features of the cable as detailed in clause 4.3.1.

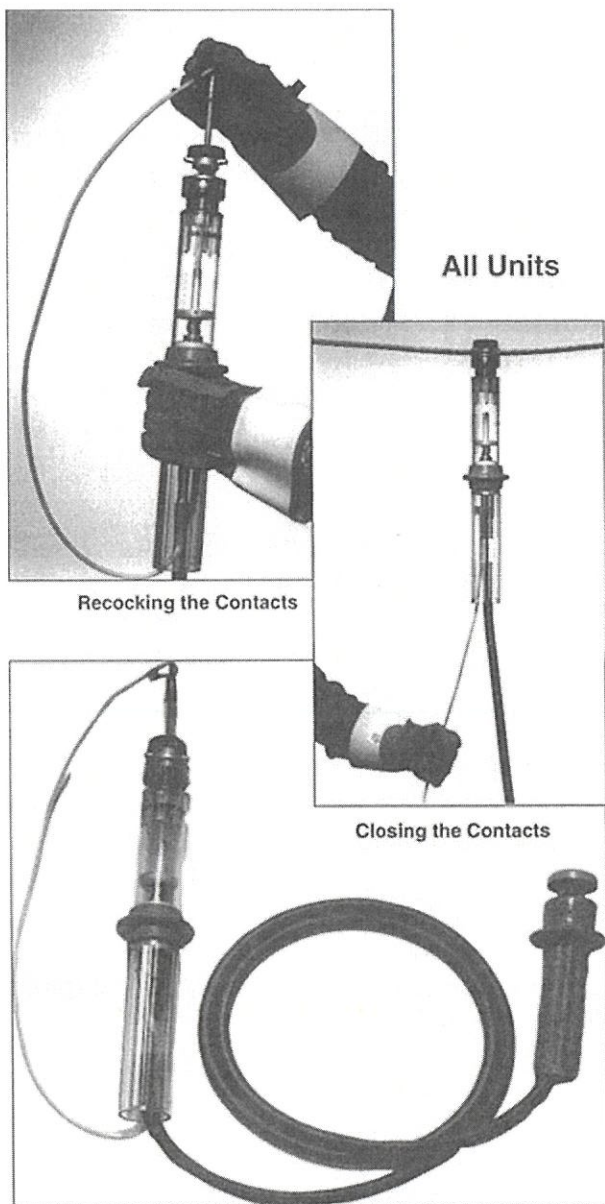


Fig. 5a: Pre-assembled load-pickup tool complete with jumper cable sets,

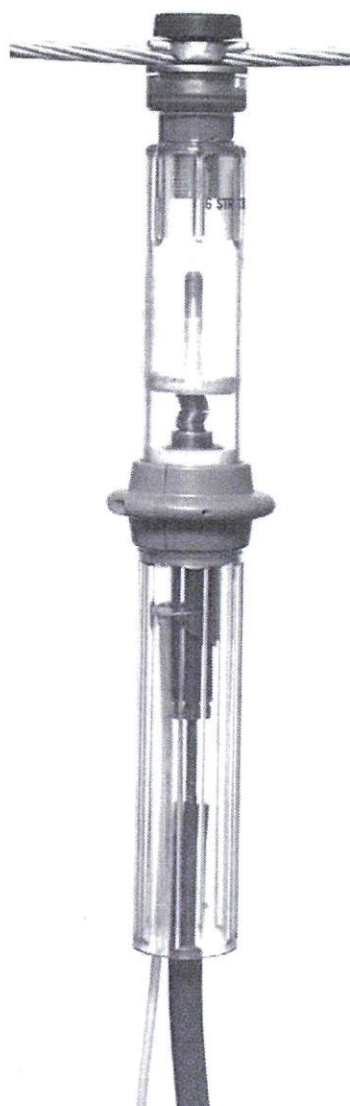
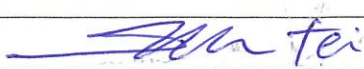


Fig. 5b: Load pick-up jumper clamp connected to a conductor

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26



Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26



4.4. QUALITY MANAGEMENT SYSTEM

- 4.4.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the Jumpers & Load Pickups design, material, workmanship, tests, service capability, maintenance and documentation, will fulfill the requirements stated in the contract documents, standards, specifications and regulations.
- 4.4.2. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2008.
- 4.4.3. The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications including copy of valid and relevant ISO 9001: 2008 certificate shall be submitted with the tender for evaluation.
- 4.4.4. The bidder shall indicate the delivery time of the Jumpers & Load Pickups, manufacturer's monthly & annual production capacity and experience in the production of the type and size of items being offered.

5.0. TESTS AND INSPECTION

- 5.1. The jumpers and load pick-ups shall be inspected and tested in accordance with the requirements of NEMA WC 74, ASTM F2321-03, ASTM F711-02, ISO 1461 and OSHA Regulation 1910.269 standards. It shall be the responsibility of the supplier to perform or to have performed the tests specified and whatever other tests he normally performs at works
- 5.2. Copies of previous Type Tests Reports issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate to ISO/IEC 17025 for the same third party testing laboratory used shall also be submitted with the tender document (all in English Language)
- 5.3. Copies of type test reports to be submitted with the tender (by bidder) for evaluation shall be as stated below:
 - a) Aging test.
 - b) Voltage test.
 - c) Insulation Resistance.
 - d) Partial Discharge Extinction (Corona) Level.
 - e) Discharge Residence.
 - f) Dielectric test on the epoxy glass rod
 - g) Fatigue and humidity penetration tests on cable with end fittings

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

- h) Tension tests on cable end fittings
- i) Tests on clamps, permanent connections points and connection
- j) Short circuit current tests.

5.4. Routine and sample test reports for the Jumpers & Load Pickups to be supplied shall be submitted to KPLC for approval before shipment/delivery of the goods. KPLC Engineers will witness tests at the factory before shipment.

5.5. Tests to be witnessed by KPLC Engineers at the factory before shipment shall include the following:

- a) Visual and dimensional inspection
- b) Durability of marking
- c) Voltage test.
- d) Insulation Resistance.
- e) Discharge Residence.
- f) Robustness of connecting lead and connections.
- g) Tests for the selection of cables
- h) Fatigue and humidity penetration tests on cable with end fittings
- i) Tension tests on cable end fittings
- j) Tests on clamps, permanent connections points and connection
- k) Short circuit current tests.

5.6. On receipt of the goods KPLC may perform any of the tests specified in order to verify compliance with this specification. The supplier shall replace without charge to KPLC the Jumpers & Load Pickups, which upon examination, test or use; fail to meet any of the requirements in the specification

6.0. MARKING AND PACKING

6.1. MARKING

6.1.1. The jumpers and load pick-ups shall be marked in a permanent manner with the following information (in English Language):

a) Marking on earthing and short-circuiting devices

- Short circuit current rating
- BIL rating
- Continuous current rating
- Operating voltage

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

b) Marking on clamps

- Tensile strength
- Continuous current rating
- Cable size in terms of cross-sectional area and total length

c) Marking on cable

The cable shall clearly and permanently be embossed with the following information throughout the length of the oversheath:

- Maximum rated current
- Voltage rating
- The number of cores, type and nominal area of conductors
- Uo/U kV xxxxx (insulation type) xxxx (material type) CABLE PROPERTY OF KPLC e.g. 8.3/15kV 35 SQ. MM EPR CU CABLE PROPERTY OF KPLC
- Weight in kilograms per kilometre.

d) Marking on other components

- Identity of the manufacturer
- Type reference or catalogue number of the tool.
- The standard of manufacture (ASTM F711-02, ASTM F2321-03 etc.)
- Warning or notices if applicable for specific tools.
- Words "**PROPERTY OF KPLC**".

6.2. PACKING

- 6.2.1.** The packaging for jumpers, load pick-up shall be on an easy-to-see, bright-yellow protective bag made of double vinyl-laminated open-weave nylon cloth which shall be lightweight and durable with nylon stitching throughout.
- 6.2.2.** It shall have a plywood bottom which is covered inside and out with metal skids on the bottom of the bag and a full-separating closure constructed with heavy-duty snaps and heavy webbing handles.
- 6.2.3.** The cases shall be furnished with an illustrated operating and maintenance instructions for the items.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed:

Date: 2013-09-26

7. DOCUMENTATION

7.1 The bidder shall submit its tender complete with technical documents required by Annex A (Guaranteed Technical Particulars) for tender evaluation. The technical documents to be submitted (all in English language) for tender evaluation shall include the following:

- Guaranteed Technical Particulars signed by the manufacturer;
- Copies of the Manufacturer's catalogues, brochures, drawings and technical data;
- Sales records for the last five years and at least four customer reference letters;
- Details of manufacturing capacity and the manufacturer's experience;
- Copies of required type test reports by a third party testing laboratory accredited to ISO/IEC 17025;
- Copy of accreditation certificate to ISO/IEC 17025 for the third party testing laboratory;
- Manufacturers letter of authorization, ISO 9001:2008 certificate and other technical documents required in the tender.

7.2 The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:

- Guaranteed Technical Particulars signed by the manufacturer;
- Design Drawings with details of Jumpers & Load Pickups to be manufactured for KPLC.
- Quality assurance plan (QAP) that will be used to ensure that the design, material; workmanship, tests, service capability, maintenance and documentation will fulfill the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2008
- Detailed test program to be used during factory testing;
- Marking details and method to be used in marking the Jumpers & Load Pickups;
- Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the Jumpers & Load Pickups for The Kenya Power & Lighting Company;
- Packaging details (including packaging materials).

7.3 The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the Jumpers & Load Pickups to KPLC stores.

Issued by: Head of Section, Tech Standards & Specifications

Signed:

Date: 2013-09-26

Authorized by: Head of Department, Research & Development

Signed:

Date: 2013-09-26

ANNEX A: Guaranteed Technical Particulars *(to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, details of manufacturing capacity, the manufacturer's experience and copies of complete type test reports for tender evaluation, all in English Language)*

Tender No.

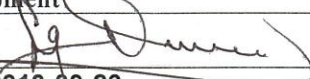
Clause number	Bidder's offer (indicate full details of the offered Jumpers, Insulated Hanger and Load Pick-Up Tool Sets for each requirement of the specification)
Manufacturer's Name and address	
Country of Manufacture	
Bidder's Name and address	
1. Scope	
1.1-1.6	
2. Applicable Standards	
3. Terms & Definitions	
3.1	
3.2 Abbreviations	
3.2.1-3.2.9	
4. Requirements	
4.1 Service Conditions	
4.1.1-Physical conditions (a-d)	
4.1.2- Approach & Insulation Distance Information	
4.1.2.1-4.2.2	
4.2 General Requirements	
4.2.1 – 4.2.7	
4.3: Specific requirements	
4.3.1: Insulated Jumper Sets	
4.3.1.1-4.3.1.9.	
4.3.2: By-pass Jumpers	
4.3.2.1: By-pass Jumpers – 15kV	
4.3.2.1.1-4.3.2.1.10	
4.3.2.2. By-pass Jumper – 35kV	
4.3.2.2.1-4.3.2.2.5	
4.3.3: Insulated Hanger	
4.3.3.1-4.3.3.3	
4.3.4. Load Pick Up Tools	

Issued by: Head of Section, Tech Standards & Specifications

Signed: 

Date: 2013-09-26

Authorized by: Head of Department , Research & Development

Signed: 

Date: 2013-09-26

Clause number	Bidder's offer (indicate full details of the offered Jumpers, Insulated Hanger and Load Pick-Up Tool Sets for each requirement of the specification)
4.3.4.1-4.3.4.12	
4.3.4.13 Design features (a-d)	
4.3.4.14: Construction features	
a) - Load Pick Up	
b) - Jumper Clamp	
c) - Jumper Cable	
4.4 Quality Management System	
4.4.1 – 4.4.4	
5. Tests & Inspection	
5.1 – 5.6	
6. Marking & Packing	
6.1.1 Marking	
a) Marking on earthing and short circuiting devices	
b) Marking on clamps	
c) Marking on cables	
d) Markings on other components	
6.2 Packing	
6.2.1 – 6.2.3	
7. Documentation	
7.1 – 7.3	

.....
Manufacturer's Name, Signature, Stamp and Date

**Issued by: Head of Section, Tech Standards &
 Specifications**

Signed:

Date: 2013-09-26

**Authorized by: Head of Department , Research &
 Development**

Signed:

Date: 2013-09-26

11

