

CPRI

TEST REPORT



Central Power Research Institute

(A Govt. of India Society)

P.B.No. 8066, Sadashivanagar Post Office,
Sir C.V. Raman Road,
Bangalore - 560 080 (INDIA)



**HIGH POWER LABORATORY
CENTRAL POWER RESEARCH INSTITUTE,
P. B.NO. 8066, SADASHIVANAGAR SUB P.O
PROF. SIR.C.V. RAMAN ROAD, BANGALORE-560 080, INDIA
PHONE: + 91- (0) 80-23600574, FAX: + 91 (0) 80-23601213**

PRELIMINARY REPORT

Sheet No. 1 of 2

Dated : 09/06/2010

CPRI

Preliminary Report Number

: HPL10101

Customer

: M/s. Krishna Energy (P) Ltd.,
D P : 69, SIDCO Industrial Estate,
Thirumudivakkam,
Chennai - 44.

Manufacturer

: M/s. Krishna Energy (P) Ltd.,
DP : 69, SIDCO Industrial Estate,
Thirumudivakkam,
Chennai - 44.

Sample

: 11kV, 630A, MV Switchgear Panel.

Date(s) of test

: 26th May 2010

Description of the sample tested

Type

: - SAMPLE -

Designation

: ---

Serial number

: - SAMPLE -

CPRI Sample Code No.

: SC10S0816

Number of Phases

: Three

Rated voltage

: 11kV

Rated current

: 630A

Rated frequency

: 50 Hz

Rated insulation level

: 28 kV rms / 75 kV peak

Rated short-time withstands current and peak

Withstand current

: 25 kA rms for 3.0 Secs. & 52.5 kA peak

Rated internal arc current

: 25 kA rms for 0.1 Second

Accessibility type

: A

Tests conducted :-

Type of test

: Internal Arc Test

Tested as per

: Customer Instruction

Ratings for which tested

: Refer sheet 2 of 2

Deviation if any

: Nil

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Note: This is only a Preliminary Report. This Report shall not be considered as a final Report of assessment of performance of the sample tested.

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Preliminary Report Number: HPL10101

Sheet No. 2 of 2

TEST RESULTS**CPRI**

Sample : 11kV, 630A, MV Switchgear: Panel.

Condition of Sample before test : New

Internal Arc Test: -

Oscillogram Number	Peak (kA)	Phase Current (kA rms)			Average (kA rms)	Duration (Secs)
		Phase 1	Phase 2	Phase 3		
HPL10101.S005	65.5	25.5	26.2	25.5	25.7	0.1

Observation during test : No abnormalities

Evaluation Criteria & Observations are as follows,

SL.NO	Evaluation Criteria given by the customer	Condition of the Sample after test
1.	The front accessible doors should not force open during the test. Door formation accepted up to the indicator position which will be placed at 300mm from the front of the accessible doors.	Front door found bulged, but accessible doors did not force open.
2.	The hinged vented louver panels attached to the rear (Bottom & Middle) doors can open during the test to evacuate the high pressure gases & projected parts developed in the cable/bus bar chamber.	Hinged vented louver panels at rear doors operated.
3.	Projection of small parts up to an individual mass of 60gms are accepted from the entire cubicle.	View glass broken into pieces and fallen down along with the rubber gasket. i). Glass Pieces weights are, *G1 = 154 grams, *G2 = 62 grams, *G3 = 84 grams, G4 = 50 grams and *G5 = 124 grams. ii). *Gasket = 450 grams and Operating hole slider = 12 grams.
4.	Arcing does not cause holes in the front accessible sides and/or right lateral wall of switchgear up to a height of 2Mtrs.	No holes on the enclosure due to arcing.
5.	The enclosure remains connected to the earthing point.	Earthing circuit found intact. No fragmentation of enclosure or holes observed.
6.	The indicators positioned in front accessible side should not catch fire due to gases only.	No ignition of the indicators occurred.
7.	The indicators positioned in front right lateral side should not catch fire up to a distance of 600mm length measured from the intersecting edge of front indicator and front lateral indicator.	Lateral left side and right side enclosures found bulged, but did not extended to wall. Front, right lateral side and horizontal indicators found intact and did not ignite.

Remarks: *The sample tested does not meet the requirement of one of the evaluation criteria.(i.e., Projection of small parts up to an individual mass of 60gms are accepted from the entire cubicle)as given by the customer for the internal arc test on the panel.


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Preliminary Report Number: HPL10101

Sheet No. 2 of 2

TEST RESULTS**CPRI**

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Condition of Sample before test : New

Internal Arc Test: -

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Bangalore 560 080



**ADDITIONAL COPY 2
TEST REPORT**

CPRI

Test Report Number : HPL10101 **Date:** 14/06/2010

Name & Address of the Customer : M/s. Krishna Energy (P) Ltd.,
D P : 69, SIDCO Industrial Estate, Thirumudivakkam,
Chennai – 600 044.

Name & Address of the Manufacturer: M/s. Krishna Energy (P) Ltd.,
D P : 69, SIDCO Industrial Estate, Thirumudivakkam,
Chennai – 600 044.

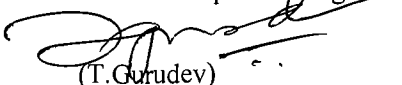
Particulars of sample tested : 11 kV, 630A, MV Switchgear Panel.
Type : SAMPLE
Designation : ---
Serial number : SAMPLE
Number of samples tested : One
Date(s) of Test(s) : 26th May 2010
CPRI Sample Code No. : SC10S0816
Condition of sample on receipt : New


Particulars of tests conducted : Arcing due to internal fault in Cable & Busbar Chamber
Test in accordance with Standard/Specification : As per Customer's requirement.
Sampling Plan : Nil
Customer's requirement : Internal Arc Test at 11 kV & 25 kA rms for 0.1 Second in Cable and Busbar Chamber.
Deviation if any : Nil
Remarks if any : Refer Sheet No. 5 of 6

Name of the witnessing persons
Customer's representative : Mr. P.Ramachandran, Manager, R & D, and
Mr. Bhanu Srilla, ENERCON Engineering.
Other than Customer's representative : Mr. Sunny James, Mrs. G.Rohini & Mrs. Kusuma Kumari,
GE Transportation System, India and
Mr. K.Venkatasubramanian, TATA Projects Ltd.,
Hyderabad.

Test subcontracted with address of the laboratory : Nil

Documents constituting this report (In words)
Number of sheets : Six
Number of oscillograms : One
Number of graphs : None
Number of test circuit diagrams : One
Number of photographs : Three
Number of sample drawings : Eleven


(T.Gurudev)
TEST ENGINEER


ADDITIONAL DIRECTOR



CPRI


Test Report No. HPL10101

Sheet No.2 of 6

DESCRIPTION OF SAMPLE TESTED

(As assigned by the manufacturer)

Sample	: 11 kV, 630A, MV Switchgear Panel.
Type	: SAMPLE
Designation	: ---
Serial number	: SAMPLE
Class	: Indoor
Number of phases	: Three
Rated voltage	: 11 kV
Rated normal current	: 630 A
Rated frequency	: 50 Hz
Rated Insulation Level	: 28 kV rms / 75 kV peak
Rated short-time current & Peak with stand current	: 25 kA rms & 62.5 kA peak
Rated short circuit duration	: 1 Sec.
Rated internal arc current and Duration of the test	: 25 kA rms for 0.1 Sec
Type of termination	: Flexible
Accessibility Type	: "A"


(T. Gurudev)
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Test Report No. HPL10101

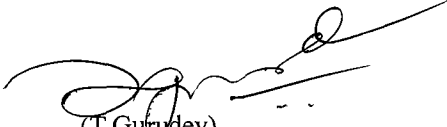
Sheet No.4 of 6

TEST CONDITIONS

Type of test : Internal Arc Test
Test circuit drawing No. : CRTL/HPL/CB50
Condition before test : New
Mounting arrangement : HV panel assembly was mounted in normal conditions & insulated with hylam sheet with respect to ground. The arc was created by melting of about 0.5 mm diameter copper wire connected across phase terminals inside the Cable & Busbar chamber.

Test connections

Number of phases : Three
Frequency : 50 Hz
Neutral : Isolated
Assessment of the test : Accessibility type-A


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Test Report No. HPL10101

Sheet No.5 of 6

CPRI

TEST RESULTS

Sample : 11kV, 630A, MV Switchgear Panel.
Condition of Sample before test : New

Internal Arc Test on the Cables & Bus bar Chamber: -

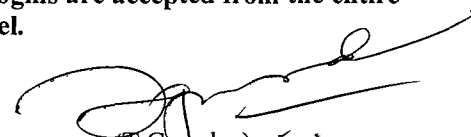
Oscillogram Number	Peak (kA)	Phase Current (kA rms)			Average (kA rms)	Duration (Secs)
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(T. Gurudev)
TEST ENGINEER



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Test Report No. HPL10101

Sheet No.6 of 6

NOTE

- a) This is not a certificate of rating. A certificate of rating is not issued as only limited tests as requested by the customer were carried out.
- b) The test results relates only to the items tested
- c) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written approval of CPRI.
- d) Corrections/ erasings invalidate the test report.
- e) Any anomalies/discrepancies in this test report should be brought to our notice within 45 days from the date of issue.

Additional information:

CPRI issues following types of reports / certificates:

- a) Test Report:

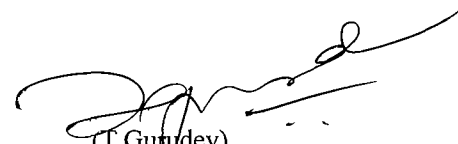
The test report contains the record of the values of test parameters as obtained during testing, the physical condition of the apparatus during / after the test (s) and copy of Oscillogram (s). Test report is issued when partial tests are performed as against the complete test requirement for proving specific ratings.

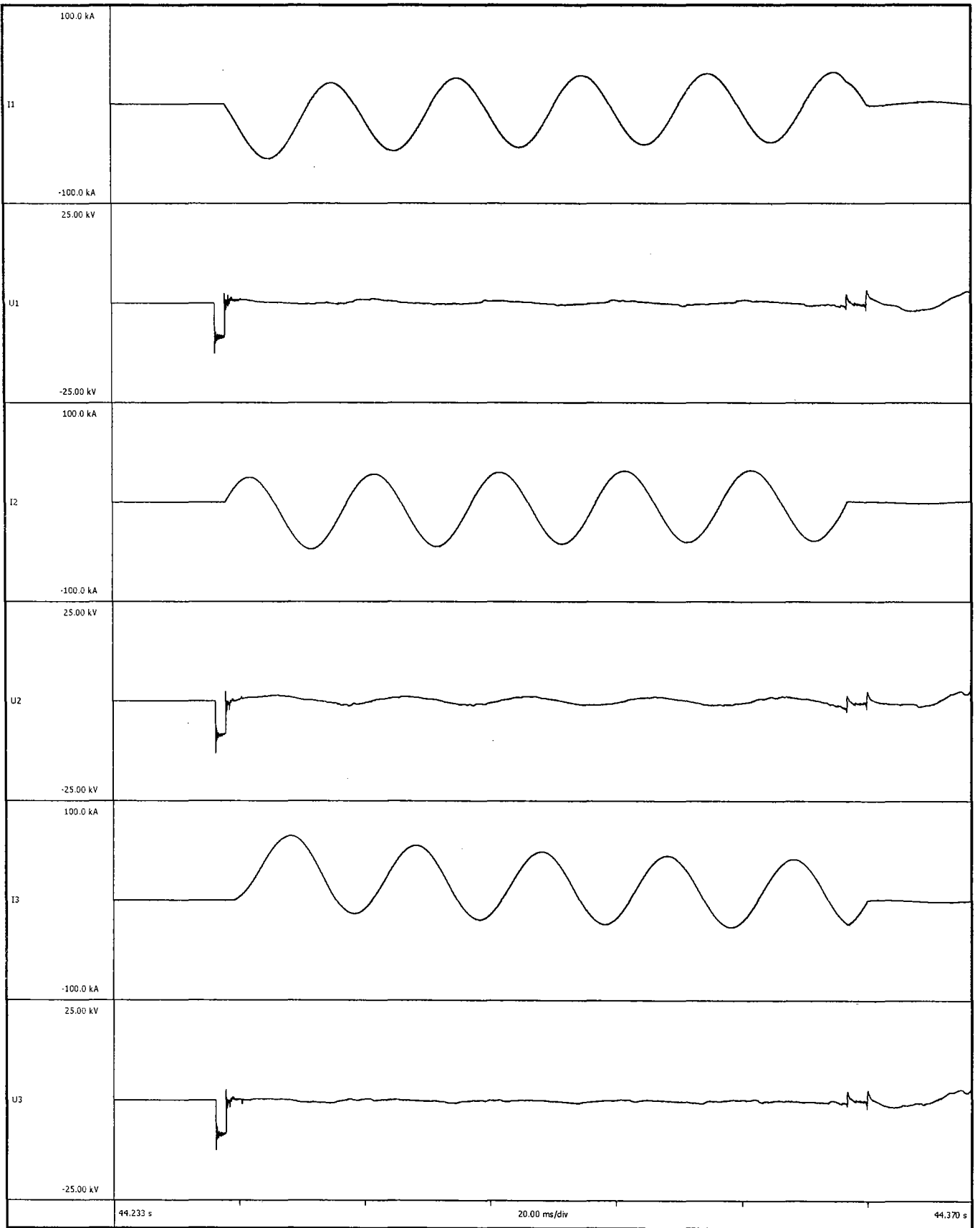
- b) Sealed Certificate:

The sealed certificate is issued, on request and payment of the prescribed charges thereof only when an apparatus of particular type has satisfactorily passed all the specified ratings compliance with the conditions stipulated in a published National or international standard.


- c) CPRI issues the following type test certificates based generally on STL Guidelines.

- I. Type test certificate of Short circuit performance
- II. Type test certificate of Switching performance
- III. Type test certificate of Temperature Rise Performance
- IV. Type test certificate of Dielectric Performance
- V. Type test certificate of complete type test.


(T.Gurudev)
TEST ENGINEER



HPL, CPRI, Bangalore


Test Engineer

HPL10101S005

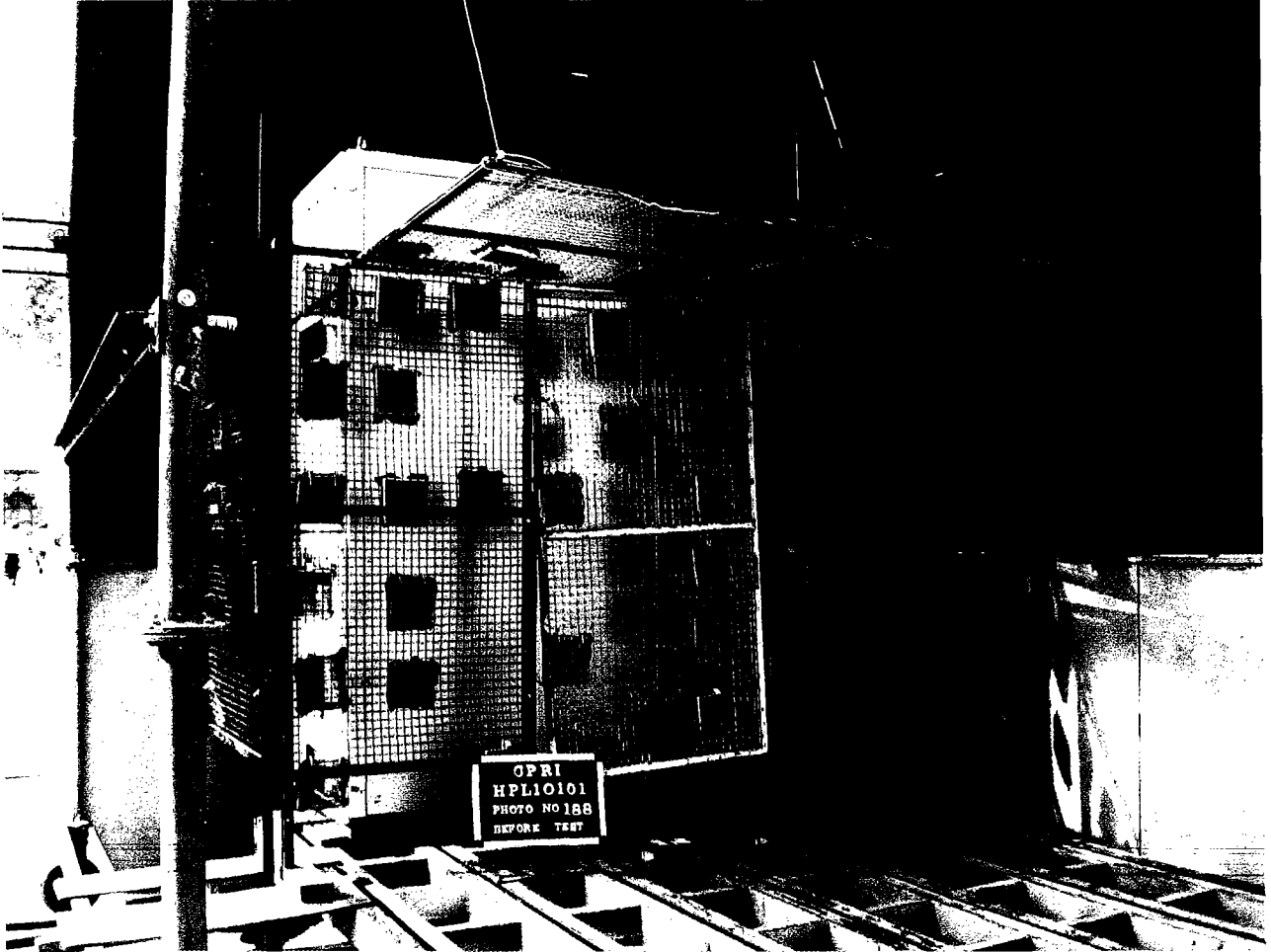
5/26/2010



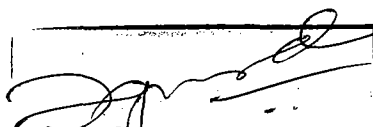
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Test Report No. HPL10101



Photograph No. 188 : Mounting arrangement before test

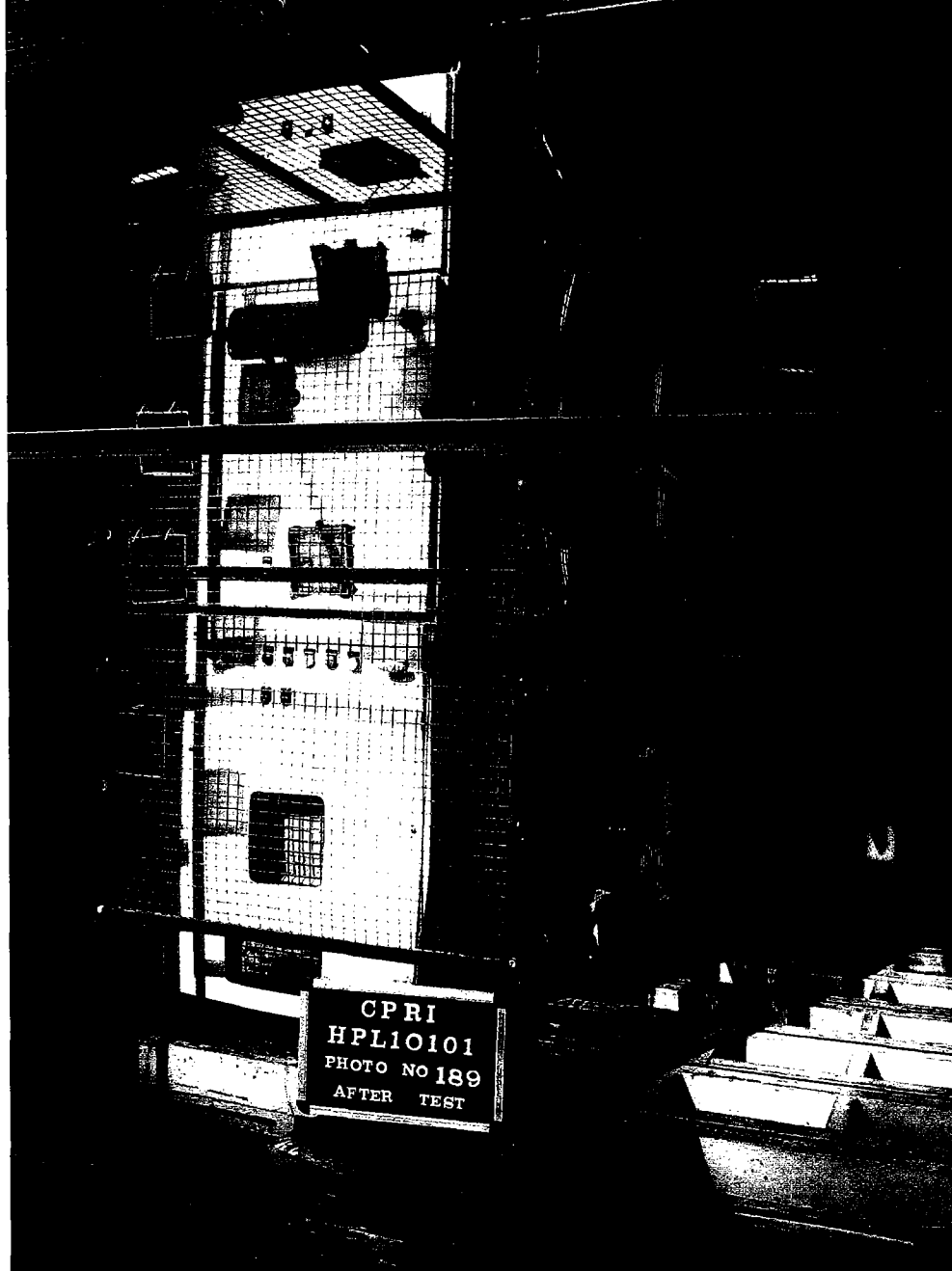

परीक्षण अभियन्ता / Test Engineer
उच्च शक्ति प्रयोगशाला / H.P. LAB
पि.पी.आर.आई. / CPRI
बंगलूर / Bangalore



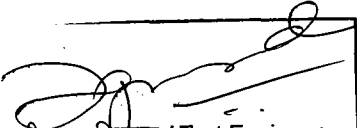
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Test Report No. HPL10101



Photograph No. 189 Condition of the sample after test (Front View)

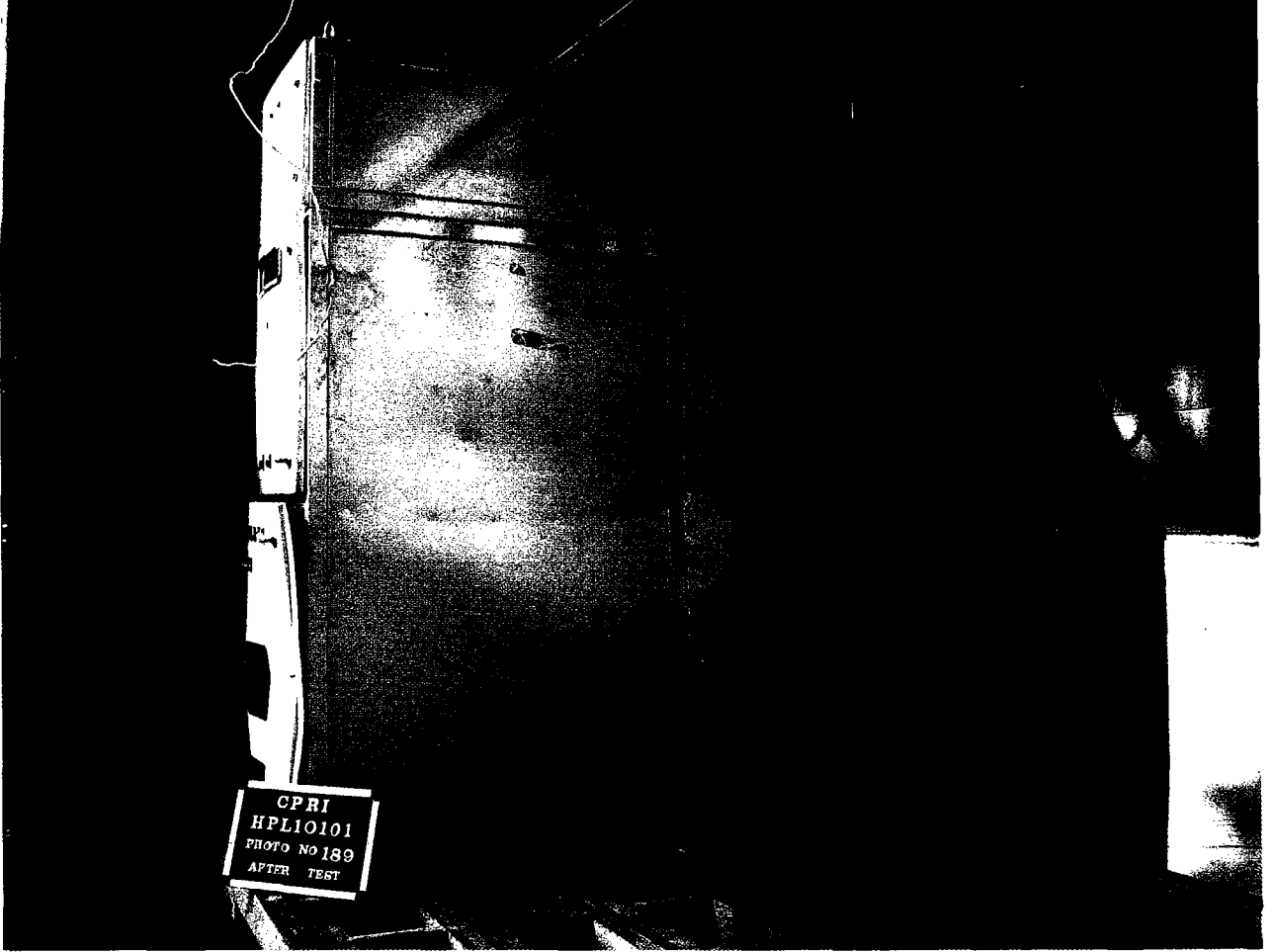

परीक्षण अभियन्ता / Test Engineer
उच्च शक्ति प्रयोगशाला / H.P. LAB
सी.पी.आर.आई. / CPRI
बैंगलूर / Bangalore



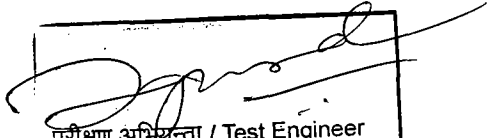
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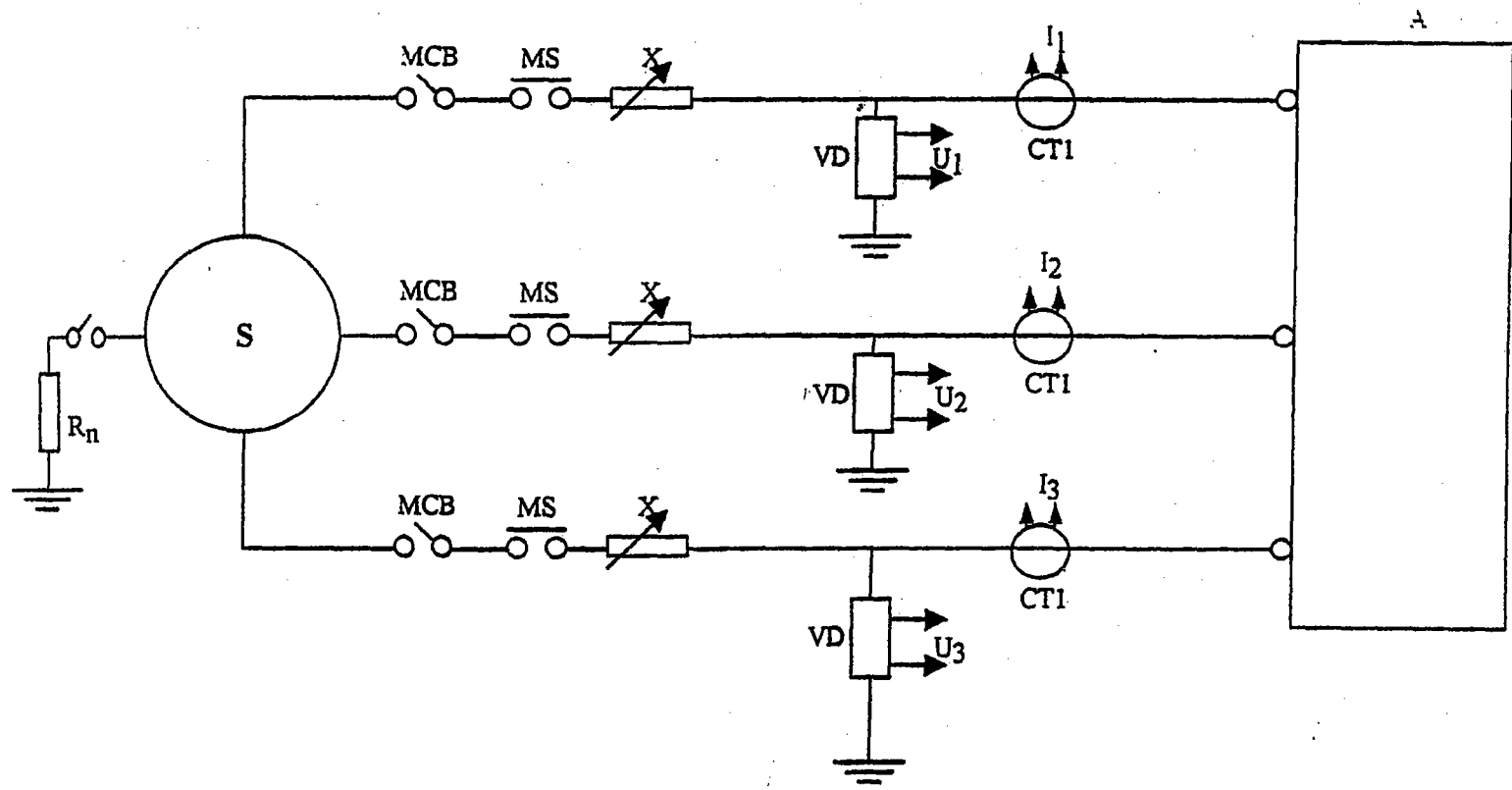
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Test Report No. HPL10101




Photograph No. 189 Condition of the sample after test (Right Lateral side view)


परीक्षण अभियन्ता / Test Engineer
उच्च शक्ति प्रयोगशाला / H.P. LAB
सी.पी.आर.आई. / CPRI
बैंगलूर / Bangalore



LEGEND

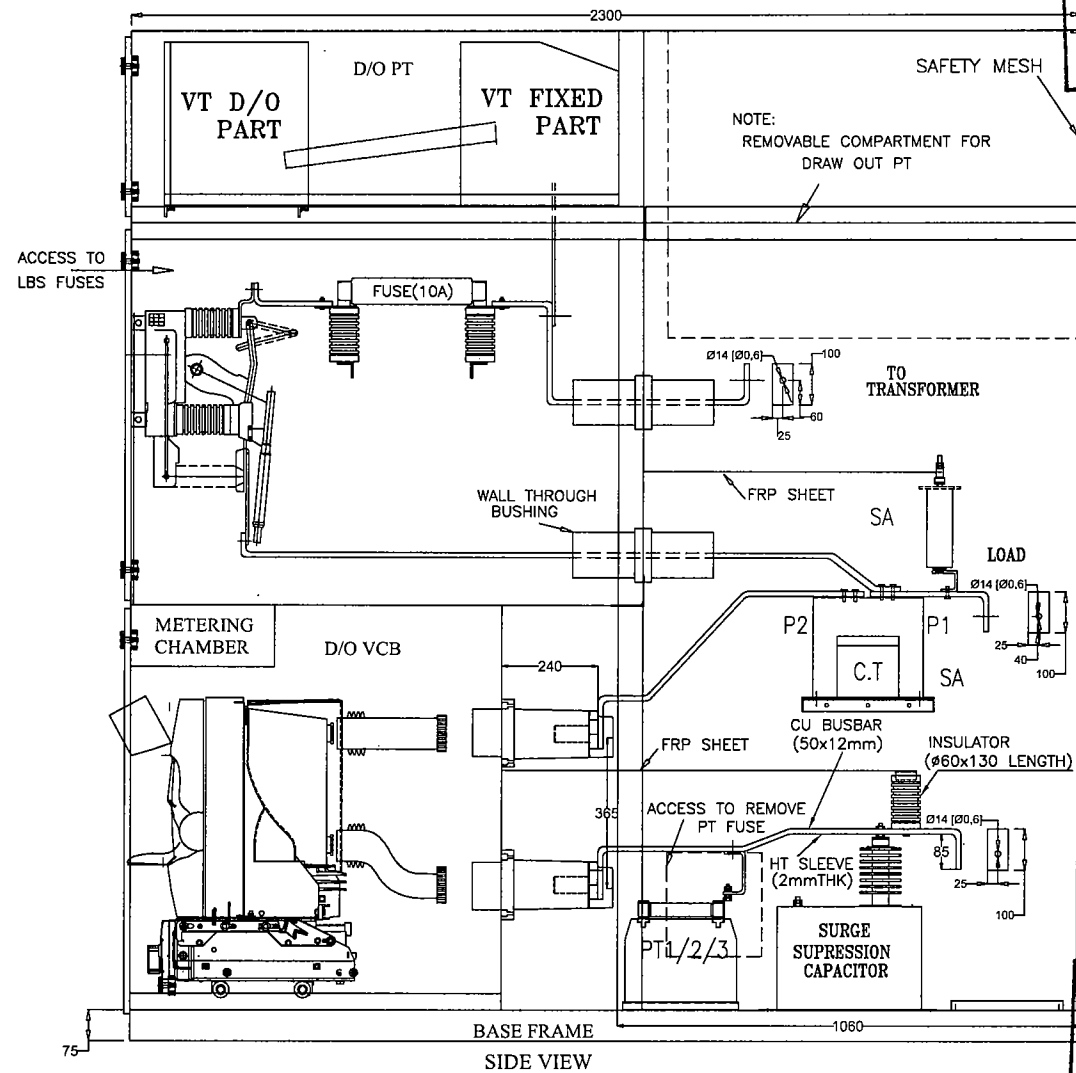
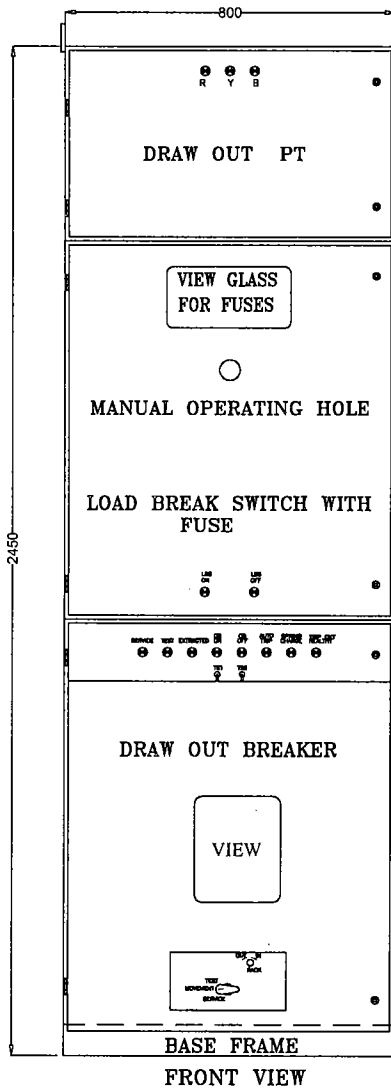
- S 2500 MVA short circuit generator
- R_n Generator neutral grounding resistor
- MCB Master circuit breaker
- MS Make switch
- X Variable current limiting reactor
- VD Voltage divider
- CT1 Measuring current transformer
- A Apparatus under test


Test Engineer

HIGH POWER LABORATORY CPRI BANGALORE
Schematic diagram of test circuit
Drg. No. CRTL/HPL/CB 50

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कें.वि.अ.सं. द्वारा इस रेखाचित्र का स्थापन जहाँ कहीं भी स्तंभ की डि.डि. वि. कार्य तक ही सीमित है।
 THE VERIFICATION OF THIS DRAWING BY CPRI IS LIMITED TO DIMENSIONAL CHECKS ONLY WHEREVER POSSIBLE



DETAIL'S	DRAWING No
1	MHT03144-00
2	MHT03147-00
	MHT03147-01
3	MHT03148-00
	MHT03148-01
4	MHT03149-00
5	MHT03150-00
6	MHT03151-00
7	MHT03152-00
8	MHT03153-00

परीक्षण अभियन्ता / Test Engineer
 उच्च शक्ति प्रयोगशाला / H.P. LAB
 सी.पी.आर.आई. / CPRI
 बेंगलूर / Bangalore

NOTE :
 PT, SURGE ARRESTOR, SURGE CAPACITOR & CT NOT COVERED IN INTERNAL ARC TEST (INTERNAL ARC TEST ON BUSBAR REAR CHAMBER ONLY)

रिपोर्ट क्रमांक
 से संबंधित दस्तावेज
 Document Pertaining to
 Report No. H.P.L.10.101

TYPE: INDOOR	QTY: 1 NO	ALL DIMENSION ARE IN mm	TITLE: GA FOR 1/D METAL CLAD SWITCHGEAR FOR 11KV,630A,25kA/1sec PANEL	SCALE : NTS		
REV. DATE	DESCRIPTION	DRAWN	CHD.	APPD.	SIGN	DATE.
1	13/05/10	BJM	SN	KST		26/06
0						
CUSTOMER : ENERCON		PROJECT :		JOB REF: KEHT0040		
P.O.REF :						

MFG BY: KRISHNA ENERGY PRIVATE LIMITED.,
 DP-69, SIDCO Industrial Estate, Thirumudivakkam, Chennai-44
 www.krishnaenergy.net

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