

**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)**



CPRI

**SHORT CIRCUIT LABORATORY  
CENTRAL POWER RESEARCH INSTITUTE**

(Member of STL)

P. B. NO. 8066, SADASHIVANAGAR POST OFFICE  
SIR C.V. RAMAN ROAD, BANGALORE - 560 080 (INDIA)  
Phone : +91 (0) 80 - 23602662 Fax : +91 (0) 80 - 23601213



T-0010

Sheet 1 of 4

**TEST REPORT**

<b>Test Report Number</b>	SC09392B	<b>Dated:</b> 11 <sup>th</sup> August, 2009
<b>Name &amp; Address of the Customer</b>	M/s. Krishnaa Energy Private Limited, DP-69, SIDCO Industrial Estate, Thirumudivakkam, Chennai - 600 044, Tamilnadu.	
<b>Name &amp; Address of the Manufacturer</b>	M/s. Krishnaa Energy Private Limited, DP-69, SIDCO Industrial Estate, Thirumudivakkam, Chennai - 600 044, Tamilnadu.	
<b>Particulars of sample tested</b>	11 kV Earth Switch	
<b>Condition of the sample on Receipt</b>	New	
Type	Indoor	
Designation	---	
Serial Number	---	
Number of samples tested	One	
Date (s) of test (s)	26 <sup>th</sup> June, 2009	
CPRI sample code no(s).	SC09S1233	
<b>Particulars of tests conducted</b>	Short-Time Withstand Current and Peak Withstand Current	
Test in accordance with	Sub-clause 3.3 of IS : 9921 (Part 4) - 1985 (Reaffirmed 2002)	
Standard / specification	Not applicable	
Sampling plan	20 kA rms for 1.0 second & 50 kA peak	
Customer's requirement	None	
Deviations if any		
<b>Name of the witnessing persons</b>		
Customer's representative	Mr. P. Ramachandran, Manager – R&D Mr. M. Venkatesan, Manager - QC	
Other than customer's representative	None	
Test subcontracted with address of the laboratory	None	
<b>Documents constituting this report (In words)</b>		
Number of sheets	Four	
Number of oscillograms	One	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	One	
Number of drawings	Twenty three	

(G. Venkataramanaiah)  
**Test Engineer**



(G. Sengupta)  
**Additional Director**

AUTHORISED SIGNATORIES



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Report Number: SC09392B

**Description of sample tested (rating as assigned by the manufacturer)**

Test sample	Earth Switch
Type	Indoor
Designation	---
Serial Number	---
Rated voltage	11 kV
Rated current	---
Number of poles	Three
No. of breaks / pole	Single
Frequency	50 Hz
Inter-pole centre distance	210 mm
Rated short-time withstand current & peak withstand current	20 kA rms for 1.0 second & 50 kA peak

**Documents attached to this report**

Oscillogram number(s)	SC09392B.S01
Photograph number(s)	SC09392B.PB1 & SC09392B.PA1
Test circuit diagram number(s)	CRTL/SC/STC-03A
Drawing number (s)	KEES 03-001 SHEET NO. 1 OF 1, KEES 03-002 SHEET NO. 1 OF 1, KEES 03-003 SHEET NO. 1 OF 1, KEES 03-004 SHEET NO. 1 OF 1, KEES 03-005 SHEET NO. 1 OF 1, KEES 03-006 SHEET NO. 1 OF 1, KEES 03-007 SHEET NO. 1 OF 1, KEES 03-008 SHEET NO. 1 OF 1, KEES 03-009 SHEET NO. 1 OF 1, KEES 03-010 SHEET NO. 1 OF 1, KEES 03-011 SHEET NO. 1 OF 1, KEES 03-012 SHEET NO. 1 OF 1, KEES 03-013 SHEET NO. 1 OF 1, KEES 03-014 SHEET NO. 1 OF 1, KEES 03-015 SHEET NO. 1 OF 1, KEES 03-016 SHEET NO. 1 OF 1, KEES 03-017 SHEET NO. 1 OF 1, KELBS 03-008 SHEET NO. 1 OF 1 REV. 0, KELBS 03-011 SHEET NO. 1 OF 1 REV. 0, KELBS 03-012 SHEET NO. 1 OF 1 REV. 0, KELBS 03-015 SHEET NO. 1 OF 1 REV. 0, KELBS 03-016 SHEET NO. 1 OF 1 REV. 0 & KELBS 03-017 SHEET NO. 1 OF 1 REV. 0.

  
Test Engineer



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Report Number: SC09392B

**Schedule of tests**

**SHORT-TIME WITHSTAND CURRENT AND PEAK WITHSTAND CURRENT TEST [Sub-clause 3.3]**

**Test Conditions**

Source

Short-circuit generator  
Number of phases Three, connected to the incoming terminals of the earth switch  
Frequency 50 Hz

Test sample

No. of poles Three  
Condition before test In clean & new condition, earth switch operable on no-load  
Mounting arrangement Horizontal [refer Fig. 1 of IS : 9921 (Part 4) - 1985]  
Inter phase distance y = 210 mm  
Conductor length from source x = 680 mm

Test details

Test circuit drawing number CRTL/SC/STC-03A  
Short-circuit applied On the outgoing terminals of the earth switch  
Short-circuit point Grounded

**Test results**

Oscillogram Number	Current (kA)		Duration seconds	Ambient Temp. °C	Contact Temp. °C	Observations
	Peak	RMS				
SC09392B.S01	56.10	R – 19.60 Y – 19.75 B – 19.65 Average: 19.67*	1.05	26	33 (fixed) 40 (moving) (Y-Phase)	<b>During test</b> : No abnormality  <b>After test</b> : Operable on no-load

\* Equivalent to 20.15 kA rms for 1.0 second

**High voltage power frequency withstand test after short-time withstand current & peak withstand current tests**

Test procedure	Observations
Power frequency voltage of 28kV rms for 1.0 min. was applied with earth switch in open condition between each pole & all other poles connected together and earthed	Withstood
Power frequency voltage of 28 kV rms for 1.0 min. was applied with earth switch in open condition between all incoming terminals connected together & all outgoing terminals connected together	Withstood

**Condition of the sample after short-time withstand current & peak withstand current test**

Condition of contacts

(a) Pole-1 No visible damage  
(b) Pole-2 No visible damage  
(c) Pole-3 No visible damage

Condition of Insulators

No visible damage

**Remarks:** The sample tested complies with the sub-clause of the standard referred to.

Test Engineer



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Report Number: SC09392B

**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 relate only to the item(s) 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 anomaly / discrepancy in the 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:

**Test Report:**

The test report contains the record of the values of test parameters as obtained during testing, the physical condition of the sample 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.

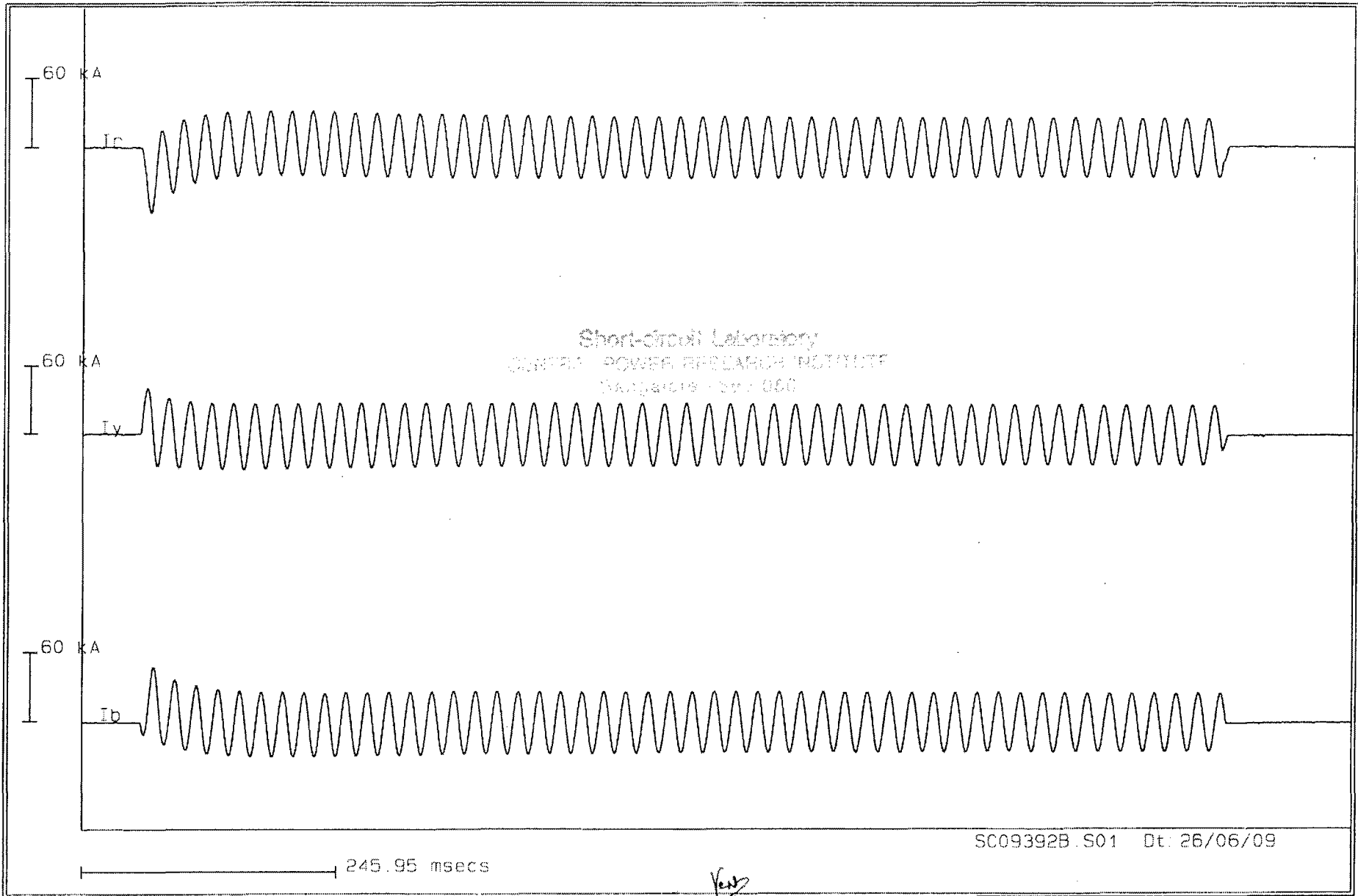
**Sealed Certificate:**

The sealed certificate is issued, on request and payment of the prescribed charges thereof only when the sample of particular type and rating has satisfactorily passed all the specified tests in compliance with the condition stipulated in a published National / International standard.

**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.

  
Test Engineer



*Ken*  
Test Engineer

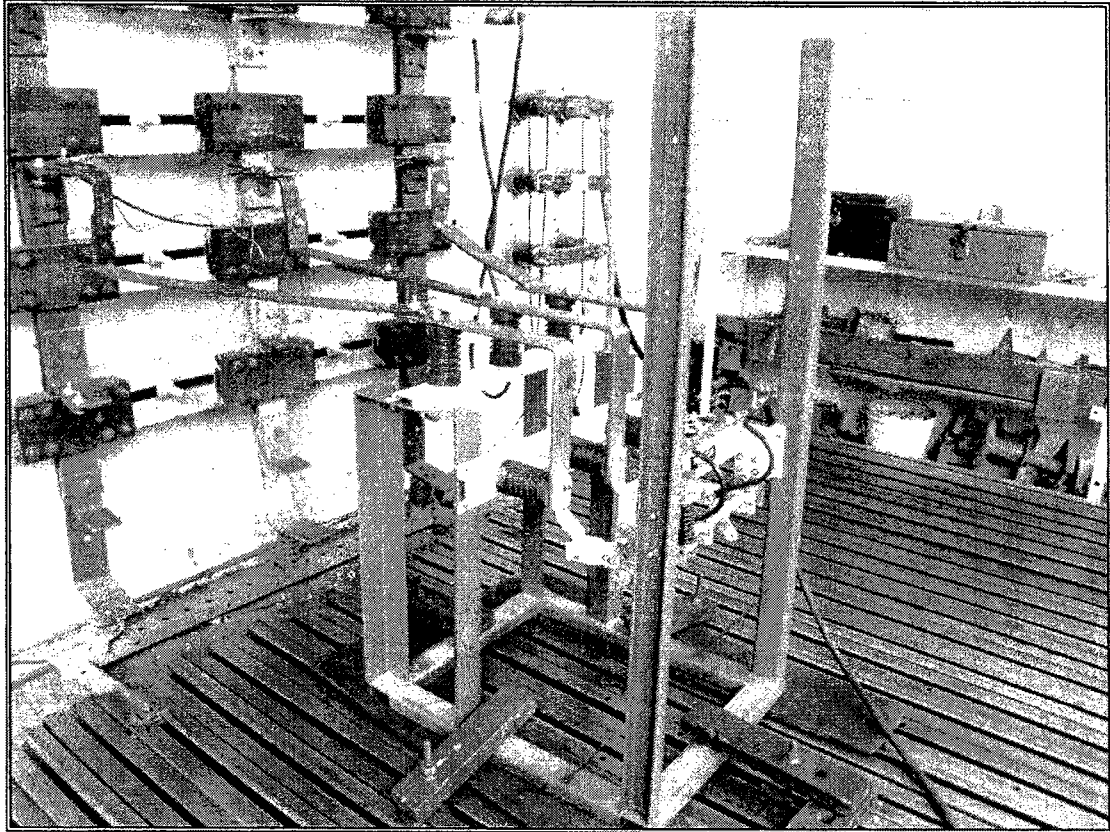


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Mounting arrangement (Before test)

SC09392B.PB1

*Yenb*  
Test Engineer

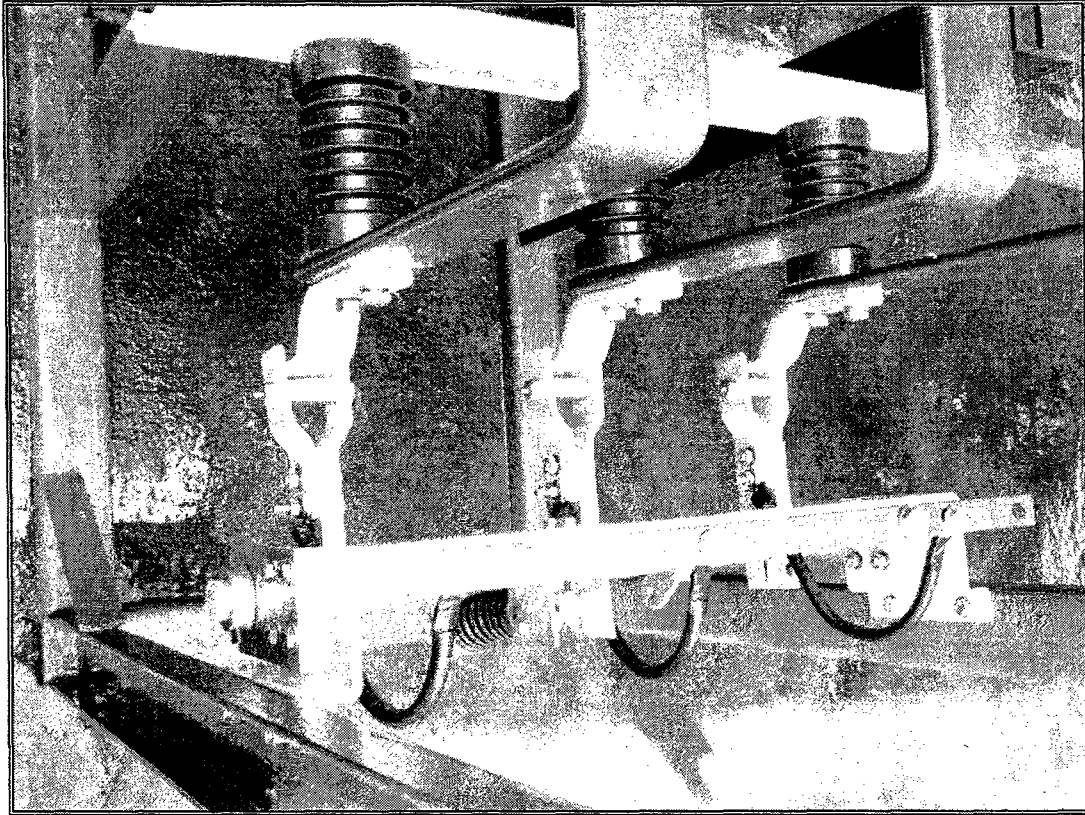


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Condition of the samples (After test)

SC09392B.PA1

*Var*  
Test Engineer

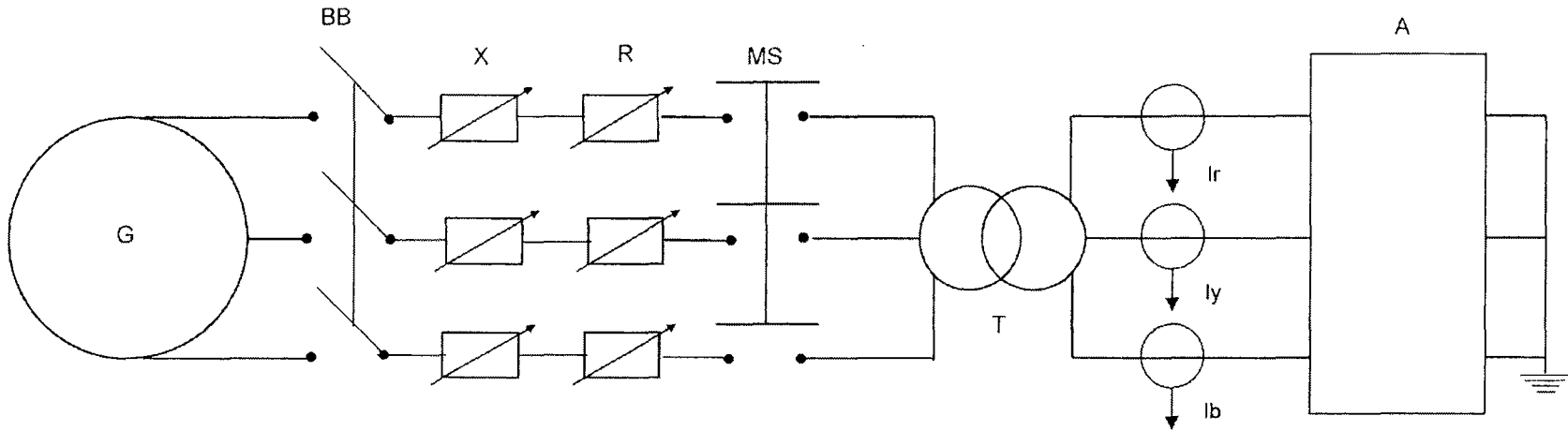




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### Schematic of main & measurement circuits - Three phase test

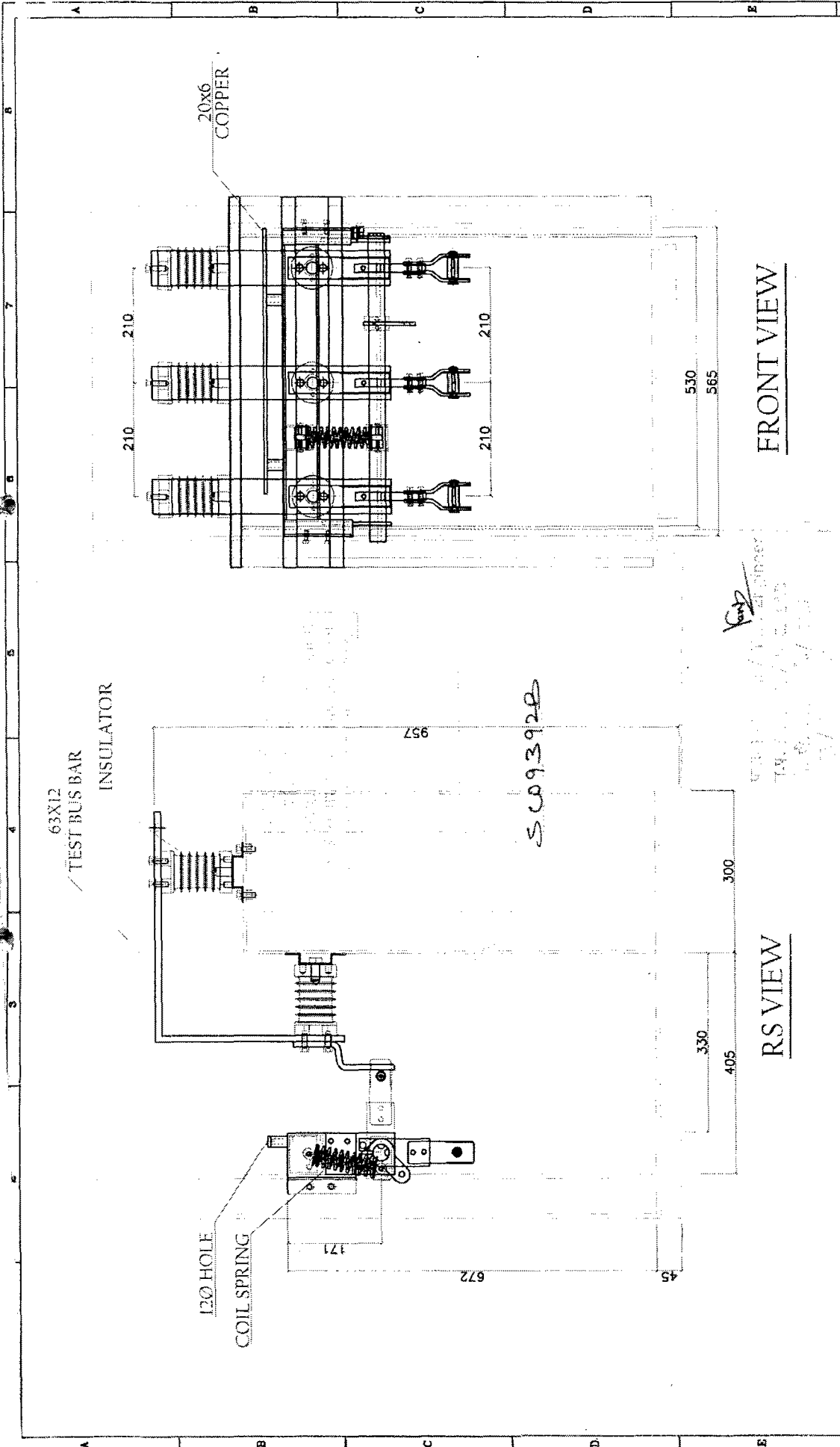
Circuit Number: CRTL/SC/STC-03A



G Short-circuit Generator  
BB Back-up Circuit breaker  
X Reactor  
R Resistor  
MS Make switch

T Transformer  
A Sample under test  
Ir, Iy & Ib Current sensors

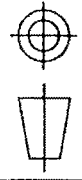
  
Test Engineer



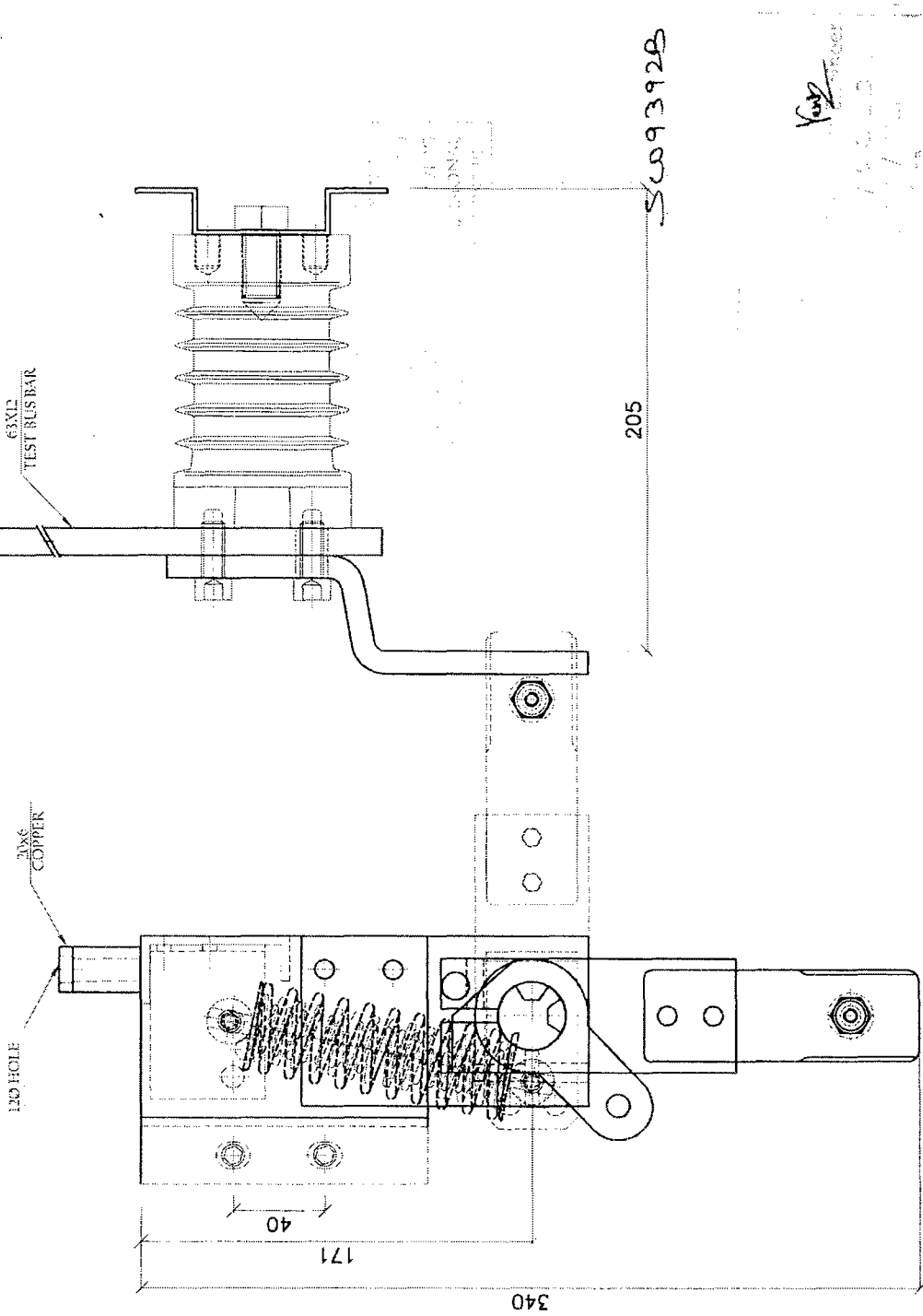
FRONT VIEW

RS VIEW

MATL:-	QTY:-	ALL DIMENSIONS ARE IN mm	DESCRIPTION:- 11KV/20KA/1sec EARTH SWITCH ASSEMBLY	SHEET NO:-
FINISH: NATURAL			MFG BY:	1 OF 1
			KRISHNAA ENERGY PVT LTD.	DRAWING NO:-
			DP-69,SIDCO Industrial Estate, Thirumudivakkam, Chennai-44	KEES 03-001
REV. DATE	REMARKS	DRAWN CHD. APPD. SIGN DATE	FILE NAME:-	REF.No:
1		D.JAI P.R S.S 20.06.09		8
				7
				6
				5
				4
				3
				2
				1



SCALE : N.T.S.



MATL: -	QTY: -	NO. OF	ALL DIMENSIONS ARE IN mm	DESCRIPTION: - 11KV, 20KA/1sec EARTH SWITCH	SHEET NO. -
FINISH: NATURAL				MFG BY:	1 OF 1
				KRISHNAA ENERGY PVT LTD.,	DRAWING NO. -
				DP--69, SIDCO Industrial Estate, Thirumudivakkam, Chennai-44	KEES 03-002
REV. DATE	REMARKS	DRAWN	CHD.	APPD.	REF. No:
		D. JAI	P. R.	S. S.	
				20.06.09	
				DATE.	
				SIGN.	
				FILE NAME: -	