Resistance between the following points shall be checked :

(1) Terminal B of relay R2(wire No.6) to SH1/2- short circuit

(2) Terminal A of relay R2(wire No.3) and R1 (Terminal # 7 board 8) - short circuit

(3) SH 2/10-S R5(terminal 3 of Board 10) — 27,000 ± 1500 ohms.

(4) SH3/2A-SH(wire No.8) short circuit

(5) SH1/1-S(wire No.3) -short circuit

Install the fuses PR2-PR6, the casing RN 10.027 and the measuring unit BI 10 and close the covers of the regulator

Note: (a) While giving the supply the + voltage shall be supplied to the '+' connector contacts through the fuse 10A

(b) Checking is carried out at voltage of 27±1V by removing the measuring unit BI-10 covers and RN-10 027 casing

Checking the voltage of generator in changing speed and load

Repeat the test at Sl.No.A2(b)

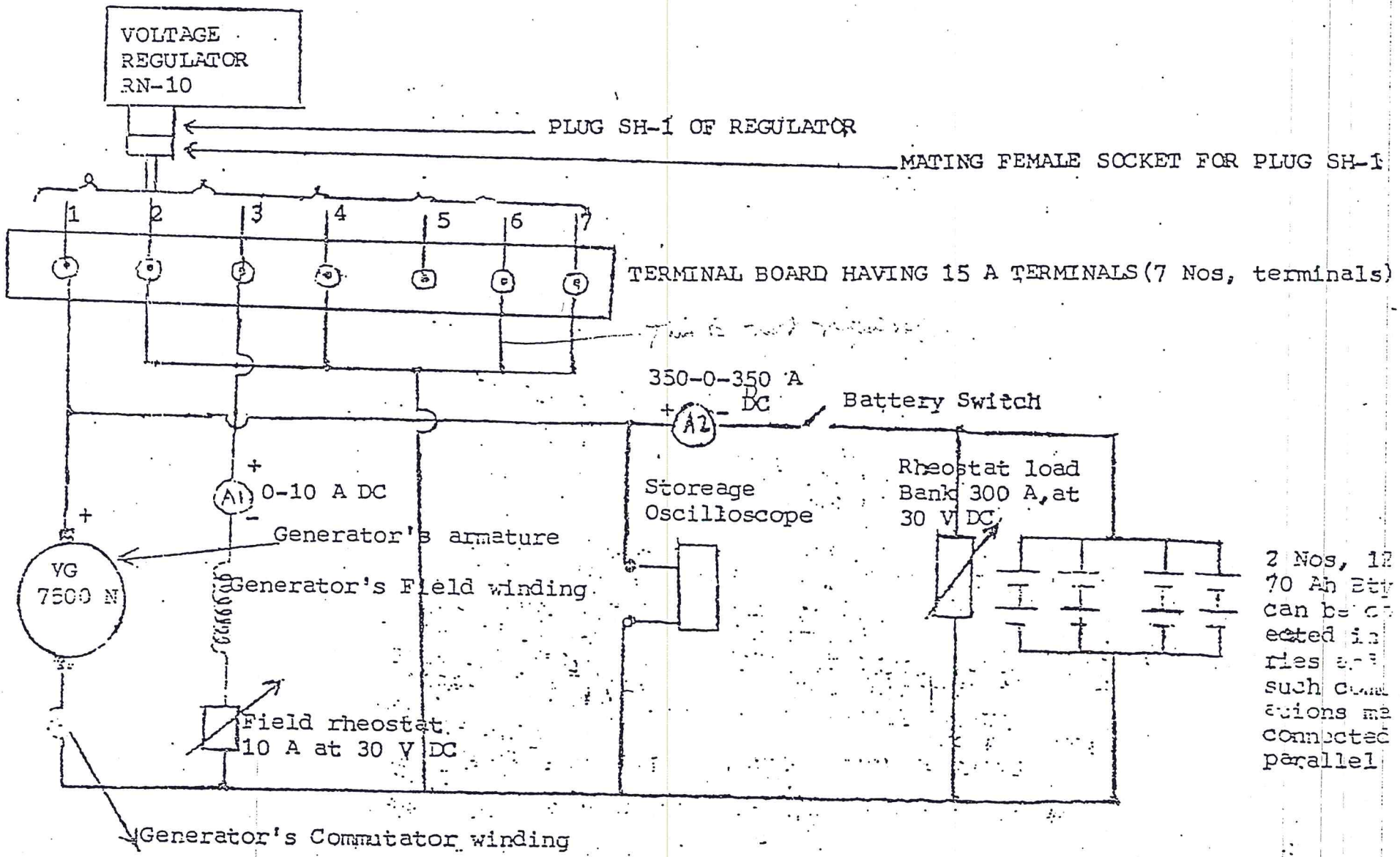
Checking of frequency of oscillations

Repeat the test at Sl No.A2(c)

Checking of voltage of disconnecting circuit operations

Repeat the test at Sl.No.A2(d)

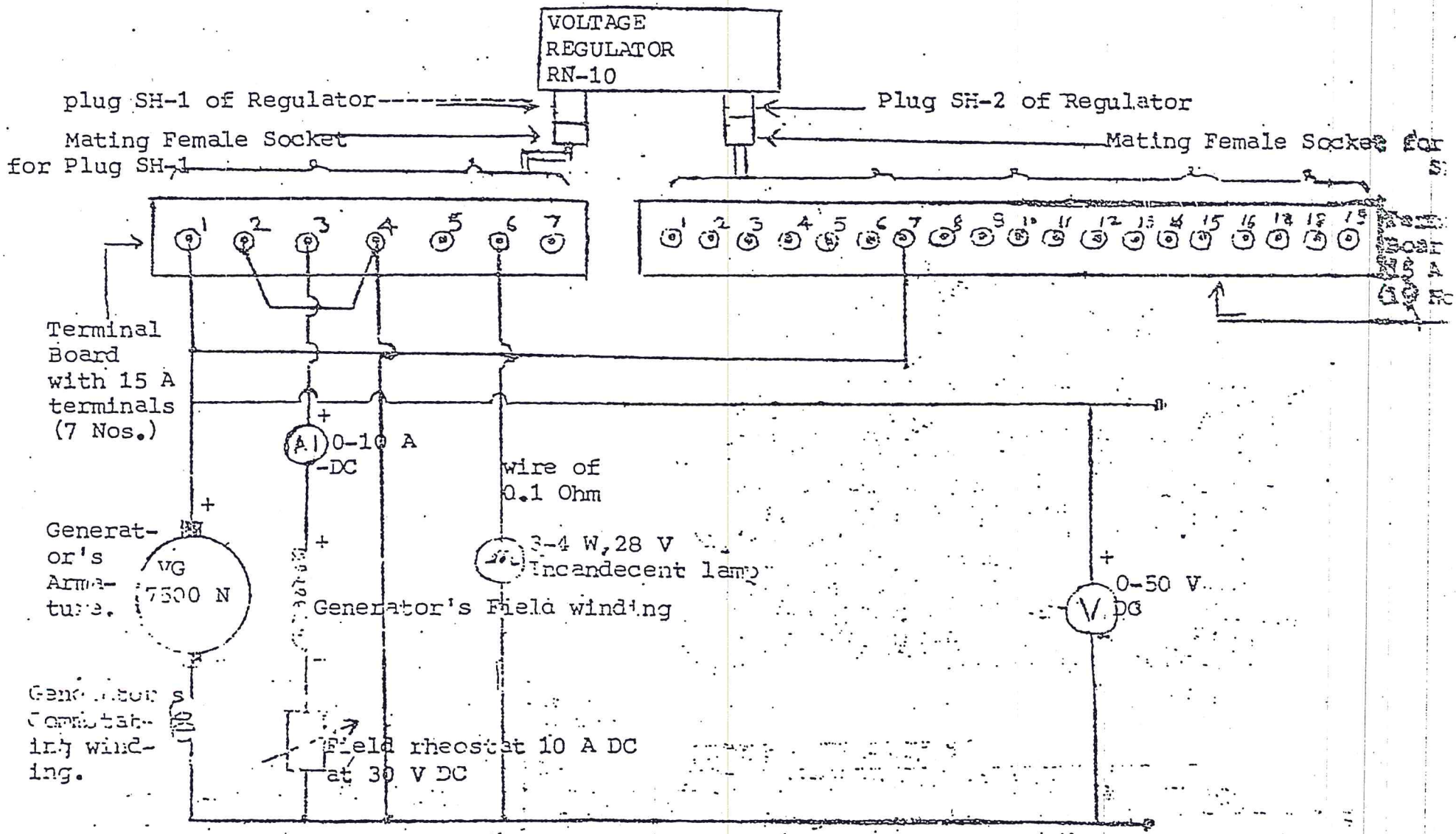
CIRCUIT DIAGRAM VR-4



1	2	3	4	5
	A2(d)/ 3.4.4	Checking for voltage of Disconnecting circuit operation	Same as in A2(b) and incandecent lamp 3-4W 28 V	D: Checking for voltage of disconnecting circuit operation 1 Rig up the circuit as per circuit diagram VE-3. Connect a 28 V, 3-4W incandecent lamp between pin No.6 and the negative bus. The resistance of the connecting wires shall not exceed 0.10 Ohm. Short pin 1 of SH 1 and 7 of SH 2. Run the generator at a speed of 3650 RPM. Adjust the field rheostat so that a field current of 4.5A to 5.0A is read in the ammeter A1. Increase the speed smoothly till the incandecent lamp burns. At this moment measure the voltage in voltmeter V. Slowly bring the speed of generator to halt. Check whether the protection circuit operates at a generator voltage recorded earlier(usually 29.5 -33V)
	A3/1.2.3.1 to 1.2.3.3 3.4.1 to 3.4.4	Checking of the correctness of electric wiring and functional parameters	Multimeter & plug in'Jig with terminal board' for easy measure-ment.	Checking with the help of multimeter is done as shown below. Chek the following with the help of a multimeter :-

20

CIRCUIT DIAGRAM VR-3 (For voltage of direct excitation circuit)



No. of contacts of plug Connector	Resistance Value
1. Note take out PR2, PR3, PR5, PR6 fuses	
2. SH 2/6 - SH2/17	1-4 ohms
3. SH/2/17-SH2/6	Not more than 15 Ohms.
4. Take out PR4 and insert PR5	
5. SH2/6 SH2/17	1 - 4 Ohms
6. Note take out PR5 insert PR6	
7. SH2/6-SH2/17	1 - 4 Ohms
8. Note: Take out PR6	
9. SH2/4-SH2/7	24- 33 Ohms
10. SH2/4-SH/2/6	22-35 Ohms
11. (Note: Insert PR3)	
12. SH2/4-SH2/2	2 - 6 Ohms
13. (Note take out PR3) Insert PR2	
14. SH2/4-SH2/2	2 - 6 Ohms
15. Take out PR2	
16. SH1/2-SH1/1	210 ± 50 Ohms
17. SH1/1-SH1/2	260 ±100 Ohms
18. SH2/6-SH1/4	230 -280 Ohms
19. SH2/9-SH2/2	2 - 5 Ohms
20. SH3/1A-SH1/4	230 - 280 Ohms

No. of Contacts of plug connector	Resistance Value
21. SH3/1B - SH1/4	230 - 280 Ohms
22. SH1/4 - SH3/4A	230 - 250 Ohms
23. SH1/4 - SH3/4B	230 - 250 Ohms
24. SH2/2-SH3/1B	Short circuit
25. SH1/1 - SH3/5A	80 - 90 Ohms
26. SH1/1 - SH3/5B	80 - 90 Ohms
27. SH1/5 - SH3/3A	Short circuit
28. SH1/5- SH3/3B	Short circuit
29. SH1/1 - SH1/5	Not more than 0.50 Ohms
30. SH3/2A - SH1/5	30 - 40 Ohms
31. SH2/10 - SH3/2B	Short circuit
32. SH2/10 - SH3/2A	Short circuit
33. SH1/2 - SH2/8	1000 ± 500 Ohms
34. SH2/8 - SH1/2	90 - 220 Ohms
35. SH1/4 - SH2/8	210 - 290 Ohms
36. SH2/7 - SH2/17	5 - 6 kilo Ohms
37. SH1/3 - SH1/1	5- 6 kilo Ohms
38. SH2/7 - SH1/6	Circuit break,
39. SH2/8 - SH2/7	1200 ± 500 Ohms
40. SH2/8 - SH2/4	1 - 4 Ohms
41. SH1/1 - SH1/3	5 - 10 Ohms
42. SH2/17- SH2/7	5 - 10 Ohms

(b) (i) Supply '+' of Voltage to the SH1/4 Contact and '-' to contact SH 2/8

and

Measure resistance between the following points :-

(i) SH2/9, SH2/2, SH2/7-SH1/6-1 Ohms (Maximum)
(ii) SH2/9, SH2/4 ----------20 Ohms (Maximum)

Disconnect the voltage. Connect + of voltage to SH1/1 and '-' to contact SH2/2. The value of voltage to be measured shall be as under :-

(i) SH2/7-SH1/5 - 10 to 25 V

Disconnect the voltage and connect '+' of voltage to contact SH2/8 and '-' to contact SH1/2. The readings should not be more than 2 Ohms between the contacts SH2/8 and SH2/7.

Checking of Measuring unit BY-10

The resistance value between the following points shall be as under :-

(1)	SH3/5A-SH3/4A	..	0 - 110 Ohms
(2)	SH3/5A-SH3/5B	..	Short circuit
(3)	SH3/4A-SH3/4B	..	Short circuit
(4)	SH3/4A-SH3/2A	..	Max. 15 Ohms
(5)	SH3/2B-SH3/2A	..	Short circuit
(6)	SH3/3A-SH3/2A	..	2 - 6 Ohms
(7)	SH3/3B-SH3/3A	..	Short circuit
(8)	SH3/1A-SH3/2A	..	2 - 6 Ohms
(9)	SH3/1A-SH3/1B	..	Short circuit

1	2	3	4	5	6
A4/ 1.2.4(a) and 3.5	Testing of Insulation Resistance under normal climatic conditions	Megohmemter 0-500V dc	IR test is conducted by megohmeter with 500V DC, short pin No. 1,2,3,4,5,6,7,8,9,10,11,12 and 17 of plug SH-2. Measure the IR between the (a) body and pin No.1 of SH 1 Between SH 1 to 6 of plug connector SH-1 and Electrically not connected circuits : SH1/1 _ SH1/7 SH1/2-SH1/7 SH1/3-SH 1/7 SH1/4-SH1/7 SH1/5-SH1/7 SH1/6-SH1/7	

1	2	3	4	5
A5/1-2.5 and 3.6	Test for Electric Insulation strength (High voltage test)	Breakdown test @ 0.5kV RMS, AC 50Hz	Short pin nos.1,2,3,4,5,6,7,8,9,10,11,12 and 17 of connector SH2. Apply a c r.m.s voltage of 500V, 50Hz for 1 minute between: (a) Body and pin No.1 of plug SH1 (b) -do- 6 of plug SH1 (c) Electrically non connected circuts and pin No.1 of plug SH1 (d) Electrically non connected circuits and pin No.6 of plug SH1 There shall not be any breakdown or surface spark over of insulation. (Note: 80% of voltage to be applied when the test is to be repeated at the same place or elsewhere)	

1	2	3	4	5
	A6/1.2.9 and 3.7 (a)	Test for water tightness	As explained in test method	During the acceptance tests, regulator in switched off condition (with the covers closed) is placed into special chamber of volume preferably not less than eight times that of the equipment. Internal cavity of the regulator with the help of special union and rubber tube, is connected with the external medium. Supply dry air at a pressure of 0.2+0.05 atmosphere inside the chamber for 5 minutes. In this case immediately after the air supply, keep the terminal of the rubber tube coming out of the chamber into a container filled with water, which is kept 2 to 3 cms below the level of the regulator. Regulator is considered to have passed the test provided continuous or periodic release of air bubbles from the outlet end of the tube are not observed.
	A7/1.2.6 and 3.8	Interchangeability checking	-	Interchangeability is checked by means of replacing in the disassembled regulator the components and assembly units, from three available at the assembly line. In case no components and assembly units in the assembly line are available, two regulators are disassembled and checked for interchangeability.
	B-1 1.2.7(a) 3.9(a)	Test for the effect of pulses of increased voltage	1) As in A2 (b) 2) Bty 24V, 70Ah-4Nos 3) Storage oscillography	Pulses of increased voltage is carried out with generator VG 7500N by four parallely connected batteries and load of 300A. Connections are done as shown in circuit diagram VR-4

			Pulses of increased voltage upto 70V in 3 microseconds are obtained by means of disconnecting the load 300A at a maximum speed of generator 6500±200 rpm. Pulses of increased voltage are fed in cycles of 3 pulses in a row in each cycle. No.of cylcles is 7. Internal between the cycles is not less than 3 and not more than 10 minutes Value and duration of pulses are measured by oscillo-graph. After the end of the test, the regulator is checked by repeating test at Sr.No.A2(b)
B2/ 3.9(b)	1.2.7(b) Test for the effect of voltage of reverse polarity	Power supply unit capable of giving 30V dc	Short duration switchings of voltage of reverse polarity with value of 30V dc and duration upto 1 minutes The voltage is fed from a power supply unit. The positive of power supply is fed to pin Nos.2,4,6 and negative to pin No.1 of plug SH1 Repeat as Test No A2 (b)
			PART IV
C1/ 1.2.4(b) and 3.13	Insulation resistance under increased temperature conditions		This test need not be conducted as the same is conducted vide test No.C7 (Test for heat resistance) (Cl.No.3.13 of specn)
C4/ 1.2.4(c) and 3.11	Insulation resistance under increased humidity		This test need not be conducted as the same is conducted vide test No.C5 (Test for moisture resistance) (Cl.No.3.11 of specn)