VC920/940/960 Calibration Instruction (□)

Made by		Doc. No	PDD - WI -121-(01)		
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Approved by		Modified Verson			

1. Inspection Items

(a) Diode, Continuity Buzzer and all Ohm ranges

(b) RS232 (SEND), LIGHT, STORE, SETUP and RECALL functions

2. Calibrating Instrument

(a) Standard Diode IN4007, Resistance 0Ω, 10Ω, 50V. Each 1 pc

(b) Standard 35 series Resistor Box

3. Inspecting Procedures

Turn the rotary switch to Ω, → range. Then put the resistor or diode to VΩHz COM jack and perform the following test

Steps	Functions	Display when no input signal	Input Value	Value Range	Boucing Digits	Component adjusting	Accuracy	Remark(s)
1	→	.OL	→ Forward Voltage Drop	0.4 □ 1				
2	Buzzer	O.L	≤49Ω	Buzzer Beeps				
	Buzzer	O.L	≥52Ω	Buzzer not Beeps				
3	400Ω	O.L	Short Circuit	0.00□0.01				
			350.0Ω	(347.9□352.0)+R	6		±(0.8%+10)	Use a short cable inpt the resistance. Press "RANGE" button for entering the calibrating mode. Then input 200Ω□2KΩ□200KΩ□2MΩ□20MΩ and adjust to the correct value
4	4KΩ	. OL	3.500KΩ	3.487□3.513				
5	40KΩ	.OL	35.00KΩ	34.87 □35.13	4		±(0.5%+10)	
6	400KΩ	O.L	350.0KΩ	348.7 □351.3				
7	4MΩ	. OL	3.500MΩ	3.487 □3.513	8			
8	40MΩ	.OL	35.00MΩ	34.62□35.38	14		±(1.5%+20)	

Remark(s) : 1. The test readings hereinbefore retrench specification as a rate of 70%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.

2. When input terminal is short, display will be R

3. Press "EXIT' and blue button together to enter the calibrating mode

4. For checking the Store features :

The first time press "STORE" button, left secondary display shows the current measurement reading, press → to clear the store value which start from 0. Press "STORE" again, the left secondary display shows the storing time interval in seconds. Press +/- can change it. Then press "STORE" again will start auto saving the records (VC920 can store up to 10 records, VC960 can store up to 10000records). Press "EXIT" button to stop recording.

5. RECALL and RS232 checking :

Connect the cable, press "STORE" button for around 1sec. Meter will enter the Recall mode. The left secondary display shows the existing record no. The right secondary dispay shows the total no. of records. Press ▶ button will start the auto SEND function. All the stored data will be copied to the computer via RS232. The SEND function will automatically stop when all data are transferred. Alternatively, press "EXIT" button will stop the function.

6. Backlight checking :

Press and hold "EXIT" button, it will turn on the 1st level backlight (The default setting time is OFF). Now press same button once will turn on the second level backlight. Now press "EXIT" again will switch off the backlight.

7. MAX/MIN checking :

Press "MAX/MIN" button to enter the recording mode. The left secondary display will show the maximum value and symbol. The right secondary display will show the minimum value and symbols. The main display will show the existing measuring value. Press "EXIT" to stop.

8 SETUP checking :

Press and hold "RANGE" to enter the setup mode. Press the same button can enter a) High, Low alarm (or OFF) mode; b) time interval for auto power off; c) buzzer beeps; d) time for backlight off; e) analogue bargraphic setting Press +/- can adjust the value. Press "EXIT" button will end the setup.

4. Notes

□. Be sure display for no input signal become steady before input stated value.

□. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

□. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

□. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

□. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

□. Turn the Rotary Switch to OFF position or take out the battery.

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VC920/940/960 Calibration Instruction ( )

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1. Inspection Items

All DCV ranges

2. Calibrating Instrument

(1) NJ19 DC Standard Voltage Current Source

(2) Non-induction Flat Screwdriver

3. Inspecting Procedures

Turn rotary switch to mVHz range. Input the testing voltge to VΩHz —COM terminal and perform the following checking.

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing Digits	Comonent Adjusting	Accuracy	Remark(s)
1	400mV	OL	Short Circuit	±0.0001	3		±(0.025%+8)	Press "RANGE" button for entering the calibrating mode. Then input 2V 20V 200V 700V then press"HOLD" button for adjusting
			190mV	189.98 190.02		VR2		
2	4V	0.0000V	1.9V	1.8991 1.9009				
4	40V	00.000	19V	18.991 19.009				
5	400V	000.00	190V	189.91 190.09	5		±(0.05%+5)	
6	1000V	0000.0	1000V	999.4 1000.6				
			(-)1000V	(-999.4 -1000.6)				

Remark(s) :

1. **The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.**
2. **Press "EXIT' and blue button together to enter the calibrating mode**
3. **Auto power off was default as 10 minutes. Either turn the rotary switch or press the blue button to switch it on.**

4. After pass DCV 1000V test, press "HOLD", LCD will display "HOLD" symbol. Buzzer have beep sound. After stopping input 1000V signal, LCD display remain unchange. Press "EXIT to end the setup.

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

VC920/940/960 Calibration Instruction ( )

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1. Inspection Items

All ACV ranges

2. Calibrating Instrument

(1) Fluke 5520 / Fluke 5500

(2) Non-induction Flat Screwdriver

3. Inspecting Procedures

Turn the rotary switch to ACV range, input the signals to VΩHz —COM terminal and perform the following checking

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)
1	4V	0.0000	2.0V(60Hz)	1.9900 2.0100		VR3		Display value should be less than 40 digits when testleads are short. Press "RANGE" button for entering the calibrating mode. Then input 2V 20V 200 V 700V Pres s“HOLD” for adjusting
			3.5V(60Hz/1KHz)	3.4892 3.5108	41		±(0.5%+5)	
			3.5V(5KHz)	3.4743 3.5257	98		±(1.2%+8)	
			3.5V(10KHz)			C42		
			3.5V(20KHz)	3.4366 3.5634	241		±(3%+8)	
			3.5V(100KHz)			C32		
2	40V	00.000	35V(60Hz/1KHz)	34.892 35.108	41		±(0.5%+5)	
			35V(5KHz)	34.680 35.320	121		±(1.5%+8)	
			35V(10KHz)			C30		
			35V(20KHz)	33.945 36.055	401		±(5%+8)	
			35V(100KHz)					
3	400V	000.00	350V(60Hz/1KHz)	348.92 351.08	41		±(0.5%+5)	
			350V(5KHz)	341.56 358.44	321		±(4%+8)	
			350V(10KHz)					
4	750V	0000.0	750V(60Hz/1KHz)	0745.1 0754.9	81		±(1%+8)	
			750V(5KHz)	0728.1 0772.9	401		±(5%+8)	
			750V(10KHz)	0704.6 0795.6	761		±(10%+8)	

Remark(s) : **1. The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.**

2. Press "EXIT' and blue button together to enter the calibrating mode

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

VC920/940/960 Calibration Instruction (IV)

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1. Inspection Items

All ACV ranges

2. Calibrating Instrument

(1) Fluke 5520 / Fluke 5500

(2) Non-induction Flat Screwdriver

3. Inspecting Procedures

Press "AC+DC" button. Input the signals to VΩHz —COM terminal and perform the following checking.

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)
1	**4V**	**0.0000**	**2.0V(60Hz)Offset 2V**	**2.8064 2.8504**	**127**	/	**±(1.5%+35)**	**Short the testleads, adjusting VR5 to make the reading less than 50 digits.**
2	**40V**	**00.000**	**3.5V(60Hz)Offset -3V**	**4.559 4.659**				

Remark(s) : 1. The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.

2. Press "EXIT' and blue button together to enter the calibrating mode

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

VC920/940/960 Calibration Instruction ( )

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1. Inspection Items

All DCA ranges

2. Calibrating Instrument

(1) NJ19 DC Voltage Current Source and 20A DC Current Source

(2) Cutting Nipper and Soldering Machine

3. Inspecting Procedures

Turn the rotary switch to the corresponding DCA range. Input the current to A or mAuA CO~~M t~~▶minal and perform the following checking.

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing Digits	Component Adjusti	Accuracy	Remark(s)
1	10A	00.000	10A	09.898 10.102	124	R46	±(1.5%+20)	Press "RANGE" button for entering the calibrating mode. Then turn to the corresponding range and input 7A 200uA 2000uA 20mA 200mA Press“HOLD” button to adjust
2	400uA	000.00	100uA	099.79 100.21	22		±(0.25%+10)	
3	4000uA		1000uA	0996.4 1003.6	42		±(0.5%+10)	
4	40mA	00.000	10mA	09.964 10.036				
5	400mA		100mA	099.64 100.36				

Remark(s) : **1. The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.**

2. Press "EXIT' and blue button together to enter the calibrating mode

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

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1. Inspection Items

All ACA ranges

2. Calibrating Instrument

Fluke 5500A or 5520A

3. Inspecting Procedures

Turn the rotary switch to corresponding ACA range. Input current to A / mA ~~COM~~ range and perform the following test.

Steps	Functions	Display when no input signal	input Value	Value Range	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)
1	10A	00.000	1A/60Hz	00.990 01.002	43	VR1	±(0.5%+15)	
			10A/60Hz;1kHz	09.901 10.099	123		±(1.5%+15)	Turn to corr. ACA range and input 200uA 2000uA 20mA 200mA 7A at 60Hz Press "HOLD" button to adjust
			10A/5KHz	09.563 10.437	403		±(5%+15)	
2	400uA	000.00	350uA/60Hz;1kHz	348.86 351.14	43		±(0.5%+15)	
			350uA/10kHz	347.81 352.19	83		±(1%+15)	
3	4000uA		3500uA/60Hz;1kHz	3488.6 3511.4	43		±(0.5%+15)	
			3500uA/10kHz	3478.1 3521.9	83		±(1%+15)	
4	40mA	00.000	35mA/60Hz;1KHz	34.886 35.119	43		±(0.5%+15)	
			35mA/10KHz	34.781 35.219	83		±(1%+15)	
5	400mA		350mA/60Hz;1kHz	348.86 351.14	43		±(0.5%+15)	
			350mA/10kHz	347.81 352.19	83		±(1%+15)	

Turn the switch to Hz/% range. Press SELECT button twice. Input current to mA/uA ~~COM~~ terminal and perform the following test.

Steps	Functions	Display when no input signal	input Value	Value Range	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)

1	4 20mA	000.00%	5.6mA	009.70 010.30%	85	/	±(1%+30)	Input smaller than 4mA will display LO, Input larger than 20mA will display HI
2			18.4mA	089.21 090.79%	85			

Remark(s) : **1. The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.**

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

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1. Inspection Items

(1) All Cap ranges

(2) All Frequency ranges

2. Calibrating Instrument

(1) Standard 33 series single Cap

(2) SG8550 Frequency Signal Generator

(3) Non-induction Flat Screwdriver

3. Inspecting Procedures

Turn the rotary switch to the Cap range. Input the Cap into VΩHz —COM terminal and perform the following test in sequence.

Steps	Functions	Display when no input signal	Input Value	Value Display	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)
1	40nF	Less than 8 digits	33nF	32.790 33.210 + Open Circuit Value	84	/	±(1%+20)	Input 20nF 200nF 2uF 20uF 200uF 2mF 20mF. Press"HOLD"button to adjust
2	400nF		330nF	327.90 332.10				
3	4uF		3.3uF	3.2790 3.3210				
4	40uF		33uF	32.790 33.210				
5	400uF		330uF	327.90 332.10				
6	4mF		2.2mF	2.1340 2.2660	404		±(5%+20)	
7	40mF		22mF	Nearest Value	/		Reference Only	

Turn the rotary switch to Hz mV range. Press blue button until "Hz" display on LCD. Input Cap to VΩHz —COM terminal and perform the following test.

Steps	Functions	Display when no input signal	Input Value	Value Display	Bouncing Digits	Component Adjusting	Accuracy	Remark(s)
1	Hz	0.000 0.001	10Hz/180mV	9.995 10.005	2	/	±(0.01%+8)	/
2			350KHz/180mV	349.93 350.07		/		
3	Duty Cycle		10.0% / 10Vp-p1kHz	9.76% 10.26%	86	/	±(1.0%+30)	/
4			90.0% / 10Vp-p1kHz	89.28% 90.72%		/		

Remark(s) : **1. The test readings hereinbefore retrench specification as a rate of 60%, When the specification can not reach test requirement, inform the Engineers to broaden the relevant specification, then carry out the specification as clients required.**

2. Press "EXIT" and blue button together to enter the calibrating mode

4. Notes

. Be sure display for no input signal become steady before input stated value.

. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

. Turn the Rotary Switch to OFF position or take out the battery.

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1. Inspection Items

adjustment

2. Calibrating Instrument

(1) DC Poentiometer

(2) Non-induction Flat Screwdriver

3. Inspecting Procedures

Turn the rotary switch to □ range. Input voltage to VΩHz —COM terminal and perform the following test.

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing	Component	Accuracy	Remark(s)
1		Room Temp	Environmental Temp(20)	0017.8 0022.2		VR4	±(3%+30)	Short the testleads, adjust VR4, and let the LCD display the environmental temp
			12.21mV	(0294.0 0306.0)+room temp		by Software	±(1%+30)	
			42.16mV	0975.0 1025.0 +room temp			±2.5%	
2		Room Temp	Environmental temp (20)	0061.0 0072.6 +room temp			±(4%+50)	
			12.21mV	0586.2 0613.8 +room temp			±(1.5%+50)	
			42.16mV	1748.7 1851.3 +room temp			±3%	

Steps	Functions	Display when no input signal	Input Value	Value Range	Bouncing	Component	Accuracy	Remark(s)
1	W	Reference Only	190V /1A/COSφ0.9/50 Hz	W□ 168.6□173.4	161	by Software	±(2%+5)	1□When calibrate □Firstly input 170V/7A/50HZ to adjust the current□then input 190V/7A/50Hz to adjust the voltage. 2□During calibrating□Press blue button to test voltage, current,
				A□ 00.93□01.07	10		±(1%+10)	
				V□ 188.3□191.7				
				VA□ 0185□0195	17		±(2%+5)	
				COS□ 0.888□0.912	10		±(1%+10)	
				Hz□ 00044□00056				
2			250V /10A/COSφ1/60 Hz	W□2469.7□2530.3	161		±(2%+5)	
				A□ 09.60□10.40	10		±(1%+10)	
				V□ 248.2□251.8				
				VA□ 2470□2530	17		±(2%+5)	
				COS□ 0.988□1.012	10		±(1%+10)	
				Hz□ 00044□00056				

3			50V /5A/COSφ0.2/50 Hz	W□ 0049.4□0050.6	161		±(2%+5)	frequency, W, VA. 3□Figurs in this table is compress to 60%. It is allowed to release the standard
				A□ 04.94□05.06	10		±(1%+10)	
				V□ 049.1□050.9				
				VA□ 0245□0255	17		±(2%+5)	
				COS□ 0.193□0.207	10		±(1%+10)	
				Hz□ 00044□00056				

4. Notes

□. Be sure display for no input signal become steady before input stated value.

□. Pack the Meter after input value became steady, and bouncing digits is less than bouncing values.

□. Calibrate the Meter on/in bubble bags, and put defects or eligible meters into different plastic box orderly in bubble bags.

□. Before the calibrator gives input to the Meter, make sure a proper function has been selected, forbid output first or change function in output state.

□. Inspect the LCD display when open the Meter, there should no extra stroke, shadow, leakage, scratch, damage or dirt.

□. Turn the Rotary Switch to OFF position or take out the battery.