Manual Supplement

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This supplement contains information necessary to ensure the accuracy of the above manual. This manual is distributed as an electronic manual on the following CD-ROM:

CD Title:	5320A
CD Rev. & Date:	2, 1/09
CD PN:	2634346

FLUKE ®

Calibration

Change #1, 719

On page 6-16, replace Table 6-11 with:

Nominal Current	Required Standard Ammeter Accuracy	Frequency	Lower Limit (mA)	Upper Limit (mA)
25 mA ac	0.2 %	Line Freq.	24.75 mA	25.25 mA
250 mA ac	0.2 %	Line Freq.	247.5 mA	252.5 mA
2500 mA ac	0.2 %	Line Freq.	2475 mA	2525 mA

Change #2

On page 7-8, replace the first *Note* with the following:

Note

The Resistance Multiplier is only used with insulation resistance testers with a third terminal, commonly called the Guard terminal. Most testers of this type use a virtual ground sensing circuit, that causes an input resistance of 0 Ω. The Calibrator can accommodate testers that have either 0 Ω input impedance or a finite input impedance. The Calibrator has a setup parameter, "R multiplier input", to accommodate different input impedances for insulation testers. The "R multiplier input" has a default setting of 0 Ω for the most common type of testers with a virtual ground sensing circuit. For other testers with an infinite input impedance, the "R multiplier input" value must be set to match the input resistance of the Unit Under Test.

To access the "R multiplier input" setting, press $\boxed{\text{HI}\,\Omega}$, press the softkey labeled **Setup,** *scroll down to High Resistance Source and then press the softkey labeled* **Select.** *Choose "R multiplier input", which can be changed from 0 to 100.00 MΩ.*

Change #3, 50723

On page 1-10, under *Short Mode*:

      Change: **Nominal resistance**........<50 mΩ

      To: **Nominal resistance**........<100 mΩ
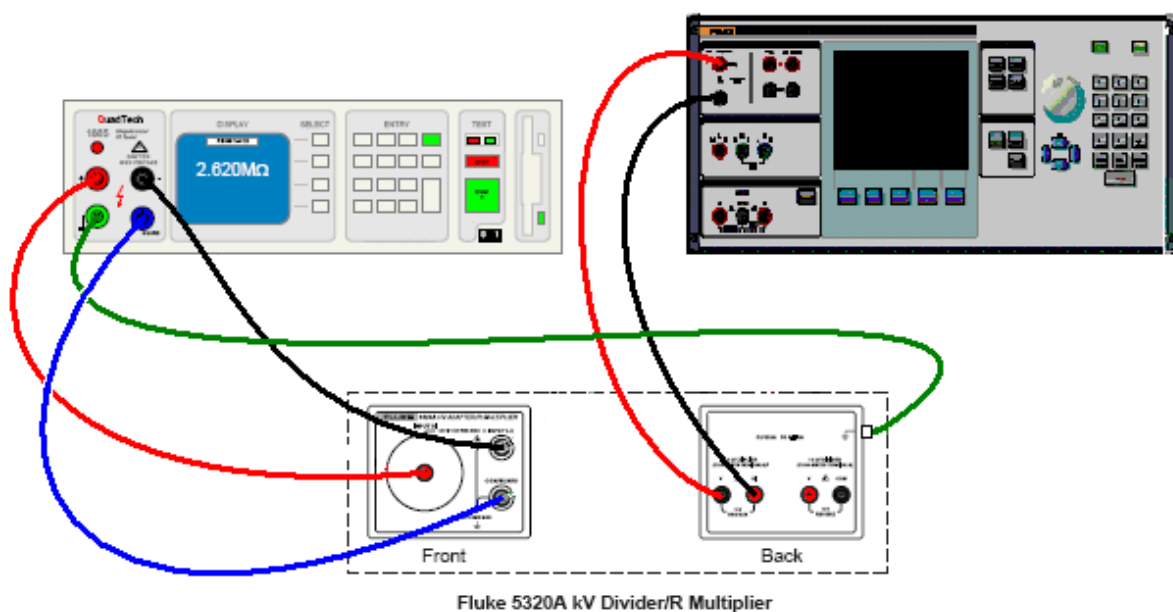
Change #4

On page 6-11, replace **Figure 6-4** with the following:

Connect the equipment as shown using low-loss, low dielectric absorption leads. Note that the polarity of the connections between the 5320A HV ADAPTER / R MULTIPLIER, OUTPUT TO 5320A, HI Ω MULTIPLIER to the 5320A HI Ω, mA~ terminals are reversed.

NOTE

Minimize physical movement in the vicinity of the UUT and megohmmeter during the following measurement sequence.

Fluke 5320A kV Divider/R Multiplier

ewt090.eps

Figure 6-4. Resistance Multiplier Verification Connectioons

Change #5

On page 6-12, replace **Table 6-8** with the following:

Table 6-8. High Test Current Ground Bond Source Limits

Nominal Value	Required Standard Calibrator/Multimeter Current/Voltage Uncertainty	DC Test Current	R_{gbr}	Lower Limit [1]	Upper Limit [1]
25 mΩ	± 0.5%	20 A		R_{disp} - 5 mΩ	R_{disp} + 5 mΩ
50 mΩ	± 0.2 %	10 A		R_{disp} - 5 mΩ	R_{disp} + 5 mΩ
100 mΩ	± 0.1 %	10 A		R_{disp} - 5 mΩ	R_{disp} + 5 mΩ
330 mΩ	± 0.1 %	5 A		R_{disp} - 7 mΩ	R_{disp} + 7 mΩ
500 mΩ	± 0.1 %	3 A		R_{disp} - 8 mΩ	R_{disp} + 8 mΩ
1 Ω	± 0.1 %	2 A		R_{disp} - 10 mΩ	R_{disp} + 10 mΩ
1.8 Ω	± 0.1 %	2 A		R_{disp} - 18 mΩ	R_{disp} + 18 mΩ
[1] R_{disp} = Displayed Value					

Change #6

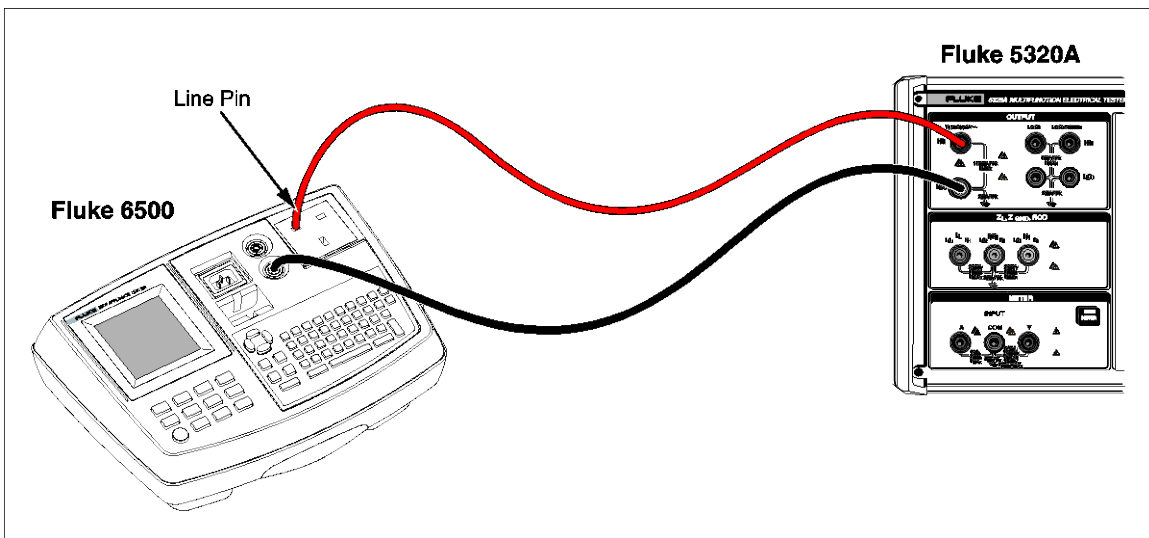On page 7-17, replace **Figure 7-14** with the following:

Ehq039.eps

Figure 7-14. Touch Leakage Current Calibration on Fluke 6500

Change #7

On page 6-14, replace Step 4 with:

4. Set the multifunction calibrator to the same voltage as the voltage on the mains input of the Calibrator (5320A). 115 V or 230 V for example. Set the multifunction calibrator frequency to 55 Hz.

Change #8, 129

On page 6-4, prior to *Cleaning the Air Filter,* add:

Cleaning the Ground Bond Resistance and Loop/Line Impedance Relays

The power relays used in the Ground Bond Resistance and Loop/Line Impedance functions require periodic cleaning to minimize their contact resistance. Relay cleaning should be performed once per month if the Ground Bond Resistance or Loop/Line Impedance functions are used daily. If these functions are used less often, relay cleaning should be performed every 90 days. If the 5320A has been powered off for more than 30 days, the relay cleaning procedure should be performed before usage.

The 5320A, with serial numbers higher than xx548xxxx, is equipped with an internal power source that provides current during the cleaning procedure. For 5320As with serial numbers lower than 548xxxxxx, an external power supply must be connected to the PE and N terminals. See the next section for details.

Relay cleaning is started manually from the SETUP menu, and exercises the relays on the REL board a number of times with current flowing through them. To perform the relay cleaning procedure, disconnect all external connections to the 5320A front panel.

Select Maintenance

```
Main menu                          Setup

 General
 Interface
  Calibrator
  High resistance source
  Low resistance source
  Loop impedance
  Line impedance
  Leakage current
  RCD
 Calibration
 Maintenance



 Select                             Exit
```

Then select Relays cleaning procedure

```
Maintenance                        Setup

 Relays cleaning procedure










 Select                             Exit
```

Select Start. When the procedure is running, the following information is displayed:
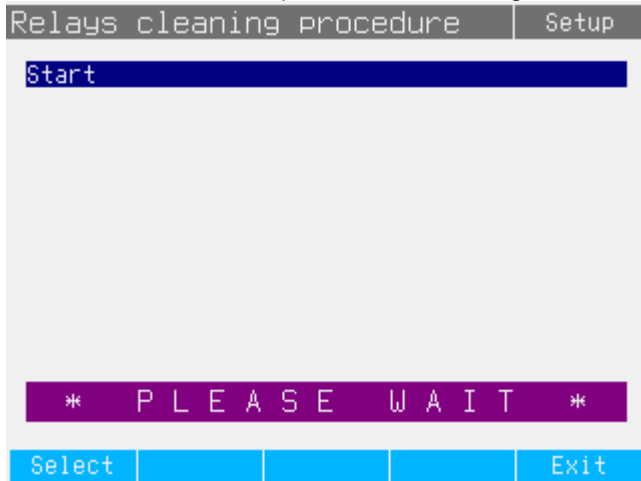

The procedure lasts about 30 seconds. During the procedure, the 5320A cannot be operated. When the cleaning procedure is complete, push the soft key Exit a number of times to return to the main menu.

Cleaning the Relays for Serial Numbers Lower than xx548xxxx.

5320As with serial number lower than xx548xxxx do not have an internal power supply for relay cleaning, and must be connected to an external power supply for this procedure. This power supply must provide, at least 20 V with 3 A of current.

To clean the relays:

1. Remove all external connections to the 5320A front panel.
2. Navigate to the Relay cleaning procedure as outlined above. Do not start the procedure.
3. Set the external power supply to 20 V and connect as shown to the PE and N terminals of the 5320A. It is best to use an external analog (linear) supply source. If a switching dc supply source is used, two resistors and one capacitor should be inserted between the power supply output and the 5320A input as shown in the diagram. Analog (linear) power supplies do not require this external resistor and capacitor network.
4. Start the Relay cleaning procedure.
5. Remove the external power supply connections when complete.
6. Push the Exit soft key a number of times to return to the main menu.
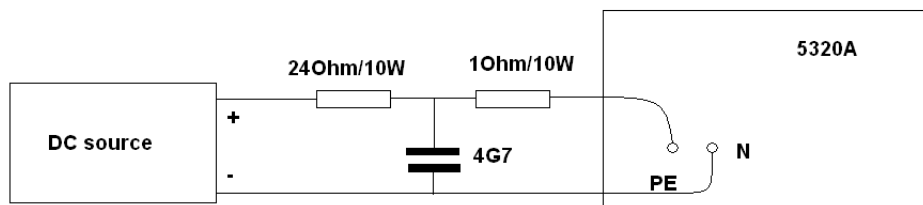
> *Note*
>
> *For units with serial number lower than xx548xxxx, do not run the cleaning procedure without connecting the external power supply. When the cleaning procedure is performed without connecting the external power supply, the relay contact resistance may become even worse. Changing the polarity of the dc supply source is recommended from cleaning to cleaning to avoid one-way transport of contact material from one side of the contacts to the other.*

Change #9, 449, 504

On page 1-7, add the following to the **Symbols** table:

🆆	Conforms to relevant South Korean EMC Standards.

On page 1-9, add the following to the *General Specifications*:

Electromagnetic Compatibility (EMC)

International .... IEC 61326-1: Basic Electromagnetic Environment

CISPR 11: Group 1, Class A

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.

Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.

Change #10, 255, 468

On page 1-9, under ⚠ **Fuse Protection,** replace the existing content with:

RCD input .... 3.15 A, 250 V, Fast (F3.15H250V – 5 mm x 20 mm)

Meter amps (A) input .... 20 A, 500 V, Fast (T20H500 V – 6.3 mm x 32 mm)

Loop/Line impedance input .... 4 A, 500 V, Time delay (T4H500 V – 6.3 mm x 32 mm)

On page 4-6, following Table 4-2, replace the sentence with:

An optional resistance multiplier is offered to increase the range of high resistances from 350 MΩ to 10 TΩ and applicable dc test voltage to 5 KV. Resistance multiplier is based on a passive T-type resistance network. Nominal value of multiplication is 1000. Exact value depends on resistance multiplier calibration data. Input resistance of the multiplier is approximately-300 MΩ. Resistance multiplier can be applied for calibration of such UUTs which use virtual ground (current to voltage converter) as current sense terminal with input resistance. For UUTs with finite input resistance and non-virtual ground on sense terminal, the input resistance must be taken into consideration. For this purpose, the Calibrator is equipped with a parameter "R multiplier input". Input resistance of sense terminal of UUT should be written here to perform calibration correctly.

> *Note*
>
> *Input resistance of the sense terminal is different for different models of megohmmeter. Do not to set the parameter to the correct value. For megohmmeters with virtual ground, 0 Ω must be written and saved here before calibration.*

On page 6-4, replace Table 6-2 with:

Table 6-2. Measurement Input Fuses

Input	Fuse	Fluke Part No.
RCD	F3.15H250 V (5 mm x 20 mm)	2743508
Leakage Current	F100mL150 V (5 mm x 20 mm)	2743513
Meter	T20H500 V (6.3 mm x 32 mm)	4778086
Loop/Line Impedance	T4H500 V (6.3 mm x 32 mm)	2743524

Change #11, 501, 504

On page 1-6, under **Power Consumption**, add Measurement:

Measurement ....IEC 61010-2-030: CAT II 300 V

Remove, Safety Class, and Electrostatic Discharge and add:

Safety

Mains ....IEC 61010-1: Overvoltage Category II, Pollution Degree 2

On page 1-14, in the *Test Current Measurement* section, replace the **Range** with:

Range ....0 A ac to 40 A ac + dc rms. >10 A is a 30 % duty cycle; not to exceed 2 minutes.

On page 1-16, following **AC/DC Voltage Uncertainty**, *Current*, replace **Range** with:

Range ....0 A ac to 20 A ac + dc rms. >10 A at 30 % duty cycle; not to exceed 2 minutes.

Change #12, 719

On page 6-15, remove the ***RCD Trip Current Verification*** section, steps 1 through 10. Keep Figure 6-8.