



Test Equipment Required

- T395 – FT4 Flash Tester, (or equivalent).
- Test programme - lcbmenu.exe
- T318 – Battery Simulator.
- T619 – Input Switch Box.
- T946 – R.C.D. Current & Time Test.
- T1709 – Calibrated Low Impedance Source.
- T603 – Calibrated Loop Test.
- T535 – Calibrated Voltage Source, (2000 Series or equivalent).

Calibration Procedure

Place instrument into **Calibrate Mode**.

For an old instrument this will need to be enabled: Switch from OFF to the 150mA 40ms range holding the backlight key down. Press and hold the backlight key and then both the ‘I’ and ‘Type’ (right hand) keys, **rSt** will show on the display. Press the ‘enter’, (left-hand) key and the instrument will enter calibrate mode and **CAL** will show on the display. Press the enter key to place instrument into Calibrate Mode.

Calibration is done by connecting up the instrument as detailed below, performing the test and usually pressing the up-key, which will auto-calibrate, assuming the target value is correct. After this, the display figure may be adjusted using the up/down keys, and the calibration saved using the backlight key.

The RCD test currents are slightly different, as the up/down keys will need to be held down to change the current. After the test the backlight must be pressed to save the calibration.

Before calibration flash test LCB2500 from the input terminals to RS232 socket at 4kV AC, using the lead provided.

Connect instrument to T318 Battery Simulator, (8 – 10V D.C Supply).

1. Voltage Calibration.

Select Option 1 from the LCB Calibration Menu.

Connect LCB test lead to the Switch Box T619

Menu Option	LCB Switch Position	Voltage Switch Box Setting	Source	Target
1	Loop L – PE	L - E	240V 50Hz.	240V
2		N - E	240V 50Hz	240V
3	Loop L – N	L - N	240V 50Hz	240V

Select Option M to return to the LCB Calibration Menu.



2. RCD Test current Calibration.

2.1 Initial Conditions.

Select Option 2 from the LCB Calibration Menu.
Connect LCB test lead to the Loop Test Box T946

Select D.C. Sensitive type to enable special test. (Use the right-hand key)
Start the test and then adjust test current by holding the up and down keys.

2.2 Calibrate 47.5mA.

Select Option A from the Calibrate RCD Menu.

RCD 100mA $\frac{1}{2}$ I – set to 47.5 mA. (± 0.2 mA)

The current flowing will be displayed on the screen.

Press the backlight key to stop test and again to store calibration figure.

2.3 Calibrate 4.75mA.

Select Option B from the Calibrate RCD Menu

RCD 10mA $\frac{1}{2}$ I – set to closest to 4.75 mA.

Press backlight key to stop test and again to store calibration figure.

When setting the 4.75 mA test current, the adjustment can only be made in 0.2 mA steps.
Calibrate at the current reading that is closest to the target value of 4.75.

Exit d.c. sensitive mode by pressing ‘ENTER’ key then ‘TYPE’ (right hand key).

Select Option M to return to the LCB Calibration Menu



3. High Current Loop Resistance Calibration L – PE / L – N.

3.1 Initial Conditions.

Select Option 3 from the LCB Calibration Menu.
Connect LCB test lead to the Loop Test Box T603

3.2 Calibrate High Current Loop.

Menu Option	Test Gear Configuration	LCB Switch	Nominal Value	Target
1	L – PE	RCD 30mA 1/2I		0.0
2	N - PE	RCD 30mA 1/2I		0.0
3	L – PE	Loop L – PE	953	953
4	L – PE		10.06	10.06
5	L – PE		0.13	0.13
6	N – PE		10.06	10.06
7	N – PE		0.13	0.13
8	L – N	Loop L – N	10.06	10.06
9	L – N		0.13	0.13

Select Option M to return to the LCB Calibration Menu



4. Calibrate Low Current Loop Resistance Calibration N - PE.

4.1 Initial Conditions.

Select Option 4 from the LCB Calibration Menu.
Connect LCB test lead to the Loop Test Box T603

4.2 Calibrate Low Current Loop.

Menu Option	Test Gear Configuration	LCB Switch	Nominal Value	Target
1*	<i>L - PE</i>	Loop L - PE 0.1?	86.0	86.0
2*	<i>L - PE</i>		1.1	1.1
		Repeat and recalibrate if outside the range 0.8 - 1.4		
3*	<i>N - PE</i>		86	86
4*	<i>N - PE</i>	Repeat and recalibrate if outside the range 0.8 - 1.4	1.1	1.1
5	<i>L - PE</i>	L-PE 0.01 ? / xtra (R1)	0.13	0.13
		Press 'enter' to show R2	0.00	0.00
6	<i>L - PE</i>	R1	9.95	9.95
		Ignore R2	-----	-----
7	<i>L - PE</i>	Ignore R1	-----	-----
		Press 'enter' to show R2	9.96	9.96
8	<i>N - PE</i>	R1	0.13	0.13
		Press 'enter' to show R2	0.00	0.00
9	<i>N - PE</i>	R1	9.95	9.95
		Ignore R2	-----	-----
A	<i>N - PE</i>	Ignore R1	-----	-----
		Press 'enter' to show R2	9.96	9.96

* If the mains supply is too noisy to obtain repeatable results, follow the alternative procedure in section 4.3

Select Option M to return to the LCB Calibration Menu.



4.3 Alternative Low Current Calibration Method. (When mains noise is unacceptable)

4.3.1 Equipment Required:

T2068 – Stabilised Power Supply, set to 240Volts, 50Hz.

T1529 - Calibrated Loop Resistance.

LCB Test Lead Number 2:

- Supply Phase connected to Instrument Phase.
- Supply Neutral not connected.
- Supply Earth connected to Instrument Earth & Instrument Neutral.

LCB Test Lead Number 4:

- Supply Phase connected to Instrument Neutral.
- Supply Neutral not connected.
- Supply Earth connected to Instrument Earth & Instrument Phase.

4.3.2 Initial Conditions.

Ensure that the Calibrated Loop T1529 is connected to the Stabilised Supply.

Set the Stabilised Supply T2068, to 240V 50Hz.

Connect the Instrument to the 13A Loop Socket on T1529.

4.3.3 Calibration

Calibrate the Instrument to the targets shown in the table.

Use Lead Number	Test Gear T1529 Switch	LCB Switch	Nominal Value	Target
Lead 2	85R	Loop L – PE 0.1?	85	85.3
Lead 2	1R	Loop L - PE 0.1?	1	1.2
		Repeat and recalibrate if outside the range 0.9 – 1.5		
Lead 4	85R	Loop L – PE 0.1?	85	85.3
Lead 4	1R	Loop L – PE 0.1?	1	1.2
		Repeat and recalibrate if outside the range 0.9 – 1.5		

End of Calibration