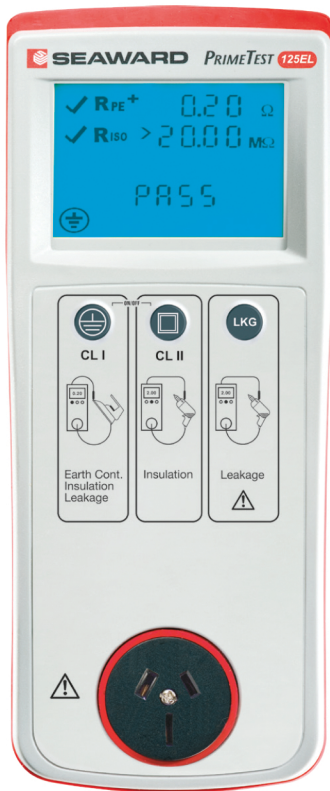


PRIME TEST **125EL**



PRIMETEST **125 EL**

Operating Instructions



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Part Number 372A580 Revision 4
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Limited Warranty & Limitation of Liability

SEAWARD Electronic Limited guarantees this product to be free from defects in material and workmanship under normal use and service for a period of 1 year. The period of warranty will be effective at the day of delivery.

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1 Important Information

These operating instructions are intended for the use of adequately trained personnel.

The following symbols are used in these operating instructions and on the PrimeTest 125 EL.



Caution, risk of electric shock.
Indicates instructions must be followed to avoid danger to persons.



Caution, risk of danger. The operating instructions must be adhered to in order to avoid danger.



Caution, risk of electric shock.
Always ensure that the equipment under test is disconnected from any supply before connecting to the tester.

It is the responsibility of the user to ensure that the operation of the unit is correct and that the accuracy of the measurements are within specification.

Before use, ensure unit is clean and dry; visually inspect all leads, connectors and case. Any damage or wear must be rectified prior to use.

Standard Accessories

| | Part Number |
|--------------------------------|--------------------|
| Mains Supply Test lead | 44B165 |
| Black Test Lead 1m | 347A002 |
| Australian IEC mains cord 0.5m | 325A005 |

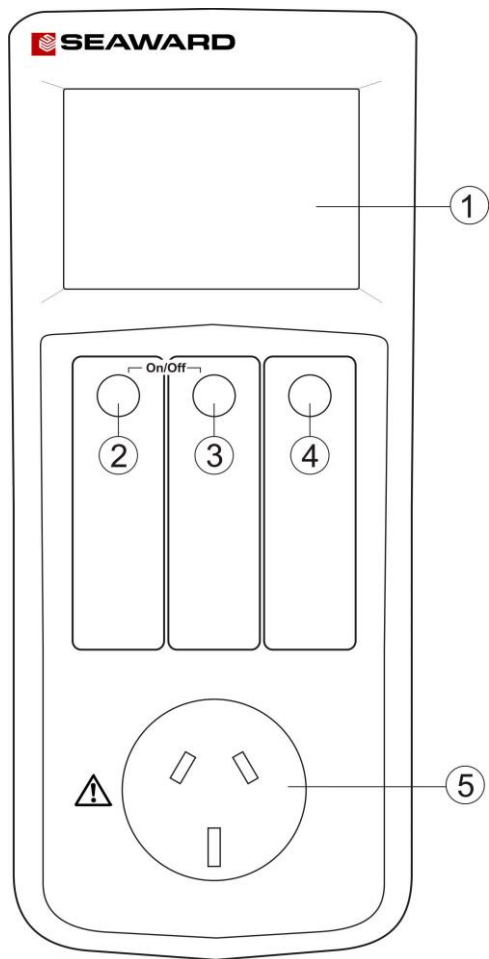


Figure 1. PrimeTest 125 EL Front View

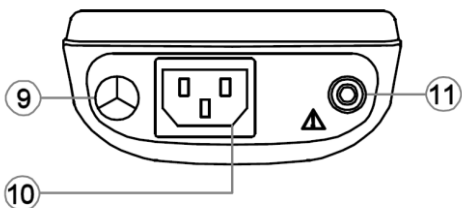


Figure 2. PrimeTest 125 EL End View

2 Introduction

The PrimeTest 125 EL is a hand held battery powered unit suitable for carrying out electrical safety checks on:

- Class I appliances
- Class II appliances
- IEC mains leads
- Extension leads

Overview

With reference to Figures 1 and 2.

1. The LCD
2. CL I Test / Cord Sequence Button
3. CL II Test Sequence Button
4. Leakage Test Sequence Button
5. Test/Mains outlet socket

9. Mains inlet socket
10. IEC Test Connection
11. Earth/Insulation Test Terminal

User Interface

The LCD display shows test progress, results for individual tests and the overall test result for an appliance or mains cord.

Measurements displayed next to the R_{PE} icon indicate the resistance of the protective earth conductor.

Measurements displayed next to the R_{ISO} icon indicate the resistance measured by the insulation test.

Measurements displayed next to the I_{LEAK} icon indicate the leakage current measured while the appliance under test is powered from the mains supply at the tester mains outlet socket.

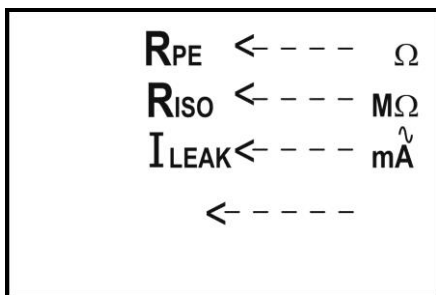
Tests are initiated using the three push buttons.

Power ON/OFF = press and hold the CL I and CL II test buttons simultaneously, PrimeTest 125 EL will power on/off when buttons are released.

Note: The unit will automatically switch OFF after approximately 3 minutes if no keys are pressed.

3 Performing Tests

Press keys CL I and CL II test buttons together to switch on the unit. When the unit is ready the display will be as shown below.



3.1 Testing a Class I Appliance

Visually inspect the appliance as per requirements of AS/NZS3760. If the appliance passes a visual inspection proceed with the electrical tests.

Plug the black test lead into the Earth/Insulation test terminal on the PrimeTest 125 EL end panel.

Plug the appliance into the PrimeTest 125 EL front panel test socket.

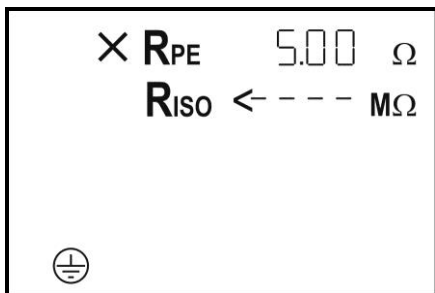
Connect the black test probe to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.

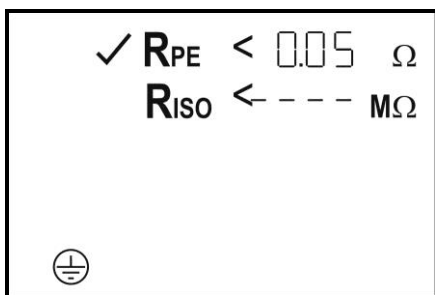
Press the CL I test button to start a Class I test sequence.

The PrimeTest 125 EL will now test the continuity of the protective earth.

If the measured value is greater than the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a fail result as shown below.



If the measured value is less than or equal to the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result, as shown below.



If the Earth Continuity test has passed then the unit will proceed with an Insulation test.

Note: The power switch on the appliance under test must be in the ON position to perform an insulation test. If no appliance is detected the PrimeTest 125 EL will display LO LOAD.

If the **LO LOAD** enunciator is displayed, the load presented by the appliance may be too small for the PrimeTest 125 EL to detect. In this case, press the CL I test button to continue.

If the Insulation test measures below the 1Mohm pass/fail threshold, the measured value is displayed and the unit indicates a fail.

If the measured value is greater than or equal to the 1 Mohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result.

3.2 Testing a Class I Appliance with Leakage

Visually inspect the appliance as per requirements of AS/NZS3760. If the appliance passes a visual inspection proceed with the electrical tests.

Plug the mains lead into the PrimeTest 125 EL and a mains supply socket.



When plugging the mains lead into the PrimeTest 125 EL ensure that the polarity orientation of the connector is correct. DO NOT FORCE THE PLUG INTO THE CONNECTOR, doing so may damage the PrimeTest 125 EL.

Plug the black test lead into the Earth/Insulation test terminal on the PrimeTest 125 EL end panel.

Plug the appliance into the PrimeTest 125 EL front panel test socket.

Connect the black test probe to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.

Press and hold the Leakage button and then the CL I test button.

The PrimeTest 125 EL will now test the continuity of the protective earth.

If the measured value is greater than the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a fail.

If the measured value is less than or equal to the 1 ohm pass/fail threshold, the measured value is displayed and the unit indicates a pass result. The unit will proceed with a Leakage test.

Note: The power switch on the appliance under test must be in the ON position to perform a leakage test. If no appliance is detected the PrimeTest 125 EL will display LO LOAD.

The ILEAK icon will flash, press the Leakage button to start a Leakage test.

The mains supply status is checked and the status is indicated using the LN, LE and NE enunciators of the LCD.

| LN | LE | NE | Mains status |
|-------|-------|-------|-----------------------|
| ON | ON | OFF | Correct |
| Flash | Flash | OFF | No mains |
| OFF | Flash | Flash | Earth fault |
| OFF | Flash | Flash | Live/neutral reversed |

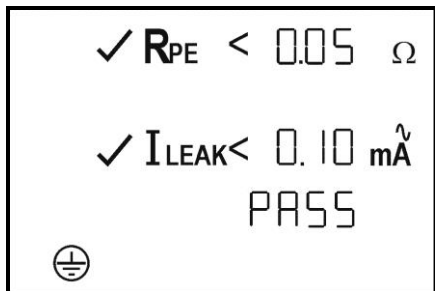
If the **LO LOAD** enunciator is displayed, the load presented by the appliance may be too small for the PrimeTest 125 EL to detect. In this case, press the Leakage button to continue.

Note: If the High Load enunciator is displayed, the load presented by the appliance may be too great for the PrimeTest 125 EL and users should carry out an insulation test. Continuing with the leakage test may blow the fuse.

If the Leakage current is greater than 5mA the **FAIL** enunciator is illuminated.

If the Leakage current is less than or equal to 5mA a tick is placed next to the I_{LEAK} enunciator.

The **PASS** enunciator is illuminated.



3.3 Testing a Class II Appliance

Visually inspect the appliance as per requirements of AS/NZS3760. If the appliance passes a visual inspection proceed with the electrical tests.

Plug the black test lead into the Earth/Insulation test terminal on the PrimeTest 125 EL end panel.

Plug the appliance into the PrimeTest 125 EL front panel test socket.

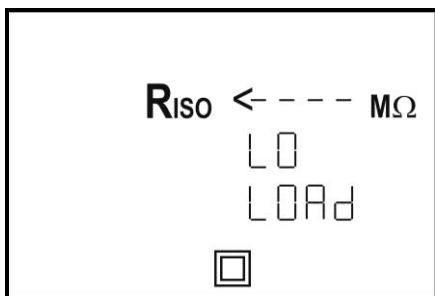
Connect the black test probe to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.

Press the CL II test button to start a Class II test sequence.

Note: The power switch on the appliance under test must be in the ON position to perform an insulation test. If no appliance is detected the PrimeTest 125 EL will display **LO LOAD**.

If the **LO LOAD** enunciator remains on the display, the load presented by the appliance may be too small for the PrimeTest 125 EL to detect. In this case, press the CL II test button to continue.



The unit will now perform an Insulation test.

If the Insulation Resistance is less than 1Mohm the **FAIL** enunciator is illuminated.

If the Insulation Resistance is greater than or equal to 1Mohm a tick is placed next to the **R_{iso}** enunciator.

The **PASS** enunciator is illuminated.

3.4 Testing a Class II Appliance with Leakage

Visually inspect the appliance as per requirements of AS/NZS3760. If the appliance passes a visual inspection, proceed with the electrical tests.

Plug the mains lead into the PrimeTest 125 EL and a mains supply socket.



When plugging the mains lead into the PrimeTest 125 EL ensure that the polarity orientation of the connector is correct. DO NOT FORCE THE PLUG INTO THE CONNECTOR, doing so may damage the PrimeTest 125 EL.

Plug the black test lead into the Earth/Insulation test terminal on the PrimeTest 125 EL end panel.

Plug the appliance into the PrimeTest 125 EL front panel test socket.

Connect the black test probe to an exposed metal part on the appliance.

If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.

Press and hold the Leakage button and then the CL II test button to perform the Class II test sequence including a Leakage test.

Note: The power switch on the appliance under must be in the ON position to perform an leakage test. If no appliance is detected the PrimeTest 125 EL will display LO LOAD.

The ILEAK icon will flash, press the Leakage button to start a Leakage test.

The mains supply status is checked and the status is indicated using the LN, LE and NE enunciators of the LCD.

| LN | LE | NE | Mains status |
|-------|-------|-------|-----------------------|
| ON | ON | OFF | Correct |
| Flash | Flash | OFF | No mains |
| OFF | Flash | Flash | Earth fault |
| OFF | Flash | Flash | Live/neutral reversed |

If the **LO LOAD** enunciator is displayed, the load presented by the appliance may be too small for the PrimeTest 125 EL to detect. In this case, press the Leakage button to continue.

Note: If the High Load enunciator is displayed, the load presented by the appliance may be too great for the PrimeTest 125 EL and the user should carry out an Insulation test. Continuing with the leakage test may blow the fuse.

If the Leakage current is greater than 1mA the **FAIL** enunciator is illuminated.

If the Leakage current is less than or equal to 1mA a tick is placed next to the **I_{LEAK}** enunciator.
The **PASS** enunciator is illuminated.

3.5 Testing a mains cord

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests.

Plug the mains cord under test into the IEC socket and the front panel mains socket on the PrimeTest 125 EL.

Press the CL I test sequence button.

The PrimeTest 125 EL will first test the continuity of the protective earth.

If the measured value is greater than 1 ohm a cross is placed next to the **R_{PE}** enunciator, a FAIL is indicated.

If the measured value is less than or equal to 1 ohm a tick is placed next the **R_{PE}** enunciator.

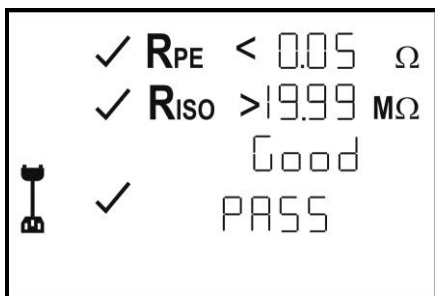
The unit will proceed with the Insulation test.

If the Insulation Resistance is less than 1 Mohm a cross is placed next to the **R_{ISO}** enunciator.

If the Insulation Resistance is greater than or equal to 1 Mohm a tick is placed next to the **R_{ISO}** enunciator.

The unit will proceed with the wiring test, checking the live and neutral conductors for short or open circuits or reversed connections.

If the wiring is correct a tick is placed next to the cord enunciator, the **GOOD** enunciator is illuminated and a **PASS** is indicated for the sequence.



Note: If the tested cord has a wiring fault, one of the following enunciators will be illuminated in place of GOOD

OPEn indicates that either the live or neutral conductor is broken (open circuit) or the plug top fuse has blown

Shrt indicates that the live and neutral conductors are shorted together

CrOS indicates that the live and neutral connections are crossed (live and neutral conductors reversed)

3.6 Testing an extension lead

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests.

Plug the supplied 0.5m IEC lead into the IEC socket and into a mains outlet on the extension lead. Plug the mains plug of the extension lead into the front panel mains socket on the PrimeTest 125 EL.

The extension lead can now be tested in the same manner as an IEC as described above.

3.7a Test an EPOD (Powerboard)

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests. AS/NZS3760 requires an earth resistance test to be performed to each outlet.

Operators have the choice of carrying out two test sequences for EPODs:

Procedure A: a complete test sequence is carried out for every socket (earth, insulation and polarity)

Procedure B: a complete test sequence is carried out on the very last socket. Only an earth resistance test is carried out on the remaining sockets.

Procedure A:

1. Plug powerboard lead into mains outlet socket on the PrimeTest 125 EL.
2. Plug IEC Lead into the IEC socket on the top of the PrimeTest 125 EL.
3. Plug the IEC Lead plug into the first socket of the EPOD.
4. Press CL I test button to perform a complete test sequence covering earth, insulation and polarity to test the socket.
5. Repeat sequence on every socket.

Procedure B:

1. Plug powerboard lead into mains outlet socket on the PrimeTest 125 EL.
2. Plug IEC Lead into the IEC socket on the top of the PrimeTest 125 EL.
3. Plug the IEC Lead plug into the first socket of the EPOD.

Note: First socket is defined as the closest socket to the power lead.

4. Press the CL I and LKGE buttons simultaneously. The PrimeTest 125 EL an earth test.
5. Repeat step 4 on every socket until the last socket.
6. At the last socket, press the CL I button to do a complete test.

Note: Last socket is defined as the socket furthest from the power lead.

3.7b Test an EPOD/Extension Lead with MOV and/or RCDs

Visually inspect the appliance as per requirements of AS/NZS3760. If the cord passes a visual inspection proceed with the electrical tests. AS/NZS3760 requires an earth resistance test to be performed to each outlet.

This test sequence uses a leakage test to replace an insulation test at 500V DC to avoid triggering the MOV (surge protector) or to apply power to the RCD to allow circuit connections.

Operators have the choice of carrying out two test sequences for EPODs with MOV and/or RCD:

Procedure A: a complete test sequence is carried out for every socket (earth, leakage and polarity)

Procedure B: a complete test sequence is carried out on the very last socket. Only an earth test is carried out on the remaining sockets.

Note: For extension leads with RCDs, follow 3.7b Procedure A and carry out a single socket test.

Procedure A:

1. Plug the mains lead into the PrimeTest 125 EL and a mains supply socket.
2. Plug powerboard lead into mains outlet socket on the PrimeTest 125 EL.
3. Plug IEC Lead into the IEC socket on the top of the PrimeTest 125 EL.
4. Plug the IEC Lead plug into the first socket of the EPOD.
5. Press the CL1 and LKGE buttons simultaneously. The PrimeTest 125 EL will perform an earth test.
6. The PrimeTest 125 EL will give warning beeps. The user should press the LKGE button to carry out a leakage and polarity test on the socket.
7. Repeat sequence on every socket.

Procedure B:

1. Plug the mains lead into the PrimeTest 125 EL and a mains supply socket.
2. Plug powerboard lead into mains outlet socket on the PrimeTest 125 EL.
3. Plug IEC Lead into the IEC socket on the top of the PrimeTest 125 EL.
4. Plug the IEC Lead plug into the first socket of the EPOD.

Note: First socket is defined as the closest socket to the power lead.

5. Press the CL I and LKGE buttons simultaneously. The PrimeTest 125 EL performs an earth test.
6. The Primetest 125 EL will give warning beeps. Press the CL II button to stop the test.
7. Repeat steps 5 and 6 on every socket until the last socket.
8. At the last socket, press the CL I and LKGE buttons simultaneously. The PrimeTest 125 EL forms an earth test.

9. The PrimeTest 125 EL will give warning beeps. Press the LKGE button to carry out a leakage and polarity test on the last socket. This completes the sequence for the powerboard test.

Note: Construction site EPODs usually have 2 banks of outlet sockets. A complete test sequence must be carried out on at least one socket outlet on each bank.

4 Troubleshooting

- Q** I have attached an IEC lead but the unit does not detect it and performs a Class I test.
- A** The IEC lead has an open earth path, the lead should be labelled as fail.
- Q** The PrimeTest 125 EL shows a 'NO LOAD' warning.
- A** The appliance under test is either not switched on or PrimeTest 125 EL cannot detect that the appliance is connected. Ensure that the appliance is connected correctly and is switched on. Press the CL I button to proceed with a Class I sequence, the CL II button to proceed with a Class II sequence or the Leakage button to proceed with a Leakage test.
- Q** The PrimeTest 125 EL shows a 'HIGH LOAD' warning.
- A** The appliance under test is greater than 10A, proceeding with the Leakage test may blow the fuse in the PrimeTest 125 EL. It is suggested that the sequence is aborted and a sequence which include an Insulation test be performed.
- Q** I have started a test sequence but the IEC icon is flashing.
- A** The PrimeTest 125 EL has detected an IEC lead. To test the IEC lead press the CL I button.

5 Specification

Earth Continuity

| | |
|-----------------|-------------------|
| Display Range | 0.01 -19.99 ohms |
| Measuring Range | 0.05 – 19.99 ohms |
| Accuracy* | ± (5% + 2 digits) |
| Test current | 200mA minimum |
| Test voltage | 9V nominal |

*When used with Seaward test lead, Part Number 161A024

Insulation resistance

| | |
|-----------------|--------------------|
| Display Range | 0.01 -19.99 Mohms |
| Measuring Range | 0.10 – 19.99 Mohms |
| Accuracy | ± (5% + 2 digits) |
| Test voltage | 500V VDC |
| Test current | >1mA into 500kΩ |
| Test current | <2mA into 2kΩ |

Class I Leakage Current

| | |
|-----------------|----------------------|
| Display Range | 0.15 – 9.99 mA |
| Measuring Range | 0.25 – 9.99 mA |
| Accuracy | ± (5% + 2 digits) |
| Test voltage | Mains Supply voltage |

Class II Leakage Current

| | |
|-----------------|----------------------|
| Display Range | 0.10 – 5.00 mA |
| Measuring Range | 0.10 – 5.00 mA |
| Accuracy | ± (5% + 2 digits) |
| Test voltage | Mains Supply voltage |

Cord Test

Earth continuity, insulation resistance as above.
Check for Live and Neutral open circuit, short circuit or reversed polarity.

Factory Set Pass/Fail limits

| | Class I | Class II |
|------------------------------|----------------|-----------------|
| Earth Continuity | 1.0 ohms | N/A |
| Insulation Resistance | 1.0Mohm | 1.0Mohm |
| Leakage | 5.00mA | 1.00mA |

Environmental rating

IP Rating IP40

Operating temperature range 0°C to 40°C, without moisture condensation.

Storage temperature range -25° to 65°.

Note: Batteries should be removed prior to storage.

Overvoltage category 300V CAT II

6 Maintenance

Clean only with a dry cloth; do not use solvents.


Before use, ensure unit is clean and dry; visually inspect all leads, connectors, and case. Any damage or wear must be rectified to preserve user safety.


Check the battery contacts and compartment are free of electrolytic contamination.

Any contamination of the battery contacts or compartment should be cleaned with a dry cloth.

Note: The PrimeTest 125 EL contains no user serviceable parts. If an **Error** warning should appear on the display please contact Emona Instruments Ltd for advice.

7 Battery Check

The PrimeTest 125 EL is powered from a 6 AA cells which are checked before a test is performed. When the battery voltage is low the  enunciator is illuminated. The unit will continue to perform within specification for a limited number of tests, dependent upon the type of the batteries fitted.

When the battery voltage reaches a level where the performance is affected the  enunciator will flash and all test keys are disabled. The batteries must be replaced.

7.1 Battery Replacement



Before opening the PrimeTest 125 EL ensure that all test leads are disconnected.

Switch off the unit by pressing and holding CL I and CL II buttons.

Disconnect all leads from the PrimeTest 125 EL.

Place the PrimeTest 125 EL face down and release the captive screw in the battery compartment cover. Remove the battery compartment cover and remove the discharged batteries.

Replacement batteries must be either Alkaline or NiMH.

Insert the replacement batteries into the battery compartment ensuring that the battery polarity matches the marking on the inside of the battery compartment.

Relocate the battery cover over the battery compartment and fasten in position with the battery cover captive screw.

8 Fuse

The unit is protected by a fuse. If the fuse should blow then the mains tests will not be allowed to start and the PrimeTest 125 EL will indicate that the mains connection is incorrect.

8.1 Fuse Replacement



Before opening the PrimeTest 125 EL ensure that all test leads are disconnected.

Switch off the unit by pressing and holding CL I and CL II buttons.

Disconnect all leads from the PrimeTest 125 EL.

Place the PrimeTest 125 EL face down and release the captive screw in the battery compartment cover. Remove the battery compartment cover and remove the fuse.

Ensure that the replacement fuse is a 20mm 10A 250V F Ceramic. Fitting the incorrect fuse type may lead hazard.

Insert the replacement fuse into the fuse holder.

Relocate the battery cover over the battery compartment and fasten in position with the battery cover captive screw.

9 Service and Calibration

To maintain the specified accuracy of the measurement results, the instrument must be recalibrated at regular intervals by either the manufacturer, **Emona Instruments**. We recommend a recalibration period of one year.

For help or advice on Service and Calibration contact:

AUSTRALIA**Service Department:**

Emona Instruments
78 Parramatta Rd
Camperdown NSW 2050

PO Box 15
Camperdown NSW 2050

Tel: (02) 9519 3933
Fax: 02 9550 1378
Email: service@emona.com.au

Sales Offices:

VIC:
1206 Toorak Rd, Camberwell VIC 3124, Tel: 03 9889
0427

QLD:
Unit 1, 1644 Ipswich Rd, Rocklea QLD 4106, Tel: 07
3275 2183

SA & TAS:
3/26 The Parade West, Kent Town SA 5067, Tel: 08
8363 5733

WA:
63 Shepparton Rd, Victoria Park WA 6100, Tel: 08
9361 4200

LOAD MESSAGES

| Message | Reason | Solution |
|----------------|--|---|
| Lo Load | Appliance switch is not engaged (switch in off position) | Engage the switch (turn it on) |
| Lo Load | Appliance switch is engaged but requires power to latch | Insulation test ineffective. Consider doing a leakage test. |
| Hi Load | Appliance may draw more than 10 amps | Appliance under test is greater than 10A, consider doing Insulation test. |






ERROR CODES

| Error Code | Meaning | Action |
|-------------------|------------------------|---------------------|
| err 10 | Internal relay failure | Return for Service. |
| err 12 | No Insulation Volts | Return for Service. |
| err 61 | Internal relay failure | Return for Service. |
| err 63 | Internal relay failure | Return for Service. |
| err 80 | Internal relay failure | Return for Service. |

TEST SEQUENCE

| Test Setting | Description | Earth Continuity | Insulation Test | Leakage Test | Polarity Test |
|----------------------|-------------------------------------|------------------|-----------------|--------------|---------------|
| CLI | Class I Earthed Appliance | ±200mA | 500V | | |
| CLII | Class II Double Insulated Appalance | | 500V | | |
| CLI-Lead Power Board | LEAD-IEC or Extension | ±200mA | 500V | | Yes |
| CLI-Leakage | Class I Power-up Test | ±200mA | | 240VAC | |
| CLII-Leakage | Class II Power-up Test | | | 240VAC | |

TEST SEQUENCE

| Test Type | Press Button(s) | Attachment Required | Examples & Comments |
|-----------------------------|--|--|--|
| CLI |  | Appliance lead (black) connected to exposed metal parts. | 3 pin – Most kitchen appliances (toaster, microwave..) |
| CLII |  | Appliance lead (black) connected to exposed metal parts. | Most hand held tools (2 or 3 pin socket) |
| Lead or Power Board Class I |  | IEC Lead Adaptor (red) | For power tools every socket must be checked. |
| Class I Leakage |  LKGE | Appliance lead (black) connected to exposed metal parts. | Beware moving parts. Appliance is active. |
| Class II Leakage |  LKGE | Appliance lead (black) connected to exposed metal parts. | Beware moving parts. Appliance is active. |