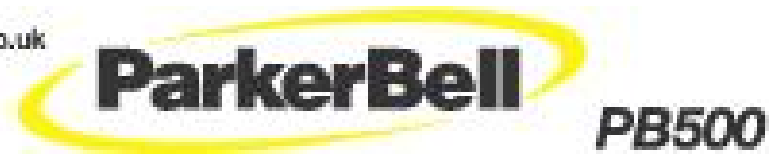


parker-bell.co.uk



Operating Instructions

Parker-Bell (Instruments) Ltd
3 Newbery Centre
Exeter Airport Business Park
Exeter
EX5 2UL
ENGLAND
Tel: +44 (0)1392 364933
www.parker-bell.co.uk

Limited Warranty & Limitation of Liability

Parker-Bell (Instruments) 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.

(c) Copyright 2006

All rights reserved. Nothing from this edition may be multiplied, or made public in any form or manner, either electronically, mechanically, by photocopying, recording, or in any manner, without prior written consent from Parker-Bell (Instruments) Limited. This also applies to accompanying drawings and diagrams.

Due to a policy of continuous development Parker-Bell (Instruments) Limited reserves the right to alter the equipment specification and description outlined in this publication without prior notice and no part of this publication shall be deemed to be part of any contract for the equipment unless specifically referred to as an inclusion within such contract.

DECLARATION OF CONFORMITY

As the supplier of the apparatus listed, declare under our sole responsibility that the product:

PB500

To which this declaration relates is in conformity with the relevant clauses of the following standard:

BS EN 61010-1:2001

Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements.

BS EN 61326:1998

Electrical equipment for measurement, control and laboratory user-EMC Requirements

Performance: The instrument operates within specification when used under the conditions in the above standards EMC and Safety Standards.

The product identified above conforms to the requirements of Council Directive 89/336/EEC and 73/23 EEC.

Contents

| | | |
|-----|-------------------------------|----|
| 1 | Important Information | 5 |
| 2 | Introduction | 7 |
| 3 | Performing Tests | 8 |
| 3.1 | Checking a mains power outlet | 8 |
| 3.2 | Testing a Class I Appliance | 9 |
| 3.3 | Testing a Class II Appliance | 12 |
| 3.4 | Testing an IEC mains cord | 14 |
| 3.5 | Testing an Extension Lead | 15 |
| 4 | Specification | 16 |
| 5 | Maintenance | 16 |
| 6 | Battery Check | 17 |
| 6.1 | Battery Replacement | 17 |
| 7 | Service and Calibration | 18 |

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 PB500.



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.

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.

Full details and specifications can be found at www.parker-bell.co.uk or by calling sales on 01392 364933.

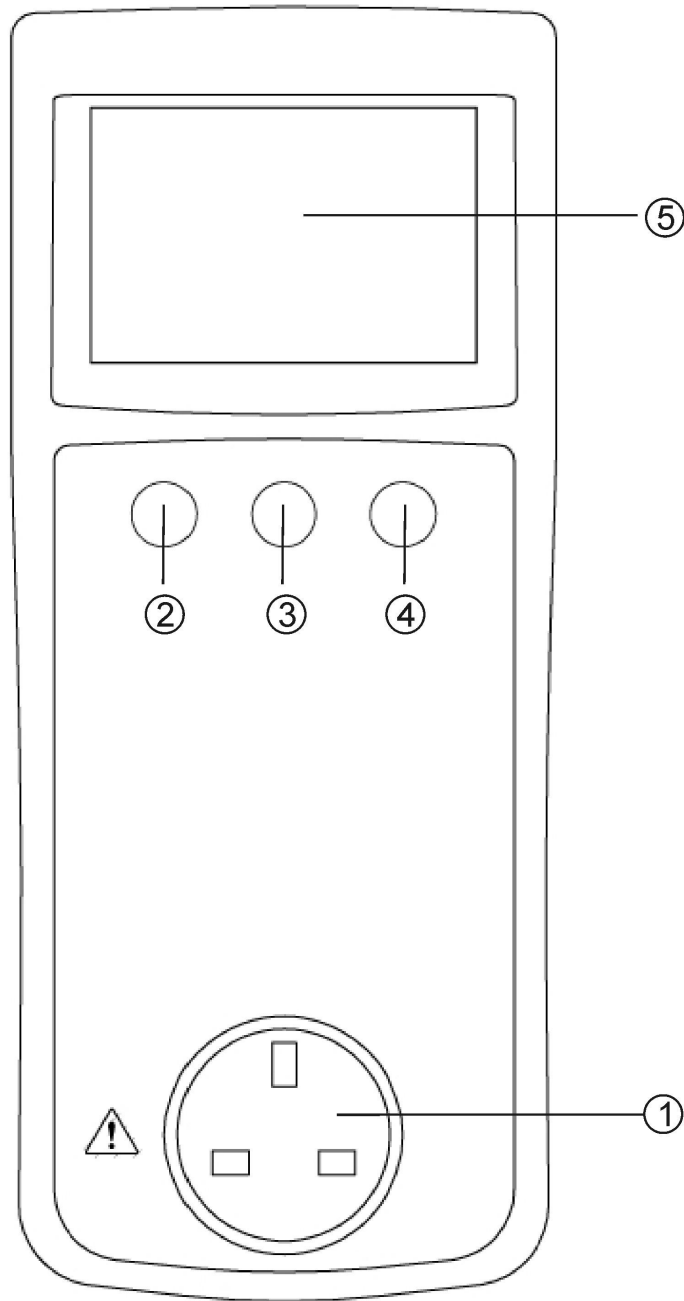


Figure 1. PB500 Front View

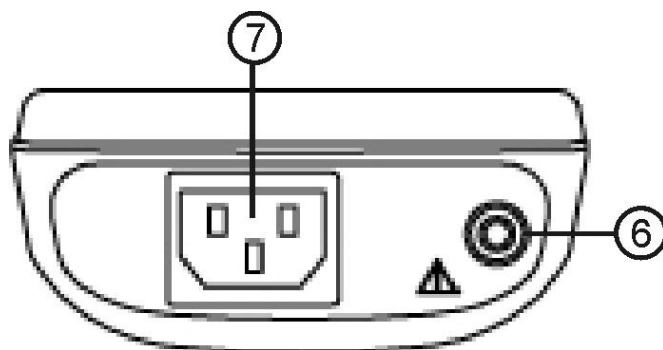


Figure 2. PB500 End View

2 Introduction

The PB500 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
- Mains outlet wiring

Numbers shown in circles e.g. ① refer to figure 1 and figure 2 on page 6.

Test connections on the PB500 are:

- Mains socket on front panel ① for connecting the appliance under test.
- 4mm socket on end panel ⑥ for earth test probe
- IEC socket on end panel ⑦ for mains cord testing.

User Interface

The LCD display ⑤ shows test progress, results for individual tests and the overall test result for an appliance or mains cord.

Tests are initiated using the three push buttons:

Power ON/OFF = ② + ③ until a beep is heard

Class I appliance test = ②

Class II appliance test = ③

Cord / extension lead test = ④

Note: The PB500 will automatically switch OFF after approximately 3 minutes if no keys are pressed. The auto switch-off is disabled during a power socket test.

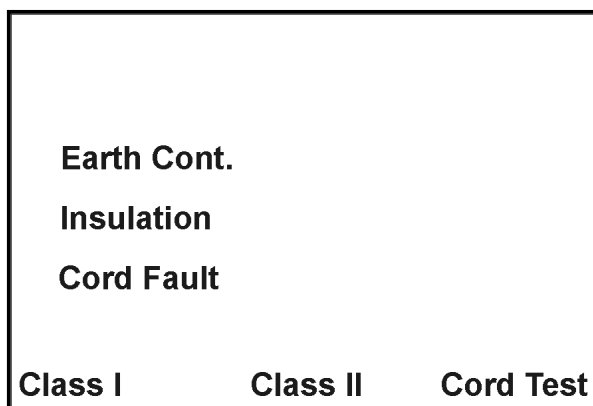
3 Performing Tests

Class I – this is an earthed appliance – look for 3 wires in the plug.

Class II/Double Insulated – this appliance has no earth wire and if double insulated has the following symbol.



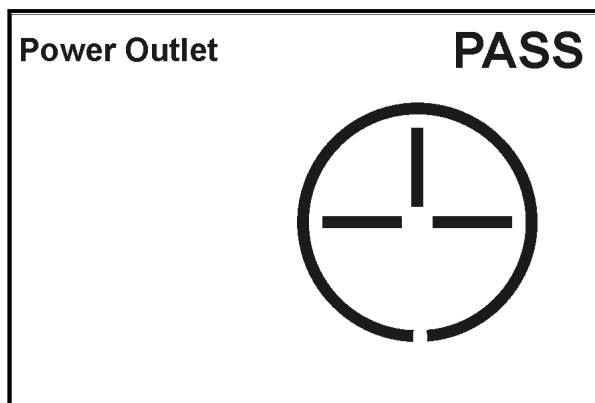
Press keys ②+③ to switch on the PB500. When the unit is ready the display will be as shown below.



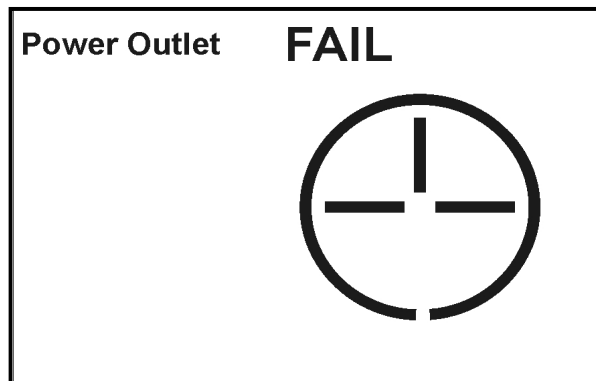
3.1 Checking a mains power outlet

Connect the IEC lead to the PB500 socket ⑦ and plug into the mains power outlet to be tested and switch mains power on.

If the mains socket wiring is correct the display will show.



If there is a fault with the socket wiring this is indicated by the display below.



In the event of a failure, disconnect the PB500 from the supply and have the fault rectified by a qualified electrician.



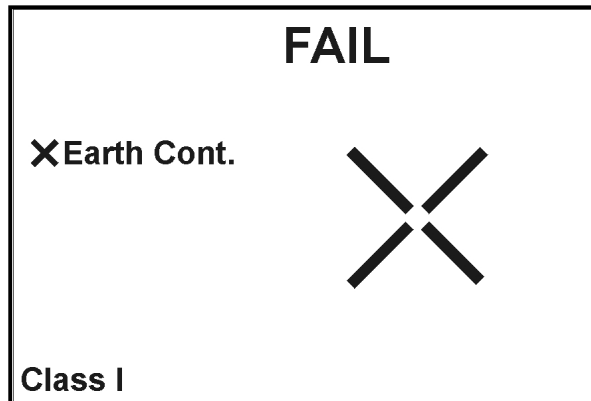
Do not leave the PB500 permanently connected to a mains supply.

The auto switch-off function is disabled when the PB500 is connected to a live mains socket. The unit will beep continually after 3 minutes to remind the user to disconnect from the mains socket.

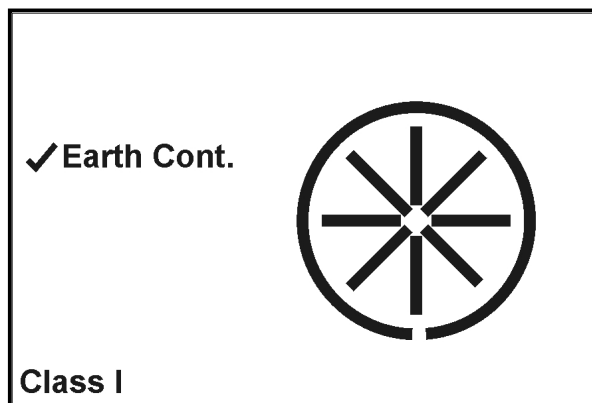
3.2 Testing a Class I Appliance

- Visually inspect the appliance and mains cord for signs of damage.
- If the appliance passes a visual inspection proceed with the electrical tests.
- Plug the earth test lead into the 4mm socket ⑥ on the PB500 end panel.
- Plug the appliance into the PB500 front panel mains socket ①
- Connect the earth test probe to an exposed metal earth point on the appliance.
- If the Appliance under test has an ON/OFF switch, make sure it is in the ON position.
- Press the Class I test key ②
- The PB500 will now test the continuity of the protective earth.

- If the measured value is outside acceptable limits a cross is placed next to the **Earth Cont** enunciator, a FAIL is indicated and the test sequence is halted.

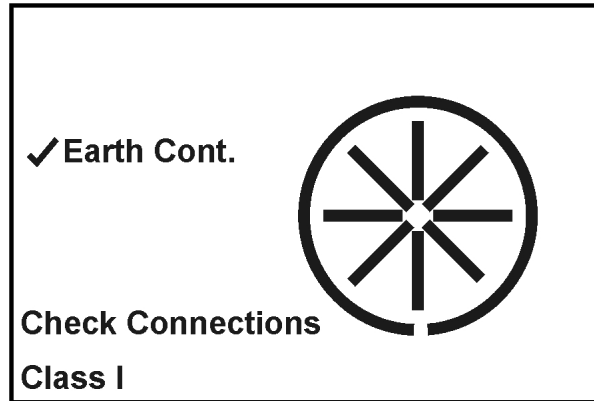


- If the measured value is within acceptable limits a tick is placed next the **Earth Cont** enunciator.

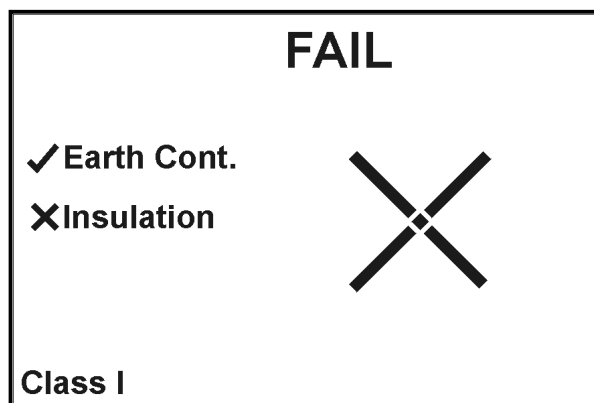


- The unit will proceed with the Insulation test.

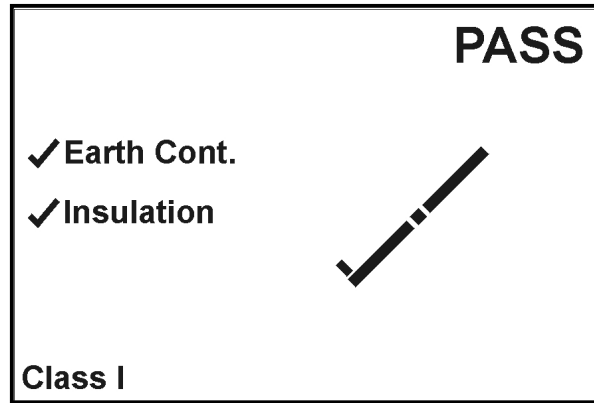
Note: The power switch on the appliance must be in the ON position to perform an insulation test. If no appliance is detected the PB500 will display the following.



- Check that the appliance power switch is in the ON position. The test will automatically proceed if the appliance power switch is placed in the ON position.
- If the **Check Connections** enunciator remains on the display, the load presented by the appliance may be too small for the PB500 to detect. In this case, press the test key ② to continue.
- If the Insulation Resistance is not acceptable a cross is placed next to the **Insulation** enunciator and the **FAIL** enunciator is illuminated.



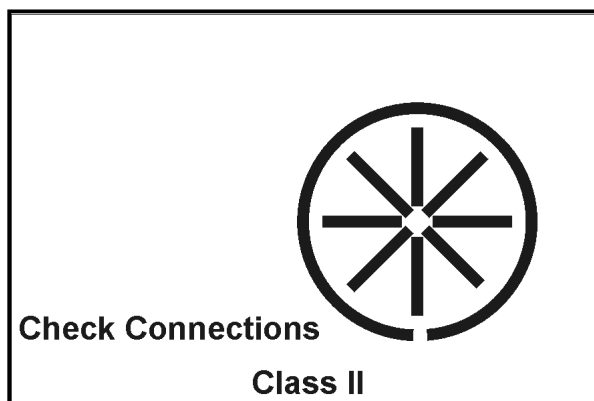
- If the Insulation Resistance is acceptable a tick is placed next to the **Insulation** enunciator and the **PASS** enunciator is illuminated.



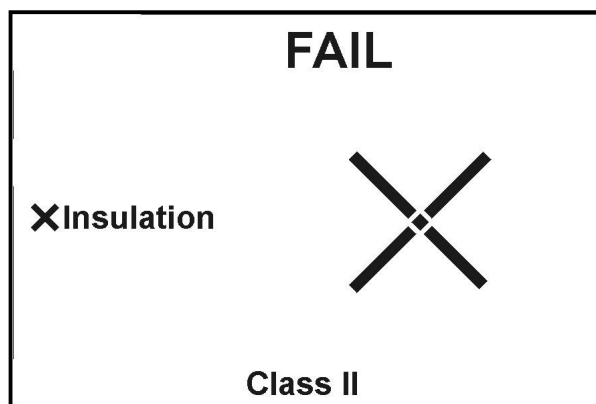
3.3 Testing a Class II Appliance

- Visually inspect the appliance and mains cord for signs of damage.
- If the appliance passes a visual inspection proceed with the electrical test.
- Plug the earth test lead into the 4mm socket ⑥ on the PB500 end panel.
- Plug the appliance into the PB500 front panel mains socket ①
- Connect the earth 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 Class II test key ③
- The PB500 will now test Insulation Resistance.

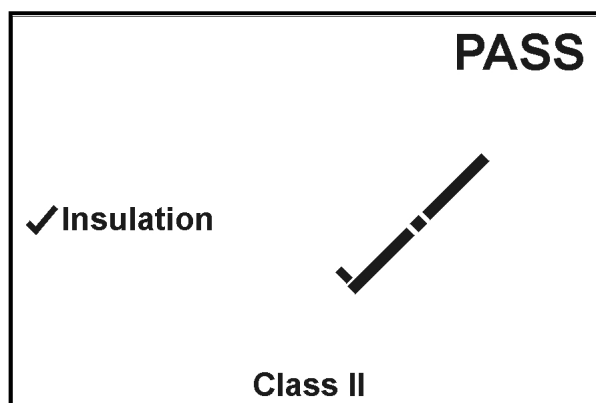
Note: *The power switch on the appliance must be in the ON position to perform an insulation test. If no appliance is detected the PB500 will display the following.*



- Check that the appliance power switch is in the ON position. The test will automatically proceed if the appliance power switch is placed in the ON position.
- If the **Check Connections** enunciator remains on the display, the load presented by the appliance may be too small for the PB500 to detect. In this case, press the test key ③ to continue.
- If the Insulation Resistance is not acceptable a cross is placed next to the **Insulation** enunciator and the **FAIL** enunciator is illuminated.

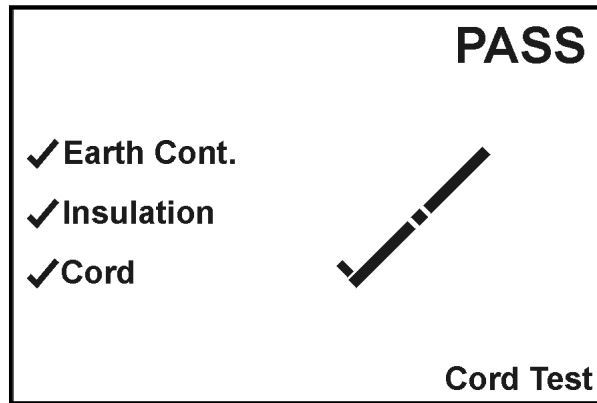


- If the Insulation Resistance is acceptable a tick is placed next to the **Insulation** enunciator and the **PASS** enunciator is illuminated.



3.4 Testing an IEC mains cord

- Visually inspect the IEC Lead for signs of damage.
- If the Lead passes a visual inspection proceed with the electrical tests.
- Plug the IEC lead under test into the IEC socket ⑦ and the front panel mains socket ① on the PB500.
- Press the cords test key ④
- The PB500 will now test the continuity of the protective earth.
- If the measured value is outside acceptable limits a cross is placed next to the **Earth Cont** enunciator, a FAIL is indicated and the test sequence is halted.
- If the measured value is within acceptable limits a tick is placed next the **Earth Cont** enunciator.
- The unit will proceed with the Insulation test.
- If the Insulation Resistance is not acceptable a cross is placed next to the **Insulation** enunciator and the test sequence is halted.
- If the Insulation Resistance is acceptable limit a tick is placed next to the **Insulation** 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 and a pass is indicated for the sequence.



3.5 Testing an Extension Lead

- Visually inspect the Extension Lead for signs of damage.
- If the Extension Lead passes the visual inspection proceed with the electrical tests.
- Plug the supplied 0.5m yellow IEC Lead into the IEC socket (7) and into a mains outlet on the Extension Lead. Plug the mains plug of the Extension Lead into the front panel mains socket (1) on the PB500.
- The Extension Lead can now be tested in the same manner as the IEC Lead as described above.
- This test must be repeated for each mains outlet on the extension lead.

4 Specification

Earth Continuity

| | |
|--------------|---------------|
| Pass Limit | 0.2Ω |
| Accuracy* | ± 0.03Ω |
| Test current | 200mA minimum |
| Test voltage | 9V nominal |

Insulation resistance

| | |
|--------------|--|
| Pass Limit | 1.0MΩ CLI, 2.0MΩ CL II 2.0MΩ Mains cord |
| Accuracy | ± 0.1MΩ |
| Test voltage | 500V |
| Test current | >1mA into 500kΩ |
| Test current | <2mA into 2kΩ |

Cord Test

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

*When used with Seaward test lead, Part Number 347A002

Environmental rating

IP40

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

Storage temperature range -25° to 65°. Batteries should be removed prior to storage.

Overtoltage category 300V CAT II

5 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.

6 Battery Check

The PB500 is powered from 6 AA batteries, which are checked before a test is performed. When the battery voltage is low the **Low Batt** enunciator is illuminated. The unit will continue to perform within specification for a limited number of tests, dependent upon the type of batteries fitted.

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

6.1 Battery Replacement



Before opening the PB500 ensure that all test leads have been disconnected.

- Switch off the unit by pressing and holding keys ② and ③.
- Disconnect the black test lead from 4mm test socket ⑥.
- Disconnect the IEC mains cable from the IEC socket ⑦.
- Place the PB500 face down, release the captive screw in the battery compartment cover.
- Remove the battery compartment cover.
- Remove the discharged batteries.
- 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.

7 Service and Calibration

To maintain the specified accuracy of the measurement results, either the manufacturer or an authorised service agent must recalibrate the instrument at regular intervals. We recommend a recalibration period of one year.

For help or advise on Service and Calibration contact:

Parker-Bell (Instruments) Ltd
3 Newbery Centre
Exeter Airport Business Park
Exeter
EX5 2UL
Tel: 01392 364933
Email: sales@parker-bell.co.uk
Web: www.parker-bell.co.uk