

TAXI-CHECK

Taxi Fare Meter Test System V1.3



USER MANUAL



Willowbank Electronics Ltd

Contents

Chapter 1

Introduction to Taxi-check	4
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Chapter 2

Handheld basics	5
2.1 Handheld keys	5
2.2 Wake-up screen	5
2.3 Main screen	5

Chapter 3

Main menu	6
3.1 Start meter test	6
3.2 Quick meter test	9
3.3 Start time test	11
3.4 Setup f-f, tariffs	12
3.5 Hardware setup	13
3.6 View test data	13

Chapter 4

Hardware setup menu options	14
4.1 Set rf channel	14
4.2 Set rf power	14
4.3 Contrast adjust	15
4.4 Backlight adjust	15
4.5 Set time/date	15
4.6 Battery status	15
4.7 Auto power off	16
4.8 Set user name	16
4.9 Calibration	16
4.10 Base unit specs	17

Chapter 5

Error messages	18
5.1 Error 1	18
5.2 Error 2	18
5.3 Error 3	18
5.4 Error 4	18
5.5 Error 5	19
5.6 Error 6	19
5.7 Error 7	19
5.8 Error 8	19
5.9 Error 9	19
5.10 Error 10	20
5.11 Error 11	20
5.12 Error 12	20

Chapter 6

Specifications	21
6.1 Handheld meter unit	21
6.2 Roller bed unit	21

Chapter 7

Service	22
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1.0 Introduction to TAXI-CHECK

2.0 Handheld basics

2.1 Handheld keys



ON/OFF

CLEAR

- When unit is off, hold down for >2sec. to turn unit **ON**.
- When unit is at the main screen, hold down for > 2sec. to turn unit **OFF**.
- Press momentarily to go back one level whilst in menu.
- Hold down for >2sec. whilst in menu to return to main screen.



ENTER

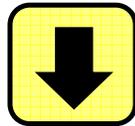
Press momentarily whilst in menu to select that option.

- Press momentarily whilst in setup screens to store(enter) that value.
- Hold down for >2sec. whilst in setup screens to store(enter) that value.



UP

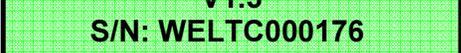
- Press momentarily whilst in menu to scroll upwards.
- Press momentarily to decrements value when in set-up screens.
- Hold down for >2sec. for repetitive decrementing.



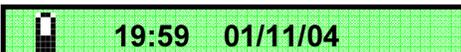
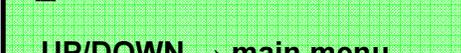
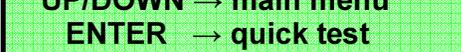
DOWN

- Press momentarily whilst in menu to scroll downwards.
- Press momentarily to increment value when in set-up screens.
- Hold down for >2sec. for repetitive incrementing.

2.2 Wake-up Screen

Line 1:		→ Personalized String.
Line 2:		→ Firmware Version.
Line 3:		→ Unit Serial Number.
Line 4:		

2.3 Main Screen

Line 1:		→ Battery Status & Clock / Calendar.
Line 2:		→ Press UP or DOWN to enter the menu.
Line 3:		→ Press ENTER key to start a quick test.
Line 4:		Go to section 3.2 for quick test help.

3.0 Main Menu

At the main screen press the **DOWN** or **UP** key to enter the main menu. Using either of those keys rotate through the menu until the desired option is displayed on line 3 with the arrow (→) pointing to it, then press the **ENTER** key. Press or hold down the **CLEAR** key to return to the main screen.

```

Line 1:-          - MAIN MENU -
Line 2:-          2. QUICK METER test
Line 3:- → 1. Start METER test
Line 4:-          6. View test data
    
```

MENU LISTING:

1. Start Meter test
2. QUICK Meter test
3. Start TIME test
4. Set f-f, tariff
5. Hardware setup
6. View test data

3.1 Start meter test

A full meter test gives the user the ability to have the distance over/under automatically calculated and pass/fail flagged in the results field. From the main menu select option 1, and then press the **ENTER** key.

Step 1.

Using the **DOWN** or **UP** key, select the desired option and press **ENTER**. To return back to the main menu press the **CLEAR** key.

```

SELECT FLAGFALL RATE
→ 1. Select preset
   2. Create flagfall
    
```

→ **Step 1.1**

Use the **DOWN** or **UP** key to rotate to the desired preset. Press **ENTER** to select and proceed to **step 2**. To return to **step 1** press the **CLEAR** key.

```

SELECT FLAGFALL RATE
Preset  1: $ 3.55
→ Preset 20: $ 5.65
Preset 19: $ 4.35
    
```

→ **Step 1.2**

The dollars value will now be highlighted by the flashing cursor. To modify this value use the **DOWN** or **UP** key, then press **ENTER** to store and move on to setup the cents value. To store the final value press **ENTER** and proceed to **step 2**. To return to **step 1** press the **CLEAR** key.

```

CREATE FLAGFALL RATE

Flagfall: $ 0.00
    
```

Step 2.

Using the **DOWN** or **UP** key, select the desired option and press **ENTER**.
To return back to the main menu press the **CLEAR** key.

SELECT TARIFF RATE

→ 1. Select preset
2. Create tariff

→ **Step 2.1**

Use the **DOWN** or **UP** key to rotate to the desired preset. Press **ENTER** to select and proceed to **step 2**.

To return to **step 1** press the **CLEAR** key.

SELECT TARIFF RATE

Preset 1: \$ 3.55
→ Preset 20: \$ 5.65
Preset 19: \$ 4.35

→ **Step 2.2**

The dollars value will now be highlighted by the flashing cursor. To modify this value use the **DOWN** or **UP** key, then press **ENTER** to store and move on to setup the cents value. To store the final value press **ENTER** and proceed to **step 3**.

To return to **step 2** press the **CLEAR** key.

CREATE TARIFF RATE

Tariff: \$ 0.00

Step 3.

Using the **DOWN** or **UP** key, increase or decrease the increment rate, then press **ENTER** to continue to **step 4**, or press **CLEAR** to return to **step 2**

**Set TARIFF
increment rate**

\$0.10

Step 4.

This screen allows the user to view the flagfalls and tariffs again before commencing with the test. If the values are wrong then press the **CLEAR** key to return to **step 3**, or press the **ENTER** key to continue to **step 5**.

Test: 1
Flagfall: \$ 0.00
Tariff: \$ 0.00
ENTER TO START TEST

Step 5.

If the vehicle is secured at this point then press **ENTER** to commence test.

**PLEASE ENSURE
VEHICLE IS SECURED
PROPERLY!
ENTER TO PROCEED**

If the roller bed cannot be found **error 1** will appear.
For information on errors go to **chapter 5**.

Step 6.

At this point the brakes are being released and the cab driver should slowly start to increase the vehicles speed. Once the rollers have detected wheel motion the screen will advance to **step 7**.

**BRAKE RELEASED
SLOWLY INCREASE
VEHICLE SPEED
40km/h MAX!**

Step 7.

This is the main test screen. Values on the display are updated several times per second so the user can compare the TAXI-CHECK fare against the cab meter fare in real-time.

**Test: 1
Speed: 0.0 km/h
Distance: 0.0 m
Fare: \$ 3.55**

When the desired fare has been accumulated on the cab meter the user should press the **ENTER** key.

Throughout different stages of the test the user may be asked to reduce the vehicles speed. These speed guidelines should be followed or the test may be automatically terminated. The test can be manually terminated at any stage by pressing the **CLEAR** key, this will return the user to **step 5**. The cab driver should then decrease vehicle speed until the wheels are stationary.

Step 8.

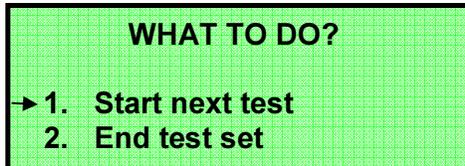
Using the **DOWN** or **UP** key, select the desired option and press **ENTER**. If you want to restart that test without saving the results then select option 2 (**restart test**), this will return the user to **step 5**. Otherwise select option 1(**store results**) to save test data and advance to **step 10**.

WHAT TO DO?

**→1. Store results
2. Restart test**

Step 10.

Since the system only has the ability to save tests as a completed set the user is given the option of doing multiple tests (up to 10) for that set of tests. To continue with another test select option 1 (**Start next test**), this will return the user to **step 1** allowing the next test to be setup. If that was the final test for that set then select option 2 (**End test set**), this will return the user to the main screen. Test data can then be viewed by following instruction shown in **section 3.6**.

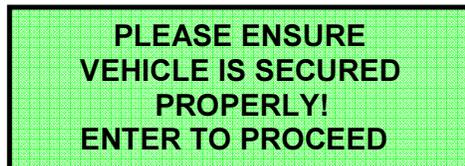
**3.2 Quick meter test**

A quick meter test gives the user the ability to start a distance measurement test without having to enter any pre test values. Only the distance traveled is stored in the results field, meters over/under or pass/fail cannot be calculated.

At the main screen or option 2 in the main menu, press the **ENTER** key.

Step 1.

If the vehicle is secured at this point then press **ENTER** to commence test.



If the roller bed cannot be found **error 1** will appear.

For information on errors go to **chapter 5**.

Step 2.

At this point the brakes are being released and the cab driver should slowly start to increase the vehicles speed. Once the rollers have detected wheel motion the screen will advance to **step 3**.



Step 3.

This is the main test screen. The fare value will show **n/a** since it cannot be calculated.

Test:	1
Speed:	0.0 km/h
Distance:	0.0 m
Fare:	n/a

Throughout different stages of the test the user may be asked to reduce the vehicles speed. These speed guidelines should be followed or the test may be automatically terminated.

When the desired fare has been accumulated on the cab fare meter the user should press the **ENTER** key, and advance to **step 4**.

The test can be manually terminated at any stage by pressing the **CLEAR** key, this will return the user to **step 5**.

When the test is ended the cab driver should decrease vehicle speed until the wheels are stationary.

Step 4.

Using the **DOWN** or **UP** key, select the desired option and press **ENTER**. If you want to restart that test without saving the results then select option 2 (**restart test**), this will return the user to **step 1**.

Otherwise select option 1(**store results**) to save test data and advance to **step 5**.

WHAT TO DO?	
1.	Store results
2.	Restart test

Step 5.

Since the system only has the ability to save tests as a completed set the user is given the option of doing multiple tests (up to 10) for that set of tests. To continue with another test select option 1(**Start next test**), this will return the user to **step 1** allowing the next test to be setup. If that was the final test for that set then select option 2(**End test set**), this will return the user to the main screen. Test data can then be viewed by following instruction shown in section 3.6.

WHAT TO DO?	
1.	Start next test
2.	End test set

3.3 Start time test

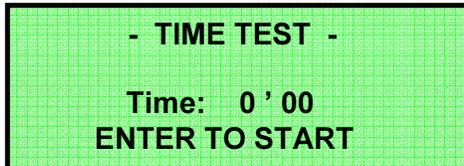
A timer test allows the meter to be used as a stopwatch for testing “wait” fare times.

From the main menu select option 3, and then press the **ENTER** key.

Step 1.

Press the **ENTER** key at the same time the fare meter is started.

The **CLEAR** key can be pressed at any stage to exit the test.

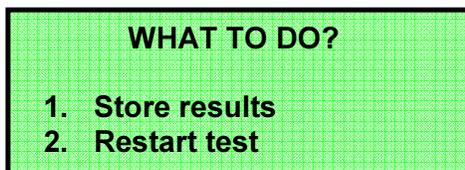


When cab meter rolls over press the **ENTER** key to end the test and proceed to *step 2*.

Step 2.

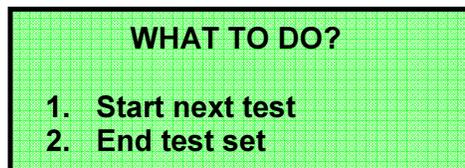
Using the **DOWN** or **UP** key, select the desired option and press **ENTER**. If you want to restart that test without saving the results then select option 2 (*restart test*), this will return the user to *step 1*.

Otherwise select option 1 (*store results*) to save test data and advance to *step 3*.



Step 3.

Since the system only has the ability to save tests as a completed set the user is given the option of doing multiple tests (up to 10) for that set of tests. To continue with another test select option 1 (**Start next test**), this will return the user to *step 1* allowing the next test to be setup. If that was the final test for that set then select option 2 (**End test set**), this will return the user to the main screen. Test data can then be viewed by following instruction shown in section 3.6.



3.4 Set ff, tariff

Preset flagfalls and tariffs give the user the ability to store up to 20 commonly used charges. These presets offer quick value entry when setting up a full meter test.

From the main menu select option 4, and then press the **ENTER** key.

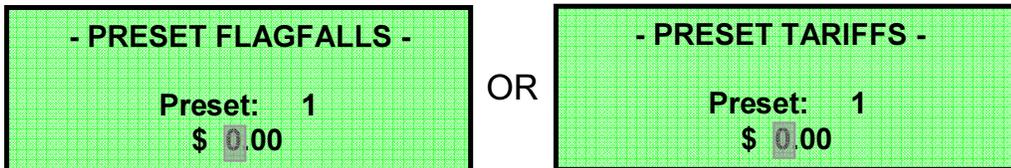
Step 1.

Using the **DOWN** or **UP** key, select the desired option and press **ENTER**. To exit this menu press the **CLEAR** key.



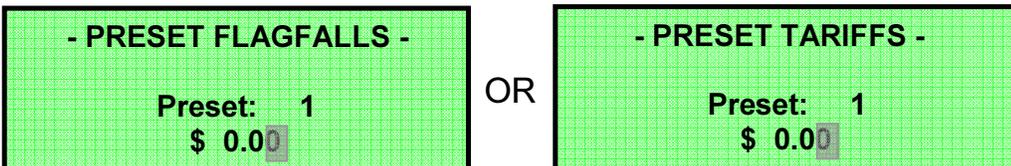
Step 2.

The dollars value for that preset will be highlighted by the flashing cursor, this is the value that will be modified. To increase or decrease the dollars use either the **DOWN** or **UP** key accordingly. When the desired value is met press the **ENTER** key and proceed to **step 3**. To exit without modifying and values press **CLEAR** to return to **step 1**



Step 3.

The cursor will now flash over the cents value for the preset. To increase or decrease the cents use either the **DOWN** or **UP** key accordingly. When the desired value is met either hold the **ENTER** key down to update all presets for that option and return to **step 1** or press **ENTER** momentarily to advance to the next preset and return to **step 2**. To return to step 2 on the same preset number press the **CLEAR** key.



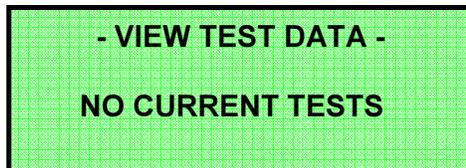
3.5 Hardware Setup

From the main menu select option 5, and then press the **ENTER** key.
Go to **Chapter 4** for information on the hardware setup menu options.

3.6 View test data

From the main menu select option 6, and then press the **ENTER** key.

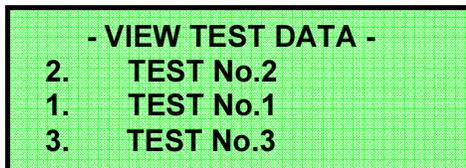
If there has been no test data stored the following screen will appear
(Press **CLEAR** or **ENTER** to exit.)



```
- VIEW TEST DATA -  
NO CURRENT TESTS
```

Step 1.

All tests stored from the last test set can be viewed from this screen.
Use the **DOWN** or **UP** key to scroll to the desired test, and press the **ENTER** key.
(Press **CLEAR** to exit.)



```
- VIEW TEST DATA -  
2. TEST No.2  
1. TEST No.1  
3. TEST No.3
```

Step 2.

Use the **DOWN** or **UP** key to scroll between the stored test data.
Press the **CLEAR** key to return to step 1.
Hold down the **CLEAR** key to return to the main screen.



```
- TEST No.1 DATA -  
TARIFF: $2.50  
FLAGFALL: $5.00  
T@ 13:45 05/11/04
```

4.0 Hardware Setup Menu Options

This menu contains options used for viewing and/or setting up system specifications. These options should not need to be accessed during regular operation.

Use the **DOWN** or **UP** key to rotate through the menu until the desired option is displayed on line 3 with the arrow (→) pointing to it, then press the **ENTER** key. Press the **CLEAR** key to return to the main menu.

Hold down the **CLEAR** key to return to the main screen.

Line 1:- **- HARDWARE SETUP -**
 Line 2:- **2. Set rf power**
 Line 3:- **1. Set rf channel**
 Line 4:- **10. Base unit specs**

MENU LISTING:

1. Set rf channel
2. Set rf power
3. Contrast adjust
4. Backlight adjust
5. Set time / date
6. Battery status
7. Auto power off
8. Set user name
9. Calibration
10. Base unit specs

4.1 Set rf channel

Channels 0-9 are available and allow multiple systems to be used within the same vicinity. A different channel may also be required due to external interference.

Use the **DOWN** or **UP** key to modify the value, then press **ENTER** to store and return to the hardware setup menu.

To exit without any modification, press the **CLEAR** key.

Warning: *The set channel on the meter must always match the set channel on the roller bed electronics to operate.*

- SET RF CHANNEL -

Channel: 0

4.2 Set rf power

Used to set the range that the meter can communicate to the roller bed from. Also can help overcome external interference problems and may be needed when setting up multiple systems within the same vicinity.

Use the **DOWN** or **UP** key to modify the value, then press **ENTER** to store and return to the hardware setup menu.

To exit without any modification, press the **CLEAR** key.

- SET RF POWER -

Power: 10mW

4.3 Contrast adjust

Alters the contrast of the text on the display.

Use the **DOWN** or **UP** key to modify the value, then press **ENTER** to store and return to the hardware setup menu.

To exit without any modification, press the **CLEAR** key.



4.4 Backlight adjust

Alters the backlight illumination of the display.

Use the **DOWN** or **UP** key to modify the value, then press **ENTER** to store and return to the hardware setup menu.

To exit without any modification, press the **CLEAR** key.



4.5 Set time / date

Sets up the meters clock/calendar, used for time & date stamping tests.

On entering this option the hour's value will be highlighted by the flashing cursor, this is the value that will be modified first. Use the **DOWN** or **UP** key accordingly to modify the hours. When the desired value is met press the **ENTER** key. The minutes value will now be highlighted. Modify this value the same way, **ENTER** to proceed. Use the same sequence to modify the date. When clock/calendar settings are all correct hold down the **ENTER** key to store and return to the hardware setup menu.

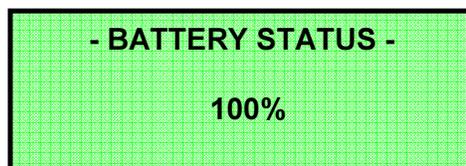
To exit without any modification, press the **CLEAR** key.



4.6 Battery status

Allows the user to view the amount of charge available in the battery.

To exit press the **CLEAR** or **ENTER** key.



4.7 Auto power off

Sets the time before meter switches off automatically if no buttons are pressed. The lower the value the longer your batteries may last, but **remember** all test data is lost when the meter switches off.

Use the **DOWN** or **UP** key to modify the value, then press **ENTER** to store and return to the hardware setup menu.

To exit without any modification, press the **CLEAR** key.

- AUTO POWER OFF -
20 minutes

4.8 Set user name

Allows the user to change the personalized string on the wake-up screen.

Use the **DOWN** or **UP** key to scroll between characters available for the string. Press **ENTER** to move onto the next character. To store the modified string when finished hold down the ENTER key.

To exit without any modification, press the **CLEAR** key.

- SET USER NAME -
welcome

4.9 Calibration

This option is used to calibrate the roller bed.

If the calibration jig is plugged in and bolted down (if required) press the **ENTER** key.

ENSURE CALIBRATION
UNIT IS BOLTED DOWN AND
PLUGGED IN!
- ENTER TO START -

If the roller bed cannot be found **error 1** will appear.

If the roller bed cannot see that the calibration jig is plugged in, **error 6** will appear.

For information on errors go to **chapter 5**.

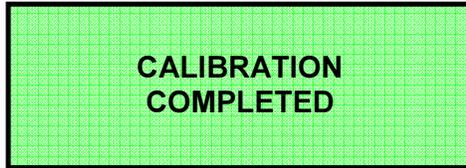
The roller bed is now ready to be calibrated. Slowly spin the roller bed up to speed, **15km/h MAX**.

- CALIBRATION -

SPEED: 0.0 km/h
DISTANCE: 0.0 m

When 1000m have been measured, the unit automatically ends the calibration and stores the new calculated value. This value may be viewed by following procedure in **section 4.10**.

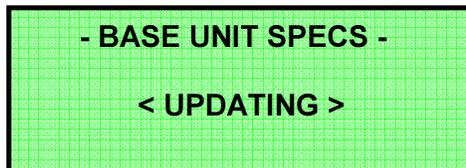
Press **CLEAR** or **ENTER** to exit.



4.10 Base unit specs

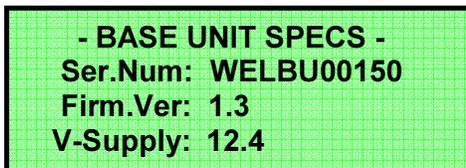
Allows the user to view the corresponding roller beds electronic specifications.

When this option is entered the handheld meter will automatically poll the roller bed for the specs. The screen below will appear briefly while the data is being downloaded.



If the roller bed cannot be found **error 1** will appear. For information on errors go to **chapter 5**.

Once the all the data has been received use the **DOWN** or **UP** key to scroll between the different specifications. Press **CLEAR** or **ENTER** to exit.



5.0 Error Messages

The following error messages may be encountered when using the system.

5.1 Error 1

Handheld meter is attempting to find the roller bed unit.

If no unit is found within required time frame the meter will advance to **error 2**.



5.2 Error 2

Handheld meter has not received signal from the roller bed unit.



1. Check the power is switched on to the roller bed electronics.
2. Check that both the handheld meter and roller bed electronics are set to the same rf channel.

5.3 Error 3

Handheld meter has lost signal from the roller bed unit during a full or quick meter test.

The likely causes are power failure to the base unit or external rf interference.

The handheld meter will advance to **error 1** and start searching for the unit.



1. Try repeating the calibration procedure.
2. If the problem persists try increasing the rf power or change the rf channel.

5.4 Error 4

Handheld meter has lost signal from the roller bed unit during a calibration.

The likely causes are power failure to the base unit or external rf interference.

The handheld meter will advance to **error 1** and start searching for the unit.



1. Try repeating the calibration procedure.
2. If the problem persists try increasing the rf power or change the rf channel.

5.5 Error 5

The data being received has too many data errors.
This can be caused by external rf interference.

**INTOLERABLE
COMMUNICATION
ERRORS**

1. If the problem persists, try increasing rf power or change the rf channel.

5.6 Error 6

During a test the maximum speed is 40km/h. If this limit is exceeded the following message will appear. The user must slow down.

**SLOW DOWN!
MAX SPEED 40km/h**

5.7 Error 7

If the user does not slow down during **Error 6** the following message will appear.
This is the last warning given to the user before the test will abort.

**SLOW DOWN!
FINAL WARNING!**

5.8 Error 8

The roller bed unit has failed to detect the calibration jig while in calibration mode.

**PLEASE PLUG
CALIBRATION UNIT IN!**

1. Check the calibration jig is plugged in properly.
2. Check for possible cable breakage on the calibration jig.

5.9 Error 9

The roller bed unit has detected that the calibration jig is still plugged in.

**PLEASE REMOVE
CALIBRATION UNIT!**

5.10 Error 10

Unit has detected a problem with rotary encoder on roller bed.

**MISSING PULSES
ON ROLLER ENCODER**

1. Check that the rotary encoder is secured properly on its mounts.
2. Ensure the coupling between the encoder and the roller bed is tight.

5.11 Error 10

Unit has detected a problem with rotary encoder on roller bed.

**MISSING Z PULSES ON
ROLLER ENCODER**

1. Check that the rotary encoder is secured properly on its mounts.
2. Ensure the coupling between the encoder and the roller bed is tight.

5.12 Error 11

Unit has detected a problem with calibration encoder on the calibration jig.

**MISSING PULSES ON
CALIBRATION ENCODER**

1. Check that the rotary encoder is secured properly on the calibration jig.
2. Ensure the coupling between the encoder and the calibration wheel is tight.
3. Check the calibration jig is plugged in properly.
4. Check for possible cable breakage on the calibration jig.

5.13 Error 12

Unit has detected a problem with calibration encoder on the calibration jig.

**MISSING Z PULSES ON
CALIBRATION ENCODER**

1. Check that the rotary encoder is secured properly on the calibration jig.
2. Ensure the coupling between the encoder and the calibration wheel is tight.
3. Check the calibration jig is plugged in properly.
4. Check for possible cable breakage on the calibration jig.

6.0 Specifications

6.1 Handheld meter unit

Battery pack: 6V NiMh (not user serviceable)

Wireless link:

RF Frequency: 433.23 to 434.35MHz
RF Power Output: 10mW *Max.*

Charger: 6V dc unregulated
450mA *Max.*

charging note. The handheld meter is fitted with NiMh batteries that are automatically charged by the control circuitry built into the meter. The unit charges at the rate required by the NiMh batteries for 14 hours.

On completion, the unit continues to “trickle charge”. This ensures the batteries remain fully charged if left on charge when not in use. It is recommended that charging only be done when batteries are flat. This will ensure maximum life of the battery pack. Charging should only be done with the plug pack supplied with the unit.

6.2 Roller bed unit

AC power adapter:

Input: 100 – 240V ac
1.5A,
50-60Hz
Output: 12V dc
5.5A *Max.*

Wireless link:

RF Frequency: 433.23 to 434.35MHz
RF Power Output: 10mW *Max.*

Rotary Encoder: +5V dc

Brake Actuator: +12V dc
4A *Max.*

7.0 Service

This unit has latest technology components and should give the user trouble free service providing that it is treated with care and is used in accordance with the instructions provided. This unit has no user serviceable parts and **should not be dismantled.**

In the event that your Taxi-Check system requires servicing, please contact the manufacturer as detailed below.

Willowbank Electronics Ltd
1419 Korokipo Road
RD 3
NAPIER
NEW ZEALAND

Phone: (64)-(6)-844-1079