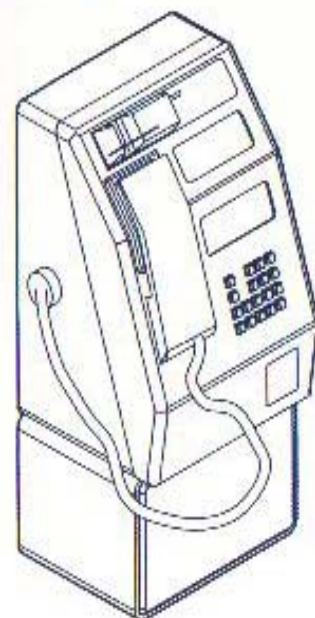


# Telstra smart payphone

## **PRODUCT MANUAL**

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- ▶ **Introduction**
- ▶ **Installation**
- ▶ **Commissioning**
- ▶ **Operation**
- ▶ **Maintenance**
- ▶ **Appendix**



# **Telstra smart payphone MANUAL 1, VOLUME A**

<b>SECTION 1:</b>	INTRODUCTION
<b>SECTION 2:</b>	INSTALLATION
<b>SECTION 3:</b>	COMMISSIONING / DECOMMISSIONING
<b>SECTION 4:</b>	OPERATION
<b>SECTION 5:</b>	MAINTENANCE
<b>SECTION 6:</b>	PARTS LIST AND GLOSSARY OF TERMS

***NOTE: A detailed Table of Contents heads each Section.***

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## **1. INTRODUCTION**

### **1.1 ORGANISATION OF THIS MANUAL**

#### 1.1.1 WARNINGS, CAUTIONS AND NOTES

### **1.2 INTRODUCTION TO THE Telstra smart payphone**

#### 1.2.1 GENERAL

### **1.3 MEANS OF PAYMENT**

#### 1.3.1 COIN COLLECTION SYSTEM

#### 1.3.2 CARD COLLECTION SYSTEM

### **1.4 EXTERNAL FEATURES**

#### 1.4.1 SMARTCARD

### **1.5 PAYPHONE DESCRIPTION**

#### 1.5.1 UPPER CASE

#### 1.5.2 LOWER CASE

#### 1.5.3 CLIMATIC CONDITIONS

#### 1.5.4 ELECTRICAL FEATURES

#### 1.5.5 WARNING SIGNALS

### **1.6 MODULAR TERMINAL MANAGEMENT SYSTEM (MTMS)**

#### 1.6.1 INTRODUCTION

#### 1.6.2 DATA COLLECTION

#### 1.6.3 DATA DOWNLOADING

#### 1.6.4 REPORT PRODUCTION

#### 1.6.5 Tsp1 <---> MTMS COMMUNICATION

### **1.7 RELATED DOCUMENTS**

# 1. INTRODUCTION

## 1.1 ORGANISATION OF THIS MANUAL

This manual provides Field Personnel with all the information necessary to install, commission, maintain and operate the Telstra smart payphone (Tsp1).

This manual is divided into the following sections:

<b>SECTION 1: INTRODUCTION</b>	An overview of the Tsp1 and the Payphone Management System and a Glossary of Terms.
<b>SECTION 2: INSTALLATION</b>	Describes how to install a Tsp1.
<b>SECTION 3: COMMISSIONING</b>	Describes how to commission a Tsp1.
<b>SECTION 4: OPERATION</b>	Describes how to use the Tsp1 and provides an overview of how the Tsp1 operates.
<b>SECTION 5: MAINTENANCE</b>	Describes how to maintain the Tsp1, how to find faults and how to replace each module.
<b>SECTION 6: PARTS LIST AND GLOSSARY</b>	Contains Alarm and Error lists, District System Codes and a Parts List. It also contains a

*If there are any complaints or suggestions about this manual, please call the NTS Helpdesk number.*

### 1.1.1 WARNINGS, CAUTIONS AND NOTES

Warnings, Cautions and Notes have the following meanings in this manual:

**WARNING:**

**A WARNING indicates a procedure that MUST be followed to prevent the possibility of injury or death.**

**CAUTION:**

**A CAUTION indicates a procedure that MUST be followed to prevent damage to the telephone or other equipment.**

**NOTE:**

**A NOTE provides further information not contained in the main text.**

## **1.2 INTRODUCTION TO THE Telstra smart payphone**

### **1.2.1 GENERAL**

The Telstra smart payphone (Tsp1) is a wall, booth or cabinet-mounted Payphone that accepts coins and the new Telstra prepaid card.

The Tsp1 is able to make local, STD and IDD calls. It can also be used without coins or a card for free and emergency calls.

The Tsp1 features:

- Modern housing design and strong construction to deter vandalism.

- Microprocessor control for reliable operation.

- Sophisticated software ensuring a high level of security against fraudulent use.

- Modular construction to facilitate on-site maintenance.

- The ability to collect data and communicate with a Modular Terminal Management System (MTMS).

The Tsp1 is to be installed in Payphone booths, cabinets and wall mounts for use by the general public.

The main characteristics of the phone are:

- Parameter configuration tailored to the operator's needs.

- Modular mechanical and functional design.

- High security against vandalism and fraud.

- Significant facilities for local or remote operation and maintenance.

The MTMS oversees the operation and management of the Tsp1. This includes Tsp1 telephone identity, alarm reception and processing, call transactions, Smartcard transactions and statistics transfer between the Tsp1 and MTMS. The Tsp1:

- Can operate as a stand-alone unit, separate of the MTMS.

- Has total network access - it can be connected to all types of exchanges.

- Is provided with a mixed card reader that allows the use of different types of chips and magnetic stripe cards. The card reader controller has 4 sockets for Security Access Modules (SAM).

- Incorporates an intelligent Coin Validator, capable of recognising 14 types of valid coins and tokens by identification of their dimensions (diameter & thickness) and alloy composition. This allows the Tsp1 total flexibility in the acceptance or non-acceptance of any type of coin and token and the assignment of a value to each one of the coin types.

The Tsp1 has Keypad and Visual Display facilities equipped with the following functions for both public users and maintenance personnel:

Display, introduction and manual modification of the local Tsp1's parameters.

Display and removal of the Tsp1 statistics.

Functional tests of the main Tsp1 modules.

Display and removal of the warning signals detected by the automatic internal supervision routine.

Automatic call initiation and connection to the MTMS.

The Tsp1 can be configured depending on the desired payment methods.

## **1.3 MEANS OF PAYMENT**

### **1.3.1 COIN COLLECTION SYSTEM**

Up to 14 coins can be programmed for acceptance. This system is capable of carrying out indirect collection through an Intermediate Coin Store (Escrow) for valid coins already introduced and accepted. The Coin Validation system is totally electronic and programmable.

The following coins are accepted:

5¢  
10¢  
20¢  
50¢  
\$1.00  
\$2.00

### **1.3.2 CARD COLLECTION SYSTEM**

The Card Collection System carries out the validation and analysis of the Phonecards.

It is a mixed card reader that permits the use of different types of allowed cards.

The following Telstra prepaid chip card values are accepted:

\$ 2        (promotional / testing only)  
\$5  
\$10  
\$20  
\$50

## 1.4 EXTERNAL FEATURES

The Tsp1 has external elements that allow the user to place calls.

These are:

### **HANDSET:**

A non-serviceable Handset made of high-strength plastic material, located at the left-front part of the unit, actuating the line disconnection switchhook. The weight of the Handset is 315grams.

### **KEYPAD:**

A set of buttons arranged in an alphanumeric Keypad, and auxiliary keys that allow the user(s) functions like:

Selection of the *language* for user instruction.

- Handset reception volume level adjustment.
- Prepaid Card change capability to continue same call (when its value is close to being totally consumed).
- Other functionality to be defined in the future, such as Electronic Purse.

### **VISUAL DISPLAY:**

The Liquid Crystal Display presents instructions for correct Tsp1 operation, call cost information, the phone number currently dialled, the time and other data.

When in the Monitoring mode, the status of the equipment is displayed to repair personnel.

The size of the Visual Display is 78mm x 26mm, 192 x 64 pixels.

### **1.4.1 SMARTCARD**

The Smartcard is a thin and flexible plastic card that contains its authentication capability for card readers containing the Telstra Security Access Module (SAM) scheme.

*The design of the Smartcard ensures a high level of security and protection against counterfeit and fraudulent use.*

#### **NOTE:**

**Users can start the "Auto Call Encoding" feature to permanently store one phone number on the Smartcard (up to 16 digits long). This number is automatically dialled when the Smartcard is inserted in the phone later.**



## 1.5 PAYPHONE DESCRIPTION

### 1.5.1 UPPER CASE

The upper case is made of stainless steel. The following table shows the Tsp1's main physical characteristics:

UPPER COMPARTMENT DIMENSIONS	
Height	349mm
Width	255mm
Depth	230mm (max.)
Weight	10kg
Door thickness	2mm
Box thickness	3mm

### 1.5.2 LOWER CASE

The lower case is made of steel. The following table shows the Payphone's main physical characteristics:

LOWER COMPARTMENT DIMENSIONS	
Height	170mm
Width	255mm
Depth	216mm (max.)
Weight	15kg.
Door thickness	10mm
Box thickness	10mm

The box and the door are made of steel with epoxy paint treatment. The box and the door have anti-drilling surface treatment.

### 1.5.3 CLIMATIC CONDITIONS

The Payphone is designed to operate under climate conditions specified in Telstra *Standard 1418*.

- Temperature: -10°C to +60°C
- Humidity: 0% to 95% (non condensing).

## 1.5.4 ELECTRICAL FEATURES

### 1.5.4.1 TRANSMISSION PERFORMANCE

The Tsp1 has an electronic speech circuit with excellent transmission performance. The speech circuit compensates for line loss by automatic signal regulation for acceptable Send and Receive transmission performance in terms of Loudness Ratings.

### 1.5.4.2 EXCHANGE POWER

The Tsp1 can be connected to any exchange line that can provide 20mA to 80mA of DC current @ 48V.

### 1.5.4.3 LOOP RESISTANCE

The maximum loop resistance must not reduce the DC line current measured at the terminal below 20mA @ 10V.

### 1.5.4.4 METERING PULSE DETECTOR

The instrument should be able to automatically detect Metering Pulses, which are measured at the instrument as follows.

#### **50 Hz LONGITUDINAL**

Frequency:	50Hz ± 10Hz	
	<b>Min</b>	<b>Max</b>
Duration of Signal:	100ms	380ms
Repeat Interval:	700ms	420ms
Minimum Level:	36.6Vrms	

Sensitivity: The signal must fit the 50Hz Operating Range of *Australian Communications Authority Technical Standard TS002 - 1996*.

#### **12 kHz TRANSVERSE**

Frequency:	12kHz ± 100Hz	
	<b>Min</b>	<b>Max</b>
Duration of Signal:	100ms	380ms
Repeat Interval:	700ms	420ms
Minimum Level:	60mV rms	

The minimum signal from the exchange must meet *Australian Communications Authority Technical Standard TS002 - 1996*.

### **1.5.4.5 LINE CONNECTION**

Telephone line wires (A, B and Functional Earth wires) from outside the Tsp1 are connected to the internal Line Connection board's screw terminals.

**NOTE:**

**The Tsp1 is NOT exchange line polarity conscious.**

**CAUTION:**

**Short-circuiting of the telephone line A and B wires may result in a line lock-out condition at the local exchange. Reset time may take 30 minutes.**

**WARNING:**

**Apart from 12kHz indoor locations where there may be no Protective Earth available, THE PROTECTIVE EARTH MUST BE CONNECTED TO THE INSTRUMENT CASE AT ALL TIMES.**

### **1.5.4.6 EXCHANGE REQUIREMENTS**

The exchange line service categories must be configured to provide the following:

Line Polarity Reversal on B-Party  
Answer. Multiple Meter Pulses (MMP).  
No Time Supervision Before First Digit. No Fleeting Test Reversal (FTR). Allowed  
Call Access: Local, Community, STD, IDD, VAS and Mobile.

Line Test Equipped (LTE2) Automatic line test on Handset lift OFF HOOK - not permitted.  
Telstra Preselect. (Carrier Override Code Barred).  
TCL = 5 (Public Payphone).  
TCL = 10 (Leased or Sold Payphone).

TLI = 4 (reversal only on chargeable calls public Payphones).

### **1.5.5 WARNING SIGNALS**

#### **1.5.5.1 AUDIBLE SIGNALS**

A Low Credit Warning tone (0.5 second, frequency 900Hz  $\pm$  10Hz) is generated by the Main Board and heard in the Handset Receiver approximately 25 seconds before credit reaches zero for a card call (15 seconds for a coin call). The volume level of this signal is adjustable. A beeping Card Removal tone is produced at the end of a call after the card is ejected.

#### **1.5.5.2 VISUAL SIGNALS**

Visual signals are shown on the Liquid Crystal Display (LCD). The Visual Display flashes a "LOW CREDIT" warning message and outputs a warning tone, with a prompt to indicate credit is low and more coins or another Phonocard should be inserted.

## **1.6 MODULAR TERMINAL MANAGEMENT SYSTEM (MTMS)**

### **1.6.1 INTRODUCTION**

The Modular Terminal Management System (MTMS) is a centralised system used to manage the Tsp1.

The MTMS has three primary functions:

1. Data collection.
2. Data down loading.
3. Report production.

**NOTE:**

**During communication with the MTMS, the Tsp1 is unable to make or receive normal voice calls.**

### **1.6.2 DATA COLLECTION**

The Tsp1 communicates directly with the MTMS using half-duplex signalling by dialling the MTMS modem to report on Alarm and other conditions. The alarms are divided into two groups:

1. User Alarms, which allow the call to continue. The alarm condition is reported when the user completes the current call.
2. Urgent Alarms, which are reported when they are detected. If a call is in progress, it is force-released.

Alarms include the following:

- Power Failure.
- EEPROM data corruption.
- Meter pulse without line reversal.
- Line reversal without meter pulse.
- Earth.
- LCD failure.
- Card Reader unit read or write error.
- Card Reader memory error.
- Card Jam.
- Card Reader missing.
- Coin jam.
- Coin Box Full warning.
- Coin Box Full alarm.
- Coin Box removal.
- Coin Box theft.
- Non-Detectable alarm.

**NOTE:**

**For detailed information on the alarm condition and the appropriate response, refer to the *Maintenance Section* of this manual.**

In addition, five unique codes are available for reporting the completion of various kinds of servicing. For example, when a maintenance procedure is finished, the service technician shall inform the MTMS by dialling a unique code, obtaining a special tone, then placing the Handset into the ON HOOK position.

When an Alarm condition occurs, the MTMS notifies TALE (MTMS Automatic Leopard Entry) of the event and Telstra personnel can initiate appropriate action i.e: such as a Maintenance Call.

The MTMS is notified when an Alarm condition clears. In addition, polling allows the MTMS to call the Tsp1 at any time to check various operational parameters.

**NOTE:**

**During communication with the MTMS, the Tsp1 is unable to make or receive normal voice calls.**

### **1.6.3 DATA DOWNLOADING**

The Tsp1 contains various data in RAM and EEPROM memory. This information can be updated at any time by the MTMS.

Information downloaded includes:

#### **Commissioning Information**

The Tsp1's details are entered into the MTMS database before installation. On installation, the technician initiates a call to the MTMS, which then identifies the Tsp1 and downloads the relevant information.

#### **Black-Listed Batch Numbers**

If a loss or theft of Phonocard batches occurs, the batch number is sent to the Tsp1 that will then reject any Phonecards within the Black List card range.

#### **Tariff changes.**

#### **Advertising and Information Text**

This is the text information that scrolls along the lower line of the Visual Display.

#### **Coin Box Warning (CTW) and Coin Box Full Alarm (CTA) Values**

These specify the Coin Box capacity thresholds for initiating coin collection before the Tsp1 generates a CTW and CTA Alarm.

#### **CHARMS Data**

CHARMS stands for **CH**arge **R**ecord **M**aintenance **S**ystem. The Tsp1 uses the CHARMS data to determine the type of call being made. For example, the Tsp1 needs to know when an STD number is a local call, to prevent the call from being force-released on receipt of a second meter pulse. The CHARMS data also includes a 50-number free call table (which is independent of the 10number free call table containing the emergency numbers).

### **1.6.4 REPORT PRODUCTION**

Besides monitoring Alarm conditions in real time for maintenance purposes, the MTMS can produce reports providing statistical information for maintenance and marketing management.

For example, marketing personnel may want to know about revenue gathered in various locations so that the Tsp1 may be relocated or extra Tsp1's may be installed to satisfy customer's needs.

Maintenance statistics help to pinpoint parts of the Tsp1 that have an unacceptable failure rate. These problems can then be referred to National Technical Support for a solution.

### **1.6.5 Tsp1 <---> MTMS COMMUNICATION**

The Tsp1 communicates with the MTMS using an Asynchronous V22bis modem link at 1200 bits per second half duplex (for Release 2). V23 is used in Release 1.



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## **2. INSTALLATION**

### **2.1 OVERVIEW OF INSTALLATION**

### **2.2 PRE-INSTALLATION**

- 2.2.1 EXCHANGE
- 2.2.2 POWER
- 2.2.3 SITING
- 2.2.4 WALL MOUNTING
- 2.2.5 TRANSPORT
- 2.2.6 CHECKLIST
- 2.2.7 SPECIFICATIONS FOR CONNECTION
- 2.2.8 REMOVAL OF EXISTING PHONE

### **2.3 PHYSICAL INSTALLATION**

- 2.3.1 INSTALLING THE MOUNTING PLATE
- 2.3.2 MOUNTING THE Tsp1

### **2.4 ELECTRICAL INSTALLATION**

- 2.4.1 CHECKING THE EARTH CONNECTION
- 2.4.2 CONNECTION PROCEDURE
- 2.4.3 COIN COMPARTMENT LOCKING BAR EXTENSION
- 2.4.4 ADMINISTRATION
- 2.4.5 COMPLETION



## 2. INSTALLATION

### 2.1 OVERVIEW OF INSTALLATION

This section explains how to install the Tsp1.

The Tsp1 may be mounted to:

A Full Length Payphone Cabinet (FLPC) without an Adaptor Module,

A Pedestal, or

A Wall Frame.

*In the above cases, the Tsp1 and moulded shroud are to be mounted on a Mounting Plate.*

Once installation is complete, the Tsp1 must be Commissioned. Refer to Section 3 for information on Commissioning.

### 2.2 PRE-INSTALLATION

There are several items requiring consideration before attempting an installation.

#### 2.2.1 EXCHANGE

Make sure the exchange is the correct classification and the metering frequency is correctly set.

**NOTE:**

**The Tsp1 should have 12kHz metering. The Tsp1 will detect 50Hz, 12kHz or 16kHz automatically.**

Ensure that the Tsp1 is set for either Dual Tone Multi Frequency (DTMF) or Decadic dialling as appropriate. DTMF is to be used where possible. This is a programmable option. *Refer to Section 5.7.1 "Parameters" for more information.*

#### 2.2.2 POWER

For **existing** Payphone installations, use the **existing** Power Supply (Material Number 03500700 or 03500705). Make sure all fuses are of 4Amps Slow Blow rating.

If this is a **new service**, try to organise the phone power supply on a **separate** fuse or circuit breaker.

In a **multiple site**, unless using a multiple outlet power supply (Material Number 03500704), make sure that each phone is on an **individual** power supply.

Ensure that a **suitable earth** is available according to *Australian Communications Authority Technical Standard TS009*.

### 2.2.3 SITING

If there is some control over the selection of a site, carefully consider the following:

Avoid placing phones in corridors that are usually noisy and can obstruct flow of movement.

Try to place the phone in a well-lit supervised area. This will reduce vandalism attacks and provide security for users.

If possible, use pre-cabling within walls. This improves the security of the service and provides a more professional finish.

### 2.2.4 WALL MOUNTING

Make sure the wall is capable of carrying the weight of the phone (approximately 33kg), together with the weight of a person leaning on it or sitting on the supporting shelf.

If you are unsure of the weight carrying capacity of the wall, have the Owner or Lessee signs an *Indemnity Form*.

Use the correct mounting hardware.

Position the **"How to Call"** notice so that it is clearly visible when using the phone.

Ensure that all numbers listed on the **"How to Call"** notice are correct and relevant to the area.

### 2.2.5 TRANSPORT

The Tsp1 is to be transported to the installation site lying on its back.

**WARNING:**

**As the Tsp1 unit weighs approximately 33kg, do not attempt to lift the Tsp1 by hand without assistance. Alternatively use a trolley.**

Take a trolley if necessary (stairwell, lifting, 4-wheel platform or bag trolley) to make it easier to transport the phone from the vehicle to the installation site.

Check the site to make sure it is safe and clear before taking your equipment there.

Mark off the work site with Witch's Hats and warning signs if possible. This is for the public's safety as well as your own.

If the phone is installed but not working when you leave, place a sign stating: **"NOT IN SERVICE"** in a prominent place.

## 2.2.6 CHECKLIST

For the general mounting method, ensure the following items are available before travelling to site:

- Tsp1, including two door-lock keys and suction cup.
- This manual.
- "How To Call" notice.
- Handling equipment, including lifting trolleys, tools and drill, and mat for shelf.
- 4Amp Slow Blow fuses for leased power supplies.
- Safety equipment.

For mounting in a FLPC with metric dome nuts, or on a pedestal or wall frame, the following mounting hardware is required:

- Tsp1 moulded plastic shroud 1 off
- Mounting Plate. 1 off
- M8 x 35mm button head socket screws. 4 off
- M8 x 25mm socket head set screw. 1 off
- M8 x 35mm socket head set screws. 3 off
- M8 1/2 nut and washer. 1 off
- M8 securing flange nut. 3 off

For mounting on a FLPC with imperial dome nuts the following mounting hardware is required (instead of the M8 x 30 button head socket screws):

- 1 1/2" (38mm) x 3/8" (10mm) imperial button head socket screws. 4 off

Also check the following items:

Contact the telephone exchange and ensure that the line classification is correct. Where possible, ensure that the line is set for DTMF operation.

Contact the relevant MTMS group to ensure that the new Tsp1 is registered on the MTMS.

Ensure the cabinet or enclosure is refurbished and cleaned in preparation for the new phone. Make sure that the cabinet or enclosure's Power Supply is on-line and available.

You may need a 21V Power Supply (*refer to the Electrical Standards manual*).

Check that the power supply leads have spade connectors crimped.

Light (if required).

Booth (if required). Refer to the appropriate manual.

Shelf.

Card Disposal slot.

Earth connection method.

Analogue multimeter (for checking the earth connection) Check that the Drill's battery is charged.

Have you got the appropriate test Phonecards?

Order for Telephone installation.

Line Number.

PT ID Number.

Site Survey.

Tools required:

- Posidrive screwdrivers.
- 6mm & 8mm spanner or socket set.
- Allen keys (metric and imperial) (4mm hex key).
- Anti-static protection equipment.

## **2.2.7 SPECIFICATIONS FOR CONNECTION**

The Tsp1 is to be connected to a line with the following specifications.

### **2.2.7.1 CUSTOMER LINE**

The exchange feeding bridge should be 48VDC, 200+200 / 400+4000 (Ohms).

Exchanges must be able to supply at least 20mA DC current at 50V to the Tsp1.

Wherever possible, the Tsp1 is to have 12kHz metering and appropriate pulse delay programming.

Wherever possible, the Tsp1 is to be set for DTMF operation. DTMF/Decadic dialling is a programmable option.

### **2.2.7.2 POWER SOURCE**

The Tsp1 requires 21VAC or 12VDC

## **2.2.8 REMOVAL OF EXISTING PHONE**

In some cases the Tsp1 will be installed in a position currently occupied by an existing phone. These instructions outline how to remove an existing phone.

If possible, test the existing phone first to make sure that the line is working. This will confirm whether you have an appropriate line to the local exchange.

1. Switch off the 240V supply.
2. If necessary, remove the cabinet door.
3. Remove the power leads from the power supply. Insulate the power lead connectors to protect the Power Supply against short-circuit.
4. Disconnect earth and exchange line wires. Insulate the exchange wires to protect against short circuiting and line lockout (AXE exchanges).
5. Remove the existing phone and prepare the wall of the cabinet for the new mounting frame by removing the old mounting frame and the "How to Call" guide. Ensure the wall is clean and tidy.

## 2.3 PHYSICAL INSTALLATION

### 2.3.1 INSTALLING THE MOUNTING PLATE

The Mounting Plate has two sets of 4 mounting holes (Figure 2.1). Use the top set of holes labelled "Special / Heritage Booth" on Figure 2.1 when installing to a Heritage booth or making a special installation. Use the lower set labelled "Pedestal / FLPC" when installing to a Pedestal or a FLPC.

When performing a special installation (other than to a Telstra booth), take precautions to ensure that the mounting surface has sufficient load bearing capacity. For example, see Section 2.1.2.4 "Wall mounting".

The imperial hardware kit is used when installing the Tsp1 to a FLPC that has imperial dome nuts.

To install the mounting plate:

1. Offer the Mounting Plate up to the back panel of the pedestal and feed the power and exchange line wiring through the holes in the mounting plate (refer to Figure 2.1).
2. Secure to the back panel using the appropriate set of button head socket screws taking care not to pinch any cables behind the Mounting Plate. Use the lower 4 of the 6 dome nuts on the back panel. Secure the unused top two dome nuts with socket screws. These will be covered by the plastic shroud
3. Fit 1 of M8 x 30mm stud to stand-off No. 1 (see Figure 2.1). This stud is to protrude only 18mm above Mounting Plate boss to allow for the limited space behind the card reader mechanism inside the Tspl. Stand-offs No. 2, 3 and 4 are to have M8 x 40mm Studs.

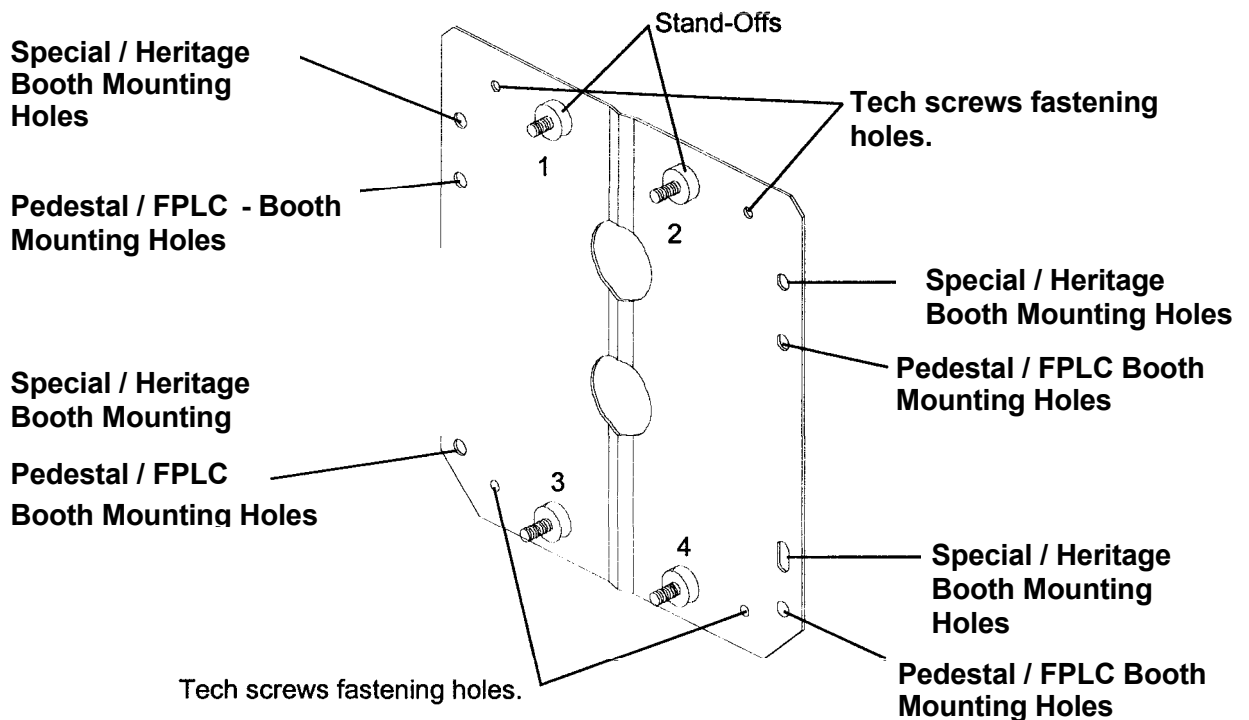


Figure 2.1. Tsp1 Mounting Plate.

### 2.3.2 MOUNTING THE Tsp1

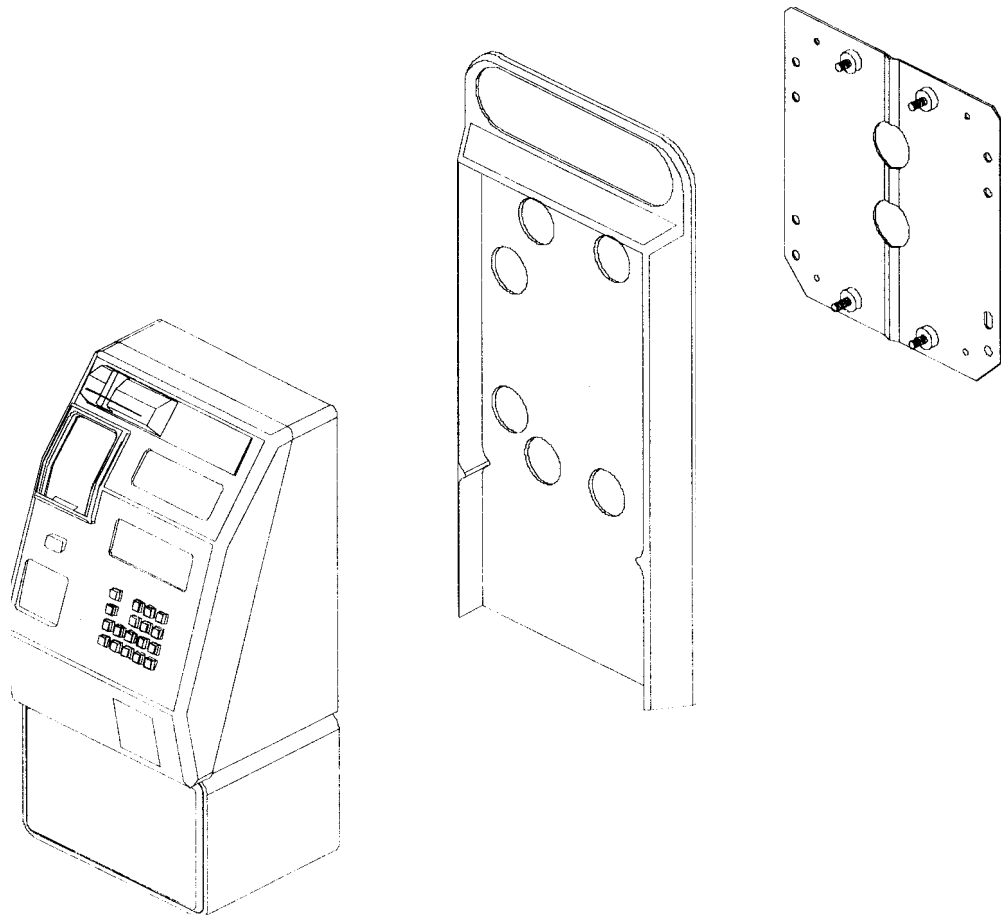
**CAUTION:**

The Tsp1 contains static sensitive components that can be permanently damaged by static electricity carried by hands or tools. Within the closed case they are not at risk but it is essential to take anti-static precautions before touching or handling any PBA or its components. The Tsp1 is a delicate electronic and mechanical instrument. When working inside the Tsp1 take care to protect components against damage. In particular take care not to bend the pins on the ribbon connectors when removing and inserting cables.

Use an earth strap to ensure that you are at the same potential as the Tsp1.

Take the telephone out of the packing and open the upper case door. To do this insert the key in the lock on the right hand side of the upper case, turn 180° clockwise and open the door.

Seat the Tsp1 in the moulded plastic shroud (Figure 2.2).



**Figure 2.2. Tsp1 General Mounting.**

If the Tsp1 is to be rested on the booth shelf before hanging it on the Mounting Plate the shelf must be able to take the weight of the complete unit (33 kg).

Extend power and exchange wiring to Tsp1 cable entry location. Feed the power leads, earth wire and exchange line wires through the 50 mm holes in the shroud and Tsp1 case (Figure 2.2). The power lead comes through the lower aperture and the earth and exchange wire leads through the upper aperture.

Place the Tsp1 and shroud over the mounting studs. Take care to not trap cables behind the phone.

First secure stand-off No. 2 (top right of phone case) then stand-offs 3 and 4 (bottom of case) with an M8 washer and M8 nut. Finally, secure stand-off No. 1 with an M8 washer and M8  $\frac{1}{2}$  nut (to allow clearance for the card reader mechanism directly in front).

## 2.4 ELECTRICAL INSTALLATION

### 2.4.1 CHECKING THE EARTH CONNECTION

**WARNING:**

The provision of a low resistance earth is necessary to ensure customer safety (as well as correct operation). Do not neglect this step.

To check the Earth Resistance, refer to Figure 2.3. An **Analogue Multimeter** must be used, not Digital. The Earth Resistance must be no greater than 300hms.

- Step 1. Set the Multimeter to the lower scale of Voltage reading (eg: 10 Volt scale). Measure the voltage between A-leg (Positive) and the E-leg (Earth). Record your reading as "V open".
- Step 2. With the above setting, short the B-leg and the E-leg together. Record the Multimeter reading as "V closed".
- Step 3. Disconnect the short between B-leg and E-leg. Set the Multimeter to the milliamp (mA) reading and put it in series with B-leg and E-leg (Figure 2.3). Record the current reading as "I closed".
- Step 4. Calculate the earth resistance with the following formula:

$$R = \frac{V_{\text{closed}} - V_{\text{open}}}{I_{\text{closed}}} \Omega$$

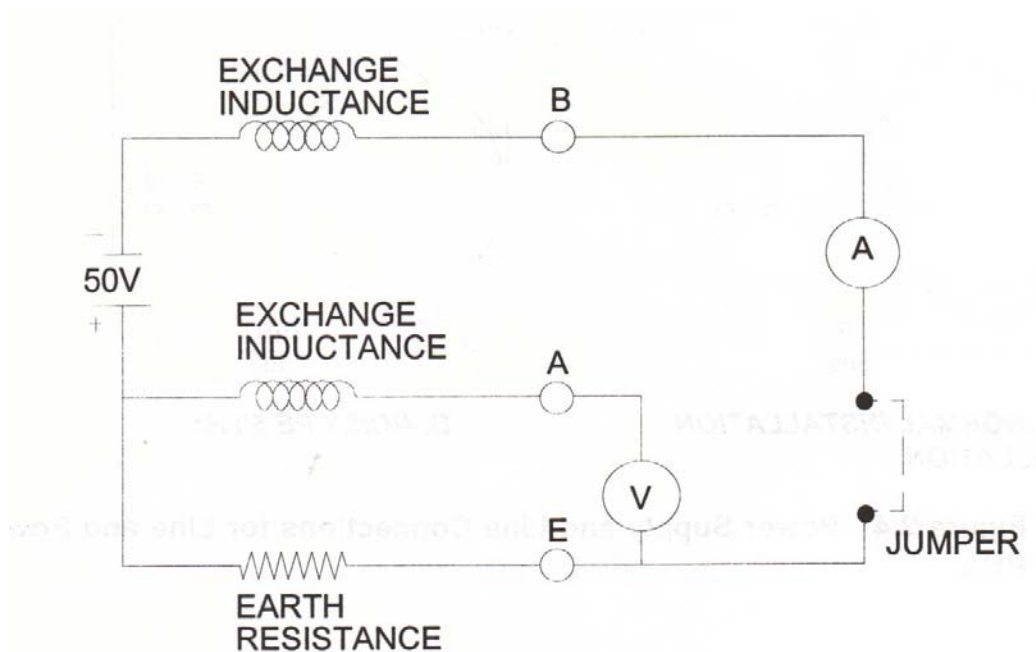



Figure 2.3. Checking the Earth Resistance.



## 2.4.2 CONNECTION PROCEDURE

1. Secure the line cable inside the Tsp1 case with the two retainers located on the upper part of the back wall.
2. Switch off the power to the phone before making connections.
3. Connect the 21 VAC supply to the AC terminals F1 and F2 on the Line and Power PBA. Connect the subscriber line A and B legs to the A and B terminals on the Line and Power PBA (Figure 2.4).
4. Connect the Protective Earth (PE) wire to the earthing stud on the rear wall of the phone case and secure with a nut. This stud already has an earth wire attached to it and is connected to the terminal marked  on the Line and Power PBA (Figure 2.4). Crimp a ring terminal onto the protective earth wire first where required. The Telstra Earth (TRC) must not be used as a protective earth. Use heavy duty low resistance earth wire and connect as in Figure 2.4. Wherever possible, use the local Power Authority earth for protective earth.

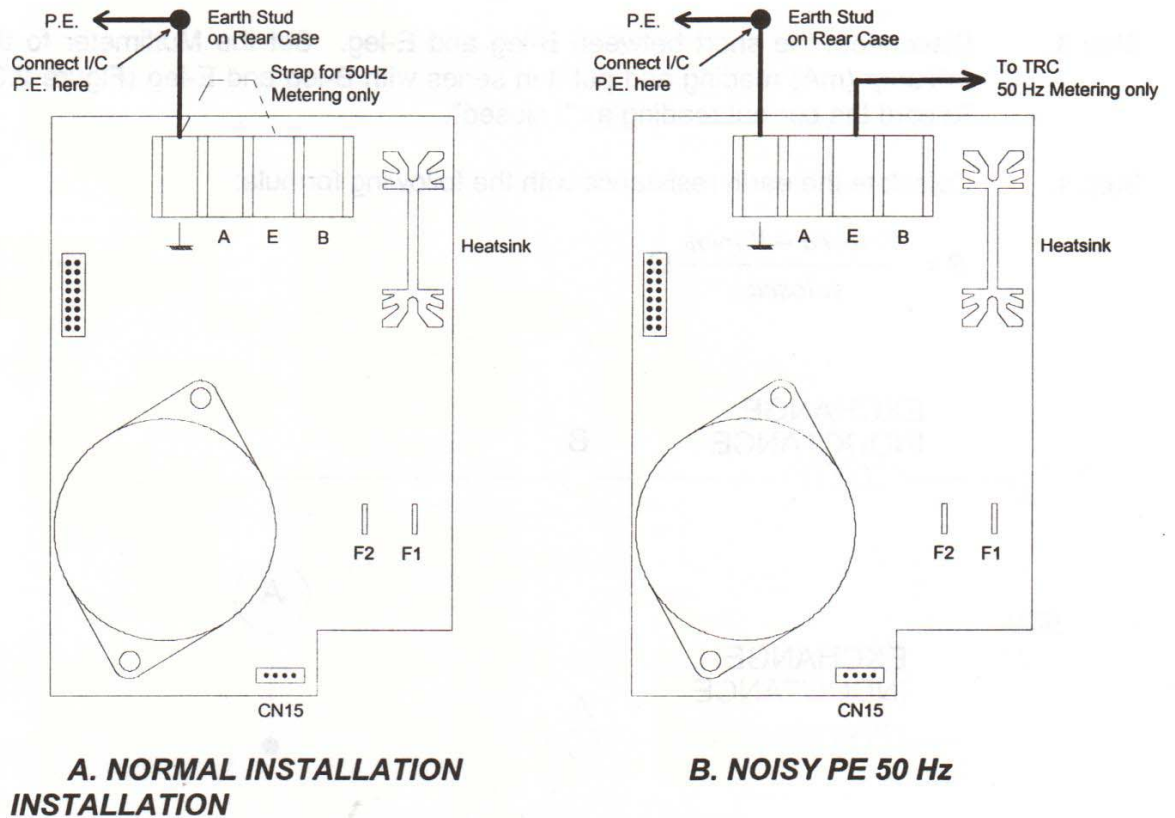



Figure 2.4 Power Supply and Line Connections for Line and Power PBA.

**NOTE:**

- 1. For 12 kHz indoor locations, if there is no PE to Tsp1 on site, no connections to  and "E" Power PBA board positions are required. Refer to TPS 3033 - Section 1 "Payphone Earthing Requirements for Metering and Protection" for details.**
- 2. Where a Telecommunications Reference Conductor (TRC) is required, the earth shall be terminated on terminal 3 of the Line and Power PBA.**
- 3. Where a Protective Earth (PE) is required, it shall be a green/yellow colour and be terminated directly to the left hand earth stud in the upper compartment rear case assembly.**
- 4. For any non standard site or installation, they shall be addressed on their individual needs and complying with AS300, TS009 and local power authority regulations.**

**2.4.3 COIN COMPARTMENT LOCKING BAR EXTENSION**

The coin compartment locking bar extension is installed before the Tsp1 is locked and commissioned. The following steps showing the method of installation must be followed:

1. Open coin compartment door.
2. Remove the coin box.
3. Turn the key so that the lock is in the closed position.
4. Install the locking bar extension with the 3 mm Allen key cap screw onto the end of the locking bar making sure the lip on the extension is closest to the lock mechanism.
5. With a screwdriver push the locking bar solenoid armature backward and unlock the Locking Bar.
6. Reset the coin box lid.
7. Install the security tab.
8. Install Barcode labels as follows:
  - a) One label mounted horizontally at the top of the indented Coin Box area (between the handle connections).
  - b) The other label mounted horizontally in a center vertical position on the left hand side of the Coin Box door's interior, between the locking lugs.
9. Insert the Coin Box into the coin compartment and close the door and lock the coin compartment.

#### 2.4.4 ADMINISTRATION

To provide feedback on equipment quality, a Tsp1 *Commissioning Sheet* is supplied with the Tsp1.

**NOTE:**

**This must be filled in at the time of installation and returned to the address shown on the sheet.**

All faults found must be included. When no faults are present, write "NIL" on the sheet.

The returned Commissioning Sheet(s) provide statistics on the number of installations and the number and type of faults. This will enable monitoring of the quality at manufacture.

**NOTE:**

**When equipment is defective, a *Payphone Services Problem Report Form* MUST be completed.**

#### 2.4.5 COMPLETION

Carry out a full functional test of the Tsp1. This is covered in *Section 5. "Maintenance"*.

Write the new identification number on the "**How to Call**" notice. Ensure that the notice is correctly positioned and labelled.

---

## **3. COMMISSIONING / DECOMMISSIONING**

### **3.1 COMMISSIONING**

#### 3.1.1 OVERVIEW

#### 3.1.2 INITIALISATION

##### 3.1.2.1 ACCESSING THE COMMISSIONING FEATURES OF THE MAINTENANCE PROGRAM

###### 3.1.2.1.1 SETTING THE CLOCK

#### 3.1.3 TESTING THE PHONE

##### 3.1.3.1 PERFORMING A SELF TEST

#### 3.1.4 INITIALISATION PROCEDURE

#### 3.1.5 TESTING THE INSTALLED Tsp1

##### 3.1.5.1 SELF TEST

##### 3.1.5.2 MTMS TEST PROCEDURE

###### 3.1.5.2.1 COIN VALIDATION TEST

###### 3.1.5.2.2 MULTI-METERING PHONECARD VALIDATION TEST

### **3.2 DECOMMISSIONING**

#### 3.2.1 STATISTICS DOWNLOAD

#### 3.2.2 REMOVAL OF COIN TIN

#### 3.2.3 POWER DOWN PHONE

#### 3.2.4 UNBOLTING AND REMOVING

## 3. COMMISSIONING/ DECOMMISSIONING

### 3.1 COMMISSIONING

#### 3.1.1 OVERVIEW

This section describes the commissioning of a newly installed Tsp1. Commissioning consists of manually entering a number of initial parameters to the Tsp1 and connecting the Tsp1 to the MTMS to perform parameter downloading.

The Maintenance Program gives access to the following programming and control functions of the Tsp1:

- Initialisation functions,
- Display and erasing of alarms,
- Display of operating parameters,
- Testing the Tsp1 internal components,
- Testing of the Tsp1 external components.

The Maintenance Program uses an interactive operator menu. Selection of the desired function is carried out using the Keypad (digits [0] to [9], [\*] and [#]). The results (messages or parameters) are shown on the Visual Display or heard through the Handset (tones).

The menu display shows a list of functions. The name of each function is preceded by a number that indicates the digit key to press to make the desired function active. The valid digits to choose functions and to introduce parameters are [0] through [9].

Where appropriate, the bottom line of the Visual Display shows the following function keys:

- [FW] = FORWARD (ADVANCE FUNCTION),
- [BW] = BACKWARD (RETURN FUNCTION),
- [CH] = CHANGE (CHANGE FUNCTION),
- [EXIT] = EXIT FUNCTION.

*The letters in [brackets] represent the abbreviation that appears on the Tsp1's Visual Display.*

### 3.1.2 INITIALISATION

#### 3.1.2.1 ACCESSING THE COMMISSIONING FEATURES OF THE MAINTENANCE PROGRAM

To access the commissioning features in the Maintenance Program, the following procedure is followed:

1. Open upper compartment door by turning the upper key clockwise 180°.

Once the door is ajar, the following message shall then appear:

**TELSTRA**  
  
PICK UP AND PRESS  
TEST BUTTON OR  
CLOSE DOOR

**NOTE:**

**Do not remove the Handset to the OFF HOOK position until the upper case door is opened.**

**Should YOU have trouble with getting the above message, check the Visual Display contrast (see below) or manually reset the upper compartment door microswitch.**

If the Visual Display contrast is not correctly set (display black or feint), it may be adjusted by rotating the Display Contrast control knob on the upper left corner of the Main Board inside the upper compartment. The correct adjustment is such that the background of the display has no trace of darkening and the text is clearly legible.

2. Lift the Handset off-hook and press the Test button on the main board. While the Test button (located on Main board) is depressed, the display should show:

**TELSTRA**  
  
Tsp1 - TELSTRA  
Version Vxx

**NOTE:**

**Placing the Handset into the ON HOOK position while in the Maintenance Menu forces the Tsp1 to exit Maintenance mode. Make sure that you complete all necessary activities BEFORE replacing the Handset into the ON HOOK position.**

**The Clock has to be set to the correct time and started BEFORE the Tsp1 is connected to the MTMS. Carry out a self test on the phone before setting the initial parameters.**

3. Release the Test button and the MAIN MENU is shown:

```
TELSTRA
1- PARAMETERS
2- STATISTICS
3- MTMS
4- TESTS
5- ALARMS
6- INJECTOR
```

#### 3.1.2.1.1 SETTING THE CLOCK

Press [1] for PARAMETERS and the screen display will read "Enter Password". The factory default is "1111 ". Once in the Parameter menu follow the screen displays:

```
TELSTRA

ENTER PASSWORD
****
```

Press [1] for CLOCK PROGRAMMING.

```
PARAMETERS
1-CLOCK PROGRAMMING
2-COINS
3-CHIP CARDS

4-TELEPHONE NUMBERS
5-GENERAL PARAMETERS
6-ADVERTISING # EXIT
```

The following screens will be displayed as you change the Clock Parameters:

```
CLOCK PROGRAMMING

DAY XX MON XX YEA XX
*-FW 0-BW 1-CH # EXIT
```

To change the DATE, firstly press [1] to change the month's day number (1 to 31). Enter the value then press [\*] to confirm the setting. The screen will automatically change the display to read "KEY IN MONTH" (1 to 12) and "KEY IN YEAR" (two digit format) respectively. Press the [\*] button to confirm that you have entered the correct values for each one.

```
CLOCK PROGRAMMING

DAY MON YEAR

KEY-IN DAY

*-FW 0-BW 1-CH # EXIT
```

Press [\*] to confirm and progress to the next screen to change the time setting.

```
CLOCK PROGRAMMING

HOURS MINUTES

KEY IN HOUR

*-FW 0-BW 1-CH # EXIT
```

**NOTE:**

**The Tsp1 clock runs in 24 hour mode (00:00 – 23:59).**

Press [1] to change the hour.

```
CLOCK PROGRAMMING

HOURS MINUTES KEY
IN HOUR

*-FW 0-BW 1-CH # EXIT
```

Now key in the hour and minutes respectively. Press the [\*] button to confirm the correct time setting.

Press [\*] to go forward onto the next screen to change the week day setting. To change the day of the week, press [1]. This will scroll through the days of the week. Stop at the correct day of the week and press [\*] to confirm your selection.

```
CLOCK PROGRAMMING

WEEKDAY: MONDAY

*-FW 0-BW 1-CH # EXIT
```



Press the [\*] button to advance to the following screen:

<p>CLOCK PROGRAMMING</p> <p>15:45:00</p> <p>0-START 1-STOP # EXIT</p>
---

To start the clock press [0]. This function is to set the correct week day. Start the Clock at the correct settings. Once you have started the Clock you can exit the Clock setting parameter area by pressing the [#] button twice to return to the Main menu.

**NOTE:**

**When re-initialising the phone the clock is to be set to the correct time and date. Once you have completed setting the clock, carry out phone operational and component functional tests.**

### 3.1.3 TESTING THE PHONE

The following screen is displayed when tests are carried out on the Tsp1. There a number of tests that are necessary before the phone is commissioned. To enter into the test area of the program you must press [4] while in the Main menu screen shown below.

```
TELSTRA
1- PARAMETERS
2- STATISTICS
3- MTMS
4- TESTS
5- ALARMS
6- INJECTOR
```

When the TESTS screen is displayed you will see the following options:

```
TELSTRA
1-SELFTESTING      6-TONES
2-CALLS            7-CARDS
3-COINS
4-ESCROW
5-KEYPAD          #EXIT
```

#### 3.1.3.1 PERFORMING A SELF TEST

To perform the Self Test function, press [1]. This tests the electronic components of the phone. The phone will check the connections with all other components attached to the main board.

Once the Payphone has completed its Self Test, press the [#] button twice to exit and return to the Main menu.

**NOTE:**

**The Self Test is used to verify that the Tsp1 is working properly before connection to the MTMS.**

### 3.1.4 INITIALISATION PROCEDURE

Initialisation is achieved by sending an Initialisation message to the MTMS. The MTMS answers with a parameter message (the Tsp1 data must have previously been entered into the MTMS). All previously stored alarms and statistical data are erased when the phone receives the parameter message.

The following procedure is followed to initialise the Tsp1. This procedure includes the initial parameters so that the Tsp1 can communicate with the MTMS and receive the correct parameters from the MTMS.

The first screen should be the Main menu:

```
TELSTRA
1- PARAMETERS
2- STATISTICS
3- MTMS
4- TESTS
5- ALARMS
6- INJECTOR
```

The Initialisation procedure is carried out in the MTMS area of the program. To enter the MTMS area, press [3]. The screen will display the following menu.

```
MTMS
1-SETUP
2-INITIALISATION
3-STATISTICS TO MTMS
4-REPAIR/SW UPGRADE
5-PARAMETER DOWNLOADING

# EXIT
```

Press [1] and enter the Setup Local Parameters program area. The screen will display the following five options:

```
PROG. LOCAL PARAMETERS
1-IDENTITY
2-DIALLING
3-CONNECTED TO MTMS
4-MTMS 1 :
5-MTMS_2 :
(1-5)- CHANGE # EXIT
```

**NOTE:**

**Disregard whatever information might appear on the display initially and into the five lines the relevant information provided.**

In the Setup area there are five categories to be set. Press [1] - [5] to change the details in the categories listed below:

**[1] IDENTITY:** The identity is a unique number assigned to the particular phone that you are commissioning. This field cannot exceed 9 digits. Once you have entered the nine digits you must press [\*] to confirm you have entered the correct number.

**[2] DIALLING:** This option allows toggling between DTMF or DECADIC dialling. This option **must be set to DTMF** unless only Decadic dialling is available, which in this case is set to Decadic.

**[3] CONNECTED TO MTMS:** In this option you can toggle between "YES" or "NOT". This option is set to "YES" unless specified otherwise.

**[4] MTMS 1:** This option is a 10-digit number that the Tsp1 uses to communicate with the MTMS. Once you have entered the ten digits you must press [\*] to confirm that you have entered the correct number.

**[5] MTMS 2:** This option has the same function as MTMS - 1. It is a backup number if the Tsp1 cannot reach the MTMS with the first number (MTMS\_1). Once you have entered the ten digits, you must press [\*] to confirm that you have entered the correct number.

**NOTE:**

**After entering the values for Options 1, 4 and 5, you must press the [\*] button to confirm that the information entered is correct.**

Once you have correctly entered all the entries in the options, press [#] to return to the MTMS menu screen.

```

MTMS
1-SETUP
2-INITIALISATION
3-STATISTICS TO MTMS
4-REPAIR/SW UPGRADE
5-PARAMETER DOWNLOADING
# EXIT

```

The Tsp1 is now ready to be connect to the MTMS. To start Initialisation, press [2].

The following screens will now appear as the Tsp1 communicates with the MTMS.

**MTMS**

TRY 001

WAITING FOR TONE

#-EXIT

The phone will make 3 attempts of 20 seconds each to obtain a dial tone and the display will show "TRY 002" and "TRY 003" during the subsequent attempts. If a dial tone is not obtained after the third attempt, the following message is shown:

**MTMS**

NO WAY TO CONNECT WITH MTMS

# EXIT

When dial tone is detected the phone dials the MTMS and the display shows:

**MTMS**

TRY xxx

DIALLING: xxxxxxxx

#-EXIT

Once this is done the following message is shown while the phone is waiting for the MTMS to answer:

**MTMS**

WAIT CONNECTION MTMS

#-EXIT

A time-out of 25 seconds plus the answer time is allowed after the last number dialled, while waiting for the MTMS to answer. If this time-out finishes, the Tsp1 will try dialling again up to 2 more times. If the Tsp1 fails to initialise, press [I]-START to attempt to reinitialise the phone.

When the MTMS answers the display shows:

```
MTMS
TRANSMITTING
MESSAGE: PARAMETERS
#-EXIT
```

During a correct communication session the Tsp1 sends a start message to the MTMS. The MTMS checks the Tsp1's Identification Number and if correct, the Parameters message is sent to the Tsp1 to perform initialisation.

After a short delay, when the initialisation is complete and if no errors occurred the display will show:

```
MTMS
CORRECT END OF THE
COMMUNICATION
#-EXIT
```

If the identification number of the Tsp1 is already in the MTMS database for an initialised phone, then the following is displayed:

```
MTMS
IDENTITY ALREADY
EXISTS #-EXIT
```

The display of messages "WRONG IDENTITY", "UNKNOWN IDENTITY" or "IDENTITY ALREADY EXISTS" indicates that initialisation is not accepted.

```
MTMS
1-SETUP
2-INITIALISATION
3-STATISTICS TO MTMS
4-REPAIR/SW UPGRADE
5-PARAMETER DOWNLOADING
# EXIT
```

Return to the Main Menu by pressing [#].

### 3.1.5 TESTING THE INSTALLED Tsp1

Now that the Tsp1 is initialised, communicated with the MTMS and received its parameters, the Tsp1 requires further functionality tests. From the Main menu, press [4] to enter the Test Menu area. There are seven tests that require performing.

The Tests screen is displayed where the following seven options are shown:

TESTS	
1-SELFTESTING	6-TONES
2-CALLS	7-CARDS
3-COINS	
4-ESCROW	
5-KEYPAD	# EXIT

#### 3.1.5.1 SELF TEST

To perform an automatic Self Test, repeat the process in *Subsection 3.3.1.* of this manual, which refers to the self testing of the Tsp1. Once Self Testing is complete, press the [#] button to return to the Tests menu.

#### 3.1.5.2 MTMS TEST PROCEDURE

The following steps are to be followed for the correct MTMS test procedure.

From the Main menu, select [3] to enter the MTMS menu.

MTMS
1-SETUP
2-INITIALISATION
3-STATISTICS TO MTMS
4-REPAIR/SW UPGRADE
5-PARAMETER DOWNLOADING

Now press [4] REPAIR / SW Upgrade. The screen will display the following.

MTMS
1- REPAIR CODE
2- BOARD CHANGE
# EXIT

Press [1] to enter the correct Tsp1 Repair Code.

<p style="text-align: center;"><b>MTMS</b> ENTER CODE</p> <p style="text-align: right;">* CONFIRM</p>
---

Enter your Repair Code of "000".

<p style="text-align: center;"><b>MTMS</b> ENTER CODE: 000</p> <p style="text-align: center;">1 SEND TO MTMS    # EXIT</p>
--

Press [\*] to confirm then press [#] to Exit.

Press [1] to send the Repair Code to the MTMS. Once the Tsp1 has communicated with the MTMS, press the [#] button twice to exit to the Main menu.

Replace the Handset into the ON HOOK position then close the door.

<p style="text-align: center;"><b>MTMS</b> CORRECT END OF THE COMMUNICATION</p> <p style="text-align: right;"># EXIT</p>
--

Once you have closed the phone, two more tests are to be completed before the Tsp1 is ready for operation.

### 3.1.5.2.1 COIN VALIDATION TEST

1. Lift the Handset to the off hook position and listen for dial tone.
2. Insert 2 x 5¢, 1 x 10¢, 1 x 20¢, 2 x 50¢, 1 x \$1, 2 x \$2 coins through entry slot. Ensure that the coins are inserted in the order shown. Confirm that each coin is correctly validated by watching the LCD. The last \$2 coin you inserted should be rejected. This means that the Escrow is full.
3. The Visual Display should show a total credit of \$ 4.40.
4. Replace the Handset and retrieve the coins from the Coin Refund Chute. Confirm that \$ 4.40 is returned.



### **3.1.5.2.2 MULTI-METERING PHONECARD VALIDATION TEST**

Lift the Handset. Check that the LCD illuminates and reads "INSERT COIN OR CARD".

Listen for dial tone. Verify that the transmitter is muted and the correct Minimum Call Fee is shown (40¢).

Insert PHONECARD, with the chip side facing up. The Visual Display will now show the available card credit value.

Dial the designated international test number.

Confirm the presence of side-tone (unmuting should occur after the third digit) and check that the Minimum Call Fee (\$0.40) is deducted on Called Subscriber Answer (CSA). Wait for the second meter pulse and verify that a total of \$0.80 is deducted from the card's total value.

Replace the Handset. Listen for card ejection warning beeps, then remove the Phonecard from the Card Reader.

The Tsp1 is now ready to be put into service.

## 3.2 DECOMMISSIONING

### 3.2.1 STATISTICS DOWNLOAD

Access the MAINTENANCE MENU.

Press [3] (MTMS).

#### TELSTRA

- 1- PARAMETERS
- 2- STATISTICS
- 3- MTMS
- 4- TESTS
- 5- ALARMS
- 6- INJECTOR

5. Press [3] (STATISTICS TO MTMS).

#### MTMS

- 1-SETUP
- 2-INITIALISATION
- 3-STATISTICS TO MTMS
- 4-REPAIR/SW UPGRADE
- 5-PARAMETER DOWNLOADING
- # - EXIT

6. To perform a data download to MTMS, SELECT [3] - (YES) and the Tsp1 will attempt to connect to the MTMS as described in Section 5.7.3.2 INITIALISATION of the Tsp1 Product Manual.

#### MTMS

ARE YOU SURE YES/NO

0 - NO    3 - YES    # - EXIT

Observe the following by watching the display:

"WAIT CONNECTION TO MTMS"

.....

.....

"Message Received"

When data communication has finished:

7. Return to Main Menu (press # Twice)

### **3.2.2 REMOVAL OF COIN TIN**

1. Insert the Key in the Coin Safe and turn it anti clockwise. The phone will display the following.

To Send Alarm YES/NO

1. NO
3. YES

2. Select [1] (NO) The payphone will display...

Collecting

1. NO
3. YES

3. Select [3] (YES). The payphone will display...

Enter Password

4. Enter the eight digit Password. The door will unlock.

5. Turn the key in a clockwise direction and open the door. The payphone will display the following

Remove Coin Box

6. Remove the Coin Box. The payphone will display the following

7. Introduce Coin Box

8. Insert a Coin Box without a CRIMS barcode.

9. Remove the Coin Compartment Locking Bar Extension.

### **3.2.3 POWER DOWN PHONE**

1. Remove the Line and Power Cable - CN4 from the Main Board to power down the phone.
2. Turn off RAM battery.
3. Remove the subscriber lines A and B from the A and B terminals on the Line and Power PBA.
4. Disconnect the 21 VAC supply to the AC terminals F1 and F2 on the Line and Power PBA.
5. Disconnect the Protective Earth (PE) wire from the earthing stud on the rear wall of the phone case.
6. Remove any cables that have been anchored to the phone.

### **3.2.4 UNBOLTING AND REMOVING**

1. This is the reverse of procedure 2.3.2 - Mounting The Tsp1, found in the Tsp1 Product Manual.

---

## **4. OPERATION**

### **4.1. COMPONENT STATUS CHECK**

### **4.2. Tsp1 ACTIVATION MECHANISMS**

- 4.2.1. HANDSET OFF HOOK
- 4.2.2. UPPER DOOR OPENING
- 4.2.3. LOWER DOOR OPENING
- 4.2.4. TIMER ACTIVATION
- 4.2.5. OPERATION USING COINS
- 4.2.6. CHARGE WITH COINS

### **4.3. OPERATION WITH PREPAID SMARTCARD**

- 4.3. 1. OPERATION
- 4.3.2. AUTOMATIC DISCONNECTION

## 4. OPERATION

### 4.1. COMPONENT STATUS CHECK

When the Handset is taken OFF HOOK the Tsp1 carries out a component status check.

The results of this test may be:

**Fully successful:** on receipt of a dial tone the Tsp1 is ready to perform all types of calls.

**Handset is damaged and/or errors in the EEPROM memory are detected:** the telephone indicates an "OUT OF SERVICE" condition.

**Coin Mechanism or Card Reader damaged.** resulting in a "LIMITED SERVICE" condition.

**None of the means of payment works correctly.** "FREE CALLS ONLY" are accepted.

**Incorrect power supply:** the Tsp1 waits until the correct values are provided.

Once the Tsp1 is ready to make a call, the user can insert any one of the available means of payment. The available credit appears on the display. As the dialling is being performed, the Tsp1 compares the existing credit with the minimum credit required for the call. If there is insufficient credit, the Tsp1 releases the line. Dial tone is heard and an indication appears on the display.

After 60 seconds without dialling, the Tsp1 enters the "STANDBY" state, where the line is released and the invested payment value is refunded (Coins or Phonecard).

Once the number is dialled and the answer signal is received, the Tsp1 reduces the Credit value according to the applicable call tariff. The charge process starts with call charge pulses arriving from the telephone exchange.

If Coins are used, two user indications occur 20 seconds before the credit is depleted:

End of Credit tone.

Blinking "END OF CREDIT" on the display.

End of Credit tone.

"PRESS CHANGE OF PHONECARD" message on the Visual Display. The user must decide whether to continue with the call or not by inserting a new card or more coins or allowing the card's credit to be exhausted.

**NOTE:**

**If the credit is used up during a call, there is a line release signal of 800 milliseconds, then the communication ends.**

**If the "FOLLOW ON" key is pressed to start a new call, the line is also released and the remaining credit is available for use.**

If the means of payment is by coins and more are needed during the conversation, the user can insert more. The Tsp1 will collect the coin with the *highest* value when the amount to collect equals or exceeds this value. When the communication ends and the Handset is placed into the ON HOOK position, the Tsp1 performs an adjusted collection of the remaining coins, giving the "most correct" or "best" change to the user.

With prepaid cards, collection is done during the conversation according to the amount to be charged generated. When the available card credit amounts to less than 20 seconds of conversation, it is possible to transfer the remaining credit to the Tsp1 to continue the conversation using another prepaid card or coin(s).

Before going to the Deactivation State, the Tsp1 performs the updating of the call statistical data.

## **4.2. Tsp1 ACTIVATION MECHANISMS**

In the Standby state, the Tsp1 can be made active by different means. These are:

- Handset pick-up,
- Lower or upper door opening,
- Timer activation,
- Coin Box removal.

All these causes are described below.

### **4.2.1. HANDSET OFF HOOK**

This is the basic form of operation from the user's point of view.

Taking the telephone Handset OFF HOOK activates the Hook Status microswitch which starts the watchdog circuit. This circuit starts the microprocessor, which makes the Control Block active.

If the Handset is moved to the OFF HOOK position and no call begins (no answer is received), the general breakdown threshold counter is incremented by one.

Once the Control block is started, the following sequence of operations takes place:

No	OPERATION	DESCRIPTION
1	Start-up.	Microprocessor, PIA, latches, timer, variables and Visual Display start-up.
2	Handset muting and earpiece demuting.	
3	RAM battery test.	This carries out a test of the RAM memory battery status and a check-sum test of the statistics reserved zone. If the digital voltage (Vcc) is low, it waits for its restoration and the "WAIT, PLEASE" message is shown.
4	Loading of the different parameters from the EEPROM to RAM.	
5	Solenoid Voltage Test (VLL).	
6	Detectors' analysis.	<p>A check of the following detectors is carried out:</p> <ul style="list-style-type: none"> <li>• Handset broken.</li> <li>• Upper door open.</li> <li>• Lower door open.</li> <li>• Absence of coin box.</li> <li>• Coin box full.</li> <li>• Coin box 3/4 full.</li> <li>• Absence of coin box cable.</li> <li>• Keypad blockage.</li> </ul>
7	Card Reader test	This test checks for events such as short-circuits, presence or absence of elements and in case of failure, the action is to exclude cards as a means of payment.
8	Coin Validator test	If a fault is found, coins are not accepted as a means of payment.
9	EEPROM test	Here the check-sum of the parameters stored in the EEPROM is done. The result is compared with a previously stored value at the end of the EEPROM table. If they are not the same, the Tsp1 is put into "TOTAL OUT OF SERVICE" state.
10	Coin box passage blockage analysis	If a blockage exists, coins are eliminated as a method of payment.



The user is to introduce the method of payment as follows:

a) If *both methods of payment are operating*, the following message is displayed:

INSERT COIN  
OR CARD

b) If *only coins are operative* as method of payment, the following message is displayed:

LIMITED SERVICE  
COINS ONLY

c) If *only prepaid cards are operative* as means of payment, the following message is displayed:

LIMITED SERVICE  
CARDS ONLY

d) If *neither coins nor cards* are available as means of payment only calls to Emergency numbers 000 and 112 are accepted. These two numbers are stored in the EPROM memory. The following message is displayed:

FREE CALLS  
ONLY

**NOTE:**

**If the Tsp1 only has one method of payment available, the other one is not operative even if it has passed its test.**

If the Tsp1 is in the "TOTAL OUT OF SERVICE" state, the message "EMERGENCY CALLS ONLY" will be displayed.

When the phone is in normal operation and the Handset is taken OFF HOOK, the following information is displayed:

INSERT COIN  
OR CARD  
MINIMUM FEE \$0.40

When payment is introduced the display shows:

DIAL NUMBER  
XXXXXXXXXXXXXXXXXXXXX  
CREDIT \$X.XX

During a phone call the following information is shown:

CREDIT \$X.XX

When the Handset is placed in the ON HOOK position at the end of the call, the following message is displayed:

TELSTRA  
THANK YOU FOR  
CALLING REFUND  
X.XX

#### **4.2.2. UPPER DOOR OPENING**

This access method corresponds to the "TEST" access mode, or is due to maintenance activity.

The opening of the upper door activates the microswitch that detects the status of the upper door. The signal coming from the microswitch starts the watch-dog circuit that starts the microprocessor.

#### **4.2.3. LOWER DOOR OPENING**

This event starts the COLLECTION PROCESS system, which consists of the following components:

- Lower door lock key access and control mechanism.
- Advanced authentication and auditing routines.
- Superior Fraud detection and reporting mechanisms.

#### **4.2.4. TIMER ACTIVATION**

This generic system Timer logic block works independent of the microprocessor. It generates an activation signal for the watch-dog circuit, which in turn starts the microprocessor at approximately 90 minute intervals.

Automatic Timer activation occurs without other activation events.

#### 4.2.5. OPERATION USING COINS

This section explains the sequence of events that happen when coins are used.

**NOTE:**

**The different methods of payment that the Tsp1 is capable of accepting cannot be used simultaneously, nor in succession during the same call (except from prepaid card to coins for local calls). When one method of payment is used, the other is automatically inhibited.**

The coin is inserted into the Coin Entry Slot and passes through the Coin Entry Mechanism then to the Coin Validator unit.

At the Coin Validator unit's entrance, the coin passes through an anti-thread mechanism, which detects its presence. The Coin Validator is then made active.

Once the coin is inside the Coin Validator, it passes through a group of optical and solenoid detectors for identification. The result of this analysis may be:

**THE COIN IS NOT ACCEPTED:** No indication is made to the Control block. The bypass solenoid to the Intermediate Coin Store is not activated and the coin goes to the Coin Refund Mechanism.

**THE COIN IS ACCEPTED:** The Coin Validator transfers the CODE of the coin to the Control block, where it is checked whether it is allowed or not and if so for what type of call.

**ALLOWED:** The Control Block answers the Coin Validator with a confirmation signal. The Coin Validator then makes the bypass solenoid active and the coin passes to the Intermediate Coin Store. Using an optical sensor, the Coin Validator confirms that the coin has gone to the Intermediate Coin Store and communicates the result to the Control block along with the coin code. The Control Block uses the coin code to determine its value for Credit update and visual display. At the same time, the Intermediate Coin Store goes to the closest free position, ready to accept another coin.

The user then dials the desired number. The Control Block detects the number and presents it on the Visual Display.

**NOT ALLOWED:** The coin is then transferred to the Coin Refund Mechanism.

#### 4.2.6. CHARGE WITH COINS

In this section we assume that the coins are already in the Intermediate Coin Store (ESCROW).

When the chargeable duration expires, the following process is performed:

1. A comparison occurs between the amount to be charge and the coin with highest value. If the value of the coin is equal to or lower than this value, collection of this coin is ordered. The credit value is recalculated by subtracting the coin's value from the credit balance. The result is then displayed.
2. When the Handset is placed into the ON HOOK position the final collection process is performed, where the minimum combination of coins that covers the amount to collect is estimated and collected. The rest of the coins are returned to the user through the Coin Refund Mechanism.

**NOTE:**

**Failure to collect the highest value coin *during the call* does not mean that the available Credit displayed is not reduced. The displayed Credit value is reduced *when required* through the call tariffing process.**

In case of coin collection failure, further testing is done on that coin (or others, if any). Where the coin collection process is found to be faulty, the line is released and any outstanding coins are sent to the Coin Refund Mechanism.

A coin refund can be caused by:

- Picking up the Handset,
- Hanging up the Handset, or
- Failure of the Tsp1 to collect during a call.

### **4.3. OPERATION WITH PREPAID SMARTCARD**

#### **4.3.1. OPERATION**

With the card electrical contact area facing upwards and closest to the card entry slot, the user inserts the card into the Card Reader.

The card's presence is detected by a microswitch at the Card Reader's entrance. This generates a signal that starts a routine to check whether the card is electronic or magnetic. The circuits that read magnetic cards are also made active.

The user inserts the card until it stops, which is confirmed by the activation of a second microswitch and the card is locked into place. The function for card information analysis now starts.

This analysis function consists of:

- Checking the card's power supply terminals for short-circuits.
- Checking card integrity (control code, face value, etc.)
- Reading and displaying the card's value.

The rest of the operation is according to coin activity.

If an attempt is made to use the card fraudulently, or repeated attempts to remove the card are detected, a forced cut-off is performed.

#### **4.3.2. AUTOMATIC DISCONNECTION**

The Tsp1 has a combined hardware-software supervision mechanism to detect when the Handset is taken OFF HOOK and no number is dialled over a one minute period.

If no activity occurs during this time, the Tsp1 automatically enters STANDBY mode and refunds any amount paid. This keeps the phone line free when the user has left the Handset in the OFF HOOK position.

The Tsp1 will resume operation when the Handset is replaced into the ON HOOK position, then lifted OFF HOOK.

---

## **5. MAINTENANCE**

### **5.1 INTRODUCTION**

- 5.1.1 CHECKLIST
- 5.1.2 HANDLING PRECAUTIONS

### **5.2 HARDWARE**

- 5.2.1 UPPER COMPARTMENT
  - 5.2.1.1 CASE FRONT DOOR ASSEMBLY
  - 5.2.1.2 REAR CASE ASSEMBLY
- 5.2.2 LOWER COMPARTMENT

### **5.3 INSIDE THE DOOR**

- 5.3.1 CARD READER AND CARD READER MOUNTING FRAME
- 5.3.2 COIN ENTRY MECHANISM
- 5.3.3 CARD READER CONTROL, SAM PBA AND SAM REMOVAL
- 5.3.4 EPROM REPLACEMENT
- 5.3.5 MAIN BOARD REPLACEMENT
  - 5.3.5.1 INITIALISING THE MAIN BOARD
- 5.3.6 KEYPAD
- 5.3.7 VISUAL DISPLAY
- 5.3.8 CALLING GUIDE
- 5.3.9 COIN REFUND MECHANISM
- 5.3.10 CALL "FOLLOW-ON" BUTTON ASSEMBLY
- 5.3.11 SWITCH HOOK ASSEMBLY
- 5.3.12 COIN / CARD ENTRY COVER

### **5.4 INSIDE THE UPPER COMPARTMENT**

- 5.4.1 COIN VALIDATOR
- 5.4.2 INTERMEDIATE COIN STORE (ESCROW)
- 5.4.3 COIN MECHANISM CRADLE
- 5.4.4 COIN REFUND TRAY
- 5.4.5 LINE CONNECTION AND POWER PBA
- 5.4.6 COIN CASHING SENSOR
- 5.4.7 COIN PASSAGE CHUTE
- 5.4.8 HANDSET

### **5.5 INSIDE THE LOWER CASE**

- 5.5.1 COIN BOX SENSOR
- 5.5.2 COIN COMPARTMENT PBA
- 5.5.3 ELECTRONIC DOOR LOCK
- 5.5.4 LOCKING BAR EXTENSION

### **5.6 OPERATION OF MAINTENANCE PROGRAM MENUS**

- 5.6.1 ACCESSING MAINTENANCE MODE

### **5.7 MENU TREE STRUCTURE**

- 5.7.1 PARAMETERS
  - 5.7.1.1 CLOCK PROGRAMMING
  - 5.7.1.2 COIN PROGRAMMING
  - 5.7.1.3 CHIP CARD VALUES
  - 5.7.1.4 TELEPHONE NUMBERS
  - 5.7.1.5 GENERAL PARAMETERS
  - 5.7.1.6 PUBLICITY / ADVERTISING
- 5.7.2 STATISTICS

### **5.7.3 MTMS MENU**

5.7.3.1 SETUP

5.7.3.2 INITIALISATION

5.7.3.3 STATISTICS TO MTMS

5.7.3.4 REPAIR / SOFTWARE UPGRADE

5.7.3.5 PARAMETER DOWNLOADING

### **5.7.4 TESTS**

5.7.4.1 SELF TEST

5.7.4.2 CALL TEST

5.7.4.3 COIN TEST

5.7.4.4 COIN VALIDATION UNIT (ESCROW) TEST

5.7.4.5 KEYPAD TEST

5.7.4.6 TONE TEST

5.7.4.7 CARD TEST

### **5.7.5 ALARMS**

5.7.5.1 DISPLAY ALARMS 5.7.5.2 ERASE ALARMS

5.7.6 PARAMETER INJECTOR

## **5.8 EXITING MAINTENANCE MODE**



## **5. MAINTENANCE**

### **5.1 INTRODUCTION**

This section describes the maintenance, removal and reinstallation of the Tsp1's non-serviceable hardware modules.

It also describes the Menu-driven software program of the Tsp1's Maintenance mode that is used when performing any maintenance activity.

The Tsp1 is divided into two sections, which incorporate all the modules that can be replaced:

Upper Compartment

Lower Compartment

#### **5.1.1 CHECKLIST**

Ensure the following items are available before travelling to site:

This Manual.

Tsp1 Replacement Module(s) For Faulty Unit(s).

Tsp1 Upper And Lower Door Lock Keys.

Handling Equipment, Including Lifting Trolleys, Tools And Drill, And Mat For Shelf Anti-Static Protection and Storage Equipment.

Safety Equipment.

Appropriate Test Phonecards.

Line Number.

Payphone ID Number.

Site Survey.

Tools required:

- Posidrive Screwdriver Size #1.
- 6 mm & 8 mm Spanner Or Socket Set.
- Allen Keys (Metric And Imperial) (4 mm Hex Key).
- Analogue Multimeter (For Checking The Earth Connection)
- Digital Multimeter (For checking voltage measurements during fault finding)
- Anti-Static Protection And Storage Equipment.
- Telstra Card Reader Cleaning Kit Material Number 03500969
- Isopropyl Alcohol Swab Material Number 03500970

## 5.1.2 HANDLING PRECAUTIONS

### CAUTION

**The Tsp1 contains static sensitive components which can be permanently damaged by static electricity carried by hands or tools.**

**Within the closed case they are not at risk, but it is essential to take anti-static precautions before touching or handling any PBA or components related to the Tsp1.**

Suitable precautions include:

Wearing an earth strap to discharge body static.

Ensuring that all equipment is effectively earthed.

To reduce the premature failure due to static discharge or physical damage, the following precautions must be taken:

Always discharge static from yourself before disconnecting the line and before handling the Tsp1.

Allow 3 minutes after power down for the power supply capacitors to discharge fully.

Handle PBA's by the edges. Do not handle PBA tracks, components or edge connectors. Contaminants from your fingers can cause corrosion and high resistance connections.

Handle components carefully. They are physically delicate. Finger pressure on a component can cause a fracture, but not necessarily break component leads which may lead to a future fault. Do not handle any modules by using any large components (such as capacitors), as this can cause solder tracks to lift and go open circuit.

To protect against physical damage and damage due to static discharge, a PBA or module must always be wrapped in an anti-static bag and then placed in the protective container provided with the new item.

These procedures apply to both working and faulty PBA's. Careless handling, storage and transport may cause secondary or future faults.

## 5.2 HARDWARE

### 5.2.1 UPPER COMPARTMENT

The upper compartment consists of two sections:

- Case Front Door assembly.
- Rear Case assembly (Figure 5.1 refers).

#### 5.2.1.1 CASE FRONT DOOR ASSEMBLY

The following components make up the complete Case Front Door assembly:

- Case Front Door
- Coin/Card Entry Cover
- Coin Entry Mechanism
- Coin Entry Mechanism Cover
- Coin Refund Mechanism
- Card Reader
- Card Reader Control PBA
- Keypad Assembly
- "Follow On" Button
- "Follow On" Microswitch
- Main Board PBA
- EPROM
- Microswitch with Cable
- Visual Display
- Display Glass Cover
- Switch Hook
- Associated Module Connection Cables
- "How To Call" Guide

#### **5.2.1.2 REAR CASE ASSEMBLY**

The following components make up the Rear Case assembly:

- Rear Case
- Upper Key Lock
- Line Connection and Power PBA
- Coin Box PBA
- Coin Validator
- Intermediate Coin Store (Escrow)
- Coin Mechanism Cradle
- Complete Coin Passage Device
- Coin Cashing Sensor (DPH Emitter/Receiver PBA's)
- Coin Refund Tray
- Handset
- Lock Mechanism
- Earth Connection Cable
- Associated Module Connection Cables

## 5.2.2 LOWER COMPARTMENT

The lower compartment consists of:

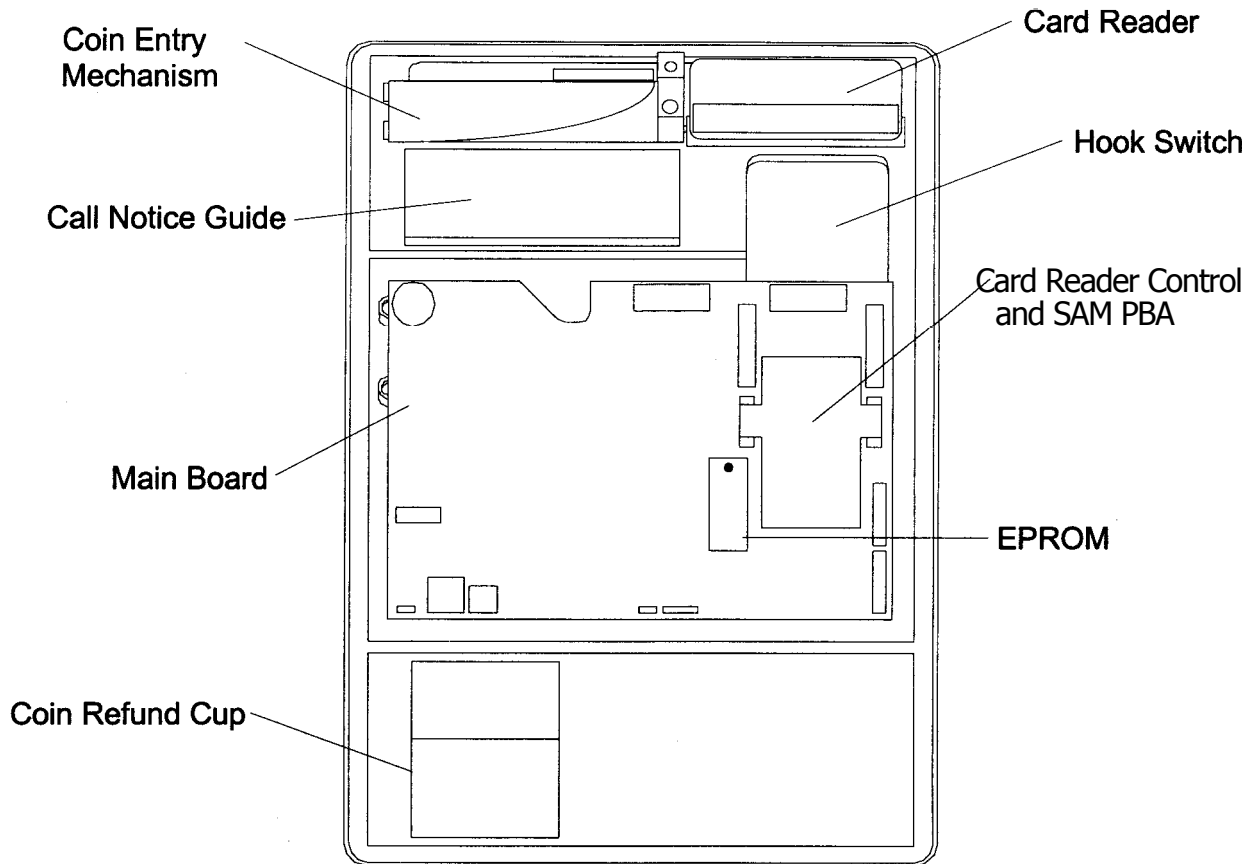
Coin Box Safe  
Coin Box  
Coin Box 3/4 Full Sensor  
(CTW) Coin Box Full Sensor  
(CTA) Coin Box PBA  
Lower Compartment Lock  
Lower Compartment Lock Electronic  
Device Lower Compartment Key

### **CAUTION:**

- 1. The Tsp1 is a delicate electronic and mechanical instrument. When working inside the phone case or removing modules, take care to ensure that components are not damaged. In particular take care not to bend the pins on the ribbon connectors when removing and inserting cables.**
- 2. Observe correct Anti-Static procedures when handling and storing PBA's.**

### 5.3 INSIDE THE DOOR

In this area the modules that can be removed inside the door are described as well as the method of reinstalling the modules into the door.



**Figure 5.1 Module Location Inside the Upper Compartment Door.**

**NOTE:**

**The modules that can be replaced must not be dismantled.**

### 5.3.1 CARD READER AND CARD READER MOUNTING FRAME

#### Removal:

1. Pull the Card Reader's Cable connector's black plastic loop and disconnect the ribbon cable from the right side of the Card Reader (as viewed inside the door).
2. Bend the black plastic locking tab on the left side of the Card Reader frame outwards then slide the Card Reader mechanism away from the door and up out of the mounting frame.
3. Remove the two large Posidrive screws and washers securing the frame to the inside of the door.

#### Cleaning:

**CAUTION:**

**Do not attempt to disassemble the card reader under any circumstances. Where components are damaged the entire module is to be replaced.**

If the card entry slot is fouled by objects or substances, it may be necessary to remove foreign objects. Only remove objects that are readily accessible.

#### Installation:

- Installation is the reverse order to Removal.
- Ensure that the Card Reader is correctly aligned with the card entry slot cover.

**CAUTION:**

**Confirm that the correct end of the ribbon cable is connected to the Card Reader  
(ie, the end with the twisted section of ribbon and plastic wrap protection).**

### **5.3.2 COIN ENTRY MECHANISM**

The Coin Entry Mechanism is at the top left-hand corner of the door's interior. It is of black plastic construction.

#### **Removal:**

1. With the door open, remove the Card Reader to provide better access. Refer to *Section 5.3.1* for details.
2. Unscrew the finger-tight Coin Entry Mechanism Cover. Move the Cover to the right-hand side, then lift out and clear of assembly.
3. Unscrew the angled Coin Card Entry Cover bracket on the right-hand side of the Coin Entry Mechanism.
4. Unscrew the two small Posidrive screws holding the Coin Entry Mechanism in place.
5. Lift the Coin Entry Mechanism from its resting position.

#### **Cleaning:**

To clean the Coin Entry Mechanism, remove the Cover and clean the surfaces with an Isopropyl Alcohol swab, then replace the Cover and secure the finger screw into place.

#### **Installation:**

Installation is the reverse order to Removal.

### 5.3.3 CARD READER CONTROL, SAM PBA AND SAM REMOVAL

#### CAUTION:

Observe correct Anti-Static procedures when handling and storing PBA's.

When reconnecting the ribbon cable, ensure that the end with the flat ribbon section is connected to the Card Reader Control PBA with the twisted end section connected to the Card Reader unit.

#### SAM HANDLING

Do not touch metal contacts on SAMs after removal.

**Clean SAMs using a lint free cloth before reinstalling into SAM holders.**

The Card Reader Control PBA is located at the top right-hand corner section of the Main Board PBA. If PBA fails remove SAM and install a new PBA and reinsert the SAM.

#### Removal:

1. Remove the SAM by sliding the metal locking clip on the SAM holder to the "open" position. Open the flap of the holder containing the SAM, being careful not to touch the metal contacts on the SAM. Remove the SAM by sliding the SAM out of the open flap.
2. To remove the PBA, pull the black plastic loop at top-center of the PBA's ribbon Cable, disconnecting cable from PBA.
3. Gently push outwards the PBA connectors' locking levers on the left and right hand sides of the Card Reader Control PBA. Remove the PBA from the main board.

#### Cleaning

Clean the SAM and SAM Holder contacts using Isopropyl Alcohol and a lint free cloth.

#### Installation:

Installation is the reverse order to removal.

Installing the SAMs. Open the SAM holder flap then insert the SAM into the flap. Close the flap and push the metal locking clip to the "lock" position.

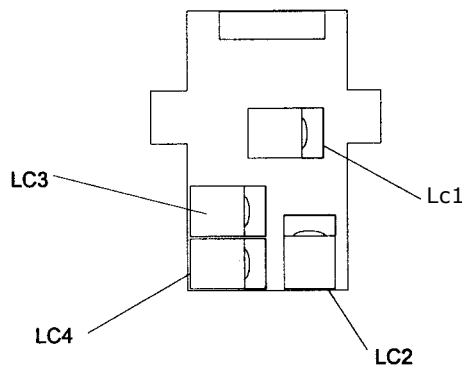


Figure 5.2. Card Reader Control Board and SAM PBA



### 5.3.4 EPROM REPLACEMENT

**CAUTION:**

**Observe correct Anti-Static procedures when handling and storing EPROM's.  
The following procedure MUST be followed to protect yourself and the Tsp1.**

The procedure to replace the EPROM is as follows. *Refer to Section 5.6 "Operation of Maintenance Program Menus" for operating the Tsp1's Menu features.*

1. Access the MAINTENANCE MENU. To Retrieve the Identifier number of the phone
2. Press [3] (MTMS).



- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

3. Press [1] (SETUP)

**MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING

# - EXIT

From the details write down the IDENTITY number of the phone, the MTMS\_1 number and the MTMS 2 number, also make a note of the DIALLING type. This information is to be used when the new EPROM has been installed.

**PROG. LOCAL PARAMETERS**

- 1 - IDENTITY: xxxxxxxx
- 2 – DIALLING
- 3 - CONNECTED TO MTMS :YES
- 4 - MTMS\_1 : xxxxxxxxxx
- 5 - MTMS\_2
- (1-5) - CHANGE # EXIT

4. Press [#] to Exit.

**MTMS**

- 1 – SETUP
  - 2 – INITIALISATION
  - 3 - STATISTICS TO MTMS
  - 4 - REPAIR/SW UPGRADE
  - 5 - PARAMETER DOWNLOADING
- # - EXIT

5. Press [3] (STATISTICS TO MTMS).

- To perform a data download to MTMS,, SELECT [3] - (YES) and the Tsp1 will attempt to connect to the MTMS as described in Section 5.7.3.2 INITIALISATION of the Tsp1 Product Manual.

## **MTMS**

ARE YOU SURE YES/NO

0-NO    3-YES    #- EXIT

Observe the following by watching the display:

"WAIT CONNECTION TO MTMS"

.....

.....

"Message Received"

When data communication has finished:

- Return to MTMS, Menu (press # Twice)
- Turn MTMS communication off.  
Press [3] (MTMS).



- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

Press [1] (SETUP)

## **MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

Press [3] (CONNECTED TO MTMS) Toggle YES / NO

**PROG. LOCAL PARAMETERS**

1 - IDENTITY: xxxxxxxx  
2 - DIALLING  
3 - CONNECTED TO MTMS :NO  
4 - MTMS\_1 : xxxxxxxxxx  
5 - MTMS\_2 : xxxxxxxxxx  
(1-5) - CHANGE # EXIT

- Press # to exit. MTMS communication will have been switched off.

9. Select [4] - (REPAIR/SW UPGRADE) from the following menu.

**MTMS**

1 - SETUP  
2 - INITIALISATION  
3 - STATISTICS TO MTMS  
4 - REPAIR/SW UPGRADE  
5 - PARAMETER DOWNLOADING  
# - EXIT

10. Select [2] - (REPLACE BOARD) from the following menu

**MTMS**

1 - REPAIR CODE  
2 - REPLACE BOARD

11. Connect Anti Static mat and wrist strap
12. Remove Line and Power Board ribbon cable at CN4.
13. Using an EPROM removal tool, remove the EPROM from the main board (for easy access to EPROM, remove the Card Reader Controller Board from Main Board) (NOTE the orientation of the EPROM, ie the cut out notch is uppermost)
14. Install the replacement EPROM. (NOTE ensure the correct orientation of the EPROM, ie the cut out notch is uppermost).
15. Replace the Card Reader Controller Board.
16. Replace Line and Power Board ribbon cable at CN4.
17. To restore operation of the Tsp1, replace the handset for a minimum of 10 seconds.

The phone will display the following message on the LCD:



PICK UP AND PRESS  
TEST BUTTON

OR CLOSE DOOR

18. Within 25 seconds press the red Test button on the lower left hand corner of the Main Board. The EPROM version is displayed while the Test button is pressed.



MPP TELSTRA

Version V1 h

NOTE: The upgraded software version number. 19.

Select [3] (MTMS) from the following menu.



- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

20. Select [1] (SETUP) from the following menu.

### MTMS

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

21. Re-enter the correct details you retrieved in step 5 from the old software.

**[1] IDENTITY:** The identity is a unique number assigned to the particular phone that you are commissioning, This field cannot exceed 9 digits. Once you have entered the nine digits you must press [\*] to confirm you have entered the correct number.

**[2] DIALLING:** This option allows toggling between DTMF or DECADIC dialling. This option must be set to DTMF unless only Decadic dialling is available, which in this case is set to Decadic.

**[3] CONNECTED TO MTMS:** In this option you can toggle between "YES" or "NO". This option is set to "YES" unless specified otherwise. (To be safe you should switch this option to NO first then to YES).

**[4] MTMS 1:** This option is a 10-digit number that the Tsp1 uses to communicate with the MTMS. Once you have entered the ten digits you must press [\*] to confirm that you have entered the correct number.

**[5] MTMS 2:** This option has the same function as MTMS 1. It is a backup number if the Tsp1 cannot reach the MTMS with the first number (MTMS\_1). Once you have entered the ten digits, you must press [\*] to confirm that you have entered the correct number.

22. Turn MTMS communication back on

Press [3] (CONNECTED TO MTMS) Toggle NO / YES

PROG.LOCAL PARAMETERS

1 - IDENTITY: xxxxxxxx

2 - DIALLING

3 - CONNECTED TO MTMS : YES

4 - MTMS 1 : xxxxxxxxxxxx

5 - MTMS 2 : xxxxxxxxxxxx

(1-5) - CHANGE      # EXIT

23. Once all detail has been re-entered press the # button twice.

24. Select [3] (MTMS) from the following menu

**MTMS**

1 - PARAMETERS

2 - STATISTICS

3 - MTMS

4 - TESTS

5 - ALARMS

6 - INJECTOR

25. Select [4] (REPAIR/SW UPGRADE) from the following menu.

### **MTMS**

- 1 - SETUP
  - 2 - INITIALISATION
  - 3 - STATISTICS TO MTMS
  - 4 - REPAIR/SW UPGRADE
  - 5 - PARAMETER DOWNLOADING
- # - EXIT

26. Select [1] (REPAIR CODE) from the following menu.

### **MTMS**

- 1 - REPAIR CODE
- 2 - REPLACE BOARD

27. To send a repair code to the MTMS, select option [1]-(REPAIR CODE). The display will show 'WAIT , PLEASE' for a moment then show the following screen.

### **MTMS**

CODE 1 =

\* - CONFIRM

28. Enter the repair code of 100 then press[\*] -CONFIRM.

29. Select # - EXIT

30. Select 1 to send code. The message "Correct End Of Communication " will appear when finished hit # twice to return to main menu

31. Select [4] (TESTS) from the following menu.

### **TELSTRA**

- 1 - PARAMETERS
- 2 - STATISTICS
- 3 - MTMS
- 4 - TESTS
- 5 - ALARMS
- 6 - INJECTOR

32. Perform each test in turn (NOTE: do not collect coins in option 3)

### **MTMS**

- |                 |           |
|-----------------|-----------|
| 1 - SELFTESTING | 6 - TONE  |
| 2 - CALL        | 7 - CARDS |
| 3 - COINS       |           |
| 4 - ESCROW      |           |
| 5 - KEYPAD      | # - EXIT  |

33. At the completion of testing, Exit (#) to return to the main menu

34. Close door of unit

35. Test phone using the "A" service

### 5.3.5 MAIN BOARD REPLACEMENT

The data in the memory on the Main Board must be sent to the MTMS. The Main Board must then be shut down before removal. After the MAIN BOARD is replaced, the memory is to be re-stored in the new main board.

**CAUTION:**  
**Observe correct Anti-Static procedures when handling and storing PBA's.**

**The following procedure MUST be followed to protect yourself and the Tsp1.**

The procedure for the memory transfer and Main Board shut down is as follows.

*Refer to Section 5.6 "Operation of Maintenance Program Menus" for operating the Tsp1's Menu features.*

1. Access the MAINTENANCE MENU. To retrieve the Identifier number of the phone
2. Press [3] (MTMS).



- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

3. Press [1] (SETUP)

#### MTMS

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

From the details write down the IDENTITY number of the phone, the MTMS\_1 number and the MTMS 2 number, also make a note of the DIALLING type. This information is to be used when the new EPROM has been installed.

#### PROG. LOCAL PARAMETERS

- 1 - IDENTITY: xxxxxxxx
- 2 - DIALLING
- 3 - CONNECTED TO MTMS :
- 4 - MTMS\_1 : xxxxxxxxxx
- 5 - MTMS\_2 : xxxxxxxxxx
- (1-5) - CHANGE # EXIT



4. Press [#] to Exit.

## **MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

5. Press [3] (STATISTICS TO MTMS).

6. To perform a data download to MTMS, SELECT [3] - (YES) and the Tsp1 will attempt to connect to the MTMS as described in Section 5.7.3.2 INITIALISATION of the Tsp1 Product Manual.

## **MTMS**

ARE YOU SURE YES/NO

0-NO 3-YES # - EXIT

Observe the following by watching the display:

"WAIT CONNECTION TO MTMS"

.....

.....

"Message Received"

When data communication has finished.:

7. Return to MTMS Menu (press # Twice)

8. Turn MTMS communication off.

Press [3] (MTMS).



- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

Press [1] (SETUP)

### **MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

Press [3] (CONNECTED TO MTMS) Toggle YES / NO

### **PROG. LOCAL PARAMETERS**

- 1 - IDENTITY: xxxxxxxx
- 2 - DIALLING
- 3 - CONNECTED TO MTMS :NO
- 4 - MTMS\_1 : xxxxxxxxxxxx
- 5 - MTMS\_2 : xxxxxxxxxxxx
- (1-5) - CHANGE # EXIT

Press # to exit. MTMS communication will have been turned off.

9. Select [4] - (REPAIR/SW UPGRADE) from the following menu.

### **MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

10. Select [2] - (REPLACE BOARD) from the following menu.

- 1 - REPAIR CODE
- 2 - REPLACE BOARD

11. Connect Anti Static mat and wrist strap

*The MAIN BOARD is now ready for removal..*

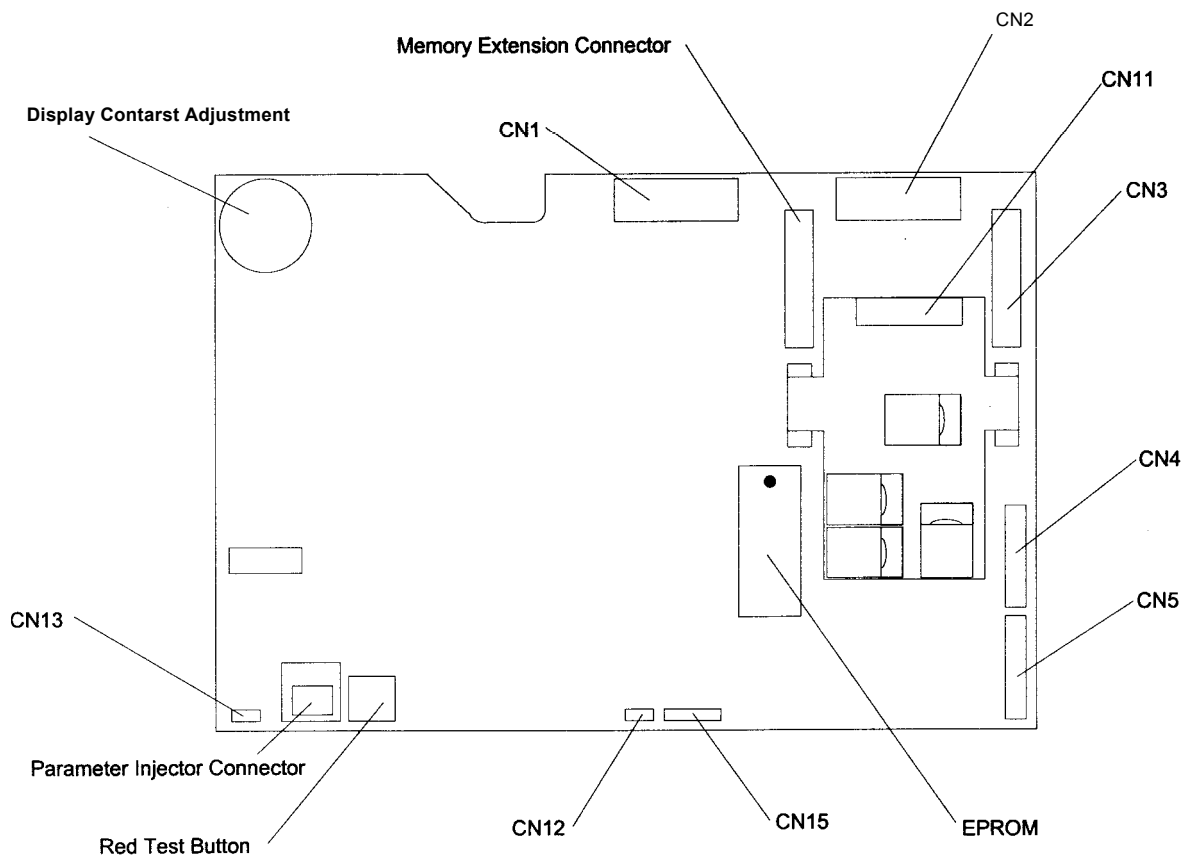
## Removal

1. Remove all the ribbon cable connectors on the Main Board from the other modules, starting with CN4 - the Line and Power Cable. The connectors are labelled on the diagram inside the Tsp1's door and are reproduced in the following table for reference:

### CAUTION:

**Use only the black plastic cable connector removing loop(s) to pull connectors from board sockets.**

Visual Display	CN1
Keypad	CN2
Coin System Card Reader	CN3
Line and Power Unit PBA	CN11 on top of card reader control unit
Lower Compartment	CN4
Handset	CN5
Refund Tray Switch	CN15
Door Switch	CN12
	CN13



**Figure 5.2 Main Board Ribbon Cable Connection Locations.**

2. Loosen the large Posidrive screw securing the bottom edge of the Main Board PBA to the Case Front Door.
3. Raise the two plastic tabs located on the Main Board's top right-hand edge. Tilt the board away from the door and lift it clear of the locking and screw studs at the Main Board's bottom edge.
4. Turn off the RAM battery.

**Installation:**

Installing the MAIN BOARD is the reverse procedure to removal.

NB: -RAM Battery must be turned on before installation.  
CN4 (Line and Power Cable) to be connected last.

### 5.3.5.1 INITIALISING THE MAIN BOARD

1. Replace the Card Reader Controller Board.
2. To restore operation of the Tsp1, replace the handset for a minimum of 10 seconds. The phone will display the following message on the LCD:

Telstra

PICK UP AND  
PRESS TEST BUTTON  
OR CLOSE DOOR

3. Within 25 seconds press the red Test button on the lower left hand corner of the Main Board. The EPROM version is displayed while the Test button is pressed.

Telstra

MPP TELSTRA

Version V1 h

NOTE: The upgraded software version number.

4. Select [3] (MTMS) from the following menu.

Telstra

- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6.- INJECTOR

5. Select [1] (SETUP) from the following menu.

## MTMS

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING
- # - EXIT

6. Re-enter the correct details you retrieved in step 3 from the old software.

**[1] IDENTITY:** The identity is a unique number assigned to the particular phone that you are commissioning. This field cannot exceed 9 digits. Once you have entered the nine digits you must press [\*] to confirm you have entered the correct number.

**[2] DIALLING:** This option allows toggling between DTMF or DECADIC dialling. This option must be set to DTMF unless only Decadic dialling is available, which in this case is set to Decadic.

**[3] CONNECTED TO MTMS:** In this option you can toggle between "YES" or "NOT". This option is set to "YES" unless specified otherwise. (To be safe you should switch this option to NOT first then to YES).

**[4] MTMS\_1:** This option is a 10-digit number that the Tsp1 uses to communicate with the MTMS. Once you have entered the ten digits you must press [\*] to confirm that you have entered the correct number.

**[5] MTMS 2:** This option has the same function as MTMS 1. It is a backup number if the Tsp1 cannot reach the MTMS with the first number (MTMS\_1). Once you have entered the ten digits, you must press [\*] to confirm that you have entered the correct number.

7. Turn MTMS communication back on

Press [3] (CONNECTED TO MTMS) Toggle NO / YES

## PROG. LOCAL PARAMETERS

- 1 - IDENTITY: xxxxxxxx
- 2 - DIALLING
- 3 - CONNECTED TO MTMS :YES
- 4 - MTMS 1 : xxxxxxxxxx
- 5 - MTMS 2 : xxxxxxxxxx
- (1-5) – CHANGE # EXIT

8. Once all detail has been re-entered press the # button twice.

9. Select [3] (MTMS) from the following menu.

**MTMS**

- 1.- PARAMETERS
- 2.- STATISTICS
- 3.- MTMS
- 4.- TESTS
- 5.- ALARMS
- 6. - INJECTOR

10. Select [4] (REPAIR/SW UPGRADE) from the following menu:

**MTMS**

- 1 – SETUP
- 2 – INITIALISATION
- 3 - STATISTICS TO MTMS
- 4 - REPAIR/SW UPGRADE
- 5 - PARAMETER DOWNLOADING

# - EXIT

11. Select [1] (REPAIR CODE) from the following menu

**MTMS**

- 1 - REPAIR CODE
  
- 2 - REPLACE BOARD

12.To send a repair code to the MTMS, select option [1]-(REPAIR CODE). The display will show 'WAIT , PLEASE' for a moment then show the following screen.

## **MTMS**

CODE 1 =

\* - CONFIRM

13.Enter the repair code of 211 then press [\*] -CONFIRM.

14.Select # - EXIT

15.Select [4] (TESTS) from the following menu.

## **Telstra**

1.- PARAMETERS

2.- STATISTICS

3.- MTMS

4.- TESTS

5.- ALARMS

6. - INJECTOR

16.Perform each test in turn (NOTE: do not collect coins in option 3)

## **MTMS**

1 - SELFTESTING

6 – TONE

2 - CALL

7 - CARDS 3 - COINS

4 – ESCROW

5 - KEYPAD # - EXIT

17.At the completion of testing, Exit (#) to return to the main menu

18.Close door of unit

19.Test phone using the "A" service

### 5.3.6 KEYPAD

The Main Board must be removed first to gain access. *Refer to Section 5.3.5 "Main Board Replacement"* for instructions.

**CAUTION:**

**Observe correct Anti-Static procedures when handling and storing PBA's.**

**Removal:**

1. Remove the top connector from the Keypad PBA that connects to the "Follow On" button and the line switch-hook.
2. Remove the four Posidrive screws from the metal frame of the Keypad that are visible just above the top edge and just below the bottom edge of the PBA.
3. Remove the Keypad assembly from the door.

**Cleaning:**

Clean using Isopropyl Alcohol.

**Installation:**

1. Position the Keypad so that the keys are completely through the holes in the Case Front Door.
2. Secure the Keypad into place by installing the four Posidrive screws.
3. Connect the Switch-hook and "Follow-On" switch cables.
4. Connect the ribbon cable to the Keypad.



### 5.3.7 VISUAL DISPLAY

The Main Board must first be removed to gain access to the Visual Display. *Refer to Section 5.3.5 "Main Board Replacement" for instructions.*

#### Removal:

1. Remove the self tapping Posidrive screws located on each corner of the Visual Display board.
2. Gently lift out the Visual Display.
3. To remove the Visual Display assembly, undo the four large Posidrive screws that hold the Visual Display plastic mounting bracket to the Case Front Door. These screws are held captive by rubber 'O'-rings, so there is no need to completely remove them.
4. Lift out the plastic Display mounting bracket and the Visual Display faceplate.
5. Carefully unstick the Display Glass Cover from the weatherproof seal and remove it.

#### Installation:

1. Locate the small cut-outs on each side of the Visual Display unit's faceplate.
2. Mate the faceplate cut-outs with the two lugs protruding from the front of the Display's plastic mounting bracket, to hold the faceplate in place. Note that there is a wider margin on the right-hand side of the Display mounting bracket (as viewed from front of phone) to accommodate the Telstra 'T' logo. The logo is located to the right side of the Visual Display's faceplate.
3. When viewed from the inside of the Case Front Door, ensure that the plastic mounting bracket is fitted with its margin on the left. The correct orientation for the Visual Display PBA itself is such that the ribbon connector to the Main Board is on the top.

#### **CAUTION:**

**Do not over-tighten screws when installing the Visual Display Mounting Bracket. Doing so may result in damage to the bracket.**

### **5.3.8 CALLING GUIDE**

The Main Board must be removed first to gain access. *Refer to Section 5.3.5 "Main Board Replacement"* for instructions.

#### **Removal:**

1. Undo the four large Posidrive screws on the metal backplate inside the phone door. These screws are captive in the same way the Visual Display's mounting frame screws are held with rubber 'O'-rings.
2. Lift out the backplate, the black plastic mounting bracket and the Calling Guide faceplate.
3. Carefully unstick the window from the weather seal adhesive.

#### **Installation:**

1. Locate the small cut-out sections on each side of the Calling Guide faceplate.
2. Mate these cut-outs with the two lugs protruding from the front of the mounting bracket to hold the calling guide faceplate in place. There is a cut-out on the top edge of both the mounting bracket and the backplate. This is to accommodate the Refund button on the inside of the door. The cut-outs therefore should be facing the top when refitting.

### **5.3.9 COIN REFUND MECHANISM**

#### **Removal:**

1. Disconnect the Coin Refund Mechanism's microswitch connector from the Main Board (CN12).
2. Remove the four large Posidrive screws (with two washers each) securing the Coin Refund Mechanism to the door.
3. Lift out the Coin Refund Mechanism, with care.

#### **Cleaning:**

Clean using Isopropyl Cleaning Pad.

#### **Installation:**

Installation is the reverse procedure to removal.

### **5.3.10 CALL "FOLLOW-ON" BUTTON ASSEMBLY**

The Main Board must be removed first to gain access. *Refer to Section 5.3.5 "Main Board Replacement"* for instructions.

#### **Removal:**

1. Disconnect the two spade terminal electrical connectors from the rear of the "Follow On" microswitch.
2. Remove the two 5.5 mm nuts and washers.
3. Remove the metal frame containing the microswitch, the button return spring, the button itself and the button surround.

#### **Cleaning:**

Clean using Isopropyl Cleaning Pad.

#### **Installation:**

Installation is the reverse procedure to removal.

### **5.3.11 SWITCH HOOK ASSEMBLY**

The Main Board must be removed first to gain access. *Refer to Section 5.3.5 "Main Board Replacement"* for instructions.

Disconnect the three spade terminals from the hook switch and note the colours for refitting.

Remove the 4 large Posidrive screws each with 2 washers and lift the assembly out from the outside of the door.

#### **Cleaning:**

Clean using Isopropyl Cleaning Pad.

### **5.3.12 COIN / CARD ENTRY COVER**

#### **Removal:**

1. Remove the Card Reader unit.
2. Remove Card Reader mounting bracket.
3. Remove Coin Entry Mechanism.
4. Remove the Posidrive screw on the lower right side of the Faceplate (as viewed from inside the door) a few turns.
5. Remove the Posidrive screw on the upper left side of the Faceplate
6. Lift out the Faceplate from the front of the door.

#### **Cleaning:**

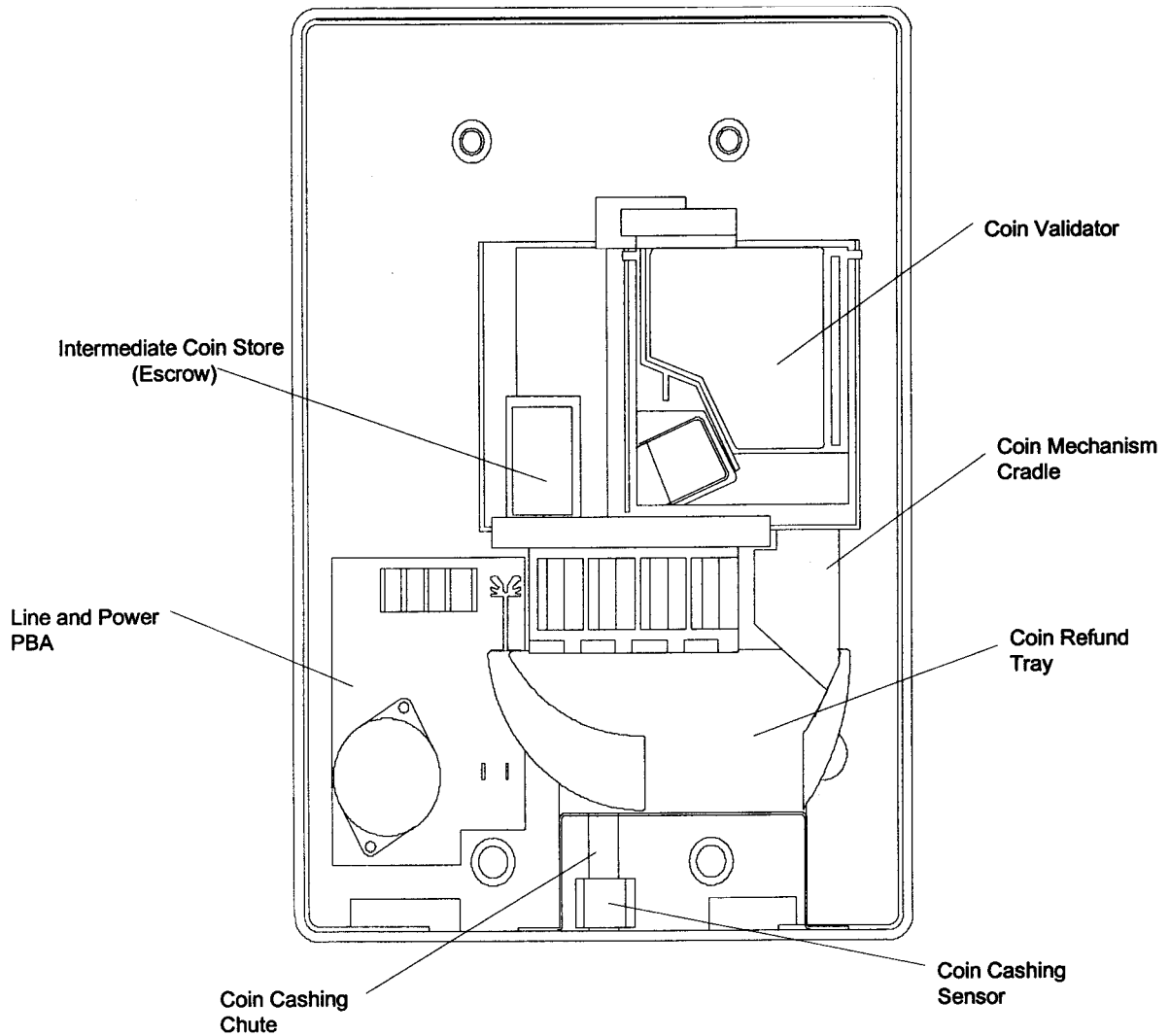
Ensure that there is no foreign matter in the slot. Clean using Isopropyl Cleaning Pad.

#### **Installation:**

Installation is the reverse process to removal. Ensure that the Card Reader is correctly aligned with the Card Entry Slot.

## 5.4 INSIDE THE UPPER COMPARTMENT

Inside the upper compartment Rear Case assembly, you will find the Coin Validator, Intermediate Coin Store (Escrow), the Coin Mechanism cradle, Coin Refund chute, Coin Passage chute, Coin Passage sensors, Line Connection and Power PBA and Handset entry. This area will describe how to remove and install the components in the upper compartment.



**Figure 5.3 Upper Compartment Rear Case Modules.**

### 5.4.1 COIN VALIDATOR

Cleaning of the Coin Validator is achieved by pressing down on the refund lever and opening the Coin Validator door. Clean both inside faces of the Coin Validator with isopropyl alcohol.

**NOTE:**

**The Coin Validator's internal sensors are fragile. When closing the Coin Validator's door, do so gently to avoid sensor damage.**

**Removal:**

1. Push the black plastic locking tab just underneath the Coin Refund lever.
2. Simultaneously pull the Coin Validator forward then disconnect the ribbon cable from the Coin Validator module (noting connector orientation).
3. Completely remove the Coin Validator from upper compartment.

**Cleaning:**

Open the Validator door and clean using Isopropyl Alcohol.

**Installation:**

1. Place the Coin Validator into its resting position.
2. Connect the ribbon cable to the rear of the Coin Validator, ensuring correct orientation.
3. Place the Coin Validator in the Coin Mechanism Cradle, making sure that the lugs on the bottom of the Coin Validator are in the correct position.
4. Slightly raise the front edge of the Coin Validator and gently push the unit backwards, then lower front edge locking tab into place. Checking that the stud is locked into the black plastic tab.

### 5.4.2 INTERMEDIATE COIN STORE (ESCROW)

**NOTE:**

The **Coin Validator** unit has to be removed **BEFORE** replacing the **Escrow**.

**Removal:**

1. Lift the front of the Escrow upwards and pull it slightly forward to access the rear ribbon cable connector.
2. Remove the rear ribbon cable connector by pressing the tabs at the sides of the connector then gently lifting. Note the correct orientation of the connector.
3. Pull the Escrow forward and remove it clear of the Coin Mechanism Cradle.

**Cleaning:**

Clean using Isopropyl Alcohol.

**Installation:**

1. Place the Escrow into the Coin Mechanism Cradle.
2. Connect the ribbon cable to the rear of the Escrow, ensuring correct orientation.
3. Slightly raise the front edge of the Escrow and push backwards into place, then lower. Make sure that the knobs on the front edge of the Escrow are connected into the two holes at the front edge of the Coin Mechanism Cradle.

### 5.4.3 COIN MECHANISM CRADLE

**NOTE:**

The **Coin Validator** and **Intermediate Coin Store (Escrow)** units should be removed before removing the **Coin Mechanism Cradle**. Refer to the appropriate sections for instructions.

**Removal:**

**NOTE:**

You must disconnect the ribbon cable from the main board before removing the **Coin Mechanism Cradle**.

1. Locate then pull forward the plastic locking tab in the upper-rear left-hand corner.
2. While holding the locking tab forward, lift the Cradle upwards then forward to remove it from its mounting bosses.

**Installation:**

1. Align the four holes of the Cradle with the four mounting bosses in the rear of the upper compartment.
2. Push the Cradle to the rear, then down until you observe the plastic tab correctly locking into place, usually confirmed by an audible "click".

#### 5.4.4 COIN REFUND TRAY

##### Removal:

1. Locate the two 7 mm nuts at the lower-front sides of the Coin Refund Chute, which mate the Chute to the base of the Rear Case.
2. Loosen and remove the two nuts.
3. Lift the Refund Chute Tray upwards, then towards you, clear of the lower threaded studs.

##### Cleaning:

Clean using Isopropyl Alcohol.

##### Installation:

Installation is the reverse process to removal.

##### CAUTION:

**Do not over tighten the nuts, as this may damage the threads on the studs.**

#### 5.4.5 LINE CONNECTION AND POWER PBA

##### **WARNING:**

**TO AVOID THE POSSIBILITY OF ELECTRICAL SHOCK, THE POWER SUPPLY TO THE Tsp1 MUST BE SWITCHED OFF BEFORE COMMENCING WORK ON THE LINE CONNECTION AND POWER PBA.**

##### Removal:

1. Isolate power supply from the Tsp1.
2. Remove the Coin Mechanism assembly to gain access to the Line Connection and Power PBA.
3. Disconnect the Line Connection and Power PBA's ribbon cable from the Main Board PBA (Connector CN4).
4. Remove the line and power cables.

##### Installation:

1. Locate the PBA onto the two stand-offs at the rear of the compartment.
2. Screw on the two nuts.
3. Reconnect the ribbon cables and the line and power cables.
4. Restore electrical power to Tsp1 unit.



#### **5.4.6 COIN CASHING SENSOR**

##### **Removal:**

1. Remove the Coin Mechanism assembly from the upper compartment.
2. Disconnect the Coin Cashing Sensor cable from the bottom of the Line Connection and Power PBA.
3. Carefully separate the Coin Cashing Sensor from the base of the Coin Passage chute into its two component Sensor PBA's.
4. Ensure the two component Sensor PBA's are clear of the Coin Passage chute, then remove from upper compartment.

##### **Cleaning:**

Clean using Isopropyl Alcohol.

##### **Installation:**

Installation is the reverse procedure to removal.

##### **NOTE:**

**Observe the proper orientation and alignment of the component Sensor PBA's. The Sensor PBA with the ribbon cable connection is positioned on the RIGHTHAND SIDE of the Coin Passage chute.**

#### **5.4.7 COIN PASSAGE CHUTE**

##### **Removal:**

1. Remove the Coin Cashing Sensor.
2. Undo and remove the two nuts holding the Coin Passage Chute in place.
3. Lift the Chute up then clear of the upper compartment.

##### **Installation:**

1. Locate the Coin Passage Chute over the two studs on the bottom of the upper compartment.
2. Lower and secure the Coin Passage Chute into place with the two nuts.
3. Replace the Coin Cashing Sensor.

##### **CAUTION:**

**Do not over tighten the nuts, as this may damage the threads on the studs.**

### 5.4.8 HANDSET

#### Removal:

1. Remove rubber cable securing lug at the top of metal cable clip located on the lower inner left-hand surface of the Tsp1's Rear Case.
2. Disconnect Coin Mechanism Assembly connection from Main Board (Connector CN3).
3. Disconnect Handset connection cable from Main Board (Connector CN 15) and remove from metal securing clip on Rear Case inner left-hand securing clip.
4. Remove entire Coin Mechanism Assembly cradle by moving cradle securing lug forward, then moving assembly upwards to remove from Rear Case.
5. Loosen locking nut of Handset cable securing clip (next to Protective Earth cable, to the left-hand side of the back of the Rear Case) and free Handset Securing cable.
6. Unscrew and disconnect black Earth connection cable from Handset mounting plug.
7. Pull the Handset mounting securing clip, freeing the Handset assembly.
8. Carefully remove Handset assembly from Rear Case side entrance. Installation:

Installation is the reverse process to removal. When tightening the black Earth connection cable, minimal stress is to be placed on the connection lugs by turning the Handset connector through the full range of movement BEFORE tightening it in an optimal position.

## **5.5 INSIDE THE LOWERCASE**

### **5.5.1 COIN BOX SENSOR**

#### **Removal:**

1. Disconnect the Coin Box sensor ribbon cable from the coin compartment PBA (see diagram on inside of lower case door).
2. Unscrew the two 7 mm locknuts and remove the sensor and rear spacer.
3. Orientate the sensor such that the ribbon cable emerges on the left hand edge of the sensor.

#### **Installation:**

Installation is the reverse process to removal.

#### **NOTE:**

**The Coin Box Sensor must be left loose to allow it to move freely and locate itself when the Coin Box is installed into the coin compartment.**

### **5.5.2 COIN COMPARTMENT PBA**

Pull the black removing loop to disconnect the ribbon cable to the upper case. Disconnect the three connectors at the rear of the PBA which connect to the door switch and Lock. Undo the four 7 mm nuts securing the board to the left wall of the lower case. Pull off the plastic washers and remove the board.

Orientate the board such that the socket for the Main Board cable (CN1) is at the top.

### 5.5.3 ELECTRONIC DOOR LOCK

#### Removal:

Remove the 7 mm nut that holds the electronic lock assembly to the rear of the case.

2. Remove the two 8 mm nuts that hold the lower edge of the assembly to the right hand side of the case.
3. Remove the assembly and disconnect the three spade terminals from the switch noting the wire colours for refitting.
4. Unscrew the two wires from the connector block belonging to the solenoid leads and remove the module from the case.
5. Refit nuts to studs on case to prevent loss of nuts or spacers.

**Installation:** Installation is the reverse process to removal.

#### **NOTE:**

**Establish the cable connections first and place the assembly into the case, hooking the top left mounting slot around its stud before the bottom ones.**

### 5.5.4 LOCKING BAR EXTENSION

The procedure below must be followed to install the locking bar extension piece.

1. With the Coin Box removed, insert the locking bar extension onto the end of the locking bar with the lip of the locking bar extension facing the lock mechanism.
2. Screw in the 3 mm Allen key cap screw until the locking bar extension is secured.

## 5.6 OPERATION OF MAINTENANCE PROGRAM MENUS

The maintenance program gives access to the following programming and control functions of the Tsp1:

- Initialisation functions,
- Display and erasing of alarms,
- Display of operating parameters,
- Testing the Tsp1 internal components,
- Testing of the Tsp1 external components.

The maintenance program uses an interactive operator menu. Selection of the desired function is carried out using the Keypad (digits [0] to [9], [\*] and [#]). The results are indicated on the Visual Display's messages or parameters or by the Handset tone(s).

The menu displays a list of functions. The name of each function is preceded by a number that indicates the relevant digit key to press when that function is desired. The valid digits to choose functions and to introduce parameters are [0] through to [9].

The bottom line shows the following function keys where appropriate:

**[FM = FORWARD (ADVANCE FUNCTION)**

**[BW] = BACKWARD (RETURN FUNCTION)**

**[CH] = CHANGE (CHANGE FUNCTION)**

**[EXIT] = EXIT FUNCTION**

The letters in [brackets] represent the abbreviation that appears on the Tsp1 Visual Display.

### 5.6.1 ACCESSING MAINTENANCE MODE

To access the Maintenance mode of the Payphone the following procedure must be followed:

1. Leave the Handset ON HOOK and open the upper case door by turning the Lock Mechanism key clockwise 180°.

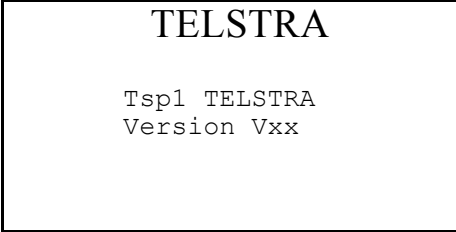
**NOTE:**

**The following message should appear. If it fails to appear, reset the upper micros witch.**

TELSTRA  
PICK UP AND PRESS  
TEST BUTTON OR  
CLOSE DOOR

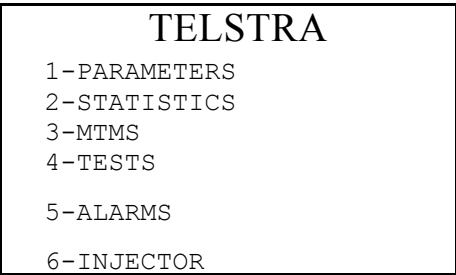
**Refer to Figure 5.2 for the location of the red Test button.**

- Pick up the Handset and press the RED Test button on the lower left hand corner of the Main board within 25 seconds. The EPROM Version is displayed while the Test button is pressed:



TELSTRA  
Tsp1 TELSTRA  
Version Vxx

- Release the Test button and the MAIN MENU is shown:



TELSTRA  
1-PARAMETERS  
2-STATISTICS  
3-MTMS  
4-TESTS  
5-ALARMS  
6-INJECTOR

To access a given function press the associated digit key [1] to [6].

## 5.7 MENU TREE STRUCTURE

The functions are arranged in a tree-like structure as shown below:

1. **PARAMETERS.** (NOTE: Password required for access)
  - 1) Clock Programming.
  - 2) Coins.
  - 3) Chip Cards.
  - 4) Telephone Numbers.
  - 5) General Parameters.
  - 6) Publicity.
  
2. **STATISTICS.**
  - 1) Display Statistics.
  - 2) Erase Statistics.
  
3. **MTMS.**
  - 1) Setup.
    - a) Identity.
    - b) Dialling.
    - c) Connected To MTMS.
    - d) MTMS\_1.
    - e) MTMS\_2.
  
  - 2) Initialisation.
  - 3) Statistics To MTMS.
  - 4) Repair / SW Upgrade.
  - 5) Parameter Downloading.
  
4. **TESTS.**
  - 1) Self Test.
  - 2) Call.
  - 3) Coins.
  - 4) Escrow.
  - 5) Keypad.
  - 6) Tone.
    - i) Public Phone Tone.
    - ii) End Of Credit Tone.
    - iii) Dial Tone.
      - I. Detect Dial Tone.
      - II. Cards.
  
5. **ALARMS.**
  - 1) Display Alarms.
  - 2) Erase Alarms.

## 6. INJECTOR.

To access a function, start at the Main Menu and follow the tree structure to the appropriate sub-menu. Exiting of any function returns the program to the previous (higher) Menu level.

### 5.7.1 PARAMETERS

This option allows some initial settings such as Date, Time and Communications to be entered. It also allows for viewing of the parameters downloaded from the MTMS.

From the maintenance main menu, select [1]-PARAMETERS and enter the Maintenance Password as shown. The digits show up as asterisks [\*] for security.

**NOTE:**

**The factory default setting for the Maintenance password is [1][1][1][1].**

```
TELSTRA
INTRODUCE PASSWORD
*****
```

**NOTE:**

**If an incorrect password is entered the display returns to the Main Menu. Reselect Option [1]-PARAMETERS. When the correct password is entered, the Parameters Menu is shown.**

#### 5.7.1.1 CLOCK PROGRAMMING

```
PARAMETERS
1-CLOCK PROGRAMMING
2-COINS
3-CHIP CARDS
4-TELEPHONE NUMBERS
5-GENERAL PARAMETERS
6-PUBLICITY      #-EXIT
```

To set the clock, press [1]-CLOCK PROGRAMMING and the following display will be shown:

```
CLOCK PROGRAMMING
DAY XX MON XX YEA XX
*-FW 0-BW 1-CH      # EXIT
```

where XX represents the actual digits.



Press [1]-CH to set the clock and the display will show:

```
CLOCK PROGRAMMING

DAY MON YEA
KEY IN DAY

*-CONFIRM
```

Key in the Date (one or two digits) and press [\*]-CONFIRM. The prompt will change to KEY IN MON as shown:

```
CLOCK PROGRAMMING

DAY xx MON YEA
KEY IN MON

*-CONFIRM
```

Enter the month and press [\*]-CONFIRM. Then enter the Year (2 digits only) and press [\*]-CONFIRM. The display will show:

```
CLOCK PROGRAMMING

DAY xx MON xx YEA xx

*-FW 0-BW 1-CH # EXIT
```

If an incorrect entry is made at any stage, continue to enter the three sets of digits as above and press [1]-CH to re-enter the correct information.

Press [\*]-FW and the display will show the time:

```
CLOCK PROGRAMMING

HOUR xx MINUTES xx

*-FW 0-BW 1-CH # EXIT
```

Press [1]-CH and enter the Hour (24 hour clock used) and press [fl-CONFIRM. Enter the Minutes and press [\*] CONFIRM. Press [\*]-FW and the display will show the day:

```
CLOCK PROGRAMMING  
  
WEEKDAY :xxxxxx  
  
*-FW 0-BW 1-CH      # EXIT
```

Press [1]-CH to advance the day until the correct day is shown. Press [\*]-FW to advance to the next screen:

```
CLOCK PROGRAMMING  
  
xx:xx:xx  
  
0-START 1-STOP      # EXIT
```

If the Seconds are not advancing, press [0]-START to start the clock running. The seconds will start advancing from 00. While the clock is running, pressing [0]-START will cause the seconds digits to reset to zero and commence counting. This feature can be used when setting the clock accurately to a time signal. When the clock is running with the correct time on the display press [#] EXIT to return to the Parameters Menu.

**NOTE:**

**Due to the relatively high power consumption of the clock oscillator, it is necessary to stop the clock when the RAM memory has no external power supply. This happens for example when the Tsp1 is in the warehouse or when the clock is on a spare replacement PBA. If the phone is moved from its position, it is recommended that the Clock is stopped to save the Main Board's lithium battery power.**

**PARAMETERS**

- 1 CLOCK PROGRAMMING
- 2 COINS
- 3 CHIP CARDS
- 4 TELEPHONE NUMBERS
- 5 GENERAL PARAMETERS
- 6 PUBLICITY #-EXIT

### 5.7.1.2 COIN PROGRAMMING

**NOTE:**

**The parameters for the type of coins that the Tsp1 will accept are set by the management system when the Tsp1 is first initialised.**

From the Parameters Menu, press [2]-COINS. The coin programming screen will be shown:

COIN PROGRAMMING		
01-0005	02-0010	03-0020
04-0050	05-0100	06-0200
07-0000	08-0000	09-0000
10-0000	11-0000	12-0000
13-0000	14-0000	
*-FW	0-BW	#-EXIT

This screen shows the list of coins accepted by the Tsp1 together with their value in 0.01 dollar units. This information is for viewing purposes only. It is not possible to change any of the values. Press [\*]-FW to advance to the next screen that shows the list of coins allowed for local calls:

ALLOWED COIN		
01-YES	02-YES	03-YES
04-YES	05-YES	06-YES
07-NOT	08-NOT	09-NOT
10-NOT	11-NOT	12-NOT
13-NOT	14-NOT	
*-FW	0-BW	#-EXIT

Press [\*]-FW to display the list of coins allowed for STD and IDD calls:

ALLOWED COIN STD-IDD		
01-YES	02-YES	03-YES
04-YES	05-YES	06-YES
07-NOT	08-NOT	09-NOT
10-NOT	11-NOT	12-NOT
13-NOT	14-NOT	
*-FW	0-BW	#-EXIT

Press [#]-EXIT to return to the Parameters Menu.

### 5.7.1.3 CHIP CARD VALUES

From the Parameters Menu, press [3]-CHIP CARDS to display the following list of the values:

CHIP CARD VALUES		
1-00200		2-00500
	3-01000	4-02000
5-00000		6-00000
	7-00000	8-00000
*-FW	0-BW	#-EXIT

Press [\*]-FW to access the first of two screens that show the ten possible ranges of black listed cards:

BLACK LISTED CARDS			
	From	To	MC
01-	000000	000000	00
02-	000000	000000	00
03-	000000	000000	00
04-	000000	000000	00
05-	000000	000000	00
*-FW	0-BW		#-EXIT

Press [\*]-FW to view the second screen.

Press [#]-EXIT to return to the Parameters Menu.

#### 5.7.1.4 TELEPHONE NUMBERS

From the Parameters Menu, press [4]-TELEPHONE NUMBERS and the display will show the first page of fifty possible barred phone numbers:

```
BARRED NUMBERS
01-
02-
03-
04-
05-
-FW 0-BW  #-EXIT
```

Press [\*]-FW to advance through each of the 10 pages of this list. At the end of this list are two pages that consist of 10 possible free call numbers:

```
FREE NUMBERS
01-
02-
03-
04-
05-
*-FW 0-BW  #-EXIT
```

Press [#]-EXIT to return to the Parameters Menu.

### 5.7.1.5 GENERAL PARAMETERS

Press [5]-GENERAL PARAMETERS from the Parameters Main Menu. There are five screens of information which can be accessed using the [\*]-FW and [0]-BW keys. They are as follows:

```
GENERAL PARAMETERS
PHONE:
CHRON:
INCOMING CALLS:
GROUND EXIST :
*-FW 0-BW      #-EXIT
```

```
GENERAL PARAMETERS
INTERDIGIT TIME :  xx
GENERAL THRESHOLD:  xxx
INT. ACCESS CODE : xxxxx
LANG. :
*-FW 0-BW      #-EXIT
```

```
GENERAL PARAMETERS
PULSE VALUE      : xxxxxx
RECOLLECTION TIM: xxxxx:xxxxx
ACTION UI        :
NUM.FAIL.BLOC.UI: 0
INT.TARRIFF TIM : 010
*-FW 0-BW      #-EXIT
```

```
GENERAL PARAMETERS
  LOC  STD  IDD
ALLOWED :xxx   xxx
MAX.DIGI.:xx   xx   xx
ANSWER T.:xxx  xxx  xxx
MISS.TIM.:xxxx  xxxx  xxxx
MINIMUM  :xxxxx xxxxx xxxxx
*-FW 0-BW      #-EXIT
```

```
GENERAL PARAMETERS
SEND CALLS REGISTER: xxx
DAILY ROUTINE TIME :
01-10:
11-20:
21-31:
*-FW 0-BW      #-EXIT
```

### 5.7.1.6 PUBLICITY I ADVERTISING

From the Parameters Menu, press [6]-ADVERTISING and the first of two message screens is shown as follows:

```
MESSAGE 1: SHIFT MODE

*-FW 0-BW                #-EXIT
```

The second message on the Visual Display is shown flashing or blinking.

Press [#]-EXIT to return to the Parameters Menu. Press [#]-EXIT again to return to the Main Menu.

## 5.7.2 STATISTICS

From the Main Menu, press [2]-STATISTICS to display the Statistics Menu:

```
STATISTICS
1- DISPLAY STATISTICS
2- ERASE STATISTICS
#-EXIT
```

Press [1]-DISPLAY to call up 7 screens of statistical information.  
Use the [\*]-FW and [0]-BW keys to access all screens.  
The information displayed is as follows:

```
QUANTITY OF COINS
01-xxxx 02-xxxx 03-xxxx
04-xxxx 05-xxxx 06-xxxx
07-xxxx 08-xxxx 09-xxxx
10-xxxx 11-xxxx 12-xxxx
13-xxxx 14-xxxx
*-FW 0-BW #-EXIT
```

```
CONSUMED CARDS
1- xxx      2- xxx
3- xxx      4- xxx
5- xxx      6- xxx
*-FW 0-BW  #-EXIT
```

```
CUMULATIVE AMOUNT
COINS: xxxxxxxx
CARDS: xxxxxxxx
*-FW 0-BW #-EXIT
```

```
TEST CALLS
QUANTITY: xxx
SECONDS : xxxxx
*-FW 0-BW #-EXIT
```



```
OCCURRENCE FAIL

MTMS COM FAILURES : xxx
VOLTAGE FAILURES: xxx
CLOCK FAILURES : xxx

*-FW 0-BW          #-EXIT
```

```
OCCURRENCE FAIL

FAILED COLL. COIN: xxx
FAILED COLL. CARD: xxx
FRAUD ATTEMPTS : xxx

*-FW 0-BW          #-EXIT
```

```
OCCURRENCE FAIL

MISSING PULSES : xxx
VOLTAGE Vcc FAIL: xxx

*-FW 0-BW          #-EXIT
```

Press [#]-EXIT to return to the Statistics sub-menu.

```
STATISTICS

1- DISPLAY STATISTICS
2- ERASE STATISTICS

#-EXIT
```

To erase all the statistical data (except the historical amount figures), press [2]-ERASE STATISTICS. No confirmation is necessary. The display will show:

```
STATISTICS

STATISTICS ERASED

1-DISP 2-ERASE #-EXIT
```

Press [#]-EXIT to return to the Main Menu.

### 5.7.3 MTMS MENU

From the Main Menu press [3]-MTMS to display the MTMS menu as shown:

```
MTMS
1  SETUP
2  INITIALISATION
3  STATISTICS TO MTMS
4  REPAIR/SW UPGRADE
5  PARAMETER DOWNLOADING
#-EXIT
```

#### 5.7.3.1 SETUP

To set up the Tsp1 for MTMS communications the following set of local parameters must be entered. From the MTMS menu select option [1] - SETUP and the 'PROG. LOCAL PARAMETERS' screen will appear as shown:

```
PROG. LOCAL PARAMETERS
1-IDENTITY
2-DIALLING : DTMF
3-CONNECTED TO MTMS : YES
4-MTMS_1:
5-MTMS_2:
(1 5)-CHANGE      #-EXIT
```

1. To enter the identification number of the Payphone (maximum of 9 digits) press [1]-IDENTITY, key in the number then press [\*] - CONFIRM. If an incorrect digit is entered press [\*]-CONFIRM to accept it then press [1]-IDENTITY and re-enter the complete number correctly followed by [\*]-CONFIRM.

#### NOTE:

**Leading zeros do not require entering.**

2. To change the dialling type, press [2]-DIALLING to toggle between DECADIC and DTMF. Dialling should be set to DTMF unless the exchange line ONLY supports Decadic dialling.
3. To tell the Tsp1 whether it is connected to the MTMS, press [3]-CONNECTED TO MTMS to toggle between NOT and YES. The Tsp1 will normally be connected to the MTMS (YES).
4. To enter the first MTMS phone number, key [4]-MTMS\_1 then enter the number (maximum of 16 digits). When finished, press key [\*]-CONFIRM. If an incorrect digit is entered press [\*]-CONFIRM to accept it then press [4]-MTMS\_1 and re-enter the complete number correctly followed by [\*]-CONFIRM.
5. To enter the second (backup) MTMS phone number key [5]-MTMS\_1. Enter the number as above for the first MTMS number.
6. When these five parameters have been entered press [#]-EXIT. The display will return to the MTMS Menu.

### 5.7.3.2 INITIALISATION

To establish communications with the MTMS and initialise the Tspl select option [2] - INITIALISATION from the MTMS menu. The phone will try and dial the MTMS using the number entered.

If the Tspl is not set up for communications with the MTMS the following message is shown:

MTMS

NOT CONNECTED MTMS

#-EXIT

If there are no MTMS phone numbers stored in the Tsp1 the following message will be shown:

THERE ARE NO STORED

MTMS NUMBERS

#-EXIT

If the above two conditions are correct the Tsp1 will attempt to call the MTMS. The display will show the following message while the phone is waiting for a dial tone:

MTMS

TRY 001

WAITING FOR TONE

#-EXIT

The phone will make 3 attempts of 20 seconds each to obtain a dial tone and the display will show "TRY 002" and "TRY 003" during the subsequent attempts. If a dial tone is not detected after the third attempt the following message will be displayed:

MTMS

NO WAY TO CONNECT

WITH MTMS

#-EXIT

To abort the dialling process (where required) before all three call attempts are made press [#]. The display will show:

```
PROCESS ABORTED BY
USER
```

Press [#] again and the display will return to the MTMS menu.

When a dial tone is detected the phone dials the MTMS and the display shows

```
MTMS

TRY xxx

DIALLING: xxxxxxxx

#-EXIT
```

After dialling is completed, the following message is shown while the phone is waiting for the MTMS to answer:

```
MTMS

WAIT CONNECTION MTMS

#-EXIT
```

A time-out of 25 seconds plus the answer time is allowed after the last dialled number while waiting for the MTMS to answer. If this time-out finishes the Tsp1 will try dialling again up to two more times. When the MTMS answers, the display shows:

```
MTMS

TRANSMITTING .....
MESSAGE : PARAMETERS

#-EXIT
```

During a correct communication session the Tsp1 sends a start message to the MTMS. The MTMS checks the Tsp1's Identification number and if correct the parameters are sent to the Tsp1 to perform initialisation. After a delay, the initialisation is complete and if no errors occurred the display will show:

```

MTMS

CORRECT END OF THE
COMMUNICATION

#-EXIT

```

If the identification number of the Tsp1 is already in the MTMS database (for an initialised phone), the following is displayed:

```

MTMS

IDENTITY ALREADY
EXISTS

#-EXIT

```

The displaying of the messages WRONG IDENTITY, UNKNOWN IDENTITY or IDENTITY ALREADY EXISTS indicates that the initialisation is not accepted.

### 5.7.3.3 STATISTICS TO MTMS

To perform a download of the Tsp1's statistics to the MTMS select option [3]STATISTICS TO MTMS from the MTMS menu. The Visual Display will show the following confirmation:

```

MTMS

ARE YOU SURE YES/NO

0-NO 3-YES #-EXIT

```

If either [0]-NO or [#]-EXIT is pressed the display will return to the MTMS menu. To perform a dump, press [3]-YES and the Tsp1 will attempt to connect to the MTMS as described in *Section 5.7.3.2 INITIALISATION*".

### 5.7.3.4 REPAIR/ SOFTWARE UPGRADE

This option sends repair messages to the MTMS. When this is done all alarms are cleared and the clock restarts. The statistical data is not cleared. From the MTMS main menu select Option [4] - REPAIR / SW UPGRADE and the following sub-menu will be displayed:

```
MTMS

1- REPAIR CODE

2- REPLACE BOARD

#-EXIT
```

To send a Repair Code to the MTMS, select option [1]-REPAIR CODE. The display will show "WAIT, PLEASE" for a moment then show the following screen:

```
MTMS

CODE 1 =

*-CONFIRM
```

Enter the Repair Code (maximum of 3 digits), then press [\*]-CONFIRM. If there is another code to be entered press [\*]-CONFIRM again and enter the next repair code followed by [\*]-CONFIRM (maximum of 5 codes). When the 5th code is entered or [#]-EXIT is pressed (when less than 5 codes are entered) the display will show:

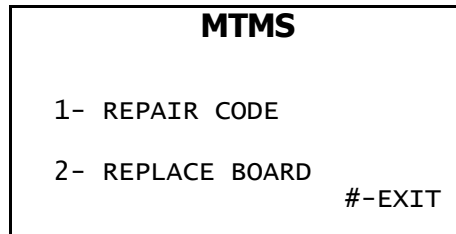
```
MTMS

CODE 5 = xxx

1-CALL TO MTMS #-EXIT
```

Press [1]-CALL TO MTMS and the phone will dial the MTMS and send the Repair Codes.

To replace a board, select [2]-REPLACE BOARD from the MTMS Menu:



The Tsp1 will power down so that hardware repairs can be conducted safely. To restore operation to the Tsp1, hang up the Handset for a minimum of ten seconds.

### **5.7.3.5 PARAMETER DOWNLOADING**

To request a parameter download from the MTMS, select option [5] - PARAMETER DOWNLOADING from the MTMS menu. The phone will immediately attempt to connect to the MTMS.

## 5.7.4 TESTS

From the Maintenance main menu:

TELSTRA	
1-PARAMETERS	
2-STATISTICS	
3-MTMS	
4-TESTS	
5-ALARMS	
6-INJECTOR	

Select option [4]-TESTS, which will call up the Test Menu as shown:

TEST	
1-SELFTESTING	6-TONE
2-CALLS	7-CARDS
3-COINS	
4-ESCROW	
5-KEYPAD	#-EXIT

There are two types of Tests: Automatic (a self test of the various modules of the Tsp1), and Manual (where each module of the Tsp1 can be separately tested).

### 5.7.4.1 SELF TEST

The self test carries out the following tests on the phone. The table shows the displayed alarm and the description of that alarm:

Standard Document TYPE	FUNCTION
Handset broken	Determines the absence of answer.
Keypad failure	Determines the Keypad blockage. NOTE: The Main Board's TEST button fails to work when Keypad fails.
RAM memory fault	Incorrect battery level and check-sum.
EEPROM fault	Determines writing faults in the EEPROM.
Card reader fault	Incorrect operation of the card reader and/or the control board.
Coin collection fault	Fault in collection coins.
Coin Validator jamming	Jamming in the entry of the coin Validator.
Escrow failure	Failure at the Escrow.
Coin box full	Coin box full.
Coin box missing	Coin box missing.
Coin box <sup>3</sup> / <sub>4</sub> full	Coin box 3/4 full.
Coin box cable missing	Coin box cable connection with coin box PCB missing.
Permanent 16kHz pulses	Determines the permanent presence of 16kHz.
Lower door open	Lower door open.



Upper door open

Upper door open.

To perform a self test of the Tsp1 modules, select [1]-SELF TEST from the Test menu. The Visual Display will show the following message while the self test is being carried out:

```
SELFTESTING  
  
WAIT, PLEASE
```

After a short delay the result of the test will be displayed. If the tests have all been successful the display will show:

```
SELFTESTING  
  
GOOD SELFTESTING  
  
#-EXIT
```

**NOTE:**

**If there are any errors they will be displayed one at a time, for example:**

```
SELFTESTING  
  
LOWER DOOR OPEN  
  
*-CONTINUE #-EXIT
```

Press [\*] - CONTINUE to display each error in turn. After the last error is displayed the end message is shown:

```
SELFTESTING  
  
END SELFTESTING  
  
#-EXIT
```

Press [#]-EXIT to return to the Test Menu.

#### 5.7.4.2 CALL TEST

From the Test Menu, press [2]-CALL to perform a test call. The Tsp1 will connect to the phone line, detect dial tone and the display will prompt for the phone number to be dialled:

```
CALL
DIAL NUMBER
XXXX
```

# - EXIT

As the digits are dialled they appear on the Visual Display. Only local calls and test numbers are accepted for this option.

Once the call answer signal is received, the following message is shown:

```
CALL
RECEIVED PULSES :
#-EXIT
```

Press [#]-EXIT to return to the Test Menu.

#### 5.7.4.3 COIN TEST

This test will check the operation of the coin mechanism. From the Test Menu, select option [3]-COINS and the following screen is shown:

```
COINS
INSERT COIN (0)
#-EXIT
```

```
COINS

INSERT COIN (1)

OK TYPE XX VALUE=XXXX

0-COLLECT #-EXIT
```

The types of coin and their values are listed under [2]-COINS in the Parameters menu (see Section 5.7.1.2). To collect a coin, press [0]-COLLECT and the coin shown will drop *into the coin box*. Up to eight coin can be inserted at a time. To finish the coin test press. [#]-EXIT and any coins not collected by the Tsp1 will be refunded, accompanied by the following message:

```
COINS

REFUND
GOOD

#-EXIT
```

Press [#]-EXIT to return to the Test Menu.

#### 5.7.4.4 COIN VALIDATION UNIT (ESCROW) TEST

This test will test all eight positions of the Escrow. From the Test Menu press [4]ESCROW and the following screen is displayed:

```
ESCROW

ESCROW POSITION

#-EXIT
```

Press any of the digit keys [1] through [8]. If the Escrow is functioning correctly, it will move to each position and display the word "GOOD" as follows:

```
ESCROW

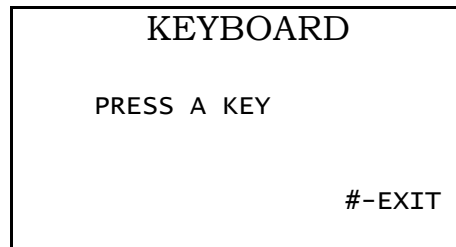
ESCROW POSITION
GOOD

#-EXIT
```

If the Escrow is unable to successfully move to a particular position the message "NO POSITION" will be displayed instead of "GOOD". Press [#]-EXIT to return to the Test Menu.

#### 5.7.4.5 KEYPAD TEST

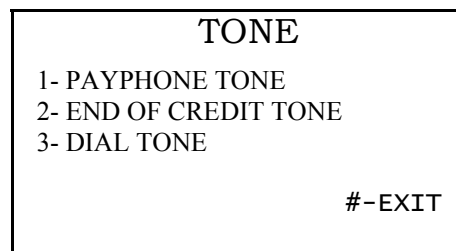
To perform a test of the Keypad, select option [5]-KEYBOARD from the Test Menu. The following screen is displayed:



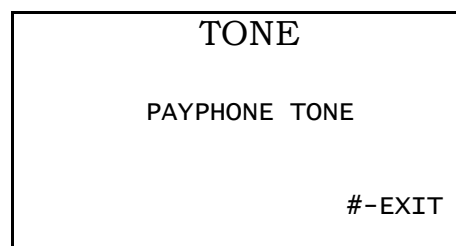
Press each key in turn (except [#] which is used to Exit) and the corresponding character should appear in the display. When finished press [#]-EXIT to return to the Test Menu.

#### 5.7.4.6 TONE TEST

From the test menu select option [6]-TONE and the following Tone sub-menu will be displayed:



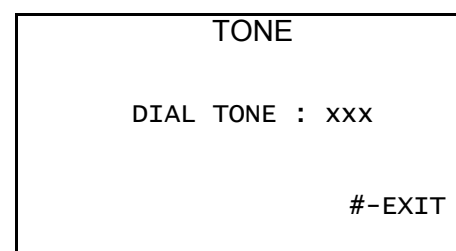
To generate the public phone identification tone, press [1] and the Visual Display will show the name of the tone being generated:



Check for audible tone through the Handset. Press [#]-EXIT to return to the Tone Menu.

From the Tone Menu, press [2] to generate the "End of Credit" tone.

To test the Dial Tone detector, select option [3]-DETECT TONE from the Tone menu. The resultant message will indicate if dial tone is detected:



Press [#]-EXIT to return to the Tone menu, then press [#]-EXIT again to return to the Test menu.

#### 5.7.4.7 CARD TEST

From the Test menu select option [7]-CARDS. This option tests the Card Reader. In the event of incorrect operation an error message is displayed. If no error is detected the display will prompt for a card to be inserted:

```
CARDS
INTRODUCE CARD
#-EXIT
```

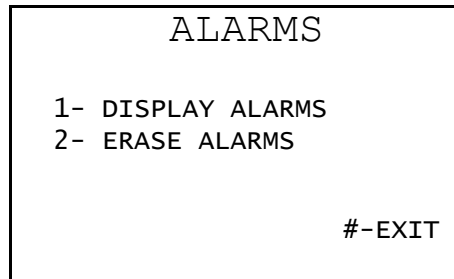
Insert the Test Phonecard. The Card Reader will check that the card is correctly inserted then lock it into place and display the available credit. The Card Reader shows the value in the card in cents. The message below is displayed.

```
CARDS
CREDIT xxxxx
0-COLLECT #-EXIT
```

Once the Test card is inserted, use the [0] key to deduct credit from the card, each press of [0] key will deduct 1 ¢ from the value on the card. This tests the Card Reader for correct operation. Then press [#] to exit this test area.

### 5.7.5 ALARMS

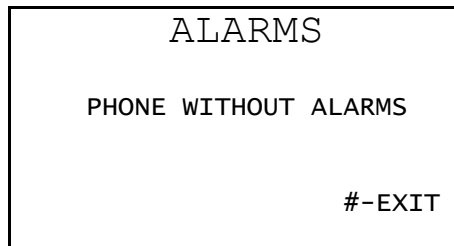
From the Main Menu, select option [5]-ALARMS. The Alarms sub-menu is displayed:



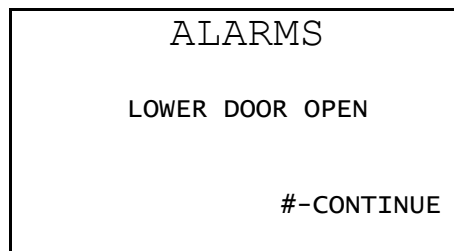
This function permits the displaying and erasing of the alarms generated during normal operation of the Tsp1 (the maintenance program does not generate alarms). The alarms displayed indicate the Tsp1 alarms present before entering Maintenance mode. The list contains alarms produced by conditions that still remain active. If the cause of the alarm has disappeared the alarm will not appear.

#### 5.7.5.1 DISPLAY ALARMS

To display the alarms, press [1]-DISPLAY ALARMS from the Alarms menu. If there are no alarms the display will show:



If there are alarms the first one is displayed as follows (for example):



Press [#]-CONTINUE to see the next alarm (if present). When the final alarm is displayed, pressing [#]-CONTINUE will return the display to the Alarms menu.

If there are no alarms present, press [#] to return to the Main Menu.

The alarms detected by the Tsp1 are:

TYPE	FUNCTION	MESSAGE	T	S
Absence Of CSA	Indicates the absence of answer. It is generated by making 12 calls without receiving an answer.	CSA FAULT	12	(**)
Bad voltage	It is generated when the electromagnet supply is under 8V, but there is enough digital voltage supply to start the outgoing calls program. This situation is produced by making a short-circuit with 1 kW between ground and VLL, but this method could damage the Tsp1.	BAD VOLTAGE	25	25
Card reader fault	Incorrect operation of the Card Reader and/or the Card Reader's Control board. It can be generated by making 10 calls with the cable between the Card Reader and the Card Reader's Control board disconnected.	CARD READER FAILURE	10	5
Card reader jamming	Determines when the phone card is not fully inserted into the Card Reader. It is generated by introducing a card 25 times in succession, without reaching the end of the Card Reader's slot.	CARD READER JAMMED	25	1
Clock Fault	Determines when the clock is set incorrectly. It can be generated by changing the time by more than 15 minutes and communicating with the MTMS.	CLOCK FAULT	3	(**)
Coin Box <sup>3</sup> / <sub>4</sub> Full	It can be generated by making 3 calls with the Coin Box 3/4 full.	COIN BOX 3/4 LEVEL	3	(**)
Coin box cable missing	Coin box cable connection with coin box PCB missing. It is generated by making 3 calls after disconnecting the Coin Box cable.	COIN BOX CABLE MISSING	3	3
Coin Box Full	It can be generated by making 3 phone calls with the Coin Box full.	COIN BOX FULL	3	(**)
Coin box missing	Coin box missing. It is generated by making 3 calls after extracting the Coin Box.	COIN BOX MISSING	3	3
Coin Box Subtracted	The Coin Box has been stolen. It can be generated by extracting the Coin Box.	(•)	1	(**)
Coin Collection Fault	Fault in collection of coins. It can be generated by obstructing the entrance to the Coin Box.	COIN COLLECTION FAULT	6	(**)
Coin Jam	Blockage of Coin Box Entry Chute or faulty Coin Box entry sensor.		10	(**)
Collecting Card Fault	Incorrect operation of the Card Reader and/or Card Reader Control board. It can be generated by inserting a piece of paper between the card's electrical contacts and the Card Reader when the first collection is about to occur.	PC COLLECTION FAILURE	6	(**)
Collection Bad	Collection done fraudulently	(*)	1	(**)
EEPROM fault	Determines writing faults in the EEPROM	EEPROM FAULT	3	3
Escrow failure	Failure at the Escrow. It is generated by stopping the Escrow's movement for 6 consecutive calls.	ESCROW FAULT	6	6
General failure	Handset placed ON HOOK without call answer. It can be generated by lifting the Handset OFF HOOK then replacing the Handset ON HOOK in succession within the Handset threshold times.	GEN FAIL COLIN	(*)	1
General Power Failure				
Ground Missing	Detects missing electrical earth when running in 50 Hz mode	GROUND MISSING		

KEY: (\*) Not displayed. (\*\*) Does not exist. T THRESHOLD. S SELF TEST.



TYPE	FUNCTION	MESSAGE	T	S
Handset Broken	Determines the absence of the Handset. It can be generated by making a phone call with the Handset disconnected.	HANDSET BROKEN	1	5
Keypad failure	Determines blockage of the Keypad. It can be generated by making 16 consecutive calls while permanently pressing a <u>Keypad</u> button.	KEYPAD FAILURE	16	(**)
Lower door open	Lower door open. It is generated making 3 calls with the lower door open	LOWER DOOR OPEN	3	3
Permanent Charging				
RAM memory fault	Incorrect battery voltage level or RAM check-sum error. It can be generated by isolating the RAM battery power from the Main	RAM FAILURE	3	(**)
Refund tray fault	Determines when the Refund tray is stuck. It is generated by making 10 calls with the Refund tray in a raised position.	REFUND TRAY	10	1
Upper Door Failure	Indicates that the Tsp1's Upper Door has been open fraudulently. It is generated when the Upper Door is opened and no initialisation or repair code is sent to the MTMS.	(*)	1	(**)
Upper door open	Upper door open. It is generated by making 6 calls while the Upper Door is open.	UPPER DOOR OPEN	6	6
Validator fault	Determines Coin Validator unit faults. It can be generated by disconnecting the Coin Validator unit's cable and making 10 calls.	VALIDATOR FAILURE	10	10
Warning Of Lower Door Open	Generated by the Maintenance personnel during Coin collection, if the lower door is detected as open.	(*)	1	(**)
Warning Of Upper Door Open	Generated by the Maintenance personnel during coin collection, if the upper door is detected as open.	(*)	1	(**)

KEY: (\*)Not displayed. (\*\*)Does not exist. T THRESHOLD. S SELF TEST.

Any of the above alarms is generated when the number of times it is detected in succession exceeds the threshold value(s).

### 5.7.5.2 ERASE ALARMS

This option erases all the alarms (except the upper door alarm) stored in the Tsp1.

To do this, press [2]-ERASE ALARMS from the Alarms menu. No confirmation is

```

ALARMS

ALARMS ERASED

1-DISP 2-ERASE #-EXIT

```

Press [#] - EXIT to return to the Main menu.

### 5.7.6 PARAMETER INJECTOR

The Parameter Injector is used when the Tsp1 cannot communicate with the MTMS (such as in a remote location). To download the Parameter List to the Tsp1, select option [6]-INJECTOR from the Main Menu. The display will prompt for the connection of the Parameter Injector:

INJECTOR

CONNECT INJECTOR

\*-START      #-EXIT

Connect the Parameter Injector to the socket on the Main Board (CN7) adjacent to the test button. Press [\*]-START.

The display will briefly show the message "WAIT, PLEASE" as the connection is being established. If the Parameter Injector is not connected or is not functioning correctly, the following message is displayed:

INJECTOR

NO INJECTOR ANSWER

#-EXIT

Press [#]-EXIT to return to the Main Menu when complete.

### 5.8 EXITING MAINTENANCE MODE

Enter the Repair Code of the function you have carried out before exiting Maintenance mode.

Hang up the Handset and the following message will appear:

CLOSE THE DOOR

When the door is closed and locked, the Maintenance Program ends and the Tsp1 switches to Operation mode.

**NOTE:**

**If the door is closed first, no instruction to place the Handset ON HOOK is given. The Maintenance program ends when the Handset is then placed ON HOOK.**

## **6. PARTS LISTS AND MATERIAL NUMBERS.**

### **6.1 INTRODUCTION**

#### **6.1.1 PARTS AND MATERIAL NUMBERS**

### **6.2 GLOSSARY OF TERMS**

### **6.3 Tsp1 ALARMS**

### **6.4 Tsp1 REPAIR CODE LIST AND ACTION CODES**

### **6.5 Tsp1 FAULT CLEARANCE CODES**

## **6. PARTS LISTS AND MATERIAL NUMBERS.**

### **6.1 INTRODUCTION**

The following Parts list consists of the spare parts available for the Tsp1 (Telstra smart payphone) and attachment parts for various booths and sites.

## 6.1.1 PARTS AND MATERIAL NUMBERS

Part Description	Material Number
Plate, Mounting Universal	04200974
Shroud, Payphone Tsp11	04200975
Sign, Wordmark Tsp11 Shroud	04200976
Signage, Payphone Tsp11	04200977
Notice, Call Guide Tsp11 Horizontal	04200978
Notice, Call Guide Tsp11 Vertical	04200979
Notice, Call Guide Tsp11 Heritage	04200980
Payphone, Telstra smart No.1	03501151
Cover, Display Glass Tsp11	03501152
PBA, Line Connection Tsp11	03501153
Handset, Complete Tsp11	03501154
Dialpad, Assembly Complete Tsp11	03501156
PBA, Main Board Tsp11	03501157
Reader, Card With Beeper Tsp11	03501158
PBA, Card Reader Control Tsp11	03501159
Mechanism, Coin Entry Tsp11	03501160
Device, Channel Blocking Tsp11	03501161
Store, Intermediate Coin Tsp11	03501162
PBA, DPH Emitter E.U. Tsp11	03501163
PBA, DPH Receiver E.U. Tsp11	03501164
Mechanism, Coin Refund Tsp11	03501165
Validator, Coin Tsp11	03501166
PBA, Coin Box Tsp11	03501167
Display, Visual C/W Connector Tsp11	03501168
Lock, Upper Combination Tsp11	03501169
Lock, Lower Electronic Device Tsp11	03501170
Lock, Lower Compartment Tsp11	03501171
Coin Passage Device, Complete sp11	03501172
Cable, Coin Mechanism Tsp11	03501173
Cable, Line Circuit Tsp11	03501174
Cable, Coin Passage Tsp11	03501175
Cable, New Call Key/Hang Up Tsp11	03501176
Cable, Keypad Tsp11	03501177
Cable, Display Tsp11	03501178
Cable, Lower Compartment Tsp11	03501179
Cable, Earth Connection Tsp11	03501180
Cable, Card Reader Tsp11	03501181
Microswitch, Tsp11 C/W Cable	03501182
EPR0M, Memory Tsp11	03501183
Coin Box, Tsp11	03501184
Adaptor, RS-232C-TL Tsp11	03501185
Switch, Hook Tsp11	03501186
Screw Kit, Miscellaneous Tsp11	03501187
Parameter Injector, Data Entry Unit Tsp11	03501188
Cover, Coin Entry Mechanism Tsp11	03501189
Key, Lock Upper Tsp11	03501191
Key, Lock Lower Tsp11	03501192
Microswitch, New Call Tsp11	03501193
Safe, Coin Box Tsp11 Without Door	03501194
Door, Case Front Tsp11	03501195
Case, Rear Tsp11	03501196
Door, Safe Tsp11	03501197

## 6.2 GLOSSARY OF TERMS

<b>TERM</b>	<b>Definition</b>
BPS	Bits Per Second. A measure of communication speed on serial links.
Chargeable Number	A number dialled by the user that will result in a deduction of available credit on CSA.
CHARMS	CHArge Record Maintenance System.
CIE	Card Information Entry. This is the DEU switch setting used for setting Card Reader Initial Parameters.
Collection	The action of reduction of credit from the Phonecard or causing coins to fall into the coin safe.
CPU	Central Processing Unit. The part of a computer or electronic device that executes programs. CPU often refers to the microprocessor chip.
CREDIT	<p>In general, the amount of credit available for making chargeable calls. Credit can be any of the following types:</p> <p>Card Credit. This is the total amount of credit read from the Phonecard and stored in memory.</p> <p>Suspended Credit (also known as Suspense Credit). The value of coins which have been inserted but not yet collected. These coins may be collected as the call proceeds, or they may be returned when the caller hangs up.</p> <p>Logic Credit. This is the amount transferred from the Suspended Credit as coins are collected. For example, if a 20¢ coin is collected during a call, the amount of Suspended Credit is reduced by 20¢, and the amount of Logic Credit is increased by 20¢.</p> <p>Total Credit. This is the total of the Suspended Credit and the Logic Credit.</p>
CSA	Called Subscriber Answer. Line Reversal and meter pulse received from the exchange upon B party answer. (Meter pulse must be received within 3.3 seconds of line reversal).
CT	Coin Tin.
CTA	Coin Tin Full Alarm. This is an alarm transmitted to the MTMS when a pre-defined amount of cash has been collected by the Tsp1. Once the CTA has been registered, no further coin-operated calls can be made until the alarm is cleared. (ie. until the coin box is emptied) (See CTW.)
CTC	Coin Tin Contents.

CTS	Clear To Send. A signal used for handshaking in serial communication.
CTW	Coin Tin Warning. This is an alarm transmitted to the MTMS when a pre defined amount of cash has been collected by the Tsp1. Unlike the CTA, this is a warning message only, and operation can continue as normal. See CTA.
DCRIS	Distributed Customer Record Information System - an automated Service Order system.
Decadic	A system which uses pulses to identify key presses. Now being replaced by DTMF.
Default Time	If meter pulses are not received during a timed call, the Tsp1 will revert to default metering. The Default Time is the time between these automatic metering pulses. The default time can be downloaded from the MTMS.
Dial Analysis	The ability of the Payphone to analyse dialled digits to distinguish between non chargeable, local, STD and IDD calls.
DIL	Dual In Line. This describes connectors, semiconductors and other components which have two parallel rows of pins or sockets.
DTMF	Dual Tone Multi-Frequency. A dialling system which uses different frequencies, rather than pulses, to identify key-presses. Wherever possible, the Tsp1 should be set for DTMF rather than Decadic operation. The Maintenance Menu mode can be used to test the tones used to generate DTMF. DTMF is also known as Voice Frequency, Tone Dialling, or Tone Sending.
Earth (Metering)	An electrical earth used in 50Hz metering.
Earth (Protective)	A protective earth used to ensure that the case of the instrument is at the same potential as local earth and cannot reach dangerous potential.
EEPROM	Electrically Erasable Programmable Read Only Memory. A memory chip which does not lose its memory when power is removed. It is intended mainly for Read operations, but its contents can be electrically erased and re-programmed.
EPROM	Erasable Programmable Read Only Memory. A memory chip which does not lose its memory when power is removed. It is electrically programmed and is intended for Read operations. Its contents cannot be easily erased.
Free Call	A call for which no charge is made. The number called by pressing the TAB (Telstra Assistance Button) is also a free call.
FSK	Frequency Shift Keying. A method of modulation used in serial transmission.

IDD	International Direct Dialling. The facility whereby users can obtain access to numbers in another country, without operator assistance. Formerly known as ISD (International Subscriber Dialling).
LCD	Liquid Crystal Display. An LCD display is used on the Tsp1 to provide customer information.
LED	Light Emitting Diode.
LEOPARD	Local Engineering Operations Processing and Analyses of Recorded Data. A computerised system to cater for all field technical records associated with provision and maintenance of service.
Limited Service	Only those emergency numbers are allowed to dialled
Local Call	A local call is one to a subscriber within the local service area of the calling instrument. These calls are untimed.
MCF	Minimum Call Fee. The minimum amount of credit which must be available before any chargeable call can be made.
Metering Period	The period of time (T) between metering signals subsequent to the second metering signal. Note that the first metering period from CSA can vary between T and 2T.
Metering Pulse	Also known as Metering Signal. This is a signal sent from the exchange, and used for costing calls. In the case of local calls, one metering pulse is sent on CSA. In the case of STD and IDD calls, metering pulses are sent at various intervals, depending on the charge associated with the call being made. As pulses are received, the amount of available credit is reduced. The Tsp1 can detect 50Hz, 12kHz, 16kHz (currently not used in Australia) and DC metering pulses (DC metering is rarely used).
MTMS	Modular Terminal Management System. A system which communicates directly with individual Tsp1 (and other) phones and which is used for statistical, management and maintenance purposes.
Multimetering Calls	An STD, IDD, VAS, Mobile or Community Access Call with meter pulses sent from the exchange at regular intervals during the call.
Out of Service	An operating mode in which a call can not be made because of a detected fault condition.
PBA	Printed Board Assembly. This is a Printed Circuit Board (PCB) together with all its components.
PCB	Printed Circuit Board.
Phonecard	The Telstra pre-paid Smartcard, designed to be used with the Tsp1.



PIA	Peripheral Interface Adaptor. An integrated circuit used for communication between a microprocessor and peripheral equipment.
PIU	Parameter Injection Unit. This is a device used for setting up the initial parameters for the Tsp1 and its Card Reader and for resetting parameters whenever necessary. The PIU is also used for setting parameters.
PPS	Pulses Per Second during decadic dialling.
PTO	Public Telephone Operator.
RAM	Random Access Memory. A memory chip which loses its contents when power is removed. It is used for temporary storage of data.
RFI	Radio Frequency Interference.
RTS	Request To Send. A signal used for handshaking in serial communication.
SAM	Security Access Module.
Smartcard	A programmable disposable or reusable, prepaid chip card designed to be used with the Tsp1.
STD	Subscriber Trunk Dialling. The facility whereby users can obtain access by dialling to numbers in another charge area not within the local call area, without operator assistance.
Suspense	See Credit.
Threshold Time	If meter pulses are not received during a timed call, the Tsp1 will revert to self-metering. The Threshold Time is the time between CSA and the beginning of self-metering pulse.
TRC	Telecommunications Reference Conductor.
Tsp1	A Telstra smart payphone which is capable of accepting all Australian coin types and Telstra pre-paid cards (Smartcard).
UART	Universal Asynchronous Receiver/Transmitter. An integrated circuit used for general-purpose communications.
VF	Voice Frequency. This is an old term for DTMF.
WDT	WatchDog Timer. If the main CPU enters a "runway" or other abnormal operating state, the WDT causes a reset signal to be output automatically and returns the CPU to its normal operation.

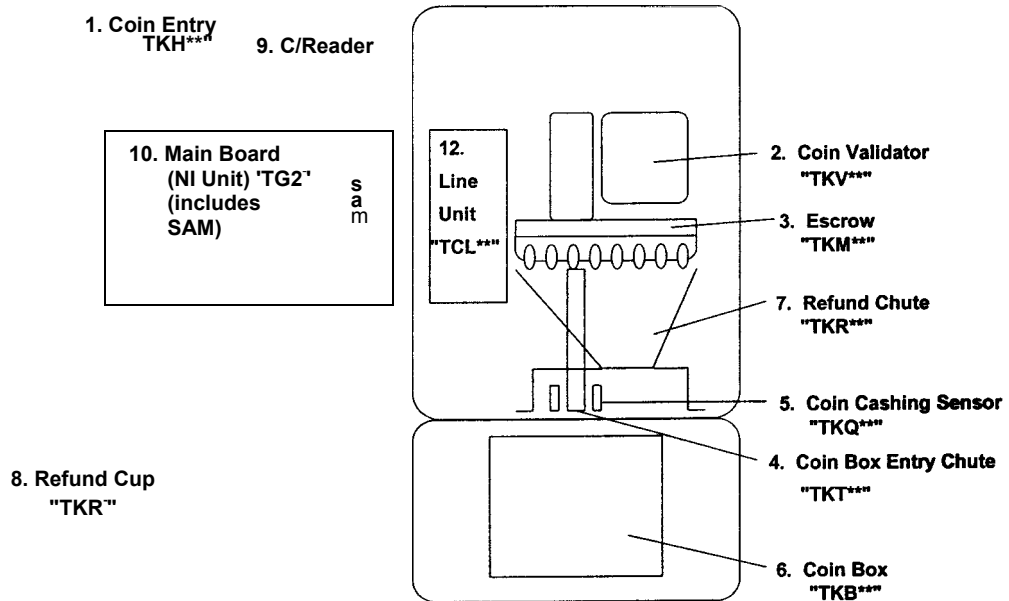
### 6.3 Tsp1 ALARMS

ALARM	CODE	THRESHOLD
Handset Broken	101	3
EEPROM 1 Failure	102	6
EEPROM 2 Failure	107	6
EEPROM 3 Failure	108	6
EEPROM 4 Failure	161	6
EEPROM 5 Failure	162	6
EEPROM All Failure	163	6
Keypad Failure	104	3
Upper Door Open	105	1
Lower Door Open	106	1
Daily Routine Missing	109	
Card Collection Failure	111	15
Card Reader Failure	112	5
Card Reader Jammed	113	13
Coin Collection Failure	121	6
Coin Validator Error	122	5
Escrow Failure	123	10
Coin Tin Passage Jammed	124	10
Coin Validator Jammed	125	10
Coin Tin Full	131	1
Coin Tin Missing	132	1
Coin Tin <sup>3</sup> / <sub>4</sub>	133	1
Coin Tin Cable Loose	134	1
General Failure	141	Programmable
Upper Compartment Warning	147	1
Lower Compartment Warning	148	1
Permanent Charging	149	1
Ground Detection Missing	151	5
General Power Failure	152	1

## 6.4 Tsp1 REPAIR CODE LIST AND ACTION CODES

Code	Description	Code Description
00_	Payphone	__0 Tests performed successfully
10_	Version change	__1 Replaced due to failure
11_	Handset	—2 Unjamming
12_	Keypad Mechanical part	__3 Adjust/Clean/Other
13_	Keypad Printed circuit	__4 Reserved for Future Use
14_	Keypad Rubber pad	__5 Replac. due to intent. failure
15_	Redial push-button	__6 Unjamm. due to intent. failure
16_	Ceramic buzzer	—7 Adjust/Clean/Oher Intent. fail
17_	Display glass	
18_	Upper compartment lock	
19_	Hookswitch (ensemble)	<i>Composite repair Code:</i>
		<i>1st two diaits: device</i>
		<i>3rd digit: action.</i>
21_	Logic Electronic Unit	
22_	Display Electronic Unit	
23_	Line Electronic Unit	
24_	Wiring	<i>Example: 612</i>
25_	Opening mechanism	<i>61 Card Reader</i>
26_	Upperdoor	<i>__2 Unjamming</i>
39_	Other failures - main PCB	
41_	Coin entry mechanism	
42_	Coin deviation push-button	
43_	Validator	
44_	Escrow E.U.	
45_	Escrow	
47_	Coin tin passage	
59_	Other failures - Coin mech	
61_	Card reader	
62_	Reader E.U.	
63_	Charging circuitry wiring	
64_	Reader mounting support	
69_	Other failures - card reader	
71_	Safety device	
72_	Lower door	
73_	Hinge	
74_	Lower compartment door	
75_	Lower door open	
76_	Coin tin full	
77_	Coin tin stolen	
78_	Coin tin connection board	
79_	Other failures - lin board	
91_	Telephone exchange	
92_	Network, cable	
94_	Distribution frame	
95_	Indoor installation	
96_	Outdoor, without specifics	
99_	Self repair	

## 6.5 Tsp1 FAULT CLEARANCE CODES



Action   A=Adjusted   B=Blockage   F=Reset   J=Replaced   R=Repaired   9=Cleaned   Cause   F=Physical
V=Vandalism 4=Corrosion W=Moisture L=Lightning 3=Data Failure     Damage

Major component of work completed to be in the Last Clearance Field

All detected faults will have Trouble Report Code 3 = DET

All Schedule/Planned visits will have Trouble Report. Code 3 = QDL

Inaccurate reports are

TCNNN | \*\*\*\*\* |

### Miscellaneous ABM Codes

Training	-	042000
Motor vehicle maint.	-	MVV
Meeting attendance	-	EAD919
Clearance of coin tins	-	B47189
Cleaning of Payphones	-	A47189

## Additional Common Clear Code

### LEOPARD CODES

### Tsp REPAIR CODE

TCNN*	No Fault Found	= 000
TCB**	Handset	= 11*
TKBBY	Full Coin Tin	= 760
TGMHR	EEPROM Update	= 100
TKM**	Coin Mech ( Escrow)	= 45*
TG2**	Electronic Unit ( N/Unit)	= 21*
TKV**	Validator	= 43*
TCL**	Line Unit	= 23*
TKC**	Card Jammed in Card Reader	= 61*
TKZ**	Display Glass	= 17*
TC5**	Keypad	= 12* or 13* or 14*
TKH**	Coin Head	= 41*
TKR**	Refund	= 59*

Tsp Action    0=Test ok    1=Replaced    2=Unjamed    3=Adjust/Clean    5=Replace Vandalised    7=Adjust/Clean Vandalised

## ABM CODES

The complete cost accounts consist of 6 characters

.the first 3 = the type of work performed    - the second 3 = the product type worked upon

### Type of work performed

### Product type

Fault visit - Public Phones - A44  
 Fault visit - Leased Phones - A41  
 Routine visit- all phones - 847

CT3E -            XYA  
 CT3C -            XYB  
 CP9 -            XYC  
 CP8 -            XYD  
 Tsp -            XYD  
 Cabinet (full) -    XYE  
 Cabinet (half) -    XYF  
 Bluephones -        05A  
 Goldphones -        05B  
 Arunta -            05C

ie. a fault visit on a Bluephone = A4105A and a "C" service on a CT3C = 847XYB

# Telstra smart payphone

## PARTS IDENTIFICATION LIST AND MATERIAL NUMBERS

						
03501182 Microswitch, C/W Cable	03501183 Eprom, Memory	03501184 Coin Box	03501185 Adaptor, RS-232-C-TL	03501186 Switch, Hook	03501187 Screw Kit, Miscellaneous	03501188 Parameter Injector Data Entry Unit
						
03501189 Cover, Coin Entry Mechanism	03501191 Key, Lock Upper	03501192 Key, Lock Lower	03501193 Microswitch, New Call	03501194 Safe, Coin Box Without Door	03501195 Door Case Front	03501196 Case, Rear
						
03501197 Door, Safe	03501198 Hookswitch, Cradle Assembly	03501199 Button Assembly, Follow-on	03501200 Cover, Coin & Card Entry	03501201 Push Button, Coin Refund		

# Telstra smart payphone

## PARTS IDENTIFICATION LIST AND MATERIAL NUMBERS

						
03501152 Cover, Display Glass	03501153 PBA, Line Connection	03501154 Handset, Complete	03501156 Dialpad, Assembly Complete	03501157 PBA, Main Board	03501158 Reader, Card with Beeper	03501159 PBA, Card Reader Controller
						
03501160 Mechanism, Coin Entry	03501162 Store, Intermediate coin	03501163 PBA, DPH Emitter E.U.	03501164 PBA, DPH Receiver E.U.	03501165 Mechanism, Coin Refund	03501166 Validator, Coin	03501167 PBA, Coinbox
						
03501168 Display, Visual C/W Connector	03501169 Lock, Upper Combination	03501170 Lock, Lower Electronic Device	03501171 Lock, Lower Compartment	03501172 Coin Passage Device, Complete	03501173 Cable, Coin Mechanism	03501174 Cable, Line Circuit
						
03501175 Cable, Coin Passage	03501176 Cable, New Call Key/Hang Up	03501177 Cable, Keypad	03501178 Cable, Display	03501179 Cable, Lower Compartment	03501180 Cable, Earth Connection	03501181 Cable, Card Reader



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