PAMS Technical Documentation

Chapter 4

TFE/TFK–2
SERVICE SOFTWARE
INSTRUCTIONS

AMENDMENT RECORD SHEET

Amendment Number	Date	Inserted By	Comments

TFE/K–2 SERVICE SOFTWARE INSTRUCTIONS

Contents

Introduction

General

TFE/K–2 Service Software is specially designed to facilitate the servicing of second generation Fixed Wireless terminals.

The software can be used to control the phone according to the user's requirements merely by entering commands via the keyboard / mouse of a PC connected to the phone.

This section refers to Service Software generally. NMP will notify service personnel about future upgrades via Technical Bulletins. Software upgrades will be available from your local NMP outlet.

Required Servicing Equipment

– Computer: Intel 386/33 MHz or compatible with one unused serial port (COM1 or COM2*), one parallel port (LPT1), hard disk recommended.

– Operating System: DOS Version 5 & Microsoft Windows 3.1 or later

– Display: VGA based display

– PC Locals program: for 3.5" disk (product code: 0774068)

– Software Protection Key PKD–1 (product code 0750018)

– Service adapter AFW–2 (product code 0750110)

– Modular cable XCM–1 (product code 4626131)

– PC/MBUS Adapter DAU–2T (product code 0750006)

*) Note: A number of PC's of an older generation use the Intel, National Semiconductor, or United Microelectronics IC 8250 as the serial port UART. This is a comparatively inefficient circuit for current purposes and does not necessarily support the M2BUS adapter at 9600 baud. The newer UART's NS16450 and NS16550AF of National Semiconductor offer solutions for these problems.

Mechanical Connections

Caution: *Ensure that you have switched off the PC and the printer before making connections !*

*Caution:*   *Do not connect the PKD–1 to the serial port. This could damage the PKD–1 !*

The software controls the phone via a separate adapter connected to the serial port of the PC and to the telephone's M2BUS (DAU–2T and XCM–1).

Attach the protection key PKD–1 to parallel port one (25–pin female D–connector) of the PC. When connecting the PKD–1 to the parallel port be sure that you insert the PC end of the PKD–1 to the PC (male side). If you use a printer on parallel port one, place the PKD–1 between the PC and your printer cable.

The PKD–1 should not effect devices working with it. If some errors occur (errors in printing are possible) please try printing without the PKD–1. If printing is OK without the PKD–1 please contact your dealer. We will offer you a new PKD–1 in exchange for your old one.

Service Cable

to printer   PKD-1

S0001028
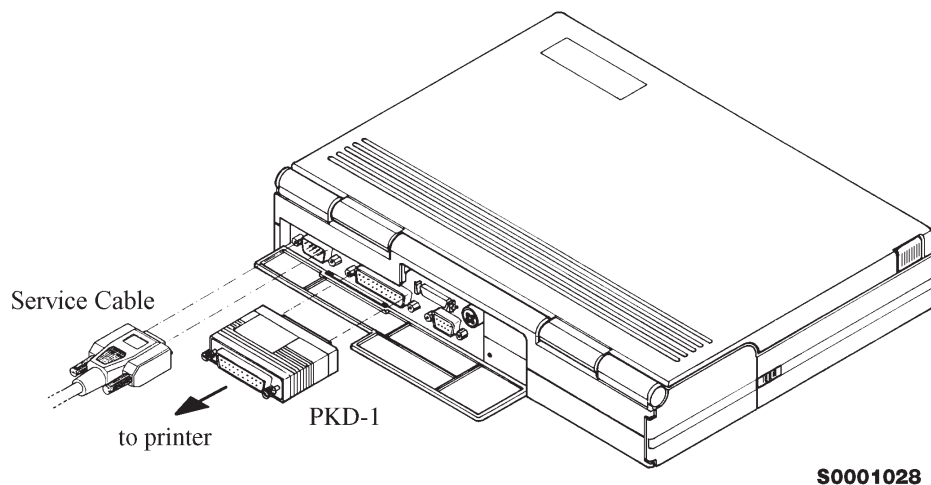
Attach the DAU–2T PC/MBUS adapter to the PC serial port, using an RS–232 9–pin to 25–pin adapter if necessary. Attach one end of the modular cable XCM–1 to DAU–2T, and the other end to the system connector with the help of the Service Adapter AFW–2.

S0001209
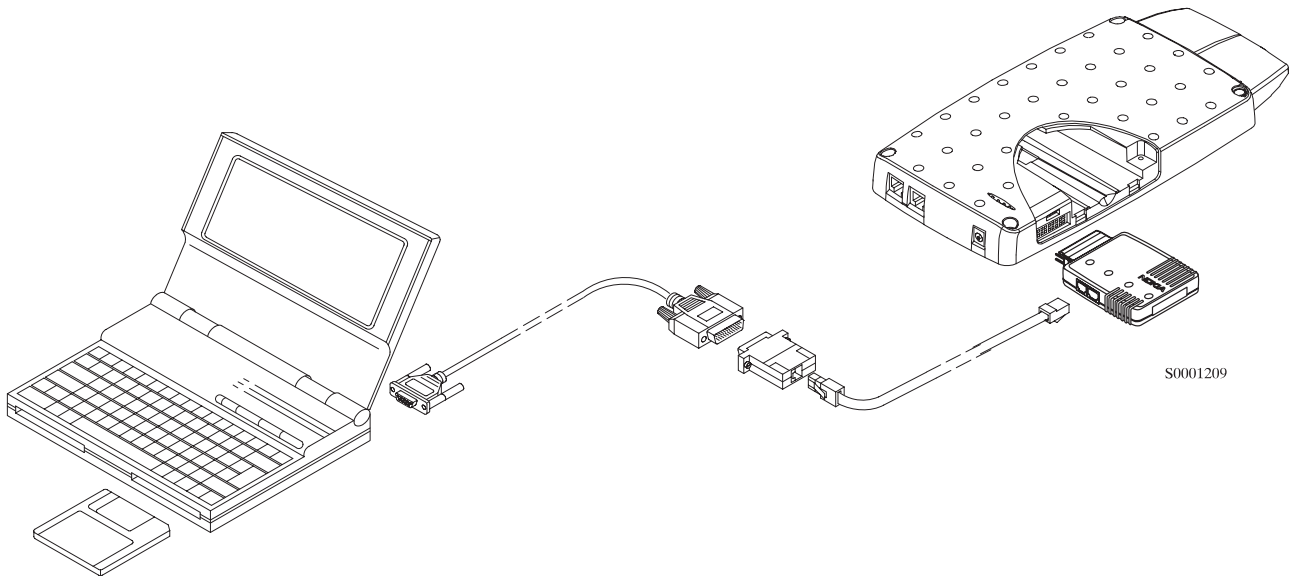
Install Procedure

Start the phone by connecting the power supply to TFK/TFE–2. Switch PC power on.

To install software, proceed as follows:

1.   If WinTesla has already been installed to PC, jump to step 5.

        If not, Insert the WinTesla installation disk into drive A of your PC

2.   Start the Installation program: **select File –> Run from Program manager menu, then type A:INSTALL and press OK button**

3.   Follow the Installation Software instructions.

4.   Restart windows.

5.   Remember to install WinTesla at least once before.
        Insert the TFE/K–2 DLL installation disk into drive A of your PC.

6.   Start Installation program: **select File –> Run from Program manager menu, then type A:INSTALL and press OK button**

7.   Follow the Installation Software instructions

8.   Start WinTesla by double clicking the WinTesla Icon

Introduction to Service Software Package User Interface

This chapter gives a short description of the Service Software properties.

Service Software Hardware Environment

To run the Service Software, a parallel port software protection device (PKD–1) has to be connected. The user can use the Service Software functions for testing all supported Phone Types. The functions send messages from the PC to the phone, receives results and show them on the PC display. The messages are sent via a low level NMP proprietary bus protocol. An example bus is an M2BUS interface, which needs M2BUS adapter (DAU–2) connected to the PC RS–232 port and special M2BUS cable.
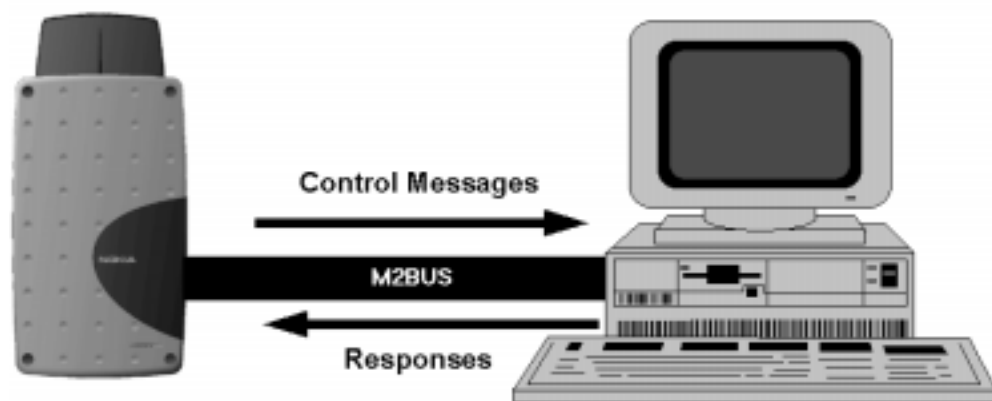
The recommended minimum hardware standard to run the Service Software package is any computer which is 386 33Mhz or greater with at least 4 MB of memory and VGA type display (640x480). This assumes that only the Service Software package is active, i.e. other Windows packages are not running in the background.

Note: if the Service Software is to be run on laptops, the power saving feature must be switched off.

Service Software Environment

Service Software user interface is intended for Microsoft Windows 3.1x environment running in enhanced mode. For those who are familiar with Windows environment this application will be easy to use. Detailed information about Windows and application usage can be found from Microsoft Windows Version 3.1 Users Guide chapter one (Windows Basics) and chapter two (Application Basics).

As an ordinary Windows application, the main idea in the user interface is that selections are made with menus, push buttons and shortcut keys. Selections

can be done by using keyboard and/or mouse. When messages from phone are received, they cause display updating in special display windows. There is always a status bar displayed at the bottom of the main window which contains information about current actions.

Service Software Executables

Only one executable is needed – WinTesla. For TFE/K–2 there are two dlls:

– Functionality DLL is TFEK2.DLL

– User Interface DLL is TFEK2EN.DLL.

Command Line Parameters

There are NO command line parameters.

Common Properties of the User Interface

This chapter describes how the User Interface CLF will appear to the user.

The User Interface is capable of being driven without the use of a mouse, as the service engineer rarely has space on the bench to use a mouse.

Login Dialog box

When the Service Software application is invoked, by clicking the Service Software icon, the **Login** dialog box will be displayed on the screen.
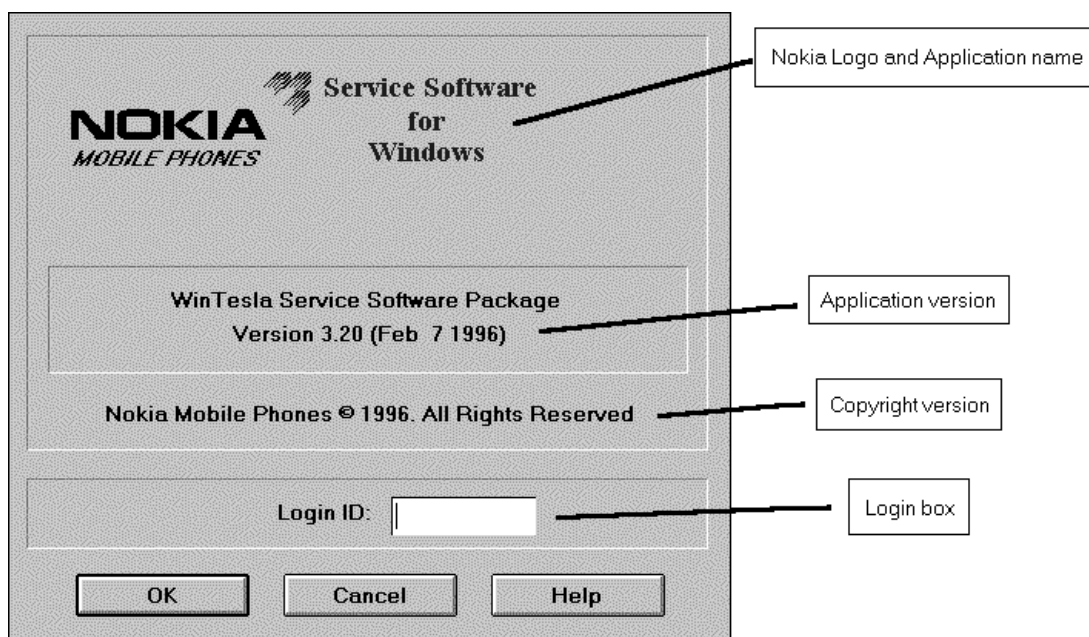
Nokia logo and application name bitmap (–)

Displays Nokia logo and name of the application.

Application version static text (–)

Contains the name and version of the application.

Copyright notice static text (–)

Copyright is informed as: "**Nokia Mobile Phones (c) 1996. All Rights Reserved**".

Login Box edit box (–)

User Login ID edit box, where user enters his/her faultlog user name.

OK button (default key)

User name is stored in memory and dialog box is closed. When the dialog box is closed, the application starts.

Cancel button (ESC)

The dialog box is closed and application is started, but the Faultlog feature is disabled.

Help button (F1)

Activates the Windows Help application and displays context sensitive Help.

Main Window

The application supports a *Multiple Document Interface (MDI).* However, the service software interface will present a *Single Document Interface (SDI)* appearance.
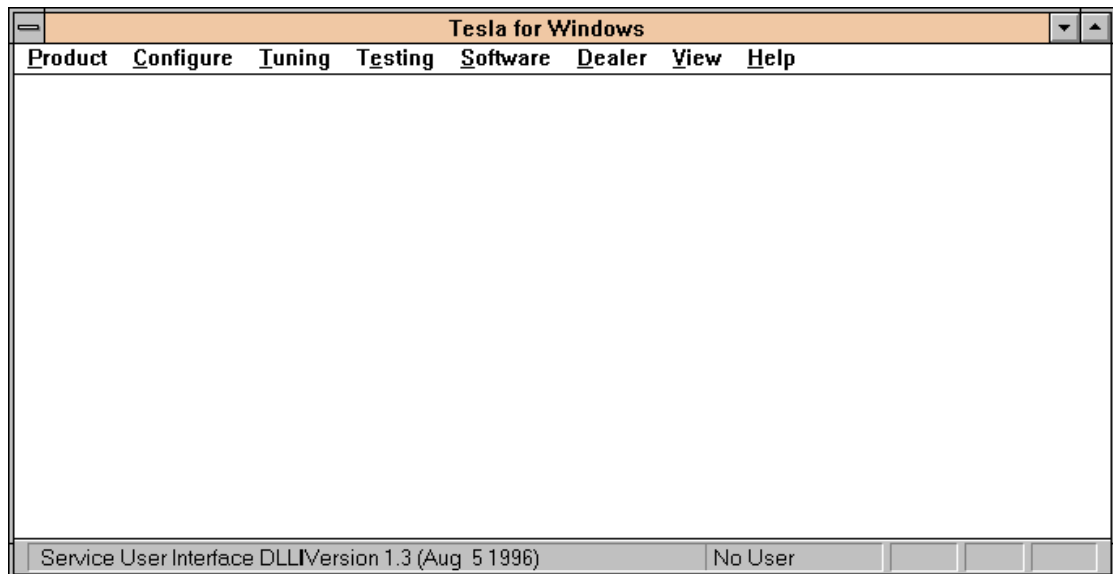
Title bar

The *title bar* is located at the top of the window.

A title bar contains the following elements:

- Application Control–menu button
- Maximize button
- Minimize button
- Name of the application
- Restore button

The properties of these elements and their usage is described in Ref 3– Microsoft Windows Version 3.1 Users Guide chapter one (Windows Basics) and chapter two (Application Basics).

Menu bar

The *menu bar* is below the title bar and contains all available menu selections. The menu bar is a dynamic element and is dependent on the dongle type fitted and whether a phone is connected.

Underlined characters in menu names and options indicates that the menu selection can be done by pressing *Alt*+ *underlined character*. Options can also be selected by activating menu bar with *Alt*– key (or *F10* key) and using arrow–keys to highlight desired menu. In that case, selection is done by pressing *Enter*.

Refer to the online help for a detailed description of the contents of the menu bar.

Menus can also be selected by using the mouse as described in Microsoft Windows Version 3.1 Users Guide.

Status bar

The *status bar* is displayed at the bottom of the Service Software main window. The status bar contains information about the menu selections and events.

The left area of the status bar describes actions of menu items as the user uses the arrow keys to navigate through menus.

The status bar texts are explained in detailed in each of command's description.

The right areas of the status bar indicate which of the following keys are latched down:

Indicator	Description
USER	Entered Login ID.
CAP	The Caps Lock key is latched down.
NUM	The Num Lock key is latched down.
SCRL	The Scroll Lock key is latched down.

Tool bar

The *tool bar* is NOT defined and will not be implemented until specified by this document.

Menu Bar

The Service Software package will have two menu bar configurations. The first, is an abbreviated version that contains the minimum number of menus that allows package configurations when a phone is NOT connected. The second, is described below:

The menu bar contains the follow menus for the Service Software package when a phone is connected:

- Product*
- Configure*
- Tuning
- Testing
- Software
- Dealer
- View
- Help*

* – always displayed, even if no phone is connected.

A menu is broken down into sections that are indicated with menu separators. Each sections identifies a logical difference from itself and other sections, i.e. between transmitter and receiver. Any items that are required to be added to a menu lists will be added on the bottom of the appropriate menu section list. If a new item is to be added which is common to two or more phone types, then that menu item will become a common menu item.

The menu lists will use the Microsoft [...] symbol after an item name to indicate that selecting that item will NOT initiate an operation immediately, i.e. a dialog box will be displayed for the user to select options or type in data and press an OK button before the operation is performed.

Product

The Product menu contains the following menu items:

- New   Ctrl+R
- Open...
- Close
- Initialize
    - Normal Mode   F5
    - Local Mode   Shift+F5
- Faultlog
    - Activate Faultlog... F9
    - Edit Faultlog...
- Exit   Alt+F4

Configure

The Configure menu contains the following menu items:

- Options...

- Directories...
- Faultlog...

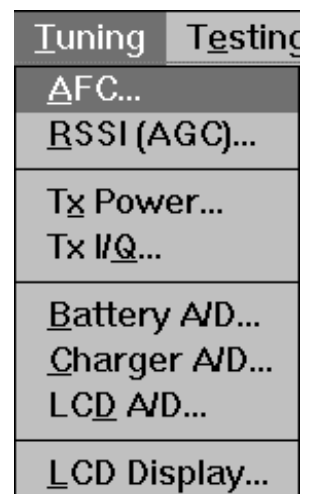- Phone Type Specific configuration items (where applicable)

Tuning

The Tuning menu contains the following menu sections:

- Receiver
- Transmitter
- Voltages

- Phone Type Specific tuning items (where applicable)

An example Tuning menu is shown below:

- AFC...

- RSI (AGC)...

- Tx Power...

- Tx IQ...

- Battery...

- Charger A/D...

- LCD A/D...

- LCD Display...

Additional menu items may be added within the sections according to the phone type being tuned, e.g. a Charger tuning menu item will be added after the Battery tuning item but not in the Transmitter tuning section.

Testing

The Testing menu contains the following menu sections:

- Quick Tests
- Digital
- User Interface Flexi
- Transmitter
- Receiver
- Automatic Tests
- Phone Type Specific testing items (where applicable)

An example Testing menu is shown below:

- Quick Testing (RF)...
- Self Tests...
- ADC Readings
- Audio
- Display...
- Call Simulation...
- Noise Sensitivity...

Additional menu items may be added within the sections according to the phone type being tested.

Where a menu item consists of more than one test; a pop–up menu may be added to identify the appropriate sub–tests, e.g. there may be two receiver tests required for a particular phone type (Bit Error Rate and RSSI Monitoring). These will be shown as a pop–up from the Receiver menu item.

Software

The Software menu contains the following menu sections:

- Phone Identity/Numbers
- Flashing
- Phone Type Specific software items (where applicable)

An example Software menu is shown below:

- Phone Identity
- Product Profile...
- Start Up Self–Tests...
- Set Default Values...
- Network Settings...
- HW Settings...
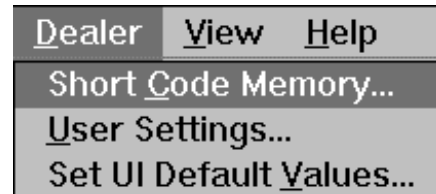- Warranty State...
- Service Numbers...

Dealer

The Dealer menu contains the following menu sections:

- Phone UI Data Editors
- Phone UI Data Transfer
- Phone Re–Initialization Functions
- Subscriber Data
- Phone Type Specific dealer items (where applicable)

An example Dealer menu is shown below:

- Short Code Memory

- User Settings

- Set UI Default Values

View

The View menu contains the following sections:

- Service Windows

- Production Windows (where applicable)

- R&D Windows (where applicable)

An example View menu is shown below:

- Quick RF Info...

- Phone Identity...
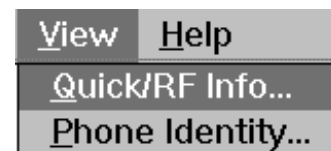
Phone Identity Window

The Phone Identity window should contain, as a minimum, the following data:

- Software Version(s)

- Hardware Version(s)

- Serial Number(s)

- Product Code

This window will only be used as a display window and therefore will not allow editing of the displayed data. This window will not contain any controls other than a scroll bar.

Help

The <u>H</u>elp menu contains the following menu items:

- <u>I</u>ndex
- <u>G</u>eneral Help
- <u>U</u>sing Help
- <u>A</u>bout WinTesla

Mouse Cursors

The standard Windows pointer will be used as the mouse cursor.

During time consuming tasks e.g. communication to phone, an hour glass will be shown informing the user that a task is in progres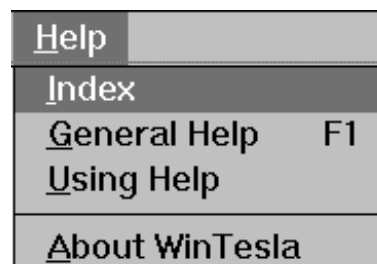s. The application uses the hour glass cursor to inform user that application has taken the control and any actions from user will be ignored.

When a function is initiated, the hour glass will be displayed and when the function has finished the mouse pointer will return to normal.

Reserved Keys

The following Hot keys and Short Cut keys are reserved either as Microsoft standard keys or as part of the Common Look and Feel specified by this document.

Short Cut Function Keys

Key	Description	Defined by
F1	Context Sensitive Help	Microsoft
F5	Normal Mode	NMP
Shift+F5	Local Mode	NMP
F9	Activate Faultlog	NMP
F10	Goto Menu Bar	Microsoft
Ctrl+F4	Close Active Window	Microsoft

Alt Hot Keys

Key	Description	Defined by
Alt+F4	Exit Active Application	Microsoft
Alt+H	Help	Microsoft

Ctrl Hot Keys

Key	Description	Defined by
Ctrl+N	File – New	Microsoft
Ctrl+O	File – Open	Microsoft
Ctrl+P	File – Print	Microsoft
Ctrl+R	Product – New	NMP

Shift Hot Keys

Key	Description	Defined by
Shift+F5 Local Mode		NMP

Key Strokes

Key	Description	Defined by
Alt+P	Product Menu	NMP
Alt+P,N	New	NMP
Alt+P,O	Open	NMP
Alt+P,C	Close	NMP
Alt+P,I	Initialize Pop–up	NMP
Alt+P,I,N	Normal Mode	NMP
Alt+P,I,L	Local Mode	NMP
Alt+P,F	Faultlog Pop–up	NMP
Alt+P,F,A	Activate Faultlog	NMP
Alt+P,F,E	Edit Faultlog	NMP
Alt+P,E	Exit Application	NMP
Alt+C	Configure	NMP
Alt+C,O	Option	NMP
Alt+C,D	Directories	NMP
Alt+C,F	Faultlog	NMP
Alt+T	Tuning Menu	NMP
Alt+T,A	AFC	NMP
Alt+T,R	RSSI(AGC)	NMP
Alt+T,X	Tx Power	NMP

Alt+T,Q	Tx I/Q	NMP
Alt+E	Testing Menu	NMP
Alt+E+Q	Quick Testing (RF)	NMP
Alt+E+R	RSSI Reading	NMP
Alt+E,S	Self Tests	NMP
Alt+E,A	ADC Readings	NMP
Alt+E,F	Field Test Display	NMP
Alt+E,U	Audio and Line Adapter	NMP
Alt+E,L	Leds	NMP
Alt+E,C	Call Simulation	NMP
Alt+E,N	Noise Sensitivity	NMP
Alt+S	Software Menu	NMP
Alt+S,I	Phone Identity	NMP
Alt+S,P	Product Profile	NMP
Alt+S,S	Start–up Self Tests	NMP
Alt+S,V	Set Default Values	NMP
Alt+S,L	LA Settings	NMP
Alt+S,P	Product Profile	NMP
Alt+S,A	Automatic Area Code	NMP
Alt+D	Dealer Menu	NMP
Alt+D,C	Short Code Memory	NMP
Alt+D,U	User Settings	NMP
Alt+D,Q	Quick Install	NMP
Alt+D,V	Reset UI Default Values	NMP
Alt+V	View Menu	NMP
Alt+V,Q	Quick/RF Info	NMP
Alt+V,P	Phone Identity	NMP
Alt+H	Help Menu	Microsoft
Alt+H,I	Index	Microsoft
Alt+H,G	General Help	Microsoft
Alt+H,U	Using Help	Microsoft
Alt+H,A	About WinTesla	Microsoft

Help Functions

The Help User Interface will be the standard Windows help tool called WinHelp.

The context sensitive help is activated with **F1**–key. Help contains also Using Help, which describes how to use the help facility. Refer to the Windows manual for a detailed description of Windows Help.

Dialog Boxes

The Service Software application uses many different dialog boxes. Dialog boxes are used to display data and prompt the user for input.

Dialog boxes are opened from menus, or with shortcut keys. Dialog boxes have different properties, but some features will be common.

All service dialog boxes must be modal, that is, the user will not be able to start another operation without first closing the present dialog box.

All dialog box will contain the following entities:

– Help button

– Title bar

– At least one button other than Help

– Application Control–menu Button

Common Dialog boxes

This sections describes the common dialog boxes to be used in the Service Software package, and the context in which they will be used.

Note Message Box

When the user has made illegal selection a *note message box* dialog box will be opened and message text is displayed. A message box is also opened when the program has some information for the user. The size of the dialog box may vary. An information dialog box is recognized by the **!**–icon.

Dialog boxes will also contain an OK button and a Help button.

OK button (default key):

Acknowledge displayed information and continue. The Dialog box is closed after selection.

Help button (Alt+H):

Opens context sensitive help as F1–key does.

Query Message Box

Confirmations and questions are asked in *query message box* dialog box. A query dialog box is recognized by the **?**–icon.

Dialog boxes will also contain a Yes button, a No button, and a Help button.

Yes button (Alt+Y or Y) (default key):

Accepts confirmation or question.

No button (Alt+N or N):

Denies confirmation or question.

Help button (Alt+H):

Opens context sensitive help as F1–key does.

The buttons may also be OK and Cancel. The operation of these buttons are same as in a Note dialog box.

Error Message Box

Error message box dialog boxes use a Stop–icon. When a "Stop"–dialog box is displayed, current operation is terminated.

The dialog box will include a description of the failed operation, and reason. Pressing F1 (Help) application opens the appropriate help topic that gives information about recommended actions.

Dialog boxes will also contain an OK button and a Help button.

OK button (default key):

Acknowledge displayed information and terminate current operation. The Dialog box is closed after selection.

Help button (Alt+H):

Open context sensitive help as F1–key does.

Custom Dialog Boxes

All custom dialog boxes will contain the predefined buttons as defined in the next section. However, it is recognized that features may require additional button types, but the addition of these non–standard buttons should be carefully considered to minimize any inconsistencies between implementations.

The buttons will be positioned down the right–hand side of the dialog boxes. The default action will be **OK**, except where that default action could result in an irretrievable failure.

All tuning dialog boxes that contain tuning results, will display the old tuned data read from the phone before the tuning was performed, as well as the newly tuned data.

List boxes will be used to display lists of data, such as tuning data, test results etc.

The use of Radio buttons should be limited and carefully considered. The use of radios buttons defines the number of possible choices available to the user, which may be acceptable for one project, but not for another.

Buttons

All buttons are Microsoft™ style of buttons.

In general, the default button will be the OK button, the Close button or the Yes button, but this will depend on the context of the dialog box that the button is associated with.

OK button:

Accept and validate entered settings and values and closes the dialog box. If the values have not been changed, then no action will be taken. The status bar will reflect the status. The user should only be queried, if the settings or values accepted will over–write data that CANNOT be reproduced.

A greyed **OK** button indicates that settings selected by the user are not acceptable.

Close button:

Closes the current dialog box. Does not send or store anything, and closes the dialog box. The Close button is only used for dialog boxes that do not set or change any data.

Cancel button (Esc):

Cancel operation. Does not send or store anything, and closes the dialog box.

A greyed **Cancel** button indicates that it is not possible to quit from this dialog box.

Yes button (ALT+Y or Y):

Replies Yes to a question asked of the user.

No button (ALT+N or N):

Replies No to a question asked of the user.

Help button (ALT+H):

Open context sensitive help as F1–key does.

Reporting Status

The status bar will be used to report the present status to the user. When a feature is initiated, the status bar will be updated with a brief description of the function. The status bar will also be updated at key points in a time consuming function.

If an error is to be reported to the user, it will be displayed in the status bar as well as displayed in a common error dialog box. This will mean the user is not delayed from progressing on to the next operation unless an error occurs, in which case the user will have to acknowledge the error by pressing the OK button.

TFE/K–2 Specific Features

User instructions for TFE/K–2 specific features are available after installation as a Windows help file. It can be accessed while using the Service Software as a context sensitive help function.
With the dialog box open, press **F1** or the **HELP**–button to get help.

Help can also be opened by clicking the tfek2en.hlp file from the directory where the Service Software has been installed (default c:\wintesla).

Opening help file in Windows 3.1x:

1) Start File Manager
2) Goto directory where the Service Software is installed
3) Double–click the **tfek2en.hlp** file

Opening help file in Windows 95:

1) Select Start –> Run
2) Type c:\wintesla**tfek2en.hlp**

or

1) Double–click My Computer
2) Double–click Drive containing service Software (default C:)
3) Double–click wintesla folder
4) Double–click **tfek2en.hlp** file

Appendix 1, Vocabulary

Abbreviation	Description
ADC	Analog to Digital Converter
AFC	Automatic Frequency Control
AFW–1	CAP adapter
AFW–2	Service adapter
AGC	Automatic Gain Control
API	Application Programming Interface
ASIC	Application Specific Integrated Circuit
CLF	Common Look and Feel
DATA	DATA interface module
DAU–4S	M2BUS – RS–232 adapter
DAU–2T	RS–232 – M2BUS adapter
DCT2	Digital Core Technology Second Generation
DLL	Dynamic Link Library
DSP	Digital Signal Processor
EEPROM	Memory for adjustment parameters (Electrically Erasable and Programmable Read Only Memory)
IMEI	International Mobile Equipment Identification code
IMSI	International Mobile Subscriber Identification code
LA	Line Adapter
LED	Light Emitting Diode
M2BUS	Serial communication bus which can be connected to accessory devices and test PC
MCU	Master Control Unit processor
MDI	MCU DSP Interface; message interface via ASIC registers
ME	Mobile Equipment
MFC	Microsoft Foundation Class library
MS	Mobile Station
MTI	Message Transfer Interface
PC	IBM PS/AT or compatible personal computer
PCBOX	Local Net driver SW for PC
PCI	Phone Controlling Interface SW for PC

PKD–1	Parrallel port software protection device
RF	Radio Frequency parts
RFI	Radio Frequency Interface circuit
SW	Software
TFE–1	GSM 900 Fixed Wireless terminal
TFE/K–1	GSM 900 / GSM 1800 Fixed Wireless terminal
TFE/K–2	Advanced GSM 900 / GSM 1800 Fixed Wireless terminal
TFK–1	GSM 1800 Fixed Wireless terminal
TX	Transmitter
UI	User Interface
WLL	Fixed Wireless (Wireless Local Loop)

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