

CONTENTS

1. Introduction
2. Advanced Operations
3. Overview of Xchange
 - 2.1 - Quill
 - 2.2 - Abacus
 - 2.3 - Archive
 - 2.4 - Easel
4. Messaging
5. Interfile
6. Computer Access
 - 6.1 - Glass Teletype
 - 6.2 - Viewdata
 - 6.3 - Datalink (Feeding Teletype)
 - 6.4 - VT-Link
 - 6.5 - Data Comms Adapter (M1887)
 - 6.6 - Other, unsupported protocols
7. Housekeeping
8. Printers
9. Known Problems
10. Miscellaneous
11. Index

Section 1 - INTRODUCTION

The purpose of this seminar is to enhance the skill level of District personnel that have the responsibility of maintaining Tonto. The information that follows (in this section) was extracted from the Installation and Maintenance manual written by BTTC Stone.

1.1 Overview of Facilities.

Tonto is a powerful easy to use Personal Information Centre that integrates communication and facilities. It is suitable for both business and home use, and has the capability of carrying out a variety of tasks which would normally require several pieces of equipment. Its main features are as follows:

Comprehensive Telephone Facilities.

These include Telephone and Computer Directories, Abbreviated Dialling; Last number redial; Automatic Answering with electronic voice; user programmed call timing and charging facilities; call monitor loudspeaker.

A 128K Ram Personal Computer.

This consists of keyboard, black and white or colour display and two microdrives for storage. The BASIC programming language and a calculator are provided and a set of four business application packages known as Xchange can be added.

An Information Access Terminal.

Tonto provides the equipment necessary for the connection to, and use of, information and mailbox services such as Prestel and Telecom Gold.

A Data Communication Terminal.

Data can be exchanged with other Tonto users or larger computers.

An Electronic Messaging Terminal.

A Messaging application package utilizes the data communication facility of Tonto. This enables the user to automatically send typed messages over the telephone line and receive typed messages from other Tonto users.

To increase Tonto's flexibility still further, a second telephone line can be connected and a printer added.

Incoming messages are stored in the "in tray" and the presence of their arrival indicated on the screen.

The contents of the "trays" and "notepad" can be printed out and for added security, saved on the one of the Tonto microdrive cartridges.

Personal Computer

Tonto operates as a personal computer with 128 kbytes of Random Access Memory (RAM) and 128 kbytes of Read Only Memory. The ROM available is further increased by fitting a plug in unit known as a "Rompack" which will accommodate 2 or 4 Romcapsules.

Storage is provided by the two microdrives. Each microdrive cartridge contains an endless loop of tape with a capacity of approximately 100 kbytes.

Tonto is provided with a Basic "interpreter" which enables programs written in Basic to run on the machine. (Basic is a popular programming language. The "interpreter" converts these Basic commands into a language that Tonto understands.) Thus with the 'interpreter' program loaded from a microdrive cartridge Basic programs may then be typed in or loaded from cartridge.

More advanced programs are contained in Rompack and Romcapsule form, for example Xchange.

M1811 Xchange Rompack

Xchange is an optional business applications package of the following 4 elements, QUILL, ABACUS, ARCHIVE and EASEL. The package has the advantage that all elements are available simultaneously therefore information may be interchanged between elements. The function of each element is as follows,

QUILL - An easy to use word processor.

ABACUS - A spreadsheet that simulates a large sheet of paper on which figures and words may be entered in rows and columns. It is ideal for monthly accounts, sales forecasts, balance sheets etc..

ARCHIVE - The data base acts like a very large and flexible card index system suitable for the storage and manipulation of records. Full facilities are provided for searching the records for individual items of information.

EASEL - Provides business graphics and has been designed for the easy production of of well presented graphs and charts for incorporation in, for example, management papers and reports. Available presentation includes line graphs, pie charts and bar charts.

M1813 Xchange Rompack

Has the same function as the M1811 but has 4 slots and the later version 2.5 Xchange.

Calculator

Tonto also incorporates a calculator, with the facilities of a simple pocket calculator but with the advantage of a large display screen and 16 digit display.

Addition, subtraction, multiplication and division are provided together with percentages and a single memory store.

Viewdata and Computer Terminal

Viewdata Terminal

Tonto provides the facilities of a viewdata terminal suitable for gaining access to Prestel and other compatible viewdata systems. The dialling up and logging on procedures are completed automatically using the information contained in the Computer Services Directory.

Complete Prestel pages can be reproduced on the screen. If the information on a particular page is likely to be required again, that page can be stored in the Tonto memory and reproduced later without the need to access the Prestel computer again.

Individual pages can be printed out on the Tonto printer providing a 'hard copy' for future reference.

Computer Terminal

Tonto can be used as a terminal to access a mainframe computer. This type of operation is known as "glass teletype" because Tonto acts as a standard teletype terminal except that the information is displayed on the screen rather than printed out.

This facility gives Tonto access to Telecom Gold, BTs computer based electronic "mail box" service. Using the Data Services Directory the Tonto user can automatically dial up Telecom Gold's computer to check whether any messages have been sent to his "mail box" or to type a message to the "mail box" of another person. Messages can be printed out if required.

Optional Applications - M1825 VT Link Capsule

The VT Link capsule acts as an interface to allow "dial up" access to a wider range of computers than that provided by the basic Tonto alone. It emulates the characteristics of the Digital Equipment Corporation DEC VT100 and VT52 video terminals. Once the capsule is plugged in you can communicate with a DEC computer and other computers that use the DEC VT52 and VT100 standard. Communication is also available to other computers by using protocol converters that accept VT100 or VT52 format.

M1887 Data Comms Adapter

Provides a similar function to the VT link except that it is designed for direct (wired) connection between the Tonto and an adjacent host computer or for access to a data network. It permanently connects to the Tonto via one input socket of the Rompack.

M1822 MAP2 - Advanced Messaging

Advanced Messaging, whilst being fully compatible with the initial version of messaging, offers a number of improved features. These are:-

1. Multiple addressing - With this feature the user can specify a list of destinations rather than one single destination.
2. Automatic retransmission - In the case of failure to successfully transmit a message, automatic retransmission is performed with up to a maximum of six attempted transmissions.
3. Export and Import of Messages - Having received a message, the user is able to export the message onto microdrive. From there the message can be imported into Quill and form part of the users document. Conversely, the user can import a document prepared in Quill and send it as a message.

1.2 MAINTENANCE

The following is the full list of Tonto spares. They should be retained in the packaging supplied by the manufacturer and that packaging must be used when returning faulty items for repair via Section Stock. Faulty Monitors and Rompacks should always be returned as complete assemblies with covers. Faulty processor and. Telephony PCB's must be returned without covers. Printers should not be repaired on site, and faulty printers should be returned to repair centres as complete units. Customers should be charged for covers that have to be changed due to damage using per occasion charging procedures. All faulty equipment must be accompanied by a completed A8807A

1.3 Tonto items and their codes.

RATE BOOK DESCRIPTION		ITEM CODE
Main Modules		
MOA M1800	Processor PCB	98 3063
MOA M1800	Keyboard Sub assembly	98 3064
MOA M1800	Microdrive assembly	98 3090
MOA M1800	Telephony PCB	98 3065
MOA M1800	Monitor (Complete)	98 3093
MOA M1885	Colour Monitor	98 3103
Printers:		
MOA MP1711	Printer 1A (M1880 Dot Matrix)	98 1691
MOA MP1713	Printer 1A (Dot Matrix)	98 1823
MOA MP1881	Printer 1A (Daisy Wheel)	98 1702
MOA MP1881	Tractor 1A (Tractor Feed)	98 1708
MOA MP1881	CSF 1A (Cut Sheet Feeder)	98 1709
MOA Cable	I/F 15A (for MP1713 and MP1881)	98 9092
MOA M2105	Printer Ribbon (For MP1711 and MP1713)	98 1652
MOA MP1881	Ribbon 1A (X6)	98 1800
MOA MP1881	Daisy Wheel 1A	98 1802
MOA M1889	Printer Switch	98 3104
Miscellaneous		
MOA M1800	Line Cord	98 3088
MOA M1800	Handset and cord	98 3087
MOA M1887	Data Comms Adaptor	98 3096
Software Packages		
MOA M1810	Rompack	98 3051
MOA M1811	Rompack (with Xchange)	98 3053
MOA M1813	Xchange Rompack (4 slots)	98 3113
MOA M1821	Messaging Package	98 3057
MOA M1822	MAP2 Advance Messaging Package	98 3114
MOA M1823	Interfile Package	98 3115
MOA M1824	DataLink Package	98 3116
MOA M1825	VT-Link	98 3105
	VT-Link 2	
	Datalink 2	
Cartridges		
MOA M1850	Welcome Cartridge	98 3058
MOA M1851	BASIC Cartridge	98 3059
MOA M1853	Xchange Demo Cartridge	98 3061
MOA M1854	Xchange Help Cartridge	98 3062
MOA MP1881	Configurator Cartridge	98 3121
MOA MP1881	+ CSF Configurator Cartridge	98 3122

Section 2 - Advanced Operations

Each Tonto sold came with a cartridge marked as M1851 BASIC (item code 983059). The copying process used when they were mass produced was somewhat unreliable and quite often resulted in a "read failure" or "parity error" when used.

M1851 came with 8 files:

ICLBASIC	A B.A.S.I.C. Interpreter, this used a dialect of BASIC called SuperBasic, which was also provided on the Sinclair QL.
MERCOS	A Data file containing the default settings.
CONTEL & CONTEL_MCODE	A program written in BASIC which allowed the configuration of the Telephone Call charging information.
CONPRIN & CONPRIN_MCODE	A program written in BASIC which enabled Tonto to be configured for use with most types of Printer.
CONFIG & CONFIG_MCODE	This BASIC program allows the user to alter a number of parameters that affect how Tonto behaves, i.e. :-

2.1 CONFIG.

- 1) Define an application (e.g. Xchange) that Tonto enters from power up.
- 2) The 9th Option available from the Top Level Menu.
- 3) Data auto-answer protocol name - Tonto is a multi-tasking computer and as such will have several processes running in background, T-Link is a protocol used for transferring data in a secure way and the process on Tonto that obeys this protocol is known internally as ^L. NOTE see the Interfile section 5.1 & 5.2.
- 4) Data auto-answer application name - CTXFR is the process that starts the messaging application when Tonto auto answers a data call, again see the Interfile section.
- 5) Auto-call/answer modem settings - these should NOT be altered unless other Tonto's that are communicated with via Messaging are also altered in the same way.
- 6) Image printing - Tonto only supports graphic dumps to monochrome dot matrix printers. Therefore when Tonto is on-line to Prestel or some other service that uses colour

attributes and a screen dump is required it is necessary to define which colours print and which do not. If all colours are set to print then the result is a black sheet of paper and a worn out printer ribbon. Prestel standardises on which colours contain information & which are used for non-essential back ground colours. Tonto's defaults are set to the Prestel standard.

- 7) Data Record - defines whether the Tonto attempts to automatically reload a "saved store" on power up. This screen also allows the option to auto "save store" at a particular time of day (and to which drive).
- 8) Microdrive Cartridge Thresholds - There is no advantage to adjusting these values.
- 9) Telephone Line Configuration - Tonto has the facility to "log" a call and announce the approximate cost based on the time of day and charge band attributable to the call. If a delay is required when calling a number stored in the Telephone Directory a full stop may be inserted at the appropriate point e.g. 9.246 8007, the value in seconds of the full stop is defined in this screen. - see the notes below on the Compiled Configurator.

2.2 The Compiled Configurator.

ICL produced a version of the above which was faster and required less memory there are two additional differences between this and the BASIC version.

- 1) There is a bug which appears to freeze the screen when a Reset Permanent Store command is issued. You are asked if you really want to reset - you answer yes and if at that point the screen appears to freeze, your Tonto has a motherboard with an F0.7 operating system. To "unfreeze" press START - RESUME - ESC. This does not happen with operating system F1.2.
- 2) The Telephone Line Configuration screen has an extra feature in that it allows the type of recall i.e.

Earth Recall
Timed Break
Hook Flash

Tonto has "Green Spot" approval for Earth Recall only, the other options are not supported. This makes Tonto unsuitable for use with Star Services and some types of P.A.B.X.

2.3 CONPRIN - Printer Configuration

It is debatable whether configuring the Customer's Tonto for use with a non-portfolio printer is a normal maintenance activity. Possibly District management may decide to charge for the visit as a "consultancy fee". Certainly the major requirement is that the Customer provides a technical manual for the printer which must have a serial interface, a Centronics or parallel interface will not work on a Tonto.

Configuration for "strange" printers is straight forward, after loading the **conprin** program select the field :-

Amended printer configuration:- <NONE>

and pressing Alt 1 (amend item).

Using the handbook you can now enter the necessary character sequences for the various facilities the printer offers i.e Bold, Underline etc.

2.4 Portfolio Printers.

If it is necessary to re-program Tonto to work with one of the portfolio printers select the field :-

Amended printer configuration:- <Epson RX80>
or <Merlin M1880>

and pressing Alt 2 (Install current printer).

The following is a list of dot matrix printers each superseding the other and what they should be configured as:-

M1880	Merlin M1880
M1713	Epson RX80
MP182	Epson RX80

2.5 MP1881 - Daisy Wheel Printer.

This printer does not appear as an option of CONPRIN and is therefore installed in a different way. The MP1881 printer was supplied to the customer with a cartridge marked either:-

MP1881	(item code 983121)
or	
MP1881+CSF	(item code 983122)

The second being for use with a cut sheet feeder.

This cartridge contains a previously "Saved Store" which when loaded (by LOADING PERMANENT STORE) will install the correct configurations for the MP1881.

2.7 Telephone charge bands.

In order for the Tonto to display an accurate estimation of the cost of a timed call it is necessary to program in the current charges for each charge band, and the time at which each comes into force. As above it is not envisaged that this is a normal maintenance function.

Section 3 - Overview of Xchange.

Xchange is a package of four integrated utilities called Quill Archive Abacus & Easel. Integrated means that they are capable of using the same data and representing it in a different way.

They are reached via a screen called Xchange Task Control in which it can also be seen that there now exists a further drive called m: ,this can be treated exactly the same as the L or R microdrives, but only within Xchange.

Xchange Task Control allows the user to select one of the four packages by first giving the task a name. This name is NOT the name that the file will be saved to on micro-drive, merely a convenient "tag" so that the system can keep track.

Having selected from one of the four options the user enters a task name and will enter the package:-

3.1 Quill - This is the word processing package. The area at the top of the screen shows the commands and options available to the user. All commands are prefixed by pressing ALT 7.

Pressing the first letter of the command will expand to the full word. The most used commands are : (S)ave (L)oad (Q)uit & (P)rint. (I)mport & (E)xport are used to save/load ASCII files, NB. If the ASCII file uses the default file name .exp ,this need not be included, if the file name has no extension a dot should be added to the end of the file name.

3.2 Abacus - Is what is called a spreadsheet program. It is a two dimensional construct rather like a very large chess board with letters at the top and numbers down the sides. Therefore each "cell" is referenced by a letter and number like A1.

By placing a number in cells A1 & A2 and then in cell A3 typing in A1+A2, A3 will contain the sum of whatever is entered in A1&A2. Different numbers can be entered, the sum will change. More complex mathematical models can be designed and are used for "what if?" problems. By changing one variable, this change will ripple through and leave a different result.

Again all commands are prefixed by ALT 7 and (S)ave (L)oad (Q)uit and (P)rint work just the same.

3.3 Easel - is the package that produces graphs which can be in one of 8 types. The usual commands work BUT (P)rint only works with printers that are capable of printing graphics, in other words NOT a daisy wheel printer.

3.4 Archive - is a database program. It provides a means of holding records in a computer that can be manipulated. Archive is not compatible with other market leader database programs like DBASE & DATAFLEX.

However like the above it contains a powerful programming language something like a cross between BASIC & PASCAL. It is not necessary to use the programming capabilities in order to use Archive, the programming language allows the data to be accessed & manipulated in a variety of ways.

3.4.1 Different types of Archive file.

Existing database files are not loaded, they are (O)pened. This may be directly from the microdrive or from the m: drive. i.e.

open "L:file" - This opens a file called file.dbf on the left drive. While this file is open the microdrive must not be taken out of the drive otherwise data loss is inevitable. The *close* command must be used to avoid the above.

or

open "file" - The same as above but assumes the file to be in memory. To get the file from microdrive into memory the *backup* command must be used.

i.e. *backup "l:file.dbf" as "file.dbf"*

and then *open "file"*.

Many users think that the *save* command carries out the above, however *save* is used to save programs.

Archive programmers may like to use structured templates so that their data is presented on screen in a predefined way. The command to create these screens is *sedit* and they are saved and loaded using *ssave* & *sload*.

Section 4 - Messaging

Basically messaging allows one Tonto to send a textual message to another with absolute confidence that if the originating Tonto reports that the message was sent, it will have been and with no errors. This is achieved by using the T-Link protocol which is based on the Microcom Networking Protocol (see note 1). The M2105 & M2120 messaging terminals also use a similar version of this protocol and offers some compatibility with Tonto messaging.

From option 3 on the Top level menu there are 4 options in a sub-menu called Messaging Control.

In Tray	- Where messages are recieved.
Notepad	- Where messages are created.
Out Tray	- Where messages are queued for sending.
Housekeeping	- Where messaging housekeeping functions are performed.

Messaging uses the noticeboard area at the bottom left hand side of the screen to inform the user about the state of their Tonto, these messages are known as "flags" and not all are documented.

The flag **F** indicates that at least one message in the Out-Tray has failed to be transmitted. **X** indicates that an incoming message has failed through lack of free memory allocated to the In-Tray.

The **A** Flag was not documented in the original M1821 manual and is the cause of many messaging problems, Tonto has the facility to Auto-Save its messages to cartridge as a security measure. If this should fail, the **A** flag will appear and no further messaging activity (incoming & outgoing) can take place until Auto-Save is turned off. This is achieved by going into Messaging Control and pressing f3, the **A** flag will disappear. The **M** flag indicates the the Out-Tray has at least one message that has not been transmitted. The **I** flag indicates that a message has been recieved.

4.1 Different versions of messaging.

Version 1.4 - This was the first release version and had the following bugs which unless specified are cleared in later versions:-

In Notepad scrolling down the screen & then up again looses the Address & Subject.

Delay before dialling after message is placed in the out tray (1 minute).

UNABLE TO OBTAIN REASOURCES - actually means that there is insufficient memory. There is no evidence that this was ever cleared in later versions.

Version 1.6 - This version is unique in that it does not display its version number in the messaging control screen and is cleared in v1.61.

Version 1.61 - Generally well behaved still has the following "bugettes"

MESSAGING FAIL EC03 - Occurs when there is insufficient store to run messaging in background.

MESSAGING FAIL 1F15 - Indicates a corrupt in-tray, reset Tonto to clear. There is no evidence that this was ever cleared in later versions.

4.2 M1822 - Advanced Messaging

As far as we are aware the only issue of advanced messaging sold by BT was Version 2.4a and has no really serious bugs. This had a number of features not present in M1821.

1. The same message could be sent to a number of recipients.

2. Text could be imported / exported to and from Psion Xchange via the micro-drive cartridges and therefore offered a convenient method of saving individual messages.

3. In the Telephone Directory was a field marked Data No. which hitherto had no real use, now when addressing a message in the notepad in place of the number the user could enter the shortcode that was part of the Telephone Directory Entry, this will change into the Data Number.

4. A failed message will re-try automatically up to six times, whereas previous versions could not.

5. All the above meant that the software would no longer fit in one romcap and therefore came in two's.

4.3 Messaging fail codes

The M1821 manual omitted to document fail codes. Later a supplement was issued but it is uncertain if any reached the customer base. M1822 did include a full list of fail codes, a few of the most "popular" are listed on the next page.

FAIL 11 - this means that the sending Tonto cannot find another Tonto to talk to - perhaps the other Tonto is not set to Auto Answer data, or its a wrong number.

FAIL 21 or 22 - The sending Tonto has a corrupted T-Link, the solution is to reset Permanent Store - see section Advanced Operations.

FAIL 24 or 72 - Indicates that the receiving Tonto is unable to accept the message. This is usually because of lack of available memory at the receiving Tonto.

Note 1.

The Microcom Networking Protocol has become a very popular method of safely sending data over the PSTN, messaging is not compatible with any other derivative of MNP. As mentioned above there exist the ability to communicate with the M2105/20 messaging terminals, but this is limited to point to point messaging. A Tonto with M1822 cannot send a multi address message to several M2105/20's.

Section 5 - Interfile.

Interfile is a utility that allows a Tonto to send any file to another Tonto providing:-

- The receiving Tonto has Interfile installed.
- The receiving Tonto is set to Auto Answer Data.
- The receiving Tonto is has capacity on a microdrive cartridge to save the incoming file to.

The cause off 99% of Interfile faults lies with incorrect installation. The manual contains errors on page 12 which serve only to confuse.

5.1 Installing Interfile.

- Load the CONFIG utility.
- Change the Auto Answer Protocol to ~LI
- Change the Auto Answer Application to ~LF
- Quit CONFIG and recycle the mains (re-boot).

5.2 De-Installing Interfile.

- Load the CONFIG utility.
- Change the Auto Answer Protocol to ~L
- Change the Auto Answer Application to ~CTXFR
- Quit CONFIG and recycle the mains (re-boot).

5.3 Problems.

As explained on page 61 of the manual if there are several applications on a cartridge, Tonto may respond to a cartridge menu with TOO MANY PROGRAMS. This is more likely to be be found with installations that are using a Disc Drive attachment. To cure this carry out the following:

- Load BASIC
- Type set_pse 28,n (where n is a number between 2 & 5, the smaller the better).
- Quit from BASIC by typing BYE.

5.4 Compatability with other Computers.

Pages 58 and 59 of the manual suggest that there is a compatibility between Interfile and other products. This has never been tested by the Tonto Product Group and cannot therefore be guaranteed or supported.

Section 6 - Computer Access

One of the many strengths of Tonto was its ability to connect to other computers. This was achieved in two ways:-

Either by - Direct Connection (see section 6.5)

Or by - connection via the internal modem which is situated in the Telephony module.

The modem allowed connection to services defined by CCITT V21 & V23 recommendations. This means that the modem uses European frequencies rather than the American Bell frequencies and the line speeds 300/300 bps (V21) & 1200/75 (V23) bps. The former means that that signaling rate is 300 bps in either direction, the latter is 1200 bits/sec (bps) received from the host and 75 bps transmitted to the host.

To Save profiles refer to section 7.4

6.1 Glass Teletype

This protocol (set of agreed rules) describes a service which understands characters & numbers plus carriage returns & line feeds. In other words this service offers all that is possible with a teleprinter - but on a VDU. Hard copy is possible either when "on-line" or by capturing into page store for subsequent printing. This is a 7 Bit service with odd, even or no parity. Although not documented, this protocol allows the ALT X - flow control options described in Datalink.

6.2 Viewdata

Viewdata is basically PRESTEL and similar services. It can only be used at V23 though V21 viewdata services are rare. Screen dumps (to printer) can be taken while on line or by "SNAPSHOTing" into page store can be viewed or printed at a later date. As a side note PRESTEL is accessed by entering an I.D. of 10 numbers, followed by a password of 4 characters. For test purposes PRESTEL can be accessed by entering 4444444444, followed by 4444.

Note: see section 2.16 regarding configuring Tonto for "screen dumps" from Viewdata.

6.3 Datalink.

The main shortcoming of Glass Teletype was that it had no up-loading facility. When used with messaging services like Telecom Gold (now called Dialcom) the messages had to be typed while "on-line". Datalink provided an extra profile called FEEDING TELETYPE.

When editing the profile, the user had to define the name of the file to be sent and the microdrive (L or R) from which it would come. This meant that the profile had to be re-edited for every file transfer (unless the customer always used the same filename).

The only type of files that could be sent to teletype services (like Gold) are ASCII files, these could be produced by Xchange using the Export command. Similarly files could be down loaded into Tonto for later processing. These files were first captured in Page Store, then returning to the Applications Menu and selecting the Export page option allowed the page to be converted into an ASCII file on microdrive cartridge, subsequently the file could be imported (usually to Quill). Export page also allowed Viewdata pages from PRESTEL to be turned into an export file.

Note: Only 7 bit working is available on either version of Datalink.

Both Teletype and Datalink provide the facility where strings of characters may be saved in the profile and sent with one keystroke. This is very useful when logging on to unfriendly systems like P.S.S. If when creating the profile the user holds down the ALT key & presses a letter they may then enter the string.

There is one exception - ALT X. This is used to modify the way Tonto responds to remote computers. ALT X has a string comprised of 5 characters. (say abcde)

where:

- a - determines the character sent by Tonto to the remote computer to stop data flow.
- b - determines the character sent by Tonto to the remote computer to start data flow.
- c - determines the character sent by the remote computer to the Tonto to stop data flow.
- d - determines the character sent by the remote computer to the Tonto to start data flow.
- e - can be used to change the value of the enter key's control code sent to the remote computer.

Normally this string (abcde) is set to SQSQM. This translates to control S, control Q and control M, but they can be changed to suit the remote service. As mentioned before this facility is also available in Glass Teletype profiles but was never documented. As an example when this can be used was on the Isle of Man where they remotely access Miracle metering units. Bob Farish the engineer on the island "messaged" the solution to us and is reproduced overleaf:

6.4 VT-Link.

One of the industry standards for asynchronous "intelligent" protocols is the DEC VT100 terminal. The earlier VT52 was also supported. This standard allowed the host computer to drive the Tonto cursor such that screen drawing became possible, boxes, lines, fields of inverse video could be created and only areas that needed to be were updated. This is important in situations when say, on screen forms were filled in. The form need not be re-drawn for each entry. Unfortunately VT-Link did not operate as an exact imitation of a real VT100 terminal and sometimes the screen would not produce the display that the host computer's software programmer had intended. Sometimes this was due to poor programming and alterations to the host's software would solve the problem. The acid test is to substitute the Tonto with a REAL VT100 terminal, this is the standard that others are measured against, if the problem exists with the real thing Tonto cannot be expected to work.

An upgrade to a later version is advised as a possible step with problems like this. Three versions of VT-Link are known of, v0.04, v0.06 & VT-Link 2.

VT-Link 2.

This version provided additional facilities over that of its predecessor:

It allowed 8 bit working, no other Tonto option allows this and has been recognised as a shortcoming with the product.

Monitor to page store/printer.

132 column working.

The ability for the host to turn the Tonto's printer on and echo the screen.

If VT-Link 2 is fitted the printer manager has to be reinstalled, select CONPRIN from the applications menu and when loaded, select the appropriate printer then press ALT2, then quit.

6.5 M1887 Data Comms Adapter

The Datacomms Adapter was designed and marketed exclusively by B.T. It has a flat plug which connects to a spare slot on the Rompack, and a 25 pin, "D" Type connector

Installing the M1887 provides a new option on the Applications Menu (Terminal). The M1887 provides four emulation modes:

- 1) Glass Teletype.
- 2) VT52.
- 3) VT100.
- 4) M1887.

The first three have already been explained above. The fourth allows Tonto to be provided in the place of an IBM 3278 VDU, it uses a VT100 protocol but with a different keyboard mapping. In order to connect Tonto a "protocol converter" would need to be connected between it and the cluster controller. For instance pressing the CTRL key & H together normally produces the backspace character, but in M1887 mode it sends ESC [R. The protocol converter would accept ESC [R and convert it to the IBM code that represents the HOME key on a real 3278 keyboard. Usually the customer supplies and programs the protocol converter.

Known Problems

The M1887 has had various issues of firmware installed, the latest can be identified as follows:

Prise off the cover and locate the EPROM next to the ribbon cable. The latest issue of firmware has the label (c) BT 1985-02 (c) Scicon 1986-08. Next to the capacitor C10 the EPROM has the label (c) BT 1985-02. Tonto Customer Field note No.005 details how to upgrade to this level of firmware.

Earlier versions than those quoted above are prone to locking up whilst in dialogue with the host computer, also some very early two slot rompacks (M1811) are incompatible with the M1887. Another problem with early M1887 is the perceived speed that the data writes to the screen is slow. Even the latest issue will only accept data at 1200 bps or less without a great deal of flow control (this is a method by which a terminal device may instruct the host to stop sending data for a while).

The 02/08 firmware still has bugs that will at this late stage never be resolved.

They are:

When using the facility to send a file to the remote computer the file will be sent, unfortunately at the end of the data there will be some garbage.

A number of VT100 comands are not interpreted correctly, this will some times result in corrupted screens.

6.6 Other, Unsupported Protocols.

ICL produced and sold other capsules other than those mentioned above. They are not supported by B.T. and customers using them should be refered to ICL for support.

Those known about are:

ICL Link - provides ICL CO3 protocols.

Termilink - Provides connection to an ICL PC
Quattro

DG Link - Provides a full emulation of the standard Data
General D210 terminals.

DB Link(*)- This allows Tonto to call another service which then calls Tonto back. Ordinarily Tonto can only auto-answer with T-Link protocols. DB Link (Dial Back) allows auto-answer in Glass Teletype mode.

(*) DB Link was also marketed by its creators MGB micro products limited.

ICL also produced a version of the M1887, it was called the asynchronous communications adapter.

Section 7 - Housekeeping

Both the Telephone Directory and the Computer Services Directory have an option allowing them to be saved to microdrive. It is advisable before working on the Tonto to establish that the Customer has a recent backup of both. It is also a good idea that they have taken a "Saved" store see 7.4

Option 8 from the main Top Level Menu gives access to the Housekeeping sub-directory. Each option is explained below:

7.1 Battery Check.

This checks the 9 volt PP3 battery situated under the microdrive assembly, this battery maintains telephony function during mains fail.

7.2 Set Date & Time.

This is self explanatory.

7.3 Microdrive Utilities.

This menu allows the user to Format cartridges and perform other operations such as cataloging.

7.4 Saving & Loading Store.

This utility takes a "snapshot" of the data held in memory and allows it to be saved to, or loaded from microdrive. **This is the only method of saving the data held in the Computer Access Profile Store.** This need only be carried out whenever changes have been made to the profiles, after power down it should be the first microdrive tape to be loaded to be followed by the Telephone Directory and the Computer Services Directory.

7.5 Saving & Loading Permanent Store.

There is a small lithium battery soldered to the base PCB. This is used during power fail to maintain the system real time clock and support 2 Kbytes of memory. This area of memory contains data such as the printer configuration and messaging details. This area of memory can be copied to and from a cartridge. The PCML Teledrive disk unit had a bug that prevented this function in versions prior to v2.00.

7.6 Store Report.

This utility provides information as to which programs are using main memory and how much. An unexpanded Tonto will have on power up approximately 150 blocks of free store. A block is 512 bytes. The rest of the original 128k bytes (256 blocks) is used by the system. The screen alone uses 32k bytes. Often when using Xchange the Customer wonders how they have used all the memory so quickly, the answer is that Xchange does not execute from the R.O.M's in the ROMPAC but is copied into main memory when needed. This increases the speed of Xchange.

7.7 Printing Options.

This is where the Tonto is configured as to whether the printer is using continuous or single sheet stationery. If the setting is single sheet the printers paper out detector will be disabled and at the end of each page the Noticeboard on the Tonto will display NEW PAGE? CTRL/PRINT. Pressing the CTRL and PRINT keys together will initiate the printing of the next page.

Correspondence quality turns on the Bold attribute permanently.

Tonto can only support Black & White image print, even though there is an option for colour printing. The reason for this is that a special printer driver is necessary to drive a colour printer. ICL marketed a colour printer with the OPD which B.T. declined to add to our portfolio. As no appropriate utility has ever been supplied to BT to configure Tonto we are unable to support any colour printer.

If the printing options are set to colour for a monochrome dot matrix printer the image will be very dark.

Section 8 - Printers.

8.1 The Printer Port.

The Tonto can only be connected to a printer that has a serial interface. It has a very non standard connector of which the details are shown below:

<u>Tonto</u>			<u>Printer</u>
1	(TXD)	-----	3
2	(GND)	-----	7
3		-----	(DTR) 20

Most printers will work with this arrangement and the Cable Interface Lead 15A (989092) is wired accordingly. If the customer has a printer which does not conform to the above, advice should be sought as to whether charges should be raised in order to make it work with Tonto. Tonto Query Solution Report No. 48 contains details of several non-BT printers.

8.2 Switch settings for BT printers.

1. M1880

MAIN PCB.	SW1	1	2	3	4	5	6	7	8
		0	0	0	0	0	0	1	1
	SW2	1	2	3	4				
		0	0	0	0				
RS 232 I/F PCB	SW1	1	2	3	4	5	6	7	8
		1	0	0	0	1	1	1	0
	SW2	1	2	3	4				
		1	0	1	0				

2. M1713

MAIN PCB	1	2	3	4	5	6	7	8	9	10	11	12
	0	0	0	0	0	0	0	1	0	1	1	0
RS 232 I/F PCB	1	2	3	4	5	6	7	8	9	10	11	12
	1	0	0	0	0	0	0	1	0	0	0	0

AUTO FEED - - - NOT FIX.

3. MP1881

SW1	1	2	3	4	5			
	0	0	0	0	0			
SW2	1	2	3	4	5	6	7	8
	0	1	0	0	1	1	1	1

4. MP182

Motherboard	1	2	3	4	5	6	7	8
Switch.	1	0	0	1	1	0	1	0
Serial I/F	1	2	3	4	5	6	7	8
SW1	1	1	1	1	1	1	1	1
Serial I/F	1	2	3	4	5	6	7	8
SW2	0	1	1	0	0	0	0	0

8.3 Printer Compatibility.

The M1880 was the first printer to be made available for use with Tonto, although it looked identical to the M1713 it obeyed a different protocol. The M1880 was manufactured by Walters Microsystems as the WM80 and was a clone of the popular Shinwa CP80 printer. The M1713 also made by Walters (as their WM100) was an Epson RX80 clone and at 100 characters per second was 20 cps faster than its predecessor. Both of these dot matrix printers were used by other BT products (Call Logging etc.).

The MP1881 Daisy Wheel printer is compatible with the Silver Reed DW16.

The MP182 was not completely compatible with any other printer. For use with Tonto it could be regarded as an Epson RX80 but for more demanding work (i.e. connected to a P.C.) its emulation was incomplete.

8.4 The MP1881 Sheet Feeder.

This is known to suffer from "paper slipping" problems because of the very low friction offered by the platten. A visit to the importers X-Data (now called Technitron Data) came up with a solution - sand paper the platten! This actually works but only for a couple of months where upon it will need to be repeated. The product group decided to accept this cure and if unacceptable to the customer will require a local decision to replace with whatever is available from the current portfolio.

8.5 The Tonto Printer Manager.

The printer manager is a process running in the background all the time. All programs that demand access to the printer have to talk to the printer manager. When any program whether it be Quill or Computer Access etc. first seizes the printer it sends an initialisation string which sets up the printer into a known state. The M1713 printer has a useful facility that allows all data received to be printer as hexadecimal numbers from which the ASCII value can be determined. By reference to the printer manual they can be decoded. This string serves the same function whatever printer is used with Tonto, so the first command is always Set Line Spacing followed by Home Print head etc. The values contained within the sequence are programmed in using the CONPRIN utility.

A common fault when MP1881 printers are used with Tonto is that at the Top of the page the characters "00F" appear. This is because the Tonto has been programed to think it is connected to an M1880 (or M1713). The initialisation string has no meaning to the MP1881 and so it tries to print what it can. Obviously the solution is to reconfigure the Tonto for the MP1881.

The initialisation string for a M1880 printer is shown below:

1B	32	1B	3C	0D	1B	2D	30	1B	48
									<u>Bold off</u>
									<u>Underline off</u>
									<u>Home print head</u>
									<u>Set line spacing to 7/72 of an inch</u>

1B	48	1B	57	30	1B	43	46	1B	4E	06	1B	39
												<u>Enable paper end signal</u>
												<u>Set skip over perforation to 6 lines</u>
												<u>Set Form length to 70 lines</u>
												<u>Enlarged printing off</u>
												<u>Bold off</u>

The Tonto Printer Manager (cont.).

1B	46	0D	0A	0C	0D	1B	3C
							<u>Home Print Head</u>
							<u>Carriage Return</u>
							<u>Advance to Top of Form</u>
							<u>Line Feed</u>
							<u>Carriage Return</u>
							<u>Turn Emphasize mode off</u>

Section 9 - Known Problems.

9.1 Advanced Messaging & Interfile.

Early two slot rompacks were incompatible with the above, to identify them refer to section 10.1.1 or Tonto Customer Field Note No.3.

9.2 Xchange Lockups & Crashes / Screen Freeze.

All two slot rompacks (M1811) contained version 2.3 Xchange, this caused various problems which if encountered should be replaced with a four slot rompack (M1813). Tonto Customer Field Note No.7 covers this problem.

9.3 Large File Handling Problems.

Large files, whether they are Xchange or a Telephone Directory are liable to be corrupted while saving and cannot be subsequently re-load. This is due to a bug in the Operating System software version F0.7 (in the base unit).

To identify which version is present press:

START - followed by pressing (and holding) the ALT key followed by Z. The current version is displayed in the bottom left hand side of the screen. Version F1.2 appears free of this defect. Tonto Customer Field Note No.9 covers this problem.

9.4 Screen Failure.

Most monitor faults are due to an under rated capacitor in the screen power supply. Tonto Customer Field Note No.9 covers this problem.

9.5 Lost Configurations.

The symptoms of this problem may range from lost printer configurations to messaging and Interfile failures and most Tonto's are now liable to be affected. This is because the Lithium Battery installed on the base PCB is now reaching the end of its working life. Tonto Customer Field Note No.12 covers this problem.

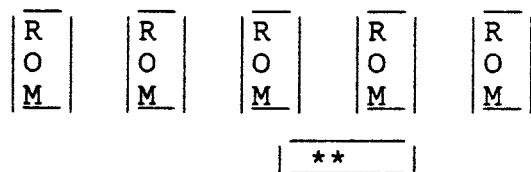
10.1 - B.T Buyline Products.

Computer One - who later went into liquidation.

Eventually it was decided not to place either into the portfolio, however BT Buylines had entered into separate negotiation with PCML and decided to make these available via their outlets. Buylines also sold PCML's memory expander which doubled the available memory to 256k bytes. The support position for non B.T. attachments is explained in Tonto Customer Field Note No.8. **All** responsibility for support remains with the supplier. The customer should be advised (in the case of the PCML products) to contact BT Buylines on 01 281 4422. Buylines have an arrangement with PCML who will provide user support to Buylines customers. A brief description of the PCML products is given below:

10.1.1 PCML Teledrive.

The Teledrive has a ribbon cable terminated in a plug similar to a romcap and therefore plugs into the Tonto's rompac. The Teledrive is compatible with both B.T's four slot rompac and the PCML Telestore. Early two slot rompacs are however incompatible, these can be identified by removing the plastic case and extracting the PCB. The socketed chip marked as ** will have the letters KVAB if its the early version and KVAB02 for the later version.



The Teledrive patches the operating system on boot up to cause the Tonto to think that the disc drive is its Left and/or Right microdrive. This is configured by the Customer using a DISC UTILITIES disc provided with the unit. Engineers attending a Tonto fault should ask the Customer (if its relevant) to disconnect the disc drive and demonstrate the fault without it.

10.1.2 PCML Telestore.

This product provides a memory expansion of 128k bytes and is built into a four slot rompac with v2.5 Xchange. It seems to work very well, but there have been reports where the Customer has been using Xchange and Tonto has reported out of memory but Store report still states that memory is available. As both the memory expander and the Xchange package inside it are the product of another company we can do nothing about this.

When the Tonto is first powered up it carries out some self checks and if it can reports errors found. The presence of the Telestore causes the error INVALID CAPSULE. This is to be expected and is documented in the PCML literature.

10.2 Stores availability.

At this point in time many spares items are still available from central stocks with the exception of VDU's and rompacks. Four slot rompacks are available from Crayford stores. BT Buylines still stock printer ribbons and microdrive cartridges. BT Tonto users may also use the internal ordering point COMSAC Tel 031 453 6341.

Section 11 - Index

Advanced Operations - Section 2

A Flag - Section 4.

Archive file types - Section 3.4.1

BASIC - Quitting From - Section 5.3

Bugs

- Screen Freeze with
compiled configurator - Section 2
- UNABLE TO OBTAIN RESOURCES - Section 4.
- MESSAGING FAIL EC03 - Section 4.
- MESSAGING FAIL 1F15 - Section 4.

Compiled Configurator - Section 2

Contel - Section 2

Config - Section 2

Colour Printers - Section 7.7

Configurations Lost - Section 9.5

Conprin - Section 2

Datalink - Section 6.3

DB Link - Section 6.6

DG Link - Section 6.6

Export Page - Section 6.3

F flag - Section 4.

Feeding Teletype - Section 6.3

Fail codes - Section 4.

Glass Teletype - Section 6.1

- Interfile - Installing - Section 5.1
- De-Installing - Section 5.2
- TOO MANY PROGRAMS - Section 5.3

Messaging - Section 4.

- Different Versions - Section 4.
- Compatibility with M2105/20 - Section 4.
- Re-try's - Section 4.

MIRACLE metering unit - Section 6.3
 I flag - Section 4.
 IBM 3278 - Section 6.5
 Identifying 2 slot rompacks - Section 10.1.1
 ICL Link - Section 6.6
 Item codes - Section 1.3
 INVALID CAPSULE - Section 10.1.2
 Large file problems - Section 9.3
 Lithium Battery - Section 7.4
 Lost Configurations - Section 9.5
 M flag - Section 4.
 Modem - section 6
 M1887 - Section 6.5
 M2105 & M2120 - Section 4.
 MNP - Microcom Networking Protocol - Section 4.
 Non-BT Printers - Section 8.1
 Operating Systems - Section 2
 PRESTEL passwords - Section 6.2
 Printer Configuration - Section 2
 Printers - M1880 - Section 8
 M1713 - Section 8
 MP1881 - Paper slipping - Section 8.4
 MP1881 - prints "00F" at top of page - Section 8.5
 Non-BT - Section 8.1
 Interfacing details - Section 8.1
 D.I.P. Switch settings - Section 8.2
 Compatibility - Section 8.3
 Colour - Section 7.7
 Very dark Image Print - Section 7.7
 Profiles - Loading & Saving - Section 7.4
 Protocol - Section 6.1,6.4

Screen Freeze

- with compiled configurator - Section 2.2
- in Quill - Section 9.2

Screen Failures - Section 9.4

- Saving - Permanent Store - Section 7.4
- (& Loading) - Using Teledrive - Section 7.4

Store Report - Section 7.6

Stores Availability - Section 10.2

Telephony

- Recall - Section 2
- Star Services - Section 2
- Dialing delay - Section 2

Telephone Charge Bands - Section 2

Teledrive - Section 10.1.1

Telestore - Section 10.1.2

Termilink - Section 6.6

TOO MANY PROGRAMS - Section 5.3

Viewdata - Section 6.2

VT Link - Section 6.4

VT 100/52 - Section 6.4

X Flag - Section 4.

- | | | | |
|------------------|---------|---|-------------|
| Xchange Overview | - Quill | - | Section 3.1 |
| | Abacus | - | Section 3.2 |
| | Easel | - | Section 3.3 |
| | Archive | - | Section 3.4 |

7 & 8 bit working - Section 6.

THE QWERTYPHONE

NOTES FOR THE NSO 2.6.3 QWERTYPHONE SUPPORT WORKSHOP

Compiled November/December 1989 by David Weston
BTUK NSO 2.6.3 Qwertyphone Technical Support

Contents

1. Qwertyphone the product a brief history.
2. Available documentation and support literature.
3. Current support arrangements and maintenance procedures.
4. Attachments and interfaces.
 - a. printers
 - b. pc cables
 - c. miscellaneous
5. Popular problems and enquiries.
6. Stores availability.

Appendices

- A. Printer switch settings.
- B. Printer and PC port pin-outs.

Note. These workshop notes are not intended to cover operational aspects of the Qwertyphone. Please see the relevant user guides for this information.

1. QWERTYPHONE THE PRODUCT A BRIEF HISTORY.

Qwertyphone was originally launched at the beginning of 1987 and was targeted at two markets, the advanced featurephone market and the low cost teletype terminal market.

Featurephone sales were poor due to the cost of the item and although quite large quantities were shipped for use as terminals the lack of comprehensive functionality and the falling cost of PC's resulted in relatively poor sales. In all approximately 10,000 Qwertyphones were produced of which the large majority have now reached users of one kind or another.

The Qwertyphone was withdrawn from the BT portfolio in August 1988.

2. AVAILABLE DOCUMENTATION AND SUPPORT LITERATURE.

(i) CSI (Customer Service Information) 057 Issue 1. This document outlines the product specification, item codes, documentation, training and support arrangements.

(ii) CFN (Customer Field Note) 001 Issue 1. Gives details of the PC adapter and serial modem cables. CSI's and CFN's are available in each district from a local distribution point.

(iii) TGN (Customer Apparatus Guide Note) 0057. Comprehensive technical training notes available from BTTC Stone, Staffs.

(iv) DLU (District Liason Unit) Circular 210/88 Issue 3 February 1989. Outlines up to date support and maintenance arrangements. Available from the Products and Services Helpdesk, 01 239 1812.

(v) TPU 462 Issue 3 (4/87). Qwertyphone users guide. Item code 252491.

(vi) TPU 799. Keyboard adaptor user guide - Macintosh variant. Item code 252496.

(vi) TPU 800. Keyboard adaptor user guide - IBM PC variant. Item code 252497.

3. CURRENT SUPPORT ARRANGEMENTS AND MAINTENANCE PROCEDURES.

These are documented in detail in DLU circular 210/88 but briefly are as follows.

Support

Second line technical support is given by BTUK NSO2.6.3, telephone number 01 929 4221. Customer support is given by the local district.

Maintenance

Apart from one or two exceptions (see below) maintenance is carried out by the local district who will simply scrap faulty units and draw replacement items from pool stock.

Customers must be offered maintenance regardless of whether they have a maintenance contract or not. If the customer does not have a maintenance contract then there is a fixed repair charge of £95 (plus any visit charge) for replacement of the unit.

Exceptions to this rule are the Qwertyphones sold to the Halifax Building Society and those given to the RNID after product withdrawal.

In the first case the Halifax has total responsibility for first line maintenance and support backed by BT Mid Yorks district. Any enquiries should be referred to the Halifax's own helpdesk.

In the case of Qwertyphones supplied by the RNID Telecoms Action Group all enquiries should be referred to said group on 041-331-0343.

4. ATTACHMENTS AND INTERFACES

a. Printers

Initially the Qwertyphone was supplied with a choice of two printers, the MP1713 dot matrix and the MP40 thermal.

The MP1713 was supplied to BT by Walters Microsystems and is also known as the WM100, this is identical to the printer supplied with Tonto's. This printer will work with the Qwertyphone at its default (ie. power on) settings and should be connected using the Qwertyphone Printer Cable 1A item code 252482.

The MP1713 is now obsolete and should be replaced where necessary by the MP182. Ribbons for the MP1713 are available from BT Buylines or Comsac, item code 981652.

The MP40 thermal printer was supplied to BT by Epson and became obsolete very quickly. There is no direct replacement for this item and faulty units should be scrapped. This printer requires a special lead for use with the Qwertyphone, this is the Qwertyphone Printer Cable 2A item code 989102.

Where replacement is necessary the MP20 should be used. Thermal roll paper is available from BT Buylines or Comsac, item code 981962.

When the above printers became obsolete the recommended replacements were the MP182 and MP20.

The MP182 is the same printer as used for Tonto and when used with the Qwertyphone must have the serial interface option fitted. Item codes for this printer are as follows:

Printer MP182 1A	981919
Serial Interface	981926
Ribbons	985239

The MP182 uses the same interface cable as the MP1713 mentioned above. Ribbons are again available from Buylines and Comsac.

The MP20 is a thermal transfer printer which can be used either with thermal paper or with a special thermal transfer ribbon. This is a cheaper printer than the MP182 and accordingly has a poorer print quality, it should be used as a replacement for the MP40. Availability of ribbons etc is as above and the item codes are as follows.

MP20 Printer	981945
MP20 Ribbon	985494

Switch settings for all the above printers are given in appendix A of this document.

ATTACHMENTS AND INTERFACES (continued)

b. PC Cables

In August 1987 a range of cables and keyboard adaptors were introduced to give the Qwertyphone certain functionality when used in conjunction with a personal computer. Each unit was available in three formats enabling the Qwertyphone to be used with (i) An IBM PC XT model (BT M5150 range)

(ii) An IBM PC AT model (BT M5200 range)

and (iii) An Apple Macintosh.

Serial Modem Cables

These enable the Qwertyphone to be used in three ways without affecting the basic functionality:

(i) As a Smart modem. The Qwertyphone basically becomes an external modem connected to the PC which can be controlled using the 'Hayes' standard modem commands. This requires communications software for the host PC and due to the Qwertyphone's non standard serial port only particular packages can be used. For the IBM PC's only 'Vicom' from AM Technology is suitable whilst for the Macintosh, Macterminal, Red Rider and Jazz are suitable.

(ii) As a serial terminal connected directly to a serial host port.

(iii) All internal Qwertyphone features are accessible via the serial port, this enables it to be controlled by the host computer in order to perform specialised functions. This has been done at some major account sites with technical expertise supplied by the product group. The information necessary was to have been contained in a document known as the Qwertyphone Technical Interfacing Guide but unfortunately this was never published.

The item codes for the serial cables are as follows:

IBM XT Serial cable	252483
IBM AT Serial cable	252484
Macintosh Serial cable	252490

Keyboard Adaptor Cables

These items allowed all the same features as the serial cables but also allowed the Qwertyphone's keyboard to be used as the keyboard for the PC thus reducing desk clutter. The item codes are as follows:

Keyboard Adaptor 1A Macintosh	252492
Keyboard Adaptor 2A IBM XT	252493
Keyboard Adaptor 3A IBM AT	252494

All the above items were only ever available from BT Buylines and not through the local districts. For current availability see section 6 of this document.

ATTACHMENTS AND INTERFACES (continued)

c. Miscellaneous

Various additional attachments were developed for the Qwertyphone but apart from those mentioned above none were ever launched. Future developments were to have included the two line/boss secretary option and a headset jack.

Some major customers did however have Qwertyphone's supplied with software tailored to their requirements, if a suspect unit is encountered in the wrong place please contact the NS02.6.3 support group.

5. POPULAR PROBLEMS AND ENQUIRIES.

As far as maintenance is concerned the Qwertyphone is a complete change out unit, so if the speaker/tone caller is out of order there is no option but to change the whole unit. There are however a few problems which occur that have quick and simple fixes, some of these and their relative solutions are listed below.

Q. I have forgotten my password and the Qwerty is locked.

A. Unplug the Qwertyphone from the mains and remove the batteries. All configuration settings will be reset to default. The directory is unaffected.

Q. My directory reads full but I only have 25 entries out of the specified 250.

A. Due to the nature of the telephone directory (entries are written into EPROM) when an entry is deleted its space does not become free, its memory address simply becomes invalid. Likewise when entries are amended a 'space' is lost as the old entry cannot be re-written and a new address must be used. Consequently, whenever an entry is deleted or amended a 'space' out of the 250 is lost.

N.B. When a directory is copied (from A to B) only the valid entries are copied across so the new EPROM will have its full complement of 'spare' entries.

Q. I have put a 'blank' chip into the B directory but am unable to copy to it.

A. The B directory must not only be free of entries it must be a brand new EPROM or one that has been erased in a EPROM eraser (UV box).

5. POPULAR PROBLEMS AND ENQUIRIES (continued)

Q. The configurator screens are not the same as in the handbook.

A. The Qwertyphone may have special software (e.g. Halifax Building Society). Check for correct software by accessing the Config-Telephone screen and pressing the top right-hand softkey. Valid software will give the response V4.0X (where X may be 1 to 3).

Q. Can I message between a Tonto and a Qwertyphone?

A. No. You can send messages to a Qwertyphone from a Tonto via the Computer Access/Teletype options, but not in the reverse direction. This is because the Tonto answers with its own unique messaging protocol (T-Link).

Q. When connected to Telecom Gold or messaging another Qwertyphone the text is corrupted.

A. Check that the Config-Comms-Modem screen settings are set correctly for the service required.

Q. When printing, the text does not print or is corrupted.

A. Check that the Config-Comms-Printer screen settings and the printer switches (see appendix A) are set correctly.

6. STORES AVAILABILITY

The Qwertyphone is now an obsolete item and so are the various PC cables and adaptors for it. BT Buylines can still supply Directory Modules (252487) and Qwertybags (985475). Consumables for the various printers are all still available.

If an existing customer has a requirement for more Qwertyphones then they should contact Roy Ebanks at BT Buylines who may be able to supply units in certain cases.

Appendix A - Printer Switch Settings

1. M1880 (pre-M1713 identical construction)

MAIN PCB.	SW1	1	2	3	4	5	6	7	8
		0	0	0	0	0	0	1	1
	SW2	1	2	3	4				
		0	0	0	0				
RS 232 I/F PCB	SW1	1	2	3	4	5	6	7	8
		1	0	0	0	1	1	1	0
	SW2	1	2	3	4				
		1	0	1	0				

2. M1713

MAIN PCB	1	2	3	4	5	6	7	8	9	10	11	12
	0	0	0	0	0	0	0	1	0	1	1	0
RS 232	1	2	3	4	5	6	7	8	9	10	11	12
I/F PCB	1	0	0	0	0	0	0	1	0	0	0	0

AUTO FEED - - - NOT FIX.

3. MP182

Motherboard	1	2	3	4	5	6	7	8
Switch.	1	0	0	1	1	0	1	0
Serial I/F	1	2	3	4	5	6	7	8
SW1	1	1	1	1	1	1	1	1
Serial I/F	1	2	3	4	5	6	7	8
SW2	0	1	1	0	0	0	0	0

4. MP20

SW1	1	2	3	4	5	6
	1	1	0	0	1	0
SW2	1	2	3	4	5	6
	0	0	0	0	1	0

5. MP40

SW1	1	2	3	4	5	6	7	8
	0	0	0	0	0	1	0	1

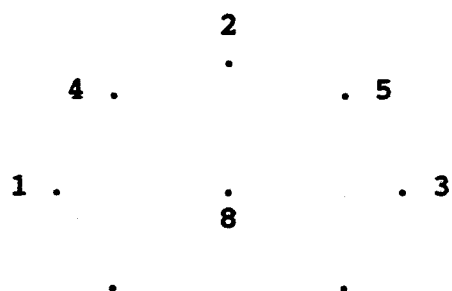
Appendix B - Printer and PC port pin-outs

Printer port

Pin No.	V24 Signal name
2	Ground
3	Transmit Data
4	CTS (clear to send)

PC/Serial port

Pin No.	V24 Signal Name
1	Receive Data
2	Ground
3	Transmit Data
4	CTS (clear to send)
5	RTS (request to send)
8 (centre)	+12 volts



Port numbering viewed from rear of Qwertyphone