Tandata

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1. INTRODUCTION

Tandata's range of viewdata products includes:

- The Td1400 series of remote-controlled units with a hand-held infra-red keyboard of 54 keys.
- The desk-top Td 1600 series, with the integral 73-key, multi-function keyboard.
- The Td 1800 series, with the integral 73-key keyboard and multi-speed operation.
- The Td 3000 series of integrated terminals, each with its own screen and large editing keyboard.

Every model has enough memory to store frequently-used computer telephone numbers for automatic dialling, customer identities and service descriptions. In addition, many units within the range have extra memory. The total memory used in these models varies between 4K and 16K (which store between 2 and 13 pages respectively) and such models in the Td1400, 1600 and 1800 ranges are identified by the last two digits (e.g. Td1404, Td1616).

Depending on the model, various versions of software with different features are available. In many cases, the version of software can be identified by the user, by typing $\boxed{\text{FUNC}}$ $\boxed{?}$. The numerical reference of the software version will then appear in the top right corner of the screen.

Further general help information can be obtained by Prestel users under Tandata's general pages starting $\boxed{*}$ $\boxed{7}$ $\boxed{9}$ $\boxed{9}$ $\boxed{\#}$.

2. SETTING UP THE UNIT

In addition to the unit, the user will need:

- A standard mains electricity supply, used with the special power pack provided.
- A PST (600 series) socket, provided in the UK by British Telecom for telephone line connection (modern types of phone often have one fitted); if used with multi-frequency tone dial exchanges, please see below.
- A screen, which may be (depending on the interface fitted) a standard UHF, VHF or other television, or a colour or monochrome monitor receiving RGB or composite video.
- Registration with Prestel or another appropriate database (please note that while the manual may refer to Prestel by name, the information is often applicable to most other viewdata systems and many conventional databases).

Remote-controlled models need a PP3 battery in the hand-held keyboard, which can easily be fitted by sliding, to the left, the cover above the numbers 1-2-3 on the keyboard. It will need replacing from time to time. Do not leave the battery in the unit unused for extended lengths of time.

The unit should not be placed on a radiator or anywhere that might subject it to abnormal heat.

To set up the unit, plug the power lead into the unit and the square plug into the telephone socket. Connect to the television or monitor through one of the sockets in the rear, depending on the type of screen being used; and switch both machines on. With a television set, select a spare channel and tune until the directory appears. Further adjustment of contrast, brightness and colour controls will optimise the display quality.

Should it prove impossible to achieve the colours on the screen (as occasionally happens owing to the tuning of the television), a technically competent person may disconnect and open the Tandata unit, and adjust the variable capacitor located in the centre, using a non-metallic trimmer.

All models operate satisfactorily with traditional pulse-dial telephones. Should the telephone socket be linked to a multi- frequency tone dial system, then the tone dial software facility will be needed; this is available on units in the Td1600 series (as an option designated with a 'T' suffix; e.g. Td1616T), and also in the Td3000 range.

The unit is now ready for storing telephone numbers and other information and also for setting up the status of linked equipment.

3. STORING INFORMATION IN THE DIAL DIRECTORY

Once the equipment is set up, the directory page should be seen on the screen, with the title at the top and a series of numbers down the left side.

To store a telephone number:

1 Type $\boxed{9}$. The heading 'PROGRAM', and a message asking you to select a number or # will appear on the screen. This page of information is called the program menu.

2 Type any number from 1 to 8. The flashing cursor will move to the right of this number.

3 Type the telephone number to be dialled, which will appear on the screen; if a number (such as 9) is needed to obtain an outside line, type that number, followed by the telephone number to be remembered. If a pause is needed after the '9', type $\boxed{,}$.

4 When the number is finished, type $\boxed{\text{SPACE}}$ repeatedly until, in the centre of the screen, the cursor jumps suddenly to the right. Then any description (up to 16 characters long) can be written, as a reference to the number entered.

5 To store a viewdata identity (ID) against a telephone number, type $\boxed{*}$. The cursor will move to the next line. Then type in the ID number (and, if required, the password) and $\boxed{\#}$; a star will appear, to indicate that the ID has been stored against the telephone number. The ID will then vanish from the screen.

4. CHANGING STORED INFORMATION

Telephone numbers or IDs can be changed from the program menu, by typing in new numbers or spaces; individual characters may be changed by use of the arrowed cursor-control keys. An ID can be cancelled, from the program menu, by selecting the appropriate telephone number and typing $\boxed{*}$, followed by $\boxed{\#}$, to return to the directory. The directory can be totally cleared, from the program menu, by typing $\boxed{\text{FUNC}}\boxed{0}$.

WARNING - Programming an ID and password may allow anyone to operate the machine. Where this is a risk, the password should be entered manually on each call; do not program it in. Delete the ID and password when the unit is sold, disposed of, or returned for maintenance. CHANGE PASSWORDS REGULARLY.

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5. STATUS LINE

This line appears only in models with additional memory, i.e., those identified with a numerical suffix such as '04' or '16', and those in the Td3000 range. It can be viewed by typing $\boxed{9}$ from the directory page, when it will appear against the number '9' under the heading 'Program'.

The status line has been designed so that, for the normal user accessing only a Prestel-type database and using Tandata's own PPX printer (or no printer at all), the status line should be left blank.

If you are using another type of printer or have special requirements, the status line may have to be programmed in the following way.

The user, once in the program page, should type $\boxed{9}$. It is then necessary to type various other numbers, and in many versions of software a small menu of the alternative choices available appears on the screen and changes for each numerical position.

The numbers to be typed are:

		1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Printer	Tandata thermal (Teletext compatible)	0								
	Prestel compatible	1								
	OKI Microline series	2								
	Alpha only (CR only, no graphics)	3								
	Alpha only (CR-LF only, no graphics)	4								
Printer Interface	parallel Centronics		0							
	serial RS232		1							
Key click	on			0						
	off			1						
V23 protocol	Prestel (1200/75 bps)				0					
	1200/1200 half duplex				1					
Parity	even					0				
	odd					1				
	none					2				
Local echo	off						0			
	on						1			
	on, with CR/LF						2			
Remote echo to telephone line	off							0		
	on							1		
Page/ scrolling mode	page								0	
	scroll								1	
Pulse dial/ tonedial	pulse									0
	tone									1
Applicable to	Td 1404	*	*	*						
	Td 1616, Td1800 range	*	*	*	*	*	*	*	*	
	Td 1616 Tonedial	*	*	*	*	*	*	*	*	*
	Td 3000	*	*	*	*	*	*	*	*	*

Note that, in any position, leaving a blank space will result in a zero being programmed.
WARNING: THE INEXPERT USER MAY WRONGLY PROGRAM HIS STATUS LINE, OR OMIT TO CHANGE HIS STATUS LINE WHEN CHANGING MODES OF OPERATION. THIS MAY PREVENT NORMAL OPERATION OF THIS EQUIPMENT.

Additional Keys available on all models, except the Td1400 range, include:

SHF	when held down, allows a capital letter (or 'top line' symbol) to be typed.
CAPS	allows capitals to be typed continually until CAPS is pressed again (a light comes on to indicate when this feature is operating).
DEL	deletes the previous character.
↑	moves the cursor up one line.
ESC	ESCAPE – allows a range of colours and graphic functions to be displayed (for specific sequences, see Appendix 1)
CNTRL	CONTROL – allows a range of control functions to operate when another key is typed simultaneously, such as:
CNTRL-C	in certain models stops the machine carrying out the operation in progress (e.g. dial, tape or print)
CNTRL-X	erases from the cursor to the end of the line.
CNTRL-B	acts as the FUNC key on models in the Td3000 range.

8. THE FUNCTION KEY

On models without memory, the function key, when pressed, will provide a small menu at the bottom of the screen listing numbered features. The appropriate number should be typed for each of the following features:

FUNC 0	ERASE – from the program menu, clears all data from the directory.
FUNC 1	EXIT – disconnects the line to end a call (the last page is retained, and 'Off line' appears).
FUNC 2	TAPE – (if option fitted) records the page on tape.
FUNC 3	REVEAL – concealed text is revealed.
FUNC 4	EXPAND – the top and bottom halves of the page are successively shown, in double size.
FUNC 5	PRINT – (if option fitted) - records the page on a printer.

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Models with memory also have the following facilities to enable the use of the extra pages held in the memory:

| FUNC | 0 | ERASE – from the program menu, clears the directory; otherwise, clears the present screen. |

| FUNC | 1 | EXIT – ends the call when on line; when off line, restores the directory to the screen. |

| FUNC | 6 | RECALL – recalls a page saved in the memory - the memory index letter must be typed after 'Recall page' appears on the screen. |

| FUNC | 7 | STORE – stores the displayed page in the memory. (Not always displayed) |

| FUNC | 8 | ⎞ These two functions are used to send whole
| FUNC | 9 | ⎠ pages of 22 or 24 lines to a data base as an Information Process Function - see below.

Additional facilities are available in selected models, such as Td1616/Td3000, with the function key.

| FUNC | 8 | When on line, after recalling a page of memory, lists a menu of protocols for transmitting messages. |

| FUNC | ? | discloses the software version in use. |

9. USE OF MEMORY (SELECTED MODELS)

The pages in the memory, which may be from 2 to 13 in number, are referred to by letters from A onwards. A blank screen may be obtained by typing FUNC 6 followed by an appropriate page letter; if no available page is blank the details on an unwanted page may be erased by typing FUNC 0. Any information may then be typed on the screen.

A viewdata page, or other information typed on the screen by the user, can be saved by typing FUNC 7 and the letter of the page in the memory in which it is to be stored. Whatever is already in that memory page will be erased, unless it has been 'protected' (see below).

Where there are blank pages in memory (of the Td1616, or the Td1800 and Td3000 ranges) a page can also be stored automatically, without specifying the actual memory letter, by typing FUNC 7 #. For record purposes, the memory letter appears briefly at the bottom of the screen. At any time, a page in the memory can be recalled to the screen, by typing FUNC 6 and the page letter. This page may then be amended or totally erased, but the modified page will not be stored until the FUNC 7 procedure is carried out. If off-line, the directory page may be accessed by typing FUNC 1; when on-line, * will return from the memory to the page in use.

The 'protected page' facility ensures that information stored in the memory is not erased inadvertantly by a user wishing to store a new page. In the Td1616 and the Td3000 range, this protection is automatic when any data are stored in any part of a page; in other models, protection is achieved by typing * as the

first character in the top of the page, on the left. Any attempt to store a displayed screen into a protected memory page will result in a message "Overwrite Y/N" Type $\boxed{Y}$ to overwrite, or $\boxed{N}$ to prevent overwriting.

10. OTHER MEMORY FEATURES

a. Carousel – The pages in the memory can be made to 'carousel', i.e. appear in turn at intervals of a few seconds, to provide a constant display of the material in the memory. This is achieved by typing $\boxed{FUNC}$ $\boxed{6}$ $\boxed{\#}$; in the Td1616, and the Td1800 and Td3000 ranges, blank memory pages, or pages protected by * in the top left hand corner, are not displayed during the carousel procedure. Pressing $\boxed{\#}$ will speed the user through the carousel; $\boxed{*}$ will revert to normal memory use.

b. Off-line message preparation and transmission - A series of pages or messages can be composed and corrected off-line; subsequent on-line transmission can be more rapid. This is achieved by creating a message and storing it in a memory page, using the symbol '#' to show the end of each message, for Prestel and private viewdata systems using Aregon's IVS3 Prestel-type system; for Telecom Gold (Dialcom) and similar databases, $\boxed{\|}$ $\boxed{M}$ $\boxed{\cdot}$ $\boxed{S}$ $\boxed{\|}$ $\boxed{F}$ should be used.

To transmit, dial the computer and reach the revelant page which may be a message page or response frame; with the cursor at the start of the actual message section, recall the memory page with the stored message from memory. Ensure the cursor is at the correct place for sending the desired message and transmit as follows:-

in the case of Td1616, Td1816 and Td3000 type $\boxed{FUNC}$ $\boxed{8}$, and then select the appropriate transmission protocol, e.g. $\boxed{1}$ for Prestel.

in the case of other memory models, such as Td1404, type $\boxed{\#}$.

The message will then be sent until the '#' symbol is encountered at the end; but the '#' will not be transmitted. If there is no '#' symbol, the message will be read up to the end of the memory page. $\boxed{*}$ can be used at any time to abort this procedure.

The completed message is displayed, so that its accuracy can be checked. If it needs changing, amendments can be made whilst on line. (Note that on Prestel the cursor will have returned to the start of the field; it will normally be necessary to bring the cursor back to the end of the message by using the $\boxed{\#}$ key). Finally, the message is actually sent or cancelled by following the instructions displayed on the screen, which vary slightly between Prestel-type services and others.

Since each message ends with '#', several can be stored in a single memory page.

It should be noted that on Prestel all characters are sent continuously, including spaces. To ensure that the message is transmitted exactly as required, it is essential to locate the cursor on the stored message at exactly the same location along the line where the cursor will start. In the case of Prestel, there is normally a compulsory space at the start of a messsage or response frame. Failure to allow for this will affect the message layout.

c. Form Preparation and Transmission (Td1616, Td1800 and Td3000 ranges only) - This feature allows "forms" to be completed conveniently and with minimum telephone or computer-connect charges. A "form" is usually a reponse frame having a number of blank fields which the terminal user must complete.

The intelligent form-fill is particularly useful where the same form has to be completed frequently, or a number of different forms have to be completed at the same time. For efficient operation it requires 16K of local memory.

The benefits are:
* the form can be completed off line
* during off-line compilation the cursor can be moved or "skipped" to the next field, avoiding manual cursor manipulation
* when on-line, the appropriate page is automatically called and the completed fields automatically transmitted; no background data is transmitted

The response frame or form must be set up according to the protocol. This may be pre-set by the Information Provider, or the user may create his own master frame. In the following example, we assume that the user is creating the master frame.

The procedure is:
i) The user downloads the blank reponse frame from the host computer and stores it in a memory page (say page A).
ii) Off-line, the user recalls the reponse frame and adds the following:
   a) on the top line, immediately before the page number, he types $\boxed{@}\boxed{*}$, and after the page number he types $\boxed{\#}$. If the response frame page number is 123456, it now appears as $@*123456\#$.
   b) just before the beginning of every field he types $\boxed{@}$
   c) the page is re-stored in memory A, over-writing the original, and now becomes the master frame.
   d) several master frames of different forms can, of course,be stored in different memory slots.
iii) To complete a frame off-line, the user recalls the master frame, and completes it by using $\boxed{CNTRL}\boxed{A}$ to "skip" from field to field.
iv) The completed frame is stored in an appropriate memory page.
v) On-line, after log-on, the user recalls the completed frame from memory, and keys $\boxed{FUNCTION}\boxed{8}$. A second menu then appears, allowing the user to select one of 4 types of protocols. Key $\boxed{3}$ to send the form, and the following will occur:
   a) the appropriate page is transmitted (e.g. page 123456)
   b) there is a 9 second pause to ensure the response frame is correctly set up by the host computer – DO NOT TOUCH THE KEYS DURING THIS PAUSE
   c) the cursor skips to the first field, transmits the data, then skips to the next field, etc.

d. Using the "Forms" Facility to Send Messages

Following the procedures described in (c) above, create a master mailbox form with the following fields.

> Message page number e.g. @ * 88 #
>
> Recipients Account No. @...............#
>
> Message 2 space, commencing with @.

Messages can then be prepared off-line, and be transmitted quickly on- line, together with the recipient's account number.

e. Speed Page

One or more pages can be used to list frequently accessed viewdata page numbers, so they may be obtained more quickly.

The steps are:

i)   allocate one or more memory pages (say 'B') to 'Personal Directory';

ii) recall memory B, and make a heading if required;

iii) type in the page number with description as follows:

> * page number #   Description
>
> * page number #   Description
>
>   etc.

iv) store the page.

To operate when on-line to a data base, recall your Speedpage from memory, move the cursor down to the star in front of the page you wish to access, and transmit that number using the transmit routine described above.

f. Full-Page Editing and Transmission.

A desk-top model with memory can be used to edit pages and transmit them. It will normally be more convenient to use a full size keyboard; Tandata supply two models, one with pre-programmed keys for easy editing, which can be used with memory models. The Td3000 range already includes such a keyboard as standard. To avoid damage to the unit, only a special low-powered keyboard, as supplied by Tandata should be used (remember that on these keyboards, FUNC is operated by typing CNTRL-B).

A new page can be created on a blank memory page (or an existing page in memory can be updated) by using the colour and graphics capability of the keyboard, and the cursor control keys.

See Appendix 1 for a list of the escape codes for colours and graphics. These are pre-programmed in the editing version of the full-size keyboard.

When the page has been created, store it in a memory page. Then go on line to the computer (an editing computer has to be used by information providers to put up new pages or change them). When the appropriate page in the editing facility has been located, type FUNC 8 or FUNC 9 . (FUNC 9 is used with Prestel, and lines 2-23 are transmitted in their entirity. FUNC 8 may be used with certain other computers, and all 24 lines are transmitted). The message 'Page:' will appear; type the memory page letter. Once the page has been transmitted, check that it has been correctly received.

11. PRINTING

By means of the socket at the rear of the machine, a suitable printer can be connected to the unit. The status line must first be programmed (see section 5). Once the printer is properly set up and switched on, $\boxed{\text{FUNC}}$ $\boxed{5}$ is typed. Units without memory will cause the page on the screen to be printed; those with memory will enquire 'Print page:' and the letter of the memory page to be printed should be typed. Typing $\boxed{\Diamond}$ will cause the page on the screen to be printed. During print, 'Printing' will appear, followed by 'Finished'. The printing operation may be stopped at any time by typing $\boxed{\text{FUNC}}$ $\boxed{1}$, if off-line, or (in certain models) $\boxed{\text{CNTRL-C}}$.

If for any reason the unit finds that it cannot properly print, the message 'PRINT ERROR' will appear on the screen.

Models without memory e.g. Td1400 and Td1600, can only be used with Tandata's own PPX printer.

Models with memory can be used with certain other printers, but the status line will have to be programmed correctly.

12. TAPING

Pages can be taped on an ordinary, computer-compatible, portable audio (not video) cassette recorder. This should be connected to the unit by means of a lead from the tape socket at the back. Start the recording, as with any taping operation and then type $\boxed{\text{FUNC}}$ $\boxed{2}$. If the unit has no memory, taping will commence. A unit with memory will cause a message 'Tape page:', to appear, when the letter of the page to be recorded should be typed (or $\boxed{\Diamond}$ to record the displayed page). Note that the effectiveness of taping may be sensitive to the volume control on the tape recorder.

While taping is in progress, the message 'Taping' appears, followed by 'Finished'. The recording can be stopped while in progress, by typing $\boxed{\text{FUNC}}$ $\boxed{1}$, if off-line, or (in certain models) $\boxed{\text{CNTRL-C}}$.

When the Tandata unit is displaying its directory page, pages that have been stored to tape can be redisplayed by winding the tape back, and pressing the 'play' key on the recorder.

13. USE AS A MODEM WITH A MICROCOMPUTER

The unit may be connected through its TTL port to a desk-top microcomputer, and can often then be used as a modem to allow the computer to act as a viewdata terminal, or a remote terminal to a distant mainframe. The additional features of the microcomputer (memory capacity, processing power, etc.) can thus be applied to the normal facilities of the Tandata range.

To achieve this, appropriate software must be written, according to the type of microcomputer being used. Tandata's own range of Viewtext software covers a number of business microcomputers configured for CP/M 80, MS-DOS and CP/M 86. In addition, Tandata sells software and connecting leads for various other personal computers, including special cable for connection to the

RS232 port on a computer.

Full details of operation as a modem are provided with each software micropack.

14. DIRECT COMMUNICATION BETWEEN MACHINES

a) 1200/1200 Half duplex

This facility allows a Td1616, or model in the Td1800 or Td3000 range, to communicate with another Tandata unit at 1200/1200 half duplex. It will not necessarily allow communication with other units which may adopt a different protocol for signalling the end of transmission and for turning the line around.

If two Td 1616s are communicating with each other, both units should be set with the following positions on the status line:

      4th position – half duplex
      5th position – to the same parity
      6th position – local echo off
      7th position – no remote echo
      8th position – both the same (scroll may be preferred)

'V23 half-duplex' will appear in the top right corner of the directory page. One user may call the other, dialling manually using a handset on the same telephone line. After a suitable conversation, both users type $\boxed{\#}$; alternatively, the originator may use the autodial facility of his unit to make the call, though he will not be able to speak to the other party, who will complete the conversation by typing $\boxed{\#}$ at his end.

Thereafter, one user types $\boxed{\#}$, and he is able to start transmitting at 1200 bps. When he has finished, he may, if he wishes, signal this (by typing $\boxed{O}\boxed{V}\boxed{E}\boxed{R}$ or pressing $\boxed{\text{CNTRL-G}}$ to ring the bell), and turn the line around by typing FUNC $\boxed{1}$. The other user may then transmit in the same fashion.

Note that the $\boxed{\downarrow}$ key needs to be pressed to produce a line feed, in addition to $\boxed{\Diamond}$.

b) 1200/75 talking to 75/1200 (Td1800 range only)

To communicate between two terminals at 75/1200 and 1200/75 bps, both should be set to V23 normal operation. This requires the left switch on the rear of the unit (when viewed from the front) to be up, and the right switch to be down.

The status line should be set as for 1200/1200 half-duplex operation, except that the fourth line position should be set to Prestel mode.

Telephone contact is made as for 1200/1200 half-duplex operation. After both units are on line, the first to type will transmit at 1200 and receive at 75 bps, while the other will receive at 1200 and transmit at 75 bps. Both units can, therefore, communicate in a full duplex mode, i.e. whatever each types will appear on both screens.

A Td1800 model can also talk in this manner to any other viewdata terminal, by establishing telephone contact as above, and ensuring that the Td1800 then transmits # immediately.

c) 300/300 full duplex

To operate at 300/300 bps, both terminals must be set to V21 operation, that is, the left switch (viewed from the front) must be down. One user (usually the call's originator) sets his unit to 'originate' by putting the right switch down. When FUNC 1 is typed, 'V21 orig' appears in the top corner of the directory page.

The other user sets his unit to 'V21 answer' by putting the left switch down, while having the right switch up. On his typing FUNC 1 , 'V21 ans' will appear in the top corner of the directory. Telephone contact is made as for other inter-terminal communication, and both users can immediately start typing, and communicating in full duplex mode.

d) Useful Notes.

During terminal-to-terminal operation, normal control sequences operate, including:

> CNTRL-Q turns on the cursor
> C RL-L clears the screen
> C RL-G operates the bell

Note also that, when the units have been set to scroll, messages can run continuously on the screen, rather than being restricted to the format of one page. Messages may be stored off-line, and recalled and transmitted on-line, as in normal viewdata operation.

Users may find it useful, when in full duplex operation, to distinguish the text of one keyboard from the other. A convenient way is for one user to operate in capitals, while the other uses lower case.

APPENDIX 1 PRESTEL TRANSMISSION CODE SET (COLOURS/GRAPHICS/SPECIAL CODES)

Tandata terminals support the Prestel Code Set. For the most part this set is identical to the standard ASCII code set, but incorporates a small number of unique code interpretations and of course allows definition of coloured, graphic and flashing characters.

The table overleaf shows the hexadecimal values for the Prestel Code Set.

A. CONTROL CODES

The unique codes in columns 0 and 1 are usually referred to as CONTROL CODES, as they may be obtained by typing CNTRL in conjunction with one or more other keys.

e.g., CNTRL and H together will move the cursor one place left.

e.g., CNTRL and L together will clear the screen.

Of course in many cases there are single keys which generate the required codes. The cursor keys and ESC key are examples.

B. COLOUR/GRAPHICS/FLASHING, etc.

The codes which create these special display functions are called attributes.

An attribute when entered at any position on a given line will apply to all following characters unless cancelled, modified, or supplemented by successive attributes on the same line.

Attributes are entered by a two code sequence.

In order to set the modes in columns 4B and 5B you must key ESC followed by one of the characters in columns 4 and 5.

e.g., to set Red Mosaics (graphics), type ESC followed by Q (note upper case). Subsequent characters entered on the same line will appear as red mosaic characters.

NOTE Remember that when on-line the terminal will respond to these codes and code combinations when keyed only if the host computer echoes them back.

Of course you may experiment with these codes when off-line, either by typing on a blank memory page, or by first entering the edit mode – key ESC followed by K.

C. OTHER UNIQUE CODES

ESC K START EDIT – off-line, enters full screen simple editor; edited pages may be stored in memory.

ESC J END EDIT – this is the only exit from the simple editor.

* CNTRL B FUNCTION – see section 8

PRESTEL TRANSMISSION CODES

Row	Bits (b4 b3 b2 b1)	0	1	2	2a	3	3a	3b	4	4b	5	5b	6	6a	7	7a
0	0000	NUL		Sp		0			@		P		—		p	
1	0001		Cursor on	!		1		Set verify mode (1)	A	Alphanumeric Red	Q	Mosaic Red	a		q .	
2	0010			"		2		Set verify mode (2)	B	Alphanumeric Green	R	Mosaic Green	b		r	
3	0011			£		3		Skip block	C	Alphanumeric Yellow	S	Mosaic Yellow	c		s	
4	0100		Cursor off	$		4		Set programme mode	D	Alphanumeric Blue	T	Mosaic Blue	d		t	
5	0101	ENQ		%		5			E	Alphanumeric Magenta	U	Mosaic Magenta	e		u	
6	0110			&		6			F	Alphanumeric Cyan	V	Mosaic Cyan	f		v	
7	0111		CTR-W	'		7			G	Alphanumeric White	W	Mosaic White	g		w	
8	1000	Active Position Backward (APB)		(		8			H	Flash	X	Conceal Display	h		x	
9	1001	Active Position Forward (APF)		)		9			I	Steady	Y	Contiguous Mosaic	i		y	
10	1010	Active Position Down (APD)		*		:			J		Z	Separated Mosaics	j		z	
11	1011	Active Position Up (APU)	ESC	+		;			K		←		k		¼	
12	1100	Clear Screen (CS)		,		<			L	Normal Height	½	Black Background	l		‖	
13	1101	Active Position Return (APR)		−		=			M	Double Height	→	New Background	m		¾	
14	1110		Active Position Home (APH)	.		>			N		│	Hold Mosaics	n		+	
15	1111			/		?			O		#	Release Mosaics	o		■	

* ⌈CNTRL⌉ ⌈O⌉ Dial C – for use in computer mode.

(* Not part of standard Prestel Code Set.)

D. DEVIATIONS FROM ASCII

Note that the Prestel '#' character is not the same as ASCII '#':

$$PRESTEL \ \# = HEX \ 5F$$
$$ASCII \ \# \ \ \ = HEX \ 23$$

APPENDIX 2

FACILITIES ON PRESTEL

Standard facilities for most viewdata systems include:

⌈*⌉ ⌈number⌉ ⌈#⌉ calls the page for the number typed.

⌈*⌉⌈0⌉⌈0⌉   repeats the last page free of charge, for example
               if telephone noise corrupts the picture

⌈*⌉⌈0⌉⌈9⌉   repeats the last page, but includes any changes,and so
               (if chargeable) would incur an extra charge

⌈*⌉⌈#⌉   returns to the previous page viewed

⌈*⌉⌈*⌉   cancels an entry

Particular features of Prestel include:

Page 92 – displays the user's personal billing status
Page 102 – displays the user's Prestel account number
Page   0 – summons the main index
Page 84 – is an example of a mailbox page for sending written
             message to another Prestel user via the system's 'Mailbox'

APPENDIX 3 INTERFACE DETAILS

Printer
Centronics standard parallel printer port.
Suitable for cables up to 0.75metre length.
Television
UHF Channel E36, PAL.(Other standards
and frequencies to special order).
Composite Video
Phone, 1 volt pk to pk into 75Ω
RGB (SCART)
220Ω source impedance:
TTL levels into TTL monitor.
0.7v pk to pk into scart monitor.
Pin
1   RGB Status (Scart)
2   Ground
3   Blue
4   Comp. sync.
5   Red
6   Not connected
7   Sound output
8   Green
KB/Tape/Serial Data
KEYBOARD Standard pinout for Prestel
standard serial keyboard.
TAPE for cassette tape recorder.
Output 3V RMS.
$1K\Omega$ source impedance.
Input 20-30 mV RMS.
$10K\Omega$ input impedance.
SERIAL DATA TTL I/O, 75/1200 or 1200/
1200 auto baud rate sensed.
Pin
1   Ground
2   +5V at 50mA max output
3   TTL serial data out
4   Tape input
5   TTL serial data in / keyboard input
6   Tape output
Power
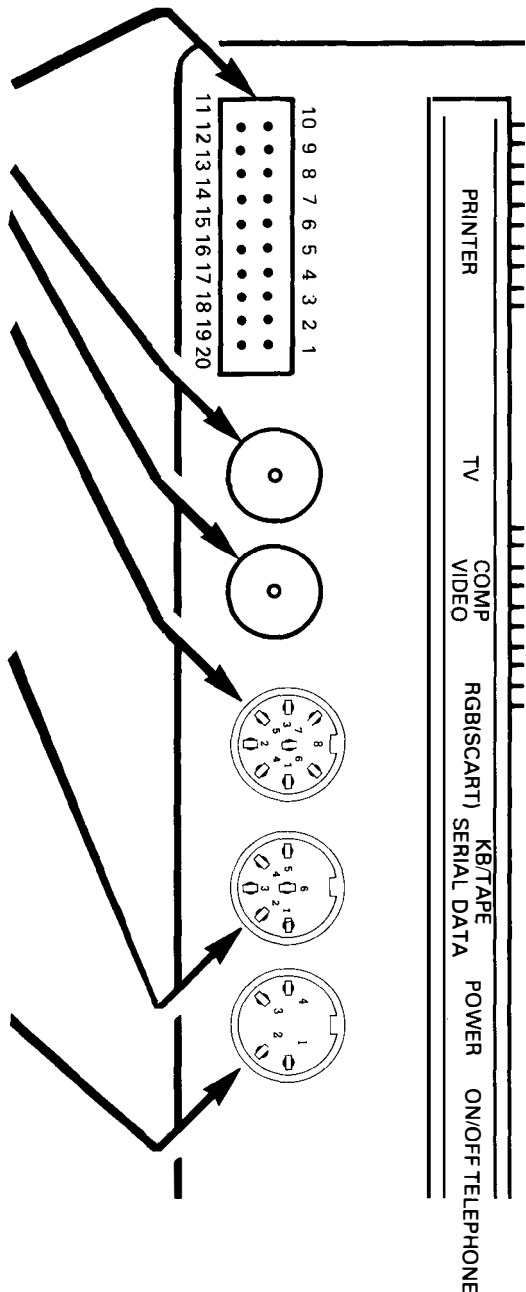Unregulated DC input
Pin
1   Ground
2   + 16 volt at 100mA max
3   −8 volt at 500 mA max or no circuit
4   −8 volt at 100mA max

Telephone connector
Flying lead terminated in 600 series plug.

APPENDIX 4
USING TELECOM GOLD AND SIMILAR NON-VIEWDATA SYSTEMS

Tandata viewdata products can access any database which accepts 1200/75 bps modem operation and 40 column displays. For example Telecom Gold, the sophisticated electronic messaging service of British Telecom, can be accessed (and will accept 40 column display by configuring your ID file). Note that for many such databases, the use of scroll mode is often preferable (see section 5, 'Status Line').

Such databases can normally be accessed directly, or via the packet-switched system (PSS), or similar private systems. This allows national (and, through networks, international) calls for data at low cost.

All Tandata equipment can be used on the PSS system. However, logging on to a database, particularly via PSS, can involve entering some 45 digits manually, as follows:

1. dial PSS local node
2. identify terminal to PSS
3. type your network user identity (NUI)
4. input the network user address (NUA) of the database
5. identify yourself and sign on to the database.

Desk-top models with memory (e.g. Td 1616 or Td 1816) can perform a number of operations with particular ease.

The above steps can be stored in the memory, and implemented as follows:

i) reserve a page of memory, such as your 'key page direct access' page (say memory page A);

ii) if required make a descriptive heading on an appropriate line (e.g. Telecom Gold);

iii) on the next line, starting at the beginning of the line; type in all the steps numbered 2-5 inclusive shown above as one long string, noting the following:

★ instead of a carriage return (◊) type $\boxed{\|}$ $\boxed{◊}$. This appears as '‖ M'.

★ after the last carriage return, at the end of the string type $\boxed{\|}$ $\boxed{F}$.

★ insert a comma at any point where a pause is required - usually after the NUA, sometimes at the beginning. The procedure for inserting a comma is $\boxed{\|}$ $\boxed{,}$ $\boxed{\leftarrow}$ $\boxed{,}$ which appears as '‖ ,'.

iv) 'protect' the page;

v) program the PSS local telephone number in the directory.

To log on to Telecom Gold, autodial the PSS node. When 'waiting' disappears, type $\boxed{FUNC}$ $\boxed{6}$ $\boxed{A}$; then move the cursor to the beginning of the log-on string, and type $\boxed{FUNC}$ $\boxed{8}$ $\boxed{2}$ (in a few models, $\boxed{\#}$ is typed instead). All the data will be transmitted, and you will be returned automatically to Telecom Gold at 'system level', with the Telecom Gold prompt '>'.

The above process can be extended. Thus, if you wish to go to 'telex' level, or 'mail read' level, make a new string, adding the necessary inputs, and inserting commas where pauses are required. For example, for 'Telex', make a new string, with a carriage return (| ⏹ | ◊ |) after your ID (step 5); then type | ⏹ | , |

| ← | , | T | E | L | E | X | ⏹ | ◊ | ⏹ | F |. You will then be returned to Telecom Gold, ready to begin your telex.

Automatic telex transmission can be aborted by typing | CNTRL- C |.

Messages can be created off line for transmission on Telcom Gold. Prepare the message as for Prestel, but terminate the message with | ⏹ | F |. Messages appear best if the 'Parameter Initialization File' is set to Prestel Terminal Type with line spacing of 40. The systems manager of the database should be consulted about the re-editing necessary (on Telecom Gold the relevant file is 'Param.ini').

When on line to Gold and ready to send your message, type | FUNC | 6 | | Page |. Locate the cursor at the start of the first line of the message and type | FUNC | 8 | 2 | (or on a few models, | # |).

Any information on the screen while on line to Telecom Gold can be stored as normal.

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Telecom Gold TAN 001

IM 0010010