DURA

1021 *Computer Terminal User's Manual*

Contents

1021 *Computer Terminal*

This manual describes the operation and features of the Model 1021 Computer Terminal and is intended for the user who will be operating it in conjunction with a computer or with other terminals. For a more detailed discussion of its coding — EBCD (Correspondence Selectric sphere) transmission code or EBCD (BCD sphere) transmission code—computer programming, and acoustical couplers, see the DURA Model 1021 Training Manual.

The DURA® Model 1021 Computer Terminal combines the reliability and compactness of integrated circuitry with the proven excellence of the high-speed Selectric printer. Versatility is indicated by the following features and the optional equipment that is available.

● Compatible with the IBM 2740/41 series conversational terminals so that IBM software can be used.

● Suitcase-sized so that you can move it from one location to another, thereby eliminating the installation time loss and costs involved in permanent facilities.

● Can be used to communicate directly with any other 1021 Computer Terminal.

● Interfaces with DURA Models 260 and 300 Acoustic Data Couplers, Model 103 (A/F) Data Phone, or any other acoustical coupler meeting Electronic Industry Association (EIA) standards.

● Prints in upper and lower case at a rate of 175 words per minute. Capable of receiving 15 characters per second asynchronously.

● NON PRINT/NON ESCAPE feature to provide security of confidential information.

Available with:

● Automatic RIBBON SHIFT for 2-color printout.

● Either REVERSE INDEX for sub and superscripts in mathematical and chemical equations and formulae or . . .

● FIRST LINE feature for automatic vertical tabulation.
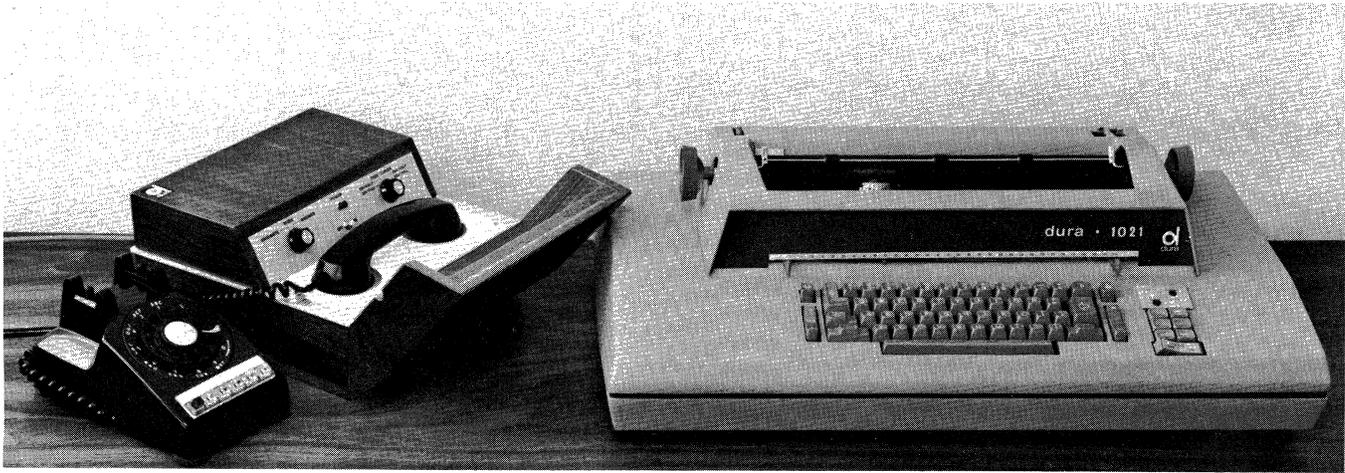
Operating Procedures

Most systems follow a sequence of operations similar to the following:

1. Depress power ON/OFF switch to the ON position. In this position, the Model 1021 can be used as a conventional Selectric typewriter. A light in the DURA nameplate on the front panel of the case will glow.

2. Depress LINE ON/OFF switch to ON. In this position, the Model 1021 can be used to transmit to or receive from the computer or other terminals.

3. To make contact with the remote computer:

   a. When using the DURA 260 or 300 Acoustic Data Coupler, or any other unit meeting EIA standards, remove the telephone handset and dial the number of the computer.

   As soon as you have a steady, high-pitched, continuous tone in the handset, place the handset into the acoustical coupler's receptacle. The yellow Ready light will glow, indicating that the terminal is On Line with the computer.

   b. When using the Model 103 (A/F) Data Phone, remove the handset and depress the "Talk" key. Dial the number of the computer. When you hear a steady, high-pitched, continuous tone, depress the DATA key. The Ready light will glow, indicating that the terminal is On Line with the computer. The Transmit light will also be on. The telephone handset now can be put in the cradle.

4. To determine if the computer is ready to receive, depress the Carrier Return (CR) or the Interrupt (INTER) key. Either key sends an "End of Transmission" (EOT) code to the computer.

5. The computer will respond with either a message or an underscore. When the Transmit light goes on, depress NP/NE and type in the identification code. (Depress NP/NE or RESET to take you out of that mode.)

6. Now begin your application.

7. Carrier return to give EOT signal.

8. After EOT signal, Transmit light goes out and keyboard locks.

9. Computer now sends an "End of Address" (EOA) to put the 1021 in receive mode and gives you an answer to your input.

10. When finished, computer causes an automatic carrier return, giving EOT signal.

    Now repeat from step 6.

Whenever the Transmit light goes on and the keyboard unlocks, you are in control and can transmit. Conversely, the computer is in control when the Transmit light is off and the keyboard is locked.

NOTE: To communicate between two remote compatible terminals with DURA Acoustic Couplers, use either a DURA 300 at one end and a DURA 260 at the other end, or use DURA 300 Acoustic Couplers at both ends with one serving as a "master" and the other as a "slave."

1021 -"SELECTRIC" KEYBOARD LAYOUT

Ready Light (yellow) Transmit Light (green)

Check Light (red) NP/NE Light (yellow)

ON
OFF

1 2
NP/NE 3
INTER RESET
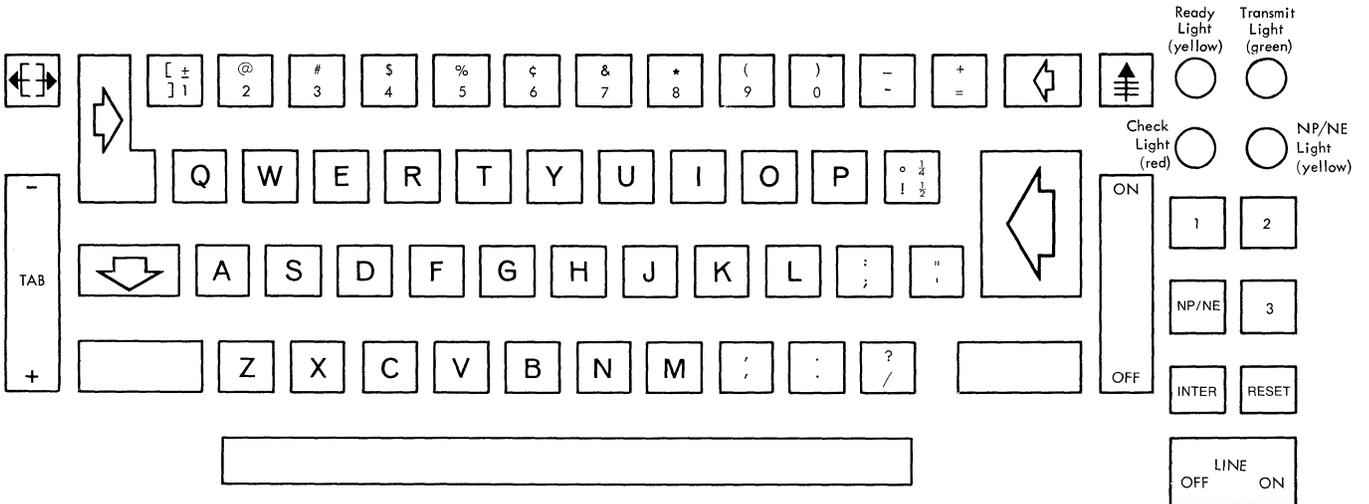
LINE
OFF ON

Optional
1. Reverse Index Key
2. First Line Key
3. Ribbon Shift Key

1021 - BCD KEYBOARD LAYOUT

Ready Light (yellow) Transmit Light (green)

Check Light (red) NP/NE Light (yellow)

ON
OFF

1 2
NP/NE 3
INTER RESET

LINE
OFF ON

Optional
1. Reverse Index Key
2. First Line Key
3. Ribbon Shift Key

3
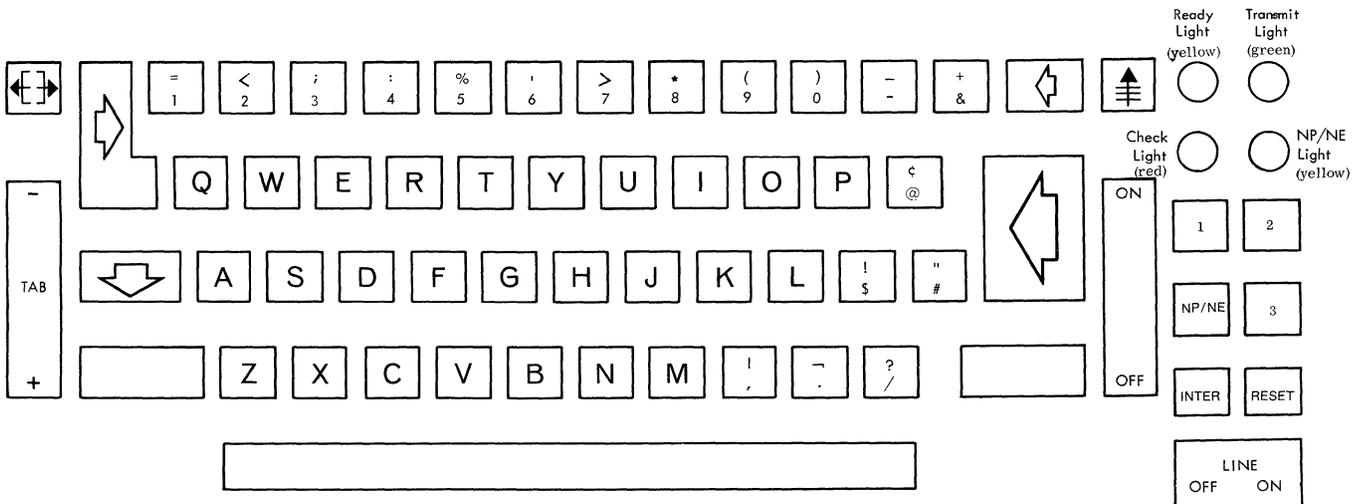
1021/CORRESPONDENCE KEYBOARD

1	2	3	•	4	5	6	7	8	Selectric Char. Lower	Upper	Keyboard Position
1			•						1	±	0
	2		•						2	@	3
1	2		•		C				3	#	7
			•	8					4	$	11
		4	•						5	%	15
	2	4	•		C				6	¢	19
1		4	•		C				7	&	23
1	2	4	•						8	*	27
1	2		•	8					9 (EOA)	(	31
1			•	8	C				0	)	35
1	2	4	•		C		B		a	A	2
1	2		•	8	C	A			b	B	20
1	2	4	•		C	A			c	C	12
1		4	•			A			d	D	10
		4	•		C	A			e	E	9
1	2		•		C	A	B		f	F	14
1			•			A	B		g	G	18
1			•	8		A			h	H	22
	2	4	•				B		i	I	29
			•		C	A	B		j	J	26
	2	4	•			A			k	K	30
			•	8	C	A			l	L	34
1			•		C		B		m	M	28
	2		•		C	A			n	N	24
			•	8	C		B		o	O	33
		4	•			A	B		p	P	37
	2	4	•		C	A	B		q	Q	1
1		4	•				B		r	R	13
1			•	8			B		s	S	6
			•			A			t	T	17
1	2		•			A			u	U	25
1	2		•				B		v	V	16
1	2		•	8	C		B		w	W	5
1			•		C	A			x	X	8
1			•	8	C	A	B		y	Y	21
	2		•	8	C				z	Z	4
		4	•		C		B		'	"	42
1	2	4	•			A	B		,	,	32
1		4	•		C	A	B		;	:	38
	2		•		C		B		.	.	36
			•	8		A	B		/	?	40
			•				B		!	°	41
1	2		•	8		A	B		-	_	39
	2		•			A	B		=	+	43
			•		C				Space		G
	2	4	•	8	C		B		Back Space		D
	2	4	•	8					Upper Shift		B
	2	4	•	8		A	B		Lower Shift		C
1		4	•	8		A	B		Tab		A
1		4	•	8	C		B		CR/LF		F
1		4	•	8	C	A			Index		E
		4	•	8			B		Rev. Ind.		
		4	•	8	C	A	B		NP/NE On		
		4	•	8		A			NP/NE Off		
		4	•	8	C				Rib. Sft.		
1		4	•	8					First Line		
1	2	4	•	8	C				EOT		
1	2	4	•	8			B		Idle		
1	2	4	•	8	C	A	B		Delete		
	2	4	•	8	C	A			EOB		
1	2	4	•	8	C	A	B		Sphere 12 pt—007 / 10 pt—008		

1021/BCD KEYBOARD

1	2	3	•	4	5	6	7	8	BCD Char. Lower	Upper	Keyboard Position
1			•						1	=	0
	2		•						2	<	3
1	2		•		C				3	;	7
		4	•						4	:	11
1		4	•		C				5	%	15
	2	4	•		C				6	'	19
1	2	4	•						7	>	23
			•	8					8	*	27
1			•	8	C				9	(	31
	2		•	8	C				0	)	35
1			•			A	B		a	A	2
	2		•			A	B		b	B	20
1	2		•		C	A	B		c	C	12
		4	•			A	B		d	D	10
1		4	•		C	A	B		e	E	9
	2	4	•		C	A	B		f	F	14
1	2	4	•			A	B		g	G	18
			•	8		A	B		h	H	22
1			•	8	C	A	B		i	I	29
1			•		C		B		j	J	26
	2		•		C		B		k	K	30
1	2		•				B		l	L	34
		4	•		C		B		m	M	28
1		4	•				B		n	N	24
	2	4	•				B		o	O	33
1	2	4	•		C		B		p	P	37
			•	8	C		B		q	Q	1
1			•	8			B		r	R	13
	2		•		C	A			s	S	6
1	2		•			A			t	T	17
		4	•		C	A			u	U	25
1		4	•			A			v	V	16
	2	4	•			A			w	W	5
1	2	4	•		C	A			x	X	8
			•	8	C	A			y	Y	21
1			•	8		A			z	Z	4
1	2		•	8					#(EOA)	"	42
1	2		•	8	C	A			,		32
1	2		•	8	C		B		$	!	38
1	2		•	8		A	B		.	¬	36
1			•		C	A			/	?	40
			•			A			@	¢	41
			•				B		-	—	39
			•		C	A	B		&	+	43
			•		C				Space		G
	2	4	•	8	C		B		Back Space		D
	2	4	•	8					Upper Shift		B
	2	4	•	8		A	B		Lower Shift		C
1		4	•	8		A	B		Tab		A
1		4	•	8	C		B		CR/LF		F
1		4	•	8	C	A			Index		E
		4	•	8			B		Rev. Ind.		
		4	•	8	C	A	B		NP/NE On		
		4	•	8		A			NP/NE Off		
		4	•	8	C				Rib. Sft.		
1		4	•	8					First Line		
1	2	4	•	8	C				EOT		
1	2	4	•	8			B		Idle		
1	2	4	•	8	C	A	B		Delete		
	2	4	•	8	C	A			EOB		
1	2	4	•	8	C	A	B		Sphere 963		

4

Operating Controls

CARRIER RETURN (CR)

As a typewriter key, depressing the carrier return key will cause the paper to advance vertically one or more lines and return to the left margin. However, when On Line with the computer, the carrier return key also serves to return control to the computer.

MODE	CARRIER RETURN FUNCTION
OFF LINE	Return carrier
ON LINE	Return carrier, transmit CR code and EOT code. Lock keyboard, turn Transmit light off.

INTERRUPT (INTER)

This key has two functions:
1. In the transmit mode, it ends transmit conditions by sending an EOT code, turning off the Transmit light, and locking the keyboard.
2. In the receive mode, it sends an interrupt signal (200-millisecond spacing signal used by the IBM 2741) to the remote computer. This signal alerts the computer. The computer in turn can put the terminal in a transmit status or can continue sending data. In the latter case, the printer continues to function and all data is received and printed out.

SHIFT

The Shift key on the Model 1021 Computer Terminal functions as a conventional typewriter shift key. The user can leave the printer in either upper or lower case when returning control to the remote computer. Likewise the printer may be in upper or lower case when the computer returns control to the terminal.

NP/NE (Non Print/Non Escape)

This standard feature enables the user to maintain security on information such as identification code, job code, and account numbers which might make it possible for others to query the computer for confidential data. In the ON position (indicated by a yellow light), the printing of any of the 44 characters (A, B, C, etc.) transmitted is inhibited. Operation of the control keys (shift, TAB, etc.) is not affected. Depression of the NP/NE key affects the printers in the local terminal, all remote terminals, and in the originating terminal. To take the equipment out of the NP/NE mode, depress the NP/NE key again.

RIBBON SHIFT

This optional feature is available for two modes of operation. In one mode, the color of the printout is controlled by the user. In the other mode, the ribbon is shifted automatically to print all received data in red.

When the key is depressed in the first mode, a code is transmitted that alternately causes the Ribbon Shift to pick and drop. This code may be received as well as transmitted. No code is necessary for the second mode of operation.

REVERSE INDEX

This optional feature is desirable for sending or receiving chemical formulae, charts, graphs, or mathematical operations. The REVERSE INDEX function, whether operated by depressing a key on the keyboard, or by a code from the line, always causes the platen to move ½ vertical space upward so that a superscript can be printed. The Vertical Spacing Control lever must be adjusted to half-space position to provide spacing, via the Index key, of ½ space to return the platen to the typing line. The Index key can also be used for the insertion of subscripts. The Index and the Reverse Index each require "two character times" to be completed.
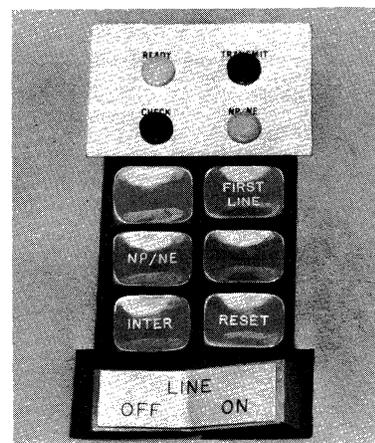
FIRST LINE (Vertical Tabulation)

This optional feature is desirable when working with continuous forms, such as with a forms tractor. The function of this key is to provide automatic indexing of the paper in the printer until pre-set stops are reached. A cam-operated switch in the forms tractor senses that the appropriate stop has been reached and stops the indexing at the "First Line" position. The time required to complete the indexing operation is determined by the number of indexes required; each index takes two character times. The First Line code can be generated by the key or received On Line. After receiving First Line code, indexing occurs, and upon completion the terminal will transmit an EOT code.

CHECK FUNCTION

When the terminal is in the receiving mode, the check light will go on if a received code is a parity error, or if the printer is unable to keep up with or follow the incoming data. Any character that is a parity error prints out as a period, and the check light glows. The terminal will automatically transmit an interrupt signal back to the computer (which causes it to stop sending), and the keyboard remains locked. On special order, the 1021 terminal can be wired so that the terminal does not send an interrupt signal. When the terminal is in the transmitting mode, the check light will go on if an interrupt signal (200-millisecond spacing) is received. In the transmitting mode, the user can return control to the remote system by depressing the reset, then either the Carrier Return or the Interrupt key. The user must not turn off the check light by depressing the Reset key unless the transmit light is on.

TIMING CONSIDERATIONS

In the software, time must be allowed for the mechanical functions of the printer to be completed before additional character information is transmitted. The amount of time, expressed in terms of "character times," is given by the following formulae:

CARRIER RETURN	$N = T + 1.5$
TAB	$N = T + 1.5$
INDEX/REVERSE INDEX (1 each)	$N = 2$
FIRST LINE (each Index)	$N = 2$
RIBBON SHIFT	$N = 1$

where N = number of character times required, and T = number of inches of carrier travel. Answers should be rounded off to the next highest whole number.
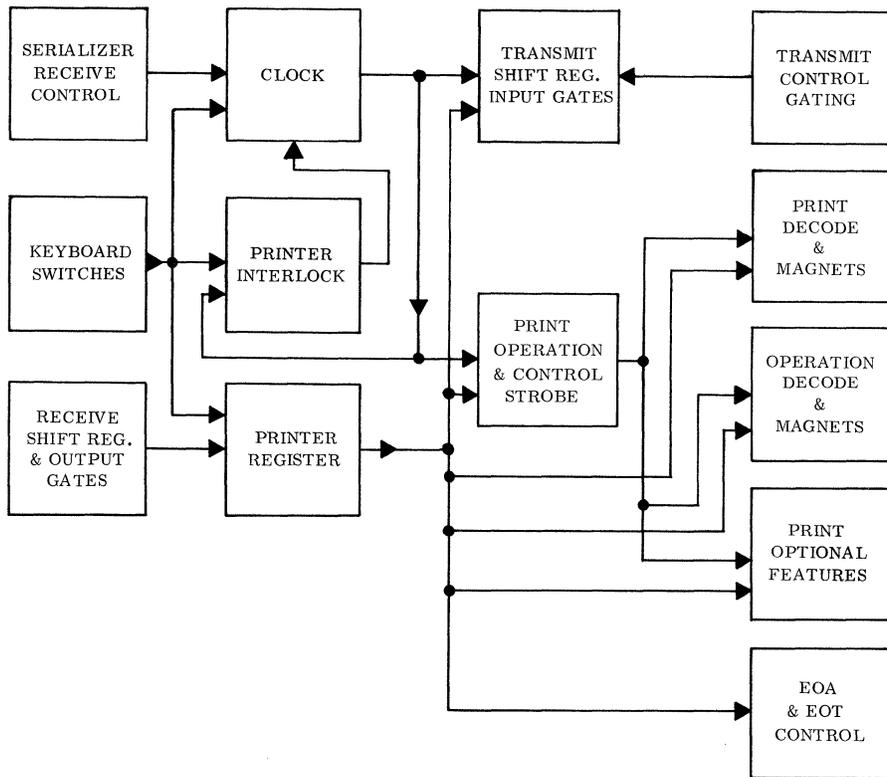
Data flow for MODEL 1021 Computer Terminal

Typewriter Operation

PAPER CARRIER CONTROLS

Paper Bail

Move forward when inserting paper. Release it to hold the paper against the platen.

Platen Variable

Push in on the left platen knob and the platen can be rotated freely in either direction to adjust the printing line. This is particularly useful when a typed page is being reinserted for additions or corrections.

Paper Guide

Position by sliding it to the left or right. When inserting a new sheet of paper, place the left edge of the paper against the paper guide and turn the platen knob to feed in the paper. This procedure will ensure uniform left margins.

Multiple Copy Impression Control Lever

Move the lever toward the rear to compensate for multiple carbon copies or heavy paper. This ensures that the typing element will continue to strike the paper squarely. There are five lever positions. Typical settings are the second position for an original and three carbon copies and the third position for an original and five or more carbon copies.

Vertical Spacing Control Lever

Permits you to select either single or double spacing of the platen.

Paper Release Lever

Move forward when removing or adjusting paper.

See-Through Card Holder

The clear plastic holder permits you to see as you type. It also holds small documents, such as cards and envelopes, firmly against the platen. The single vertical line at the top indicates the position of the line of printing, and its associated scale is especially useful when you are aligning a printed form or reinserting a page.

Margin Stops

Push in and slide along margin scale until the mark on the stop is aligned with the desired gradation on the scale.

Typing Position Indicator

A red arrow indicates the exact printing position of the carrier.
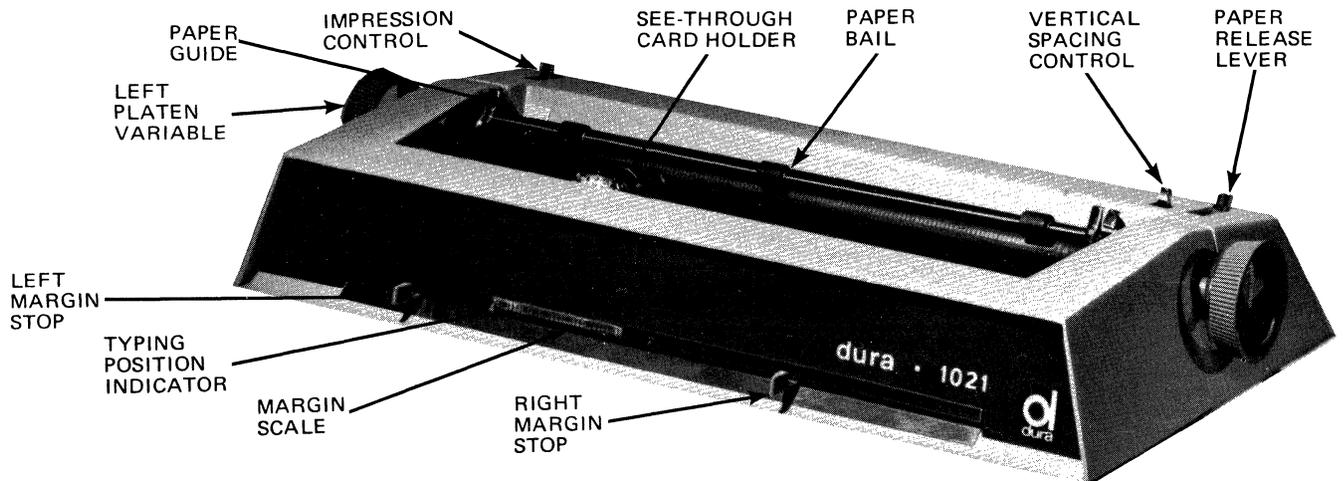
Typical keyboard for the Model 1021 series. Numerical keys and symbols may vary, depending on the particular model and the typing element selected.

KEYBOARD CONTROLS

Power On/Off Switch and Indicator

This switch supplies power to the DURA 1021 Computer Terminal. When the switch is in the on position, the red indicator light in the center of the Dura "d" nameplate glows.

Index Key

The Index key is a two-level key used to advance the paper vertically without carrier movement. Depress lightly for single action; hold at second level for continuous vertical paper movement.

Carrier Return Key

To return the carrier to the left margin stop and advance the paper vertically, depress the Carrier Return key.

Tab Control (+, −)

To set a tab stop, move the carrier to the desired position and depress the set (+) end of the TAB control. To clear a tab stop, tab to the stop to be cleared and depress the clear (−) end of the TAB control. To clear all stops, move the carrier to the extreme right, depress and hold down the clear (−) end of the TAB control, and depress the carrier return key.

Tab Key

To move the carrier to all previously set tab stops, or through the right margin, depress the TAB key.

Shift Key

To shift the printing sphere from lower case to upper case position, or vice versa, depress either the right or the left Shift key.

Shift Lock Key

Depress the Shift Lock key to hold the printing sphere in upper case position.

Multiple Character Keys

There are two Multiple Character keys (scribed with two sets of characters). The set of characters present is dependent on the typing element. When changing the element, check to see which sets of characters apply.

Backspace Key

To move the carrier to the left one space at a time, depress the Backspace key.

Margin Release Key

To permit the carrier to move beyond the left or right margin stops, depress the Margin Release key.

CHANGING THE TYPE STYLE

The DURA 1021 typing element can be replaced readily, permitting various type faces to be used.

On the top of each typing element are shown the type face, typewriter pitch number (10 characters per inch or 12 characters per inch), and an orientation arrow.

SPRING LEVERS

ELEMENT POST
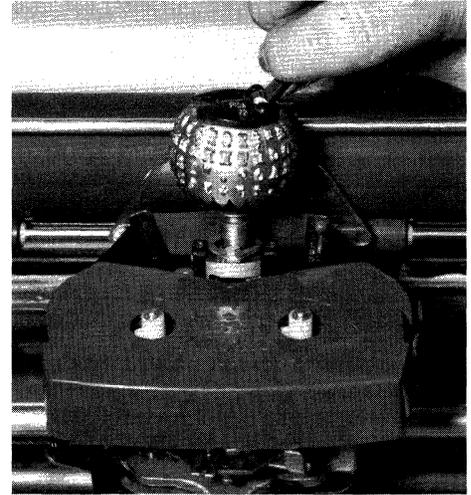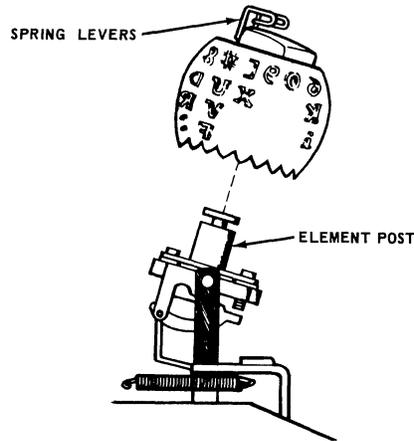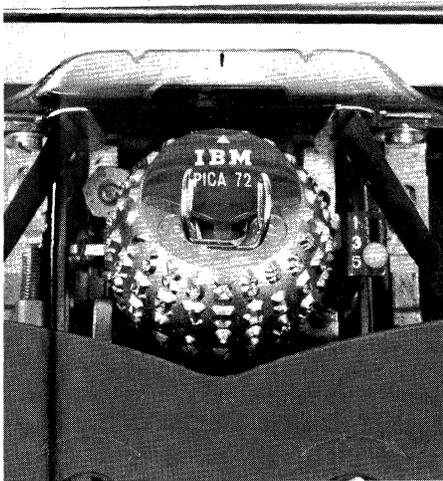
Removing the Typing Element

1. Turn off keyboard power.
2. Make sure the typing element is positioned in lower case with the arrow pointing toward the platen.
3. With spring-type element, squeeze the spring levers together and lift upward to release the typing element from the groove in the element post.
4. With lever-type element, raise element release lever until it clicks into position, and use lever to lift element off of the post.

Installing the Typing Element

1. Make sure the system is in lower case.
2. Place the element on the element post with the arrow on top pointing toward the platen.
3. To install the spring-type element, squeeze the spring levers together and gently press down until the element snaps into place.
4. To install a lever-type element, raise the release lever until it clicks, slip element into position on the post, and close the lever.
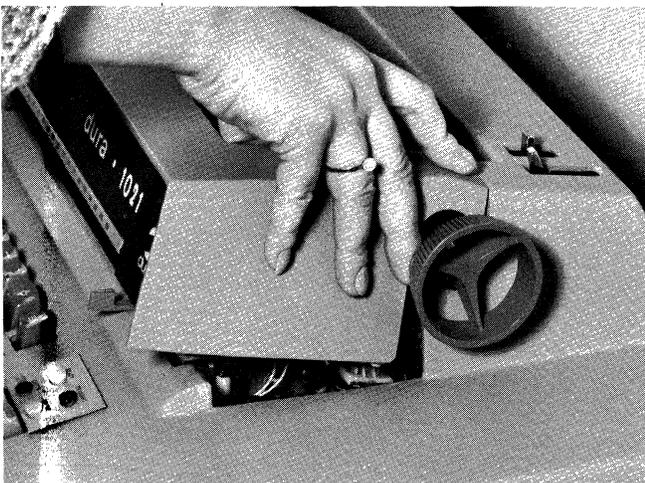
Front Cover Plate

To remove, grasp front of cover plate and lift up smartly.

To reinstall, slip prongs (on top rear edge of cover) under the top casing, then push down until cover locks into place.

CHANGING THE RIBBON CARTRIDGE

Changing the ribbon cartridge on your DURA 1021 is quick, clean, and simple. The modern cartridge design makes it unnecessary ever to touch the ribbon.

Removing Ribbon

1. Move the carrier to the center.
2. Turn off keyboard power.
3. Remove front cover plate.
4. Raise ribbon guide by shifting the ribbon change lever to the right.
5. Lift ribbon cartridge straight up off of the ribbon posts.
6. Ease ribbon through the ribbon guide slots.
7. Discard used cartridge.
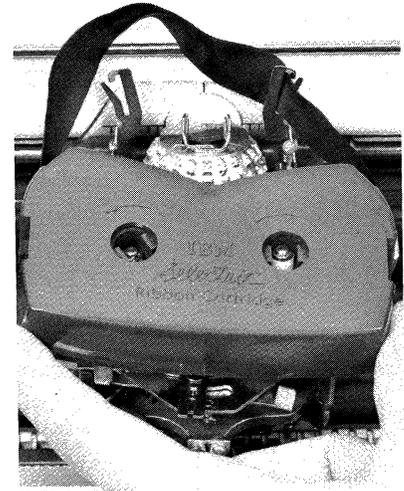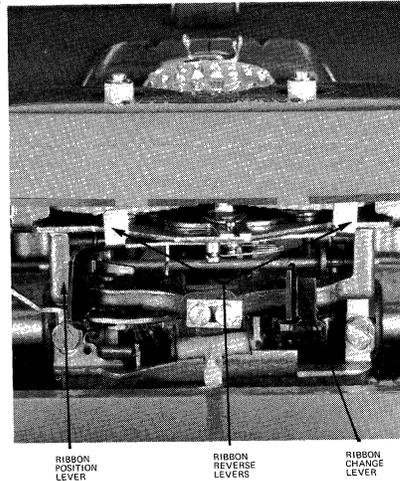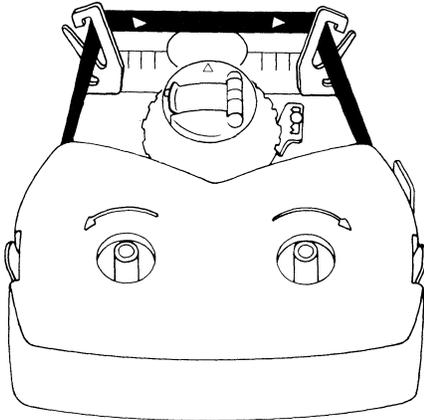
RIBBON POSITION LEVER   RIBBON REVERSE LEVERS   RIBBON CHANGE LEVER

Installing Ribbon

1. Hold the ribbon cartridge so that the exposed length of ribbon faces the platen.
2. Slide the ribbon down through the ribbon guide slots with the exposed ribbon between the card holder and typing element.
3. Place the cartridge on the spindle and press down firmly until it clicks into position.
4. To take up ribbon slack, turn either cartridge post in the direction of the arrow.
5. Lower the ribbon guide into typing position by moving the ribbon position lever to the left.

RIBBON CONTROLS

The ribbon position lever has four settings. Position one (extreme right) is for cutting stencils, and positions two, three, and four cause the top, center, and bottom portions of the ribbon to be used.

For longer fabric ribbon life change the setting of the ribbon position lever frequently to allow the ribbon to re-ink itself.

Although ribbon travel is reversed automatically when the ribbon has completely unwound, it may be reversed manually by moving the ribbon reverse lever to the opposite position.

stencil position

ribbon reverse lever

ribbon position lever
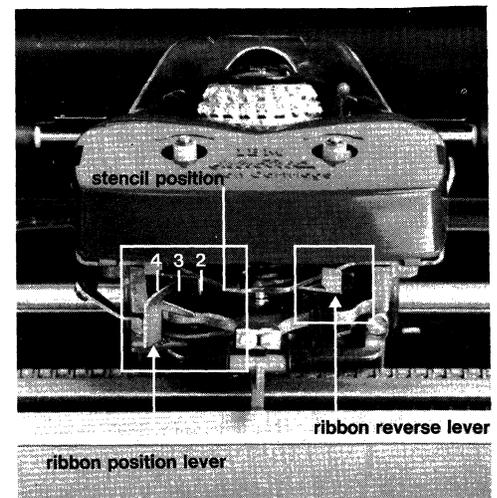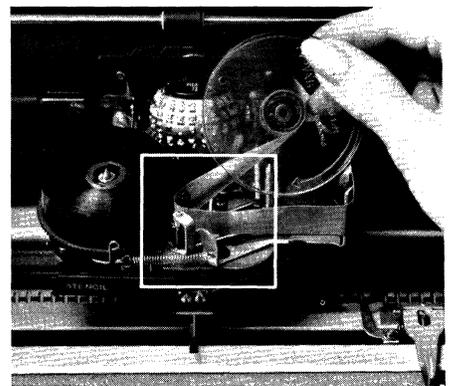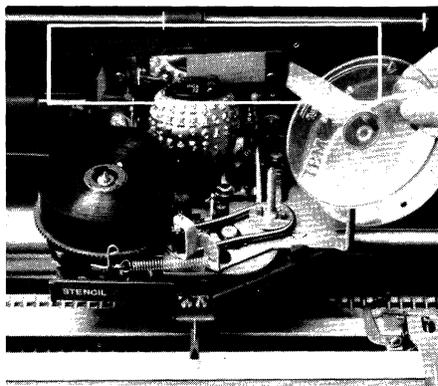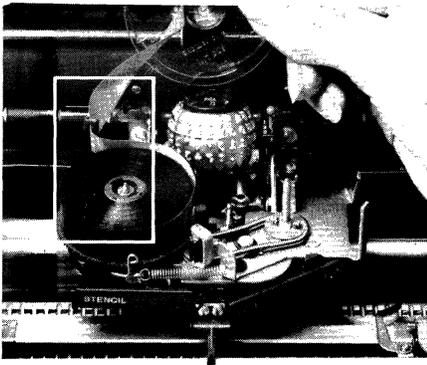
CHANGING FILM RIBBON

When you see the cross-hatching on the ribbon trailer, it is time to replace the ribbon. To change the ribbon, first center the carrier and then turn off keyboard power. Carefully remove the top cover. Keep the paper bail against the platen. Then follow these steps:

Removing Used Ribbon

1. Press LOAD lever to raise ribbon lifts.
2. Remove the ribbon from both ribbon lifts.
3. While turning the left (empty) core clockwise, gently lift it from spindle.
4. Turn the right (plastic) spool clockwise and lift it from spindle.
5. Discard the used ribbon, the empty core, and the plastic spool.
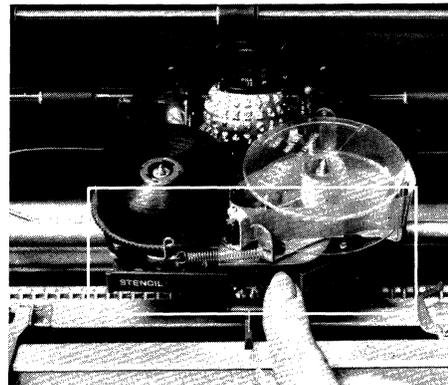
Installing New Ribbon

1. Before threading, carefully separate the empty clear plastic spool from the ribbon.
2. Push the ribbon LOAD lever toward the platen (it will lock into position) to lift the ribbon guides.
3. Drop the ribbon with the gray center core onto the left spindle and guide the ribbon, using the clear plastic spool (with printing on top), to the left of the tension wire.
4. Continue holding the clear plastic spool and thread ribbon through the left and right ribbon guides.
5. Guide the ribbon to the left and past the carrier position post.
6. Continue around to the right of the ribbon guide post.
7. Thread the ribbon carefully between the ribbon feed rollers.
8. Place the clear plastic spool on the right spindle and turn in a clockwise direction until it clicks into position.
9. Take up slack by turning the ribbon roll on the left spindle clockwise.
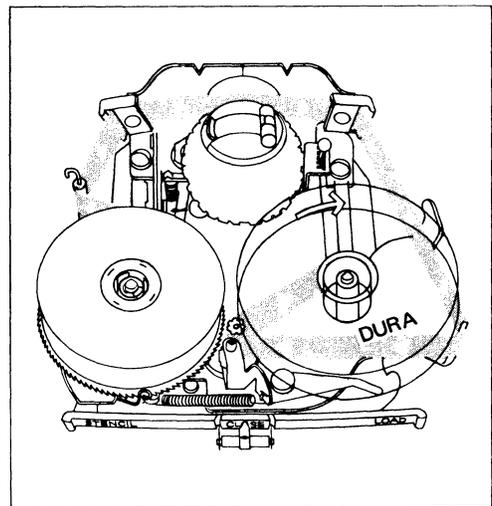
10. Press against the CLOSE portion of the ribbon LOAD lever.
11. The illustration shows the way the film ribbon will look when it is correctly inserted and ready for use. (The arrows indicate the direction in which the ribbon moves.)

CARE AND CLEANING OF YOUR DURA 1021 TYPEWRITER

A few simple steps will preserve the appearance of your DURA 1021 Computer Terminal and will help keep it operating at top efficiency.

To remove grease or ink stains from the case, use a mild soap or liquid detergent, then wipe with a clean damp sponge or cloth. Tape chad or dust may be removed by gentle brushing.

Never use oil or cleaning fluids (except platen cleaner) on your machine. Proper paper feed will be assured and roller marks will be prevented by periodic cleaning of the platen and feed rollers with platen cleaner available from office supply dealers. This is done most easily if the platen and feed rollers are first removed.
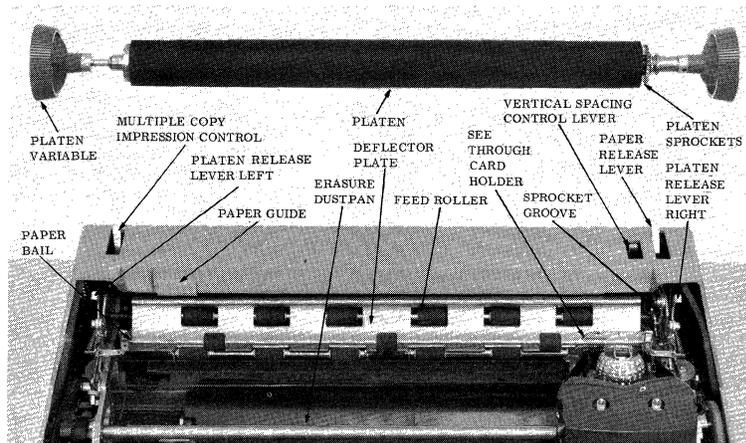
Removing the Platen

1. Turn off keyboard power.
2. Bring forward the paper release lever and the paper bail.
3. Remove top cover.
4. Depress the platen release levers and lift out platen.

Replacing the Platen

1. Position it with the ratchet teeth to your right.
2. Place groove of platen in the platen latch.
3. Press down on both ends of the platen until it snaps into place.
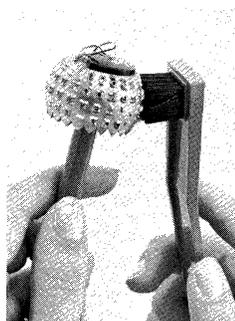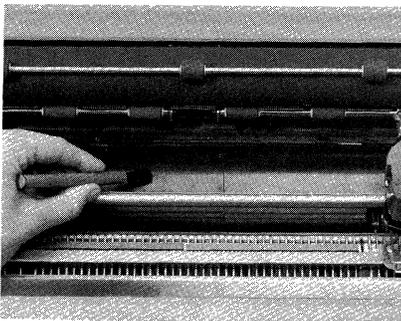
Replacing the Deflector Plate

If the deflector plate has been removed or jostled out of place, make sure that:

1. Feed rollers are in place on the feed roller hangers, with larger rollers in the rear.
2. Power is off and the paper release lever is forward.
3. The deflector plate is lowered in place with the toothed edge toward you and the two tines on either end straddling the grooves in the deflector shaft.

Cleaning the Erasure Dustpan

1. With keyboard power on, move typing element to one end.
2. Turn off power and remove cover.
3. With the dual-purpose brush, sweep lightly toward the front of the typewriter.

CAUTION: Do not allow your brush to interfere with the thin wires.

Cleaning the Typing Element

Clip the typing element to the eraser end of a pencil. With the typing element brush, brush away from you and toward the top of the element.

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DURA DIVISION

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