

TELEPRINTER 1000 (KSR/RO) INSTALLATION

1. GENERAL

1.01 This section covers the Teleprinter 1000 (KSR/RO) manufactured by the Digital Equipment Corporation (DEC).

1.02 Whenever this section is reissued, the reason(s) for reissue will appear in this paragraph.

1.03 Information covering the installation of the teleprinter is contained in the attached reprint of the practice prepared by DEC.

1.04 Descriptive information is contained in Section 574-550-100. Maintenance information is contained in Section 574-550-300.

2. DATA SETS

2.01 The following tables give recommended options for data sets expected to be used with the Teleprinter 1000 (KSR/RO).

TABLE	DATA SET
A	103JR
B	108F and G
C	202SR, L1 and L1A
D	202SR, L1C
E	202T
F	212AR

DS 103JR
TABLE A

OPTION SWITCH SETTINGS

FEATURE		OPTION	FACTORY FURNISHED OPTION	SWITCH SETTING S2 SWITCH ON CM1 CONTACT SETTING							PROVIDE
				1	2	3	4	5	6	7	
Receive Space Disconnect	YES	V	✓	-	-	O	-	-	-	-	One per set
	NO	Y●		-	-	X	-	-	-	-	
Send Space Disconnect	YES	T	✓	X	-	-	-	-	-	-	One per set
	NO	U●		O	-	-	-	-	-	-	
Loss of Carrier Disconnect	YES	S●	✓	-	-	-	O	-	-	-	One per set
	NO	R		-	-	-	X	-	-	-	
CC Indication	EARLY	ZD●	✓	-	-	-	-	-	-	O	One per set
	DELAYED	ZC		-	-	-	-	-	-	X	
CB and CF Indications	COMMON	A●	✓	-	X	-	-	-	-	-	One per set
	SEPARATE	B		-	O	-	-	-	-	-	
CC Indication for Analog Loop	ON	ZF●	✓	-	-	-	-	O	-	-	One per set
	OFF	ZE		-	-	-	-	X	-	-	
Automatic Answer	YES	ZH●	✓	-	-	-	-	-	O	-	One per set
	NO	ZG		-	-	-	-	-	X	-	
SEE NOTE											
				S3 SWITCH ON CP1 CONTACT SETTING							
				1	2	3	4	5	6	7	
Fail Safe State of CN Circuit	ON	K		-	X	-	-	-	-	-	One per set
	OFF	J●	✓	-	O	-	-	-	-	-	
Common Ringer	YES	ZB*		X	-	-	-	-	-	-	One per set
	NO	ZA●†	✓	O	-	-	-	-	-	-	
Tip-Ring Make Busy	YES	F		-	-	X	-	-	-	-	One per set
	NO	E●	✓	-	-	O	-	-	-	-	
SEE NOTE											
Contact to Ground Make Busy Floating Contact Make Busy	For use with 40 A-type data mounting			Not available when option ZB is used							- -
Common Grounds	YES	Q	✓	Close S1 screw switch on 47C1 DM							One per set
	NO	P●		Open S1 screw switch on 47C1 DM							

X = Contact Closed

O = Contact open

- = Contact not applicable

* = Strap C to B on CP1.

† = Strap C to A on CP1.

Note: This space may be filled in by craftsperson when options have been determined.

- Indicates Option Recommended With TP1000 Unless Otherwise Specified

DS 108 F & G
TABLE B
DATA SET 108F OR G OPTIONS

FEATURE		OPTION	SWITCH SETTING (S1-)	
			OPEN	CLOSED
Facility	4-Wire	Z	4	3
	2-Wire	Y*	3	4
Mark or Space Hold	Mark	U●*	2	1
	Space	V	1	2
			SWITCH SETTING (S2-)	
CB Internally Connected to	None	E	5, 6	-
	RS	W	6	5
	CA	X*	7	6
Carrier Control	Via CA	D	2, 4, 6	7
	Via RS	T	2, 7	4
	Always on in Data Mode	S*	4, 7	2
	Always off in Data Mode	H	2, 4, 7	-
Remote Test Connection via J1	Yes	P	-	1
	No	N*	1	-
Local Copy in Test Mode	Yes	G	-	3
	No	F*	3	-
			OPTION STRAP	
Receiver dB Gain Reduction	6	K*	E2-E3	
	0	J	E1-E2	
			SCR SWITCH (S4-)	
Ground Wire (GRD) Connected to Signal Ground (SG)	Yes	M*	-	B
	No	L●	B	-
Resistor Bypass for Negative Voltage (-P) on J1	Yes	R	-	A
	No	Q*	A	-

* Factory furnished option.

- Indicates Option Recommended With TP1000 Unless Otherwise Specified

DS 202SR
Table C

INSTALLER OPTIONS FOR DS 202S-L1 AND -L1A

OPTION DESCRIPTION	DESIG	WITHOUT REVERSE CHANNEL	WITH REVERSE CHANNEL	SWITCH SETTING										PROVIDE	
				S3 SWITCH CONTACT SETTING ON TRANSMITTER RECEIVER											
				1	2	3	4	5	6	7	8	9	0		
Transmit Line Signal Level	ZK	0	-1	-	X	-	X	X	X	X	X	X	X	-	One per set
	ZL	-1	-2	-	X	-	O	X	X	X	X	X	X	-	
	ZM	-2	-3	-	X	-	X	O	X	X	X	X	X	-	
	ZN	-3	-4	-	X	-	X	X	O	X	X	X	X	-	
	ZO	-4	-5	-	X	-	X	X	X	O	X	X	X	-	
	ZP	-5	-6	-	X	-	X	O	X	O	X	X	X	-	
	ZQ	-6	-7	-	X	-	O	X	O	O	X	X	X	-	
	ZR	-7	-8	-	O	-	O	X	X	X	O	X	X	-	
	ZS	-8	-9	-	O	-	O	X	O	X	O	X	X	-	
	ZT ¹	-9	-10	-	O	-	X	X	X	X	X	O	X	-	
	ZU	-10	-11	-	O	-	O	X	X	O	X	O	X	-	
	ZV	-11	-12	-	O	-	X	O	X	X	O	O	O	-	
ZW	-12	-13	-	O	-	O	O	O	O	O	O	O	-		
Reverse Channel ³	ZC● ³	In		O	-	O	-	-	-	-	-	-	-	One per set	
	ZD ¹	Out (Remove CP)		X	-	X	-	-	-	-	-	-	-		
Transmit Only (-L1A Only)	YG	In		-	-	-	-	-	-	-	-	-	X	One per set ⁴	
	YH● ⁴	Out		-	-	-	-	-	-	-	-	-	O		
Soft Turnoff and Squelch Intervals		SOFT TURNOFF	SQUELCH	S2 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER										One per set	
	Z	0	0	-	-	O	X	-	-	-	-	O	X		
	Y●	8 ms	0	-	-	O	X	-	-	-	-	O	O		
	X	24 ms	0	-	-	O	X	-	-	-	-	X	O		
	W	0	9 ms	-	-	O	O	-	-	-	-	O	X		
	V	0	156 ms	-	-	X	O	-	-	-	-	O	X		
	T	8 ms	9 ms	-	-	O	O	-	-	-	-	O	O		
	S	8 ms	156 ms	-	-	X	O	-	-	-	-	O	O		
R ¹	24 ms	156 ms	-	-	X	O	-	-	-	-	X	O			
Fast Carrier Detection ⁵	Q●	In (7 ms)		-	-	-	-	O	-	-	-	-	-	One per set	
	N ¹	Out (23 ms)		-	-	-	-	X	-	-	-	-	-		
Clear-to-Send Interval	M●	8 ms		-	-	-	-	-	O	O	-	-	-	One per set	
	K	30 ms		-	-	-	-	-	O	X	-	-	-		
	J	60 ms		-	-	-	-	-	X	O	-	-	-		
	G ¹	180 ms		-	-	-	-	-	X	X	-	-	-		

● Indicates Option Recommended With TP1000
Unless Otherwise Specified

DS 202SR
Table C (Cont)

INSTALLER OPTIONS FOR DS 202S-L1 AND -L1A

OPTION		DESIG		SWITCH SETTING										PROVIDE
				S2 SWITCH CONTACT SETTING ON TRANSMITTER-RECEIVER										
DESCRIPTION				1	2	3	4	5	6	7	8	9	0	
Automatic Answer		B● ¹	In	-	-	-	-	-	-	-	X	-	-	One per set
		A	Out	-	-	-	-	-	-	-	O	-	-	
Local Copy on Primary Channel ⁶	202S-L1	ZA	In	X	-	-	-	-	-	-	-	-	-	One per set
		ZB● ¹	Out	O	-	-	-	-	-	-	-	-	-	
	202S-L1A	ZA	In	O	-	-	-	-	-	-	-	-	-	
		ZB ¹	Out	X	-	-	-	-	-	-	-	-	-	
Clamp (202S-L1 Only)		F● ⁴	In	-	O	-	-	-	-	-	-	-	-	Must be provided
Condition of CC (DSR) During Analog Loopback (202S-L1A Only)		YI●	On	-	X	-	-	-	-	-	-	-	-	One per set
		YJ ⁴	Off	-	O	-	-	-	-	-	-	-	-	
Local Copy on Reverse Channel				STRAPPING ON REVERSE CHANNEL										One per JY1 or JY3 CP ³
		ZE	In	Install E21-E22										
		ZF ¹	Out	Install E21-E23										
Grounding Option				SCREW SWITCH SETTING ON INTERFACE CIRCUIT										One per 47A-Type Data Mounting
		ZG ¹	Signal Ground Connected to Frame Ground	Screw Switch S1 Closed										
		ZH●	Signal Ground Not Connected to Frame Ground	Screw Switch S1 Open										

X Contact closed

- Contact not applicable

O Contact open

Note 1 Factory furnished

Note 2 Factory furnished instead of option ZD when reverse channel board is installed

Note 3 DS 202S-L1A operates with JY3 only

Note 4 The transmit-only out option (YH) must be selected

Note 5 Same as carrier acquisition timing in earlier model DS 202-type

Note 6 Note that IN or OUT status of option requires the opposite position for contact 1 of switch 2 between models L1 and L1A.

- Indicates Option Recommended With TP1000 Unless Otherwise Specified

DS 202SR

Table D

INSTALLER OPTIONS FOR DS 202S-L1C

OPTION		OUTPUT LEVEL	SWITCH SETTING														PROVIDE			
			S4 SWITCH CONTACT SETTING ON TRANSMITTER RECEIVER																	
			WITHOUT REVERSE CHANNEL							WITH REVERSE CHANNEL										
DESCRIPTION	DESIG		1	2	3	4	5	6	7	1	2	3	4	5	6	7				
Transmit Line Signal Level	ZO	-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	One per set			
	ZP	-5	O	X	X	X	X	X	X	O	X	X	X	X	X	X				
	ZQ	-6	X	O	X	X	X	X	X	O	O	X	X	X	X	X				
	ZR	-7	O	O	X	X	X	X	O	X	X	O	X	X	X	O				
	ZS	-8	X	X	O	X	X	X	O	X	O	O	X	X	X	O				
	ZT ¹	-9	X	O	O	X	X	X	O	X	O	X	O	X	X	O				
	ZU	-10	X	X	X	O	X	X	O	O	O	O	O	X	X	O				
	ZV	-11	O	O	X	O	X	X	O	O	O	O	O	O	X	O				
ZW	-12	O	O	O	O	X	X	O	O	O	O	O	O	O	O					
Soft Turnoff and Squelch Intervals		SOFT TURNOFF	SQUELCH							S2 SWITCH CONTACT SETTING ON TRANSMITTER RECEIVER										One per set
	Z	0	0	-	O	O	-	-	-	-	X	-	X							
	Y●	8 ms	0	-	O	O	-	-	-	-	O	-	X							
	X	24 ms	0	-	X	O	-	-	-	-	O	-	X							
	W	0	9 ms	-	O	O	-	-	-	-	X	-	O							
	V	0	156 ms	-	O	X	-	-	-	-	X	-	O							
	T	8 ms	9 ms	-	O	O	-	-	-	-	O	-	O							
	S	8 ms	156 ms	-	O	X	-	-	-	-	O	-	O							
R ¹	24 ms	156 ms	-	X	X	-	-	-	-	O	-	O								
Fast Carrier Detection	Q●	In (7 ms)	-	-	-	-	-	-	-	O	-	-	-	One per set						
	N	Out (23 ms)	-	-	-	-	-	-	-	X	-	-	-							
Clear to Send Interval	M●	8 ms	-	-	-	O	O	-	-	-	-	-	-	One per set						
	K	30 ms	-	-	-	O	X	-	-	-	-	-	-							
	J	60 ms	-	-	-	X	O	-	-	-	-	-	-							
	G ¹	180 ms	-	-	-	X	X	-	-	-	-	-	-							
Automatic Answer	B● ¹	In	X	-	-	-	-	-	-	-	-	-	-	One per set						
	A	Out	O	-	-	-	-	-	-	-	-	-	-							
Local Copy on Primary Channel	ZA	In	-	-	-	-	-	O	-	-	-	-	-	One per set						
	ZB● ¹	Out	-	-	-	-	-	X	-	-	-	-	-							
Condition of CC (DSR) During Analog Loopback	YI●	On	-	-	-	-	-	-	-	-	-	X	-	One per set						
	YJ	Off	-	-	-	-	-	-	-	-	-	O	-							
Reverse Channel	ZC● ²	In	O	O	-	-	-	-	-	-	-	-	-	One per set						
	ZD ¹	Out	X	X	-	-	-	-	-	-	-	-	-							
Transmit Only	YG	In	-	-	X	-	-	-	-	-	-	-	-	One per set						
	YH●	Out	-	-	O	-	-	-	-	-	-	-	-							
Echo Suppressor Enable	YQ	In	-	-	-	O	-	-	-	-	-	-	-	One per set						
	YR● ¹	Out	-	-	-	X	-	-	-	-	-	-	-							
Carrier Controlled Turnaround	YS	In	-	-	-	-	-	O	-	-	-	-	-	One per set						
	YT●	Out	-	-	-	-	-	X	-	-	-	-	-							
Early CC (DSR) Indication	YU●	In	-	-	-	-	O	-	-	-	-	-	-	One per set						
	YV ¹	Out	-	-	-	-	X	-	-	-	-	-	-							

● Indicates Option Recommended With TP1000 Unless Otherwise Specified

DS 202SR
Table D (Cont)

INSTALLER OPTIONS FOR DS 202S-L1C

OPTION			STRAPPING ON REVERSE CHANNEL	PROVIDE
DESCRIPTION	DESIG			
Local Copy on Reverse Channel	ZE	In	Install E21-E22	One per JY1 or JY3 CP ³
	ZF● ¹	Out	Install E21-E23	
Grounding Option			SCREW SWITCH SETTING ON INTERFACE CIRCUIT	One per 47 A-Type Data Mounting
	ZG ¹	Signal Ground Connected to Frame Ground	Screw Switch S1 Closed	
	ZH●	Signal Ground Not Connected to Frame Ground	Screw Switch S1 Open	

X Contact closed

- Contact not applicable

O Contact open

Note 1 Factory furnished

Note 2 Factory furnished instead of option ZD when reverse channel board is installed

Note 3 DS 202S-L1C operates with JY2 only

- Indicates Option Recommended With TP1000
Unless Otherwise Specified

DS 202T
Table E
DATA SET 202T INSTALLER OPTIONS

FEATURE	OPTIONS	DESCRIPTION	SWITCH SETTING										PROVIDE	
			S3 Switch Contact Setting On Transmitter-Receiver											
			1	2	3	4	5	6	7	8	9	0		
4-Wire Operation	ZK*		O	O	X	X	O	O	O	X	X	X	One per Data Set	
2-Wire Operation w/o Reverse Channel	ZD		X	O	X	O	O	X	X	O	O	O		
2-Wire Operation With Reverse Channel	ZC*†		X	X	O	O	X	O	X	O	O	O		
			S2 Switch Contact Setting On Transmitter-Receiver											
			1	2	3	4	5	6	7	8	9	0		
4-Wire Operation	ZK*		X	-	-	-	-	-	-	-	-	-	One per Data Set	
Local Copy on Primary Channel in 2-Wire	ZA	IN	X	-	-	-	-	-	-	-	-	-		
	ZB*†	OUT	O	-	-	-	-	-	-	-	-	-		
Soft Turnoff and Squelch Intervals		Soft Turnoff											One per Data Set	
	Z	0	-	-	O	X	-	-	-	-	O	X		
	Y•*	8 ms	0	-	-	O	X	-	-	-	-	O		O
	X	24 ms	0	-	-	O	X	-	-	-	-	X		O
	W	0	9 ms	-	-	O	O	-	-	-	-	O		X
	V	0	156 ms	-	-	X	O	-	-	-	-	O		X
	T	8 ms	9 ms	-	-	O	O	-	-	-	-	O		O
	S	8 ms	156 ms	-	-	X	O	-	-	-	-	O		O
	R	24 ms	156 ms	-	-	X	O	-	-	-	-	X		O
Fast Carrier Detection	Q•*	IN	-	-	-	-	O	-	-	-	-	-	One per Data Set	
	N	OUT	-	-	-	-	X	-	-	-	-	-		
Clear-to-Send Interval	M•*	8 ms	-	-	-	-	-	O	O	-	-	-	One per Data Set	
	K	30 ms	-	-	-	-	-	O	X	-	-	-		
	J	60 ms	-	-	-	-	-	X	O	-	-	-		
	G	180 ms	-	-	-	-	-	X	X	-	-	-		
Control by DAS 828- or 829-Type	B•*	IN	-	-	-	-	-	-	O	-	-	-	One per Data Set	
	A	OUT	-	-	-	-	-	-	X	-	-	-		
Clamp	F•*	IN	-	O	-	-	-	-	-	-	-	-	One per Data Set	
	E	OUT	-	X	-	-	-	-	-	-	-	-		
Carrier Detector Reset	ZL	IN	Strapping on Transmitter-Receiver CP Install E21-E23										One per Data Set	
	ZM•*	OUT	Install E22-E23											
Continuous Carrier	ZN	IN	Install E24-E25										One per Data Set	
	ZO•*	OUT	Install E25-E26											
Compromise Equalization	ZU	Maximum	Install E27										One per Data Set	
	ZV	Minimum	Install E28											
Local Copy on Reverse Channel	ZE	IN	Strapping on Reverse Channel CP Install E21-E22										One per Data Set	
	ZF•*	OUT	Install E21-E23											
Grounding Option	ZG*	Signal Ground Connected to Frame Ground	Screw Switch S1 Setting on Interface Circuit S1 Closed										One per Data Set	
	ZH•	Signal Ground Not Connected to Frame Ground	S1 Open											

X Rocker down on side adjacent to numbers
 O Rocker up on side adjacent to numbers
 - Rocker may be in either position
 * Factory furnished
 † Factory furnished instead to 4-wire option when reverse channel CP in installed

• Indicates Option Recommended With TP1000 Unless Otherwise Specified

DS 212AR
Table F
DATA SET 212A OPTIONS

FEATURE	OPTION	DESCRIPTION	SWITCH SETTING														PROVIDE
			S1 SWITCH CONTACTS														
			1	2	3	4											
TIP RING MAKE BUSY	F	IN	X	-	-	-											One per set
	E●*	OUT	O	-	-	-											
CC INDICATION FOR ANALOG LOOP	ZF●*	ON	-	-	-	X											One per set
	ZE	OFF	-	-	-	O											
			SWITCH CONTACTS														
			S2											S5			
			1	2	3	4	5	6	7	8	9	1	2				
CN CIRCUIT	YE	IN	-	O	-	-	-	-	-	-	-	-	-	-	One per set		
	YF●*	OUT	-	X	-	-	-	-	-	-	-	-	-				
TRANSMITTER TIMING	YC●*	INTERNAL	-	-	O	O	-	-	-	-	-	-	-	One per set			
	YD	EXTERNAL	-	-	O	X	-	-	-	-	-	-					
	WI	SLAVE	-	-	X	O	-	-	-	-	-	-					
1200-BPS OPERATION	YG●*	ASYNC/START STOP	X	-	-	-	O	-	-	O	O	O	O	One per set			
	YH	SYNC	X	-	-	-	X	-	-	O	O	X	X				
CHARACTER LENGTH (USE WITH YG)	YI	9-BIT	-	-	-	-	-	O	-	-	-	-	-	One per set			
	YJ●*	10-BIT	-	-	-	-	-	X	-	-	-	-					
RECEIVER RESPOND TO DIGITAL LOOP	YK●*	IN	-	-	-	-	-	O	-	-	-	-	-	One per set			
	YL	OUT	-	-	-	-	-	X	-	-	-	-					
			S3 SWITCH SETTINGS														
			1	2	3	4	5	6	7	8							
LOSS OF CARRIER DISCONNECT	S●*	IN	X	-	-	-	-	-	-	-	-	-	-	One per set			
	R	OUT	O	-	-	-	-	-	-	-	-	-					
RECEIVE SPACE DISCONNECT	V*	IN	-	X	-	-	-	-	-	-	-	-	-	One per set			
	Y●	OUT	-	O	-	-	-	-	-	-	-	-					
CB AND CF INDICATIONS	A●*	COMMON	-	-	X	-	-	-	-	-	-	-	-	One per set			
	B	SEPARATE	-	-	O	-	-	-	-	-	-	-					
SEND SPACE DISCONNECT	T●*	IN	-	-	-	X	-	-	-	-	-	-	-	One per set			
	U	OUT	-	-	-	O	-	-	-	-	-	-					
AUTOMATIC ANSWER	ZH●*	IN	-	-	-	-	O	-	-	-	-	-	-	One per set			
	ZG	OUT	-	-	-	-	X	-	-	-	-	-					
ANSWER MODE INDICATION	X	ON	-	-	-	-	-	X	-	-	-	-	-	One per set			
	W●*	OFF	-	-	-	-	-	O	-	-	-	-					
SPEED MODE	YO	HIGH	-	-	-	-	-	-	X	-	-	-	-	One per set			
	YP●*	DUAL	-	-	-	-	-	-	O	-	-	-					
INTERFACE SPEED INDICATION-CI	YQ	IN	-	-	-	-	-	-	-	-	X	-	-	One per set			
	YR●*	OUT	-	-	-	-	-	-	-	-	O	-					
SIGNAL GROUND TO FRAME CONNECTION	Q*	IN	S1 CLOSED											One per 47 D1 DM			
	P●	OUT	S1 OPEN														

X = CONTACT CLOSED - = CONTACT NOT APPLICABLE O = CONTACT OPEN

* = FACTORY PROVIDED

● = Indicates Option Recommended With TP1000

Unless Otherwise Specified

1. INSTALLATION INFORMATION

GENERAL

1.01 This section contains the step-by-step procedures to unpack, cable, and check out the TELEPRINTER 1000. These procedures will ensure that the TELEPRINTER 1000 was not damaged during shipment and is operating properly prior to connection to the communication system.

Note: Unless otherwise stated, the procedures in this practice are the same for both the KSR and RO versions of the TELEPRINTER 1000.

SITE CONSIDERATIONS

1.02 Install the TELEPRINTER 1000 in an area that is free of excessive dust, dirt, corrosive fumes, and vapors. Keep the ventilation openings on the side of the cabinet unobstructed to avoid overheating the teleprinter.

1.03 Maintain at least a 4-inch clearance between teleprinters. Adequate service clearance must also be provided (Figure 1).

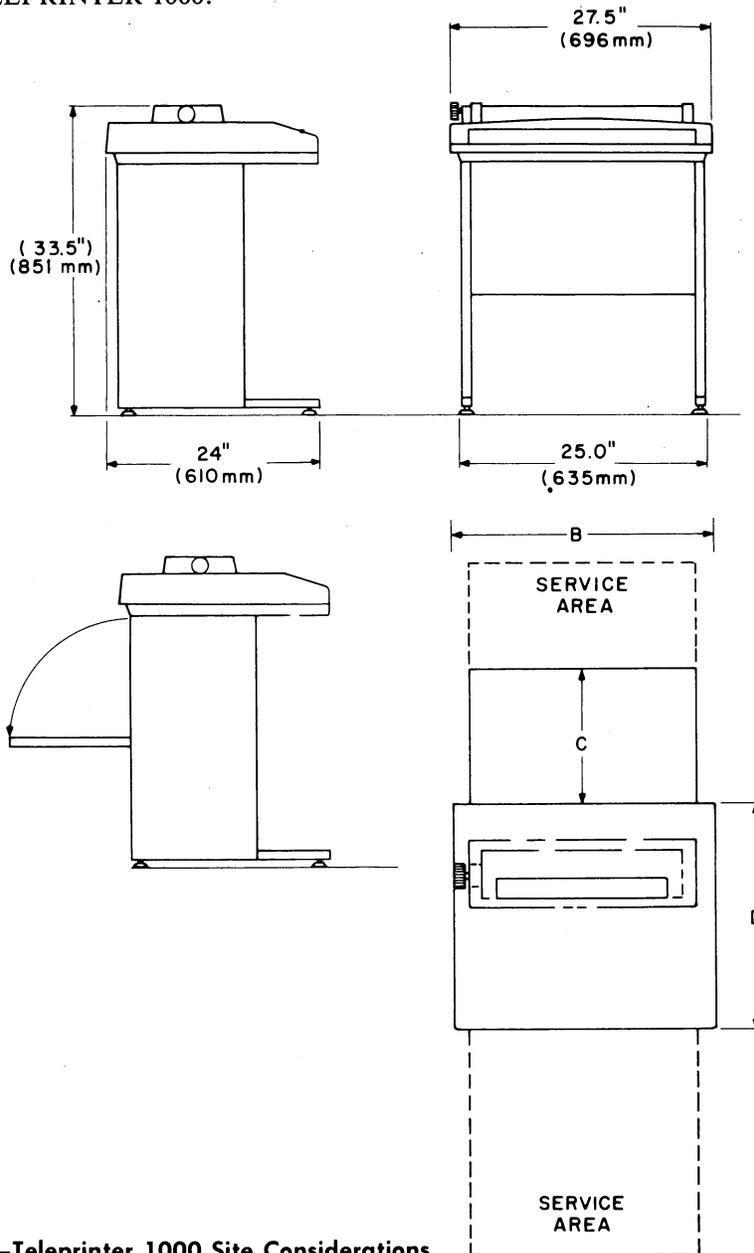


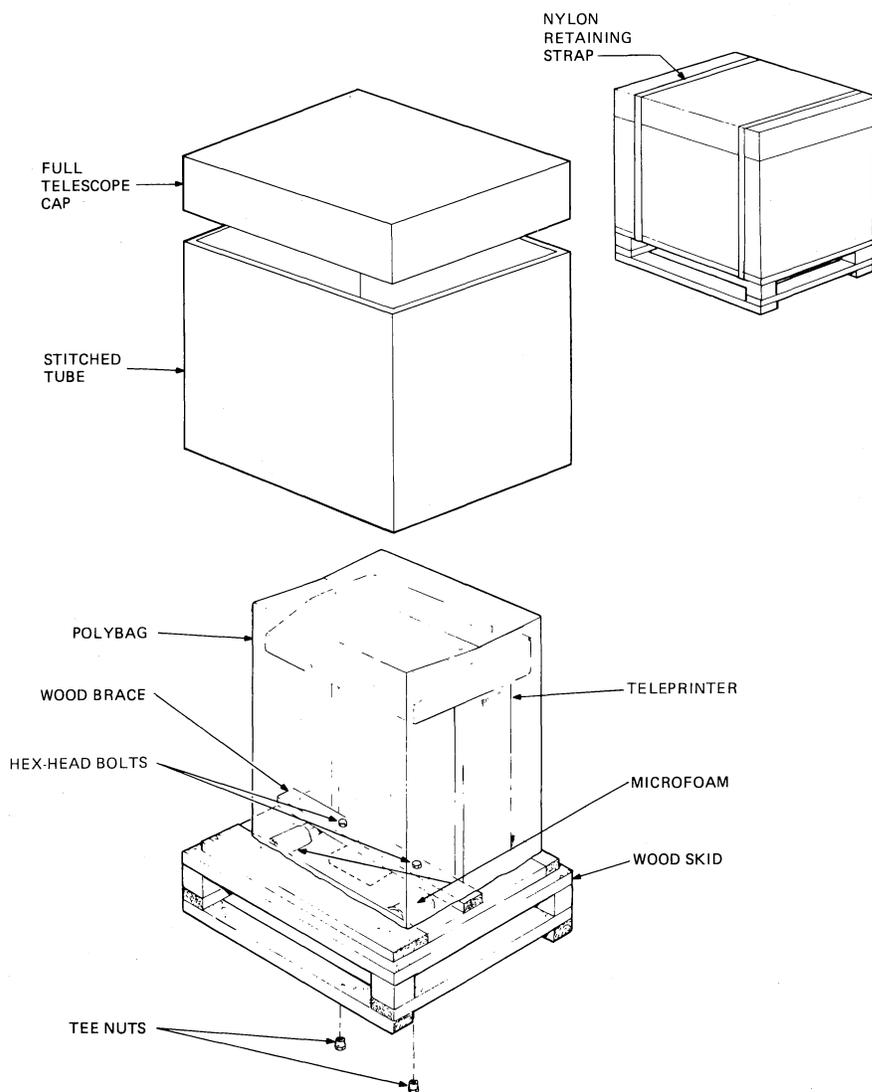
Fig. 1—Teleprinter 1000 Site Considerations

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UNPACKING AND INSPECTION

1.04 Use the following steps to unpack and inspect the TELEPRINTER 1000.

- (a) Cut the nylon retaining straps from around the shipping carton and discard them (Figure 2).
- (b) Remove the outer cardboard shipping container.
- (c) Remove all packing material from around the TELEPRINTER 1000.
- (d) Loosen and remove the hex-head bolts that secure the wood leg brace to the skid assembly. Remove microfoam from around each leg of the TELEPRINTER 1000.
- (e) Carefully inspect the TELEPRINTER 1000 cabinet and carriage assembly for obvious shipping damage. Check the enclosed packing list for lost or missing items. Report any damaged or missing items using the standard reporting techniques.
- (f) Remove the teleprinter from the wooden shipping skid and place it in the desired location.



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Fig. 2—Unpacking/Packing

- (g) Install and adjust the TELEPRINTER 1000 leveling feet (Figure 3).
- (h) Install the end caps as shown in Figure 3.
- (i) Lift the TELEPRINTER 1000 top cover assembly. Clip and remove the nylon cable tie securing the print head assembly (Figure 3).
- (j) If necessary, wipe all outer surfaces with a clean, soft, lint-free cloth.

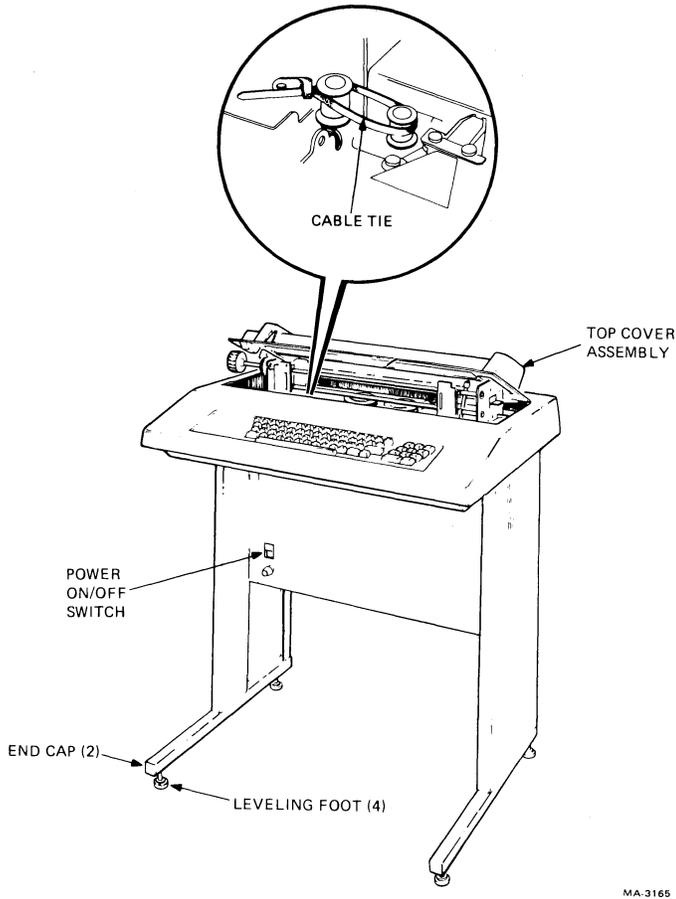


Fig. 3—Cable Tie Location

REPACKING

- 1.05** If it is necessary to ship the TELEPRINTER 1000 to another location, repack it per the following procedure.
- (a) Remove the ribbon and paper.
 - (b) Secure the print head assembly with a nylon cable tie to prevent movement while in transit.
 - (c) Pack the TELEPRINTER 1000 as shown in Figure 2.

TELEPRINTER PREPARATION

1.06 To prepare the TELEPRINTER 1000 for normal operation perform the following steps.

- (a) Connect the EIA interface cable to the user's modem.

Caution: Before connecting the TELEPRINTER 1000 to a power source, ensure that the line voltage and frequency are compatible with the power requirements of the terminal (refer to BSP 570-003-010). Ensure that the power ON/OFF switch is set to the OFF position (Figure 3).

- (b) Connect the TELEPRINTER 1000 line cord to a nonswitched, three-prong wall receptacle.
- (c) Enclosed in the polybag with the manuals is the TELEPRINTER 1000 SET-UP label. If desired the label can be fastened to the area shown in Figure 4.
- (d) Install a ribbon per the ribbon installation procedure (Paragraph 1.07).
- (e) Install paper per the paper/forms loading procedure (Paragraph 1.08).
- (f) Perform a print impression adjustment (Paragraph 1.09).
- (g) Perform the checkout procedure (Paragraph 1.10).
- (h) Select the SET-UP features.

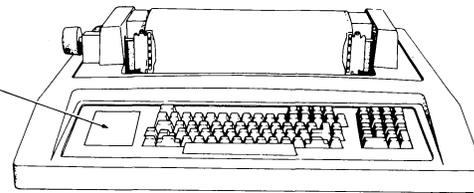
Note: There are two additional documents that can be used to select the TELEPRINTER 1000 SET-UP features: the *Reference Card* which is a summary of all the SET-UP features and the *User Manual* which contains detailed operating information. Both documents are packaged with the teleprinter.

INSTALLING RIBBON

1.07 The ribbon used in the TELEPRINTER 1000 will provide approximately six to eight hours of continuous printing. When the print contrast becomes too light, the ribbon may be turned over to provide an additional two hours of printing, then it should be replaced. Use the following procedures to install the ribbon.

Caution: Only Digital (Part No. 36-12153-01) recommended ribbons or equivalent should be used in the TELEPRINTER 1000. Use of other ribbons may damage the print head.

REC	Receive baud rate		
XMT	Transmit baud rate		
A	Auto-answerback	0 = Off	1 = On
B	Buffer size	0 = Small	1 = Large
C	Printer char. set	1 = US	2 = UK
D	Auto-disconnect	0 = Off	1 = On
E	Local echo	0 = Off	1 = On
F	Form length		Lines per form
G	Bell volume	0 = Low	1 = High
H	Horizontal pitch		Char. per inch
J	Auto-newline	0 = Off	1 = On
K	Key click	0 = Off	1 = On
L	Auto-linefeed	0 = Off	1 = On
M	Modem/protocol		
N	Keyboard char. set	1 = US	2 = UK
O	Auto-turnaround	0 = enabled	1 = disabled
P	Parity/data bits		
Q	HDX initial state	0 = Auto	1 = Transmit
R	Auto-repeat	0 = Off	1 = On
S	Restraint/Spd;2nd Ch	0 = Speed	1 = Restraint
U	Break enable	0 = No	1 = Yes
V	Vertical pitch		Lines per inch
W	Printer NL char.	1 = None	2 = LF 3 = CR
X	XON/XOFF	0 = No	1 = Yes
Y	Alt keypad mode	0 = No	1 = Yes
Z	Auto-view	0 = Off	1 = On
I	Initialize to factory settings		
T	Self test: Type any character to stop test.		
	Disconnect	0 = EOT	1 = DLE-EOT



MA-2307

Fig. 4-SET-UP Label Installation Location

- Lift the top cover assembly (Figure 3).
- Move carriage adjustment lever towards the user (Figure 5).
- Attach the hook located on the end of the ribbon to the empty spool.
- Wind ten turns of ribbon onto the empty spool.
- Place the full spool on the left spool shaft and turn clockwise until the spool drops into position.
- Thread new ribbon as shown in Figure 5.

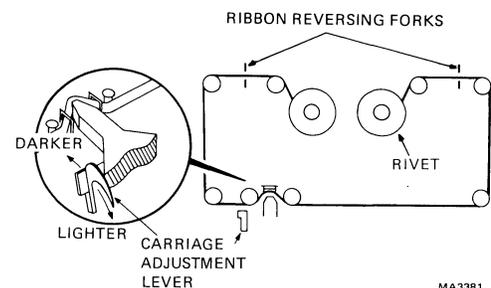
Note: Ribbon rivet must be on empty spool to ensure correct operation of direction-changing mechanism.

LOADING PAPER/FORMS

1.08 The TELEPRINTER 1000 will accept sprocketed multipart paper/forms ranging in width from 3 to 14-7/8 inches. (Paper specifications are given in Paragraph 3.06). Use the following steps to initially load paper or preprinted forms.

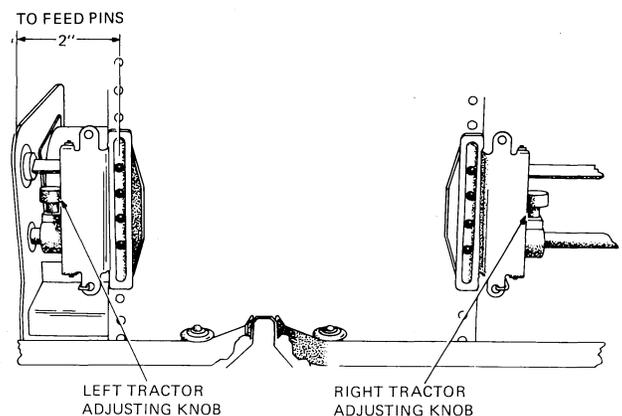
- Loosen the left and right tractor-adjusting screws (Figure 6).
- Position the left tractor feed pins approximately two inches from the left side plate. Tighten the left tractor adjusting screw. This tractor location provides optimum margins for 132-column paper (Figure 6).
- Open both tractor covers.
- Place the paper/forms on the floor between the legs of the TELEPRINTER 1000 with the leading edge of the paper parallel to the paper slot.

Note: It may be necessary to readjust the left and right tractors when using preprinted forms.



MA3381

Fig. 5-Ribbon Threading



MA-4019

Fig. 6-Tractor Adjustment

Align the left edge of the paper with the left tractor (Figure 7).

- Note:** If the paper pulls against the tractor pins or bows in the middle, readjust the right tractor.
- Feed the paper up through the paper slot. Place the left margin holes over the feed pins. Close the left tractor cover.
 - Place the right margin holes over the feed pins. Tighten the right tractor adjusting screw and then close the right tractor cover.

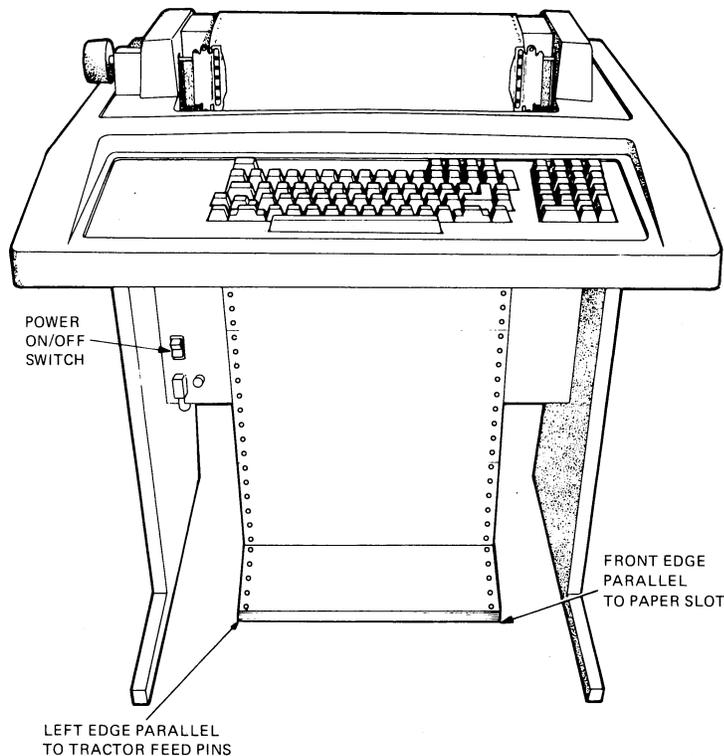


Fig. 7—Paper Positioning

- (g) Perform the impression adjustment (Paragraph 1.09).

PRINT IMPRESSION ADJUSTMENT

1.09 Use the following steps to perform a print impression adjustment.

- (a) Set the power ON/OFF switch ON. (The print head automatically positions itself to the left margin).

Note: If the TELEPRINTER 1000 does not appear to be operating properly refer to Paragraph 1.10.

- (b) Using the carriage adjust lever, adjust print head for contact with your form (Figure 5).
- (c) Move print head and carriage sideways by hand to check for smudging or paper rippling.
- (d) Close the top cover.
- (e) Press the CTRL key (SET-UP LOCK key on the RO teleprinter) and the SET-UP key at same time.
- (f) Release both keys. (The SET-UP light flashes to indicate the TELEPRINTER 1000 is in SET-UP mode).

- (g) Press and release the T key (SELF TEST key on the RO teleprinter) to initiate the printing self-test. (The TELEPRINTER 1000 will print out the self-test pattern).

- (h) Press and release the SET-UP key to stop the test and exit SET-UP mode. (The SET-UP light will stop flashing).

- (i) If smudging or rippling occurs, open the cover and move the carriage adjust lever away from the paper slightly (toward user). Repeat the previous steps until the smudging or rippling is eliminated.

CHECKOUT PROCEDURES

1.10 When power is applied, the TELEPRINTER 1000 automatically runs an internal self-test. A failure is displayed by a flashing number in the numeric display. If a failure occurs, remove and restore power to the teleprinter. If the error indication reappears, record the indication and refer to BSP 574-550-300. If the numeric display indicates a constant 8888 when power is turned ON, the top cover is open or a paper fault condition exists.

Note: If the original problem was indicated by a flashing 9, check the stored SET-UP features to ensure they have not been affected.

1.11 The user can initiate an additional printing self-test. This test may help determine if a problem exists in the printer or some other portion of the communication system. The test prints out characters within the currently selected margins (Figure 8). Perform the following steps to initiate the printing self-test.

```
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHI
%&'()*+,-./0123456789:;<=>?@ABCDEFGHI
&'()*+,-./0123456789:;<=>?@ABCDEFGHI
'()*+,-./0123456789:;<=>?@ABCDEFGHIJK
()*+,-./0123456789:;<=>?@ABCDEFGHIJK
) *+,-./0123456789:;<=>?@ABCDEFGHIJKL
*+,-./0123456789:;<=>?@ABCDEFGHIJKLM
+,-./0123456789:;<=>?@ABCDEFGHIJKLMN
,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
-./0123456789:;<=>?@ABCDEFGHIJKLMNOF
```

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Fig. 8—Self-Test Printout

- (a) Press the CTRL key (SET-UP LOCK key on the RO teleprinter) and the SET-UP key at the same time.
- (b) Release both keys. (The SET-UP light flashes to indicate the TELEPRINTER 1000 is in SET-UP mode).
- (c) Press and release the T key (SELF TEST key on the RO teleprinter) to initiate the printing self-test. (The TELEPRINTER 1000 will print out the self-test pattern).
- (d) Press and release the SET-UP key to stop the test and exit SET-UP mode. (The SET-UP light will stop flashing).

ANSWERBACK

1.12 Answerback is a short message of up to 30 characters. The user enters the answerback message into the TELEPRINTER 1000. This message is transmitted by the teleprinter on command from another device or by the user from the keyboard. The message consists of a code that identifies the TELEPRINTER 1000. Control codes such as carriage return, line feed, tab, etc., may be part of the answerback message. Table A lists the control codes and the unique characters that will be printed.

Entering the Answerback Message

1.13 Perform the following steps to enter an answerback message.

- (a) Press the CTRL and SET-UP keys at the same time.
- (b) Release both keys. (The SET-UP light flashes to indicate the TELEPRINTER 1000 is in SET-UP mode).
- (c) Press the CTRL and HERE IS keys at the same time.
- (d) Release both keys. (The next character typed starts the answerback message).

Note: If more than thirty characters are typed, the answerback message can not be stored in non-volatile memory; a bell tone sounds and the procedure must be repeated from step c.

To set the TELEPRINTER 1000 for no answerback message, omit step e.

- (e) Type up to thirty characters to enter answerback message.

Note: If you do not wish to store the answerback message in nonvolatile memory omit steps f and g.

- (f) Press the CTRL and HERE IS keys at the same time.
- (g) Release both keys.
- (h) Press and release the SET-UP key to exit SET-UP mode. (The SET-UP light will stop flashing.)

Verifying the Answerback Message

1.14 Perform the following steps to verify the answerback message.

- (a) Press and release the LINE-LOCAL key. (The LOCAL light will come ON and the ON-LINE light will go OFF).
- (b) Press and release the HERE IS key. (The answerback message will be printed.)

Note: If the TELEPRINTER 1000 is ON-LINE it will transmit the answerback message. The message will be printed if the message is looped back to the teleprinter.

Table A

Control Codes Printed Characters

Hex Code	Printed Characters	Hex Code	Printed Characters
00	^ @	10	^ P
01	^ A	11	^ Q
02	^ B	12	^ R
03	^ C	13	^ S
04	^ D	14	^ T
05	^ E	15	^ U
06	^ F	16	^ V
07	^ G	17	^ W
08	^ H	18	^ X
09	^ I	19	^ Y
0A	^ J	1A	^ Z
0B	^ K	1B	^ [
0C	^ L	1C	^ /
0D	^ M	1D	^]
0E	^ N	1E	^ ~
0F	^ O	1F	^ -
		7F	⌘

Permanently Storing the Answerback Message

1.15 The TELEPRINTER 1000 answerback message can be permanently stored by removing an internal jumper after entering and verifying the answerback message. Perform the following steps to set a permanent answerback message.

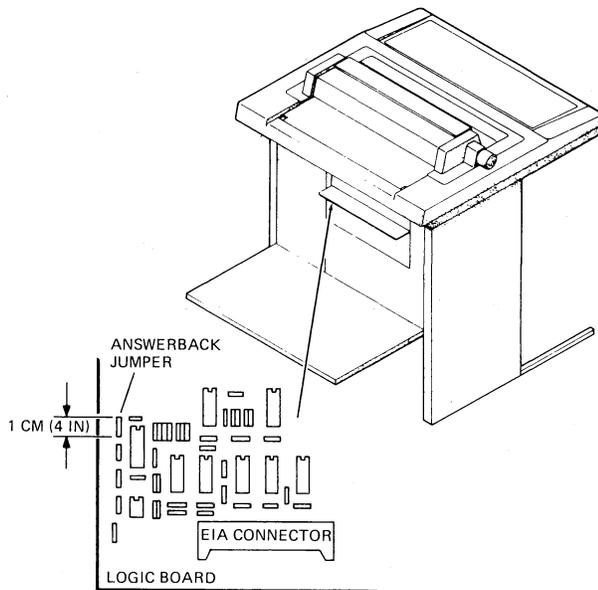
Note: If the answerback jumper is removed, the answerback message cannot be altered or erased by the user.

The answerback message must be stored in the nonvolatile memory prior to removing the jumper.

- (a) Store answerback message if required (Paragraph 1.13).
- (b) Verify the answerback message (Paragraph 1.14).
- (c) Turn power OFF.
- (d) Remove the answerback jumper (Figure 9).
- (e) Turn power ON.

Setting the RO Teleprinter Answerback Message

1.16 A KSR keyboard is required to enter the answerback message into the RO TELEPRINTER 1000. Use the following steps to set an answerback message into the RO Teleprinter.



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Fig. 9—Answerback Jumper Location

- (a) Turn power OFF and disconnect the ac plug.
- (b) Open the rear access door on the rear of the cabinet.
- (c) Disconnect the keypad connector from J1 on the logic/power board (Figure 10).
- (d) Connect the KSR keyboard cable to J1 on the logic/power board (Figure 10).
- (e) Connect the TELEPRINTER 1000 line cord to the correct wall receptacle. Restore power to the teleprinter.
- (f) Enter the answerback message (Paragraph 1.13).
- (g) Verify the answerback message (Paragraph 1.14).
- (h) Remove the answerback jumper (Paragraph 1.15).
- (i) Turn power OFF and disconnect the ac power cord.
- (j) Disconnect the KSR keyboard from J1 on the logic/power board (Figure 10).
- (k) Reconnect the RO keypad to J1 on the logic/power board (Figure 10).
- (l) Close the rear access door on the rear of the cabinet.
- (m) Connect the TELEPRINTER 1000 line cord to the correct wall receptacle and then restore power to the teleprinter.

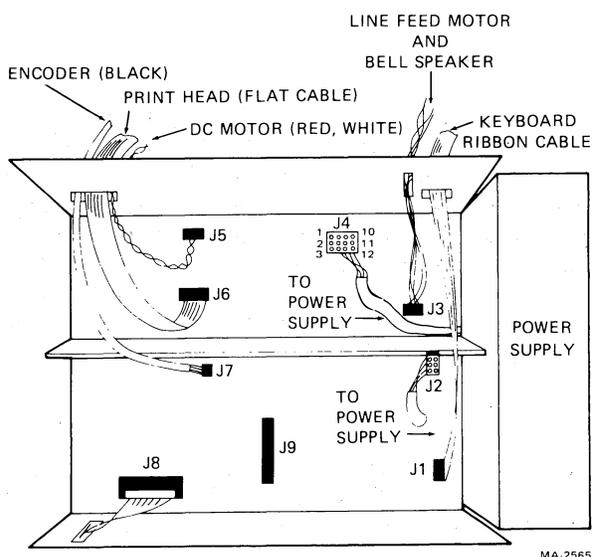


Fig. 10-Logic/Power Board Connectors

2. INTERFACE INFORMATION

EIA INTERFACE

2.01 The TELEPRINTER 1000 EIA interface is compatible with Bell 103JR, 202JR, 212AR, 108, and 109 modems. In addition, the interface meets the requirements of EIA specification RS-232-C and CCITT recommendation V.24. A summary of the EIA connector signals is listed in Table B. The following paragraphs describe the interface signals in detail.

2.02 Frame Ground (FG)-This conductor is connected to the chassis of the TELEPRINTER 1000. It is further connected to external grounds through the third wire of the power cord.

2.03 Sent Data (SD) Direction: FROM TELEPRINTER 1000-Signals on this circuit represent serially encoded characters generated by the TELEPRINTER 1000.

2.04 Received Data (RD) Direction: TO TELEPRINTER 1000-Signals on this circuit represent serially encoded characters from the modem or data set.

2.05 Request to Send (RS) Direction: FROM TELEPRINTER 1000-The ON condition of RS means that the TELEPRINTER 1000 intends to transmit data. After turning this circuit ON, the TELEPRINTER 1000 waits for a transmit enable (clear to send) condition before starting transmission.

2.06 Clear to Send (CS) Direction: TO TELEPRINTER 1000-Ignored at all times. Depending on the modem protocol in use, either CD, SRLSD, or a timeout, after asserting RS, is used to provide a transmit enable (clear to send) condition.

2.07 Data Set Ready (DSR) Direction: TO TELEPRINTER 1000-The ON condition of DSR indicates that the modem/data set is capable of transmitting and receiving data signals. The OFF condition of DSR causes the TELEPRINTER 1000 to ignore all other interface inputs except Ring Indicator (RI). In full duplex without EIA control (modem SET-UP feature = 1), this circuit is assumed to always be in the ON condition.

2.08 Signal Ground (SG)-This circuit establishes the common ground reference potential for all interface circuits except frame ground. This circuit is permanently connected to the frame ground circuit.

TABLE B
EIA Connector Signals

Pin	Source	Name	Function	Circuit CCIT/EIA
1		FG	Frame ground	101/AA
2	Teleprinter	SD	Sent data	103/BA
3	Modem/Data Set	RD	Received data	104/BB
4	Teleprinter	RS	Request to send	105/CA
5	Modem/Data Set	CS	Clear to send	106/CB
6	Modem/Data Set	DSR	Data set ready	107/CC
7		SG	Signal ground	102/AB
8	Modem/Data Set	CD	Carrier detect	109/CF
9				
10				
11	Teleprinter	SCA	Secondary request to send	120/SCA
12	Modem/Data Set	SI	Speed indicator (FDX)	112/CI
12	Modem/Data Set	SRLSD	Secondary carrier detect (HDX)	122/SCF
13				
14				
15				
16				
17				
18				
19	Teleprinter	SCA	Secondary request to send	120/SCA
20	Teleprinter	DTR	Data terminal ready	108.2/CD
21				
22	Modem/Data Set	RI	Ring indicator	125/CE
23	Teleprinter	SPDS	Speed select (FDX)	111/CH
24				
25				

Note: Pins 11, 19, and 23 are driven by a common circuit whose function is determined by the modem and secondary channel SET-UP commands.

2.09 Carrier Detect (CD) Direction: TO TELEPRINTER 1000—The ON condition of CD indicates that data transmission from the modem/data set to the TELEPRINTER 1000 is enabled. In full duplex without EIA control, this circuit is assumed to always be in the ON condition.

2.10 Speed Indicator (SI) Direction: TO TELEPRINTER 1000 (Full Duplex Only)—The ON condition of SI indicates that the baud rate is 1200 baud, regardless of the rate selected by the operator. The OFF condition of SI indicates that the operator selected baud rate is being used.

2.11 Secondary Carrier Detect (SRLSD) Direction: TO TELEPRINTER 1000 (Half Duplex Only)—The ON condition of SRLSD indicates that the modem/data set is capable of successfully processing the transmitted data from the TELEPRINTER 1000.

2.12 Secondary Request to Send (SCA) Direction: FROM TELEPRINTER 1000—In certain half duplex modes the ON condition of SCA indicates that the TELEPRINTER 1000 is capable of successfully processing the received data from the modem/data set. In restraint mode, the OFF condition of SCA indicates that the modem/data set should temporarily suspend the transmission of data. When SCA goes ON, transmission may be resumed.

2.13 Data Terminal Ready (DTR) Direction: FROM TELEPRINTER 1000—DTR ON indicates that the TELEPRINTER 1000 is capable of transmitting and receiving data signals. When DTR is OFF the TELEPRINTER 1000 ignores all interface inputs except Ring Indicator (RI). DTR OFF also causes the DSR signal at the other end of the line to go OFF.

2.14 Ring Indicator (RI) Direction: TO TELEPRINTER 1000—If Data Terminal Ready (DTR) is OFF, the ON condition of RI causes DTR to turn ON. DTR remains ON until Data Set Ready (DSR) turns ON or thirty seconds elapses, whichever occurs first; then DTR turns OFF. If DTR is ON, then the ON condition of RI causes a thirty second timeout. If no data is received in thirty seconds then DTR is pulsed low for 250 ms (-10 to +10 percent).

2.15 Speed Select (SPDS) Direction: FROM TELEPRINTER 1000 (Full Duplex Only)—If the operator selected baud rate is 600 or higher, then the TELEPRINTER 1000 asserts an ON condition on SPDS, otherwise the TELEPRINTER 1000 holds this circuit in the OFF condition.

IMPEDANCE OF TERMINATOR

2.16 The terminating impedance of the receiving end of the interface circuits has a dc resistance of not less than 3000 Ω nor more than 7000 Ω . When the interface plug is disconnected, the interface voltage on terminator circuits is -2 to +2V.

3. TELEPRINTER 1000 SPECIFICATIONS

OPERATING CHARACTERISTICS

3.01

Printing Technique	Impact dot matrix, smart bidirectional
Print Matrix	7 dots wide by 7 dots high
Maximum Print Speed	180 characters per second
Maximum Throughput	120 characters per second
Horizontal Slew Rate	60 IPS (inches per second)
Single Line feed Time	33 ms
Vertical Slew Rate	7.5 IPS (inches per second)
Paper Feed	Pin-feed, tractor drive
Forms Length	1 to 168 lines
Vertical Pitch	2,3,4,6,8,12 LPI (lines per inch)
Horizontal Pitch	
180 CPS (characters per second)	10,12,13.2,16.5 CPI (characters per inch)
90 CPS (characters per second)	5,6,6.6,8.25 CPI (characters per inch)

RISE AND FALL TIMES

2.17 The circuitry that receives signals from an interface circuit is dependent only on the signal voltage and conforms to RS-232-C with regard to the rise time and fall time. For control interface circuits, the time required for the signal to pass through the transition region (-3 to +3V) during a change in state does not exceed one ms. For the Transmitted Data circuit the rise time and the fall time does not exceed 16.7 ms through the 6 V range (-3 to +3 V).

OPEN CIRCUIT VOLTAGES

2.18 The open circuit driver voltage with respect to signal ground on any interface circuit does not exceed -12 to +12 V. The terminator on an interface circuit is designed to withstand any input signal within the -25 to +25 V limit. When the terminating impedance is in the proper range (3000 Ω to 7000 Ω) and the terminator open circuit voltage is zero, the potential at the point of interface is not less than -5 to +5 V or more than -12 to +12 V. An open circuit or applied voltage more negative than +0.6 V will be interpreted the same as a legitimate negative applied voltage (-3 to -25 V).

Maximum Line Length (varies with horizontal pitch)	
5 CPI	66 columns
6 CPI	79 columns
6.6 CPI	87 columns
8 CPI	108 columns
10 CPI	132 columns
12 CPI	158 columns
13.2 CPI	174 columns
16.5 CPI	217 columns
Margins	Left, right, top, bottom
Tabs	217 horizontal, 168 vertical
Forms Storage	True nonvolatile memory (no batteries)
Positioning Commands	Horizontal and vertical, absolute and relative
Answerback	Up to thirty characters (nonvolatile memory)
Character Set	USASCII Upper/Lowercase Set
Other Printer Features	Paper out and cover open interlocks, selectable auto new line, self-test, status message, 4-digit numeric display, factory stored form setup (10 CPI, 6 LPI, 66 lines per form, tab stops every eight columns, etc.)
KSR only	Manual and automatic Last Character View

KEYBOARD/KEYPAD SPECIFICATIONS

3.02	
Keyboard (KSR)	Typewriter style with multikey rollover
Auto Line Feed (KSR)	Selectable
Numeric Keypad (KSR)	18 keys including 4 functions keys
Feature Selection	Keyboard entry to nonvolatile memory
Other Keyboard Features	Local form feed, local line feed
KSR only	Auto repeat on all alphanumeric keys, and selectable keyclick

COMMUNICATION SPECIFICATIONS

3.03	
Interface	Full EIA standard (includes auto answer/disconnect)
Baud Rate BPS (bits per second)	50,75,110,134.5,150,300,600,1200,1800
Split Speeds BPS (bits per second)	600 or 1200 receive, with 75 or 150 transmit; 2400 or 4800 receive, with 300 or 600 transmit.
Character Code	7-bit ASCII
Character Format	Serial, asynchronous

Parity Odd, even, or none (eighth bit mark or space transmitted, or data bits only)

Input Buffer 1024 (1K) characters standard

MODEM CONTROL PROTOCOLS

3.04

Full Duplex Selectable XON/XOFF or restraint signal data synchronization

Half Duplex Coded control with or without reverse channel

Half Duplex Reverse channel, supervisory, line control

PHYSICAL CHARACTERISTICS

3.05

Dimensions

Width 69.9 cm (27.5 in)

Height 85.1 cm (33.5 in)

Depth 61.0 cm (24.0 in)

Weight

Uncrated 46.4 kg (102 lb)

Shipping 63.7 kg (140 lb)

Voltage 87-128 Vac

Frequency 59-61 Hz

Input Current 4.2 A max at 115 V

Heat Dissipation

Printing 440 W max

Temperature

Operating 10° to 40° C (50° to 104° F), noncondensing

Nonoperating -40° to 66° C (-40° to 151° F), noncondensing

Relative Humidity

Operating 10 to 90 percent with a maximum wet bulb temperature of 28° C (82° F) and a minimum dew point of 2° C (36° F), noncondensing

Nonoperating 5 to 95 percent, noncondensing

Fuses

Front Panel
F1

3 A slow-blow

Power Supply

F1

5 A pico-fuse

F2

5 A slow-blow

F3

6 A slow-blow

Logic/Power Board

F1

1.5 A slow-blow

F2

2.5 A slow-blow

PAPER REQUIREMENTS

3.06

General

Continuous, fan-fold, pin-feed forms

Width

7.62 to 37.78 cm (3 to 14-7/8 in)

Forms thickness

Single-Part

6.8 kg (15 lb) paper minimum 0.25 mm (0.010 in) card stock max

Multipart

1 to 6 parts (see notes) 0.50 mm (0.020 in) max

Note: Multipart forms may have only one card part. The card must be the last part.

NCR, 3M paper, or equivalent up to 6-part, must use ribbon on the top copy. First-surface impact paper is not recommended.

Continuous-feed, fan-fold business forms with 3- or 4-prong margin crimps on both margins (multipart) are not recommended and may damage tractors and other areas of the teleprinter. Dot or line glue margins are acceptable (if line is on one margin only). Do not line glue both margins as air will not be able to escape and poor impressions will result.

Split forms (forms with each side containing a different number of sheets) are not recommended

RIBBON SPECIFICATIONS

3.07

Material

DIGITAL-specified nylon fabric (Part No. 36-12153-01) or equivalent

Spool Assembly

127 cm wide × 54.87 m long (0.05 in × 60 yd)