

TELEPRINTER 1000 (KSR/RO) MAINTENANCE

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 maintenance 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. Installation information is contained in Section 574-550-200.

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	DESIG	WITHOUT REVERSE CHANNEL	WITH REVERSE CHANNEL	SWITCH SETTING												PROVIDE
				S3 SWITCH CONTACT SETTING ON												
				TRANSMITTER						RECEIVER						
DESCRIPTION				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	X	-		
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												One per set
				TRANSMITTER-RECEIVER												
				1	2	3	4	5	6	7	8	9	0			
	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	DESIG	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		
					1	2	3	4	5	6	7	8	9	0			
	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	-	-	-				
	N	Out (23 ms)	-	-	-	-	-	-	-	X	-	-	-				
Clear to Send Interval	M●	8 ms	-	-	-	O	O	-	-	-	-	-	-				
	K	30 ms	-	-	-	O	X	-	-	-	-	-	-				
	J	60 ms	-	-	-	X	O	-	-	-	-	-	-				
	G ¹	180 ms	-	-	-	X	X	-	-	-	-	-	-				
Automatic Answer	B● ¹	In	X	-	-	-	-	-	-	-	-	-	-				
	A	Out	O	-	-	-	-	-	-	-	-	-	-				
Local Copy on Primary Channel	ZA	In	-	-	-	-	-	O	-	-	-	-	-				
	ZB● ¹	Out	-	-	-	-	-	X	-	-	-	-	-				
Condition of CC (DSR) During Analog Loopback	YI●	On	-	-	-	-	-	-	-	-	X	-	-				
	YJ	Off	-	-	-	-	-	-	-	-	-	O	-				
Reverse Channel			S3 SWITCH CONTACT SETTING ON TRANSMITTER RECEIVER						One per set								
			1	2	3	4	5	6									
Reverse Channel	ZC● ²	In	O	O	-	-	-	-									
	ZD ¹	Out	X	X	-	-	-	-									
Transmit Only	YG	In	-	-	X	-	-	-									
	YH●	Out	-	-	O	-	-	-									
Echo Suppressor Enable	YQ	In	-	-	-	O	-	-									
	YR● ¹	Out	-	-	-	X	-	-									
Carrier Controlled Turnaround	YS	In	-	-	-	-	-	O									
	YT●	Out	-	-	-	-	-	X									
Early CC (DSR) Indication	YU●	In	-	-	-	-	O	-									
	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	Squelch	
	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	24 ms	156 ms	- - X O - - - - X O	One per Data Set
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	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

TELEPRINTER 1000 (KSR/RO)

MAINTENANCE PRACTICE

CONTENTS	PAGE	CONTENTS	PAGE
1. TROUBLESHOOTING THE TELEPRINTER 1000	3	MOTOR/ENCODER ASSEMBLY	14
		Motor/Encoder Assembly Removal	14
2. MECHANICAL SERVICING	9	Motor/Encoder Assembly Installation	14
GENERAL	9	PRINTER MECHANISM ASSEMBLY	14
PRINTER HOUSING COVER	9	Printer Mechanism Assembly Removal	14
Printer Housing Cover Removal	9	Printer Mechanism Assembly Installation	15
Printer Housing Cover Installation	9	TRACTOR ASSEMBLIES	16
PRINT HEAD ASSEMBLY	10	Tractor Assemblies Removal	16
Print Head Removal	10	Tractor Assemblies Installation	16
Print Head Installation	10	RIBBON CHASSIS ASSEMBLY	17
TIMING BELT	10	Ribbon Chassis Assembly Removal	17
Timing Belt Removal	11	Ribbon Chassis Assembly Installation	17
Timing Belt Installation	11	IDLER GEAR ASSEMBLY	18
PRINT HEAD CABLE	11	Idler Gear Assembly Removal	18
Print Head Cable Removal	11	Idler Gear Assembly Installation	18
Print Head Cable Installation	11	STEPPING MOTOR ASSEMBLY	18
RIBBON DRIVE ASSEMBLY	12	Stepping Motor Assembly Removal	18
Ribbon Drive Assembly Removal	12	Stepping Motor Assembly Installation	19
Ribbon Drive Assembly Installation	12	KEYBOARD ASSEMBLY (KSR AND RO)	19
RIBBON DRIVE PULLEY	13	KSR Keyboard/Numeric Pad Assembly Removal	19
Ribbon Drive Pulley Removal	13	KSR Keyboard/Numeric Pad Assembly Installation	19
Ribbon Drive Pulley Installation	13		

CONTENTS	PAGE
RO Keypad Assembly Removal	20
RO Keypad Assembly Installation.....	20
LOGIC BOARD	20
Logic Board Removal	20
Logic Board Installation	21
CONSTANT VOLTAGE TRANSFORMER (CVT) POWER SUPPLY ASSEMBLY	21
Power Supply Assembly (CVT) Removal.....	21
Power Supply Assembly (CVT) Installation	21
POWER ENTRY PANEL ASSEMBLY (CVT)	22
Power Entry Panel Assembly (CVT) Removal.....	22
Power Entry Panel Assembly (CVT) Installation	22
FAN ASSEMBLY	22
Fan Assembly Removal.....	23
Fan Assembly Installation	23
CARRIAGE ASSEMBLY	23
Carriage Assembly Removal.....	23
Carriage Assembly Installation.....	23
CVT POWER SUPPLY BOARD	24
CVT Power Supply Board Removal.....	24
CVT Power Supply Board Installation	24
EIA PROTECTION MODULE	25
EIA Protection Module Removal	25
EIA Protection Module Installation.....	26
3. ADJUSTMENT PROCEDURES.....	26
PRINT HEAD ADJUSTMENT	26
PRINTER MECHANISM ADJUSTMENT	26

CONTENTS	PAGE
PAPER OUT SWITCH ADJUSTMENT	26
RIBBON DRIVE ASSEMBLY ADJUSTMENT	27
IDLER GEAR ASSEMBLY ADJUSTMENT	28
BUMPER ASSEMBLY ADJUSTMENT	28
4. ANSWERBACK JUMPER.....	29
ENTERING THE ANSWERBACK MESSAGE	29
VERIFYING THE ANSWERBACK MESSAGE	29
PERMANENTLY STORING THE ANSWERBACK MESSAGE	30
SETTING THE RO TELEPRINTER ANSWERBACK MESSAGE	30
5. TELEPRINTER 1000 KSR/RO USER INFORMATION.....	30

Figures

1. Assembly Removal Sequence.....	9
2. Printer Housing Cover Removal and Installation.....	10
3. Print Head Removal and Installation.....	10
4. Belt Tension Spring Location.....	11
5. Belt Tension Spring (Detail View)	11
6. Print Head Cable.....	12
7. Ribbon Drive Assembly Removal and Installation.....	12
8. Ribbon Drive Assembly (Detailed View).....	13
9. Ribbon Drive Adjustment	13
10. Motor/Encoder Assembly Removal and Installation.....	14
11. Printer Mechanism Assembly Removal and Installation.....	15
12. Cabinet Reference Holes.....	15

CONTENTS	PAGE
13. Tractor Assemblies Removal and Installation	16
14. Tractor Phasing/Adjustment	16
15. Ribbon Chassis Assembly Removal and Installation	17
16. Cover Interlock Switch	17
17. Idler Gear Assembly Removal and Installation	18
18. Stepping Motor Assembly Removal and Installation	18
19. Stepping Motor (Showing Mounting Plate)	19
20. TELEPRINTER 1000 KSR Keyboard and Numeric Pad Removal and Installation	19
21. TELEPRINTER 1000 RO Keypad Removal and Installation	20
22. Logic Board Removal and Installation	20
23. Power Supply (CVT) Removal	21
24. Power Supply (CVT) Installation	22
25. Power Entry Panel Assembly (CVT) Removal and Installation	22
26. Fan Assembly Removal and Installation	23
27. Carriage Assembly Removal and Installation	24
28. CVT Power Supply Board Removal and Installation	25
29. EIA Protection Module Removal and Installation	25

CONTENTS	PAGE
30. Logic Board Connectors	25
31. Print Head Adjustment	26
32. Printer Mechanism Alignment	27
33. PAPER OUT Switch Adjustment	27
34. Ribbon Drive Adjustment	27
35. Ribbon Drive Assembly	28
36. Idler Gear Assembly	28
37. Bumper Assembly Adjustment	28
38. Answerback Jumper	30
39. TELEPRINTER 1000 KSR Functional Block Diagram	34
40. TELEPRINTER 1000 RO Functional Block Diagram	35

Tables

A. TELEPRINTER 1000 Troubleshooting Procedure	4
B. Control Codes Printed Characters	29

1. TROUBLESHOOTING THE TELEPRINTER 1000

1.01 Table A lists the most common TELEPRINTER 1000 failures, the associated symptoms, and remedies. Observe the symptoms in the order given.

Warning: Disconnect the ac line cord from the wall receptacle before removing or replacing any FRUs (Field Replaceable Units).

TABLE A
TELEPRINTER 1000 Troubleshooting Procedure

Symptom	Probable Cause	Remedy
No power when POWER switch is set to ON: fan not operating, no lights.	Main power fuse (F1)	Check and replace fuse
	Not plugged in, no power at wall socket	Check power cord, wall socket
	Wiring between ac plug transformer and fan	Check and replace wiring
Head slams into right bumper, no bell sounds.	Power supply fuse F3	Check and replace fuse F3
<i>Note:</i> Head slamming into bumper may cause CARRIAGE fuse (on logic board) to blow after a few seconds.	Power supply	Replace power supply per Paragraph 2.48
	CVT power supply board	Replace CVT power supply board per Paragraph 2.60
	Logic board	Replace logic board per Paragraph 2.45
Head slams into left bumper, no bell sounds.	Power supply	<i>Warning: Use extreme care when checking internal portions of the power supply due to exposed 120 Vac.</i>
<i>Note:</i> Head slamming into bumper may cause CARRIAGE fuse (on logic board) to blow after a few seconds.		Replace power supply per Paragraph 2.48
	CVT power supply board	Replace CVT power supply board per Paragraph 2.60
	Cable between J2 on power supply and J2 on logic board	Reconnect or replace cable
	Logic board	Replace logic board per Paragraph 2.45
Head slams into left or right bumper bell sounds	Motor/encoder cable to J5 on logic board	Reconnect or repair cable

TABLE A (Cont)

TELEPRINTER 1000 Troubleshooting Procedure

Symptom	Probable Cause	Remedy
	Motor/encoder	Replace motor/encoder cable per Paragraph 2.22
	Logic board	Replace logic board per Paragraph 2.45
No response when power switch is set to ON, fan operating no lights.	Five ampere pico fuse (F1 located on CVT power supply board)	Remove power supply per Paragraph 2.45 and replace pico fuse F1
	CVT power supply board	Replace CVT power supply board per Paragraph 2.60
	Cable between J1 on keyboard and J1 on logic board	Reconnect or replace cable
	Cable between J5 on power supply and ac input	Reconnect or replace wiring
	Power supply	Replace power supply per Paragraph 2.48
Display indicates 8888, print head does not move, all lights light.	No paper	Replace paper
	Top cover open	Close cover
	Paper-out switch	Adjust paper out switch per Paragraph 3.04
	J3 on KSR keyboard J2 on RO keypad	Reconnect J3/J2, check cable
	Cable between J2 on KSR keyboard (J1 on RO Keypad) and J1 on logic board	Reconnect or replace cable
	Logic board	Replace logic board per Paragraph 2.45
Display indicates one blinking digit (0 through 9), print head does not move.	Logic board	Turn TELEPRINTER 1000 off, then back on. If display continues blinking, replace logic board per Paragraph 2.45.
	Flashing 9 could indicate J2 on logic board or power supply is disconnected	Reconnect J2

TABLE A (Cont)

TELEPRINTER 1000 Troubleshooting Procedure

Symptom	Probable Cause	Remedy
Print head does not move, some lights light, display does not indicate any number.	Carriage fuse F2 on logic board	Replace fuse
	F2 on power supply	Replace fuse
	Motor/encoder	Replace motor/encoder per Paragraph 2.22
	Power supply	Replace power supply per Paragraph 2.48
	Cable to J5 on logic board	Reconnect or repair cable
Print head moves left then right a few spaces, however display indicates a number other than 1 (number does not flash).	Logic board	Replace logic board per Paragraph 2.45
	Keyboard	Replace keyboard per Paragraph 2.40
	Cable between J2 on KSR keyboard (J1 on RO keypad) J1 on logic board	Replace cable
Display does not appear to work or lights are suspected to be faulty.	Display or lights	To check display and light, turn power OFF, open top cover, then turn power ON. Display should indicate 8888 and all lights should light. If display is bad, replace keyboard per Paragraph 2.40. Replace lights as required.
Note: The following steps exercise the logic board and the printing mechanism.		
Press CTRL and SET-UP (SET-UP LOCK and SET-UP for RO) to enter SET-UP; SET-UP light does not flash.	Logic board or keyboard	In LOCAL, press additional keyboard keys to isolate fault between keyboard and logic board. Replace logic board or keyboard per Paragraphs 2.45 and 2.40.

TABLE A (Cont)

TELEPRINTER 1000 Troubleshooting Procedure

Symptom	Probable Cause	Remedy
While in SET-UP, press T (SELF TEST for RO) to start self test. Print head does not fire in SELF TEST mode; however, carriage moves across carriage bar.	Print head	Replace print head per Paragraph 2.07
	Print head cable disconnected	Reconnect print head cable
	Logic board	Replace logic board per Paragraph 2.45.
No printout in self test, however, carriage moves across carriage bar and head solenoids sound as if they are firing.	Carriage adjustment lever	Adjust print using carriage adjustment lever
	Ribbon	Check and replace ribbon
	Ribbon chassis assembly	Check to see if ribbon moves freely; if required replace ribbon chassis assembly per Paragraph 2.31.
Missing dots in self test mode (always same row)	Print head	Replace print head per Paragraph 2.07
	Print head cable	Replace print head cable
	Logic board	Replace logic board per Paragraph 2.45
Missing or incorrect characters (always the same character)	Logic board	Replace logic board per Paragraph 2.45
TELEPRINTER 1000 operates in self test, however printout is incorrect when operating on line.	Data Set or facilities, EIA interface, or logic board cable, EIA protection module	Disconnect the data set from the teleprinter interface. Connect EIA loop back connector (Part No. 12-15336-00) to interface. Place the TELEPRINTER 1000 on-line and type a few characters. If TELEPRINTER 1000 operates correctly problem is with Data Set or facilities. If TELEPRINTER 1000 does not operate correctly, replace EIA interface cable, EIA protection module or logic board per Paragraph 2.45.

Note: The Modem SET-UP feature must be set to selection 1 and the baud rates may not be split.

TABLE A (Cont)

TELEPRINTER 1000 Troubleshooting Procedure

Symptom	Probable Cause	Remedy
Loss of position when printing multiple lines.	Logic board	Replace logic board per Paragraph 2.45
	Power supply	Replace power supply per Paragraph 2.48
Print varies in density from dark to light or light to dark across page.	Print bar out of alignment	Replace printer mechanism per Paragraph 2.25
Print density varies randomly across page.	Ribbon	Replace ribbon
	Logic board	Replace logic board per Paragraph 2.45
Printing is always light in the same spot.	Print bar pitted or bent printer mechanism	Replace printer mechanism per Paragraph 2.25
Printing density progressively drops off to no impression when printing single or multiple lines.	Ribbon drive assembly does not move ribbon	Replace ribbon drive assembly per Paragraph 2.16
	Print head (screws that secure head to carriage work loose)	Adjust print head (Paragraph 3.02)
Ribbon does not reverse	Ribbon or ribbon chassis assembly	Check for eyelet on ribbon. Replace ribbon or ribbon chassis assembly.
	Pushrod disengaged	Reconnect pushrod
Paper jams	Paper path obstruction	Clear paper path
	Carriage adjustment lever	Adjust carriage adjustment lever
	Tractor assemblies	Replace tractor assemblies per Paragraph 2.28
	Head gap	Check and adjust head gap per Paragraph 3.02

2. MECHANICAL SERVICING

GENERAL

2.01 This chapter contains information pertaining to the removal and replacement of the mechanical and electrical subassemblies of the TELEPRINTER 1000.

2.02 Figure 1 lists all of the removal procedures in this chapter and the sequence in which these procedures are performed. As an example, Figure 1 illustrates that to remove the power entry panel assembly, the power supply assembly removal procedure must be performed first.

2.03 The following TELEPRINTER 1000 assemblies should be replaced in their entirety in a field environment.

- Print head assembly (Paragraph 2.07)
- Timing belt (Paragraph 2.10)
- Print head cable (Paragraph 2.13)
- Ribbon drive assembly (Paragraph 2.16)
- Ribbon drive pulley (Paragraph 2.19)
- Motor and encoder assembly (Paragraph 2.22)
- Printer mechanism assembly (Paragraph 2.25)
- Tractor assemblies (Paragraph 2.28)
- Ribbon chassis assembly (Paragraph 2.31)
- Idler gear assembly (Paragraph 2.34)
- Stepping motor assembly (Paragraph 2.37)
- Keyboard/Keypad (Paragraph 2.40)
- Logic board (Paragraph 2.45)
- Power supply assembly (CVT) (Paragraph 2.48)
- Power entry panel assembly (CVT) (Paragraph 2.51)
- Fan assembly (Paragraph 2.54)

- Carriage assembly (Paragraph 2.57)
- CVT power supply board (Paragraph 2.60)

Note: When an assembly is replaced, the installer/repair person should perform the self test to verify proper operation. Refer to Paragraph 5 for detail.

PRINTER HOUSING COVER

2.04 The following procedure describes the removal and installation of the printer housing.

Printer Housing Cover Removal

2.05

- (a) Turn the teleprinter power ON/OFF switch OFF and disconnect the ac plug.
- (b) Remove the teleprinter paper and top printer cover.
- (c) Remove six (6-32) hex-head screws that secure the printer housing to the cabinet base (Figure 2) and set them aside.

Printer Housing Cover Installation

2.06

- (a) Place the printer housing on the cabinet base and secure it with six hex-head screws.
- (b) Install the teleprinter paper and cover.
- (c) Restore power.

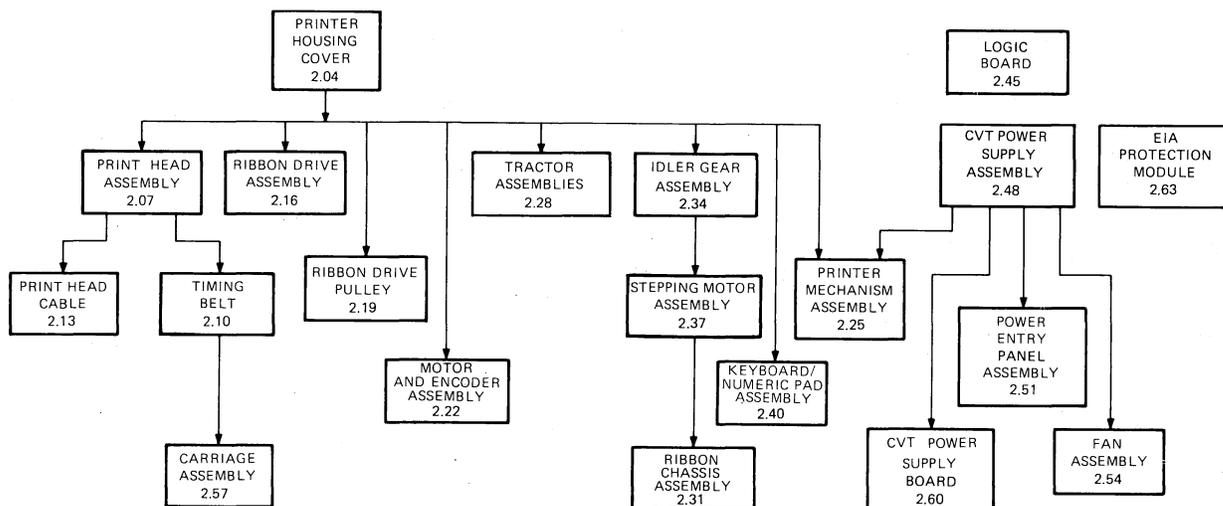


Fig. 1-Assembly Removal Sequence

MA-3365

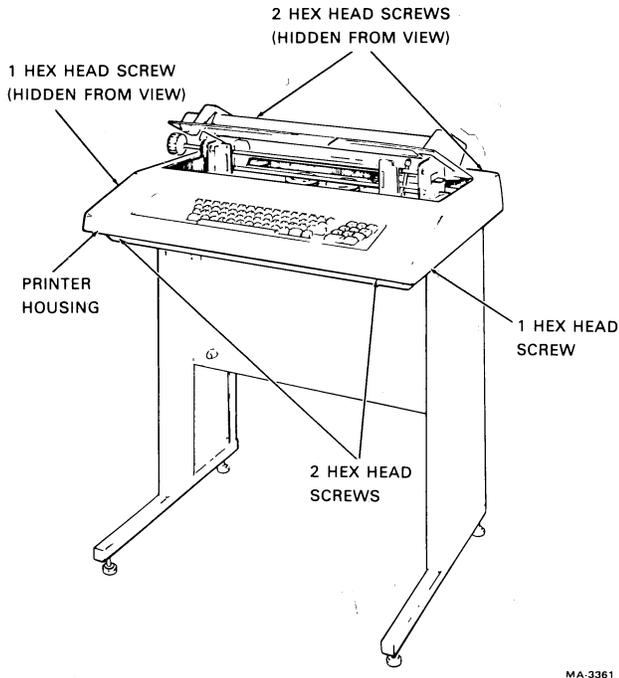


Fig. 2—Printer Housing Cover Removal and Installation

PRINT HEAD ASSEMBLY

2.07 The following procedure describes the removal and installation of the print head assembly.

Print Head Removal

2.08

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Remove the ribbon.
- (c) Remove the print head heat shield.
- (d) Move the carriage adjustment lever to the highest number (toward operator).
- (e) Remove the four (6-32) screws and washers that secure the print head to the carriage (Figure 3).
- (f) Disconnect the print head cable connector from the print head; then remove the print head.

Print Head Installation

2.09

- (a) Connect the print head cable to the new print head (Figure 4).

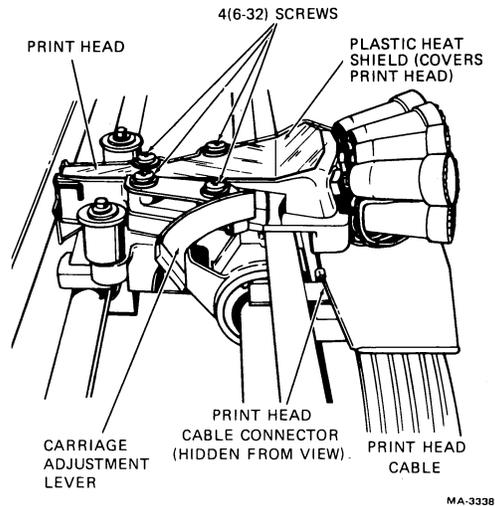


Fig. 3—Print Head Removal and Installation

Caution: When installing the print head, check to ensure that the timing belt teeth mesh (seat) with the slots in the carriage.

- (b) Secure the new print head with four (6-32) screws and washers. Make the screws finger tight.
- (c) Move the print head to the middle of the print bar.
- (d) Set the carriage adjustment lever to No. 1.
- (e) Manually push the print head forward until it touches the print bar.
- (f) Check to ensure that the timing belt is aligned with the pulley.

Caution: Do not over-tighten the print head.

- (g) Tighten the four (6-32) screws.
 - (h) Install the print head heat shield.
 - (i) Replace the ribbon.
- Note:** Slide the carriage along the carriage shaft to ensure that nothing is binding and that the timing belt is aligned with the pulleys.
- (j) Perform the printer housing cover installation (Paragraph 2.06).

TIMING BELT

2.10 The following procedure describes the removal and installation of the timing belt.

Timing Belt Removal

2.11

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05)

Note: The print head cable does not have to be disconnected when performing the following procedure.

- (b) Perform the print head removal procedure (Paragraph 2.08).
- (c) Push the carriage assembly to the extreme left, and slip the timing belt off the dc motor pulley.

Timing Belt Installation

2.12

- (a) With the belt tension spring (Figures 4 and 5) in place, press the left-hand pulley against the printer mechanism and slip on the new timing belt.
- (b) Rotate the timing belt screw (Figure 4) until it just touches the ribbon drive assembly. Screws should not exert pressure on the ribbon drive assembly.
- (c) Perform the print head installation procedure (Paragraph 2.09).

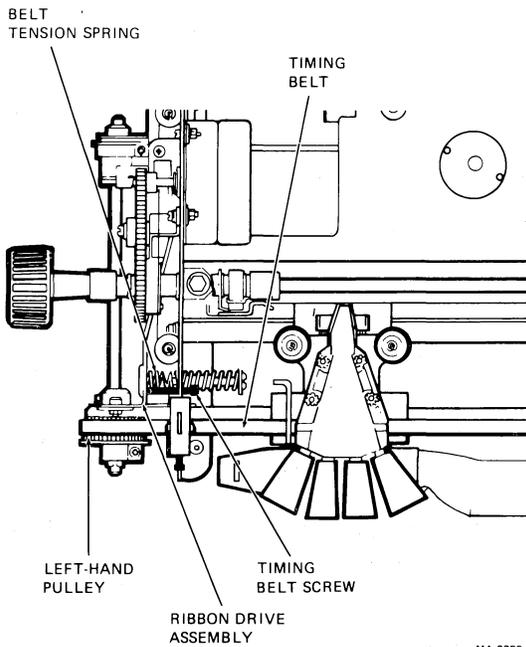


Fig. 4-Belt Tension Spring Location

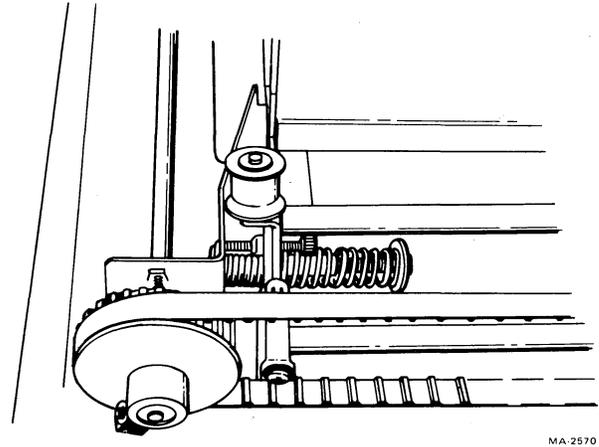


Fig. 5-Belt Tension Spring (Detail View)

- (d) Perform the printer housing cover installation procedure (Paragraph 2.06).

PRINT HEAD CABLE

- 2.13** The following procedure describes the removal and installation of the print head cable.

Print Head Cable Removal

2.14

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05)

Caution: Removing and installing the print cable without removing the print head can damage the print head cable.

- (b) Perform the print head removal procedure (Paragraph 2.08).
- (c) Disconnect the cable from J6 on the logic board and remove from cable clamps.

Print Head Cable Installation

2.15

- (a) Install one end of the cable as shown in Figure 6.
- (b) Dress the other end of the cable down through the slot in the rear of the cabinet, and connect the cable connector to J6 on the logic board.
- (c) Perform the print head installation procedure (Paragraph 2.09).

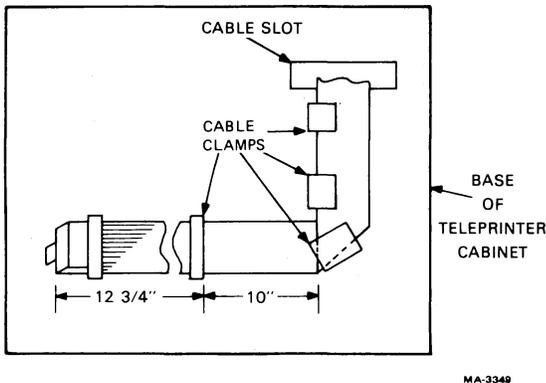


Fig. 6-Print Head Cable

- (d) Perform the printer housing cover installation procedure (Paragraph 2.06).

RIBBON DRIVE ASSEMBLY

2.16 The following procedure describes the removal and installation of the ribbon drive assembly.

Ribbon Drive Assembly Removal

2.17

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Remove the ribbon spools and ribbon.
- (c) Slip the timing belt of the dc motor pulley.
- (d) Lift up the pushrod and remove the retaining ring that holds the pushrod in the ribbon chassis (Figure 7).
- (e) Rotate the ribbon drive pulley until the clutch eccentric is at its highest point (Figure 7).
- (f) Remove the 8-32 screw and washer that secures the ribbon drive to the upper pivot tab on the left-hand side plate (Figure 7).
- (g) Remove the ribbon drive assembly by pulling out at the top. This will free the assembly from the upper pivot tab. Lift on the ribbon drive to clear the lower pivot.

Note: The nut on the ribbon drive assembly is loose and can be easily lost.

- (h) Carefully remove the ribbon drive assembly and the pushrod.

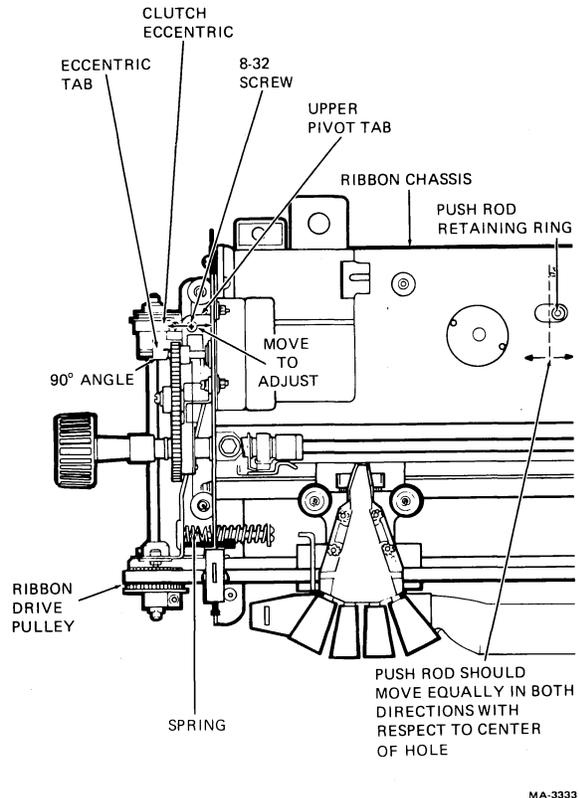


Fig. 7-Ribbon Drive Assembly Removal and Installation

Ribbon Drive Assembly Installation

2.18

- (a) Rotate the ribbon drive pulley on the new ribbon drive assembly until the clutch eccentric is at its highest point (Figure 7).

Note: Ensure that the PAPER OUT switch wires are under the pushrod when installing the ribbon drive assembly.

- (b) Push the pushrod through the left-hand side plate.
- (c) Push the rear of the drive assembly toward the side plate and engage the lower pivot point.
- (d) Slide the upper pivot under the pivot tab on the side plate and secure it with the 8-32 screw, flat washer. Make the screw finger tight (Figure 8).
- (e) Replace the retaining ring that holds the pushrod in the ribbon chassis.

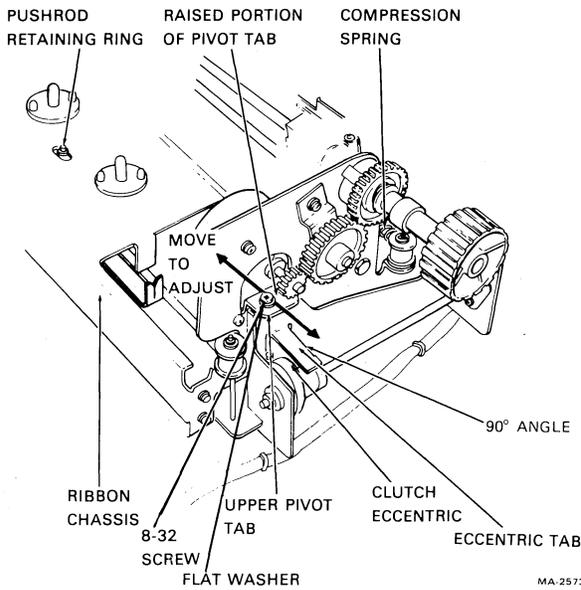


Fig. 8-Ribbon Drive Assembly (Detailed View)

- (f) Insert the belt tension spring between the left-hand side plate and the ribbon drive.
- (g) Replace the timing belt on the ribbon drive pulley and the motor/encoder pulley.
- (h) Rotate the ribbon drive and check the travel of the pushrod to either side of center of the elongated slot in the ribbon chassis. The travel should be equal on either side of center (Figures 7 and 8). To attain equal travel from center, move the ribbon drive upper pivot point in the direction of the shortest distance of travel. When travel is equal on both sides of the elongated hole, tighten the 8-32 upper pivot screw.

Note: The eccentric tab should be bent at a 90 degree angle (Figure 8) when viewed from the left side of the unit. If the angle is not at 90 degrees, bend it to the correct angle. This is done to prevent the tab from touching the spring.

- (i) Replace the ribbon and ribbon spools.
- (j) Perform the printer housing cover installation procedure (Paragraph 2.06).

RIBBON DRIVE PULLEY

2.19 The following procedure describes the removal and installation of the ribbon drive pulley.

Ribbon Drive Pulley Removal

2.20

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Slip the timing belt off the motor/encoder pulley.
- (c) Loosen the 6-32 allen-cap screw that secures the collar clamp and drive pulley to the ribbon drive shaft. Remove the collar clamp and the drive pulley (Figure 9).

Ribbon Drive Pulley Installation

2.21

- (a) Remove the collar clamp from the defective pulley and hand press it onto the new drive pulley (line up the front edges of the collar clamp and drive pulley) (Figure 9).
- (b) Replace the ribbon drive pulley and the collar clamp on the ribbon drive shaft and adjust them to give a clearance of 3/8 inch between the ribbon drive bracket and the ribbon drive pulley (Figure 9). Tighten the 6-32 screws.

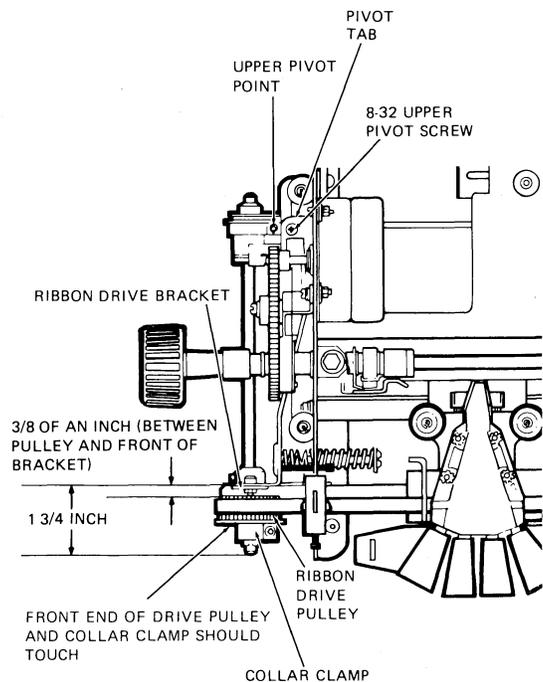


Fig. 9-Ribbon Drive Adjustment

- (c) Slip the timing belt onto the pulleys.
- (d) Perform the printer housing cover installation procedure (Paragraph 2.06).

MOTOR/ENCODER ASSEMBLY

2.22 The following procedure describes the removal and installation of the motor/encoder assembly.

Motor/Encoder Assembly Removal

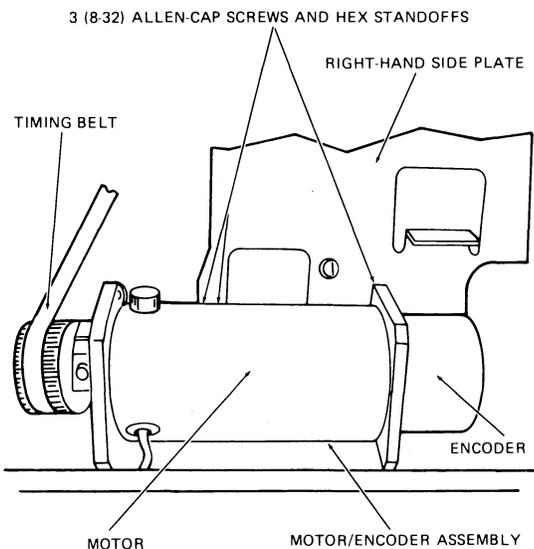
2.23

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Slip the timing belt off the motor pulley.
- (c) Open rear access door on cabinet.
- (d) Disconnect connectors from J5 and J7 on the logic board.
- (e) Remove the three (8-32) allen-cap screws and hex standoffs that secure the dc motor/encoder to the right-hand side plate and remove motor (Figure 10).

Motor/Encoder Assembly Installation

2.24

- (a) Secure the new motor to the right-hand side plate with the three (8-32) allen-cap screws and hex standoffs (Figure 10). Tighten the screws.



MA-3331

Fig. 10-Motor/Encoder Assembly Removal and Installation

- (b) Thread the motor and encoder cables down through the slot at the rear of the cabinet.
- (c) Secure the cables with cable ties where needed. Reconnect the connectors to J5 and J7 on the logic board.
- (d) With the belt tension spring (Figure 4) in place, press the left-hand pulley against the printer mechanism and slip on the new timing belt.
- (e) Perform the printer housing cover installation procedure (Paragraph 2.06).

PRINTER MECHANISM ASSEMBLY

2.25 The following procedure describes the removal and installation of the printer mechanism assembly.

Printer Mechanism Assembly Removal

2.26

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Remove the ribbon spools and ribbon.
- (c) Perform the print head removal procedure (Paragraph 2.08).
- (d) Open the rear access door.
- (e) Disconnect connectors from J3, J5, and J7 on the logic boards and clip the necessary cable ties. Pull the disconnected wires up through the cabinet base.
- (f) Remove the two (8-32) screws, fastening the two ground wires to the cabinet base (Figure 11).
- (g) Remove the speaker wires from the speaker.
- (h) Loosen the two (8-32) screws on the power supply, which will cause the mounting plate to drop. Tilt the power supply back toward yourself to access the printer mechanism rear mounting screw.
- (i) Remove the two wires from the cover interlock switch (Figures 12 and 16).
- (j) Remove the four (10-32) screws and washers that secure the printer mechanism to the cabinet base (Figure 11) using a 5/16 inch nut driver.
- (k) Carefully tilt the printer mechanism up toward the back of the teleprinter (Figure 11) and remove the two leads from the paper out switch (Figure 30).

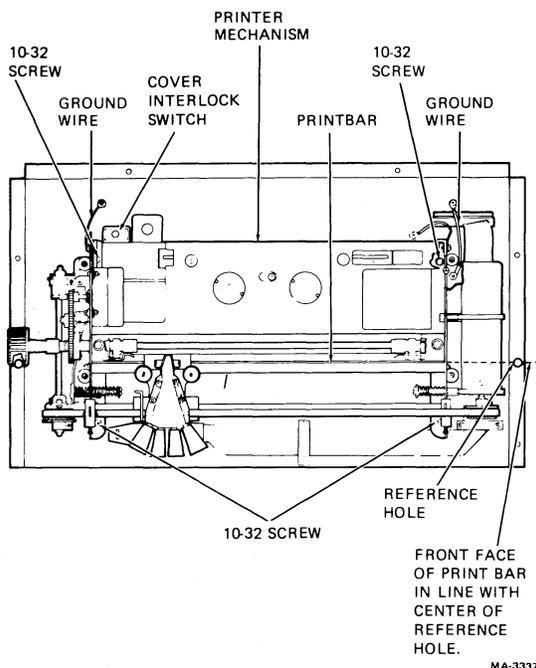


Fig. 11—Printer Mechanism Assembly Removal and Installation

- (l) Remove the two leads from the speaker and cut the cable ties holding the speaker leads.
- (m) Carefully remove the printer mechanism.

Printer Mechanism Assembly Installation

2.27

- (a) Remove the two ground wires from the old printer mechanism and connect it to the new printer mechanism.
- (b) Place the new printer mechanism on the teleprinter base and connect the speaker paper out and cover interlock leads. Secure the leads as required with cable ties. Secure the wire harness to the base using cable clamps.
- (c) Secure the printer mechanism to the base with four (10-32) screws and washers. Make the screws finger tight.
- (d) Thread the cables and wires down through the slots at the rear of the cabinet.
- (e) Secure connectors to J3, J5, and J7 on the logic board.
- (f) Connect the ground wires from the printer mechanism to the base with 8-32 screws (Figure 11).

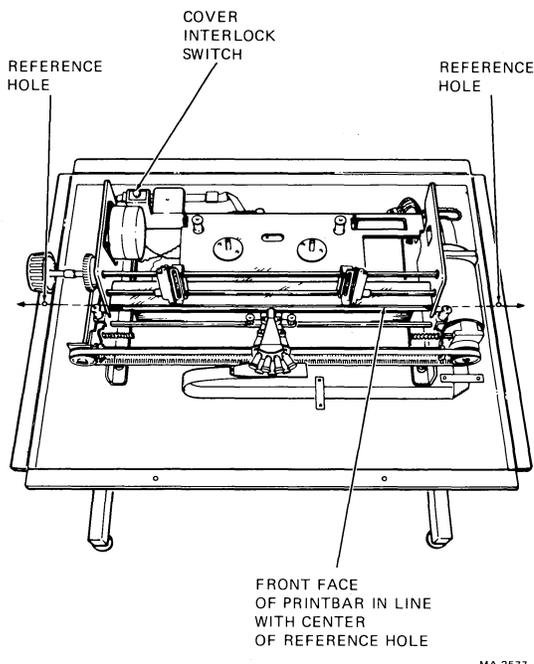


Fig. 12—Cabinet Reference Holes

- (g) Dress the cables and wires inside the cabinet and secure the cable harness, as required, to the cabinet using the cable clamps.
- (h) Adjust the position of the printer mechanism (front to back) so that the front surface of the print bar coincides with the centerline of the reference holes in the cabinet (Figure 12) within 0.030 inch. Tighten the four (10-32) screws.
- (i) Perform the print head installation procedure per Paragraph 2.09.
- (j) Slide the print head assembly across the carriage rods and check to ensure that the carriage assembly does not rub and is parallel to the bent up flange (Figure 12). Loosen and readjust the printer mechanism if necessary.
- (k) Carefully slide the power supply back into position. Slide mounting plate through slot and tighten the two (8-32) screws.
- (l) Close the rear access door on the cabinet.
- (m) Replace the paper in the teleprinter but do not feed it up into the tractors. Pull the paper up through the cabinet and the printer mechanism to ensure that there is no drag on the paper. If the drag is encountered, perform printer mechanism adjustment (Paragraph 3.03). Remove the paper from the teleprinter.

- (n) Perform the power supply assembly installation procedure (Paragraph 2.50).
- (o) Perform the printer housing cover installation procedure (Paragraph 2.06).

TRACTOR ASSEMBLIES

2.28 The following procedure describes the removal and installation of the tractor drive shafts and tractor assemblies. The tractor assemblies slip off the drive shafts once the tractor drive shaft removal is completed.

Tractor Assemblies Removal

2.29

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Loosen the tractor adjustment knob on both tractors.

Note: The spring clip on the outside of the lower tractor support shaft is loose and may fall off when performing the following step.

- (c) Remove the two retaining rings (Figure 13) on the left-hand side of the tractor support shaft and drive shaft.
- (d) Slide both shafts to the left and remove the tractor assemblies. To remove, pull the shafts (to the left) out of the left-hand end plate.

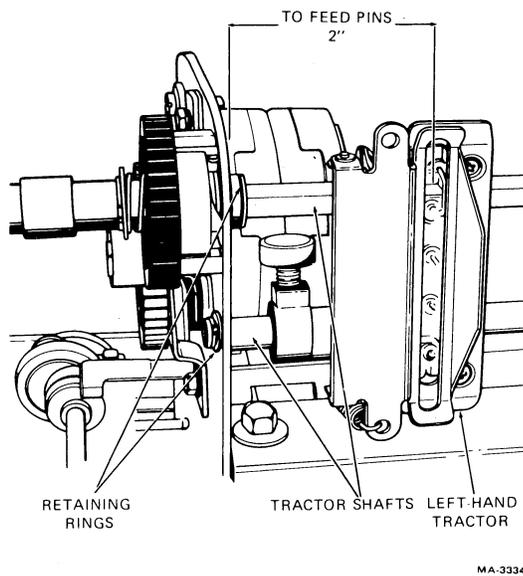


Fig. 13-Tractor Assemblies Removal and Installation

Tractor Assemblies Installation

2.30

- (a) Replace the defective tractor or drive shaft.
- (b) Slide the two tractor shafts halfway through the left-side plate.

Note: When installing the tractor assemblies, ensure that the index marks on the outside of the upper tractor bushings coincide with the same flat on the square shaft (Figure 14). If the bushings are not scribed, rotate the tractors until a tractor pin on both tractors is centered on the same flat.

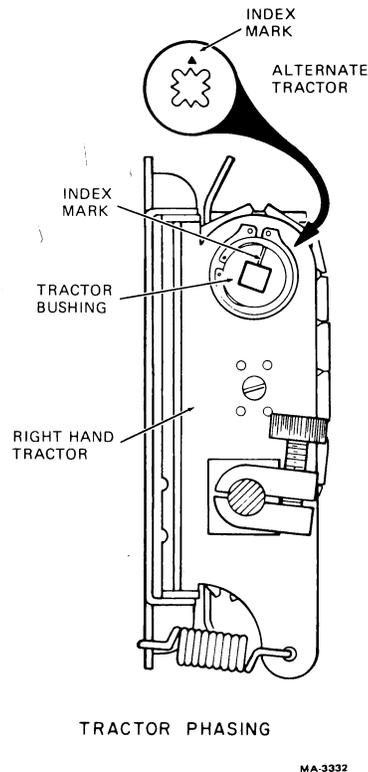


Fig. 14-Tractor Phasing/Adjustment

- (c) Slide the tractor assemblies on the tractor shafts.
- (d) Position the tractor shafts in the side plates and secure them with three retaining rings (Figure 13).
- (e) Slide the left-hand tractor from side to side. If it appears to bind or have excessive drag on the shafts, grasp the bottom tractor shaft and move it up or down in its slot until the tractor slides easily on the shafts.

- (f) Slide the left-hand tractor to the left so that the feed pins are 2 inches from the left-hand side plate (Figure 13).
- (g) The right-hand tractor will be adjusted to the width of the paper or forms to be used.
- (h) Perform the printer housing cover installation procedure (Paragraph 2.06).

RIBBON CHASSIS ASSEMBLY

2.31 The following procedure describes the removal and installation of the ribbon chassis assembly.

Ribbon Chassis Assembly Removal

2.32

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Remove the ribbon spools and ribbon.
- (c) Remove the retaining ring that holds the pushrod in the ribbon chassis (Figure 15).
- (d) Remove the four (6-32) screws, flat washer, and star washers that secure the ribbon chassis to the right and left-hand side plates (Figure 15).
- (e) Remove the two (8-32) screws and washers that secure the ribbon chassis to the right and left-hand side plates (Figure 15).

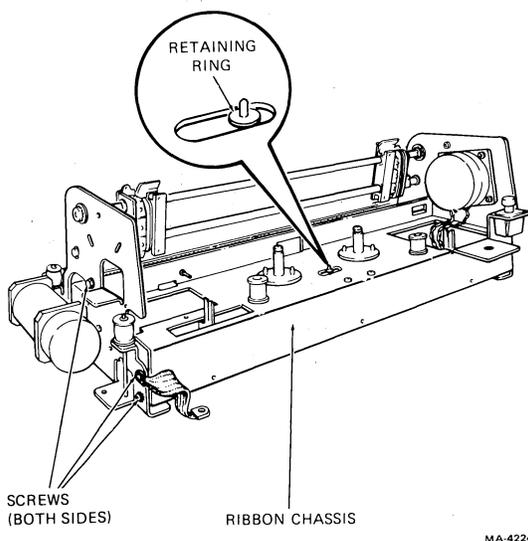


Fig. 15—Ribbon Chassis Assembly Removal and Installation

- (f) Remove the idler gear (Paragraph 2.35).
- (g) Remove the stepping motor (Paragraph 2.38) and rest it on the teleprinter base.
- (h) Remove the cover interlock switch (Figure 16).
- (i) Remove the ribbon chassis.

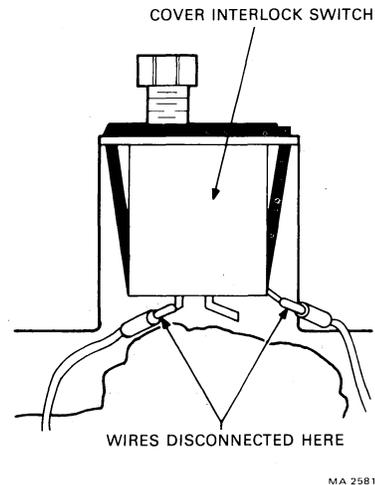


Fig. 16—Cover Interlock Switch

Ribbon Chassis Assembly Installation

2.33

- (a) Secure the ribbon chassis to the right and left-hand side plates with two (8-32) screws and lockwashers.
- (b) Replace the four (6-32) screws and lockwashers that secure the ribbon chassis to the right and left-hand side plates.
- (c) Install the stepping motor (Paragraph 2.39).
- (d) Install the idler gear (Paragraph 2.36).
- (e) Line up the hole in the ribbon chassis with the pushrod, and replace the retaining ring that holds the pushrod in place.
- (f) Install the cover interlock switch (Figure 16).
- (g) Install the ribbon spools and ribbon.
- (h) Install the printer housing cover (Paragraph 2.06).

IDLER GEAR ASSEMBLY

2.34 The following procedure describes the removal and installation of the idler gear assembly.

Idler Gear Assembly Removal

2.35

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (b) Remove the two (8-32) screws, lockwashers, and flat washers that secure the idler gear assembly to the left-hand side plate (Figure 17).

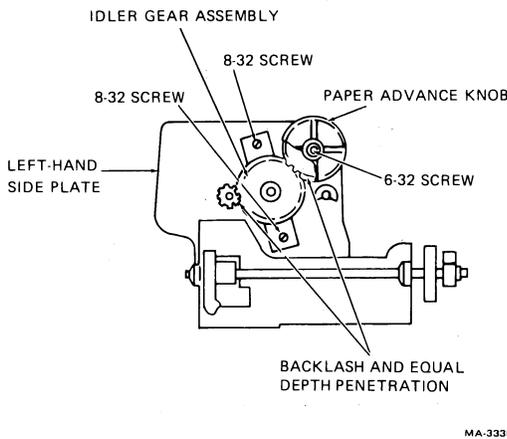


Fig. 17—Idler Gear Assembly Removal and Installation

Idler Gear Assembly Installation

2.36

- (a) Secure the new idler gear assembly to the left-hand side plate with two (8-32) screws, lockwashers, and flat washers. Make the screws finger tight.
- (b) With the idler gear in mesh with the stepping motor gear and the tractor drive gear, adjust the idler gear to achieve equal depth penetration and a minimum backlash* (Figure 17). Check for binding by sliding the idler gear in and out. Rotate the gears to several positions and repeat the check for binding.
- (c) Tighten the two (8-32) screws.
- (d) Rotate the paper advance knob to ensure that the gears turn freely.

*Backlash is the amount a gear turns prior to turning the gear it meshes with.

- (e) Perform the printer housing cover installation procedure (Paragraph 2.06).

STEPPING MOTOR ASSEMBLY

2.37 The following procedure describes the removal and installation of the stepping motor. The idler gear assembly must be removed to remove the stepping motor assembly.

Stepping Motor Assembly Removal

2.38

- (a) Perform the printer housing cover removal procedure (Paragraph 2.06).
- (b) Perform the idler gear assembly removal procedure (Paragraph 2.35).
- (c) Open the rear access door.
- (d) Disconnect the stepping motor from connector J3 from the logic board (see foldout at the end of the book) and clip and remove the necessary cable ties. Disconnect the speaker leads.
- (e) Pull the wires up through the slot at the rear of the cabinet.
- (f) Remove the four (8-32) screws, flat washers, lockwashers, and hex nuts that secure the stepping motor to the left-hand side plate. Set the stepping motor aside (Figures 18 and 19).

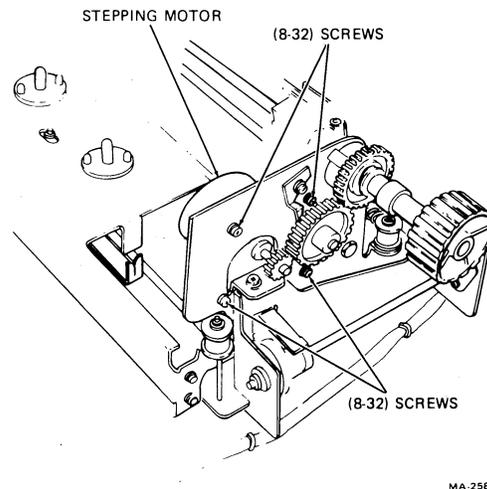


Fig. 18—Stepping Motor Assembly Removal and Installation

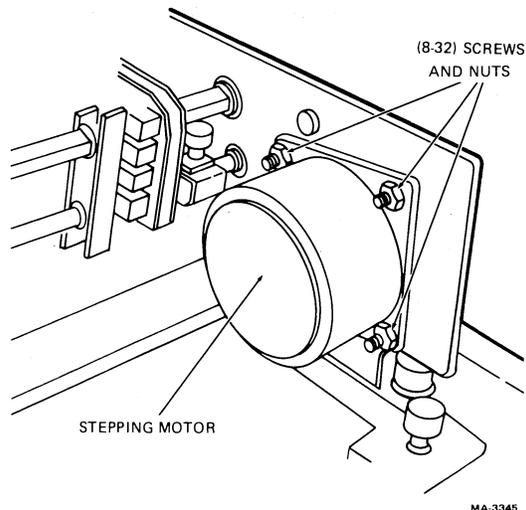


Fig. 19—Stepping Motor (Showing Mounting Plate)

Stepping Motor Assembly Installation

2.39

Note: Install the lower-left mounting screw first.

- (a) Secure the new stepping motor to the left-hand side plate with four (8-32) screws, flat washers, lockwashers, and hex nuts. The hex nuts and lockwashers go on the inside of the left-hand side plate. (Allow the stepping motor to drop to its lowest point in the elongated slots.)
- (b) Tighten the four (8-32) screws.
- (c) Reconnect the connector to J3 on the logic board. Secure the stepping motor wires with cable ties and thread them under the printer mechanism and pushrod and down through the slot at the rear of the cabinet. Connect the speaker leads to the speaker.
- (d) Close the rear access door.
- (e) Perform the idler gear assembly installation procedure (Paragraph 2.36).
- (f) Perform the printer housing cover installation procedure (Paragraph 2.06).

KEYBOARD ASSEMBLY (KSR AND RO)

2.40 The following procedure describes the removal and installation of the KSR and RO keyboard/numeric pad assembly.

KSR Keyboard/Numeric Pad Assembly Removal

2.41

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).

Note: To prevent scratching or damaging the keyboard, rest the keyboard bezel on a piece of foam or bubble plastic when performing the next step.

- (b) Turn the keyboard bezel upside down and remove the four (8-32) screws and washers that secure the keyboard/numeric pad to the bezel.
- (c) Lift the keyboard/numeric pad and disconnect the appropriate cable connectors (see foldout).

KSR Keyboard/Numeric Pad Assembly Installation

2.42

- (a) Reconnect the appropriate cable connectors to the new keyboard/numeric pad (Figure 20 and foldout). Place the pad on the bezel and secure with four (8-32) screws.

Note: The four pin keyboard connector can be inserted in either direction.

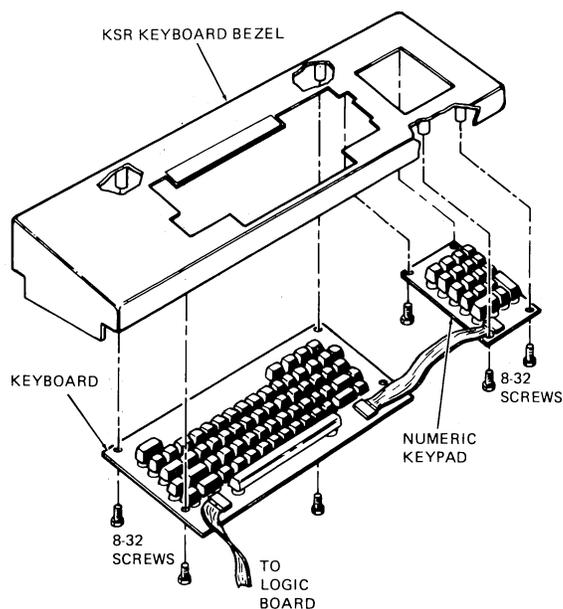


Fig. 20—TELEPRINTER 1000 KSR Keyboard and Numeric Pad Removal and Installation

MA-3222

DLEQ 574-550-300

- (b) Replace the keyboard bezel on the cabinet base and secure by pressing in the two sides of the bezel to engage the mounting slots.
- (c) Perform the printer housing cover installation procedure (Paragraph 2.06).

RO Keypad Assembly Removal

2.43

- (a) Perform the printer housing cover removal procedure (Paragraph 2.05).

Note: To prevent scratching or damaging the keyboard, rest the bezel on a piece of foam or bubble plastic when performing the next step.

- (b) Turn the keypad bezel upside down and remove the four (8-32) screws and washers that secure the keypad to the bezel.
- (c) Lift the keypad and disconnect the appropriate cable connectors (see foldout).

RO Keypad Assembly Installation

2.44

- (a) Reconnect the appropriate cable connectors to the new keypad (Figure 21 and foldout). Place the pad on the bezel and secure with four (8-32) screws.

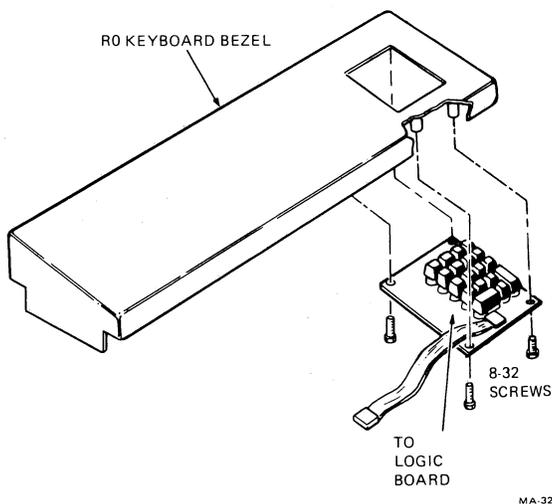


Fig. 21-TELEPRINTER 1000 RO Keypad Removal and Installation

Note: The four pin keypad connector can be inserted in either direction.

- (b) Replace the keypad bezel on the cabinet base and secure by pressing in the two sides of the bezel to engage the mounting slots.
- (c) Perform the printer housing cover installation procedure (Paragraph 2.06).

LOGIC BOARD

- 2.45 The following procedure describes the removal and installation of the logic board.

Logic Board Removal

2.46

- (a) Turn the teleprinter power ON/OFF switch OFF and unplug the TELEPRINTER 1000 power cord.
- (b) Open the rear access door on the cabinet.
- (c) Disconnect all the connectors from the logic board (Figures 22 and foldout).

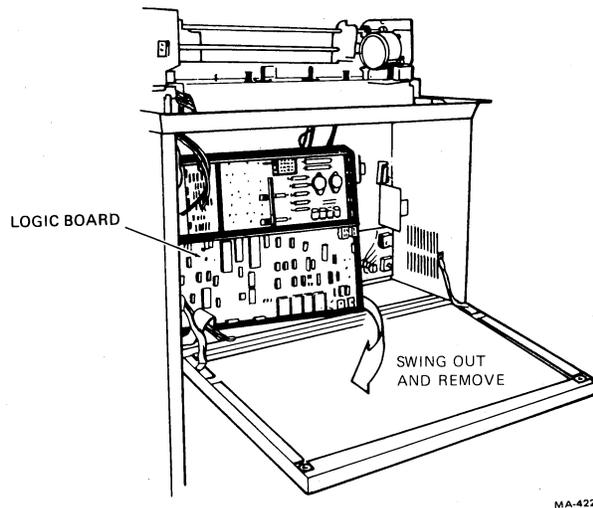


Fig. 22-Logic Board Removal and Installation

- (d) Remove the seven (6-32) screws that secure the logic board to the chassis. Remove by swinging the right hand side of the logic board out first.

Note: The four (6-32) screws in the heat sink are 0.5 inches long, while the lower three (6-32) screws are 0.25 inches long.

Logic Board Installation

2.47

- Place the logic board on chassis, left hand side first. Secure it with seven (6-32) screws.
- Reconnect all of the connectors to the logic board (see foldout).

Caution: Install connector J1 with the beveled edge in the upper left corner. Install connector J8 with the red stripe on the right. Install connectors J3 and J7 so they are centered on the jack.

- Close the rear access door on the cabinet.
- Plug the ac line cord into the correct wall socket and restore power.
- Reselect customer SET-UP features.

CONSTANT VOLTAGE TRANSFORMER (CVT) POWER SUPPLY ASSEMBLY

- 2.48 The following procedures describe the removal and installation of the CVT power supply.

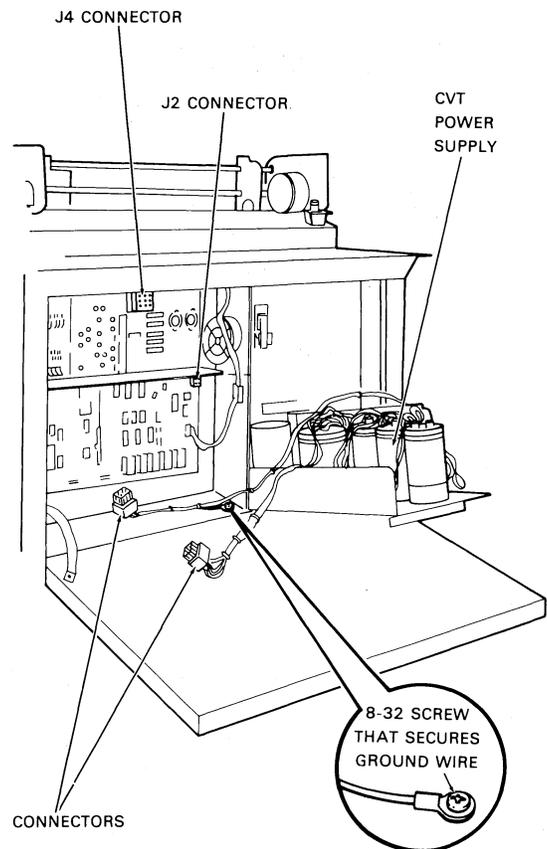
Power Supply Assembly (CVT) Removal

2.49

- Turn the power off and unplug the TELE-PRINTER 1000 power cord.
- Open the rear access door on the cabinet.
- Remove ground wire on the side of the CVT power supply, by removing the (8-32) screw, lockwasher, and flat washer.
- Disconnect the connectors from J2 and J4 on the logic board (Figure 22).
- Loosen the two (8-32) screws at the top of the CVT power supply, which will allow the mounting plate to slide down.

Caution: Placing the full weight of the power supply on the door can damage the door.

- Tilt the CVT power supply toward the door and disconnect the connector from the power entry panel (Figure 23).



MA-2587

Fig. 23—Power Supply (CVT) Removal

- Carefully tilt out and remove the CVT power supply.

Power Supply Assembly (CVT) Installation

2.50

Caution: Use care not to damage cables when installing power supply.

- Connect the CVT power supply connector to the power entry panel and slide the CVT power supply into position as shown in Figure 24.
- Slide mounting plate into slot and tighten the two (8-32) screws (Figure 24).
- Reconnect the connectors J2 and J4 to the logic board.
- Secure the ground wire on the side of the power supply by using the 8-32 screw, lockwasher and flat washer.

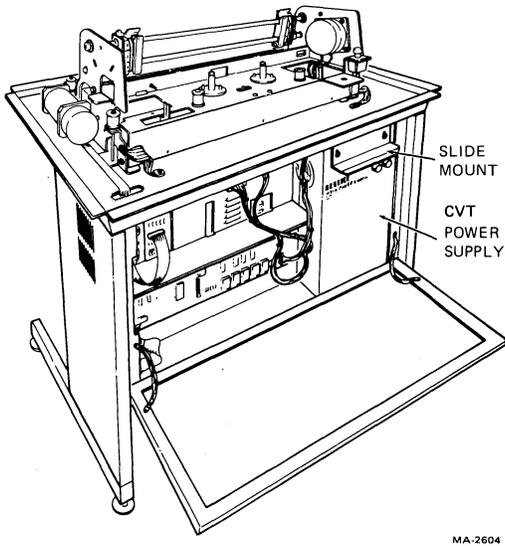


Fig. 24—Power Supply (CVT) Installation

- (e) Close the rear access door on the cabinet.
- (f) Plug the ac line cord into the correct wall socket. Restore power to the TELEPRINTER 1000.

POWER ENTRY PANEL ASSEMBLY (CVT)

2.51 The following procedure describes the removal and installation of the power entry panel assembly.

Power Entry Panel Assembly (CVT) Removal

2.52

- (a) Turn the teleprinter power ON/OFF switch OFF and unplug the ac power cord.
- (b) Unplug the ac power cord from the front of the TELEPRINTER 1000.
- (c) Open the rear access door on the cabinet.
- (d) Perform the CVT power supply removal procedure (Paragraph 2.49).
- (e) Disconnect the connector to the fan assembly.
- (f) Remove the three (8-32) nuts and captive washers (Figure 25).
- (g) Remove the one (8-32) screw, nut, and star washer securing the ground wire to the cabinet base.
- (h) Remove the power entry panel.

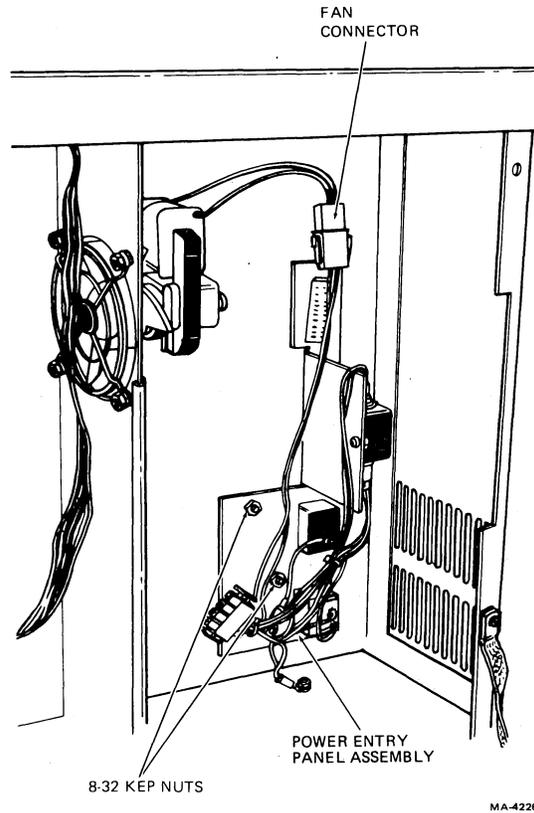


Fig. 25—Power Entry Panel Assembly CVT Removal and Installation

Power Entry Panel Assembly (CVT) Installation

2.53

- (a) Mount the power entry panel using three (8-32) nuts and captive washers.
- (b) Using the one (8-32) screw, nut, star washer, secure the ground wire to the cabinet base; position the wire adjacent to the metal frame cabinet base.
- (c) Reconnect the connector to the fan assembly.
- (d) Perform the CVT power supply installation procedure (Paragraph 2.50).
- (e) Close the rear access door on the cabinet.
- (f) Reconnect ac cord.

FAN ASSEMBLY

2.54 The following procedure describes the removal and installation of the fan assembly.

Fan Assembly Removal

2.55

- (a) Turn the teleprinter power ON/OFF switch OFF and unplug the ac power cord.
- (b) Perform the CVT power supply removal procedure (Paragraph 2.49).
- (c) Remove the two (8-32) screws, lockwashers, and flat washers from the fan mounting bracket.
- (d) Disconnect the fan connector and remove the fan assembly (Figure 26).

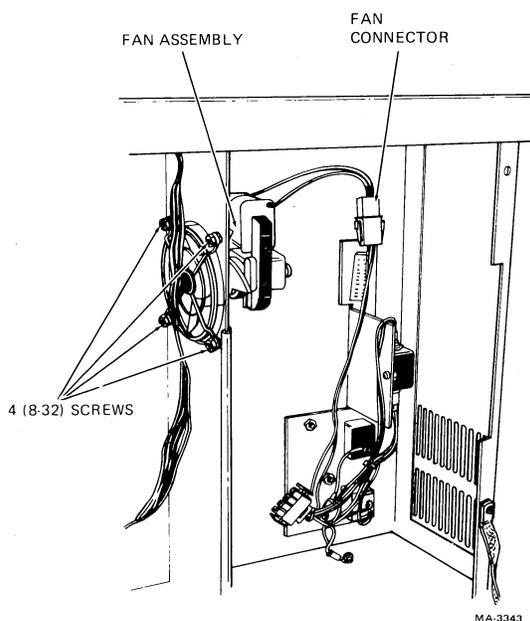


Fig. 26—Fan Assembly Removal and Installation

Fan Assembly Installation

2.56

Note: Fan assembly must be installed with the coil facing the top of the cabinet.

- (a) Install fan assembly using two (8-32) screws, flat washers, and lockwashers.
- (b) Connect the fan connector.
- (c) Place the fan wires in the cable clamp.
- (d) Perform the CVT power supply installation procedure (Paragraph 2.50).

CARRIAGE ASSEMBLY

2.57 The following procedure describes the removal and installation of the carriage assembly.

Carriage Assembly Removal

2.58

- (a) Turn the power ON/OFF switch OFF and unplug the ac power cord.
- (b) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (c) Unsnap the keyboard bezel to enable easy access to the carriage shaft clamp screws (Figure 27).
- (d) Perform the print head removal procedure (Paragraph 2.08).
- (e) Perform the timing belt removal procedure (Paragraph 2.11).
- (f) Loosen the two (8-32) front carriage clamp screws (Figure 27).
- (g) Using a screwdriver, pry the top of the right carriage shaft clamp up and to the right (Figure 27).
- (h) To remove the carriage and carriage shaft, lift the right side of the carriage shaft up slightly and gently pull back and to the right.
- (i) Remove the carriage from carriage shaft.

Carriage Assembly Installation

2.59

- (a) Place new carriage on carriage shaft.
- (b) Slide left side of carriage shaft into carriage shaft clamp.
- (c) Align carriage and bearing and snap the right side of the carriage shaft into the carriage shaft clamp.

Note: Ensure that the carriage shaft clamp is properly seated when performing the next step.

- (d) Tighten the left and right 8-32 carriage clamp screws.

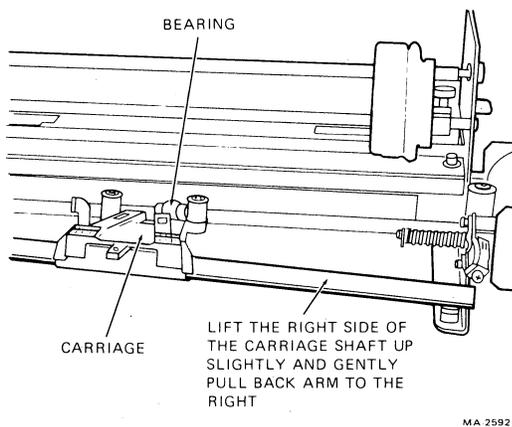
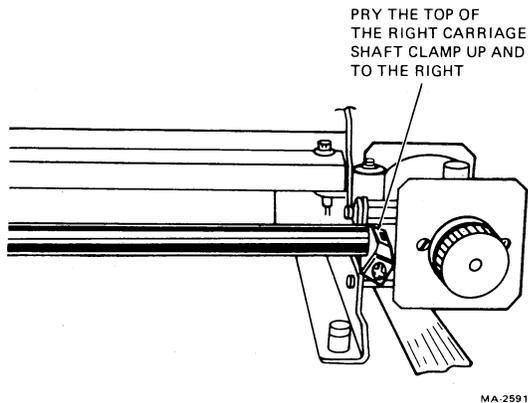
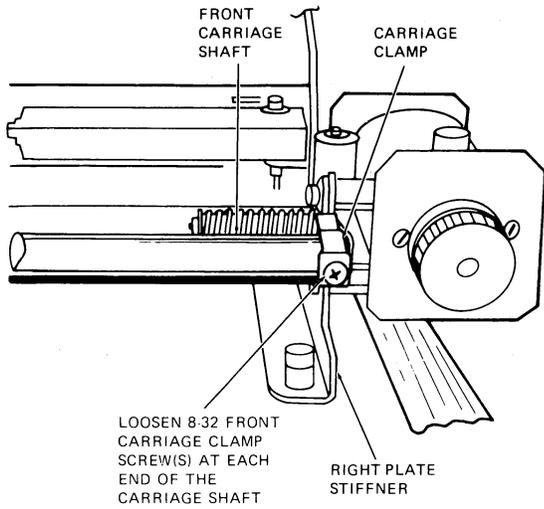


Fig. 27-Carriage Assembly Removal and Installation

- (e) Holding the belt tension spring in place (Figure 5) slip on the timing belt.

Note: When installing the keyboard bezel, check the keyboard connectors to ensure that they are properly seated.

- (f) Replace the keyboard bezel on the cabinet base and secure by pressing in the two sides of the bezel to engage the mounting slots.
- (g) Perform the print head installation procedure (Paragraph 2.09).
- (h) Perform the printer housing cover installation procedure (Paragraph 2.06).

CVT POWER SUPPLY BOARD

2.60 The following procedure describes the removal and installation of the CVT power supply board.

CVT Power Supply Board Removal

2.61

- (a) Turn the power ON/OFF switch OFF and unplug the ac power cord.
- (b) Perform the CVT power supply removal procedure (Paragraph 2.49).
- (c) Disconnect the cables from J2 and J3 on the CVT power supply board (Figure 28).
- (d) Remove the three (6-32) screws that secure the CVT power supply board to the CVT power supply.

CVT Power Supply Board Installation

2.62

- (a) Secure the new CVT power supply board to the CVT power supply using the three (6-32) screws.
- (b) Reattach the connectors to J2 and J3 of the CVT power supply board.
- (c) Perform the CVT power supply installation procedure (Paragraph 2.50).
- (d) Restore power to the TELEPRINTER 1000.

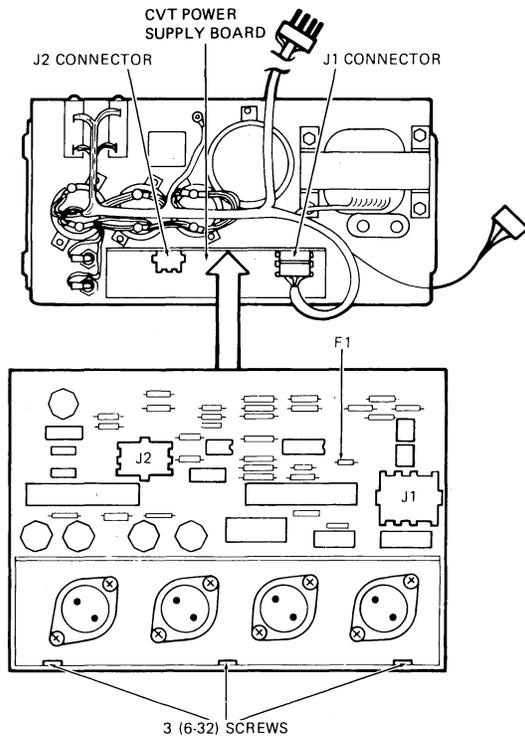
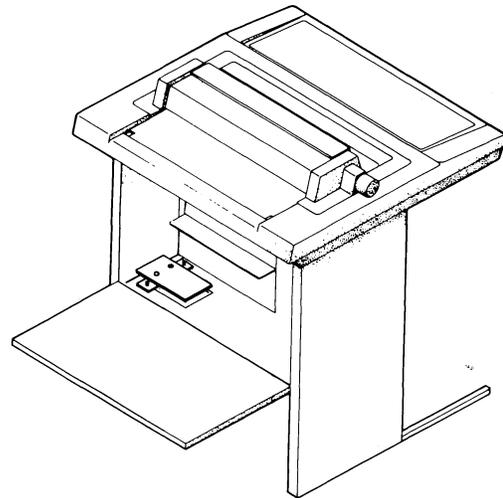


Fig. 28-CVT Power Supply Board Removal and Installation



MA-4228

Fig. 29-EIA Protection Module Removal and Installation

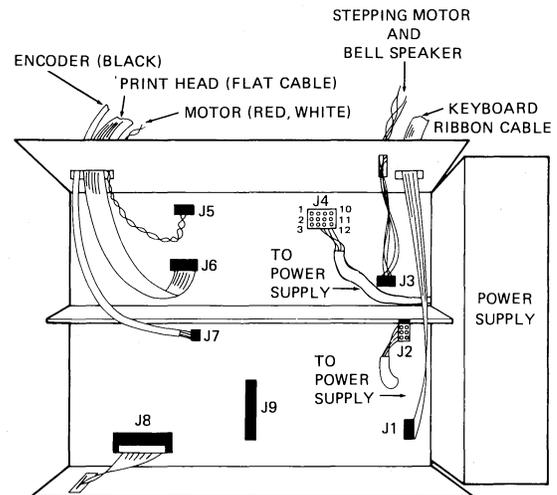
EIA PROTECTION MODULE

2.63 The following describes the removal and installation of the EIA protection module.

EIA Protection Module Removal

2.64

- (a) Turn the power ON/OFF switch OFF and unplug the ac power cord.
- (b) Using a 1/4 inch nut driver, remove the two hex-head screws that secure the module to the cabinet (Figure 29).
- (c) Open the rear access door on the cabinet.
- (d) Disconnect the EIA protection module cable from J8 on the logic board (Figure 30).
- (e) Wrap the cable around the EIA protection module and remove the module through the bottom of the cabinet.



MA-4229

Fig. 30-Logic Board Connectors

EIA Protection Module Installation

2.65

- (a) Wrap the cable around the new EIA protection module and insert the module through the base of the cabinet.
- (b) Connect the EIA protection module cable to J8 on the logic board (Figure 30). Ensure that the cable is not twisted.
- (c) Replace the two hex-head screws that secure the EIA protection module to the cabinet (Figure 29).
- (d) Close the rear access door on the cabinet.
- (e) Plug the ac line cord into the correct wall socket and restore power to the TELEPRINTER 1000.

3. ADJUSTMENT PROCEDURES

3.01 This chapter contains a detailed description of the following TELEPRINTER 1000 adjustments.

- Print head adjustment (Paragraph 3.02)
- Printer mechanism adjustment (Paragraph 3.03)
- Paper out switch adjustment (Paragraph 3.04)
- Ribbon drive assembly adjustment (Paragraph 3.05)
- Idler gear assembly adjustment (Paragraph 3.06)
- Bumper assembly adjustment (Paragraph 3.07)

PRINT HEAD ADJUSTMENT

3.02 The following procedure describes the print head adjustment.

- (a) Set power ON/OFF switch to OFF, and remove paper and ribbon.
- (b) Move print head to the middle of the print bar (Figure 31).
- (c) Loosen the four (6-32) screws holding the print head.
- (d) Set the carriage adjustment lever to #1 and position the print head for contact with the print bar.
- (e) Tighten the four (6-32) screws.
- (f) Replace ribbon and paper.

PRINTER MECHANISM ADJUSTMENT

3.03 The following procedure describes the printer mechanism adjustment.

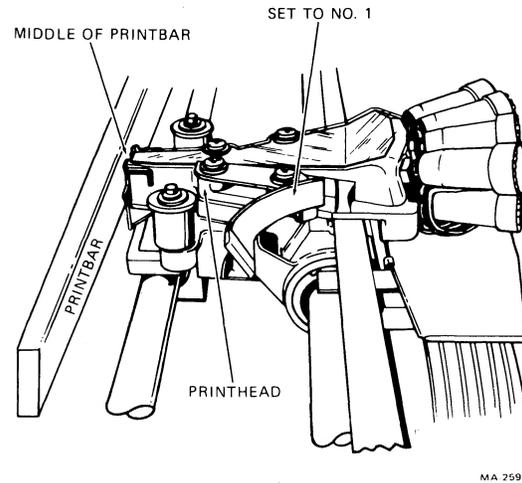


Fig. 31-Print Head Adjustment

- (a) Set the POWER ON/OFF switch to OFF.
- (b) Perform the printer housing cover removal procedure (Paragraph 2.05).

Note: It is not necessary to perform the next step (loosening the four printer mechanism screws) to check the alignment.

- (c) Loosen the two (8-32) screws on the power supply, which causes the mounting plate to drop. Tilt the power supply back to you and access the printer mechanism rear mounting screw.
- (d) Loosen the four (10-32) screws that secure the printer mechanism to the teleprinter base (Figure 32).
- (e) Adjust the position of the printer mechanism (front to back) so that the front surface of the print bar is in line with the centerline of the reference holes in the cabinet (Figure 32) within 0:030 inch. Tighten the four (10-32) screws.
- (f) Perform the printer housing cover installation procedures (Paragraph 2.06).

PAPER OUT SWITCH ADJUSTMENT

3.04 The following procedure describes the PAPER OUT switch adjustment.

- (a) Set the POWER ON/OFF switch to OFF.
- (b) Lift up and remove the top printer cover.
- (c) Loosen the two (4-40) screws at the PAPER OUT switch.

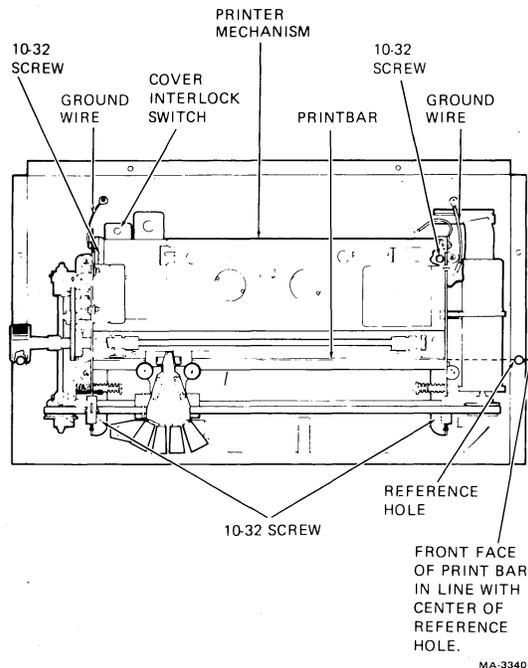


Fig. 32-Printer Mechanism Alignment

(d) Rotate the PAPER OUT switch counter-clockwise (Figure 33) until the switch clicks (transfers). then rotate the switch clockwise until the switch clicks again (transfers back). Tighten the two (4-40) screws.

(e) Replace the top printer cover.

(f) Restore power.

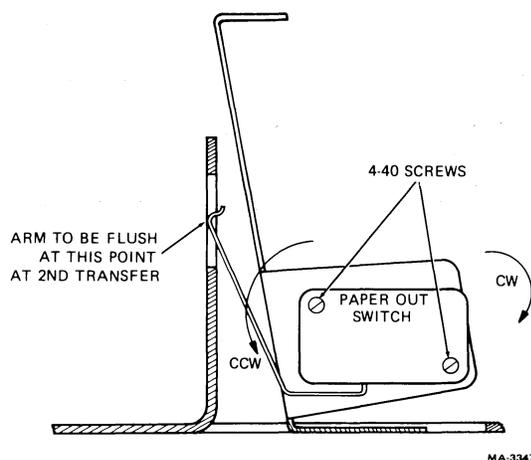
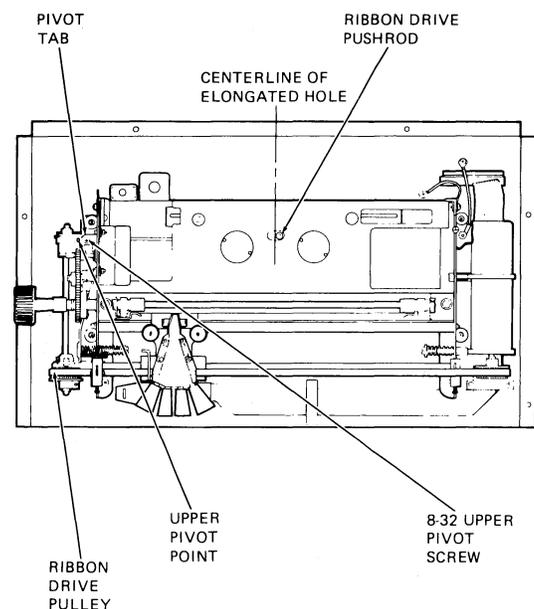


Fig. 33-PAPER OUT Switch Adjustment

RIBBON DRIVE ASSEMBLY ADJUSTMENT

3.05 This procedure describes the ribbon drive assembly adjustment.

- (a) Set the POWER ON/OFF switch to OFF.
- (b) Lift up and remove the top printer cover.
- (c) Rotate the ribbon drive pulley on the ribbon drive until the clutch eccentric is at its highest point.
- (d) The ribbon drive pushrod should be at the center of the elongated hole (Figure 34). Rotate the ribbon drive pulley and check the travel of the pushrod to either side of the elongated hole. Travel should be equal on both sides of the centerline.
- (e) To adjust for the condition listed in the above step, loosen the 8-32 upper pivot screw (Figures 34 and 35) and move the ribbon drive assembly the required amount.
- (f) Tighten the 8-32 screw and repeat step c.
- (g) Replace the top printer cover on the teleprinter.
- (h) Restore power to the TELEPRINTER 1000.



NOTE:
TRAVEL OF PUSHROD TO BE EQUAL ON BOTH SIDES OF THE ELONGATED HOLE.

Fig. 34-Ribbon Drive Adjustment

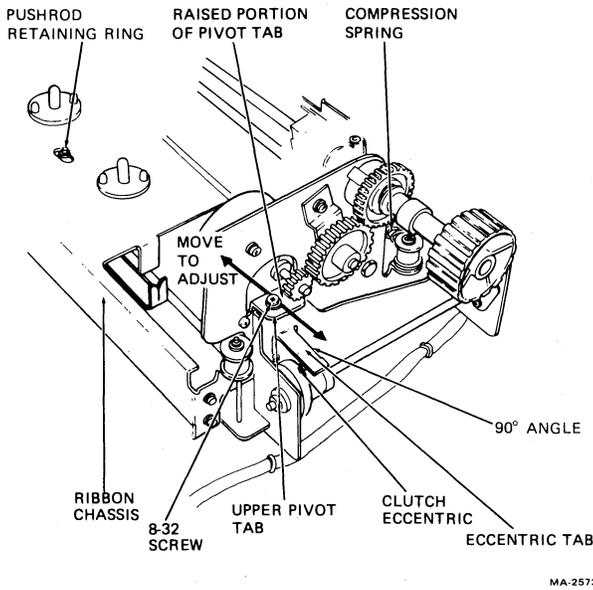


Fig. 35-Ribbon Drive Assembly

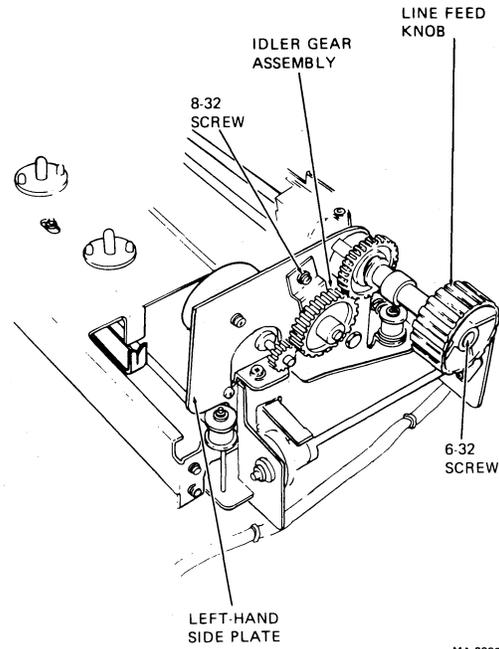


Fig. 36-Idler Gear Assembly

IDLER GEAR ASSEMBLY ADJUSTMENT

3.06 This procedure adjusts the idler gear assembly for the correct amount of backlash.

- (a) Set the POWER ON/OFF switch to OFF.
- (b) Perform the printer housing cover removal procedure (Paragraph 2.05).
- (c) To adjust for minimum backlash, loosen the two (8-32) screws securing the idler gear assembly to the side plate (Figure 36).
- (d) With the idler gear in mesh with the stepping motor gear and the tractor drive gear, adjust the idler gear to achieve equal depth penetration, and minimum backlash* (Figure 36). Check for binding by sliding the idler gear in and out. Rotate the gears to several places and repeat the check for binding.
- (e) Tighten the two (8-32) screws.
- (f) Perform the printer housing cover installation procedure (Paragraph 2.06).
- (g) Restore power to the TELEPRINTER 1000.

*Backlash is the amount a gear turns prior to turning the gear it meshes with.

BUMPER ASSEMBLY ADJUSTMENT

3.07 The following is the procedure for the bumper assembly adjustment.

3.08 Tighten the screws (Figure 37) until the top of the washer is 43.69 mm (1.72 in) from the side plate on the right side. Center the spring around the screw.

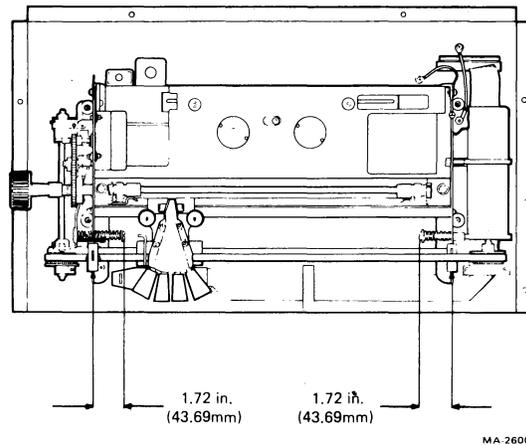


Fig. 37-Bumper Assembly Adjustment

4. ANSWERBACK JUMPER

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

ENTERING THE ANSWERBACK MESSAGE

4.02 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 1: 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.

Note 2: 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

4.03 Perform the following steps to verify the answerback message.

- (a) Press and release the LINE-LOCAL key to place the TELEPRINTER 1000 in LOCAL. (The LOCAL light will come on and the ON-LINE light will go off).

TABLE B

Control Codes Printed Characters

Control Code	Printed Characters	Control Code	Printed Characters
000	@	020	P
001	A	021	Q
002	B	022	R
003	C	023	S
004	D	024	T
005	E	025	U
006	F	026	V
007	G	027	W
010	H	030	X
011	I	031	Y
012	J	032	Z
013	K	033	[
014	L	034	/
015	M	035]
016	N	036	~
017	O	037	-
		177	⌘

- (b) Verify the answerback message by pressing and releasing 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 out if the message is looped back to the teleprinter.

PERMANENTLY STORING THE ANSWERBACK MESSAGE

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

Note 1: If the answerback jumper is removed, the answerback message cannot be altered or erased by the operator.

Note 2: The answerback message must be stored in the nonvolatile memory prior to removing the jumper.

- (a) Store answerback message (Paragraph 4.02).
- (b) Verify the answerback message (Paragraph 4.03).
- (c) Turn power off and disconnect the ac plug.
- (d) Open the rear access door on the rear of the cabinet.
- (e) Remove the answerback jumper (Figure 38).
- (f) Turn power on.

SETTING THE RO TELEPRINTER ANSWERBACK MESSAGE

4.05 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.

- (a) Remove power from the teleprinter 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 board (Figure 40).
- (d) Connect the KSR keyboard to J1 on the logic board (Figure 39).

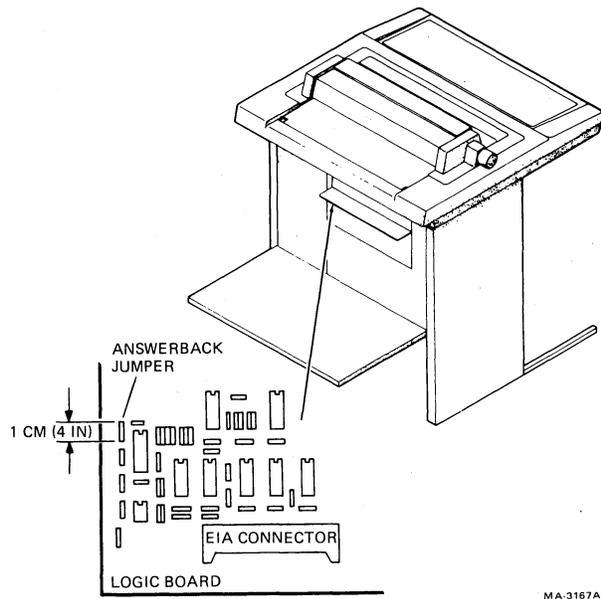


Fig. 38—Answerback Jumper

- (e) Connect the TELEPRINTER 1000 line cord to the correct wall receptacle. Restore power to the teleprinter.
- (f) Enter the answerback message (Paragraph 4.02).
- (g) Verify the answerback message (Paragraph 4.03).
- (h) Remove the answerback jumper (Paragraph 4.04).
- (i) Disconnect the KSR keyboard.
- (j) Reconnect the RO keypad connector to J1 on the logic board.
- (k) Close the rear access door on the rear of the cabinet.
- (l) Connect the TELEPRINTER 1000 line cord to the correct wall receptacle and then restore power to the teleprinter.

5. TELEPRINTER 1000 KSR/RO USER INFORMATION

5.01 The TELEPRINTER 1000 KSR and RO User Reference Cards have been printed separately. They have been reprinted here for your convenience.

COMMUNICATION COMPATIBILITY (CONT)

KEY
0 (number)
FUNCTION/COMMENTS
 Selects receive and transmit baud rates and number of stop bits.

BAUD RATE (DISPLAYED)	STOP BITS
50	2
75	2
110	2
134	1
150	1
200	1
300	1
600	1
1200	1
1800	1
2400*	1
4800*	1
7200*	1
9600*	1

SHIFT and **0**

Selects split baud rates:
0 selects receive baud rate; **SHIFT** and **0** then offers a choice of three transmit baud rates.

RECEIVE BAUD RATE (NOT DISPLAYED)	TRANSMIT BAUD RATE (DISPLAYED)	TRANSMIT STOP BITS
600	75	2
	150	1
	600	1
1200	75	2
	150	1
	1200	1
2400*	300	1
	600	1
	2400	1
4800*	300	1
	600	1
	4800	1

Reserved for future use.

STORE RECALL AND STATUS

KEY
1 (letter)
8
9
SHIFT and **9**
FUNCTION/COMMENTS
 Recall factory set-up parameters
 Print status message
 Recall SET-UP features
 Store SET-UP features

SELF TEST

KEY
T
SHIFT and **>**
FUNCTION/COMMENTS
 Initiate printing self test
 Initiate non-printing self test
 NOTE: Type any character in SET-UP mode to stop self test.



**TELEPRINTER
 1000 KSR
 REFERENCE CARD**

SET-UP

KEY
CTRL and **SET-UP**
FUNCTION/COMMENTS
 Locks Teleprinter 1000 in SET-UP mode.
 SET-UP light flashes
 To exit SET-UP mode press **SET-UP**
SET-UP
 Places Teleprinter 1000 in SET-UP mode while **SET-UP** is held down; SET-UP light flashes.
 To exit SET-UP mode release **SET-UP**

NOTES:

1. Teleprinter 1000 must be in SET-UP mode to set the following features.
2. Do not use **SHIFT** unless specified.

USER PREFERENCE

KEY
G
K
R
Z
FUNCTION/COMMENTS
 Bell volume
 0 = Low Volume
 1 = High Volume
 Key click
 0 = Off
 1 = On
 Auto repeat
 0 = Off
 1 = On
 Auto last character view
 0 = Manual
 1 = Auto

PAGE

KEY
SHIFT
1
SHIFT and **1**
2
SHIFT and **2**
3
SHIFT and **3**
4 or **SHIFT** and **4**
5
SHIFT and **5**
FUNCTION/COMMENTS
 Display current line number
 Releasing **SHIFT** returns display to current column number
 Set horizontal tab at current column
 Set vertical tab at current line
 Clear horizontal tab at current column
 Clear vertical tab at current line
 Clear all horizontal tabs
 Clear all vertical tabs
 Establish top of form (TOF)
 Set minimum column number (left margin)
 Set minimum line number (top margin)

PAGE (CONT)

KEY

[6]
 [SHIFT] and [6]
 [7]
 [SHIFT] and [7]
 [F]

FUNCTION/COMMENTS

Set maximum column number (right margin)
 Set maximum line number (bottom margin)
 Clear left and right margins
 Clear top and bottom margins
 Form Length
 NOTE: Changing form length clears top and bottom margins and establishes TOF.

DISPLAY

1
 thru
 168 } Lines per form

[H]

Horizontal pitch (Characters per inch)
 NOTE: Changing horizontal pitch clears left and right margins.

DISPLAY	PITCH
5	5.00 CPI
6	6.00 CPI
7	6.60 CPI
8	8.25 CPI
10	10.0 CPI
12	12.0 CPI
13	13.2 CPI
16	16.5 CPI

[V]

Vertical pitch (Lines per inch)
 NOTE: Changing vertical pitch clears top and bottom margins.

DISPLAY	PITCH
2	2 LPI
3	3 LPI
4	4 LPI
6	6 LPI
8	8 LPI
12	12 LPI

COMMUNICATION COMPATIBILITY

KEY

[A]
 [B]
 [D]
 [E]

FUNCTION/COMMENTS

Auto answerback
 0 = Off
 1 = On
 Buffer control
 0 = Small
 1 = Large
 Auto disconnect
 0 = Off
 1 = On
 Local echo
 0 = Off
 1 = On

COMMUNICATION COMPATIBILITY (CONT)

KEY

[J]
 [L]
 [M]
 [P]

FUNCTION/COMMENTS

Auto new line at right margin
 0 = Off
 1 = On
 Auto line feed (Return key)
 0 = Off
 1 = On
 Modem
 1 = FDX, No Modem
 2 = FDX, Modem
 3 = HDX, Supervisory
 4 = HDX, EOT
 5 = HDX, ETX
 Parity and data bits

DISPLAY	DATA BITS	PARITY	
		REC	XMT
1	7	IGNORE	MARK
2	7	IGNORE	SPACE
3	7	IGNORE	ODD
4	7	IGNORE	EVEN
5	7	ODD	ODD
6	7	EVEN	EVEN
7	7	NONE	NONE
8	8	NONE	NONE
9	8	ODD	ODD
10	8	EVEN	EVEN

[Q]

HDX initial calling state
 0 = Transmit
 1 = Receive

[S]

Secondary channel

DISPLAY	FDX*	HDX*
	MODE	REV. CH.
0	Speed	No
1	Restraint	Yes

* See M Key, Modem

[U]

Break enabled
 0 = Off
 1 = On

[W]

Printer new line character
 1 = No new line
 2 = Line feed new line
 3 = Return (CR)

[X]

XON - XOFF
 0 = Off
 1 = On

[Y]

Alternate keypad mode
 0 = Off
 1 = On

[>]

Disconnect sequence
 0 = EOT
 1 = DLE EOT



TELEPRINTER 1000 RO REFERENCE CARD

SET-UP

KEY	FUNCTION/COMMENTS
SET-UP LOCK and SET-UP	Locks Teleprinter 1000 in SET-UP mode; SET-UP light flashes. To exit SET-UP mode press SET-UP
SET-UP	Places Teleprinter 1000 in SET-UP mode while SET-UP is held down; SET-UP light flashes. To exit SET-UP mode release SET-UP

NOTES:

1. Teleprinter 1000 must be in SET-UP mode to set the following features.
2. Do not use **SHIFT** unless specified.

PAGE

KEY	FUNCTION/COMMENTS
SHIFT	Display current line number Releasing SHIFT returns display to current column number
SET TABS	Set horizontal tab at current column
SHIFT and SET TAB	Set vertical tab at current line
CLR ALL TABS	Clear all horizontal tabs
SHIFT and CLR ALL TABS	Clear all vertical tabs
FORMS LENGTH	Form Length
DISPLAY	} Lines per form
1	
thru 168	

COMMUNICATION COMPATIBILITY

KEY	FUNCTION/COMMENTS
MODEM	Modem
	1 = FDX, No Modem
	2 = FDX, Modem
	3 = HDX, Supervisory
	4 = HDX, EOT
	5 = HDX, ETX

COMMUNICATION COMPATIBILITY (CONT)

KEY	FUNCTION/COMMENTS																																																							
PAR SEL	Parity and data bits																																																							
	<table border="1"> <thead> <tr> <th>DISPLAY</th> <th>DATA BITS</th> <th>REC</th> <th>PARITY</th> <th>XMT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7</td> <td>IGNORE</td> <td>MARK</td> <td></td> </tr> <tr> <td>2</td> <td>7</td> <td>IGNORE</td> <td>SPACE</td> <td></td> </tr> <tr> <td>3</td> <td>7</td> <td>IGNORE</td> <td>ODD</td> <td></td> </tr> <tr> <td>4</td> <td>7</td> <td>IGNORE</td> <td>EVEN</td> <td></td> </tr> <tr> <td>5</td> <td>7</td> <td>ODD</td> <td>ODD</td> <td></td> </tr> <tr> <td>6</td> <td>7</td> <td>EVEN</td> <td>EVEN</td> <td></td> </tr> <tr> <td>7</td> <td>7</td> <td>NONE</td> <td>NONE</td> <td></td> </tr> <tr> <td>8</td> <td>8</td> <td>NONE</td> <td>NONE</td> <td></td> </tr> <tr> <td>9</td> <td>8</td> <td>ODD</td> <td>ODD</td> <td></td> </tr> <tr> <td>10</td> <td>8</td> <td>EVEN</td> <td>EVEN</td> <td></td> </tr> </tbody> </table>	DISPLAY	DATA BITS	REC	PARITY	XMT	1	7	IGNORE	MARK		2	7	IGNORE	SPACE		3	7	IGNORE	ODD		4	7	IGNORE	EVEN		5	7	ODD	ODD		6	7	EVEN	EVEN		7	7	NONE	NONE		8	8	NONE	NONE		9	8	ODD	ODD		10	8	EVEN	EVEN	
DISPLAY	DATA BITS	REC	PARITY	XMT																																																				
1	7	IGNORE	MARK																																																					
2	7	IGNORE	SPACE																																																					
3	7	IGNORE	ODD																																																					
4	7	IGNORE	EVEN																																																					
5	7	ODD	ODD																																																					
6	7	EVEN	EVEN																																																					
7	7	NONE	NONE																																																					
8	8	NONE	NONE																																																					
9	8	ODD	ODD																																																					
10	8	EVEN	EVEN																																																					

KEY	FUNCTION/COMMENTS															
SEC CHAN	Secondary channel															
	<table border="1"> <thead> <tr> <th>DISPLAY</th> <th>FDX*</th> <th>MODE</th> <th>HDX*</th> <th>REV.CH.</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Speed</td> <td></td> <td>No</td> <td></td> </tr> <tr> <td>1</td> <td>Restraint</td> <td></td> <td>Yes</td> <td></td> </tr> </tbody> </table>	DISPLAY	FDX*	MODE	HDX*	REV.CH.	0	Speed		No		1	Restraint		Yes	
DISPLAY	FDX*	MODE	HDX*	REV.CH.												
0	Speed		No													
1	Restraint		Yes													

KEY	FUNCTION/COMMENTS
PTR NEW LINE	Printer new line character
	1 = No new line
	2 = Line feed new line
	3 = Carriage return line feed

KEY	FUNCTION/COMMENTS																																
BAUD RATE	Selects receive and transmit baud rates and number of stop bits.																																
	<table border="1"> <thead> <tr> <th>BAUD RATE (DISPLAYED)</th> <th>STOP BITS</th> <th>BAUD RATE (DISPLAYED)</th> <th>STOP BITS</th> </tr> </thead> <tbody> <tr> <td>50</td> <td>2</td> <td>600</td> <td>1</td> </tr> <tr> <td>75</td> <td>2</td> <td>1200</td> <td>1</td> </tr> <tr> <td>110</td> <td>2</td> <td>1800</td> <td>1</td> </tr> <tr> <td>134</td> <td>1</td> <td>2400*</td> <td>1</td> </tr> <tr> <td>150</td> <td>1</td> <td>4800*</td> <td>1</td> </tr> <tr> <td>200</td> <td>1</td> <td>7200*</td> <td>1</td> </tr> <tr> <td>300</td> <td>1</td> <td>9600*</td> <td>1</td> </tr> </tbody> </table>	BAUD RATE (DISPLAYED)	STOP BITS	BAUD RATE (DISPLAYED)	STOP BITS	50	2	600	1	75	2	1200	1	110	2	1800	1	134	1	2400*	1	150	1	4800*	1	200	1	7200*	1	300	1	9600*	1
BAUD RATE (DISPLAYED)	STOP BITS	BAUD RATE (DISPLAYED)	STOP BITS																														
50	2	600	1																														
75	2	1200	1																														
110	2	1800	1																														
134	1	2400*	1																														
150	1	4800*	1																														
200	1	7200*	1																														
300	1	9600*	1																														

Reserved for future use

STORE RECALL AND STATUS

KEY	FUNCTION/COMMENTS
STATUS	Print status message
STORE RECALL	Recall SET-UP features
SHIFT and STORE RECALL	Store SET-UP features

SELF TEST

KEY	FUNCTION/COMMENTS
SELF TEST	Initiate printing self test
	NOTE: Type any character in SET-UP mode to stop self test.

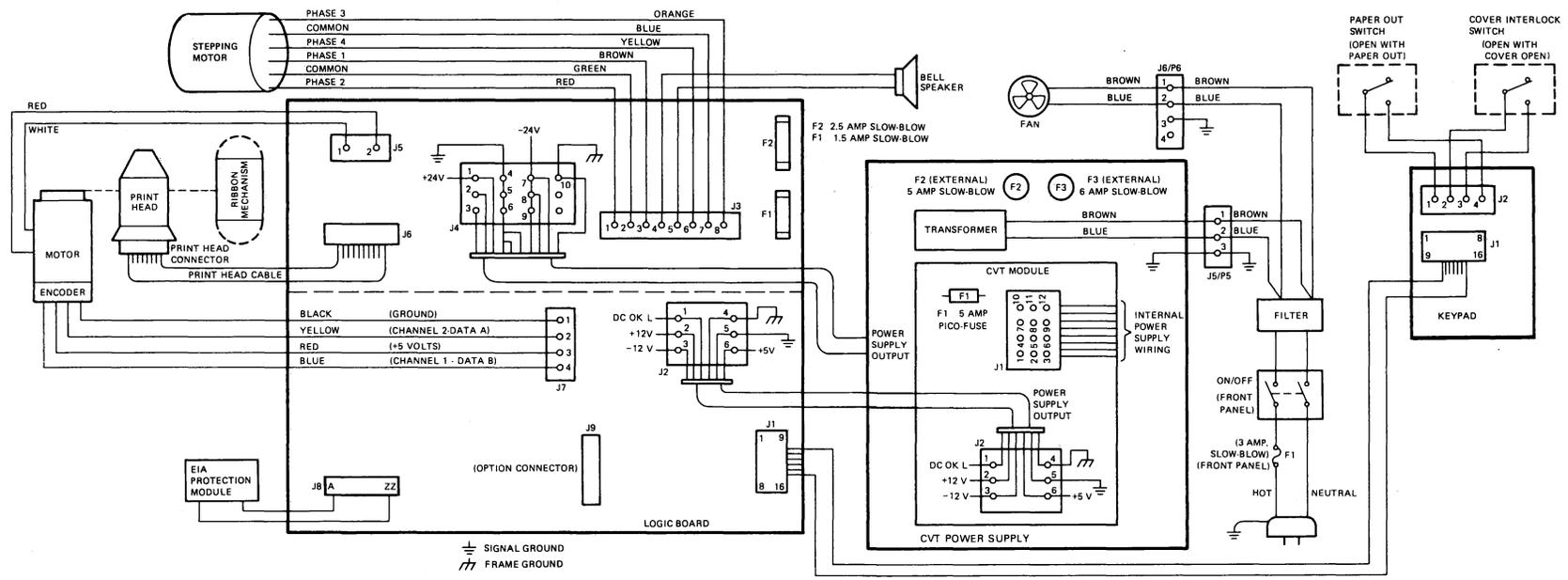


Fig. 39-TELEPRINTER 1000 KSR Functional Block Diagram

MA-2262

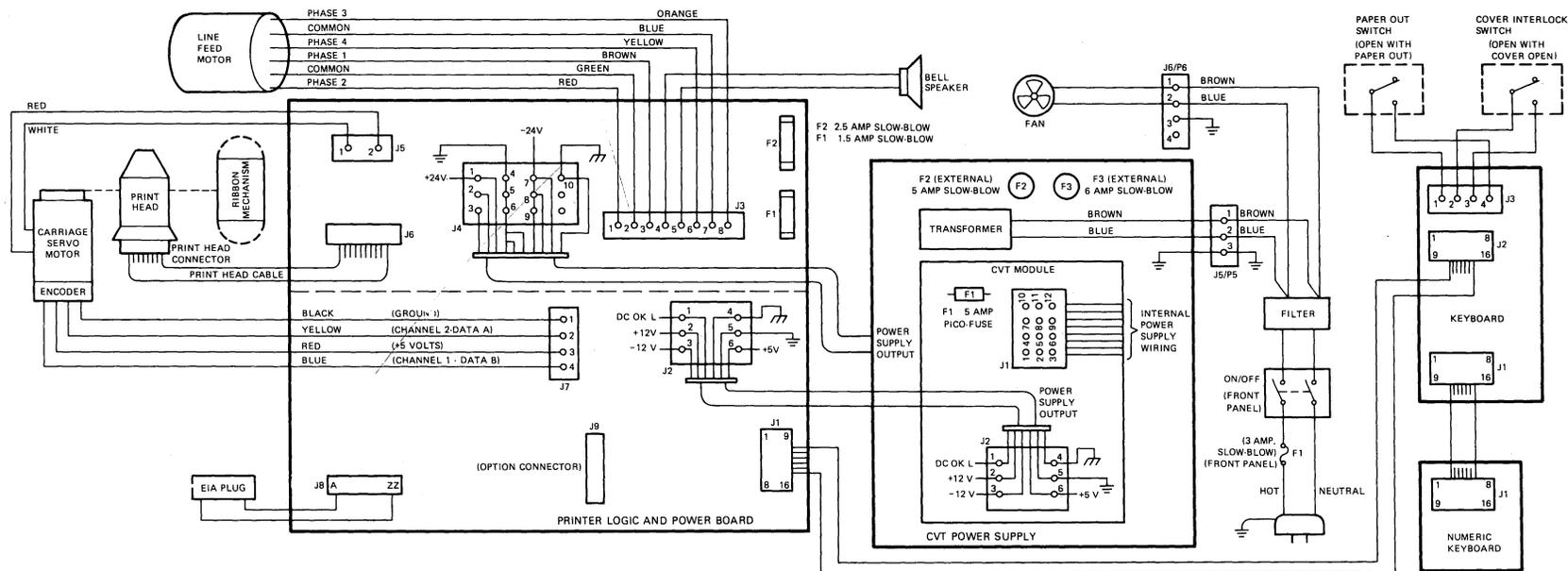


Fig. 40-TELEPRINTER 1000 RO Functional Block Diagram