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Title:

RC850 Display Terminal
General Description

RCSL 42-11592

A/S REGNECENTRALEN
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Abstract:

This manual contains the general description of the RC850 and it ought to be used as a subsection for the General Information for the specific version.

(24 printed pages)

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RCSL 42-i1592

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1. INTRODUCTION 1.

1.1 The RC850 Family 1.1

The RC850 Display Terminals are all members of a powerful, intelligent terminal-family.

The RC850 family of Display Terminals are microprocessor-based terminals which are able to emulate several terminals of the market. There will be different versions reaching from the "hard-programmed" version to the "soft-programmed down line loaded" version or even the microcomputer -high-level- language version.

Common to all versions is the real professional design of the cabinet and keyboard. No efforts have been avoided to obtain the most comfortable and reliable place of work. Special human engineering has taken place in the areas: Operator accomodation, operating-environment, and service-ability.

This manual contains the general description of the RC850 and it ought to be used as a subsection for the General Information for the specific version.

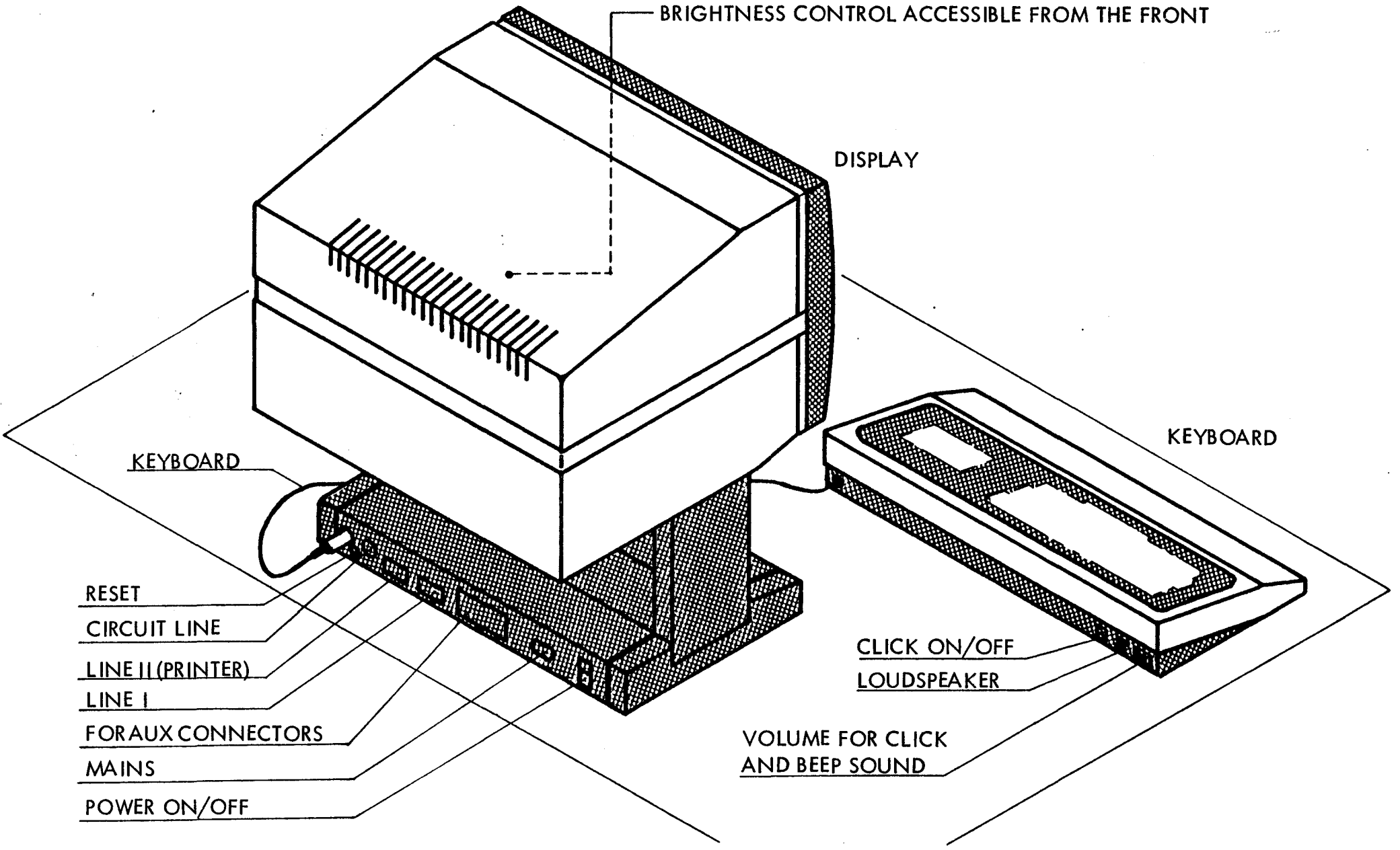
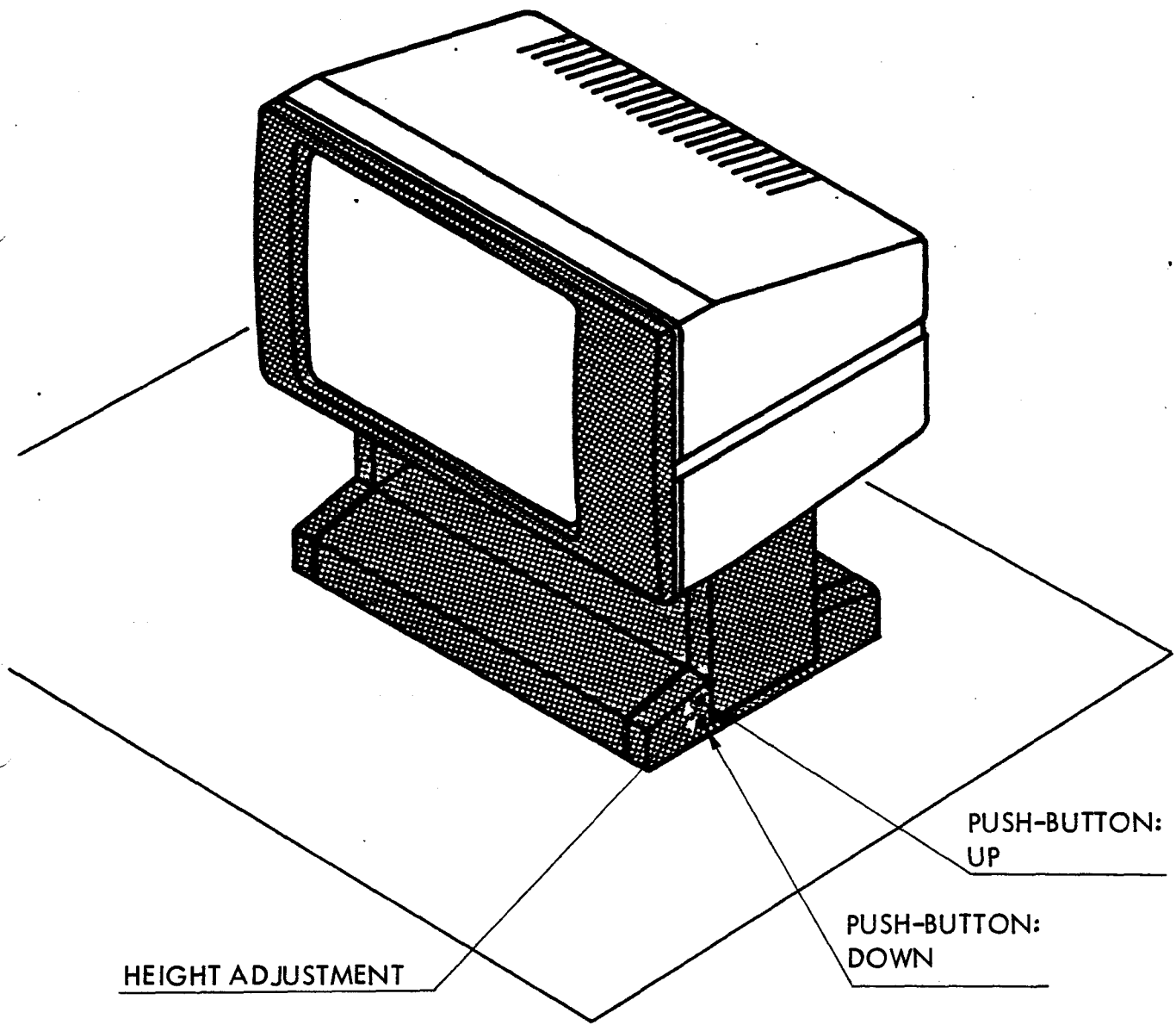


Fig. 1.1
RC 850 Backpanel connector and switch locations



RC850

FRONT VIEW

2. INTERFACE DESCRIPTION

The RC850 Display Terminal is equipped with 4 interface connectors:

LINE I Connector
LINE II Connector
KEYBOARD Connector
RC CIRCUIT LINE

each performing serial data transmission to and from the respective units.

The transmission speed of LINE I and LINE II may have different value. Following Baud rates may be selected by the Terminal Setup Procedure:

50 - 75 - 110 - 134.5 - 150 - 300 - 600 - 900 -
1200 - 1800 - 2400 - 4800 - 9600 - 19200 bps.

The interfaces and connectors are shown in fig. 2.1.1: Interface Connections, and are described in the following.

2.1 LINE I Interface (HOST Connection)

The transmission speed of the LINE I interface may be selected by the setup procedure to a rate between 50 and 19200 bps.

LINE I interface is prepared for CCITT X21 (optional).

2.1.1 V24 Interface

The LINE I and LINE II interfaces comply with the recommendations of CCITT V.24/X.26 and RS-232-C (DTE descriptions). Specifications of these interfaces are:

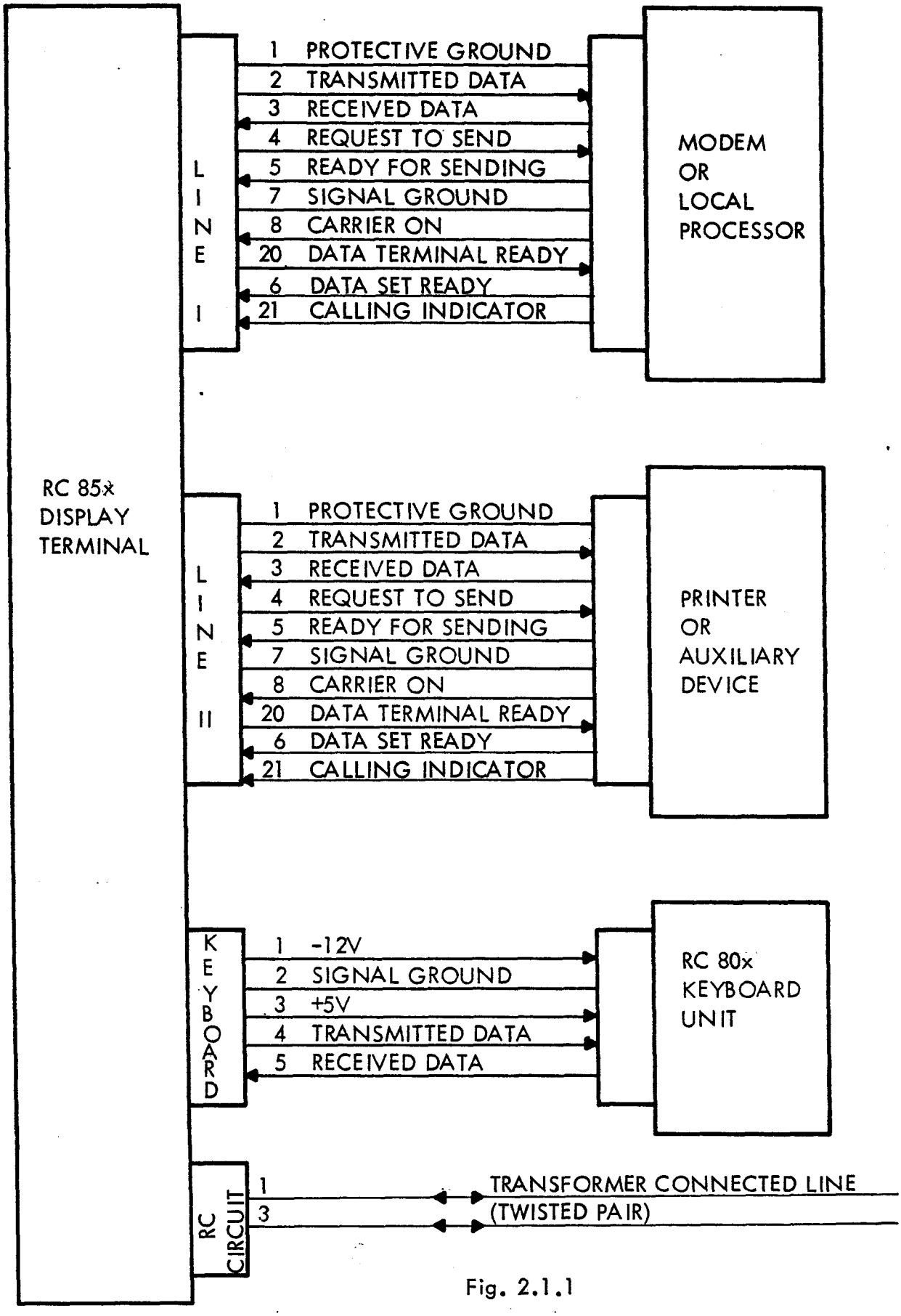


Fig. 2.1.1

INTERFACE CONNECTIONS

	TRANSMITTER:	RECEIVER
D A T A	Mark level: (logic "1") $\leq$ -5.5V Space level: (logic "0") $\geq$ +5.5V	Input impedance: 3 to 7K Mark level: -4V to -12V Space level: +4V to +12V NOTE 1.
C O N T R O L	ON: $\geq$ +5.5V OFF: $\leq$ -5.5V	ON: +4V to +12V OFF: -4V to -12V NOTE 1.
	IF AN INPUT LINE IS LEFT FLOATING, IT ASSUMES ITS NEGATIVE LEVEL.	

NOTE 1: The interface is protected to accomodate the voltage levels specified in CCITT V.28 (up to $\pm$ 25V).

Fig. 2.1.2: Signal Levels.

2.1.2 Serial Data Transfer

2.1.2

The following bit sequence is used for transmitted and received data.

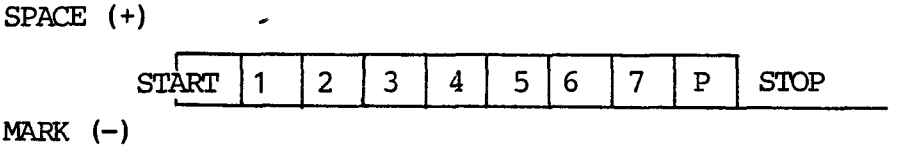


Fig. 2.1.3: Serial data transfer.

LINE I interface connector: (NC = No Connection).

Connector: 25 pin type DB 25S with screw lock.

PIN	NAME		PIN	NAME	
	V.24	X.24*		V.24	X.24*
1	PROTECTIVE GROUND	SHIELD	14	NC (TMX CLOCK)	(B)
2	TRANSMITTED DATA	T(A)	15	TMX CLOCK	(A)
3	RECEIVED DATA	R(A)	16	NC (REC CLOCK)	(B)
4	REQUEST TO SEND	C(A)	17	REC CLOCK	(A)
5	READY FOR SENDING	I(A)	18	NC (RECEIVED DATA)	R(B)
6	DATA SET READY	(A)	19	NC (DATA SET READY)	(B)
7	SIGNAL GROUND	G,T(B),C(B)	20	DATA TERMINAL READY	
8	CARRIER ON	(A)	21	NC (CALLING INDICATOR)	(B)
9	NC		22	CALLING INDICATOR	(A)
10	NC		23	NC	
11	NC		24	NC	
12	NC (READY FOR SENDING)	I(B)	25	NC	
13	NC (CARRIER ON)	(B)			

Fig. 2.1.4: Line interface connector.
* Prepared for CCITT X.21 (optional)

2.2 LINE II Interface (Printer Connection) 2.2

This interface is intended for use as a Printer or auxiliary device interface. All specifications concerning transmission speed, V24 interface, and serial data transfer are the same as for LINE I interface (section 2.1).

LINE II interface connector: (NC = No Connection).
Connector: 25 pin type DB 25S with screw lock.

PIN	NAME	PIN	NAME
1	PROTECTIVE GROUND	14	NC
2	TRANSMITTED DATA	15	NC
3	RECEIVED DATA	16	NC
4	REQUEST TO SEND	17	NC
5	READY FOR SENDING	18	NC
6	DATA SET READY	19	NC
7	SIGNAL GROUND	20	DATA TERMINAL READY
8	CARRIER ON	21	NC
9	NC	22	CALLING INDICATOR
10	NC	23	NC
11	NC	24	NC
12	NC	25	NC
13	NC		

Fig. 2.2.1: LINE II interface connector.

2.3 KEYBOARD Interface

2.3

Data between the keyboard and the display logic are communicated in serial form with 300 bit/sec. ASYNCHRONOUS.

Signals levels are low power schottky TTL levels.

KEYBOARD interface connector:
Connector: 5 pin round connector, binder type 680 with screw connection.

PIN	NAME
1	- 12V
2	SIGNAL GROUND
3	+ 5V
4	TRANSMITTED DATA
5	RECEIVED DATA
⏚	PROTECTIVE GROUND

Fig. 2.3.1: Keyboard interface connector.

2.4 RC CIRCUIT INTERFACE 2.4

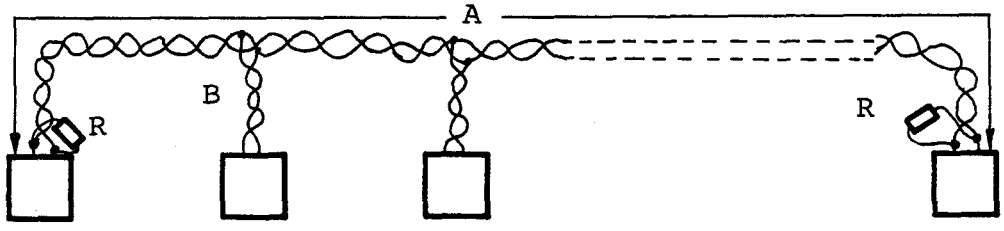
The RC CIRCUIT is a multidrop connection for local data transmission up to 1500 meters on a twisted pair and with a transmission of speed of 250K bits per second, internal transformer coupled.

RC CIRCUIT interface connector:
Connector: 3 pin round connector, binder type 680 with screw connection.

PIN	NAME
1	LINE 0
2	NC
3	LINE 1

Fig. 2.4.1:

Connection principle:



A max. 1500 m, B max. 3 m, R = 110 Ω.

Fig. 2.4.2:

3. MAINTENANCE 3.

Except for the daily cleaning of the surfaces of the display terminal with a firmly wrung cloth, no maintenance is required.

Still, on occasion, due to component aging or hard shipments, the power supply and the monitor require some adjustments. Likewise, it might be necessary to adjust, when the operating voltage and/or the frequency has been changed.

If such adjustments are required, we recommend it to be done by qualified personnel only, and with EXTREME CAUTION being used since HAZARDOUS VOLTAGES ARE PRESENT.

4.1 High Intensity Level Adjustment 4.1

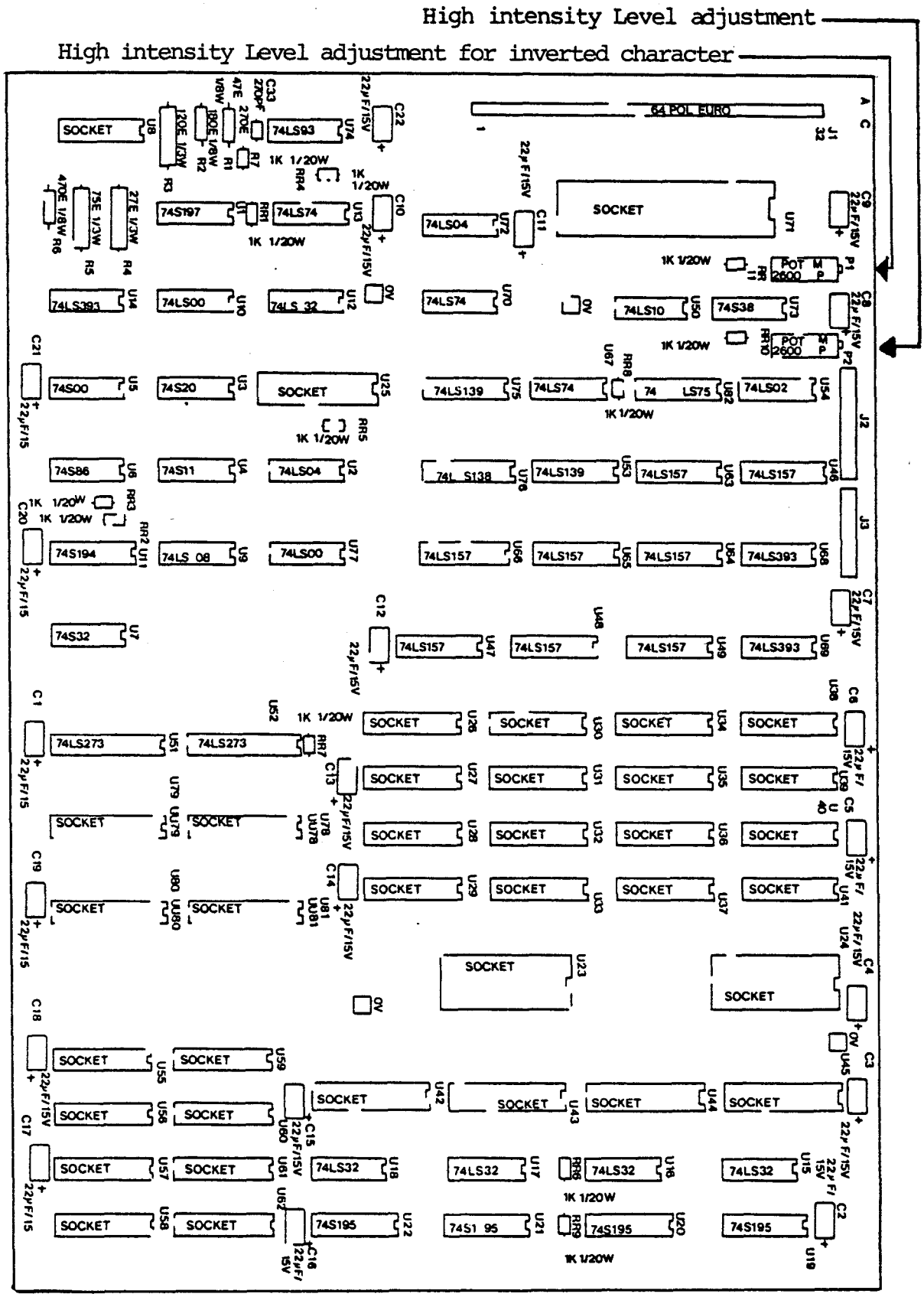


Figure 4.1.1: CRT-module layout.

Fig. 3.3.1

- CRT-module layout

4. TROUBLE-SHOOTING GUIDE

4.1 Fault Analysis

If the RC850 Display Terminal should fail, it is recommended either to call qualified personnel or to return the Display Terminal to the nearest Technical Service Department.

Prior to that a few simple checks done by the operator would ease maintenance and maybe prevent wrong service calls.

4.1.1 Check Outs

Power on, no picture.

Try to turn the brightness control in both side positions; if no picture or cursor appears, turn power off and check the mains for power with another equipment. If this equipment runs, make a complete disconnect of the terminal and make an error report.

Any kind of "wrong" picture.

Turn power off, and then on again allowing the self test feature to examine the Display Terminal. Check the read out for any malfunctions.

Good cursor, no character entry.

Check LINE and KEYBOARD cables (in both ends) for bad connections. (All cable screws must be fastened). Try to turn power off and on again allowing the self test feature to check the line connection to the host processor. Check LINE rate to be correct.

Steady "wrong" picture.

If the picture is not corrected by a power off, power on sequence, a malfunction has occurred in the CPU- or CRT-module. Make an error report.

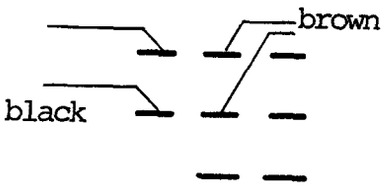
4.2 Subassembly Removal/Replacement 4.2

Before an access to the internal parts of the Display Terminal and the Keyboard, turn the power switch OFF and disconnect the power cord from the wall outlet.

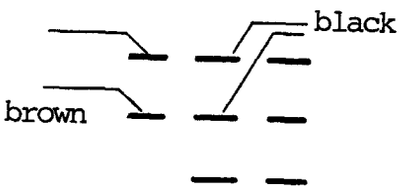
5. POWER STRAPS

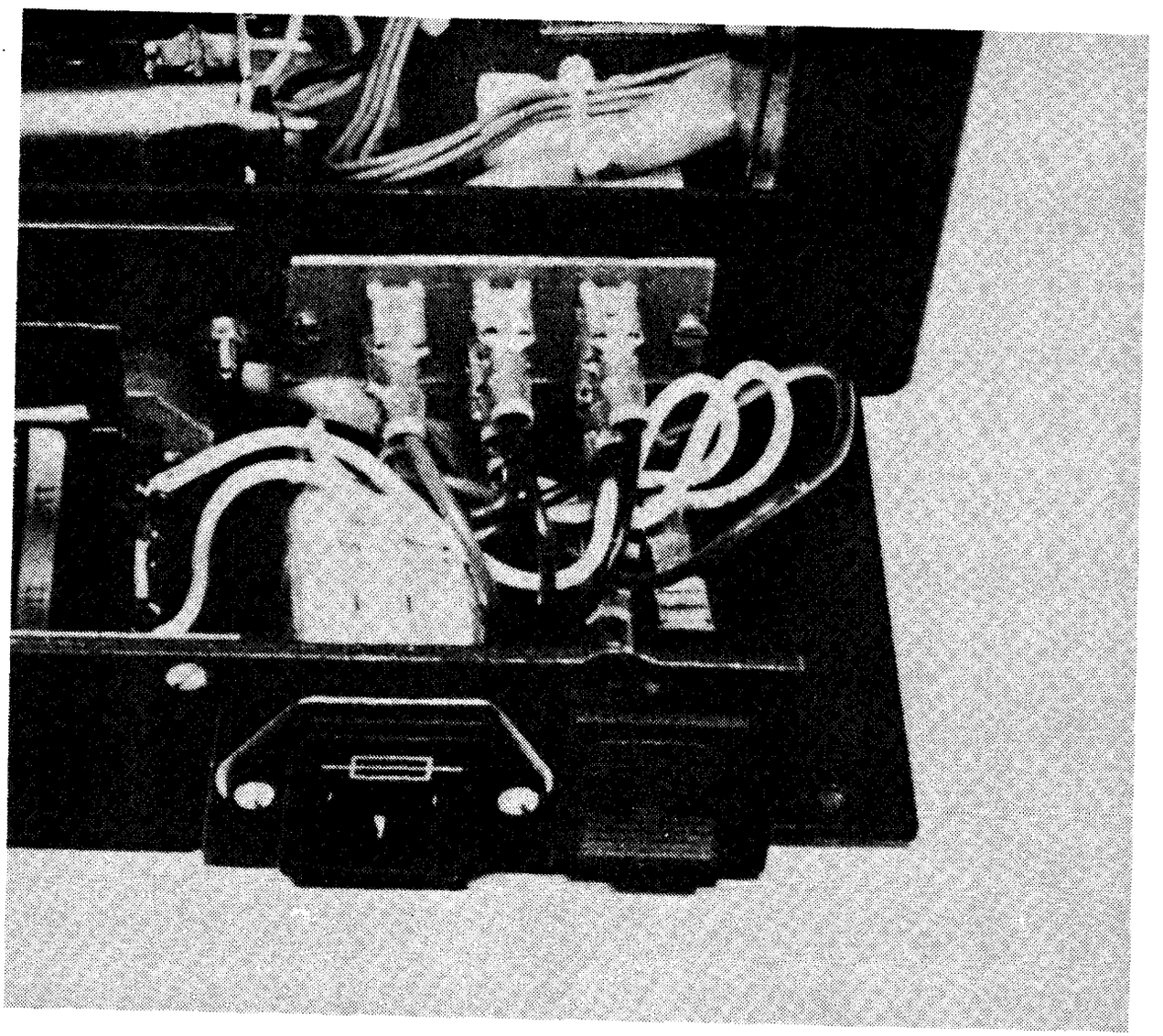
It is possible to change the main power from 220V nom. to 240V nom. in the plinth of the display after these figures:

220V



240V





6. SPECIFICATIONS

6.1 Processors

CPU-module:	Z80A (4 MHz). 158 instructions inclusive 8080 instruction set. Self Test Feature.
Keyboard module:	8048 mask programmed.

6.2 Display

Screen Capacity, characters:	2000
Characters per line:	80
Number of lines:	Up to 25
Refresh memory:	Separate 2K x 8 or 16 bit RAM.
Screen:	Non glart CRT, P31 phosphor(green). 15" (38 cm, diagonal). Adjustable $\pm$ 5 cm in height. Tiltable $\pm$ 10^{o} without tools.
Character generation:	16 x up to 16 dot matrix (normally 16 x 14) (H x W).
Character size:	3 x 6 mm (W x H).
Displayable characters:	128 from ROM and 256 from RAM and up to 4 shadow characters.
Refresh rate:	50 times per second. Optionally 60 times per second.

Scan method:	Raster.
Horizontal scanning frequency:	18.24 KHz.
Vertical scanning frequency: (refresh rate)	50 Hz; 60 Hz optional (phase locked to mains).
Cursor:	The Cursor Start and End Registers allow a cursor of up to 16 scan lines in height to be placed on any scan lines of the character block. Using Bits 5 and 6 of the Cursor Start Register, the cursor is programmed with blink periods of 16 or 32 times the field period. Optional non-blink and non-display modes can also be selected.
Cursor control:	Position addressable. Up, down, left, right, home, return, TAB under program control.
Attribute functions:	32 fields attribute.

6.3 Communication

6.3

LINE I Connection:	CCITT V.24/X.26. Socket confirms to ISO 2110 CCITT X.21/X.24 (optional).
LINE II (PRINTER) Connection:	CCITT V.24/X.26. Socket confirms to ISO 2110.
Transmission speeds:	50 to 19200 bps., selectable by Terminal Setup Procedure on Line 1 and 2. RC Circuit 250 bps.

6.4 Physical

Power voltage:	220/240V AC ± 10%.
Power frequency:	50 Hz ± 1% (60 Hz optional).
Power consumption:	100 W.
Temperature, ambient:	10-35°C.
Humidity, relative:	0-95% non-condensing.
Altitude:	10,000 ft. max. (3400 m).
Standard finish:	Tan/brown.
Dimensions:	Display
Height:	490 mm (highest position)
Width:	470 mm
Depth:	330 mm (non-tilted)
Weight:	20 kg

All specifications subject to change without notice.

RETURN LETTER

Title: RC850 Display Terminal
General Description

RCSL No.: 52-AA1066

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