AD-A073 097 ARMY COMMUNICATIONS-ELECTRONCS ENGINEERING INSTALLATI--ETC F/G 17/2
ROLM CORPORATION EPABX INSTALLATION AT FIELD STATION AUGSBURG, --ETC(U)
AUG 79

UNCLASSIFIED CCC-TED-79-TR-058 NL

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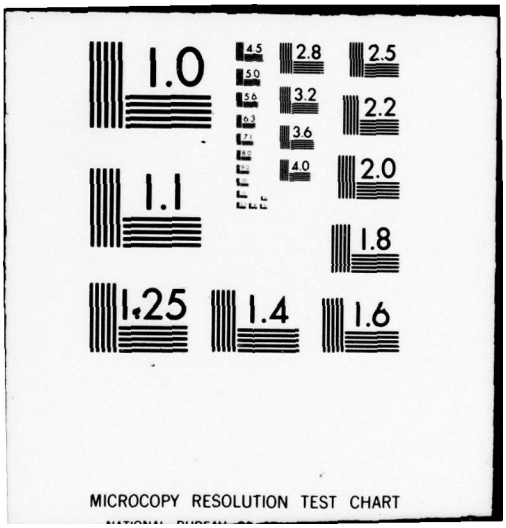
1.0
1.1
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2.0
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3.2
3.6
4.0
4.5
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MICROCOPY RESOLUTION TEST CHART

LEVEL

DEPARTMENT OF THE ARMY
U.S. ARMY COMMUNICATIONS-ELECTRONICS
ENGINEERING INSTALLATION AGENCY
FORT HUACHUCA, ARIZONA 85613

WPE-~~3701~~ND

(12) 24p.

(11) 14 AUG 1979

CCC-TED-TSAS

(6)

SUBJECT: Final Test Report, ROLM Corporation EPABX Installation at Field Station Augsburg, Germany, Publication No. CCC-TED-79-TR-058

(14)

Commander
US Army Communications Command
ATTN: CC-OPS-SP
Fort Huachuca, AZ 85613

(9) Final test rept.

1. REFERENCES:

a. Contract DAEA18-~~73~~-C-0094, Procurement of Two EPABX's for Field Stations Augsburg and Berlin, Germany, 2 November 1978.

b. Acceptance Test Plan, Contract Item A008, 4 June 1979.

c. CEMO for INSCOM EPABX's for Field Stations Augsburg and Berlin, Germany, 8 May 1978.

2. STATEMENT OF THE TASK: This test report records the results of the acceptance tests conducted in accordance with references 1a and 1b on the ROLM Corporation EPABX Installation at Field Station Augsburg, Germany. The acceptance tests were conducted during the period 16-18 July 1979.

3. BACKGROUND: The EPABX consists of a two cabinet system with redundant processors, wired for 400 lines and equipped for 300 lines. The EPABX replaces the AN/FTC-37 telephone system which had reached its maximum capacity and could not be expanded economically.

4. RESPONSIBILITIES: This agency was tasked per reference 1c above to conduct acceptance testing of the subject installation.

5. SUMMARY OF RESULTS: Results of the acceptance test are given in Inclosure 1. The Technical Acceptance Recommendation is at Inclosure 2.

JOB

AUG 1 4 1979

CCC-TED-TSAS
SUBJECT: Final Test Report, ROLM Corporation EPABX Installation at Field Station Augsburg, Germany, Publication No. CCC-TED-79-TR-058

6. CONCLUSIONS: The results of the acceptance test indicated that the ROLM EPABX met all contractual requirements. The DD Form 250 was signed on 18 July 1979 by CW3 Spaulding, the on-site COR.

7. RECOMMENDATIONS: None.

FOR THE COMMANDER:

2 Incl
as

for CALVIN F. PHILLIPS
Colonel, Signal Corps
Director, Test & Evaluation Directorate

CF:
COMMANDERS
5th Signal Command, ATTN: CCE-LGC, APO New York 09056
INSCOM, ATTN: Mr. Casey, Arlington Hall Station, VA 22212
USACSA, ATTN: CCM-SG-(H), Ft Huachuca, AZ 85613
USACEEIA, ATTN: CCC-PRSO/CCC-CED-SW/CCC-CED-SET, Ft Huachuca, AZ 85613
US Army Field Station Augsburg, ATTN: IAEA-CE, APO New York 09458
Headquarters, Ft Huachuca, ATTN: CCH-IOD-PL, Ft Huachuca, AZ 85613
DIRECTORS
Defense Communications Agency, Technical Library, Code 205, Washington, DC 20305
Defense Documentation Center for Scientific and Technical Information, ATTN: Documentation Service Center, Alexandria, VA 22314

TECHNICAL ACCEPTANCE RECOMMENDATION (SUMMARY) (CCCR 702-2)		PAGE 1 OF 6 PAGES DATE (DAY, MO, YEAR) 18 July 1979
PROJECT/CONTRACT NO. DAEA18-78-C-0094 new	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany
FACILITY Field Station, Augsburg		TEST DIRECTOR Jerry A. Marsh

OPERATING AGENCY	ENGINEERING AGENCY
USACC Activity US Army Field Station, Augsburg APO New York 09454	HQ USACEEIA CCC-CED-SWT
INSTALLATION AGENCY	**TESTING AGENCY**
USACEI BN Fort Huachuca, AZ 85613	HQ USACEEIA CCC-TED-TSAS Fort Huachuca, AZ 85613

PROJECT DESCRIPTION

This project will replace the existing AN/FTC-37 with a 400 Line ROLM Corporation Computerized Branch Exchange (CBX). Termination, cabling, operators console, instruments, power, and mainframe will be installed by the USACEI BN Installation Team. The Contractor will install the equipment bays. The existing AN/FTC-37 will be removed and disposed of in accordance with standard disposition instructions.

This Technical Acceptance Recommendation is executed by the onsite representatives of the installation, test and operating agencies. It does not constitute official acceptance of the project but does certify that the MAJOR ITEMS INSTALLED AND DOCUMENTATION PROVIDED are as stated herein. This document further certifies that the project has been installed and performs satisfactorily in accordance with the requirements listed under REFERENCES except as noted under EXCEPTIONS and REMARKS. Upon execution of this TECHNICAL ACCEPTANCE RECOMMENDATION, USACEEIA considers this project complete except for such follow-on action as may be necessary to clear the EXCEPTIONS stated herein.

TECHNICAL ACCEPTANCE RECOMMENDATION (INSTALLED EQUIPMENT) (CCCR 702-2)		PAGE 2 OF 6 PAGES DATE (DAY, MO, YEAR) 18 Jul 79
PROJECT/CONTRACT NUMBER DAEA18-78-C-0094	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany

MAJOR EQUIPMENT INSTALLED/RELOCATED

ROLM CBX wired for 400 line capacity and equipped for 300 lines.

BOM ITEM NO.	DESCRIPTION	PART NUMBER/FSN	QUANTITY
3	Telephone Instrument, Desk Type, Single Line	5805-00-X78-2643	74
4	Telephone Instrument, Wall Type, Single Line	NSN	0

Contracts Division
HQS, Ft. Huachuca
P.O.Box 748
Ft. Huachuca, AZ 85613
(U.S. ARMY, Augsburg)

CORPORATION
4900 Old Ironsides Drive
Santa Clara, California 95050
(408) 988-2900

PACKING SLIP

Finance & Accounting Officer
Drawer "p" Commercial Accts.
Ft. Huachuca, AZ 85613

SHIP TO:
COMMANDER
U.S. ARMY FIELD STATION
AUGSBURG, GERMANY
WK4FRQ
M/F IAEA-CE

ev #2, 7.21.78. To change name from West Berlin to Augsburg.
ystem number for this order AUG8RG1227. Change to 8551C.
V#3 7.21.78 to add items #12 - 15 DOLLARS INCREASE
V#4 11.8.78 ADD 304,8881;8,8883; 2,8532 DELETE: 1,8551C;1,8552A;
,8556; 12,8120; 8,8531; 31,8884; 12 user's manuals DOLLARS
CREASE BOOK ORDER
V#5 01.15.79 Delete 8-8883 and incr qty of item 8 and chg to rotary plts,
d to add dollars to 12, 13 & 14 as noted. DLRS INCREASE
V# 6 ISSUED TO CHANGE FROM 4 CH to 8 CH
V#7 ISSUED (02.02.79) TO CHG QTYS OF 8562 & 8563 TO 2 EACH

V #8 ISSUED (04.12.79) TO ADD 100-8881, 1-RS 232 Cables, 33 - 25 PR. Cables.
) DLR CHANGE

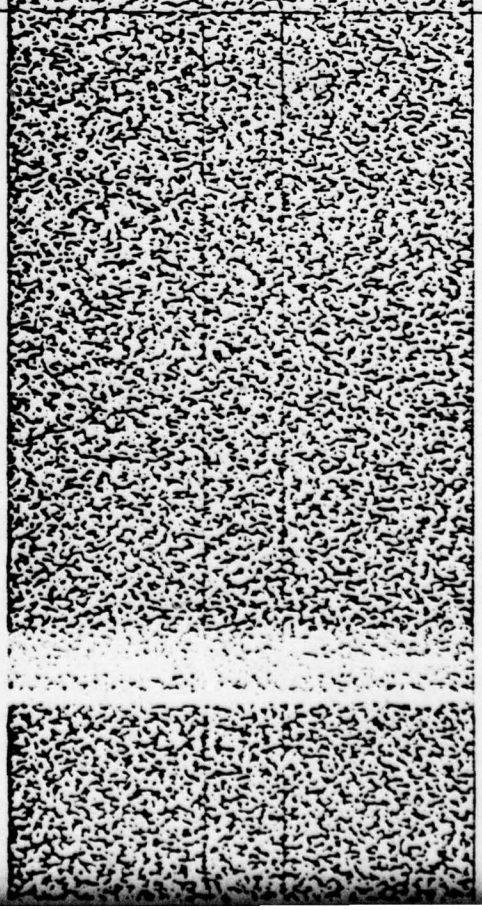
Weight	No. of Cartons
Packed By	
Checked By	
Ship Date	
Ship Via	
B/L Number	

Order	REL	REV	Order Date	Delivery Date	Page	Of
5407		8	7.18.78	02.09.79	1	2

	Gov't Contract Number	Customer Order Number	FOB Point
		DAEA18-78-C-0094	destination

a Instructions	Rating	GSA	Taxable	Renegotiable	Terms	Shipping Charges
Air					PER CONTRACT	Prepay

Qty Order	Product Number	Description	Qty O/H	Ship 1	Ship 2	Ship 3
1	8201B/1	Equipment Cabinet 1	1	1		
1	8202A/1	Equipment Cabinet 2	1	1		
		INSTALLED IN CABINET:				
2	8531	12 K Memory	2	2		
2	8532	48 K Memory	2	2		
18	8550B	Expander	18	18		
25	8551C	16 Ch Coder	25	25		
25	8552A	16 Ch Decoder	25	25		
38	8554	8 Ch Line Intfce	38	38		
3	8556	4 Ch Dey Tel Intfce	3	3		
1	8557A	4 Ch Dir Trk Intfce	1	1		
2	8562	8 CH Univ Trk Controller	2	2		
2	8563	8 CH Univ Tie Trunks	2	2		
25	8581	Intfce MBD 4-1	25	25		
4	8582	Intfce MBD 6-2	4	4		
2	8259	Conf Bridge Kit	2	2		
1	8602A	Bias Generator	1	1		
2	8603	Tone Generator	2	2		
2	8585	6-3 MBD's	2	2		



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ROLM CORPORATION

MER	I.D.	Order	REL	REV	Page	Of
U. S. Army #1, Augsburg	R	5407		8	2	2

Qty Order	Product Number	Description	Ship 1	Ship 2	Ship 3
2		8607 4 Ch DTMF Register	2		
2		8605 Rotary Register	2		
2		8606A Rotary Sender	2		
		SYSTEM SUBTOTAL			
8		8120 Key Tel Adptr	8		
1		8130 Attendant's Console	1		
2		AUGBRG1227 Sys Config Manual	0	2	
2		AUGBRG1227 Sys Sftwr Cassette	2		
		INCLUDED IN CASSETTES:			
1		Advanced Features	1		
1		System Forwarding	1		
1		DID	1		
1		Expanded Traffic	1		
1		Intercom Blocking	1		
1		8777 Serial Intfce Sys	1		
312		Instrtl Fceplt-Rotary	0	312	
312		User's Manuals	312		
2	8769	Diag Cassette	2		
		TOTAL			
2		8686 117VAC/4KVA Transformer	2		
		SYSTEM TOTAL			
1		TI745 Teleprinter	1		
1		8751 Digital Cassette Unit	1		
1		Meet Me Conf. Assy	1		
1		Pair Cable Assy	1		
		Freight and Handling			
		GRAND TOTAL			
1		Preliminary Manual	1		
2		Preliminary Cassettes	2		
2		24V Transformers	2		
100		8881 Instrtl Faceplates		100	
1		RS-232 Cable		1	
33		25 Pr. Cables - 25 Ft. Long ea.		33	

TECHNICAL ACCEPTANCE RECOMMENDATION (DOCUMENTATION) (CCCR 702-1)		PAGE 3 OF 6 PAGES
		DATE (DAY, MO, YEAR) 18 July 1979
PROJECT/CONTRACT NUMBER DAEA18-78-C-0094	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany

PROJECT DOCUMENTATION PROVIDED

See Packing Slip (Page 2a & b)

REFERENCE DOCUMENTATION	TITLE	NO. OF COPIES

TECHNICAL ACCEPTANCE RECOMMENDATION (EXCEPTIONS) (CCR 702-2)		PAGE 4 OF 6 PAGES DATE (DAY, MO, YEAR) 18 July 1979
PROJECT/CONTRACT NUMBER DAEA18-78-C-0094	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany

EXCEPTIONS ENGINEERING INSTALLATION OTHER X	SUGGESTED ACTION AGENCY
1. Red Lined Drawings (one copy) to be furnished HQ USACEEIA, ATTN: CCC-CED-SWT, Fort Huachuca, AZ 85613.	USACC Activity, FS Augsburg
2. The existing AN/FTC-37 will be removed and disposed of in accordance with standard disposition instructions.	USACC Activity, FS Augsburg

TECHNICAL ACCEPTANCE RECOMMENDATIONS (REMARKS) (CCCR 702-2)		PAGE 5 OF 6 PAGES
		DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER	TITLE	LOCATION
DAEA18-78-C-0094	ROLM CBX Installation	Gablingen, Germany

REMARKS:

None.

TECHNICAL ACCEPTANCE RECOMMENDATION (CERTIFICATION)		PAGE 6 OF 6 PAGES DATE (DAY, MO, YEAR) 18 July 1979
PROJECT/CONTRACT NUMBER DAEA18-78-C-0094	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany

CERTIFICATION

Acceptance tests and Quality Assurance Inspections are complete for equipment installed under this project.

WITHOUT EXCEPTIONS ☐ WITH NOTED EXCEPTIONS ☒

INSTALLATION AGENCY USACEI BN Fort Huachuca, AZ 85613	SIGNATURE AND TITLE PRINTED
OPERATING AGENCY USACC Activity Field Station, Augsburg APO New York 09458	SIGNATURE AND TITLE PRINTED
TEST AGENCY HQ USACEEIA CCC-TED-TSAS Fort Huachuca, AZ 85613	SIGNATURE AND TITLE PRINTED

ACCEPTANCE

Equipment herein certified successfully installed and tested, is accepted.

OPERATING COMMAND USACC Activity Inscom APO NY 09458	SIGNATURE TITLE

TECHNICAL ACCEPTANCE RECOMMENDATION (CERTIFICATION)		PAGE 6 OF 6 PAGES DATE (DAY, MO, YEAR)
PROJECT/CONTRACT NUMBER DAEA18-78-C-0094	TITLE ROLM CBX Installation	LOCATION Gablingen, Germany

CERTIFICATION

Acceptance tests and Quality Assurance Inspections are complete for equipment installed under this project.

WITHOUT EXCEPTIONS ☐ WITH NOTED EXCEPTIONS ☒

INSTALLATION AGENCY USACEI BN Fort Huachuca, AZ 85613	SIGNATURE AND TITLE PRINTED
OPERATING AGENCY USACC Activity Field Station, Augsburg APO New York 09458	SIGNATURE AND TITLE Robert C Spaulding CW3, COR PRINTED Robert C. Spaulding CW3, USA COR
TEST AGENCY HQ USACEEIA CCC-TED-TSAS Fort Huachuca, AZ 85613	SIGNATURE AND TITLE Jerry A Marsh, Test Director PRINTED JERRY A MARSH SFC, COR for Testing

ACCEPTANCE

Equipment herein certified successfully installed and tested, is accepted for operation.

OPERATING COMMAND USACC Activity INSCOM APO N.Y. 09458	SIGNATURE Robert C Spaulding TITLE Robert C Spaulding CW3, USA Chief Telecom Facility

79 June 4

CONTRACT

ITEM: A 008 ACCEPTANCE TEST PLAN/ON SITE ACCEPTANCE TEST PLAN

The Acceptance Test Plan for ROLM CBX is as follows:

1. Test Equipment Required;

   1 - Digital Cassette Unit

   1 - Teleprinter

   1 - Data Precision Model 245DMM Digital Multimeter

The above equipment will be furnished by ROLM.

2. System Power Requirements - All voltages are described hereafter shall be checked with the Model 245DMM Digital Voltmeter.

   a) The following voltages must be verified at each TDM Network Mother Board. If voltages cannot be made to meet these requirements, the power supply must be changed. The test points are identical to shelves 1, 2, 4, 5, and 6. (Rolm Practice 18-300-100 Figure 1-40)

		ACCEPT	REJECT	COMMENT
TB1-1:	+5.0 to +5.3 VDC	✓		+5.00
TB1-2:	Ground	✓		+
TB1-3:	Ground	✓		+
TB2-1:	+5.0 to +5.3 VDC	✓		+5.09
TB2-2:	+5.0 to +5.3 VDC	✓		+5.08
TB2-4:	-14.85 to -15.15 VDC	✓		-15.09
TB2-5:	Ground	✓		+
TB2-6:	+14.85 to +15.15 VDC	✓		+14.89
TB2-7:	Ground	✓		+
TB2-8:	-44 to -53 VDC	✓		-50.55
TB2-9:	80 to 115 VAC	✓		104

   b) On the Common Control Mother Board, the following voltages must meet the requirements outlines on shelf 3 as follows: (Rolm Practice 18-300-100, Figure 1-41)

		ACCEPT	REJECT	COMMENT
TB1-5:	+14.85 to +15.15 VDC	✓		+14.9
TB1-6:	-14.85 to -15.15 VDC	✓		-15.02
TB1-7:	+5.0 to +5.1 VDC	✓		+5.05
TB1-8:	Ground	✓		+
TB1-9:	Ground	✓		+
TB2-2:	+5.0 to +5.15 VDC	✓		+5.09
TB2-3:	-14.85 to -15.15 VDC	✓		-15.08
TB2-4:	+14.85 to +15.15 VDC	✓		+14.94

c) On the Mother Board A, the following voltages must meet the requirements as outlined on shelf 3 as follows: (Rolm Practice 18-300-100, Figure 1-42)

		ACCEPT	REJECT	COMMENT
TB1-1:	+5.1 to +5.25 VDC	✓		+5.01
TB1-2:	+12.0 to +12.3 VDC	✓		+12.05
TB1-4:	+5.0 to 5.1 VDC	✓		+5.05
TB1-5:	Ground	✓		+

NOTE: Readings for CPU 2 Acceptable

d) Using the Service Alarm Panel, verify that the following voltages exist with the switch set at the following positions: (Rolm Practice 18-300-100, Table 1-23)

	ACCEPT	REJECT	COMMENT
Comp 1 Battery Charging +14 +14.1 to +14.4 VDC	✓		+14.17
Comp 1 Battery Charging +20 +20.85 to +21.15 VDC	✓		+21.12

NOTE: Readings for CPU 2 Acceptable

3. Diagnostic Check Procedures

A new off-line diagnostic progam, model 8769, has been developed to test the 48K Read/Write Memory board, as well as the existing 12K board. This tape contains the new memory diagnostic, the CPU diagnostic, and the TDM diagnostic in that order. The loading procedures are as outlined in Rolm Practice 18-550-100, par. 5.07, 5.08 and 5.09. 48K memory boards are configured to be either Type 1 or Type 2 boards according to the orientation of a jumper plug located in the center-rear on the component side of the board. When the notched "1" end of the plug is

3. Diagnostic Check Procedures (continued)

pointed toward the front of the board, the board functions as a Type 1 memory, responding to memory address 0 through 137777_8; when the notched end is pointed toward the front, the board functions as a Type 2 memory and responds to addresses 140000_8 through 167777_8. The Type 1 and Type 2 designations are not related to a board's physical location in the CBX system. With Release 4 software the permissible 48K memory configurations are: a. one 48K memory board, b. one 48K memory board (Type 1) and one 12K memory board. In all cases one of the 48K memory boards must be installed in slot 5 of shelf 3 (and slot 29 in redundant systems). (Please see attachment #1 for further explanation.) After the memory is loaded, the following test should be performed to check the memory.

a) To start the memory test, press the start button (SI) on the two channel serial I/O circuit board. LED #1 will blink at approximately 1 blink/second with 48K memory installed. The output sequence on the Service Teleprinter is as follows:

OUTPUT	OPERATOR ENTRY/COMMENT
Board 0 is a 12K; TEST IT (Y/N) 48K Type 1 48K Type 2	Enter "Y"
TEST BNK 0 BD 0 (Y/N)?	Enter "Y"
TEST BNK 1 BD 0 (Y/N)?	Enter "Y"
TEST BNK 2 BD 0 (Y/N)?	Enter "Y"
(These prompts will be repeated for each memory board installed for the system.)	
FAST TEST (Y/N)?	Enter "N". Fast test is for in-plant screening only.
RUN CONTINUOUSLY (Y/N)?	Enter "N". If this prompt is answered "Y", the program will loop, continuously testing each board. If there are any errors, they will be printed on the Service Teleprinter.

RUN POWER FAIL/MEMORY
RETENTION TEST (Y/N)?

Enter "Y" or "N" as appropriate. If "Y", the power fail test will be run after the pattern test. IF "N", the pattern test will be performed once, then the configuration questions will be repeated.

When the test begins, the service teleprinter carriage will return to the left. While the test is running, LED1 on the Serial Device Interface will blink as described above. "Soft" errors will be indicated as in the following example:

SOFT ERROR, ESW ADDRESS
174030 and CONTENTS 157573

"ESW" in the output indicates ERROR STATUS WORD. Each memory board has addresses reserved within the board for storing Error Status Words, which define the type and location of memory errors. The type and location of memory errors. The Error Status Word Table (addresses) for each board are listed below.

ERROR STATUS WORD TABLE

BOARD	ERROR STATUS WORD (ESW) ADDRESSES
12K #1	170000 through 170002
12K #2	170003 through 170005
12K #3	170006 through 170010
12K #4	170011 through 170013
12K #5	170014 through 170016
48K #1	174000 through 174013
48K #2	174014 through 174033

OUTPUT (Continued)

OPERATOR ENTRY/COMMENT (Cont.)

The example given above- "SOFT ERROR, ESW ADDRESS 17430 AND CONTENTS 157573" -indicates an error on 48K #2 in the system (address range 174014 through 174033). The contents of that address, 157573, is a code for the type of error, which is used for in-plant repairs only. "Hard" errors are indicated as follows:

PROG ADR 4032 TEST NUMBER 37 ERROR. At 67777 DATA IS 77747 AND SHOULD BE 177777.

By referring to the Address Limit Table below it is seen that location 6777 is on 12K #3 in the system. Memory boards displaying either hard or soft errors during off-line diagnostic tests must be replaced. Memory boards displaying only soft (corrected) errors in on-line diagnostic tests need not be replaced.

(If the response to the previous prompt was "Y", the diagnostic will continue:)

TO TEST MEMORY RETENTION, REMOVE POWER

Remove AC power fromt the CBX system for one to five minutes, then restore power.

(Program will respond with:)

PATTERN 1 OF 4; RETENTION TEST COMPLETE. TO TEST MEMORY RETENTION, REMOVE POWER.

(repeated for patterns 2, 3, and 4).

Repeat power removal and restoration for patterns 2, 3 and 4. If errors are found during the retention tests, they will be reported as follows:

OUTPUT

OPERATOR ENTRY/COMMENT

RETENTION ERROR AT 53151. DATA IS 43150 AND SHOULD BE 53151. Refer to the address Limit Table to locate the board with the retention error.

ADDRESS LIMIT TABLE

BOARD	ADDRESS RANGE
12K #1	0 through 27777
12K #2	30000 through 57777
12K #3	60000 through 107777
12K #4	110000 through 137777
12K #5	140000 through 167777
48K #1	0 through 137777
48K #2	140000 through 167777

ACCEPT	REJECT	COMMENT
✓		

After successfully running the memory diagnostic, load and run the CPU diagnostic and the RDM diagnostic, as described in the Diagnostic Procedures section of the ROLM CBX Quick Reference Guide. Although the loading times for these tests are significantly shorter with the new diagnostics, the test themselves have not been changed.

(The following two tests are to be made with the battery test switch in the test position.) (Rolm Practice 18-300-100 Table 1-23.)

	ACCEPT	REJECT	COMMENT
Battery Level +12	✓		
+12.0 to +13.75 VDC			
Battery Level +18	✓		
+18.0 to 20.5 VDC			

b) To run the CPU (Central Processing Unit) test, press program load, LED #2 will light while test is being loaded. LED #1 will start blinking as the test is being run. After completion of the test, if LED's #2, 3 and 4 are extinguished, the test was error free. LED's #1 and 2 are on, replace CPU 1, CPU 2, CPU 3 and CPU 4, one at a time.

LED's #1 and 3 are one, replace real time clock card.

LED's #1 and 4, depress and release the Start pushbutton on the two channel I/O. If the LED's #1 and 4 indications persist, replace memory controller card. If indications persist, replace CPU 1 card. (Rolm Practice 18-550-100, par. 5.08.)

ACCEPT	REJECT	COMMENT
✓		

c) The control card test is run in the same manner as the CPU test. This test will test all control cards. These cards interface the computer and the TDM Network.

If, after running the control card test, LED's #2, 3 and 4 are extinguished, the test was error free. If LED's #2 is on, change the control cards in turn. (Rolm Practice 18-550-100, par. 5.08.)

ACCEPT	REJECT	COMMENT
✓		

4. System Checkout Requirements

a) Clear the error table, traffic table and audit table. Run the error table. Verify that no errors are listed. If no errors are listed, this means that the self diagnostic that are being continually run by the CBX are not detecting any troubles. If an error is detected, the type error will be printed by the service teleprinter. Appropriate corrective action may be taken. (Rolm Practice 18-550-100, par. 4.24.)

ACCEPT	REJECT	COMMENT
✓		

Run the audit table and verify that it is all zero's. The audit table has information such as where a failure occured or the number of power failures, etc. (Rolm Practice 18-350-100, par. 8.04.)

ACCEPT	REJECT	COMMENT
✓		

Run the traffic table and verify that the following peg numbers list zero 30, 34, 35, 37, 67, 68, 69, 70. (Rolm Practice 18-350-100, Table 12.)

ACCEPT	REJECT	COMMENT
✓		

Peg counts can be verified by performing an action that will cause the peg counts to operate, for instance peg 27 is the number of times an internal call is attempted. If the traffic table is run, peg 27 will register a number. Make one internal call attempt. Now run traffic table again. Peg 27 should register one more than in previous run. (Rolm Practice 18-350-100 Table 12.)

ACCEPT	REJECT	COMMENT
✓		

Methods for running all tables and table peg numbers are found in the quick reference guide to service procedures.

b) Establish two way communicating between selected extension numbers. Be sure proper ringing is present and a noise free communication path is established.

ACCEPT	REJECT	COMMENT
✓		

c) Verify that the tie lines may be accessed. If the tie lines are not available, the trunks may be tied back to back by wiring the T and R trunk #1 to the T and R of trunk #2. Also wire the E lead of trunk #1 to the M lead of trunk #2 and the M lead of trunk #1 to the E lead of trunk #2. This may be repeated for trunks as required.

ACCEPT	REJECT	COMMENT
✓		

d) Verify that from a telephone that tie lines can be accessed and the proper numbers can be called within the CBX.

ACCEPT	REJECT	COMMENT
✓		

5. Call Pick-Up

a) DTMF - Verify that a station may answer a call ringing or on hold at another telephone. Lift the headset at any extension and receive dial tone. Depress * 3 plus the number of the ringing extension number. You should intercept the ringing extension number

ACCEPT	REJECT	COMMENT
✓		

b) Rotary - Verify that a station may answer a call ringing on hold at another telephone. Lift the headset of any extension and receive dial tone. Dial 84 plus the number of the ringing extension number. You should intercept the ringing extension number. (Please note that if your system contains no rotary dial telephones no access codes will be provided for feature utilization).

ACCEPT	REJECT	COMMENT
✓		

The feature codes for rotary telephones are as follows:

Connect = 81	Hold = 85
Add-On = 82	Group Pick Up = 86
Transfer= 83	Forward = 89
Pick Up = 84	Cancel Forward= 87

6. To test alarm circuit:

a) Disconnect a tie trunk PCB. Run Self Test number 8. Software alarm light should come on. (Rolm Practice 18-550-100.)

ACCEPT	REJECT	COMMENT
✓		

b) Turn off the +5 volts to one of the upper shelves. Verify that the fuse alarm comes on. (Rolm Practice 18-550-100.)

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7. Attendant Console - Demonstrate call handling via attendant console. (Rolm Practice 18-006-100)

8. Attendant Transfer - Verify that a station engaged in a conversation to another station can call the attendant; so that the attendant may transfer the call. (Rolm Practice 18-006-100.)

9. Call Splitting - Verify permitting the attendant to speak privately with either the network (outside) or local (inside) party. (Rolm Practice 18-006-100.)

10. Call Transfer - Verify permitting a subscriber to transfer an incoming call to another CBX station without the assistance of the attendant. (Rolm Practice 18-001-100, par. 3.35.)

11. Call Forwarding - Verify that calls destined for a station to be routed or diverted to another station (or to the attendant), regardless of the busy or idle state of the called station. This feature shall be capable of being activated by the subscriber. (Rolm Practice 18-001-100, par. 3.3.)

12. Camp-on Busy - Verify that incoming calls completed by an attendant or subscriber to be extended to a busy local extension. The call may be left in a camp-on condition until the originator or attendant releases the connection. When the busy station becomes idle, ringing is to be applied automatically. If the attendant camp-on busy (COB) conditions lasts for more than a 30-second period of time, the attendant shall be automatically alerted. (Rolm Practice 18-006-100.)

13. Class of Service - Verify classes of service and class-of-service marks. Lines shall be capable of being programmed to prescribe the manner in which they can be used. (Rolm Practice 18-001-100, par. 2.06.)

14. Dial-up Conference - Verify that dial-up-conference code. The originating station shall be capable of dial selecting a maximum of four stations and one trunk call to the dial-up conference. The dial-up conference shall also be available to the attendant. (Rolm Practice 18-001-100, par. 3.29.)

15. Meet-me Conference - Verify that Dialing "7" will access one of the 6 (six) trunks assigned for meet-mee conference via the STT command. (Not standard practice.)

16. Consultation Hold Calls - Verify that, this feature permits a subscriber to consult with another CBX party or the attendant while holding the outside connection. Conversation with the consulted party shall be private, and the subscriber may return to the original connection at any time. (Rolm Practice 18-001-100, par. 3.38.)

17. Intercept - Verify when unassigned numbers or restricted or unassigned codes are dialed, the call shall receive intercept tone which indicates that a restricted or unassigned code has been dialed. (Rolm Practice 18-001-100, par. 3.24.)

18. Direct Outward Dial - Verify via the direct trunk select feature that 2 way or outgoing trunks can be seized. Trunk seizure is verifed via the STT or STE command. (Rolm Practice 18-001-100, par. 3.03.)

19. Key Telephone - Verify key telephone service for a minimum of 20 key set line units with a maximum of 10 lines each with the same ranges of class of service and features for each line as a regular station, to include hold, call pick-up, lamp supervision, and consultation hold. (Rolm Practice 18-001-100, par. 3.03.)

20. Restricted Service - Verify stations shall be capable of being restricted from trunk access. This restriction is to be controlled on a per-line basis by the class-of-service marking applied to the subscriber line. (Rolm Practice 18-001-100, par. 3.05.)

21. Station Hunting - Verify a means of routing a call to an idle station line in rotary sequence when the called station line is busy shall be provided. (Rolm Practice 18-002-100, par. 2.13.)

22. Public Address - Verify via direct trunk select that the page trunk can be seized. Use the STT or STE command to verify trunk seizure. (Rolm Practice 18-008-100.)

23. Precedence - Verify the capability which permits properly class-marked subscribers to override a busy line or trunk condition by dialing a code. (Rolm Practice 18-001-100, par. 3.28.)

24. Intercom - Verify a means for calling between extensions assigned the same subscriber number (Rolm Practice 18-001-100, par. 3.30.)

25. Interposition Locking - Verify a means for partitioning the switch into two groups so that each group cannot have interaction with the other group. (Rolm Practice 18-001-100, par. 1.19.)

26. Flexible Numbering Plans - Verify that the CBX provides flexibility in the numbering plan. It allows station numbers to be assigned to lines at the time of installation in accordance with a customer-desired numbering plan shall include 3-digit dial for local calls. (Rolm Practice 18-001-100, par. 1.46.)

27. Automatic Diagnostic Test and Alarm Facilities - Verify that Self Test Resident programs automatically perform a series of test which are repeated continually. These tests do not interfere with normal system operations. Both digital and analog functions are tested. As an example, all station talk paths are tested. When a fault occurs, self-test will alert the attendant through a visual and audible alarm at the console. In addition to the alarm provided on the Attendant's Console, a contact closure is provided for remote indication of a fault occurence. (Rolm Practice 18-550-100, Chapter 3.)

a) High temperature initiates a system shut down procedure.

b) High/low voltage indications (power supplies associated with switching equipment) can be obtained via service alarm panels, self-test procedures establish an alarm indication caused be high/low voltage.

c) Failure alarm (any fault discovered by self-tests).

d) Fuse alarm.

28. Fault Isolation and Recording - Verify details, including the location of a faulty PCA (Printed Circuit Assembly) or group of PCAs, are also recorded in an error table. This error table is maintained in the memory of the CBX and can be interrogated by using the Service Teleprinter, either locally or remotely. Verify directed Self-Test. This method utilizes the resident self-test programs, with the difference that a specific test can be run immediately upon command from the Service Teleprinter. This method is useful to verify that a problem has been corrected after a defective PCA has been replaced; it eliminates the need to wait until self-test performs the test in its normal sequence. Results of the tests are obtained in the same manner as self-test, by listing the error table, either locally or remotely. (Rolm Practice 18-550-100, Chapter 3.)

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29. Electrical

Back-up Battery - Verify that memory intergrity is maintained during loss of AC input power. (Refer to ATP Step 3(b).)

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30. Test Plan for Redundant System

a) An automatic switchover to the standby computer is accomplished at the first "no-traffic" period after midnight. This switch over ensures the operability of the standby computer. Station information in the active computer memory is automatically duplicated in the standby computer memory. When an error is detected, the standby computer takes over. (Rolm Practice 200-100, par. 2.09.)

b) A manual switch over to the standby computer should be accomplished by typing "SWT" on the service teleprinter after having opened the system lock. Verify that a switch over has occured as indicated by the green LED on the associated computer's I/O Bus Switch Card. (Rolm Practice 18-300-100, par 6, 11.)

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c) The Redundant Standby Load Program is loaded as identified below: (Rolm Practice 18-350-100, par. 3.03 and Rolm Practice 003-100.)

(1) Move the Serial Device Interface card to standby computer (Slot 11 - Computer 1, Slot 23 - Computer 2).

(2) Insert Model 8758 Standby Loader Cassette in the Digital Cassette Unit.

(3) Press Program Load pushbutton on standby computer's CPU 1 card.

(4) Press the play buttom on the Digital Cassette Unit. The Run indicator light should come one, and after a short delay the Data Out indicator should light. Note the LED 2 blinks only once during program loading.

(5) After a successful laod, (approximately 16 seconds) access the standby computer using the OSL command, then type PSL1 or PSL2 to initialize computer side 1 or 2.

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d) The LDMP command is used to store Move and Change tables on magnetic tape, utilizing the digital cassette unit. With input commands initiated on the maintenance teleprinter. The procedure is as follows:

(1) Connect the Cassette Unit line cord to AC outlet and RS232 cable.

(2) Insert a blank cassette in the DCU and verify that the "Write Protect" tabs are positioned away from the center of the cassette.

(3) Press and hold the Record button, then press the Play button on the DCU.

(4) While the tape is running type LDMP, space, and "0", followed by a carriage return. The "Data In" indicators should flash while data is being transfered from the computer to the cassette.

(5) When the teleprinter prints a question mark the Run and Data In indicators should go out. Press "Stop" cassette.

(6) Rewind the tape. Press "Play" button and use UTA command to verify the tape. If UTA indicates errors, clean heads on the cassette unit and repeat this procedure with a new blank tape.

Please note that in a redundant system the local dump will require less time to complete if performed on the standby computer. (Rolm Practice 003-100, M and C DUMP TAB.)

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e) All diagnostic procedures for computer 2 are identical to those required of the active computer. The standby computer may be accessed by typing "SWT" on the maintenance teleprinter, after having sucessfully opened the system lock. Individual resident diagnostic tests and Off Line Diagnostics may be run on the standby computer without inhibiting the active computers activities. (Rolm Practice 18-550-100.)

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f) The system check out procedure for computer 2 are identical to those used for computer 1.

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31. Please refer to Appendix A to System Installation Procedures Rolm CBX Installation Checklist. (Rolm Practice 18-300-100.)

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Date 7-18-79