7854 Signature Analysis Tables
Using 067-0911-00 & Up Diagnostic Test Interface

This document is to be inserted behind
the full-page SIGNATURE TABLES tab in the
7854 DIAGNOSTIC TROUBLESHOOTING
Using 067-0911-00 & Up Diagnostic Test Interface
manual

Service Manual

Tektronix
COMMITTED TO EXCELLENCE

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WARNING

THIS MANUAL CONTAINS SERVICING INSTRUCTIONS FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO AVOID PERSONAL INJURY, DO NOT PERFORM ANY SERVICING UNLESS YOU ARE QUALIFIED TO DO SO.

PLEASE CHECK FOR CHANGE INFORMATION AT THE REAR OF THIS MANUAL.

SIGNATURE TABLES FOR 7854 DIAGNOSTIC TROUBLESHOOTING USING 067-0911-00 & UP DIAGNOSTIC TEST INTERFACE

SERVICE

For Qualified Service Personnel Only

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97077

Serial Number _____

070-2972-00

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SIGNATURE TABLES
VERSIONS 1.0 AND 2.0

SIGNATURE TABLE VERSION LOCATOR

SIGNATURE TABLE VERSION	V 1.0*	V 2.0
FIRMWARE VERSION	067-0961-00	067-0961-00
SUPPORTS 7854 SERIAL NUMBERS	B010101 TO B010299	B010300 AND UP
INCLUDES THESE BOARD VERSIONS:		
A3 FRONT-PANEL KEYBOARD ELECTRONICS	670-5854-00	670-5854-00
A25 DIGITIZER	670-5850-00	670-5850-00
A26 CONTROL LOGIC	670-5846-00	670-5846-00
A27 MPU	670-5845-00	670-5845-01
A28 RAM	670-5848-00 -01,-02,-04 -05,-06	670-5848-00 -01,-02,-04 -05,-06
A29 DISPLAY	670-5851-00	670-5851-00
A30 GPIB	670-5849-00	670-5849-00
A31 ROM	670-5847-00	670-5847-00
A36 WAVEFORM CALCULATOR KEYBOARD ELECTRONICS	670-5795-00	670-5795-00

*EARLY INSTRUMENTS HAVE A 070-2972-XX NUMBER IDENTIFYING SIGNATURE TABLES TO BE USED. THESE INSTRUMENTS USE VERSION 1.0 SIGNATURE TABLES.

SIGNATURE TABLE 1C

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** SA CLOCK
  ON ASSEMBLY(IES): A27
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All other digital boards removed
  All jumpers in place
  U500, U510, U600, U610 removed

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U700-24*	↘	H57U
STOP	U800-12*	↘	H57U
CLOCK	U1120-11*	↘	001U

*On MPU Board (A27)

+5V SIG: 001U
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U200-7	VERSION 1-UNSTABLE
U200-7	VERSION 2-AH7F

2

CONNECT AT	SIGNATURE
U200-3	001U
U200-4	001U**
U200-5	001U

3

CONNECT AT	SIGNATURE
U1410-1	001U**
U1410-2	001U
U1410-3	001U
U1410-4	5AH9
U1410-5	OO1U**
U1410-6	001U**
U220-3	001U
U220-4	001U
U220-5	5AF6
U220-6	5AH9
U520-1	0000
U520-2	001U
U520-8	001U
U520-9	0000
U1000-4	001U
U1000-5	AH7F
U1000-6	AH7F
U1110-1	001U
U1110-2	157F
U1110-3	001U**
U1110-4	001U
U1110-6	001U

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **1C**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 1D

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** CONTROL LINES
  ON ASSEMBLY(IES): A27
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All other digital boards removed
  All jumpers in place
  U500, U510, U600, U610 removed

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U700-24*	↘	H57U
STOP	U800-12*	↘	H57U
CLOCK	U1120-11*	↘	001U

*On MPU Board (A27)

+5V SIG: 001U
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U620-3	0000
U620-5	0000
U620-7	0000
U620-9	U7A5
U620-11	001U
U620-13	U7A5
U620-15	U7CA
U620-17	0000

2

CONNECT AT	SIGNATURE
U620-1	0000
U620-2	0000
U620-4	0000
U620-6	0000
U620-8	U7A5
U620-12	001U
U620-14	U7A5
U620-16	U7CA
U620-18	0000
U620-19	0000
U700-3	0000
U700-5	0000
U700-7	U7A5
U700-29	U7A5
U700-30	0000
U700-60	0000
U700-61	001U
U700-63	U7CA

3

CONNECT AT	SIGNATURE
U500-1	001U
U500-19	001U
U510-1	001U
U510-19	001U
U600-1	U7CA
U600-19	U7CA
U610-1	U7CA
U610-19	U7CA

4

CONNECT AT	SIGNATURE
U400-1	U7CA
U400-2	U7CA
U400-3	U7CA
U400-4	U7CA
U400-5	0000
U400-6	U7CA
U400-8	001U
U400-9	0000
U400-10	001U
U400-11	001U
U400-12	U7CA
U400-13	U7A5
U520-5	U7A5
U520-6	U7CA
U620-5	0000
U620-13	U7A5

SIGNATURE TABLE **1D**

SIGNATURE VERSION **1.0** AND **2.0**

@

SIGNATURE TABLE 1E

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** ADDRESS BUS
  ON ASSEMBLY(IES): A27
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All other digital boards removed
  All jumpers in place
  U500, U510, U600, U610 removed

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U700-24*		1180
STOP	U800-12*		1180
CLOCK	TP100-3*		755U

*On MPU Board (A27)

+5V SIG: 755U
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U800-3	7707
U800-5	HH86
U800-7	89F1
U800-9	AC99
U800-11	1180
U800-13	PCF3
U800-15	755U
U800-17	577A
U810-3	H335
U810-5	C113
U810-7	7050
U810-9	0772
U810-11	A3C1
U810-13	7211
U810-15	AA08
U810-17	C4C3

2

CONNECT AT	SIGNATURE
U800-1	0000
U800-2	7707
U800-4	HH86
U800-6	89F1
U800-8	AC99
U800-12	1180
U800-14	PCF3
U800-16	755U
U800-18	577A
U800-19	0000
U810-1	0000
U810-2	H335
U810-4	C113
U810-6	7050
U810-8	0772
U810-12	A3C1
U810-14	7211
U810-16	AA08
U810-18	C4C3
U810-19	0000
U700-10	H335
U700-11	C113

2 CONTINUED

CONNECT AT	SIGNATURE
U700-12	7050
U700-13	0772
U700-14	C4C3
U700-15	AA08
U700-16	7211
U700-17	A3C1
U700-18	7707
U700-19	577A
U700-20	HH86
U700-21	89F1
U700-22	AC99
U700-23	PCF3
U700-24	1180

3

CONNECT AT	SIGNATURE
U1210-4	1817
U1210-5	7FF8
U1210-7	970C
U1210-10	2CPA
U1210-12	U178

4

CONNECT AT	SIGNATURE
U1210-1	0000**
U1210-2	PCF3
U1210-3	1180
U1210-13	C4C3
U1210-14	0772
U1210-15	1817
U620-15	0000**
U800-3	7707
U800-5	HH86
U810-5	C113
U810-18	C4C3
U1220-4	PCF3
U1220-5	1180

**Indicates activity at node with +5V or GND signature

CONTINUED

5

CONNECT AT	SIGNATURE
U1320-1	7094
U1320-2	77CA
U1320-3	U42H
U1320-6	6571
U1320-8	C154
U1320-9	975A
U1320-10	045H
U1320-11	FHHP
U910-2	94UA
U1000-3	1180
U1220-8	975A

6

CONNECT AT	SIGNATURE
U1320-18	P76P
U1320-19	0000
U1320-20	0772
U1320-21	7050
U1320-22	C113
U1320-23	H335
U910-1	P76P
U910-12	U286
U910-13	A3C1
U910-14	7211
U910-15	AA08
U1110-8	U286
U1110-9	7707
U1110-10	99P5
U1110-11	616P
U1110-12	970C
U1110-13	89F1
U1010-5	99P5
U1010-12	616P
U1010-13	AC99
U1010-14	HH86
U1010-15	577A
U1000-1	1817
U1000-2	7FF8
U1210-4	1817
U1210-5	7FF8
U1210-7	970C
U1220-9	975A
U1220-10	0000
U520-6	0000

SIGNATURE TABLE **1E**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 1F

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** INTERRUPTS
  ON ASSEMBLY(IES): A27
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All other digital boards removed
  IRTC, IGPIB, IKB jumpers removed
  Attach jumper wires; U800-3 to U1200-13, U800-7 to U1200-3, U800-9 to U1200-1.
  U500, 510, 600, 610 removed

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT TO	SWITCH SETTING	VERIFY SIGNATURE
START	U700-24*		1180
STOP	U800-12*		1180
CLOCK	TP100-3*		755U

*On MPU Board (A27)

+5V SIG: 755U
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U700-32	5459
U700-33	2UFO
U700-34	H35P
U700-35	OPF6
U700-36	755U

2

CONNECT AT	SIGNATURE
U900-1	755U
U900-2	755U
U900-3	755U
U900-4	H35P
U900-5	H35P
U900-11	0000**
U900-12	755U
U900-13	755U
U900-14	5459
U900-15	5459
U900-16	2UFO
U900-17	2UFO
U900-18	OPF6
U900-19	OPF6

2 CONTINUED

CONNECT AT	SIGNATURE
U1100-11	5459
U1100-12	755U
U1100-13	5459
U1200-1	AC99
U1200-2	755U
U1200-3	89F1
U1200-4	755U
U1200-5	0000
U1200-6	OPF6
U1200-7	H35P
U1200-8	0000
U1200-9	2UFO
U1200-10	755U
U1200-11	755U
U1200-12	755U
U1200-13	7707
U1200-14	5459
U1200-15	2106
U1200-16	755U

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **1F**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 1G

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** DATA BUS
  ON ASSEMBLY(IES): A27 AND 067-0961-00
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All jumpers installed
  U500, U510, U600, U610 removed
  067-0961-00 installed

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U700-24*		0000
STOP	U800-12*		0000
CLOCK	TP100-3*		1180

*On MPU Board (A27)

+5V SIG: 1180
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U500-3	UF7U
U500-5	058A
U500-7	UAAH
U500-9	4CC7
U500-11	F12A
U500-13	C67H
U500-15	279H
U500-17	386H
U600-2	UF7U
U600-4	058A
U600-6	UAAH
U600-8	4CC7
U600-12	F12A
U600-14	C67H
U600-16	279H
U600-18	386H
U510-3	H3U7
U510-5	F09U
U510-7	F44U
U510-9	21C1
U510-11	8607
U510-13	PCU0

1 CONTINUED

U510-15	PC11
U510-17	81C5
U610-2	H3U7
U610-4	F09U
U610-6	F44U
U610-8	21C1
U610-12	8607
U610-14	PCU0
U610-16	PC11
U610-18	81C5

2†

CONNECT AT	SIGNATURE
U140-2	108P
U140-4	1100
U140-6	052A
U140-10	OU7U
U140-12	0108
U140-14	5342
U240-4	0P0P
U240-6	5HC4
U240-10	A7A2
U240-12	4PCC
U240-14	FF4F
U245-12	0000
U245-13	H6AA
U245-14	0F62
U245-15	P254

3†

CONNECT AT	SIGNATURE
U340-3	21C1
U340-5	F44U
U340-7	F09U
U340-9	H3U7
U340-11	81C5
U340-13	PC11
U340-15	PCU0
U340-17	8607
U440-3	4CC7
U440-5	UAAH
U440-7	058A
U440-9	UF7U
U440-11	386H
U440-13	279H
U440-15	C67H
U440-17	F12A

†On 067-0961-00 Diagnostic Memory Board

SIGNATURE TABLE **1G**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 1H

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 670-0961-00
- **DIAGNOSTIC INVOKED:** MPU
- **FOR TESTING** CRU LINES
  ON ASSEMBLY(IES): A27
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5845-00, -01
- **7854 CONFIGURATION:** SA jumpers in "μP" position
  All jumpers installed
  U500, U510, U600, U610 reinstalled
  Keyboard cable removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		UUCC
STOP	TP100-2*		UUCC
CLOCK	TP100-3*		UUCC

*On MPU Board (A27)

+5V SIG: UUCC
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U210-4	P6H5
U210-5	2981
U210-6	6PPU
U210-7	U4UF
U210-9	4HHC
U210-10	45A0
U210-11	P7HU
U210-12	69PF

2

CONNECT AT	SIGNATURE
U210-1	0FCF
U210-2	6CU2
U210-3	U49U
U210-13	54FF
U210-14	UUCC**
U210-15	UUCC
U620-7	0000**
U620-17	54FF
U1110-4	UUCC**
U1110-5	HP4P
U1110-6	UUCC**
U520-3	0000**
U520-4	UUCC**
U1210-10	HP4P
U1210-13	218U
U1210-14	1F0F
U1210-15	AP66
U1220-4	AP66
U1220-5	AP66
U1220-6	AP66

3

CONNECT AT	SIGNATURE
U1310-4	F651
U1310-5	1C0H
U1310-6	03UC
U1310-7	CP21
U1310-9	A1H7
U1310-10	71C0
U1310-11	H599
U1310-12	3AC2

4

CONNECT AT	SIGNATURE
U1310-1	0FCF
U1310-2	6CU2
U1310-3	U49U
U1310-13	54FF
U1310-14	UUCC**
U1310-15	UUCC
U1110-1	UUCC**
U1110-2	UUCC**
U1110-3	UUCC**
U1210-12	UUCC**
U1210-13	218U
U1210-14	1F0F
U1210-15	AP66

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **1H**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 2A

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** RS
- **FOR TESTING** ROM
  ON ASSEMBLY(IES): A31
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5847-00
- **7854 CONFIGURATION:** 7854 ROM, RAM & MPU Boards installed
  All other digital boards removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		7F70
STOP	TP100-2*		7F70
CLOCK	TP100-3*		7F70

*On MPU Board (A27)

+5V SIG: 7F70
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U330-1	P02C
U330-19	P02C
U430-1	P02C
U430-19	P02C

2

CONNECT AT	SIGNATURE
U325-1	78F2
U325-2	5H92
U325-8	P02C
U325-9	0000
U325-10	5625
U325-11	FA7P
U325-12	998C
U325-13	0000**
U420-4	998C
U420-5	2A55
U420-6	C60P
U425-10	5625
U425-11	2A55
U425-12	FA7P
U425-13	C6OP

3

CONNECT AT	SIGNATURE
U100-20	A013
U110-20	A013
U200-20	3HHH
U210-20	3HHH
U400-18	8266
U400-20	8266
U410-18	8266
U410-20	8266

4

CONNECT AT	SIGNATURE
U320-12	2A55

5

CONNECT AT	SIGNATURE
U325-1	78F2
U325-2	5H92
U325-3	0000**
U325-4	2A55
U325-5	C79C

5 CONTINUED

CONNECT AT	SIGNATURE
U325-6	FCPC
U325-8	P02C
U325-9	0000
U325-10	5625
U227-1	0000**
U227-2	5625
U227-3	7F70
U227-4	7F70
U227-5	7F70**
U227-6	0000**
U227-8	7F70**
U227-10	0000
U227-13	7F70**
U220-1	0000**
U220-2	0000
U220-3	0000**
U220-4	0000**
U220-5	0000
U220-6	0000**
U220-8	0000**
U220-9	0000
U220-10	0000**
U220-11	0000**

5 CONTINUED

CONNECT AT	SIGNATURE
U220-12	0000**
U220-13	0000**

6

CONNECT AT	SIGNATURE
U120-19	C79C

**Indicates activity at node with +5V or GND signature

CONTINUED

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CONNECT AT	SIGNATURE
U120-1	7F70
U120-2	0286
U120-3	8CAP
U120-4	6471
U120-5	FCA6
U120-6	88F7
U120-7	585U
U120-8	95F8
U120-9	0000
U120-10	C79C
U120-11	C79C
U120-20	2A55
U120-21	5H92
U120-22	78F2
U120-23	72C3
U120-24	9046
U120-25	542A
U120-26	8CHC
U120-27	2081

8

CONNECT AT	SIGNATURE
U425-8	C79C

9

CONNECT AT	SIGNATURE
U425-9	FCPC
U325-3	0000**
U325-4	2A55
U325-5	C79C

10

CONNECT AT	SIGNATURE
TPCSP2	8266

11

CONNECT AT	SIGNATURE
U320-1	8266
U320-2	35UH
U320-3	FCPC
U320-4	35UH
U320-5	0PF3
U320-6	C60P
U320-8	C79C
U320-9	2A55
U320-10	FCPC
U425-3	72C3
U425-4	0PF3

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CONNECT AT	SIGNATURE
TPCSP1	83U3

13

CONNECT AT	SIGNATURE
U420-1	0PF3
U420-2	FA7P
U420-3	83U3
U425-3	72C3
U425-4	0PF3

14

CONNECT AT	SIGNATURE
TPCSR1	A013
TPCSR2	3HHH

15

CONNECT AT	SIGNATURE
U420-8	3HHH
U420-9	5H92
U420-10	9HFP
U420-11	A013
U420-12	9HFP
U420-13	21P2
U425-1	5H92
U425-2	21P2
U425-5	C79C
U425-6	FCPC
U320-11	FCPC
U320-12	2A55
U320-13	9HFP

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CONNECT AT	SIGNATURE
U130-3	87A7
U130-5	3FH5
U130-7	H639
U130-9	H0UU
U130-11	555H
U130-13	U088
U130-15	47H0
U130-17	C161
U230-9	U06A
U230-11	928H
U230-13	A2FF
U230-15	ACP4
U230-17	2744

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CONNECT AT	SIGNATURE
U130-1	FCPC
U130-2	2081
U130-4	8CAP
U130-6	FCA6
U130-8	585U
U130-12	95F8
U130-14	88F7
U130-16	6471
U130-18	0286
U130-19	FCPC
U230-1	FCPC
U230-8	72C3
U230-12	8CHC
U230-14	9046
U230-16	542A
U230-18	78F2
U230-19	FCPC

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **2A**

SIGNATURE VERSION **1.0** AND **2.0**

@

SIGNATURE TABLE 3A

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** RA SA
- **FOR TESTING** RAM
  ON ASSEMBLY(IES): A28
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5848-00,-01,-02,-04,-05,-06
- **7854 CONFIGURATION:** 7854 MPU Board installed
  RAM Board on extender
  All other digital boards removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		605H
STOP	TP100-2*		605H
CLOCK	TP100-3*		605H

*On MPU Board (A27)

+5V SIG: 605H
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U560-1	7113
U560-2	A4HU
U560-3	068A
U560-4	C2H3
U560-5	7775
U560-6	5P3C
U560-7	4P6F
U560-9	C63U

2

CONNECT AT	SIGNATURE
U560-12	HOH5
U560-13	81C7
U560-14	4F0A
U560-15	UP08

3

CONNECT AT	SIGNATURE
U260-1	C140
U260-2	81C7
U260-3	30U7
U550-1	UF91
U550-2	4F19

3 CONTINUED

CONNECT AT	SIGNATURE
U550-8	C088
U550-9	605H**
U550-10	P022
U550-11	30U7
U550-12	H0H5
U550-13	605H
U660-9	9H55
U660-10	UH08
U660-11	605H**
U660-12	0000**
U660-13	2F44
U660-14	4F19
U750-1	9H55
U750-2	2F44
U750-3	4F19
U750-4	UH08
U750-5	C088
U750-6	UF91
U750-8	4F19
U750-9	C088
U750-10	9H55
U750-11	9H55
U750-12	UH08
U750-13	605H

4

CONNECT AT	SIGNATURE
U650-3	3537
U650-5	UP1H
U650-7	4F97
U650-9	0AA0
U650-13	F05F
U650-15	710C
U650-17	3A46
U660-3	9404
U650-5	HH41
U660-7	P746

5

CONNECT AT	SIGNATURE
U650-2	3537
U650-4	UP1H
U650-6	4F97
U650-8	0AA0
U650-14	F05F
U650-16	710C
U650-18	3A46
U660-2	U459
U660-4	CH1F
U660-6	871C

6

CONNECT AT	SIGNATURE
U750-6	UF91
U750-8	4F19

7

CONNECT AT	SIGNATURE
U250-1	4F19
U250-2	4F19
U250-3	2F44
U250-4	2F44
U250-5	605H
U250-6	4F19
U250-11	605H
U250-12	0000
U250-13	0000
U550-3	9H55
U550-4	605H
U550-5	2F44
U550-6	2F44

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **3A**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 4B

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 670-0961-00
- **DIAGNOSTIC INVOKED:** CL
- **FOR TESTING** A-WORD LOADING
  ON ASSEMBLY(IES): A26
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5846-00
- **7854 CONFIGURATION:** 7854 MPU and Control Logic Boards installed
  067-0961-00 installed
  All other digital boards removed
  BRDIG jumper removed from Control Logic Board

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		7U39
STOP	TP100-2*		7U39
CLOCK	TP100-3*		7U39

*On MPU Board (A27)

+5V SIG: 7U39
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U630-2	590A
U630-5	8856
U630-6	4783
U630-9	A27H
U630-12	784U
U630-15	F73C
U630-16	2F33
U630-19	78F5
U600-2	784U
U600-3	8856
U600-6	590A
U600-7	F73C
U1300-2	5P31
U1300-3	UAHA
U1300-6	H542
U1200-2	42C5
U1200-3	4955
U1200-6	8H4U
U1200-7	AU13

2

CONNECT AT	SIGNATURE
U400-8	0000
U400-11	7C17
U400-12	73A6
U300-13	7C17

3

CONNECT AT	SIGNATURE
U630-1	7U39
U630-11	040A
U600-4	7U39
U600-5	AA7C
U600-11	7C33
U600-14	0000
U1300-4	7U39
U1300-5	7U39
U1300-11	7C33
U1300-14	0000
U1200-4	7U39
U1200-5	7U39
U1200-11	7C33
U1200-14	0000

4

CONNECT AT	SIGNATURE
U620-1	77AF
U620-19	77AF
U730-1	77AF
U730-19	77AF
U200-1	73A6
U200-2	042P
U200-3	77AF
U300-12	042P

5

CONNECT AT	SIGNATURE
U620-2	A27H
U620-4	4783
U620-6	8856
U620-8	590A
U620-12	78F5
U620-14	2F33
U620-16	F73C
U620-18	784U
U730-2	0000
U730-4	42C5
U730-6	AU13
U730-8	5P31
U730-12	4955
U730-14	8H4U
U730-16	UAHA
U730-18	H542

6

CONNECT AT	SIGNATURE
U620-3	8214
U620-5	A3F4
U620-7	UF49
U620-9	FF76
U620-11	8U3A
U620-13	992U
U620-15	6HU3
U620-17	9H79
U730-3	HU1U
U730-5	P97P
U730-7	6957
U730-9	2357
U730-11	67CP
U730-13	5PP2
U730-15	U68A
U730-17	3A75

SIGNATURE TABLE **4B**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 4C

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** CL
- **FOR TESTING** DISPLAY INTERRUPT
  ON ASSEMBLY(IES): A26
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5846-00
- **7854 CONFIGURATION:** 7854 MPU, RAM and Control Logic Boards installed
  067-0961-00 installed
  All other digital boards removed
  BRDIG jumper removed from Control Logic Board

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*	↗	CU20
STOP	TP100-2*	↘	CU20
CLOCK	TP100-3*	↘	CU20

*On MPU Board (A27)

+5V SIG: CU20
GND SIG: 0000

1

CONNECT AT	SIGNATURE
TP200-7	AAC3
U320-5	1593

2

CONNECT AT	SIGNATURE
U320-1	855U
U320-2	CU20
U320-3	0000**
U320-4	82CA
U1630-8	0000**
U1630-9	571A
U1630-10	UNSTABLE

3

CONNECT AT	SIGNATURE
U700-1	CU20
U700-12	741P
U700-13	7HCA
U700-14	7F3P
U700-15	F7CP

4

CONNECT AT	SIGNATURE
U700-4	CU20
U700-7	0000
U700-9	CU20
U700-10	1A6H
U700-11	U17U

5

CONNECT AT	SIGNATURE
U720-1	CU20
U720-11	6970

6

CONNECT AT	SIGNATURE
U300-10	6970
U300-11	H650
U200-4	3A52
U200-5	04C1
U200-6	H650

7

CONNECT AT	SIGNATURE
U720-4	P7HH
U720-7	5P7C
U720-8	4256
U720-14	9FA7

8

CONNECT AT	SIGNATURE
U720-5	1A6H
U720-6	CU20
U720-9	U17U
U720-15	CU20

SIGNATURE TABLE **4C**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 7A

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** GP SA
- **FOR TESTING** GPIB
  ON ASSEMBLY(IES): A30
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5849-00
- **7854 CONFIGURATION:** 7854 MPU Board installed
  GPIB Board on extender
  All other digital boards removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT TO	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		5159
STOP	TP100-2*		5159
CLOCK	TP100-3*		5159

*On MPU Board (A27)

+5V SIG: 5159
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U220-5	HA99
U220-19	5159
U220-37	9935
U220-38	U85U
U220-39	87CC
U220-40	HA37

2

CONNECT AT	SIGNATURE
U330-1	5CU3
U330-19	41A7
U430-1	41A7
U430-19	5CU3

3

CONNECT AT	SIGNATURE
U530-1	4C0H
U530-2	HA99
U530-3	5CU3
U530-11	41A7
U530-12	4C0H
U530-13	8CF0
U630-1	HA99
U630-2	8CF0

4

CONNECT AT	SIGNATURE
U220-7	25U0
U220-8	01F7
U220-9	0FA4
U220-10	01F7
U220-11	5C72
U220-12	533C
U220-13	098P
U220-14	098P

CONTINUED

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT TO	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		C370
STOP	TO100-2*		C370
CLOCK	U620-1†		C370

*On MPU Board (A27)
†On GPIB Board (A30)

+5V SIG: C370
GND SIG: 0000

5

CONNECT AT	SIGNATURE
U530-8	F246
U530-10	U063
U520-4	75A9

6

CONNECT AT	SIGNATURE
U620-8	86CA
U620-12	8CFU
U520-1	86CA
U520-2	C370
U520-8	C370**
U520-9	4313
U630-10	4313
U630-11	U063

7

CONNECT AT	SIGNATURE
U510-8	49FO
U510-9	4313
U510-10	86CA
U620-2	C370
U620-3	C370
U620-5	8CFU
U620-6	C370
U620-7	U063
U620-10	C370
U620-14	49FO

8

CONNECT AT	SIGNATURE
U220-3	CC16
U610-9	CC16

9

CONNECT AT	SIGNATURE
U510-6	02C5
U610-10	4313
U610-11	UAC0
U610-12	U2C5
U610-13	C370

10

CONNECT AT	SIGNATURE
U510-1	5579
U510-2	H825
U510-3	17CC
U510-4	4313
U510-5	17CC
U520-3	UAC0

11

CONNECT AT	SIGNATURE
U220-6	5180
U510-11	5180

12

CONNECT AT	SIGNATURE
U510-12	86CA
U510-13	H73A
U610-1	A293
U610-2	C370
U610-3	75A9
U610-4	C370
U610-6	H73A

13

CONNECT AT	SIGNATURE
U520-6	11P3
U530-4	11P3
U530-5	0000
U530-6	11P3
U630-3	C370
U630-4	0000
U630-12	A293
U630-13	11P3

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **7A** SIGNATURE VERSION **1.0 AND 2.0**

@

SIGNATURE TABLE 8A

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** KEYBOARDS
  ON ASSEMBLY(IES): A3 AND A36
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5854-00 AND 670-5795-00
- **7854 CONFIGURATION:** All other digital board removed
  Calculator Keyboard attached

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U420-8*		755U
STOP	U310-12*		755U
CLOCK	U1120-13*		0001

*On MPU Board (A27)

+5V SIG: 0001
GND SIG: 0000

1*

CONNECT AT	SIGNATURE
U410-2	HC89
U410-4	HPP0
U410-6	HAP7
U410-8	3827
U410-12	755U
U410-14	3C96
U410-16	1293
U410-18	2H70

2*

CONNECT AT	SIGNATURE
U310-1	0000
U310-2	HC89
U310-3	HC89
U310-4	HPP0
U310-5	HPP0
U310-6	HAP7
U310-7	HAP7
U310-8	3827
U310-9	3827
U310-10	0000
U310-11	755U
U310-12	755U
U310-13	3C96
U310-14	3C96

2* CONTINUED

CONNECT AT	SIGNATURE
U310-15	1293
U310-16	1293
U310-17	2H70
U310-18	2H70
U310-19	0000
U420-1	52F8
U420-2	0000
U420-3	HC89
U420-4	2H70
U420-5	HPP0
U420-6	1293
U420-7	0000
U420-8	755U
U420-9	3827
U420-10	3C96
U420-11	HAP7
U420-12	0000
U420-13	1293
U420-14	0001
U220-1	0001
U220-2	0001
U220-12	52F8
U220-13	52F9
U320-9	0001
U320-10	0000

2* CONTINUED

CONNECT AT	SIGNATURE
U320-11	0000
U320-12	0000
U320-13	0001
U200-9	0001
U200-10	0000
U200-11	8H98
U200-12	0001
U200-13	0001
U200-14	0001
U200-15	0001
U120-1	0000
U120-2	0000
U120-6	7F7F
U120-7	0000
U120-8	52F9
U120-9	UPFH
U120-12	0000
U120-13	7F7F
U120-14	0001
U1120-9	0000
U1120-10	0001
U1000-11	8H98
U1000-12	UPFH
U1000-13	52F9

3 (ON A36)

CONNECT AT	SIGNATURE
U320-7	546U
U320-9	96F8
U320-10	57HH
U320-11	CFHH
U320-12	04UH
U320-13	160U
U320-14	7631
U320-15	383A

4 (ON A36)

CONNECT AT	SIGNATURE
U320-1	HAP7
U320-2	3C96
U320-3	3827
U320-4	755U

**Indicates activity at node with +5V or GND signature
*On MPU Board (A27)

CONTINUED

5 (ON A36)

CONNECT AT	SIGNATURE
U520-7	1292
U520-9	HPPO
U520-10	2H70
U520-11	HC89
U620-7	1293
U620-9	HPPO
U620-10	2H70
U620-11	HC89

6 (ON A3)

CONNECT AT	SIGNATURE
P430-1	383A
P430-2	7631
P430-3	1608
P430-4	04UH
P430-5	CFHH
P430-6	546U

7 (ON A3)

CONNECT AT	SIGNATURE
U520-1	HAP7
U520-2	3C96
U520-3	3827
U520-4	755U

8 (ON A3)

CONNECT AT	SIGNATURE
U400-7	1293
U400-9	HPPO
U400-10	2H70
U400-11	HC89

SIGNATURE TABLE **8A** SIGNATURE VERSION **1.0** AND **2.0**

@

SIGNATURE TABLE 9A

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** 067-0961-00
- **DIAGNOSTIC INVOKED:** RS
- **FOR TESTING** DIAGNOSTIC MEMORY **ON ASSEMBLY(IES):** 067-0961-00
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5958-00
- **7854 CONFIGURATION:** MPU Board installed
  067-0961-00 installed
  All other digital boards removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		7F70
STOP	TP100-2*		7F70
CLOCK	TP100-3*		7F70

*On MPU Board (A27)

+5V SIG: 7F70
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U340-1	2A55
U340-19	2A55
U440-1	2A55
U440-19	2A55
U100-18	HHP0
U100-20	HHP0
U110-18	H0P4
U110-20	H0P4
U120-18	6589
U120-20	6589
U200-18	HHP0
U200-20	HHP0
U210-18	H0P4
U210-20	H0P4
U220-18	6589
U220-20	6589
U300-18	0138
U300-20	0138
U310-18	H39C
U310-20	H39C
U320-18	9F01
U320-20	9F01

1 CONTINUED

CONNECT AT	SIGNATURE
U330-18	806P
U330-20	806P
U400-18	0138
U400-20	0138
U410-18	H39C
U410-20	H39C
U420-18	9F01
U420-20	9F01
U430-18	806P
U430-20	806P

2

CONNECT AT	SIGNATURE
U245-1	806P
U245-2	9F01
U245-3	H39C
U245-4	0138
U245-5	HHP0
U245-6	H0P4
U245-7	6589
U245-9	U064

3

CONNECT AT	SIGNATURE
U245-12	2A55
U245-13	78F2
U245-14	72C3
U245-15	5H92

4

CONNECT AT	SIGNATURE
U140-3	8CAP
U140-5	FCA6
U140-7	585U
U140-9	95F8
U140-11	88F7
U140-13	6471
U240-5	9046
U240-7	542A
U240-9	0286
U240-11	2081
U240-13	8CHC

5

CONNECT AT	SIGNATURE
U140-1	0000
U140-2	8CAP
U140-4	FCA6
U140-6	585U
U140-10	95F8
U140-12	88F7
U140-14	6471
U140-15	0000
U240-1	0000
U240-4	9046
U240-6	542A
U240-10	0286
U240-12	2081
U240-14	8CHC
U240-15	0000

SIGNATURE TABLE **9A**

SIGNATURE VERSION **1.0** AND **2.0**

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SIGNATURE TABLE 10C

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NONE USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** CONTROL LINES
  ON ASSEMBLY(IES): A3 (067-0911-00 ASSEMBLY)
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-6319-00
- **067-0911-00 CONFIGURATION:** (A3) Interface Board on extender
  U100, U200 removed from (A1) Cable Termination Board
  U200, U300 removed from (A2) Test Processor Board
  Jumper connected between pins of P280

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-2*		H57U
STOP	TP100-3*		H57U
CLOCK	TP100-4*		001U

*On 067-0911-00 Test Processor Board A2

+5V SIG: 001U
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U510-3	0000
U510-5	U7A5
U510-7	001U
U510-9	U7CA
U510-14	001U
U510-16	U7A5
U510-18	001U

2

CONNECT AT	SIGNATURE
U510-1	0000
U510-2	001U
U510-4	U7A5
U510-6	001U
U510-11	U7CA
U510-13	001U
U510-15	U7A5
U510-17	0000
U510-19	0000

3

CONNECT AT	SIGNATURE
U560-6	AH7F
U540-9	U7A5
U540-10	0000
U520-4	U7CA
U520-10	U7CA
U440-6	0000**
U380-10	001U
U170-16	001U
U170-18	001U

4

CONNECT AT	SIGNATURE
U560-4	U7CA
U560-5	U7CA
U560-6	AH7F
U540-1	U7CA
U540-2	U7A5
U540-3	0000
U540-8	001U
U540-9	U7A5
U540-10	0000
U435-8	U7A5
U435-9	U7A5

4 CONTINUED

CONNECT AT	SIGNATURE
U435-10	U7A5
U520-3	U7A5
U520-4	U7CA
U520-8	U7A5
U520-9	U7CA
U520-10	U7CA
U520-11	U7A5
U520-12	001U
U520-13	0000
U440-5	001U**
U440-6	0000**
U530-10	001U
U530-11	001U
U530-12	U7A5
U530-13	001U
U530-14	001U
U530-15	001U
U535-1	001U
U535-2	001U
U535-3	001U
U535-4	U7CA
U535-5	001U
U535-6	001U
U535-7	0000

4 CONTINUED

CONNECT AT	SIGNATURE
U535-9	U7CA
U535-10	U7A5
U535-11	001U
U535-12	001U
U535-13	U7A5
U535-14	U7A5
U535-15	U7A5
U170-2	001U
U170-4	001U
U170-16	001U
U170-18	001U
U380-4	0000
U380-5	U7A5
U380-6	U7CA
U380-8	0000
U380-9	0000
U380-10	001U

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **10C**

SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 10D

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NONE USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** ADDRESS BUS
  ON ASSEMBLY(IES): A1, A2, AND A3
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-6317-00, -6318-00, -6319-00
- **067-0911-00 CONFIGURATION:** (A3) Interface Board on extender
  U100, U200 removed from (A1) Cable Termination Board
  U200, U300 removed from (A2) Test Processor Board
  Jumper connected between pins of P280

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		1180
STOP	TP100-2*		1180
CLOCK	U560-6†		755U

*On 067-0911-00 Test Processor Board A2
†On 067-0911-00 Interface Board A3

+5V SIG: 755U
GND SIG: 0000

1†

CONNECT AT	SIGNATURE
J2-1	H335
J2-3	C113
J2-5	7050
J2-7	0772
J2-9	C4C3
J2-11	AA08
J2-13	7211
J2-15	A3C1
J2-17	7707
J2-19	577A
J2-21	HH86
J2-23	89F1
J2-25	AC99
J2-27	PCF3
J2-28	1180

2‡

CONNECT AT	SIGNATURE
U300-1	0000
U300-3	7707
U300-5	HH86
U300-7	AC99
U300-9	1180
U300-12	755U
U300-14	PCF3
U300-16	89F1
U300-18	577A
U300-19	0000
U400-1	0000
U400-3	H335
U400-5	7050
U400-7	C4C3
U400-9	7211
U400-12	A3C1
U400-14	AA08
U400-16	0772
U400-18	C113
U400-19	0000

3‡

CONNECT AT	SIGNATURE
U300-2	577A
U300-4	89F1
U300-6	PCF3
U300-8	755U
U300-11	1180
U300-13	AC99
U300-15	HH86
U300-17	7707
U400-2	C113
U400-4	0772
U400-6	AA08
U400-8	A3C1
U400-11	7211
U400-13	C4C3
U400-15	7050
U400-17	H335

4*

CONNECT AT	SIGNATURE
U310-10	H335
U310-11	C113
U310-12	7050
U310-13	0772
U310-14	C4C3
U310-15	AA08
U310-16	7211
U310-17	A3C1
U310-18	7707
U310-19	577A
U310-20	HH86
U310-21	89F1
U310-22	AC99
U310-23	PCF3
U310-24	1180

5†

CONNECT AT	SIGNATURE
U460-3	0U2U
U460-8	31F9
U435-11	PFCA
U380-1	UA66
U420-11	256H

‡On 067-0911-00 Cable Termination Board A1 (SA probe GND on A1)
*On 067-0911-00 Test Processor Board A2 (SA probe GND on A2)
†On 067-0911-00 Interface Board A3 (SA probe GND on A3)

CONTINUED

6†

CONNECT AT	SIGNATURE
U460-1	826P
U460-2	89F1
U460-3	0U2U
U460-8	31F9
U460-9	A82F
U460-10	577A
U440-3	HH73
U440-4	A82F
U440-12	826P
U440-13	U731
U435-11	PFCA
U435-12	A82F
U435-13	2225
U410-1	HH86
U410-2	89F1
U410-3	755U
U410-4	1H00
U410-5	1180
U410-7	0000
U410-8	U731
U410-9	1180
U410-11	755U
U410-12	AC99
U380-1	UA66
U380-2	0000
U380-3	8U39
U540-11	PCF3
U540-12	AC99
U540-13	IH00
U520-1	577A
U520-2	2225
U420-12	HH73
U420-13	89F1
U420-14	HH86
U420-15	U731

7†

CONNECT AT	SIGNATURE
U370-1	5H5F
U150-1	5H5F
U350-11	755U
U360-1	HCPF
U360-19	HCPF
U130-11	755U
U330-11	755U
U140-1	0U93
U140-19	0U93
U340-1	0U93
U340-19	0U93
U420-7	A4FA

8†

CONNECT AT	SIGNATURE
U445-1	0000
U445-2	7AFF
U445-3	755U
U445-4	7AFF
U445-5	755U**
U445-6	0U93
U445-11	HCPF
U445-12	APC3
U445-13	755U**
U460-4	APC3
U460-5	0000
U460-6	755U
U440-8	APC3
U440-9	HCPF
U440-10	7AFF
U440-11	0U93
U420-1	58C6
U420-2	C4C3
U420-3	AA08
U420-4	0U93
U420-5	HCPF
U420-6	5H5F
U430-1	A3C1
U430-2	7707
U430-4	7211
U430-5	PFCA
U430-6	58C6

9†

CONNECT AT	SIGNATURE
U110-1	3662
U200-1	3662
U160-12	433H
U465-8	433H
U445-8	3662
U100-1‡	433H
U200-1‡	433H

10†

CONNECT AT	SIGNATURE
U445-8	3662
U445-9	755U
U445-10	433H
U465-1	58C6
U465-2	256H
U465-3	0U2U
U465-4	755U
U465-5	31F9
U465-6	755U
U460-11	755U
U460-12	0000
U460-13	UA66
U160-12	433H
U160-13	3662

**Indicates activity at node with +5V or GND signature
†On 067-0911-00 Interface Board A3 (SA probe GND on A3)

SIGNATURE TABLE **10D** SIGNATURE VERSION **1.0** AND **2.0**

SIGNATURE TABLE 10E

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NONE USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** READY GENERATION
  ON ASSEMBLY(IES): A3 (067-0911-00 ASSEMBLY)
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-6319-00
- **067-0911-00 CONFIGURATION:** (A3) Interface Board on extender
  U100, U200 removed from (A1) Cable Termination Board
  U200, U300 removed from (A2) Test Processor Board
  Jumper removed from P280

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		1180
STOP	TP100-2*		1180
CLOCK	U560-6†		755U

*On 067-0911-00 Test Processor Board A2
†On 067-0911-00 Interface Board A3

+5V SIG: 755U
GND SIG: 0000

1†

CONNECT AT	SIGNATURE
U170-12	IC8C

2†

CONNECT AT	SIGNATURE
U170-8	1C8C
U560-1	1C8C
U560-2	0000**
U560-3	1C8C
U540-4	0000**
U540-5	1C8C
U540-6	755U**
U430-8	1C8C
U430-9	99P5
U430-10	755U
U430-12	826P
U430-13	755U**
U440-1	PFCA
U440-2	99P5

**Indicates activity at node with +5V or GND signature
†On 067-0911-00 Interface Board A3 (SA probe GND on A3)

SIGNATURE TABLE **10E**	SIGNATURE VERSION **1.0 AND 2.0**

@

SIGNATURE TABLE 10F

SIGNATURE VERSION 1.0 AND 2.0

- **DIAGNOSTIC FIRMWARE VERSION:** NONE USED
- **DIAGNOSTIC INVOKED:** NONE (TEST FREE-RUNS)
- **FOR TESTING** DATA BUS
  ON ASSEMBLY(IES): A1 AND A3 (067-0911-00 ASSEMBLIES)
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-6317-00, 670-6319-00
- **067-0911-00 CONFIGURATION:** (A3) Interface Board on extender
  U100, U200 removed from (A1) Cable Termination Board
  U200, U300 removed from (A2) Test Processor Board
  Jumper connected between pins of P280

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	U220-20*		0000
STOP	U320-20*		0000
CLOCK	U560-6*		0000

*On 067-0911-00 Test Interface Board A3

+5V SIG: 7A70
GND SIG: 0000

1†

CONNECT AT	SIGNATURE
U100-2	A7CU
U100-3	C524
U100-4	10CF
U100-5	877F
U100-6	H093
U100-7	9U23
U100-8	462C
U100-9	26U7
U200-2	FC1H
U200-3	A748
U200-4	4H78
U200-5	H0H0
U200-6	U6P2
U200-7	H638
U200-8	82AF
U200-9	1522

2*

CONNECT AT	SIGNATURE
U110-2	1522
U110-3	82AF
U110-4	H638
U110-5	U6P2
U110-6	H0H0
U110-7	4H78
U110-8	A748
U110-9	FC1H
U200-2	A7CU
U200-3	C524
U200-4	10CF
U200-5	877F
U200-6	H093
U200-7	9U23
U200-8	462C
U200-9	26U7

3*

CONNECT AT	SIGNATURE
U110-1	0000**
U110-11	FC1H
U110-12	A748
U110-13	4H78
U110-14	H0H0
U110-15	U6P2
U110-16	H638
U110-17	82AF
U110-18	1522
U110-19	0000
U200-1	0000**
U200-11	26U7
U200-12	462C
U200-13	9U23
U200-14	H093
U200-15	877F
U200-16	10CF
U200-17	C524
U200-18	A7CU
U200-19	0000
U120-1	0772
U120-2	4U2A
U120-3	4442

3* CONTINUED

CONNECT AT	SIGNATURE
U120-4	P030
U120-5	H0AA
U120-6	HA07
U120-7	C21A
U120-8	H62U
U120-9	A7CU
U120-10	C524
U120-11	10CF
U120-13	877F
U120-14	H093
U120-15	9U23
U120-16	462C
U120-17	26U7
U120-18	7A70
U120-19	0000
U120-20	7A70
U120-21	7A70
U120-22	1734
U120-23	9635
U220-1	0772
U220-2	4U2A
U220-3	4442
U220-4	P030

**Indicates activity at node with +5V or GND signature
†On 067-0911-00 Cable Termination Board A1 (SA probe GND on A1)
*On 067-0911-00 Test Interface Board A3 (SA probe GND on A3)

CONTINUED

3* CONTINUED

CONNECT AT	SIGNATURE
U220-5	H0AA
U220-6	HA07
U220-7	C21A
U220-8	H62U
U220-9	A7CU
U220-10	C524
U220-11	10CF
U220-13	877F
U220-14	H093
U220-15	9U23
U220-16	462C
U220-17	26U7
U220-18	0000
U220-19	8P54
U220-20	0000
U220-21	7A70
U220-22	1734
U220-23	9635
U225-1	0772
U225-2	4U2A
U225-3	4442
U225-4	P030
U225-5	H0AA
U225-6	HA07
U225-7	C21A
U225-8	H62U
U225-9	FC1H
U225-10	A748
U225-11	4H78
U225-13	H0H0
U225-14	U6P2
U225-15	H638
U225-16	82AF

3* CONTINUED

CONNECT AT	SIGNATURE
U225-17	1522
U225-18	7A70
U225-19	0000
U225-20	7A70
U225-21	7A70
U225-22	1734
U225-23	9635
U320-1	0772
U320-2	4U2A
U320-3	4442
U320-4	P030
U320-5	H0AA
U320-6	HA07
U320-7	C21A
U320-8	H62U
U320-9	FC1H
U320-10	A748
U320-11	4H78
U320-13	H0H0
U320-14	U6P2
U320-15	H638
U320-16	82AF
U320-17	1522
U320-18	0000
U320-19	8P54
U320-20	0000
U320-21	7A70
U320-22	1734
U320-23	9635

*On 067-0911-00 Test Interface Board A3 (SA probe GND on A3)

MANUAL CHANGE INFORMATION

At Tektronix, we continually strive to keep up with latest electronic developments by adding circuit and component improvements to our instruments as soon as they are developed and tested.

Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

A single change may affect several sections. Since the change information sheets are carried in the manual until all changes are permanently entered, some duplication may occur. If no such change pages appear following this page, your manual is correct as printed.

TEKTRONIX

MANUAL MODIFICATION INSERT

ROM MICROCIRCUITS REPLACEMENT

for

7854 Oscilloscopes

Serial Numbers B010100 - B063172

Installed in SN _____ Date _____

This modification insert is provided to supplement the manual for the above listed product(s). The information given in this insert supersedes that given in the manual.

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GENERAL INFORMATION

The following information updates the 7854 Oscilloscope Service Manual, pn 070-2874-00 or pn 070-2874-01. Microcircuits, U100, U110, U120, U200, U210, U400 and U410, on the ROM circuit board, A31, were replaced. Three of the microcircuits, U120, U400 and U410, changed the firmware version to 1.03. This new firmware ensured the GPIB commands, Serial Poll Disable (SPD) and Group Execute Trigger (GET) operate correctly. With the installation of these microcircuits, the Signature Analysis Tables, used with the 067-0911-XX Diagnostic Test Interface, were changed from Version 3.0 to Version 4.0. The other microcircuits, U100, U110, U200, and U210, were replaced with more reliable microcircuits.

Ckt. No.	Part Number	Description
A31U100	160-0408-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U110	160-0409-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U120	160-0445-02	Microcircuit, FLPA, w/3 state out
A31U200	160-0410-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U210	160-0411-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U400	160-0466-02	Microcircuit, dgtl, 2048 x 8, EPROM, prgm
A31U410	160-0467-02	Microcircuit, dgtl, 2048 x 8, EPROM, prgm

TEKTRONIX

MANUAL MODIFICATION INSERT

ROM MICROCIRCUITS REPLACEMENT

for

7854 Oscilloscopes

Serial Numbers B010100 - B063172

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GENERAL INFORMATION

The following information updates the Signature Tables for 7854 Diagnostic Troubleshooting Using 067-0911-00 & Up Diagnostic Test Interface Service Manual, pn 070-2972-00. The updated information needs to be used with firmware Version 1.03. The new firmware version ensures the GPIB commands, Serial Poll Disable (SPD), and Group Execute Trigger (GET) operate correctly.

SIGNATURE TABLE 2A

SIGNATURE VERSION 4.0

- **DIAGNOSTIC FIRMWARE VERSION:** NOT USED
- **DIAGNOSTIC INVOKED:** RS
- **FOR TESTING** ROM
  ON ASSEMBLY(IES): A31
- **SIGNATURES APPLICABLE TO BOARD VERSION:** 670-5847-03
- **7854 CONFIGURATION:** 7854 ROM, RAM & MPU Boards installed
  All other digital boards removed
  067-0911-00 system connected

SIGNATURE ANALYZER SETUP:

SA INPUT	CONNECT AT	SWITCH SETTING	VERIFY SIGNATURE
START	TP100-1*		7F70
STOP	TP100-2*		7F70
CLOCK	TP100-3*		7F70

*On MPU Board (A27)

+5V SIG: 7F70
GND SIG: 0000

1

CONNECT AT	SIGNATURE
U330-1	P02C
U330-19	P02C
U430-1	P02C
U430-19	P02C

2

CONNECT AT	SIGNATURE
U325-1	78F2
U325-2	5H92
U325-8	P02C
U325-9	0000
U325-10	5625
U325-11	FA7P
U325-12	998C
U325-13	0000**
U420-4	998C
U420-5	2A55
U420-6	C60P
U425-10	5625
U425-11	2A55
U425-12	FA7P
U425-13	C60P

3

CONNECT AT	SIGNATURE
U100-20	U6H1
U110-20	U6H1
U200-20	AF18
U210-20	AF18
U400-18	4561
U400-20	4561
U410-18	4561
U410-20	4561

4

CONNECT AT	SIGNATURE
U320-12	2A55

5

CONNECT AT	SIGNATURE
U325-1	78F2
U325-2	5H92
U325-3	0000**
U325-4	2A55
U325-5	709F

5 CONTINUED

CONNECT AT	SIGNATURE
U325-6	0FPF
U325-8	P02C
U325-9	0000
U325-10	5625
U227-1	0000**
U227-2	5625
U227-3	7F70
U227-4	7F70
U227-5	7F70**
U227-6	0000**
U227-8	7F70**
U227-10	0000
U227-13	7F70**
U220-1	0000**
U220-2	0000
U220-3	0000**
U220-4	0000**
U220-5	0000
U220-6	0000**
U220-8	0000**
U220-9	0000
U220-10	0000**
U220-11	0000**

5 CONTINUED

CONNECT AT	SIGNATURE
U220-12	0000**
U220-13	0000**

6

CONNECT AT	SIGNATURE
U120-19	709F

**Indicates activity at node with +5V or GND signature

CONTINUED

SIGNATURE TABLE 2A CONTINUED

7

CONNECT AT	SIGNATURE
U120-1	7F70
U120-2	0286
U120-3	8CAP
U120-4	6471
U120-5	FCA6
U120-6	88F7
U120-7	585U
U120-8	95F8
U120-9	0000
U120-10	709F
U120-11	709F
U120-20	2A55
U120-21	5H92
U120-22	78F2
U120-23	72C3
U120-24	9046
U120-25	542A
U120-26	8CHC
U120-27	2081

8

CONNECT AT	SIGNATURE
U425-8	709F

9

CONNECT AT	SIGNATURE
U425-9	0FPF
U325-3	0000**
U325-4	2A55
U325-5	709F

10

CONNECT AT	SIGNATURE
$\overline{TPCSP2}$	4561

11

CONNECT AT	SIGNATURE
U320-1	4561
U320-2	35UH
U320-3	0FPF
U320-4	35UH
U320-5	0PF3
U320-6	C60P
U320-8	709F
U320-9	2A55
U320-10	0FPF
U425-3	72C3
U425-4	0PF3

12

CONNECT AT	SIGNATURE
$\overline{TPCSP1}$	83U3

13

CONNECT AT	SIGNATURE
U420-1	0PF3
U420-2	FA7P
U420-3	83U3
U425-3	72C3
U425-4	0PF3

14

CONNECT AT	SIGNATURE
$\overline{TPCSR1}$	U6H1
$\overline{TPCSR2}$	AF18

15

CONNECT AT	SIGNATURE
U420-8	AF18
U420-9	5H92
U420-10	5AF9
U420-11	U6H1
U420-12	5AF9
U420-13	21P2
U425-1	5H92
U425-2	21P2
U425-5	709F
U425-6	0FPF
U320-11	0FPF
U320-12	2A55
U320-13	5AF9

16

CONNECT AT	SIGNATURE
U130-3	6C3H
U130-5	03F5
U130-7	0310
U130-9	4103
U130-11	FUUP
U130-13	HAAH
U130-15	9FCF
U130-17	6A37
U230-9	8078
U230-11	UC70
U230-13	3856
U230-15	AP60
U230-17	4C3H

17

CONNECT AT	SIGNATURE
U130-1	0000
U130-2	2081
U130-4	8CAP
U130-6	FCA6
U130-8	585U
U130-12	95F8
U130-14	88F7
U130-16	6471
U130-18	0286
U130-19	0000
U230-1	0000
U230-8	72C3
U230-12	8CHC
U230-14	9046
U230-16	542A
U230-18	78F2
U230-19	0000

**Indicates activity at node with +5V or GND signature

SIGNATURE TABLE **2A** SIGNATURE VERSION **4.0**

product modification

050-1650-01

M46469, M49619
M55609

ROM MICROCIRCUITS REPLACEMENT

For TEKTRONIX® 7854 Oscilloscopes

Serial Numbers B010100 - B063172

The microcircuits included in this kit replace U100, U110, U120, U200, U210, U400 and U410 on the ROM circuit board, A31. All seven microcircuits need to be replaced. Three microcircuits, U120, U400, and U410, upgrade the firmware to version 1.03. The new firmware ensures the GPIB commands, Serial Poll Disable (SPD) and Group Execute Trigger (GET) operate correctly. The four remaining microcircuits, U100, U110, U200 and U210, are replaced to improve the reliability of these components.

NOTE

If the serial number of your instrument is greater than those listed above or if this kit or the Firmware Update and ROM Reliability Improvement kit, pn 045-0056-00, has been installed, these instructions may be disregarded and the microcircuits, included in the kit, may be used individually as direct replacements for the circuit numbers listed on the next page.

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24-JUN-1985
Supersedes: 22-OCT-1984

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KIT PARTS LIST:

Ckt. No.	Quantity	Part Number	Description
A31U100	1 ea	160-0408-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U110	1 ea	160-0409-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U200	1 ea	160-0410-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U210	1 ea	160-0411-01	Microcircuit, dgtl, 8192 x 8, ROM
A31U120	1 ea	160-0445-02	Microcircuit, FLPA, w/3 state out
A31U400	1 ea	160-0466-02	Microcircuit, dgtl, 2048 x 8, EPROM, prgm
A31U410	1 ea	160-0467-02	Microcircuit, dgtl, 2048 x 8, EPROM, prgm
	1 ea	----- -----	Marker, ident, mkd Service Identification
	1 ea	----- -----	Label, 050-kit

INSTRUCTIONS:

CAUTION

The microcircuits included in this kit are extremely susceptible to static discharge damage. Oserve standard precautions for handling static-sensitve devices while installing this kit.

WARNING

Dangerous potentials exist at several points within the instrument. Before proceeding, ensure the mainframe power switch is in the off position, then disconnect the instrument from the power source.

NOTE

If an external power source is being used for memory back-up power, disconnect the wires from the MEMORY BACK-UP POWER INPUT banana jacks on the rear panel.

( ) 1. Turn the four slotted fasteners in the right cabinet side one-quarter turn counterclockwise.

( ) 2. Remove the right cabinet side by lifting the panel away from the instrument.

( ) 3. Remove the five screws securing the digital circuit board support and remove the support. The digital circuit board support is the L-shaped bracket used to hold the top of the digital circuit boards, A25 through A31, in place.

( ) 4. To gain access to the ROM circuit board, A31, remove the GPIB circuit board, A30, from its mounting slot and then position the board and connected wiring out of the way of the ROM circuit board. Remove the GPIB circuit board by lifting simultaneously on the circuit board ejectors located at each end of the board.

( ) 5. Remove the ROM circuit board, A31, by lifting simultaneously on the two circuit board ejectors.

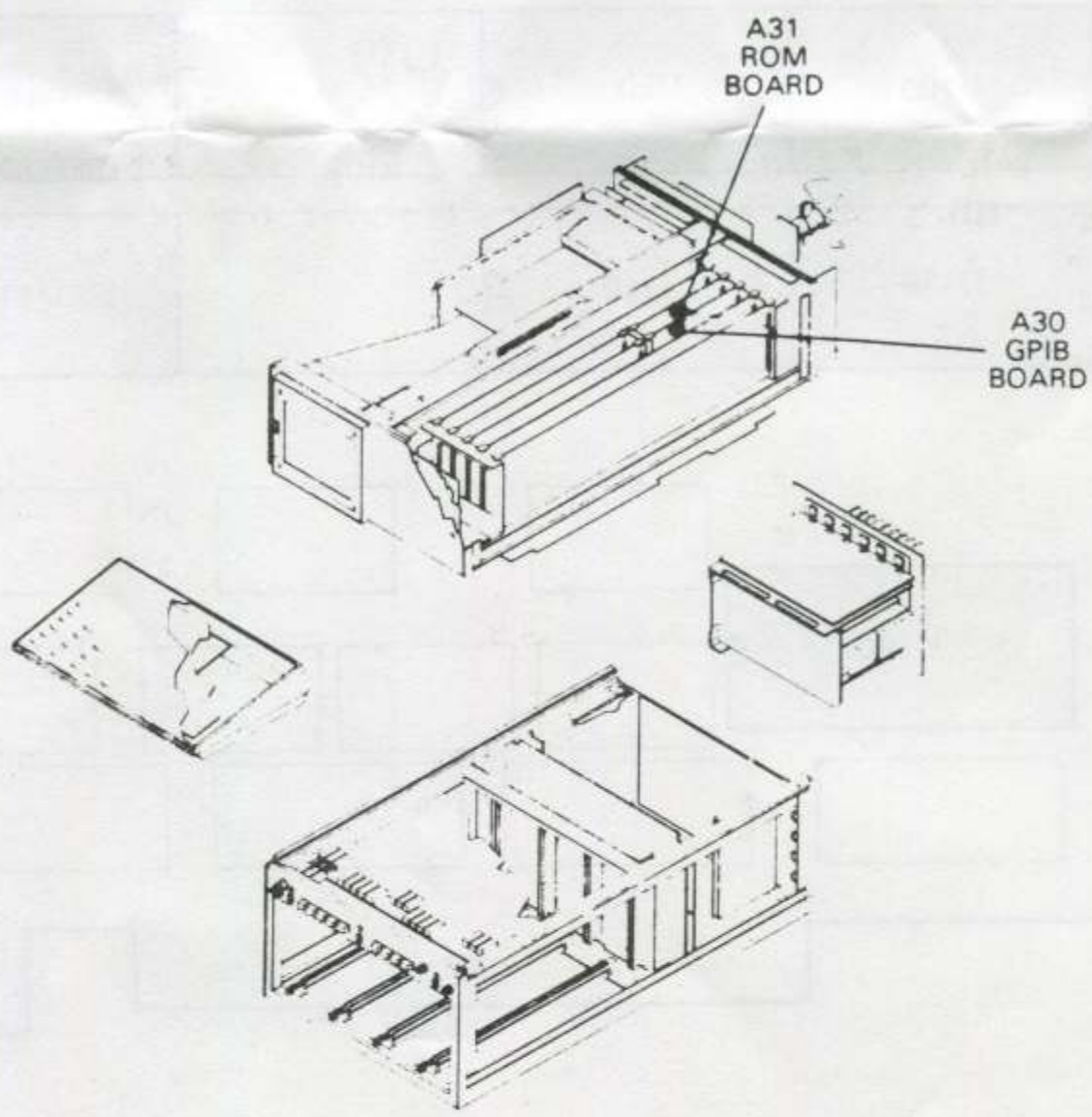

Fig. 1. Circuit board locations.

( ) 6. Replace following microcircuits on the ROM circuit board with the indicated microcircuit provided in the kit. Refer to Fig. 2 for the location of each microcircuit.

( ) a. U100 with the microcircuit marked 160-0408-01.

( ) b. U110 with the microcircuit marked 160-0409-01.

( ) c. U200 with the microcircuit marked 160-0410-01.

( ) d. U210 with the microcircuit marked 160-0411-01.

( ) e. U400 with the microcircuit marked 160-0466-02.

( ) f. U410 with the microcircuit marked 160-0467-02.

( ) g. U120 with the microcircuit marked 160-0445-02.

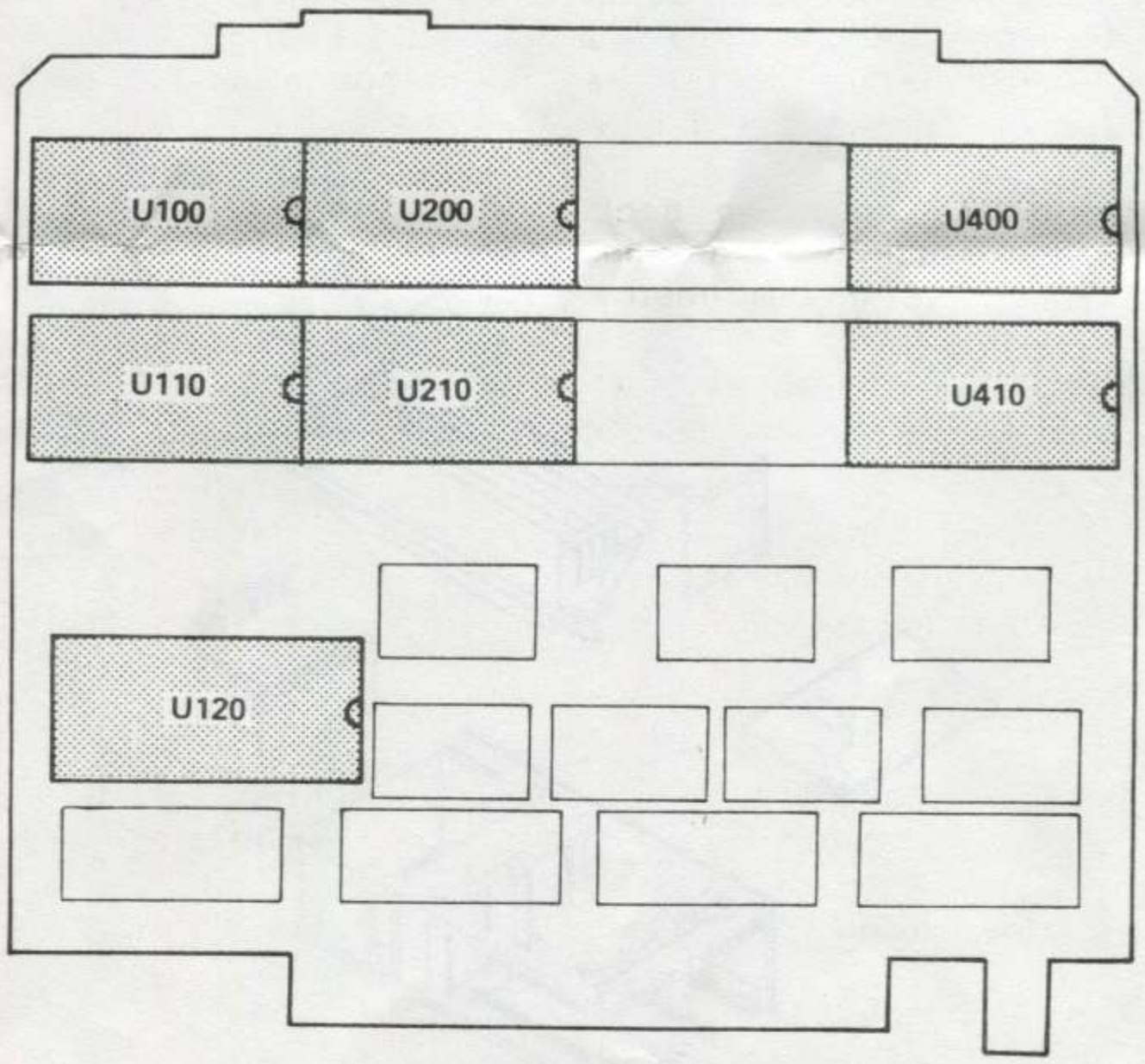

Fig. 2. Microcircuit locations on ROM circuit board, A31.

( ) 7. Install the ROM circuit board in the following manner:

( ) a. Install the circuit board into the circuit board guides. Ensure the circuit board ejectors are in the horizontal position.

( ) b. Slide the circuit board down until the circuit board edge contacts mate with the receptacle, then press firmly and evenly until the board edge contacts seat properly in the receptacle.

( ) 8. Install the GPIB circuit board, A30, in the same manner as above.

( ) 9. Reinstall the circuit board support, ensuring the tabs along the top edges of the circuit boards are inserted in the slots in the support.

( ) 10. Secure the circuit board support with the five screws removed earlier.

( ) 11. Reinstall and secure the right cabinet side.

( ) 12. If disconnected previously, reconnect the external dc supply to the MEMORY BACK-UP POWER INPUT banana jacks on the rear panel.

( ) 13. Replace the Service Identification marker on the rear panel of the instrument with the new Service Identification marker provided in the kit. This marker informs service personnel of the applicable version of diagnostic firmware and signature tables.

( ) 14. Remove the protective backing from the 050-kit label, provided in the kit, and apply it to a clean, dry area on the rear panel. The label indicates this kit has been installed.

( ) 15. For future reference, attach the two attached Manual Modification Inserts to the appropriate Service Manuals.

DRL: dl

PRODUCT MODIFICATION KIT
SUGGESTION/CORRECTION FORM

DATE _____

KIT NUMBER _____ STEP/PAGE _____

FIGURE NUMBER _____ PUBLICATION DATE _____

DISCREPANCY _____

_____

_____

_____

SUGGESTED CORRECTION/COMMENTS _____

_____

_____

SUGGESTED BY: NAME/ORGANIZATION _____

____REPLY REQUESTED (PLEASE TYPE OR PRINT LEGIBLY)

RETURN TO LOCAL FIELD OFFICE/SERVICE CENTER

FIELD OFFICE/SERVICE CENTER/DEL. STA. _____

SERVICE CENTER: RETURN TO FIELD MODS 73-860

REPLY

____WILL MAKE CHANGE IMMEDIATELY

____WILL MAKE CHANGE AT NEXT PRINTING

____OTHER _____

_____

_____

SIGNED _____ DATE _____

Tektronix, Inc.
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