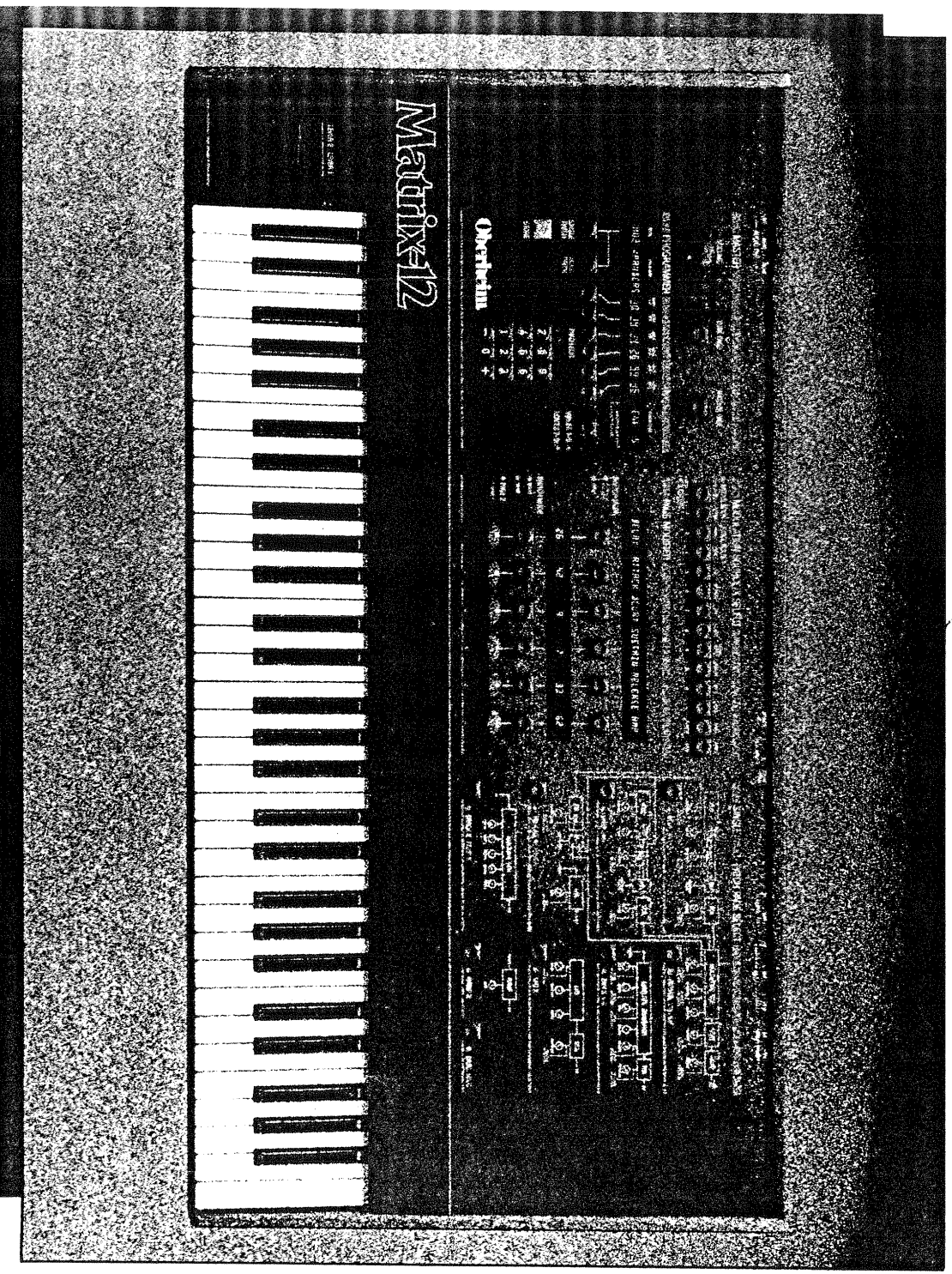


SERVICE MANUAL

Matrix-12



OBERHEIM

A Division of ECC Development Corporation

Preliminary Edition



ENGINEERING CHANGE ORDER

PRODUCT AFFECTED	MATRIX-12	DRAWINGS/ASSEMBLY AFFECTED	Matrix -12 Rev. D Upper and Lower Voice Board (Ass'y #1810D / Part No. 720103)	ECO NUMBER	805
EFFECTIVITY	REASON FOR CHANGE				
☐ AS REQUIRED IN TEST ☒ FUTURE PRODUCTION ☐ RETROFIT PRODUCTION & INVENTORY ☒ RETROFIT IN FIELD ☒ AS NEEDED ☐ DRAWING CORRECTION ONLY ☐ PARTS PURCHASING	Software update, version CA 1.6. Eliminate the possibility of the CA Voice software from mis-reading the Voice Board revision on power up.				
ECO #805 - Part No. 950072					

WRITTEN BY:	DATE	CHECKED BY:	DATE	APPROVED BY:	DATE
J. Letts	12.9.86	TAD	1-6-87	TEO	1-6-87

DESCRIPTION

In previous revisions, the CA Voice software performed a test on power up that would determine if the instrument's Voice PCBs are early revision boards ("A" or "B") or later revision boards ("D"). This test sometimes incorrectly identifies the board revision and causes what appears to be a malfunction in the hardware. Symptoms are characterized by the VCAs in each Voice being turned on all the way, sounding loudly as though the Voices had been gated on, or the unit will display "VOICE PROCESSOR X MALFUNCTION" on power up.

In 1.6 software, this test is no longer performed, thus eliminating the possibility of the Voice Boards being mis-read on power up. Version 1.6 assumes that the Voice Boards are revision D or higher.

Therefore, the CA 1.6 revision is to be installed in Matrix-12's with D revision boards only.

Software Revision CA 1.6 includes four (4) software ICs, two (2) per Voice Board labelled "CA 1.6-0" and "CA 1.6-1". Update kit Part No. 770105.

PROCEDURE

1. Turn the Matrix-12 off and remove the power cord.
2. Remove the three (3) screws on the upper edge of each endbell. The front panel can now be lifted up.
3. Remove three (3) screws along the front edge of the upper Voice Board. The board can now be lifted to its vertical position - the board is mounted on the rear by three hinged stand-offs.
4. Remove the two (2) software chips labelled "CA 1.4-0" (located at U912) and "CA 1.4-1" (located at U914) on the Lower Voice Board. Replace these chips with the new software labelled "CA 1.6-0" (into U912) and "CA 1.6-1 (into U914).
5. Lower the Upper board and replace the mounting hardware removed in Step 3.
6. Remove the two (2) software chips labelled "CA 1.4-0" (located at U912) and "CA 1.4-1" (located at U914) on the Upper Voice Board. Replace these chips with the new software labelled "CA 1.6-0" (into U912) and "CA 1.6-1 (into U914).
- Return the old software chips to ECC/Oberheim.
7. Lower the Matrix-12's front panel and replace the screws removed in Step 2.
8. Replace the power cord removed in Step 1. Press and hold the button labelled CLEAR in the MODULATION SOURCE/SELECT section on the front panel, then power the unit on. The displays will prompt you to "RESET MEMORY? (DOESN'T AFFECT PATCHES)". Press YES on the Lower Display and the unit will return to normal operation.

Oberheim

A Division of ECC Development Corporation
Executive Offices: 15303 Ventura Blvd., 9th Floor, Sherman Oaks, CA 91403 (818) 906-8115
Corporate Offices: 11650 W. Olympic Blvd., Los Angeles, CA 90064 (213) 479-4948
Factory: 2230 S. Barrington Ave., Los Angeles, CA 90064 (213) 479-4948

ENGINEERING CHANGE ORDER

PRODUCT AFFECTED:		DRAWINGS AFFECTED:		ECO NO.	
MATRIX-12		NONE		841	
AFFECTIVITY:			REASON FOR CHANGE:		
☐ AS REQUIRED IN TEST ☒ FUTURE PRODUCTION ☐ RETROFIT PRODUCTION & INVENTORY ☒ RETROFIT IN FIELD ☒ AS NEEDED ☐ DRAWING CORRECTION ONLY ☐			1. IMPROVE VCO 1 PULSE WIDTH TUNIN 2. ELIMINATE SMALL GLITCH IN MIDDLE OF RANDOM LFO WAVEFORMS. 3. IMPROVE VOICE BOARD REVISION REI OGNITION RELIABILITY.		
WRITTEN BY:		DATE:		DATE:	
MARCUS RYLE		3-8-85		3-8-85	
		APPROVED BY:			
					
DESCRIPTION OF CHANGE:					

ON EACH VOICE BOARD (2):

REPLACE 2764 EPROM AT LOCATION U912 LABELED CA1.3 0 WITH CA1.4 0
REPLACE 2764 EPROM AT LOCATION U914 LABELED CA1.3 1 WITH CA1.4 1.



ENGINEERING CHANGE ORDER

PRODUCT AFFECTED:	DRAWINGS AFFECTED:	ECO NO.
MATRIX-12	NONE	802

AFFECTIVITY:

- ☐ AS REQUIRED IN TEST
- ☒ FUTURE PRODUCTION
- ☐ RETROFIT PRODUCTION & INVENTORY
- ☐ RETROFIT IN FIELD ☐ AS NEEDED
- ☐ DRAWING CORRECTION ONLY

REASON FOR CHANGE:

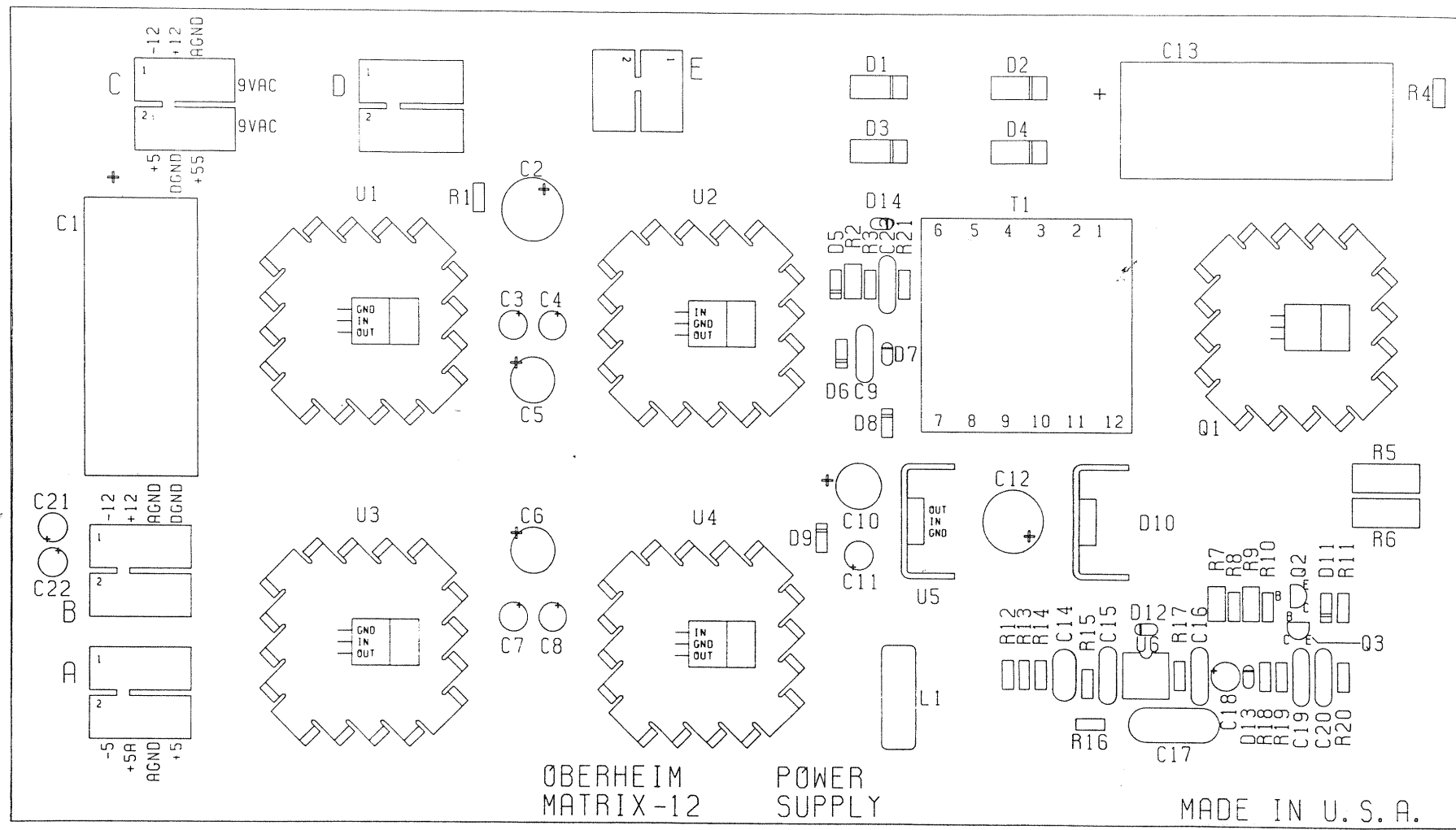
TO ELIMINATE THE POSSIBILITY OF THE CLOCK CABLES BECOMING DISCONNECTED FROM THE PROCESSOR BOARD WHILE IN TRANSIT.

WRITTEN BY:	DATE:	APPROVED BY:	DATE:
MARCUS RYLE	4/3/85		4/3/85

DESCRIPTION OF CHANGE:

1. MODIFY TWO CABLE ASSEMBLIES #4 (OBERHEIM PART #750185-0) BY REMOVING ONE OF THE TWO 3 PIN MOLEX CONNECTORS ON EACH SO THAT THERE IS A CONNECTOR ON ONLY ONE END OF EACH CABLE.
2. REMOVE THE 3 PIN MALE MOLEX CONNECTORS (OBERHEIM PART #219340) ON THE MATRIX-12 PROCESSOR BOARD (720102) AT CONNECTOR LOCATIONS D AND E.
3. SOLDER THE BARE WIRE END OF CABLE ASSEMBLIES TO THE PROCESSOR BOARD AT LOCATIONS D AND E. THE SHIELD OF ONE OF THE CABLES SHOULD BE SOLDERED TO PIN 1 OF CONNECTOR D, AND THE CENTER CONDUCTOR OF THE SAME CABLE SHOULD BE SOLDERED TO PIN 2 OF CONNECTOR D. THE OTHER CABLE SHOULD BE CONNECTED IN THE SAME MANNER TO CONNECTOR E.

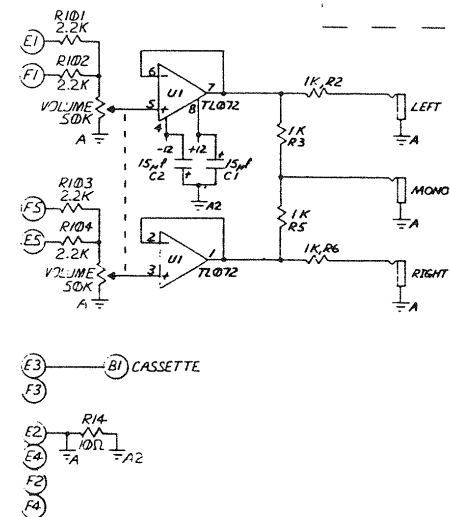
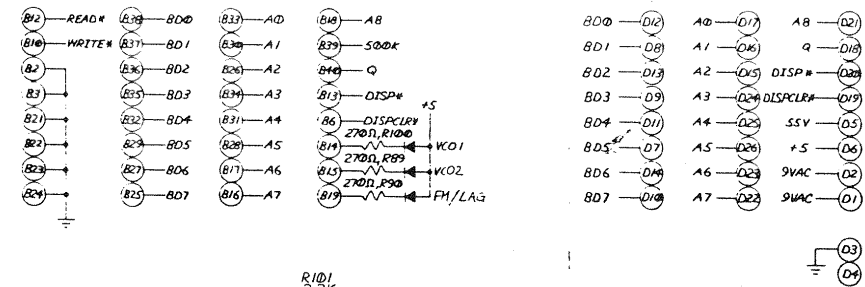
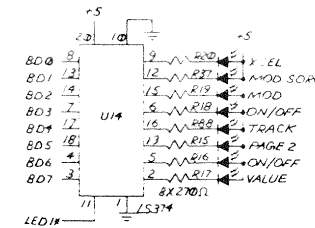
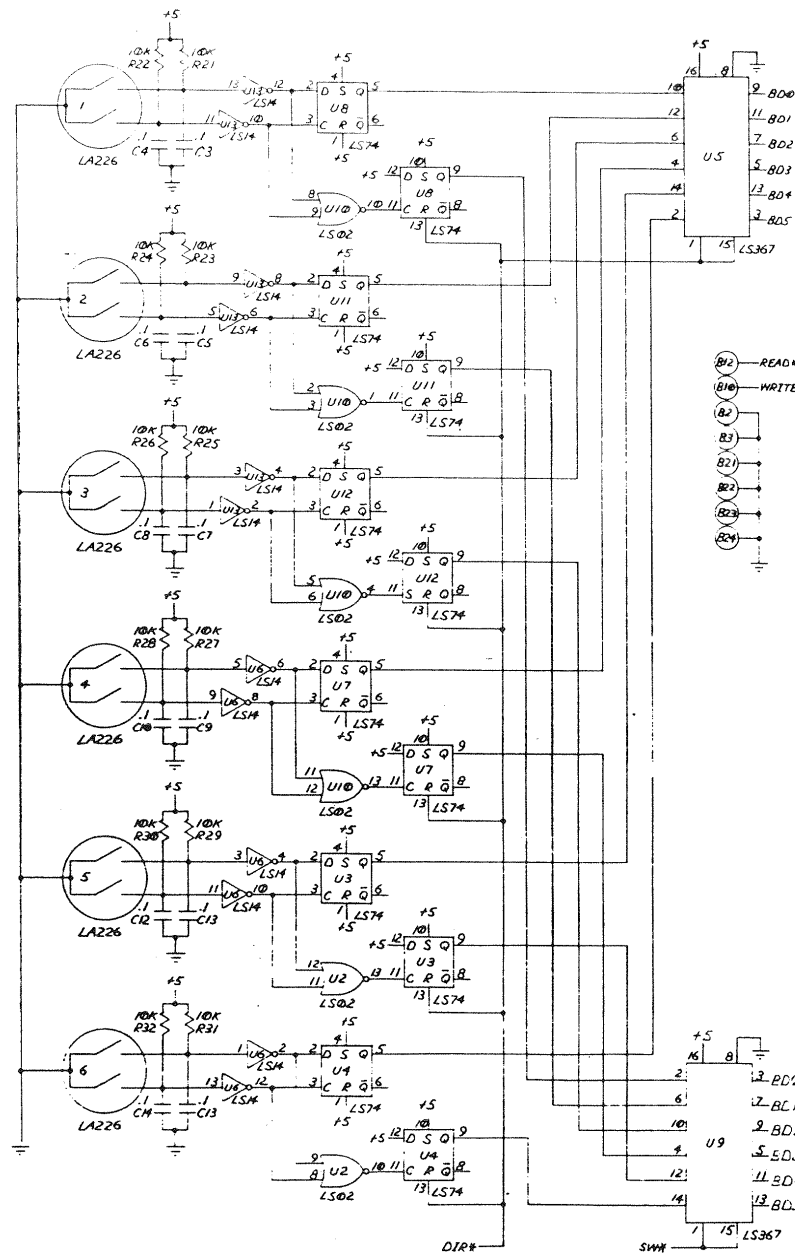




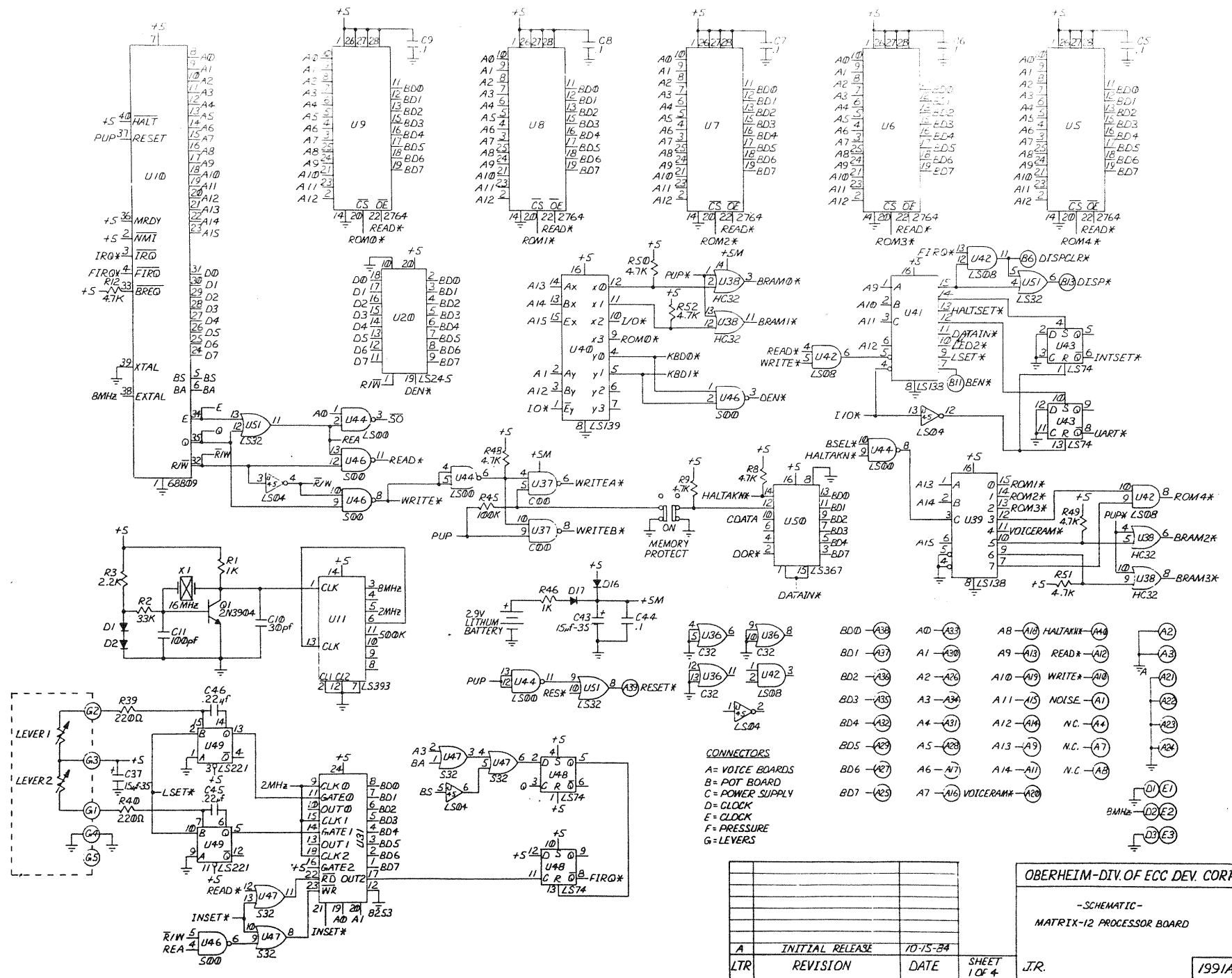
OBERHEIM - DIV. OF ECC DEV. CORP.

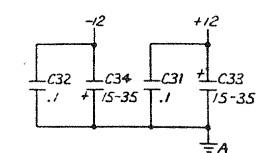
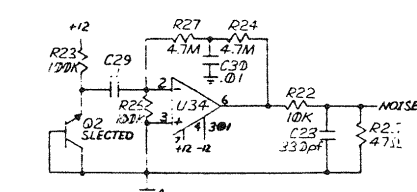
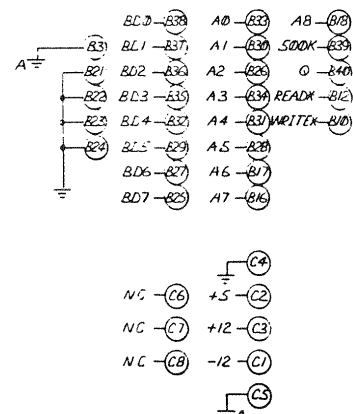
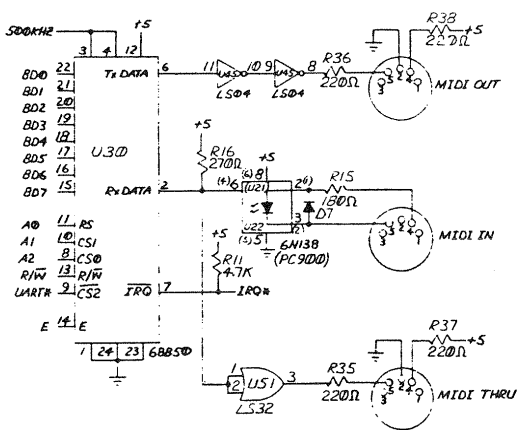
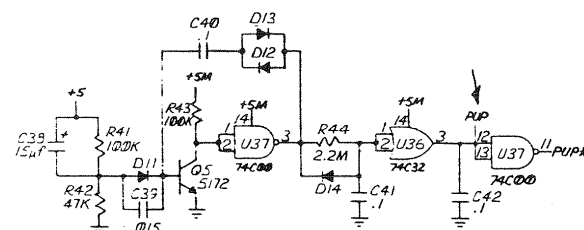
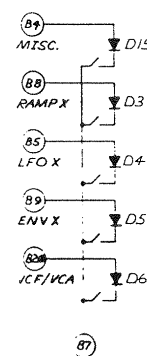
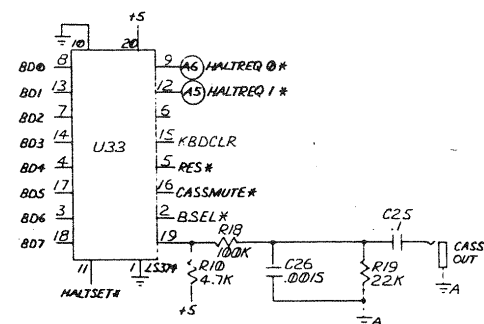
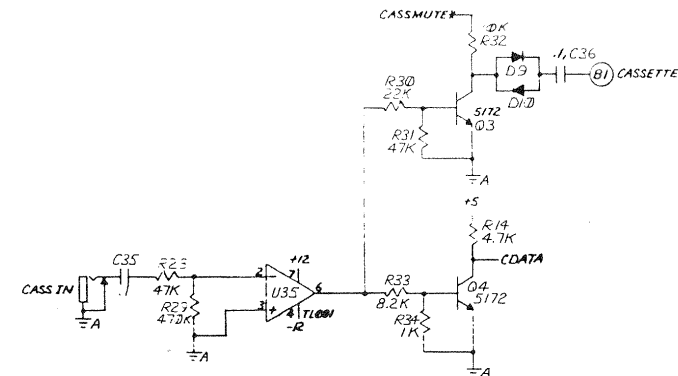
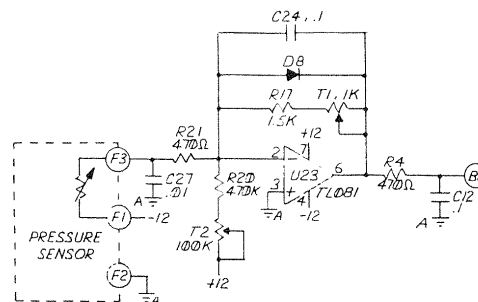
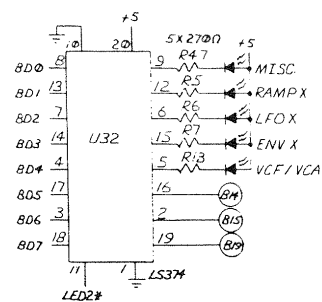
-PARTS LAYOUT-
MATRIX-12 POWER SUPPLY

1932C



OBERHEIM-DIV. OF ECC DEV. CORP
-SCHEMATIC-
MATRIX-12 POT BOARD

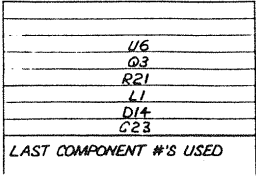




OBERHEIM-DIV. OF ECC DEV. CORP.
-SCHEMATIC-
MATRIX-12 PROCESSOR BOARD

SHEET 2 OF 4

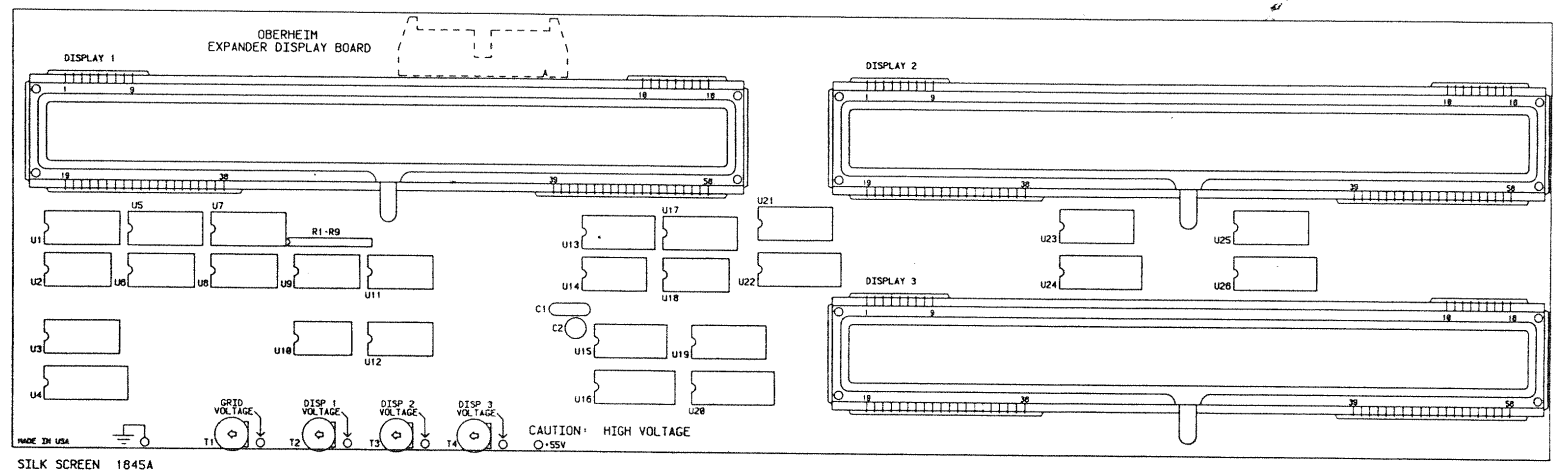
1991A



OBERHEIM-DIV. OF ECC DEV. CORP.

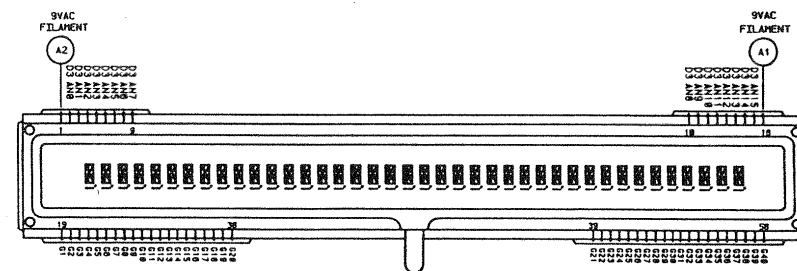
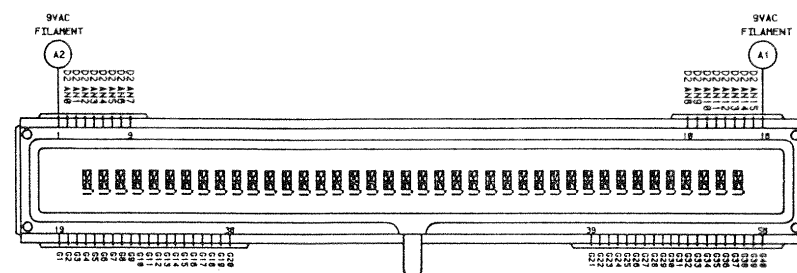
-SCHEMATIC-

MATRIX-12 POWER SUPPLY



OBERHEIM-DIV OF ECC DEV CORP
-PARTS LAYOUT-
MATRIX-12 DISPLAY BOARD

184-8A

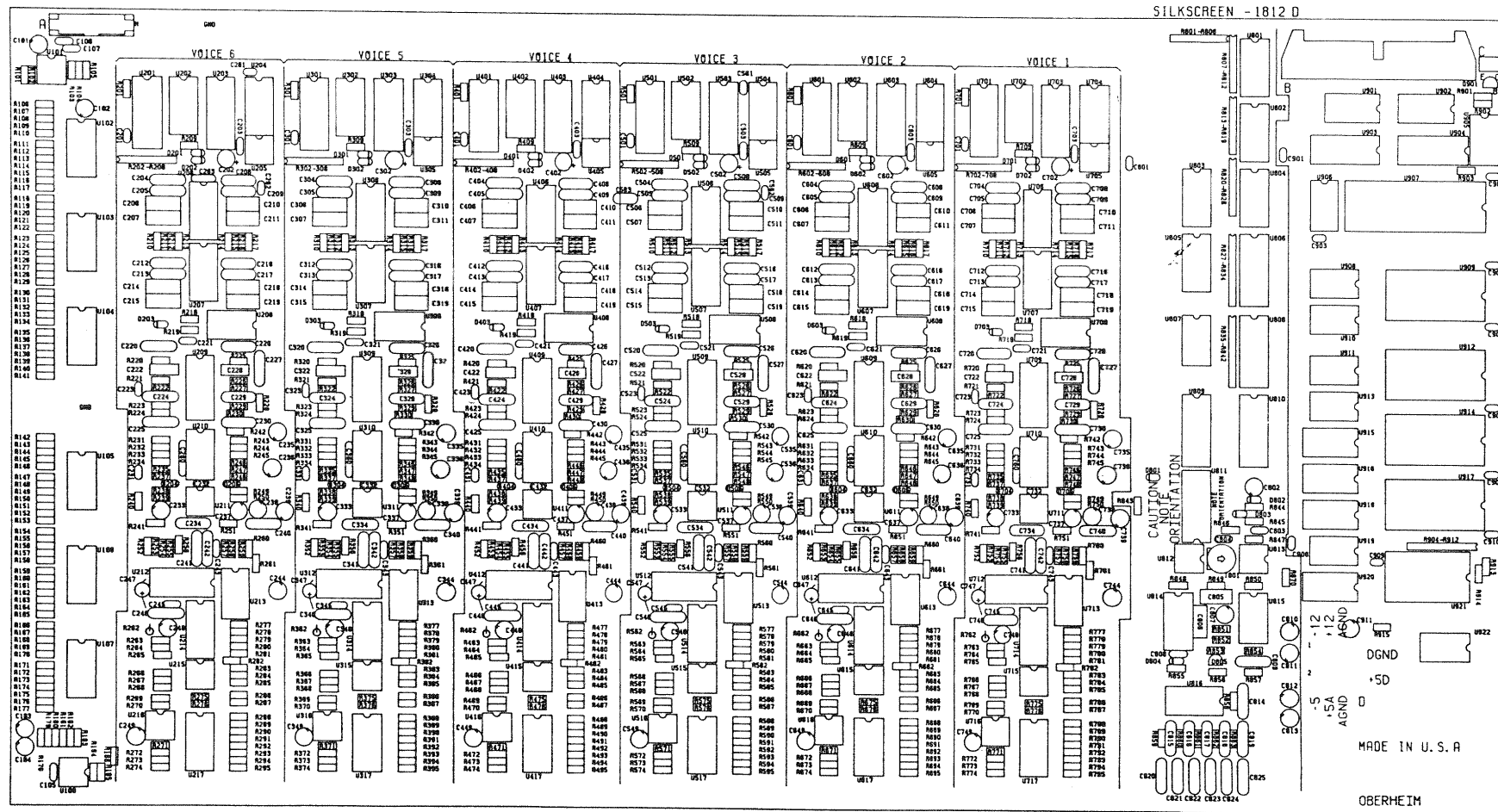


OBERHEIM-DIV OF ECC DEV CORP.

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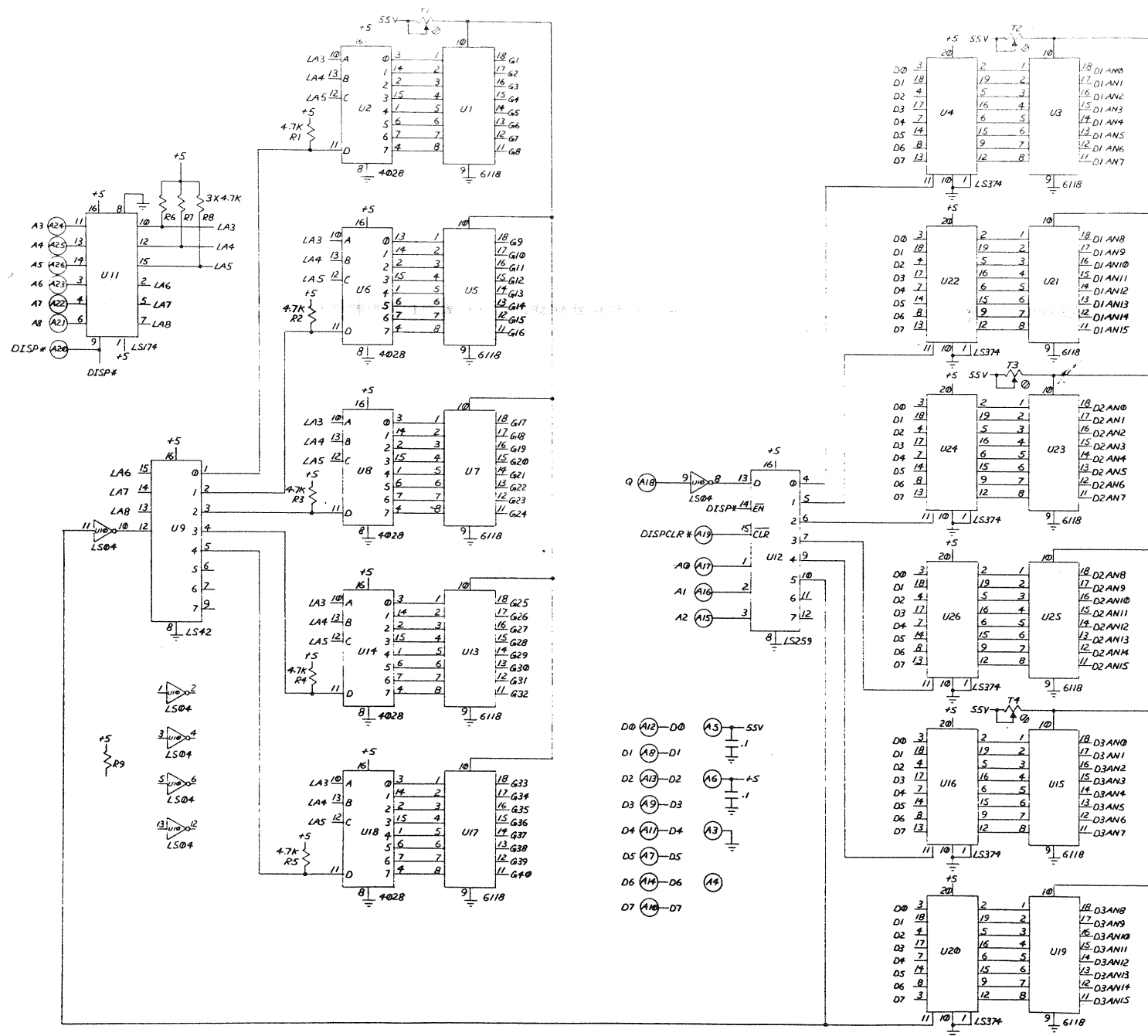
MATRIX-12 AND XPANDER DISPLAY BOARD

J. R. 1841



OBERHEIM-DIV. OF ECC DEV. CORP.

-PARTS LAYOUT-
MATRIX-12 VOICE BOARD



OBERHEIM-DIV. OF ECC DEV. CORP.

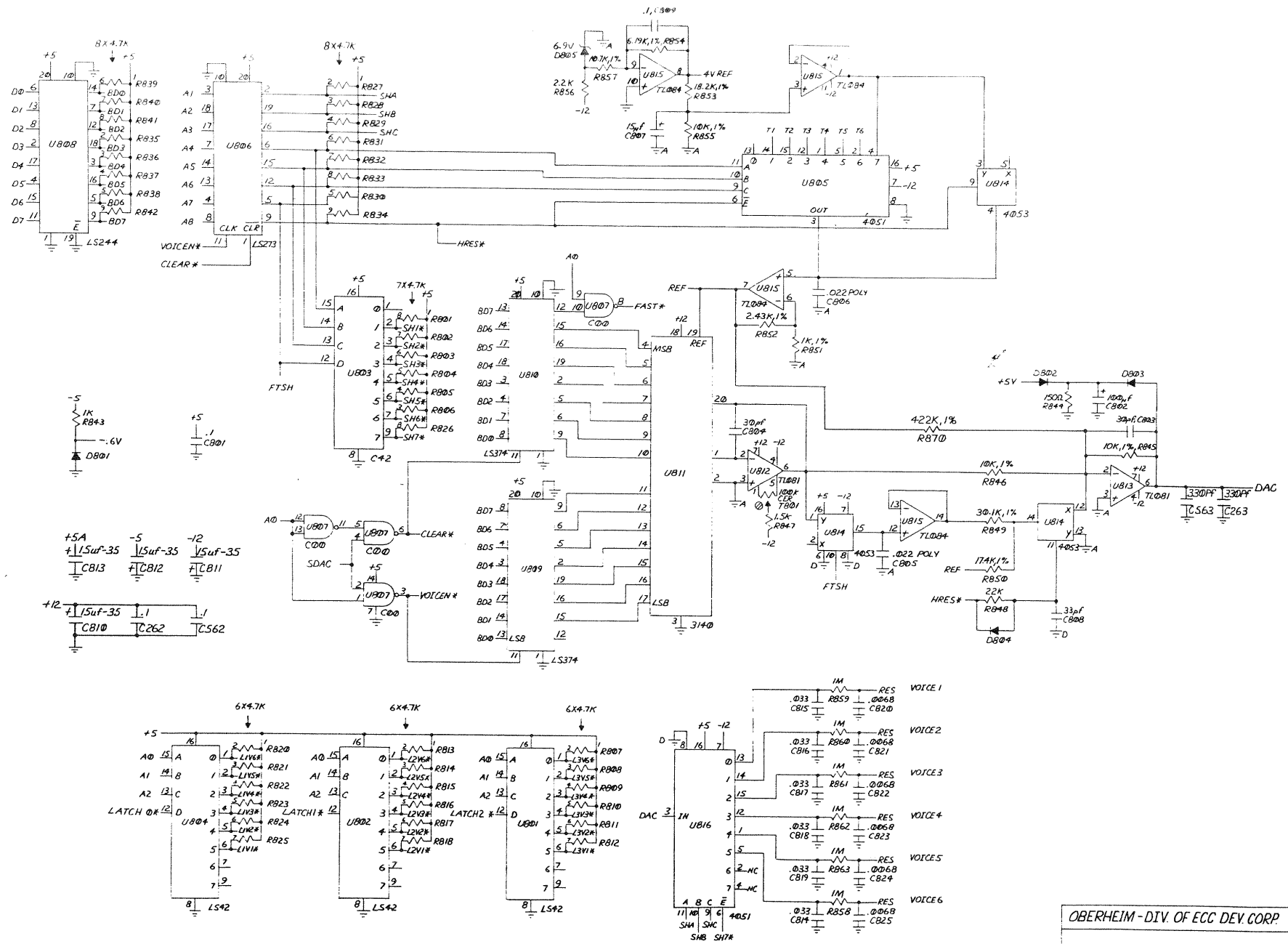
- SCHEMATIC -
MATRIX-12 AND KPANDER DISPLAY BOARD

SHEET
1 OF 2

J.R.

184-1





OBERHEIM - DIV. OF ECC DEV. CORP.

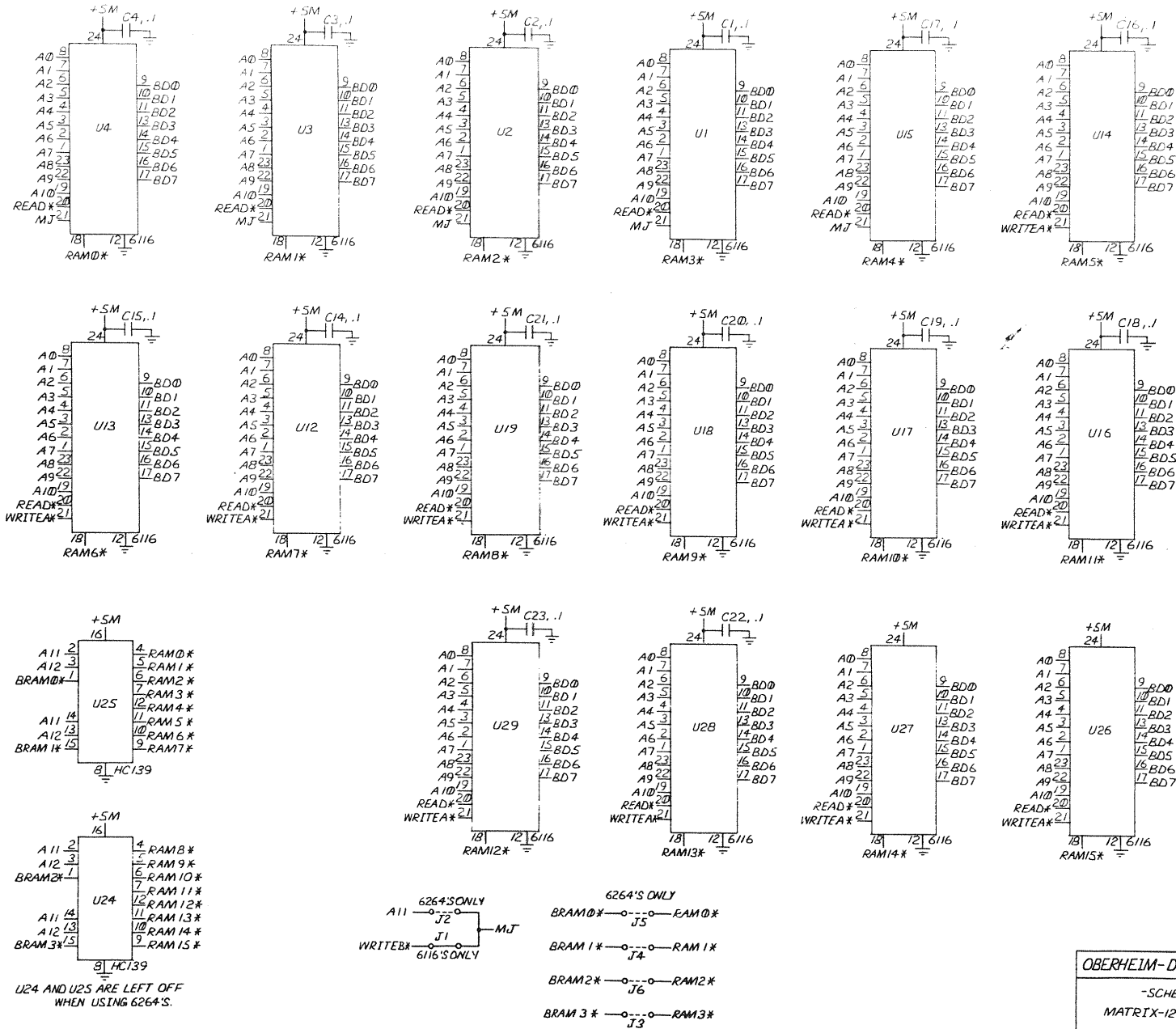
-SCHEMATIC-

X-PANDER AND MATRIX-12 VOICE BOARD

SHEET
2 OF 4

J.R

1808A



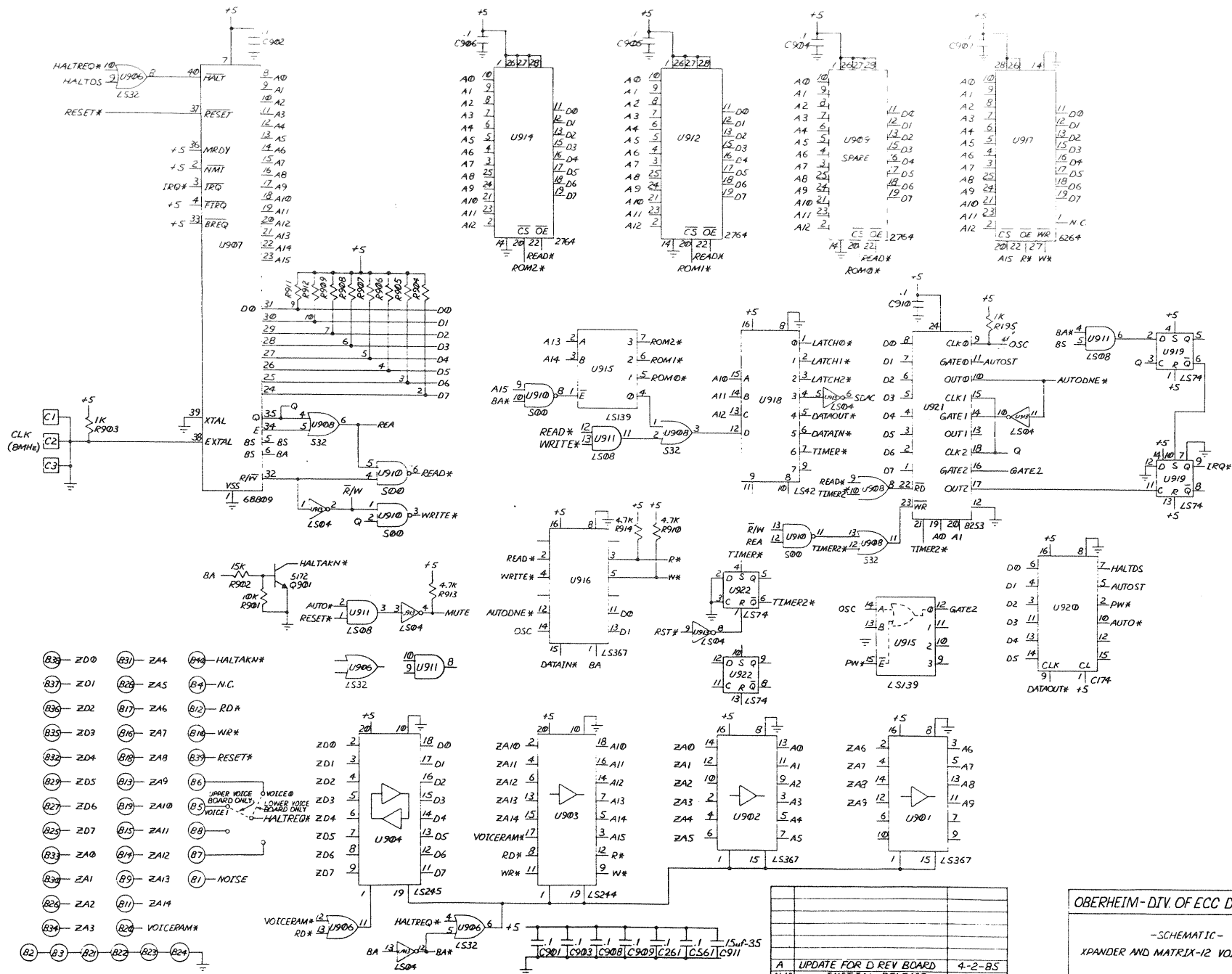
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-SCHEMATIC-
MATRIX-12 PROCESSOR BOARD

SHEET
3 OF 4

J.R.

1991A



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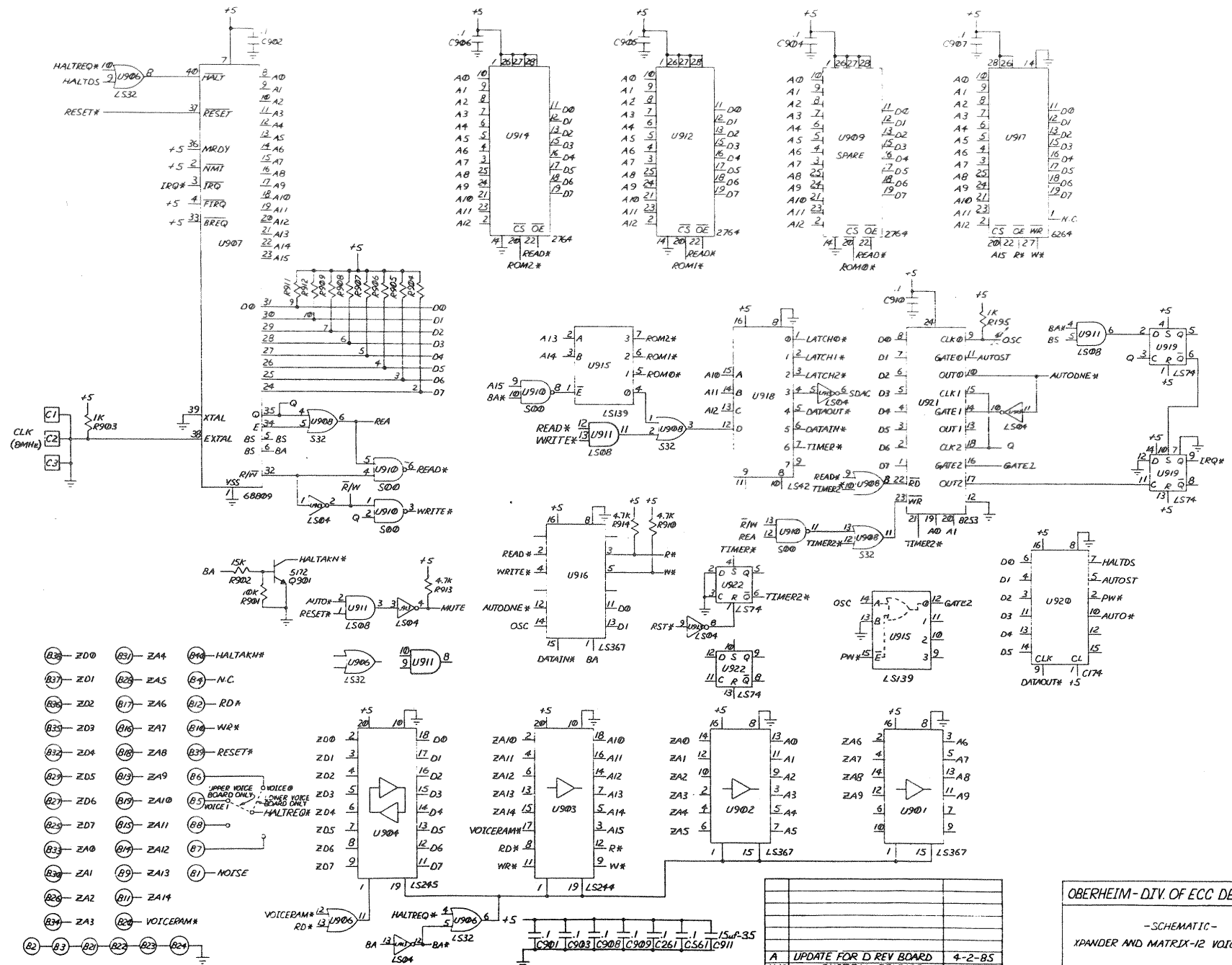
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XPANDER AND MATRIX-12 VOICE BOARD

A	UPDATE FOR D REV BOARD	4-2-B5
N/C	INITIAL RELEASE	12-1-B3
LTR	REVISION	DATE
		SHEET 1 OF 4

J.T.R.

1808A



OBERHEIM-DIV. OF ECC DEV. CORP.

-SCHEMATIC-

XPANDER AND MATRIX-12 VOICE BOARD

A	UPDATE FOR D REV BOARD	4-2-85
N/C	INITIAL RELEASE	12-1-83
LTR	REVISION	DATE

SHEET 1 OF 4

J.R.

180BA