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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	PROD. REL. PER E.O. 03351	11.27.85	<i>g/r</i>

ATTACHED E.O.

E.O. NO.	INIT'L	DATE
03752	<i>Bu</i>	MAY 28 1986
03805	<i>Bh</i>	JUL 14 1986
04283	<i>mc</i>	8-18-87

REF. ONLY

DEC 08 1987

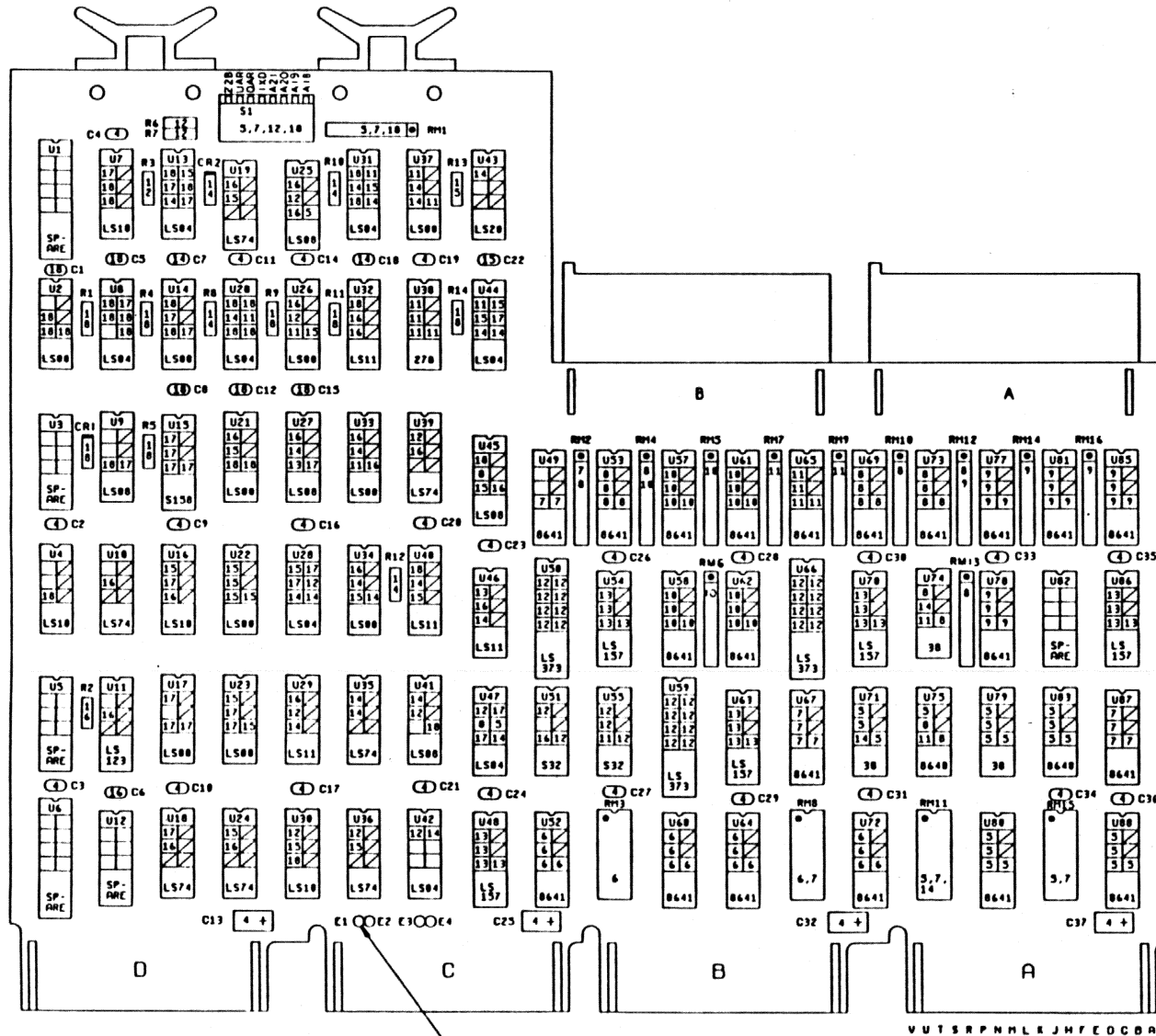
3. CAPACITOR VALUES ARE IN MICROFARADS.
2. RESISTOR VALUES ARE IN OHMS, 1/4W, ±5%; RESISTOR MODULES ARE, 1/8W, ±2%.
- △ OPTIONAL COMPONENT.

NOTES: UNLESS OTHERWISE SPECIFIED.

TOLERANCES UNLESS OTHERWISE SPECIFIED. ALL DIMS ARE IN INCHES.		ABLE COMPUTER	
<small>XXX ± XX ± ANGLES ±</small>		SCHEMATIC-PWB INVERTER II	
APPROVALS	DATE	SCALE	SIZE DRAWING NO.
<i>RPW</i>	3-21-85		B 10412003
CHECKED	DATE		
<i>g/r</i>	9/10/85		
	11/22/85		
DO NOT SCALE DRAWING			SHEET 1 OF 18

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Revisions			
REV	DESCRIPTION	DATE	APPROVED
A	SEE SMT 1	7/7/71	



TYPE	LAST USED	NOT USED
I. C.	U80	U1, 3, 5, 6, 12, 56.
		68, 76, 82, 84
CAPACITOR	C37	
RESISTOR	R14	
RES. MOD.	RM16	
SWITCH	S1	
E - POINT	E4	

NOTES: UNLESS OTHERWISE SPECIFIED

E1-E4 (SHEET 14)

V U T S R P M L K J H F E D C B A

RA1 - COMPONENT SIDE

RA2 - SOLDER SIDE

SCHEMATIC - PWE.	
QUINVERTER II	
REV	DATE
2/1	D 10412003
<small>DO NOT SCALE DIMENSIONS</small>	
<small>1 OF 2</small>	

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SHT	I	A	2	SHT
5	BRQ5-L	A	+5V	4
5	BRQ6-L	B		
7	BDAL16-L	C	GND	4
7	BDAL17-L	D		
		E	BDOUT-L	5
		F	BRPLY-L	7
		H	BDIN-L	5
4	GND	J	BSYNC-L	5
		K	BWTBT-L	5
		L	BIRQ4-L	5
4	GND	M	BIAKI-L	5
5	BDMR-L	N	BIAKO-L	14
7	BHALT-L	P	BBS7-L	7
7	BREF-L	R	BDMGI-L	5
		S	BDMGO-L	5
4	GND	T	BINIT-L	5
		U	BDALOO-L	6
		V	BDALOI-L	6

SHT	I	B	2	SHT
7	BDCOK-H	A	+5V	4
7	BPOCK-H	B		
7	BDAL18-L	C	GND	4
7	BDAL19-L	D		
7	BDAL20-L	E	BDAL02-L	6
7	BDAL21-L	F	BDAL03-L	6
		H	BDAL04-L	6
4	GND	J	BDAL05-L	6
		K	BDAL06-L	6
		L	BDAL07-L	6
4	GND	M	BDAL08-L	6
5	BSACK-L	N	BDAL09-L	6
5	BIRQ7-L	P	BDAL10-L	6
7	BEVNT-L	R	BDAL11-L	6
		S	BDAL12-L	6
4	GND	T	BDAL13-L	6
		U	BDAL14-L	6
4	+5V	V	BDAL15-L	6

SHT	I	C	2	SHT
		A	+5V	4
		B		
		C	GND	4
		D		
		E		
		F		
		H		
4	GND	J		
		K		
		L		
4	GND	M	BIAKI-L	14
		N	BIAKO-L	14
		P		
		R	BDMGI-L	14
		S	BDMGO-L	14
4	GND	T		
		U		
		V		

SHT	I	D	2	SHT
		A	+5V	4
		B		
		C	GND	4
		D		
		E		
		F		
		H		
4	GND	J		
		K		
		L		
4	GND	M		
		N		
		P		
		R		
		S		
4	GND	T		
		U		
4	+5V	V		

Q - BUS CONNECTORS

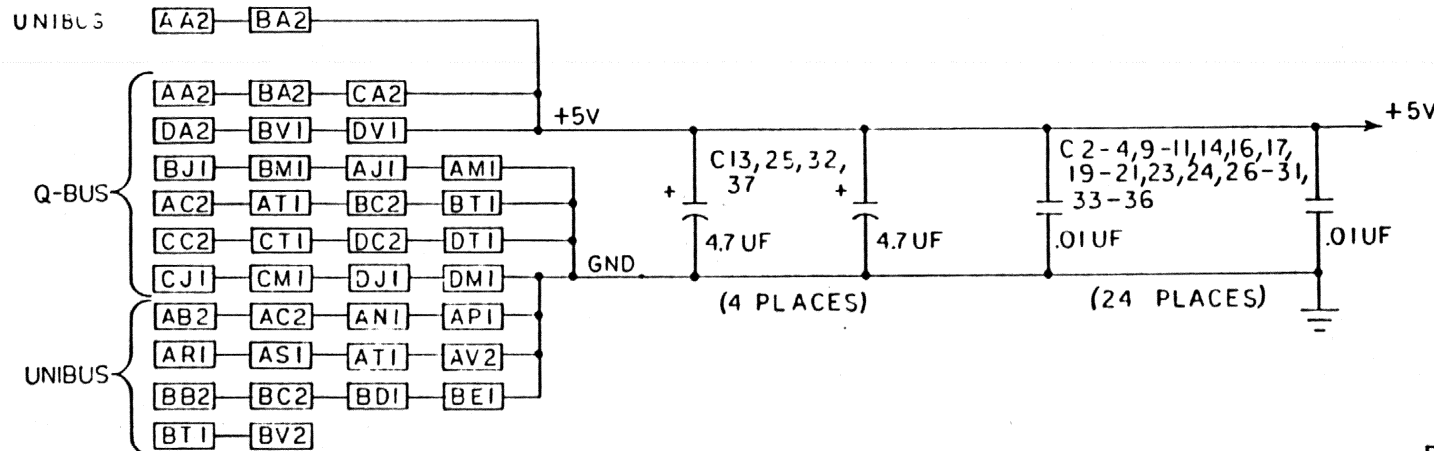
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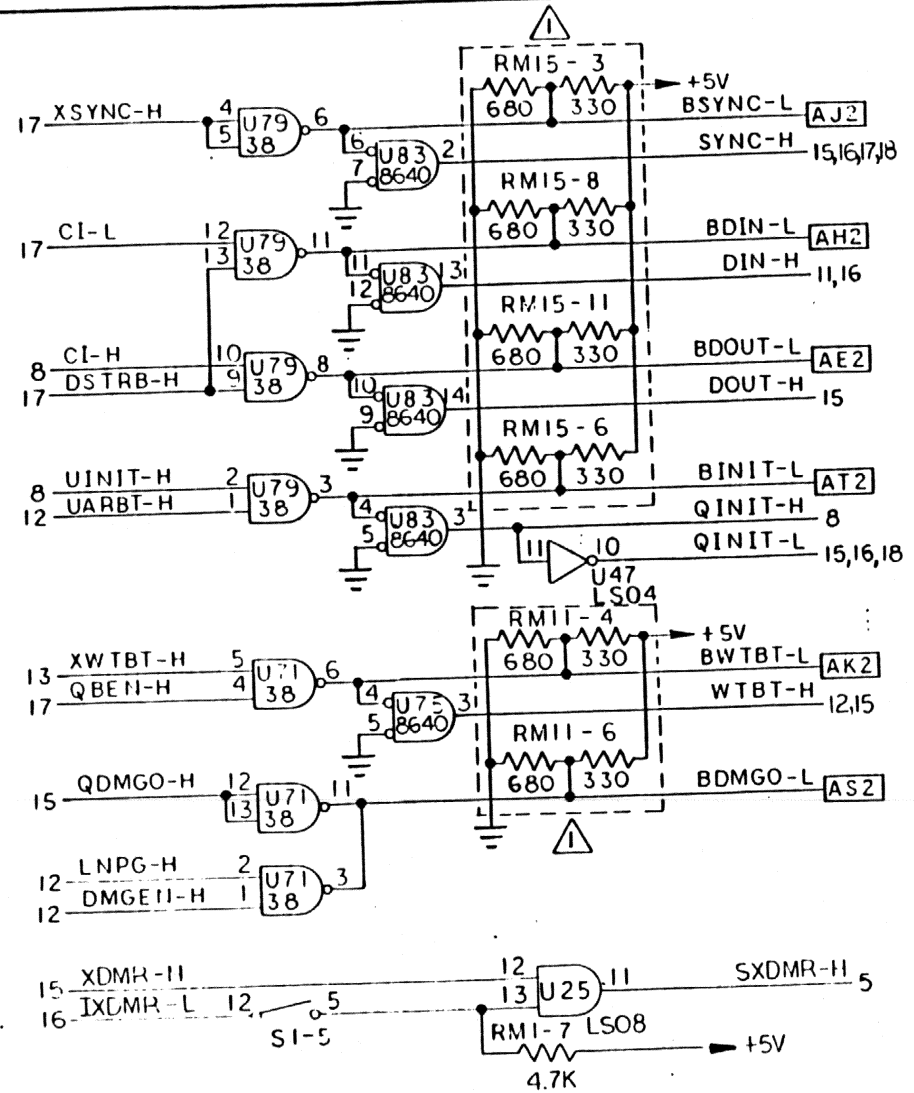
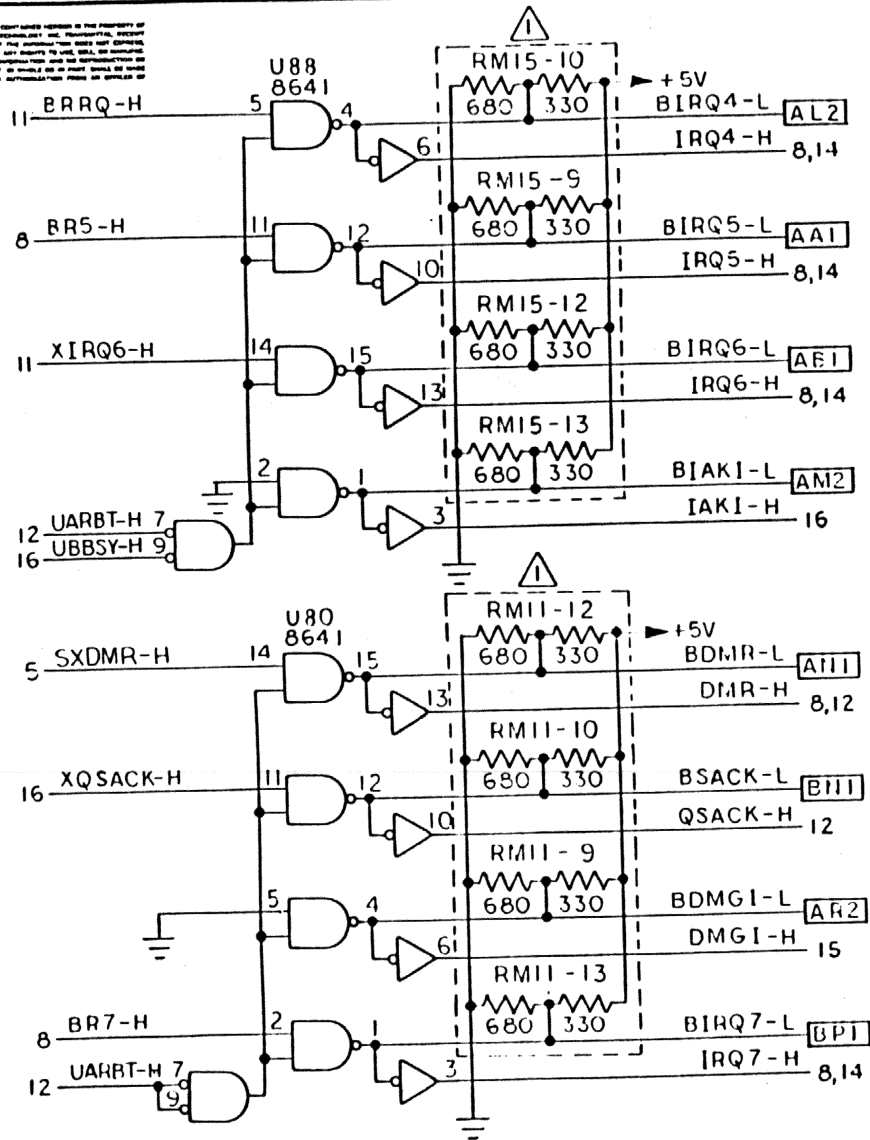
SHT	I	A	2	SHT
8	BUS-INIT-L	A	+5V	4
8	↑ INTR-L	B	GND	4
9	D00-L	C	GND	4
9	D02-L	D	BUS-D01-L	9
9	D04-L	E	↑ D03-L	9
9	D06-L	F	D05-L	9
9	D08-L	H	D07-L	9
9	D10-L	J	D09-L	9
9	D12-L	K	D11-L	9
9	BUS-D14-L	L	D13-L	9
		M	D15-L	9
4	GND	N	PB-L	8
4	GND	P	BBSY-L	8
4	GND	R	SACK-L	8
4	GND	S	NPR-L	8
4	GND	T	↓ BR7-L	8
11	BUS-NPG-H	U	BUS-BRG-L	8
11	BUS-BG7-H	V	GND	4

SHT	I	B	2	SHT
11	BUS-BG6-H	A	+5V	4
11	BUS-BG5-H	B	GND	4
8	BUS-BR5-L	C	GND	4
4	GND	D	BUS-BR4-L	8
4	GND	E	↑ BG4-H	11
7	BUS-ACLO-L	F	DCLO-L	7
10	↑ AC1-L	H	A00-L	10
10	A03-L	J	A02-L	10
10	A05-L	K	A04-L	10
10	A07-L	L	A06-L	10
10	A09-L	M	A08-L	10
10	A11-L	N	A10-L	10
10	A13-L	P	A12-L	10
10	↓ A15-L	R	A14-L	10
7	BUS-A17-L	S	A16-L	7
4	GND	T	↓ CI-L	8
8	BUS-SSYN-L	U	BUS-CO-L	8
8	BUS-MSYN-L	V	GND	4

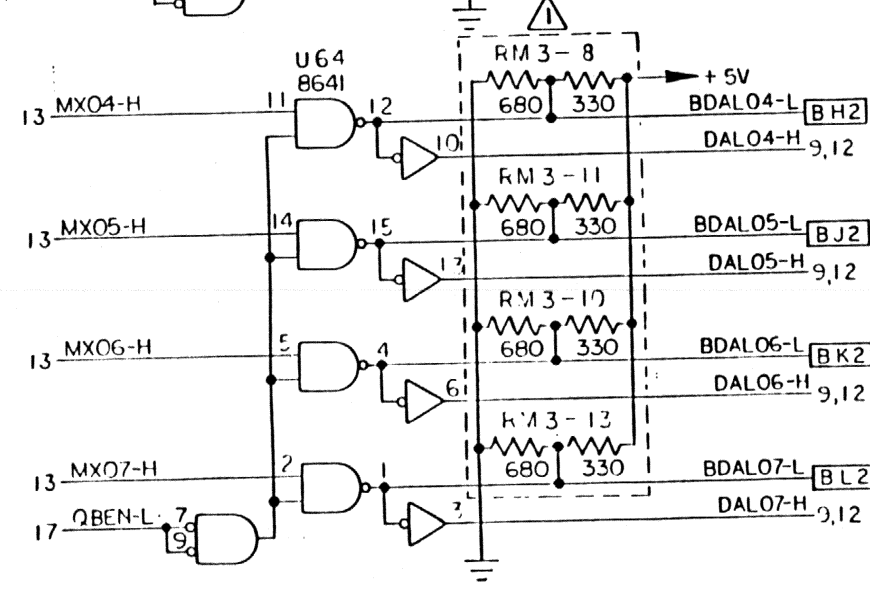
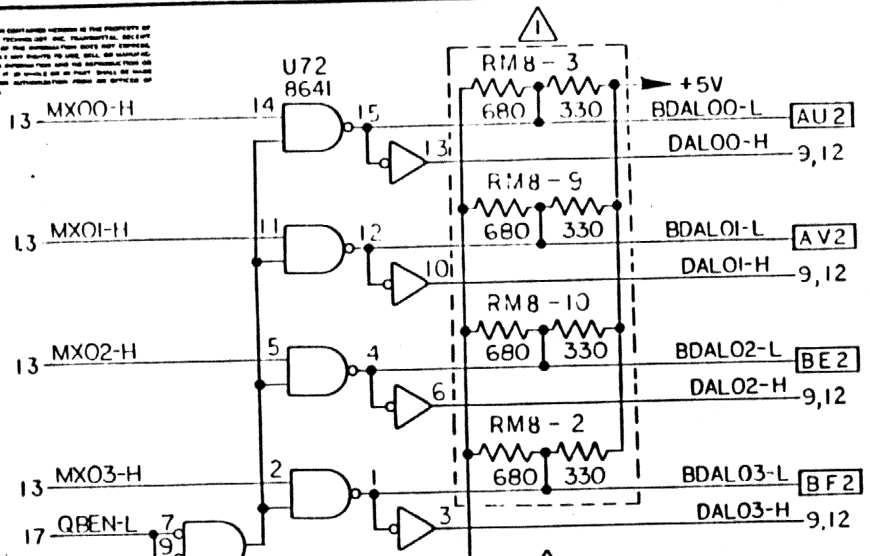
UNIBUS CONNECTORS



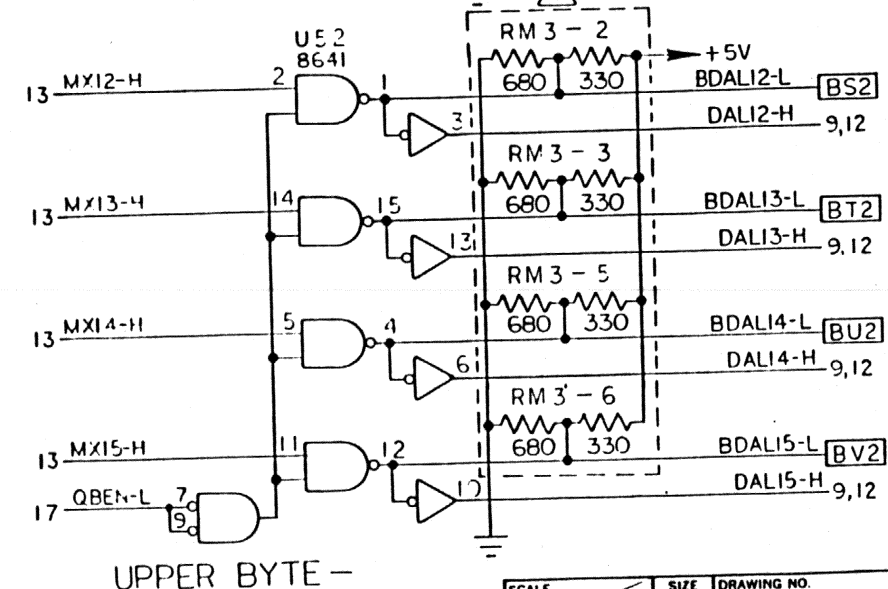
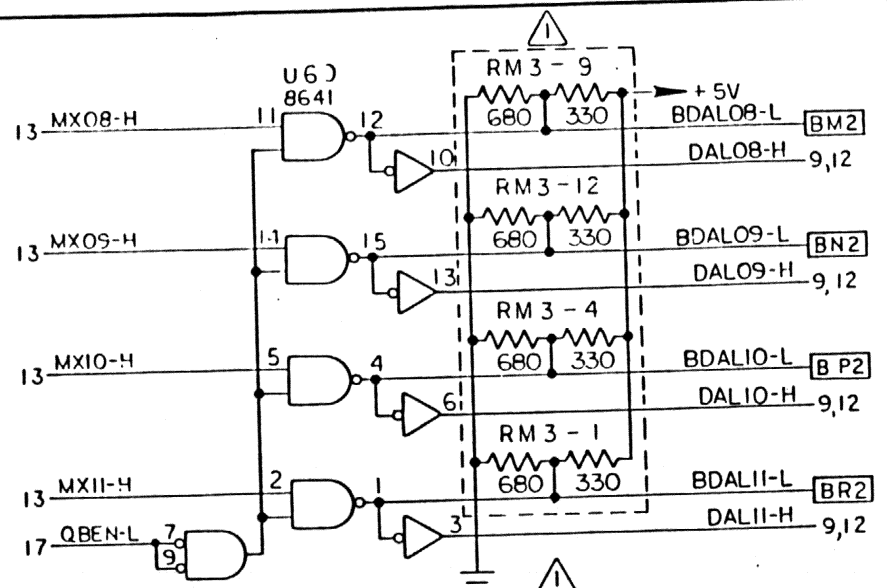
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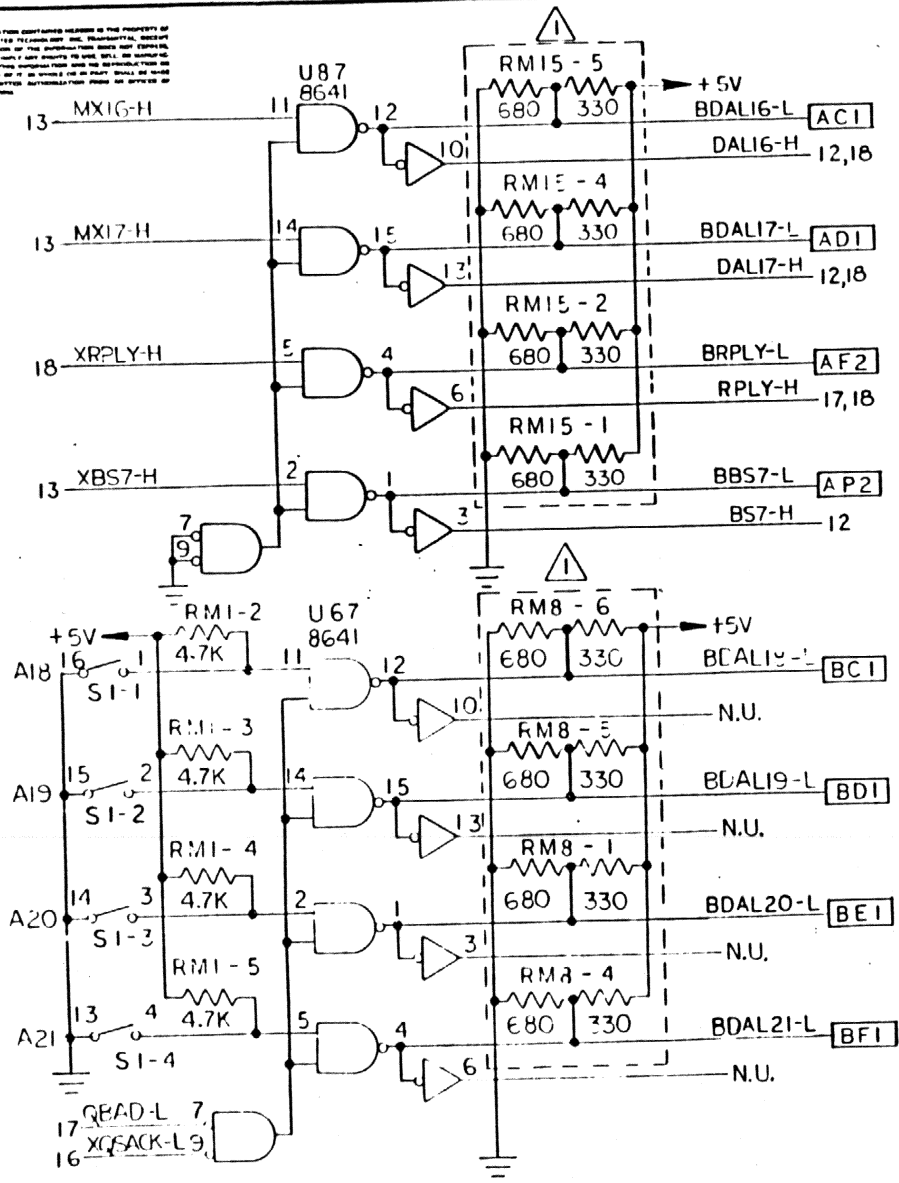
LOW BYTE - Q-BUS TRANSCEIVERS



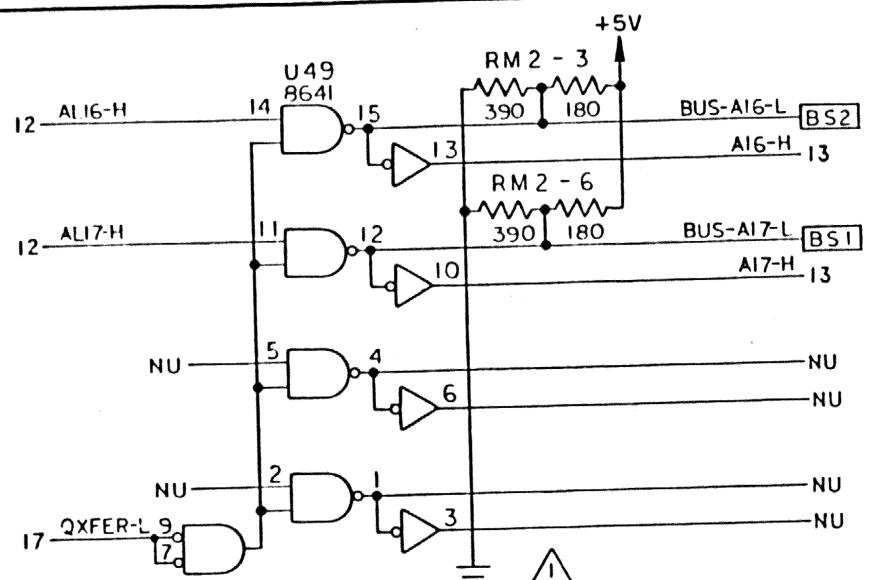
UPPER BYTE -
 Q-BUS TRANSCEIVERS

SCALE	SIZE	DRAWING NO.
	B	10412003
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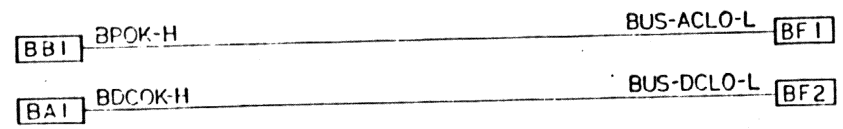
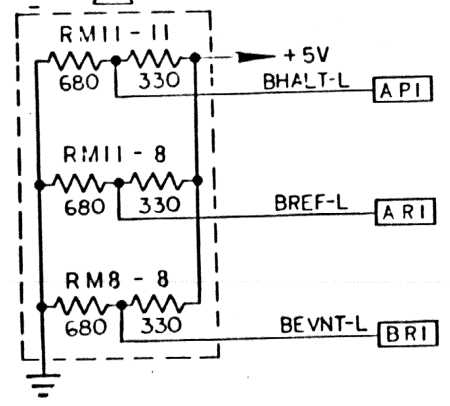
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Q-BUS TRANSCEIVERS

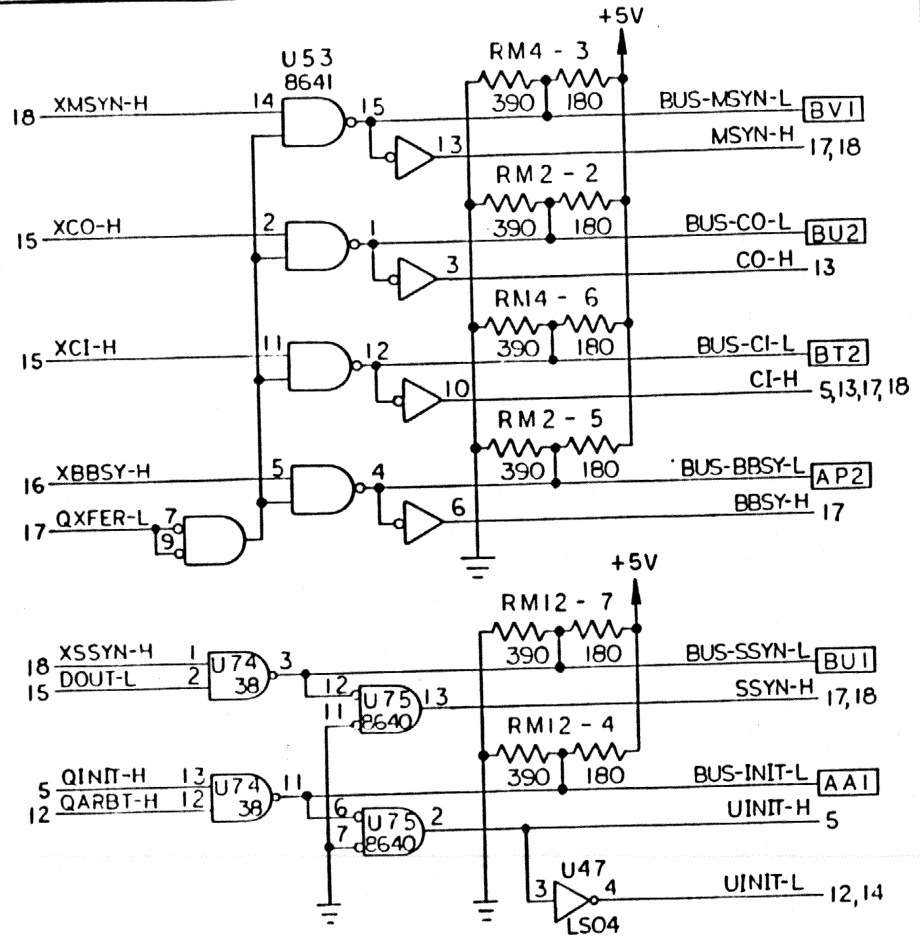
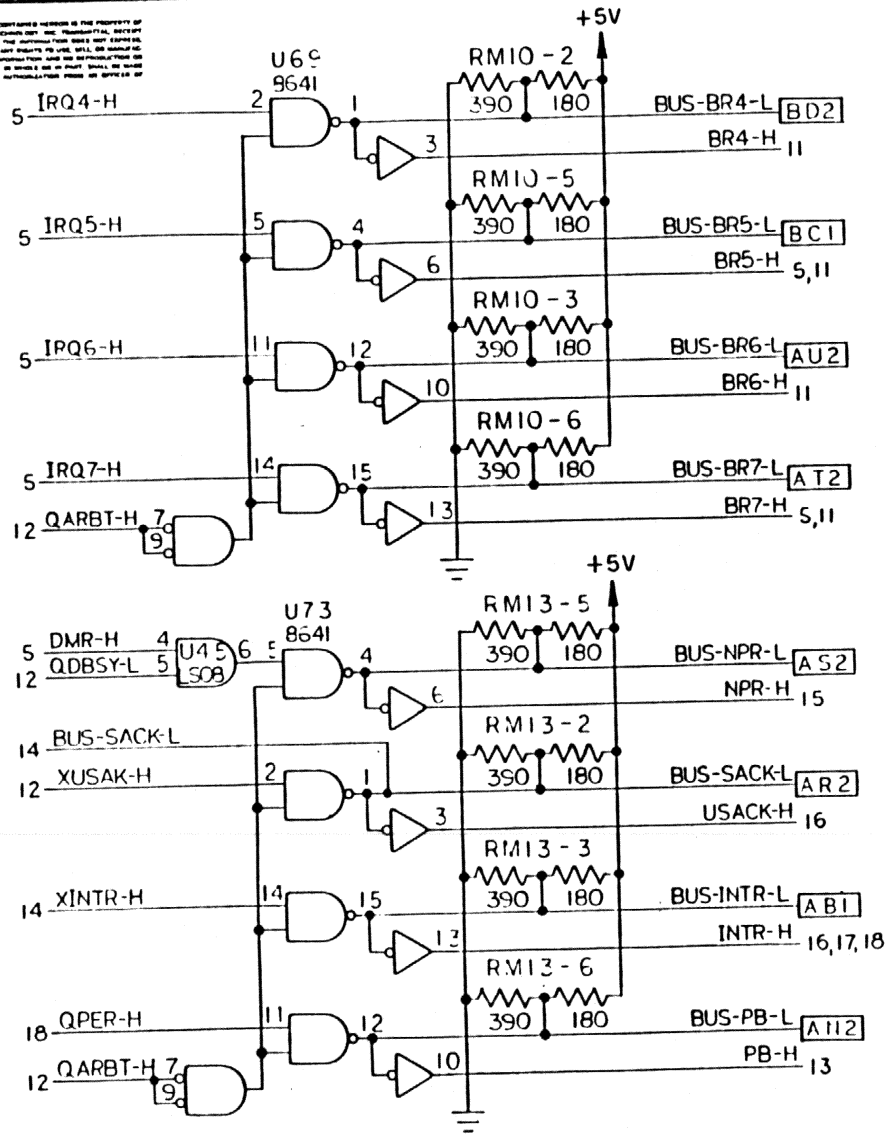


UNIBUS-TRANSCEIVERS



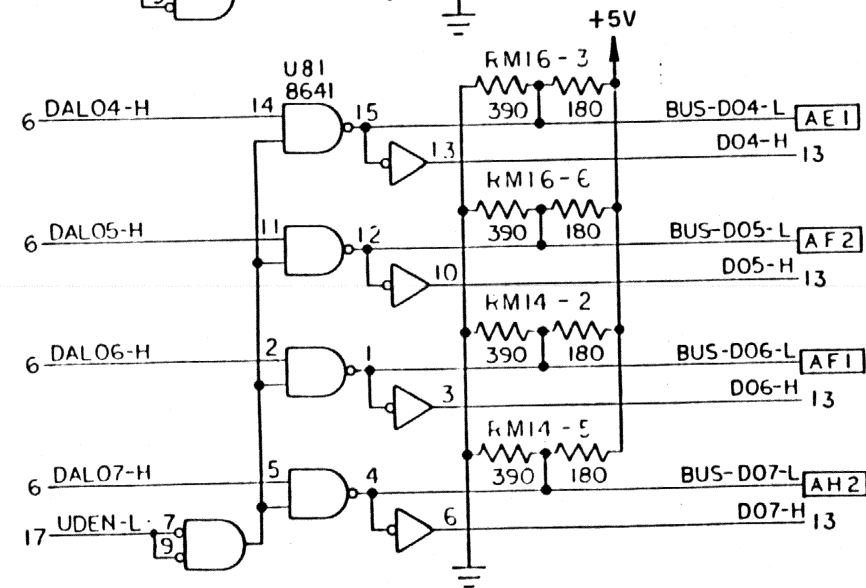
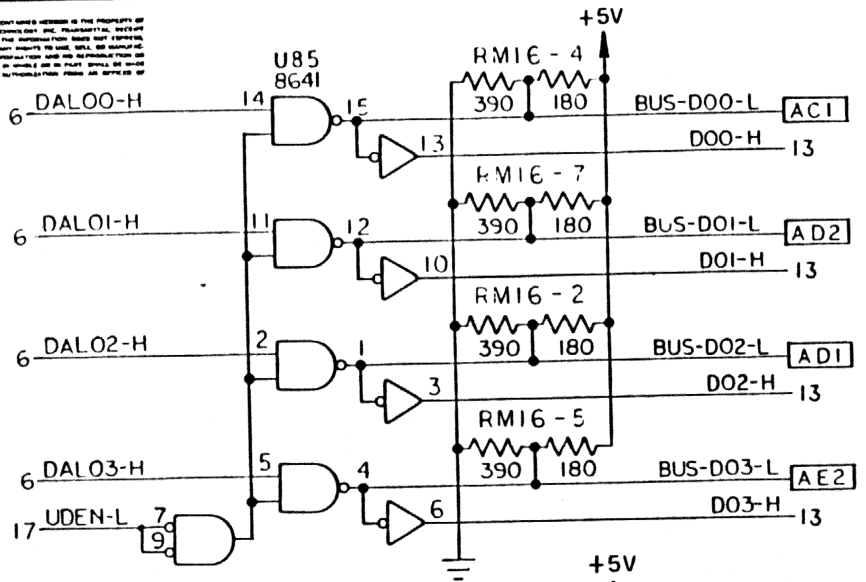
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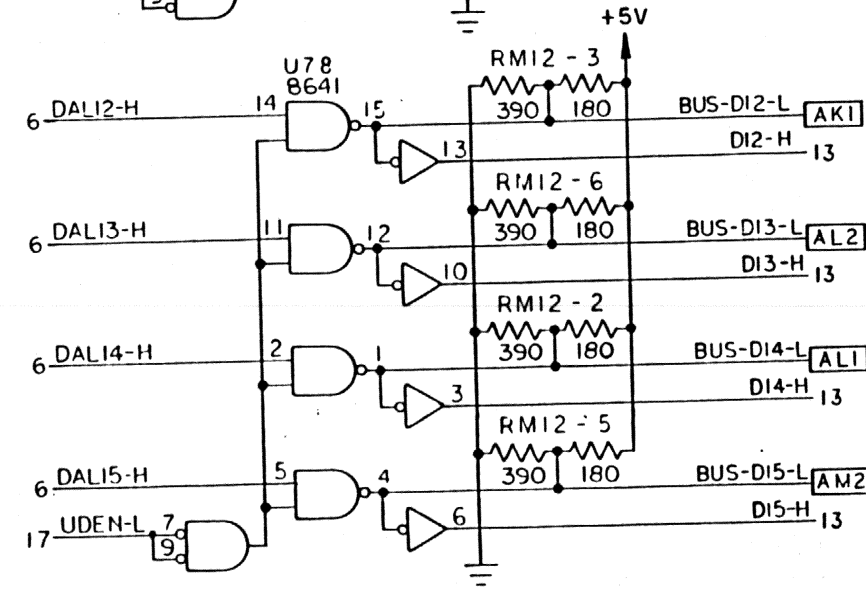
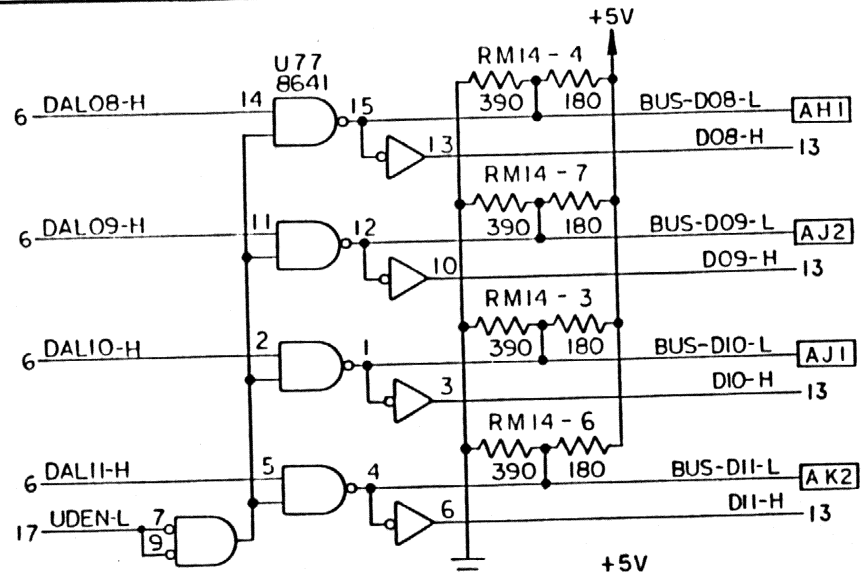


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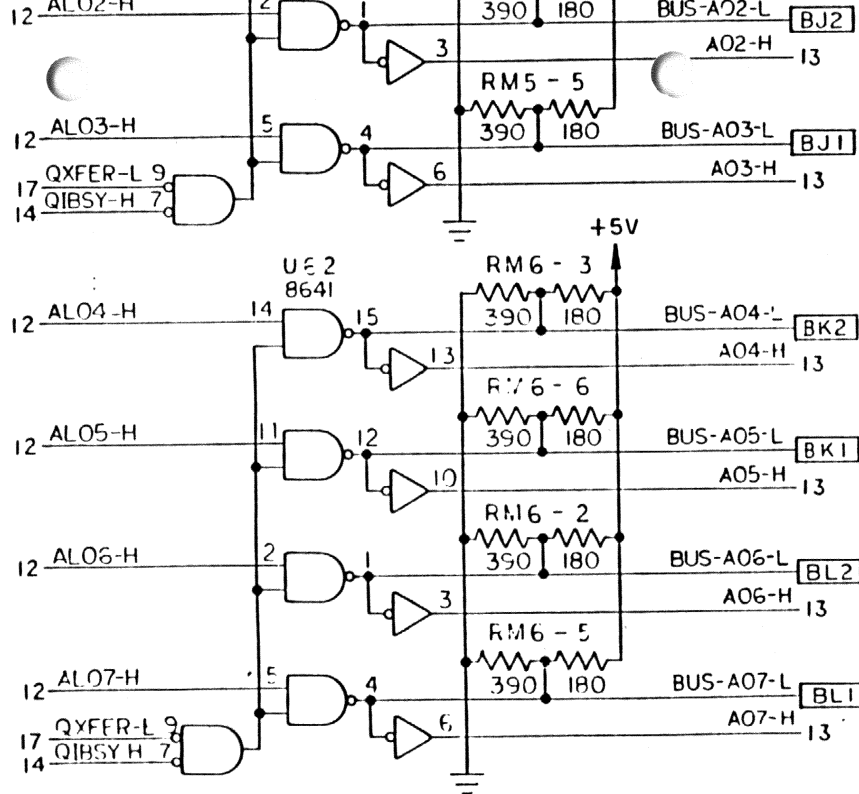


LOW BYTE-UNIBUS DATA TRANSCEIVERS

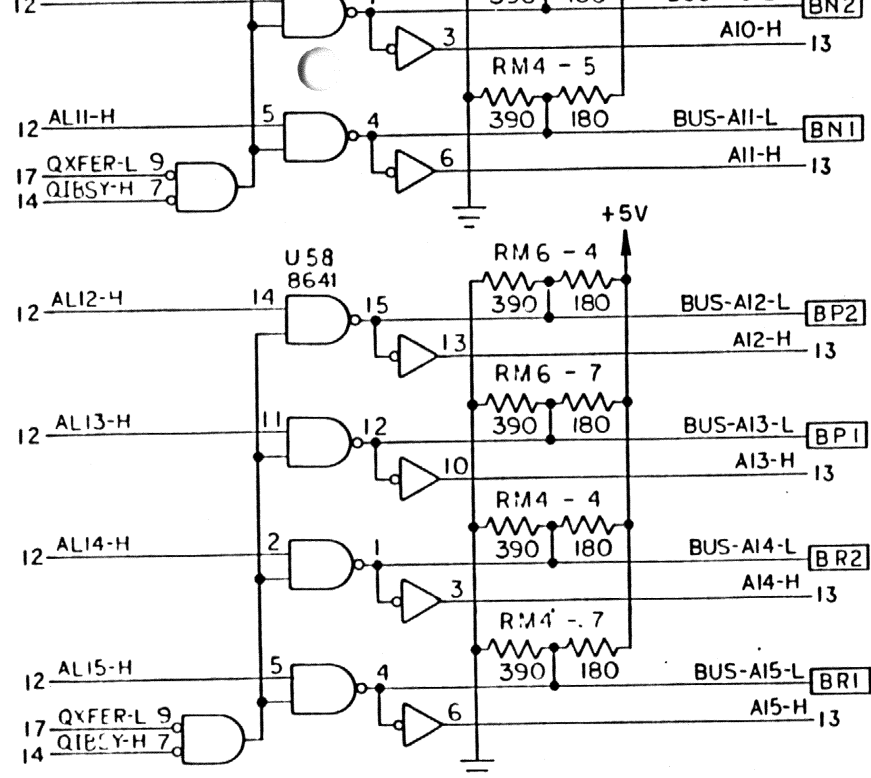


UPPER BYTE
 UNIBUS DATA TRANSCEIVERS

SCALE	SIZE	DRAWING NO.
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DO NOT SCALE DRAWING		SHEET 9 OF 18



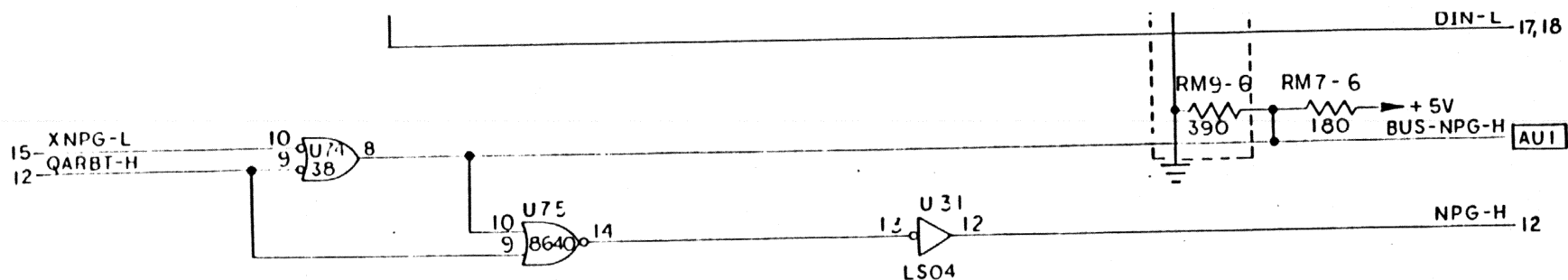
LOW BYTE-UNIBUS ADDRESS TRANSCEIVERS



HIGH BYTE-UNIBUS ADDRESS TRANSCEIVERS

SCALE	SIZE	DRAWING NO.
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BISHOP GRAPHICS/ACCUPRESS
REORDER NO. A-1751

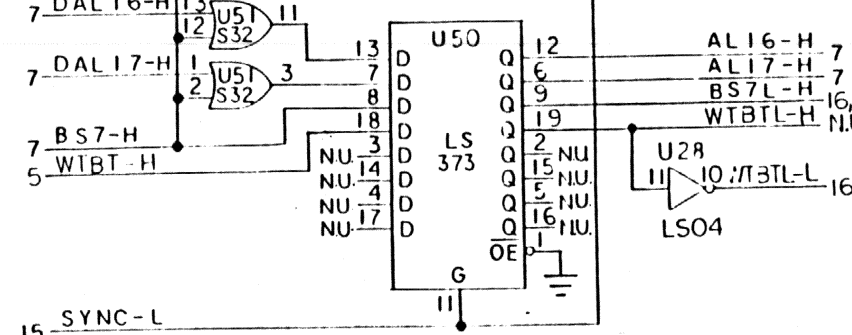
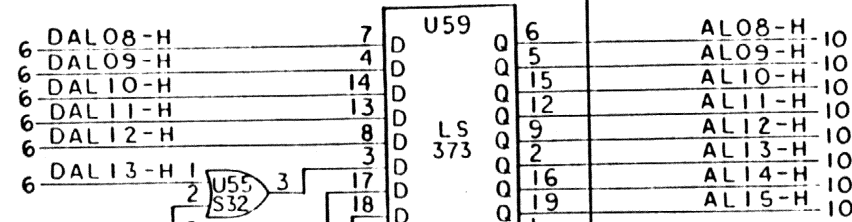
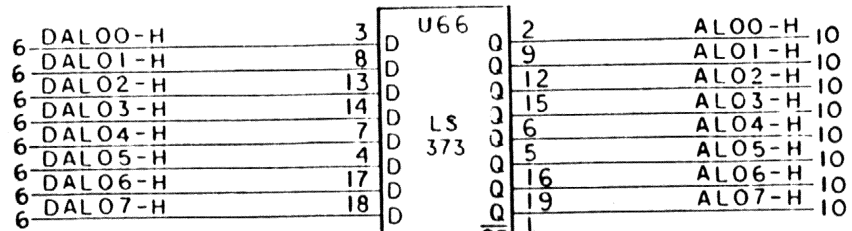


UNIBUS INTERRUPT PRIORITY Q-BUS ARBITRATOR

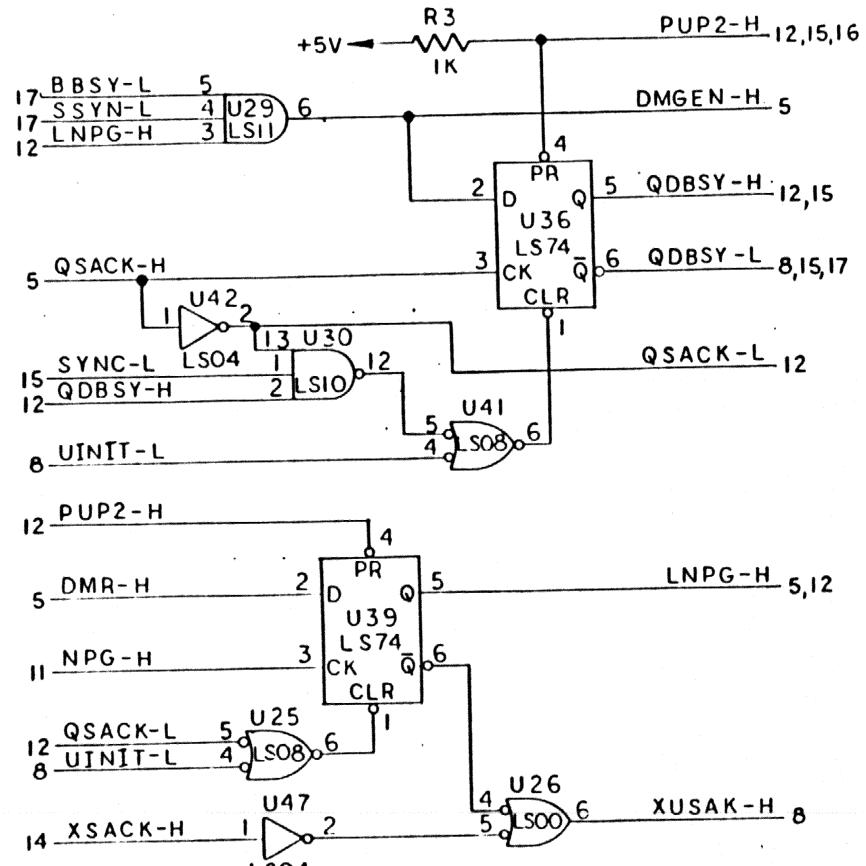
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BISHOP GRAPHICS/ACCUPRESS
REORDER NO. A-1751

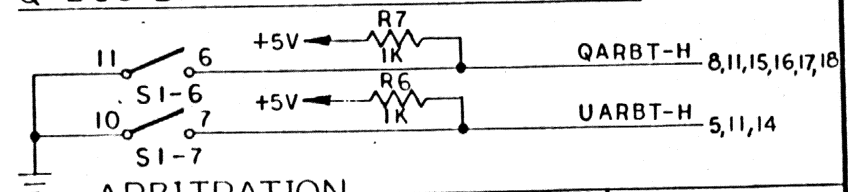
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ADDRESS LATCH



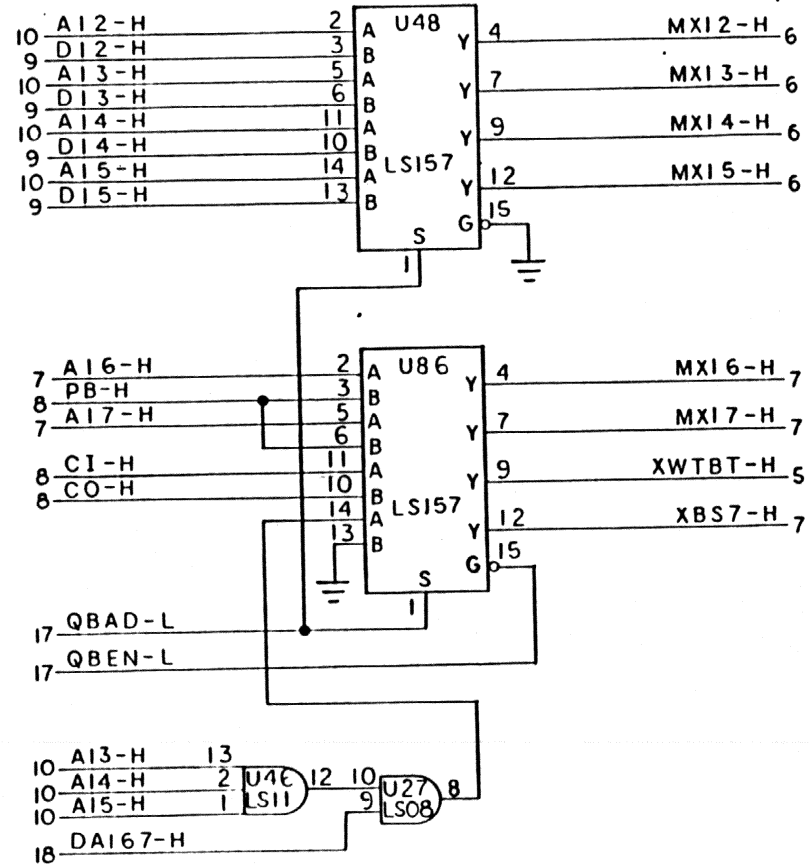
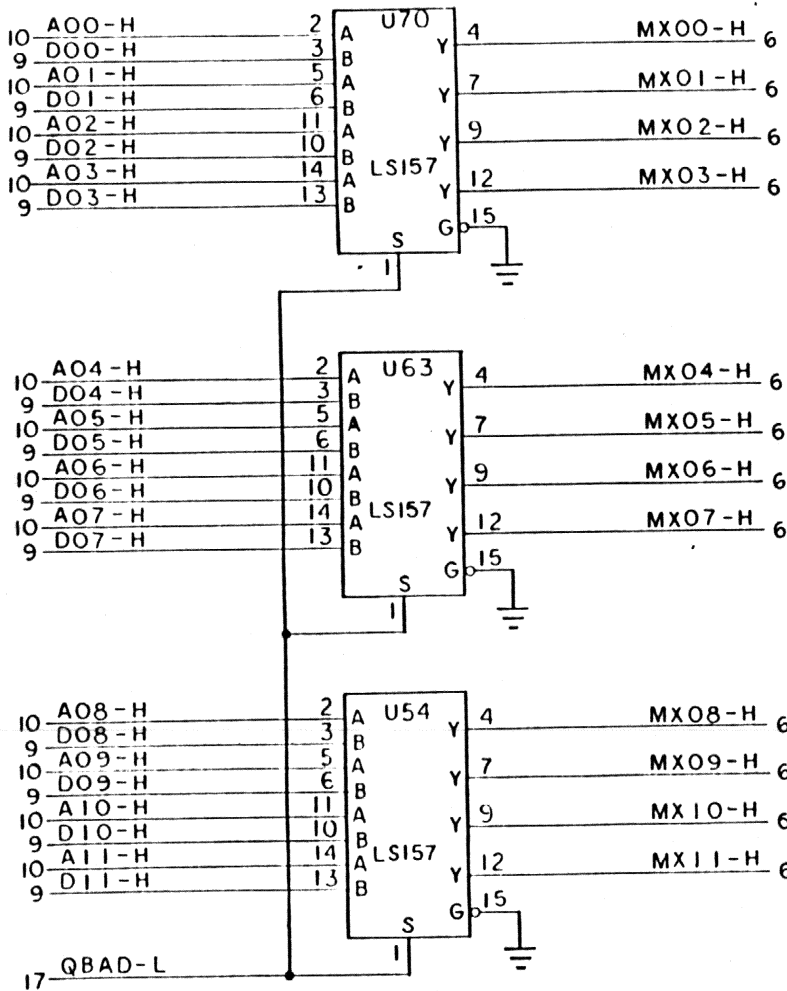
Q-BUS DMA-UNIBUS ARBITRATOR



ARBITRATION SELECTION

SCALE	SIZE	DRAWING NO
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DO NOT SCALE DRAWING		SHEET 12 OF 18

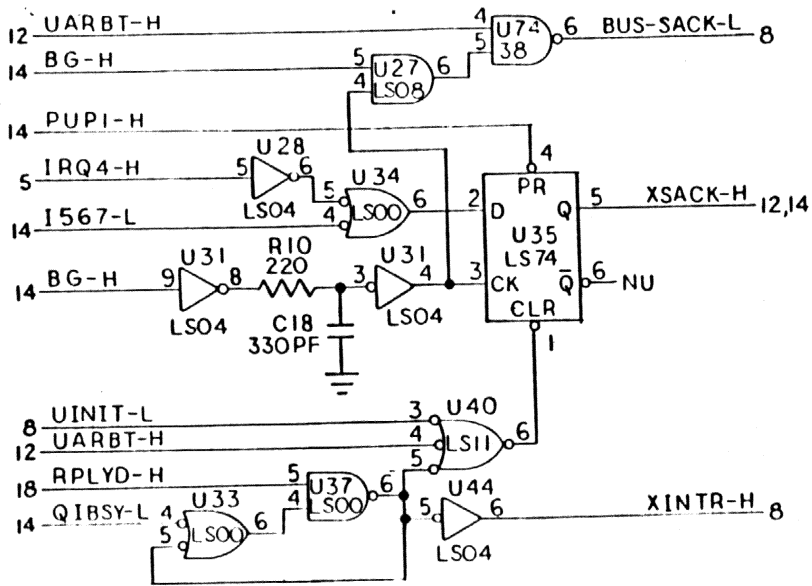
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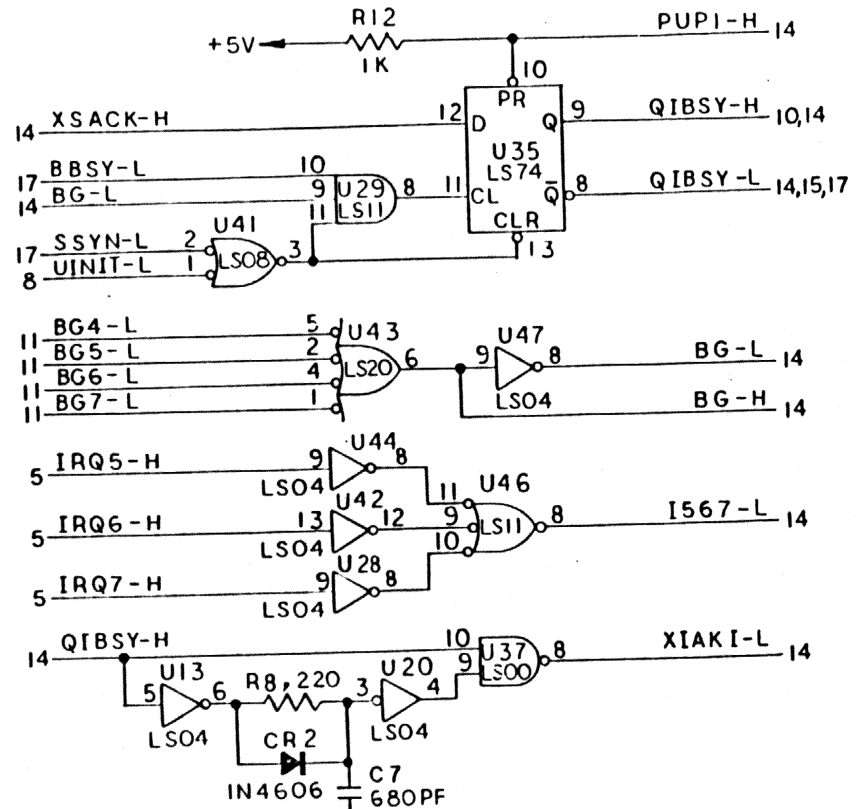
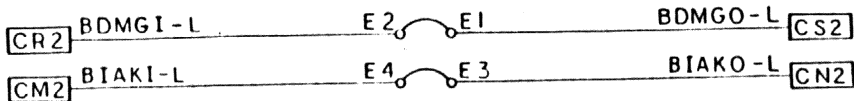
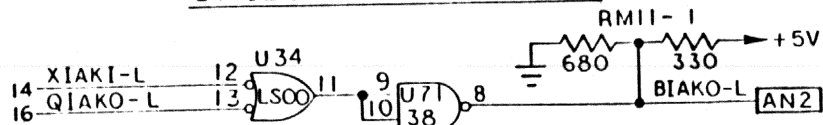
Q-BUS MUX

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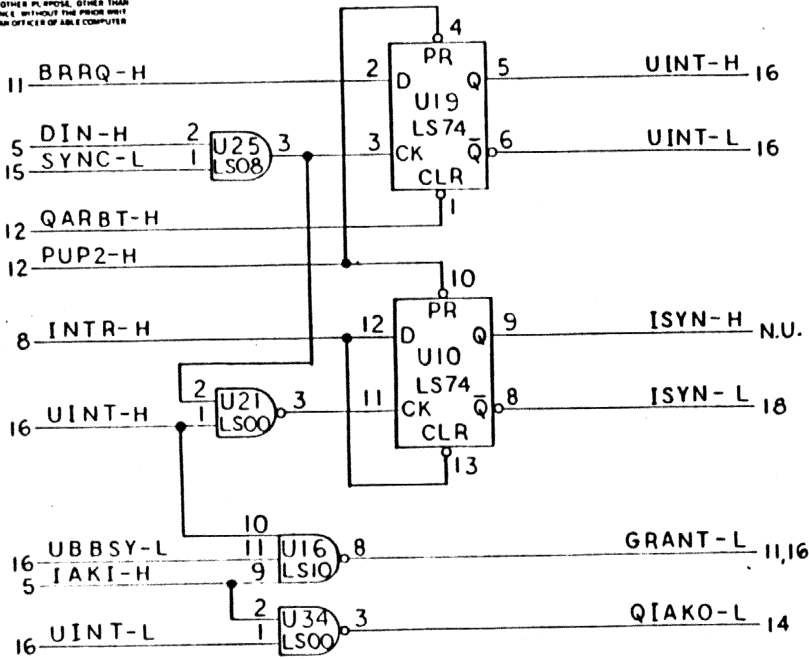
Q-BUS INTERRUPT LOGIC-
UNIBUS ARBITRATION



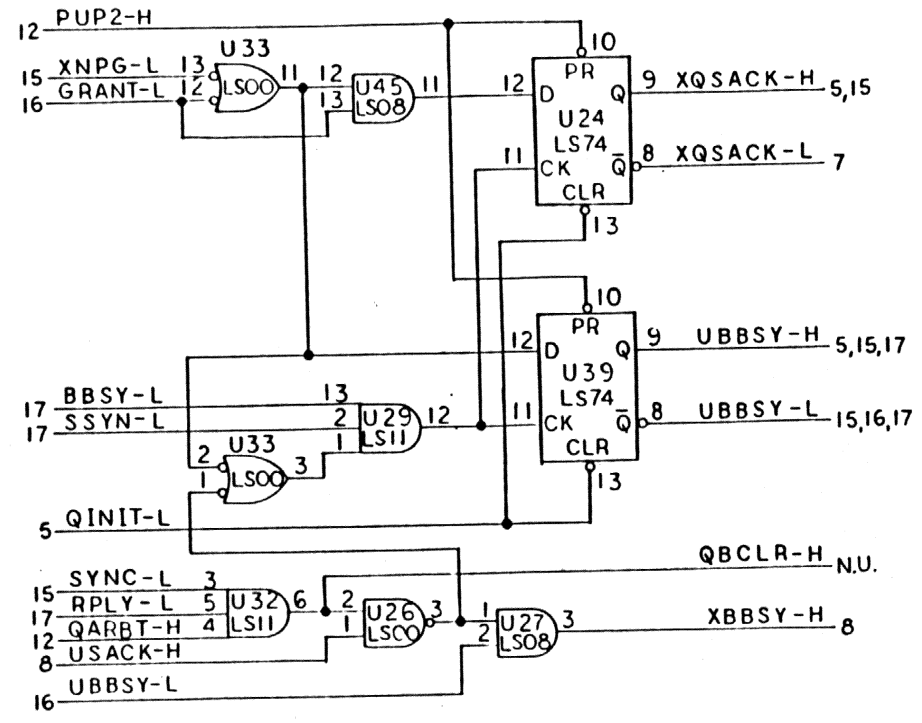
Q-BUS INTERRUPT LOGIC-
UNIBUS ARBITRATION

SCALE	SIZE	DRAWING NO.
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DO NOT SCALE DRAWING		SHEET 14 OF 18

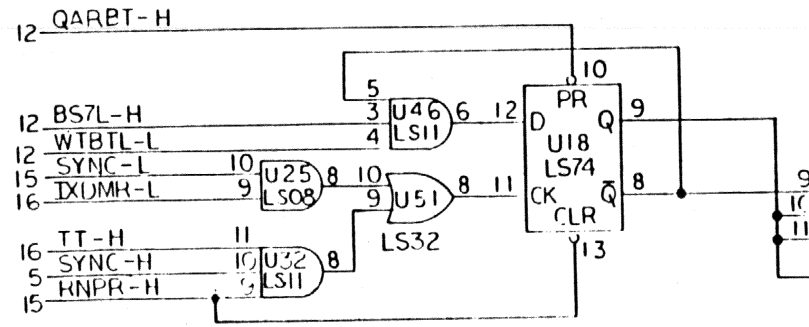
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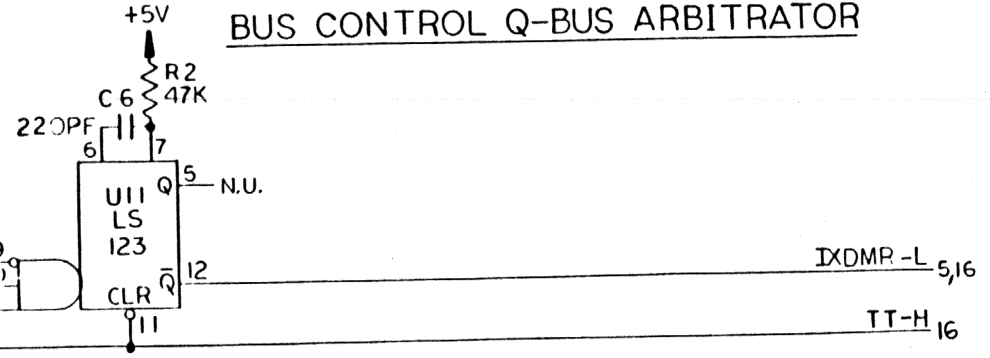
INTERRUPT CONTROL Q-BUS ARBITRATOR



BUS CONTROL Q-BUS ARBITRATOR

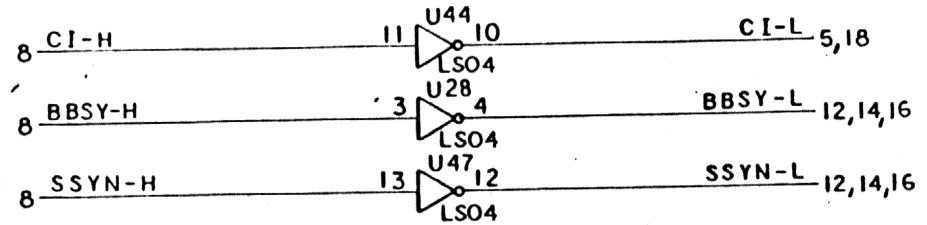
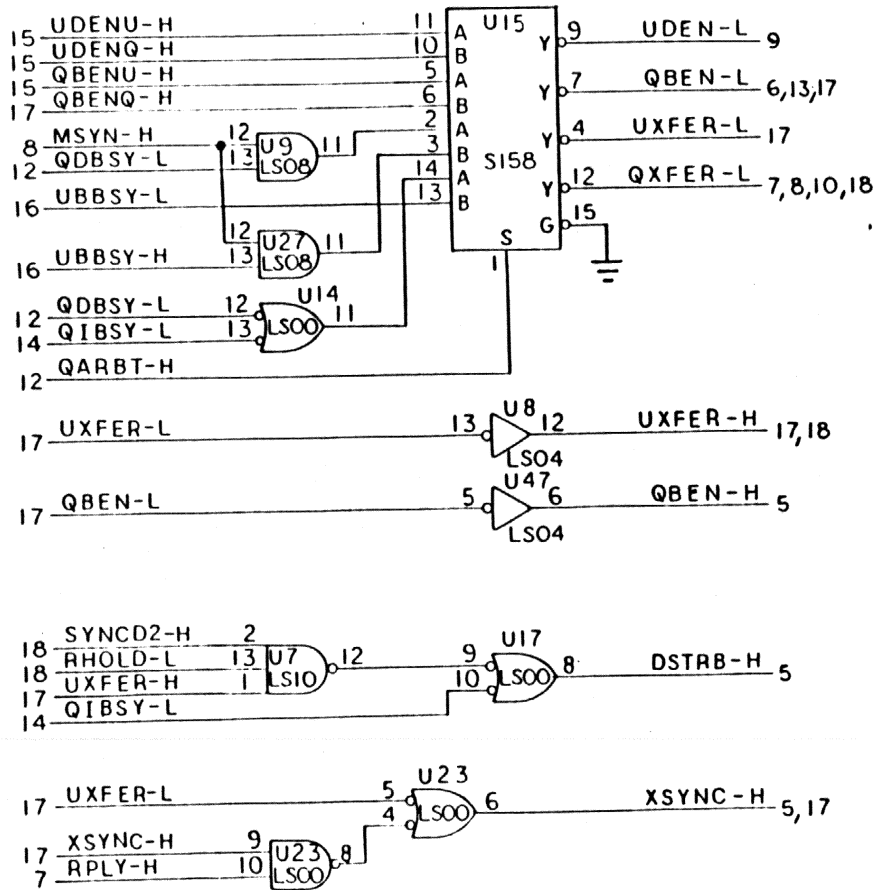


INHIBIT DMR TIMING OPTION

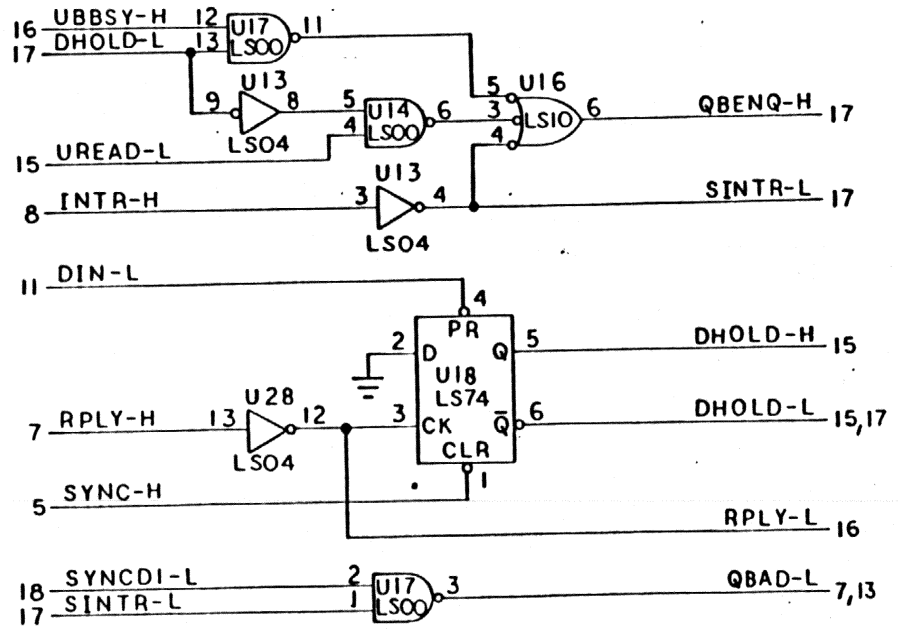


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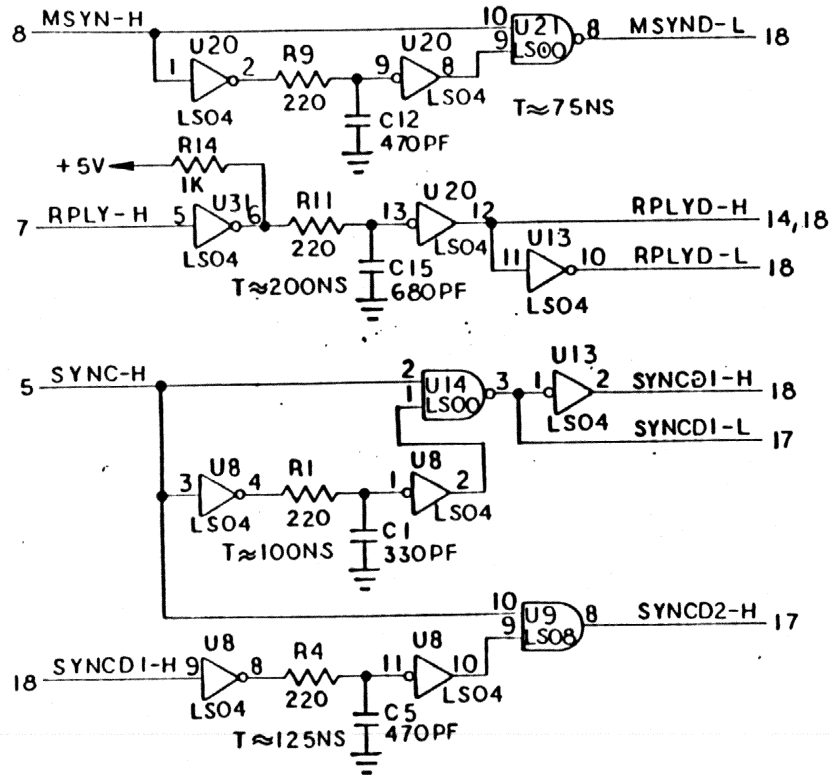
UNIBUS ADDRESS ENABLE



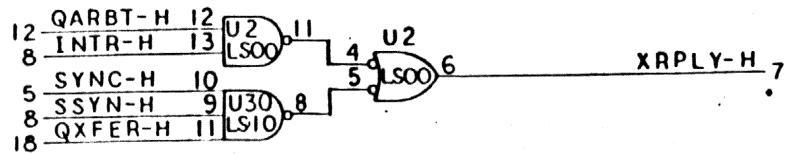
Q-BUS ENABLE Q-BUS ARBITRATION

SCALE	SIZE	DRAWING NO
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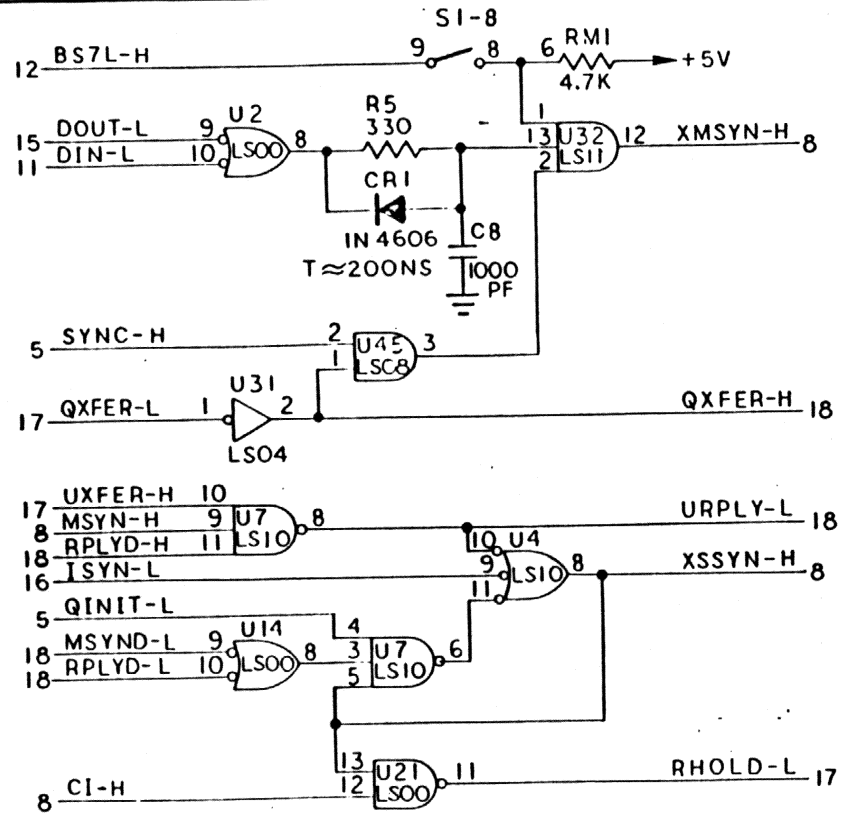
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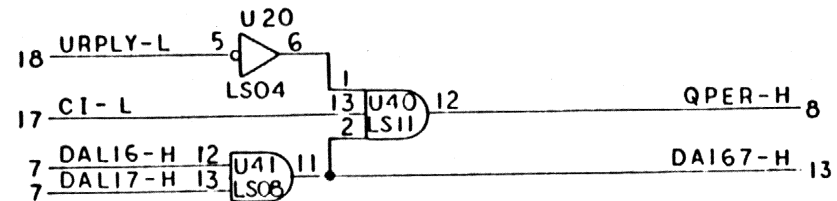
MISCELLANEOUS TIMING CIRCUITS



REPLY



MSYN & SSYN LOGIC



Q-BUS PARITY ERROR DETECT

SCALE	SIZE	DRAWING NO
	B	10412003
DO NOT SCALE DRAWING		SHEET 18 OF 18



ENGINEERING CHANGE ORDER

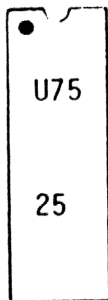
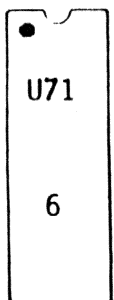
E.C.O. NO.

83

DWG. NO.	REV. WAS	REV. IS	DWG. TITLE				SIGNED	DATE	Appd.	Disappd	SIGNED	DATE	Appd	Disappd											
10412000	D	E	ASSY.-PWB QNIVERTER II				DRAWN MGD	7/87			ENG. <i>J.M.</i>	8/11/87	<input checked="" type="checkbox"/>												
10412001	A	A	DET.-PWB QNIVERTER II				CHK'D. MGD	7/87			MFG. <i>J.M.</i>	8/11/87	<input checked="" type="checkbox"/>												
10412002	A	A	ART.-PWB QNIVERTER II				ENGR. <i>J.M.</i>				Q. A. <i>J.M.</i>														
10412003	C	D	SCHM.-PWB QNIVERTER II				DES. SERV. <i>J.M.</i>	8/11/87	<input checked="" type="checkbox"/>		SUPT. SERV.														
E.C.R. NO.'S		E.O. TYPE	ATT.	XX	INC.	Other Docs. Eff.		Yes	No	MAT. CONT. <i>J.M.</i>	8/11/87	<input checked="" type="checkbox"/>		MKTING. <i>J.M.</i>	8/11/87	<input checked="" type="checkbox"/>									
		Disposition	MAND		AS REQ.	AS AVAIL.	UNAFF.	SCRAP		EFFECTIVITY	8/15/87			EXC.											
		Parts on Order	<input checked="" type="checkbox"/>							DRAWING TREE: <u>10412000 SHT. 1</u>															
		Stock	<input checked="" type="checkbox"/>							<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">WAS:</div> <div style="border: 1px solid black; padding: 2px;">A0</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin: 5px 0;"> <div style="width: 10px; height: 10px; background-color: black;"></div> </div> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;">IS:</div> <div style="border: 1px solid black; padding: 2px;">B1</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin: 5px 0;"> <div style="width: 10px; height: 10px; background-color: black;"></div> </div> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"></div> <div style="border: 1px solid black; padding: 2px;">C2</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin: 5px 0;"> <div style="width: 10px; height: 10px; background-color: black;"></div> </div> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"></div> <div style="border: 1px solid black; padding: 2px;">D3</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin: 5px 0;"> <div style="width: 10px; height: 10px; background-color: black;"></div> </div> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"></div> <div style="border: 1px solid black; padding: 2px;">E4</div> </div>															
		Work in Process	<input checked="" type="checkbox"/>																						
OTHER ASSYS AFF		Yes	No	Fin. Goods	<input checked="" type="checkbox"/>																				
DEPARTMENTS AFFECTED				Sys. in Proc.				<input checked="" type="checkbox"/>																	
FINANCE		Yes	No	Sys. Fin. Goods				<input checked="" type="checkbox"/>																	
COMMUNICATIONS		Yes	No	In Field				<input checked="" type="checkbox"/>																	
PURCHASING		Yes	No	Support Stock				<input checked="" type="checkbox"/>																	
TEST		Yes	No	Field Ret.		<input checked="" type="checkbox"/>																			
<p>REASON FOR CHANGE:</p> <p>1. TERMINATION FOR BIAKO AND BDMGO SHOULD BE PERMANENTLY FIXED.</p>																									
<p>GEN. PROD.</p>																									
<p>REWORK INST. <u>4</u> BEGIN ON SHT. <u> </u></p>																									
<p>Sheet 1 of <u>5</u></p>																									
Inc. By:			Date:			Chk'd. By:			Date:			Appd. By:			Date:										

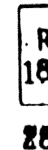
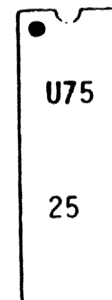
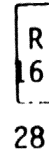
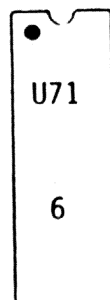
10412000 SHT. 5
WAS:

IS:



C31 45

R15 29



C31 45

R17 29

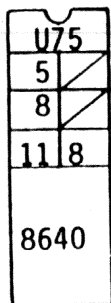
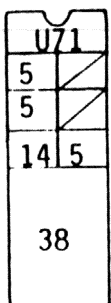
10412000 SHT. 3

ITEM:29	WAS: RES. 5% 1/4W 330 OHMS	CB3315	310-012-331	1	R5	AB
	IS: RES. 5% 1/4W 330 OHMS	CB3315	310-012-331	3	R5,R15,R17	AB
ADD ITEM 28	RES. 5% 1/4W 680 OHMS	CB6815	310-012-681	2	R16,R18	AB

10412003 SHT. 2

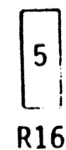
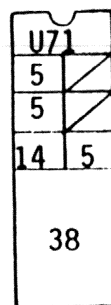
WAS:

IS:

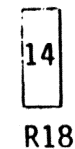
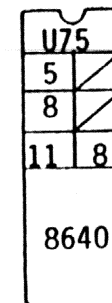


4 C31

5 R15



4 C31



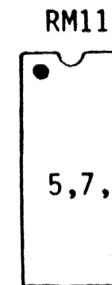
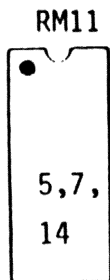
14 R17

WAS:

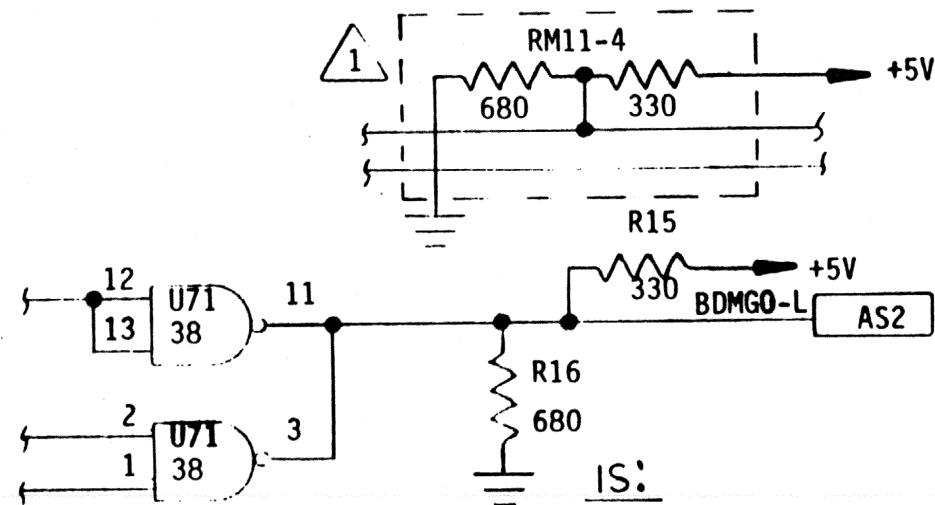
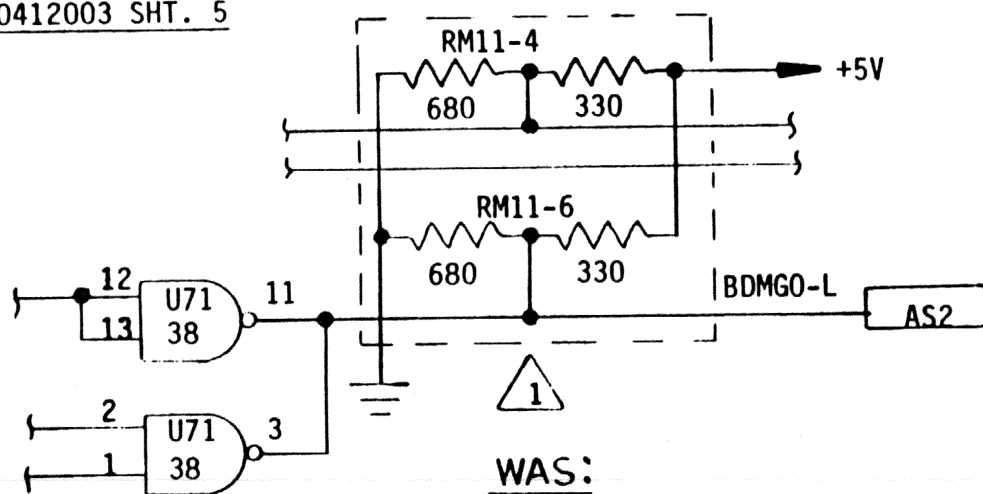
IS:

REFERENCE DESIGNATION CHART		
RESISTOR	R14	

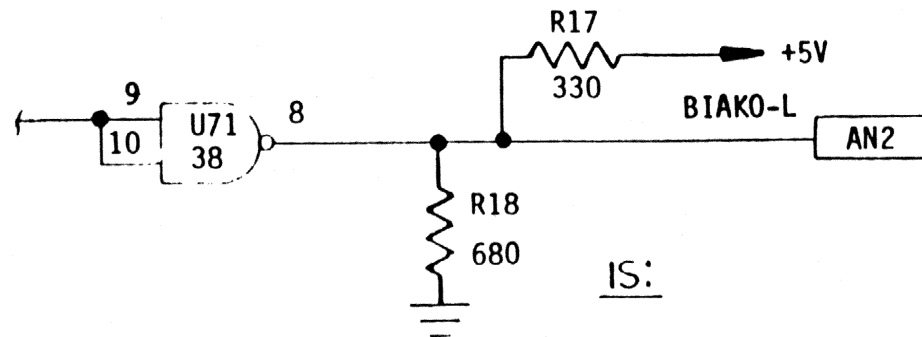
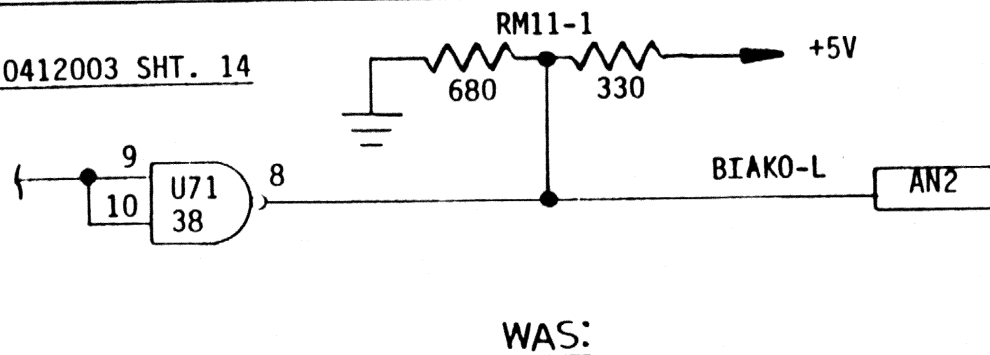
REFERENCE DESIGNATION CHART		
RESISTOR	R18	



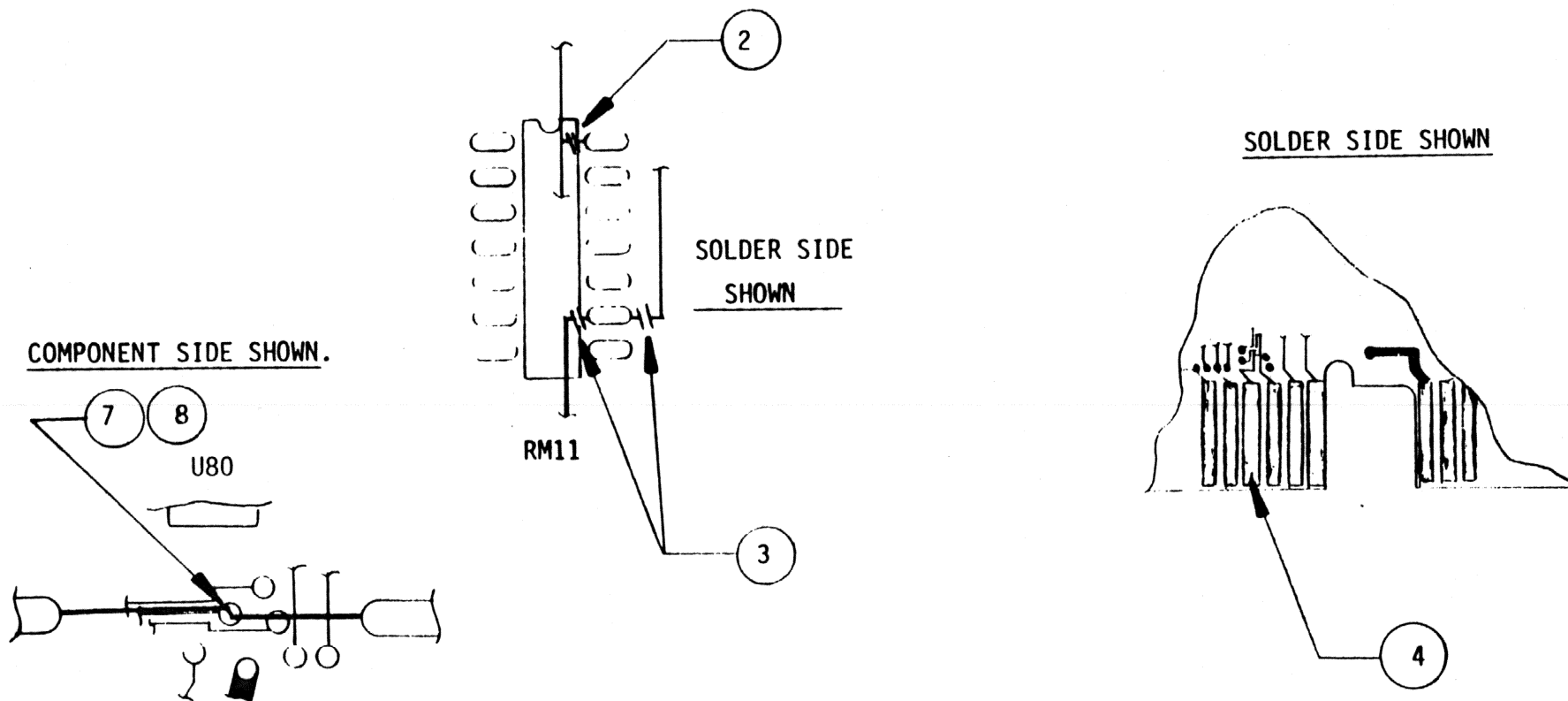
10412003 SHT. 5



10412003 SHT. 14

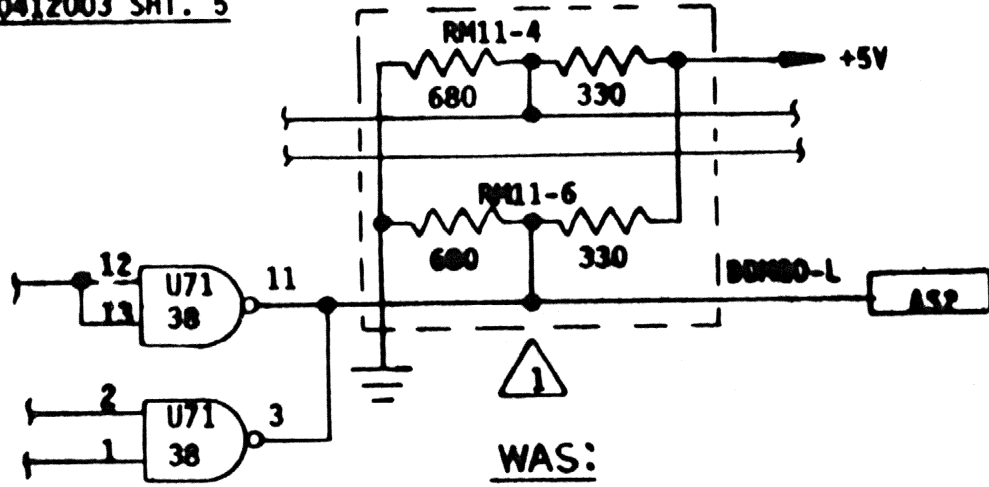


1. ALL JUMPER WIRE IS SOLID GREEN 30 AWG. (ABLE P/N 521-303-501)
2. CUT ETCH AT RM11 PIN 1 (SOLDER SIDE) AS SHOWN.
3. CUT ETCH AT RM11 PIN 6 (SOLDER SIDE) AS SHOWN.
4. ADD JUMPER WIRE FROM U71 PIN 11 TO CONNECTOR AS2 (SOLDER SIDE) AS SHOWN.
5. ADD RES. 5% 1/4W 330 OHMS (ABLE P/N 310-012-331)(QTY. 1) FROM U71 PIN 3 TO U63 PIN 16. USING SLEEVING (ABLE P/N 592-800-001) AS REQUIRED.
6. ADD RES. 5% 1/4W 680 OHMS (ABLE P/N 310-012-681)(QTY. 1) FROM U71 PIN 3 TO U71 PIN 7, USING SLEEVING (ABLE P/N ~~592-800-001~~) AS REQUIRED.
7. ADD RES. 5% 1/4W 330 OHMS (ABLE P/N 310-012-331)(QTY. 1) FROM C32 (+)(SIDE NEAREST RM11) TO EYELET BELOW U80 USING SLEEVING (ABLE P/N 592-800-001) AS SHOWN.
8. ADD RES. 5% 1/4W 680 OHMS (ABLE P/N 310-012-681)(QTY. 1) FROM C37 (-)(SIDE NEAREST RM11) TO EYELET BELOW U80 USING SLEEVING (ABLE P/N 592-800-001) AS SHOWN.

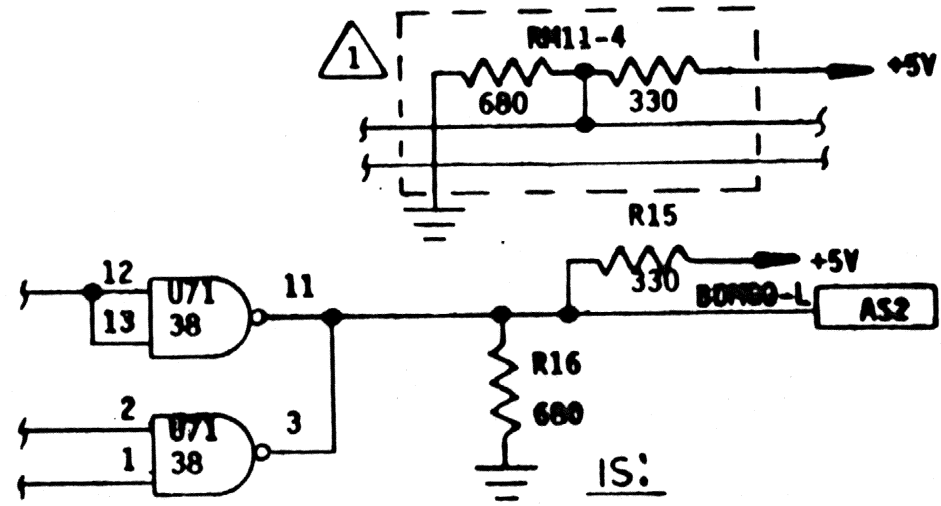


MOD. LEVEL	E.O. NO.
D3	E4
WAS	IS
SHT. 5	F 5

10412003 SHT. 5

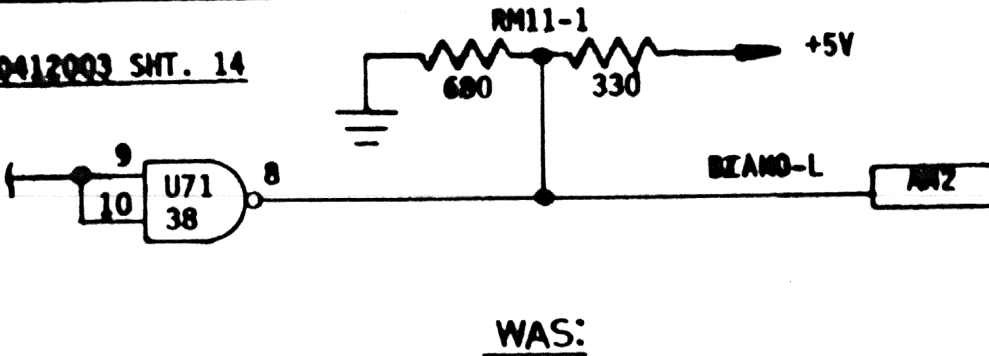


WAS:

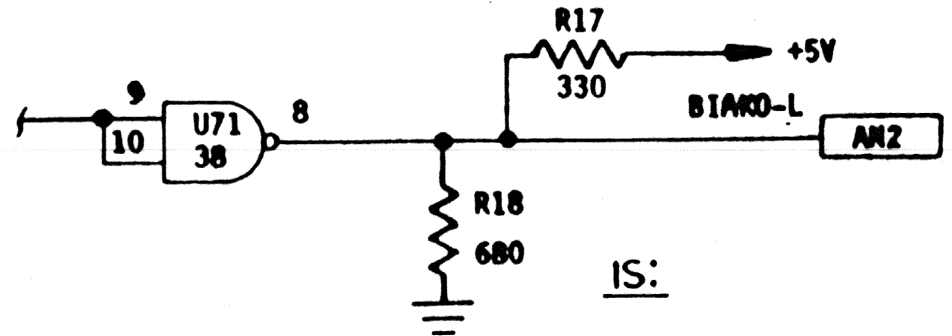


IS:

10412003 SHT. 14



WAS:



IS:



ENGINEERING CHANGE ORDER

E.C.O. NO. 03805

DWG. NO.	REV. WAS	REV. IS	DWG. TITLE	SIGNED	DATE	Appd.	Disappd.	SIGNED	DATE	Appd.	Disappd.
10412000	C	D	ASSY-PWB ONIVERTER II	DRAWN RPW	7/86			ENG. <i>[Signature]</i>	7/1/86		✓
10412001	A	A	DET.-PWB ONIVERTER II	CHK'D. R. P. W.	7/8/86			MFG. <i>[Signature]</i>	7/1/86		X
10412002	A	A	ART -PWB ONIVERTER II	ENGR. <i>[Signature]</i>	7/8/86			Q. A. <i>[Signature]</i>			
10412003	B	C	SCHEM-PWB ONIVERTER II	DES. SERV. <i>[Signature]</i>	7/11/86	✓		SUPT. SERV.			
E.C.R. NO.'S		E.O. TYPE	ATT. X	INC.	Other Docs. Eff.	Yes	(No)	MAT. CONT. <i>[Signature]</i>	7/11/86		
001407	-	Disposition	MAND	AS REQ.	AS AVAIL.	UNAFF.	SCRAP	EFFECTIVITY	7/17/86		

-	-	Parts on Order	✓								
-	-	Stock	✓								
-	-	Work in Process	✓								
OTHER ASSYS AFF		Yes	(No)	Fin. Goods	✓						
DEPARTMENTS AFFECTED				Sys. In Proc.				✓			
FINANCE		Yes	No	Sys. Fin. Goods				✓			
COMMUNICATIONS		Yes	No	In Field				✓			
PURCHASING		Yes	No	Support Stock				✓			
TEST		Yes	No	Field Ret.			✓				

DRAWING TREE: 10412000 SHT 1

WAS:

- A0
- B1
- C2

IS:

- A0
- B1
- C2
- D3

REASON FOR CHANGE:

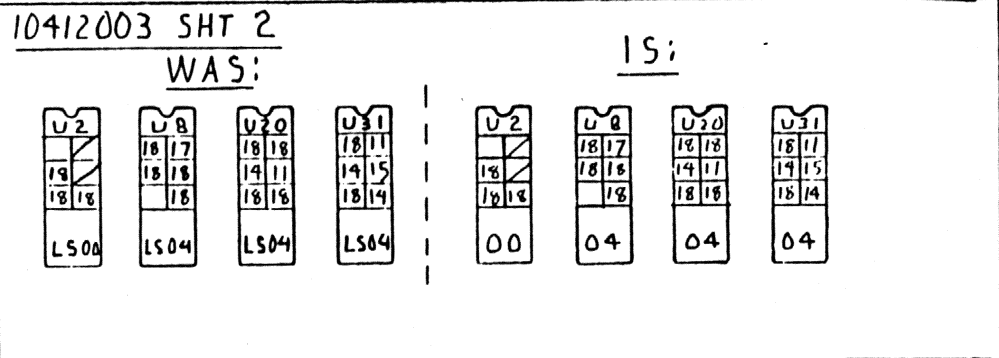
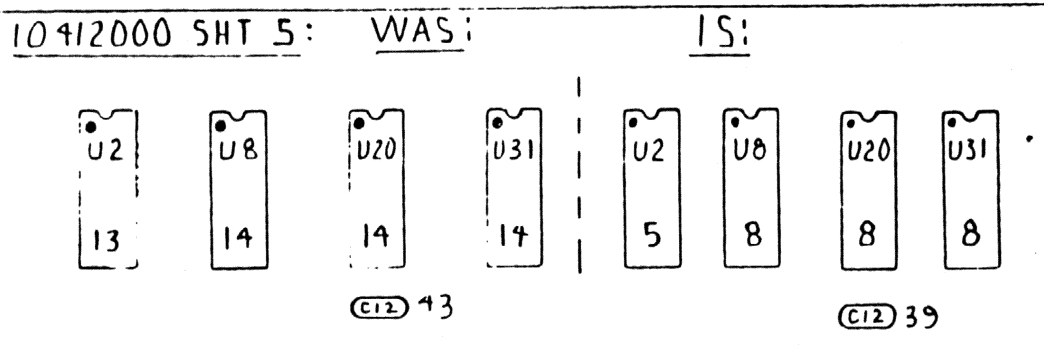
1. LS LOGIC DOES NOT PROVIDE THE DRIVE CAPABILITY NECESSARY TO MAINTAIN CONSISTENT TIME CONSTANCES OF BOARDS DELAY CIRCUITS OVER NEEDED FREQUENCY RANGE .
2. DOCUMENTATION ERROR FROM EO 03752.

GENERAL PRODUCTS

REWORK INST. 3
BEGIN ON SHT. 3

Inc. By:	Date:	Chk'd. By:	Date:	Appd. By:	Date:	Sheet 1 of 3
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ADD ITEM 5: IC QUAD 2-IN NAND / SN7400N / 349-074-000 / 1 / U2 / T.I.
 ADD ITEM 8: IC HEX INVERTER / SN7404N / 349-074-004 / 3 / U8, 20, 31 / T.I.
 ITEM 13 WAS: IC QUAD 2-IN NAND / SN74LS00N / 349-274-000 / 10 / U2,14,17,21-23,26,33,34,37 / T.I.
 IS: IC QUAD 2-IN NAND / SN74LS00N / 349-274-000 / 9 / U14,17,21-23,26,33,34,37 / T.I.
 ITEM 14 WAS: IC HEX INVERTER / SN74LS04N / 349-274-004 / 8 / U8,13,20,28,31,42,44,47 / T.I.
 SHT 3 IS: IC HEX INVERTER / SN74LS04N / 349-274-004 / 5 / U13,28,42,44,47 / T.I.
 ADD ITEM 39: CAP CER 5% 50V 270PF AXIAL .3 CTR / 292CCOG271J050B / 321-226-271 / 1 / C12 / SPRAGUE
 ITEM 43 WAS: CAP CER 5% 50V 470PF AXIAL / 292CCOG471J050B / 321-226-471 / 2 / C5,12 / SPRAGUE
 IS: CAP CER 5% 50V 470PF AXIAL / 292CCOG471J050B / 321-226-471 / 1 / C5 / SPRAGUE



10412003 SHT 11
 U20 WAS: LS04 IS: 04 (1 PLACE)
 U31 WAS: LS04 IS: 04 (1 PLACE)

10412003 SHT 14
 U20 WAS: LS04 IS: 04 (1 PLACE)
 U31 WAS: LS04 IS: 04 (2 PLACES)

10412003 SHT 15
 U31 WAS: LS04 IS: 04 (1 PLACE)

10412003 SHT 17
 U8 WAS: LS04 IS: 04 (1 PLACE)

10412003 SHT 18
 U2 WAS: LS00 IS: 00 (3 PLACES)
 U8 WAS: LS04 IS: 04 (4 PLACES)
 U20 WAS: LS04 IS: 04 (4 PLACES)
 U31 WAS: LS04 IS: 04 (2 PLACES)
 C12 WAS: 470PF IS: 270PF

10412003 SHT 16 (DOC ERROR FROM EO 03752)
 WAS: IS:
 UBBSY-H 5, 15, 17 UBBSY-H 15, 17

U20 WAS: LS04 IS: 04 (1 PLACE)
U31 WAS: LS04 IS: 04 (1 PLACE)

U20 WAS: LS04 IS: 04 (1 PLACE)
U31 WAS: LS04 IS: 04 (2 PLACES)

U31 WAS: LS04 IS: 04 (1 PLACE)

10412003 SHT 17

U8 WAS: LS04 IS: 04 (1 PLACE)

10412003 SHT 18

U2 WAS: LS00 IS: 00 (3 PLACES)
U8 WAS: LS04 IS: 04 (4 PLACES)
U20 WAS: LS04 IS: 04 (4 PLACES)
U31 WAS: LS04 IS: 04 (2 PLACES)

C12 WAS: 470PF IS: 270PF

10412003 SHT 16 (DOC. ERROR FROM EO 03752)

WAS: UBBSY-H 5, 15, 17

IS: UBBSY-H 15, 17

REWORK SHT. 1 OF 1

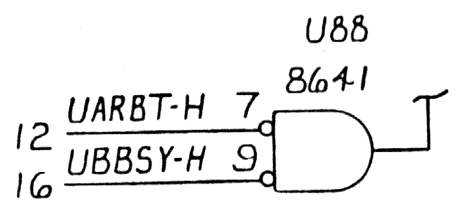
GENERAL PRODUCTS

REWORK INST. BEGIN ON SHT. 3

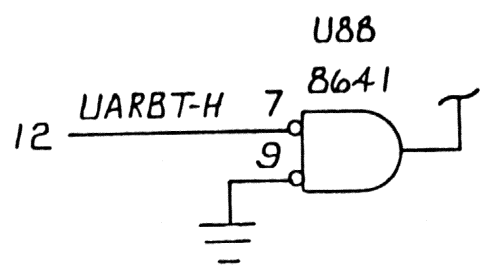
Sheet 1 of 3

Inc. By: Date: Chk'd. By: Date: Appd. By: Date

WAS:



IS:

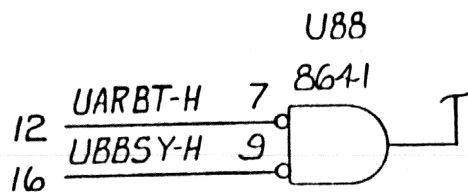


10412000

MOD. LEVEL			
WAS	B1	IS	C2
		SHT.	3
			OF 3

1. ALL JUMPER WIRE IS SOLID GREEN 30 AWG (ABLE P/N 521-303-501).
2. LIFT U88 PIN 9.
3. ADD JUMPER WIRE FROM U88 PIN 9 (LIFTED) TO U88 PIN 8.

10412003 SHT. 5

WAS:IS: