

TAITO CORPORATION

DRAWN: 10.26.88
 DESIGN: K. M. [Signature]
 CHECK: [Signature]

APPROVED: [Signature]

APPROVED: [Signature]

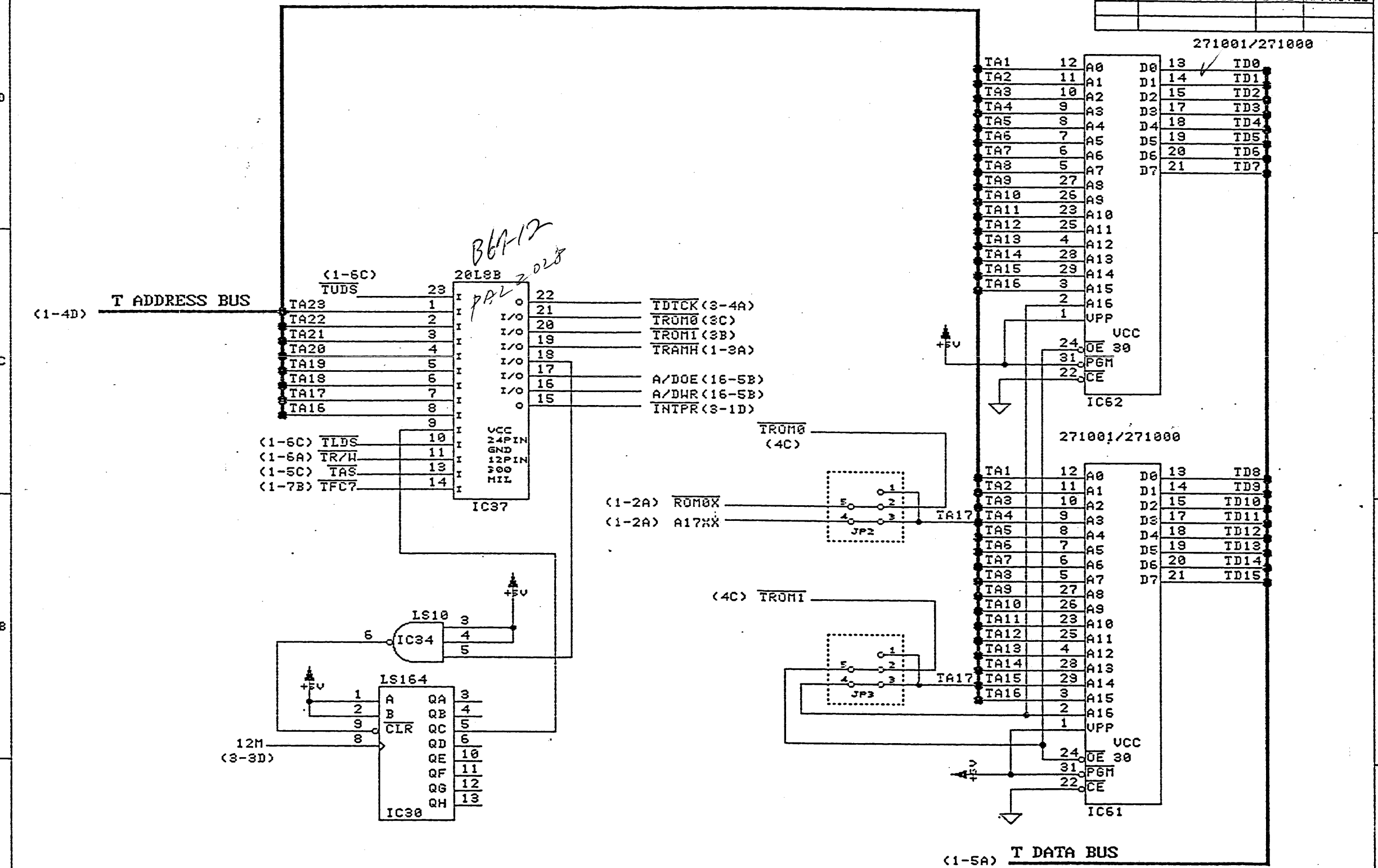
NAME: **MAIN P.C.B**
OPERATION THUNDERBOLT

SIZE CODE: A3
 DWG. NO.: W5100296A

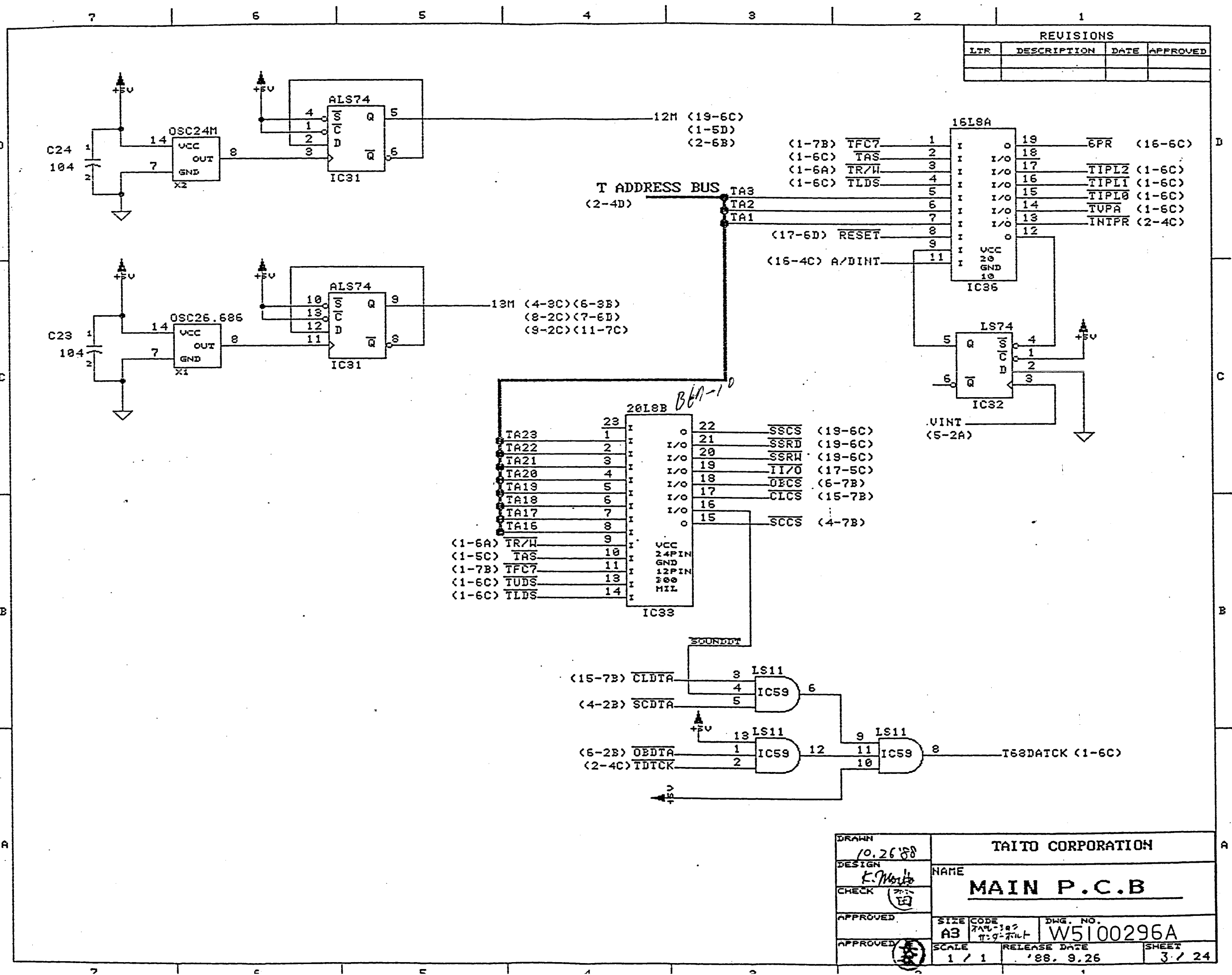
SCALE: 1/1
 RELEASE DATE: '88. 9.26
 SHEET: 1/24

7 6 5 4 3 2 1

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LTR	DESCRIPTION	DATE	APPROVED



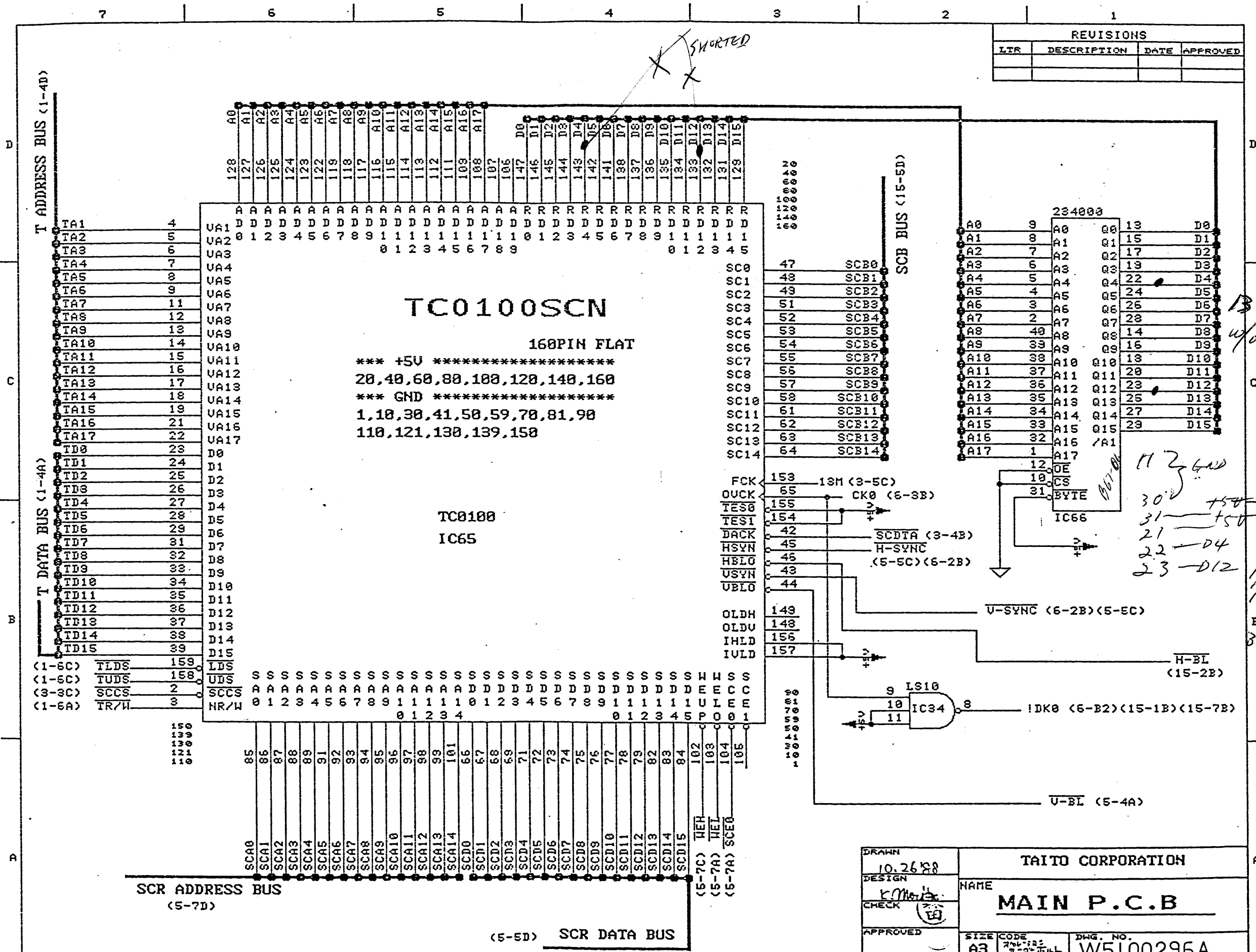
DRAWN <i>10.26.88</i> DESIGN <i>K/M</i> CHECK APPROVED APPROVED	TAITO CORPORATION NAME MAIN P.C.B SIZE CODE A3 SCALE 1 / 1	DWG. NO. W5100296A RELEASE DATE '88. 9.26 SHEET 2 / 24
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DRAWN 10.26.88		TAITO CORPORATION	
DESIGN E. Morita		NAME MAIN P.C.B	
CHECK EJ		DWG. NO. W5100296A	
APPROVED		SIZE CODE A3	SCALE 1/1
APPROVED		RELEASE DATE '88, 9.26	SHEET 3/24

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LTR	DESCRIPTION	DATE	APPROVED



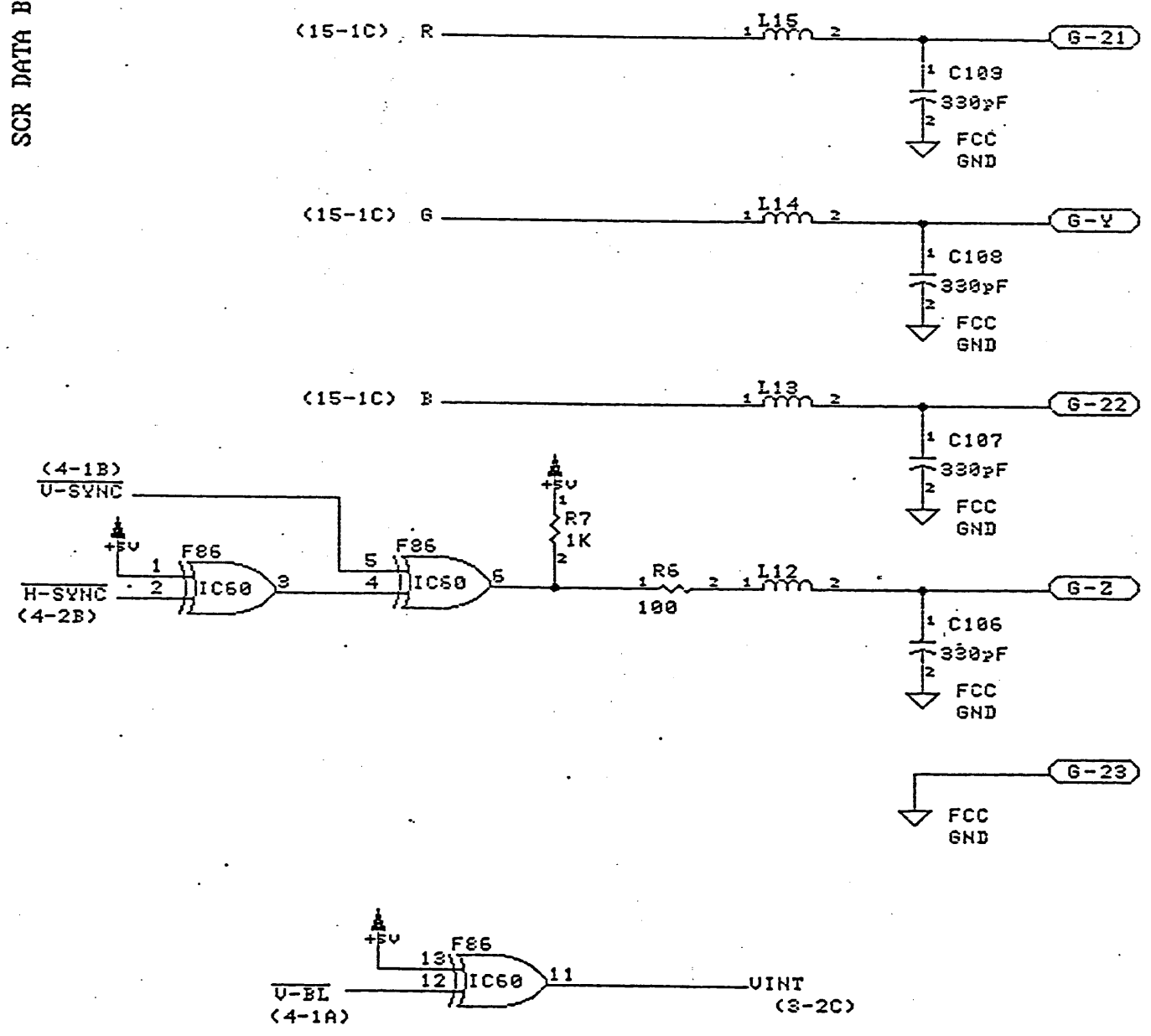
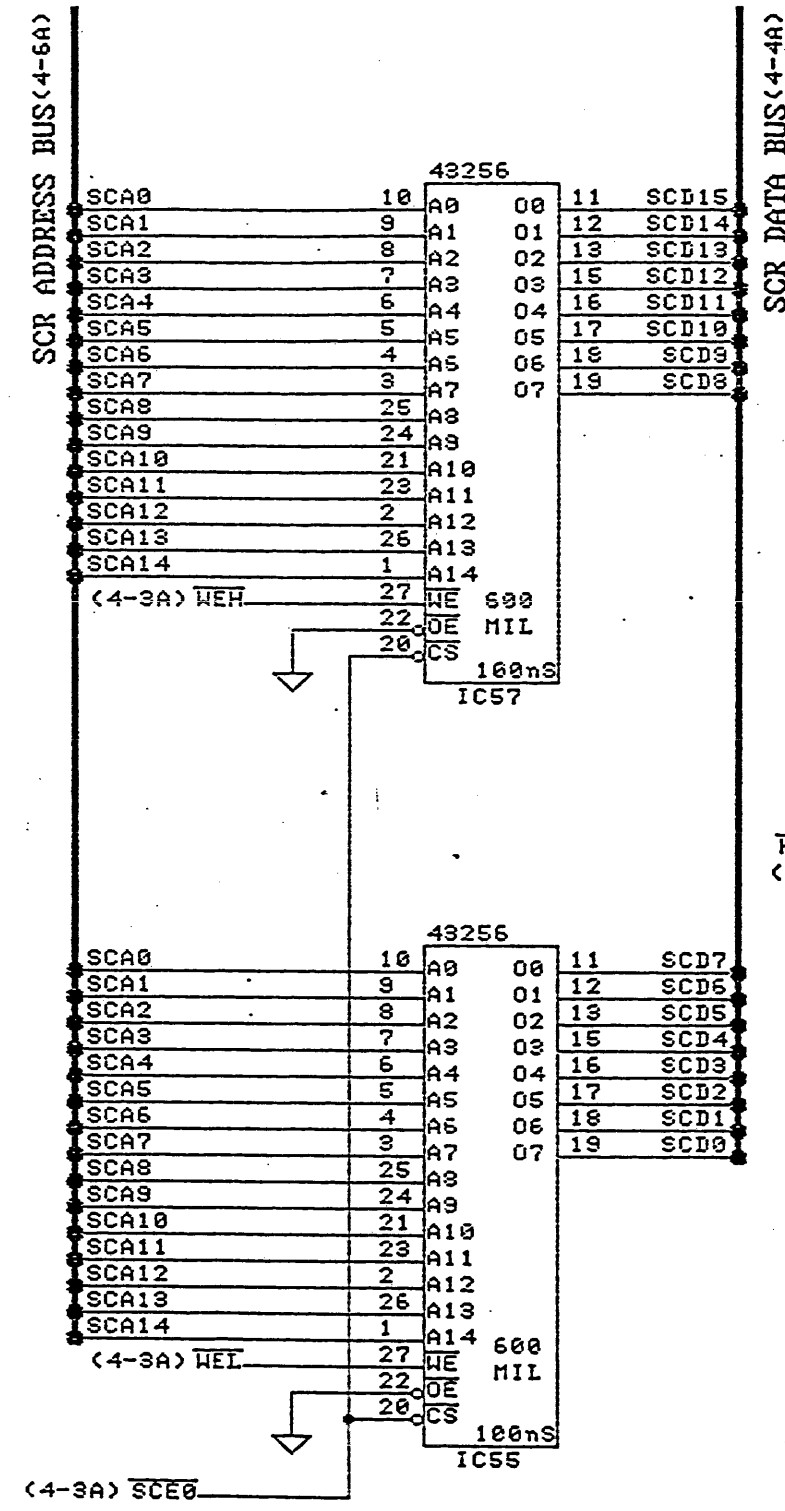
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*** +5V *****
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 *** GND *****
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 110, 121, 130, 139, 150

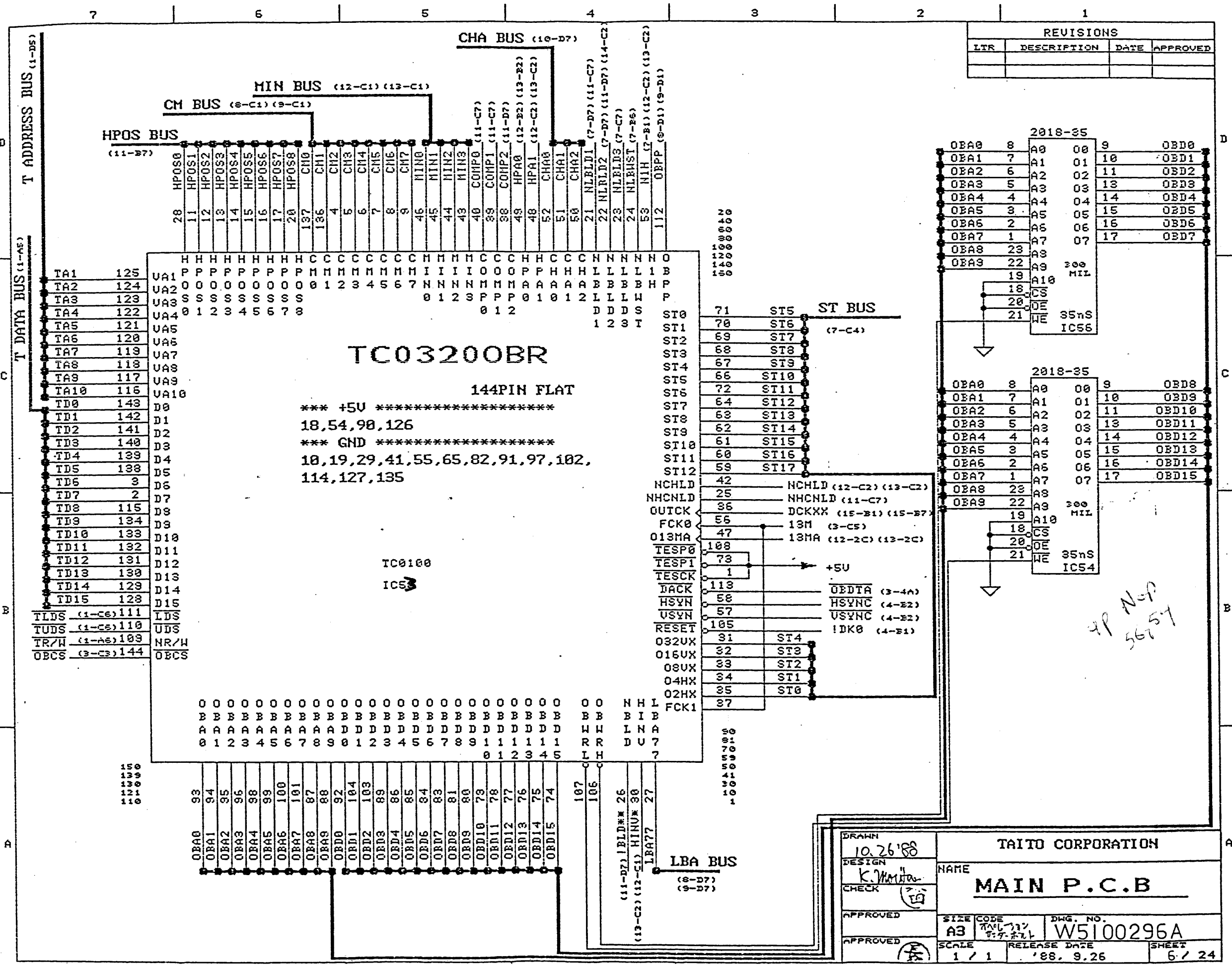
TC0100
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DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. M. [Signature]	NAME MAIN P.C.B		
CHECK [Signature]	SIZE A3	CODE 7:9:2:1:1:1	DWG. NO. W5100296A
APPROVED [Signature]	SCALE	RELEASE DATE	SHEET

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

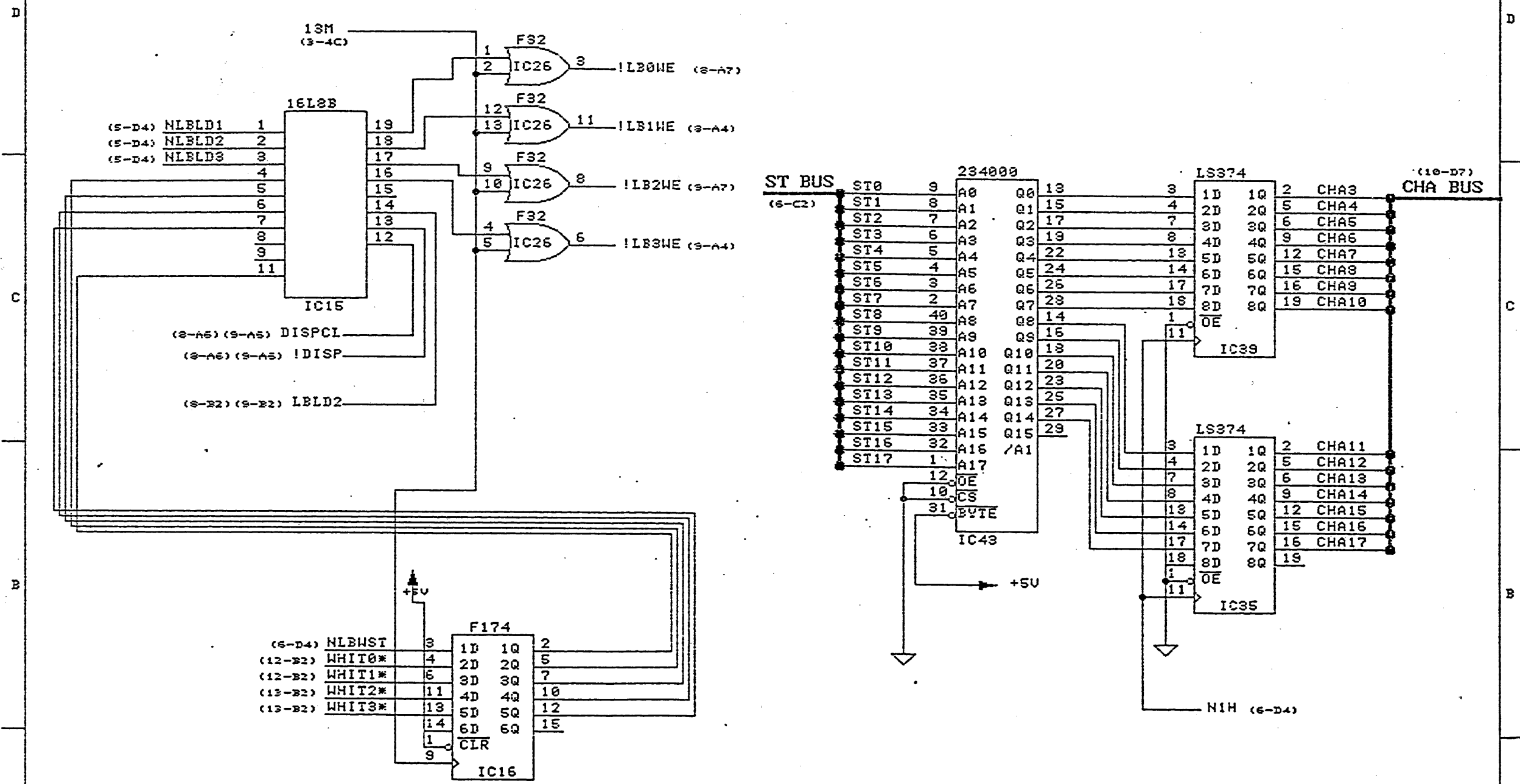


DRAWN 10-26'88	TAITO CORPORATION		
DESIGN K. M. H. H.	NAME MAIN P.C.B		
CHECK ED	SIZE A3	CODE TAL-383 T-9-FV	DWG. NO. W5100296A
APPROVED [Signature]	SCALE 1 / 1	RELEASE DATE '88. 9.26	SHEET 5 / 24

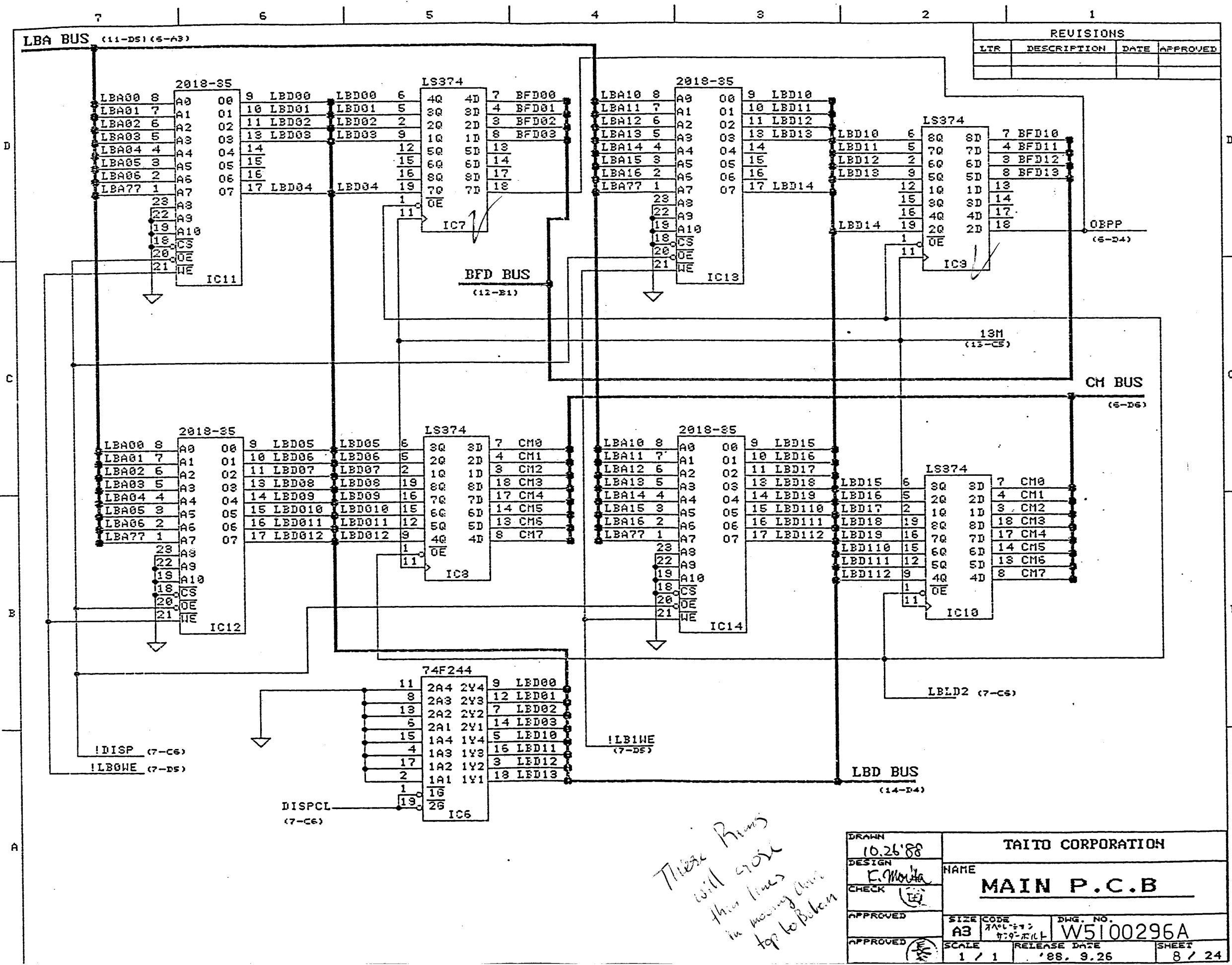


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LTR	DESCRIPTION	DATE	APPROVED



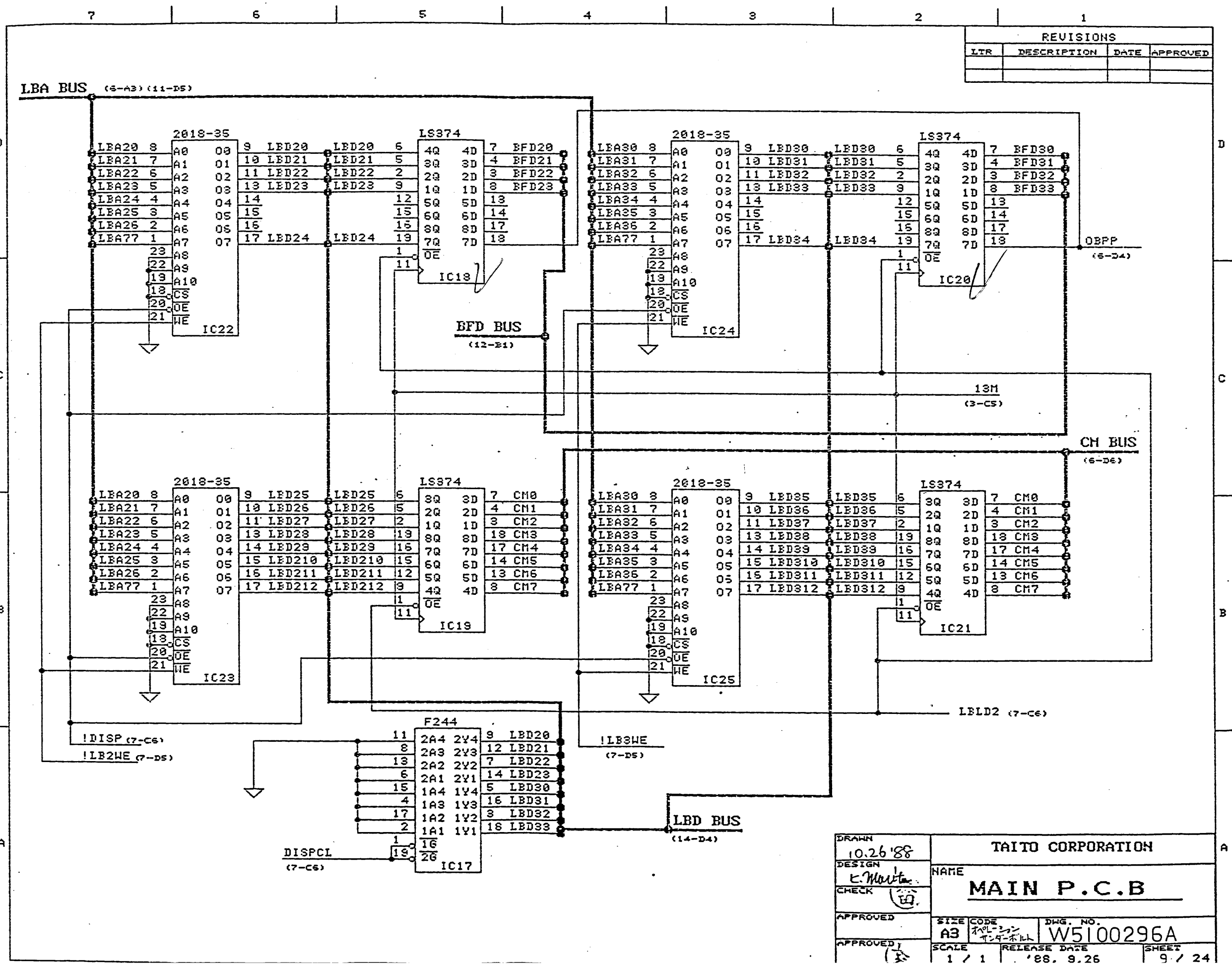
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DESIGN K. M...	NAME		
CHECK [Signature]	MAIN P.C.B		
APPROVED	SIZE A3	CODE 74154-32 74135-32 74139-32	DWG. NO. W5100296A
APPROVED [Signature]	SCALE 1/1	RELEASE DATE '88. 9. 26	SHEET 7 / 24



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

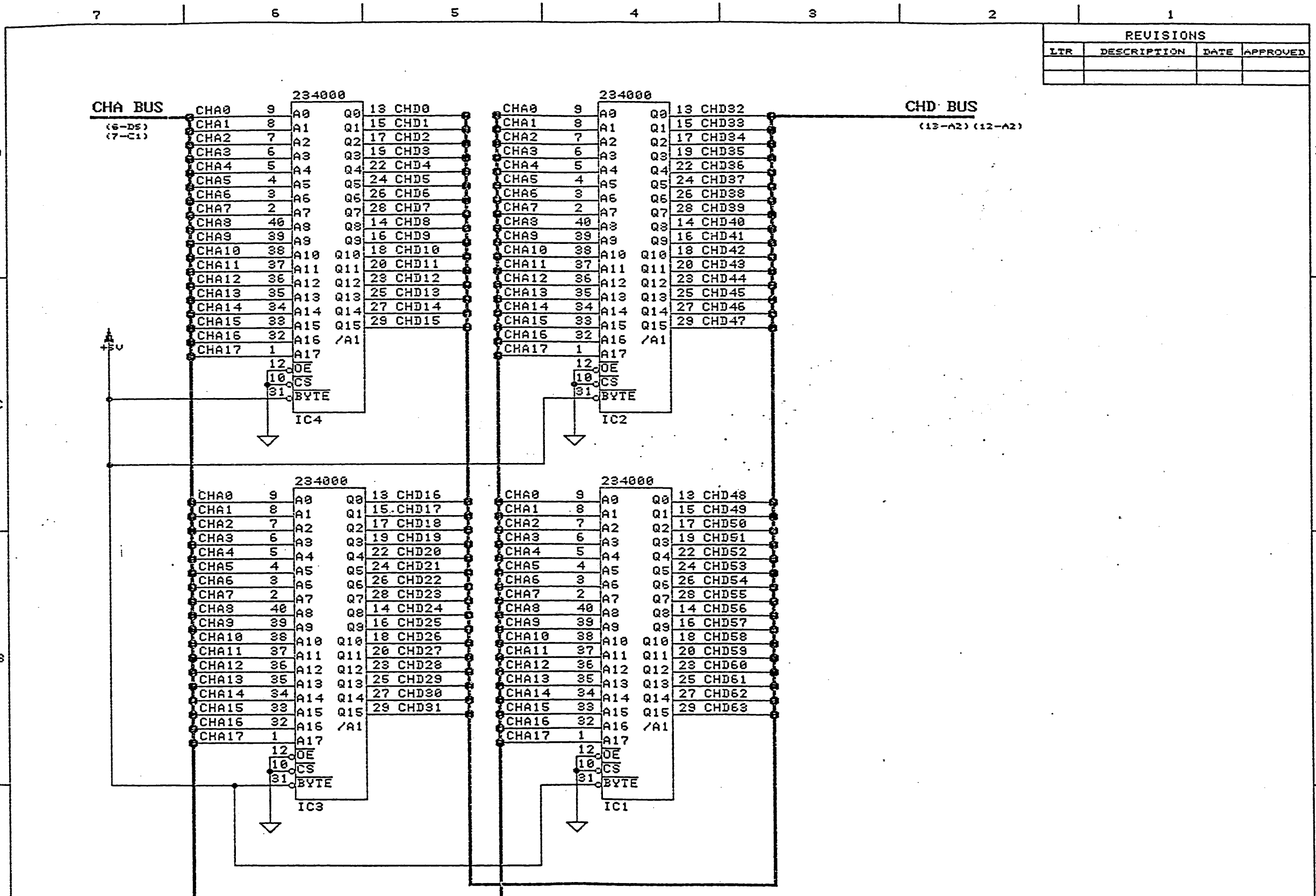
These Buses will go in moving down top to bottom

DRAWN 10.25.88 DESIGN E. Motta CHECK APPROVED APPROVED	TAITO CORPORATION NAME MAIN P.C.B SIZE CODE A3 SCALE 1 / 1	DWG. NO. W5100296A RELEASE DATE '88. 9.26 SHEET 8 / 24
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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 10.26 '88	TAITO CORPORATION		
DESIGN E. Motta	NAME MAIN P.C.B		
CHECK EQ	SIZE CODE A3	DWG. NO. W5100296A	
APPROVED	SCALE 1 / 1	RELEASE DATE '88. 9. 26	SHEET 9 / 24

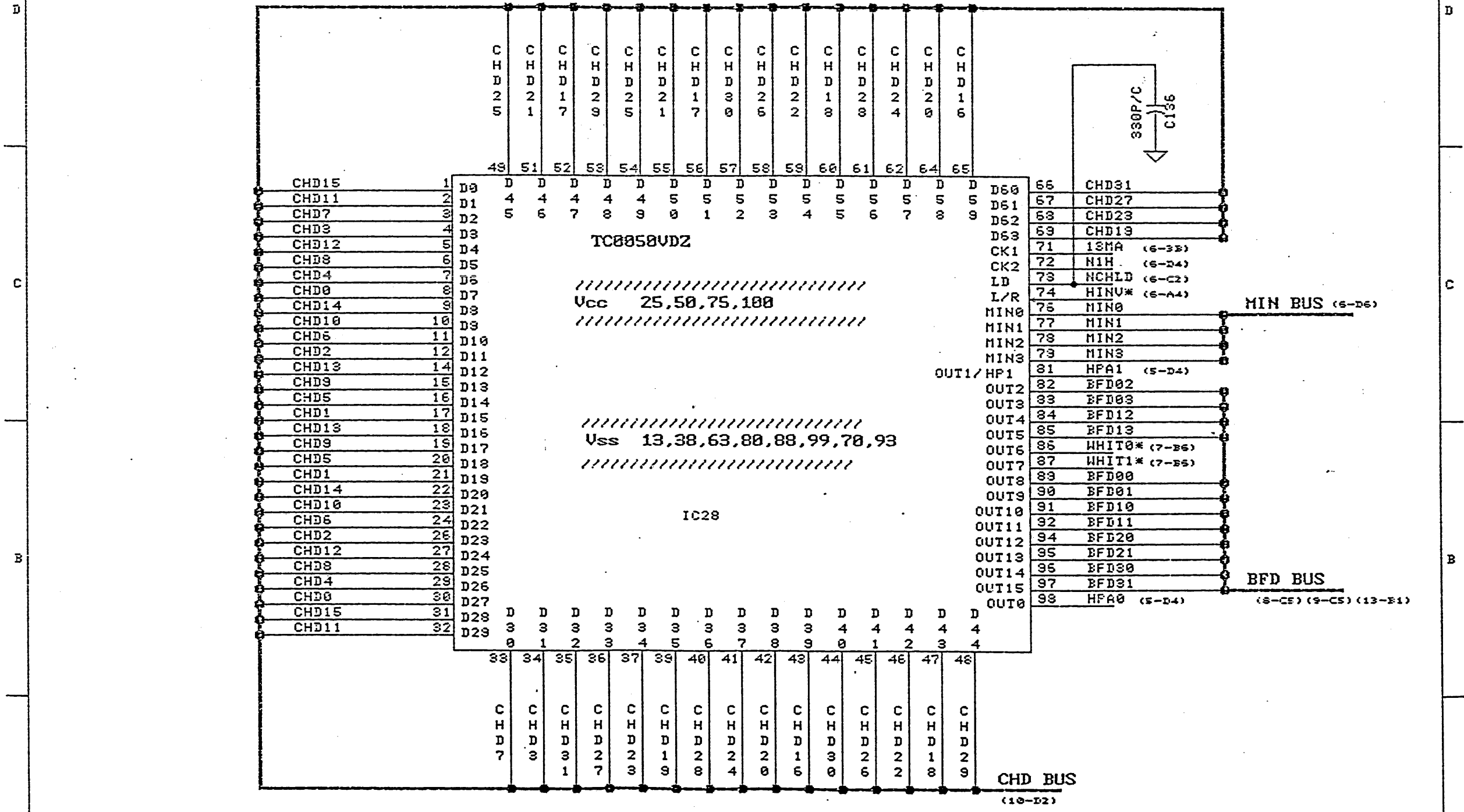


REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. Mochi	NAME MAIN P.C.B		
CHECK (Signature)	SIZE CODE A3	DWG. NO. W5100296A	SHEET 10 / 24
APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.26	

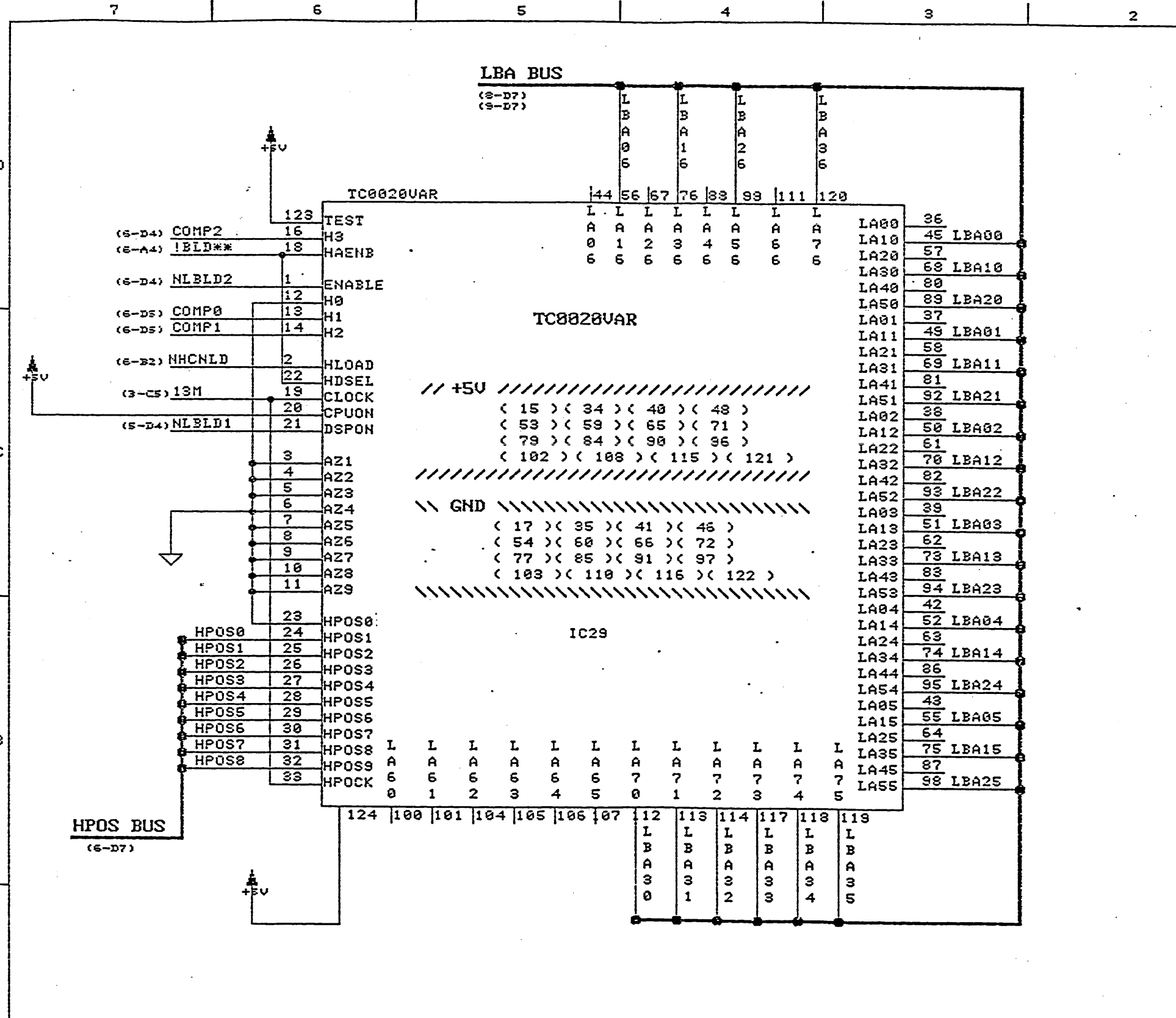
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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. M. Ueda	NAME	MAIN P.C.B	
CHECK (Signature)	SIZE CODE A3	DWG. NO. W5100296A	SHEET 11 / 24
APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.25	

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



(6-D4) COMP2	16	TEST
(6-A4) IBLD**	18	H3
(6-D4) NLBLD2	1	HAENB
(6-D5) COMP0	12	ENABLE
(6-D5) COMP1	13	H0
(6-D5) COMP1	14	H1
(6-D5) COMP1	14	H2
(6-D2) NHCNLD	2	HLOAD
(3-C5) 13M	19	HDSEL
(5-D4) NLBLD1	21	CLOCK
	20	CPUON
	21	DSPON

	3	AZ1
	4	AZ2
	5	AZ3
	6	AZ4
	7	AZ5
	8	AZ6
	9	AZ7
	10	AZ8
	11	AZ9
HPOS0	24	HPOS0
HPOS1	25	HPOS1
HPOS2	26	HPOS2
HPOS3	27	HPOS3
HPOS4	28	HPOS4
HPOS5	29	HPOS5
HPOS6	30	HPOS6
HPOS7	31	HPOS7
HPOS8	32	HPOS8
	33	HPOCK

TC8028UAR	44	56	67	76	83	93	111	120
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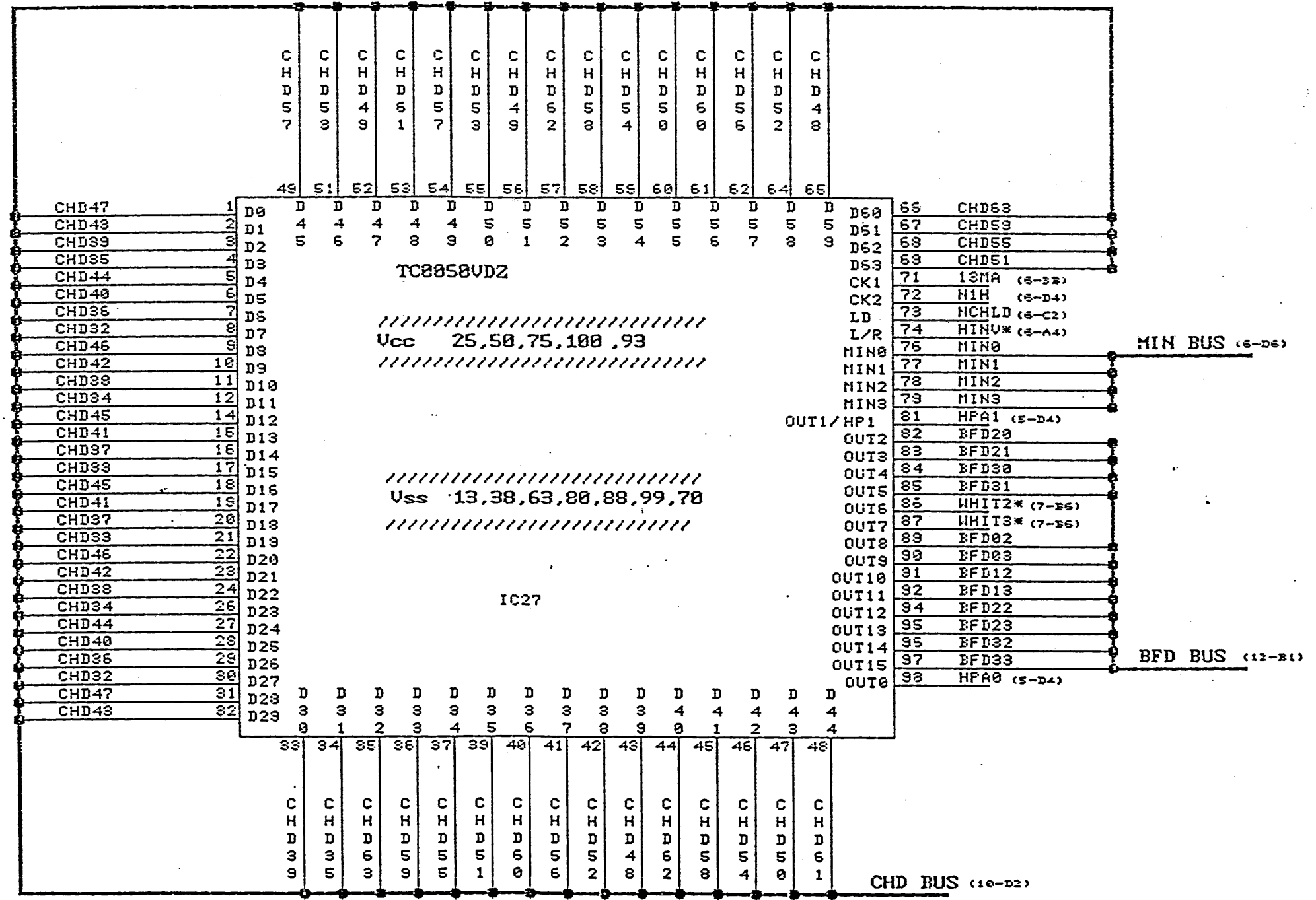
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 //
 // GND //
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 //

IC29	124	100	101	104	105	106	107	112	113	114	117	118	119
	L	L	L	L	L	L	L	L	L	L	L	L	L
	A	A	A	A	A	A	A	A	A	A	A	A	A
	6	6	6	6	6	6	7	7	7	7	7	7	7
	0	1	2	3	4	5	0	1	2	3	4	5	5

LA00	36	
LA10	45	LBA00
LA20	57	
LA30	68	LBA10
LA40	80	
LA50	89	LBA20
LA01	37	
LA11	49	LBA01
LA21	58	
LA31	69	LBA11
LA41	81	
LA51	92	LBA21
LA02	38	
LA12	50	LBA02
LA22	61	
LA32	70	LBA12
LA42	82	
LA52	93	LBA22
LA03	39	
LA13	51	LBA03
LA23	62	
LA33	73	LBA13
LA43	83	
LA53	94	LBA23
LA04	42	
LA14	52	LBA04
LA24	63	
LA34	74	LBA14
LA44	86	
LA54	95	LBA24
LA05	43	
LA15	55	LBA05
LA25	64	
LA35	75	LBA15
LA45	87	
LA55	98	LBA25

DRAWN 10.26'88	TAITO CORPORATION		
DESIGN E. Mura	NAME MAIN P.C.B		
CHECK [Signature]			
APPROVED [Signature]	SIZE CODE A3	DWG. NO. W5100296A	
APPROVED [Signature]	SCALE 1/1	RELEASE DATE '88. 9.26	SHEET 12 / 24

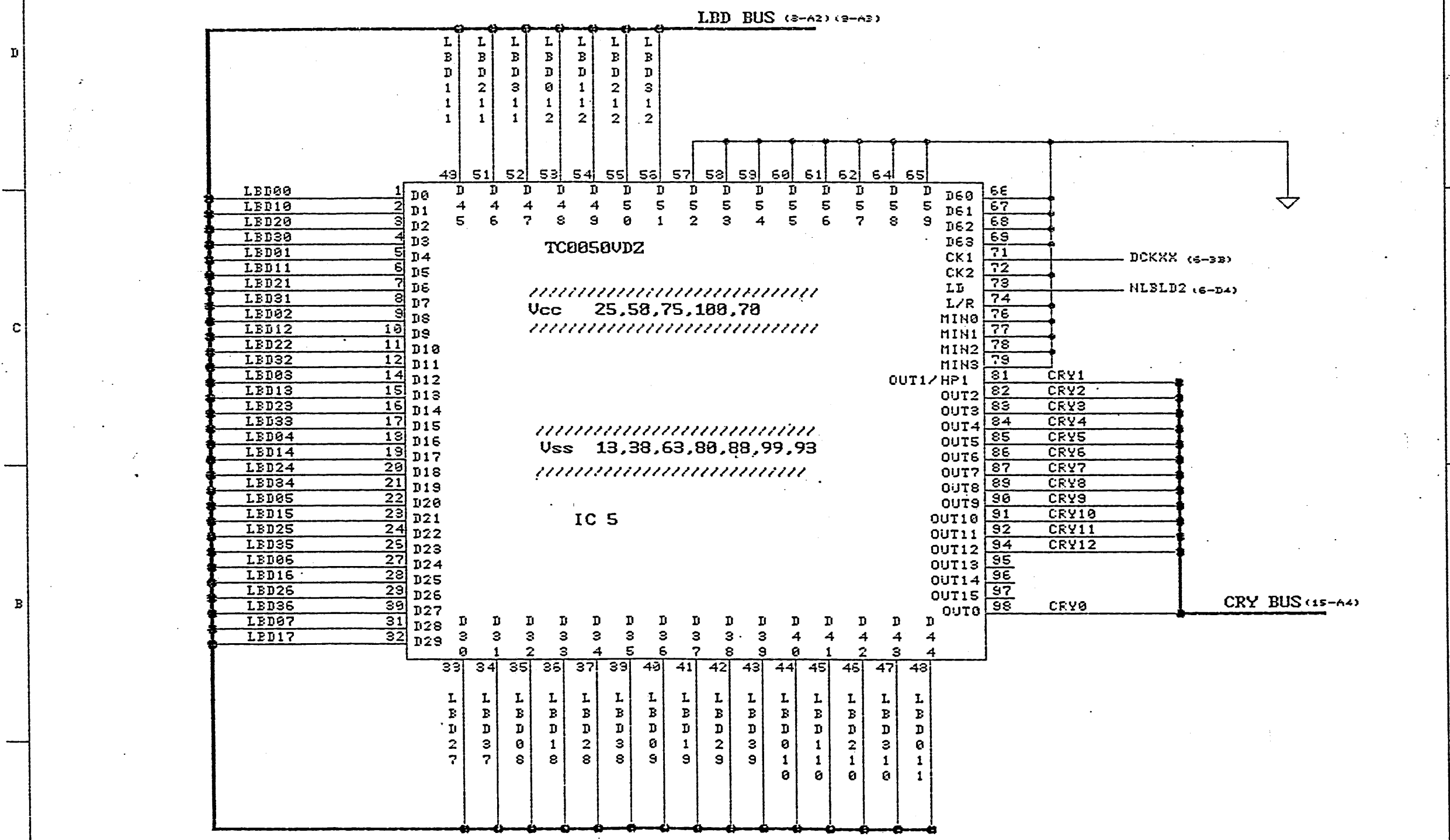
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. M. H. H.	NAME MAIN P.C.B		
CHECK WJ	APPROVED		
APPROVED	SIZE CODE A3	DWG. NO. W5100296A	SCALE 1/1
APPROVED	RELEASE DATE '88. 9.26	SHEET 13/24	

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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



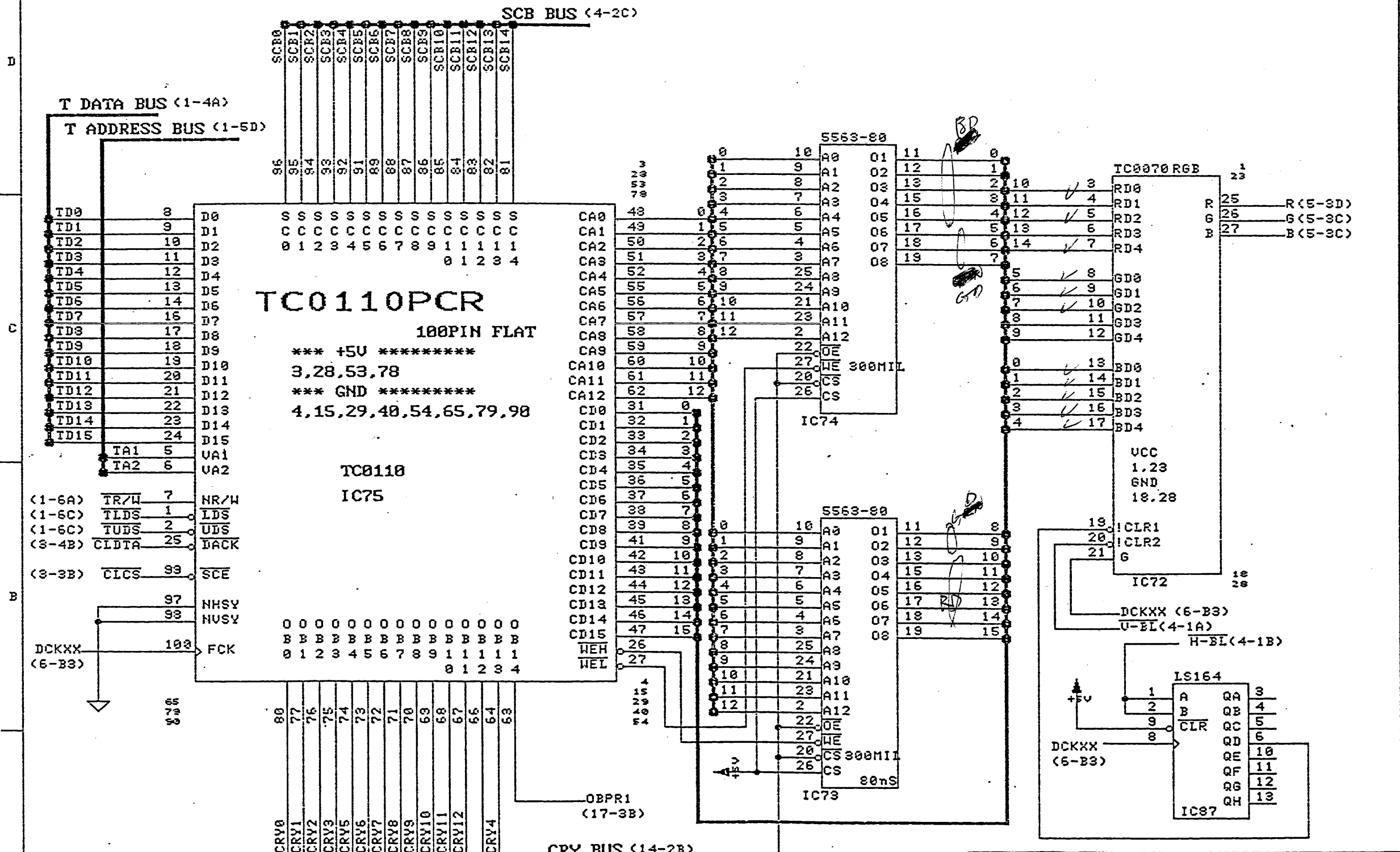
D
C
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7 6 5 4 3 2 1

DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. Mouta	NAME	MAIN P.C.B	
CHECK	APPROVED	SIZE CODE A3	DWG. NO. W5100296A
APPROVED	APPROVED	SCALE 1 / 1	RELEASE DATE '88. 9.26
			SHEET 14 / 24

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LTR	DESCRIPTION	DATE	APPROVED



(1-6A) TR/W 7 NR/W
 (1-6C) TLDS 1 LDS
 (1-6C) TUDS 2 UDS
 (3-4B) CLDTA 25 DACK

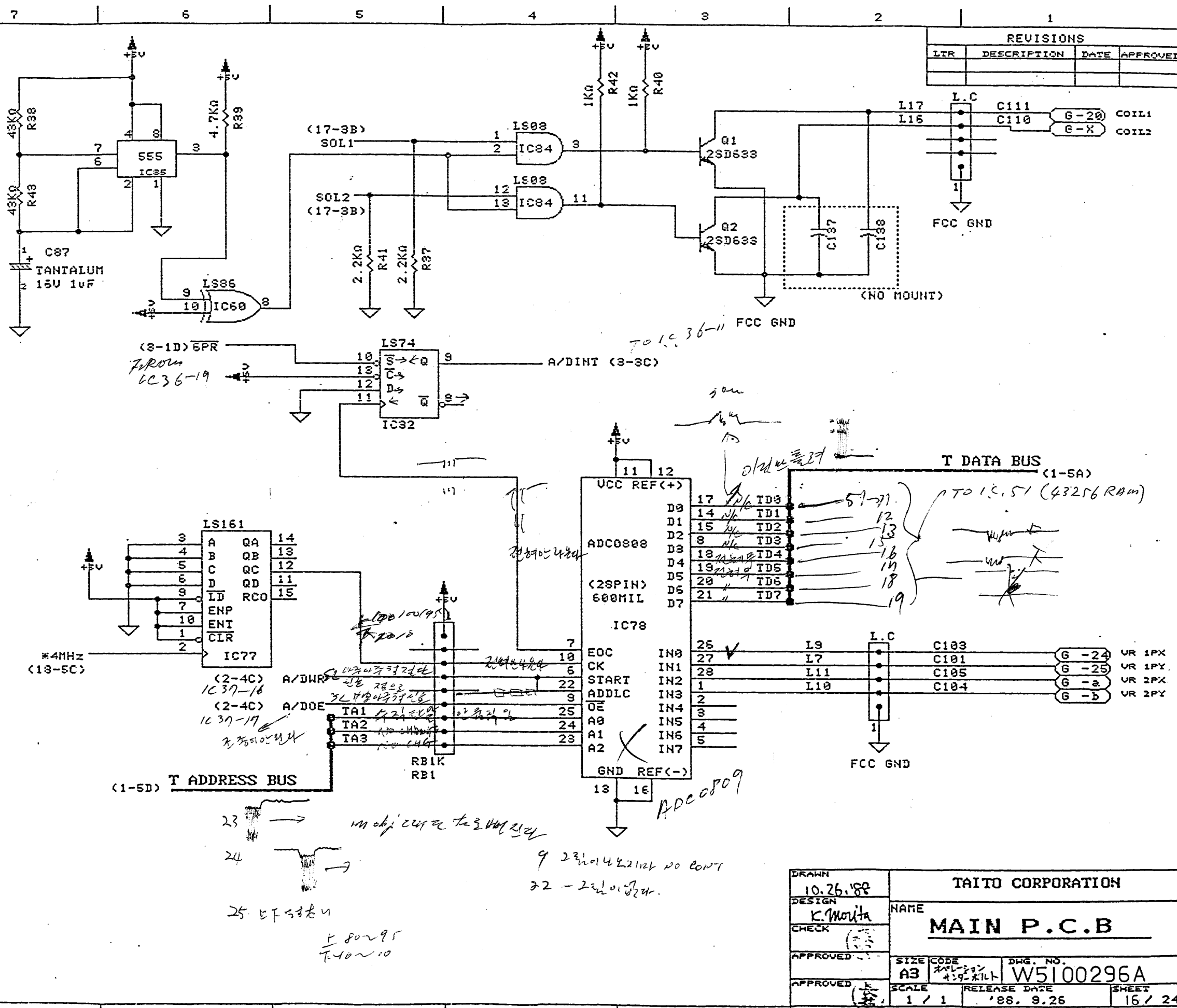
(3-3B) CLCS 93 SCE

97 NUSY
 98 NUSY

DCKXX 103 FCK
 (6-B3)

DRAWN 10.26'88	TAITO CORPORATION		
DESIGN K. Morita	NAME MAIN P.C.B		
CHECK (Signature)	SIZE A3	CODE A3-20	DWG. NO. W5100296A
APPROVED (Signature)	SCALE 1/1	RELEASE DATE '88. 9.26	SHEET 15 / 24

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

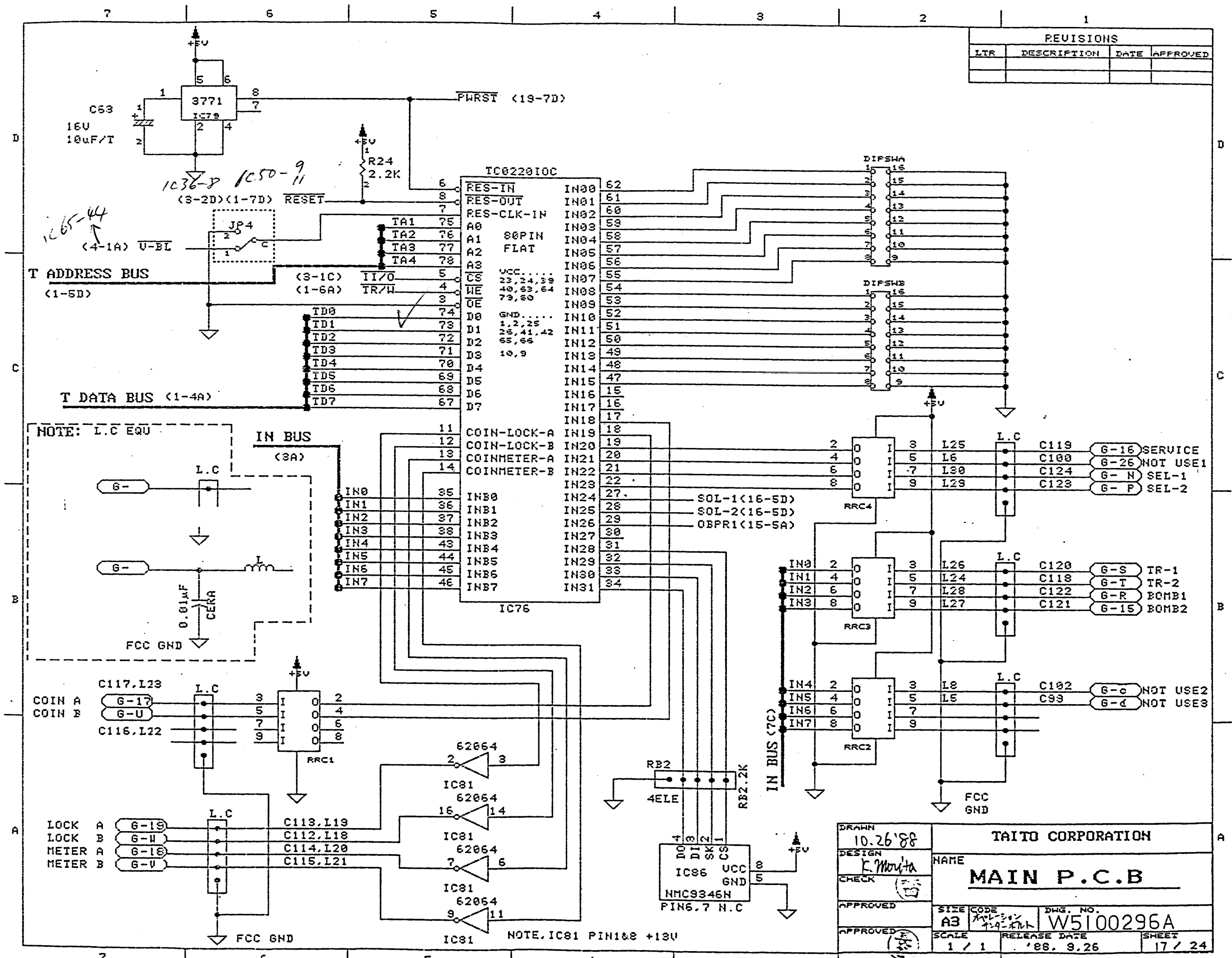


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IC36-19
 A/DINT (3-3C)
 TO L.C. 36-11 FCC GND
 you
 오다
 TO I.C. 51 (43256 RAM)
 51-71
 12
 13
 15
 16
 17
 18
 19
 20
 21
 22-23 01.02.24 NO CONT
 22-23 01.02.24
 25. 01.02.24
 1.80~95
 T.40~10

DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. Mouta	NAME MAIN P.C.B		
CHECK	SIZE CODE A3	DWG. NO. W5100296A	
APPROVED	SCALE 1/1	RELEASE DATE '88. 9.26	SHEET 16/24

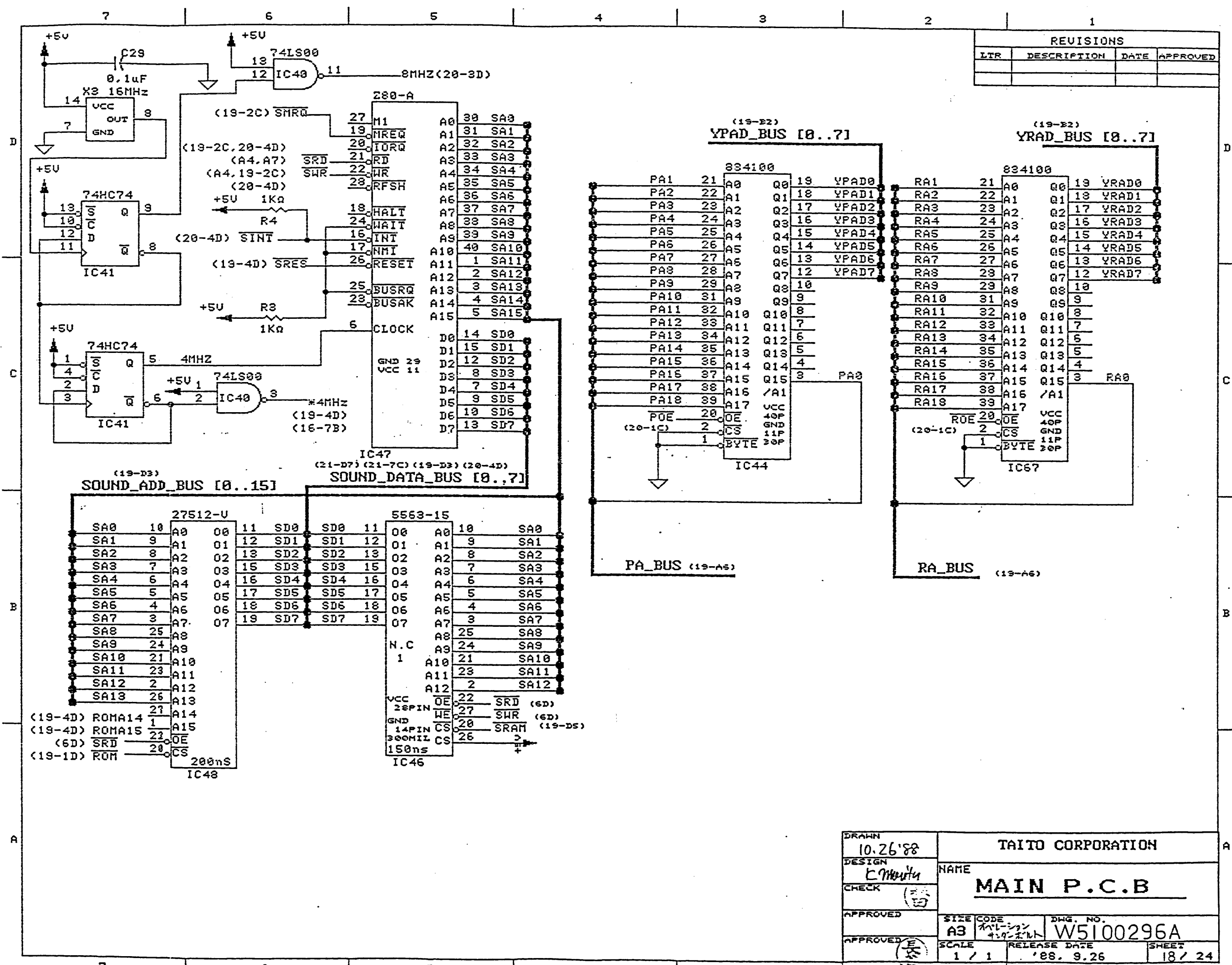
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



DRAWN 10.26'88 DESIGN E. Morita CHECK APPROVED APPROVED	TAITO CORPORATION NAME MAIN P.C.B SIZE CODE A3 SCALE 1 / 1 DWG. NO. W5100296A RELEASE DATE '88. 9.26 SHEET 17 / 24
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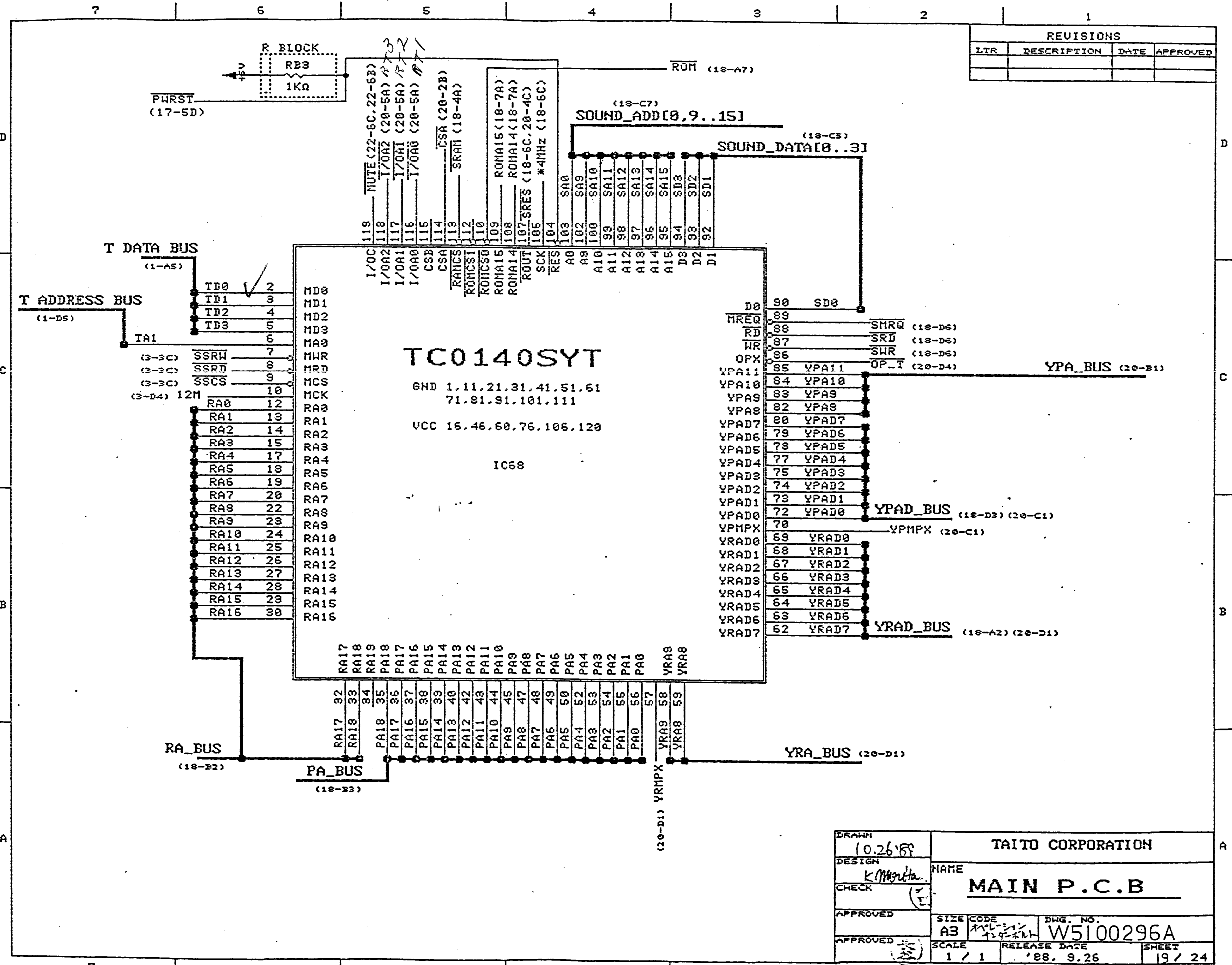
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REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



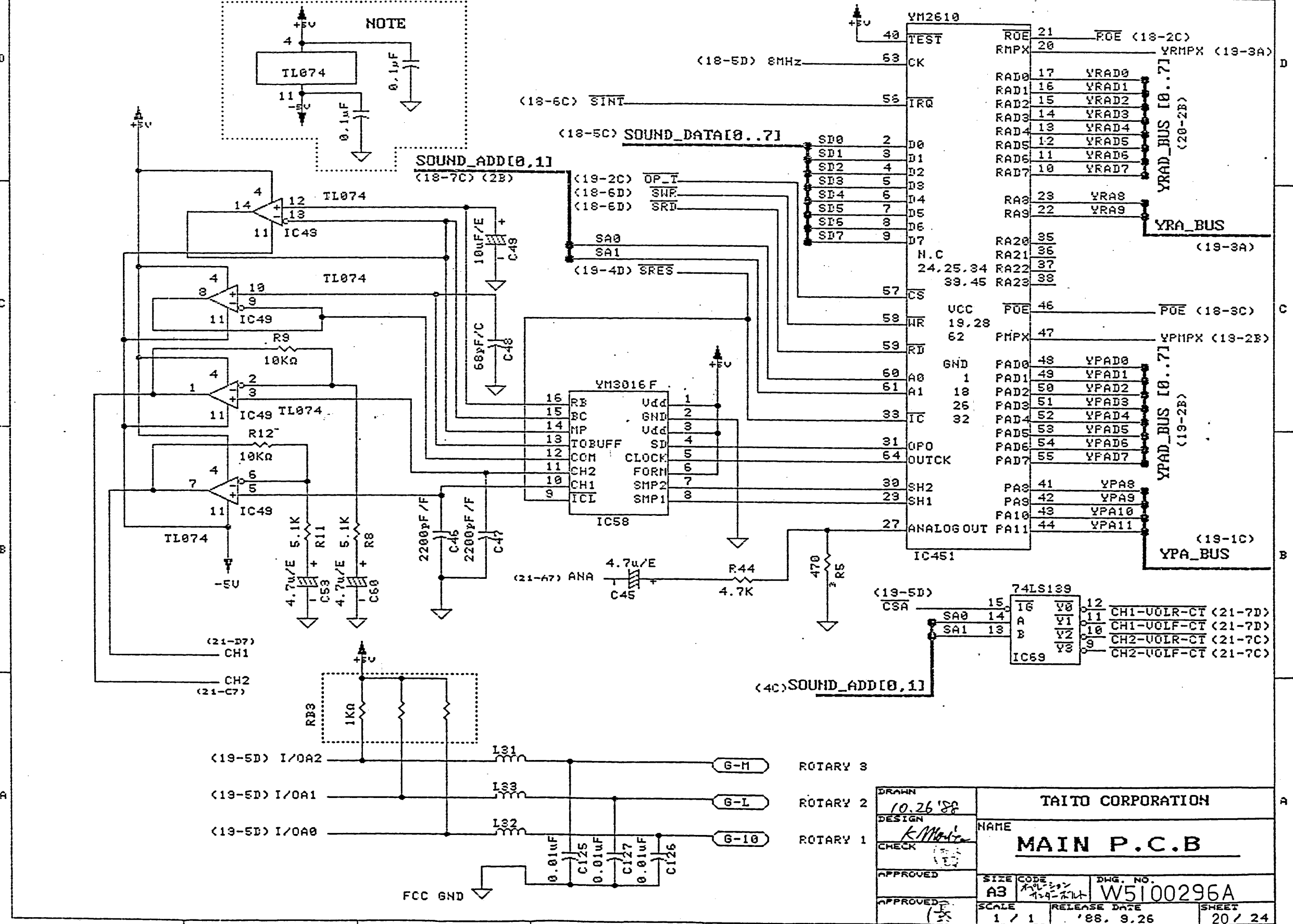
DRAWN 10.26'88	TAITO CORPORATION		
DESIGN E. M. M. M.	NAME MAIN P.C.B		
CHECK (Signature)	SIZE A3	CODE カリシヨ +1.9-2.1t	DWG. NO. W5100296A
APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.26	SHEET 18 / 24

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

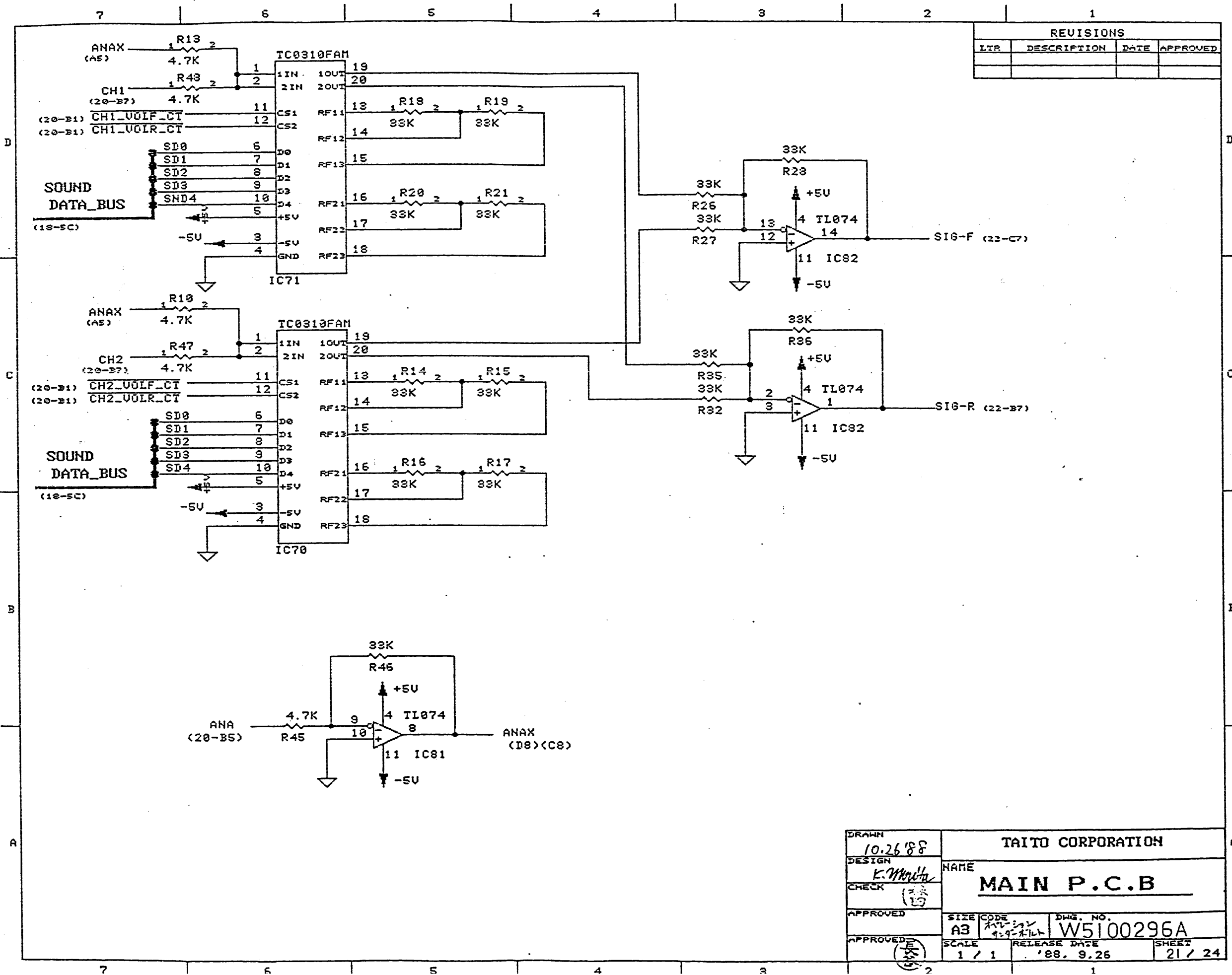


DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. Mizuta	NAME	MAIN P.C.B	
CHECK E	APPROVED	SIZE CODE A3	DWG. NO. W5100296A
APPROVED	SCALE 1/1	RELEASE DATE '88. 9.26	SHEET 19/24

REVISIONS			
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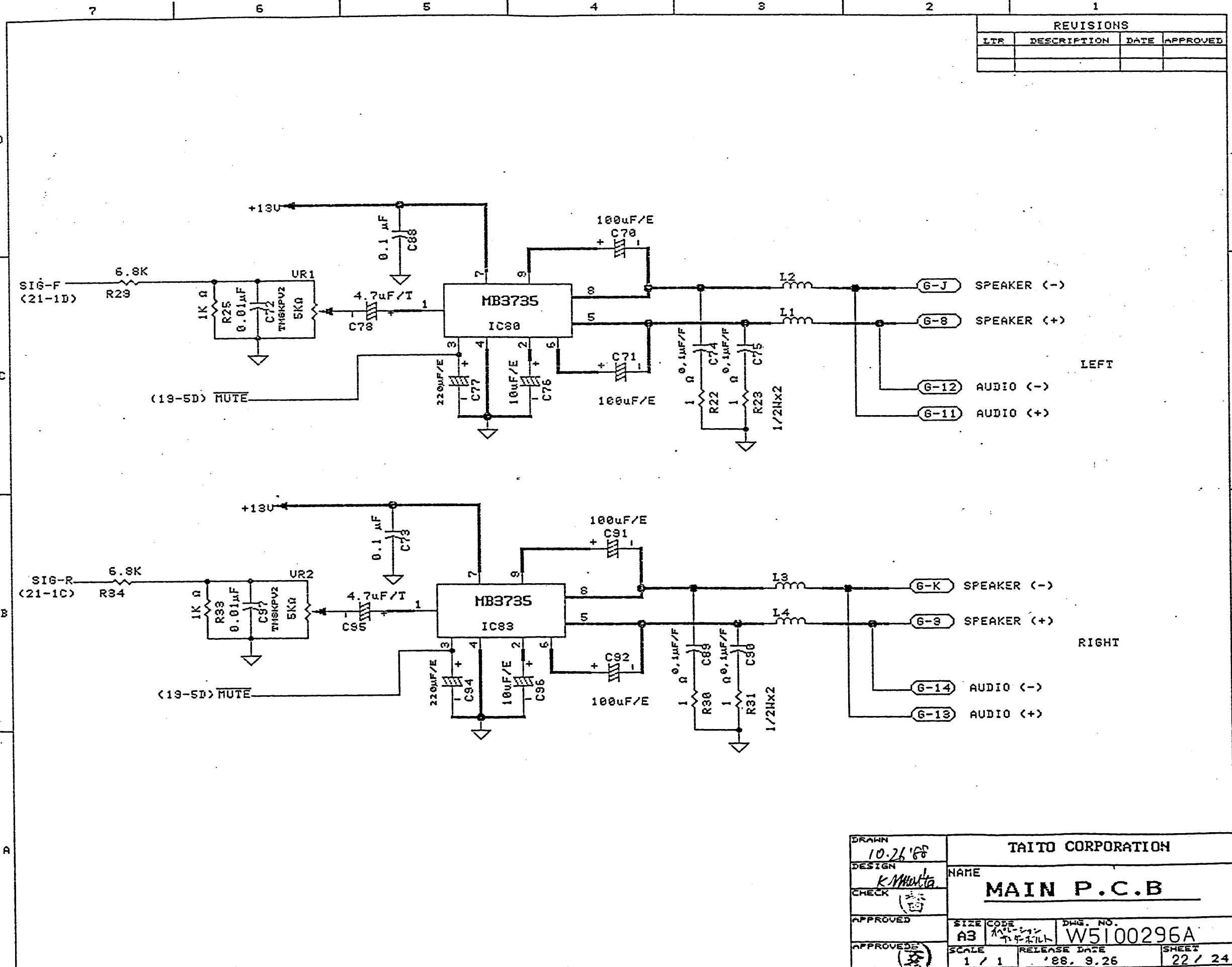


DRAWN 10.26 '88	TAITO CORPORATION		
DESIGN K. Maruta	NAME MAIN P.C.B		
CHECK	SIZE CODE A3	DWG. NO. W5100296A	SHEET 20 / 24
APPROVED	SCALE 1 / 1	RELEASE DATE '88. 9.26	



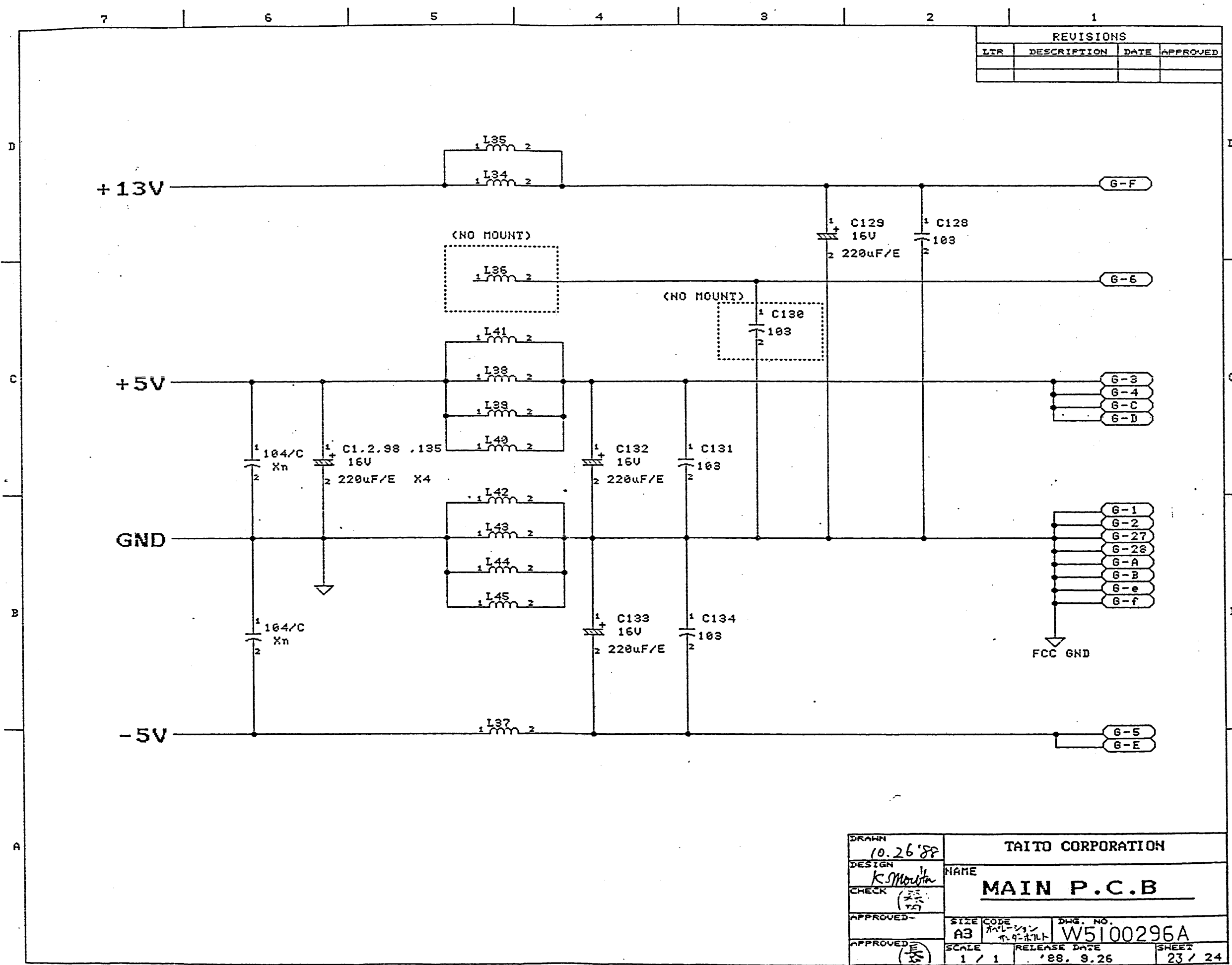
REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 10.26'88	TAITO CORPORATION		
DESIGN K. Morita	NAME MAIN P.C.B		
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APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.26	SHEET 21 / 24



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 10.26.88	TAITO CORPORATION		
DESIGN K. M. Hotta	NAME MAIN P.C.B		
CHECK (Signature)	SIZE A3	CODE 1-1-11	DWG. NO. W5100296A
APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.26	SHEET 22 / 24



REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED

DRAWN 10.26'88	TAITO CORPORATION		
DESIGN K. Mouri	NAME MAIN P.C.B		
CHECK (Signature)	SIZE A3	CODE XAL-303 TL-9-11L	DWG. NO. W5100296A
APPROVED (Signature)	SCALE 1 / 1	RELEASE DATE '88. 9.26	SHEET 23 / 24

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REVISIONS			
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G CONNECTOR			
GND	A	1	GND
GND	B	2	GND
+5V	C	3	+5V
+5V	D	4	+5V
-5V	E	5	-5V
+13V	F	6	+12V
POST	H	7	POST
SP L (-)	J	8	SP L (+)
SP R (-)	K	9	SP R (+)
ROTARY 2	L	10	ROTARY 1
ROTARY 3	M	11	AUDIO L (+)
SEL 1	N	12	AUDIO L (-)
SEL 2	P	13	AUDIO R (+)
BOMB 1	R	14	AUDIO R (-)
TRIGER 1	S	15	BOMB 2
TRIGER 2	T	16	SERVICE SW
COIN SW B	U	17	COIN SW A
COIN METER B	V	18	COIN METER A
COIN LOCKOUT B	W	19	COIN LOCKOUT A
COIL 2	X	20	COIL 1
G	Y	21	R
SYNC	Z	22	BL
VR 2P X	a	23	VIDEO GND
VR 2P Y	b	24	VR 1P X
NOT USE 2	c	25	VR 1P Y
NOT USE 3	d	26	NOT USE 1
GND	e	27	GND
GND	f	28	GND

DRAWN 10.26.88		TAITO CORPORATION	
DESIGN <i>K. Maeda</i>	CHECK <i>(Signature)</i>	NAME MAIN P.C.B	
APPROVED <i>(Signature)</i>	SIZE CODE A3	DWG. NO. W5100296A	SCALE 1 / 1
APPROVED <i>(Signature)</i>	RELEASE DATE '88. 9.26	SHEET 24 / 24	

OPERATION

THUNDERBOLT

DIP SWITCH SETTINGS

The following option switch settings were designed to allow the customizing of OPERATION THUNDERBOLT's various game features to suit different environments. When used wisely, the flexibility they offer can maximize game performance and increase potential earnings.

DIP SWITCH A		1	2	3	4	5	6	7	8
FUNCTION	SETTING								
NONE	MUST REMAIN IN "OFF" POSITION	OFF							
CONTINUE PLAY	*ENABLED DISABLED		OFF ON						
SELF-TEST MODE	*GAME MODE TEST MODE			OFF ON					
ATTRACT SOUNDS	*ENABLED DISABLED				OFF ON				
PLAY PRICING COIN A	1 CO = 1 PL 1 CO = 2 PL *2 CO = 1 PL 2 CO = 3 PL					OFF ON OFF ON	OFF ON OFF ON		
PLAY PRICING COIN B	1 CO = 1 PL 1 CO = 2 PL *2 CO = 1 PL 2 CO = 3 PL							OFF ON OFF ON	OFF ON OFF ON

* = FACTORY RECOMMENDED SETTINGS

DIP SWITCH B		1	2	3	4	5	6	7	8
FUNCTION	SETTING								
DIFFICULTY LEVEL	*MEDIUM EASY HARD HARDEST	OFF ON OFF ON	OFF OFF ON ON						
INITIAL NO. OF MAGAZINES/ROCKETS	*5 / 3 6 / 4 7 / 5 8 / 6			OFF ON OFF ON	OFF OFF ON ON				
NUMBER OF BULLETS IN A MAGAZINE	*40 50 35 30					OFF ON OFF ON	OFF OFF ON ON		
DISCOUNTED CONTIN. PLAY	DISABLED *ENABLED							OFF ON	
NONE	MUST REMAIN IN "ON" POSITION								ON

* = FACTORY RECOMMENDED SETTINGS

IMPORTANT

WHEN THE "DISCOUNTED CONTINUE PLAY" OPTION IS ENABLED, THE PLAYER PAYS THE FULL AMOUNT FOR THE FIRST GAME AND THEN IS ALLOWED TO CONTINUE BY INSERTING ONLY 1 COIN. FOR EXAMPLE, IF THE GAME IS PRICED AT 2 COINS PER 1 PLAY AND THE "DISCOUNTED CONTINUE PLAY" OPTION IS ENABLED, THE PLAYER MUST INSERT 2 COINS FOR HIS FIRST GAME AND THEN ONLY 1 COIN TO CONTINUE HIS GAME.