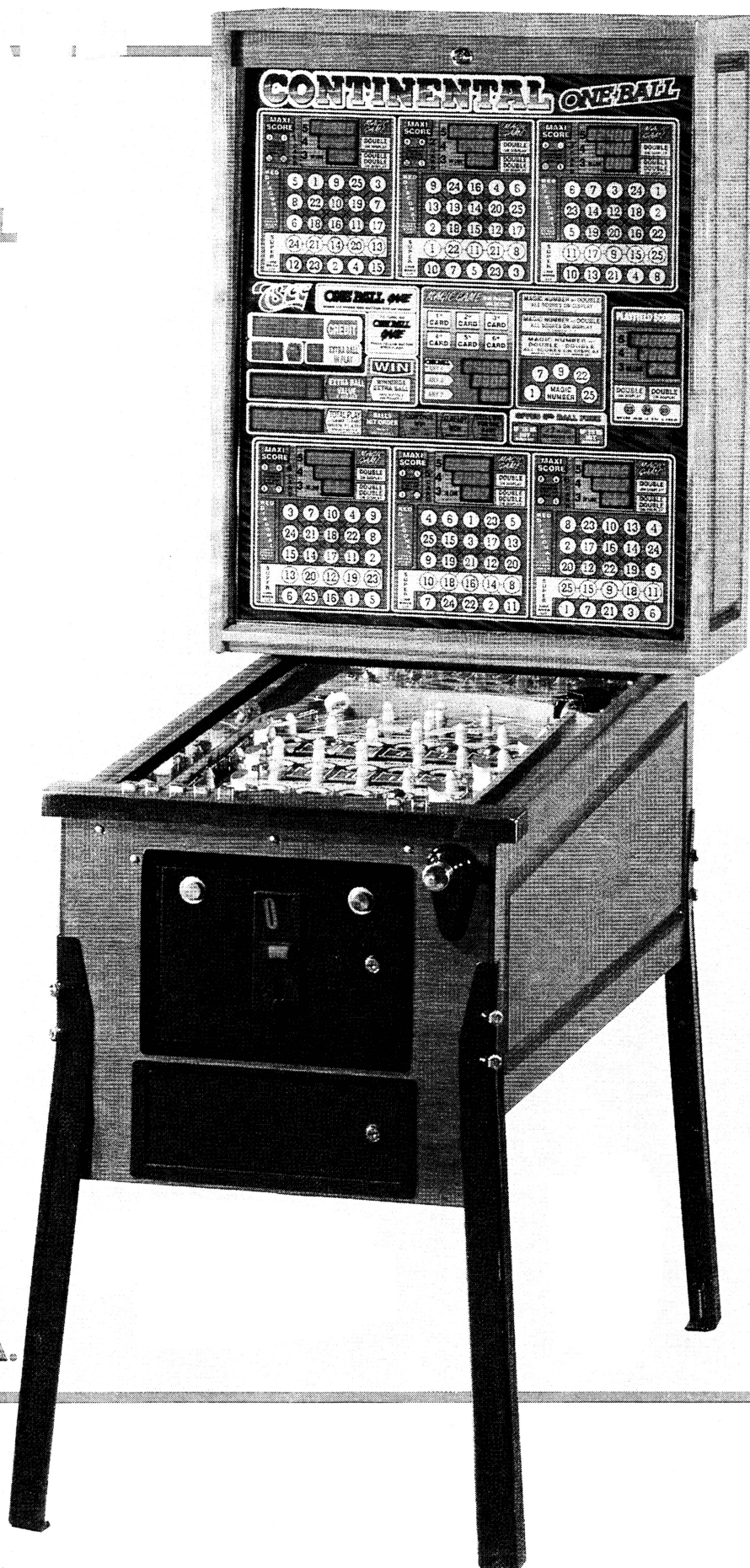


CONTINENTAL

MADE 1993

CONTINENTAL ONE BALL



G.A.A.

**GENERAL AUTOMATIC
AMUSEMENT**

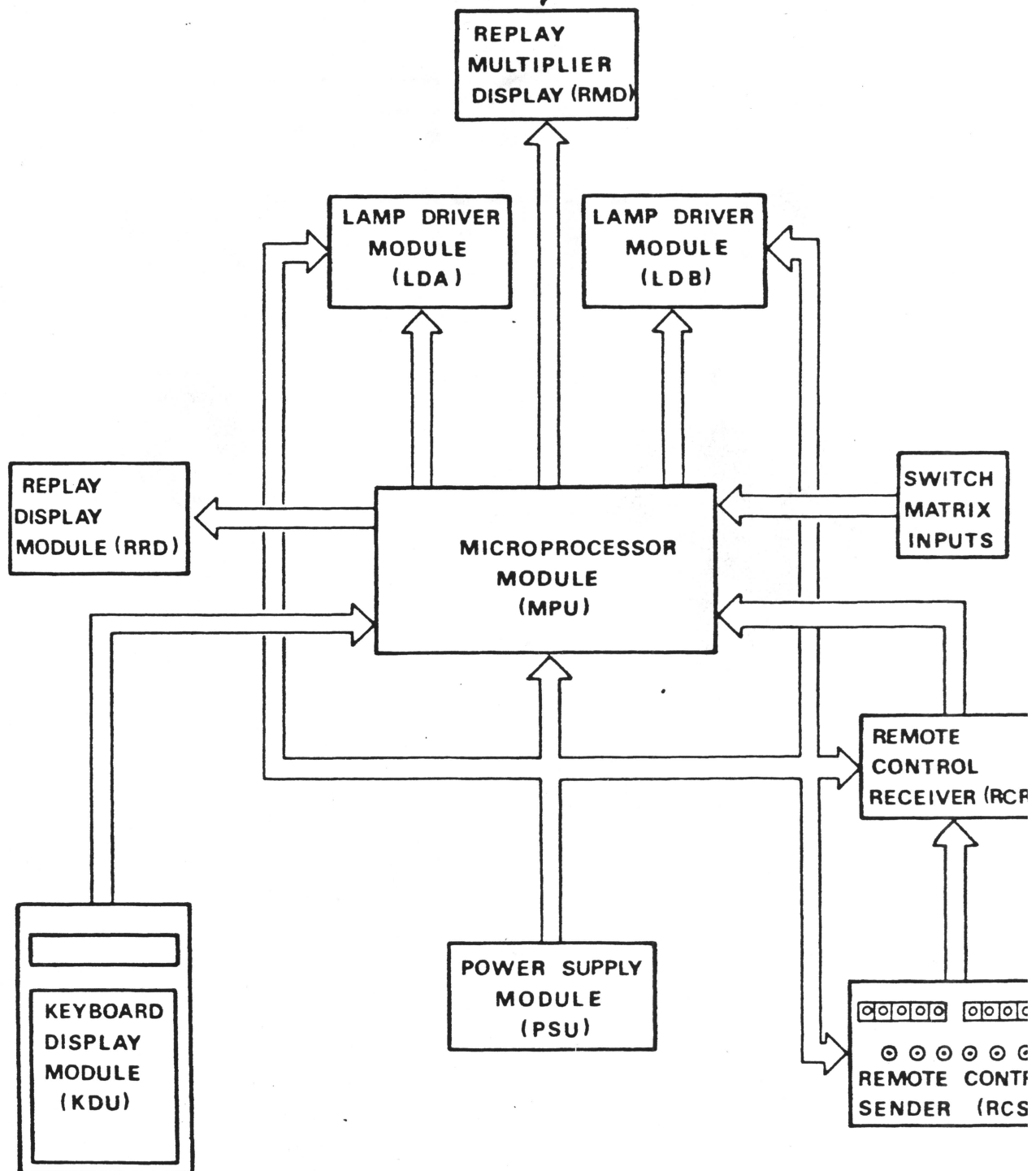
Rue des Palais 271-279
1210 Bruxelles
Tel.: ## 32 2 201 11 77
Fax: ## 32 2 201 13 37

NEW CONTINENTAL

BINGO

INSTRUCTION MANUAL

BLOCK DIAGRAM - NEW ÇONTINENTAL



CIRCUIT FUNCTIONS

The block diagram shows the signal flow between the component modules of the NEW CONTINENTAL . The points where arrows enter the Microprocessor Module lead to input Ports - the communication link between the microprocessor and data from the Keyboard Display Module, Remote control Sender and the Switch Matrix which acts as the "eyes" of the microprocessor.

Arrows emerging from the MPU board are from Output Ports, by which instructions and data are transferred from the microprocessor or memory components to output devices such as the lamp driver modules, display, solenoids and motor.

The microprocessor is a **programmed** integrated circuit which performs a wide variety of electronic tasks. It is connected to other integrated circuits on the MPU module thru the data bus and address bus by which data and instructions pass back and forth. A control bus links the components to synchronize system functions.

Specific sequential instructions to be carried out by the microprocessor are in the **program** memory. When the "power up" state is reached, the first instruction will be obtained from this memory via the data bus. After executing this instruction the microprocessor will signal for the second, etc.

The microprocessor tests the MPU module first, then makes the game ready for play. A large part of the MPU activity consists of monitoring the memory record of the switches on the playfield and in the cabinet, other tasks include servicing display updates, motors, solenoids and scanning lamps and momentary switches. Several additional memory IC's store more data and instructions for the microprocessor.

INSTALLATION

A. ASSEMBLY

1. Using flat washers under bolt legs to cabinet.
2. Unlock and remove back glass from back box, loosen screws on light panel retaining brackets.
3. Position back box on cabinet, lift and tilt light panel forward to rest on cabinet for access to main cable and printed circuit board.
4. Bolt back box to cabinet.
5. Gently feed cable connectors and ground braids from cabinet through port in back box.
6. Bolt ground braids to stud on power supply chassis.
7. Carefully and fully insert (4) back box cable connectors into cabinet connectors.
8. Insert power supply cable connector completely into receptacle on chassis.

B. INSPECTIN

After assembly, a visual inspection of the game must be made to correct loose connections or improper switch adjustments that may occur due to rough handling during shipment.

CAUTION: Do not plug in line cord before completing the following steps.

1. Check that all cable connectors are completely seated on printed circuit assembly.
2. Check that all cables are clear of moving parts.
3. Check for any wires that may have become disconnected.
4. Check switches for loose solder or other foreign material that may be shorting contacts.
5. Check that fuses are firmly seated and making good contact.
6. Check that integrated circuit mounted on P.C. sockets are seated.

7. Check adjustment of the (3) tilt switches (normally open):
 - a. Slam switch on front door
 - b. Slam switch on bottom right side of cabinet
 - c. Plumb bob tilt switch on left side of cabinet

NOTE: Game should be placed on desired location and leg levelers adjusted before setting plumb bob tilt switch.

8. Check power supply for any foreign material shorting across components.
9. Check location line voltage and adjust power supply to suitable value.

TO ADJUST POWER SUPPLY

Insert correct "line code" plug into receptacle on power supply chassis to match power input available, as shown in figure 1. Games are normally supplied with with two plug, one wired for 120 VAC and the other for 220 VAC operation. Figure 1 shows wiring of "line code" plugs.

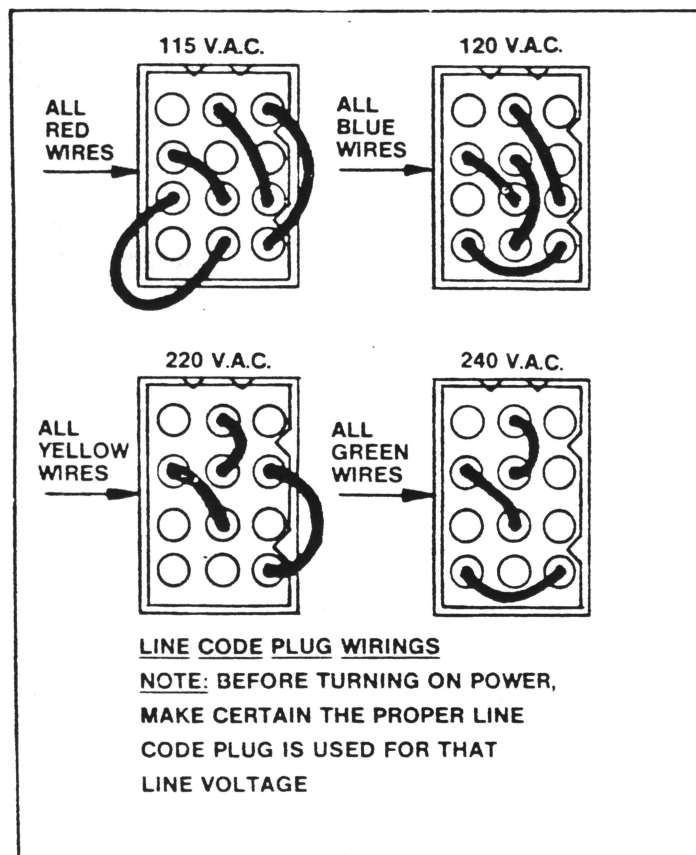


FIG. 1

GAME OPERATION

A. GENERAL

Plung in line cord. Move power On-Off master switch to "On" position. The general illumination panel and back glass lamps will light. After several seconds the electronic replay display will light. The display will show all zeros. If there is a value other than zero on the display it will change to zero after a few seconds. The game is ready for play.

One card or feature is granted for each coin or credit that is played. The credits are reduced by number of multiplier each time the credit button is depressed until the credits are reduced to zero or the maximum credits per game is reached.

Upon buying the first card or feature (either by coin or credit) any balls remaining on the playfield from the previous game will be dumped. When all balls have reached the ball

trough the first ball will lift to the ball shooter. The game is now ready to play. In the case where a ball was left at the ball trough, the ball at the shooter will be the first ball of the game.

Shooting the ball initiates game play. Attaining three, four or five lights in a row or at corners when the feature is lit awards credits according to the replay schedule.

Closing any of the tilt switches results in ending the game. The hole lights and all feature lights go out and the tilt light turns on. Any winning combinations attained but not credited are void.

The multiplication factor for a game being played is shown on the Score Multiplier Display, located at the lower left corner of the playfiel.

When scores are increased up to X 10 using the Score Multiplier, the number of credits awarded may exceed **99999**.

If this should occur, the replay display will return to zero and resume counting. At the same time the "★" in right of "NEW CONTINENTAL" lights up on the back glass to indicate overflow. Maximum capacity of the credit (replay) memory is 199999 after which the game tilts out.

GAME ADJUSTMENTS

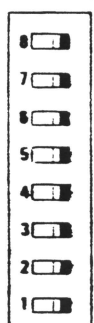
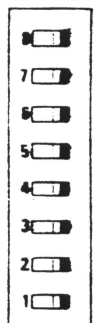
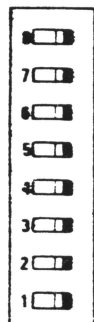
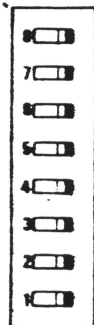
A. PLAYFIELD PANEL POST ADJUSTMENT

Rebound of the ball on the playfield may be adjusted by changing the rubber rings on the playfield posts. A soft rubber ring will increase the ball rebound and a hard rubber ring will decrease rebound.

B. BACK BOX GAME ADJUSTMENTS

CAUTION: Turn off power to game before making back box adjustments. Touch the ground braid frequently to avoid damage to the IC modules from static discharge.

Each game has 32 switches located on the MPU module in the back box. These switches allow play to be customized to the location. The switches are contained in four sixteen lead packages numbered "AB" "CD" "EF" "GH". The position is marked on the assembly.



		DIP SWITCH A-B								DIP SWITCH C-D								FUNCTIONS
		8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	
1st coin mech.		off	off															1 coin 2 coins 3 - 4 -
2nd coin mech.				off	off													1 coin 2 coins 3 - 4 -
1st coin mech.						off	off	off										1 point 2 points 3 - 4 - 5 - 10 - 20 - 50 -
2nd coin mech.									off	off	off							1 point 2 points 3 - 4 - 5 - 10 - 20 - 50 -
Multiplier limit										off	off	off						x 1 x 3 x 6 x 10
Conting rate												off	on					Slow Fast
Point every times														off	off	off	off	1 2 3 4 5 2 3 4 5 3 4 5 4 5
Future use																	on	Must be on
		DIP SWITCH E-F								DIP SWITCH G-H								
		8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	
Extra ball cost adjust							off	off										15 % 20 % 25 % 30 %
Progr. bonus increase rate								off	off									1 / 3 1 / 6 1 / 9 1 / 12
Progr. bonus start value										off	off							000 points 250 - 500 - 750 -

ON ← OFF

C. FRONT DOOR GAME ADJUSTMENTS

Several functions of the Reflex Unit are accessible using the Keyboard Display Unit

<u>Code</u>	<u>Function</u>
10A	Reflex Factor
11A	Reflex Ratio

Reflex Unit Adjustments:

The Reflex Factor may be adjusted over a range of one to nine to allow the operator to immediately adjust the game play without changing the long term percentage associated with changing the Reflex Ratio

Changing the Reflex Factor is accomplished follows:

Display the Reflex Factor by entering the factor code into the Keyboard (10A). Enter the new value (between 1 and 9) into the keyboard. Depress "Enter" . The new value is now loaded into the Reflex Factor register.

The Reflex Ratio may be set to any value between 70 and 99.

It comes pre-set from Fact at 76, Which approximates a number 3 gear ratio of a mechanical game.

To adjust the Reflex Ratio, display the present value of the ratio by entering the Reflex Ratio code (11A) into the keyboard the new, two digit ratio followed by depressing the "Enter" key. The new value is now stored in the register and the Reflex Circuit will stop at this new ratio during game play.

NOTE: The range of adjustment for the Reflex Ratio is limited to between 70 and 99 percent. Should the ratio be set to a value outside this range, the game will initialize the ratio back to 76 percent.

ROUTINE MAINTENANCE

A. DIAGNOSTIC TESTS

Prior to activating the built-in test routines the game must be switched from its normal (play) mode to the diagnostic mode (see Keyboard Display Unit installation). This is done with the game on, by depressing the KEYBD/CLR Button on the Keyboard Display Unit (KDU). As the game enters the diagnostic mode, all feature lights are turned off, the replay display blanks out and the tilt light is turned on. The KDU (Keyboard Display Unit) may now be used to aid service personnel in the performance of diagnostic routines which either indicate that game is functioning properly or help isolate faulty circuits for repair.

B. KEYBOARD OPERATION

To start any diagnost routine, the specific code for routine must be entered on the keyboard. The codes and the routines they initiate are:

<u>Code</u>	<u>Function</u>
1B	Lamp test
3B	Cyclic Lamp, Coil & Motor test
2B	Switch test

C. TEST PROCEDURE

1. LAMP TEST (1B)

After entering the "1B" code, repeated depressing of the "B" button (8 additional times), sequentially energizes eight groups of lamp circuits. As each group of circuits is energized, the number designating that group will apper on the KDU readout. The circuit groups are listed in the order they are energized.

<u>CODE</u>	<u>LAMP CIRCUITS</u>
8	25 Magic number 4th card double hit 5th card double hit 6th card double hit
7	3rd card double-double hit 3rd card double hit 22 Magic number 3 & 6 double-double card feature 6th card regular win 6th card double-double hit
6	2nd card double-double hit 2nd card double hit 9 Magic number 2 & 5 double-double card feature 5th card double-double hit
5	Extra balls 1st card double-double hit 1st card double hit Progressive bonus If any flashing Wins For extra balls 7 Magic number 1 & 4 double-double coin feature 4th card double-double hit 5th card regular win
4	2nd card nothing All card ball lights 4, 8, 12, 16, 20, 24 All cards red diagonals Double or nothing features 8th coin feature Tilt

	1 Magic number
	4th card
	4th card nothing
	6th card nothing
3	2nd crd regular win
	2nd card double
	3rd card
	All cards ball lights:
	3, 7, 11, 15, 19, 23
	7th coin feature
	9th coin feature
	11th coin feature
	Magic number feature
	Magic number feature hit
	4th card regular win
	4th card double win
	6th card double win
2	1st card nothing
	2nd card lite
	3rd card nothing
	All cards hole lights:
	2, 6, 10, 14, 18, 22
	All cards super line feature
	10th coin feature
	5th card nothing
	6th card
	Corner and Super Line panel rollovers
1	Star credit 100.000
	1st card
	All cards corner
	1st card regular win
	1st card double win
	All cards ball lights:

1, 5, 9, 13, 17, 21, 25

3rd card regular win

3rd card double win

5th card

5th card double win

NOTE: After completing the 1B test, codes for other routines may be entered directly, if any difficulty arises, press the "KEYBD/CLR" button and re-enter the desired code.

2. CYCLIC LAMP, COIL AND MOTOR TEST (3B)

This routine is similar to the 1B lamp test except that coil and motor circuits of the game are energized with the lamp groups and no further action is required after entering the 3B code. When this is done, the groups of circuits are energized automatically in the same order (8 thru 1).

The sequence will cycle continuously until another code is entered on the keyboard or the KEYBD/CLR button (or "Game" button) is pressed.

NOTE: The 3B cyclic routine was designed as a factory burn-in test to assure proper functioning of components after a period of use.

3. SWITCH TEST (2B)

Remove (6) balls from the game before running the switch test. After entering the 2B code, the keyboard display should read 8 00. The "8" indicates the switch group being monitored and the "00" reports all switches open in that group. Each additional time the "B" button is pressed, the code for the next group of switches being checked will appear on the left hand side of the keyboard display. At the same time, in a game that is working properly "00" will be displayed on the right hand side of the keyboard readout, to report all switches open. This repeated pressing of the "B" button commands the Main Processing Unit (MPU) to identify and monitor each group of switches sequentially (8 thru 1, see chart) and return to group 8.

Each switch in the game also has unique code based on its group and position numbers. This specific code will be shown only if that particular switch is closed when its group number is selected. Switch codes appear in place of the "00" on the right hand side of the Keyboard display.

Example: If the Key switch in group 8 is closed, the display will show 8 04.

When two or more switches in the same group are closed, the sum of all closed switches are displayed.

Example: In group 8, if the Replay Button Switch is closed along with the Key switch, the display will show 8 05.

NOTE: The code numbers differ sufficiently to allow switch identification by subtraction of the individual switch codes. If the KDU shows any closed switches during the test described, locate and check for adjustment, tracing associated circuits if necessary.

To complete the 2B routine, step the KDU to group 8 and manually close switches in the group, one at a time. As each switch is actuated, the correct code should appear in the keyboard display. Repeat with groups 7 thru 2 (group 1 is not used). If response is intermittent or does not occur.

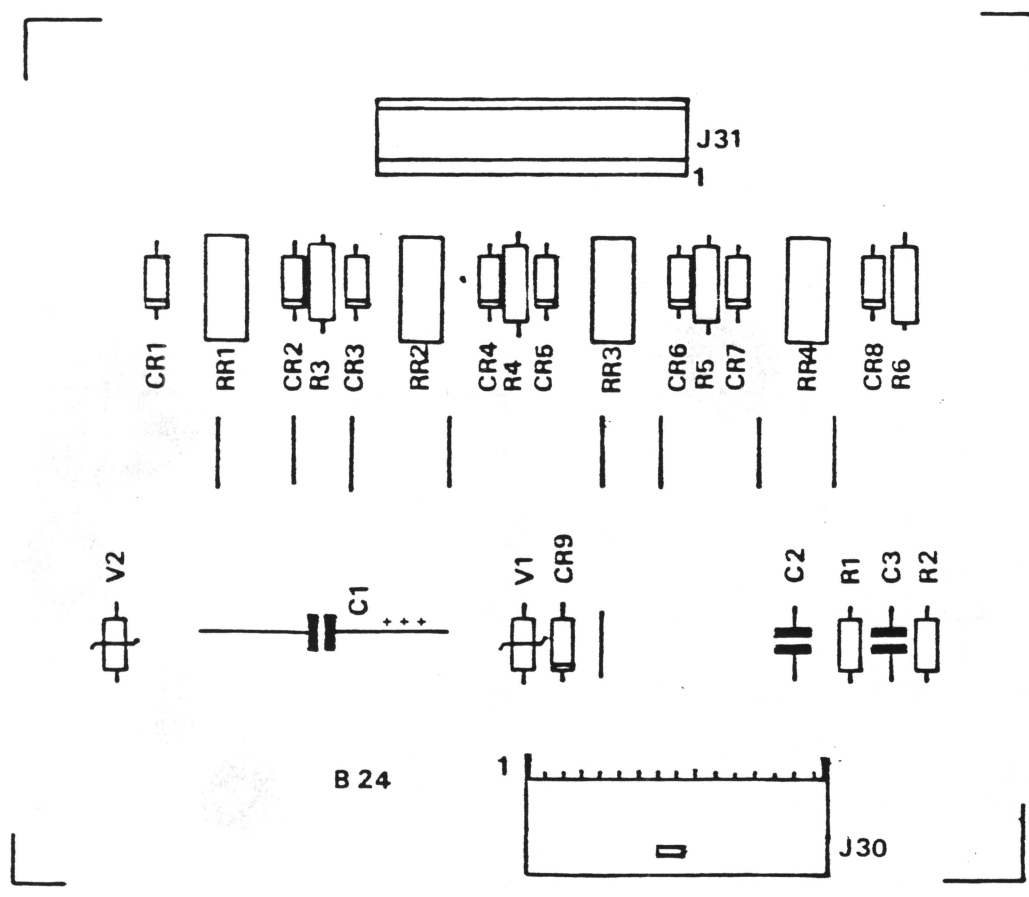
GROUP CODE	SWITCH CODE	SWITCH
8	01	Replay button
	02	1/2 button
	04	Key switch
	08	"C" button
	10	"D" button
	20	"R" button
	40	Coin switch 2
	80	Tilt
7	01	X 5 button
	02	Ball elevator switch
	04	Ball trough 1
	08	Ball trough 2

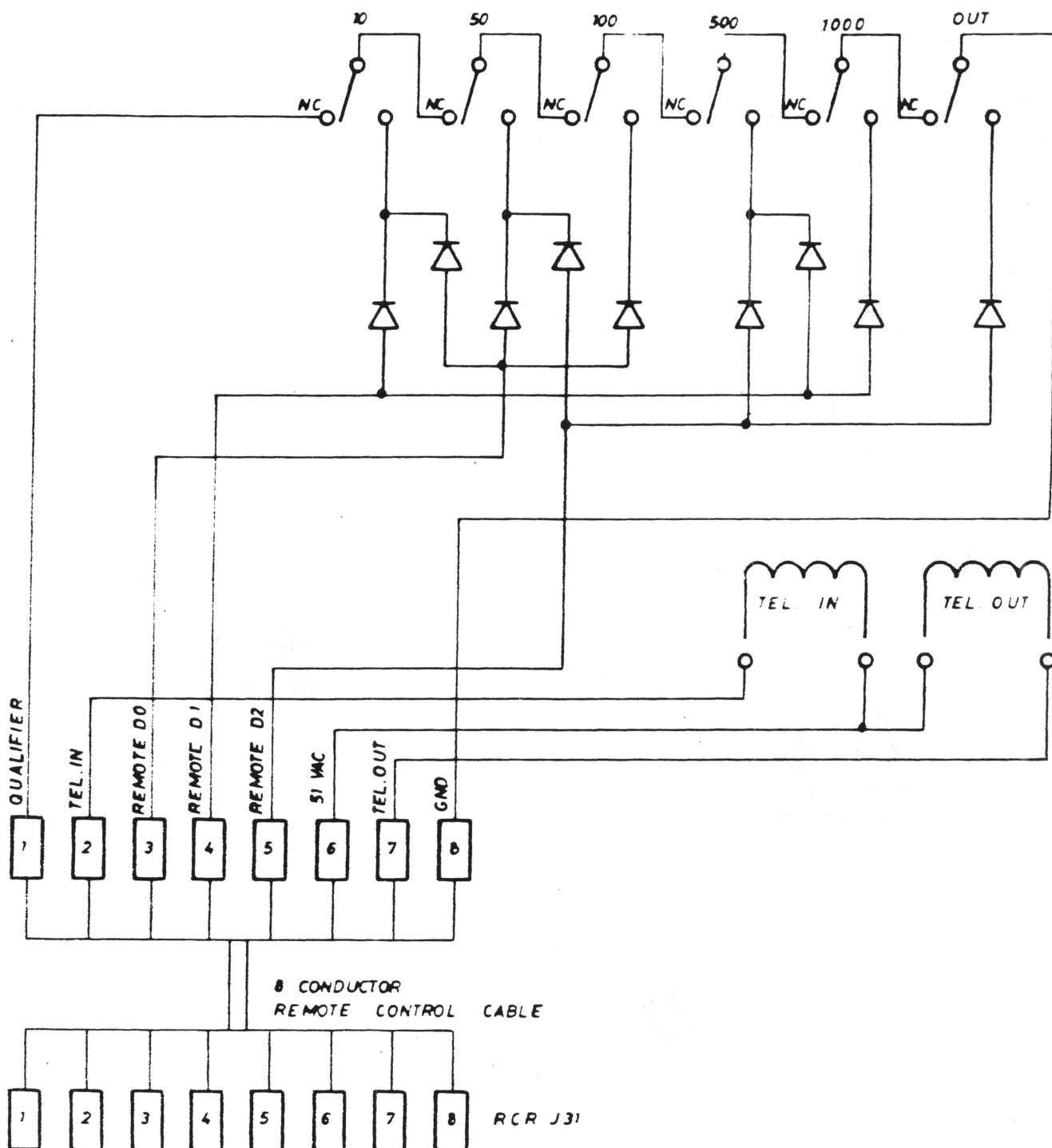
	10	Ball trough 3
	20	Ball trough 4
	40	Ball trough 5
	80	Coin switch 1 & 2
6	01	Gate
	02	Super line rollover
	04	Corner rollover
	20	Ball shooter
	80	Request extra ball
5	01	Hole 1
	02	Hole 2
	04	Hole 3
	08	Hole 4
	10	Hole 5
	20	Hole 6
	40	Hole 7
4	01	Hole 8
	02	Hole 9
	04	Hole 10
	08	Hole 11
	10	Hole 12
	20	Hole 13
	40	Remote control data 2
	80	Remote control data 1
3	01	Hole 14
	02	Hole 15
	04	Hole 16
	08	Hole 17
	10	Hole 18
	40	Remote control data 0
	80	Remote control qualif.
2	01	Hole 19
	02	Hole 20

04	Hole 21
08	Hole 22
10	Hole 23
20	Hole 24
40	Hole 25

1

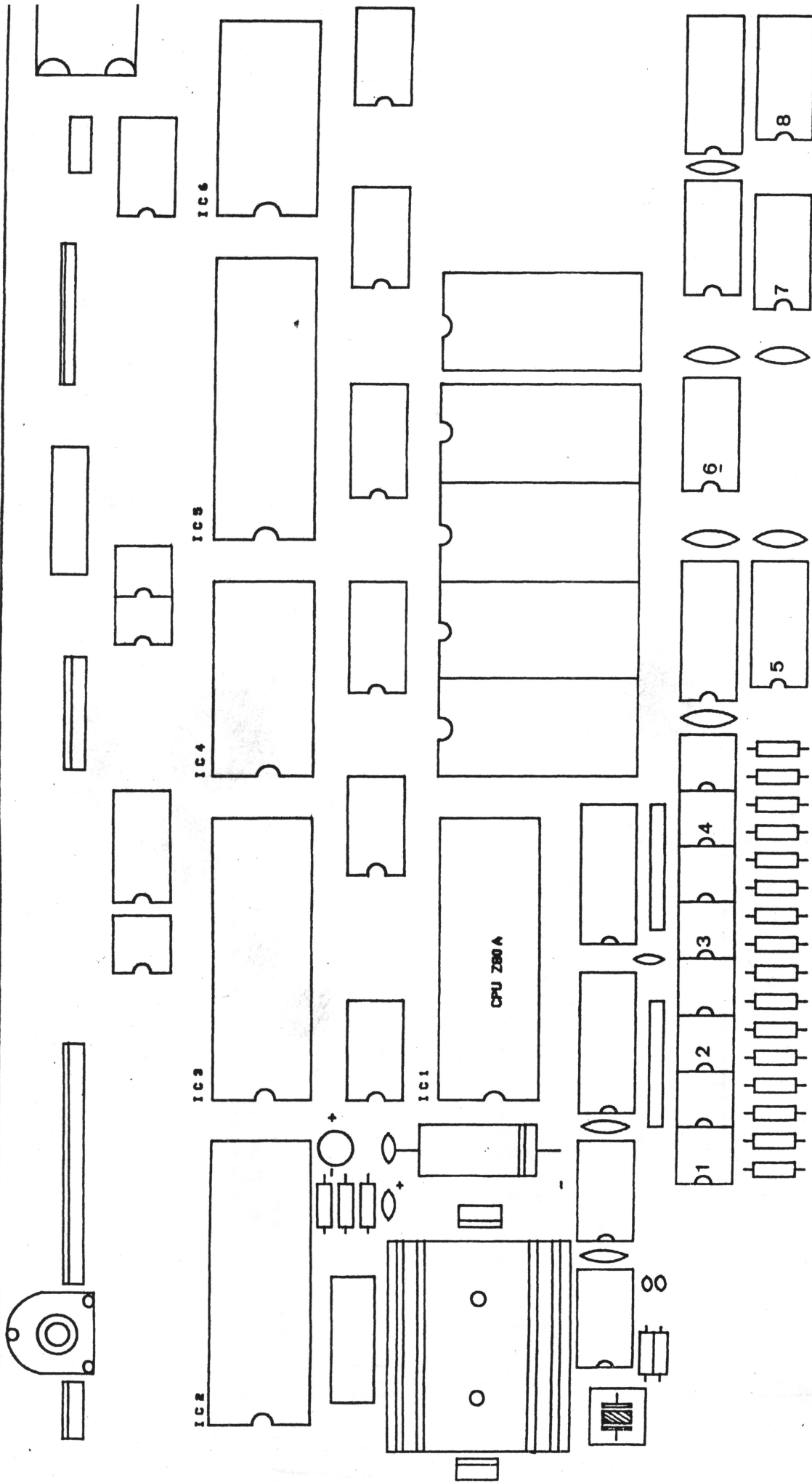
NOT USED



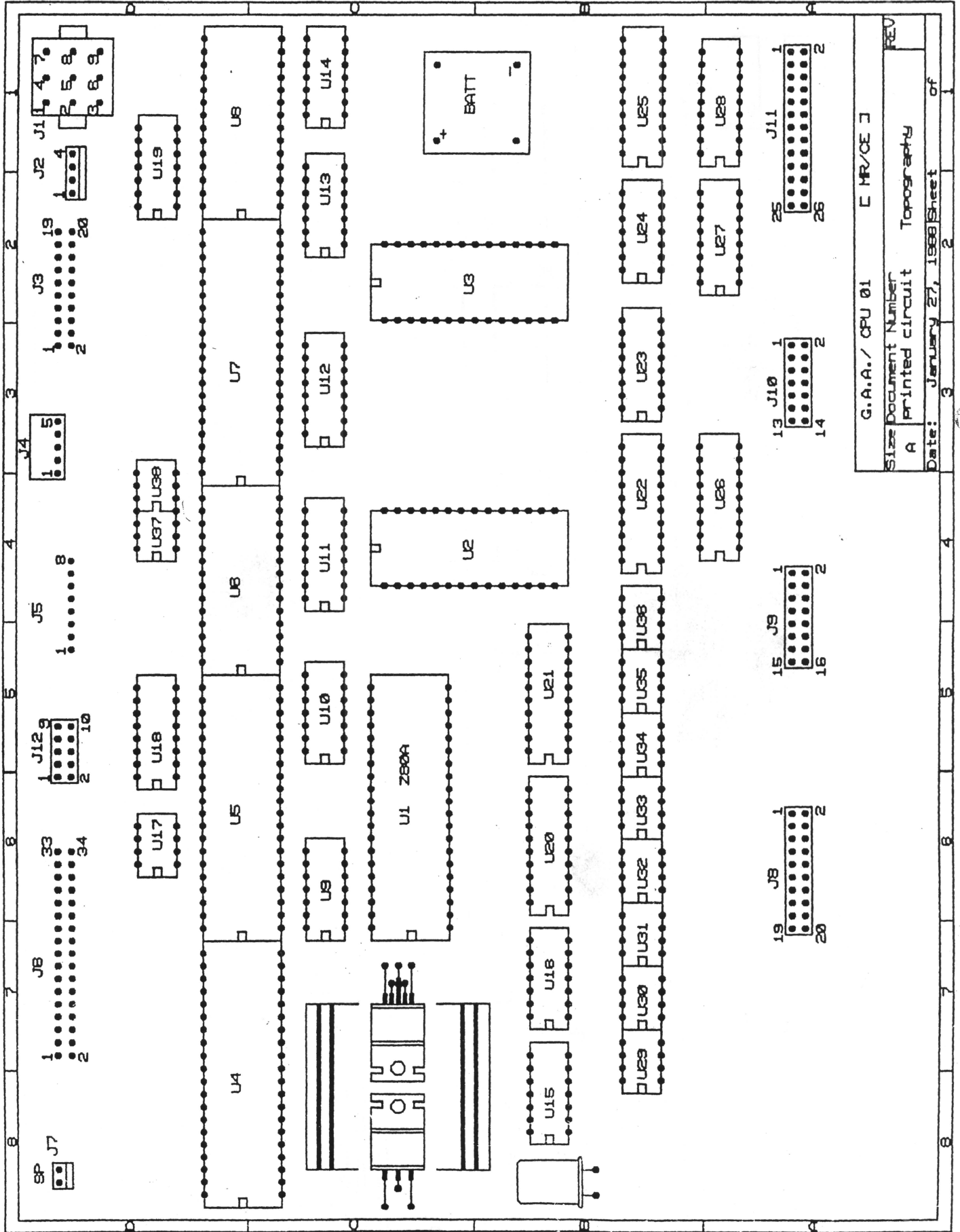


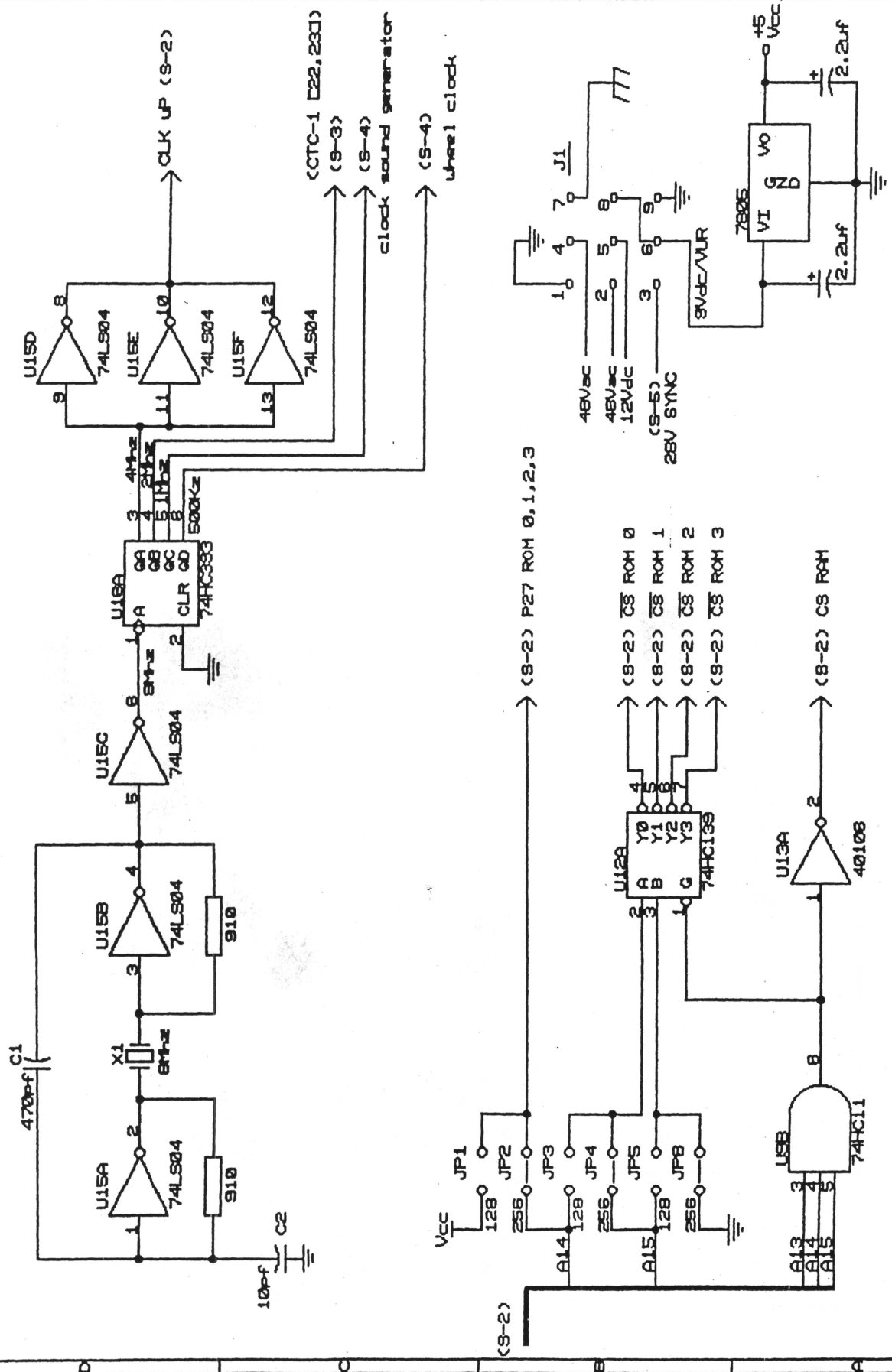
TELEPHONE FOR NEW CONTINENTAL

ALL DIODES ARE 1N 4148



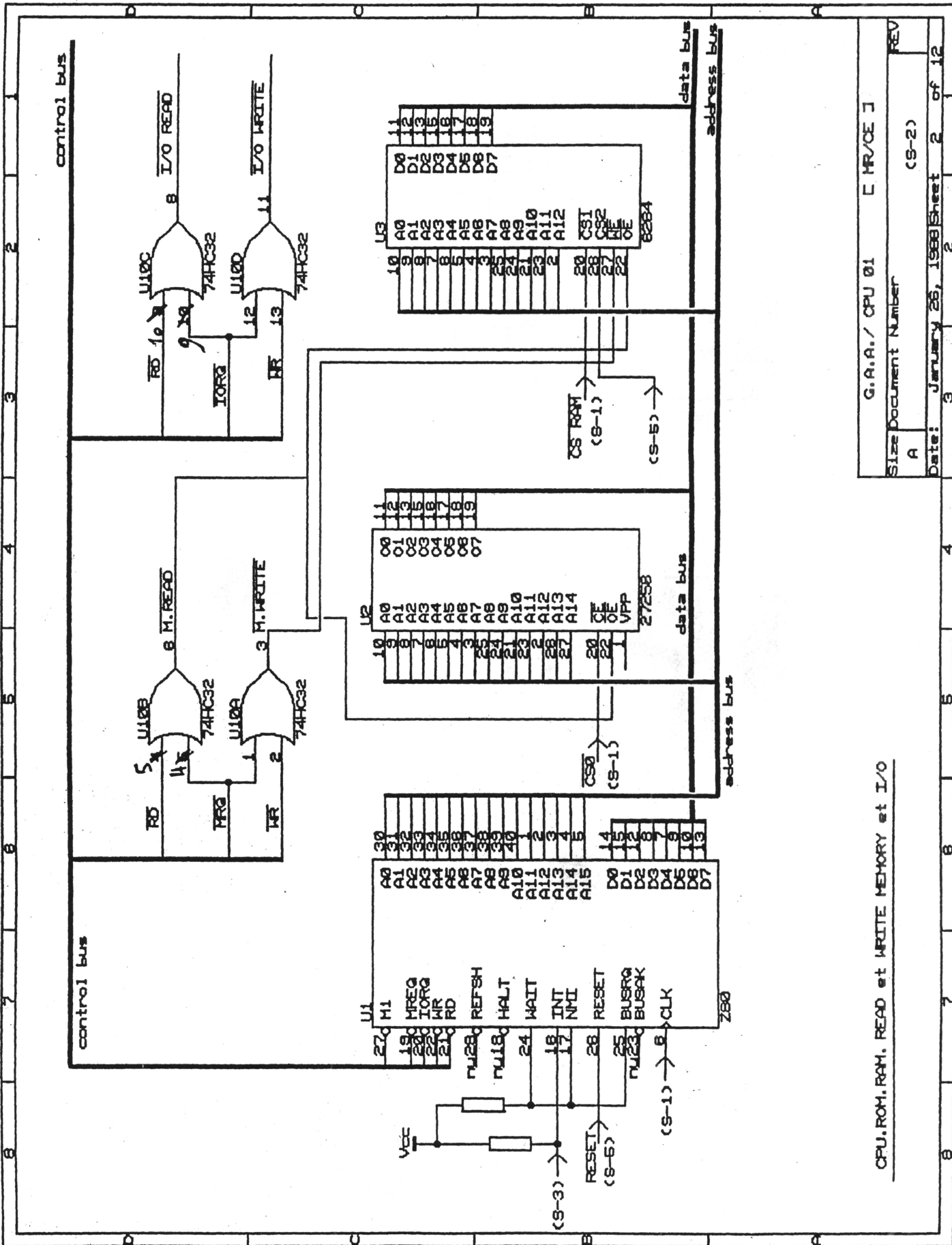
Printed Circuit
Topography
CPU-Z80





timing generator and memory address decoder

G.A.A/ CPU 01		[MR/CE]	
Size Document Number		(S-1)	
A		REV	
Date: January 26, 1988		Sheet 1 of 12	

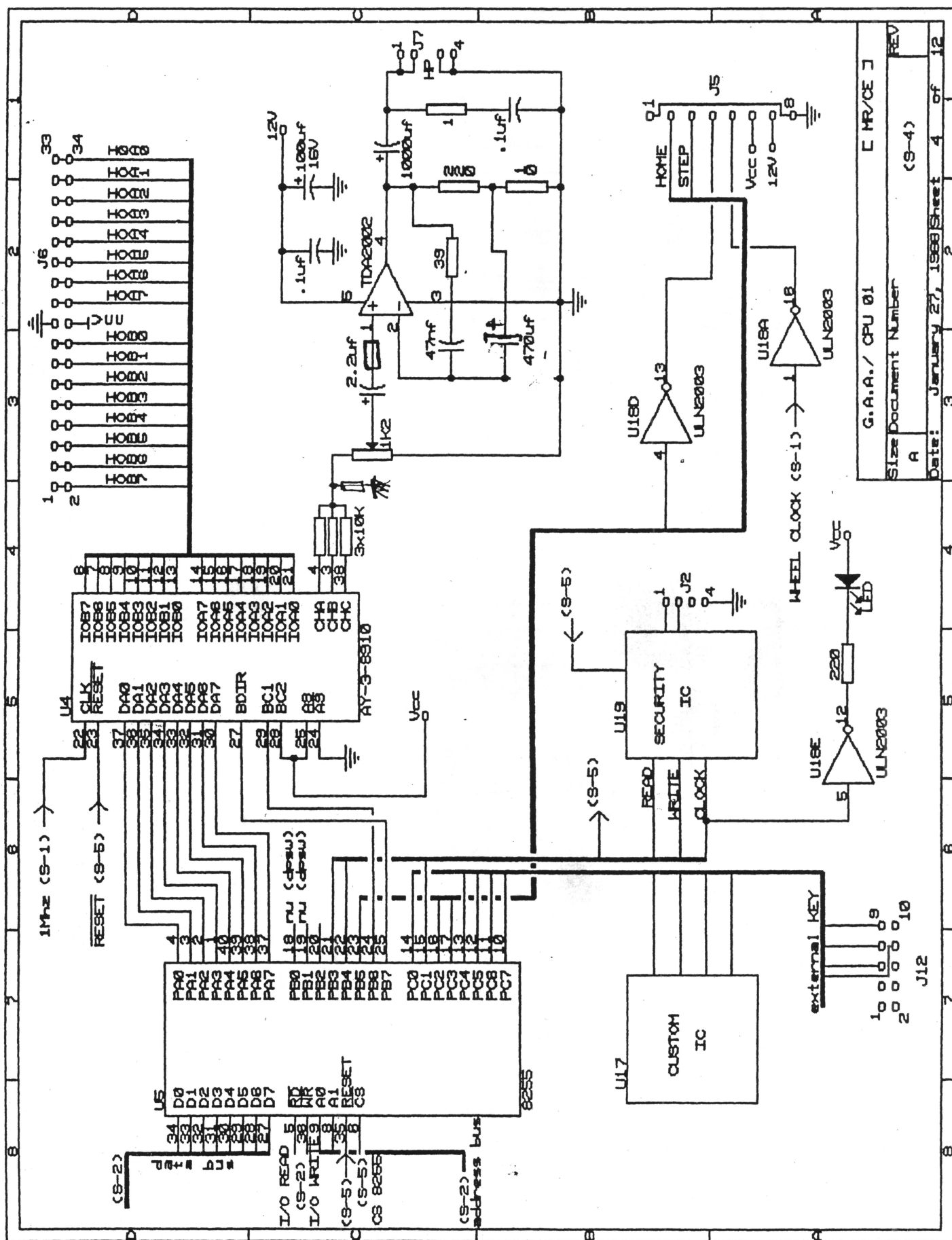


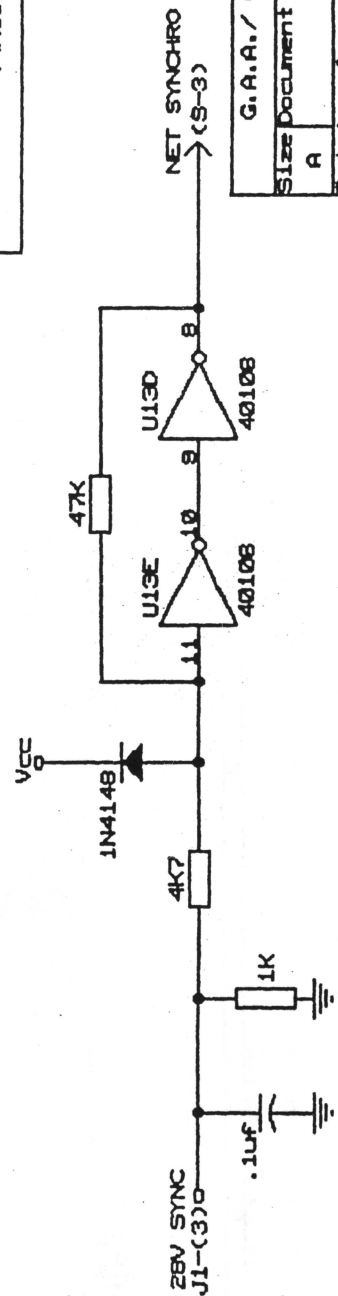
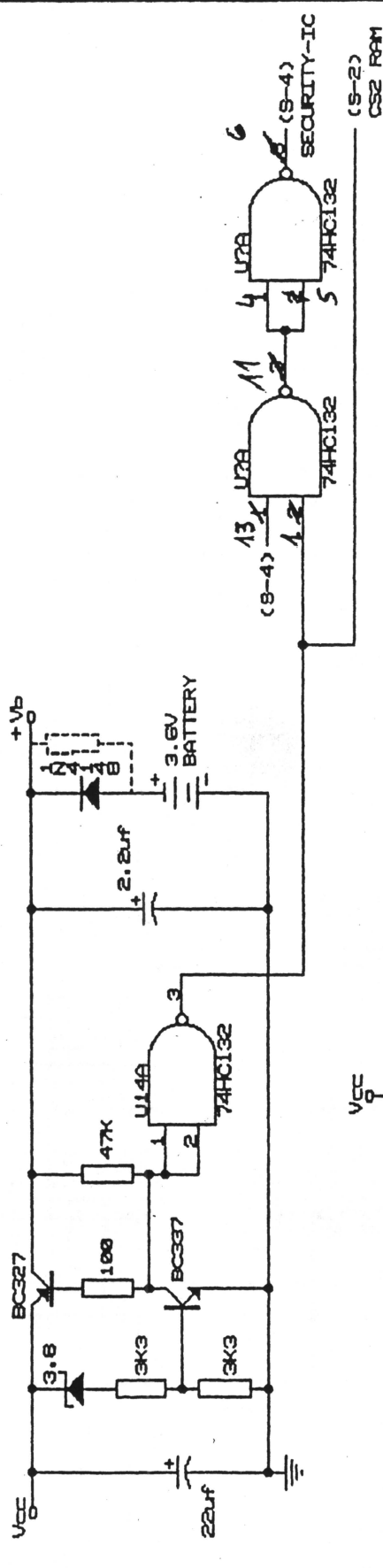
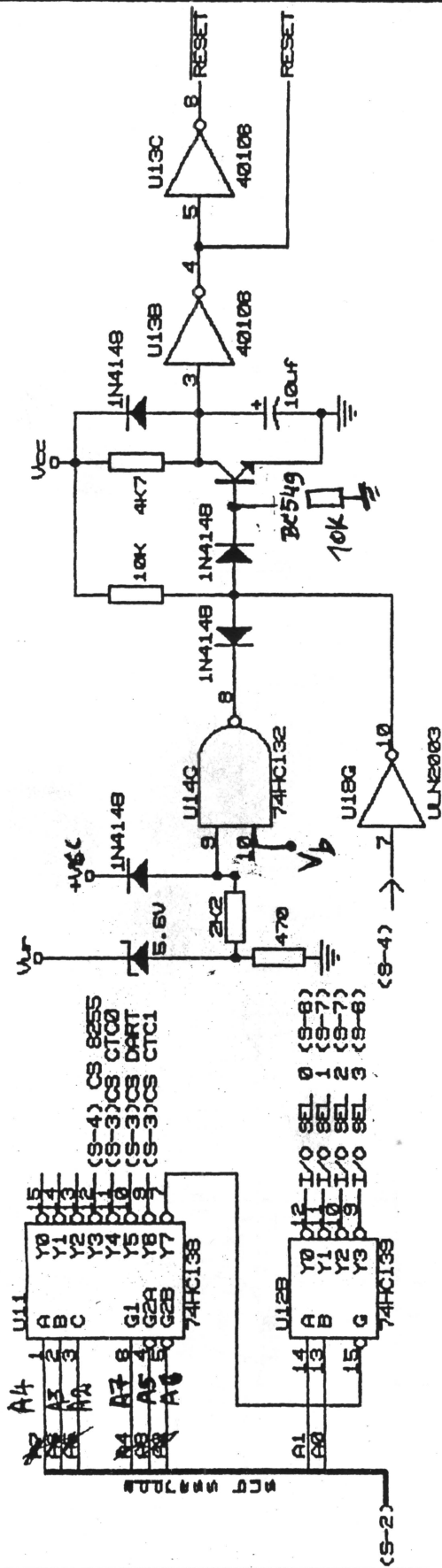
CPU, ROM, RAM, READ et WRITE MEMORY et I/O

G.A.A./ CPU 01 [MR/CE]

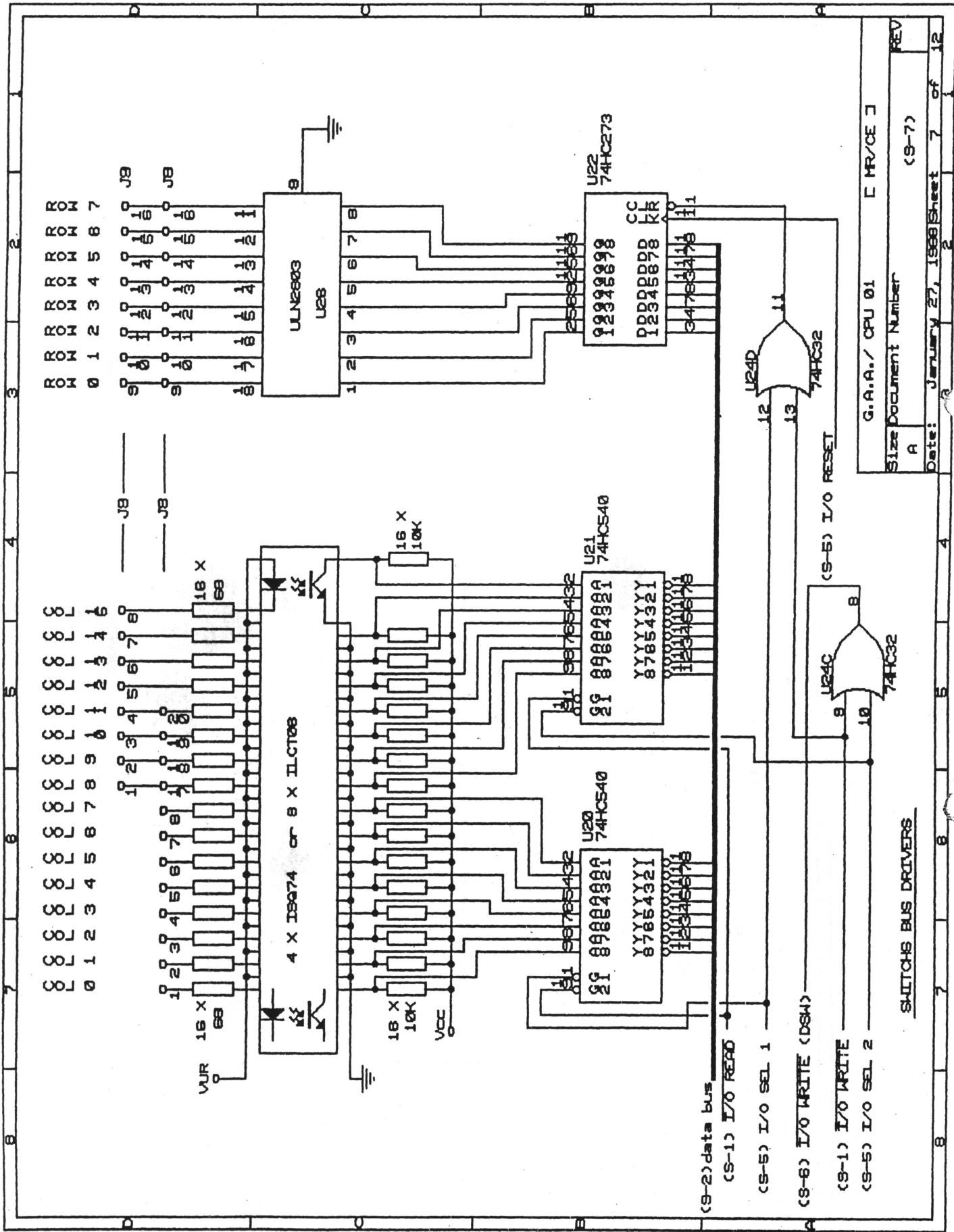
Size Document Number A (S-2)

Date: January 26, 1988 Sheet 2 of 12

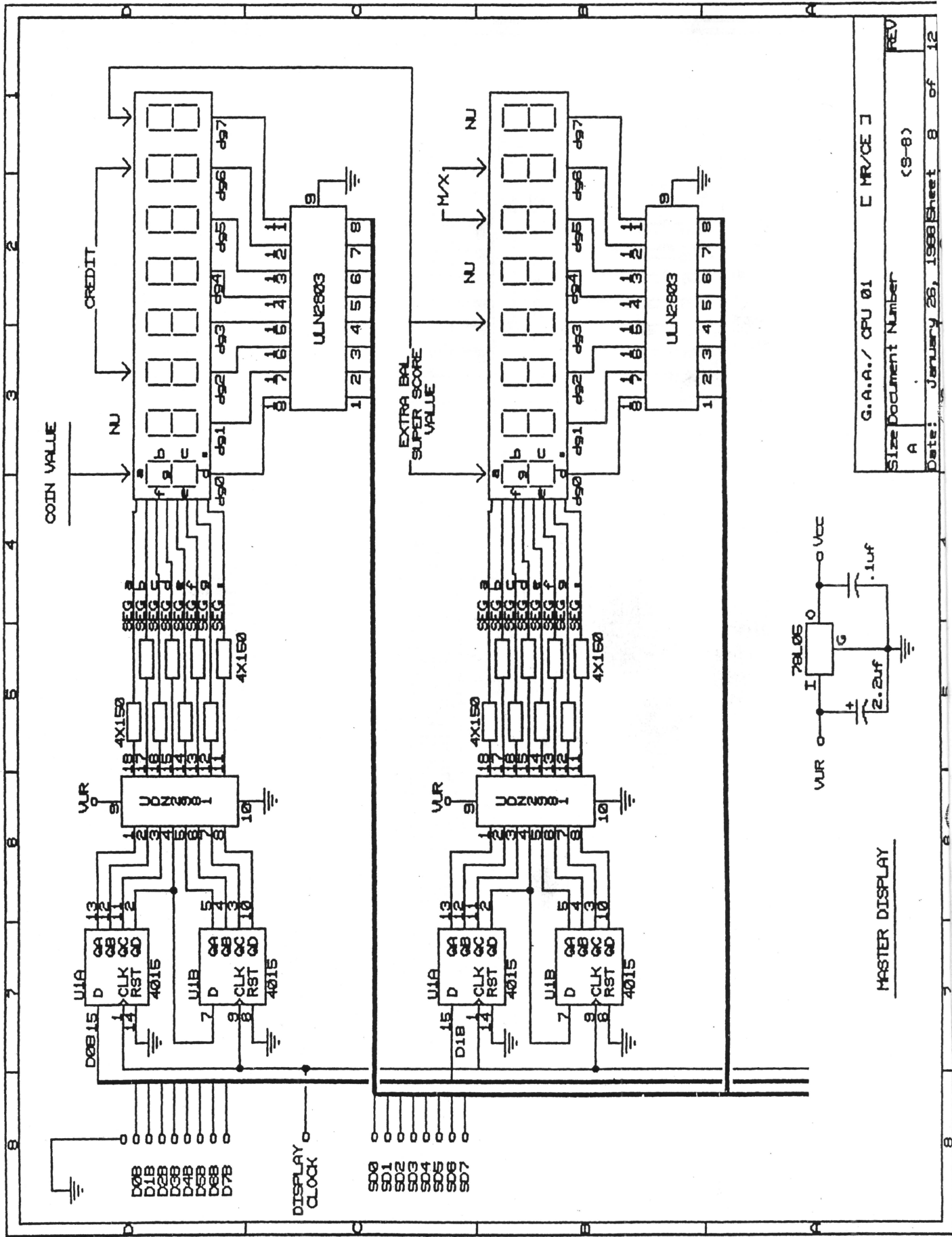




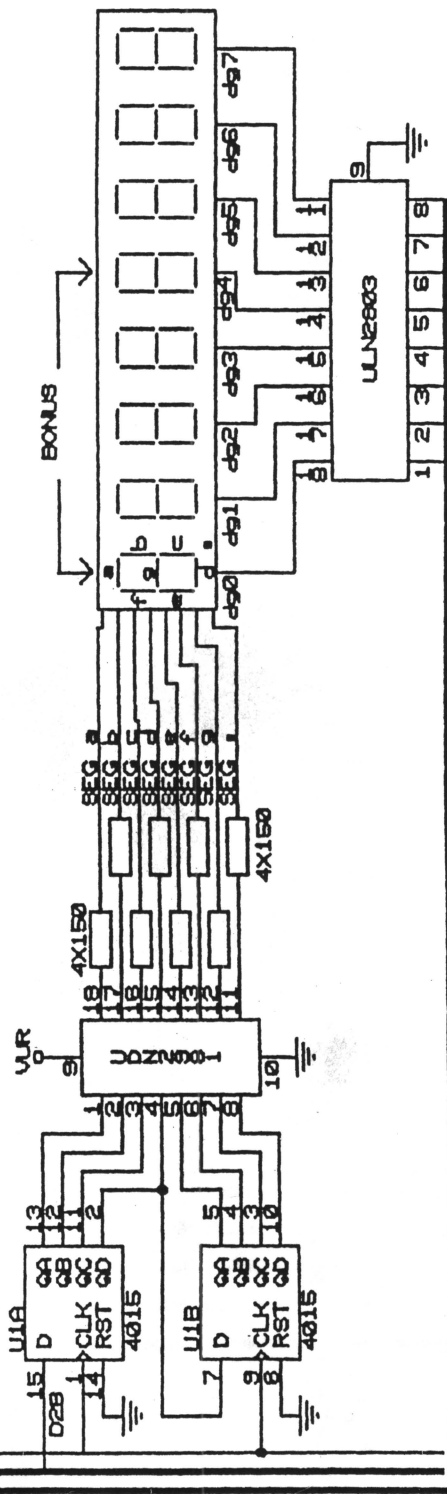
G.A.A./ CPU 01	
Size Document Number	REV
A	(S-8)
Date: January 26, 1988	Sheet 5 of 12



G.A.A./ CPU 01		C MR/CE	
Size Document Number		(9-7)	
Date: January 27, 1988		Sheet 7 of 12	
REV			



G.A.A./ CPU 01		C MR/CE 3	
Size Document Number		(9-8)	
A		REV	
Date: January 28, 1988		Sheet 8 of 12	



WCS 1101 1101 1101

D3B
D4B
D5B
D6B
D7B

DISPLAY CLOCK
DATA SEG. BUS
SELECT DIGIT BUS

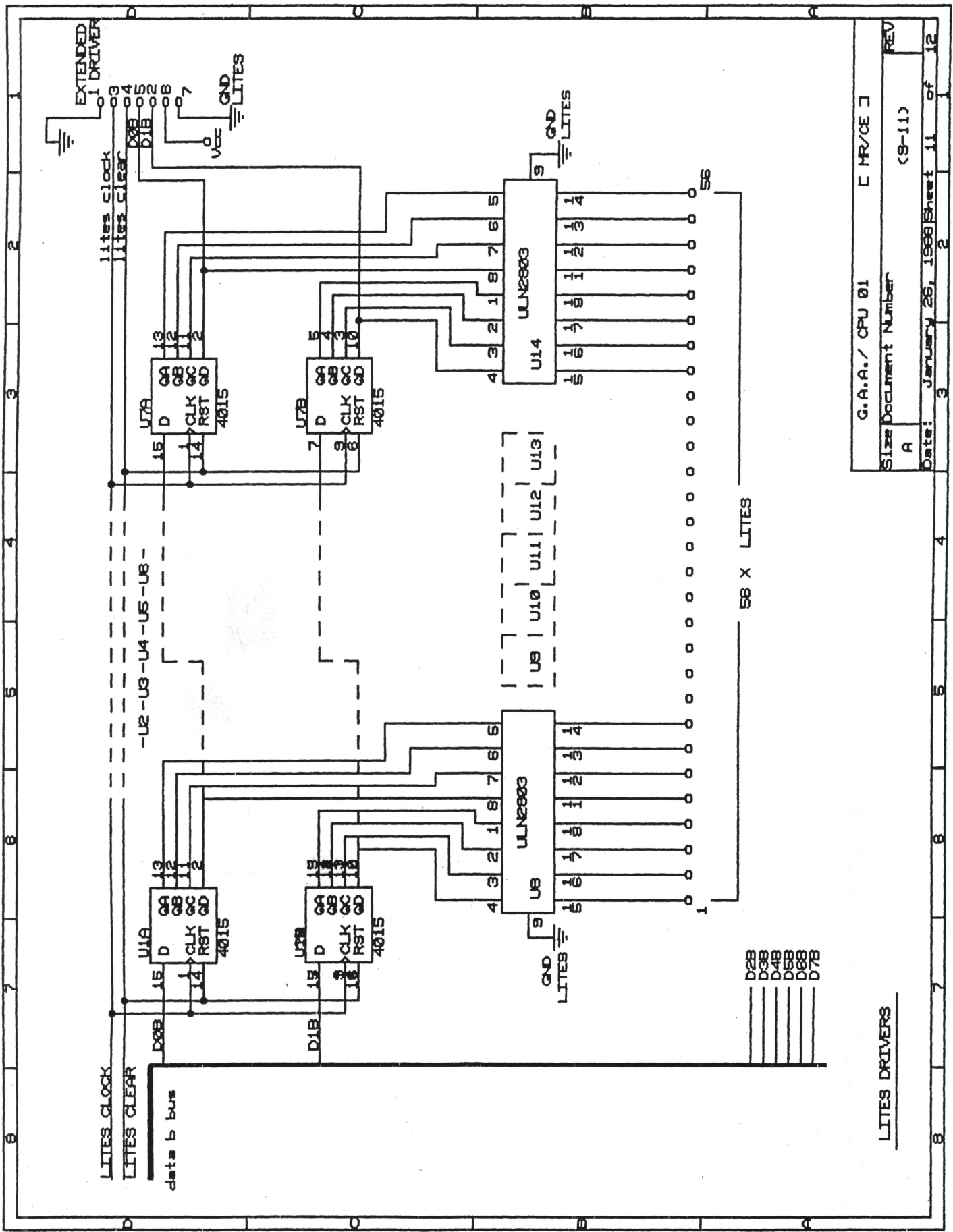
G.A.A./ CPU 01 C MR/CE 1

Size Document Number

(9-8)

REV

Date: January 26, 1988 Sheet 9 of 12



G.A.A./ CPU 01		C HR/CE 3	
Size Document Number		REV	
A		(9-11)	
Date: January 25, 1988		Sheet 11 of 12	

LITES DRIVERS

NEW CONTINENTAL GOLDEN

OPTIONS, GAMES AND TEST PARAMETERS

The keyboard tester makes the definition of the program of the various game options possible, as well as the operating parameters, and also to realize a number of tests. To do it , put the game in MODE-FUNCTION. (the door switch being open)

The board has 12 keys.

- * digits from 0 to 9
- * control key (ENT/NXT) (ENTER/NEXT): is used to enter the mode-function Fn and to validate the entered values.
- * control key (Clr/Qt): is used to correct the definit values but not yet validated with the key (Ent/Nxt), and to quit from the mode-function.

When the mode-function is used, the machine gets in TILT position and the displays show the following signs:

- * credit display: order number of the function
- * display Eb/Ss70s: introduction of the new value.
- * bonus display: new programmed value.

NEW CONTINENTAL GOLDEN - Superscore

USA - '93

Function	Feature	Value	Standard
04	BONUS BASIC VALUE (x1x1)	1-999	100
06	MINIMUM EXTRA BALL value	1-99	49
24	SUPERSCORE-number of ball	1-3	3
31	SUPERSCORE-ball value %	1-99	30
43	"SAFARI" Lites attract mode 0:inactive 1:active	0-1	0

FUNCTION FEATURE VALUE TO ENTER STANDARD VALUE

18	tilt enable	0 - 1 0 : on start 1 : after 1st ball shoot	1
19	super reflex action	0 - 3 0 : each 100 games 1 : each 250 games 2 : each 500 games 3 : each 1000 games	0
20	super reflex enable	0 - 1 0 : inactive 1 : active	1
21	security system	0 - 1 0 : inactive 1 : active	0

Table 111, 12
Function Mode -

G.A.A.

FUNCTION	FEATURE	VALUE TO ENTER	STANDARD VALUE
48	1st EXTRA BALL FREE IF lamp "Magic Number" flashing and IF 2 "Magic Number" are hit	Ø - 1 Ø : NO 1 : YES	Ø
49	Win transfert at 4th ball in hole	Ø - 1 Ø : 5th ball in hole 1 : 4th ball in hole	Ø
50	TILT stack - tilt codes	touch (1) : previous code touch (Ø) : following code	
51	DISPLAY self-test		
52	SOUND self-test		
53	MECHANICAL COUNTERS self-test		
54	MOTORS self-test		
55	Set last game (before tilt)		
56	CLEAR BACKUP RAM - completely		
61	CLEAR BACKUP RAM - SAVE BOOKKEEPING		

N.B. Lorsque l'appareil est en boucle d'attente 'RESET', la fonction 61 est obtenu en actionnant la touche (En/Nxt) du clavier tester. le switch de porte étant indifféremment ouvert ou fermé.

FUNCTION	FEATURE	VALUE TO ENTER	STANDARD VALUE
32	reflex action	0 - 1 0 : inactive 1 : active	1
33	reflex value	0 to 1280000	...
34	CREDITS Inserted with coin mechanism	0 - 1 0 : illimited 1 : limited to 100	1
35	RESTART - Type	0 - 1 0 : only after game terminated 1 : before game terminated	1
36	REMOTE CONTROL - Type	0 - 1 0 : Rx/Tx 1 : standard ABCD	0
37	MAGIC NUMBERS - difficulty	0 - 1 - 2 0 : liberal 1 : normal 2 : conservative	1
38	CORNERS - Difficulty	0 - 1 - 2 0 : liberal 1 : normal 2 : conservative	1
39	SUPER LINES - difficulty	0 - 1 - 2 same that CORNERS	1

FUNCTION	FEATURE	VALUE TO ENTER	STANDARD VALUE
40	ROLL OVER - difficulty	0 - 1 - 2 same that CORNERS	1
41	EXTRA BALL VALUE - computer type see p. 22	0 - 1 0 : % variable with REFLX 1 : % fixed	1
42	NOT USED		
43	LITES ATTRACT MODE	0 - 1 0 : inactive 1 : active	0
44	POINTS to replay register for maintenance	1 to 9999	
45	BONUS value to modify	1 to 99.999	
46	DOUBLE / SIMPLE Coin switches	0 - 1 0 : double esw 1 : simple csw	0
47	BONUS 4-10-16-20-24	0 - 1 0 : 5 numbers 1 : only 4 numbers	1

G.A.A.

L A M P S F I E L D

1. Master drive Up (NCG 02)

pin	feature - card		i.c.(2803)	i.c.pin
<hr/>				
1	Dble/Dble Ssc	2	1	13
2	Dble Ssc	2	1	14
3	Dble/Dble	2	1	15
<hr/>				
4	Corners	3	1	16
5	Dble/Dble Ssc	3	1	17
6	Dble/Dble	3	1	12
<hr/>				
7	Ssc	2	1	18
<hr/>				
8	Dble Ssc	3	2	18
9	Ssc	3	3	18
<hr/>				
10	16	2	4	18
11	4	2	1	11
12	6	2	5	18
<hr/>				
13	6	3	2	13
14	7	3	2	14
<hr/>				
15	Dble	2	2	15
<hr/>				
16	3rd Card		2	16
17	Dble	3	2	17
18	8	3	2	12
19	3	3	2	11
20	1	3	3	13
<hr/>				
21	n.u.		3	14
22	n.u.		3	17
<hr/>				
23	24	3	3	16
<hr/>				
24	14	2	6	18
25	20	2	3	15
26	25	2	3	12
<hr/>				

pin	feature - card		i.c.(2803)	i.c. pin
<hr/>				
27	Red Diag.	3	3	11
28	23	3	4	13
29	14	3	4	14
30	2	3	4	15
31	18	3	4	16
32	12	3	4	17
<hr/>				
33	15	2	4	12
34	12	2	4	11
35	17	2	5	13
<hr/>				
36	5	3	5	14
37	19	3	5	15
38	20	3	5	16
39	16	3	5	17
40	22	3	5	12
<hr/>				
41	11	2	5	11
42	21	2	6	13
43	8	2	6	14
<hr/>				
44	Sup. Line	3	6	15
45	11	3	6	16
46	17	3	6	17
47	9	3	6	12
48	15	3	6	11
49	25	3	7	13
<hr/>				
50	5	2	7	17
51	23	2	7	18
<hr/>				
52	4	3	7	14
53	21	3	7	11
<hr/>				
54	3	2	7	15
<hr/>				
55	10	3	7	16
56	13	3	7	12

2. Master_drive_Down_(NCG_03)

See "Up" type (NCG 02) and replace card 2 by card 5
and card 3 by card 6.

3. Expander drive (NCG 04/05)

pin	feature-card		i.c.(2803)	i.c. pin
1	23	1	1	13
2	2	1	1	14
3	4	1	1	15
4	15	1	1	16
5	10	2	1	17
6	7	2	1	12
7	Sup. Line	1	1	18
8	24	1	2	18
9	21	1	3	18
10	14	1	4	18
11	20	1	1	11
12	13	1	5	1
13	Sup. Line	2	2	13
14	1	2	2	14
15	22	2	2	15
16	12	1	2	16
17	6	1	2	17
18	18	1	2	12
19	16	1	2	11
20	11	1	3	13
21	1st Card		3	14
22	Dble	1	3	17
23	2nd Card		3	16
24	13	1	6	18
25	2	2	3	15
26	18	2	3	12
27	Red Diag	1	3	11
28	8	1	4	13

pin	feature	- Card	i.c.(2803)	i.c.pin
29	22	1	4	14
30	10	1	4	15
31	19	1	4	16
32	7	1	4	17
33	Red Diag.	2	4	12
34	13	2	4	11
35	19	2	5	13
36	5	1	5	14
37	1	1	5	15
38	9	1	5	16
39	25	1	5	17
40	3	1	5	12
41	Dble Ssc	1	5	11
42	Ssc	1	5	13
43	9	2	6	14
44	24	2	6	15
45	Corners	2	6	16
46	Corners	1	6	17
47	DBle/DBle Ssc	1	6	12
48	Dble/DBle	1	6	11

4. Master middle (NCG 06)

pin	feature	i.c.(2803)	i.c. pin
1	Magic N-22	1	13
2	Magic N-9	1	14
3	Magic Number	1	15
4	Magic N-7	1	16
5	Magic N-1	1	17
6	Coin Value r.	1	12
7	Coin Value c.	1	18
8	Coin Value l.	2	18
9	7th Coin	3	18
10	9th Coin l.	4	18
11	Magic N-25	1	11
12	12th Coin	5	18
13	Dble d.12th Coin	2	13
14	Dble u.12th Coin	2	14
15	9th Coin r.	2	15
16	Dble u.13th Coin	2	16
17	Dble d.13th Coin	2	17
18	13th Coin	2	12
19	10th Coin r.	2	11
20	10th Coin l.	3	13
21	8th Coin	3	14
22	Tilt r.	3	17
23	Tilt l.	3	16
24	Credit	5	11
25	Ssc select	3	15
26	Extra Ball Value	3	12
27	Quick Start	3	11
28	X	4	13
29	Bonus	4	14
30	11th Coin l.	4	15
31	11th Coin r.	4	16
32	Dble u. 14th Coin	4	17
33	Dble d. 14th Coin	4	12

pin	feature	i.c.(2803)	i.c. pin
34	14th Coin	4	11
35	Extra Ball	5	13
36	1 st E.B.	5	14
37	2 nd E.B.	5	15
38	3 rd E.B.	5	16
39	4 th E.B.	5	17
40	5 th E.B.	5	12

NEW CONTINENTAL GOLDEN - Superscore

USA - '93

Function	Feature	Value	Standard
----------	---------	-------	----------

04	BONUS BASIC VALUE (x1x1)	1-999	100
----	-----------------------------	-------	-----

06	MINIMUM EXTRA BALL value	1-99	49
----	--------------------------	------	----

24	SUPERSCORE-number of ball	1-3	3
----	---------------------------	-----	---

31	SUPERSCORE-ball value %	1-99	30
----	-------------------------	------	----

43	"SAFARI" Lites attract mode 0:inactive 1:active	0-1	0
----	-------------------------------------------------------	-----	---

ERROR CODES, TILT CODES, SECURITY CODES

The game program makes several pereipheric controls, and this regulary: an essential component badly working, the detection of particular events or not allowed events are interpreted in a way to inform the operator or the responsible person about the several problems the machine has faced. And this with the machine switched ON or OUT, it does not matter.

There are 3 code categories:

- error code
- security system code
- tilt code

The two first codes start an ALARM, putting the game in STAND BY position, the displays indicating the code number.

The TILT codes give the different causes of tilt possibilities. They are stacked chronogically and only the 16 last ones can be checked.

1. ERROR CODES

Table IV, 1 summarizes all the error codes. These codes are suppressed by eliminating the causes and by proceeding to the extinction and the switching on again of the machine.

2. TILT CODES

The tilt codes can be checked with the key board (function No 40), the appearing code being the LAST tilt made during the game.

With the keys 0 and 1 you can remount in the stack of tilts.

The 9 possible tilt codes are definit on table IV, 2, please note that the memorisation of the code is effective by the next start.

3. "CALL" CODE

This code means : $CREDIT \geq MAXIMUM\ LIMIT$ (fn $\phi 3$)

To resume it :

- insert the key board
- pull the door switch
- keep pushed the ENTER/NEXT key

The RESETTED CREDITS will be added to the TEL OUT METER

- complete checking of the parameters : successively
 - general indexes "tELI", "tELo", toti, toto.
 - monthly indexes: "tELi", "tELo", toti, toto, Coin, tELd,
 - the parameters: number of games played: 'nbGA'
 - number of Extra Balls played: 'nbEb'
 - number of points played during a regular game (5 balls): GAIN
 - number of points won during a regular game (5 balls): GAO
 - number of points played for the extra ball 'Ebin'
 - total of hours and minutes that the machine has been kept switched on: 'Hour'
- back to ZERO of the monthly parameters; (Cl) and (Bk) together
- back to ZERO of the general indexes: (Cl) and (0) together

During a communication several error messages may appear. We draw your attention to the fact that such error messages have no influence to the indexes value, they just gives an indication on the shape of the line.

1. GENERAL OPERATING

Three operating levels are available through three keys: the remote control is totally out of service when none of the keys is in ON position. To make the transfer possible, it is necessary to OPEN the door switch (door closed)

a. *key 1 (key 1, front face): the following functions are available:

- * putting up of points: digits and (En)
- * Reset: (Rs) * Reset: (Rs)
- * last putting up of points (En): 'last'
- * day difference (Dd): 'dAYd'
- * extinction of the displays (Cl)

b. key 2 (key 2, side face, first key): same functions as for key 1, the additional functions are the following:

- * checking of the indexes (Bk)
 - successively : tel in: 'tELi'
 - tel out: 'tELo'
 - tel in - tel out: 'tELd'
- * clearing of the day difference: (Cl) and (Dd) together

c. key 3 (key 3, side face, second key):

the additional available functions here are essentially for cashiers or operators themselves.

REMOTE CONTROL UNIT

The communication (Rx/Tx) between the machine and the remote control unit is made through one single line made of two wires, this in accordance with a specific protocol. The standard remote control unit receives 48 Vac ('Vm') from the machine.

The front face has 2 displays, with 8 and 4 digits and a key board with 16 keys: 10 digits (0,1,...9) and 6 control keys (see the meaning of each function hereunder).

KEY	FUNCTION
(En) 'Enter'	* <u>Transmits the definit points by the 8 digits display.</u> * When the 8 digits display is OUT, <u>requests the last amount of trhsmit points by the remote control.</u>
(Rs) 'Reset'	* <u>Makes the rest after having placed the machine in TILT position</u>
(Dd) 'Day difference'	* <u>Requests the day difference.</u> "tele in - tele out"
(Bk) 'Bookkeeping'	* <u>requests the indexes and various operating parameters</u>
(Cl) 'Clear'	* <u>Clears the displays</u>
(Mm) 'Memory'	* <u>Memorisation in 'data memorex'</u>

Table VI,1

- remote control Rx/Tx : key function -

1. OPEN THE DOOR
- 2 SWITCH ON the small MICROSWITH ON the ball ramp in front of the coin door.
3. they ARE 4 GROUPS.

GROUP 1: GENERAL BOOKKEEPINGS
 GROUPS 2-3-4: MONTHLY "

- 4: TO PASS FROM ONE GROUP TO AN OTHER ONE : -X BUTTON
- 5 TO PROGRESS INTO ONE GROUP
 - E BUTTON

- 6 TO RESET A GROUP :
 PUSH "MAN LIFT" BUTTON WHEN THE WANTED GROUP IS DISPLAYED

Credits display

'ss/eb/qs' display

"GruPP 1"	game payment % (toto/toti)
tELi	tele in "tele" = remote
tELo	tele out
toti	total in
toto	total out
Coin	cash box
"GruPP 2"	same index that "GruPP 1"
"GruPP 3"	
tELd	tele difference (tele in - tele out)
dAYd	day difference (tele in - tele out)
nbGA	number of games
nbEb	number of extra balls
Ebin	total in for extra balls
"GruPP 4"	
Hour	switch on time
Ebo	total out for E-B
SC in	Superscore IN
SC o	Superscore OUT

SECURITY CODES

The function 21 determines the option " SECURITY SYSTEM"

1: security system active

0: security system not active

Any modification of this option is taken in count only when the machine is switched on again with its corresponding electronical key (Secur ON or Secur OF)

Once the security option "Security System" is entered, any access into the machine is sanctioned by the apparition of the security code

* immediate for the top security switches and the playfield.

* with a few seconds delay for the door switch

The machine is placed in STAND BY position.

It is necessary to connect the electronical key in its lock and to switch on the machine again. (Secur on)

Whwn the electronical key is pulled out, the door must be closed within 8 to 10 seconds, all other security switches being closed.

In case od serious PCB defect, the security codes 1 and 2 may appear. In such case a factory technical assistance is required.

BOOKKEEPING

The complete bookkeeping is realized in a classic way by checking the electro-mechanical counters placed inside the machine.

When the display "credit" is on ZERO:

$$tELi - tELo + \text{Coin} \approx \text{toti} - \text{toto}$$

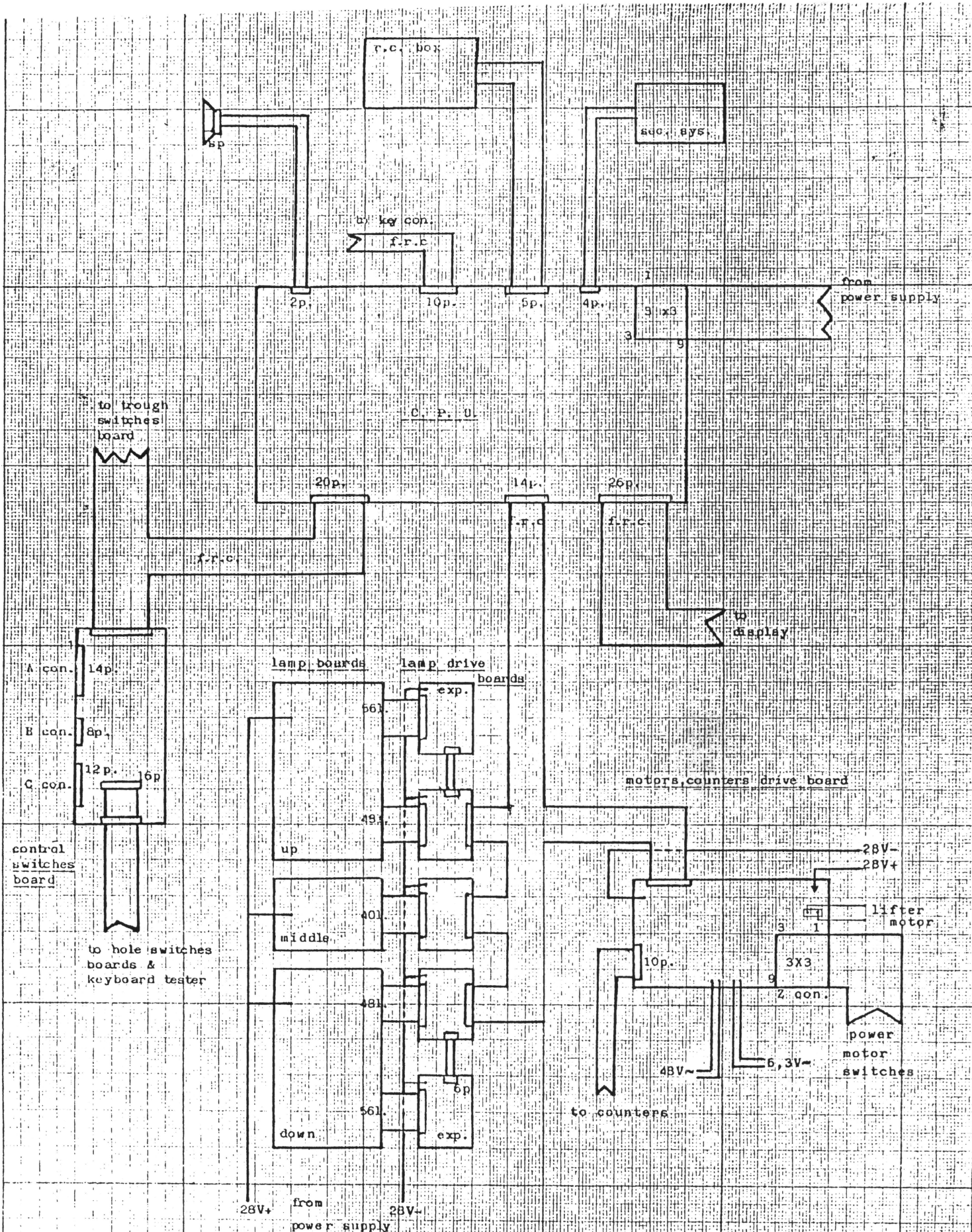
CLAIMS

To settle rapidly any claim coming from a player, a few simple checkings can be made by the responsible person, the machine remaining close.

It mainly concerns the tilts caused by shocks, the realized number and the points won in each card.

Numbers and winning points: use the button "man lift"

- on the credit display appear the points won in the flashing cards.
- on the display ss/eb/qs: the following order number of the pulled ball and the corresponding number realized.
- tilts stack: with the key 50 it is possible to check the last tilts made.



f.r.c. : flat ribbon cable

A,B,C & Z con.: see next sheet

FIG II.1

DESC.

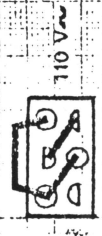
BLOCK DIAGRAM

DATE

12/11/86

DIS.

R.H./B.C.



JUMPER CON



line filter

transformer

main switch

2 x 3

x 3

input power

280V~
110V~

body 48V~(Vm)
head 5.3V~(Vg1)
28V~
head 28V~(V1)
body 6.3V~(Vg1)

to body and head

28V~ 28V~
to body (V1)

body capacitor

12 24V~
34
5 59V~
6 59V~
7 59V~
8 59V~
9 59V~
10 59V~
11 59V~
12 59V~

f6 = 28 V~(V1) = 8A
f5 = 8 V~(V1) = 5A
f1 = input = 2A
f2 = 6.3 V~(Vg1) = 3A
f3 = 48 V~(Vm) = 2A
f4 = 10 V~(Vg1) = 2A

Notes

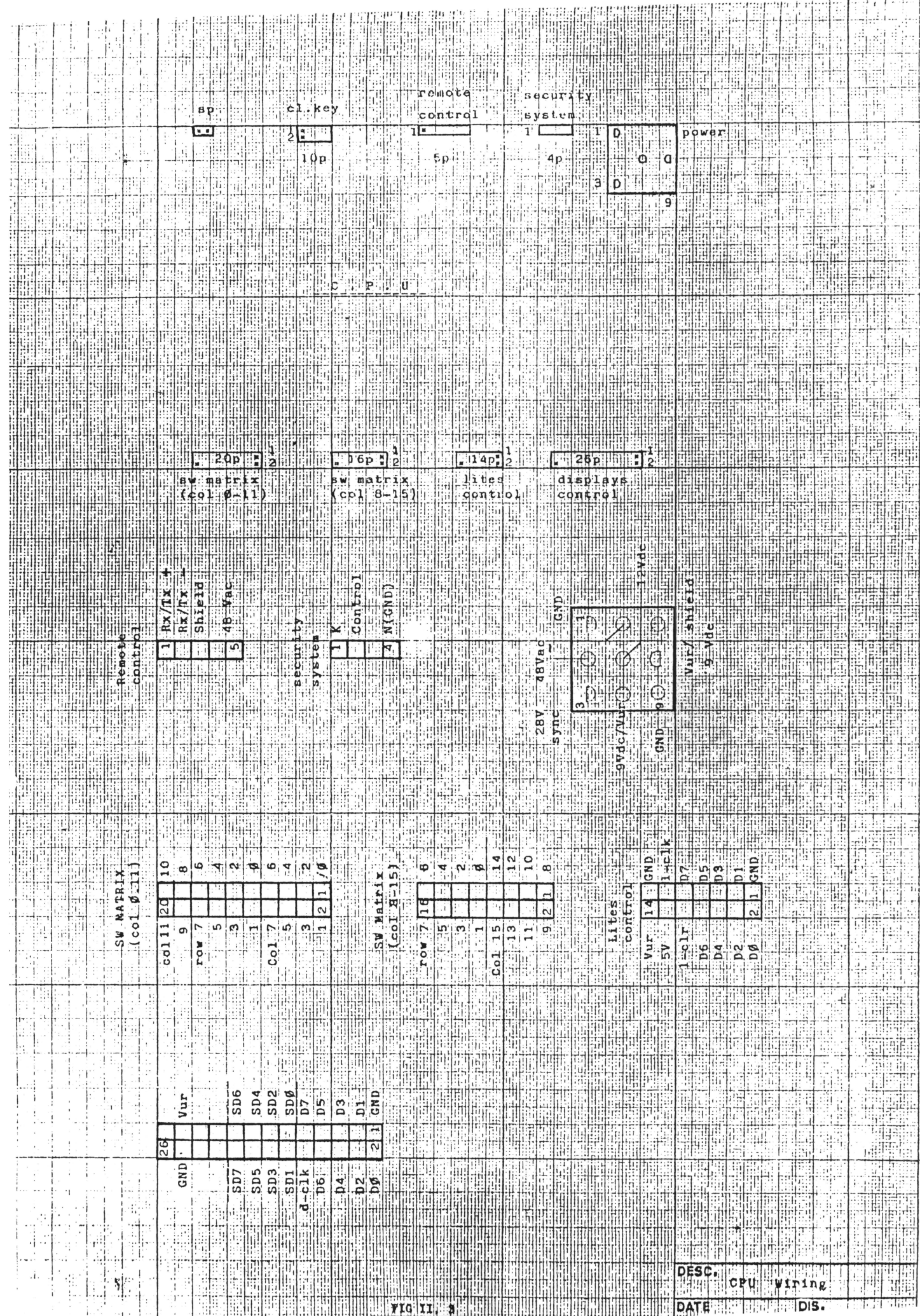


FIG. 11. 3

COL 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	COL 0
R O W 0				t.	t.	t.	trough	h.	h.	h.	h.	h.	h.	h.	Role
1				4	1	2	3	8	7	6	5	4	3	2	1
2				8	5	6	7	16	15	14	13	12	11	10	9
3					t.	t.	t.	h.	h.	h.	h.	h.	h.	h.	h.
4				men lifter	X but.	but.	but.	yell.	red	blue					
5								k.t.	k.t.	k.t.	k.t.			roll- over right	roll- over left
6				tél. a	tél. b	tél. c	tél. d	clear/ quit	k.t.	k.t.	k.t.	timer lifter	carry lifter	carry shutter	shutter open
R O W 7				coin center down	coin center down	coin right	coin left	door tilt	coin center	coin right down	coin left down	coin right down	coin left down	tilt	gate
COL 15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	COL 0

FIG. 11. 4

DESC. SWITCHES MATRIX
DATE DIS.

TABLE OF CONTENTS

- I. Basic functioning of the game.
- II. Generalities
 - 1. Service precautions
 - 2. Schematic principles
- III. Parameters of game test.
- IV. Codes
 - 1. Error codes
 - 2. Tilt codes
 - 3. Security Codes
- V. Book Keeping
- VI. Remote Control

I. FUNCTIONING OF THE GAME – GENERALITIES

The “New Continental Golden” is a “six cards” type game. The following attractions are added to the classical advantages:

5 Extra Balls: (Yellow Button)

Quick Start: Achievement of the advantages of the preceeding game with a single start (X button)

Super Score: Possibility of realizing a score of 5 in line on a card thanks to a single number. The player has access to a maximum of three extra balls, obtained with a number of predefined points.

Playfield Scores: Possibility of realizing scores by defined combinations on the playfield and obtained by 3, 4, or 5 in a line, 23, 24, 25, or 14, 15, 16, 17, 18 in a line.

Bonus: A jackpot earned by the combination of 5 predefined numbers.

The following table specifies the values of the scores that the player can obtain with the indicated combinations:

	3 in line	4 in line	5 in line
1 st card	4	20	100
2 nd card	4	20	100
3 rd card	4	20	120
4 th card	4	24	140
5 th card	4	36	240
6 th card	4	44	300
12 th coin			
lines of 1, 8 & 19	10	25	250
13 th coin			
line 23, 24, 25	50	--	---
14 th coin			
line 14, 15, 16, 17, 18	--	--	600

II. Generalities

1. Precautions before using:

Before turning power on, the operator should verify the power is correct and the plug is completely pushed in, tilts are not in contact, and balls are present in the correct number. A few instants after plugging in, the 2 tilt lights should blink alternately. When first turned on, the LED on the CPU board does 5 distinct flashes indicating the 5 power up tests of starting. The displays will light after a delay of 2 to 3 seconds. If the display shows "CODE", check the chapter on CODE ERRORS.

III. OPTIONS, PARAMETERS AND TESTS

With the keyboard tester it is possible to proceed to a series of tests. This is accomplished with the coin door being open. The keyboard comprises 12 keys: numbers 0 to 9, Control Touch Ent/Nxt (Enter/Next). This key enters into mode function and validates the introduced values. Control Touch Clr/Qt (Clear/Quit). This key is used to correct the values defined but not yet validated by the Ent/Nst key, and also to quit the mode function. When put in mode function, the machine enters tilt and the displays have the following functions:

Credit display: order number of the function

Eb/Ss/Qs display: introduction of the new value

Bonus display: presentation of the programmed value

A list of the various functions and their use is described in table III, 1.

IV. ERROR CODES, TILT CODES, & SECURITY CODES

The game program effects various peripheral controls. The improper functions of important components, detection of forbidden events are interpreted so as to inform the operator of various problems that happen to the machine whether it is on or off. There are three categories of codes: ERROR, SECURITY, & TILT. ERROR and SECURITY codes start an alarm and put the game in “waiting” mode showing on the display the number of the code. As the name indicates, TILT indicates the various causes of “tilt” condition. They are stacked chronologically and only the last ones can be examined.

1. Error Codes:

Table IV.1 list the error codes. Those codes are cancelled by eliminating the cause, turning off the power, then turning it back on.

2. Tilt Codes:

The tilt code can be checked thanks to the test keyboard at Function 40, the code appearing first because it was the last one put in. The buttons “0” and “1” allow you to go back to the “stack”. The 9 tilt codes that are possible are explained on the display. (Table IV.2)

3. Security Codes

Function 21 determines the “security system”:

1: security system active

0: security system inactive

Any modification to this option is accounted for only when the machine is plugged back in with the proper electronic key (“security on” or “security off”). Once the option “security system” is started, any access to the inside of the machine is sanctioned by the display of the security code: CODE-SEC-3. The machine is placed in “waiting” mode. Now it is necessary to introduce the proper electronic key and proceed to turn it back on. When the key is taken out, you have a delay of 8 to 10 seconds to close the game door while all the other security switches are being turned off.

V. BOOK KEEPING

General book keeping is done in a classic manner by checking the five electromechanical meters inside the machine. When the credit display is at 0:

$$tELi - tELo + \text{coin} = \text{toti} - \text{toto}$$

The remote control unit allows memorizing (data memorex) and transfer with a mini-printer MER .01. If you don't have a remote control, the data can be viewed on the game display "credit" and ss/eb/qs by working the mini switch on the ball rail near the connector used by the electronic keyboard. The whole of the parameters are subdivided into 4 groups which can be defined in the following manner:

1 = Index generalities

2-3-4 = Monthlys

The "X" button allows going to the next group.

The "E" button allows advance in the same group

Table V,1 gives definitions of the various parameters:

The return to zero of the groups 1 and 2 are done by activating the "man lift" button when the corresponding group is selected. The return to zero of group 2 automatically gathers groups 3 & 4. This operation is valid only when the option "remote control" standard A/B/C/D/com has been chosen. ONLY THE ELECTROMECHANICAL METERS WORK X10.

Credits Display	ss/eb/qs display
Grupp1	game payment % (toto/toti)
TeLi	tele in
TeLo	tele out
Toti	total in
Toto	total out
Coin	cash box
Grupp 2	(same index as grupp 1)
Grupp 3	"
TeLd	tele difference (tele in – tele out)
DaYd	day difference (tele in – tele out)
NbGa	number of games
NbEb	number of extra balls
Ebin	total in for extra balls
Grupp 4	
Hour	switch on time

VI REMOTE CONTROL

The communication between the game and the remote control is done through a single line composed of two wires according to a specific protocol . The remote control is powered by 48VAC coming from the machine. The control panel shows 2 displays of 4 and 8 digits and a keyboard with 16 keys and 6 control keys functioning as follows:

En (enter) Transmits the points displayed by the 8 digit display to the machine.

Rs (reset) After the machine has tilted.

Dd (day difference) Asks the daily difference (tele in – tele out)

Bk (book keeping) Asks the index and different parameters.

Cl (clear) Clears the displays

Mm (memory) Memorization in data memorex

VI.1 REMOTE CONTROL Rx/Tx TOUCH FUNCTION

1. General Usage

Three levels of use are possible through the use of 3 keys: The remote control is totally out of service when none of the three keys are on.

KEY 1: (Front)

(En)

(Rs) Discount

(En) Last

(Dd) Daily difference 'daYd'

(CL) Clear displays

KEY 2: (Side, lower)

Same functions as for key 1 are available with these additional functions:

(Bk) Checking indexes in succession:

tel in : tELi

tel out : tELo

tel in – tel out : tELd

Return to 0 of the daily difference = (Cl) and (Dd) simultaneously.

KEY 3: (Side, upper)

The extra functions available at this level are essentially for the use of cashiers or of the owners themselves.

A few important explanations are listed below to clarify the meaning of some functions:

Function 03 – replay register – maximum value. This value defines the limit of the display credits beyond which the machine enters into the first “call” which demands the proper electronic key to end any search of payment that has been started. This operation ended a second “reset”, , allows the only function of “discount” by the remote control. In order to guarantee later security, an internal limit of 350,000 has been fixed.

Function 33 – reflex value

0: liberal game

1.280.000 conservative game

When there is a loss of instructions (error 09) or bad manipulation while choosing options, a standard programming is automatically inserted. (Standard Value – table III, 10

Table I, 1

In this type of machine, transfer of points is done in a direct manner: before presenting the new value, the display credit makes a simple blink, showing that the operation was done correctly. Aside from providing an appreciable time savings, this technique allows the internal electromechanical meters to function by 10's in a totally independent manner, slow enough to assure complete security. (Faster, but not too fast).

NEW CONTINENTAL GOLDEN TECHNICAL NOTICE 10/17/88

This version of the game EPROM (November 1988) contains different options explained below:

2 “Magic Numbers” in each game

First extra ball free if the option “2 magic numbers” is chosen in each game This advantage is indicated to the player by the blinking of the “Magic Number” light. The probability is 1/8 to 1/3.

Bonus: 4-10-16-20-24 can be won with 4 or 5 numbers.

Begin transfer of winnings as soon as the 4th ball has fallen into a hole.

The New Continental Golden is a 6 card game. The following attractions are added:

5 Extra Balls (Yellow Button)

Quick Start – You obtain identical advantages of the preceeding game by means of a single start (X button).

Super Score – It is possible to get a score of 5 in a line by means of a single number. The combination of the four 1st numbers is to be chosen from those presented by the six cards. Press E button to fix the choice. The player has at his disposal the maximum of three balls obtained with a number of predetermined points.

Playfield Scores – It is possible to realize defined scores by combinations on the board obtained by 12 lit (3, 4, or 5 in line), 13 lit (23-24-25), 14 lit (14-15-16-17-18).

Bonus – The “pot” can be won by the combination of 5 predetermined numbers you can try only when the value of whatever you bet is more than the fixed limit.

2. BLOCK DIAGRAM

Figure II, 2:

48vac (5A) Motors, Remote Control (Vm)
6.3 vac (3A) General Illumination (Vgi)
9vdc (5A) To CPU and displays via 5v regulator and to the contacts scan (opto-col),
(Vur)
12vdc (2A) Sound CPU
28vdc (8A) Lamps, Counters (VI)
28vsync Signal of sector synchronization

Figure II, 3:

Shows CPU connectors

Figure II, 4

Switch Matrix

Table II, 5

Wiring of the machine

Table II, 6:

Switch numbers

Table II, 7:

Light numbers

The counters, motors, lamps and displays are individually driven through low power drivers. The machine is always equipped with a security system. When the system is entered, an alarm is activated and the machine is put in a waiting mode (security system code, see Chapter IV). The only way to exit this situation is with the use of a proper electronic key. The remote control connects with the CPU by means of a 4 conductor cable, 2 conductors for power (Vm – 48Vac), the other two for communication (Rx-Tx)

The functions of key 3 are controlled by a 6 number access code. It is necessary to enter the correct code (6 numbers + En) in answer to the question appearing on the 8 digit display: Ent Code. The access code is memorized in the CPU of the game which allows the interchange of remote controls without any problems. When the machine leaves the factory the code is set at 000000. The owner can modify it to his liking in the manner described below:

Introduce key 3 Display "Ent Code"

Introduce access code (6 numbers + En). If the access code is incorrect, the display shows "Ent Code"

Modification of the access code: (Cl + En simultaneously) Display "nEu code", enter the new access code (6 digits + En). On the lowest display will appear the last number of the code entered on the keyboard. If the number is forgotten, it will be necessary to contact the factory service department.

NOTICE

The EPROM 2110 allows the possibility of choosing the type of calculation which defines the price of the EXTRA BALLS;

Function 41: 0=%variable with the reflex
1=% fixed

Function 22: If function 41 is 0, you define the added % (0 – 30%) to the % given by the reflex. R = %, 0 = 8%, 600000 = 11%, 1200000 = 14%

If function 41 is 1, you define the fixed % 20 – 40%

The use of this new EPROM annuals the TILT condensers.

Complete checking of the parameters(Bk) in succeeding order:

General Indexes: tELi, tELo, toti, toto, Coin

Monthly Indexes: tELi, tELo, toti, toto, Coin, tELd

Parameters: Number of games played: nbGA

Number of extra balls: nbEb

Number of points played for extra ball: Ebin

Length of time the machine is on in hours and minutes: Hour

To return to zero the monthly parameters and indexes: Push Cl and Bk simultaneously

To return to zero the general indexes: Push Cl and 0 simultaneously

During a communication several errors might appear. These messages in no way influence the values of the indexes, they are only an indication of the state of the transmission line. (Error Code : Wrong transmission) or (Busy : game occupied)

2. Memorization by data Memorex.

A special key on the keyboard marked Mn allows the transfer of indexes and parameters to the Data Memorex (DMX). Recordings thus memorized can be printed through a mini-printer MER-01.