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Lode Runner™

MANUAL



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"LODE RUNNER"

DIP SW 1

OPTIONS		SW	1	2	3	4	5	6	7	8	
PLAYTIME	180 SEC		OFF	OFF							
	170 SEC		ON	OFF							
	160 SEC		OFF	ON							
	155 SEC		ON	ON							
NUMBER OF COMMANDOS	2				ON	OFF					
	3				OFF	OFF					
	4				OFF	ON					
	5				ON	ON					
COIN MODE	MODE 2 DIP SW 2's 3 ON	COIN- SELECTOR A	1 COIN 1 PLAY			OFF OFF					
			2 COINS 1 PLAY			ON	OFF				
			3 COINS 1 PLAY			OFF	ON				
			FREE PLAY			ON	ON				
	MODE 1 DIP SW 2's 3 OFF	COIN- SELECTOR B	1 COIN 2 PLAYS							OFF	OFF
			1 COIN 3 PLAYS							ON	OFF
			1 COIN 5 PLAYS							OFF	ON
			1 COIN 6 PLAYS							ON	ON
			1 COIN 1 PLAY					OFF	OFF	OFF	OFF
			2 COINS 1 PLAY					ON	OFF	OFF	OFF
			3 COINS 1 PLAY					OFF	ON	OFF	OFF
			4 COINS 1 PLAY					ON	ON	OFF	OFF
			5 COINS 1 PLAY					OFF	OFF	ON	OFF
			6 COINS 1 PLAY					ON	OFF	ON	OFF
1 COIN 2 PLAYS					OFF	OFF	OFF	ON			
1 COIN 3 PLAYS					ON	OFF	OFF	ON			
1 COIN 4 PLAYS					OFF	ON	OFF	ON			
1 COIN 5 PLAYS					ON	ON	OFF	ON			
1 COIN 6 PLAYS					OFF	OFF	ON	ON			
FREE PLAY					- ON	ON	ON	ON			

- N.B. 1) Set for Coin Mode 1 in case a single coin selector or two selectors for the coin of the same value are used.
 2) Set for Coin Mode 2 in case two coin selectors of the coins of different values are used.

"LODE RUNNER"

DIP SW 2

OPTIONS		SW	1	2	3	4	5	6	7	8	
FLIP PICTURE	NO	OFF				ALWAYS OFF					
	YES	ON									
CABINET TYPE	TABLE		OFF								
	UPRIGHT		ON								
COIN MODE	MODE 1			OFF							
	MODE 2			ON							
*FREEZE PICTURE	NO							OFF			
	YES							ON			
**MOVE PICTURE BACK AND FORTH	NO								OFF		
	YES								ON		
NO DEATH MODE	NO									OFF	
	YES									ON	
TEST MODE	NO										OFF
	YES									ON	

Note:

*Press 2-Player start button to freeze picture. Press 1-Player start button to let it move again.

**To move screen forward, press right hole-digging button off and on;
to move screen backward, press left hole-digging button,
while depressing 1-Player start button.

To terminate this checkup, press 2-Player start button.

P C B SPECIFICATIONS

POWER SUPPLY:

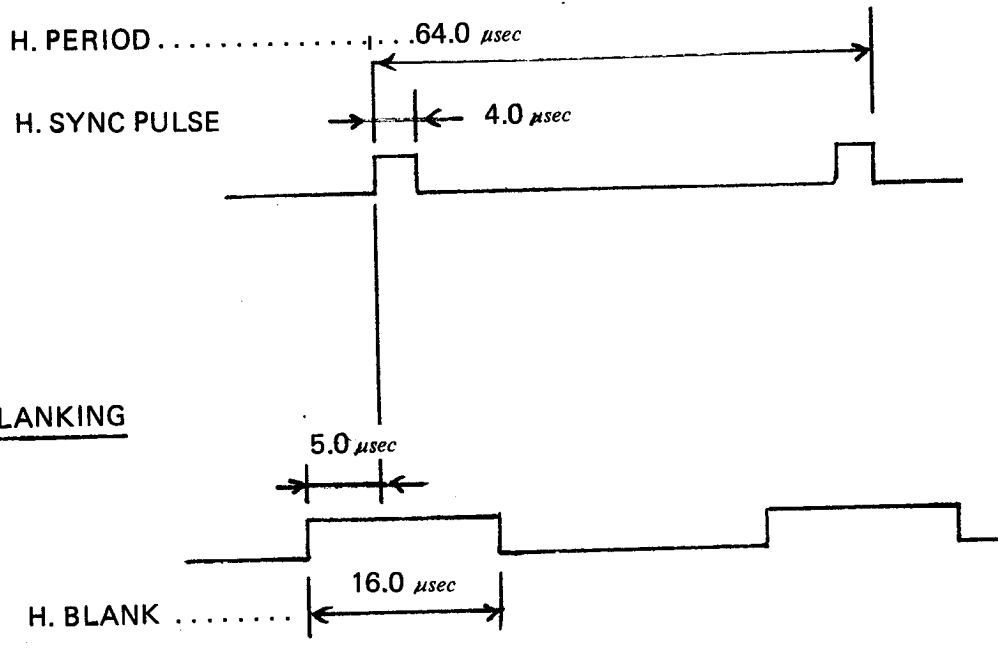
VOLTAGE	5 V \pm 5%
	12 V \pm 10%
AMPERE	5 V MAX 5A
	12 V MAX 1.5A

MONITOR INTERFACE:

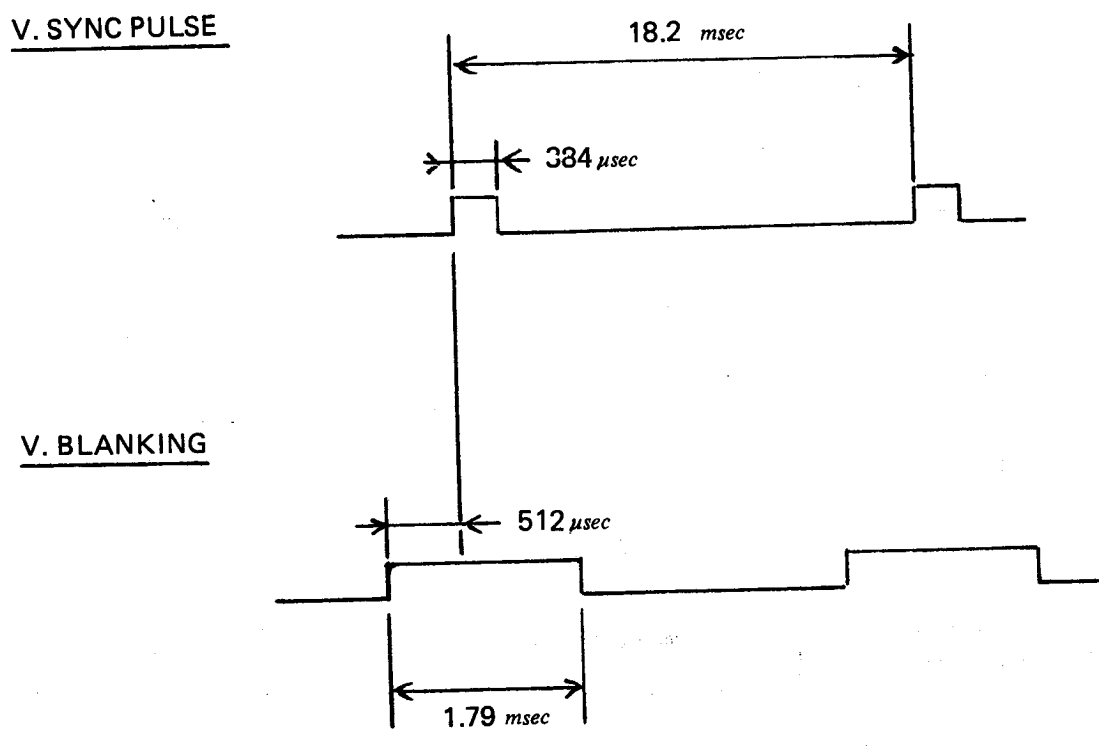
VIDEO SIGNALS	TTL POSITIVE
SYNC SIGNALS	TTL NEGATIVE (COMPOSITE SYNC)
HORIZONTAL FREQUENCY	15.6 KHz
H. PERIOD	64.0 μ s
H. BLANK	16.0 μ s
H. SYNC PULSE	4.0 μ s
VERTICAL FREQUENCY	55.0 Hz
V. PERIOD	18.2 ms
V. BLANK	1.79 ms
V. SYNC PULSE	384 μ s

\	OPERATING	STORAGE
TEMPERATURE RANGE	0 to 50 °C	- 5 to 60 °C
RELATIVE HUMIDITY	20 to 70%	NO MORE THAN 80%
VIBRATION RANGE	NO MORE THAN 0.5 G	NO MORE THAN 1.0 G
TOLERANCE FOR FALLING	NO MORE THAN 0 cm	(Packed) NO MORE THAN 50 cm

HORIZONTAL FREQUENCY15.6 KHz



VERTICAL FREQUENCY55.0 Hz



"LODE RUNNER"

44 PIN CONNECTOR

GND	1	2	GND
GND	3	4	GND
	5	6	
COIN COUNTER A	7	8	
1 P LEFT	9	10	2 P LEFT
1 P RIGHT	11	12	2 P RIGHT
1 P DIGGING LEFT HOLE	13	14	2 P DIGGING LEFT HOLE
2 P START	15	16	1 P START
	17	18	COIN COUNTER B
COIN B	19	20	COMPO SYNC
+ 12 V	21	22	+ 12 V
+ 12 V	23	24	+ 12 V
SPEAKER (-)	25	26	SPEAKER (+)
1 P DIGGING RIGHT HOLE	27	28	2 P DIGGING RIGHT HOLE
RED	29	30	GREEN
BLUE	31	32	
2 P UP	33	34	2 P DOWN
1 P UP	35	36	1 P DOWN
SERVICE SW	37	38	COIN A
+ 5 V	39	40	+ 5 V
+ 5 V	41	42	+ 5 V
GND	43	44	GND

INSTRUCTIONS
ON
DIAGNOSTIC MODE TESTS



DIAGNOSTIC MODE TESTS

Diagnostic program is activated by turning switch 8 of Dip switch 2 to the ON position and turning power switch ON. This diagnostic program is composed of 8 independent tests, first two (RAM test and ROM test) of which initiate automatically as power switch is turned ON. After these two tests end, TV monitor displays a list of the next six tests as described below when the 2-Player button is pressed:

- 01 DIP SWITCH
- 02 I-O PORT
- 03 SOUNDS
- 04 CHARACTER
- 05 COLOR
- 06 CROSS HATCH PATTERN

Move the joystick to position the cursor at the desired test and press the 1-Player button to start the test.

To return to test list: Press the 2-Player button (except when 02 I-O PORT test ends). As 02 I-O PORT test ends, move the joystick left (the 1-Player joystick for table type game) while pressing the 2-Player button.

When all the necessary testing is completed, turn power switch OFF and turn switch 8 of Dip switch 2 to the OFF position.

1. RAM TEST

If RAM is OK, "RAM OK" appears on TV monitor.

If RAM is at fault: "RAM NG XXXX YY ZZ"
(Faulty RAM address) (RAM input data) (RAM output data) appears on TV monitor.

Press the 1-Player button to continue RAM TEST or

Press the 2-Player button to end this test and advance to ROM TEST.

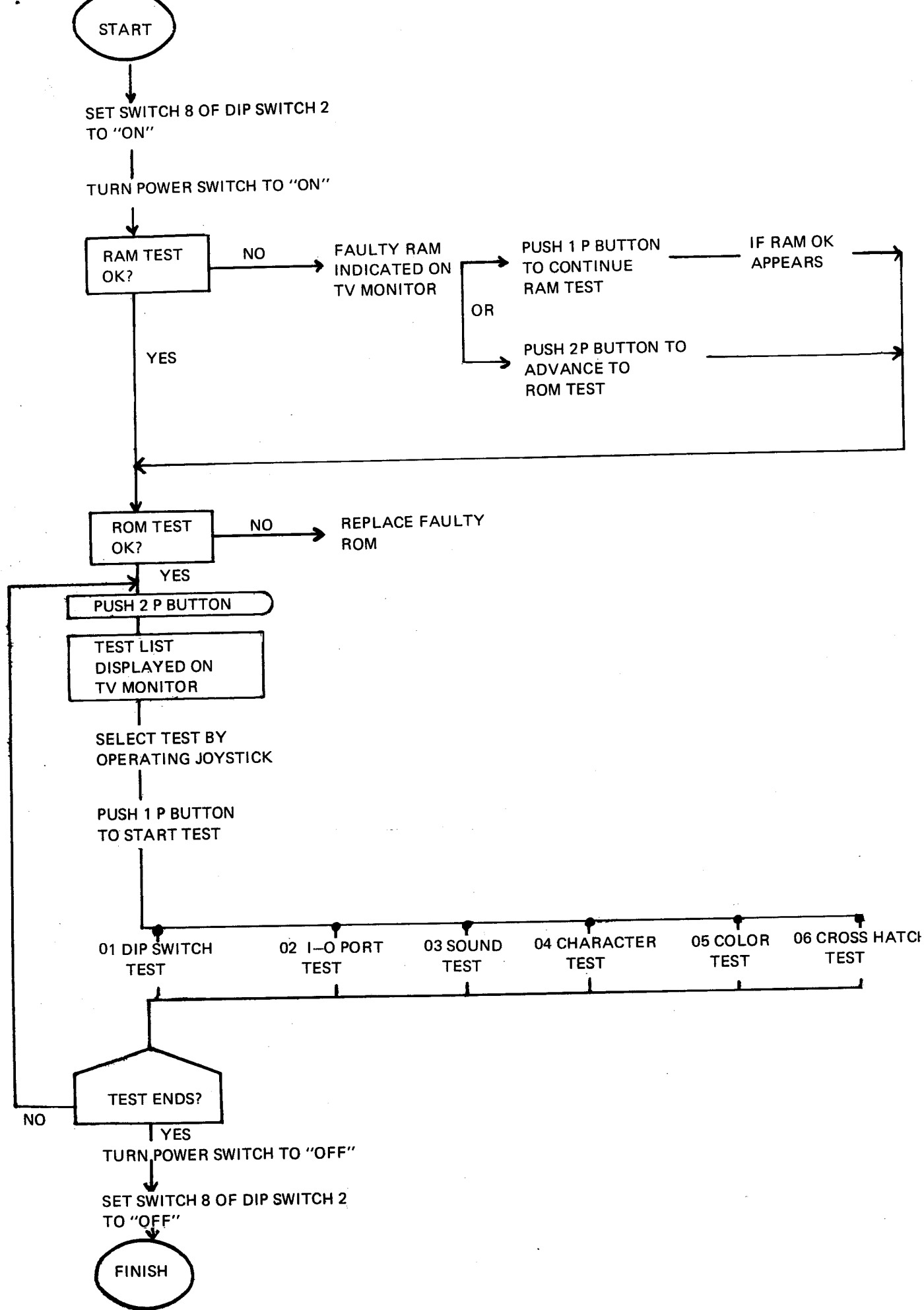
2. ROM TEST

If ROMs are OK, the following appears on TV monitor:

```
RAM    OK
ROM 0  OK
ROM 1  OK
ROM 2  OK
ROM 3  OK
```

If any of the ROMs are at fault, for instance, ROM 1, the following appears on TV monitor:

```
RAM    OK
ROM 0  OK
ROM 1  NG
ROM 2  OK
ROM 3  OK
```



3. DIP SWITCH TEST

When TV monitor displays the test list, control the joystick to position the cursor at 01 and press the 1-Player button.

This test shows the state of switches of Dip Switch 1 and 2 and the results of game adjustments.

```
DIP SW   1 2 3 4 5 6 7 8
DSW 1   0 0 0 0 0 0 0 0
DSW 2   0 0 0 0 0 0 0 1
```

1 = ON
0 = OFF

```
COIN MODE A   1 COIN  1 PLAY
COIN MODE B   1 COIN  2 PLAYS
```

```
BODY TYPE     UPRIGHT
PLAY TIME     180
COMMANDOMEN   3
```

4. I-O PORT TEST

While TV monitor displays the test list, control the joystick to position the cursor at 02 and press the 1-Player button.

This test checks if all the switches on the Control Panel and Coin Doors are working correctly. The following display appears:

```
INTERFACE 1 1 2 3 4 5 6 7 8
READ DATA 0 0 0 0 0 0 0 0
```

```
INTERFACE 2 1 2 3 4 5 6 7 8
READ DATA 0 0 0 0 0 0 0 0
```

```
INTERFACE 3 1 2 3 4 5 6 7 8
READ DATA 0 0 0 0 0 0 0 1
```

1 = ON
0 = OFF

*TIMING n n n n

*TIMING starts at 0000 and adds one count approximately every second.

To terminate this test and bring the test list back to TV monitor, move the joystick left while depressing the 2-Player button.

5. SOUND TEST

When TV monitor displays the test list, control the joystick to position the cursor at 03 and press the 1-Player button.

A table of sounds appears on TV monitor.

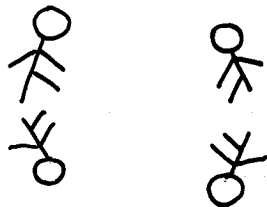
<i>SOUNDS</i>	
01	HOLE DIGGING
02	PICKING UP FORTUNE
03	DOOR OPENING
04	BURIED INTO HOLE
05	FALLING INTO HOLE
06	PLAYER KILLED
07	TIME UP WARNING
08	TIME SCORE COUNTING
09	COIN INSERTING
10	ZOOM IN
11	ZOOM OUT
12	PLAYER FALLING
13	GAME START
14	GAME OVER
15	BGM (CONTINUITY DISPLAY)
16	ROUND CLEAR
17	BLOCK CLEAR
18	TIME UP
19	BGM (GAME PLAY)
20	GAME COMPLETING
	MUSIC END

Select a sound by positioning the cursor with the joystick. Depressing the 1-Player button repeats the sound.

6. CHARACTER TEST

While TV monitor displays the test list, control the joystick to position the cursor at 04 and press the 1-Player button.

TV monitor displays four characters which are flipped vertically and horizontally as shown below.



7. COLOR TEST

While TV monitor displays the test list, control the joystick to position the cursor at 05 and press the 1-Player button.

This test comprises of five independent checkups. Pressing the 1-Player button brings each checkup to TV monitor.

- (1) A row of letters A through Z appears, along with a row of number 0 through 9 as shown below:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9

- (2) Blue field is displayed.
(3) Red field is displayed.
(4) Green field is displayed.

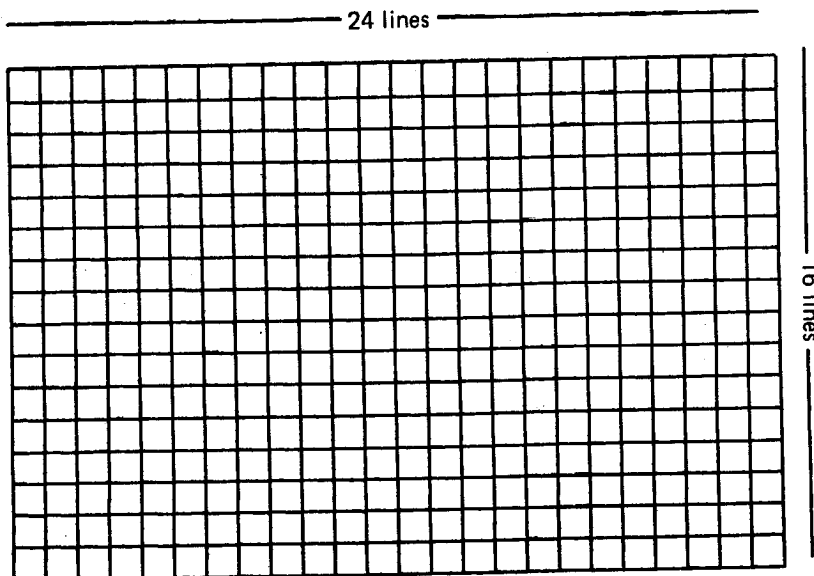
RED	GREEN	BLUE
BEIGE		
DARK GRAY		
GRAY		
VIOLET		

- (5) Color pattern appears on TV monitor as shown above.

8. CROSS HATCH PATTERN TEST

Control the joystick to position the cursor at 06 and press the 1-Player button.

Cross hatch pattern is displayed as shown below.



LODE RUNNER SCORING SYSTEM

NORMAL POINTS

- TRAPPING AN EMEY GUARD IN THE HOLE100 POINTS
- KILLING THE GUARD IN THE HOLE100 POINTS
- CAPTURING A TREASURE200 POINTS
- CAPTURING A TREASURE KEPT BY THE GUARD.....500 POINTS

EACH TIME YOU CLEAR THE PATTERN, THE REMAINING BONUS POINTS ARE ADDED TO YOUR SCORE. (6000 POINTS ARE GIVEN AT THE BEGINNING OF EACH ROUND OF THE 1st BLOCK, 8000 POINTS IN THE 2nd BLOCK, AND 10,000 POINTS IN AND AFTER THE 3rd BLOCK. THESE POINTS WILL DECREASE AS THE GAME TIME GOES BY.)

IF THE PLAYER CLEARS EACH ROUND IN LESS THAN HALF OF HIS ALLOTTED TIME, HIS REMAINING BONUS POINTS WILL BE DOUBLED.

TECHNICAL POINTS

- TRAPPING THREE GUARDS SUCCESSIVELY,
AND RUNNING OVER THEM3000 POINTS
- RIDING ON THE GUARD'S HEAD1000 POINTS
- CAPTURING TREASURES SUCCESSIVELY

	1st ONE	2nd ONE	3rd ONE	4th ONE & OVER
NORMAL TREASURES	200	400	600	800 POINTS
TREASURES KEPT BY GUARDS	500	1000	1500	2000 POINTS

- CONFINING ALL THE GUARDS ON EACH PATTERN. 10,000 POINTS
- CLEARING EACH ROUND WITHOUT KILLING ANY
ONE OF ENEMIES 10,000 POINTS
- CLEARING EACH ROUND WITHOUT TRAPPING ANY
ONE OF ENEMIES 20,000 POINTS
- CAPTURING A SPECIAL TREASURE KEPT BY THE HIDDEN GUARD
(ONE TREASURE PER ROUND, THE POSITION OF THE HIDDEN
GUARD IS SET AT RANDOM.)
..... MYSTERY POINTS (3000, 5000 or 8000 POINTS)

*THE HIDDEN GUARD

HE IS HIDING IN THE BRICK FLOOR AT THE BEGINNING. AND WHEN THE PLAYER DIGS A HOLE THERE, HE APPEARS ON THE SCREEN AND BEGINS CHASING THE PLAYER JUST LIKE USUAL GUARDS. BUT ONCE HE IS TRAPPED IN THE HOLE, HE CANNOT GET OUT OF IT AGAIN. IF YOU SEIZE THE SPECIAL TREASURE KEPT BY HIM, MYSTERY POINTS ARE GIVEN.