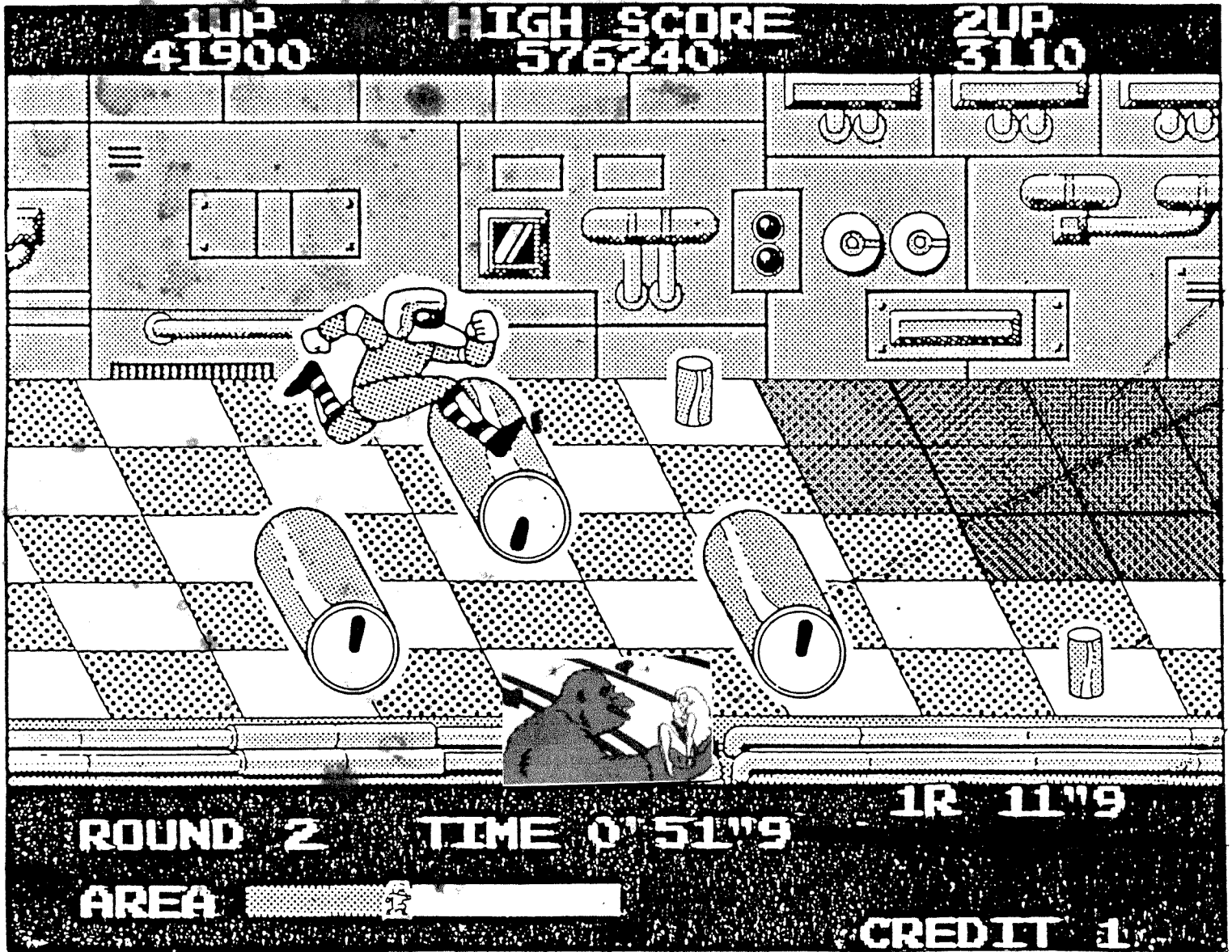


METRO-CROSS™



CONVERSION KIT INSTRUCTION MANUAL FOR CABINETS WITH HORIZONTAL-MOUNT COLOR RASTERSCAN MONITOR

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KITKORP™

2250 ELMHURST RD.
ELK GROVE VILLAGE, IL 60007 (312) 228-0451
FAX (312) 228-1563 TELEX 206424 KITKORP

THE COMPLETE METROCROSS KIT INCLUDES:

- PRINTED CIRCUIT BOARD
- UNIVERSAL WIRING HARNESS
- FOUR CONTROL BUTTON ASSEMBLIES
- COMPLETE JOYSTICK ASSEMBLY
- COLORFUL SIDE GRAPHICS
- CONTROL PANEL GRAPHICS
- MARQUEE PLEXI
- GAME PLAY INSTRUCTIONS
- FCC BOARD ENCLOSURE
- CONVERSION INSTRUCTION MANUAL
- BOARD SCHEMATICS

USER INFORMATION

WARNING

F.C.C. REGULATION COMPLIANCE

THE P.C. BOARD CAGE SUPPLIED WITH THIS CONVERSION KIT MUST BE UTILIZED AND TERMINATED TO GROUND AT THE TIME OF INSTALLATION.

THIS IS TO AVOID RADIO FREQUENCY RADIATION AND COMPLY WITH THE LIMITS FOR A CLASS "A" COMPUTING DEVICE PURSUANT TO SUBPART "J" OF PART 15 OF F.C.C. RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE WHEN OPERATED IN A COMMERCIAL ENVIRONMENT.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE — IN WHICH CASE, THE USER AT HIS OWN EXPENSE, WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

INTRODUCTION TO KITKORP'S METROCROSS

KITKORP'S **METROCROSS** KIT WILL GO INTO ANY GAME CABINET THAT HAS A HORIZONTALLY-MOUNTED MONITOR AND A POWER SUPPLY THAT PROVIDES +5 VOLTS DC AND +12 VOLTS DC. THE CONTROL PANEL REQUIRES AN 8-WAY JOYSTICK, LEFT AND RIGHT **JUMP** BUTTONS, PLUS 1-PLAYER AND 2-PLAYER **START** BUTTONS. THE BOARD GENERATES A NEGATIVE COMPOSITE SYNC SIGNAL THAT'S COMPATIBLE WITH THE MAJORITY OF THE GAME MONITORS IN USE.

METROCROSS OFFERS YOU AN OPTION TO USE **LIT** BUTTONS ON THE CONTROL PANEL FOR 1-PLAYER AND 2-PLAYER START. USE TRANSLUCENT BUTTONS AND WIRE LAMP SOCKETS (6-VOLT DC LAMPS WILL WORK) TO THE UNDERSIDE OF THE CONTROL PANEL NEAR THE BUTTONS. TIE ONE SIDE OF THE LAMP SOCKET TO THE APPROPRIATE TERMINALS ON THE EDGE CONNECTORS. DEPENDING ON COINS DEPOSITED, THE PLAYER START LAMPS WILL FLASH AND ILLUMINATE THE BUTTONS ON THE CONTROL PANEL.

METROCROSS ALSO PROVIDES A RAM-ROM TEST AND THE OPPORTUNITY TO PLAY ANY ONE OF ITS THIRTY-TWO SCREENS. SEE 'DIPSWITCH SETTINGS' PAGE FOR INFORMATION ON THESE FEATURES.

METROCROSS CONVERSION INSTRUCTIONS

OUTSIDE CABINET

Remove all the 'old' game graphics: marquee, control panel overlay, and side decals. TIP: Use a hair dryer or heat gun to heat up and soften the adhesive on the overlay and side decals. This makes removal easier.

When you've stripped off the side decals, wet down the cabinet sides with mineral spirits (paint thinner) and scrape gently with a paint scraper. The mineral spirits soften the residual adhesive. CAUTION: The mineral spirits may damage some cabinet finishes, especially surfaces that have been repainted. Test an inconspicuous corner first. Dry the cabinet sides thoroughly.

Use a spray bottle or sponge to wet the cabinet sides with a solution of dish soap or mild sudsing detergent. Apply the side decals onto this wet surface. This gives you time to position the decal properly. When the decal is in place, use a squeegee to smooth it out. Work from the center; press firmly to squeeze out bubbles and liquid. The decal will dry and 'set up' in 48 hours or so and be smooth and bubble-free. During this drying time, be careful not to wrinkle or tear the decals.

Take the control panel and remove all the 'old' buttons and joysticks. Decide whether you need to strip off the old overlay. If it is clean and smooth, or if there is **no** overlay, the Metrocross overlay will adhere neatly to the control panel. Before you apply the Metrocross overlay, though, be sure the control panel has the required number of holes.

TIPS: Use a 1/4" wood auger bit or hole saw for drilling holes in wooden control panels. An auger bit is less expensive than a hole saw, **but** a hole saw is easier to use **and** makes cleaner holes.

Cut perfect holes in **metal** control panels with a **round metal punch** (also called a **chassis punch**). The 1-3/16" size is best for industry-standard control panel buttons and is available at most hardware stores. Keep a small can of 20-weight oil with your punch; oil the threads and cutting edge **liberally** during use.

Extra holes on the control panel should be filled with epoxy, wood putty, or auto body filler ('Bondo') to avoid 'soft spots' on the overlay.

Apply the Metrocross overlay to the control panel. Cut out the holes with a sharp knife and apply the Player Start, Jump button, and Joystick labels. Install the joystick and buttons.

Cut the marquee to size. If you don't have a bandsaw, a jigsaw or sabre saw with a plastic-cutting blade works nicely.

Apply the game instructions to the game glass or, if you like, onto the control panel.

INSIDE CABINET

Remove the 'old' game wiring harness (except the AC line harness) and take out the old game boards. NOTE: The cabinet you're converting may easily have the same control panel configuration and the same type board edge connector as Metrocross. If this is the case, save yourself some time by using the existing harness. Rearrange the wires on the existing edge connector **or** splice the existing wires onto the connector provided in the Metrocross kit.

NOTE: The voltage supply leads and power supply ground leads are all heavier-gauge wire. This is to assure the best possible power and ground distribution. Don't short change your game: connect **both** +5v leads and **both** ground leads (along with the +12v lead) to the power supply.

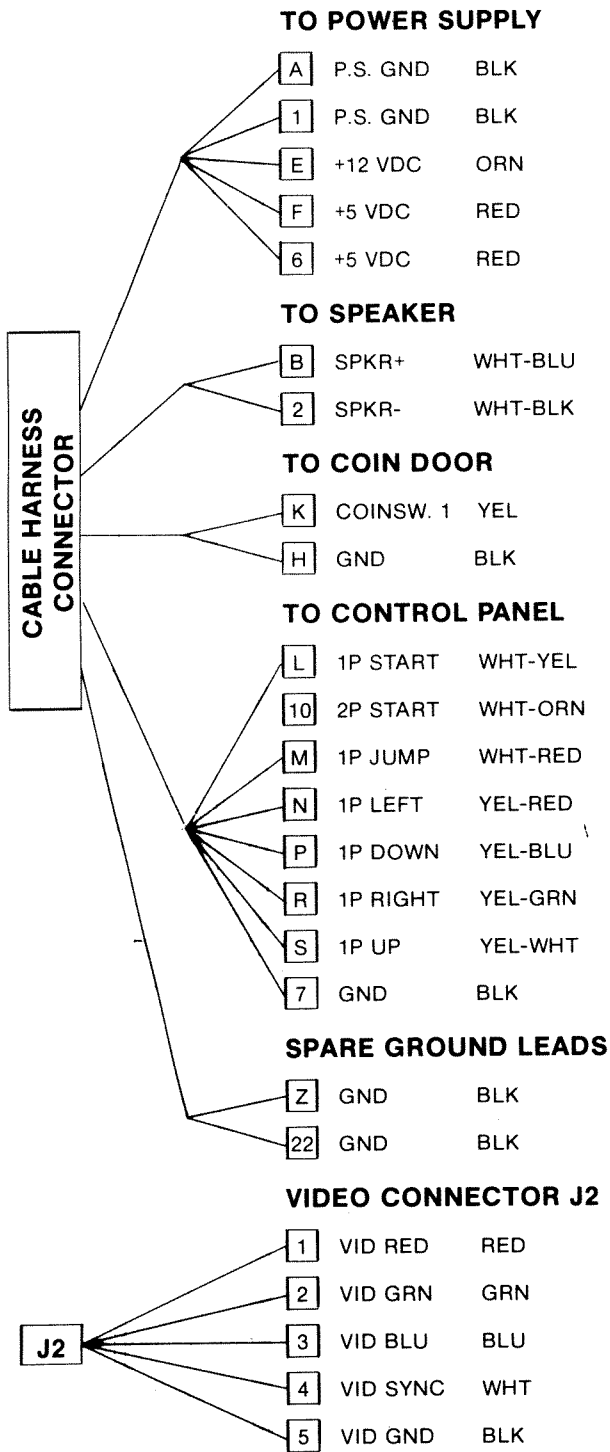
Be sure you find and use the harness with the 6-pin plug. This is the **video** harness and connects to J2 on the Metrocross printed-circuit board.

There is **no** harness for connector J1. It is **not used**.

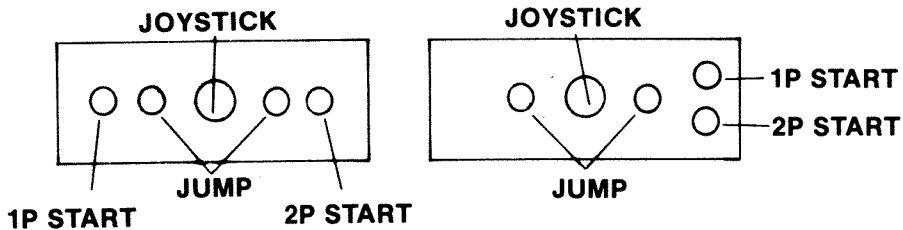
For ease of installation, the harness edge connector is **keyed**. The key fits into the slot on the board edge connector.

Don't forget to install the RF cage as required by the FCC. Be sure it's **grounded**.

WIRING HARNESS ROUTING



SUGGESTED CONTROL PANEL LAYOUTS

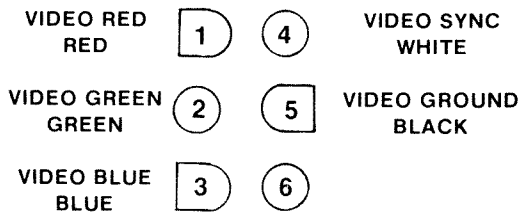


EDGE CONNECTOR DIAGRAM

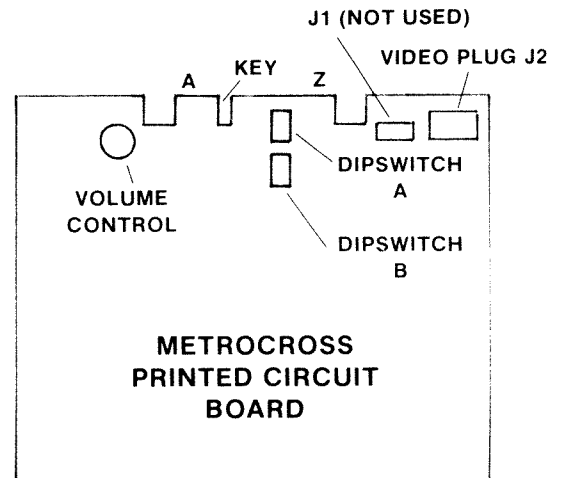
PARTS SIDE		SOLDER SIDE	
POWER SUPPLY GROUND BLACK	A 1	POWER SUPPLY GROUND BLACK	
SPEAKER + WHITE-BLUE	B 2	SPEAKER- WHITE-BLACK	
COIN LOCKOUT COIL	C 3	COIN COUNTER 1	
1P START LAMP	D 4	2P START LAMP	
+12 VOLT SUPPLY ORANGE	E 5	+12 VOLT SUPPLY*	
+5 VOLT SUPPLY RED	F 6	+5 VOLT SUPPLY RED	
GROUND BLACK	H 7	GROUND BLACK	
*SERVICE SWITCH	J 8		
COIN SWITCH 1 YELLOW	K 9	COIN SWITCH 2*	
1P START WHITE-YELLOW	L 10	2P START WHITE-ORANGE	
1P JUMP WHITE-RED	M 11	2P JUMP*	
1P JOYSTICK LEFT YELLOW-RED	N 12	2P JOYSTICK LEFT*	
1P JOYSTICK DOWN YELLOW-BLUE	P 13	2P JOYSTICK DOWN*	
1P JOYSTICK RIGHT YELLOW-GREEN	R 14	2P JOYSTICK RIGHT*	
1P JOYSTICK UP YELLOW-WHITE	S 15	2P JOYSTICK UP*	
	T 16		
	U 17		
	V 18		
	W 19		
	X 20		
*COIN COUNTER 2	Y 21	THIS TERMINAL TO GROUND FOR COCKTAIL	
GROUND BLACK	Z 22	GROUND BLACK	

1. TERMINALS LABELED * ARE FOR OPTIONAL USE AND ARE NOT WIRED.
2. **START LAMP** TERMINALS AT D AND 4 ARE FOR USE WITH LICON-TYPE BUTTONS OR UNDERLIT TRANSLUCENT BUTTONS. SUPPLY VOLTAGE IS +5VDC.
3. SUPPLY VOLTAGE FOR **COIN LOCKOUT COIL** (TERMINAL C) AND **COIN COUNTERS** (TERMINALS Y, 3) IS +12VDC.
4. TERMINAL 21 SHOULD BE **GROUND**ED FOR COCKTAIL TABLE USE.

VIDEO CONNECTOR J2



1. THIS BOARD GENERATES **NEGATIVE COMPOSITE SYNC**. THE WHITE SYNC OUTPUT WIRE GOES TO **BOTH** THE HORIZONTAL AND VERTICAL NEGATIVE COMPOSITE SYNC INPUTS ON THE MONITOR.
2. CONNECTOR J1 ON THE BOARD IS **NOT USED**.

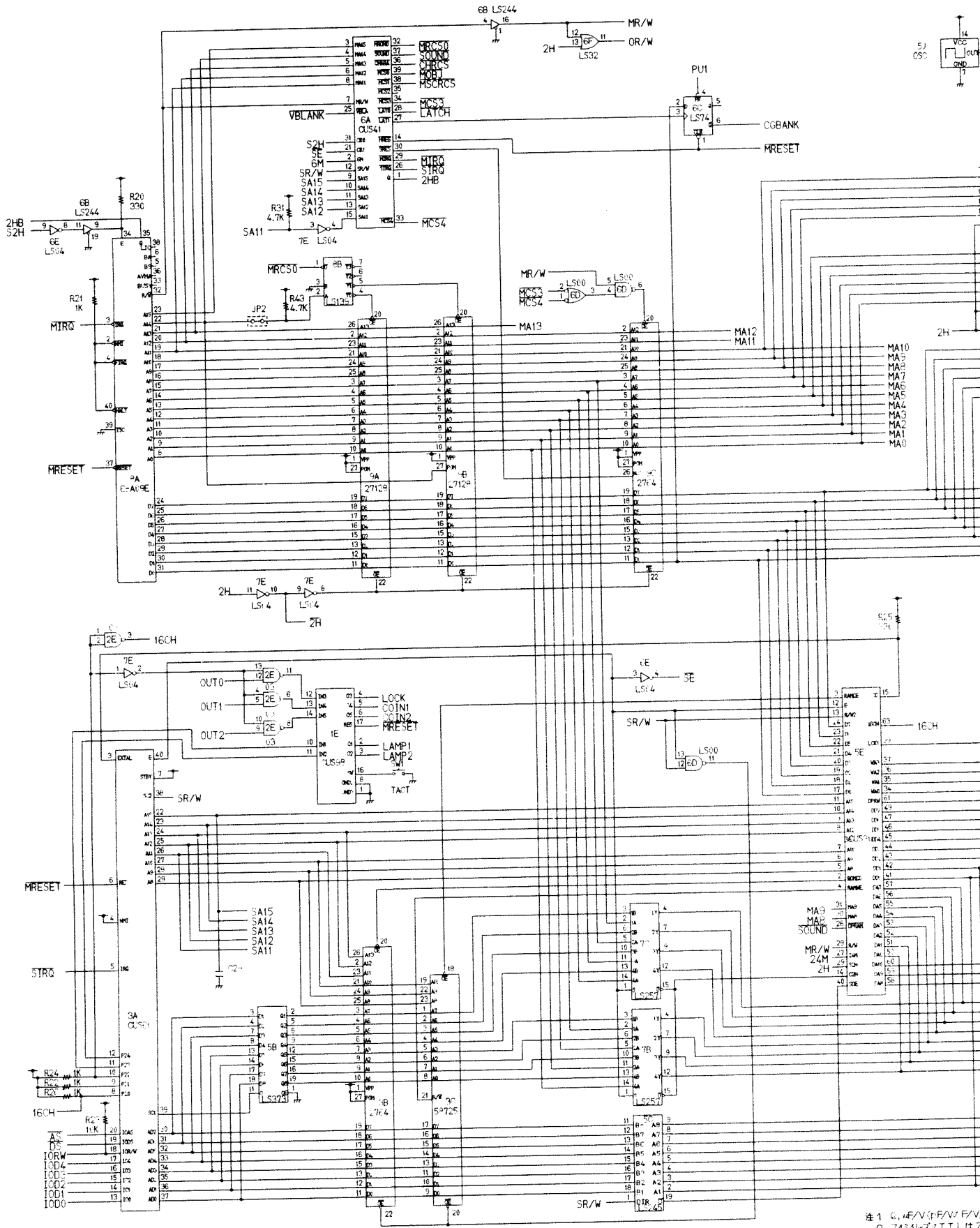


DIPSWITCH SETTINGS

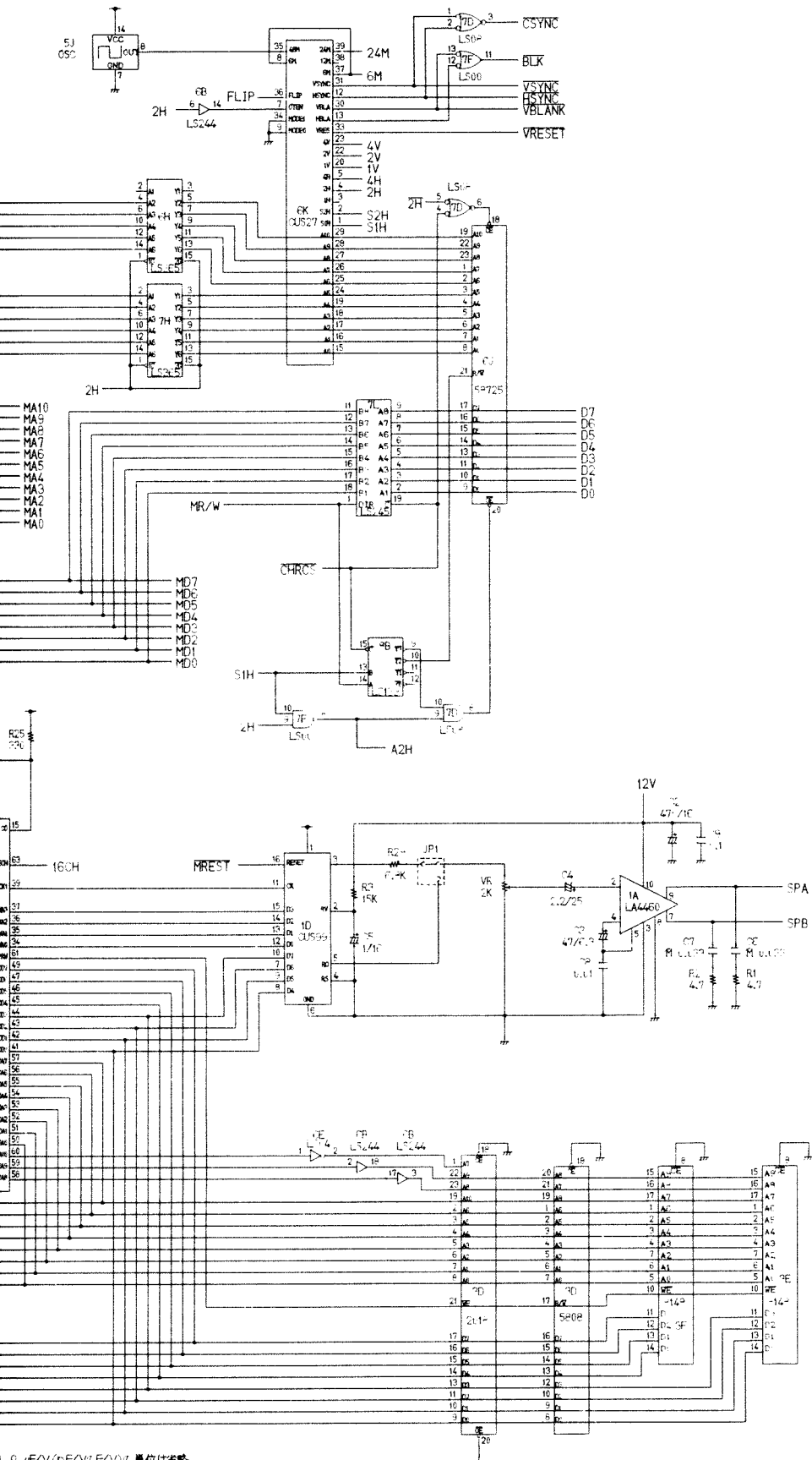
DIPSWITCH A	1	2	3	4	5	6	7	8
SELF-TEST MODE	ON							
GAME MODE	OFF							
COINS/CREDITS COINSWITCH 1	1/1	OFF	OFF					
	1/2	OFF	ON					
	2/1	ON	OFF					
	3/1	ON	ON					
GAME DIFFICULTY NORMAL				OFF	OFF			
EASY				OFF	ON			
HARD				ON	OFF			
VERY HARD				ON	OFF			
BUY-IN (AFTER 4th ROUND ONLY)						ON		
NO BUY-IN						OFF		
COINS/CREDITS COINSWITCH 2	1/1						OFF	OFF
	1/2						OFF	ON
	2/1						ON	OFF
	3/1						ON	ON

DIPSWITCH B	1	2	3	4	5	6	7	8
ATTRACT MODE SOUND	NO	ON		OFF (NOT USED)				
	YES	OFF						
ROUND ADVANCE * (SEE NOTE BELOW)		ON						
NORMAL GAME MODE		OFF						
FREEZE SCREEN			ON					
NORMAL MODE			OFF					

*TO ADVANCE ROUNDS: SET SWITCH 2 TO 'ON.' COIN UP GAME AND PUSH 1P START. USE JOYSTICK TO SELECT ROUND 1 THRU 32. SET SWITCH 2 TO 'OFF' TO PLAY THE ROUND YOU HAVE SELECTED.



注1 ①、④、⑤はF/W F/V
 2 74314-スライTLは7
 3 ④はボリエステルフィル
 4 コンデンサはセラミ

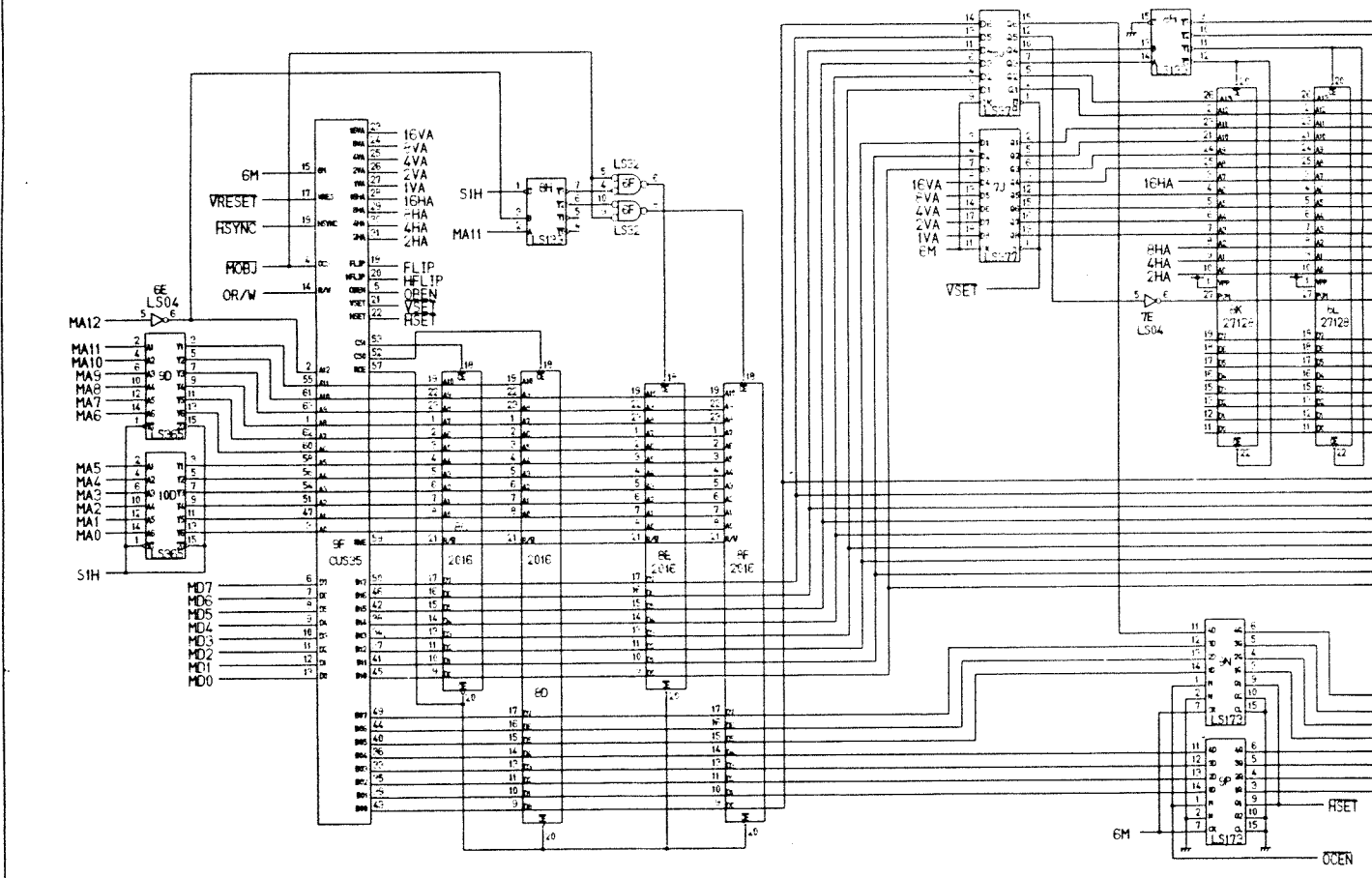
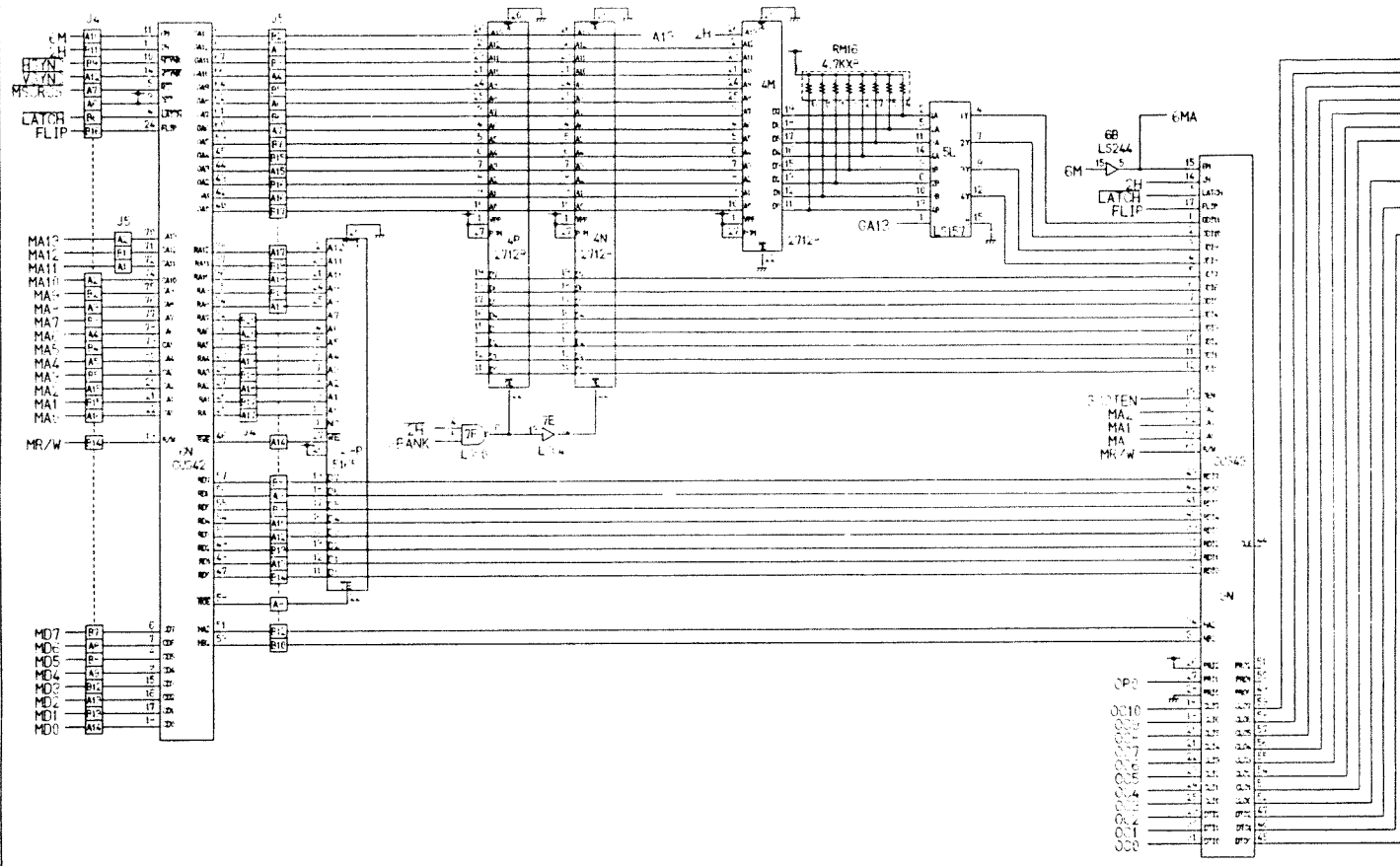


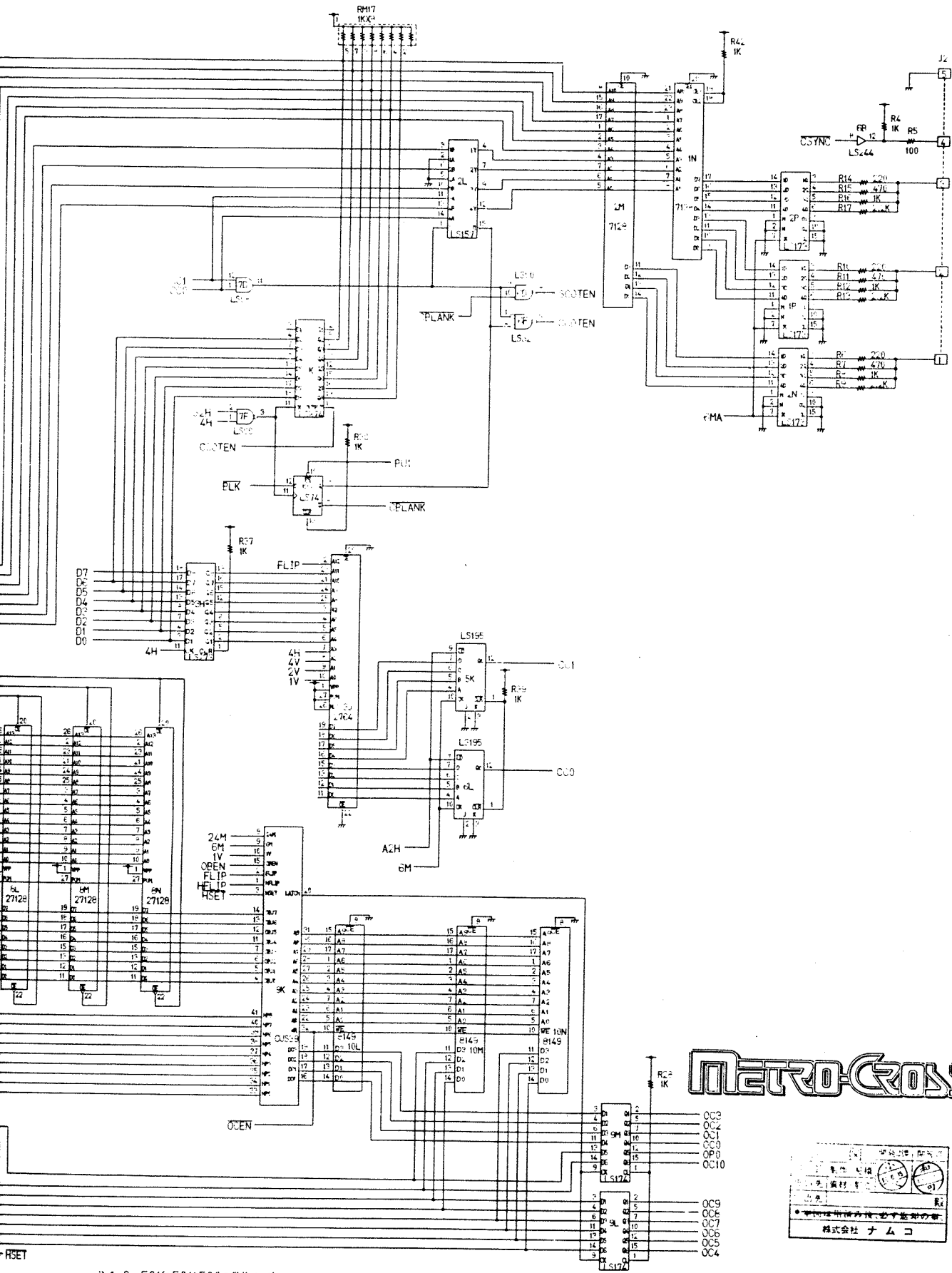
METRO-CROSS™

設計	製作	検査
材料	製造	出荷
株式会社 ナムコ		

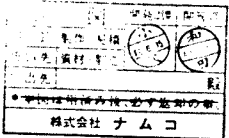
Ω, k, M, V (p, F, W, F/V) 単位は省略。
 2 74シリーズは L は 74 を省略。
 ⊕ はポリエチレンフィルムコンデンサで耐圧 50V。
 ⊖ はセラミックコンデンサで耐圧 50V。

DRAWING	DESIGNED	CHECKED	APPROVED	SCALE	TITLE
発甲	鶴丸	55.5.17	55.6.15		V22 GAME P/B 回路図 (1/1)
55.6.19	55.6.18				DRAW NO. 22435501
NAMCO LIMITED					





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注1 2, 4.7V (pF/V or F/V) の単位は省略,
 2 74シリーズのTTLは74を省略.

DRAWING	CHECKED	APPROVED	SCALE	TITLE
渡甲 鷲丸	12.13	12.13		V22
NAMCO LIMITED				GAME PCB回路図 (※)
				22439502

REVISION1