

General Instructions for "PLAYTIME"

Installation:

The power is controlled by a switch located on top of the cabinet. Plug into A.C. only, 115 volts, 60 cycles.

Equipment Panel and Logic Unit:

Located in back box area and are easily serviced by removing back door.

Game Over Score Switch:

Located on logic board at section "J8" to end game at 11 or 15 points. (See separate enclosed instructions).

Player Serve Selection:

Located on logic board at section "K3".

- "A" jumped to "D". "B" jumped to "C". Player who has been scored upon serves next.
- "A" jumped to "C". "B" jumped to "D". Player who has scored serves next (see diagram on page 2 of separate enclosed instructions for location of points "A", "B", "C", and "D").

Coin Control Selection:

Located on logic board at section "L3".

- "E" jumped to "1" allows 1 play per coin.
- "1" jumped to "2" allows 1 play for 2 coins.

(When converting a game to 2 coins per play, it is necessary to add a SCR at section "L9" on logic board. Call factory for further information).

Paddle Controls and Adjustments:

Located on logic board. (See separate enclosed diagram and adjustment information for control locations).

Volume Control:

Located on top of cabinet. To increase volume, rotate in a clock-wise direction.

MIDWAY MFG. CO.

3750 River Road

Schiller Park, Ill.

S E R V I C E B U L L E T I N

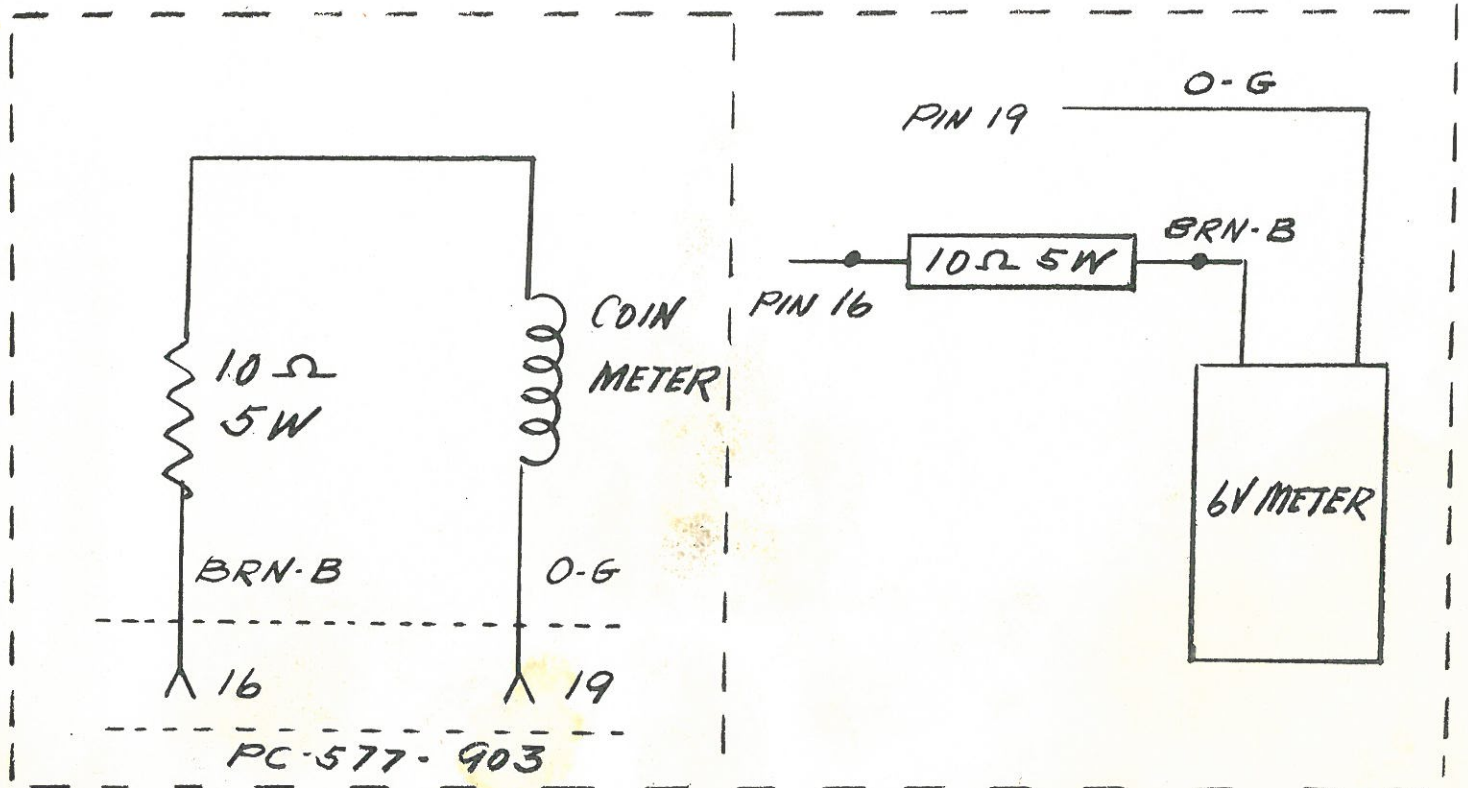
GAME: Playtime

CONDITION:

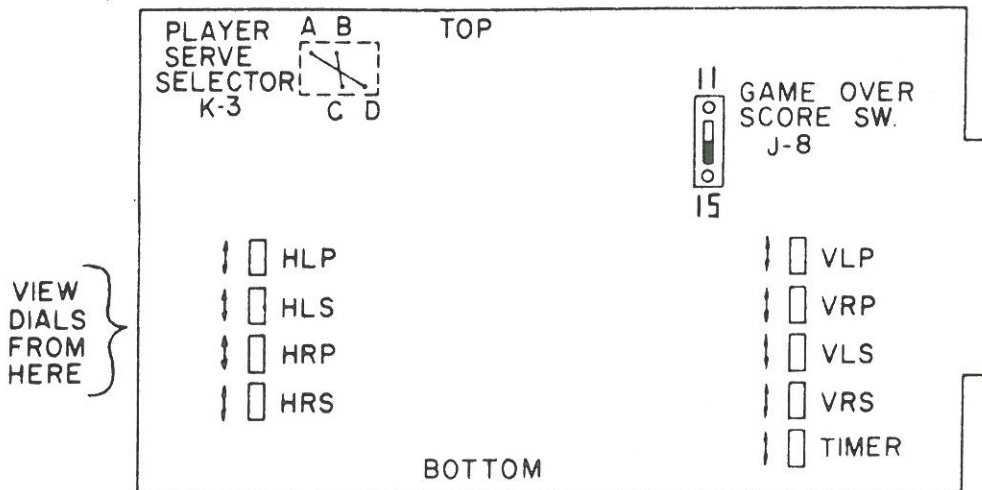
Possible logic PC 577-903 component damage due to a hanging coin at coin switch.

Please make the following modifications in games with serial numbers lower than #818:

- 1.) Add a 10 ohm 5 watt resistor to the meter as shown.

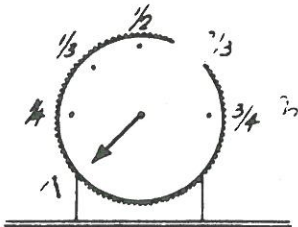


"PLAYTIME" Alignment Procedure



These preliminary steps are to be done before logic board is inserted in game. Observe orientation of logic board (top & bottom).

Observe dial faces of pots from left side of board.



Now set the dial arrow for each pot to the preliminary settings below.

Top ←→ Bottom
(as seen from left side)

- | | |
|----------------|----------------|
| HLP: 1/2 | VLP: 2/3 |
| HLS: 1/4 - 1/3 | VRP: 2/3 |
| HRP: 1/2 | VLS: 1/3 |
| HRS: 1/2 - 2/3 | VRS: 1/4 - 1/3 |

Now plug logic board into game.

Now slowly move each control stick to locate their corresponding paddles - with the preliminary settings, you should be able to locate each paddle in its respective half of the playfield.

Now manipulate the pots so that each paddle moves:

Horizontal Max Swing & Position -- 3/4" from net and 3/4" from edge of screen.

Vertical Max Swing & Position -- Approximately one (1) raster line below top border and one (1) raster line above bottom border.

Use list below for final fine adjustments.

ROTATING POT TO:	MOVES PADDLE TO:
HLP: Top	Right
Bottom	Left
HLS: Top	Shorter swing
Bottom	Longer swing
HRP: Top	Right
Bottom	Left
HRS: Top	Shorter swing
Bottom	Longer swing
VLP: Top	Down
Bottom	Up
VRP: Top	Down
Bottom	Up
VLS: Top	Shorter swing
Bottom	Longer swing
VRS: Top	Shorter swing
Bottom	Longer swing

TIME ADJUSTMENT

Timer Pot -

Top	-	4:30 approximately
Bottom	-	2:15

"PLAYTIME" Alignment Instructions

HLP: Horizontal Left Position -

Setting this pot will determine proximity of left paddle to net - approximately 3/4".

HRP: Horizontal Right Position -

Same as above, but for right paddle.

HLS: Horizontal Left Swing -

This setting will determine how far left paddle will travel from net to edge of T.V. screen for full horizontal movement of left control stick.

HRS: Horizontal Right Swing -

Same as above, but for right paddle.

VLP: Vertical Left Position -

This setting will determine proximity of left paddle to top or bottom border - set for spacing of approximately 1 raster-line from each border.

VRP: Vertical Right Position -

VLS: Vertical Left Swing -

Setting will determine total travel of left paddle between top and bottom borders for full vertical movement of left control stick.

VRS: Vertical Right Swing -

Same as above, but for right paddle.

"PLAYTIME" I.C. Troubleshooting Information

A0 G.O. = No score display
7400 Play = No display - will count and go into G.O.

A1 G.O. = Normal
7413 Play = Ball in serving position does not flash.

A2 G.O. = Normal
7400 Play = No ball

A3 G.O. = Ball moves through top border; resumes at bottom.
7404 Play = No ball

A4 G.O. = Scattered horizontal row of balls moving from top to bottom only.
7402 Play = No ball - one side will count constantly to go.

A5 G.O. = No ball - no borders - no net - distorted picture.
7408 Play = No ball - no borders - no net - distorted picture, but sound is present.

A6 G.O. = Normal
7474 Play = Ball moves zig-zag in vertical serve pattern. If hit, moves to opposite serve pattern.

A7 G.O. = Normal
7402 Play = Winning score does not flash at 11 or 15.

A8 G.O. = Normal
555 Play = Winning score does not flash.

A9 (Game Timer
555 (

B0 (Controls horizontal right paddle
555 (If out, no right paddle

B2 G.O. = Ball moves vertically very slowly only top to bottom; goes through bottom border, resumes at top. Horizontal moves good.
74107 Play = All hits go down and through bottom border.

B3 G.O. = Vertical row of balls (horizontal good).
9316 Play = Vertical row of balls (horizontal good, no sound).

B4 G.O. = (No comp. sync., i.e., no vertical or horizontal sync.)
7486 Play = (

- B5 G.O. = Very slight vertical movement
7474 Play = No steep down hits (has steep up hits).
- B6 G.O. = Normal
7450 Play = No steep angle down hits - down hits are slower than up hits.
- B7 G.O. = Normal
7420 Play = Long paddles, from top to bottom borders.
- B8 G.O. = Normal
7493 Play = No right paddle
- B9 (Right paddle (vertical)
555 (If out, no right paddle.
- C0 (Controls left paddle horizontal
555 (If out, no left paddle.
- C2 G.O. = Moves with very sharp vertical angles through bottom border; resumes at top (horizontal good).
7400 Play = Coin lights come on, but G.O. light stays on also, and game stays in G.O.
- C3 G.O. = Vertical row of dots moving with good horizontal.
9316 Play = Vertical row of dots moving with good horizontal and hits well - chipping sound.
- C4 G.O. = Ball goes through top border and resumes at bottom (horizontal good).
7483 Play = All hits go up only and through top border, resuming at bottom.
- C5 G.O. = Ball goes through bottom border, resumes at top. Vertical movement is occasionally very sharp and occasionally very slight.
7474 Play = No ball
- C6 G.O. = Ball goes through border and resumes at bottom, vertical movement changes from slight vertical angle to very sharp vertical angle.
7450 Play = All hits go up through top border, and resume through the bottom.
- C7 G.O. = Normal
7400 Play = No paddles
- C8 G.O. = Normal
7493 Play = No left paddle
- C9 (Controls left paddle vertical
555 (If out, no left paddle.

D0	G.O.	=	Normal
7400	Play	=	No paddles
D1	G.O.	=	Ball goes right to left only
7400	Play	=	No sound - All other functions normal.
D2	G.O.	=	No net, no borders, no ball.
7474	Play	=	No net, no borders, no ball, and no paddles - constant sound.
D3	G.O.	=	Missing display sections - 6 & C.
7400	Play	=	Missing display sections - 6 & C - no sound.
D4	G.O.	=	Missing display section - B.
7410	Play	=	Missing display section - B - no sound.
D5	G.O.	=	Numerous vertical rows of displays.
7448	Play	=	Numerous vertical rows of displays.
D6	G.O.	=	Incorrect score display - improper score re-
74153	Play	=	set will not count properly.
D7	G.O.	=	Incorrect score display.
7490	Play	=	Left side will not count.
D8	G.O.	=	Incorrect scoring display.
74107	Play	=	First score puts game into G.O.
D9	G.O.	=	)DEAD (proper lights)
7404	Play	=)
E1	G.O.	=	No G.O. light - No ball.
7404	Play	=	No ball, no paddles - when start switch is hit, score goes to "11" on both sides.
E2	G.O.	=	No ball, no score display - left paddle appears.
7402	Play	=	No right paddle, no score - good ball and left paddle.
E3	G.O.	=	No score, no bottom border - top of picture is horizontally distorted.
7430	Play	=	Paddles and ball good - no score, no bottom border, picture still distorted during serve sequence - when ball is in play, distortion ceases and bottom border reappears.
E4	G.O.	=	)Missing display sections - A, F, G.
7410	Play	=)
E5	G.O.	=	)Missing display sections - C, D, E.
7410	Play	=)

E6 G.O. =) Incorrect score display
 74153 Play =)

E7 G.O. = Incorrect score display
 7490 Play = Right side will not count.

E8 G.O. = Vertical roll
 7410 Play = Vertical roll - no paddles.

E9 G.O. =) DEAD (Proper lights)
 74107 Play =)

F1 G.O. = Normal
 7400 Play = Serve may sometimes appear stationary, but in various places - when hit, ball will play; once missed, you get constant miss sound and ball will not reappear. Also, will not score - no bounce sound off of borders.

F2 G.O. = No ball - incorrect display on left - no display on right.
 7410 Play = No ball - bad score as above.

F3 G.O. = Score displayed horizontally across top of screen - slight horizontal distortion.
 7427 Play = Same as above.

F4 F.O. =) Distorted video - vertical roll
 7404 Play =) horizontal distortion

F5 G.O. = Display windows only.
 7427 Play = No standing serve - ball goes constantly in same direction - no display.

F6 G.O. =) DEAD (Good lights)
 7400 Play =)

F7 G.O. =) DEAD (Good lights)
 7474 Play =)

F8 G.O. =) DEAD (Good lights) (Occasionally ball can be seen rolling vertically).
 7493 Play =)

F9 G.O. =) Vertical rolling net and ball.
 7493 Play =)

G1 G.O. =) Ball moves very fast horizontally.
 7493 Play =)

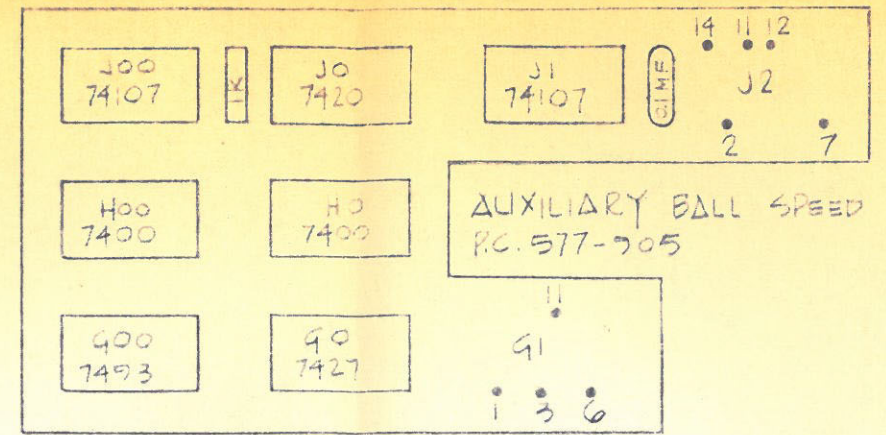
G2 G.O. = Incorrect video
 7425 Play = Vertical rows of score displays.

G3	G.O.	=	Net spread across right half of screen.
74107	Play	=	Net spread across right half of screen - constant noise when ball appears.
G4	G.O.	=	Normal
555	Play	=	No ball
G5	G.O.	=	)DEAD (good lights)
7402	Play	=)
G6	G.O.	=	)DEAD (good lights)
74107	Play	=)
G7	G.O.	=	)DEAD (good lights)
7430	Play	=)
G8	G.O.	=	)DEAD (good lights)
7493	Play	=)
G9	G.O.	=	)DEAD (good lights)
7493	Play	=)
H1	G.O.	=	Dead (good lights)
7402	Play	=	Constant vertical distortion - borders, net, and paddles visible - no ball, no score display - but give score sound indication for allotted "11" or "15" until G.O.
H2	G.O.	=	No ball, net, or borders - top of picture horizontal distorted.
7427	Play	=	Same as above - one side will count and display until G.O.
H3	G.O.	=	No net
7400	Play	=	No net, no right paddle - left paddle will not hit ball, if serve is on left side - if serve should be on right, ball will not appear.
H4	G.O.	=	Normal
555	Play	=	Constant sound.
H5	G.O.	=	)Vertical roll
7410	Play	=	)Horizontal distortion
H6	G.O.	=	Ball appears as horizontal row of dots.
74107	Play	=	No ball - one side will count into G.O.
H7	G.O.	=	Ball appears as faint horizontal row of dots.
9316	Play	=	Ball appears as faint horizontal row of dots - game counts to maximum abruptly and goes into G.O.

J1	G.O.	=	)Ball moves vertically only - no horizontal ball
7400	Play	=	)Ball moves vertically only - no horizontal ball
J2	G.O.	=	)No horizontal ball
74107	Play	=)
J3	G.O.	=	Ball moves left to right only
7474	Play	=	Ball moves left to right only when lit.
J4	G.O.	=	Ball appears as horizontal row of dashes.
7400	Play	=	No ball - one side will count till G.O.
J5	G.O.	=	Vertical roll.
7400	Play	=	Vertical roll - two miss sounds and into G.O.
J6	G.O.	=	No ball
7420	Play	=	No ball - constant sound - goes into G.O. when start switch is hit.
J7	G.O.	=	Either NO BALL or horizontal row of balls.
9316	Play	=	No ball.
K0	G.O.	=	)No ball, net or borders
7410	Play	=)
L0	G.O.	=	No score display - fat borders, net and ball.
7427	Play	=	No score display - fat borders, net and ball. No paddles.
L1	G.O.	=	Normal
74121	Play	=	No paddles.
L2	G.O.	=	Normal
7400	Play	=	Stays in G.O. - all lights come on.
L3	G.O.	=	Normal
7474	Play	=	Stays in G.O. - no coin lights.
L4	G.O.	=	Normal
7402	Play	=	Stays in G.O. - no coin lights, no coin meter.
L6	G.O.	=	Normal
7413	Play	=	Stays in G.O. - no coin lights - no coin meter.
L7	G.O.	=	)All lights come on - video normal
7416	Play	=	)No coin meter

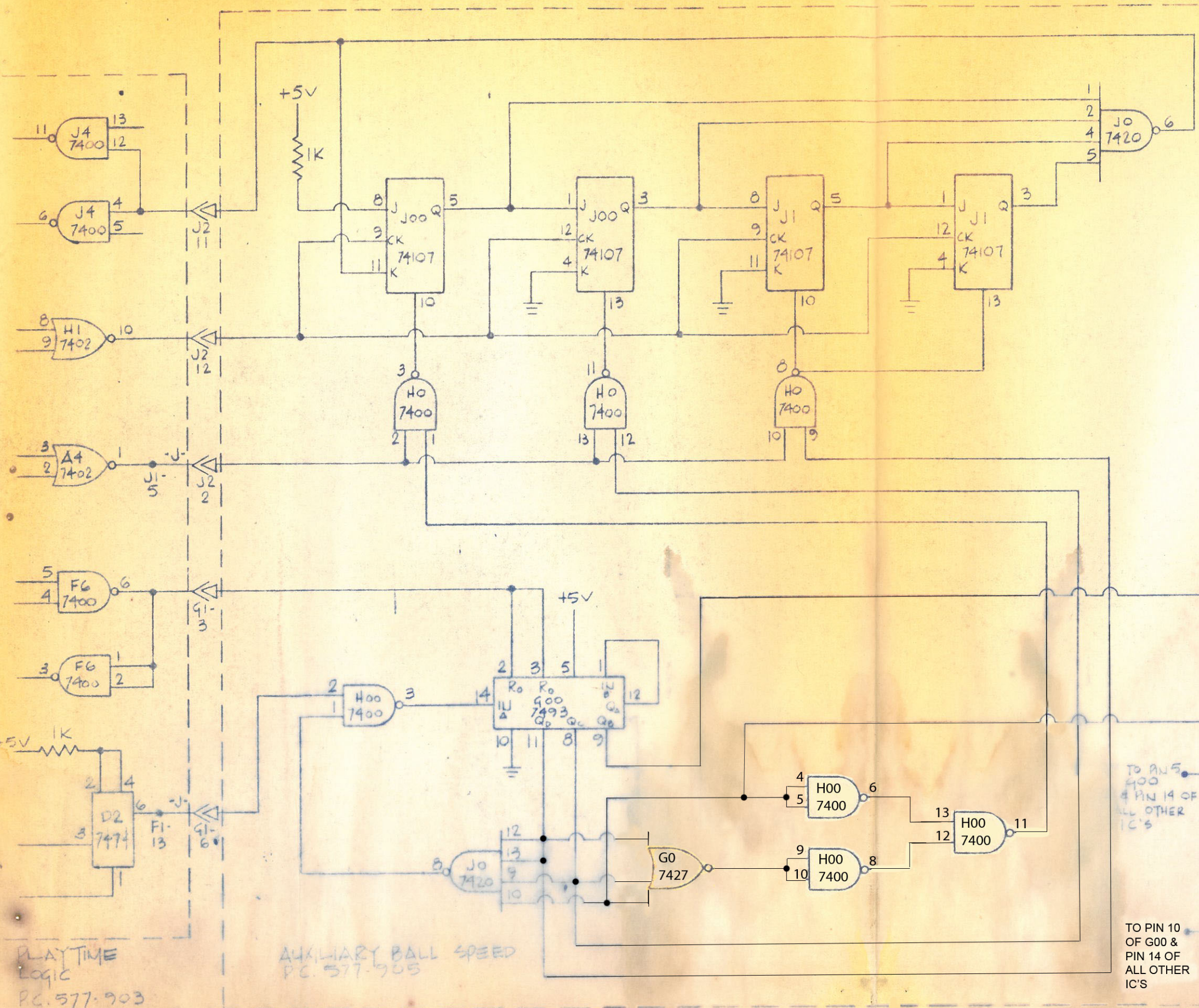
<u>Chip Number</u>	<u>Function</u>
7400	Quad. two input nand-gate
7402	Quad. two input nor-gate
7404	Hex. inverter
7410	Triple nand-gate
7425	Dual four input nor-gate with strobe
7427	Positive nor-gate
7430	Eight input or-gate
7448	B.D.D. to seven segment decoder
7450	Expandable dual two input and-or inverter gate
7474	J-K Flip-Flop
7483	A four-bit binary full adder
7490	Decade counter
74107	Dual J-K Flip-Flop
74153	Dual 4 to 1 data selector multi-plexer
9316	Four-bit counter low PWR (up)
NE555	Timer
7493	Four bit binary counter
7420	Dual input nand-gate
7486	Four input or-gate
9312	8 input multi-plexer
9322	Quad two input multi-plexer
9602	Dual one shot
74154	1 of 16 decoder

PHYSICAL INTERPRETATION OF NOMENCLATURE



REQUIRED ADJUSTMENTS ON PLATIME LOGIC PC. 577-903

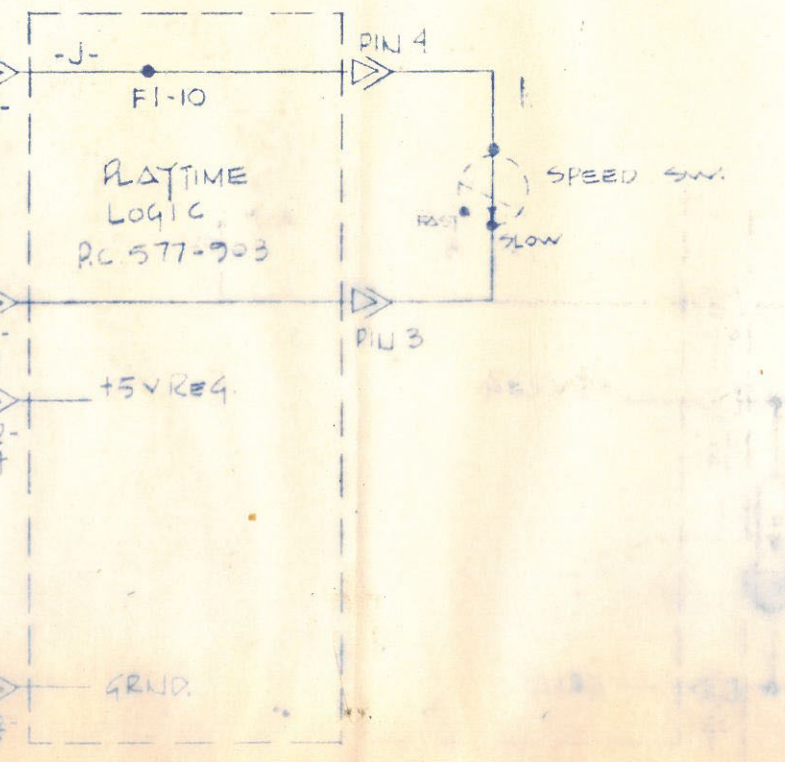
- 1) REMOVAL OF IC'S: G1, J1, J2
- 2) CUT & LIFT PINS: FI-10, FI-13, J4-3
- 3) JUMPER SEGMENTS: J2-2 To J1-5, G1-1 To FI-10, G1-6 To FI-13



PLAYTIME LOGIC PC. 577-903

AUXILIARY BALL SPEED PC. 577-905

TO PIN 10 OF G00 & PIN 14 OF ALL OTHER IC'S



PLATIME LOGIC PC. 577-903

+5V REG.

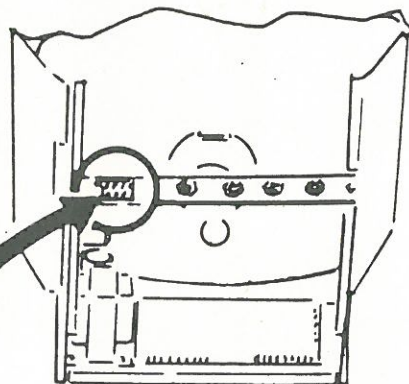
GRND.



ENGINEERING BULLETIN

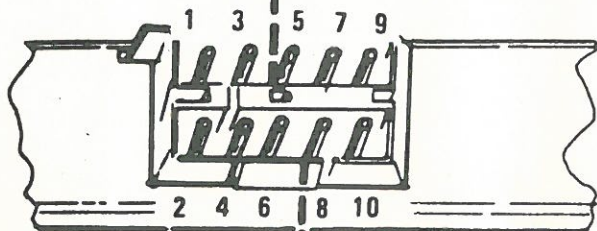
MOTOROLA DISPLAY PRODUCTS

FEBRUARY 2, 1974



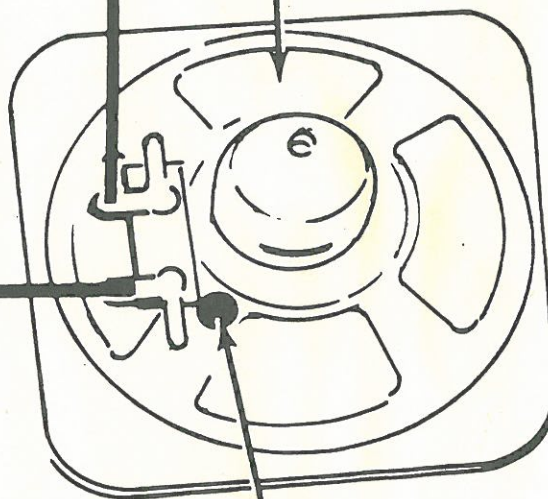
TO MINIMIZE SPEAKER DAMAGE, PLEASE WIRE THE LOUDSPEAKERS AS INDICATED.

PIN 5 TO UNCODED SPEAKER TERMINAL

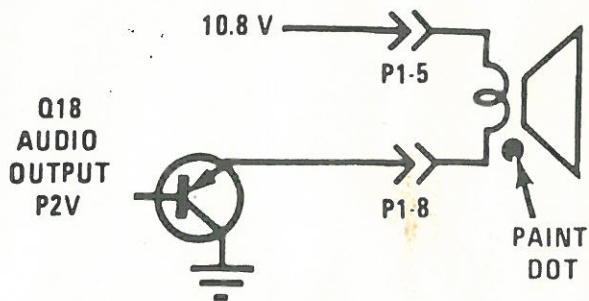


PIN 8 TO SPEAKER TERMINAL WITH PAINT DOT

MOTOROLA SPEAKER
PART NO. 50D68384A02



YELLOW PAINT DOT



RECOMMENDED SPEAKER CONNECTION FOR XM500 & XM700 DISPLAY MODULES

MODEL: XM500-10, XM500-11 and XM700-10

<u>Circuit Designation</u>	<u>Device</u>	<u>Part Number</u> VDP	<u>Application</u>	<u>Motorola SPD Replacement Part</u>	<u>(2N) Equivalent</u>
D-1	D	48S134921	Silicon: DID; Damper		1N4007*
D-2	D	48S134978	Silicon: DIK; Pulse Limiter		1N4007*
D-3	D	48D67120A11	Low Power		1N4005
D-4	R	48S137114	H.V.; Sel D3S		VARO
D-5	R	48S191A05	Silicon; 91A05		1N4005
D-6 & 8	D	48D67130A11	Low Power		
D-7	D	48S134917	Dual; DIC; Detector	MSD6102	1N914**
D-9, 10, 11 & 12	D	48S191A05	Low Voltage Supply		
Q-1	T	48S137171	1st Video: A6H		2N4400
Q-2	T	48S137127	2nd Video: P2S		2N4403
Q-3	T	48S134919	Video Output: A1M		2N3500
Q-4	T	48S137317	Video Driver: A8H		2N4400
Q-5	T	48S137172	Sync Separator: A6J		2N4400
Q-6	T	48S137317	Horiz. Oscillator: A5U		2N4403
Q-7	T	48S137127	Horiz Pulse Shaper: P2S		2N3500
Q-8	T	48S137093	Horiz Driver: A5F		2N4400
Q-9	T	48S137203	Horiz Output: A6Z		2N3500
Q-10	T	48S137173	Vert Oscillator	MJ3030	2N3902
Q-11	T	48S137171	(1): P2W Vert Oscillator	2N5151	2N4403
Q-12	T	48S137115	(2): A6H Vert Driver: A5U		2N4400
Q-13	T	48S134900	Vert Output: A1C		2N4400
Q-14	T	48S134952	Regulator Driver: A2J	MJ3029	2N5151
Q-15	T	48S137315	Reference Amp: A8G		2N4400
Q-16	T	48S137368	Regulator: A8W		2N4409
Q-17	T	48S137172	Audio Driver: A6J		2N3442
Q-18	T	48S134988	Audio Output: P2V		2N4400
IC-1	IC	51S1070A01	5V. REGULATOR: T2Z		

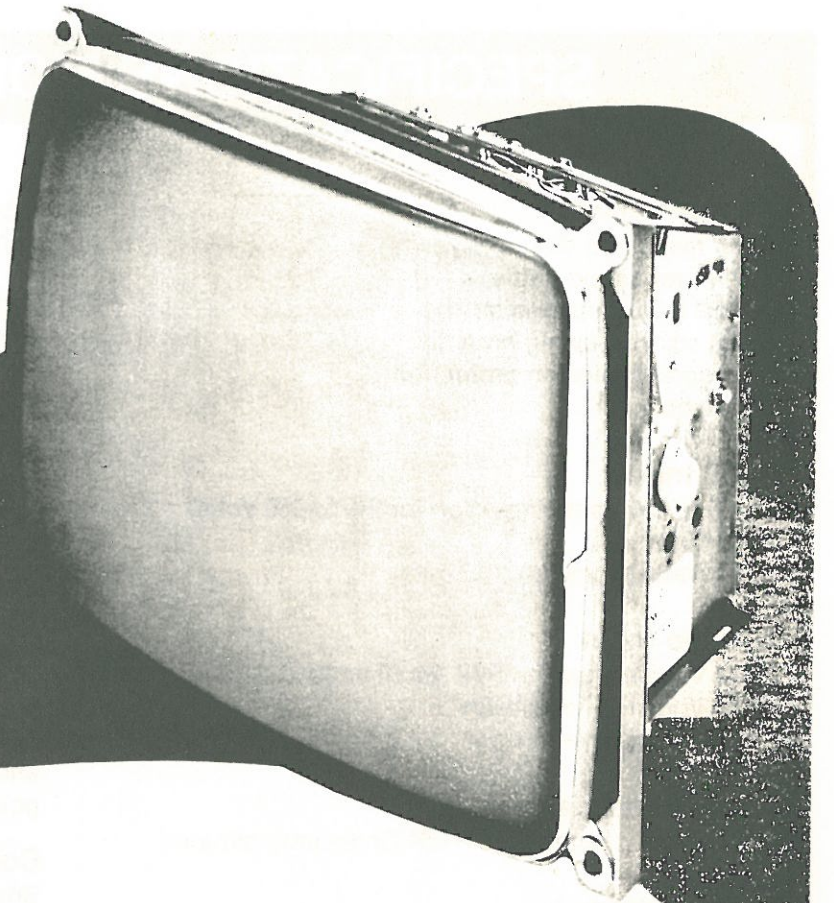
** 2 Req.

* Motorola Only

MOTOROLA 20 INCH TV MONITOR

(19" Viewable Diagonal)

MODEL NO. XM 500



FEATURES:

All Solid State Circuits

All silicon semi-conductor devices.

115 Volt and 230 Volt, 50 C.P.S. and 60 C.P.S. Power

Enables operation in European and U.S. systems.

Fully Regulated Power Supplies

Combined with built-in line isolation, this feature enables operation where line voltage fluctuations exist.

5 Volt Supply Included

Supply delivers 1.5 amps. to power your logic system.

Modular (Plug-In Printed Circuit Board) Construction

Majority of components plug in for easy field service.

Tailored For Your Application

Mechanically and electrically compatible with *your* system. You need not modify the monitor to satisfy your application.

Audio Amplifier & Speaker Included

5 Watts peak power output, fully adjustable.

High Resolution

Twice the resolution of typical TV receivers provides sharper, clearer display.

Guaranteed Performance

Since no modification is required for your application, guarantee remains effective.

THE MOTOROLA XM 500 MONITOR

The XM 500 monitor is a product of Motorola Display Products, an organization largely dedicated to supplying cathode ray tube equipped displays to manufacturers of computer peripheral equipment. The expertise developed to serve the computer industry has been applied to the XM 500 monitor. The XM 500 includes circuitry, components and manufacturing know-how common to our computer displays. The reliability, maintainability and performance demanded for computer applications similarly relate to the XM 500.

SPECIFICATIONS MODEL NO. XM 500

Picture Tube

20" measured diagonally
114° deflection angle
58% light transmission
184 sq. in. viewing area
Integral implosion protection
P4 phosphor

AC Input

105 to 130 Volts (Provision for 210 to 260 Volts)
50-60 Hz
90 Watts (Nominal)

Video Input

0.5 Volts composite P/P for 50 volts at CRT
2.5 Volts P/P maximum
Sync negative at input

Input Impedance

75 Ohms if terminated—12K Ohms unterminated

Resolution

500 lines minimum at picture center

Linearity

Within 3% as measured with the standard EIA Ball Chart and Dot Pattern

High Voltage

17.5KV nominal at 50 microamperes beam current

Horizontal Retrace Time

11.0 microseconds maximum

Scanning Frequencies

Horizontal 15,750 Hz \pm 500 Hz
Vertical 50-60 Hz
Other frequencies optional

Power Supply Output

+5 Volt at 1.5 amperes (\pm 5% regulation)

Audio

5 Watts peak output with T.T.L. Drive. Fully adjustable

Mechanical

14.16" High, 17.57" Wide, 12.75" Deep. Frames and brackets are constructed of heavy gauge steel. Printed circuit card has silk screen designations on both top and bottom. Weight: 31 pounds. Shipping Weight: 35 pounds

Controls and Adjustments

Brightness, Contrast, Vertical Hold, Horizontal Hold, Volume, Focus, Vertical Size, Vertical Linearity, Video Bias, Horizontal Size, Low Voltage Regulator, Raster Centering

Environment

Operation: Maximum ambient operating temperature
50°C. (122° F.)
Storage: Temperature range from -40°C to +65°C.
Altitude: 10,000 feet maximum

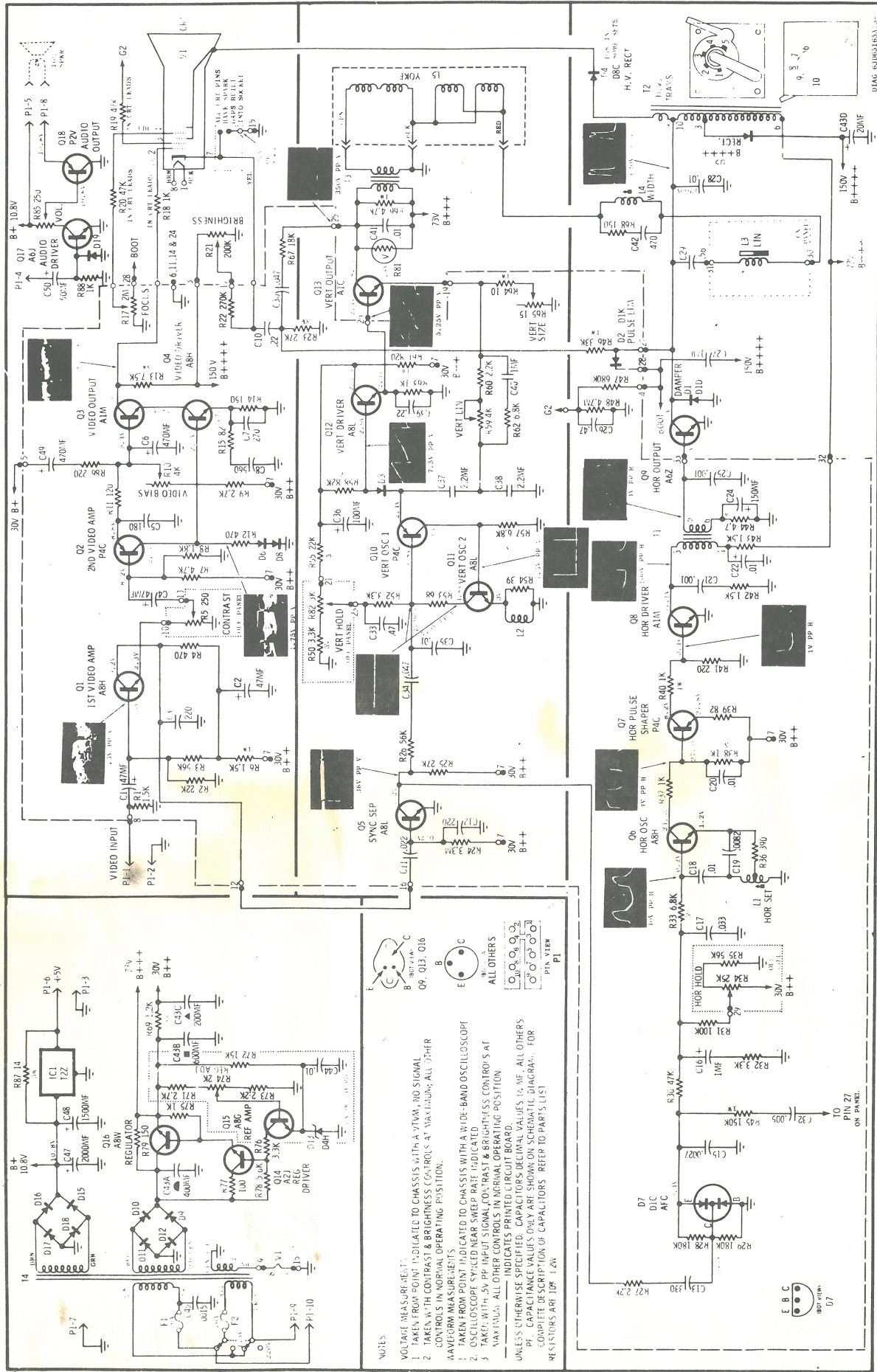
WARRANTY

Motorola Model XM 500 monitor is warranted by Motorola for a period of 90 days from date of Motorola's shipment against defects in material and workmanship under normal use and operation. Motorola's sole and exclusive obligation is to replace or repair any item of equipment with any defect warranted against, provided that Motorola receives written notice of the defect during the period of warranty, and any defective item or items of equipment are returned at Purchaser's expense to Motorola at a location to be designated by Motorola. The expense of removal and reinstallation of

any item or items of equipment is not included in this warranty. In no event shall Motorola be liable for any special, incidental or consequential damages to Purchaser or any third party caused by any defective item of equipment whether defect is warranted against or not. Purchaser's sole and exclusive remedy for defective equipment or for equipment which does not conform to the requirements of Motorola's Quotation is to have such equipment replaced or repaired by Motorola.

MOTOROLA DISPLAY PRODUCTS

9401 W. GRAND AVENUE, FRANKLIN PARK, ILLINOIS 60131



NOTES

VOLTAGE MEASUREMENTS:

- TAKEN FROM POINT INDICATED TO GROUND WITH A VTVM, NO SIGNAL
- TAKEN WITH CONTRAST & BRIGHTNESS CONTROLS AT MAXIMUM, ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.
- WAVEFORM MEASUREMENTS:
- TAKEN FROM POINT INDICATED TO GROUND WITH A WIDE-BAND OSCILLOSCOPE
- OSCILLOSCOPE SYNCHRONIZED NEAR SWEEP RATE INDICATED
- TAKEN WITH +5V PP INPUT SIGNAL, CONTRAST & BRIGHTNESS CONTROLS AT MAXIMUM, ALL OTHER CONTROLS IN NORMAL OPERATING POSITION
- INDICATES OTHER PRINTED CIRCUIT BOARD.
- UNLESS OTHERWISE SPECIFIED, CAPACITORS DECIMAL VALUES IN μF , ALL OTHERS IN μF .
- COMPLETE DESCRIPTION OF CAPACITORS REFER TO PARTS LIST
- RESISTORS ARE 10% TOLERANCE

DIAG. NUMBER: XM 700

A

B

C

D

E

F

G

H

I

J

K

0

1

2

3

4

5

6

7

8

9

7427
 1.2K 1K
 .0033
 330Ω
 330Ω
 330Ω
 7410
 470PF
 200V
 1K
 C106F1

(2) .0033
 330Ω
 330Ω
 330Ω

7400
 555
 470PF
 10mf TANT 25V
 680PF
 470Ω
 50K
 50K
 50K
 50K
 50K
 50K

74121
 470PF
 200V
 7400
 100Ω
 20mf 16V
 20
 JUMPER
 1 JUMPER
 20

.1mf
 7400
 74107
 7402
 7427
 7493
 7400
 7404
 1mf TANT 35V

7400
 7413
 7413
 7400
 1N914
 .100Ω
 .150Ω
 470PF
 1N914
 470PF
 2.3V
 6.3V

7400
 470PF
 200V
 20
 JUMPER
 20

74107
 7427
 7425
 .1mf
 7410
 7402

7404
 7474
 7400
 74107
 7400
 7400

7474
 470PF
 200V
 20
 JUMPER
 20

7474
 7400
 74107
 7427
 7430
 7474
 7400
 74107
 7404
 .1mf
 7410

7404
 7404
 7404
 74161
 7483
 7474
 74161
 7486
 7474
 74161
 7404
 7404
 7402

7402
 470PF
 200V
 20
 JUMPER
 20

7400
 7410
 7402
 7427
 7410
 7410
 7410
 7410
 7410
 7410
 7410
 7410

7408
 7474
 7450
 7450
 7420
 7493
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

7413
 1N914
 470Ω 220Ω
 330Ω
 1mf 35V
 10mf 25V TANT

7420
 74107
 74107
 7430
 7493
 7493
 74107
 74107
 74153
 7490
 7490

7408
 7474
 7450
 7450
 7420
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

7416
 1N914
 470Ω 220Ω
 330Ω
 1mf 35V
 10mf 25V TANT

74161
 74161
 7430
 7493
 7493
 74107
 74107
 74153
 7490

7408
 7474
 7450
 7450
 7420
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

7416
 1N914
 470Ω 220Ω
 330Ω
 1mf 35V
 10mf 25V TANT

74161
 74161
 7430
 7493
 7493
 74107
 74107
 74153
 7490

7408
 7474
 7450
 7450
 7420
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

1K 470PF 200V
 330Ω 330Ω 330Ω
 100mf TANT
 2N1711
 1N4004
 C106F1 C106F1

74161
 74161
 7430
 7493
 7493
 74107
 74107
 74153
 7490

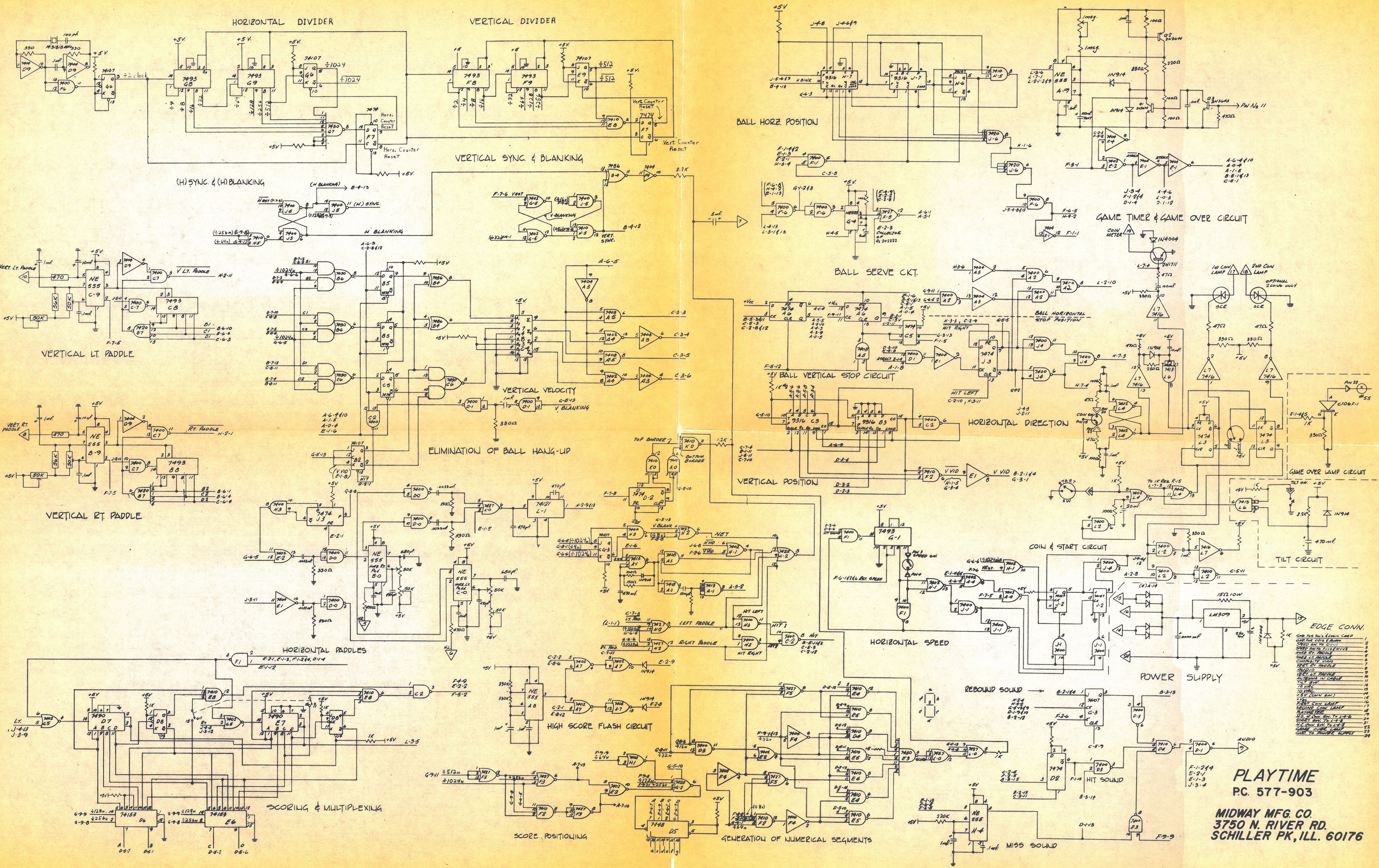
7408
 7474
 7450
 7450
 7420
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

LM309
 15Ω 10W
 24

7493
 7493
 74107
 74107
 74153
 7490

7404
 7404
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107
 7404
 7404
 7493
 7493
 74107

8000 mf 15V



PLAYTIME
PC. 577-903

MIDWAY MFG. CO.
3750 N. RIVER RD.
SCHILLER PK, ILL. 60176

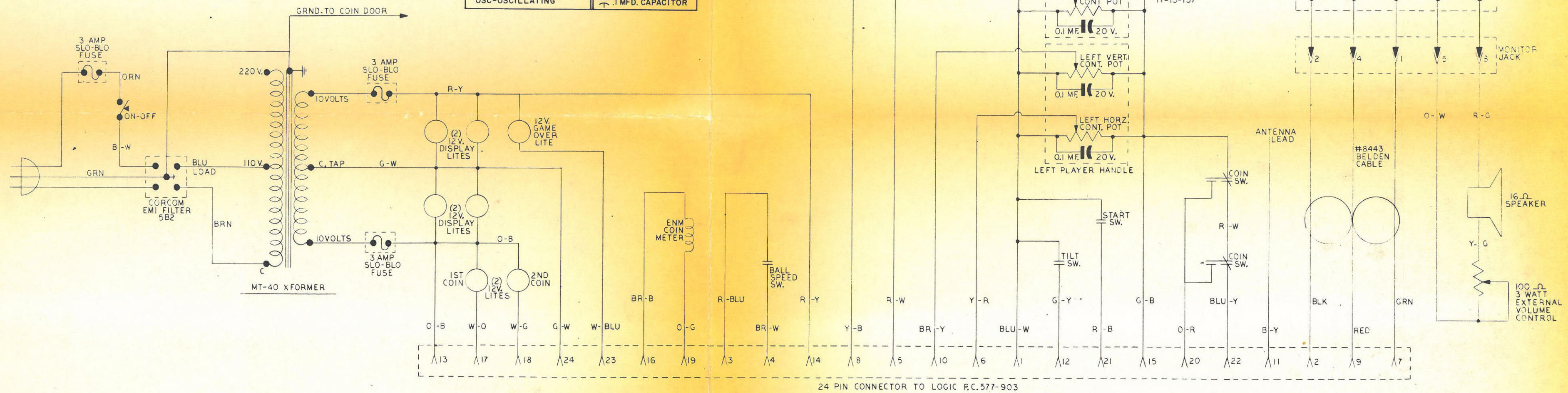
- EDGE CONN.**
- 1 GND FOR SW'L. LOCAL CAB
 - 2 GAME OVER LAMP
 - 3 SPEED STOP POSITION
 - 4 SPEED STOP POSITION
 - 5 HORIZ. RT. PADDLE
 - 6 HORIZ. RT. PADDLE
 - 7 COMPLETE VIDEO
 - 8 VERT. BY SIGNAL
 - 9 AUDIO
 - 10 BALL SERVE SIGNAL
 - 11 HORIZONTAL IN CABLE
 - 12 VERT. BY SIGNAL
 - 13 VERT. BY SIGNAL
 - 14 COIN
 - 15 COIN
 - 16 FIRST COIN LAMP
 - 17 SECOND COIN LAMP
 - 18 BALL SERVE SIGNAL
 - 19 VERT. BY SIGNAL
 - 20 VERT. BY SIGNAL
 - 21 GAME OVER LAMP
 - 22 GAME OVER LAMP
 - 23 GND TO POWER SUPPLY

PLAYTIME

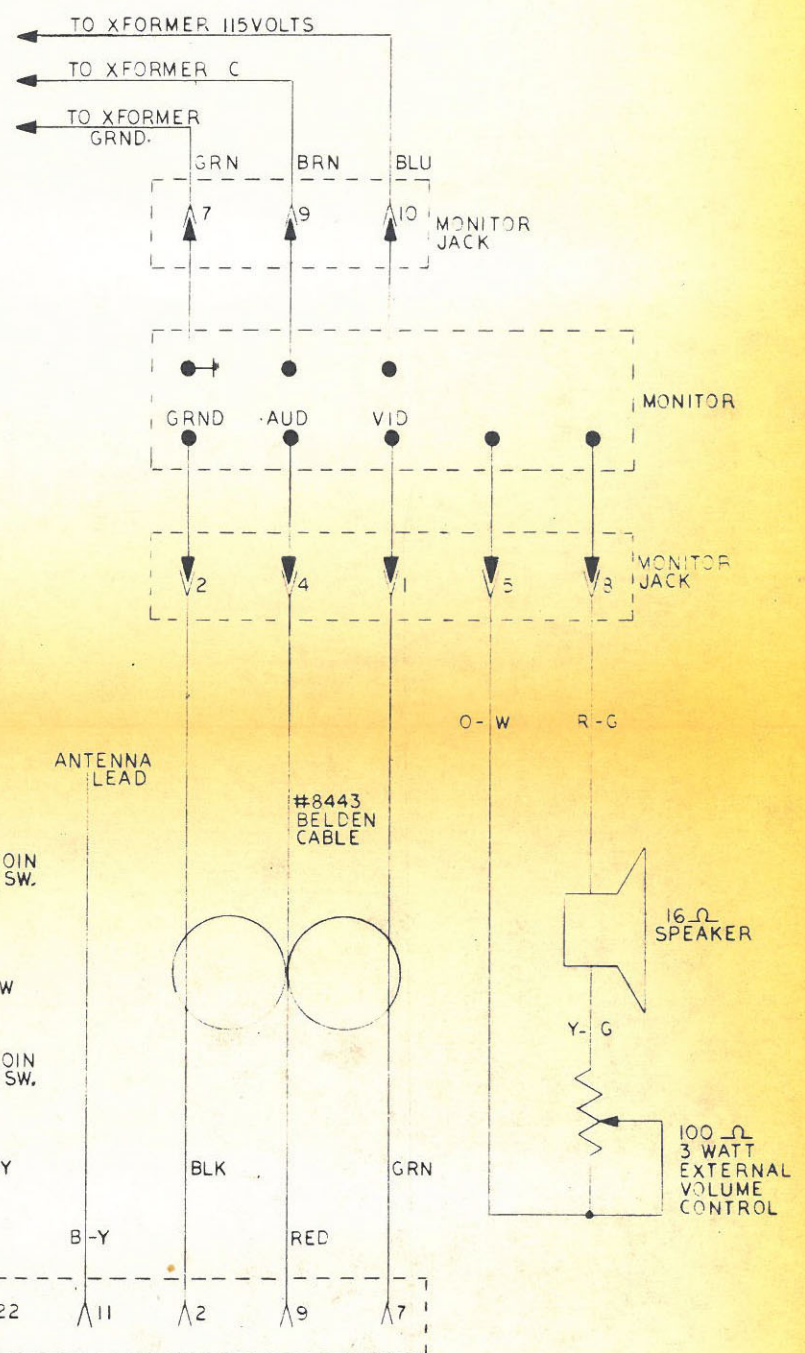
MIDWAY MFG. CO.
3750 N. RIVER RD.
SCHILLER PARK, ILL.

12-25-73

WIRE COLOR CODE		SWITCH SYMBOLS
B=BLACK	O=ORANGE	⊥ "NORMALLY OPEN" CLOSED WHEN ENERGIZED.
BLU=BLUE	R=RED	⊥ "NORMALLY CLOSED" OPEN WHEN ENERGIZED.
BR=BROWN	W=WHITE	⊥ MAKE & BREAK
G=GREEN	Y=YELLOW	⊥ MOTOR CAM SWITCH
EXAMPLE: G-R INDICATES GREEN WIRE WITH RED TRACER		⊥ .1 MFD. CAPACITOR
ABBREVIATIONS USED		
J=JUMPER	SW=SWITCH	
RE=RELAY	POS=POSITION	
SU=STEP UP UNIT	OSC=OSCILLATING	

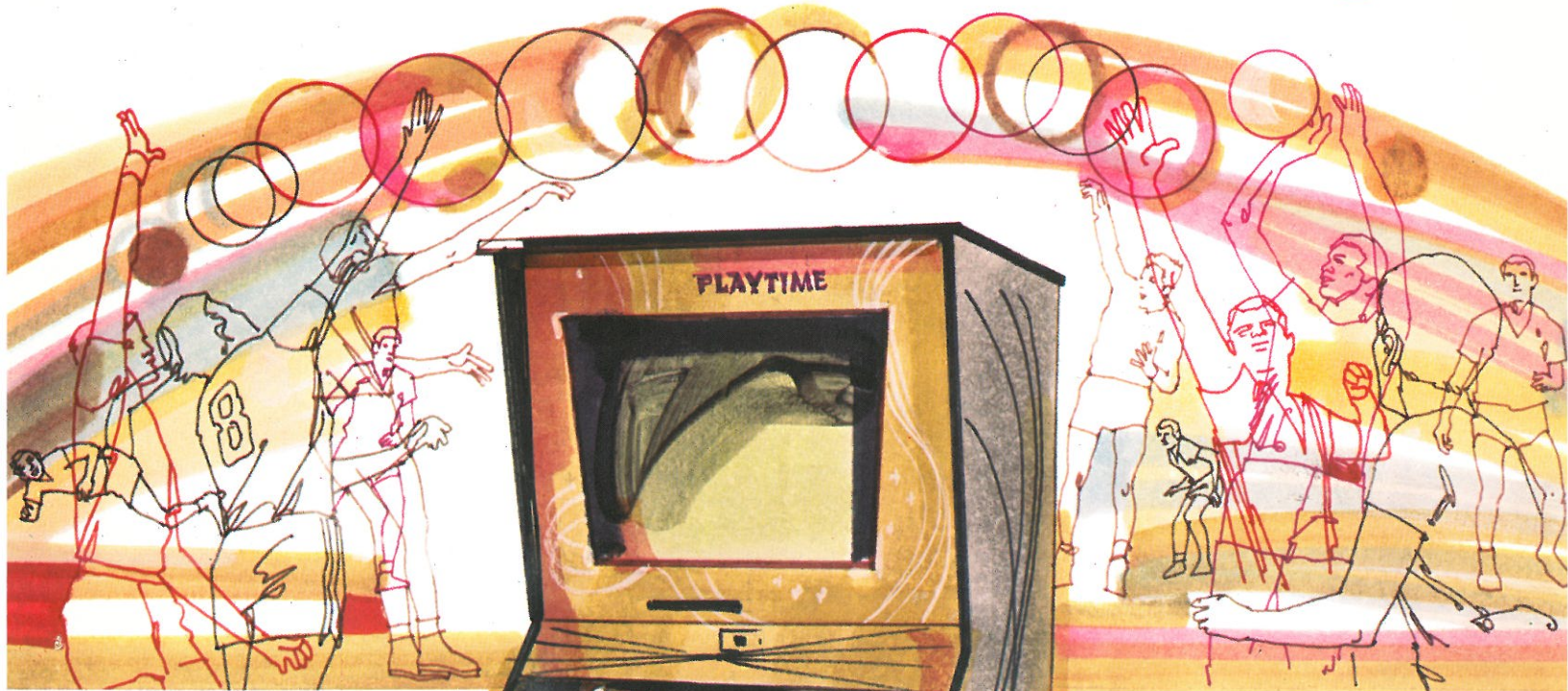


24 PIN CONNECTOR TO LOGIC P.C.577-903



New From Midway

Playtime



- **COMPLETE PADDLE CONTROL.** Paddles move in all directions — up, down, sideways, diagonally and in circles.
- **DISAPPEARING SCORE.** Score vanishes during play to eliminate interference with balls and paddles. Reappears after each point is scored.
- **IMPROVED SERVING.** The serve is stationary for the server, rather than serving automatically.

- **SPEED CONTROL BUTTON.** Extra challenge for skilled players — lets them select the speed of the ball.
- Adjustable time control
- 19" Monitor TV
- Double 25¢ coin chutes
- Cabinet size designed with the operator in mind. Measures 26½" wide, 24" deep and 64" high.



MIDWAY MFG. CO. 3750 River Road/Schiller Park, Illinois 60176/Phone (312) 678-1350