

## **Galaxian — Simulation:**

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

### **INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS**

#### **UNIVERSAL TESTER CONNECTIONS**

Audio/Video Connector (Cable No. A917-00030-0015)

#### **AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS**

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

### **INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0004)**

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

#### **UNIVERSAL TESTER CONNECTIONS**

Power Connector  
I/O 1 Connector

#### **PRINTED CIRCUIT BOARD CONNECTIONS**

Std. 44 Pin Edge Connector

### **AUXILIARY P.C. BOARDS REQUIRED**

**NONE**

### **UNIVERSAL TESTER FRONT PANEL**

#### **GAME OVERLAY REQUIRED**

GALAXIAN — (PART NO. 0917-00901-05XF)

#### **INSTRUCTIONS**

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

#### **GAME ROM REQUIRED**

GALAXIAN — (PART NO. 0917-00803-3500)

#### **INSTRUCTIONS**

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves ship back and forth on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your FIRE Button.
LEFT HAND JOY STICK	PLAYER 2: Moves ship back and forth on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Galaxian

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	ORN/WHT	2 2	44 PIN	7	COIN COUNTER
K	RED/GRN	2 2	44 PIN	N	PLAYER 1 FIRE
M	RED/ORN	2 2	44 PIN	M	PLAYER 1 LEFT
P	RED/BLU	2 2	44 PIN	11	PLAYER 1 RIGHT
U	GRN/RED	2 2	44 PIN	12	PLAYER 2 FIRE
W	GRN/ORN	2 2	44 PIN	P	PLAYER 2 LEFT
Y	GRN/BLU	2 2	44 PIN	13	PLAYER 2 RIGHT
c	BLU/WHT	2 2	44 PIN	J	COIN 1
d	BLU/YEL	2 2	44 PIN	8	COIN 2
e	BLU/ORN	2 2	44 PIN	L	PLAYER 1 START
f	BLU/RED	2 2	44 PIN	10	PLAYER 2 START
h	BLU/GRN	2 2	44 PIN	K	TEST
j	BLU/PUR	2 2	44 PIN	R	TABLE
m	BLU/BLK	2 2	44 PIN	9	SERVICE
p	BRN/YEL	2 2	44 PIN	5	V-REF COIN METER
r	BRN/ORN	2 2	44 PIN	18	AUDIO
s	BRN/RED	2 2	44 PIN	V	AUDIO
x	BLK/WHT	2 2	44 PIN	17	SYNC
y	BLK/WHT	2 2	44 PIN	17	SYNC
z	BLK/ORN	2 2	44 PIN	T	RED VIDEO
AA	BLK/RED	2 2	44 PIN	16	GRN VIDEO
BB	BLK/GRN	2 2	44 PIN	U	BLU VIDEO

# Tester Cable Pin-Out List

## Galaxian

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	16	44 PIN	Z	GRND
B	YEL	16	44 PIN	A	GRND
P	BRN/YEL	16	44 PIN	W	12 VAC
R	BRN/WHT	16	44 PIN	D	7 VAC
S	BRN/BLK	16	44 PIN	C	7 VAC
T	BRN/ORN	16	44 PIN	X	12 VAC

# Gorf — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0014)

REMOVE COMMERCIAL CARD RACK FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### COMMERCIAL CARD RACK CONNECTIONS

Std. Logic Board Connectors  
Std. C.C.R. Power Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.  
It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** may be adjusted for the volume level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

GORF — (PART NO. 0917-00901-10XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

GORF — (PART NO. 0917-00803-4000)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves ship up, down, back and forth, or at a diagonal on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your FIRE Button.
LEFT HAND JOY STICK	PLAYER 2: Moves ship up, down, back and forth, or at a diagonal on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Gorf

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/RED	16	BACK PLANE	9	GRND
B	YEL/BLK	16	BACK PLANE	8	GRND
D	RED	16	BACK PLANE	1	+5V
E	RED	16	BACK PLANE	2	+5V
F	GRY	18	BACK PLANE	5	-5V
H	ORN	18	BACK PLANE	3	+12V

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
U	YEL/GRN	22	J1	10	PLYR 2 RIGHT
V	WHT/ORN	22	J1	2	PLYR 1 DOWN
W	ORN/GRN	22	J1	3	PLYR 1 LEFT
X	BLK/YEL	22	J1	1	PLYR 1 UP
Y	RED/BLU	22	J1	4	PLYR 1 RIGHT
Z	YEL/RED	22	J1	8	PLYR 2 DOWN
a	BRN/YEL	22	J1	9	PLYR 2 LEFT
b	BLU/YEL	22	J1	7	PLYR 2 UP
c	BRN/WHT	22	J1	14	COIN 1
d	BRN/BLK	22	J1	15	COIN 2
e	PNK	22	J1	18	PLYR 1
f	RED/WHT	22	J1	19	PLYR 2
h	YEL/BLK	22	J1	17	TILT

# Test Cable Pin-Out List

## Gorf

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
j	WHT/YEL	2 2	J1	16	TEST
k	BLU/RED	2 2	J1	5	PLYR 1 FIRE
m	ORN	2 2	J1	11	PLYR 2 FIRE
DD	RED	2 2	J2	1	2 CONDUCTOR SHIELDED CABLE
EE	BLK	2 2	J2	2	2 CONDUCTOR SHIELDED CABLE
	SHIELD	2 2	J2	3	2 CONDUCTOR SHIELDED CABLE SHIELD NOT CON- NECTED TO TESTER

TESTER I/O - 2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
C	RED	2 2	J2	27	VIDEO
E	RED/YEL	2 2	J2	25	VIDEO R-Y
H	BLK/YEL	2 2	J2	23	VIDEO B-Y
K	WHT/RED	2 2	J2	13	COIN METER 1
L	BLK/RED	2 2	J2	14	COIN METER 2
T	ORN/RED	2 2	J2	12	CONTROL GRIP LAMP
V	YEL/WHT	2 2	J2	5	CADET LAMP
W	GRY/RED	2 2	J2	6	CAPTAIN LAMP
X	PUR	2 2	J2	7	COLONEL LAMP
Y	GRY/BLK	2 2	J2	8	GENERAL LAMP
Z	WHT/VIO	2 2	J2	9	WARRIOR LAMP
a	GRN	2 2	J2	10	AVENGER LAMP



# Wizard of Wor — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0013)

REMOVE COMMERCIAL CARD RACK FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### COMMERCIAL CARD RACK CONNECTIONS

Std. Logic Board Connectors  
Std. C.C.R. Power Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.

It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.**, **Chan. 2 Vol.** and **Vol. Chan. 3 Mono** may be adjusted for the volume level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

WIZARD OF WOR — (PART NO. 0917-00901-06XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

WIZARD OF WOR — (PART NO. 0917-00803-3800)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Determines direction of player travel on the screen. To move him up, down, and back and forth, the "MOVE SWITCH" on the TESTER'S Front Panel <b>MUST</b> be in the "UP" position.
PUSH BUTTON PR1	PLAYER 1: Is your FIRE Button.
LEFT HAND JOY STICK	PLAYER 2: Determines direction of player travel on the screen. To move him up, down, and back and forth, the "MOVE SWITCH" on the TESTER'S Front Panel <b>MUST</b> be in the "UP" position.
PUSH BUTTON PL1	PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Wizard of Wor

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/RED	16	BACK PLANE	9	GRND
B	YEL/BLK	16	BACK PLANE	8	GRND
D	RED	16	BACK PLANE	1	+5V
E	RED	16	BACK PLANE	2	+5V
F	GRY	18	BACK PLANE	5	-5V
H	ORN	18	BACK PLANE	3	+12V

TESTER POWER CONNECTOR	WIRE		TESTER I/O - 1	FUNCTION
	COLOR	AWG		
K	RED/WHT	18	P	COIN METER V-REF

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
BACK PLANE	7	WHT	22	J2	9	COIN METER RET

# Test Cable Pin-Out List

## Wizard of Wor

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	GRN/WHT	2 2	J2	6	COIN METER 1
B	BLK/RED	2 2	J2	7	COIN METER 2
C	RED/BLK	2 2	J2	8	COIN METER 3
K	WHT/BLU	2 2	J1	13	PLYR 1 FIRE
L	RED/YEL	2 2	J1	9	PLYR 1 DOWN
M	BLK/ORN	2 2	J1	10	PLYR 1 LEFT
N	BLU/YEL	2 2	J1	8	PLYR 1 UP
P	YEL/GRN	2 2	J1	11	PLYR 1 RIGHT
T	BLU/WHT	2 2	J1	12	PLYR 1 MOVE
U	YEL/WHT	2 2	J1	6	PLYR 2 FIRE
V	ORN/BLK	2 2	J1	2	PLYR 2 DOWN
W	WHT/RED	2 2	J1	3	PLYR 2 LEFT
X	RED/GRN	2 2	J1	1	PLYR 2 UP
Y	BLU/BLK	2 2	J1	4	PLYR 2 RIGHT
b	PUR	2 2	J1	5	PLYR 2 MOVE
c	BRN/BLK	2 2	J1	16	COIN 1
d	BRN/WHT	2 2	J1	17	COIN 2
e	WHT/BLK	2 2	J1	18	COIN 3
f	WHT/YEL	2 2	J1	19	TEST
h	YEL/BLK	2 2	J1	20	TILT
k	ORN/RED	2 2	J1	21	PLYR 1
m	ORN/GRN	2 2	J1	22	PLYR 2

# Test Cable Pin-Out List

## Wizard of Wor

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
CC	RED/BLU	2 2	J2	2	AUDIO CH-1
EE	GRN/RED	2 2	J2	1	AUDIO CH-2
HH	BLK/YEL	2 2	J2	3	AUDIO CH-3

TESTER I/O - 2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
C	BLU	2 2	J2	22	VIDEO
E	RED	2 2	J2	20	VIDEO R-Y
H	ORN	2 2	J2	18	VIDEO B-Y

# Omega Race — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0016)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. B & W Vector Scan Monitor Conn.  
**STD. AMP CONNECTOR — CONNECTS TO ITS COUNTERPART IN THE "TESTER AND GAME COMPONENTS CABLE"**

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0006)

REMOVE MOTHER AND DAUGHTER BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### OMEGA RACE P.C. BOARD CONNECTIONS

Std. Mother Board Connectors (2)  
Std. Daughter Board Connectors (3)  
**STD. AMP CONNECTOR — CONNECTS TO ITS COUNTERPART IN THE "AUDIO/VIDEO CBL. ASSEMBLY"**

## AUXILIARY P.C. BOARDS REQUIRED

### VECTOR SCAN POWER SUPPLY P.C.B. — (PART NO. A084-91554-A917)

**REMOVE** the GENERAL PURPOSE POWER SUPPLY P.C.B. and **REPLACE** it with the above unit.

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.  
It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

Volume Adjustments for this game are located on the GAME BOARD.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

OMEGA RACE — (PART NO. 0917-00901-07XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

## UNIVERSAL TESTER FRONT PANEL

### GAME ROM REQUIRED

OMEGA RACE — (PART NO. 0917-00803-3900)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1: a) holding it up gives ship thrust,  
b) moving it right — rotates ship to right, and  
c) moving it left — rotates ship left.

PUSH BUTTON PR1

PLAYER 1: Is your FIRE Button.

LEFT HAND JOY STICK

PLAYER 2: a) holding it up gives ship thrust,  
b) moving it right — rotates ship to right, and  
c) moving it left — rotates ship left.

PUSH BUTTON PL1

PLAYER 2: Is your FIRE Button.

## USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-out List

## Omega Race

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	BLK/WHT	1 6	P2	2	GRND
D	RED	1 6	P2	10	+5V
E	RED	1 6	P2	11	+5V
J	ORN/RED	1 8	J3	9	V-AUDIO
K	YEL/RED	2 2	P2	9	BAT. BACK-UP
R	GRN/WHT	1 6	P2	1	18V AC
S	ORN/WHT	1 6	P2	3	18V AC

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
P1	10	BLK/BLU	2 2	J1	19	COCKTAIL TABLE MODE

TESTER POWER CON.	WIRE		9 PIN CONNECTOR GAME CABLE		FUNCTION
	COLOR	AWG	MON. CON.	PIN	
B	YEL/BLK	1 6		8	GRND
B	YEL/BLK	1 6		6	GRND
T	BLK	1 8		7	34V AC
P	ORN	1 8		9	6V AC
U	GRY	1 8		5	34V AC



# Test Cable Pin-Out List

## Omega Race

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	GRN/WHT	2 2	J1	18	COIN METER 1
B	BLK/RED	2 2	J1	16	COIN METER 2
K	BLU/BLK	2 2	J2	8	PLYR 1 FIRE
L	WHT/RED	2 2	J3	11	PLYR 2 FIRE
N	ORN/BLK	2 2	J1	2	PLYR 1 THRUST
P	BLK/ORN	2 2	J3	14	PLYR 2 THRUST
S	YEL/BLK	2 2	J1	3	TILT
T	ORN/WHT	2 2	J2	9	TEST
U	BLU/RED	2 2	J2	7	ENCODER BIT "0"
			J1	6	
V	GRY/RED	2 2	J2	5	ENCODER BIT "1"
			J1	17	
W	WHT/BLK	2 2	J2	2	ENCODER BIT "2"
			J1	5	
X	BRN/WHT	2 2	J2	3	ENCODER BIT "3"
			J1	9	
Y	BLK/GRN	2 2	J2	6	ENCODER BIT "4"
			J1	11	
Z	BRN/BLK	2 2	J2	4	ENCODER BIT "5"
			J1	12	
c	WHT/BLU	2 2	J2	11	COIN 1 N.O.
d	BLU/YEL	2 2	J2	12	COIN 1 N.C.
e	YEL/WHT	2 2	J2	14	PLYR 1 1 CREDIT
f	PNK	2 2	J2	15	PLYR 1 2 CREDITS

# Test Cable Pin-Out List

## Omega Race

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
h	WHT/ORN	2 2	J2	10	COIN 2 N.O.
j	PUR	2 2	J1	1	COIN 2 N.C.
k	WHT/BRN	2 2	J3	13	PLYR 2 1 CREDIT
m	BRN/YEL	2 2	J3	12	PLYR 2 2 CREDITS
r	WHT/YEL	2 2	J3	4	AUDIO CH.1
s	GRN/BLK	2 2	J3	2	AUDIO GRND
t	RED/YEL	2 2	J3	7	AUDIO CH.2
u	GRN/BLK	2 2	J3	2	AUDIO GRND
x	RED	2 2	P1	9	VIDEO "X" CO-ORDINATE
y	ORN	2 2	P1	8	VIDEO "Y" CO-ORDINATE
z	GRN	2 2	P1	11	VIDEO "Z" CO-ORDINATE
	WHT	2 2	P1	15	"X" SHIELD*
	WHT	2 2	P1	16	"Y" SHIELD*
	WHT	2 2	P1	17	"Z" SHIELD*

\*NOTE: SHIELD NOT TERMINATED AT TESTER.

TESTER I/O - 2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
P	RED/BLU	2 2	J1	21	PLYR 1 1 CREDIT LAMP
R	BLU/WHT	2 2	J1	10	PLYR 1 2 CREDIT LAMP
S	BLK/YEL	2 2	J1	8	PLYR 2 1 CREDIT LAMP
T	ORN/GRN	2 2	J1	20	PLYR 2 2 CREDIT LAMP

# Galaga/Bosconian — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0003)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PRINTED CIRCUIT BOARD CONNECTIONS

Std. 44 Pin Edge Connector  
Std. 3 Pin Amp Connector  
Std. 6 Pin Video Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

GALAGA/BOSCONIAN — (PART NO. 0917-00901-04XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

GALAGA/BOSCONIAN — (PART NO. 0917-00803-3400)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves ship: (GALAGA) back and forth; (BOSCONIAN) back and forth and up and down on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your FIRE Button.
LEFT HAND JOY STICK	PLAYER 2: Moves ship: (GALAGA) back and forth; (BOSCONIAN) back and forth and up and down on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Galaga/Bosconian

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/YEL	2 2	44 PIN	3	COIN COUNTER
K	WHT/RED	2 2	44 PIN	M	PLAYER 1 FIRE
L	ORN/RED	2 2	44 PIN	P	PLAYER 1 DOWN
M	BLU/WHT	2 2	44 PIN	N	PLAYER 1 LEFT
N	RED/BLU	2 2	44 PIN	S	PLAYER 1 UP
P	WHT/BLU	2 2	44 PIN	R	PLAYER 1 RIGHT
U	RED/WHT	2 2	44 PIN	11	PLAYER 2 FIRE
V	GRN/RED	2 2	44 PIN	13	PLAYER 2 DOWN
W	BLK/GRN	2 2	44 PIN	12	PLAYER 2 LEFT
X	YEL/GRN	2 2	44 PIN	15	PLAYER 2 UP
Y	GRN/BLK	2 2	44 PIN	14	PLAYER 2 RIGHT
c	ORN/GRN	2 2	44 PIN	K	COIN
d	WHT/ORN	2 2	44 PIN	J	CREDIT
e	BRN/BLK	2 2	44 PIN	L	PLAYER 1 START
f	BLK/YEL	2 2	44 PIN	10	PLAYER 2 START
h	ORN/WHT	2 2	44 PIN	8	TILT
j	YEL/WHT	2 2	44 PIN	21	TABLE
r	GRN/YEL	2 2	44 PIN	B	AUDIO
s	WHT/BLK	2 2	44 PIN	2	AUDIO
x	WHT	2 2	6 PIN	4	VIDEO SYNC
y	WHT	2 2	6 PIN	4	VIDEO SYNC
z	RED	2 2	6 PIN	1	RED VIDEO
AA	GRN	2 2	6 PIN	2	GREEN VIDEO
BB	BLK	2 2	6 PIN	3	BLUE VIDEO

# Tester Cable Pin-Out List Galaga/Bosconian

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	16	44 PIN	Z	GRND
B	YEL	16	3 PIN	2	GRND
D	RED	16	44 PIN	F	+5VDC
E	RED	16	3 PIN	3	+5VDC
J	WHT/HEL	16	3 PIN	1	V-AUDIO

TESTER POWER CONNECTOR	WIRE		TESTER I/O - 1	FUNCTION
	COLOR	AWG		
K	BRN/YEL	18	p	V-REF COIN COUNTER

# Kick — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0010)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MCR-II CARD RACK CONNECTIONS

Std. C.P.U. Board Connectors  
Std. Sound Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.

It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

KICK — (PART NO. 0917-00901-02XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

KICK — (PART NO. 0917-00803-3300)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

NOTE: KICK LAMP on TESTER operates in reverse of the one on the actual game.

RIGHT HAND JOY STICK

PLAYER 1: Moves clown back and forth on monitor screen. Holding joy stick up as you move it makes clown move faster, holding it down makes clown move slower.

PUSH BUTTON PR1

PLAYER 1: Is your KICK Button.

LEFT HAND JOY STICK

PLAYER 2: Moves clown back and forth on monitor screen. Holding joy stick up as you move it makes clown move faster, holding it down makes clown move slower.

PUSH BUTTON PL1

PLAYER 2: Is your KICK Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.



# Test Cable Pin-Out List

## Kickman

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	7	GRND
B	YEL/BLK	1 6	J1	10	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	16	V-BAT
J1	14	YEL/WHT	2 2	J1	20	ANALOG GRND
J1	6	WHT/YEL	2 2	J5	20	COIN METER RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/GRN	2 2	J5	21	COIN METER 1
B	BLK/WHT	2 2	J5	22	COIN METER 2
D	BRN/RED	2 2	J5	23	KICK LAMP
E	YEL/RED	2 2	J5	10	NOT USED
F	VIO	2 2	J5	11	NOT USED
H	PNK	2 2	J5	12	NOT USED
J	BLK/RED	2 2	J5	13	NOT USED
K	RED/WHT	2 2	J4	10	PLAYER 1 ENCODER BIT "0"
L	WHT/BLU	2 2	J4	11	PLAYER 1 ENCODER BIT "1"
M	BLK/GRN	2 2	J4	12	PLAYER 1 ENCODER BIT "2"

# Test Cable Pin-Out List

## Kickman

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
N	WHT/ORN	2 2	J4	13	PLAYER 1 ENCODER BIT "3"
P	RED/YEL	2 2	J4	15	PLAYER 2 ENCODER BIT "0"
R	ORN/RED	2 2	J4	16	PLAYER 2 ENCODER BIT "1"
S	RED/BLU	2 2	J4	17	PLAYER 2 ENCODER BIT "2"
T	ORN/GRN	2 2	J4	18	PLAYER 2 ENCODER BIT "3"
U	BLK/YEL	2 2	J4	5	PLAYER 1 KICK
V	BRN/YEL	2 2	J5	1	PLAYER 2 KICK
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/BRN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR II VOLUME POT

# Solar Fox — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0010)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MCR-II CARD RACK CONNECTIONS

Std. C.P.U. Board Connectors  
Std. Sound Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.

It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

SOLAR FOX — (PART NO. 0917-00901-11XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

SOLAR FOX — (PART NO. 0917-00803-4108)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front  
Panel Controls and Indicators are as called  
out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1: Moves ship back and forth and up  
and down on monitor screen.

PUSH BUTTON PR1

PLAYER 1: Is your FIRE Button.

LEFT HAND JOY STICK

PLAYER 2: Moves ship back and forth and up  
and down on monitor screen.

PUSH BUTTON PL1

PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Solar Fox

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	7	GRND
B	YEL/BLK	1 6	J1	10	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	16	V-BAT
J1	14	YEL/WHT	2 2	J1	20	ANALOG GRND
J1	6	WHT/YEL	2 2	J5	20	COIN METER RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/GRN	2 2	J5	21	COIN METER 1
B	BLK/WHT	2 2	J5	22	COIN METER 2
D	BRN/RED	2 2	J5	23	NOT USED
E	YEL/RED	2 2	J5	10	NOT USED
F	VIO	2 2	J5	11	NOT USED
H	PNK	2 2	J5	12	NOT USED
J	BLK/RED	2 2	J5	13	NOT USED
K	RED/WHT	2 2	J4	10	PLAYER 1 RIGHT
L	WHT/BLU	2 2	J4	11	PLAYER 1 LEFT
M	BLK/GRN	2 2	J4	12	PLAYER 1 DOWN

# Test Cable Pin-Out List

## Solar Fox

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
N	WHT/ORN	2 2	J4	13	PLAYER 1 UP
P	RED/YEL	2 2	J4	15	PLAYER 2 RIGHT
R	ORN/RED	2 2	J4	16	PLAYER 2 LEFT
S	RED/BLU	2 2	J4	17	PLAYER 2 DOWN
T	ORN/GRN	2 2	J4	18	PLAYER 2 UP
U	BLK/YEL	2 2	J4	5	PLAYER 1 FIRE
V	BRN/YEL	2 2	J5	1	PLAYER 2 FIRE
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER SELECT/FAST
f	BLU/BLK	2 2	J4	4	PLAYER SELECT/FAST
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/BRN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR II VOLUME POT

# Pac-Man/Ms Pac-Man — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0002)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PRINTED CIRCUIT BOARD CONNECTIONS

Std. 44 Pin Edge Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## GAME OVERLAY REQUIRED

### UNIVERSAL TESTER FRONT PANEL

PAC-MAN/MS PAC-MAN — (PART NO. 0917-00901-03XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

## GAME ROM REQUIRED

### UNIVERSAL TESTER FRONT PANEL

PAC-MAN/MS PAC-MAN —  
(PART NO. 0917-00803-3200/VER. B)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

M051-00917-A136

PM/MPM-1 Rev.1 02-83

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves PAC-MAN back and forth and up and down on monitor screen.
PUSH BUTTON PR1	<b>NOT USED</b>
LEFT HAND JOY STICK	PLAYER 2: Moves PAC-MAN back and forth and up and down on monitor screen.
PUSH BUTTON PL1	<b>NOT USED</b>

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.



# Tester Cable Pin-Out List

## Pac-Man/Ms. Pac-Man

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	ORN/WHT	2 2	44 PIN	7	COIN COUNTER
L	RED/YEL	2 2	44 PIN	14	PLAYER 1 DOWN
M	RED/ORN	2 2	44 PIN	M	PLAYER 1 LEFT
N	RED/GRN	2 2	44 PIN	N	PLAYER 1 UP
P	RED/BLU	2 2	44 PIN	11	PLAYER 1 RIGHT
V	GRN/YEL	2 2	44 PIN	V	PLAYER 2 DOWN
W	GRN/ORN	2 2	44 PIN	P	PLAYER 2 LEFT
X	GRN/RED	2 2	44 PIN	12	PLAYER 2 UP
Y	GRN/BLU	2 2	44 PIN	13	PLAYER 2 RIGHT
c	BLU/WHT	2 2	44 PIN	J	COIN 1
d	BLU/YEL	2 2	44 PIN	8	COIN 2
e	BLU/ORN	2 2	44 PIN	L	PLAYER 1 START
f	BLU/RED	2 2	44 PIN	10	PLAYER 2 START
h	BLU/GRN	2 2	44 PIN	K	TEST
j	BLU/PUR	2 2	44 PIN	R	TABLE
m	BLU/BLK	2 2	44 PIN	9	SERVICE
p	BRN/YEL	2 2	44 PIN	5	COIN METER V-REF
r	BRN/ORN	2 2	44 PIN	H	AUDIO
s	BRN/RED	2 2	44 PIN	F	AUDIO
x	BLK/WHT	2 2	44 PIN	17	SYNC
y	BLK/YEL	2 2	44 PIN	17	SYNC
z	BLK/ORN	2 2	44 PIN	T	RED VIDEO
AA	BLK/RED	2 2	44 PIN	16	GRN VIDEO
BB	BLK/GRN	2 2	44 PIN	U	BLU VIDEO

# Tester Cable Pin-Out List Pac-Man/Ms. Pac-Man

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	16	44 PIN	1	GRND
B	YEL	16	44 PIN	22	GRND
P	BRN/YEL	16	44 PIN	W	12 VAC
R	BRN/WHT	16	44 PIN	0	7 VAC
S	BRN/BLK	16	44 PIN	C	7VAC
T	BRN/ORN	16	44 PIN	X	12VAC

# Robby Roto — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0012)

REMOVE COMMERCIAL CARD RACK FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### COMMERCIAL CARD RACK CONNECTIONS

Std. Logic Board Connectors  
Std. C.C.R. Power Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.  
It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** may be adjusted for the volume level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

ROBBY ROTO — (PART NO. 0917-00901-09XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

ROBBY ROTO — (PART NO. 0917-00803-3700)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves ROTO up, down, and back and forth on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your MAGIC Button.
LEFT HAND JOY STICK	PLAYER 2: Moves ROTO up, down, and back and forth on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your MAGIC Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Roto

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/RED	16	BACK PLANE	9	GRND
B	YEL/BLK	16	BACK PLANE	8	GRND
D	RED	16	BACK PLANE	1	+5V
E	RED	16	BACK PLANE	2	+5V
F	GRY	18	BACK PLANE	5	-5V
H	ORN	18	BACK PLANE	3	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
BACK PLANE	7	WHT	22	J2	11	COIN METER RET

# Test Cable Pin-Out List

## Roto

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	GRN/WHT	2 2	J2	8	COIN METER 1
B	BLK/RED	2 2	J2	9	COIN METER 2
C	RED/BLK	2 2	J2	10	COIN METER 3
K	WHT/BLU	2 2	J1	6	PLYR 1 MAGIC
L	RED/YEL	2 2	J1	2	PLYR 1 DOWN
M	BLK/GRN	2 2	J1	3	PLYR 1 LEFT
N	BLU/YEL	2 2	J1	1	PLYR 1 UP
P	YEL/GRN	2 2	J1	4	PLYR 1 RIGHT
U	YEL/WHT	2 2	J1	14	PLYR 2 MAGIC
V	ORN/BLK	2 2	J1	10	PLYR 2 DOWN
W	WHT/RED	2 2	J1	11	PLYR 2 LEFT
X	RED/GRN	2 2	J1	9	PLYR 2 UP
Y	BLU/BLK	2 2	J1	12	PLYR 2 RIGHT
c	BRN/BLK	2 2	J1	17	COIN 1
d	BRN/WHT	2 2	J1	18	COIN 2
e	WHT/BLK	2 2	J1	19	COIN 3
f	WHT/YEL	2 2	J1	20	TEST
h	YEL/BLK	2 2	J1	21	TILT
k	RED/WHT	2 2	J1	22	PLYR 1
m	ORN/GRN	2 2	J1	23	PLYR 2

# Test Cable Pin-Out List

## Roto

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
CC	RED	2 2	J2	5	AUDIO CH-1 - 2 CONDUCTOR SHIELDED CABLE
EE	BLK	2 2	J2	4	AUDIO CH-2 - 2 CONDUCTOR SHIELDED CABLE
	SHIELD	2 2	J2	6	2 CONDUCTOR SHIELDED CABLE/NOT CONNECTED TO TESTER

TESTER I/O - 2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
C	BLU	2 2	J2	11	VIDEO
E	RED	2 2	J2	9	VIDEO R-Y
H	ORN	2 2	J2	7	VIDEO B-Y
S	WHT/ORN	2 2	J2	1	PLYR 1 LAMP
T	BLU/WHT	2 2	J2	2	PLYR 2 LAMP

# Tron — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0011)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MCR-II CARD RACK CONNECTIONS

Std. C.P.U. Board Connectors  
Std. Sound Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.

It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

TRON — (PART NO. 0917-00901-08XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

TRON — (PART NO. 0917-00803-3600)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.



## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1 & PLAYER 2: Simulates Optical Encoder: used to position TRON'S arm in some games and to position Tank Turret in TANK game.  If TESTER'S Joy Stick is <b>held down</b> and moved left or right, the speed at which TRON'S arm or the Tank's Turret will rotate is " <b>SLOW</b> "; if it is <b>held up</b> and moved left or right, this rotation speed will be " <b>FAST</b> "; if it is left in its <b>middle</b> position and moved left or right, this rotation speed will be " <b>MEDIUM</b> ".
PUSH BUTTON PR1	PLAYER 1 & PLAYER 2: Is your FIRE Button.
LEFT HAND JOY STICK	PLAYER 1 & PLAYER 2: Operates as a joy stick: used to control TRON'S direction of travel in some games and to control the Tank's direction of travel in TANK game.
PUSH BUTTON PL1	<b>NOT USED</b>

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Tron

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	7	GRND
B	YEL/BLK	1 6	J1	10	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	16	V-BAT
J1	14	YEL/WHT	2 2	J1	20	ANALOG GRND
J1	6	WHT/YEL	2 2	J5	20	COIN METER RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/GRN	2 2	J5	21	COIN METER 1
B	BLK/WHT	2 2	J5	22	NOT USED
D	BRN/RED	2 2	J5	23	NOT USED
K	RED/WHT	2 2	J4	10	PLAYER 1 ENCODER BIT "0"
		2 2	J6	1	PLAYER 2
L	WHT/BLU	2 2	J4	11	PLAYER 1 ENCODER BIT "1"
		2 2	J6	2	PLAYER 2
M	BLK/GRN	2 2	J4	12	PLAYER 1 ENCODER BIT "2"
		2 2	J6	3	PLAYER 2

# Test Cable Pin-Out List

## Tron

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
N	WHT/ORN	2 2	J4	13	PLAYER 1 ENCODER BIT "3" PLAYER 2
		2 2	J6	4	
P	RED/YEL	2 2	J4	15	PLAYER 1 ENCODER BIT "4" PLAYER 2
		2 2	J6	5	
R	ORN/RED	2 2	J4	16	PLAYER 1 ENCODER BIT "5" PLAYER 2
		2 2	J6	6	
S	RED/BLU	2 2	J4	17	PLAYER 1 ENCODER BIT "6" PLAYER 2
		2 2	J6	7	
T	ORN/GRN	2 2	J4	18	PLAYER 1 ENCODER BIT "7" PLAYER 2
		2 2	J6	9	
U	GRN/RED	2 2	J5	6	PLAYER 2 RIGHT
V	PNK	2 2	J5	4	PLAYER 1 DOWN
W	BRN/YEL	2 2	J5	1	PLAYER 1 LEFT
X	BLU/RED	2 2	J5	3	PLAYER 1 UP
Y	RED/GRN	2 2	J5	2	PLAYER 1 RIGHT
Z	WHT/VIO	2 2	J5	8	PLAYER 2 DOWN
a	RED/BLK	2 2	J5	5	PLAYER 2 LEFT
b	BLK/BLU	2 2	J5	7	PLAYER 2 UP
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START

# Test Cable Pin-Out List

## Tron

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/BRN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
m	BLK/YEL	2 2	J4	5	PLAYER 1 FIRE
		2 2	J6	10	PLAYER 2
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR II VOLUME POT

# Lazarian — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0017)

REMOVE COMMERCIAL CARD RACK FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PRINTED CIRCUIT BOARD CONNECTIONS

Game Board Molex Connectors  
Sound Board Molex Connectors  
Video Interface Board Molex Conn.

## AUXILIARY P.C. BOARDS REQUIRED

CROSS POINT I/O INTERFACE P.C.BOARD — (PART NO. **A084-91555-A917**)

THE **GENERAL PURPOSE I/O INTERFACE P.C.B** — (PART NO. **A084-91509-D917**) **MUST BE REMOVED** WHEN THE ABOVE CROSS POINT I/O INTERFACE P.C. BOARD IS INSTALLED IN TESTER'S BACK PLANE.

IF INSTALLED, THE CCR/AUDIO INTERFACE P.C.B. — (PART NO. **A084-91549-C917**) MAY BE LEFT IN PLACE IF DESIRED.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

LAZARIAN — (PART NO. 0917-00901-12XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

LAZARIAN — (PART NO. 0917-00803-4105)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front  
Panel Controls and Indicators are as called  
out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1 & 2: Moves ship back and forth, up,  
down, and at diagonals on monitor screen.

PUSH BUTTON PR1

**NOT USED**

LEFT HAND JOY STICK

PLAYER 1 & 2: Controls direction your ship  
will FIRE in, left, right, up, or down on the  
monitor screen.

PUSH BUTTON PL1

**NOT USED**

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Blueprint — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0018)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PRINTED CIRCUIT BOARD CONNECTIONS

Std. 44 Pin Edge Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

BLUEPRINT — (PART NO. 0917-00901-13XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

BLUEPRINT — (PART NO. 0917-00803-4106)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front  
Panel Controls and Indicators are as called  
out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1: Moves player back and forth and  
up and down on monitor screen.

PUSH BUTTON PR1

PLAYER 1: Is your FAST Button.

LEFT HAND JOY STICK

PLAYER 2: Moves player back and forth and  
up and down on monitor screen.

PUSH BUTTON PL1

PLAYER 2: Is your FAST Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.



# Test Cable Pin-Out List Blueprint

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	16	J1	1	GRND
B	YEL	16	J1	4	GRND
D	RED	16	J1	7	+5VDC
E	RED	16	J1	9	+5VDC
H	ORN	18	J1	10	+12VDC

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/YEL	22	J2	18	COIN METER
K	RED/GRN	22	J2	13	PLAYER 1 FAST
L	RED/BLU	22	J2	9	PLAYER 1 DOWN
M	BLU/WHT	22	J2	12	PLAYER 1 LEFT
N	GRN/BLK	22	J2	11	PLAYER 1 UP
P	WHT/RED	22	J2	10	PLAYER 1 RIGHT
U	GRN/RED	22	J2	2	PLAYER 2 FAST
V	BLU/RED	22	J2	7	PLAYER 2 DOWN
W	WHT/BLU	22	J2	3	PLAYER 2 LEFT
X	BLK/GRN	22	J2	5	PLAYER 2 UP
Y	RED/WHT	22	J2	4	PLAYER 2 RIGHT

# Test Cable Pin-Out List

## Blueprint

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	ORN/RED	2 2	J2	16	COIN
e	ORN/GRN	2 2	J2	15	PLAYER 1 START
f	BLK/YEL	2 2	J2	8	PLAYER 2 START
h	BLU/YEL	2 2	J2	14	TILT
k	ORN/WHT	2 2	J2	1	TEST
r	WHT/BLK	2 2	J2	19	SPEAKER
s	GRN	2 2	J2	20	SPEAKER GRND
x	WHT	2 2	J3	1	VIDEO SYNC
y	BRN	2 2	J3	2	VIDEO SYNC
z	RED	2 2	J3	5	RED VIDEO
AA	GRN	2 2	J3	4	GREEN VIDEO
BB	BLU	2 2	J3	6	BLUE VIDEO

# Satan's Hollow — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0010)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MCR-II CARD RACK CONNECTIONS

Std. C.P.U. Board Connectors  
Std. Sound Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.  
It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

SATAN'S HOLLOW — (PART NO. 0917-00901-14XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

SATAN'S HOLLOW — (PART NO. 0917-00803-4107)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front  
Panel Controls and Indicators are as called  
out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1: Moves Missile Launcher back and  
forth on monitor screen. When held down it  
activates your Shield.

PUSH BUTTON PR1

PLAYER 1: Is your FIRE Button.

LEFT HAND JOY STICK

PLAYER 2: **ONLY USED IN COCKTAIL TABLE  
MODE.** Functions are same as PLAYER 1  
JOY STICK.

PUSH BUTTON PL1

PLAYER 2: Is your FIRE Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Satan's Hollow

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	7	GRND
B	YEL/BLK	1 6	J1	10	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	16	V-BAT
J1	14	YEL/WHT	2 2	J1	20	ANALOG GRND
J1	6	WHT/YEL	2 2	J5	20	COIN METER RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/GRN	2 2	J5	21	COIN METER 1
B	BLK/WHT	2 2	J5	22	COIN METER 2
D	BRN/RED	2 2	J5	23	NOT USED
E	YEL/RED	2 2	J5	10	NOT USED
F	VIO	2 2	J5	11	NOT USED
H	PNK	2 2	J5	12	NOT USED
J	BLK/RED	2 2	J5	13	NOT USED
K	RED/WHT	2 2	J4	10	PLAYER 1 LEFT
L	WHT/BLU	2 2	J4	11	PLAYER 1 RIGHT
M	BLK/GRN	2 2	J4	12	PLAYER 1 SHIELD

# Test Cable Pin-Out List

## Satan's Hollow

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
N	WHT/ORN	2 2	J4	13	PLAYER 1 FIRE
P	RED/YEL	2 2	J4	15	PLAYER 2 LEFT
R	ORN/RED	2 2	J4	16	PLAYER 2 RIGHT
S	RED/BLU	2 2	J4	17	PLAYER 2 SHIELD
T	ORN/GRN	2 2	J4	18	PLAYER 2 FIRE
U	BLK/YEL	2 2	J4	5	NOT USED
V	BRN/YEL	2 2	J5	1	NOT USED
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/BRN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR II VOLUME POT

# Domino Man — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0011)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MCR-II CARD RACK CONNECTIONS

Std. C.P.U. Board Connectors  
Sound Board Connectors J3, J4, J5  
**DO NOT CONNECT J6**

## AUXILIARY P.C. BOARDS REQUIRED

### CCR/AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot in the TESTER'S Back Plane.  
It may be left in. The TESTER'S programming is such that it will only use this Board when it is needed.

The above P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

DOMINO MAN — (PART NO. 0917-00901-15XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

DOMINO MAN — (PART NO. 0917-00803-4110)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves Domino Man up, down, back, and forth on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your SWAT/RUN Button.
LEFT HAND JOY STICK	PLAYER 2: Moves Domino Man up, down, back, and forth on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your SWAT/RUN Button.

### USING THE TESTER

- Turn the TESTER "ON".
- Press the "RESET (TESTER)" Button.
- Press the Game or Board RESET Button if there is one.
- Simulate game play using the TESTER'S CONTROLS.
- Use standard troubleshooting procedures to isolate and repair any game problems.



# Test Cable Pin-Out List

## Domino Man

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	7	GRND
B	YEL/BLK	1 6	J1	10	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	16	V-BAT
J1	14	YEL/WHT	2 2	J1	20	ANALOG GRND
J1	6	WHT/YEL	2 2	J5	20	COIN METER RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/GRN	2 2	J5	21	COIN METER 1
B	BLK/WHT	2 2	J5	22	COIN METER 2
D	BRN/RED	2 2	J5	23	NOT USED
K	RED/WHT	2 2	J4	10	PLAYER 1 LEFT
		2 2	J6	1	NOT USED
L	WHT/BLU	2 2	J4	11	PLAYER 1 RIGHT
		2 2	J6	2	NOT USED
M	BLK/GRN	2 2	J4	12	PLAYER 1 UP
		2 2	J6	3	NOT USED

# Test Cable Pin-Out List

## Domino Man

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
N	WHT/ORN	2 2	J4	13	PLAYER 1 DOWN NOT USED
		2 2	J6	4	
P	RED/YEL	2 2	J4	15	NOT USED
		2 2	J6	5	NOT USED
R	ORN/RED	2 2	J4	16	NOT USED
		2 2	J6	6	NOT USED
S	RED/BLU	2 2	J4	17	NOT USED
		2 2	J6	7	NOT USED
T	ORN/GRN	2 2	J4	18	NOT USED
		2 2	J6	9	NOT USED
U	GRN/RED	2 2	J5	6	NOT USED
V	PNK	2 2	J5	4	PLAYER 2 DOWN
W	BRN/YEL	2 2	J5	1	PLAYER 2 LEFT
X	BLU/RED	2 2	J5	3	PLAYER 2 UP
Y	RED/GRN	2 2	J5	2	PLAYER 2 RIGHT
Z	WHT/VIO	2 2	J5	8	NOT USED
a	RED/BLK	2 2	J5	5	PLAYER 2 SWAT
b	BLK/BLU	2 2	J5	7	NOT USED
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START

# Test Cable Pin-Out List

## Domino Man

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/BRN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
m	BLK/YEL	2 2	J4	5	PLAYER 1 SWAT
		2 2	J6	10	
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR II VOLUME POT

# Burger Time — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0002)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### COMMERCIAL CARD RACK CONNECTIONS

C.P.U. Board Connector  
Video Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

BURGER TIME — (PART NO. 0917-00901-16XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

BURGER TIME — (PART NO. 0917-00803-4111)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves CHEF back and forth and up and down on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your PEPPER Button.
LEFT HAND JOY STICK	PLAYER 2: Moves CHEF back and forth and up and down on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your PEPPER Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Burgertime

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	1 6	20 POS.	A	GRND
B	YEL	1 6	44 POS.	C	GRND
D	RED	1 6	20 POS.	10	+5VDC
E	RED	1 6	44 POS.	B	+5VDC
F	GRY	1 8	44 POS.	3	-5VDC
H	ORN	1 8	44 POS.	1	+12VDC

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
K	PUR	2 2	44 POS.	10	PLAYER 1 PEPPER
L	GRN/BLK	2 2	44 POS.	11	PLAYER 1 DOWN
M	RED/WHT	2 2	44 POS.	13	PLAYER 1 LEFT
N	BLK/GRN	2 2	44 POS.	12	PLAYER 1 UP
P	WHT/RED	2 2	44 POS.	14	PLAYER 1 RIGHT
U	BLK/RED	2 2	44 POS.	L	PLAYER 2 PEPPER
V	BRN/YEL	2 2	44 POS.	M	PLAYER 2 DOWN
W	ORN/GRN	2 2	44 POS.	P	PLAYER 2 LEFT
X	GRN/WHT	2 2	44 POS.	N	PLAYER 2 UP
Y	BLU/RED	2 2	44 POS.	R	PLAYER 2 RIGHT

# Test Cable Pin-Out List

## Burgertime

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	ORN/RED	2 2	44 POS.	6	COIN
d	WHT/ORN		44 POS.	F	SERVICE
e	BLU/WHT	2 2	44 POS.	8	PLAYER 1 START
f	BLU/BLK	2 2	44 POS.	J	PLAYER 2 START
h	BLU/YEL	2 2	44 POS.	S	RESET
k	RED/BLK	2 2	44 POS.	D	TEST 1
m	RED/BLU		44 POS.	H	TEST 2
r	WHT/BLK	2 2	44 POS.	15	SPEAKER
s	BLK/WHT	2 2	44 POS.	16	SPEAKER
x	YEL	2 2	20 POS.	6	HORZ. SYNC
y	WHT	2 2	20 POS.	7	VERT. SYNC
z	RED	2 2	20 POS.	5	RED VIDEO
AA	GRN	2 2	20 POS.	E	GREEN VIDEO
BB	BLK	2 2	20 POS.	4	BLUE VIDEO

# Super Pac-Man — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0002)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### COMMERCIAL CARD RACK CONNECTIONS

C.P.U. Board Connectors  
Video Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

SUPER PAC-MAN — (PART NO. 0917-00901-17XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

SUPER PAC-MAN — (PART NO. 0917-00803-4112)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.



## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Moves PAC-MAN back and forth and up and down on monitor screen.
PUSH BUTTON PR1	PLAYER 1: Is your FAST Button.
LEFT HAND JOY STICK	PLAYER 2: Moves PAC-MAN back and forth and up and down on monitor screen.
PUSH BUTTON PL1	PLAYER 2: Is your FAST Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Super Pac-Man

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	1 6	J3	3	GRND
B	YEL	1 6	J3	4	GRND
D	RED	1 6	J3	7	+5V
E	RED	1 6	J3	8	+5V
H	ORN	1 6	J3	5	+12V

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/YEL	2 2	J1	5	COIN METER
K	BLK/YEL	2 2	J2	13	PLYR 1 FAST
L	GRN/BLK	2 2	J2	1	PLYR 1 DOWN
M	RED/WHT	2 2	J2	2	PLYR 1 LEFT
N	BLK/GRN	2 2	J2	3	PLYR 1 UP
P	WHT/RED	2 2	J2	4	PLYR 1 RIGHT
U	BLK/RED	2 2	J2	12	PLYR 2 FAST
V	BRN/YEL	2 2	J1	6	PLYR 2 DOWN
W	ORN/GRN	2 2	J1	7	PLYR 2 LEFT
X	GRN/WHT	2 2	J1	8	PLYR 2 UP
Y	BLU/RED	2 2	J1	9	PLYR 2 RIGHT

# Tester Cable Pin-Out List

## Super Pac-Man

(continued)

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	ORN/RED	2 2	J2	7	COIN 1
d	BRN/BLU	2 2	J2	8	COIN 2
e	BLU/WHT	2 2	J2	11	PLYR 1 START
f	BLU/BLK	2 2	J2	10	PLYR 2 START
h	BLK/BLU	2 2	J2	18	TILT
j	WHT/ORN	2 2	J2	6	SERVICE
k	BLU/YEL	2 2	J2	14	TEST
m	YEL/BLK	2 2	J2	15	TABLE
r	WHT/BLK	2 2	J1	3	AUDIO
s	GRN/RED	2 2	J1	2	AUDIO
x	WHT	2 2	VIDEO J2	2	VIDEO COMP. SYNC
y	WHT	2 2	VIDEO J2	1	VIDEO COMP. SYNC
z	RED	2 2	VIDEO J2	6	VIDEO RED
AA	GRN	2 2	VIDEO J2	5	VIDEO GREEN
BB	BLK	2 2	VIDEO J2	4	VIDEO BLUE

# Mappy — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0024)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### MAPPY GAME BOARD CONNECTIONS

3 Pin AMP Connector  
22 Pin Dual Edge Connector  
6 Pin AMP Connector — Video

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

MAPPY — (PART NO. 0917-00901-21XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

MAPPY — (PART NO. 0917-00803-4416/VERSION A)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

UNIVERSAL TESTER FRONT PANEL CONTROL(S)	FUNCTION
ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY	The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.
RIGHT HAND JOY STICK	PLAYER 1: Left, Right Move.
PUSH BUTTON PR1	PLAYER 1: Door Open.
LEFT HAND JOY STICK	PLAYER 2: Left, Right Move.
PUSH BUTTON PL1	PLAYER 2: Door Open.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Mappy

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YELLOW	16	J10	2	GRND
B	YELLOW	16	J9	A	GRND
D	RED	16	J10	3	+5V
E	RED	16	J9	F	+5V
H	ORANGE	18	J10	1	+12V

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
K	BLK/Y	22	J9	M	PL1 DOOR
M	R/W	22	J9	N	PL1 LEFT
P	W/R	22	J9	R	PL1 RIGHT
U	BLK/R	22	J9	11	PL2 DOOR
W	ORN/GRN	22	J9	12	PL2 LEFT
Y	BLU/R	22	J9	14	PL2 RIGHT
c	ORN/R	22	J9	K	COIN 1
d	W/O	22	J9	J	CREDIT
e	BLU/WH	22	J9	L	PL1 START
f	BLU/BLK	22	J9	10	PL2 START
h	BLU/YEL	22	J9	8	TEST
m	YEL/BLK	22	J9	21	TABLE
r	W/BLK	22	J9	2	SPKR
s	GRN/BRN	22	J9	B	SPKR
x	WHT	22	J6	4	SYNC (MONITOR)
y	WHT	22	J6	4	SYNC (MONITOR)
z	RED	22	J6	1	RED (MONITOR)
AA	GRN	22	J6	2	GRN (MONITOR)
BB	BLU	22	J6	3	BLU (MONITOR)

# Bump & Jump — Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector (**Cable No. A917-00030-0015**)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0021)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PRINTED CIRCUIT BOARD CONNECTIONS

C.P.U. Board Connector  
I/O Board Connector

## AUXILIARY P.C. BOARDS REQUIRED

NONE

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

BUMP & JUMP — (PART NO. 0917-00901-18XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

BUMP & JUMP — (PART NO. 0917-00803-4113)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER  
GAME OVERLAY

The functions of all these TESTER Front  
Panel Controls and Indicators are as called  
out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1: Moves CAR left and right; up  
and down controls speed / up = fast, and  
down = slow.

PUSH BUTTON PR1

PLAYER 1: Is your JUMP Button.

LEFT HAND JOY STICK

PLAYER 2: Moves CAR left and right; up  
and down controls speed / up = fast, and  
down = slow.

PUSH BUTTON PL1

PLAYER 2: Is your JUMP Button.

### USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" Button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.



# Tester Cable Pin-Out List

## Bump & Jump

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	1 6	20 PIN	A	GRND
B	YEL	1 6	36 PIN	C	GRND
D	RED	1 6	20 PIN	10	+5V
E	RED	1 6	36 PIN	B	+5V
H	ORN	1 8	36 PIN	1	+12V

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
K	PUR	2 2	36 PIN	10	1 PL JUMP
L	GRN/BLK	2 2	36 PIN	11	1 PL SLOW
M	RED/WHT	2 2	36 PIN	13	1 PL LEFT
N	BLK/GRN	2 2	36 PIN	12	1 PL FAST
P	WHT/RED	2 2	36 PIN	14	1 PL RIGHT
U	BLK/RED	2 2	36 PIN	L	2 PL JUMP
V	BRN/YEL	2 2	36 PIN	M	2 PL SLOW
W	ORN/GRN	2 2	36 PIN	P	2 PL LEFT
X	GRN/WHT	2 2	36 PIN	N	2 PL FAST
Y	BLU/RED	2 2	36 PIN	R	2 PL RIGHT

# Tester Cable Pin-Out List

## Bump & Jump

(continued)

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	ORN/RED	2 2	36 PIN	6	COIN
d	WHT/ORN	2 2	36 PIN	F	SERVICE
e	BLU/WHT	2 2	36 PIN	8	1 PL START
f	BLU/BLK	2 2	36 PIN	J	2 PL START
h	BLU/YEL	2 2	36 PIN	7	TILT
k	RED/BLK	2 2	36 PIN	4	TEST - 1
m	RED/BLU	2 2	36 PIN	D	REST - 2
r	WHT/BLK	2 2	36 PIN	15	SPEAKER
s	BLK/WHT	2 2	36 PIN	S	SPEAKER
x	WHT	2 2	20 PIN	7	VERT SYNC
y	BRN	2 2	20 PIN	6	HORZ SYNC
z	RED	2 2	20 PIN	5	RED VIDEO
AA	GRN	2 2	20 PIN	E	GRN VIDEO
BB	BLK	2 2	20 PIN	4	BLU VIDEO

# Wacko - Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTION, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector  
(Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0022)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### STANDARD MCR II BOARD CONNECTIONS

Standard Power Connector  
Standard I/O Connectors  
Standard Video Connector

## AUXILIARY P.C. BOARDS REQUIRED

**AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)**  
**G.P. I/O INTERFACE — II P.C.B. — (PART NO. A084-91559-A917)**

Installed in any vacant slot(s) in the TESTER'S Back Plain. The Board(s) may be left in. The TESTER'S programming is such that it will only use a Board when it is needed.

The AUDIO INTERFACE P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR—II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR—II Vol.** pot used to adjust the overall volume to any level you desire.

The G.P. I/O INTERFACE - II P.C. Board expands the capacity of the Universal Tester's I/O Channels from 4 to 8.

# Wacko - Simulation: (continued)

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

WACKO  
(PART NO. 0917-00901-19XF)

### GAME ROM REQUIRED

WACKO  
(PART NO. 0917-00803-4114/  
VERSION B)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY

RIGHT HAND JOY STICK

PUSH BUTTON PR1

LEFT HAND JOY STICK

PUSH BUTTON PL1

### FUNCTION

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

PLAYER 1 & 2: FIRE - Up, Down, Left, and Right.

: NOT USED.

PLAYER 1 & 2: "X"- "Y" Sensors

Move Up, Down "Y"

Move Left, Right "X"

: NOT USED.

## USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Wacko

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YELLOW	1 6	J1	10	GRND
B	YELLOW	1 6	J1	7	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	5	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	3	GRY/RED	1 8	J1	18	V-BAT
J1	14	YEL/WHT	1 8	J1	20	ANALOG GRD
J1	6	WHT/BRN	2 2	J5	20	GRD

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
B	GRN/BLK	2 2	J6	3	FIRE DOWN
C	RED/WHT	2 2	J6	2	FIRE LEFT
D	BLK/GRN	2 2	J6	4	FIRE UP
E	WHT/RED	2 2	J6	1	FIRE RIGHT
K	WHT/BLU	2 2	J5	21	COIN METER 1
L	WHT/BLK	2 2	J5	22	COIN METER 2
U	BLK/YEL	2 2	J4	10	"X" ENCODER BIT "0"
V	ORN/GRN	2 2	J4	11	"X" ENCODER BIT "1"

# Tester Cable Pin-Out List

## Wacko

(continued)

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
W	BLK/BLU	2 2	J4	12	"X" ENCODER BIT "2"
X	BRN/YEL	2 2	J4	13	"X" ENCODER BIT "3"
Y	RED/BLU	2 2	J4	15	"X" ENCODER BIT "4"
Z	YEL/WHT	2 2	J4	16	"X" ENCODER BIT "5"
a	VIO	2 2	J4	17	"X" ENCODER BIT "6"
b	BLK/RED	2 2	J4	18	"X" ENCODER BIT "7"
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PL1 START
f	BLU/BLK	2 2	J4	4	PL2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/ORN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
x	WHT	2 2	J2	8	HORZ SYNC
y	BRN	2 2	J2	9	VERT SYNC
z	RED	2 2	J2	1	RED
AA	GRN	2 2	J2	3	GREEN
BB	BLU	2 2	J2	5	BLUE
CC	RED	2 2	J3	9	AUDIO 1-2 CONDUCTOR SHIELDED CABLE
EE	BLK	2 2	J3	7	AUDIO 2-2 CONDUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELDED CABLE / NOT CONNECTED TO TESTER

# Tester Cable Pin-Out List

## Wacko

(continued)

TESTER I/O-2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	GRN/RED	2 2	J5	1	"Y" ENCODER BIT "0"
d	GRY/BLK	2 2	J5	2	"Y" ENCODER BIT "1"
e	RED/BLK	2 2	J5	3	"Y" ENCODER BIT "2"
f	GRY/BRN	2 2	J5	4	"Y" ENCODER BIT "3"
h	BRN/RED	2 2	J5	5	"Y" ENCODER BIT "4"
j	BLU/GRN	2 2	J5	6	"Y" ENCODER BIT "5"
k	BLK/ORN	2 2	J5	7	"Y" ENCODER BIT "6"
m	PINK	2 2	J5	8	"Y" ENCODER BIT "7"

# Kosmik Krooz'r - Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector  
(Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0023)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### STANDARD MCR II BOARD CONNECTIONS

Standard Power Connector  
Standard I/O Connectors  
Standard Video Connector

## AUXILIARY P.C. BOARDS REQUIRED

**AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)**  
**G.P. I/O INTERFACE — II P.C.B. — (PART NO. A084-91559-A917)**

Installed in any vacant slot(s) in the TESTER'S Back Plain. The Board(s) may be left in. The TESTER'S programming is such that it will only use a Board when it is needed.

The AUDIO INTERFACE P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR—II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR—II Vol.** pot used to adjust the overall volume to any level you desire.

The G.P. I/O INTERFACE - II P.C. Board expands the capacity of the Universal Tester's I/O Channels from 4 to 8.



# Kosmik Krooz'r - Simulation: (continued)

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

KOSMIK KROOZ'R  
(PART NO. 0917-00901-20XF)

### GAME ROM REQUIRED

KOSMIK KROOZ'R  
(PART NO. 0917-00803-4115/  
VERSION B)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S front Panel.

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1 & 2: Direction of FIRE, SHIELD Aim left, right/SHIELD, up Aim rotates ship cannon/FIRE, down

PUSH BUTTON PR1

: NOT USED.

LEFT HAND JOY STICK

PLAYER 1 & 2: up, down, left, and right move.

PUSH BUTTON PL1

: NOT USED.

## USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" button.

Select one of the MOTHER SHIP Position Switches on Tester's Front Panel.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

**NOTE:** Analog Joystick clear signal (Pin 17, J5) **MUST** be checked **USING** an Oscilloscope.

# Test Cable Pin-Out List

## Kosmik Krooz'r

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
X	GRN/BLK	2 2	J4	17	OPTICAL ENCODER BIT 6
Y	WHT/GRN	2 2	J4	18	FIRE
Z	BLK/YEL	2 2	J4	5	SHIELD
a	BRN	2 2	J4	15	MOTOR POS. SENSOR 2
b	GRN/BRN	2 2	J4	16	MOTOR POS. SENSOR 3
c	BRN/WHT	2 2	J4	1	COIN 1
d	BLK/BRN	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PL1 START
f	BLU/BLK	2 2	J4	4	PL2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/ORN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
m	VIO	2 2	J4	13	MOTOR POS. SENSOR 1
x	GRY	2 2	J2	9	VERT SYNC
y	WHT	2 2	J2	8	HORZ SYNC
z	RED	2 2	J2	1	RED
AA	GRN	2 2	J2	3	GREEN
BB	BLU	2 2	J2	5	BLUE
CC	RED	2 2	J3	9	AUDIO 1-2 CONDUCTOR SHIELDED CABLE
EE	BLK	2 2	J3	7	AUDIO 2-2 CONDUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELDED CABLE / NOT CONNECTED TO TESTER
FF	YEL/VIO	2 2	J3	2	AUDIO POT

# Test Cable Pin-Out List

## Kosmik Krooz'r

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YELLOW	1 6	J1	6	GRND
B	YELLOW	1 6	J1	7	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	3	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	10	YEL/WHT	1 8	J1	20	ANALOG GRD
J1	4	GRY/RED	1 8	J1	16	V-BAT
J1	14	WHT/BRN	2 2	J5	20	GRD

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	GRY/BLK	2 2	J5	21	COIN METER 1
B	GRY/RED	2 2	J5	22	COIN METER 2
F	GRY/WHT	2 2	J5	14	CARGO LIGHT 1
H	GRY/BRN	2 2	J5	15	CARGO LIGHT 2
J	ORN/BLU	2 2	J5	12	SHIP CONTROL
U	RED/WHT	2 2	J4	10	OPTICAL ENCODER BIT 3
V	WHT/RED	2 2	J4	11	OPTICAL ENCODER BIT 4
W	BLK/GRN	2 2	J4	12	OPTICAL ENCODER BIT 5

# Test Cable Pin-Out List

## Kosmik Krooz'r

(continued)

TESTER I/O-2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	GRN/RED	2 2	J6	1	"Y" ENCODER BIT "0"
d	BLU/BRN	2 2	J6	2	"Y" ENCODER BIT "1"
e	BLK/ORN	2 2	J6	3	"Y" ENCODER BIT "2"
f	RED/BLU	2 2	J6	4	"Y" ENCODER BIT "3"
h	WHT/BLK	2 2	J6	5	"Y" ENCODER BIT "4"
j	YEL/WHT	2 2	J6	6	"Y" ENCODER BIT "5"
k	BRN/BLK	2 2	J6	7	"Y" ENCODER BIT "6"
m	ORN/GRN	2 2	J6	9	"Y" ENCODER BIT "7"
n	GRN/WHT	2 2	J5	1	"X" ENCODER BIT "0"
p	BLU/GRN	2 2	J5	2	"X" ENCODER BIT "1"
r	BLK/RED	2 2	J5	3	"X" ENCODER BIT "2"
s	RED/GRN	2 2	J5	4	"X" ENCODER BIT "3"
t	WHT/BLU	2 2	J5	5	"X" ENCODER BIT "4"
u	GRN/YEL	2 2	J5	6	"X" ENCODER BIT "5"
v	ORN/BLU	2 2	J5	7	"X" ENCODER BIT "6"
x	BLU/RED	2 2	J5	8	"X" ENCODER BIT "7"

# Journey - Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector  
(Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0025)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### JOURNEY GAME BOARD CONNECTIONS

POWER CONNECTOR..... J1  
I/O CONNECTORS ..... J4 & J5  
AUDIO CONNECTOR ..... J3  
VIDEO CONNECTOR..... J2

## AUXILIARY P.C. BOARDS REQUIRED

### AUDIO INTERFACE P.C.B. — (PART NO. A084-91549-E917)

Installed in any vacant slot(s) in the TESTER'S Back Plane. The Board(s) may be left in. The TESTER'S programming is such that it will only use a Board when it is needed.

The AUDIO INTERFACE P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR - II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. I Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, **AFTER TESTER HAS BEEN TURNED ON**, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR - II Vol.** pot used to adjust the overall volume to any level you desire.

# Journey - Simulation: (continued)

## UNIVERSAL TESTER FRONT PANEL

GAME OVERLAY REQUIRED

JOURNEY  
(PART NO. 0917-00901-22XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

## UNIVERSAL TESTER FRONT PANEL

GAME OVERLAY REQUIRED

JOURNEY  
(PART NO. 0917-00901-22XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

GAME ROM REQUIRED

JOURNEY  
(PART NO. 0917-00803-4117/  
VERSION A

### INSTRUCTIONS

Install in "PROGRAM ROMS" "0" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY

RIGHT HAND JOY STICK

PUSH BUTTON PR1

LEFT HAND JOY STICK

PUSH BUTTON PL1

### FUNCTION

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

PLAYER 1: MOVE UP, DOWN, LEFT, and RIGHT.

PLAYER 1: BLAST.

PLAYER 2: MOVE UP, DOWN, LEFT, and RIGHT.

PLAYER 2: BLAST.

## USING THE TESTER

- Turn the TESTER "ON".
- Press the "RESET (TESTER)" button.
- Press the Game or Board RESET Button if there is one.
- Simulate game play using the TESTER'S CONTROLS.
- Use standard troubleshooting procedures to isolate and repair any game problems.

# Tester Cable Pin-Out List

## Journey

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	1 6	J1	6	GRND
B	YEL/BLK	1 6	J1	7	GRND
D	RED	1 6	J1	2	+5V
E	RED	1 6	J1	3	+5V
H	ORN	1 8	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	10	YEL/WHT	1 8	J1	20	ANALOG GRND
J1	4	GRY/RED	1 8	J1	16	V-BAT
J1	14	WHT/BRN	2 2	J5	20	GRND

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/YEL	2 2	J5	21	COIN METER 1
B	BLK/YEL	2 2	J5	22	COIN METER 2
E	PINK	2 2	J5	10	CASSETTE ON
K	RED/WHT	2 2	J4	10	PLAYER 1 LEFT
L	WHT/RED	2 2	J4	11	PLAYER 1 RIGHT
M	BLK/GRN	2 2	J4	12	PLAYER 1 UP
N	GRN/BLK	2 2	J4	13	PLAYER 1 DOWN
U	BLK/YEL	2 2	J4	5	PLAYER 1 BLAST
V	ORN/GRN	2 2	J5	1	PLAYER 2 LEFT

# Tester Cable Pin-Out List

## Journey

(continued)

TESTER I/O-1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
X	GRN/WHT	2 2	J5	3	PLAYER 2 UP
Y	BLU/RED	2 2	J5	2	PLAYER 2 RIGHT
a	BLK/RED	2 2	J5	5	PLAYER 2 BLAST
b	BRN/YEL	2 2	J5	4	PLAYER 2 DOWN
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/ORN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
x	BLK	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED	2 2	J2	1	RED VIDEO
AA	GRN	2 2	J2	3	GREEN VIDEO
BB	BLU	2 2	J2	5	BLUE VIDEO
CC	RED	2 2	J3	9	AUDIO 1 - TWO CON- DUCTOR SHIELDDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELDED CABLE / NOT CONNECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE
FF	YEL/WHT	2 2	J3	2	AUDIO POT



# Professor Pac-Man - Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE** THE TESTER IS **OFF** WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector  
(Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0026)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector

### PROFESSOR PAC-MAN GAME CONNECTIONS

CARD RACK BACK PLANE  
GAME BOARD: J1, J2, J3

## AUXILIARY P.C. BOARDS REQUIRED

### AUDIO INTERFACE P.C.B. - (PART NO. A084-91549-E917)

Installed in any vacant slot(s) in the TESTER'S Back Plane. The Board(s) may be left in. The TESTER'S programming is such that it will only use a Board when it is needed.

The AUDIO INTERFACE P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Vol. Chan. 3 Mono** respectively. Later, AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

## P.C. BOARD JUMPER CHANGES REQUIRED

GPIO - 1 P.C.B. (PART NO. A084-91509-D917)

Remove this P.C.B. from the Tester's Back Plane. Remove JP1 from JPS1-JPSA and install it in JPS1-JPSB. Reinstall this P.C.B. in the Tester's Back Plane.

### IMPORTANT NOTE:

WHEN FINISHED TESTING THE "PROFESSOR PAC-MAN" GAME(S); THE ABOVE JUMPER MUST BE RETURNED TO ITS ORIGINAL POSITION - JPS1-JPSA!!

# Professor Pac-Man - Simulation: (continued)

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

PROFESSOR PAC-MAN  
(PART NO. 0917-00901-24XF)

### GAME ROM REQUIRED

PROFESSOR PAC-MAN  
(PT NO. 0917-00803-4119/VERSION B)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### INSTRUCTIONS

Install in "PROGRAM ROMS" "O" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

ALL CONTROLS AND INDICATORS UNDER GAME OVERLAY

RIGHT HAND JOY STICK

PUSH BUTTON PR1

LEFT HAND JOY STICK

PUSH BUTTON PL1

### FUNCTION

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

PLAYER 1: A, B, and C Buttons.  
Left = A, Down = B, and Right = C.

PLAYER 1: **NOT USED.**

PLAYER 2: A, B, and C Buttons.  
Left = A, Down = B, and Right = C.

PLAYER 2: **NOT USED.**

## USING THE TESTER

Turn the TESTER "ON".

Press the "RESET (TESTER)" button.

Press the Game RESET Button on the TESTER'S Front Panel.

Simulate game play using the TESTER'S CONTROLS.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Professor Pac-Man

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	16	BACK PLANE	8	GRND
B	YEL/BLK	16	BACK PLANE	12	GRND
D	RED	16	BACK PLANE	2	+5V
E	RED	16	BACK PLANE	5	+5V
F	GRY	18	BACK PLANE	14	-5V
H	ORN	18	BACK PLANE	7	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J2	3	WHT/BRN	22	BACK PLANE	9	COIN RET
J2	13	GRY/RED	22	BACK PLANE	10	V-LED RET

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
H	VIO	22	J2	4	PLYR 1 LED
J	PNK	22	J2	5	PLYR 2 LED
K	WHT/YEL	22	J2	1	COIN METER 1
L	WHT/RED	22	J2	10	PLYR 1 "A" LAMP
M	RED/BLK	22	J2	11	PLYR 1 "B" LAMP
N	BRN/BLU	22	J2	12	PLYR 1 "C" LAMP
P	GRN/BLK	22	J2	7	PLYR 2 "A" LAMP
R	BLK/WHT	22	J2	8	PLYR 2 "B" LAMP
S	ORN/GRN	22	J2	9	PLYR 2 "C" LAMP
T	WHT/BLU	22	J2	2	COIN METER 2

# Test Cable Pin-Out List

## Professor Pac-Man

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
U	WHT/VIO	2 2	J1	2	PLYR 2 "B" BUTTON
V	BLU/RED	2 2	J1	6	PLYR 1 "B" BUTTON
W	RED/WHT	2 2	J1	5	PLYR 1 "C" BUTTON
X	WHT/BLK	2 2	J1	3	PLYR 2 "A" BUTTON
Y	GRN/WHT	2 2	J1	7	PLYR 1 "A" BUTTON
Z	WHT/GRN	2 2	J1	1	PLYR 2 "C" BUTTON
c	BRN/WHT	2 2	J1	10	COIN 1
d	BRN/BLK	2 2	J1	11	COIN 2
e	BLU/WHT	2 2	J1	14	PLYR 1 START
f	BLU/BLK	2 2	J1	15	PLYR 2 START
h	ORN/RED	2 2	J1	13	TILT
j	YEL/RED	2 2	BACK PLANE	13	RESET
m	ORN/WHT	2 2	J1	12	TEST
n	YEL/BLK	2 2	J1	8	GRND - (V REF 1)
x	WHT	2 2	J3	8	SYNC
y	WHT	2 2	J3	8	SYNC
z	RED/BLK	2 2	J3	1	RED VIDEO
AA	GRN	2 2	J3	3	GREEN VIDEO
BB	BLU	2 2	J3	5	BLUE VIDEO
CC	RED	2 2	J1	17	AUDIO 1 - CON- DUCTOR SHIELDED CABLE
	SHIELD	2 2	J1	19	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	2 2	J1	18	AUDIO 2 - 2 CON- DUCTOR SHIELDED CABLE

# Discs of Tron - Simulation:

If you have not done so lately, it is suggested that you run the UNIVERSAL TESTER'S Self-Test to be sure that it is in proper working order **BEFORE** starting **ANY** test on **ANY** game components.

**BE SURE THE TESTER IS OFF WHILE CONNECTING, DISCONNECTING, INSTALLING, OR REMOVING CABLE PLUGS AND/OR TEST COMPONENTS.**

## INTERCONNECTION OF TESTER AND AUXILIARY SOUND AND VIDEO DISPLAY SYSTEMS

### UNIVERSAL TESTER CONNECTIONS

Audio/Video Connector  
(Cable No. A917-00030-0015)

### AUXILIARY SOUND AND VIDEO DISPLAY SYSTEM CONNECTIONS

Speaker System Connection  
Std. Color Raster Scan Monitor Conn.

## INTERCONNECTION OF TESTER AND GAME COMPONENTS (CABLE NO. A917-00030-0028)

REMOVE PRINTED CIRCUIT BOARDS FROM GAME CABINET

### UNIVERSAL TESTER CONNECTIONS

Power Connector  
I/O 1 Connector  
I/O 2 Connector

### DISCS OF TRON CONNECTIONS

20 PIN KK156 - POWER  
9 PIN KK100 - VIDEO  
10 PIN KK100 - AUDIO  
19 PIN KK100 - I/O  
23 PIN KK100 - I/O

## AUXILIARY P.C. BOARDS REQUIRED

### AUDIO INTERFACE P.C.B. - (PART NO. A084-91549-E917)

\*G.P. I/O INTERFACE - II P.C.B. - (PART NO. A084-91559-C917)  
Installed in any vacant slot(s) in the TESTER'S Back Plane. The Boards(s) may be left in. The TESTER'S programming is such that it will only use a Board when it is needed.

The AUDIO INTERFACE P.C. Board has 4 pots across its top edge. As you face the TESTER, the left most pot is labeled **MCR-II Vol.** Working to the right, the remaining 3 pots are labeled **Chan. 1 Vol.**, **Chan. 2 Vol.**, and **Chan. 3 Mono** respectively. Later, AFTER TESTER HAS BEEN TURNED ON, **Chan. 1 Vol.** and **Chan. 2 Vol.** should be turned part of the way up and the **MCR-II Vol.** pot used to adjust the overall volume to any level you desire.

\* The G.P. I/O INTERFACE - II P.C. Board expands the capacity of the Universal Testor's I/O Channels from 4 to 8. (THIS BOARD IS **ONLY** NEEDED TO TEST THE **ENVIRONMENTAL** VERSION OF THIS GAME.)

# Discs of Tron - Simulation: (continued)

## UNIVERSAL TESTER FRONT PANEL

### GAME OVERLAY REQUIRED

DISCS OF TRON  
(PART NO. 0917-00901-25XF)

### INSTRUCTIONS

Install Game Overlay over switches and under clip on TESTER'S Front Panel.

### GAME ROM REQUIRED

DISCS OF TRON  
(PART NO. 0917-00803-4120/  
VERSION C)

### INSTRUCTIONS

Install in "PROGRAM ROMS" "O" position ZIF Socket.

## FRONT PANEL INDICATOR AND CONTROL DESIGNATIONS

### UNIVERSAL TESTER FRONT PANEL CONTROL(S)

### FUNCTION

ALL CONTROLS AND INDICATORS  
UNDER GAME OVERLAY

The functions of all these TESTER Front Panel Controls and Indicators are as called out on the GAME OVERLAY.

RIGHT HAND JOY STICK

PLAYER 1+2: AIM DISC - LEFT & RIGHT  
SPEED OF AIM - UP=FAST/DOWN=SLOW.

PUSH BUTTON PR1

PLAYER 1+2: THROW DISC

LEFT HAND JOY STICK

PLAYER 1+2: PLAYER MOVEMENT - UP,  
DOWN, LEFT, RIGHT.

PUSH BUTTON PL1

PLAYER 1+2: DEFLECT.

## USING THE TESTER

Turn the TESTER "ON".

The tests are selected via two toggle switches on the Tester's front panel. (SQUK, SEQ.) These switches are only valid after a TESTER RESET. The switch labeled SQUK sets the Tester up for the Squawk and Talk test. This mode is indicated by the lighting of an LED labeled SQUK. To test this Board:

1. Requires Kit Number A917-00032-0024 - DISCS OF TRON SQUAWK & TALK TEST KIT.
2. Use the Self-Test Push Button on the Squawk and Talk P.C.B. This will perform a ROM, RAM test and then sequence through all phrases used in this game. This checks the INTERNAL BOARD SYSTEM.
3. On the Tester's front panel, two push button switches are used to test the communication with the Squawk and Talk board (1 - SQUK - 2).

SQUK 1 - GREETINGS

SQUK 2 - LAUGH

The switch labeled SEQ selects the Sequencer Test and is indicated by the lighting of an LED labeled SEQ-FLSH. To test this Board:

1. Requires Kit Number A917-00032-0025 - DISCS OF TRON SEQUENCER TEST KIT.
2. Use three toggle switches to select the data to be written to the D.U.T. (SEQ. - D0, D1, D2.).
3. When the data is selected, the push button labeled STROBE is used to latch this data into the SEQ board.

# Discs of Tron - Simulation: (continued)

4. Observe LED's L1, L2, L3, L4, and L5 for proper operation.

	LOW	HIGH
D0	Slow Speed	Fast Speed
D1	Forward	Reverse
D2	Seq. On	Seq. Off

To set the Tester for GAME simulation:

If the Squawk or Sequence tests were not called, the Tester will default to the GAME Test. This will be indicated by the lighting of the LED labeled GAME.

Press the "RESET (TESTER)" button.

Press the Game or Board RESET Button if there is one.

Simulate game play using the TESTER'S CONTROLS.

In order to test Output Port 4 of the MCR II I/O Board, it is necessary to set the Tester for the ENVIRONMENTAL version of this game. (GPIO-II installed in Testers Back Plane and ENV-UR Switch in the ENVIRONMENTAL position.) The MCR II board set is put into test via the Test Switch on the Testers front panel. From the menu, select the Output Port Test. Once in this test, the second row of LEDs will alternately FLASH in accordance with the data shown on the bottom of the monitor.

Use standard troubleshooting procedures to isolate and repair any game problems.

# Test Cable Pin-Out List

## Disc of Tron

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	16	J1	6	GRND
B	YEL/BLK	16	J1	7	GRND
D	RED	16	J1	3	+5V
E	RED	16	J1	2	+5V
H	ORN	18	J1	18	+12V

GAME		WIRE		GAME		FUNCTION
CON.	PIN	COLOR	AWG	CON.	PIN	
J1	10	YEL/WHT	18	J1	20	ANALOG GRND
J1	4	GRY/RED	18	J1	16	V - BAT
J1	14	WHT/BRN	22	J5	20	COIN METER RETURN

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	WHT/YEL	22	J5	21	COIN METER 1
B	WHT/BLU	22	J5	22	COIN METER 2
K	RED/WHT	22	J4	10	OPTICAL ENCODER BIT "0"
L	WHT/RED	22	J4	11	OPTICAL ENCODER BIT "1"
M	BLK/GRN	22	J4	12	OPTICAL ENCODER BIT "2"
N	GRN/BLK	22	J4	13	OPTICAL ENCODER BIT "3"
P	RED/BLU	22	J4	15	OPTICAL ENCODER BIT "4"
R	YEL/WHT	22	J4	16	OPTICAL ENCODER BIT "5"
S	VIO	22	J4	17	OPTICAL ENCODER BIT "6"
T	YEL/BLK	22	J4	18	OPTICAL ENCODER BIT "7"



# Test Cable Pin-Out List

## Disc of Tron

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
U	BLK/RED	2 2	J5	5	LEVEL DOWN
V	PINK	2 2	J5	4	JOY STICK FORWARD
W	ORN/GRN	2 2	J5	1	JOY STICK RIGHT
X	BLU/RED	2 2	J5	3	JOY STICK BACKWARD
Y	RED/GRN	2 2	J5	2	JOY STICK LEFT
Z	BLK/WHT	2 2	J5	8	MODE - UPRIGHT/ ENVIRONMENTAL
a	WHT/BLK	2 2	J5	6	LEVEL UP
b	BRN/BLU	2 2	J5	7	DEFLECT
c	BRN/WHT	2 2	J4	1	COIN 1
d	BRN/BLK	2 2	J4	2	COIN 2
e	BLU/WHT	2 2	J4	3	PLAYER 1 START
f	BLU/BLK	2 2	J4	4	PLAYER 2 START
h	BLU/YEL	2 2	J4	6	TILT
j	WHT/ORN	2 2	J4	7	SERVICE
k	ORN/WHT	2 2	J4	8	TEST
m	BLK/YEL	2 2	J4	5	FIRE
x	BRN	2 2	J2	8	HORIZONTAL SYNC
y	GRY	2 2	J2	9	VERTICAL SYNC
z	RED/BLK	2 2	J2	1	RED
AA	GRN	2 2	J2	3	GREEN
BB	BLU	2 2	J2	5	BLUE

# Test Cable Pin-Out List

## Disc of Tron

(continued)

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
CC	RED	2 2	J3	9	AUDIO 1 - TWO CONDUCTOR SHIELDED CABLE
	SHIELD	2 2	J3	8	2 CONDUCTOR SHIELDED CABLE/NOT CONNECTED TO TESTER
EE	BLK	2 2	J3	7	AUDIO 2 - TWO CONDUCTOR SHIELDED CABLE
FF	YEL/VIO	2 2	J3	2	MCR VOLUME POT

TESTER I/O - 2 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	ORN/VIO	2 2	J5	10	MUX DATA BIT 0
d	GRY/WHT	2 2	J5	11	MUX DATA BIT 1
e	BLU/GRN	2 2	J5	12	MUX DATA BIT 2
f	GRN/WHT	2 2	J5	13	MUX DATA BIT 3
h	GRN/RED	2 2	J5	14	STROBE 0 - SPEECH
j	GRN/YEL	2 2	J5	15	STROBE 1 - SEQUENCER
k	ORN	2 2	J5	16	BACKGROUND LIGHT ENABLE
m	BLU/BRN	2 2	J5	17	FLORESCENT LAMP FLASH ENABLE

# Test Cable Pin-Out List

## Disc of Tron - Lamp Sequencer

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL	2 2	J1	2	GRND
B	YEL/BLK	2 2	J2	1	ANALOG GRND
D	RED	2 2	J1	7	+5V
H	ORN	2 2	J2	6	+12V

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
D	RED/BLU	2 2	J1	8	LAMP 0
E	RED/YEL	2 2	J1	9	LAMP 1
F	RED/GRN	2 2	J1	10	LAMP 2
H	RED/WHT	2 2	J1	11	LAMP 3
J	RED/BLK	2 2	J1	12	LAMP 4
c	BLU/BLK	2 2	J1	6	D 0
d	BLU/RED	2 2	J1	5	D 1
e	BLU/YEL	2 2	J1	4	D 2
f	BLU/BRN	2 2	J1	1	STROBE
p	ORN/WHT	2 2	J2	4	+12V

# Test Cable Pin-Out List

## Disc of Tron - Squawk & Talk

(continued)

TESTER POWER CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
A	YEL/BLK	16	J1	6	GRND
B	YEL/BLK	16	J2	14	GRND
D	RED	22	J1	5	+5V
F	GRY	18	J1	1	-5V

TESTER I/O - 1 CONNECTOR	WIRE		GAME		FUNCTION
	COLOR	AWG	CON.	PIN	
c	BLU/YEL	22	J1	1	D 0
d	BLU/BRN	22	J1	2	D 1
e	BLU/WHT	22	J1	3	D 2
f	BLU/RED	22	J1	4	D 3
h	ORN/BLK	22	J1	8	STROBE
CC	RED	22	J2	9	AUDIO 1 - TWO CON- DUCTOR SHIELDED CABLE
	SHIELD	22	J2	8	2 CONDUCTOR SHIELD- ED CABLE/NOT CON- NECTED TO TESTER
EE	BLK	22	J2	7	AUDIO 2 - TWO CON- DUCTOR SHIELDED CABLE

GAME		WIRE		1K POT	FUNCTION
CON.	PIN	COLOR	AWG		
J2	4	WHT	22	1K POT	
J2	5	GRN	22	WIPER ARM	