

FIGHTER
&
ATTACKER

OPERATION MANUAL

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NAMCO LIMITED

2-8-5 TAMAGAWA, OHTA-KU, TOKYO, 146, JAPAN

1. Cautions

- (1) Be sure to turn off the cabinet whenever installing or removing the PC board.
- (2) Be sure to use an edge connector which is applied to the JAMMA standard. Any modifications such as cutting the edges of PC boards will cause a failure and also will be out of our guarantee for repair.
- (3) Never test the PC boards for conductivity with a multimeter or similar device. The PCB contains sensitive chips which could be destroyed even by the internal voltage of such a device.
- (4) Foreign matters or dust on the PC boards will cause a failure. Turn off the power and clean the PC boards with a brush or similar thing.
- (5) When transporting the PC boards, wrap them with sponges or air caps and pack them in a card board box so that they can avoid a direct impact from outside during shipment.
- (6) For maintenance, contact your distributor.

2. Specifications

- | | |
|---------------------------|-----------------------------|
| (1) Control panel: | One-side 2-P specifications |
| o 8-direction lever: | 2 (1P, 2P, each) |
| o Button switch: | 4 (1P, 2P, each) |
| o Start switch: | 2 (1P, 2P, each) |
| (2) PC board size: | 220 x 230 mm |
| (3) Direction of monitor: | Vertical |

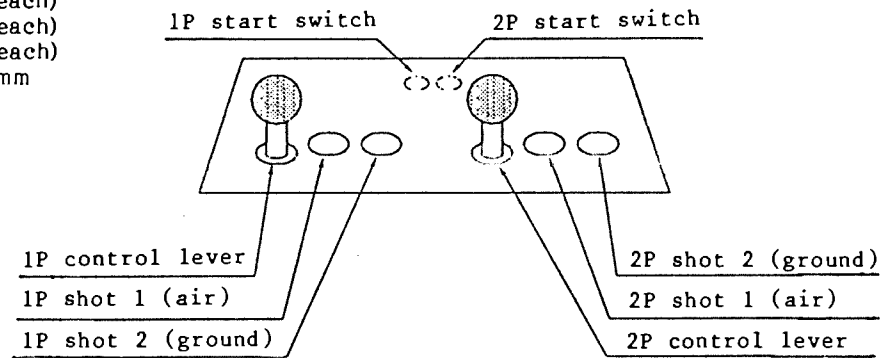


Fig. 1

3. Connection

- (1) Connection of control panel
See below to connect the control panel to the cabinet (See P3: PC Board Connector Table).
- (2) Connection of PC board
Connect the PC board to the cabinet (see P3: PC Board Connector Table).
Using the PC Board with a stereo cabinet allows you to enjoy a stereophonic effect (See P7: "Connection to Stereo Cabinet").

4. Explanation of PC Boards

- (1) Option switches
The PC Board enters the test mode by setting option switch No. 1 to "ON". Normally, all of the option switches are "OFF".
- (2) Control volumes
The control volumes are already adjusted properly at shipment. Unless otherwise inconvenient, use the control volumes as they are.
 - ① Speaker volume
To decrease the sound volume of the speaker, turn the speaker volume counter-clockwise.
 - ② Headphone volume
To decrease the sound volume of the headphone, turn the headphone volume counter-clockwise.

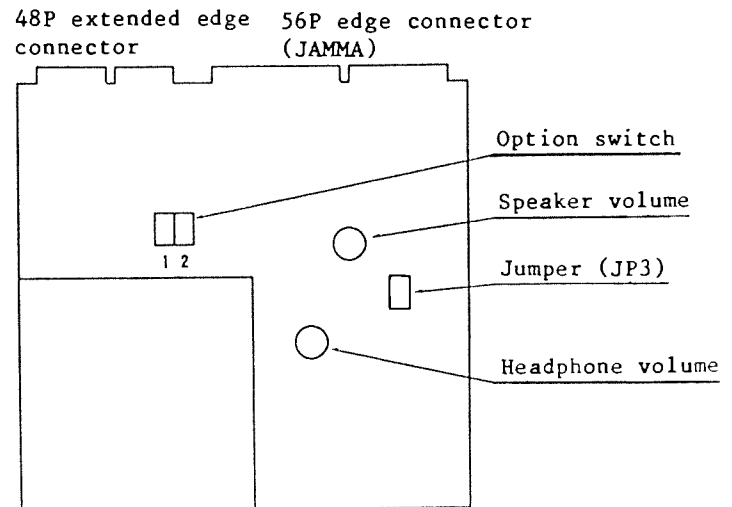


Fig. 2

Specified Connector

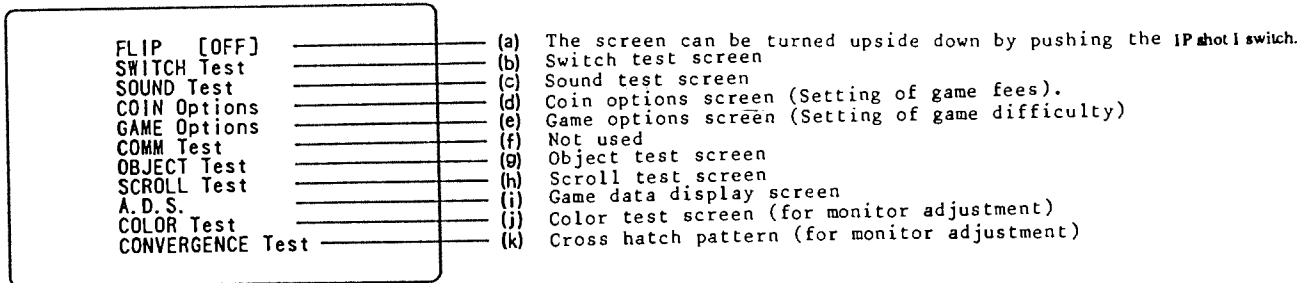
Use a DDK 225-100242-2314 as a 48P extended edge connector.

5. Test Mode

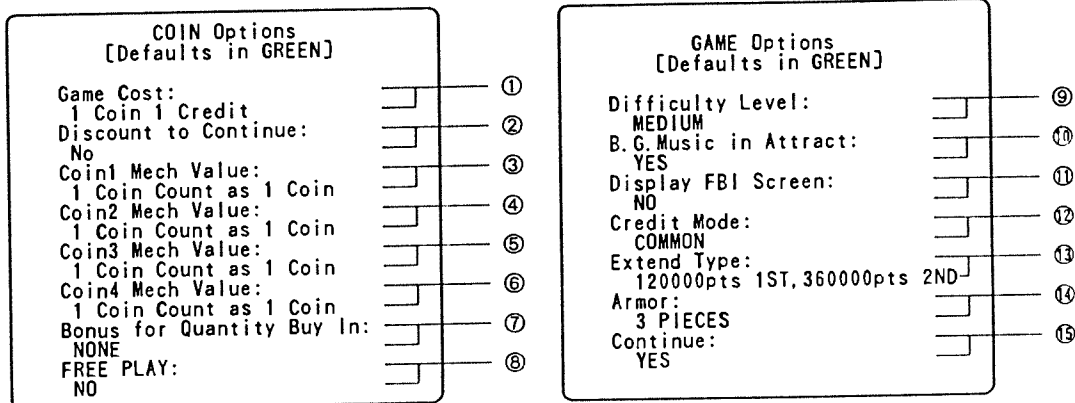
(1) The PC Board enters the test mode by setting the test switch on the PC board to "ON" on the game screen. And the test menu screen is displayed on the monitor. Use the test switch (For connection, see P3: PC Board Connector Table) on the cabinet or the option switch on the PC board.

When an item is selected by operating the 1P control lever up and down and the 1P shot 1 switch is pushed, the selected test screen is displayed.

(2) Game fees can be changed on the coin option screen, and the game difficulty can be changed on the game option screen. Select an item by operating the 1P control lever up and down, and change its contents using the 1P shot 1 switch (see the option setting table). After that, push the 1P shot 2 switch to return to the test menu screen.



(Test menu screen)



(Coin Options screen)

(Game options screen)

(Option setting table)

(◀ Original setting)

Item	Contents	
① Game fees	Coin count required for one game (one credit)	1 - 9 ◀
② Discount	50% discount when continuing a play	NO ◀ , YES
③ Coin counter 1	Count per coin	1 - 9 (1◀)
④ Coin counter 2	Count per coin	1 - 9 (1◀)
⑤ · ⑥	Not used	
⑦ Bonus coin	One additional coin per the specified number of coins	NONE ◀ 2 Coins Give 1 Coin 9 Coins Give 2 Coins
⑧ Free play	NO ◀ , YES	
⑨ Difficulty	MEDIUM ◀ (EASY), (MEDIUM), (HARD))	
⑩ Attached sound	YES ◀ , NO (B.G. music eraseable only)	
⑪ FBI display	NO (Not displayed) ◀ , YES (Displayed)	
⑫ Credit mode	COMMON (Credit is common to 1P and 2P) ◀ , EACH ONE (Credit is set for 1P and 2P each)	
⑬ Extend	120000 pts 1ST, 360000 pts 2ND (Standard) ◀ (5 stages)	
⑭ Armor	3 (Standard) ◀ (1 ↔ 5 ranks)	
⑮ Continue	YES ◀ , NO	

Example	Game fees		①	②	③	⑦	Credit display	(Note) Game fees are set by ①, ②, ④ and ⑦ when coin connector 2 is used. (③ will be ④)
	1 game	Continue						
	100 yen	100 yen						
	100 yen	50 yen	2COINS 1CREDIT YES	1COUNT 2COINS NONE	CREDIT 0/2			

6. PC Board Connector Table

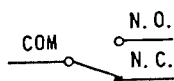
JAMMA edge connector (56P 3.96 mm pitch)

Solder side	Terminal No.		Parts side
GND	A	1	GND
GND	B	2	GND
+5V	C	3	+5V
+5V	D	4	+5V
	E	5	
+12V	F	6	+12V
Insertion error preventing key	H	7	Insertion error preventing key
Coin counter-2	J	8	Coin counter-1
	K	9	Coin lockout 1
Speaker (-)	L	10	Speaker (+)
Audio (GND)	M	11	Audio (+)
Video GREEN	N	12	Video RED
Video SYNC	P	13	Video BLUE
Service switch	R	14	Video GND
	S	15	Test switch
Coin switch 2	T	16	Coin switch 1
2P start switch	U	17	1P start switch
2P lever UP	V	18	1P lever UP
2P lever DOWN	W	19	1P lever DOWN
2P lever LEFT	X	20	1P lever LEFT
2P lever RIGHT	Y	21	1P lever RIGHT
2P shot 1	Z	22	1P shot 1
2P shot 2	a	23	1P shot 2
	b	24	
	c	25	
	d	26	
GND	e	27	GND
GND	f	28	GND

o Do not connect anything to the blank connectors.

o Both lockout solenoid and coin counter operate on +12 V.

o Connect the switches to the N.O. terminals such as a microswitch, and the GND to the COM terminal.



o The supply voltage is available within $\pm 5\%$. For use in the best condition, get the supply voltage as close to the specified voltage as possible.

(Recommended power capacity)

+5V $\pm 5\%$	2.0A or more
+12V $\pm 5\%$	2.0A or more

Extended edge connector (48P 2.54 mm pitch)

Solder side	Terminal No.		Parts side
Speaker R (-)	A1	B1	Speaker R (+)
Headphone R	A2	B2	Headphone L
	A3	B3	Headphone GND
	A4	B4	
Insertion error preventing key	A5	B5	Insertion error preventing key
	A6	B6	
	A7	B7	
	A8	B8	
	A9	B9	
	A10	B10	
	A11	B11	
	A12	B12	
	A13	B13	
	A14	B14	
	A15	B15	
	A16	B16	
	A17	B17	
	A18	B18	
	A19	B19	
	A20	B20	
	A21	B21	
	A22	B22	
	A23	B23	
	A24	B24	

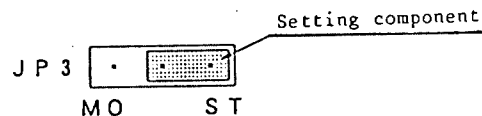
o Do not connect anything to the blank connectors.

(Connection to stereo cabinet)

(1) STEREO/MONO setting

Place the STEREO/MONO setting component (JP3) on the PC board in the STEREO position.

(Caution) If the JP3 is set to "STEREO" on a cabinet with monophonic specifications as shown above, only the left sound comes from the speakers.



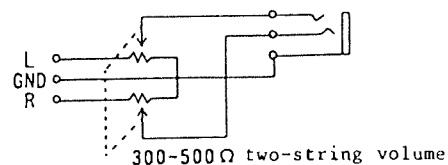
(2) Connection to speakers

The speaker output of the 56P edge connector (JAMMA) on the PC board is the left (L) output. Connect the right (R) speaker to the right (R) speaker output of the 48P edge connector on the PC board.

* Use a DDK 225-100242-2314 as a 48P extended edge connector.

(Headphone output)

Connect the headphone to the headphone output of the 48P edge connector.



(Recommended headphone circuit)