



# SINK THE SHIP

## OPERATION MANUAL

The actual product may differ slightly from the illustrations in this manual.



- To ensure safe operation of the game machine, be sure to read this Operation Manual before use.
- Keep this Operation Manual in a safe place for quick access whenever needed.

**BANDAI NAMCO Games Inc.**

## **INTRODUCTION**

Thank you for purchasing the "SINK THE SHIP "game machine (hereafter referred to as the "machine").

This operation manual describes

- How to install, operate, transport, maintain and discard the machine safely and properly.
- How to operate the machine correctly and make use of its full features.
- How to ensure safety of players and bystanders.

Inquiries regarding this machine and its repair

- For further information about the machine and its repair, contact your distributor.

**\*\* CONTENTS \*\***

	<i>page</i>
Introduction	1
Contents	2
1. SAFETY PRECAUTIONS	3
1-1 MAGNITUDE of RISK	3
1-2 DEFINITION of 'TECHNICIAN'	3
1-3 CRITICAL SAFETY PRECAUTIONS	4
1-4 DESCRIPTION of WARNING LABELS	5
2. SPECIFICATIONS	6
3. PACKAGE CONTENT	7
3-1 PACKAGE LIST	7
3-2 ACCESARRY LIST	8
4. TEAR DOWN FOR TRANSPORTATION	9
5. INSTALLATION	10
5-1 INSTALLATION CONDITIONS	10
5-2 PLAY ZONE of INSTALLED MACHINE	11
5-3 CONSTRUCTION MONITOR ASSY	12
5-4 POWER SWITCH and BALL	16
5-5 ADJUSTING the LEVEL ADJUSTERS	16
6. OPERATION	17
6-1 HOW TO PLAY	17
6-2 CONFIRMATION of DATA & CHANGE of SETTINGS	18
7. MAINTENANCE	23
8. DISCARDING	25
9. PARTS LIST	26
9-1 CONSIST of ASSYS AND PARTS	26
9-2 ASSY PARTS LIST	27
10. ATTACHED:	
WIRING DIAGRAM 1/4~4/4	(A3 4 page)

## 1. SAFETY PRECAUTIONS

Be sure to read this section before installation or operation of the machine.

- If you entrust another party to perform installation, operation, relocation, transportation, service, or discarding of the machine, instruct the concerned party to read and observe all the instructions and precautions in this operation manual regarding the particular action to be taken.

### 1-1 MAGNITUDE of RISK

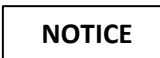
On the labels attached to the machine and in this operation manual, precautions regarding safety and property damage are classified as shown-below in accordance with the magnitude of the particular risk.



- Failure to avoid the indicated risk may result in death or serious injury.



- Failure to avoid the indicated risk may result in minor injury or property damage.
- Notes related to machine functions but not to safety are marked with the following indication.



- Note related to product function or protection.

### 1-2 DEFINITION of 'TECHNICIAN'

This operation manual is written for arcade personnel. However, the sections marked "To be conducted by a technician only" in the table of contents are written for technicians. These tasks should be conducted by technicians only.

#### Technician

A person engaged in machine design, manufacture, inspection or service for a manufacturer of amusement equipment, or a person who has technical knowledge related to electricity, electronics or mechanical engineering at a level equal to or higher than that of a technical high school graduate and who is engaged routinely in the service and management (including repair) of amusement machines.

### 1-3 CRITICAL SAFETY PRECAUTIONS

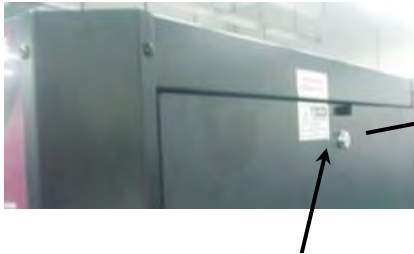


- Should any abnormality occur, turn off the power switch immediately to stop operating the machine.  
Then, unplug the power cord plug from the AC outlet.  
Operating the machine without correcting abnormalities can result in a fire or accident.
- Some monitor sections remain hot or charged with high voltage even after the power switch is turned off.  
Do not touch the monitor unnecessarily in order to avoid electric shock and burns.
- Dust accumulated on the power cord plug may cause a fire. Check the power cord plug regularly and remove dust.
- Insert the power cord plug firmly into the AC outlet. Poor contact may cause overheating that can lead to a fire or burns.
- A damaged power cord can cause a fire, electric shock or electrical leakage.  
Observe the following cautions.
  - Keep the power cord away from heating devices.
  - Do not twist the power cord.
  - Do not bend the power cord forcibly.
  - Do not alter the power cord.
  - Do not bundle the power cord.
  - Do not pull the power cord.  
(Always unplug by holding the power cord plug, and avoid pulling the power cord.)
  - Do not place anything on the power cord.
  - Do not allow the power cord to be caught under or between the machine, other equipment or the wall.
  - Do not do anything else that might damage the power cord.
- Do not wet the power cord or power cord plug with water. Water can cause an electric shock or electrical leakage.
- Do not touch the power cord plug with a wet hand. Doing so can result in an electric shock.
- Use consumables and service parts (including fasteners) specified by our company.  
To order parts, contact your distributor.
- Do not convert the machine without permission. Do not perform any work that is not described in this operation manual.  
Unauthorized conversion of the machine may create unforeseen hazards.
- When transferring ownership of the machine, be sure to provide this operation manual with the game machine.

### 1-4 DESCRIPTION of WARNING LABELS



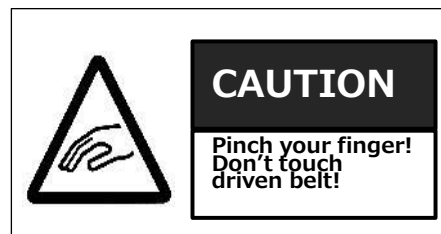
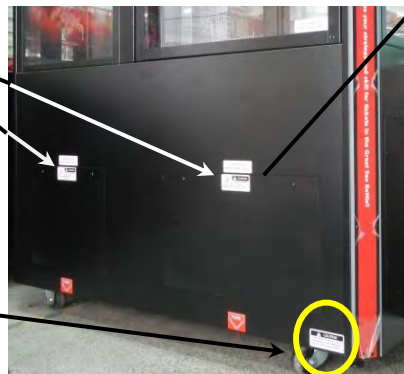
- The warning labels describe important safety precautions. Be sure to observe the following:
- To ensure that the warning labels attached to the machine are easily legible, install the machine at an appropriate location with ample illumination and keep the labels clean at all times. Also, make sure that the labels are not hidden behind another game machine or other objects.
- Do not remove or alter the warning labels.  
If the warning labels become excessively dirty or damaged, replace them with new labels. To order warning labels, contact your distributor.



*back side*



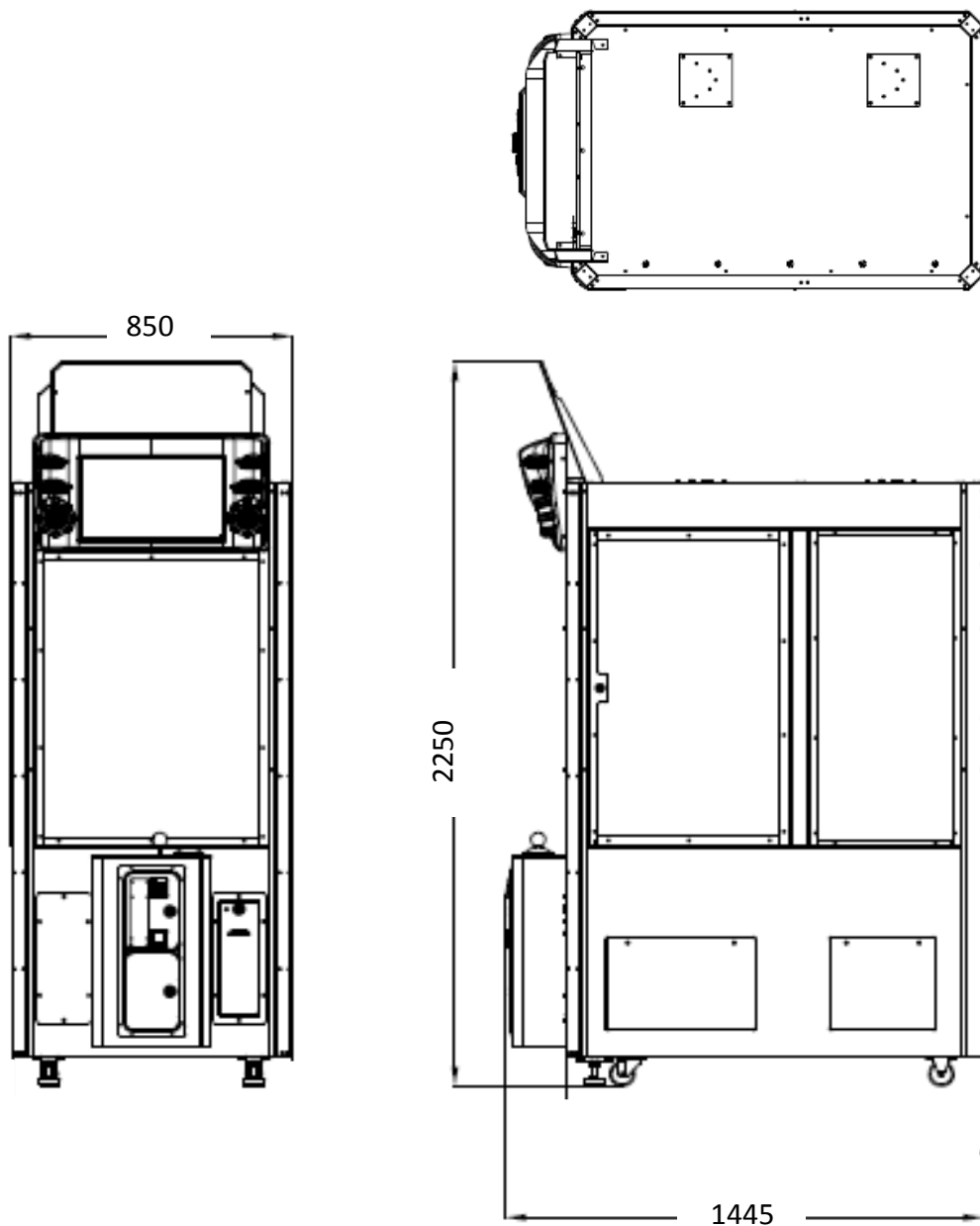
*Both side*



## 2. SPECIFICATIONS

Typical specification of the machine is shown in below table.

Rated Power Supply	AC 100-240 V
Rated Frequency	50/60 Hz
Rated Power Consumption	160 W
Ambient Operating Temperature	+5 to 35°C (41 to 95F)
Coin box capacity	3,000 of 25 ¢ coin
Display Device	LCD monitor, 19"
Dimension, mm	1445D*850W*2250H
Weight	235 kg



### 3. PACKAGE CONTENTS

The product packages shipped from the factory contain the following components and parts.

**NOTICE**

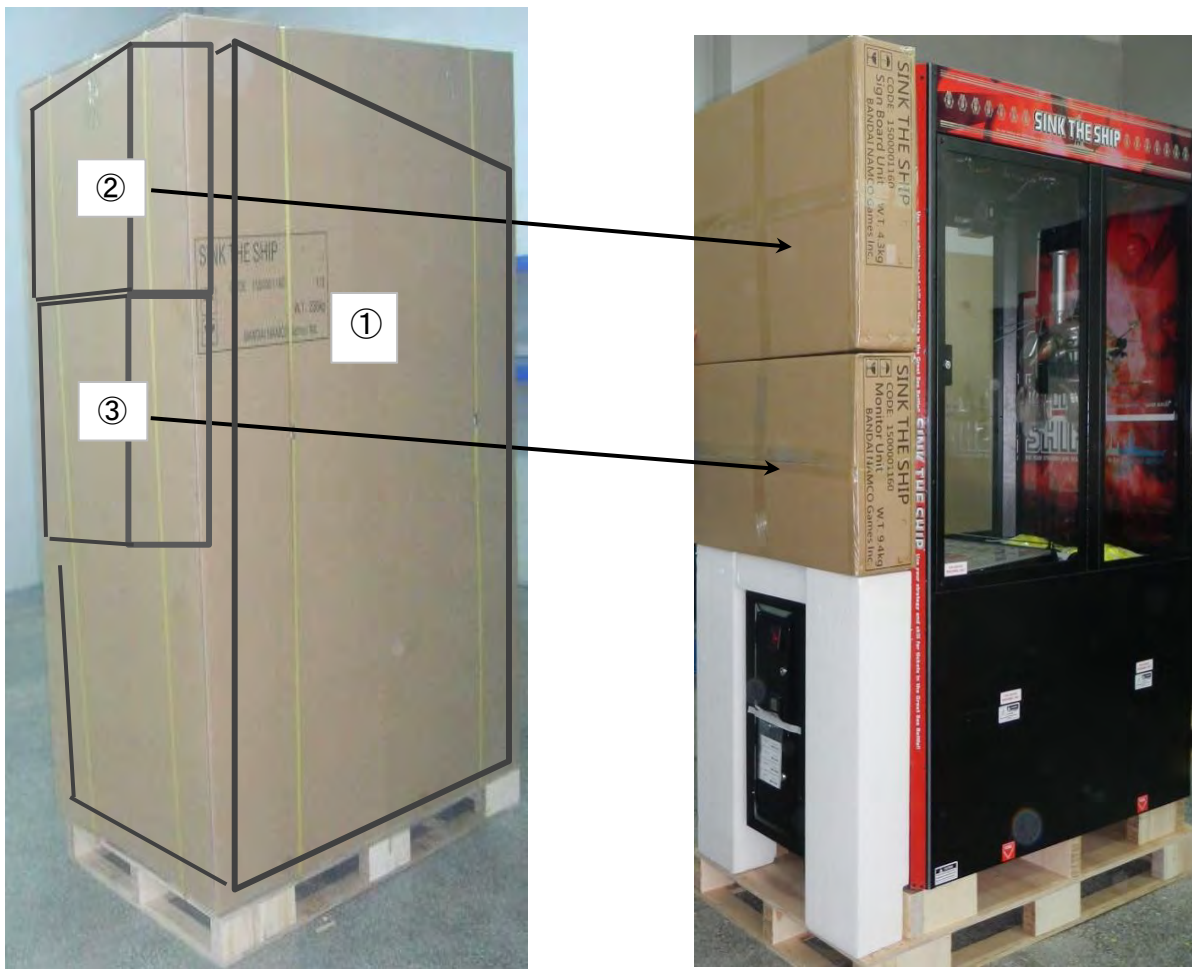
- Make sure that all the items listed below are contained in the product packages.
- If any item is missing, contact your distributor.

#### 3-1 PACKAGE LIST

*Package List*










No	Name	Note	Qty
①	Cabinet		1
②	Signboard *1)	Monitor ASSY	1
③	LCD Monitor *1)		1

\*1) bolt and nut for construction are in each box.





### 3-2 ACCESARRY LIST

No	Name and Position	Note	Qty	Shape
④	Ball	ball storage 260 pieces set	1	
⑤	Power Code, USA	coin box	1	
⑥	Power Code, Europe	coin box	1	
⑦	Harness, Europe	Inside service Door It is fixed by a band	1	
⑧	Harness, Asia	Inside service Door It is fixed by a band	1	
⑨	Harness, Bill-Vali.	Inside service Door It is fixed by a band	1	
⑩	Description Card	Signboard box spare 5-card set	1	
⑪	Lock key	control panel 3 type, each 2	6	
⑫	Torx Wrench	Signboard box M5	1	



④

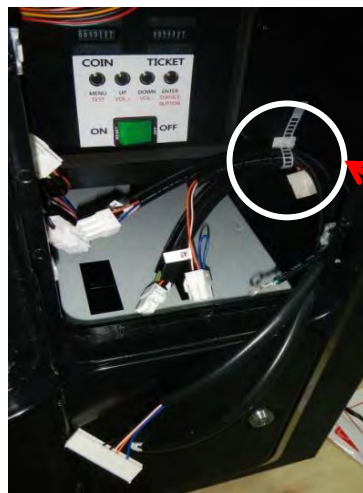


⑤⑥



⑫

⑩



⑦  
⑧  
⑨

⑪

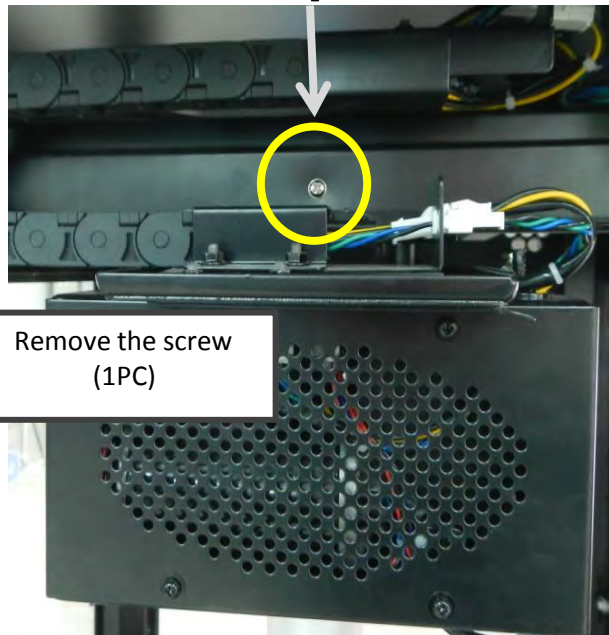
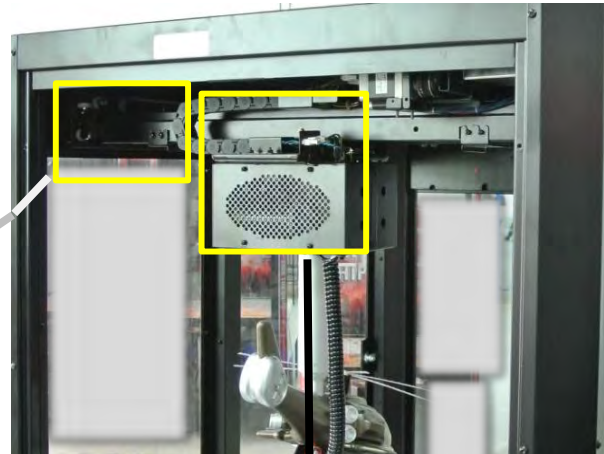
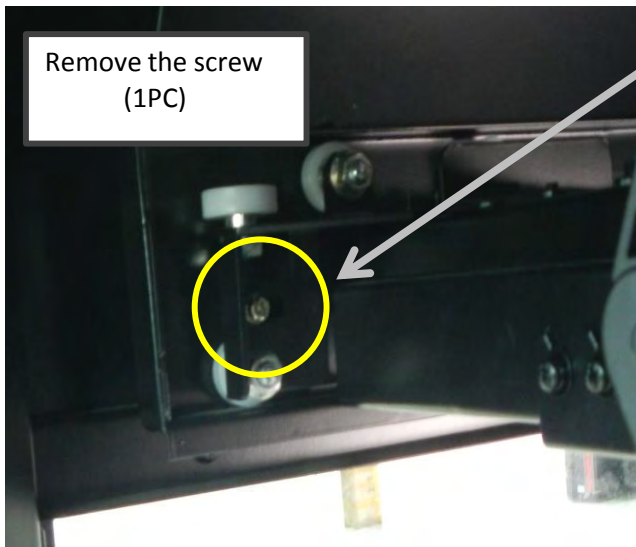


#### 4. TEAR DOWN FOR TRANSPORTATION



Before turning on the power, open the top back door and remove the screw first.

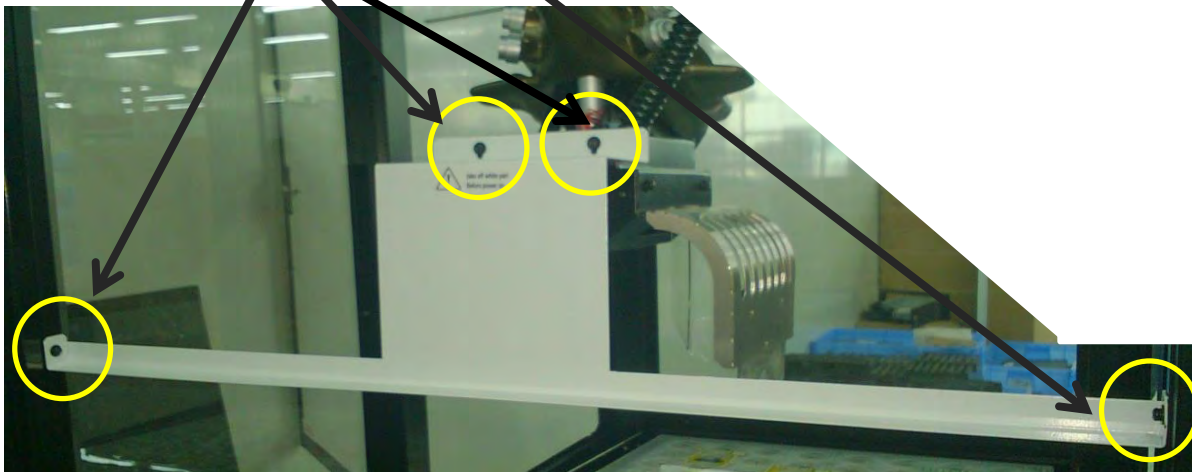
*back view*



**NOTICE**

*Keep the removed bolt.  
It will use when moving the product.*

Remove the screw  
(4PCS)



*steel plate*

**NOTICE**

*Keep the removed steel plate in a safe place. It will use when moving the product.  
Return bolts to the original.*

## 5. INSTALLATION



- Install the machine according to the instructions and procedures specified in this operation manual.  
Failure to follow the specified procedures may result in a fire, electric shock, injury or machine malfunctions.
- Insert the power cord plug firmly into the AC output. Poor contact may cause overheating that can lead to a fire or burns.
- Install the machine securely by using the level adjusters. Unstable machine installation can result in an accident or injury.  
(See "5-5, page 13 ADJUSTING the LEVEL ADJUSTERS).

### 5-1 INSTALLATION CONDITIONS



- The machine is designed for indoor use. Never install the machine outdoors or in any of the following places:
  - A place subject to direct sunlight
  - A place exposed to rain or water leakage
  - Damp place.
  - Dusty places
  - Close to heating devices.
  - Hot place.
  - Extremely cold places.
  - A place where dew condensation may occur due to temperature differences
  - A place where the machine may become an obstruction in emergencies (such as near an emergency exit) or a place where a fire extinguisher or similar equipment is installed
  - Unstable place or location where vibrations are produced.

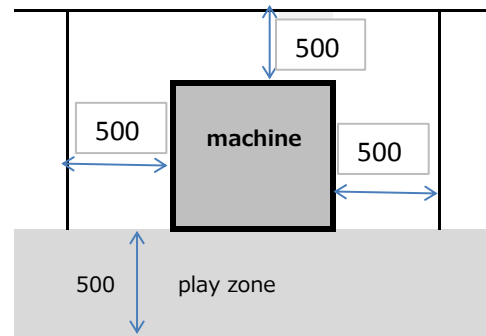
## 5-2 PLAY ZONE of INSTALLED MACHINE



- Set a play zone as shown below so that players can move away from the machine without bumping into observers or passersby.

**NOTICE**

- Provide a space of at least 500 mm between the machine and wall or other machines. This space is necessary for maintenance and service.



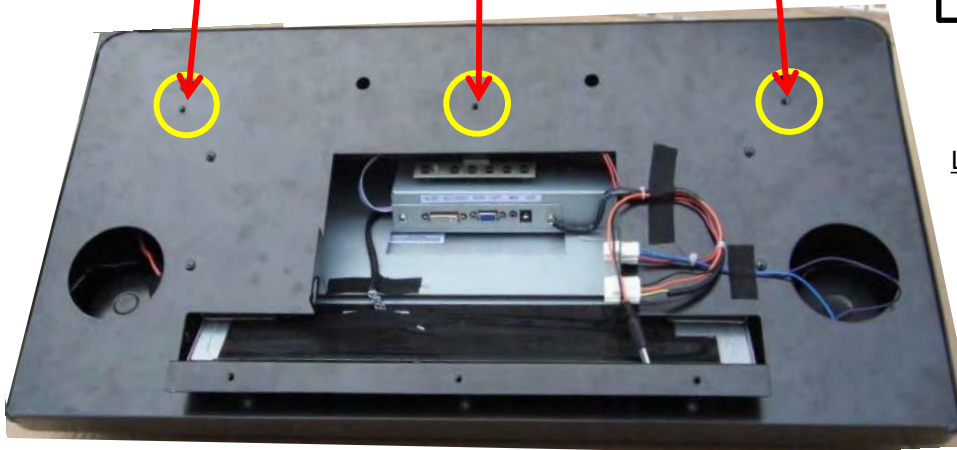
### 5-3 CONSTRUCTION MONITOR ASSY

#### (1) Signboard and LCD Monitor



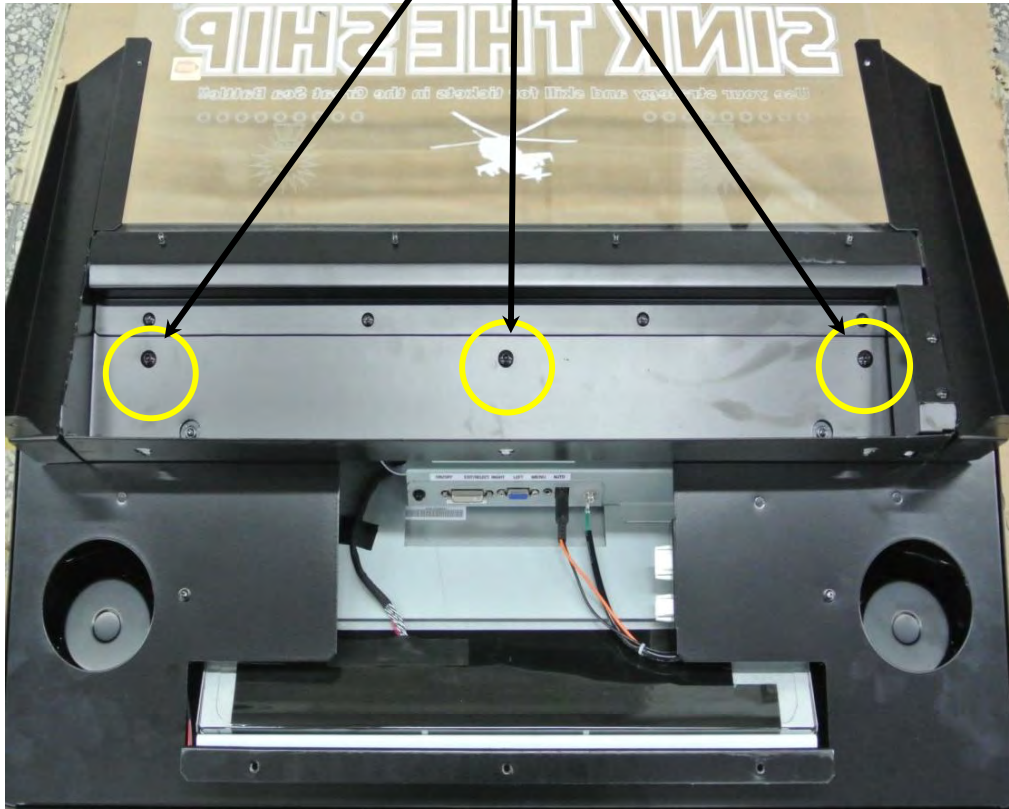
Signboard

Bolt (M5\*3PCS)



LCD Monitor

① Bolt (M5\*3PCS)

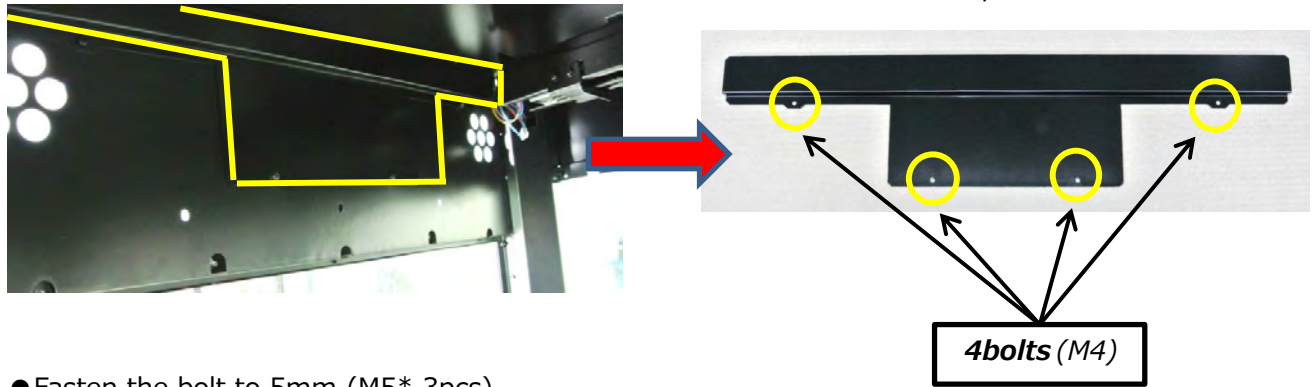


complete!

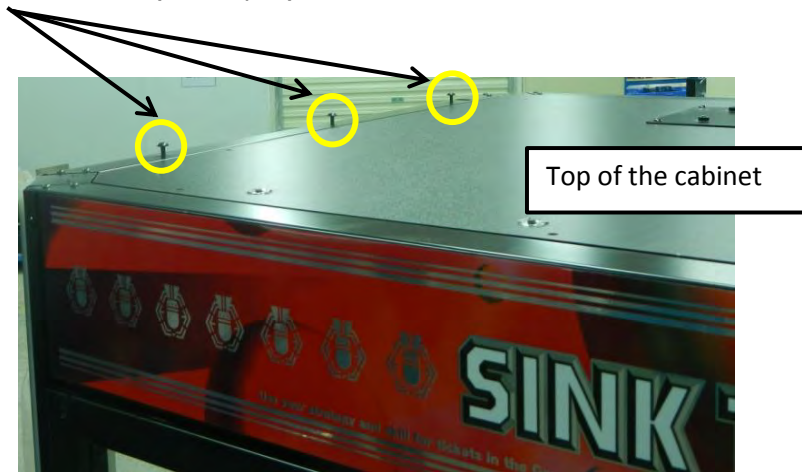
No		size		quantity
		bolt	nut	
①		M5*10	-	3

## (2) Construction of Monitor ASSY

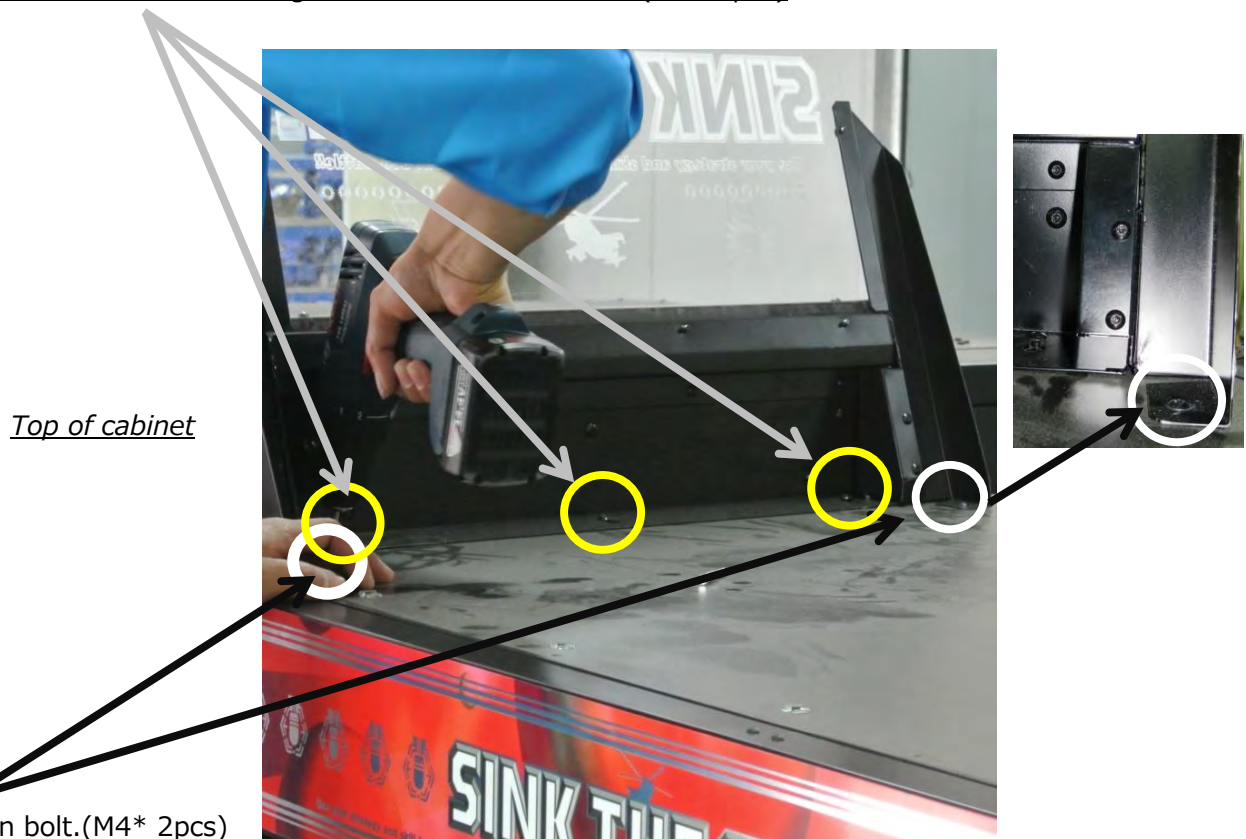
- Remove steel plate.



- Fasten the bolt to 5mm.(M5\* 3pcs)



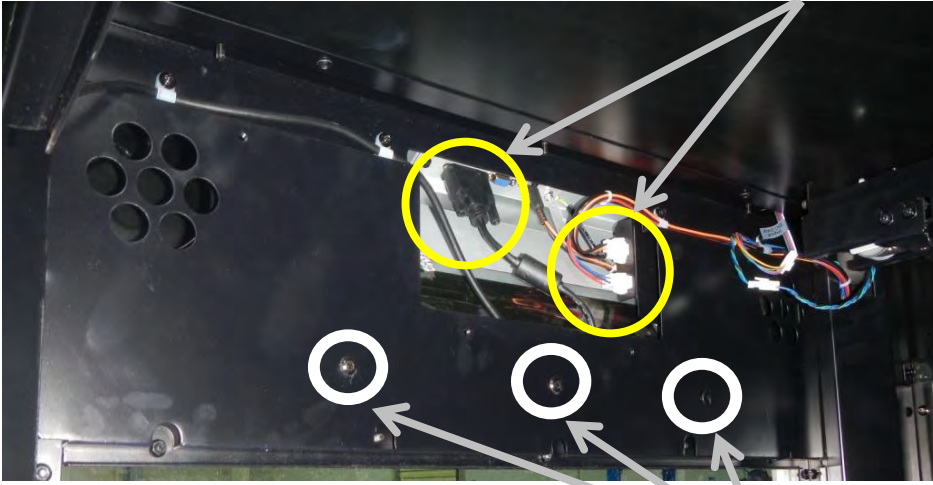
- Hook the bolt to the long hole and fasten the bolt. (M5\* 3pcs)



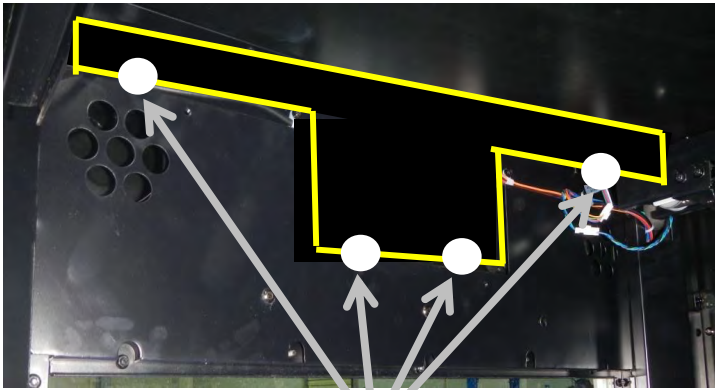
- Fasten bolt.(M4\* 2pcs)

\*Bolts are in the Signboard box.

●Connect the 3 connectors.



●Set removed steel plate.



●Fasten bolt.(M4\* 3pcs)



4bolts(M4)

**COMPLETED**



No	size		quantity
	bolt	nut	
②	M4*12	-	9
③	M5*8	-	3



## 5-4 POWER SWITCH and BALL

- Power switch

There are two power switches, one is on the back and the other is inside of the service door. Both of them need to be ON to operate the game.

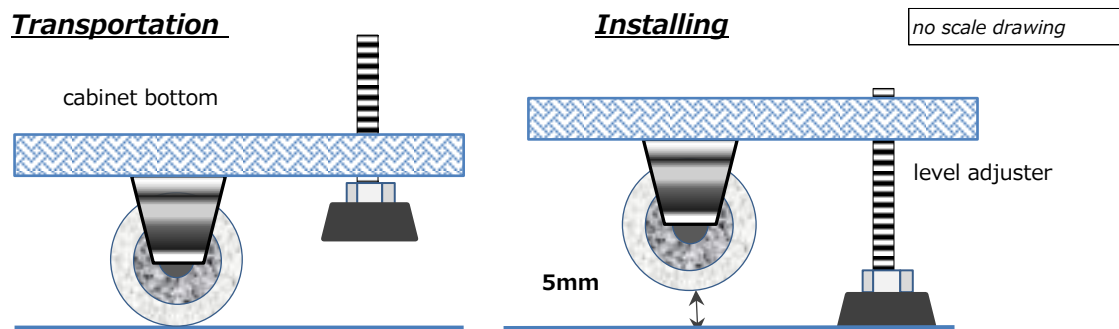
- Ball

Feed one bag of balls (260pcs) into the ball storage box.



## 5-5 ADJUSTING the LEVEL ADJUSTERS

Set the machine in the desired location and lower the Level Adjusters (two positions) so that the casters are raised from the floor by approximately 5mm (1/4"). Make sure that the machine is level and does not shake.



## 6. OPERATION



- If a player becomes sick due to light stimulation or game images, have that person stop playing the game immediately and let him/her rest.
- In rare cases, stimulation by lights or video images can cause convulsions or a loss of consciousness.
- If this happens, advise the player to consult a doctor as soon as possible.
- When pre-school children play, request their parents or guardians to keep an eye on the children.

### 6-1 HOW TO PLAY

- (1) Catch the ball from the ball pool with the helicopter by moving a joystick to the left and right.
- (2) Move the helicopter to the sea by operating a joystick.  
Aim the ship and drop the ball by pressing a button.
- (3) When the fallen ball enter the hole on the sea, you can get 1 ticket per 1 ball.  
If ball enter the hole on the ship, you can get 2 tickets per 1 ball.  
\*The numbers of tickets above can be changed.
- (4) When the ball enters the all of the holes on the ship, it is sinking.  
Number of holes on the ship is as follows.  
Destroyer : 2   Cruiser : 3   Battleship : 4  
And bonus tickets are paid out as follows.  
Destroyer : 10   Cruiser : 20   Battleship : 50  
⇒ Balls on the sunk ship will pop out.  
⇒ When the ship was sunk, all the balls on the sea will drop and collect.
- (5) When you sunk more than 3 ships at the same time, you can get bonus tickets.  
3 ships : 300   4 ships : 400   5 ships : 500   6 ships : 3,000 (MEGA BONUS)  
※The numbers of tickets above can be changed.



## 6-2 CONFIRMATION of DATA & CHANGE of SETTINGS

### ● FUNCTION KEYS

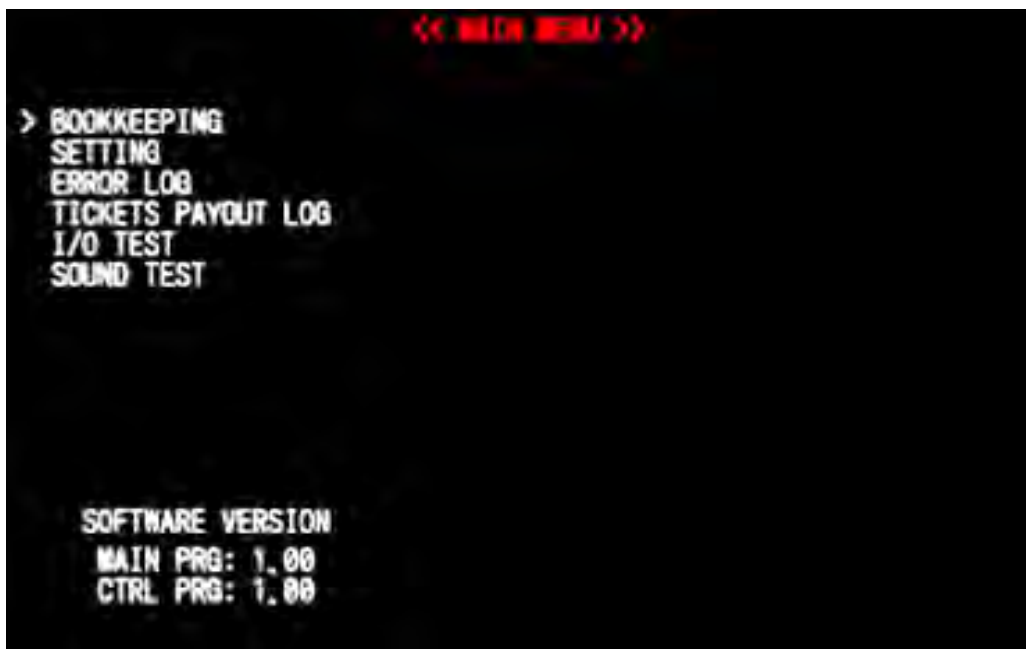


*4 service buttons*



*Game Button and Joystick*

### ● CONFIRMING and SETTING



#### (1) MENU BUTTON

BOOK KEEPING:	Confirmation of game info
SETTING:	Change of settings
ERROR LOG:	Records of errors
TICKET PAY-OUT LOG:	Record of ticket payout
I/O TEST:	Test of all settings
SOUND TEST:	Test of all sounds
SOFTWARE VERSION:	Version of software

**(2) BOOKKEEPING MENU**

---

GAME COUNT:	Total number of games played. It will be updated when it is game over.
CREDIT COUNT:	Total number of credits. (SERVICE is not counted)
TICKET PAY-OUT:	Total number of tickets payout.
TICKET/CREDIT:	Average number of ticket payout per credit.
TICKET/GAMES:	Average number of ticket payout per game.
AVE.GAME TIME:	Average time per game. It will be updated when it is game over.
FIELD HIT COUNT:	Total number of entered balls on the sea hole.
SHIP HIT COUNT:	Total number of entered balls on the ship hole.
SHIP2 ATTACK COUNT:	Total number of ship 2 attack count.
SHIP3 ATTACK COUNT:	Total number of ship 3 attack count.
SHIP4 ATTACK COUNT:	Total number of ship 4 attack count.
SUPER BONUS2 COUNT:	Total number of sunk 2 ships at the same time.
SUPER BONUS3 COUNT:	Total number of sunk 3 ships at the same time.
SUPER BONUS4 COUNT:	Total number of sunk 4 ships at the same time.
SUPER BONUS5 COUNT:	Total number of sunk 5 ships at the same time.
MEGA BONUS5 COUNT:	Total number of sunk 6 ships at the same time.
MEGA BONUS CHANCE:	Total chance number of MEGA BONUS.
HIT COUNT MAP:	Number of entered ball into each hole.

---

<< BOOK KEEPING >>

GAME COUNT:	89	
CREDIT COUNT:	0	HIT COUNT MAP
TICKETS PAYOUT:	5218	6 6 8 12 11 4 13 6
TICKETS/CREDITS:	0.0	7 19 40 12 44 19 45 2
TICKETS/GAMES:	58.6	8 7 6 11 6 10 9 10
AVE. GAME TIME:	0m 25s	15 7 5 17 24 56 55 6
FIELD HIT COUNT:	332	9 51 6 6 9 10 5 11
SHIP HIT COUNT:	378	11 10 7 25 58 9 22 11
SHIP2 ATTACK COUNT:	29	8 44 5 6 7 7 59 10
SHIP3 ATTACK COUNT:	23	10 4 10 6 5 2 9 9
SHIP4 ATTACK COUNT:	5	
SUPER BONUS2 COUNT:	0	
SUPER BONUS3 COUNT:	12	
SUPER BONUS4 COUNT:	2	
SUPER BONUS5 COUNT:	0	
MEGA BONUS COUNT:	0	
MEGA BONUS CHANCE:	9	

**(3) SETTING**

**List of initial Set Data and Mode Type**

Item	Type	Note
① MERCY TICKETS	0	
	1 pc	
	2 pcs	
	3 pcs	
	4 pcs	
	5 pcs	
② MODE SWITCHING	normal	
	free play	*1)
③ COIN SET MODE		display shows
	1coin /2credits	insert coins
	1coin /1credit	insert coins
	2coins/1credit	insert coins1/2~2/2
	3coins/1credit	insert coins1/3~3/3
	4coins/1credit	insert coins1/4~4/4
④ FIELD PAY OUT MODE	A 0 ticket	
	B 0.5 ticket	
	C 1 ticket	
	D 2 tickets	
⑤ SHIP PAY-OUT MODE	A 0.5 ticket	
	B 1 ticket	
	C 2 tickets	
	D 3 tickets	
⑥ SUPER BONUS PAY OUT MODE		3ships 4ships 5ships
	A	100 150 250
	B	300 400 500
	C	400 600 800
⑦ MEGA BONUS PAY OUT MODE	A 250tickets	
	B 1000tickets	
	C 3000tickets	
	D 5000tickets	
⑧ RELEASE Z HEIGHT refer to the (9)Average PAY OUT	High+	
	High	
	Mid	
	Low	
	Low-	
⑨ PAY-OUT AUTO ADJUST	ON	*2)
	OFF	
⑩ BGM	ON	attract
	OFF	
⑪ TICKET OUTPUT	Normal	
	Half	
⑫ TICKET COUNT DISPLAY	ON	
	OFF	
⑬ BOOKKEEPING [INIT]	pass word "1342"	
⑭ HIT COUNT MAP[INIT]		

note \*1)

free play: without coin

note \*2)

automatically changed release-balls height, depend on pay out information



**(5) ERROR LOG**



**ERROR LOG LIST**

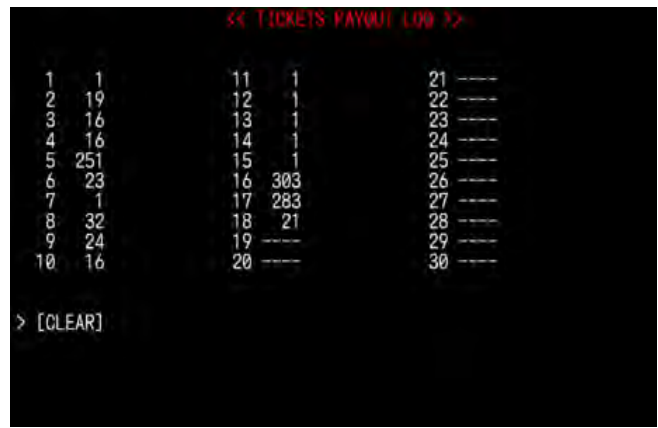
No	Display	Cause	Restoring
1	I/O BOARD	signal stop Main I/O~Raspberry	confirm power supply and USB cable connection
2	HELI-X SENSOR	work both sensors at once	confirm sensor work and something blinded
3	HELI-Y SENSOR	work both sensors at once	confirm sensor work and something blinded
4	HELI-Z SENSOR	work both sensors at once	confirm sensor work and something blinded
5	BUCKET SENSOR	work both sensors at once	confirm sensor work and something blinded
6	TICKET VENDOR	no signal or error signal	confirm ticket dispenser
7	BATTERY	empty of DC cell	change new DC cell on Main I/O
8	LIFT SENSOR	work both sensors at once	confirm sensor work and something blinded
9	BACKUP BROKEN	broken back up data	cause: a)re-write data b)dead SD card c)Main I/O
10	TICKET JAM	tickets tape jam	eliminate and reset
11	TICKET EMPTY	ticket empty	feed ticket tape
12	COIN ACCEPTOR1 JAM	coins jam in selector 1	eliminate coins
13	COIN ACCEPTOR2 JAM	coins jam in selector 2	eliminate coins
14	UNIT PLAYFIELD1	no signal from LED PCB-1	confirm harness, power supply or signal
15	UNIT PLAYFIELD2	no signal from LED PCB-2	confirm harness, power supply or signal
16	UNIT PLAYFIELD3	no signal from LED PCB-3	confirm harness, power supply or signal
17	UNIT PLAYFIELD4	no signal from LED PCB-4	confirm harness, power supply or signal
18	UNIT HELI-X	signal stop Main I/O ~ X-axis PCB	confirm harness, power supply or signal
19	UNIT HELI-Y	signal stop Main I/O ~ Y-axis PCB	confirm harness, power supply or signal
20	UNIT BUCKET	signal stop Main I/O ~ Bucket PCB	confirm harness, power supply or signal
21	UNIT HELI-Z	signal stop Main I/O ~ Z-axis PCB	confirm harness, power supply or signal
22	UNIT LAUNCHER	signal stop Main I/O ~ Launcher PCB	confirm harness, power supply or signal
23	UNIT IC-LED	signal stop Main I/O~LED-PCB	confirm harness, power supply or signal
24	HELI-X CURRENT LIMIT	over load of X- motor	confirm motor work and something blinded
25	HELI-X SHORT	short pass of wires to X- motor	confirm wiring
26	HELI-Y CURRENT LIMIT	over load of Y-motor	confirm motor work and something blinded
27	HELI-Y SHORT	short pass of wires to Y-motor	confirm wiring
28	BUCKET CURRENT LIMIT	over load of bucket motor	confirm motor work and something blinded
29	HELI-Z CURRENT LIMIT	over load of Z-motor	confirm motor work and something blinded
30	PLATE CURRENT LIMIT	over load of playfield motor	confirm motor work and something blinded
31	LIFT LOCK	ball lifter abnormally stopped	confirm motor, sensor and wire rope work
32	HELI-X TIMEOUT	sensor does not work	confirm motor, sensor and wheel work
33	HELI-Y TIMEOUT	sensor does not work	confirm motor, sensor and wheel work
34	HELI-Z TIMEOUT	sensor does not work	confirm motor, sensor and wire rope work
35	BUCKET TIMEOUT	sensor does not work	confirm motor, sensor and spring coil work
36	PLATE TIMEOUT	sensor does not work	confirm motor, sensor and wheel work

### (6) TICKET PAY OUT LOG

Maximum last 30 dispensed ticket quantity are displayed in "TICKET PAY OUT LOG".

The ticket number of the last game is in column #1.

The oldest number is in column #30. These numbers move up after game finished.



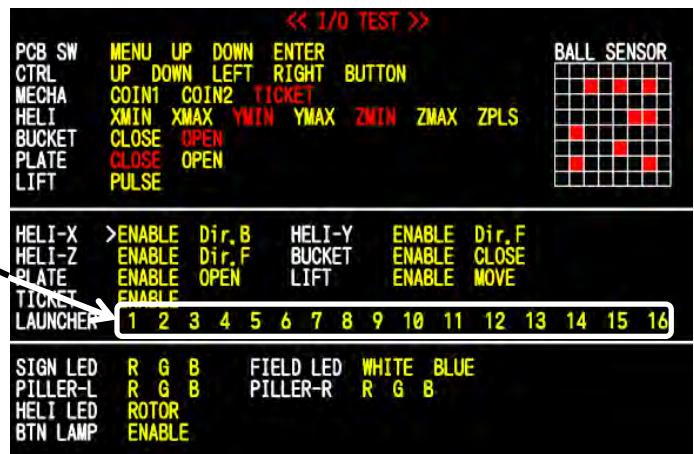
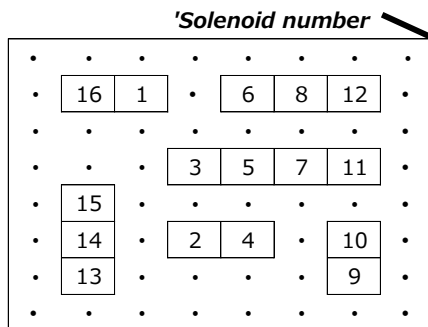
### (7) I/O TEST

As shown on LCD in "I/O TEST" mode, 3 zone show as follows;

Top zone:	mechanical and signal status
Middle zone:	①status of PCB ②control PCB LAUNCHER number equals to solenoid number Position is indicate below.
Bottom zone:	①status of LED ②change LED color 'R G B' means red, green, blue.

#### Letter color sign as bellow.

white	title of items
red	signal-on, action-on
yellow	signal-off, action-off (not confirmed)
green	signal-off, action-off (confirmed)

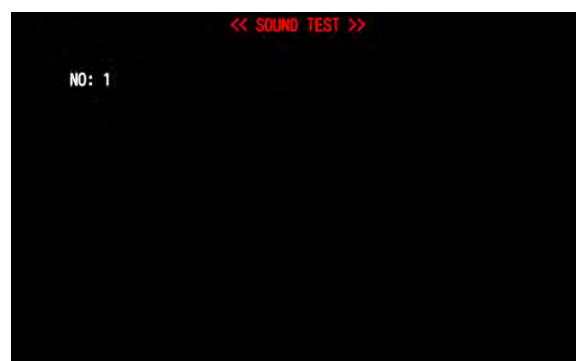


- Inspection of helicopter drive is surely tried in a limited area by over the ball storage.
- If the test will be done over the field board, make a clearance between the field board and wing-tops of the bucket ASSY.

### (8) SOUND TEST

SOUND TEST displays attract numbers of programed sound. An operator could confirm each sound by changes displayed number.

Also, an operator could adjust each sound volume with service buttons of UP or DOWN.



### (9) Average PAY OUT

An average PAY OUT is expected about 20 points/game.

(described in 6-2-(3) )

A small adjusting of an average PAY OUT is able to change few items in "SETTING".

Below table is one example.

The numbers refer to page 20.		⑧	④	⑤	⑥	
	Estimated value	RELEASE Z HEIGHT	FIELD PAY OUT mode	BATTLE SHIP PAY OUT	SUPER BONUS PAY OUT	
1	10 ticket/game	A	A	A	A	
2	15 ticket/game	B	B	B	B	
3	20 ticket/game	C	C	C	B	<b>DEFAULT</b>
4	25 ticket/game	D	C	C	B	
5	30 ticket/game	E	C	C	C	
6	40 ticket/game	E	D	D	C	

## 7. MAINTENANCE

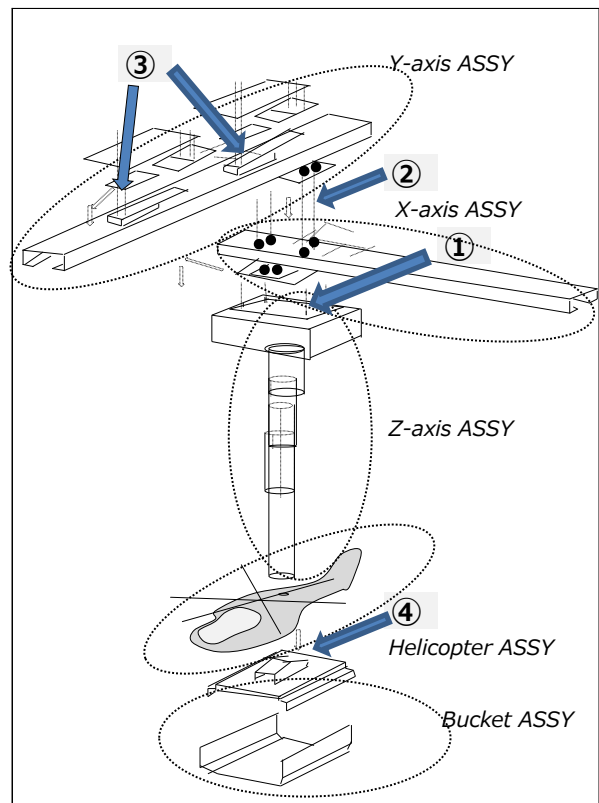
### Separation of X-axis, Y-axis, Z-axis, Helicopter and Bucket ASSYs



- Helicopter drive ASSY are co-operated together. Therefore, repairing of parts on these ASSYs, must be previously separated to each ASSY.

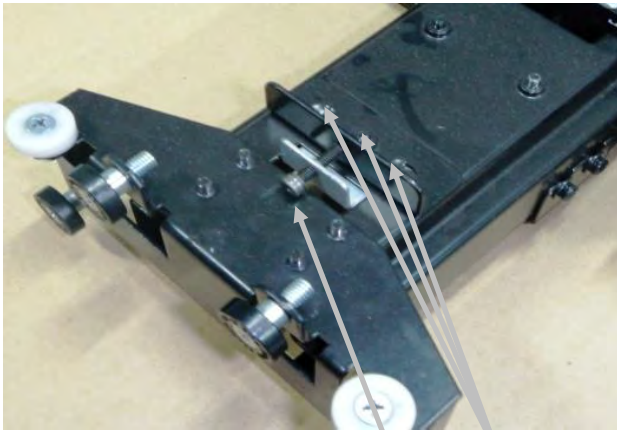
Separation steps are summarized as below.  
A right figure shows separate positions of each step.

- ① separate Z-axis ASSY with Helicopter ASSY and Bucket ASSY.  
This step is common work for all ASSYs.  
The center wheel base of the X-axis ASSY hangs the Z-axis ASSY.
- ② The left wheel base of the Y-axis ASSY hangs the X-axis ASSY. Also, the sub rail of the Y-axis ASSY support the right wheel base of the X-axis ASSY.
- ③ The Y-axis ASSY is hanged at 2 position of cabinet roof with steel plate.
- ④ The Z-axis ASSY, the Helicopter ASSY and the Bucket ASSY are connected at a top cover of the Bucket ASSY.



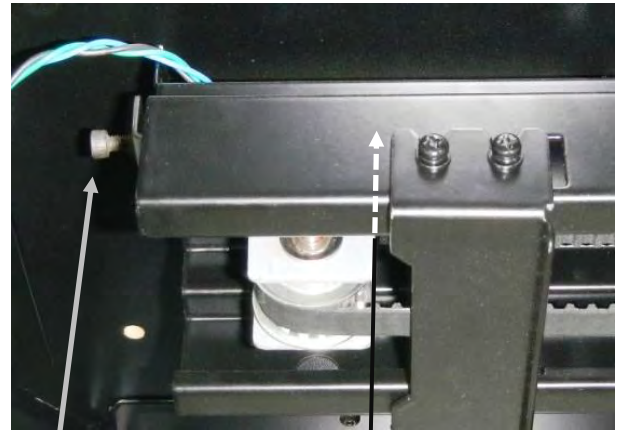


### Adjusting tension of gear belt



X-axis ASSY

A B



Y-axis ASSY

A B



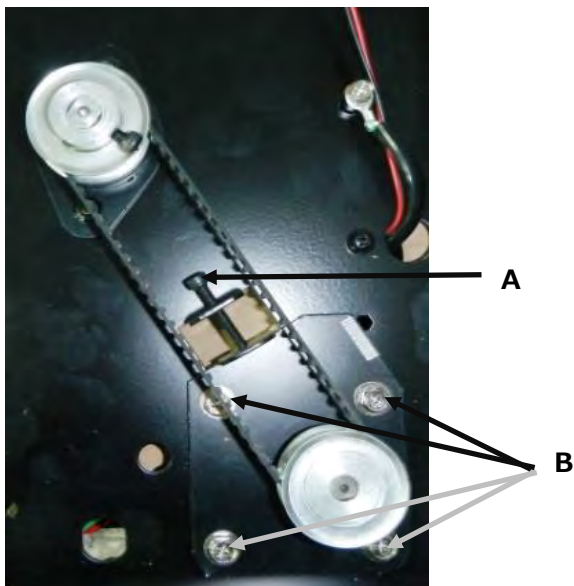
**WARNING**

• Before you work you need to always turn off the power switch.

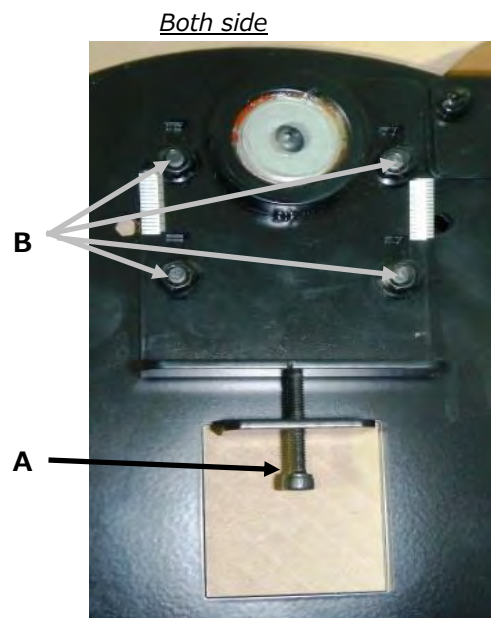
3 assys with the same method

1. Loosen the bolt or nut.
2. Adjust the tension.
3. Press with your fingers, make sure the tension.

**A** : Adjuster bolt  
**B** : Lock bolt or nut



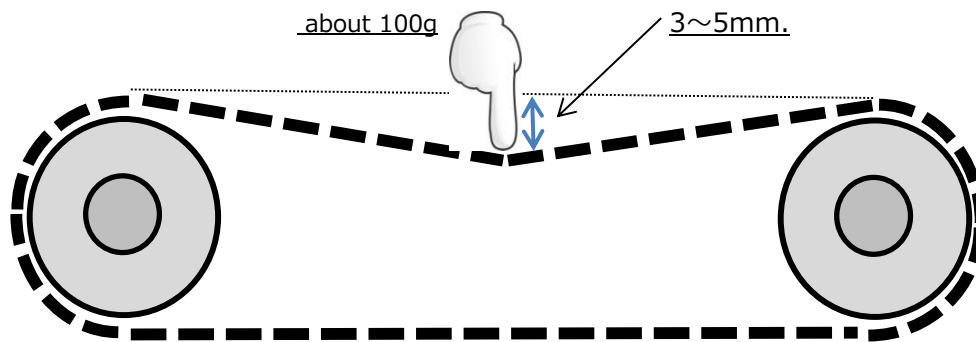
Ball Lifter ASSY. Main shaft



Ball Lifter ASSY. Sub shaft

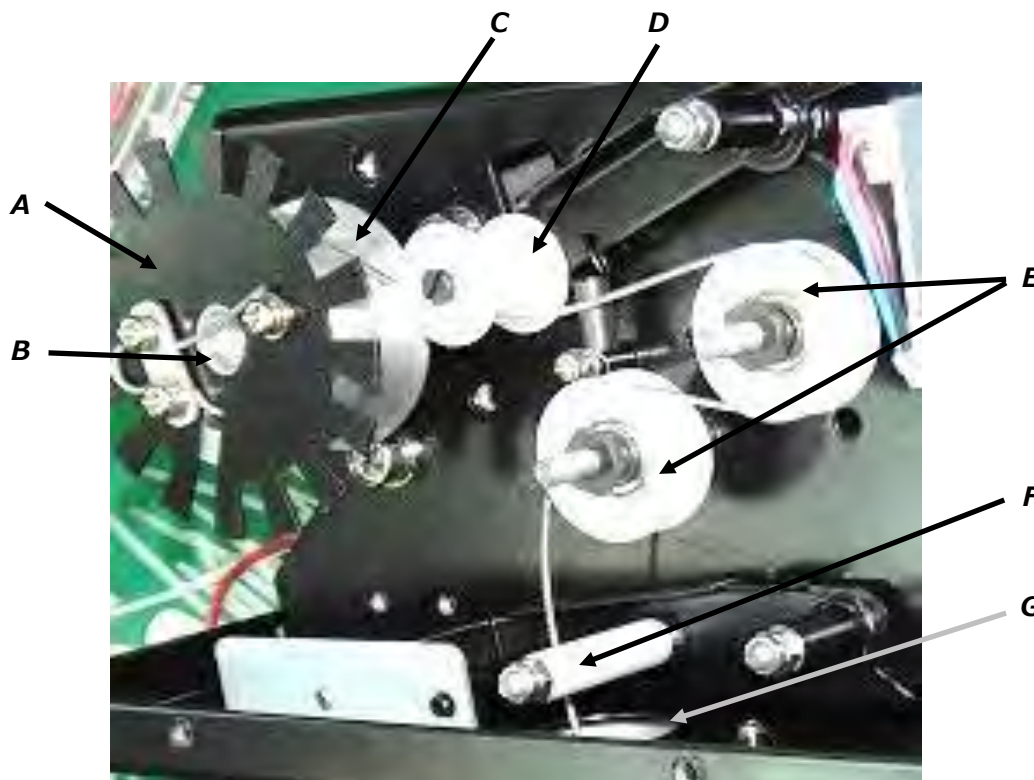
### Adjusting tension

Press center of gear belt by about 100g of force.  
Recommended bend of belt is 3~5mm.



### Re-arrange of wire rope

Roping route is from "A" to "G"



## 8. DISCARDING the MACHINE



- The machine must be collected, transported and discarded in accordance with the local laws and regulations.
- When entrusting a third party to collect, transport and discard the machine, be sure to select specialist companies .
- Dispose of used lithium batteries in accordance with local laws and regulations.
- Before disposing of lithium batteries, place pieces of electrical insulation tape over both the positive and negative electrodes. If the electrodes of the battery contact a metal object, a fire or explosion may result.

## 9. PART LIST

### 9-1 CONSIST of ASSYS and parts

Typical part are classified with 13 of ASSYs as shown in below table.

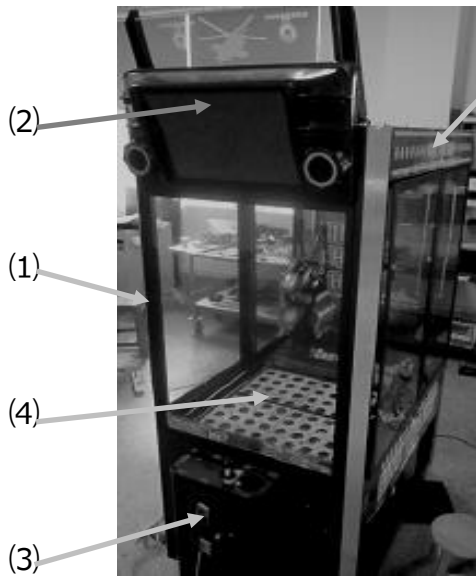
#### ASSY and parts list

(1) Cabinet ASSY
(2) Monitor ASSY
(3) Control Panel ASSY
(4) Playfield ASSY
(5) X-axis ASSY

(6) Y-axis ASSY
(7) Z-axis ASSY
(8) Bucket ASSY
(9) Helicopter ASSY
(10) Ball Lifter ASSY

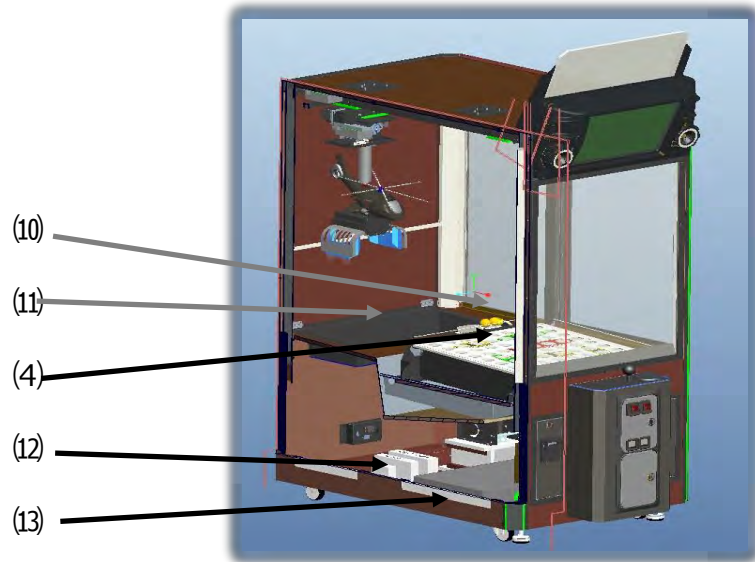
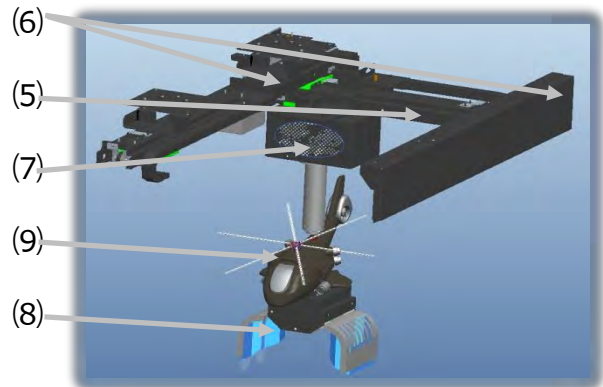
(11) Ball Collector ASSY
(12) Power Supply ASSY
(13) PCB ASSY
(14) Print Sheet
(15) Attachment

#### Player's View of Machine



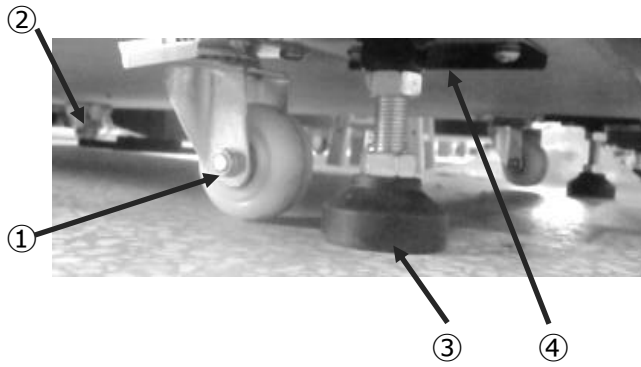
(14)

#### Driven ASSY



## 9-2 ASSY PART LIST

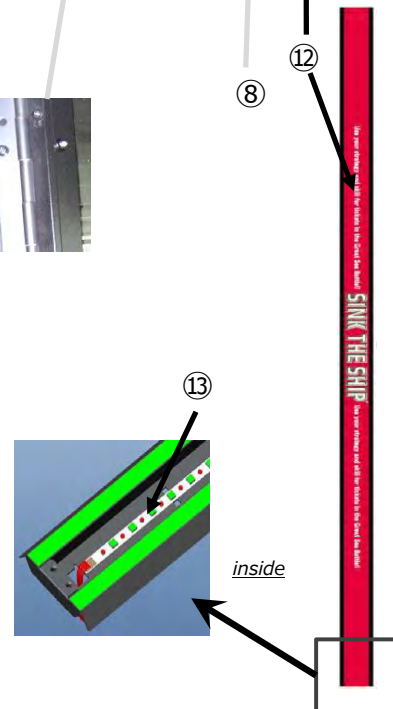
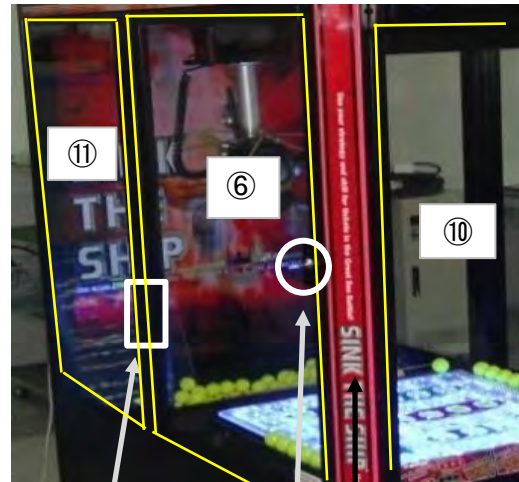
### (1) Cabinet ASSY



*cabinet back side*

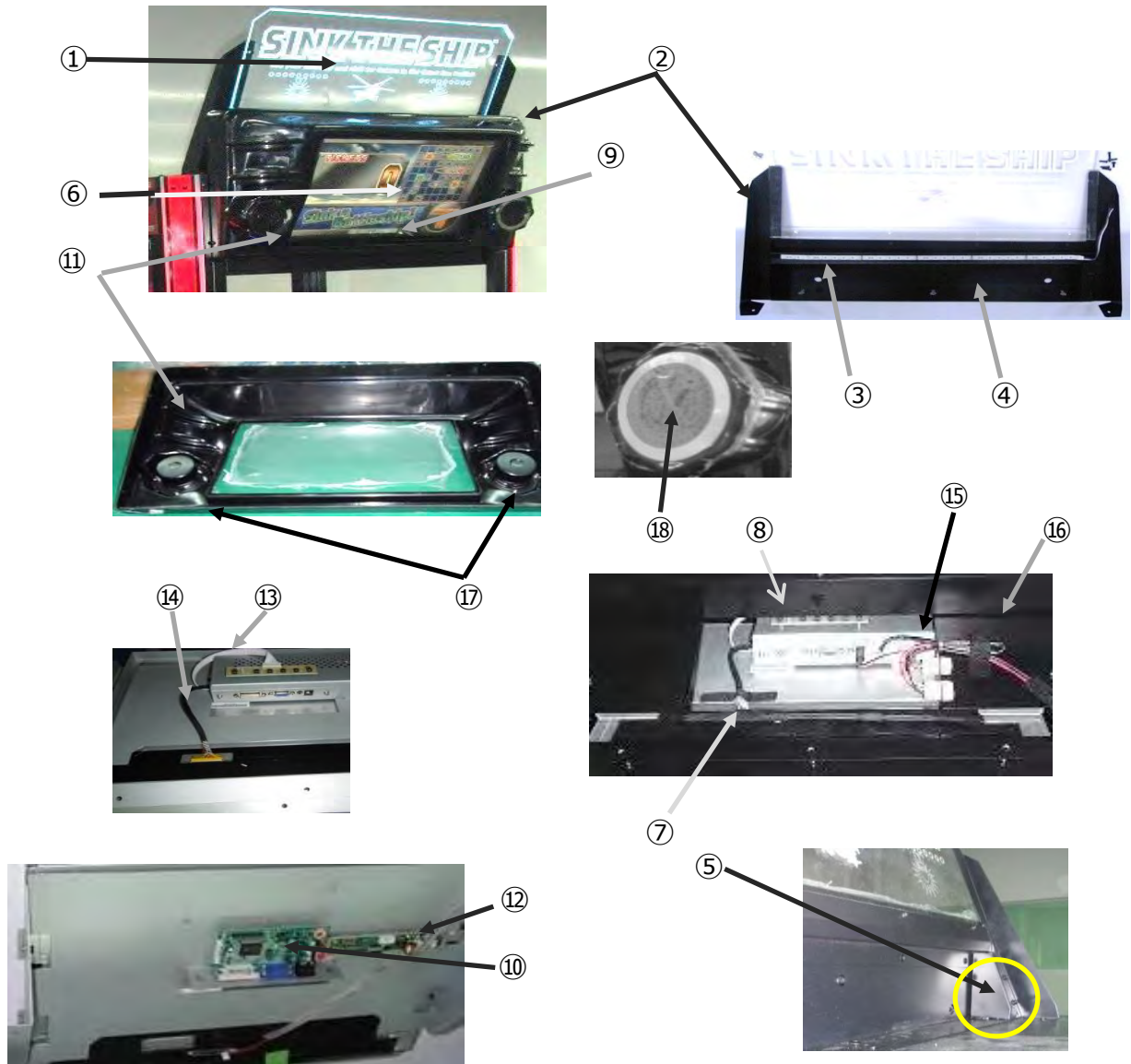


*cabinet front, without monitor*



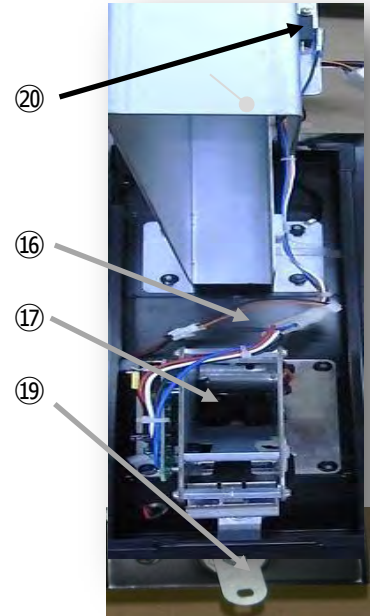
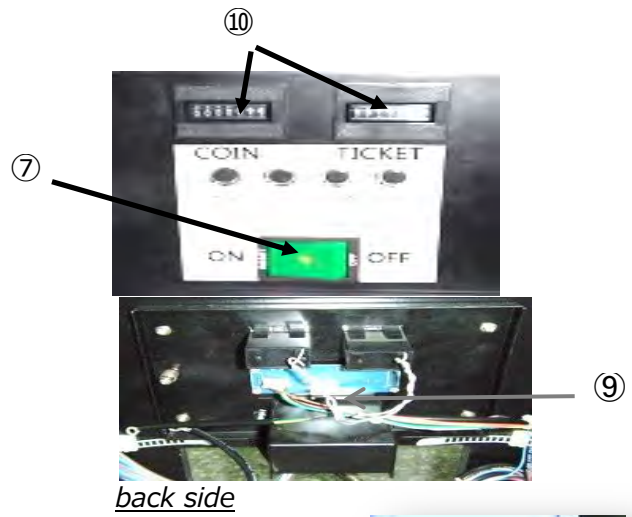
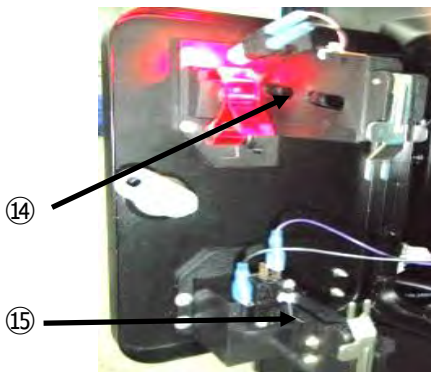
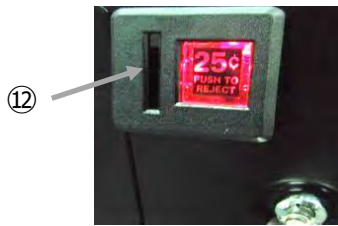
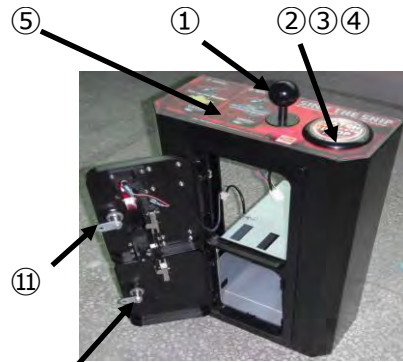
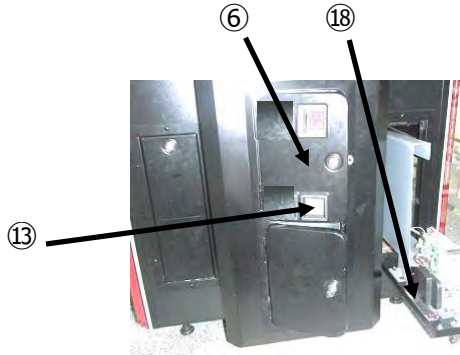
No	Part Name	Qty	Model	BNG No
①	rotate caster	2	3303541, 1001 1-T1-NM	311001
②	un-rotate caster	2	3303542, 1003 8-T1-NM	311002
③	level adjuster	2	M16 x 90	311003
④	adjuster base	2	N001090229A	steel 311004
⑤	monitor bracket	1	N001090216A	steel 311005
⑥	door plate	2	N001110401A,5t	acryl 311006
⑦	side door hinge	2	N001110202A	steel 311007
⑧	side door lock and key, set	2	1002-23	311008
⑨	back lid lock and key, set	1	1002-23	311009
⑩	window plate, front	1	N001140401,5t	acryl 311010
⑪	window plate, side	2	N001120401,5t	acryl 311011
⑫	scattering plate	2	N001050407, design printed, 6t	acryl 311012
⑬	IC-LED tape	2	1700×10,WF-FTOPW-50010-1550FC-RX5V	311013

**(2) Monitor ASSY**



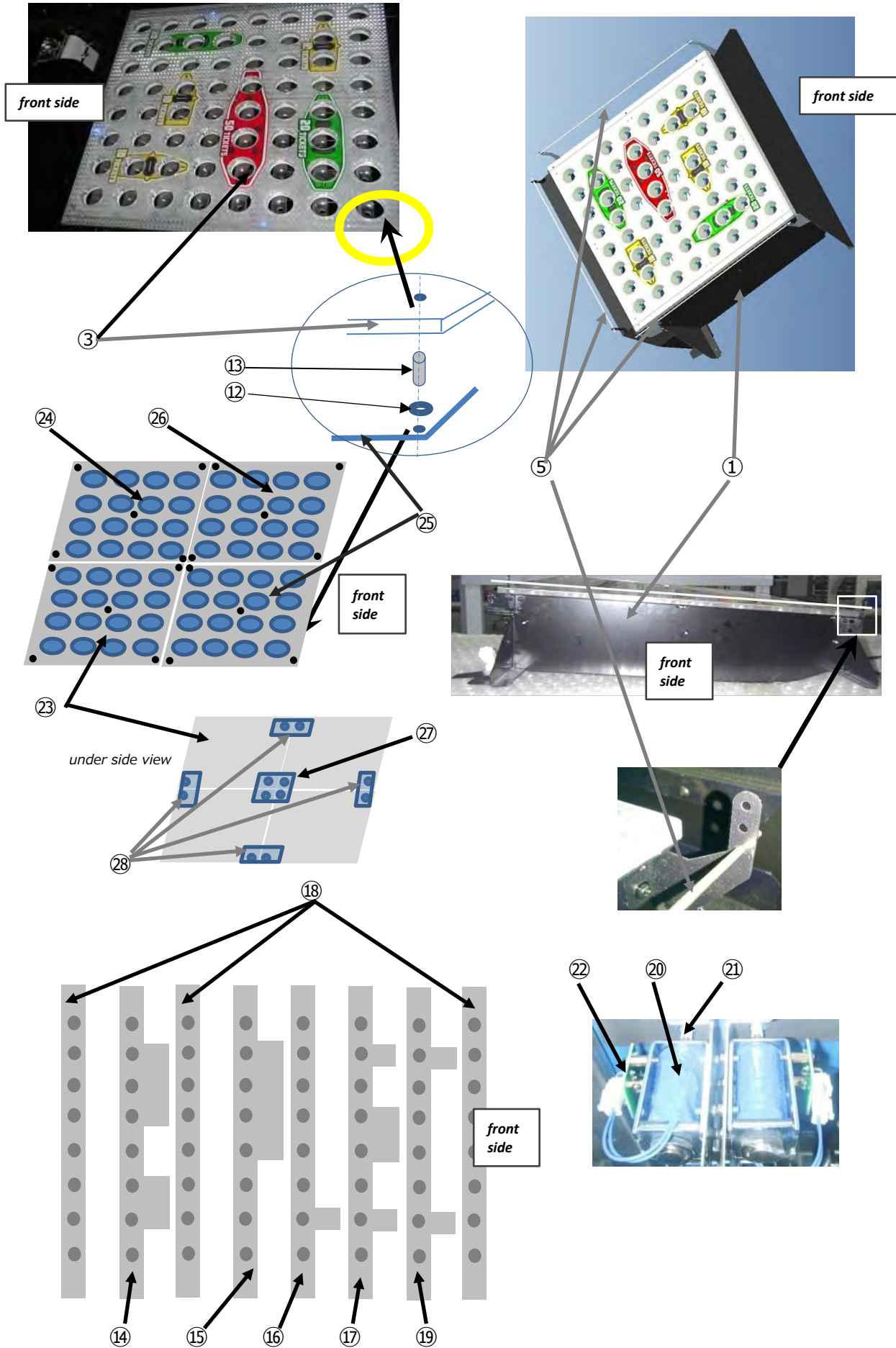
No	Part Name	Qty	Model		BNG No
①	signboard plate	1	N001090401A, design graved, 8t	acryl	311014
②	main bracket	1	N00190220A	steel	311015
③	LED tape	1	550×10,WF-FTOPW-50010-3050FC-24V		311016
④	LED holder	1	N001090241	steel	311017
⑤	wire cover	1	N001090239A	steel	311018
⑥	LCD display	1	M190PW01 V8		311019
⑦	LCD drive PCB	1	TOP-TECH RTD2261V1.0		311020
⑧	backlight LED plate	1	LED-18U01 V3.0		311021
⑨	glass plate	1	N001090501, strengthen 5t	glass	311022
⑩	LED controller	5	2261V-1.0-C M190PW01 V8		311024
⑪	decoration plate	1	N001090901, designed vacuum forming	ABS	311025
⑫	LCD cable	1	HDMI-DVI		311026
⑬	switch cable	1	USM AM mini		311027
⑭	back light cable	1	LED-18001 V2.0		311028
⑮	stereo cable	1	6-6cable		311029
⑯	LCD back cover	1	N001130216A	steel	311030
⑰	speaker	2	3inch 8Ω15W		311031
⑱	speaker decoration	2	N001090299	SUS	311032

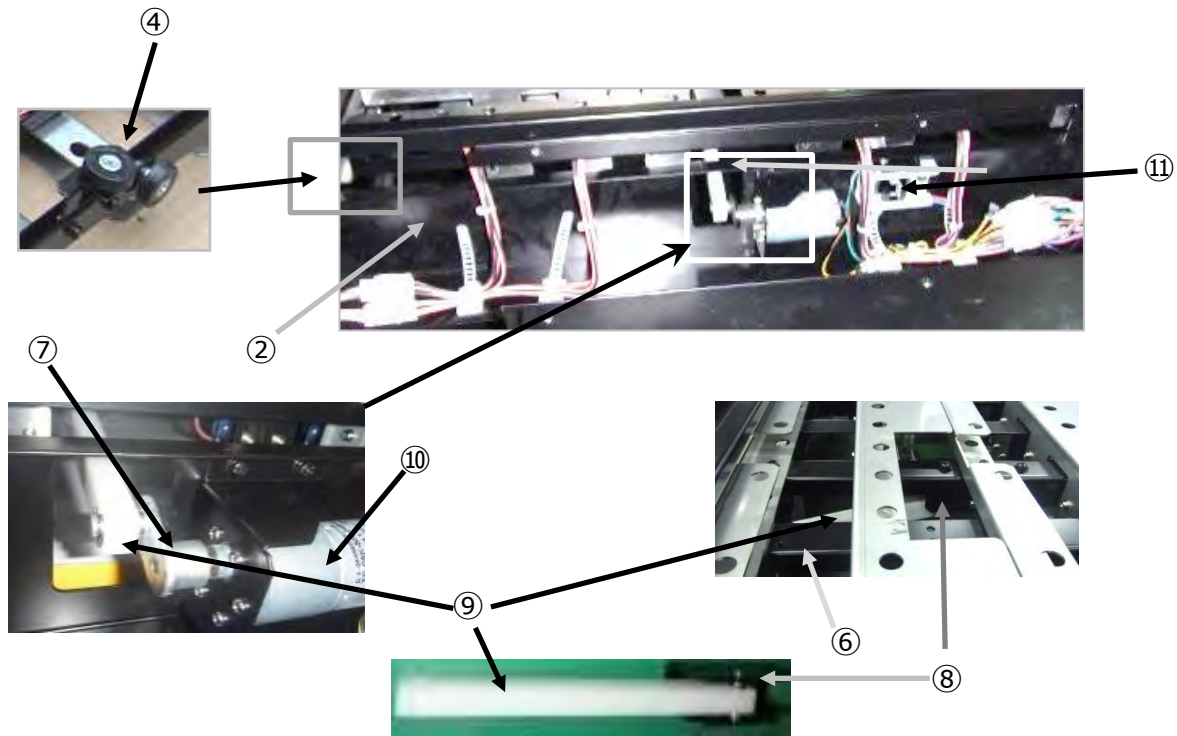
**(3) Control Panel ASSY**



No	Part Name	Qty	Model	BNG No
①	Joystick	1	JS-EPC-SO-45-CBK-CBK	311033
②	game button	1	BL-BK-H-CW-D 100 od	311034
③	button LED	1	T10 1-chip LED white	311035
④	button micro-switch	1	BLC MICRO SWITCH	311036
⑤	control panel sticker	1	N001030404	PVC 311037
⑥	coin door	1	N001090272	steel 311038
⑦	power switch	1	SS-005, 4A, green	311039
⑧	coin box lock and key, set	1	1001-23	311040
⑨	service button plate	1	CT001	311041
⑩	counter	2	7 figure, OA-127CL- 12VDC	311042
⑪	service door lock and key, set	1	1002-23	311009
⑫	inlet spacer	1	market	steel 311043
⑬	coin outlet gate	1	N001090276	SUS 311044
⑭	coin inlet unit	1	market, API-TB-1015-x2	311045
⑮	coin outlet unit	1	market, API-TB-1015-x2	311045
⑯	ticket dispenser	1	TD-963CR	720319
⑰	LED light	1	8mm LED red	311047
⑱	ticket door	1	N001090271A-N001090272A	steel 311048
⑲	ticket door lock	1	1002-23	311009
⑳	micro-switch	1	VM-05B-03D0-Z	311049

### (4) Playfield ASSY

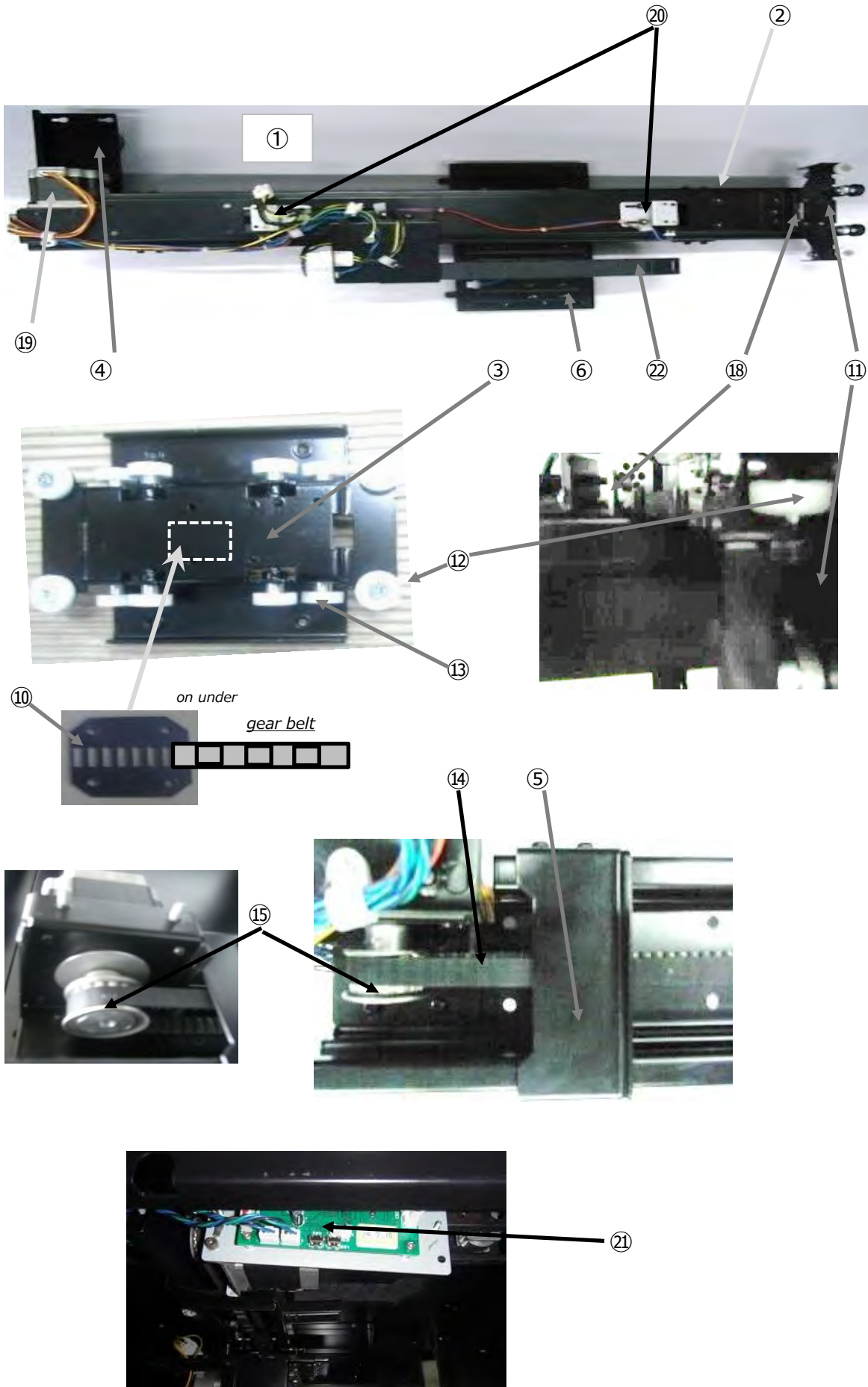


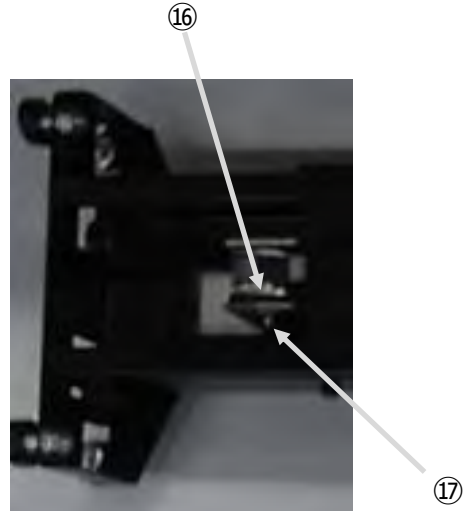
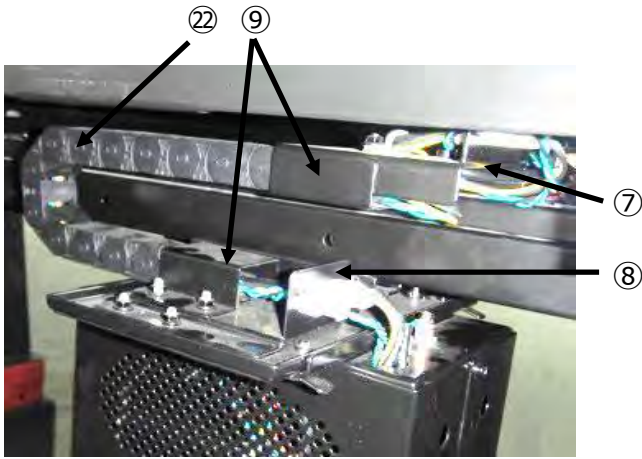


No	Part Name	Qty	Model		BNG No
①	main flame	1	N001130209	steel	311050
②	drive unit base	4	N001130215	steel	311051
③	field board with patterned film	1	N001130401, 10*567*597, 64hall	acryl	311052
④	wheel	8	22-C3M6L8		311053
⑤	ball stopper rod	3	N001130222, 1φ	SUS	311054
⑥	slide flame	1	N001130201	steel	311055
⑦	crank	1	N001130302	#45	311064
⑧	crank arm base	1	N001130212	steel	311065
⑨	crank arm	1	N001130303	POM	311066
⑩	DC motor	1	TG-05X-SR-249-CHA, DC24V		311068
⑪	IR sensor	2	Ki1303 AALF		308543
⑫	PC ring	20	N001130481	POM	311074
⑬	LED plate hunger	20	N001130399, hexagonal, M3*12 long nut	brass	311076
⑭	solenoid base 2	1	N001130204	sus	311056
⑮	solenoid base 6	1	N001130207	sus	311057
⑯	solenoid base 5	1	N001130206	sus	311058
⑰	solenoid base 4	1	N001130205	sus	311059
⑱	solenoid base 3, dummy	3	N001130203	sus	311060
⑲	solenoid base 1	1	N001130202	sus	311061
⑳	solenoid	16	AU1253S-48A15 #1~#16		311062
㉑	top tip	16		POM	311063
㉒	solenoid diode PCBA	16	S2-01		311067
㉓	playfield LED PCBA-1	1	B2-082-2-01		311069
㉔	playfield LED PCBA-2	1	B2-082-2-02		311070
㉕	playfield LED PCBA-3	1	B2-082-2-03		311071
㉖	playfield LED PCBA-4	1	B2-082-2-04		311072
㉗	plate connector, center	1	N001130218	steel	311073
㉘	plate connector, side	4	N001130219	steel	311075



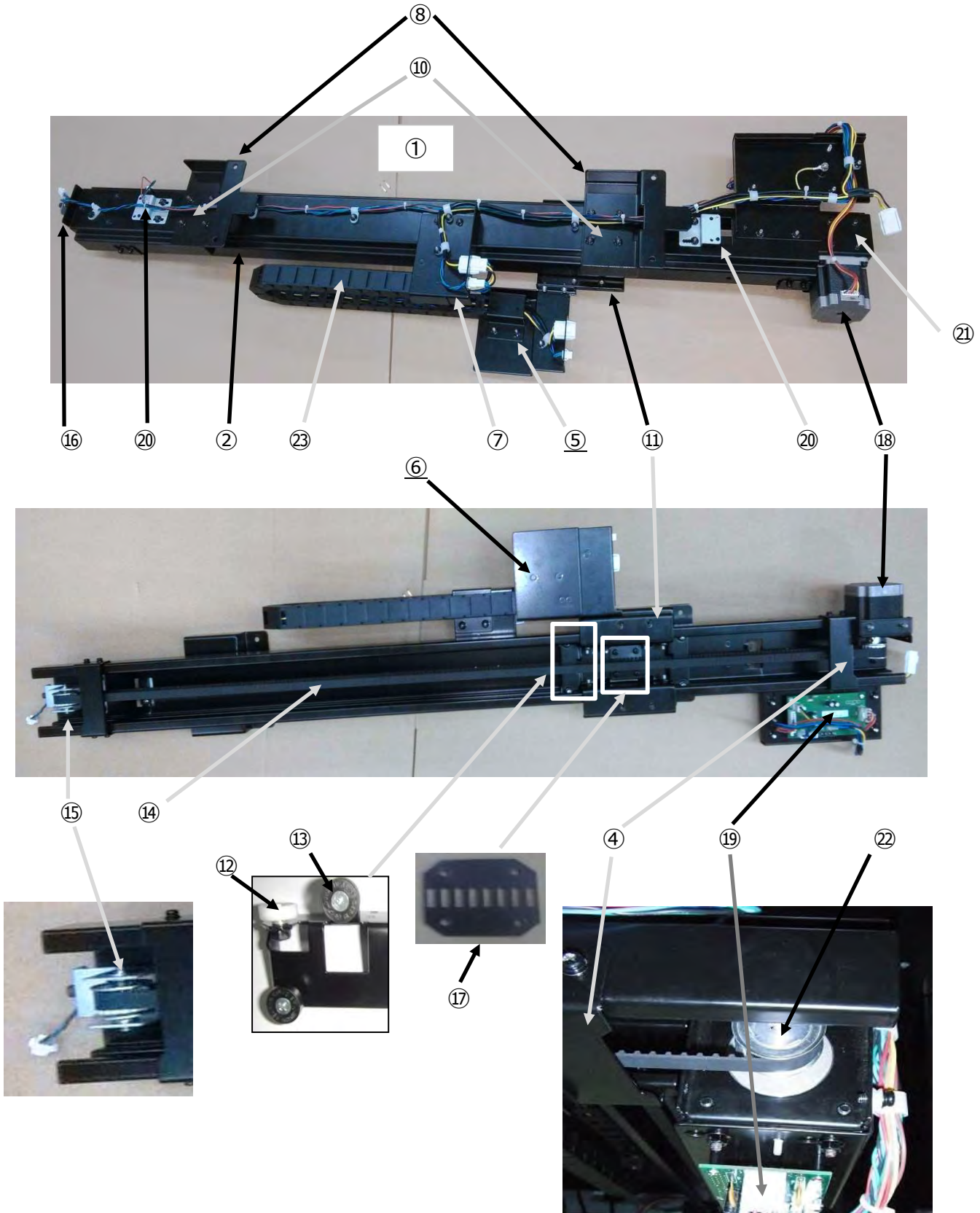
**(5) X-axis ASSY**

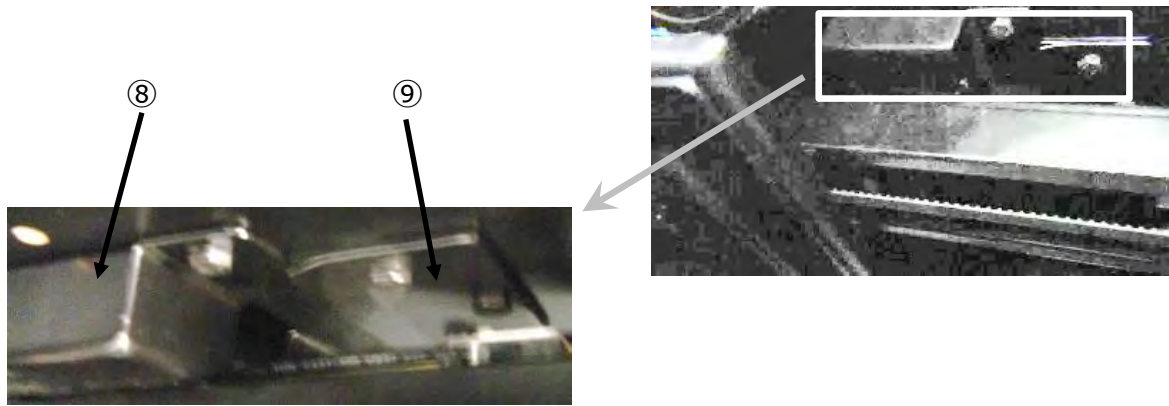
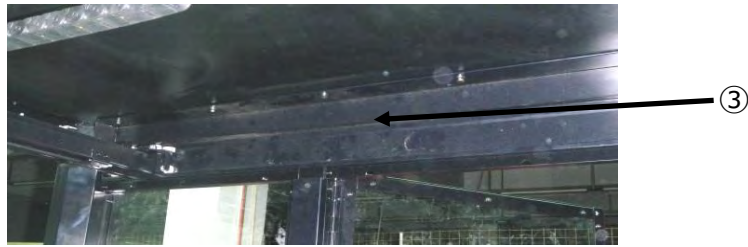




No	Part Name	Qty	Model	BNG No
①	X-axis ASSY component	1	N001040002B	311077
②	rail	1	N001040220C	steel 311078
③	wheel base, center	1	N001040221B	steel 311079
④	motor base	1	N001040202C	steel 311080
⑤	width keeper	2	N001040217	steel 311081
⑥	Z-axis unit hunger	1	N001040224C	steel 311082
⑦	harness guide base, upper	1	N001040225B	steel 311083
⑧	harness guide base, lower	1	N001040226A	steel 311084
⑨	harness guide fastener	2	N001040212B	steel 311085
⑩	gear belt fastener	1	N001040204B	steel 311086
⑪	wheel base, right	1	N001040222C	steel 311087
⑫	wheel	8	19-C3L8	311088
⑬	wheel	12	19-C5L10	311089
⑭	gear belt	1	484XL-037	311090
⑮	motor gear pulley	1	N001040302	#45 311091
⑯	drive gear pulley	1	N001040301	#45 311092
⑰	bearing	2	F695ZZ D13*d5*H4	311093
⑱	belt adjuster	1	M6*20, hexa.pit nut	steel 311094
⑲	stepping motor	1	SS2302A10A	311095
⑳	IR sensor	2	KI1303-AALF	308543
㉑	X-axis PCB	1	B2-083A-01	311097
㉒	harness guide	1	15+2APtrailchain15*15ar-28Y	PVC 311098

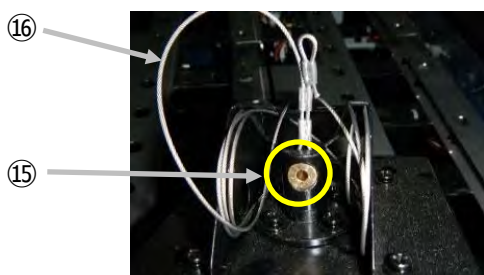
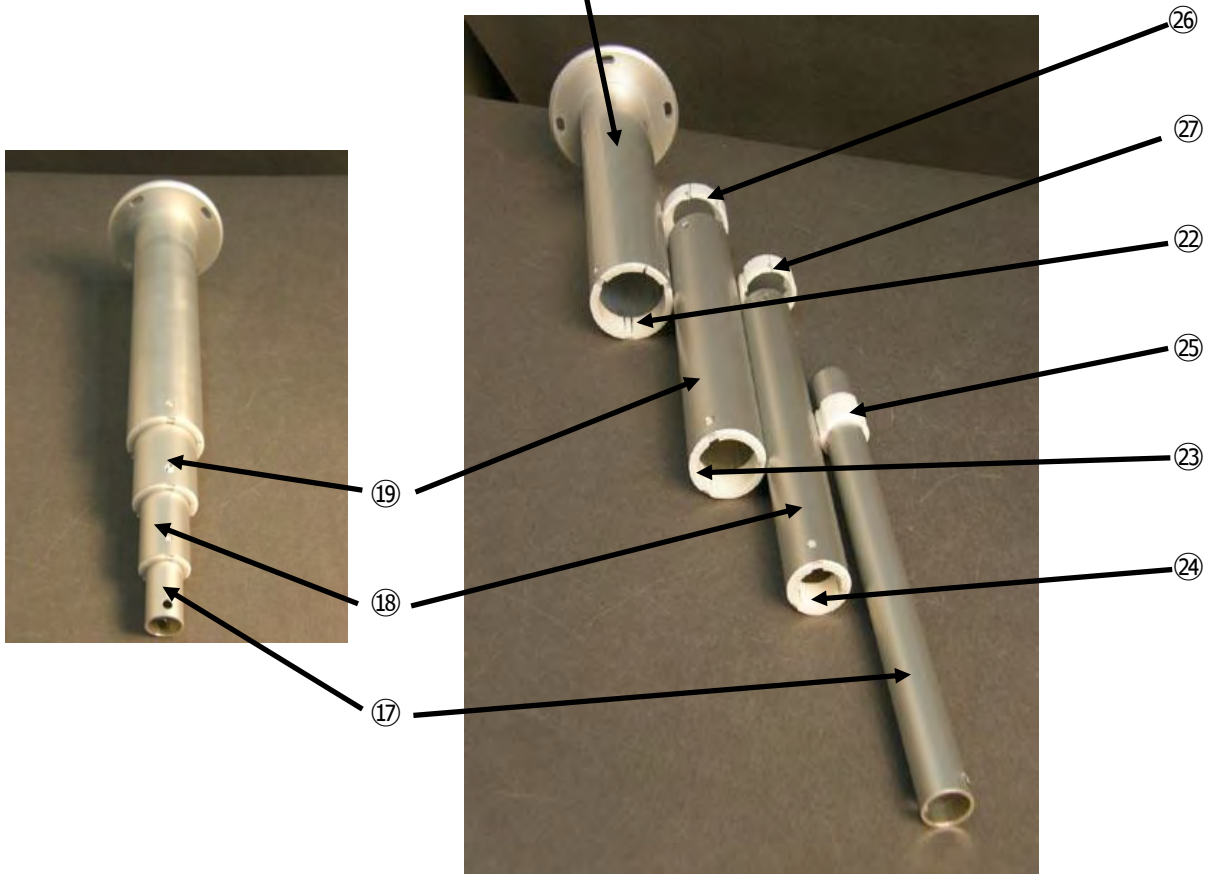
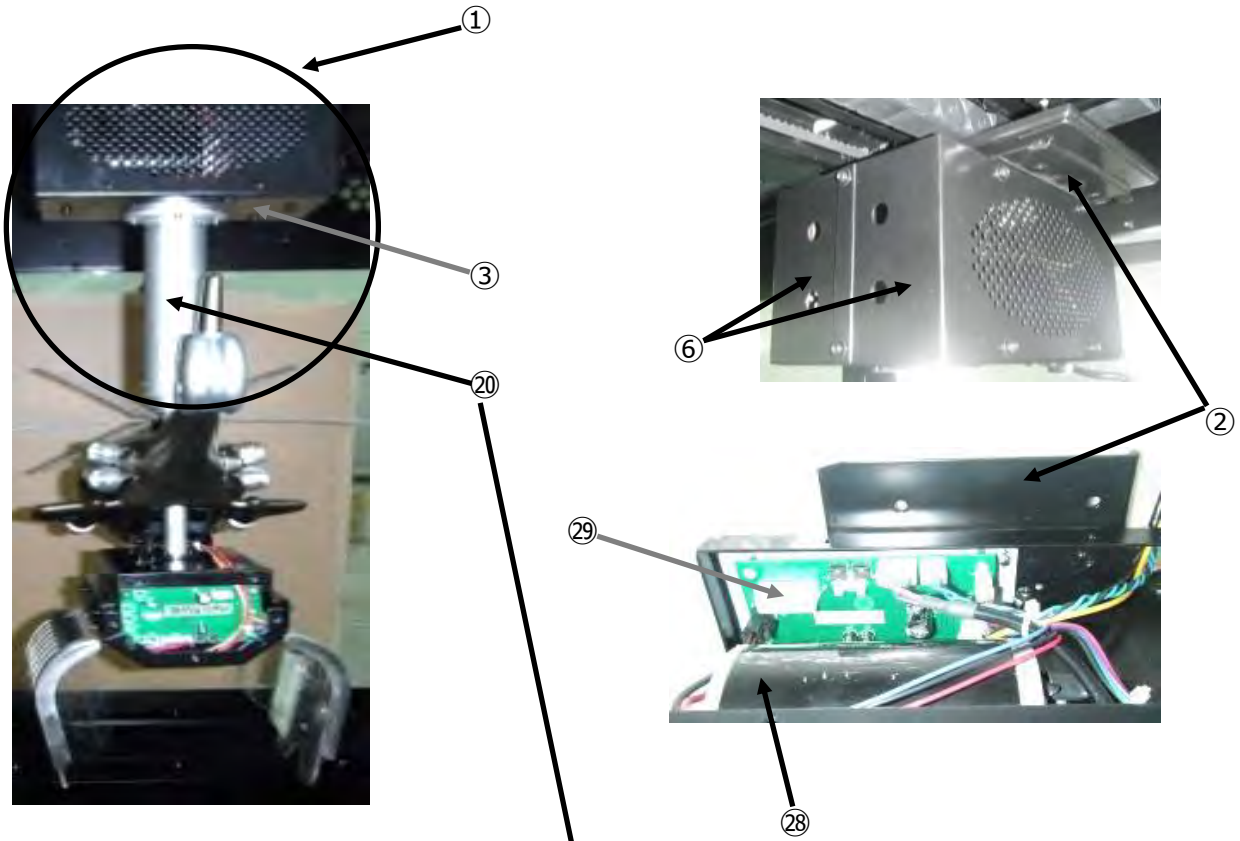
**(6) Y-axis ASSY**

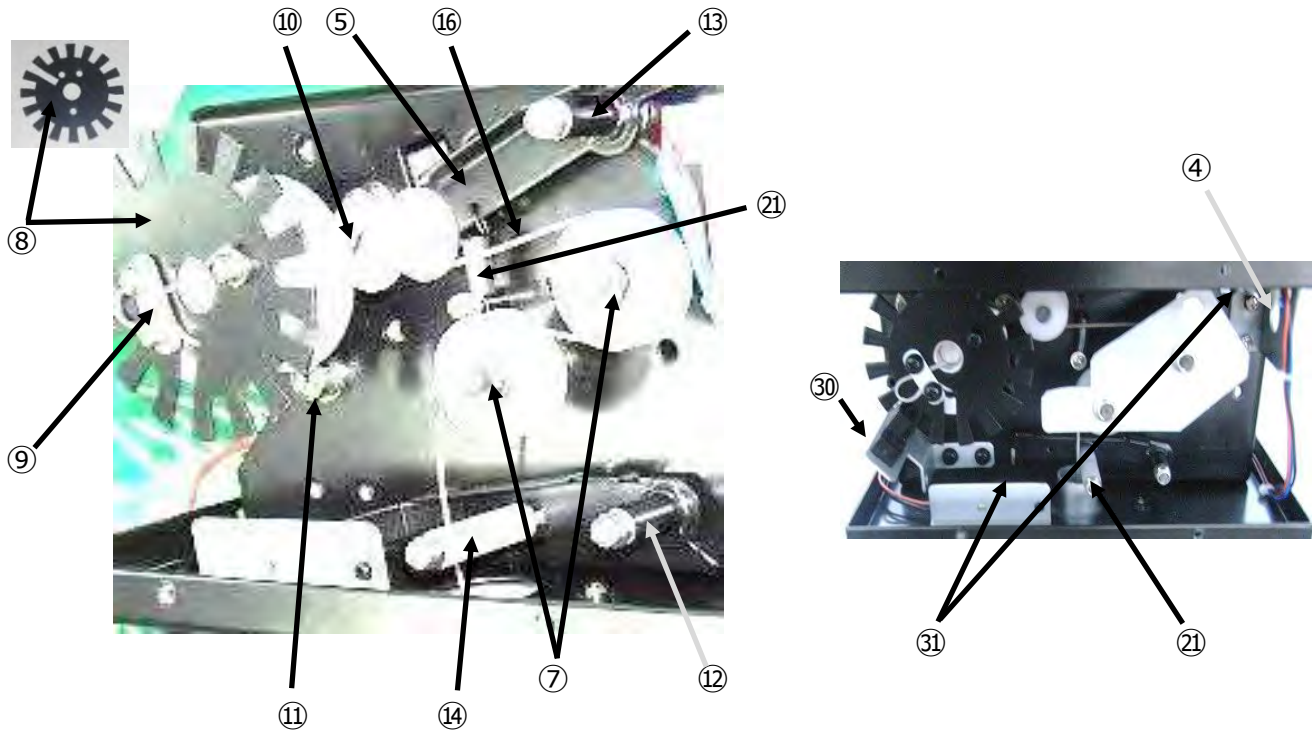




No	Part Name	Qty	Model		BNG No
①	Y-axis ASSY component	1	N001040001	steel	311099
②	Y-axis rail, left	1	N001040201C	steel	311100
③	sub rail, right	1	N001040215C	steel	311101
④	width keeper	2	N001040217	steel	311081
⑤	harness guide base, lower	1	N001040210C	steel	311103
⑥	harness guide base, upper	1	N001040211C	steel	311104
⑦	harness guide fastener	1	N001040212B	steel	311085
⑧	main rail hunger	2	N001040216A	steel	311106
⑨	hunger holder	2	N001040230B	steel	311108
⑩	hunger stopper	2	N001040231B	steel	311109
⑪	wheel base, left	1	N001040203C	steel	311110
⑫	wheel	8	19-C3L8		311088
⑬	wheel	4	19-C5L10		311089
⑭	gear belt	1	828XL-037		311111
⑮	bearing	2	F695ZZ D13*d5*H4	#45	311093
⑯	belt adjuster	1	M6*20, hexa.pit nut	steel	311094
⑰	gear belt fastener	1	N001040204B	steel	311086
⑱	stepping motor	1	SS2302A20A		311115
⑲	Y-axis PCB	1	B2-083A-02		311116
⑳	IR sensor	2	KI1303-AALF		308543
㉑	motor base	1	N001040202C		311080
㉒	motor gear pulley	1	N001040302		311091
㉓	harness guide	1	25+2APtrailchain15*15ar-28Y		311117

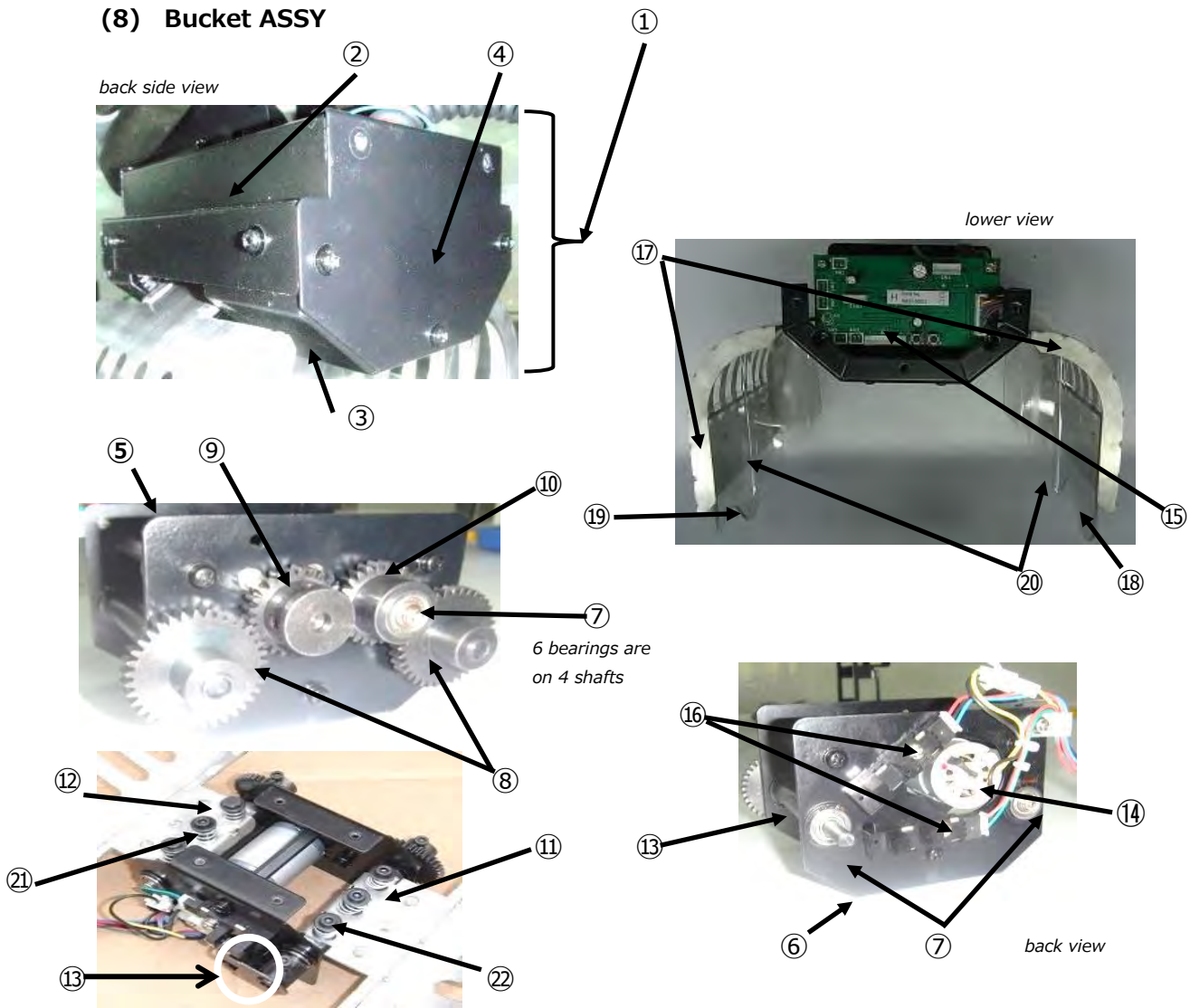
(7) Z-axis ASSY





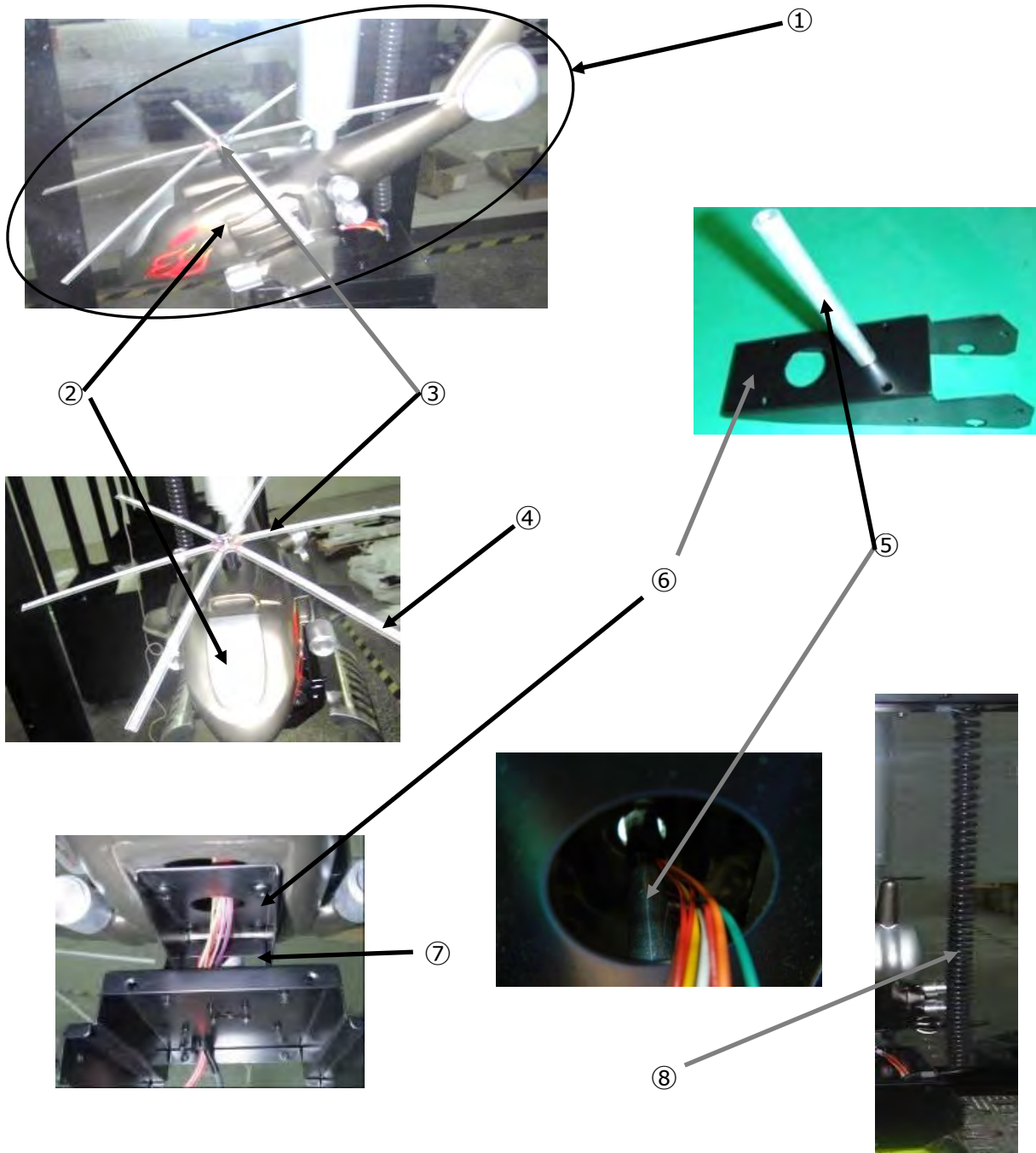
No	Part Name	Qty	Model	BNG No
①	Z-axis ASSY component	1	N001040004	311118
②	Z-axis top insert plate	1	N001040253B	steel 311119
③	bottom plate	1	N001040241A	steel 311120
④	gear plate	1	N001040250B	steel 311121
⑤	pulley base plate	1	N001040243B	steel 311122
⑥	side cover	2	N001040254C	steel 311123
⑦	rope guide bearing	2	HN627UB	311125
⑧	slit round plate	1	N001040246	steel 311126
⑨	rope top end stopper	1	N001040247	steel 311127
⑩	rope rolling pulley	1	N001040303B	steel 311128
⑪	rope stop rod pulley	3	N001040344B	steel 311129
⑫	lower limiter shaft	1	N001040345B	steel 311130
⑬	center up bobbin pulley	1	N001040346B	steel 311131
⑭	lower limiter sleeve	1	N001040347B	#45 311132
⑮	rope end rod	1	7*19 1.0/1.2 2m	brass 311133
⑯	wire rope	1	N001040371B	SUS 311134
⑰	inner pipe	1	N001041401	Al 311135
⑱	small pipe	1	N001041402	Al 311136
⑲	middle pipe	1	N001041403	Al 311137
⑳	outer pipe	1	N001041404	Al 311138
㉑	coil spring	1	N001041301	SUS 311139
㉒	pipe sleeve A, outer low	1	166823300	POM 712930
㉓	pipe sleeve B, middle low	1	166823400	POM 712931
㉔	pipe sleeve C, small low	1	166823500	POM 712932
㉕	pipe sleeve D, inner top	1	166823600	POM 712933
㉖	pipe cap B, middle top	1	166823700	POM 712934
㉗	pipe cap C, small top	1	166823800	POM 712935
㉘	DC gear motor	1	D63L-2445-75, DC24V 60W 75rpm	311141
㉙	Z-axis PCB	1	B2-091A	311142
㉚	IR sensor	1	KI1303-AALF	308543
㉛	IR sensor	2	KI1300-AA07LF	000677

**(8) Bucket ASSY**



No	Part Name	Qty	Model	BNG No
①	bucket ASSY component	1	N001040005	311143
②	top cover	1	N001040261E	steel 311144
③	bottom cover	1	N001040265F	steel 311145
④	side cover	2	N001040271B	steel 311146
⑤	gear base plate, front	1	N001040262E	steel 311149
⑥	gear base plate, back	1	N001040272B	steel 311148
⑦	bearing	6	F686ZZ D13*d6*H5	311147
⑧	gear, large	2	N001040360F	#45 311151
⑨	motor gear	1	N001040361F	#45 311152
⑩	gear, small	1	N001040362B	#45 311153
⑪	wing holder, left	1	N001040365B	#45 311154
⑫	wing holder, right	1	N001040363F	#45 311155
⑬	sensor blind plate	1	N001040263F	steel 311156
⑭	DC motor	1	NS-32PG-516 24Y279 A2	311157
⑮	bucket PCB(Heli-Con)	1	B2-086A	311158
⑯	IR sensor	2	KI1303-AALF	308543
⑰	wing/trunk	2	N001040270G	SUS 311159
⑱	wing/top, left	1	N001040461E	acryl 311160
⑲	wing/top, right	1	N001040462E	acryl 311161
⑳	ball holder	2	N001040462E	acryl 311162
㉑	coil spring	6	N001041301	steel 311163
㉒	spring bolt	6	N001040380	steel 311164

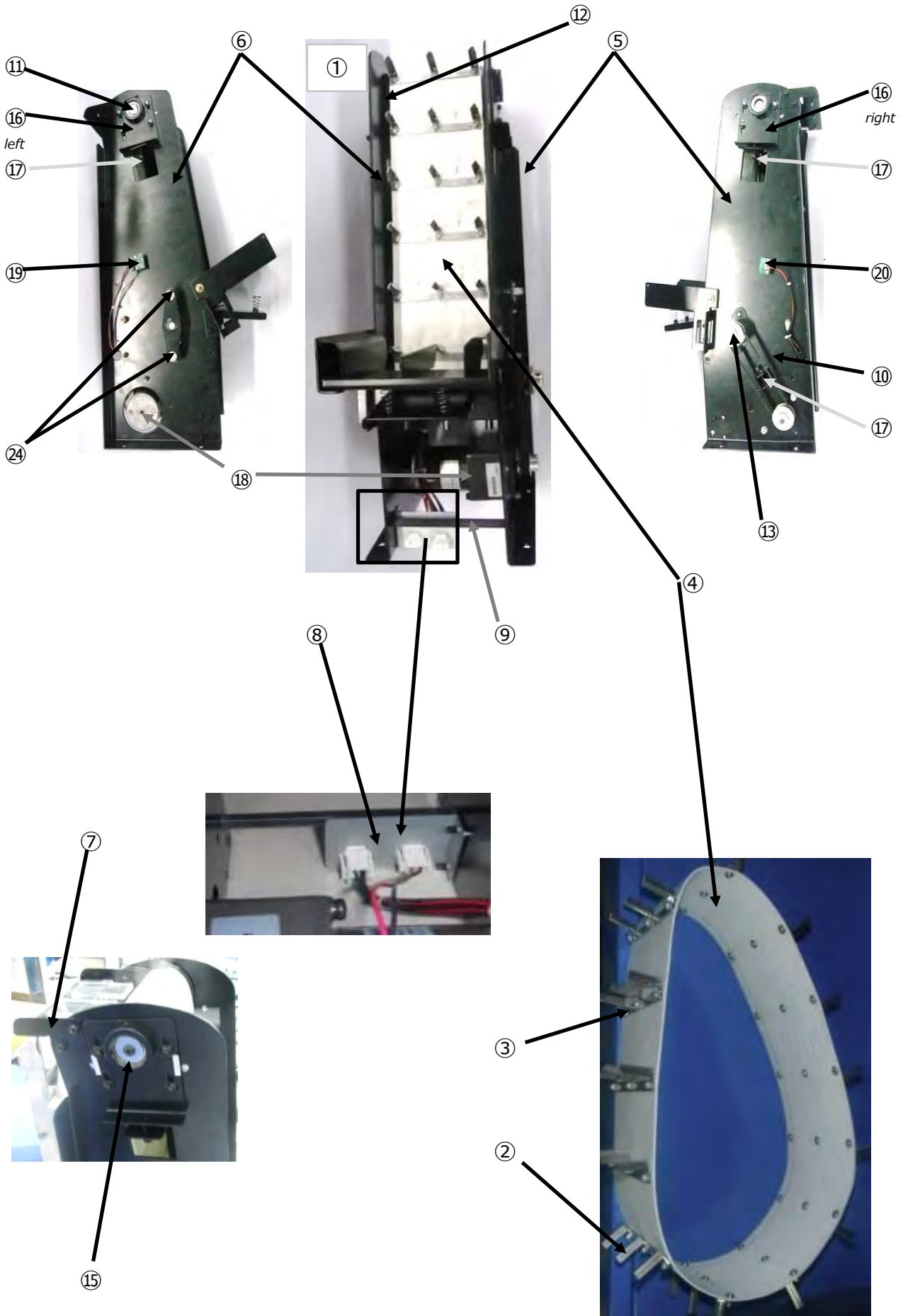
**(9) Helicopter ASSY**

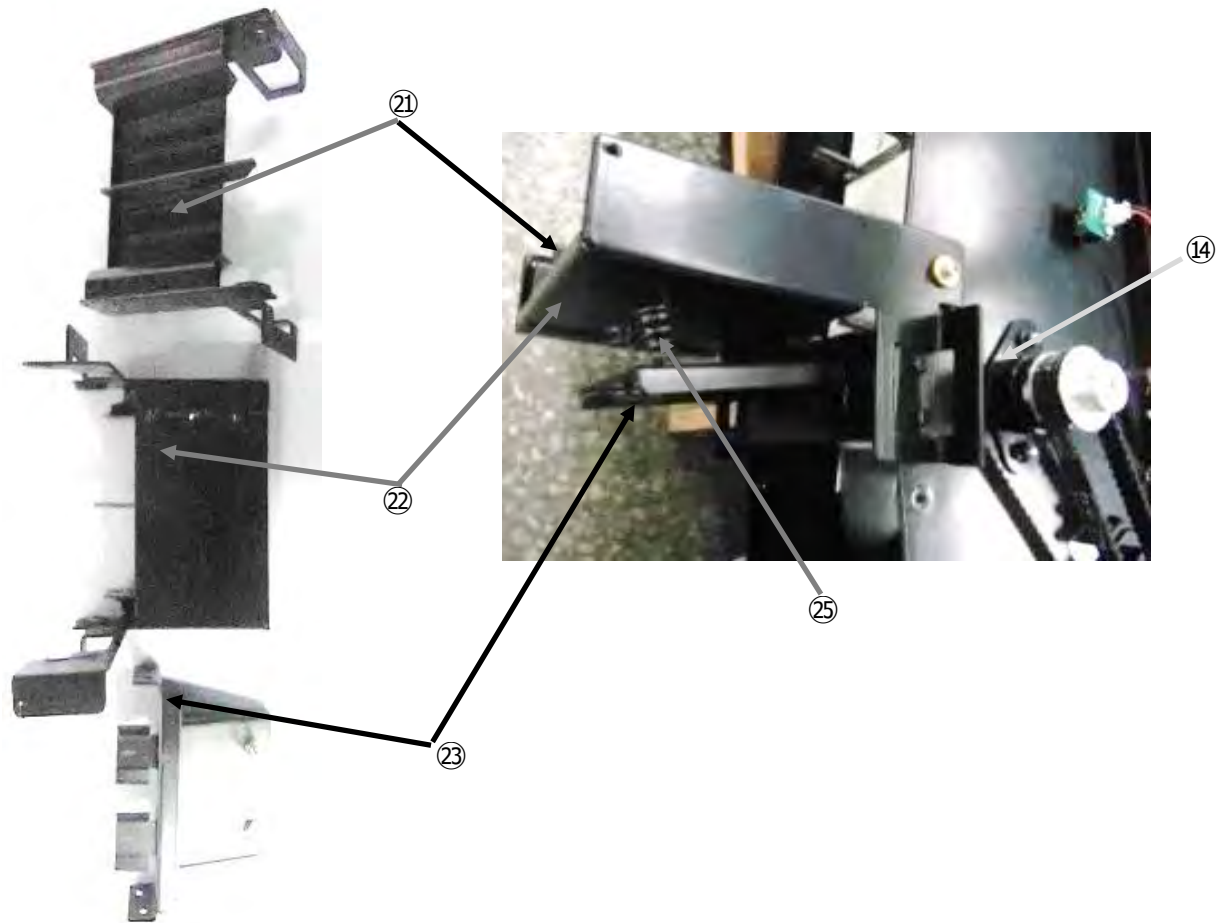


No	Part Name	Qty	Model	BNG No
①	Helicopter ASSY component	1	N001040004-03	311165
②	body	1	N001010811, rotational forming	PVC 311166
③	rotary, 6 propeller	1	N001040476B	acryl 311167
④	LED tape	6	WF-FTOP1704-1606RW-24V	311169
⑤	rotary shaft	1	N001040375, 10φ	Al 311171
⑥	body holder	1	N001040273B	steel 311168
⑦	body base	1	N001040274C	steel 311172
⑧	carl code	1	N001050604	PVC 311173



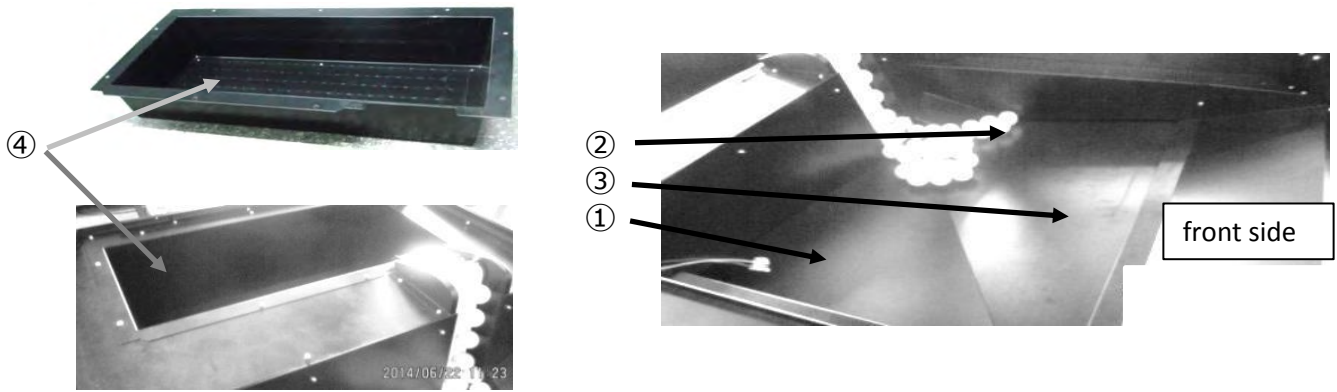
### (10) Ball Lifter ASSY





No	Part Name	Qty	Model	BNG No
①	ball lifter ASSY component	1	N001010002B	311175
②	ball pick-up finger	39	N001010202B	SUS 311176
③	finger holder	13	N001010203C	SUS 311177
④	conveyer-belt	1	N001010201B	311178
⑤	side flame, right	1	N001010205C	steel 311179
⑥	side flame, left	1	N0001010204C	steel 311180
⑦	outlet plate support	1	N0001010215	steel 311181
⑧	connector holder	1	N0001010221	steel 311182
⑨	flame connector	3	N0001010306B	steel 311183
⑩	gear belt	1	144XL-037	311184
⑪	sub shaft	1	N0001010301B	steel 311185
⑫	conveyor shaft plate	1	N0001010207B	steel 311186
⑬	main shaft	1	N0001010302C	steel 311187
⑭	bearing base, lower	1	N0001010208B	steel 311188
⑮	bearing	4	D28d15h7	311189
⑯	bearing base, top	2	N0001010214C	steel 311190
⑰	belt adjuster	3	M 6 *20 hex. pit bolt	steel 311094
⑱	DC motor	1	DC 24V 15W 2200->22rpm	311192
⑲	IR emitter, left	1	PE-TRY-SS01R	311193
⑳	IR sensor, right	1	PE-TRY-SS01T	311194
㉑	ball guide	1	N001010213B	steel 311195
㉒	hopping plate	1	N001010212D	steel 311196
㉓	cushion plate	1	N001010220	steel 311197
㉔	cum wheel, black	1	22-C3M6L8	311053
㉕	coil spring	1	N001010301	SUS 311199

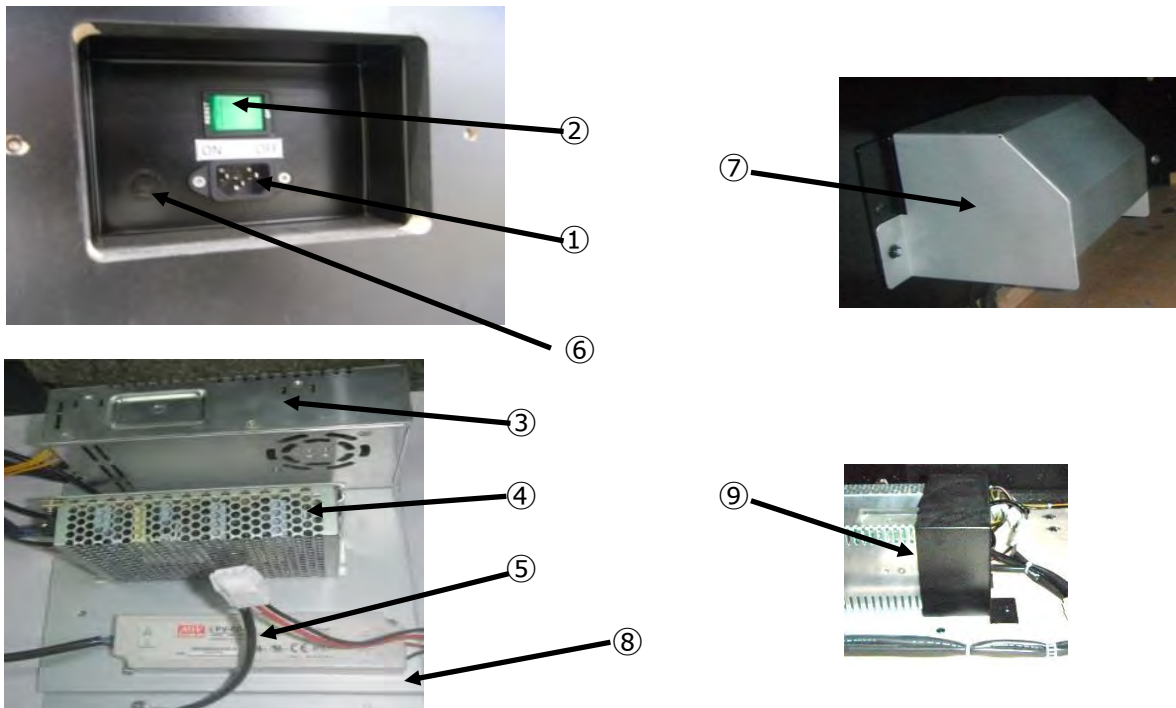
### (11) Ball Collector ASSY



No	Part Name	Qty	Model		BNG No
①	slope plate, left	1	N001020297A	steel	311200
②	slope plate, right	1	N001020298	steel	311201
③	slope plate, front	1	N001020299	steel	311202
④	ball pool	1	N001020245A	steel	311203

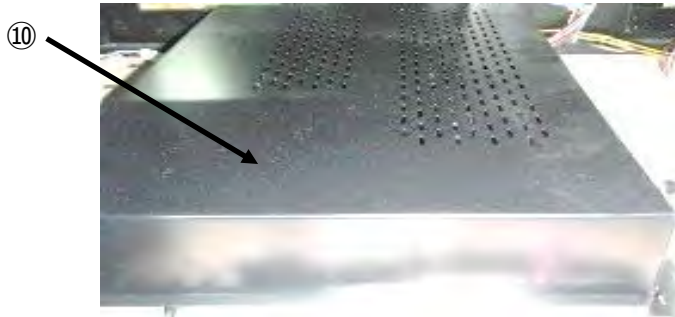
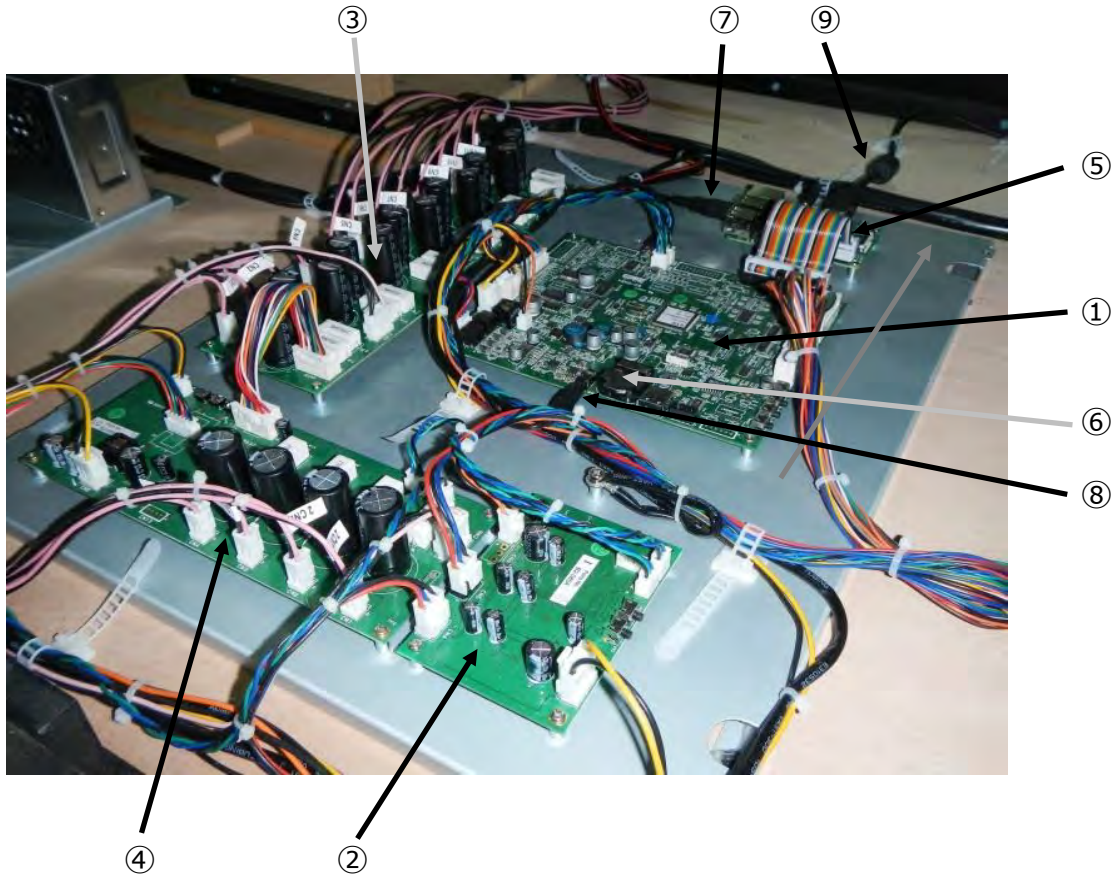
### (12) Power Supply ASSY

*cabinet outside*



No	Part Name	Qty	Model		BNG No
①	AC inlet	1	DE-14-1		311204
②	power switch	1	SS-005, 4A green		311039
③	DC supply 48V	1	RS-100-48		311206
④	DC supply 24V	1	SP-200-24		311207
⑤	DC supply 12V	1	LPV-60-12		311208
⑥	power inlet box	1	N001090228B	steel	311209
⑦	safety cover box	1	N001090246	steel	311210
⑧	base plate	1	N001020215B	steel	311211
⑨	DC unit cover	1	N001020216	steel	311212

**(13) PCB ASSY**



No	Part Name	Qty	Model	BNG No
①	Main I/O PCB	1	BO-068A-1	311213
②	LED drive PCB	1	B2-085A	311214
③	solenoid drive PCB	1	B2-089A	311215
④	solenoid control PCB	1	B2-090A	311216
⑤	Raspberry Pi PCB	1	Raspberry Pi B+	311217
⑥	SD card	1	MicroSDHC(TF) 8G-Class4	311218
⑦	USB cable	1	USB miniB-USB A, 10cm	311219
⑧	stereo plug	1	3.5, 50cm	311210
⑨	LCD signal cable	1	HDVI-DV1, 2.8m	311221
⑩	cover	1	N001090227A	steel 311222

**(14) Print Sheet**



No	Part Name	Qty	Model	BNG No
①	side sticker	2	N001220401	311223
②	button sticker	1	N001220403	311224
③	back board sticker	1	N001220404	311225
④	helicopter sticker	1	N001220405	311226
⑤	description card, 8pcs set	1	N001220420 MB:4, SB.:3, B1	311102

**(15) Attachment**

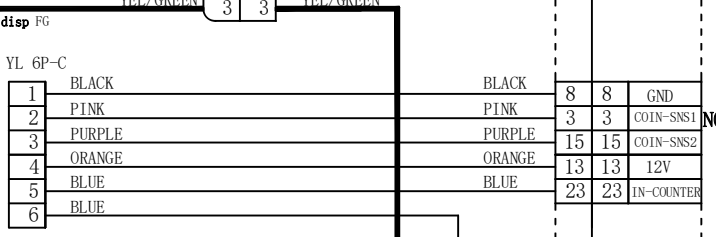
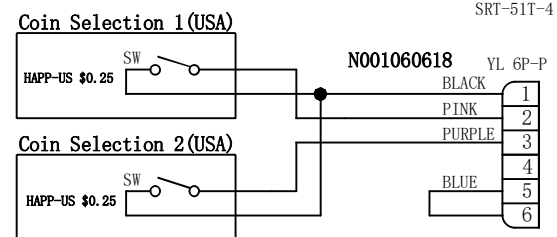
No	Part Name	Qty	Model	BNG No
①	balls, 260 pcs set	1	N001010810, 38φ4.2g yellow ABS	311174
②	power cord, US	1	SJTISA WG/ 3C *4m	311228
③	power cord, Europe	1	H05VV-F3 *1.0mm*4m	311229
④	coin harness, Europe	1	N001060617	311231
⑤	coin harness, Asia	1	N001060616	311232
⑥	Bill Validator harness	1	N001060615	311233
⑦	OPERATION MANUAL	1		711170

\*Reference P8 3-2 ACCESARRY LIST

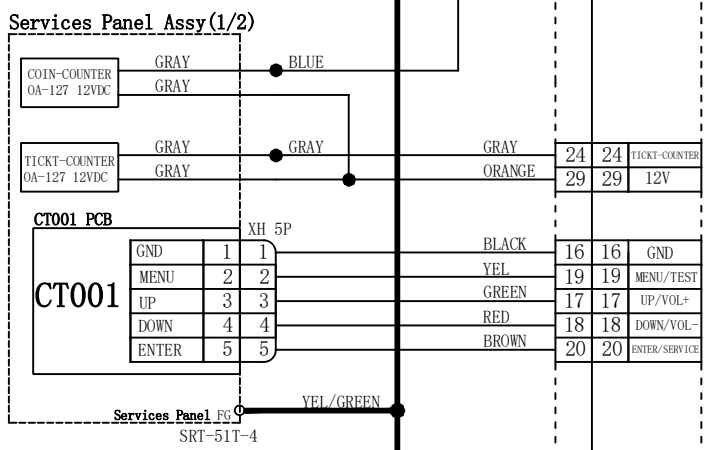
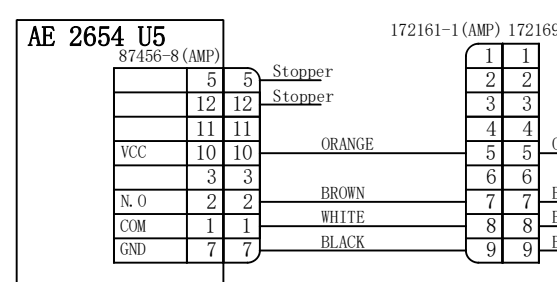
**NOTICE**  
 1. Wire: No marked lines are, fine lines: AWG-24, bold lines AWG-18.  
 2. Connector: No marked are universal detachable lock type. Cap connectors are pin-contact type. Plug connectors are socket-contact type.

Customers choice to install

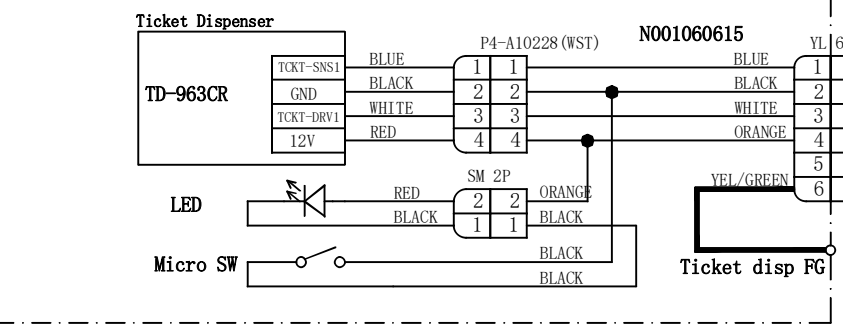
**Coin Selector ASSY**



**Bill Validator ASSY (USA)**



**Ticket disp ASSY**

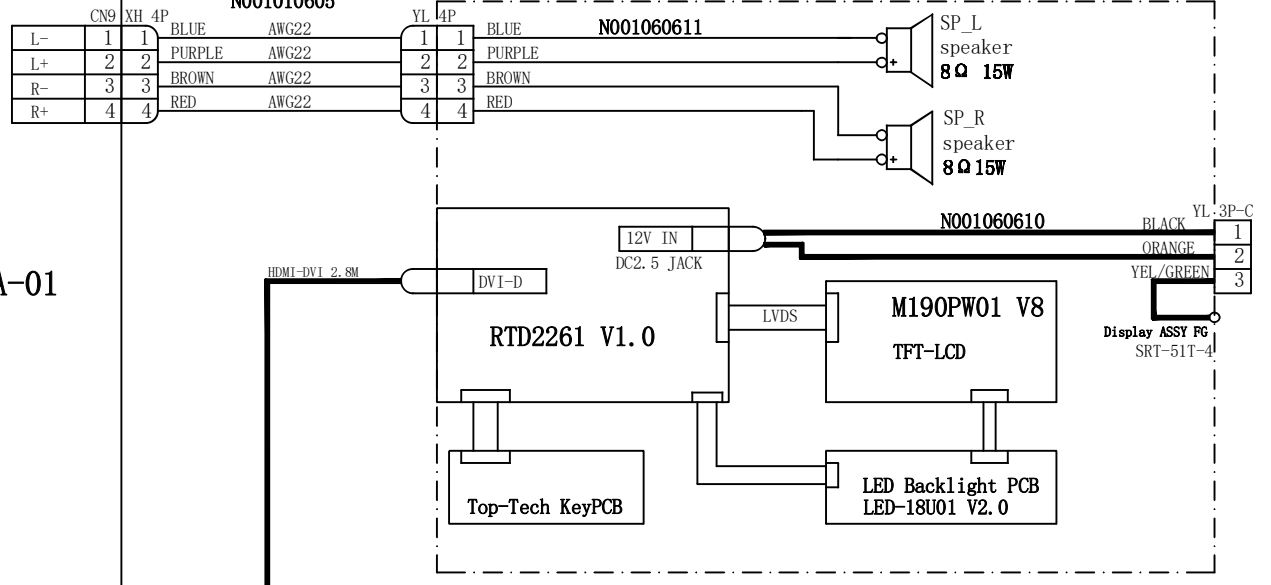


I/O PCB 1/2

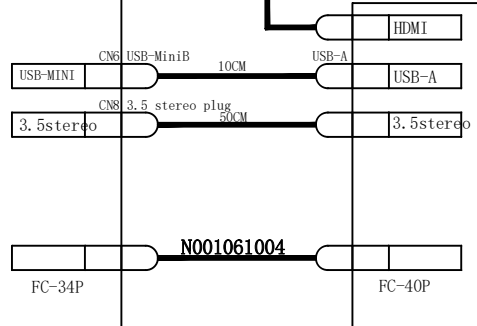
CN5	XAD 30P	
21	21	GND
30	30	12V

B0-068A-01

**Display ASSY**



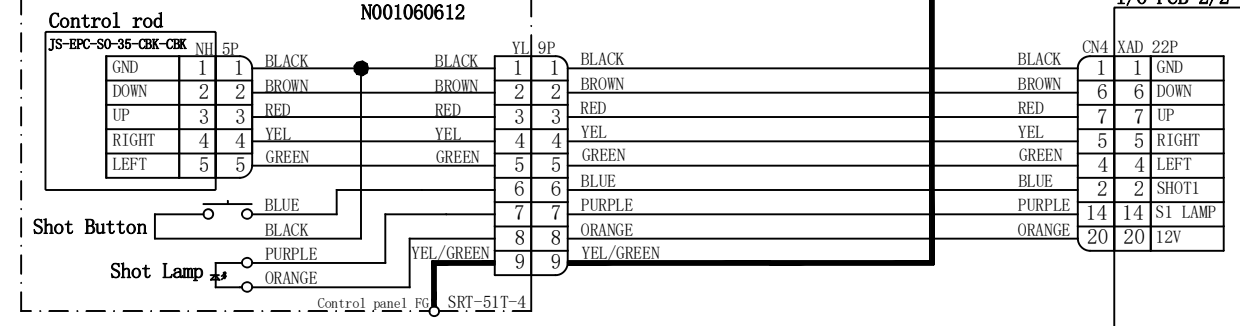
**BOARD PC**  
 Raspberry pi  
 Model B+



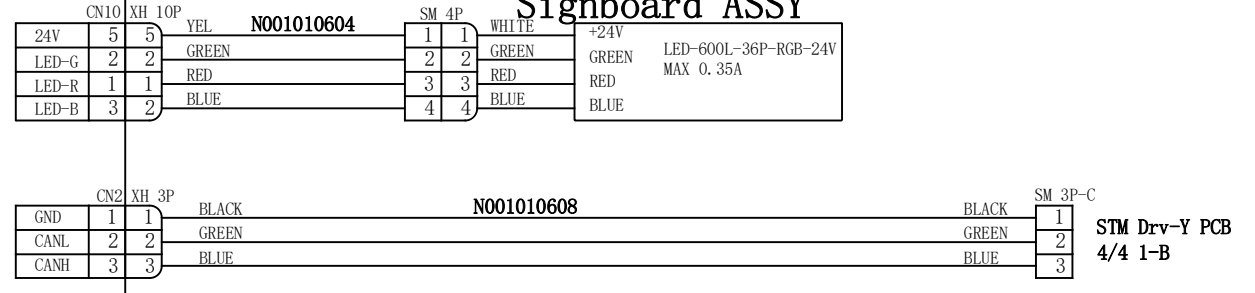
10. ATTACHED : WIRING DIAGRAM  
 SINK THE SHIP\_MP

**NOTICE**  
 1. Wire: No marked lines are, fine lines: AWG-24, bold lines AWG-18.  
 2. Connector: No marked are universal detachable lock type. Cap connectors are pin-contact type. Plug connectors are socket-contact type.

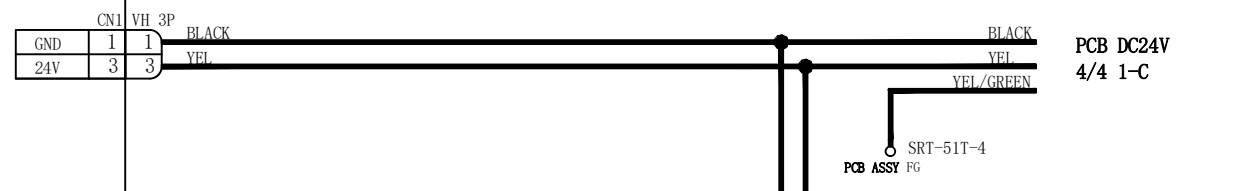
**Conpane ASSY**



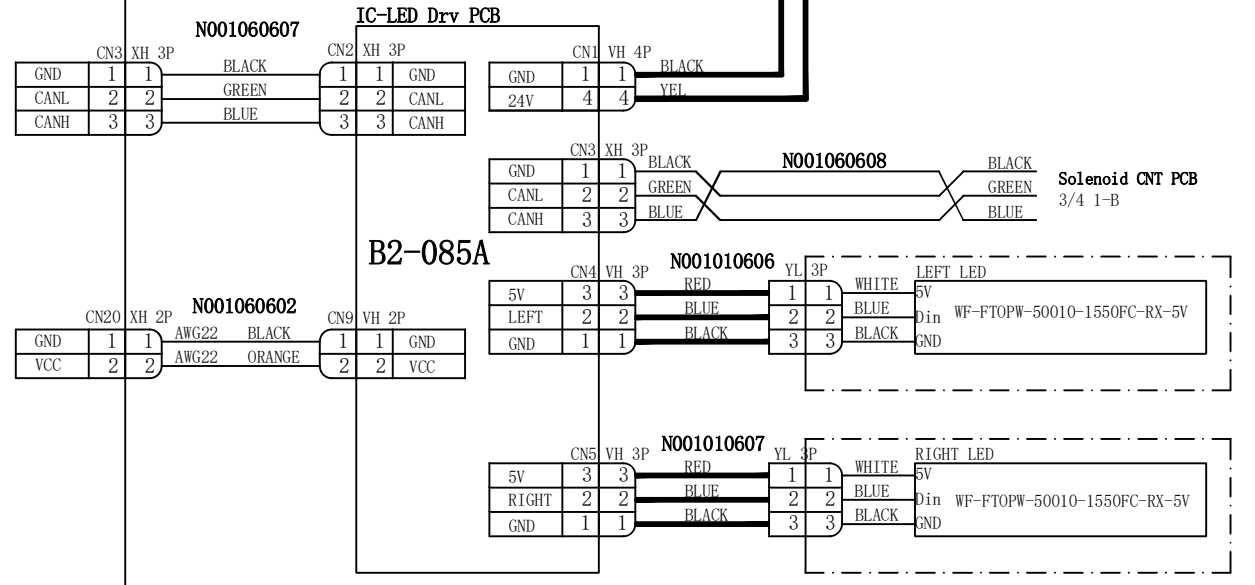
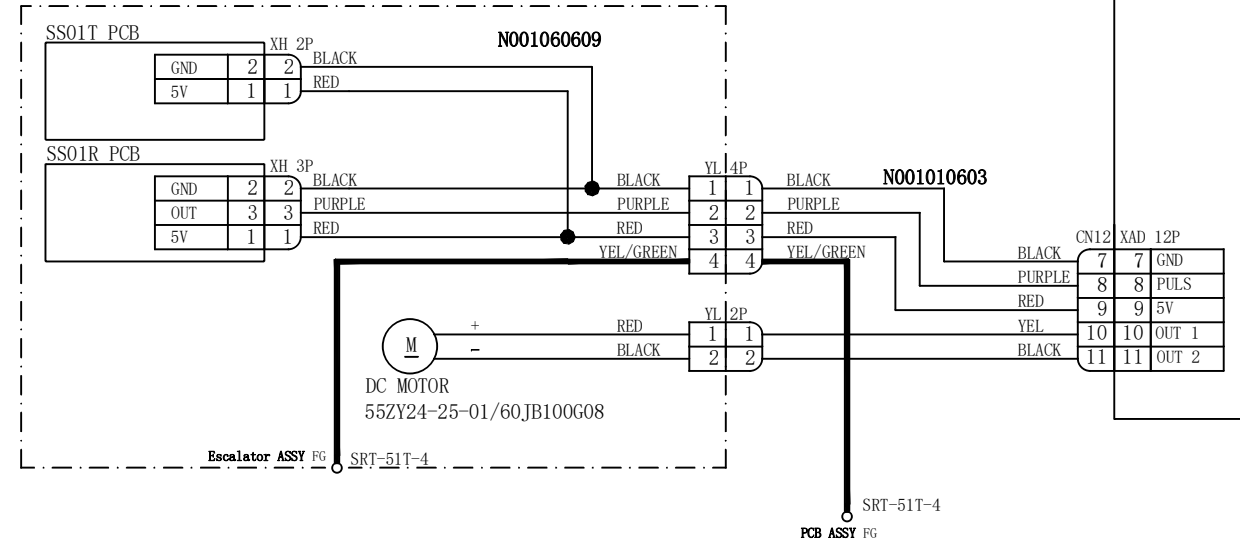
**Signboard ASSY**



**B0-068A-01**

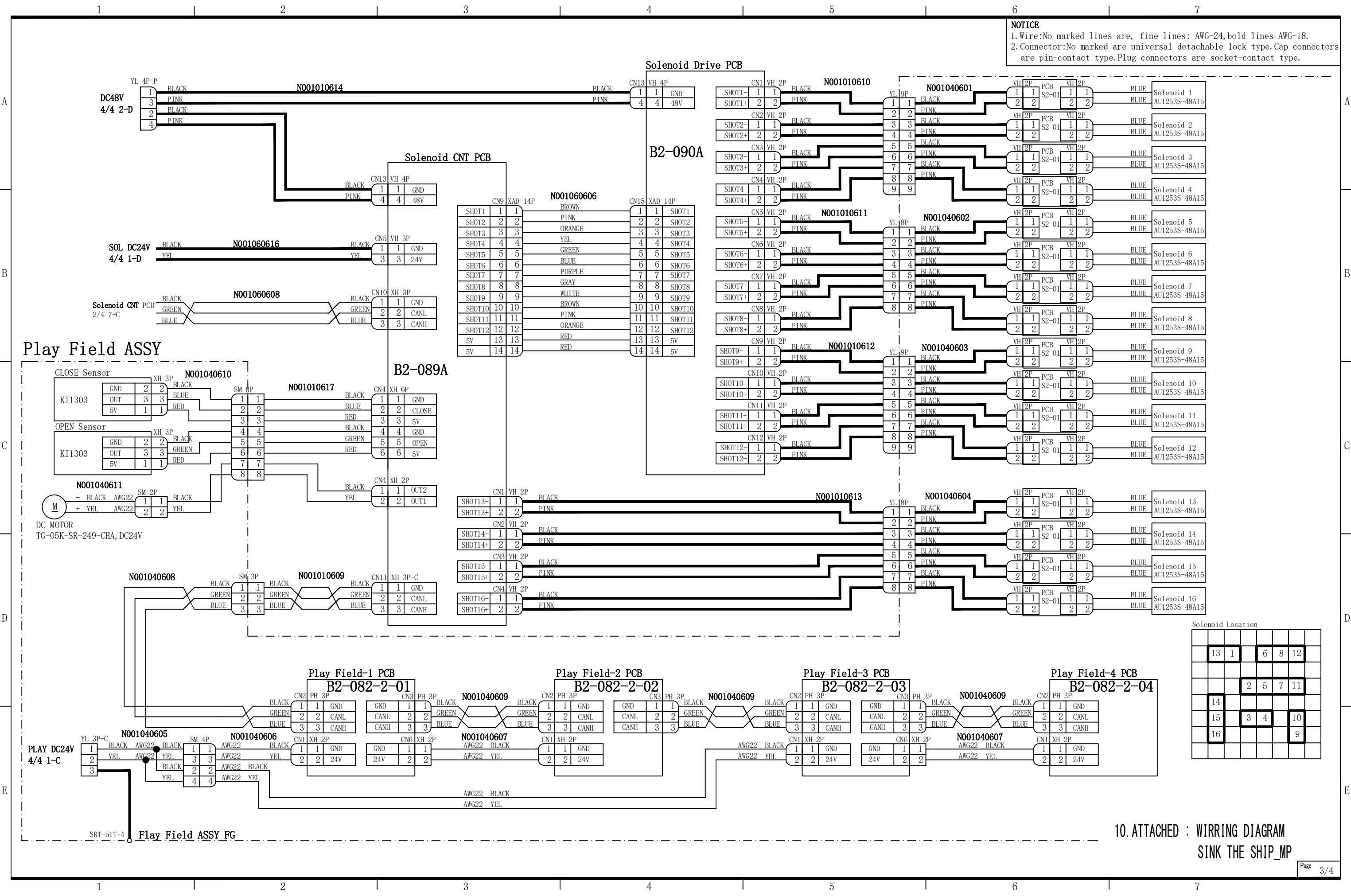


**Ball Liften ASSY**



10. ATTACHED : WIRING DIAGRAM  
 SINK THE SHIP\_MP

**NOTICE**  
 1. Wire: No marked lines are, fine lines: AWG-24, bold lines AWG-18.  
 2. Connector: No marked are universal detachable lock type. Cap connectors are pin-contact type. Plug connectors are socket-contact type.

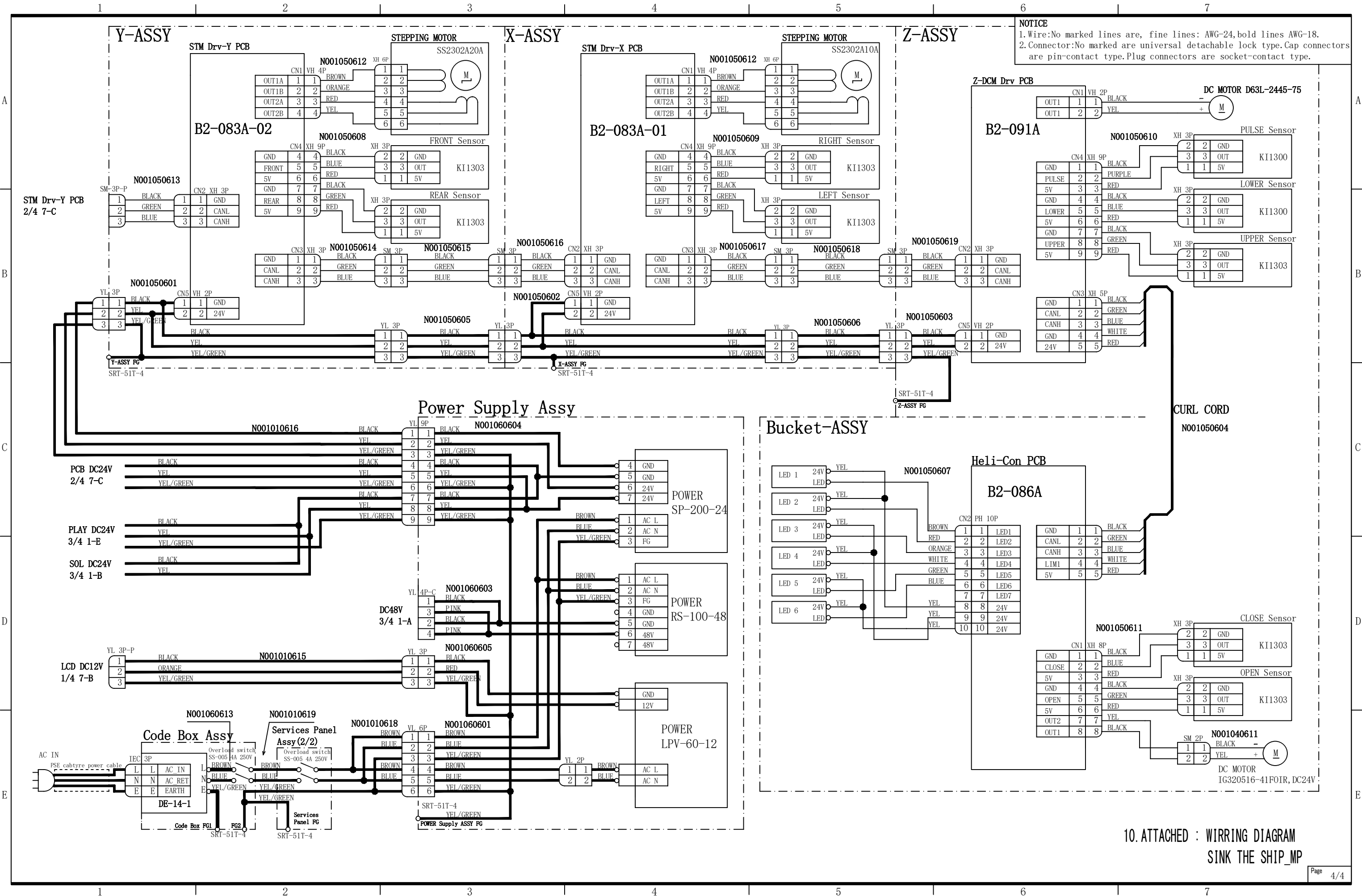


Solenoid Location

	13	1		6	8	12
				2	5	7
	14					
	15		3	4		10
	16					9

10. ATTACHED : WIRING DIAGRAM  
 SINK THE SHIP\_MP





10. ATTACHED : WIRING DIAGRAM  
 SINK THE SHIP\_MP