

Mini Rider 2



User's Manual

Si~~A~~uline®

BEFORE USING THE PRODUCT, BE SURE TO READ THE FOLLOWING:

To maintain safety:

To ensure the safe operation of this product, be sure to read the following before usage. The following instructions are intended for the users, operators and the personnel in charge of the operation of the product. After carefully reading and sufficiently understanding the warning displays and cautions, handle the product appropriately. Be sure to keep this manual close to the product or in a convenient place for future reference.

Herein, explanations which requires special attention are enclosed with dual lines. Depending on the potentially hazardous degrees, the terms of DANGER, WARNING, CAUTION, etc. are used. Be sure to understand the contents of the displays before the text.



Indicates that mishandling the product by disregarding this pictograph will cause severe injury or death.



Indicates that mishandling the product by disregarding this caution will cause a slight hazardous situation which can result in personal injury and/or material damage.



Indicates that mishandling the product by disregarding this warning will cause a potentially hazardous situation which can result in death or serious injury.

For safe usage of this product, the following pictographs are used:



Indicates "HANDLE WITH CARE." In order to protect the human body and equipment, this display is attached to places where the User Manual should be referred to.



Indicates a "Protective Earth Terminal." Before operating the equipment, be sure to connect it to the Ground.
(The step may be omitted for products in which a power cord with earth is used.)

- **Perform work in accordance with the instructions herein stated.**

Instructions for work are explained by paying attention to the aspect of accident prevention. Failing to perform work as per the instructions can cause accidents. In the case where only those who have technical expertise should perform the work to avoid hazardous situation, the instructions herein state that the serviceman should perform such work.

- **Be sure to turn off power before working on the machine.**

To prevent electric shock, be sure to turn off power before starting the work in which the worker touches the interior of the product. If the work is to be performed in the power-on status, the Instruction Manual herein always states to that effect.

- **Be sure to ground the Earth Terminal** (this is not required in the case where a power cord with earth is used).

This product equipped with the Earth Terminal. When installing the product, Connect the Earth Terminal to the "accurately grounded indoor earth terminal" by using an earth wire. Unless the product is grounded appropriately, the user can be subject to electric shock. After performing repair, etc. for the Control equipment, ensure that the Earth Wire is firmly connected to the Control equipment.

- **Ensure that Power Supply used is equipped with an Earth Leakage Breaker.**
This product does not incorporate the Earth Leakage Breaker. Using a power supply which is not equipped with the Earth Leakage Breaker can cause a fire when earth leakage occurs.
- **Be sure to use fuses which meet the specified rating.** (Only for the machines which use fuses)
Using fuses exceeding the specified rating can cause a fire and electric shock.
- **Specification changes (removal of equipment, conversion and addition) not designated by Simuline are not allowed.**
The parts of the product include warning labels for safety, covers for personal protection, etc. It is very hazardous to operate the product by removing parts and or modifying the circuits. Should doors, lids and protective parts be damaged or lost, refrain from operating the product, and contact where the product was purchased from or the office herein stated. Simuline shall not be held responsible for any accidents, compensation for damage to a third party, resulting from the specifications not designated by Simuline.
- **Ensure that the product meets the requirements of appropriate Electrical Specification.**
Before installing the product, check for Electrical Specifications. Simuline products have a nameplate on which Electrical Specifications are described. Ensure that the product is compatible with the power supply voltage and frequency requirements of the location. Using any Electrical Specifications different from the designated Specifications can a fire and electric shock.
- **Install and operate the product in places where appropriate lighting is available, allowing warning labels to be clearly read.**
To ensure safety for the customers, labels and printed instructions describing potentially hazardous situation are applied to places where accidents can be caused. Ensure that where product is operated has sufficient lighting allowing the warnings to be read. If any label is peeled off, apply it again immediately. Please place an order with where the product was purchased from or the office herein stated.
- **When handling the Monitor, be very careful. (Applies only to the product w/monitor)**
Some of the monitor(TV) parts are subject to high tension voltage. Even after running off power, some portions are still subject to high tension sometimes. Monitor repair and replacement should be performed only by those technical personnel who have knowledge of electricity and technical expertise.
- **Be sure to adjust the monitor (projector) properly. (Applies only to the product w/monitor)**
Do not operate the product leaving on-screen flickering or blurring as it is. Using the product with the monitor not properly adjusted may cause dizziness or a headache to an operator, a player, or the customers.
- **When transporting or reselling this product, be sure to attach this manual to the product.**
In the case where commercially available monitors and printers are used in this product, only the contents relating to this product are explained herein. Some commercially available equipment has functions and reactions not stated in this manual. Read this manual together with the specific Instruction Manual of such equipment.
- Description herein contained may be subject to improvement changes without notice.
- The contents described herein are full prepared with due care. However, should any question arise or errors can be found, please contact Simuline.

INSPECTIONS IMMEDIATELY AFTER TRANSPORTING THE PRODUCT TO THE LOCATION.

Normally, at the time of shipment, Simuline products are in a status allowing for usage immediately after transporting to the location. Nevertheless an irregular situation may occur during transportation. Before turning on power, check the following points to ensure that the product has been transported in a satisfactory status.

- Are there any dented portions or defects (cuts, etc.) on the external surfaces of the cabinet?
- Are Casters and Adjusters damaged?
- Do the power supply voltage and frequency requirements meet with those of the location?
- Are all wiring connectors correctly and securely connected? Unless connected in the correct direction, connector connections can not be made accurately. Do not insert connectors forcibly.
- The fuses used meet specified rating? Is the Circuit Protector in an energized status?
- Are all accessories available?
- Can all Doors and Lids be opened with the Accessory keys? Can Doors and Lids firmly closed?

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1. HANDLING CAUTIONS

When installing, maintaining or handling the product, the following cautions should be observed in order to enjoy the game safely.

Failure to follow the warnings listed below and in other parts of this manual may cause physical injuries or damage to the machine.



- Before any installation or maintenance work, make sure to turn off the power. Failure to do so may cause an electric shock or short-circuit. In case it is necessary to keep the power on for a certain type of work, the manual will explicitly state so.
- Do not suddenly pull out or insert the power plug from/into an outlet. It may cause an electric shock or short-circuit.
- Do not attempt to touch any plug with wet hands. It may cause an accident due to electric shock.
- Power cables/cords or grounding wires should not be exposed such as on a passage. The exposure may cause physical injuries, possibly resulting in short-circuit or electric shock.
- Do not place any article on power cables/cords nor damage them, for it may cause a fire or electric shock.
- Do not pull on the power cables/cords unnecessarily during or after installation. Damaged cords may cause a fire or electric shock.
- If any power cord is damaged, ask the manufacturer/supplier for a replacement. Using a damaged power cord can result in a fire, electric shock or electric leakage.
- Make sure to earth the product. Incorrect grounding may also cause an electric shock.
- Use the rated fuse only. Using any fuse of incorrect rating may cause a fire or electric shock.
- Firmly connect IC boards and all connectors completely. Unstable connections may cause an electric fire.
- Do not make any unauthorized changes or modifications to the product.
 - Doing so may cause fire or an electric shock. In some cases it can hurt and cause physical injury to the user/operator or bystander.
 - The manufacturer and/or seller will not be liable for any accidents that occur on products that have undergone unauthorized modifications or changes including but not limited to such modifications and changes performed by a third party.
- Make sure to always execute the routine maintenance procedures specified in the manual.



- When cleaning the surface of the cathode-ray tube monitor, use a soft and dry cloth. Do not use chemicals such as thinner or benzene.
- Static electricity in the human body can destroy electronic parts on IC boards. Make sure to discharge any static electricity by measures such as setting hands to a grounded metal plate before handling IC boards.
- There are some components/parts, which are not specially designed and manufactured for the product. Please understand that in case the manufacturer of such components/parts discontinues production or changes the specifications, it may not be possible to repair or replace such products regardless of the warranted period.

2. INSTALLATION LOCATION CAUTIONS



The product is intended for indoor use. Therefore, do not install it outdoors. Even when installed indoors, the following locations should be avoided. They may cause a fire, electric shock or breakdown.

- Places with raindrops or water leakage, or places with high humidity such as indoor swimming pools or showers.
- Places that have a high temperature such as places with direct sunlight or close to heating sources.
- Places near flammable gas, explosive chemical or dangerous substances.
- Places that are dusty
- Places with an incline.
- Places with intense vibration
- Places near anti-disaster facilities such as emergency exit or fire extinguisher
- Any other place outside of the allowable temperature range (ambient temp.) of 5 °C ~30 °C.

RESTRICTIONS FOR USE



- Check your electric specifications.
Check whether the product conforms to the voltage, current and frequency provided at the installation location. For the electric specifications, see the plate (label) attached on the product.
If electric source outside of the specification is used, it can cause a fire or electric shock.
- Inside the installation location, a breaker and an earth connection for the product are required. An independent electric source for the product should be provided to prevent fire or electric shock.
- Make sure to use the power cable in accordance with power consumption as described below. Using power cable of other electric specifications can cause a fire or electric shock.
- Make sure to use the power with independent circuit breaker. Using any power source without circuit breaker can cause a fire.
- Do not have many electrical cords connected to a single socket. Overload can cause the generation of heat or a fire.
- If an extension cord is used, it should be rated the max current or higher as described below. Using a cord of different specifications can cause a fire or electric shock.

Electric Power Consumption

MAX. 15A (AC220V 50/60Hz)

OPERATIONAL FLOOR AREA



- For proper operation, a floor area of **3700mm X 2500mm** meters or more is required. In case of interference with the motion of the cabin or if the player falls off the cabin, serious injury can occur. Therefore, the specified area should be secured at all times.
- Ventilation area specified in this manual should be secured. In addition, ventilation vents and ports should not be blocked by obstacles. Blocked ventilation may cause the generation of heat or a fire.
- In case any accident occurs while the product is operated on a floor area less than specified, the manufacturer will not be responsible for any liability or reparations.
- In case the product cannot fit through the entrance of a location, do not disassemble without proper preparations. Disassemble only the parts as specified in this manual. Do not attempt a disassembly procedure not described in this manual. Special tools and adjustment procedures are required to disassemble/assemble much of the mechanical parts of the product. Improper disassemble/assemble can lead to accident during disassembly/assembly such as electrical shock and human injury. If the product does not fit through the entrance even after the disassembly specified in this manual, contact the manufacturer/supplier or the contact provided in this manual.
- Do not tilt the product or subassemblies in an attempt to pass through small entrances. This can cause accidents during the transportation. In addition, it can cause damage or deformation to parts and result in accidents during operation.



To fit the product in a location, the size of the entrance should be, at least, **1300mm** wide and **1550mm** high.

3. CAUTIONS: OPERATION

For safe operation, please obey the following warnings and instructions.

CAUTIONS: OPERATION



- Check the following cautions before working hours to prevent accidents.
- To prevent any player or other customers from headache or dizziness, the product should be installed in a well-lighted place so that warning signs can be clearly read. Improper lighting can cause unexpected problems such as contact between customers, collision, and other undesirable situations.
 - Adjust the monitor appropriately.
If monitor blinking is detected, do not leave it un-adjusted. Inappropriate monitor adjustment can cause dizziness or headache to players and other customers.
 - Prepare a resting facility for players to take a rest in case he (she) needs to rest due to conditions such as motion sickness.
 - Check whether the level adjusters are securely set to the ground. If not, the product is not properly set and can result in an accident.
 - Do not place any heavy article on the product. It can cause an accident if dropped and can also damage components.
 - Do not climb on the product. Accident can be caused from falling. If it is necessary to check the top of the product, use a stepladder.
 - Check whether any doors or cover sections are damaged or separated. It can cause electric shock.
 - Do not place the following articles on or inside the control panel, on top of the seat, on the top of the product or in the vicinity of the product. Doing so may cause short-circuit, electric shock or damage parts.
Vase, pot, cup, water bucket, cosmetics and containers containing chemicals or water.
 - Check the surroundings before turning the product on. Once it is turned on, the product is automatically initialized. If anyone is too close to the product during initialization, collision with the moving cabin can occur.
 - For safe operation, make sure to execute a trial operation after power on. Since the cabin moves, the product is equipped with safety devices. Please check whether these safety devices work normally as follows.
 - Does the seat belt secure the player properly?
 - Is the seat belt free of damages or excessive wear?
 - Does the motion stop automatically when the seat belt is loosened.
 - Is the seat attached securely without looseness?
 - Does the product stop when the GAME STOP button is pressed?
 - Does the product stop when the front/side beam sensors are tripped?
 - Does the product stop when the floor beam sensor is tripped?
 - In addition to checking the safety devices, make sure that the product moves normally. Any abnormal motion can cause accidents. Do not operate the product unless all abnormalities are resolved.
 - Does the product move in sync with steering wheel operation?
 - Does the product move smoothly?
 - Does the product move securely without looseness?
 - Is there any abnormal noise or sound when moving?
 - Is there any abnormal vibration when moving?
 - Does the product return to the initial standby position and stop when the game is completed?



- If any abnormality in the motion system is suspected, immediately stop all operations, turn off the product and disconnect the power cord. Then, call your local dealer or the contact point listed in this manual. If the product is operated abnormally, serious accidents such as electric shock, fire, collision, etc. can occur.
- For the proper maintenance of the motion system, please contact the contact point listed in this manual. If improperly trained personnel perform the maintenance work, accidents can occur during the maintenance work and can cause accidents to customers and players.



- To help prevent accidents, make sure to install the auxiliary fence and ensure that the product operates properly within the fenced area. Failure to secure sufficient floor space with the fence can result in accidents due to collision and contact between players and objects.
- Make sure there is no damage to surfaces which the player touches during play. Such damaged surfaces can cause cuts and injury.

CAUTIONS : OPERATION (TO THE PLAYER)

To prevent accidents and/or unnecessary problems, alert players or customers to be aware of the following.

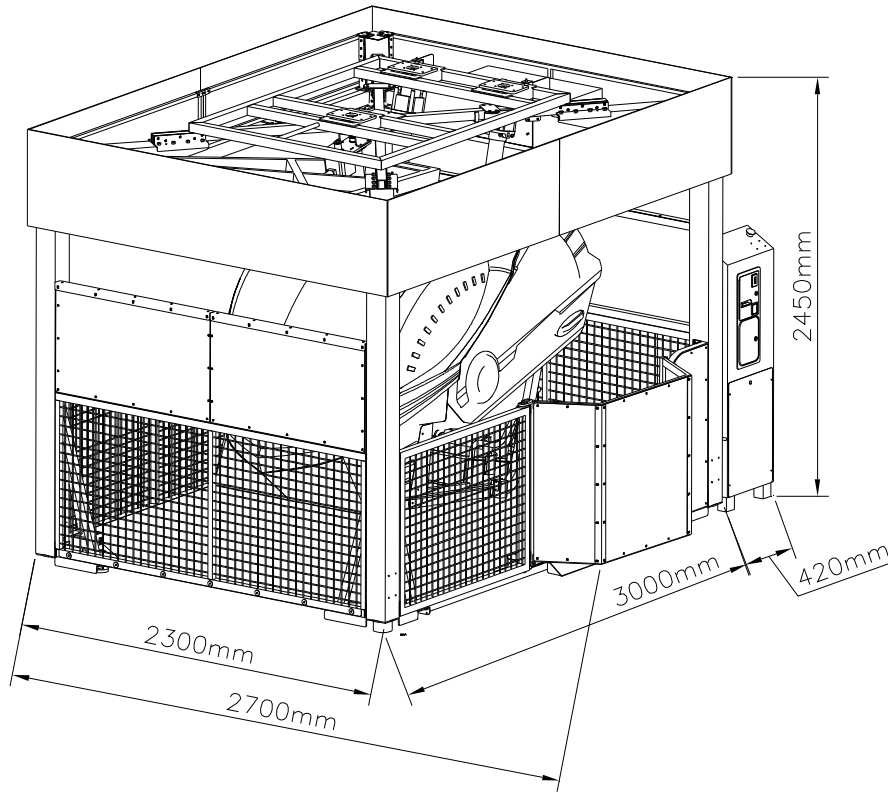


- Anyone who falls into one or more of the following should be prevented from playing the game. It may cause an accident or injuries.
 - Persons who need assistance when walking, and persons with high blood pressure or heart disease.
 - Persons who have experienced spasms/convulsions or unconsciousness' after playing a TV video or similar game.
 - Persons who have neck or backbone trouble.
 - Pregnant women or persons who are intoxicated..
 - Persons susceptible to vomiting from amusement rides.
 - Persons that do not follow warning signs.
- Even persons who have never experienced discomfort due to phobic stimulation may experience dizziness, nausea, and/or headaches from playing this game.
- If discomfort becomes severe, advice a player to consult a doctor.
- Do not place any heavy articles or beverages on top of the product. Accidents from the falling articles and accidents due to electric shock can occur.
- Do not insert your finger or any foreign substances into any open parts or doors of the product. It may cause electric shock or short-circuit.
- Do not lean on or climb on the product. It may cause accidents from falling and turnover of the product.
- Do not pull out the power plug recklessly. It may cause short-circuit or electric shock.



- For safety reasons, persons shorter than 140cm (55.11 in.) are not permitted to play this game. Please explain that such persons cannot be safely secured with the provided safety belt.
- Persons whose weight is over 120kg (265lbs.) are not permitted to board.
- Playing without the seat belt fastened can cause an accident by falling from the cabin. Make sure the player secures their body with the seat belt before playing the game
- No one should hang on the cabin behind the seat. This can cause serious injury due to falling, jamming of body parts between structures, and turnover of the product. If anyone is found hanging on to the cabin, make sure the person gets off.

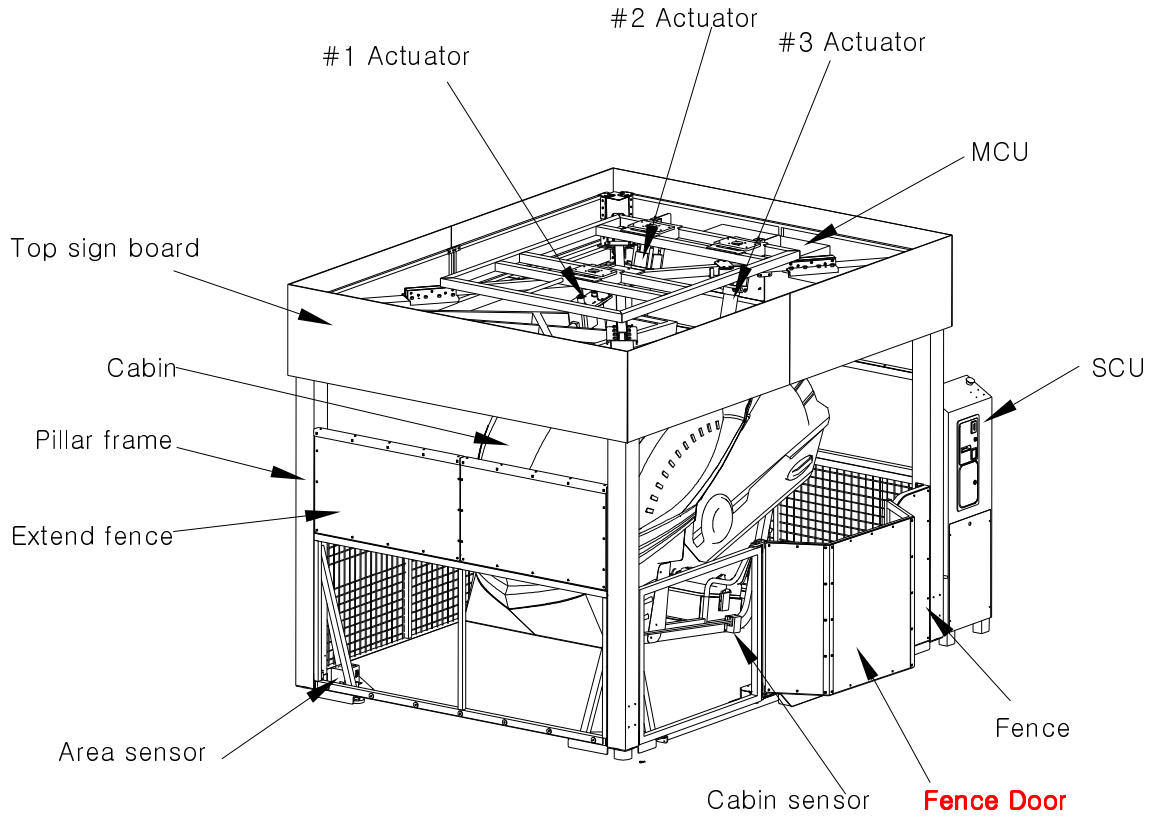
4. Specification



- **Volume:** 2300mm X 3000mm X 2450mm
- **Weight:** approx. 1200Kg
- **Power:** 1P 220V 15A
- **Power Consumption:** approx. 3Kw
- **Monitor :** 42"
- **Weight Limit :** 120kg per passenger (two seater)

5. Name of the parts

5-1. Main Body



Item	Description
Motion Actuator Mechanism	Motion Driving Actuators and anti-twist structure made of links.
MCU (Motor Controller Unit)	Controllers that drive the actuators. 3 units.
SCU (System Console Unit)	Contains system control, movie control unit and coin tower.
Area Sensor	Area sensors that detect any obstacles. When triggered, motion stops until the obstacles are removed and resumes after 3 sec.
Fence Door	Door for riders. (one side)
Cabin Sensor	Cabin sensors that detect any obstacles. When triggered, motion stops until the obstacles are removed and resumes after 3 sec
Pillar Frame	Structure that hold up the motion system and MCU.
Cabin	Semi-enclosed cabin with seats for 2.
Top Sign Board	Sign Board

5-2. SCU(System Console Unit) - Front



● RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

①
Emergency Stop



<SCU Front Panel>

②

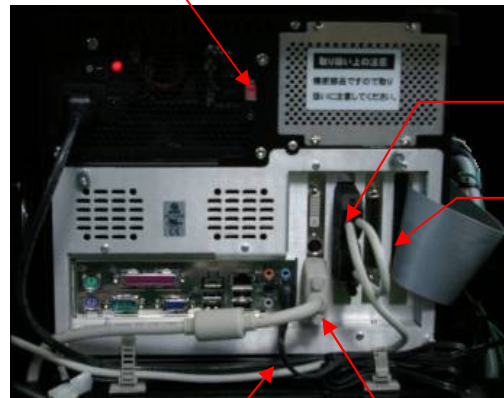


<Coinchute Tower>

Coin Frame

Voltage Selector Switch -230V : 200-240V available
-115V : 100-120V available

③



<System control Computer>

Can Cable

DI/O Cable

Speaker Cable

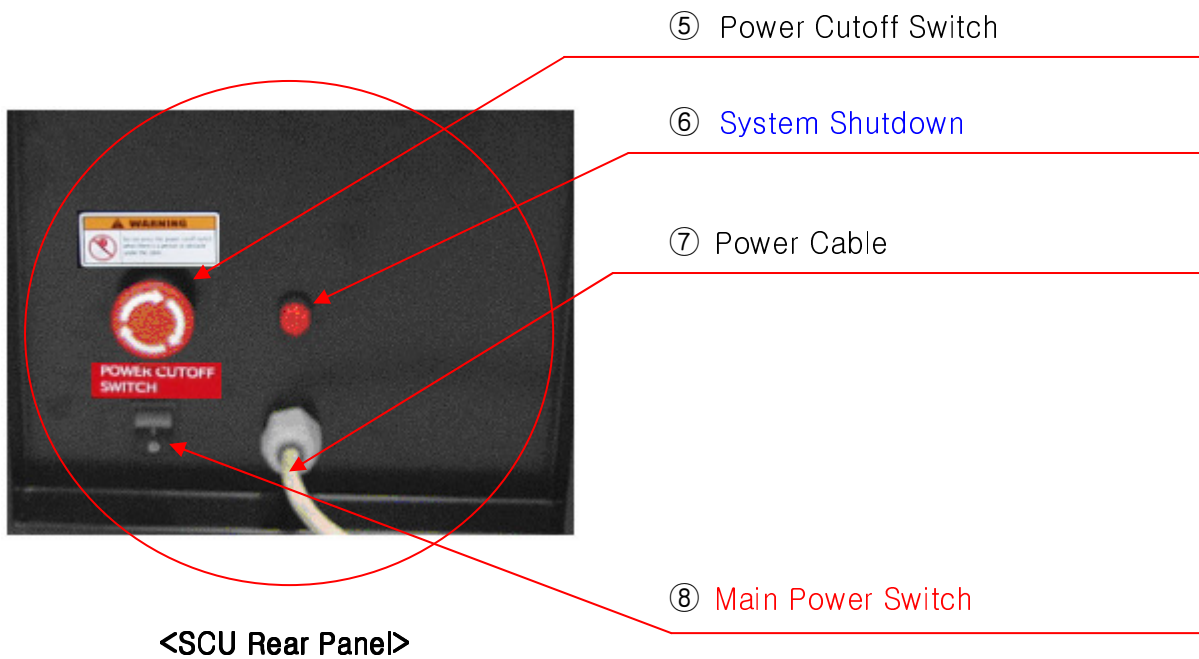
VGA Cable

④

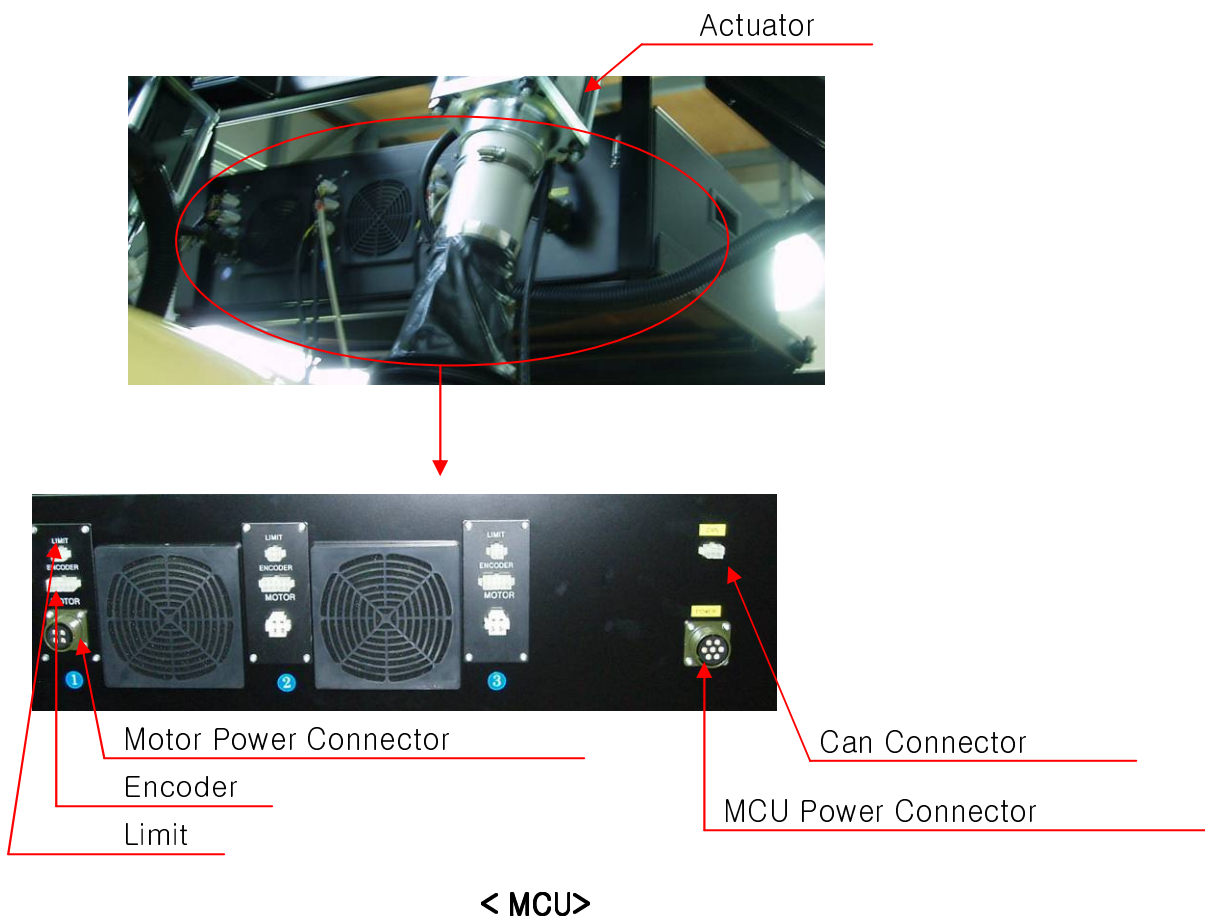


<Transformer>

5-3. SCU(System Console Unit) - Back



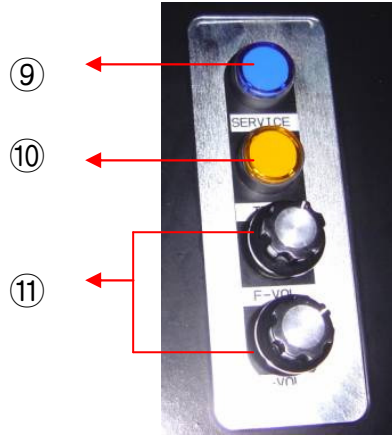
5-4. MCU(Motion Control Unit)



	Item	Description
1	Emergency Stop	Stops the cabin from moving. When released by turning the nob, game will be stopped and the cabin will move to the initial position.
2	Coinchute Tower	Coinchute Tower is designed to suit various types of coin frame. For Japan, Asahi Seiko, and others are recommended to use HAPPS products (Model NO. 42-3272-00.)
3	System Control Computer	Computer that controls the hardware and everything that operates the machine.
4	Transformer	Adjusts the voltage according to the country.
5	Power Cutoff Switch	Only used to stop the machine even when the Emergency stop button is pressed and doesn't work. When pressed, the power to the MCU and the Actuators. Cabin stops at the last position and comes down to power off position slowly. Do not force the cabin to come down faster. "Warning" DO NOT PRESS THIS BUTTON EXCEPT FOR EMERGENCY.
6	System OFF	When pressed for 2 sec., cabin will come down to the initial position and the power to MCU is cut off. System control PC will shut down.
7	Power Cable	Main Power Cable
8	Main Power Switch	When pushed to ON position, system starts up. Initialization will be processed. Cabin moves up to boarding position.

5-5. O.P Panel

O.P Panel is located inside the Coinchute Tower of the SCU.



	Item	Description
9	SVC (Service)	Inputs the credit.
10	TEST Button	Used to update the operating software or to do service works. Also used to diagnose conditions of the System Control Computer. To use this mode, press and hold the button while turning on the system. This button will not work while in operation. "CAUTION" Only the certified service man shall use this mode.
11	F-VOL	Front speaker volume
	R-VOL	Rear speaker volume

6. Accessory

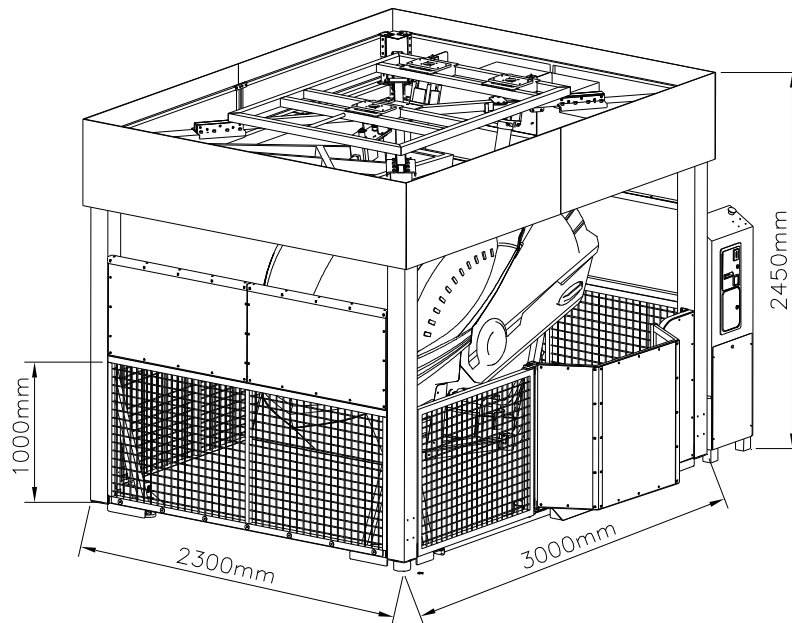
Part	Number
SCU Key	2
Coinchute Tower Key	2
Manual	1


7. Installing the Fence



- Mini-Rider is a motion simulator. Rectangular fence must be installed before operating.

- Install the door at the entrance.



Size	2300mm x 3000mm x 1000mm
Material, Installation	Fence is equipped with strong PC(polycarbonate) screen to keep the gallery away from the moving cabin. Fence must be securely fastened to the main frame with supplied bolts.
Ex.	

8. Installation Assembly



- Always follow the instructions in this manual. Not following this manual fully may cause electric shocks or other accidents.
- This product has a complex structures and equipments. Misses in assembly may cause electric shock or damages to the machine and cannot guarantee normal operation in those cases.
- Make sure there are a crew of 4 or more is available for installation. This machine cannot be assembled by one technician. If the installation is carried out by one person, accidents or damages to the machine may occur.
- Make sure all of the connectors are connected to the proper positions firmly. Insecure connections may cause malfunctions or electric shocks.
- Make sure that none of the cables and harnesses are damaged during installation. Damaged cables and harnesses can cause electric shocks or short circuit.
- This installation must be carried out by the manager of the store or the service manager. If an unqualified personnel installs this machine, accidents may occur. Also, if the installation instructions in this manual is not followed fully, severe accidents may occur to both of the passengers and workers.
- Make sure that the required space is available for the installation. The space required for the installation is noted in this manual. Insufficient installation space may cause accidents during installation.
- Slanted floor, gaps, elevation difference must be avoided for installation. Cabin or frames may tip over and cause sever accidents.
- Do not expose the power cable, earth line and etc where people might walk over them. Damaged cables may cause electric shocks or short circuits. Use cable floor molds to protect them.
- Do not cover the vent at SCU. It may cause overheating and possibly fire. Make sure there are at least 2m of room in front of the door for traffic.



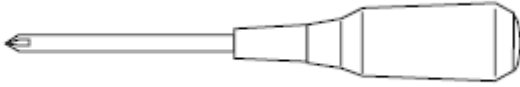
- Use caution while working with molded parts. Too much pressure can damage the parts. This may cause injuries.
- Be careful when working with doors to avoid head injuries.

Follow the below order when installing the product.

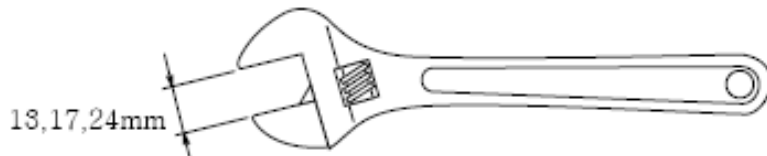
- (0) Unpacking and unloading the product**
- (1) Line up all the parts**
- (2) Settle the Pillar frame in position**
- (3) Assemble the Pillar frame and upper support frame**
- (4) Assemble the Pillar frame and lower support frame**
- (5) Assemble the Pillar frame and X-frame(=actuator support frame)**
- (6) Assemble the Pillar frame and Arm frame**
- (7) Connect Actuators to the X-frame**
- (8) Assemble the Cabin**
- (9) Assemble the MCU support bracket**
- (10) Assemble the Side Fence**
- (11) Assemble the Door Fence and Door box**
- (12) Assemble the Area Sensor and Sensor Setting**
- (13) Fasten SCU**
 - ※ Coin Frame Installation - Option**
- (14) Assemble Top Sign Board**
- (15) Assemble the ramp**
 - ※ Install the Casters – Option**
- (16) Connect Power**

Tools needed for Installation

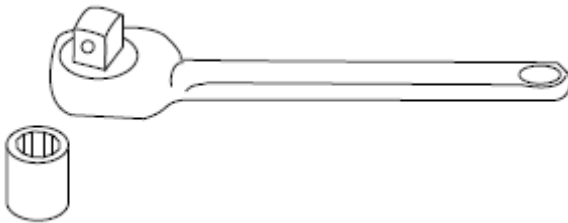
- Philips Screwdriver



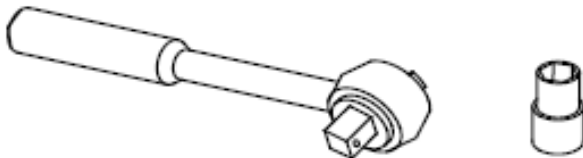
- 24mm Spanner(M16)



- 10, 13, 17, 24mm Ratchet(M6, M8, M10, M16)



- 8mm(Ashai), 5/16(7.95mm(HAPP)) Mini-Socket Wrench – Coin Frame



- 6mm Allen Wrench(Fence door hinge cap)



(0) Unpacking and unloading the product

- Unpack and unload the product using a forklift



Unpack the wooden crate by first disassembling the top panel of the crate and then the side walls. The crate consists of the following parts;

- i. Main cabin and all frame assembly
- ii. Actuator units
- iii. Fences
- iv. System Control Unit (SCU)
- v. MCU(Motor Control Unit)
- vi. Top sign board
- vii. Installation box

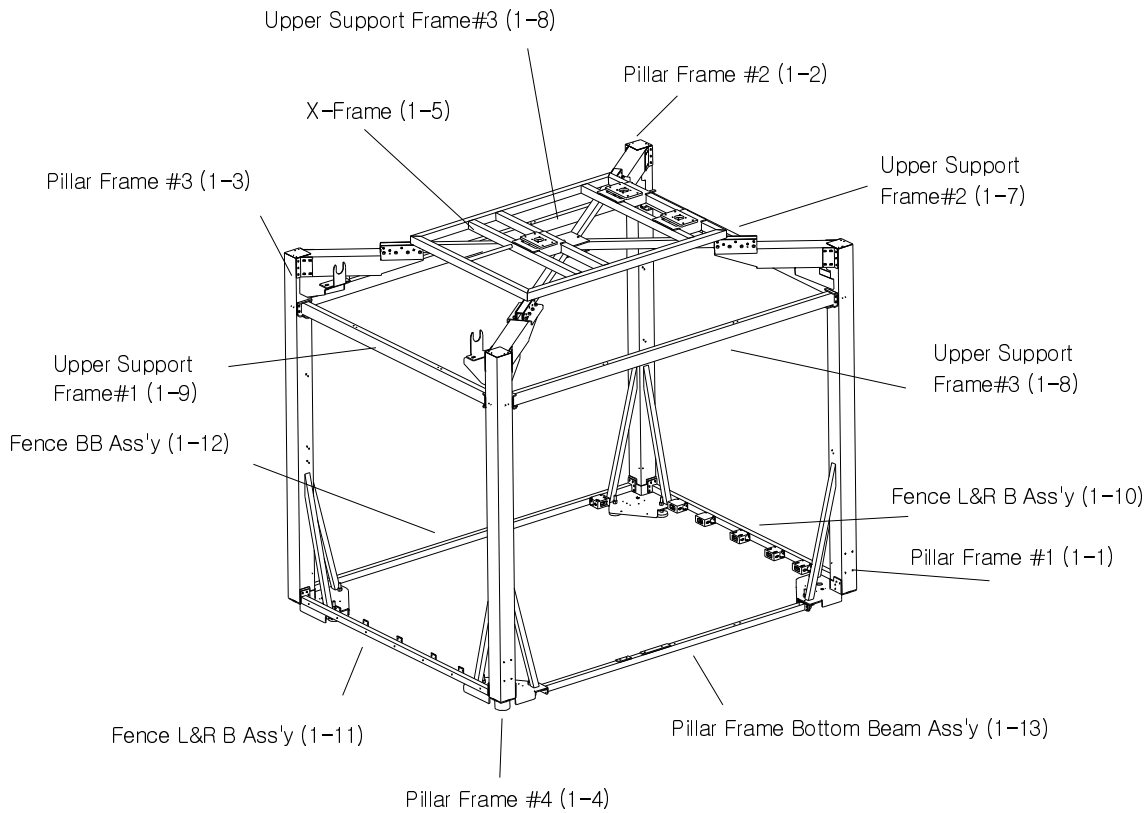
CAUTION ! LIFTING THE CABIN

Please make sure to lift the cabin slowly underneath the bottom wooden cart!!

Do not remove the wooden cart!! The cabin on the wooden cart is adjusted in height so that the three actuators are bolted to the cabin



(1) Line up all the parts

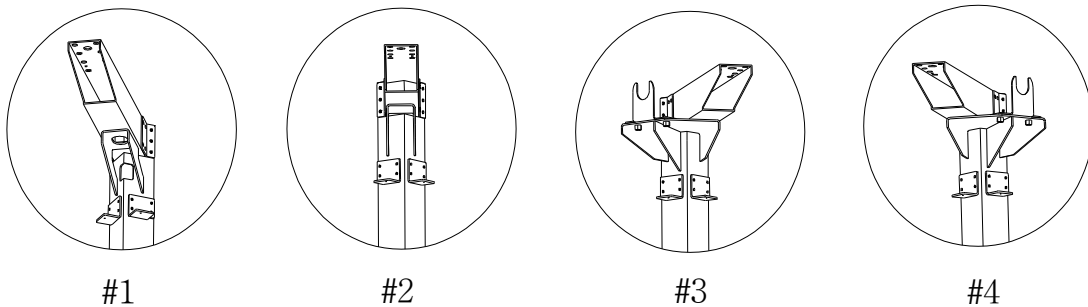


< Fig 8-1a. Parts Description >

(2) Settle the Pillar frame in position

※ Be sure to leave at least 2m of room in front of the Fence door to provide enough room for traffic.

1. #1 Pillar frame has a cable duct inside
2. #3 and #4 has holes for Arm bearing bracket.



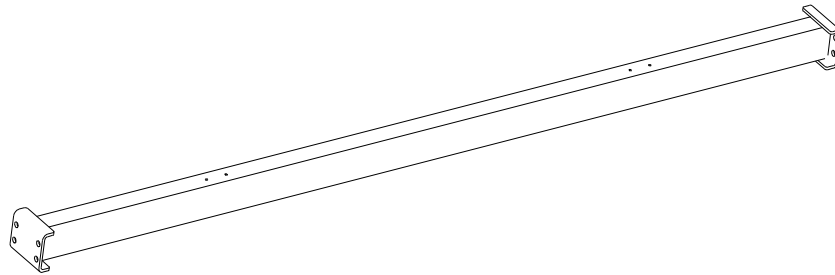
< Fig 8-2a >

(3) Assemble the Pillar frame to support frame

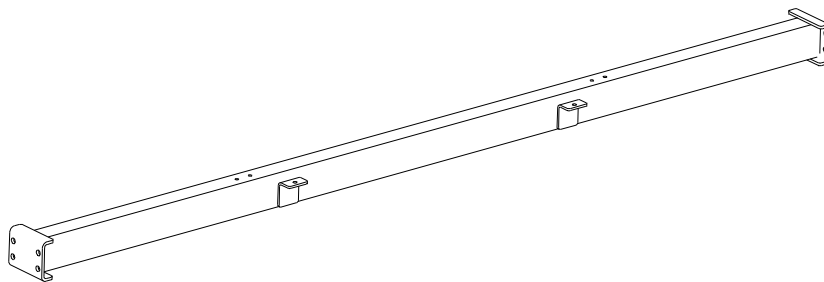


● Do not tighten the bolts all the way (Tighten them temporarily)

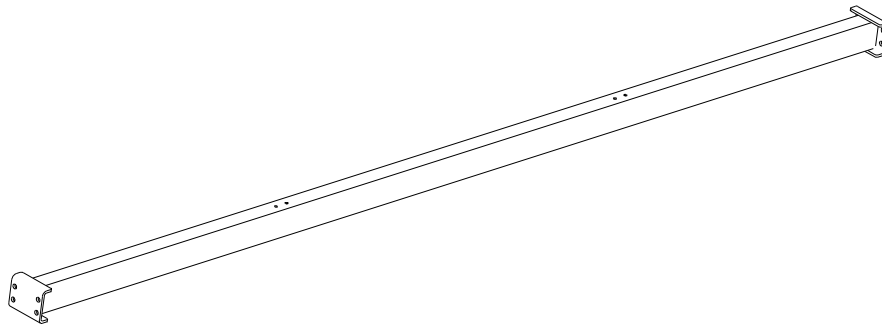
① Prepare the Upper Support Frames.



[1-9] 1ea



[1-7] 1ea

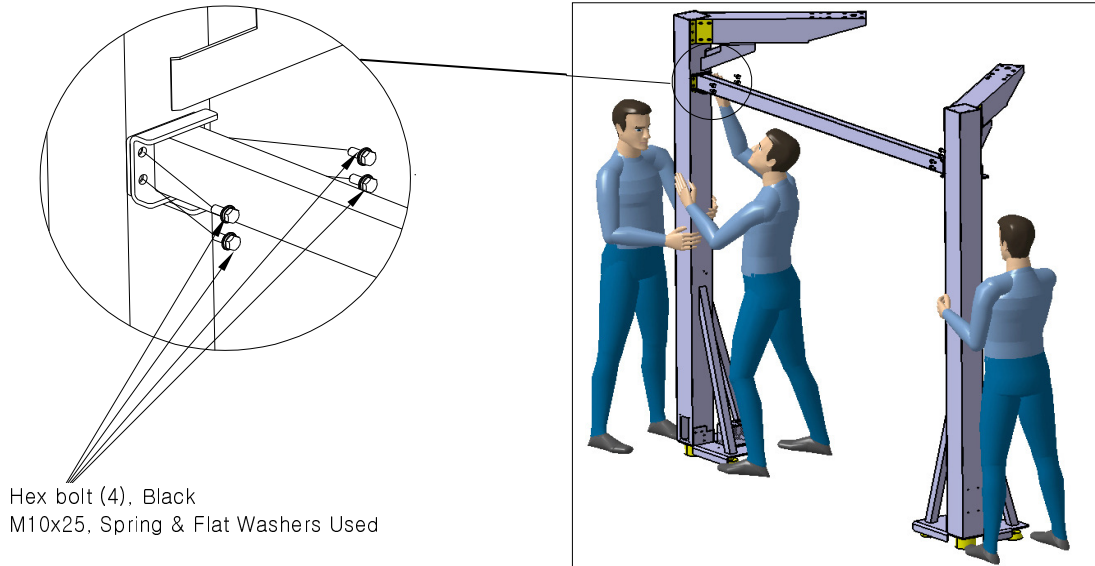


[1-8] 2ea

< Fig 8-3a >

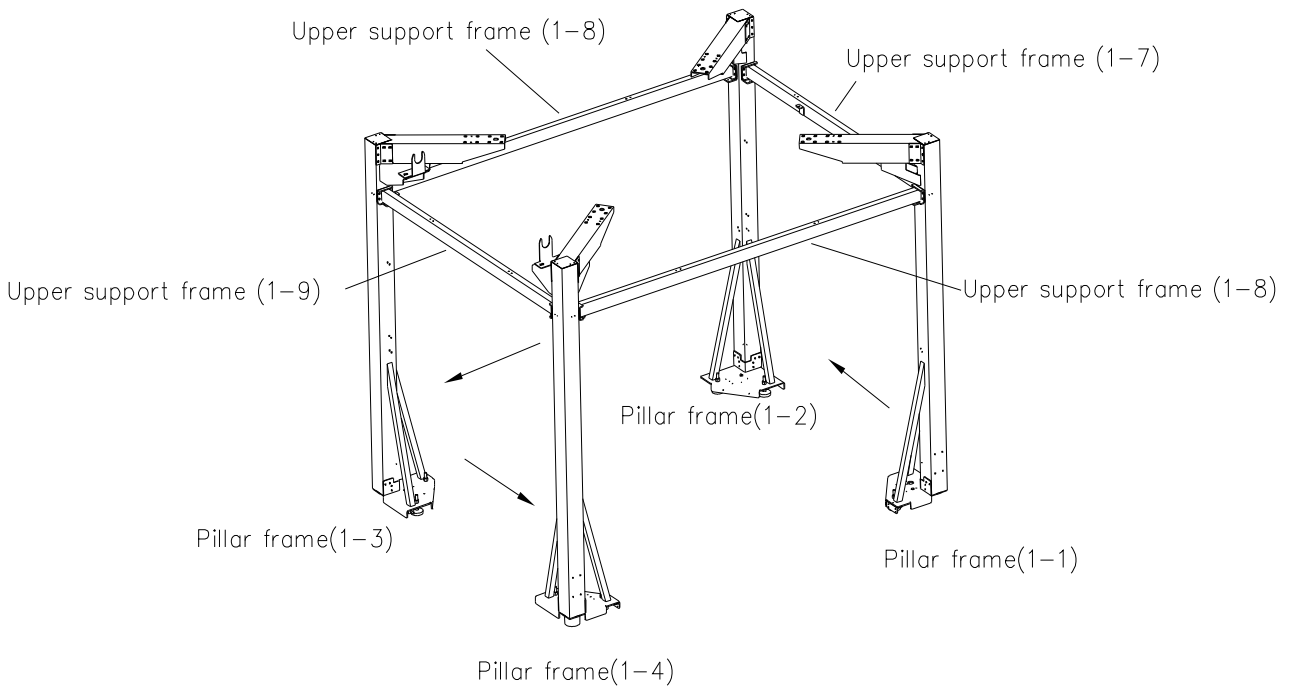
※ A little twist and push may be needed to line up the Bolt holes.
 (Use Locktite 242 or a product of same performance to fasten the bolts.)

Caution ! : When a pillar frame is standing alone, it may tip over. One should always hold the frame upright when others are tightening the bolts.



< Fig 8-3b >

① Assemble the Top Support frame as shown in figure 8-3c.



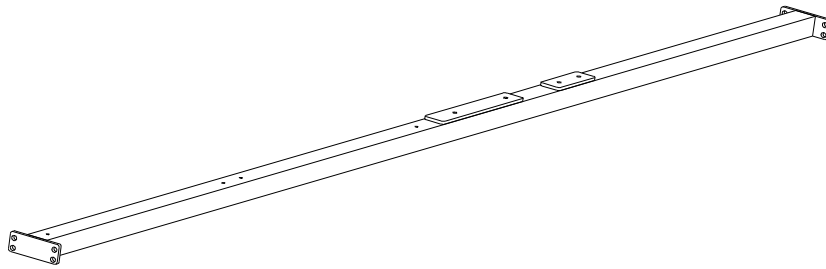
< Fig 8-3c >

(4) Assemble the Pillar frame and lower Support frame

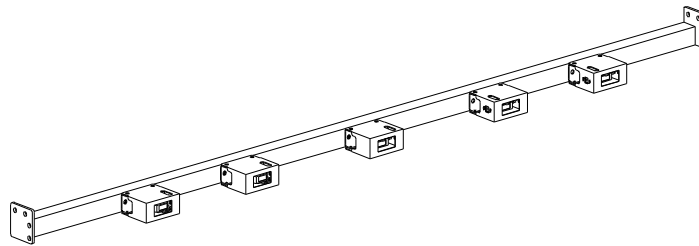


- Do not tighten the bolts all the way (Tighten them temporarily)

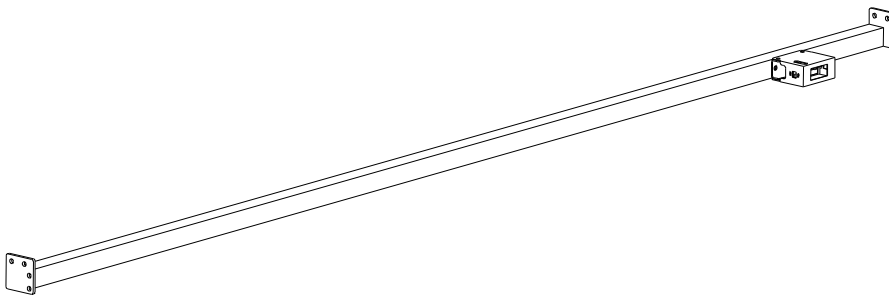
- ① Prepare the Lower Support frame.



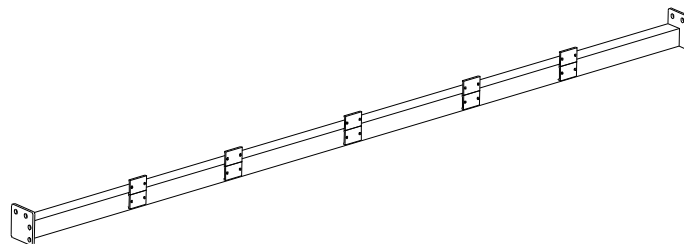
[1-13] 1ea



[1-10] 1ea



[1-12] 1ea

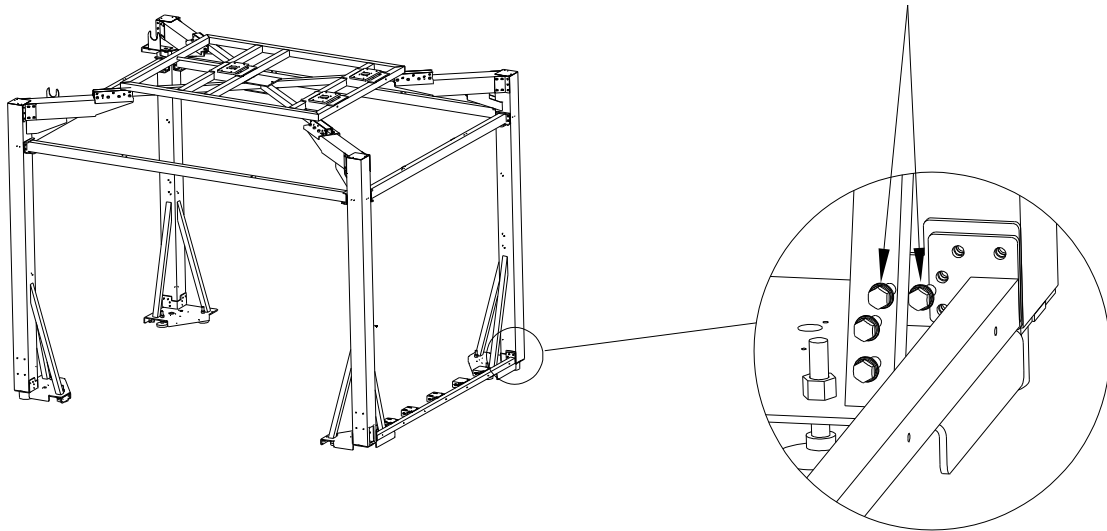


[1-11] 1ea

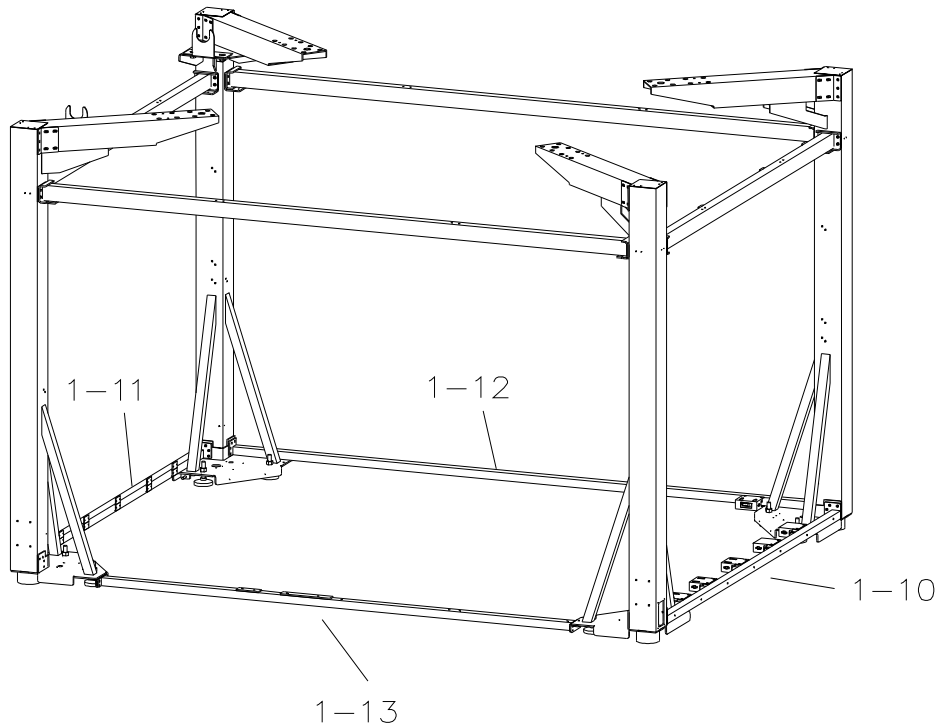
< Fig 8-4a >

- ② Assemble following the order of 1-10~12 and then assemble 1-13(Door Support Frame) A bit of twisting and moving may be required to line up the bolt holes. Do not apply locktite to the door support frame for it needs to be removed to install the cabin.

Hex bolt (4), Black
M10x25, Spring & Flat Washers Used



< Fig 8-4b >



< Fig 8-4c >

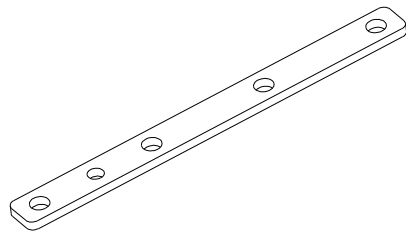
- ③ Before attaching the Upper and Lower support frames, tighten bolts that were once set temporarily.

(5) Pillar frame and X-frame(=actuator support frame)

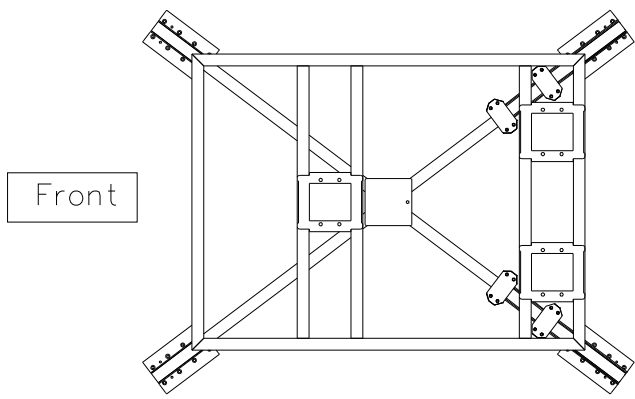
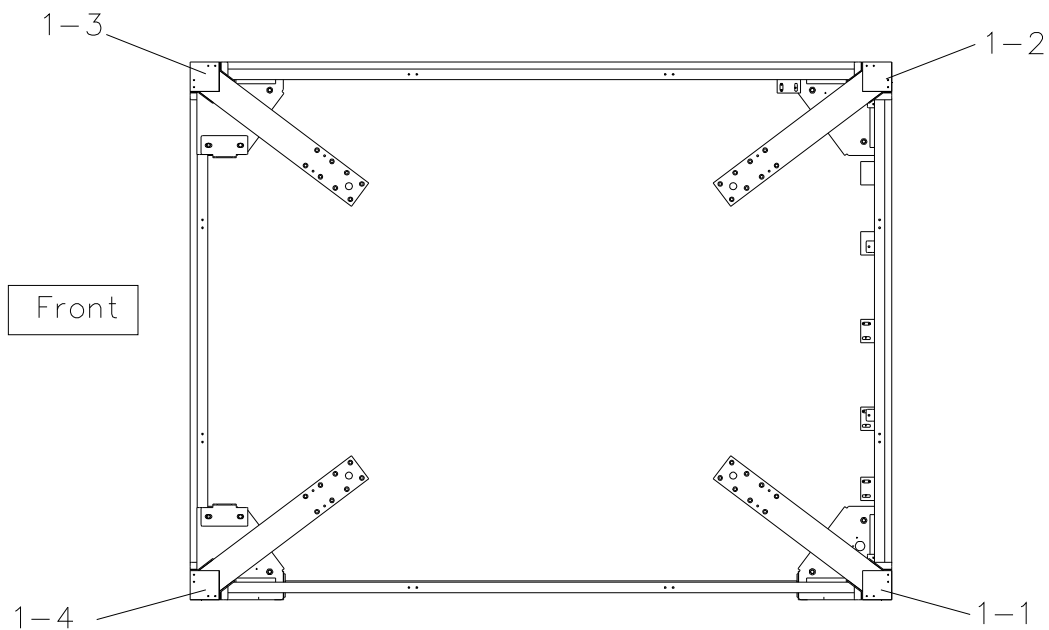


● Do not tighten the bolts all the way (Tighten them temporarily)

- ① Prepare 8 Plate washers prior to attaching the X-frame to the Pillar frame.

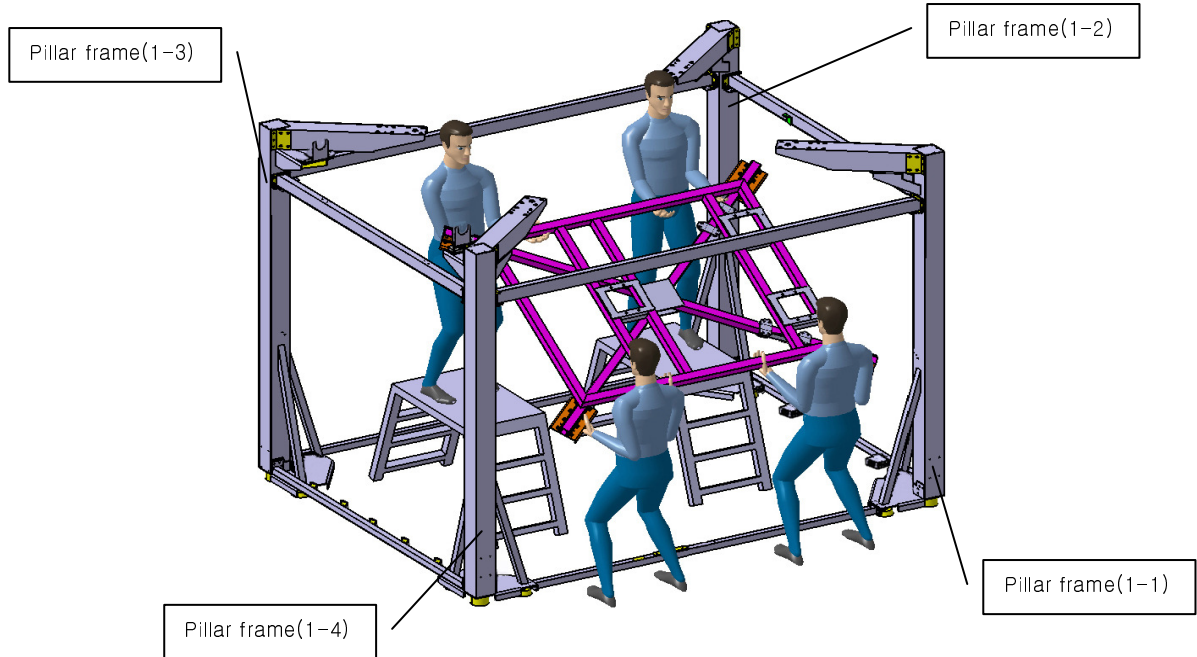


< Fig 8-5a > Plate washer



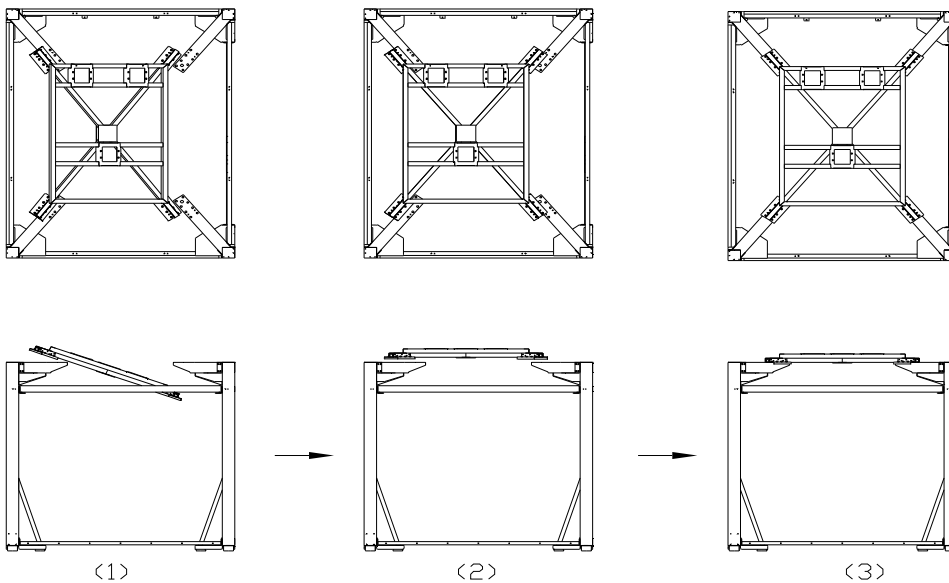
< Fig 8-5b > X-frame

- ② Inside the already assembled frame, place to foldable scaffolds. 2 of the technicians should be on the scaffolds and get ready to pull up the X-Frame.
- ③ 2 on the floor push up and 2 on the scaffolds pull up and put the X-Frame on top of the Pillar frames.



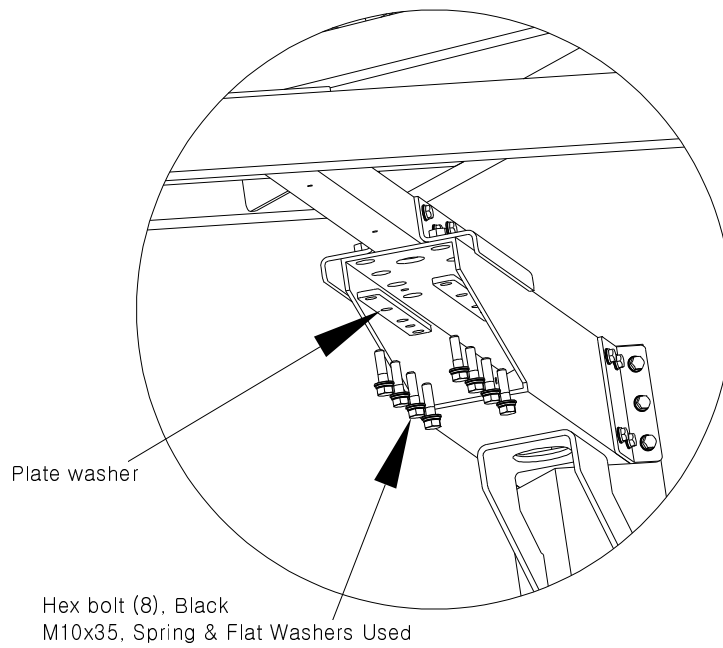
< Fig 8-5c >

- ④ 2 on the scaffolds move the X-frame carefully to line up the bolt holes while the rest holds the pillar frames.
- ※Tip : Pillar frame may need to be pushed or twisted to line up the bolt holes. You may use the line-up holes to line up the holes.



< Fig 8-5d >

- ⑤ When the bolt holes are lined up, use plate washers to assemble the X-frame for temporarily.



< Fig 8-5e >

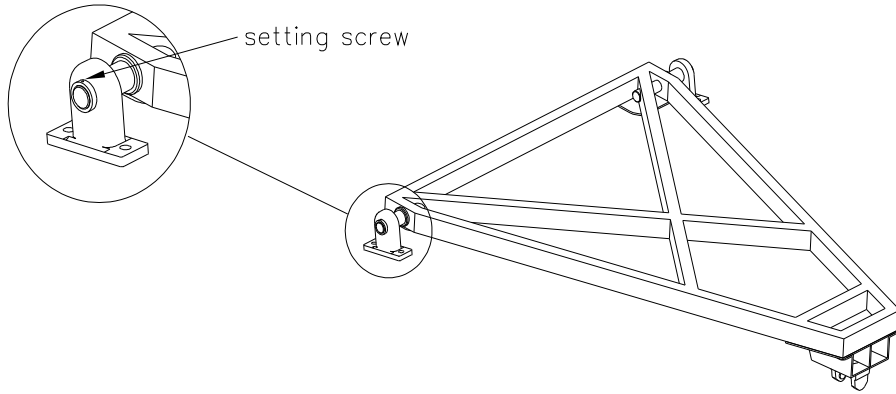
- ⑥ When all the bolts are in position temporarily, tighten the bolts at the Upper support frames first.
⑦ Tighten the bolts in the following order.



- Tighten all of the bolts firmly.

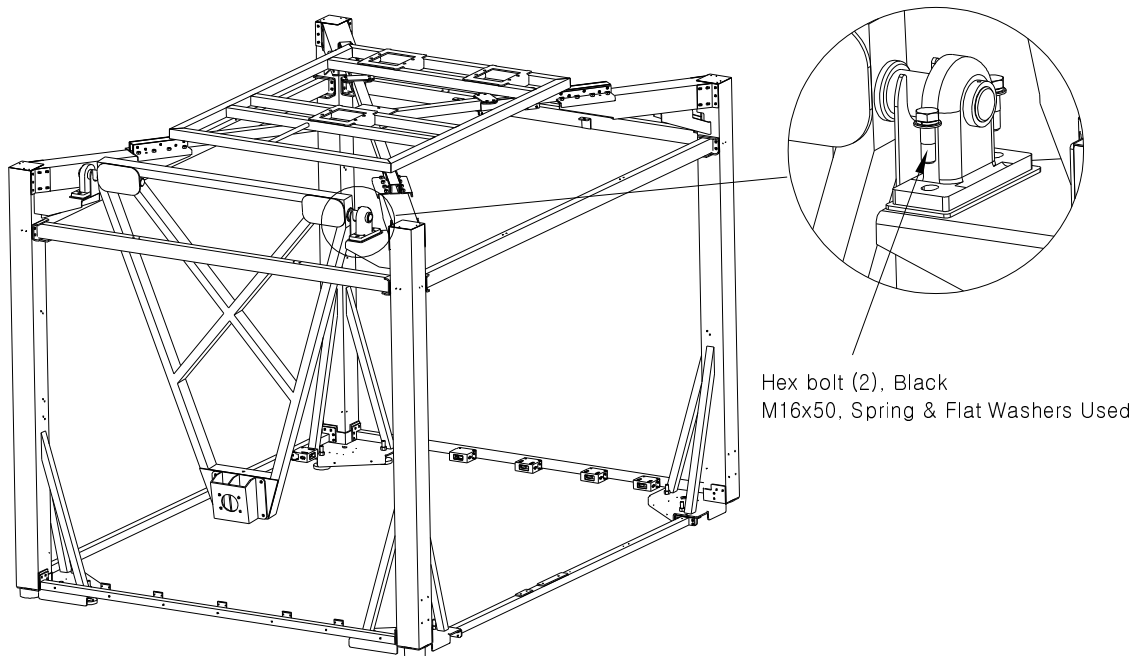
(6) Pillar frame and Arm frame

- ① Make sure the set screws on the Arm frame are securely tightened.
(if not, bearings may move out of their positions.)



< Fig 8-6a. Bearings on the Arm frame >

- ② 2 technicians hold the arm frame straight up with the bearings on the top.
 - ③ 1 technician places the bearing lining up with the mounting holes.
- ※ Ref. : When the Bearing is not already attached to the Arm frame, refer to Fig 8-6a and attach the bearing to the arm frame.
- ④ Use locktite 242 and tighten the bolts. – Nuts are welded in place.



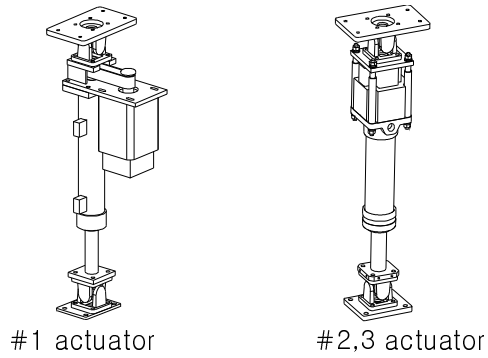
< Fig 8-6b >

(7) Attaching the actuators to the X-frame



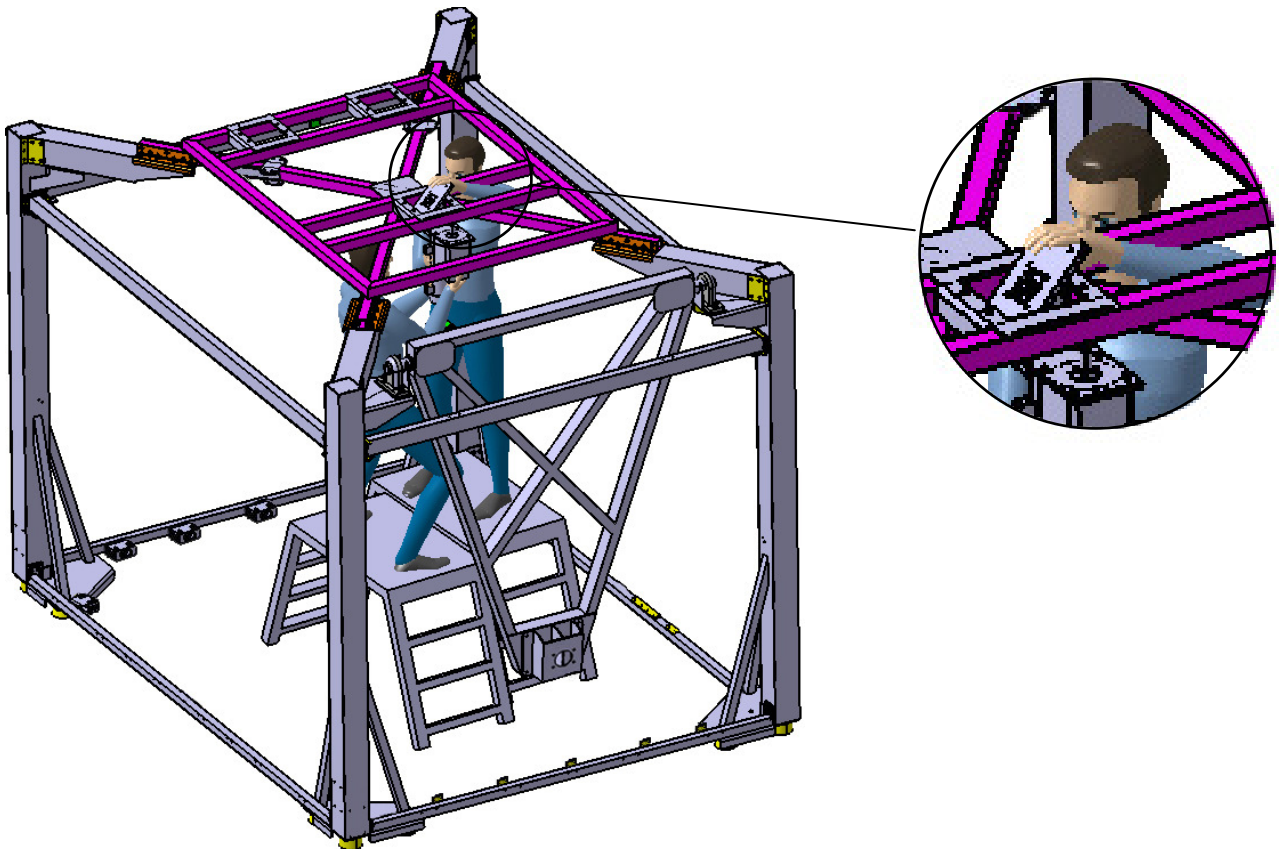
- Be careful of the direction when installing #1 Actuator – Motor Forward

① There are total of 3 actuators. The one with belt drive system is the #1 actuator, and the rest are #2 and #3.

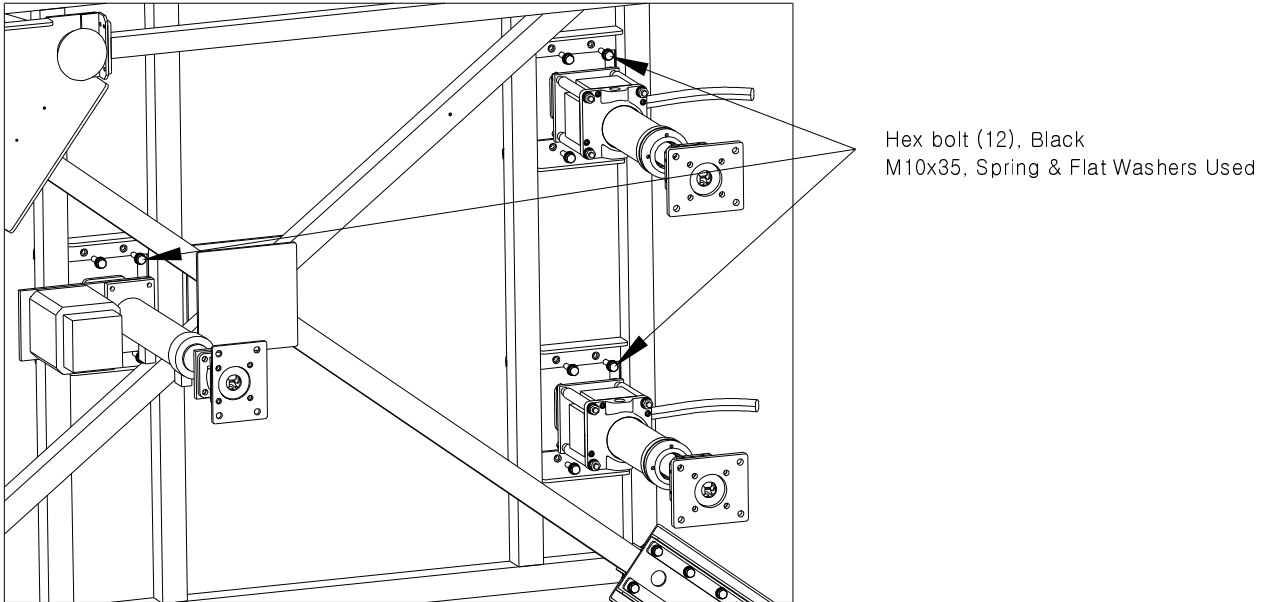


< Fig 8-7a >

② With one technician holding an actuator in place, and the other moves the bracket so that the actuator hangs from the X-frame. Line up the mounting holes and secure the actuator with supplied bolts.

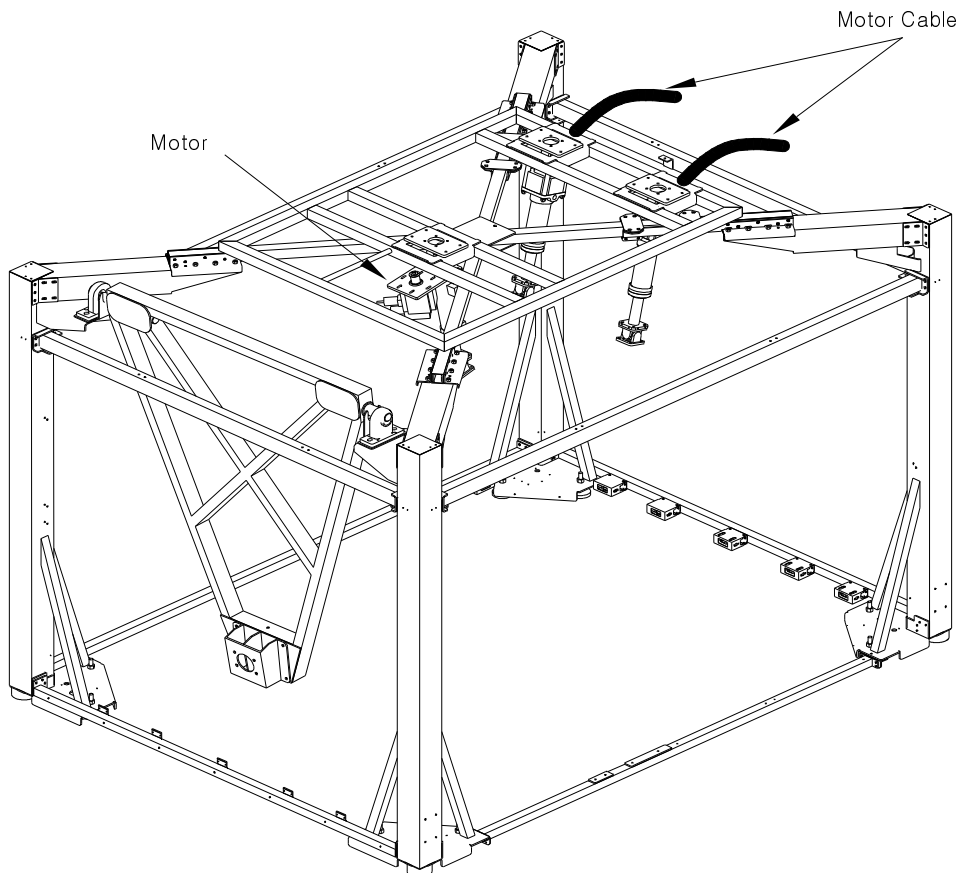


< Fig 8-7b >



< Fig 8-7c >

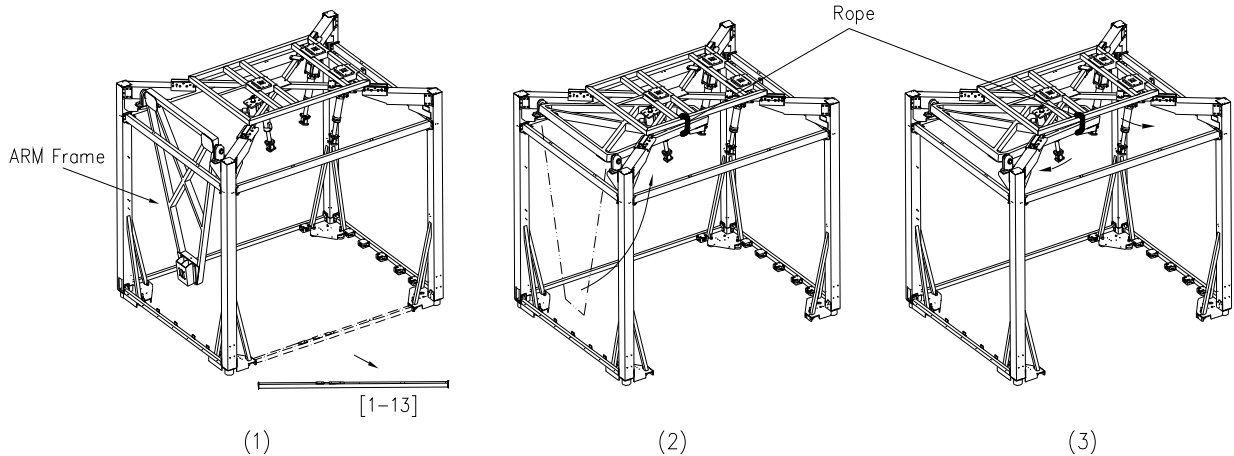
- ③ Make sure the motor is facing outside when installing #1 actuator.
- ④ Mount the actuators so the cables are facing outward when installing #2 and 3 Actuators.



< Fig 8-7d >

(8) Attaching the Cabin

- ① First, remove the door support frame(1-13).
- ② Lift the Arm frame.
 - ※ Tip : Use a ratchet rope or similar equipment to hold it up.
- ③ Secure the actuators pointing outward so that they do not interfere with the cabin.

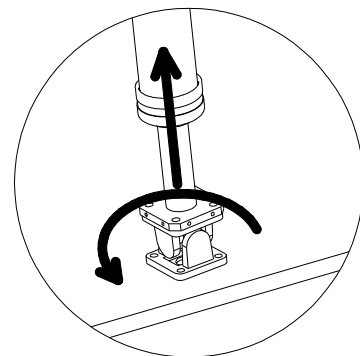
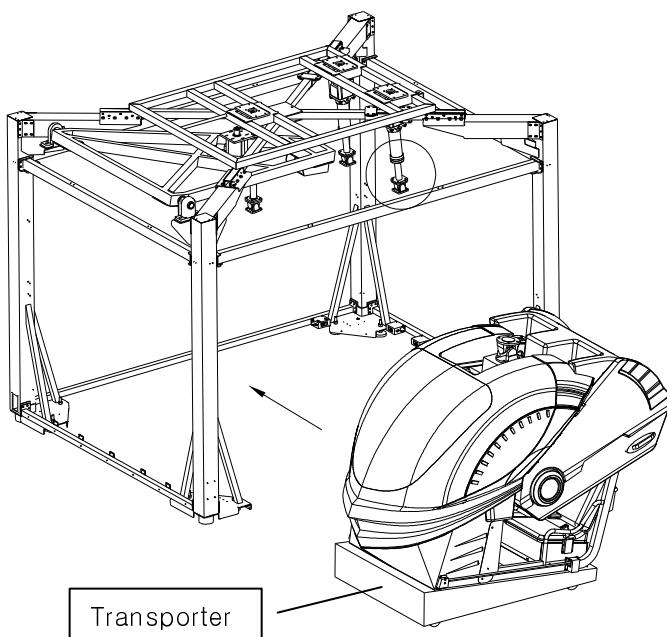


< Fig 8-8a >

- ④ After removing the cabin from the package, check for any signs of damage to the cabin FRP. Check for any loose bolts and screws. Check if any of the cables are missing. Using the supplied transporter, move the cabin in to the frame so that the cabin is placed right below the X-frame.



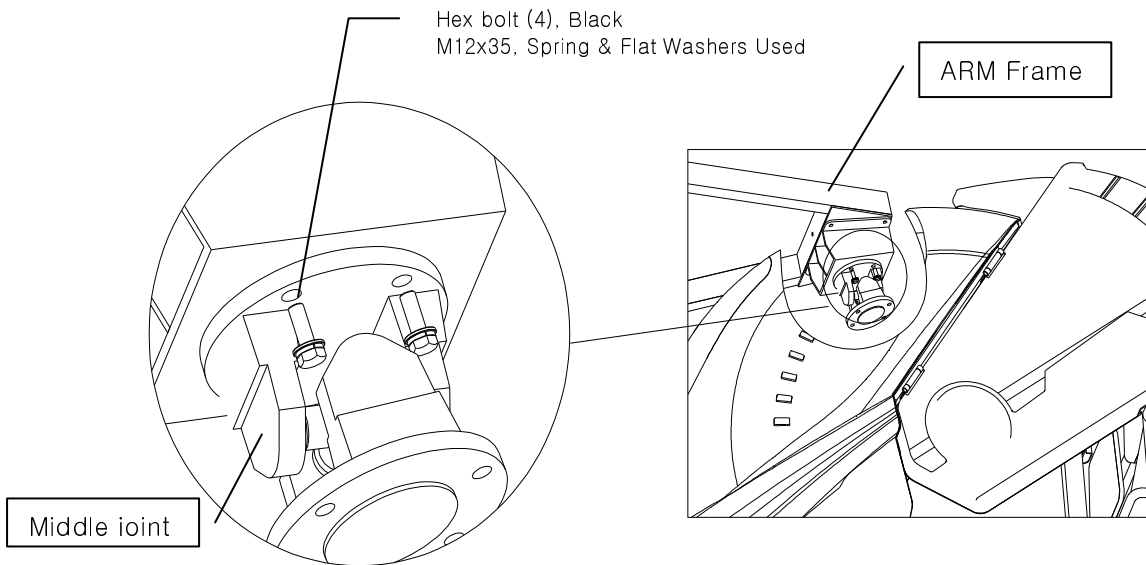
● Shorten the Actuators as shown in Fig.8-8b to prevent any damage to the Cabin.



Pistons of the actuator can be pushed up by turning the joints CCW(Counter clock wise)

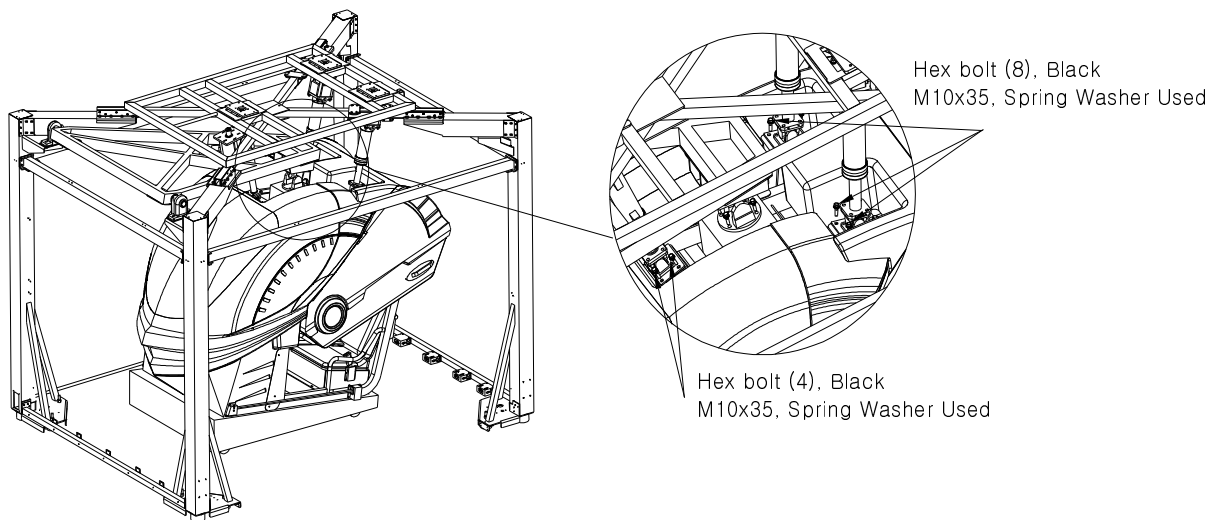
< Fig 8-8b >

- ⑤ Line up the bolt holes on the Middle Joint and tighten the bolts.



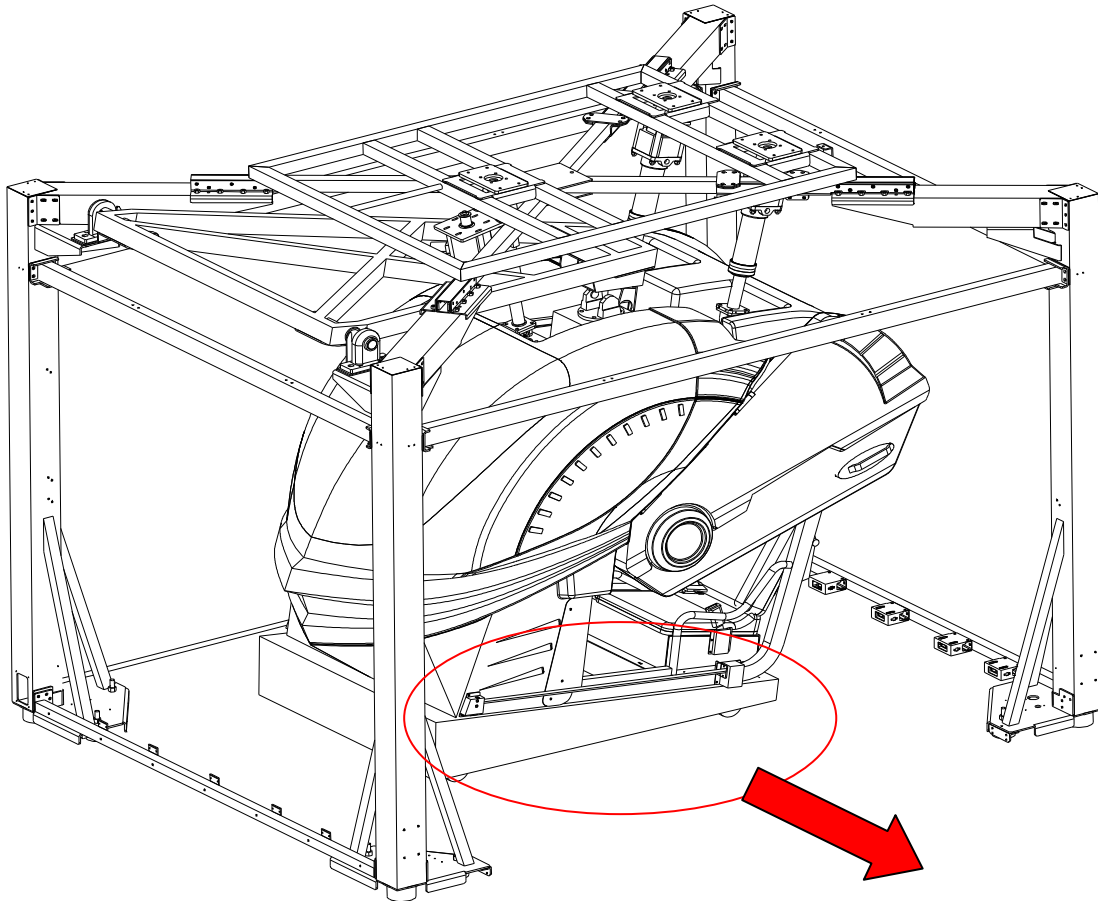
< Fig 8-8c >

- ⑥ Line up the holes for the actuators and the according holes on the cabin. Tighten the bolts.



< Fig 8-8d >

- ⑦ Using locktite 242, re-assemble the 1-13(Door support frame.)



< Fig 8-8e >

- ⑧ Remove the Wooden cart. Do not remove the wooden cart until all of the wiring and installations of the SCU and MCU are complete. The weight of the cabin is around 300kg. The cart cannot be removed unless the cabin is powered and lifted.

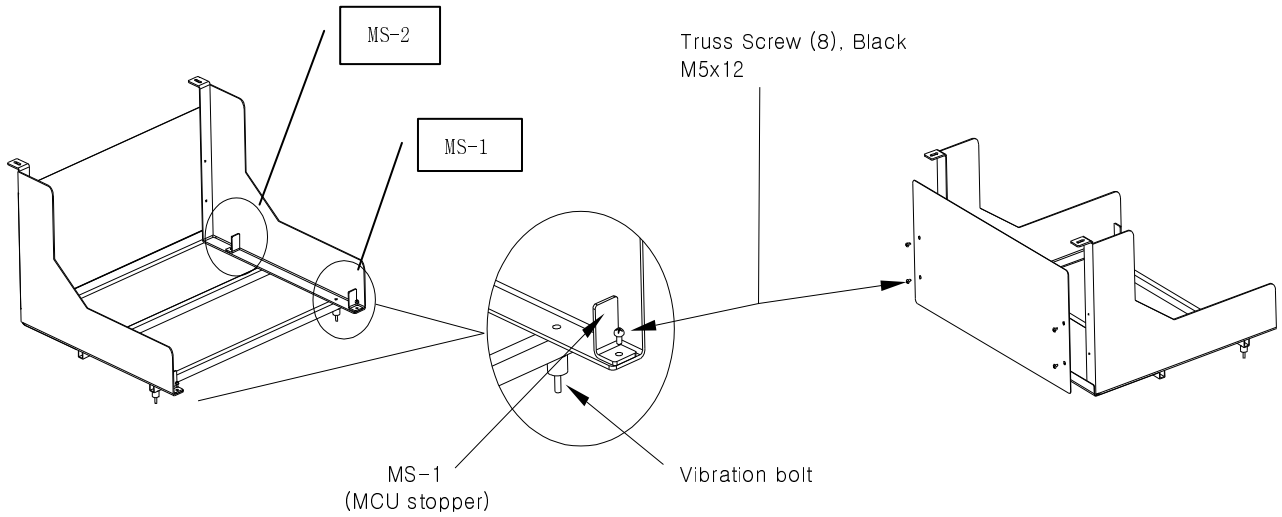
To lift the cabin up follow the below instruction :

- Ⓐ Press 'Service' button when the simuline software loading box appears.
- Ⓑ The cabin will move up.
- Ⓒ Pull out the cart.

*** When you are doing this, first, remove the door fence.**

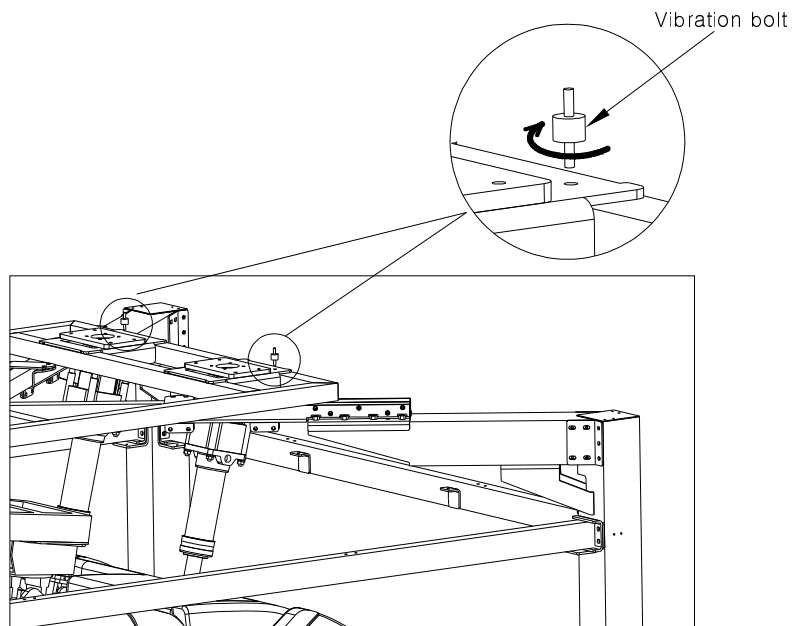
(9) MCU Support Bracket

- ① Remove the MS-1(MCU Stopper) on the MCU support bracket.



< Fig 8-9a. MCU Support Bracket >

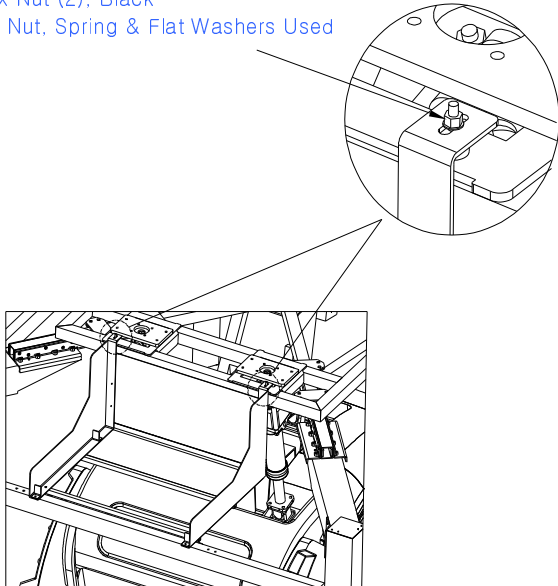
- ② Screw in the Vibration bolts on top of the X-Frame.



< Fig 8-9b >

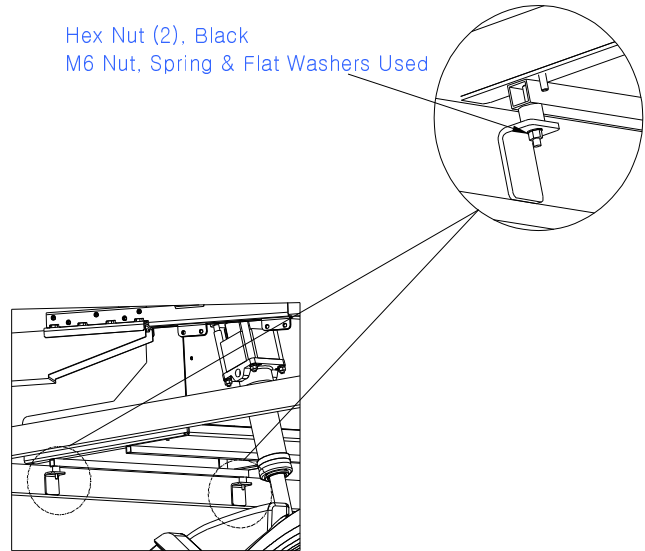
- ③ After installing MCU Support Bracket, place the MCU box and push it until it is stopped by the stopper(MS-2) Re-install the MS-1 blocks.

Hex Nut (2), Black
M6 Nut, Spring & Flat Washers Used



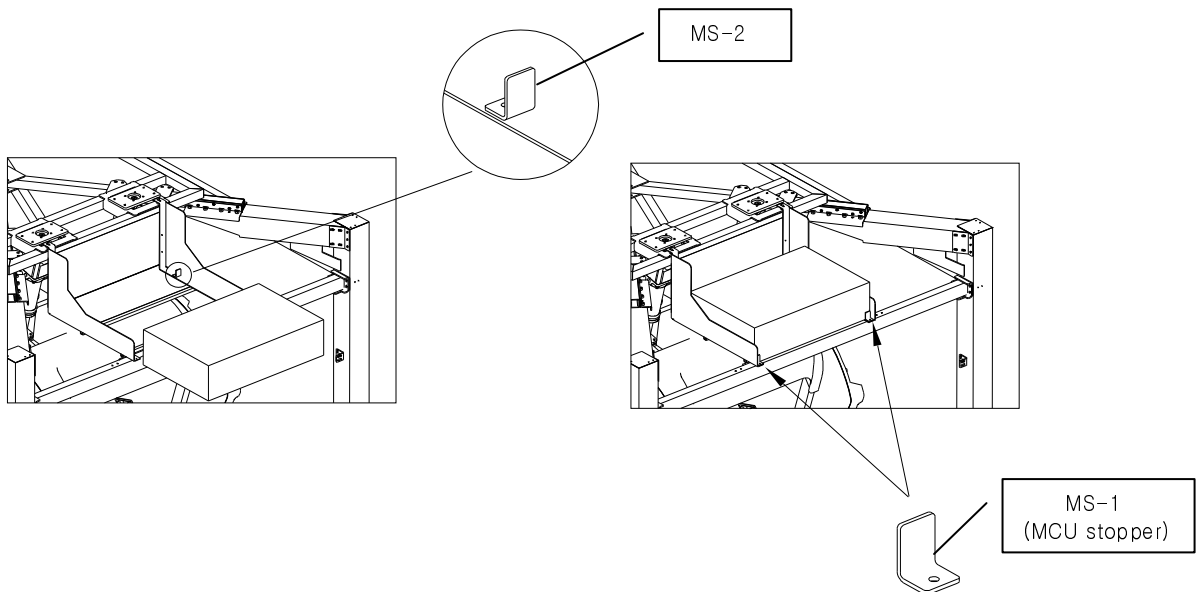
< Fig 8-9c >

Hex Nut (2), Black
M6 Nut, Spring & Flat Washers Used



< Fig 8-9d >

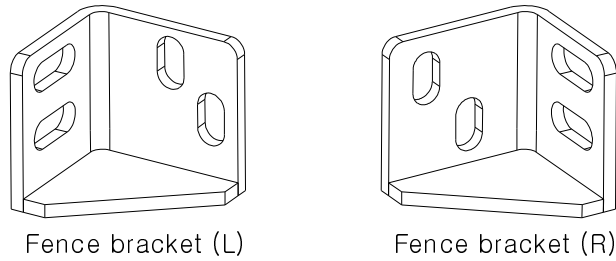
- ④ Push in MCU Box. Re install the MCU Stopper (MS-1)



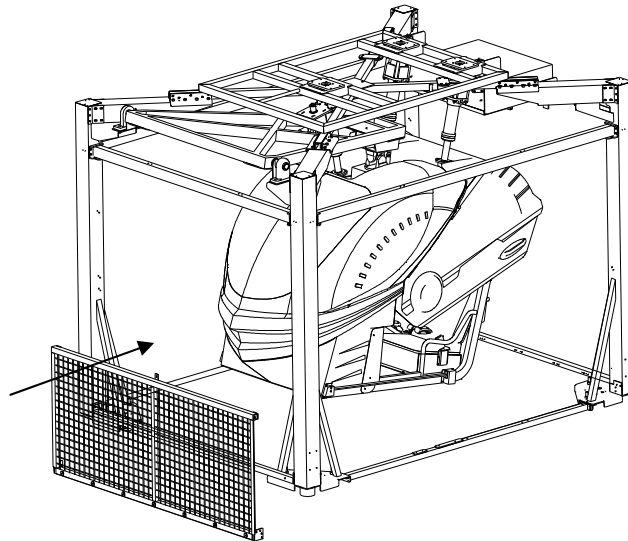
< Fig 8-9e >

(10) Side Fence

- ① Re-install the Door Support Frame.
- ② Except for the fence on the door side, place the other fences at the corresponding positions.
- ③ Attach the Fence bracket on the Pillar frame temporarily.
- ④ Line up the bolt holes on the Lower Support Frame and fasten the bolts.
- ⑤ Attach the fence to the Pillar frame.

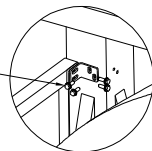


< Fig 8-10a. Fence bracket >



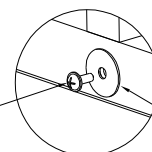
< Fig 8-10b >

Hex bolt (4), Black
M8x25, Spring & Flat Washers Used



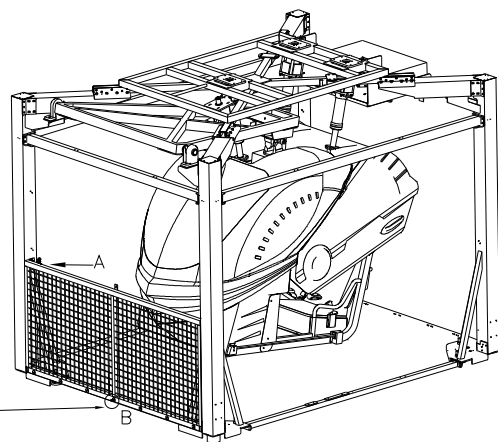
View "A"

Truss screw (7), Black
M5x12



View "B"

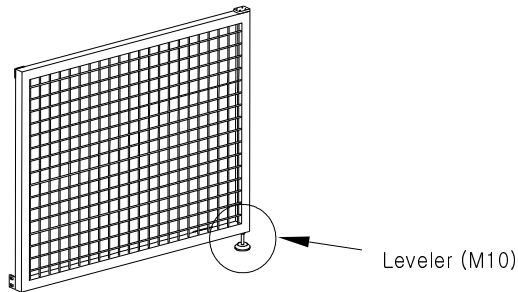
Washers (D=30mm)



< Fig 8-10c >

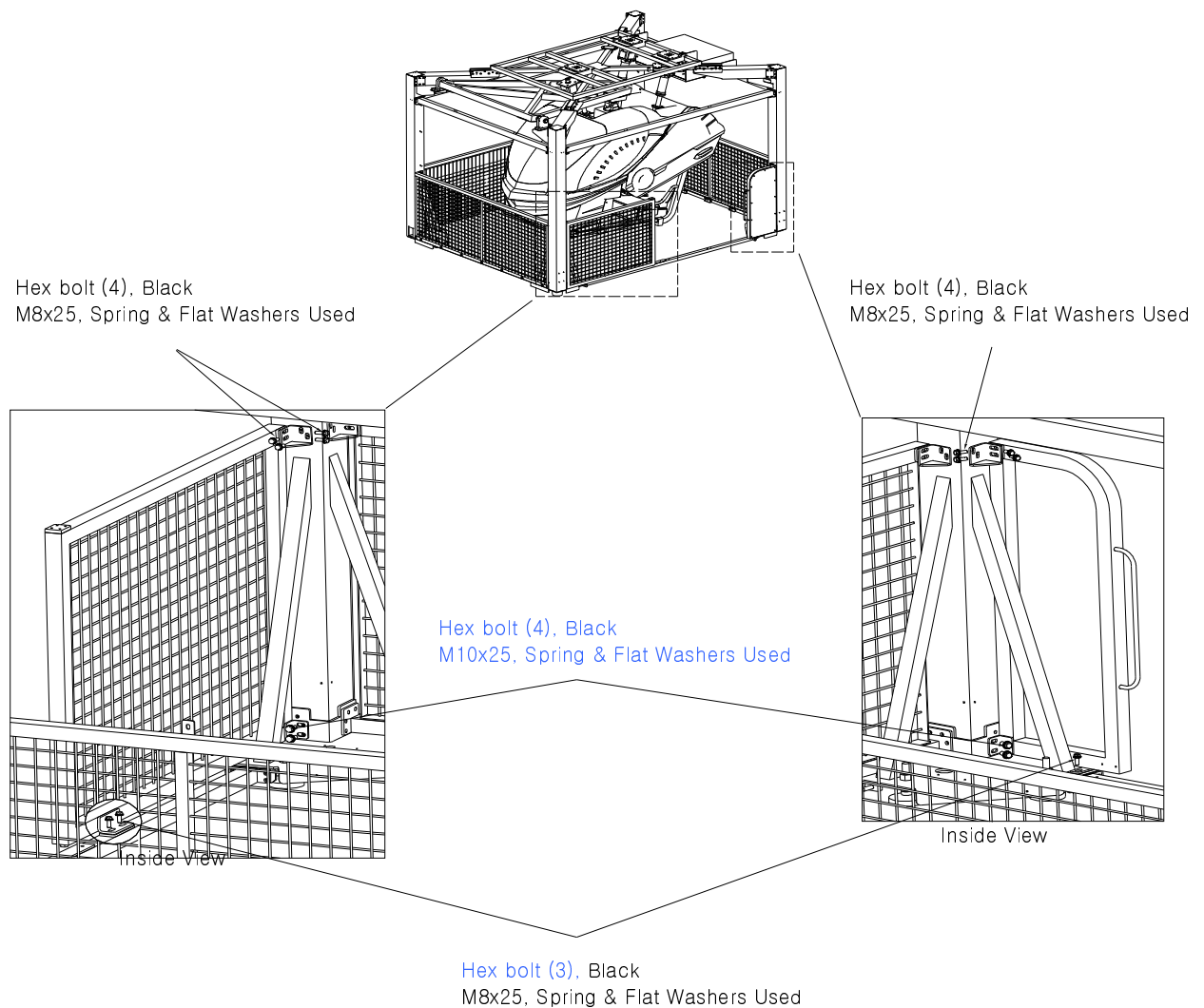
(11) Door Fence and Door box

- ① Attach M10 Leveler to the door fence.



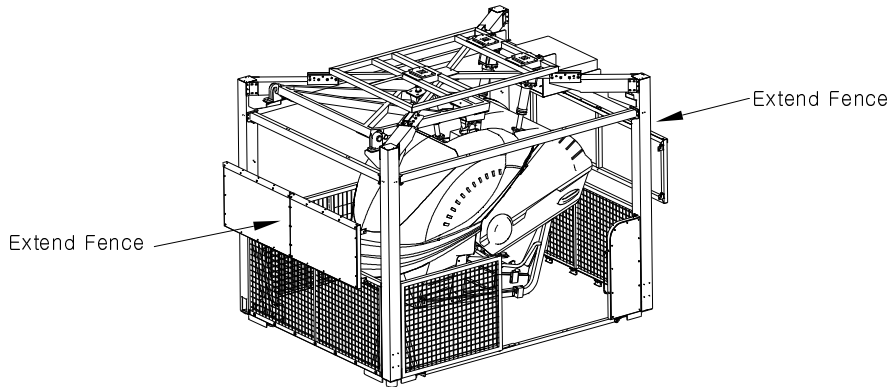
< Fig 8-11a. Door Fence >

- ② Attach the Fence bracket on the Door Fence. Attach the fence to the pillar frame.



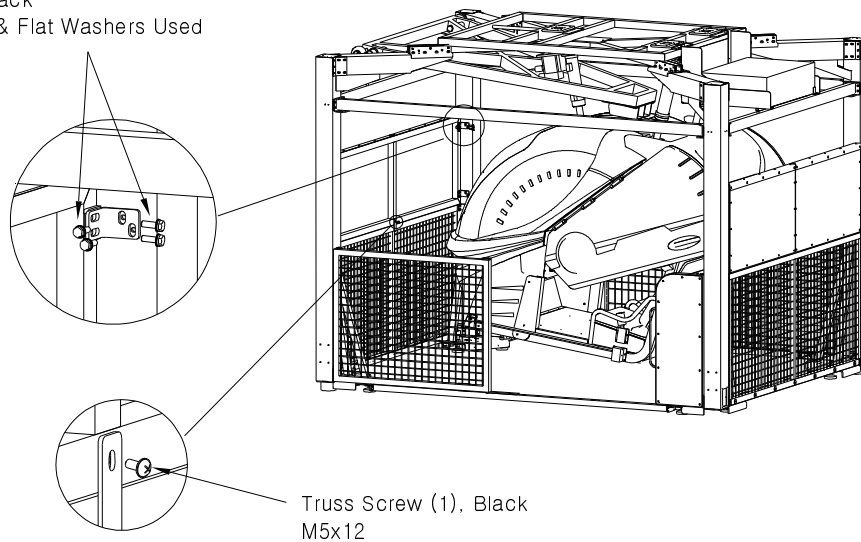
< Fig 8-11b. Door Fence >

- ③ Attach the Fence bracket to the Extend Fence(Fig 8-10a) Attach the extend fence in the same way other fences are attached.



< Fig 8-11c >

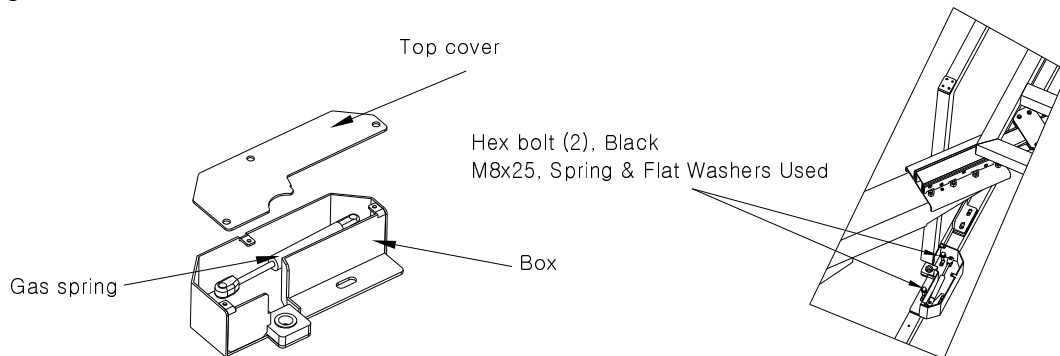
Hex bolt (4), Black
M8x25, Spring & Flat Washers Used



Truss Screw (1), Black
M5x12

< Fig 8-11d >

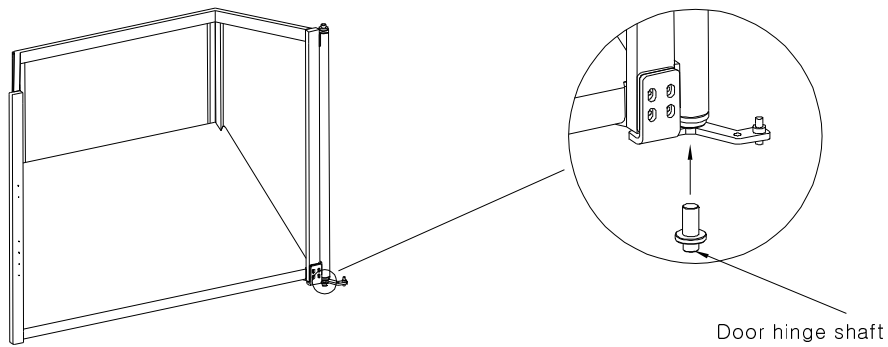
- ④ Place the Door box between the Fence and the Door support frame. Line up bolt holes and tighten.



Hex bolt (2), Black
M8x25, Spring & Flat Washers Used

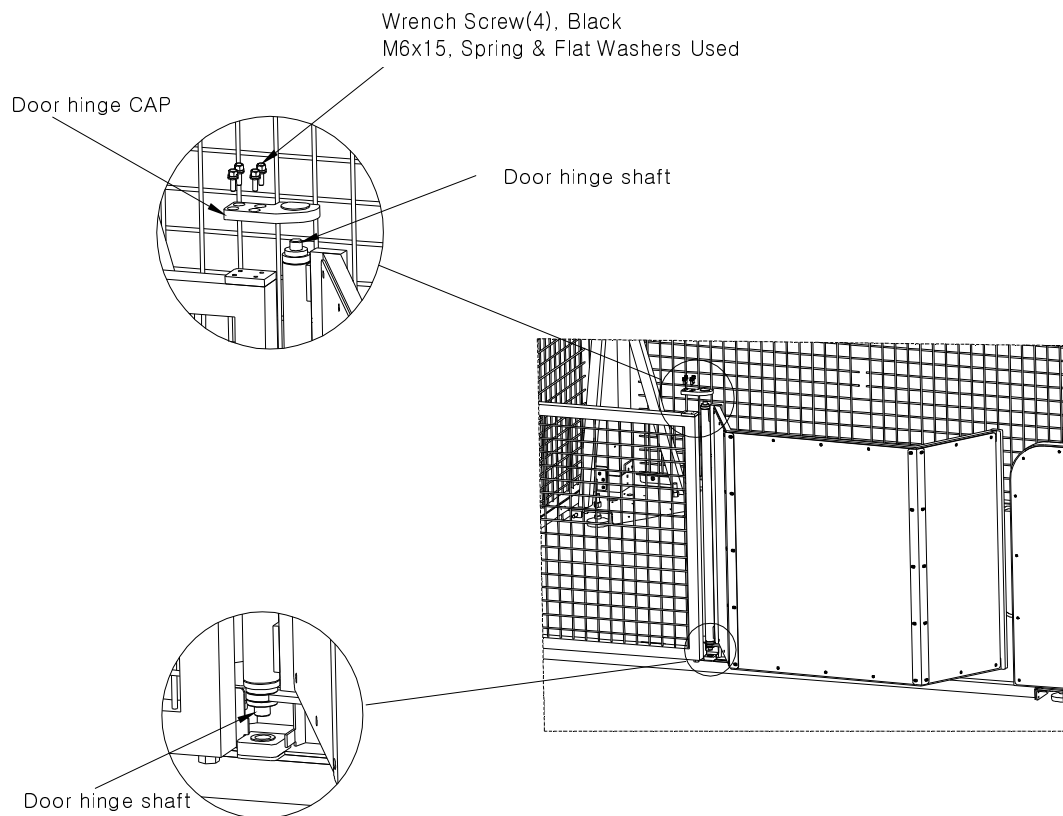
< Fig 8-11e. Door Box >

- ⑤ Insert the Door hinge shaft into the door. (The shaft may already be in place.)



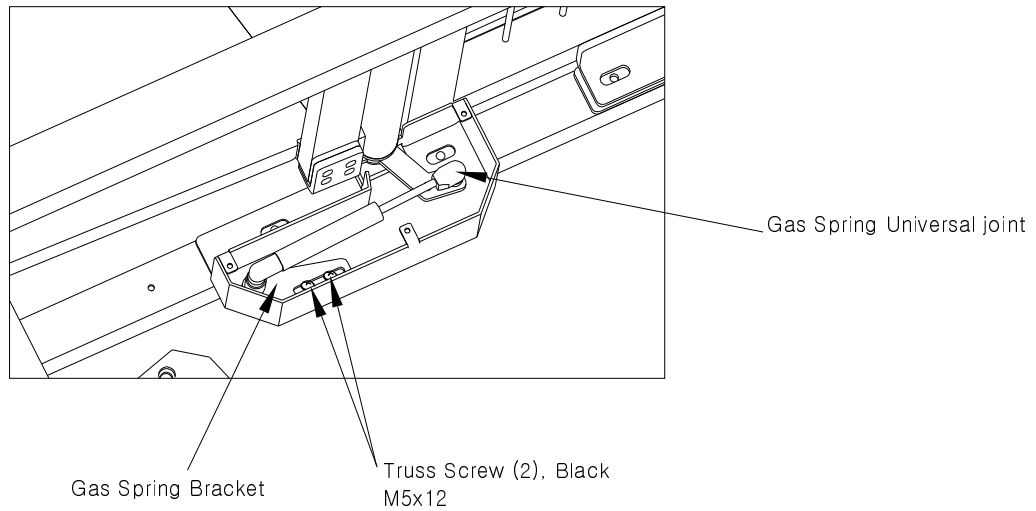
< Fig 8-11f >

- ⑥ Line up and insert the hinge shaft into the shaft hole in the Door box.
 ⑦ Attach the Door hinge cap to the Shaft and secure with M6 Wrench Screw.



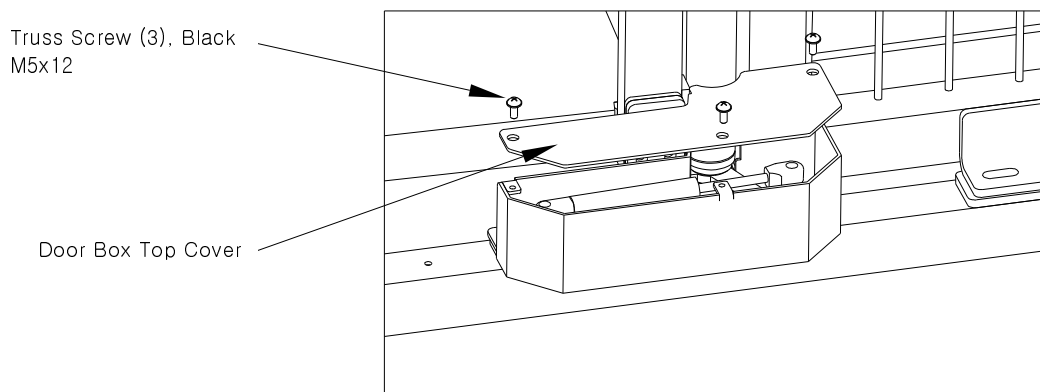
< Fig 8-11g >

- ⑧ Attach the pre-installed (inside the door box) gas spring universal joint to the ball on the door. – Line up and push down.
- ⑨ Do this with the door at the fully closed position.



< Fig 8-11h >

- ⑩ Attach the Door Box Top Cover and secure with M5 Truss Screw.



< Fig 8-11i >

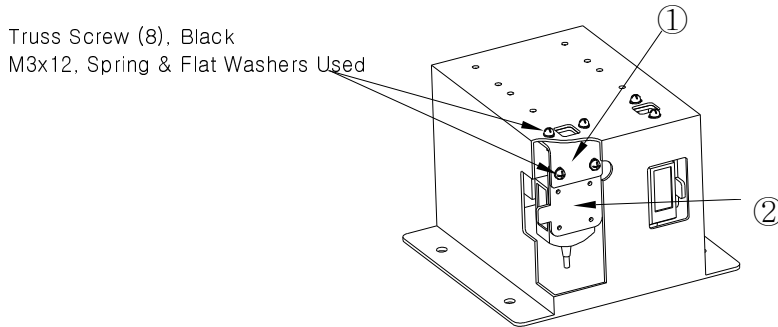
(12) Area Sensor & Setting

When installing or adjusting the sensors, refer to this chapter.

These sensors are equipped with green and tallow LED's that indicates the operation status.

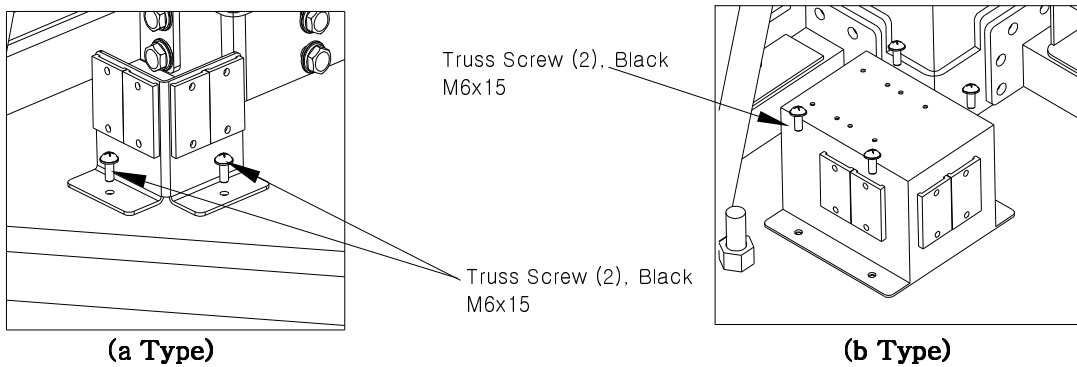
- ① Area Sensor Bracket is attached using M3 Truss Screws.

(Sensor can be adjusted using ① and ② screws)

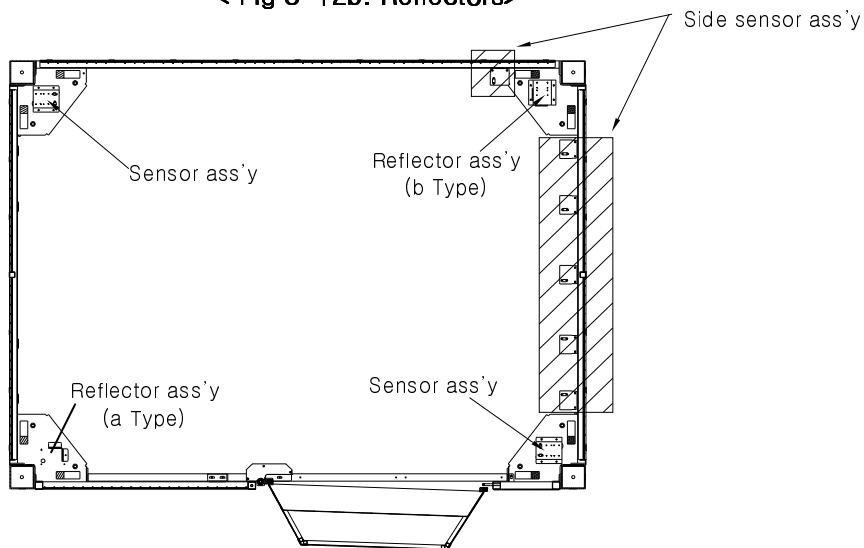


< Fig 8-12a >

- ② Area sensors are composed of Reflectors and Sensors. Using M6 Truss Screws to secure the reflectors as shown in Fig 8-12b and attach the sensors as shown in Fig 8-12c.



< Fig 8-12b. Reflectors >

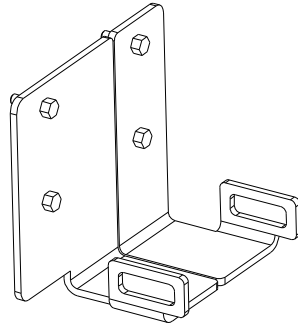


< Fig 8-12c. Sensors >

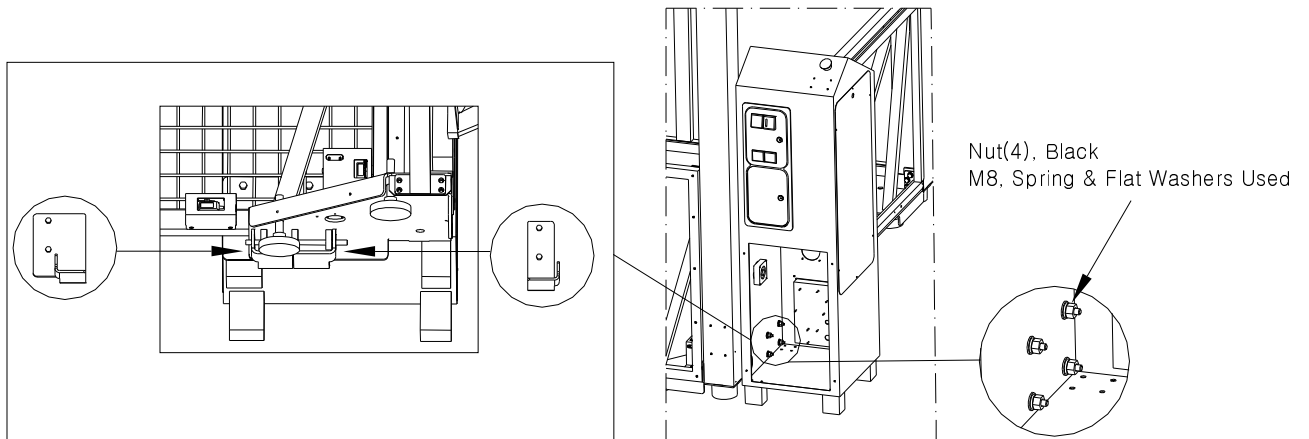
- ② Adjust the sensors so the beams from them point the centers of the reflectors. Use a white sheet of paper to track the beam.
- ④ If the yellow LED on the sensor keeps blinking, or off, please check around the sensors and remove any obstacles.

(13) SCU

- ① Line up the bolt holes on the SCU and the holes on the Pillar frame.
- ③ Nuts are fastened from inside of the SCU.
 - Caution! : SCU may tip over and cause damage or injuries if too much pressure is applied. It is recommended that one person should hold on to SCU as the other secures the bolts.



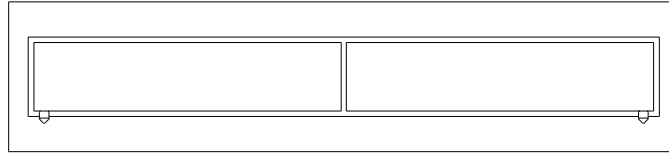
< Fig 8-13a. SCU bracket >



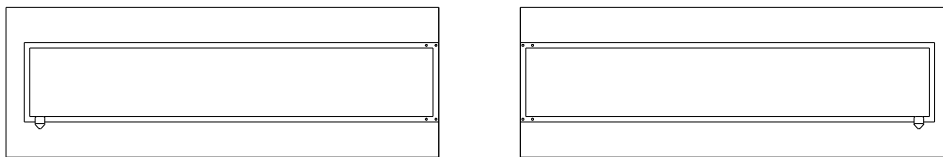
< Fig 8-13b. SCU bracket >

(14) Top Sign Board

- ① Side top sign boards are in two pieces and front and rear top sign boards are in one piece.

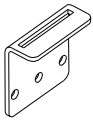


(a) Front and Rear Top Sign board 2ea

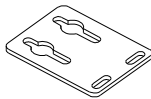


(b) Side Top Sign board - 2 sets

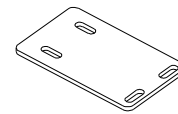
< Fig 8-14a.Top Sign Board >



BK-1 (Attached to Pillar frame)



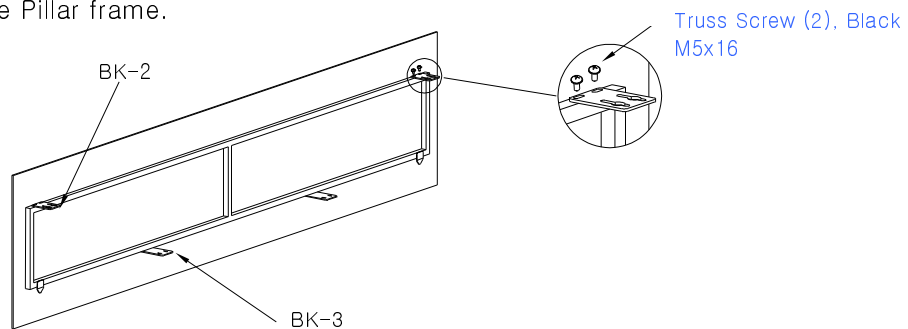
BK-2



BK-3

< Fig 8-14b.Top Sign Board bracket >

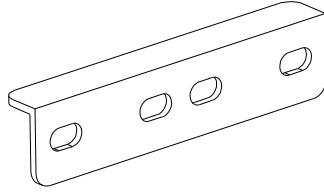
- ② Attach brackets BK-2 and BK-3 to the front and rear Top Sign Boards. Attach the the sign boards to the Pillar frame.



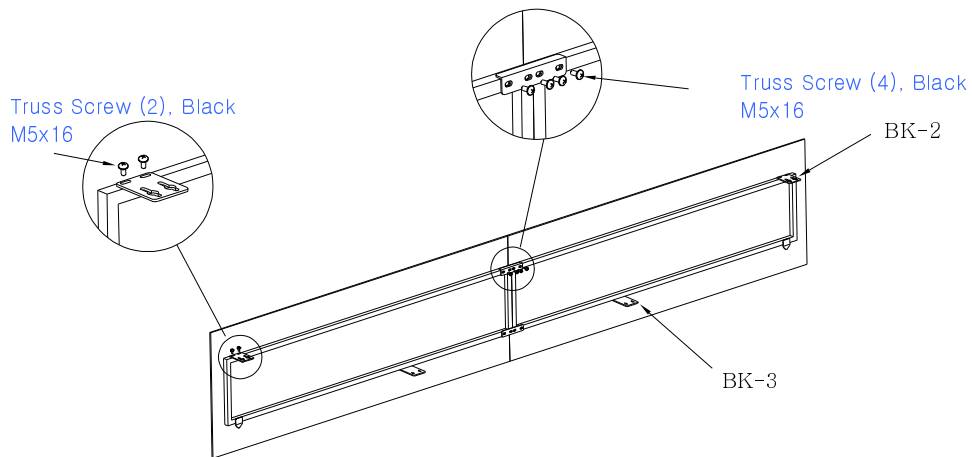
< Fig 8-14c. Front and Rear Top Sign board brackets>

- Note: the brackets may be shipped installed.

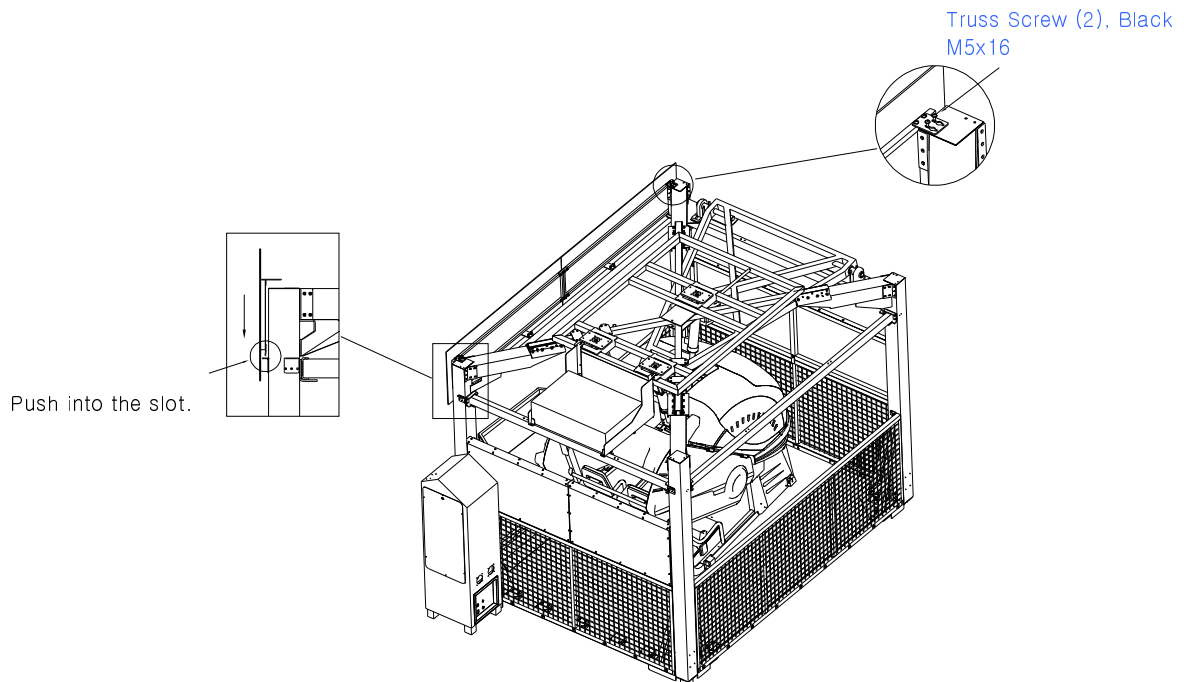
- ③ Attach the joiner bracket to join 2 pieces of the Side Top Sign Boards. Attach brackets BK-2, BK-3 to the joined sign board and attach to the Pillar frame.



< Fig 8-14d. Side Top Sign board joiner bracket >



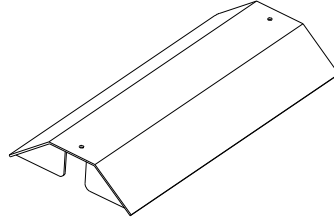
< Fig 8-14e. Side Top Sign board brackets >



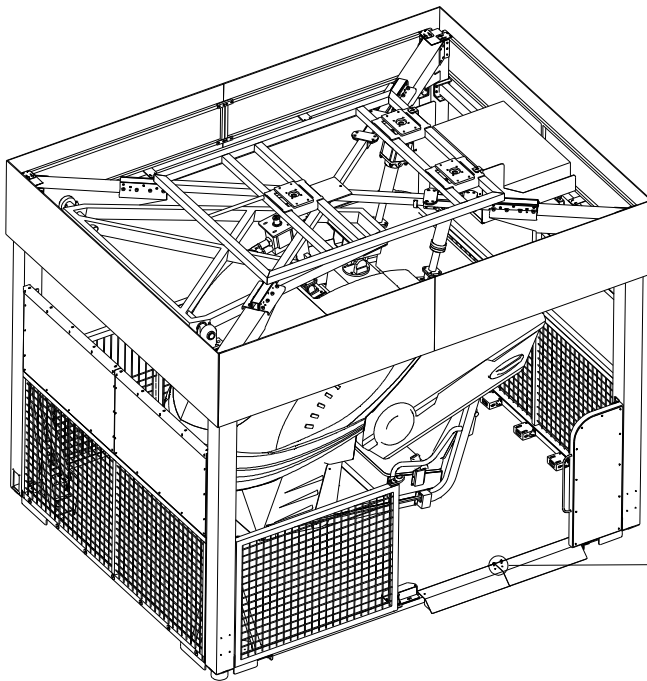
< Fig 8-14f. Top Sign board >

(15) Step

- ① Attach the step to the Door Support Frame and fasten with truss bolts.



< Fig 8-15a >

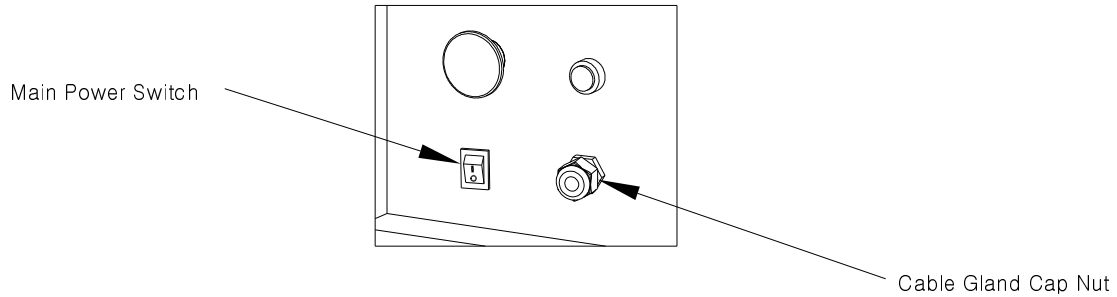


Truss Screw (4), Black
M6x25

< Fig 8-15b >

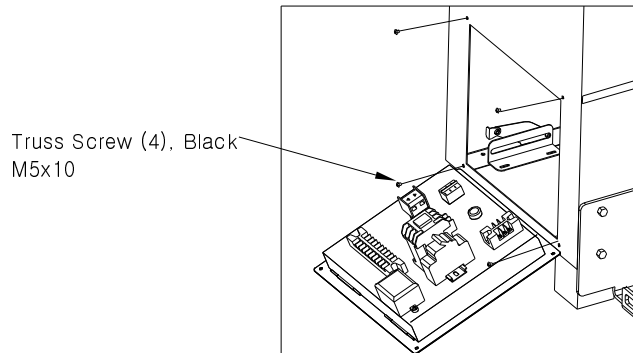
(16) Power Cable

- ① Open the SCU Rear Panel Cover and make sure the Main Power Switch is at the OFF position. Loosen the Cable Gland Cap Nut.



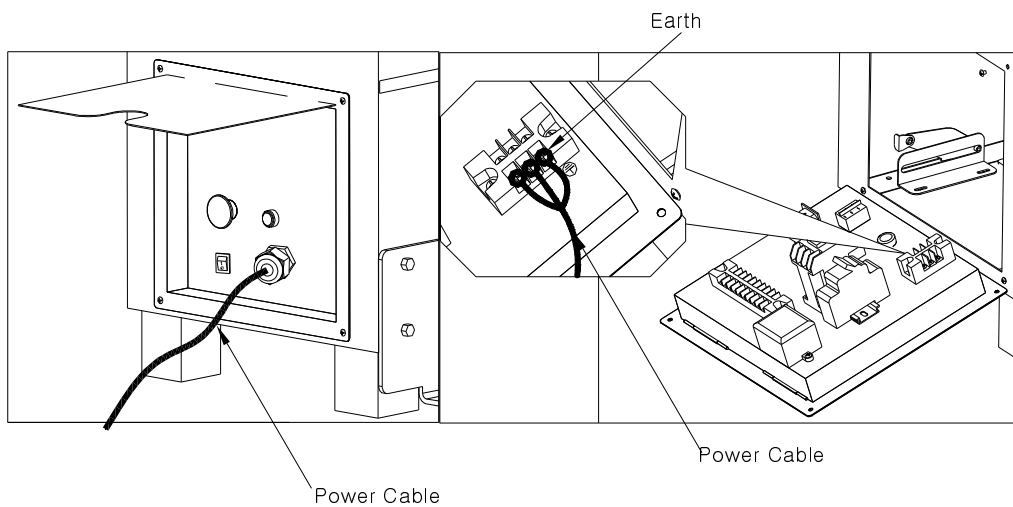
< Fig 8-16a >

- ② Open the switch panel by removing Truss Screws (M5 X 10)



< Fig 8-16b >

- ③ Push the Main Power Cable through the Cable Gland Cap Nut and connect it to the power terminal as shown below. Make sure the earth line is connected to the proper probe (marked with \oplus symbol.) Tighten the Cable Gland Cap Nut.



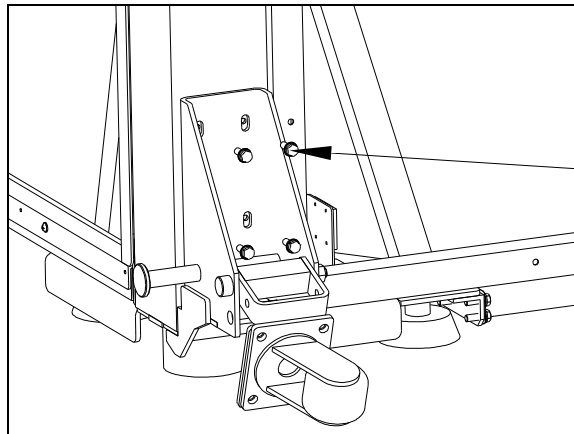
< Fig 8-16c >

※ Installing Caster – Optional use at the site.

Option Caster is sold separately in case a user requests in order for easy movement within the shop by caster without disassembling the frames

■ Installing Caster

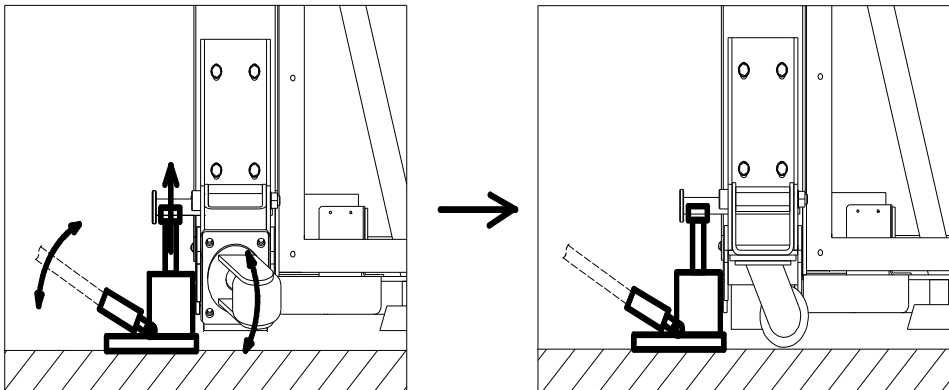
- ① Place the Caster Set on the Pillar Frame and tighten with M8 bolts.



Hex bolt(8), Black
M8x25, Spring & Flat Washers Used

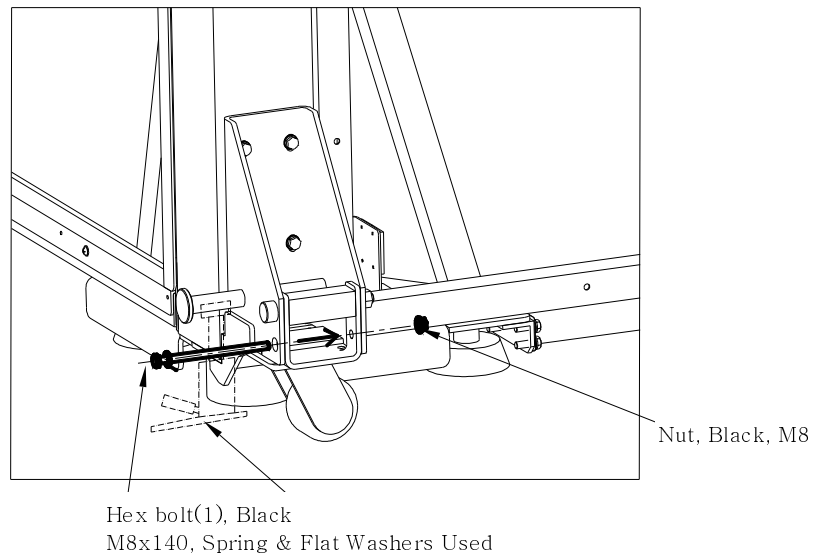
< Fig 1 >

- ② Lift the Pillar frame up by about 60cm from the floor by using hydraulic pressure jack or manual jack.
- ③ Lower the caster of the Caster Set



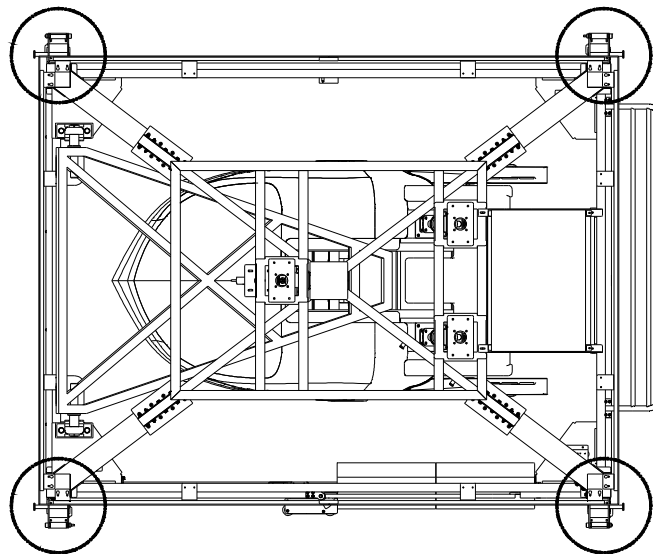
< Fig 2 >

- ④ Put the fixation bolt in the fixation hole of the Caster Set and then tighten with nut.



< Fig 3 >

- ⑤ Release the pressure jockey to lower the Pillar frame. So the Casters are grounded.



< Fig 4. Position of Caster Set >

9. When moving the product at a site

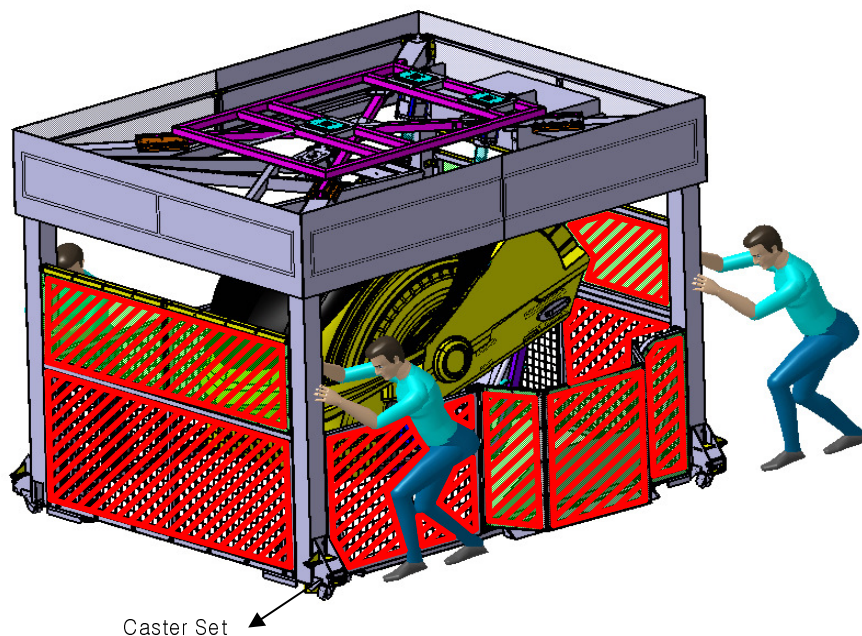


- When Moving this product, DO NOT push the points noted in this manual.



- Please pay attention to make the product level to the ground or loading container. Failure to heed this precaution may result in the mishandling of the product and cause faulty operation or damage to the product.
- Please follow the below precautions at the site. If ignored, this will cause the parts damage or damage to the floor.
 - Transport the product on a flat floor.
 - On a slant area with 1cm or more, use a ramp.
 - Transport the product at a speed of less than 2km/h
 - Do not tilt too much. Be careful not to apply the load to only one side.

When pushing the product, do not push on the Fence area(marked in red slash)



< Fig 9. Moving >

10. Safety Features



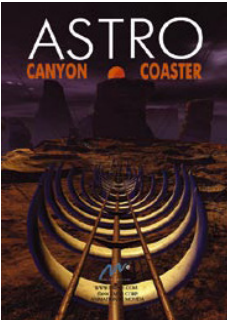

NO	Devise	Fig.	Location	Description
1	Area Sensor		Pillar Frame	Stops the cabin from moving when triggered. When obstacles are removed, the cabin will resume motion after 3 sec.
2	Game Stop Button		Next to the LCD	When pressed while playing, stops the ride and the cabin is moved to the initial position.
3	Emergency Stop		Top of the SCU	Stops the ride when pressed. When released by turning the button according to the arrow, game will finish itself and the cabin returns to the initial position.
4	Door Sensor		Cabin Door	Senses the opening of the door. If triggered while in motion, stops the cabin movement. When closed, cabin resumes motion after 3 sec.
5	Cabin Sensor		Cabin-Outside	Senses the obstacle nearing the cabin. If triggered while in motion, stops the cabin movement. When cleared, cabin resumes motion after 3 sec.

6	Seatbelt		Cabin	<p>Equipped for the safety of the riders. When not fastened, the game will not proceed. If triggered (un-fastening of the belts) stops the motion and resumes after 3 sec. when the belts are fastened.</p>
7	Fence		Surrounds the Cabin	<p>Keeps the bystanders away from the moving Cabin.</p>

11. Description of Rides

■ ABOUT THE RIDE

Mini-Rider 2 includes 4 rides and passenger can choose one ride from the rides.

Title	Image	Content
<p>Haunted_Mine</p>		<p>Hang on to your ten-gallon hats as you plunge headfirst into an old, dilapidated gold mine that just happens to be haunted... Inside this hotbed of mystery and suspense you'll come face to face with the mine's ghostly prospector who'll warn you not to venture further – but your insatiable appetite for adventure will disagree! Only your quick thinking (and a little luck) can get you out alive.</p>
<p>Glacier Run</p>		<p>A white-knuckle experience with dazzling imagery. This nonstop action ride (a cross between a bobsled and a roller coaster), designed to make your senses erupt, will take you to the frozen landscapes of the Arctic during the Northern Lights season.</p>
<p>Astro Canyon</p>		<p>Hold on for a wild ride in a Grand Canyon-like environment in outer space.</p>
<p>Cosmic Race</p>		<p>Fasten your seat belt and get ready for the race. Futuristic race will surely give you the experience you'd never had before.</p>

12. Ride Operation Instruction

1. Make sure the cabin is initialized before boarding.
2. Make sure that one of the passengers is on the right side of the seat before boarding the other. Be sure that both of the passengers do not exceed 240kg.
“**Caution**” When children are boarding, make sure the child is on the right side of the seat.
3. Fasten the seat belt and make sure the belts are secure after boarding.
“**Caution**” The machine will not run if the seat belts are not secured.
4. [Insert Coin(s)] will show up on the screen. – Ride start screen -



<Ride start screen>

5. Insert coins.
6. At the ride selection screen, choose one movie from 4 of the movies. You can do this by pressing the selection buttons below the display.



<Ride selection screen>



<Select button>

7. Each film is about 4min long.
8. When the film is finished, ride start screen will show up and the cabin will move to the initial position.
When the cabin stops and the message on the screen shows up, you may un-fasten the seat belt and get off the ride.

“**Caution**” Do not un-fasten the seat belt until the cabin is at the initial position.

13. System Operation



- Please turn on and turn off individually. Never cut off the power by switching off the breaker. Follow this manual at all time.
- When cutting the power off to the MCU, make sure no one is on-board the machine. It may drop suddenly and this may cause an accidents.
- Do not switch on and off continuously. When you turn off the machine, wait at least 1 min before you switch it on again. If not, Digital Motion controller may be damaged.
- 220V DC power is flowing through out the cabin. Servicemen should be certified engineers. Do not disassemble without Simuline's consent.
- MCU and SCU may not be disassembled by an unauthorized personnel.

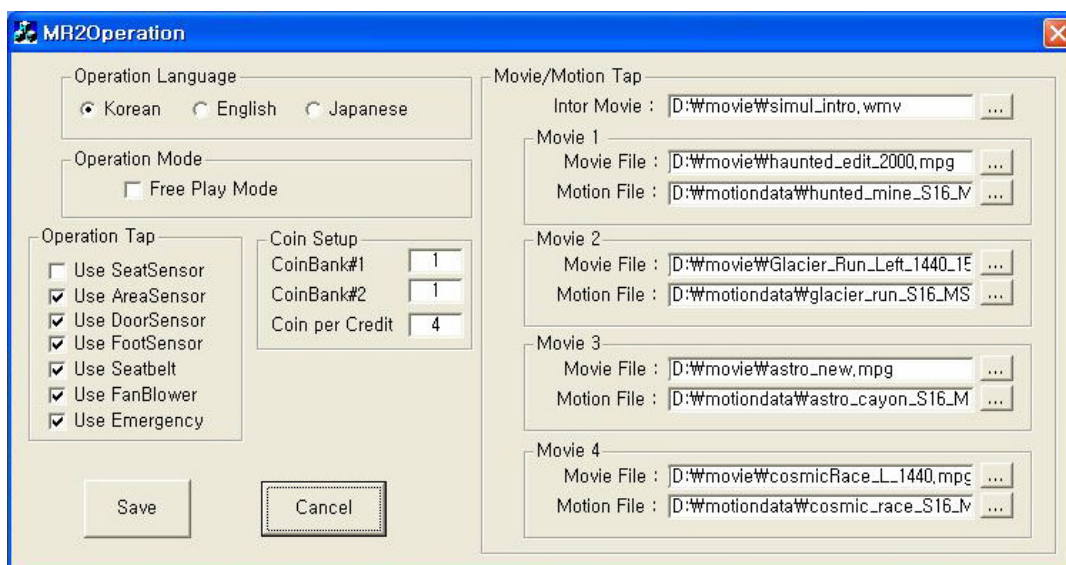
13-1. System Settings

You may customize the System as following.

- ◆ Operation Language
- ◆ Operation Mode
- ◆ Operation Tap
- ◆ Coin Setup

System Settings can be adjusted :

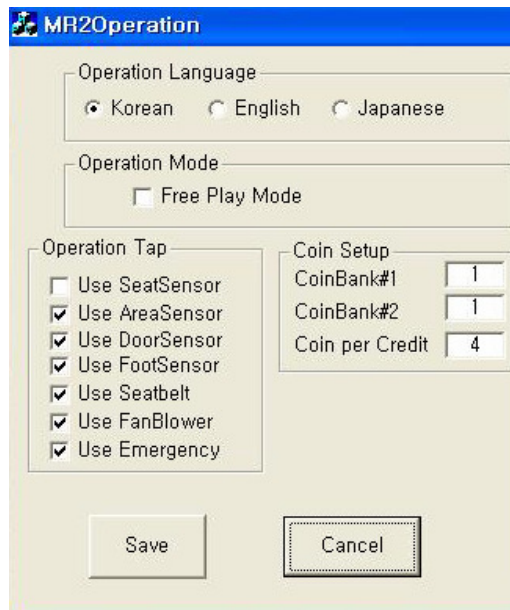
1. When the system is booting up, press 'Test Button' to acces windows.
Test Button is located inside the Coinchute Tower.
(*Refer to p15, 5-5 O.P Panel)
2. Connect your Keyboard and Mouse.
3. On the Desk Top, you will be able to locate the 'MR2 Operation' icon. Click on it.



< Fig 13-1a >

4. Change the settings as you wish and press save to save the settings.
5. Click on the [DIOSStart] on your Desk top to return to game.

13-1-1. System settings - Detail



< Fig 13-1-1a >

◆ Operation Language

Language can be selected.

◆ Operation Mode

Free Play Mode – No credit is needed for game play.

◆ Operation Tap

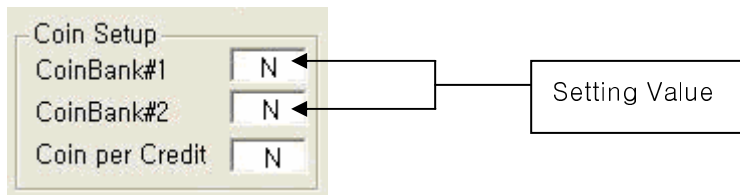
System devices can be activated and de-activated.(Refer to p57 Ch10 for device functions)

- **Seat Sensor** : Located inside the seats to sense the number of the riders.
Operator may charge the riders 'Per Rider' or 'Per Ride'

Seat sensor Activated	Seat sensor De-activated
Prices for 1 rider and 2 riders are different.	Prices for 1 rider and 2 riders are the same.

◆ Coin Setup

Credit required for ride can be changed.



[Setting Value]

- CoinBank#1=N, CoinBank#2=0 (N=Number, 0=disable)
: When using only one kind of coin or coin mechanism.
- CoinBank#1=N, CoinBank#2=N (N=Number)
: When using various kinds of coins.
When Multiple coin mechanisms are in use.(coin, token, card reader system, bill acceptor)
- Coin per credit : Number of coins needed for “1 Credit ”

Example 1 – 50 cent coin

Cost per 1 credit = 2 Euros

CoinBank Type	CoinBank#1	CoinBank#2
Setting Value	“1”	“0”
Coin per Credit	6	disable

Example 2 – 1 Euro notes and 50 cent coin are used

Cost per 1 credit = 2 Euros 일때

CoinBank Type	CoinBank#1	CoinBank#2
-	1 Euro	50 cent
Setting Value	“2”	“1”
Coin per Credit	4	

13-2 SYSTEM ON (POWER ON)

- ① Turn on the mains input power switch at the rear side of SCU ensuring that 220 single phase power is connected.
- ② System will boot up. In normal case, it will take about 3~4 minutes. The cabin monitor will show boot-up process and when it finished, control program will be executed. When the system control program executed, apply the power to the MCU(motion control unit), and then make the cabin move into the initial position. When the monitor displays attract mode, a start-up process is done and it is ready for a ride.



< Attract Mode >

13-3 System Off (Power OFF)

Powering off should be followed as described in the manual.

- ① Press and hold the System Off button for 2 seconds at the rear of the SCU. Pressing this button will make the cabin move into initial boarding position and then cut the power to the MCU by making the breaker off sound. Then, the control computer will shut off.
- ② Turn off the Mains input switch at the rear of SCU

13-4. Emergency Stop



- When [GAME STOP BUTTON] or [EMERGENCY STOP] Does not stop the machine from moving, Press [POWER CUTOFF SWITCH]!!

Any of the [GAME STOP BUTTON] or [EMERGENCY STOP] or [POWER CUTOFF SWITCH] will stop the game.

Normally, use [GAME STOP BUTTON] or [EMERGENCY STOP] to execute emergency stop.

When the game does not stop even after pressing both of the buttons mentioned above, press POWER CUTOFF SWITCH located on the backside of the SCU.



- Only when the [GAME STOP BUTTON] or [EMERGENCY STOP] does not stop the machine, press [POWER CUTOFF SWITCH] to stop the game.

- ① [GAME STOP BUTTON]- Located inside the Cabin for the riders.

When an emergency situation occurs while the cabin is moving, passenger may press this button.

EX) ◆ A passenger is not stable.

◆ A passenger wants to get off the cabin.

◆ Any other emergencies that require cabin to be stopped.

When pressed, game will stop and the cabin stops moving and returns to the initial position.

- ② [EMERGENCY STOP]- Located on the Coinchute Tower for Operators.

When an emergency situation occurs while the cabin is moving, operators may press this button to stop the game..

EX) ◆ When the cabin moves abnormally.

◆ Any other emergencies that require cabin to be stopped.

Stops the ride when pressed. When released by turning the button according to the arrow, game will finish itself and the cabin returns to the initial position.

- ③ [POWER CUTOFF SWITCH] - Located on the Backside of the SCU.

Only when the [GAME STOP BUTTON] or [EMERGENCY STOP] does not stop the machine, press [POWER CUTOFF SWITCH] to stop the game. [POWER CUTOFF SWITCH] cuts off the power to the MCU. This stops the actuators from moving. Cabin will return to the initial position.

14. MONITOR

14-1. HANDLING CAUTION OF MONITOR

Before handling the monitor, read the following instructions carefully and follow the cautions below.



Indicates important information that, if ignored, may result in the mishandling of the product and the possibility of personal injury or death.



Indicates important information that, if ignored, may result in the mishandling of the product and the possibility of personal injury, and/or may result in equipment damage.



Indicates a particular location of the product that is not to be touched.



Indicates that the power connector or the power plug needs to be disconnected.



- Be sure to unplug the power cord first when installing/uninstalling the monitor or disconnecting any external connector connected to the monitor or the internal parts of the monitor. Working with the power on may result in electrical shock or other accidents.
- Do not modify the monitor without permission. The company is not responsible for any trouble or accidents caused by unauthorized modifications.
- Primary side and Secondary side
The monitor circuit is divided into the primary and secondary sides which are electrically insulated. Do not touch the primary side or both the primary and secondary sides simultaneously. Doing so may result in electric shock. When adjusting the device, use a non-conductive screwdriver and do not touch any other parts except for the handle. Do not short-circuit the primary and secondary sides. It may cause an electric shock or malfunction.
- High Voltage
Since the monitor contains parts that generate voltages higher than 20,000 volts, do not touch the inside. If a piece of metal or paper is falls into the monitor, immediately turn the power off. Failure to do so may result in a malfunction or a fire.

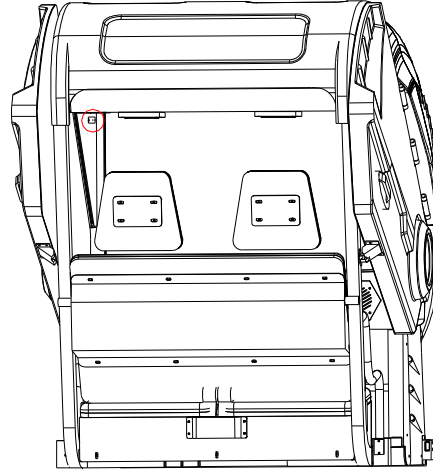
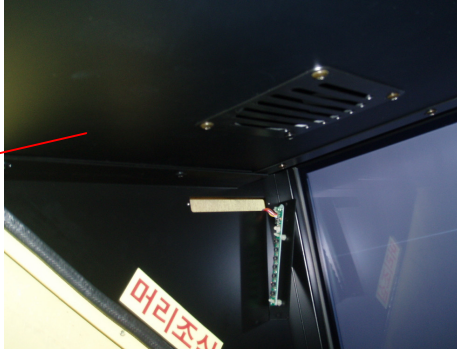
14-2. ADJUSTING MONITOR



- Since the monitor is fully adjusted when it is delivered, any other adjustments are unnecessary. Handling the monitor, which contains high voltage components, is very dangerous. In addition, a wrong adjustment may cause breakdown due to a bad screen or unfixed synchronization.
- Monitor (projector) should be appropriately adjusted. If a defect such as flashing is detected on the screen, do not leave it without adjustment. An Inappropriately adjusted screen may cause dizziness, headache, or other physical injury to customers.
- Do not touch any unspecified parts. Failure to comply can result in electric shock or short-circuit.

Check the position of the monitor controller. It is located at the left of the monitor.

Monitor Controller



- BRIGHTNESS : ADJUST SCREEN BRIGHTNESS.
- CONTRAST : ADJUST SCREEN CONTRAST.
- SHARPNESS : ADJUST SCREEN SHARPNESS.
- H-POSITION : ADJUST HORIZONTAL POSITION.
- V-POSITION : ADJUST VERTICAL POSITION.
- PHASE : ADJUST SCREEN CLOCK PHASE.
- FREQUENCY : ADJUST SCREEN FREQUENCY.

15. Grease Up



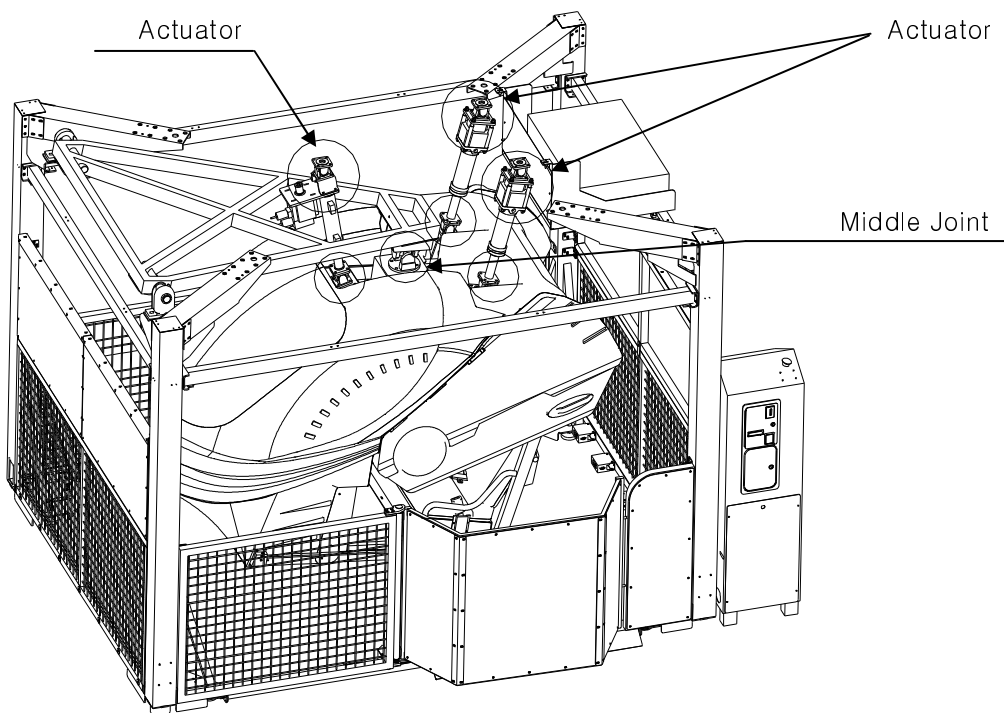
- Be sure to use the designated grease. Using undesig nated grease can cause parts damage.
- Do not apply grease to locations other than as specifi ed. Doing so may create a risk of operational problems and deterioration of parts.
- The designated periods for greasing serve only as a guide. Whenever there are squeaks or other anomalies, apply grease at designated locations.

Grease UP is required to maintain normal lubricative levels at high/low emperatures and to enhance the durability of the product.

Neglecting periodic GRASE Ups will shorten the life span of the product and may cause strange noises or vibrations.

The actuator, Middle Joint of this product must be greased. The product should be greased once in every year.

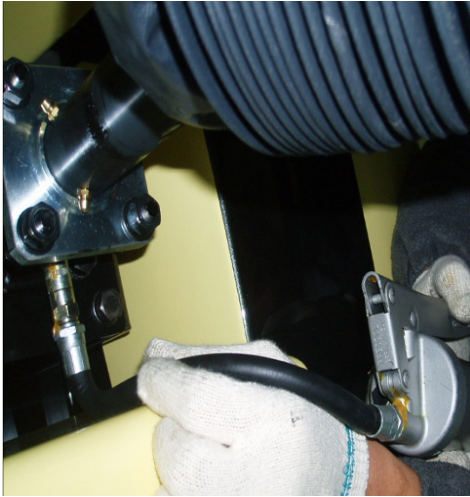
- **Designated Grease : KLUBER HIMONAX WS433**
Use Grease Gun with a flexible Nozzle!



< Fig 15a >

15-1. Actuator Grease Up

- ① Remove the bellows of the Actuator
- ② Use the Grease Gun to apply 60g to the Grease Nipple of the actuator(TOP), and 30g to the Bottom part.



< Actuator Top >



< Actuator Bottom >

- ③ Wipe off excess grease.
- ④ Replace the bellows cover into the original position.

15-2. UNIVERSAL JOINT IN THE ACTUATOR

- ① Remove the bellows cover.
- ② Apply 5g to the top and bottom of the Universal Joint in the actuator.



< Universal Joint >

- ③ Wipe off excess grease.
- ④ Replace the bellows cover into the original position.

15-3. Grease Up of Middle Joint



< Middle Joint >

- ① Apply about 5g of grease to Middle Joint
- ② Wipe off excess grease.

16. Maintenance

16-1. PERIODIC INSPECTION



- Once a year, check to see if power cords are damaged, the plug is securely inserted.
- Once a year, request the office shown on this manual or the dealer from whom the product was originally purchased to perform the internal cleaning. Using the product with accumulated dust in the interior may cause fire or other accidents. Note that you are liable for the cost of cleaning the interior parts.
- Once a year, request the office shown in this manual or the dealer from whom the product was originally purchased to perform routine maintenance on moving mechanisms. Failure to perform maintenance can lead to accidents.
- There is the danger of accidents involving electrical shorts circuits or fire caused by factors such as the deterioration of insulation in electrical and electronic equipment over time. Check that there are no abnormalities such as odors from burning.



- Maintenance works must be performed by authorized personnel. Be sure to follow the instructions in this manual.
- Maintenance works must be performed after the breaker must be turned off. Performing works with applied power may result in abrupt operation of the product or cause electric shock to the body.

In order to maintain the performance of this product and operate it safely, inspect the following items routinely and perform maintenance.

The player directly touches and manipulates the select button with his/her hands. Clean these buttons as necessary and provide hand towels, etc., so that players will be comfortable while riding.

PERIODIC INSPECTION TABLE

ITEMS	DESCRIPTION	PERIOD
Outer frame	Confirm that the adjuster is level to the ground	Daily
Inside Cabinet	Cleaning	Daily
Monitor	Check screen adjustment	Monthly or when moving
Coin Selector	Coin insertion test Coin Selector cleaning	Monthly 3 months
Electronic parts	Inspection	As appropriate
Power cables	Inspection, cleaning	1 year
Cabinet	Cleaning	1 year
Cabin Surface	Cleaning	As appropriate
Moving mechanics	maintenance Grease up	1 year 1 year

Safety equipment	Seatbelt	Daily
	Emergency Stop	Daily
	Motion Stop	Daily
	Area Sensor	Daily
	Cabin Sensor	Daily
	Door Sensor	Daily
	Fence	6 months

Cleaning the Cabinet surface

When the cabinet surfaces become dirty, remove stains with a soft cloth soaked in water or diluted (with water) chemical detergent and then wrung dry. To avoid damaging the finish, do not use such solvents as thinner, benzene, etc. (other than ethyl alcohol) or abrasives (bleaching agent and chemical dust-cloth). Some general-purpose household, kitchen, and furniture cleaning products may contain strong solvents that degrade plastic parts, coatings, and print. Before using any cleaning product, read the product's cautionary notes carefully and test the product first on a small area that is not highly visible.

17. Troubleshooting

17-1. Recovering the System

When a system error occurs, you may recover the system as following.

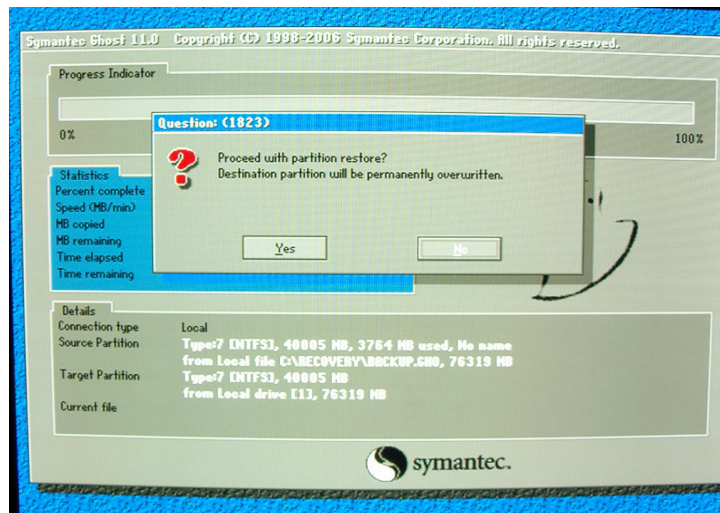
-- **F11** Key --

- ① Reboot the system.(Main Power Switch is pressed)
- ② While the machine is rebooting, you will be able to see the boot screen(Fig 17-1a)
F11 Key at this moment.



< Fig 17-1a >

- ③ Press 'YES' when the display in Fig 17-1b appears.



< Fig 17-1b >

- ④ System recovery will commence. Recovery procedure takes about 5 minutes.

17-2. Troubleshooting table

problems	Cause	countermeasure
Failure of power on	Circuit breaker for the AC unit is not in operation	Connect the AC 220V.
	Plugs are not connected	Plug the 220V to the cabinet in outlet.
	Mains switch of SCU is off	Turn on the mains input switch
System is not operational	Check the error message on the cabinet message	Follow the emergency stop sequence by turning off the power. Wait for about 1 minute and switch on again. If it does not work, contact the service representative listed in this manual.
Cabinet does not operate	Confirm that the door is closed/	Close the door
	Area sensor is interrupted (YELLOW LED OFF)	Remove the obstacles (YELLOW LED ON)
	Sensor is not aligned	Align the sensors
Failure to power off	Malfunction of system	Turn off all the powers in the sequence of Emergency Stop

17-3. MCU Error

Next is a list of Error Codes regarding the Motion Control Board malfunction. Please check the error codes when an error occurs.

■ MCU Error Message

Error Code	Cause	Countermeasures
F000	Encoder connector at the Motor Drive Board is unplugged. (J11)	[Check the Encoder Connector] Check the connection of encoder connector at the Motor Drive Board and MCU. Check for any damages..(J11)
FFFF FFC7	Motor Drive Board did not receive signal from encoder after the power is switched on.	[Check 5V SMPS output] 1.Check to see if the voltage between DGND and +5V stays within the range of DC5.0V~5.2V. 2.If 1. checks out OK, and the problem repeats, contact the service representative listed in this manual.
F800	Motor Drive Board (K5,K8) +12V relay at the input power is disconnected.	Check if the power unit Motor Drive Board input power SMPS +12V is normal. If SMPS +12V power is normal, check the Motor Drive BD J7 Connector +12V power with a tester. When the +12V power is not available, check the connection harness.
FFFE	Actuator Limit Sensor is not responding.	1.Check the connection/installation of Actuator Limit Sensor.

		2.If 1. checks out OK, and the particular Motor Drive BD repeats FFFE Error, contact service representative listed in this manual and replace the applied BD.
90AE 9086	Error at the #1,2,3 Actuators when the power is supplied. (Motor Encoder was supplied with power and the motor could not find the phase information. In result, motor could not find Z pulse.	1.This may happen when the machine was started in a slanted position. Restart the system. 2.Actuator Limit Sensor(Bottom Sensor) installation is not in order..
8C3	Motor Drive BD IPM Error	1.Check the if AC power to the Motor Drive BD stays in the range of AC200V~AC230V. 2.Check the operation of the fan at the Motor Drive BD Heatsink. 3. 1,2 checks out and particular motor drive BD repeats the same error, contact service representative listed in this manual and replace the applied BD.
10C3 90C3	Over current Protection Error	1.Check to see if the output voltage of the Main Transformer(220R,220T) stays within the range of 210V~230V. 2.Insufficient Actuator lubing may cause this error. Check the actuator for lubing, and apply lubing when needed. 3. 1,2 checks out and particular motor drive BD repeats the same error, contact service representative listed in this manual and replace the applied BD.
40C3 DOC3	Overvoltage protection error	1. Check to see if the output voltage of the Main Transformer(220R,220T) stays within the range of 210V~230V. 2.Check the input power source. Check if there's a possibility of temporary voltage over 240V. 3. 1,2 checks out and particular motor drive BD repeats the same error, contact service representative listed in this manual and replace the applied BD.