



M. BARTELS
REHA IM- & EXPORT GMBH

Operation Manual

Stairclimber TRE-52



FE-16-2

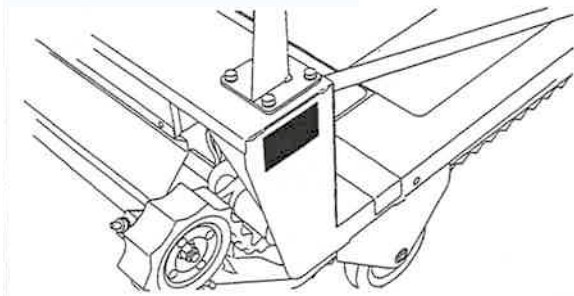
INTRODUCTION

Thank you for purchasing STAIR SHIP, SUNWA POWERED STAIR CLIMBER. This manual describes proper operating procedure, inspection and maintenance. Before running the machine, be sure to read this manual thoroughly. Please keep this manual in the same, easily accessible place.

All machines are referred to by their serial numbers. Whenever you inquire about a machine, be sure to inform us of its serial number.

The serial number is inscribed on the side of the machine. Please record its number and year, month and date of purchase in the operation manual. Please write the serial number and date purchased in the following blank space.

- Type, Serial number



- Powered stair climber, STAIR SHIP TRE-52

Model	TRE-52
Serial number	■■■■■■■■■■S
Maximum load	200Kg
Maximum stair gauge	35°
Rated voltage	DC24V
Motor	210W(30min)×2
SUNWA LTD.	

Please write the serial number and date purchased in the following blank space.

Serial number	
Purchased date	Year Month Date

When you inquire about the machine, please inform us of its serial number and purchase date.

- STAIR SHIP is a powered stair climber for transferring a handicapped passenger who cannot walk up/down the stairs.
- STAIR SHIP is designed to carry one passenger.

Never carry a baby in the arms, have a child on the passenger's lap or carry any similar load while using STAIR SHIP even when the total weight does not exceed STAIR SHIP's maximum load. Unprescribed usage is dangerous. Only one passenger can use STAIR SHIP while Seat Belt is fastened.

- The operator must call out to the passenger to inform him/her the next action with simple words in order to reduce passenger's anxiety before the operator moves STAIR SHIP to the next phase of the procedure. (Pay special attention to reducing passenger anxiety before and during STAIR SHIP's ascent/descent of the stairs.)

SAFETY PRECAUTIONS

To maintain safe operation, important safety precautions, classified into Danger, Warning and Caution, are indicated in corresponding parts of the operation manual. The definition of each precaution is explained in the following section. .




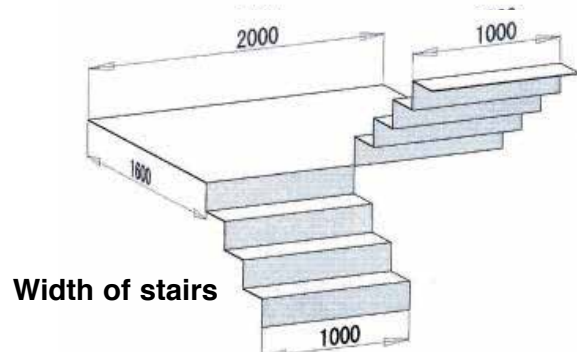
 DANGER	Neglecting this warning indication or operating the machine improperly may cause serious personal injury or even death.
 WARNING	Neglecting this warning indication or operating the machine improperly may seriously endanger the concerned person's health or life.
 CAUTION	Neglecting this warning indication or operating the machine improperly may cause injury to the concerned person or damage the machine or related items. - If you transfer this machine, be sure to attach this operation manual to the machine.

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1. ESSENTIALS OF SAFE OPERATION

1. Always check STAIR SHIP before using it

- The operator must check STAIR SHIP before using it. The initial inspection is necessary for safe operation.



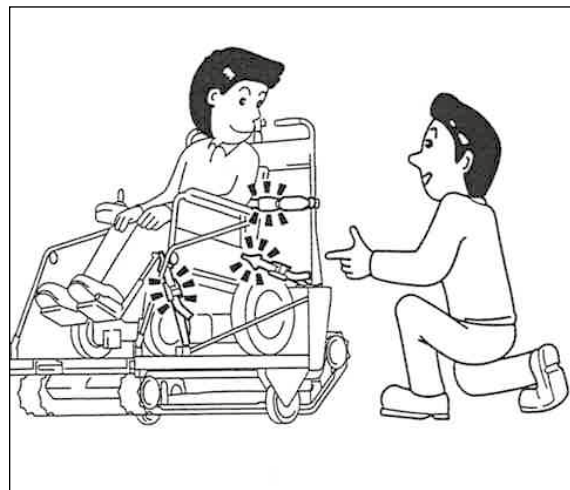
2. Handling of Battery

- Battery is a sealed type. It is unnecessary to refill it with water. Never dismantle Battery.
- Never position Battery near a flame or short-circuit Battery.
- If Battery is cracked and its electrolytic solution contacts skin or clothes, immediately rinse the contaminated area with plenty of water. If electrolytic solution splashes into the eye, rinse the eye with plenty of clean water and consult an ophthalmologist.



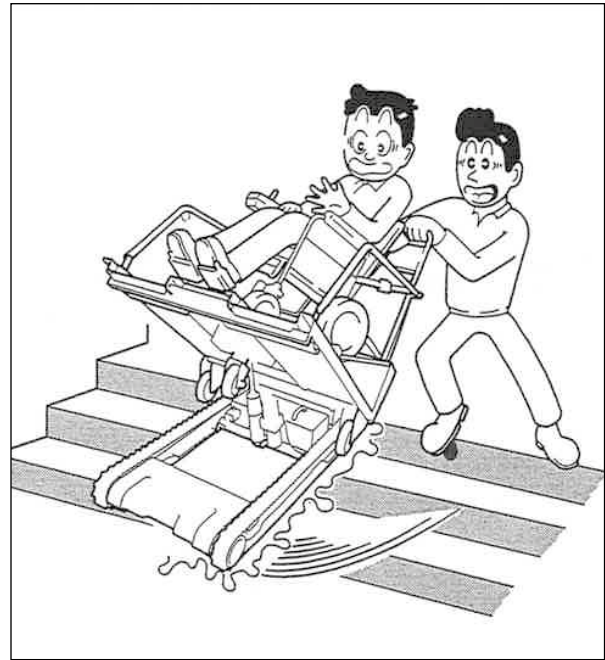
3. Safe operation with proper knowledge

- The operator needs sufficient training. Be sure the training is undertaken before the operator attempts to run this machine for the first time.
- Proper clothes, suitable to machine control, must be worn.
- The machine can be run only after Wheelchair is safely secured by Forks, Seat Belt and other necessary items.
- No operator overworked, sick, taking medicine, intoxicated, or otherwise inhibited may operate STAIR SHIP.



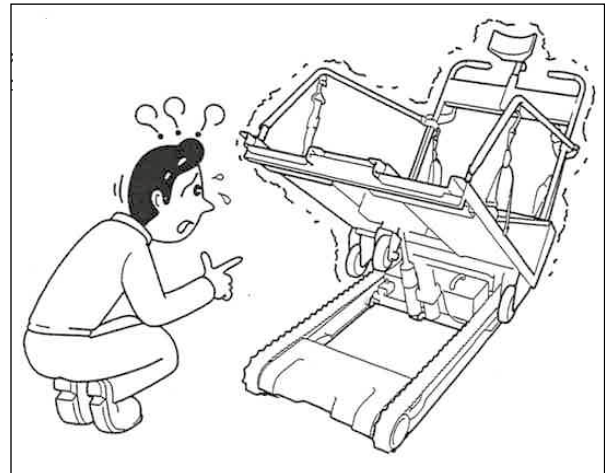
4. Operation on a staircase

- Never run the machine on a staircase angle exceeding 35 degrees, on a curved staircase, an oily staircase, an icy staircase, a slippery staircase or any other inappropriate staircase.
- Obliquely ascending or descending the stairs will result in danger of serious accident. The operator must avoid oblique operation on stairs. Always approach the staircase squarely.
- Whenever running the machine upward, the operator must always pay attention to the area behind him/herself. Do not run STAIR SHIP if the staircase are crowded.
- Whenever running the machine downward, the operator must always pay attention to the front of the machine. Do not run STAIR SHIP if the staircase are crowded.
- Never let go of the machine unless unavoidable circumstances separate the operator from the machine.



5. Machine stoppage

- If the machine gives trouble, malfunctions or is damaged, immediately stop operating the machine. Running it with a trouble cause existing can result in a serious accident.



2. CONFIGURATION AND SPECIFICATIONS

2.1 PRODUCT CONFIGURATION

STAIR SHIP consists of the following assemblies.

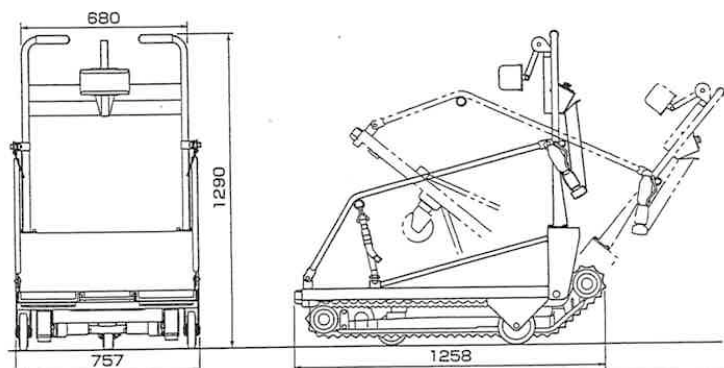
• Floor
• Handle
• Drive Unit
• Floor Tilt Unit
• Wheels
• Handrails

• Slope	
• Battery Pack	
• Headrest	
Standard accessories	• Charger (24V) 1 pc
	• Parts List 1 copy

2.2 SPECIFICATIONS

Model	TRE-52
Dimensions	Maximum length 1,258 mm Maximum width 757 mm Maximum height 1,290 mm
Floor height	235 mm
Maximum floor tilt	40°
Weight	115 kg
Maximum load	200 kg
Stair ascent speed	21 steps/min (6.4 m/min) for load: 200 kg
Stair descent speed	31 steps/min (9.5 m/min) for load: 200 kg
Maximum stair angle	35°
Motor	Type Permanent-magnet DC motor Rated output 210 W/30 min (2 motors) Connection 2 motors connected in series.
Battery	Maintenance free type sealed lead battery
Battery capacity	24V 24AH/20HR (12V 24AH / 20HR 2 batteries connected in series.)
Wheels	Front: 125 mm, 1 caster wheel, Rear: 150 mm, 2 wheels Wheelbase: 445 mm (Min.), 505 mm (Max.), Tread: 688 mm
Rubber crawlers	Width 51 mm, 2 pcs Ground contacting length 900 mm Tread 524 mm
Main brake	Spring loaded electromagnetic brake x 2 pcs.
Running time /charge	Ascend: 840 steps (40 min.) for load: 200kg Descend: 1240 steps (40 min.) for load: 200 kg
Number of operators	1 to 2
Charger	Input: AC 115V/230V, Output: DC 24V, 4A

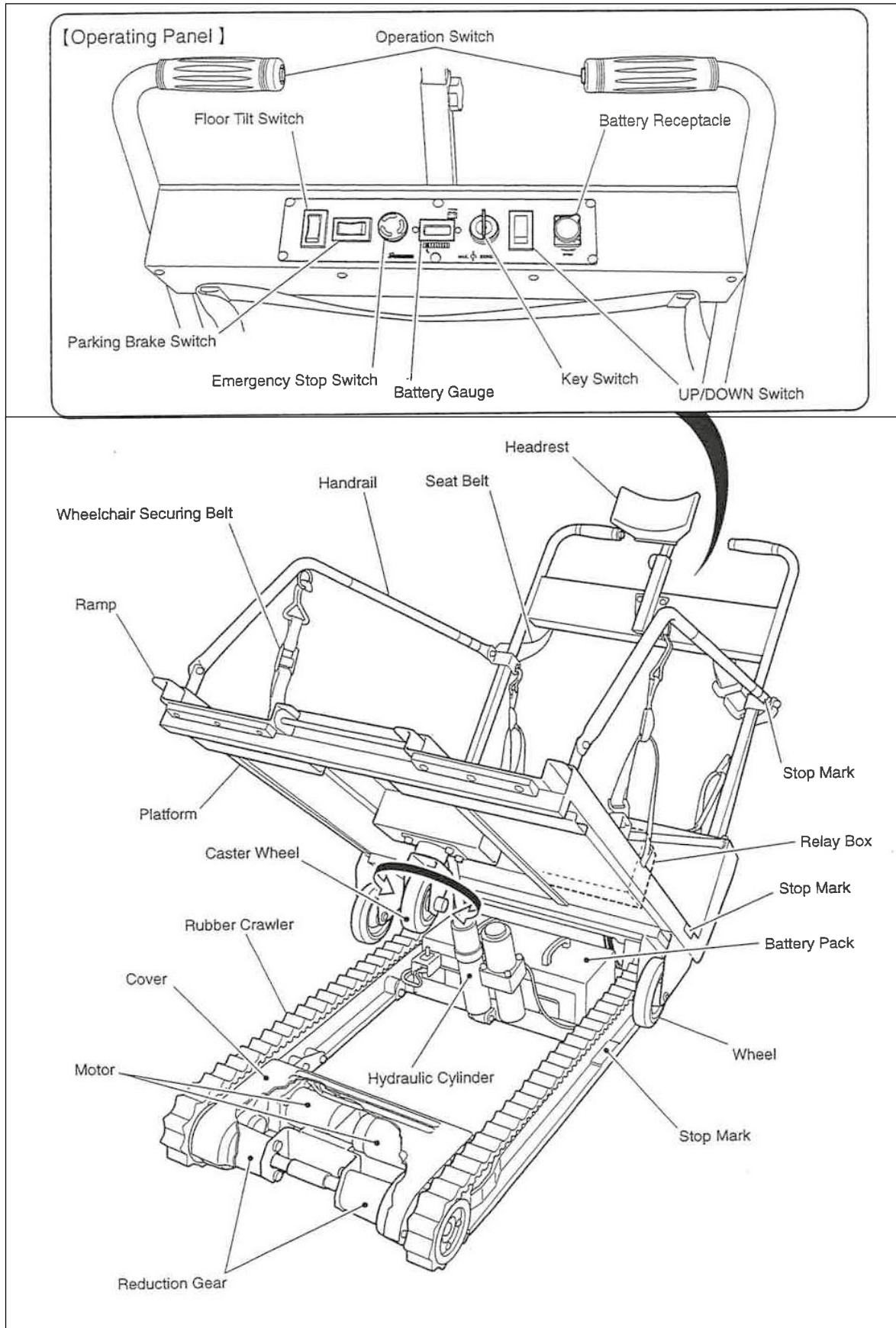
External dimensions



2.3 MATERIAL

Frame: steel, powder-coated; Drive chains: rubber; Drive unit: aluminium die casting.

3. NAME OF EACH UNIT



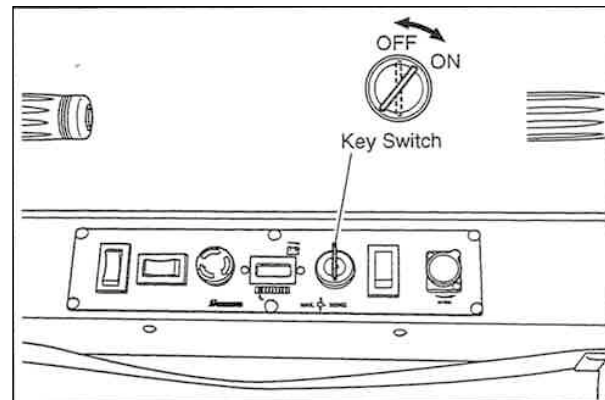
4. DESCRIPTION OF EACH UNIT

4.1 KEY SWITCH

1. Key Switch:

It turns on/off the Power Supply. When it is turned clockwise, the power will be ON and when turned counter-clockwise, the power will be off.

NOTE: When STAIR SHIP is not to be used (to be stored, to be charged, to be transported), turn off Key Switch, remove Key and keep it in an appointed place.



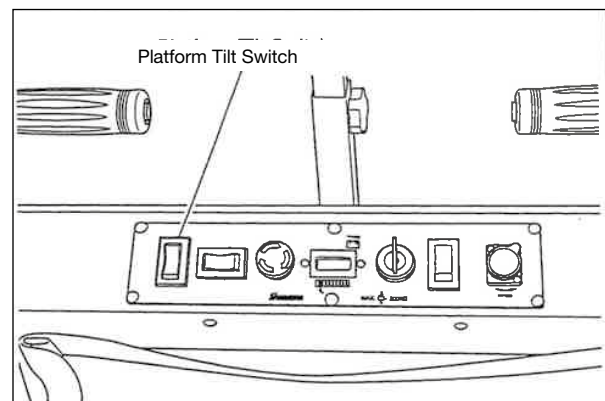
CAUTION

If Key Switch is kept in the ON position, Battery will more quickly discharge. When the machine is not to be in use, be sure to turn off Key Switch and remove it.

4.2 PLATFORM TILT SWITCH

While STAIR SHIP is ascending/descending the stairs, STAIR SHIP maintains its Platform level. When the „Tilt“ side of the Platform seesaw Switch is pressed, Platform will tilt. When the „Level“ side of the Platform seesaw Switch is pressed, Platform will level. When the Switch is released, the tilting/leveling movement will stop.

The elevating operation won't start until STAIR SHIP's Platform is tilted completely. This Switch cannot be operated while STAIR SHIP is running on the stairs.



4.3 SWITCHES

1. OPERATION Push Button.

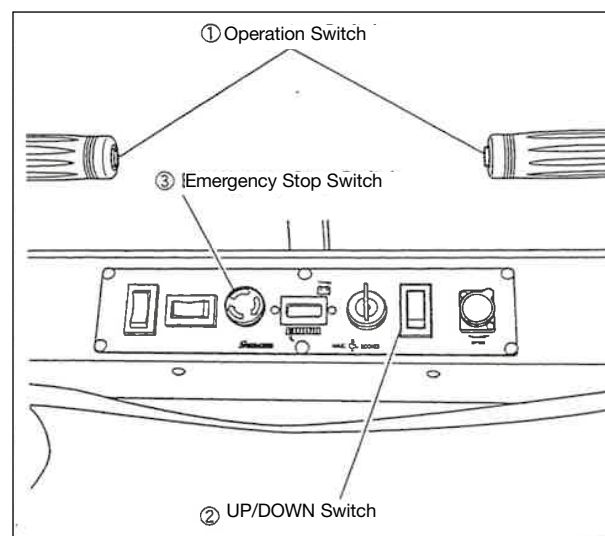
Switches STAIR SHIP runs only while the two Button Switches are pressed. If one of them is released, STAIR. SHIP will stop.

2. UP/DOWN Seesaw Switch:

This Switch selects ascent or descent operation.

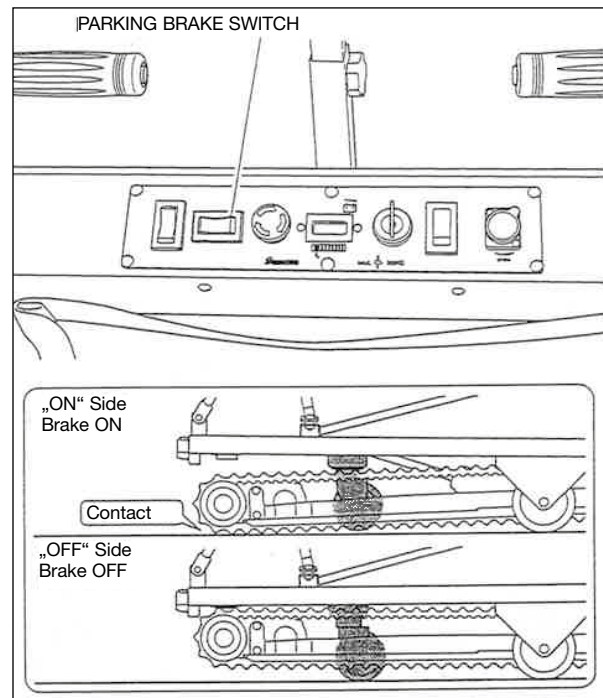
3. Emergency Stop Push Button Switch:

If this Push Button Switch is pressed, the machine will immediately stop. To release the emergency stop condition, turn this Switch clockwise.



4.4 PARKING BRAKE SWITCH

For safe loading or unloading of Wheelchair, STAIR SHIP must be secured on the floor. When the „ON“ side of Parking Brake seesaw Switch is pressed, STAIR SHIP's Platform will ascend and Rubber Crawlers will contact the ground to secure STAIR SHIP. When the „OFF“ side of Parking Brake Seesaw Switch is pressed, STAIR SHIP's Platform will descend and Rubber Crawlers will be free of the ground.

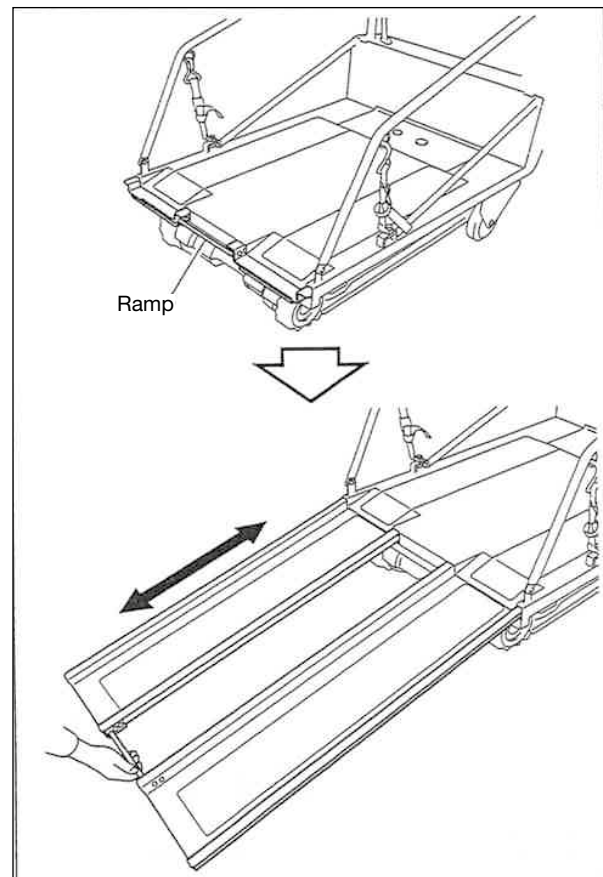


4.5 RAMP

Ramp is stowed under STAIR SHIP's Platform. To use it, manually pull it from STAIR SHIP.

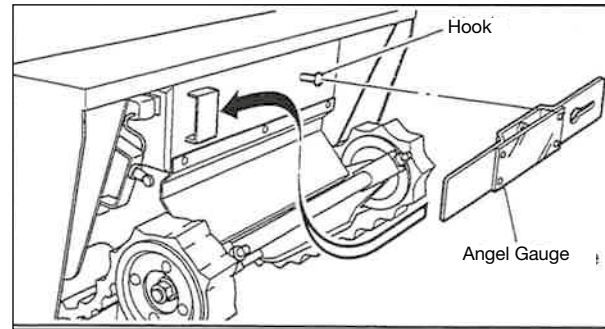
It will facilitate easier and safer loading and unloading of Wheelchair.

After Wheelchair is loaded or unloaded, be sure to stow it in STAIR SHIP.

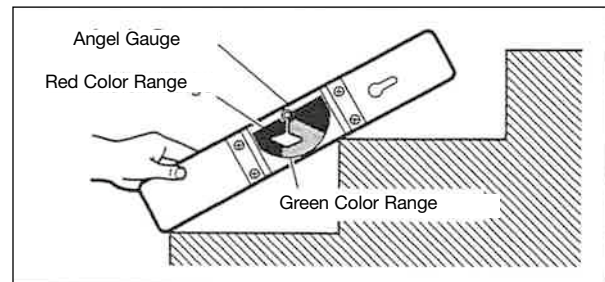


4.6 ANGLE GAUGE HANDLING PROCEDURE

1. Remove Angle Gauge from the rear of the control box. To return it to STAIR SHIP, attach it with a Hook.



2. Set Angle Gauge against the edge of the neighboring stair. Observe Pointer position. If Pointer settles within Green Color Range, it is possible to use STAIR SHIP. Never use STAIR SHIP on a stair if Pointer settles within Red Color Range. After the measurement is completed, be sure to return Angle Gauge to its original position on STAIR SHIP.



WARNING

If Key Switch is kept in the ON position, Battery will more quickly discharge. When the machine is not to be in use, be sure to turn off Key Switch and remove it.

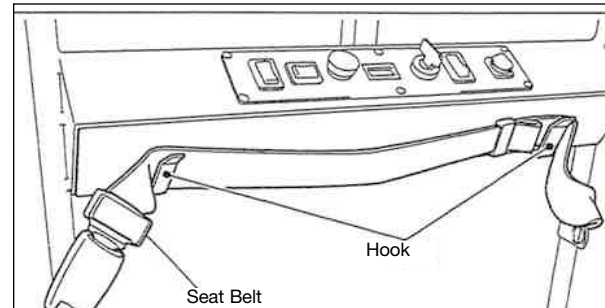
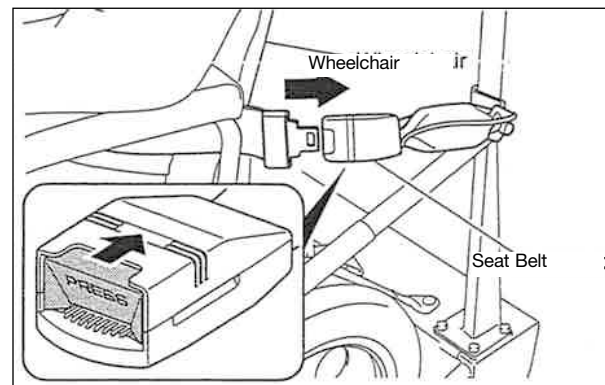
4.7 SEAT BELT

In order to secure the passenger's safety, be sure to carefully fasten Seat Belt. Improper Seat Belt setting will prevent machine activation.

Inserting Seat Belt's Buckle halfway or any other improper way may activate Lock Unit to prevent Buckle insertion.

If the lock mechanism is active preventing Buckle insertion, press where it says "PRESS" to release the lock and then reinsert the buckle fully.

When no Wheelchair is set on STAIR SHIP, be sure to hang Seat Belt on its two Hooks.

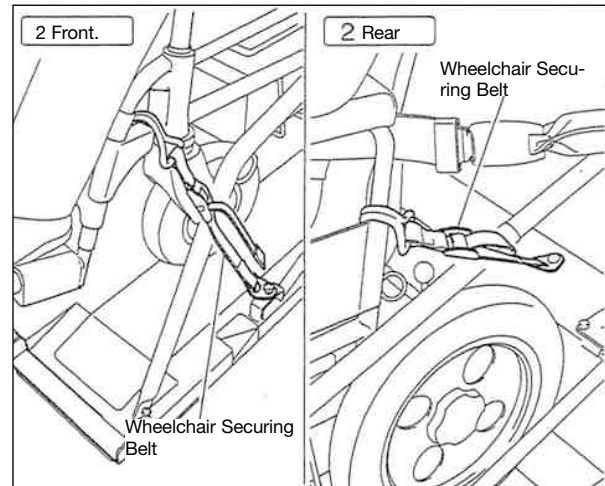


CAUTION

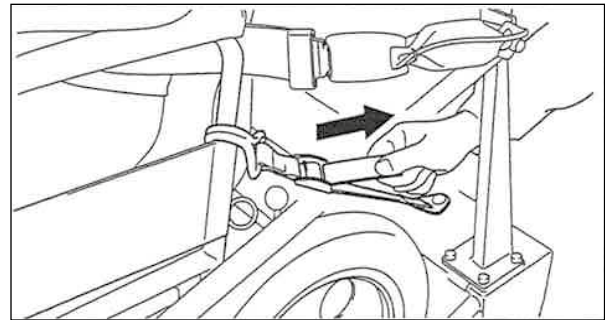
Be sure to securely lock Seat Belt. If it is only partially locked, the machine will not activate.

4.8 WHEELCHAIR SECURING BELT

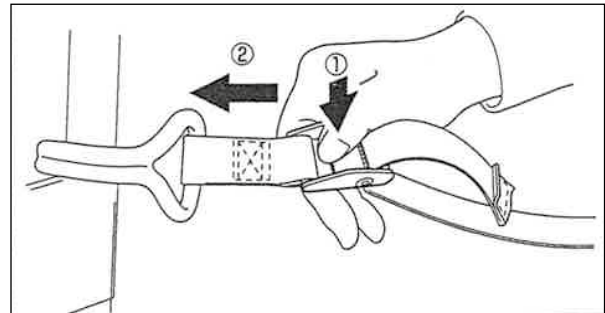
In order to prevent danger while operating STAIR SHIP, be sure to set four Belts (2 front, 2 rear) to secure Wheelchair.



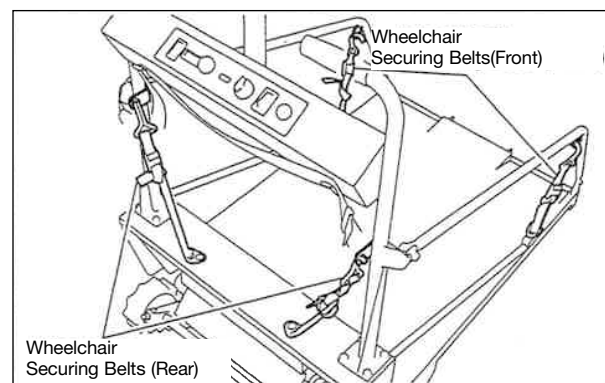
1. Pull the Belt and tighten it.



2. To loosen Belt, move Belt in the arrow 2 direction on the figure while pressing center of Buckle (Arrow 1 indicated point).



3. If no Wheelchair is loaded, be sure to set all four Hooks to the specified points.

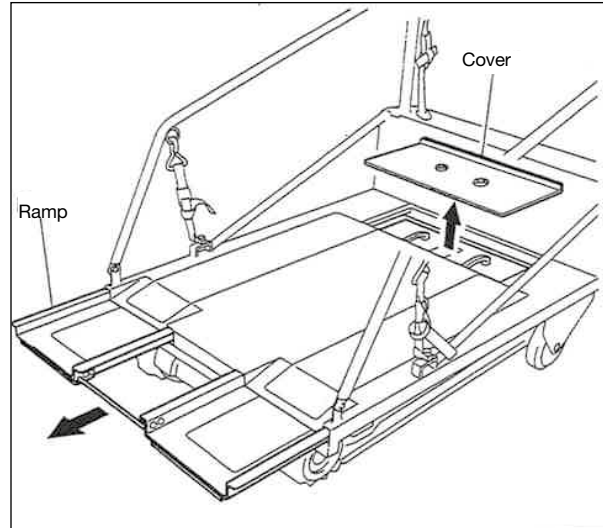


CAUTION

If STAIR SHIP runs while any Hook is not set to its specified position, Hook may catch in the machine resulting in machine malfunction.

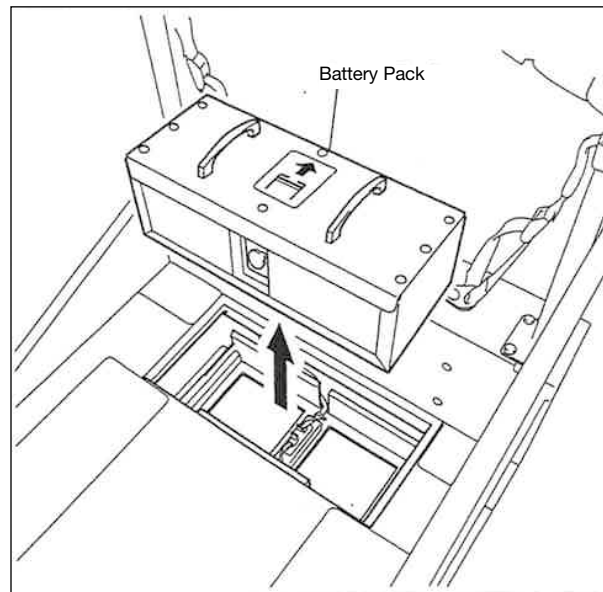
4.9 BATTERY PACK REMOVAL AND REINSTSLLATION

1. Remove Top Cover of Platform unit and slide Ramp out from the machine until Battery Pack can be removed.



2. Pull and remove Battery Pack from STAIR SHIP while supporting its handles with both hands.
3. Battery Pack reinstallation is the reverse of Battery Pack removal.

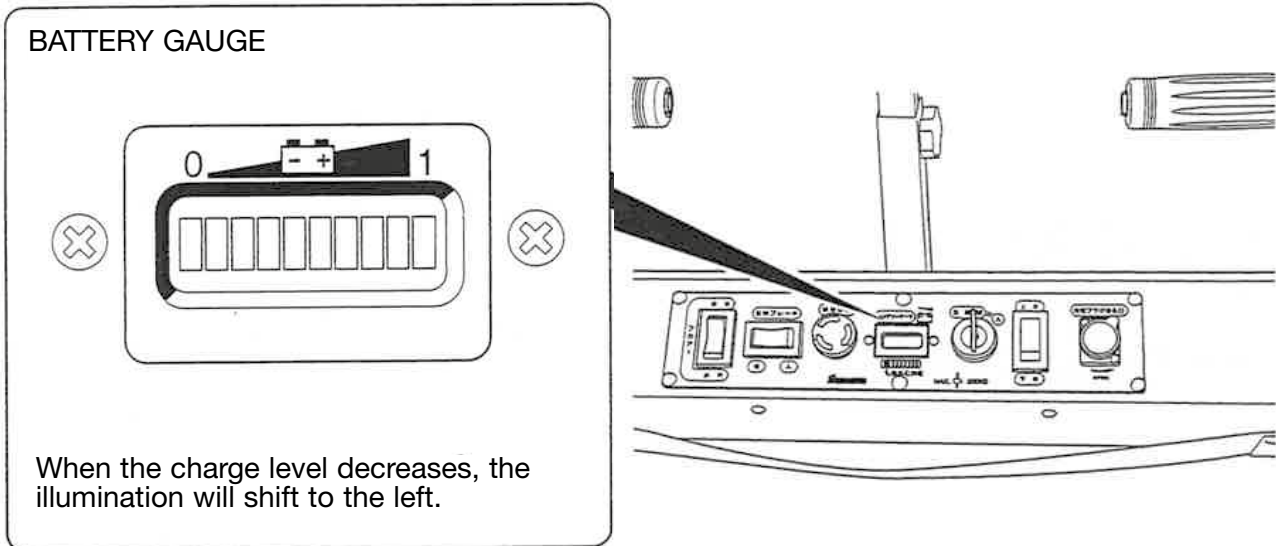
NOTE: Battery Pack has its one direction. It is impossible to insert it in the wrong direction.








CAUTION

Attempting to reverse insert Battery Pack may break components. Pay attention to insert it in its correct direction.

4.10 BATTERY GAUGE INSPECTION



BATTERY GAUGE INDICATION:

	Battery Gauge	Available time (Charging percentage)
1	 <p>The right end LED illuminates</p>	Approx. 40 min. (100%)
2	 <p>The fourth LED from the right end illuminates</p>	Approx. 20 min. (50%) After the operation, charge STAIR SHIP's Battery Pack
3	 <p>The seventh LED from the right end illuminates</p>	Approx. 10 min. (25%) After the operation, charge STAIR SHIP's Battery Pack
4	 <p>The second LED from the left end flashes</p>	Stop (0%) Stop operating the machine and charge Battery immediately
5	 <p>The first and second LEDs from the left end flashes</p>	This indication being prolonged will result in rapid Battery deterioration. Be sure to stop the machine at the „4“ indication and charge Battery



CAUTION




When Key Switch is set to ON, Battery Gauge indication may differ from its previous indication when the power was last turned on.

5. BATTERY CHARGE SYSTEM

5.1 BATTERY

A Sealed Lead Battery is used in STAIR SHIP. It is a maintenance-free and non water requiring Battery. Whenever Battery is handled, be sure to follow the cautions shown below.

NOTE: Immediately after Battery is used, Battery must be charged using Battery Charger of STAIR SHIP. If insufficient Battery charge is left, less power for following operations will result in difficulty of operation. Or if Battery is left depleted for a long period of time, it may be damaged.

 DANGER	<p>When Key Switch is set to ON, Battery Gauge indication may differ from its previous indication when the power was last turned on.</p>
 WARNING	<ul style="list-style-type: none"> • Use Battery Charger of STAIR SHIP for charging Battery. • Always check Battery's condition. If any crack or deformation or water leakage is observed, replace with a new one. • Clean and wipe Battery with a cool or warm water moistened cloth. Never wipe with gasoline, thinner, organic solvent or oil moistened cloth. • If the electrolytic liquid from a damaged Battery contacts skin or clothes, rinse the area with plenty of water immediately. If the electrolytic liquid invades the operator's eye, rinse it with clean water immediately and consult an ophthalmologist.
 CAUTION	<ul style="list-style-type: none"> • Battery is a sealed type. Never remove its cover. If the cover is removed, Battery become unusable. • Battery may lose its usefulness if it is over discharged. • If Battery is not to be used for a long period of time, remove it from the machine and charge it completely. Keep it in cool and dry place and charge it again monthly. <p>Even though Battery is not used during storage, its capacity constantly decreases. Therefore its performance will decrease compared with the previous occasion the machine was used.</p>

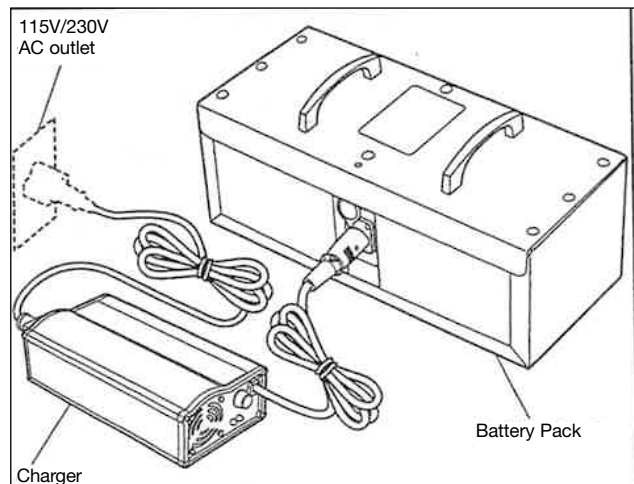
5.2 CHARGER

Use Battery Charger of STAIR SHIP. Battery is automatically charged depending on Battery discharge rate at a given time.

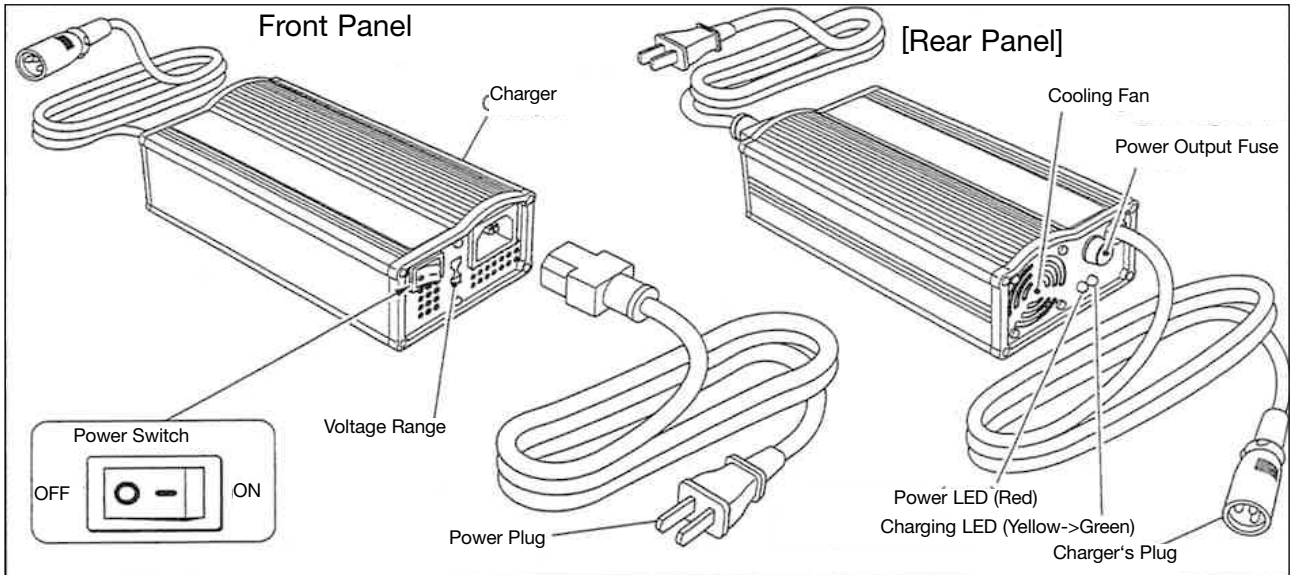
This Battery Charger is not equipped with a timer function.

Be sure to disconnect Charger's Plug from Battery Pack after Green LED illuminates.

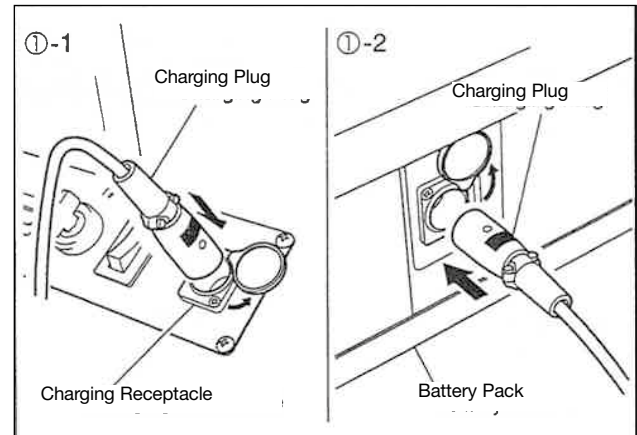
(Charging Battery completely will take about 8 hours.)



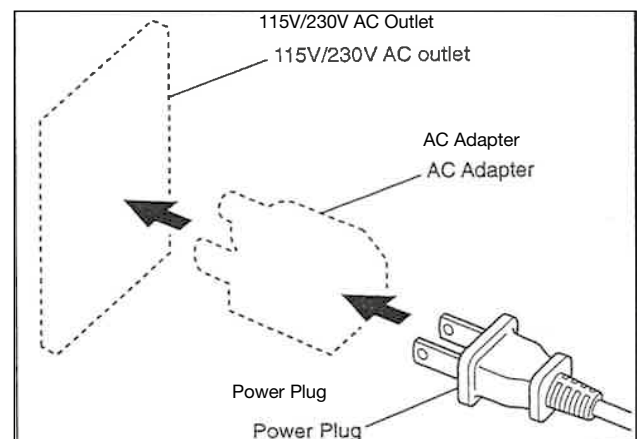
5.3 CHARGING PROCEDURE



- 1.1 If Battery Pack is not to be removed from STAIR SHIP, connect Charger's Plug to Charging Receptacle positioned at the side of Operation Box.
- 1.2 If Battery Pack is removed, connect Charger's Plug to Battery Pack's Receptacle.



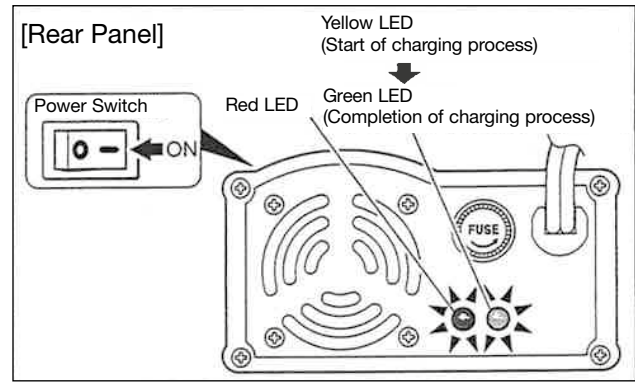
2. Connect AC Adapter to Outlet (AC 115V/230V). Connect Power Plug.



CAUTION

Prepare an area-specific AC conversion Adapter for installation between AC Outlet and Power Plug.

3. Turn on Charger's Power Switch. (Set it to [I]). When Red and Yellow LEDs illuminate, the charging process will start.
4. When the charging process advances and Green LED illuminates instead of Yellow LED, the charging process will complete.
5. Turn off Charger's Power Switch. (Set it to [O])
6. Disconnect Power Plug from the 100V/240V AC Outlet.



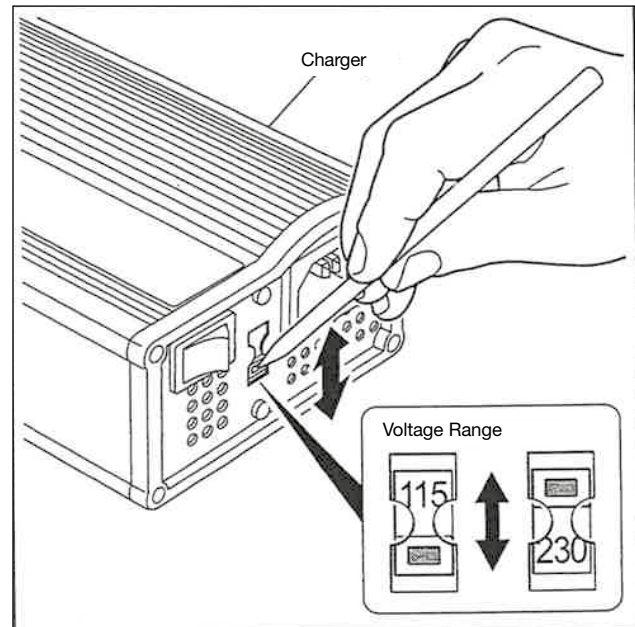
CAUTION

- Within 12 hours after Battery Charger's Green LED illuminates (indicating Battery Pack is fully charged), be sure to turn off Power Switch. (Set it to 0) Over charging will cause deterioration of Battery and decreas of Battery capacity and shorter Battery life.
- High temperature will be indicated on Battery Charger while it is charging Battery Pack. Never leave any combustibles near Charger.

5.4 VOLTAGE RANGE SELECTION

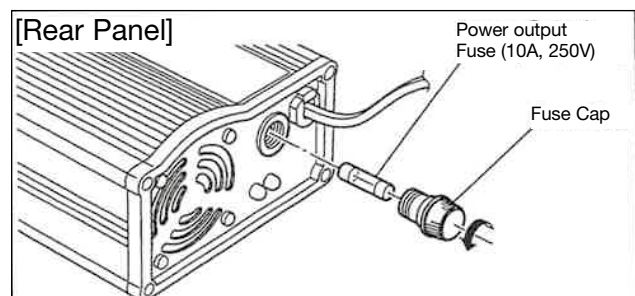
The twin power supply voltage (115VAC / 230VAC) can be selected by setting Voltage Selection Switch. A table of initial settings for the destination countries is shown in the table below. Before using Charger for the first time, be sure to check that the power voltage is set to suit to the site's voltage.

	115V AC	230V AC
NORTH AMERICA	o	
EUROPE/UK		o
KOREA		o
TAIWAN	o	
SINGAPORE		o
MALAYSIA		o
HONG KONG		o
CHINA		o
OCEANIA		o




5.5 POWER OUTPUT FUSE REPLACEMENT

Turn Fuse Cap counter-clockwise to open. Then remove the blown Fuse and replace it with a new one (10A, 250V).



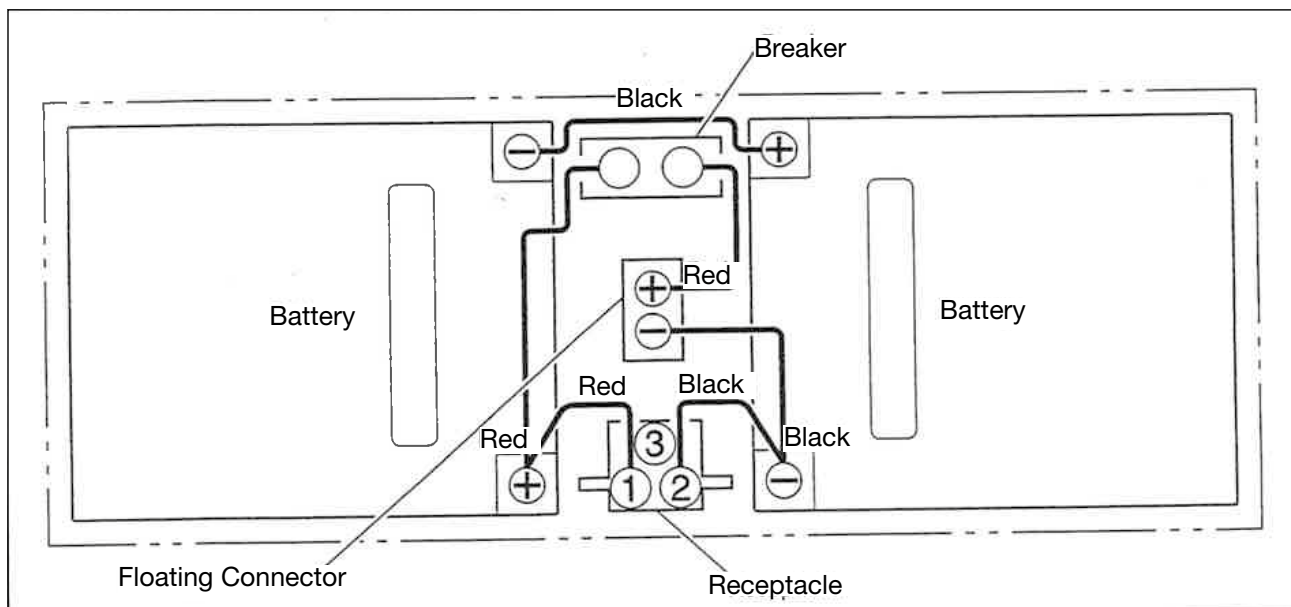
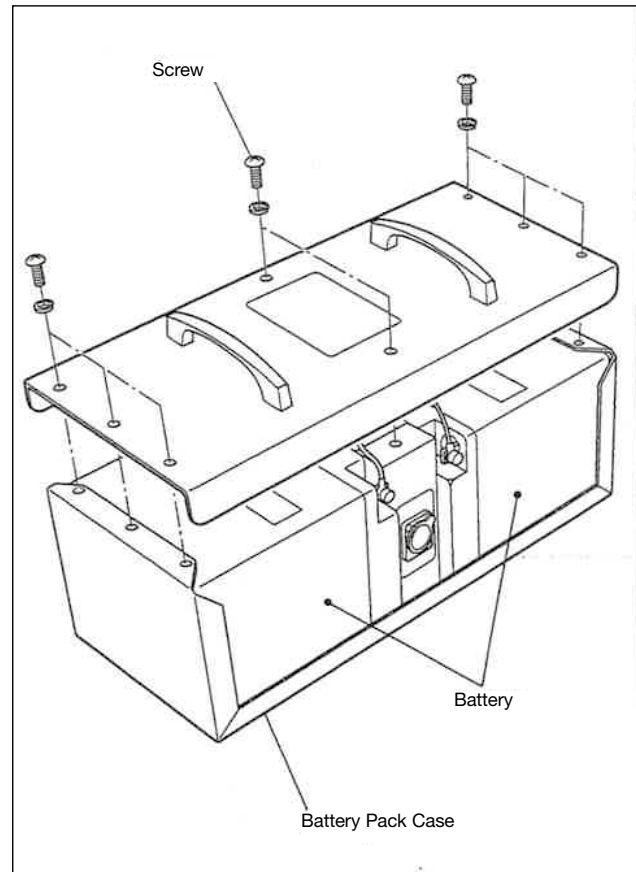
5.6 MALFUNCTION, INSPECTION, RESOLUTION PROCEDURE

TROUBLE	CAUSE	COUNTERMEASURE
No power supplied. LED won't illuminate.	Insufficient insertion of Power Plug into outlet.	Check outlet and securely connect Power Plug.
	No power is supplied	Check power and other relevant parts.
	Power Cord is broken.	Arrange its repair or replacement.
	Battery Charger's power source trouble	Arrange a check or repair.
	Receptacle and Plug are improperly connected.	Check the connecting parts and securely connect them.
	Battery Pack is improperly connected.	Check the connecting parts and securely connect them.
Green LED illuminates soon after the start of charging.	Battery is normally charged.	Normal.
	Battery malfunction.	Replace with a new Battery. (See P15.)
The charging process is completed however workable period is shortened.	Battery nearly dead.	Replace with a new Battery. (See P15.)
	Ambient temperature is low during charging.	Charge Battery in an ambient temperature between 5 and 40°C.

 CAUTION	<ul style="list-style-type: none"> • For safe handling of Charger, be sure to read the instructions thoroughly before using Charger. • Charger is only to be used with an AC115V/230V power source. Never connect Power Cable to any other power source specification. • Extended charging may reduce Battery capacity resulting in shorter Battery life. • Battery and Charger's Output Terminals have polarity. Confirm that those Terminals are correctly connected according their polarity. Improper connection will result in a short circuit and cause a cable to melt or other serious charger malfunction. • Never remove Charger Cover or you will risk receiving an electric shock. • Keep Charger indoors, away from direct sunlight and water splashes. Neglecting this can cause fire, electric shock or equipment malfunction. • As Battery deteriorates, its voltage will fail to reach normal full-charge voltage.
--	--

5.7 BATTERY REPLACEMENT

1. Unscrew the Screws mounting Battery Case and Cover.
2. Disconnect cables from Battery Terminals, remove exhausted Batteries, and install new ones.
3. Connect cables to Battery Terminals as shown in the figure below. Confirm that cables are properly connected to proper terminals. Then apply adhesive agent to Connectors to prevent their loosening.



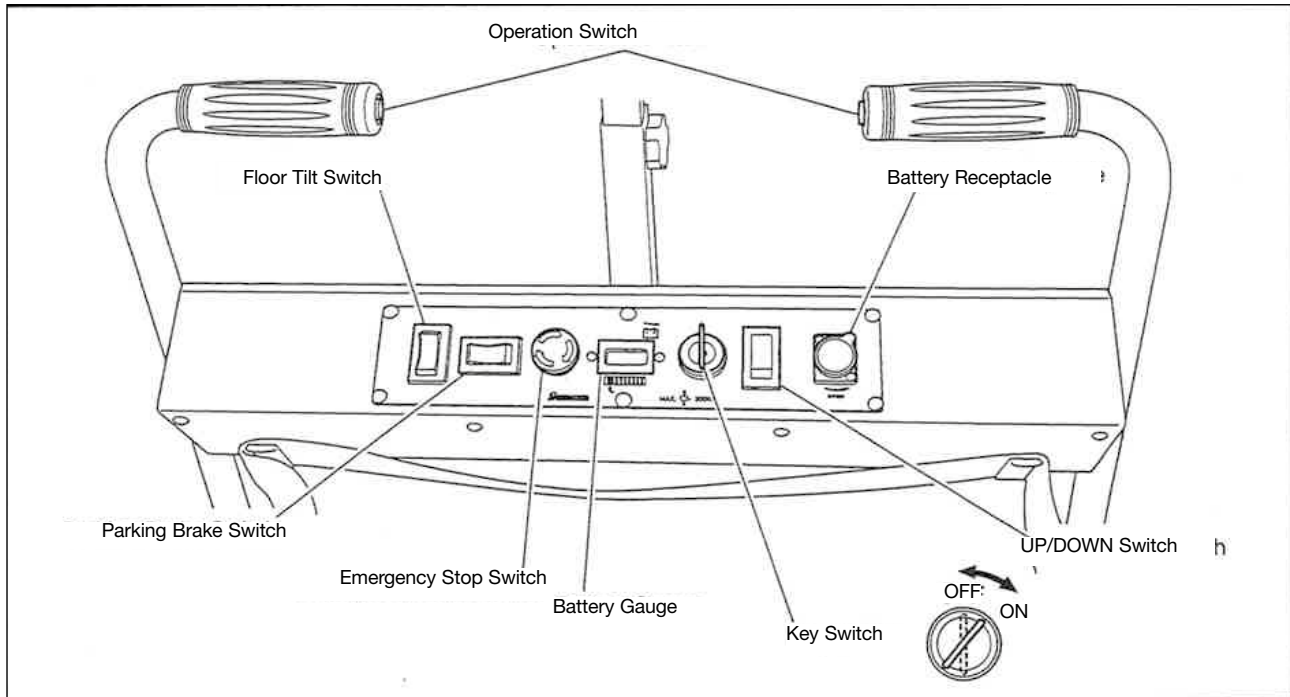
CAUTION

While Key Switch is set to ON, power will be supplied from Battery. If STAIR SHIP is not be used, be sure to set Key to OFF and remove it from Key Switch.

6. PRE-USE INSPECTION

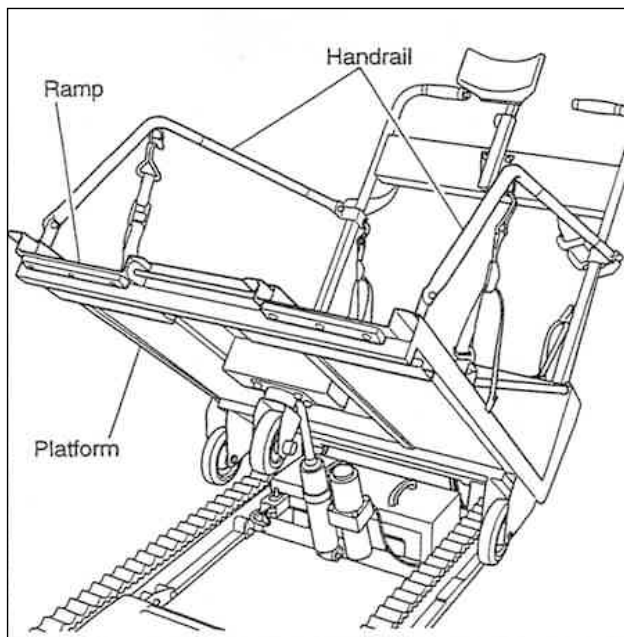
Before using the machine, be sure to carry out the daily inspection.
The daily inspection will prevent trouble. It is essential before handling STAIR SHIP.

SWITCH INSPECTION



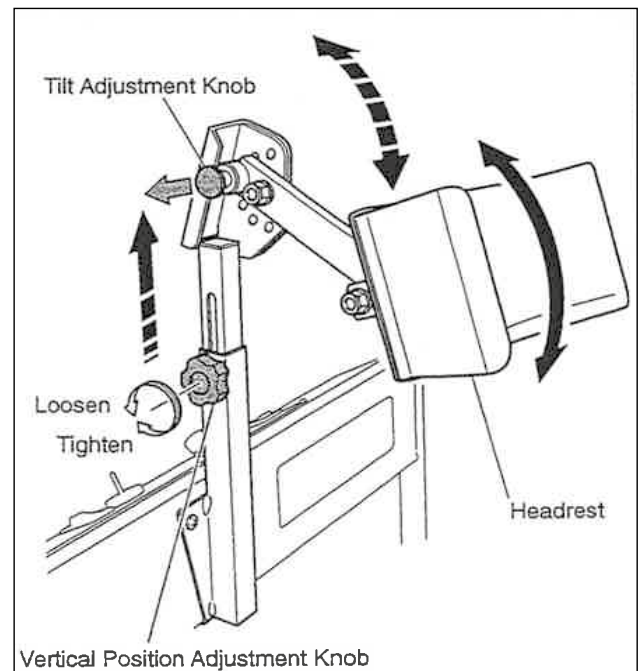
- Check that all Switches function correctly.

PLATFORM, RAMP AND HANDRAIL INSPECTION



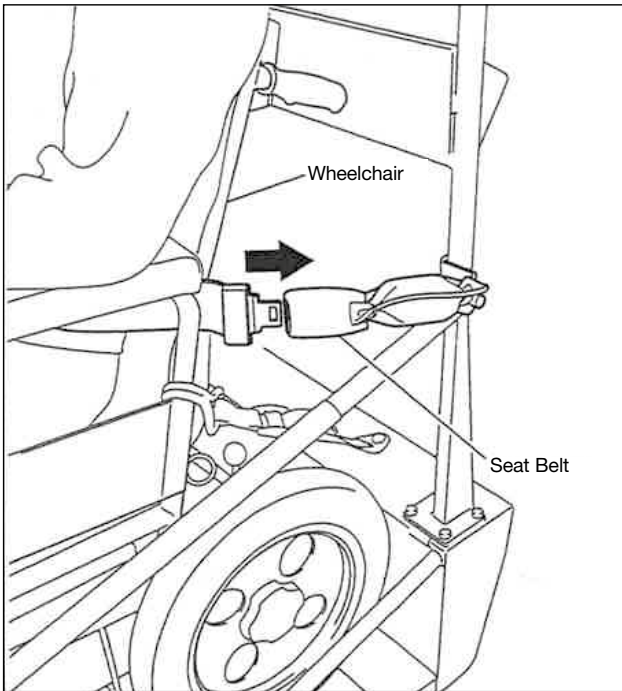
- Check that Platform, Ramp and Handrail have no deformation or crack.

HEADREST INSPECTION



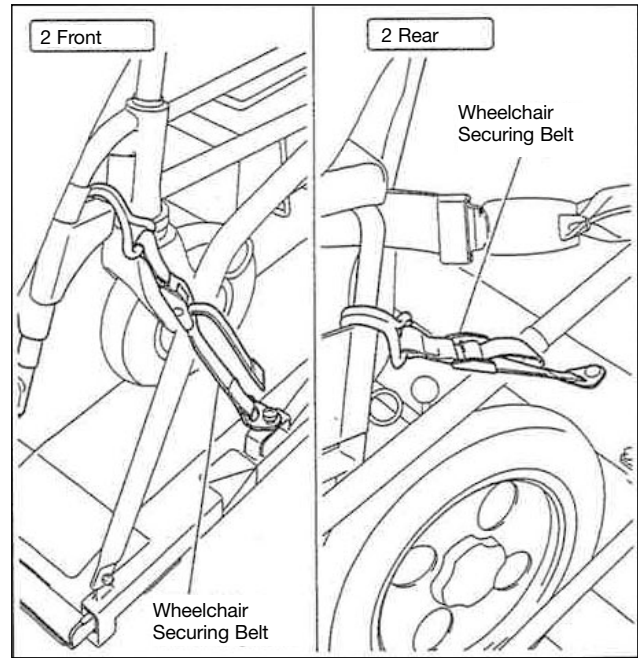
- Check that Headrest has no deformation or crack and that it functions normally.

SEAT BELT INSPECTION



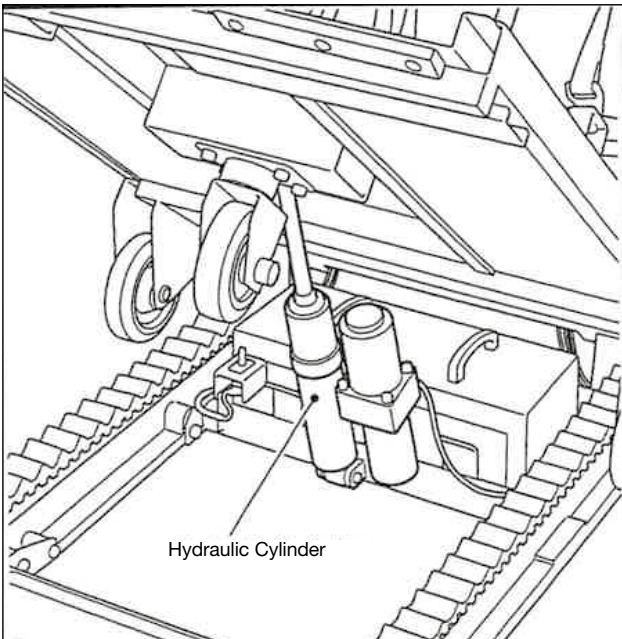
- Check that Seat Belt and its fittings have no deformation or crack, that Seat Belt can be securely locked and that the lock sensor switch functions properly.

WHEELCHAIR SECURING BELT INSPECTION



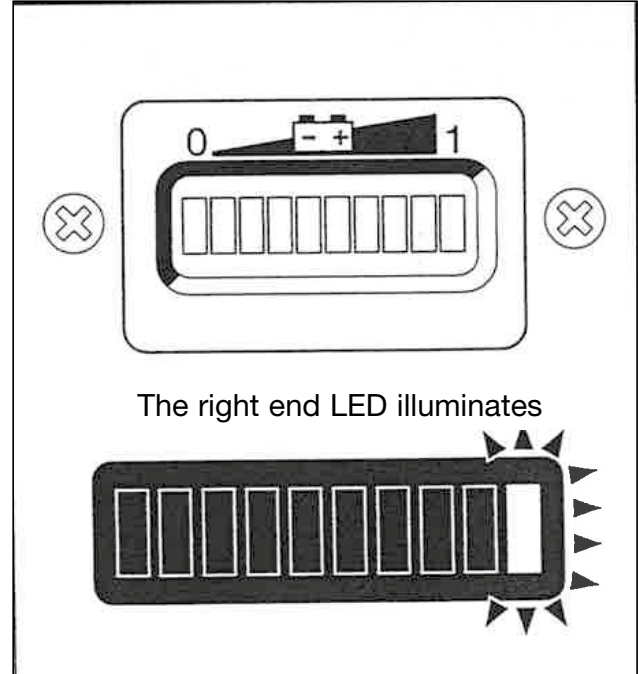
- Check that four Wheelchair Securing Belts have no deformation or crack and that they function normally.

HYDRAULIC CYLINDER INSPECTION



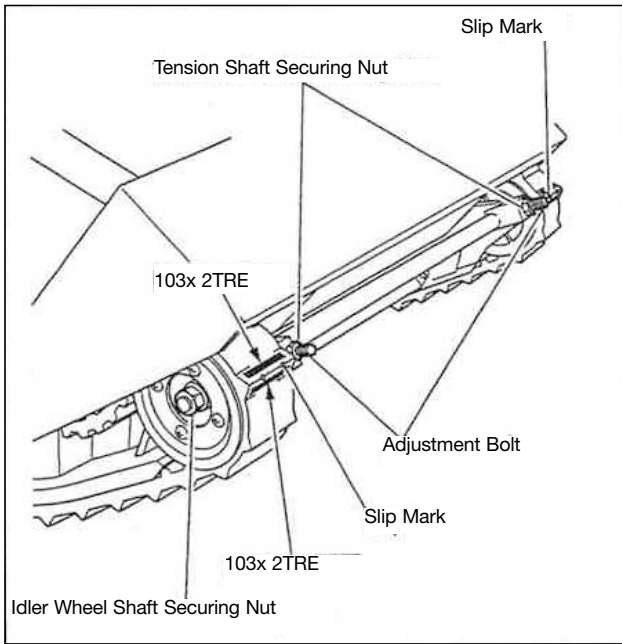
- Check that Hydraulic Cylinder Unit has no abnormal noise no crack or oil leak.

BATTERY INSPECTION



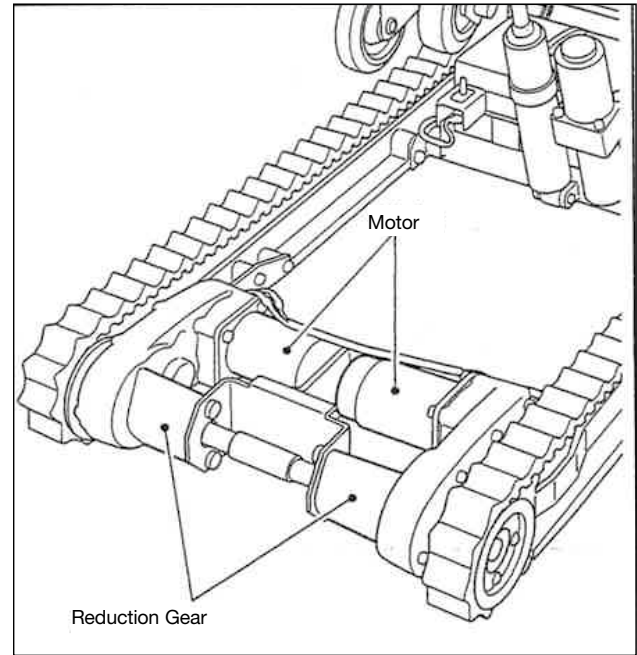
- Check that the right end lamp of Battery Gauge is illuminated. If Battery Gauge is not illuminated at the right end, it means Battery is not fully charged or battery capacity is reduced due to its deterioration. The total running period will be diminished.

RUBBER CRAWLERS INSPECTION



- Check that there is no crack, wear or pitch error regarding Rubber Crawlers.

MOTOR AND REDUCTION UNIT INSPECTION



- Check that Motors and Reduction Gears have no abnormal noise, no crack or oil leak.

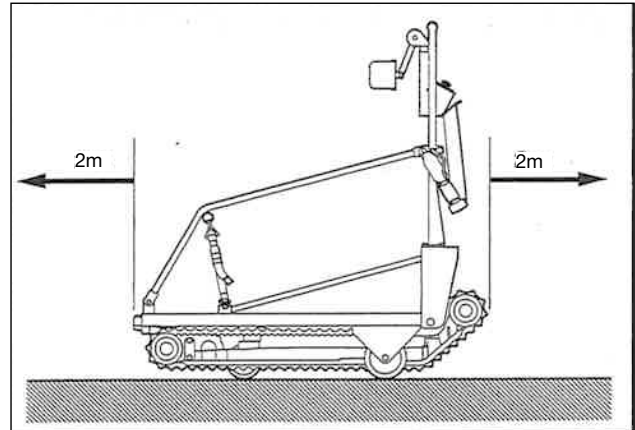
SCREWS INSPECTION

- Check that no Screw has dropped out and that all Screws are tightly attached.

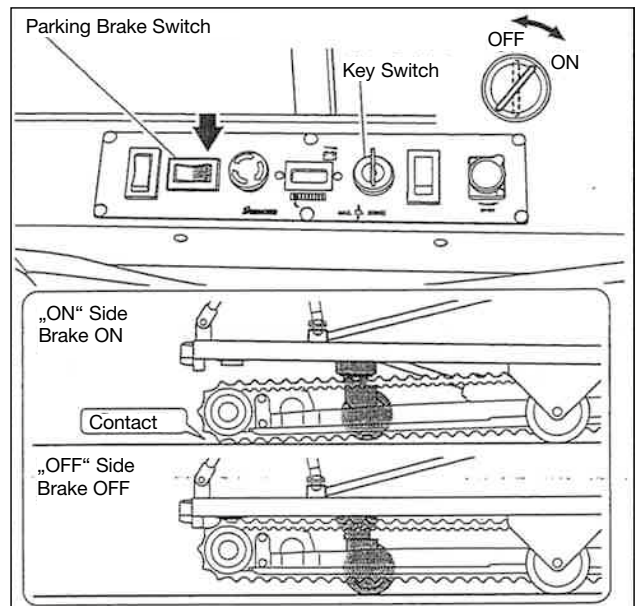
7. OPERATION

7.1 LOADING THE WHEELCHAIR

1. Secure 2 m spaces in front and rear of STAIR SHIP



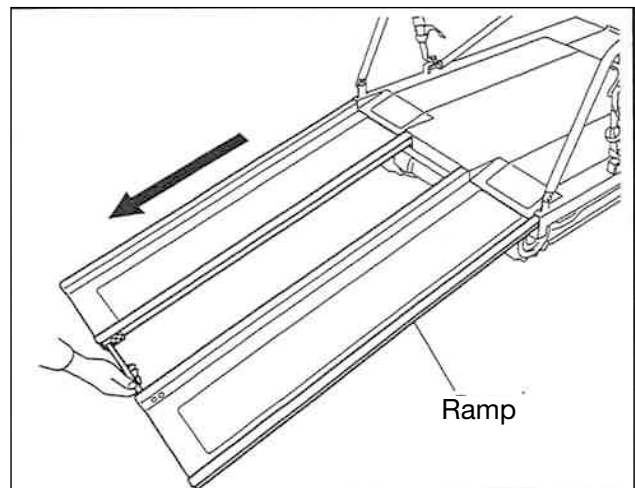
2. Secure STAIR SHIP to the floor in order for Wheelchair to be safely loaded. Set the Key Switch to ON. When the ON side of Parking Brake Switch is pressed, STAIR SHIP's Platform will ascend and Rubber Crawlers will contact the ground to secure STAIR SHIP. When the OFF side of Parking Brake Switch is pressed, STAIR SHIP's Platform will descend and Rubber Crawlers will rise from the ground.



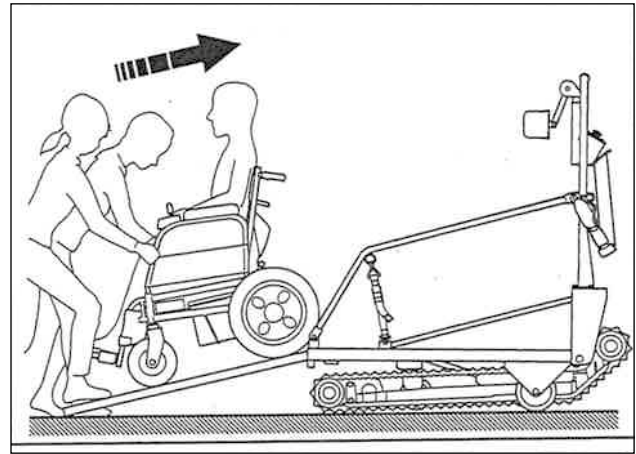
WARNING

Before loading or unloading Wheelchair, be sure to set Parking Brake.

3. Pull Ramp out from STAIR SHIP's Platform.



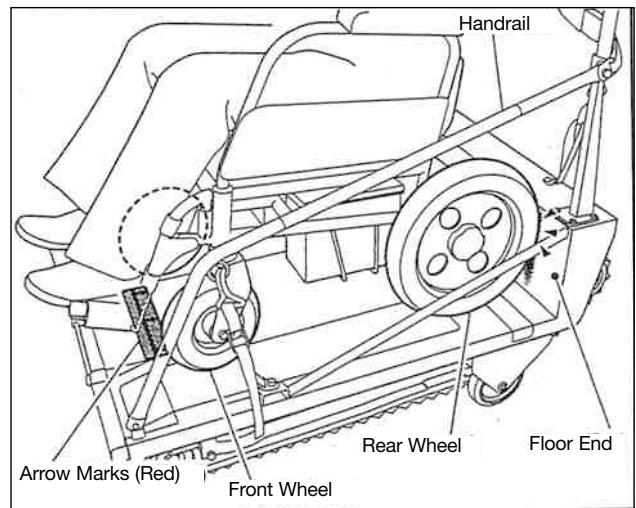
4. Two operators are needed to push Wheelchair one from each side so that it's Wheels easily mount STAIR SHIP's Ramp.



WARNING

Before an electric Wheelchair is loaded, be sure to turn off Wheelchair's power to prevent its powered movement.

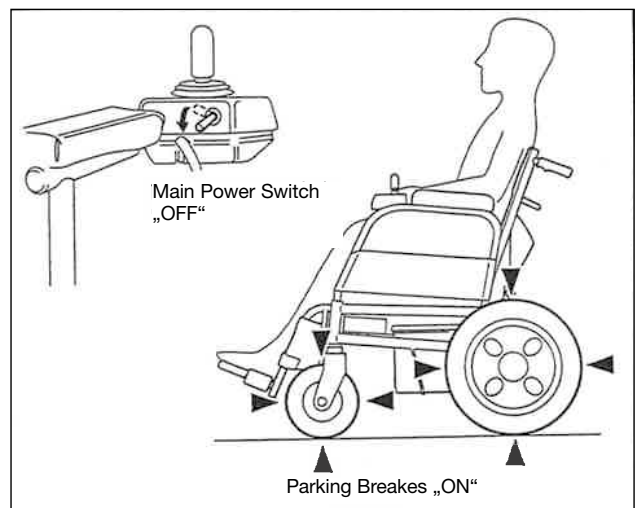
5. Push Wheelchair until its Front Wheels rest beyond the Arrow Indicated Line (color red) and Wheelchair's Rear Wheels rest against the end wall of Platform.



WARNING

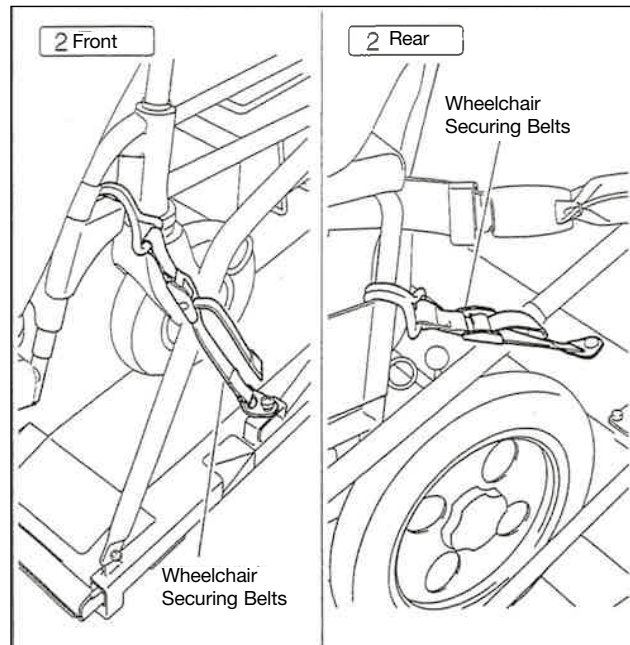
Be sure Wheelchair's Front Wheels are positioned beyond the Arrow Indicated Line (color: red). Otherwise danger exists of Wheelchair falling from STAIR SHIP.

6. Set the brakes of Wheelchair. In case of electric Wheelchair, confirm its power is turned off.

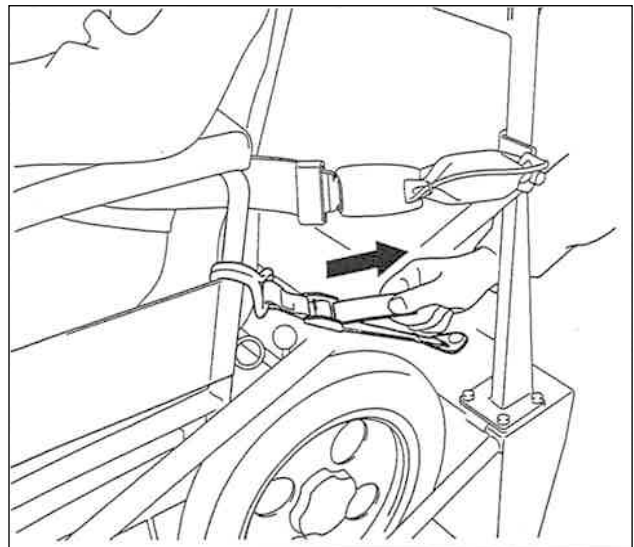


7. In order to prevent Wheelchair movement while operating STAIR SHIP, be sure to secure four Belts (2 front, 2 rear) to Wheelchair.

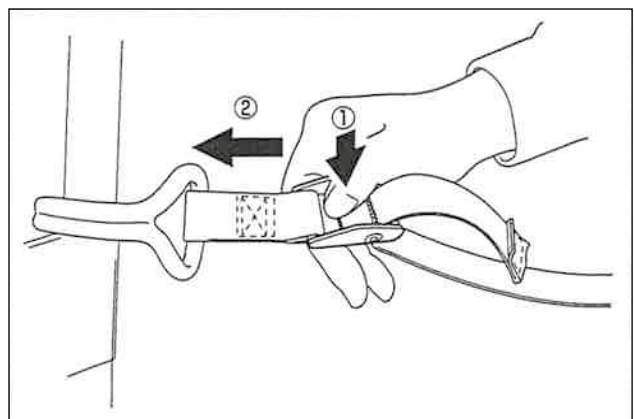
NOTE: Position all Belt's Hooks where they can properly secure Wheelchair and tighten all Belts firmly.



8. Pull the belt and tighten it.



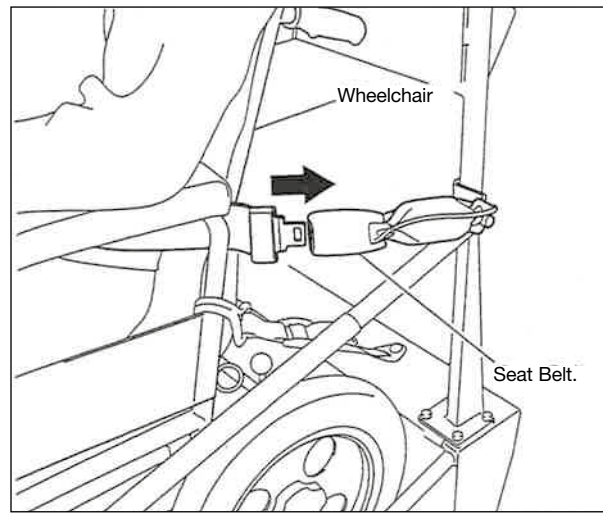
9. To loosen Belt, move Belt in the arrow 2 direction while pressing the center of the Buckle indicated by arrow 1.



WARNING

Be sure to secure all four Hooks to Wheelchair. Otherwise Wheelchair may topple.

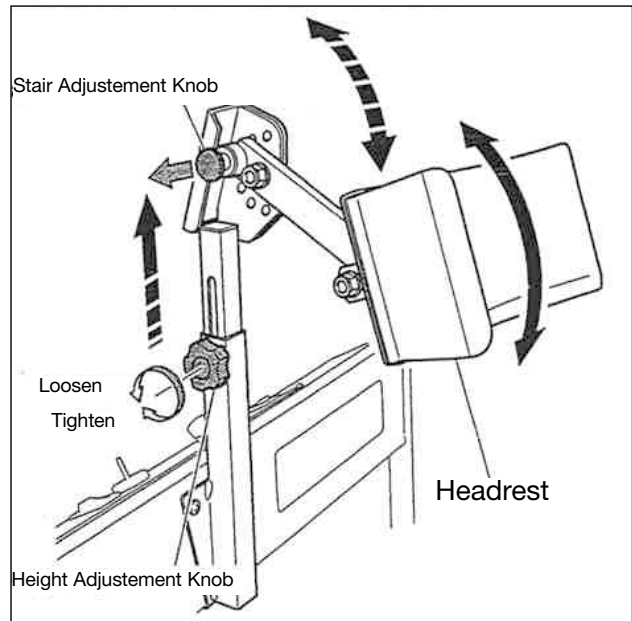
10. Tighten Seat Belt.



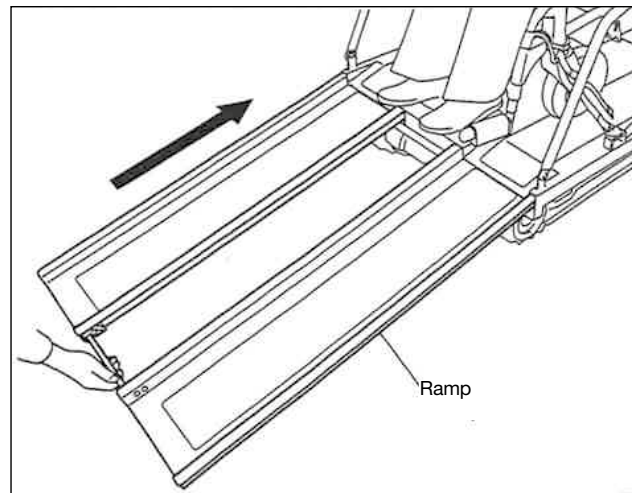
WARNING

Only after Seat Belt is securely locked, can STAIR SHIP be powered. To maintain the passenger and operator safety, be sure to fasten Seat Belt.

11. Adjust Headrest position in order to properly secure the passenger's head
For its vertical position adjustment, loosen the vertical position Adjustment Knob, position it to a suitable height and then retighten Knob.
For its angle Adjustment, pull the Angle Adjustment Knob, tilt the Headrest to the best angle and set it. When a click sound is heard, Headrest is securely positioned.

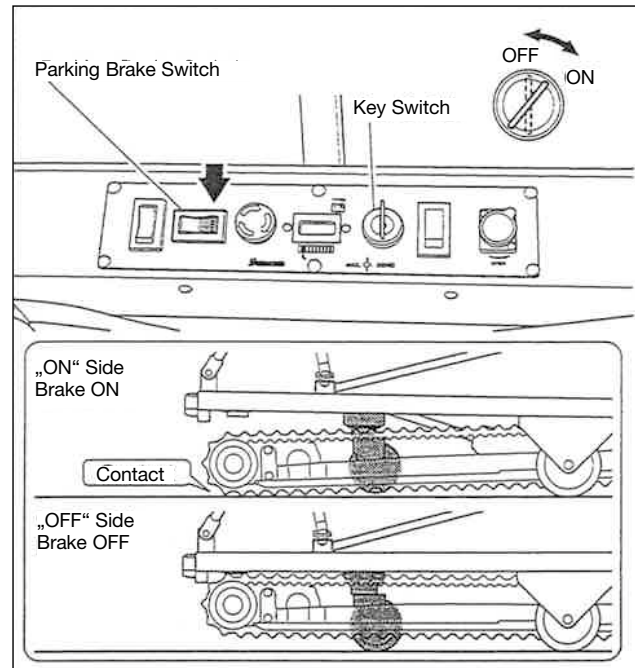


12. Stow Ramp inside STAIR SHIP.



7.2 WHEELCHAIR UNLOADING PROCEDURE

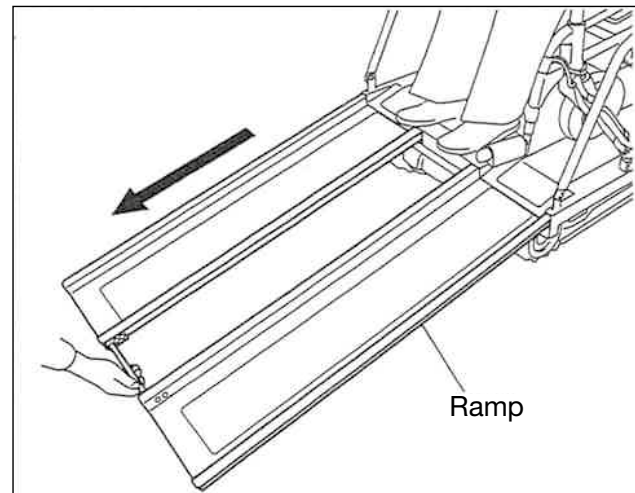
1. Secure STAIR SHIP in order for Wheelchair to be safely unloaded. Set Key Switch to ON. When the ON side of Parking Brake Switch is pressed, STAIR SHIP's Platform will ascend until Rubber Crawlers contact the ground to secure STAIR SHIP. When the OFF side of Parking Brake Switch is pressed, STAIR SHIP's Platform will descend until Rubber Crawlers rise from the ground.



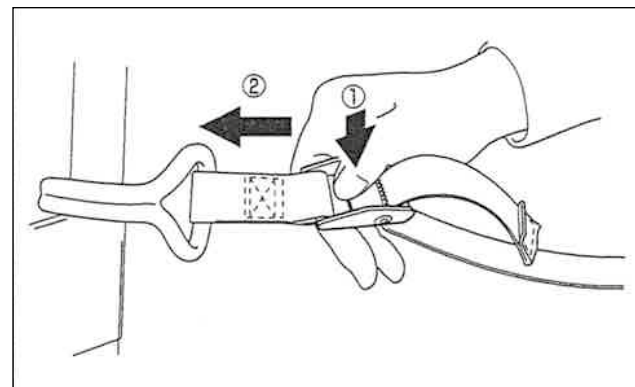
WARNING

Only after Seat Belt is securely locked, can STAIR SHIP be powered. To maintain the passenger and operator safety, be sure to fasten Seat Belt.

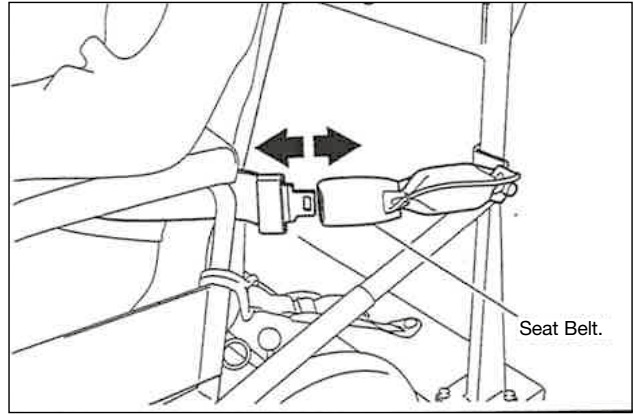
2. Pull Ramp out from STAIR SHIP's Platform.



3. Press the Buckle's center (arrow 1) and unfasten Belt in the arrow 2 direction as shown in the figure. Then remove four Belts (2 Belts at the front and 2 Belts at the rear) from Wheelchair.

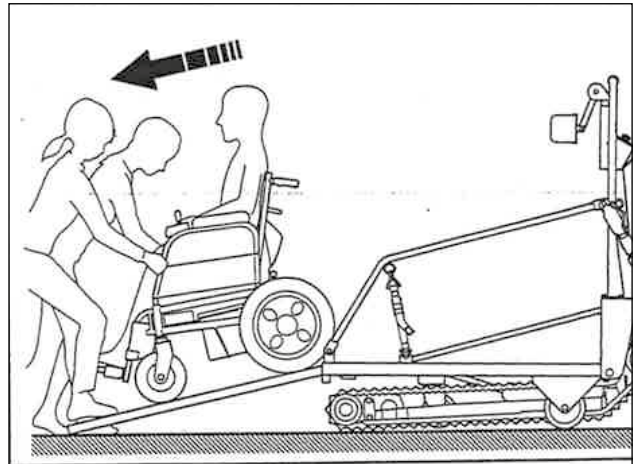


4. Remove Seat Belt.

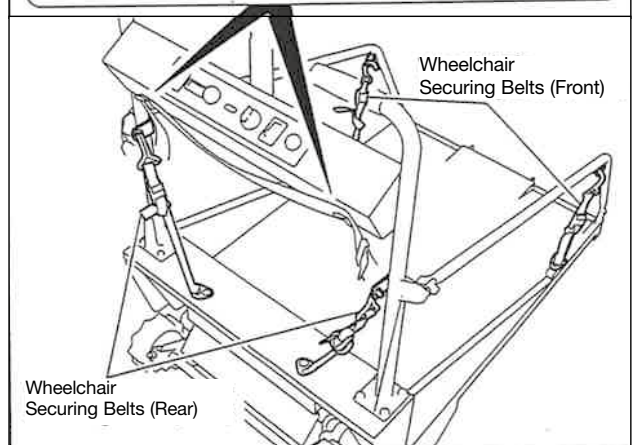
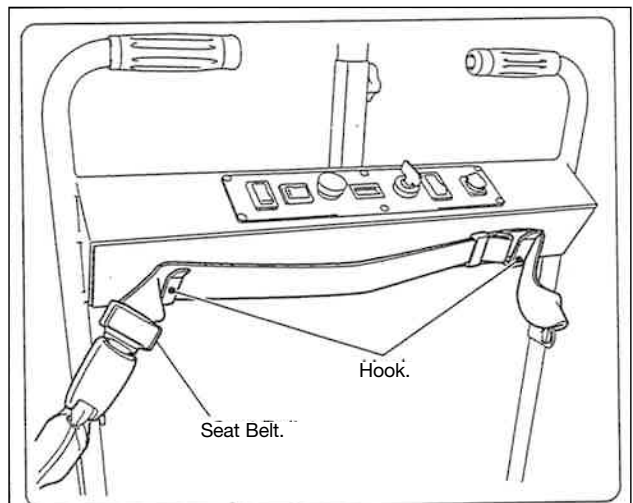


5. Two operators should secure Wheelchair one from each side to carefully unload Wheelchair from STAIR SHWs Platform.

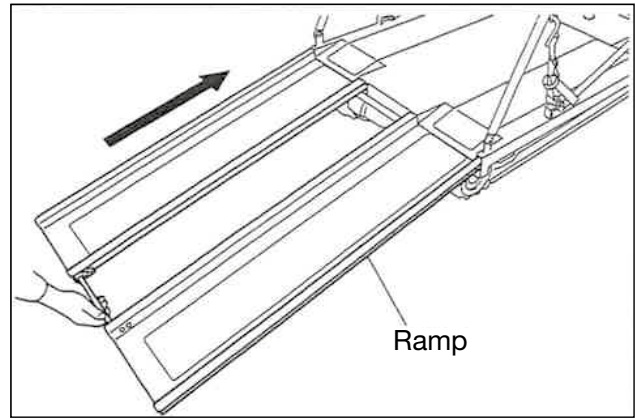
NOTE: Carefully advance Wheelchair until it completely dismounts STAIR SHIP.



6. Be sure to retract all Securing Belts to their specified positions and hang Seat Belt on its two Hooks.



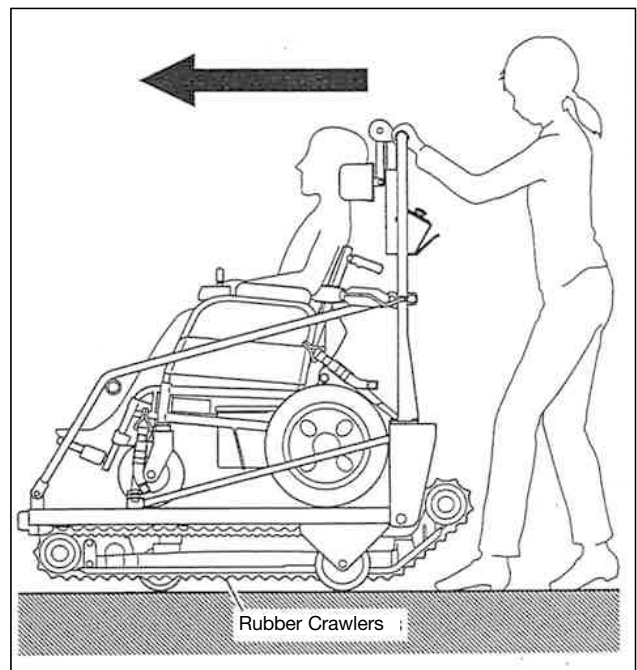
7. Stow Ramp inside STAIR. SHIP.



7.3 RUNNING ON FLAT GROUND

When STAIR SHIP reaches flat ground, set STAIR SHIP's Platform level with the ground, set Parking Brake Switch to OFF and hand push STAIR SHIP to run it on its wheels. To change STAIR SHIP's direction, apply side pressure to the front of STAIR SHIP steering its front Caster Wheel.

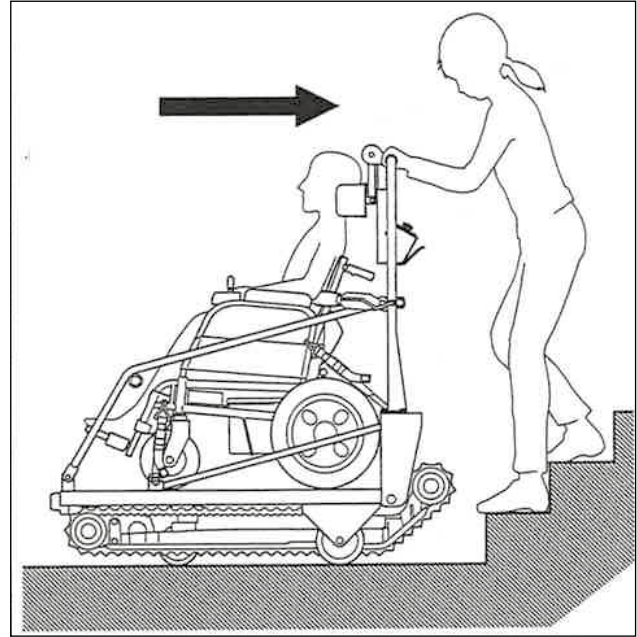
NOTE: Only when Rubber Crawlers are completely raised from the ground, can STAIR SHIP be moved by hand.



7.4 ASCENDING STAIRS

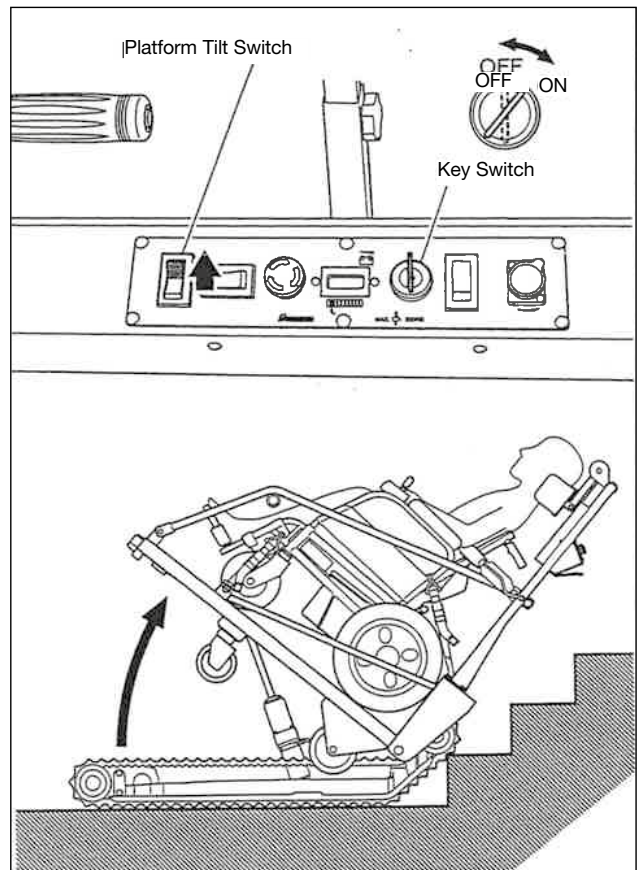
NOTE: Before the operator operates STAIR SHIP, he/she must talk about the operation in a clear voice to the passenger.

1. Position STAIR SHIP at the foot of the stairs. Bring STAIR SHIP to the stairs' foot, turn it back on and set it squarely at the foot of the stairs. Orient STAIR SHIP with both Rubber Crawlers equally contacting the stair.



2. Start ascent operation:

Set Key Switch to ON and keep pressing Platform Tilt Switch until Platform releasing sound can be heard. The STAIR SHIP's Platform will tilt for ascent. Even when the Operation Switch is pressed, STAIR SHIP will not ascend if its Platform is incompletely set to its tilted position.

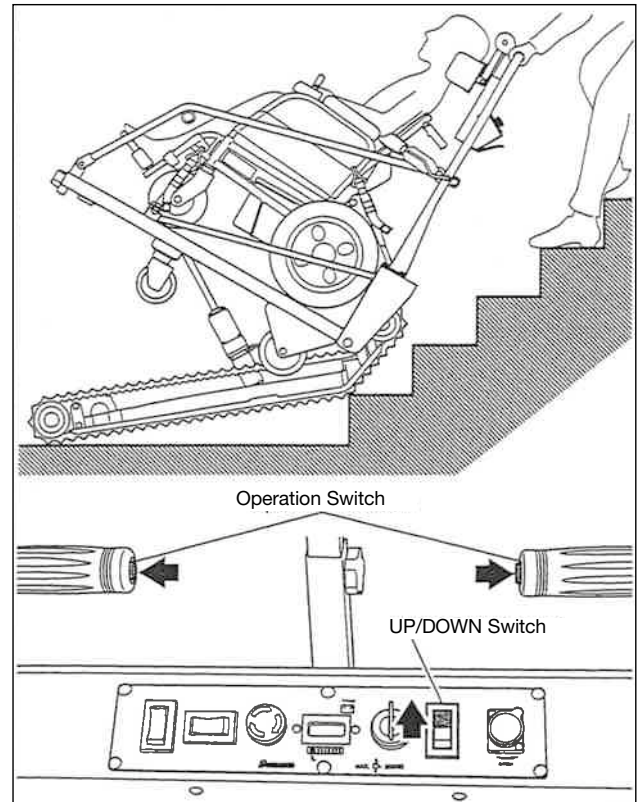


WARNING

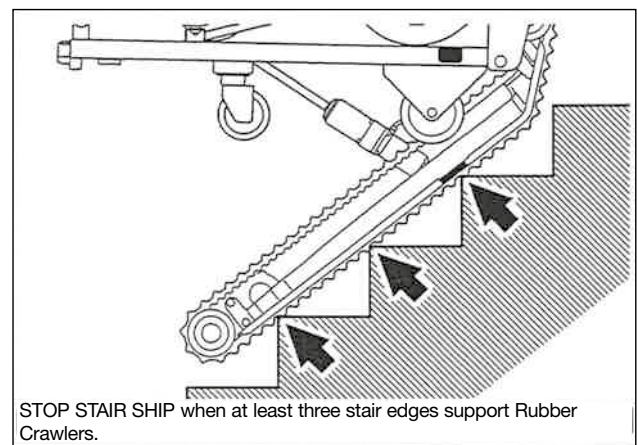
If the lugs of the left and right Rubber Crawlers do not contact a stair noses at the same time, STAIR SHIP will climb the stairs askew. This is a highly risky situation.

- Set the Elevation Switch to UP and press the Operation Switches. (the Operation Switches are positioned at either end of the Handles.) STAIR SHIP will ascend the stairs. Keep the Operation Switches pressed until STAIR SHIP reaches its stop position. When the operator releases Operation Button, STAIR SHIP will immediately stop.

NOTE: While STAIR SHIP is ascending, or it is running on the stairs' landing, it will be necessary for the operator to secure STAIR SHIP with both hands. When STAIR SHIP is ascending, the operator must be positioned at the advancing end of STAIR SHIP.

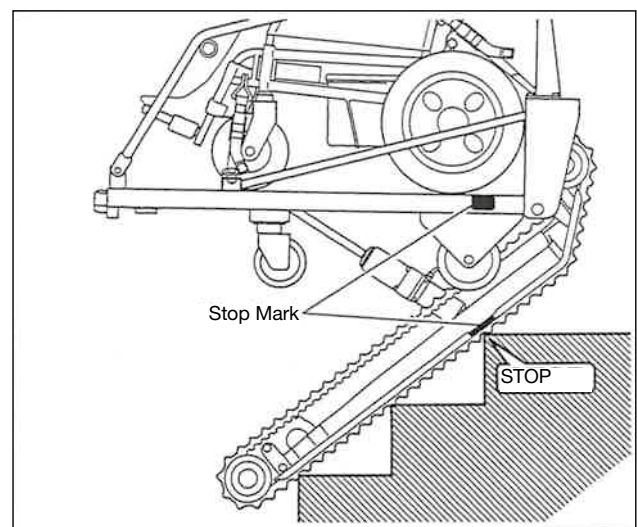


- If it is necessary for the operator to leave STAIR SHIP for some emergency situation, be sure to stop STAIR SHIP in a safe condition.

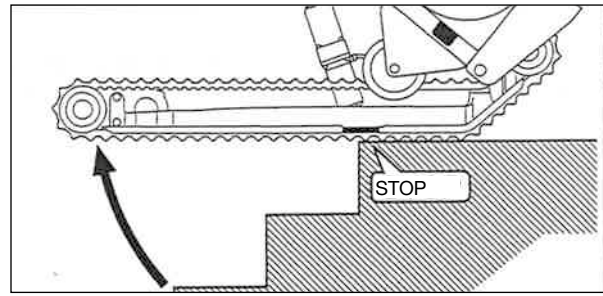


- End of ascent operation
Before bringing STAIR SHIP to the stair landing, be sure to temporarily stop it when its Stop Mark reaches the edge of the top stair.

NOTE : Check that Stop Marks on both the right and left Rubber Crawlers come into line. To check their deviation, observe Stop Mark point vis a vis the confirmation sticker applied point.



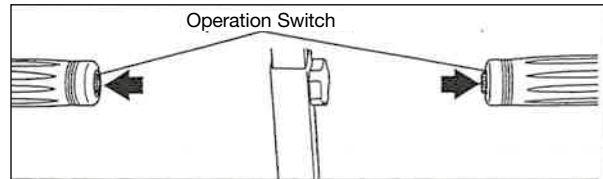
5. After STAIR SHIP temporarily stops, carefully push STAIR SHIP by hand to the stair landing.



WARNING

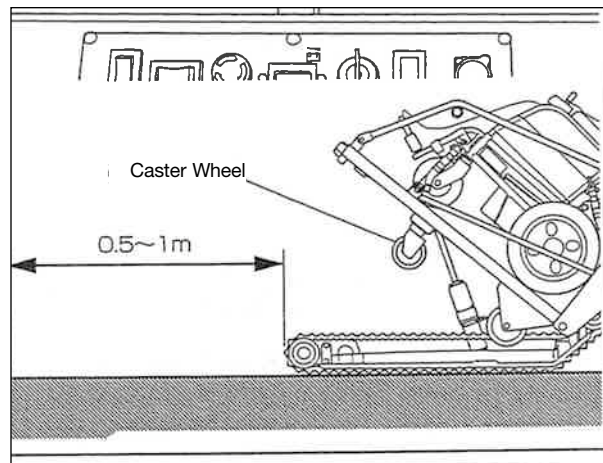
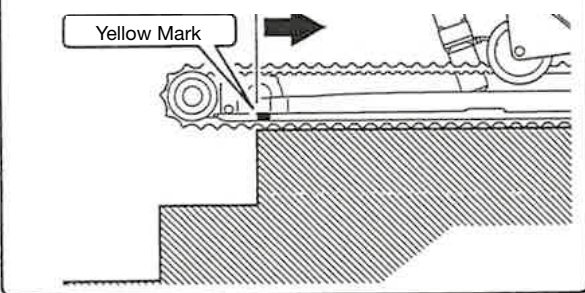
If STAIR SHIP is not stopped at its stop position and UP Switch is kept pressed, STAIR SHIP will suddenly fall down backward. This will be dangerous.

6. When Rubber Crawlers become level with the stair landing, press Operation Buttons and reverse STAIR SHIP 0.5 to 1m. NOTE: If the stair landing is wide, it is better for STAIR SHIP to move back 1 meter from the edge of the top stair.



If the stair landing is narrow, be sure to run STAIR SHIP until Rubber Crawlers pass Yellow Mark.

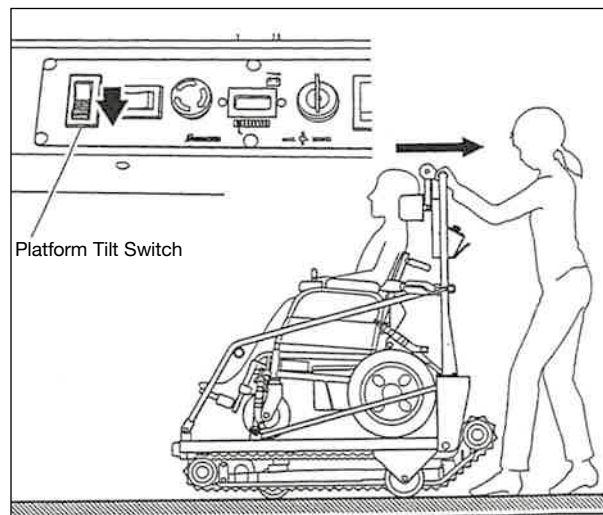
NOTE: When STAIR SHIP is being turned in a small space, pay attention that STAIR SHIP's Caster Wheel does not drop.



WARNING

If Platform is level but Yellow Mark position passes the edge of the top stair, Caster Wheel may drop from top floor level resulting in STAIR SHIP tumbling down the stairs.

7. Press the Level side of Platform Tilt Switch to level Platform, and then manually move STAIR SHIP on its Caster Wheel and Wheels. If Platform is incompletely returned to its stored position, STAIR SHIP will not be able to run on a flat surface.

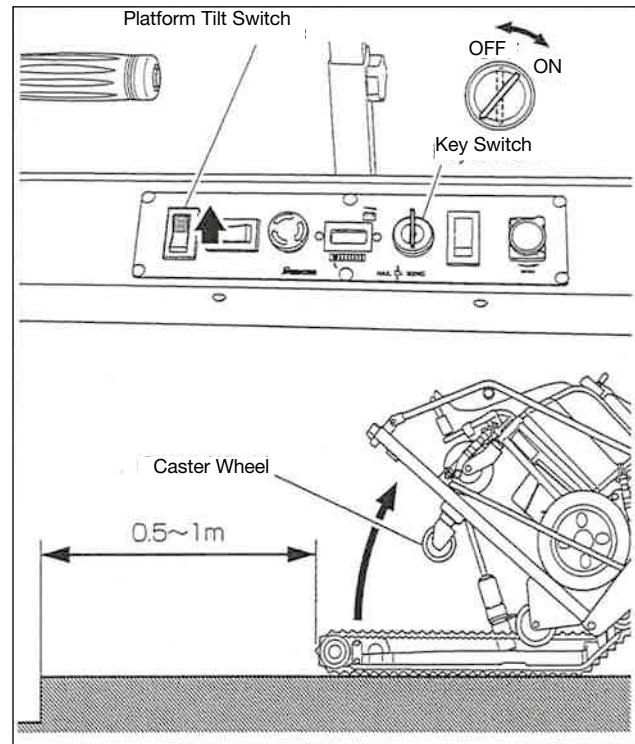
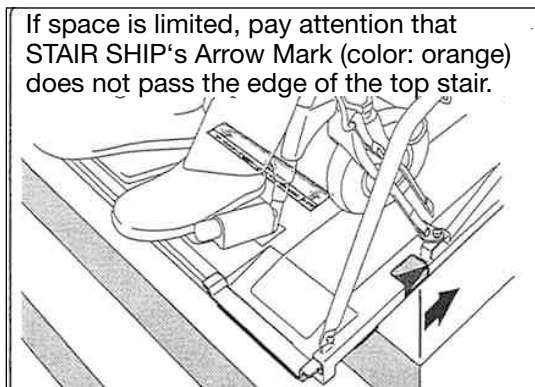


7.5 DESCENDING STAIRS

NOTE: Before the operator operates STAIR SHIP, he/she must talk about the operation in a clear voice to the passenger.

1. Start Descent Operation:

When approaching the stairs, be sure to set STAIR SHIP squarely. Set the Key Switch to ON and keep pressing „Tilt“ on Platform Tilt Switch until Platform releasing sound can be heard. The STAIR SHIP's Platform will tilt for the descent operation. Even when Operation Switch is pressed, STAIR SHIP will not descend if its Platform is incompletely set to its tilted position.

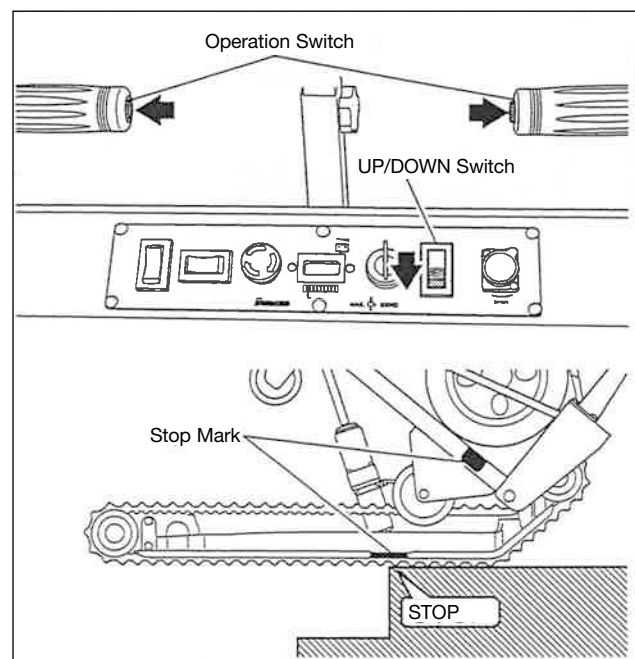
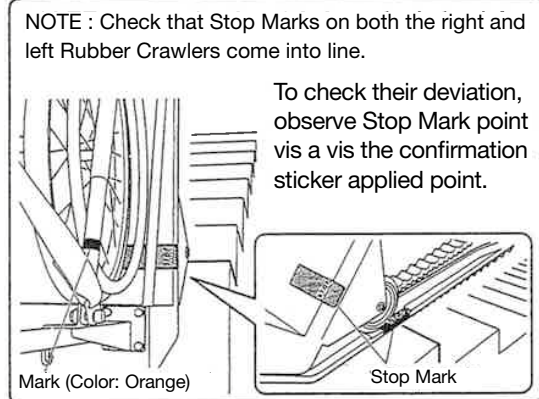


WARNING

If STAIR SHIP is transferred and its Platform's Arrow Mark (color: orange) passes the top edge of the stair, Caster Wheel may drop from top floor level resulting in STAIR SHIP falling down the stairs.

- ### 2. Set the Elevation Switch to DOWN and press the Operation Switches. (the Operation Switches are positioned at either end of the Handles.) Be sure to temporarily stop it when its Stop Mark reaches the edge of the top stair.

NOTE: While STAIR SHIP is descending, or it is running on the stair's landing, it will be necessary for the operator to secure STAIR SHIP with both Hands.



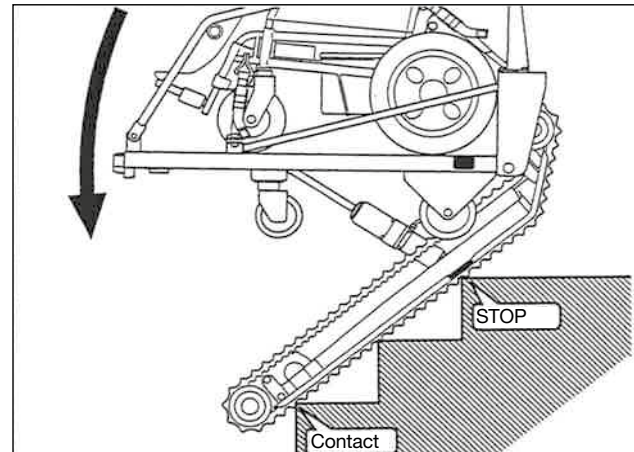


WARNING

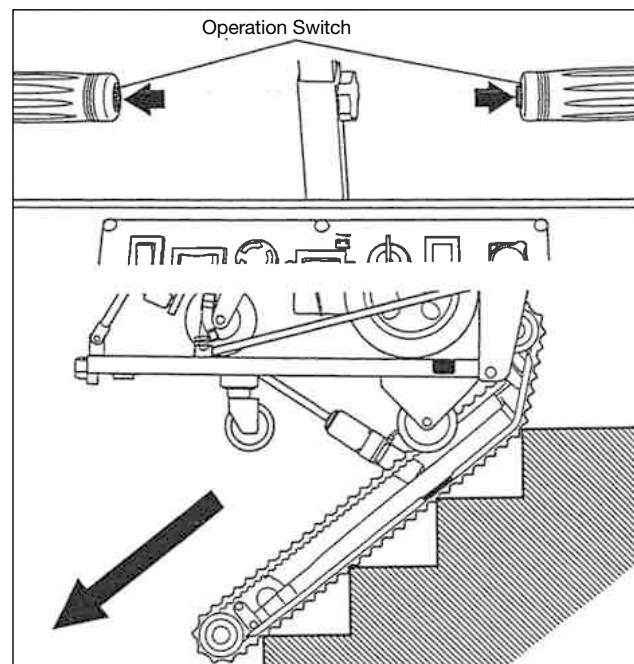
If the lugs of the left and right Rubber Crawlers do not contact a stair noses at the same time, STAIR SHIP will descend the stairs askew. This is a highly risky situation.

3. After STAIR SHIP temporarily stops at the top of the stair, manually raise Platform by pulling up Handles, and lower Rubber Crawlers carefully until they reach the stairs.

NOTE: When STAIR SHIP is descending, the operator must stand at the upper side of STAIR SHIP.



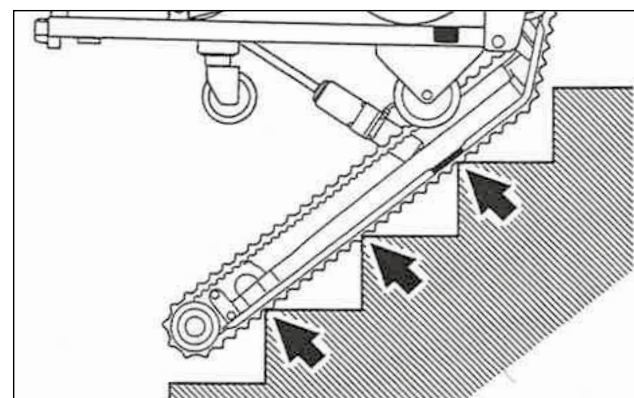
4. When Rubber Crawlers contact the stairs and stability is confirmed, push Operation Switch Buttons simultaneously to start descent operation



WARNING

If STAIR SHIP descends without stopping at its Stop Mark, STAIR SHIP will sudden tilt toward the stairs endangering personnel and passengers.

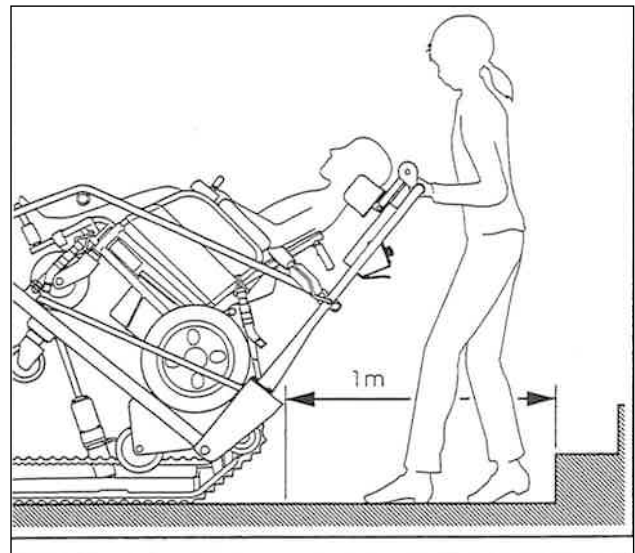
5. If it is necessary for the operator to leave STAIR SHIP for some emergency situation, be sure to stop STAIR SHIP in a safe condition



Stop STAIR SHIP when at least three stair edges support Rubber Crawlers.

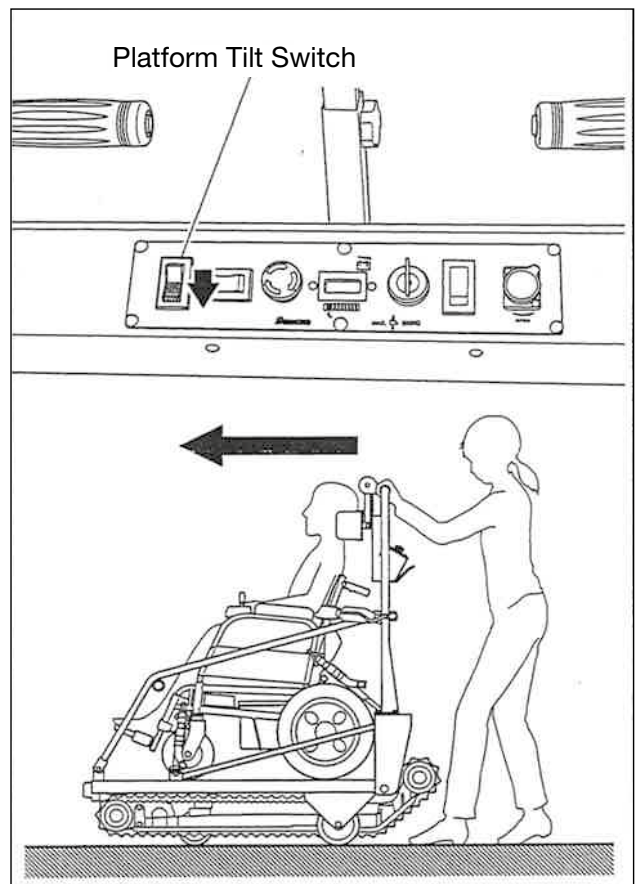
1. End of descent operation:

When STAIR SHIP reaches the bottom landing of the stairs, run STAIR SHIP for about 1m more while pressing Operation Buttons and then stop it by releasing Operation Buttons.



2. Press the „Level“ side of the Floor Seesaw Switch to level Platform, and then push STAIR SHIP on its Wheels.

NOTE: If Platform is incompletely returned to its stowed position, STAIR SHIP will not be able to run on a flat surface.



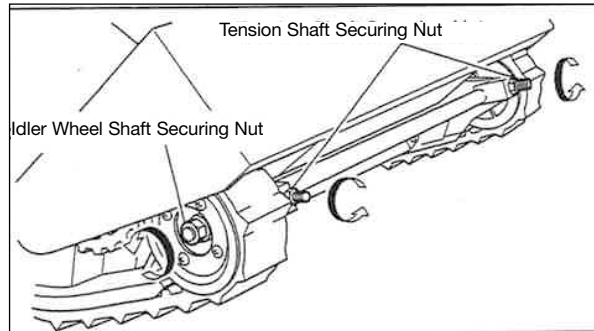
CAUTION

- While STAIR SHIP is ascending or descending or STAIR SHIP's Platform is rising or lowering, if abnormal condition is observed, press the Emergency Stop Button. After the emergency condition is resolved, turn the Emergency Stop Button clockwise, the emergency stop condition will be canceled.
- Before the operator executes STAIR SHIP's next operation, he/she must describe the operation in a clear voice to the passenger.

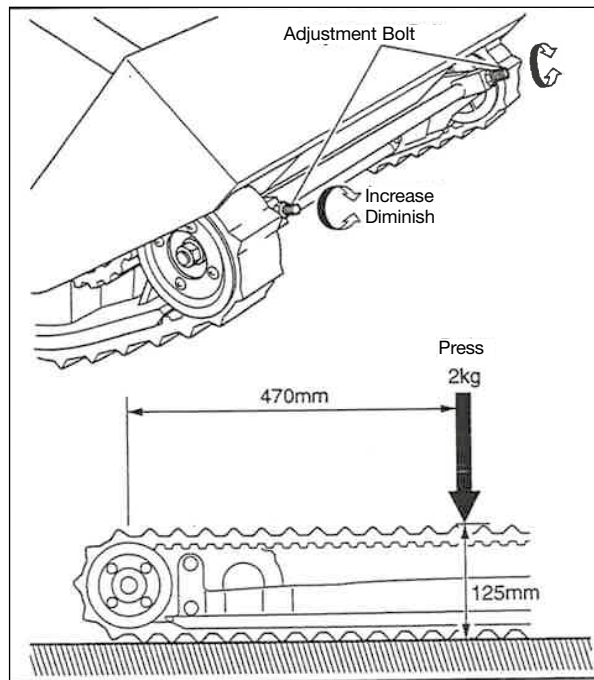
8. RUBBER CRAWLERS ADJUSTMENT AND REPLACING

8.1 RUBBER CRAWLERS ADJUSTMENT

1. Loosen Idler Wheel and Tension Shaft Securing Nuts (right and left sides).



2. Adjust Rubber Crawler's tension by turning the corresponding Adjustment Bolts. When the Adjustment Bolt is turned clockwise, the tension will increase. For the standard tension adjustment, position Rubber Crawlers on the floor and press the center of Rubber Crawler (470mm from the drive Sprocket) with 2kg force. Adjust the tension so that the distance between the pressed upper surface of Rubber Crawler and floor is 125mm.
3. After both sides of Rubber Crawler's tension are adjusted, retighten Idler Wheel and Tension Shaft Securing Nuts.



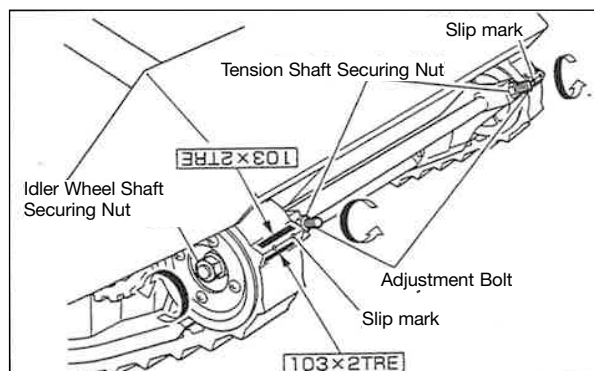
CAUTION

- If Rubber Crawler tension is too weak, Rubber Crawler will derail. If Rubber Crawler tension is too strong, Motor load will increase resulting in shorter Battery life.
- Adjust the tension evenly. Unbalanced tension will prevent STAIR SHIP running straight.

8.2 PITCH ERROR CORRECTING PROCEDURE

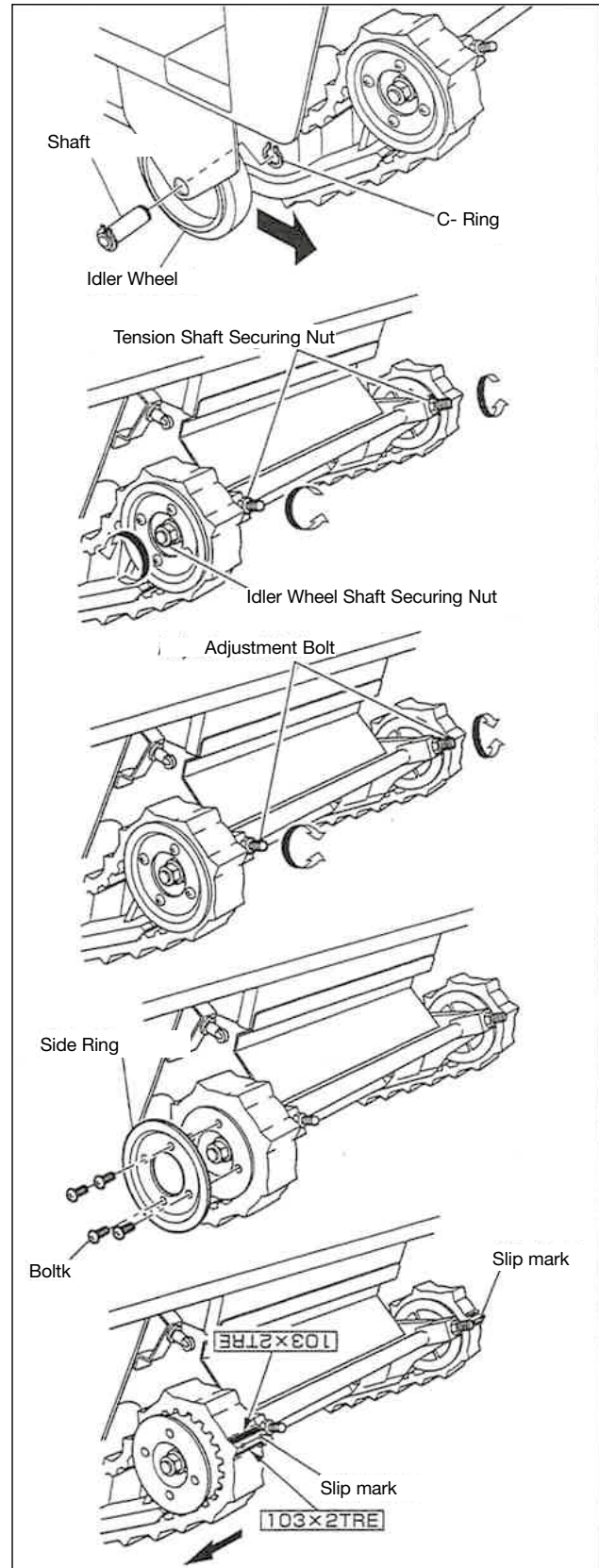
If Rubber Crawlers have pitch error, it will prevent smooth and straight elevating operation and it may cause Rubber Crawler's to derail or STAIR SHIP to tumble.

1. Level Platform and set Parking Brake Switch to OFF and loosen Idler Wheel and Tension Shaft Securing Nuts (right and left sides).
2. Loosen Adjustment Bolts and retighten them so that the right and left Rubber Crawler's Slip Mark come into line. For its tension adjustment, refer to 8.1 „Rubber Crawler adjustment“.



8.3 RUBBER CRAWLERS REPLACING PROCEDURE

1. Remove Wheels.
2. Loosen Idler Wheel and Tension Shaft Securing Nuts of the target Rubber Crawler. Turn Adjustment Bolt counter-clockwise until Rubber Crawler is sufficiently loosened to be removed. Remove the four Bolts to remove Side Ring. Raise STAIR SHIP a little and detach Rubber Crawler from Sprocket.
3. Rubber Crawler installation is the reverse procedure of Rubber Crawler detachment. Readjust the right and left Rubber Crawler's Slip Mark to come into line. For Slip Mark adjustment, refer to 8-1 „Rubber Crawler adjustment“.



CAUTION

If Slip Mark is worn away, it is the time to replace Rubber Crawler.

9. DAILY MAINTENANCE AND CARE

9.1 BATTERY

- When STAIR. SHIP is not to be used or its Battery Pack is to be charged, turn off Key Switch and remove Key. If Key Switch is kept in the ON position, Battery will quickly discharge and it may not have capacity to run STAIR SHIP the following day.
- After the end of operation or before storing it, be sure to charge Battery using special Charger. (Because it requires a long charging time, if it is not charged enough, it will be difficult to operate the following day.)
- When storing STAIR SHIP for a long period of time, maintain its Battery in a full charged state. No doing so will result in an extremely short life. (Even if Battery is already fully charged, recharge Battery again monthly.)

9.2 RUBBER CRAWLERS

- If oil adheres, immediately wipe it off completely.
- Check there is no crack or wear concerning Rubber Crawlers. If any defect on Rubber Crawler is observed, stop STAIR SHIP immediately and replace the part with a new one.

9.3 MISCELLANEOUS

- Clean frame sections with a brush.
- Clean hand grips with a commercially available spray disinfectant.

10. TERMS OF GUARANTEE

The activated guarantee is for a period of two years, apart from batteries and rubber parts. It is limited to complaint parts free of charge excluding freight, cost for labor or travelling expenses.

We suggest to make maintenance once a year by authorized agent to avoid guarantee obligations.

11. INSPECTION AND MAINTENANCE

It is important that the unit keep a good condition through the following check items on daily basis. Neglecting this procedure may cause an accident or may shorten the life of unit.

- Required checking before operation.

No.	CHECK ITEM	WHAT SHOULD BE CHECKED	FREQUENCY	REMARK
1	Key Switch and Battery's remaining capacity	When the Key Switch is turned on, each switch and button work correctly. Battery Gauge shows enough capacity to operate the unit. When the Key Switch is turned off, each switch and button do not work.	each time.	
2	UP / DOWN Switch	After turning on the Key Switch, press and hold UP or DOWN side, the Rubber Crawlers run correctly in each direction. Releasing the switch, the Rubber Crawlers stop immediately.	each time.	
3	Emergency Stop Button	During the procedure No.2, pressing the button, the Rubber Crawlers stop immediately.	each time.	
4	Abnormal noise from running Rubber Crawler	During the procedure No.2, any abnormal noise is not from running Rubber Crawlers.	each time..	
5	Parking Brake Switch	While the Parking Brake switch is activated, the Rubber Crawlers come down to ground. And they lift up to the original position as soon as the Parking Brake Switch is released.	each time..	
6	Floor Switch (UP/DOWN)	The Rubber Crawlers run in only case that the Floor comes up to the end by pressing the UP side. The unit can be moved freely in only case that the Floor comes down to the end by pressing the DOWN side.	monthly	
7	Rubber Crawlers' condition	No looseness is in tension of the Rubber Crawler. And no wrong alignment is between left and right. No lacking of outer lug is on the surface.	each time.	
8	Sprocket, Idler, Wheel and Side Ring	No deforming is found.	each time.	
9	Rubber Wheels	Excessive wearing or damage. Wheel Bracket does have a smooth motion in both upward and downward.	each time.	
10	Loading/Fastening Wheelchair	The Ramp is smoothly pulled out / put into . There is no damage on the Wheelchair Belts and they can fasten securely wheelchair.	each time.	
11	Seat Belt	The Seat Belt is fastened securely. Only while the Seat Belt is fastened, each switch does work. After release the Seat Belt, it does not work.		
12	Battery	No stain due to battery's leakage or no corrosion are on the Battery Case.	monthly	

- Required check after the operation

No.	CHECK ITEM	WHAT SHOULD BE CHECKED	FREQUENCY	REMARK
1	Battery's remaining capacity	LED indicator on the Battery Gauge has moved after the operation? In case that the LED indicator moved into one position or more, charge the Battery in no time.	each time.	Whenever it's necessary.
2	Exterior	Any deformed part on the exterior?	each time.	
3	Charging	Any damage is on the wire or the plug of charger?	monthly	
		The power switch of charger functions correctly? The charging procedure does not have any problem?	each time.	

- If any trouble or malfunction has arisen which is not described in the table above, contact the sales agency. An improper countermeasure may cause danger.
- For details on periodical inspections, consult the sales agency where you purchased STAIR SHIP.

12. REUTILISATION

The STAIR ship is suitable for reutilisation as long as possible safety-related precautionary measures are no longer applicable or other regulations apply. Clean and disinfect the unit in accordance with Point 9 prior to reutilisation. An inspection must be carried out by an authorised dealer prior to reutilisation.

NOTIZEN

13. VERKAUFSAGENTEN

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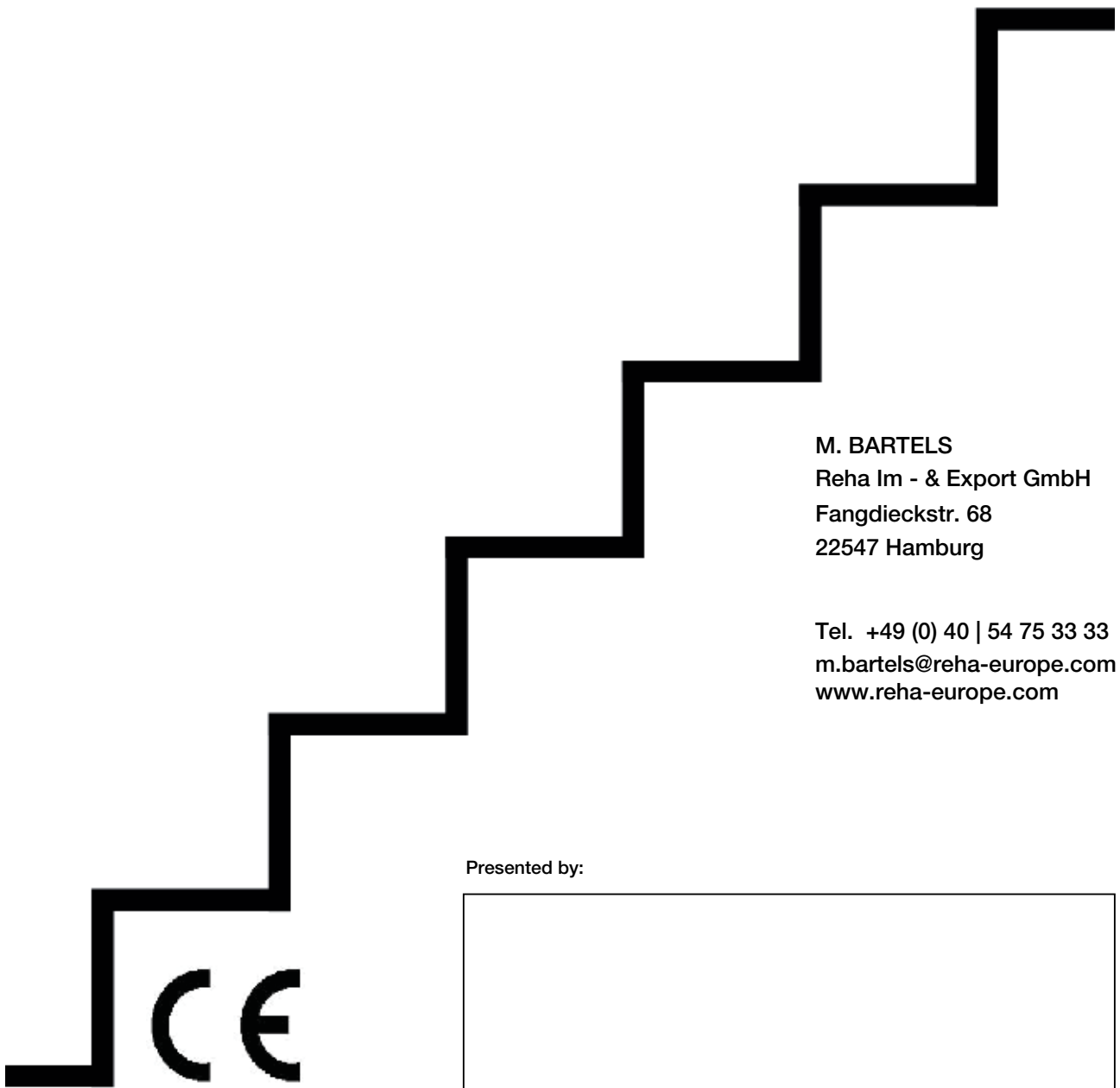
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