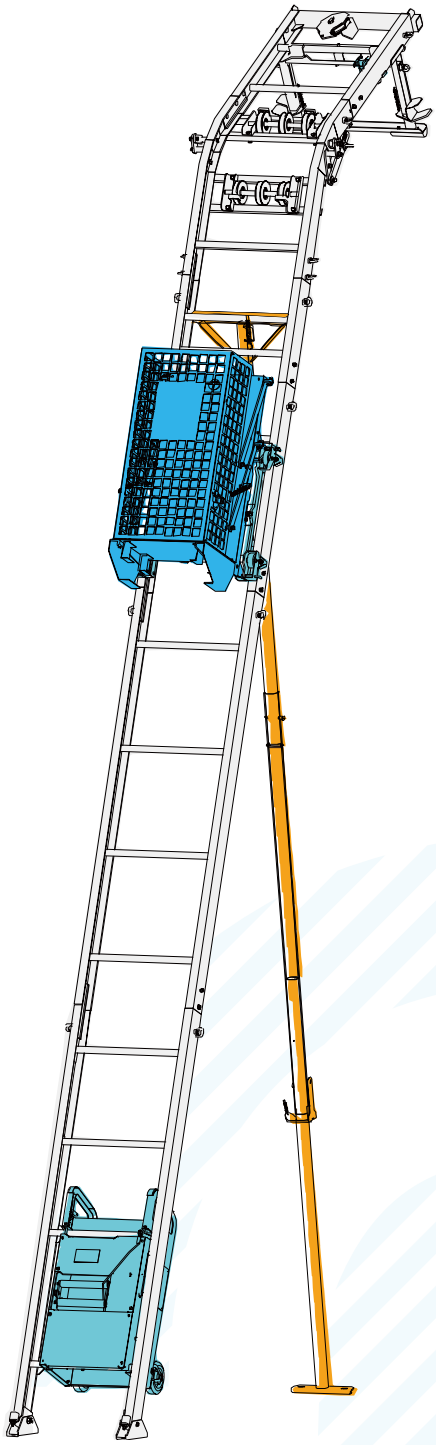
3S LIFT
SAFE | SIMPLE | SPECIALIZED



Material Hoist Operation, Maintenance and Installation Manual

Model: MH03L200/MH03L250

TD-RND-MH-002
Rev C
2023-6-29

en
Translation of the original manual

CE Certificate

VERIFICATION OF MD COMPLIANCE

No.:	MD SHES2208015588MD
Applicant:	Ficont Industry (Beijing) Co., Ltd. No. 15 Chuangyi East 2nd Road, Xiji Development Zone, Tongzhou, Beijing, 101106, P. R. China
Manufacturer:	Ficont Industry (Beijing) Co., Ltd. No. 8 Cuiyuan Road, Wuqing Development Zone, Tianjin 301700 P.R. China
Product Description:	**Material Hoist**
Model No.:	MH03L250, MH03L200, MH03L150
Additional Information (if any):	Version 1

Sufficient samples of the product have been tested and found to be in conformity with

Test Standard:	EN ISO 12100:2010, EN 60204-32:2008, EN 12158-2:2000+A1 :2010
as shown in the Test Report Number(s):	SHES220801558801-01, SHES220801558801-02

This Verification of MD Compliance has been granted to the applicant based on the results of tests, performed by Laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on sample of the above-mentioned product in accordance with the provisions of the relevant harmonized standards under the Machinery Directive 2006/42/EC. The CE mark as shown below can be affixed, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The affixing of the CE marking presumes in addition that the conditions in the Directives are fulfilled.

CE

Andrew Zhai
Technical Manager
SGS-CSTC

2022-08-31

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Address:	No.15 Chuangyi East 2nd Road, Xiji Development Zone, Tongzhou, Beijing 101106	**Address:**	No.8 Cuiyuan Road, Wuqing Development Zone, Tianjin 301700
Country:	CHINA	**Country:**	CHINA

Party Authorized To Apply Mark: Same as Manufacturer
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This document supersedes all previous Authorizations to Mark for the noted Report Number.

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Standard(s):	Safety Standard for Conveyors and Related Equipment [ASME B20.1:2021] Motor-Operated Appliances [UL 73:2011 Ed.10+R:10Sep2021] Electrical Standard for Industrial Machinery [NFPA 79:2020 Ed.2021] Motor-Operated Appliances (Household and Commercial) (R2019) [CSA C22.2#68:2018 Ed.8+U1]
Product:	Material Hoist
Brand Name:	3S LIFT
Models:	MH03L followed by 150, 200 or 250

Preface

General Description

This manual is intended for the operator to install, operate and maintain the material hoist safely and effectively.

This manual provides safety instructions and operation procedures that shall be followed for operation of the material hoist.

Conventions

Convention	Description	Convention	Description
Bold text	Explanatory text on or adjacent to control buttons and knobs		Moving direction
	Hidden part of an annotation line		Visual inspection
	Forward direction of the product		Explode lines of exploded parts (explode lines indicate assembly paths between parts in an exploded view.)
	View from A		Removed or hidden length of an object which cannot be displayed in full

- Pictures and tables in the this manual may not reflect the actual appearance, colour or structure of the product. However, such differences will not affect the product functions or safety performance.
- All the dimensions and figures in the manual are for reference only, and subject to change without prior notice.

Expected Use and Application Fields

⚠DANGER

Will result in death or serious injury!

• No carrying people!

This equipment is a kind of material hoisting equipment and is mainly used for transporting goods and construction materials. The manufacturer/supplier is not responsible for any damage caused by any other using method beyond this scope and this risk shall be undertaken by the customer.

Copyright Protection

Environmental Protection

The equipment shall be disposed and scrapped in accordance with national regulations, including:

- Discharge of lubricating grease/oil used for the equipment
- Recycling of metal parts
- Recycling of plastic parts
- The equipment shall be disposed and scrapped in accordance with national regulations.

Table of contents

1. Safety

1.1. General Requirements

The installation personnel, operator and maintenance personnel shall pay attention to the environmental protection, occupational health, personal safety and equipment safety, and observe the ISO 45001 Occupational Health and Safety Management Systems, as well as the current standards, procedures and requirements when performing their tasks.

The installation personnel, operator and maintenance personnel shall read, understand and follow the current safety instructions contained in this manual and on the equipment administrator's site. Illegal operation is strictly prohibited.

No modification, extension or reconstruction of the material hoist is allowed without the written consent of 3S LIFT. 3S LIFT is not liable for any loss or injury which may incur due to using non-original parts by any party during the reinstallation or reconstruction.

Use of non-original parts, in particular use of other motor, guide rail, wire ropes that are not supplied by 3S LIFT, will void the 3S LIFT warranty and CE certification.

1.2. Safety Warning Messages

1.2.1. Hazard classification

The following safety warning messages are contained in this manual:

Table 1 - Hazard classification

Types	Possible consequences if the hazard is not avoided situation which
⚠ DANGER	Will result in death or serious injury.
⚠WARNING	Could result in death or serious injury.
⚠ CAUTION	Could result in minor or moderate injury.
NOTICE	Could result in equipment damage.

1.2.2. Safety warning

Table 2 - Warning signs

Signs	Description
	Warning: Electric shock
	Warning: Pinching of hands
	General warning sign

Table 3 - Mandatory action signs

Signs	Description	Purpose
	Wear safety footwear	Prevent injury to feet by heavy objects falling or slipping.
	Wear head protection	Prevent injury to head by heavy objects falling.
	Wear protective gloves	Prevent operator from falling from heights.

1.3. Precautions

⚠WARNING

Could result in death or serious injury!

• Read and understand the content of this manual before using the material hoist.

⚠WARNING

Could result in death or serious injury!

• The material hoist is not intended for access or transport of persons. Do not climb the guide rail.

- The material hoist is for transporting goods and construction materials only. Access and transport of persons are not allowed. Guide rail climbing is not allowed.
- The installation personnel, operator and maintenance personnel shall be over 18 years of age, and understand the solutions to possible problems or have acquired professional training, and shall read and understand the contents in the manual.

- This manual shall be provided to each installation, operation and maintenance personnel, and always be available for reference.
- Installation, operation, and maintenance of the material hoist may possibly involve danger of falling. All installation persons inside the danger area shall wear Personal Protective Equipment (safety helmet and safety footwear).
- Only qualified 3S LIFT original parts, motor, wire ropes and guide rail for material hoist may be used.
- The electrical connection of the material hoist shall conform to the requirements of EN 60204-1. All electrical maintenance and installation should be carried out by the qualified electricians.
- Except for bolts that need to be removed frequently, locknuts must be used at all times, and the followings shall be observed:
  - The screw must extend from the nut by at least 0.4 times the thread diameter.
  - The locknut shall not be used anymore if it can be loosened by hand.
- If any damage or faults which may jeopardize personal safety are revealed during operation, immediately stop the work, remove the equipment from service and notify the equipment administrator.
- Use of non-original parts, in particular use of other motor, guide rail, wire ropes that are not supplied by 3S LIFT, will void the 3S LIFT warranty and CE certification.
- The operator shall keep in touch with the supervisor on the ground through communication equipment such as walkie-talkie or mobile phone during operation.
- No modification, extension or reconstruction of the material hoist is allowed without the written consent of 3S LIFT.

1.4. Residual Risks

⚠WARNING

Could result in death or serious injury!

• Read and understand the content of hazardous points and obey the preventive actions before using the material hoist.

The material hoist has been designed and built in such a way that hazardous situations that can be avoided are either eliminated by the respective constructive measures or not made accessible. In order to perform tasks safely with the material hoist, you shall be aware of the residual risks.

It is essential that, when performing your tasks near the hazardous points, you should take proper precautions to keep the risk of injuries and equipment damage as low as possible. These hazardous points and the measures to minimize them are illustrated in the safety instructions of this manual.

Residual risk points and necessary preventive actions are included the following table.

Table 4 - List of residual risks and preventive actions

Hazardous point	Hazard	Preventive action
Rope drum	Drawing-in hazard may arise if the rope drum rotates during the operation of material hoist.	Keep away from the drive unit during the operation of material hoist.
Pulley	Drawing-in hazard may arise if the pulley rotates during the operation of material hoist.	Keep away from the pulley during the operation of material hoist.
Carriage and guide rail	Squeezing risk may exist at the pulley when the carriage ascends or descends.	Keep away from the carriage during the operation of material hoist and clean up the foreign objects on the guide rail periodically.
Work area	Object falling and injuries	All personnel are prohibited to stay on the ground below or by the side of the material hoist during the operation.
Manual descent	Squeezing and crushing	Keep a safe distance from the guide rail during the manual descent.
Electrical control cabinet	Electric shock	Only qualified electrician may dismantle and maintain the electrical control cabinet.

1.5. Personnel Qualification

Table 5 - Personnel Qualification

Personnel type	Fields and qualifications
Installation personnel	Persons who shall read and understand all the contents of this manual, are able to install the electrical system and mechanical system safely and to recognize and avoid potential dangers on their own.
Operator	Persons who shall read and understand all the contents of this manual, are able to operate the

Table 5 - Personnel Qualification (continued)

Personnel type	Fields and qualifications
	material hoist safely and to recognize and avoid potential dangers on their own.
Repair and maintenance personnel	3S LIFT or a party authorized by 3S LIFT; Installation/operation personnel who received guidance by 3S LIFT or an party authorized by 3S LIFT.

1.6. Environment Conditions

The ambient temperature of material hoist:

- - 20°C - 40°C (- 4°F - 104°F). Do not work in high or low temperatures.
- Wind speed: ≤ 45 km/h (28 mile/h).
- Protect the electrical components (drive unit, upper limit switch, and pendant control) properly in bad weather conditions such as rain and snow.

1.7. Requirements on Safe Operation

⚠WARNING

Could result in death or serious injury!

• All persons inside the work area should wear Personal Protective Equipment (safety helmet, safety footwear, and safety gloves)!

All persons working with the material hoist shall follow the regulatory safety instructions provided by local authority, site and the company. The safety instructions are listed below:

- Personal protective equipment (such as safety helmet, safety footwear, safety gloves, etc.) shall be properly selected and used to ensure personal safety.
- Confirm the working load of material hoist, and overloading is strictly prohibited.
- In situations that present a risk for the operating personnel or the machine, the machine can be shut down by pressing the E-Stop button.
- If any damage or faults which may jeopardize personal safety are revealed during operation, immediately stop the work, remove the equipment from service and notify the equipment administrator.
- Strictly follow the industrial safety standard and instructions when working on low-voltage electrical appliances. The electrical connections shall conform to the requirements of EN 60204-1.

- All repairing of the parts shall be carried out by qualified technicians of 3S LIFT or its authorized person.
- Perform the inspection and maintenance on the equipment per day, week, and month as required.

1.8. Foreseeable Misuse

Foreseeable misuses include the following:

- Installation, operation and maintenance of the material hoist by persons who have not read or fully understood this manual.
- Failure to confirm the permissible working load, and operating the material hoist with loads exceeding its limit.
- Performing manual descent without giving a warning message and advising persons who are in danger area.
- Operation of the material hoist without prior inspection.
- Operating the material hoist without normal or emergency lighting in the work area.
- Use of the material hoist when there is strong wind.

2. Overview

2.1. General Description

The ladder guided material hoist is a hoisting equipment of goods.

The material hoist is capable of vertical and inclined hoisting of goods and construction materials, with a maximum lifting height of 19 m. The product is intended for conveying of construction materials, solar panels and finishing materials.

This equipment can be installed and dismantled without tools. The guide rail assembly leans against the edge or eaves of the building, and the drive unit runs the carriage along the guide rail by the traction of wire rope.

2.2. Key Specifications

Key specifications of the material hoist are provided in the following table.

Table 6 - Specifications

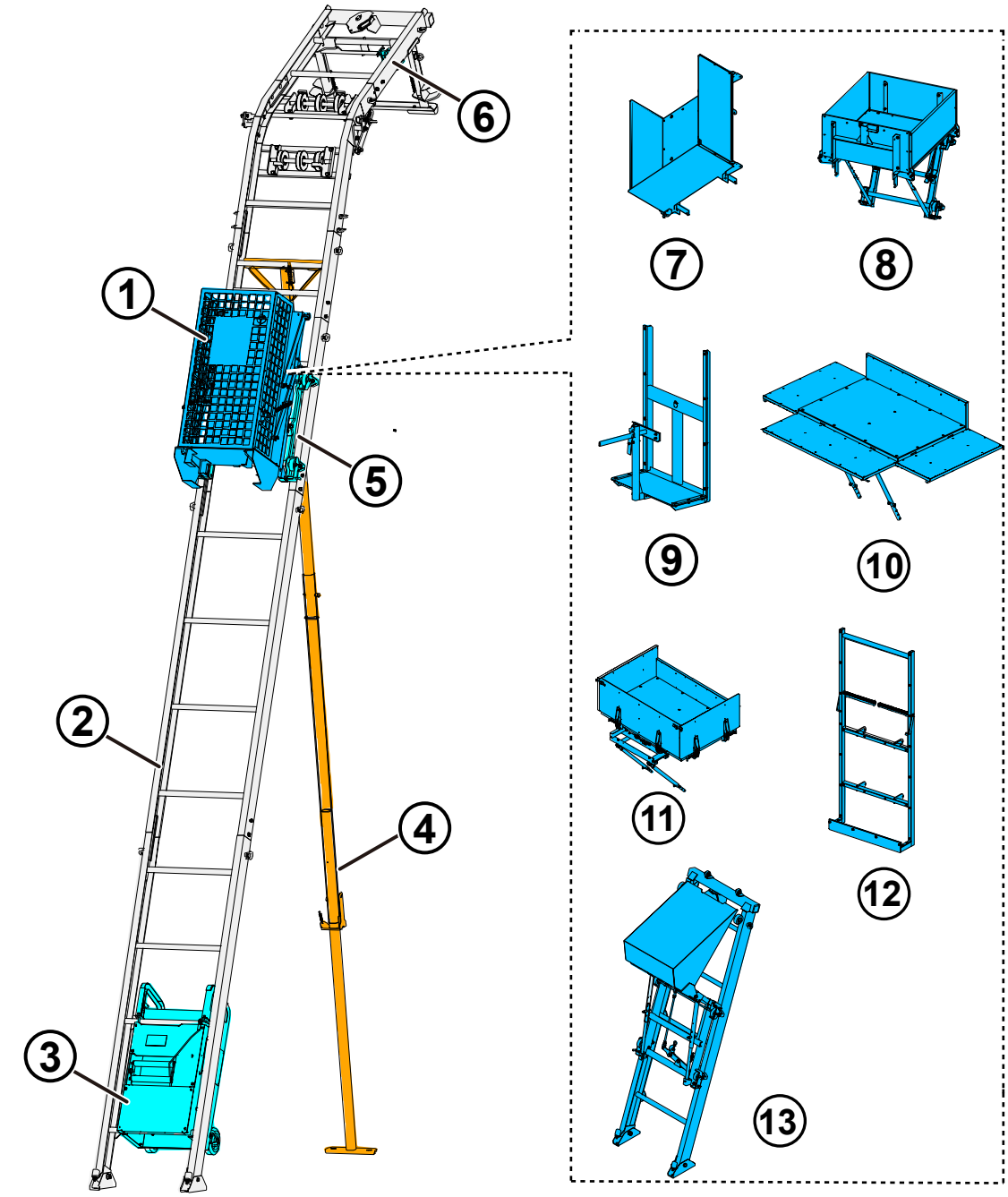
Model	Rated load		Rated speed (m/min)		Power (kW)	Volt-age/Fre-quency (V/Hz)	Wire rope diameter (mm)		Max. lift height (m)	
	kg	lbs	m/min	ft/min			mm	in	m	ft
MH03L200	200	441	15	49.2	0.75	230/50	6	1/4	19	62.3
			20	65.6	1.1	230/50	6	1/4	19	62.3
			25	82	1.1	230/50	6	1/4	19	62.3
MH03L250	250	551	15	49.2	1.1	230/50	6	1/4	19	62.3
			20	65.6	1.1	230/50	6	1/4	19	62.3
			30	98.4	1.5	230/50	6	1/4	19	62.3
			30	98.4	1.8	230/50	6	1/4	19	62.3
			30	98.4	1.8	110/60	6	1/4	19	62.3
			30	98.4	1.8	110/50	6	1/4	19	62.3

For different models:

- The rated speed and power differ across different models.
- The power supply requirements, wire rope diameter, Max. lifting height, and the appearance of the equipment are similar.

3. General Description

3.1. System Components

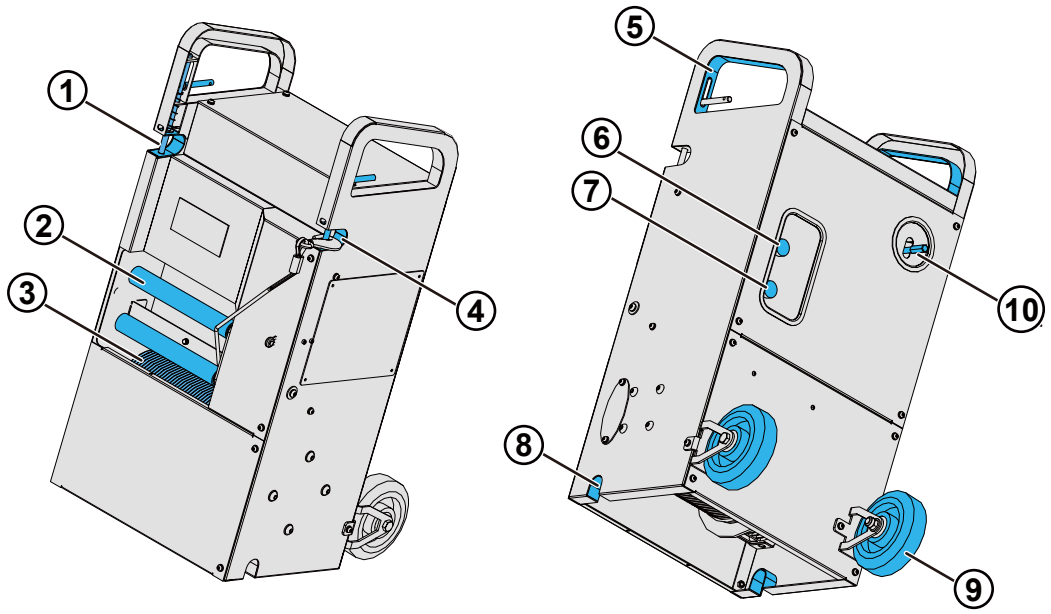


GMH1001

1. Load carrying platform	5. Carriage	9. Solar panel platform	13. Dumping skip with tipping device
2. Guide rail assembly	6. Top limit switch assembly	10. Large transport platform	
3. Drive Unit	7. Universal platform	11. Large rotary platform	
4. Guide rail support	8. Angle adjustable platform	12. Plate platform	

Figure 1 - Material hoist

3.2. Drive Unit



GMH1002

1. Latch (×2)	6. Socket (for pendant control)
2. Slack rope roller (×2)	7. Socket (for top limit switch)
3. Wire rope drum	8. Bottom notch
4. Upper notch (×2)	9. Wheel
5. Handle (×2)	10. Manual descent lever

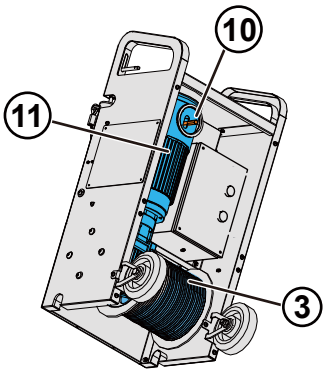
Figure 2 - Drive Unit

The drive unit is the power source of the material hoist. It includes the following parts:

Drive system

The drive system consists of the asynchronous motor gearbox [11] and the wire rope drum [3]. The components are durable and reliable with long service lift, and high drive efficiency.

The motor comes with an electromagnetic brake, which can be opened and closed according to the electric control signal to ensure normal starting and stopping of the equipment. The electromagnetic brake is equipped with a manual descent lever [10], by means of which the carriage can be lowered to the bottom of the equipment in the case of power loss or circuit failure to guarantee safety of personnel and the equipment.



GMH1003

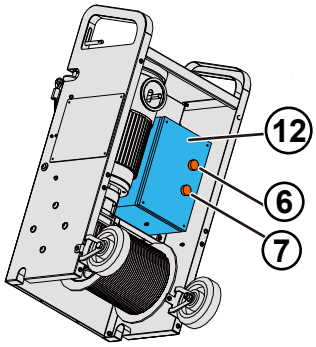
3. Wire rope drum
10. Manual descent lever
11. Asynchronous motor gearbox

Figure 3 - Drive system

Electrical control system

The electric control system uses an electric control box [12] with IP66 protection level, and the electrical components such as buttons, frequency converters, transformers, and circuit breakers are all provided by credible suppliers, with high protection level and reliability.

The electrical box has sockets for the top limit switch [7] and the pendant control [6], and is connected to the power cable.



GMH1004

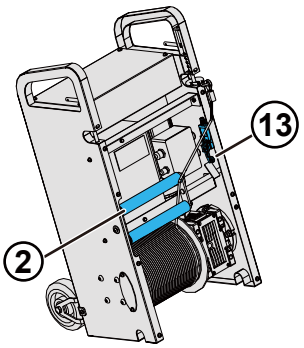
6. Socket (for pendant control)
7. Socket (for top limit switch)
12. Electric control box

Figure 4 - Electrical Control System

Slack rope device

The slack rope device consists of two slack rope rollers [2] and a limit switch [13].

When the wire rope is tensioned, the slack rope rollers are sustained at a certain angle, which keeps the limit switch in the triggered position. At the time, the equipment operates normally. When the wire rope becomes slack, the slack rollers rotates and the limit switch breaks, and the equipment stops operating.



GMH1005

2. Slack rope roller
13. Limit switch

Figure 5 - Slack Rope Device

Enclosure

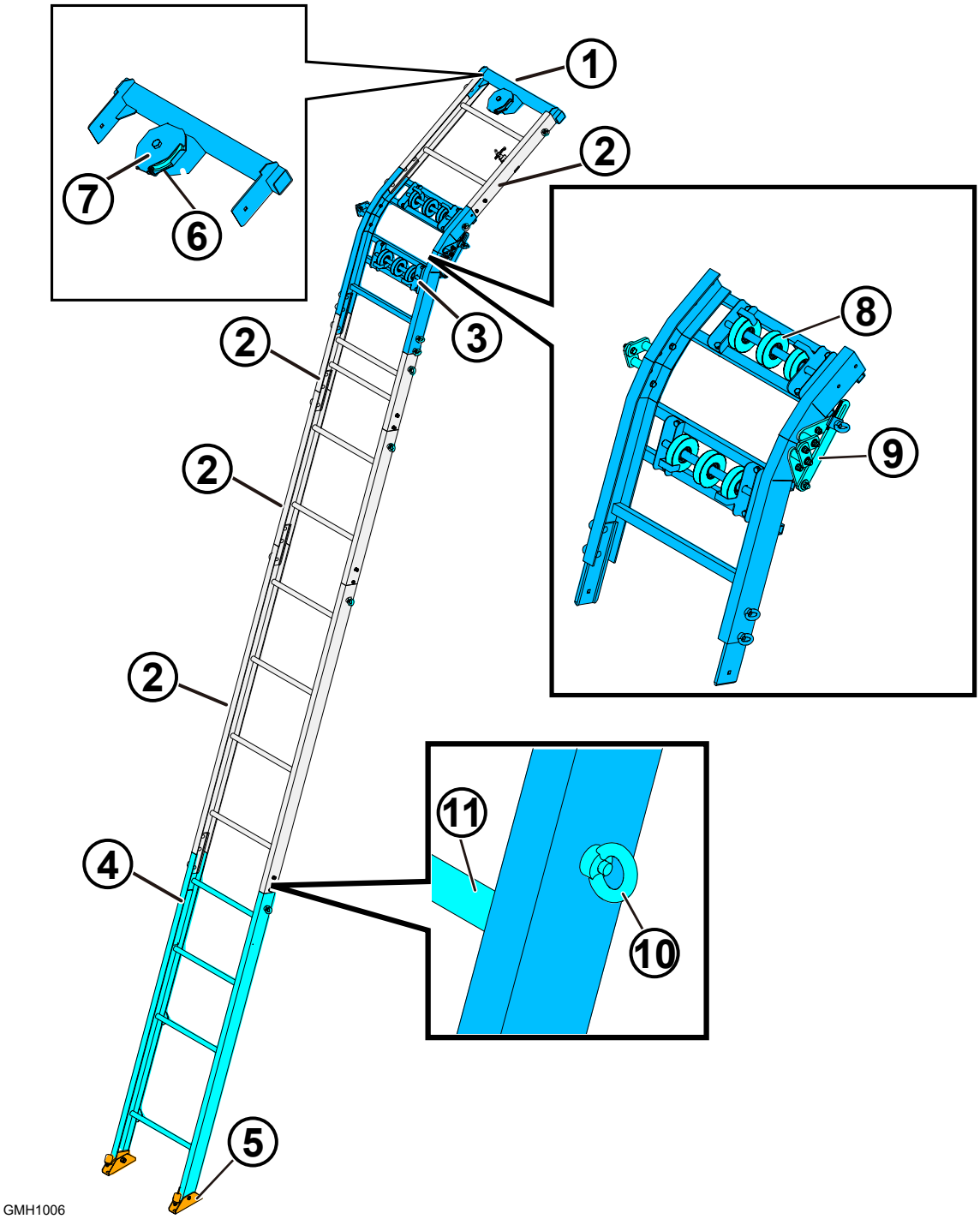
The drive unit enclosure protects the power system and electric control system against impact forces. It isolates the heat sources such as the motor and the gearbox to protect the safety of operators.

The enclosure has handles [5] and wheels [9] to facilitate installation and transportation of the equipment.

The drive unit enclosure has notches at the bottom [8] and at the upper back [4]. The drive unit is installed on the guide rail by means of the holes and the latches [1].

Fit the bottom notch of the drive unit onto the rung of guide rail. Pull the latch, and fit the upper notch onto the rung of guide rail. Release the latch to fasten the drive unit.

3.3. Guide Rail Assembly



1. Head section	5. Pivot foot	9. Triangle bracing
2. Standard section	6. Top guide pulley	10. Eye nut
3. Knee section	7. Pulley shield	11. Rung
4. Foot section	8. Guide pulley	

Figure 6 - Guide Rail Assembly

The main body of the guide rail is welded by high-strength aluminum alloy. Specially treated U-shaped aluminum profiles are used for stiles, and round tubes are used for rungs. The sections are connected by means of a plug-and-pull structure, and are fastened through eye nuts when the section is plugged in place. Bolts are used to prevent the plug-in structure from coming out, so fastening of the eye nuts can be performed by hand without using special tools.

The main parts of the guide rail assembly are:

Head section [1]

The head section has a top guide pulley and a pulley shield. The top guide pulley is tilted horizontally to match the height of the guide pulleys and the carriage. The pulley shield consists of the upper and lower part, which can facilitate wire rope installation and effectively prevent the wire rope from coming out.

Standard section [2]

The standard section has the following lengths: 2 m (6.6 ft), 1 m (3.3 ft), 0.75 m (2.5 ft) and 0.5 m (1.6 ft). The length and quantity of the standard sections can be determined according to the lifting height.

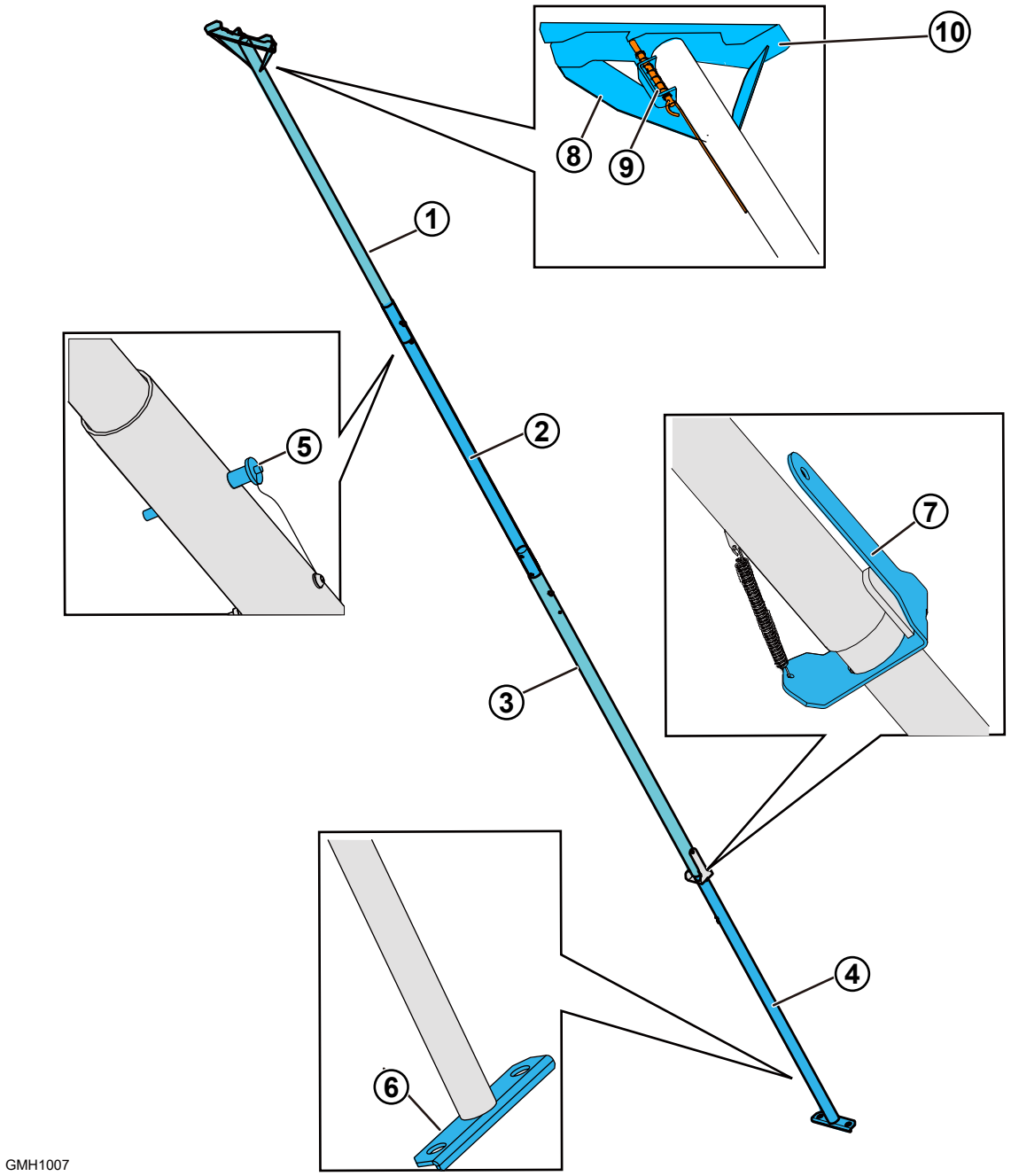
Knee section [3]

The knee section has a triangle bracing and four guide pulleys. When the two eye nuts on the triangle bracing are loosened, the guide rail angle can be adjusted within a range of 20°-42°, to adapt to the angle of the roof. The carriage can travel directly on the roof to facilitate loading and unloading of goods. The three sets of guide pulleys on the knee section can avoid the wire rope rubbing the middle rung of the knee section.

Foot section [4]

The foot section has pivotal feet that can adapt to different inclined angles of the guide rail. The drive unit is mounted onto the two rungs at the bottom, and the limit plates welded on the two rungs can limit the horizontal movement of the drive unit. The load chart and inclination angle scale are affixed to the inside of the U-shaped groove of the foot section. They are intended for determining the working load according to the length and inclined angle of the guide rail.

3.4. Guide Rail Support Assembly (on Ground)



1. Upper section of the guide rail support	6. Foot
2. Upper-middle section of the guide rail support	7. Tension lever
3. Lower-middle section of the guide rail support	8. Triangle bracing
4. Lower section of the guide rail support	9. Latch
5. Quick release pin	10. Clamp

Figure 7 - Guide Rail Support Assembly (on Ground)

The upper end of the guide rail support assembly (on ground) is attached on the rung of the guide rail, and the lower end is on the ground. The guide rail support assembly can effectively reduce the deformation of the guide rail and improve the bearing capacity of the guide rail.

The guide rail support assembly (on ground) consists of the parts below:

Upper section of the guide rail support [1]

The upper section consists of four notches, a latch, a bracing member, and a upper support tube. The bracing member improves stability of the guide rail support. Four notches are attached to the ladder rung. The latch can effectively prevent the guide rail support from detaching from the guide rail rung.

Upper-middle section of the guide rail support [2]

The upper-middle section is welded by a thicker aluminum tube and a thinner aluminum tube. The thinner aluminum tube is of the same size as the upper section. After inserting the upper section to a certain depth into the upper-middle section, align the fixing holes and use the quick release pin to lock and fasten the upper section and the upper-middle section.

Lower-middle section of the guide rail support [3]

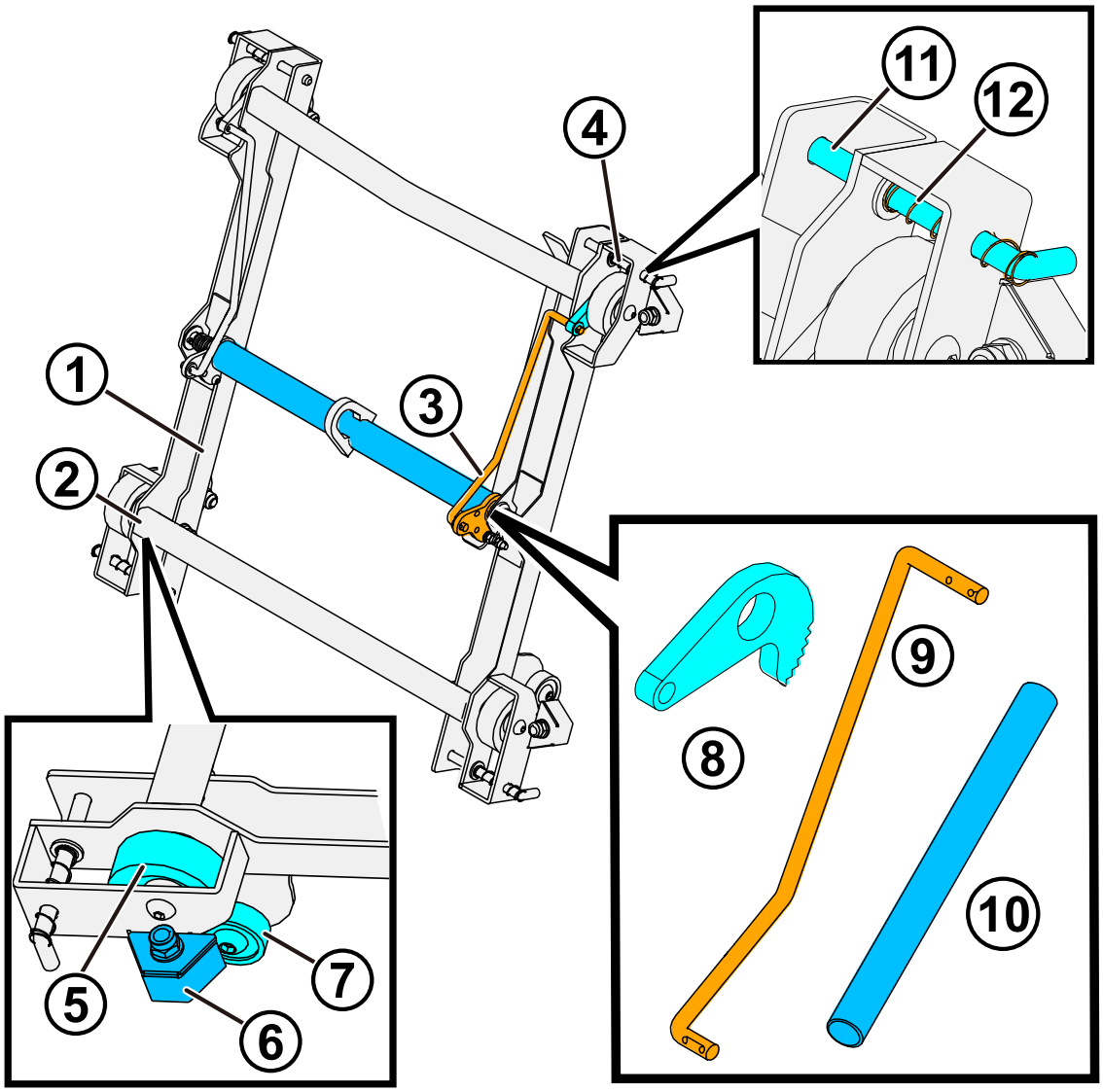
The connection between the lower-middle section and the upper-middle is also secured by a quick release pin. There is a locking device at the lower end of the lower-middle section. By pressing the upper end of the tension lever the overall length of the guide rail support assembly can be adjusted. When the tension lever is released, under the force of main extension spring, the tension lever will lock the lower section.

Lower section of the guide rail support [4]

The lower section is welded by the foot and lower section tube. The foot contacts with ground and has two fixing holes for nails or pins to fix the foot on the ground.

The upper section, the upper-middle section and the lower-middle section are connected and fastened with the quick release pin (with lanyard). The lower-middle section and the lower section are connected with an adjustment device which allows the total length of the guide rail support assembly to be adjustable between 5.4 m (16.4 ft) and 7.2 m (23.6 ft).

3.5. Carriage



GMH1008

1. Carriage frame	7. Rear retaining roller
2. Roller	8. Tooth cam
3. Broken rope device	9. Linkage
4. The latch assembly	10. Pulling bar
5. Guide roller	11. Cotter pin
6. Side retaining roller	12. Spring

Figure 8 - Carriage

The carriage travels up and down along the guide rail under the traction of the wire rope, and various load carrying platforms can be installed and fixed above the carriage.

The carriage consists of the parts below:

Carriage frame [1]

The carriage frame is welded by carbon steel profiles, which has high strength and is not easy to deform. The frame has preformed installation holes for rollers, pulling bar, tooth cam, latch, etc.

Roller [2]

There are three types of rollers: the guide roller, the rear retaining roller, and the side retaining roller. The guide rollers are mainly intended to transfer the weight of the goods to the guide rail. The rear retaining rollers prevent the carriage from derailing from the guide rail. The side retaining rollers are mainly intended to prevent the lateral tilting of the carriage, and to ensure that the traveling direction of the carriage is aligned with the guide rail.

Broken rope device [3]

The broken rope device consists of three parts: the pulling bar, the linkage, and the tooth cam. The pulling bar is in the middle of the carriage frame and can rotate freely. The two sets of linkages and tooth cams are symmetrical arranged on the left and right side of the carriage frame.

When the pulling bar rotates in upward direction under the force of the torsion spring, it actuates the tooth cam through the linkage to lock the carriage on the guide rail.

When pulled by the wire rope, the pulling bar rotates to the horizontal direction, and releases the tooth cam through the linkage, and the carriage can travel up and down.

Latch [4]

The latch assembly is used to install various load carrying platforms (universal platform, angle adjustable platform, brick platform, solar panel platform, large rotary platform, large transport platform, plate platform, dumping skip with tipping device, etc.). The latch assembly consists of the latch, the cotter pin, and spring. When mounting or removing the platform, grip the latch handle and pull it to the end position to allow for installation and removing of load carrying platforms. Upon release of the handle, the latch returns to the locked position by the force of the spring.

3.6. Carrying Platforms

⚠WARNING

Could result in death or serious injury!

• It is strictly prohibited to transport personnel with the carrying platform!

A variety of platforms are available according to the goods that need to be carried. The platforms are connected to the carriage by means of the fixing catches. The platform can be secured by the

following steps: 1. Pull out the latch; 2. Align the fixing catches with the latching holes; 3. Release the latch to secure.

Table 7 - Carrying Platforms

Platform type	Weight (kg)		Max. load (kg)		Dimensions (mm)		Purpose
	kg	lbs	kg	lbs	mm	in	
Universal platform	32	70.5	200	441	760 × 870 × 520	30 × 34 × 20	The universal platform has a wide range of applications. It can be used to transport bricks, panels, windows, solar panels, furniture, materials, boxes and scaffolds.
Angle adjustable platform	40	88.2	190	419	• 760 × 910 × 480 • 1400 × 910 × 480 (after unfolded)	• 30 × 36 × 19 • 55 × 36 × 19 (after unfolded)	The angle adjustable platform is updated from the universal platform. It can adjust the angle of the platform to keep the goods level during transportation. The side boards can be unfolded for transportation of large goods.
Brick platform	40	88.2	180	397	480 × 1050 × 470	19 × 41× 19	The brick platform can be used in transporting tiles, bricks, shingles and other small parts that can be piled.
Solar panel platform	23	50.7	200	441	720 × 1150 × 520	28 × 45× 20	The solar panel platform can carry a variety of plates and panels. It can transport up to eight solar panels in a single run.

Table 7 - Carrying Platforms (continued)

Platform type	Weight (kg)		Max. load (kg)		Dimensions (mm)		Purpose
	kg	lbs	kg	lbs	mm	in	
Large transport platform	65	143.3	170	375	• 1325 × 600 × 990 • 2035 × 1220 × 225 (after unfolded)	• 52 × 24 × 39 • 80 × 48 × 9 (after unfolded)	The large transport platform is intended to transport furniture and boxes.
Large rotary platform	75	165.3	160	353	1325 × 715 × 990	52 × 28 × 39	The rotary platform is intended to transport furniture and boxes.
Plate platform	33	72.8	190	419	900 × 2150 × 340	35 × 85 × 13	The rotary platform is intended to transport furniture and boxes.
Dumping platform	24	52.9	65 L	17.2 us gal	640 × 800 × 230	25 × 31 × 9	The dumping platform is intended to transport bulk goods.

3.6.1. Universal Platform

The universal platform consists of the platform frame [4], side boards [2], back board [1], bottom board [3], and fixing catches [5].

For easy transportation, the side boards are not installed on the platform when the platform is shipped. Use the rotary assembly [6] to install the side boards on the platform before use.

Pull the side board upward to enable the rotary assembly to come out of the angle adjustable platform. At the same time, turn the side board to the point parallel to the back board of the adjustable platform. Release hand, so that the rotary assembly automatically inserts into the platform to lock the side board.

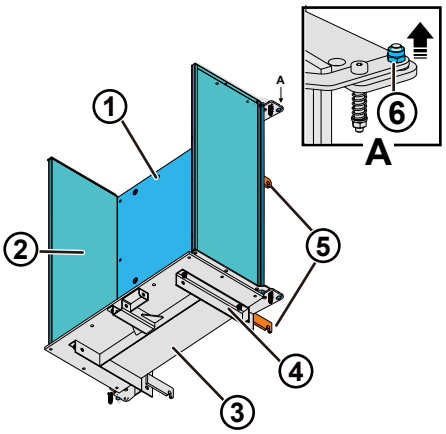


Figure 9 - Universal Platform

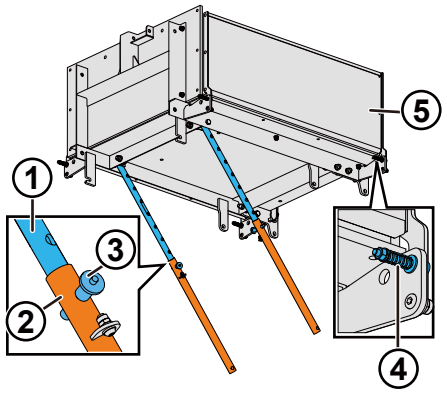
1. Back board
2. Side boards (×2)
3. Bottom board
4. Platform frame
5. Fixing catches (×4)
6. Rotary assembly (×2)

3.6.2. Angle Adjustable Platform

Insert the outer support tube [2] into the bolt shank on the carriage, and pull out the latch. Align the upper platform hook to the latch hole of the carriage, and then release the latch to secure the position of the platform.

By moving the inner support tube [1] telescopically inside the outer support tube [2], the angle between the platform and the guide is adjustable from 35° to 75°. When the goods are adjusted to the intended angle, use the latch [3] on the support tube to lock the angle.

The side boards [5] can unfold by means of the rotary assembly [4]. Pull the side board upward to enable the rotary assembly to come out of the angle adjustable platform. Turn the side board to the point parallel to the back board of the adjustable platform. Release hand, so that the rotary assembly automatically inserts into the platform to lock the side board.



GMH1012

Figure 10 - Angle Adjustable Platform

It is not allowed to use side boards to support loads.

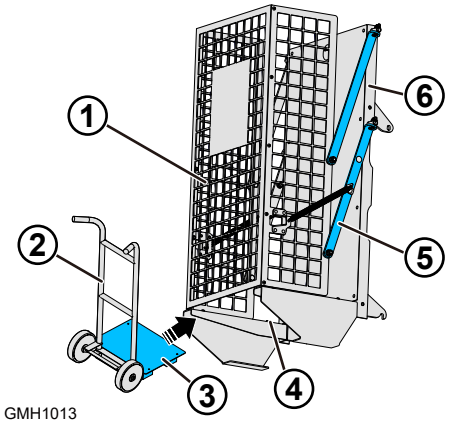
1. Inner support tube (×2)
2. Outer support tube (×2)
3. Quick release pin (×2)
4. Rotary assembly (×4)
5. Side board (×2)

3.6.3. Brick Platform

The universal platform consists of the platform frame [6], the meshed guard [1], and the load board [3].

After the brick platform is secured on the carriage by the fixing catches, park the platform on the ground and raise the meshed guard [1] to the top by pulling connecting bar [5]. Place bricks on the load board [3], and then use the trolley [2] to transport the load board to the platform. Push the load board onto the bottom board [4], and pull out the trolley. Pull down the meshed guard [1] to secure the bricks.

The load board [3] are available in steel board and wooden board according to intended use.



GMH1013

Figure 11 - Brick Platform

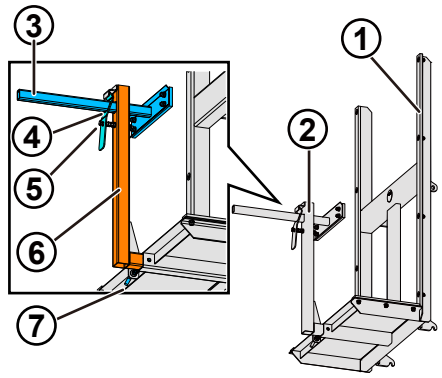
1. Meshed guard
2. Trolley
3. Lad board
4. Bottom board
5. Connecting bar (×4)
6. Platform frame

3.6.4. Solar Panel Platform

The solar panel platform consists of the platform frame [1] and the clamping assembly [2].

In order to facilitate transportation, the clamping assembly [2] is not assembled with the platform frame [1]. Insert the pressure clamp [3] into locking handle [4] and support lever [6], and secure them with fasteners [5]. At the same time, the pressure clamp [3] can be pulled to slide on the support lever [6] if the locking handle [4] is pressed. Once the locking handle [4] is released, the pressure clamp [3] cannot be pulled.

Then pull the latch [7] outwards, and insert the assembled support lever [6] into the platform frame [1]. Align the hole on the support lever [6] with that of the latch [7], and release the latch [7] to lock the support lever [6].



GMH1014

Figure 12 - Solar Panel Platform

1. Platform frame
2. Clamping assembly
3. Pressure clamp
4. Locking handle
5. Fasteners (bolts, plain washer, spring, lock nut)
6. Support lever
7. Latch

3.6.5. Large Transport Platform

The large transport platform consists of the platform and the bracing member.

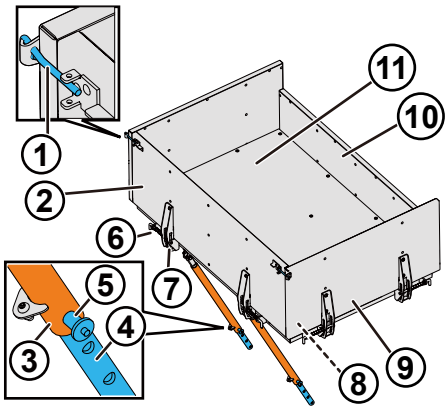
The platform consists of the bottom frame [8], bottom board [11], front board [2], side board [9] and back board [10]. In order to facilitate transportation, the front board and the side board are not assembled together with the bottom board.

The bracing member consists of the telescopic tube [4], support tube [3], quick release pin [5] and support bracket.

Pull the latches on the upper and lower of the carriage outwards, align the hole on the support bracket end and the hole at the end of the support tube [3] respectively with the holes on the upper latch and the lower latch, and release the latch to lock the platform. Press and hold the quick release pin [5] on the telescopic tube [4] to pull it out until the inclined angle required by the platform is reached. Then release the quick release pin [5] to lock the angle. Pull the latch [6] on the platform bottom frame [8] outwards. Align the hole on the connecting plate of the front board with the latch hole on the bottom frame. Then release the latch to fasten the front board [2]. Install the side board [8] and back board [9] in the same manner. Then lock the quick clamp [1].

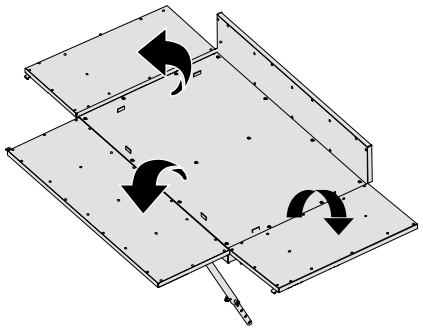
The goods shall be directly placed in the platform for transportation. If the platform has no sufficient space for the over-sized goods, unlock the quick clamp. Pull the front board upward, and turn it outwards to its limit. Then push the front board forward until it can no longer be pushed, so that the board is locked. Unfold the side board in the same way. The platform dimensions are 2035 mm (80 in) × 1220 mm (48 in) × 225 mm (9 in) after unfolding.

After the goods are transported to the top of the ladder, unfold the rear board or the side board to take out the goods.



GMH1015

Figure 13 - Large Transport Platform



GMH1058

1. Quick clamp (×2)
2. Front board
3. Support tube (×2)
4. Telescopic tube (×2)
5. Quick release pin (×2)
6. Latch (×8)
7. Connecting plate (×8)
8. Platform bottom frame
9. Side board (×2)
10. Back board
11. Bottom board

Figure 14 - Large Transport Platform Unfolded

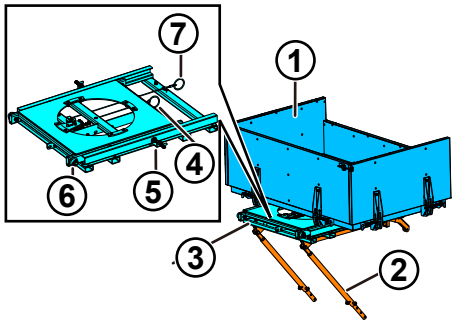
3.6.6. Large Rotary Platform

The rotary platform consists of the platform [1], bracing member [2] and rotary plate [3].

After securing the bracing member on the carriage, pull the latch on the rotary frame outwards and insert the platform retaining roller into the slot of the bracing member, and push the platform until all the rollers are completely into the bracing member. Then release the latch.

Refer to the assembly steps of large transport platform to assemble the platform.

After the platform moves to the roof or window, pull and hold the ring pull (for pulling the platform). Push the rotary plate to move the platform to an appropriate position. Release the ring pull to lock the platform. Then pull and hold the ring pull (for rotating the platform). Rotate the rotary plate to rotate the platform 90° or 180°. Release the ring pull (for rotating the platform). Pull and hold the ring pull (for pulling the platform), and drag the rotary plate to an appropriate position. After that, release the ring pull, and open the platform board to take out the goods.



GMH1016

Figure 15 - Large Rotary Platform

1. Platform
2. Bracing member (×2)
3. Rotary plate
4. Ring pull (for rotating the platform)
5. Latch (×2)
6. Platform retaining roller (×6)
7. Ring pull (for pulling the platform)

3.6.7. Plate Platform

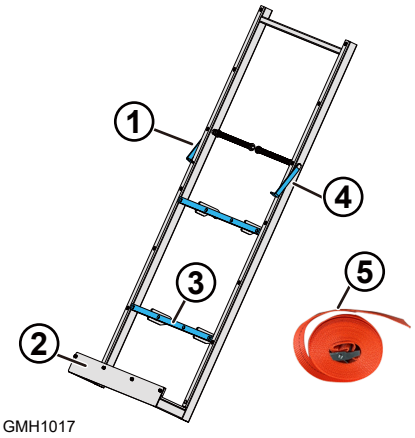
The plate platform consists of left tension lever [1], right tension lever [4] and welded carrier frame [2].

Pull and hold the left tension lever and the right tension lever simultaneously. Put the plates onto the welded carrier frame. Release the two levers, and now the plates are locked under the action of the spring.

If the transported plate is too small to be fastened by the tension lever, the rope tensioner [5] may be used to secure the plate on the platform.

If the platform is used to transport the solar panels, rubber strips [3] need to be installed on the welded carrier frame to protect the panel from vibration and impact during transportation.

1. Left tension lever
2. Welded carrier frame
3. Rubber strip (×7)
4. Right tension lever
5. Rope tensioner



GMH1017

Figure 16 - Plate Platform

3.6.8. Dumping Skip with Tipping Device

After the carriage with the dumping device [1] reaches the top of the guide rail, the guide roller [2] of the dumping device will move to the head rail section from the guide rail, and then continue sliding upward. At the same time, the bottom of the dumping device will contact with the rear retaining roller [3]. As the carriage continues running upward, the guide roller [2] will detach from the head section, and the dumping device will continue slide up along with the retaining roller [3] and rotate with the roller [3] to dump the goods.

1. Dumping device
2. Guide roller of the dumping device (×2)
3. Rear retaining roller (×2)

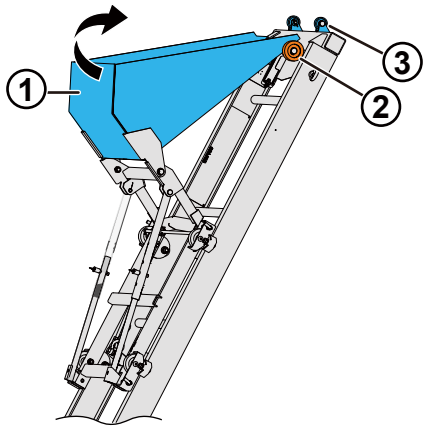


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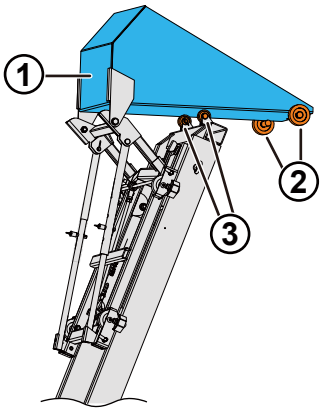
Figure 17 - Dumping Skip with Tipping Device



GMH1059

Figure 18 - Automatic Dumping

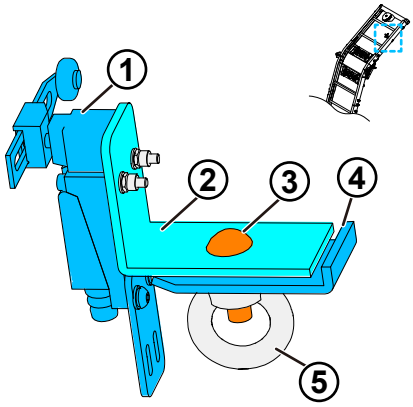
3.7. Upper Limit Switch Assembly

The upper limit switch assembly is installed on the top of the guide rail to detect whether the carriage has reached its upper limit position. When the upper limit switch is triggered, the equipment will automatically stop upward running. This prevents the carriage from overrun at the top due to operating error, which may cause damage due to the material hoist.

The upper limit switch assembly consists of the limit switch [1], the adaptor plate [2], the clamp [4], the square neck bolt [3], and the eye nut [5]. By tightening the eye nut, the upper limit switch assembly can be fixed on the U-shaped groove of the guide rail.

The other end of the upper limit switch cable has a plug, which needs to be connected to the socket on the drive unit. The cable length is 21 m (69 ft).

1. Limit switch
2. Adaptor plate
3. Square neck bolt
4. Clamp
5. Eye nut



GMH1009

Figure 19 - Upper Limit Switch Assembly

3.8. Pendant Control

3.8.1. 5-Button Pendant Control

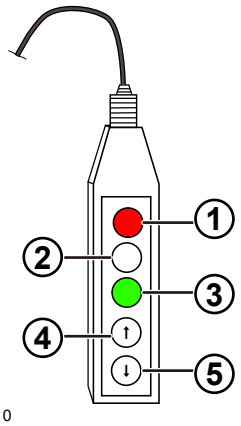
The 5-button pendant control has the following elements: the E-Stop button [1], the acousto-optic alarm [2], the START button [3], the UP button [4], and the DOWN button [5]. The other end of the pendant control cable has a plug, which needs to be connected to the socket on the drive unit during operation. The cable length is 5 m (16.4 ft).

In case of an emergency, press the E-STOP button and the equipment will stop moving immediately.

In case of an abnormality or overloading, the equipment will stop running immediately, and the acousto-optic alarm will send off alarming sound and light.

The START button is used to start the equipment.
The power indicator lights up and remain on after the equipment is started.

The UP and DOWN buttons are used to control the equipment to run up and down.



GMH1010

1. E-STOP button
2. Acousto-optic alarm
3. START button and power indicator light
4. UP button
5. DOWN button

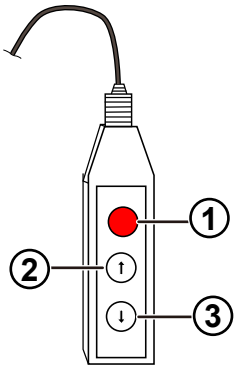
Figure 20 - 5-Button Pendant Control

3.8.2. 3-Button Pendant Control

The 3-button pendant control has the following elements: the E-STOP button [1], the UP button [2] and the DOWN button [3]. The other end of the pendant control cable has a plug, which needs to be connected to the socket on the drive unit during operation. The cable length is 5 m (16.4 ft).

In case of an emergency, press the E-STOP button and the equipment will stop moving immediately.

The UP and DOWN buttons are used to control the equipment to run up and down.



GMH1070

1. E-STOP button
2. UP button
3. DOWN button

Figure 21 - 3-Button Pendant Control

3.9. Accessories

3.9.1. Roof Distributor

Weight: 11.5 kg (25.4 lbs).

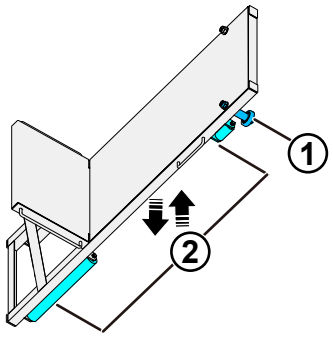
Maximum load: 200 kg (441 lbs).

Dimensions: 460 mm (18 in) × 1520 mm (60 in) × 430 mm (17 in).

The roof distributor is installed on the roof to transport the goods to the intended position on the roof.

Stuck the two support bearings [1] in between the roof tiles. After the goods are loaded, slide the distributor left and right along the sliding area [2] to distribute the goods.

1. Support bearing (×2)
2. Sliding area



GMH1021

Figure 22 - Roof Distributor

3.9.2. Guide Rail Support Assembly (on Roof)

The guide rail support assembly (on roof) is used to support the guide rail after the knee sections. It prevents the guide rail sections on the roof from deformation and improves their bearing capacity.

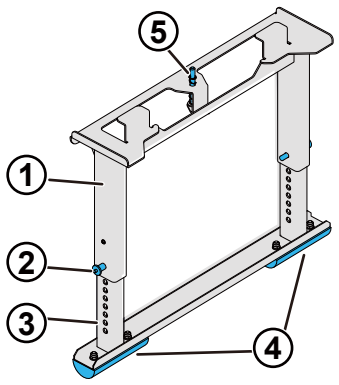
The guide rail support assembly (on roof) consists of the upper half [1] and lower half [3] of the guide rail support (on roof), quick release pins [2] and rubber pads [4].

Assemble a standard rail section (at least 1 m) between the knee section and the head (rail) section for guide rail support (on roof).

Pull out the latch [5], and hang the clamps on the rung of the guide rail. Release the latch. Press and hold the quick release pin. Pull out the lower welded member from the upper welded member until the rubber pads contact with the roof. Then release the quick release pin to lock the guide rail support assembly on roof. Now the adjustment is finished.

The rubber pads are arc-shaped and symmetrically arranged to provide support and absorb shocks at different angles.

The height of guide rail support assembly (on roof) ranges from 370 mm (14.6 in) to 620 mm (24.4 in).



GMH1022

Figure 23 - Guide Rail Support Assembly (on Roof)

1. Upper half of the guide rail support (on roof)
2. Quick release pin (×2)
3. Lower half of the guide rail support (on roof)
4. Rubber pad (×2)
5. Latch

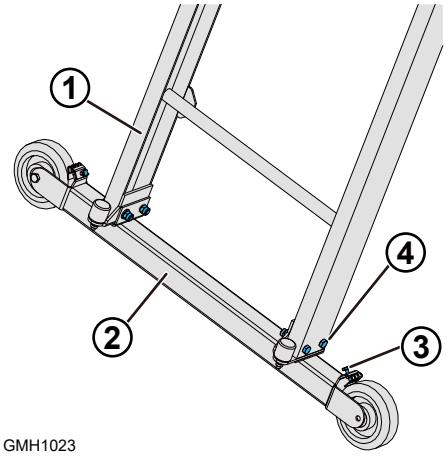
3.9.3. Undercarriage

Weight: 7.4 kg (16.3 lbs).

Put foot section [1] on the undercarriage [2] and secure with fasteners [4] for easy transportation of the foot section.

After the foot section is pushed to the appropriate position, turn the star grip knob [3] to lock the wheel. Now the foot section will stop moving.

1. Foot section
2. Undercarriage
3. Star grip knob (×2)
4. Fasteners (×4)



GMH1023

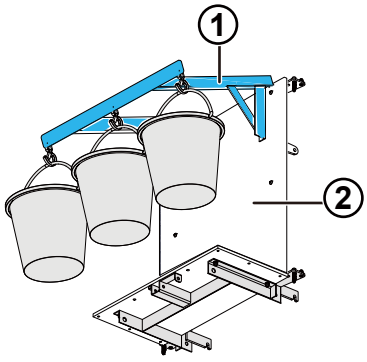
Figure 24 - Undercarriage

3.9.4. Bucket Hanger

Weight: 7 kg (15.4 lbs).

The bucket hanger [1] can be installed directly on the universal platform [2]. It can transport up to three buckets for a single run.

1. Bucket hanger
2. Universal platform



GMH1024

Figure 25 - Bucket Hanger

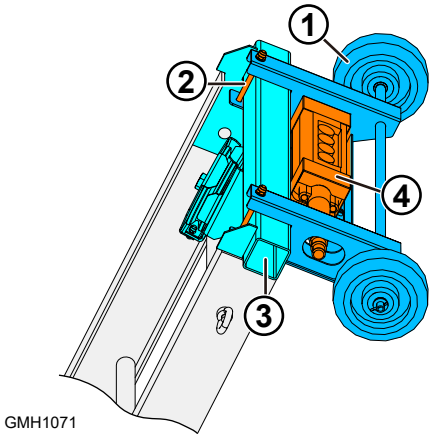
3.9.5. Guide Rail Support Assembly (on Wall)

Weight: 6 kg (13.2 lbs).

Dimensions: 800 mm (32 in) × 310 mm (12 in) × 150 mm (6 in).

When the top of the ladder is placed in the window, the guide rail support assembly (on wall) can be used to prevent the ladder from pressing directly against the window frame.

Clamp the guide rail support to the head section [3], secure with fasteners [2], and press the guide roller [1] against the window edge when you place the ladder.



GMH1071

Figure 26 - Guide Rail Support Assembly (on Wall)

1. Guide roller (×2)
2. Fasteners (eye nut, square neck bolt) (×2)
3. Head section
4. Control box of guide rail support assembly (on wall)

The control box of guide rail support assembly has the following elements: the E-STOP button [4], the selection switch [3], the UP button [1] and the DOWN button [2].

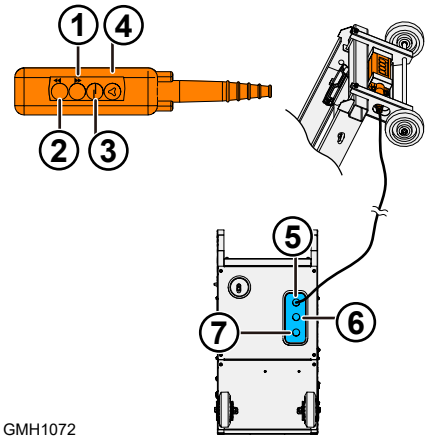
The other end of the guide rail support assembly cable has a plug, which needs to be connected to the head section cable. The cable length is 0.3 m (1 ft).

The other end of socket for head section cable [5] is connected to that on the drive unit. The length of head section cable is 20 m (65.6 ft).

In case of an emergency, press the E-STOP button and the equipment will stop moving immediately.

The selection switch is used for switching between the pendant control and the control box of guide rail support assembly on wall.

The UP and DOWN buttons are used to control the equipment to run up and down.



GMH1072

1. UP button
2. DOWN button
3. Selection switch
4. E-STOP button
5. Socket (for head section cable)
6. Socket (for upper limit switch)
7. Socket (for pendant control)

Figure 27 - The Wiring of Guide Rail Support Assembly (on Wall)

3.9.6. Adjustable Foot Section

Weight: 7.2 kg (15.9 lbs).

Dimensions: 670 mm (26.4 in) × 690 mm (27.2 in) × 220 mm (8.7 in).

If the foot section will be placed on the uneven ground or stepped surface, the adjustable foot section can be selected.

Install an adjustable bracket [2] between the foot section [1] and the pivotal foot [4]. Drop the pivotal foot [4] on the ground, adjust the position, and insert the latch [3] to fasten.

The adjusting range of adjustable bracket [2] is 300 mm (11.8 in).

1. Foot section
2. Adjustable bracket (×2)
3. Latch (×2)
4. Pivotal foot (×2)

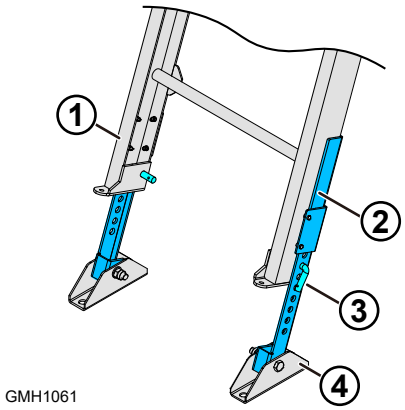


Figure 28 - Adjustable Foot Section

3.9.7. Guide Rail Support Assembly (on Flat Roof)

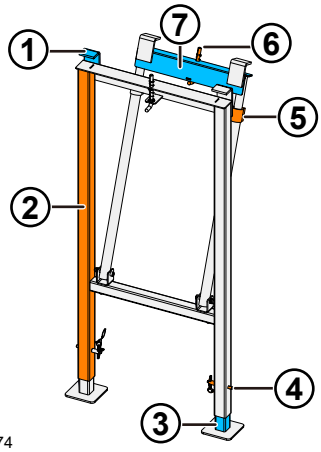
Weight: 7.7 kg (17 lbs).

The guide rail support assembly (on flat roof) can be used for the house with flat roof. It can support the guide rail of the knee section on the roof, to prevent the deformation of the guide rail on roof and improve the bearing capacity.

Pull and hold the latch [6], hook the clamp [1] to the ladder rung, and release the latch [6] to fasten the support [2]. Release the extending rod fixing clamp [5] and pull and hold the latch [6]. Pull and hold the latch [6], hook the clamp [1] to the ladder rung, and release the latch [6] to fasten the inclined support assembly [7]. Lock the extending rod fixing clamp [5]. Press and hold the quick release pin [4], and pull out the telescopic supports [3] at the lower of the support [2] until it is rested against the roof. Release the quick release pin [4] to lock the support.

The height of guide rail support assembly (on flat roof) ranges from 1 156 mm (45.5 in) to 2 056 mm (81 in).

1. Clamp (×4)
2. Guide rail support
3. Telescopic supports (×2)
4. Quick release pin (×2)
5. Extending rod fixing clamp (×2)
6. Latch (×2)
7. Inclined support assembly



GMH1074

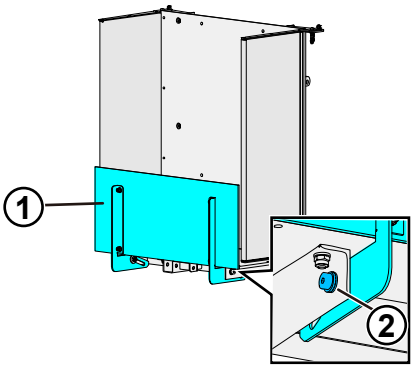
Figure 29 - Guide Rail Support Assembly (on Flat Roof)

3.9.8. Front Board of the Universal Platform

The installation of the front board fittings of the universal platform can increase the safety of the platform transportation.

Secure the front board [1] on the universal platform with fasteners [2]. Make sure that the front board can be rotated freely after the lock nut is tightened. After the goods are placed in the platform, turn the front board to the position shown in the figure, and then push the board forward until it is locked automatically.

1. Front board
2. Fasteners (hexagon head bolt, sleeve, plain washer, lock nut) (×2)



GMH1063

Figure 30 - Front board of the universal platform

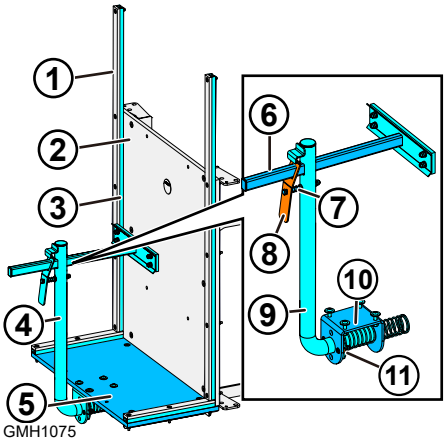
3.9.9. Solar Panel Assembly

The universal platform can use an optional solar panel assembly to transport solar panel.

The solar panel assembly consists of the support assembly [3] and clamping assembly [4]. The support assembly [3] is installed on the platform back board [2] and the bottom board [5]. The clamping assembly consists of the support lever [9], mounting plate [10], pressure clamp [6], rotary and connecting shaft [11] and locking handle [8].

Insert the pressure clamp into the support lever and locking handle and secure with bolt [7]. Insert the support lever [9] into the mounting plate [10] and the rotary and connecting shaft [11] in order. Push forward the support lever to insert the shaft horizontally into the mounting plate. Mount the solar panel and push forward the support lever. Press and hold the locking handle, and push the pressure clamp smoothly toward the solar panel until it can no longer be pushed. Release the locking handle to fasten the solar panel.

The support assembly is made of rubber strips to protect the transportation of solar panel.



1. Connecting bar (×4)
2. Back board
3. Rubber strip (×4)
4. Clamping assembly
5. Bottom board
6. Pressure clamp
7. Bolt
8. Locking handle
9. Support lever
10. Mounting plate
11. Rotary and connecting shaft

Figure 31 - Solar Panel Assembly

3.9.10. Vertical Carrier Rack for the Universal Platform

Weight: 51 kg (112.4 lbs).

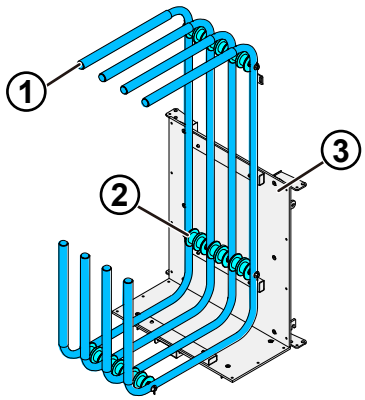
Maximum load: 180 kg (397 lbs).

Dimensions: 900 mm (35.4 in) × 2150 mm (84.6 in) × 340 mm (13.4 in).

Vertical photovoltaic (PV) platform is a combination platform of the universal platform and the vertical carrier rack [1] directly installed on the universal platform [3].

The vertical photovoltaic platform can transport six solar panels at the same time. The solar panels can be vertically placed in the pulleys [2], and transported to the roof. After that, the operator can directly take out the solar panels behind the material hoist.

1. Vertical carrier rack
2. Pulley (×9)
3. Universal platform



GMH1065

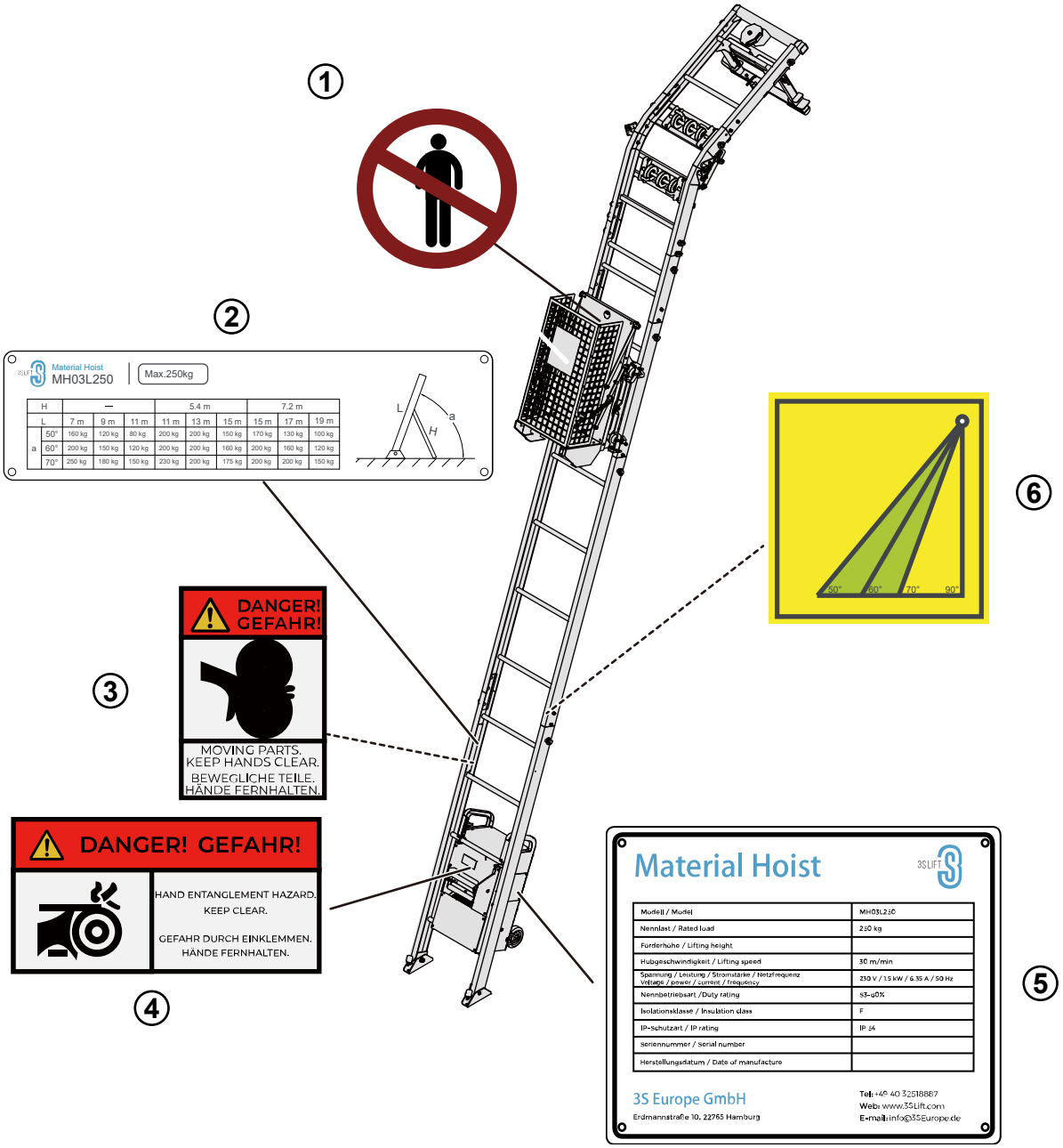
Figure 32 - Vertical Carrier Rack for the Universal Platform

3.10. Documents and Labels

Ensure all labels and signs are in place and valid. Replace damaged or missing labels.

All labels must be clear, perfectly conspicuous, plastic-coated or equivalently protected and permanently affixed.

The following labels are provided with the material hoist:



GMH1025

1. Prohibition of carrying people label
2. Load chart
3. Crushing of hands warning label
4. Crushing of hands warning label
5. Material hoist name plate
6. Guide rail inclination angle indicator

Figure 33 - Positions of labels/signs

4. Installation Instruction

4.1. General Description

This section provides the information regarding the installation of thematerial hoist, including the safety requirements, material check, work site installation instructions, installation procedures and precautions.

The maximum overall guide rail length (the length of foot section + the total length of standard section before installing the knee section) is 19 m (62.3 ft). No extra tool is needed for parts assembling.

4.2. Safety Requirements

⚠WARNING

Could result in death or serious injury!

• Do not climb the guide rail!

• Do not step on the load carrying platform!

⚠WARNING

Could result in death or serious injury!

• Wear Personal Protective Equipment (PPE).

• All parts and wire shall function properly.

• Set warning signs at proper position in the installation area.

Installation personnel shall read and understand the content of this manual and shall be able to recognize and avoid potential hazard based on the manual information and practical experience.

4.3. Material Check

Check the integrity of the device according to the package list after receiving the product. Make sure the device is intact before assembling.

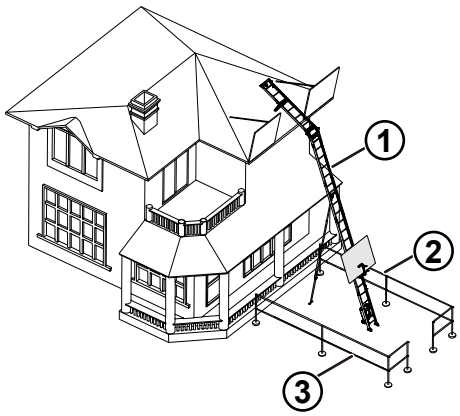
Contact with the delivery personnel immediately if any damage is found.

The material hoist is dismantled to separate parts for transporting. Please assemble the product according to the instruction.

4.4. Site Requirements

Before commencement of the assembly, select a proper site where pedestrian or public traffic is avoided. Set barriers around the site to prevent unauthorized entry. Use red and white warning tapes to circulate the barriers. The height of the first warning tape [2] shall be 1.1 m (3.6 ft) and the second [3] 0.5 m (1.6 ft).

The enclosed area shall cover the material hoist [1] and the area of the its projection. The minimum distance between the barrier and the material hoist shall be 1.4 m (4.6 ft) and the maximum width of its entryway shall be 1.4 m (4.6 ft).



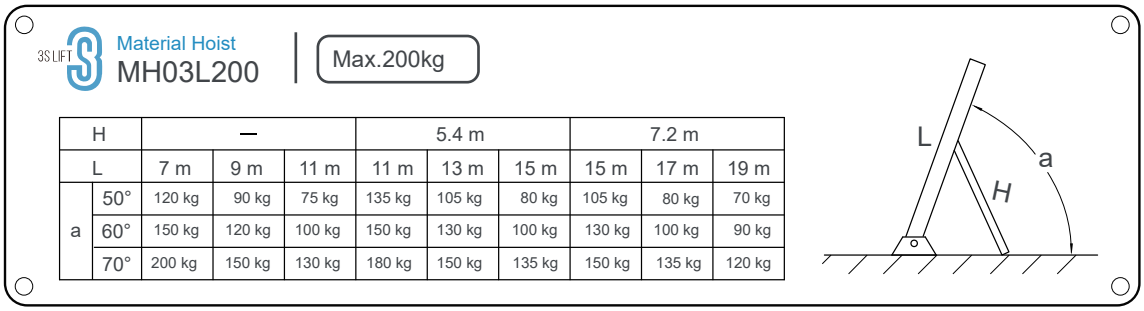
GMH1028

1. Material hoist
2. Upper warning tape
3. Lower warning tape

Figure 34 - Site Conditions

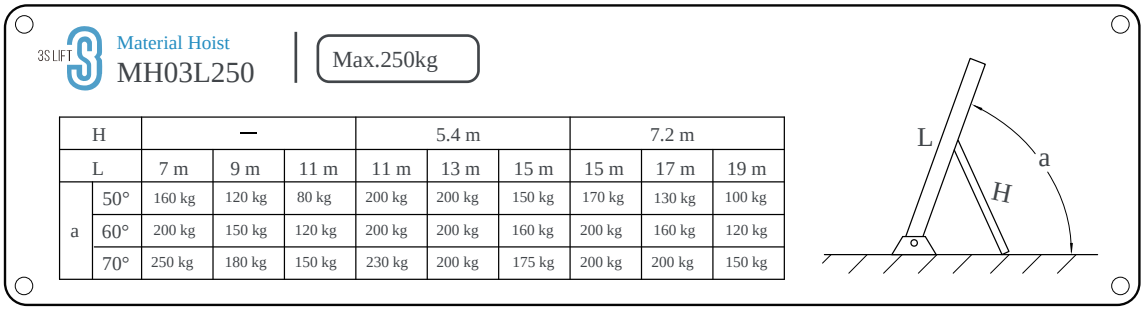
4.5. Installation Procedures

4.5.1. Installing the Guide Rail



H		—			5.4 m			7.2 m		
L		7 m	9 m	11 m	11 m	13 m	15 m	15 m	17 m	19 m
a	50°	120 kg	90 kg	75 kg	135 kg	105 kg	80 kg	105 kg	80 kg	70 kg
	60°	150 kg	120 kg	100 kg	150 kg	130 kg	100 kg	130 kg	100 kg	90 kg
	70°	200 kg	150 kg	130 kg	180 kg	150 kg	135 kg	150 kg	135 kg	120 kg

Figure 35 - Load Chart (200 kg)



H		—			5.4 m			7.2 m		
L		7 m	9 m	11 m	11 m	13 m	15 m	15 m	17 m	19 m
a	50°	160 kg	120 kg	80 kg	200 kg	200 kg	150 kg	170 kg	130 kg	100 kg
	60°	200 kg	150 kg	120 kg	200 kg	200 kg	160 kg	200 kg	160 kg	120 kg
	70°	250 kg	180 kg	150 kg	230 kg	200 kg	175 kg	200 kg	200 kg	150 kg

Figure 36 - Load Chart (250 kg)

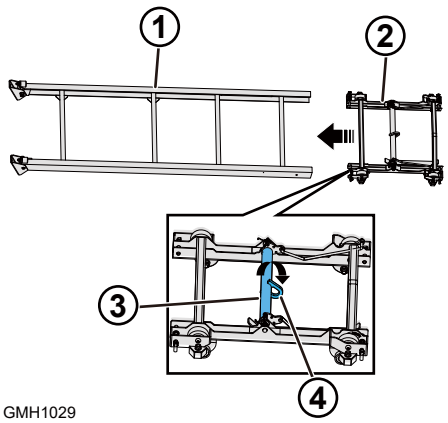
1. Determine the guide rail length.

   The guide rail length shall be calculated based on the lifting height. The guide rail length = lifting height ×1.065. Round up the result to the next highest integer. For example, when the lifting height is 10 m (32.8 ft), the guide rail length is 11 m (36 ft) according to the formula.

   The overall guide rail length (the length of foot section + the total length of standard section before installing the knee section) shall be less than 19 m (62.3 ft).

2. Install the carriage.
   a. a. Place the foot section [1] on the ground (the side of ladder rung shall face the ground).
   b. b. Turn the suspension bar [3] until the hook attachment point [4] is horizontal. At the same time, slide the carriage [2] into the foot rail section (with the end without the suspension bar sliding in first).

1. Foot section
2. Carriage
3. Suspension bar
4. Hook attachment point

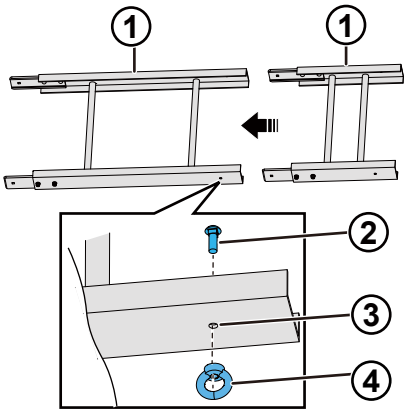


GMH1029

Figure 37 - Installing the Carriage

3. Assemble the standard (rail) section.
   a. Connect two rail sections [1] together.
   b. Insert the square neck bolt [2] from the inside of the U-shape slot [3], and tighten the eye nut [4] with hand. (Do not reverse the bolt orientation.)
   c. Connect all standard (rail) sections in the same manner as prescribed to the length determined in Step 1.

When assembling the guide rail sections, make sure all rungs are not installed upside down.



GMH1030

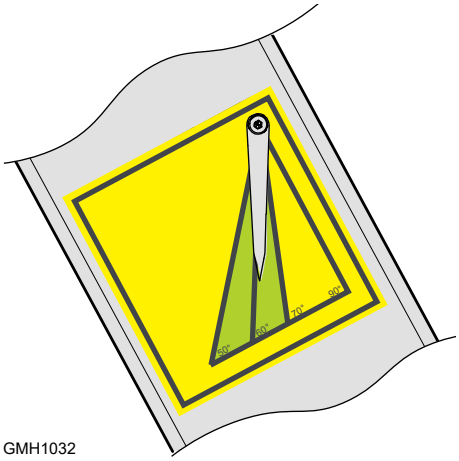
1. Standard rail section
2. Cup head square neck bolt
3. U-shape slot
4. Eye nut

Figure 38 - Assembling the Standard (Rail) Section.

4. Fix the guide rail.
   a. Put the pivot feet of the foot rail section on the ground and place the other rail end against the building.
   b. Determine the inclination angle of the guide rail according the load and the guide rail length. Refer to the Load chart.

      In the load chart, Load = carriage + load carrying platform + materials

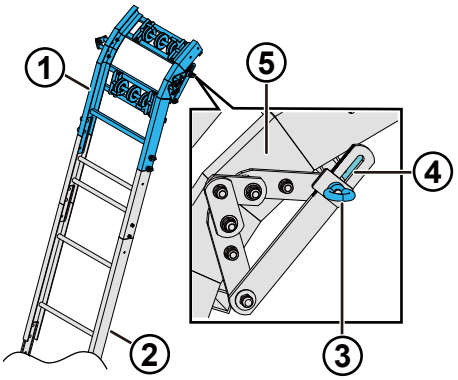
   c. Make sure the angle indicator points at the area between 50°~70°.
   d. Choose the proper rung and connect it with the building.



GMH1032

Figure 39 - Guide Rail Inclination Angle Indicator

5. Installing the Knee (Rail) Section[1]
   a. Repeat the assembling procedure as prescribed in Step 3 to assemble the knee (rail) section. (Loosen the eye nut [3] in the slotted hole [4] to adjust the angle of the knee (rail) section. Tighten the eye nut after the adjustment.)
   b. Check that the rail section on the roof [5] shall have an angle of no less than 15° with the horizontal plane to make sure the carriage descends properly without load.

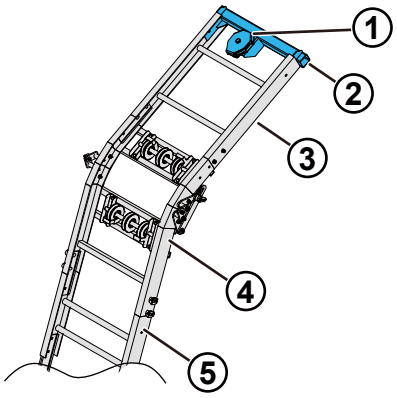


GMH1033

Figure 40 - Installing the Knee (Rail) Section

1. Knee (rail) section
2. Standard (rail) section
3. Eye nut
4. Slotted hole
5. Rail section on the roof

6. Install the head (rail) section.
   a. Install a standard rail section [3] between the knee section [4] and the head section[2]. (Determine the length of the standard rail section based on actual conditions.)
   b. Repeat the assembling procedure as prescribed in Step 3 to assemble the head (rail) section. (The top guide pulley [1] of the head (rail) section shall face upwards.)



GMH1034

1. Top guide pulley
2. Head (rail) section
3. Standard (rail) section
4. Knee (rail) section
5. Standard (rail) section

Figure 41 - Installing the Head (Rail) Section

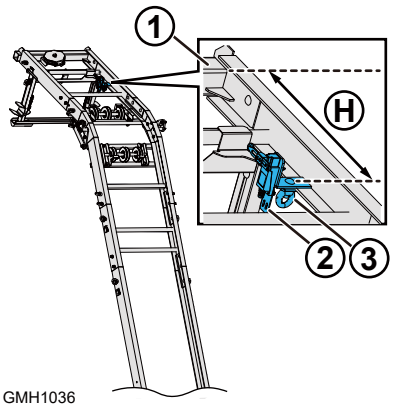
7.

NOTICE

Equipment damage!

• Do not place the upper limit switch cable on the surface of the U-shape slot, since the cable can be damaged by contact with sharp objects.

Install the top limit switch assembly [2] onto the bottom of the U-shaped slot of the head section. The distance between the upper limit switch assembly [2] and the top of the head section [1] shall be H.



GMH1036

1. Head (rail) section
2. Top limit switch assembly
3. Eye nut

H > 340 mm

Figure 42 - Installing the Top Limit Switch Assembly

4.5.2. Installing the Drive Unit

1. Attach the fixing catches [5] at the bottom of the drive unit to the lowest rung [4] of the foot section.
2. Lift the latches [1] completely with hands.
3. Move the drive unit about towards the guide rail, and attach the fixing catches [2] at the top of the drive unit to the second lowest rung [3] of the foot section.
4. Release the latch handles. Make sure the latches extends out completely.

1. Latch (×2)
2. Fixing catch at the top of the drive unit (×2)
3. Lowest rung of the foot section
4. Second lowest rung of the foot section
5. Fixing catch at the bottom of the drive unit (×2)

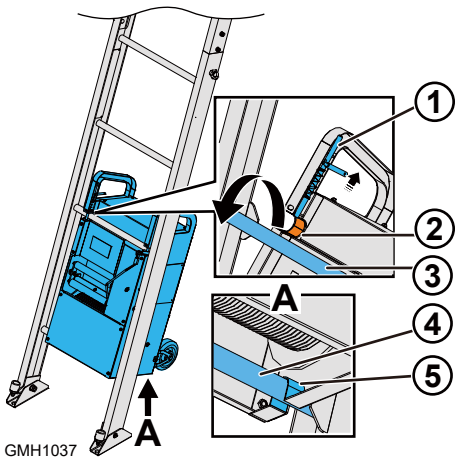


Figure 43 - Installing the Drive Unit

5. Connect the plug [1] of upper limit switch to the corresponding socket.
6. Connect the plug [2] of the pendant control to the corresponding socket.

1. Plug of the top limit switch
2. Plug of the top limit switch

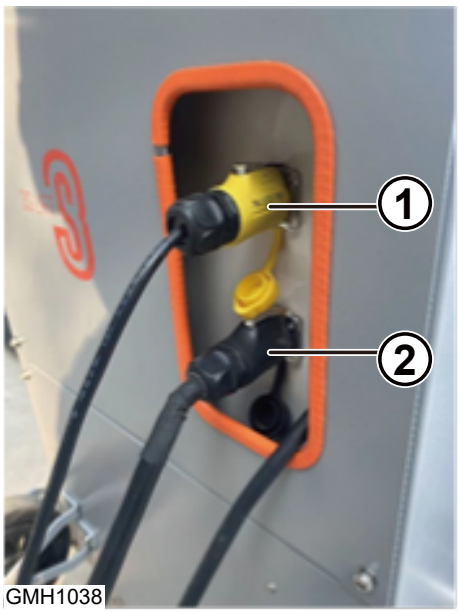
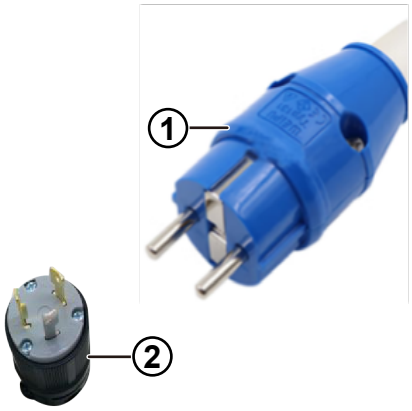


Figure 44 - Connecting Plugs to Sockets

7. Connect the drive unit power plug to the power socket.



GMH1073

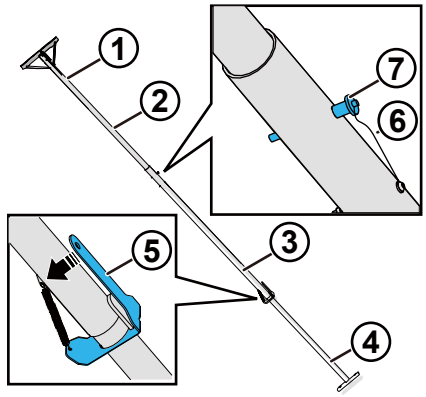
1. Europe Plug
2. US Plug

Figure 45 - Supply Cable Plug

4.5.3. Installing the Guide Rail Support (on Ground)

1. Determine the length of the guide rail support. Refer to4.5.1. Installing the Guide Rail *(p43)*.
2. Connect the upper section[1], upper-middle section[2], lower-middle section[3], and lower section[4] with quick release pins[6] (a tether lanyard[7] is attached to each pin).
3. Press the tension lever[5] to extract or retract the lower lower section[4] to adjust the length.

   The length of the guide rail support can be adjusted within the range of 5.4 m (16.4 ft) to 7.2 m (23.6 ft). Adjust the length based on actual conditions.
4. Release the tension lever after adjustment.



GMH1040

Figure 46 - Guide Rail Support (on Ground)

1. Upper section (of the guide rail support)
2. Upper-middle section (of the guide rail support)
3. Lower-middle section (of the guide rail support)
4. Lower section (of the guide rail support)
5. Tension lever
6. Quick release pin (x2)
7. Tether lanyard (x2)

5. Clamp the upper end of bracing member of the guide rail support (on ground) to a rung. The rung should preferably be at the middle or lower middle of the guide rail.

1. Clamp
2. Latch

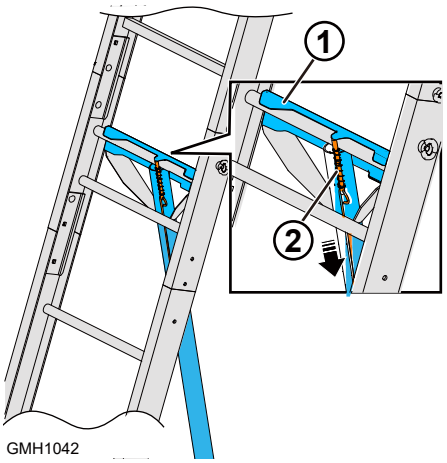


Figure 47 - Clamp Connecting Mechanism

6.

NOTICE

Equipment damage!

• The guide rail support (on ground) is allowed to neutralize half of the natural deformation of the guide rail. Excessive supporting is forbidden!

Check that the angle between the ground and the guide rail support (on ground) is about 80°.

7. Fasten the ladder foot of the guide rail support (on ground) and of the guide rail on the ground with screws.

1. Guide rail support (on ground)
2. Ladder foot

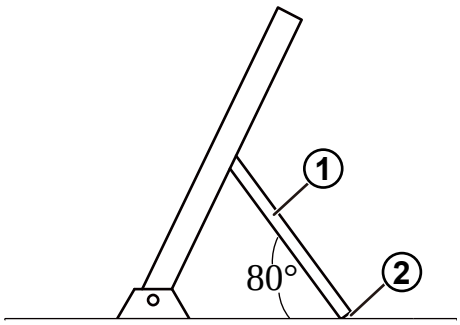


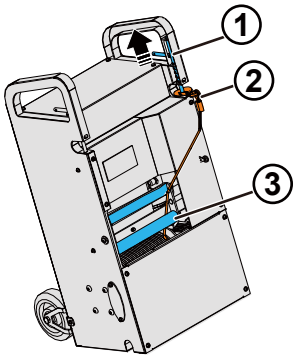
Figure 48 - Fixing the Guide Rail Support (on Ground)

4.5.4. Installing the Wire Rope

1. Take the wire rope hook [2] off from the latch [1] when the slack rope roller [3] is vertical.
2. Release the E-Stop button [4] on the pendant control.
3. Press the START button [5]
4. and wait until the green power indicator [5] lights up. Press the DOWN button [6] to allow the wire rope to unwind.

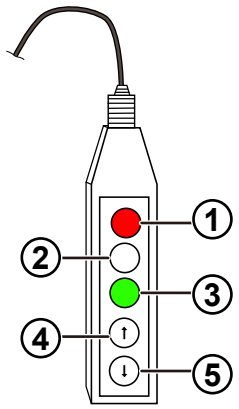
> In the case of a three-button pendant control, directly press the DOWN button.

1. Latch
2. Wire rope hook
3. Slack rope roller (x2)
4. E-Stop button
5. START button (with power indicator)
6. DOWN button



GMH1044

Figure 49 - Unwinding the Wire Rope



GMH1010

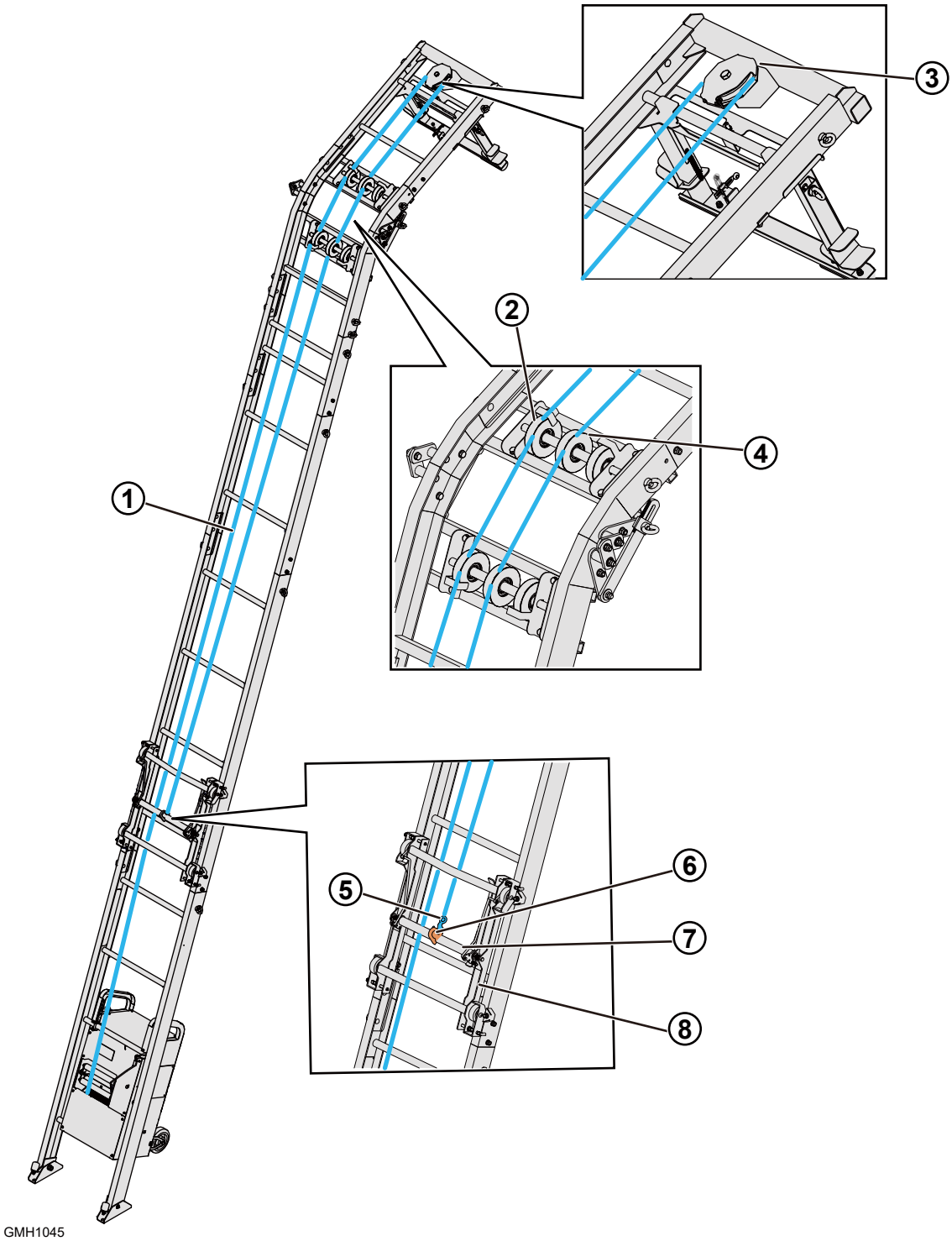
Figure 50 - Pendant Control

5. Guide the wire rope [1] upward and reeve it around the two guide pulleys [2] (equipped with antijump off device) at the left side.
6. Feed the wire rope into the top guide pulley [3].
7. Guide the wire rope downward and reeve it around the two guide pulleys [4] in the middle. The wire rope end with hook shall be maintained in the middle of the guide rail.
8. Guide the hook [5] behind the upper bar of the carriage [8], and connect it to the hook attachment point [6].
9. Turn the suspension bar [7] and make sure it moves freely.

10.

NOTICE
Equipment damage! • The wire rope shall be wound around the drum orderly. Failure to do so will lead to excessive wear or damage to the rope.

Press and hold the UP button on the pendant control until the wire rope is tensioned.



1. Wire rope
2. Guide pulley (×2)
3. Top guide pulley
4. Guide pulley (×2)
5. Wire rope hook
6. Hook attachment point
7. Suspension bar
8. Carriage

Figure 51 - Installing the Wire Rope

4.5.5. Installing the Load Carrying Platform

This subclause provides the installation instructions of the brick platform. The installation instructions also apply to other load carrying platforms.

1. Attach the two fixing catches [3] at the bottom of the platform [2] to the latches [4] at the bottom of the carriage [1].

1. Carriage
2. Brick platform
3. Bottom fixing catch (×2)
4. Latches (×2)

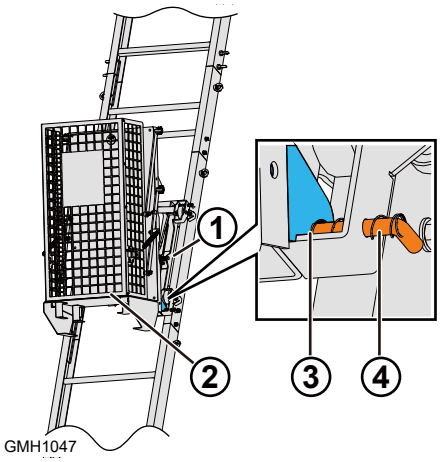


Figure 52 - Attaching the bottom fixing catches

2. Pull out the two latches [3] at top of the carriage at the same time.
3. Push the platform towards the carriage to align the upper connecting holes [1] with the latching holes [2], and release the latches [3] to lock the platform.

1. Upper connecting holes (×2)
2. Latching holes (×2)
3. Latches (×2)

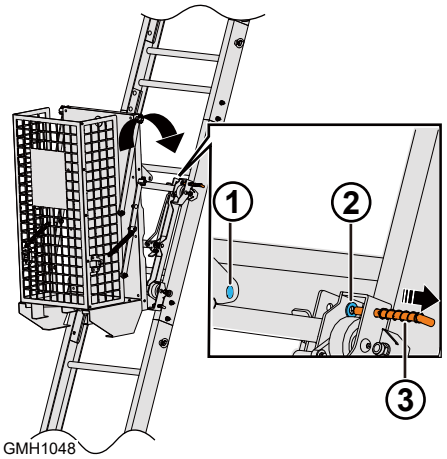


Figure 53 - Latching the platform in place

4. Make sure the bottom of the platform catches the studs of the carriage, and that top of the platform is latched properly, as shown in Figure 46. Now the installation of the brick platform is finished.

5. Operation

5.1. Overview

This clause provides the material operating information, including the operation requirements, normal operating instructions and exceptional and emergency operating instructions.

5.2. Operation Requirements

5.2.1. Safety Instructions

⚠WARNING

Could result in death or serious injury!

- Transport of personnel with the material hoist is prohibited.
- Do not climb the guide rail.
- Do not operate the material hoist when it is overloaded.
- Do not stay under the guide rail.

Operator of the material hoist shall read and understand this manual. The operator shall be qualified for operating the material hoist and be able to recognize and avoid potential dangers on their own.

Caution:

- All persons inside the danger area shall wear Personal Protective Equipment (safety helmet, safety gloves, safety footwear, etc.).
- The operator shall have full vision of the work area at all times. Sufficient lighting shall be provided for this purpose.
- Inspect the device following the instruction of this manual before operation.
- The load shall be distributed evenly on the load carrying platform. It is prohibited that a large cargo protrudes the side of the platform.
- If the material hoist breaks down at height, operator shall manage to lower the hoist to the ground and remove the load. Do not leave the load at height without operation.

5.2.2. Operating Restrictions

Do not operate the material hoist when:

- The actual load exceeds the load indicated in the load chart.
- The wind speed exceeds 45 km/h (28 mile/h, or level 6 in Beaufort scale).

- The material hoist stops operating due to abnormal cause. Or,
- The material hoist is not maintained as required.

5.3. Daily Operation

5.3.1. Inspection Before Use

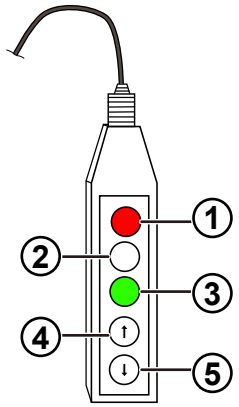
- The ground protecting barriers should be set following the requirement in 4.4. Site Requirements *(p42)*.
- The guide rail and guide rail support (on ground) should be fastened properly.
- The wiring of the power supply, pendant control and upper limit switch assembly plug should be secure and the cable should be intact.
- The equipment should be incapable of going up or down when the E-Stop button is pressed.
- The wire rope should be in good condition, and should be wound on the drum orderly.

5.3.2. Test Run

This section provides the operating instructions using a five-button pendant control.

In the case of a three-button pendant control which has no START button, directly press the UP or DOWN button to operate the hoist.

1. Release the E-Stop button[1]. Press and hold the START button[1]on the pendant control until the green power indicator[3] lights up.
2. Press and hold the UP button[4]. The material hoist should travel up.
3. Release the UP button. The material hoist should stop.
4. Press and hold the DOWN button[5]. The material hoist should travel down.
5. Release the DOWN button. The material hoist should stop.
6. During the upward or downward travel, the carriage guide rollers, rear retaining rollers and side retaining rollers should rotate normally.
7. Repeat the operation cycle for three times. The material hoist should not produce unusual noise, and should be able to stop automatically when reaching the upper limit.



GMH1010

Figure 54 - Pendant Control

1. E-Stop button
2. Acousto-optic alarm
3. START button (with power indicator)
4. UP button
5. DOWN button

5.3.3. Normal Operation

- Determine the working load by referring to the length of the guide rail and the angle between the guide rail and the ground according to 4.5.1. Installing the Guide Rail *(p43)*. Overload operation is prohibited.
- The operator shall supervise the entire operation.
- Tie up or clamp the materials in the load carrying platform which may fall (the effect of wind load shall be considered).
- Press the E-Stop button immediately if any emergency occurs during the operation.

5.3.4. Out of Service

1. Lower the carriage to the bottom and unload the goods from the load carrying platform.
2. Press the E-Stop button and hang the pendant control on an eye nut of the guide rail.
3. Disconnect the power plug.

5.4. Emergency Operation

5.4.1. Instructions and Precautions

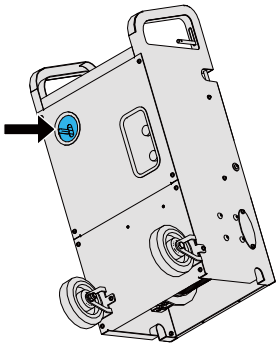
Manual descent refers to the function that in the event of circuit fault or power failure, the operator can turn the manual descent lever up to descend the carriage to the ground for the safety of the personnel and material hoist itself.

Manual descent shall be performed in a safe condition. The requirements are as follow:

1. Use manual descent function only when power failure occurs or the material hoist breaks down.
2. Do not use manual descent function when the material hoist functions properly.
3. Do not use manual descent function when any obstacles exists on the guide rail.

5.4.2. Operation Procedures

Turn the manual descent lever up to descend the carriage to the ground. The manual descent lever is located at the back side of the drive unit.



GMH1050

Figure 55 - Manual descent lever

6. Troubleshooting

6.1. Safety Instructions

Only qualified maintenance personnel may troubleshoot.

Lower the load carrying platform to the ground and unload the loads before the troubleshooting.

Do not troubleshoot under the protection state for broken rope.

Remove the power cable plug before electrical maintenance.

6.2. Troubleshooting for Common Faults

Ensure the power cable is connected well.

Ensure the E-Stop button is released.

6.3. Troubleshooting for Typical Faults

6.3.1. Failure to Start

Symptom:

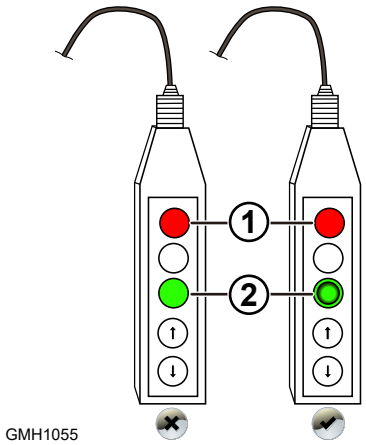
When the E-Stop button [1] is released and the START button [2] (with power indicator) is pressed, the power indicator [2] does not light up.

Causes:

- The power supply is abnormal.
- The power cable plug is improperly connected.
- The plug of the pendant control is improperly connected.
- The power switch in the electrical control cabinet is disconnected.

Solutions:

1. Check the material hoist according to said causes, and fix the problem.
2. Contact 3S LIFT or its authorized party if the problem is not solved.



1. E-Stop button
2. START button (with power indicator)

Figure 56 - Pendant control status

6.3.2. Failure to Run

Symptom:

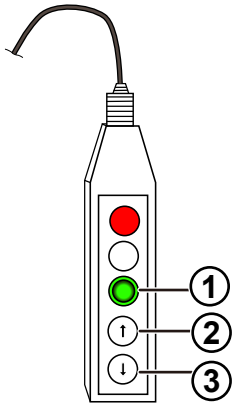
When the power indicator [1] is on and the UP button [2] or DOWN button [3] is pressed, the material hoist does not run.

Causes:

- The cable plug of the upper limit switch is improperly connected.
- The cable of the upper limit switch is damaged or breaks.
- The upper limit switch is faulty.

Solutions:

1. Check the material hoist according to said causes, and fix the problem.
2. Contact 3S LIFT or its authorized party if the problem is not solved.



GMH1056

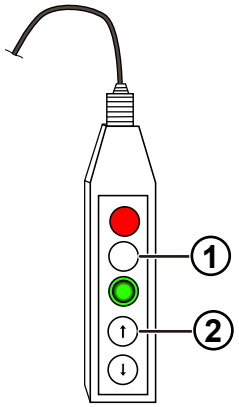
1. START button (with power indicator)
2. UP button
3. UP button

Figure 57 - Power indicator on the pendant control

6.3.3. Overload Alarming

Symptom:

When the UP button [2] is pressed and held, the material hoist starts but stops running immediately, and the acousto-optic alarm [1] produces an intermittent visual and audible alarm.



GMH1057

1. Acousto-optic alarm
2. UP button

Figure 58 - Pendant control alarm

Causes:

1. The material hoist is overloaded.
2. There are foreign objects on the guide rail, increasing the running resistance.
3. The bearings of the guide pulleys and top guide pulley are damaged or the wire rope comes out of the guide rail.
4. The bearings of the guide rollers and rear retaining rollers on the carriage are damaged.

Solutions:

1. Check the mass of materials on the load carrying platform. It should be reduced to working load. (In the load chart, Load = carriage + load carrying platform + materials)
2. Check the material hoist according to said causes, and fix the problem.
3. Contact 3S LIFT or its authorized party if the problem is not solved.

6.3.4. Upper Limit Switch Assembly Failure

Symptom:

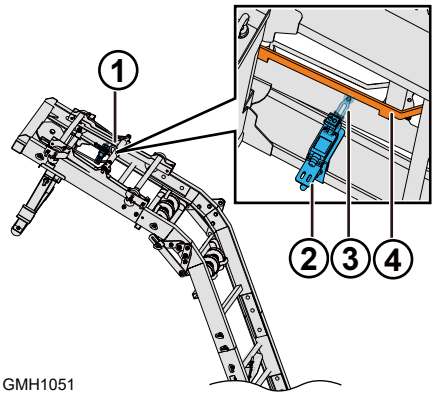
When the carriage reaches its top limit position and the UP button is pressed and held, the material hoist continues to move up.

Causes:

- The upper limit switch assembly is not installed or is not installed at the proper position.
- The upper limit switch is damaged or does not contact the carriage.

Solutions:

1. Check for the installation position of the upper limit switch assembly [2] according to 4.5.1. Installing the Guide Rail *(p43)*.
2. While the material hoist is running, trigger the limit switch [3] by hand. If the carriage stops, adjust the length of switch swing lever such that the trigger plate [4] on the carriage triggers the limit switch [3] properly.
3. Contact 3S LIFT or its authorized party if the problem is not solved.



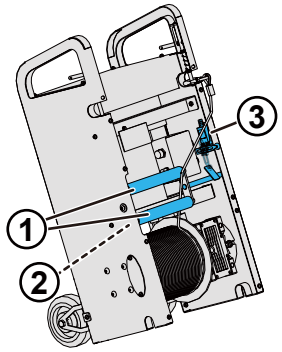
1. Carriage
2. Upper limit switch
3. Top limit switch assembly
4. Carriage trigger plate

Figure 59 - Upper limit switch assembly failure

6.3.5. Lower limit switch / slack rope device failure

Symptom:

When the carriage reaches the bottom limit position, it does not stop automatically.



GMH1052

1. Slack rope device
2. Return spring
3. Lower limit switch

Figure 60 - Lower limit switch / slack rope device failure

Causes:

- The lower limit switch [3] is not installed or is not installed at the proper position.
- The lower limit switch [3] is damaged or the length of the switch swing lever is not proper.
- The slack rope device [1] is stuck and the return spring [2] has failed.

Solutions:

1. Check the material hoist according to said causes, and fix the problem.
2. Contact 3S LIFT or its authorized party if the problem is not solved.

6.3.6. Carriage Falling

Symptom:

When the wire rope suddenly loses suspension force, the carriage automatically locks on the guide rail.

Causes:

- The wire rope is broken.
- The top guide pulley on the guide rail falls off.
- The wire rope thimble falls off.
- The hook breaks.
- The welded connection of the hook attachment point breaks.

Solutions:

1. If the wire rope breaks, replace the wire rope and check it regularly.
2. Contact 3S LIFT or its authorized party for any other problem.

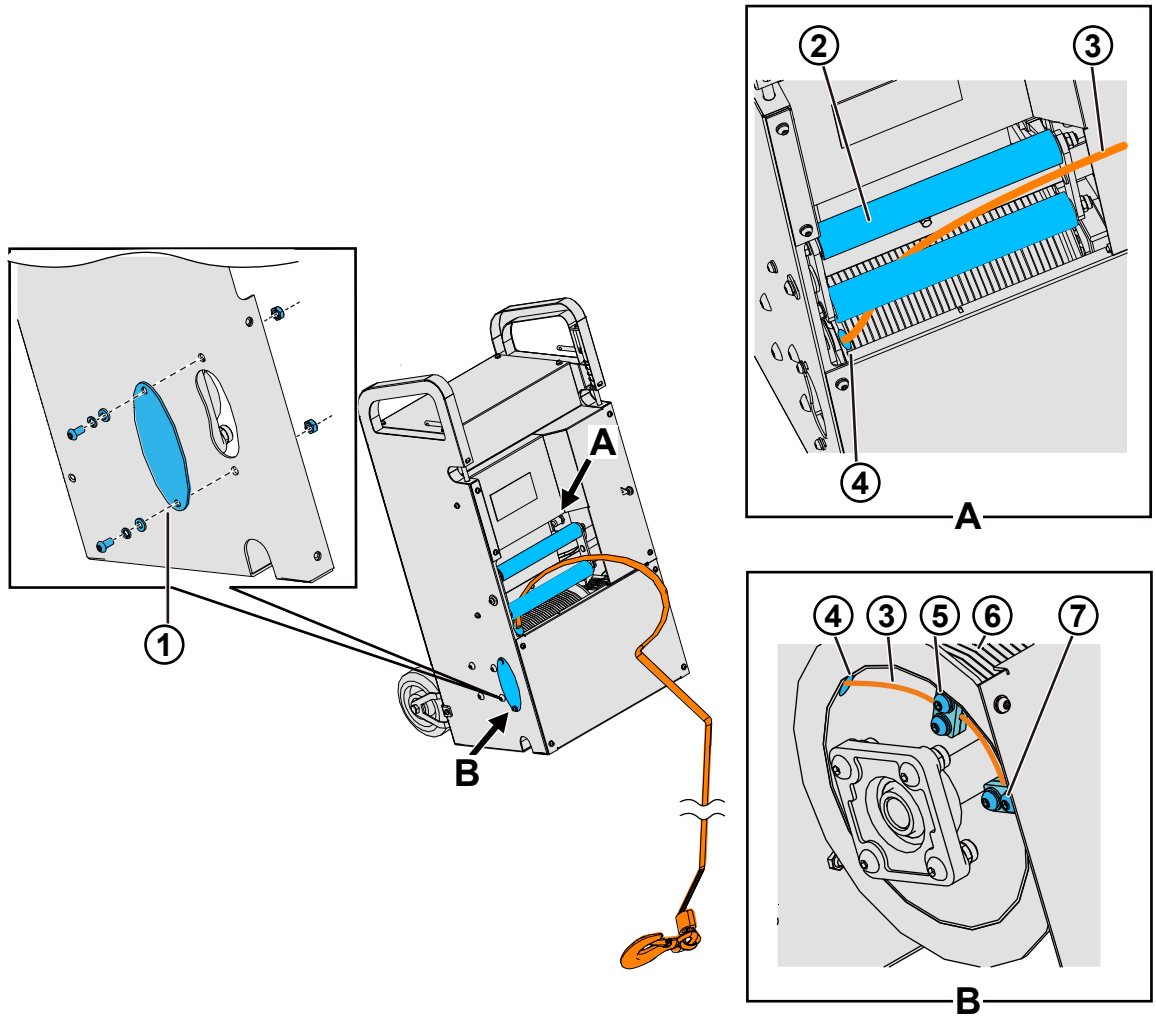
6.3.7. Replacement of the Wire Rope

Symptom:

The wire rope shall be replaced if it is worn or broken.

Solutions:

1. Remove the cover plate [1] of the inspection hole.
2. Remove the rope pressure block A [5] and rope pressure block B [7].
3. Take out the wire rope.
4. Feed the new wire rope [3] (with the end without the hook inserting first) between the slack rope rollers [2].
5. Guide the new wire rope through the rope hole [4] in the reel [6].
6. Reinstall the rope pressure blocks to fasten the rope.
7. Coil the wire rope on the reel [6] in sequence by pressing the UP button in the pendant control.
8. Reinstall the cover plate [1] of the inspection hole.



GMH1068

1. Cover plate of the inspection hole
2. Slack rope rollers (×2)
3. Wire rope
4. Rope hole
5. Rope pressure block A
6. Reel
7. Rope pressure block B

Figure 61 - Replacing the wire rope

7. Inspection and Maintenance

7.1. General Description

The inspection should be performed by the installation personnel and the operator.

The maintenance should be performed by 3S LIFT or its authorized party, or by the installation personnel or the operator under the guidance of 3S LIFT or its authorized party.

⚠WARNING

Could result in death or serious injury!

• Before the cleaning and maintenance, move the carriage down to the bottom of the guide rail and remove the power cable plug.

7.2. Inspection Before Use

See 5.3.1. Inspection Before Use *(p57)*.

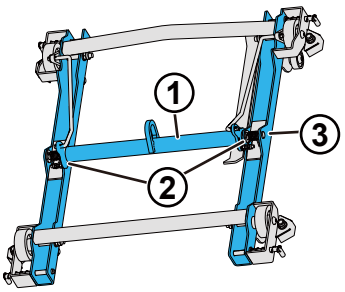
7.3. Weekly Inspection

1. Remove dirt on the load carrying platform and the guide rail.
2. Check the protection barriers on the ground. Refer to4.4. Site Requirements *(p42)*.
3. Replace the wire rope if any of the followings occurs:
   a. The wire rope has more than 20 broken wires over a length 30 times the diameter (30d) of the wire rope, or more than 10 broken wires over a length 6 times the diameter (6d).
   b. The wire rope has severe internal or external corrosion.
   c. The wire rope has obvious discoloration caused by overheating.
   d. The wire rope diameter is reduced by more than 20% compared to nominal diameter
   e. The wire rope has visible surface damage or severe mechanical damage (e.g., due to crushing, impact, etc.).

7.4. Monthly Inspection

1. Lubricate the contact position [2] of the pulling bar [1] of the carriage with the carriage frame [3]. The pulling bar should rotate smoothly.

1. Pulling bar of carriage
2. Lubrication position (×2)
3. Carriage frame

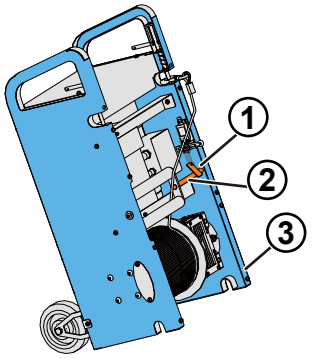


GMH1053

Figure 62 - Lubrication position of the carriage

2. Lubricate the contact position [1] of the shaft [3] (connecting the slack rope roller) with the drive unit housing [3]. The shaft should move smoothly.

1. Lubrication position (×2)
2. Shaft (connecting the slack rope roller)
3. Drive unit housing



GMH1054

Figure 63 - Lubrication position of the drive unit

3. Check that the labels (refer to 3.10. Documents and Labels *(p38)*) are complete and clearly legible.

7.5. Inspection Every 5000 H of Operation

NOTICE
Equipment damage! • The replacement of the lubricating oil shall be performed by or under the guidance of 3S LIFT or its authorized party.

Replace the lubricating oil of the motor (approx. 700 ml, or 0.2 us gal).

Recommended oil brandk and specification: Mobil 624 lubricating oil.

7.6. Inspection and Replacement of Consumable Parts

To purchase wear parts, contact 3S LIFT or its authorized suppliers.

Table 8 - Consumable Parts List

S/N	Position	Part No.	Part name	Specification/model	Qty.
1	Carriage	MH001000076	Side retaining roller	φ30 (1.2 in)	4
2		MH001000075	Front guide roller	φ30 (2.8 in)	4
3		MH001000077	Rear retaining roller	φ30 (1.7 in)	4
4		MH001000060	Toothed cam	/	2
5		MH001000069	Side retaining roller pulley shield	/	4
6	Head (rail) section	MH001000085	Top guide pulley	/	1
7		BS996306	Deep groove ball bearing	6304 ZZ	1
8		BH931052	Hole circlip	52	1
9	Knee (rail) section	MH001000105	Guide pulley	/	6
10		BS996306	Deep groove ball bearing	6304 ZZ	6
11		BH931052	Hole circlip	52	6
12	Guide rail	BKA10030	Cup head square neck bolt	M10 × 30	Refer to actual quantity
13		BK956001	Curved single coil spring lock washer	φ10	Refer to actual quantity
14		BS904010	Eye nut	M10	Refer to actual quantity

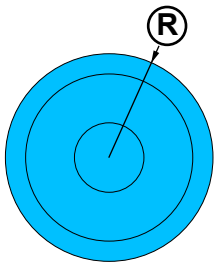
Table 8 - Consumable Parts List (continued)

S/N	Position	Part No.	Part name	Specifica-tion/model	Qty.
15	/	BS934320	Cotter pin	3.2 × 20	Refer to actual quantity
16	/	MH001081-43/ MH001081-26	Wire rope	43 m（141 ft）/26 m（85 ft）	1

7.6.1. Position: Carriage

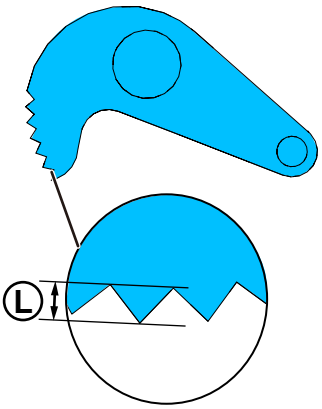
Replacement criteria:

Consumable parts	Replacement criteria
Side retaining roller Front guide roller Rear retaining roller	Replace the roller if any of the followings situation occurs. • The roller breaks or detaches from the mandrel. • The roller has uneven wear, and the roller radius R is reduced to a criterion that needs replacement: ◦ Side retaining roller: R ≤ 14 mm (5/9 in). ◦ Front guide roller: R ≤ 34 mm (1.34 in). ◦ Side retaining roller: R ≤ 20.5 mm (4/5 in).
Toothed cam	Replace the toothed cam if any of the followings situation occurs. • The tooth depth L L ≤ 1.7 mm (1/15 in). • The hoist is subjected to five or more falls.
Side retaining roller pulley shield	Replace the shield if the shield deformation causes interferes with the roller.



GMH1081

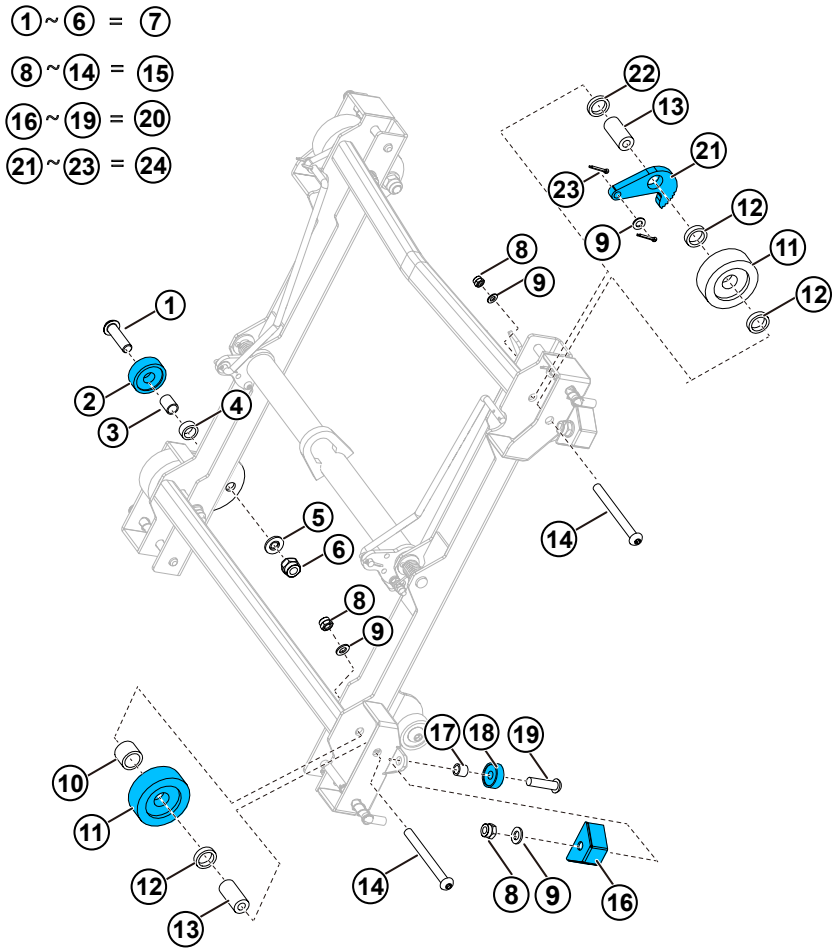
Figure 64 - Inspecting Guide Rollers (Side Retaining Roller as Example)



GMH1084

Figure 65 - Inspecting the Toothed cam

Replacement Illustration:



1. Bolt M12 × 45(×4)
2. Rear retaining roller (x4)
3. Spacing sleeve (x4)
4. Spacing sleeve (x4)
5. Flat washer 12 (x4)
6. Lock nut M12 (x4)
7. Rear retaining roller assembly (x4)
8. Lock nut M10 (×8)
9. Flat washer 10 (x12)
10. Spacing sleeve (x2)
11. Front guide roller (×4)
12. Spacing sleeve (x6)
13. Shaft sleeve (x4)
14. Bolt M10 × 110 (×4)
15. Front guide roller assembly (x4)
16. Side retaining roller shield (x4)
17. Spacing sleeve (x4)
18. Side retaining roller (×4)
19. Bolt M10 × 40 (×4)
20. Side retaining roller assembly (x4)
21. Toothed cam (x2)
22. Spacing sleeve (x2)
23. Cotter pin 3.2×20 (×12)
24. Toothed cam assembly (x2)

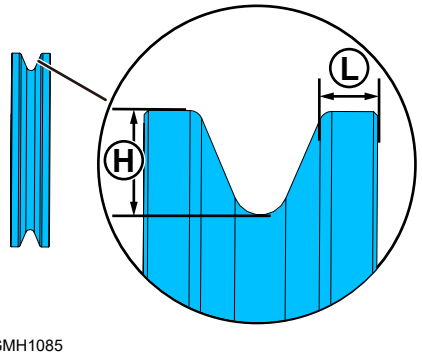
GMH1076

Figure 66 - Replacing Consumable Parts of the Carriage

7.6.2. Position: Head (rail) section

Replacement criteria:

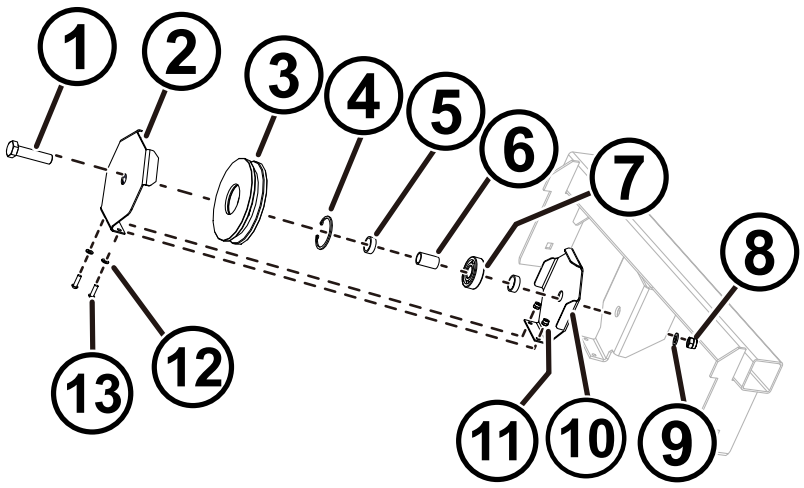
Consumable parts	Replacement criteria
Top guide pulley	Replace the top guide pulley if any of the followings situation occurs. • The groove depth H ≥ 17.5 mm(11/16 in). • The groove wall thickness L ≤ 4 mm(1/6 in).
Deep groove ball bearing	Damaged.
Hole circlip	Damaged.



GMH1085

Figure 67 - Inspecting the Top Guide Pulley

Replacement Illustration:



1. Bolt M6×65
2. Pulley shield
3. Top guide pulley
4. Shaft circlip 52
5. Bushing
6. Sleeve
7. Deep groove ball bearing 6205ZZ
8. Lock nut M16
9. Flat washer 16
10. Pulley shield
11. Lock nut M10 (×2)
12. Flat washer 6 (x2)
13. Bolt M6 × 20 (×2)

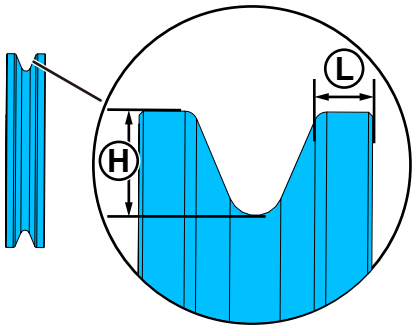
GMH1077

Figure 68 - Replacing Consumable Parts of the Head Section

7.6.3. Position: Knee (rail) Section

Replacement criteria:

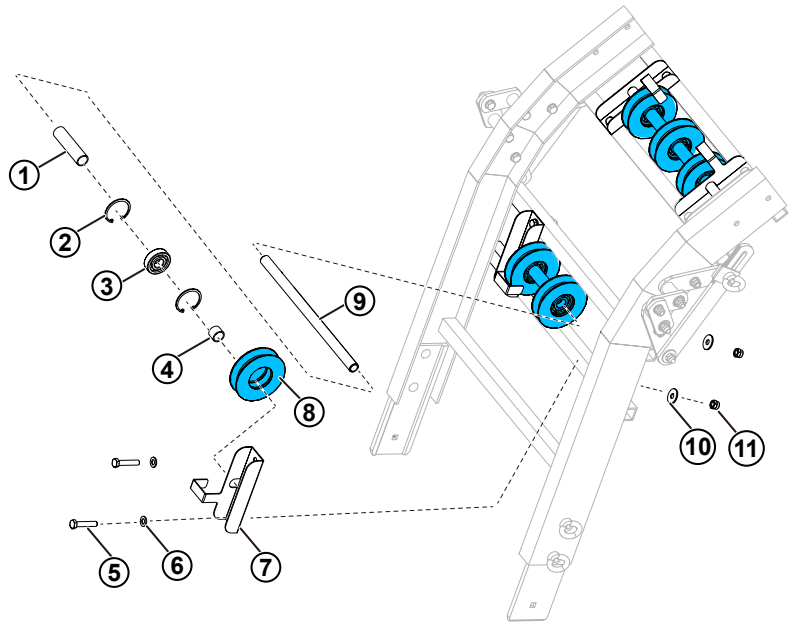
Consum-able parts	Replacement criteria
Guide pulley	Replace the guide pulley if any of the followings situation occurs. • The groove depth H ≥ 16 mm(5/8 in). • The groove wall thickness L ≤ 4 mm(1/6 in).
Deep groove ball bearing	Damaged.
Hole circlip	Damaged.



GMH1085

Figure 69 - Inspecting the Guide Pulley

Replacement Illustration:



1. Spacing sleeve 2 (x4)
2. Shaft circlip 52 (x6)
3. Deep groove ball bearing 6205ZZ (×6)
4. Shaft sleeve 1 (x4)
5. Bolt M10 × 50 (×8)
6. Flat washer 10 (x8)
7. Pulley adaptor plate (×4)
8. Guide pulley (×6)
9. Spacing sleeve (x2)
10. Flat washer 10×30 (x8)
11. Lock nut M10 (×8)

GMH1078

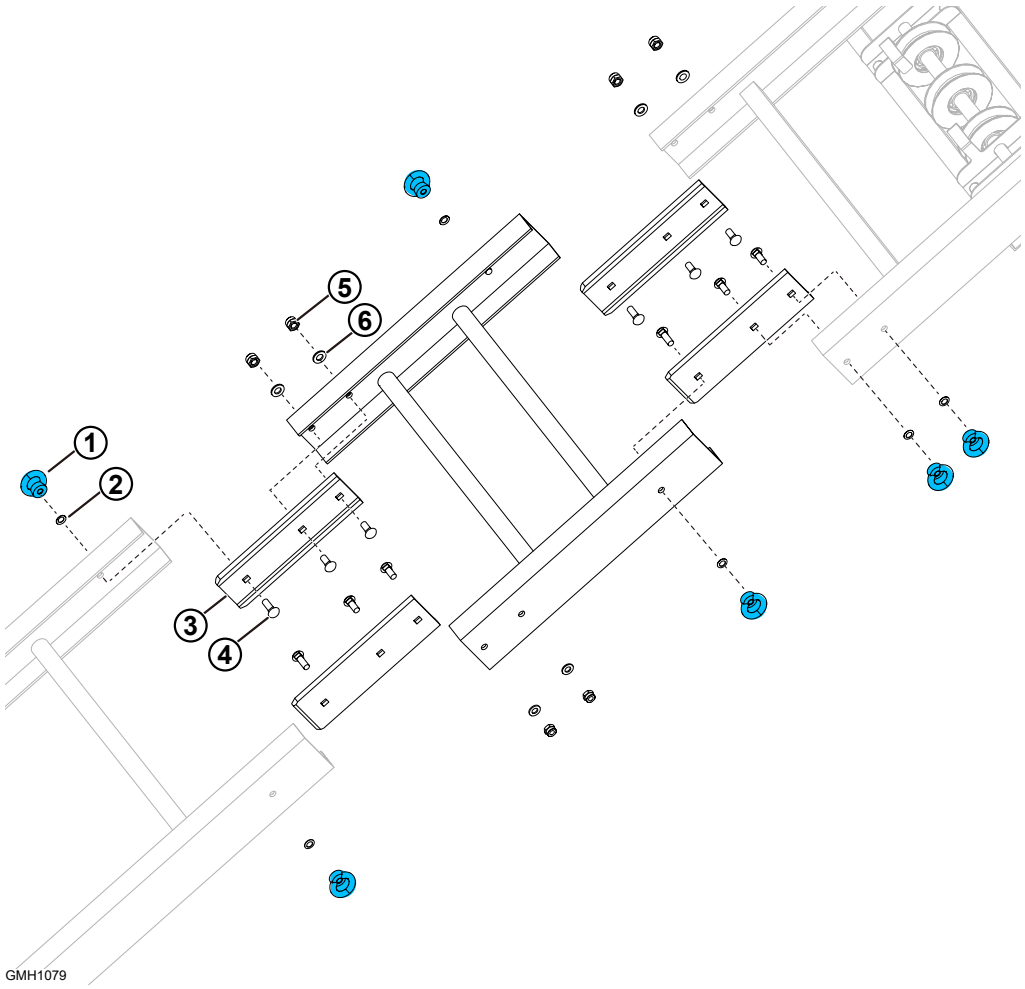
Figure 70 - Replacing Consumable Parts of the Knee Section

7.6.4. Position: Guide Rail

Replacement criteria:

Consumable parts	Replacement criteria
Cup head square neck bolt	Damaged.
Curved single coil spring lock washer	
Eye nut	

Replacement Illustration:



1. Eye nut M10
2. Curved single coil spring lock washer 10
3. Ladder connecting plate
4. Square neck bolt M10×30
5. Lock nut M10
6. Flat washer 10

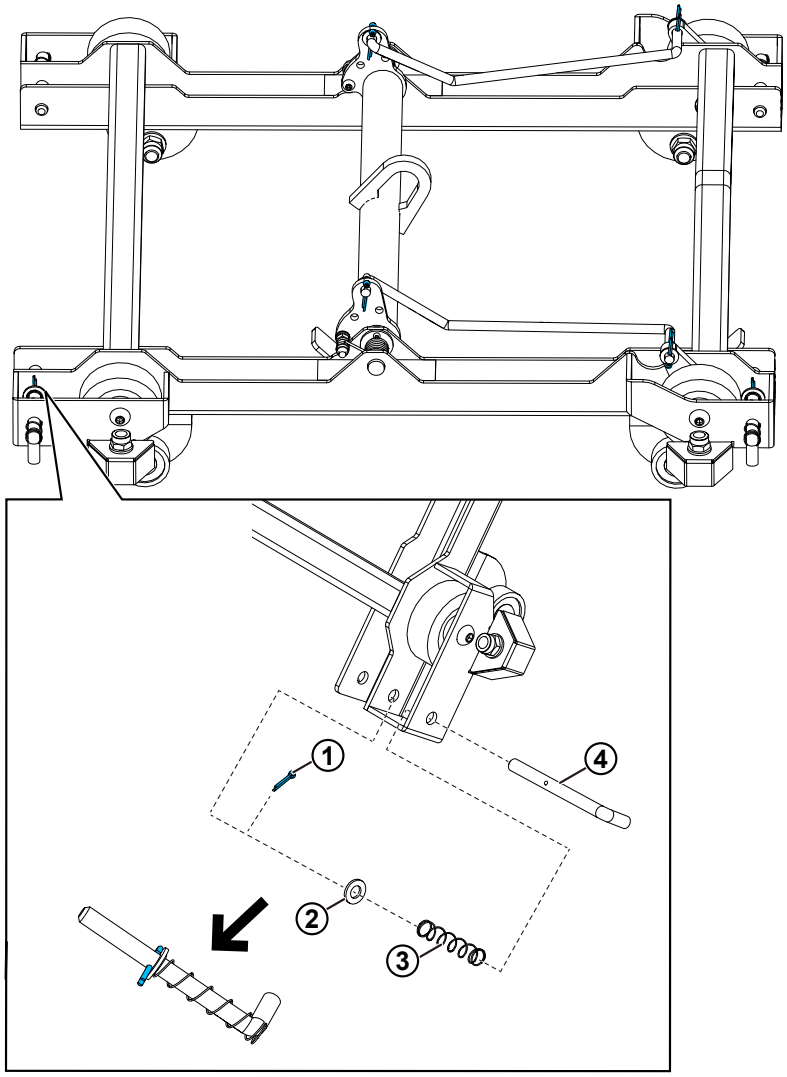
Figure 71 - Replacing Consumable Parts of the Guide Rail

7.6.5. Cotter Pin

Replacement criteria:

Replace the cotter pin if the cotter pin is missing or damaged, or has fallen off.

Replacement Illustration:



1. Cotter pin 3.2×20
2. Flat washer 10
3. Spring
4. Latch

GMH1080

Figure 72 - Replacing the Cotter Pin

7.6.6. Wire Rope Assembly

Replacement criteria:

Refer to7.3. Weekly Inspection *(p69)*.

Replacement Illustration:

1. Remove the old wire rope.
2. Installing the new wire rope. Refer to4.5.4. Installing the Wire Rope *(p50)*.

8. Disassembling

⚠WARNING

Could result in death or serious injury!

- Always wear Personal Protective Equipment.
- Ensure that all the parts and components are in good condition.
- Cut off the power!

The disassembling personnel of the material hoist shall read and understand all the contents of this manual. The requirements as described in 4. Installation Instruction *(p41)* also apply to the disassembling, and these requirements shall be strictly obeyed.

The disassembling procedure is in the reverse order against those of the installation instructions.

Place the disassembled parts neatly and properly. Avoid the disorder and piling up.

9. Order of Parts/Components

When ordering accessories, please provide the following information:

- Purchasing date
- Order No.
- Model
- Parameters of power supply
- Motor power
- Quantity required.

The preceding information can be checked on the equipment nameplate.

Please contact 3S LIFT for purchasing parts and components. The contact details for sales and after-sales service are as follows:

3S Europe GmbH

Erdmannstr. 10 22765 Hamburg, Germany

T: +49 40 32518887

Email: info@3SEurope.de

MH-Sales@3slift.com

Ficont Industry (Beijing) Technology Co., Ltd

11 Tongji South Road, Yizhuang Economic and Technological Development Zone, Beijing

T: +86 10 69597866

Email: info-china@3SLift.com

MH-Sales@3slift.com

10. Warranty

3S LIFT provides a 12-month warranty period. During the warranty period, 3S LIFT will repair or replace the parts damaged due to material or manufacturing defects under normal service conditions free of charge.

This warranty does not apply if the material hoist:

- has been damaged due to overload operation
- has been damaged due to improper operation
- has been altered without the authorization of 3S LIFT
- has been fitted with improper accessories
- has not been maintained properly or adequately.

Appendix A. 3S LIFT Material Hoist Operation Log

Equipment Administrator:			Production batch No.:	
S/N	**Operator**	**Operating time**	**Operating hour (h)**	**Accumulated operating time (h)**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

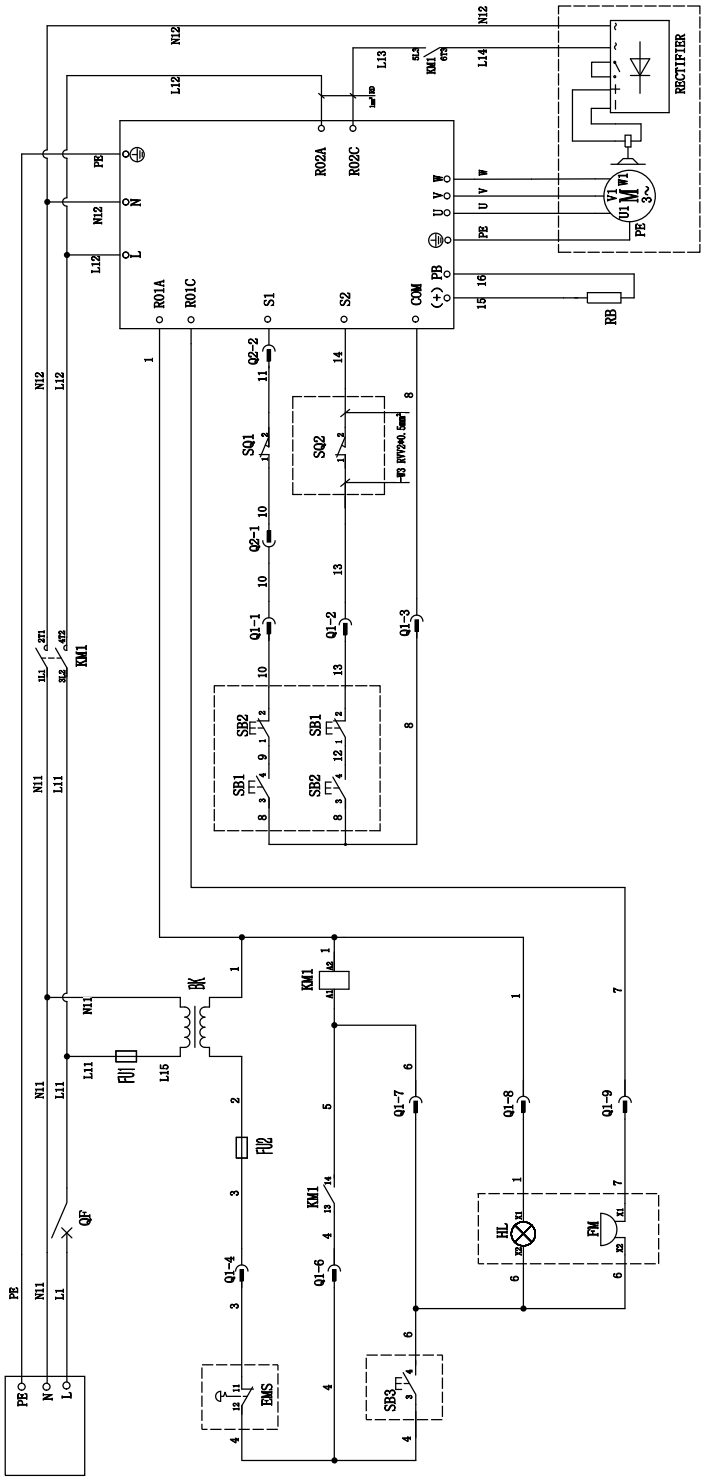
The equipment administrator shall fill in this log every time the material hoist is used. This table can be duplicated if needed.

Appendix B. Maintenance Service Log of Material Hoist

Customer		Product name	
Tel		Product model	
Address		Art. No.	
Purchasing date		Purchasing Qty.	
Repair record:			
Repaired by			
Date of repair			
Tel			

The maintenance personnel of the 3S LIFT material hoist shall fill in this log after maintenance. This table can be duplicated if needed.

Appendix C. Electrical Schematic Diagram



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SAFE I SIMPLE I SPECIALIZED