



Elevator Installation Manual

3300N & 3200
MRL Passenger Elevator

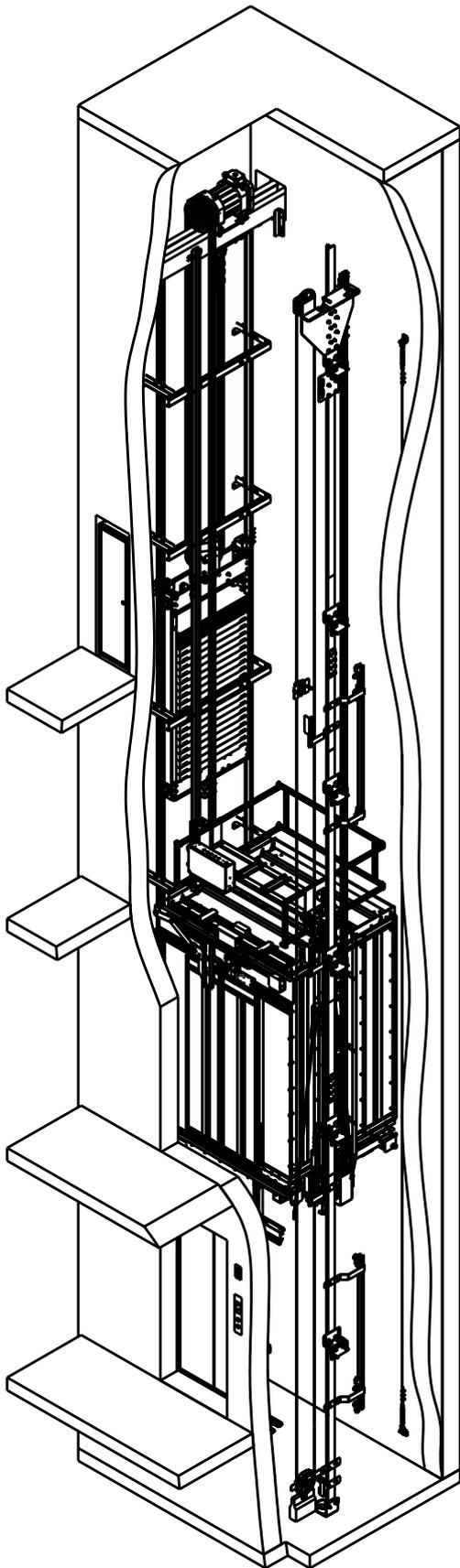
Joylive Elevator Co., Ltd.

www.joylive.com

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3300N&3200 MRL Passenger Elevator Fig

The document is provided to you only for purposes of installing Great 3300N&3200 MRL Passenger Elevator , capacity under 1150kg, speed max 1.75m/s.

The right of installation manual is reserved by Suzhou Great Elevator Co., Ltd.

New tips and techniques will be added as the technology improves, any content amended without prior notice.

PP0100

1 Safety

1.1 Safety Requirements

Description	Safety Equipment
safety shoe	
safety helmet	
protective glasses	
full-body safety belt	
protective gloves	

ATTENTION :

- Lighting on site must be adequate.
- Deal with damaged or lost safety equipment timely.
- All safety equipments must be available and used as required.
- Refer to operation instruction provided from supplier when using machines.

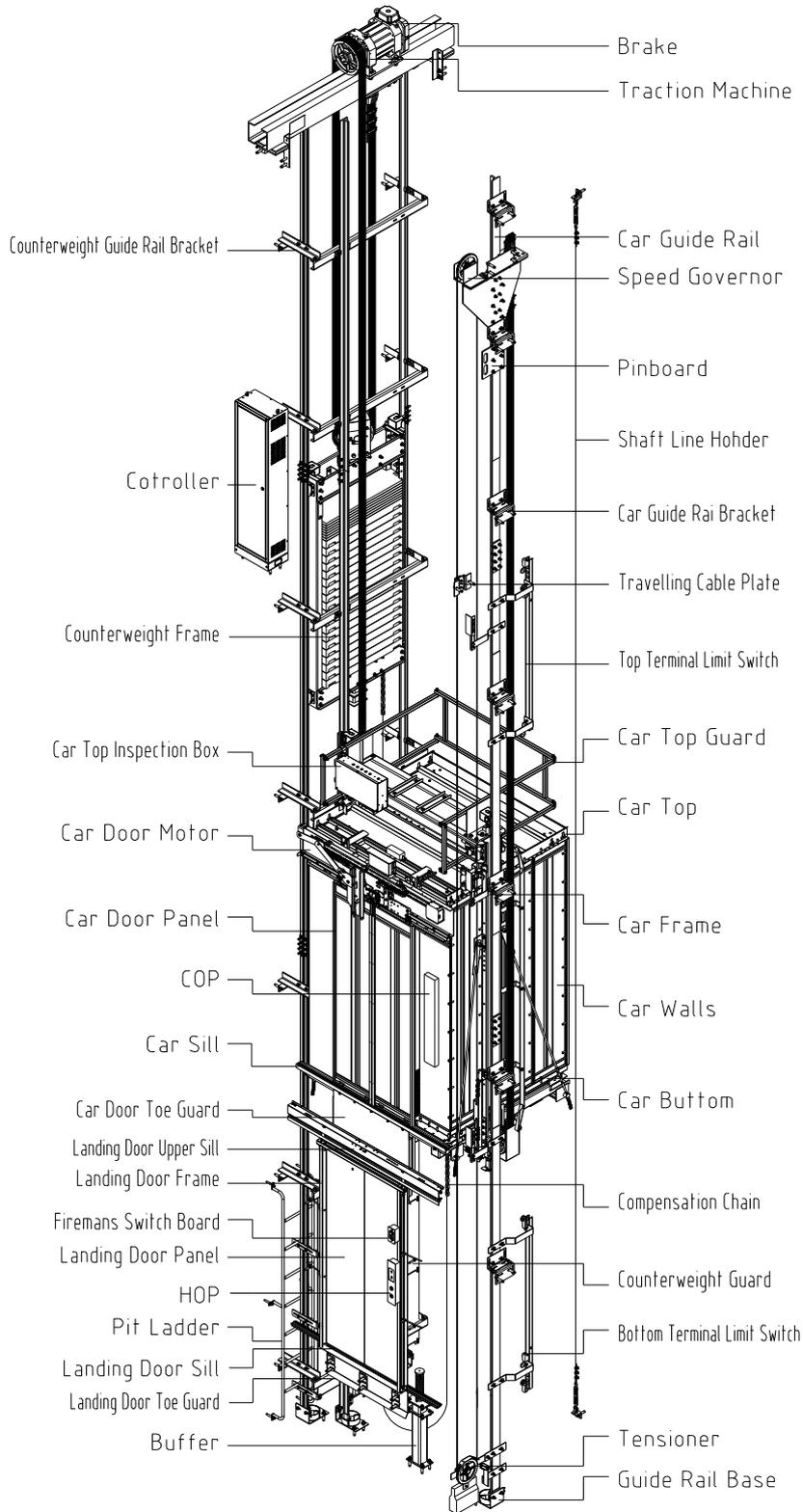
In addition to wear protective clothing, other safety equipments must be ready on site..

1.2 Signs

	Danger
	This is to warn about serious safety hazards.
	Warning
	This is to warn about damage to equipment which may also involve a safety hazard.
	Warning
	Attention ESD.
	Attention
	Special or additional information.

2 Prerequisite

2.1 Production general



MRL Passenger Elevator 3200 Fig

PP0200

2.2 Installation instructions

Scaffold provided

Construction Inspection	<ul style="list-style-type: none"> • shaft/pit • machine room
Scaffold	<ul style="list-style-type: none"> • installing scaffold • check scaffold
Shaft	<ul style="list-style-type: none"> • shaft line • check line
Guide	<ul style="list-style-type: none"> • installing guide rail bracket • installing guide rail • check
Landing Door Entrance	<ul style="list-style-type: none"> • installing landing door • check landing door
Machine Room	<ul style="list-style-type: none"> • installing bracket • installing car&counterweight wirerope suspension • installing speed governor • installing traction • check traction • installing controller&inverter
Counterweight	<ul style="list-style-type: none"> • installing counterweight
Car Frame	<ul style="list-style-type: none"> • installing frame • installing safety gear • installing guide shoe
Wirerope	<ul style="list-style-type: none"> • installing wirerope • installing speed governor wirerope
Car	<ul style="list-style-type: none"> • installing car • installing car door & door machine
Electrical Installation	<ul style="list-style-type: none"> • installing shaft connecting line • safety circuit • installing travelling cable
Scaffold	<ul style="list-style-type: none"> • remove scaffold
Pit	<ul style="list-style-type: none"> • installing buffer
Operation	—
Shaft	<ul style="list-style-type: none"> • installing compensation chain • installing shaft • landing floor final adjustment
Car installed	—
Final Debugging	—
Inspection	—

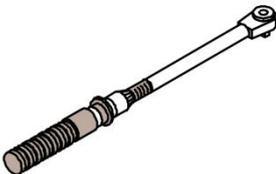
No Scaffold

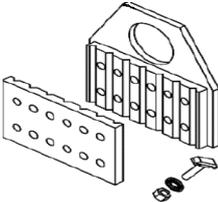
Construction Inspection	<ul style="list-style-type: none"> • shaft/pit • machine room
Shaft	<ul style="list-style-type: none"> • installing scaffold • check scaffold
Safe working platform	<ul style="list-style-type: none"> • installing temporary safe working platform on top • fixing temporary car wirerope
Scaffold	<ul style="list-style-type: none"> • erecting scaffold in pit
Guide	<ul style="list-style-type: none"> • installing 3 car length size guide rail and bracket • installing 3 guide rails on each side
Temporary Car	<ul style="list-style-type: none"> • installing temporary car • connecting and test
Guide	<ul style="list-style-type: none"> • installing remainder car&counterweight guide rail • check
Landing Door Entrance	<ul style="list-style-type: none"> • installing landing door • check landing door
Machine Room	<ul style="list-style-type: none"> • installing bracket • installing car&counterweight wirerope suspension • installing speed governor • installing traction • check traction • installing controller&inverter
Counterweight	<ul style="list-style-type: none"> • installing counterweight
Car Frame	<ul style="list-style-type: none"> • installing frame • installing safety gear • installing guide shoe
Wirerope	<ul style="list-style-type: none"> • installing wirerope • installing speed governor wirerope
Temporary Car	<ul style="list-style-type: none"> • remove temporary car
Car	<ul style="list-style-type: none"> • installing car • installing car door & door machine
Electrical Installation	<ul style="list-style-type: none"> • installing shaft connecting line • safety circuit • installing travelling cable
Scaffold	<ul style="list-style-type: none"> • remove pit scaffold
Pit	<ul style="list-style-type: none"> • installing buffer
Operation	
Shaft	<ul style="list-style-type: none"> • installing compensation chain • installing shaft • landing door final adjustment
Car installed	—
Final Debugging	—
Inspection	—

2.3 Tools

Hand Tools			
SN	Tool	Figure	Description
1	Tape		5m
2	Steel Rule		300mm
3	Steel Square		15~30mm
4	Clearance Gauge		15mm
5	Spanner		7,10,13,17,19,24,30 mm
6	Adjustable Wrench		12 feet
7	Ratchet Wrench		10-13mm 17-19mm 24-30mm
8	Hexagon Wrench		1 set
9	Cross Screwdriver		1 set

10	Hammer		
11	Wire Stripper		
12	Sharp-nose Pliers		
13	Clasp Forceps		
14	Plier		
15	Levelling Instrument		0.5/1000mm
16	Auxiliary Plier		
17	Multimeter		
18	Measure Water Hammer		

Installation Tools			
NO	Tool	Figure	Description
1	Try Square		500~1000mm
2	Percussion Drilling		Ancillary bit 1 set
3	Drilling Machine		Ancillary bit 1 set
4	Welding Machine		7.5kw
5	Crimping Pliers		1.25~8 SQ
6	Adjustable Wrench		15 feet
7	Manual Sander		
8	Cable Cutter		
9	File		To smooth protruding part of the guide rail connection head
10	Torque Wrench		For hexagon bolt

Lifting Tools			
NO	Tool	Figure	Description
1	Crane		≥ 500 Kg
2	Chain Block		1 ton
3	Hook		
4	Rope Cramp		Diameter 10mm
5	Shackle		
6	Sheave Hook		
7	Trolley		Capacity 500 Kg
8	Lifting Rope		
9	Wire Rope Tools		For hoisting wire rope,

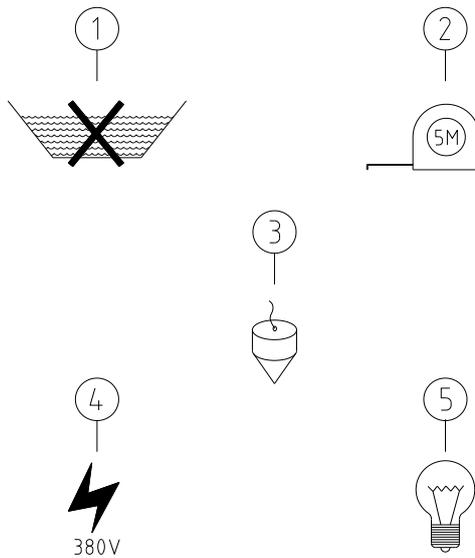
3 Preparations on site

It is very important to organize site conference aimed at clarifying relevant information before installation.



PP0300

Do not wire in shaft in case the size changes.



PP0301

site investigation

- 1 Dry and safe
- 2 Correct size
- 3 Location confirmed
- 4 power of tools ready
- 5 Light

ATTENTION



Clean and dry site is absolutely necessary condition to provide users with a high quality elevator installation on time .

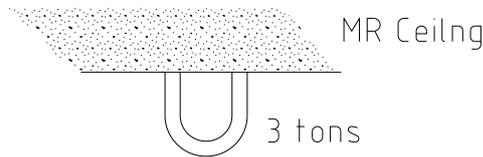
Main Inspection Item:

Prophase
Inspection

SN.	Steps	
0300	Contract has been signed between Great and Constructer.	Yes/No
0301	Two parties have discussed project and known each requirements.	Yes/No
0302	Great should provide construction layout drawing to Constructer.	Yes/No
0303	The sites shall be divided for storage and other related action by constructer.	Yes/No
0304	Put Great or Constructer Logo in storage space	Yes/No
0305	Keep the warehouse clean and dry.	Yes/No
0306	Enough power must be supplied.	Yes/No
0307	Power box controllor in machin room. (three-phase 380V)	Yes/No
0308	Hook on the top of machine room.	Yes/No

ATTENTION

Machine room should be included vent , enough lighting and door accessing.
Capacity of the hook (3 tons).



PP0302

Machine room hook fig

Shaft inspection :

0309	Shaft is clean.	Yes/No
0310	Constructer or Great install scaffold.	Yes/No
0311	Pit is clean and dry.	Yes/No
0312	Pid depth	Yes/No
0313	Keep Landing door entrance clean and dry.	Yes/No
0314	Landing door openning height.	Yes/No
0315	Shaft lighting shall be provided.	Yes/No
0316	Correct lifting point.	Yes/No
0317	Shaft depth and width.	Yes/No
0318	Data line and C/I line shall be provided.	Yes/No
0319	Keep shaft landing door entrance clean.	Yes/No
0320	No other projections in shaft.	Yes/No
0321	Space size	Yes/No
0322	Stop as demanded function shall be proviede.	Yes/No

0323	Landing door opening width.	Yes/No
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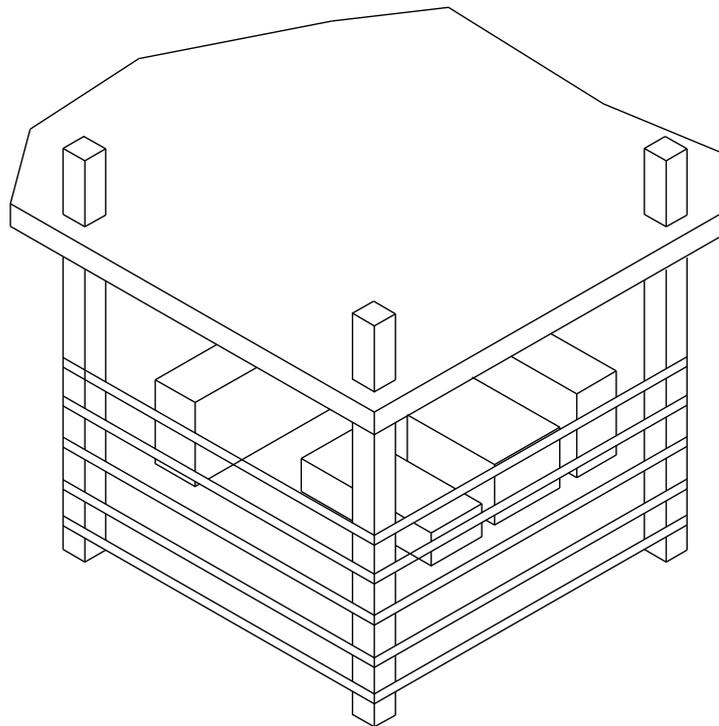


ATTENTION

Construction size should be referred to drawing .

Elevator parts regulation

0324	The number of total packing boxes and the packing list must be consistent.
0325	Check for external damage, If there is any stockout or obvious damage, please complain to Quality Control Department immediately.
0326	Check every part if is arrived.
0327	Elevator wooden box should store in safe area.



PP0303

Storage

Wooden cases and parts storage area

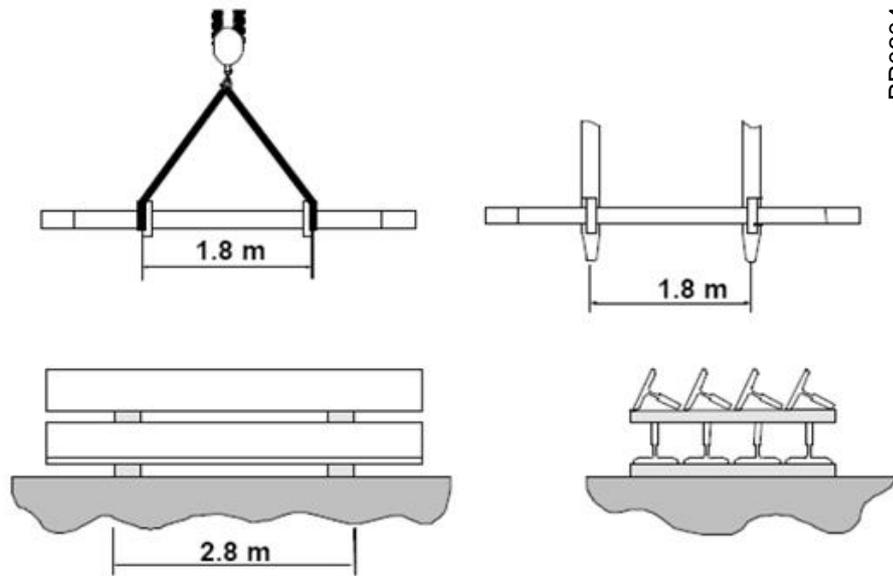
Keep storage area clean and dry, precautionary measures as following :

- No combustible material nearby.
- Avoid any behavior of flammable possibilities,
- lifting packing cases to iron plate if the site is in water condition
- keep drainage unblocked.
- No heavy traffic.
- Falling rubble protection.
- Canvas or plastic film wrapped.
- Security guards arrangement..
- Light box always be on top.

ATTENTION



Guide rail transportation and storage shall be according to the figs as below, transferred by forklift or crane.



PP0304

guide rail handling and storage fig



WARNING

- Not allowed put anything on guide rail package.
- Never store the elevator in an open area outside.

Store area

0328	Preplanning the packing cases stocked space, once starting installation, it comes to be convenient to take out each case in sequence.
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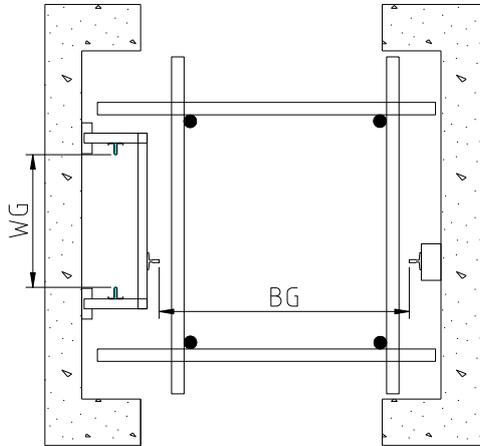
WARNING

- Be careful when dealing with any part of elevator. Do not pull any part with mechanical means especially guide rails, tranfering heavy parts shall use proper mechanical tools.
- Need to approve from constructor when transferring heavy parts through concrete pavement in order to ensure safe passing .
- According to the safety principle, construction shall not be supervised by inexperienced worker. NOTE! Installation work must only be carried out by competent and qualified personee.
- Only use special rally equipment to lift elevator parts.

Scaffold regulation

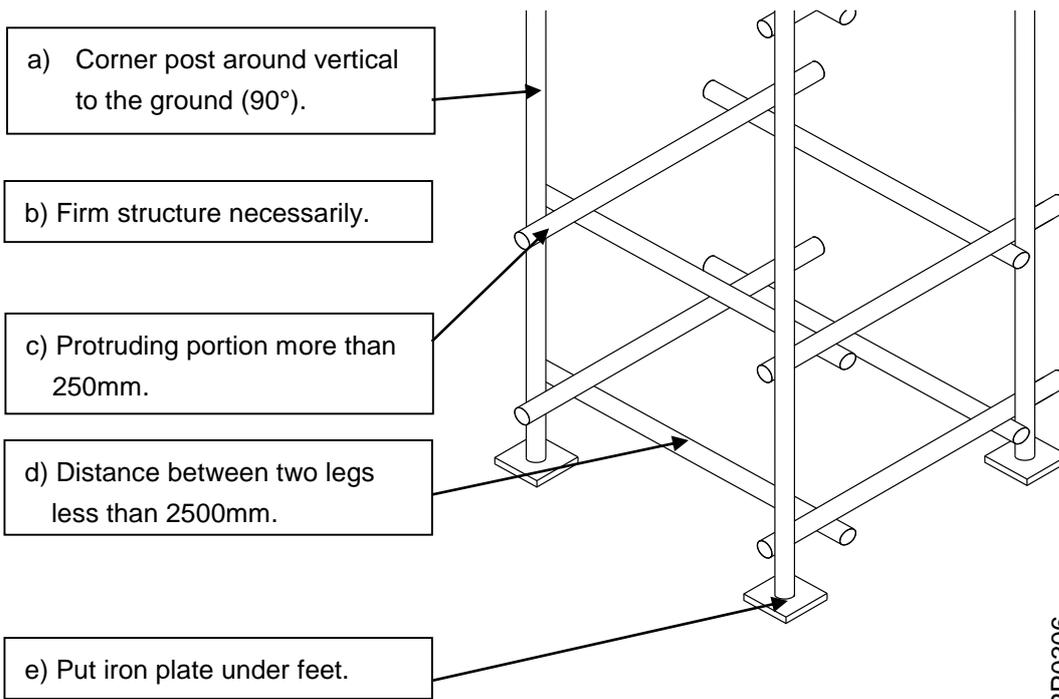
0329	Check the shaft must be cleaned..
0330	Confirm the scaffold location.
0331	Fix wood block on pit .
0332	Assemble scaffold frame.

0333 Refer to the safe regulations.



PP0305

Scaffold vertical fig

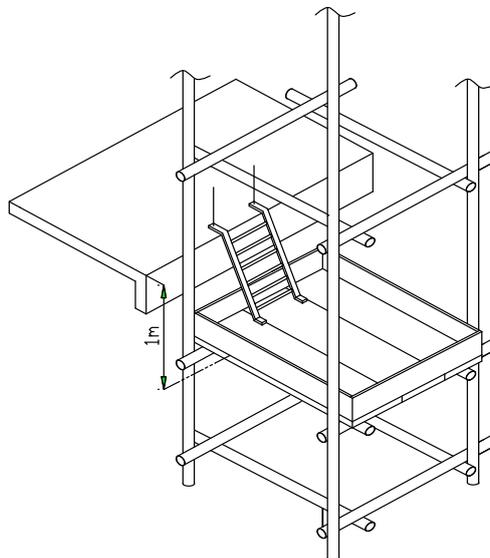
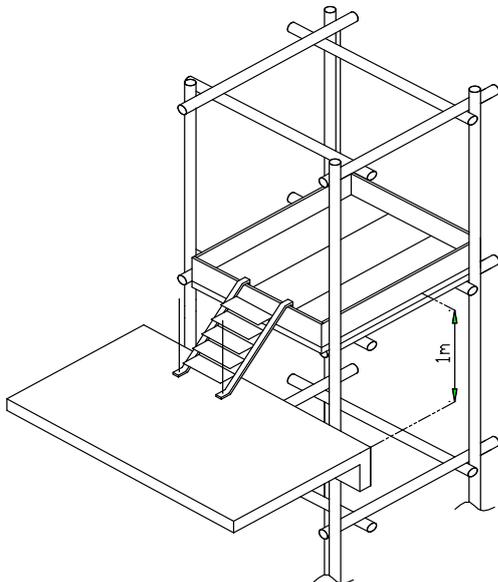
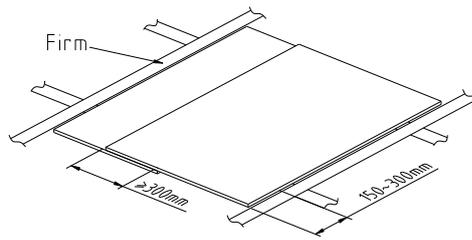
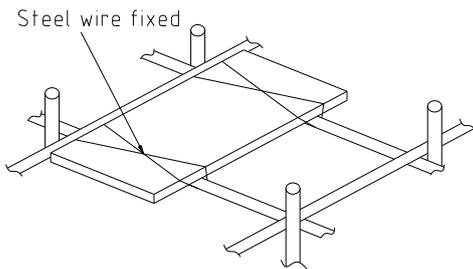
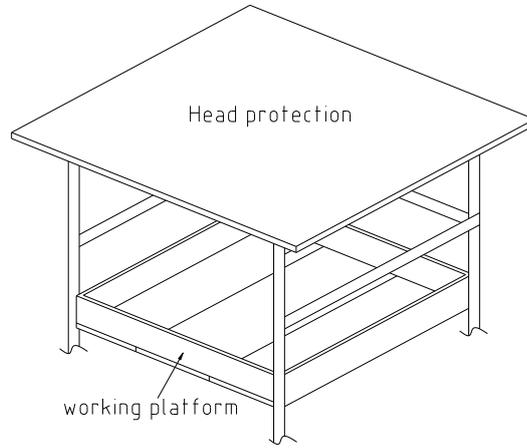
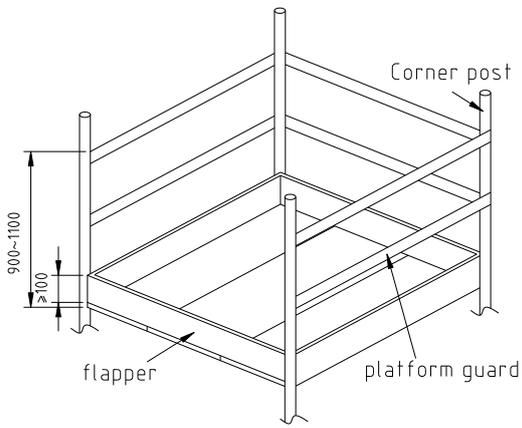


PP0306

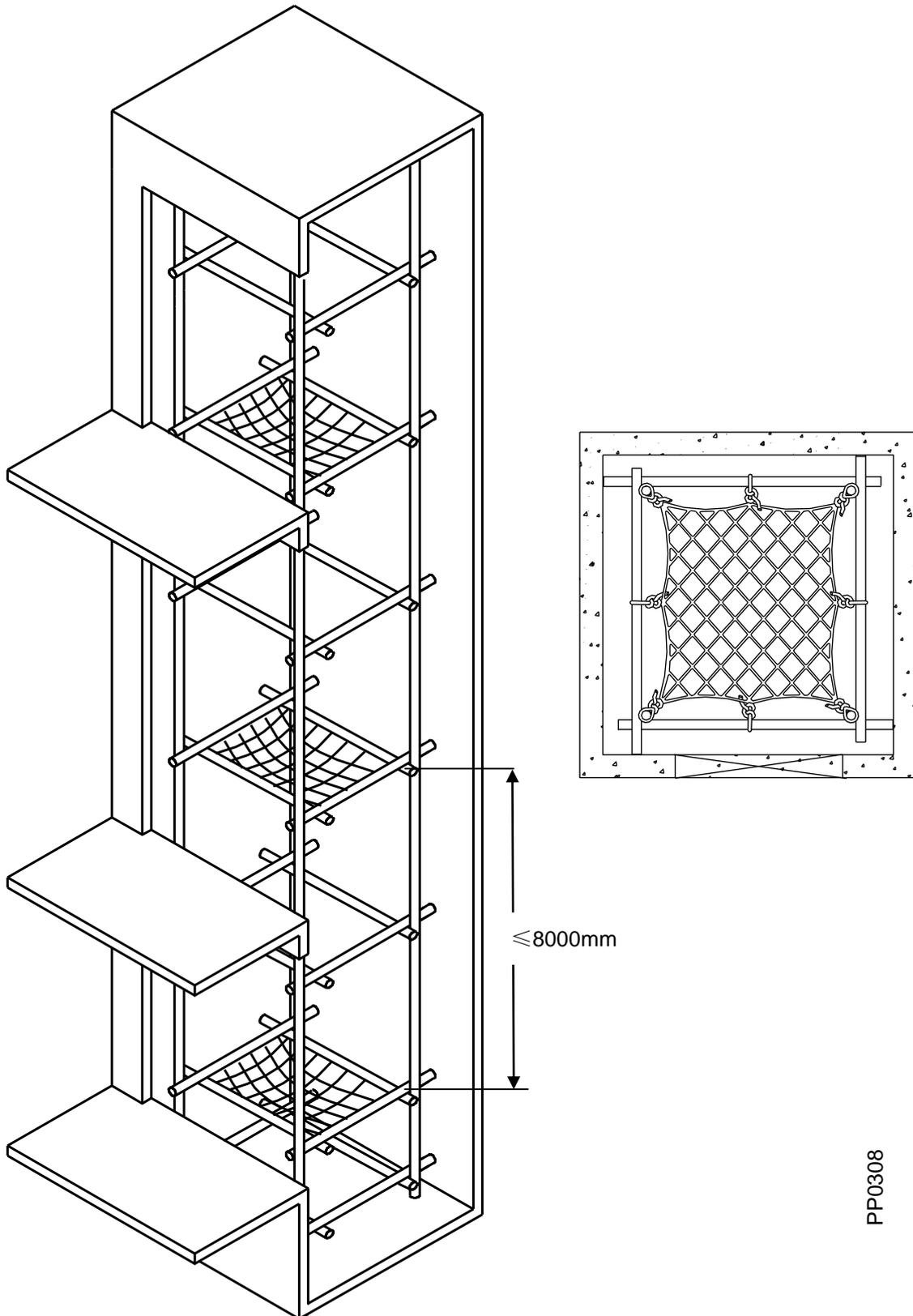
Scaffolding fig

Working platform	0334	Working platform should be as close to shaft walls.
	0335	Skirting board height should be higher than 100mm.
	0336	If has platform guard , should be between 900mm to 1100mm, be in the middle.
	0337	If had no platform guard, should provide safety nets for protection which is less than 8000mm between them.
	0338	Overlaps parts more than 300mm, wood head shall be more 150mm~300mm than supporting pipe.

0339 The distance between working platform and floor shall be less 1000mm. Head protection is necessary.

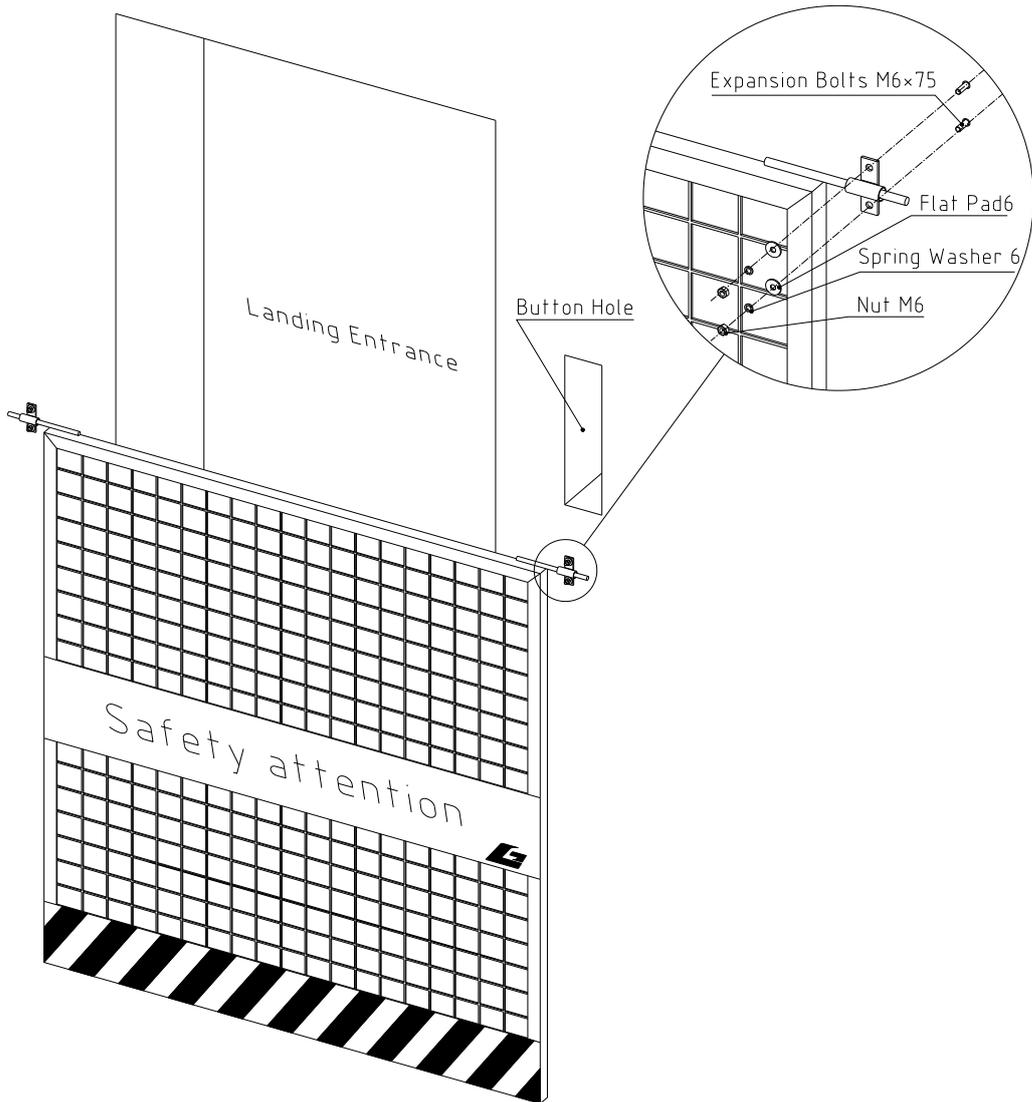


Working platform installation fig



Shaft safety net fig

Landing door protection and safety	0340	Guard bar around landing door opening shall be height than 1100mm.
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PP0309

Landing guard installation fig



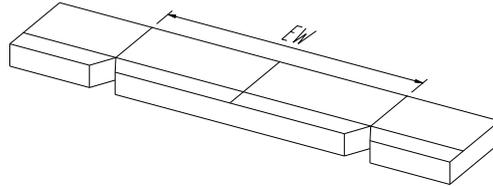
ATTENTION

Please do high safety protection in case of any incident.

Template manufacture and fixation

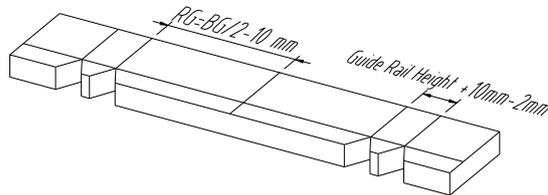
0341	Making car and counterweight template refers to the distance between guide rails in construction drawing.
0342	Shaft ceiling downward 1m, pit ground upward 1m, mark around walls.
0343	Check that the templates are all fixed solidly.

Car door width template

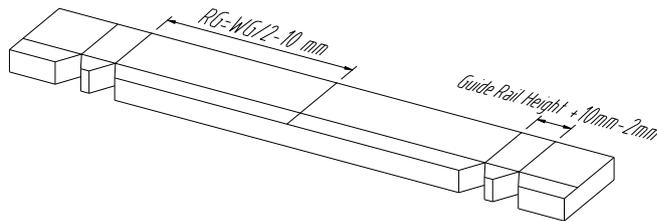


PP0310

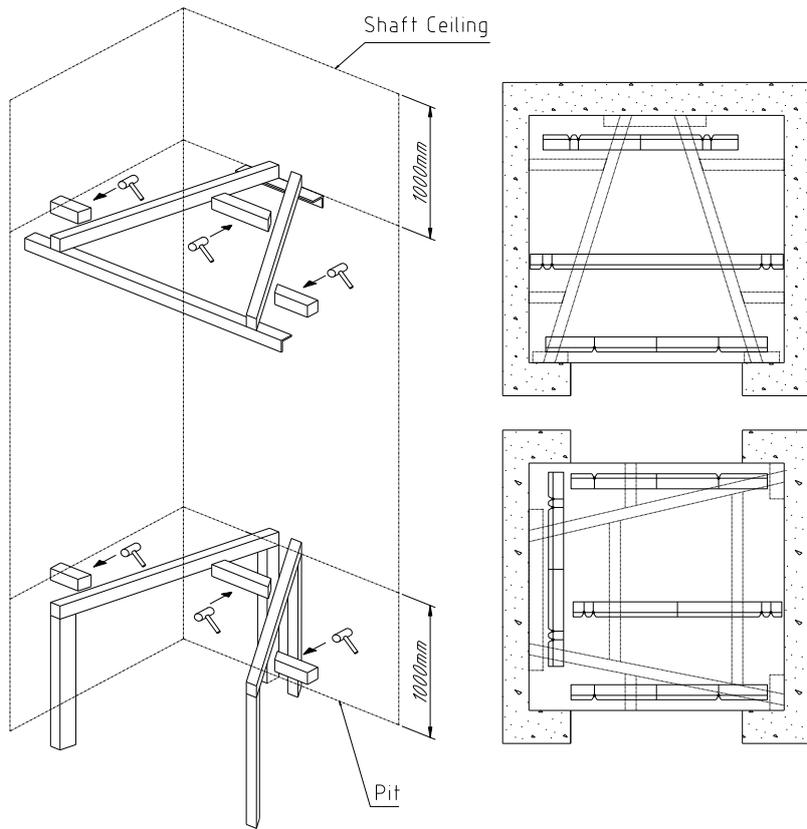
Weight guide rail width template



Car guide rail width template



Template manufacture fig



PP0311

Template fixation fig

4 Installation of guide rail

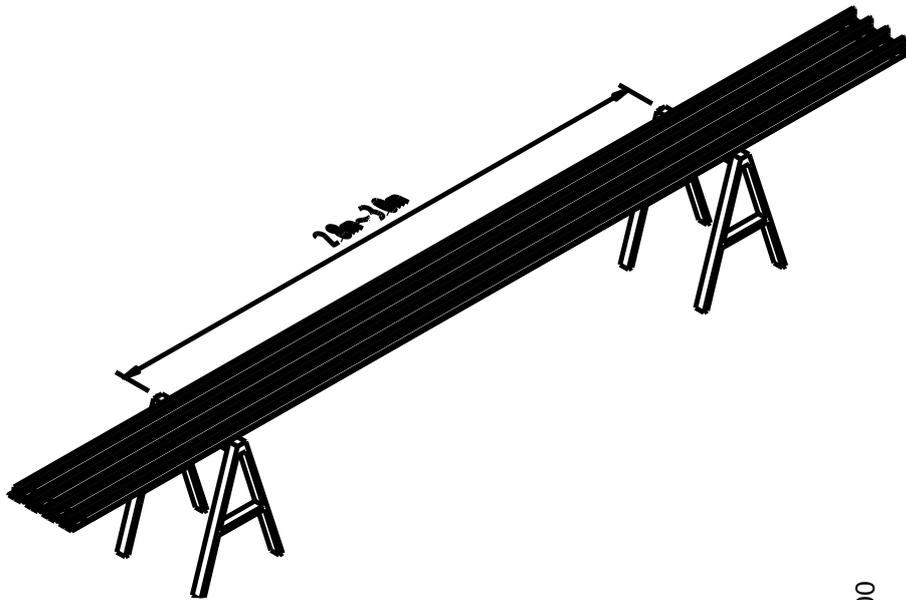
4.1 Preparation

Abstract Installing bracket before guide rail.

Guide rail inspection

SN	Steps
0400	Confirm if any part broken .
0401	Clean rail surface especially somewhere seriously rusted.

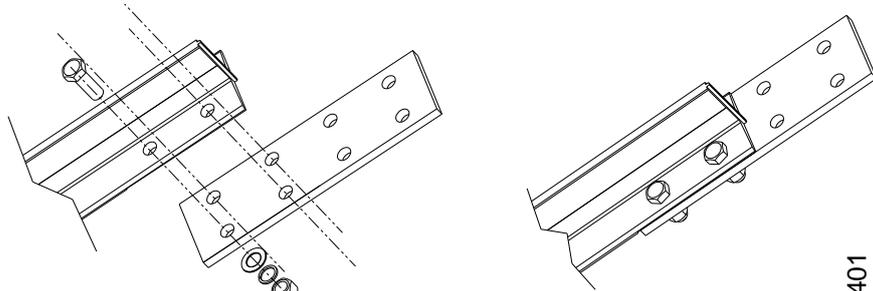
Clean guide rail



cleaning guide rails fig

PP0400

0402	HLP68 oil for protecting surface,put rails in the pit. .
0403	Fix connecting plate and tighten the bolts.



Guide plate fixation fig

PP0401

ATTENTION



- Use plastic or wooden file to clear corrosion protection one rails surface.
- Use suitable cleaner to clean rails.
- Use HIP68 oil to prevent corrosion.

4.2 Installation of guide rail bracket

WARNING



Refer to the construction drawing.

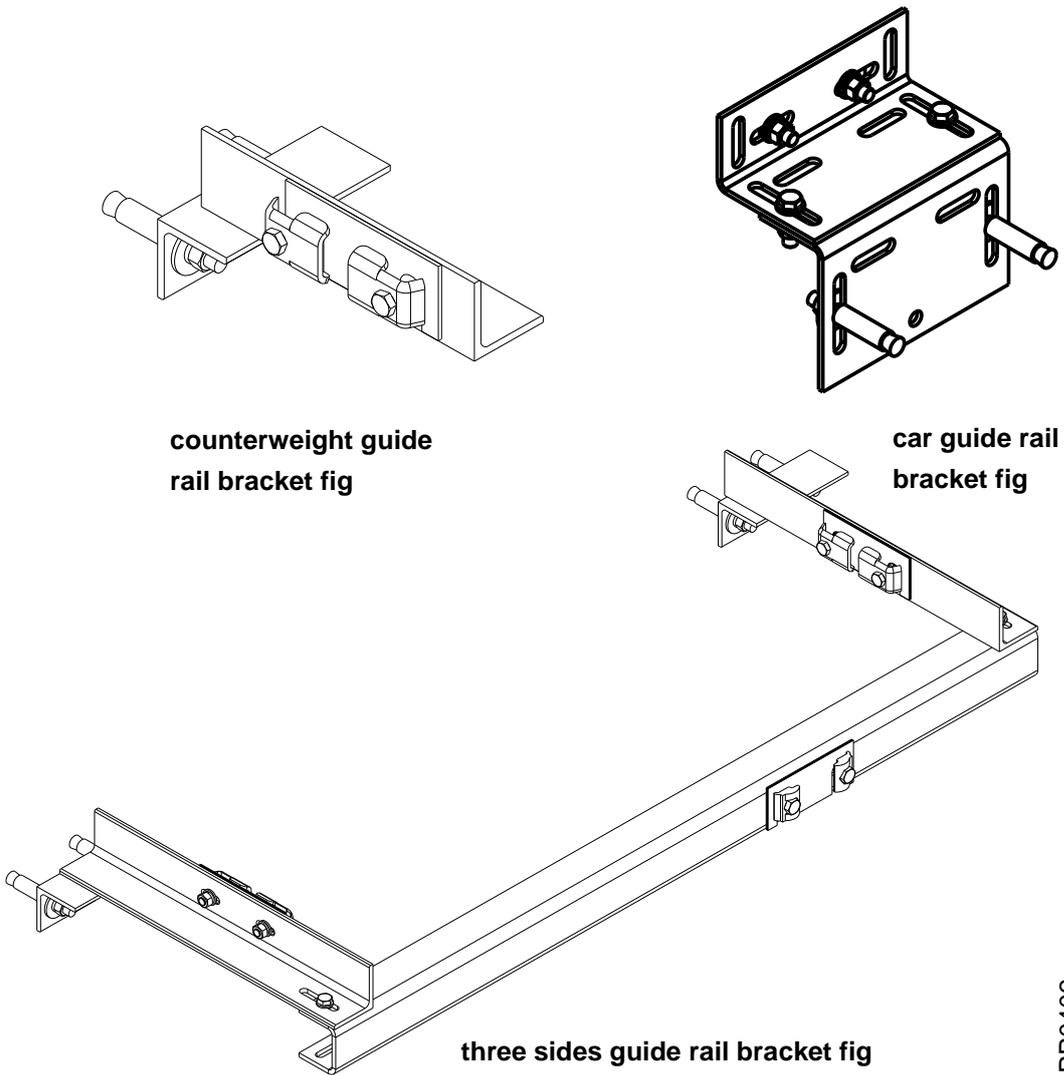
Guide rail bracket fixation and

SN	Steps
0404	Fix all guide rail brackets referring to construction drawing.

ATTENTION

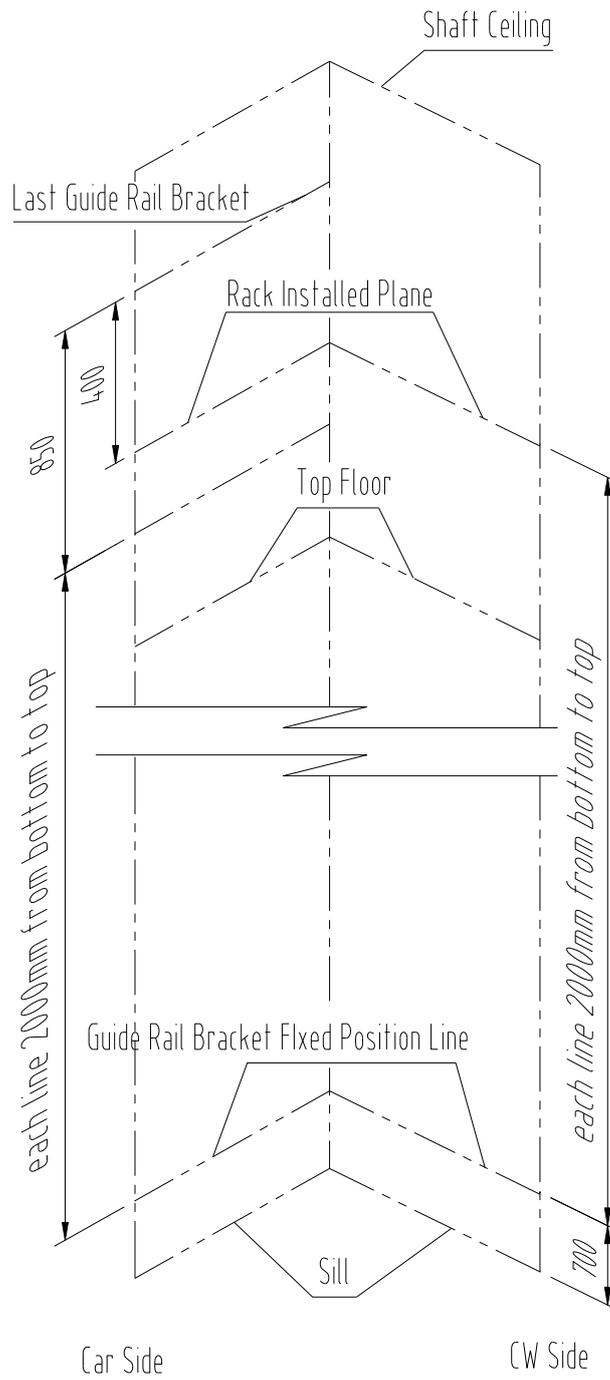


The final position of guide rail bracket depends on the position of plate line .

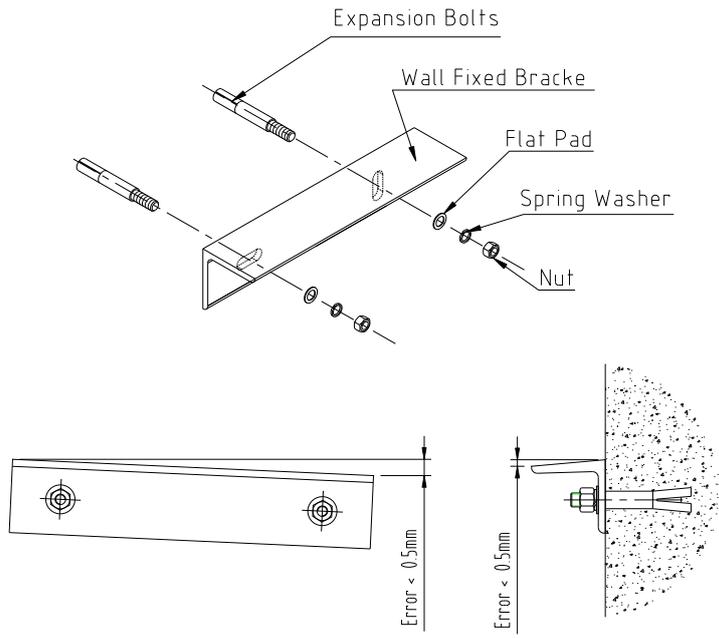


**Guide rail
bracket
fixation**

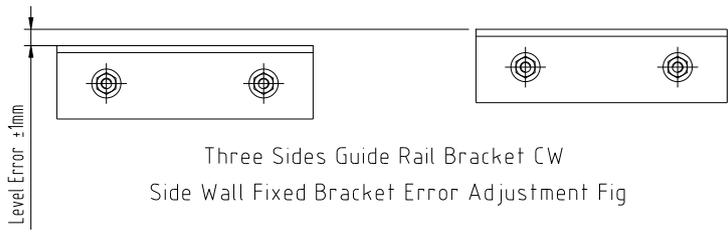
0405	Refer to the contract or construction drawing.
0406	Making mark for bracket fixing position from bottom of the shaft, drilling hole on shaft walls for bracket, one piece placed on 500mm from shaft top, aother piece placed on 700mm from shaft bottom. Any discrepancy must be refer to the construction drawing.
0407	Use expansion bolts, spring washer, plain washer and nuts to fix brackets on shaft walls.
0408	Check and adjust each bracket in vertical or on level .
0409	Tighten all nuts of expansion bolts.
0410	Repeat installing procedure to fix bracket on each wall side.
0411	Fix the guide rails on bracket, leaving 2~3mm between guide rail backand guide rail fixed bracket mounting face.
0412	Welding bracket firmly.
0413	Repeat installing procedure.



Guide rail bracket layout fig



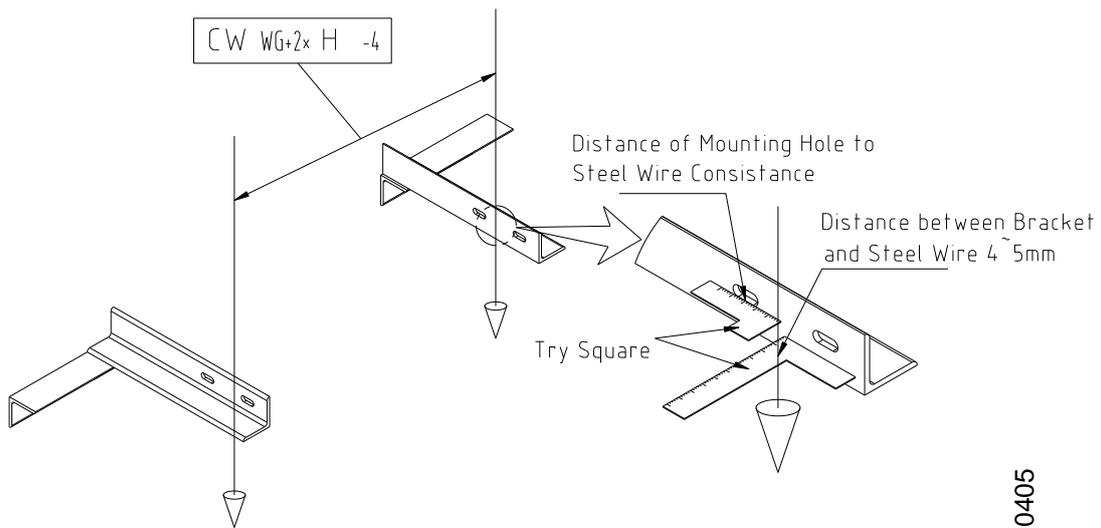
Wall Fixed Bracket Error Adjustment Fig



Three Sides Guide Rail Bracket CW
Side Wall Fixed Bracket Error Adjustment Fig

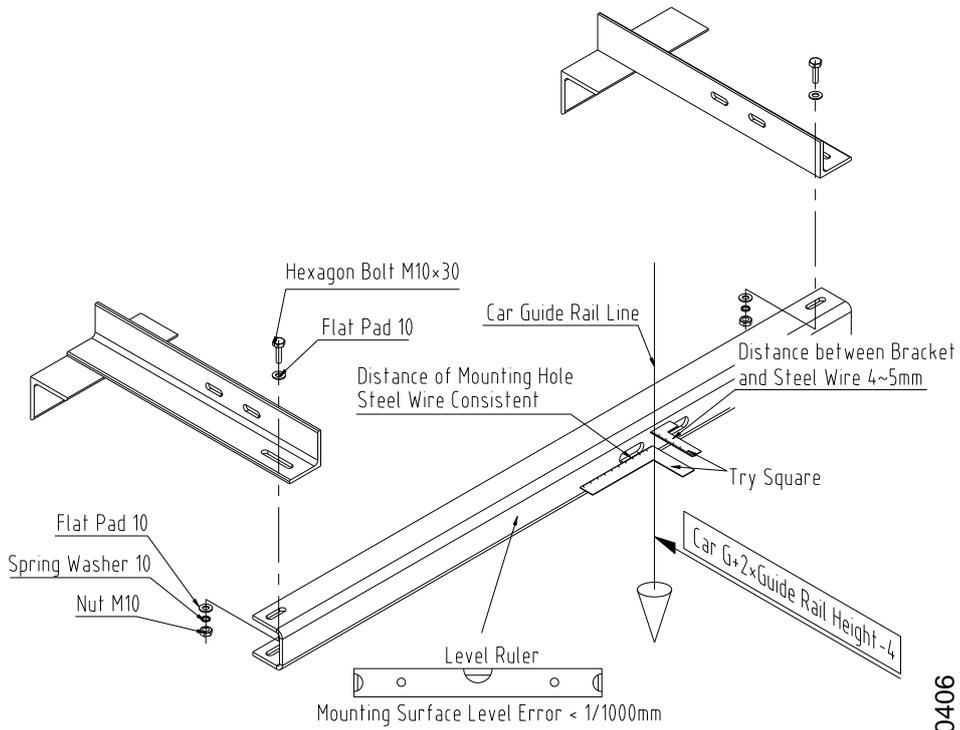
PP0404

Wall fixed bracket adjustment fig



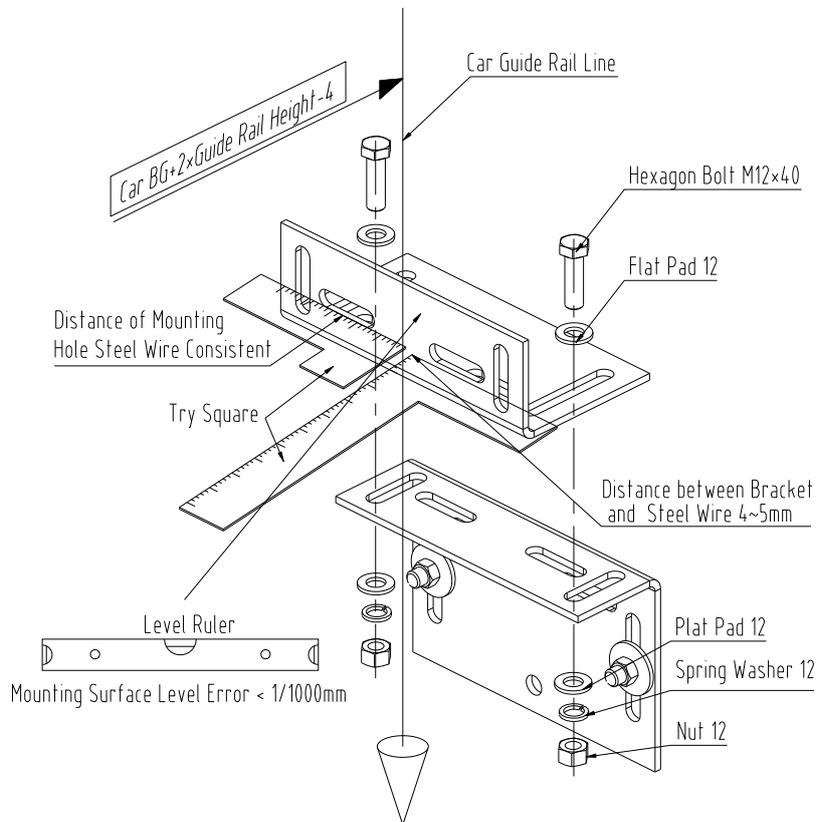
counterweight guide rail bracket fixation fig

PP0405



PP0406

Three sides guide rail bracket installation fig



PP0407

Car guide rail bracket fixation installation fig

4.3 Installation of guide rail

Abstract

This section contains guide rail position and installation, oil protection on rail surface and keeping dry condition at site before installation .



WARNING

Remove film on guide rail surface if it is for rust protection in transit.

SN	Steps
0423	Prepare lifting tools, pulley, rope head and lifting rope.
0424	Transfer each rail close to shaft.



WARNING

Handle with care.

0425	Lift each rail and fix in position on rail bracket.
0426	Fix guide rails and connecting plates with fasteners.

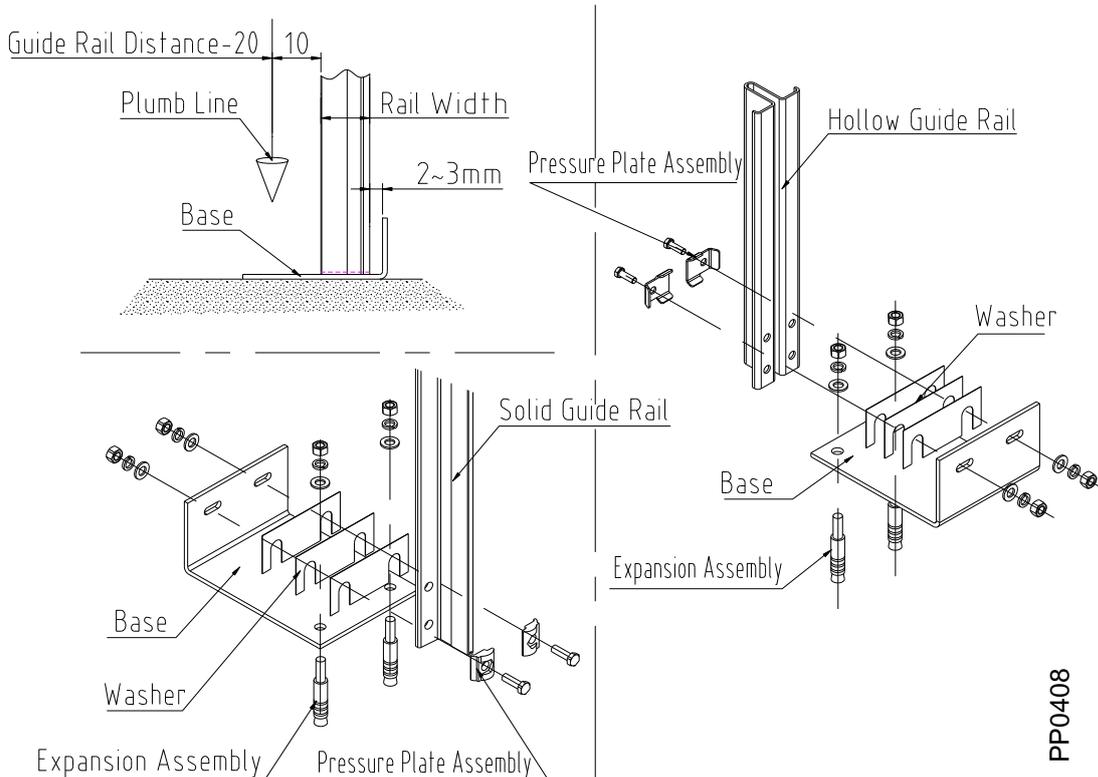


WARNING

Ensure that the guide rails end face and connecting plates are clean thoroughly.

Fisrt Guide Rail Installation and Others

0427	Fix the guide rail base on the pit in position with expansion bolts , fasten tightly and keep it smooth.
0428	Fix the connecting plate of the first guide rail with fasteners .
0429	Inset the second guide rail from keyway head face in the first one which is installed already.

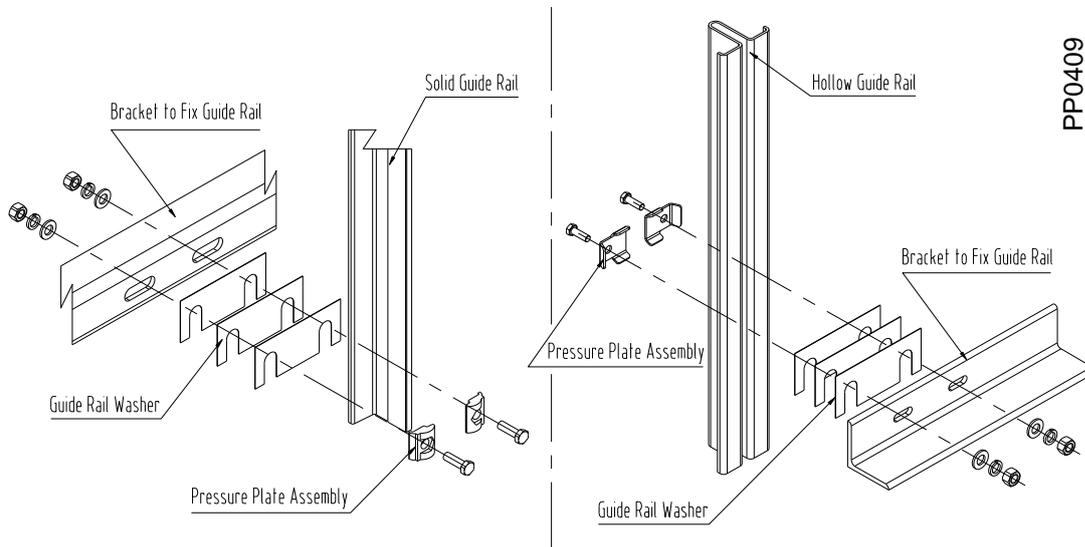


PP0408

Guide rail base fixation fig

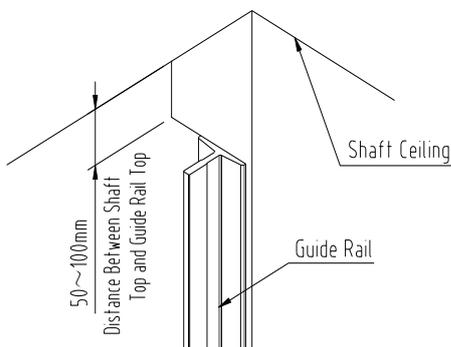
Final Guide Rail Installation and Adjustment

0430	Guide rail in correct position.
0431	Fix guide rail connecting plate with four bolts, nuts and washer.
0432	Repeat the same way to next..
0433	Fix the last guide rail connecting plate with four bolts, nuts and washer.
0434	Fix guide rails on the brackets.
0435	Adjuet guide rail level and verticality.
0436	Locate the guide rail correct position arrording to the distance between templet line and guide rails.
0437	Check the cart guide rails BG size arrordig to its correct position.
0438	Check the counterweight guide rails WG size arrordig to its correct position.
0439	Tighten all bolts and pressure plates.



PP0409

Middle guide rail fixation fig



ATTENTION:

1. Two brackets fix one guide rail.
2. Cut with professional equipment if the length of top guide rail is not in standard.

Distance of top guide rail and ceiling fig

PP0410

4.4 Connection plate correction

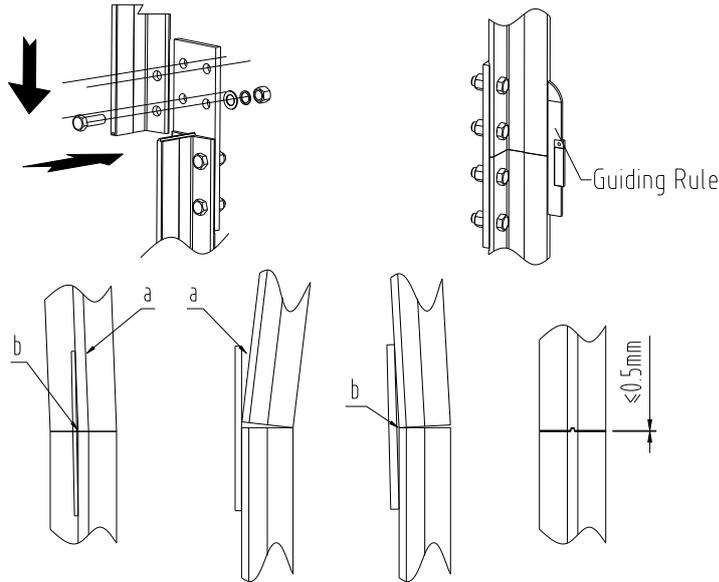
Use special file to smooth each guide rail joint .

WARNING



Maximum permissible error is 0.2mm per 2m.

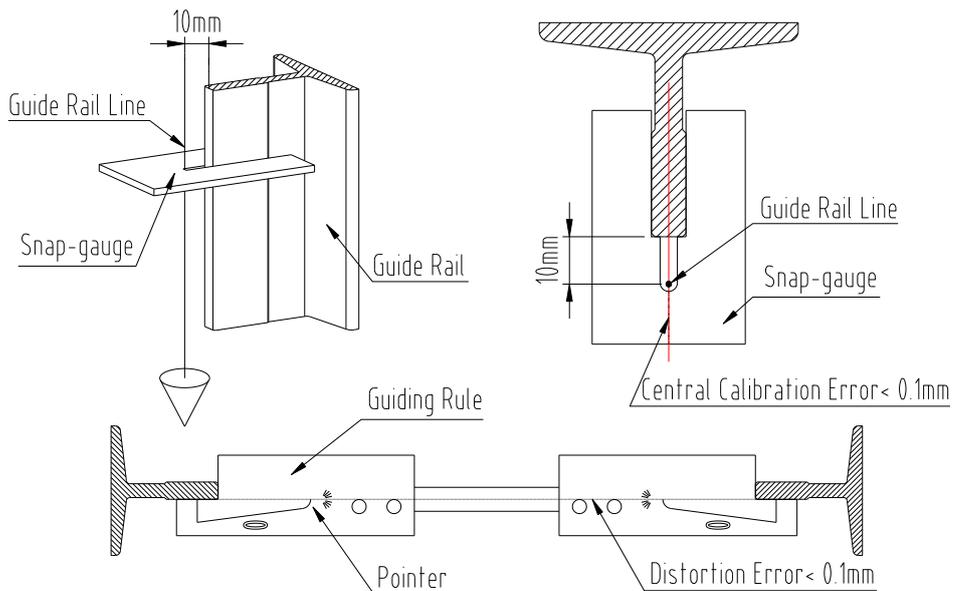
SN	Steps
0440	Check guide rail installation size in whole shaft.
0441	Check bolted connection.
0442	Smooth guide rail joints by special file.



PP0411

distance between a and b $\leq 0.1\text{mm}$

guide rail match fig



Guide rail adjustment fig

PP0412

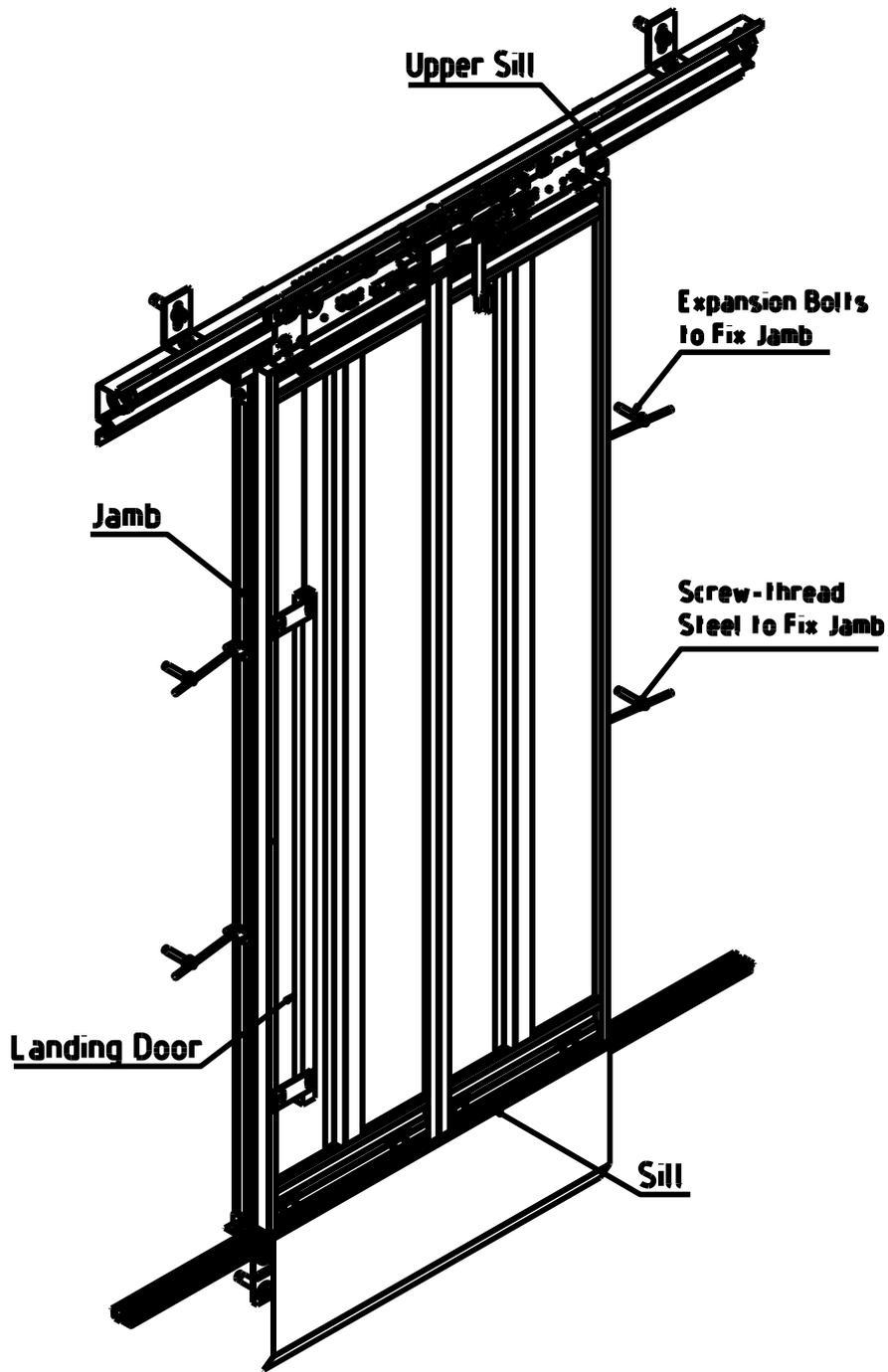


WARNING

Counterweight guide rail shall be adjusted correctly in accordance with car guide rail
In order to meet the quality requirements.

5 Installation of landing door

PP0500

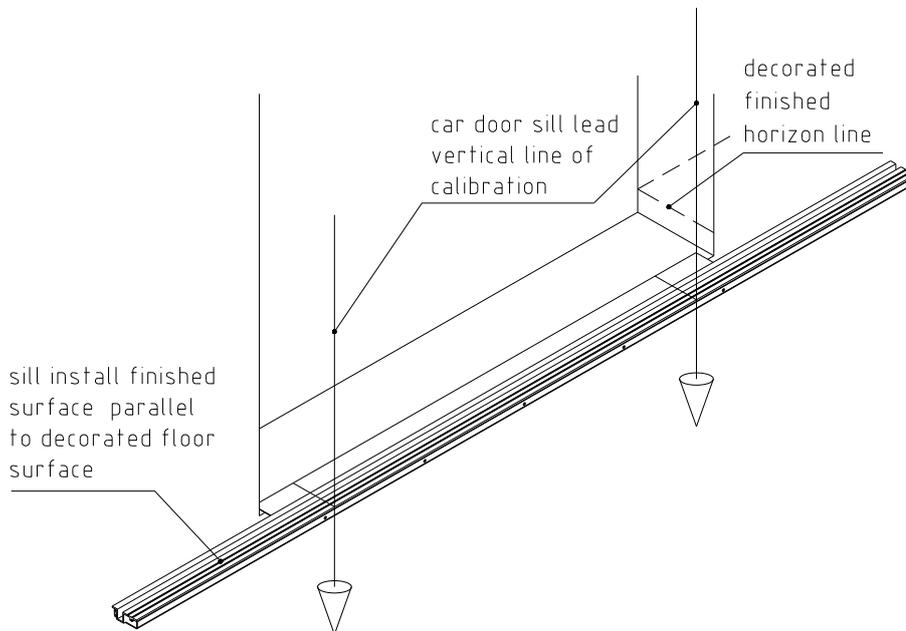
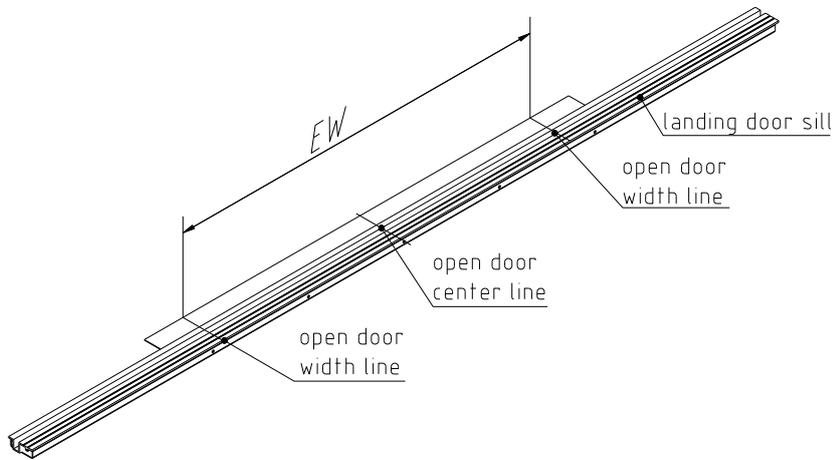


Centre-opening landing door fig

5.1 Installation of sill

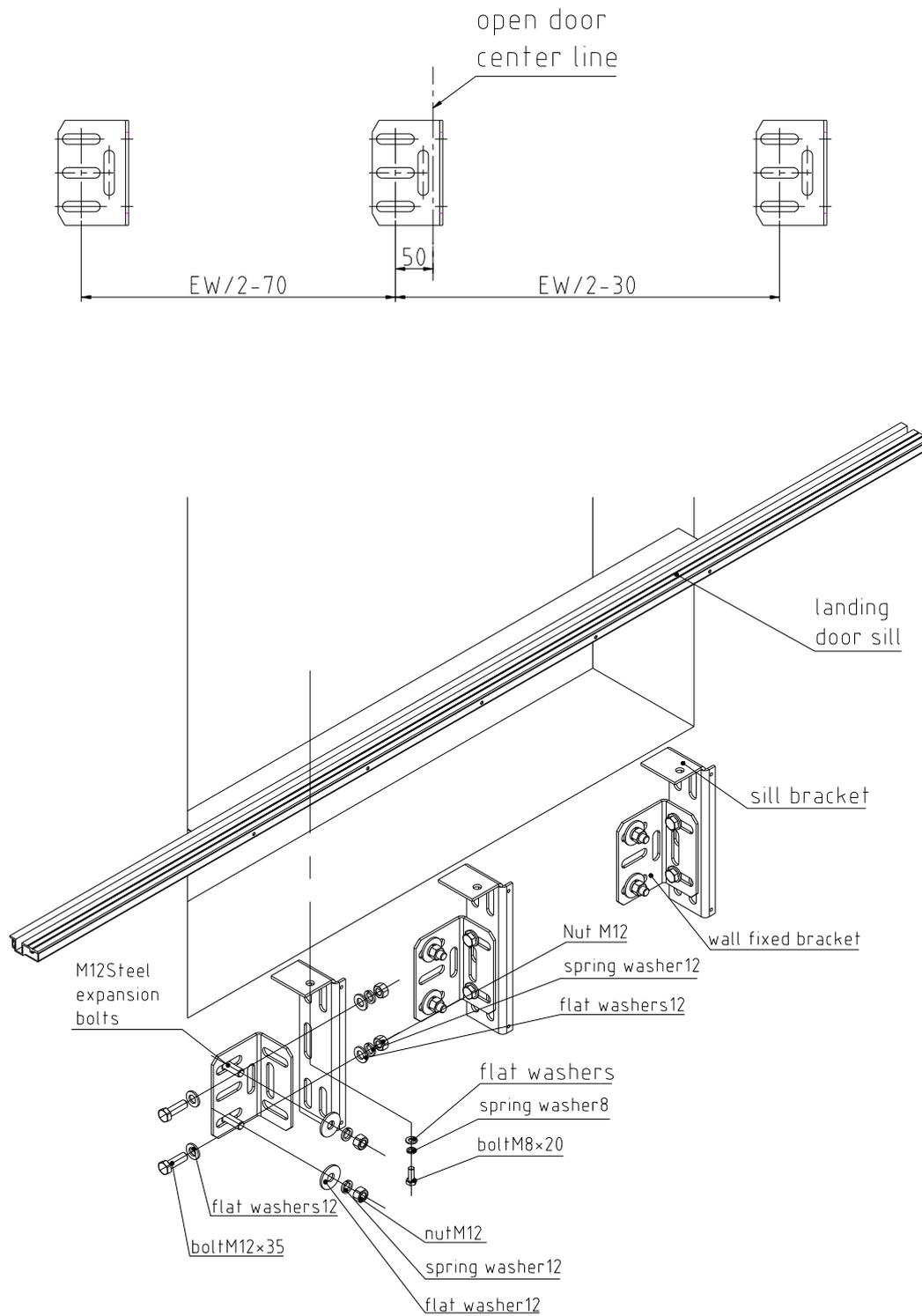
sill marked line

SN	Steps
0500	Mark sills open line in accordance with the open door width of the drawing.
0501	In accordance with drawing's platform decoration finished surface to confirm the fixed bracket location of the sill wall.
0502	Use M12 expansion bolts to fix the sill assembly on top of the wall.
0503	Use M12 bolt assembly to fix the wall bracket and the sill frame.
0504	According to the model line of car door and the horizontal ruler to adjust the sill by connecting the sill and the sill bracket.



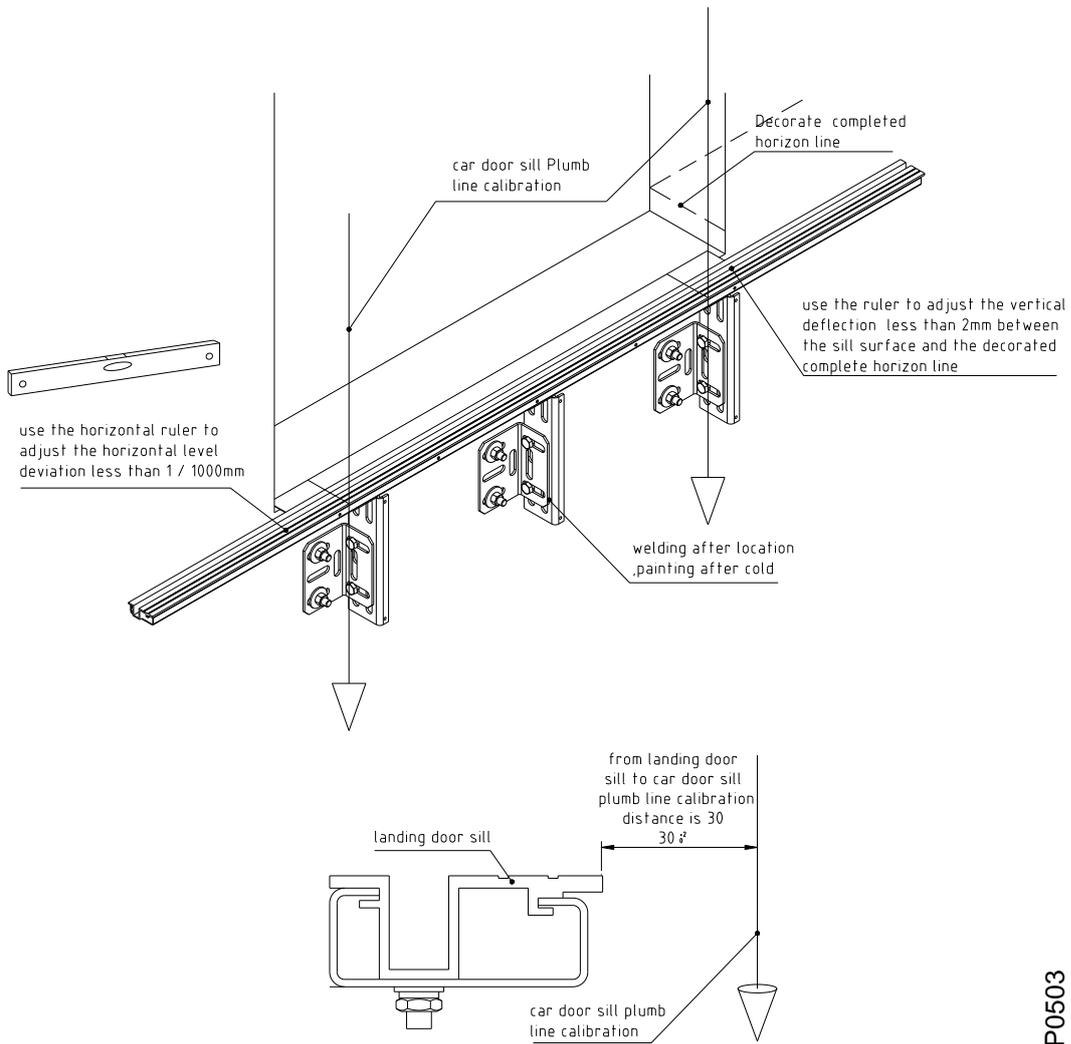
Center opening sill marking line fig

PP0501



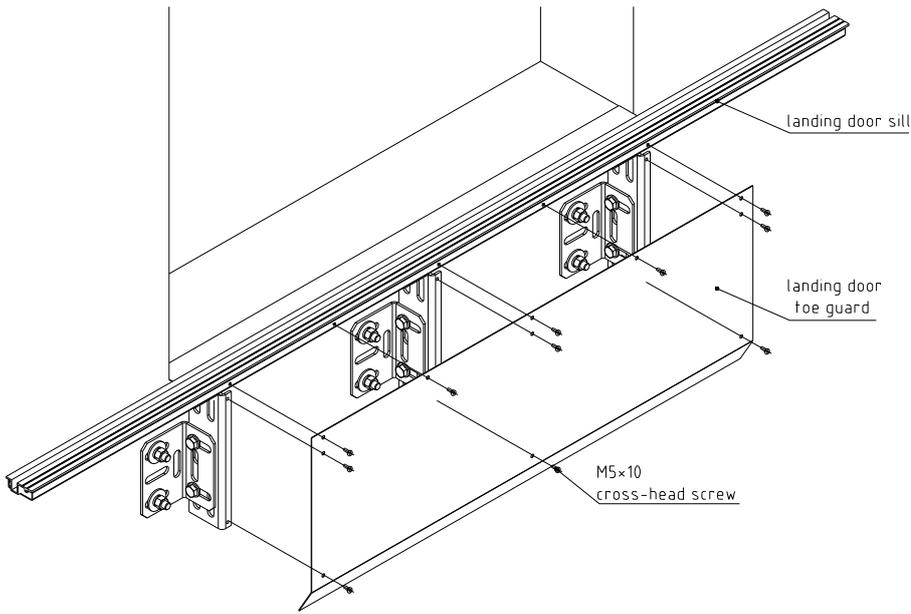
Installation of sill subassembly fig

PP0502



Adjustment of sill fig

PP0503



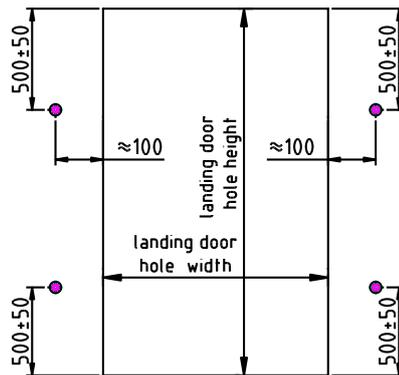
PP0504

Installation of sill toe guard fig

5.2 Installation of jamb

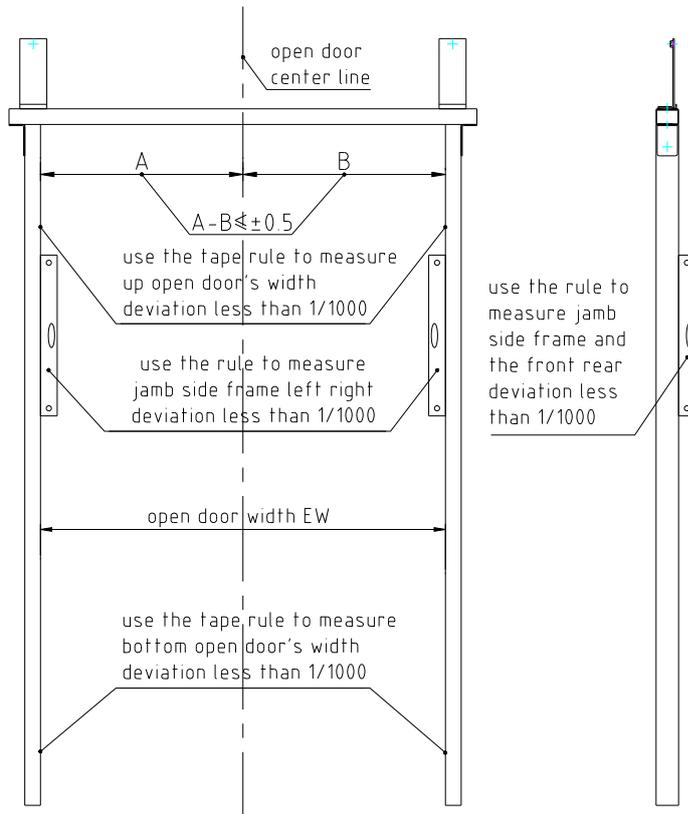
Installation of jamb

SN	steps
0505	Put four steel bolts fixed to the wall fixed position and refer to the following chart illustrates.
0506	Use complete set of fasteners to fix the Door jamb side frame and the up frame securely.
0507	Adjust door frame to the proper position by the middle of plate and chute nut, after adjustment welded with rebar and steel bolts firmly.



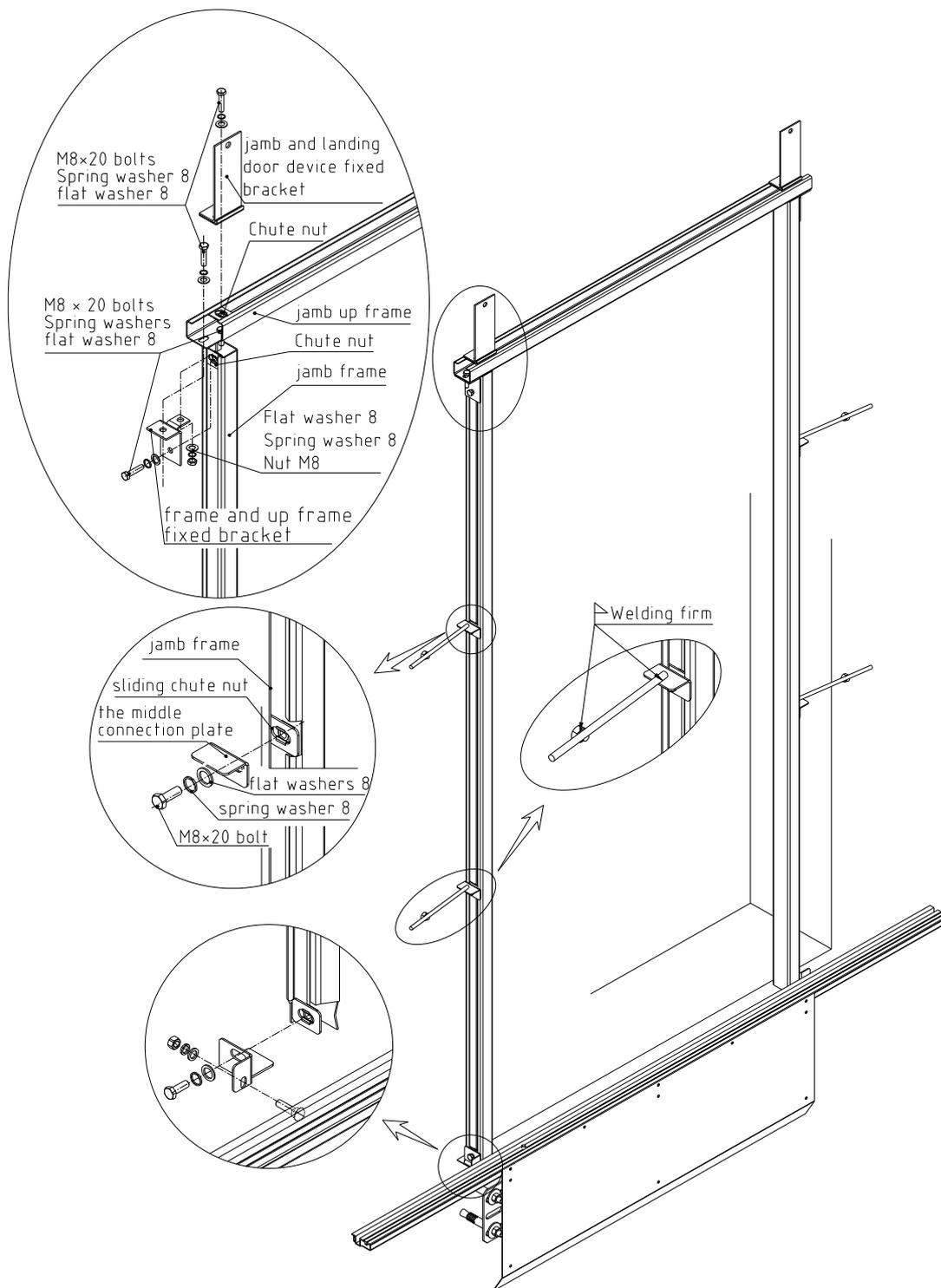
PP0505

Jamb fixed steel bolts position fig



Jamb adjustment fig

PP0506



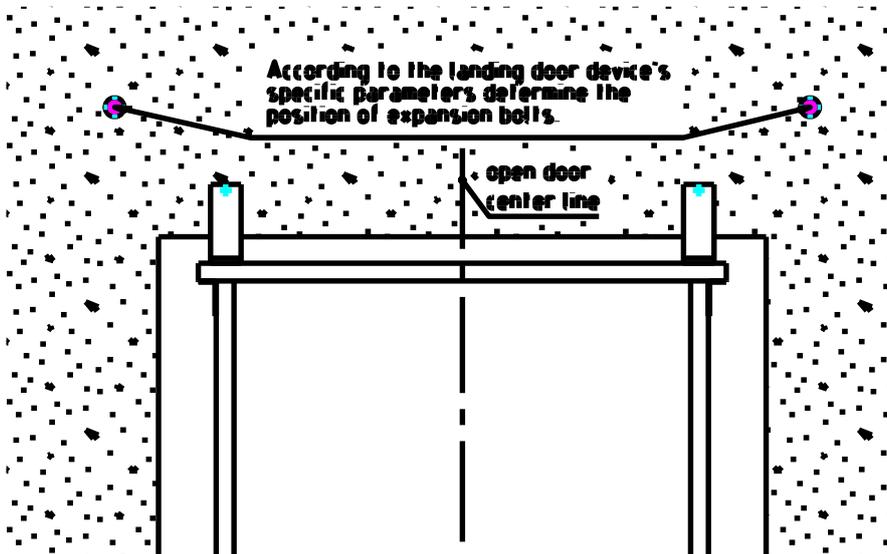
Installation of jamb fig

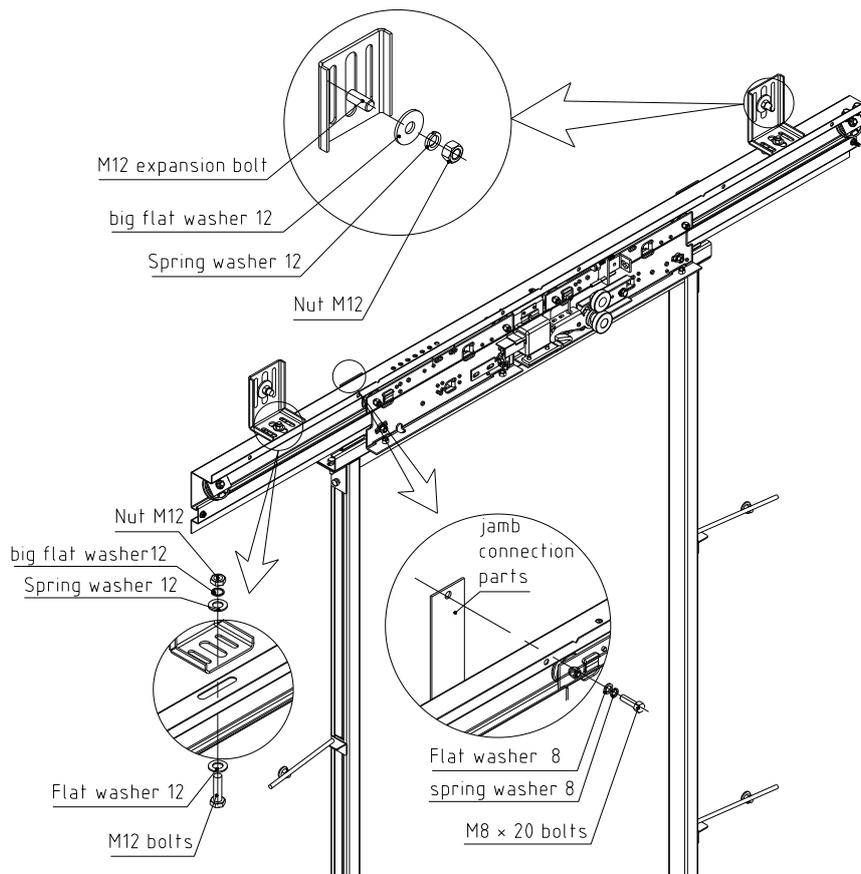
PP0507

5.3 Installation of landing door header sill

Landing door header sill installation

SN	steps
0508	Depending on the detailed parameter of the landing door header sill to fix steel bolts.
0509	Lift the header of the door sill and preassemble it with complete set of fasteners.

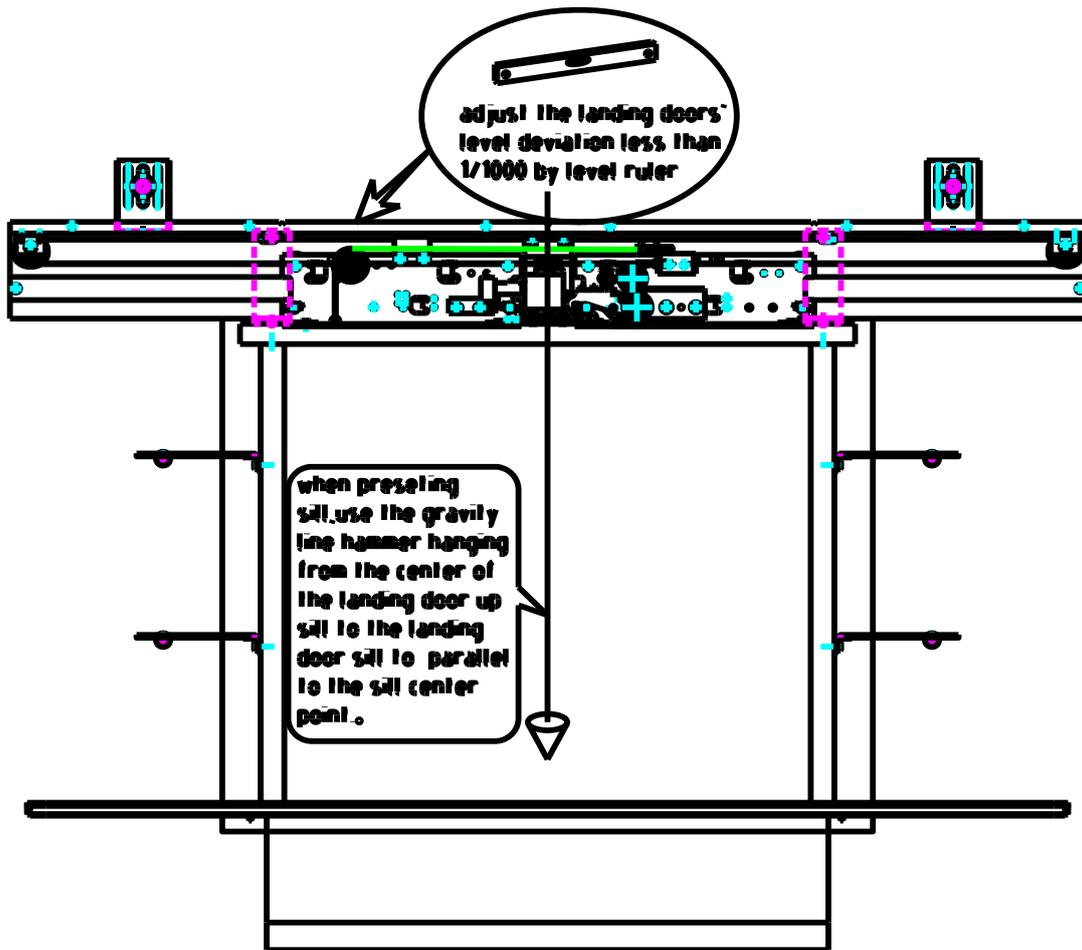




PP0508

Installation of landing door header sill fig

0511	On the adjustment landing door header sill center and the center of the door to a consistent, use the horizontal ruler to measure the level of error and the error less than 1/1000, fix fasteners.
0512	After all sizes to meet the requirements, tighten all fasteners.



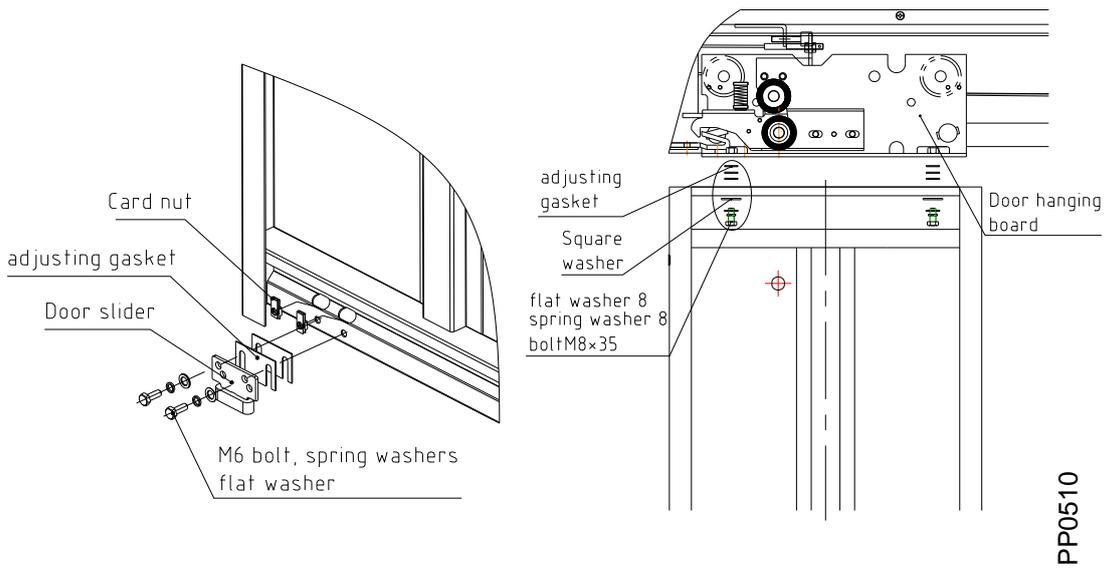
Adjustment of landing door header sill fig

PP0509

5.4 Adjustment of door panel construction

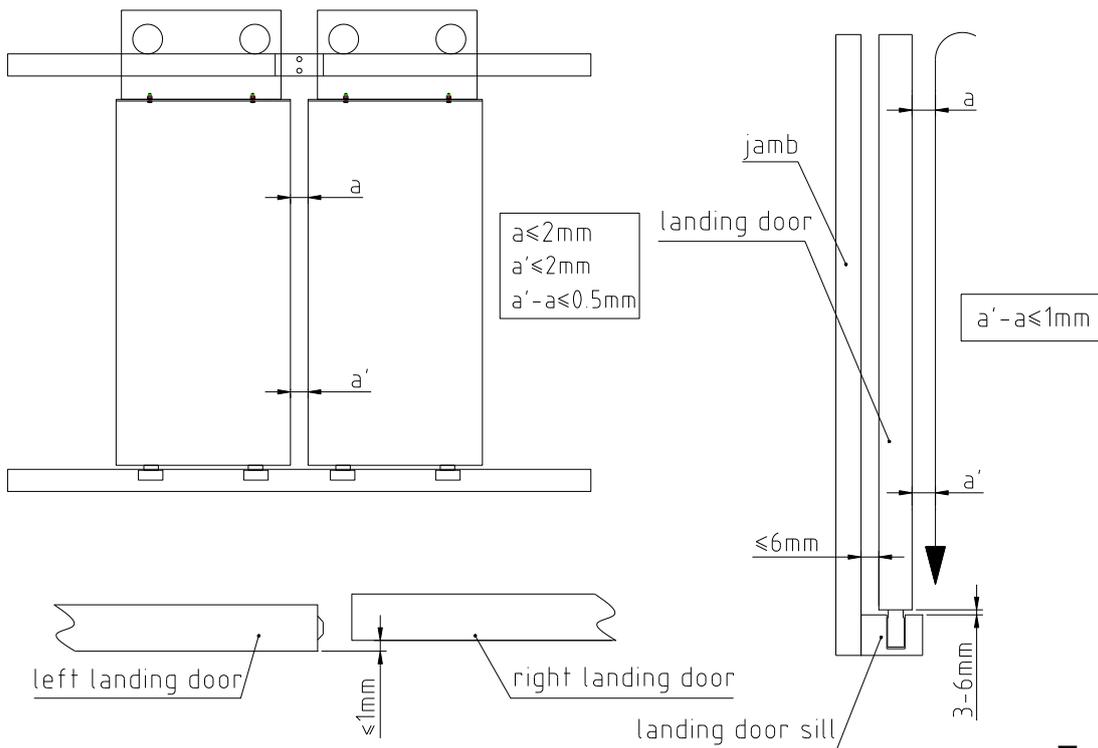
SN	steps
0513	Use the landing door header sill installation package to fix the slider. Insert the bottom edge with of the door panel to the door sill's guide slot.
0514	Close and check if there is no collision when the door is closing, Check the shackle's occlusion situation.
0515	Adjust the distances of the door panel bottom part and sill between 3 ~ 6mm adjust the gap of the door panel and jamb consistent less than 6mm.
0516	Adjust the gap between the door panels unanimously less than 2mm, Adjust the door panels' flatness error less than 1mm.
0517	Install unlocking device and landing door hammer, test the landing door closing speed less than 0.3m / s.
0518	After checking the doors automatical close, check the occlusion situation of the lock hook.

Landing door panel construction adjustment



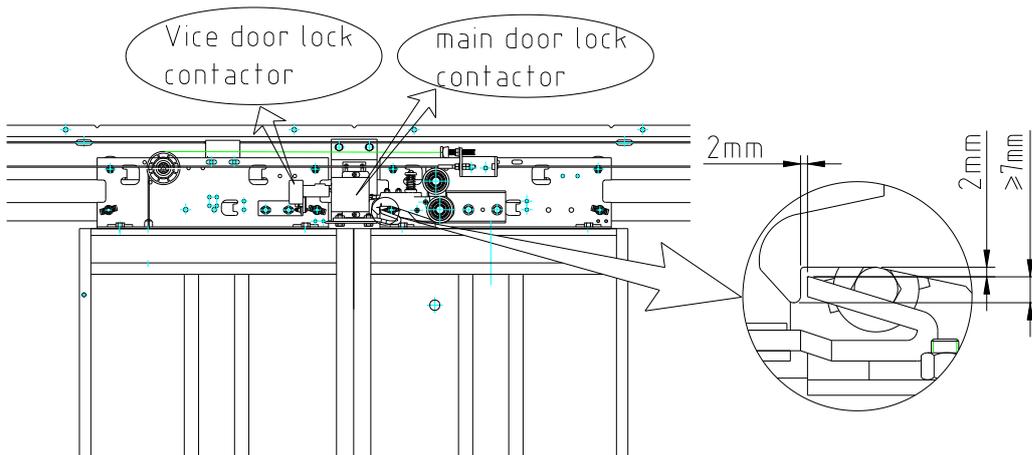
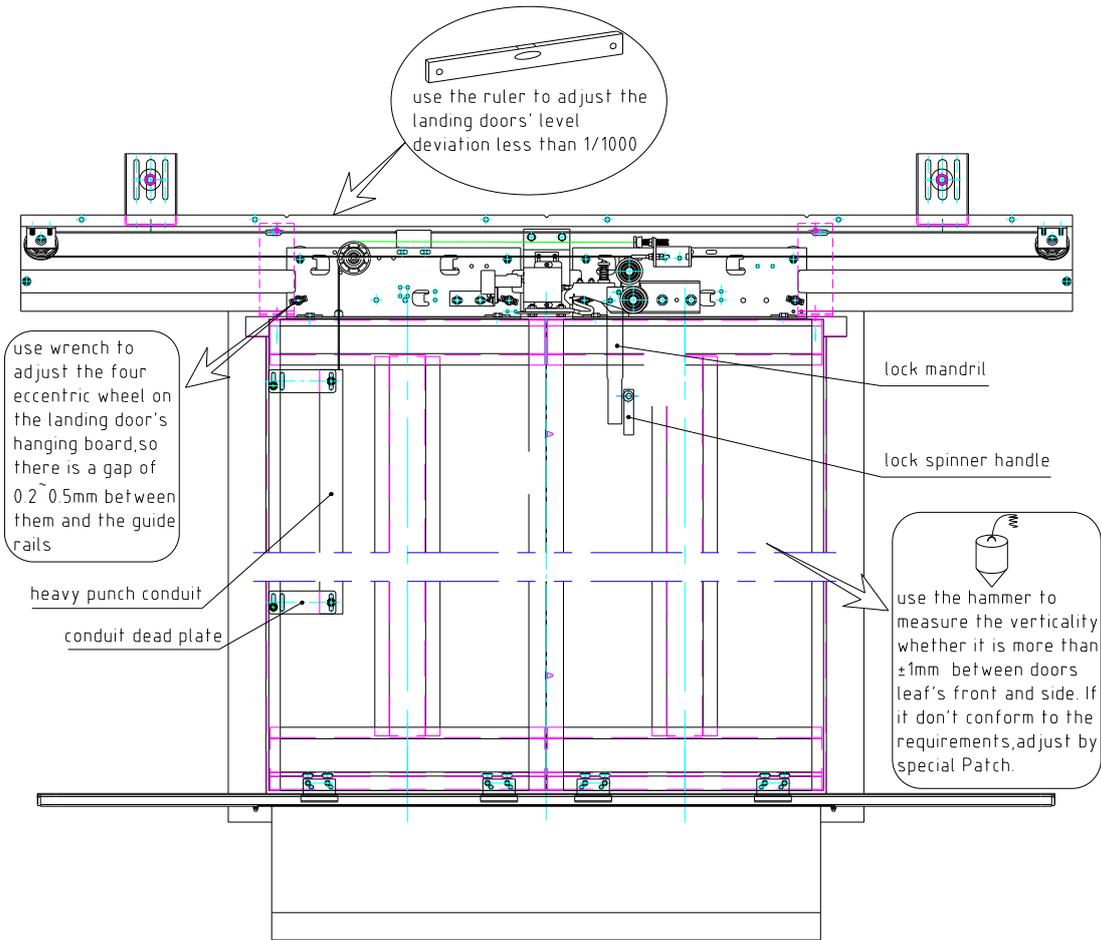
PP0510

Installation of landing door panel fig



PP0511

Adjustment of landing door panel fig



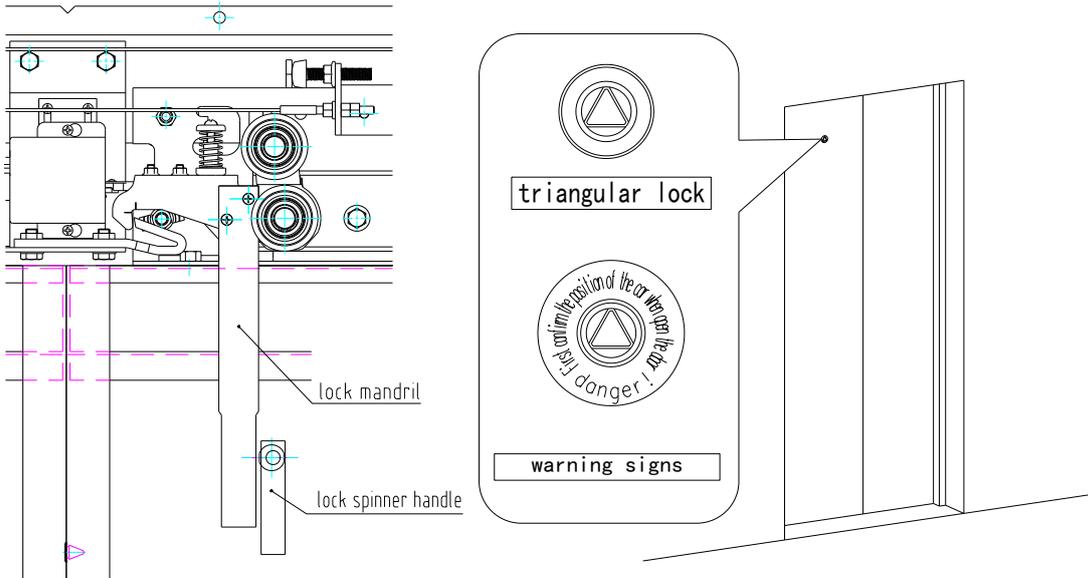
Adjustment of landing door head sill fig

PP0512

5.5 Door lock device

Door lock device installation

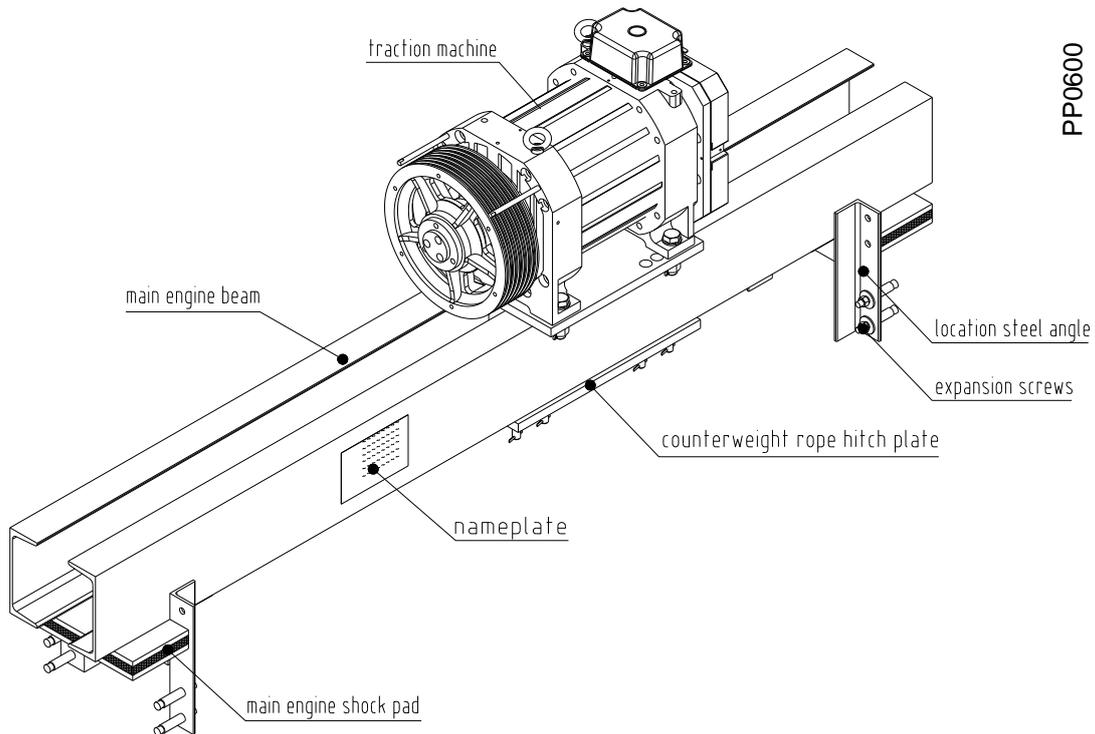
SN	steps
0519	In the heavy punch case, check the landing doors' contact mesh distance less than 7mm when closing.
0520	Open the landing door with a triangular key and check whether you can open it.
0521	Paste warning signs on the landing door's outside keyhole position.



Installation of door lock fig

PP0513

6 Installation of traction machine



Traction machine assembly thumbnail

Warning

Use anti-corrosion plastic to wrap machine set. Only when you need to check or lift transport can open it.

Ensure the machine set packaged and protected well before the installation.



Ensure the machine set's location is clean, dry, and has protective measures.

Elevator equipment should not be stored in the outdoor field.

Factory avoid taking unnecessary risks when elevator in the warranty period.

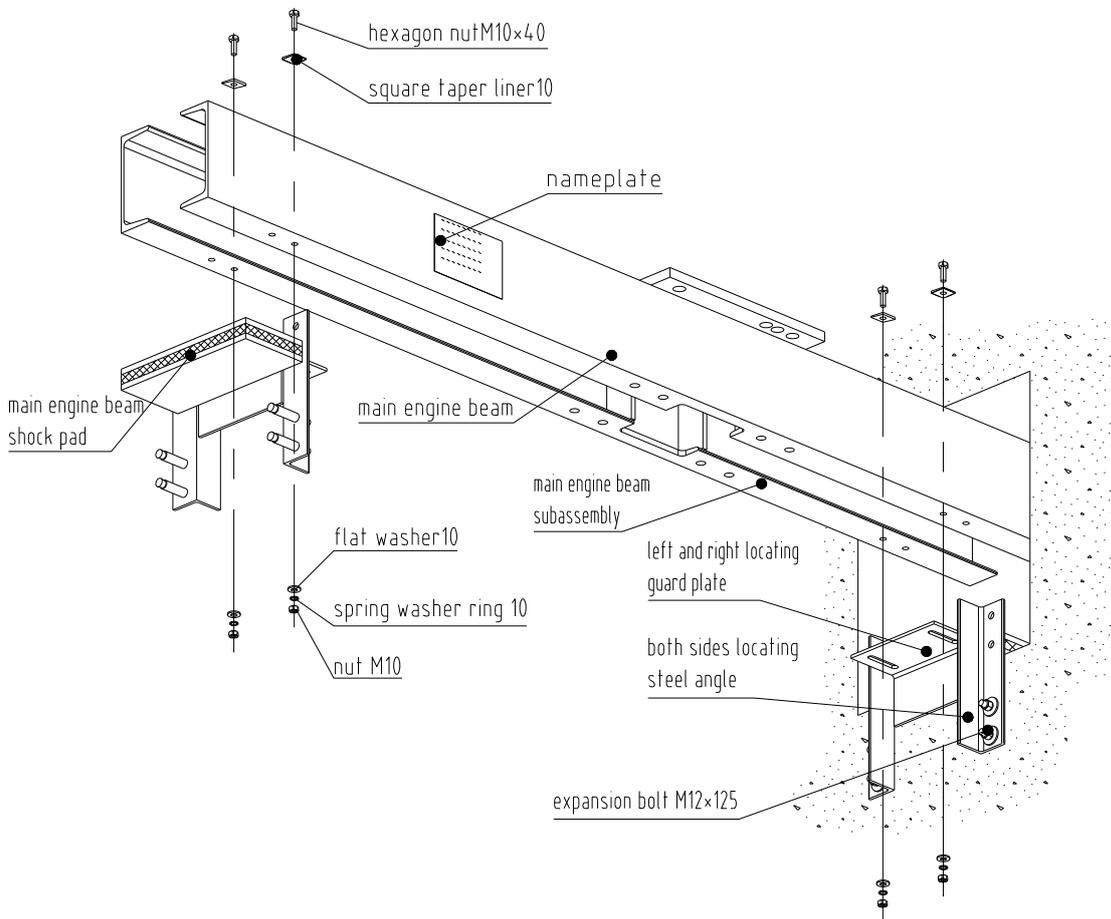
Notice



Open the machine set's packaging only before starting the installation of set's bracket shortly.

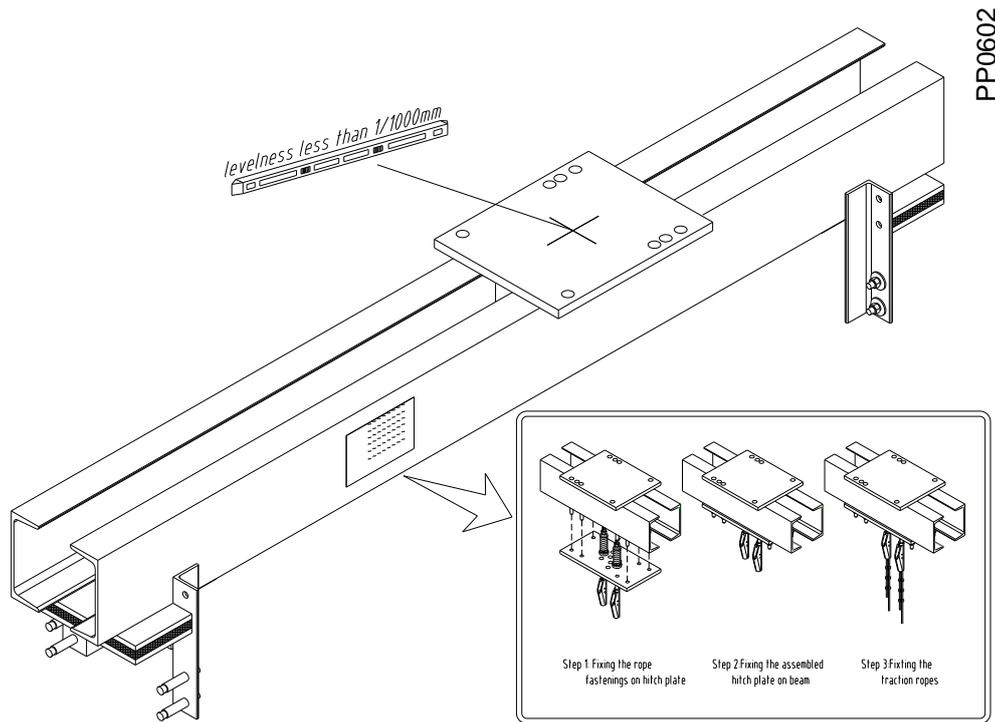
Installation Steps

0600	Hoisting the traction machine and main machine beam to the shaft's install location.
0601	Locate the main machine beam refer to the drawing, test the main machine beam's levelness, levelness error less than 1/1000.
0602	Use complete fasteners to fix the locating guard plate and main machine beam firmly.To prevent the main machine beam movement.
0603	Fix the locating steel angle on the two side walls of the main machine beam.To prevent the main machine beam movement.
0604	Locating baffle and steel angle and not be welded with the main machine beam.
0605	Install the rope head assembly on the rope head board according to the nameplate
0606	After fixing the rope head subassembly and rope head board, fixed the rope head board and main machine beam firmly.
0607	Install the traction machine on the main machine's beam according to the drawing.

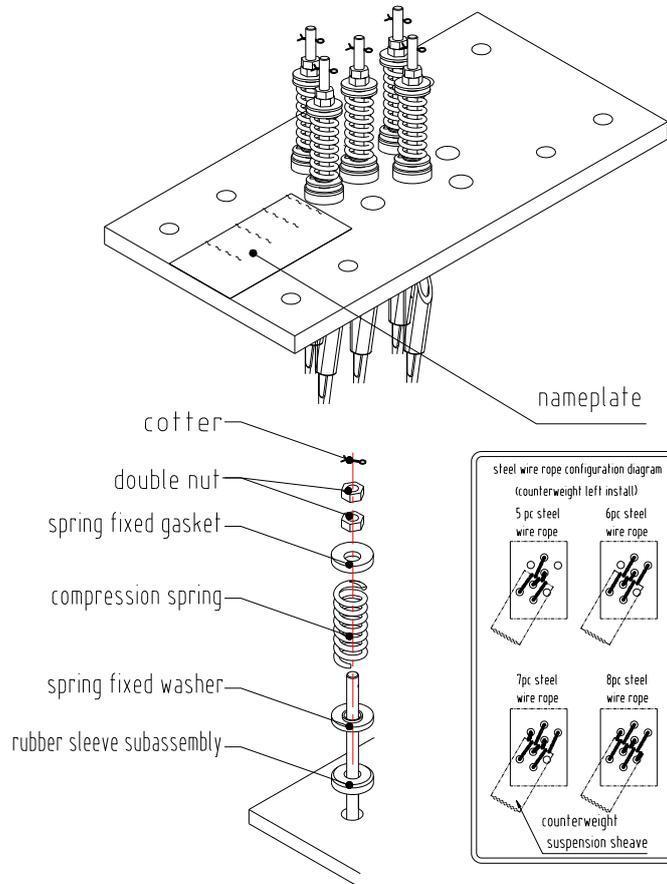


Installation of machine beam fig

PP0601

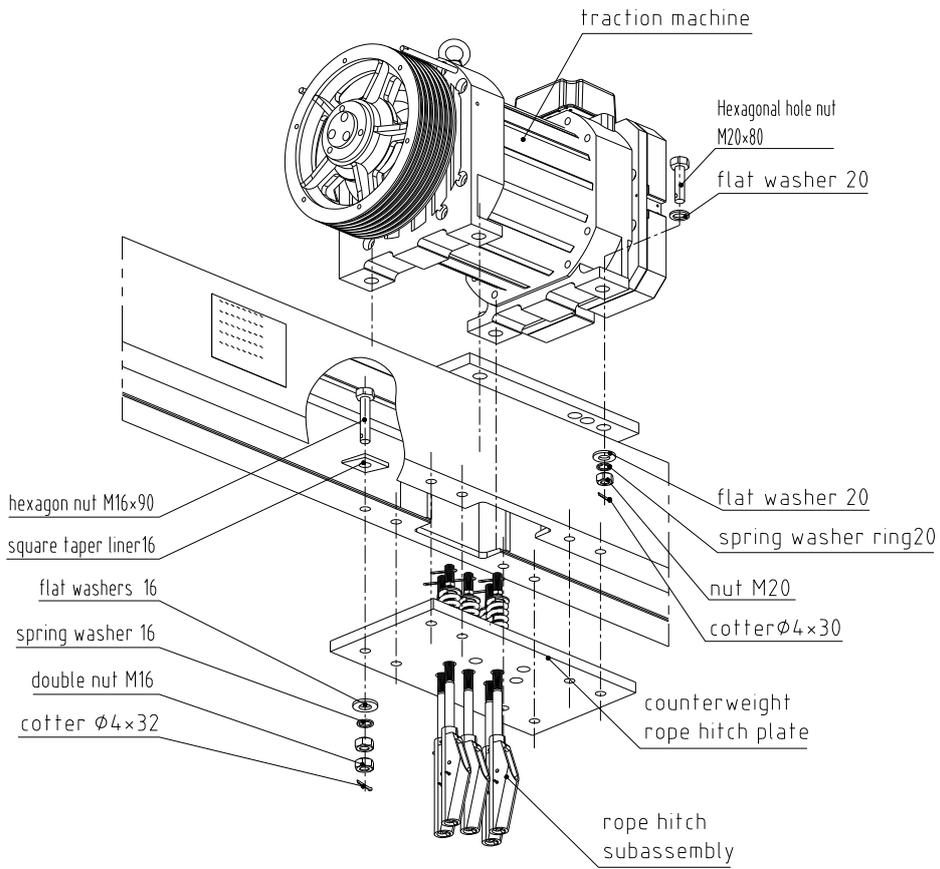


Main engine beam levelness test fig



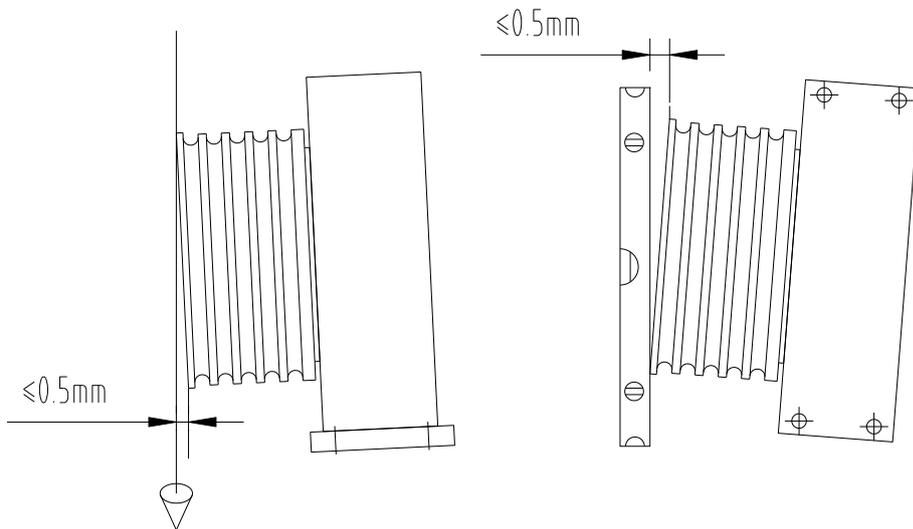
Pre-installation of rope head component fig

PP0603



PP0604

Installation of counterweight rope hitch plate and traction machine fig

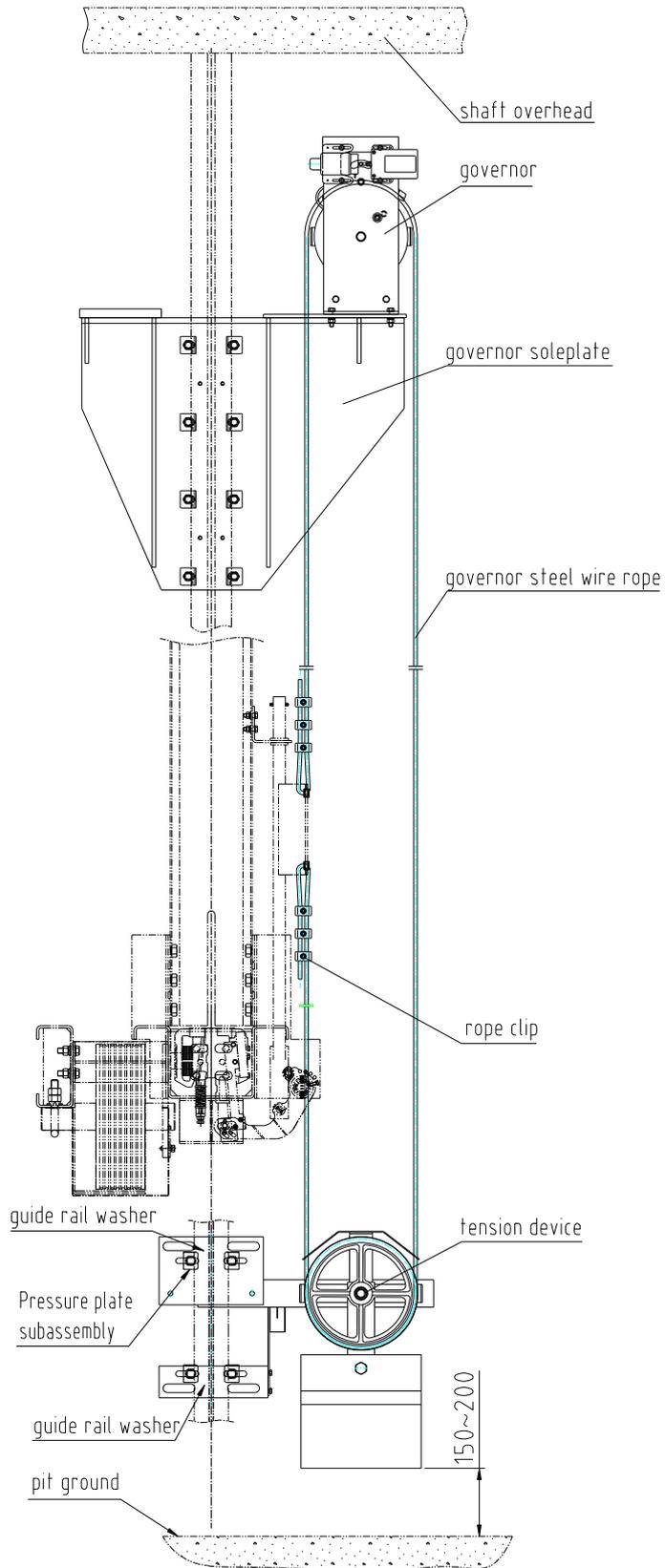


PP0605

Adjustment of traction machine fig

7 Installation of speed governor

overview

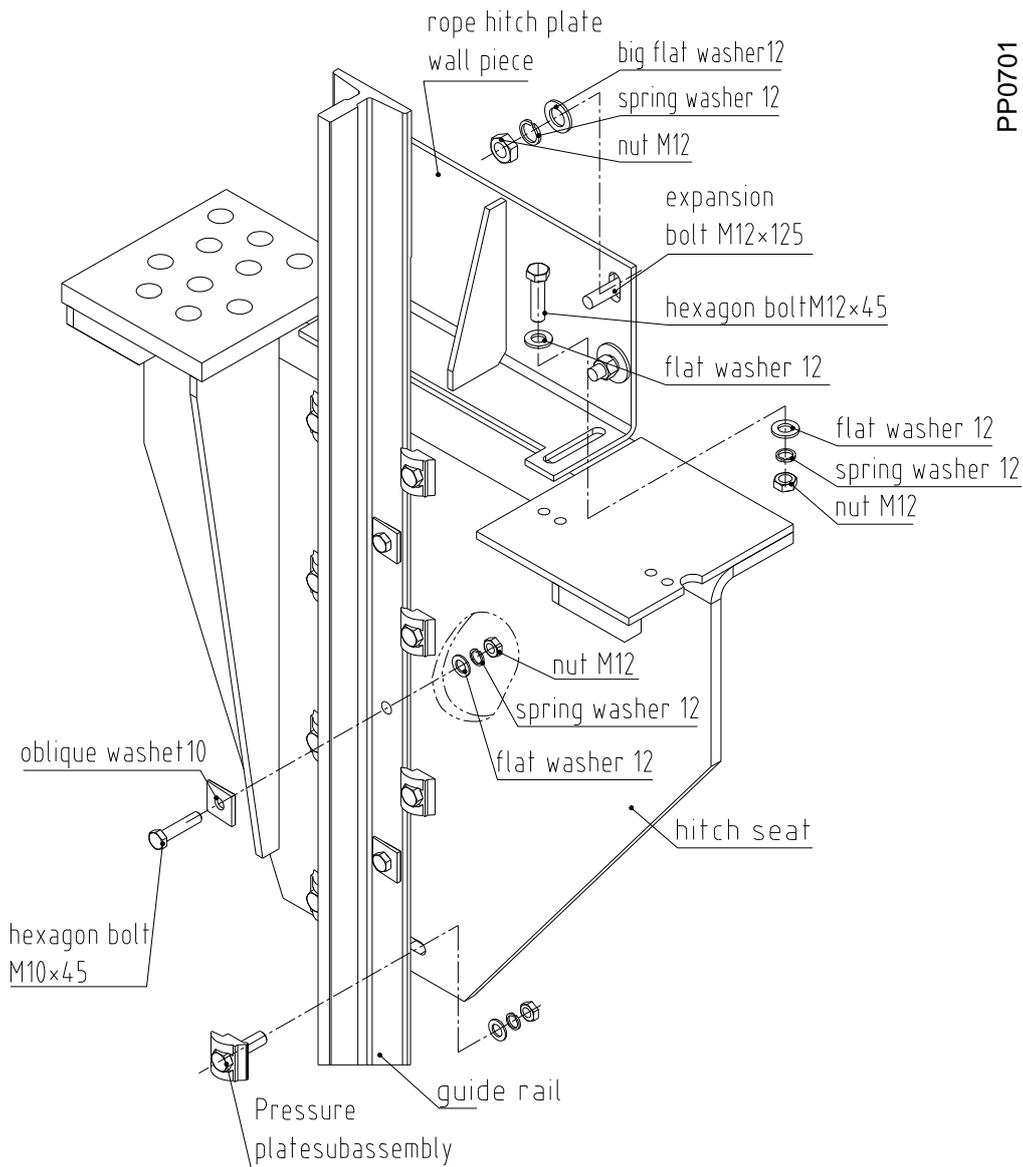


Speed governor system thumbnail

PP0700

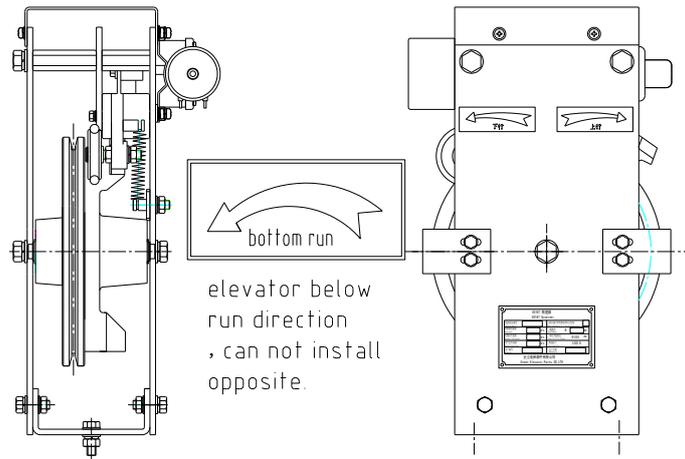
Speed governor installation

SN	steps
0701	Fixed the speed governor rope head beam and car guide rail firmly according to the drawing.
0702	Test the levelness error of rope head board surface less than 1/1000.
0703	Fixed the rope head board wall piece with wall and speed governor rope head board .
0704	Fixed the speed governor and the rope head board, pay attention to the direction of the speed governor.
0705	Adjust tensioning wheel with the governor shaft center deviation less than 2mm, rope groove deviation is less than 1mm.



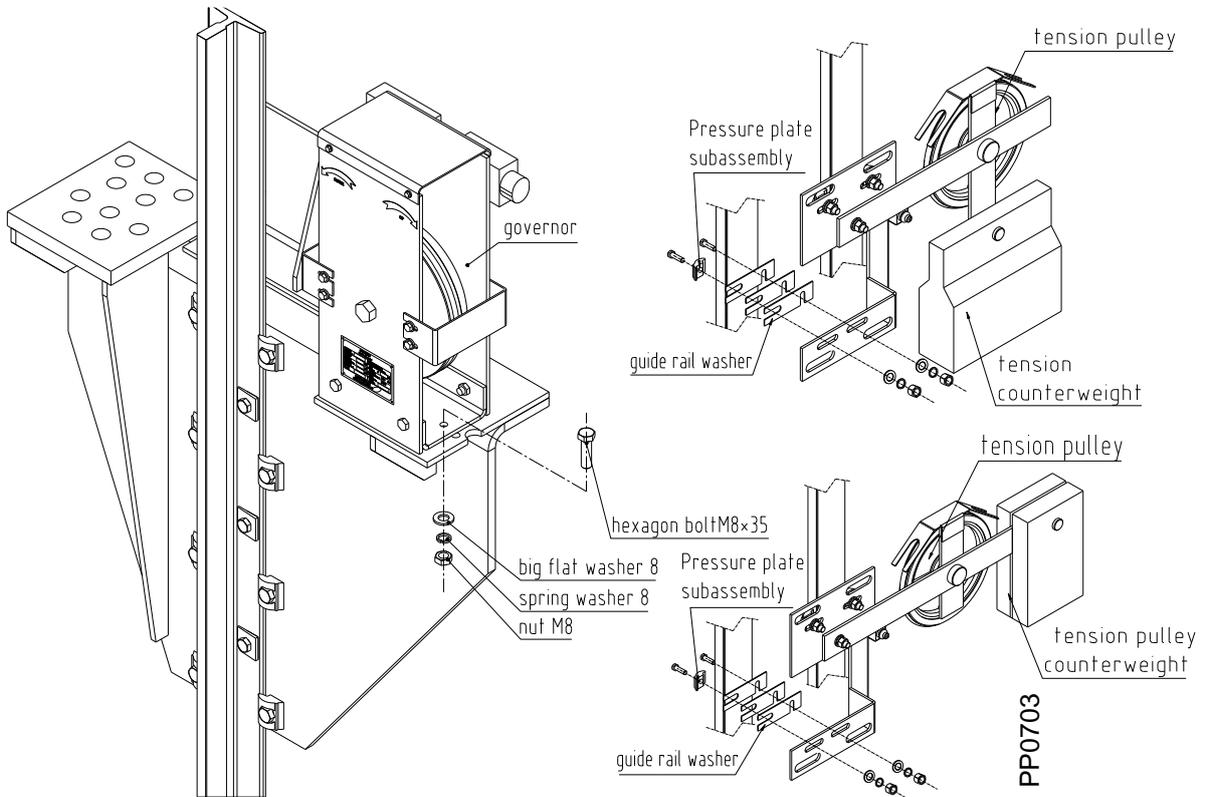
PP0701

Installation of speed governor hitch beam fig



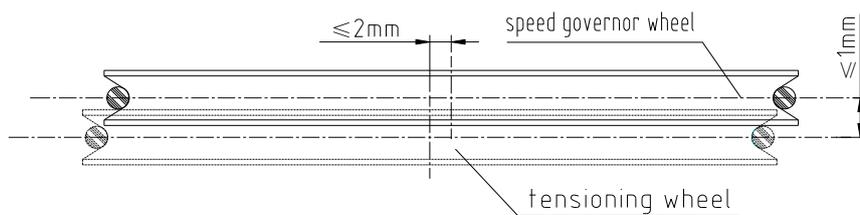
PP0702

MRL double direction governor fig



PP0703

Installation of governor and tension pulley fig



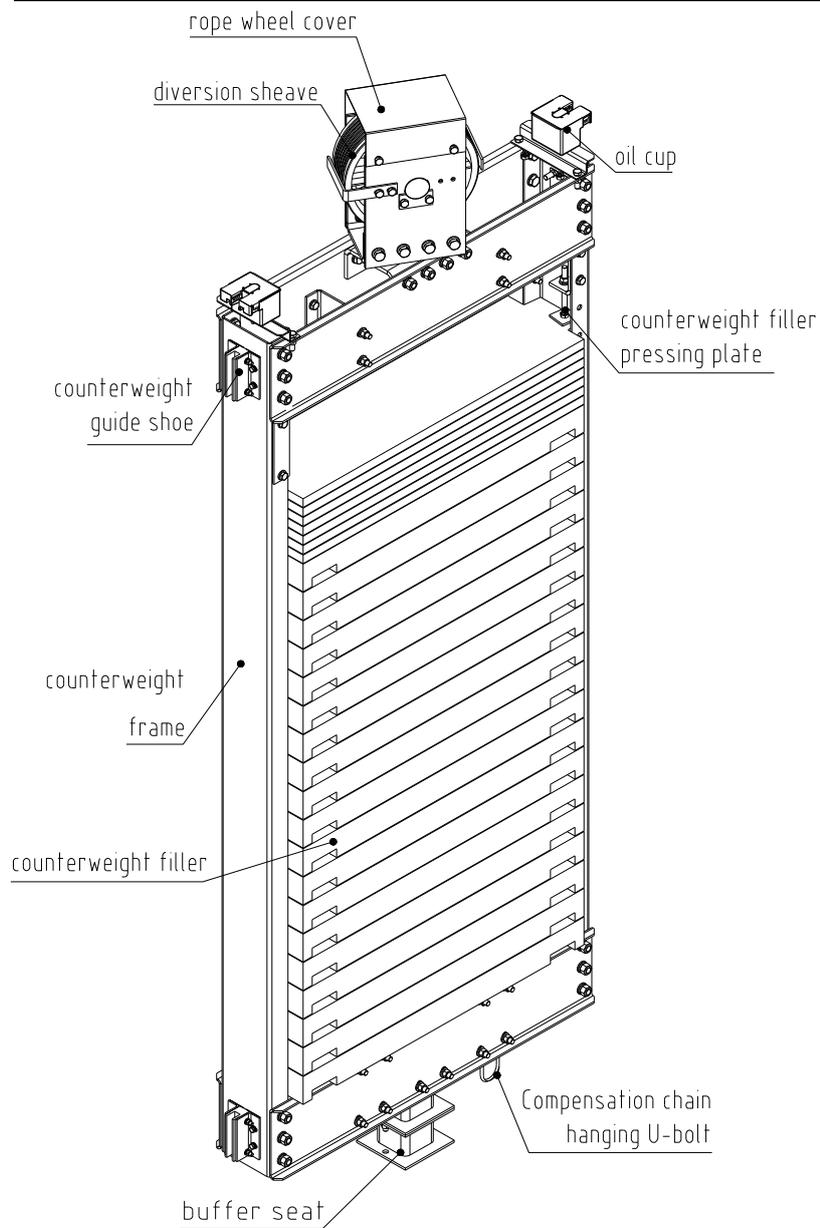
PP0704

Adjustment of speed governor and tensioning wheel fig

8 Installation of counterweight

8.1 Precondition

project	description
shaft	• Keep shaft dry and not affected by the weather
	• Must provide sufficient space for the installation and using of elevators
	• There must be adequate lighting and power equipment in the shaft



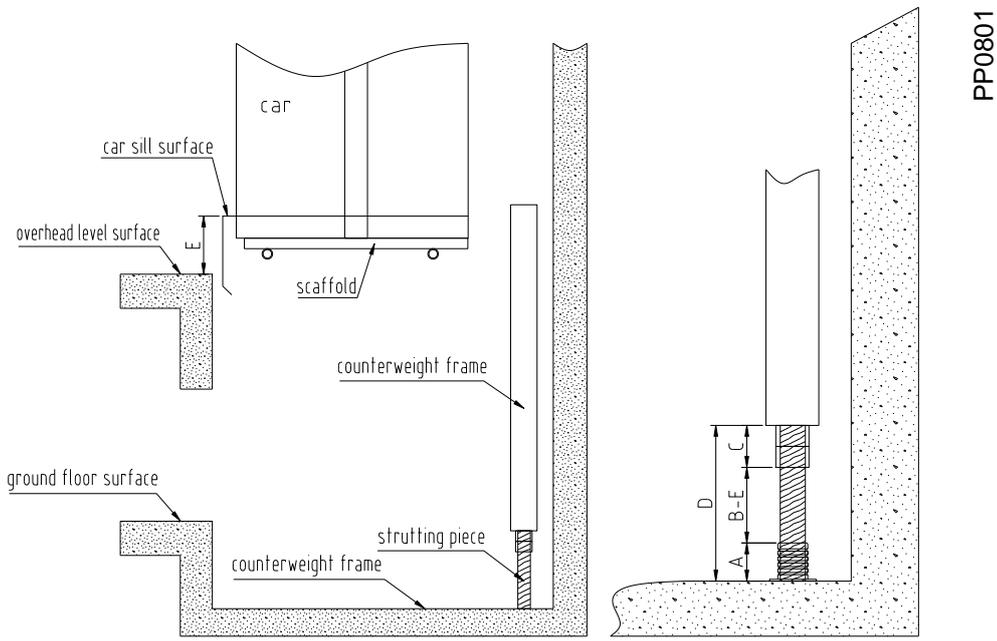
Counterweight system outline fig

PP0800

8.2 Installation of counterweight frame

Installation preparation work

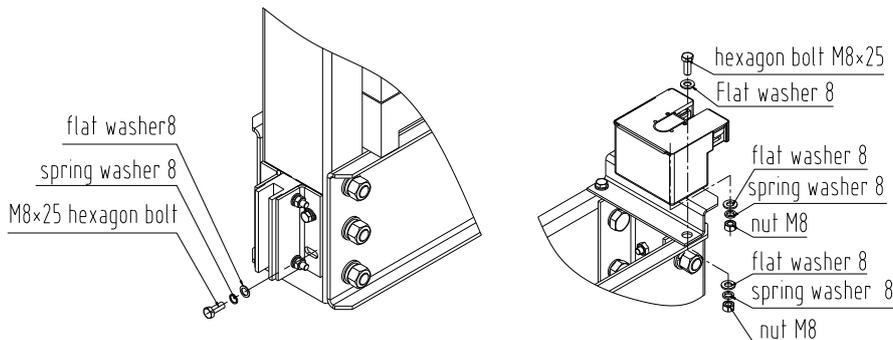
SN	steps
0800	Removal the out package of the counterweight frame, use the hand chain hoist to hang into the shaft, pay attention to protect counterweight frame against impact.
0801	Produce the counterweight bracket, the supporting can be square wooden and it must be 80×80 or more, it must be fixed with guide rail effectively
0802	Use the self-contained complete fasteners to pre-fixed the guide shoe and oil cup with the counterweight frame
0803	Adjust the frame's perpendicular error less than 1mm, the guide shoe gap should between $0.5 \sim 1.5\text{mm}$, center deviation less than 0.5mm
0804	Fixed fasteners strongly after adjustment.



PP0801

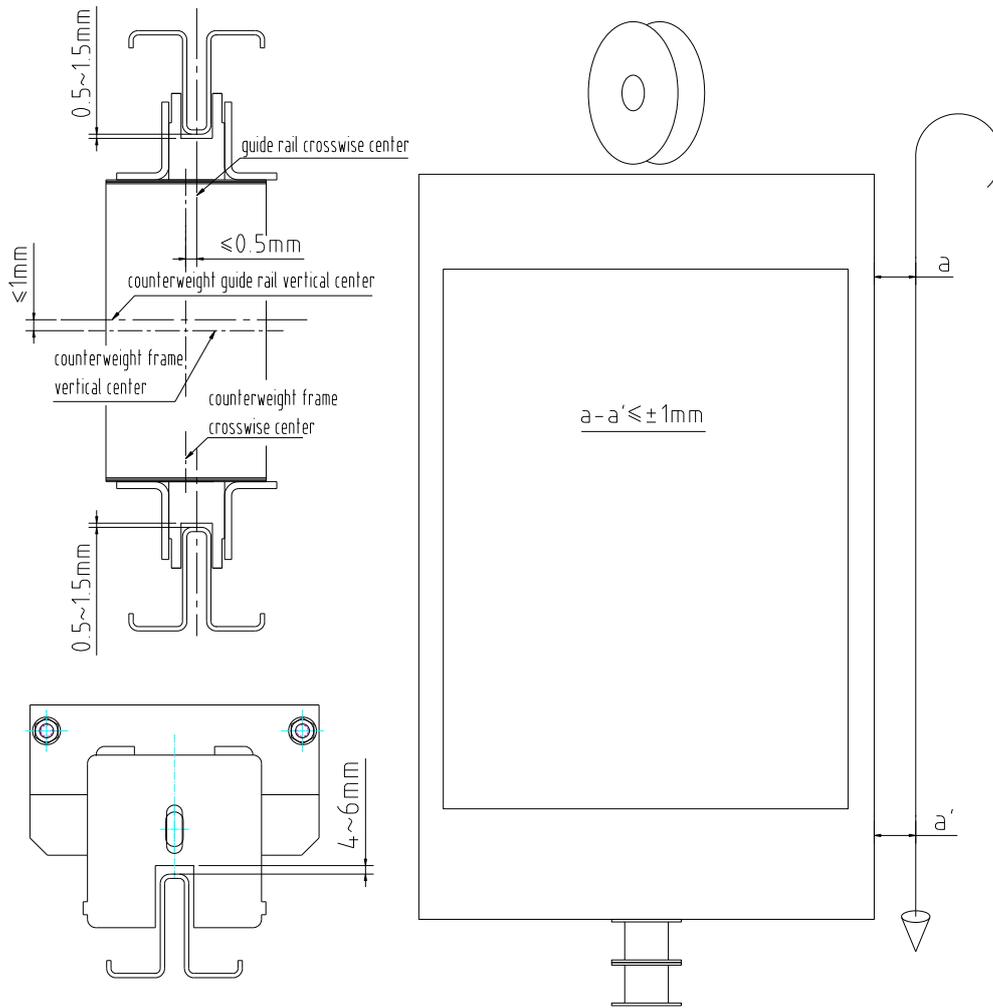
Counterweight buffer and heightening seat height A	The safe distance of buffer B	The height of the cushion block C	the distance E from car sill to overhead level	Square wooden pillars height D
speed is 1.75m/s; if E=300; oil buffer's safe distance is: B=150~400; Buffer seat's height C=200; A=600				
The height of the lateral brace: $D=A+B-E+C=600+(150\sim400)-300+200=650\sim900$				

Calculations of counterweight supporting bracket's height fig (e.g lower part of counterweight with scaffold construction)



Installation of counterweight guide shoe and oil cup fig

PP0802



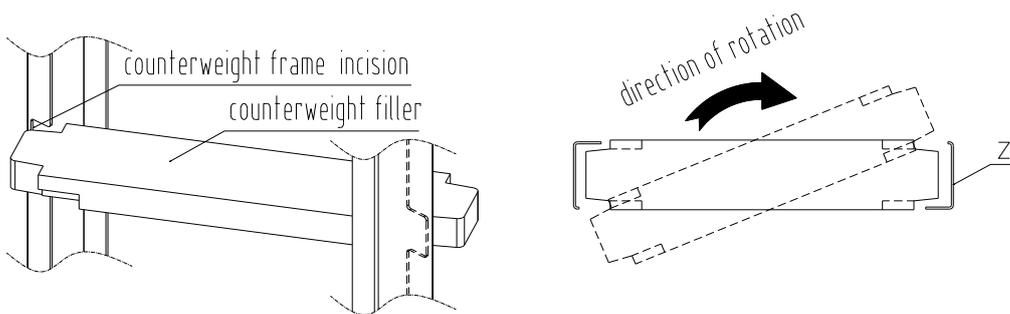
Adjustment of counterweight frame, guide shoe and oil cup fig

PP0803

8.3 Installation of counterweight filler

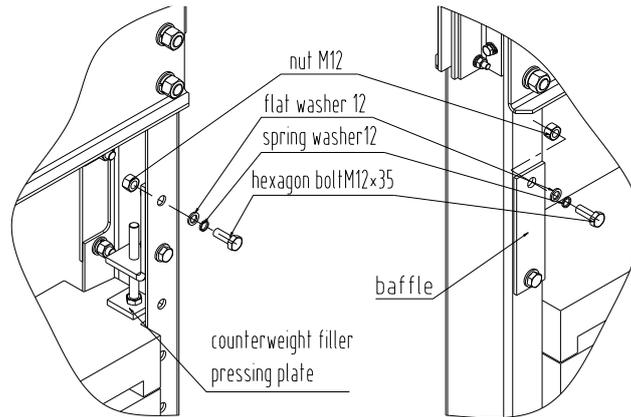
SN	steps
0805	According to requirement to put appropriate quantity counterweight carefully, pay attention to the direction of the counterweight .
0806	Tighten the counterweight plates, make the counterweight re-compacted, use the matching fasteners fixed hood firmly.

Counterweight filler installation



The put of counterweight filler fig

PP0804



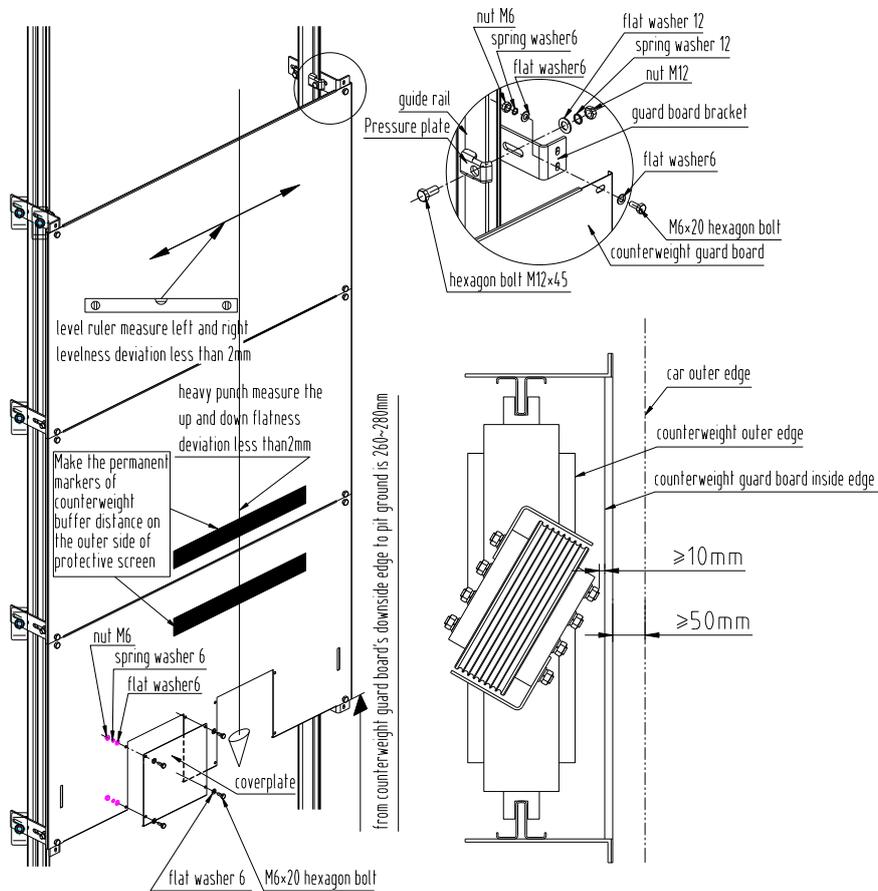
PP0805

Fixation of counterweight frame side hood and counterweight filler pressure plate fig

8.4 Installation of counterweight protective screen.

Counterweight protective screen installation

SN	Steps
0807	According to engineering drawings, use matching pressure plate components to put the counterweight anti screen fixed on the guide rails.
0808	Ensure the distance between protective screen and the outer edge of the counterweight system more than 15mm, and the distance with the outer edge of the car more than 50mm.
0809	Ensure the error less than 2mm when heavy punch revising, fixed fasteners firmly.
0810	Make the permanent markers of counterweight buffer distance on the outer side of protective screen, use the oil paint polyurethane 150~400, hydraulic 200~350.



Installation of counterweight protective screen fig

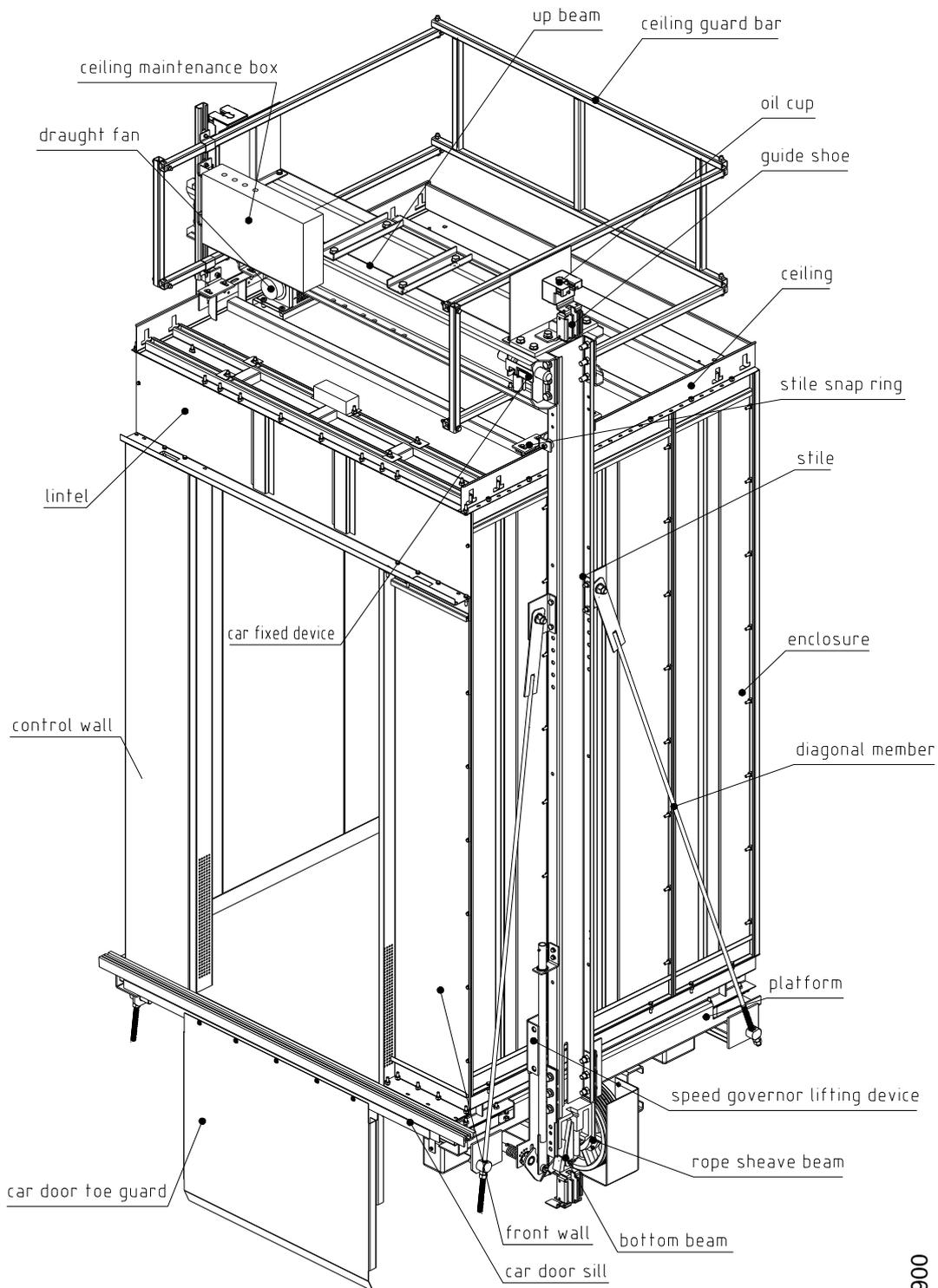
PP0806

9 Installation of car frame and car

Warning



If the car frame's location installation inaccurate, the operation of the elevator will not be comfortable, the guide shoe will be damaged. For the any fixed position of car frame, do not allowed to weld and drill without permission (need to call the company's project designer and confirm).

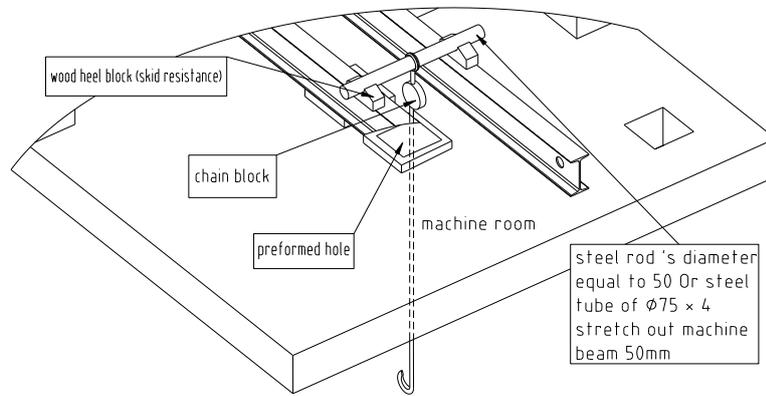
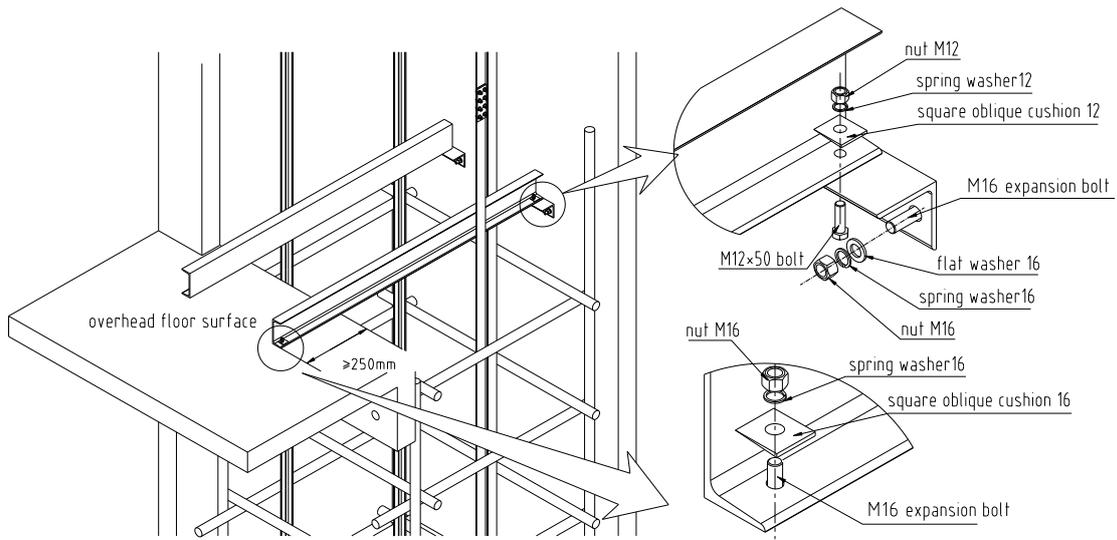


Car frame system schematic fig

PP0900

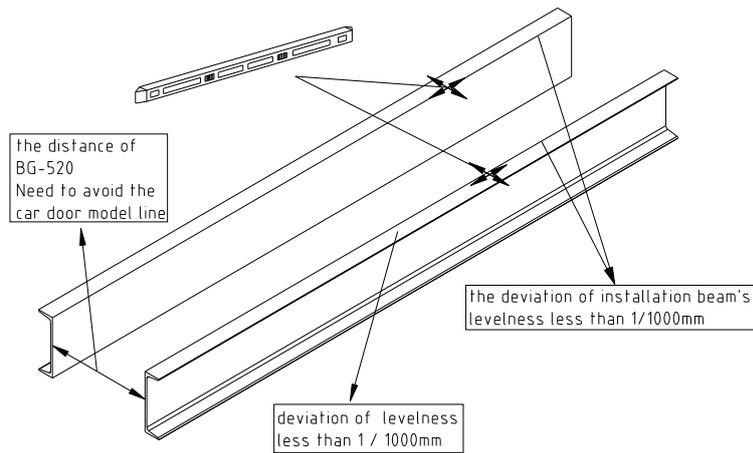
9.1 Precondition

SN	Steps
0900	Make the car installation beam and car components' hoisting device, adjust the installation beam 's levelness(such as the car's installation).
0901	All parts of the car are hoisted to the top of the waiting room by lifting device and wait for installation (such as the car's installation).



Installation of installing beam and lifting device fig

PP0901



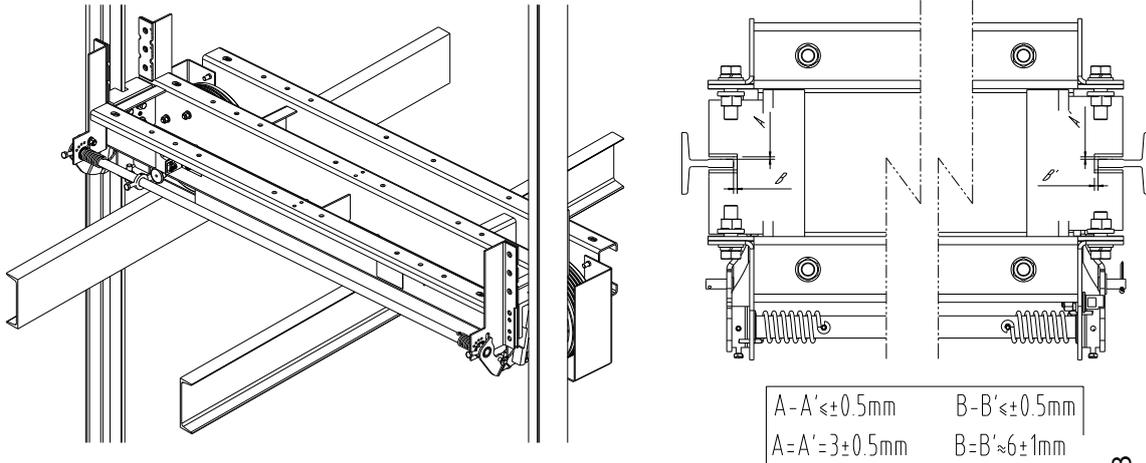
The test of car installing beam

PP0902

9.2 Installation of the up beam, lower beam and stile

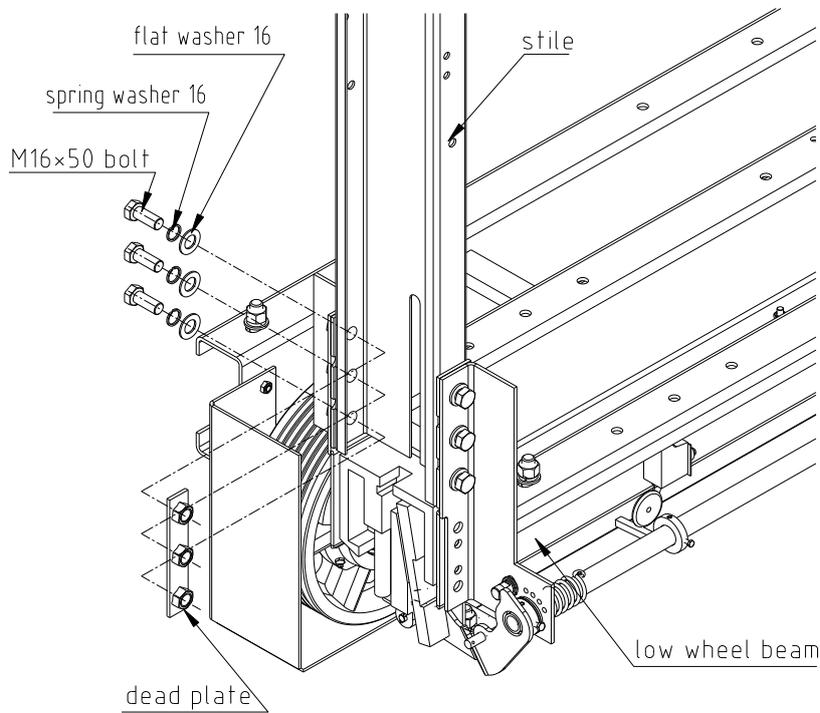
SN	steps
----	-------

0902	Put the lower frame assembly into the shaft, pay attention to the lifting safety, locate the lower frame position on the support platform between the car guide rails.
0903	Adjust the gap between safety gear and guide rails, progressive, fixed the gap between cheese block and guide rail is 2~3mm.
0904	Adjust the lower beam surface flatness deviation less than 1mm.
0905	Hoist the stile and up beam with sheave into the shaft successively.
0906	Fixed the stile , up beam and lower beam ,pre tighten the fasteners.



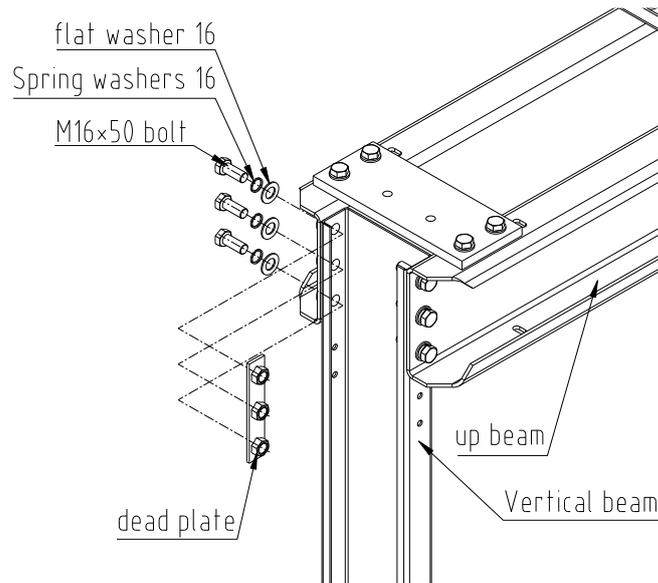
PP0903

The position lower frame fig



PP0904

Installation of the lower frame and stile fig

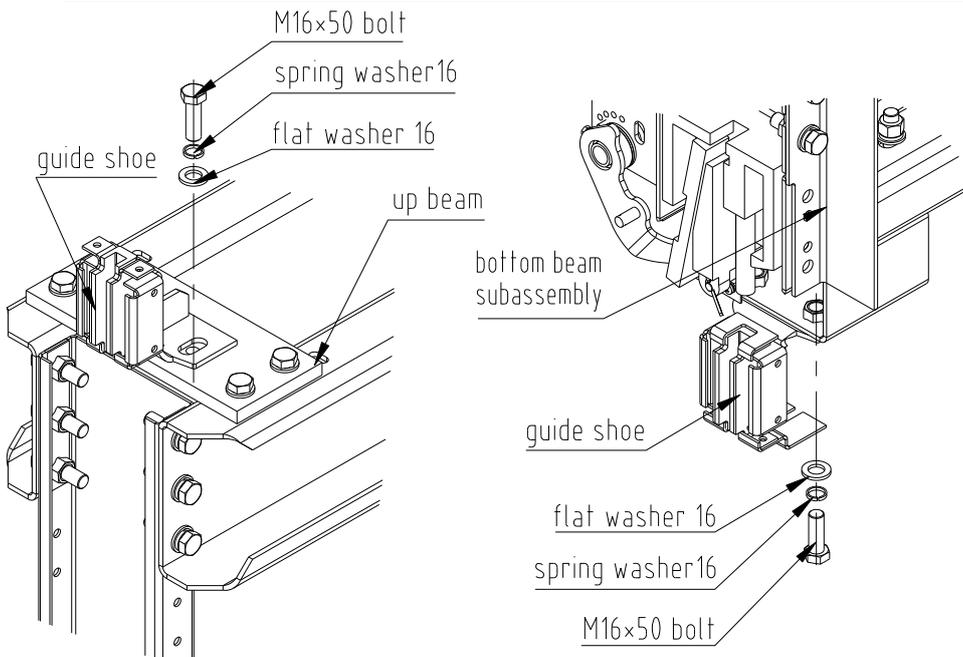


PP0905

Installation of the up beam , lower frame and stile fig

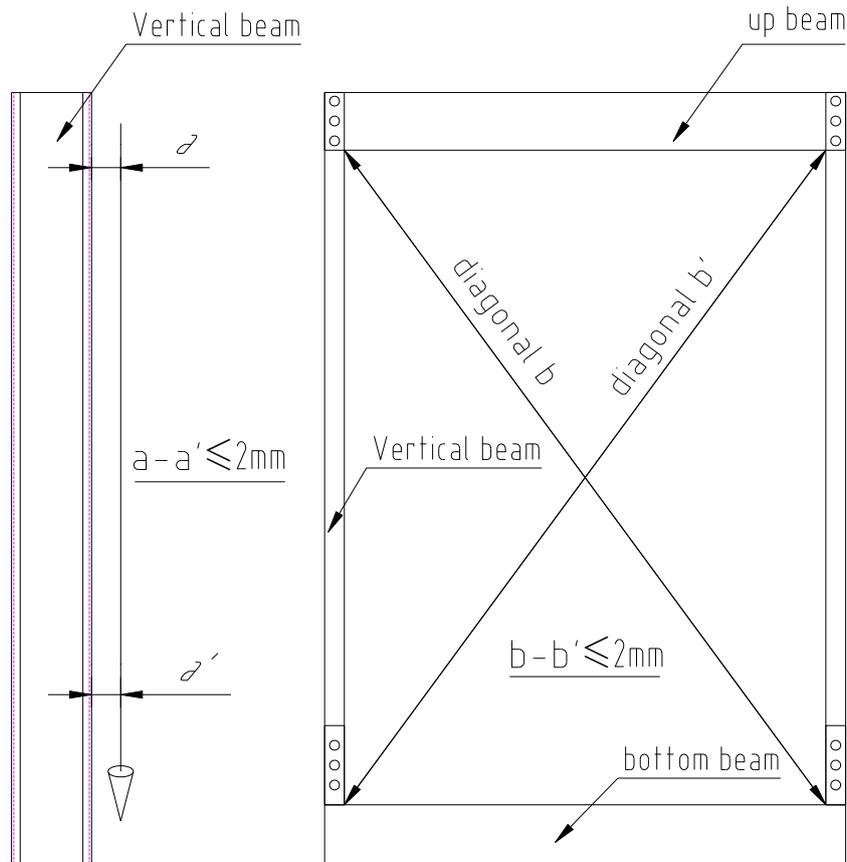
9.3 Installation of guide shoe

0907	Use fasteners to pre fasten four car guide shoes on cross beam and lower beam.
0908	Check the cross beam horizontal deviation with gradienter less than 0.5mm after installation, the deviation between cross beam center and guide rail center is less than 1mm.
0909	Measure the stile's rectangularity deviation less than 2mm with plumb bob, then check the squareness by measuring the diagonal.
0910	Adjust the deviation between cross beam center and guide rail center less than 1mm, the inside of the guide shoe in contact with the guide surface slightly.
0911	Use a torque wrench to tighten all M16 bolts, torque = 206Nm.



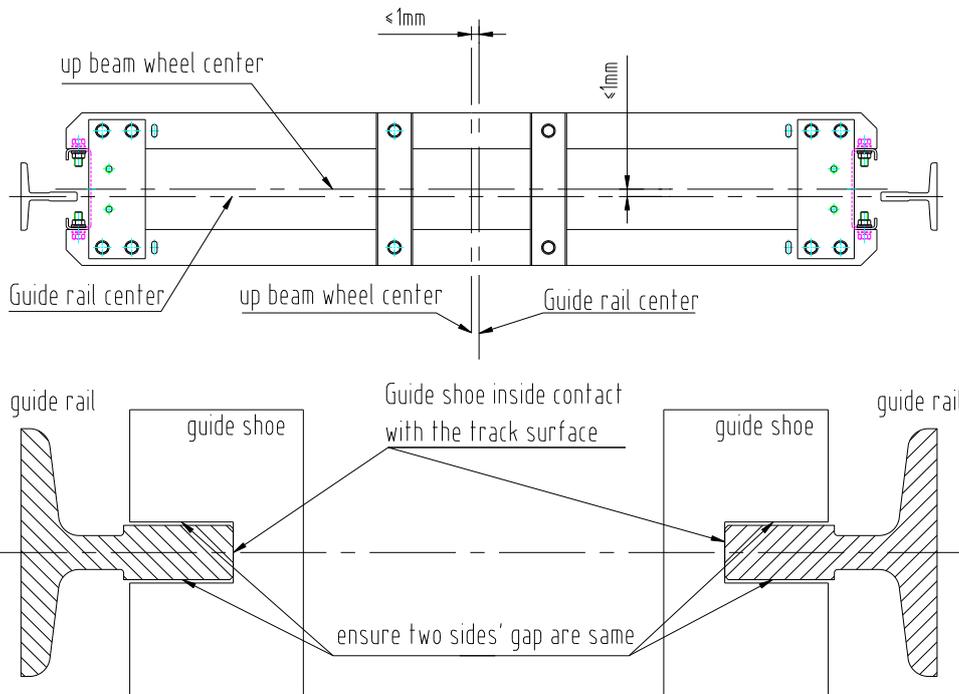
Installation of guide shoe fig

PP0906



PP0907

Adjustment of gantry framework fig

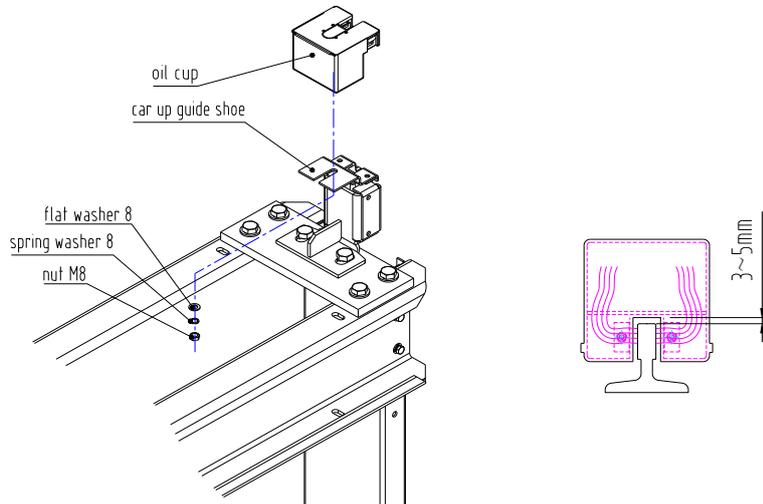


Adjustment of car guide shoe fig

PP0908

9.4 Installation of oil cup

SN	steps
0912	Use the matching fasteners to fixed the oil cup and car guide shoe firmly (note sliding guide shoe with oil cup).

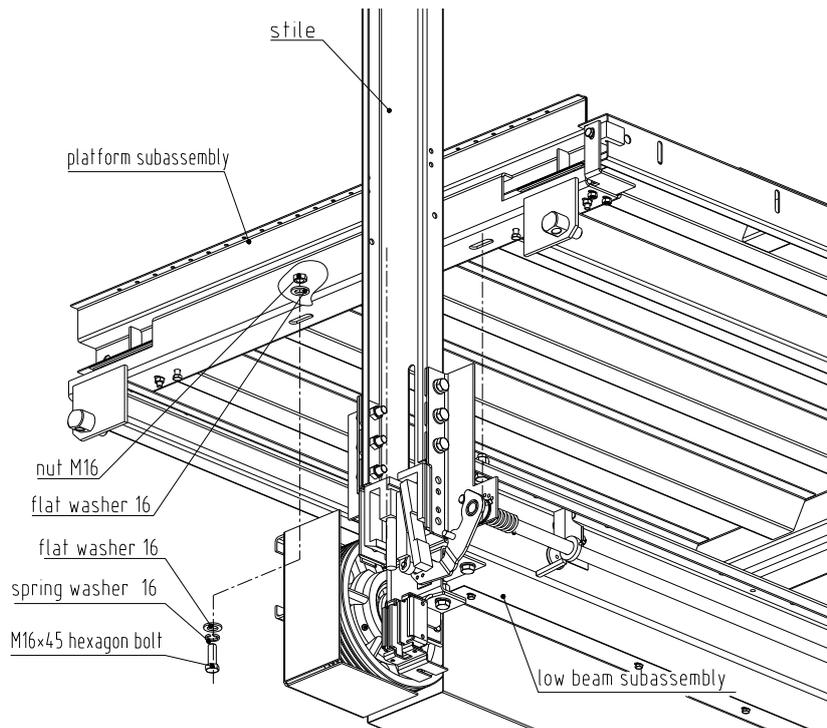


Installation of oil cup fig

PP0909

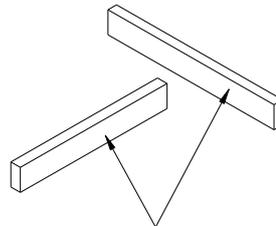
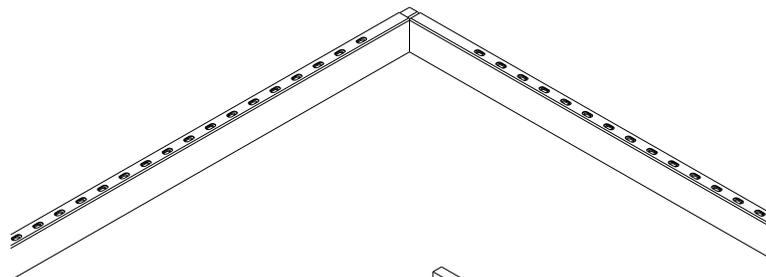
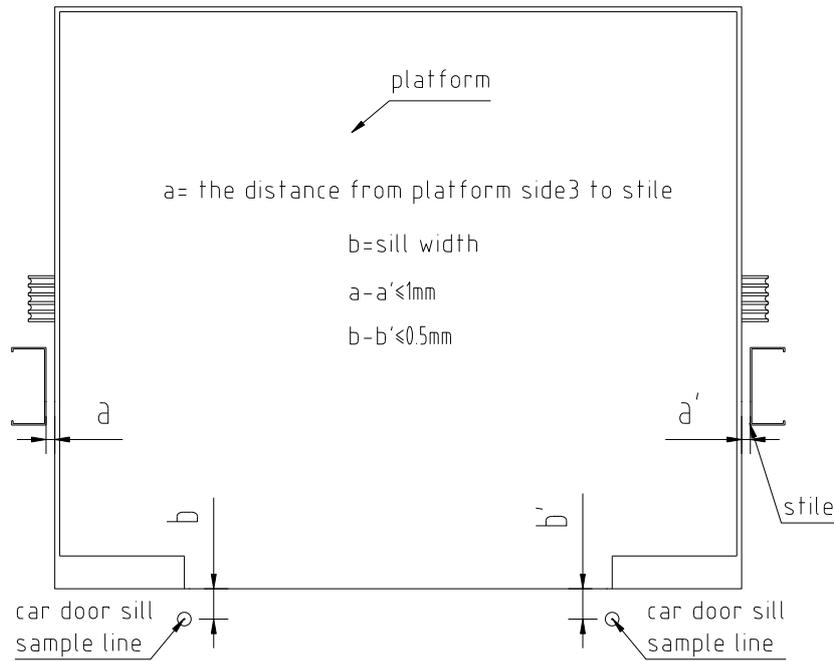
9.5 Installation of car platform

SN	steps
0913	Lifting the car bottom assembly into the shaft, pay attention to safety.
0914	Pre-tighten the car platform and lower beam by matching fasteners, adjust the deviation of car platform center and sample center less than 2mm.
0915	Adjust the car platform's horizontal deviation less than 1mm, the deviation of car platform's front and sill model line less than 0.5mm.

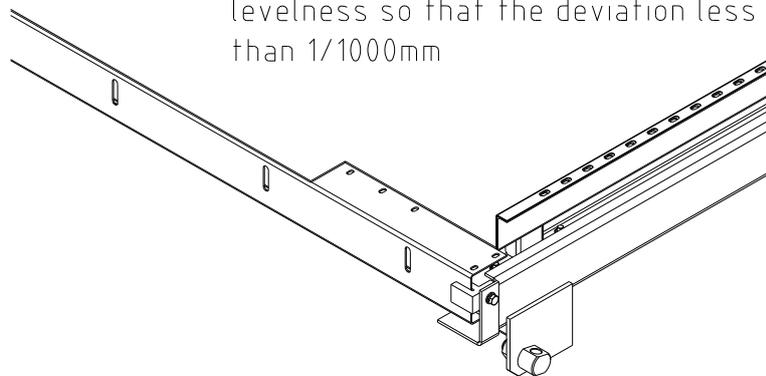


Installation of car platform fig

PP0910



level ruler measure car's up surface levelness so that the deviation less than 1/1000mm

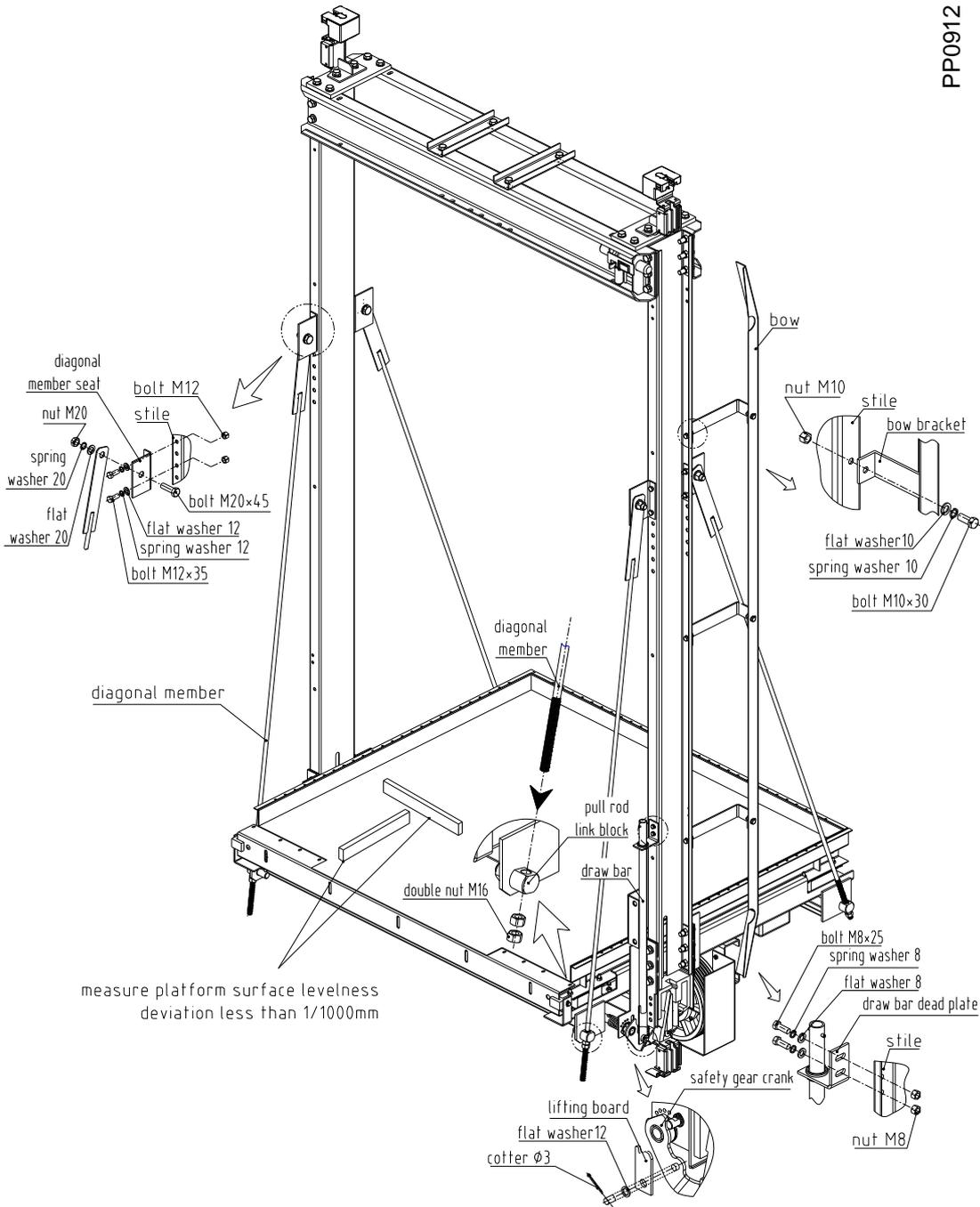


Adjustment of car platform fig

PP0911

9.6 Installation of inclined rod assembly, Pulling rod assembly and arch

SN	steps
0916	Use the matching fasteners to fixed the inclined rod components、 stile and car platform.
0917	Use lifting rod with the matching fasteners to fixed the stile and safety gear crank in terms of the speed governor's position.
0918	Fixed the bump bow components on the stile's relative position in terms of the engineering drawing.
0919	After all the parts are fixed firmly,check the levelness error of platform less than 1 / 1000mm again.

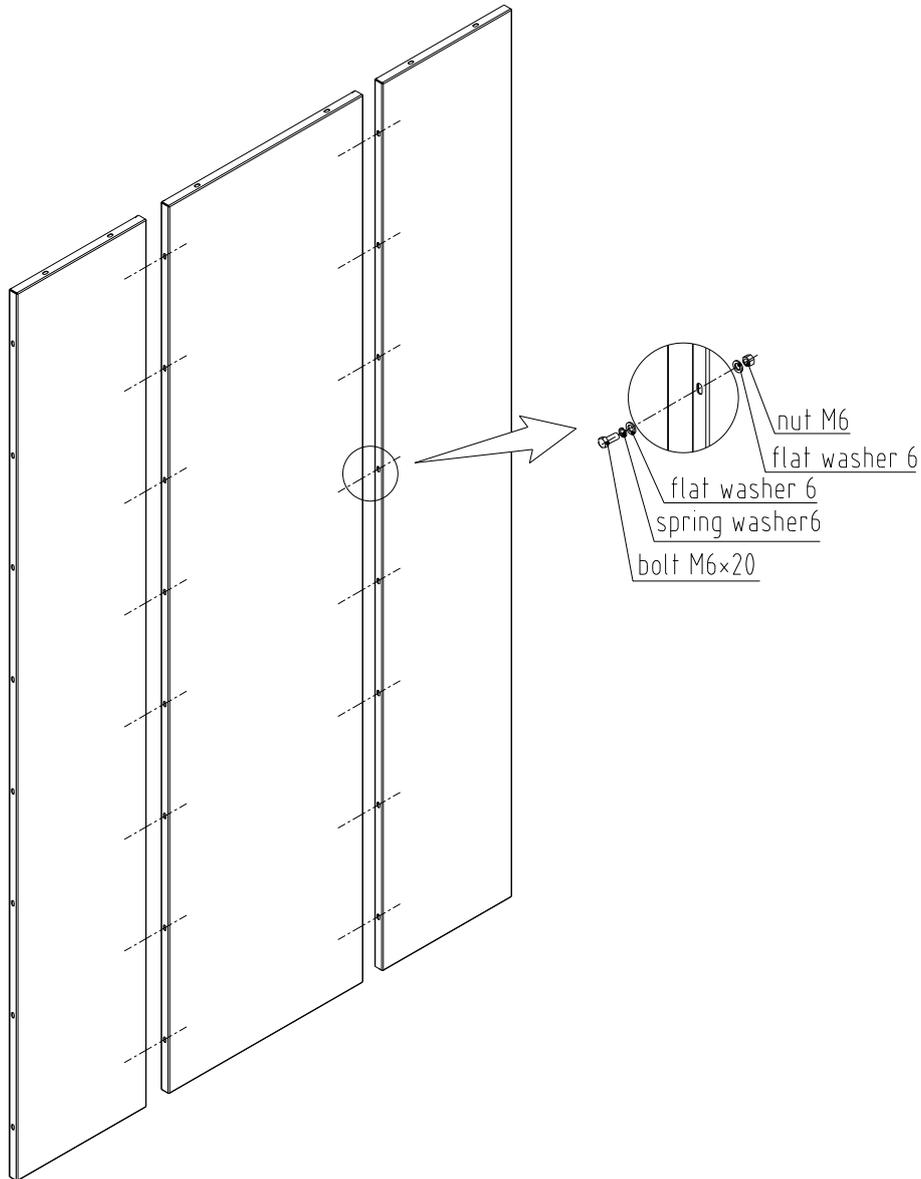


Installation of inclined rod assembly, pulling rod assembly and arch fig

9.7 Installation of car wall, ceiling, snap ring and handrail

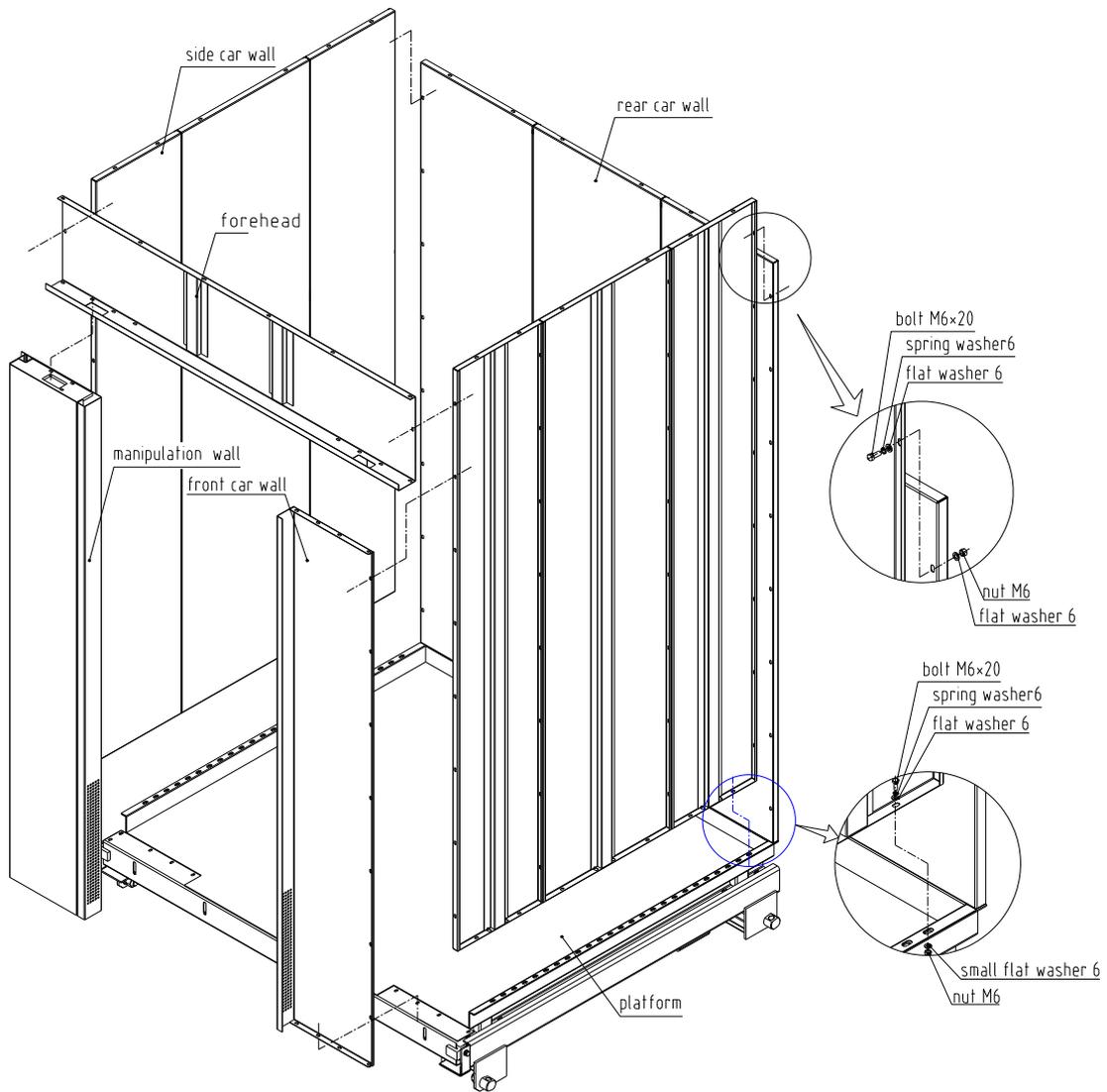
SN	steps
0920	Lifting the car top assembly into the portal frame near the cross beam as close as possible, pay attention to the safety and good protection of car roof.
0921	Assemble the side wall and rear wall outside the shaft, adjust the seam between the each walls and the flatness error less than 1mm.
0922	Carry the car wall, forehead, manipulate wall and front wall into the shaft , assemble them with car platform and car roof.

0923	Adjust the vertical error of car wall less than 1mm and the error of open door distance less than 1mm.
0924	Fixed the fasteners firmly after installing snap ring、snap ring rubber surface fit with stile surface by matching fasteners.
0925	The handrails installed on the rear side wall or rear wall in terms of requirement, ensure the height from handrail to car platform surface is 900~1100mm, the hole location and size base on the handrail.



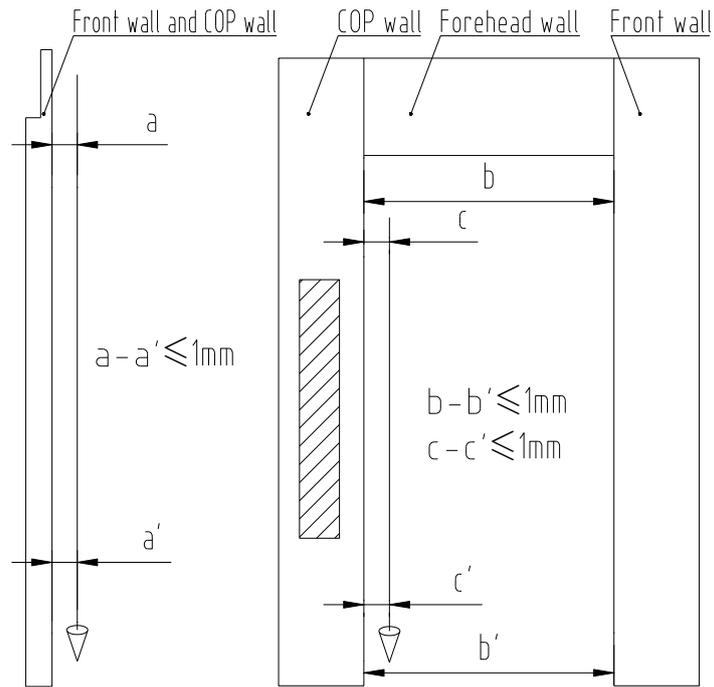
Installation of side wall and rear wall fig

PP0913



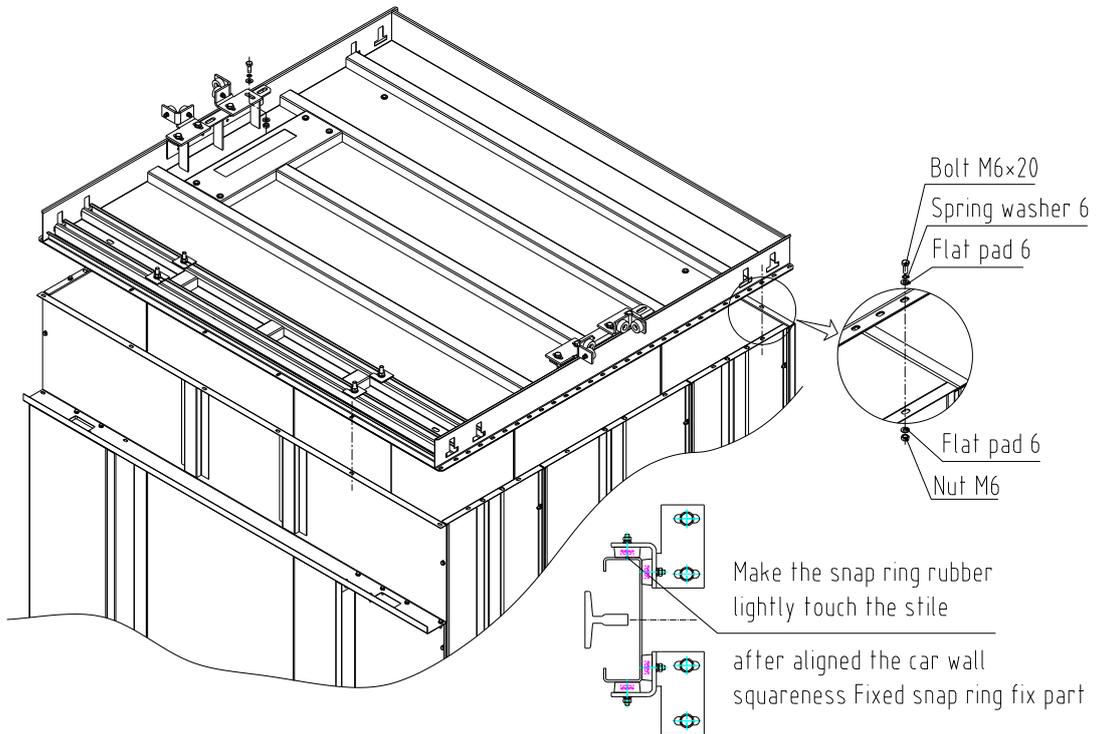
PP0914

Installation of car wall fig



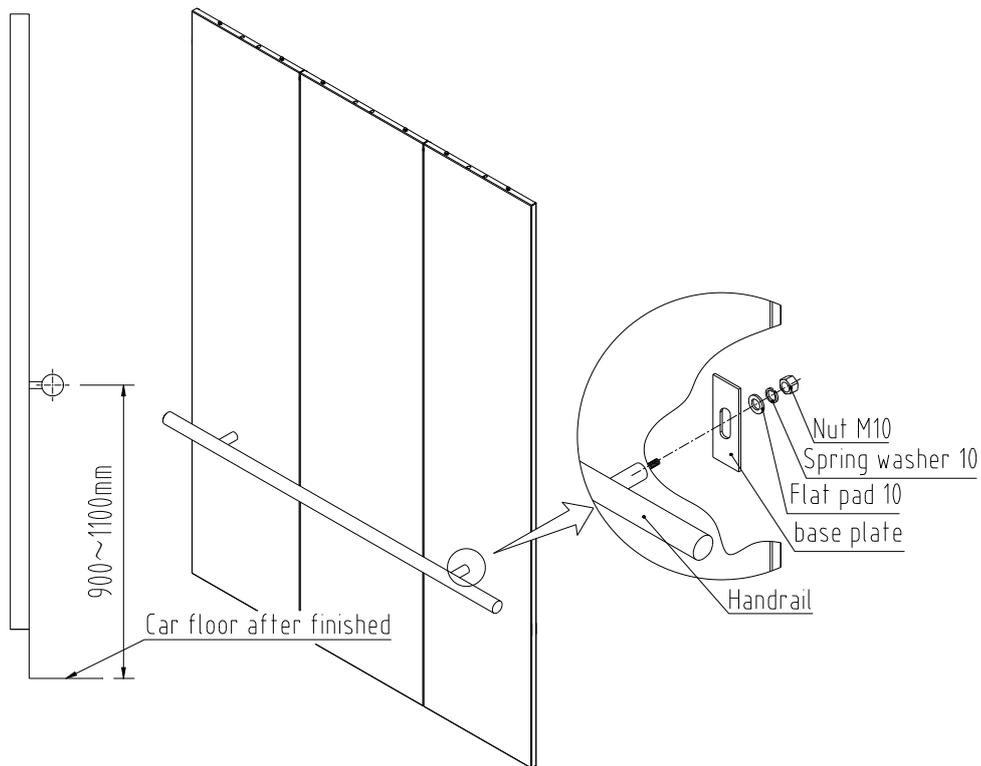
PP0915

Car wall alignment and OP confirm Fig.



PP0916

Car top and stile snap ring installation Fig.

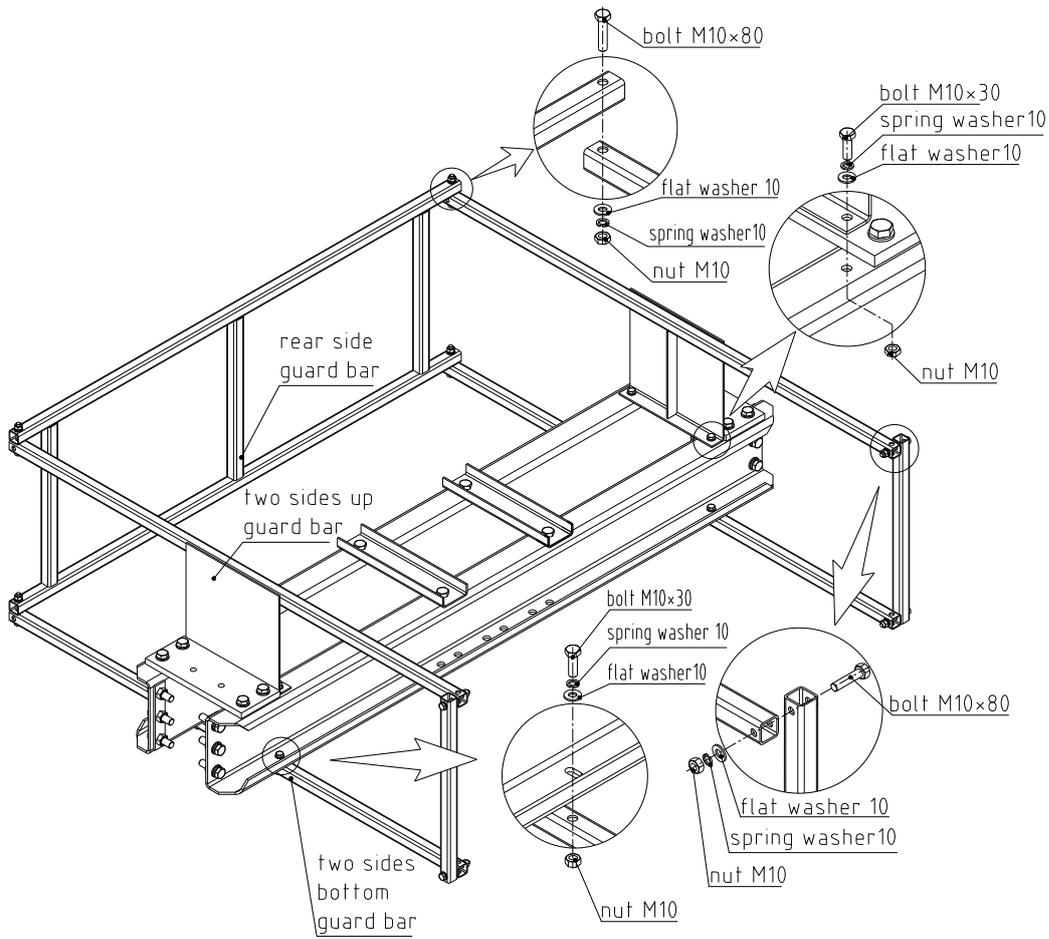


PP0917

Handrail installation Fig.

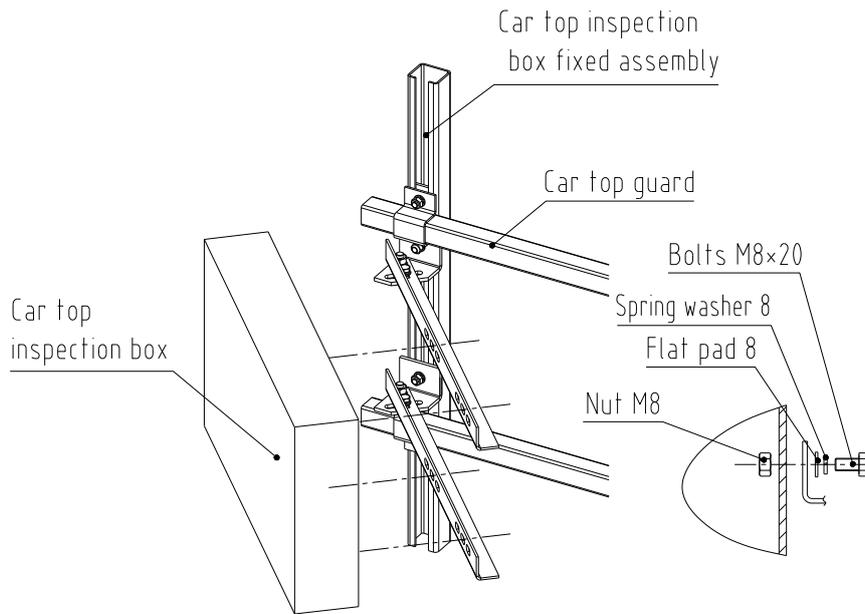
9.8 Installation of car top guard and car top inspection box bracket

SN	Steps
0926	Use fasteners to fix the car top guard above the right position of up beam. (noted post warning mark on the fence).
0927	According to the layout drawing, fix the car top inspection box bracket at one side of the car top guard (Better at same side with the travelling cable).
0928	Use fasteners to fix the car top inspection box and bracket, inspection box can revolve 90° .



Car top guard installation Fig.

PP0918

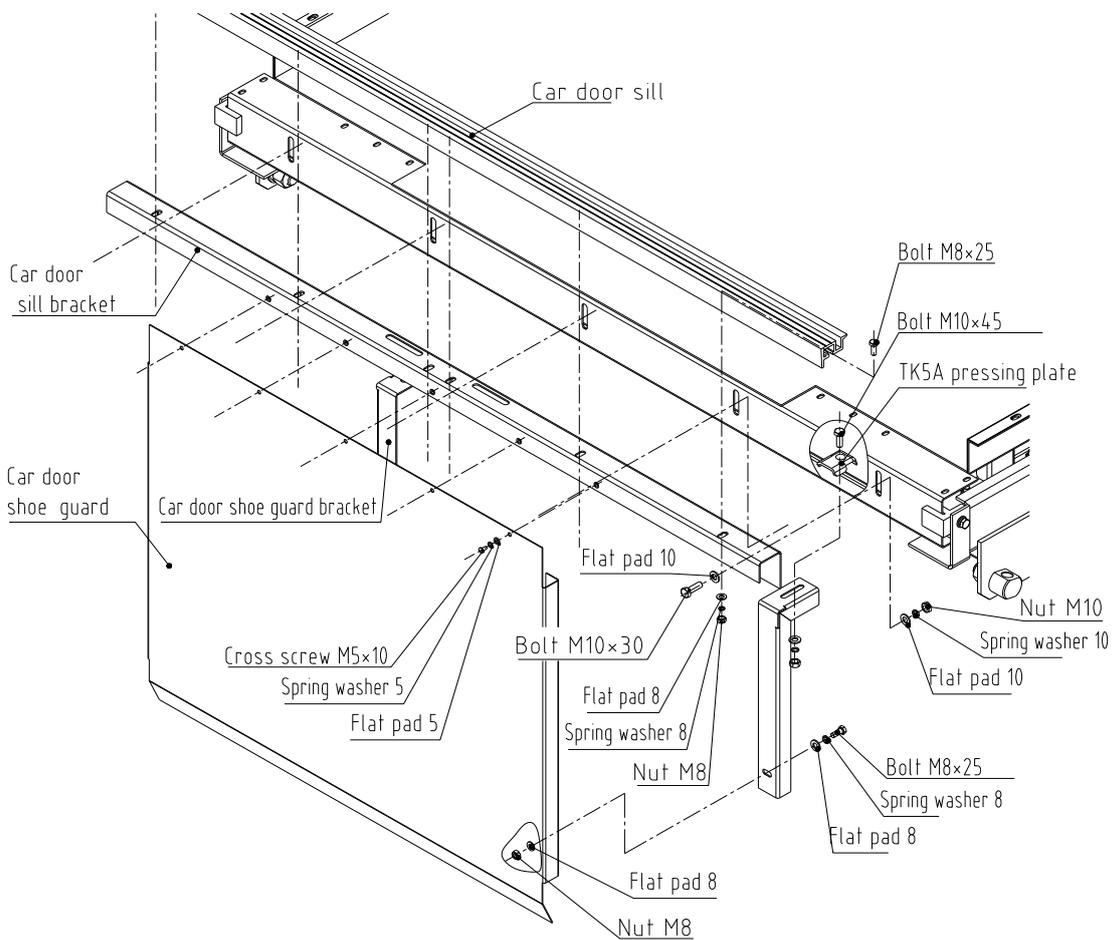


Car top inspection box installation Fig.

PP0919

9.9 Installation of car door sill bracket and toe guard

SN	Steps
0929	Use fasteners to connect the car door sill bracket and car platform.
0930	Use fasteners to connect car door sill and car door sill bracket.
0931	Adjust the sill and car decoration finished platform horizontal error less than 0.5mm, sill horizontal error less than 1/1000mm, after finished well, fixed. (Follow the installation of landing door sill Fig.)
0932	Use TK5A pressing plate assembly to connect toe guard bracket and car platform, use fasteners to connect toe guard and toe guard bracket and sill bracket.

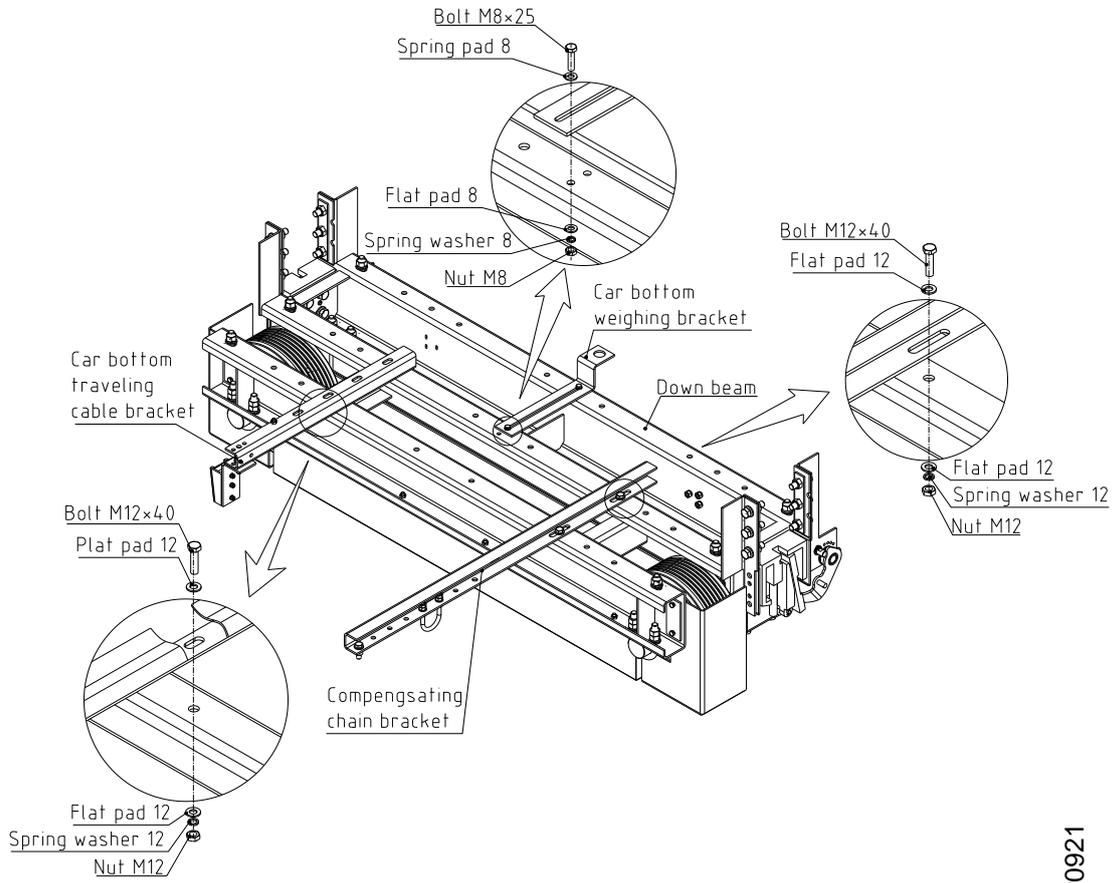


Car door sill installation Fig.

PP0920

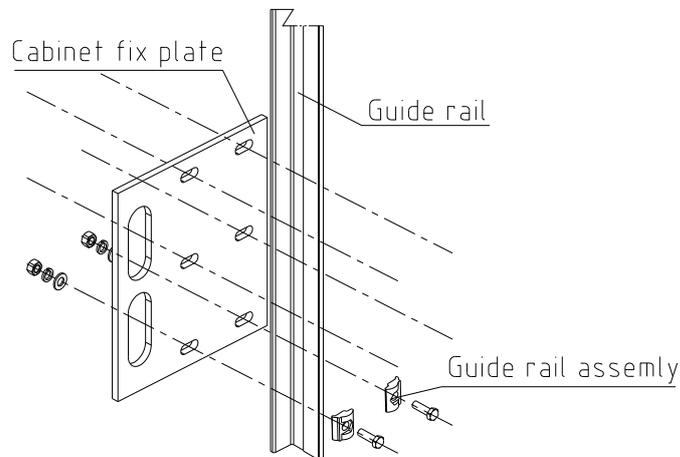
9.10 Installation of travelling cable hanging bracket、weighing device bracket、compensating chain hanging bracket

SN	Steps
0934	According to the layout drawing to fix the travelling cable hanging bracket、compensating chain hanging bracket on the right position of down beam.
0935	Use fasteners to fix the travelling cable hanging bracket、compensating chain hanging bracket with down beam.
0936	Use fasteners to fix the weighing device bracket with down beam,note that bracket switch fix hole sectional direction avoid the car platform stiffener.



PP0921

Installation of travelling cable hanging bracket, compensating chain hanging bracket Fig



Installation of car fix plate Fig.

PP0922

Introduction 10 Installation of traction rope



Elevator rope parts due to millions of times different tension will limit its life. When the effect of the rope through the pulley and sheave it would be bending stress, in addition to bending stresses as well as internal and external friction stress, which causes the relative sliding between the rope and the rope and the internal displacement by the traction sheave.

Obviously, the rope during transport, the correct approach to avoid damage to the rope, proper storage and installation and maintenance work can extend the working life of the rope.

Caution

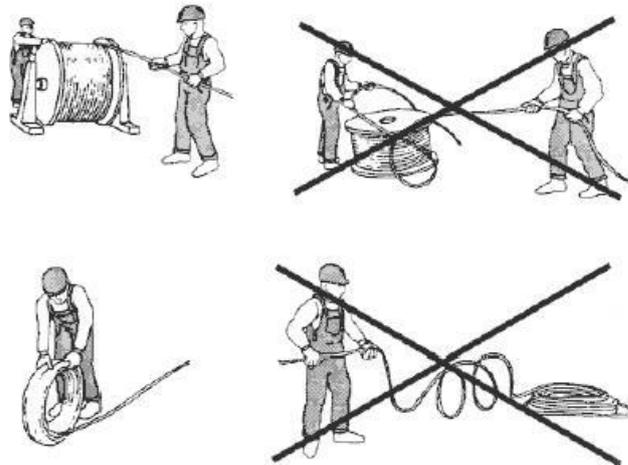
Wire rope to be placed in a dry, clean and frost-prevent place, while they can not be stained with dust and garbage. It is important the rope can't be knotted and twisted.

Deal with wire rope

10.1 Deal with wire rope

Put wire rope

Rope basic principles must be observed (Figure). Over the side of the plate to put the rope sheave or when the ring-shaped rope on the ground will cause the shares or taut rope loose when pulled out, the process of pulling the rope knotted the rope around will change the original structure can no longer recover, outside application of force will result in an uneven rope length, the result will make every rope of discontinuity in the rope and put into use shortly r the rope inside the shares become longer.



PP1000

Relax wire rope Fig.

During the installation process knot is due to incorrect Matsunawa methods or did not pay attention to some of the spinning rope to stay on top in the production process. If this is the case to get the rope (pictured), the rope should begin around and restored to its original shape from its end.



Rope knotted and damage Fig.

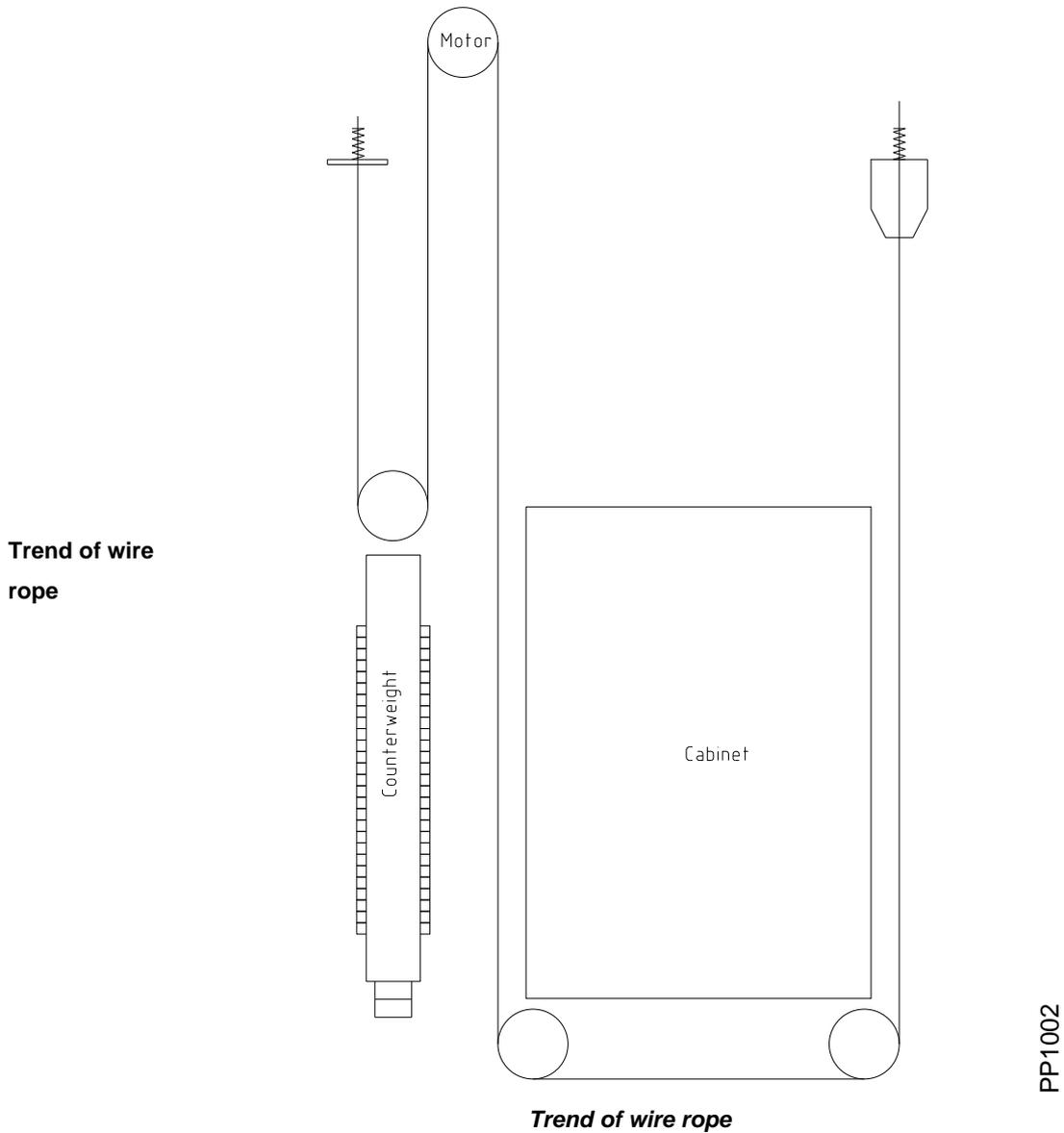
PP1001



Knotted rope twisting to loosen relied on its own, if it is directly affected by the force will cause permanent damage, so you can not use the rope must be replaced.

Before installing wire rope to be the best stress relief process, the whole bundle of wire rope for the interception of the same length in accordance with the needs of wire rope, wire rope end splint suspended vertically in the shaft at least one day.

10.2 Trend of wire rope



Installation of wire rope

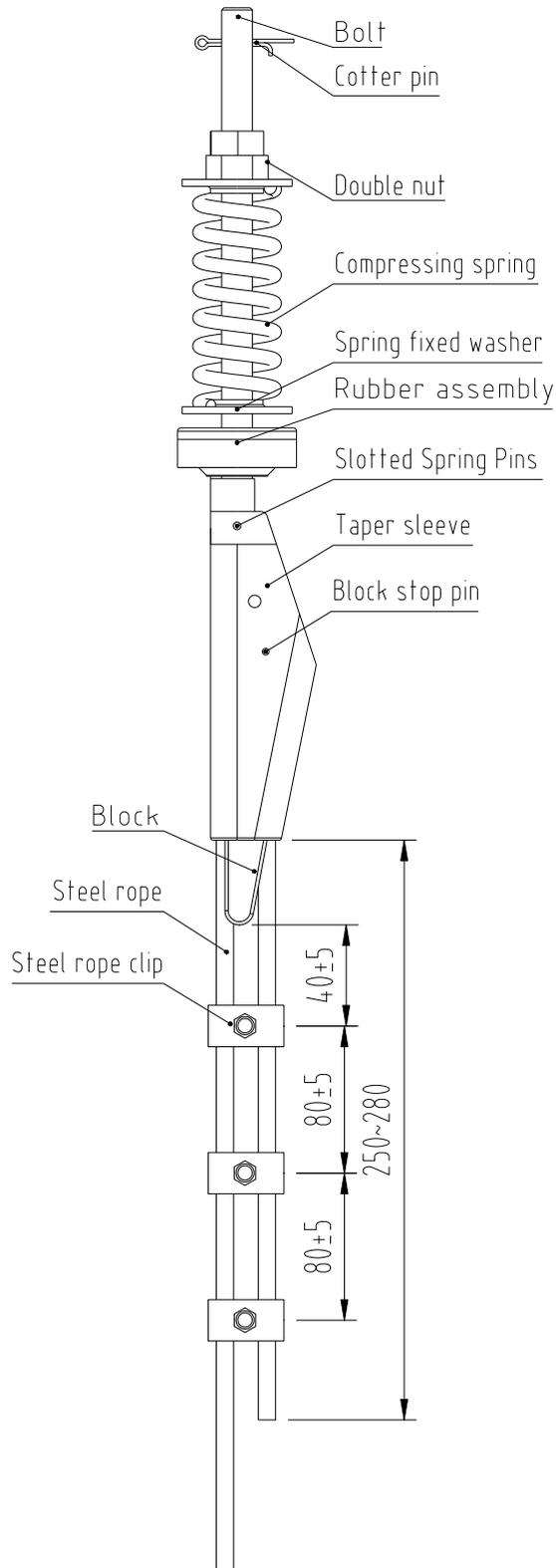
SN	Steps
1000	As Fig to install wire rope on the traction sheave.
1001	Intall wire rope anti-rebound device and traction sheave guard.



Caution

The symmetrical arrangement in the traction sheave rope center (to ensure proper load bearing and prolong the life of the traction sheave is very important).

10.3 Installation of wire rope and rope socket

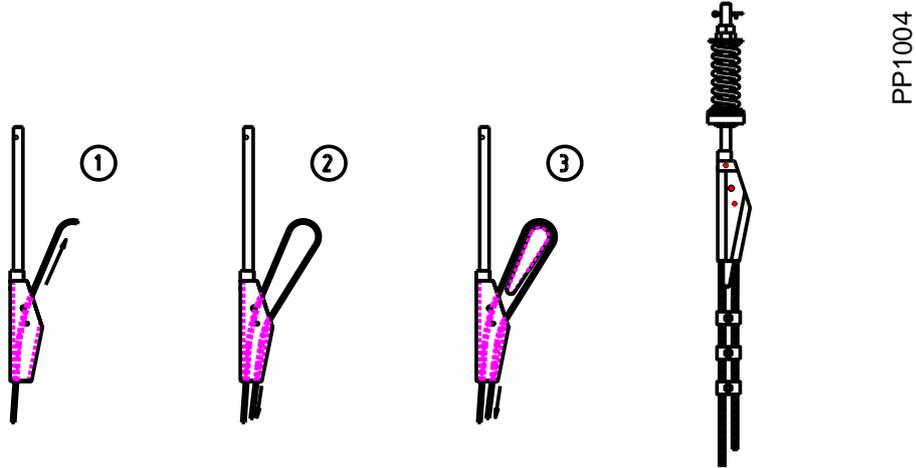


Wedge rope fixed device Fig.

PP1003

Fix rope socket and wire rop

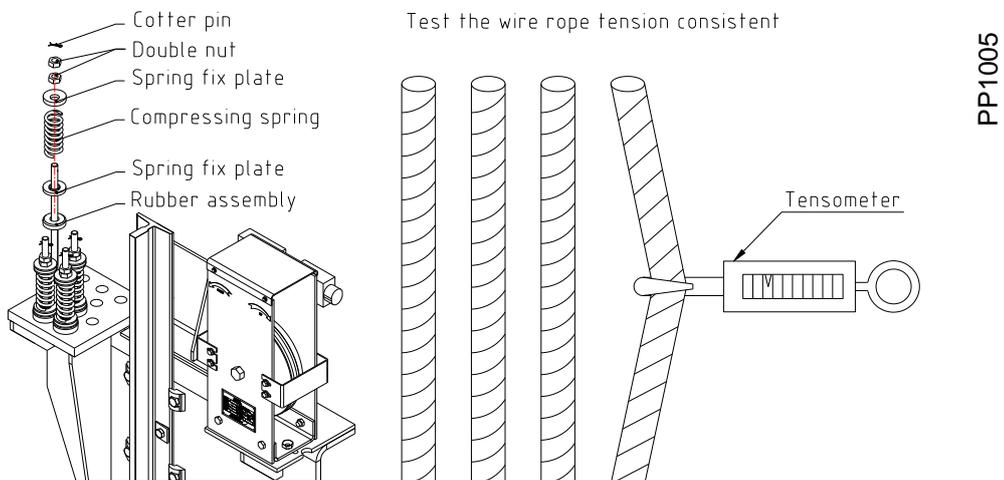
SN	Steps
1002	Unplug wedge block stop pin, remove the wedge block, penetration by the lower end of the rope wedge sets.
1003	Incoming length of about 360mm or so, will be introduced in a circle rope circle.
1004	Fill the wedge block into the ring.
1005	Pulled up next to the rope clamp one end of the rope firmly until the ropes properly fixed wedge block.



Installation of rope socket and wire rope Fig.

Fix rope socket and rope hitch

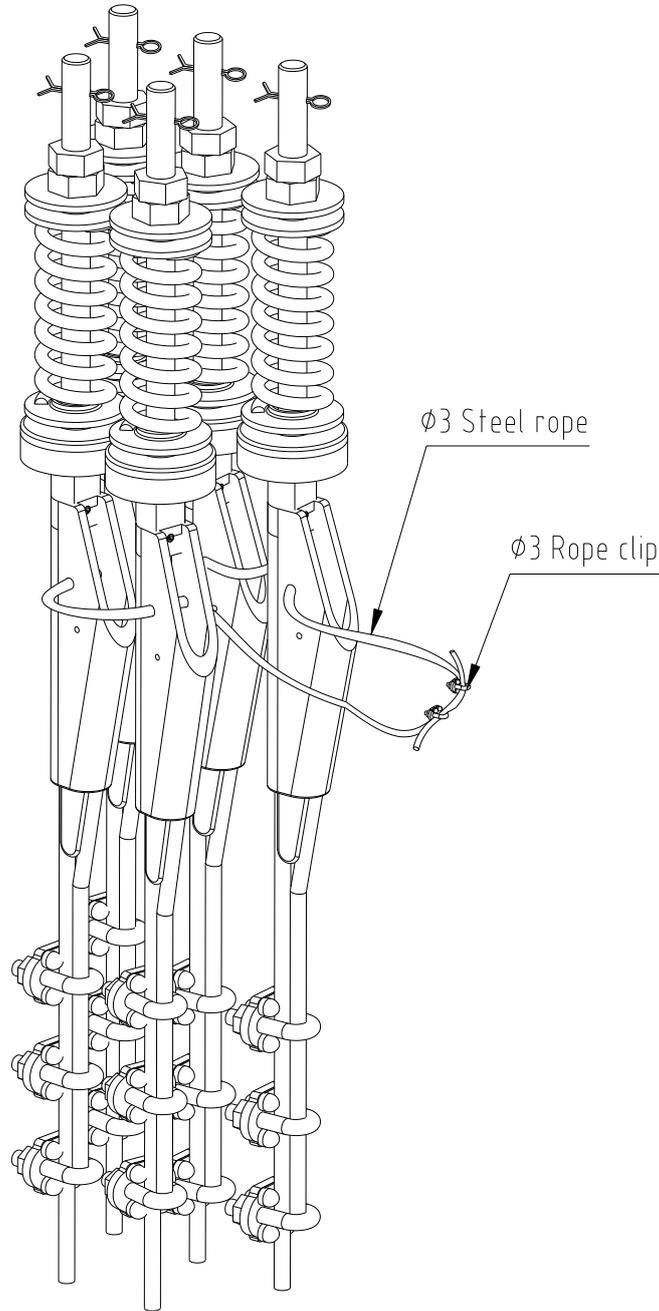
1006	Insert the rope connect device into the hitch.
1007	Use M16 hex nuts and washers, springs, washers and bushings to install the appropriate amount of rope connected device.
1008	Tighten the M16 hex nuts, washers, springs, washers and bushings. With cotter pin locking rope connecting device.
1009	Other rope installed the same way and check the tension rope. If there is a rope than other loose or tight, you can loosen the rope wedge block adjustment. When all the rope head nut highly consistent, put down the car, so the car hanging on the rope.
1010	Check the tension of the rope and the rope with a nut on the bolt to adjust so that the rope tension equal, remember not to let the wedge block folder spinning.
1011	Adjust each rope tension $\leq 5\%$.



Installation of rope Fig.

Rope anti-reverse

1012 As shown use a rope to through each rope socket wedge block bolt holes and fixed with clamps to cross, which is used to prevent rope spinning.



Installation of rope anti-reverse Fig.

PP1006

10.4 Speed governor steel rope



Danger

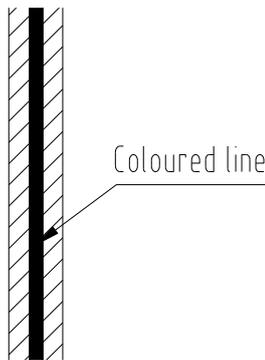
- Install steel rope need more than 2 people.
- To move slowly to ensure justice for rope control (balance)
- When pull the rope all the staff to stand outside the hoistway.



Caution

Before installing the governor rope ,rope tensioning weights, safety gear and speed limiter with mechanical linkage device must be installed and adjusted, rope installation and size of these components must be matched.

SN	Steps
1013	Let the car to the lowest level position.
1014	Make the speed governor rope through the roller wheel and tension wheel to fix on the rod,fasten by the rope socket.
1015	Lead wire rope length of about 180mm, a chuck distance of 50mm and fixed 3 units on each side .
1016	Use the coloured line(1) to check rope if revolved over 1 roll by each 50 m.



PP1007

Check rope twist Fig.

10.5 Check the rope tension and lubrication

The first prerequisite is to make every run the same rope tension rope tag line to a straight line. In operation, the torque due to the rope and rope allow slight deflection angle spinning. During operation of the lift, the maximum allowable amount of rotation of the rotating wire rope not more than one rol in the 33m length. Rope is not twisted in one direction and the other direction to compensate for its spinning, spinning if the rope has a (defective installation, the larger the deflection angle of the rope defective products, etc.) and have visible defects, it means that the majority of when the rope is no longer fixed. The tension balance of the rope influence the quality of the elevator run, imbalance of the rope can make the trunking damage and short the traction wheel life.

In the last inspection,the rope tension must be checked.

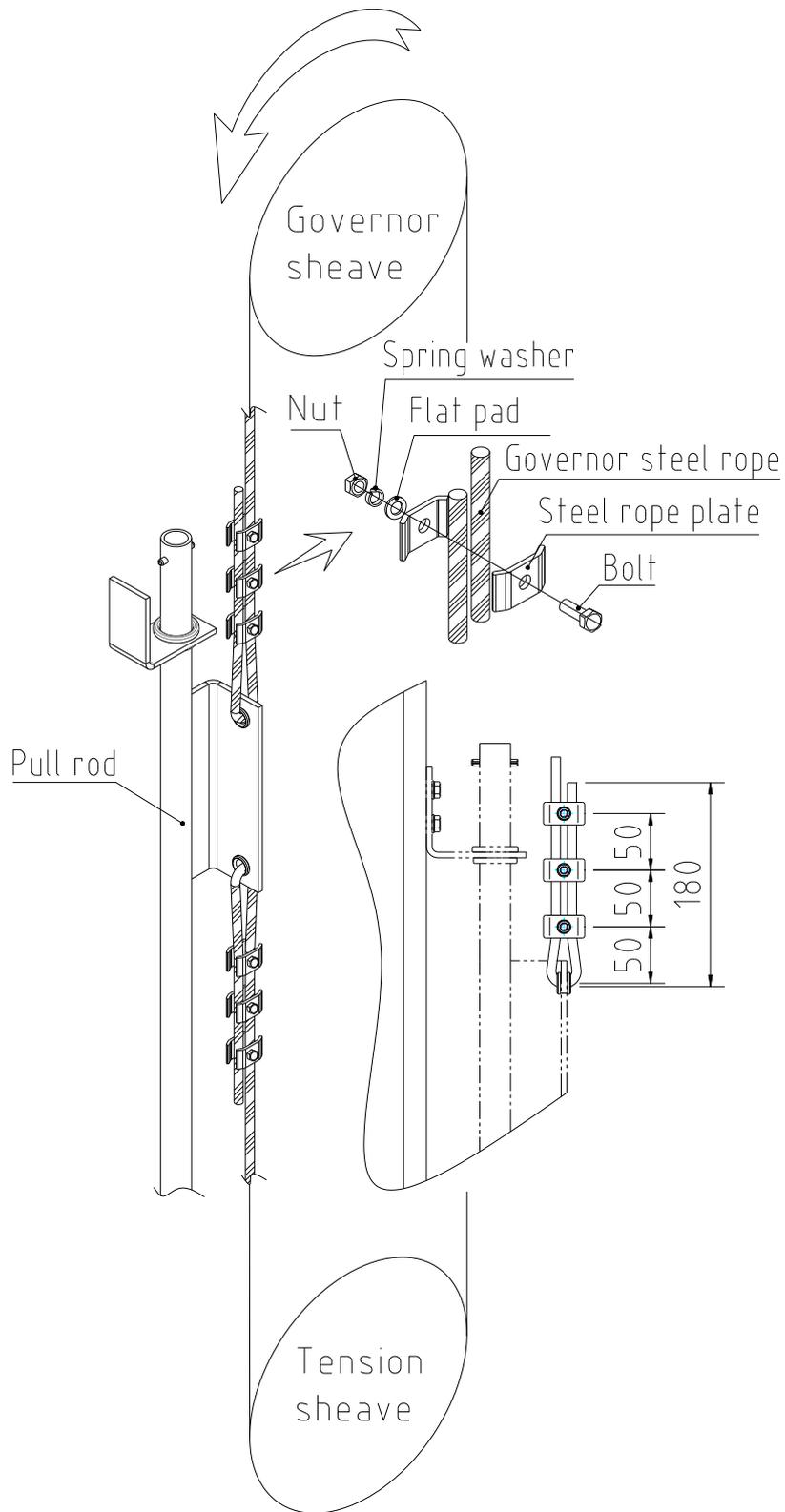
After running some time,observe if the rope re-long,for the high floor,if needed can cut short the rope.

order to reduce rope wear and corrosion and prolong its working life, in the production process of the new rope has been lubricated, in case of a long storage time, the lubricity will be reduced. In order to check the lubrication of wire rope, rope finger crossed, if not feel the fat, you need to lubricate again.



Caution

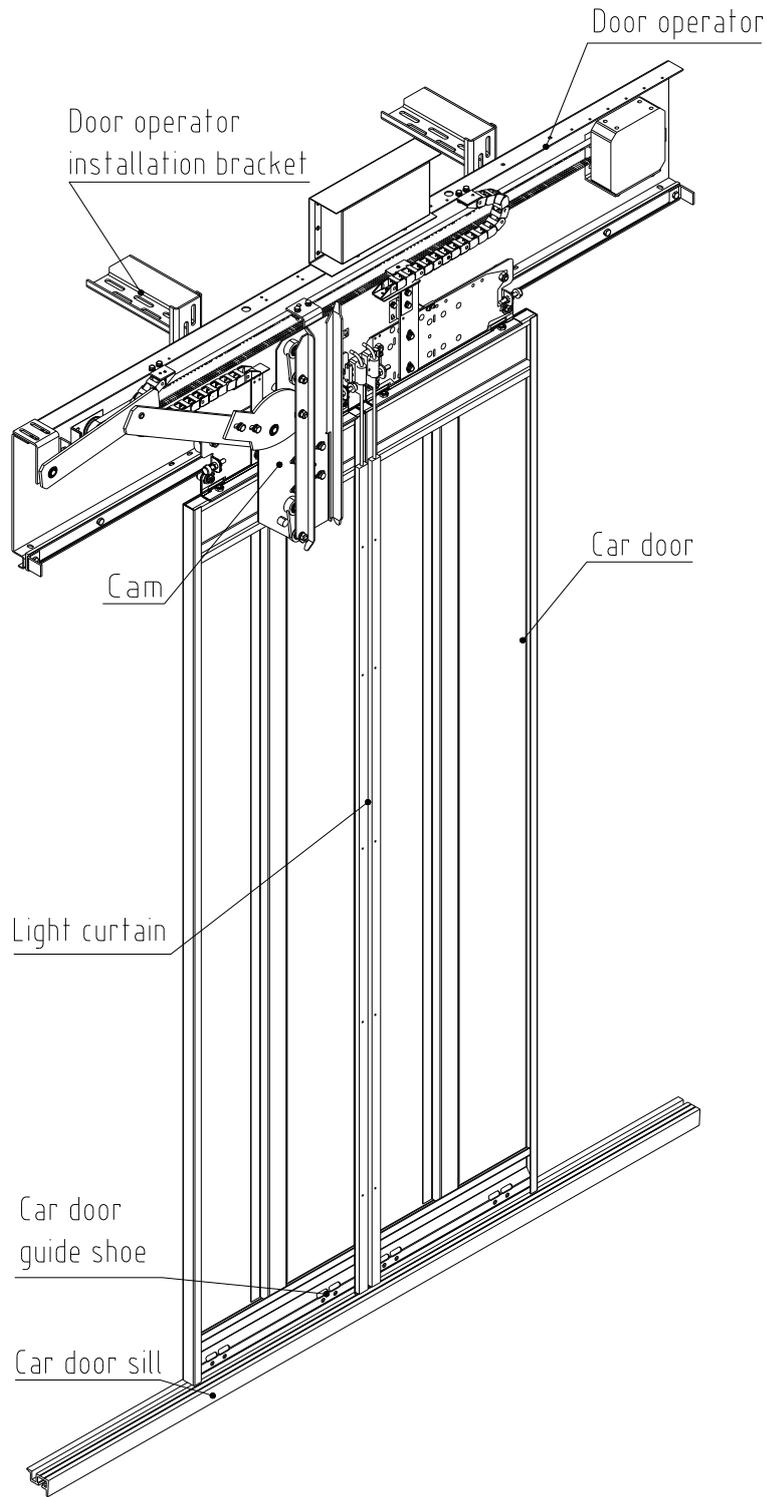
If the rope over a certain period of storage ,the lubrication substantially disappears. In this case, the rope must be re-lubricated during a test run.



Connection of speed governor rope and pull rod Fig.

PP1008

11 Installation of center-opening door operator

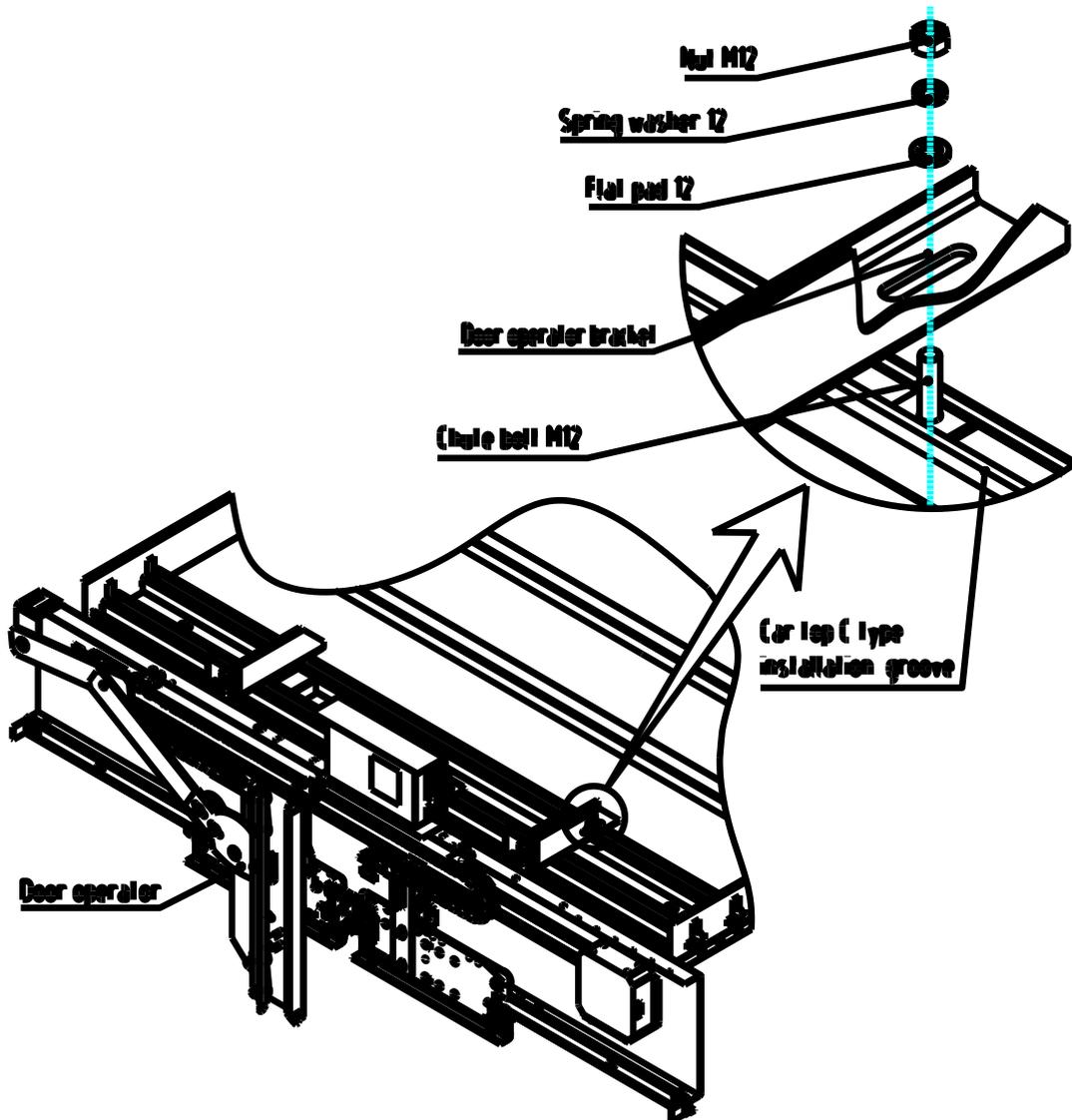


Center opening car door Fig.

PP1100

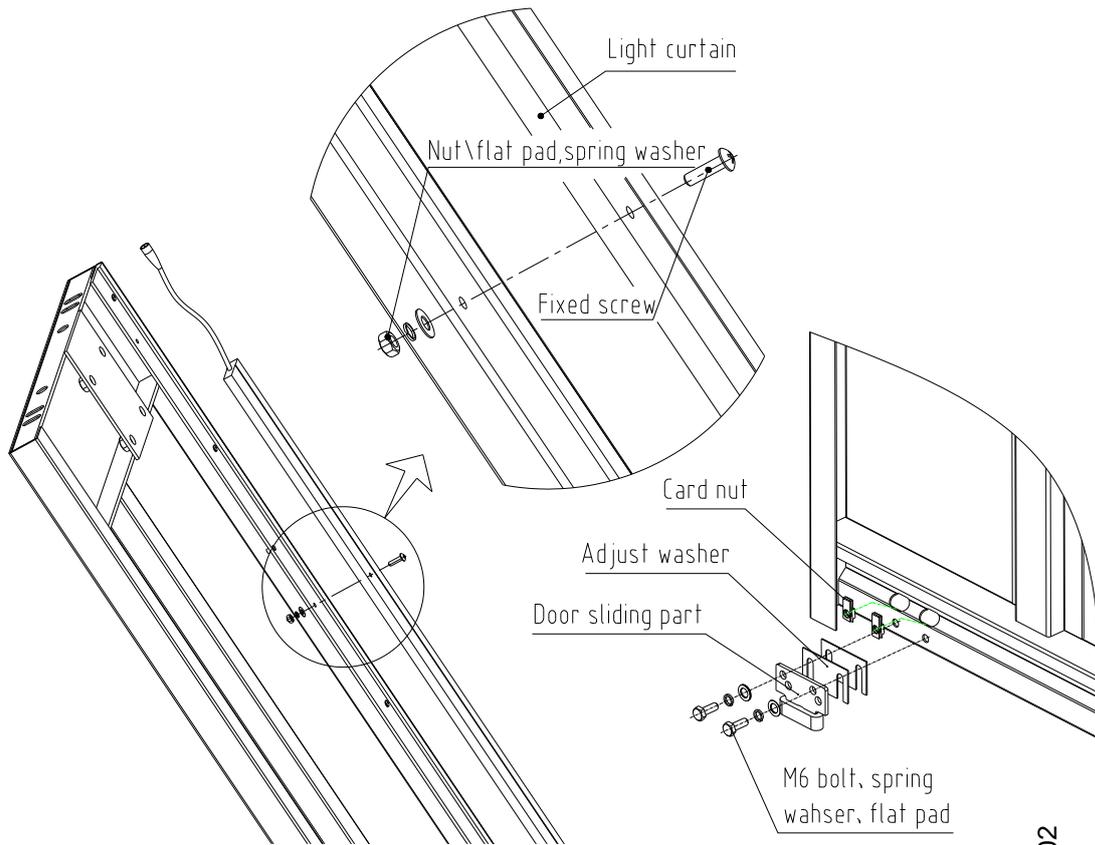
SN	Steps
----	-------

Installation of CO door operator	1100	Check the car door size.
	1101	According to the door open height.,use the fasteners to fix the door operator on the car top by triangle bracket.
	1102	Installation and adjustment refer to the manual.
	1103	Use fasteners to fix the door guide shoe、light cuitain and car door.
	1104	Use the door operator fastener to fix the car door and operator hanging plate and cam basement.
	1105	Car door adjustment refer to the langding door adjustment.



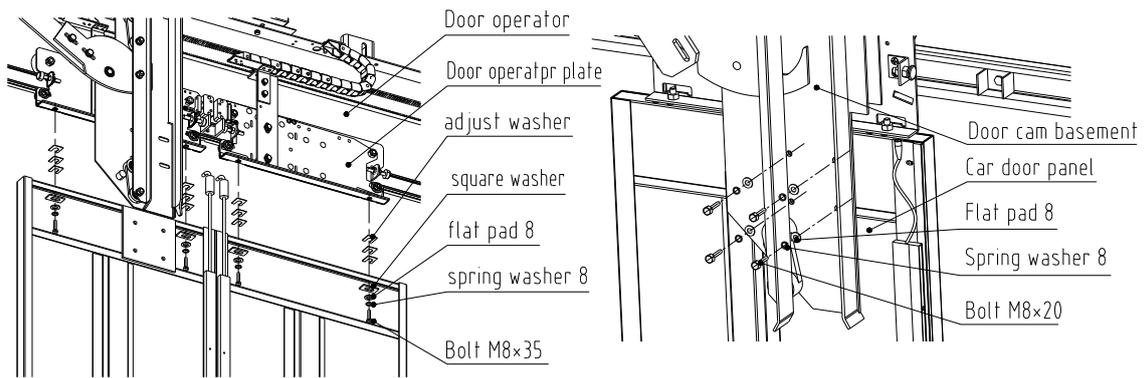
Installation of CO door operator Fig.

PP1101



PP1102

Installation of car door and light curtain Fig.



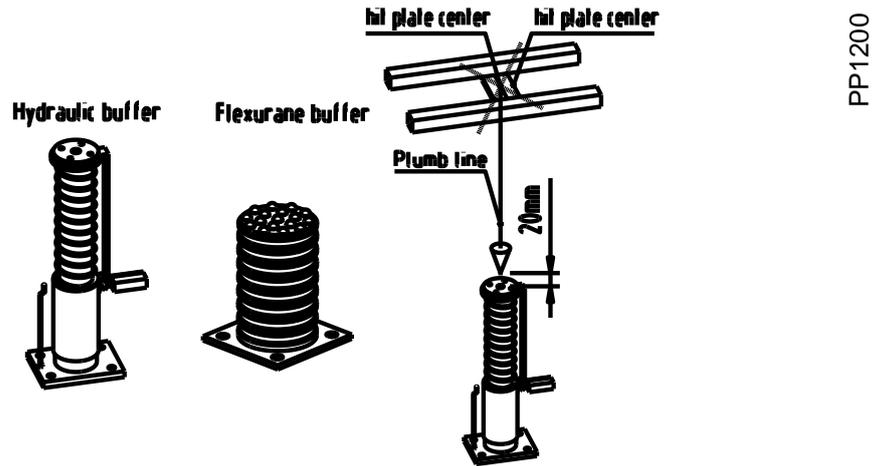
PP1103

Installation of car door and door operator Fig.

12 Installation of buffer

Kinds of buffer

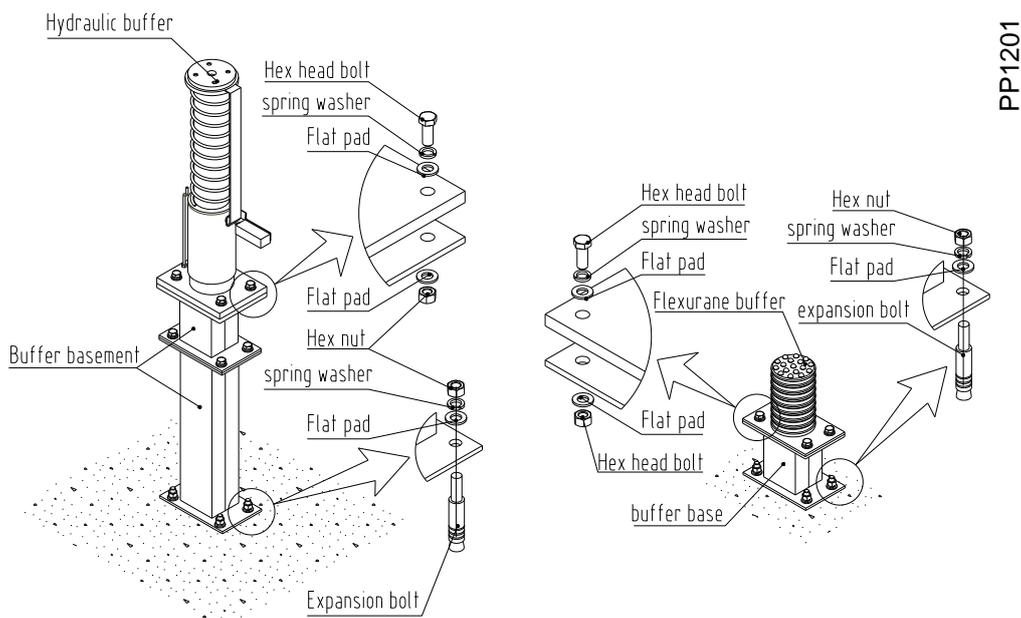
SN	Steps
1200	Buffers are roughly divided into two types of: energy consumption and energy storage.
1201	Energy consumption type is hydraulic buffer, energy storage type is polyurethane buffer.



Kinds of buffer and position

Installation of buffer

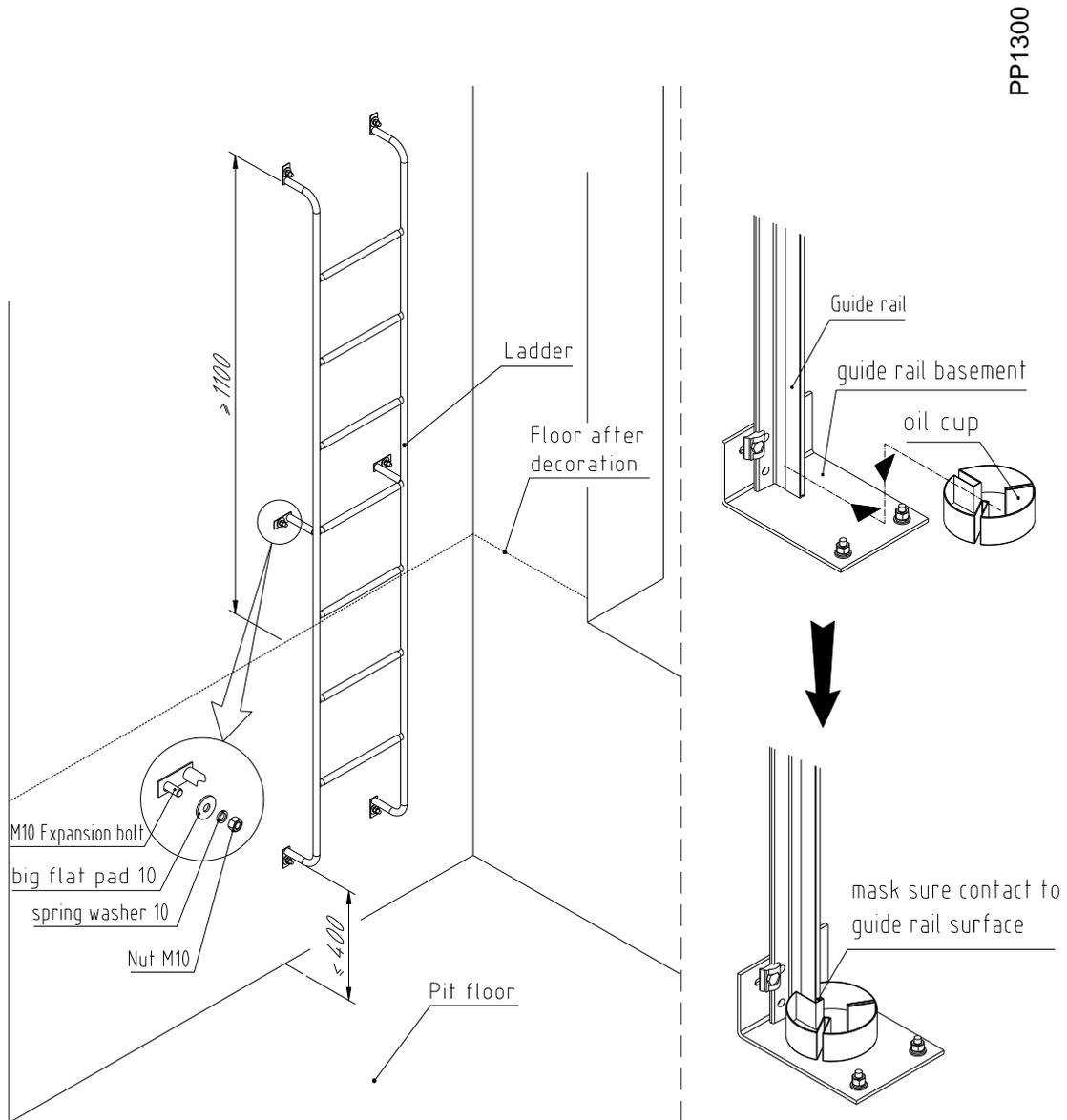
SN	Steps
1202	Refer to the layout drawing.
1203	By car and the car hit the board underneath the beam to determine the consistency buffer stakeout line center and hit the center of the plate.
1204	Fix the buffer in the pit by the matching expansion bolts, attention fix firmly not shake.
1205	Use the fasteners to connect the buffer to the basement. (have the situation to install the buffer on the floor directly).



Installation of buffer Fig.

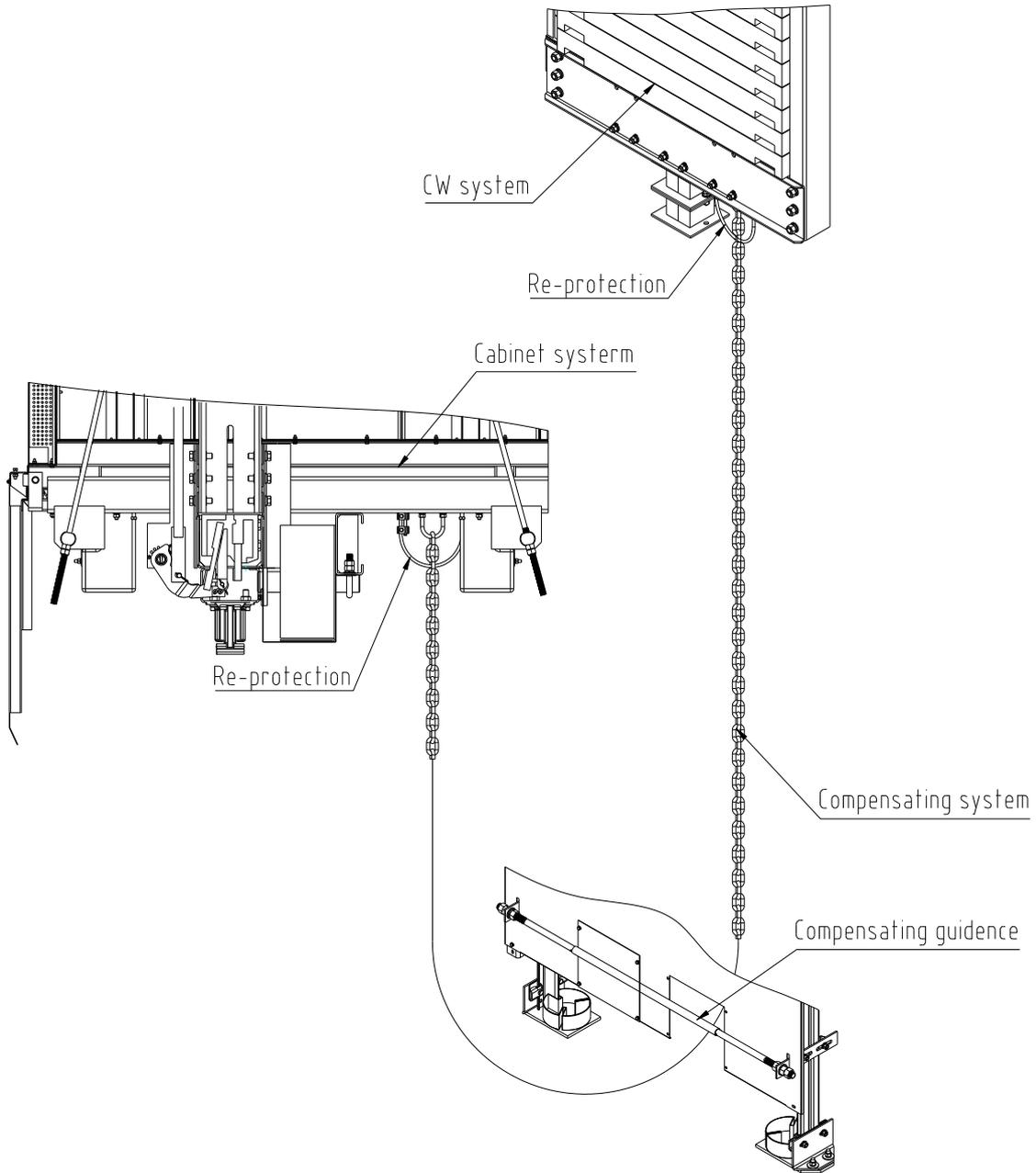
13 Installation of pit ladder and oil collected box

SN	Steps
1300	Refer to the layout drawing.
1301	Fix the ladder by 4 units expansion bolts on the shaft side wall, the right position refer to the fig as below.
1302	According to the guide rail width, will be inserted into the respective side rail, so that the three face fit.



Installation of pit ladder and oil collected box Fig.

14 Installation of compensating chain

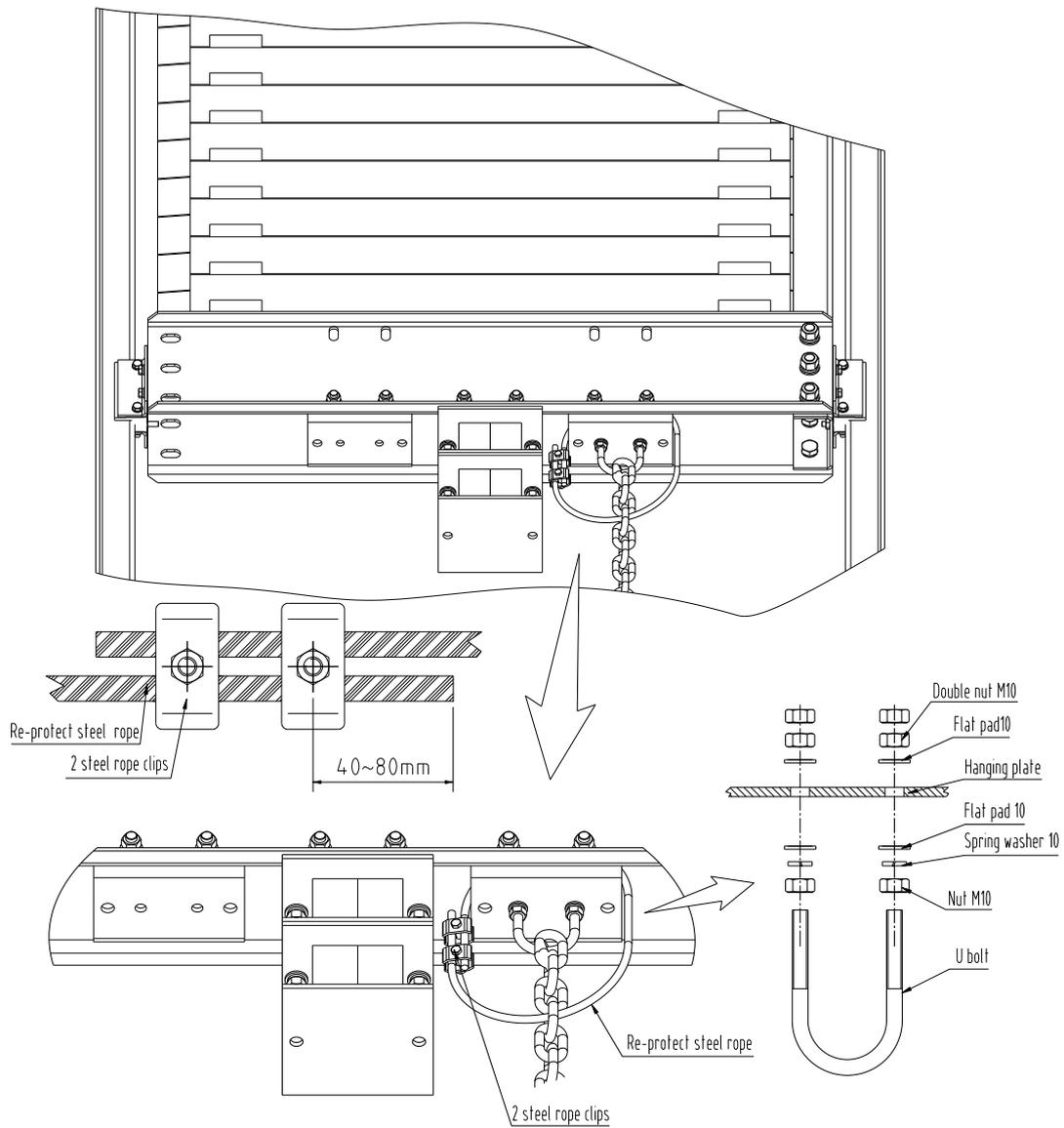


Compensating system Fig.

PP1400

SN	Steps
----	-------

CW side compensating chain install	1400	Fix the compensating chain on the counterweight base by U part.
	1401	Use a $\Phi 8$ steel rope and 2 units clips to do secondary protection, clips fixed firmly, wire rope ends more than a 40 ~ 80mm.

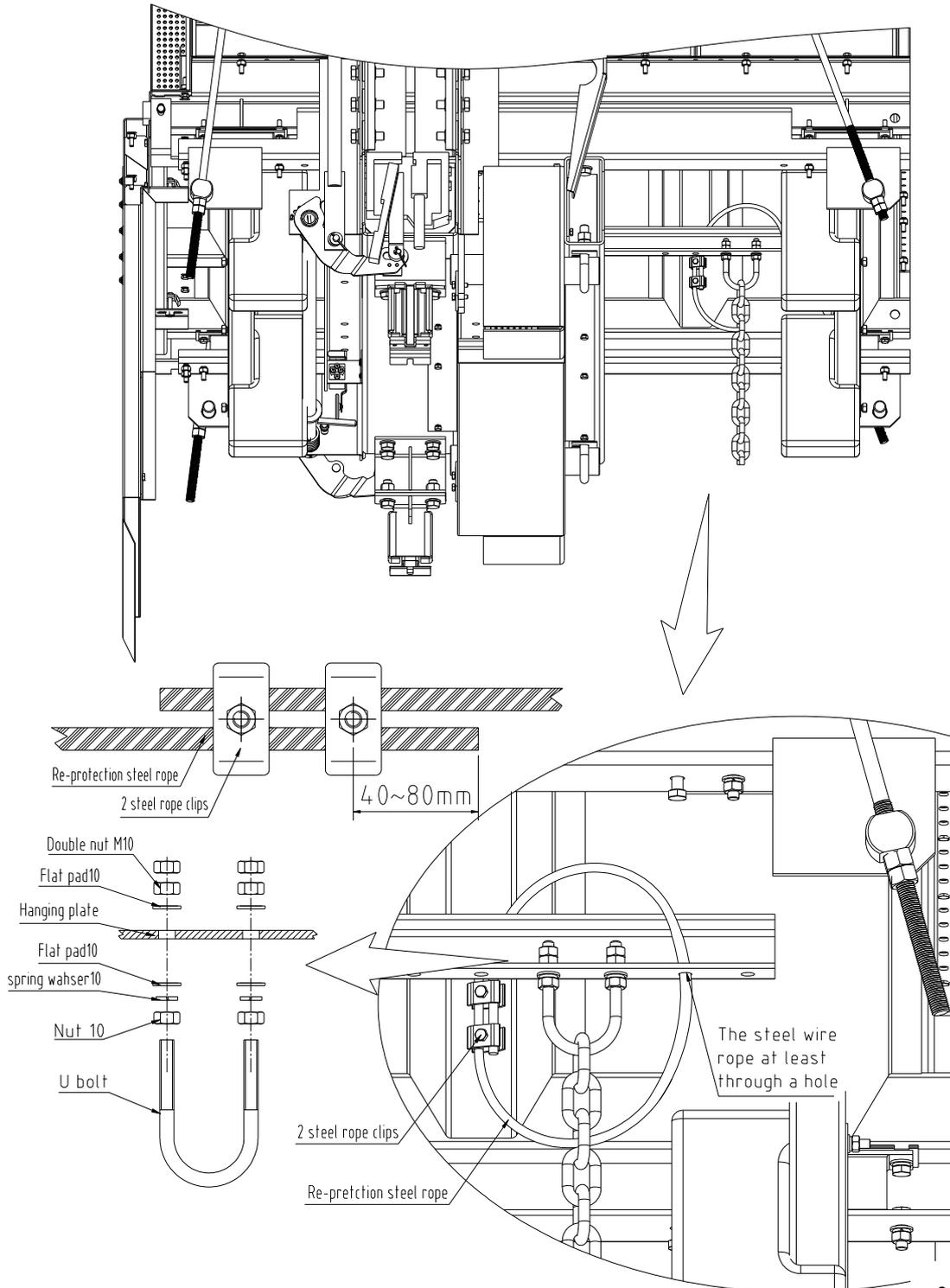


PP1401

Installation of CW side compensating chain Fig.

SN	Steps
----	-------

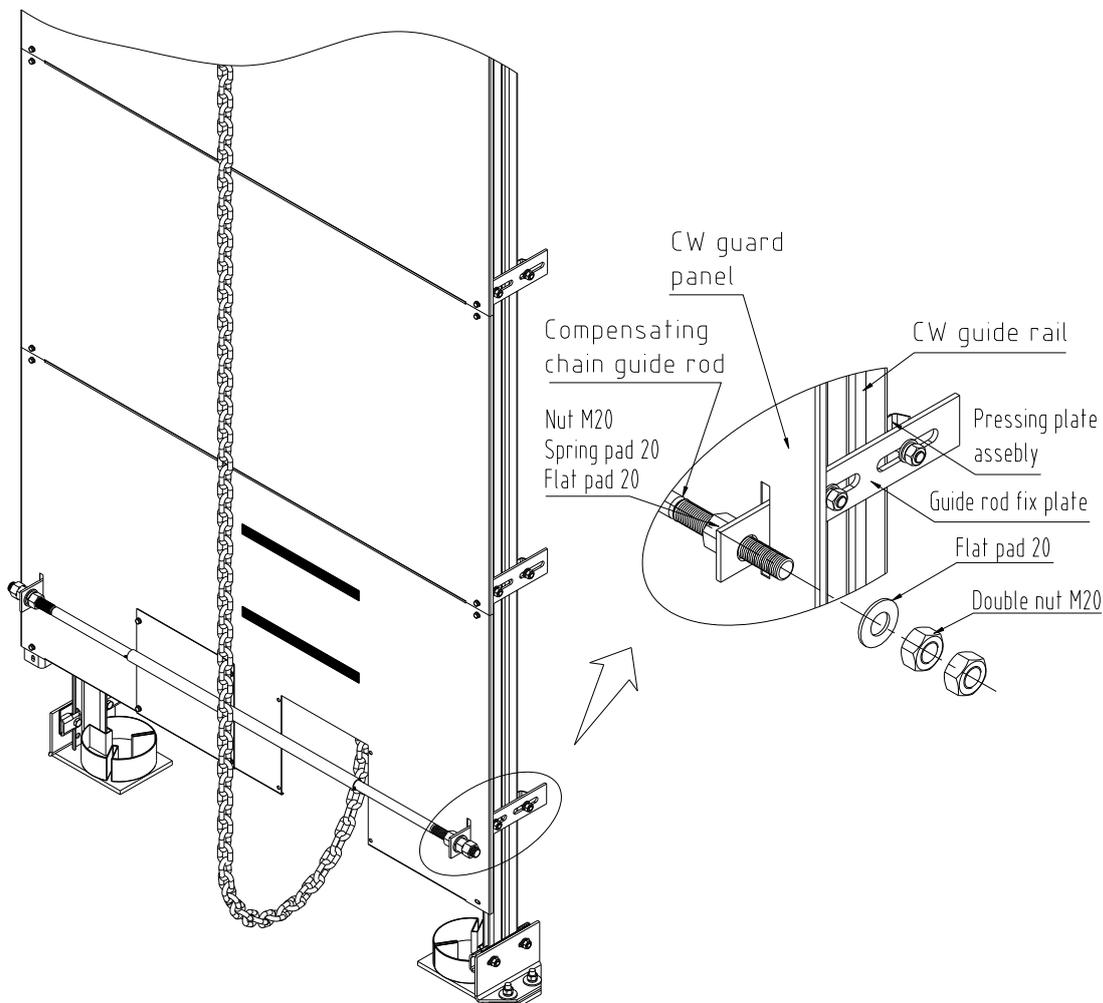
Installation of car side compensating chain	1402	Run the car from the top floor to the first floor, make the compensating chain smoothly, the revolve less than 1 rol/50m.
	1403	Like the fixed ways with the CW side to fix the compensating chain and car side compensating chain hanging plate, distance to the floor 300-500 mm, cut the extra length.



Installation of car side compensating chain Fig.

PP1402

Installation of compensating chain guide rod	SN	Steps
	1404	Use the pressing plate assembly to fix the guide rod on the CW side guide rail, the axial misalignment of rod less than 2 mm.



Installation of compensating chain guide rod Fig.

PP1403



Warning

Secondary protection rope can not be penetrated with the same chain of U-bolt hole, secondary protection of a fixed rope must be independent.

15 Electrical part

15.1 Precondition requirement

Brief

Before installing the control cabinet, some prerequisites installed on its status must first be met. Here does not require special tools, as long as there is some necessary information can be.



Caution

- Described in this document are some general characteristics; many details about, for example, the specific components, size, cable length and general connections, etc., see the specific installation information (layout drawing, schematic, bill of materials, etc).
- When the elevator renovation, make full use of existing, can use the operating system to install, replace.

Danger



It is forbide to use any unauthorized install document by great elevator,only the authorized document by great elevator can be used.

Safety requirement

Compliance with safety regulations in order to ensure that the installation be performed properly, ultimately for everyone. Conscientiously perform every procedure described in the information.



Warning

- Compliance with national local safety regulations
- When dealing with the PCB problem, we must operate in accordance with the appropriate procedures.

Doc.

Doc	Description	No
Material list	Check the delivery material	test
Figure	Electrical install map	Choose right map
Electrical layout	Positioning and cable layout	test
Technical doc		-

Install doc

Construction

Project	Install type	Description
Scaffold	New elevator install	Need scaffold in the shaft
	Moderlization	If the revise equipment can not be installed by on the car top,need scaffold.
Trunking	New elevator install/moderlization	According to the wire layout map.
		According to the wire layout map

Construction precondition

Electrical

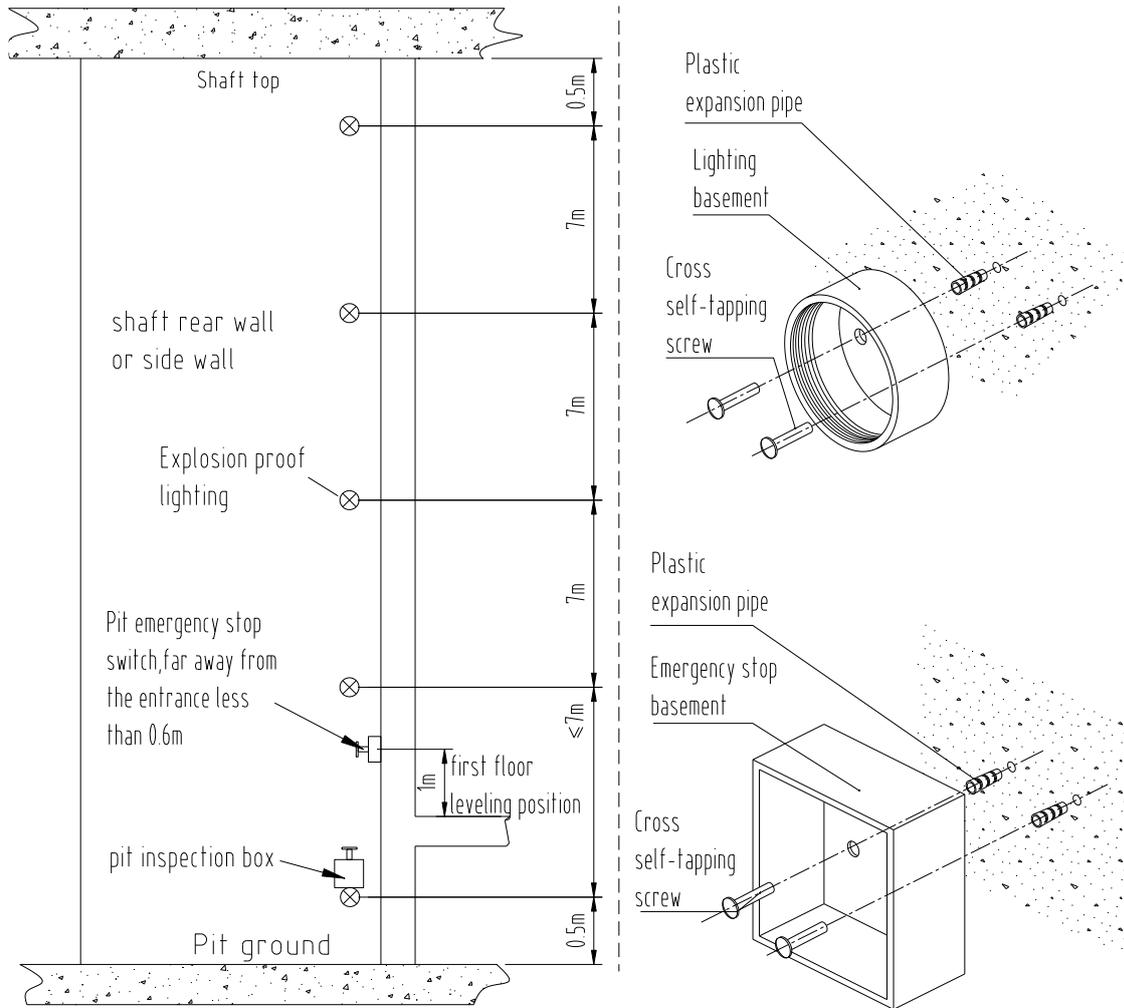
Project	Install type	Description
---------	--------------	-------------

Main interface	New elevator install	The construction main interface need to close to the machineroom
Lighting	New elevator install	If control part do not delivery,need to install shaft lighting.
		Shaft lighting and work well.
Trunking	New elevator install/moderlization	Shaft trunking according to electrical layout.
		Shaft trunking according to electrical layout.
Phone connect	New elevator install/moderlization	For remote alert/remote control elevator,need have intercom device.

15.2 Installation of shaft lighting and emergency switch

Installation of shaft lighting and emergency switch

SN	Steps
1500	According to the layout drawing, install the shaft lighting base on the shaft side wall or rear wall, distance from the top shaft to the light isp 500mm, each lamp spacing of about 7m.
1501	Normally the machine room elevator have two emergency switch,seperatly install on the machine room and first landing door entrance.



Installation of shaft lighting and emergnecy switch Fig.

PP1500



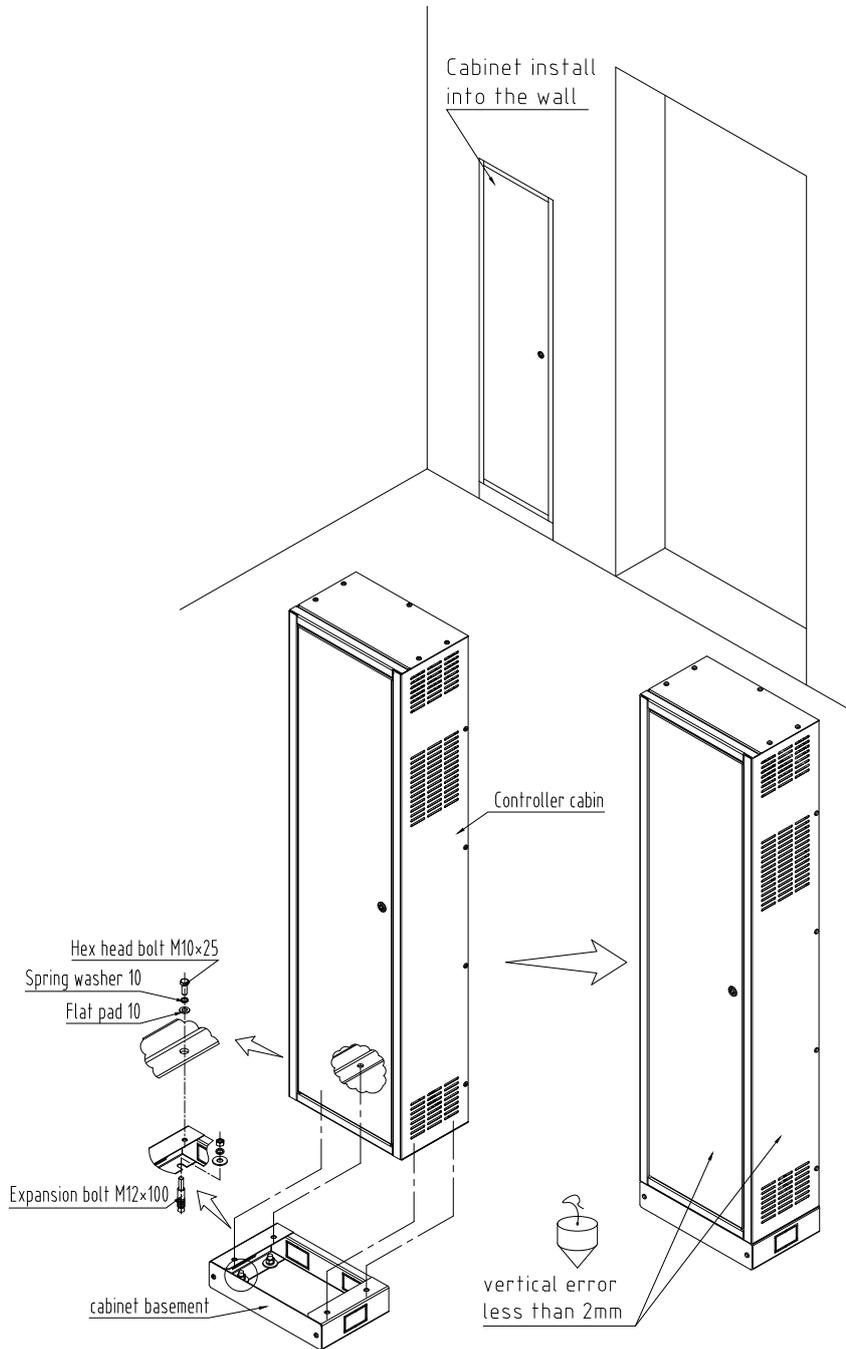
Caution

- Shaft lighting required is proof lights, emergency stop switch should be installed in easily accessible and reliable place to control emergency situations in a timely manner.

15.3 Installation of control cabinet

Installation
of control
cabinet

SN	Steps
1502	The base assembly removed and fixed with expansion bolts, and then the control cabinet with matching fasteners securely installed with the base.



Installation of control cabinet Fig.

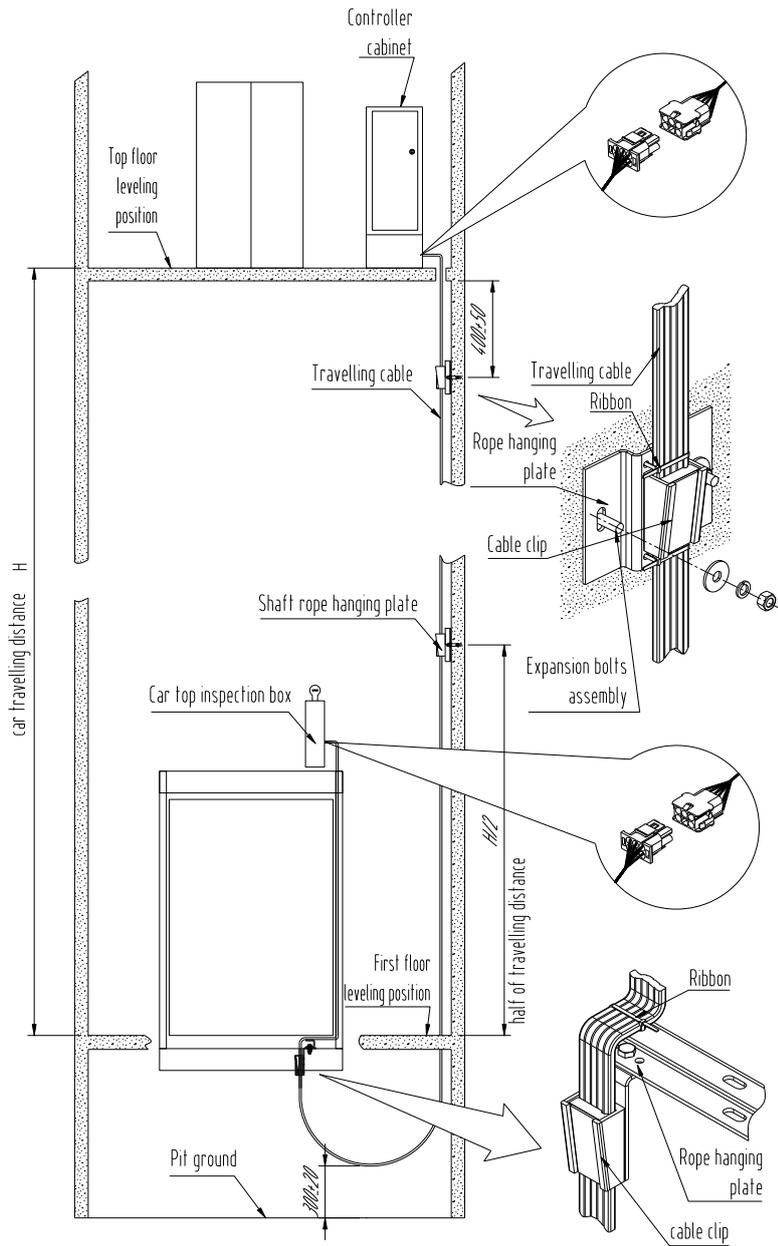
Caution



During mechanical installation, do not touch any electrical connections, control cabinet housing need reliable ground, in front of the door there is enough space for maintenance.

15.4 Installation of travelling cable

SN	Steps	
Installation of travelling cable	1503	According to the layout drawing to confirm the right install posit on of travelling cable.
	1504	Fasteners by supporting the cable mounting bracket with expansion bolts on the wall, to be firmly fixed.
	1505	Then fix well travelling cable and cable clamps and car platform rope hanging, and use cable ties do secondary protection.



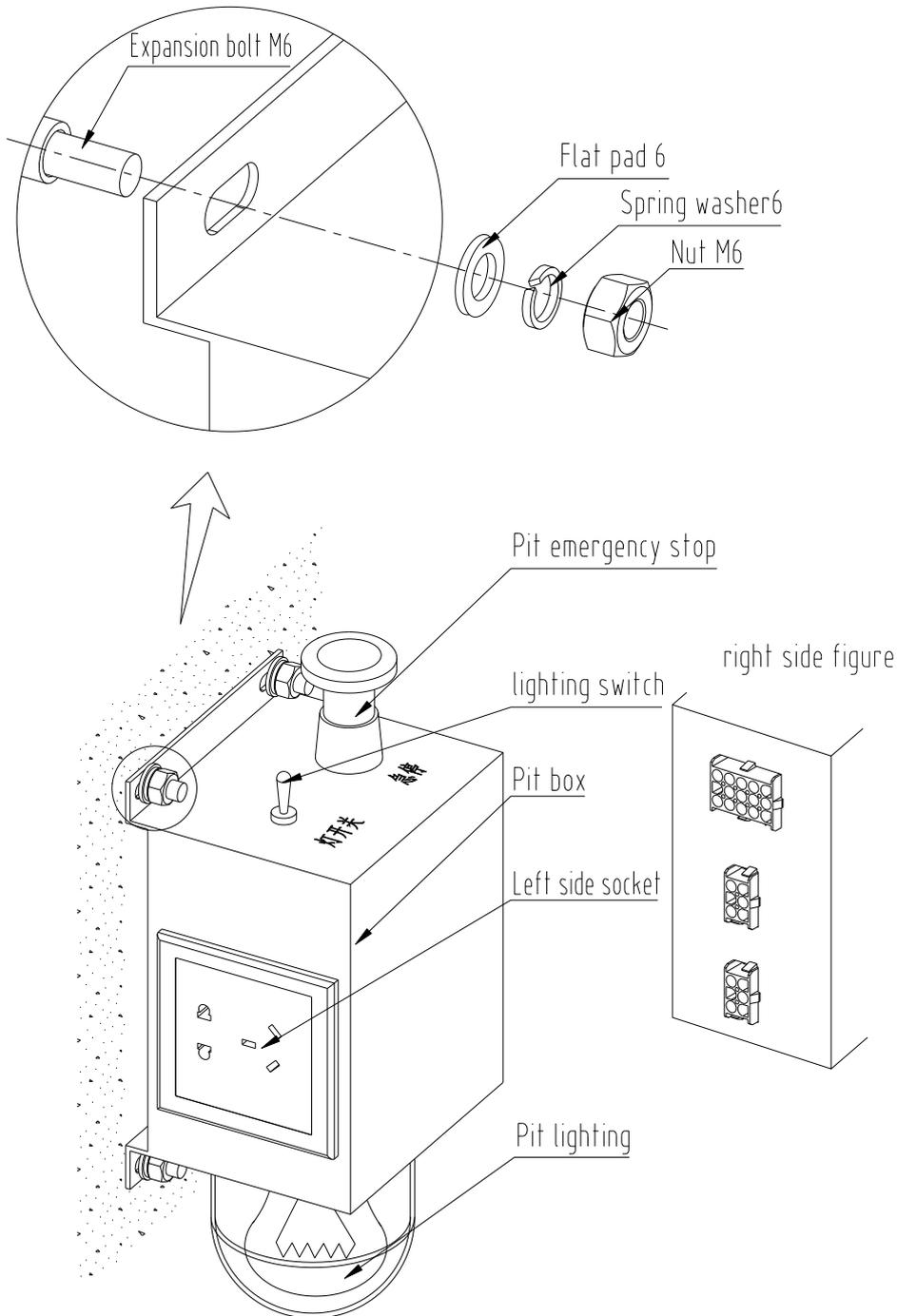
PP1502

Installation of travelling cable Fig.

15.5 Installation of pit inspection box

SN	Steps
----	-------

Installation of final limit switch bracket	1506	Use the expansion bolt to fix the pit inspection box on the pit wall, switch upside.
	1507	Pit inspection box mounted on the landing door wall, away from the pit floor of about 500mm, close to the bottom layers as possible to facilitate the entrance door.



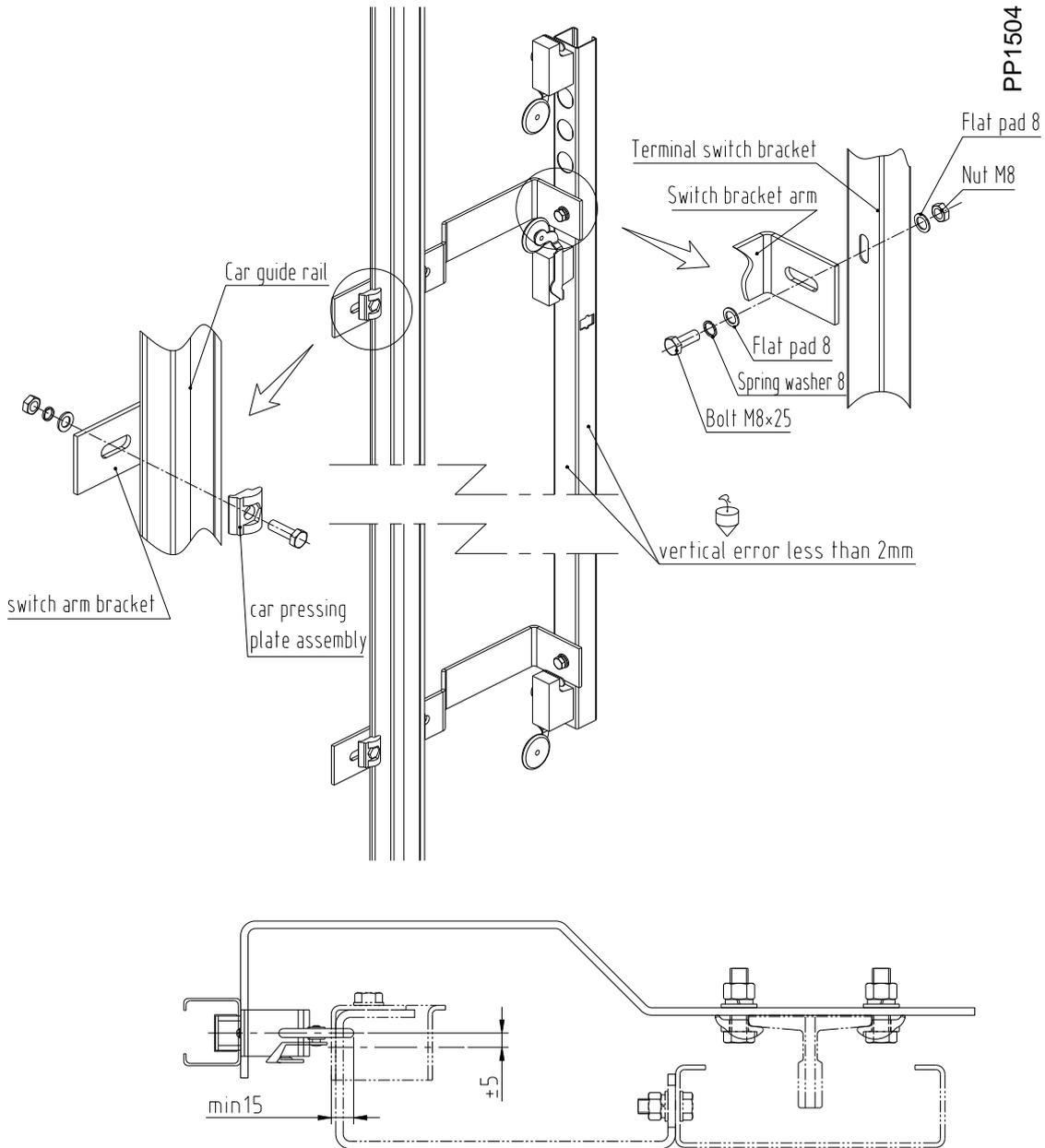
PP1503

Installation of pit inspection box fig.

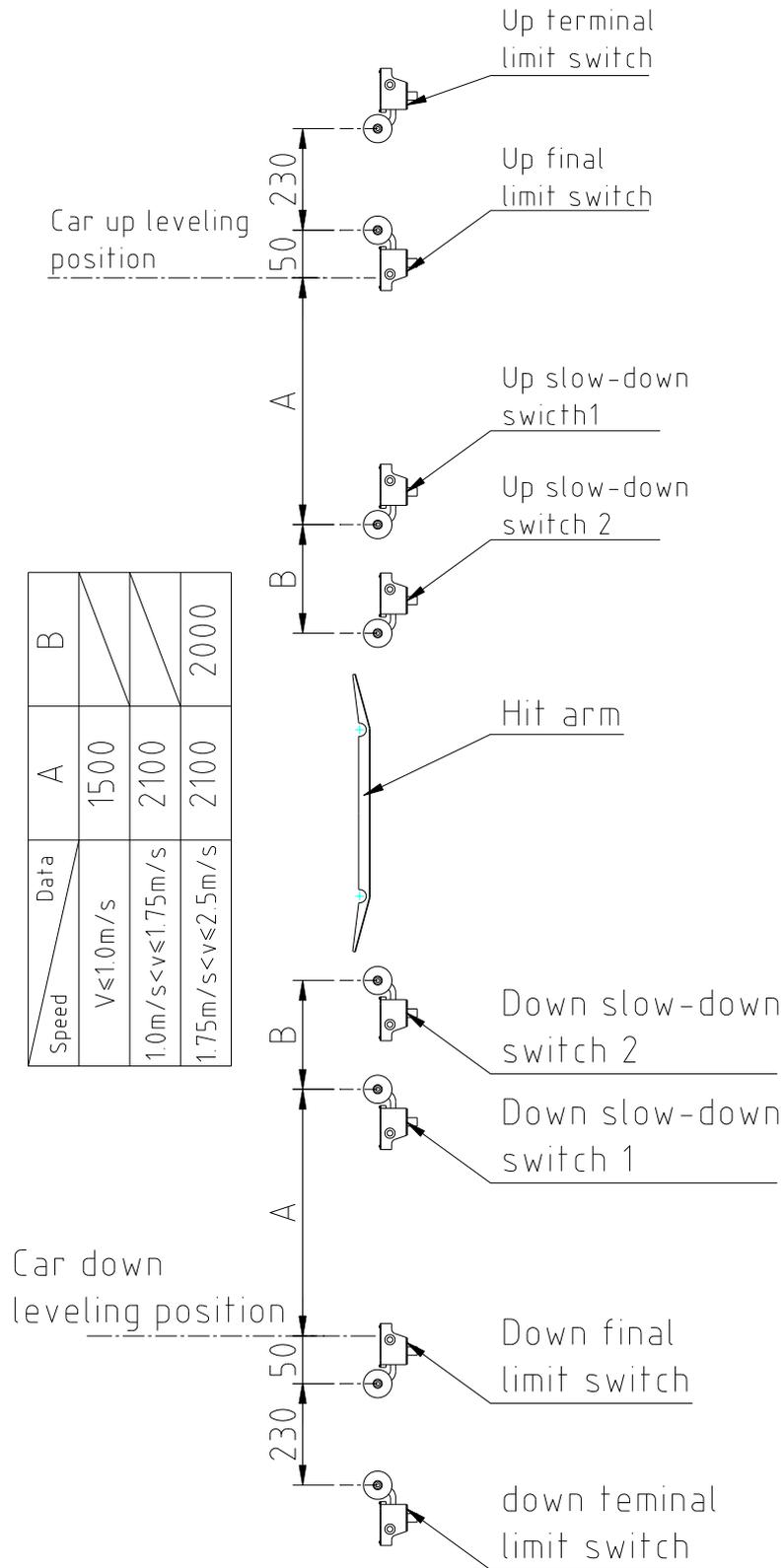
15.6 Installation of terminal switch

SN	Steps
----	-------

Installation of terminal switch	1508	According to the layout drawing to confirm the right install positon of the terminal switch.
	1509	Use fasteners to fix terminal bracket assembly and switch bracket arm on the guide rail.
	1510	Adjusting the distance between the switch according to the rated speed of the car, the vertical terminal bracket.
	1511	AS our company's production as a sample to indicate the position of the switch. (Any changes refer to the manual instruction)



Installation of up terminal switch Fig.

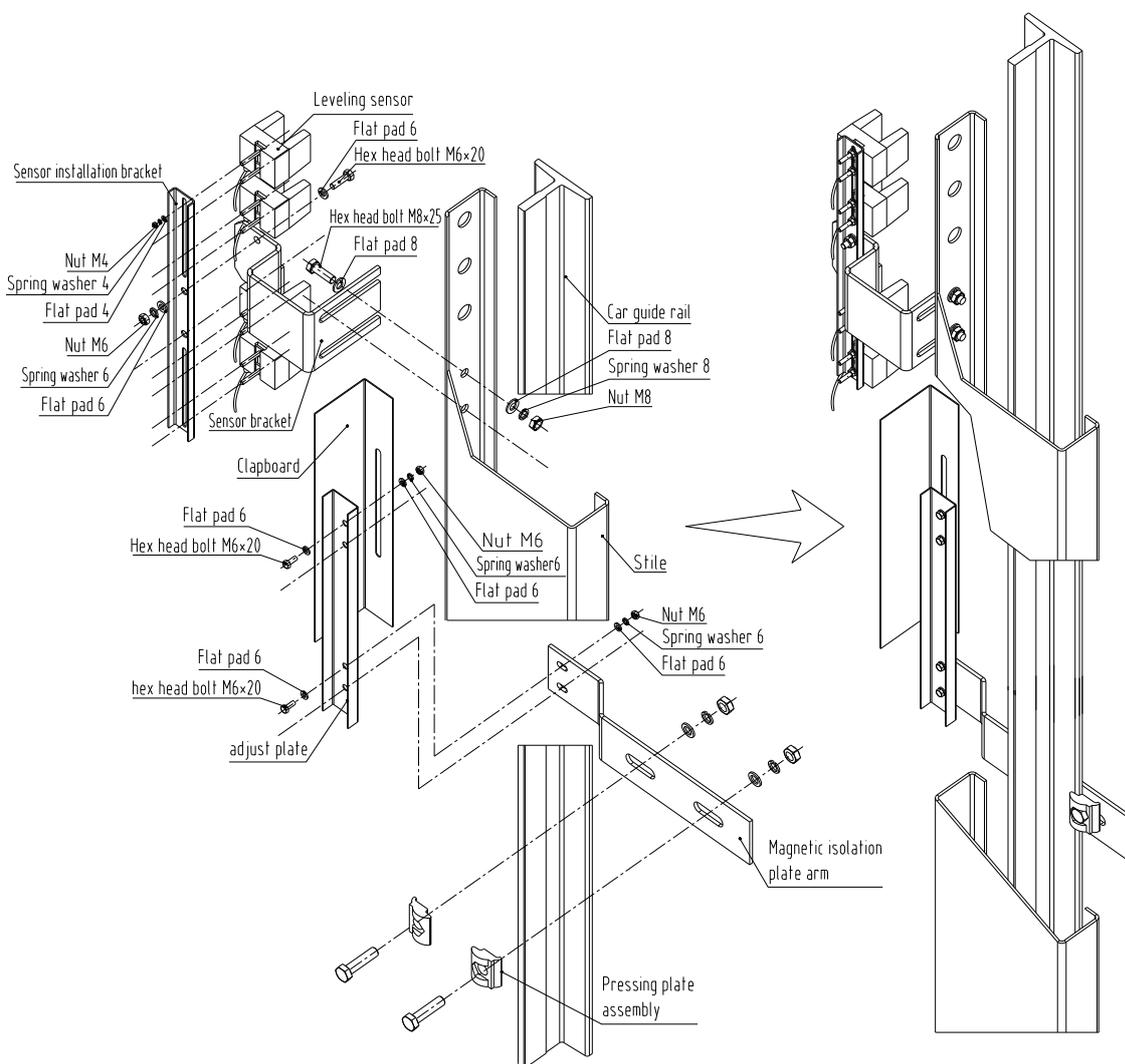


Terminal switch layout Fig. (Refer to electrical manual)

15.7 Installation of leveling sensor

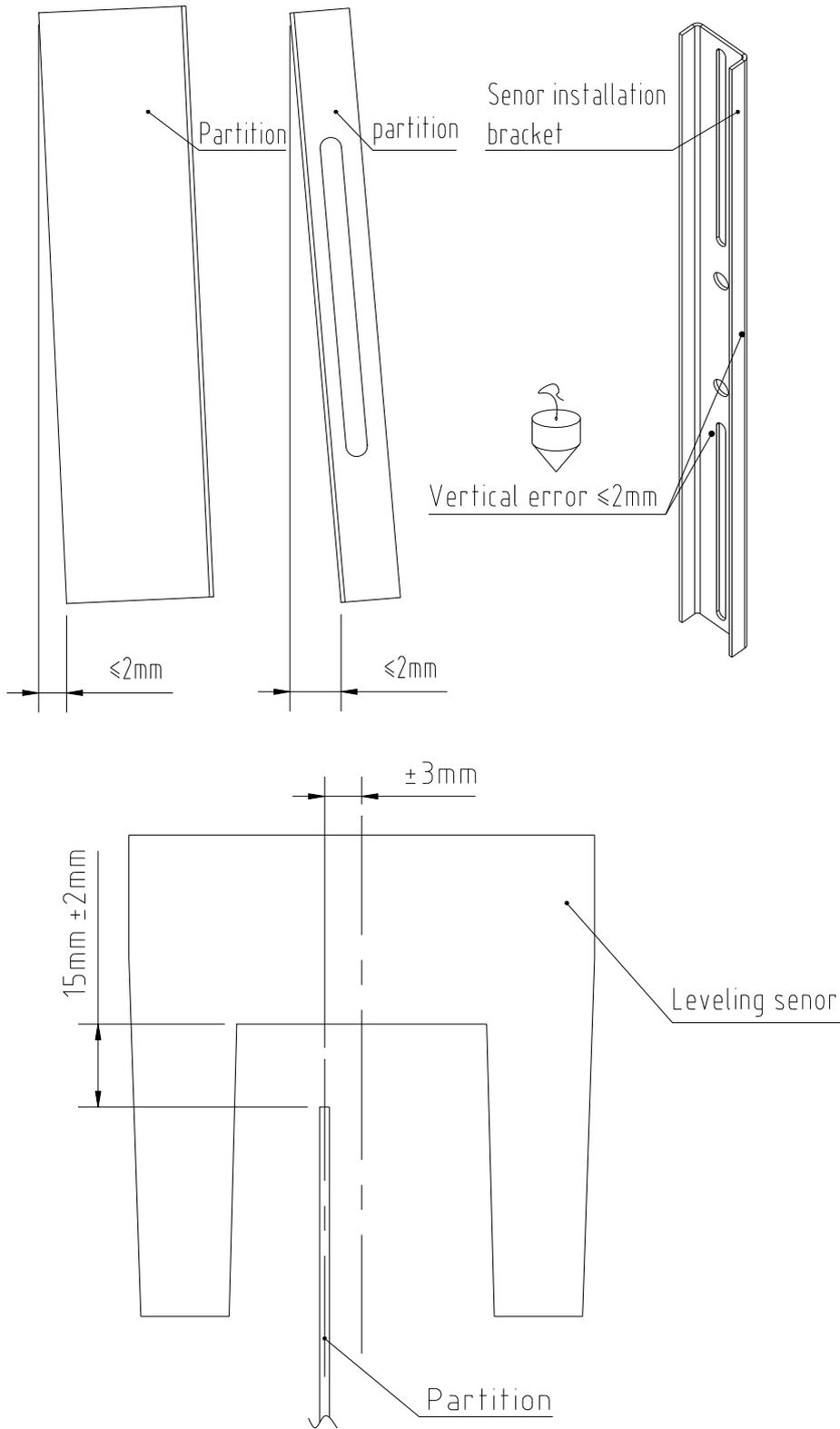
Installation of leveling sensor

SN	Steps
1512	According to the layout drawing, confirming the leveling sensor right install position on the car frame stile.
1513	Leveling sensor with M8 bolts, spring washers, nuts and flat washers attached double fix on the car frame stile.
1514	Adjusting plate were fixed magnetic separators and magnetic separators arm with M6 bolts, spring washers, nuts and dual flat pad, magnetic separator arm with a pressure plate fixed on the car guide rails.
1515	The position of the partition refer to the electrical manual.



Installation of leveling sensor Fig.

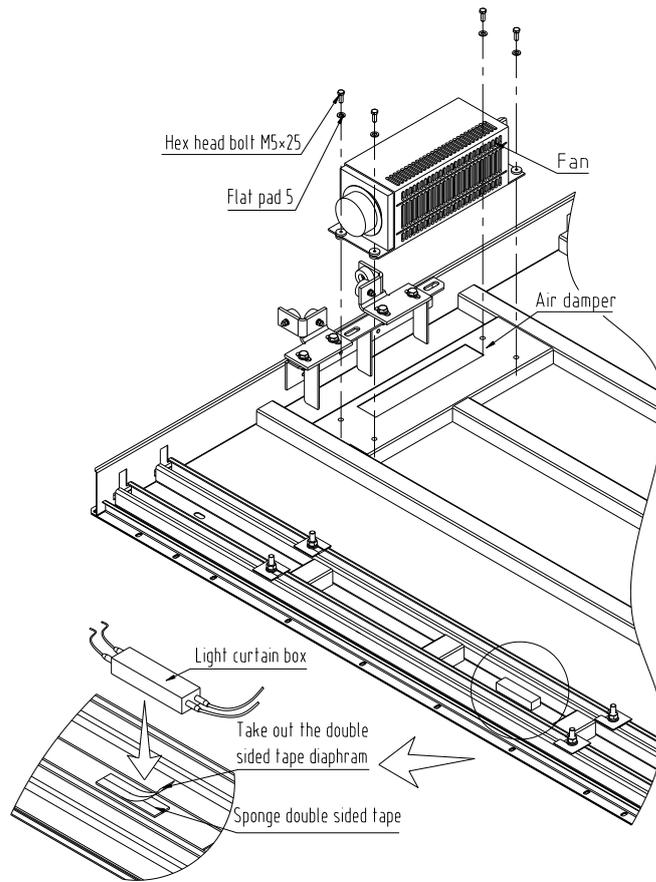
PP1506



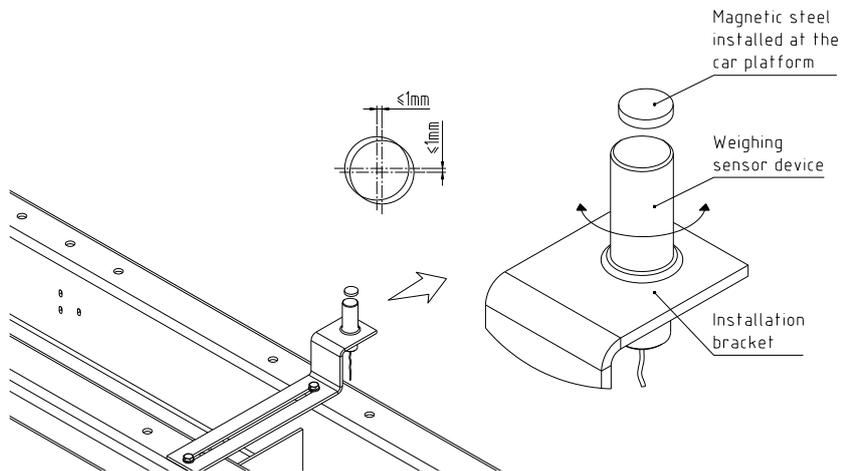
Leveling switch and partition adjustment Fig.

15.8 Installation of fan、light curtain box、weighing device

	SN	Steps
Installation of fan、light	1516	The fan is mounted on the car top fan base with matching fasteners.
curtain Box、	1517	The double-sided adhesive protective film kick, the light curtain boxes bond formation, as installed in the ribs below avoid foot. Damage.
weighing devic	1518	Weighing switch mounted on the lower beam weighing bracket, steel and car bottom with double-sided adhesive knot securely, precise attention to alignment.



Installation of fan and light curtain box Fig.

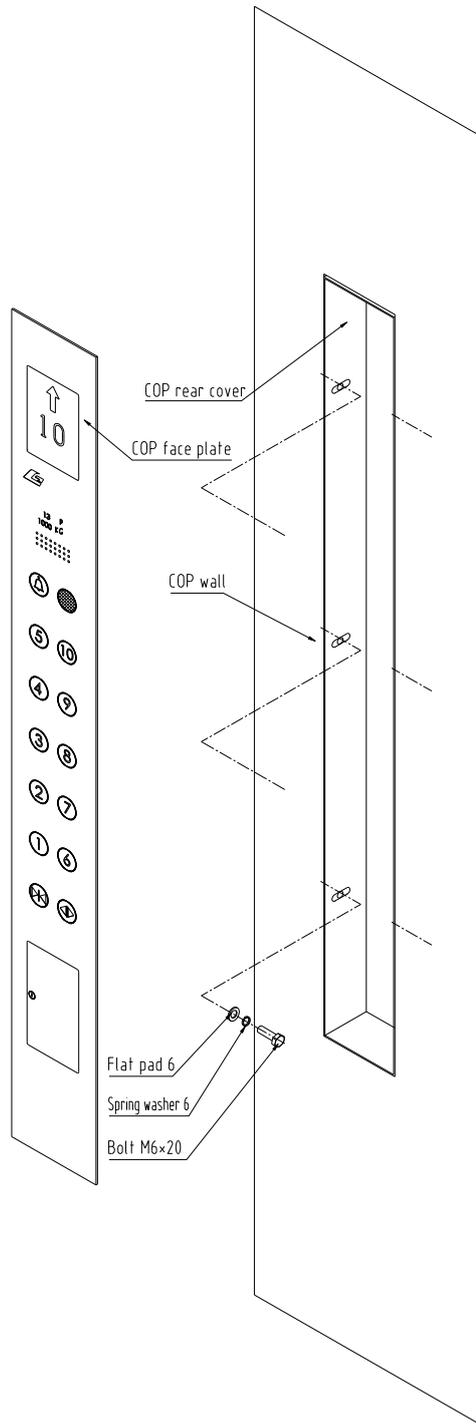


Installation of weighing switch Fig.

15.9 Installation of COP

Installation of COP

SN	Steps
1519	Intergrated type COP installation refer to the installation of side car wall and front car wall.
1520	Split type COP use fasteners to install.



Installation of split type COP Fig.

PP1510

15.10 Installation of HOP box, floor indicated box, fireman box

Installation of
HOP box, floor

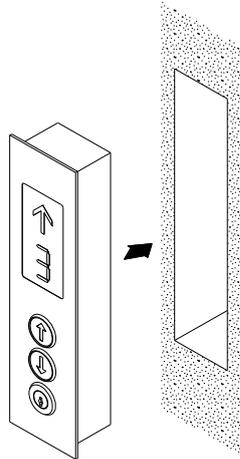
SN	Steps
1521	According to the wall hole,install HOP、indicated box、fireman box well.

**indicated box,
fireman box**

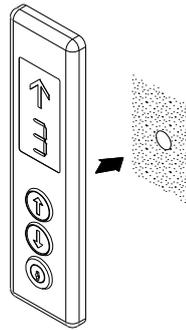
1522

The cartridge body is mounted to be flat, and the wall is smaller than the gap 0.5mm, the cartridge can not be easily by hand shaking.

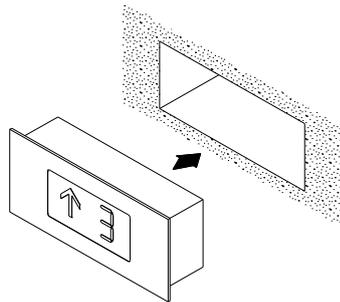
Embedded type HOP box



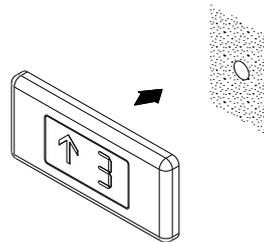
Out-hanging type HOP box



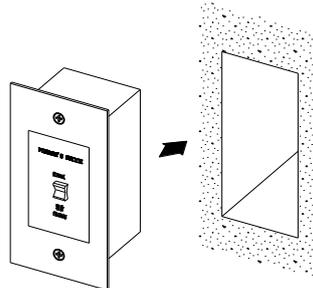
Embedded type Indicated box



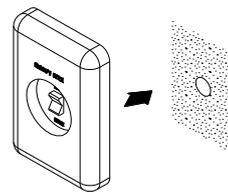
Out-hanging type indicated box



Embedded fireman box



Out-hanging type fireman box



Installation of HOP box, floor indicated box, fireman box Fig

PP1511



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