



XS1 Overspeed Governor Installation, Operation and Maintenance Manual

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Version: V1

Hebei Dongfang Fuda Machinery Co., Ltd

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Preface

Thank you for choosing the products of Hebei Dongfang Fuda Machinery Co., Ltd. In order to make sure that the installation, application and maintenance are finished correctly, please read and understand the contents in this manual carefully before putting it into use. This manual is kept by the final user who should keep it until the product is discarded.

◆Escape Declaration:

In order to take the safety as the first principle, the release of this manual which can guide the user to install, use and maintain the products effectively and accurately, is only used as an information document for reference. Before the operation, please read and understand the contents in this manual carefully and conform the requirements in the manual strictly in the operation process.

If you have any different advice or suggest for the methods in this Manual, the risk assessment is done by Hebei Dongfang Fuda Machinery Co., Ltd. and the user must operate according to the provided method which is designed and confirmed carefully by the technical department of Hebei Dongfang Fuda Machinery Co., Ltd. Otherwise it may cause some potential risk and the loss of property.

Anyone who uses this manual to participate in the installation, use and maintenance must have the qualification to operate.

If there is some special requirement for the maintenance of the products in the place of using the products, please follow the local regulations and standards.

◆Notes:

In the process of installing, using and maintaining the products according to this manual, if you have any question, please contact with the after-sale and technical departments of Hebei Dongfang Fuda Machinery Co., Ltd.

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1. Product brief

XS1 Type Speed Governor is flail block structure, which is manufactured with European advanced technology. When car descending over-speeds or the suspension device breaks, limit switch in governor will be on to make traction machine stop and operates safety gear to make car stop and keep in stationary state, at the same time the trigger switch make the traction machine stop totally. This product adopts dual-safety device, which has stable performance and reliable operation, and can be used as replacement for safety parts of current domestic elevators and also can be used for updating lagging elevators. Every main part of the product shown as figure 1 :

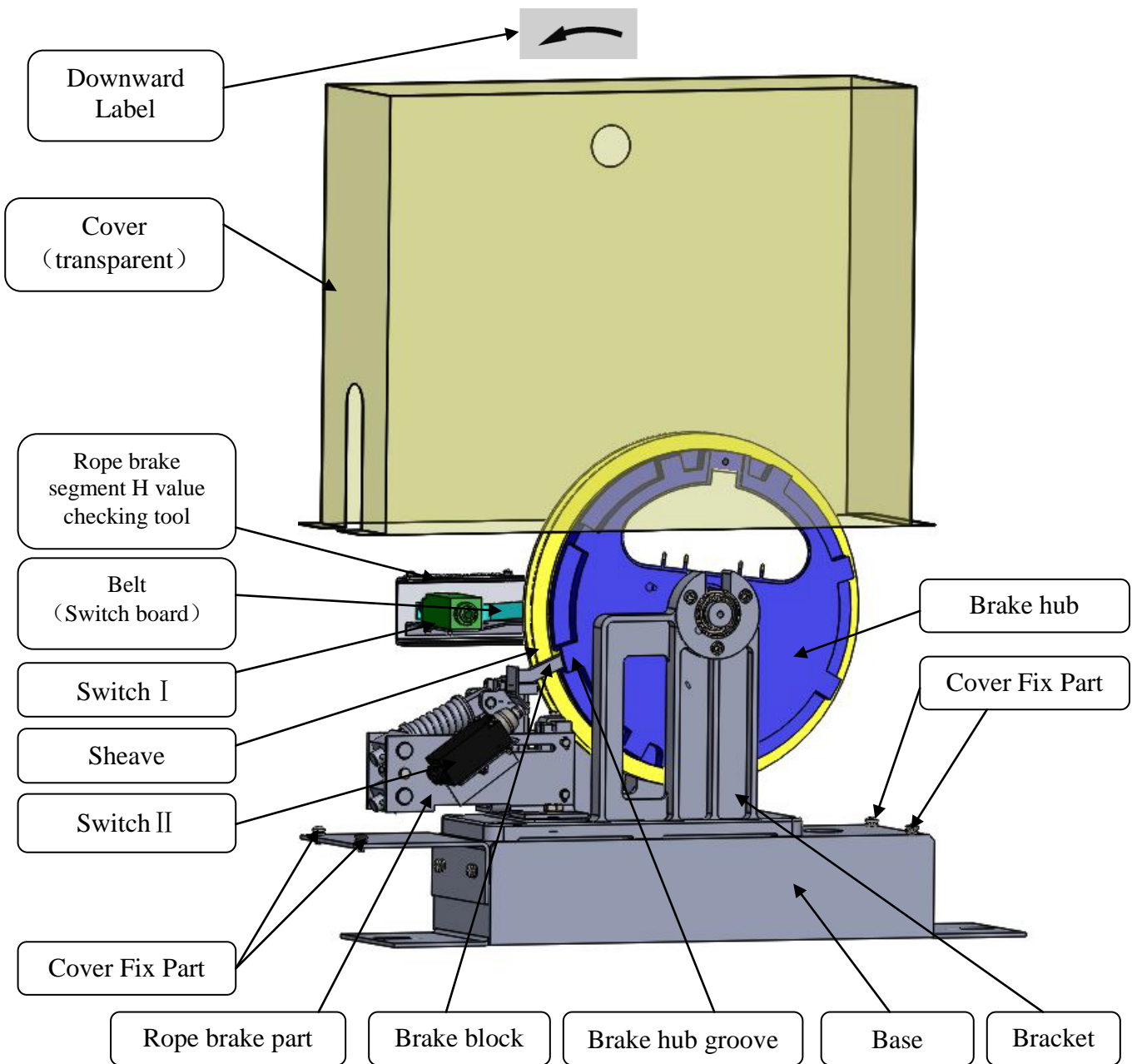


Figure 1

2. Installation instructions

2.1 Application range

2.1.1 Certificate

This Product have been certificated by GB and CE, fulfill the following standards:

2.1.1.1 GB7588-2003 elevator manufacturing and installation safety specifications.

2.1.1.2 EN81-20/50:2014 《Safety rules for the construction and installation of lifts》 .

2.1.2 Product Parameters

As figure 2 shown:

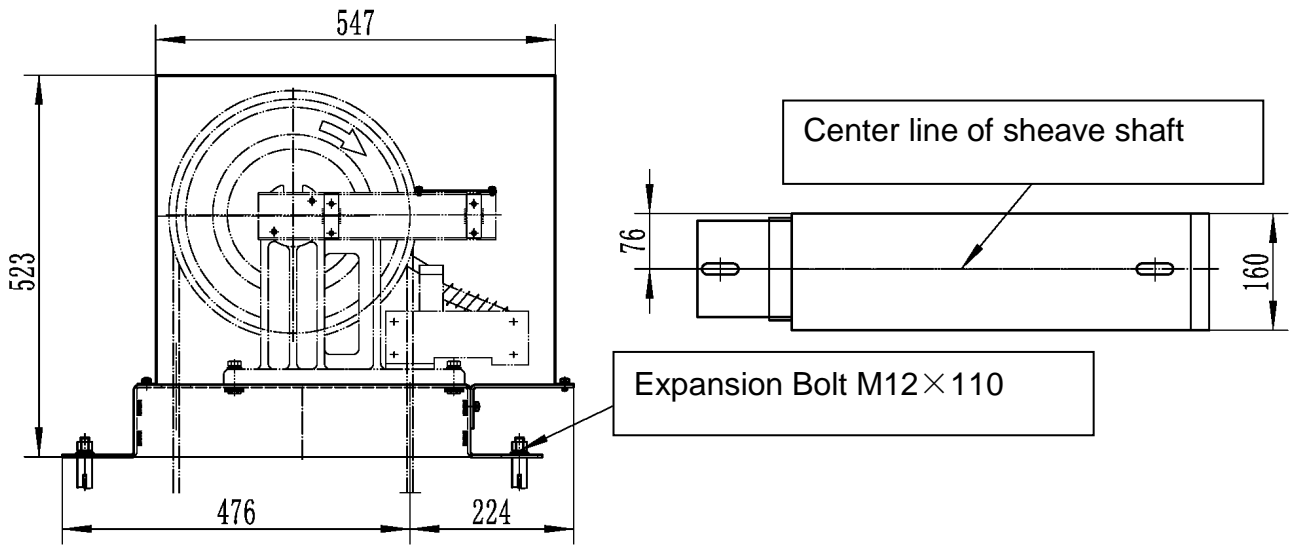
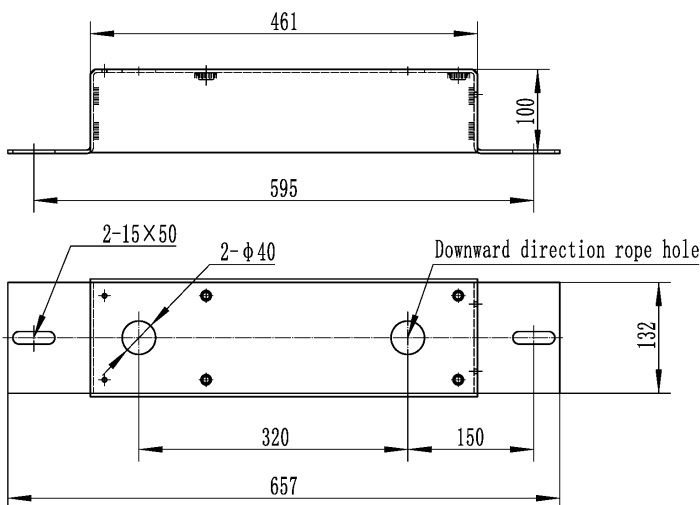


Figure 2

2.1.3 Base installation parameters

As figure 3 shown



Packed with 2 groups expand bolts as M12×110 with base chosen.



Please pay attention to the downward direction hole position!

2.1.4 Technical parameters

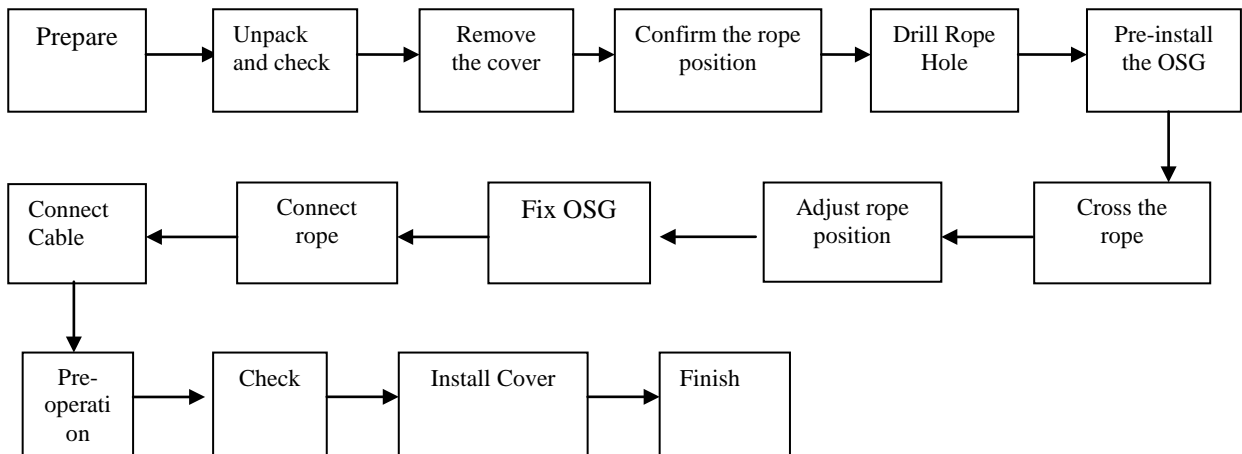
Table 1

Technical Parameters	
Rated Speed	1.0~4.0m/s
Pull Force F	1500~2000N
Rope Diameter	Φ8mm
Pull Height	H≤200m
Car、CWT	Both
Operation environment	
Environment Temperature	Fulfill the requirements of GB/T10058-2009/3.2
Environment Humidity	Fulfill the requirements of GB/T10058-2009/3.2.3
Flammable and Combustible	No
Wearing Parts	
<p>Brake shoe: the material is rubber-fiber composite materials brake plate, each governor has two brake shoes.</p> <p>The wear conditions and replacement steps of the brake shoe wear and maintenance part of the maintenance and maintenance part of the "1.9 check brake shoe wear".</p>	
Lifetime	
<p>In accordance with the requirements of this manual, the dynamic mechanical linkage test of the speed limiting device and the safety clamp is carried out, and the life of the brake shoe is 20 times.</p>	

2.2 Installation and adjustment



Please understand the installation and adjustments procedure



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The capacity of the OSG is based on the correct installation!

2.2.1 Prepare

2.2.1.1 Check:

Check before opening package: check and make sure that the external identifications on package are identical with technical parameters such as model and specification of the product needed.

2.1.2 Unpack and check

2.1.2.1 Unpack: Shear off packaging straps of package, take speed governor out.

2.1.2.2 Remove inner package, check whether encasement documents and components are complete according to encasement list and check whether the content of name plate is identical with order.

2.2.2 Installation and Adjust

2.2.2.1 Remove the cover and fix parts and then check the red paint seal.



Forbid to remove the red paint seal points, Figure 1.

2.2.2.2 Determine the rope position. The customers should determine the rope position according to the shaft space and safety gear pull rod position. There should be have enough space between the overspeed governor and wall to remove the cover and rest the rope brake part.

2.2.2.3 Drill rope hole. Drill the rope hole as the base parameters as 2.1.3 contents.

2.2.2.4 Pre-install the overspeed governor and put on the suit position.

2.2.2.5 Cross the rope. .

2.2.2.6 Adjust the rope position. Adjust the OSG ,the rope shall no contact with brake shoes, shall be in the middle of two brake shoes and shall keep parallel with brake shoes(see fig.4).

2.2.2.7 Fix the overspeed governor. Drill holes on the base plate or bracket and then fix the overspeed governor with expand bolts.

2.2.2.8 Connect the rope.

2.2.2.9 Connect the switch to the safety circuit.

2.2.2.10 Pre-operation. Pre-operation the overspeed governor and certificate the functions as shown <3.1.11 function check>, reset function as shown <3.1.12 overspeed governor reset after brake>.

2.2.2.11 Check. Check the overspeed governor overall as shown <Daily Maintenance>.

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(1) Check whether the brake block is in the groove of the brake drum (Figure 5).

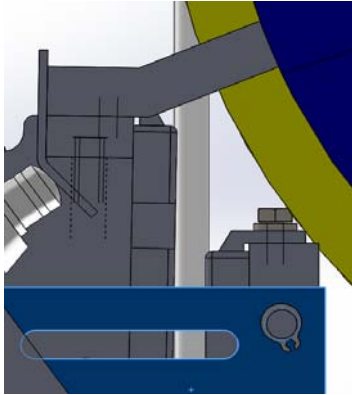


Figure 4

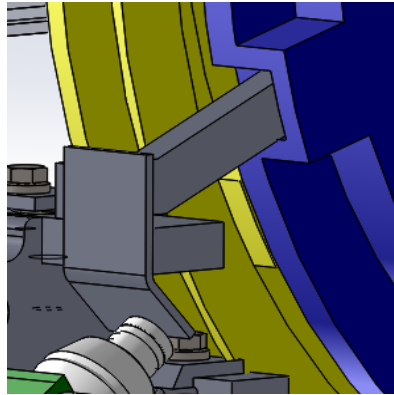



Figure 5


 Special check whether the brake block is in the groove of the brake drum (Figure 5).

(2) Check the rotate component, make sure that can rotate flexible、 check the switch lines connect right or not and the trigger point must be closed.

2.2.2.12 Install the cover and fasten the parts.

3. Maintenance instruction



Note:

- (1) Check and test before used as the requirements of "elevator manufacturing and installation safety specifications"GB7588-2003;
- (2) Check and test regularly or after accidents as the requirements of "elevator manufacturing and installation safety specifications" GB7588-2003;
- (3) According to the requirements of TSG T5001-2009 "elevator management and maintenance rules"and TSG T5002-2017 "elevator maintenance rules";
- (4) Check the functions of the overspeed governor once at least one year after installation; check the functions overall after each brake;
- (5) The elevator must operating by the prune speed then brake the drag machine by switch or standard methods before maintenance and acceptance.

3.1 Maintenance

3.1.1 Period

The period is according to the TSG T5002-2017 to deal with “Half-moon maintenance contents and requirements”、 “Quarter maintenance contents and requirements” 、 “Biannual maintenance contents and requirements” 、 “Annual maintenance contents and requirements” .

3.1.2 Maintaining

3.1.2.1 Remove the cover and check whether there have the sundries and dusts or not, if have then clean up. Check and clean the encoder if needed.

3.1.2.2 Take off the fix bolts and remove the cover plate as figure 6

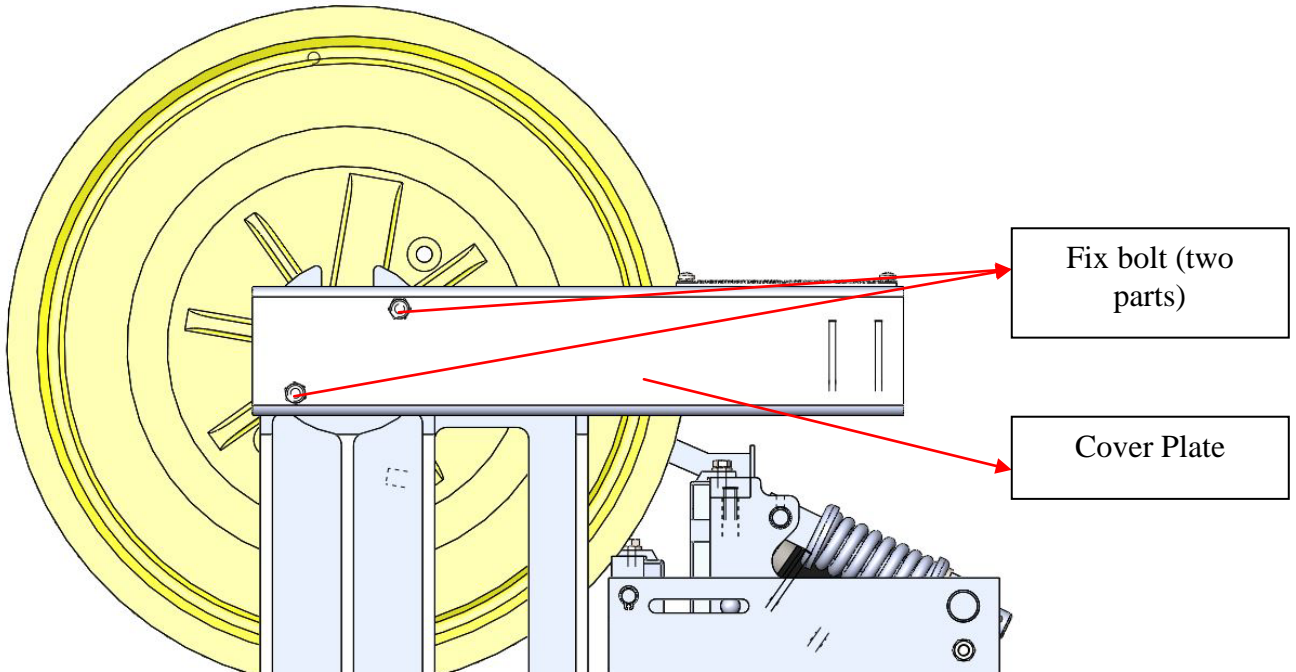


Figure 6

3.1.2.3 Clean up the assist switch component with brush and then lubricate each axis pin point, make sure that each axis pin rotate flexible without any jam, as figure 7

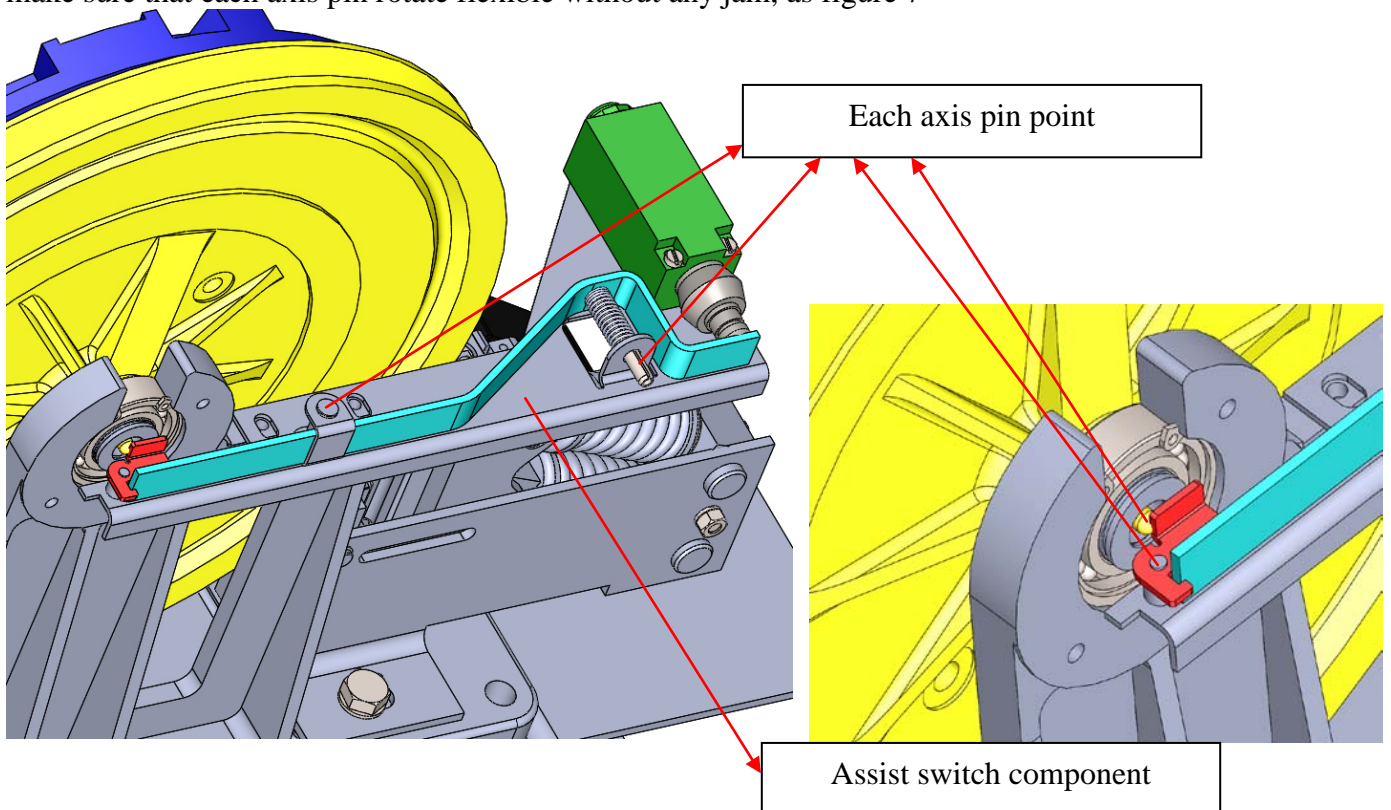


Figure 7

3.1.2.4 Take off the fix bolt and remove the cover, as figure 8

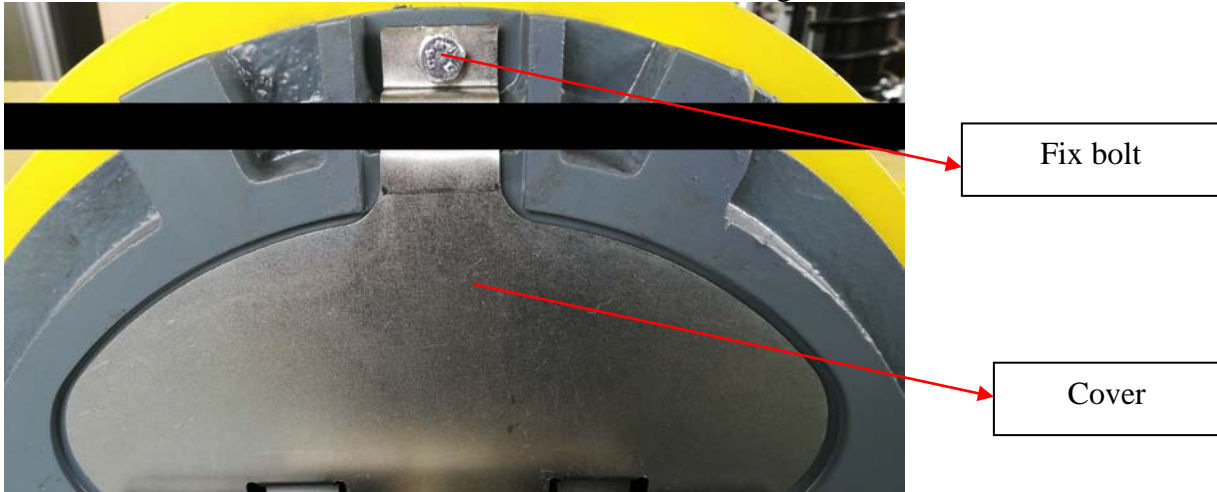


Figure 8

3.1.2.5 Lubricate the points of the sheave component shown as figure 9 and make sure that the axis pin points rotate flexible without any jam;

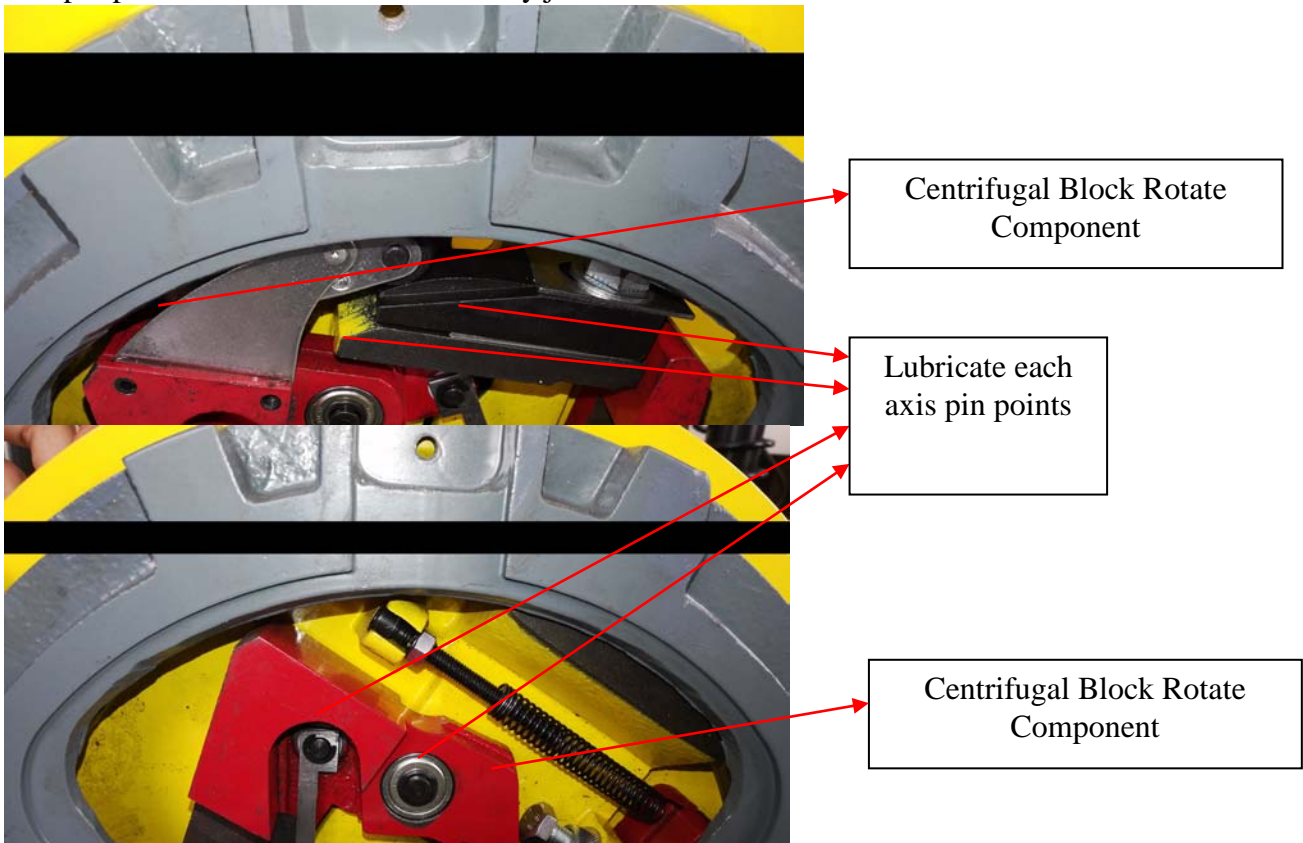


Figure 9

3.1.2.6 Install the cover plate (figure 6) and cover (figure 8) after the maintenances, we recommend the lubrication oil mark L-G46 or similarity viscosity lubrication.

3.1.3 Check the Labels

3.1.3.1 Check the rated speed of label correct with the elevator.

3.1.3.2 Check the downward direction label clarity or not.

3.1.3.3 Check the reset label、 manual trigger label 、 grease label clarity or not.

3.1.4 Check the fixture of components

Check the fixture of the cover and base, fasten if needed.

3.1.5 Check the anti-rust

Check the product whether have rusts and then clean up with anti-rust grease if needed.

3.1.6 Check oil soil and sundries

3.1.6.1 Check the grooves of break shoes and sheave 、 rope whether have oil soil and then clean up if needed.

3.1.6.2 Check the spring rope 、 whether have sundries and then clean up if needed.

3.1.7 Check erosion and deformation

Check the hit plate component spring、 sheave groove、 pawl、 press jaw whether have erosion and deformation, please contact the us if needed.

3.1.8 Check switch

3.1.8.1 Check the switch function normally or not;

3.1.8.2 Check the cable fixture and erosion;

3.1.8.3 Check the hit plate component deformation;

Please contact us if needed.

3.1.9 Check the wear of the brake shoe

3.1.9.1 Discarding condition of brake shoe wear

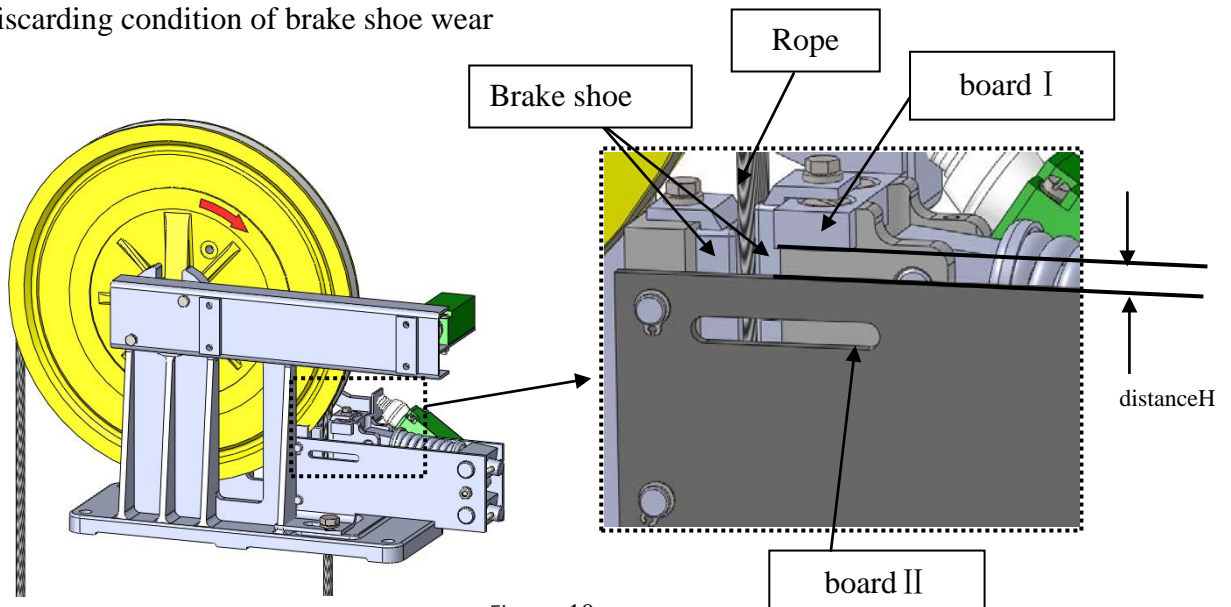


Figure 10

As fig.10 shown, press plate I down to two pieces of brake shoe contact rope, when the distance between plate I and plate II less than the distance H less than 12.5 mm, the rope tension force is not enough 1500N. At this time the brake shoe has been scrapped and needs to be replaced. The details are as follows:

H is worth to measure the use of the speed limiter attached to the inspection tool for measurement, the location of the fig 11, after the use of the inspection must be fixed in the appropriate position.

The tool is detecting the H of XS1 OSG rope broke device, wider side 16mm, narrower is 12.5mm. The H must be equal or greater 16mm when delivered and should be replaced when less than 12.5mm. As fig.11 shown,

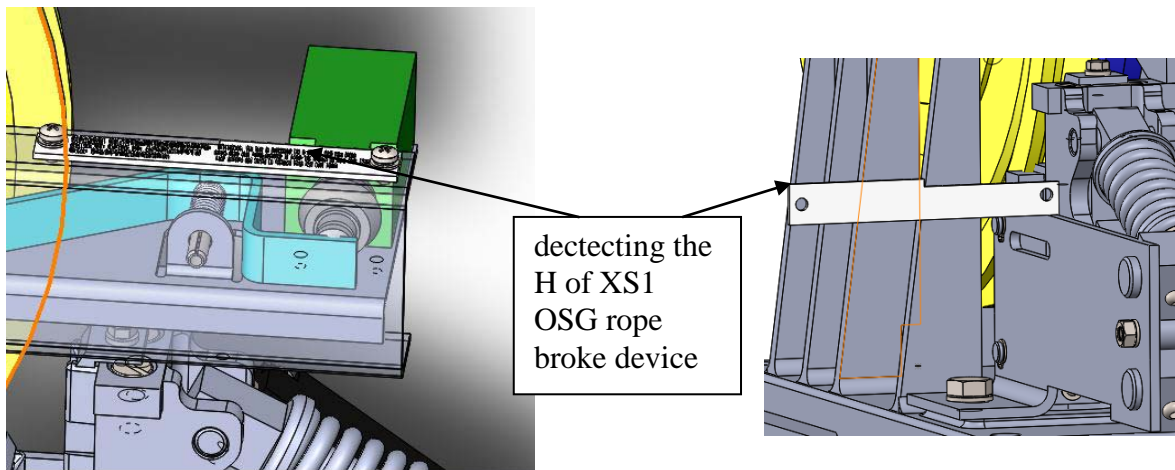


Figure 11

3.1.9.2 Replacement of brake shoe, as fig.12 shown,

After governor braking check the brake shoes wear condition, if they reach above-mentioned condition, must replace the brake shoe. The replace steps: screw out the bolt, remove washer and frame, take out brake shoe, then enchase a new brake shoe, fixed frame and bolt. The two brake shoes are symmetrical, so the replace method is the same.

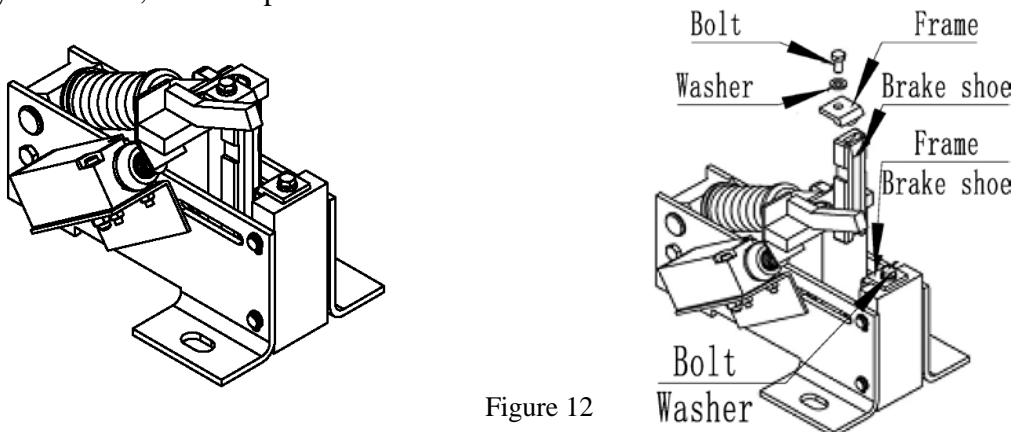


Figure 12

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3.1.10 Functional examination

Check whether the OSG can trigger electrical and mechanical action in normal state, realizing the function of the tweezers. The specific triggering action is as follows:

(1) After the electric action of the speed limiter, the electric spring will trigger the electrical switch I .

(2) After the mechanical action of the speed limiter, the brake drum and the rope wheel are meshed to synthesize the trigger rope brake parts, and the electrical switch II action is triggered at the same time.

3.1.10.1 Linkage test of OSG and safety clamp:

The specific operating procedures for the linkage test of the speed limiting device at the speed of maintenance are as follows.

Step 1: The speed limiter needs to pre check before the annual inspection, so that the OSG meets the requirements of GB7588-2003's "5.6.2.2.1.1 D" in the safety code for manufacture and installation of elevator.



When the speed limiter moves, the pull force of the speed limiting rope should not be smaller than the larger of the following two values.:

- Two times the force required for the action of a safety clamp; or
- 300N.



It is mainly to confirm the flexibility of the pulling force and the safety tongs of the safety tweezers.

Step 2: As shown in Figure 13 with a wrench in the direction of the arrow diagram of brake drum (wrench on the brake drum position according to the situation, but also in the other position of the brake drum, to ensure safe and convenient, pay attention to the direction must be in the direction shown), brake drum rotates to drive the movable brake block down brake shoe, brake block activities and fixed on the brake block and the wire rope tightly, as shown in figure 14.

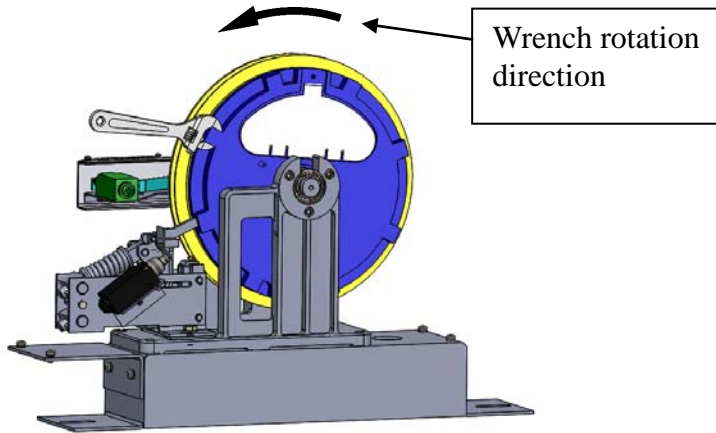


Figure 13

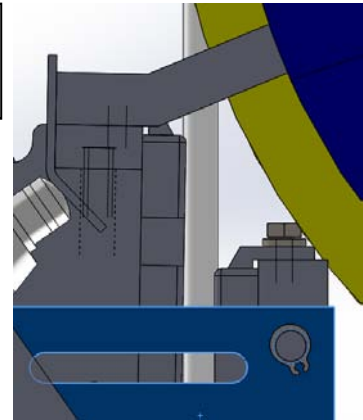


Figure 14

Step 3: On the basis of the state of Figure 14, the brake drum is continuously moved with the force of about 200N, and the sedan car is made at the speed of maintenance. Down, at this time the wire rope will drive the brake shoe to drop down, after two gate tiles to reach the clamping position, stop running, immediately take off the wrench and leave the speed limiter. The state of the brake unit after clamping the steel wire is shown in Figure 15, at this time $H=0\text{mm}$:

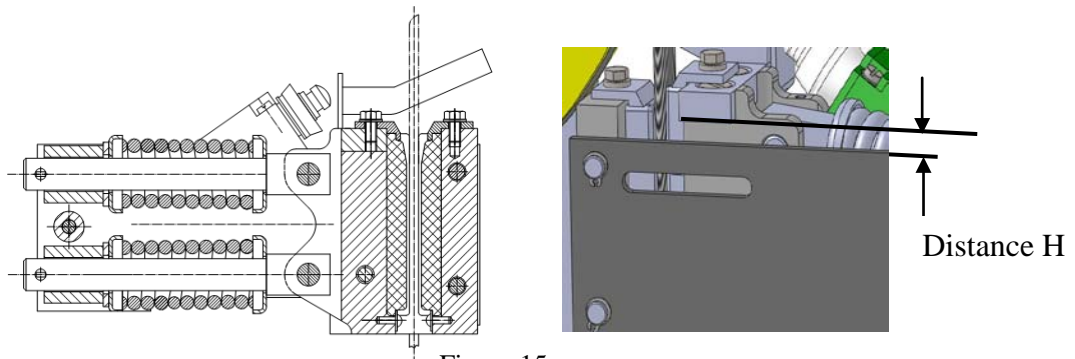


Figure 15

Step 4: When the clamping state is reached, the lift safety pliers can be made by the maintenance speed and the safety pliers can be brake. After the arrival of the clamping state test, the rope brake section and the contact switch should be reset, and the reset of the brake after the 1.11 speed limiter is reset.

3.1.11 The reposition of the OSG after the brake.

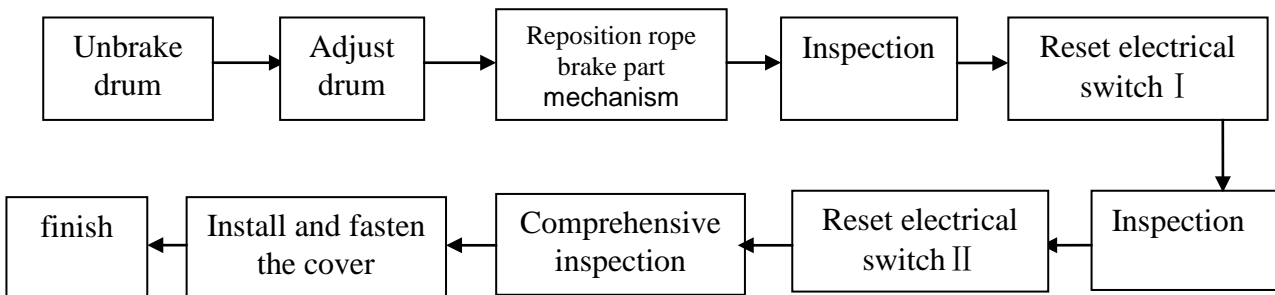


Please know the attention and process of product reset first



Note:

- (1) If the product is triggered by electrical switch I, reset the electrical switch only when reset. First, confirm that the speed limiter and other elevator systems are in normal state, then operate according to step five.
- (2) If the product is mechanical triggered braking, the mechanical part should be reset first when it is reset. It is confirmed that the speed limiter and its elevator system are in normal state, then reset the electrical switch I and switch II.



Step 1: Unbrake drum

A movable wrench is placed on the bump on the rope pulley, and the other movable wrench is placed on the bump of the brake drum. According to the direction shown in Figure 16, two wrenches are pushed up so that the brake drum and the rope wheel are detached to achieve relative rotation.

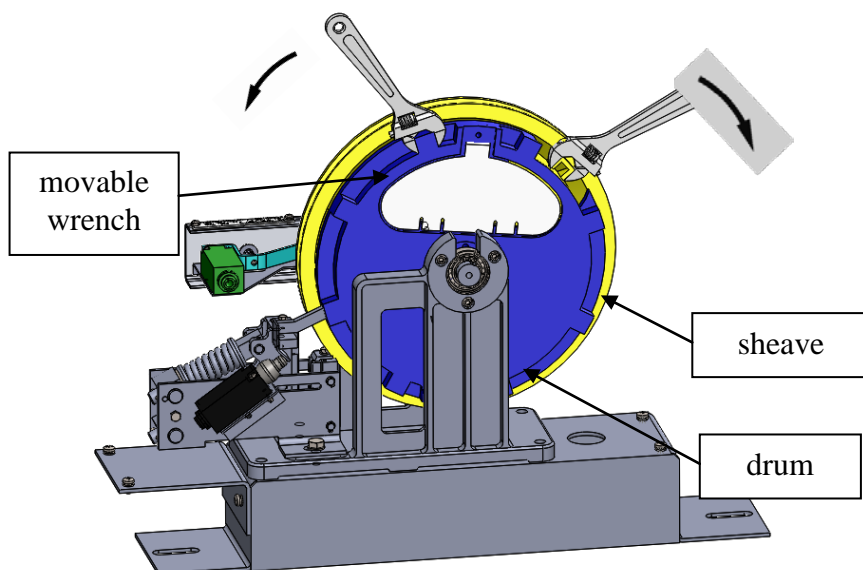


Figure 16

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Step 2: Adjust drum. Rotate brake drum aligns the grooves on the brake drum to the brake block.

Step 3: Reposition rope brake part mechanism

(1) Using an active wrench handle in the position shown in Figure 17, use an active wrench handle to pry up the brake block to contact the brake drum grooves, such as Figure 18.



Figure 17



Figure 18

(2) After the above steps are ready, the elevator will be lifted up and the mechanical part of the rope brake part should be reset at the speed of repair. At this time, special attention should be paid to that the brake block should be stuck in the groove of the brake drum, as shown in Figure 5.

Step 4: Inspection. Confirm that the OSG and the other systems of the elevator are in normal condition.

Step 5: Reset electrical switch I

(1) Push the belt along the arrow direction as shown in Figure 19, so that the other end of the belt is fixed by a fixed card.

(2) Pull the electrical switch contact to close the electrical switch.

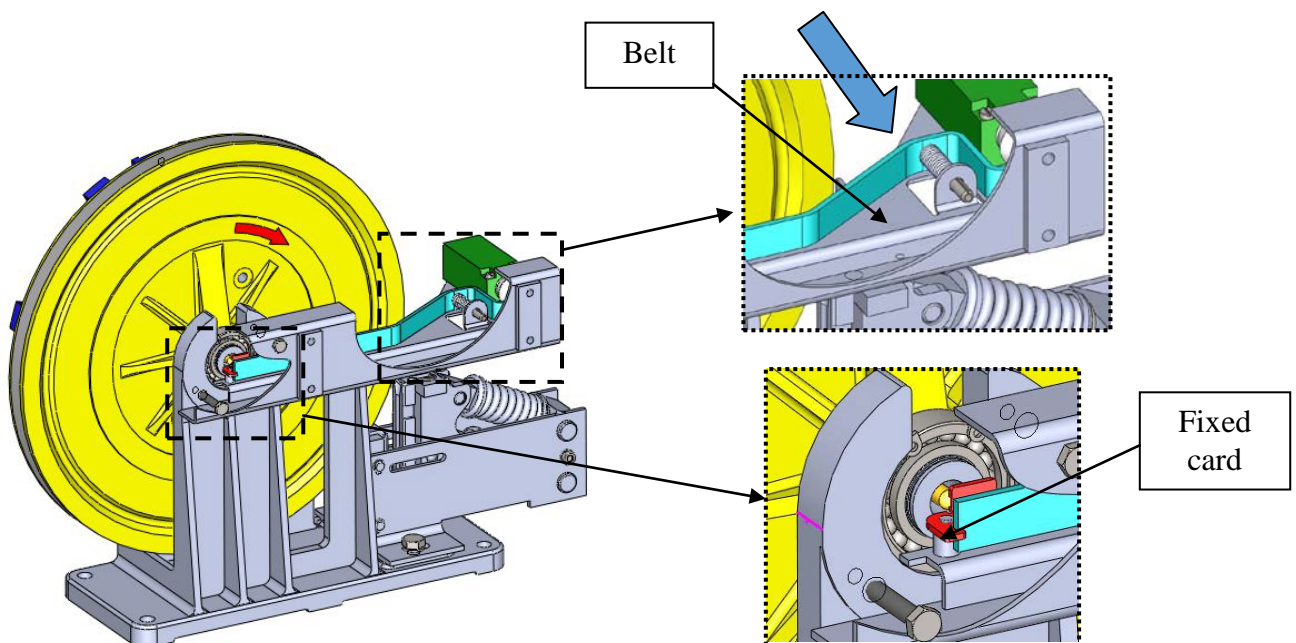


Figure 19

Step 6: Inspection. Confirm that the OSG and the other systems of the elevator are in normal condition again.

Step 7: Reset electrical switch II . Pull the electrical switch contact to close the electrical switch II.

Step 8: Comprehensive inspection When the speed limiter completes the linkage test and reposition, it needs to check the speed limiter in a comprehensive way according to first items of daily maintenance and maintenance.

Step 9: Install and fasten the cover. Install the speed limiter cover and tighten the firmware.



Be sure to make sure that the speed limiter and the other systems of the elevator are in normal condition before step seven.

3.1.12 Inspection of the tensioning device of the speed limiter.

Check whether the tension device is in normal condition. If there is a problem, contact the manufacturer in time to solve it.

4 . Common faults and treatment methods

Fault code	Fault description	Possible cause	Solution
01	The OSG cannot pull the safety clamp after the action of the speed limiter	1 The service life of the brake shoe.	1 、 Check the brake shoe on the basis of the wear condition of the 1.9 check brake shoe.
		2、 The safety tweezers are not operating flexibly, and the pull force is equal to 750N.	2、 Check and adjust the pulling mechanism of the safety tongs to make the pull force less than 750N
		3、 The installation of the safety pliers is skewed.	3、 Check and adjust the safety tongs.
		4、 Safety tongs do not operate flexibly.	4 、 Check and adjust the safety tongs.

5. Keep in storage

The products should be placed in a dry and ventilated room, and the bottom should be supported on the base, and it shall not be stored in the open air.

Continuously stored for more than 6 months, should re check the unpacking intact.

6. After-sale service

Project	Concrete content
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