

OV Handrail Splicing Operation Instruction

There are two main handrail joints of MargaLift Handrail: BO and OV. BO joint needs splicing and vulcanizing while OV joint needs processing corresponding layers then splicing and vulcanizing. This instruction is for OV joint splicing operation as BO joint process is part of that of OV.

The tools needed are: art knife, rubber knife, steel cord scissor and rubber plier.

SKG defines the structure of handrail as following: rubber cover, top and bottom inner layer, steel cord layer and sliding layer.

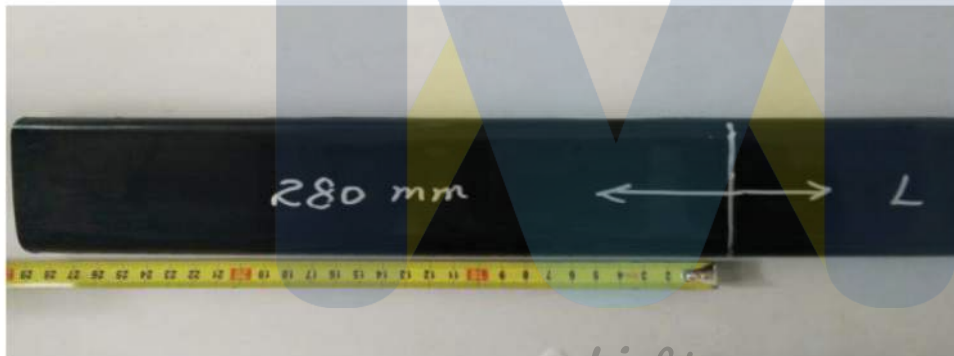
Length Calculation:

1.

Cutting length is ordered length L plus steel cord splicing length.

$$\text{Cutting length} = L \text{ (m)} + 280 \text{ (mm)}$$

Diagram form



130mm end (Male end) process

1.

Mark at the position of 130mm from the opening, remove rubber cover, sliding layer, top and bottom inner layer by art knife, keep the 18-wire steel cord of the 130mm distance.



Handrail Detailed procedure:

- a. Cut transversely to steel cord layer at mark location of lip.



- b. Cut lengthways to bottom of mark location from the two outsides of steel cord layer



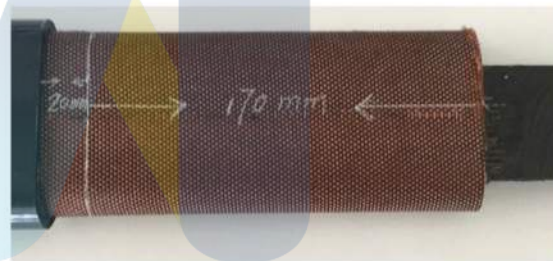
- c. Cut crosswise to steel cord layer from the front view of mark, then remove off the rubber cover and top inner layer by plier.



d. Divide the layer under the steel cord by knife and open a small cut, then remove off the bottom inner layer and sliding layer by plier. During the "knife" operation, don't bend the steel cord in case the steel cord will deform.



2. Peel off the 190mm marked rubber cover



Detailed procedure:

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a.

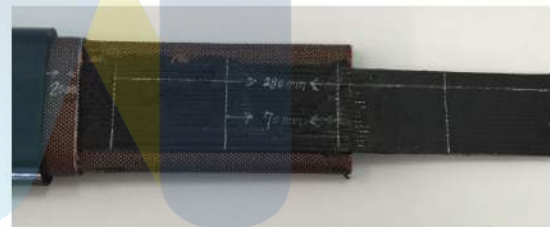
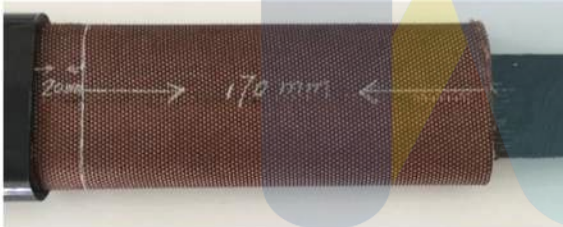
Cut the rubber gradually from the two sides of lip turn up locations. Be careful not to scratch the sliding layer.



- b. Open the cut crosswise at mark location of rubber cover, deep to the bottom of rubber cover layer. Then open some cuts lengthways, remove off the rubber layer by plier. Be careful not to scratch the top inner layer.



3. Peel off the top inner layer of the 170mm section and keep steel cord. Divide the 280mm steel cord distance from the opening into 4 sections with each one 70mm long and mark every section.

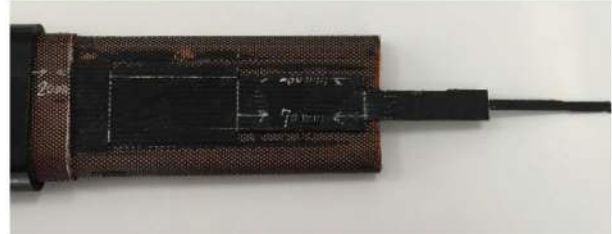
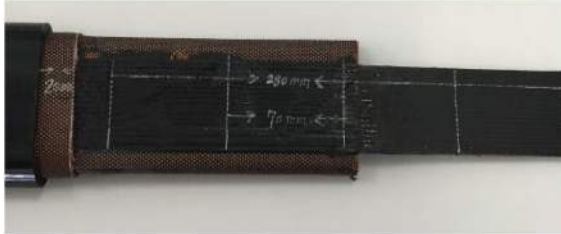


- Cut crosswise along with the 170mm mark line, open some cuts lengthways with distance 20mm, then remove top inner layer by plier. Be careful not to cut across steel cord



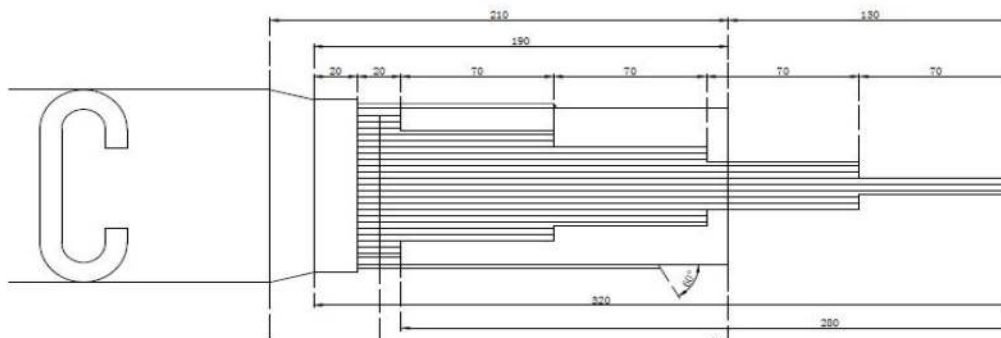
4.

From the beginning of the steel cord, cut by steel cord scissor every 70mm with 2 wires as one group



Detailed procedure:

Divide 18 steel wires into 9 groups, 2 wire as one group, peel from the two outside group to 280mm, then cut off by scissor, the other groups cut accordingly referring to the diagram



5.

Turn over the handrail to keep sliding layer upper and mark 60 degree with the template as shown:

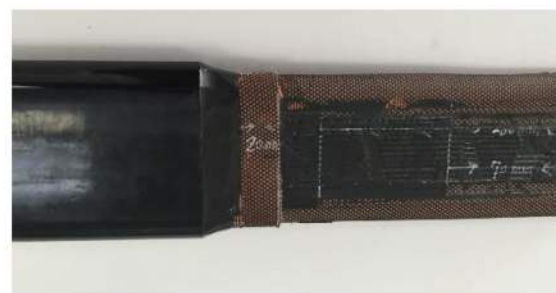
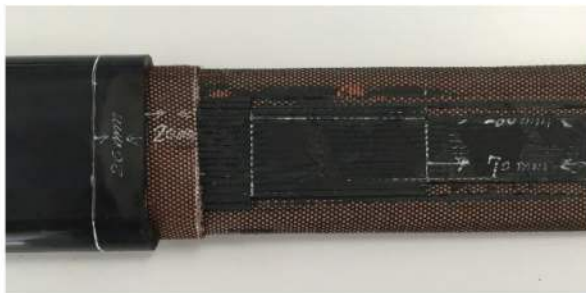


Detailed procedure:

Put inside the template, mark 60° diagonal line. Open the cut along the mark line by knife and be careful not to damage the bottom inner layer. Opening cuts lengthways from the middle of the mark line will make easier to plier off sliding layer. Clear off the rest glue.



6. Diagonally cutting at 20mm rubber cover marked position



Detailed procedure:

Cut down 45° from the mark line with rubber knife and cut the two sides rubber with art knife. Keep safe during operation.



140mm end (Male end) process

Since the procedure details for female and male end are mostly same, this part will not repeat the procedure details and only keep the main steps.

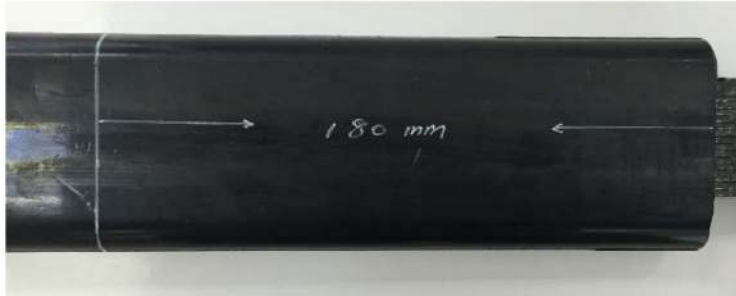
1.

Mark at the position of 140mm from the opening, remove rubber cover, sliding layer, top and bottom inner layer by art knife, keep the 18-wire steel cord of the 140mm distance.

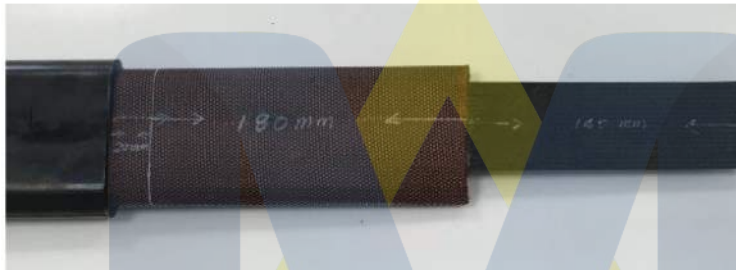


2. Peel off the 180mm marked rubber cover

a: Before



b: After



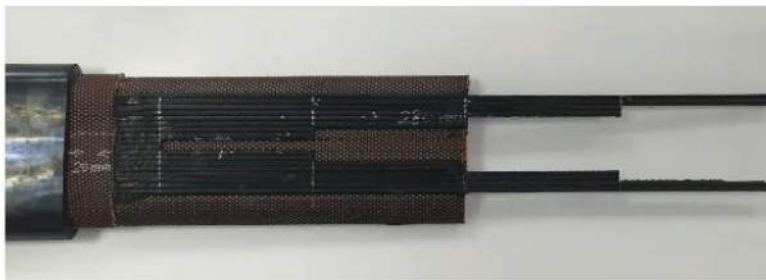
3.

Peel off the top inner layer of the 180mm section and keep steel cord. Divide the 280mm steel cord distance from the opening into 4 sections with each one 70mm long and mark every section.



4.

From the beginning of the steel cord, cut by steel cord scissor every 70mm with 2 wires as one group detail as following picture



5.

Turn over the handrail to keep sliding layer upper and mark 60 degree with the template as shown:



6.

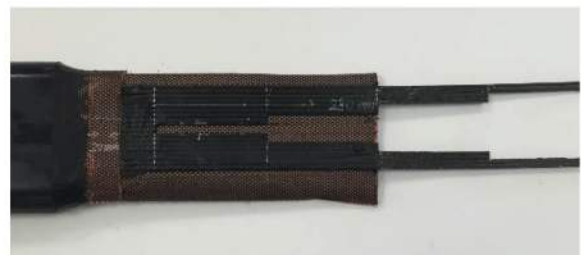
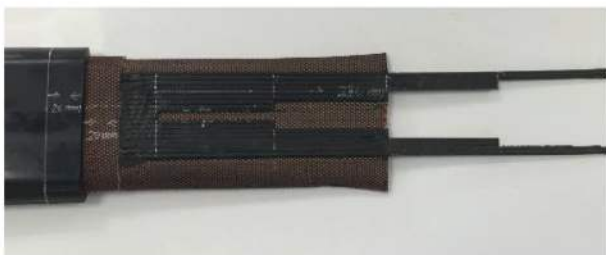
Cut the sliding layer along with 60 degree direction



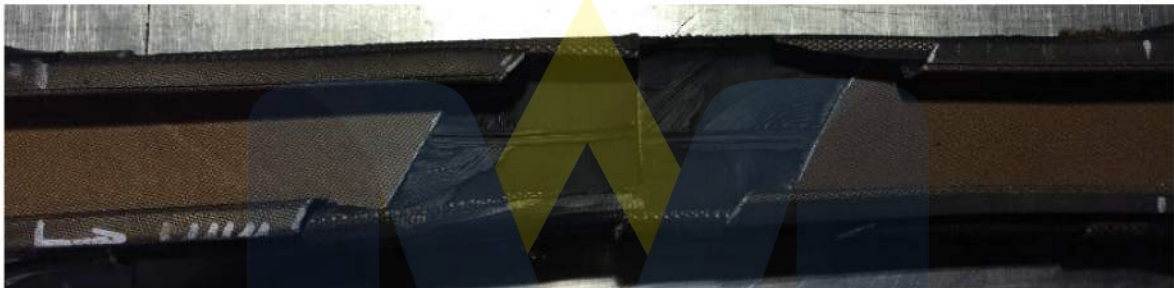
7.

Diagonally cutting at 20mm rubber cover marked position

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Cut and peel period finished



130mm/140mm end (male/female end) splicing

1. Sliding layer red side:

a. Brush NR01 glue

b. Paste NR17 rubber sheet

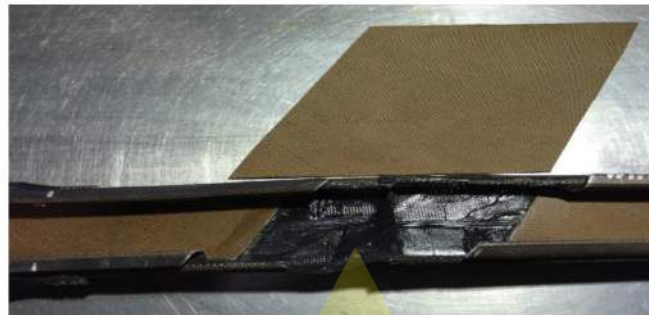


2.

Brush NR01 glue at black section of the sliding layer that need splice. Note: the overlap length is 10mm for each side.

3.

Paste 60° sliding layer after completely dry. Note: Overlap length is 12 ± 1 mm for each side with original sliding layer.



4.

Choose the proper assembling mould insert and put it on the sliding layer centered, then fix it by gun nail



5.

Brush NR01 glue at gun nail side after drying turn over and brush the other side, wait till dry

6.

Paste PE270 inner layer centered at the reverse side and connect 12 ± 1 mm distance with the original handrail, roll tightly.

7.

Paste NR17 rubber sheet on PE270 inner layer, The width exceeds 18 steel wire width on both sides at least 5mm.

8.

Paste NR01 glue on steel cords thoroughly on two sides and dry completely, paste NR17 rubber

9. Put male/female end in line successively:

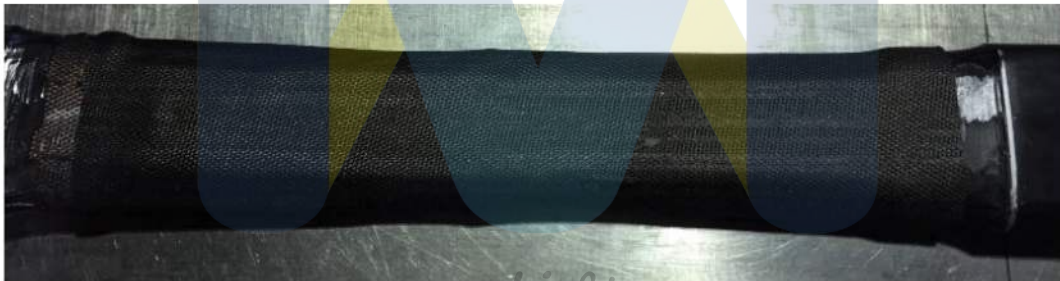
- a. Sort next to
- b. Roll tightly
- c. Brush NR01 glue, paste NR17 rubber
- d. Paste 320mm enhanced fabric

For every step, glues dry completely and roll tightly



10.

Brush NR01 glue on enhanced fabric, paste the second PE270 inner layer after completely drying and connect 12±1mm distance with the original PE, roll tightly



11.

Rubber cover paste

- a. Brush NR01 glue on PE270
- b. Brush NR01 glue on ripe rubber bevelling
- c. Brush NR01 glue on inner layer of new rubber



d. Paste the rubber after all is naturally dry, connect 3~4mm distance, roll tightly

e. Take off the fixed gun nails and remove the mould insert



f. Brush NR01 glue on black side of sliding layer and edge/lip position of rubber

g. Turn under sliding layer to rubber lip and roll, brush NR01 glue on red side

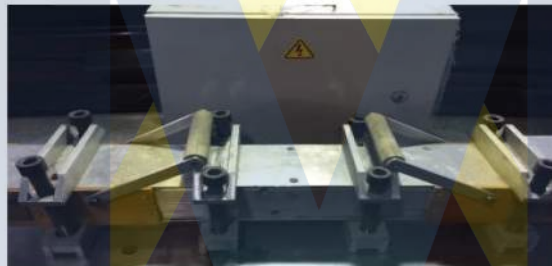


h. Turn over to keep rubber side upper, cut the unripe rubber diagonally



Preparation before vulcanization

1.
Connect the heating base of controller box to mould, then plug the temperature sensor
2.
Connect with 220V power supply
3.
Turn on the controller box, and adjust the temperature to 80 degree, and wait the mould/insert of mould to increase temperature
4.
Cleaning of mould and insert



Adjust the raw rubber partly before vulcanization. Make slope with knife at raw and ripe rubber connecting part.

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1.
When mould/insert reaches 80°C, put the metal insert into the raw handrail section centered. Put heat-resistant paper on two sides of lower mould.
2.
Put the raw handrail section and insert into the lower mould. Then put heat-resistant paper on surface of the rubber cover and close the upper mould.
3.
Screw on the fastened bolts till upper/lower mould is appressed, and the distance is uniform. The distance is around 1mm.

When the upper/lower mould distance is uniform, then release all the bolts, and take away the upper mould, set the temperature to 160°C.

5.

Tear off the heat-resistant paper on upper/lower mould, remove the mould insert, and amend the extra raw rubber

6.

When the temperature reaches 160°C, put the amended handrail into the mould again, screw the fastened bolts till upper/lower mould is appressed, and the distance is uniform



Normal vulcanization

1.

Close the upper mould rapidly after amending the extra rubber

2.

First slightly fasten the middle 4 bolts, then bolts on the two sides

3.

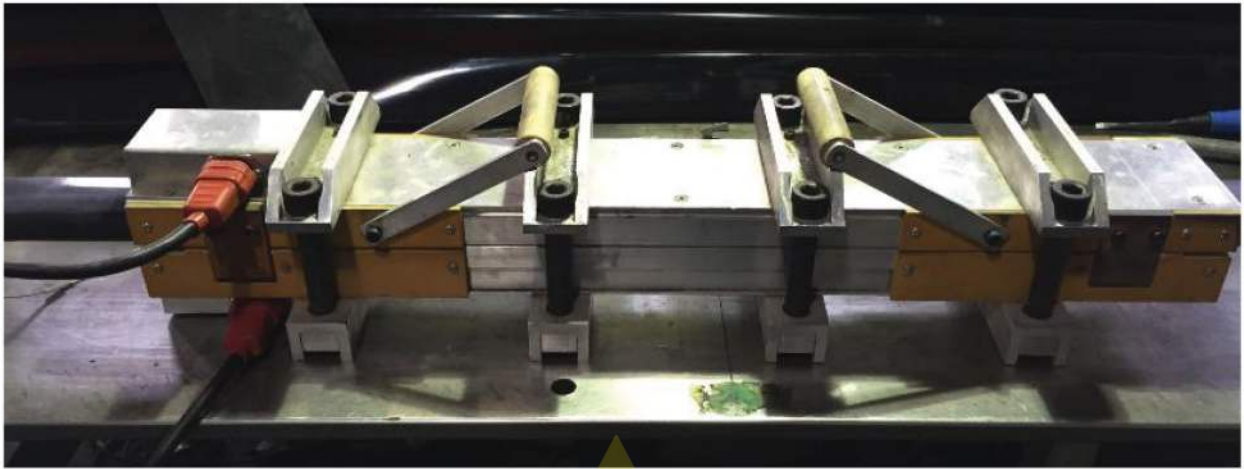
Then fasten all the bolts tightly so that the joint horizontal force is balanced

4.

When the joint line distance is around 0.5mm, stop fastening bolt

5.

Begin to vulcanize for 25 minutes when the temperature reaches 160°C



Adjust for handrail

1. Turn off the controller box after it fully vulcanizes for 25 minutes under 160°C. Then cool for 30 minutes and release the bolt
2. Take out handrail and remove the wasted material on two sides with knives
3. Slight polish with abrader if two sides of the rubber is not at the same level



4. Wait till completely cooling of handrail
5. Order of sand paper polishing: 120#、60#、30#、15# sand paper
6. Polish with woolen ball



OV Handrail Operation Manual

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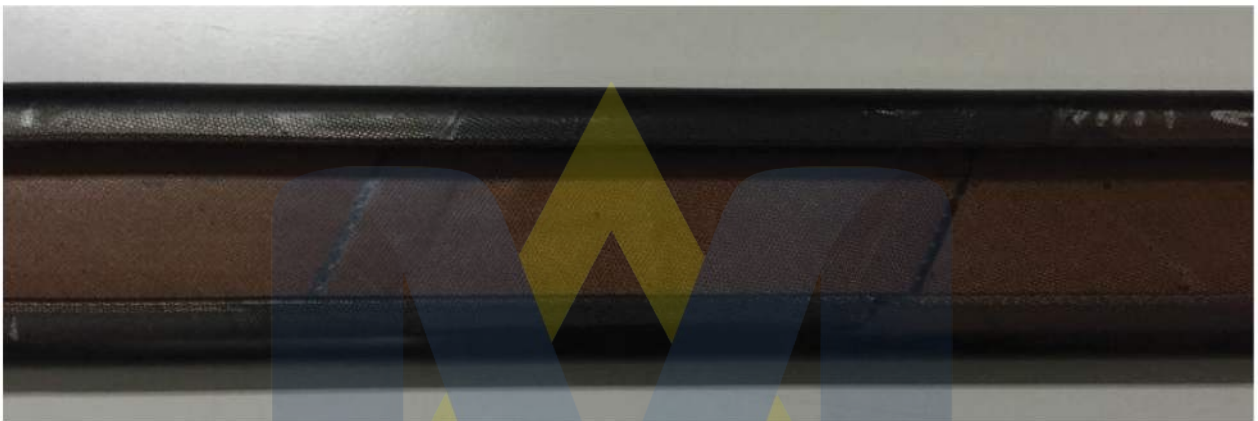
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TZ-GS18

Attachment: TZ-GS18 picture

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