



Workshop Manual

PB

English

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HEADLIGHT SET OPENING AND LAMPS REPLACE



1 HEADLIGHT SET OPENING AND LAMPS REPLACE



Open the inspection cover and remove the headlight fixing bolts.

Push the bolt as indicated by the red arrow.



Turn the headlight set as indicated in the picture at the left side, combining with the movements indicated by the red arrows.



Remove the seal cover of the headlight set.



Unlock the lightbulb support.



Do the closing operations always taking care of assure a good seal of the headlight with the seal covers.

FRONT, CENTRAL AND REAR DOORS ADJUSTMENT



2 FRONT, CENTRAL AND REAR DOORS ADJUSTMENT

2.1 INTRODUCTION

Door are considered not adjusted when:

- Rattles.
- Do not close adequately and permits water, air or dust leaks – sealing problems
- Presents difficulties to open or close.
- Takes too much time to open or close.
- Needs external help to open or close.

2.2 DOOR SYSTEM PARTS

Upper Triggers Set – Limits the door’s vertical movement during the closing phase.

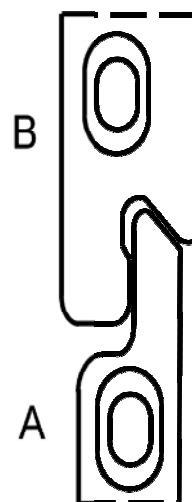
A (door)



B (body frame)



Coupling



Lower Triggers Set – Controls the door’s seal during the closing movement phase.

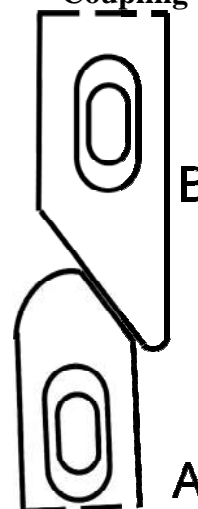
A (door)



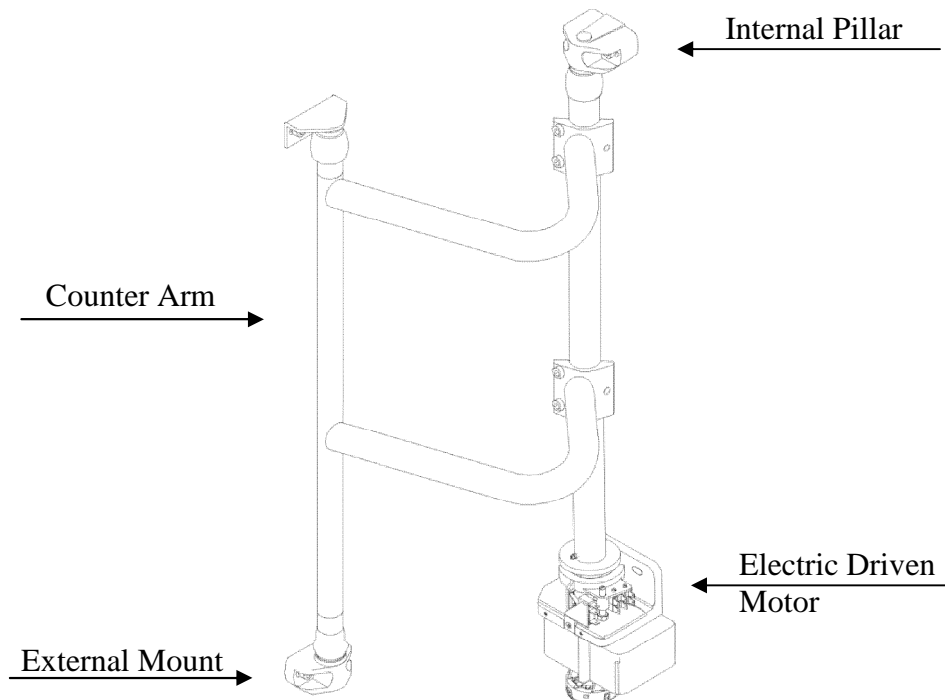
B (body frame)



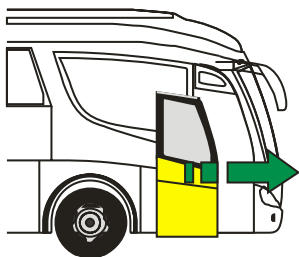
Coupling



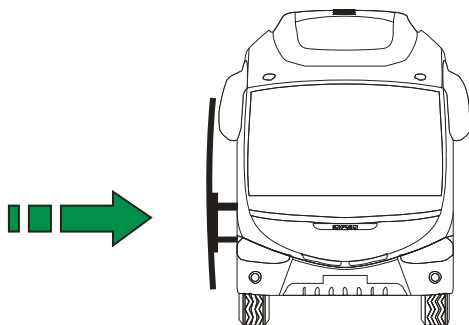
Electric System (BODE) – Responsible for the door’s moviment.



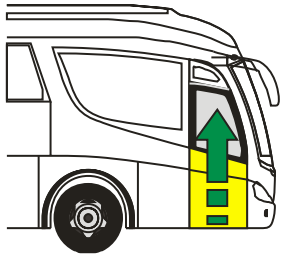
2.3 DOOR'S MOVEMENT



Paralell to the bus



Perpendicular to the bus– Movement responsible for the door’s seal.

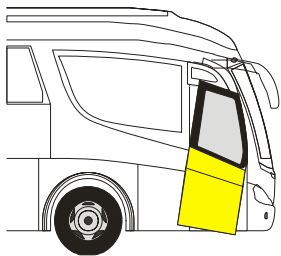


Vertical – This movement is responsible for coupling the door with the with body frame, assuring rigidity of the set, combining the vertical and perpendicular movements on the door system.

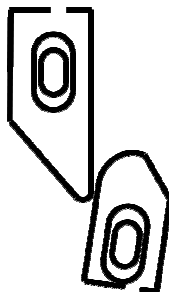
2.4 FEATURES TO BE CONSIDERED DURING THE ADJUSTMENT

- GEOMETRICAL ALIGNMENT
- SEALING
- PARALELISM WITH THE BODY
- DOOR'S HEIGHT
- DOOR'S CENTRAL ALIGNMENT
- SENSITIVE SYSTEM

2.5 GEOMETRICAL ALIGNMENT



The geometrical alignment is correlated with the door x body frame alignment, as seen in the illustration. This feature is controlled by the wedges set and by the positioning of the doors mounts.



Door Coupling

General alignment problems can be generated by bad wedges coupling. Such defect can be observed pulling up the door rubber after its closure.

Another reason might be bad adjustment of the door's fixing arms.



In the case of poor geometrical alignment, the adjustment of the wedges set and the external door fixation can help.

In order to adjust the external mounting plates, just free the mounts, one by time, and use the rubber hammer to adjust it's position.

2.6 SEALING

The door' seal is very important to prevent air, dust or water leaks, and even prevent noise from the unwanted air inlet. The upper wedges set are responsible for bring the door close to the body.

Excess of sealing force implies on over stress on the wedges wich reduce its lifespan and can cause damage in body frame rubber. It's possible to achieve good seal when the door's surface gets aligned with the body's lateral surface.

Lack of seal can have as natural cause the poor coupling of the wedges, as can be seen in the pictures below.



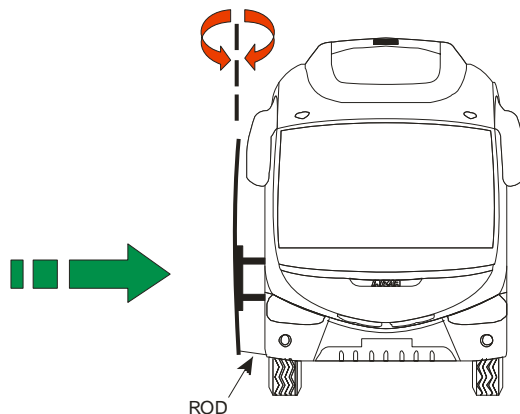
Gap (not coupled)



Good coupling

2.7 DOOR – BODY PARALELISM

This feature is defined by the rod located in the lower part of the door. The doors displacement with the body frame must be paralel, wich means the two sides of the doors must touck the body frame simultaneously.



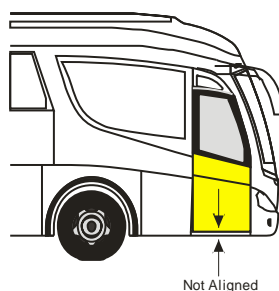
When just a single side of the door touch the body frame, one of the wedges set will couple first, causing closing problems. In these cases, we might have problems with the geometrical alignment and poor coupling of the not-yet coupled triggers.

To prevent such problems the rod must be correctly adjusted trough the bolts that fix the rod in the body trough slots holes as can be seen in the picture aside.



2.8 DOOR HEIGHT

The door must be aligned with the body's side lines, with the body frame on the lower part. Such alignment can be obtained by ajdusting the lower wedges, with limitation of the door's rising movement.

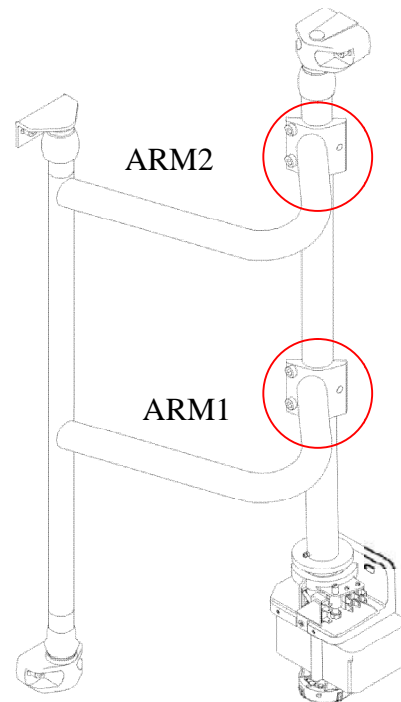


That adjustment is important to prevent air, dust or water inlets and therefore the noise production.

The procedure of adjusting the door's height can be done by loosening the bolts indicated by the picture below. Using the rubber hammer, the arm's position can be changed with soft strikes.

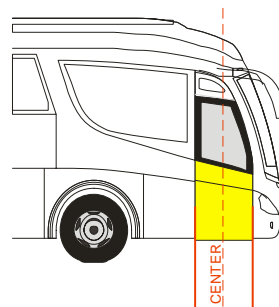


Warning: NEVER LOOSEN THE TWO ARMS AS THE SAME.



2.9 DOOR CENTRAL ALIGNMENT

The gaps between the body frame and the door must be equal both sides. Such features can be achieved combining the past adjustments.

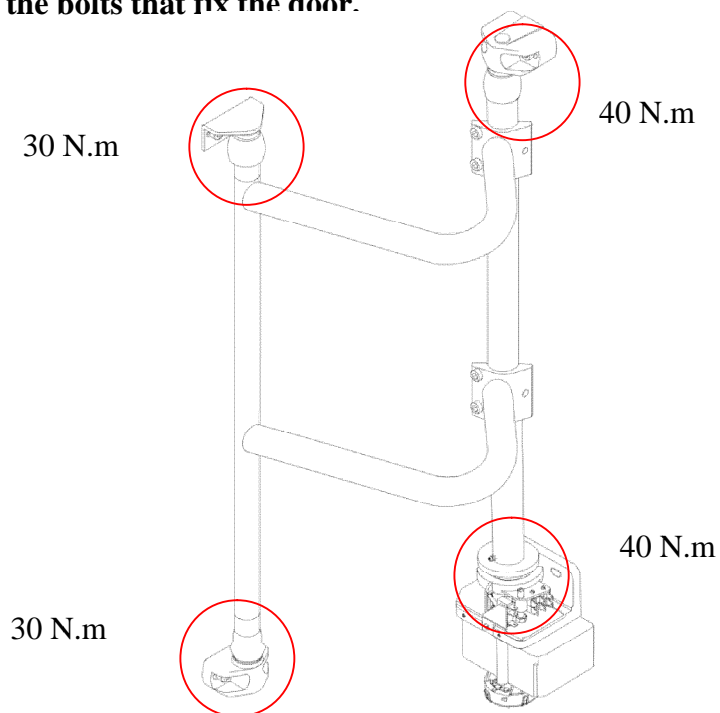


2.10 OTHER FACTORS THAT CAN INFLUENCE THE DOOR OPERATION

Misuse of Equipment

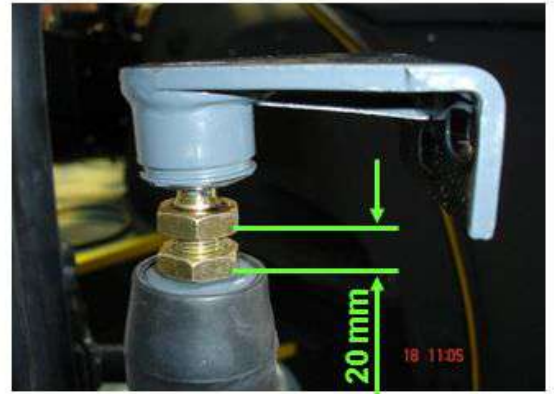
- Transit with open doors;

- Lack of maintenance of the neumatic system.

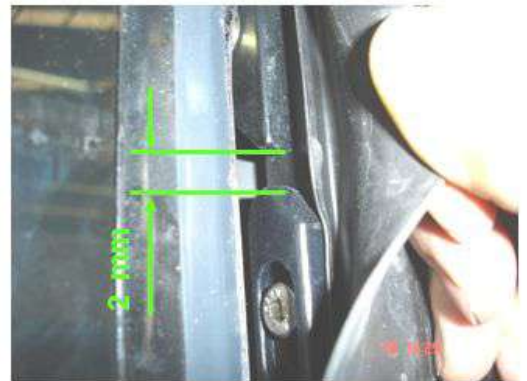
Torques that need to be applied in the bolts that fix the door.

2.11 STANDARD MEASURES

In the external mounting bearings, the distance between the work nut and the bolt nut must be 20mm.



The maximum gap between the trigger's set during the closing phase must be 2mm.



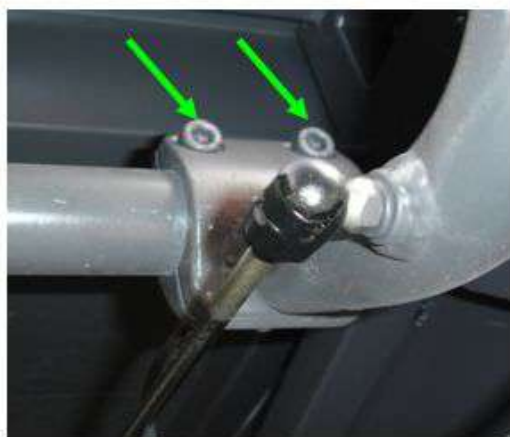
LUGGAGE COVERS ADJUSTMENT



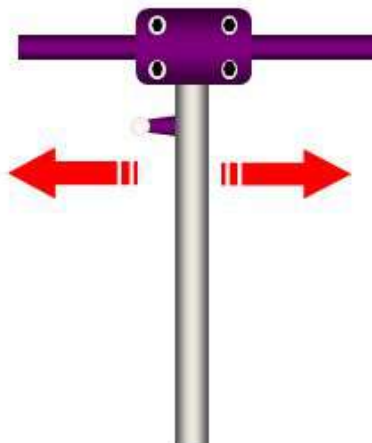
3 LUGGAGE COVERS ADJUSTMENT

3.1 AJDUSTMENT OF THE PANTHOGRAPHIC SYSTEM ARMS

The bolts indicated in the pic.1 are responsible for the position of the pantographic system. The fig. 2 indicates the movement allowed at the system adjustment.



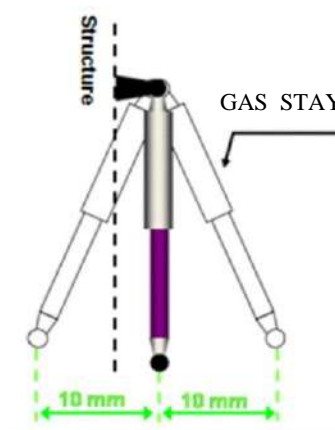
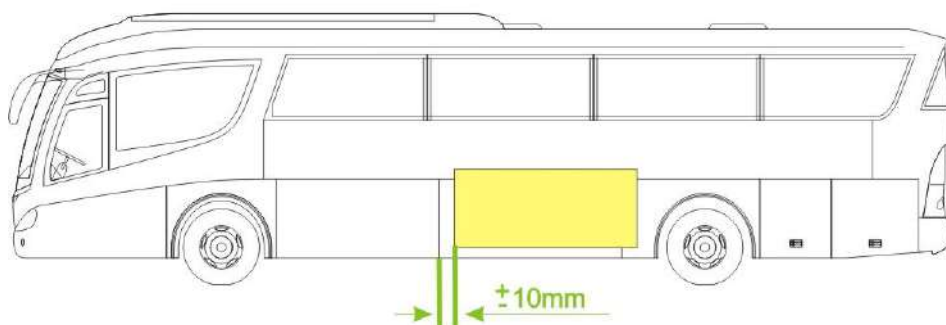
Pic 1



Pic 2

3.2 HORIZONTAL DISPLACEMENT

After adjusted the structure arms, the cover must be adjusted according the panel and the adjacent covers. The gas dumper allow s 10mm of horizontal dislocation, as seen in the drawing below.



3.3 PARALELISM ADJUSTMENT

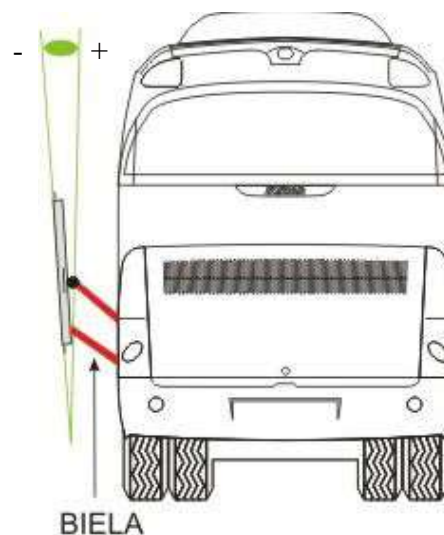
The rod indicated aside controls cover paralelism during the opening and closing movements. Such feature must be controled correctly to prevent poor sealing during the closing phase, preventing water or dust inlet trough the luggages.

Below we have indicated the work nut in the rod adjustment. Freeing the nut and using the wrench makes possible to enlarge or reduce the rod.

Ps: The screw is inverted

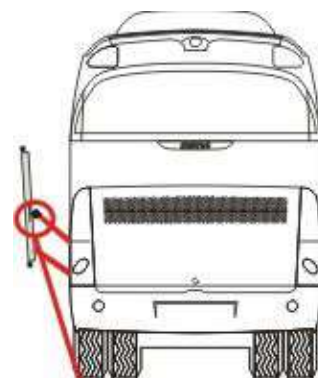
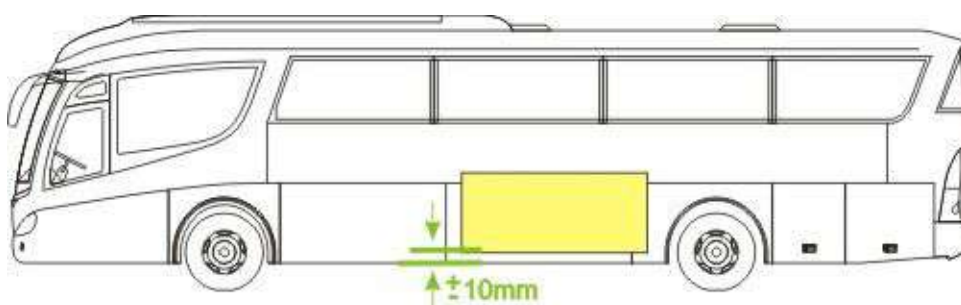


Increasing the Rod lenght a displacement to the positive side of the angly will happen, reducing the lenght the effect is the oposite.



The covers must be always aligned with the immediately adjacent doors and with the lateral panel. Through the device shown aside it is possible to change the cover's height in a zone of 10mm, like seen below.

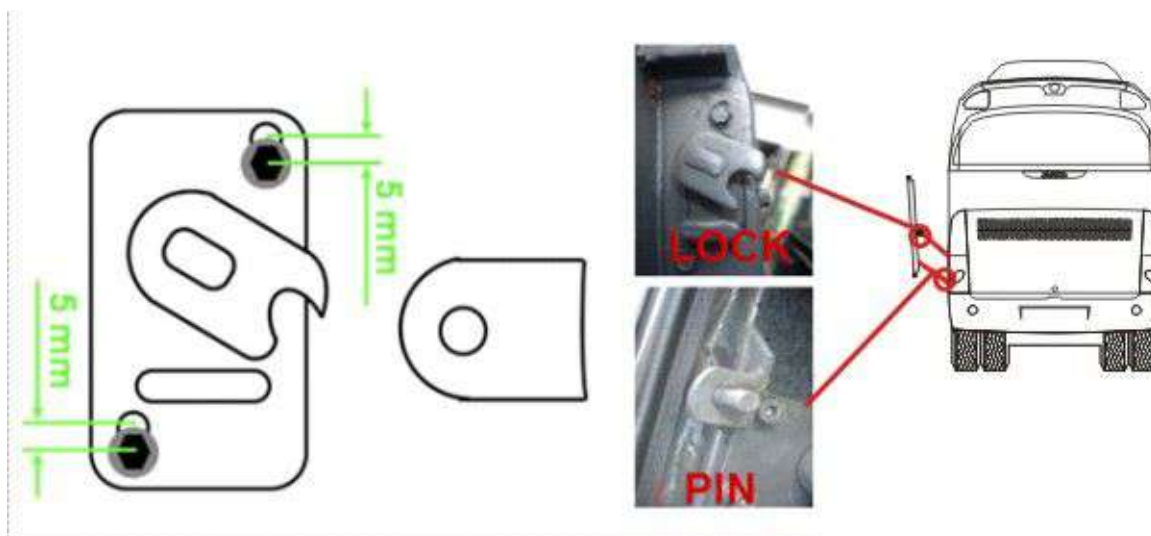
That adjustment is very important in order to assure the alignment with the external panel and prevent water and air inlets in the luggages.



3.4 LOCKS AJDUSTMENT

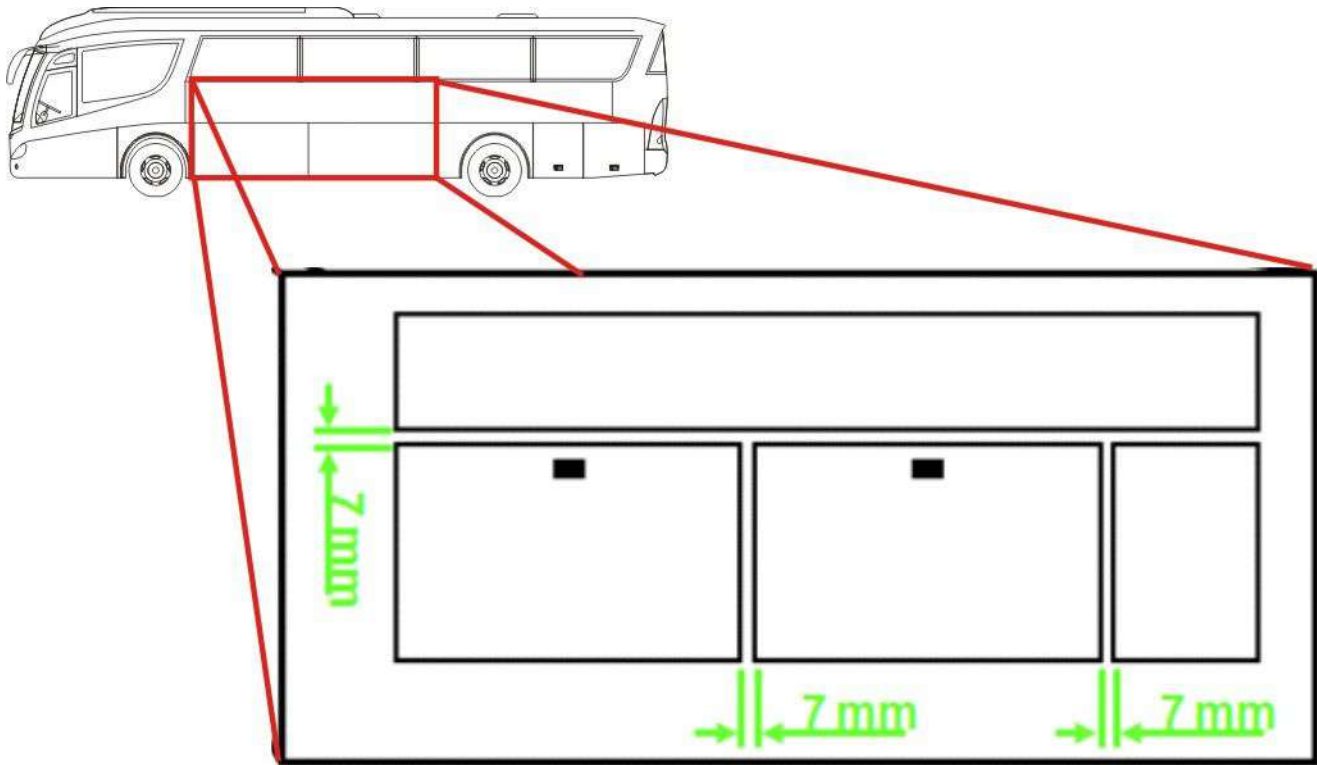
The locks must be aligned always according the strutucutre's pin.

The locks can be adjusted in the 5mm zone according the pictures below.



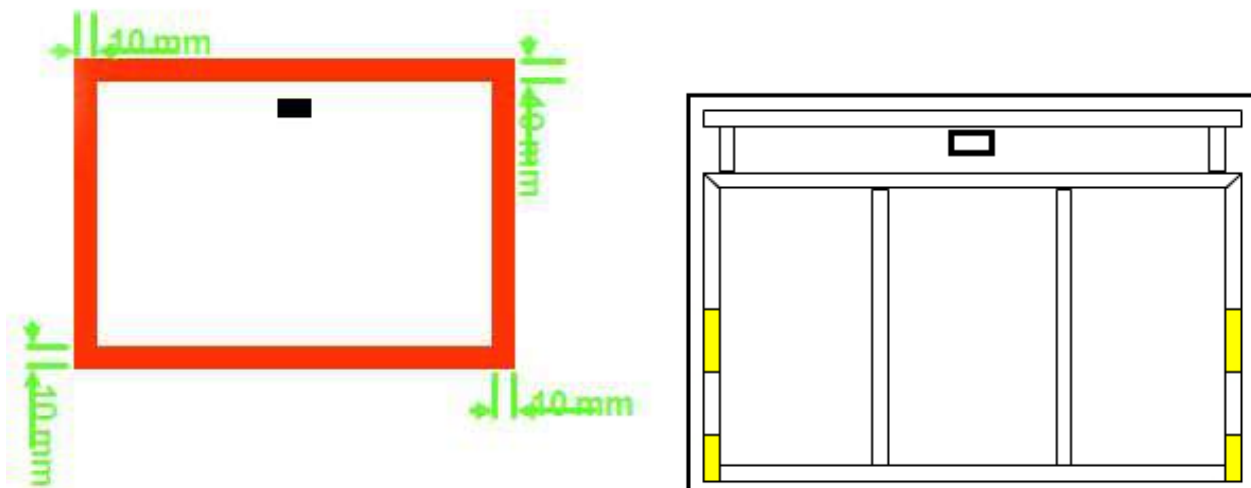
3.5 STANDARD FEATURES

The standard gaps between the covers and the lateral panel are shown schematically in the drawing below.



3.6 NOTES

All the covers have a excess of metal around it to permit the correct after-factory adjustments .

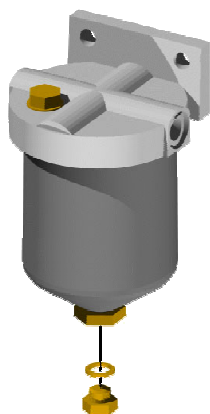


The structure of the covers are reinforced with aluminium sheetmetal where the the rod fixation holes shall be made.

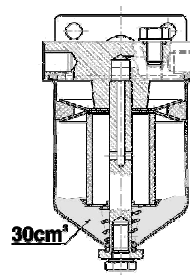
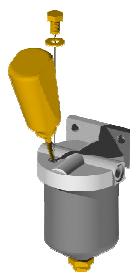
3.7 PNEUMATIC ADJUSTMENTS

The luggage compartment opening system is automatic operated by air. For this reason, regular maintenance stoppings must be accomplished for the proper operation of the vehicle. All the works described on the following items must be accomplished each 50.000km or 6 months of operation.

3.8 PNEUMATIC OIL RE-FILLING

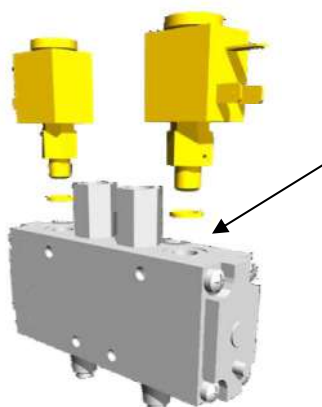


- 1 - Purge the System Humidity.
- 2 - Complete the lubricant level, 30 cm³.



3.9 ELECTRO-VALVE CLEANNESS

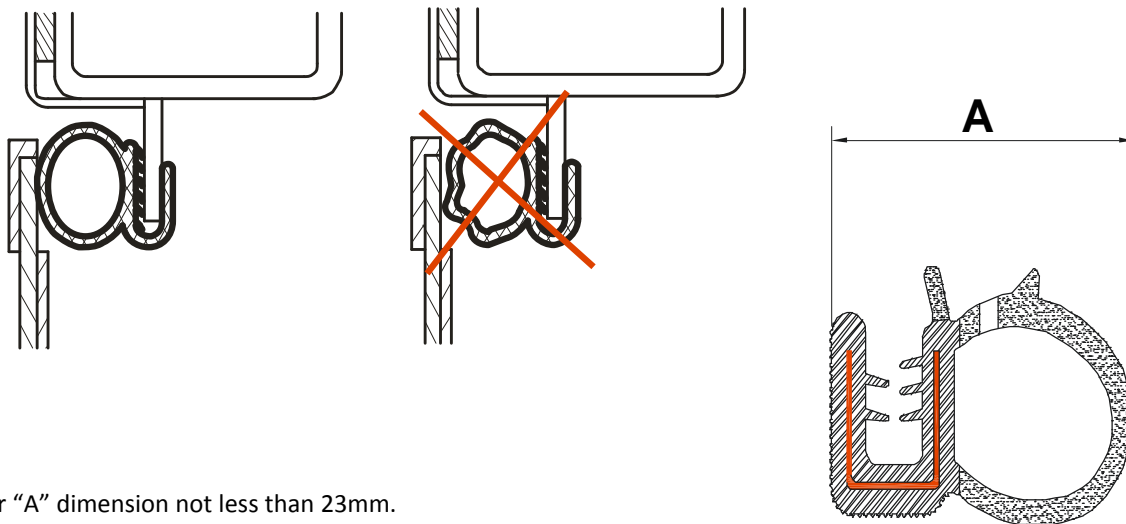
It is very important remove the solenoids and clena the electro-valves sealing ring housing to avoid air leaks during the operation.



Clean the sealing ring housing

3.10 LUGGAGE SEALING RUBBERS CHECKING

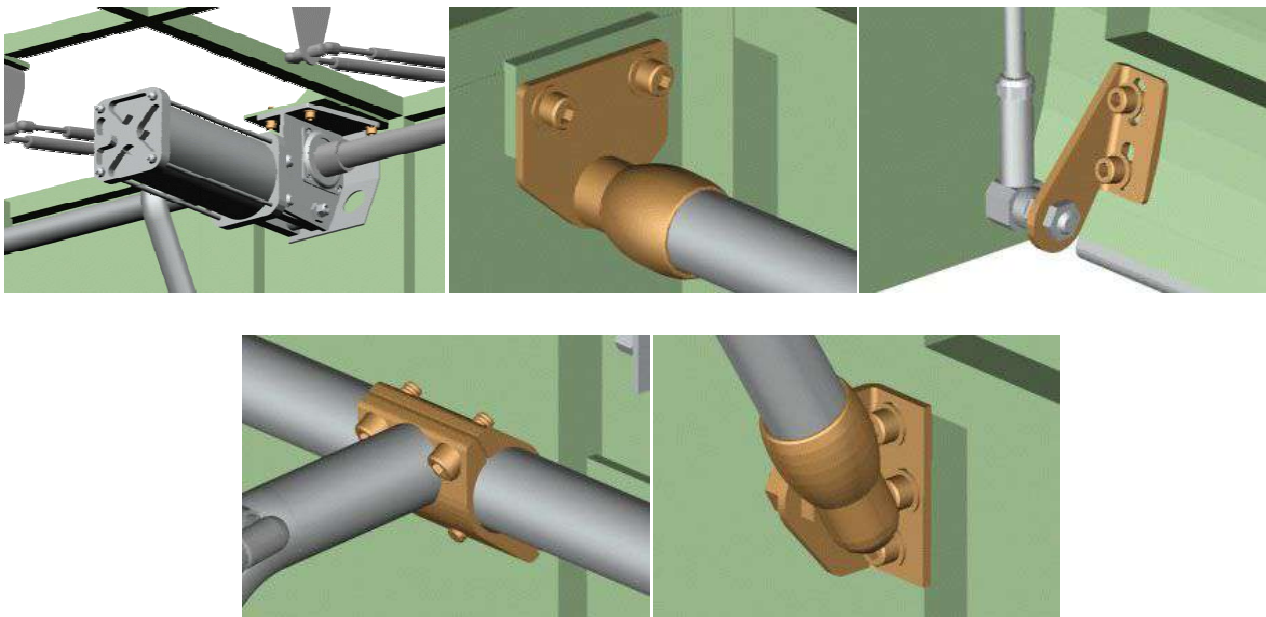
The Sealing rubber conditions is quite important to avoid water leaks. So on each maintenance stopping, sealing rubbers must receive a visual check and be replaced if necessary.



Rubber "A" dimension not less than 23mm.

3.11 BOLTS AND FLANGES

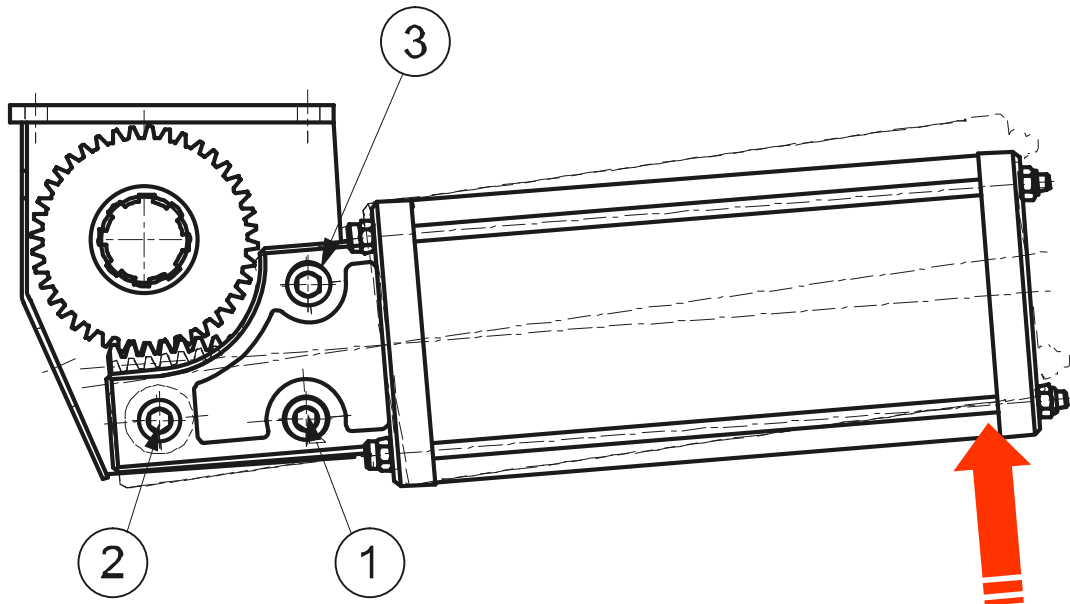
A visual check on indicated bolts and flanges are important to prevent failures. This work must be performed at least each 6 months of operation.



3.12 LUGGAGE ACTUATOR CYLINDER MAINTENANCE

The Luggage actuator is responsible to open the luggage doors. The clearances between the plain gear and the main gear must be removed as long as it appears.

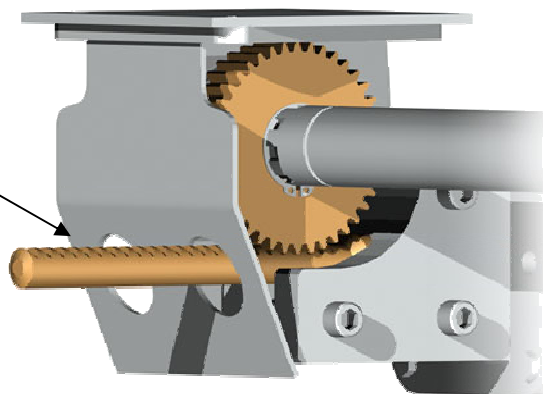
Follow the steps below, each 6 months, to prevent premature wear and tear of the gears.



- A- Slightly loosen bolts 1, 2 and 3.
- B- Move the cylinder up turning over point 2.
- C- Compensate all clearance between the plain gear and gear on turning bar.
- D- Tight the bolts strongly.

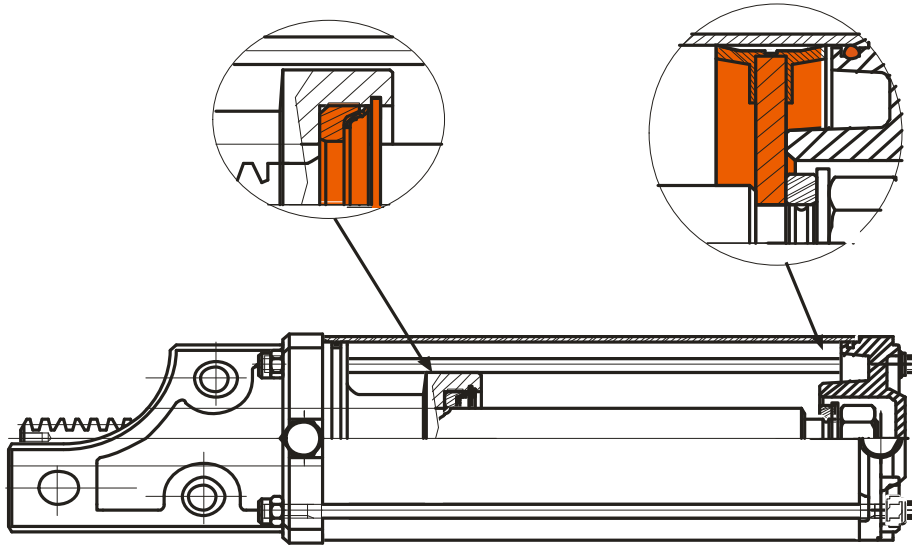
3.13 CYLINDER PLAIN GEAR CLEANNESS

Clean the Plain gear with wet cloth and apply grease.



3.14 REPLACE CYLINDER REPAIR

Replace actuator cylinder repairing kit, if necessary.



EXTERNAL REARVIEW MIRROR MAINTENACE



4 EXTERNAL REARVIEW MIRROR MAINTENACE

4.1 NECESSARY TOOLS

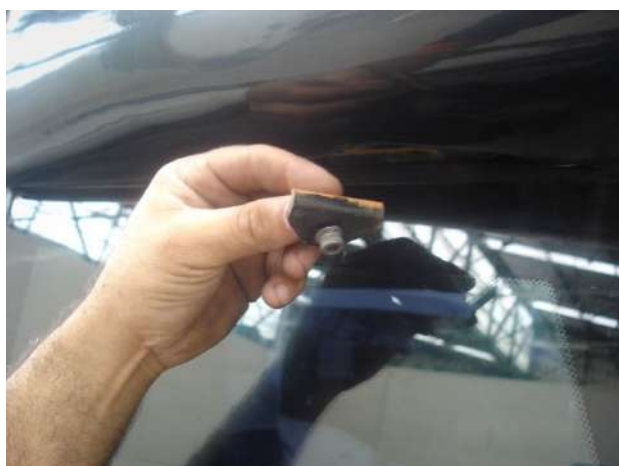
- Rubber Hammer.
- 5mm long-rod hex-key.
- Ratchet hex key with 8mm sockets.



Find the locking-bolt at the lower side of of the mirror's arm.



Loosen the locking-bolt with the long-rod hex key.



Remove the fixation lock from the mirror's arm.

To remove the mirror's arm, push up the arm with both hands.

Disconnect the cable the electrical motor and mirror demister circuit.



To remove the mirror, use a screw driver to make a lever and lift the fixing plastic point.



All mirror sets are composed by a plastic base and glass. There are not screw a fixation to facilitate the maintenance.



See all the left image the mirrors removed.

By two conector wich must be desconnected in order to remove the mirror. Both mirrors have a demister system and the harness must be disconnected in order to remove the mirror.



The glass and the plastic base are single parts and can not be separated.

4.2 DRIVEMOTOR REMOVAL



Locate the three fixing bolts on the mirror support and loosen them to remove the support.

After remove the mirrors's pad, we have access to the mirror's drivemotor.



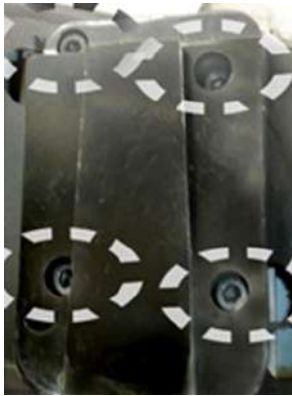
To remove the drivemotor, loosen the four bolts located behind it, using the long-rod hex key.

4.3 CHANGING THE MIRROR'S MOUNTING BRACKET (DOVE TAIL)

5. 071.10



Before reassembly the mirror, inspect the mounting bracket for possible damage or cracks.



Find the four m8 bolts on the mounting bracket of the mirror's arm.



To remove the mounting bracket remove the four bolts using the long-rod hex-key.

WINDSHIELD WIPERS ADJUSTMENT AND MAINTENANCE



5 WINDSHIELD WIPERS ADJUSTMENT AND MAINTENANCE

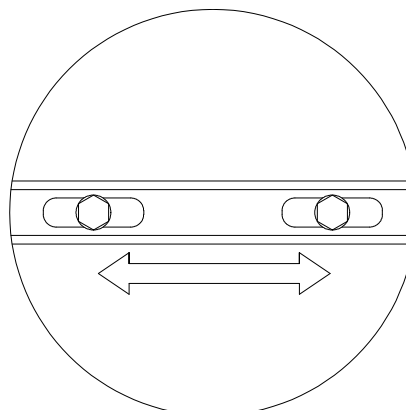
Tools needed:

13mm and 17mm wrench

The windshield wiper adjustment is done foremost on the synchronism rod which controls the start angle of the arms.

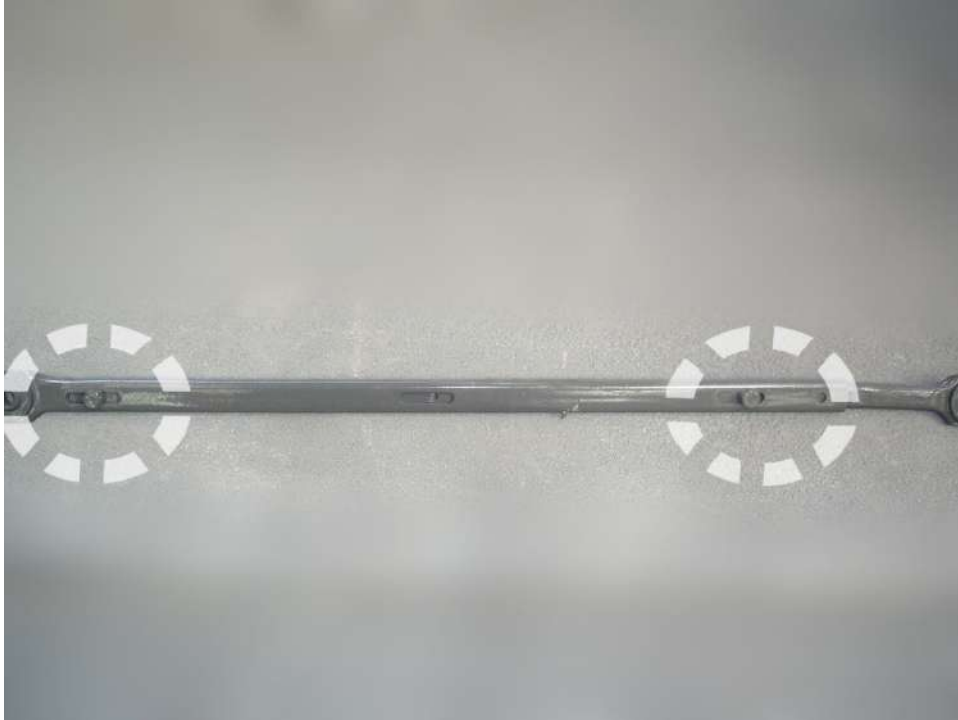


There are two synchronism rods located each one at each side of the mechanism behind the front cover, each one fixed by two m8 bolts in elongated holes.



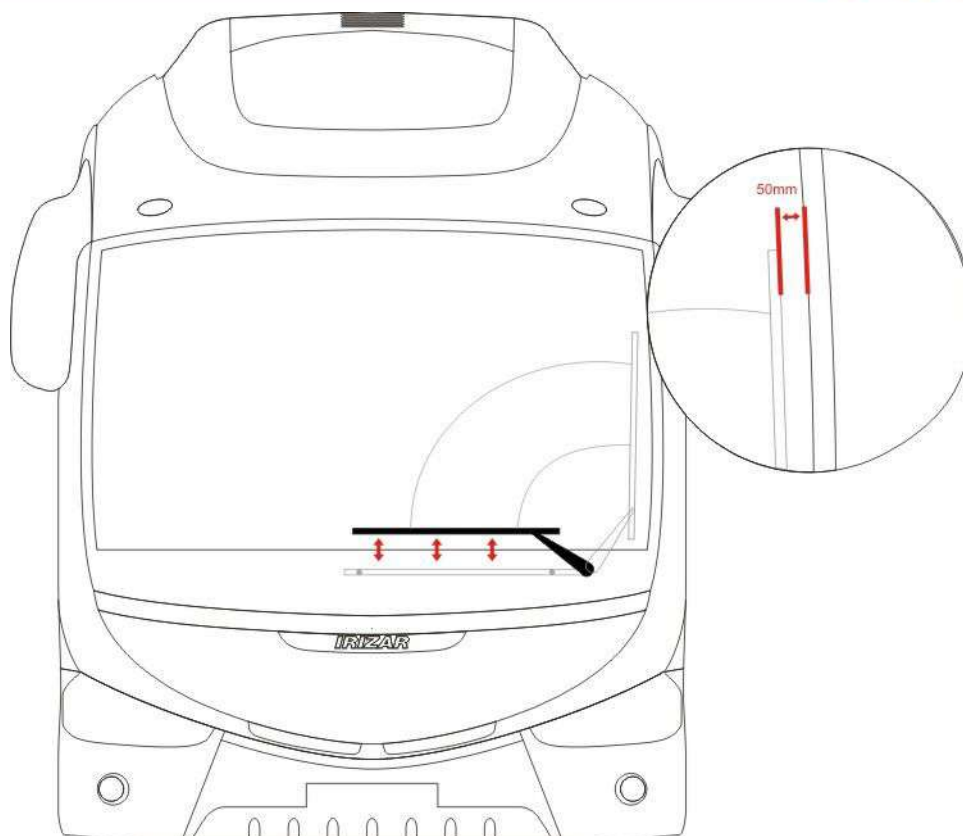
In the right synchronism rod the bolts must be in the center of the elongated holes.

The Adjustments are done in the right arm of the mechanism, by loosening the bolts behind the synchronism rod with the help of the 13 wrench and sliding the wiper blades to the desired position.



There must be observed that, at the start of the movement, the wiper blade is parallel to the synchronism rod. At the end of the movement the blade must be at least 50mm from the column border.

Important: To test the work of the wipers, the mechanism must operate at second speed, on a wet windshield.



In order to remove the motor of the windshield wiper, remove the three bolts m10 that holds the motor, with the 17 wrench; Remove the the m8 bolt with the 13 wrench, moving the motor downwards.



INTERNAL DIGITAL CLOCK TIME ADJUSTMENT



6 INTERNAL DIGITAL CLOCK TIME ADJUSTMENT

The digital clock time is adjusted by using a magnetic. All vehicles tools sets accompanys a magnetic stick. Any magnetic with suitable size can be applied for this work.

Place the magnetic on the position below to adjust the hour:



Place the magnetic on the position below to adjust the minutes:



TOILET DOOR SPRING FORCE ADJUSTMENT



7 TOILET DOOR SPRING FORCE ADJUSTMENT

The toilet door hinge spring must be adjusted as long as some complains about door opening during the bus operation appear. Excessive force on hinge reduces the time life or generates eventual breaks.

Release the pressure over the hinge pin by slightly turning the top bolt to the left.



Remove the pin



Tight bolt to left in $\frac{1}{4}$ of turn.



Hold the allen tool and put the pin back.



WINDSCREEN REPLACEMENT



8 WINDSCREEN REPLACEMENT

The installation of the windscreen, it should only be done by experienced professionals, in case of doubt during the installation, contact the one of our technical representative available on technical assistance network list that joints the bus body manual or available in the internet www.irizar-sat.com.br.

8.1 MATERIALS AND TOOLS

Below, the list of materials and tools, that will be used for the change of the windscreen.



Pic. 1



Pic. 2



Pic. 3



Pic. 4



Pic. 5



Pic. 6



Pic.7



Pic.8



Pic.9

Pic.1: Grainer with diamond disc

Pic.2: Pneumatic knife

Pic.3: Sika Aktivator and Sika Primer-206 G+P

Pic.4: Sikaflex

Pic.5: Primer Application bottle

Pic.6: Windscreen Support

Pic.7: Allen Key, #5

Pic.9: Windy Handly

Pic.10: Sika Gun

8.2 PREPARATION

8.2.1 TABLE OF SUPPORT

This table is for the instalation to have the necessary support to handle the windscreen procedures with total safety.

See the images below:



image of the support table



image of the support table

8.2.2 REMOVING WINDSCREEN WIPERS

It is necessary to remove the windscreen wiper to facilitate the process and to be possible to fit the windcreens support. Use a wrench no. 17.



Wiper arm fixing Point



Removing the arm

8.2.3 WINDSCREEN WIPES FUSE



Fuse box

Remove the fuse that protects the wiper motor working to avoid accidents while support for windscreen is placed on wiper blade axles.

8.2.4 REMOVAL OF THE REARVIEW MIRROR

Irizar indicates to remove the rearview mirrors off to avoid accidents and damages during the windscreen removal. It also provides better conditions for finishing procedures.

Follow the steps below to have a successful operation:



Remove the fixing screw – Allen 5



Use a rubber hammer to start the sliding movement



Mirror harness must be disconnected.

8.2.5 PROTECTION OF THE BORDERS

The border where is fit in the glasses must be protected with masking tape for not scratching the painting while the cracked glass is removed. The masking tape must surround the windscreen hole. Masking paper must be applied on front dome.



Masking tape surrounding the windscreen hole



Masking paper on front dome

8.3 REMOVING THE CRACKED WINDSCREEN

8.3.1 CUTTING GLASS

Remove the center of old windscreen using the grainer with diamond disc.



A distance from the column must be maintained along the cut to avoid damages in the internal finishing of the vehicle.

8.3.2 REMOVING THE GLASS RESIDUES (SIDES, TOP AND BOTTOM)

The adhesive residues shall be removed with the Pneumatic cutter. The process must be carefully handle to avoid the green primer layer removing. This primer layer is responsible to protect the vehicle structure against corrosion. As long as it is removed, corrosion spots would appear later.

It is necessary to remove the excess of the eraser, it is not necessary to remove completely, only enough, to leave from 1 to 2 mm layer, the new bounder cord can be applied over the old one suitably prepared.



Remaining Adhesive layer (1 to 2mm thick)

8.4 CLEANING

8.4.1 CLEANING BODY FRAME



The structure must be compressed air and be free of any grease, oil or humidity. A piece of cloth with isopropyl Alcohol must be applied and process must continue after 20 minutes.

8.4.2 CLEANING THE WINDSCREEN

The new windscreen must be cleaned with alcohol and wait for 5 minutes before continue the process. Special care must be given on windscreen borders where adhesive will have contact.



8.5 APPLICATION

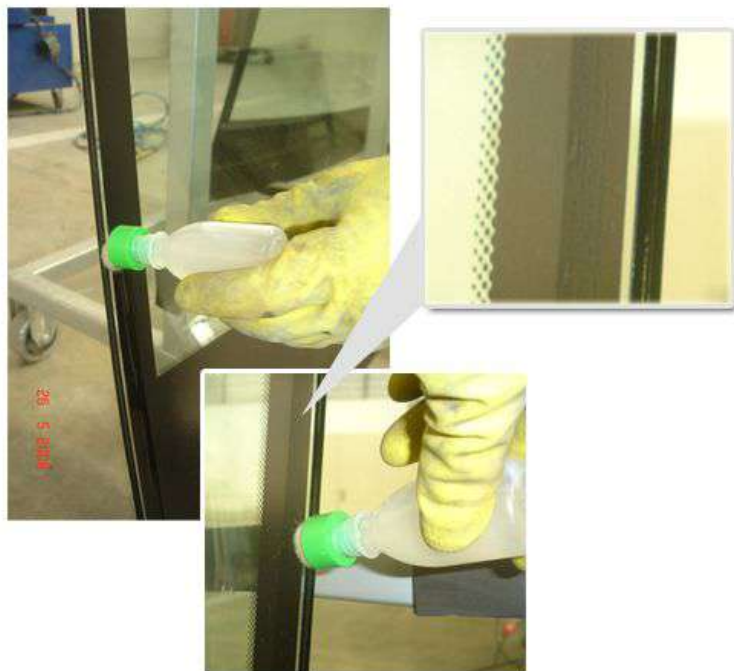
8.5.1 PROTECTION OF THE WINDSCREEN

Internally, the windscreen must receive a masking tape protection, distant 20mm from windscreen border. On this are, the Sika Aktivator and primer will be applied.



8.5.2 APPLICATION

Apply the Sika Aktivator waiting for 15 minutes to solvent evaporation before continue the process.



Pic. 11

Aktivator must also be applied along the windscreen border face as shown aside.

8.5.3 PRIMER APPLICATION



Sika Primer 206 G+P

The Primer 206 G+P must be applied where Sika aktivator was used.

It is important to apply a uniform primer strip, including the windscreen border face.

Wait for 15 minutes before fit the glass on the body frame.

8.5.4 WINDSCREEN SUPPORT

Irizar indicates the windscreen support to help during the process. It maintains the alignment and supports the windscreen weight while the boulder is being cured, avoiding non-wanted displacement of the glss.



The “T” support is applied on wiper arms axle.

8.5.5 APPLYING SIKAFLEX BOUNDER

Using the Sika Gum, apply a uniform Sika cord surrounding the windscreen hole. Mind the corners where the junction between fiber glass and structure is done. Wrong sika application would generate water and dust leaks.

Afte fit the new windscreen; the time for cure is minimum 8 hours to avoid displacing of the glass.



8.6 THE WINDSCREEN

8.6.1 FITTING THE WINDSCREEN



The new windscreen must be fitted over the supports, minding the top and bottom alignment with the body. In general, when the support is used, no alignment problems appear.

The suitable finishing must be applied on sika cord removing the boulder excess.



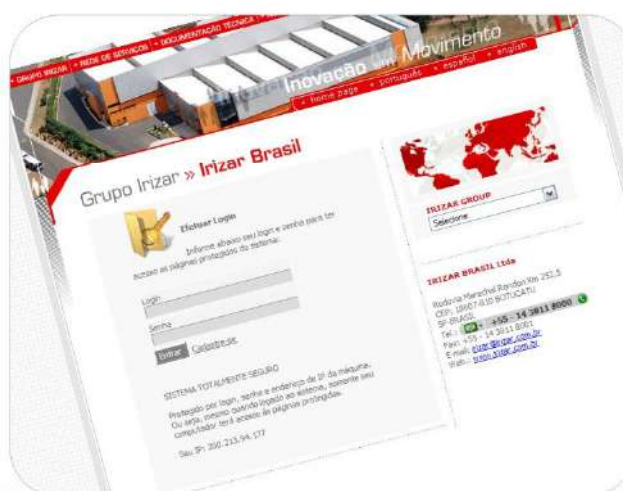
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Web Site Navigation Instructions

TAS

Authorized Service Network / Spare Parts

- Technical Documentation
- Authorized Service Network
- Spare Parts Catalogue
- IRIZAR Group
- News
- Training
- Contact



Technical Documentation

Getting Registered

1

If you are already registered for access, type your login and password to access the technical documentation.

If you are not a registered user, click on «register now».



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The register form will open.

Fill up the form fields to have complete access to our website, including technical documentation.

Important:

To access the technical documentation database is necessary to register login and password. The login and password is activated 24 hours after bring submitted.



Technical Documentation

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After the activation of you register, the technical documents and Spare Parts Catalogue will be available in the «TECHNICAL DOCUMENTATION» drop down menu, on web page head.

If you need a special instruction not available on our database i.e. screens replacement, contact our technical team through contacts session and send us your needs.

Spare Parts Catalogue



User Guides



Technical Instruction



Catering Guides



Important:

The applicatives for displaying, printing or consult the documents are available in the link «DOWNLOADS».



Technical Assistance Net

Authorized Service Network

4

On «Authorized Network» menu is possible to consult our aftersales representatives. Phone, email, contact person and address are fully available.

To search for the closer representative, click on your continent and after on the state or province you desire to have our services.



Service Net Map



5

After click on suitable region, the Authorized Service Network list appears beside the map describing the address and specialization of each representative.

(Body services, Air conditioning and Glasses Replacement).

Legend		Legend	
	City		Body
	Address		Glasses
	Contact		Air Conditioning Climate System
	Phone		
	Celular		
	Faxmile		
	Website		
	E-mail		

Important:

If you have not found any service representative close to your region, contact our technical assistance through contact menu or choose a closer representative of your region.



News

News About Irizar

6

On «NEWS» menu it is possible to have access to our latest information about training and aftersales themes.

This section is often update with news in a organized way, in order to have a fast and easy consult.



Training

Irizar Training

7

On Training Menu, it is possible to consult all the training dates and language. Irizar training is offered in 3 languages: english, portuguese and spanish.

The base training subject is help customers and technical representatives to achieve maintenance objectives, providing opportunities for technical staffs of all levels to obtain skills and attitudes for responsible and high quality maintenance.



Important:

IRIZAR training is performed by technical from factory aftersales service. Technical documentation for support is applied for better results.

Contact

Contacts

8

Irizar has a fast and simple way for direct contact with the factory. Your doubts and suggestions are possible to be sent through our contacts section.

Click on «Contact» Menu to open the contact form.



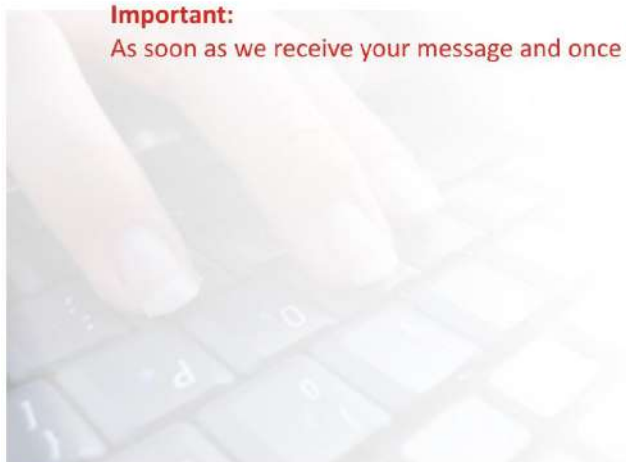
9

Field highlighted through stars are mandatory.

On «Sector», choose the suitable destination of your message.

Important:

As soon as we receive your message and once it is clear, the response will follow on short time.



Information

Information



www.irizar-sat.com.br

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