

WORKSHOP MANUAL

PASSENGERS SEATS

UNIVERSAL SEAT STD
UNIVERSAL SEAT TIP UP
UNIVERSAL SEAT MINI TIP UP

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1. - INTRODUCTION

1.1 - PRESENTATION

This manual has been designed to render user-friendly data and maintenance and repair instructions for ESTEBAN seats.

In order to become acquainted with the different parts of the seat, with its assembly and disassembly, the service technician should carefully study the instructions contained in this manual, in order to use it as an element of reference when undertaking maintenance and repair work.

This manual has been designed into modules, including the following sections:

- General Data
- Troubleshooting
- Repair modules
- Tightening torque
- Recommended lubrication
- Initial use
- Maintenance intervals
- Maintenance instructions
- Table of repair times

General Data

The main components of the seat are described.

Troubleshooting

A table-guide is included for troubleshooting, indicating the solution guidelines. The information contained in the table serves as a guideline to locate and diagnose the most common breakdowns. Some of the breakdowns described under this table may not apply to your specific seat, but may apply to the same models in previous versions.

Repair modules

Disassembly operations are described for the various elements that make up the seat.

Tightening torque

The tightening torque to be applied on the bolted joints of the various elements of the seat is described, as well as joining of the latter to the bus' anchoring.

Recommended lubrication

The lubrication points, together with the adequate type of lubrication, are indicated for correct lubrication.

The minimum specification to be fulfilled by the lubrication is also indicated and the products manufactured by commercial brands that comply with the requirements posed by the standard are proposed, which, in principle, can be easily found in the market.

Initial use

The guidelines to be followed after any important repair has been undertaken on the seats are indicated, as well as those applicable prior to delivery of the equipment, after first assembly of the same.

Maintenance intervals

The seat parts requiring regular maintenance or periodic inspections are indicated, with the time intervals to be applied. The information is presented as a table with two entries. All the components are listed vertically, indicating the operation to be undertaken, and regular maintenance operations are grouped horizontally, in such a way that a scheduled maintenance may be undertaken with minimum effort and with the guarantee of knowing that all points requiring regular attention will be revised.

Maintenance instructions

Guidelines to be followed for the correct maintenance of upholstery and leather are indicated, as well as the instructions to follow to get rid of stains. Instructions for cleaning of plastics, ashtrays and paint protection are also given.

Table of repair times

Average unit times employed for change operations for the most common components are indicated. These are the times to be used in order to invoice guarantee repair services.

2. -GENERAL INFORMATION

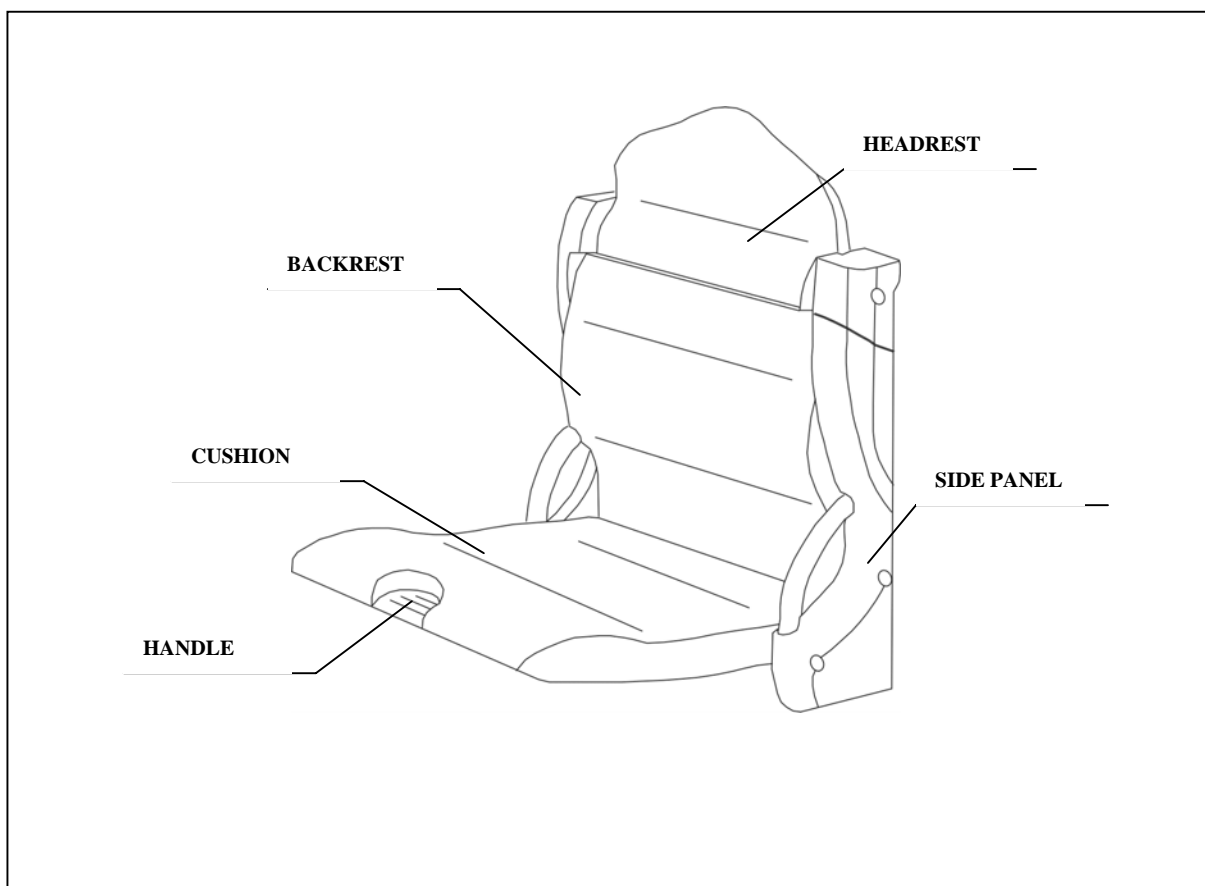
2.1- MAIN CHARACTERISTICS

TYPE: Urban seat for coach.
MODEL: *UNIVERSAL SEAT*

MATERIALS:

- Structure: Made of steel.
- Paint: *Epoxi*
- Filling: Injected with polyurethane foam.
- Upholstery: Made of wool pile and mixtures of synthetic pile.

CONTROL ELEMENTS AND COMPONENTS



2.2. - DESCRIPTION OF COMPONENTS

The seat comprises the following elements: cushion, backrest, side panel, headrest, frame and handle.

2.2.1. CUSHION

- It is a steel structure screwed to two plastic housings, one to the lower side and the other one to the upper carpet fitted side.
- It encloses a spinning system that allows it to fold it on the backrest.

2.2.2. BACKREST

- It is a tubular steel structure screwed to a carpet fitted housing and two plastic side panels.
- It encloses a spinning system together with the cushion, allowing a better general folding of the seat.

2.2.3. HEADREST

- It is composed by two plastic parts, one of which is carpet fitted.
- In the standard and mini tip up model, the headrest is folded down showing a support position.

2.2.4. SIDE PANEL

- It is a plastic part screwed to the frame.
- It may have a handle.

2.2.5. FRAME

- It is a steel part shaping the seat structure and to which the other elements are joined.

2.2.4. HANDLE

- It is a steel tubular part screwed to the frame.

3. - TROUBLESHOOTING

TABLE FOR TROUBLESHOOTING

Description of the problem	Nº	Inspection	Cause	Solution	Note
<i>Fitted carpet loses its colour</i>	1	When pressing the pile with the finger and displacing it in the inverse direction to the pile, inner colour is deeper.	The fitted carpet is dirty.	Clean the fitted carpet.	Please go to specialised companies.
	2	The most protected parts of the fitted carpet have more vivid colours.	The fitted carpet is dirty.	Clean the fitted carpet.	Please go to specialised companies.
	3	The colour of the fitted carpet changes depending on the angle from which it is observed.	The pile is flat due to incorrect maintenance.	Undertake correct maintenance.	See instructions for maintenance and conservation of fitted carpets.
<i>The cushion does not fold properly</i>	4	The whole cushion does not fold totally.	There is clearance in the spring or it is broken.	Replace either both springs or the whole spinning system.	
<i>The backrest does not slip properly.</i>	5	The backrest does not return to its original position.	There is clearance in the spinning mechanism.	Replace spinning bolts.	
<i>The headrest does not fold up properly.</i>	4	The headrest assembly does not return to its position.	There is clearance in the spring or it is broken.	Replace the spinning spring or the whole spinning system.	

4. – REPAIR MODULES

The instructions for the repair of seats as described under this section, are grouped under repair modules.

Modules are structured into layers, in such a way that modules describing disassembly of external parts are incorporated as such under the modules describing disassembly of internal parts.

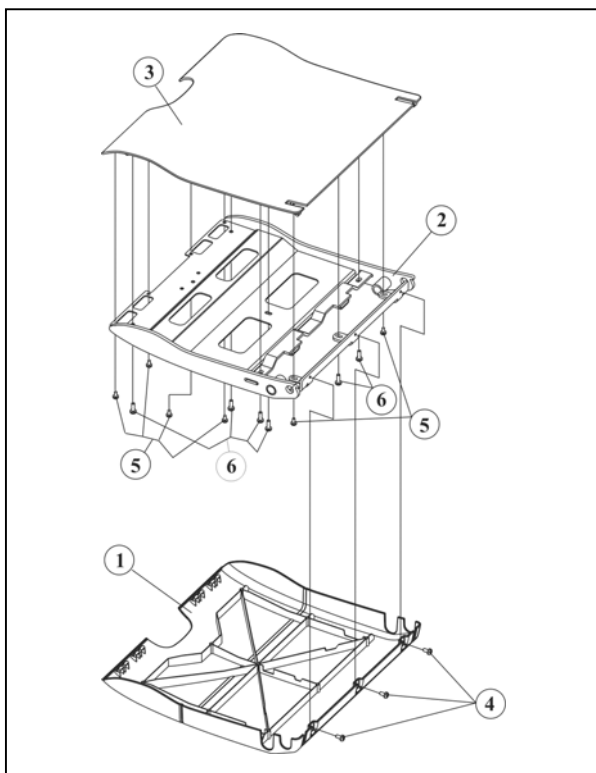
Assembly operations are the exact steps, but in reverse, hence they are not described except for those cases where assembly requires special care, in which case, a detailed description of the assembly is included.

The figures in this manual usually represent the double right-hand side seat facing bus direction. Those figures corresponding to side panel diagrams, usually represent right aisle or window sides. Repair of the other seats is undertaken in the same manner.

As regards transport and storage, care must be taken to ensure that the seat is placed so that it rests on the metal structure, and never on the cushion or foam of the backrest, and it must be conveniently protected so that the painted parts do not scratch and that components do not bang against anything.

When substituting parts, only original spares will be used, according to indications contained in the corresponding manual for spare parts. Utilisation of spares that are either not original, or else not approved by ESTEBAN, can result in incorrect performance of the equipment, or else a premature deterioration of the same.

Utilisation of spares that are not original, may entail the loss of guarantee of the seat and ESTEBAN shall decline any responsibility for the damages that may arise due to such a use.



4.01 Cushion lower housing

Disassembly

1. -Unscrew the screws (4) securing the cushion lower housing (1) to the frame (2).
2. -Remove cushion housing.

Assembly

Proceed in reverse manner, fitting first the front part.

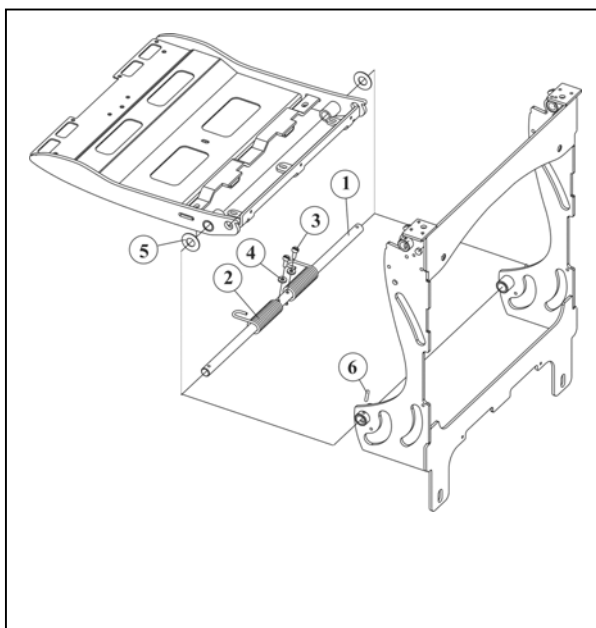
4.02 Cushion carpet fitted housing

Disassembly

1. -Disassembly cushion lower housing (see module 4.01)
2. -Unscrew the screws (5) and (6) securing the cushion carpet fitted housing (3) to the frame (2).
3. -Remove cushion carpet fitted housing (3).

Assembly

Proceed in reverse manner, fitting first the rear hooks.



4.03 Cushion frame / spinning assembly

Disassembly

1. -Disassembly cushion lower housing (see module 4.01)
2. -Disassembly cushion carpet fitted housing (see module 4.02)
3. -Remove pins (6) fixing the spinning shaft (1) to the seat support.
4. -Pull out from an extreme the spinning shaft (1) from its position in the seat support and from the cushion frame, until the half of it is outside.
5. -Remove friction bushing (5).
6. -Unscrew the screws (3) and the washers (4) securing the spinning springs (2) to the cushion frame.
7. -Remove spinning springs (2).
8. -Remove spinning shaft (1) and friction bushings (5).
9. -Remove backrest spinning shaft (see module 4.07).
10. -Remove cushion frame.

Assembly

Proceed in reverse manner.

Note: in case of replacement of either the spinning shaft or springs, it is recommendable to change the whole assembly.

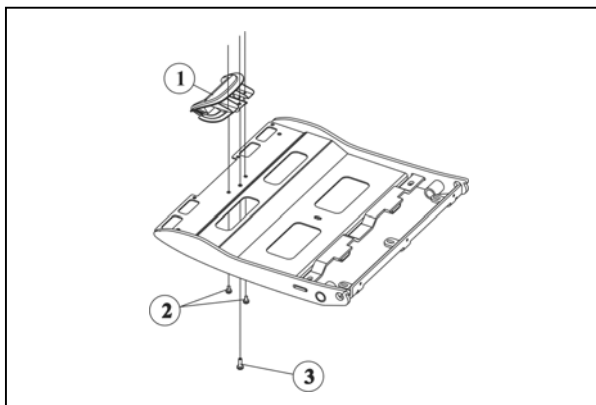
4.04 Cushion handle

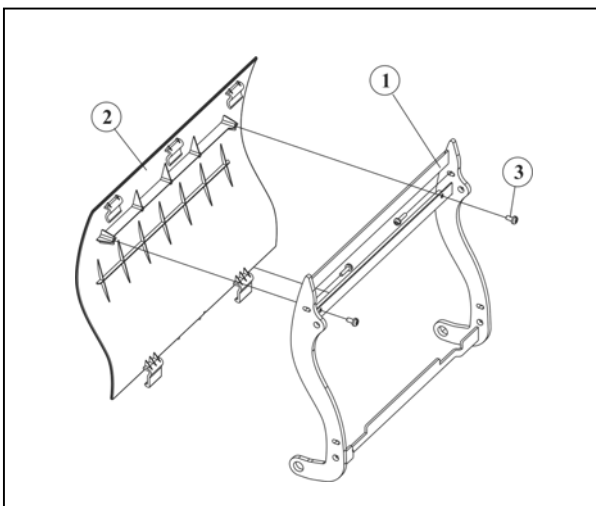
Disassembly

1. -Remove cushion lower housing (see module 4.01)
2. -Unscrew the screws (2) and (3) securing the handle (1) to the cushion frame.
3. -Remove handle (1).

Assembly

Proceed in reverse manner.





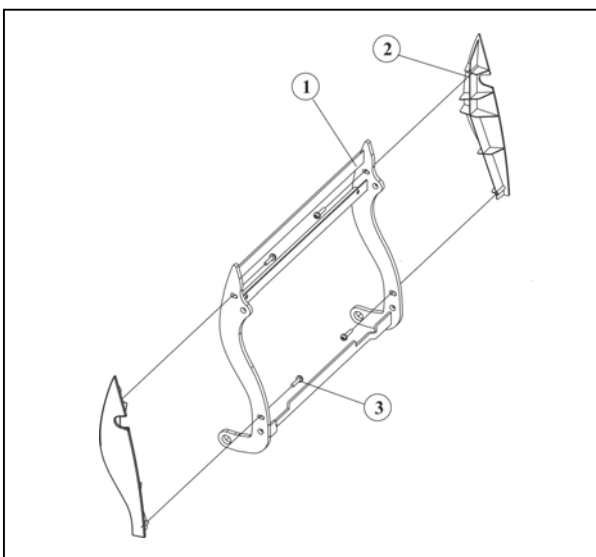
4.05 Backrest carpet fitted housing

Disassembly

1. - Unscrew the screws (3) securing the housing (2) to the backrest frame (1).
2. - Remove housing (2) of the backrest frame (1) introducing by the upper side a tool in order to act it as a lever.
3. - Remove backrest carpet fitted housing (2).

Assembly

Proceed in reverse manner, introducing first the hooks in the frame.



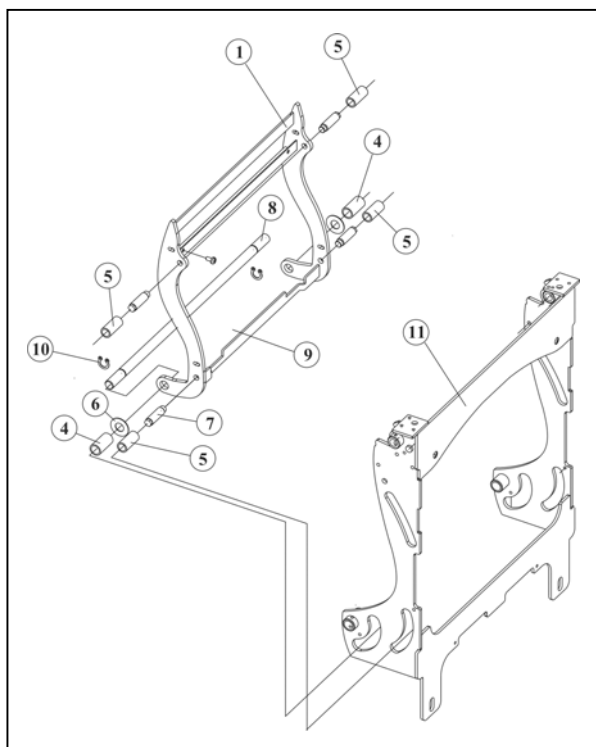
4.06 Backrest cover

Disassembly

1. - Unscrew the screws (3) securing the covers (2) to the backrest frame (1).
2. - Remove both covers.

Assembly

Proceed in reverse manner.



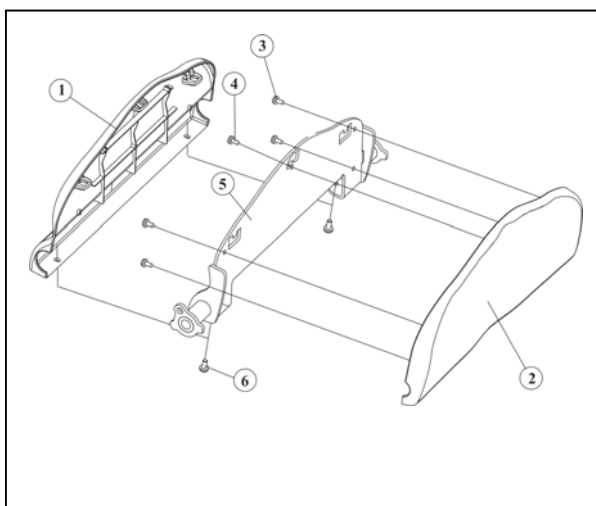
4.07 Backrest frame

Disassembly

1. -Remove backrest cover (see module 4.06).
2. -Remove cushion silent end (4) and friction bushings (6) from the spinning shaft.
3. -Remove security washers (10) from the spinning shaft (8).
4. -Pull out spinning shaft from its location to the half of it and remove cushion assembly.
5. -Pull out backrest silent end bushings (5) and unscrew backrest pivot bolts (7).
6. -Remove backrest frame.

Assembly

Proceed in reverse manner.



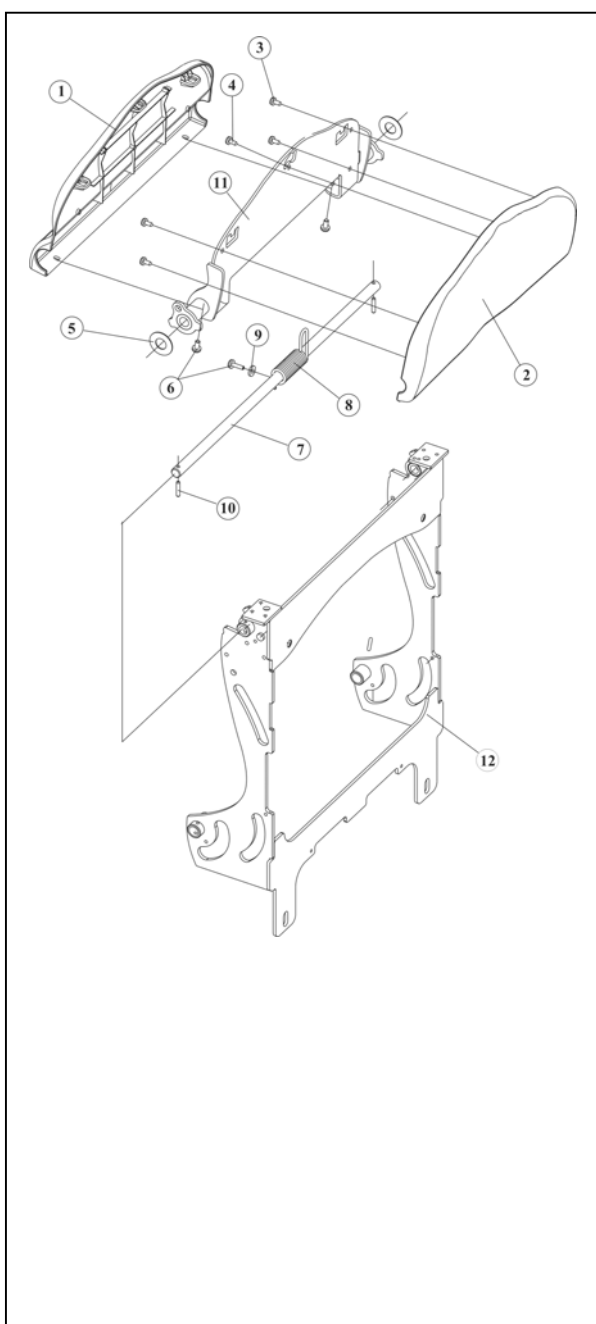
4.08 Headrest housing

Disassembly

1. -Unscrew side panels (see module 4.10).
2. -Unscrew the screws (6) securing the headrest carpet fitted housing (1) to its frame (5).
3. -Remove headrest carpet fitted housing (1).
4. -Unscrew the screws (3) and (4) securing headrest housing (2) to its frame (5)
5. -Remove headrest housing (2).

Assembly

Proceed in reverse manner.



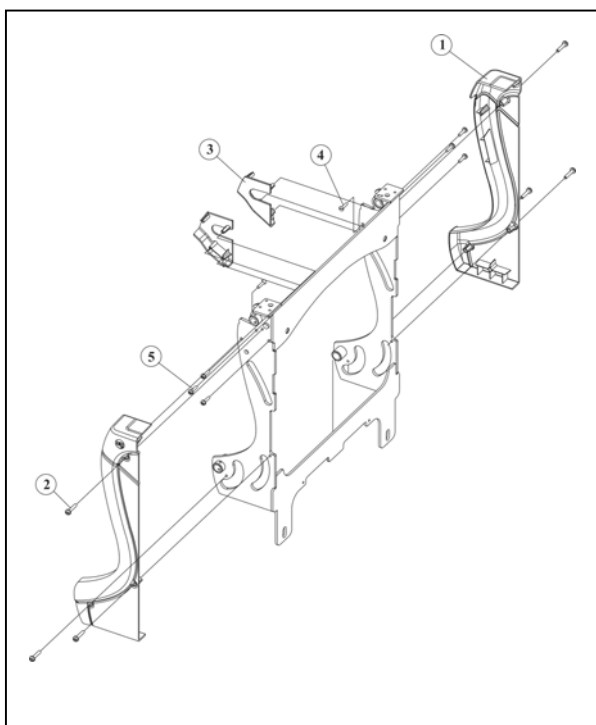
4.09 Headrest frame/ spinning shaft.

Disassembly

1. -Remove side panels (see module 4.10)..
2. -Remove headrest housings (see module 4.08)
3. -Remove pins (10) securing the spinning shaft (7) to the seat support (12).
4. -Pull out spinning shaft until the half of it, removing friction bushing (5).
5. -Unscrew the screw (6) and the washer (9) securing the headrest torsion spring (8).
6. -Remove torsion spring (8).
7. -Remove headrest spinning shaft (7) and friction bushing (5).
8. -Remove headrest frame (11)

Assembly

Proceed in reverse manner.



4.10 Side panel

Disassembly

1. -Unscrew the screws (2) securing the side panel (1) to the seat support (6).
2. -Unscrew the screw (4) securing the side panel (3) to the seat support (6).
3. -Remove side panel (1).

Assembly

Proceed in reverse manner.

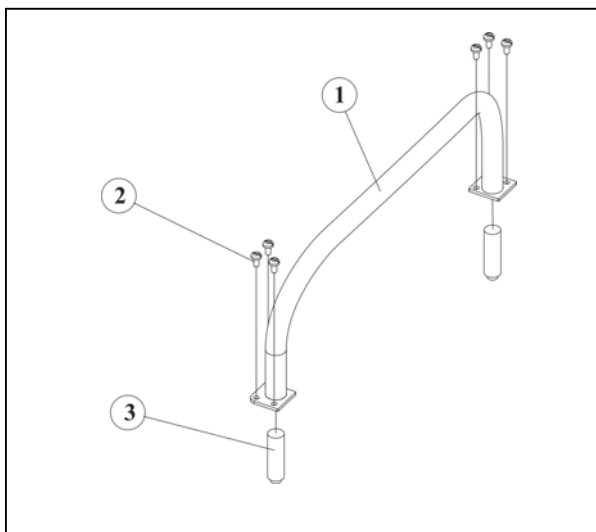
4.11 Headrest angle cover

Disassembly

1. -Remove side panel (see module 4.10).
2. -Unscrew the screws (5) securing the angle cover (3) to the seat support (6).
3. -Remove angle cover.

Assembly

Proceed in reverse manner.



4.12 Handle

Disassembly

1. -Unscrew the screws (2) securing the handle (1) to the seat support.
2. -Remove handle (1)
3. -Unscrew the bolts (3) securing to the seat support.

Assembly

Proceed in reverse manner.

5. - TIGHTENING TORQUE

The bolted joints shall be tightened according to the tightening torque indicated in the following table, unless there is a special specification.

This specification for tightening torque is applicable to joints with hexagonal or cylindrical bolts, and steel nuts where the friction coefficient between contact surfaces is 0.12 to 0.14.

Tightening torque based on diameter, pitch and quality of the screw

Nominal diameter	Pitch	Quality	
		Tightening torque (Nm)	
		5.6	8.8
M4	0.7	1.5 +/- 0.3	2.9 +/- 0.5
M5	0.8	3.0 +/- 0.5	6.0 +/- 0.9
M6	1	5.0 +/- 0.7	10 +/- 1.5
M8	1.25	12.5 +/- 2	25 +/- 3.8
M10	1.5	24.5 +/- 4	49 +/- 7.4
SAE 7/16"	20threads/inch		35 +/- 5.3

The quality of the bolt is indicated on the head of the same. If in doubt when using a new screw, use quality 8.8.

Joints bolted on the seat	Nominal diameter	Quality	Observations
Mobile armrest screw			2,3 ± 0,2 Kgm
Safety belt right angle gear box fastening	SAE 7/16"		49,75 ± 7,4 Nm
Safety belt buckle fastening	SAE 7/16"		49,75 ± 7,4 Nm
Safety belt end fastening	SAE 7/16"		49,75 ± 7,4 Nm
Safety belt reel fastening	SAE 7/16"		49,75 ± 7,4 Nm

N.B.: For bolt – plastic, bolt – aluminium, bolt – strip joints, lubricated joints and other situations that may be deemed different to those indicated under Tightening Torque, Esteban's specifications will be applied.

6. - RECOMMENDED LUBRICATION

For the correct performance of the seat, we recommend the use of the lubrication indicated, or equivalent products.

Points of lubrication	Temperature range	Type of lubrication	Product
<ul style="list-style-type: none">- Friction discs on central arm.- Cushion spinning springs.- Backrest spinning screw.	-30°C to 140°C	Base oil + lithium soap + solid lubricants	KLÜBER/ MICROLUBE GL 261/ GL 262

7. - INITIAL USE

Before initial use of the seats is made, and after any important repairs have been undertaken, a series of checks must be effected in order to verify the correct condition of components, both as regards its aesthetic appearance and its performance...

These checks are visual for external components and manually driven for elements that incorporate mechanisms.

The total list of checks to be undertaken is indicated under the "Maintenance Intervals" section, under the heading "Checks".

8. - MAINTENANCE INTERVALS

Maintenance intervals	Regular maintenance					Checks	
	Every week	Every 3 months	Every year	Every 2 years	Every 3 years	Weekly	Half-yearly
Fitted carpets							
• Gentle vacuum cleaning to absorb the dust	X						
• Beat of the seats, creating an air current at the same time, followed by a deep vacuum cleaning of them. Please refer to instructions on maintenance and upkeep of fitted carpets.		X					
• Thorough cleaning. Please refer to instructions on maintenance and upkeep of fitted carpets.				X			
• Check that there are no problems such as eroding or bare patches due to lack of tissue or decolouring							X
• Check that there are no stains and that the pile is not flattened.							X
• Check that seams are not frayed, or that there are no loose threads.							X
• Check that lining has no creases or bags.							X
• Check that the direction of the pile is uniform.							X
Backrest							
• Check that there is no clearance in the backrests.							X
• Check that vibrations do not cause any noise. This check can be made with the vehicle in motion, when it is running empty, or when it is at a standstill, by hitting the backrest with the hand with a dry blow from behind.							X
• Grease and clean backrest bolts and spinning bushings.					X		
Cushions							
• Check that cushions are well secured.							X
• Re-tighten cushion anchoring to platform.					X		
Foam							
• Check that foam is not flattened, or deformed.							X
Handle							
• Check that there is no clearance in the handle.				X			X

9. - MAINTENANCE INSTRUCTIONS

9.1. - MAINTENANCE AND UPKEEP OF FITTED CARPETS

IMPORTANT NOTE: Do never use in maintenance and upkeep of fitted carpets, oxidizing products, reducers, alkalines of PH>8 or acids of PH>6.

9.1.1 REGULAR CLEANING

Diary

Vacuum and humid clean the corridor and the seats underneath.

Weekly

A gentle vacuum cleaning of the seat fitted carpets will lengthen their lives.

On a 3 months basis

Every 3 months the seats will be beat, with a simultaneous environmental vacuum cleaning of the car (create an air current) and afterwards a deep vacuum cleaning of the seat fitted carpets.

Take care not to apply too much friction with the vacuum cleaner nozzles and vacuum up and down (with and against the pile), in an even and gentle manner.

9.1.2 PERIODIC THOROUGH CLEANING

A thorough cleaning is recommended every 2 years, apart from the regular one. We therefore recommend that, once made the 3 month based cleaning, the one with the injection of liquid foam, composed by water and a neutral agent, continue, applying it with an adequate industrial machinery.

Next, after having left the foam acting, deeply vacuum clean in order to eliminate the foam together with the dirt as much as possible.

9.1.3 TREATMENT OF STAINS

In the event that a stain is present, it is very important to act as quickly as possible and before it dries, since otherwise, it shall be very difficult to remove.

If the stain is liquid or greasy, it must be quickly absorbed using a clean cloth, or a sponge. In the event of solid or semi-solid spots, eliminate the excess in the first place, with a spatula or similar appliance.

If the stain has already dried, gently brush it in order to eliminate the waste matter, and afterwards absorb it with a humid cloth or sponge.

In any case, always act starting from the periphery and then continuing with the internal part of the stain, in order to reduce the size.

The following is a list of treatments to be undertaken on the most usual stains after having applied the above-mentioned cleaning operations:

Oil. Cover the fresh stain with talcum powder or special ointment for stains. Leave to stand for some hours. Brush. If the stain is dry, use stain remover.

Tar. Use benzol, or stain removing solvent.

Ballpoint pen. Clean locally with alcohol.

Shoe polish. Dissolve with ethyl alcohol, rub with clean cloth and wash with neutral soap.

Coffee/Cocoa. Apply benzene or stain removing solvent.

Cola. Wipe with acetone or nail varnish remover and wash immediately after.

Grease. Use alcohol for burning, turpentine or similar product. If this persists, use stain remover.

Glue. Compounds, once dried, are hard to eliminate, and therefore must be treated immediately with acetone, when possible.

Lipstick. Clean locally with alcohol.

Perfume / Make up. Clean locally with hot glycerine and rinse with water and neutral detergent.

Paint. Clean immediately with cotton cloth immersed in solvent; if the stain is due to oil paint, clean with turpentine or similar; for synthetic paint: clean with appropriate solvent. Sprinkle with talcum and brush when dry.

Chewing gum. Treat with ethyl alcohol and carefully remove traces of chewing gum.

Chocolate. Use tepid water and soap or neutral shampoo and rinse afterwards. For difficult stains, use benzene or stain remover.

Nail varnish. Clean with acetone or nail varnish remover. After this, wash and rinse.

Fruit. Wash with neutral detergent solution. If stains persist, use dry foam.

Milk. Use detergent or neutral shampoo for upholstery.

Ice cream. Wash with tepid water and treat, if necessary, with stain remover.

Rust. Remove with anti-rust stain remover or lemon juice alternatively.

Grass. Dampen with alcohol and wash.

Urine. Use neutral detergent for upholstery. If this persists, consult a professional.

Resin. Eliminate the solid parts and after this treat with solvent (gum spirit) and wash.

Blood. Clean immediately with tepid water and neutral detergent. If the blood has dried, repeat the operation various times.

Sweat. Brush with vinegar or diluted alcohol.

Tea. Act as per tea and coffee instructions.

Ink. Dampen with alcohol and wash with neutral detergent solution.

White wine. Rinse with cold water immediately and wash after this.

Red wine. Wash immediately after treating the stain locally with lemon juice.

Vomit. Wash with detergent or shampoo for upholstery and rinse.

9.2. - MAINTENANCE OF LEATHER

Periodic cleaning with a white clean cloth, dampened in distilled water, is essential to prevent dirt. If any solution is spilled, immediately absorb it with the cloth, without applying pressure on the leather. We recommend use of professional products, such as alcohol-free leather cleaning products.

9.3. - CLEANING OF PLASTICS

For seats with plastic housings, first clean with a sponge dipped in soapy water. Once it has dried, spray the surface to be treated with a high pH alkaline detergent, for plastic surfaces, giving it a strong rub with a dry clean cloth. For particularly rugged surfaces, combine with brushing to remove the adhered dirt. Periodically apply a plastic regenerator in order to make them shinier.

9.4. - PAINT PROTECTION

When cleaning the inside of the vehicle, use water on its own, or mixed with a neutral home cleaning product, with a very low concentration. The use of acid or strong bases, such as bleach or hydrochloric acid must be avoided. Do not treat with abrasive or caustic products, or organic solvents.

10. - TABLE OF REPAIR TIMES

Nº		MODULE	OPERATION	TIME (MINUTES)
1		4.01	Cushion lower housing	1,50
2		4.02	Cushion carpet fitted housing	7,25
3	*	4.03	Cushion frame	26,50
4	*	4.03	Cushion spinning assembly	26,50
5		4.04	Cushion handle	3,00
6	*	4.05	Backrest carpet fitted housing	24,50
7		4.06	Backrest cover	4,75
8	*	4.07	Backrest frame	32,75
9	*	4.08	Headrest housing	35,75
10	*	4.09	Headrest frame	35,75
11		4.09	Headrest spinning shaft	2,50
12		4.10	Side panel cover	1,50
13		4.11	Headrest angle cover	3,00
14		4.12	Handle	2,00
15		4.10		3,50
16		4.11		4,50
17		4.12		1,50

Caption:

- * Add 2.5 minutes per seat to the unit repair time, to cover displacement outside the bus.
- + Add 15 minutes per seat to cover extraction of the seats outside the bus.

Only add the minutes allocated to removal of one seat from the bus when undertaking various operations on the type of seats that are indicated above.

The times indicated on the table have been established for repair operations in the shop, stemming from a situation in which the seat is mounted on the bus.

Each of the times allocated corresponds to a complete assembly and disassembly operation of the part in question.

Certain operations include undertaking of other operations in its process, whose times are separately indicated in this table; nevertheless, the total time involved is not the arithmetic addition of individual times for the same, since, in order to undertake the more complex operations, one must go through the elementary operations, in such a way that the timing it takes to undertake the same, is already included in the others.