



a product of the company Bozzio AG

Chrysler Pacifica

Vehicle Specific Installation Manual

Valid for Model 2017 and **new Voyager**

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1 General

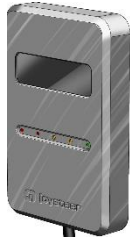
This document describes the installation of the joysteer® system and to take place by trained personnel **exclusively**, whereby all points need to be carried out as described.

This document is in addition to the "Universal System Manual".

The electrical connections can be found in the electrical cabling diagram.

This document applies to the joysteer® system generation 2.0.

The main change from generation 1.0 to generation 2.0 is as following:



Display module

joysteer® generation 2.0



Alarm module

joysteer® generation 1.0

2 Disclaimer

Bozzio AG refuses their product liability if one or more of the following facts are given:

- Driving the system by users who do not possess an appropriate driving licence
Exception: driving accompanied by an authorized driving instructor
- Driving with accompanying driving instructor without installation of an Instructor switch
- Installation/ maintenance/ repairs by companies not trained by Bozzio AG
- Installation/ maintenance/ repairs by personnel not trained by Bozzio AG
- Installation/ maintenance/ repairs not according to the manuals
- Installation/ maintenance/ repairs of components/ modules, which are not mentioned in the part list
- Installation/ maintenance/ repairs of any MMI (Man Machine Interface), which has not been released by Bozzio AG in written form
- Usage of parameter-sets which do not correspond to the “rules” of the Servicemanager
- Any modifications to the cable harness

Important:

- By opening the modules any warranty of the manufacturer is omitted
(Exception: EnergyAlarm module)

3 Preparation and order of Installation

Choose a sensible order to install: The correct order of installing each component of the joysteer® system is depending on which components have to be installed.

Example: If you first install the steering actuator, it is harder to reach the brake pedal and the gear shifter.

Preparation:

- Any floor/B-pillar modification (welding) must be done before installing any electronic equipment.
- Check if a newer SW Version is released. The downloads are available in the login domain of www.joysteer.ch.

Order of installation:

The proposed order of installation for this car type is the following:

1. Secondary controls (see specific manuals)
2. Park Brake (see specific manuals)
3. Digital gear shifter (see specific manuals)
4. CAN box
5. Brake pressure sensors.
To be done while the original pedal is still in place so it's possible to purge the system immediately after mounting the sensors.
6. Backup battery
7. SmartGas 2 (see specific manuals)
8. Electronics with Module Rack
9. Cable Harness
10. Steering actuator SAM
11. Brake actuator BAM

Important countermeasure for screw locking:

Always use Loctite 243 to assure unintended loose of fixation.

4 All wire connections for primary control

WIRE NUMBER		NOTES	CONNECTION TYPE
		O = WIRE CONNECTIONS TO VAN	
X10		STEERING INPUT DEVICE	PLUG
X21		STEERING DRIVE MOTORS	PLUG
X22		STEERING DRIVE MOTORS	PLUG
X23		STEERING DRIVE MOTORS	PLUG
X24		STEERING DRIVE MOTORS	PLUG
X25		STEERING DRIVE MOTORS	PLUG
X26		STEERING DRIVE MOTORS	PLUG
X31		STEERING MODULE 1	PLUG
X32		STEERING MODULE 1	PLUG
X41		STEERING MODULE 2	PLUG
X42		STEERING MODULE 2	PLUG
X51		GAS / BRAKE INPUT	PLUG
X52		GAS / BRAKE INPUT	PLUG
X53		GAS / BRAKE INPUT	PLUG
X54		GAS / BRAKE INPUT	PLUG
X61		BRAKE ACTUATOR	PLUG
X62		BRAKE ACTUATOR	PLUG
X71		BRAKE PRESSURE SENSOR 1	PLUG PIN INSTALL
X72		BRAKE PRESSURE SENSOR 2	PLUG PIN INSTALL
X81		BRAKE MODULE 1	PLUG
X82		BRAKE MODULE 1	PLUG
X91		BRAKE MODULE 2	PLUG
X92		BRAKE MODULE 2	PLUG
X101	O	PIN 3 GOES TO THE CAN MODULE GREEN WIRE	HARD WIRE

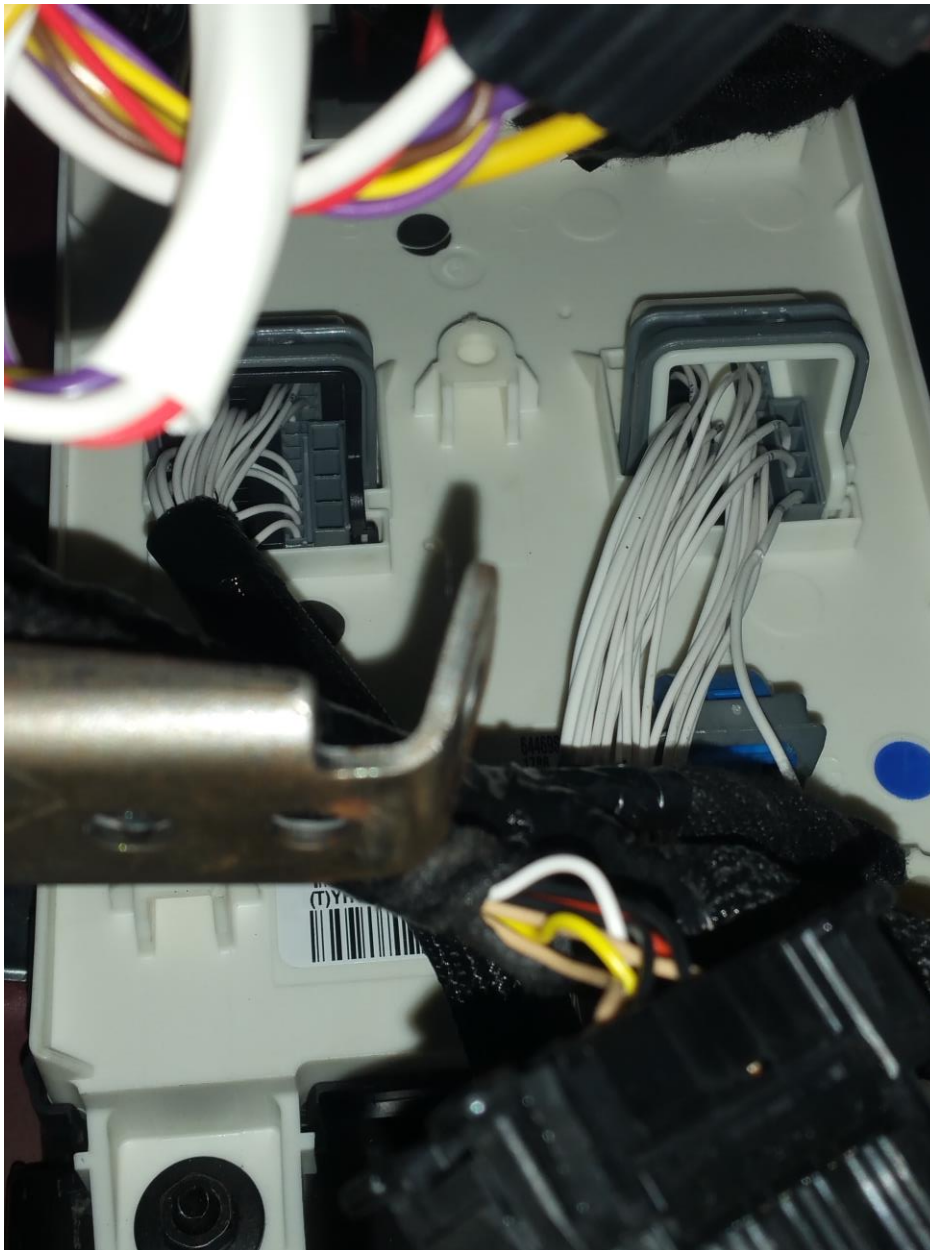
X102	O	PIN 3 GOES TO THE CAN MODULE GREEN WIRE	HARD WIRE
X111	O	GROUND	RING TERMINAL
X112	O	GROUND	RING TERMINAL
X122	O	GREEN WIRE TO TRUE IGNITION POWER OR PURPLE ON THE CAN MODULE	HARD WIRE
X123	O	PARK SIGNAL BLUE WIRE TO THE PINK WIRE ON CAN MODULE	HARD WIRE
X124		PARK SIGNAL FROM SHUTDOWN BUTTON	SOLDERED
X301		PROGRAMMING PORT	SUB-D TO USB
X321		SYSTEM ON / OFF SWITCH	SPADE CONNECTOR
X322		CONVENTIONAL / JPAS SWITCH	SPADE CONNECTOR
X331		BATTERY PULSE BOX	PLUG PIN INSTALL
X341		SMART GAS PWMA	PLUG
X342		SMART GAS PWMB	PLUG
X351		BRAKE HOLD SWITCH USED TO HOLD BRAKE WIHEN SHIFTING	SPADE CONNECTOR

4.1 CAN Module connections

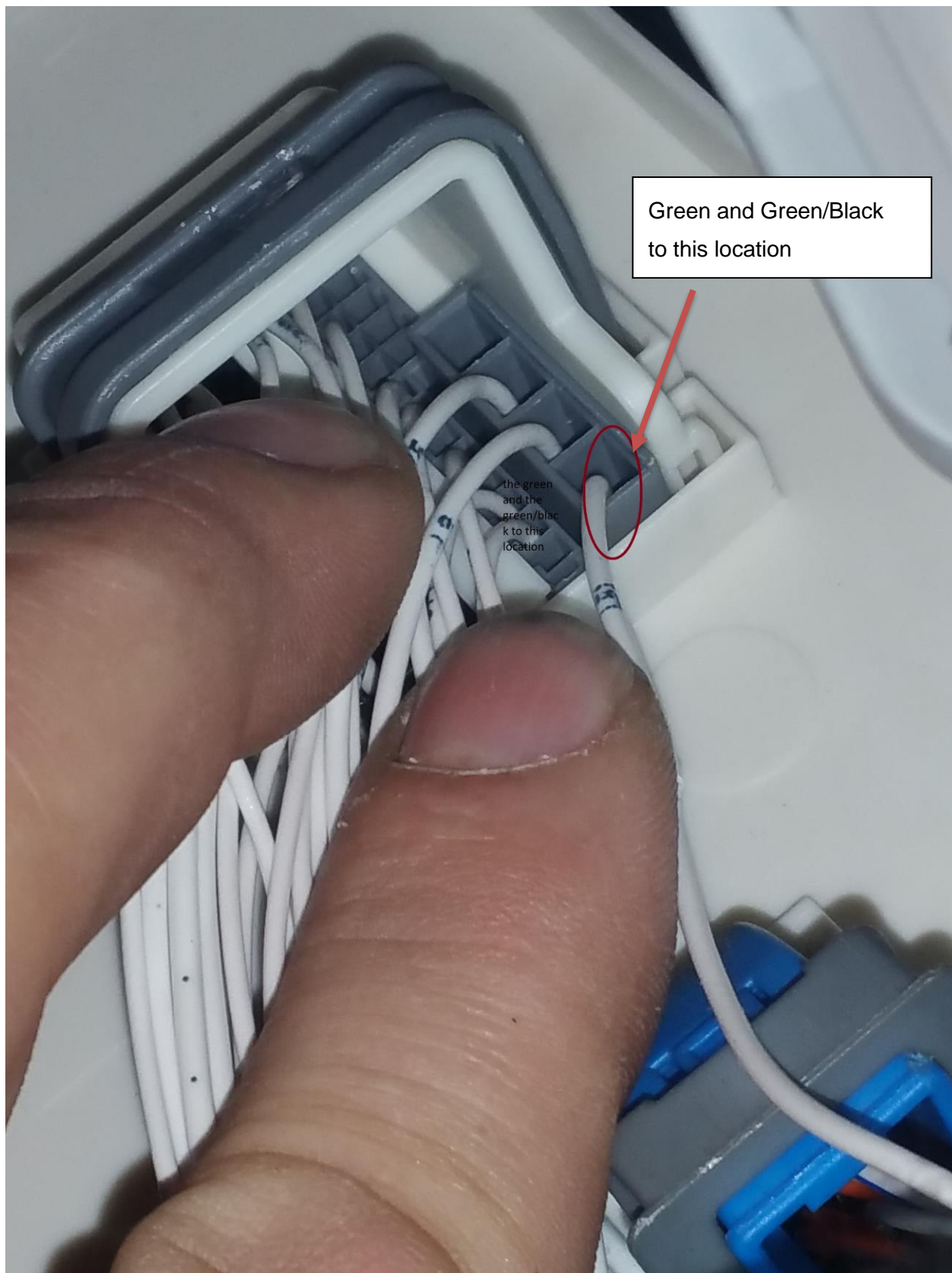
WIRE COLOUR		NOTES	CONNECTION TYPE
BLACK	O	GROUND	RING TERMINAL
RED	O	12 VOLT CONTINUOUS	HARD WIRE
WHITE	O	BLUE/WHITE (HI) UNDER STEERING COLLUMN	HARD WIRE
BLUE	O	YELLOW (LOW) UNDER STEERING COLLUMN	HARD WIRE
GREEN		PIN 3 ON CONNECTORS X101 AND X102	2 PLUGS PIN INSTALL
PURPLE	O	IGNITION OUTPUT CAN BE USED FOR X122 GREEN WIRE	HARD WIRE
PINK		PARK SIGNAL BLUE WIRE ON X123 BLACK NOT USED TAPE OFF	PLUG PIN INSTALL

4.2 Smart Gas connections

Smart Gas will be connected to the Body control unit. This unit is located at the left driver dash area.



WIRE COLOUR		NOTES	CONNECTION TYPE
GREEN	O	PIN AS SHOWN IN THE PICTURE BELOW	HARD WIRE
GREEN/BLACK	O	PIN AS SHOWN IN THE PICTURE BELOW	HARD WIRE
BLACK	O	12 VOLT IGNITION 5 AMP FUSE MARKED +15 ON WIRE	HARD WIRE
BROWN	O	GROUND MARKED GROUND ON WIRE	RING TERMINAL
RED	O	12 VOLT SUPPLY 5 AMP FUSE MARKED +30 ON WIRE	HARD WIRE
PEDAL	O	PLUG AND PLAY HARNESS FOR THIS VAN	HARD WIRE



4.3 Notes for connections

NOTE 0	X	WIRES TO EXTERIOR THROUGH THE FIRE WALL WIRE GROMMET
	X	X71
	X	X72
	X	BOARD POWER BATTERY 1
	X	BACKUP BATTERY- BATTERY 2
	X	BATTERY PULSE GRAY WIRE HARNESS CONNECTOR X331

NOTE 1		RED AND BLACK BATTERY CABLES FROM PULSE BOX TO BATTERY 2
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NOTE 2		DO NOT CONNECT THE BATTERIES WITH ANY OTHER EQUIPMENT
		I.E. JUMP START WITH IGNITION FEED FOR CHARGING

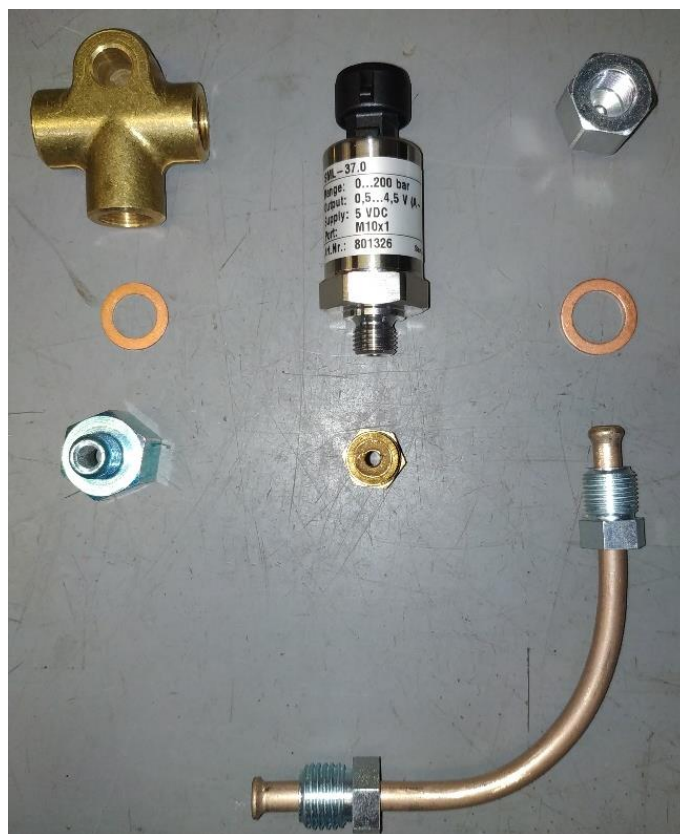
NOTE 3		SWITCHES FOR JPAS, SYSTEM
		CAN BE CONNECTED WITH SOLINOID AND SWITCH FOR EGRESS

NOTE 4		MAKE WIRE CONNECTIONS FOR GAS BRAKE AND SECONDARIES BEFORE MOUNTING ACTUATOR MOUNTS
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5 Installation of Modules

5.1 Installation brake pressure sensors

<i>Image</i>	<i>Description</i>	<i>Pcs</i>
	Brake Pressure sensors	2
	Copper seals Diameter for M12	2
	Copper seals Diameter for M14	2
	T-Pieces	2
	Adapters for T pieces	2
	Brake lines 1/4" outer diameter with M12x1mm Adapters	2
	Brake lines 1/4" outer diameter with M14x1.5 mm Adapters	2



1. Make the assembly without tighten the brake line



Connect to the master cylinder

Connect to the Original brake line

2. Disconnect the original brake lines from the master cylinder.
3. Bend the Original brake lines as showed below



4. Install the copper brake line on the master cylinder and give a good orientation to the adapter.



5. Bend the OEM brake line to allow a good connection to the adapter without any pinch on the brake line.




6. The installation needs to look like this:



7. Purge the brake lines to remove air and connect the sensors to X71 / X72.

5.2 Installation backup-battery

5.2.1 Hardware kit for Backup Battery

Component/ Part Number	Description	Quantity/ BOM	Image (images not to scale)
102-00701	M8-1.25 X 30MM HEX CAP CL8.8 T Battery Bolts Hardware	2.00	
100-00895	M6 F/W TRIV ZINC DIN125A - M6. Battery Cable Connection	4.00	
200-15779	M6.4 ID X 19.5MM OD X 1.3MM TH Battery Cable Connection	4.00	



Use the following batteries:

**MTP-75DT, from Interstate for OEM and Backup Battery
Dimensions: L/W/H, 9 ½ / 7 ½ / 8 ¾ Inch
Both Batteries will fit in the tray**



Picture shows the battery cables coming from the engine compartment. An original opening can be used. No need to open the firewall.



The cable of the EnergyAlarm module to the backup-battery is already placed (ref. chapter 1).

Important:

Ensure the following:

- Cable cross section 7AWG
- Cable protected against chafing
- Place the Pulse test box close to the backup battery (without extending the cables)

1. Any separately placed relays should be removed.



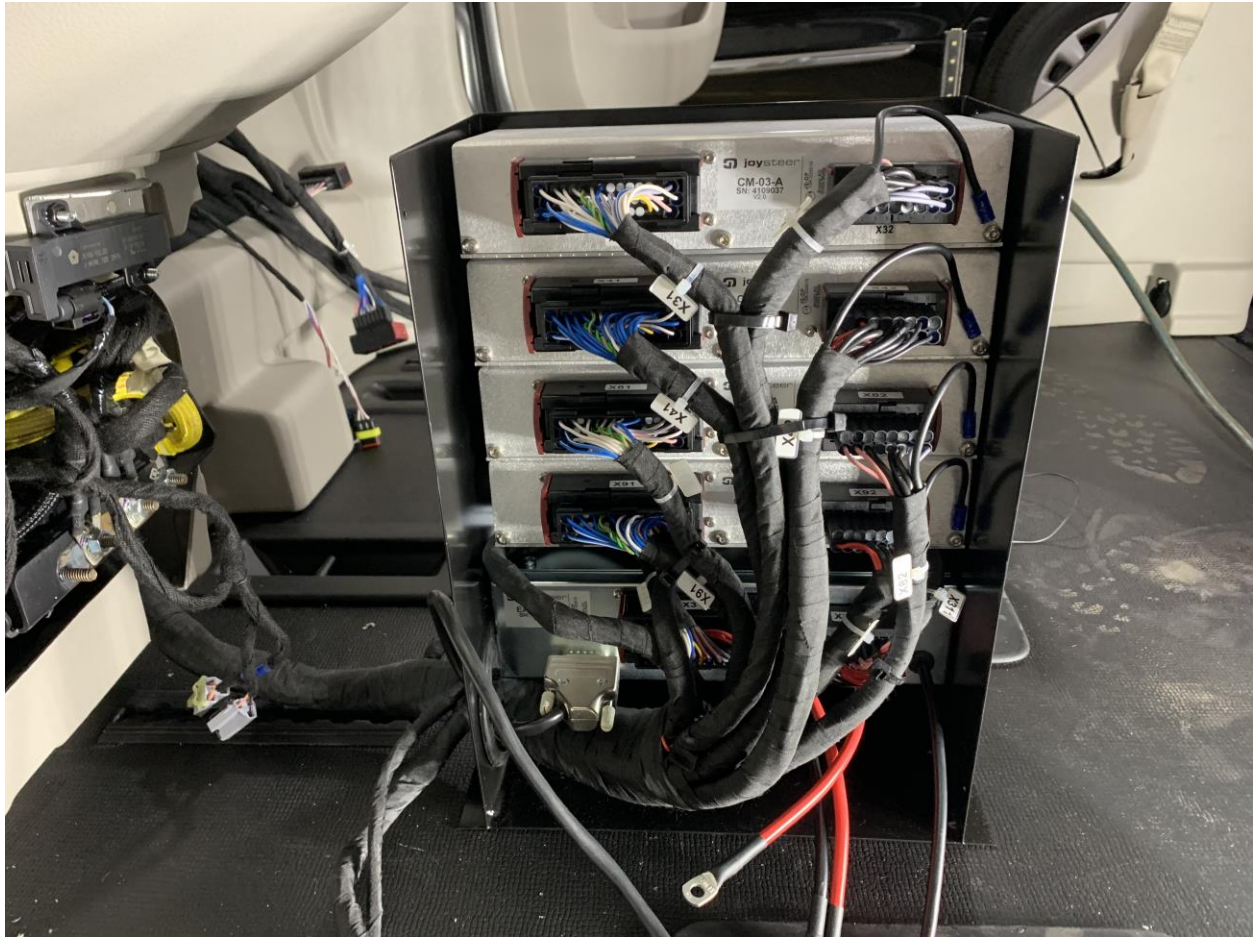
2. The mass cable of the backup-battery should not be connected to the vehicles body. It needs to be connected to the EnergyAlarm module using a cable.
3. All consumers such as ramp door, lift etc. need to be connected to the vehicles primary battery.
4. **For safety reasons the backup-battery must always be as specified in the Universal System Manual.**

Next installation steps

5. Place ring cable shoes to the backup-battery (4AWG/M8).
6. Place fuse near the backup-battery 125A (adapter included in the delivery).
7. Apply battery clamp on the backup-battery (positive and negative pole).
8. Apply vent hose on the backup-battery.
Make sure that the gases are led out of the vehicle (If required; drill a hole and make a tulle).
9. Connect both 10mm² cables to the EnergyAlarm module.
Use ring cable shoes (8AWG/M6).
10. Connect the EnergyAlarm module to the backup- battery.

11. Place ring cable shoes on the original battery (8AWG/M8).
12. Place fuse 125A near the original battery (adapter included in the delivery).
13. Apply ring cable shoes (8AWG/M8) to the positive and negative pole of the battery.
14. Mount them to the original battery clamps.

5.3 Installation of Electronics





The installation order of modules from top to bottom is always:

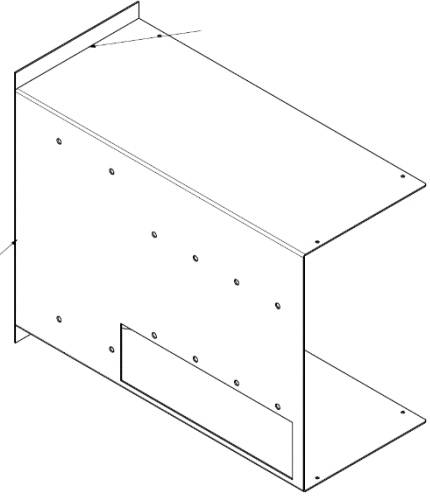
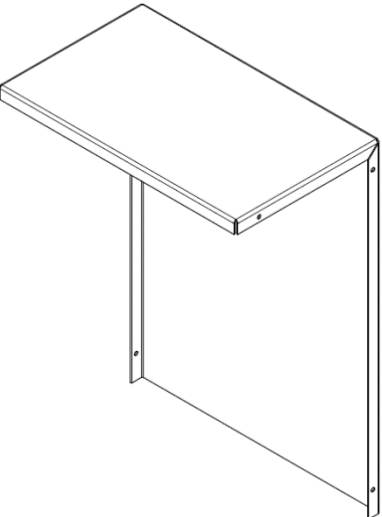
- L1 = Steering converter module 1
- L2 = Steering converter module 2
- B1 = Braking converter module 1
- B2 = Braking converter module 2
- EAM = EnergyAlarm module

The modules and, if available, the module rack (optional item) have to be grounded well. In case this is done with a cable, the cables cross section must be at least 2.5mm².

If the module rack is installed all modules are to be connected to it.

5.3.1 Part list




(Images not to scale)

<i>Image</i>	<i>Description</i>	<i>Pcs</i>
	<p>Module rack PFHB6135</p>	<p>1</p>
	<p>Module rack cover PFHB6137</p>	<p>1</p>



This picture shows the Egress Relay with its insulation to prevent any shortcuts

5.3.2 Hardware kit for Module Rack

<i>Component/ Part Number</i>	<i>Description</i>	<i>Quantity/ BOM</i>	<i>Image (images not to scale)</i>
500-26209	M4-0.7 X 10MM BUTTON HD SOC CA Controller Mounting Bolts	12.00	
102-00748	M4 F/W TRIV ZINC DIN125A - M4. Controller mounting	12.00	
9600K128	3 ¼ RUBBER PUSH IN GROMMET Controller Tower grommet	1.0	

Important:

Assure that the modules are not affected by the hot air stream of the foot heating as this can result in overheated modules. If so, a heat shield has to be mounted accordingly (heat shield not within delivery).

5.4 Installation of Cable Harness

The Cable Harness can be laid in the car as showed on the pictures below:



5.5 Installation steering actuator (SAM)

The steering actuator is placed between the steering wheel and the steering column. There is no need to detach the steering column.

In case of an adjustable steering column the steering column needs to be fixed permanently.

Ensure the steering wheel is always in the middle position (straight-ahead position).

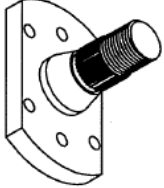
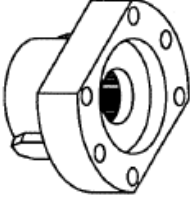
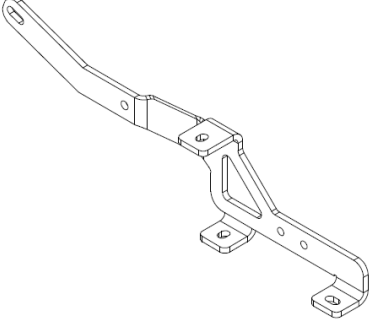
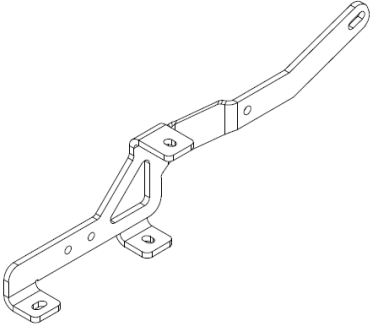
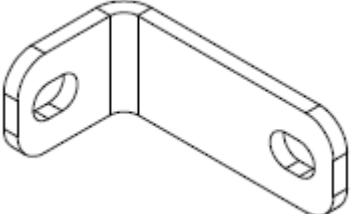
In addition, the following needs to be ensured:

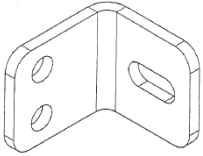
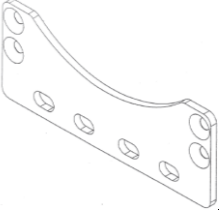











- the airbag-ring is in its middle position when installing.
- the catch pin of the airbag-ring is placed correctly.

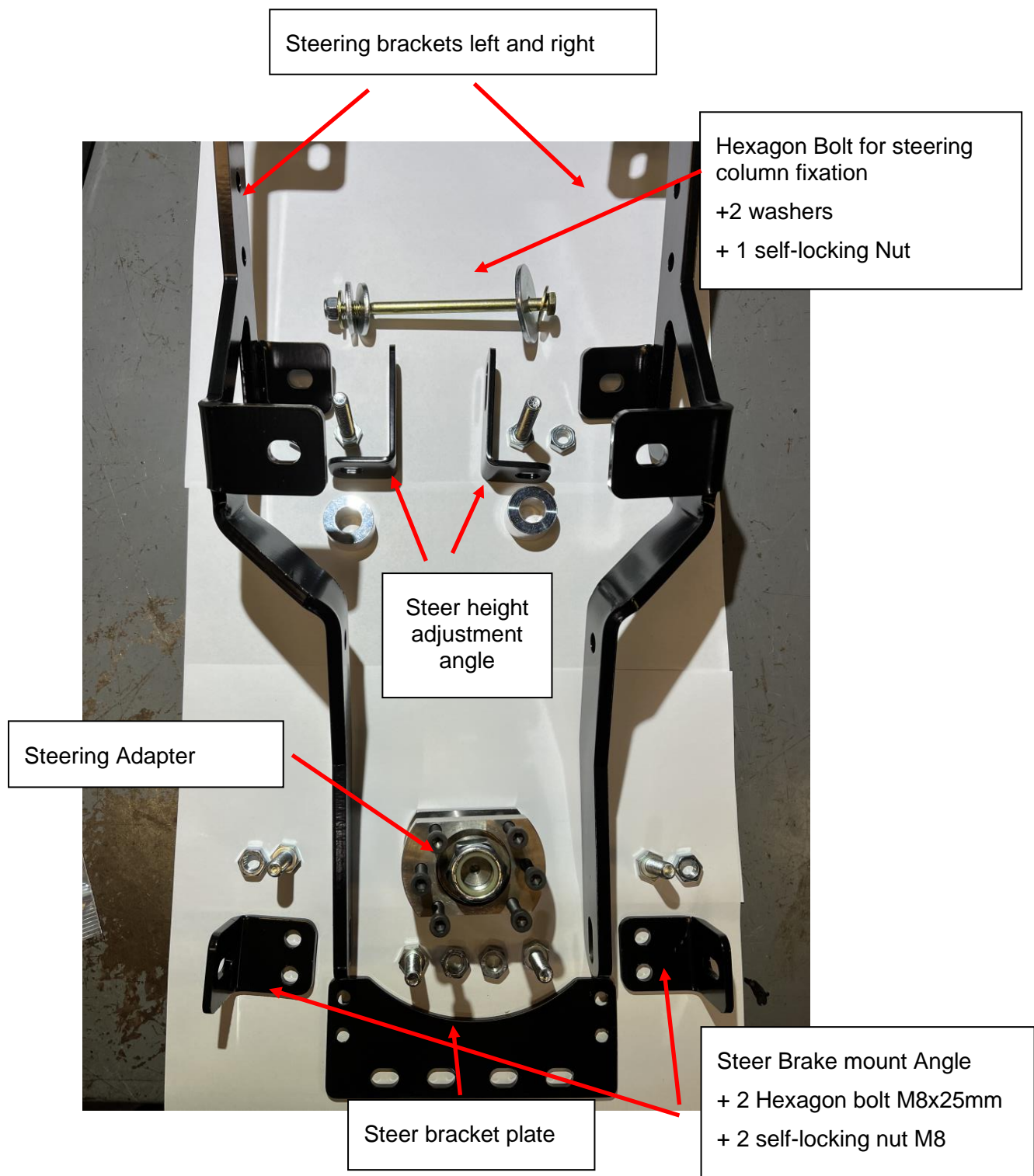


5.5.1 Part list

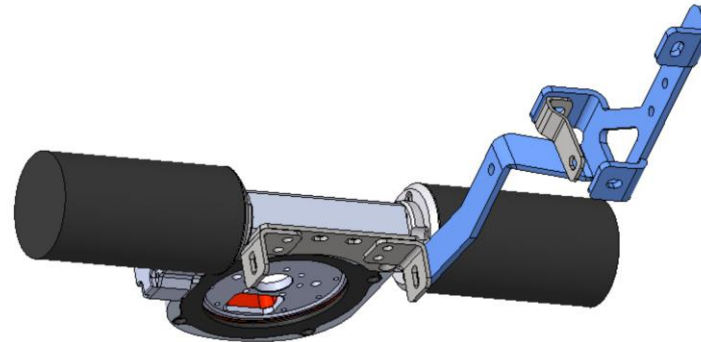
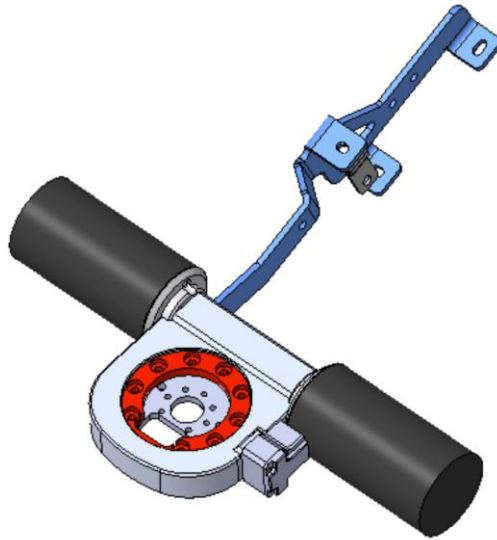
(Images are not to scale)

Image	Description	Pcs
	Steering adapter „male flange“	1
	Steering adapter „female flange“	1
	Steering bracket Right Pacifica	1
	Steering bracket Left Pacifica	1
	Steer Mount Angle	2

<i>Image</i>	<i>Description</i>	<i>Pcs</i>
	Steer Brake Mount Angle	2
	Steer Bracket plate	1
	M6 X 8MM FLAT HEAD SCREW	4
	M8 X 25MM HEX BOLT	2
	M8 X 30MM HEX BOLT	2
	M8 X 40MM HEX BOLT	2
	1/4-20 X 4.5" BOLT	1
	5/8" SPACER	2
	M8 FLAT WASHER	12
	1/4" FLAT WASHER	2
	1/4"X1" FENDER WASHER	2
	1/4"X1.5" FENDER WASHER	1
	M8 NYLOCK NUT	6
	M16 X 1.5 NYLOCK NUT	1



5.5.2 Installation steps

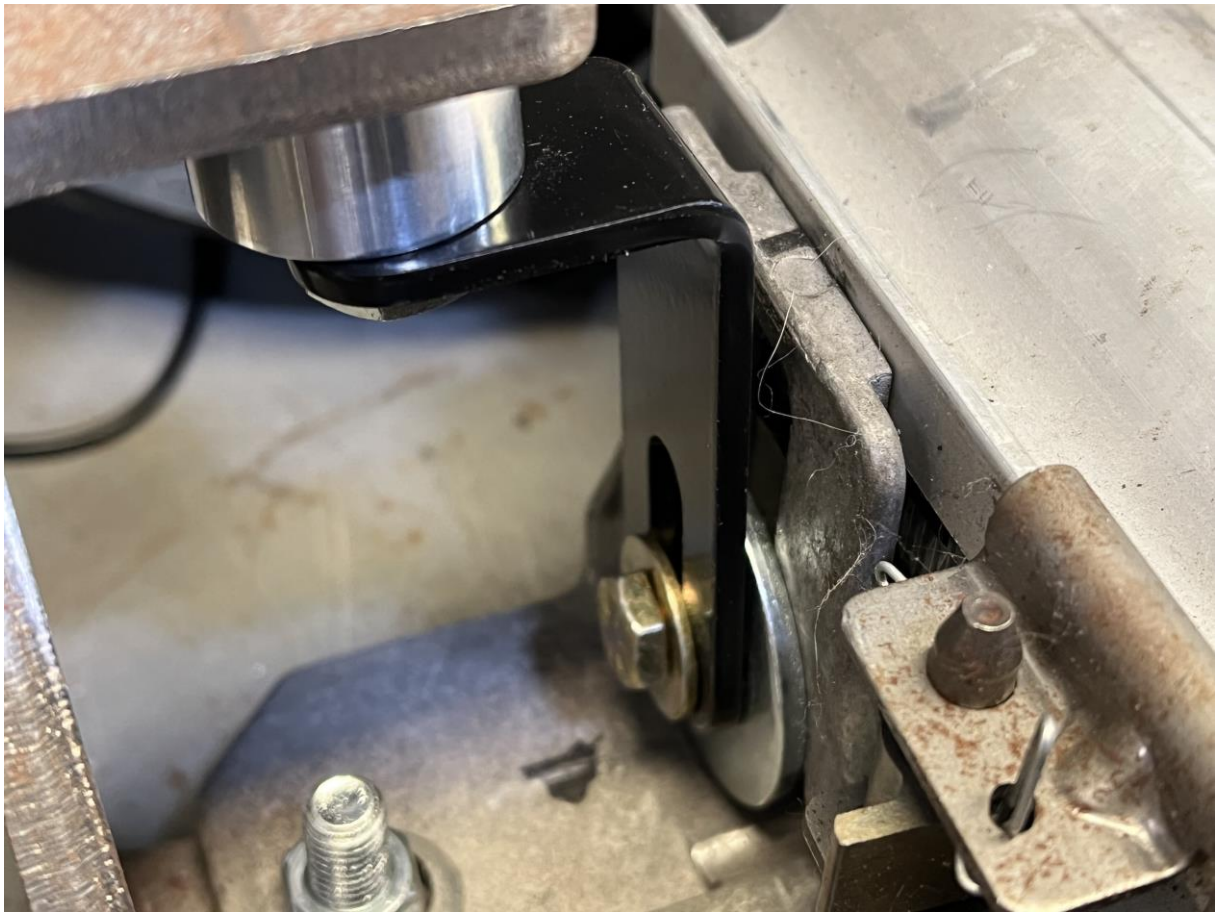


1	Steering adapter „male flange”
2	Steering adapter „female flange“
3	Steering bracket Right Pacifica
4	Steering bracket Left Pacifica
5	Steer Height Adjustment Angle
6	Steer Bracket plate

1. Remove the mechanism to adjust the steering column but keep the part aside.









2. The pictures shows the metal lock plate removed. It must be on both sides because it is to hard to drill , the Aluminium column is drilled on both sides to $\frac{1}{4}$ " and then the bolt brackets and fender washers assembled as shown. If this is done everything will fit and work as designed.
3. Mount the support brackets to the adjustable steering column mechanism
4. Mount left side
5. Mount right side
6. Remove the original nut on left and right side to mount the steering actuator bracket set
7. Mount the steering actuator bracket to the steering column (left and right side)
Before tightening these make sure all brackets are aligned and the construction is not under tension
8. Mount lower bracket to steering actuator
9. Place the adapter over the steering column splines
Make sure it is in straight forward position, and make sure the airbag ring is in middle position.
10. Mount it using the original Nut
11. Place the steering actuator, and mount the upper adapter to the lower adapter
12. Mount the steering actuator bracket to the support brackets

Before tightening these make sure all brackets are aligned and the construction is not under tension.

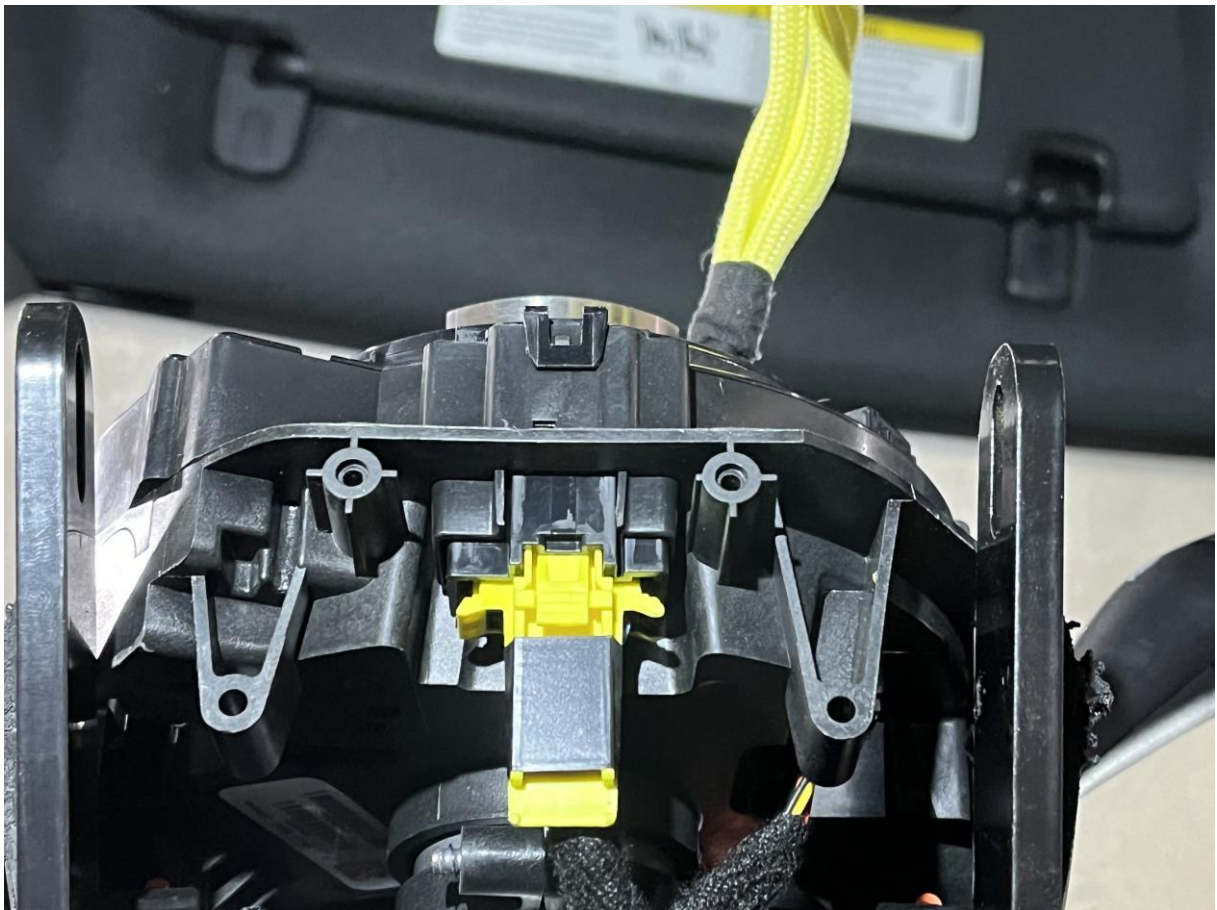
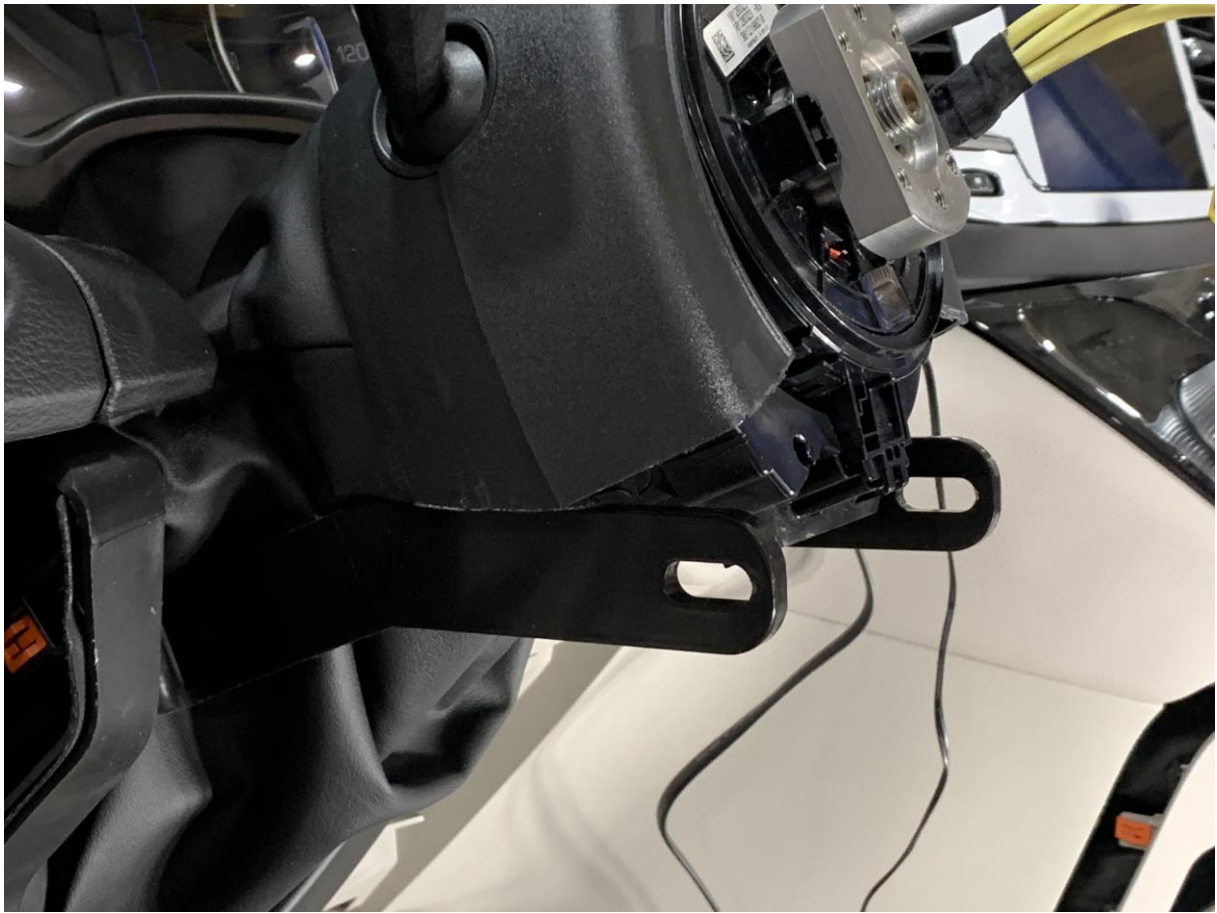
13. Mount the steering wheel

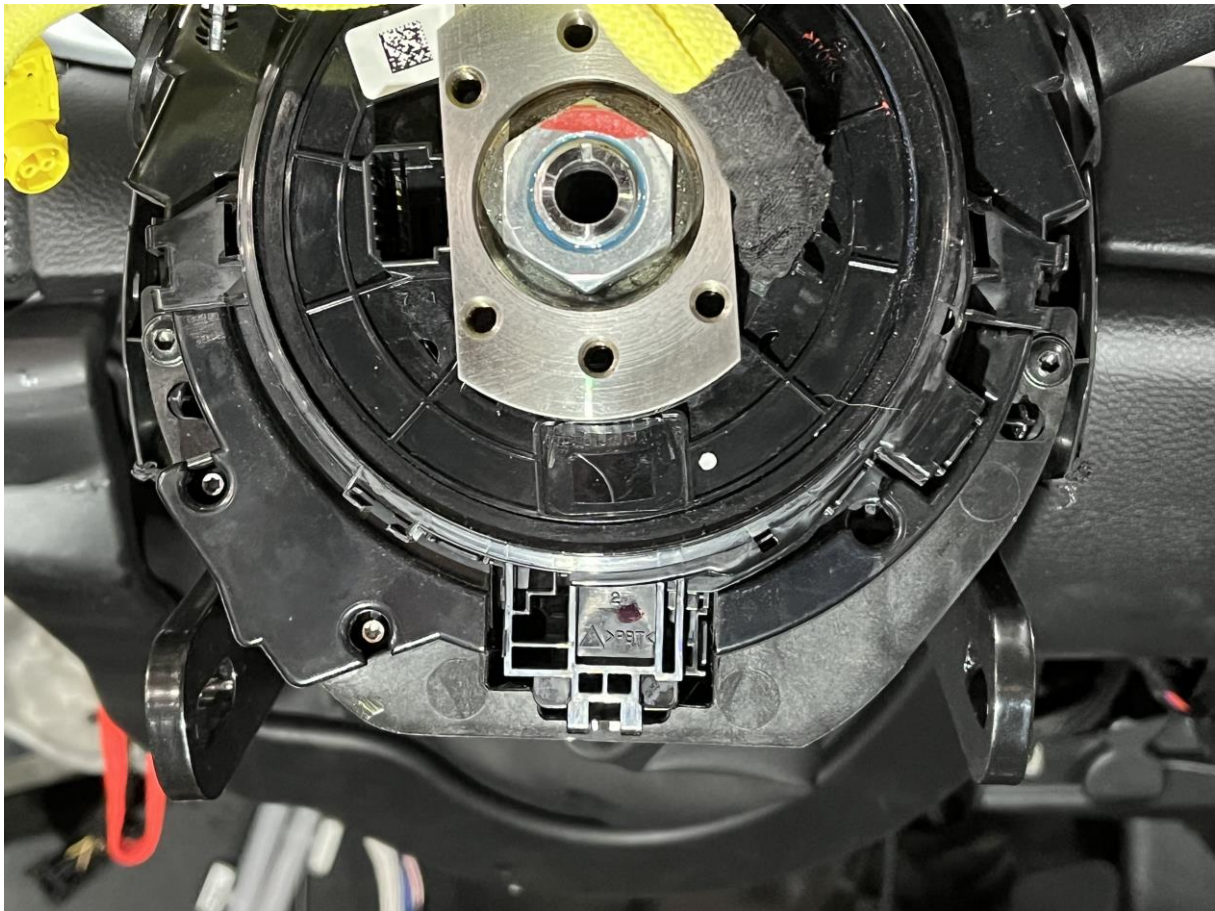
Important:

Check if the installation is correct by driving the car conventionally after having installed the steering actuator. As the worm wheel and the motors are rotated passively, there is an increase of friction. Whilst the joysteer® system is turned off the friction of the steering actuator should **not increase significantly**. If this is the case, the steering actuator is misaligned and the screws of the brackets need to be loosened slightly. By sequential tightening of the screws, the alignment of the steering column to the steering actuator is ensured and thus the friction can be minimized.

To finish

1. Reconnect the negative pole to the battery.
2. Test full functionality of the system.
3. Friction test by conventional driving.









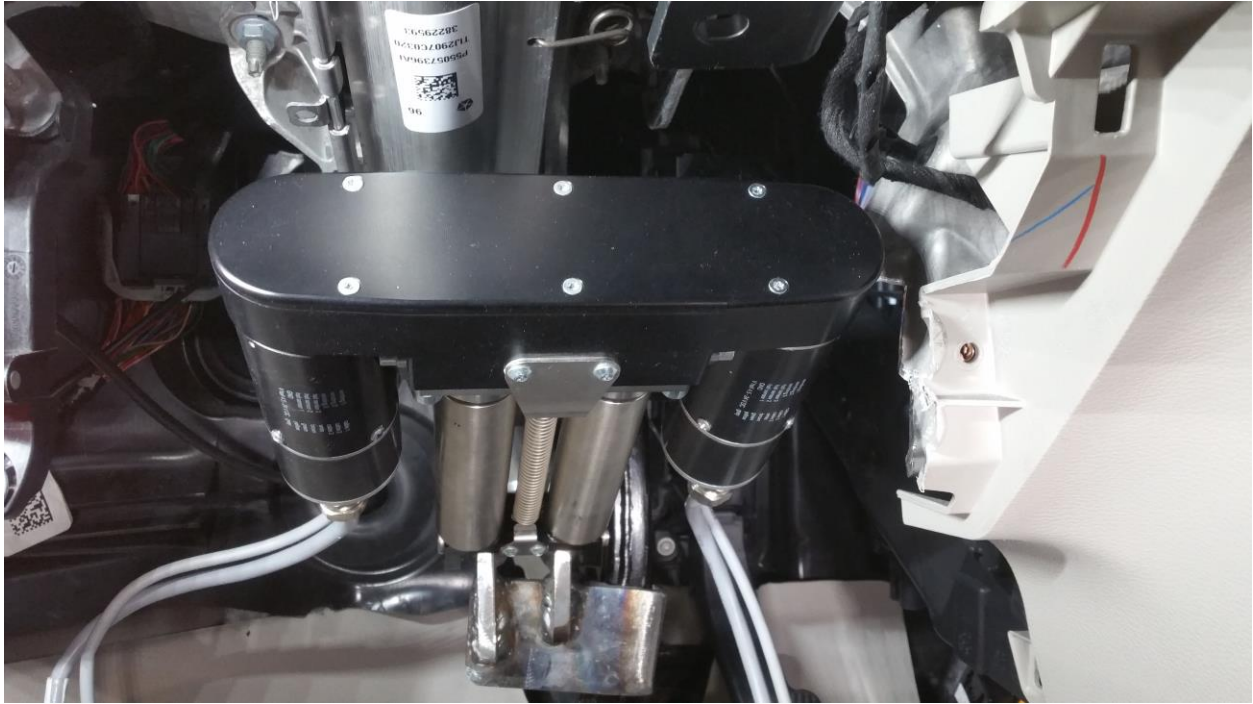
The cables to be placed inside the brackets.



5.6 Installation brake actuator (BAM)

The brake actuator is attached to the brake pedal.

Always check that the pin is not under tension and that the locking clip is attached properly.



5.6.1 Part list

(Images not to scale)

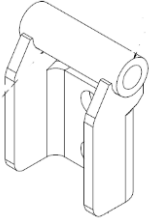
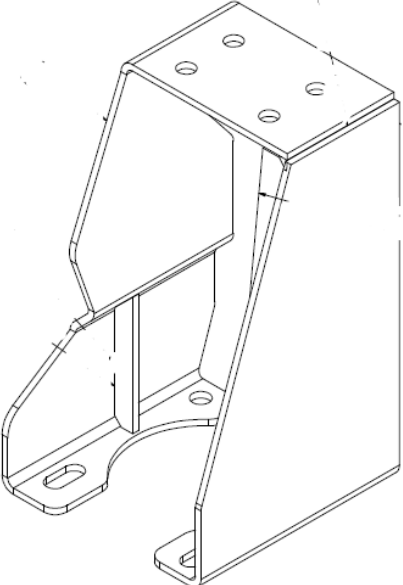
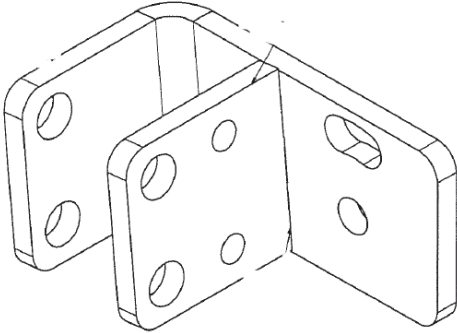









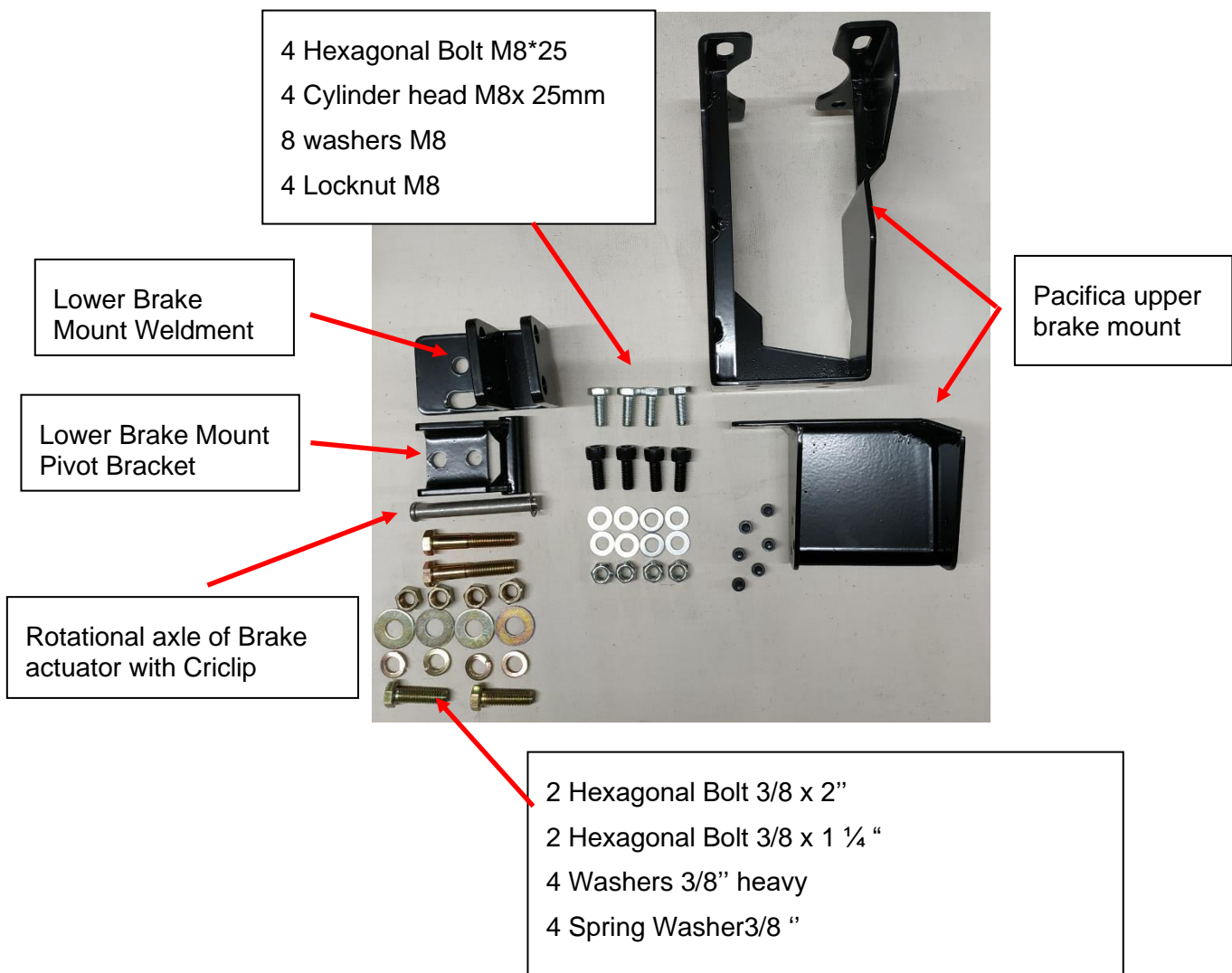
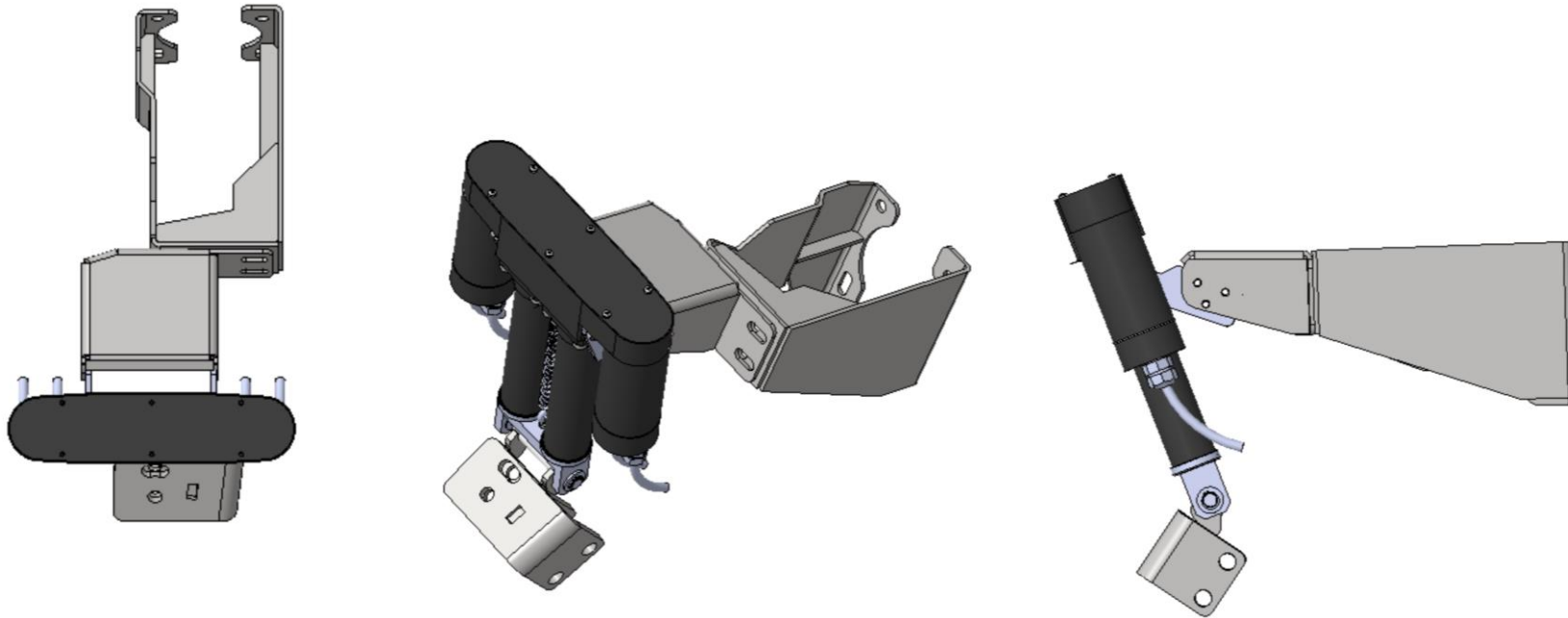
Image	Description	Pcs
	Lower Brake Mount Pivot Bracket	1
	Pacifica upper brake mount	1
	Lower Brake Mount Weldment	1
	Hexagonal Bolt M8x25	4
	Cylinder head M8x 25	4

Image	Description	Pcs
	Washer M8	8
	Locknut nut M8	4
	Washer 3/8 heavy	4
	Hexagonal Bolt 3/8" x 2"	2
	Hexagonal Bolt 3/8" x 1 1/4"	2
	Washer M8 heavy	2
	Spring Washer 3/8"	4
	Spacers 1/4 inch	4



5.6.2 Installation steps



1	Brake Mount Bracket Body Pacifica
2	Long Support
3	Upper Back Support
4	Small Gusset Support
5	Brake Mount Bracket Body Pacifica

Remove Airbag bracket

Remove the 4 nuts of the brake bracket, the pin that connects to the master brake cylinder, and remove the total brake pedal and bracket.

Adapt the pedal bracket as shown on the following pictures:



The 3 washers will be changed to ¼" spacers. Adapt the booster as shown and include the desired thickness of ¼".