

AR-QUAD Installation and maintenance guide

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1 Amendment History

Version	Amendment description	Date (YY/MM/dd)	Name	Signature
1	Initial release	19/10/15	Larraya	
2				
3				
4				
5				

2 Safety

IMPORTANT: "Messages of importance", are those that bear the symbol , are presented in this manual and indicate instructions or procedures related to safety and especially significant for the correct installation of the AR-Quad® system. They are mandatory and must be followed as faithfully as possible. Failure to put them into practice violates preventive and safety instructions, putting the operator and people around them at risk of serious or fatal injuries.

3 General notes

- This guide is not intended to be used by the final user of the quad bike. The installation of the Ar-Quad system must be performed by skilled and competent personnel
- Read through the fitting instructions before attempting to install the AR-Quad assembly, failing to do so may cause damage to the vehicle
- It is recommended that the installation is performed by a licensed installer at an accredited fitment Centre.
- AR-Quad is only intended for quad bikes equipped with independent rear suspension
- AR-Quad is only intended for quad bikes equipped with rear cargo rack
- Installation Checklist available in the following sections
- It is recommended to use a hand ratchet spanner (not an air ratchet) to avoid stripping nuts and bolts.
- No welding is permitted on the structure, quad bike frame or attachments

4 Fitting time

1 hour aprox.

5 Packing list

Nº	Description	Part number	Quantity
1	AR-Quad structure	000-00007	1
2	Principal harness assembly	003-00001	1
3	Upper attachment plates	107-00001	2

6 Spare parts list

Nº	Description	Part number	Order Quantity
1	AR-Quad structure	000-00007	1
2	ECU assembly (pre-installed)	001-00001	1
3	Principal harness assembly	003-00001	1

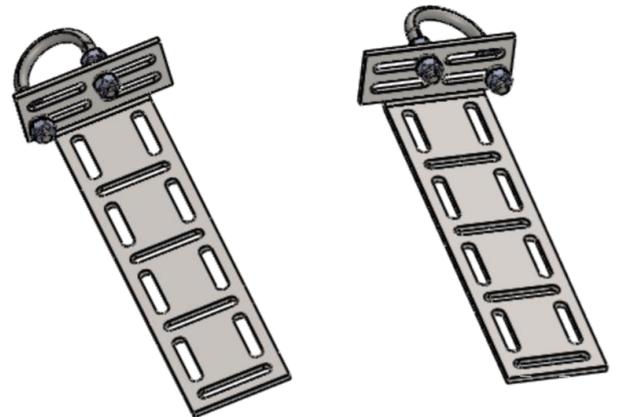
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Nº	Description	Part number	Order Quantity
4	Inflator harness assembly	003-00002	1
5	Inflator (pre-installed)	200-00001	1
6	Upper attachment plates	107-00001	1
5	Expandable struts (pre-installed)	040-00006	1
6	PU protector	111-00001	2

7 Packing contents



AR-Quad structure



Upper mounting plates, U-bolts, platelets bolts and nuts



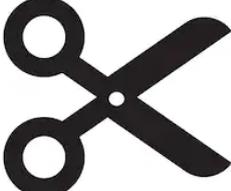
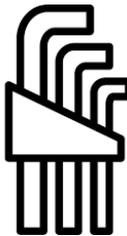
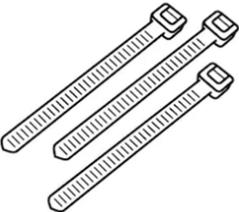
Main wiring harness



User manual / assembly manual

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8 Tools required

 <p>Metric socket wrench</p>	 <p>Torque wrench</p>	 <p>Scissors</p>
 <p>Drill</p>	 <p>Metric allen set</p>	 <p>Cutter knife</p>
 <p>Spanner kit</p>	 <p>Measuring tape</p>	 <p>Zip ties</p>
 <p>Electrical tubing</p>	 <p>Wire stripper</p>	 <p>Crimping connector</p>

9 Installation checklists

✓	PRE- INSTALLATION CHECKLIST
	Does the mechanic responsible of installing the AR-Quad hold the necessary training and experience?
	Has the mechanic responsible of installing the AR-Quad read this manual?
	Ensure that the Product Number on the Fitting Instruction document matches that on the product's packaging.
	Verify that the VIN number of the vehicle matches the VIN number on the job card

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	Check the functionality of the vehicle electrical system
	If the vehicle is to be road registered advise your signatory for Engineering and Compliance.
	Check that all kit contents are present – refer to the fitting instructions pack list
	All paint work and quad bike trim must be protected to prevent damage during the AR-Quad installation
	Ensure that there is no wiring to go under the AR-Quad fittings before it is installed
	Check the location of wiring looms, fuel lines, brake lines, ancillary products prior to beginning installation
	Check the existence of towing hitch and/or extensions before installation
	Do you have all of the required tools for installation including appropriate eye and hearing protection (PPE)?
✓	POST- INSTALLATION CHECKLIST
	Has the AR-Quad been installed using the supplied fitting kit?
	Are all bolts, nuts and tube joiners appropriately tightened?
	Do all bolts have a minimum of two threads showing through the nut?
	Have all fasteners been secured to the specified torque settings?
	Have all tightened bolts had torque pair applied?
	Check that wiring looms, brake lines and fuel lines are not crimped, cut or restricted by the AR-Quad
	Check that the license plate or lighting are not restricted by the AR-Quad
	Check that all rear vehicle lighting is working correctly.
	Are all sharp edges removed from zip ties?
	Are all warning decals and the Safety Cell compliance label applied?
	Has all local Transport Authority Compliance been completed including any required seating reduction?
✓	FINAL INSPECTION CHECKLIST
	This AR-Quad is installed correctly as per the fitting instructions
	Perform the ECU tests provided in section 10
	Test drive the vehicle to ensure that the vehicle is fully functional and that there are no rattles or squeaks present

10 Mechanical Fitting instructions



Make sure that the person responsible for installing the AR-Quad is sufficiently trained and that this manual has been read and understood. Failing to do so may end up originating dangerous situations.

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Complete the Pre-Installation Checklist at the beginning of this document.

- Remove key from vehicle ignition and detach negative terminal on vehicle's battery.
- You must press the brake for at least 10 seconds to drain the residual current from the vehicle.



2

➤ Install rear hitching point in the ATV. The hitching point is necessary to attach the lower portion of the AR-Quad structure



3

➤ Lay the structure horizontally on the ground behind the ATV



5

- Unscrew the lower mounting plate from the AR-Quad structure
 - Unscrew both M10 nuts and bolts



5

- You can choose 2 ways of mounting schemas depending on the hitch ball attachment system: screwed directly to the plate or using the U-bolt (squared corners)

- Choose a mounting position of the lower attachment plate.

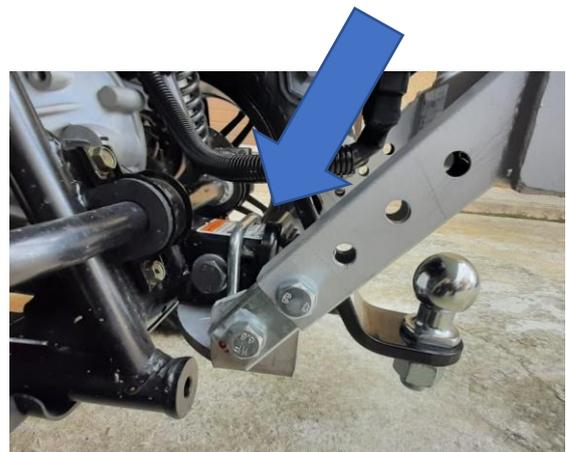
- Facing front and upwards
- Facing front and downwards
- Facing rear and upwards
- Facing rear and downwards

- The position is decided based on:

- Easiness of installation of the attachment plate
- Desired clearance with hitching point (if towing is required)

- Screw the structure to the lower attachment plate

- You can place the lower attachment plate in 4 positions and place it up or downface, with each of the two mounting options (U-bolt / hitch ball screw)



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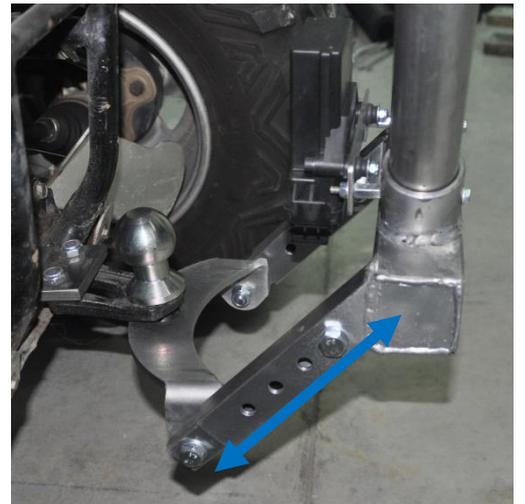
6

- Fix the lower attachment plate to the hitching point of the quad bike.

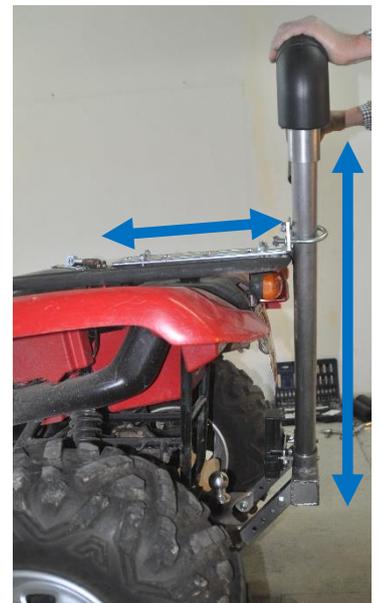


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- Adjust the lower attachment support so that the structure is upright



- Adjust the upper attachment plates forward or rearward so that the structure is upright  **The structure shall always be installed upright or slightly leaning rearwards but never shall be installed facing forward**



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- Measure the distance between the metallic V tubes at the crossing with the rear rack (see picture)



9

- Fix the upper attachment plates to the rear rack using the rectangular platelets and 4 x M8 bolts and nuts. Do not tighten the nuts yet



10

- Present the structure to the upper mounting plates to find the best fitting position of the structure and ensure the correct centering with respect to the middle plane of the chassis



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- Introduce the U-bolts into the upper attachment slots with the washers and M10 nuts and slightly tighten to hold the structure in place. Do not tighten the nuts yet.
Place the U-bolt diagonally on the plates so the axis of the tube is perpendicular to the plane of the U-bolt



12

- Tighten the 8 x M8 nuts of the upper mounting plates and platelets using the socket wrench



13

- Tighten the 4 x M10 nuts of the U-bolts



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- Optionally, cut the excess of U-bolt thread to avoid interference with rear rack cargo



15

- Finish mechanical installation
- Review and re-tighten all the screws:
 - Lower attachment to hitch-bar (x1)
 - Adjustable lower attachment (x4)
 - Rear rack mounting plates (x8)
 - U-bolts (x4)



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11 Electrical Fitting instructions

The electric bundle consists of a main connector which is attached to the ECU and a bundle of wires to the peripherals: LED indicator, OPD switch, Buzzer, power supply and inflator.



Main wiring Harness



3 color led



Maintenance switch



Buzzer



Supply voltage T-taps



Inflator connector



Main connector

The electrical installation of the AR-Quad peripherals is performed in 3 main steps:

- 1) Cable routing: find the best and most suitable path to route the wires of each of the peripherals
- 2) Install / fasten each of the peripherals to its mounting position
- 3) Eliminate the slack and fasten the wires to the quad bike chassis

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1

● Remove key from vehicle ignition and detach negative terminal on vehicle's battery

➤ You must press the brake for at least 10 seconds to drain the residual current from the vehicle.

⚠ Severe damage may occur if the installation is performed with the ignition and battery negative terminal not disconnected



2

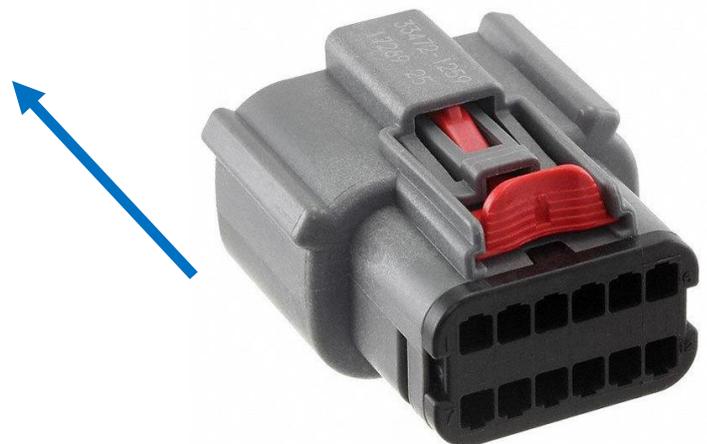
Attach the main connector to the ECU

➤ Press the main connector firmly until the click sound is felt. Make sure the connector is correctly fastened by pulling backwards.



➤ Lock the red CPA (connector position assurance) by pushing it until the locking position.

⚠ The CPA shall be pushed firmly to lock the connector. This will avoid any accidental loosening of the connector



3

Look for an appropriate routing for the harness wiring

➤ Choose the opposite side of the exhaust for routing the wiring harness

⚠ The wiring harness shall be kept away from every source of heat such as exhaust, engine or gearbox



4

Route the wiring harness until the body frame

➤ Route the wiring bundle from the ECU down the lower hitch attachment towards the quad bike chassis

➤ Use zip ties to hold the wiring in place. This zip tie attachment is temporary and will be removed in future steps

➤ Always root the harness through the upper part of the lower hitch attachment



5

LED installation

➤ Find an appropriate routing from the back to the front panel of the quad bike



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➤ Find a flat and visible panel mount space to install the LED light



➤ Drill a 14mm hole through the panel



➤ Install LED light from back to front of the panel and screw the front nut



6

MAINTENANCE SWITCH installation

➤ Follow the routing of the wire harness similar to the LED light

➤ Route the switch until reaching the handlebars

➤ Foresee enough slack to allow handlebar rotation



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- Unscrew the 2 rear plate screws of the switch



- Find a suitable place in the handlebar where the switch can be installed

⚠ The maintenance switch shall be installed in such a place that cannot be deactivated in an unintended manner during the normal operation of the quad bike: eg. Position difficult to reach

- Screw the rear plate back in place until the switch is firmly attached to the handlebar



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BUZZER installation

- Follow the routing of the wire harness defined for the LED light and maintenance SWITCH



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➤ Route the buzzer until the desired install position. We recommend installing the buzzer under the driver seat

⚠ The buzzer has IP67 protection. Nevertheless, the buzzer shall never be installed facing upwards as water entering the outer shell will not be able to evacuate. Install it sideways or facing down



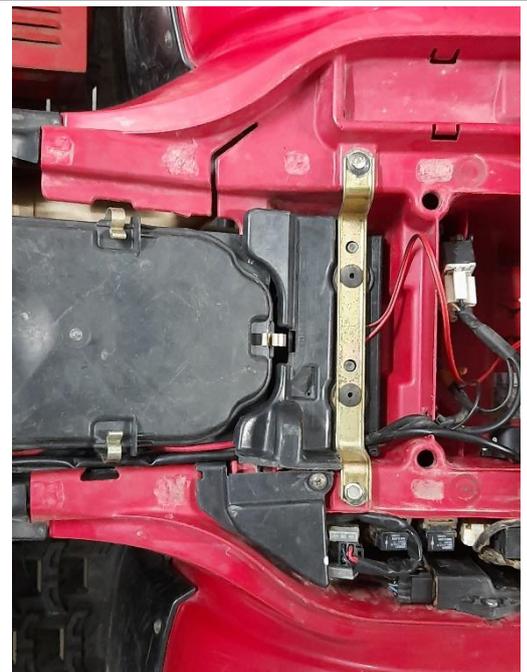
➤ The buzzer has two mounting holes. It can either be screwed to one of the quad bike panels or fastened with zip ties to any element of the frame



8

POWER SUPPLY installation

➤ Route the 2 power supply wires from the main supply wires from the main wiring harness to the battery compartment



➤ Crim a round or U-shape connector to the black wire terminal (negative)



➤ Connect the round or U-shaped connector to the negative terminal of the battery



➤ Turn on the vehicle ignition



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➤ Find a wire within the fuse box or wiring harness with positive battery voltage using a polymeter

 **Do not use the alternator supply wire**



➤ Turn off the vehicle ignition



➤ Crimp a T-tap connector to the red ignition wire from the main wiring harness



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➤ Crimp the T-Tap connector the positive battery voltage identified with the polimeter.

➤ Remember to connect over an ignition supplied current (meaning that the current is only on when the ignition is on).



9

WIRING HARNESS fastening

➤ After the installation of the LED, SWITCH, BUZZER and POWER SUPPLY it's necessary to fasten each of the wiring harness to the quad bike chassis

➤ Pull back from the main connector the excess of wiring harness of each of the peripherals

⚠ The excess of cable must be taken into a bundle in the rearward of the quad bike on top of the lower hitch attachment



➤ After excess of wire has been pulled towards the rear end of the quad bike, the wiring harness of each peripheral shall be attached to the quad bike frame using zip-ties



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➤ Introduce all the wiring harness and loops into a protective electric tubing



➤ Braid the protective tubing together and onto the quad bike chassis with zip-ties



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INFLATOR CONNECTION

- Match the male connector from the main wiring harness with the female connector from the inflator



- Connect the inflator with the main wiring harness
- Lock the CPA (connector position assurance) tab (in red)



- Fasten the inflator connector to the ECU holder with zip ties



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12 Maintenance

12.1 Preliminary operations

Before performing any maintenance related operations in the quad bike, it must be ensured that:

- 1) The maintenance switch of the AR-Quad is in the off position
- 2) The ignition switch of the quad bike is off



Failing to perform these 2 operations will involve high risk with severe consequences

12.2 Inspection guide

AR-Quad like any other safety device needs to be periodically inspected to verify that the integrity of the device has not been compromised through normal machine use, misuse, age degrading, modifications, or rollovers.

Some mechanical discretion is essential, therefore personnel who inspect the cab need to comprehend and understand the significance of issues like structural corrosion, cracks, and deformation. Conservatism is the essential rule. If in doubt, remove the machine from service and contact the system manufacturer for assistance. Examples are:

- Permanent deformation or twisting.
- Missing, damaged, or loose mounting hardware.
- Mounting hardware that is of a grade lesser than specified.
- Any cracks in structure (structural members and/or welds).
- Significant corrosion.
- Modifications, i.e. unauthorized welds or holes.
- Missing or unreadable labels.
- Any unauthorized repair.
- Incomplete/improper installation

Other conditions may require imminent service but may not render the unit immediately unusable. Examples are:

- Faded protection.
- Faded hard to read labels
- Slightly corroded mounting hardware.
- The AR-Quad must be inspected immediately after any type of collision, rollover, or impact. If any damage is evident, the AR-Quad must be removed from service, repaired and/or replaced.
- When the AR-Quad is removed or reinstalled, mounting hardware must be examined for signs of over stressing. Damaged mounting hardware must be replaced before placing the AR-Quad back in service.

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