TOURATECH

by TRACTIVE suspension

OWNER'S MANUAL

In this manual:

Part no manual : 90030050
Date: 28-2-2014 rev 1

1 Important Safety Symbols

In this manual, mounting instructions and other technical documents, important information concerning safety is distinguished by the following notations.

WARNING!

The warning symbol means: Failure to ollow warning instructions can result in severe or fatal injury to anyone working with, inspecting or using the shock absorber, or bystanders.

ATTENTION!

The caution symbol means: special precautions must be taken to avoid damage to the shock absorber or to the electric preload adjuster.

NOTE!

The note symbol indicates information that is important regarding procedures.

Read these Safety Precautions before installing the product.

This product was developed and designed exclusively for a specified vehicle and shall only be installed on the intended vehicle in its original conditions as delivered from the vehicle manufacturer.

Do not open, service or modify this product. *Tractive* Suspension B.V. cannot be held responsible for any damage to the Electric Preload Adjuster, vehicle, other property or injury to persons, if the instructions for installing and maintenance are not followed exactly.

After installing this product take a test ride at low speed to make sure that your vehicle has maintained its stability.

If the function of the Electric Preload Adjuster is irregular or if it makes an abnormal noise or if you notice any leakage from the product, stop thevehicle immediately and return the product to a *Tractive* Suspension retailer.

Read and make sure that you understand the information in this manual and the mounting instructions before you use this product.

When working on this product, always read the Vehicle Service Manual.

2 General foreword

Thank you for purchasing the *Tractive* ACE Suspension. The *Tractive* ACE Suspension fits only the motorcycle it has been designed for.

The *Tractive* ACE Suspension has been designed to offer you long time of effortless ease to set up damping behavior and the ride height and compensate for additional load like luggage or passenger on your vehicle.

The *Tractive* ACE Suspension have been designed to adjust damping by means of the internal DDA Valve and ride height by means of electro-hydraulically adjustment of the spring preload over a wide range while riding. Adjust in small steps and make only one adjustment at a time.

Spring preload: spring preload adjustment is a crucial part of setting up your vehicle since it affects the height of the vehicle and the fork angle.

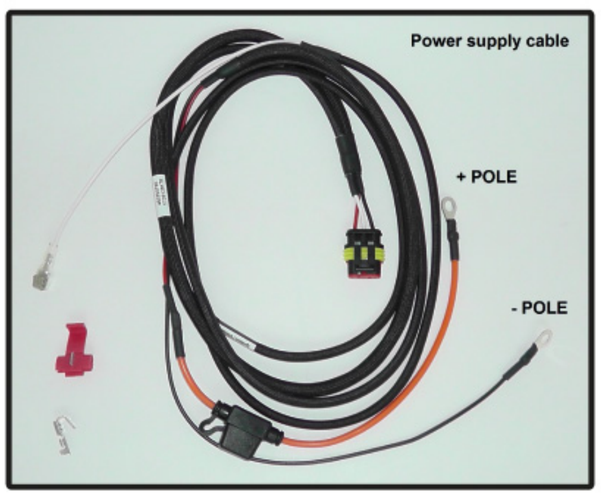
Please make sure that all components and parts of your vehicle responsible for handling and stability are in immaculate condition. In case of doubt please consult your vehicle dealer.

3 Contents of the ACE Package

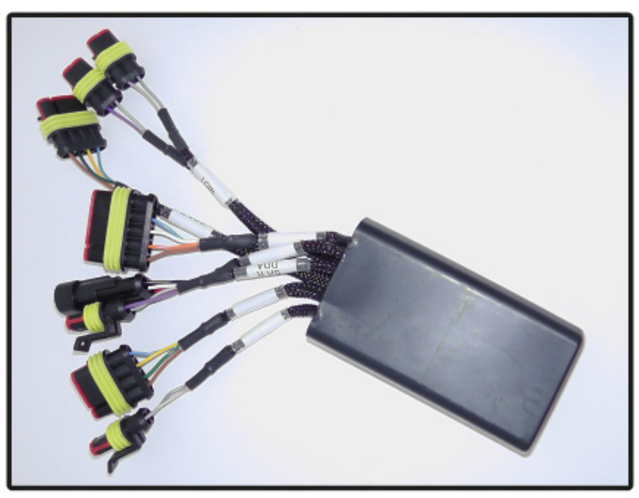
ACE Rear s hock with EPA

ACE Front shock
(on picture without EPA)

Power supply cable

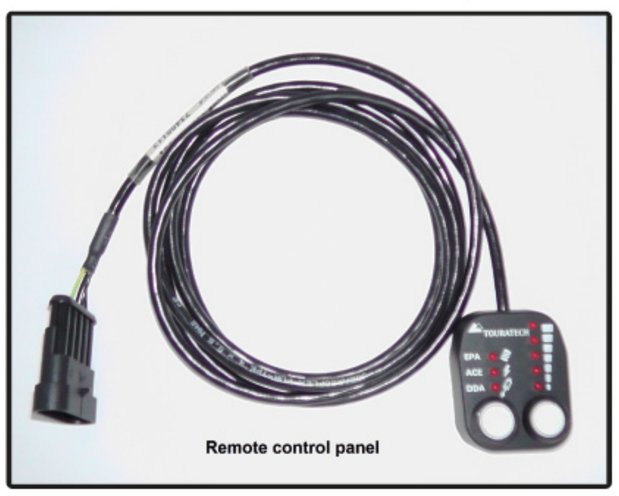


Control unit

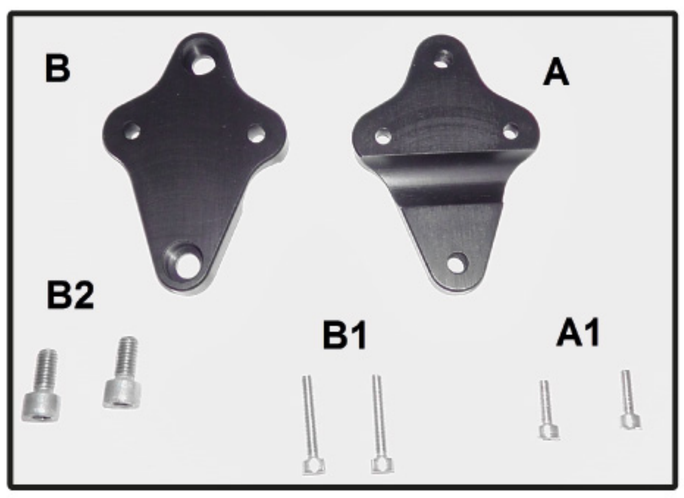


Dual tape set

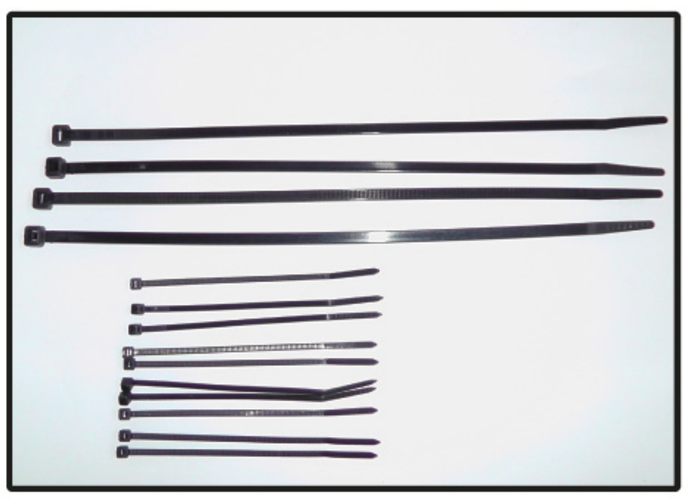
Remote control panel



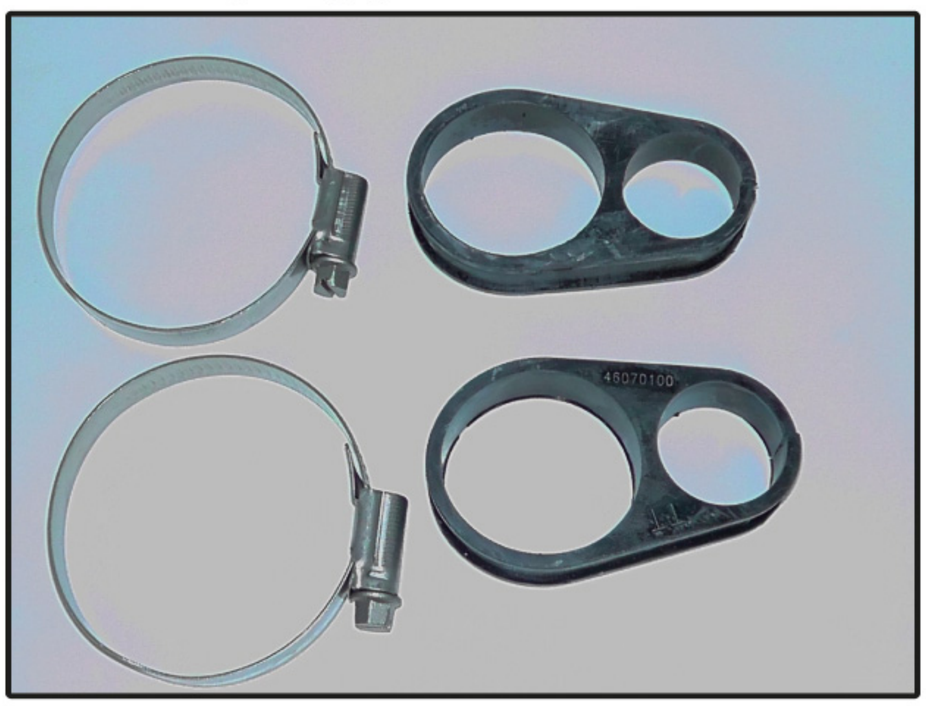
Bracket set “remote”



Ty-rap set



Clamping parts EPA Motor



This manual

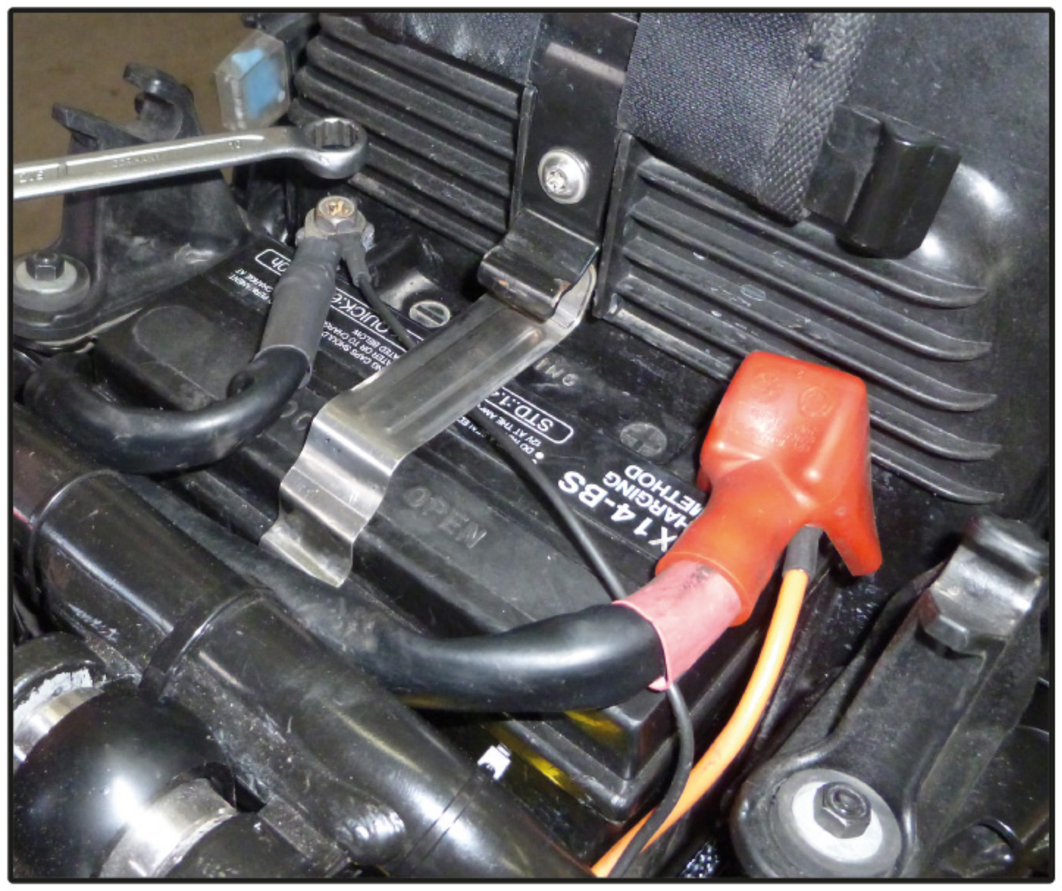
4 Mounting and connection

Mount the shock absorber(s) in the vehicle according the vehicle's manual and *Tractive* mounting instructions of the shock absorber.

Mount the EPA pump unit to the frame according the vehicle-specific *Tractive* mounting instructions. Use the supplied mounting rubber and stainless steel collar bands to firmly mount the EPA pump unit. In case vehicle specific mounting devices for the EPA pump unit are available use these devices according the vehicle specific *Tractive* mounting instructions.

Make sure that the position of the EPA pump does not infringe with the free movement of any rotatable or movable vehicle parts.

Prior to electrical installment of the *Tractive* Suspension control unit make sure the **minus pole** of the battery is disconnected and the **floating wire** fuse (I-9) is removed to avoid coincidental short circuits and is needed for a correct configuration process later on.

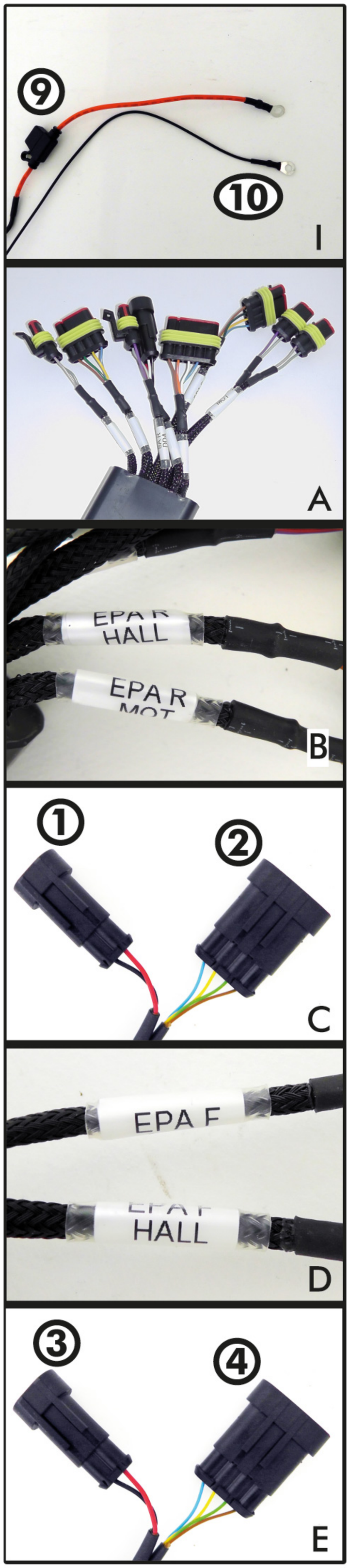


Mount the *Tractive* ACE Remote control unit by the use of solid and robust mounting devices. Check the vehicle specific *Tractive* mounting instructions or available mounting devices. Connect the wiring firmly with the supplied tie-w raps. Make sure the cable of the
Remote Control Panel will never affect or limit the travel of the rotational movement of the front fork around the steering axis. Make sure the cable cannot be caught and/or pinched in any way.

The connectors on each component of the *Tractive* ACE Suspension & Electric Preload Adjuster package have been designed and labeled to connect to the right opposed connector only. Please note the labels "R" represents Rear shock and "F" represents Front shock. Please follow the instructions below.

The *Tractive* ACE Suspension needs to be initialized when the connection with vehicle's battery has been interrupted even if only for a short period of time. Please follow the instructions in chapter **"System configuration"tie-w raps**

Prior to installation
Remove the **mini blade fuse** from the floating wire housing(I-9), is needed for a correct configuration process.



Connectors of the *Tractive* Suspension control unit. (A)

Connectors of the *Tractive* Suspension electro hydraulic preload pump(s) and adjuster unit(S).

Connect power supply EPA R pump connectors (B) of the control unit with the power input connector (C-1 & C-2) of the Rear EPA pump unit.

If your ACE components are equipped with a front EPA Unit: Connect power supply EPA F pump connectors (D) of the control unit with the power input connector (E-3 & E-4) of the Front EPA pump unit.

Connector of the *Tractive* Suspension DDA Rear valve.

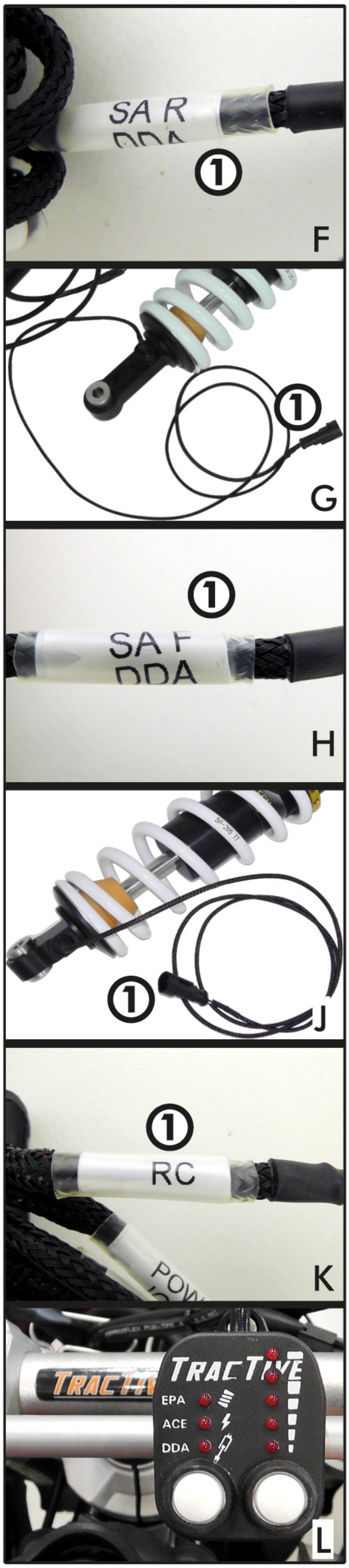
Connect valve output connector (F-1) of the control unit with DDA valve connector (G-1) of the Rear shock absorber

Connector of the *Tractive* Suspension DDA Front valve.

Connect valve output connector (H-1) of the control unit with DDA valve connector (J-1) of the Front shock absorber

Remote Control connector of the *Tractive* Suspension ACE Control unit

Connect the Remote Control connector of the control unit (K-1) with the RC (L) connector (not shown)



Ignition lead and cable branch connector of the power supply cable assembly. (M)

Connect the white wire to an ignition source, by ignition key, switched +12 VDC contact on the fuse box of your vehicle, any switched wire contact available on your vehicle e.g. accessory or taillight (see info next page). Please refer to your vehicle owner's manual or dealer in case of doubt.

Battery connections and floating fuse (10 Amp) of the power supply cable assembly. (N)

Connect the fused red wire (N-9) to the **+ pole** of your vehicle battery.

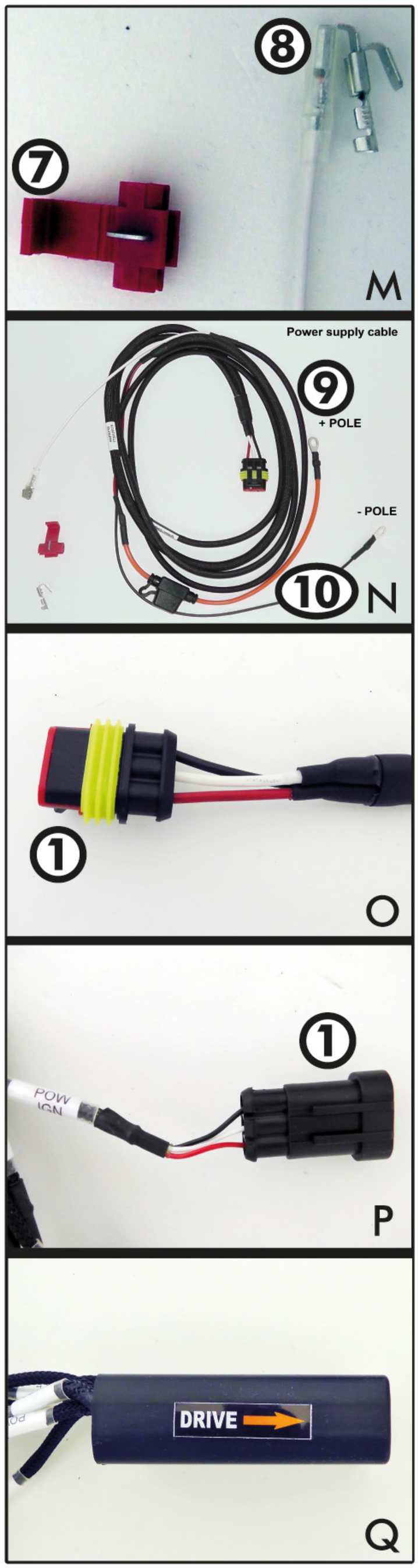
Connect the black wire (N-10) to the **– pole** of your vehicle battery.
Reestablish contact of the main **– pole** contacts that where disconnected at the beginning of the electrical connection of the *Tractive* Suspension EPA unit.

Power connector of the power supply cable Assembly(O)

Connect connector (O1) of the power supply cable to the power connectorof the control unit (P1)

Installation and mounting of the *Tractive* Control Unit (Q)

Please make sure that the control unit is firmly mounted! Please make sure that the arrow on the control unit is facing upwards and points in the direction of movement of the vehicle.



Ignition source Taillight connector mounting instructions

1) Switch on the ignition key and check if the taillight is always switched on and cannot be switched off. If this is the case the power supply (+12 V) to the taillight can be as used as an ignition source.

2) Switch off the ignition key and open the taillight section of your vehicle topreparethe connection.(K)

3) Locate the taillight connection wire/terminal by removing one fast-onterminal at the time and check the results when the ignition key is switched on/off. (L-1/2).

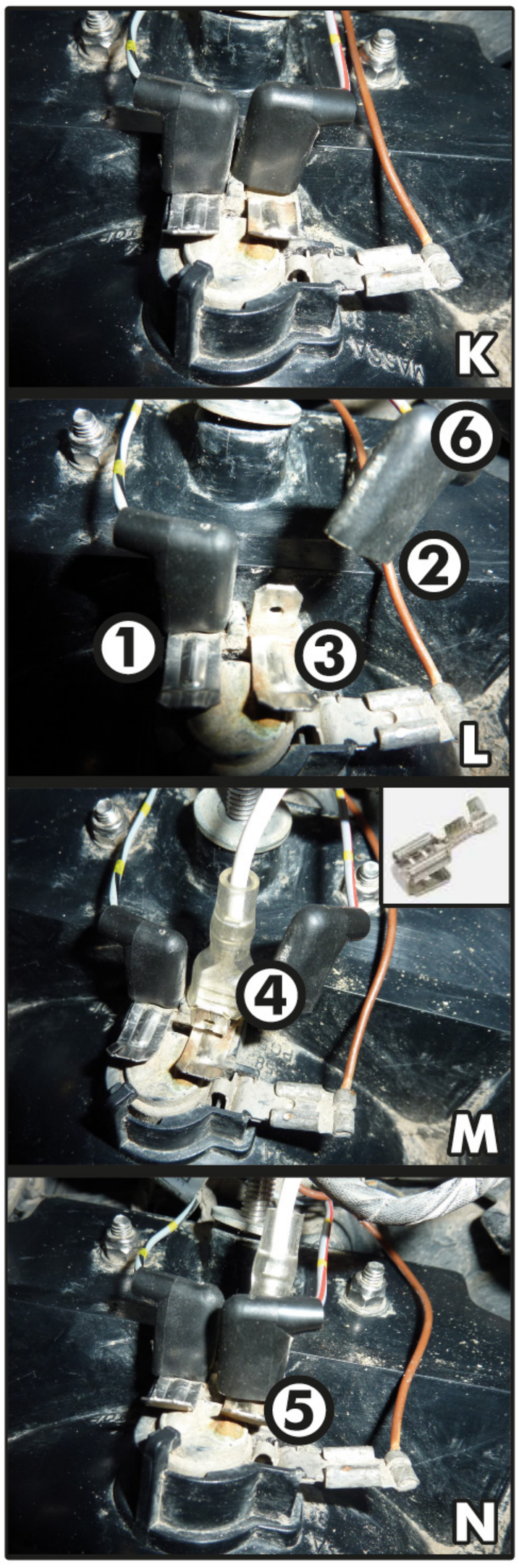
4) After finding the correct wire/connector (+12V taillight) there are two options:

   a. Use the fast on piggy back terminal(M-4) on the ignition white wire and press the terminal on the found (+12V) taillight terminal(L-3) , press the removed fast-on of the taillight(L-2) onto the piggy back terminal.(M-4/N-5)

   Note: this is the preferred option because of better reliability of the electrical connection.

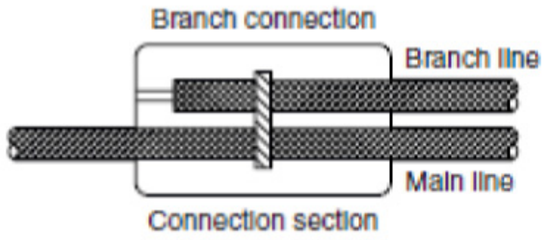
   OR

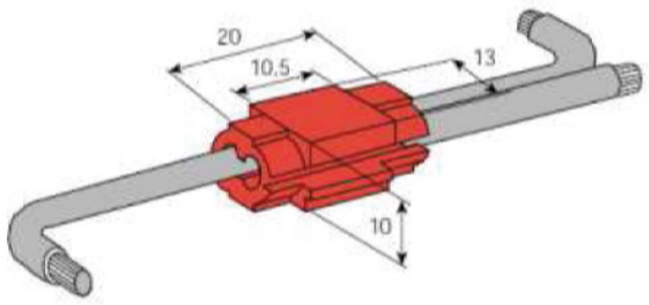
   b. Use a cable branch connector to connect the ignition wire to the taillight wire.(L-6). Cut off the already mounted piggy back terminal.

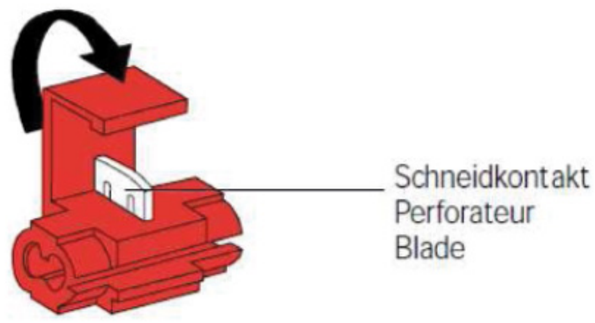


When using the cable branch connector for an ignition source connection follow the next procedure. Place the ignition source wire and white wire of the controller power cable according the pictures below.

Press the blade (check for a correct position of the wires under the blade cuts) with a sufficient tool into the branch connector housing. Then close the protection cap according picture below.







5 System configuration

The control unit needs to be initialized when connected to the vehicle's battery for the first time. This process repeats at any interrupted or removed connection to the battery. During this process the controller detects the application EPA pump unit connected to the controller.

1) When all connectors of the control unit are firmly connected and the main battery terminals are connected make sure the battery is charged and has sufficient power to start the engine. **Do not switch on the vehicle's ignition, but first insert the mini blade fuse (I-9) into the floating fuse housing.** (if you did not remove the fuse already this is the time to remove the fuse and inser it immediately -see prior to installation instructions)

2) Start the engine while holding the unloaded motorcycle upright on a flat surface. The *Tractive* Control Unit will start a detection process checking all connected devices and sensors. When the battery voltage is higher than 12.8 Volt (charging) the EPA-pump(s) calibration will start automatically. The process can be visually monitored by the running LED's on the control panel. The calibration process takes less than a minute. The EPA('s) will move to the lowest and highest position and will be stopped in the lowest selectable display position. All sections of the remote controller are ready for use after the full calibration process.

Important notes:
Do not stop the vehicle's engine to prevent a calibration interruption caused by **low battery** voltage.

The calibration process cannot be stopped by switching off the ignition source.

Hold the motorcycle completely upright and steady during the calibration process.

The *Tractive* Suspension ACE unit is now ready for use. The control unit has been designed to work only when the battery voltage is higher than 12.8 VDC. In most cases this means that the control unit will start after the ignition switch of the vehicle is switched on and the engine has been started. The control unit will start when the vehicle's generator will supply more than 12.8 VDC. When these conditions are reached the LED display on the remote control will be visually active.

After starting the vehicle's engine for the 50 th time the control unit has been programmed to do a recalibration run on the EPA('s). All the LEDs of the Remote Control unit will run from bottom to top. Do no stop the vehicle engine while this process is running.

6 Set-up the vehicle and adjust the EPA

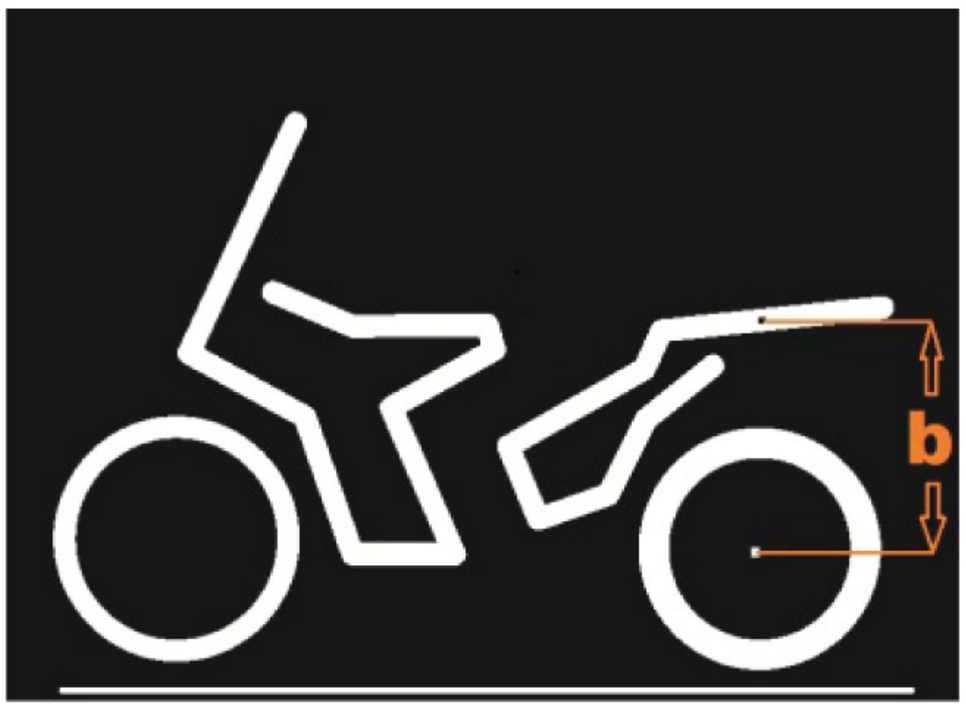
Spring preload is a crucial part of setting your vehicle since it affects the height of the vehicle and the caster angle and therefore the stability of the vehicle. After following the procedure below the vehicle will have a correct set-up at the 2nd LED lightfrom left to right.

Push the button from the *Tractive* control panel. Push “Hard” to increase the preload and push “Soft” to decrease it. (See picture)

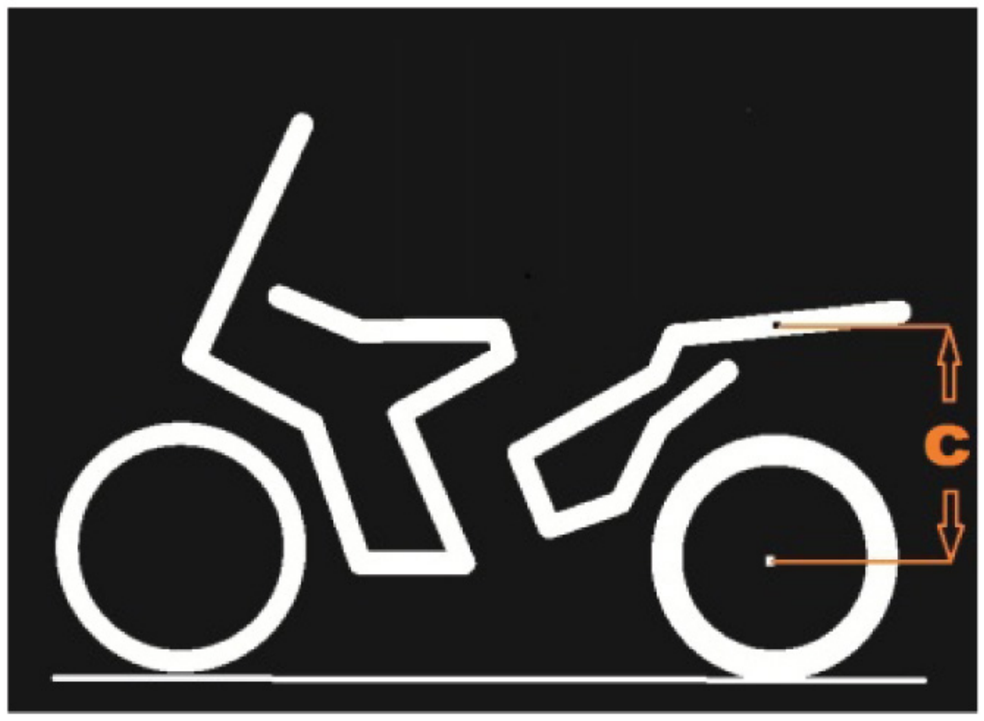
In order to optimize the set-up, adjust the EPA to the 2nd LED position from the bottom and follow below procedure.

a) Lift up the rear to a fully extended position. (when the rear wheel can rotate)

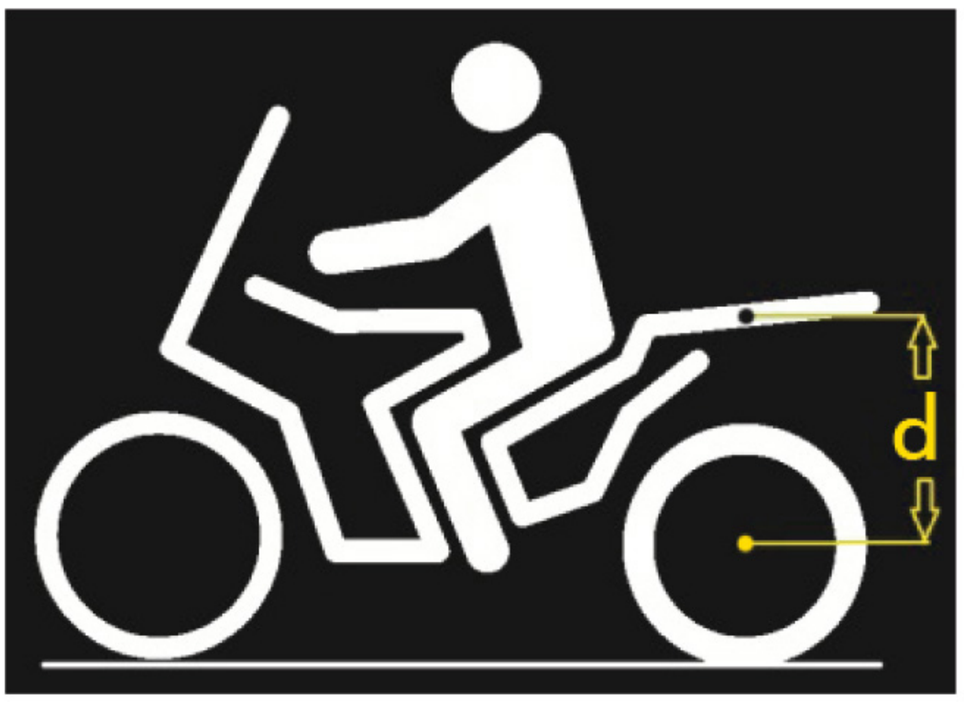
b) Measure the distance, from a point like a bolt or make this point with a piece of tape above the rear wheel axle.



c) Put the vehicle back on the wheels. (without rider) and repeat the measuring procedure.



d) Then take the same measurements with the rider and standard equipment on the vehicle. It is important that the rider is balancing on the correct riding posture and repeat the measuring procedure one more time.



Distance (b) minus distance (c) = called the free sag.
Distance (b) minus distance (d) = called the ride height.

Check the recommended values for free sag and ride height in the vehicle owner's manual and *Tractive* mounting instructions for your shock absorber. The free SAG should be about 5 to 10% of the entire wheel travel. The ride height should be 25 to 30% of the total wheel travel.

If your free sag measurements differ from the recommendations then you must adjust the EPA.

If after this adjustment your ride height is still not between the recommendations, you may need to change to a different spring. Incorrect spring rate may result in a geometry that is either too steep or too flat. This can result in a tendency of under or over steering, that could seriously affect the handling characteristics of the vehicle.

The spring preload is fundamental for the function of the suspension. If the preload is incorrectly set, any other adjustments will not help to get the intended performance from the suspension.

Electrical Preload Adjuster EPA
Push the left button till the EPA led lights up (See picture)

Push the right knob to set the preload. Upwards is more preload and down is less preload.

The spring preload is fundamental for the function of the suspension. If the preload is incorrectly set, any other adjustments will not help to get the intended performance from the suspension.

Note
In case two shocks with electrical preload adjusters are connected to the control unit, one pushes both buttons, the systems shows the status of the front shock with blinking LED lights. The preload of the front shock can be changed in the same manner as described in this paragraph . After 60 seconds inactivity or after pushing both buttons, the system returns to the rear shock.

7 Set-up of the vehicle, adjust DDA and ACE

DDA controls the energy absorption (damping) when the shock absorber is being increased or extended and controls how fast the shock absorber returns to its normal position. DDA stands for Dynamic Damping Action, a patented technology from *Tractive* Suspension.

To increase or decrease the damping push the left knob till the DDA led lights up. (See Picture)

Push the right knob to set the damping. Upwards is more damping and down is less damping.

Note
In case two shocks are connected to the control unit, one pushes both buttons, the systems shows the status of the front shock with blinking LED lights. The damping of the front shock can be changed in the same manner as described in this paragraph . After 60 seconds inactivity or after pushing both buttons, the system returns to the rear shock.

How to set the ACE

ACE suspension stands for active control of the damping. The ACE button controls how much the damping is changed to assist the driver in the braking or accelerating process.

To increase or decrease the ACE push the left knob till the ACE led lights up. (See Picture)

Push the right knob to set the ACE. Upwards is more assistance during braking and accelerating and down is less.

Note
In case two shocks are connected to the control unit, one pushes both buttons, the systems shows the status of the front
shock with blinking LED lights. The ACE of the front shock can be changed in the same manner as described in this paragraph . After 60 seconds inactivity or after pushing both buttons, the system returns to the rear shock.

8 Maintenance and inspection

The *Tractive* Suspension ACE Technology components have been designed to offer you long time of effortless ease and a minimum of maintenance. The maintenance is limited to inspection when your shock absorber is being serviced.

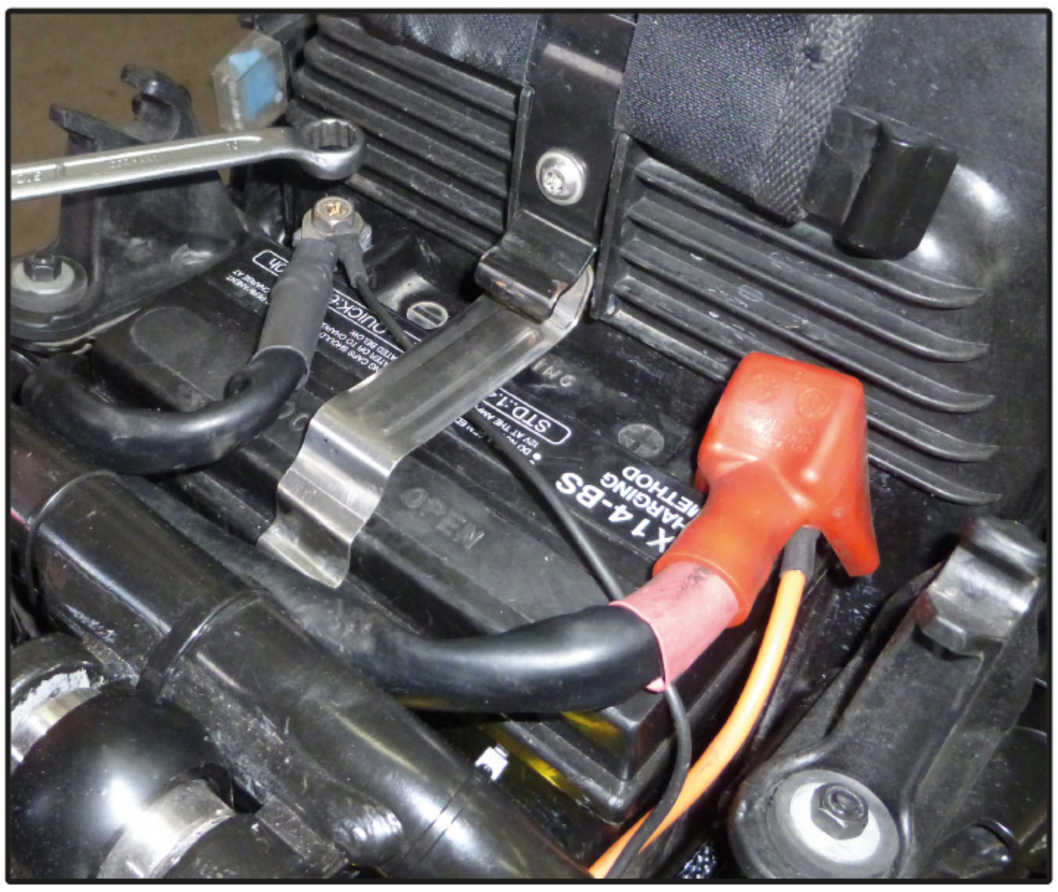
Preventive maintenance and regular inspection reduce the risk of functional disturbance. If there is any need for additional service, please contact an authorized *Tractive* Suspension Centre.

Recommended Service Interval
Regular on-road use: Every 30.000 km or every 3 years.

Disposal
Discarded *Tractive* product should be handed over to an authorized *Tractive* retailer or distributor for proper disposal.

Component replacement

Before proceeding component replacement take notice of the following:



Prior to maintenance to the electrical circuits make sure the minus pole of the battery is disconnected and the floating wire fuse is removed to avoid coincidental short circuits.

Remove and install components if necessary.

Mount the shock absorber in the vehicle according to the user manual of the shock absorber.

Make sure that the wiring does not infringe with the free movement of any rotatable or movable vehicle parts.

Mount the EPA pump unit(s) to the frame according the vehicle-specific mounting instructions. Use the supplied mounting rubber and stainless steel collar bands to firmly mount the EPA pump unit.

Make sure that the position of the EPA pump does not infringe with the free movement of any rotatable or movable vehicle parts.

Mount the control unit. Connect the wiring firmly with the supplied tie-wraps. Make sure the wiring loom of the control unit or any other cables never affect or limit the travel of the rotational movement of the front fork around the steering axis. Make sure the wiring loom cannot be caught and/or pinched in any way.

The connectors on each component of the *Tractive* Suspension E-PA have been designed to connect to the right opposed connector only. Please follow the instructions in:
“4 Mounting and connection”

The *Tractive* Suspension E-PA system needs to be initialized when the connection with vehicle’s battery has been interrupted even if only for a short period of time. Please follow the instructions in :
“5 System configuration”

9 Important notifications ACE Technology

The *Tractive* Suspension ACE Technology components will be calibrated before use and are assigned to adjust the damping and preload of your shock absorber as a combination. Please before actual use note the instructions in : “System configuration”

After the power of the control unit has been switched on for 50 times, the control unit has been programmed to perform a small calibration run. The pump unit will reset its original position while LED’s on the display are “running”. This is a normal procedure, do not switch off the engine during this process.

If, under extreme conditions, something goes wrong while adjusting damping or preload, the control unit will shift into an “ERROR” mode.
The main current to the DDA valves and EPA pump unit(s) will be disconnected and one of more LED’s on the display will flash on and off continuously indicating there might be a problem with the system.

Switch off the vehicle ignition the normal way. Switch on the vehicle ignition the normal way. After switching on the power of the control unit, a system check and auto-recovery program will be started. If all conditions are according to required specifications the control unit might start a short calibration run, it will reset to the last desired adjustment and will continue to work normally.

If conditions do not meet the required specifications the control unit will disconnect the power supply to the DDA valves and pump unit(s) again and will shift into an “ERROR” mode.
In this case one of more LED’s on the display will flash on and off continuously indicating there might be a problem with the system.

In this case it is advised to switch off the system and check the battery voltage and all electrical connections for short or open circuits. Do not (attempt to) open the dampers or pump unit(s).

Note:
The battery voltage should be at least 12.8 VDC for the EPA to be fully functional.

The ACE Components (DDA Valves & EPA pump unit(s)) can only be connected to the EPA controller. Do not try to use external power sources directly.

10 Trouble shooting

LED1 flashing :
[Battery Voltage too low]
Check the battery Voltage should be higher than (>)12.8V during use.
Check wiring connections, may be loose or intermittent.
-When the voltage level is correct, the LED display will present the actual status.

LED2 flashing:
[Current too high in DC-motor circuit]
Check wiring for short circuit or damage.
Check on EPA if travel is obstructed or excessive high loads.

LED3 flashing:
[Temporary temperature problem DC motor] Wait for a cooling down period, the actual status of the LED display will be back when the recovery time is finished.

LED4 flashing:
[Open connection DC motor circuit]
Check on proper wire connections may be loose or intermittent to the EPA pump unit.

LED5 flashing:
[Sensor problem]
Check on proper wiring connections may be loose or intermittent to the EPA pump unit.

LED6 flashing:
[Calibration unsuccessful]
Check wiring connections, may be loose or intermittent. Check on EPA if travel is obstructed or excessive high loads.
Check the battery Voltage should be higher than (>)12.8V.

LED7 flashing:
[Calibration unsuccessful, could not finish the process]
Check wiring connections, may be loose or intermittent.
Check on EPA if travel is obstructed or excessive high loads.
Check the battery Voltage should be higher than (>)12.8V.

LED8 flashing:
[Stepper motor open or short circuit]
Check stepper motor wiring connections, may be loose or intermittent.

LED 1..8 are not flashing once when vehicle's ignition is switched on.
Check the main power cable wiring, fuse etc. for open circuit.

LED1..8 are flashing once when vehicle's ignition is switched on but no LED status is displayed.
Check on battery voltage is greater than (>)12.8V.

Errors at LED positions 2..8 can be recovered by switching vehicle's ignition OFF/ON again.
The controller is performing a system check and if no problems are detected a short EPA calibration is performed to finish the process for usage.

TOURATECH
by TRACTIVE suspension

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