



# RSV4 2015 MM RACE KIT

(V1.1)

## **INSTRUCTIONS FOR CONVERTING APRILIA RSV4 FROM ROADGOING CONFIGURATION TO RACING VERSION FOR TRACK USE, WITH STANDARD OR MM RACE ECU**

**aprilia**

**DERBI**

 **GILERA**

**Aprilia Racing S.r.l.**  
Direzione e Coordinamento  
Gruppo IMMSI

*Sede legale*  
Viale Rinaldo Piaggio, 25  
56025 Pontedera (PI) Italy  
Tel. +39 0587 272111  
Fax +39 0587 272344

*Sede operativa*  
Via G. Marconi, 9  
30033 Noale (VE) Italy  
Tel. +39 041 5829701  
Fax +39 041 5801624

Cap. soc. €150.000,00 int.vers.  
Reg. Imprese Pisa &  
Cod. fiscale 01880941206  
P.IVA 01596290500  
REA di Pisa 139413

## **INTRODUCTION:**

- The material, information and procedures described in this manual are solely for usage of the vehicle in motorsports competitions on circuits closed to traffic. Usage on public roads is strictly prohibited.
- This material may be installed by specialised motorcycle mechanics only.
- Specific instruments may be necessary for the installation of certain components.
- The manufacturer reserves the right to modify the technical specifications, components and other information described and contained in this catalogue without prior notification.

## **WARRANTY:**

- None of these components are covered by warranty. The manufacturer cannot be held responsible for any problems, damage or injury caused by using these parts.

## **DESCRIPTION OF MANUAL:**

The following manual illustrates the operations and modifications necessary to transform the vehicle from the standard production configuration to a configuration for motorsports use on closed race circuits.

The operations for modifying and installing parts are described as follows. Follow the directions and procedures contained herein, which illustrate the operations for installing and modifying parts, exactly as given. Some of the individual operations described offer a number of different modification options, where the user is required to choose the option applied.

## 1. MARELLI RACING ECU, RSV4 RR/LE MY 2015

ECU configuration: RR1501 - xx (motorcycle RSV4 RR/LE MY2015)

Aprilia Racing has developed a dedicated ECU for the RSV4 RR/LE MY2015 for track use. The ignition advance and injection maps are the same maps used for the Akrapovic exhaust system, which are available from the official Aprilia network. The electronic management system parameters determining the activation thresholds of the vehicle control systems, however, have been completely recalibrated for use specifically on a closed race circuit. These new calibrations allow extreme banking angles without triggering an invasive response from the control systems, which may still be set from the switchgear on the handlebar. The reduced engine braking effect allows faster, smoother braking. The Marelli Racing ECU has been specifically reprogrammed for this application, and the new map differs from the standard production map (6403BA45) as follows:

- Injection and ignition advance maps for complete Akrapovic exhaust system
- Exhaust butterfly valve management disabled.
- Oxygen sensor management disabled.
- Secondary air system management disabled.
- Immobilizer disabled (in ECU).
  - **NOTE – the instrument cluster must also be replaced in order to remove the ignition switch assembly and the physical immobilizer system.**
- Cannot be used together with APP and V4-MP platform.

Functional differences relative to standard map:

- Optimised, less invasive TCS. Most significant benefits are due to reduced torque limiting at extreme bank angles and during rapid changes in direction.
- Wheelie control system with optimised torque limiting action.
- Reduced engine brake effect in general, and in low gears in particular.
- All engine maps are completely unrestricted (full power) and specific for racing exhaust systems.
- Also usable with ABS.
- The three maps in the ECU are configured as follows:
  - S** – Map with extremely direct throttle response.
  - T** – Map with softer, more progressively controllable response at initial throttle aperture. Engine braking effect is generally lower.
  - R** – Same as map T, but with even less engine braking effect at mid to high engine speeds.

We recommend starting with the “T” map, with TCS set to level 4

### NOTE:

1. **This ECU must be used together with the standard clutch control switch. The ECU will not function correctly if this switch is removed.**
2. **This ECU cannot be used on previous versions of the RSV4.**
3. **We recommend starting with a high TCS level when using for the first time, and then trying gradually lower settings.**



The part number and relative description for ordering this component are:

Code	Description	Q.
COE15059	MARELLI RACING ECU, RSV4 RR/LE MY2015	1

### OPTIONAL

An instrument cluster with disabled immobilizer is also available as an option. When installed together with the Marelli Racing ECU (COE15059), this instrument cluster allows the motorcycle to be used without the ignition switch assembly.



The part number and relative description for ordering this component are:

Code	Description	Q.
COE15070	RSV4 MY2015 INSTRUMENT CLUSTER, NO IMMO	1

## 2. REMOVING THE SIDE STAND

If the side stand is mechanically removed, the relative diagnostic function must be disabled in the ECU, otherwise the vehicle will not start. To do this, simply bridge the two pins of the connector where the side stand was originally connected. The component P/N COE15001, shown in the photo below, is available for this purpose.

The part number and relative description for ordering this component are:

Code	Description	Q.
COE15001	SIDE STAND RETRACTED CONNECTOR	1



### 3. REMOVING THE IGNITION SWITCH ASSEMBLY

If the ignition switch assembly is removed, the switch COE15062 may be installed on the same connector as the ignition switch to switch the system on and off. This switch may be installed on the handlebar or, if preferred, in another convenient location. The part number and relative description for ordering this component are:

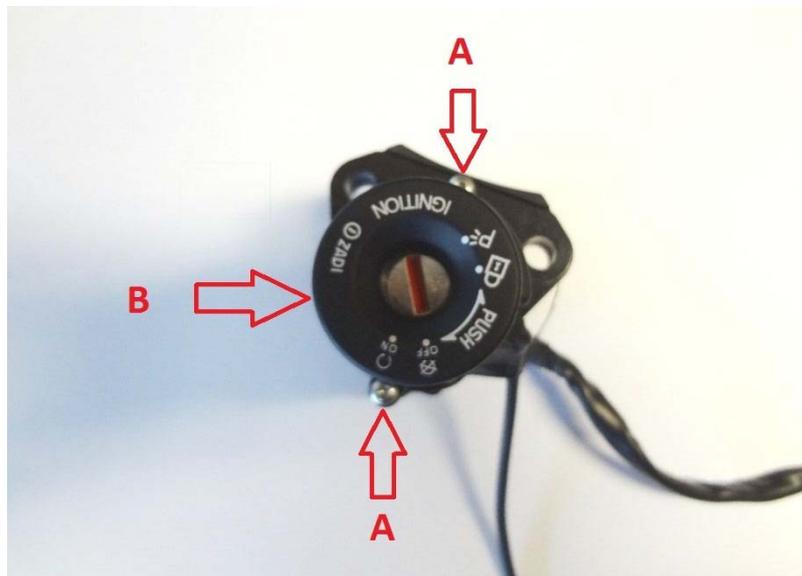
Code	Description	Q.
COE15062	CIRCUIT POWER SWITCH	1

**IMPORTANT - Note the instructions given below when removing the ignition switch, depending on which of the following two cases applies:**

#### 3.1. WITH STANDARD INSTRUMENT CLUSTER AND ECU

When using the standard instrument cluster and ECU with an active immobilizer, to disable diagnosis of the immobilizer in the ECU and the relative message displayed on the instrument cluster, the ignition switch antenna and the vehicle key must be kept connected to the respective wiring harness. To simplify the installation, the antenna may be removed from the ignition switch assembly with the following procedure:

- A. loosen the two screws (A)
- B. remove the bezel (B)



C. detach the antenna ring (C)



D. fasten the antenna to the key as shown in the photo below



- connect the antenna+key assembly to the same connector on the motorcycle wiring harness that the antenna was connected to before
- Fasten the assembly securely to the motorcycle

**NOTE – the immobilizer antenna must still be kept connected to the system even if the MM Race ECU, P/N COE15059, is used instead of the original standard ECU.**

### **3.2. INSTRUMENT CLUSTER AND ECU WITHOUT IMMOBILIZER**

If the RACING version ECU, P/N COE15059, and the instrument cluster COE15070 (without immobilizer) are used, the modifications described above are not necessary as immobilizer diagnosis is already disabled. In this case, the ignition switch block may be removed completely.

## 4. REMOVING ABS SYSTEM

### 4.1. WITH STANDARD BRAKE SYSTEM (ABS)

Regardless of the type of ECU (standard or Marelli Racing) and instrument cluster used, the ABS system may be disabled by following the relative procedure indicated in the motorcycle user manual.

### 4.2. WITH RACING BRAKE SYSTEM AND ABS ECU

Even using a simplified braking system, fitting separate front and rear brake lines, it is still necessary to keep the ABS ECU installed on the vehicle and connected to the main wiring harness, as the electronic management functions of the speed sensors necessary for the vehicle control systems reside within this unit. After removing the brake lines connected to the ABS unit, the relative connector ports must be plugged with screws to prevent loss of the fluid contained in the unit itself.

### 4.3. WITH RACING BRAKE SYSTEM WITHOUT ABS ECU

In order to also remove the ABS ECU, a kit must be installed which allows the system to acquire the speed sensor signals. This kit includes a supplementary ECU (CLF), a wiring harness for connecting the CLF ECU to the main wiring harness, a mount and the relative fastener hardware for installation. This kit allows the vehicle system to acquire the speed sensor signals necessary for correct operation of the vehicle control systems, and also includes a mount for installing the supplementary ECU and the voltage regulator.

**NOTE – When using this kit, the headlamp and horn must be removed to permit installation of the additional parts necessary.**

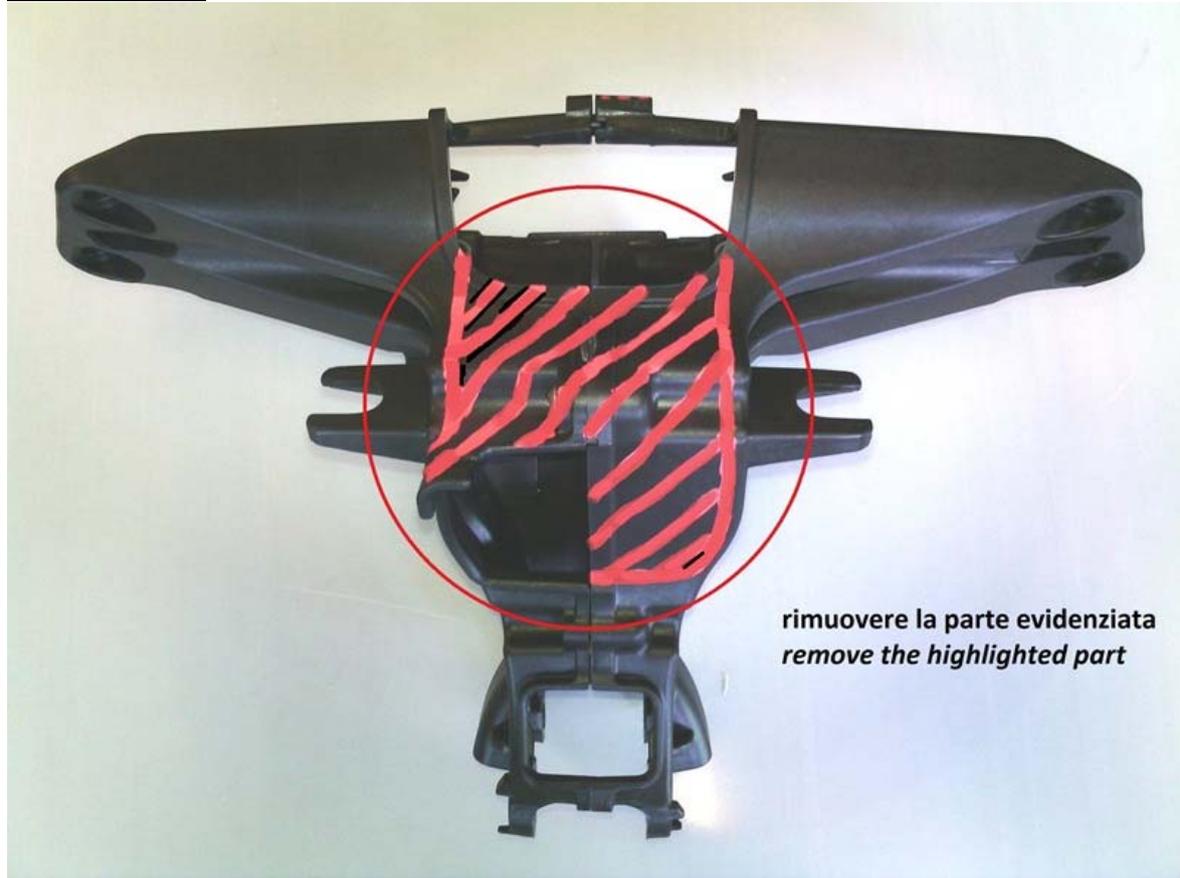
The list of part numbers and description for ordering this kit are:

Code	Description	Q.
COT140199	ECU MOUNT, SST 2015	1
B043676	TONE WHEEL ACQUISITION ECU - CLF	1
COE14136	CLF CONNECTOR WIRING HARNESS	1
254485	M6 SPRING PLATE	6
CO8220150	RUBBER WASHER	2
AP8121728	T-SHAPED BUSHING	4
AP8152278	M6X16 HEX HEAD SCREW	2
AP8152280	M6X25 HEX HEAD SCREW	4
COVHIC4025	SHC SCREW M5X40	1
COVMTC0000	M5 ERGAL FLANGED NUT	1

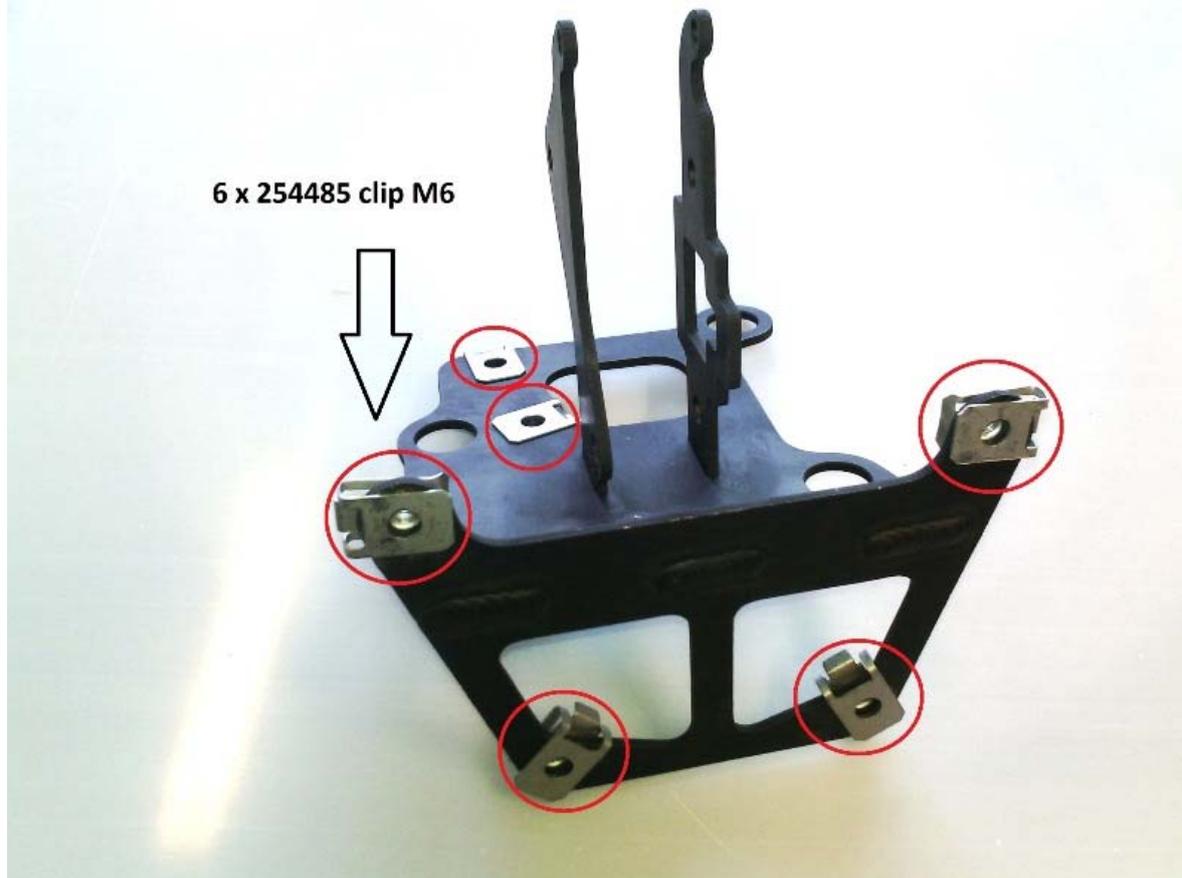
The following operations are necessary to install this kit:

- Modify the plastic instrument cluster mount (photos 1 and 2)
- Install the fastener hardware on the instrument cluster and on the metal mount (photos 3 and 4)
- Fasten the CLF ECU and voltage regulator on the metal mount (photos 5 and 6)
- Fasten the metal mount onto the instrument cluster mount (photos 7 and 8)
- Remove the lower plastic fork end piece (P/N 893113) from the motorcycle.
- Fit the instrument cluster mount on the motorcycle (photos 9 and 10)
- Install the supplementary CLF wiring harness, routing correctly as indicated (photo 11)
- Connect the supplementary wiring harness to the CLF (photo 12) and to the left hand vehicle wiring harness (photo 13).
- Connect the front speed sensor (photo 14) and the rear speed sensor (photo 15) to the supplementary wiring harness.
- Bridge pins 10 and 17 (photo 16) on the ABS ECU connector to disable ECU diagnosis (and prevent activation of the alarm warning lamp on the instrument cluster). Insulate and cover the connector with insulating tape .  
**The step is optional. However, if it is not performed, the ABS warning lamp will remain permanently lit on the instrument cluster.**

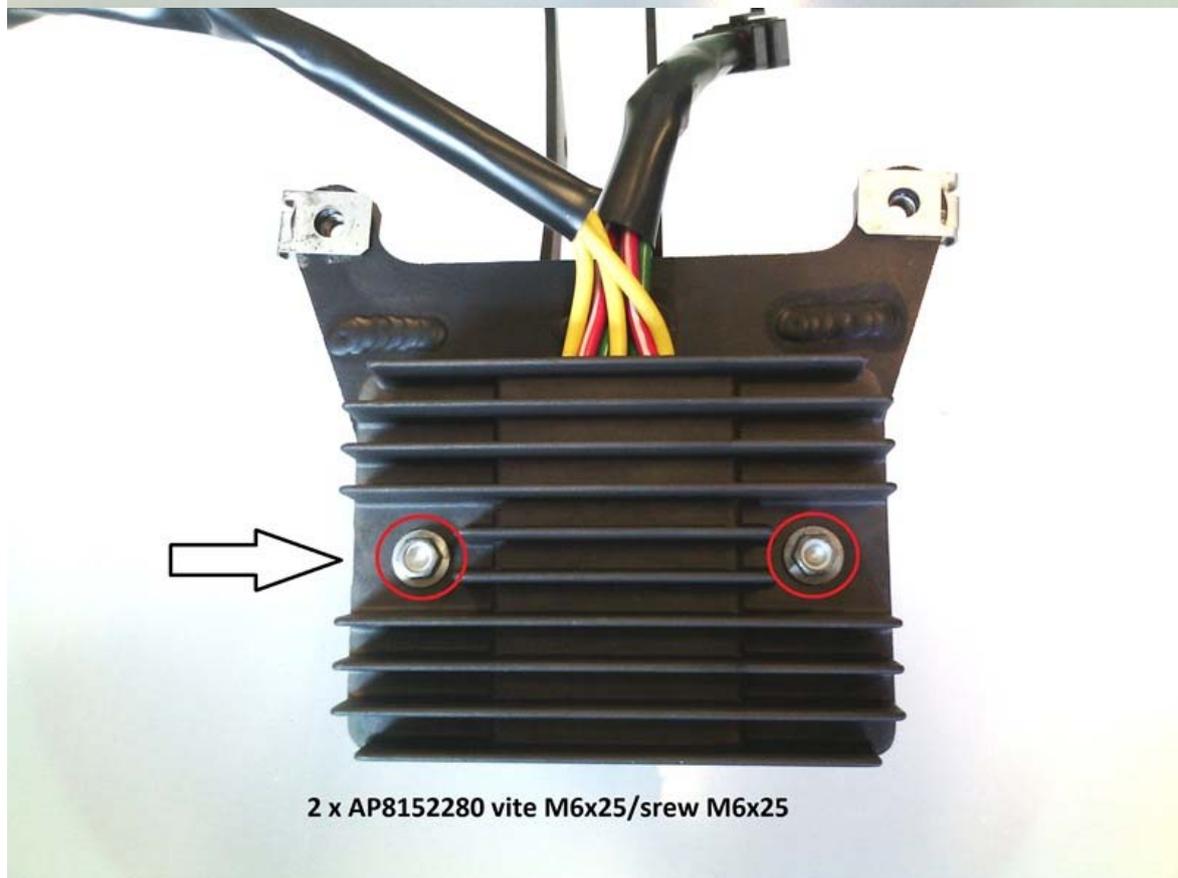
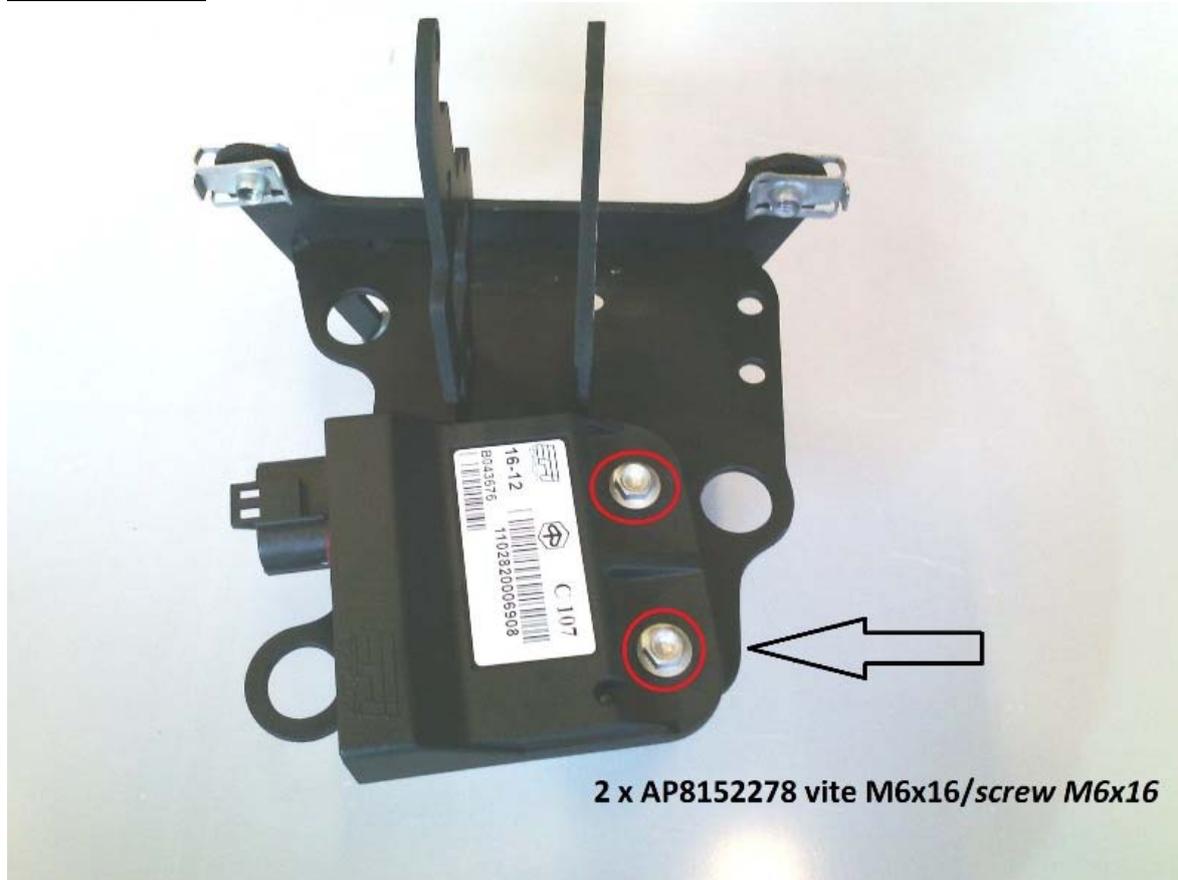
Photos 1 and 2



Photos 3 and 4

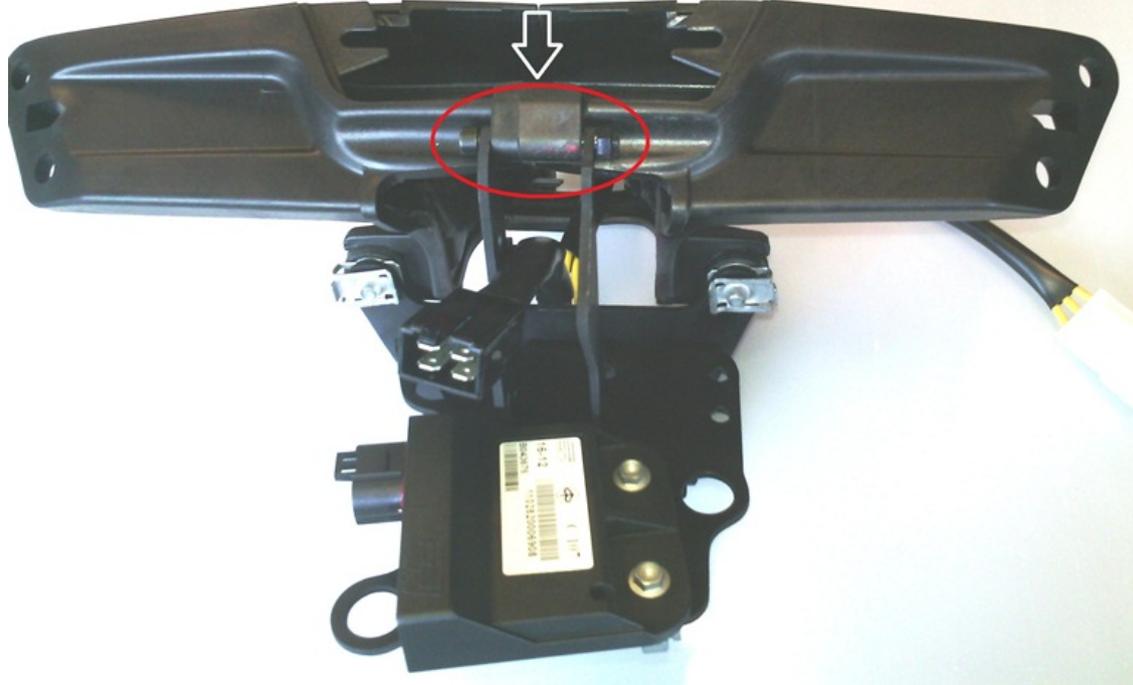


Photos 5 and 6



Photos 7 and 8

- 1 x COVHIC4025 vite M5x40/screw M5x40
- 1 x COVMTC0000 dado M5/M5 nut



- 2 x AP8152280 vite M6x25/screw M6x25



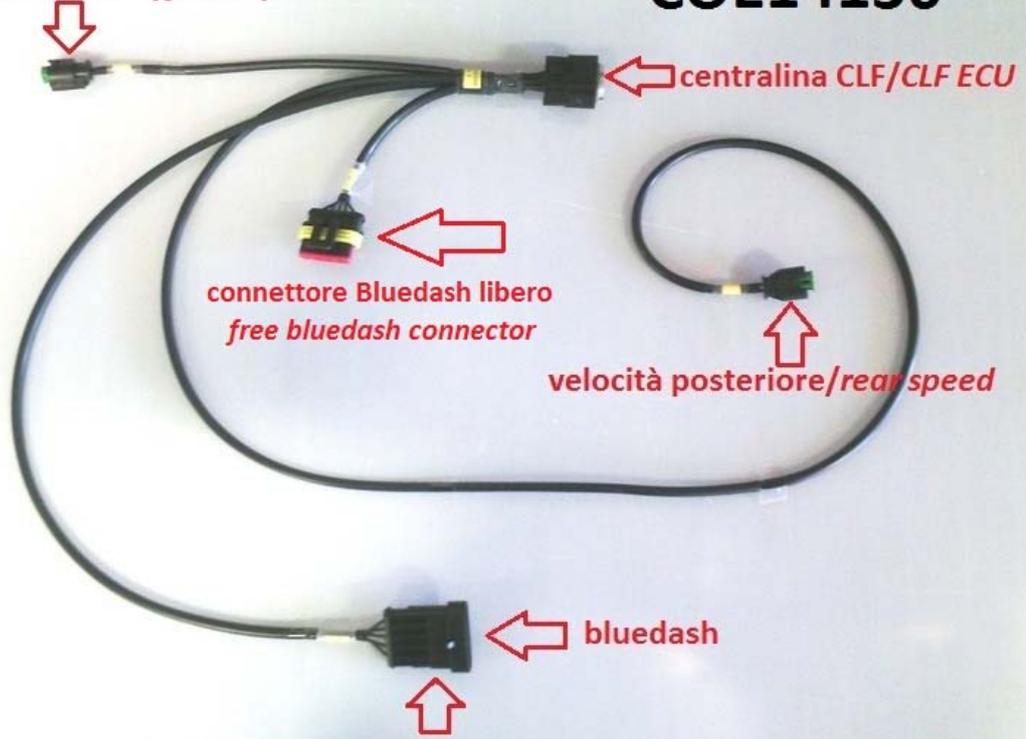
Photos 9 and 10



Photos 11 and 12

velocità anteriore/front speed

**COE14136**



centralina CLF/CLF ECU

connettore Bluedash libero  
free bluedash connector

velocità posteriore/rear speed

bluedash

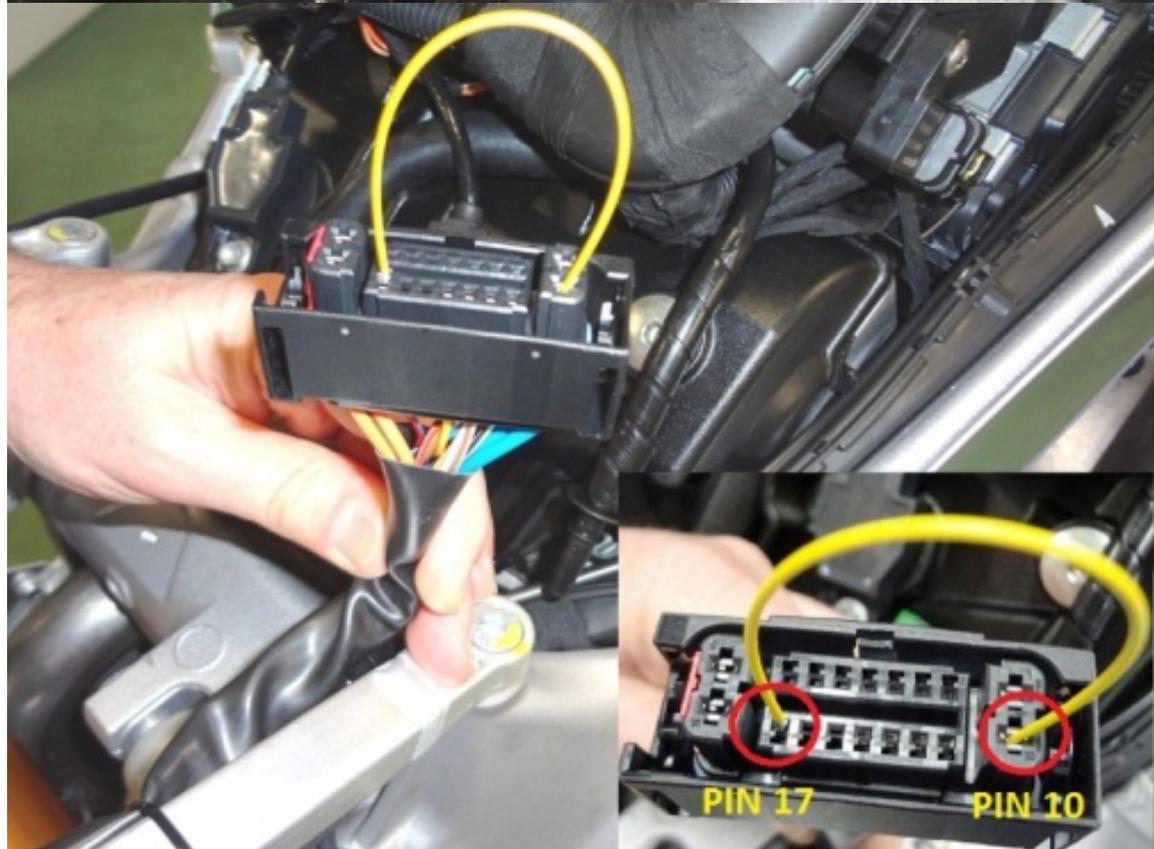
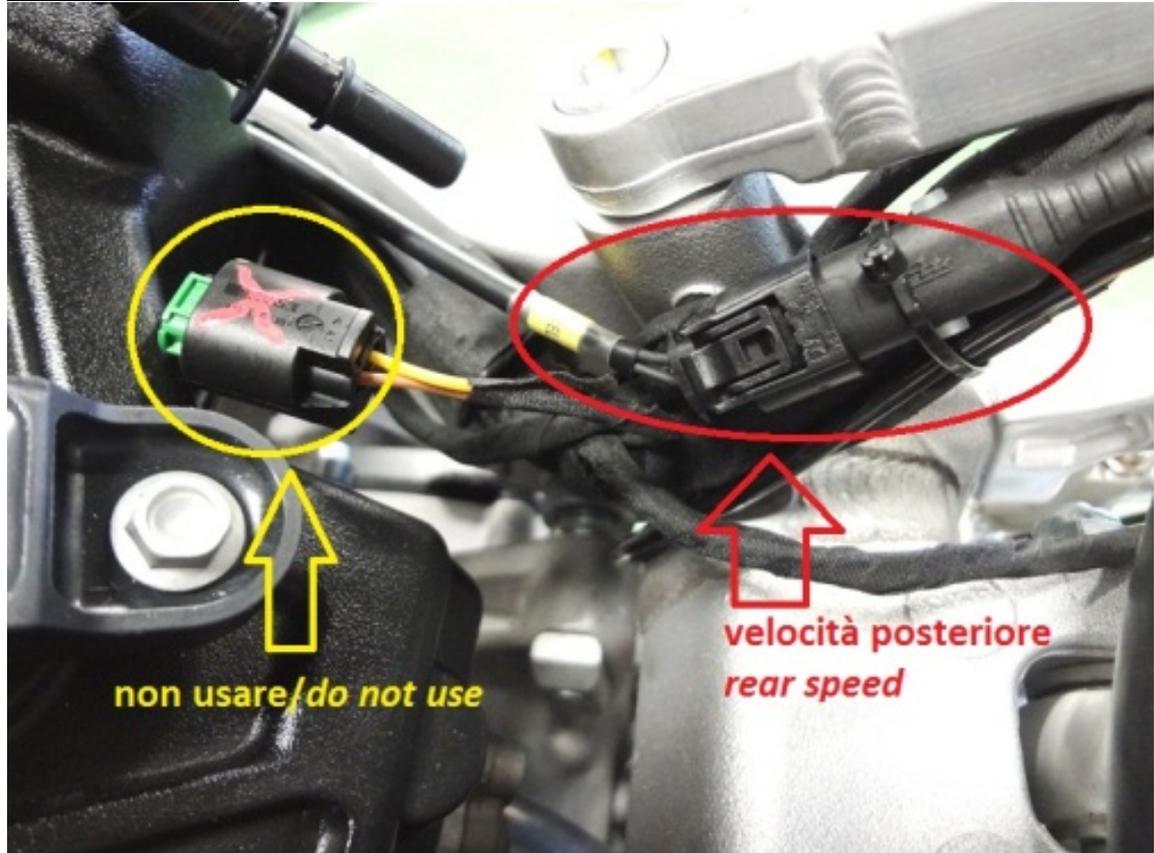
connettere al cablaggio veicolo / to be connected to motorcycle wiring



Photos 13 and 14



Photos 15 and 16



**COMPLETE LIST OF PART NUMBERS DESCRIBED IN THIS MANUAL**

Code	Description	Q.	order
COE15059	MARELLI RACING ECU, RSV4 RR/LE MY2015	1	
COE15070	RSV4 MY2015 INSTRUMENT CLUSTER, NO IMMO	1	
COE15062	CIRCUIT POWER SWITCH	1	
COE15001	SIDE STAND RETRACTED CONNECTOR	1	

## Kit of components for removing ABS

Code	Description	Q.	order
COT140199	ECU MOUNT, SST 2015	1	
B043676	TONE WHEEL ACQUISITION ECU - CLF	1	
COE14136	CLF CONNECTOR WIRING HARNESS	1	
254485	M6 SPRING PLATE	6	
CO8220150	RUBBER WASHER	2	
AP8121728	T-SHAPED BUSHING	4	
AP8152278	M6X16 HEX HEAD SCREW	2	
AP8152280	M6X25 HEX HEAD SCREW	4	
COVHIC4025	SHC SCREW M5X40	1	
COVMTC0000	M5 ERGAL FLANGED NUT	1	

**Aprilia Racing S.r.l.***Sede operativa:**Via G. Marconi 9**30033 Noale (VE) Italy***Info and technical support:** [racing\\_support@aprilia.it](mailto:racing_support@aprilia.it)**Website:** <http://www.serviceaprilia.com/public/racing/index.asp>