

# MARATHON 125

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Chassis workshop manual



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# *Introduction*



This workshop manual contains the main electromechanical checks, as well as the general essential checks and the fitting of components that are supplied unattached, in order to make delivery of the motorcycle newly arrived from the factory.

It is very important that the indications given in the manual are adhered to strictly. Work carried out in a superficial way, or worse still, not carried out at all, may lead to personal injury to the user, damage to the machine, etc., or simply be the source of disagreeable complaints.

**N.B.: Rieju, S.A.** reserves the right to make modifications at any time without any prior notification.

For any enquiry or for further information, please call the **Rieju, S.A.** Customer Service.

## **UPDATES FOR THE MANUALS**

Any update will be sent within a reasonable period of time. Each new CD-Rom updates the information in the previous one.

The list of contents will be updated if the modifications and/or variations in the pages do not ensure the consulting of the manual.

**IMPORTANT!** The series of workshop manuals must be considered as an actual work instrument, and the manuals can only maintain their “value” over time if they are kept constantly up to date.

**SYMBOLS USED IN THE MANUAL**

**ATTENTION!** Practical advice and information that refers to the safety of the motorcyclist (user of the machine) and the features that maintain the condition and integrity of the machine itself.



**ATTENTION!** Descriptions that relate to work that is dangerous for the technical maintenance staff, repair staff, other workshop staff or for those from outside, for the environment, for the machine and for the equipment.



**DANGER OF FIRE**  
Operations that could cause a fire.



**DANGER OF EXPLOSION**  
Operations that could lead to an explosion.



**TOXIC**  
Indicates the danger of poisoning or inflammation of the primary respiratory tracts.



**MEMBER OF TECHNICAL STAFF RESPONSIBLE FOR THE MECHANICAL MAINTENANCE**  
Operations that assume competence in the field of mechanics/motorcycles.



**MEMBER OF TECHNICAL STAFF RESPONSIBLE FOR ELECTRICAL MAINTENANCE**  
Operations that assume competence in the field of electricity/electronics.



**NO!**  
Operations that must be avoided.



**WORKSHOP MANUAL**  
Information to be gleaned from this documentation.



**SPARE PARTS CATALOGUE**  
Information to be gleaned from this documentation.



## ABBREVIATIONS USED IN THE MANUAL

F	Figure
T Tq	Tightening torque
P	Page
Ap	Part
S	Section
Diag	Diagram
T	Table
B	Bolt

**N.B.:**

The illustrations frequently show securing or adjustment bolts or screws, indicated by the letter **B**. The **number** following this letter indicates the quantity of identical bolts (**B**) or screws to be found on the unit or component being described and its corresponding illustration. A letter **without a number** indicates that the **quantity is 1**. In the case of **different bolts** or screws shown in the same figure, the **B** will be followed by the number and by a **lower-case letter** (e.g.: **B4a**).

The refitting of units and components is normally done in this **opposite way** to dismantling operations (except for a specific description).



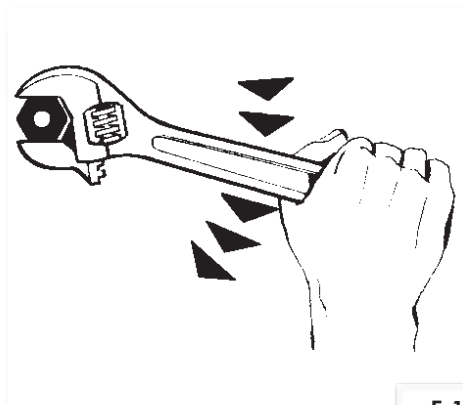


## GENERAL WORK RULES

- The **tips**, **recommendations** and **warnings** that follow are aimed at ensuring that work is carried out in a rational way and with maximum operational safety, thereby eliminating significantly the chances of accidents, injury and damages of any nature and downtimes. They should therefore be scrupulously observed.

### TIPS:

- Always use equipment of an optimum quality.
- Use specially designed equipment, in accordance with European guidelines, to raise the machine.
- While carrying out work, keep tools within reach, as far as possible according to a predetermined sequence, and in any event never on the machine or in areas that are hidden or difficult to access.
- Keep the work area clean and tidy.
- When tightening nuts and bolts, begin either with those with the **larger diameter** or the inner ones, proceeding to tighten them in successive steps in a criss-cross pattern.
- The correct method is using a set gap spanner, with a pulling rather than a pushing action.
- Adjustable spanners (F. 1) should only be used in an emergency, e.g. when the correct size of set spanner is not available. When force is applied to these, the mobile jaws tend to open, with the risk of possible damage to the bolt head or nut, as well as obtaining an unreliable tightening torque. In any event, they must be used as illustrated in Figure 1.
- Except in special service cases, a **work sheet** should be prepared for the customer, setting out all the work carried out and notes about any possible future checks.

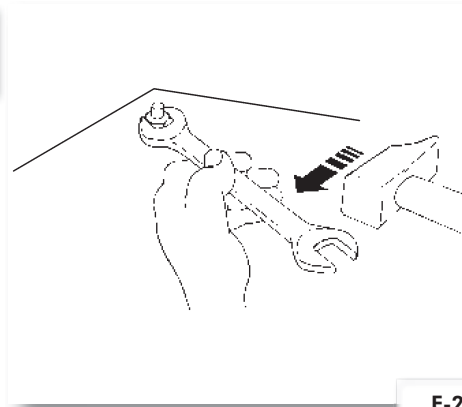


F-1

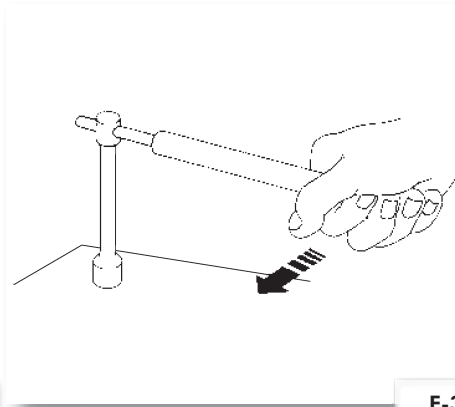


## RECOMMENDATIONS

- **Before beginning** any work on the motorcycle, wait for each and every one of the machine's components to **cool down completely**.
- If the operations envisage the use of two mechanics, they need to agree in advance on the tasks to be performed and synergies.
- Always check that a component has been fitted correctly before proceeding to fit another.
- Lubricate the (envisaged) parts before refitting them.
- Gaskets, sealing rings, rubber rings and keys must be renewed each time they are removed.
- The par values indicated in the manuals refer to the **"final tightness"**, and need to be reached progressively, step-by-step.
- Loosening and tightening operations on aluminium alloy parts (crankcase) must be performed when the **engine is cold**.
- Always use screwdrivers of the correct size for the screws on which they are to be used.
- **Never work in uncomfortable conditions or those of precarious stability of the motorcycle.**
- **Never re-use a gasket or rubber ring.**
- **Never tighten or loosen nuts and bolts with pliers, since, in addition to not exercising enough locking force, this can damage the bolt head or the nut.**
- **Never strike the spanner with a hammer (or other tool) to loosen or tighten nuts and bolts (F-2).**
- **Never increase the leverage by inserting a pipe over the spanner (F-3).**



F-2



F-3



**Never use naked flames under any circumstances.**

**Never leave open and unsuitable containers** containing petrol where others are passing, close to heat sources, etc.



**Never use petrol** as a cleaner to clean down the machine or to wash the workshop floor. Clean the various components with detergent with a low flammability rating.



**Never suck or blow** into the petrol supply pipe.

**Never carry out soldering or welding** in the presence of petrol. Remove the fuel tank even if it is completely empty, and disconnect the negative cable (-) from the battery.

**Never leave the motorcycle with the engine running in closed or poorly aired spaces.**



**Before carrying out any work,** , make sure the motorcycle is perfectly stable.



F-4



*Familiarising yourself with the  
motorcycle*

MAINTENANCE OPERATIONS	1 <sup>st</sup> SERVICE 500 KMS.	2 <sup>nd</sup> SERVICE 2.500 KMS.	SER. EVERY 2.000 KMS.
Check the braking system	•	•	•
Check the transmission oil level	Change	•	Change
Check chain tension and wear	•	•	•
Check suspensions	•	•	•
Check, adjust and grease levers and cables	•	•	•
Check wheel centring and spoke tensions	•	•	•
Clean and grease the air filter	•	•	•
Check and adjust the carburettor	•	•	•
Check and adjust the spark plug or renew	•	•	•
Check the tightness of the nuts and bolts on the chassis and on plastic units	•	•	•
Check the electrical system	•	•	•
Check wear on piston rings	•	•	•
Check radiator coolant levels	•	•	•
Check the exhaust system	•	•	•
Check the functioning of the oil pump	•	•	•

## TECHNICAL SPECIFICATIONS AND CHARACTERISTICS

Dimensions	MARATHON	MARATHON PRO
Total length	1165 mm.	1145 mm.
Total width	800 mm.	800 mm.
Total height	1165 mm.	1145 mm.
Seat height	890 mm.	870 mm.
Distance between wheel shafts	1405 mm.	1380 mm.
Minimum distance to the ground	310 mm.	288 mm.
Dry weight	115 kg.	
Engine		
Type	4 stroke	
Number of gears	6 gears	
Make	Yamaha	
Model	WR (EU 3) liquid cooled	
Cylinder and arrangement	1 forward-inclined	
Cylinder capacity	124.9 cc	
Diameter x stroke	52 x 58.6 mm	
Starting system	Using kick-start lever / electric start button	
Lubrication system	By pump	
Type of oil	4-stroke SAE 10 W-30 / SAE 20 W-50	



Transmission oil	
Type	SAE 10W 30 / SAE 20W-50
Quantity	1000 c.c.
Air filter	
	Wet-type foam rubber
Fuel	
Type	95 octane lead-free petrol
Fuel tank capacity	6,3 L.
Carburettor	
	KEIHIN 39s
Spark plug	
Type	NGK CR 8 E
Distance between electrodes	0,6 - 0,7 mm.
Clutch	
	Multi-disk in oil bath
Primary transmission	
Clutch crown wheel	Z = 71
Engagement gear	Z = 20
Transmission ratio	1: 3,55
Secondary transmission	
Engine output sprocket	Z = 14
Rear wheel sprocket	Z = 56
Transmission ratio	1: 4
Chain	428 x 136 links





GEAR CHANGE				
Speed	Primary shaft	Secondary shaft	Gear ratio	
1 <sup>a</sup>	Z = 12	Z = 34	1: 2,83	
2 <sup>a</sup>	Z = 16	Z = 30	1: 1,87	
3 <sup>a</sup>	Z = 22	Z = 30	1: 1,36	
4 <sup>a</sup>	Z = 21	Z = 24	1: 1,14	
5 <sup>a</sup>	Z = 23	Z = 22	1: 0,95	
6 <sup>a</sup>	Z = 25	Z = 21	1: 0,84	



Suspension	MARATHON	
Front	Front 37 mm Ø bars. CASTROL 10 W FORK OIL , 310 cc per bar.	
Rear	Hydraulic shock absorber.	
Suspensión:	MARATHON PRO	
Front	40 mm Ø inverted hydraulic forks. CASTROL 10 W FORK OIL , 325 cc per bar.	
Rear	Gas shock absorber with separate bottle and spring preload adjustment.	
Brake disks	MARATHON	
Front	260 mm Ø	
Rear	180 mm Ø	
Brake disks	MARATHON PRO	
Front	300 mm Ø Wave type	
Rear	200 mm Ø Wave type	
Tyres	MARATHON	
Front	80/90-21, with tube, 1.7 kg/cm <sup>2</sup>	
Rear	110/80-18, with tube, 1.8 kg/cm <sup>2</sup>	
Tyres	MARATHON PRO	
Front	100/80 – 17, with tube, 1.8 kg/cm <sup>2</sup>	
Rear	130/70 – 17, with tube, 1.9 kg/cm <sup>2</sup>	
Electrical equipment		
Ignition	Electronic 12V 120W	
Voltage and wattage of bulbs	MARATHON	MARATHON PRO
Headlight	12V 35/35W	12V 35/35W
Side light	12V 5W	12V 5W
Rear light	12V 21/5W	Leds
Instrument panel	12V 1,2W	12V 1,2W
Turn indicators	12V 10W	12V 10W
Odometer lighting	12V 1,2W	12V 1,2W





TABLE OF TIGHTENING TORQUES			
Element	N*m	Kg*m	Notes
Front wheel bolt	38 - 52	3,8 - 5,2	
Front wheel bolt lock	17 - 23	1,7 - 2,3	
Rear wheel bolt	72 - 98	7,2 - 9,8	
Front/rear brake calliper	24 - 36	2,4 - 3,6	
Silencer	6 - 10	0,6 - 1,0	
Exhaust pipe side coupling	6 - 10	0,6 - 1,0	
Engine mounting bolt	20 - 26	2,0 - 2,6	
Handlebar lever bolt	2 - 4	0,2 - 0,4	
Shock absorber bolts	38 - 52	3,8 - 5,2	
Forks bolt	51 - 69	5,1 - 6,9	
Handlebar securing bolt	18 - 24	1,8 - 2,4	
Top steering nut	18 - 24	1,8 - 2,4	
Intermediate steering nut	25 - 34	2,5 - 3,4	
Swinging arm bolt	60 - 75	9,0 - 7,5	

 Grease



## UNPACKING

- Unpack the motorcycle following the directions present in the packaging itself, which must then be disposed of in accordance with existing regulations.

## “AESTHETIC APPEARANCE” CHECK

- Check visually that all components made of plastic material are fitted correctly and that the machine does not have any visible scratches, marks, etc.

## DETAILS FOR IDENTIFICATION

### Machine Identification Number

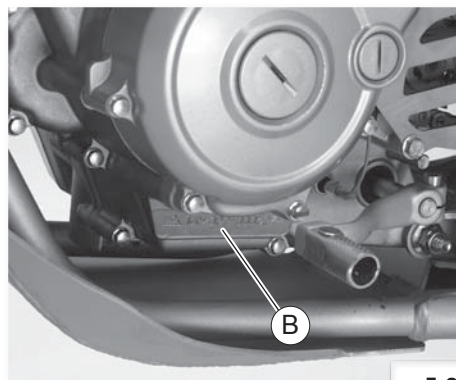
- The machine's identification number (A/F-2) can be found stamped on the steering column. This identification number is used to identify the motorcycle.

### Engine identification number

- The details for identifying the engine (B/F-1) can be seen on the left-hand crankcase.



F-1



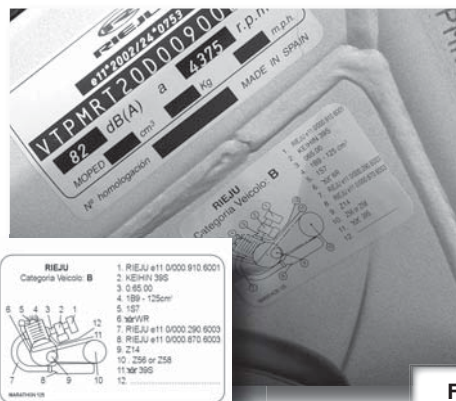
F-2

## SAFETY LABEL

This contains the machine's identification details as laid out in Directive 97/24/CE. It is essential indicate the machine's identification details when requesting spare parts.

This label must not be replaced or altered.

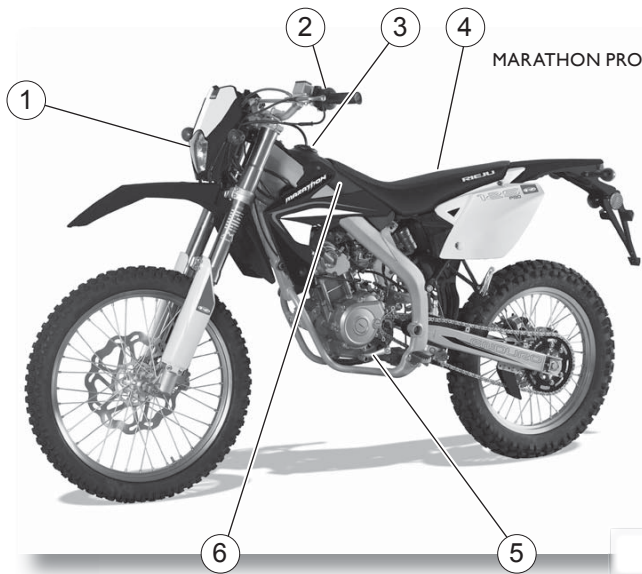
It is located on the left-hand side of the chassis close to the steering column.



F-3



**IDENTIFICATION OF MAIN ELEMENTS  
(left-hand side)**



1. Headlight.
2. Left-hand controls.
3. Fuel tank cap.
4. Seat.
5. Gear change pedal.
6. Fuel tank.

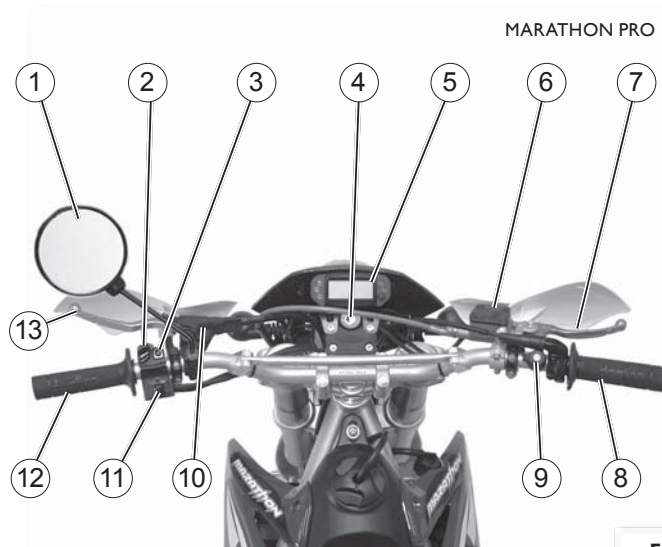
**IDENTIFICATION OF MAIN ELEMENTS  
(right-hand side)**



7. Right-hand controls.
8. Forks.
9. Rear brake pedal.
10. Pillion passenger foot-rests.
11. Exhaust pipe.
12. Number plate holder.



## CONTROLS



### Controls / instruments

1. Rear-view mirror.
2. Light switch (dipped beam/main beam).
3. Horn button.
4. Main switch.
5. Instrument panel.
6. Front brake cylinder.
7. Front brake lever.
8. Throttle twist grip.
9. Electric start.
10. Manual choke lever.
11. Turn indicator switch.
12. Left-hand handlebar grip.
13. Clutch lever.

F-6

## KEYS

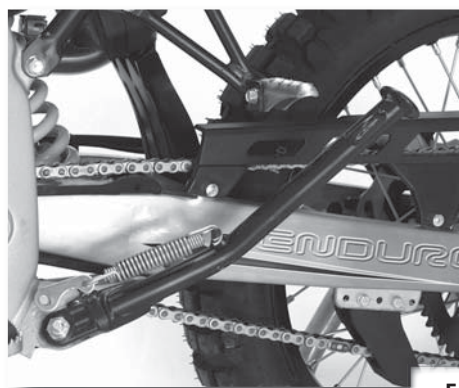
- The machine is supplied with two keys with a numerical code that allow:
  - The ignition to be switched on.
  - The lights to be switched on.
  - The steering to be locked.

## STEERING LOCK

- **Locking:** With the handlebars turned fully to the left, push the key fully in and turn it to the left.
- **Unlocking:** Turn the ignition key to the right.

## PROP STAND

- Check that the prop stand is well secured and moves properly. The retention system, consisting of traction springs, should also be checked frequently.

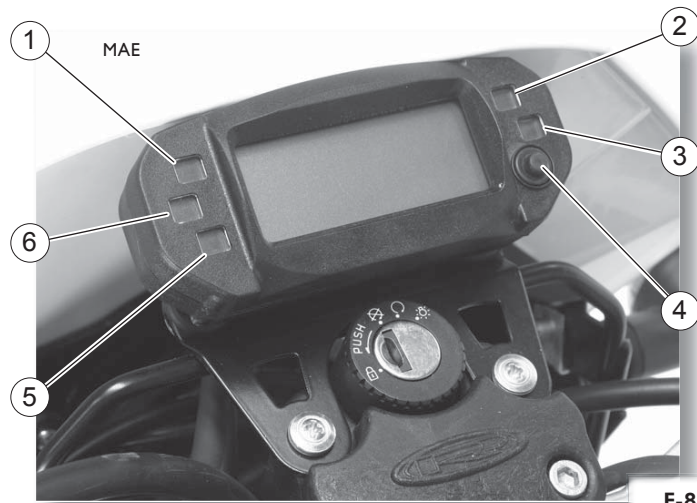


F-7



**INSTRUMENT PANEL**

- 1- **Turn indicators indicator light.**  
This indicator light flashes when the turn indicator switch is moved to the left or to the right.
- 2- **Oil level indicator light.**  
This indicator light comes on when the oil level is low.
- 2b- **Oil temperature indicator light.**  
This indicator light comes on when the oil temperature is too high.
- 3- **Coolant temperature indicator light.**  
This indicator light comes on when the coolant temperature is too high. When the indicator light comes on, stop the engine immediately.
- 4- **Mode button.**  
See programming section.
- 5- **“N” neutral indicator light.**  
This indicator light comes on when the transmission is in the neutral position.
- 6- **Main beam indicator light.**  
This indicator light comes on when the headlight is on main beam.



F-8



F-9



## TYRES

ENDURO	dimensions	SM	dimensions
FRONT	80/90 - 21 48P	FRONT	100/80 - 17 52S
REAR	110/80 - 18 58P	REAR	130/70 - 17 62S

## CHECKING THE PRESSURE

Tyre pressures should be checked and adjusted with the tyres at ambient temperature.



ENDURO	bar
FRONT	1,7 kg / cm <sup>2</sup>
REAR	1,8 kg / cm <sup>2</sup>

SM	bar
FRONT	1,8 kg / cm <sup>2</sup>
REAR	1,9 kg / cm <sup>2</sup>

F-10

## FUEL TANK

Desenroscar el tapón y reabastecer el tanque prestando atención en no superar el límite Unscrew the cap and refill the tank, taking care not to exceed the limit (A/F-11). If spilt petrol can be seen after refilling the motorcycle, clean up immediately. Use normal lead-free 95 octane.

**Fuel tank capacity:** Total: 6 ± 0,5 litres



F-11



### COOLANT

#### Check

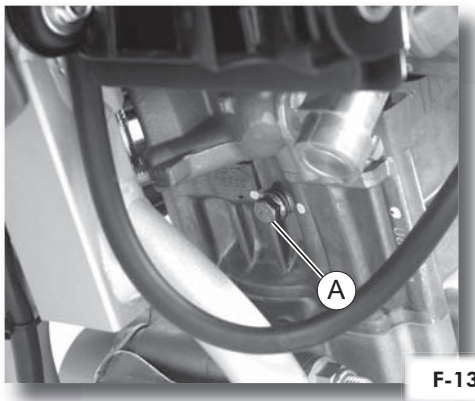
1. Remove the cap (A/F-12) with the engine cold, first allowing the residual pressure to escape.
2. Check the level of coolant with engine cold, because this level varies according to the temperature of the engine. The level of coolant should cover the panel of the radiator.
3. If the level is lower, add coolant.
4. Replace the cap.



### RENEWING COOLANT

1. Place a container underneath.
2. Stand the machine on a flat surface.
3. Drain the cooling circuit via the drain screw (A/F-13).

If a larger quantity of liquid than usual is required to reach the level indicated, or if it is necessary to make replenishments too frequently, check the entire cooling circuit.





## TRANSMISSION OIL

\* Remove the crankcase protector (Marathon Pro).

### Changing the fluid

1. Stand the machine on a flat surface.
2. Warm up the engine for several minutes.
3. Stop the engine. Place a container under the engine for the oil and remove the filler cap (A/F-15).
4. Remove the drain bolt (C/F- 15) and the screw (A/F-17) to allow the oil to flow out.
5. Refit the drain bolt (C/F-17) and tighten it.
6. Fill the engine with oil until it is between the (a) and (b) level control lines (A/F-16). Refit the screw (C/F-18) into the orifice, screw on the filler cap (A/F-15) and tighten it.

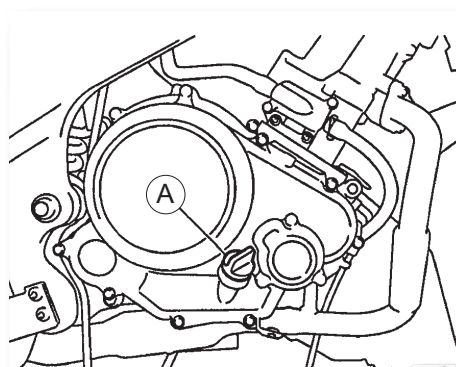
It is recommended to use SAE 10 W 30 / SAE 20 W 50 oil. It has a capacity of 1,000 cc.

Start up the engine and warm up for a few minutes. While the engine is warming up, check that there are no oil leaks. If there are, stop the engine immediately and discover what the cause is.

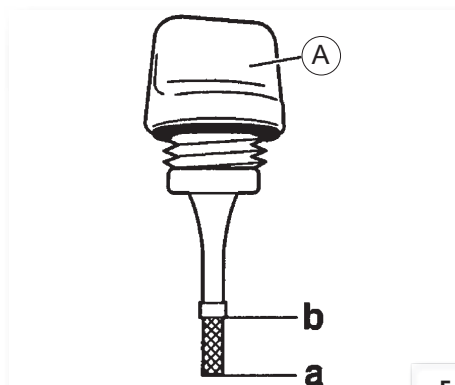
MARATHON PRO



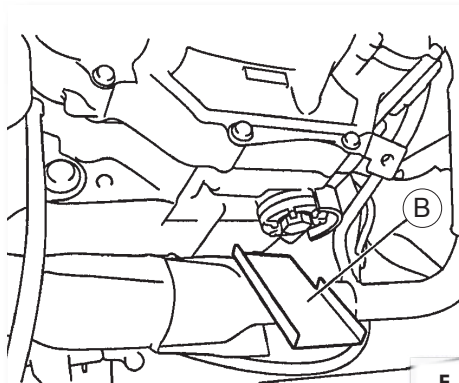
F-14



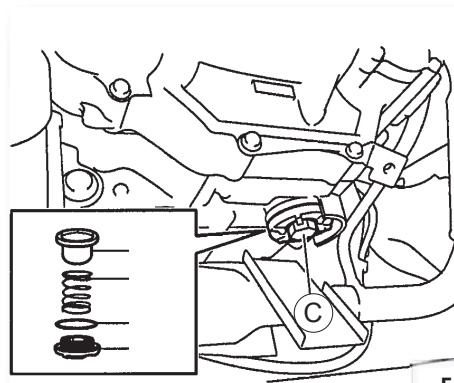
F-15



F-16



F-17



F-18



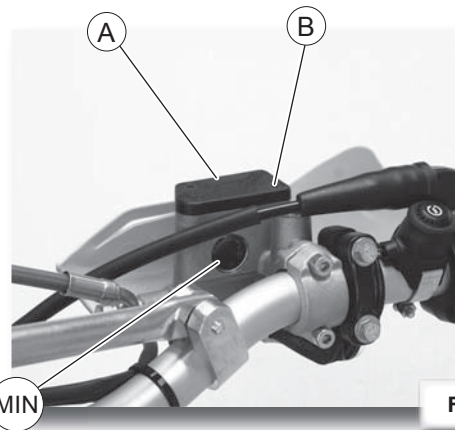


### BRAKE FLUID

#### Check

When checking the fluid level, turn the handlebars to ensure that the top of the master cylinder is level.

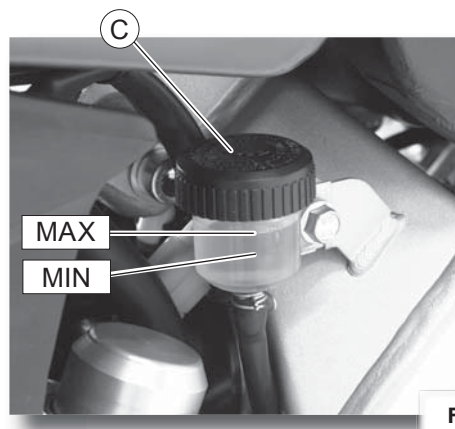
Check that the brake fluid level is above the minimum level mark on the rear brake fluid reservoir, and check that there is fluid for the front brake by looking through the inspection hole in the cylinder.



#### Changing the fluid

For the front brake, remove the cover (A/F-19) after having removed the screws (B/F-19). For the rear brake, remove the cap (C/F-20).

The quality of the fluid used must comply with the standards specified; since otherwise the rubber seals may deteriorate, causing leaks and reducing the effectiveness of the brakes.



**Recommended brake fluid: DOT 4**



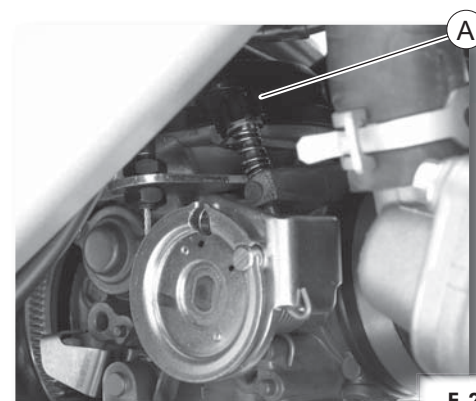
**ATTENTION:** Brake fluid is corrosive.

### ADJUSTING THE IDLING RATE

Start the engine and warm it up for a few minutes at 1,000 to 2,000 rpm, increasing it gradually up to a rate of 4,000 to 5,000 rpm. When the engine responds quickly to the throttle, this means that the engine has warmed up.

Adjust the engine idling speed by turning the fuel adjustment screw (A/F-21). Screwing in increases the rate, and unscrewing decreases it.

Check the ideal rate for the engine using an electronic tachometer connected to the spark plug cable.





## ADJUSTING THE TRANSMISSION CHAIN TENSION

The chain is adjusted by loosening the rear wheel shaft and screwing in or unscrewing the nuts and bolts adjacent to the shaft (A/ F-22), ensuring that there is the same distance on both sides of the shaft at all times.



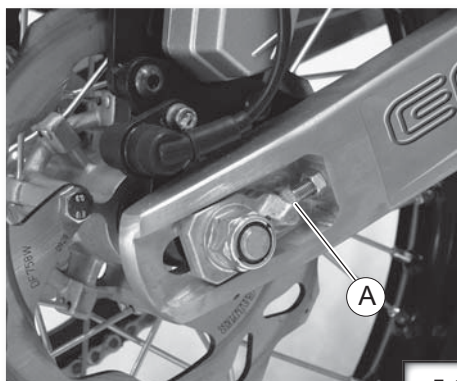
**ATTENTION:** Poor chain and wheel alignment may cause the chain to come off, as well as problems of stability on the motorcycle.

To check and adjust the chain, act on the rear wheel shaft, making sure to work at the point of maximum tension in the chain at all times.

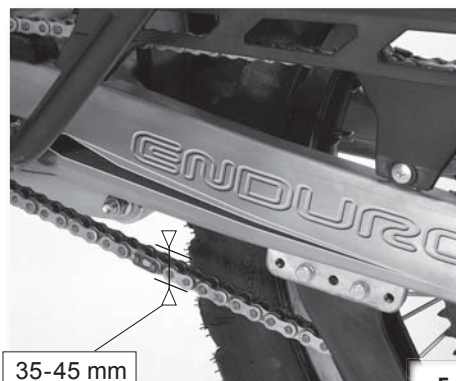
To check the free play, turn the rear wheel several times and check the tension at several points in order to find the point with the highest tension.

The motorcycle must be standing upright with its two wheels on the ground, and the free play of the chain should be from 30 to 45 mm. (F-23).

Be careful not to over-tighten the chain as this may cause damage to the engine and to the transmission. Keep the chain tension within the limits specified in the attached diagrams.



F-22



F-23

The chain should be cleaned and lubricated periodically. The chain is formed of a large number of parts that work one with the other. Failure to maintain the chain properly will cause it to wear rapidly, and it is therefore recommended to lubricate the chain periodically, using special chain lubrication oil.

Prior to lubrication the chain needs to be cleaned with a brush or a cloth to remove dirt and mud on the chain, and then apply the lubricant between the side plates, and on all the central rollers.

## *Removal*



### I. SEAT

Unscrew the two bolts (A/F-1) situated at the back of the seat.  
Then lift the seat at the back and pull it backwards to free it from the front anchorage.



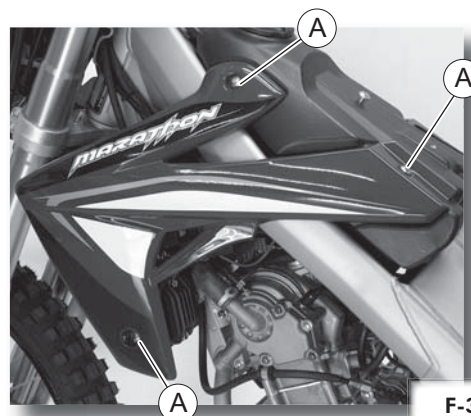
F-1



F-2

### 2. FRONT SIDE COVERS

\*Remove the seat.  
Unscrew the 3 bolts (A/F-3).  
Next, pull on the part to remove it.



F-3

### 3. REAR SIDE COVERS

Unscrew the 2 bolts (A/F-4). Next, pull on the part to remove it.



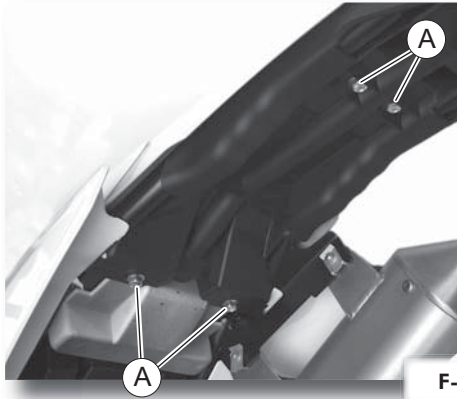
F-4



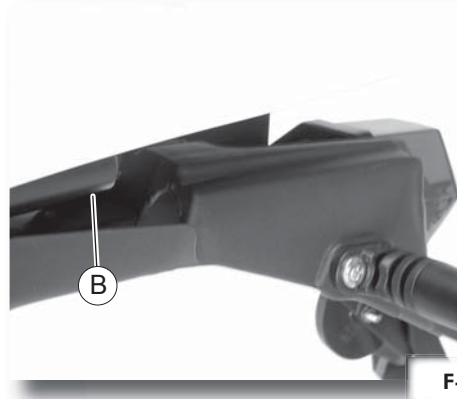
### 4. REAR COWLING

\* Remove the seat and the front side covers.

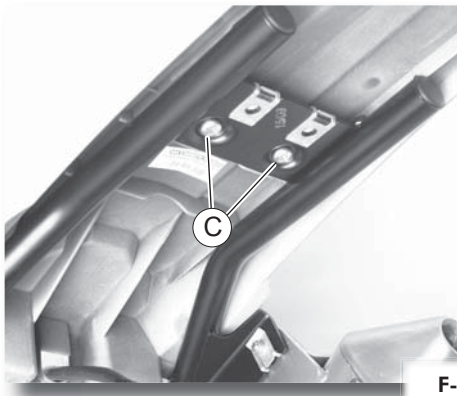
Unscrew the 4 bolts (A/F-5) located inside the rear wheel arch. Then pull the cowling backwards to free it from the chassis (B/F-6). Once the rear mudguard has been freed, unscrew the 2 screws (C/F-7).



F-5



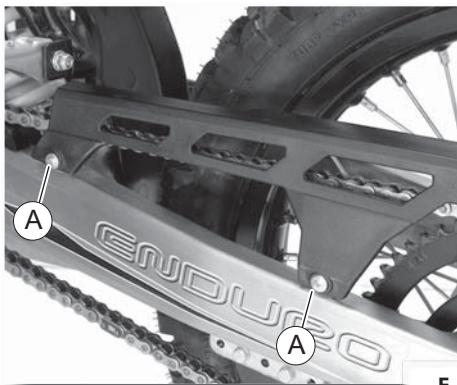
F-6



F-7

### 5. CHAIN PROTECTOR

Unscrew the 2 screws (A/F-8) and remove the protector.

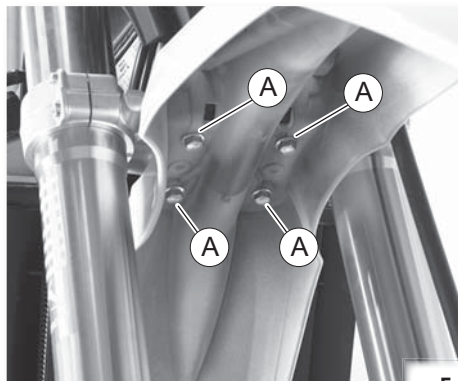


F-8



## 6. FRONT MUDGUARD

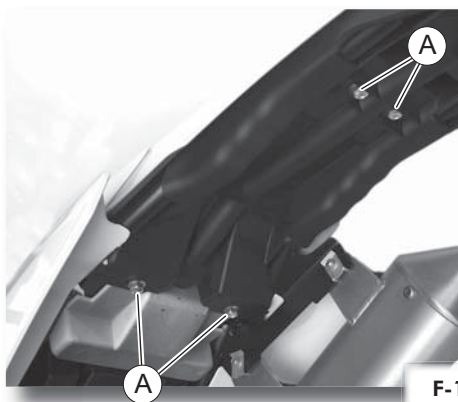
Unscrew the 4 bolts (A/F-9) located underneath the mudguard.



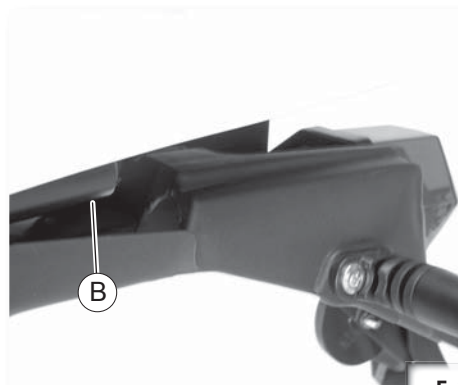
F-9

## 7. REAR MUDGUARD

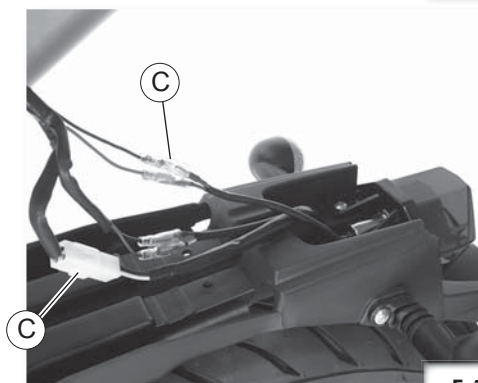
Unscrew the 4 bolts (A/F-10) located inside the rear wheel arch. Then pull the cowling backwards to free it from the chassis (B/F-11). Disconnect the rear turn indicators (C/F-12) and remove them (see section). Disconnect the rear light and remove it (see section).



F-10



F-11



F-12



## 8. FILTER CANISTER

\*Remove the seat and the rear side covers.

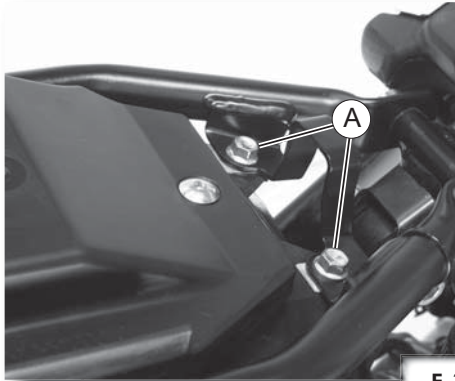
Remove the 2 bolts (A/F-13) from the top.

Unscrew the 2 bolts (B/F-14) located inside the rear wheel arch.

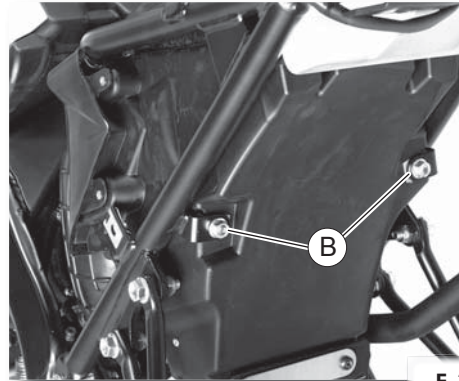
Retirar las bridas (C/F-15).

Remove the clamp (D/F-16) between the filter nozzle and the carburettor.

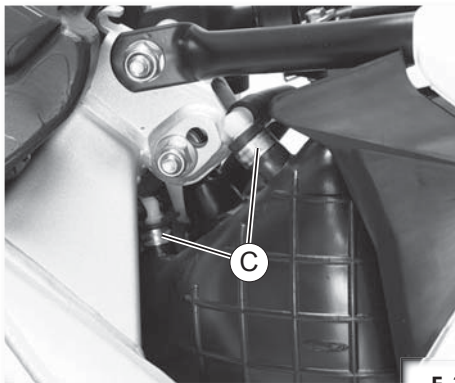
To extract the canister, pull it out backwards.



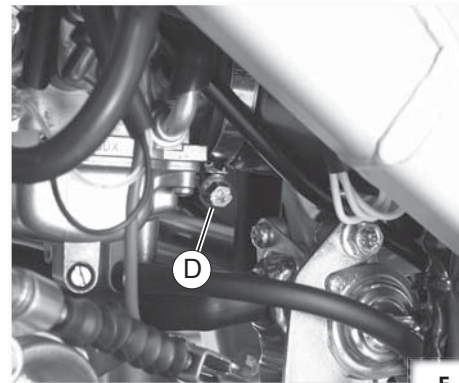
F-13



F-14



F-15



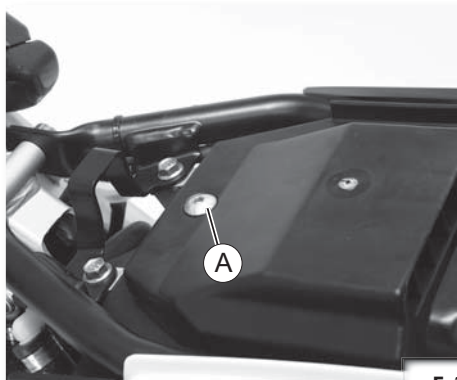
F-16



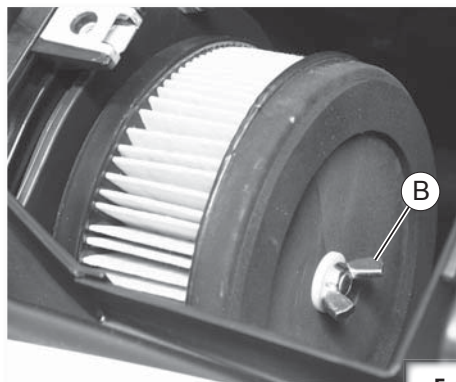
## 9. AIR FILTER

\*Remove the seat.

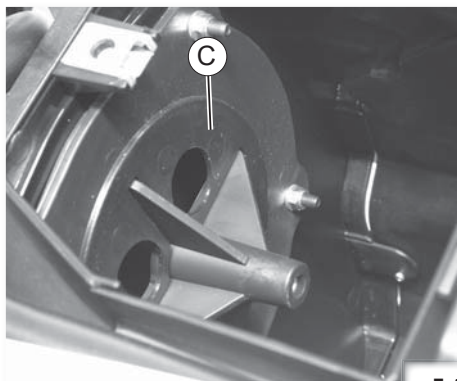
Remove the screw (A/F-17) from the filter cover.  
Loosen the nut (B/F-18) and withdraw the filter.



F-17



F-18



F-19



**ATTENTION:** Ensure that the part regulating the air intake is in the right position (C/F-19).



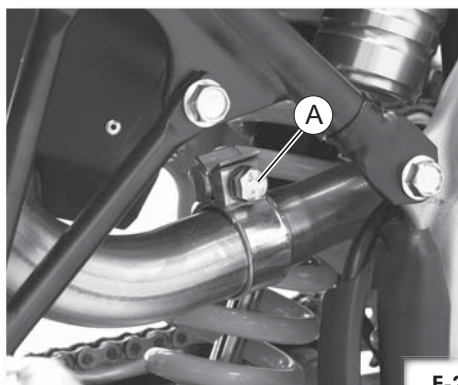


## 10. EXHAUST PIPE

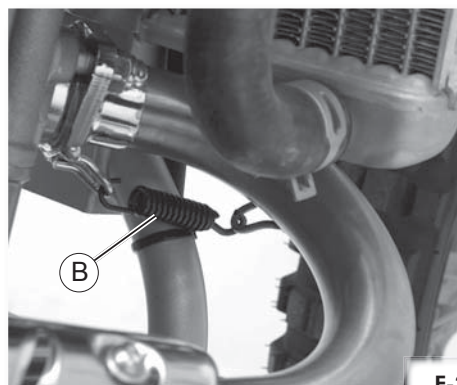
\* Remove the rear left-hand fairing and the silencer.  
Loosen the clamp (A/F-20) attaching the exhaust pipe to the silencer.  
Remove the spring (B/F-21) securing the exhaust pipe to the engine at the front.  
Then disconnect the breather pipe (AIS system) (C/F-22) and withdraw the exhaust pipe by pulling it forwards.



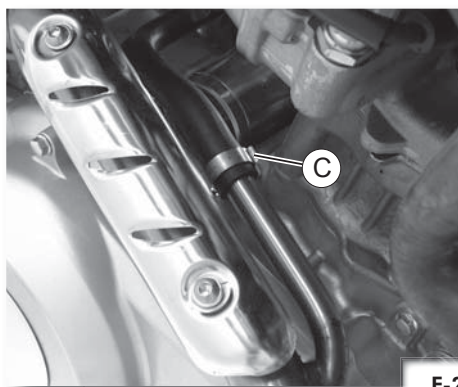
**ATTENTION:** Before removing the exhaust pipe, make sure it has cooled down.



F-20



F-21



F-22

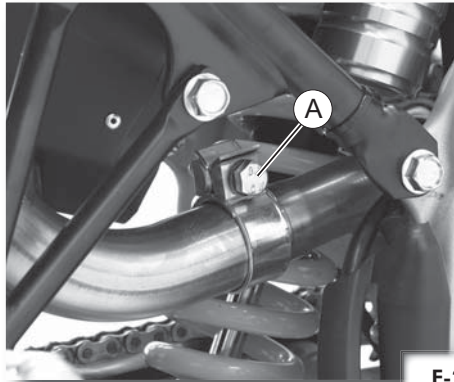


## 11. SILENCER

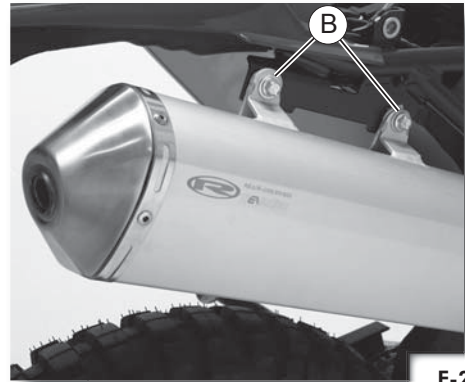
\*Remove the seat and the front right-hand cover.  
Loosen the clamp (A/F-23) securing the exhaust pipe to the silencer.  
Then unscrew the 2 bolts (B/F-24) securing the silencer to the chassis.  
To extract it, pull the silencer backwards.



**ATTENTION:** Before removing the silencer, make sure it has cooled down.



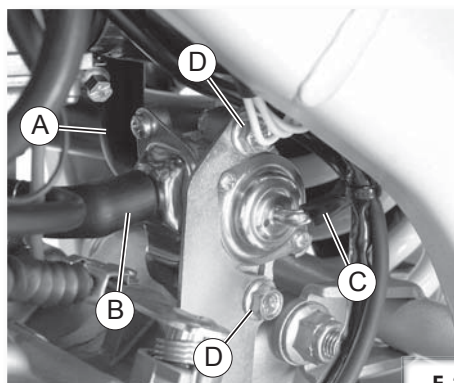
F-23



F-24

## 12. "AIS" SYSTEM (Secondary air valve)

Disconnect the pipes (A/F-25), (B/F-25) and (C/F-25).  
Then unscrew the 2 securing bolts (D/F-25).  
(A/F-25) pipe to air filter.  
(B/F-25) pipe to exhaust pipe.  
(C/F-25) pipe to carburettor nozzle.



F-25



**ATTENTION:** Pay attention to the position of the valve, to ensure it is refitted correctly. If it is not fitted correctly, it may burn out.

## 13. FUEL TANK

\* Remove the seat and the front side covers.



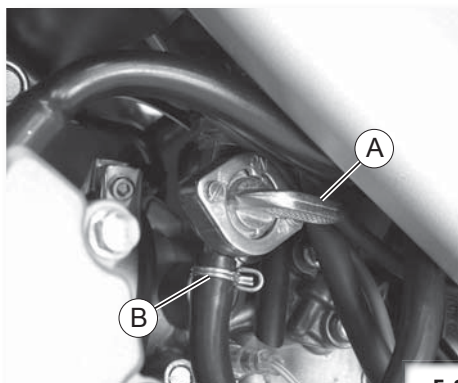
**ATTENTION:** Before removal, shut the fuel tap on the tank (A/F-26).

Remove the fuel tap pipe from the carburettor (B/F-26).

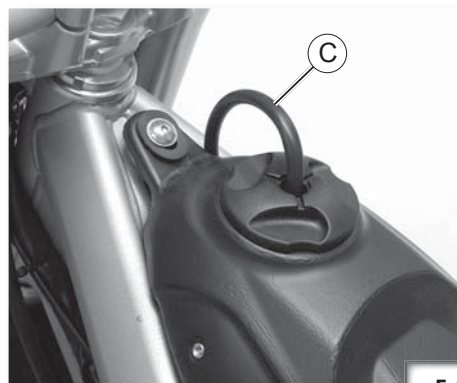
Extract the breather pipe (C/F-27).

Unscrew the screw (D/F-28) securing the tank to the chassis.

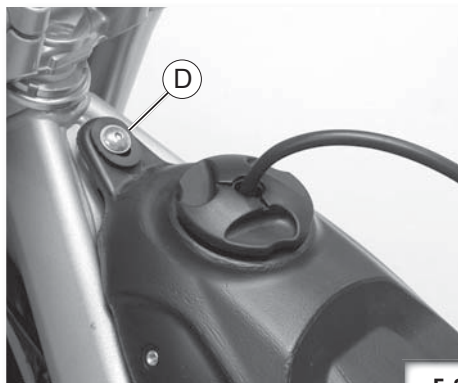
Then remove the tank (E/F-29) by pulling it upwards.



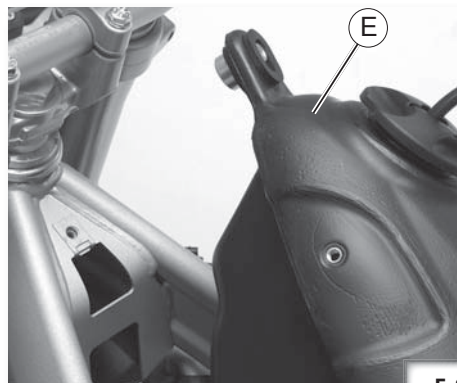
F-26



F-27



F-28



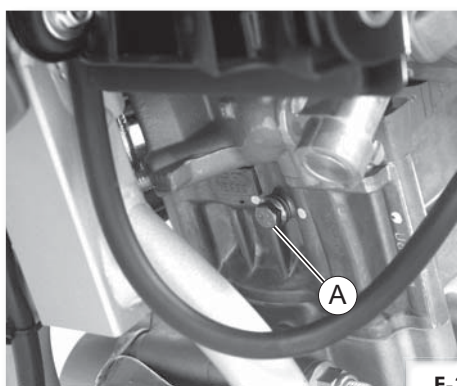
F-29



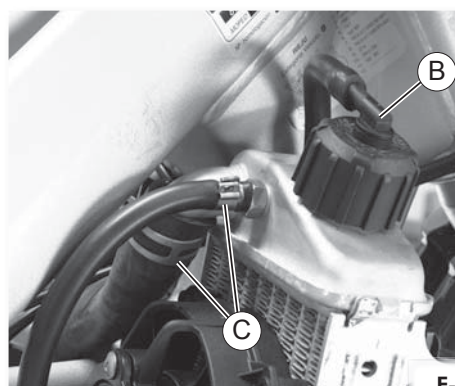


#### 14. RADIATOR

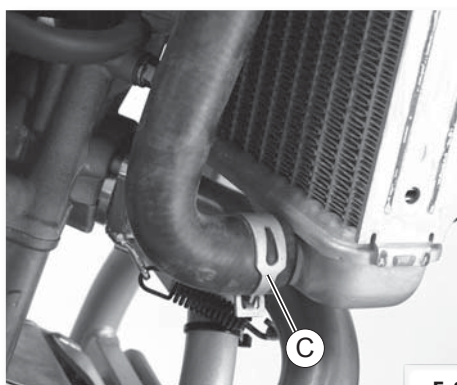
\* Remove the seat and the right-hand side cover.  
 Drain the cooling circuit via the drain screw (A/F-30).  
 Remove the coolant filler cap (B/F-31).  
 Remove the top and bottom radiator pipes (C/F-31-32).  
 Remove the air collector by pressing the nipples (D/F-33).  
 Remove the fan by extracting the 2 bolts (E/F-34).  
 Then unscrew the 2 bolts (F/F-35) securing the radiator to the chassis.



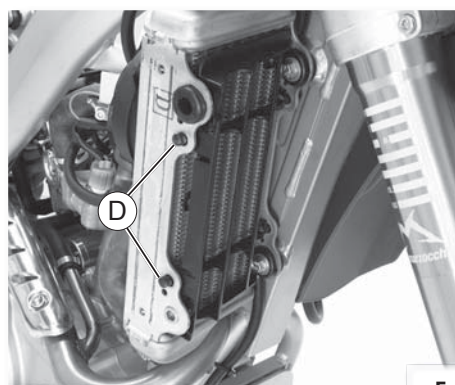
F-30



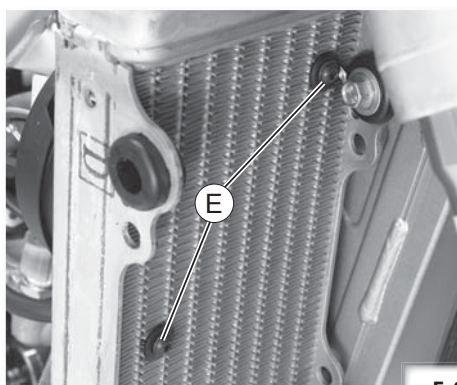
F-31



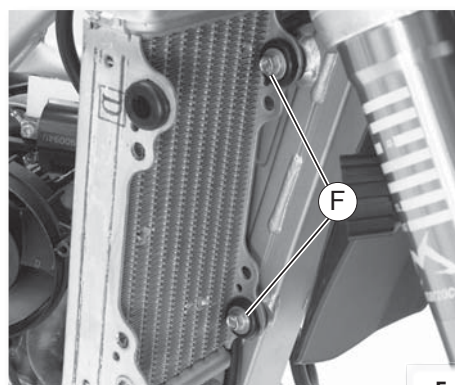
F-32



F-33



F-34



F-35

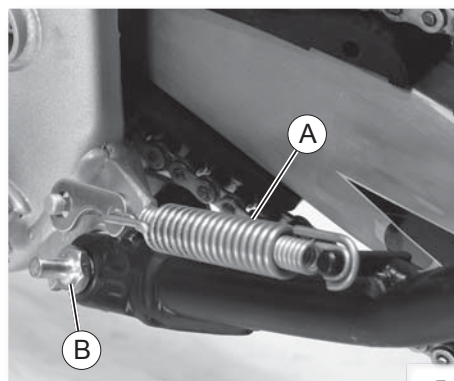
**15. PROP STAND**

**ATTENTION:** Secure the motorcycle before carrying out this operation.

Remove the tensioning spring (A/F-36). Then unscrew the nut (B/F-36) holding the bolt on the inside.



**ATTENTION:** Carry out this operation with the prop stand folded up.



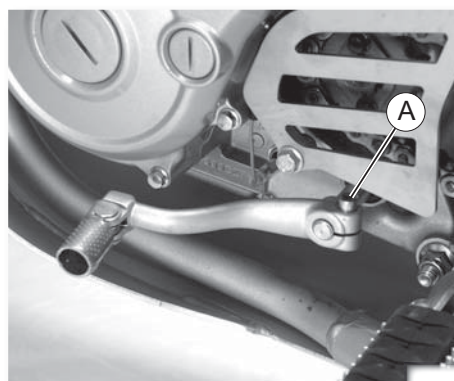
F-36

**16. GEAR LEVER**

Unscrew the securing bolt (A/F-37).



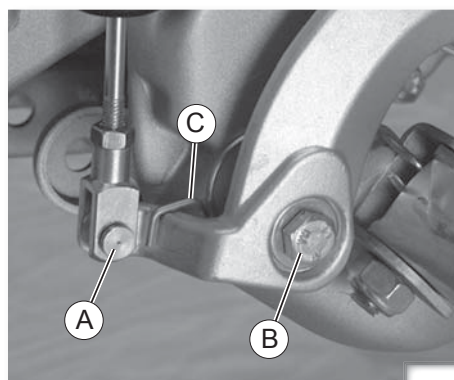
Then pull off the lever, taking care not to damage the shaft splines.



F-37

**17. REAR BRAKE PEDAL**

Unscrew the cotter pin (A/F-38). Then remove the bolt (B/F-38), the pedal and the internal spring (C/F-38).



F-38



## 18. SHOCK ABSORBER

\* Remove the seat, the front side covers, the rear fairings and the filter canister.  
 Unscrew the bolt and the top nut (A/F-39-41) securing the shock absorber to the chassis.  
 Unscrew the bottom bolt and the nut (B/F-40-42) from the link rod (**MARATHON PRO**).



**ATTENTION:** Before removal, secure the chassis at the bottom to prevent the swinging arm and the wheel from falling.

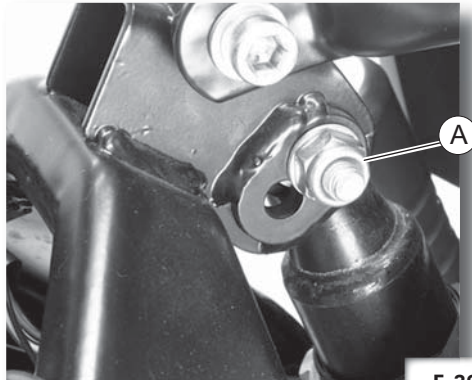


**ATTENTION:** Pay attention to the position of the shock absorber, to ensure it is refitted correctly.



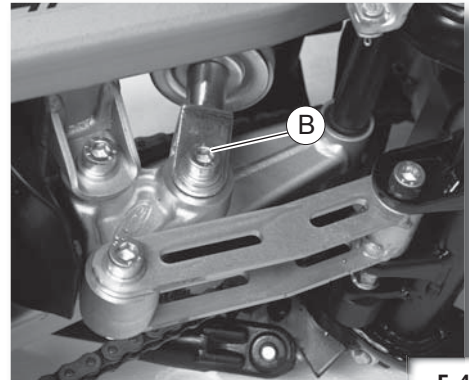
**ATTENTION:** the top shock absorber bolt in the **MARATHON PRO** version is located in the **rear hole**.

MARATHON PRO



F-39

MARATHON PRO

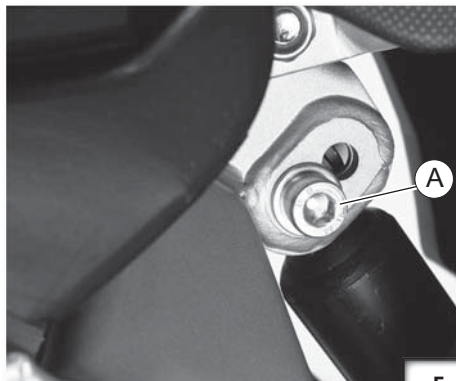


F-40



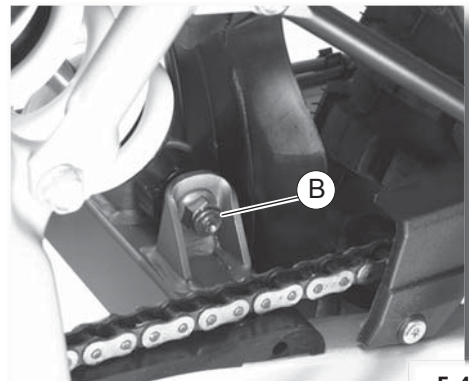
**ATTENTION:** the top shock absorber bolt in the **MARATHON** version is located in the **front hole**.

MARATHON



F-41

MARATHON

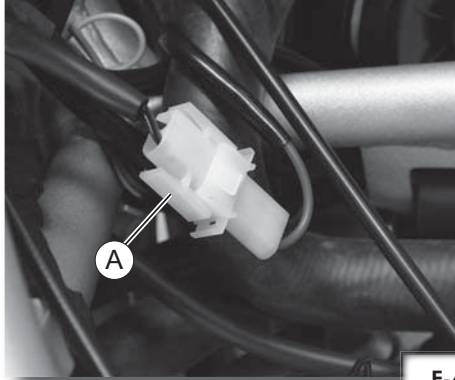


F-42

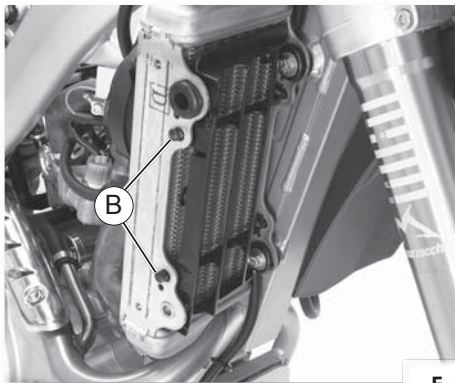


## 19. FAN

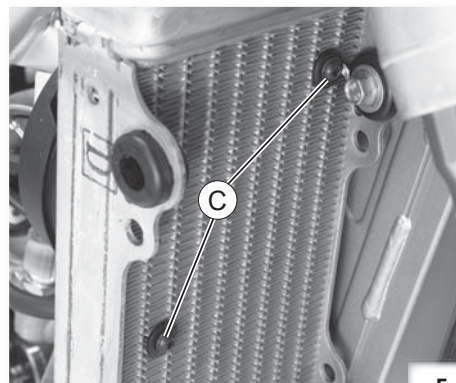
\* Remove the seat, the fuel tank (only withdraw it) and the right-hand side cover. Disconnect the general wiring (A-F/43), located under the fuel tank. Remove the air collector by pressing the nipples (B/F-44). Remove the fan by extracting the 2 bolts (C/F-45).



F-43



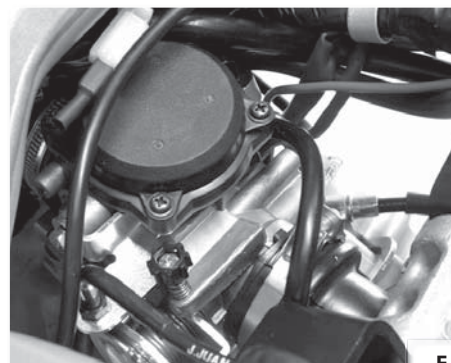
F-44



F-45

## 20. CARBURETTOR

\* Remove the seat, the front fairings and the fuel tank (only withdraw it). Unscrew the clamp securing the carburettor to the filter canister. Unscrew the top cover of the carburettor and extract it with the hatch. Also, unscrew the screw securing the cable to the crankcase and extract it. Disconnect the suction hose and the remaining pipes.



F-46



**ATTENTION:** Pay attention to the position of the pipes, to ensure they are refitted correctly.

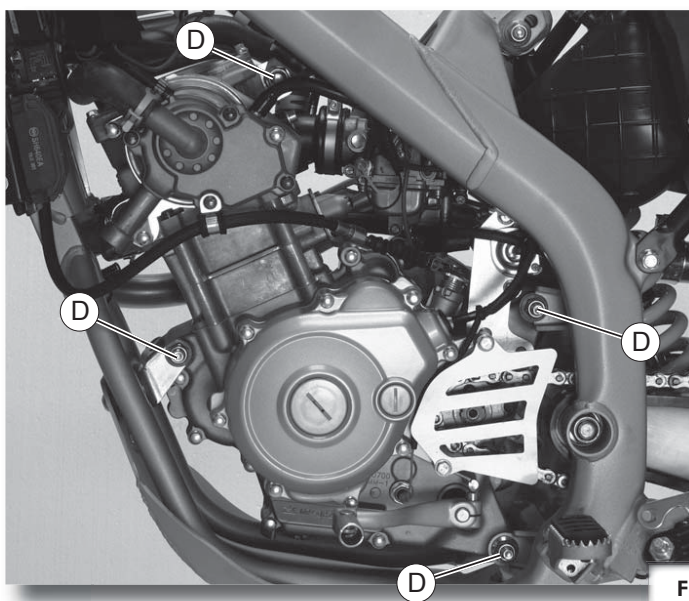


## 21. ENGINE

\* Remove the seat, the front and rear side covers, the fuel tank and the transmission chain.  
Separate the connector from the spark plug.  
Disconnect the thermo-switch cable.  
Disconnect the neutral cable, the magneto cables and those of the control unit.  
Disconnect the transmission.  
Drain the coolant circuit.

Remove the 4 self-locking nuts and remove the 4 bolts (D/F-47) securing the engine.

**ATTENTION:** leave the front bolt till last.





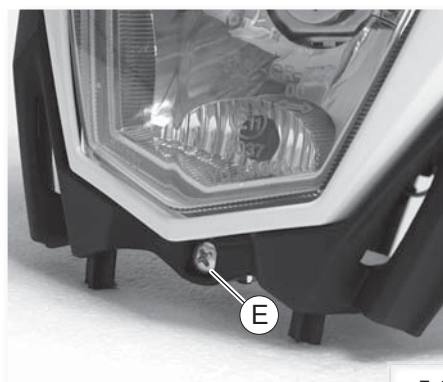
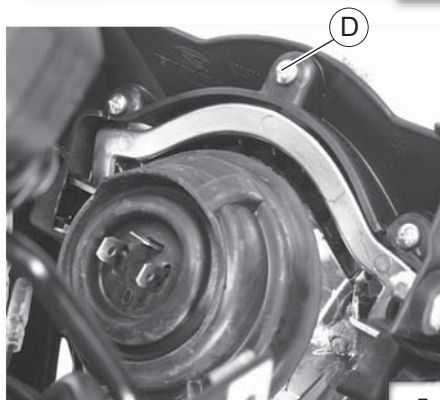
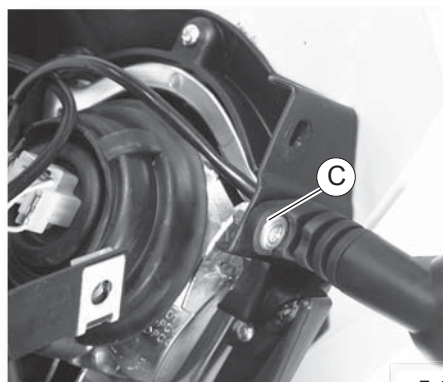
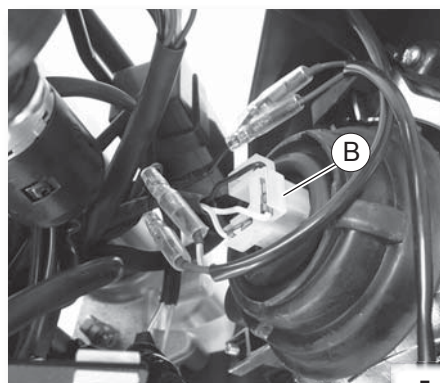
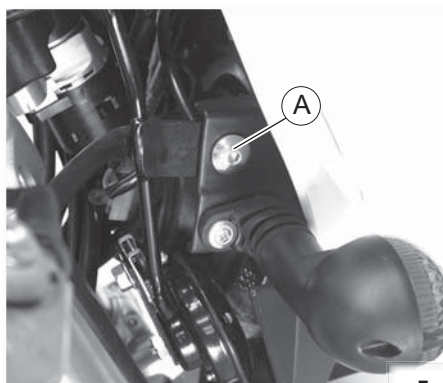
## 22. FRONT HEADLIGHT



Unscrew the 2 bolts (A/F-48) and tilt the light forwards to aid the operation.  
Disconnect the light (B/F-49) from the general wiring.  
Unscrew the screw (C/F-50) securing the nut on the inside.  
Unscrew the 5 screws (D/F-51) securing the light to the light holder.  
Unscrew the headlight height adjustment screw (E/F-52).



**ATTENTION:** Pay attention to the position of the cables, to ensure they are refitted correctly.





### 23. SIDELIGHT

Turn the steering in one direction to access the side light.  
 Pull out the headlight housing (A/F-53) to extract it.  
 Remove the bulb by pulling it out (F-54).



F-53



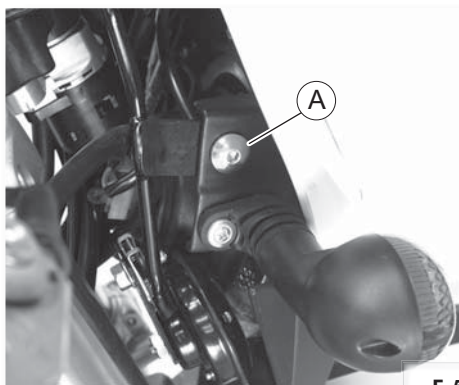
F-54

### 24. FRONT TURN INDICATORS

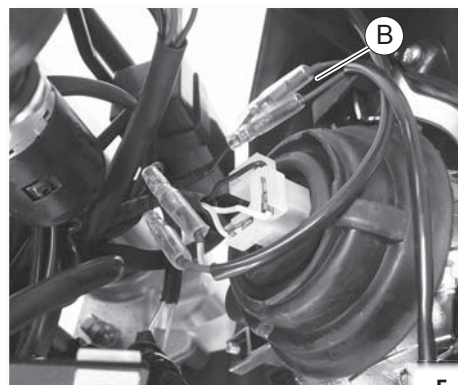
Unscrew the 2 bolts (A/F-55) and tilt the light forwards to aid the operation.  
 Disconnect the light (B/F-56) from the general wiring.  
 Unscrew the screw (C/F-57) securing the nut on the inside.



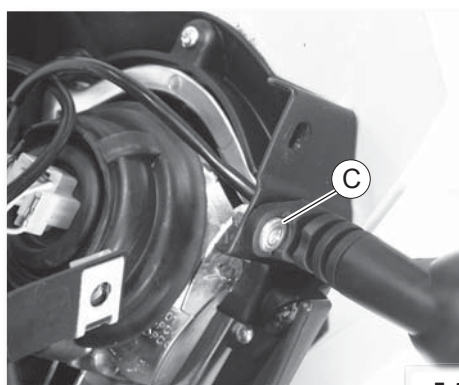
**ATTENTION:** Pay attention to the position of the cables, to ensure they are refitted correctly.



F-55



F-56



F-57

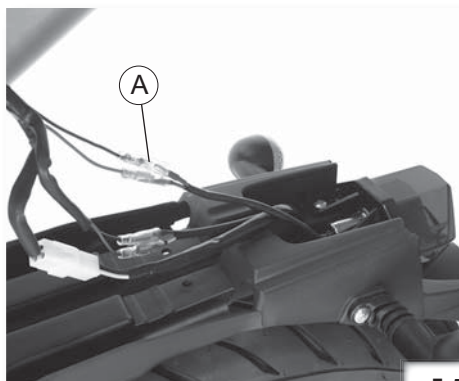
## 25. REAR TURN INDICATORS

Carry out the first 2 steps in section 4. **Rear cowling (F5-F6)**.



**ATTENTION:** Before removing the lights, pay attention to the sequence of the terminals for later refitting (see wiring diagram).

Disconnect the cables (A/F-58) from the general wiring.  
Then loosen the screw (B/F-59) securing the nut on the inside, and pull out the cable to remove the light.



F-58

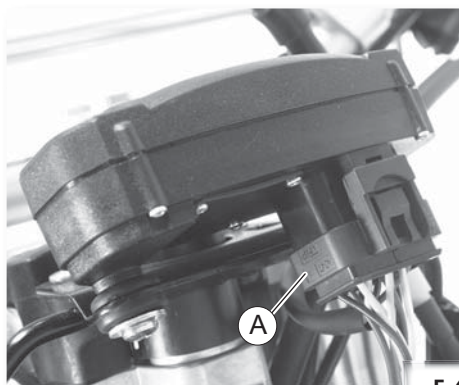


F-59

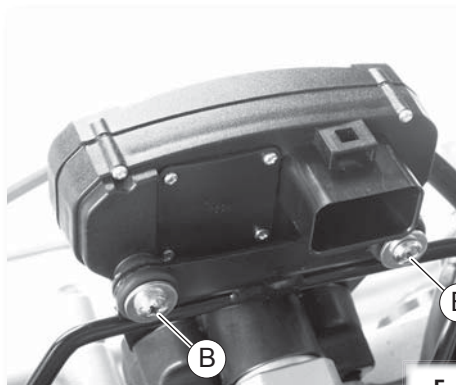


## 26. INSTRUMENT PANEL

Disconnect the cable from the instrument panel (A/F-60).  
Then unscrew the 2 screws (B/F-61) securing it to the chassis.



F-60



F-61



## 27. REAR LIGHT BULB

Carry out the first 2 steps in section 4. **Rear cowling (F5-F6)**.

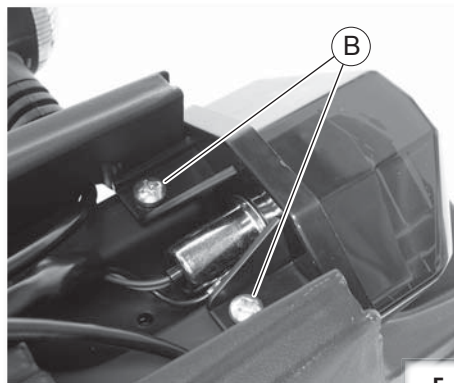


**ATTENTION:** Before proceeding to dismantle the lights, pay attention to the sequence of the terminals, to ensure that it is refitted correctly (see wiring diagram).

Disconnect the cables (A/F-62) from the general wiring.  
Loosen the two screws (B/F-63) and remove the light.



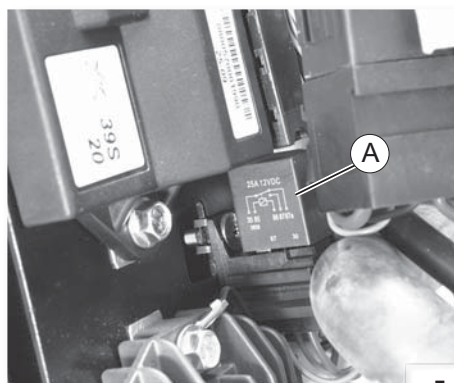
F-62



F-63

## 28. STARTER RELAY

- \* Remove the left-hand side cover.
  - \* Remove the control unit.
- Disconnect it by pulling it upwards (A/F-64).

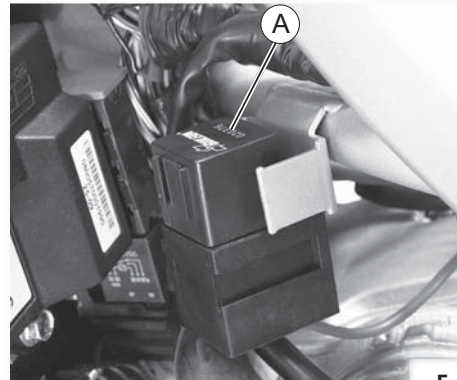


F-64



### 29. TURN INDICATORS CONTROL UNIT

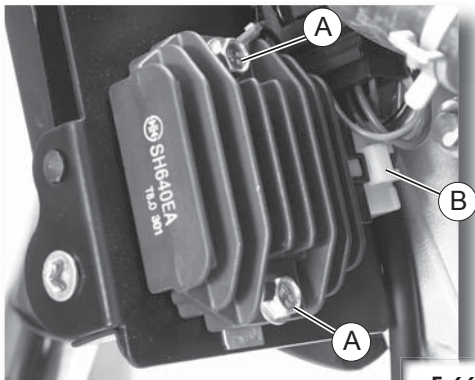
\* Remove the left-hand side cover.  
Disconnect it by pulling it upwards (A/F-65).



F-65

### 30. REGULATOR

\* Remove the left-hand side cover.  
Unscrew the bolts (A/F-66) to remove it.  
Next, disconnect the regulator from the wiring (B/F-66).



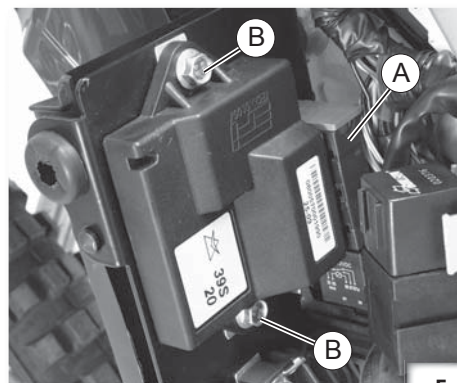
F-66



**ATTENTION:** reconnect the earth cable when refitting.

### 31. E.C.U.

\* Remove the left-hand side cover.  
Disconnect from the wiring (A/F-67).  
Then unscrew the 2 securing bolts (B/F-67).



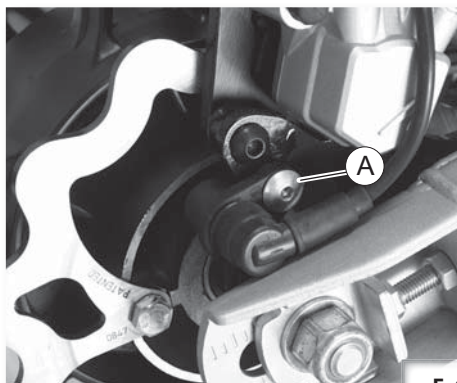
F-67



### 32. ODOMETER TAKE-OFF

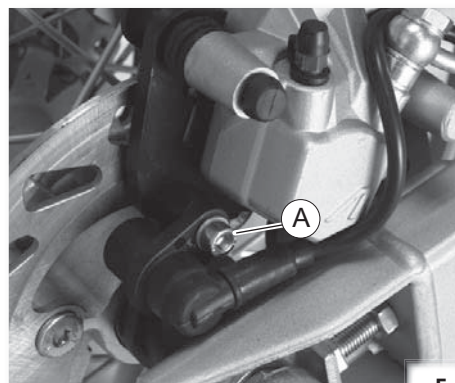
Remove the bolt (A/F-68-69) and disconnect from the general wiring (B/F-70).  
To disconnect the take-off. \*Remove the left-hand side cover.

MARATHON PRO

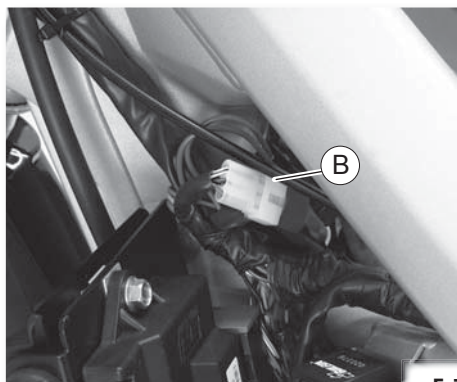


F-68

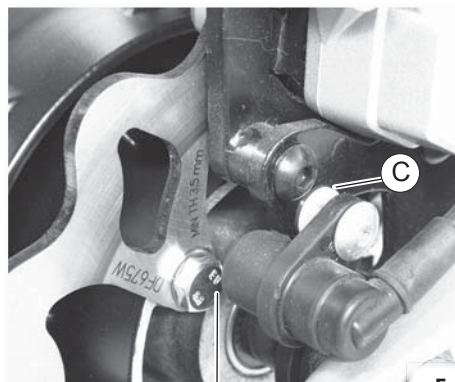
MARATHON



F-69



F-70



F-71

distance < 1mm



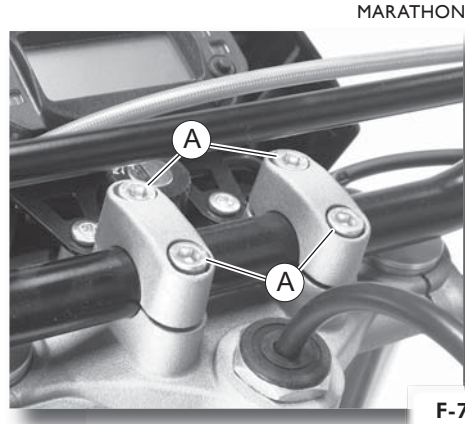
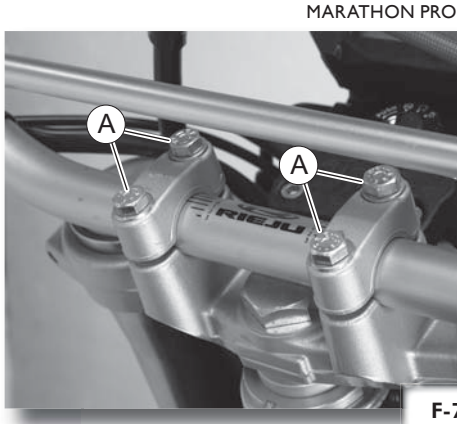
**ATTENTION:** the distance between the bolts on the disks and the sensor must be between 1 and 2 mm. Washers (C/F -71) are fitted to achieve this distance.  
If this distance is not maintained, the sensor will give incorrect values.



### 33. HANDLEBARS

\*Remove the controls on each end.

Unscrew the 4 bolts (A/F-72-73) and remove the handlebars.



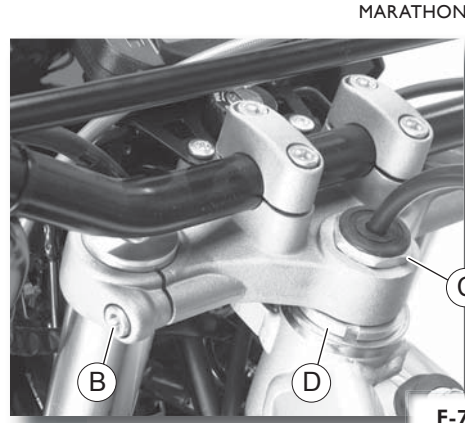
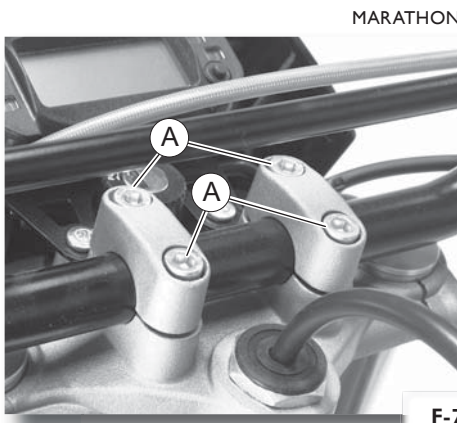
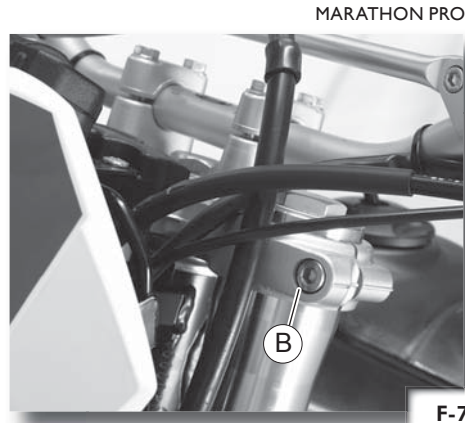
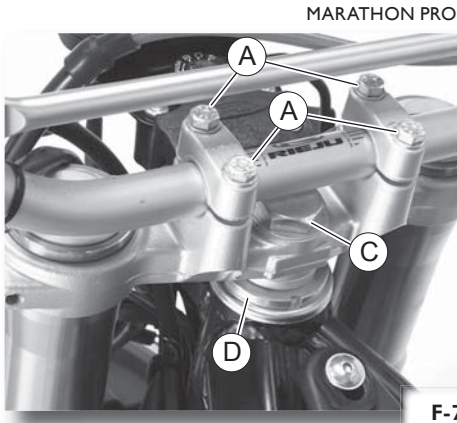
### 34. STEERING

Unscrew the 4 handlebar screws (A/F-74-76).

Loosen the 2 side bolts (B/F-75-77) to aid its extraction.

Extract the top nut (C/F-74-77) and remove the top plate.

To remove the wheel shaft, unscrew the nut (D/F-74-77).





### 35. FRONT WHEEL

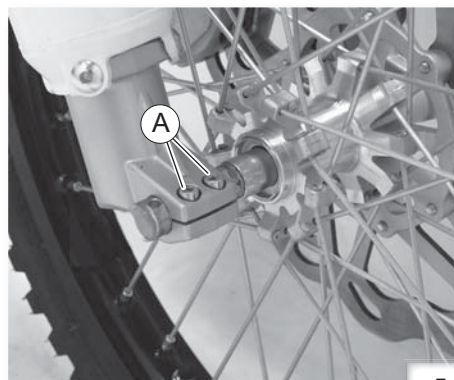
#### MARATHON PRO

Unscrew the nut on the left-hand side.

Loosen the 2 shaft securing bolts (A/F-78) located on the forks.

Unscrew the wheel shaft and remove it.

MARATHON PRO



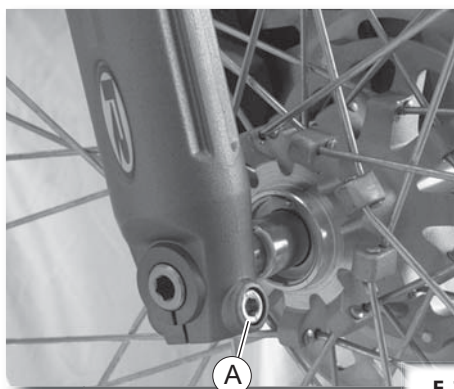
F-78

#### MARATHON

Loosen the wheel shaft securing bolt (A/F-79) located on the forks.

Unscrew the wheel shaft and remove it.

MARATHON



F-79

### 36. FRONT BRAKE CYLINDER

Disconnect the brake micro-switch terminals.

Unscrew the connector (A/F-80) securing the pipe to the cylinder.

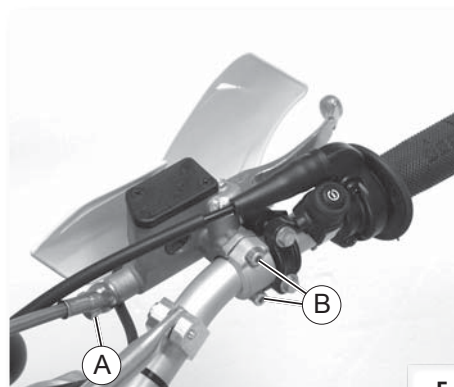
Then unscrew the 2 screws (B/F-80) and remove the front brake cylinder.



**ATTENTION:** The copper gaskets should be renewed and the circuit bled when refitting the brake cylinder.



**ATTENTION:** Brake fluid is corrosive.



F-80



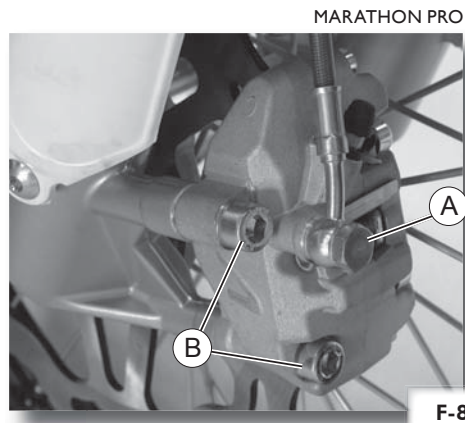


### 37. FRONT BRAKE CALLIPER

#### MARATHON PRO

Unscrew the connector using the bolt (A/F-81).

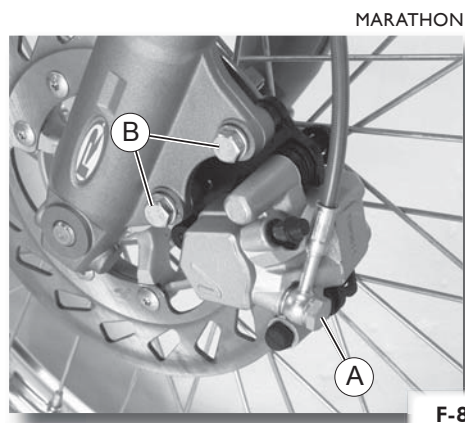
Then unscrew the 2 bolts (B/F-81) securing the calliper to the front forks.



#### MARATHON

Unscrew the connector using the bolt (A/F-82).

Then unscrew the 2 bolts (B/F-82) securing the calliper to the front forks.



**ATTENTION:** The copper gaskets should be renewed and the circuit bled when refitting the calliper.

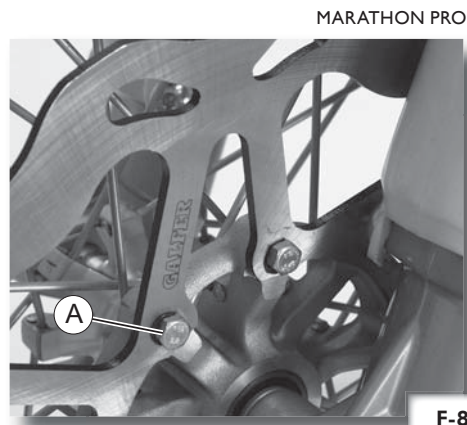


**ATTENTION:** place a container underneath to collect the brake fluid.

### 38. FRONT BRAKE DISK

\* Remove the front wheel.

Unscrew the bolts (A/F-83-84) securing the disk.





### 39. CLUTCH LEVER

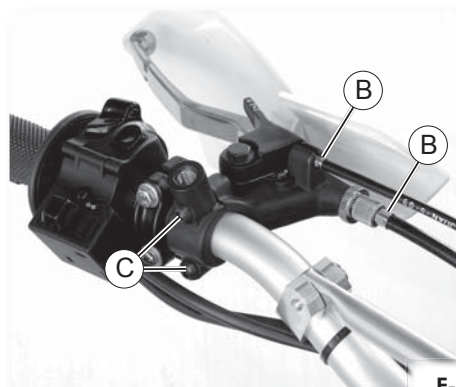
Remove the protective rubber (A/F-85-87).  
 Disconnect the clutch cable and the choke cable (B/F-86-88).  
 Then unscrew the 2 screws (C/F-85-87) and remove the lever.

MARATHON PRO



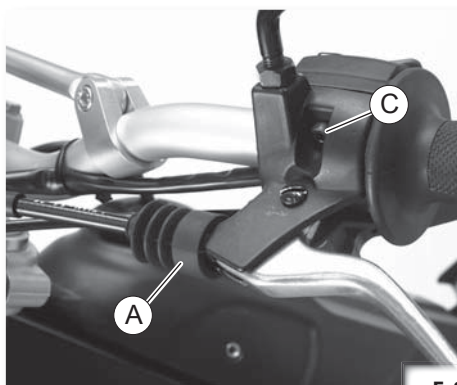
F-85

MARATHON PRO



F-86

MARATHON



F-87

MARATHON



F-88



#### 40. REAR WHEEL

Slacken the wheel tensioners.

Remove the nut (A/F-89) located on the right-hand side.

Push the wheel forwards to free the chain from the wheel sprocket.

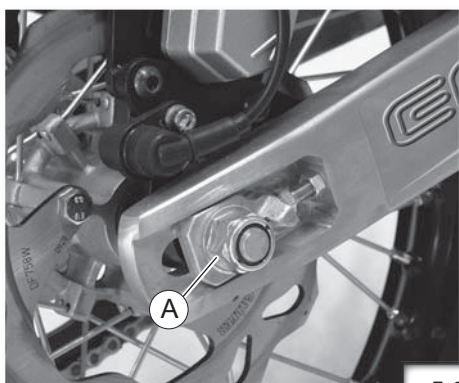
Withdraw the wheel shaft (B/F-90) until the tensioners, the wheel and the spacers are free.



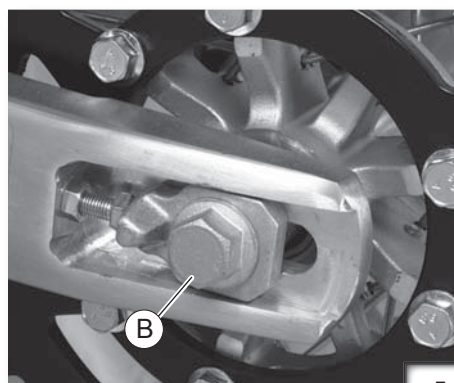
**ATTENTION:** Pay attention to the position of the spacers, to ensure they are refitted correctly.



**ATTENTION:** When refitting, consult the Adjusting the transmission chain tension section.



F-89



F-90



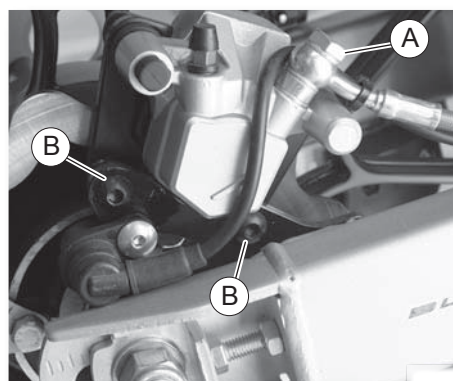
## 41. REAR BRAKE CALLIPER

### MARATHON PRO

Unscrew the connector using the bolt (A/F-91).

Then unscrew the 2 bolts (B/F-91) securing the calliper to the calliper bracket.

MARATHON PRO



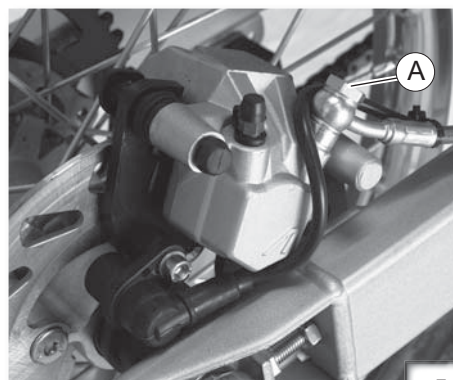
F-91

### MARATHON

Unscrew the connector using the bolt (A/F-92).

Next, remove the rear wheel to free the calliper.

MARATHON



F-92



**ATTENTION:** The copper gaskets should be renewed and the circuit bled when refitting the calliper.



**ATTENTION:** place a container underneath to collect the brake fluid.

## 42. REAR BRAKE DISK

\* Remove the front wheel.

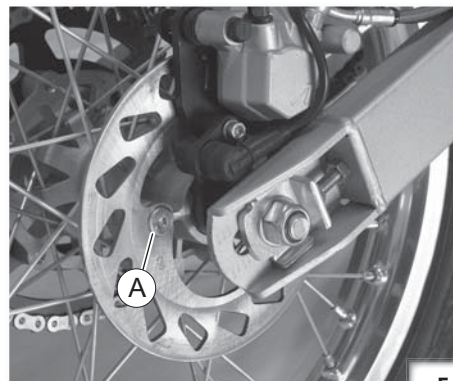
Unscrew the bolts (A/F-93-94) securing the disk.

MARATHON PRO



F-93

MARATHON



F-94



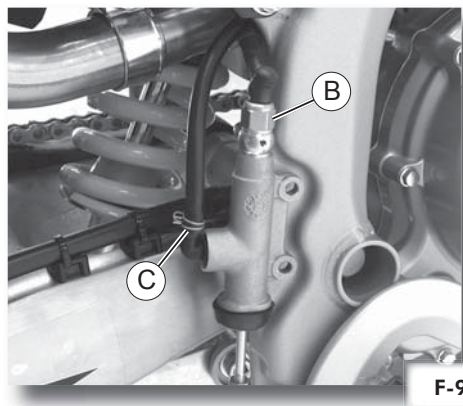
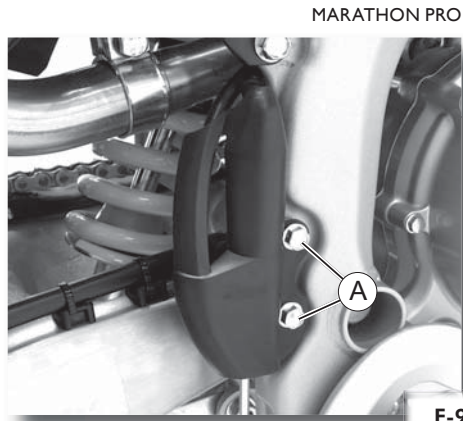
### 43. REAR BRAKE CYLINDER

#### MARATHON PRO

Remove the protector from the brake cylinder by removing the 2 bolts (A/F-95).

To remove the cylinder it is necessary to disconnect the STOP switch (B/F-96) and unscrew it.

Remove the clamp (C/F-96) from the brake fluid supply tube and drain into a container.

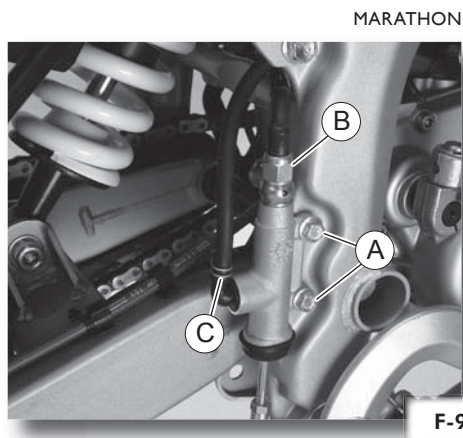


#### MARATHON

Unscrew the 2 bolts (A/F-97).

To remove the cylinder it is necessary to disconnect the STOP switch (B/F-97) and unscrew it.

Remove the clamp (C/F-97) from the brake fluid supply tube and drain into a container.



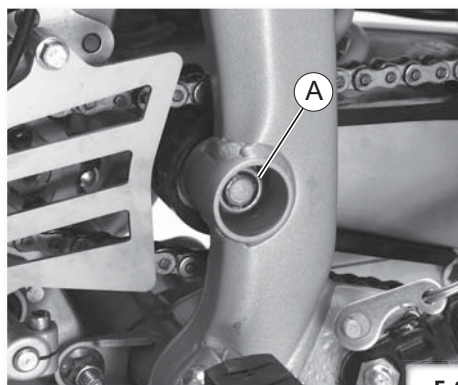
**ATTENTION:** Brake fluid is corrosive.



#### 44. SWINGING ARM

\* Remove the chain, the rear brake calliper, the rear wheel and the shock absorber.

Unscrew the nut (A/F-98) and withdraw the shaft from the right-hand side.



F-98

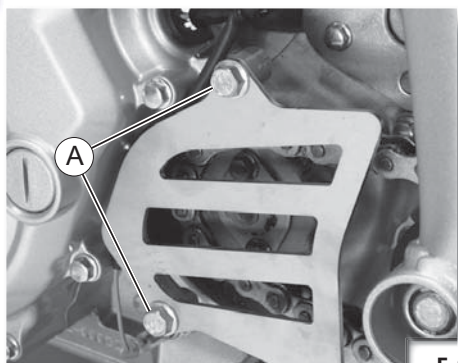
#### 45. TRANSMISSION CHAIN

Remove the 2 bolts (A/F-99) securing the protector and remove it.

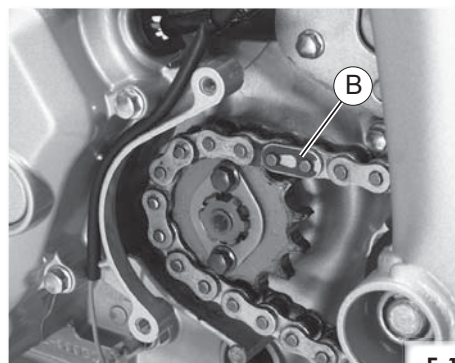
Extract the clip (B/F-100) securing the connector link and remove the chain.



**ATTENTION:** When refitting, consult the Adjusting the transmission chain tension section.



F-99



F-100



**ATTENTION:** Make a note of the position of the chain, to ensure it is refitted correctly.



## 46. FRONT FOOTRESTS

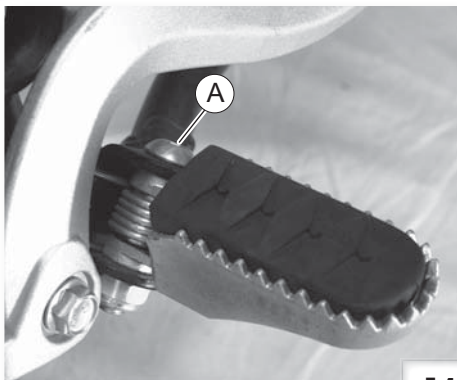
Unscrew the bolt (A/F-101-102) securing the bottom nut.



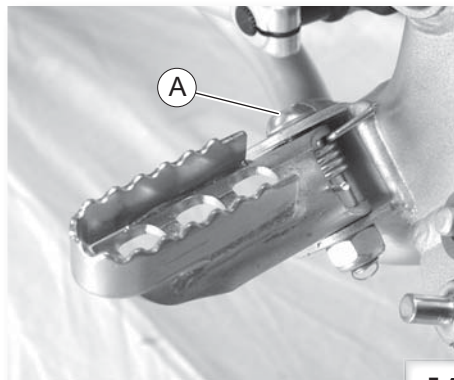
**ATTENTION:** Make a note of the position of the spring so that it can be refitted correctly.

MARATHON PRO

MARATHON



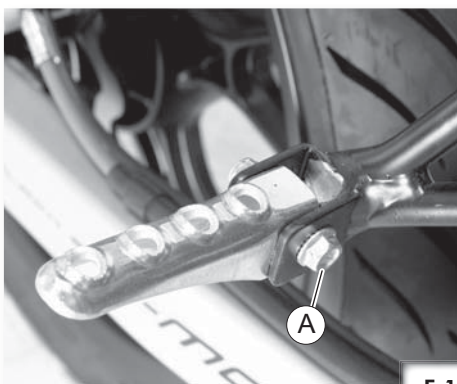
F-101



F-102

## 47. REAR FOOTRESTS

Unscrew the bolt (A/F-103) securing the bottom nut.



F-103







## *Electrical system*



## I. PRECAUTIONS

There are a number of important precautions to be taken before beginning to inspect or repair the electrical system.

- Special attention must be paid to the polarity of the battery.
- Always check the condition of the battery on beginning any repair.
- Charge the battery away from the machine to avoid possible spilling of acid or faults in the charger clips contacts that could damage an electronic component.
- Do not handle the battery or other connections with the ignition on or the engine running, as this could damage electronic components.
- Do not fit bulbs in the lights or instruments that are different to those specified.
- Do not carry out welding with an electric welder or any operations that produce sparks without disconnecting the coil/CDI, as this could damage this equipment.
- Before taking electrical resistance measurements, make sure that the part is not hot.
- All the connections must be clean and well-tightened.

## 2. GENERAL WIRING

### Checks to be carried out on the wiring:

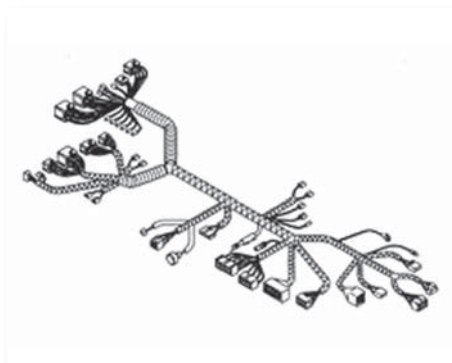
- Check visually that the wiring has not deteriorated or that the connectors and terminals are not loose or dirty.

Any elements found to be in a poor condition must be renewed.

- If no defects are detected visually, cables of the same colour and diameter should be checked for a circuit using a meter.

To carry out this check, the wiring needs to be disconnected.

- Cables of the same colour and diameter should have a circuit between them.



METER SCALE  $\Omega \times I$

### 3. TROUBLESHOOTING

If the engine receives no spark or there is an ignition fault, the following checks should be performed:



***The first step is to disconnect the green stop light cable on the CDI coil and check if there is a spark.***

If the problem persists, each ignition system component should be checked one by one. Before starting to check components, check that the connections are clean and well connected and the wiring is in good condition.



### 4. IGNITION SYSTEM

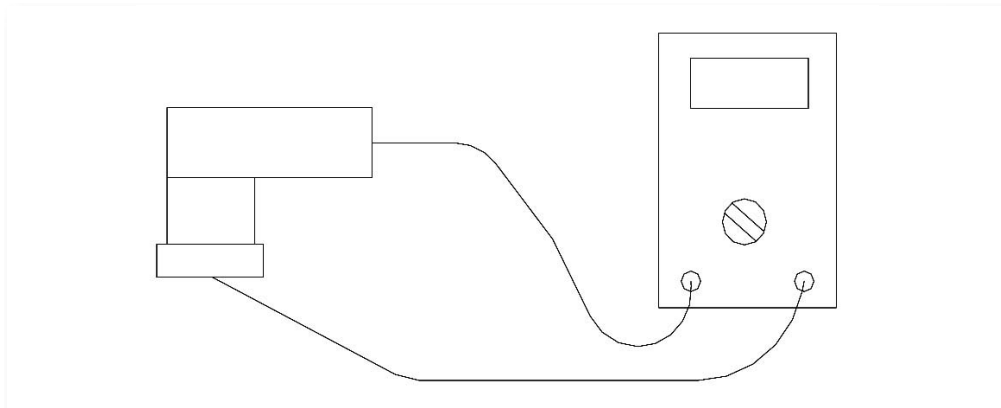
#### Checking the HT coil:

Before starting the checks, ensure that the CDI HT coil is properly earthed, that it is not corroded or dirty where it is secured.

If the checks reveal the magneto values and the wiring to be correct, the CDI coil should be renewed.

Before renewing the CDI coil, check that the connections and the wiring are in good condition.

#### CHECKING THE SPARK PLUG SUPPRESSOR CONNECTOR



**Remove the connector from the spark plug by turning the connector in an anti-clockwise direction.**

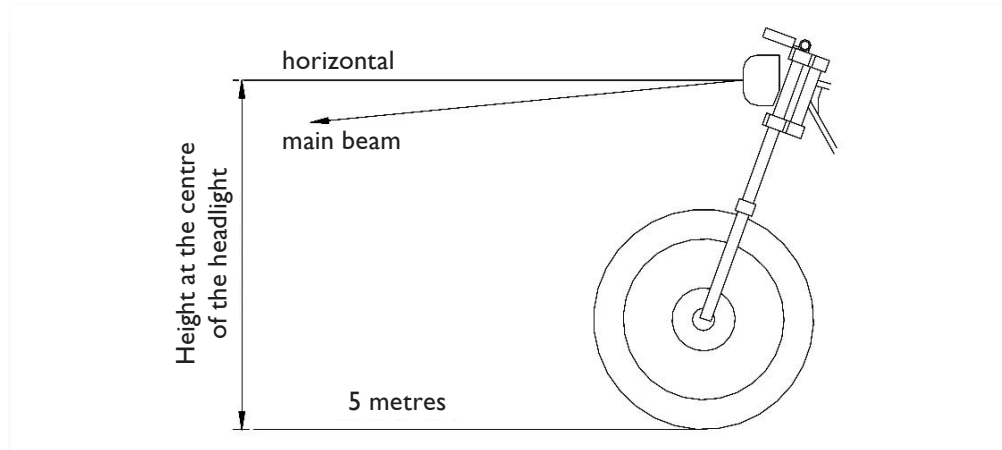
Check that the copper wires protrude from the HT cable.

Resistance:  $5K\Omega \pm 20\%$  a  $20^\circ C$



## 5. LIGHTING SYSTEM

### Adjusting the height of the front headlight beam



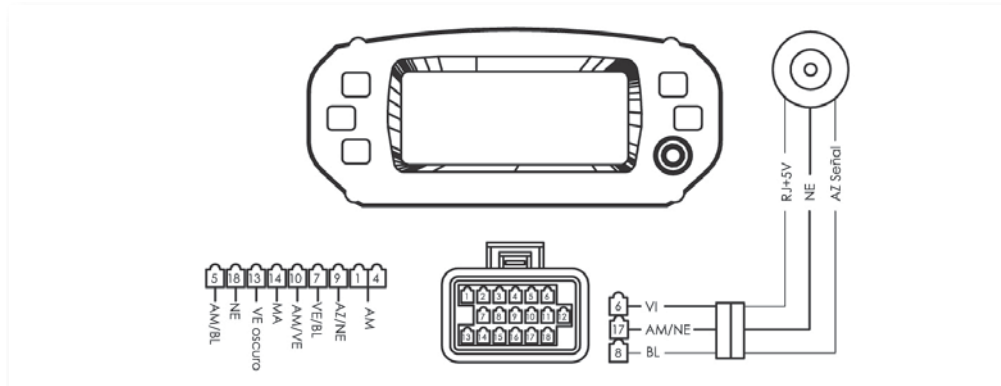
With the rider seated on the machines, the headlight beam should be adjusted in such a way that the main beam is situated below the headlight horizontal.

In case of having to change a bulb, avoid touching the inside of the headlight with the hands. In addition, the new bulb should be handled with a clean cloth.



6. CHECKING THE INSTRUMENTACTION

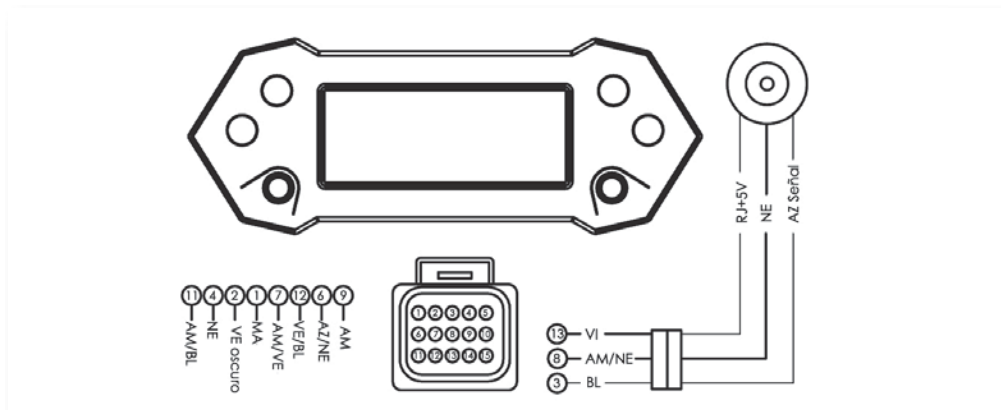
DIAGRAM OF THE MAE INSTRUMENT PANEL



CONNECTOR PIN	FUNCTIONS
1	...
2	...
3	...
4	...
5	...
6	...
7	...
8	...
9	...

CONNECTOR PIN	FUNCTIONS
10	...
11	...
12	...
13	...
14	...
15	...
16	...
17	...
18	...

DIAGRAM OF THE KOSO INSTRUMENT PANEL

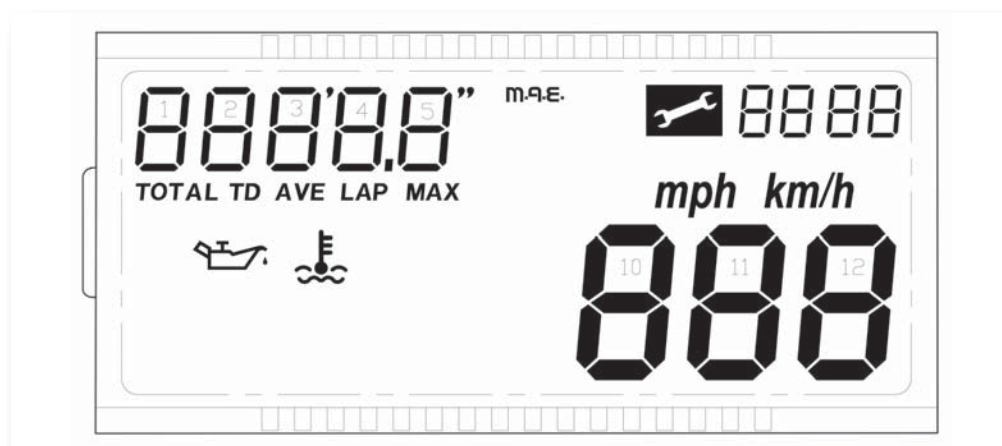


CONNECTOR PIN	FUNCTIONS
1	...
2	...
3	...
4	...
5	...
6	...
7	...
8	...

CONNECTOR PIN	FUNCTIONS
9	...
10	...
11	...
12	...
13	...
14	...
15	...



## 7. PROGRAMMING THE MAE INSTRUMENT PANEL



*The service symbol only appears on machines with cubic capacity greater than 50 cc.*

### Mode button

The dashboard has a button that is normally ON.

The following chapters set out the functions and use of this button.



### FIRST INSTALLATION OF THE DEVICE

On installing this device for the first time (and every time the dashboard is disconnected and re-connected to the power supply), the screen displays the version of the software and the date of manufacture.

The software is suitable for the Enduro and SuperMotard models with 50 cc power up, 50 cc and 125 cc engine capacities.

The functions of the device depend on the model selected, as described in the following chapters.

On connecting the dashboard for the first time to the power supply, the user can select the capacity of the cylinder (Figure 5-1) and the model (Figure 5-2). These selections are stored in the permanent memory and can only be changed by erasing the memory.

The desired selection can be confirmed by pressing the button while the corresponding screen is displayed.

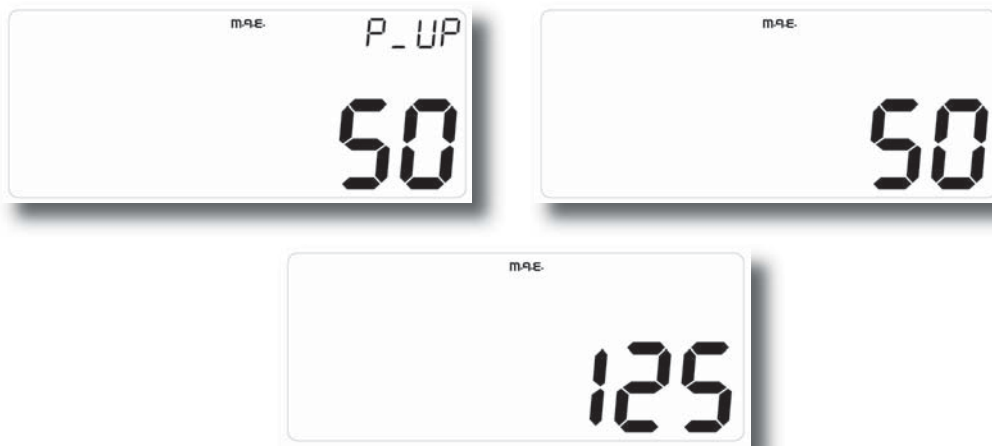


Figure 5-1: cylinder capacity selection: 50 cc power up, 50 cc or 125 cc



Figure 5-2: model selection: Enduro or SuperMotard

Moving from one option to another is performed automatically, and each of the screens is displayed for 2 seconds.



		Wheel pulses	Circumference (mm)
Enduro	50 cc power up	6	2180
	50 cc - 125 cc	3	2065
SuperMotard	50 cc power up	6	1910
	50 cc - 125 cc	3	1950

These parameters can be changed at any time.

Observation:

If No.15 input is connected to earth during the selection, the selection will NOT be saved.

## FUNCTIONAL CHARACTERISTICS

### Speed at any moment

This information appears (Figure 1) in the digits 10- 12 (Figure 2).

If the unit of measurement selected is km/h (default), the corresponding symbol will light up. To change the unit of measurement to mph (Figure 2), use this button to enter the configuration menu.



1- Speed in km/h



2- Speed in mph



The speed is updated every 0.5 seconds.

The default parameters are:

ENDURO						
Model	Circumf. (mm)	Pulse./ wheel re- volution	Tech. const. (imp./min.)	Max. speed	Over- estimation	Resolution
50cc p. up	2180	6	45,87	240 km/h 149 mph	6% constante en toda la escala	1 km/h 1 mph
50 cc 125 cc	2065	3	24,21			

SUPERMOTARD						
Model	Circumf. (mm)	Pulse./ wheel re- volution	Tech. const. (imp./min.)	Max. speed	Over- estimation	Resolution
50cc p. up	1910	6	52,36	240 km/h 149 mph	6% constante en toda la escala	1 km/h 1 mph
50 cc 125 cc	1950	3	25,64			

To change the value of the circumference and the number of wheel impulses, follow the instructions described in Chapter 10.

### TOTAL DISTANCE (TOTAL)

This information appears in the digits 1÷5 with the TOTAL symbol lit, as shown in the figure.



Total distance in km/h



Total distance in mph





This information is stored permanently in a non-volatile memory (E2prom updated every kilometre).

If this memory contains no data, the screen will display 00000.

This information is always calculated in kilometres. However, it can be displayed in either kilometres (default) or in miles. The configuration menu should be used to change the unit of measurement.

During the normal operation of the device it is not possible to reset this information to zero.

### TRIP DISTANCE (TD)

This information appears in digits 1÷5 with the TOTAL symbol lit, as shown in the figure.

The data displayed represent the distance covered by the machine expressed in miles or kilometres (according to the unit of measure selected) with a resolution of 0.1 (miles or kilometres).

This meter is set in operation automatically with the first pulse from the Hall sensor. This data is not saved permanently in the E<sup>2</sup>PROM.



Trip distance

To reset this information to zero, hold down the button for about 2 seconds until the value 000.0 appears.

The TD can be reset to zero whether the speed is zero or not. If the TD is reset, the AVE and LAP are also reset to zero.

If TD exceeds the value of 999.9, the device automatically adjusts TD, AVE and LAP to zero and resets the meter.

This data is stored permanently in a non-volatile memory (E<sup>2</sup>prom, which is updated every 100 m).

### AVERAGE SPEED (AVE)

This function describes the proper functioning/ displaying of the average speed function related to TD and LAP. This information appears in the 1÷5 digits with the AVE symbol lit (see the figure).

The data represents the average speed maintained by the machine (expressed in km/h or in Mph, depending on the unit of measurement selected), calculated as the ratio between the distance travelled (TD) and the time needed to travel the distance (LAP).



Average speed



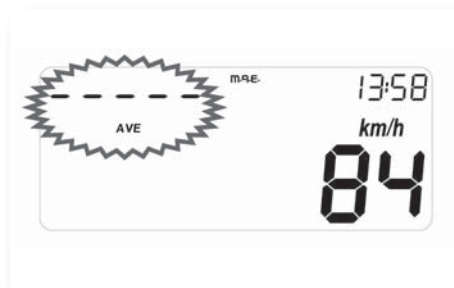
The average speed is calculated every 0.1 km (or 0.1 miles depending on the unit of measurement selected) and an excessive speed is not permitted. If the data is outside the values allowed, \_ \_ \_ \_ \_ will be displayed, as shown in the figure.

This data is not saved permanently in the E<sup>2</sup>PROM.

To reset the meter for this parameter to zero, press the button for about 2 seconds with AVE displayed, until the value 0.0 appears. Resetting AVE to zero, which can be done with the machine halted or travelling, also resets TD and LAP to zero.

Resetting AVE to zero occurs automatically when the LAP value reaches 23:59:59 or when the TD value reaches 999.9.

Comment A: If there is no power supply, the AVE data is lost. This information appears in digits 10-12.



**Average speed too high**

### AUTOMATIC CHRONOMETER (LAP)

This function describes the proper functioning/ displaying of the chronometer related to TD and LAP.

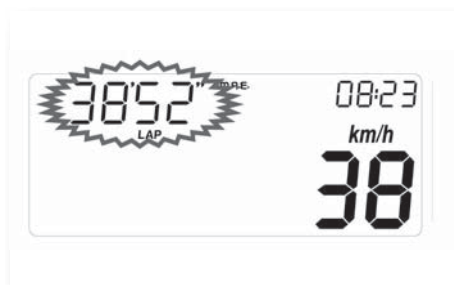
Esta información aparece en los dígitos IH-5 con el símbolo LAP iluminado.

The details show the machine's actual route time in the form of mm:ss format, if hours=0, or in hh:mm format if the hours are greater than 0 (Figure 6-6).

The chronometer is set in operation automatically with the first pulse from the speed sensor and stops 3 seconds after receiving the last pulse from this sensor.

If the hours value =0, when LAP is in operation, the digit that separates the minutes from the seconds is displayed flashing, whereas it appears fixed if LAP is not operational.

If the hours value =0 when LAP is in operation, the digit ('and') that separates the minutes from the seconds is displayed flashing, whereas it appears fixed if LAP is not operational.



**Chronometer**



This data is not saved permanently in the E<sup>2</sup>PROM.

The meter for this setting can be reset to zero by pressing the adjustment button for 2 seconds, together with the LAP function, until the value 00'00" is displayed.

Resetting this meter to zero, either with the machine halted or in motion, also causes the zeroing of the TD and AVE functions.

If these data exceed the value of 23-59 (which means 23 hrs 59' 59"), the system resets LAP, TD and AVE to zero and starts counting again.

Comment: If there is no power supply, the LAP data is lost.

### Maximum speed (MAX)

This information appears in the 1÷5 digits with the MAX symbol lit, as shown in the figure.

These figures represent the maximum speed that the machine has reached, represented in km/h or MPH, depending on the unit of measurement selected for the speed.

To reset this information to zero, hold down the MAX function button for about 2 seconds until the value 00 appears.

MAX can be reset to zero both with speed=0 and with speed >0.

If the unit of measurement is changed, the value of MAX is also converted.

This data is not saved permanently in the E<sup>2</sup>PROM.

Comment: If there is no power supply, the MAX data will be lost.



Maximum speed

## ALARMS


### Temperature alarm

The WTEMP alarm displays the (🔥) symbol on the LCD, and the corresponding LED lights up.

This alarm is triggered when a very high temperature activates the electrical contact, and turns off when the temperature falls below the lower level and the contact opens. To prevent false messages, the alarm delays 5 seconds in turning on and off.




### Oil alarm

The OIL alarm displays the (  ) symbol on the LCD, and the corresponding LED lights up. This alarm is triggered when a low oil level activates the electrical contact, and turns off when the oil level is higher than the minimum and the contact opens.

To prevent false messages, the alarm delays 5 seconds in turning on and off.

### DIAGNOSIS (only on machines with a cubic capacity greater than 50 cc)

Each time the ECU sends an error message, the dashboard activates the alarm procedure; the Wtemp LED flashes depending on the error sent by the ECU, and the (  ) symbol lights up on the screen.

units    → 0.5 s on + 0.5 s off  
 tens     → 1.0 s on + 1.5 s off  
 start    → 3.0 s pause  
 end      → 3.0 s pause

Comment: If the WTEMP alarm is activated, the LED will light up until the WTEMP alarm disappears.

### MODE BUTTON

The mode button enables the user to:

- scroll through the different functions;
- reset the trip meter, the average speed, the chronometer and the maximum speed to zero;
- enter into the configuration menu.

Scrolling through the different functions can be performed at all times, and does not depend on the speed of the machine. To change the function, press the button for a moment (tmin = 1 s).

It is always possible to reset TD, AVE, LAP and MAX to zero; this does not depend on the speed of the machine. It is only possible to enter the configuration menu when the speed=0.

The mode button is active when the engine is running in a machine without a battery (?) or when the key is inserted in all other models.

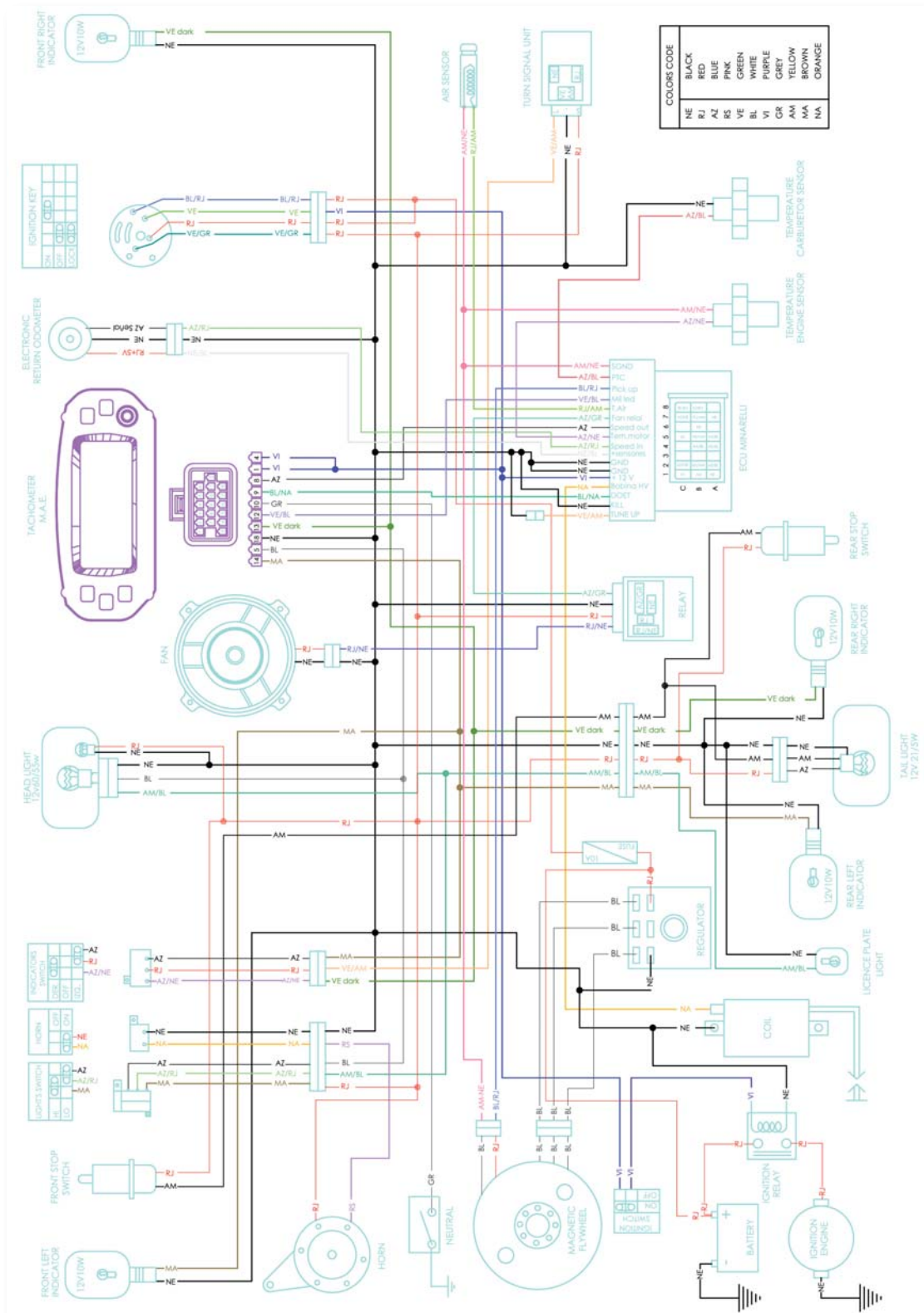
### Sequence of functions

Short press  →

TOTAL	TD	AVE	LAP	MAX
<b>ADJUST UNIT OF MEASUREMENT</b>				
ADJUST CIRCUMFERENCE if this is allowed				
ADJUST CIRCUMFERENCE if this is allowed				



### MAE WIRING DIAGRAM





## 8. PROGRAMMING KOSO INSTRUMENT PANEL

### N.B.:

The notes contain detailed information about the installation.

( ) Processes to be followed is obligatorily to avoid the problems caused by an incorrect installation.

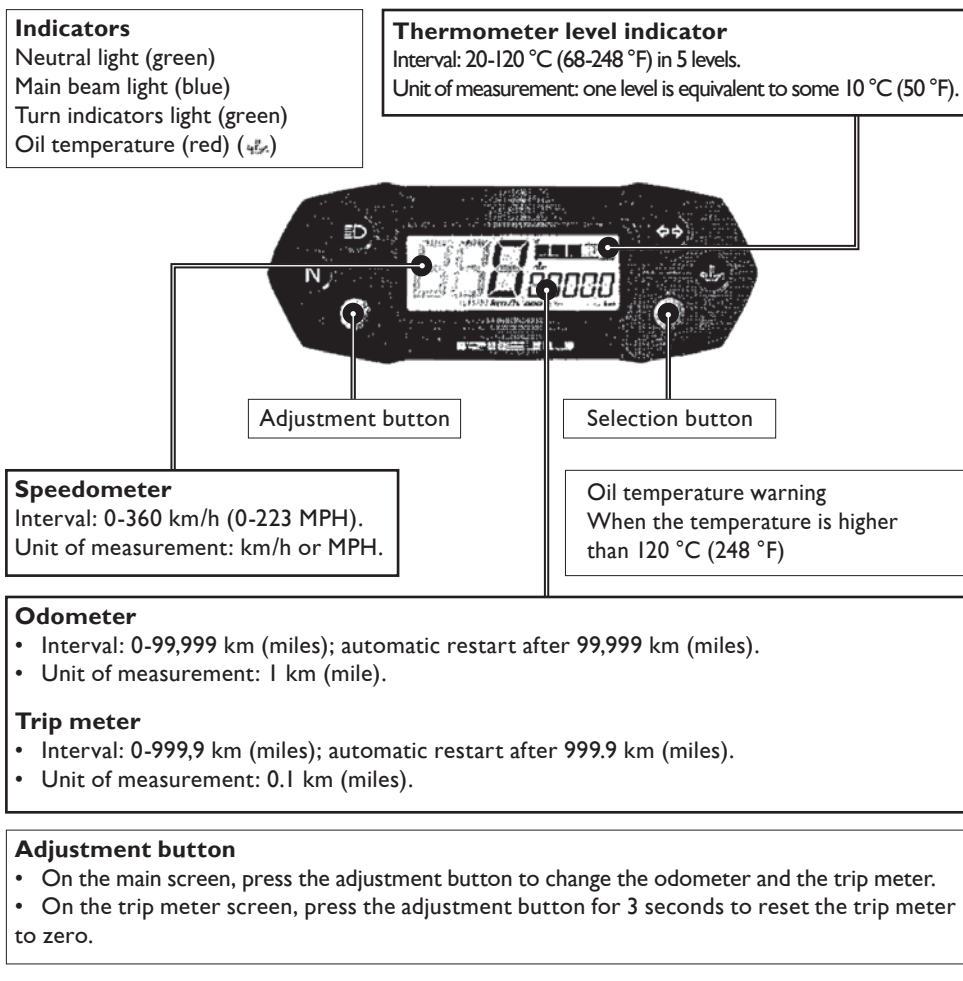


PRESS



PRESS THE BUTTON DOWN FOR THREE SECONDS

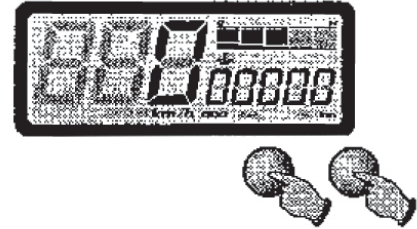
### Instructions for use





### Adjustment of the speed measurement unit.

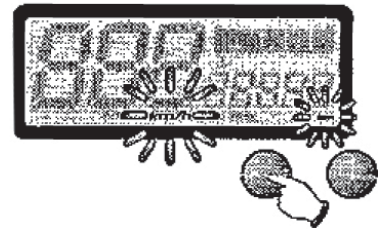
On the main screen, hold down the **selection and adjustment buttons for 3 seconds** to access the adjustment of the speed measurement unit.



Press the **adjustment button** to select the unit of measurement.  
E.g.: Now the setting is km/h.



Now the speed measurement unit is flashing.



N.B.: On the adjustment screen for the speed measurement unit, the user can choose between km/h or MPH.



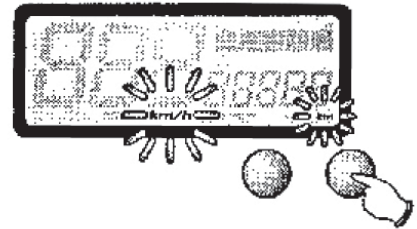
The odometer and the trip meter change along with the speed measurement unit.

Press the **selection button** to continue adjusting the function.

N.B.: When this screen is exited, the adjustment defined will begin to be applied.

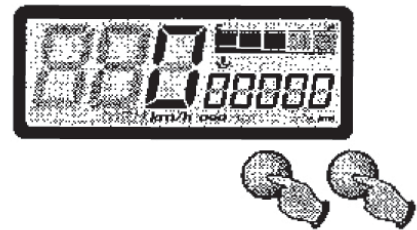


If adjustment of this function alone is required, hold down the selection button for three seconds to go back to the main screen.



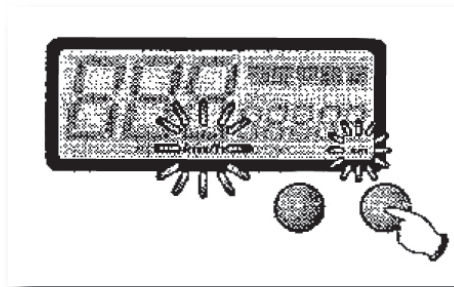
### Tyre circumference and adjustment of the sensor points (to change to a different tyre size).

On the main screen, hold down the **selection and adjustment buttons for 3 seconds** to access the adjustment of the speed measurement unit.

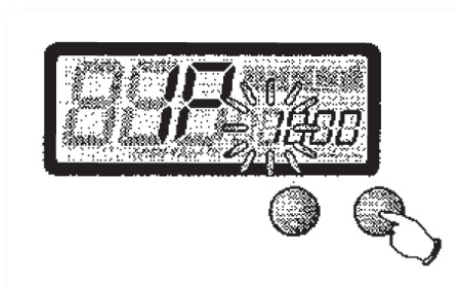




Press the **selection button** to access the tyre circumference adjustment.



E.g.: The tyre circumference is 1,300 mm.  
Press the **selection button** to change to the digit to be adjusted. E.g.: The original adjustment is 1,000mm.



The 1 flashes.

N.B.: Tyre circumference adjustment interval: 300~2,500 mm; the digits are adjusted from left to right.



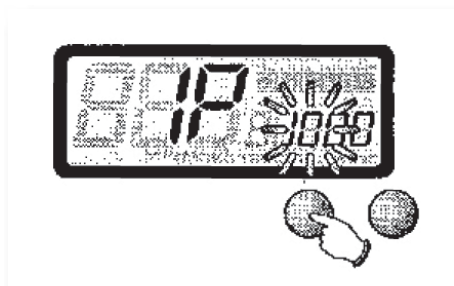
**Test it!** The valve can be taken as a starting point and end point for measuring the circumference of the wheel with a tape measure.



Press the adjustment button to change the adjustment.

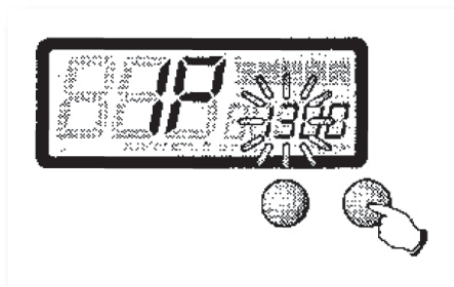


The 0 flashes.



Press the selection button 3 times to change to adjustment of the sensor points.

E.g.: The circumference of the tyre has been changed from 1,000 mm to 1,300 mm.





E.g.: the sensor point to be adjusted is 6. Press the selection button to change to the digit to be adjusted. E.g.: the original setting is 1 point.



The 0 flashes.

N.B.: Sensor point adjustment interval: 1~60 points. The setting can be changed from left to right.

N.B.: It is possible to adjust the sensor points higher than 6 is possible only if the active speed sensor is being used.



**Test it!** The active speed sensor can be fitted next to metal parts such as the brake disk bolts to detect the distance of the disk and the sprocket holder in order to detect the frequency of the gear teeth. We recommend using the method of detecting the disk bolt as a signal for the speed. The more signals there are, the more precise the speed reading. Please note that the maximum signal that the active speed sensor can read is 60 points per lap.

Press the adjustment button to select the setting number.



The sensor points setting number flashes.

Press the selection button to continue adjusting the functions.

E.g.: The adjustment of the sensor points of has changed from 1 to 6.

N.B.: When this screen is exited, the adjustment defined will begin to be applied.



If adjustment of this function alone is required, hold down the selection button for three seconds to go back to the main screen.





**RIEJU**

RIEJU, S.A. c/.Borrassà, 41

E-17600 FIGUERES, GIRONA (SPAIN)

Telf. +34 / 972500850 Fax +34 / 972506950

[www.riejumoto.com](http://www.riejumoto.com) / e-mail [rieju@riejumoto.com](mailto:rieju@riejumoto.com)