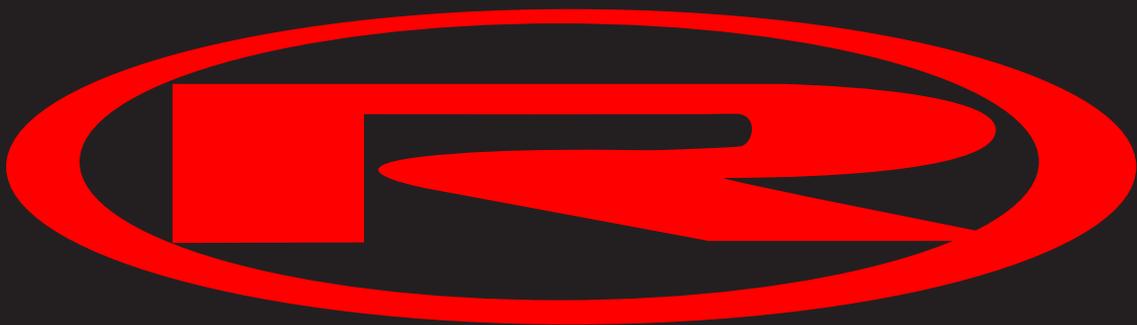


# TANGO 250

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Chassis workshop manual



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# *Introduction*



## 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.

## Introduction



### 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**).

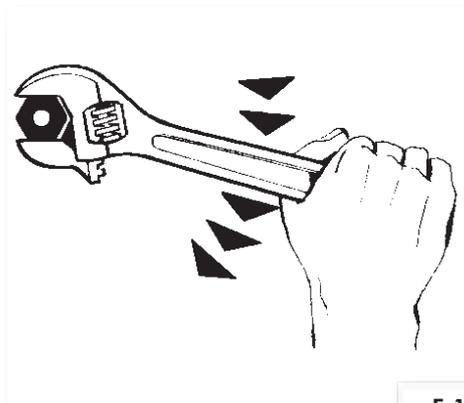
The refitting of units and components is normally done in this **opposite way** to dismantling operations (except for a specific description).

## 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.



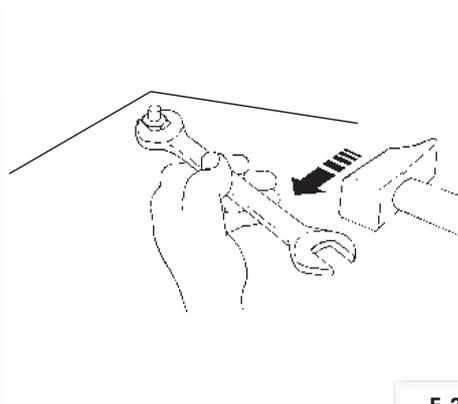
F-1

## Introduction

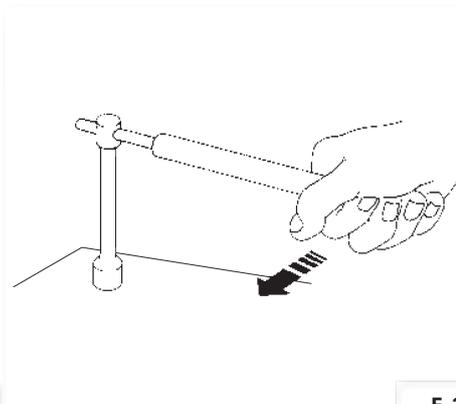


### RECOMMENDATIONS

- **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

## Introduction



**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*



## Familiarising yourself with the motorcycle

MAINTENANCE OPERATIONS	1 <sup>st</sup> SERVICE 1.000 KMS.	2 <sup>nd</sup> SERVICE 3.000 KMS.	SER. EVERY 5.000 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 the exhaust system	•	•	•
Check condition of the battery and its terminals	•	•	•

## TECHNICAL SPECIFICATIONS AND CHARACTERISTICS

Dimensions	
Total length	1925 mm.
Total width	800 mm.
Total height	1110 mm.
Seat height	820 mm.
Distance between wheel shafts	1320 mm.
Minimum distance to the ground	250 mm.
Weight	
Empty	109 kg.
In running condition	114 kg.
Engine	
Type	4 stroke
Number of gears	5 gears
Cylinder and arrangement	Single cylinder, forward sloping
Cylinder capacity	249.9 cc
Diameter x stroke	65.5 x 74 mm
Compression ratio	9:1
Starting system	Kick-start and electric start
Lubrication system	Wet crankcase

## Familiarising yourself with the motorcycle



Transmission oil	
Type Quantity	CASTROL SAE 20W-50 API, "SH" or higher 1 litre
Air filter	
Type	Wet-type foam rubber cartridge
Fuel	
Type Fuel tank capacity	Lead-free petrol 7,5 L.
Carburettor	
Type	DellOrto VHST-28 ECS
Spark plug	
Type Distance between electrodes	D8EA / NGK DENSO 0,6 - 0,7 mm.
Clutch	
Type	Multi-disk in oil bath
Secondary transmission	
Engine output sprocket Rear wheel sprocket Transmission ratio Chain	Z = 17 Z = 44 1: 2,58 428 RN8 x 124 links

GEAR CHANGE				
Speed	Primary shaft	Secondary shaft	Gear ratio	
1 <sup>a</sup>	Z = 13	Z = 36	1: 2,77	
2 <sup>a</sup>	Z = 17	Z = 32	1: 1,88	
3 <sup>a</sup>	Z = 20	Z = 28	1: 1,40	
4 <sup>a</sup>	Z = 23	Z = 26	1: 1,13	
5 <sup>a</sup>	Z = 25	Z = 24	1: 0,96	

## Familiarising yourself with the motorcycle



<b>Suspension</b>	
Front	PAIOLI telescopic forks 0.37 mm bars 340 cc CASTROL SAE 15W per bar
Rear	Hydraulic shock absorber
<b>Brake disks</b>	
Front	260 mm. Ø
Rear	200 mm. Ø
<b>Mixed/road tyres</b>	
Front	100/80-17" 55P
Rear	130/70-17" 63P
<b>Enduro tyres</b>	
Front	90/100-19"
Rear	120/90-16
<b>Electrical equipment</b>	
Ignition system	C.D.I.
Generator	AC 120 w magneto generator
Battery	12 V - 5,5 Ah
Fuse	15 Amp
<b>Voltage and wattage of bulbs</b>	
Headlight	12V 55/60W H4
Rear light	12V 21/10W
Instrument panel	12V 1,2W
Turn indicators	12V 10W
Odometer lighting	Leds



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

## Familiarising yourself with the motorcycle



### 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 motorcycle does not have any visible scratches, marks, etc.

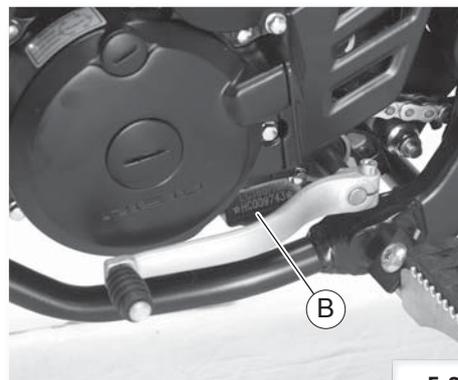
### DETAILS FOR IDENTIFICATION

#### Machine Identification Number

- The motorcycle’s identification number (A/F-1) is stamped onto the steering cylinder.

#### Engine identification number

- The details for identifying the engine (B/F-2) can be seen on the right-hand crankcase.





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



- 1. Headlight.
- 2. Right-hand controls.
- 3. Left-hand controls.
- 4. Seat.
- 5. Exhaust pipe.
- 6. Rear grab bar.
- 7. Prop stand.
- 8. Gear change pedal.
- 9. Fuel tank.

F-3

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



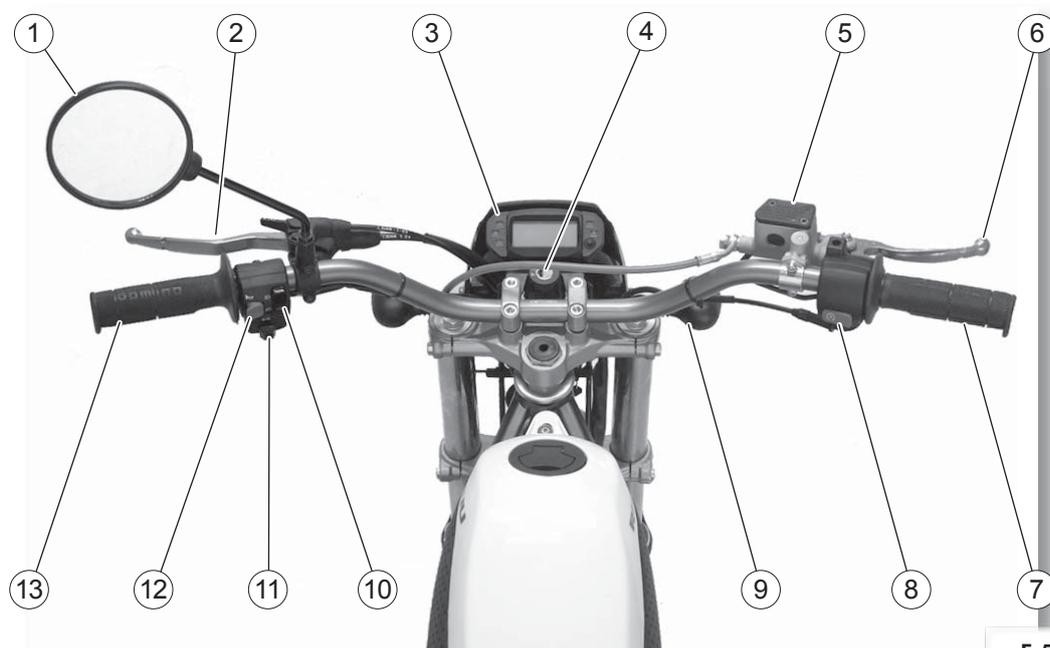
- 10. Fuel tank cap.
- 11. Forks.
- 12. Rear brake pedal.
- 13. Kick-start lever.
- 14. Pillion passenger foot-rests.
- 15. Number plate light and number plate holder.

F-4

## Familiarising yourself with the motorcycle



### CONTROLS AND INSTRUMENTS



F-5

- |                          |                                              |                               |
|--------------------------|----------------------------------------------|-------------------------------|
| 1. Rear-view mirror.     | 6. Front brake lever.                        | 11. Turn indicators switch.   |
| 2. Clutch lever.         | 7. Throttle twist grip.                      | 12. Horn button.              |
| 3. Instrument panel.     | 8. Starter button.                           | 13. Left-hand handlebar grip. |
| 4. Main switch.          | 9. Fuel tank cap.                            |                               |
| 5. Front brake cylinder. | 10. Light switch<br>(dipped beam/main beam). |                               |

### KEYS

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

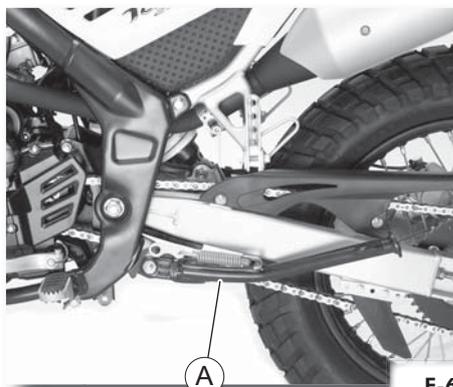
### STEERING LOCK

- **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.



## 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.

### 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.



## Familiarising yourself with the motorcycle



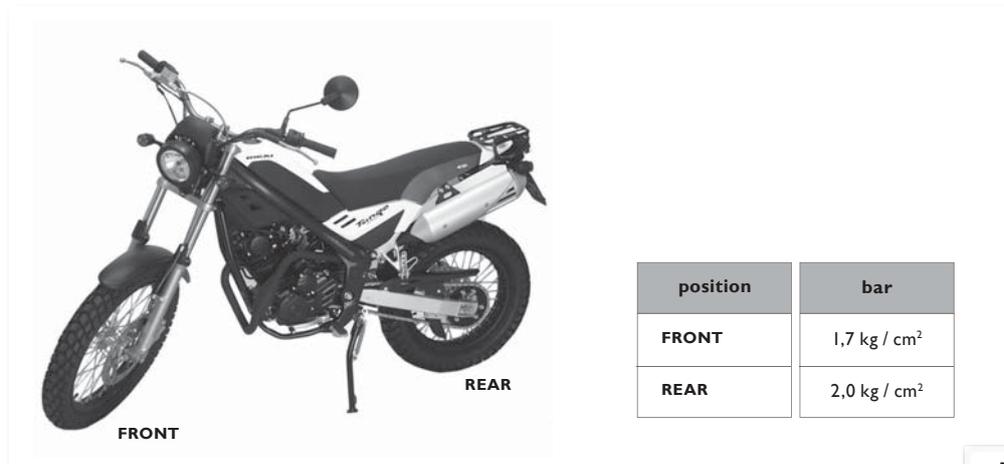
### TYRES

#### Dimensions

position	dimensions
FRONT	90/100 - 19 55P
REAR	120/90 - 16 63P

### CHECKING THE PRESSURE

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



position	bar
FRONT	1,7 kg / cm <sup>2</sup>
REAR	2,0 kg / cm <sup>2</sup>

F-8

### FUEL TANK

Unscrew the cap. Top up the tank, paying attention not to exceed the limit. If spilt petrol is observed on the motorcycle, clean it off immediately. Use normal lead-free petrol.

**Fuel tank capacity:** Total: 7 litres



F-9



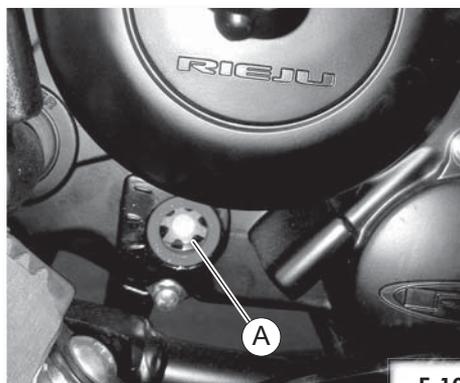
## TRANSMISSION OIL

### Changing the oil

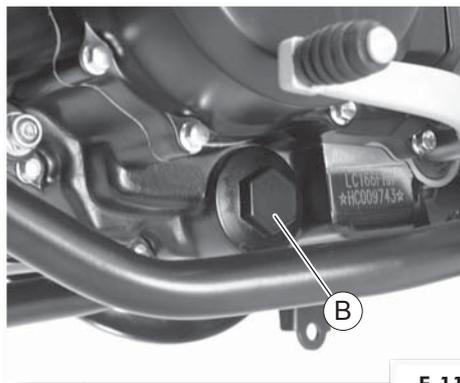
1. Stand the motorcycle on a flat surface.
2. Warm up the engine for several minutes.
3. Stop the engine. Place a container under the engine to hold the oil.
4. Extract the drain bolt (B/F-11) and the filler cap (C/F-12) to allow the oil to flow out.
5. When it has completely drained out, replace the drain bolt (B/F-11) and tighten it.
6. Fill the engine with fresh oil. Check the engine oil level using the inspection window (A/F-10).
7. Fit the filler cap (C/F-12) and tighten it.

The recommended engine oil is CASTROL SAE 20W-50 API, "SH" or higher.

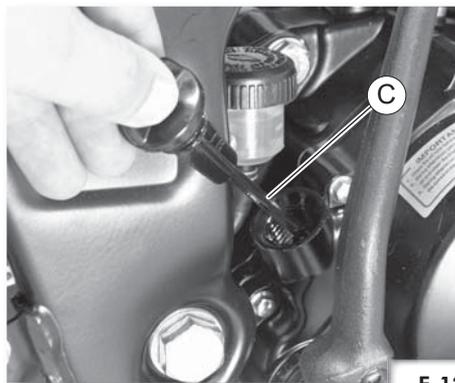
7. Start up the engine and warm up for a few minutes. While the engine is warming up, check that there are no oil leaks. If there are, stop the engine immediately and discover what the cause is.



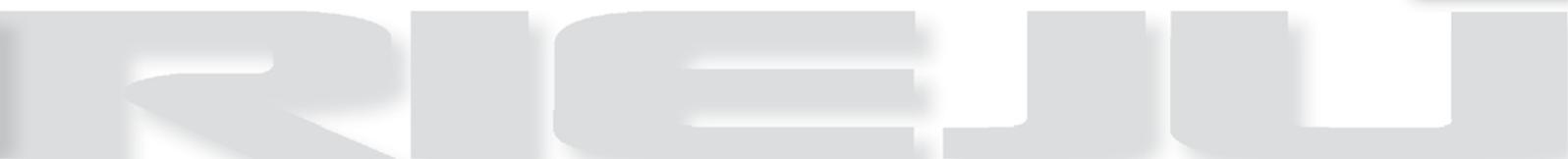
F-10



F-11



F-12





## BRAKE FLUID

### Check

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

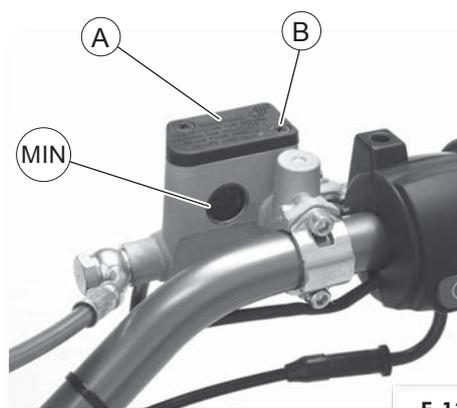
Check that the brake fluid level is above the minimum level mark on the rear brake fluid reservoir, and check that there is fluid for the front brake by looking through the inspection hole in the cylinder.

### Changing the fluid

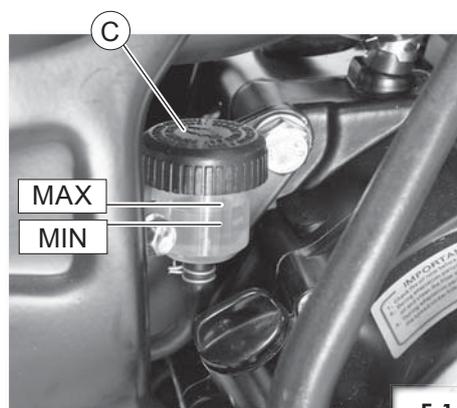
For the front brake, remove the cover (A/F-13) after removing the bolts (B/F-13). For the rear brake, remove the cap (C/F-14).

For the rear brake, remove the cap (C/F-14). 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**



F-13



F-14



**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-15). Screwing in increase the rate, and unscrewing decreases it.

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



F-15

## Familiarising yourself with the motorcycle

### 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-16), ensuring that there is the same distance on both sides of the shaft at all times.



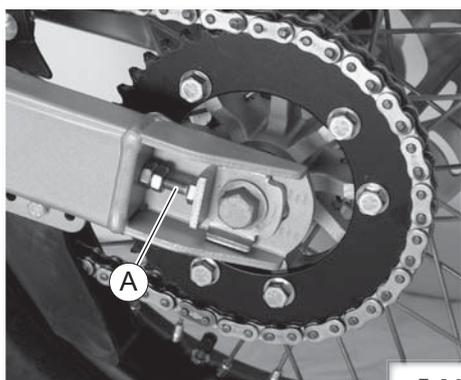
**ATTENTION:** Poor chain and wheel alignment may cause the chain to come off, as well as problems of stability on the motorcycle.

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.

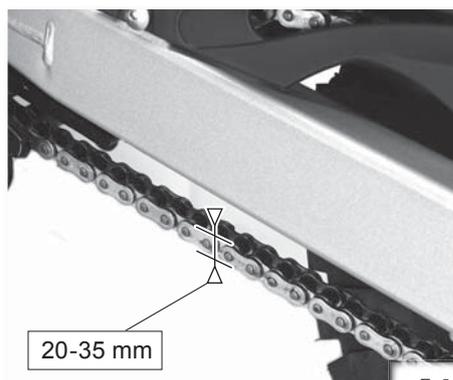
To check the free play, turn the rear wheel several times and check the tension at several points in order to find the point with the highest tension.

The motorcycle must be standing upright with its two wheels on the ground, and the free play of the chain should be from 20 to 35mm. (F-17).

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-16



F-17

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*

## Removal



### I. SEAT

Insert the key into the lock (A/F-1) located on the rear right-hand side and turn it to the right to release the seat.

Then lift the seat at the rear and pulling it backwards to withdraw it from the front anchor point (B/F-2).



F-1



F-2

### 2. SIDE COVERS

\* Remove the seat.

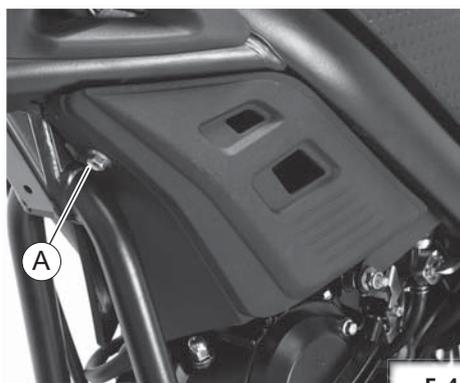
Remove the screw from the rear (A/F-3).



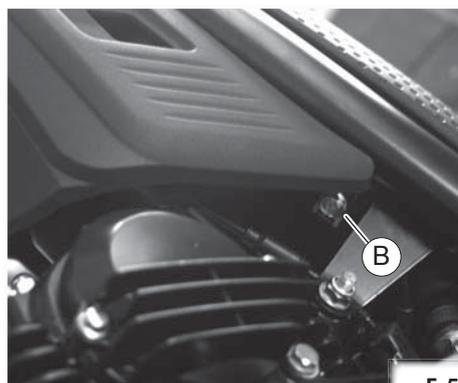
F-3

### 3. FRONT SIDE COVERS

Unscrew the bolt (A/F-4) and the bolt (B/F-5) situated at the bottom rear.



F-4



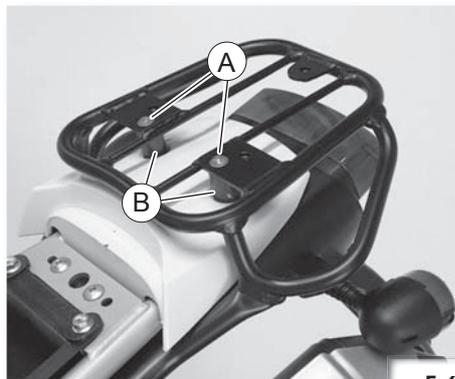
F-5

## Removal

### 4. REAR COWLING

\* Remove the seat.

Unscrew the 2 bolts (A/F-6).  
Then remove the 2 spacers (B/F-6) and withdraw from the front.



F-6



### 5. SILENCER

Loosen the clamp (A/F-7) on the connection between the exhaust pipe and the silencer.  
Then unscrew the 2 bolts (B/F-8) 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-7



F-8

## Removal

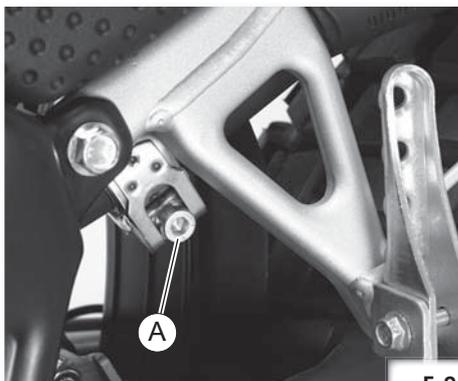


### 6. EXHAUST PIPE

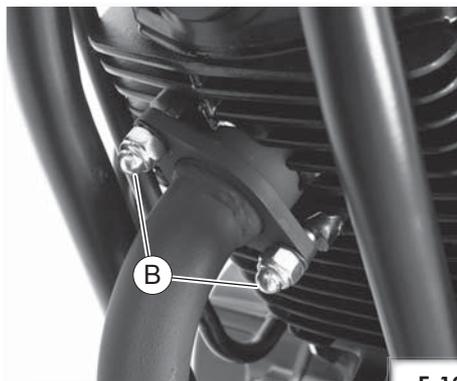
Loosen the clamp (A/F-9) on the connection between the exhaust pipe and the silencer. Remove the 2 nuts (B/F-10) securing the exhaust pipe to the engine at the front.



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



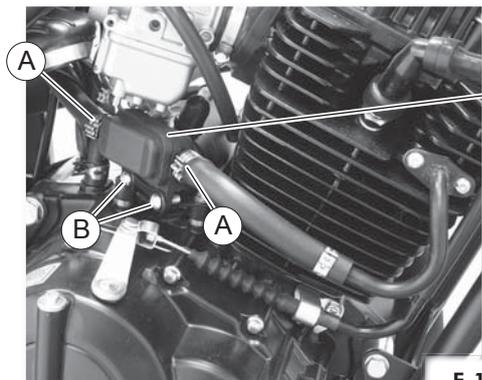
F-9



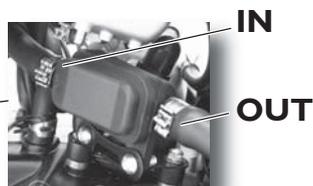
F-10

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

Disconnect the clamps from the pipes (A/F-11). Then unscrew the 2 securing bolts (B/F-11).



F-11



**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.

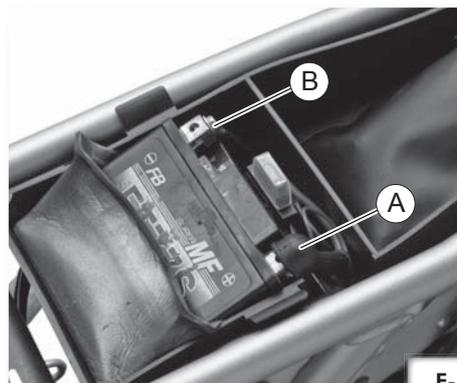
### 8. BATTERY

\*Remove the seat.

Disconnect the two cables.

Positive (A/F-12) red.

Negative (B/F-12) black.



F-12

## Removal

### 9. REAR TURN INDICATORS

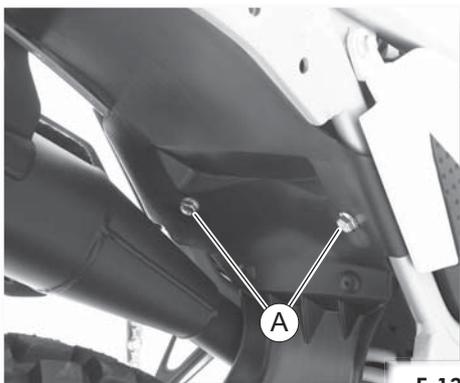
Unscrew the 2 bolts (A/F-13) from the wheel arch protector and the rear nut (B/F-14).

Disconnect the cables (C/F-15) from the general wiring.

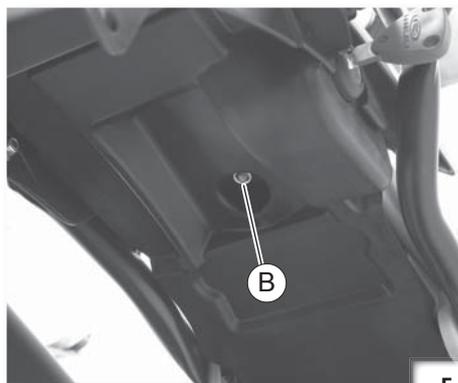
Then loosen the screw (D/F-16) securing the nut on the inside, and pull out the cable to remove the light.



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



F-13



F-14



F-15



F-16



## Removal



### 10. REAR LIGHT

\* Remove the wheel arch protection cover (See **9. Rear turn indicators**).

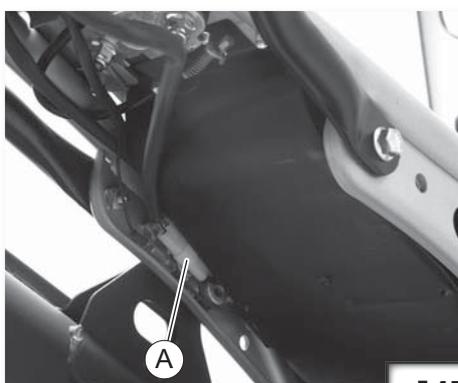
Disconnect the terminal (A/F-17) from the wiring.

Then loosen the two screws (B/F-18) securing the rear light cover.

To extract it, pull the cable (C/F-19) to remove the light.



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



F-17



F-18



F-19

## Removal

### 11. AIR FILTER

\*Remove the seat and the right-hand side cover.

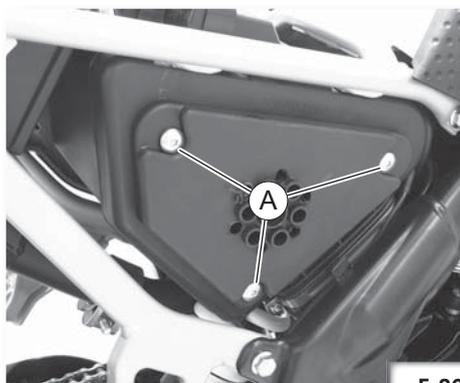
Unscrew the 3 screws (A/F-20) from the filter cover.  
Then remove the filter (B/F-21).



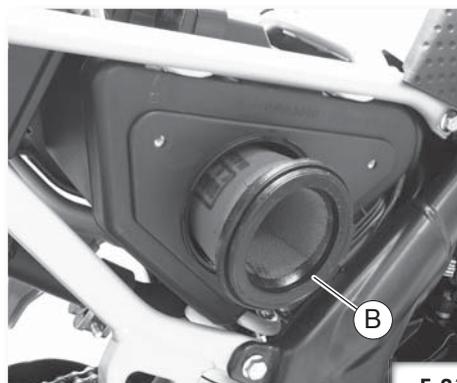
**ATTENTION:** When refitting, situate the fin (C/F-22) on the filter forwards as indicated in the image.



**ATTENTION:** This type of filter is always kept wet with oil.



F-20



F-21



F-22





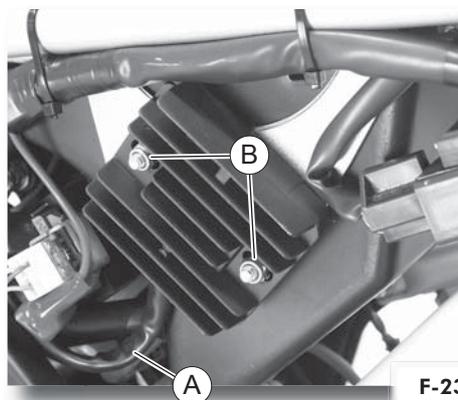
## Removal

### 12. REGULATOR

\*Remove the seat and the left-hand side cover.

Disconnect the regulator from the wiring (A/F-23).

Then unscrew the 2 nuts (B/F-22) to withdraw it.



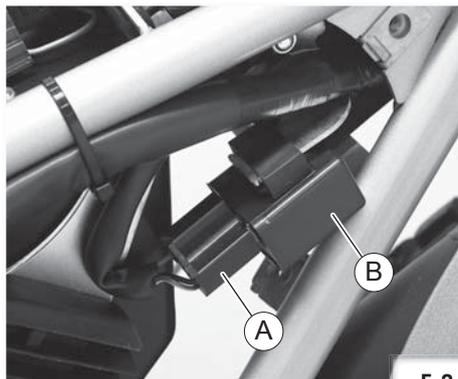
F-23

### 13. TURN INDICATORS CONTROL UNIT

\*Remove the seat and the left-hand side cover.

Disconnect the turn indicators control unit (A/F-24) from the general wiring.

Then extract it from the rubber (B/F-24).



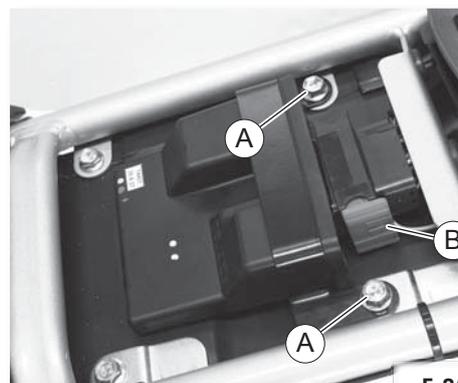
F-24

### 14. CENTRAL CDI UNIT

\*Remove the seat.

Unscrew the 2 bolts (A/F-25) from the bracket.

Disconnect the central CDI unit (B/F-25) from the general wiring.



F-25

# Removal

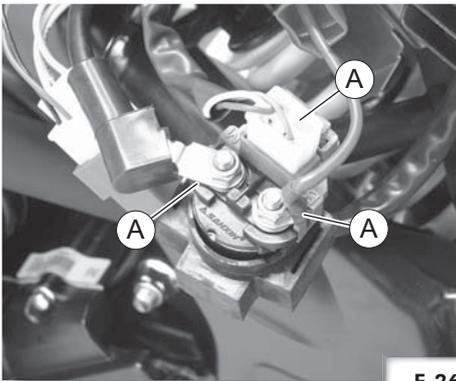
## 15. STARTER RELAY

\* Remove the seat and the left-hand side cover.

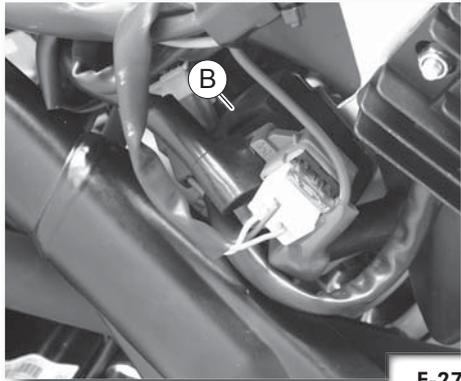


**ATTENTION:** Cover the relay terminals with a protector to prevent them from short-circuiting with the chassis.

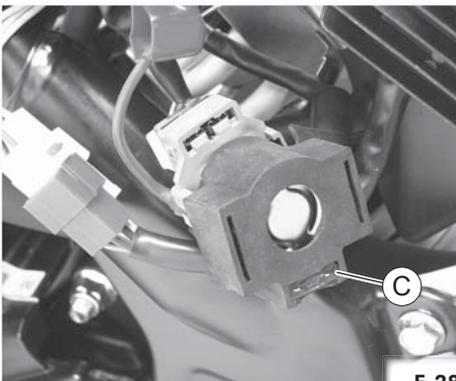
Disconnect the starter relay (A/F-26).  
 Remove the starter relay from the bracket (B/F-27).  
 A spare fuse (C/F-28) is housed at the back of the securing rubber.



F-26



F-27



F-28

## 16. GEAR LEVER

Unscrew the securing bolt (A/F-29).



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



F-29

## Removal



### 17. FILTER CANISTER

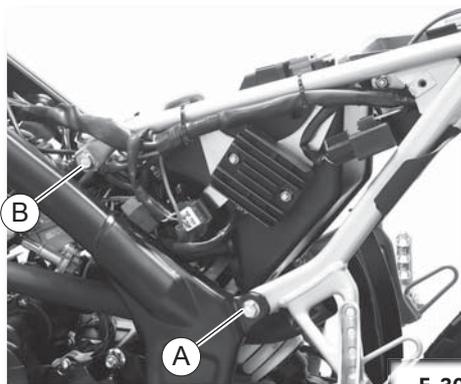
\* Remove the seat, the fuel tank and the silencer.

To make the task easier, unscrew the 2 bolts (A/F-30) from the rear of the chassis and loosen the 2 front ones (B/F-30).

Loosen the nozzle (C/F-31) from the carburettor and the breather pipe.

Then unscrew the 4 bolts (D/F-32) from the top of the canister.

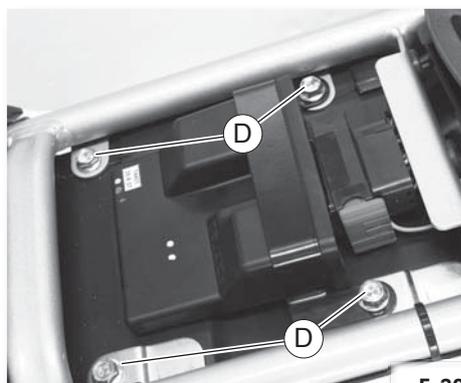
To extract it, lift the rear chassis (F-33) and remove it.



F-30



F-31



F-32



F-33

## Removal

### 18. SHOCK ABSORBER

\*Remove the seat and the filter canister.

To make the task easier, unscrew the 2 bolts (A/F-34) from the rear of the chassis and loosen the 2 front ones (B/F-34).

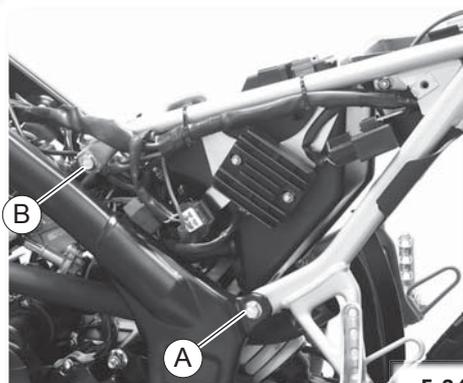
Unscrew the 2 bolts (C/F-35) securing the shock absorber to the chassis and withdraw backwards.



**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.



F-34



F-35



## Removal

### 19. FUEL TANK

\*Remove the seat.



**ATTENTION:** Before removal, shut the fuel tap on the tank.

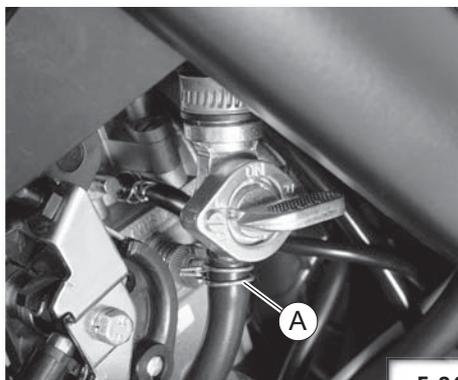
Remove the fuel tap clamp (A/F-36).

Unscrew the 3 screws (B/F-37) securing the tank to the chassis.

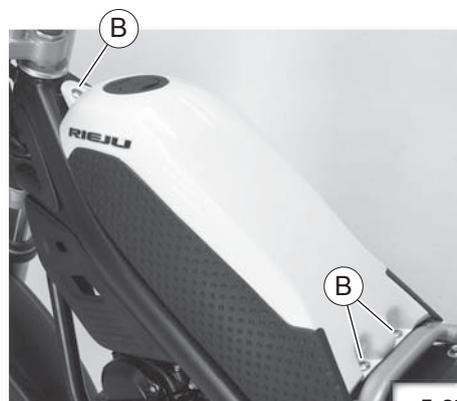
Then remove the cap and separate the protector from the tank (C/F-38).



Place a container under the tank and drain out the petrol by removing the clamp (D/F-39).



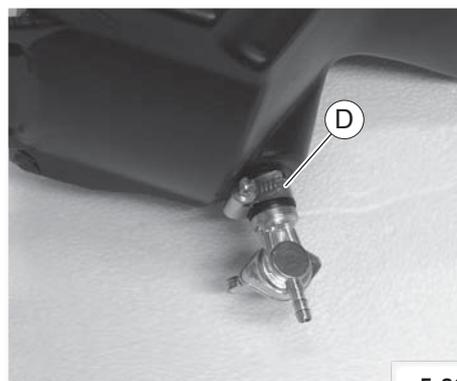
F-36



F-37



F-38



F-39

## Removal

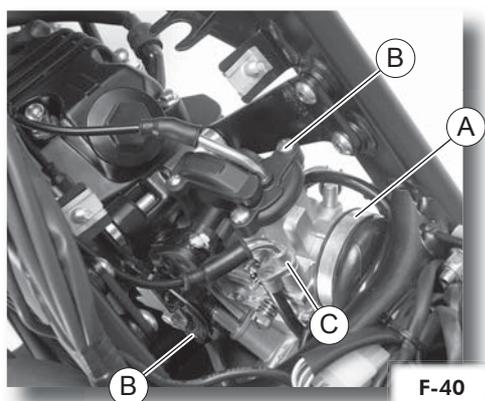
### 20. CARBURETTOR

\*Remove the seat and the fuel tank.

Loosen the 2 clamps (A/F-40) securing the carburettor to the filter canister and to the engine.

Disconnect the throttle cables (B/F-40). Disconnect the choke cable (C/F-40).

Then disconnect the suction hose and the remaining pipes.



F-40



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

### 21. PROP STAND



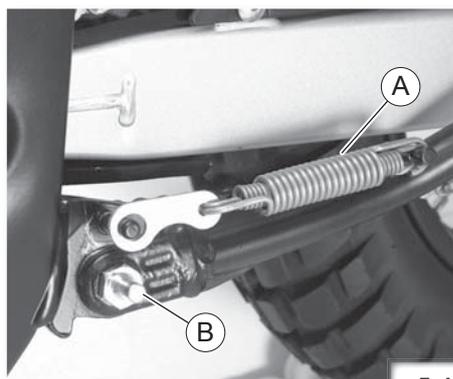
**ATTENTION:** Secure the motorcycle before carrying out this operation.



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

Remove the tensioning spring (A/F-41).

Then unscrew the bolt (B/F-41).



F-41

### 22. FRONT MUDGUARDS (ENDURO as an example)

Unscrew the 4 bolts (A/F-42), two on each side, securing the mudguard to the forks.

Withdraw it forwards.



F-42

## Removal



### 23. ENGINE

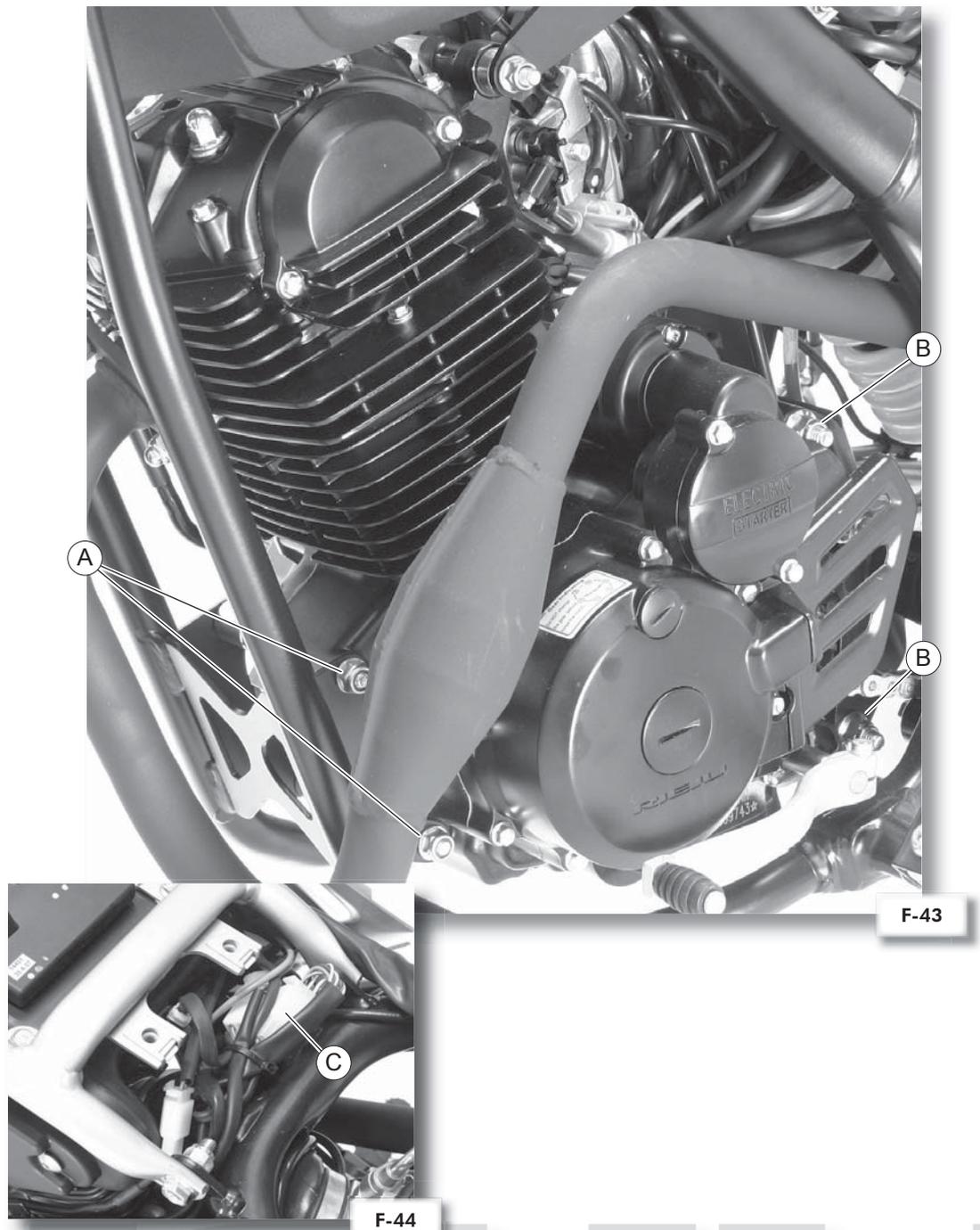
\* Remove the front side covers, the carburettor and the exhaust pipe.  
To make the task easier, remove the rear brake pedal.

Disconnect the **SPARK PLUG**, the **CLUTCH CABLE**, the **ENGINE AIR INTAKE**, the **CARBURETTOR** and the **TRANSMISSION CHAIN**.

Gain access from the top to disconnect the 2 terminals from the engine (C/F-44).

Unscrew the 2 bolts (A/F-43) from the front engine mounting.

Then unscrew the 4 bolts (B/F-43) securing the engine.



## Removal

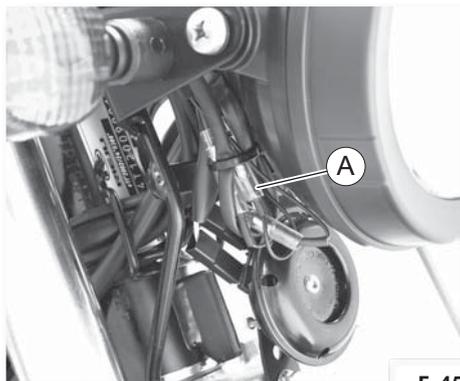
### 24. FRONT TURN INDICATORS

Disconnect the light from the general wiring (A/F-45).

Then loosen the screw (B/F-46) securing the nut on the inside, and pull out the cable to remove the light.



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



F-45



F-46

### 25. FRONT HEADLIGHT (ENDURO as an example)

\* To make the task easier, unscrew the 3 bolts on the fuel tank and move it clear to access the headlight connection.

Disconnect the headlight terminal (A/F-47) from the wiring.  
Then unscrew the 2 screws (B/F-48) securing the headlight.



F-47



F-48



## Removal



### 26. INSTRUMENT PANEL

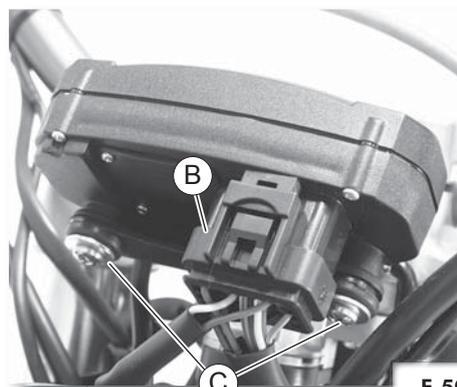
Remove the headlight trim (A/F-49) to access the odometer connections.

Disconnect the odometer (B/F-50).

Then unscrew the 2 top screws (C/F-50) securing the screen to the bracket.



F-49



F-50

### 27. FRONT BRAKE CYLINDER

Disconnect the brake light micro-switch terminals (A/F-51).

Unscrew the connector (B/F-52) securing the pipe to the cylinder.

Then unscrew the 2 screws (C/F-52) and remove the front brake cylinder.



**ATTENTION:**

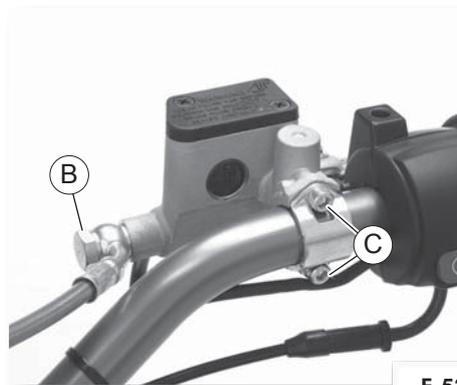
The copper gaskets should be renewed and the circuit bled when refitting the brake cylinder.



**ATTENTION:** Brake fluid is corrosive.



F-51



F-52

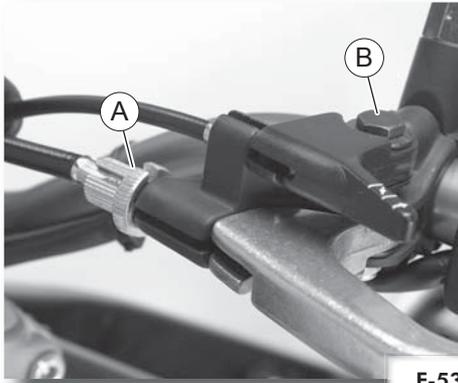
# Removal



## 28. CLUTCH LEVER

Disconnect the clutch cable (A/F-53) and the choke cable (B/F-53).

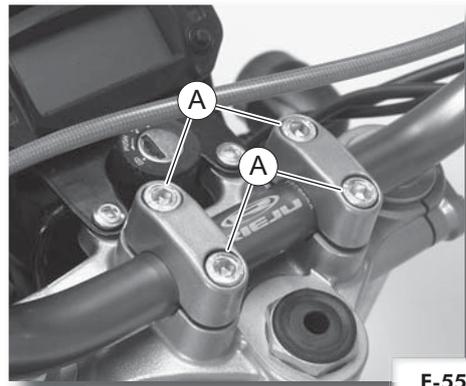
Then unscrew the 2 screws (C/F-54) and remove the lever.



## 29. HANDLEBARS

\*Remove the controls on each end.

Unscrew the 4 bolts (A/F-55) and remove the handlebars.



## 30. FRONT BRAKE CALLIPER

Unscrew the connector using the bolt (A/F-56).

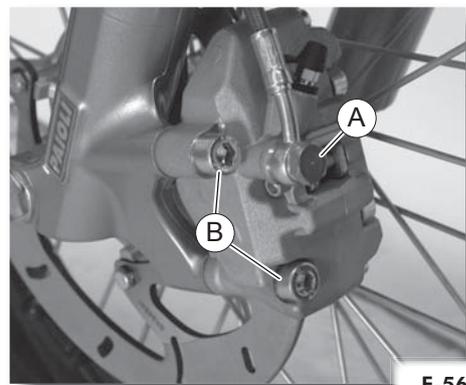
Then unscrew the 2 bolts (B/F-56) securing the calliper to the front forks.



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



**ATTENTION:** Brake fluid is corrosive.



## Removal



### 31. REAR BRAKE CALLIPER

Unscrew the connector using the bolt (A/F-57).

Then unscrew the 2 bolts (B/F-57) securing the calliper to the calliper bracket.

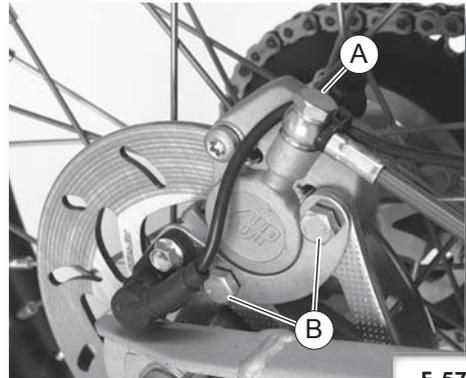


#### ATTENTION:

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



**ATTENTION:** Brake fluid is corrosive.



F-57

### 32. ODOMETER SENSOR

Remove the headlight trim (A/F-58).

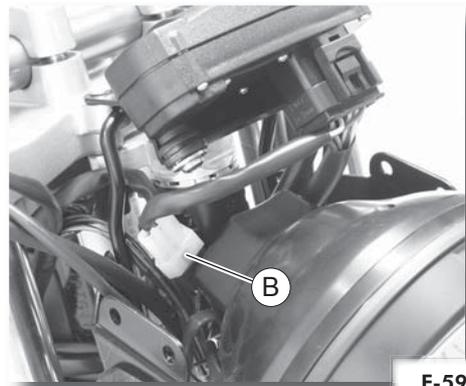
Disconnect the sensor (B/F-59) from the wiring.

Remove the clips holding the cable along the length of the chassis.

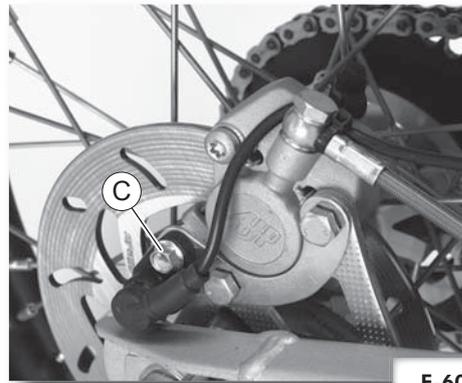
Remove the bolt securing the bracket (C/F-60).



F-58



F-59



F-60

## Removal



### 33. FRONT WHEEL

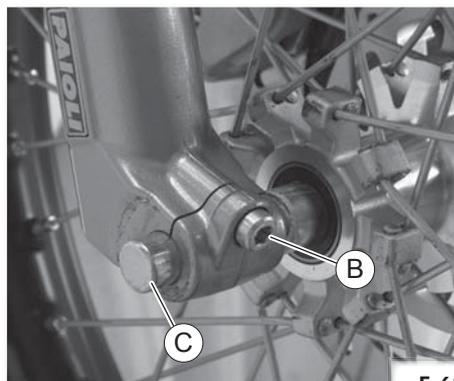
Unscrew the nut (A/F-61).

Loosen the wheel shaft securing bolt (B/F-62) located on the forks.

Remove the wheel shaft (C/F-62).



F-61

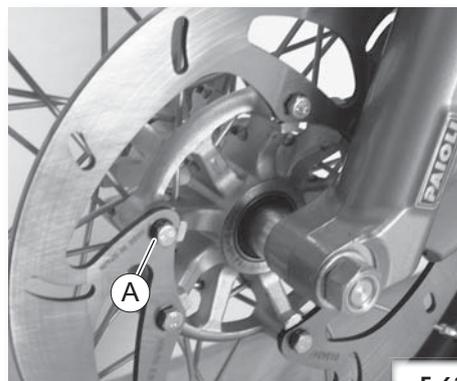


F-62

### 34. FRONT BRAKE DISK

\* Remove the front wheel.

Unscrew the bolts (A/F-63) securing the disk.



F-63

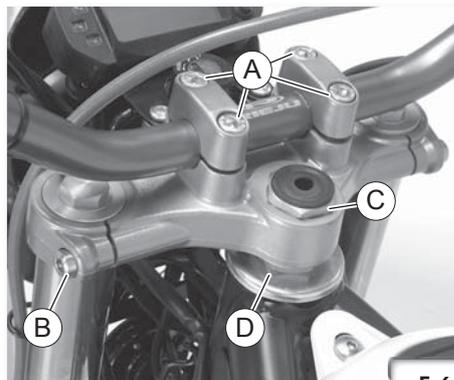
### 35. STEERING

Unscrew the 4 handlebar screws (A/F-64).

Loosen the 2 side bolts (B/F-64) to aid its extraction.

Extract the top nut (C/F-64) and remove the top plate.

To remove the wheel shaft, unscrew the nut (D/F-64).



F-64

## Removal



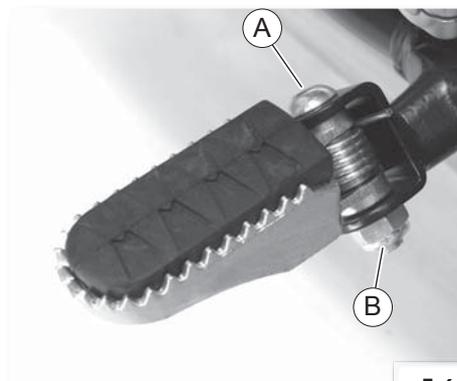
### 36. FRONT FOOTRESTS

Unscrew the screw (A/F-65) securing the nut (B/F-65).



#### ATTENTION:

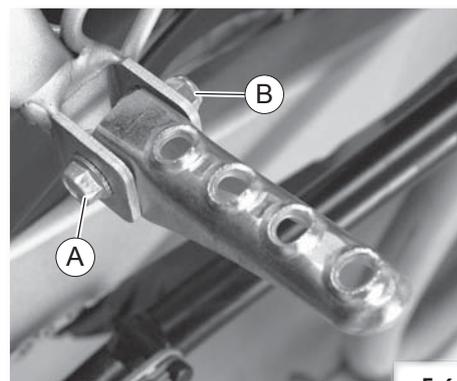
Make a note of the position of the spring so that it can be refitted correctly.



F-65

### 37. REAR FOOTRESTS

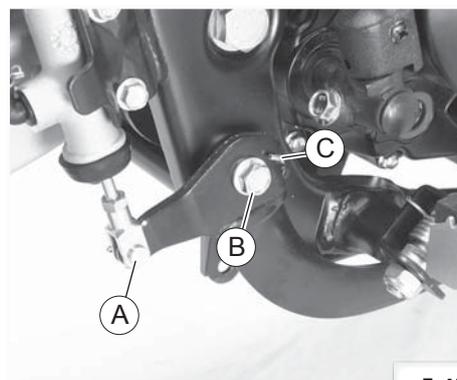
Unscrew the bolt (A/F-66) securing the nut (B/F-66).



F-66

### 38. REAR BRAKE PEDAL

Remove the cotter pin (A/F-67). Then remove the bolt (B/F-67), the pedal and the internal spring (C/F-67).

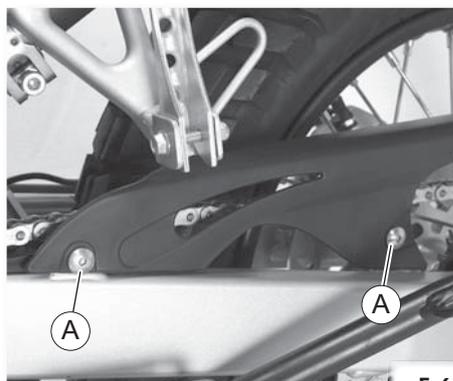


F-67

## Removal

### 39. CHAIN PROTECTOR

Unscrew the 2 screws (A/F-68) and remove the protector.



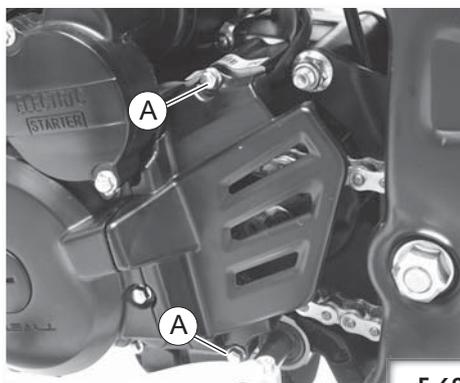
F-68

### 40. TRANSMISSION CHAIN

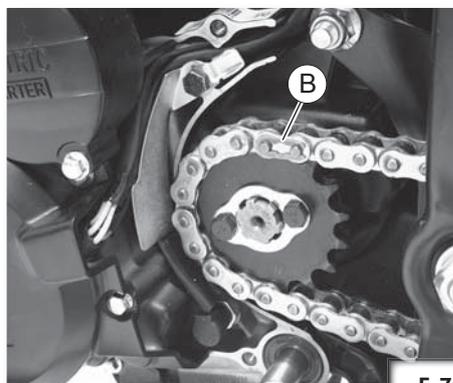
Remove the 2 bolts (A/F-69) securing the protector and remove it. Extract the clip (B/F-70) securing the connector link and remove the chain.



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



F-69



F-70



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



## Removal

### 41. REAR BRAKE CYLINDER

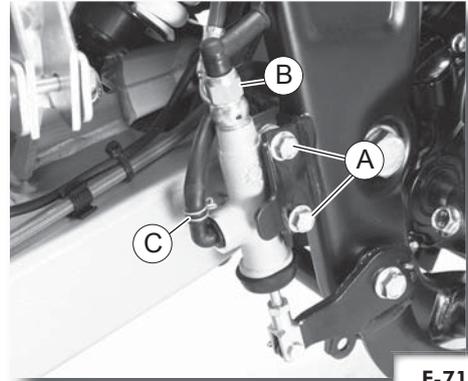
Unscrew the 2 bolts (A/F-71).

To remove the cylinder it is necessary to disconnect the STOP switch (B/F-71) and unscrew it.

Remove the clamp (C/F-71) from the brake fluid supply tube and drain into a container.



**ATTENTION:** Brake fluid is corrosive.



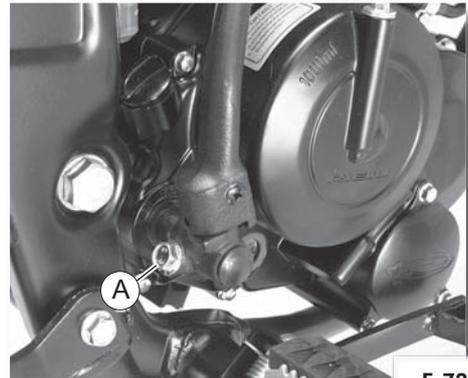
F-71

### 42. KICK-START LEVER

Unscrew the nut (A/F-72) and extract the lever by pulling it off.



**ATTENTION:** Refitting the lever in a different position to the original may reduce the travel during kick-starting.

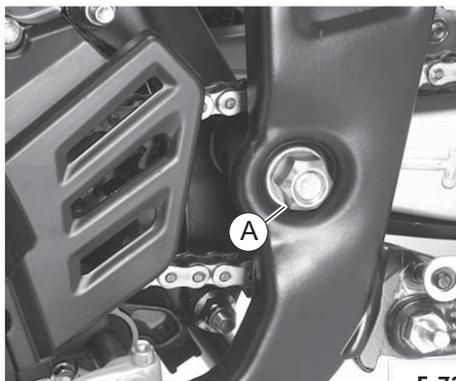


F-72

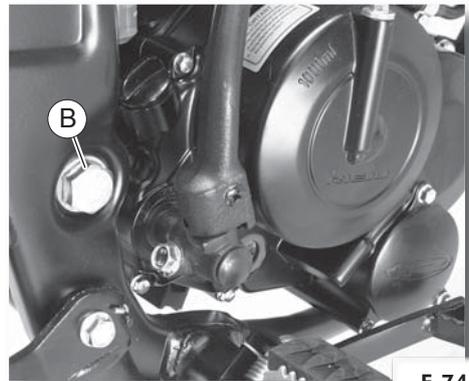
### 43. SWINGING ARM

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

Unscrew nut (A/F-73) and withdraw the shaft (B/F-74) from the other end.



F-73



F-74

## *Electrical system*

# 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 not 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. BATTERY

#### CHECKING THE CONDITION OF THE BATTERY

- The battery should be removed from the machine to carry out checks.
- When removing it, first disconnect the negative terminal to avoid any possible short circuits.
- The condition of hermetically-sealed batteries can be checked by measuring voltage across the terminals with a digital meter that can measure tenths of volts.
- Should the voltage be below that specified, the battery needs to be recharged.

The standard voltage across the terminals should be 12.5V or higher.

#### PROCEDURE FOR RECHARGING

Recharging hermetically-sealed batteries requires a charger with a specially stabilised output for this type of battery.

These batteries are sealed. Do not add liquid nor open the plugs. This will modify the characteristics and damage the battery.

Do not charge over 1/10th of its capacity.

#### SYSTEM FOR DETERMINING THE LENGTH OF CHARGE

In order to determine the length of time the battery should be on charge, the voltage across the terminals should be measured using a meter.

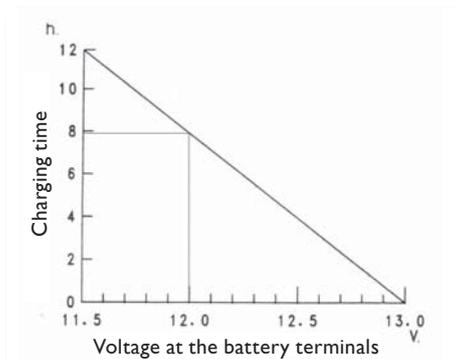
Then noting the voltage axis on the graph, draw a vertical line until it intersects the slope of the charge, and a horizontal one to the time axis in hours.

#### Example:

Observing the graph.

If we measure 12V across the terminals, we draw a line up from the 12V to intersect the slope, and a horizontal one up to approx. 8 hours.

The charging time for the battery would be approx. 8 hours.



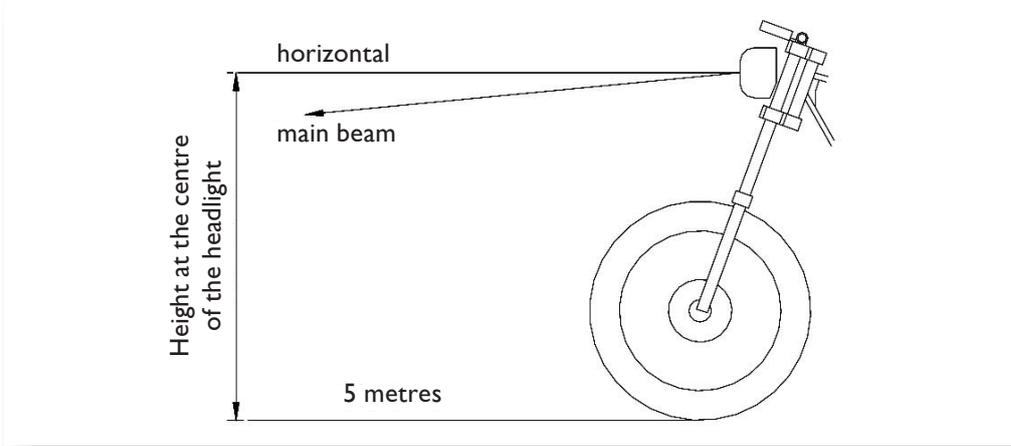
Graph of the charging time in terms of the voltage at the terminals.

# Lighting system



## 4. LIGHTING SYSTEM

### Adjusting the height of the front headlight beam

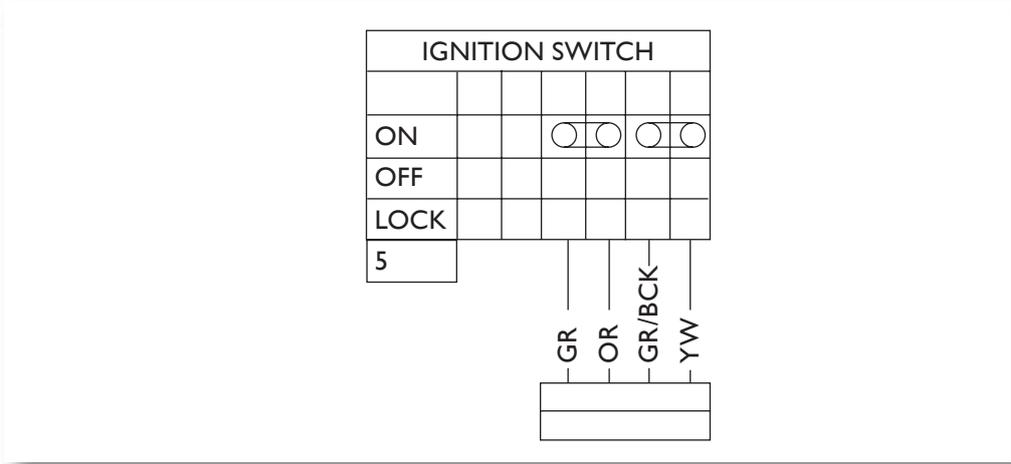


With the rider seated on the machines, the headlight beam should be adjusted in such a way that the main beam is situated below the headlight horizontal.

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.

### Checking the switches:

#### Checking the ignition switch



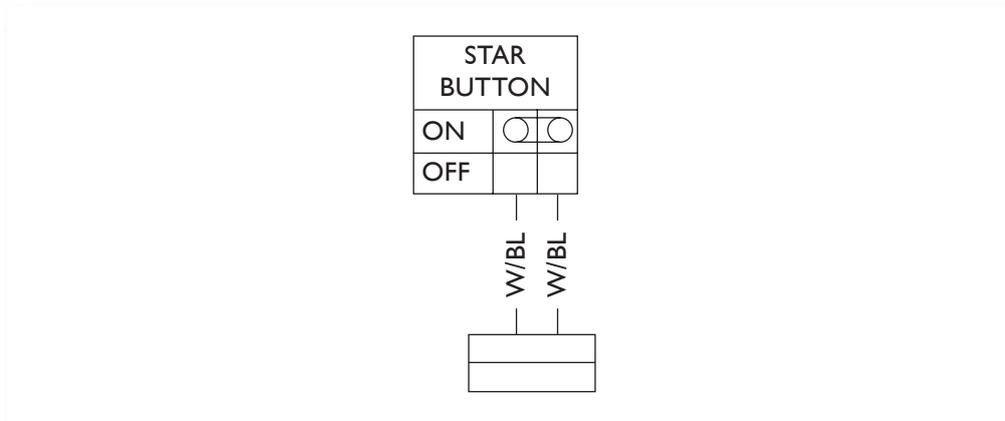
Use a meter to check that there is a circuit between the ignition switch connector cables.

ON position – circuit between cables

**Colour: GR and OR  
GR/BCK&YW**



## Checking right-hand light switch and start button.

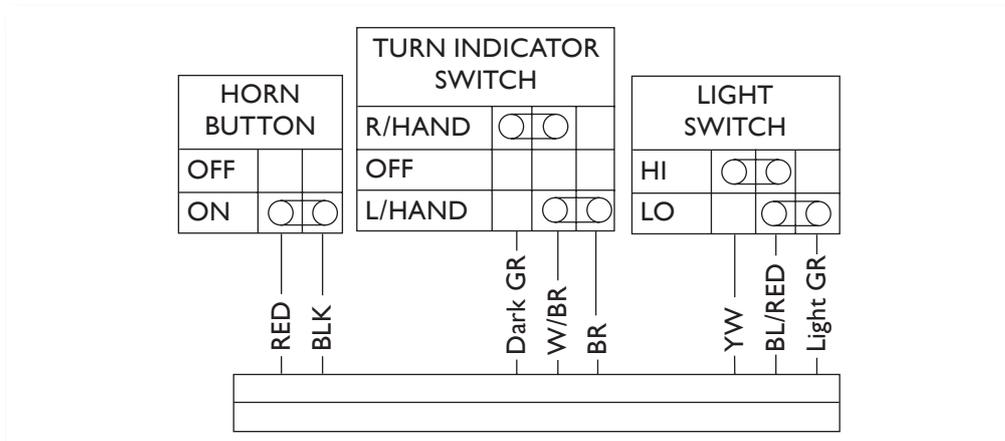


Check that there is a circuit between the connector cables.

Start button ON button position – circuit between the cables

**Colour: W/BL and W/BL**

## Checking the right controls: Light switch, turn indicator switch and horn button.



Check that there is a circuit between the connector cables.

### Horn button

ON position Circuit between the cables **Colour: RED/BLK**

### Turn indicators switch

R/HAND position. Circuit between cables **Colour: Dark GR and W/BR**

L/HAND position. Circuit between the cables **Colour: W/BR and BR**

### Light switch

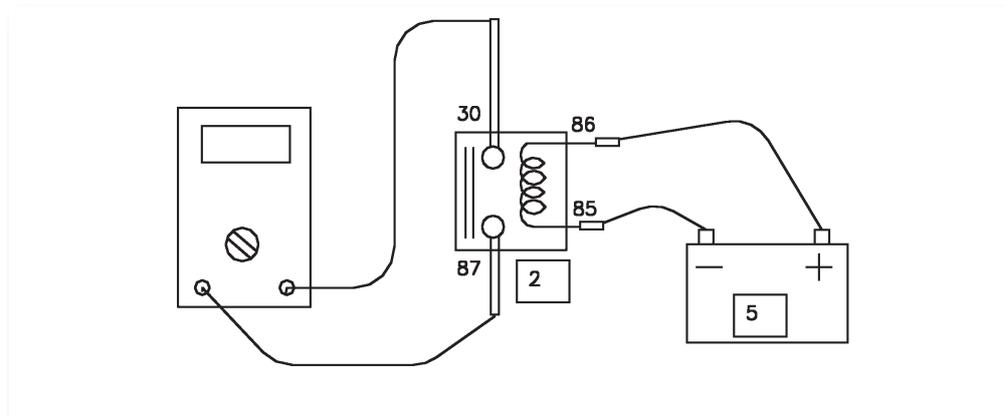
HI position. Circuit between the cables **Colour: YW and BL/RED**

LO position. Circuit between the cables **Colour: BL/RED and Light GR**

## Lighting system



### Checking the contact relay



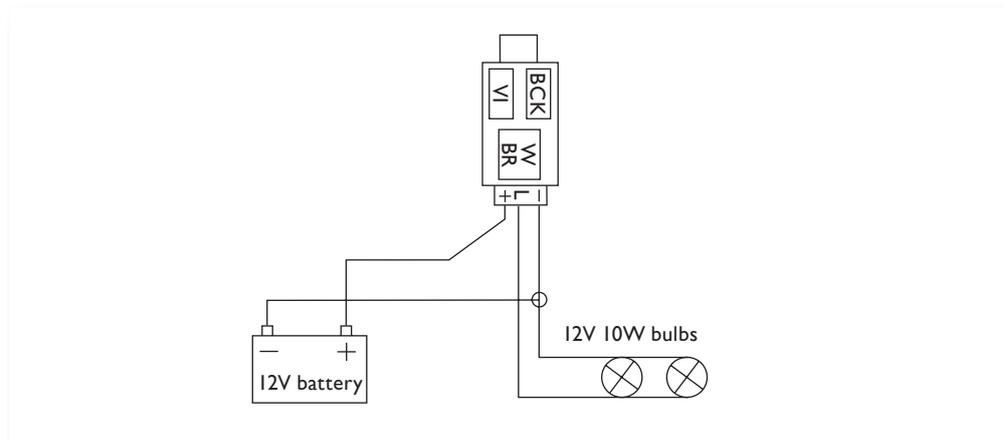
With relay terminals 85 and 86 connected to a battery, check the circuit between terminals 30 and 87.

The meter should register  $0 \Omega$

On disconnecting the battery, it should register infinity.

The meter should register  $\infty$  (infinity)

### Checking the turn indicator relay



Connect the turn indicator relay according to the diagram to check if it flashes. The bulbs can be replaced by 12V and 21W ones.

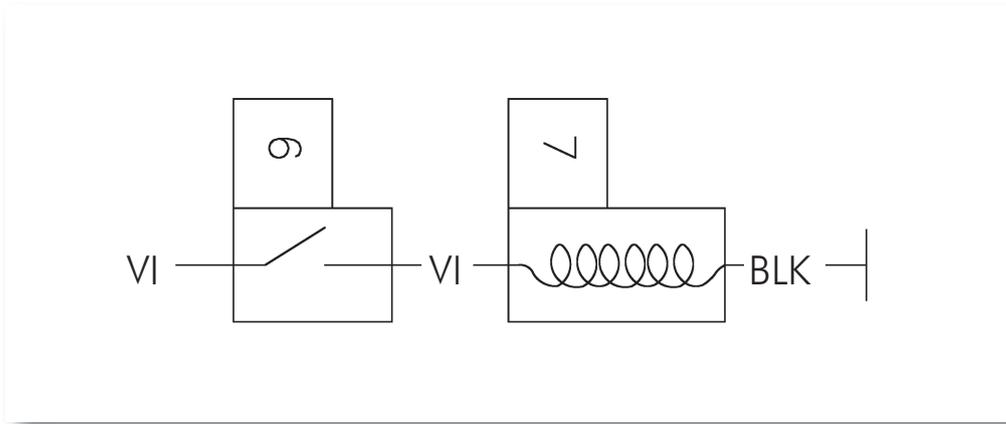


## 5. SENSORS

### Neutral sensor

To check this sensor, the circuit should be checked between the terminal and earth.  
With the gearbox in neutral, it should register  $0\Omega$   
On selecting a gear the meter should register  $\infty$  (Infinity).

### Checking the diode



- 6. Ambient temperature sensor.
- 7. Carburettor thermal resistance.

### Checking the ambient temperature sensor

Check the resistance with the meter between the ends of the sensor - under  $11^{\circ}\text{C} \pm 3$  the resistance value is  $0\Omega$ .  
When the temperature rises, it should switch off at  $16^{\circ}\text{C}$ , and the  $\Omega$  value should be infinity.

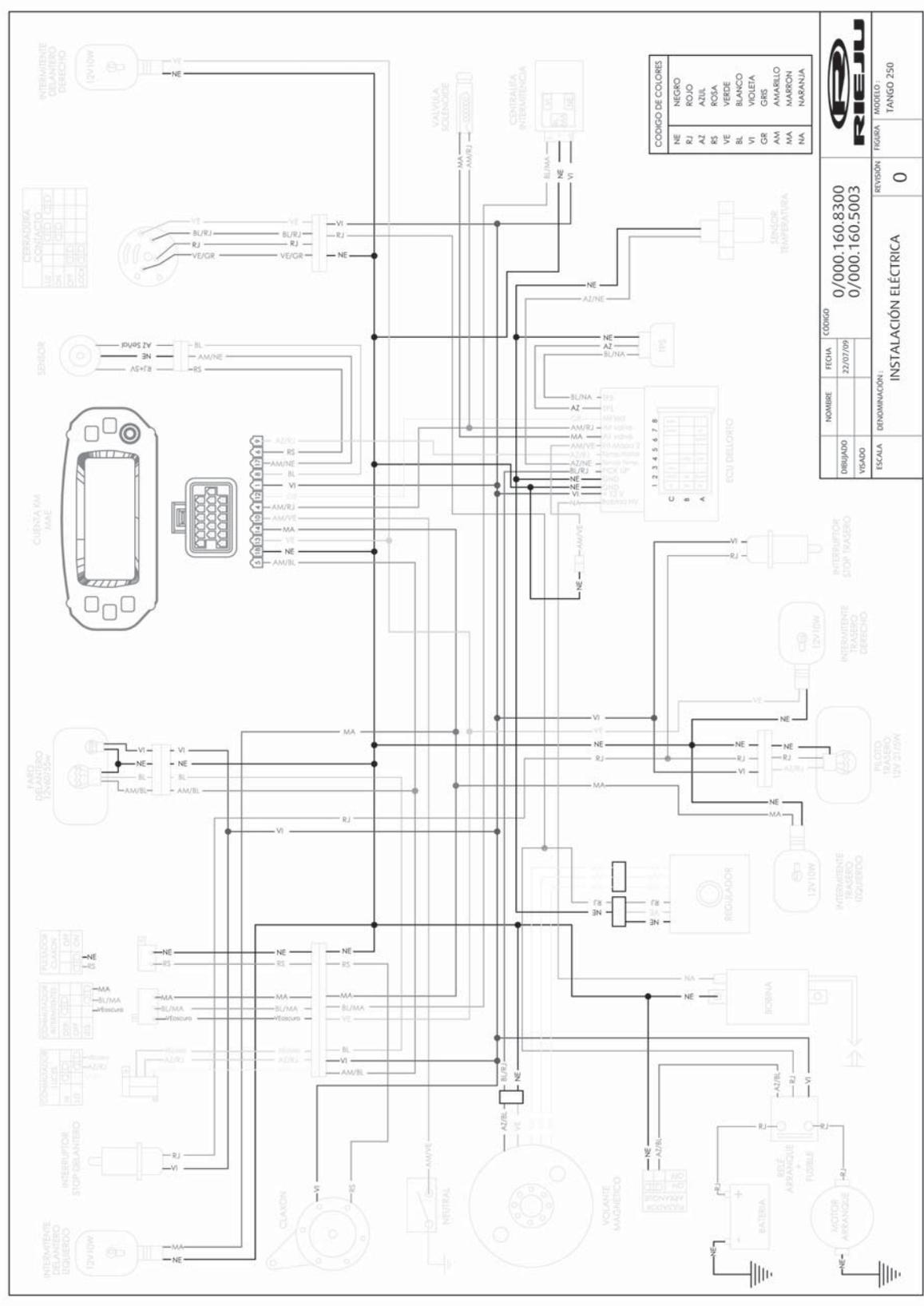
### Checking the thermal resistance

To check whether the thermal resistance works properly, it should be connected to a 12V battery and should warm up within a few seconds.

# Electrical system



## 6. WIRING DIAGRAM





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