

# BEDIENUNGSANLEITUNG 2005

**250 EXC RACING  
400 EXC RACING  
450 SX, MXC, EXC RACING  
525 SX, MXC, EXC RACING**

OWNER'S MANUAL  
MANUALE D'USO  
MANUEL D'UTILISATION  
MANUAL DE INSTRUCCIONES

ART. NR. 3.211.39



**KTM**

Please read this manual carefully and completely before going on your first ride. It contains a great deal of information and advice which will help you use and handle your bike properly. In your own interest, please pay particular attention to notices that are marked as follows:

**⚠ WARNING**

- IGNORING THESE INSTRUCTIONS CAN BE DANGEROUS TO LIFE AND LIMB!

**! CAUTION**

- IGNORING THESE INSTRUCTIONS MAY DAMAGE PARTS OF THE MOTORCYCLE OR IMPAIR THE MOTORCYCLE'S TRAFFIC SAFETY!

Please insert the serial numbers of your motorcycle in the boxes below

Frame number

Engine number

Key number

Stamp of dealer

**CONSUMER INFORMATION FOR AUSTRALIA ONLY**

Tampering with noise control system prohibited

Owners are warned that the law may prohibit:

- The removal or rendering inoperative by any person other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; and
- the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

All information contained is without obligation. KTM-Sportmotorcycle AG particularly reserves the right to modify any equipment, technical specifications, prices, colors, shapes, materials, services, service work, constructions, equipment and the like so as to adapt them to local conditions or to cancel any of the above items, all without previous announcement and without giving reasons. KTM may stop manufacturing certain models without previous notice. KTM shall not be held liable for any deviations of availability and/or ability to deliver, illustrations, descriptions, printing and/or other errors. The illustrated models partly contain extra equipment, which is not applied to standard models.

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We would like to congratulate you on your purchase of a KTM motorcycle.

You are now the owner of a state-of-the-art sport motorcycle that guarantees to bring you lots of fun and enjoyment, provided that you clean and maintain it appropriately. **Before you go for your first ride, be sure to read this manual carefully and thoroughly in order to familiarize yourself with how to operate your new motorcycle and with its characteristics, even if this means that you will have to dedicate some of your valuable time to this task. Only by doing so will you learn how to tune your motorcycle to your specific needs and how to protect yourself against injury. Besides, this manual contains important information on motorcycle maintenance.** At the time this manual was typeset, it was up-to-date with the latest state of this production series. It cannot be completely ruled out, however, that minor discrepancies may exist resulting from further design upgrades of these motorcycles. This manual is an important part of your motorcycle and should be passed on to any subsequent owner in case you decide to sell it.

We expressly point out that work marked with an asterisk in the chapter "Maintenance work on the chassis and engine" must be performed. If maintenance work should become necessary during a competition it should be performed by a trained mechanic. KTM strongly recommends that all service work to your KTM should be performed by a qualified KTM dealer.

**For your own safety, use KTM-approved parts and accessories only. KTM is not liable for damage that arises in connection with the use of other products.**

Take special care to follow the recommended run in, inspection, and maintenance intervals. Heeding these guidelines will significantly increase the life of your motorcycle. To ensure that all work to your KTM is performed properly and to avoid warranty conflicts, KTM recommends that you always have your KTM serviced by a recognized and qualified KTM dealer.

Off-road motorcycle driving is a wonderful sport and we hope that you will be able to enjoy it to the full. It may, however, involve potential problems for the environment or lead to conflicts with others. These problems or conflicts can be avoided if the motorcycle is used responsibly. To safeguard the future of motorcycle sports, make sure that you use the motorcycle in accordance with the law, show that you are environmentally conscious and respect the rights of others.

We wish you a lot of fun when driving !

KTM-SPORTMOTORCYCLE AG  
5230 MATTIGHOFEN, AUSTRIA

Attachments: 1 spare parts manual chassis & engine

KTM sports motorcycles are designed and constructed to resist the usual wear and tear of normal use in competitions.

The motorcycles comply with the regulations and categories currently in effect with the leading international motorcycle associations.

Observance of the service, maintenance and tuning instructions for the engine and chassis specified in the Owner's Manual is a prerequisite for faultless operation and the avoidance of premature wear. An improperly tuned chassis can lead to damage and breakage of the chassis components (see chapter on checking the basic chassis setting).

The service work specified in the "Lubrication and Maintenance Schedule" must be performed and service records must be kept for warranty documentation. Lack of proper service and maintenance records or documentation could void warranty.

The fuels and lubricants specified in the Owner's Manual or fluids with equivalent specifications must be used in accordance with the maintenance schedule.

No claims can be filed under the warranty for damage or consequential damage caused by manipulations or conversions to the motorcycle.

The use of the motorcycle under extreme conditions, e.g. on extremely muddy and wet terrain, can lead to higher than average wear on components such as the drive train or the brakes. In this case it may become necessary to service or replace wear parts before the service limit specified in the maintenance schedule has been reached.

**The SX/SXS, MXC and other "competition only" labeled models are prohibited on public roads.**

"On the road" approved models are only allowed on public roads in the original homologated (throttled) version. **Without this performance restriction (i.e. de-throttled), these models are only allowed to be driven off-road and not on public roads.**

The EXC models are designed for off-road sports endurance competitions (enduro) and **not suitable for predominant motocross** use.

Note: The above is a general statement. Specific limited warranty and limited guarantee information may vary depending upon distribution. Please check with your local KTM dealer for limited warranty and limited guarantee information specific to your KTM model and region.

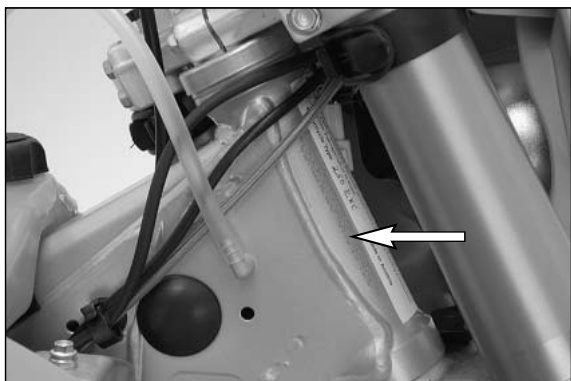


In accordance with the international quality management ISO 9001 standard, KTM uses quality assurance processes that lead to the highest possible product quality.

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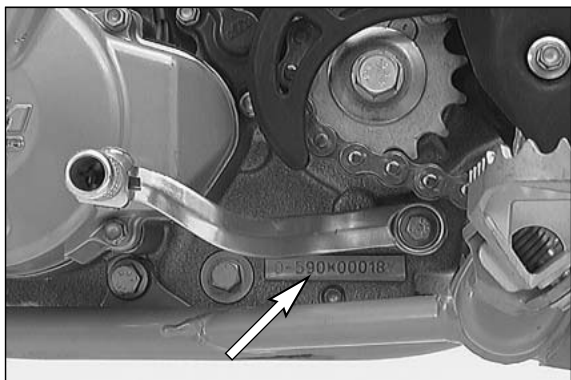
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## SERIAL NUMBER LOCATIONS »



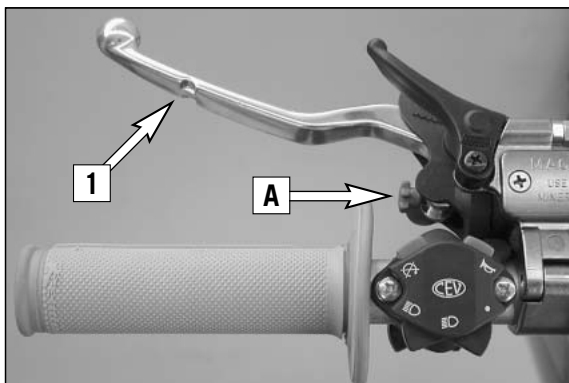
### Chassis number

The chassis number is stamped on the right side of the steering head tube. Enter this number in the field on page no 1.



### Engine number, engine type

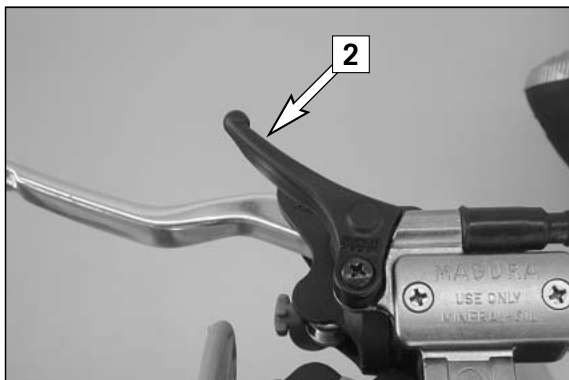
The engine number and the engine type are stamped into the left side of the engine below the engine sprocket. Enter this number on page 1.



## Clutch lever

The clutch lever [1] is located on the left side of the handlebar. The adjusting screw [A] is used to change the original position of the clutch lever (see maintenance work on chassis and engine).

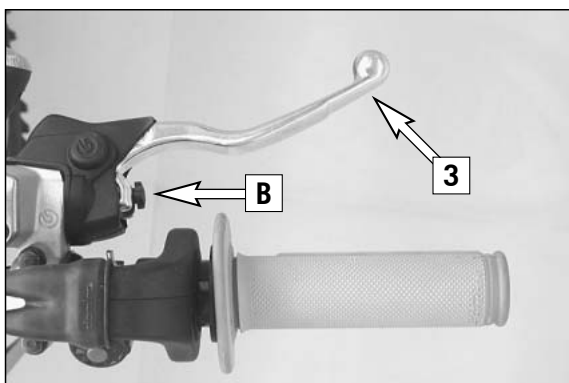
The clutch is hydraulically actuated and adjusts itself automatically.



## Hand decompression lever

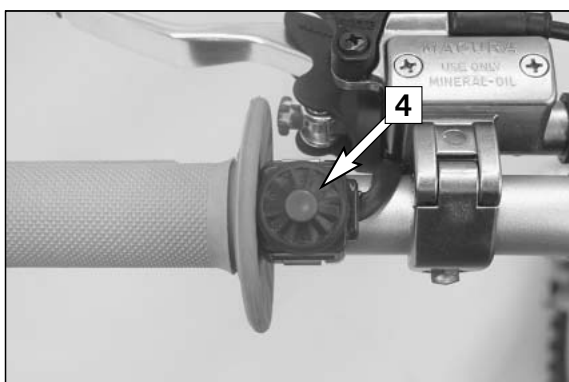
The hand decompression lever [2] is needed only if the carburetor overflows after a fall. To "pump the engine free", pull the hand decompression lever during the starting procedure.

The outer end of the lever must provide for a backlash of approx. 10mm (0.4 in) at all times. Only thereafter may it cause valve motion (to be recognized by the stronger resistance which the hand decompression lever encounters).



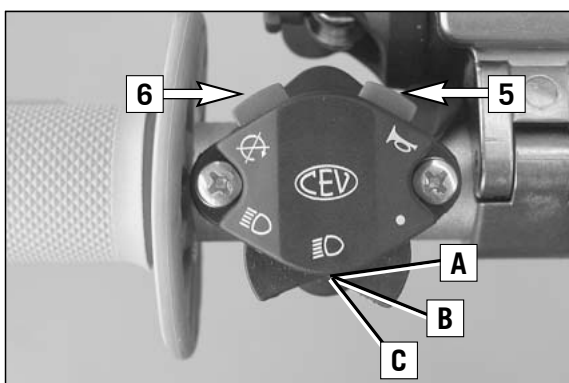
## Hand brake lever

The hand brake lever [3] is mounted on the handlebars on the right and actuates the front wheel brake. The adjusting screw [B] can be used to change the basic position of the hand brake lever (see "Maintenance").



## Short circuit button (SX/MXC)

The short circuit button [4] turns off the engine. When pressing this button, the ignition circuit is short-circuited.



## Combination switch (EXC)

The light switch has 2, respectively 3 switch positions.

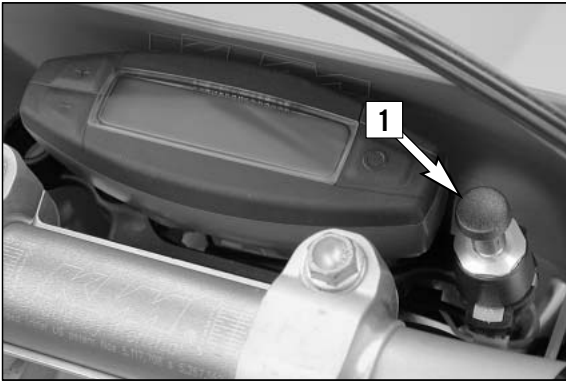
[A] = Light off (this function is not available in all models)

[B] = Low beam on

[C] = High beam on

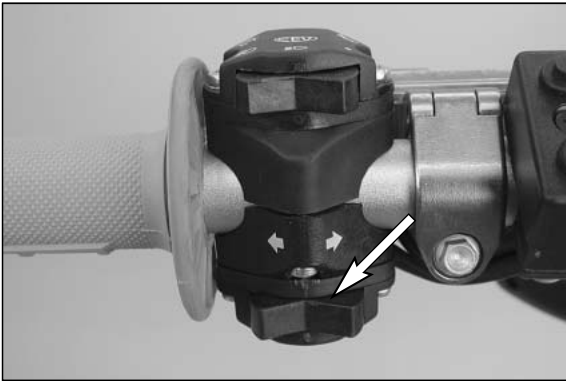
You may use button [5] to actuate the horn.

The red short circuit button [6] serves to switch off the engine. Leave the switch pressed until the engine stops.



## Headlamp switch (EXC USA)

In this model the headlamp is switched on with the pull switch [1].



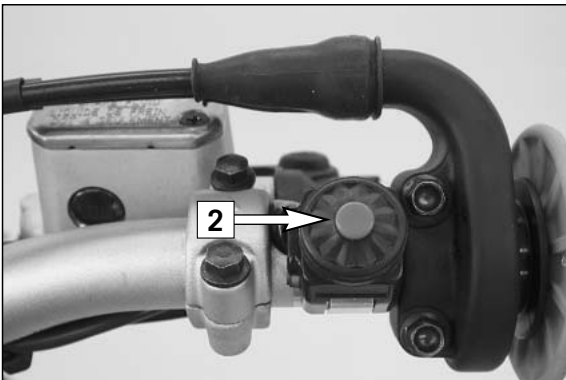
## Flasher switch

The flasher switch is a separate unit and is mounted on the left portion of the handlebar.


The wire harness is designed in a way that whenever you want to use your bike off-road, you can dismount the entire turn indicator system without affecting the function of the remaining electrical system.

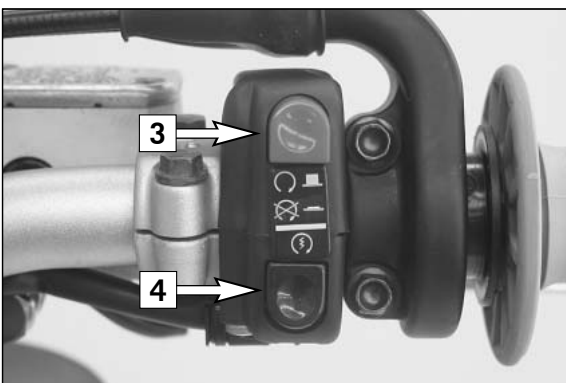
← Flasher left

→ Flasher right





## Starter button (EXC)



 Pushing the black starter button [2] will actuate the E-starter.




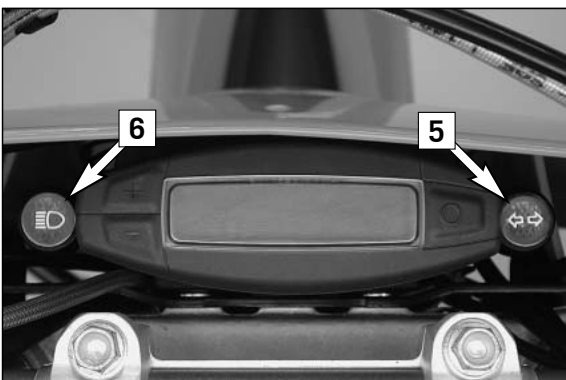
## Emergency OFF switch (EXC Australia)

The red emergency-OFF switch [3] is arranged adjacent to the throttle grip.

  In this position, the E-starter is operational and the engine can be started.


  In this position, the E-starter and ignition circuits are interrupted. The E-starter cannot be actuated, and the engine will not start, not even if you attempt to start it with the kickstarter.

 Pushing the black starter button [4] will actuate the E-starter.

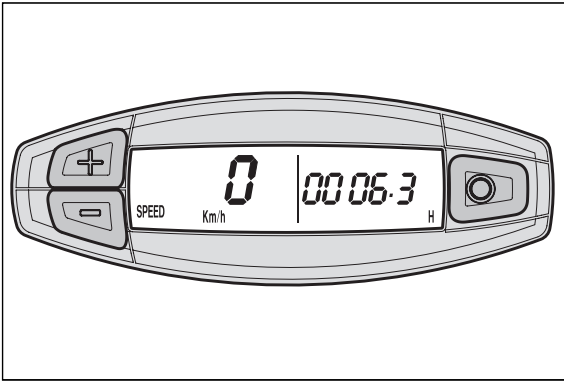


## Digital speedometer, indicator lamps

 The green control lamp [5] flashes in the same rhythm as the flashing indicator when the indicator is working.

 The blue control lamp [6] lights up when the high beam is on.



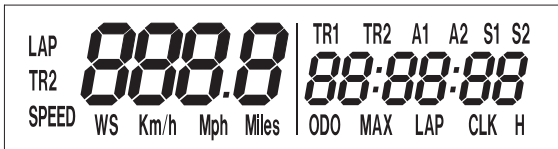


## Electronic speedometer

The display in the electronic speedometer is activated as soon as you press a button on the speedometer or an impulse is received from the wheel sensor. The display lights up when the engine is running. The display is cleared if no button is pressed for 1 minute or no impulse is received from the wheel sensor. The **○** button is used to change between display modes. The **+** and **-** buttons are used to control various functions.

## TEST

All of the display segments briefly light up for the display function test.



## WS (wheel size)

The display changes and the circumference of the front wheel is briefly displayed in millimeters (2205 mm corresponds to a front wheel circumference of 21" with production tires). Afterwards the display will return to the previous display mode.



## SPEED display mode / H (service hours)

Only the SPEED / H and SPEED / ODO display modes are activated in the condition at delivery. SPEED/H is displayed whenever the display is activated and the front wheel is not turning. It automatically changes to the SPEED/ODO display mode as soon as the front wheel starts turning.

SPEED displays the speed.

H displays the engine's service hours. The service hour counter starts to count as soon as you start the engine. The displayed figure cannot be changed. Service intervals are indicated in service hours for some KTM offroad motorcycles, making the service hour counter a very practical function.



## SPEED / ODO display mode (odometer)

The SPEED/ODO mode displays the speed and the total distance traveled. The display automatically changes to the SPEED/H display mode when the front wheel stops turning.

- |                               |                                  |
|-------------------------------|----------------------------------|
| <b>+</b> button               | no function                      |
| <b>-</b> button               | no function                      |
| briefly press <b>○</b> button | changes to the next display mode |
| hold <b>○</b> button 3 secs.  | changes to the next display mode |

The electronic speedometer has a number of display modes (functions) that you can also activate (reveal) (see: Activating and deactivating display modes).



## Activating and deactivating display modes

In the display mode SPEED/H, press and hold the **○** button for 3 seconds to access the SETUP menu. The active functions will be displayed. The blinking function can be activated by pressing the **+** button and deactivated by pressing the **-** button.

Press and hold the **○** button 3 seconds to store the settings.

If no button is pressed for 20 seconds, the setting will be stored automatically and the display will return to the SPEED/H mode.

<b>+</b> button	activates the blinking display
<b>-</b> button	deactivates the blinking display
briefly press <b>○</b> button	changes to the next display without changing any settings
hold <b>○</b> button 3 secs.	starts the SETUP stores the settings and changes to the SPEED/H mode

The following display modes can be activated:

TR1	tripmaster 1
TR2	tripmaster 2
A1	average speed 1
A2	average speed 2
S1	stop watch 1
S2	stop watch 2
CLK	clock
LAP	lap time
MAX	maximum speed
KMH/MPH	display in kilometers or miles (see: Kilometers or miles)

If you have activated all of the display modes, they will be displayed in the following order:

SPEED/H, SPEED/CLK, SPEED/LAP, LAP/LAP, SPEED/MAX, SPEED/ODO, SPEED/TR1, SPEED/TR2, SPEED/A1, SPEED/A2, SPEED/S1, SPEED/S2



## SPEED / CLK (time) display mode

CLK displays the time in hours, minutes and seconds.

<b>+</b> button	no function
<b>-</b> button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	set the clock menu

To set the clock, see „Setting the clock“.



## SPEED / LAP (lap time) display mode

You can use the manual stop watch to stop and store up to 10 lap times, which you can view in the LAP/LAP display mode (see below).

LAP displays the lap times in hours, minutes and seconds.

<b>+</b> button	Starts and stops the stop watch, lap time is not reset to 0
<b>-</b> button	Stops the stop watch, stores the lap time and restarts the stop watch again. The time is reset to 0. A total of 10 lap times can be stored. If the lap time continues to run after you press the - button, all 10 memory locations are occupied. To clear all of the stored lap times, hold the <b>○</b> button for 3 seconds in the SPEED/LAP mode. Up to 10 lap times can be stored in this way.
briefly press <b>○</b> button	Changes to the next display mode. If no lap time is stored or the motorcycle is driving, the LAP/LAP mode will be skipped.
hold <b>○</b> button 3 secs.	Clears all LAP figures



## LAP / LAP display mode (to view lap times)

The LAP/LAP display mode will only be shown if lap times have been stored and the front wheel has stopped. It will display the lap number and the stopped lap time in hours, minutes and seconds. Press the + button to access the next lap time.

To clear all of the stored lap times, hold the **○** button for 3 seconds in the SPEED/LAP mode.

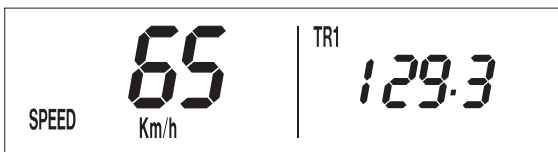
+ button	changes to the next lap time
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	changes to the next display mode



## SPEED / MAX display mode (maximum speed)

MAX displays the maximum speed traveled and is always active.

+ button	no function
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the MAX figure



## SPEED / TR1 display mode (tripmaster 1)

The TR1 tripmaster is always active and counts to 999.9. It is used to measure the length of a trip or the distance between 2 refueling stops.

TR1 is linked to A1 (average speed 1). The calculation of these figures is activated by the first impulse received from the wheel sensor (when the front wheel starts to turn) and stops 3 seconds after the last impulse is received (when the front wheel has stopped).

The TR1, A1 and S1 figures are automatically cleared after passing 999.9.

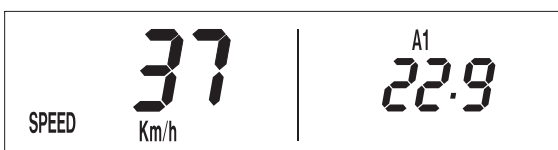
+ button	no function
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the TR1, S1, A1 figures



## SPEED / TR2 display mode (tripmaster 2)

The tripmaster 2 is always active and counts to 999.9. Contrary to TR1, the displayed figure can be changed using the + and - buttons. This is a very useful function for trips taken according to a roadbook.

+ button	increases the TR2 figure
- button	decreases the TR2 figure
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the TR2 figure



## SPEED / A1 display mode (average speed 1)

A1 shows the average speed based on the TR1 (tripmaster 1) and S1 (stop watch 1) figures. The calculation of this figure is activated by the first impulse received from the wheel sensor and stops 3 seconds after the last impulse is received.

+ button	no function
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the TR1, S1, A1 figures



## SPEED / A2 display mode (average speed 2)

A2 shows the average speed based on the TR2 (tripmaster 2) and S2 (stop watch 2) figures.

The displayed figure can deviate from the actual average speed if the TR2 figure was changed manually or if S2 was not stopped after the trip.

+ button	no function
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	changes to the next display mode



## SPEED / S1 display mode (stop watch 1)

S1 shows the traveling time based on TR1 and continues to run whenever it receives impulses from the wheel sensor. The calculation of this figure is activated by the first impulse received from the wheel sensor and stops 3 seconds after the last impulse is received.

+ button	no function
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the TR1, S1, A1 figures

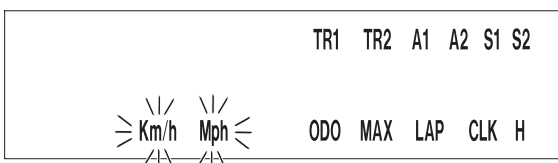


## SPEED / S2 display mode (stop watch 2)

S2 is a manual stop watch. Start the stop watch by pressing the + button, press again to hold. Press again to continue timing.

Press the **○** button to change to the next mode. The S2 display will blink in the other modes if S2 continues to run in the background. To stop S2, return to the SPEED/S2 mode and press the + button.

+ button	starts and stops the stop watch
- button	no function
briefly press <b>○</b> button	changes to the next display mode
hold <b>○</b> button 3 secs.	clears the S2 figure



## Kilometers or miles

The unit (kilometers or miles) can also be changed. The ODO figure will be retained and converted accordingly. The TR1, A1, S1, TR2 and A2 figures will be cleared.

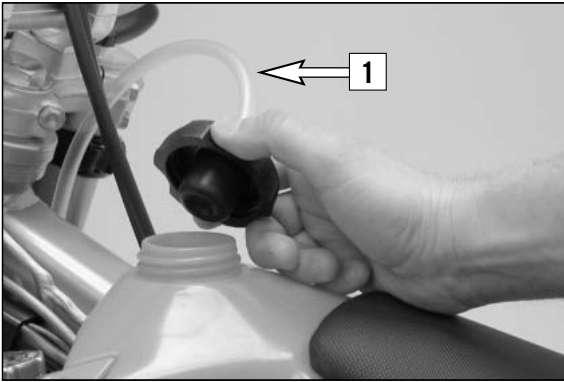
To select the unit, select the SPEED/H mode and hold the **○** button for 3 seconds to access the SETUP menu. Press the **○** button until the KMH/MPH function blinks. Press the + button briefly to move to the options. Press the + button for KMH or the - button for MPH.

To set, briefly press the **○** button 1 x and hold for 3 seconds until the display returns to the SPEED/H mode.

If no button is pressed for 20 seconds, the setting will be stored automatically and the display will return to the SPEED/H mode.

+ button	to access the menu
- button	to activate the KMH display
briefly press <b>○</b> button	to activate the MPH display
	changes to the next mode
	changes from the menu to the SETUP menu
hold <b>○</b> button 3 secs.	stores and closes the SETUP menu



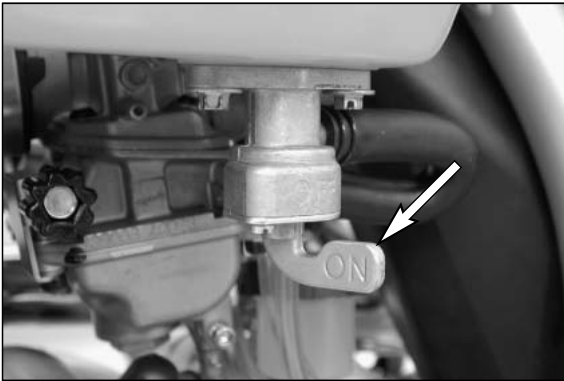


## Filler cap

**To open the filler cap:** Turn the filler cap counter-clockwise.

**To close the filler cap:** Put the filler cap on and tighten it by turning it clockwise.

Install the tank breather hose [1] without kinks.



## Fuel tap

**OFF** In this position the fuel tap is closed. No fuel can flow to the carburetor.

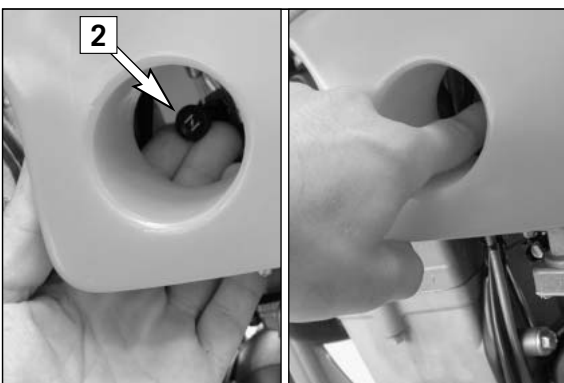
**ON** During operation the twist grip must be turned to ON. This means that the fuel can flow to the carburetor. With the twist grip in this position the tank will be emptied until only the reserve is left.

**RES** The reserve tank cannot be tapped until the rotating handle is turned to the RES position. Fill the tank as soon as possible and remember to turn the rotating handle back to the ON position so that you will have backup fuel next time, too.

Reserve MXC . . . . .3.0 l (0,8 US gallons)

Reserve EXC . . . . .1.0 l (0,3 US gallons)

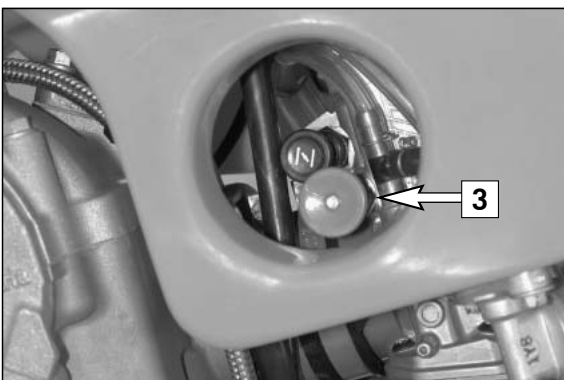
	OFF	ON	RES
<b>SX</b>			
<b>MXC EXC</b>			



## Choke

If you pull the choke button [2] out as far as possible, a bore in the carburetor will be opened through which the engine may take in additional fuel. The result is a „fat“ fuel-air mixture of the type needed for cold starts.

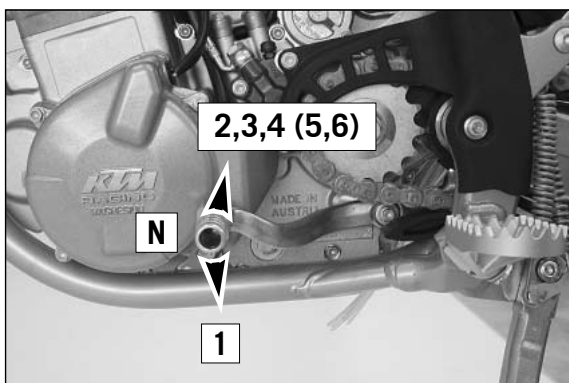
To deactivate the choke, push the choke button back into its basic position.



## Hot start device (450/525 SX)

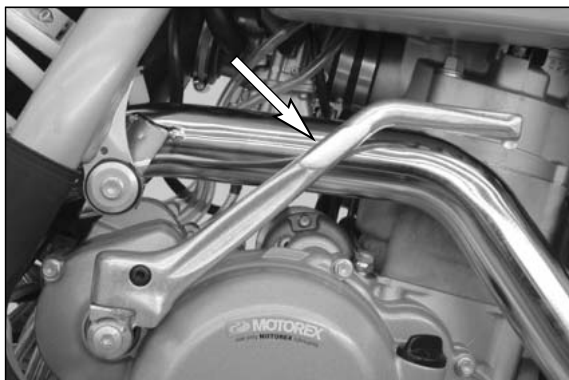
If you pull the hot start device [3] out as far as possible, a bore in the carburetor will be opened through which the engine may take in additional air. The result is a „lean“ fuel-air mixture of the type needed for hot starts.

To deactivate the hot start device, push the hot start button back into its basic position.



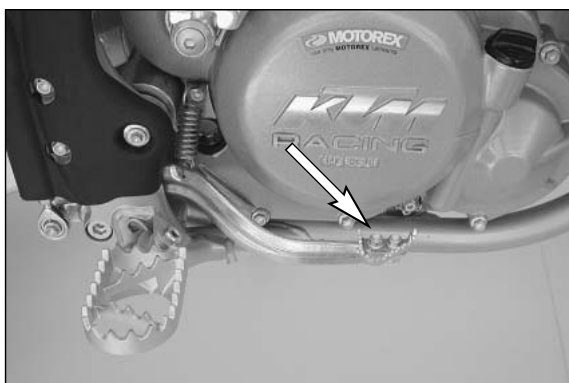
## Shift lever

The shift lever is mounted on the left side of the engine. The position of the gears is shown in the illustration. Neutral, or the idle speed, is located between first and second gear.



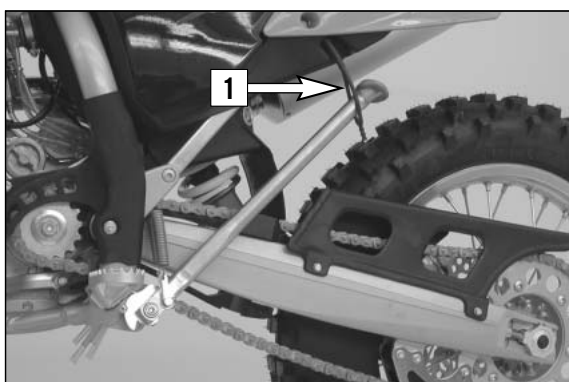
## Kickstarter

The kickstarter is mounted on the right side of the engine. Its upper part can be swivelled.



## Foot brake pedal

The foot brake pedal is located in front of the right footrest. Its basic position can be adjusted to your seat position (see maintenance work).



## Side stand

Push the side stand to the ground with your foot and load it with the motorcycle. Make sure that you put your bike on solid ground and in a secure position. For off-road riding, you can use the rubber band [1] to additionally secure the center stand in its folded-up position

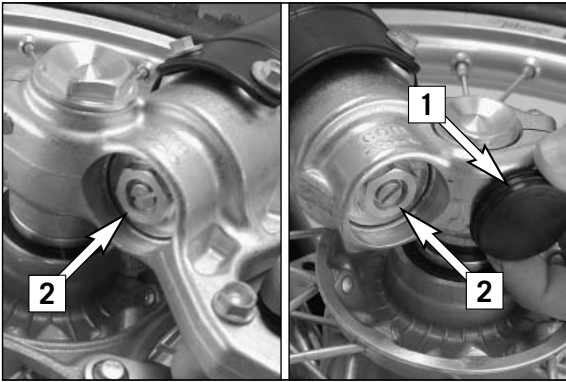


## Steering lock

The handlebar can be locked by means of the lock located on the steering head. To lock it, turn handlebar all the way to the right, insert key, turn it to left, press it in, turn it to right, and remove it.

### ! CAUTION

NEVER LEAVE THE KEY INSERTED IN THE STEERING LOCK. IF YOU TURN THE HANDLEBAR TO THE LEFT THE KEY COULD GET DAMAGED.



## Compression damping of fork

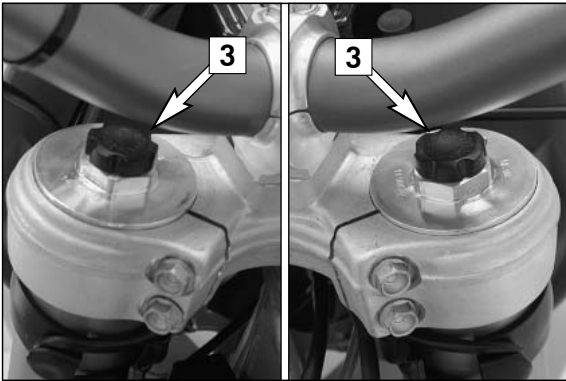
Hydraulic compression damping determines the reaction when the fork is compressed. The degree of compression can be adjusted with adjusting screws at the bottom of the fork legs. Remove the protecting cap [1]. Turn the adjusting screws [2] clockwise to increase damping, turn it counterclockwise to reduce damping during compression.

### STANDARD ADJUSTMENT

- turn adjusting screw clockwise as far as it will go
- turn it back by as many clicks as are specified for the relevant type of fork

Typ White Power 14187A05.....22 clicks (SX)

Typ White Power 14187A06.....20 clicks (EXC/MXC)



## Rebound damping of fork

Hydraulic rebound damping determines the reaction when the fork is rebound. By turning the adjusting screw [3] (REB), the degree of damping of the rebound can be adjusted. Turn the knob clockwise to increase damping, turn it counterclockwise to reduce damping during rebounding.

### STANDARD ADJUSTMENT

- turn adjusting screw clockwise as far as it will go
- turn it back by as many clicks as are specified for the relevant type of fork

Typ White Power 14187A05.....20 clicks (SX)

Typ White Power 14187A06.....20 clicks (EXC/MXC)



## Damping action during compression of shock absorber (SX)

The shock absorber on the SX models can synchronize the compression damping in the low and high-speed range separately (Dual Compression Control).

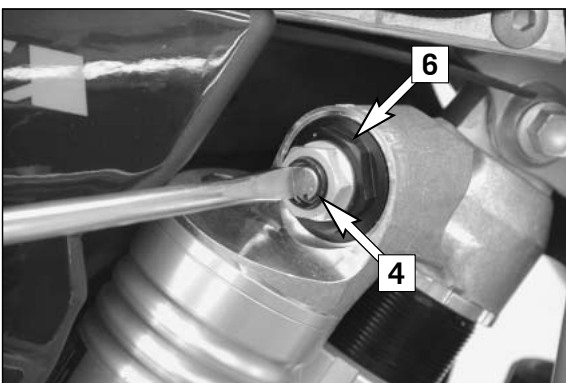
Low and high speed refers to the movement of the shock absorber during compression and not to the speed of the motorcycle.

The low and high-speed technology overlaps.

The low-speed setting is primarily for slow to normal shock absorber compression rates.

The high-speed setting is effective at fast compression rates.

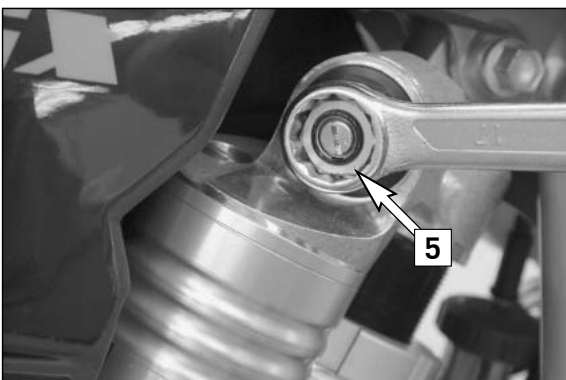
Turning in a clockwise direction will increase the damping, turning counterclockwise will decrease the damping.



### STANDARD LOW-SPEED SETTING:

- turn the adjusting screw [4] to the limit in a clockwise direction using a screwdriver .
- unscrew the respective number of clicks for the specific type of shock absorber in a counterclockwise direction.

Typ White Power 12187A05.....15 clicks



### STANDARD HIGH-SPEED SETTING:

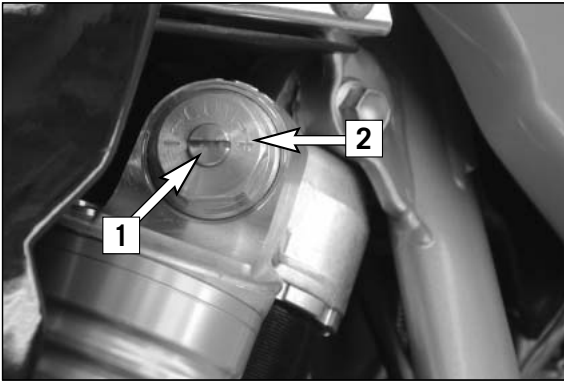
- turn the adjusting screw [5] to the limit in a clockwise direction using a box wrench.
- unscrew the respective number of turns for the specific type of shock absorber in a counterclockwise direction.

Typ White Power 12187A05.....2 turns

### **⚠ WARNING**

THE DAMPING UNIT OF THE SHOCK ABSORBER IS FILLED WITH HIGH-COMPRESSION NITROGEN. NEVER TRY TO TAKE THE SHOCK ABSORBER APART OR TO DO ANY MAINTENANCE WORK YOURSELF. SEVERE INJURIES COULD BE THE RESULT. NEVER UNSCREW THE BLACK SCREW CONNECTION [6] (24MM).





## Compression damping of shock absorber (MXC, EXC)

The compression damping (during compression) can be adjusted for the MXC and EXC shock absorbers (Mono Compression Control).

The degree of damping can be adjusted by turning adjusting screw [1] with a screwdriver. Turning in a clockwise direction will increase the damping, turning in a counterclockwise direction will decrease the damping.

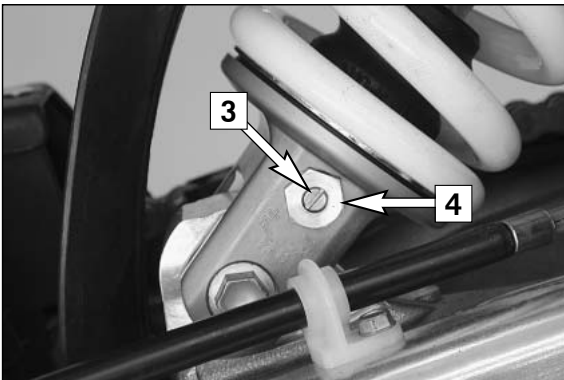
### STANDARD ADJUSTMENT:

- turn the adjusting screw clockwise to the stop.
- then turn the adjusting screw counterclockwise, counting the number of clicks that corresponds to the respective type of shock absorber.

Type White Power 12187A06 .....15 clicks

### **⚠ WARNING**

THE DAMPING UNIT OF THE SHOCK ABSORBER IS FILLED WITH HIGH-COMPRESSION NITROGEN. NEVER TRY TO TAKE THE SHOCK ABSORBER APART OR TO DO ANY MAINTENANCE WORK YOURSELF. SEVERE INJURIES COULD BE THE RESULT. NEVER UNSCREW THE BLACK SCREW CONNECTION [2] (24MM).



## Rebound damping of shock absorber (SX, MXC, EXC)

By using the adjusting screw [3], the degree of damping of the rebound can be adjusted. Turn the knob clockwise to increase damping, turn it counterclockwise to reduce damping during rebounding.

### STANDARD ADJUSTMENT:

- turn the adjusting screw clockwise to the stop.
- then turn the adjusting screw counterclockwise, counting the number of clicks that corresponds to the respective type of shock absorber.

Type White Power 12187A05 .....22 clicks

Type White Power 12187A06 .....22 clicks

### **⚠ WARNING**

THE DAMPING UNIT OF THE SHOCK ABSORBER IS FILLED WITH HIGH-COMPRESSION NITROGEN. NEVER TRY TO TAKE THE SHOCK ABSORBER APART OR TO DO ANY MAINTENANCE WORK YOURSELF. SEVERE INJURIES COULD BE THE RESULT. NEVER UNSCREW THE BLACK SCREW CONNECTION [4] (15MM).

## Instructions for initial operation

- Verify that your KTM dealer performed the PREPARATION OF VEHICLE jobs (see Customer Service Manual).
- Read these operating instructions carefully before your first ride.
- Familiarize yourself with the operating elements.
- Set the clutch lever, the handbrake lever, and the footbrake pedal to the positions that are most convenient for you.
- Get used to handling the motorcycle on an empty parking lot or open space, before starting on a longer drive. Also try to drive as slowly as possible and in a standing position, to improve your feeling for the vehicle.
- Do not drive along off-road tracks which go beyond your ability and experience.
- Hold the handlebars with both hands and leave your feet on the foot rests while driving.
- Remove your foot from the foot brake lever when you are not braking. If the foot brake lever is not released the brake pads rub continuously and the braking system is overheated.
- Do not make any alterations to the motorcycle and always use ORIGINAL KTM SPARE PARTS. Spare parts from other manufacturers can impair the safety of the motorcycle.
- Motorcycles are sensitive to alterations in the distribution of weight. If you are taking luggage with you, this should be secured as close as possible to the middle of the vehicle; distribute the weight evenly between the front and rear wheel. Never exceed the maximum permissible laden weight and the axle weights. The maximum permissible laden weight is comprised of the following components:
  - Motorcycle ready for operation and tank full
  - Luggage
  - Driver with protective clothing and helmet.
- Pay attention to the running-in procedure.

## Running in the Racing models

Even very precisely machined sections of engine components have rougher surfaces than components which have been sliding across one another for quite some time. Therefore, every engine needs to be broken in.

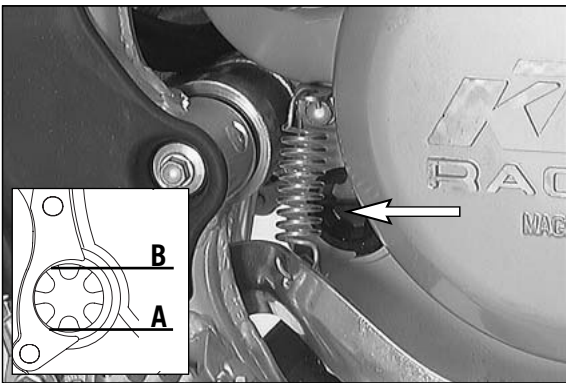
For this reason, do not load the engine more than 50% of its capacity during the first 3 operating hours. Besides, the engine speed must not exceed 7000 rpm. Avoid going full-throttle! In the following 12 operating hours, you may load the engine up to 75% of its capacity. Use the motorcycle on various types of terrain (road, easy off-road trails).

### **! CAUTION**

THE 250/400/450/525 SX/MXC/EXC RACING MODELS WERE UNCOM- PROMISINGLY DESIGNED FOR OFF-ROAD COMPETITION PURPOSES ONLY. "ON THE ROAD" APPROVED MODELS ARE ONLY ALLOWED ON PUBLIC ROADS IN THE ORIGINAL HOMOLOGATED (THROTTLED) VERSION. AVOID EXTENDED ON-ROAD RIDES AT FULL THROTTLE.

### **⚠ WARNING**

- WEAR SUITABLE CLOTHING WHEN DRIVING A MOTORCYCLE. CLEVER KTM DRIVERS ALWAYS WEAR A HELMET, BOOTS, GLOVES AND A JACKET, REGARDLESS OF WHETHER DRIVING ALL DAY OR JUST FOR A SHORT TRIP. THE PROTECTIVE CLOTHING SHOULD BE BRIGHTLY COLORED SO THAT OTHER VEHICLES CAN SEE YOU AS EARLY AS POSSIBLE.
- ALWAYS TURN ON THE LIGHT TO MAKE SURE THAT OTHER DRIVERS BECOME AWARE OF YOU AS EARLY AS POSSIBLE.
- DO NOT DRIVE AFTER HAVING CONSUMED ALCOHOL.
- ONLY USE ACCESSORIES RECOMMENDED BY KTM. FOR EXAM- PLE, FRONT PANNELLING CAN IMPAIR THE DRIVING PROPERTIES OF THE MOTORCYCLE. CASES, EXTRA TANKS, ETC. CAN ALTER THE WEIGHT DISTRIBUTION AND THUS ALSO IMPAIR THE VEHI- CLES DRIVING PROPERTIES.
- THE FRONT AND REAR WHEEL MAY ONLY BE FITTED WITH TIRES THAT HAVE THE SAME PROFILE TYPE.
- THE RACING MODELS ARE DESIGNED AND DIMENSIONED FOR 1 PERSON ONLY. NEVER TAKE ANOTHER RIDER ALONG.
- OBSERVE THE TRAFFIC REGULATIONS, DRIVE DEFENSIVELY AND TRY TO LOOK AHEAD AS FAR AS POSSIBLE SO THAT ANY HAZARDS CAN BE RECOGNIZED AS EARLY AS POSSIBLE.
- ADJUST YOUR DRIVING SPEED ACCORDING TO THE CONDI- TIONS AND YOUR DRIVING SKILLS.
- DRIVE CAREFULLY ON UNKNOWN ROADS OR ON UNFAMILIAR TRIALS.
- WHEN DRIVING OFF-ROAD, ALWAYS HAVE A FRIEND ON A SEC- OND MOTORCYCLE TO KEEP YOU COMPANY, SO THAT YOU CAN HELP EACH OTHER SHOULD DIFFICULTIES ARISE.
- REPLACE THE HELMET VISOR OR GOGGLE LENS WHEN SCRATCHED OR DAMAGED. IF BRIGHT LIGHT SHINES THROUGH A SCRATCHED VISOR OR LENS, THE OPERATOR WILL BE BLINDED.
- NEVER LEAVE YOUR MOTORCYCLE WITHOUT SUPERVISION IF THE ENGINE IS RUNNING.
- THE SX/SXS/MXC MODELS ARE NOT APPROVED FOR USE ON PUB- LIC ROADS AND FREEWAYS.
- WHEN RIDING YOUR MOTORCYCLE, PLEASE BEAR IN MIND THAT OTHER PEOPLE MAY FEEL MOLESTED BY EXCESSIVE NOISE.

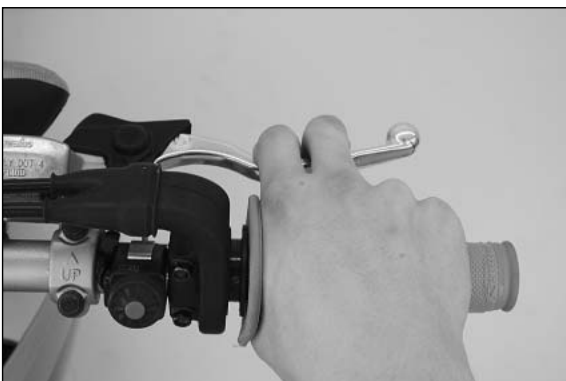
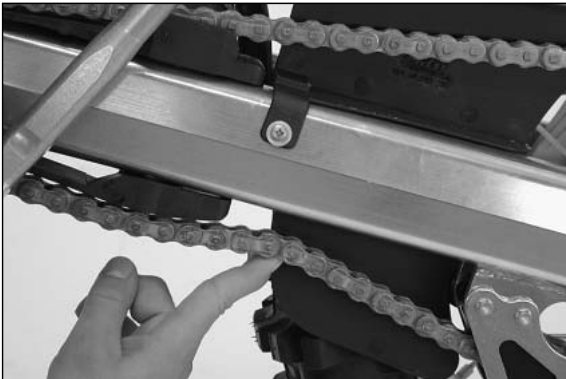


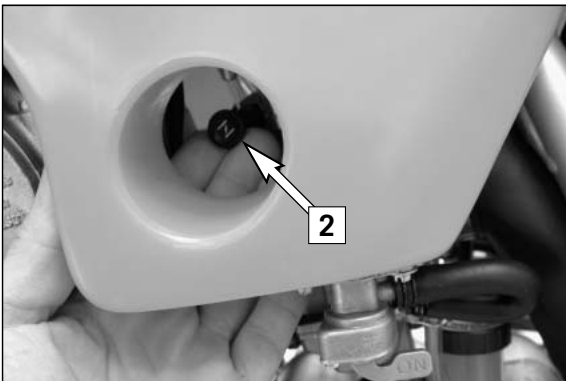
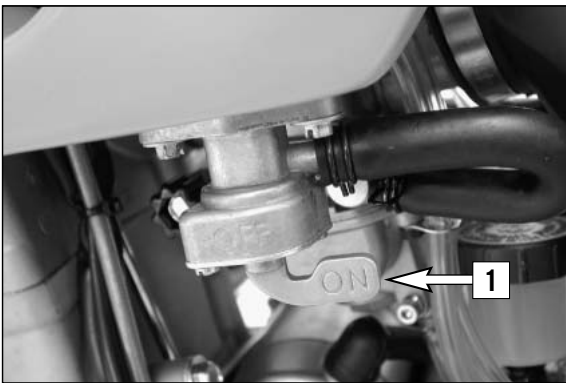
## Check the following before each start

When you start off, the motorcycle must be in perfect technical condition. For safety reasons, you should make a habit of performing an overall check of your motorcycle before each start.

The following checks should be performed:

- 1 CHECK THE OIL LEVEL**  
Insufficient oil results in premature wear and consequently to engine damage.
- 2 FUEL**  
Check that there is sufficient fuel in the tank; when closing the filler cap, check that the tank venting hose is free of kinks.
- 3 CHAIN**  
A loose chain can fall from the chain wheels; an extremely worn chain can tear, and insufficient lubrication can result in unnecessary wear to the chain and chain wheels. Excessive tensioning of the chain will put additional load on the components of the secondary drivetrain (chain, bearings of transmission and rear wheel). Aside from resulting in premature wear, if worst comes to worst the chain may rupture or the countershaft of the transmission may break.
- 4 TIRES**  
Check for damaged tires. Tires showing cuts or dents must be replaced. The tread depth must comply with the legal regulations. Also check the air pressure. Insufficient tread and incorrect air pressure deteriorate the driving performance.
- 5 BRAKES**  
Check correct functioning of the braking system. Check for sufficient brake fluid in the reservoir. The reservoirs have been designed in such a way that brake fluid does not need to be refilled even when the brake pads are worn. If the level of brake fluid falls below the minimum value, this indicates a leak in the braking system or completely worn out brake pads. Arrange for the braking system to be checked by a KTM specialist, as complete failure of the braking system can be avoided. Also check the state of the brake hose and the thickness of the brake linings. Check free travel at the hand brake lever and foot brake lever.
- 6 CABLES**  
Check correct setting and easy running of all control cables.
- 7 COOLING FLUID**  
Check the level of the cooling fluid when the engine is cold.
- 8 ELECTRICAL SYSTEM**  
Check correct functioning of headlamps, tail-lights, brake lights, indicators, control lamps and horn while the engine is running.
- 9 LUGGAGE**  
If you are taking luggage with you, check that this is securely fastened.





## Starting when the engine is cold

- 1 Open the fuel tap [1].
- 2 Swing up the side stand or center stand.
- 3 Put the gear in neutral.
- 4 Operate the choke [2].
- 5 Leave throttle closed and kick the kickstarter briskly ALL THE WAY or actuate the E-starter.

### ⚠ WARNING

- IF YOU WANT TO START THE ENGINE, MAKE SURE THAT YOU ALWAYS PUT ON STURDY MOTORCYCLE BOOTS IN ORDER TO AVOID INJURIES. YOU MIGHT SLIP OFF THE KICKSTARTER, OR THE ENGINE MAY KICK BACK AND PROPEL YOUR FOOT UPWARD WITH GREAT FORCE.
- ALWAYS KICK THE KICKSTARTER BRISKLY ALL THE WAY WITHOUT OPENING THE THROTTLE. IF YOU DO NOT KICK HARD ENOUGH, WITH AN OPEN THROTTLE GRIP, THE KICK-BACK HAZARD WILL BE HIGHER.
- DO NOT START THE ENGINE AND ALLOW IT TO IDLE IN A CLOSED AREA. EXHAUST FUMES ARE POISONOUS AND CAN CAUSE LOSS OF CONSCIOUSNESS AND DEATH. ALWAYS PROVIDE ADEQUATE VENTILATION WHILE THE ENGINE IS RUNNING.
- ALWAYS VERIFY THAT THE TRANSMISSION HAS BEEN SET TO IDLE (NEUTRAL) BEFORE ACTUATING THE STARTER BUTTON. IF YOU START THE MOTORCYCLE WITH A GEAR ENGAGED, THE MOTORCYCLE WILL MOVE FORWARD.

### ! CAUTION

- MAXIMAL PERIOD FOR CONTINUOUS STARTING: 5 SECONDS. WAIT AT LEAST 5 SECONDS BEFORE TRYING AGAIN.
- DON'T RIDE YOUR MOTORCYCLE WITH FULL LOAD AND DON'T REV UP THE ENGINE WHEN COLD BECAUSE THE PISTON IS WARMING UP FASTER THAN THE WATER COOLED CYLINDER AND CAN CAUSE ENGINE DAMAGE.

## Starting when the engine is warm

- 1 Open the fuel tap [1].
- 2 Swing up the side stand.
- 3 Put the gear in neutral.
- 4 Leave throttle closed and kick the kickstarter briskly ALL THE WAY or actuate the E-starter.

## What to do when the engine is "flooded"

In the event of a fall, more fuel than necessary may get into the engine. In order to "pump the engine free", pull the hand decompression lever, fully rev up the engine, actuate the kickstarter 5 to 10 times or actuate the E-starter 2 times for 5 seconds each. Then, start the engine as described above.

If the engine fails to start, unscrew the spark plug and dry it.

### NOTE:

The carburetor has an accelerator pump. Every time you open the throttle, fuel will be injected into the intake passage. When starting, be sure that you open the throttle completely only once.

## Starting off

Pull the clutch lever. Put the engine into first gear, slowly release the clutch lever and open the throttle at the same time.

### ⚠ WARNING

BEFORE YOU START OFF, CHECK THAT THE SIDE STAND HAS BEEN SWUNG UP FULLY. IF THE STAND DRAGS ON THE GROUND, THE MOTORCYCLE CAN GO OUT OF CONTROL.

## Shifting/Riding

You are now in first gear, referred to as the drive or uphill gear. Depending on the conditions (traffic, hill size, etc.), you can shift to a higher gear. Close throttle, at the same time pull clutch lever in and shift to the next higher gear. Let clutch lever go again and accelerate. If you turned on the choke, make sure you turn it off again as soon as engine is warm.

When you reach full speed through opening the throttle all the way, turn throttle back to 3/4; the speed hardly decreases although the engine will use less gas. Only give as much gas as the engine can handle. Through quick and high revving of the throttle, the fuel usage increases.

By shifting down, use the brakes if necessary and close the throttle at the same time. Pull the clutch lever and shift down to the next gear. Let clutch lever go slowly and open the throttle or shift down again.

## NOTE:

Dedicated to nothing but offroad racing, 250/400/450/525 SX/MXC/EXC Racing models make no compromises in their design. As such, they do not include any radiator fan, and the size of the radiator is dimensioned for optimum ergonomics.

In normal racing, the cooling system is sufficient.

If you use your motorbike in other conditions, please note that: the E-starter allows you to start MXC/EXC Racing models again at any time. Therefore, turn off the engine if you intend to run your motorcycle in idle or at a standstill for longer periods of time (more than 2 minutes).

Avoid letting the clutch slip frequently and for extended periods. This would cause the engine oil to heat up, thereby heating up the cooling system. You should drive at low speeds (4-stroke style - letting the engine pull you) and not at high speeds not by letting the clutch slip (2-stroke style).

### ! WARNING

- AFTER FALLING WITH THE MOTORCYCLE, CHECK ALL FUNCTIONS THOROUGHLY BEFORE STARTING UP OPERATIONS AGAIN.
- A TWISTED HANDLEBAR MUST ALWAYS BE REPLACED. DO NOT ADJUST THE HANDLEBAR, IT WILL LOSE STABILITY.

### ! CAUTION

- HIGH RPM RATES WHEN THE ENGINE IS COLD HAVE AN ADVERSE EFFECT ON THE LIFE OF YOUR ENGINE. WE RECOMMEND YOU RUN THE ENGINE IN A MODERATE RPM RANGE FOR A FEW MILES GIVING IT A CHANCE TO WARM UP. AFTER THAT NO FURTHER PRECAUTIONS IN THIS RESPECT NEED TO BE TAKEN. THE ENGINE HAS REACHED ITS OPERATING TEMPERATURE AS SOON AS THE RADIATORS BECOME WARM.
- NEVER HAVE THE THROTTLE WIDE OPEN WHEN CHANGING DOWN TO A LOWER GEAR. THE ENGINE WILL OVER-REV, DAMAGING THE VALVES. IN ADDITION, THE REAR WHEEL LOCKS SO THAT THE MOTORCYCLE CAN EASILY GET OUT OF CONTROL.
- IF ANY ABNORMAL VIBRATIONS OCCUR WHILE DRIVING, CHECK THAT THE ENGINE FASTENING BOLTS ARE TIGHT.
- IN THE EVENT THAT, WHILE RIDING ON YOUR MOTORCYCLE, YOU NOTICE ANY UNUSUAL OPERATION-RELATED NOISE, STOP IMMEDIATELY, TURN THE ENGINE OFF, AND CONTACT AN AUTHORIZED KTM DEALER.

## Braking

Close throttle and apply the hand and foot brakes at the same time. When driving on sandy, wet or slippery ground use mainly the rear wheel brake. Always brake with feeling, blocking wheels can cause you to skid or fall. Also change down to lower gears depending on your speed.

When driving down hill, use the braking effect of the engine. Change down one or two gears but do not overspeed the engine. In this way, you will not need to brake so much and the brakes will not overheat.

### ! WARNING

- IN CASE OF RAIN, AFTER WASHING THE MOTORCYCLE, AFTER RIDES THROUGH WATER AND IN CASE OF RIDES ON WET OFF-ROAD TRACKS, HUMID OR DIRTY BRAKE DISCS CAN DELAY THE BRAKING EFFECT. THE BRAKES MUST BE PULLED UNTIL THEY ARE DRY OR CLEAN.
- RIDES ON SALT-STREWED OR DIRTY ROADS CAN ALSO DELAY THE BRAKING EFFECT. THE BRAKES MUST BE PULLED UNTIL THEY ARE CLEAN.
- DIRTY BRAKE DISCS CAUSE INCREASED TEAR OF BRAKE PADS AND BRAKE DISCS.
- WHEN YOU BRAKE, THE BRAKE DISCS, BRAKE PADS, BRAKE CALIPER AND BRAKE FLUID HEAT UP. THE HOTTER THESE PARTS GET, THE WEAKER THE BRAKING EFFECT. IN EXTREME CASES, THE ENTIRE BRAKING SYSTEM CAN FAIL.
- IF THE RESISTANCE IN THE HAND BRAKE LEVER OR FOOT BRAKE PEDAL FEELS "SPONGY" (TOO MUCH PLAY), THIS IS AN INDICATION THAT SOMETHING IS WRONG WITH THE BRAKE SYSTEM. DON'T RIDE YOUR MOTORCYCLE ANYMORE WITHOUT FIRST HAVING THE BRAKE SYSTEM LOOKED OVER BY A KTM DEALER.

## Stopping and parking

Apply the brakes fully and put the engine into neutral. To turn off the engine, push the short-circuit button or the emergency-OFF button with the engine at idling speed until the engine stops. Turn the fuel tap to the OFF position, park on an area where the ground is firm, and lock the motorcycle.

### ! WARNING

MOTORCYCLE ENGINES PRODUCE A GREAT AMOUNT OF HEAT WHILE RUNNING. THE ENGINE, EXHAUST PIPE, MUFFLER, BRAKE ROTORS, AND SHOCK ABSORBERS CAN BECOME VERY HOT. DO NOT TOUCH ANY OF THESE PARTS AFTER OPERATING THE MOTORCYCLE, AND TAKE CARE TO PARK IT WHERE PEDESTRIANS ARE NOT LIKELY TO TOUCH IT AND GET BURNED.

### ! CAUTION

- NEVER USE THE HAND DECOMPRESSION LEVER TO TURN OFF THE ENGINE. USE THE SHORT-CIRCUIT BUTTON OR THE EMERGENCY-OFF BUTTON INSTEAD.
- CLOSE THE FUEL TAP WHEN LEAVING YOUR VEHICLE. OTHERWISE THE CARBURETTOR CAN FLOOD AND FUEL WILL ENTER THE ENGINE.
- NEVER PARK YOUR MOTORCYCLE IN PLACES WHERE THERE ARE FIRE HAZARDS DUE TO DRY GRASS OR OTHER EASILY FLAMMABLE MATERIALS.



### NOTE REGARDING THE SIDE STAND:

Use your foot to kick side stand forward up to the stop and lean the motorcycle sideways. Make sure that the ground is solid and that your motorcycle is standing securely. Just in case, you can shift into first gear.

### ! CAUTION

THE SIDE STAND IS DESIGNED TO BEAR ONLY THE LOAD OF THE MOTORCYCLE. THE SIDE STAND AND/OR THE FRAME CAN BE DAMAGED AND THE MOTORCYCLE CAN FALL OVER IF YOU MOUNT THE MOTORCYCLE, THUS PUTTING AN ADDITIONAL LOAD ON THE SIDE STAND.

## Fuel

The racing engine needs unleaded fuel with at least RON 95 (USA = Premium RON 91).

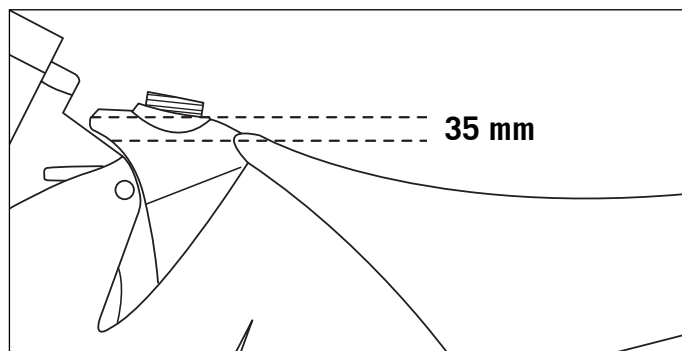
### ! CAUTION

USE LEADED OR UNLEADED PREMIUM GRADE GASOLINE (95 OCTANES). NEVER USE GASOLINE HAVING LESS THAN 95 OCTANES BECAUSE IT MAY DAMAGE THE ENGINE.

### ! WARNING

GASOLINE IS HIGHLY FLAMMABLE AND POISONOUS. EXTREME CAUTION SHOULD BE USED WHEN HANDLING GASOLINE. DO NOT REFUEL THE MOTORCYCLE NEAR OPEN FLAMES OR BURNING CIGARETTES. ALWAYS SWITCH OFF THE ENGINE BEFORE REFUELLING. BE CAREFUL NOT TO SPILL GASOLINE ON THE ENGINE OR EXHAUST PIPE WHILE THE ENGINE IS HOT. WIPE UP SPILLS PROMPTLY. IF GASOLINE IS SWALLOWED OR SPLASHED IN THE EYES, SEEK A DOCTOR'S ADVICE IMMEDIATELY.

Fuel expands when its temperature rises. Therefore do not fill the tank to the top (see fig.).



# PERIODIC MAINTENANCE »

A CLEAN MOTORCYCLE CAN BE CHECKED MORE QUICKLY WHICH SAVES MONEY!		1. service after 3 hours or 20 l fuel	after/every 15 hours or 100 l fuel
ENGINE	Change engine oil, short and long oil filters	●	●
	Clean oil screen and drain plug magnet	●	●
	Check oil lines for damage or bends	●	●
	Replace spark plug (after 30 hours)		
	Check and adjust valve clearance	●	●
	Check engine mounting bolts for tightness	●	●
CARBURETOR	Check carburetor connection boot for cracks and leaks		●
	Check idle speed setting	●	●
	Check vent hoses for damage or bends	●	●
ADD-ON PARTS	Check cooling system for leaks, check quantity of antifreeze	●	●
	Check exhaust system for leaks and fitment		●
	Check cables for damage, smooth operation and bends adjust and lubricate	●	●
	Check fluid level of the clutch master cylinder	●	●
	Clean air filter and filter box		●
	Check electric wires for damage and bends		●
	Check headlamp setting		●
	Check function of electric systems (low high beam, brake light, indicator lamps, speedometer illumination, horn, emergency OFF switch or button)	●	●
BRAKES	Check brake fluid level, lining thickness, brake discs	●	●
	Check brake lines for damage and leaks	●	●
	Check/function smooth operation and adjust free travel of handbrake/foot brake lever	●	●
	Check tightness of brake system screws	●	●
CHASSIS	Check shock absorber and fork for leaks and function	●	●
	Clean fork dust bellows		●
	Bleed fork legs		●
	Check swing arm bearings		●
	Check/adjust steering head bearings	●	●
	Check tightness of chassis screws (triple clamps, fork leg axle passage)	●	●
WHEELS	Check spoke tension and rim joint	●	●
	Check tires and air pressure	●	●
	Check chain, chain joint, rear sprockets and chain guides for wear, fit and tension	●	●
	Lubricate chain	●	●
	Check clearance of wheel bearings	●	●

IMPORTANT RECOMMENDED MAINTENANCE WORK THAT CAN BE CARRIED OUT BY EXTRA ORDER	
	at least once a year
Complete maintenance of fork	●
Complete maintenance of shock absorber	●
Clean and grease steering head bearings and gasket elements	●
Clean and adjust carburetor	●
Replace glass fibre yarn filling of the exhaust main silencer	●
Treat electric contacts and switches with contact spray	●
Treat battery connections with contact grease	●
Change hydraulic clutch fluid	●
Change brake fluid	●

IF MOTORCYCLE IS USED FOR COMPETITION 15 HOURS SERVICE SHOULD BE CARRIED OUT AFTER EVERY RACE. Service intervals should never be exceeded by more than 2 hours or 15 liters of fuel. Maintenance work done by KTM authorised workshops is not a substitute for care and checks done by the rider.

# PERIODIC MAINTENANCE »

IMPORTANT CHECKS AND MAINTENANCE TO BE CARRIED OUT BY THE RIDER			
	Before each start	After every cleaning	For cross-country use
Check oil level	●		
Check brake fluid level	●		
Check brake pads for wear	●		
Check lights for function	●		
Check horn for function	●		
Lubricate and adjust cables and nipples		●	
Bleed fork legs regularly			●
Remove and clean fork dust bellows regularly			●
Clean and lubricate chain, check tension and adjust if necessary		●	●
Clean air filter and filter box			●
Check tires for pressure and wear	●		
Check cooling fluid level	●		
Check fuel lines for leaks	●		
Drain and clean float chamber		●	
Check all control elements for smooth operation	●		
Check brake performance	●	●	
Treat blank metal parts (with the exception of brake and exhaust system) with wax-based anti corrosion agent		●	
Treat ignition and steering locks and light switches with contact spray		●	
Check tightness of screws, nuts and hose clamps regularly			●

# PERIODIC MAINTENANCE »

RECOMMENDED INSPECTION OF THE 250/400/450/525 SX AND EXC ENGINE USED FOR ENDURO COMPETITIONS BY YOUR KTM WORKSHOP (ADDITIONAL ORDER FOR THE KTM WORKSHOP)							
a 100 liter fuel consumption is equivalent to approx. 15 operating hours	15 hours 100 liter	30 hours 200 liter	45 hours 300 liter	60 hours 400 liter	90 hours 600 liter	120 hours 800 liter	35 hours 900 liter
Check the clutch disks for wear	●	●	●	●	●	●	●
Check the length of the clutch springs		●	●	●	●	●	●
Check the cylinder and piston for wear			●		●		●
Check the groove on the piston pin retainer for wear (visual check)			●		●		●
Check the camshaft for wear (visual check)			●		●		●
Replace the camshaft bearings			●		●		●
Check the length of the valve springs			●		●		●
Check the spring cap for wear			●		●		●
Check the eccentricity of the valve disk			●		●		●
Check the valve guides for wear			●		●		●
Check the radial clearance of the rocker arm rollers			●		●		●
Check the elongation of the timing chain			●		●		●
Check the chain tensioner tooting for damage (visual check)		●	●	●	●	●	●
Check the eccentricity of the crankshaft journal			●		●		●
Replace the conrod bearings			●		●		●
Check piston pin bearing			●		●		●
Replace the balancer shaft bearings			●		●		●
Replace the crankshaft main bearings			●		●		●
Check the entire transmission including the roller and bearings for wear			●		●		●
Check the length of the bypass valve spring			●		●		●

NOTE: IF THE INSPECTION ESTABLISHES THAT PERMISSIBLE TOLERANCES ARE EXCEEDED, THE RESPECTIVE COMPONENTS MUST BE REPLACED.



# PERIODIC MAINTENANCE »

## RECOMMENDED INSPECTION OF THE 250/400/450/525 EXC ENGINE USED FOR HOBBY - ENDURO COMPETITIONS BY YOUR KTM WORKSHOP (ADDITIONAL ORDER FOR THE KTM WORKSHOP)

a 100 liter fuel consumption is equivalent to approx. 15 operating hours	30 hours 200 liter	60 hours 400 liter	90 hours 600 liter	120 hours 800 liter	180 hours 1200 liter	240 hours 1600 liter	270 hours 1800 liter
Check the clutch disks for wear	●	●	●	●	●	●	●
Check the length of the clutch springs		●	●	●	●	●	●
Check the cylinder and piston for wear			●		●		●
Check the groove on the piston pin retainer for wear (visual check)			●		●		●
Check the camshaft for wear (visual check)			●		●		●
Replace the camshaft bearings			●		●		●
Check the length of the valve springs			●		●		●
Check the spring cap for wear			●		●		●
Check the eccentricity of the valve disk			●		●		●
Check the valve guides for wear			●		●		●
Check the radial clearance of the rocker arm rollers			●		●		●
Check the elongation of the timing chain			●		●		●
Check the chain tensioner tooting for damage (visual check)		●	●	●	●	●	●
Check the eccentricity of the crankshaft journal			●		●		●
Replace the conrod bearings			●		●		●
Check piston pin bearing			●		●		●
Replace the balancer shaft bearings			●		●		●
Replace the crankshaft main bearings			●		●		●
Check the entire transmission including the roller and bearings for wear			●		●		●
Check the length of the bypass valve spring			●		●		●

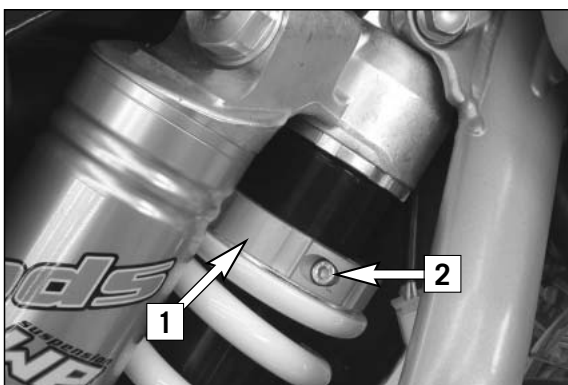
NOTE: IF THE INSPECTION ESTABLISHES THAT PERMISSIBLE TOLERANCES ARE EXCEEDED, THE RESPECTIVE COMPONENTS MUST BE REPLACED.

## ⚠ WARNING

MAINTENANCE AND ADJUSTING WORK MARKED WITH AN ASTERISK (\*) REQUIRES EXPERT SKILLS AND TECHNICAL KNOW-HOW. FOR YOUR OWN SAFETY, ALWAYS HAVE SUCH WORK PERFORMED BY A SPECIALIZED KTM DEALER WHERE YOUR MOTORCYCLE WILL BE OPTIMALLY SERVICED BY APPROPRIATELY QUALIFIED, SKILLED STAFF.

## ! CAUTION

- WHEN CLEANING THE MOTORCYCLE, DO NOT USE A HIGH PRESSURE CLEANING UNIT IF POSSIBLE, OTHERWISE WATER WILL PENETRATE THE BEARINGS, CARBURETOR, ELECTRIC CONNECTORS, ETC.
- WHEN TRANSPORTING YOUR KTM, ENSURE THAT IT IS HELD UPRIGHT WITH RESTRAINING STRAPS OR OTHER MECHANICAL FASTENING DEVICES AND THAT THE FUEL TAP IS IN THE OFF POSITION - IF THE MOTORCYCLE SHOULD FALL OVER, NO FUEL CAN LEAK FROM THE CARBURETOR OR FUEL TANK
- ONLY USE SPECIAL SCREWS WITH AN APPROPRIATE THREAD LENGTH SUPPLIED BY KTM TO FIX THE SPOILERS ON THE TANK. USING OTHER SCREWS OR LONGER SCREWS CAN CAUSE LEAKS IN THE TANK THROUGH WHICH FUEL CAN FLOW OUT.
- DO NOT USE TOOTHED WASHERS OR SPRING RINGS WITH THE ENGINE FASTENING SCREWS, AS THESE WORK INTO THE FRAME PARTS AND KEEP WORKING LOOSE. INSTEAD, USE SELF-LOCKING NUTS.
- LET YOUR MOTORCYCLE COOL DOWN BEFORE BEGINNING ANY MAINTENANCE WORK IN ORDER TO AVOID GETTING BURNED.
- DISPOSE OILS, FATTY MATTERS, FILTERS, FUELS, WASHING DETERGENTS ETC. PROPERLY.
- UNDER NO CIRCUMSTANCES MAY USED OIL BE DISPOSED OF IN THE SEWAGE SYSTEM OR IN THE OPEN COUNTRYSIDE. 1 LITER OF USED OIL CONTAMINATES 1,000,000 LITERS OF WATER.



### Changing the spring preloading of the shock absorber

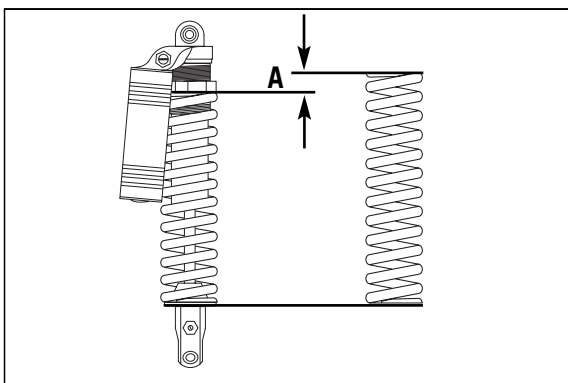
The spring preload can be changed by turning the adjusting ring [1]. For this purpose, you should dismount the shock absorber and clean it thoroughly.

#### NOTE:

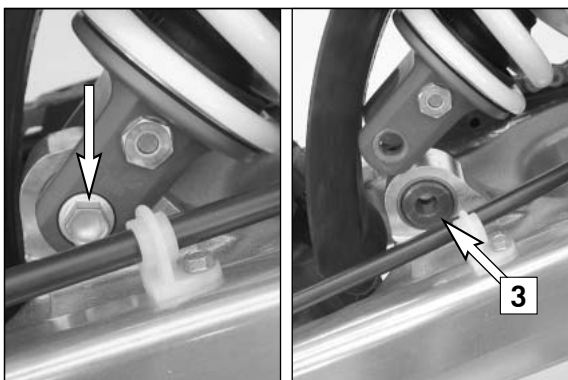
- Before changing the spring preload note down the basic setting, e.g. how many threads are visible above the adjusting ring.
- One rotation of the adjusting ring [1] changes the spring pretension by approximately 1.75 mm (0.07 in).

Loosen the clamping screw [2] and use the hook wrench contained in the vehicle tool set to turn the adjusting ring as desired. Turning it counterclockwise will reduce the preload, turning it clockwise will increase the preload.

After readjusting the clamping screw [2], tighten it to 8 Nm.



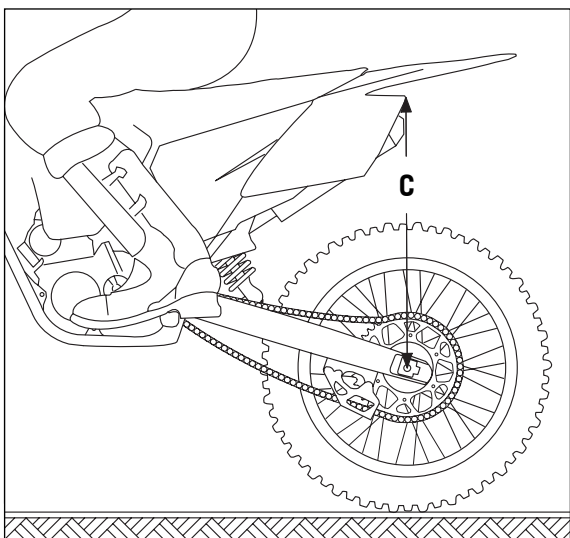
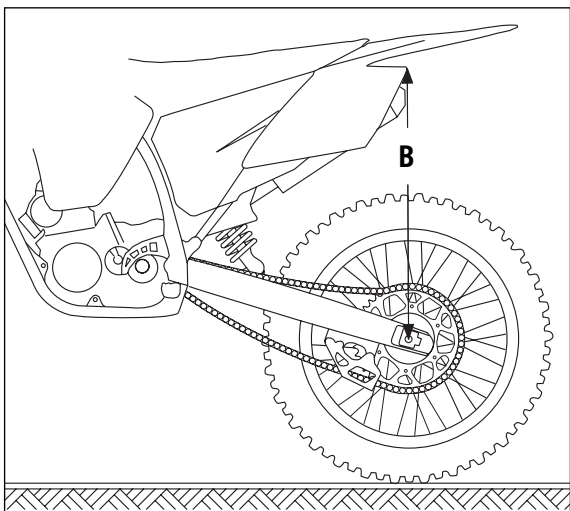
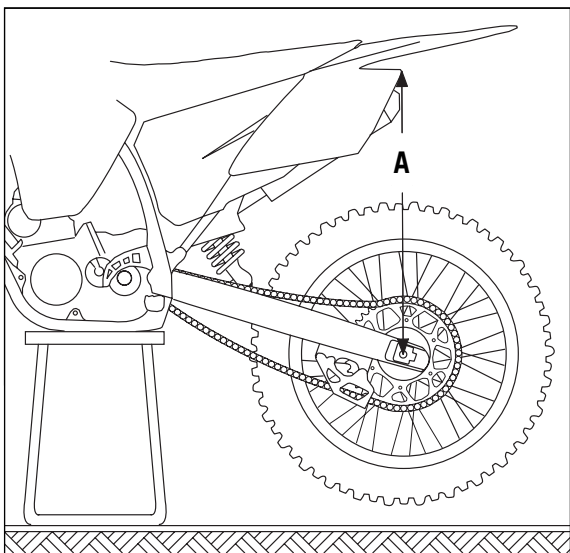
ADJUSTMENT VALUES - SPRING PRELOAD A	
minimum preload.....	4 mm (0,15 in)
STANDARD PRELOAD.....	7 mm
maximum preload .....	10 mm (0,4 in)



### Pivot bearing

The pivot bearing [3] for PDS suspension struts at the swinging fork is Teflon-coated and must not be lubricated with either grease or other lubricants. Grease and other lubricants cause the Teflon coat to dissolve, whereby the bearing's lifecycle will be reduced dramatically.

When cleaning your bike with a high-pressure cleaner, do not aim the high-pressure spray directly at the pivot bearing.



## Basic suspension setup for the weight of the driver

To achieve maximum handling performance and to prevent the fork, shock absorber, swing arm and frame from being damaged, the basic setup of the suspension components must be suitable for your weight. At delivery, KTM's offroad motorcycles are set to accommodate a driver weighing 70 - 80 kg (wearing full protective clothing). If your weight exceeds or falls short of this range, you will need to adjust the basic setup for the suspension components accordingly. Minor deviations in weight can be compensated by adjusting the spring preload. Different springs must be installed for larger deviations.

## Checking the shock absorber and spring

You can establish whether or not the shock absorber spring is suitable for your weight by checking the riding sag. The static sag must be correctly adjusted before the riding sag can be determined.

## Determining the static sag of the shock absorber

The static sag should be as close as possible to 35 mm. Deviations of more than 2 mm can strongly influence the motorcycle's performance.

Procedure:

- Jack up the motorcycle until the rear wheel no longer touches the ground.
- Measure the vertical distance between the rear wheel axle and a fixed point (e.g. a mark on the side cover) and write it down as dimension A.
- Place the motorcycle on the ground again.
- Ask a helper to hold the motorcycle in vertical position.
- Measure the distance between the rear axle and the fixed point again to establish dimension B.
- The static sag is the difference between dimensions A and B.

EXAMPLE:

Motorcycle jacked up (dimension A)	.....	.600 mm
Motorcycle on ground, unloaded (dimension B)	.....	- 565 mm
Static sag	.....	.35 mm

If the static sag is lower, the spring preload of the shock absorber must be reduced, if the static sag is higher, the spring preload must be increased. See chapter "Changing the spring preload of the shock absorber."

## Determining the riding sag of the shock absorber

- Have a helper hold the motorcycle while you sit on the bike in a normal seating position (feet on the footrests) wearing full protective clothing and bounce up and down a few times to allow the rear wheel suspension to become level.
- Stay on the bike and have another person measure the distance between the same two points and write it down as dimension C.
- The riding sag is the difference between dimensions A and C.

EXAMPLE:

Motorcycle jacked up (dimension A)	.....	.600 mm
Motorcycle on ground, loaded (dimension C)	.....	- 510 mm
Riding sag	.....	.90 mm

The riding sag should lie between 90 and 105 mm. If the riding sag is less than 90 mm, the spring is too hard (the spring rate is too high). If the riding sag is more than 105 mm, the spring is too soft (the spring rate is too low).

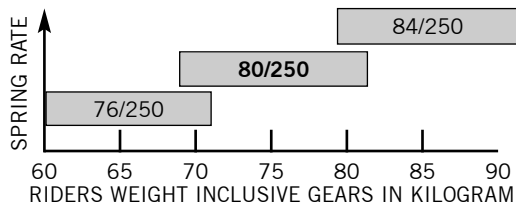
The spring rate is written on the outside of the spring (e.g. 88/250). The type number of the shock absorber is embossed on the bottom of the tank.

The illustrations show which spring should be installed. The standard spring is shown in bold print.

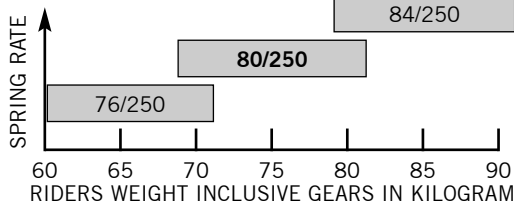
After installing a different spring, readjust the static sag to 35 mm (± 2 mm).

PDS 12187A05

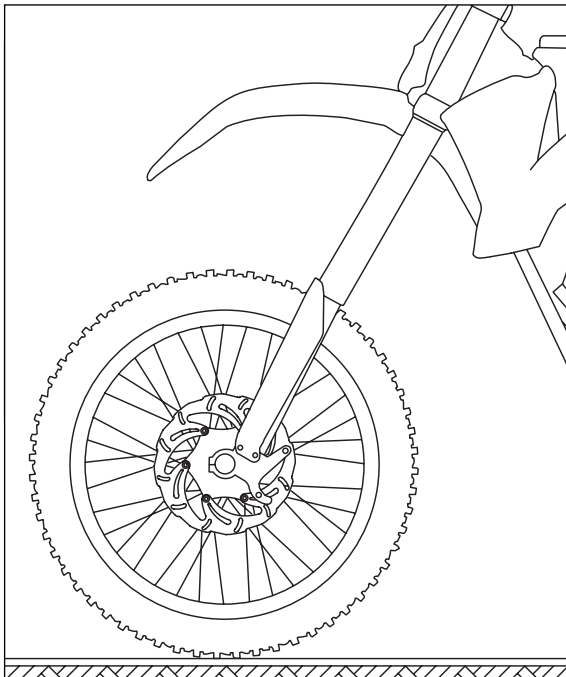
450/525 SX



**PDS 12187A06 250/400/450/525  
MXC/MXC-Desert/EXC/EXC-G**



According to our experience, the damping rate of the compression stage can remain unchanged. The damping rate of the rebound stage can be reduced by a few clicks for a softer spring or increased by a few clicks for a harder spring.



### Checking the basic setup of the telescopic fork

The precise riding sag of the telescopic fork cannot be determined for various reasons. Similar to the shock absorber, smaller deviations in your weight can be compensated by adjusting the spring preload. However, if your telescopic fork bumps frequently (hard end stop during compression), you should install harder fork springs to avoid damaging the telescopic fork and frame.

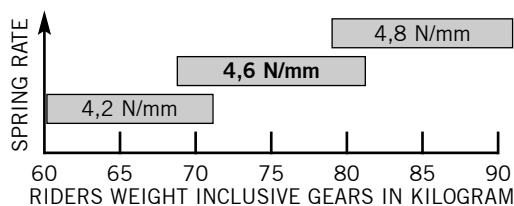
### Changing the spring preload on the telescopic fork (SX models)

The telescopic forks of the SX models come with a preload adjuster for easy adjustment of the spring preload. You can adjust the spring preload  $\pm 9$  mm by turning the adjusting screws (basic position = middle position).

NOTE:

Always turn the adjusting screws the same distance on both fork legs. Different spring preloads on the fork legs will reduce the telescopic fork's response.

**14187A05 450/525 SX**



### Changing the spring preload on the telescopic fork (MXC/EXC models)

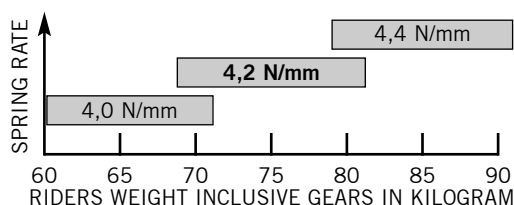
The telescopic forks for these models must be partly disassembled to adjust the spring preload (see WP manual). Pretension spacers are available in heights of 1.5, 2.5 and 5 mm (see spare parts catalog). The fork springs may not be pretensioned by more than 20 mm.

The preload adjuster used in the SX models can easily be retrofitted for the telescopic forks of the MXC/EXC models.

NOTE:

WP precisely adjusts the spring pressure by inserting pretension spacers. Fluctuations in production are compensated with pretension spacers in various heights. This can cause the fork springs in the fork legs to have different degrees of pretension. Fork springs and pretension spacers should always stay together.

**14187A06 250/400/450/525  
MXC/MXC-Desert/EXC/EXC-G**

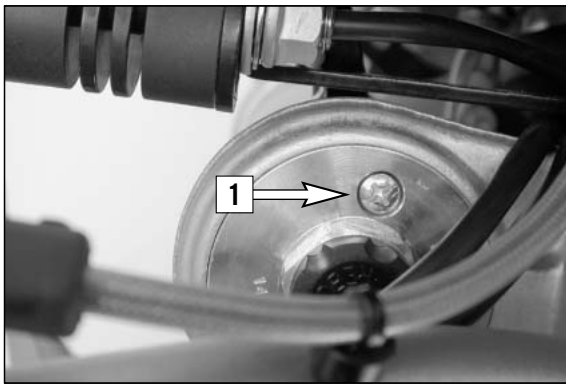


### Replacing fork springs

If you weigh less than 70 kg or more than 80 kg, you should install the respective fork springs. The correct spring rate is shown in the illustrations. The standard spring is shown in bold print. The type number of the telescopic fork is embossed on the caps on the top of the telescopic fork.

If you are uncertain which spring to use, contact your KTM workshop.

According to our experience, the damping rate of the compression stage can remain unchanged. The damping rate of the rebound stage can be reduced by a few clicks for a softer spring or increased by a few clicks for a harder spring.

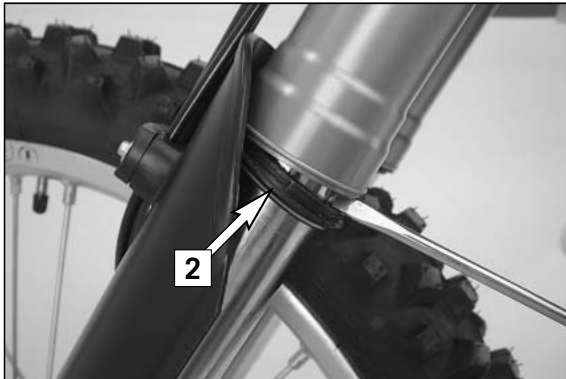


## Breather plug front fork

After every 5 hours of use for competitive racing, slacken the breather plugs [1] a few turns in order to relieve excess pressure from the inside of the fork. To do this, place the motorcycle on a stand with the front wheel lifted off the ground. When riding the motorcycle mainly on the road, it will suffice to have this job performed in the course of the periodical maintenance service.

### ! CAUTION

EXCESSIVE PRESSURE IN THE INTERIOR OF THE FORK CAN CAUSE LEAKS IN THE FORK. IF YOUR FORK IS LEAKING, IT IS RECOMMENDED TO OPEN THE BREATHER PLUGS BEFORE HAVING THE SEALS REPLACED.



## Cleaning the dust sleeves of the telescopic fork

The dust-protection bellows [2] are to remove dust and coarse dirt particles from the fork tube. However, after some time, dirt may also get in behind the dust-protection bellows. If this dirt is not removed, the oil sealing rings located behind it may start to leak.

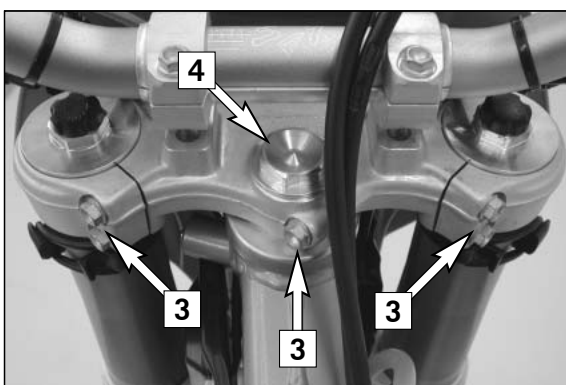
Use a screwdriver to lift the dust-protection bellows out of the outer tubes and slide them downward.



Clean the dust-protection bellows, outer tubes, and fork tubes thoroughly, and oil them thoroughly with Universal oil spray (Motorex Joker 440) or engine oil. Then, push the dust-protection bellows into the outer tubes by hand.

### ! WARNING

NO OIL MAY REACH THE FRONT TIRE OR THE BRAKE DISKS SINCE THIS WOULD CONSIDERABLY REDUCE THE TIRE'S ROAD GRIP AND THE BRAKING EFFECT OF THE FRONT BRAKE.



## Checking and adjusting the steering head bearing \*

Check steering head bearing for play periodically. To check, put the motorcycle on a stand so that the front wheel is off the ground. Now try to move the fork forward and backward. For readjusting, loosen the five pinch bolts [3] of the top triple clamp and turn steering stem bolt clockwise [4] until there is no more play. Don't tighten the steering stem bolt all the way, otherwise the bearings will be damaged. With a plastic hammer, lightly tap on the triple clamp to release tension. Retighten the five pinch bolts to 20 Nm(EXC) and 15 Nm (SX).

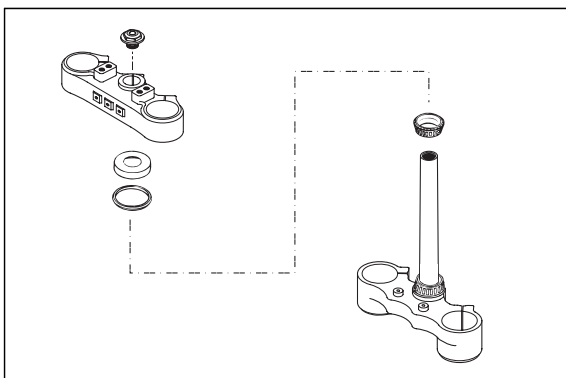
### ! WARNING

IF THE STEERING HEAD BEARING IS NOT ADJUSTED TO BE FREE OF PLAY, THE MOTORCYCLE WILL EXHIBIT UNSTEADY DRIVING CHARACTERISTICS AND CAN GET OUT OF CONTROL.

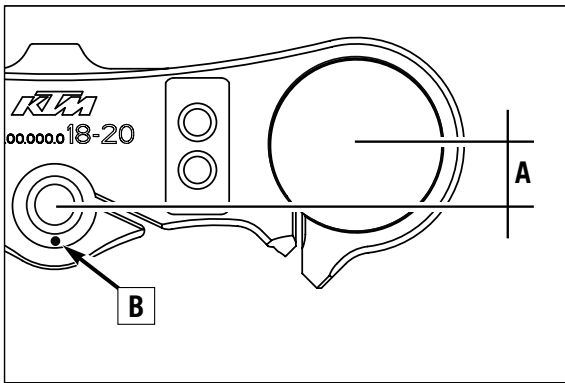
### ! CAUTION

IF YOU DRIVE WITH PLAY IN THE STEERING HEAD BEARING FOR LONGER PERIODS, THE BEARINGS AND SUBSEQUENTLY THE BEARING SEATS IN THE FRAME WILL BE DESTROYED.

The steering head bearings should be regreased at least once a year (e.g. Motorex Long Therm 2000).



# MAINTENANCE WORK ON CHASSIS AND ENGINE »



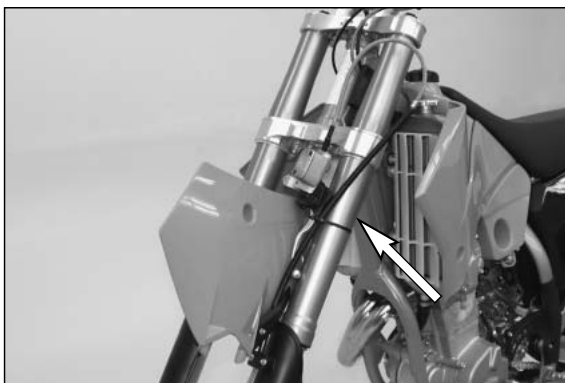
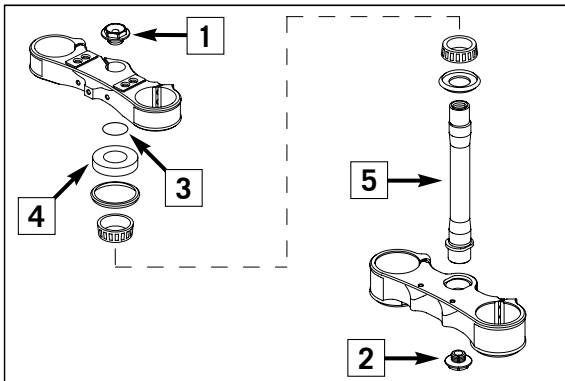
## Changing the fork offset (caster) (SX) \*

The fork offset [A] in the SX models (center fork legs - center steering head angle) can be set to either 18 or 20 mm. This allows you to optimize the handling to match the race course.

Remove the blind screw [1] to see which offset is set. If the mark [B] is in front, the offset is 18 mm. This setting will deliver more directional stability on fast race courses.

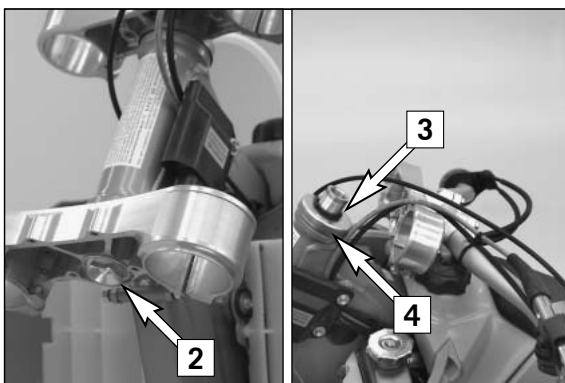
If the mark [B] is in the rear as illustrated, the offset is 20 mm. This setting will deliver better handling in curves.

The offset is set to 20 mm in the condition at delivery.



To adjust the offset, dismount the front wheel and remove the front wheel fender.

Remove the screw on the starting number plate. Remove the clamp screws on the hand brake cylinder and fasten the hand brake cylinder to the left fork leg with a cable tie to keep the brake line from kinking (see illustration).

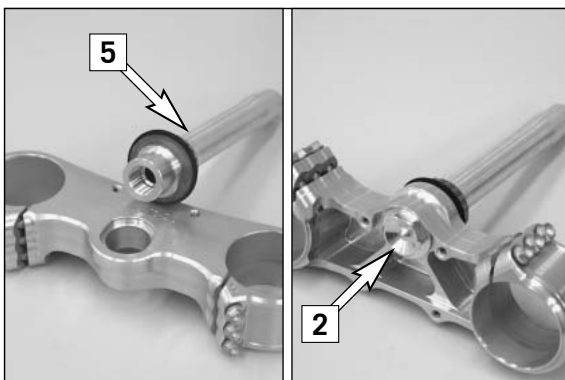


Loosen the clamp screws and take the fork legs out of the triple clamps.

Loosen the collar screw [2] on the lower triple clamp 2 turns.

Remove the blind screw [1] from the upper triple clamp, loosen the clamp screw and upper triple clamp on the seat. Remove the O-ring [3] and the protection ring [4].

Tap gently on the lower triple clamp with a rubber hammer to loosen the steering stem [5] out of the bearing seat. Take the lower triple clamp with the steering stem out of the steering head.



Remove the collar screw from the lower triple clamp and pull out the steering stem. Thoroughly clean all parts. Turn the steering stem 180° and insert it in the triple clamp, tighten the collar screw all the way to the stop.

### ⚠ WARNING

- A PLASTIC INSERT IN THE COLLAR SCREW THREAD MAKES THE COLLAR SCREW SELF-LOCKING. REPLACE IF THE COLLAR SCREW CAN BE SCREWED IN BY HAND.
- DO NOT CONFUSE THE COLLAR SCREW WITH THE BLIND SCREW. THE COLLAR SCREW IS SELF-LOCKING.

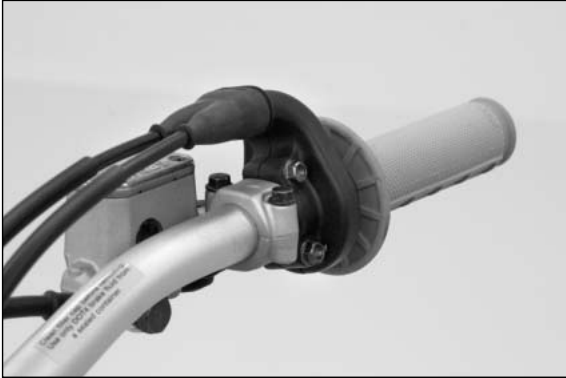
Grease the steering head bearing and sealing elements.

## MAINTENANCE WORK ON CHASSIS AND ENGINE »

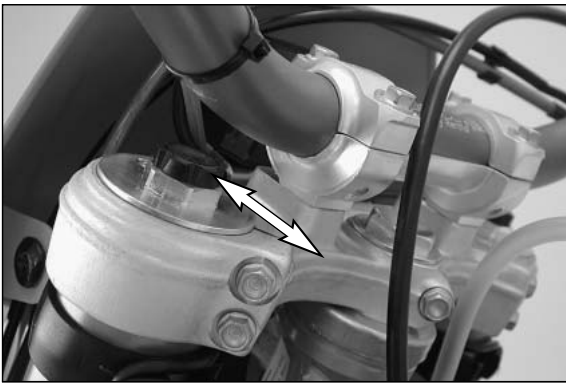


Mount the lower triple clamp, upper steering head bearing, protection ring, O-ring, upper triple clamp and the blind screw.  
Tighten the collar screw on the lower triple clamp to 80 Nm.  
Mount the fork legs and tighten the clamp screws on the lower triple clamp to 10 Nm in 3 stages.

Adjust the steering head bearing without clearance (see: Checking and adjusting the steering head support) and tighten the clamp screws on the upper triple clamp to 15 Nm in 3 stages.



Mount the front wheel fender and tighten the screws to 10 Nm.  
Mount the hand brake cylinder and tighten the screws to 10 Nm.  
Mount the starting number plate.  
Mount the front wheel (see: Dismounting and mounting the front wheel).



### Checking and adjusting the steering head bearing \*

Check steering head bearing for play periodically. To check, put the motorcycle on a stand so that the front wheel is off the ground. Now try to move the fork forward and backward. For readjusting, loosen the five pinch bolts [1] of the top triple clamp and turn steering stem bolt [2] clockwise until there is no more play. Don't tighten the steering stem bolt all the way, otherwise the bearings will be damaged. With a plastic hammer, lightly tap on the triple clamp to release tension. Retighten the five pinch bolts to 15 Nm (SX) / 20 Nm (EXC, MXC).

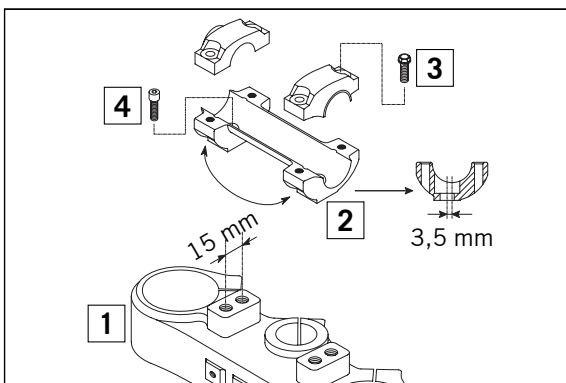
#### **⚠ WARNING**

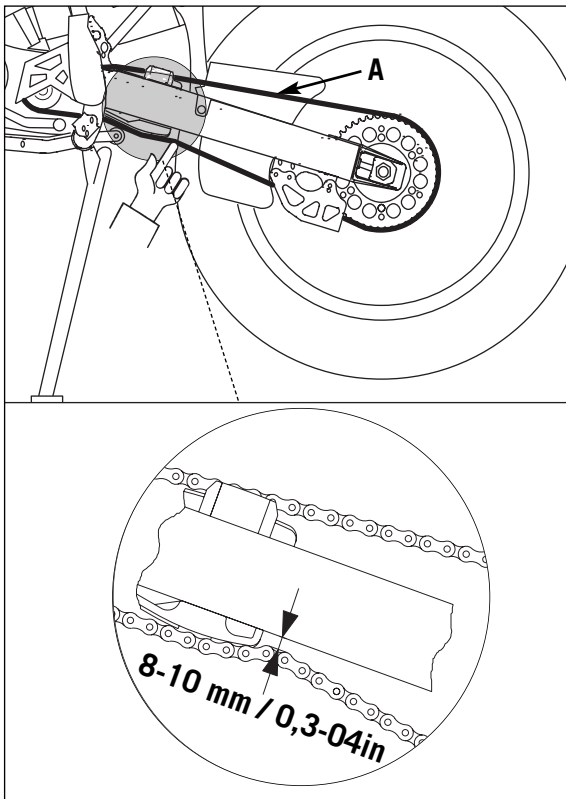
IF THE STEERING HEAD BEARING IS NOT ADJUSTED TO BE FREE OF PLAY, THE MOTORCYCLE WILL EXHIBIT UNSTEADY DRIVING CHARACTERISTICS AND CAN GET OUT OF CONTROL.

#### **! CAUTION**

IF YOU DRIVE WITH PLAY IN THE STEERING HEAD BEARING FOR LONGER PERIODS, THE BEARINGS AND SUBSEQUENTLY THE BEARING SEATS IN THE FRAME WILL BE DESTROYED.

The steering head bearings should be regreased at least once a year (e.g. Motorex Long Therm 2000).





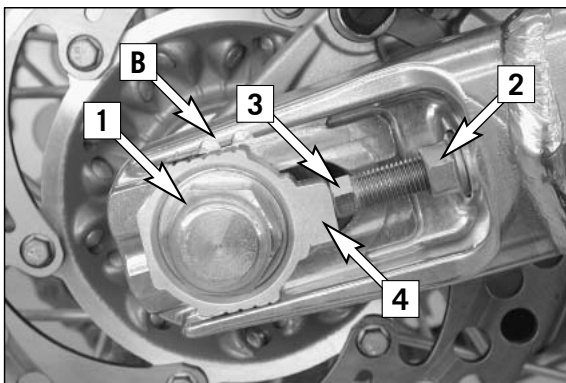
## Check chain tension

Jack the motorcycle up on its frame so that the rear wheel no longer touches the ground.

Press the chain upward at the end of the chain sliding component. The distance between the chain and the swing arm should be approx. 8 - 10 mm (0.31 - 0.39 in). In the course of this procedure, the upper chain portion [A] must be taut (see drawing). If necessary, correct the chain tension.

### ⚠ WARNING

- EXCESSIVE TENSIONING OF THE CHAIN WILL PUT ADDITIONAL LOAD ON THE COMPONENTS OF THE SECONDARY DRIVETRAIN (CHAIN, BEARINGS OF TRANSMISSION AND REAR WHEEL). ASIDE FROM RESULTING PREMATURE WEAR, IF WORST COMES TO WORST THE CHAIN MAY RUPTURE OR THE COUNTERSHAFT OF THE TRANSMISSION MAY BREAK.
- TOO MUCH SLACK IN THE CHAIN, ON THE OTHER HAND, CAN RESULT IN THE CHAIN JUMPING OFF THE CHAIN WHEELS. IF THIS HAPPENS, THE CHAIN COULD ALSO BLOCK THE REAR WHEEL OR DAMAGE THE ENGINE.
- IN EITHER CASE THE OPERATOR IS LIKELY TO LOSE CONTROL OF THE MOTORCYCLE.



## Correct chain tension

Loosen collar nut [1], loosen lock nuts [2], and turn right and left adjusting screws [3] equally far. Tighten lock nuts.

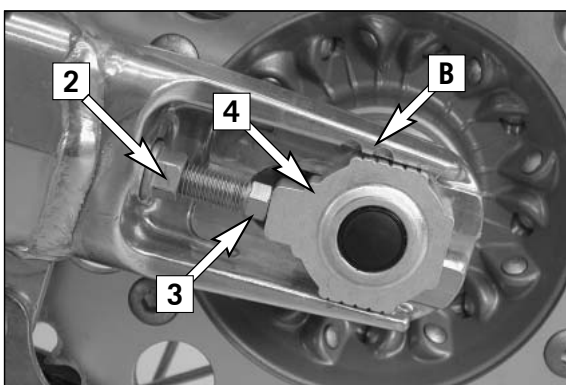
To ensure the correct alignment of the rear wheel, the marks at the left and right chain adjusters must be positioned identically in relation to the reference marks [B]. Tighten the counter nut of the adjusting screws.

Before tightening the collar nut, verify that the chain adjusters [4] are sitting close to the adjusting screws and that the rear wheel has been aligned with the front wheel.

Tighten collar nut [1] to 80 Nm.

### ⚠ WARNING

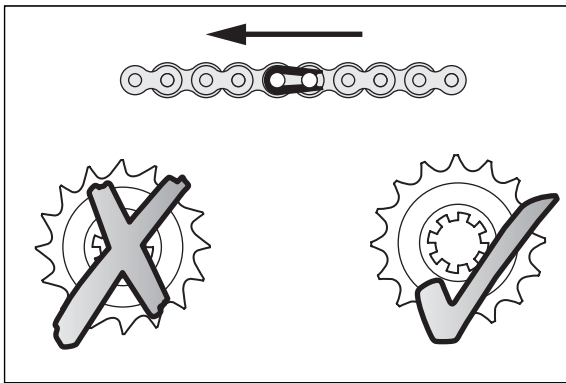
- IF YOU DON'T HAPPEN TO HAVE A TORQUE WRENCH AT HAND, MAKE SURE YOU HAVE THE TIGHTENING TORQUE CORRECTED BY A KTM DEALER AS SOON AS POSSIBLE. A LOOSE AXLE MAY LEAD TO AN UNSTABLE DRIVING BEHAVIOR OF YOUR MOTORCYCLE.
- TIGHTEN THE COLLAR NUT WITH THE REQUIRED TORQUE. A LOOSE WHEEL SPINDLE MAY LEAD TO AN UNSTABLE BEHAVIOR OF YOUR MOTORCYCLE.



### NOTE:

The large adjusting range of the chain adjusters (32mm) allows you to use different secondary ratios in combination with the same chain length. The chain adjusters [4] can be rotated by 180°.





## Chain maintenance

For a long chain life, good maintenance is very important. Chains without X-rings should be cleaned in fireproof solvent regularly and afterwards treated with hot grease or chain spray (e.g. Motorex Chainlube 622).

X-ring chains on the other hand are very simple to clean. The best way is to use lots of water, but never use brushes or cleaning liquids. After letting the chain dry, you can use a special X-ring chain spray (e.g. Motorex Chainlube 622).

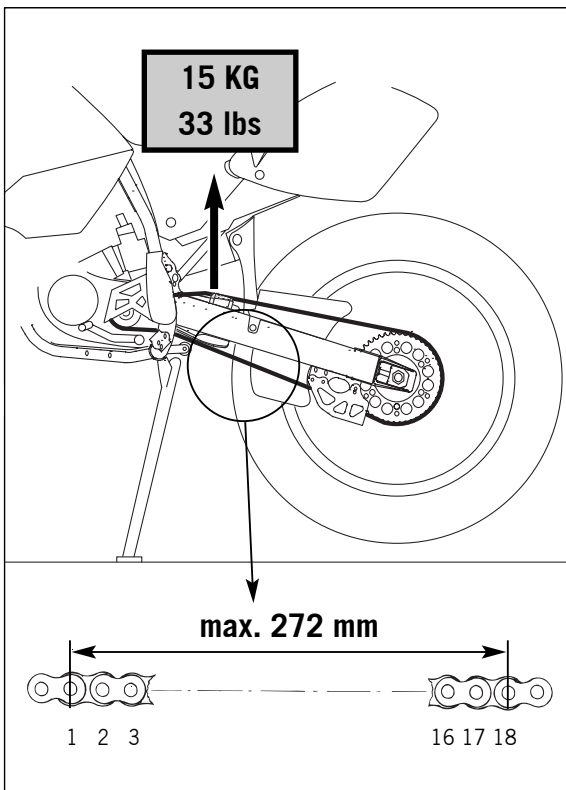
### ⚠ WARNING

NO LUBRICATION IS ALLOWED TO REACH THE REAR TIRE OR THE BRAKE DISKS, OTHERWISE THE ROAD ADHERENCE AND THE REAR WHEEL BRAKING EFFECTS WOULD BE STRONGLY REDUCED AND THE MOTORCYCLE COULD EASILY LOSE CONTROL.

### ! CAUTION

WHEN MOUNTING THE CHAIN MASTERLINK CLIP, THE CLOSED SIDE OF THE MASTERLINK CLIP MUST POINT IN RUNNING DIRECTION.

Also check sprockets and chain guides for wear and replace if necessary.



## Chain wear

To check the chain wear, observe the following indications:

Shift the gear into idling and pull the upper chain strand with approx. 10-15 Kilograms (33 lb) upwards (see figure). Now one can measure a space of 18 chain reels at the lower chain strand. The chain should be replaced at the latest when a space of 272 mm (10.70 in) is measured. Chains do not always wear off evenly, therefore repeat the measurement at different places on the chain.

NOTE:

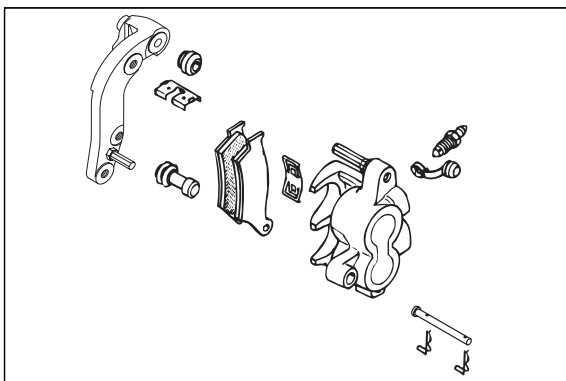
If you mount a new chain, the sprockets should also be replaced. New chains wear faster if used on old used sprockets.

### ! CAUTION

SECURE THE SCREWS OF THE CHAIN WHEEL BY APPLYING LOCTITE AND FASTEN THEM IN A CROSSWISE ORDER.

TIGHTENING TORQUE FOR NUTS: 35 NM.

TIGHTENING TORQUE FOR SCREWS: 50 NM.



## General information about KTM disc brakes

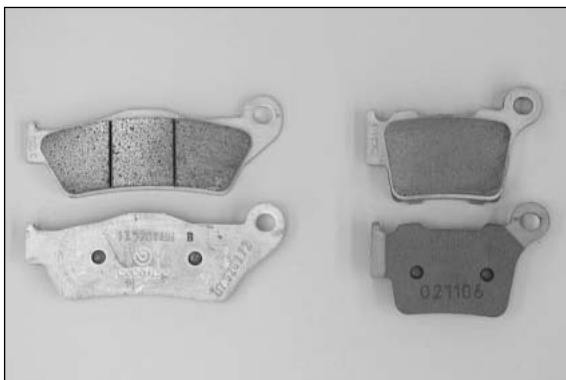
### BRAKE CALIPERS:

The brake calipers of this series use a "floating" mount. This means that the brake calipers are not solidly attached to the caliper support, which enables them to "float" for maximum braking contact. Secure the screws of the caliper support with Loctite 243 and tighten to 25 Nm.

### BRAKE PADS:

The brake pads are fitted with TOSHIBA TT 2701 sintered lining at the front and TOSHIBA H 38 sintered lining at the back. These linings provide an optimal combination of dosing, brake performance and life cycle. The lining type is stated on the back of the brake pad and also recorded in the homologation papers.

Other brake pads are available for competition sports.



**FRONT:** TOSHIBA H 38 (SINTERED) – harder to dose, good brake performance, long life, for wet slippery terrain.

FERODO ID 450 (ORGANIC) – easy to dose, good brake performance, short life, for dry terrain, low price

**REAR:** FERODO 4424 (organic) – better controllability, shorter service life, for dry terrain.

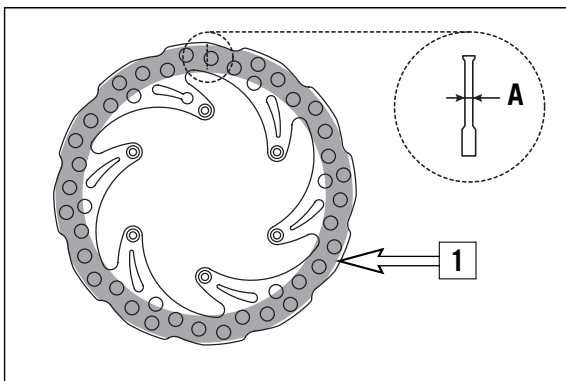
TOSHIBA H38 (Sinter) – longer service life than FERODO 4424, higher braking performance.

### BRAKE DISCS:

Due to wear, the thickness of the brake disc in the area of the contact face [1] of the brake pads decreases. The brake disk must be at least 2.80 mm thick at the thinnest point [A]. Check the thickness of the brake disk at several points.

### ⚠ WARNING

- BRAKE DISCS SUFFERING FROM WEAR GREATER THAN 0,4 MM (0,016 IN) CONSTITUTE A SAFETY RISK. HAVE THE BRAKE DISCS REPLACED IMMEDIATELY AS SOON AS THEY REACH THE WEAR LIMIT.
- HAVE ANY REPAIRS ON THE BRAKE SYSTEM BE PERFORMED BY A KTM DEALER



### BRAKE FLUID RESERVOIRS:

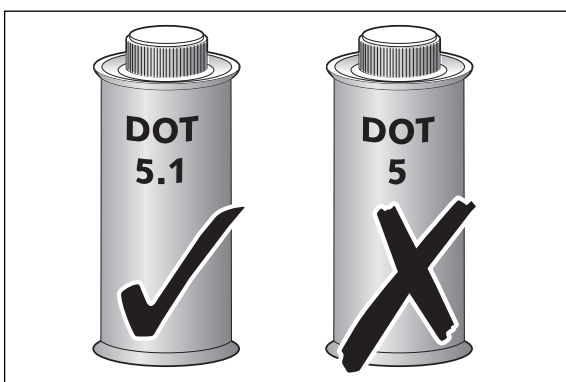
The brake fluid reservoirs on the front and rear wheel brakes have been designed in such a way that even if the brake pads are worn it is not necessary to top up the brake fluid. If the brake fluid level drops below the minimum level either the brake system has a leak or the brake pads are completely worn. In this case, consult an authorized KTM dealer immediately.

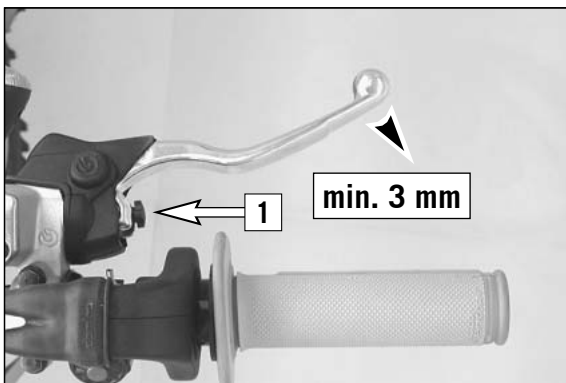
### BRAKE FLUID:

KTM fills the brake systems with Motorex Brake Fluid DOT 5.1 brake fluid, one of the best brake currently available. We recommend that you continue to use it. DOT 5.1 brake fluid is based on glycol ether and of an amber color. If you do not have any DOT 5.1 for refilling, you may use DOT 4 brake fluid. However, you should replace it as soon as possible with DOT 5.1. Never use brake fluid DOT 5. The color of this silicon oil-based product is purple red. The gaskets and brake hoses of KTM motorcycles are not designed for DOT 5 brake fluid.

### ⚠ WARNING

HAVE THE BRAKE FLUID CHANGED AT LEAST ONCE ANNUALLY. IF YOU WASH YOUR MOTORCYCLE OFTEN, THE BRAKE FLUID SHOULD BE CHANGED EVEN MORE FREQUENTLY. BRAKE FLUID TENDS TO ABSORB WATER. THEREFORE, VAPOR POCKETS MAY FORM IN "OLD" BRAKE FLUIDS EVEN AT LOW TEMPERATURES, CAUSING THE BRAKE SYSTEM TO FAIL.





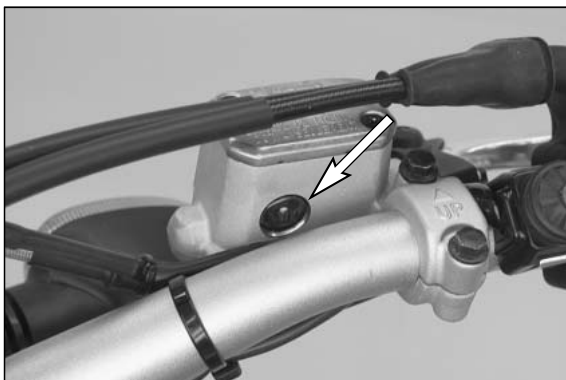
## Adjusting the free travel at the hand brake lever

Free travel at the hand brake lever may be readjusted by using adjustment screw [1]. In this way, the position of the point of pressure (i.e. the resistance you feel on the hand brake lever when the brake pads are pressed against the brake disc) can be adjusted for any hand size.

When you press the hand brake lever forwards, you should have at least 3 mm free travel. Turn the adjusting screw [1] if necessary.

### ! CAUTION

AT THE HAND BRAKE LEVER, FREE TRAVEL MUST AT LEAST BE 3 MM (0.1 IN). ONLY THEN MAY THE PISTON IN THE HAND BRAKE CYLINDER BE MOVED (TO BE RECOGNIZED BY THE GREATER RESISTANCE OF THE HAND BRAKE LEVER). IF THIS FREE TRAVEL IS NOT PROVIDED, PRESSURE WILL BUILD UP IN THE BRAKING SYSTEM, AND THE FRONT-WHEEL BRAKE MAY FAIL DUE TO OVERHEATING.

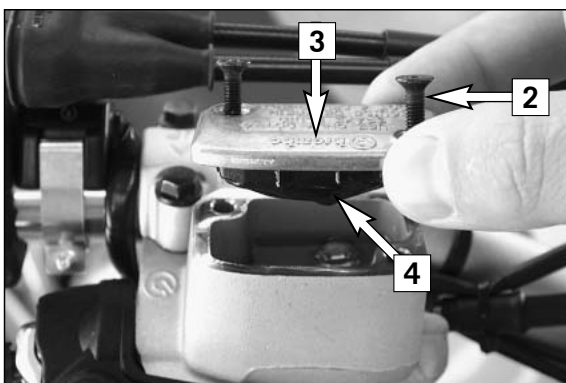


## Checking the brake fluid level - front brake

The brake fluid reservoir is linked with the hand brake cylinder at the handlebar and the reservoir is provided with an inspection glass. With the reservoir in a horizontal position, the brake fluid level should not drop below the middle of the glass.

### ! WARNING

IF THE BRAKE FLUID LEVEL DROPS BELOW THE MINIMUM EITHER THE BRAKE SYSTEM HAS A LEAK OR THE BRAKE PADS ARE COMPLETELY WORN. IN THIS CASE, CONSULT AN AUTHORIZED KTM DEALER IMMEDIATELY.



## Refilling the front brake fluid reservoir \*

Loosen screws [2] and remove lid [3] and membrane [4].

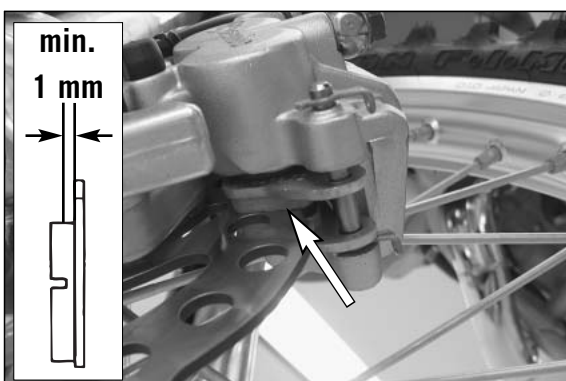
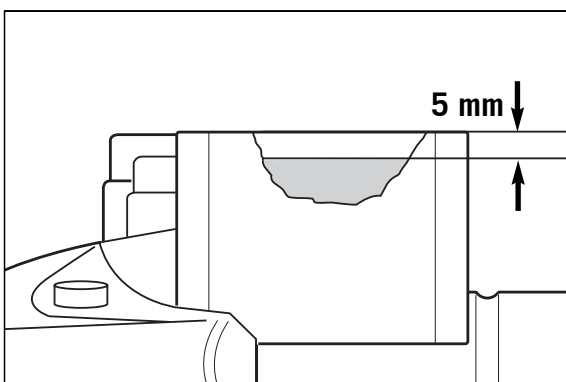
Place hand brake cylinder in a horizontal position and fill the brake fluid reservoir to 5 mm (0.2 in) below the rim with clean brake fluid DOT 5.1 (e.g. Motorex Brake Fluid DOT 5.1). Replace membrane and lid, tighten screws. Rinse off spilled or overflowing brake fluid with water.

### ! WARNING

- NEVER USE DOT5 BRAKE FLUID! IT IS BASED ON SILICONE OIL AND OF A PURPLE COLOR. SEALS AND BRAKE HOSES MUST BE ESPECIALLY ADAPTED TO IT.
- STORE BRAKE FLUID OUT OF REACH OF CHILDREN.
- BRAKE FLUID CAN CAUSE SKIN IRRITATION. AVOID CONTACT WITH SKIN AND EYES. IF YOU GET BRAKE FLUID IN YOUR EYES, RINSE WITH PLENTY OF WATER AND CONSULT A DOCTOR

### ! CAUTION

- DON'T LET BRAKE FLUID GET IN CONTACT WITH PAINT, IT IS AN EFFECTIVE PAINT REMOVER.
- USE ONLY CLEAN BRAKE FLUID TAKEN FROM A TIGHTLY SEALED CONTAINER.



## Checking the front brake pads

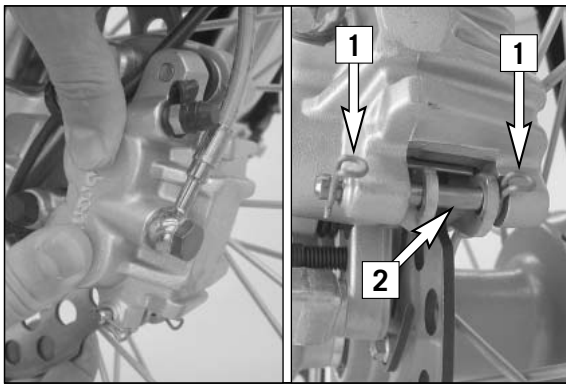
The brake pads can be inspected from below. The linings must be at least 1 mm (0.04 in) thick.

### ! WARNING

AT THEIR MOST WORN POINT BRAKE PAD LININGS SHOULD NOT BE THINNER THAN 1 MM, OTHERWISE THEY COULD LEAD TO BRAKE FAILURE. FOR YOUR OWN SAFETY DON'T PUT OFF HAVING YOUR BRAKE PADS CHANGED.

### ! CAUTION

IF THE BRAKE PADS ARE REPLACED TOO LATE SO THAT THE LINING IS PARTLY OR ENTIRELY WORN, THE STEEL COMPONENTS OF THE BRAKE PAD WILL RUB AGAINST THE BRAKE DISC, THEREBY IMPAIRING THE BRAKING EFFECT AND DESTROYING THE BRAKE DISC.



## Replacing the front brake pads \*

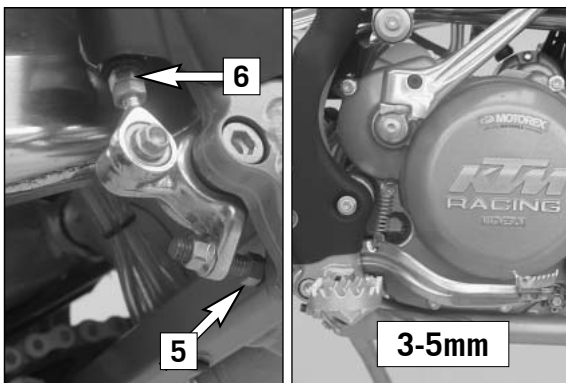
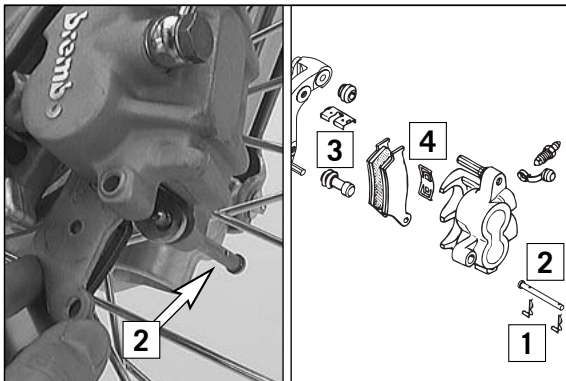
Press the brake caliper toward the brake disk, to put the brake piston in its basic position. Remove clips [1] and pull out bolt [2]. Remove brake pads from the brake caliper. Clean the brake caliper and the brake caliper support with compressed air. Check the sleeves of the guide bolts for damage, and grease guide bolts if necessary.

Mount the right brake pad and fix it with the bolt. Mount the left brake pad and insert the bolt until it stops. Mount the clips.

When mounting the brake pads, be sure to check for correct fit of the sliding metal-sheet [3] in the caliper support and of the leaf spring [4].

### ⚠ WARNING

- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND FATTY MATTERS. OTHERWISE, THE BRAKING EFFECT WOULD BE STRONGLY REDUCED.
- AFTER ASSEMBLY, CHECK IF CIRCLIPS HAVE BEEN FITTED CORRECTLY.
- AFTER WORKING ON THE BRAKING SYSTEM, ALWAYS ACTUATE THE HAND BRAKE LEVER OR FOOT BRAKE LEVER, RESPECTIVELY TO ENSURE THAT THE BRAKE PADS WILL LIE AGAINST THE BRAKE DISK AND THE PRESSURE POINT IS ESTABLISHED.



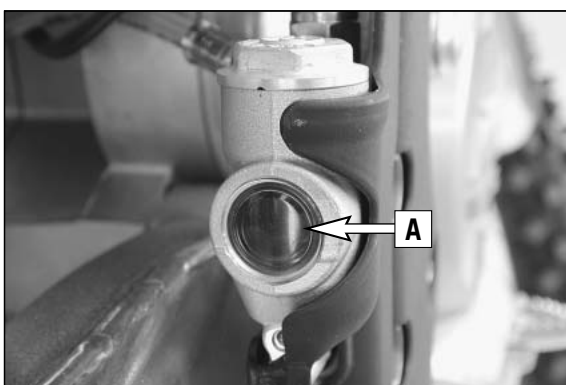
## Changing the basic position of the foot brake pedal \*

The basic position of the foot brake pedal can be altered by turning the stop screw [5]. The free play at the foot brake pedal must then be adjusted by means of the piston rod [6].

Measured on the outside, the foot brake pedal must have 3-5 mm (0.12–0.20 in) of free play before the piston rod can move the piston in the brake cylinder (to be recognised from the resistance on the foot brake pedal).

### ⚠ WARNING

IF THIS FREE PLAY IS NOT PRESENT, THEN PRESSURE CAN BUILD UP IN THE BRAKE SYSTEM WHEN DRIVING, CAUSING THE REAR WHEEL TO BRAKE. THE BRAKING SYSTEM OVERHEATS AND MAY EVEN FAIL COMPLETELY IN EXTREME CASES.



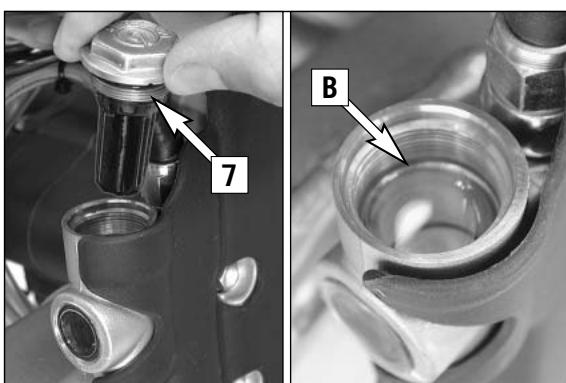
## Checking the rear brake fluid level

The reservoir for the rear brake disk is located on the right side of the motorcycle on the rear brake cylinder.

No air bubble should be visible in inspection glass [A] when the vehicle is parked in a vertical position.

### ⚠ WARNING

IF THE BRAKE FLUID LEVEL DROPS BELOW THE MINIMUM EITHER THE BRAKE SYSTEM HAS A LEAK OR THE BRAKE PADS ARE COMPLETELY WORN. IN THIS CASE, CONSULT AN AUTHORIZED KTM DEALER IMMEDIATELY.



## Refilling the rear brake fluid reservoir \*

Add brake fluid as soon as a bubble is visible in inspection glass [A].

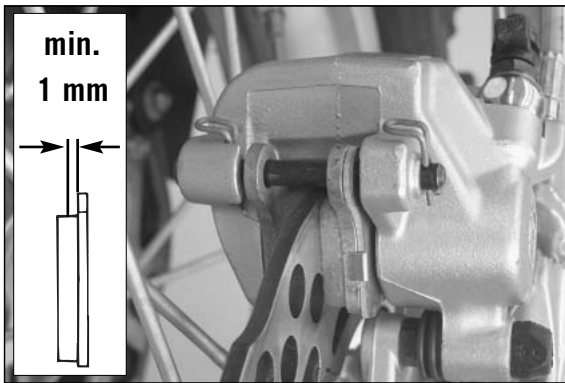
To top up, remove screw [7]. Fill DOT5.1 brake fluid (e.g. Motorex Brake Fluid DOT 5.1) up to the mark [B] on the inside of the reservoir and remount the screw. Spilled brake fluid must be rinsed off with water.

### ⚠ WARNING

- NEVER USE DOT5 BRAKE FLUID! IT IS BASED ON SILICONE OIL AND OF A PURPLE COLOR. SEALS AND BRAKE HOSES MUST BE ESPECIALLY ADAPTED TO IT.
- STORE BRAKE FLUID OUT OF REACH OF CHILDREN.
- BRAKE FLUID CAN CAUSE SKIN IRRITATION. AVOID CONTACT WITH SKIN AND EYES. IF YOU GET BRAKE FLUID IN YOUR EYES, RINSE WITH PLENTY OF WATER AND CONSULT A DOCTOR.

### ! CAUTION

- DON'T LET BRAKE FLUID GET IN CONTACT WITH PAINT, IT IS AN EFFECTIVE PAINT REMOVER.
- USE ONLY CLEAN BRAKE FLUID TAKEN FROM A TIGHTLY SEALED CONTAINER.



## Checking the rear brake pads

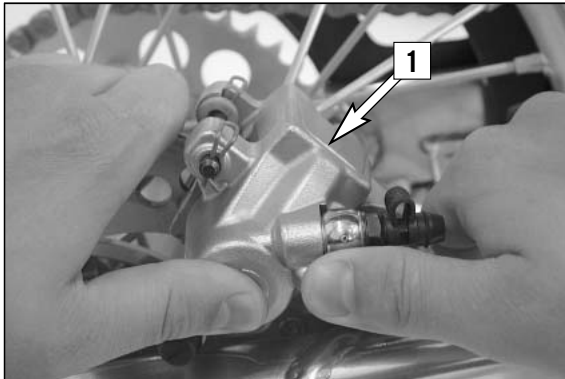
The brake pads can be inspected from the rear. The thickness of the linings may not be less than 1 mm (0.04 in).

### ⚠ WARNING

AT THEIR MOST WORN POINT BRAKE PAD LININGS SHOULD NOT BE THINNER THAN 1 MM, OTHERWISE THEY COULD LEAD TO BRAKE FAILURE. FOR YOUR OWN SAFETY DON'T PUT OFF HAVING YOUR BRAKE PADS CHANGED.

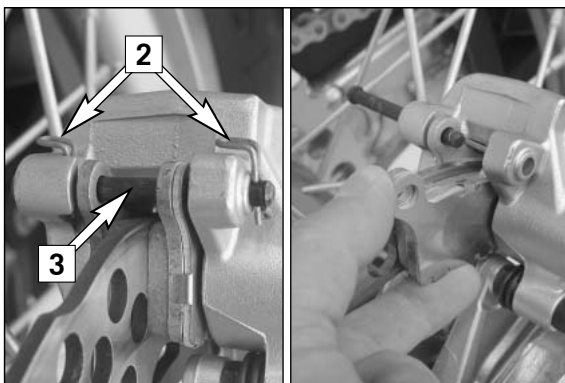
### ! CAUTION

IF THE BRAKE PADS ARE REPLACED TOO LATE SO THAT THE LINING IS PARTLY OR ENTIRELY WORN, THE STEEL COMPONENTS OF THE BRAKE PAD WILL RUB AGAINST THE BRAKE DISC, THEREBY IMPAIRING THE BRAKING EFFECT AND DESTROYING THE BRAKE DISC.



## Replacing the rear brake pads \*

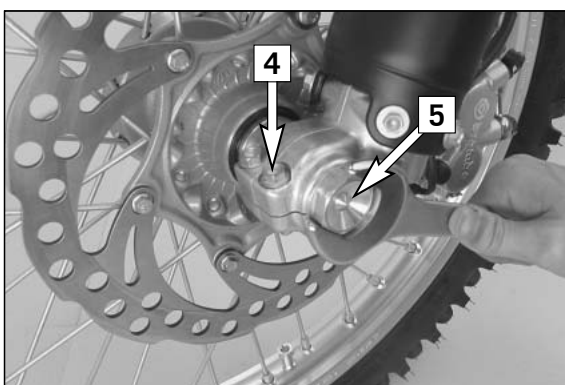
Push the brake caliper [1] toward the chain wheel in order to move the brake piston into its basic position. Remove the clips [2], pull out the bolt [3], and remove the brake pads. Thoroughly clean the brake caliper with compressed air and check the sleeves of the guide bolts for damage.



Insert the left brake pad into the brake caliper and secure it with the bolt. Insert the right brake pad and push the bolt [3] into the brake caliper up to the stop. Reattach clips [2].

### ⚠ WARNING

- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND FATTY MATTERS. OTHERWISE, THE BRAKING EFFECT WOULD BE STRONGLY REDUCED.
- AFTER ASSEMBLY, CHECK IF CLIPS HAVE BEEN FITTED CORRECTLY.
- AFTER WORKING ON THE BRAKING SYSTEM, ALWAYS ACTUATE THE HAND BRAKE LEVER OR FOOT BRAKE LEVER, RESPECTIVELY TO ENSURE THAT THE BRAKE PADS WILL LIE AGAINST THE BRAKE DISK AND THE PRESSURE POINT IS ESTABLISHED.



## Dismounting and mounting the front wheel

To remove the front wheel, jack the motorcycle up on its frame so that the front wheel no longer touches the ground.

Loosen the 2 clamping screws [4] on the left side of the fork fists.

Loosen and remove the collar nut [5]., loosen the clamping screws [6] on the right side of the fork fist.

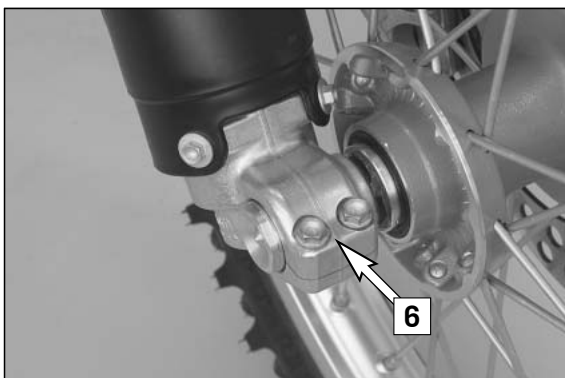
Hold the front wheel, pull out the wheel spindle [7].

NOTE: The wheel spindle can be easily removed if you slightly revolve it with a ring spanner (SW 27 mm).

Carefully remove the front wheel from the fork.

### ! CAUTION

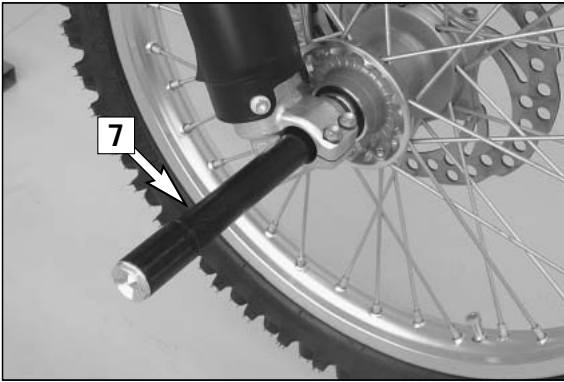
- DO NOT OPERATE THE HAND BRAKE WHEN THE FRONT WHEEL HAS BEEN DISMOUNTED.
- MAKE SURE THE BRAKE DISC IS ALWAYS ON TOP WHEN YOU LAY DOWN THE WHEEL, OTHERWISE THE BRAKE DISC CAN BE DAMAGED.



To install the front wheel, lift it into the fork, position and mount the axle shaft. Mount the collar nut [5], tighten the clamping screws [6] on the right fork leg axle passage to prevent the axle shaft from turning and tighten the collar nut to 40 Nm (30ft.lb).

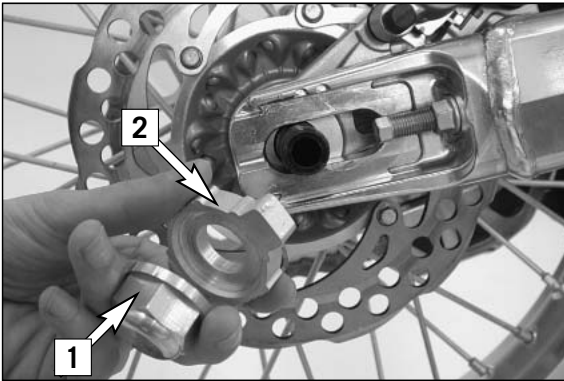
Loosen the clamp screws on the right fork leg. Take the motorcycle down from its stand. Press the front wheel brakes and push down on the fork a few times vigorously so that the fork legs come into alignment.

Only after this has been accomplished, tighten the clamp screws on both fork legs with 10 Nm (7 ft. lbs).



## ⚠ WARNING

- IF YOU DON'T HAPPEN TO HAVE A TORQUE WRENCH AT HAND, MAKE SURE YOU HAVE THE TIGHTENING TORQUE CORRECTED BY A KTM DEALER AS SOON AS POSSIBLE. A LOOSE AXLE MAY LEAD TO AN UNSTABLE DRIVING BEHAVIOR OF YOUR MOTORCYCLE.
- AFTER MOUNTING THE FRONT WHEEL, KEEP OPERATING THE HAND BRAKE UNTIL THE PRESSURE POINT RETURNS.
- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND FATTY MATTERS, OTHERWISE THE BRAKING EFFECT WOULD BE STRONGLY REDUCED.



## Dismounting and mounting the rear wheel

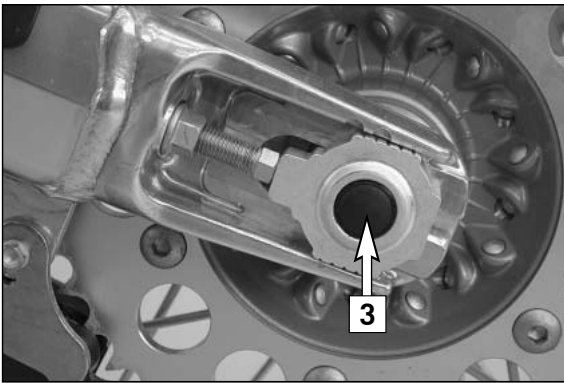
Jack the motorcycle up on its frame so that the rear wheel no longer touches the ground.

Loosen the collar nut [1], remove chain tensioner [2], hold the rear wheel and pull out the wheel spindle [3] until the rear wheel is free but the brake caliper support is still held.

Push the rear wheel as far forward as possible, take the chain from the chain wheel and carefully take the rear wheel out of the swingarm.

## ! CAUTION

- DO NOT OPERATE THE REAR BRAKE WHEN THE REAR WHEEL HAS BEEN DISMOUNTED.
- MAKE SURE THE BRAKE DISC IS ALWAYS ON TOP WHEN YOU LAY DOWN THE WHEEL, OTHERWISE THE BRAKE DISC CAN BE DAMAGED.
- IF THE AXLE IS DISMOUNTED, CLEAN THE THREAD OF THE WHEEL SPINDLE AND COLLAR NUT THOROUGHLY AND APPLY A NEW COAT OF GREASE TO PREVENT THE THREAD FROM JAMMING.



The rear wheel is remounted in the reverse order. Before tightening the collar nut to 80 Nm, push the rear wheel forwards so that the chain tensioners lie on the tension screws.

## ⚠ WARNING

- IF YOU DON'T HAPPEN TO HAVE A TORQUE WRENCH AT HAND, MAKE SURE YOU HAVE THE TIGHTENING TORQUE CORRECTED BY A KTM DEALER AS SOON AS POSSIBLE. A LOOSE AXLE MAY LEAD TO AN UNSTABLE DRIVING BEHAVIOR OF YOUR MOTORCYCLE.
- AFTER MOUNTING THE REAR WHEEL, KEEP OPERATING THE REAR BRAKE UNTIL THE PRESSURE POINT RETURNS.
- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND FATTY MATTERS, EITHERWISE THE BRAKING EFFECTS WOULD BE STRONGLY REDUCED.
- TIGHTEN THE COLLAR NUT WITH THE REQUIRED TORQUE. A LOOSE WHEEL SPINDLE MAY LEAD TO AN UNSTABLE BEHAVIOR OF YOUR MOTORCYCLE.



## Checking spoke tension

The correct spoke tension is very important for the stability of the wheels and thus for riding safety. A loose spoke causes the wheel to become unbalanced and before long other spokes will have come loose. Check spoke tension, especially on a new motorcycle, at regular intervals. For checking, tap on each spoke with the blade of a screwdriver (see photo). A clear tone must be the result. Dull tones are indicators of loose spokes. If necessary, have the spokes retightened and the wheel centered by a KTM dealer.

## ⚠ WARNING

- SPOKES CAN TEAR IF YOU CONTINUE TO RIDE WITH THEM LOOSE. THIS MAY LEAD TO AN UNSTABLE HANDLING OF YOUR MOTORCYCLE.
- EXCESSIVELY TENSIONED SPOKES MAY RUPTURE DUE TO LOCAL OVERLOADING. THE SPOKES MUST BE TENSIONED TO 5 NM.





## Tires, air pressure

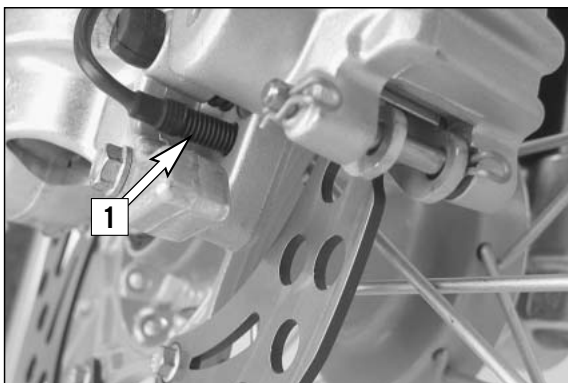
Tire type, tire condition, and air pressure level affect the way your motor-cycle rides and must therefore be checked whenever you are getting ready to go anywhere on your motorcycle.

- Tire size can be found in the technical specifications and in the homologation certificate
- Tire condition has to be checked every time you want to ride your motorcycle. Before leaving, check tires for punctures and nails or other sharp objects that might have become embedded in them. Refer to the specific regulations in your country for minimum tire tread requirements. We recommend you replace the tires at the latest when the tread is down to 2 mm (0.08 in).
- Tire pressure should be checked regularly on a "cold" tire. Proper pressure ensures optimum driving comfort and extends the life of your tires.

TIRES-AIR PRESSURE		
	front	rear
Off road	1,0 bar	1,0 bar
Road driver only	1,5 bar	2,0 bar

## ⚠ WARNING

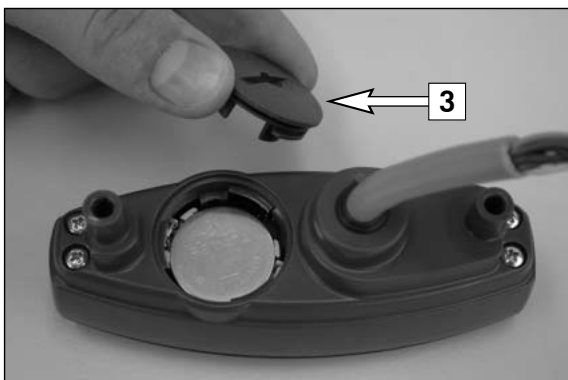
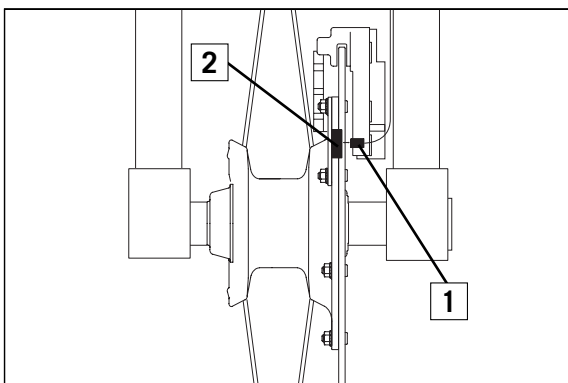
- DO NOT MOUNT TIRES WHICH HAVE NOT BEEN APPROVED BY KTM. OTHER TIRES COULD HAVE ADVERSE EFFECTS ON THE WAY YOUR MOTORCYCLE BEHAVES.
- FRONT AND REAR WHEELS MAY ONLY BE FITTED WITH TIRES HAVING THE SAME TREAD LAYOUT. USE HOMOLOGATED TIRES.
- FOR YOUR OWN SAFETY REPLACE DAMAGED TIRES IMMEDIATELY.
- WORN TIRES CAN HAVE A NEGATIVE EFFECT ON HOW YOUR MOTORCYCLE PERFORMS, ESPECIALLY ON WET SURFACES.
- IF AIR PRESSURE IS TOO LOW, ABNORMAL WEAR AND OVERHEATING OF THE TIRE CAN RESULT.



## Check/set distance of the magnetic sensor

The distance between magnet [2] and sensor [1] must be 2-4 mm (0,08-0,16 in), otherwise malfunctions on the speedometer might occur.

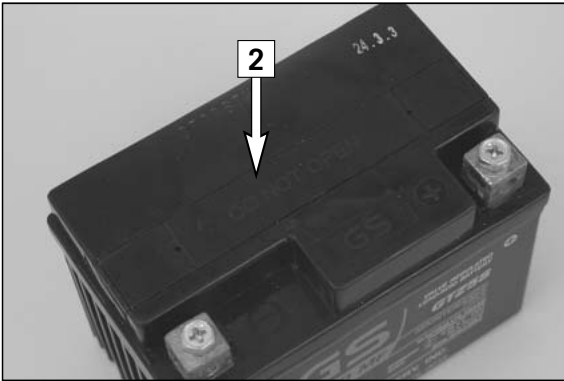
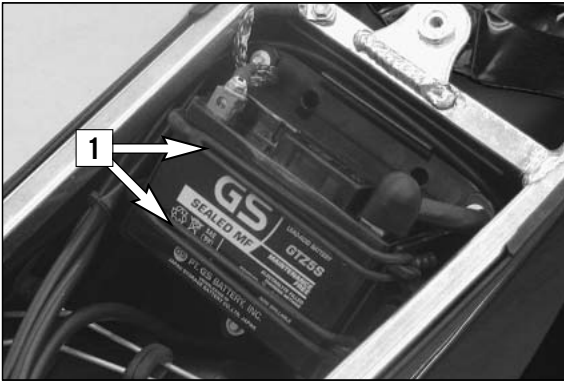
This distance can be corrected by screwing in or off the sensor [1].



## Replacing the battery of the digital speedometer

Remove the headlight mask and disassemble the electronic speedometer. Remove the screw connection [3], insert the battery (type CR 2430) with the writing facing up and reinstall the screw connection.

# MAINTENANCE WORK ON CHASSIS AND ENGINE »



## Battery (MXC/EXC)

The battery is located under the seat and is maintenance-free. It is not necessary to check the electrolyte level or to refill water. Simply keep the battery poles clean and slightly grease them with an acid-free grease if necessary.

Removing the battery:

First disconnect the negative and then the positive pole of the battery. Remove the filter box cover and unhitch both rubber bands [1].

Remove battery. Install the battery with the terminals facing the front (see illustration), connecting the negative terminal post to the battery last.

### ⚠ WARNING

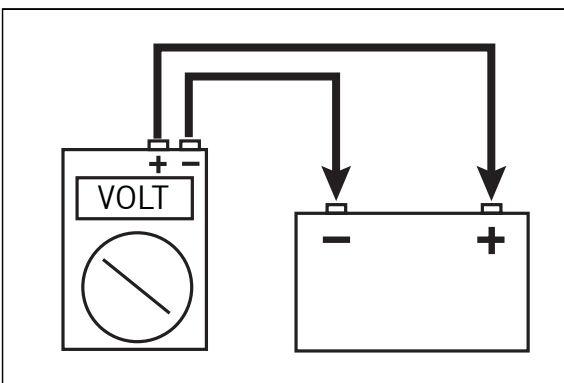
- IF ELECTROLYTE (SULPHURIC ACID) LEAKS FROM THE BATTERY, PROCEED WITH GREAT CARE. THE ELECTROLYTE CAN CAUSE SEVERE BURNS.
- IN THE CASE OF SKIN CONTACT RINSE THOROUGHLY WITH WATER.
- IN THE CASE OF CONTACT WITH THE EYES, THOROUGHLY RINSE EYES WITH WATER FOR AT LEAST 15 MINUTES. IMMEDIATELY CONSULT A DOCTOR.
- THE BATTERY IS A CLOSED MODEL BUT CAN NEVERTHELESS EMIT EXPLOSIVE GASES. AVOID SPARKS AND OPEN FIRE NEAR THE BATTERY.
- DEFECTIVE BATTERIES MUST BE STORED OUT OF THE REACH OF CHILDREN. ENSURE PROPER DISPOSAL OF DISCARDED BATTERIES.

### ! CAUTION

- TO AVOID DAMAGE, DO NOT REMOVE THE LOCKING BAR [2] !
- NEVER DISCONNECT THE BATTERY WHILE THE ENGINE IS RUNNING. THIS WILL DESTROY THE RECTIFIER-REGULATOR.
- THE BATTERY MUST BE INSTALLED WITH THE TERMINALS FACING THE FRONT (AS SHOWN IN THE ILLUSTRATION), OTHERWISE ELECTROLYTE CAN ESCAPE.

BATTERY STORAGE:

When preparing the motorcycle for a longer period of standstill, remove the battery and recharge it. Storage temperature: 0 - 35°C (30 - 95°F). Do not expose to direct sunlight.



## Charging the battery

Remove the battery and check the charging level. Use a voltmeter to measure the voltage between the battery poles (off-load voltage).

Accurate results can only be obtained if the battery has neither been charged nor discharged during a period of 30 minutes preceding the measuring.

off load voltage Volt	charging level %	charging time 0,4 A	charging voltage
>12,7	100	—	Max. 14,4 V
~12,5	75	4 h	
~12,2	50	7 h	
~12,0	25	11 h	
~11,8	0	14 h	

If the battery is empty, it can be recharged for a maximum period of 10 hours at 0.4 A and a maximum of 14.4 V.

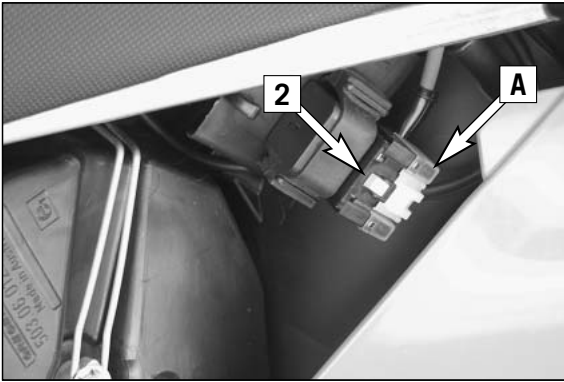
### ! CAUTION

- TO AVOID DAMAGE, DO NOT REMOVE THE LOCKING BAR.
- ALWAYS CONNECT THE BATTERY TO THE CHARGING UNIT BEFORE TURNING THE CHARGING UNIT ON.
- WHEN RECHARGING THE BATTERY IN CLOSED ROOMS THERE IS SUFFICIENT VENTILATION. EXPLOSIVE GASES ARE RELEASED DURING THE BATTERY CHARGING PROCESS.
- CHARGING TIME AND CHARGING VOLTAGE SHOULD NOT EXCEED THE STATED VALUES. OTHERWISE ELECTROLYTE WILL BE RELEASED THROUGH THE SAFETY VALVES.
- AVOID QUICK CHARGING IF POSSIBLE.





## MAINTENANCE WORK ON CHASSIS AND ENGINE »



### Fuse (MXC/EXC)

The fuse [1] is located in the starter relay of the E-starter [2] underneath the left side paneling.

Having removed the left side paneling, the air box cover and the protection cover [A], you will be able to see the fuse.

The following loads are connected to it:

- E-starter system
- horn
- flasher lights
- electronic speedometer

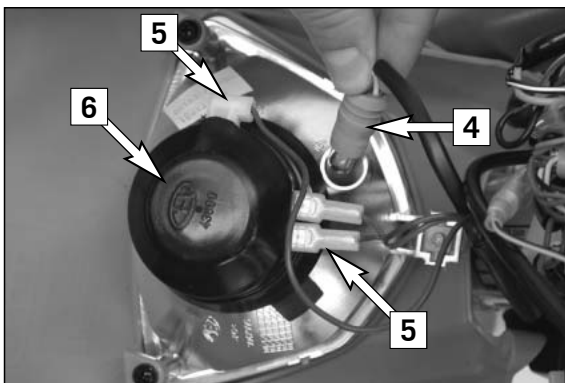
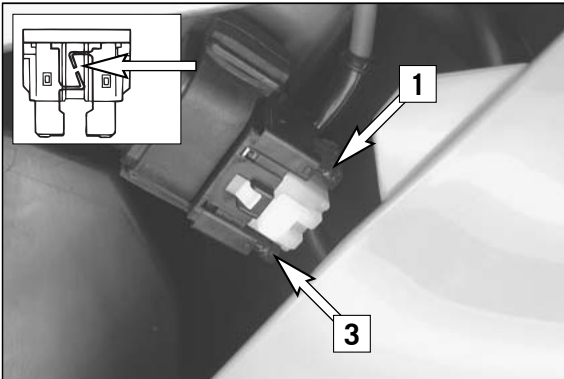
The starter relay also contains a (10 amp) spare fuse [3].

Replace a blown fuse only with an equivalent one. If a new fuse that has just been installed gets blown again, you are strongly advised to have it inspected by a KTM dealer.

The fuse capacity is 10 Ampere.

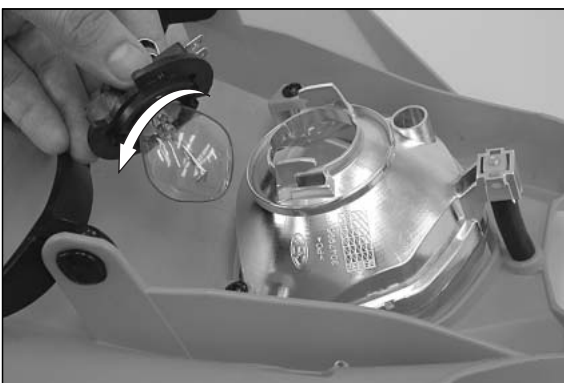
### ! CAUTION

UNDER NO CIRCUMSTANCES IS A STRONGER FUSE ALLOWED TO BE INSTALLED OR A FUSE ALLOWED TO BE "REPAIRED". AN IMPROPER TREATMENT COULD DAMAGE THE WHOLE ELECTRICAL INSTALLATION.



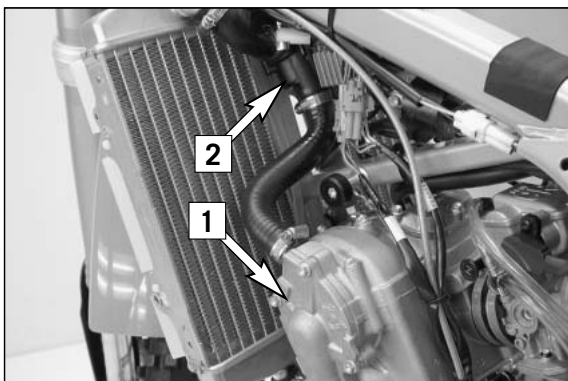
### Replacing headlight lamp/parking light lamp

Loosen both rubber bands and tilt headlight mask to the front. Pull the parking light lamp with holder [4] carefully out of the reflector. Pull connector [5] off the headlamp and remove rubber cap [6]. Disengage retaining clip and take bulb out of reflector. When changing the parking-light lamp, simply pull it out of the holder.



Slightly depress the bulb, turn it approx. 30° counterclockwise and pull it out of the socket.

To mount the lamp reverse the worksteps indicated above.



## Cooling system

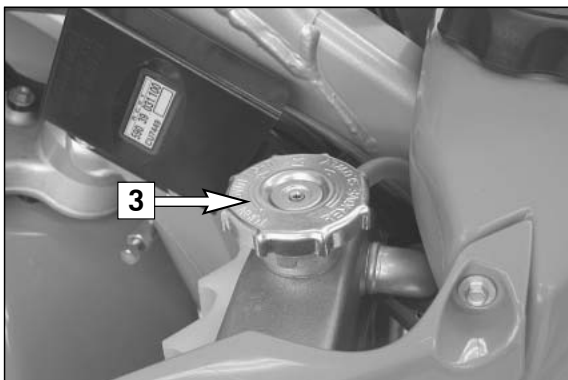
Coolant is circulated by a water pump [1] located in the engine. When the engine is cold the coolant only circulates through the cylinder and the cylinder head. After the engine has reached its operating temperature (about 70°C, 158°F), the thermostat [2] opens and the coolant is also pumped through both aluminum radiators.

Air blowing in through the radiators cools the coolant. The slower the speed of the motorcycle, the less the coolant is cooled down. Dirty radiators also reduce the cooling efficiency.

Pressure induced by heating of the coolant in the system is controlled by a valve in the radiator cap [3]; a water temperature rising up to 120° C (248° F) is admissible, without fear of problems.

### ⚠ WARNING

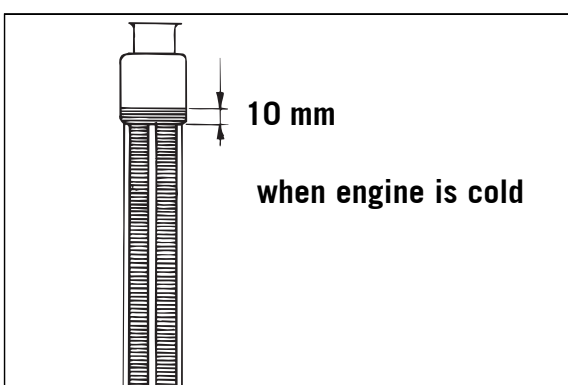
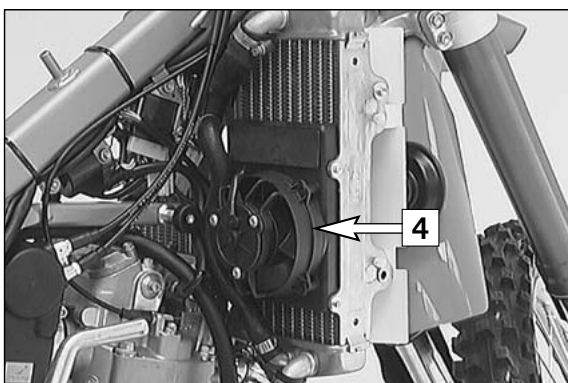
- IF POSSIBLE, ALWAYS CHECK LEVEL OF COOLING LIQUID WHEN THE ENGINE IS COLD. IF YOU HAVE TO OPEN THE RADIATOR CAP [3] WHEN THE ENGINE IS HOT, USE A RAG TO COVER THE CAP AND OPEN SLOWLY TO RELEASE PRESSURE. CAUTION - SCALDING HAZARD.
- DO NOT DETACH ANY RADIATOR HOSES WHILE THE ENGINE IS HOT. THE ESCAPING HOT COOLANT AND THE STEAM MAY CAUSE SERIOUS BURNS.
- IN CASE YOU GET BURNT, HOLD THE AFFECTED PART OF YOUR BODY UNDER RUNNING COLD WATER RIGHT AWAY.
- COOLANT IS TOXIC. KEEP THE COOLANT OUT OF THE REACH OF CHILDREN.
- IN CASE COOLANT IS INGESTED, CONSULT A DOCTOR IMMEDIATELY.
- IF COOLANT GETS INTO YOUR EYES, RINSE THEM OUT WITH WATER IMMEDIATELY AND CONSULT DOCTOR.



A mixture of 50% antifreeze liquid and 50% water is used as coolant. However, the antifreeze protection must be at least -25° C (-13° F). This mixture offers antifreeze protection but also good corrosion protection and should therefore not be replaced by pure water.

### ! CAUTION

- THE COOLING SYSTEM MUST BE BLED AFTER DRAINING THE COOLING LIQUID OR AFTER ADDING MORE THAN 0.25 L (0.06 US GALLONS) COOLING LIQUID.(SEE BELOW).
- FOR THE COOLING SYSTEM, USE ONLY HIGH-GRADE ANTIFREEZE (E.G. MOTOREX ANTI FREEZE). USING LOWER-GRADE ANTIFREEZE AGENTS CAN CAUSE CORROSION AND COOLANT FOAMING.
- EXTREME CLIMATE CONDITIONS OR STOP AND GO TRAFFIC MAY CAUSE OVERHEATING PROBLEMS. TO AVOID THIS, AN ELECTRIC BLOWER [4] IS OFFERED FOR MODELS WITH ELECTRIC STARTERS (ASK YOUR KTM DEALER)



## Checking the coolant level

The coolant should be 10 mm (0.4 in) above the radiator fins when the engine is cold (see diagram). In the event of the coolant being drained, always fill and bleed the system.

### ! CAUTION

IF POSSIBLE, ALWAYS CHECK THE LEVEL OF COOLING LIQUID WHEN THE ENGINE IS COLD. IF YOU HAVE TO OPEN THE RADIATOR CAP [3] WHEN THE ENGINE IS HOT, USE A RAG TO COVER THE CAP AND OPEN SLOWLY TO RELEASE PRESSURE.

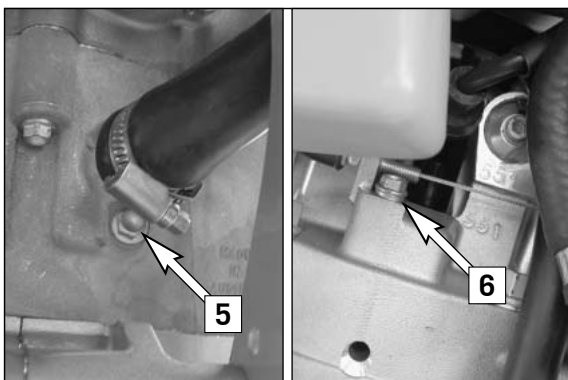
## Bleeding the cooling system

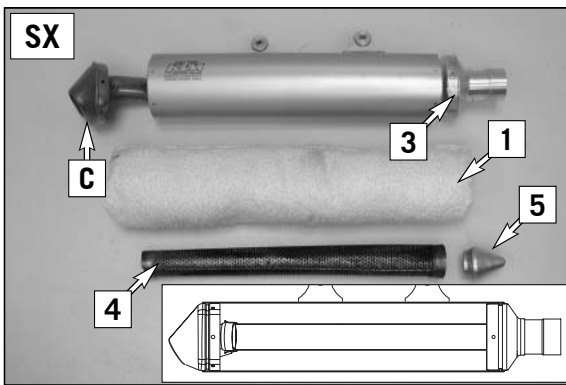
By removing the screw [5] at the front end of the cylinder you can drain the coolant.

To bleed the cooling system, fill in approx. 0.8 liters (0.2 US gallons) of coolant and remove the bleeder screw [6]. Do not reinstall the bleeder screw until coolant escapes at the bore without any bubbles.

Then, fill in the coolant until it reaches a level about 10mm above the radiator fins.

After a short ride, check the coolant level once more.



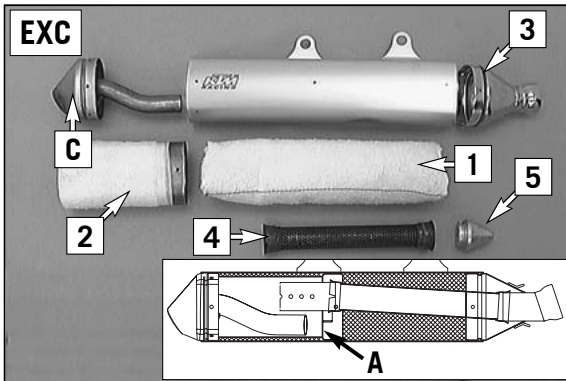


## Replacing the glassfiber yarn packing of the silencer \*

Aluminum silencers are filled with glassfiber yarn to muffle noise. The effect of heat causes the glassfiber yarn to become loose. This may lead to a loss of performance and reduce the silencer's muffling power. By experience, the front glassfiber yarn packing [1] needs to be replaced more often than the rear silencing mat [2].

For this purpose, remove the silencer from the vehicle and dismount the front cap [3]. Pull the front glassfiber yarn packing together with the inner exhaust pipe [4] out of the silencer. Clean the front inner exhaust pipe.

To facilitate the mounting procedure, you can make a mounting tool [5] out of wood, plastic, or metal. Insert the mounting tool into the inner pipe and mount the glassfiber packing. Push the inner pipe containing the packing into the silencer such that the slot engages the web [A]. Use a blunt ended object to stuff the glassfiber yarn packing all the way into the silencer, and mount the front cap [C].



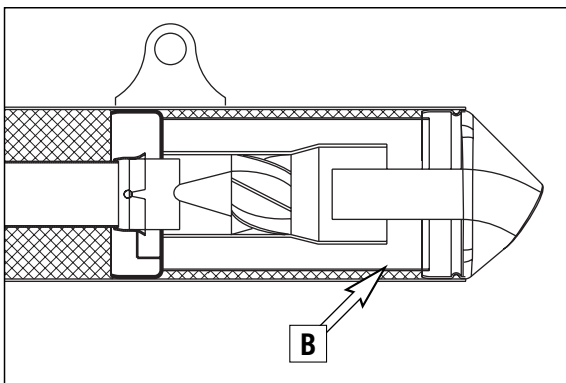
To change the rear silencing mat, start by removing the front packing and the inner exhaust pipe. Then, drill open the rivets and remove the end cap.

### NOTE!

In every exhaust repair procedure, the O-rings must be replaced by new ones. Glass fiber yarn packings are available from your licensed KTM mechanic.

### ⚠ WARNING

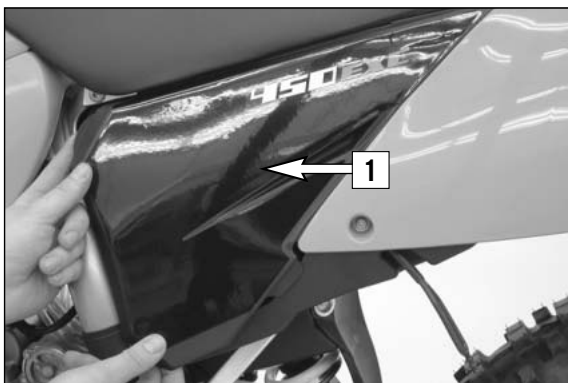
THE EXHAUST SYSTEM BECOMES VERY HOT WHILE THE MOTORCYCLE IS RUNNING. TO AVOID BURNS DO NOT START WORK ON THE EXHAUST SYSTEM UNTIL IT HAS PROPERLY COOLED DOWN.



## Cleaning the spark arrester (MXC/EXC USA) \*

The spark arrester should be cleaned every time the glassfiber yarn filling is changed or at least once annually.

For this purpose, dismount the silencer cap and remove any deposits that might exist in region [B]. Renew the O-ring and mount the silencer cap.



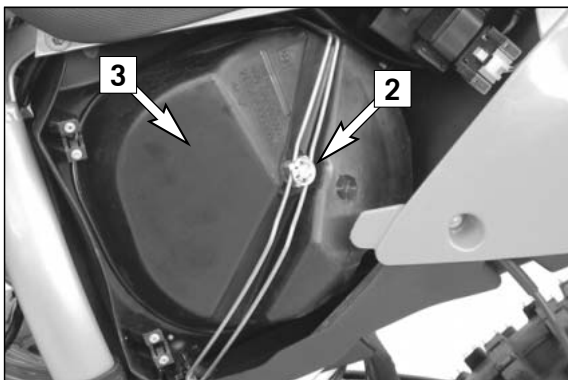
## Cleaning the air filter \*

The air filter must be cleaned prior to each race or whenever dust has accumulated. To clean, lift the filter box cover [1] (see illustration) and pull off towards the front.

Detach the bottom of the filter retaining bracket [2], tilt aside and remove the throttle cap [3] and the air filter [4] and filter support [5] from the filter box. The SX models do not have a throttle cap.

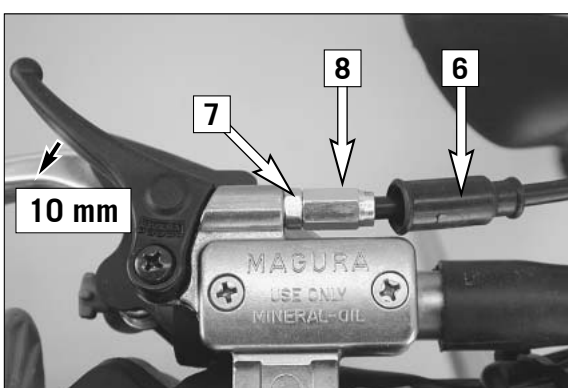
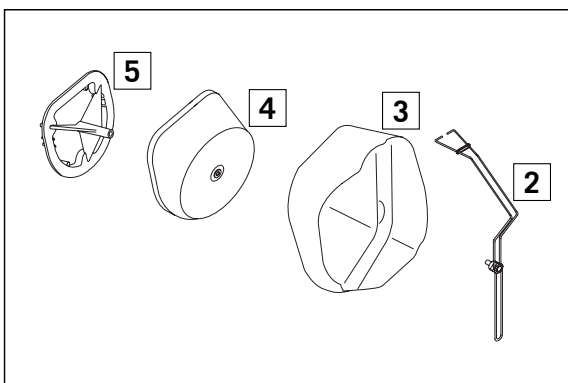
### ! CAUTION

- DO NOT CLEAN FOAM FILTER WITH FUEL OR PETROLEUM SINCE THESE DAMAGE THE FOAM. KTM RECOMMENDS THE PRODUCTS OF THE COMPANY MOTOREX FOR AIR FILTER MAINTENANCE (BIO DIRT REMOVER AND LIQUID BIO POWER).
- NEVER START YOUR MOTORCYCLE WITHOUT ANY AIR FILTERS. OTHERWISE, DUST AND DIRT MAY PENETRATE AND CAUSE DAMAGE AND INCREASED WEAR.
- DUST AND DIRT CAN ACCUMULATE AND DAMAGE THE ENGINE IF THE AIR FILTER IS NOT MOUNTED CORRECTLY.



Thoroughly wash the air filter in special cleaning fluid and allow it to dry well. Only press out the filter, do not wring it out under any circumstances. Oil the dry air filter with a high-grade filter oil. Also clean the air filter box. Check the carburetor collar for damage and that it is filled correctly.

Mount the air filter on the filter support. Insert the air filter and filter support in the throttle cap and mount them in the filter box, aligning in a central position, and fix with the filter retaining bracket.



## Checking the adjustment of the hand decompression release cable \*

Start the engine and, at idling speed, slowly pull the hand decompression lever until you can feel the thumping of the rocker arm on the lever. The backlash until said thumping should be approx. 10mm, measured at the lever's outer end. If necessary, correct this backlash.

To adjust, move back the protective cover [6], loosen the counter nut [7] and correct the adjustment screw [8] accordingly. Tighten counter nut and push back protective cover.

### ! CAUTION

THE SETTING OF THE DECOMPRESSION CABLE SHOULD BE CHECKED REGULARLY. IF THERE IS NO PLAY IN THE DEKO-LEVER, THIS CAN RESULT IN ENGINE DAMAGE.

note:

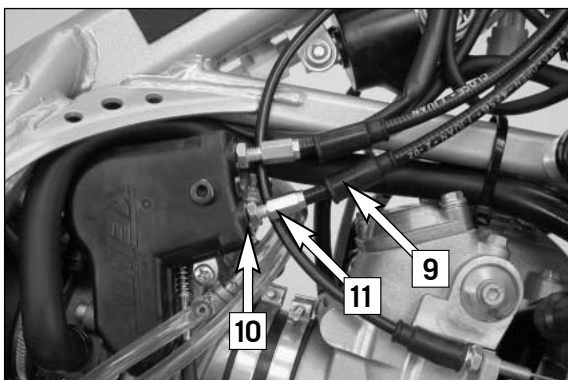
No adjustment need be made to the automatic decompressor.

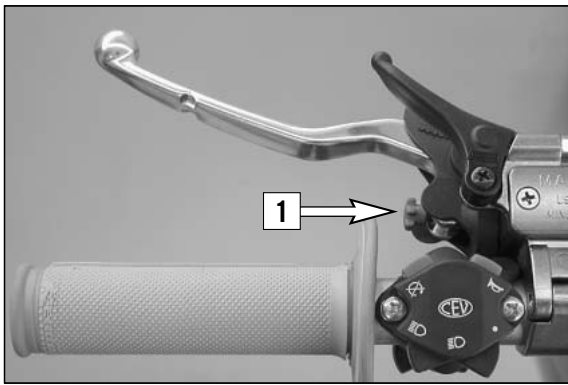
## Adjusting the throttle cables \*

The throttle grip should always provide for a backlash of 3-5mm. Besides, with the engine running, the idling speed must not change if you turn the handlebar all the way to the left or right.

To adjust the throttle cables, dismount the seat and the tank together with spoilers. Slide back the protection cover [9]. Loosen the counternut [10] and turn the adjusting screw [11] accordingly. Turning the adjusting screw counterclockwise will reduce the backlash, turning the adjusting screw clockwise will increase the backlash.

Tighten the counternut and check whether the throttle grip can be actuated smoothly. Mount tank and seat.





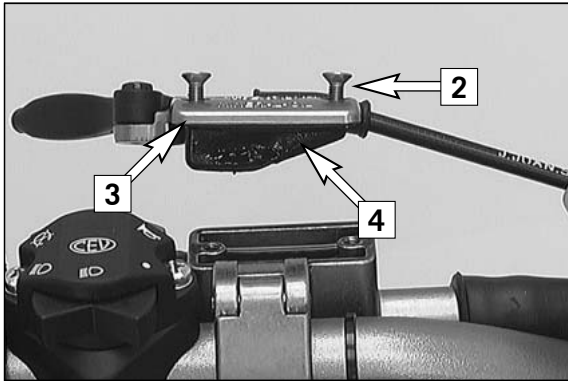
## Changing the original position of the clutch lever

The adjusting screw [1] can be used for individual adjustment of the original position of the clutch lever, thus allowing adjustment to an optimal position for every hand size.

Turning the adjusting screw clockwise reduces the distance between the clutch lever and the handlebar. Turning the adjusting screw counterclockwise increases the distance between the clutch lever and the handlebar.

### ! CAUTION

ADJUSTMENT OF THE CLUTCH LEVER POSITION IS ONLY POSSIBLE WITHIN CERTAIN LIMITS. ONLY TURN THE ADJUSTING SCREW MANUALLY AND NEVER APPLY EXCESSIVE FORCE.



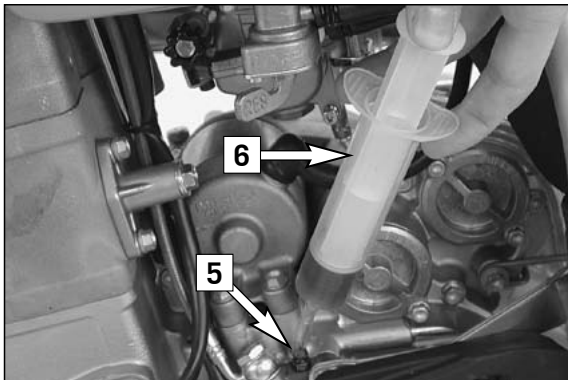
## Checking the oil level of the hydraulic clutch

To check the oil level in the master cylinder of the clutch remove the cover. For this purpose, remove screws [2] and cover [3] together with the rubber boot [4]. The oil level in the horizontal-standing master cylinder should be 4 mm below the upper edge.

If necessary, fill up with biodegradable hydraulic oil SAE 10 (e.g. Motorex Kupplungs-Fluid 75). Biodegradable hydraulic oil is available from your KTM dealer (50ml).

### ! CAUTION

KTM USES BIODEGRADABLE HYDRAULIC OIL FOR THE HYDRAULIC CLUTCH CONTROL. NEVER MIX BIODEGRADABLE HYDRAULIC OILS WITH MINERAL OILS. NEVER REFILL WITH MINERAL HYDRAULIC OIL OR BRAKE FLUID.



## Bleeding of the hydraulic clutch

If the clutch lever starts to feel unresponsive, the clutch control system needs to be bled. You will need a bleeder syringe (special tool) and biodegradable hydraulic oil. Both are available from your KTM dealer.

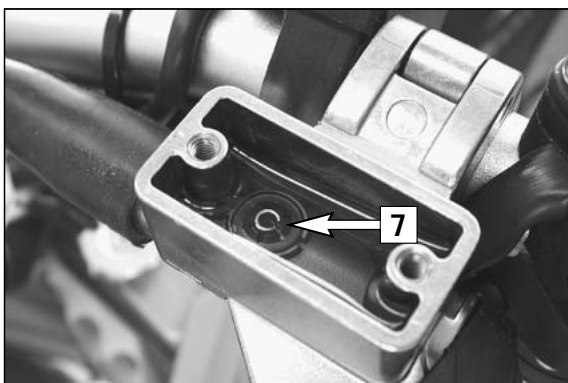
Turn the handlebar until the master cylinder is in a horizontal position, remove the screws [2], the cover [3] and the rubber boot [4].

Fill the bleeder syringe [6] with biodegradable hydraulic oil (Motorex Kupplungs-Fluid 75). Remove the bleeder screw [5] from the slave cylinder and mount the bleeder syringe. Press oil into the system until the oil runs out of the hole [7] in the master cylinder without bubbles. Occasionally extract the oil from the master cylinder reservoir to keep it from overflowing.

After you finish bleeding, remove the bleeder syringe, mount the bleeder screw, correct the oil level in the reservoir and mount the cover (see above).

### ! CAUTION

KTM USES BIODEGRADABLE HYDRAULIC OIL FOR THE HYDRAULIC CLUTCH CONTROL. NEVER MIX BIODEGRADABLE HYDRAULIC OILS WITH MINERAL OILS. NEVER REFILL WITH MINERAL HYDRAULIC OIL OR BRAKE FLUID.



## CARBURETOR – Adjust idling (Keihin-FCRMX 37/39/41) \*

Idling adjustment of the carburetor strongly affects the engine's starting behavior. That is, an engine whose idling speed is adjusted correctly will be easier to start than one whose idling speed has not been adjusted correctly.

The idle speed is controlled by means of the adjusting wheel [1] and the mixture control screw [2]. The adjusting wheel is used to adjust the basic setting of the slide. The mixture control screw is used to control the idle mixture which arrives at the engine by way of the idle system. Clockwise turning reduces the fuel quantity (lean mixture), counterclockwise turning increases the fuel quantity (rich mixture).

TO ADJUST IDLING CORRECTLY, PROCEED AS FOLLOWS:

- 1 Turn in mixture control screw [2] up to the stop, and turn it back out to the basic position (see technical date-engine)
  - 2 Warm up the engine
  - 3 Use the adjusting wheel [1] to set the normal idle speed (1400 - 1500 rpm).
  - 4 Turn mixture control screw [2] slowly clockwise until idling speed starts to decrease. Memorize this position, and turn mixture control screw slowly counterclockwise until the idling speed decreases again. Adjust the point of the highest idling speed between these two positions. If, in the course of this procedure, the speed undergoes a relatively high increase, reduce the idle speed to a normal level and repeat the procedure specified in 4. Serious competitive racers will choose a setting approx. 1/4 turn (clockwise) leaner than this ideal value because their engine will heat up more when used in competitions.
- NOTE: If you fail to obtain a satisfying result by following the procedure described above, an incorrectly dimensioned idling nozzle may be the cause. If:
- a) the mixture control screw has been screwed in up to the stop without causing any change in rotational speed, a smaller idling jet has to be installed;
  - b) the engine dies when the mixture control screw is still open by 2 turns, a larger idling jet needs to be selected.
- Naturally, in cases of jet changes, you have to start your adjusting work from the beginning.
- 5 Then, use the adjusting wheel to set the desired idle speed.
  - 6 In cases of greater changes in the outside temperature and extremely different altitudes, the idling speed should be readjusted.

Basic information on carburetor wear

As a result of engine vibrations, the throttle valve, jet needle, and needle jet are subjected to increased wear. This wear may cause the carburetor to malfunction (e.g., overly rich mixture). Therefore, these parts should be replaced after 200 hours.

## Adjusting the mixture control screw \*

Especially on the EXC models, accessing the mixture control screw is difficult. For this reasons, we have created an appropriate special tool.

Introduce the special tool on the mixture control screw [2] at the carburetor bottom. Press the tool slightly upward and turn the adjusting wheel [3] until the tool engages the slot of the mixture control screw.

Now, you can go about adjusting the screw. Marks were provided on the adjusting wheel, making it easier to keep track of the turns.

## Checking the float level (float height) \*

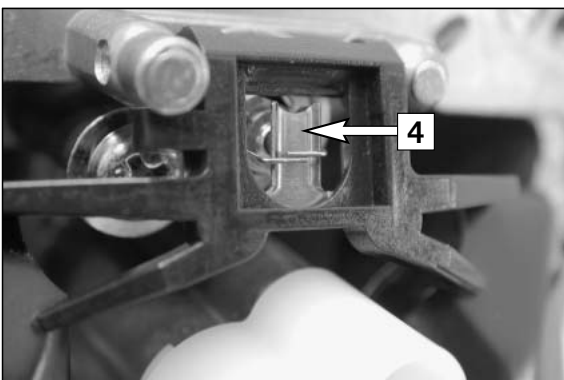
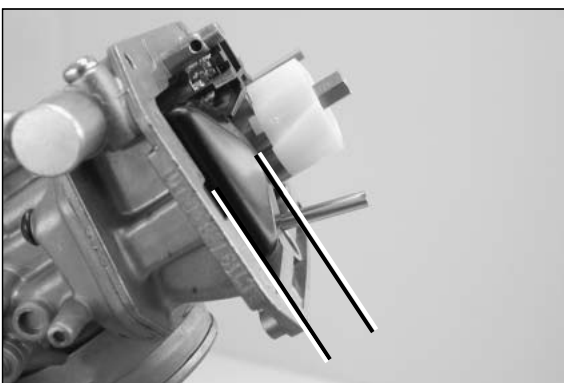
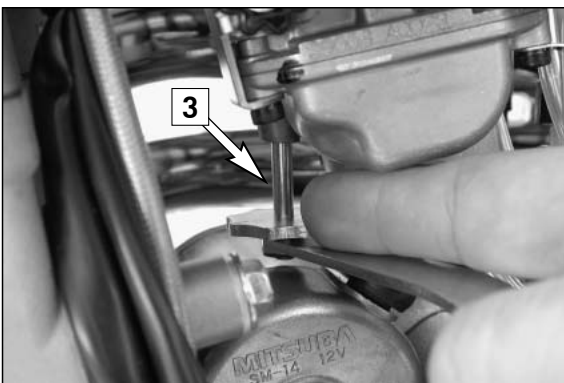
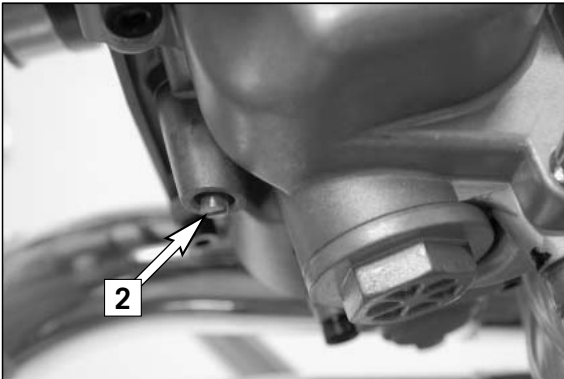
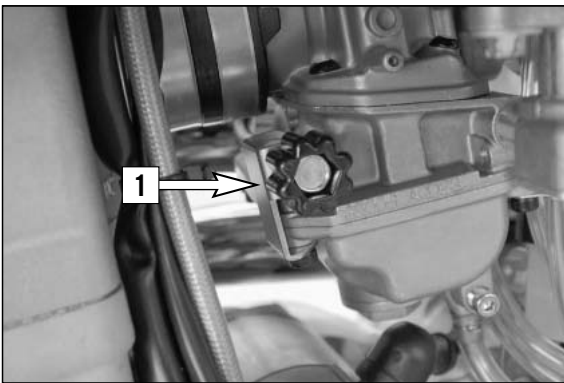
For this purpose, dismount the carburetor and remove the float chamber. Hold the carburetor in a slanted position such that the float will abut the float needle valve but not compress it.

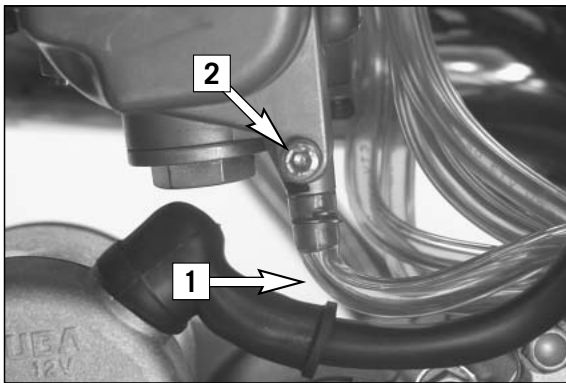
In this position, the edge of the float should be parallel with the float chamber sealing surface (see illustration).

If the float height does not correspond to the desired value, check the float needle valve and, if necessary, replace it.

If the float needle valve is o.k., you can adjust the float height by bending the float lever [4].

Mount the float chamber, install the carburetor, and adjust the idle speed.





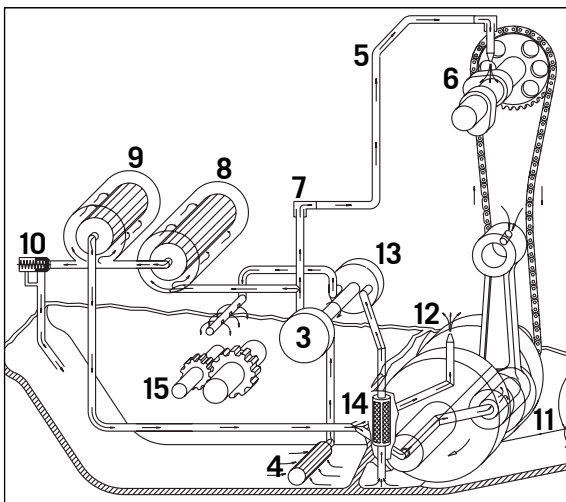
## Draining the float chamber of the carburetor

Following every wet cleaning procedure, the float chamber of the carburetor should be drained in order to remove any water that may have penetrated into it. Water in the float chamber causes malfunctioning. Perform this task on a cold engine.

Close the fuel tap and put one end of the hose [1] into a collecting vessel. Open the drain plug [2] (turning it counterclockwise) by several turns, and drain the fuel from the float chamber. Then, retighten the drain plug and open the fuel tap.

### ⚠ WARNING

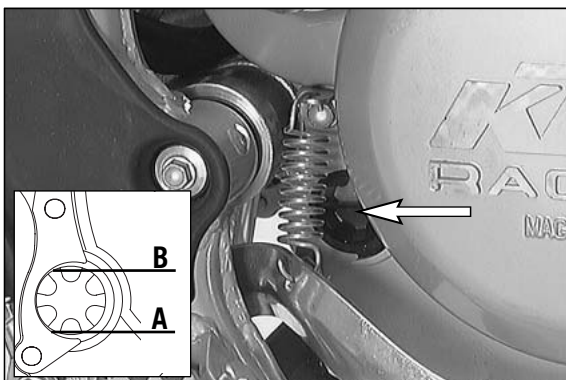
- FUEL IS EASILY FLAMMABLE AND TOXIC. WHEN HANDLING FUEL, BE SURE TO EXERCISE THE UTMOST CAUTION. NEVER PERFORM ANY WORK ON THE FUEL SYSTEM NEAR OPEN FLAMES OR BURNING CIGARETTES.
- ALWAYS ALLOW THE ENGINE TO COOL OFF FIRST. IMMEDIATELY CLEAN UP ANY FUEL WHICH MAY HAVE BEEN SPILLED. MATERIALS SATURATED WITH FUEL ARE ALSO EASILY FLAMMABLE. IN CASE YOU INGESTED FUEL OR FUEL SPLASHED INTO YOUR EYES, CONSULT A DOCTOR IMMEDIATELY.
- DISPOSE OF THE FUEL PROPERLY.



## Oil circuit

Via the long oil screen [4], the oil pump [3] draws engine oil from the oil sump of the transmission. This engine oil flows through an oil line [5] into the cylinder head for camshaft lubrication [6]; the oil quantity is controlled by the jet screw [7]. An oil duct branches off to the long oil filter [8] where the coarser particles contained in the engine oil are filtered away. Then, the engine oil arrives at the short oil filter [9] which also filters the fine particles. Now, the purified engine oil is pumped past the bypass valve [10] to the conrod bearing [11] and sprayed from below onto the piston through a nozzle [12].

The second oil pump [13] draws the engine oil via the short oil screen [14] out of the crankcase, thereby lubricating the transmission gears [15].



## Checking the engine oil level

The engine oil level can be checked with the engine either warm or cold. Place the motorcycle in an upright position and on a horizontal surface (not on the side stand).

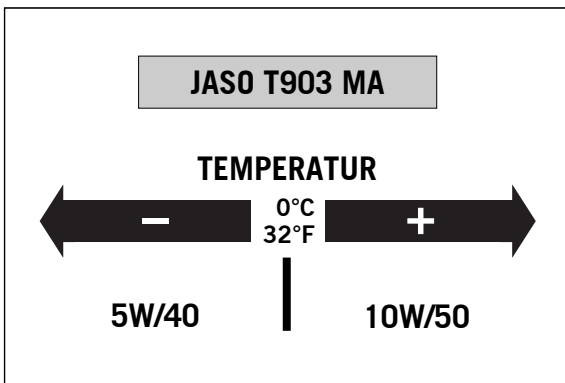
If the engine is cold, the engine oil must be visible at the lower edge of the inspection glass [A].

If the engine is warm, the engine oil must be visible up to the upper edge of the inspection glass [B].

Replenish the engine oil, if necessary.

### ! CAUTION

INSUFFICIENT AMOUNTS OF OR LOW-GRADE ENGINE OIL LEAD TO PREMATURE WEAR IN THE ENGINE.



## Engine oil

Automobile engine oil used to be used for four-stroke motorcycles before there were separate motorcycle specifications. Different technical developments made it necessary to have a separate specification for four-stroke motorcycles - the JASO T903 MA standard. Whereas car engines require long changing intervals, motorcycle engines require a higher power output at higher speeds. Most motorcycle engines also use the same oil to lubricate the transmission and the clutch. The JASO MA standard responds to these special requirements. Only use fully synthetic engine oils that meet the JASO MA quality requirements (see information on the can).

KTM recommends Motorex Power Synt 4T in the 10W/50 viscosity (for temperatures over 0°C, 32°F) or 5W/40 (for temperatures under 0°C, 32°F).

### ! CAUTION

INSUFFICIENT OIL OR POOR QUALITY OIL RESULTS IN PREMATURE WEAR OF THE ENGINE.

## Changing the engine oil \*

Note: When changing the engine oil, it is necessary to clean the short and long oil screens and to replace both oil filters.

Engine oil has been changed with the engine at an operating temperature.

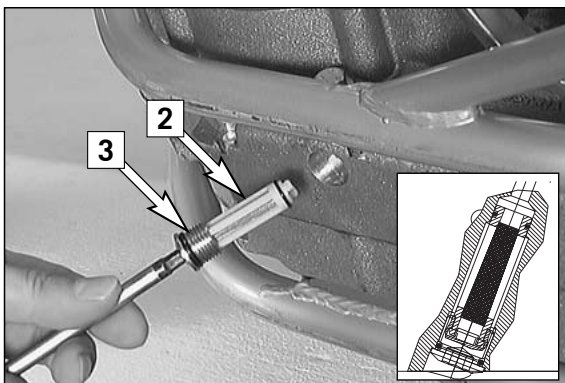
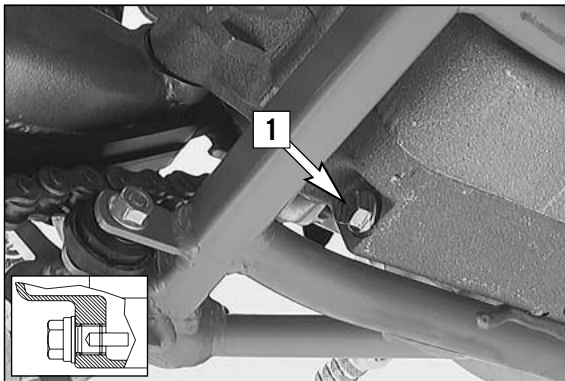
### ! CAUTION

AN ENGINE AT OPERATING TEMPERATURE AND THE ENGINE OIL IT CONTAINS ARE VERY HOT - DO NOT BURN OR SCALD YOURSELF.

Place the motorcycle on a horizontal surface, remove the plug [1] and allow the oil to drain into a receptacle.

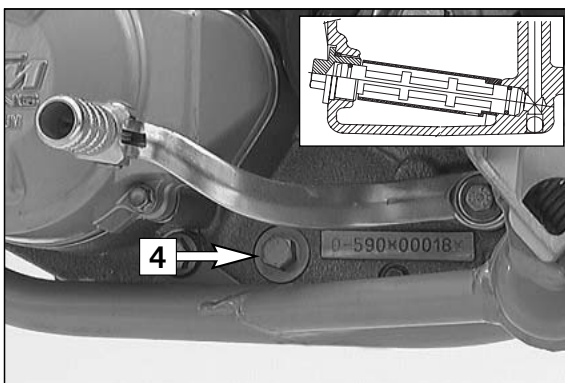
Clean plug (with magnet) thoroughly.

Once the entire oil has been drained, clean the sealing surface, mount the plug together with the sealing ring and tighten it to 20 Nm.



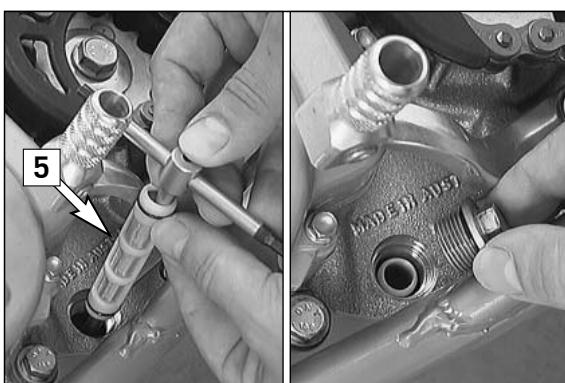
### CLEANING THE SHORT OIL SCREEN

The short oil screen [2] is accommodated in the hex-socket plug [3] at the engine bottom. Insert a pin-type key into the plug and tap on the key a few times with a hammer in order to relieve the stress acting on the plug. Dismount the oil screen, clean the components thoroughly and blow compressed air through them. Check the O-rings for damage and, if necessary, replace them. Mount the oil screen together with the plug again and tighten the plug to 10 Nm.



### CLEANING THE LONG OIL SCREEN

The long oil screen is accommodated in the hexagon plug [4] adjacent to the engine number. Dismount the plug together with the oil screen, clean the components thoroughly and blow compressed air through them. Check the O-rings for damage and, if necessary, replace them.



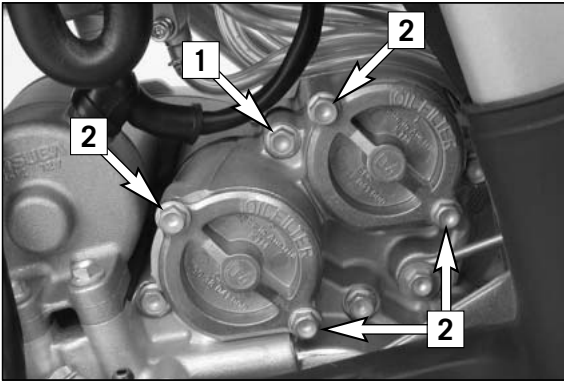
To mount the long oil screen [5], place it on an approx. 300 mm (12 in) long pin-type key or a similar tool. Insert the pin-type key through the opening into the bore of the opposite engine casing wall. Then, push the oil screen into the engine casing as far as possible. Remove the pin-type key, mount the plug and tighten it to 15 Nm.

### ! CAUTION

THE OIL SCREEN IS MOUNTED SLIGHTLY DOWNWARDS, INCORRECTLY FITTED, THE SCREEN LOSES ITS FUNCTION AND THIS CAN CAUSE INCREASED ENGINE WEAR.

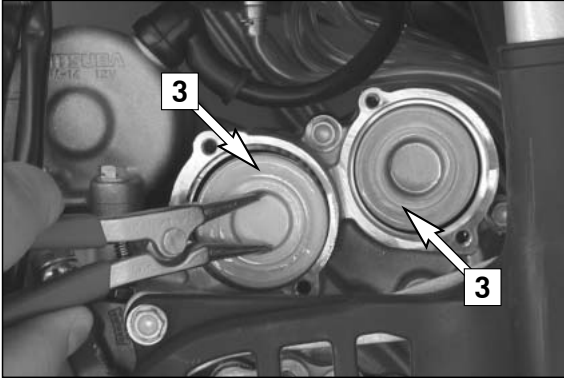


## MAINTENANCE WORK ON CHASSIS AND ENGINE »



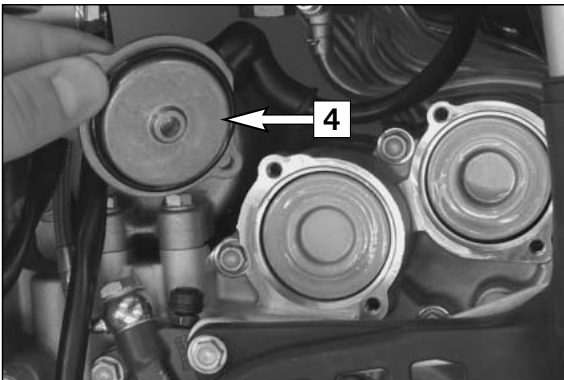
### Changing the oil filters

Remove the screw [1] and swing the brake fluid container sideward. Place a receptacle underneath the engine to collect the drained oil. Remove the 4 screws [2] and dismount the two oil filter covers.



Using circlip pliers, pull the oil-filter inserts [3] out of the housing.

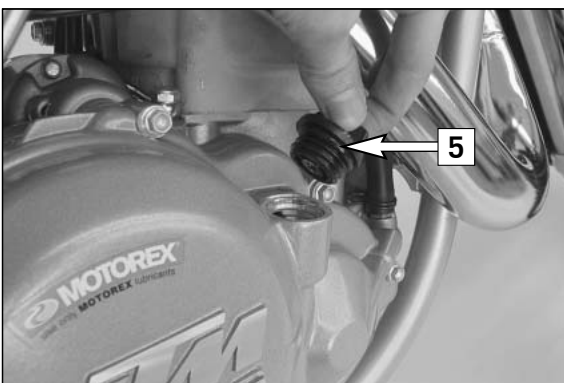
Clean the oil filter cover, the sealing surfaces of the O-rings and the engine casing. Check the O-rings of the oil filter covers for damage and, if necessary, replace them.



Put the motorcycle on its side and fill the oil filter housings about halfway with engine oil. Fill oil filter with oil, place the long oil filter in the front and the short filter in the back of the filter box.

Grease the O-rings [4] of the oil filter covers and mount the covers. Mount the screws and tighten them to 6 Nm.

Position the brake fluid container and tighten the screw to 8 Nm.



Return the motorcycle to an upright position.

Remove the oil dipstick [5] at the clutch cover and fill in 1.2 liters of fully synthetic engine oil (Motorex Power Synt 4T 10W/50).

Start the engine and check all screwed connections and the oil filter cover for leaks.

Finally, check the engine oil level and, if necessary, correct it.

# TROUBLESHOOTING »

If you had the specified maintenance work on your motorcycle carried out, disturbances can hardly be expected. Should an error occur nevertheless, we advise you to use the troubleshooting chart in order to find the cause of error. We would like to point out that many operations cannot be performed by yourself. In case of uncertainty, please contact a KTM-dealer.

TROUBLE	CAUSE	REMEDY
Engine doesn't crank (E-starter).	Operating error Blown fuse Discharged battery. Low outside temperature	Turn on the emergency-OFF switch (Australia only) Dismount the left paneling and the filter box cover and replace the fuse in the starter relay. Recharge the battery and investigate the causes for discharging; contact a KTM dealer. Start the engine with the kickstarter
Engine cranks but doesn't start (E-starter). Engine will not start (Kickstarter).	Operating error The motorcycle has been out of operation for a longer period of time. Therefore old fuel has accumulated in the float chamber Fuel supply interrupted Flooded engine Sooty or wet spark plug Electrode gap too large Spark plug connector or spark plug faulty Short circuit cable scored in wiring harness, emergency OFF switch or short circuit button faulty The plug connection of the CDI-unit, the pulse generator or the ignition coil has oxidized Water in carburetor or jets blocked	Open fuel tap, tank fuel, actuate choke. Pay attention to starting information (see driving instructions). The easily inflammable components of the new fuels evaporate during longer periods of standing still. When the motorcycle has been out of operation for more than a week, it is therefore recommended to drain the old fuel from the float chamber. The engine will immediately start when the float chamber is filled with new fuel. Close fuel tap, loosen fuel hose at carburetor, lead into a basin and open fuel tap – if fuel leaks out, the carburetor may need cleaning – if no fuel leaks out, check tank ventilation, i.e. clean fuel tap In order to "pump the engine free", pull the hand decompression lever, fully rev up the engine, actuate the kickstarter 5 to 10 times or actuate the E-starter 2 times for 5 seconds each. Then, start the engine as described above. If the engine fails to start, unscrew the spark plug and dry it. Clean and dry the spark plug or exchange it, respectively Adjust spark plug electrode gap to 0.6 mm Dismount spark plug, connect ignition cable, hold to ground (blank place on engine) and actuate starter, a strong spark must be produced at the spark plug – If no spark is created replace the spark plug. – If the new spark plug doesn't produce a spark either, disconnect the spark plug connector from the ignition cable, hold it a distance of approx. 5 mm from ground and start. – If a spark now occurs, replace spark plug cap – If no spark is produced, control ignition system Dismount the fuel tank, disconnect the black/yellow cable from the cable of the emergency-OFF switch and the short-circuit button, respectively, and check the ignition spark. If a spark is generated, look for the problem in the short-circuit circuit. Remove the seat and the fuel tank. Clean the plug connection and treat it with contact spray Dismount and clean the carburetor
Engine fails to idle	Glogged idling jet Incorrect adjustment of adjusting screws on carburetor Defective spark plug Defective ignition system	Disassemble the carburetor and clean the jets Have the carburetor adjusted Replace the spark plug Have the ignition system checked

# TROUBLESHOOTING »

TROUBLE	CAUSE	REMEDY
Engine does not rev high	Carburetor fuel level too high because float needle valve is dirty or worn out  Loose carburetor jets  Electronic ignition timing faulty	Dismount carburetor and check if worn out  Tighten jets  Have ignition system checked
Engine will not reach full power	Fuel supply partially interrupted or carburetor dirty  Float leaks  Air filter very dirty  Exhaust system is not tight, deformed, or the silencer does not contain enough glass-fiber yarn  Valve gap too small  Loss of compression because hand decompressor has no play  Electronic ignition timing faulty	Clean and check fuel system as well as carburetor  Replace the float  Clean or replace air filter  Check if exhaust is damaged, replace glasfiber yarn in exhaust silencer  Adjust valve gap  Check setting of the hand decompression cable  Have ignition system checked
Engine stops or splutters in carburetor	Insufficient fuel  Engine takes air out of control	Clean and check fuel system and carburettor  Check rubber sleeve and carburetor for tight fit
Engine gets too hot	Insufficient cooling liquid  Not enough air stream  Cooling system has not been bled  Radiators very dirty  Foam formation in cooling system  Bent cooling hose  Thermostat defective	Refill cooling liquid (see maintenance work), check cooling system for leaks  Drive on briskly (electric fan can be retrofitted)  Bleed cooling system  Clean radiators with water jet  Replace cooling liquid, use antifreeze liquid with brand name  Shorten or replace cooling hose  Dismount and check thermostat (opening temperature 70°C, (158°F) or replace it
High oil consumption	Hose of engine ventilation is bent  Engine oil level too high  Motor oil too thin (viscosity)	Dislocate i.e. replace non-buckling ventilation hose  Check engine oil level and, if necessary, correct it  Use thicker engine oil; see chapter "Engine oil"
All switched on lamps blown out	Capacitor or voltage regulator faulty	Dismount seat and fuel tank and check connections, have capacitor and voltage regulator checked
Horn, flasher lights and E-starter do not work	Blown fuse in the starter relay	Dismount left side paneling and filter box cover, replace fuse
The battery is discharged	The battery isn't charged by the generator because	Remove seat and fuel tank and check voltage regulator connections; voltage regulator and generator should be checked by a KTM dealer.

## CLEANING »

Clean your motorcycle regularly in order to maintain the beauty of its plastic surfaces. The best manner would be to use warm water that has been mixed with a normal brand-name washing detergent and a sponge. The hard dirt can be removed before washing with the help of a soft water jet.

### ! CAUTION

NEVER CLEAN YOUR MOTORCYCLE WITH A HIGH-PRESSURED CLEANER OR A HIGH-PRESSURED WATER JET. THE WATER COULD OTHERWISE RUN INTO THE ELECTRICAL COMPONENTS, CONNECTORS, SHEATHED CABLES, BEARINGS, CARBURETOR, ETC. AND CAUSE DISTURBANCES OR LEAD TO A PREMATURE DESTRUCTION OF THESE PARTS.

- You should use normal brand-name detergents to clean the motorcycle. Especially dirty parts should also be cleaned with the help of a paint brush.
- Before cleaning with water, plug the exhaust pipe to prevent water ingress
- After the motorcycle has been rinsed with a soft water jet, it should be dried by air pressure and a cloth. Drain the float chamber of the carburetor. Then take a short drive until the engine has reached the working temperature and also use the brakes. By warming these components, the residual water can evaporate from inaccessible parts of the engine and the brakes.
- Slide back the protective covers on the handlebar-mounted instruments so that any water that may have seeped into this part of the motorcycle is allowed to evaporate.
- Once the motorcycle has cooled down, oil or grease all sliding and bearing points. Treat the chain with a chain spray. Also oil the fuel tap.
- To avoid any failures in of the electric system, you should treat the emergency-OFF switch, short-circuit button, light switch and socket connectors with a contact spray.

## CONSERVATION FOR WINTER OPERATION »

In the event that the motorcycle is also used in winter and on roads where one has to expect salt spraying, you will have to take precautions against the aggressive road salt.

- clean the motorcycle thoroughly and let it dry after each ride
- treat the engine, carburetor, swing arm, and all other bare or galvanized parts (except for brake discs) with a wax-based anti-corrosion agent.

### ⚠ WARNING

KEEP THE ANTI-CORROSION AGENT FROM GETTING INTO CONTACT WITH THE BRAKE DISCS, OTHERWISE THIS WILL SIGNIFICANTLY REDUCE THE BRAKING POWER.

### ! CAUTION

AFTER RIDES ON SALTED ROADS, CLEAN MOTORCYCLE THOROUGHLY WITH COLD WATER AND LET IT DRY WELL.

## STORAGE »

Should you wish to make a pause over a longer space of time, please observe the following instructions:

- Clean motorcycle thoroughly (see chapter: CLEANING)
- Change engine oil, short and long oil filters (old engine oil contains aggressive contaminants).
- Check antifreeze and amount of cooling liquid.
- Warm up the engine once again, close the fuel cock and wait until the engine dies. Then open the drain plug of the float chamber to remove the remaining fuel.
- Remove spark plug and fill in approx. 5 ccm of engine oil into the cylinder through the opening. Actuate kick-starter 10 times in order to distribute the oil onto the cylinder walls and mount the spark plug.
- Set piston to compression so that the valves will be closed (slowly operate the kickstarter until you can hear the automatic decompressor click (release))
- Let fuel flow out of tank into an appropriate container.
- Correct tire pressure.
- Lubricate pivot points of the control levers, foot rests, etc. as well as the chain.
- Service the shock absorber linkage
- Disassemble and charge battery (see chapter: BATTERY).
- The storage place should be dry and not subjected to excessive temperature fluctuations.
- Cover the motorcycle with an air permeated tarpaulin or blanket. Do not use airtight materials as a possible humidity might not be able to escape and could cause corrosion.

### ! CAUTION

IT WOULD BE VERY BAD TO LET THE ENGINE RUN FOR A SHORT TIME DURING THE STORAGE PERIOD. THE ENGINE WOULD NOT GET WARMED UP ENOUGH AND THE THUS DEVELOPED STEAM WOULD CONDENSE DURING THE COMBUSTION PROCESS AND CAUSE THE VALVES AND EXHAUST TO RUST.

### USE AFTER A PERIOD OF STORAGE

- Mount the charged battery (regard polarity).
- Fill up tank with fresh fuel.
- Check motorcycle as before each start (see driving instructions).
- Take a short, careful test ride first.

NOTE: Before you put your motorcycle away for the winter, you should check all parts for their function and wear. Should any service jobs, repairs, or any refitting be necessary, you should have them carried out during the off-season (lower workload at mechanics' shops). This way, you can avoid the long waiting times at your mechanic at the beginning of the next biking season.

# TECHNICAL DATA - ENGINE »

TYPE	250 EXC	400 EXC	450 SX	450 MXC	450 EXC	525 SX	525 MXC-G	525 EXC 525 MXC DESERT
Design	Liquid-cooled single cylinder 4-stroke engine with balancer shaft							
Displacement	250 cm <sup>3</sup>	398 cm <sup>3</sup>	449 cm <sup>3</sup>	448 cm <sup>3</sup>		510 cm <sup>3</sup>		
Bore/Stroke	75/56,5 mm	89 / 64 mm	95/63,4 mm	89 / 72 mm		95 / 72 mm		
Ratio	12 : 1			11 : 1				
Fuel	unleaded fuel with at least RON 95 (USA = Premium RON 91)							
Valve timing	4 valves over rocker arm and 1 overhead camshaft, camshaft drive through single chain							
Camshaft	5532	595/0121	590/5521	590/5521		55/21	590/5521	
Valve diameter Intake	28 mm	35 mm	35 mm (Titan)	35 mm				
Valve diameter Exhaust	24 mm	30 mm	30 mm (Titan)	30 mm				
Valve clearance cold Intake	0.12 mm (0.0047 in)							
Valve clearance cold Exhaust	0.12 mm (0.0047 in)							
Crank shaft bearing	2 cylinder roller bearing							
Connecting rod bearing	needle bearing							
Top end bearing	bronze bushing							
Piston alluminium alloy -	cast		forged	cast		forged		
Piston rings	1 compression ring, 1 oil scraper ring							
Engine lubrication	pressure circulation lubrication with two rotor pumps							
Engine oil	full synthetic oil (Motorex Power Synt 4T 10W/50)							
Quantity of engine oil	1.25 liters							
Primary ratio	straight geared spur wheels 33:76 Z							
Clutch	multi disc clutch in oil bath							
Transmission claw shifted	6-speed	6-speed	4-speed	6-speed	6-speed	4-speed	6-speed	6-speed
Gear ratio 1st Gear	14:38	14:34	16:32	16:32	14:34	16:32	16:32	14:34
2nd Gear	16:36	17:31	18:30	18:30	17:31	18:30	18:30	17:31
3rd Gear	19:34	19:28	20:28	20:28	19:28	20:28	20:28	19:28
4th Gear	21:32	22:26	22:26	22:26	22:26	22:26	22:26	22:26
5th Gear	23:30	24:23	-	24:24	24:23	-	24:24	24:23
6th Gear	22:25	26:21	-	21:18	26:21	-	21:18	26:21
Ignition system	contactless DC-CDI ignition with digital advanced system by KOKUSAN							
Generator	12V 150W		-	12V 150W		-	12V 150W	
Spark plug	NGK DCPR 8 E							
Spark plug gap	0.6 mm (0.02367 in)							
Cooling system	liquid cooled, permanent rotation of cooling liquid through mechanically driven water pump							
Cooling liquid	1 liter, 40% antifreeze, 60% water, at least -25° (-13° F)							
Starting equipment	kick - electric starter		kickstarter	kick - electric starter		kickstarter	kick - electric starter	

# TECHNICAL DATA - ENGINE »

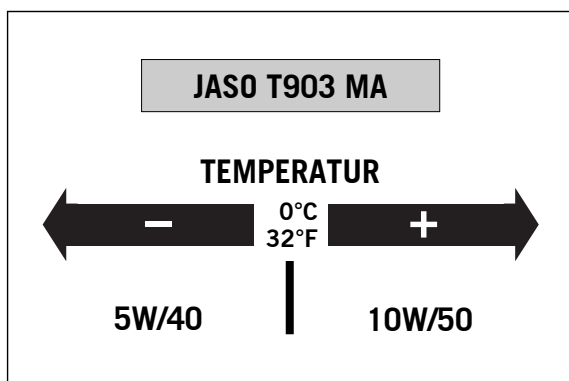
BASIC CARBURATOR SETTING				
	250 EXC RACING EU / AUS 11 kW	400 EXC RACING EU / AUS 12 kW	400 EXC-G RACING USA	450 EXC RACING EU / AUS 12 kW
Type	Keihin FCR-MX 3700A	Keihin FCR-MX 3900C	Keihin FCR-MX 3900C	Keihin FCR-MX 3900A
Main jet	160	178	178	178
Jet needle	OBEKT	OB DVR	OB DVR	OB DVR
Idling jet	42	42	42	42
Main air jet	200	200	200	200
Idling air jet	100	100	100	100
Needle position	3 <sup>rd</sup> from top	1 <sup>st</sup> from top	1 <sup>st</sup> from top	3 <sup>rd</sup> from top
Starting jet	85	85	85	85
Mixture control screw open	0,75	1,25	1,25	1,25
Slide	15	15	15	15
Performance restrictor	Slide stop	Slide stop	–	Slide stop
Stop pump membrane	858 / 2,15 mm	858 / 2,15 mm	858 / 2,15 mm	858 / 2,15 mm
Hot start device	–	–	–	–

BASIC CARBURATOR SETTING				
	450 EXC-G / MXC-G RACING USA	450 EXC RACING SIXDAYS	450 SX RACING	525 EXC / MXC RACING / DESERT RACING EU / AUS 12 kW
Type	Keihin FCR-MX 3900A	Keihin FCR-MX 3900A	Keihin FCR-MX 4122A	Keihin FCR-MX 3900B
Main jet	178	178	185	178
Jet needle	OB DVR	OB DTR	OB DTP	OB DVT
Idling jet	42	42	40	42
Main air jet	200	200	200	200
Idling air jet	100	100	100	100
Needle position	3 <sup>rd</sup> from top	4 <sup>th</sup> from top	4 <sup>th</sup> from top	3 <sup>rd</sup> from top
Starting jet	85	85	85	85
Mixture control screw open	1,25	2,0	1,0	1,25
Slide	15	15	15	15
Performance restrictor	–	–	–	Slide stop
Stop pump membrane	858 / 2,15 mm	858 / 2,15 mm	858 / 2,15 mm	858 / 2,15 mm
Hot start device	–	–	2,2 mm	–

BASIC CARBURATOR SETTING			
	525 MXC-G / EXC-G RACING USA	525 EXC RACING SIXDAYS	525 SX RACING
Type	Keihin FCR-MX 3900B	Keihin FCR-MX 3900B	Keihin FCR-MX 4125A
Main jet	178	178	185
Jet needle	OB DVT	OB DTR	OB DTP
Idling jet	42	42	42
Main air jet	200	200	200
Idling air jet	100	100	100
Needle position	3 <sup>rd</sup> from top	5 <sup>th</sup> from top	4 <sup>th</sup> from top
Starting jet	85	85	85
Mixture control screw open	1,25	2,0	1,5
Slide	15	15	15
Performance restrictor	–	–	–
Stop pump membrane	858 / 2,15 mm	858 / 2,15 mm	858 / 2,15 mm
Hot start device	–	–	2,5 mm

# TECHNICAL DATA - ENGINE »

TIGHTENING TORQUES		
Hexagon collar screw, engine case, clutch cover, ignition cover	M6	10 Nm
Oil drain plug	M12x1,5	20 Nm
Allan head plug oil, screen short	M16x1,5	10 Nm
Hexagon plug, oil screen long	M20x1,5	15 Nm
Collar screw for oil filter cover	M5	6 Nm
Plug pressure valve	M12x1,5	20 Nm
Jet screw and hollow screw, oil line	M8	10 Nm
Screws, oil pump cover	M5	Loctite 222 + 6 Nm
Hexagon collar screw, cylinder head top section	M6	10 Nm
Hex.collar screw, cylinder head top section, water pump cover	M6	8 Nm
Hexagon collar screw, exhaust flange	M6	Loctite 243 + 8 Nm
Cylinder head screw	M10	40/50 Nm
Allan head screw, camshaft gear	M8	Loctite 243 + 28 Nm
Stop screw, autodecompression	M5	Loctite 222 + 8 Nm
Allan head screw, cap rocker arm	M5	5 Nm
Counter nuts, valve adjustment screw	M6x0,75	11 Nm
Allan head screw, primary gear, free wheel	M6	Loctite 648 + 16 Nm
Hexagon nut, primary gear	M20x1,5	Loctite 243 + 150 Nm
Allan head screw, balancer shaft gear	M6	Loctite 243 + 8 Nm
Nut for inner clutch hub	M18x1,5	Loctite 243 + 150 Nm
Hexagon collar screw, clutch spring	M6	8 Nm
Allan head screw, shift roller locking piece	M6	Loctite 243 + 10 Nm
Hexagon collar screw, locking lever	M5	Loctite 243 + 6 Nm
Hexagon collar screw, shift roller	M5	Loctite 243 + 6 Nm
Hexagon collar screw securing guide, chain guide, chain tensioner	M6	Loctite 243 + 8 Nm
Hexagon collar screw, clip	M5	Loctite 243 + 6 Nm
Hexagon collar screw, chain adjuster	M6	8 Nm
Hexagon collar screw, stator MXC/EXC	M6	Loctite 243 + 8 Nm
Hexagon collar screw, stator SX	M5	Loctite 243 + 6 Nm
Hexagon collar screw, pulser coil	M5	Loctite 243 + 6 Nm
Hexagon collar nut, flywheel	M12x1	60 Nm
Hexagon collar screw, bump part kickstarter	M6	Loctite 243 + 8 Nm
Hexagon collar screw, spring hanger kickstarter	M6	Loctite 243 + 10 Nm
Hexagon collar screw, cover E-starter, only SX	M6	Loctite 243 + 8 Nm
Hexagon collar screw, hanger vent hose	M6	Loctite 243 + 8 Nm
Allan head screw, kickstarter	M8	Loctite 243 + 25 Nm
Hexagon collar screw, shift lever	M6	Loctite 243 + 10 Nm
Hexagon screw, engine sprocket	M10	Loctite 243 + 60 Nm
Spark plug	M10	10-12 Nm
Spark plug	M12x1,25	20 Nm



## Engine oil

Only use fully synthetic engine oils that meet the JASO MA quality requirements (see information on the can).

KTM recommends Motorex Power Synt 4T in the 10W/50 viscosity (for temperatures over 0°C, 32°F) or 5W/40 (for temperatures under 0°C, 32°F).

**! CAUTION**  
POOR OIL QUALITY OR MINOR QUANTITY CAUSE EARLY ENGINE-WEAR.

# TECHNICAL DATA - CHASSIS »

CHASSIS	450/525 SX	250/400/450/525 EXC/MXC DESERT	450/525 MXC-G, EXC-G USA
Frame	Central tube chrome-moly-steel frame		
Fork	4860 PA/MA	WP Up Side Down 4860 MA	
Wheel travel front/rear	300/335 mm		
Rear suspension	WP Progressive Damping System shock absorber, aluminium swing arm		
Front brake	Disk brake with carbon-steel brake disc Ø 260 mm (10.2 in), brake caliper floated		
Rear brake	Disk brake with carbon-steel brake disc Ø 220 mm (8.7 in), brake caliper floated		
Brake disc	Wear limit max. 2,5 mm front and 3,5 mm rear		
Front tires	80/100 - 21"	90/90 - 21"	80/100 - 21"
Air pressure offroad	1.0 bar (14 psi)	1.0 bar (14 psi)	1.0 bar (14 psi)
Air pressure road driver only	-	1,5 bar	1.5 bar (21 psi)
Rear tires	110/90 - 19"	140/80 - 18"	110/100 - 18"
Air pressure offroad	1.0 bar (14 psi)	1.0 bar (14 psi)	1.0 bar (14 psi)
Air pressure road driver only	-	2.0 bar (28 psi)	2.0 bar (28 psi)
Fuel tank capacity	7 liters (2 US gallons)	EXC 8,5 liters (2.1 US gallons) MXC 13 Liter (3.5 gallons)	
Final drive ratio	450-14:52Z / 525-14:48Z	250-15:45Z / 450-15:45Z / 525-15:45Z	
Chain	X-Ring 5/8 x 1/4 "		
Available final sprockets	38Z, 40Z, 42Z, 45Z, 48Z, 50Z, 52Z		
Bulbs	headlight	12V 35/35W (Socket BA20D)	
	parking light	12V 5W (Socket W2, 1x9,5d)	
	brake - rear light	12V 21/5W (Socket BaY15d)	
	flasher light	12V 10W (Socket Ba15s)	
	license plate illumination	12V 1,2W (Socket 1x4,6d)	
Battery	maintenance-free battery 12V 8Ah		
Steering head angle	63,5°		
Wheel base	1481 ± 10 mm (58.3 ± 0.4 in)		
Seat height, unloaded	925 mm (36.5 in)		
Ground clearance, unloaded	380 mm (15.1 in)		

STANDARD ADJUSTMENT - FORK		
	SX	MXC, MXC Desert, EXC, EXC-G
	WP4860PA/MA 14187A05	WP4860MA 14187A06
Compression adjuster	22	20
Rebound adjuster	20	20
Spring	4,6 N/mm	4,2 N/mm
Spring preload	5 mm	5 mm
Air chamber length	100 mm	110 mm
Fork oil	SAE 5	SAE 5

STANADARD ADJUSTMENT-SHOCK ABSORBER		
	SX	MXC, MXC Desert, EXC, EXC-G
	WP 5018 PDS DCC 12187A05	WP 5018 PDS MCC 12187A06
Compression adjuster	15 LS (low speed) 2 HS (high speed)	15
Rebound adjuster	22	22
Spring	80/250	80/250
Spring preload	7 mm	7 mm



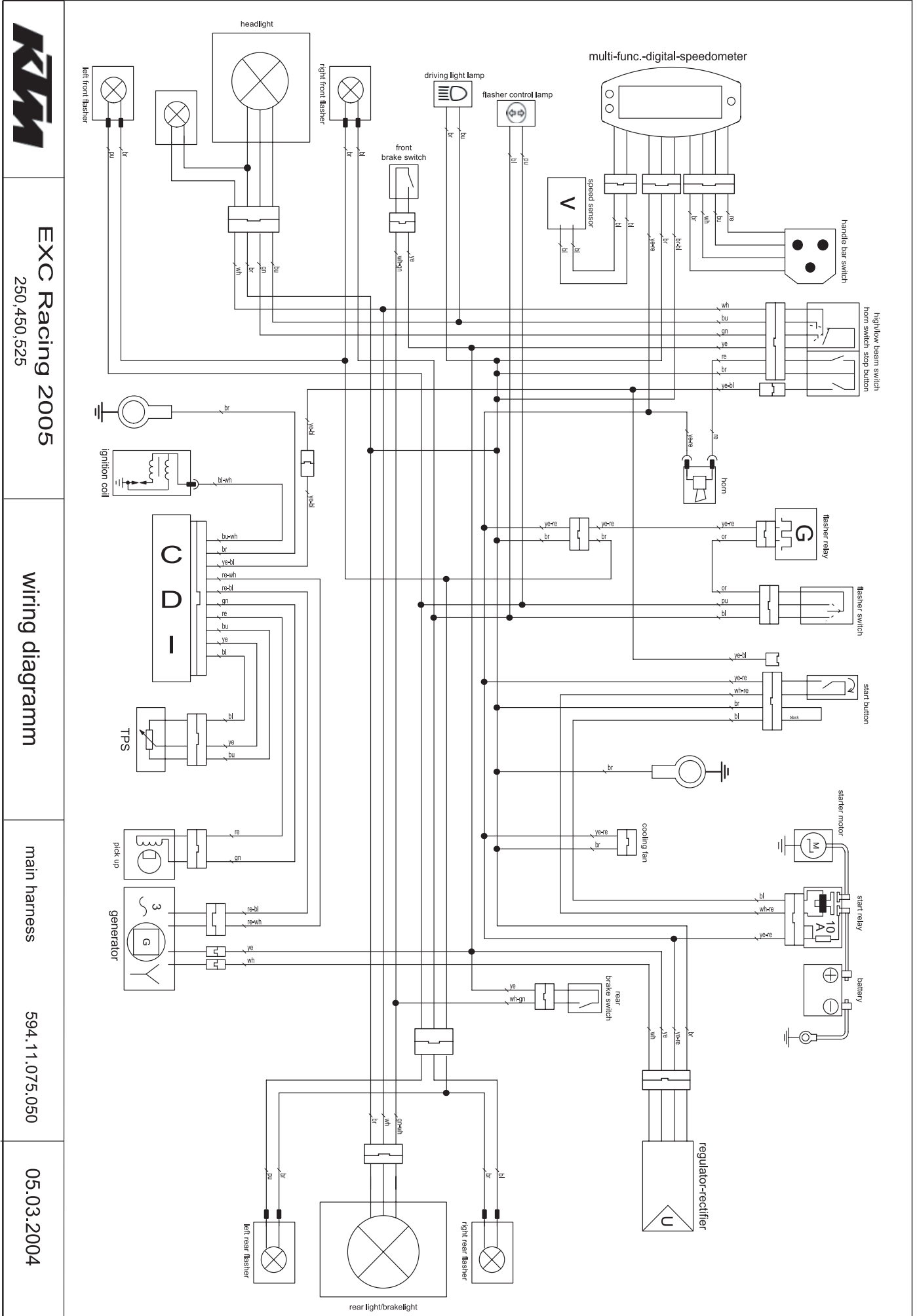
# TECHNICAL DATA - CHASSIS »

TIGHTENING TORQUES - CHASSIS		
Collar screw, front wheel spindle	M24x1,5	40 Nm
Brake caliper, front	M8	Loctite 243 + 25 Nm
Brake caliper, FTE radial front	M10x1,25	Loctite 243 + 40 Nm
Brake disk	M6	Loctite 243 + 10 Nm
Clamping screws, upper fork bridge EXC	M8	20 Nm
Clamping screws, lower fork bridge EXC	M8	15 Nm
Clamping screws, upper fork bridge SX	M8	15 Nm
Clamping screws, lower fork bridge SX	M8	10 Nm
Clamping screws, fork stubs	M8	10 Nm
Hexagon nut, swing arm bolt	M16x1,5	100 Nm
Hexagon collar screw, handlebar clamp	M8	20 Nm
Allan head srew, handlebar support	M10	Loctite 243 + 40 Nm
Shock absorber, top	M12	80 Nm
Shock absorber, bottom	M12	80 Nm
Collar nut, swing arm bolt	M20x1,5	80 Nm
Sprocket Screws	M8	Loctite 243 + 35 Nm
Ball joint for push rod	M6	Loctite 243 + 10 Nm
Engine mounting bolt	M10	60 Nm
Engine brace	M8	33 Nm
Spoke nipple	M4,5 / M5	5 Nm
Screw adjusting ring spring preload shock abs.	M6	8Nm
Other screws on chassis	M6	10 Nm
	M8	25 Nm
	M10	45 Nm
Other collar nuts on chassis	M6	15 Nm
	M8	30 Nm
	M10	50 Nm

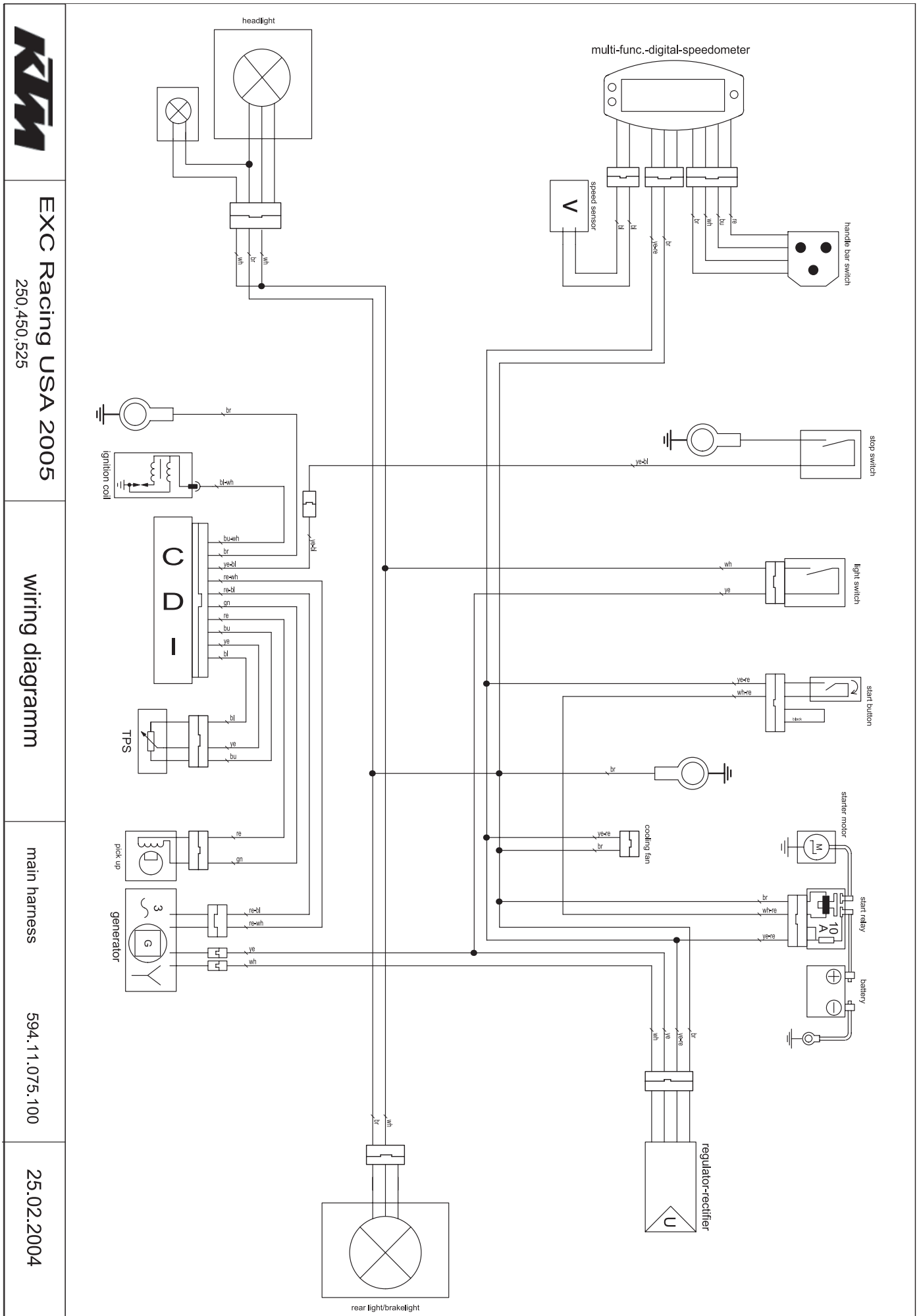
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# SCHALTPLAN » WIRING DIAGRAMM



# SCHALTPLAN » WIRING DIAGRAMM



**KTM**  
EXC Racing USA 2005  
250, 450, 525

wiring diagramm

main harness

594.11.075.100

25.02.2004

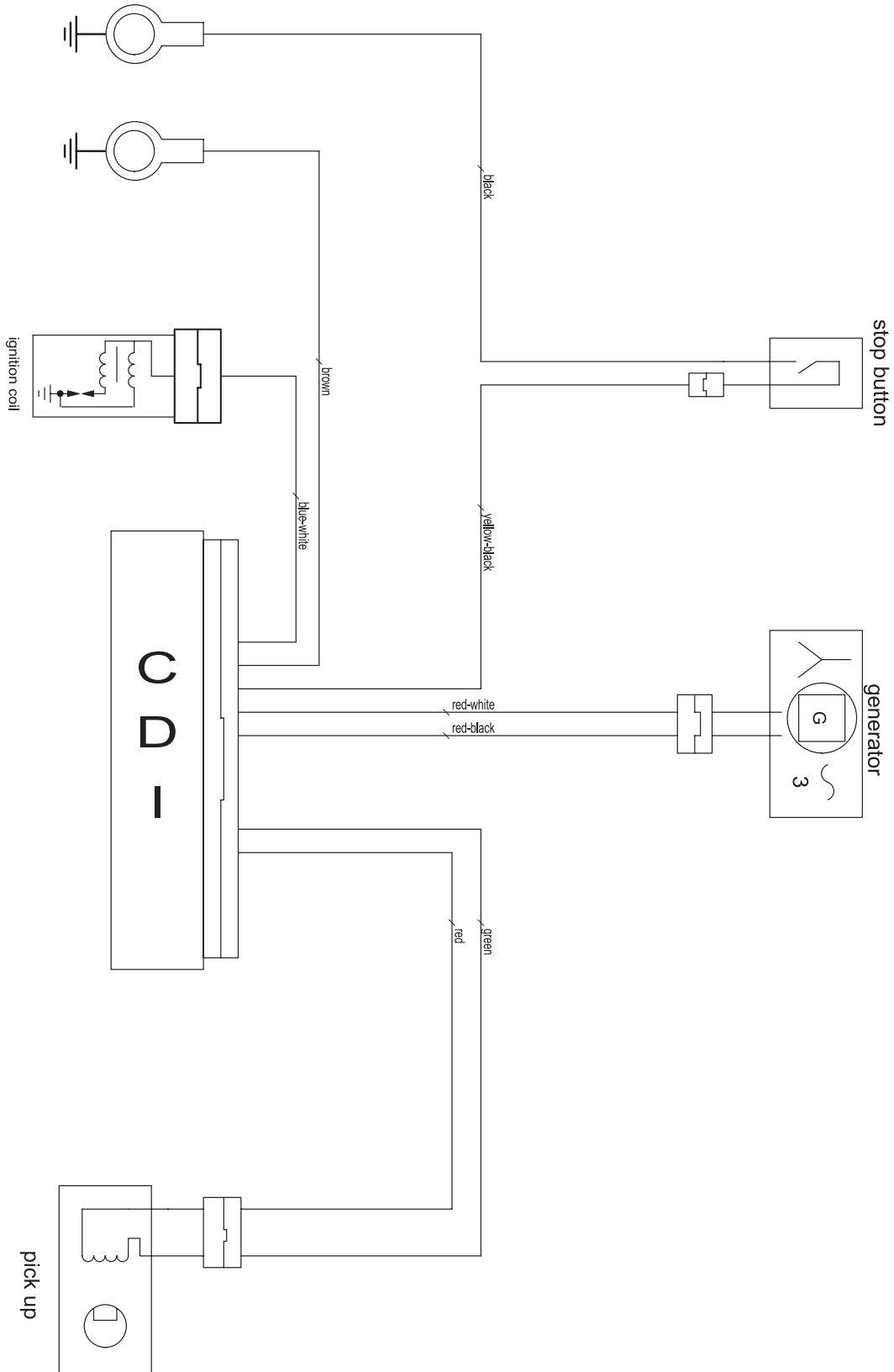
# SCHALTPLAN » WIRING DIAGRAM



SX 450-525 2005

CDI harness - 594.39.032.000

20.02.2004



# SCHALTPLAN » WIRING DIAGRAMM

ENGLISH	DEUTSCH	ITALIANO
Battery	Batterie	Batteria
Cooling fan	Lüftermotor	Motorino ventola
Driving light lamp	Fernlichtkontrolle	spia abbagliante
Flasher control lamp	Blinkerkontrolle	spia lampeggiatori
Flasher relay	Blinkerrelais	Relè indicatori
Front brake switch	vorderer Bremslichtschalter	Interruttore luce ant. di stop
Generator	Generator	Generatore
Handle bar switch for multi-func.-digital-speedometer	Lenkerschalter für Kombiinstrument	Interruttore sul manubrio per tachimetro multifunzione
Headlight	Scheinwerfer	Faro anteriore
High / low beam switch	Auf-Abblendschalter	Commutatore abbagliante/anabbagliante
Horn	Hupe	Avvisatore acustico
Ignition coil	Zündspule	Bobina d'accensione
Ignition switch	Zündschloss	Interruttore d'accensione
Left front flasher	linker vorderer Blinker	Indicatore ant. sx
Left rear flasher	linker hinterer Blinker	Indicatore post. sx
Multi-func.-digital-speedometer	Multifunktionsdigitaltacho	Tachimetro digitale multifunzione
Pick up	Impulsgeber	Pick up
Position light	Standlicht	Luce di posizione
Rear brake switch	hinterer Bremslichtschalter	Interruttore luce post. di stop
Rear light / brakelight	hinteres Begrenzungslicht / Bremslicht	Luce post. di posizione/stop
Regulator-rectifier	Regelgleichrichter	Regolatore-raddrizzatore
Right front flasher	rechter vorderer Blinker	Indicatore ant. dx
Right rear flasher	Rechter hinterer Blinker	Indicatore post. dx
Speed sensor	Geschwindigkeitssensor	Sensore velocità
Start button	Starttaster	Pulsante d'avviamento
Start relay	Startrelais	Relè d'avviamento
Starter motor	Startermotor	Motorino d'avviamento
Stop button	Not-Aus-Schalter	Interruttore di arresto d'emergenza
Throttle position sensor (TPS)	Vergaserpotentiometer	Potenzimetro carburatore (sensore TPS)

CABLE COLOURS	KABELFARBEN	CAVO COLORATO
bl: black	bl: blau	bl: nero
ye: yellow	ye: gelb	ye: giallo
bu: blue	bu: blau	bu: blu
gn: green	gn: grün	gn: verde
re: red	re: rot	re: rosso
wh: white	wh: weiß	wh: bianco
br: brown	br: braun	br: marrone
or: orange	or: orange	or: arancione
pi: pink	pi: rosa	pi: rosa
gr: grey	gr: grau	gr: grigio
pu: purple	pu: violett	pu: violetto

# SCHALTPLAN » WIRING DIAGRAMM

ENGLISH	FRANCAIS	ESPANOL
Battery	Batterie	Batería
Cooling fan	Ventilateur	Motor del ventilador
Driving light lamp	temoin feu route	lampara aviso luces largas
Flasher relay	Relais de clignotants	Relé de la luz intermitente
Flasher control lamp	temoin de clignoteur	lampara aviso intermitentes
Front brake switch	Contacteur de frein avant	Interruptor de luz del freno delantero
Generator	Alternateur	Generador
Handle bar switch for multi-func.-digital-speedometer	Contacteur au guidon pour ordinateur de bord	Interruptor de manillar para instrumento combinado
Headlight	Phare	Faro
High / low beam switch	Contacteur code/phare	Interruptor de encender/apagar la luz larga
Horn	Avertisseur sonore	Cláxon
Ignition coil	Bobine d'allumage	Bobina de encendido
Ignition switch	Contacteur d'allumage	Cerradura de encendido
Left front flasher	Clignotant avant gauche	Luz intermitente izquierda delantera
Left rear flasher	Clignotant arrière gauche	Luz intermitente izquierda trasera
Multi-func.-digital-speedometer	Ordinateur de bord	Velocímetro digital multifuncional
Pick up	Capteur d'allumage	Generador de impulsos
Position light	feu de position	luz de posicion
Rear brake switch	Contacteur de frein arrière	Interruptor de luz del freno trasero
Rear light / brakelight	Feu rouge/stop	Luces de parqueo traseras /luces de freno
Regulator-rectifier	Régulateur/redresseur	Regulador rectificador
Right front flasher	Clignotant avant droit	Luz intermitente derecha delantera
Right rear flasher	Clignotant arrière droit	Luz intermitente derecha trasera
Speed sensor	Capteur de vitesse	Sensor de velocidad
Start button	bouton de démarrage	botón de arranque
Start relay	Relais de démarreur	Relé del arranque
Starter motor	Démarreur	Motor de arranque eléctrico
Stop button	bouton d'arrêt d'urgence	interruptor de parada de emergencia
Throttle position sensor (TPS)	Capteur d'ouverture de carburateur	Potenciómetro del carburador

CABLE COLOURS	COULEUR DE CABLE	COLOR DE CABLE
bl: black	bl: noir	bl: negro
ye: yellow	ye: jaune	ye: amarillo
bu: blue	bu: bleu	bu: azul
gn : green	gn: vert	gn: verde
re: red	re: rouge	re: rojo
wh: white	wh: blanc	wh: blanco
br: brown	br: brun	br: marron
or: orange	or: orange	or: naranja
pi: pink	pi: rose	pi: rosado
gr: grey	gr: gris	gr: gris
pu: purple	pu: violet	pu: violeta







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