

**400/520 SX, MXC, EXC RACING**

**KTM**  
SPORTMOTORCYCLES

**BEDIENUNGSANLEITUNG**

OWNERS HANDBOOK

MANUALE D'USO

MANUEL D'UTILISATION

MANUAL DE INSTRUCCIONES

**2002**



Art.Nr. 3.210.17 06/2001

## IMPORTANT

WE STRONGLY SUGGEST THAT YOU 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 ENDANGER YOUR BODY AND YOUR LIFE.

!                      **CAUTION**                      !

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IGNORING THESE INSTRUCTIONS COULD CAUSE DAMAGE TO PARTS OF YOUR MOTORCYCLE OR THAT THE MOTOR-CYCLE IS NOT ROAD-SAFE ANYMORE.

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

Frame number

Engine number

Stamp of dealer

## CONSUMER INFORMATION FOR AUSTRALIA ONLY

### Tampering with noise control system prohibited

Owners are warned that the law may prohibit:

- (a) 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
- (b) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

KTM SPORTMOTORCYCLE AG RESERVES THE RIGHT TO MODIFY ANY EQUIPMENT, TECHNICAL SPECIFICATIONS, COLORS, MATERIALS, SERVICES OFFERED AND RENDERED, AND THE LIKE SO AS TO ADAPT THEM TO LOCAL CONDITIONS WITHOUT PREVIOUS ANNOUNCEMENT AND WITHOUT GIVING REASONS, OR TO CANCEL ANY OF THE ABOVE ITEMS WITHOUT SUBSTITUTING THEM WITH OTHERS. IT SHALL BE ACCEPTABLE TO STOP MANUFACTURING A CERTAIN MODEL WITHOUT PREVIOUS ANNOUNCEMENT. IN THE EVENT OF SUCH MODIFICATIONS, PLEASE ASK YOUR LOCAL KTM DEALER FOR INFORMATION. WE SHALL NOT BE HELD LIABLE FOR ANY PRINTING ERRORS.

## Introduction

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

You are now the owner of a state-of-the-art sports 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 have to dedicate some of your valuable time to this task. Only by doing so will you learn how to tune your motorbike 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 there may exist minor discrepancies resulting from further design upgrades of these motorcycles.

This manual is an important part of your motorbike and should be passed on to any subsequent owner in case you decide to sell it.

Many motorcyclists have a good working knowledge of motorcycle mechanics; if this is true in your case, you will be able to use this manual to carry out most of the maintenance steps yourself. If, on the other hand, you are not very familiar with motorcycles, it might be better to have a professional KTM dealer perform those steps marked \* described in the chapter entitled "Maintenance Work on Chassis and Engine" of this manual.

**For your own safety use only KTM-approved parts and accessories. 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. Have services carried out by a KTM dealer so that your warranty claim remains intact.

We wish you a lot of fun when driving !



REG.NO. 12 100 6061

KTM Austria's certificate of achievement for its Quality System ISO 9001 is the beginning of an on-going total re-engineering quality plan for a brighter tomorrow.

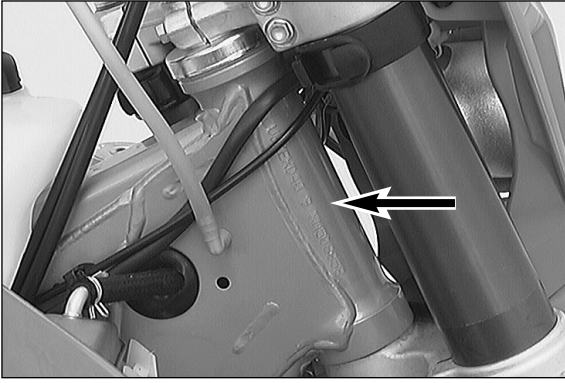
KTM SPORTMOTORCYCLE AG  
5230 MATTIGHOFEN, AUSTRIA

Attachments: Spare parts manual chassis & engine

ALL RIGHTS RESERVED TO MAKE ALTERATIONS TO DESIGN AND MODEL.

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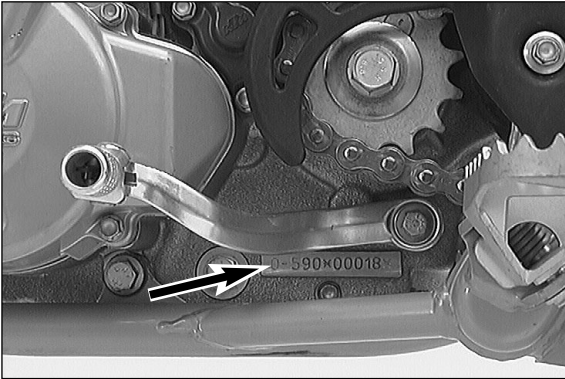
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## SERIAL NUMBER LOCATIONS

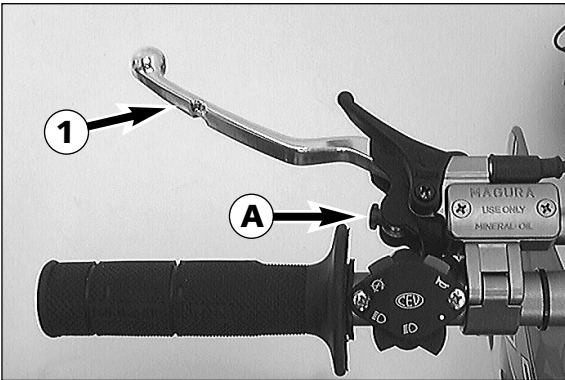
### Chassis number

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



### Engine number, engine type

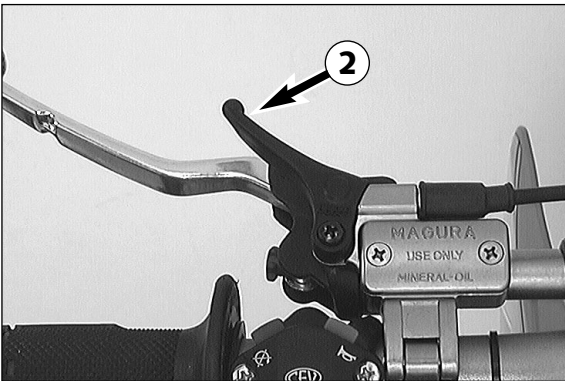
The engine number and the engine type are stamped into the left side of the engine below the engine sprocket. Please note this number down on page 1.



## OPERATION INSTRUMENTS

### 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).



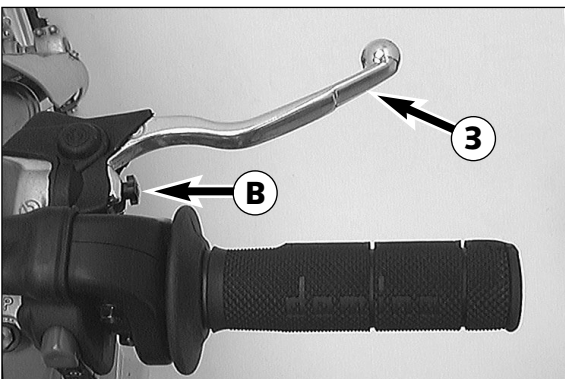
### Hand decompression lever

The hand decompression lever ② is needed only if a fall on your motorcycle causes overflowing in the carburetor. To "pump the engine free", pull the hand decompression lever during the starting procedure.

The outer end of the lever must at all times provide for a backlash of approx. 10mm (0,4 in). Only thereafter may it cause valve motion (to be recognized by the stronger resistance which the hand decompression level encounters).

### ! CAUTION !

- NEVER USE THE HAND DECOMPRESSION LEVER TO TURN OFF THE ENGINE. RATHER, USE THE SHORT-CIRCUIT BUTTON OR THE EMERGENCY-OFF BUTTON.
- THE SETTING OF THE DECOMPRESSION CABLE SHOULD BE REGULARLY CHECKED. A LACK OF PLAY IN THE DECOMPRESSION LEVER CAN RESULT IN ENGINE DAMAGE.



### Hand brake lever



The hand brake lever ③ is mounted on the handle bars 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").

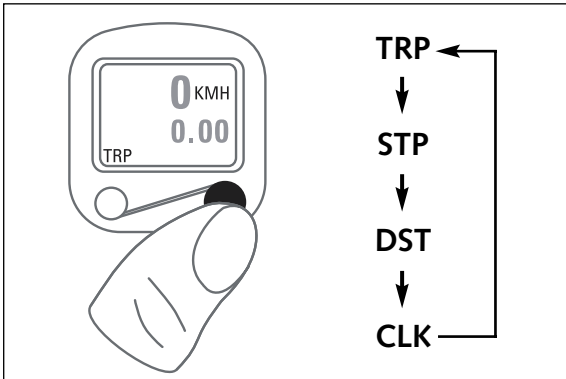
### ⚠ WARNING ⚠

IF THE RESISTANCE IN THE HAND BRAKE LEVER OR FOOT BRAKE PEDAL FEELS "SPONGY" (TOO MUCH GIVE), 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.



### Digital speedometer, indicator lamps (EXC)

-  The green control lamp ❶ flashes when the indicator is working in the same rhythm as the flashing indicator.
-  The blue control lamp ❷ lights up when the high beam is on.



### Speedometer – digital (EXC)

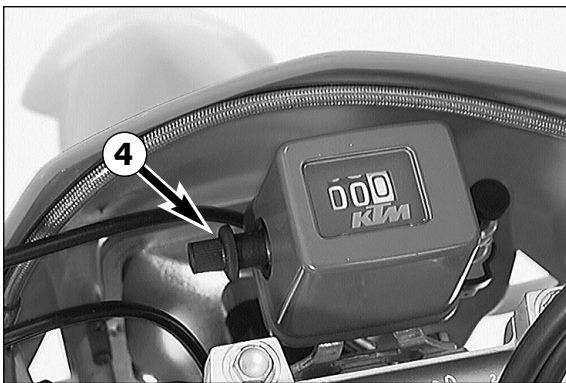
Some models are equipped with a digital speedometer ❸.

KMH = Speed, max. 200 km/h (is always indicated)

Aside from speed indication the following indications can be selected:

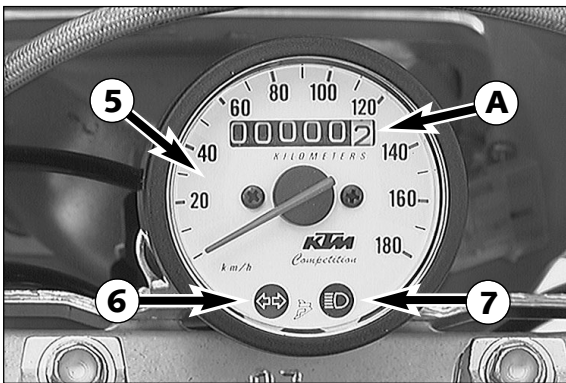
- TRP = Trip distance
- STP = Stopwatch max. 10 h, automatic start/stop function
- DST = Total distance up to 99.999 km
- CLK = Clock

See maintenance work for change of battery and basic setting.



### Odometer (EXC USA)

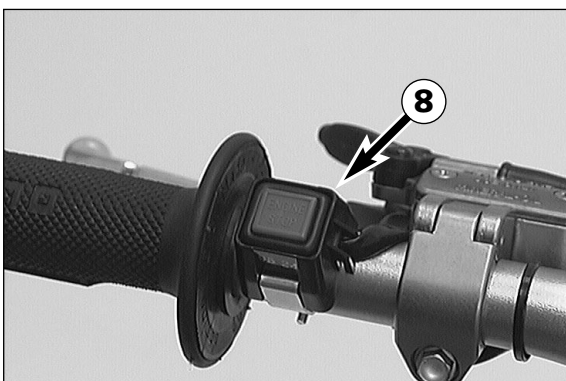
The odometer is a mileage indicator and can be set to 0 by means of the adjustment wheel ❹.



### Speedometer, indicator lamps (EXC AUS)

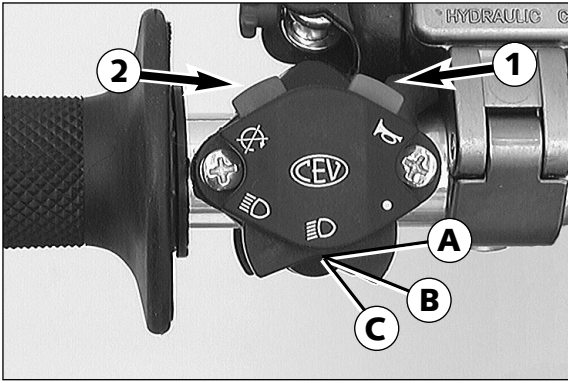
The mileage indicator ❶ in the speedometer ❷ indicates overall mileage. When the turn indicator is on, the green indicator lamp ❸ will be flashing in the same rhythm.

The blue indicator lamp ❹ will be lit when the high beam is on



### Short circuit button (SX/MXC)

The short circuit button ❸ 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.

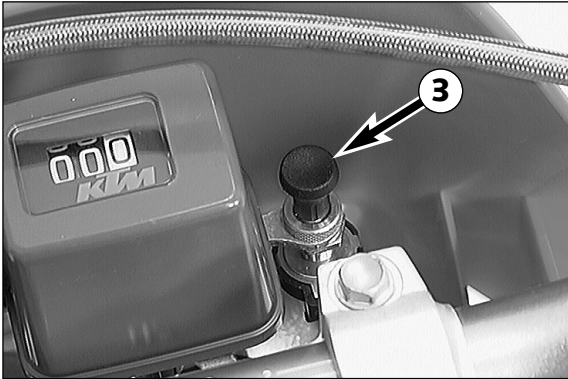
Ⓐ = Light off (this function is not available in all models)

Ⓑ = Low beam on

Ⓒ = High beam on

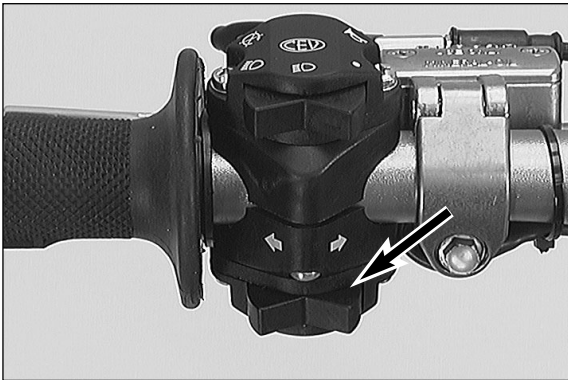
You may use button ❶ to actuate the horn.

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



**Headlamp switch (EXC USA)**

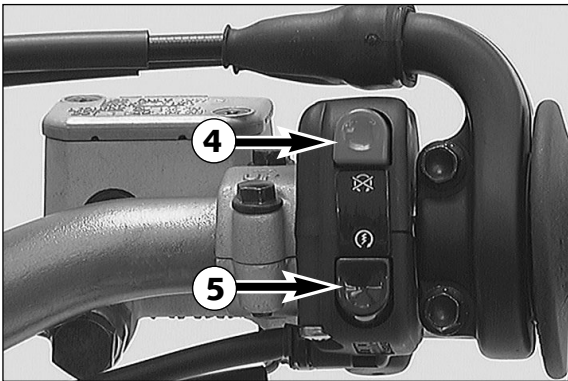
In this model the headlamp is switched on with the pull switch ❸.



**Flasher switch**

⇐ Flasher left

⇒ Flasher right



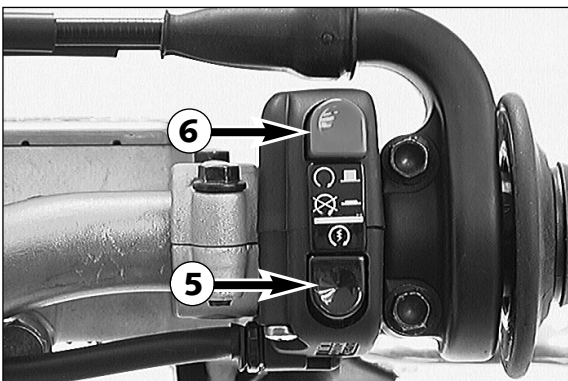
**Emergency OFF button (EXC)**

⊗ The red emergency-OFF button ❹ is arranged adjacent to the throttle grip. To turn off the engine, push the button until the engine comes to a standstill.

⚡ Pushing of the black starter button ❺ actuates the E-starter.

**WARNING**

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.



**Emergency OFF switch (EXC Australia)**

The red emergency-OFF switch ❻ is arranged adjacent to the throttle grip.

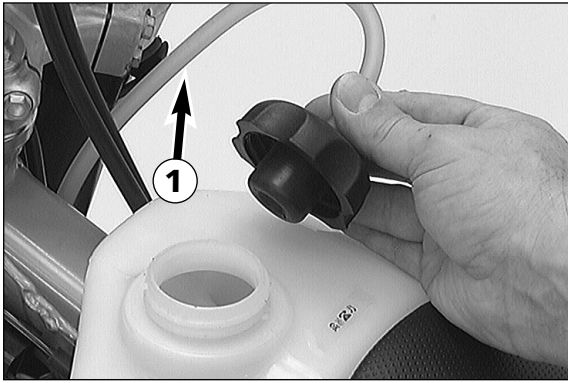
⊗ In this position, the E-starter is operational and the engine can be started.

⊗ 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 of the black starter button ❺ actuates the E-starter.

**WARNING**

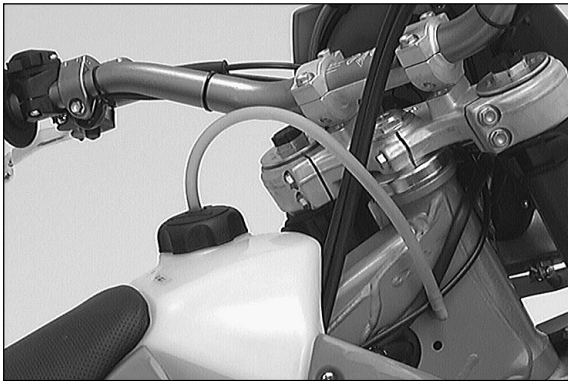
ALWAYS VERIFY THAT THE TRANSMISSION HAS BEEN SET TO IDLE (NEUTRAL) BEFORE ACTUATING THE STARTER BUTTON. IF YOU START THE MOTORCYCLE WITH A GEAR ENGAGED, THE MOTORCYCLE WILL MOVE FORWARD.



**Filler cap**

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

**To close filler cap:** Put filler cap on and tighten it by turning it clockwise. Install tank breather hose ❶ without kinks.



**Fuel**

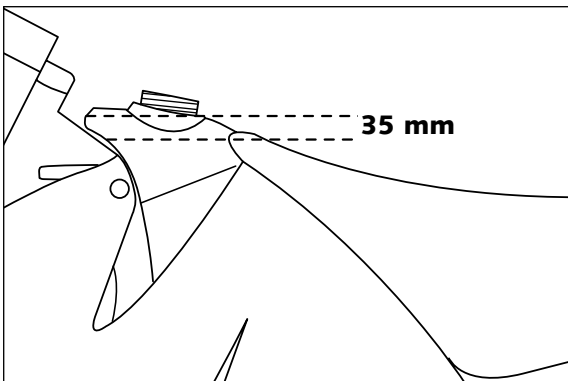
The racing engine needs premium gasoline with an octane number of 95 or higher.

**! CAUTION !**

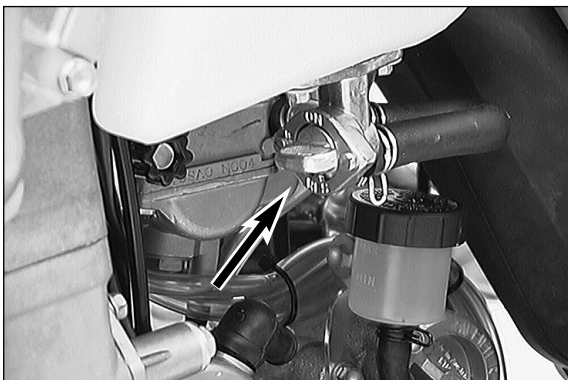
USE LEADED OR UNLEADED PREMIUM GRADE GASOLINE (95 OCTANES). NEVER USE ANY GASOLINE HAVING LESS THAN 95 OCTANES BECAUSE IT MAY DAMAGE THE ENGINE.

**⚠ 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.).



**Fuel tap**

**OFF** In this position the fuel tap is closed. No fuel may 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)

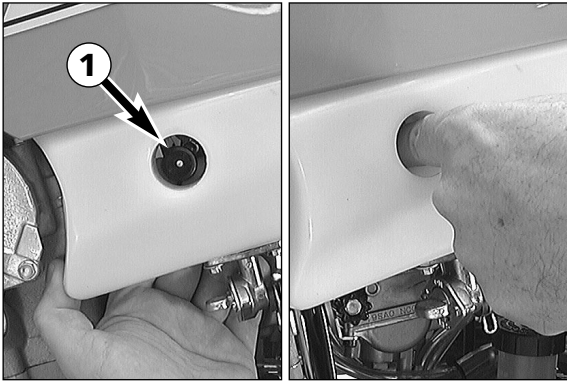
Reserve EXC.....1.0 l (0,3 US gallons)

**! CAUTION !**

THE FUEL TAP SHOULD BE LOCKED WHENEVER THE MOTORCYCLE IS PARKED. IF THE TAP IS NOT CLOSED THE CARBURETOR MAY OVERFLOW AND FUEL GET INTO THE ENGINE.

	OFF	ON	RES
SX			
MXC EXC			

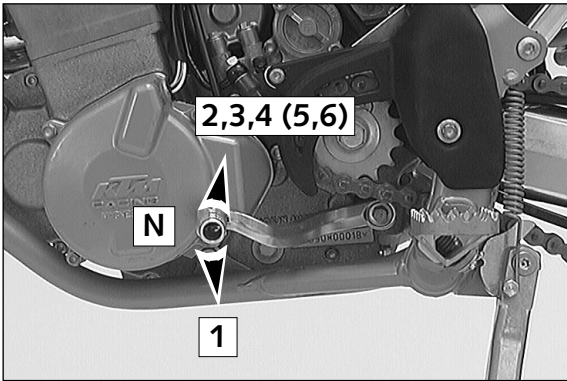




**Choke**

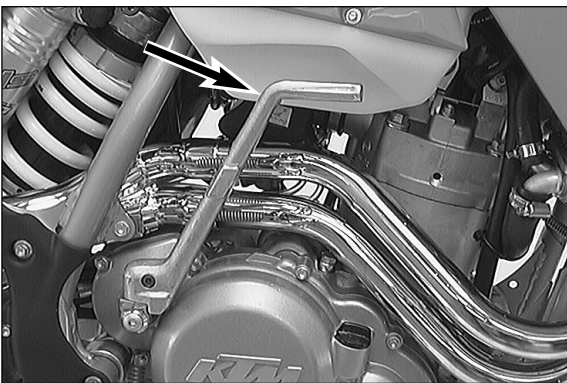
If you pull the choke button ❶ out as far as possible, a bore in the carburetor will be unblocked through which the engine may take in additional fuel. The result is a „fat“ fuel-air mixture of the type needed for cold starts.

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



**Shift lever**

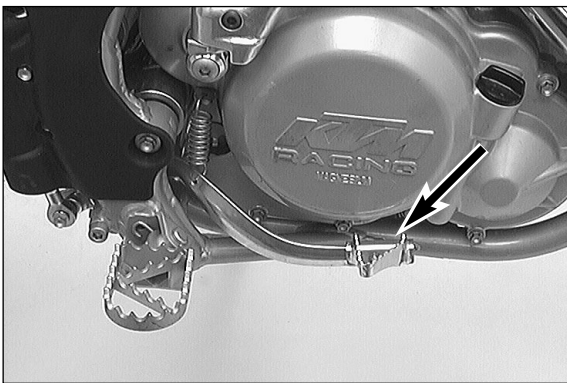
The shift lever is mounted on the left side of the engine. The position of the gears is shown in the illustration. Neutral, or the idle speed, is located between first and second gear.



**Kickstarter**

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

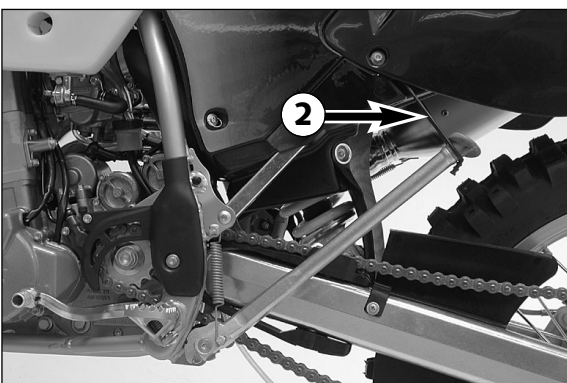
- 
- ⚠ WARNING ⚠**
- IF YOU WANT TO START THE ENGINE, MAKE SURE THAT YOU ALWAYS PUT ON STURDY MOTORCYCLE BOOTS IN ORDER TO AVOID INJURIES. YOU MIGHT SLIP OFF THE KICKSTARTER, OR THE ENGINE MAY KICK BACK AND PROPEL YOUR FOOT UPWARD WITH GREAT VEHEMENCE.
  - ALWAYS KICK KICKSTARTER BRISKLY ALL THE WAY WITHOUT OPENING THE THROTTLE. KICKING THE KICKSTARTER WITH NOT ENOUGH MOMENTUM, AND AN OPENED THROTTLE GRIP INCREASE THE KICK-BACK HAZARD.



**Foot brake pedal**

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

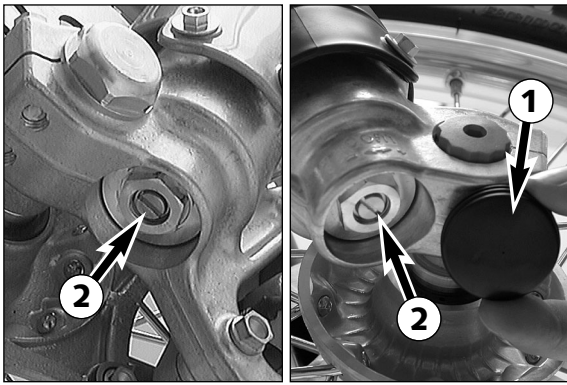
- 
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- IF THE RESISTANCE IN THE HAND BRAKE LEVER OR FOOT BRAKE PEDAL FEELS "SPONGY" (TOO MUCH GIVE), THIS IS AN INDICATION THAT SOMETHING IS WRONG WITH THE BRAKE SYSTEM. DON'T RIDE YOUR MOTORCYCLE ANYMORE WITHOUT FIRST HAVING THE BRAKE SYSTEM LOOKED OVER BY A KTM DEALER.



**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 ❷ to additionally secure the center stand in its folded-up position.

- 
- ! CAUTION !**
- THE SIDE STAND IS ONLY DESIGNED FOR THE WEIGHT OF THE MOTORCYCLE. IF YOU GET ON THE MOTORCYCLE AND THUS PUT ADDITIONAL WEIGHT ON THE SIDE STAND, THE SIDE STAND OR THE FRAME CAN BE DAMAGED AND THE MOTORCYCLE MAY FALL ON THE SIDE.
  - ALWAYS CHECK BEFORE GOING FOR A RIDE THAT YOU HAVE FOLDED UP THE SIDE STAND AS FAR AS POSSIBLE. IF THE STAND TOUCHES THE GROUND WHILE YOU ARE DRIVING, YOU MAY LOSE CONTROL OF YOUR MOTORCYCLE.



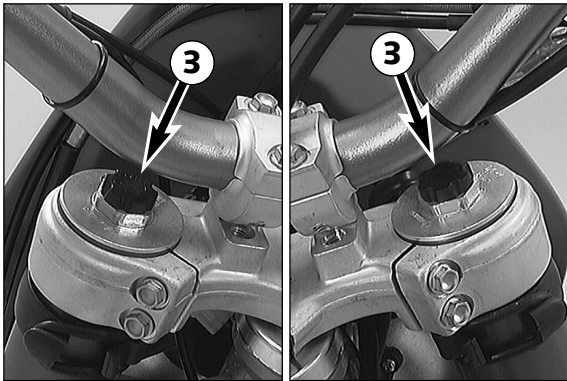
### Compression damping of fork

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 ❶. Turn the adjusting screws ❷ 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

WP 1418W710 ..... 20 clicks (SX)  
 WP 0518W712 ..... 20 clicks (EXC/MXC)



### Rebound damping of fork

Hydraulic rebound damping determines the reaction when the fork is rebound. By turning the adjusting screw ❶ (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

WP 1418W710 ..... 16 clicks (SX)  
 WP 0518W712 ..... 12 clicks (MXC/EXC)



### 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.

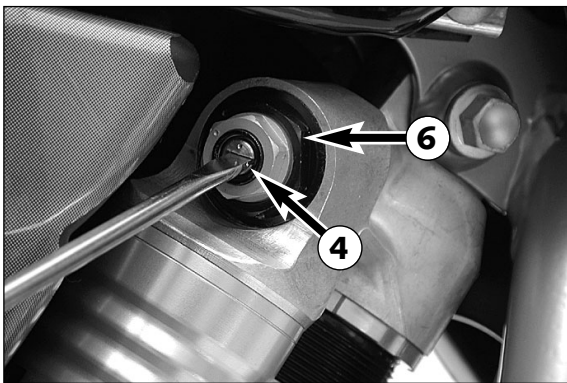
The high-speed setting is effective at fast compression rates.

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

#### Standard low-speed setting:

- Turn the adjusting screw ❹ 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.

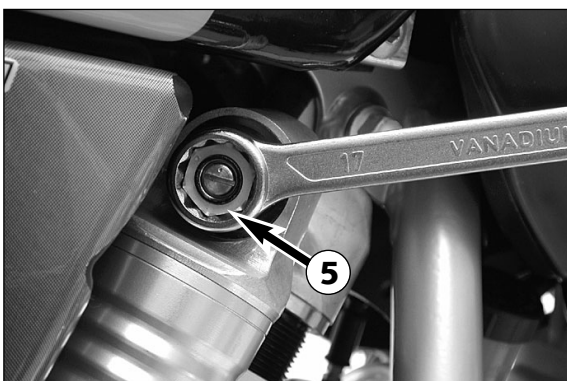
Type White Power 1218W738 ..... 15 clicks



#### Standard high-speed setting:

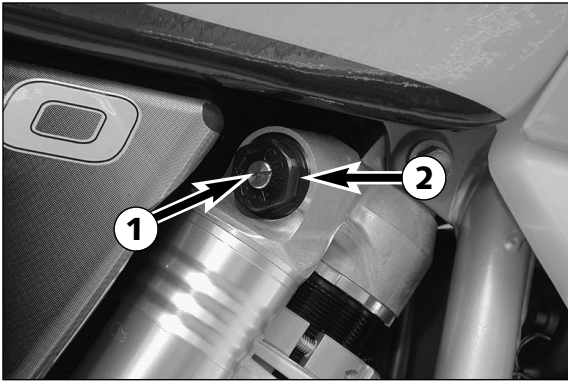
- Turn the adjusting screw ❺ to the limit in a counterclockwise direction using a box wrench.
- Unscrew the respective number of turns for the specific type of shock absorber in a clockwise direction.

Type White Power 1218W738 ..... 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 ❻ (24MM).



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

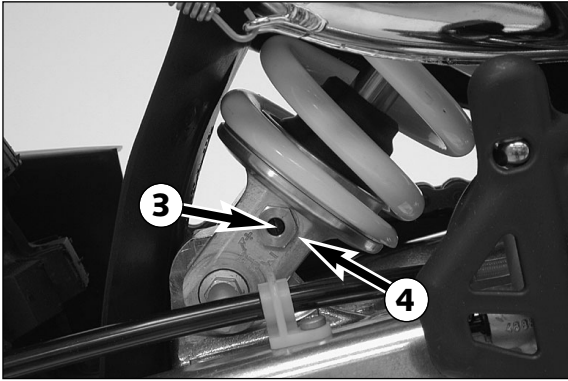
The compression damping (during compression) can be adjusted for the MXC and EXC shock absorbers (Mono Compression Control). The degree of damping can be adjusted by turning adjusting screw ❶ with a screwdriver. Turning in a clockwise direction will increase the damping, turning in a counterclockwise 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 1218W739 .....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 ❷ (24MM).



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

By using the adjusting screw ❸, the degree of damping of the rebound can be adjusted. Turn the knob to the right side to increase damping, turn it to the left side to reduce damping during rebounding.

**STANDARD ADJUSTMENT:**

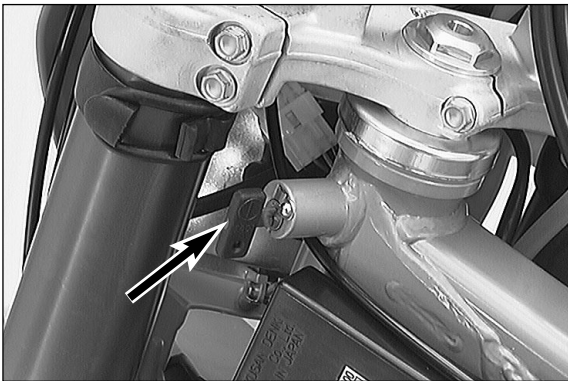
- Turn the adjusting screw clockwise to the stop.
- Then turn the adjusting screw counterclockwise, counting the number of clicks that corresponds to the respective type of shock absorber.

Type White Power 1218W738 .....25 clicks

Type White Power 1218W739 .....25 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 ❹ (15MM).



**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.

## Check the following before each start

When you start off, the motorcycle must be in perfect mechanical 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 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 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 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.



## 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 VEHICLE 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 THAT HAVE BEEN RELEASED BY KTM. FOR EXAMPLE, FRONT PANNELLING CAN IMPAIR THE DRIVING PROPERTIES OF THE MOTORCYCLE. CASES, EXTRA TANKS ETC. CAN ALTER THE WEIGHT DISTRIBUTION AND THUS ALSO IMPAIR THE VEHICLES DRIVING PROPERTIES.
- THE FRONT AND REAR WHEEL ARE ALLOWED TO BE FITTED ONLY WITH TIRES THAT HAVE THE SAME PROFILE TYPE.
- THE RACING MODELS ARE DESIGNED AND DIMENSIONED FOR 1 PERSON ONLY. NEVER TAKE ANOTHER RIDER ALONG.



## WARNING



- THE SX MODELS ARE NOT APPROVED FOR USE ON PUBLIC ROADS AND FREEWAYS.
- WHEN RIDING YOUR MOTORCYCLE, PLEASE BEAR IN MIND THAT OTHER PEOPLE MAY FEEL MOLESTED BY EXCESSIVE NOISE.

## 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 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 handle bars 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 made up of the following components:
  - Motorcycle ready for operation and tank full
  - Luggage
  - Driver with protective clothing and helmet.
- Pay attention to 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!

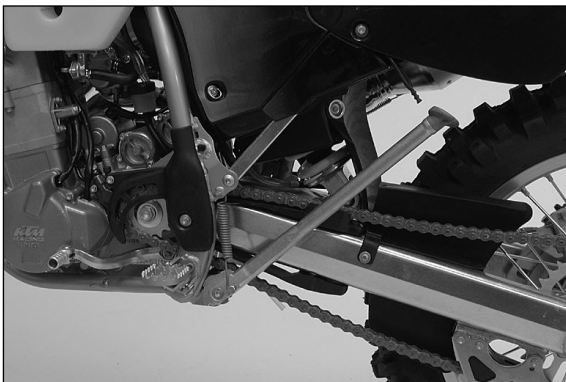
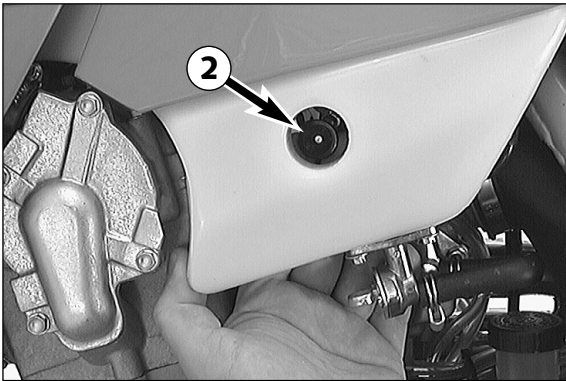
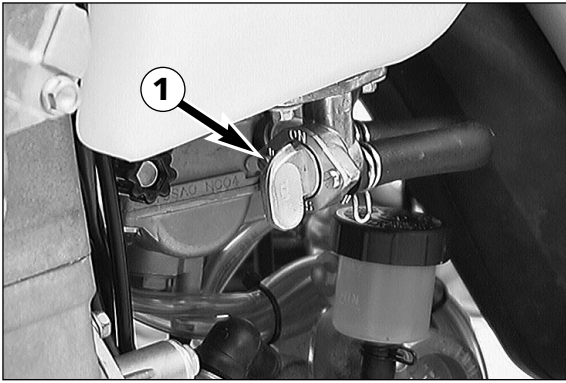
In the following 12 operating hours, you may load the engine up to 75% of its capacity. Use the motorcycle on various types of terrain (road, easy off-road trails).



## CAUTION



THE 400/520 SC/MXC/EXC RACING MODELS WERE UNCOMPROMISINGLY DESIGNED FOR OFF-ROAD COMPETITION PURPOSES ONLY. EVEN THOUGH THE EXC MODELS ARE APPROVED FOR USE ON PUBLIC ROADS, THEIR USE ON ROADS IS RECOMMENDABLE ONLY TO A VERY LIMITED EXTENT. AVOID EXTENDED ON-ROAD RIDES AT FULL THROTTLE.



### Starting when the engine is cold

- 1 Open the fuel tap ❶.
- 2 Swing up the side stand or center stand.
- 3 Put the gear in neutral.
- 4 Operate the choke ❷.
- 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 VEHEMENCE.
- ALWAYS KICK KICKSTARTER BRISKLY ALL THE WAY WITHOUT OPENING THE THROTTLE. KICKING THE KICKSTARTER WITH NOT ENOUGH MOMENTUM, AND AN OPENED THROTTLE GRIP INCREASE THE KICK-BACK HAZARD.
- 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.



#### 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 ENGINE WHEN COLD. BECAUSE THE PISTON IS WARMING UP FASTER THAN THE WATER COOLED CYLINDER, IT CAN CAUSE ENGINE DAMAGE.

### Starting when the engine is warm

- 1 Open the fuel tap ❶.
- 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 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.
- ALWAYS TURN ON THE LIGHT TO MAKE SURE THAT OTHER DRIVERS BECOME AWARE OF YOU AS EARLY AS POSSIBLE.

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

**NOTE:**

DEDICATED TO NOTHING BUT OFFROAD RACING, 400/520 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 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 ENGINE AND THE COOLING SYSTEM. RATHER, 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 ⚠**

- OBSERVE THE TRAFFIC REGULATIONS, DRIVE DEFENSIVELY AND TRYING 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 CONDITIONS AND YOUR DRIVING SKILLS.
- DRIVE CAREFULLY UN UNKNOWN ROADS OR ON UNFAMILIAR TRIALS.
- WHEN DRIVING OFF-ROAD, ALWAYS HAVE A FRIEND ON A SECOND MOTORCYCLE TO KEEP YOU COMPANY, SO THAT YOU CAN HELP EACH OTHER SHOULD DIFFICULTIES ARISE.
- REPLACE HELMET VISOR OR GOGGLE LENS WHEN SCRATCHED OR DAMAGED. IF BRIGHT LIGHT SHINES THROUGH A SCRATCHED VISOR OR LENS, THE OPERATOR WILL BE BLINDED.
- 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 STA-BILITY.

**! 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 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.
- NEVER START YOUR MOTORCYCLE IF NO AIR FILTER HAS BEEN MOUNTED; OTHERWISE, DUST AND DIRT MAY ENTER THE ENGINE AND CAUSE INCREASED WEAR.

**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.

**Stopping and parking**

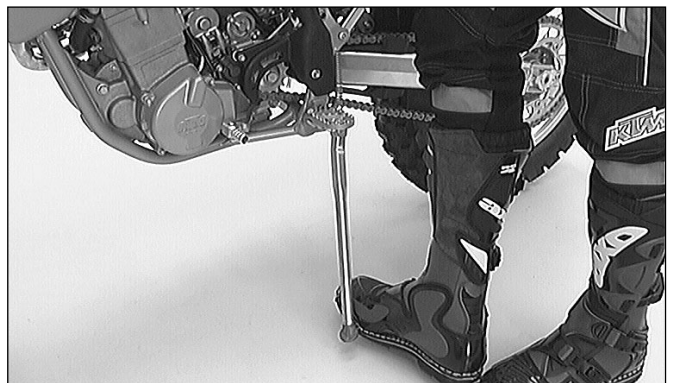
Apply the brakes fully and put the engine into neutral. To turn off the engine, push the short-circuit button or the emergency-OFF button with the engine at idling speed until the engine stops. Turn the fuel tap to the OFF position, park on an area where the ground is firm, and lock the motorcycle.

**⚠ WARNING ⚠**

- NEVER LEAVE YOUR MOTORCYCLE WITHOUT SUPERVISION IF THE ENGINE IS RUNNING.
- 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. RATHER, USE THE SHORT-CIRCUIT BUTTON OR THE EMERGENCY-OFF BUTTON.
- 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 EXIST 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.

A washed 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
--	---

		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	●	●	
ADD-ON PARTS	Check vent hoses for damage or bends	●	●	
	Check cooling system for leaks, check quantity of anti freeze	●	●	
	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 head lamp setting		●	
	Check function of electric systems (low-, high beam, break light, indicator indicator lamps, speedometer illumination, horn, emergency OFF switch or button	●	●	
	Check brake fluid level, lining thickness, brake discs	●	●	
	Check brake lines for damage and leaks	●	●	
BRAKES	Check 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 tyres and air pressure	●	●	
	Check chain, 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 OF CARE AND CHECKS DONE BY THE RIDER!

## 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 tyres 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 regular			●

### Continued tests of the 400/520 racing motor for KTM's specialized workshop (additional order for KTM's specialized workshop)

a 100 l fuel consumption is equivalent to approx. 15 operating hours	30 hours 200 l	45 hours 300 l	60 hours 400 l	90 hours 600 l	120 hours 800 l	135 hours 900 l
Force fit of clutch drive shaftteststiz		●		●		●
Clutch disk wear	●	●	●	●	●	●
Cylinder and piston wear		●		●		●
Groove piston-pin retainer wear		●		●		●
Camshaft wear		●		●		●
Radial clearance of camshaft bearing		●		●		●
Valve spring length		●		●		●
Spring washer wear		●		●		●
Valve disk slack		●		●		●
Valve guide wear		●		●		●
Radial clearance of rocker-arm roller		●		●		●
Elongation of timing chain		●		●		●
Wear of tothing on chain tensioner	●	●	●	●	●	●
Crankshaft journal/crankshaft wear		●		●		●
Radial clearance of conrod bearing		●		●		●
Radial clearance of piston pin bearing		●		●		●
Wear of balancing shaft bearing		●		●		●
Wear of crankshaft bearing		●		●		●
Transmission wear		●		●		●
Flection of transmission shafts		●		●		●
Length of bypass valve spring		●		●		●



# MAINTENANCE WORK ON CHASSIS AND ENGINE



## WARNING



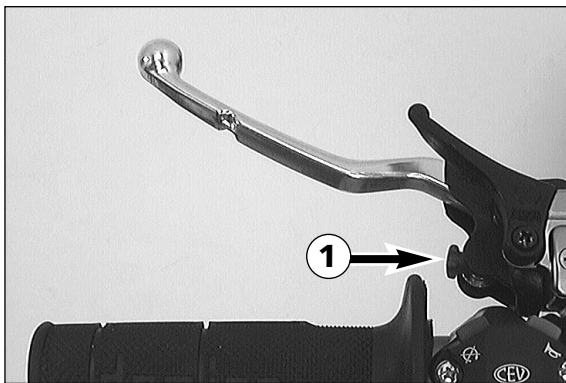
MAINTENANCE AND ADJUSTING WORK MARKED WITH AN ASTERISK (\*) REQUIRES EXPERT SKILLS AND TECHNICAL KNOW-HOW. FOR YOUR OWN SAFETY, ALWAYS HAVE SUCH WORK PERFORMED BY A SPECIALIZED KTM DEALER WHERE YOUR MOTORCYCLE WILL BE OPTIMALLY SERVICED BY APPROPRIATELY QUALIFIED SKILLED STAFF.



## 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.
- REMOVE OILS, FATTY MATTERS, FILTERS, FUELS, WASHING DETERGENTS ETC. ORDERLY.
- UNDER NO CIRCUMSTANCES MAY USED OIL BE DISPOSED OF IN THE SEWAGE SYSTEM OR IN THE OPEN COUNTRYSIZE. 1 LITER USED OIL CONTAMINATES 1.000.000 LITERS WATER.



### 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.

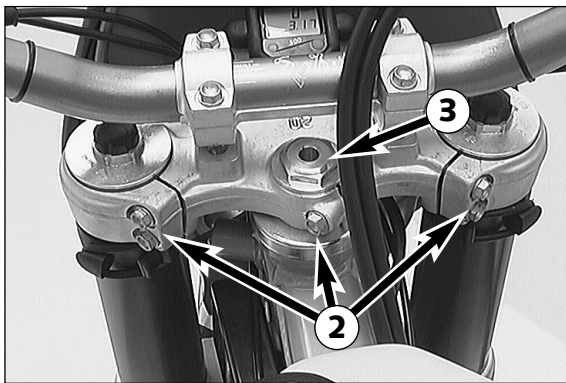
Turning the adjusting screw clockwise reduces the distance between the clutch lever and the handlebar. Turning the adjusting screw counterclockwise increases the distance between the clutch lever and the handlebar.



## 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 and adjusting the steering head bearing \*

Check steering head bearing for play periodically. For check put motorcycle on 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 ② of the top triple clamp and turn steering stem bolt clockwise ③ 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 rap on the triple clamp to release tension. Retighten the five pinch bolts to 20 Nm (15 ft.lb).



## 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.

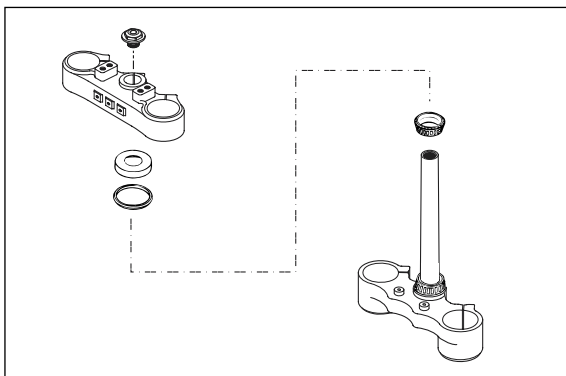


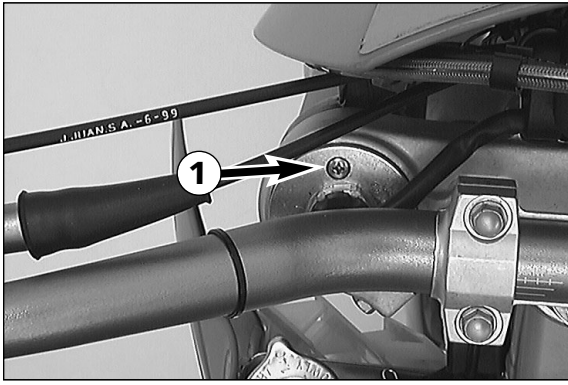
## CAUTION



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 (i.e. Shell Advance Grease).



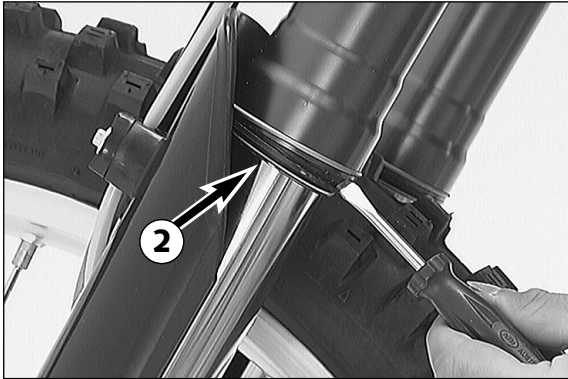


### Breather plug front fork

After every 5 hours of use for competitive racing, slacken the breather plugs ❶ 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 street, it will be enough to have this job performed in the course of the periodical maintenance service.

**! CAUTION !**

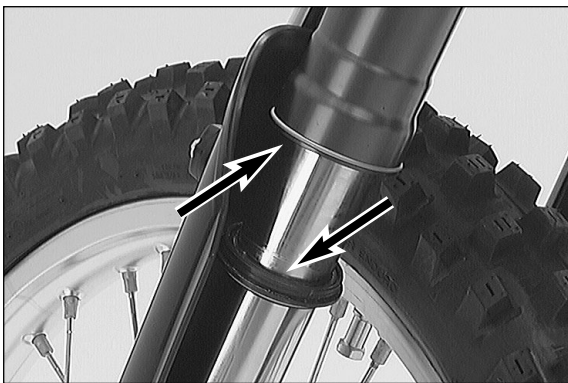
EXCESSIVE PRESSURE IN THE INTERIOR OF THE FORK CAN CAUSE LEAKS IN THE FORK. IF YOUR FORK IS LEAKING, IT IS RECOMMENDED TO OPEN THE BREATHER PLUGS BEFORE HAVING THE SEALS REPLACED.



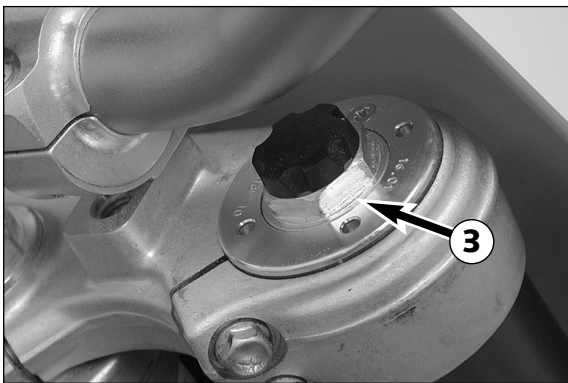
### Cleaning the dust sleeves of the telescopic fork

The dust-protection bellows ❷ 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 lever the dust-protection bellows out of the outer tubes and slide them downward.



Clean dust-protection bellows, outer tubes, and fork tubes thoroughly, and oil them thoroughly with silicone spray or engine oil. Then, push dust-protection bellows into the outer tubes by hand.



### Adjusting the spring preload on the fork (SX)

The spring preload on the SX models can be adjusted (changed) by 10 mm by turning adjusting screw ❸.

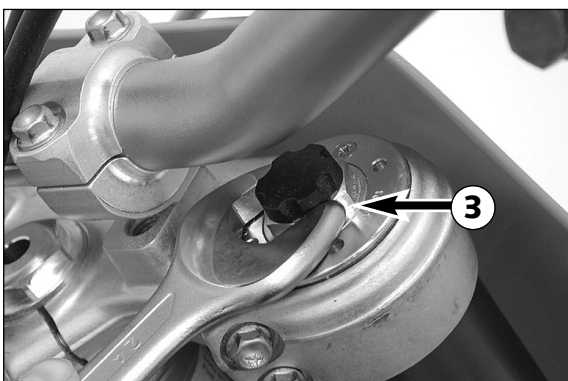
Turning in a clockwise direction will increase the prestress, turning in a counterclockwise direction will decrease the prestress.

Changing the spring preload will not affect the rebound damping adjustment.

Generally, if the spring preload is higher, the rebound damping should also be set higher.

Standard setting:

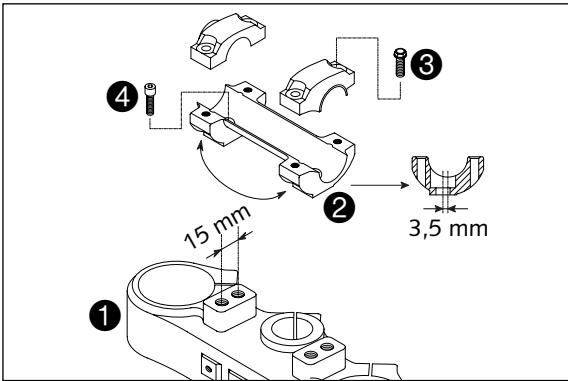
Unscrew the adjusting screw to the limit and then back 2 turns.



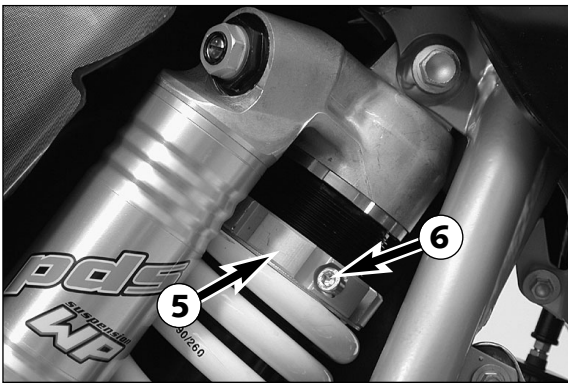


### How to change the handlebar position

The handlebar position can be readjusted by 22 mm. Thus, you can put the handlebar to the position that is the most convenient for you. The upper triple clamp ❶ includes 2 bores arranged at a distance of 15 mm (0,6 in) from one another. The bores at the handlebar support ❷ are offset from the center by 3.5 mm (0,13 in). Accordingly, you can mount the handlebar in 4 different positions.



For this purpose, remove screws ❸ of the handlebar clamps and screws ❹ of the handlebar support. Position handlebar support, and tighten screws ❹ to 40 Nm (30 ft.lb). Mount handlebar and handlebar clamps, and tighten screws ❸ to 20 Nm (15 ft.lb). The gap between handlebar support and handlebar clamps is to be of equal size in the front and in the rear.



### Changing the spring preloading of the shock absorber

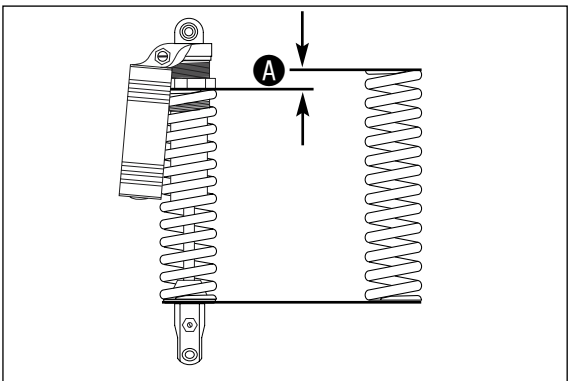
The spring preload can be changed by turning the adjusting ring ❺. For this purpose, you should dismount the shock absorber and clean it thoroughly.

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 ❺ changes the spring pretension by approximately 1,75 mm (0,07 in).

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

After readjusting the clamping screw ❻, tighten it to 8 Nm (6 ft.lb)



#### ADJUSTMENT VALUES - SPRING PRELOAD A

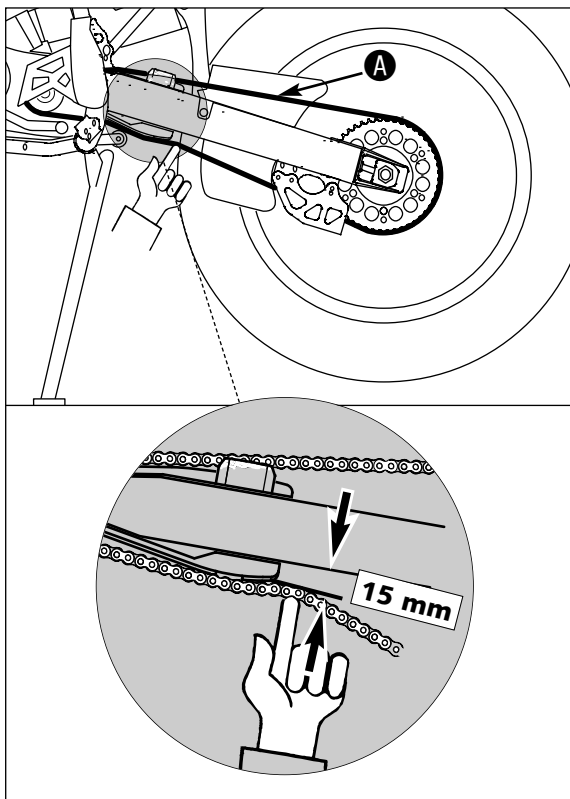
minimum preload . . . . .	4 mm (0,15 in)
STANDARD PRELOAD . . . . .	6 mm (0,24 in)
maximum preload . . . . .	10 mm (0,4 in)



### Pivot bearing

The pivot bearing ❷ 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.



### Check chain tension

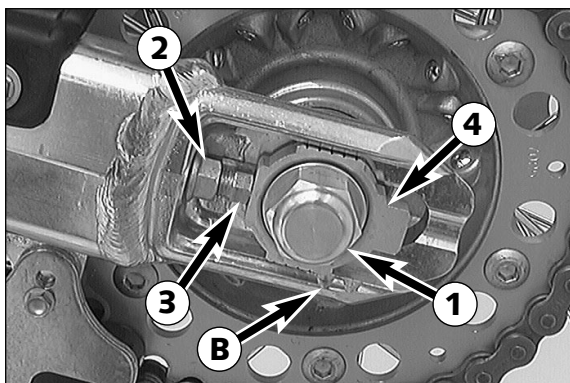
To check the chain tension, park the motorcycle.

Press chain upward at the end of the chain sliding component. The distance between chain and swing arm should be approx. 15 mm (0.6 in). In the course of this procedure, the upper chain portion **A** must be taut (see illustration).

If necessary, correct 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

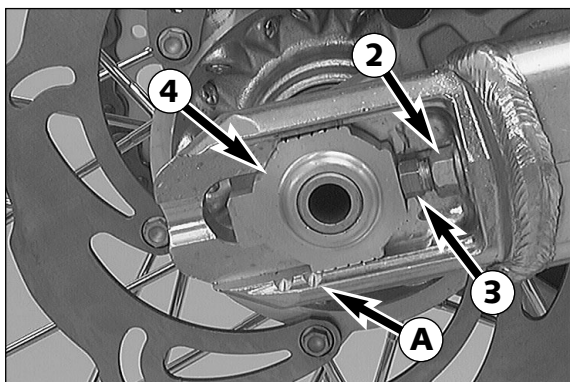
Loosen collar nut **1**, loosen lock nuts **2**, and turn right and left adjusting screws **3** equally far. Tighten lock nuts.

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.

Tighten collar nut **1** to 80 Nm (60 ft.lb).

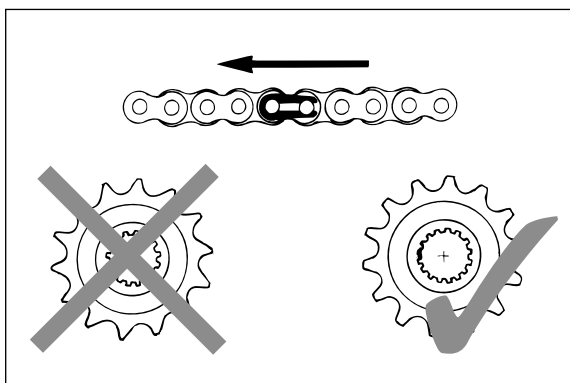
⚠ **WARNING** ⚠

- 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 around 180°.



### Chain maintenance

For long chain life, good maintenance is very important. Chains without O-rings should be cleaned in fireproof solvent regularly and afterwards treated with hot grease or chain spray (i.e. Shell Advance Bio Chain).

O-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 O-ring chain spray (i.e. Shell Advance Bio Chain).

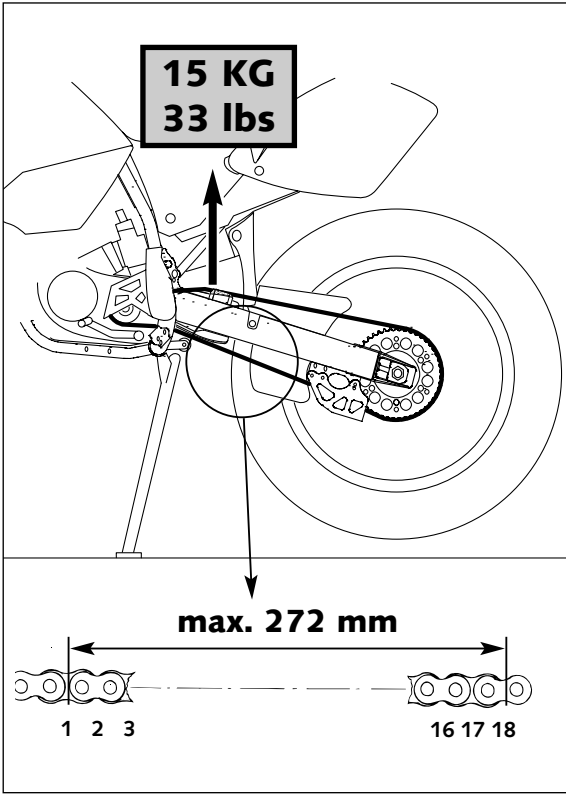
⚠ **WARNING** ⚠

NO LUBRICATION IS ALLOWED TO REACH THE REAR TIRE OR THE BRAKE DISKS, EITHERWISE 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**

In order to check the chain wear, regard the following indications: Shift the gear into idling and pull the upper chain strand with approx. 10-15 Kilogramm (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 (25 FT.LB)

TIGHTENING TORQUE FOR SCREWS: 50 Nm (37 FT.LB)

**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 (19 ft.lb).

**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 lifecycle. The lining type is stated on the back of the brake pad and also recorded in the homologation papers.

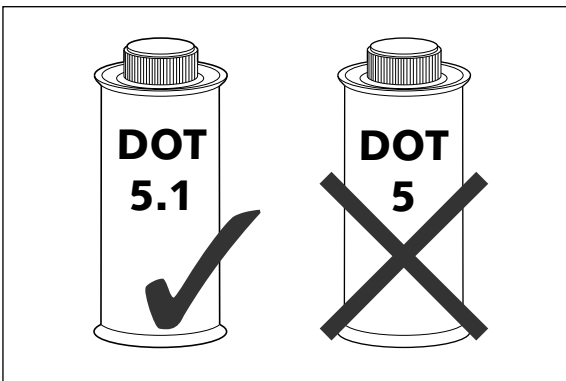
Other brake pads are available for competition sports.

**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:** FERRIT 222 (ORGANIC) – can be dosed better, short life cycle, for dry terrain.

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

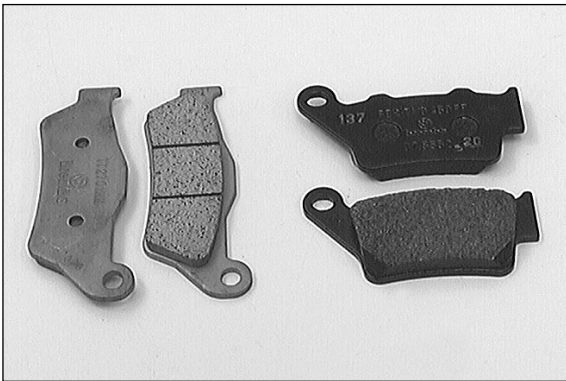


**BRAKE DISCS:**

Due to wear, the thickness of the brake disc in the area of the contact face ❶ of the brake pads decreases. At their thinnest point ❷, the brake discs must not be more than 0.40 mm (0,016 in) thinner than the pad's nominal thickness. Measure the nominal thickness in a location ❸ outside the contact face. Check wear in several locations.

**⚠ 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 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.

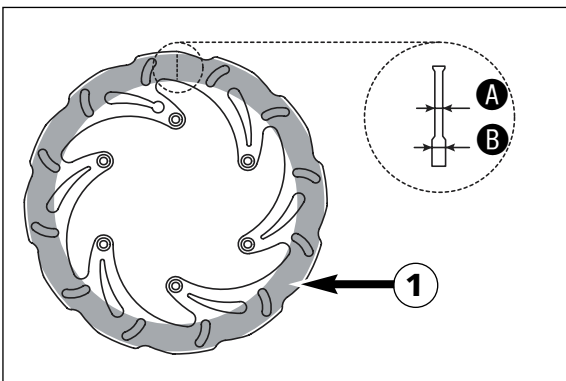
**BRAKE FLUID:**

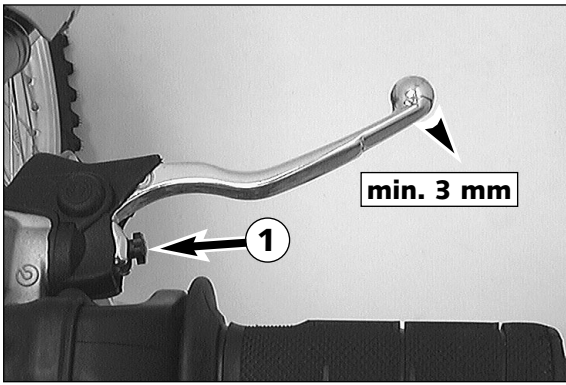
KTM fills the brake systems with SHELL ADVANCE BRAKE DOT 5.1 brake fluid, one of the best brake fluids that is currently available. We recommend that you continue to use it. DOT 5.1 brake fluid is based on glycol ether and of an amber color. If you do not have any DOT 5.1 for refilling, you may use DOT 4 brake fluid. However, you should replace it as soon as possible by 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.



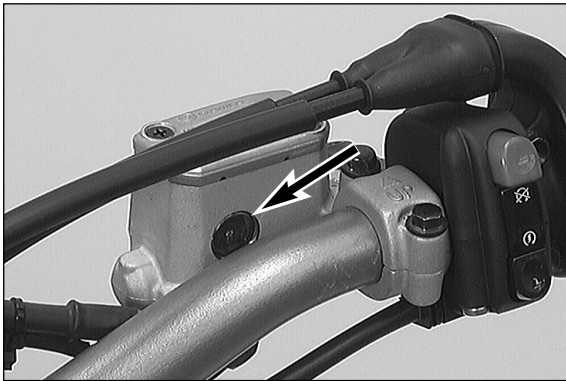


### Adjusting of free travel at the hand brake lever

Free travel at the hand brake lever may be readjusted by using adjustment screw ❶. 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.

**! 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.

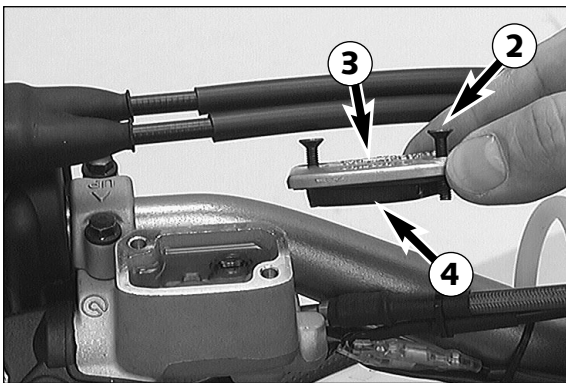


### Checking of brake fluid level - front brake

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 \*

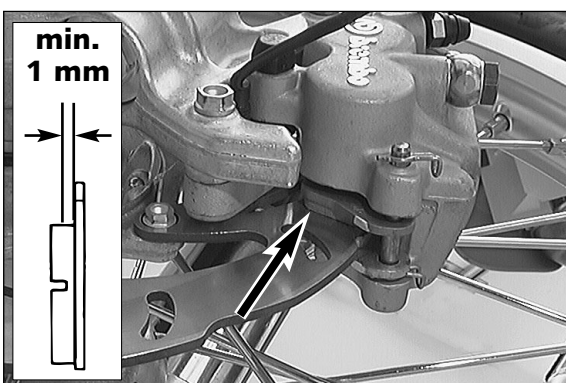
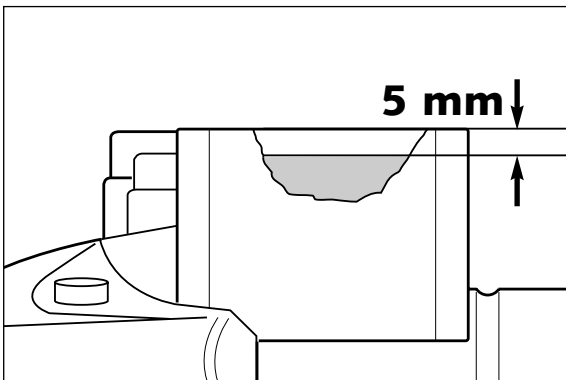
Loosen screws ❷ and remove lid ❸ and membrane ❹. Place hand brake cylinder in a horizontal position and fill the brake fluid reservoir to 5 mm (0.2 in) below the rim with clean brake fluid DOT 5.1 (i.e. Shell Advance Brake DOT 5.1). Replace membrane and lid, tighten screws. Rinse off spilled or overflowing 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

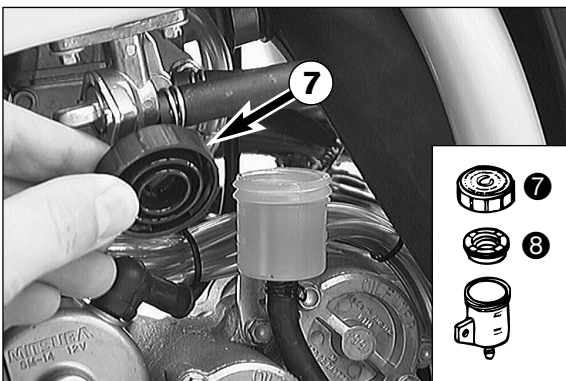
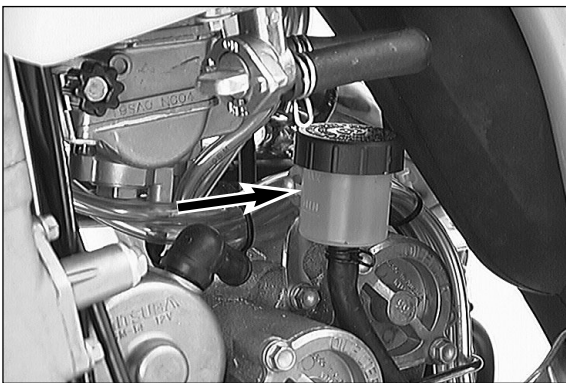
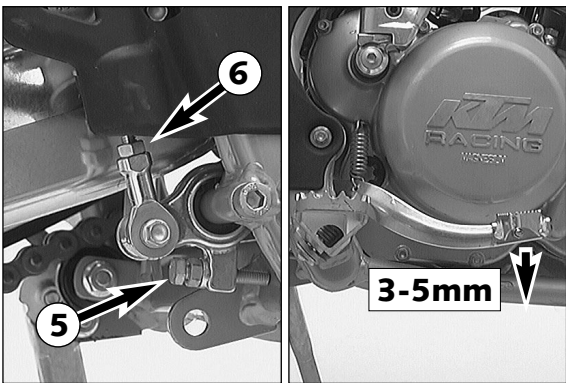
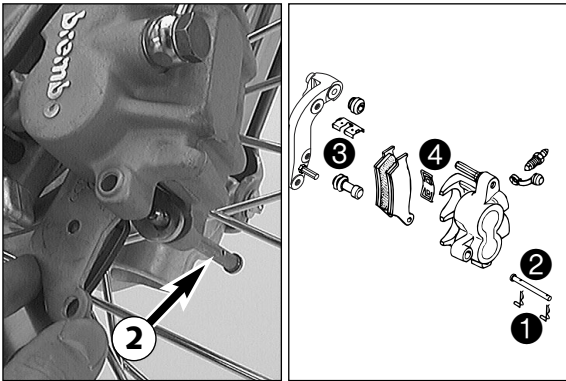
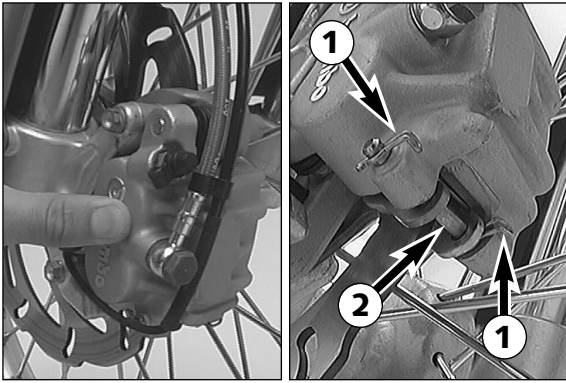
The brake pads can be inspected from below. The linings must be at least 1 mm (0.04 in) thick.

**⚠ 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 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.
- HAVING PERFORMED ANY WORK ON THE BRAKING SYSTEM, ONE MUST ALWAYS ACTUATE THE HAND BRAKE LEVER OR FOOT BRAKE LEVER, RESPECTIVELY SO AS 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).

! **CAUTION** !

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 rear brake fluid level

The reservoir for the rear disc brake is disposed on the engine in the vicinity of the oil filters. The brake fluid level must not drop below the „MIN” marking when the vehicle is in an upright 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 \*

When the brake fluid level has dropped to the MIN mark, you need to refill the brake fluid reservoir.

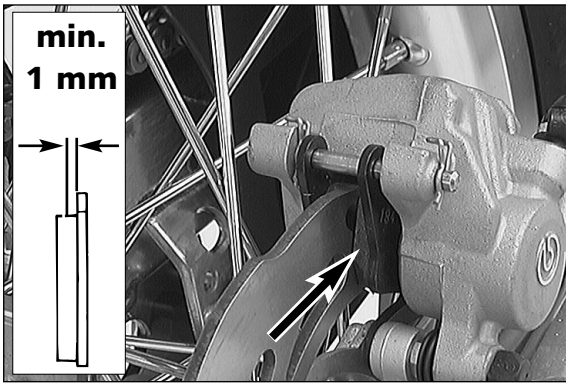
This is done by first unscrewing the cap ⑦ and rubber bellows ⑧. Add brake fluid DOT 5.1 (Shell Advance Brake DOT 5.1) until it reaches the MAX mark, then screw rubber bellows and cap back on. Rinse off spilled or overflowing brake fluid with water.

⚠ **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 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



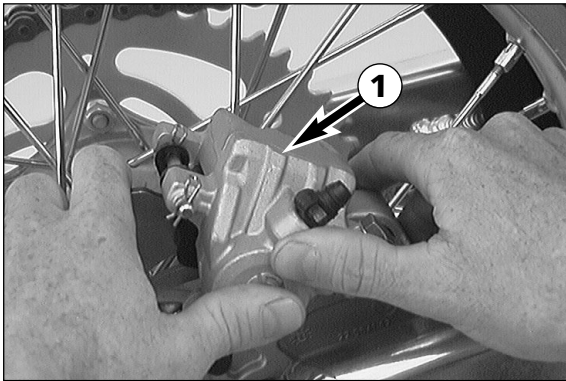
AT THEIR MOST WORN POINT BRAKE PAD LININGS SHOULD NOT BE THINNER THAN 1 MM, OTHERWISE THEY COULD LEAD TO BRAKE FAILURE. FOR YOUR OWN SAFETY DON'T PUT OFF HAVING YOUR BRAKE PADS CHANGED.



### 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 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.

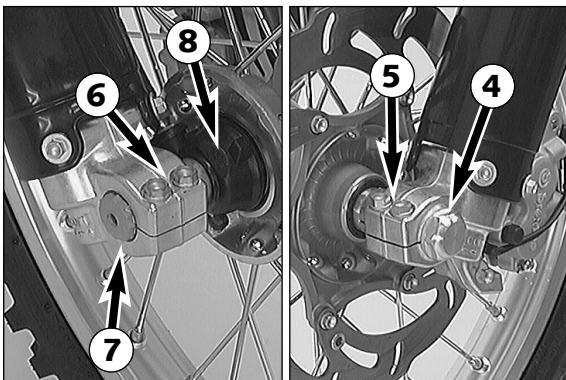
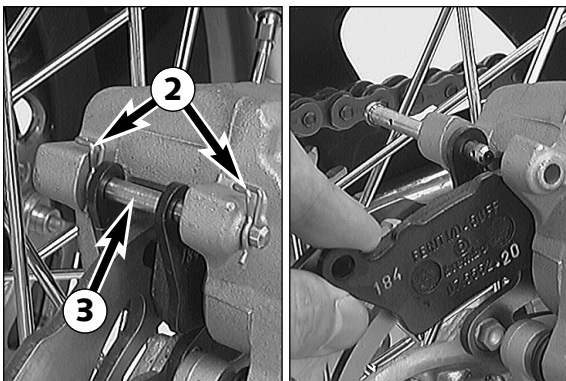
Insert the left brake pad into the brake caliper and secure it with the bolt. Insert the right brake pad and push the bolt **3** into the brake caliper up to the stop. Reattach clips **2**.



### 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.
- HAVING PERFORMED ANY WORK ON THE BRAKING SYSTEM, ONE MUST ALWAYS ACTUATE THE HAND BRAKE LEVER OR FOOT BRAKE LEVER, RESPECTIVELY SO AS 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 **5** on the left side of the fork fists.

Loosen and remove the collar nut **4**, loosen the clamping screws **6** on the right side **6** 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 span-ner (SW 21 mm) or a hexagon socket screw key (6 mm). Remove front wheel carefully from the fork and take the speedometer drive **8** off the hub.

NOTE: Models with a digital speedometer have a distance bushing instead of the speedometer drive.



### CAUTION

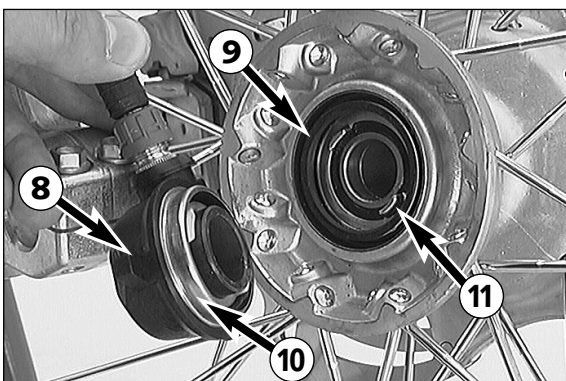


- DO NOT OPERATE THE HAND BRAKE WHEN THE FRONT WHEEL HAS BEEN DISMOUNTED.
- MAKE SURE THE BRAKE DISC IS ALWAYS ON TOP WHEN YOU LAY DOWN THE WHEEL, OTHERWISE THE BRAKE DISC CAN BE DAMAGED.

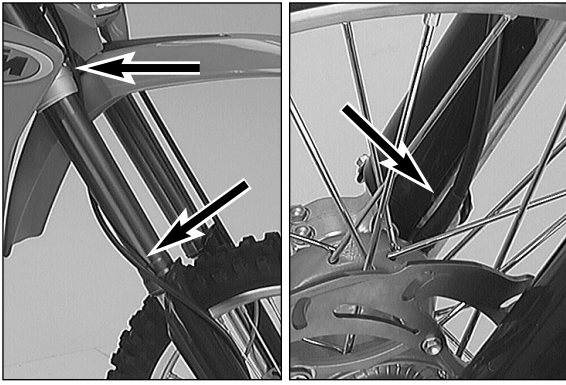
Prior to mounting the front wheel, clean and grease sealing ring **9** and running surface **10** at the speedometer drive.

Lift front wheel into fork, and insert speedometer drive or distance sleeve into hub. Make sure that the driving tabs **11** engage with the slot of the drive.

Position front wheel and speedometer drive or distance sleeve and mount wheel spindle.



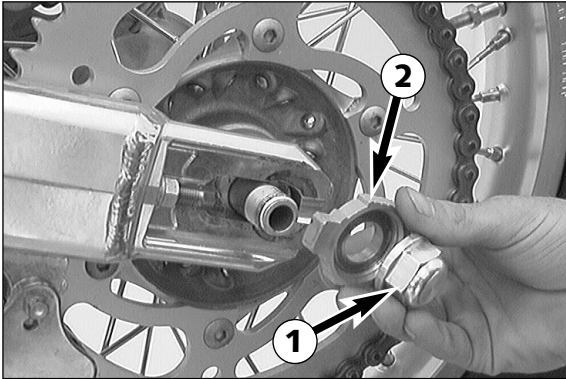




The speedometer shaft must be placed as running along the outside of the fork guard and pas the triple clamp toward the speedometer. Mount the collar nut ④, turn the speedometer drive such that the speedometer shaft leads upward parallel to the fork leg (see photo), tighten the clamping screws on the right side ⑤ to prevent the wheel spindle from turning and tighten the collar nut to 40 Nm (30 ft.lb). Loosen the clamping screws ⑥ on the right side, Take the motorcycle off the stand and bounce the fork hard a few times to align the fork legs. Then tighten clamping screws ⑤ and ⑥ to a max. torque of 10 Nm (7 ft.lb).

⚠ **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 EFFECTS WOULD BE STRONGLY REDUCED.

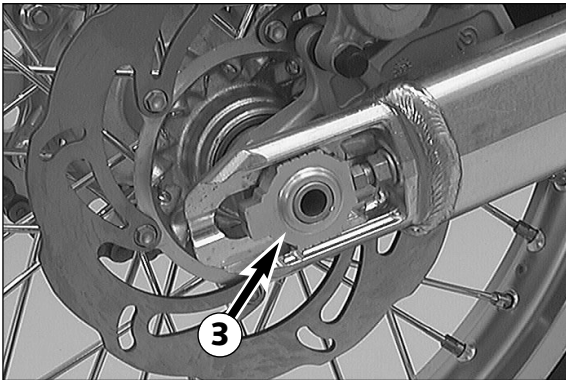


### Dismounting and mounting the rear wheel

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.

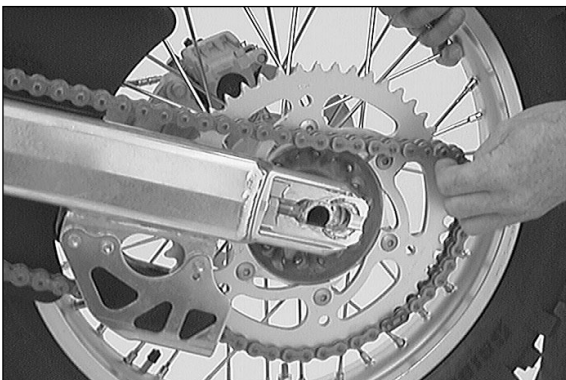


! **CAUTION** !

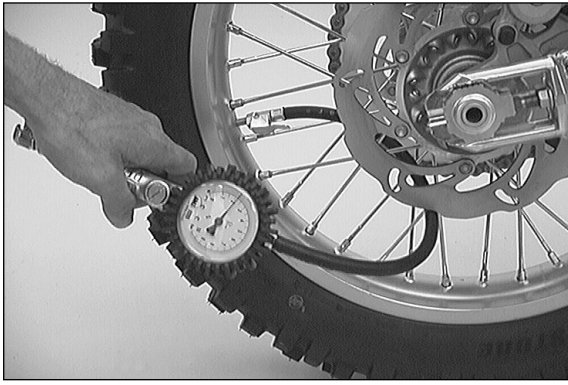
- DO NOT OPERATE THE REAR BRAKE WHEN THE REAR WHEEL HAS BEEN DISMOUNTED.
- MAKE SURE THE BRAKE DISK IS ALWAYS ON TOP WHEN YOU LAY DOWN THE WHEEL, OTHERWISE THE BRAKE DISK CAN BE DAMAGED.
- IF THE AXLE IS DISMOUNTED, CLEAN THE THREAD OF THE WHEEL SPINDLE AND COLLAR NUT THOROUGHLY AND APPLY A NEW COAT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

The rear wheel is remounted in reverse order. Before tightening the collar nut to 80 Nm (60 ft.lb), 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, OTHERWISE 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.



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

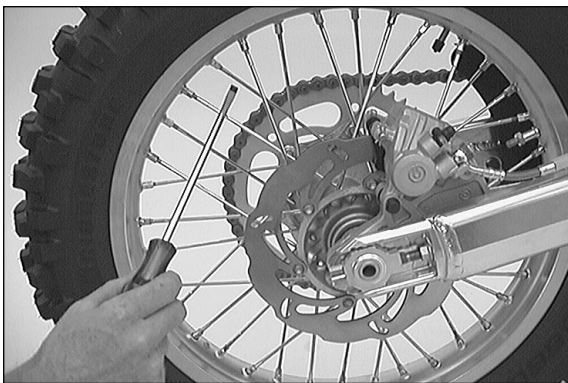
### Tires, air pressure

Tire type, tire condition, and air pressure level affect the way your motorcycle rides, and they 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 their 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.

⚠ **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.

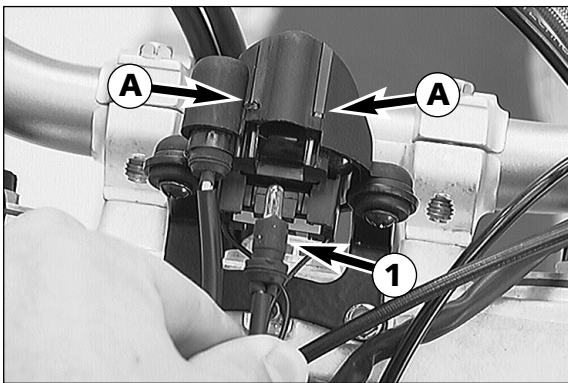


### Checking spoke tension

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, in 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** ⚠

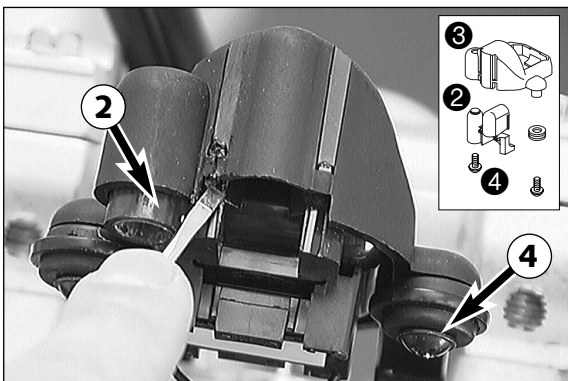
- SPOKES CAN TEAR IF YOU CONTINUE TO RIDE WITH THEM LOOSE. THIS MAY LEAD TO AN UNSTABLE HANDLING OF YOUR MOTORCYCLE.
- EXCESSIVELY TENSIONED SPOKES MAY RUPTURE DUE TO LOCAL OVERLOADING. THE SPOKES MUST BE TENSIONED TO 5-7 NM.



### Replacing the battery of the digital speedometer

After approx. 2 years, the battery of the digital speedometer will be empty and must be replaced. For this purpose, the speedometer must be dismounted.

Remove headlight mask, and pull speedometer illumination system ❶ out of the speedometer housing.



Use a screwdriver to lever the blue speedometer glass ❷ downward and out of the speedometer housing ❸. The two noses ❹ must be disengaged from the speedometer housing. Remove screws ❹, and take speedometer out of housing.

Before you remove the battery, do not forget to write down the following data:

- total kilometer reading (DST)
- wheel circumference (WS) (KTM standard tires = 2205 mm)

Remove the battery cover on the back of the speedometer and detach the batteries. The new batteries must be inserted with the plus pole on top. Make sure that the seal ring has the right position on the cover when mounting the battery cover.

Now total mileage, wheel circumference and time have to be entered.

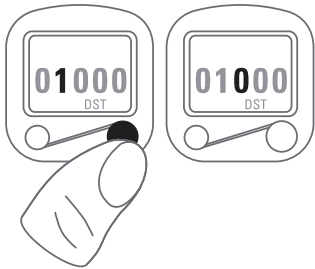
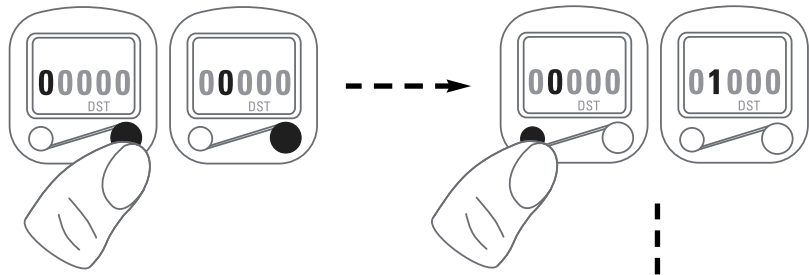
To mount the speedometer, proceed by following the reverse order of the above procedure.

## TOTAL MILEAGE „DST“

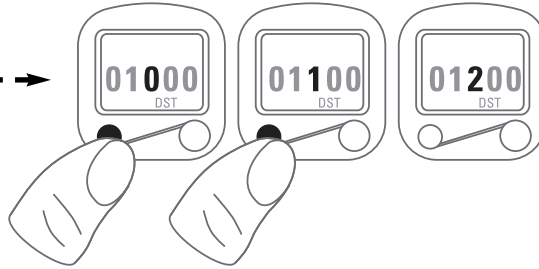
AFTER CHANGING BATTERY

1. use the right button to select the position to be changed

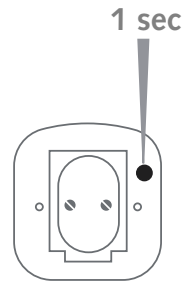
2. push the left button until the right figure is showed in the display



3. by pushing the right button you jump to the next figure



4. repeat nos. 2 + 3 until the previously noted total mileage is indicated



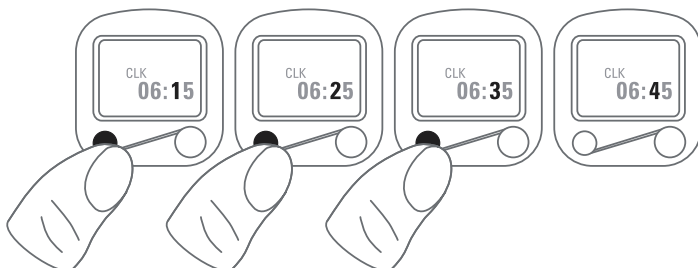
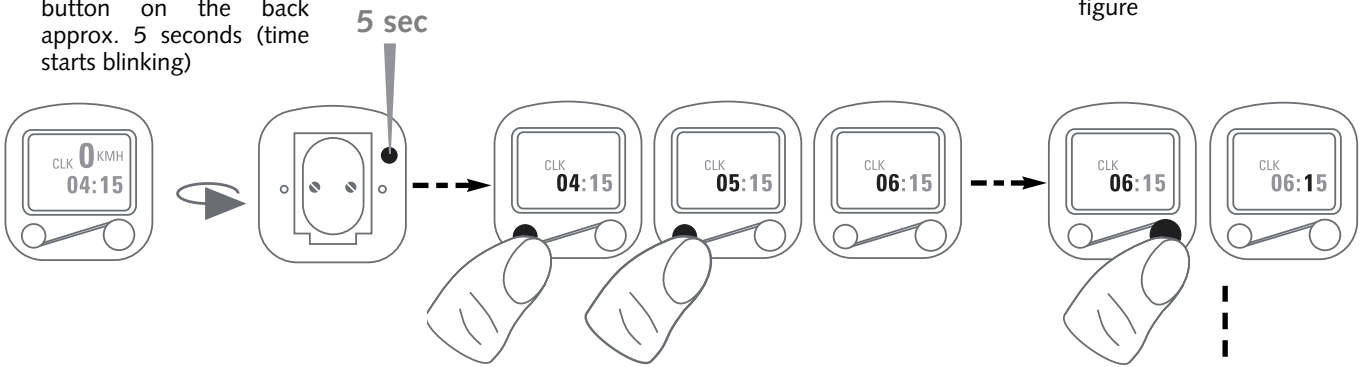
5. push the button on the back with a sharp object approx. 1 second to terminate the setting procedure (the value is thus stored)

## TIME „CLK“

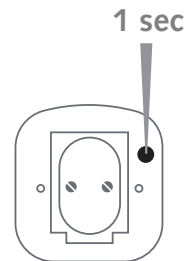
1. make sure the time is indicated and push the button on the back approx. 5 seconds (time starts blinking)

2. push the left button until the right figure is showed in the display

3. by pushing the right button you jump to the next figure



4. repeat nos. 2 + 3 until correct time is indicated



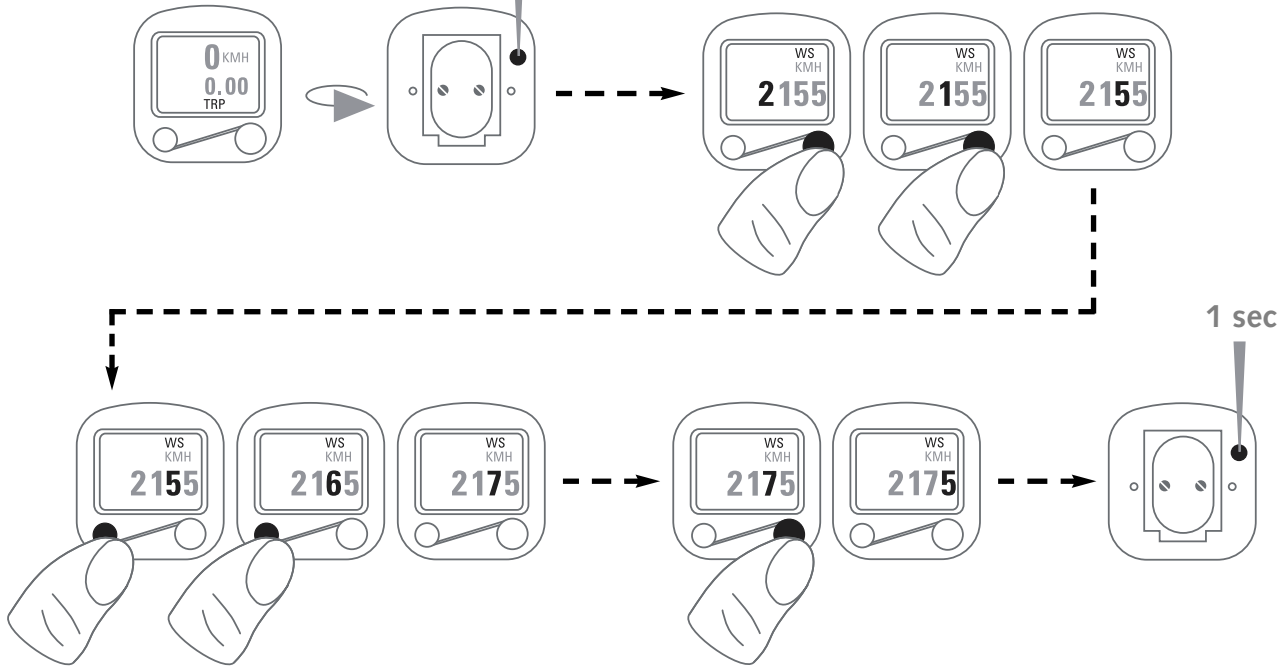
5. push the button on the back approx. 1 second to terminate the setting procedure

## WHEEL CIRCUMFERENCE „WS“

1. make sure that the indication "TRP" is active and push the button on the back approx. 5 seconds ("WS" appears)

5 sec

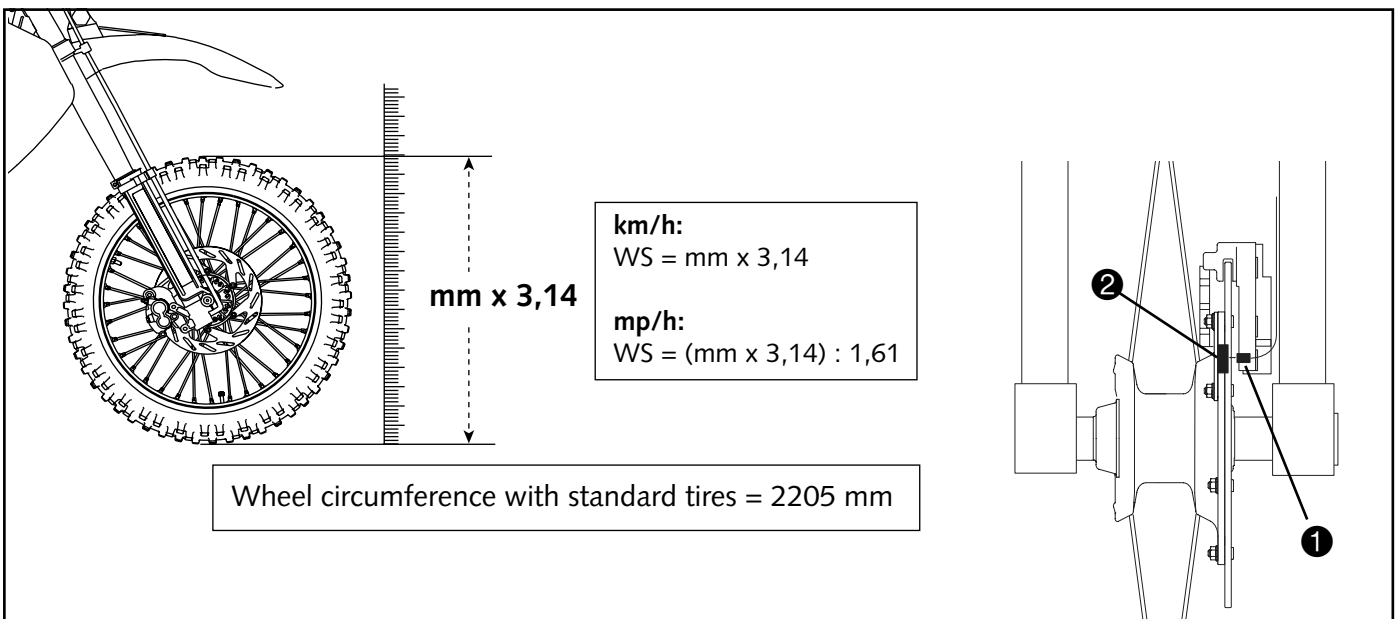
2. use the right button to select the position to be changed



3. push the left button until the right figure is showed in the display

4. repeat nos. 2 + 3 until correct wheel circumference is indicated

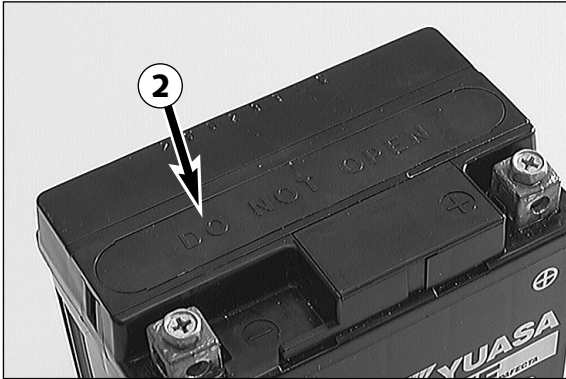
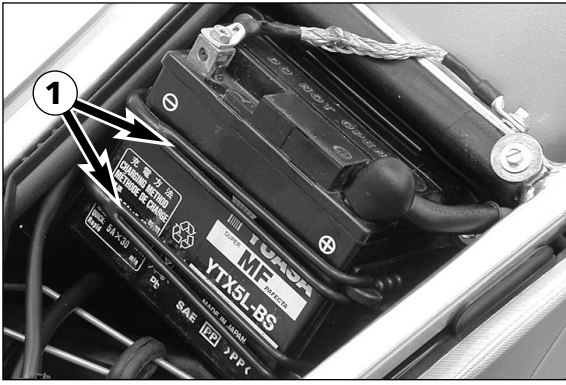
5. push the button on the back for approx. 1 second to terminate the setting procedure



### 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.



### 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 filter box cover and unhitch both rubber bands ❶.

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.
- DEFECT BATTERIES MUST BE STORED OUT OF THE REACH OF CHILDREN. ENSURE PROPER DISPOSAL OF DISCARDED BATTERIES.



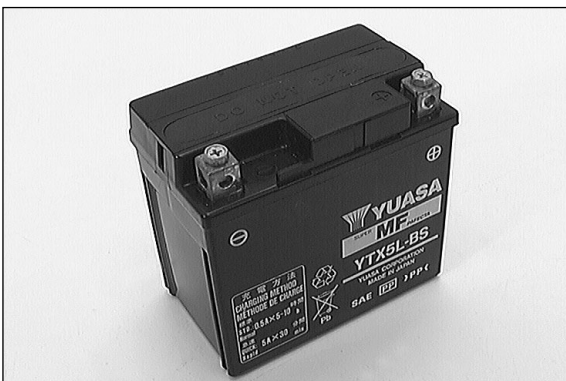
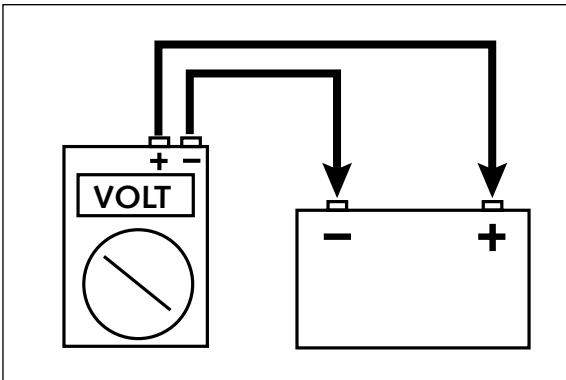
#### CAUTION



- TO AVOID DAMAGE, DO NOT REMOVE THE LOCKING BAR ❷ !
- 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 sun radiation.



### 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 0,5 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	

ged nor discharged during a period of 30 minutes preceding the measuring.

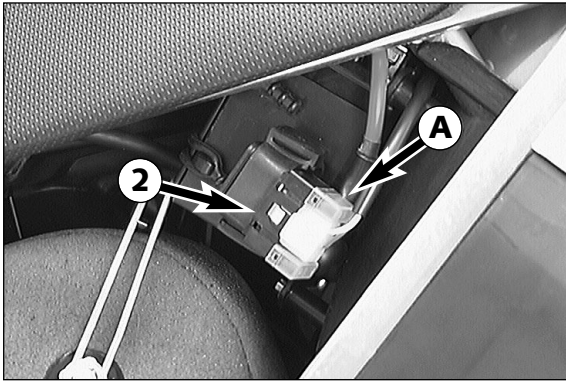
If the battery is empty, it can be recharged for a maximum period of 10 hours at 0.5 A and a maximum of 14.4 V.



#### 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 ENSURE 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.



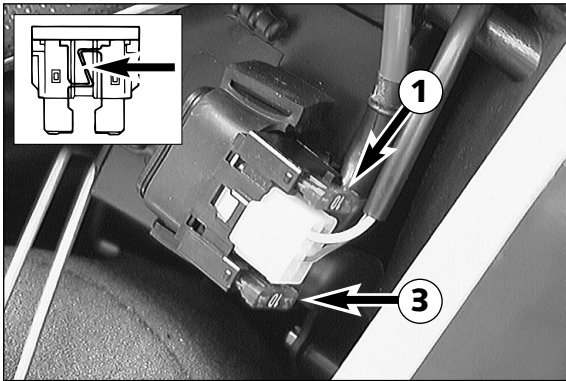
### Fuse (MXC/EXC)

The fuse ① is disposed 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 ④, you will be able to see the fuse.

The following loads are connected to it:

- E-starter system
- horn
- flasher lights



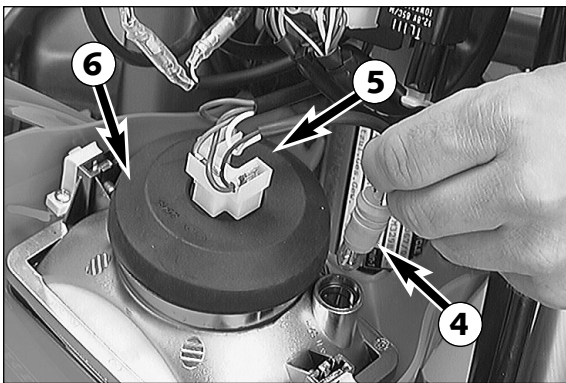
The starter relay also contains a (10 amp) spare fuse ③.

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

The fuse capacity is 10 Ampere.

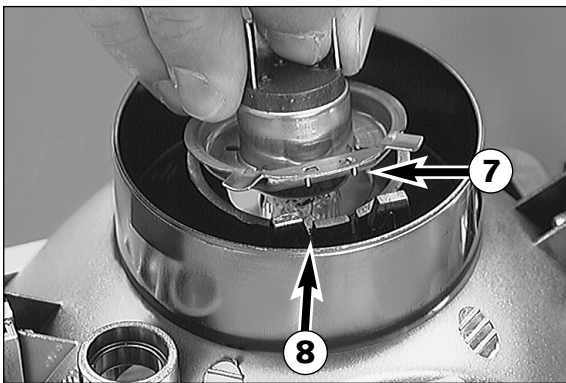
### ! CAUTION !

UNDER NO CIRCUMSTANCES IS A STRONGER FUSE ALLOWED TO BE SET IN OR A FUSE ALLOWED TO BE "REPAIRED". AN INEXPERT TREATMENT COULD DAMAGE THE WHOLE ELECTRICAL INSTALLATION!



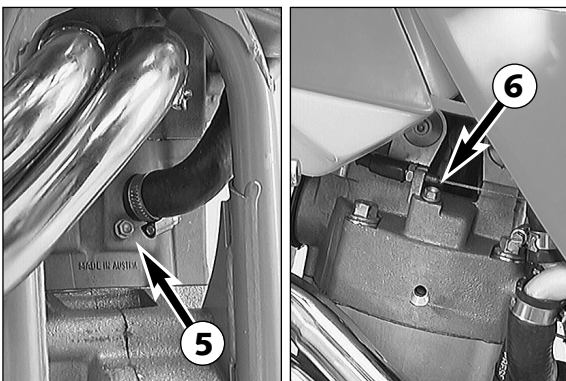
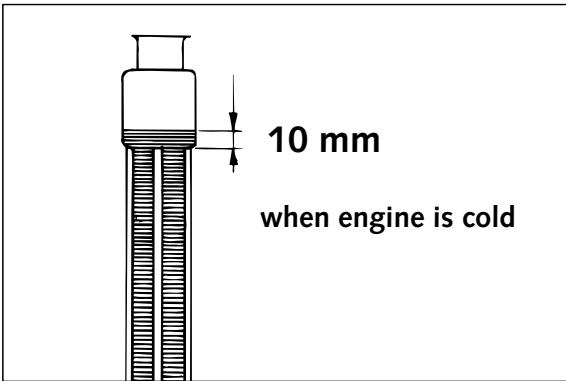
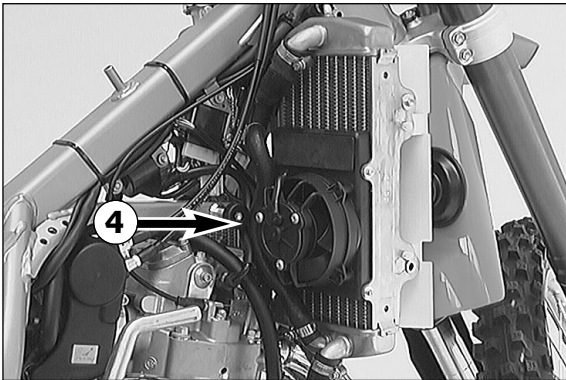
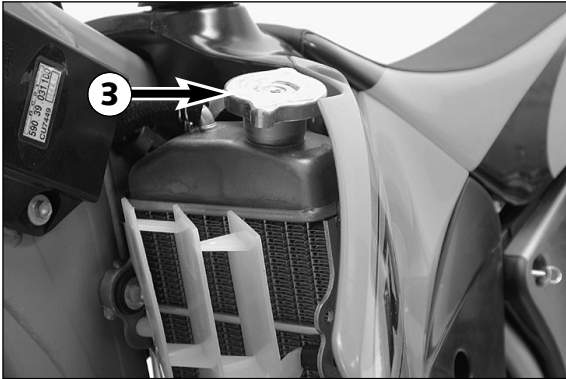
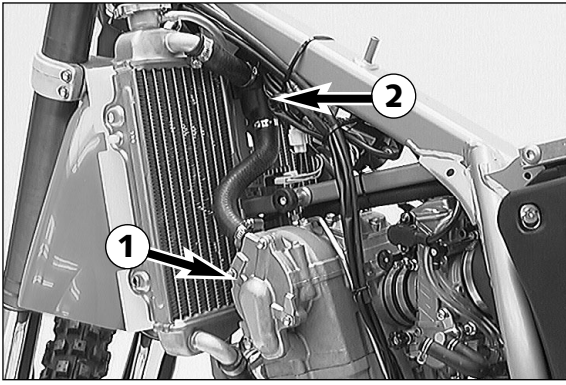
### Replacing headlight lamp/parking light lamp

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.



Insert new lamp such that the noses ⑦ engage the recesses ⑧. When doing so, do not touch the glass body of the lamp so that it remains free from fat. Engage retaining clip, mount rubber cap and connector. If the parking-light lamp is to be replaced, simply insert it into the holder. Reinsert parking-light lamp together with holder.

Engage the bottom end of headlamp mask at the retaining pins and fix the mask by means of the rubber bands.



### Cooling system

Coolant is circulated by a water pump ① located in the engine. When the engine is cold the coolant circulates only 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 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 BURNED, 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, GO SEE A DOCTOR IMMEDIATELY!
- IF COOLANT GETS INTO YOUR EYES, RINSE THEM OUT WITH WATER IMMEDIATELY AND GO SEE A DOCTOR!

A mixture of 40% anti freeze liquid and 60% water is used as coolant. However, the anti-freeze protection must be at least -25° C (-13° F). This mixture offers anti-freeze protection but also good corrosion protection and should therefore not be replaced by pure water.



#### CAUTION



- IF THE COOLANT HAS BEEN DRAINED, IT WILL BE ABSOLUTELY NECESSARY TO BLEED THE COOLING SYSTEM DURING FILLING (SEE BELOW).
- FOR THE COOLING SYSTEM, USE ONLY WITH HIGH-GRADE ANTIFREEZE (I.E. SHELL ADVANCE COOLANT). USING LOWER-GRADE ANTIFREEZE AGENTS, CAN CAUSE CORROSION AND COOLANT FOAMING.
- EXTREM CLIMATE CONDITIONS OR STOP AND GO TRAFFIC MAY CAUSE OVERHEATING PROBLEMS. TO AVOID THIS AN ELECTRIC BLOWER ④ IS OFFERED FOR MODELLS WITH ELECTRIC STARTERS (ASK YOUR KTM DEALER ABOUT IT)

### Checking the coolant level

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



#### WARNING



- IF POSSIBLE, ALWAYS CHECK LEVEL OF COOLING LIQUID WHEN 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 !**
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#### CAUTION



IF THE COOLANT HAS BEEN DRAINED, IT WILL BE ABSOLUTELY NECESSARY TO BLEED THE COOLING SYSTEM DURING FILLING (SEE BELOW).

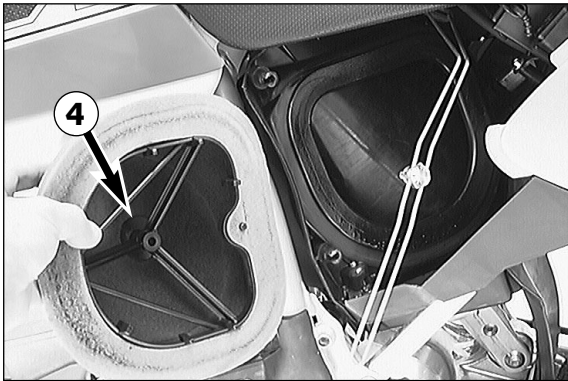
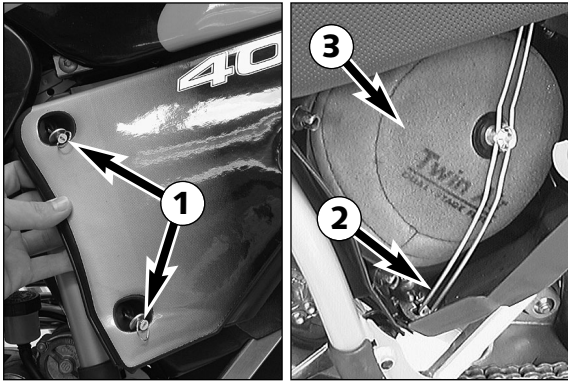
### Bleeding the cooling system

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.



### Cleaning the air filter \*

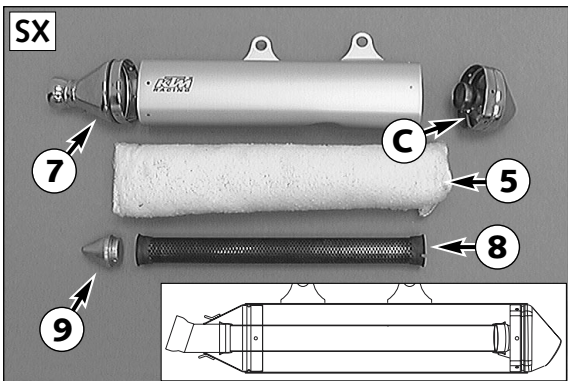
A dirty air filter impairs the air-flow rate, reduces the engine performance, and increases the fuel consumption. In extreme cases, dirt may even get into the engine and cause damage. Therefore, change the air filter in regular intervals.

For this purpose, rotate the two quick-release fasteners ① counter-clockwise and pull them outward up to the stop, pull the filter box cover forward and remove it. Unhook the filter holding brackets ② at the bottom, swing them sideways and take the air filter ③ together with the filter support ④ out of the filter box.

#### ! CAUTION !

- DO NOT CLEAN AIR FILTER WITH FUEL OR PETROLEUM SINCE THESE WILL DAMAGE THE FOAM. KTM RECOMMENDS THE PRODUCTS MADE BY „TWINAIR“ FOR AIR FILTER MAINTENANCE FOR CLEANING PURPOSES AND TO OIL THE AIR FILTER.
- NEVER START YOUR MOTORCYCLE WITHOUT ANY AIR FILTERS. OTHERWISE, DUST AND DIRT MAY PENETRATE AND CAUSE DAMAGE AND INCREASED WEAR.

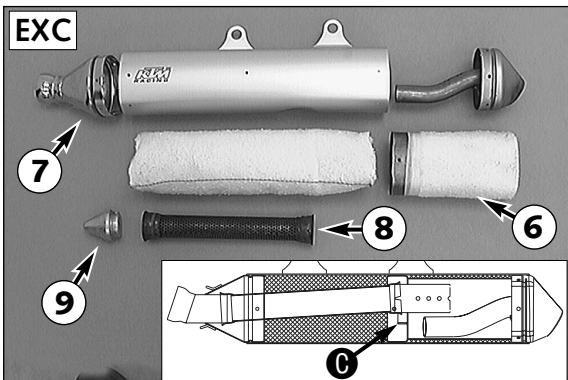
Thoroughly wash the air filter in special cleaning fluid and allow it to dry well. Only press out the filter, do not wring it out under any circumstances. Oil the dry air filter with a high-grade filter oil. Also clean the air filter box. Check carburetor collar for damage and that it is filled correctly. Mount the air filter on the filter support. Mount the filter together with the filter support in the filter box, making sure to properly center them, and fix them with the filter holding bracket.



### Replacing the glass fiber yarn packing of the silencer \*

Aluminum silencers are filled with glass fiber yarn to muffle noise. The effect of heat causes the glass fiber yarn to become loose. This may lead to a loss of performance and reduce the silencer's muffling power. By experience, the front glass fiber yarn packing ⑤ needs to be replaced more often than the rear silencing mat ⑥.

For this purpose, remove the silencer from the vehicle and dismount the front cap ⑦. Pull the front glass fiber yarn packing together with the inner exhaust pipe ⑧ out of the silencer. Clean the front inner exhaust pipe. To facilitate the mounting procedure, you can make a mounting tool ⑨ out of wood, plastic, or metal. Insert the mounting tool into the inner pipe and mount the glass fiber yarn packing. Push the inner pipe containing the packing into the silencer such that the slot engages the web ⑩. Use a blunt ended object to stuff the glass fiber yarn packing all the way into the silencer, and mount the front cap.



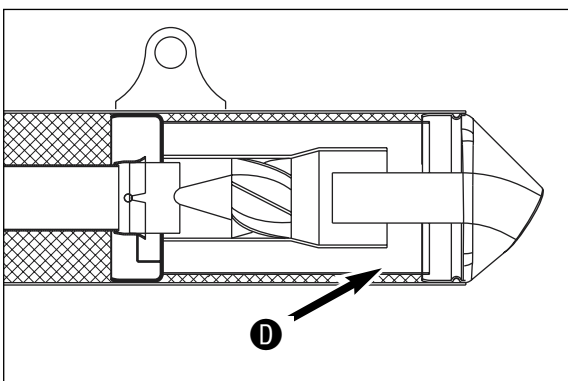
To change the rear silencing mat, start by removing the front packing and the inner exhaust pipe. Then, drill open the rivets and remove the end cap.

#### NOTE!

In every exhaust repair procedure, the O-rings must be replaced by new ones. Glass fiber yarn packings are available at 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.

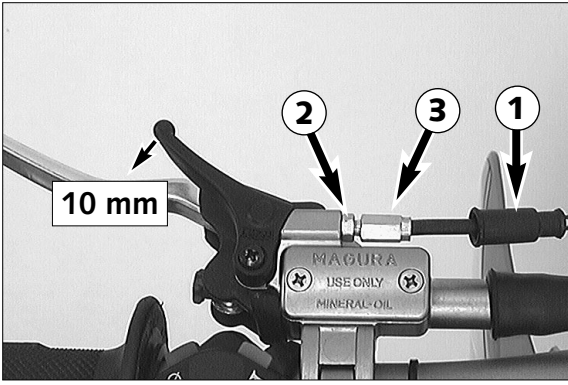


### Cleaning the spark arrester (MXC/EXC USA) \*

The spark arrester should be cleaned every time the glass fiber 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 ⑩. Renew the O-ring and mount the silencer cap.





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

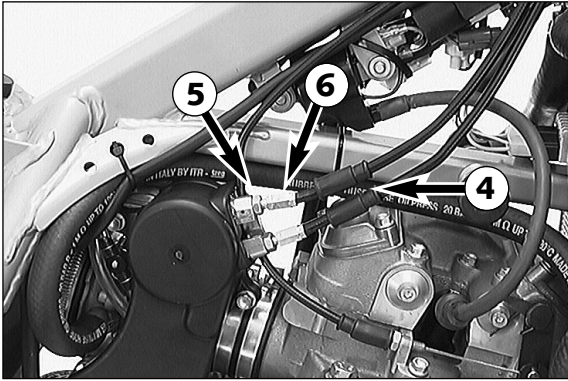
Start the engine and, at idling speed, slowly pull the hand decompression lever until you can feel the thumping of the rocker arm on the lever. The backlash until said thumping should be approx. 10mm, measured at the lever's outer end. If necessary, correct this backlash.

To adjust move back the protective cover **1**, loosen the counter nut **2** and correct the adjustment screw **3** accordingly. Tighten counter nut and push back protective cover.

**! CAUTION !**

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.

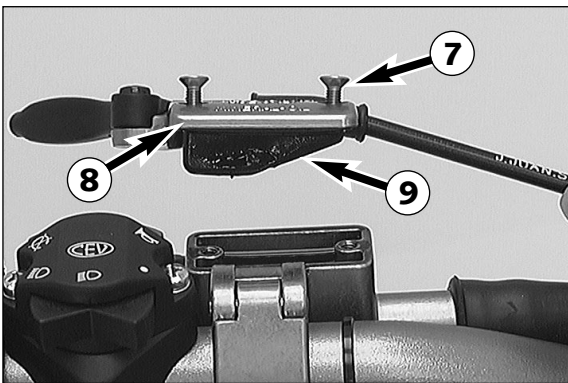


### Adjusting the throttle cables \*

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 **4**. Loosen the counter nut **5** and turn the adjusting screw **6** accordingly. Turning the adjusting screw counterclockwise will reduce the backlash, turning the adjusting screw clockwise will increase the backlash.

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



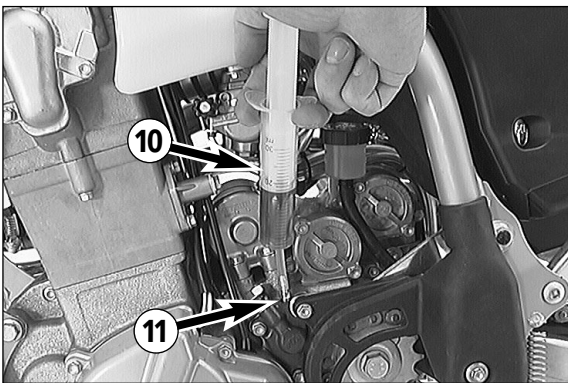
### Checking the oil level of the hydraulic clutch

To check the oil level in the master cylinder of the clutch remove the cover. For this purpose, remove screws **7** and cover **8** together with the rubber boot **9**. 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. Shell Naturelle HF-E15). Biodegradable hydraulic oil is available from your KTM dealer (50ml).

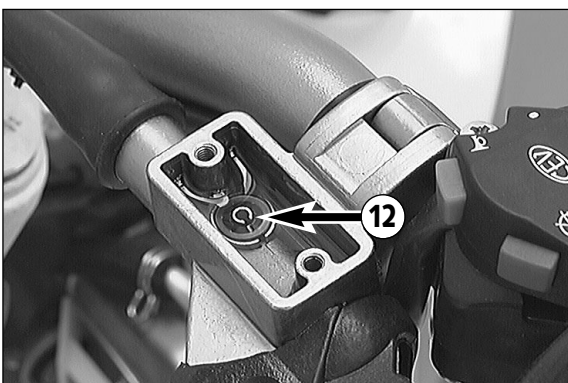
**! CAUTION !**

KTM USES BIODEGRADABLE HYDRAULIC OIL FOR THE HYDRAULIC CLUTCH CONTROL. NEVER MIX BIODEGRADABLE HYDRAULIC OILS WITH MINERAL OILS. ALWAYS USE BIODEGRADABLE HYDRAULIC OIL SAE 10 TO FILL UP THE MASTER CYLINDER. NEVER REFILL WITH MINERAL HYDRAULIC OIL OR BRAKE FLUID.



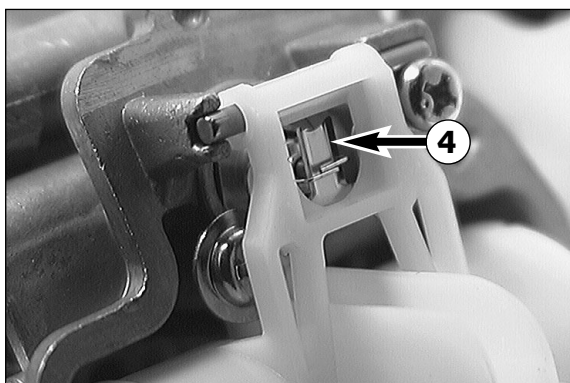
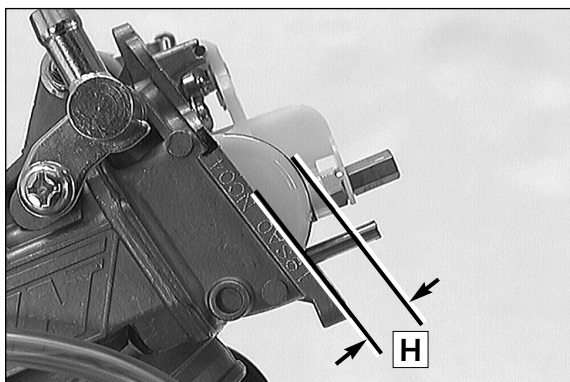
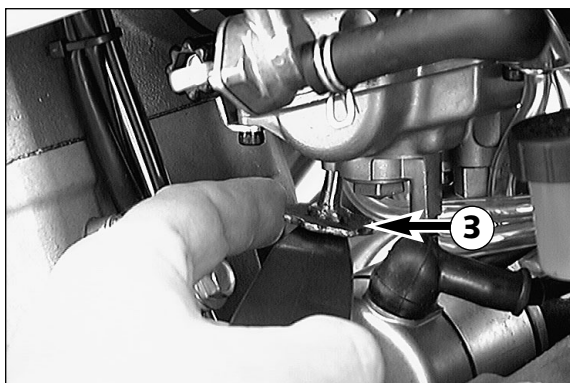
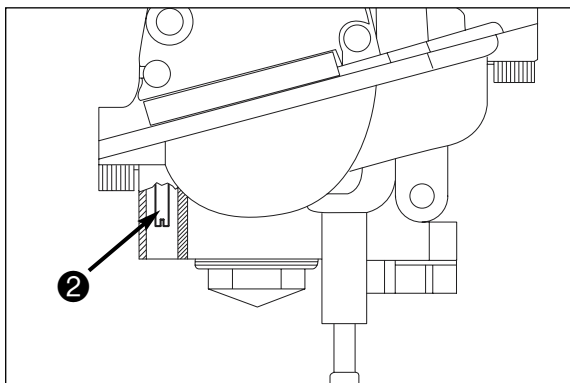
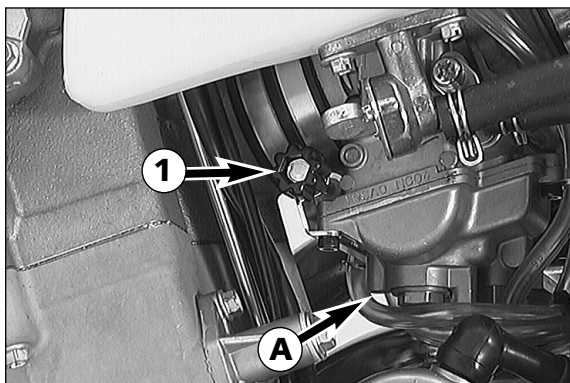
### Bleeding of the hydraulic clutch

For bleeding, the cover of the master cylinder of the clutch needs to be removed. For this purpose, remove screws **7** and take off cover **8** together with rubber bellows **9**. At the slave cylinder of the clutch, remove the bleeder nipple **11**. At its place, mount the bleeder syringe **10** which is filled with SAE 10 hydraulic oil. Refill oil, until oil is discharged from the bore **12** of the master cylinder in a bubble-free state. Make sure that the oil does not overflow. The bleeder syringe can be purchased at your KTM dealer. Having completed the bleeding procedure, you have to verify that the oil level in the master cylinder is correct. If necessary, fill up with biodegradable hydraulic oil SAE 10 (e.g. Shell Naturelle HF-E15). 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. ALWAYS USE BIODEGRADABLE HYDRAULIC OIL SAE 10 TO FILL UP THE MASTER CYLINDER. NEVER REFILL WITH MINERAL HYDRAULIC OIL OR BRAKE FLUID.



## CARBURETOR – Adjust idling (Keihin-CR39) \*

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 ❶ and the mixture control screw ❷. 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 ❷ up to the stop, and turn it back out to the basic position (see technical data engine)
  - 2 Warm up the engine
  - 3 Use the adjusting wheel ❸ to set the normal idle speed (1400 - 1500 rpm).
  - 4 Turn mixture control screw ❷ slowly clockwise until idling speed starts to decrease. Memorize this position, and turn mixture control screw slowly counterclockwise until the idling speed will decrease 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. In case:
- 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 outside temperature and extremely different altitudes, the idling speed should be readjusted.

### Basic information on carburetor wear

As a result of engine vibrations, throttle valve, jet needle, and needle jet are subjected to increased wear. This wear may cause carburetor 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 reason, we have created an appropriate special tool.

Introduce the special tool into the bore ❶ at the carburetor bottom. Press the tool slightly upward and turn the adjusting wheel ❸ until the tool engages the slot of the mixture control screw ❷.

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 (see photo).

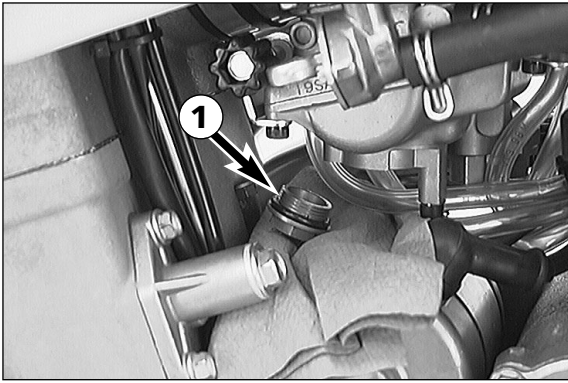
Now, use a sliding caliper to measure the distance ❹ between the casing edge and the float's upper edge.

The float height ❹ is to be 9mm.

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 of the float lever ❹.

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



### Draining of 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 malfunction.

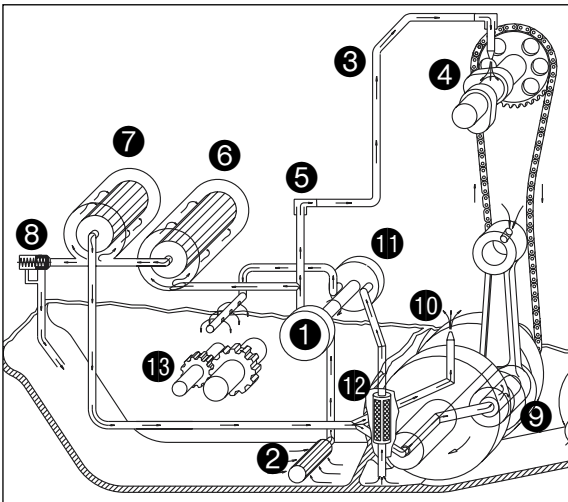
Perform this task on a cold engine. Close the fuel tap and place a cloth underneath the carburetor, which is able to absorb any escaping fuel. Unscrew the plug 1 and clean it with compressed air. Check the O-ring and reinstall the plug. Open the fuel tap and check the float chamber for leaks.



### WARNING

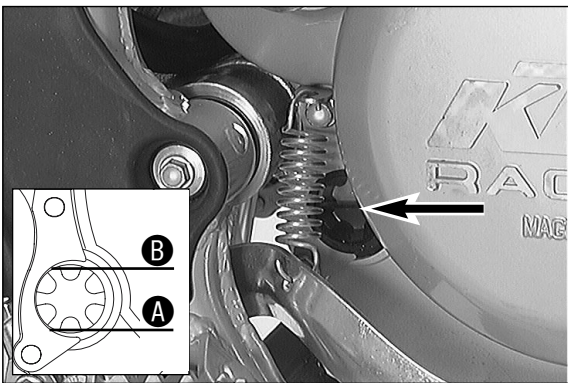


- FUEL IS EASILY FLAMMABLE AND TOXIC. WHEN HANDLING FUEL, BE SURE TO EXERCISE THE UTMOST CAUTION. NEVER PERFORM ANY WORK ON THE FUEL SYSTEM IN THE PROXIMITY OF OPEN FLAMES OR BURNING CIGARETTES.
- ALWAYS ALLOW THE ENGINE TO COOL OFF FIRST. IMMEDIATELY CLEAN UP ANY FUEL WHICH MAY HAVE BEEN SPILLED. MATERIALS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



### Oil circuit

Via the long oil screen 2, the oil pump 1 draws engine oil from the oil sump of the transmission. This engine oil flows through an oil line 3 into the cylinder head for camshaft lubrication 4; the oil quantity is controlled by the jet screw 5. An oil duct branches off to the long oil filter 6 where the coarser particles contained in the engine oil are filtered away. Then, the engine oil arrives at the short oil filter 7 which also filters the fine particles. Now, the purified engine oil is pumped past the bypass valve 8 to the conrod bearing 9 and sprayed from below onto the piston through a nozzle 10. The second oil pump 11 draws the engine oil via the short oil screen 12 out of the crankcase, thereby lubricating the transmission gears 13.



### Checking the engine oil level

The engine oil level can be checked with the engine being 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.

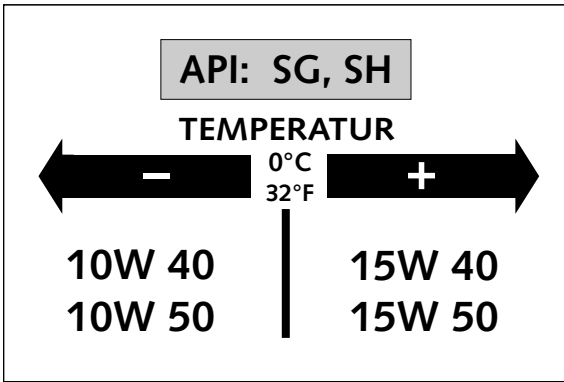
Replenish the engine oil, if necessary.



### CAUTION



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

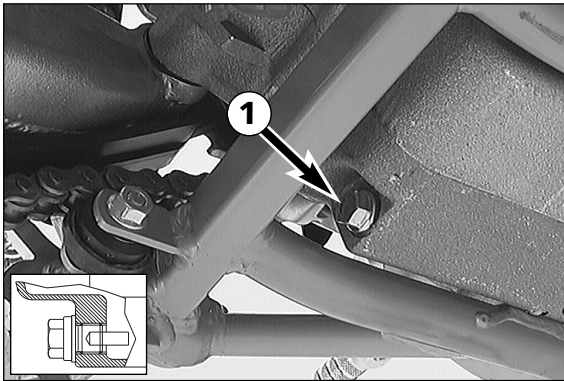


## Engine oil

Only use fully synthetic branded oils (Shell Advance Ultra 4) meeting or surpassing the quality requirements of API classes SG or SH (see specifications on the container).

**! 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 being at operating temperature.

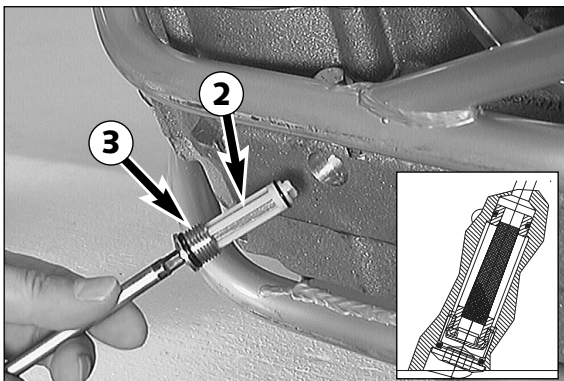
**! CAUTION !**

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.

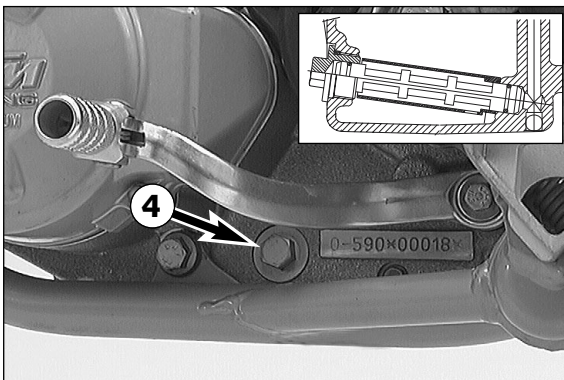
Clean plug (with magnet) thoroughly.

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 (15 ft.lb).



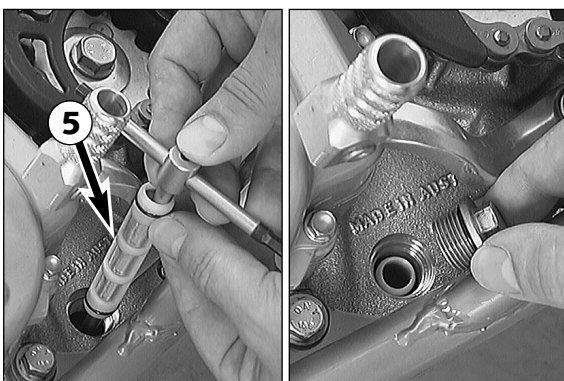
## CLEANING THE SHORT OIL SCREEN

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 (7 ft.lb).



## CLEANING THE LONG OIL SCREEN

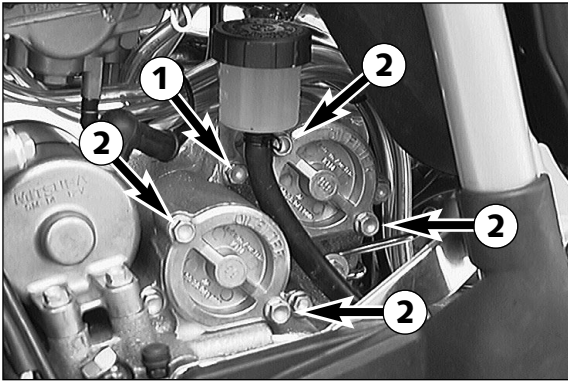
The long oil screen is accommodated in the hexagon plug **4** adjacent to the engine number. Dismount the plug together with the oil screen, clean the components thoroughly and blow compressed air through them. Check the O-rings for damage and, if necessary, replace them.



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 (11 ft.lb).

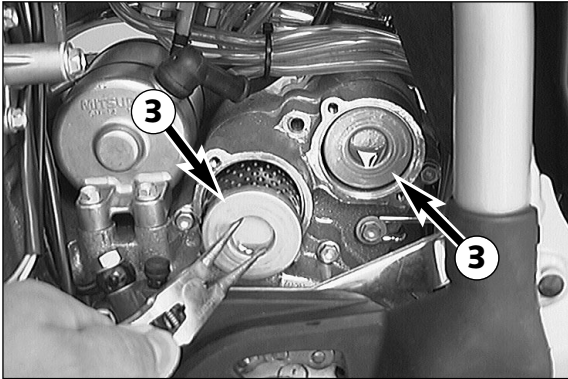
**! CAUTION !**

THE OIL SCREEN IS MOUNTED SLIGHTLY DOWNWARDS, INCORRECT FITTED THE SCREEN LOOSES ITS FUNCTION AND THIS CAN CAUSE INCREASED ENGINE WEAR



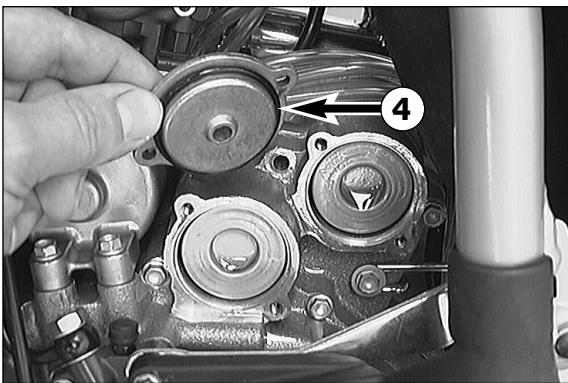
**CHANGING THE OIL FILTERS**

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, you may now pull the oil-filter inserts **3** out of the housing.

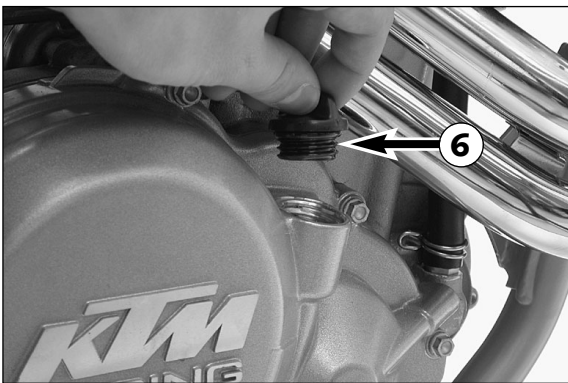
Clean the oil filter cover, the sealing surfaces of the O-rings and the engine casing. Check the O-rings of the oil filter covers for damage and, if necessary, replace them.



Put the motorcycle on its side and fill the oil filter housings about halfway with engine oil. Insert the long oil filter at the front and the short oil filter at the back of the housing.

Grease the O-rings **4** of the oil filter covers and mount the covers. Mount the screws and tighten them to 8 Nm (6 ft.lb).

Position the brake fluid container and tighten the screw to 8 Nm (6 ft.lb).



Return the motorcycle to its upright position.

Remove the oil dipstick **6** at the clutch cover and fill in 1.2 liters of fully synthetic engine oil (Shell Advance Ultra 4).

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

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

## TROUBLE SHOOTING

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

TROUBLE	CAUSE	REMEDY
Engine doesn't crank (E-starter).	<p>Operating error</p> <p>Blown fuse</p> <p>Discharged battery.</p> <p>Low outside temperatur</p>	<p>Turn on the emergency-OFF switch (Australia only)</p> <p>Dismount the left paneling and the filter box cover and replace the fuse in the starter relay.</p> <p>Recharge the battery and investigate the causes for discharging; contact a KTM dealer.</p> <p>Start engine with kickstarter</p>
Engine cranks but doesn't start (E-starter). Engine will not start (Kick-starter).	<p>Operating error</p> <p>The motorcycle has been out of operation for a longer period of time. Therefore old fuel has accumulated in the float chamber</p> <p>Fuel supply interrupted</p> <p>Flooded engine</p> <p>Sooty or wet spark plug</p> <p>Electrode gap too large</p> <p>Spark plug connector or spark plug faulty</p> <p>Short circuit cable scored in wiring harness, emergency OFF switch or short circuit button faulty</p> <p>The plug connection of the CDI-unit, the pulse generator or the ignition coil has oxydized</p> <p>Water in carburetor or jets blocked</p>	<p>Open fuel tap, tank fuel, actuate choke. Pay attention to starting information (see driving instructions).</p> <p>The easily inflammable components of the new fuels evaporate during longer periods of standstill. 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 off when the float chamber is filled with new fuel.</p> <p>Close fuel tap, loosen fuel hose at carburettor, lead into a basin and open fuel tap                      – if fuel leaks out, the carburetor might need cleaning                      – if no fuel leaks out, check tank ventilation, i.e. clean fuel tap</p> <p>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.</p> <p>Clean and dry the spark plug or exchange it, respectively</p> <p>Adjust spark plug elektrode gap to 0,6 mm</p> <p>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 exchange 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</p> <p>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.</p> <p>Remove the seat and the fuel tank. Clean the plug connection and treat it with contact spray</p> <p>Dismount and clean carburetor</p>
Engine fails to idle	<p>Glogged idling jet</p> <p>Oncorrect adjustment of adjusting screws on carburetor</p> <p>Defective spark plug</p> <p>Defective ignition system</p>	<p>Disassemble carburetor and clean jets</p> <p>Have carburetor adjusted</p> <p>Replace spark plug</p> <p>Have ignition system checked</p>

TROUBLE	CAUSE	REMEDY
Engine does not rev high	Carburettor fuel level too high because float needle valve is dirty or worn out  Loose carburettor jets  Electronical ignition timing faulty	Dismount carburettor and check if worn out  Tighten jets  Have ignition system checked
Engine will not reach full power	Fuel supply partially interrupted or carburettor dirty  Float leaks  Air filter very dirty  Exhaust system is not tight, deformed, or the silencer contains not enough glass fiber yarn  Valve gap too small  Loss of compression because hand decompressor has no play  Electronical ignition timing faulty	Clean and check fuel system as well as carburettor  Replace the float  Clean or replace air filter  Check if exhaust is damaged, replace glass fibre yarn in exhaust silencer  Adjust valve gap  Check setting of the hand decompression cable  Have ignition system checked
Engine stops or splutters in carburettor	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 anti freeze 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 be cleaned additionally 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 malfunction of the electric system, you should treat 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 motorcycle thoroughly and let it dry after each riding
- treat engine, carburetor, swing arm, and all other bare or galvanized parts (except for brake discs) with a wax-based anti-corrosion agent.



### WARNING



KEEP ANTI-CORROSION AGENT FROM GETTING INTO CONTACT WITH THE BRAKE DISCS, FOR 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 desire 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 contaminations).
- Check antifreezer 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 subject to excessive temperature fluctuations.
- Cover the motorcycle with an air permeated tarpaulin or blanket. Do not use non air permeable 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.

### RE-INITIATION AFTER TIME 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 have to 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.



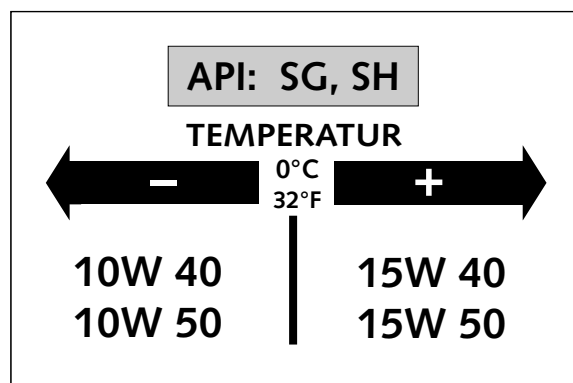
# TECHNICAL DATA – ENGINE 400/520 SX, MXC, EXC RACING 2002

Type	400 SX	400 MXC	400 EXC	520 SX	520 MXC	520 EXC
Design	Liquid-cooled single cylinder 4-stroke engine with balancer shaft					
Displacement	398 ccm			510 ccm		
Bore/Stroke	89 / 64 mm			95 / 72 mm		
Ratio	11 : 1					
Fuel	unleaded premium gasoline with at least RON 95					
Valve Timing	4 valves over rocker arm and 1 overhead camshaft, camshaft drive through single chain					
Camshaft	0121			5521		
Valve diameter Intake	35 mm					
Valve diameter Exhaust	30 mm					
Valve clearance cold Intake	0,10 mm					
Valve clearance cold Exhaust	0,15 mm					
Crank shaft bearing	2 cylinder roller bearing					
Connecting rod bearing	needle bearing					
Top end bearing	bronze bushing					
Piston	alluminium alloy cast			alluminium alloy forged		
Piston rings	1 compression ring, 1 oil scraper ring					
Engine lubrication	pressure circulation lubrication with two rotor pumps					
Engine oil	fullsynthetic oil (Shell Advance Ultra4 SAE 10W40)					
Quantity of engine oil	1,25 liters					
Primary ratio	straight geared spur wheels 33:76 t					
Clutch	multi disc clutch in oil bath					
Transmission claw shifted	6-speed	6-speed	6-speed	4-speed	6-speed	6-speed
Gear ratio						
1 <sup>st</sup> Gear	16:32	16:32	14:34	16:32	16:32	14:34
2 <sup>nd</sup> Gear	18:30	18:30	17:31	18:30	18:30	17:31
3 <sup>rd</sup> Gear	20:28	20:28	19:28	20:28	20:28	19:28
4 <sup>th</sup> Gear	22:26	22:26	22:26	22:26	22:26	22:26
5 <sup>th</sup> Gear	24:24	24:24	24:23	-	24:24	24:23
6 <sup>th</sup> Gear	21:18	21:18	26:21	-	21:18	26:21
Ignition system	contactless DC-CDI ignition with digital advanced system by KOKUSAN					
Generator	12V 40W	12V 110W				
Spark plug	NGK CR8 EK					
Spark plug gap	0,6 mm					
Cooling system	liquid cooled, permanent rotation of cooling liquid through mechanic driven water pump					
Cooling liquid	1 liter, 40% antifreeze, 60% water, at least -25° (-13° F)					
Starting equipment	kickstarter	kick - electric starter		kickstarter	kick - electric starter	

## BASIC CARBURETOR SETTING

	400 SX RACING 400 MXC/EXC RAC.	400 EXC RAC. 12 kW 520 EXC RAC. 12,5 kW	520 MXC/EXC RACING	520 SX RACING	400 EXC-G	520 EXC-G
Type	Keihin CR39	Keihin CR39	Keihin CR39	Keihin CR39	Keihin CR39	Keihin CR39
Carb.-setting number	031299	130799	100699	250899	250401	240401
Main jet	175	175	175	175	175	175
Jet needle	OBDTM	OB DVR	OBDTM	OBDTM	OB DVR	OB DVR
Idling jet	48	48	48	48	48	48
Main air jet	200	200	200	200	200	200
Idling air jet	100	100	100	100	100	100
Needle clip position	4.th from top	3.th from top	2.th from top	3.th from top	6. th from top	3. th from top
Starting jet	85	85	85	85	85	85
Mixture control screw open	1	1,25	2,5	1	1,25	1
Throttle valve	15	15	15	15	15	15
Performance restrictor	-	slide stop 24,5mm	-	-	-	-
Stop pump membrane	055	055	055	055	055	055

<b>TIGHTENING TORQUES</b>			
Hexagon collar screw engine case, clutch cover, ignition cover	M6	10 Nm	(6 ft.lb)
Oil drain plug	M12x1,5	20 Nm	(15 ft.lb)
Allan head plug oil screen short	M16x1,5	10 Nm	(7 ft.lb)
Hexagon plug oil screen long	M20x1,5	15 Nm	(11 ft.lb)
Plug pressure valve	M12x1,5	20 Nm	(15 ft.lb)
Jet screw and hollow screw oil line	M8	10 Nm	(7 ft.lb)
Screws oil pump cover	M5	Loctite 243 + 6 Nm	(5 ft.lb)
Hexagon collar screw cylinderhead top section	M6	10 Nm	(7 ft.lb)
Hex.collar screw cylinderhead top section, water pump cover	M6	8 Nm	(6 ft.lb)
Hexagon collar screw exhaust flange	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Cylinder head screw	M10	40/50 Nm	(30/35 ft.lb)
Allan head screw camshaft gear	M8	Loctite 243 + 28 Nm	(21 ft.lb)
Stop screw autodecompression	M5	Loctite 243 + 6 Nm	(5 ft.lb)
Allan head screw cap rocker arm	M5	5 Nm	(4 ft.lb)
Counter nuts valve adjustment screw	M6x0,75	11 Nm	(10 ft.lb)
Allan head screw primary gear, free wheel	M6	Loctite 243 + 16 Nm	(12 ft.lb)
Hexagon nut primary gear	M20x1,5	Loctite 243 + 150 Nm	(132 ft.lb)
Allan head screw balancer shaft gear	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Hexagon collar screw clutch spring	M6	8 Nm	(6 ft.lb)
Allan head screw shift roller locking piece	M6	Loctite 243 + 10 Nm	(6 ft.lb)
Hexagon collar screw locking lever	M5	Loctite 243 + 6 Nm	(6 ft.lb)
Hexagon collar screw shift roller	M5	Loctite 243 + 6 Nm	(6 ft.lb)
Hexagon collar screw securing guide, chain guide, chain tensioner	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Hexagon collar screw clip	M5	Loctite 243 + 6 Nm	(4 ft.lb)
Hexagon collar screw chain adjuster	M6	8 Nm	(6 ft.lb)
Hexagon collar screw stator MXC/EXC	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Hexagon collar screw stator SX	M5	Loctite 243 + 6 Nm	(5 ft.lb)
Hexagon collar screw pulser coil	M5	Loctite 243 + 6 Nm	(5 ft.lb)
Hexagon collar nut flywheel	M12x1	60 Nm	(44 ft.lb)
Hexagon collar screw bump part kickstarter	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Hexagon collar screw spring hanger kickstarter	M6	Loctite 243 + 10 Nm	(6 ft.lb)
Hexagon collar screw cover E-starter, only SX	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Hexagon collar screw hanger vent hose	M6	Loctite 243 + 8 Nm	(6 ft.lb)
Allan head screw kickstarter	M8	Loctite 243 + 25 Nm	(19 ft.lb)
Hexagon collar screw shift lever	M6	Loctite 243 + 10 Nm	(6 ft.lb)
Hexagon screw engine sprocket	M10	Loctite 243 + 60 Nm	(44 ft.lb)
Spark plug	M10	10 - 12Nm	(7-8 ft.lb)



**Engine oil**

Use only fully synthetic oil brands, which meet quality requirements (Shell Advance Ultra 4) of API-classes SG or SH (informations on bottles) or higher.

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**! CAUTION !**

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POOR OIL QUALITY OR MINOR QUANTITY EFFECT EARLY ENGINE-WEAR.

**ASSEMBLY CLEARANCE, WEAR LIMIT**

		400	520
Crankshaft	axial clearance	0,03 - 0,15 mm/0,0012 - 0,006 in	
	run out of crank stud	max. 0,08 mm/0,003 in	
Conrod bearing	radial clearance	max. 0,05 mm/0,002 in	
	axial clearance	max. 1,10 mm/0,043 in	
Cylinder	bore diameter size I	89,000 - 89,012 mm/3,5039 - 3,5044 in	95,000 - 95,012 mm/3,7401 - 3,7406 in
	bore diameter size II	89,013 - 89,025 mm/3,5039 - 3,5049 in	95,013 - 95,025 mm/3,7406 - 3,7411 in
Piston 400 (cast)	diameter size I	88,926 - 88,936 mm/3,5010 - 3,5014 in	94,946 - 94,954 mm/3,7380 - 3,7383 in
	diameter size II	88,937 - 88,946 mm/3,5014 - 3,5018 in	94,955 - 94,962 mm/3,7383 - 3,7386 in
	assembly clearance size I	0,064 - 0,086 mm/0,0025 - 0,0033 in	0,046 - 0,066 mm/0,0018 - 0,0025 in
	assembly clearance size II	0,066 - 0,089 mm/0,0026 - 0,0035 in	0,050 - 0,071 mm/0,0019 - 0,0028 in
	wear limit	0,12 mm/0,0047 in	0,10 mm/0,0039 in
Piston ring end gap	compression ring	max. 0,80 mm/0,03 in	
	oil scraper ring	max. 1,00 mm/0,04 in	
Valves	seat sealing intake	max. 1,50 mm/0,06 in	
	seat sealing exhaust	max. 2,00 mm/0,078 in	
	run out of valve heads	max. 0,05 mm/0,002 in	
	valve guides diameter	max. 6,05 mm/0,238 in	
	spring washer	min. 0,4 mm / 0,016 in (new 0,5 mm / 0,019 in)	
valve spring	Interior	min 36,5 mm / 1,423 in (new 37,45 mm / 1,46in)	
	Exterior	min 39,7 mm / 1,548 in (new 40,2 mm / 1,567 in)	
balancer shaft	Journal runout	max. 0,06 mm / 0,0024 in	
Oil pumps	clearance outer rotor housing	max. 0,20 mm/0,0078 in	
	clearance outer rotor inner rotor	max. 0,20 mm/0,0078 in	
	axial clearance	0,15 mm / 0,0059 in	
Bypaß valve	minimum spring length	25,00 mm/0,98 in	
Clutch	Length of springs	min. 41,5 mm/1,63 in (new 43 mm/1,693 in)	
	wear limit organic	min. 1,70 mm/0,067 in (new 1,8 mm / 0,070 in)	
	hight disk package	18,3 mm / 0,713 in (neu 20,2 mm / 0,788 in)	
Transmission shafts	axial clearance	0,10 - 0,40 mm/0,004 - 0,016 in	
	Transmission shaft runout	max. 0,06 mm / 0,0024 in	
rocker arm	axial clearance	0,02 - 0,10 mm / 0,007 - 0,04 in	
rocker arm axle	radial clearance	max. 0,08 mm / 0,003 in	
timing chain		max. 770 mm / 30,03 in(new 768 mm / 29,952in)	

# TECHNICAL DATA – CHASSIS 400/520 SX, MXC, EXC RACING 2002

	400/520 SX RACING	400/520 EXC RACING	400/520 MXC, EXC USA
Frame	Central tube chrom-moly-steel frame		
Fork	WP USD 4860 MXMA	WP Up Side Down 4357 MXMA	
Wheel travel front/rear	295/320 mm		
Rear suspension	WP Progressive Damping System shock absorber, aluminium swingarm		
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. 0,4 mm (0,016 in)		
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	7,5 Liter (2 US Gallons)	EXC 8,5 Liter (2,1 US Gallons) MXC 13 Liter (3,5 Gallons)	
Final drive ratio	400-14:50t / 520-14:48t	400-15:45t / 520-15:40t	400-14:50t / 520-14:48t
Chain	O-Ring 5/8 x 1/4 "		
Available final sprockets	38t, 40t, 42t, 45t, 48t, 50t, 52t		
Bulbs	headlight	HS1 12V 35/35W	
	parking light	12V 5W (Socket W2, 1x9,5d)	
	instrument lights	12V 1,2W (Socket W2, 1x4,6d)	
	brake - rear light	12V 21/5W (Socket BaY15d)	
	flasher light	12V 10W (Socket Ba15s)	
	license plate illumination	12V 1,2W (Socket 1x4,6d)	
Batterie	maintenance-free battery 12V 8Ah		
Steering head angle	63,5°		
Wheel base	1481 ± 10 mm (58,3 ± 0,4 in)		
Seat hight, unloaded	925 mm (36,5 in)		
Ground clearance, unloaded	380 mm (15,1 in)		
Dead-weight *	107 kg (236 lbs)	112 kg (247 lbs)	

\* Dead-weight without fuel

STANDARD ADJUSTMENT-FORK		
	WP4860MXMA 1418W710	WP4357MXMA 0518W712
Compression adjuster	20	20
Rebound adjuster	16	12
Spring	4,4 N/mm	4,2 N/mm
Spring preload	5 mm (0.20in)	5 mm (0.20in)
Air chamber length	100 mm (5.1in)	130 mm (5.9in)
Fork oil	SAE 5	SAE 5

STANDARD ADJUSTMENT - SHOCK ABSORBER		
	WP 5018 PDS DCC 1218W738	WP 5018 PDS MCC 1218W739
Compression adjuster	15 LS (Low speed) 2 HS (high speed)	15
Rebound adjuster	25	25
Spring	PDS7-260	PDS6-260
Spring preload	4 mm (0.24 in)	5 mm (0.24 in)

TIGHTENING TORQUES - CHASSIS		
Collar nut front wheel spindle	M 16/20x1,5	40 Nm (30ft.lb)
Brake caliper front	M 8	Loctite 243 + 25 Nm (19ft.lb)
Brake disk front	M 6	Loctite 243 + 15 Nm (11ft.lb)
Brake disk rear	M 6	Loctite 243 + 15 Nm (11ft.lb)
Clamping screws upper fork bridge	M 8	20 Nm (15ft.lb)
Clamping screws lower fork bridge	M 8	15 Nm (11ft.lb)
Clamping screws fork stubs	M 8	10 Nm (7ft.lb)
Collar nut rear wheel spindle	M 20x1,5	80 Nm (59ft.lb)
Hexagon nut swing arm bolt	M 14x1,5	100 Nm (74ft.lb)
Hexagon collar screw handlebar clamp	M 8	20 Nm (15ft.lb)
Allan head screw handlebar support	M 10	Loctite 243 + 40 Nm (30ft.lb)
Shock absorber top	M 12	60 Nm (44ft.lb)
Shock absorber bottom	M 12	60 Nm (44ft.lb)
Sprocket screws	M 8	Loctite 243 + 35 Nm (25ft.lb)
Ball joint for push rod	M 6	Loctite 243 + 10 Nm (7ft.lb)
Engine mounting bolt	M 10	45 Nm (33ft.lb)
Engine brace	M 8	33 Nm (24ft.lb)
Screw adjusting ring spring preload shock abs	M6	8 Nm (6ft.lb)
Other screws on chassis	M 6	10 Nm (7ft.lb)
	M 8	25 Nm (19ft.lb)
	M 10	45 Nm (33ft.lb)
Other collar nuts on chassis	M 6	15 Nm (11ft.lb)
	M 8	30 Nm (22ft.lb)
	M 10	50 Nm (37ft.lb)

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**KTM SPORTMOTORCYCLE AG**  
5230 Mattighofen  
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