DUKE 640e

Last Edition 1998

BEDIENUNGSANLEITUNG

OWNER'S HANDBOOK

MANUEL D'UTILISATION

ART. NR. 3.205.41
2.98

IMPORTANT

WE STRONGLY SUGGEST THAT YOU READ THIS HANDBOOK CAREFULLY AND COMPLETELY BEFORE YOU TAKE YOUR FIRST RIDE. IT CONTAINS INFORMATION AND TIPS THAT WILL BE ABLE YOU TO OPERATE AND HANDLE YOUR MOTORCYCLE PROPERLY.

PAY ATTENTION ESPECIALLY TO THE FOLLOWING INSTRUCTIONS:

⚠ **WARNING** ⚠

IGNORING THESE INSTRUCTIONS CAN ENDANGER YOUR BODY AND YOUR LIFE.

! **CAUTION** !

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

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

Frame number

Engine number

Stamp of dealer

COMSUMER 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.

Introduction

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

You are now owner of a sporty and modern motorcycle which you are bound to have a great time with, provided you care for it properly. This manual will furnish you with important information on how to operate and maintain your new KTM motorcycle. At the time of printing, the handbook covered the most up-to-date models in this series. It is, however, possible that we may have made slight modifications in the meantime due to development in our motorcycle design.

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.

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 !

TÜV CERT
FOR QUALITY SYSTEM
ISO 9001
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

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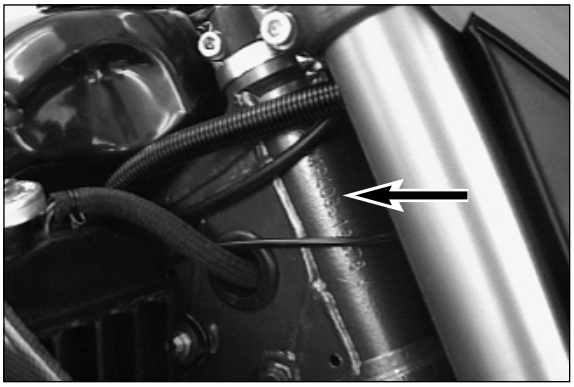
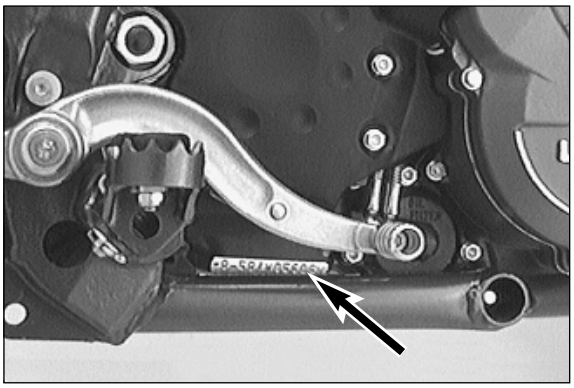


SERIAL NUMBER LOCATIONS

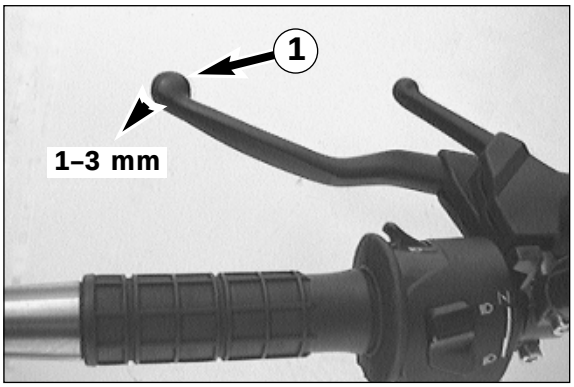
Frame number

The frame number is stamped on the right side of the steering head tube. Write this number into the relevant box on page 1.



Engine number, engine type

The engine number and engine type are stamped on the right hand side of the engine below the engine sprocket. Write the number into the box on page no 1.



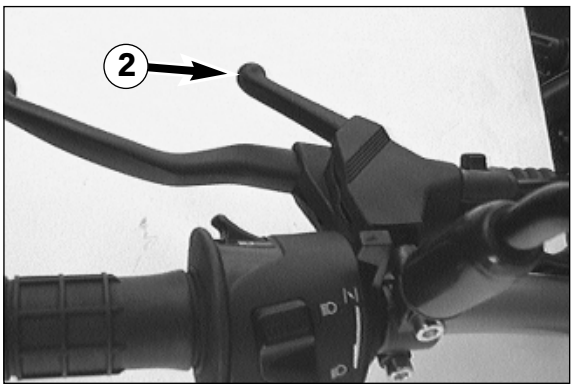
OPERATION INSTRUMENTS

Clutch lever

The clutch lever ❶ is fitted on the left hand side of the handle bar. When engine is cold, there should be a play of 1-3 mm (0.04-0.1 in) (measured at outer edge).

! CAUTION !

IF THERE IS NO PLAY ON THE CLUTCH LEVER, THE CLUTCH WILL START TO SLIP. THE CLUTCH WILL THEN OVERHEAT, DESTROYING THE CLUTCH LININGS.



Hand decompression lever

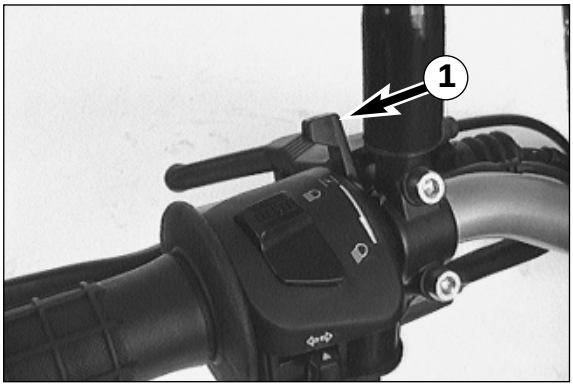
The hand decompression lever ❷ is only used in two special cases:

a) When the engine stalled.
It is possible that the starter motor is not able to crank the engine on the next attempt. This is due to the fact that the automatic decompressor doesn't work properly. If this happens, pull the manual decompression lever and start again. Afterwards normal starting will be possible.

b) When you want to push the motorcycle.
While pushing, pull the hand decompression lever to make it easier to get the engine going.

! CAUTION !

THE SETTING OF THE HAND DECOMPRESSION CABLE SHOULD BE REGULARLY CHECKED (SEE MAINTENANCE WORK). A LACK OF PLAY IN THE HAND DECOMPRESSION LEVER CAN RESULT IN ENGINE DAMAGE.

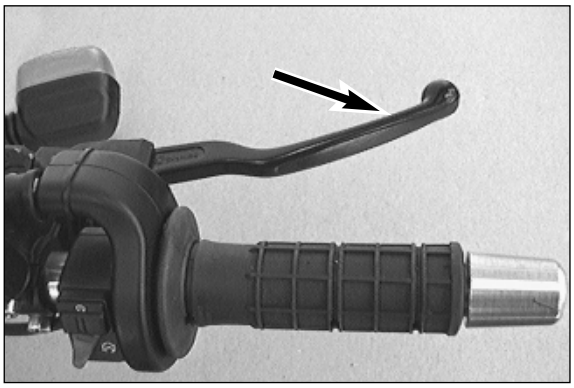


Choke lever

When the choke lever ❶ is pulled backwards, a bore is opened in the carburetor which enables the engine to draw in additional fuel. This produces a „rich“ fuel/air mixture necessary for cold start. When the choke lever is pushed forward as far as it will go, the bore will be closed again. In this position the choke cable must have a play of approx. 2 mm.

! CAUTION !

IF THERE IS NO PLAY IN THE CHOKE CABLE, THE BORE OF THE COLD STARTER SYSTEM CANNOT BE COMPLETELY CLOSED. THIS RESULTS IN HIGH FUEL CONSUMPTION, THE ENGINE RUNS UNEVENLY WITH EXTREME WEAR OF PISTON AND CYLINDER.

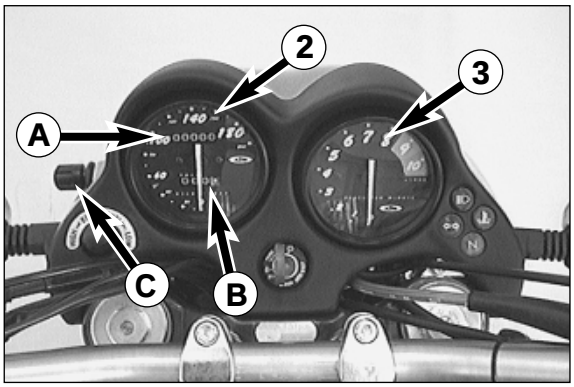


Hand brake lever

The hand brake lever is mounted on the right side of the handlebar.

⚠ WARNING ⚠

IF THE RESISTANCE IN THE HAND BRAKE LEVER OR FOOT BRAKE PEDAL FEELS “SPONGY” (NOT ENOUGH RESISTANCE), 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.



Speedometer, tachometer

The mileage indicator ❹ in the speedometer ❷ indicates overall mileage. The day mileage indicator ❺ can be set to 0 by means of the setting wheel ❻. Turn the setting wheel forward until only zeros can be seen in the display. The tachometer ❸ shows the engine speed in revolutions per minute (rpm). Do not push the engine into the orange zone, which begins at 8500 rpm.

! CAUTION !

- MAXIMUM RECOMMENDED ROTATION RATE IS 8500 RPM. ROTATION RATES EXCEEDING 8500 RPM WILL SHORTEN YOUR ENGINE’S LIFE. REFER ALSO TO THE SECTION ON RUNNING IN YOUR MOTORCYCLE TO BE FOUND IN THE “DRIVING INSTRUCTIONS” CHAPTER.
- SPEEDOMETER AND TACHOMETER ARE NOT SUPPOSED TO GET IN CONTACT WITH FUEL. WHIPE OFF SPLASHED FUEL ON THE PLASTIC PARTS IMMEDIATELY, OTHERWISE THE PLASTIC PARTS MIGHT GET DAMAGED.

Indicator lamps

The red cooling liquid temperature warning lamp lights up as soon as the cooling liquid has reached a temperature of approximately 110° C (230° F).

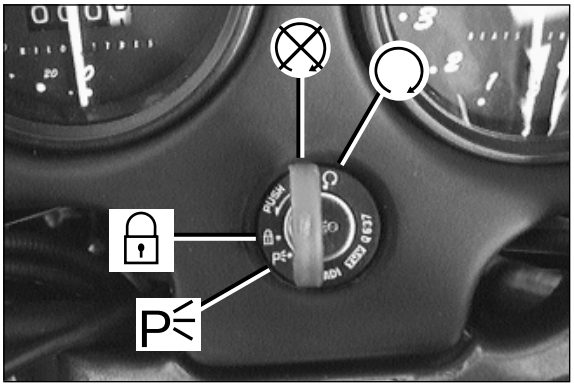
! CAUTION !

IF THE RED COOLING LIQUID TEMPERATURE WARNING LAMP LIGHTS UP WHILE YOU ARE DRIVING, THE COOLING SYSTEM IS PROBABLY DEFECT. IMMEDIATELY STOP THE ENGINE AND CHECK THE COOLING LIQUID LEVEL (SEE PAGE 26). DRIVING WITH THE WARNING LAMP ON WILL CAUSE ENGINE DAMAGE.

The green indicator lamp flashes when the flasher light is working in the same rhythm as the flasher light. Faster flashing of the flasher control lamp indicates a defect bulb

The blue indicator lamp lights up when the high beam is on.

The green indicator lamp lights up when the gear is switched to idle (neutral).



Ignition lock, steering lock

There are four positions to this lock. They are:

= ignition off, light off

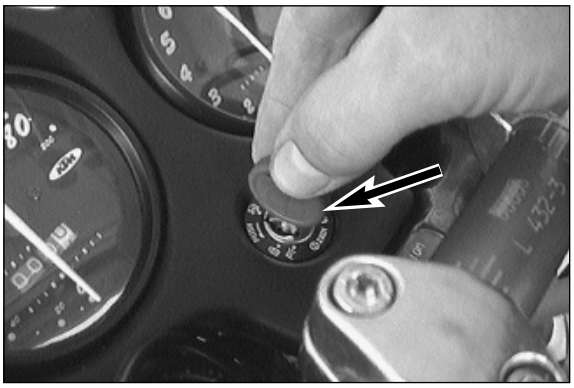
= ignition on, – engine turned off: just parking light is on
– engine running: parking light and headlight on

= ignition off, light off, handlebar locked

! CAUTION !

BRIEFLY PRESS THE KEY IN THE ⊗ POSITION IN ORDER TO TURN THE IGNITION LOCK TO 🔒 OR P≤ . THE HANDLEBAR CAN BE LOCKED BY TURNING IT FIRST INTO THE EXTREME LEFT OR RIGHT POSITION AND THEN TURNING THE IGNITION KEY TO THE 🔒 POSITION.

IMPORTANT: Do not push the ignition key into the keyhole while switching positions.



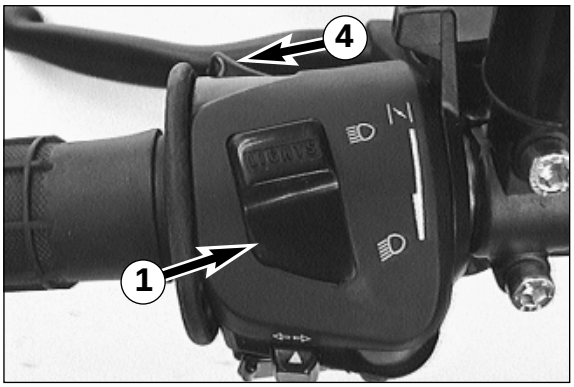
P≤ = ignition off, parking light on, handlebar locked

! CAUTION !

DO NOT LEAVE THE PARKING LIGHT ON FOR MORE THAN THREE HOURS WITH THE ENGINE OFF. OTHERWISE YOU WILL NOT BE ABLE TO START THE ENGINE WITH THE ELECTRIC STARTER.

ADDITIONALLY, THE BATTERY IS DISCHARGED BELOW THE NORMAL LEVEL AND THEREBY DAMAGED. IN THIS CASE, THE BATTERY SHOULD BE RECHARGED AS SOON AS POSSIBLE.

The ignition key can be removed in the positions ⊗, 🔒, and P≤.



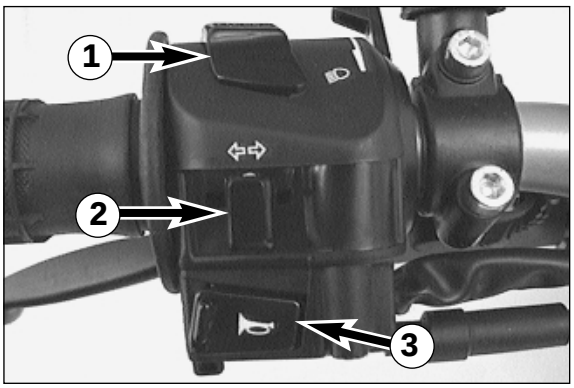
Combination switch

The rocker switch ❶ actuates the high beam and low beam.

= High-beam light

= Low-beam light

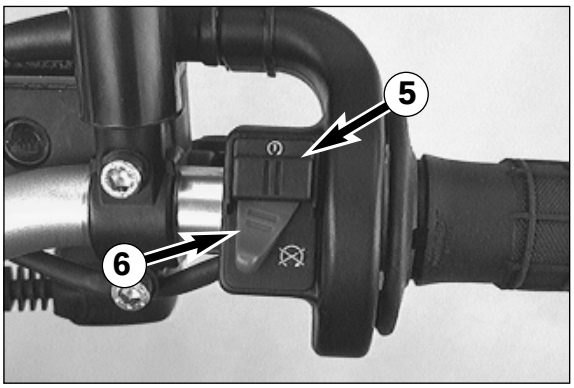
The switch ❷ returns to central position after actuation. Press flasher switch towards switch housing to switch off the flasher.



= Flasher left

= Flasher right

The horn is sounded with button ❸.
The light signal (high beam) is actuated with button ❹.
NOTE: The engine must be running in order to be able to check that all current consumers are functioning correctly.



Starter tip switch, emergency OFF switch

Use the starter tip switch ❺ to operate the electric starter.

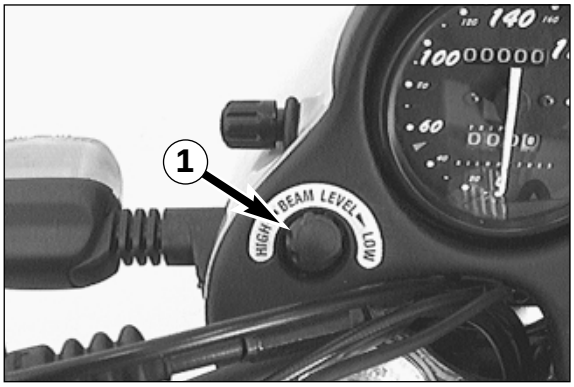
! CAUTION !

MAXIMUM PERIOD FOR CONTINUOUS STARTING: 5 SECONDS. WAIT AT LEAST 5 SECONDS BEFORE TRYING AGAIN.

The emergency off switch ❻ is mainly a safety and emergency switch and should normally be on.

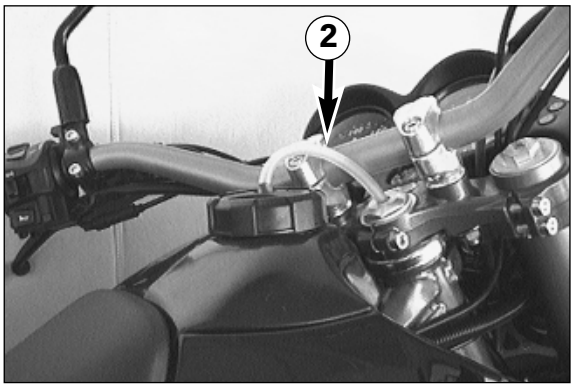
If this symbol is visible on the switch, the engine can be started (i.e. the ignition circuit and the starter circuit are switched on).

If this symbol is visible on the switch, the engine can not be started (i.e. the ignition circuit and the starter circuit are interrupted).



Headlight range adjustment

The headlight beam must be adjusted to the current load (i.e. with/without passenger).
The adjustment can be performed very easily by means of the setting wheel ❶ on the cockpit.
Turn clockwise to reduce the range of the headlights.
Turn counterclockwise to increase the range of the headlights.

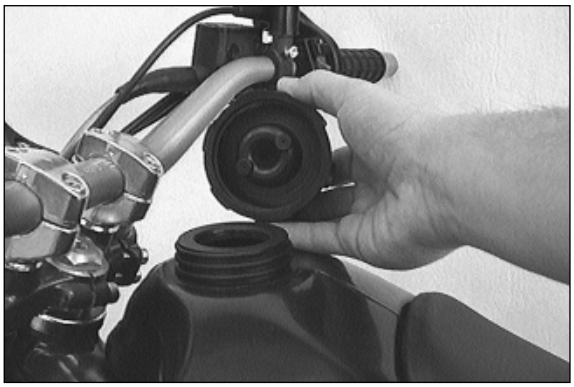


Filler cap

To open: Pull the tank venting hose ❷ out if the steering head and turn the filler cap anti-counterclockwise.
To close: Screw on the filler cap clockwise. Place the tank venting hose in the steering head, avoiding any kinks.

! CAUTION !

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

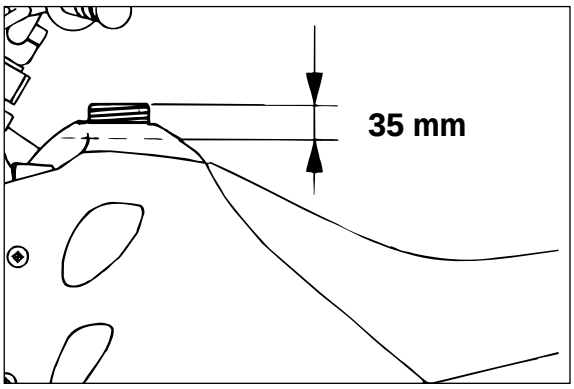


Fuel

The LC4 engine needs premium gasoline with an octane number of 95 or higher.

! CAUTION !

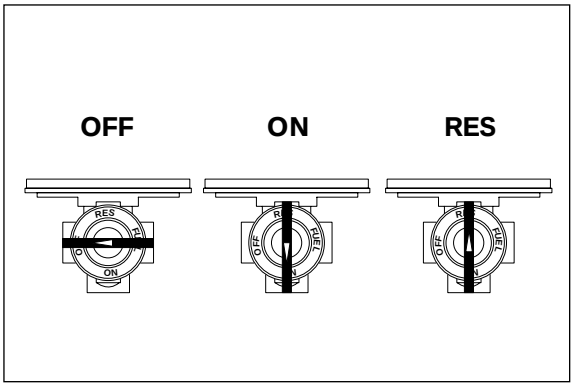
– USE ONLY UNLEADED PREMIUM GRADE GASOLINE (95 OCTANES). NEVER USE ANY GASOLINE HAVING LESS THAN 95 OCTANES BECAUSE IT MAY DAMAGE THE ENGINE.



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

⚠ 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 tap

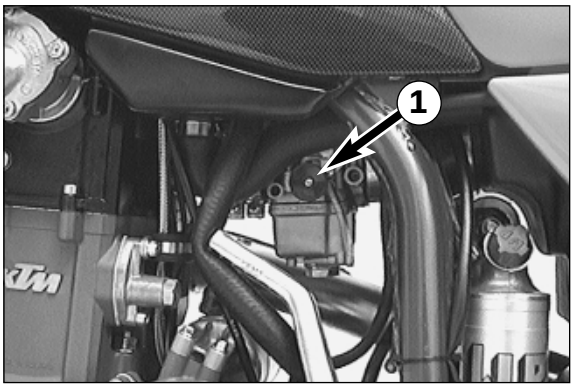
OFF In this position the fuel tap is closed. No fuel may flow to the carburetor.

ON When using the motorcycle, the twist grip must be set to the ON position. Now fuel may flow to carburetor. In this position the tank empties down to the fuel reserve of approx. 1.5 liters.

RES The reserve, approximately 1.5 liters, cannot be tapped until the twist grip is turned to the RES position. Fill the tank as soon as possible and remember to turn the twist grip back to the **ON** position so that you will have backup fuel next time, too.

! CAUTION !

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

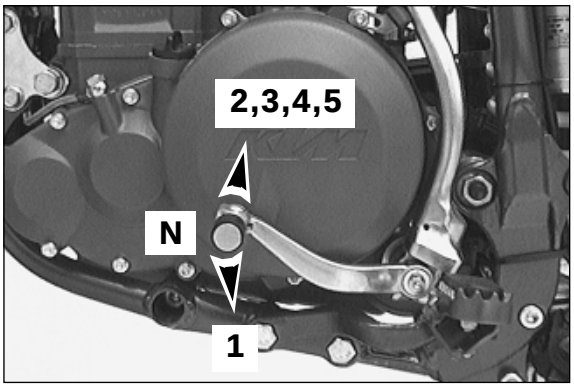


Hot start device

The carburetor is equipped with a hot start device which makes it easier to start the engine when hot. Press the hot start button ❶ until it engages. This will slightly lift the throttle slide. Once the engine is running, pull the hot start button back into its original position.

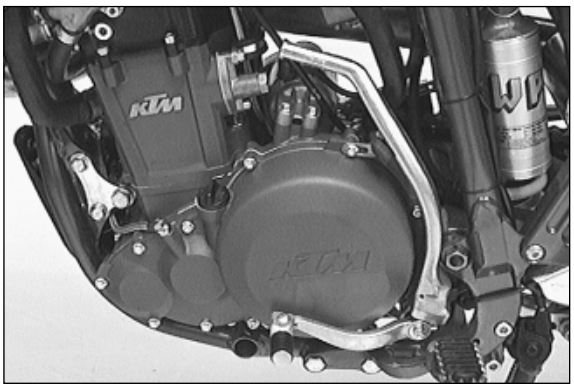
NOTE:

Always pull the hot start device back into the initial position as soon as the engine is running. An activated hot start device will have a negative impact on the cold starting properties of the engine.



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.

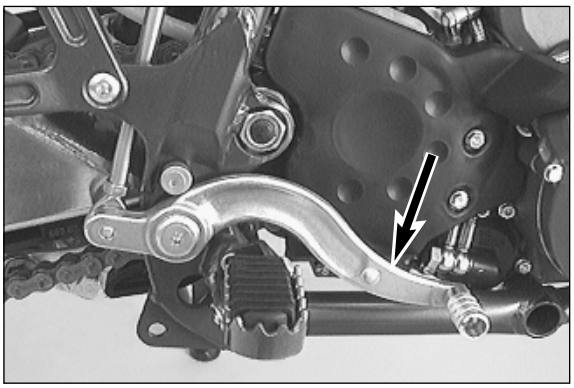


Kickstarter

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

⚠ WARNING ⚠

TO AVOID INJURIES, IT IS RECOMMENDED TO WEAR BOOTS WHEN USING THE KICKSTARTER.

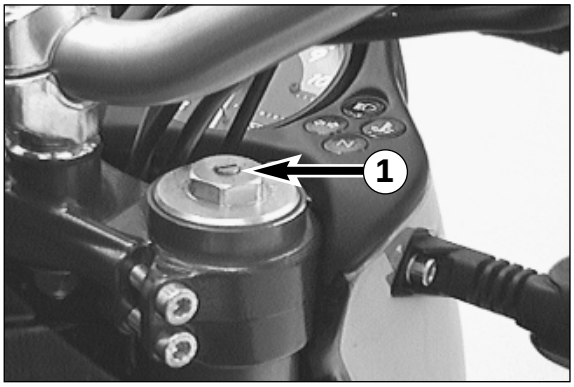


Foot brake pedal

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

⚠ WARNING ⚠

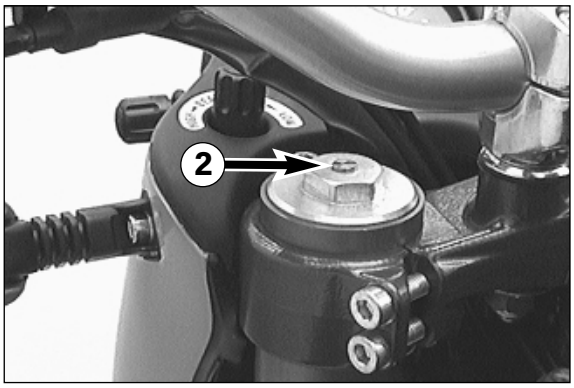
IF THE RESISTANCE IN THE HAND BRAKE LEVER OR FOOT BRAKE PEDAL FEELS "SPONGY" (NOT ENOUGH RESISTANCE), THIS IS AN INDICATION THAT SOMETHING IS WRONG WITH THE BRAKE SYSTEM. DON'T RIDE YOUR MOTORCYCLE ANYMORE WITHOUT FIRST HAVING THE BRAKE SYSTEM LOOKED OVER BY A KTM DEALER.



Compression damping of fork

The compression damping „COM“ (Compression) is mounted in the right fork tube. It only regulates the degree of damping during compressing.
With the knob ❶ the degree of damping of the compression can be adjusted. Turn the knob clockwise to increase damping, turn it counterclockwise to reduce damping during compressing.

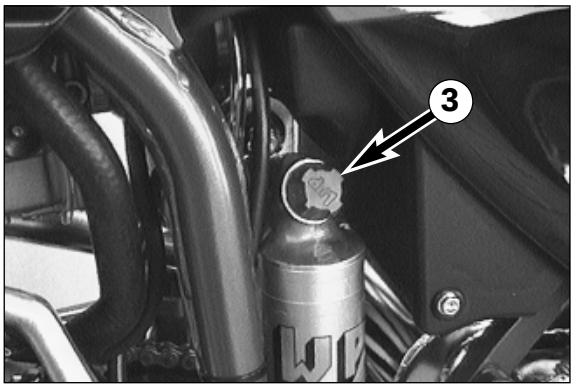
BASIC ADJUSTMENT:
Turn the adjuster knob clockwise until it stops, than turn the knob 14 clicks counterclockwise.



Rebound damping of fork

The rebound damping „REB“ (Rebound) is mounted in the left fork tube. It only regulates the degree of damping during rebounding.
With the knob ❷ 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.

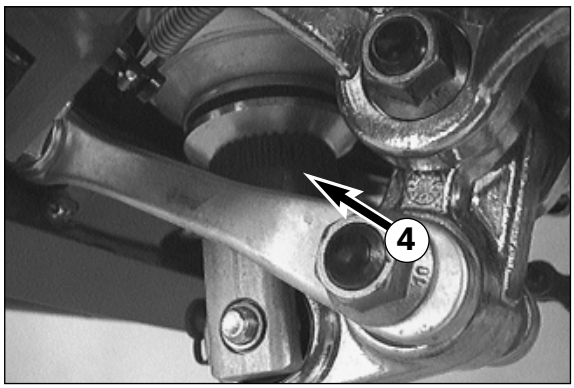
BASIC ADJUSTMENT:
Turn the adjuster knob clockwise until it stops, than turn the knob 14 clicks counterclockwise.



Compression damping of shock absorber

With the knob ❸ the degree of damping of the compression can be adjusted to 7 positions. Turn the knob counterclockwise to increase damping, turn it clockwise to reduce damping during rcompressing.

STANDARD ADJUSTMENT: position 3



Rebound damping of shock absorber

With the setting wheel ❹ the degree of damping of the rebound can be adjusted to 11 positions. Turn the knob to the left side to increase damping, turn it to the right side to reduce damping during rebounding.

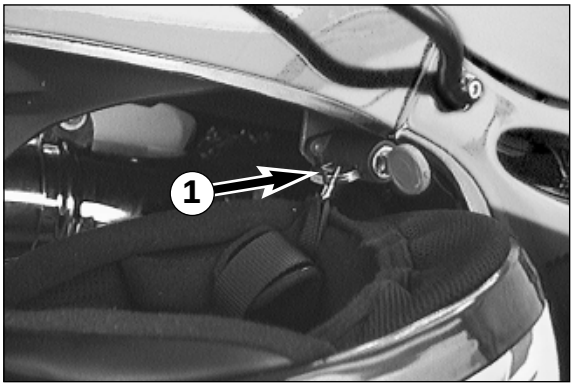
STANDARD ADJUSTMENT: position 5

⚠ WARNING ⚠

- NEVER CHANGE DAMPING BETWEEN THE TEST DRIVES MORE THAN 2 CLICKS.
- THE DAMPING UNIT OF THE SHOCK ABSORBER IS FILLED WITH HIGHLY COMPRESSED NITROGEN. NEVER TRY TO TAKE THE SHOCK ABSORBER APART OR TO DO ANY MAINTENANCE WORK YOURSELF. SEVERE INJURIES COULD BE THE RESULT.

STANDARD ADJUSTMENT	FORK		SHOCK ABSORBER		
	compression	rebound	compression	rebound	preload
without passenger, driver appr. 75 kg (166 lb)	14	14	3	5	23
with passenger	14	14	5	3	28

Change the shock absorber preload see page 17.

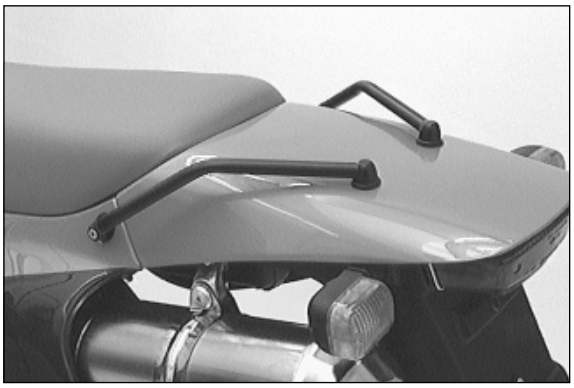


Helmet lock

The helmet lock ❶ is located behind the right side cover. To unlock it, insert ignition key and turn it clockwise. Hang helmet on rod, turn key counterclockwise as far as it goes.

⚠ WARNING ⚠

NEVER LEAVE YOUR HELMET ATTACHED TO HELMET LOCK WHEN RIDING YOUR MOTORCYCLE BECAUSE THE HELMET CAN GET CAUGHT IN THE REAR WHEEL AND THROW THE VEHICLE OUT OF CONTROL.



Passenger handles

On the tail of the motorcycle you will find two handles which a passenger can use to hold on to.

DRIVING INSTRUCTIONS

Check the following before each start

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

The following checks should be performed:

1 CHECK THE OIL LEVEL
Insufficient oil results in premature wear and consequently to engine damage.

2 FUEL
Check that there is sufficient fuel in the tank; when closing the filler cap, check that the tank venting hose is free of kinks.

3 CHAIN
A loose chain can fall off; an extremely worn chain can tear, and insufficient lubrication can result in unnecessary wear to the chain and rear sprockets.

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 reduce the driving performance.

5 BRAKES
Check correct functioning of the braking system. Check for sufficient brake fluid in the reservoir. 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 garage, as complete failure of the braking system can be expected.
Also check the state of the brake hoses and the thickness of the brake linings. Brake linings measured at their thinnest point should not be less than 1 mm since extremely worn linings can lead to brake failure.

6 CABLES
Check correct setting and easy running of all control cables.

7 COOLING LIQUID
Check the level of cooling liquid when the engine is cold.

8 ELECTRICAL SYSTEM
Check correct functioning of headlamps, parking light, taillight, brake light, flashers, indicator 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 COLOURED SO THAT OTHER USERS OF THE ROADS CAN SEE YOU AS EARLY AS POSSIBLE. YOUR PASSENGER OF COURSE WILL ALSO NEED SUITABLE PROTECTIVE CLOTHING.
– DO NOT DRIVE AFTER HAVING CONSUMED ALCOHOL.
– ONLY USE ACCESSORIES THAT HAVE BEEN RELEASED BY KTM. FOR EXAMPLE, FRONT PANELLING CAN IMPAIR THE DRIVING PROPERTIES OF THE MOTORCYCLE. CASES, EXTRA TANKS ETC. CAN ALTER THE WEIGHT DISTRIBUTION AND THUS ALSO IMPAIR THE VEHICLE'S DRIVING PROPERTIES.
– THE FRONT AND REAR WHEEL ARE ONLY ALLOWED TO BE TIRED WITH TIRES THAT HAVE THE SAME PROFILE TYPE.

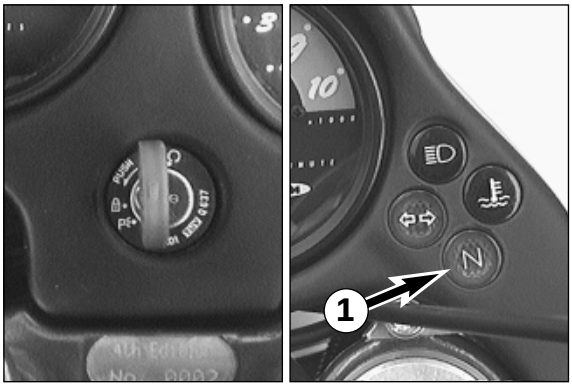
Instructions for initial operation

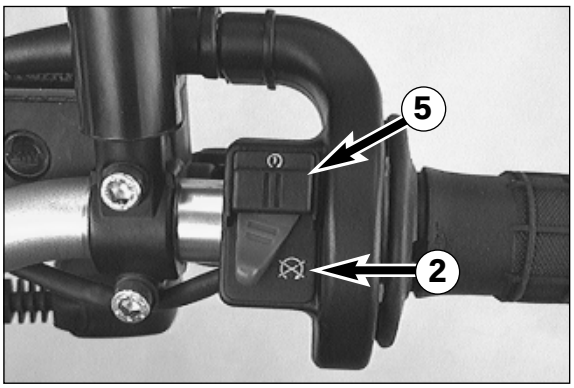
– Verify that your KTM dealer performed the PREPARATION OF VEHICLE jobs (see Customer Service Manual).
– Read the entire manual carefully before your first drive.
– Familiarize yourself with the operating elements.
– Adjust the foot brake pedal and the hand brake lever to the most comfortable positions for you.
– Get used to handling the motorcycle on an empty car park, 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.
– Hold the handlebar with both hands and leave your feet on the foot rests while driving.
– Remove your foot from the foot brake pedal when you are not braking. If the foot brake pedal is not released the brake pads rub continuously and the braking system is overheated.
– You may only be accompanied by a passenger if your motorcycle is fitted and registered for such purposes. The passenger must hold tight to the brackets or hold on to the driver during the drive, with his feet on the passenger foot rests.
– 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 and passenger with protective clothing and helmet.
– Pay attention to running in instructions.

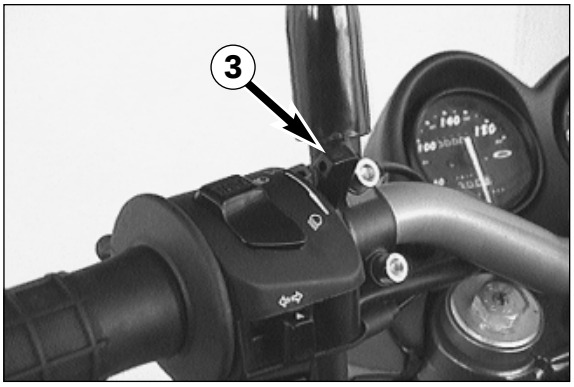
Running in

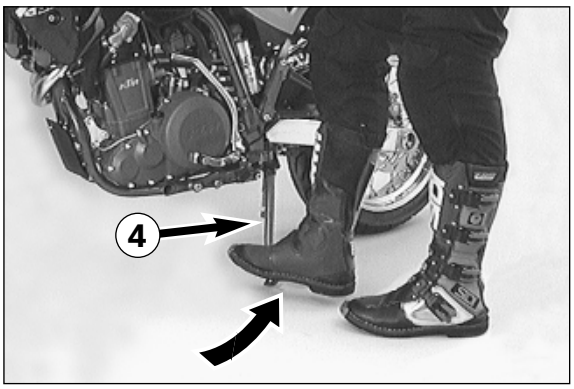
Even finely machined surfaces of engine parts have rougher surfaces than parts that slide on each other for a long time. Therefore, every engine must be run in. For this reason, do not demand maximum performance from the engine for the first 100 kilometers. The vehicle must be run in at low, changing performance level for the first 1000 KM (620 miles). The maximum number of revolutions per minute must not go exceed 4800 rpm. Once you have run your engine in for 1000 km (620 mi), you may push it to its 8500 rpm limit , i.e. up to the orange zone indicated in the tachometer. Exceeding the above listed rotations as well as pushing high rpm when the engine is cold will have an adverse effect on the life of your engine.

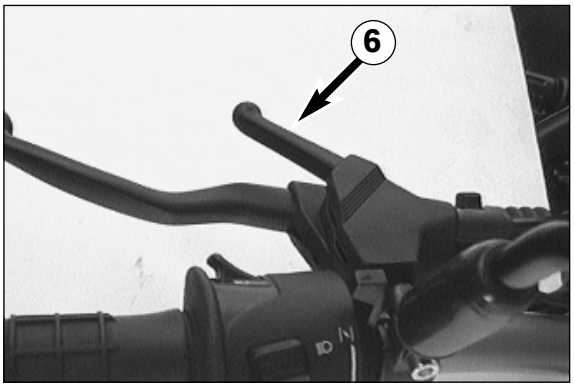
NOTE:
During the stage of running the engine in, that is the first 1000 KM (620 miles), the engine oil used should be of a mineral oil formula. This also applies if the engine has been repaired.











Starting when the engine is cold

1 Open the fuel tap.
2 Turn on the ignition (ignition key position: ◯).
3 Switch the gear to neutral (green lamp ❶ lights).
4 Switch on the emergency off switch (symbol ❷ must be visible).
5 Operate the choke lever ❸.
6 Operate the starter tip switch ❺ without accelerating.
7 If the engine starts, push the choke lever back a little bit, as soon as the engine runs unevenly.
8 Swing up the sidestand ❹.

⚠ WARNING ⚠

DO NOT START THE ENGINE AND ALLOW IT TO IDLE IN A CLOSED ROOM. EXHAUST FUMES ARE POISONOUS AND CAN CAUSE LOSS OF CONSCIOUSNESS AND DEATH. ALWAYS PROVIDE ADEQUATE VENTILATION WHILE THE ENGINE IS RUNNING.

! CAUTION !

– MAXIMUM 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. ALWAYS KEEP IN MIND THAT THE ENGINE SHOULD BE WARMED UP WITH SMALL LOAD AT MEDIUM R.P.M.

IF THE ENGINE IS DOES NOT CRANK WHEN YOU ACTUATE THE STARTER TIP SWITCH:
– Check if the ignition is on
– Check if the gear is switched to neutral
– Check if the emergency off switch is on
– Check if the parking light and the cockpit lights are on.
  – If this is not the case, the battery is discharged and the engine can be started with the kickstarter (see starting with an empty battery).
  – If the lights are on, proceed as described in the „Trouble-shooting" section or contact a KTM dealer.

⚠ WARNING ⚠

TO AVOID INJURIES, IT IS RECOMMENDED TO WEAR BOOTS WHEN USING THE KICKSTARTER.

IF THE ENGINE CRANKS BUT DOES NOT START, WHEN YOU ACTUATE THE STARTER TIP SWITCH:
– Check if the fuel tap is open
– Check if the choke lever has been operated
– Check if sufficient fuel is in the tank
  – If this is not the case, refill the tank
  – if sufficient fuel is in the tank, proceed as described in the „Trouble-shooting" section or contact a KTM dealer.

THE ELECTRIC STARTER DOESN'T CRANK THE ENGINE WHEN THE STARTER TIP SWITCH IS OPERATED EVEN THOUGH SUFFICIENT ELECTRIC CURRENT IS AVAILABLE:
– Pull the hand decompression lever ❻, start and release the lever.

NOTE:
Side stand models are equipped with a safe-starting system. With the side stand on the ground, the engine can only be started with the transmission in neutral position. The engine stops if a gear is engaged before swinging up the side stand.

Starting when the engine is warm

1 Open the fuel tap.
2 Turn on the ignition (ignition key position: ◯).
3 Switch the gear to neutral (green lamp ❶ lights).
4 Switch on the emergency off switch (symbol ❷ must be visible).
5 Operate the starter switch ❺ without accelerating.
6 Swing up the sidestand ❹.

Starting when the engine is hot

1 Open the fuel tap.
2 Turn on the ignition (ignition key position: ◯).
3 Switch the gear to neutral (green lamp ❶ lights).
4 Switch on the emergency off switch (symbol ❷ must be visible).
5 Operate the hot start button at the carburetor.
6 Operate the starter switch ❺ without accelerating.
7 Once the engine is running, pull hot start device back into its basic position
8 Swing up the sidestand ❹.

What to do when the engine is „flooded"

The throttle must be fully opened when starting.

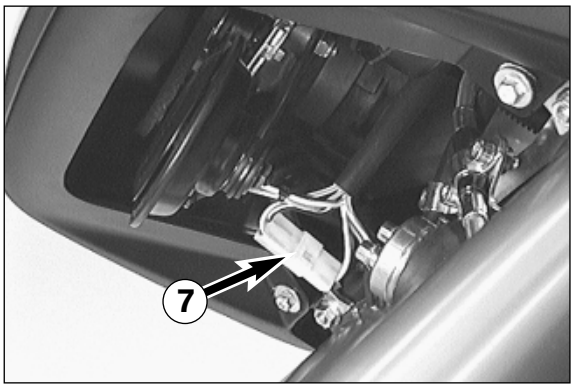
Kickstart instructions

Start as described above, then push the kickstarter hard all the way.

⚠ WARNING ⚠

ALWAYS WEAR BOOTS WHEN USING THE KICKSTARTER TO AVOID INJURY.

Starting with an empty battery



When the battery of the motorcycle is empty the engine can only startet by disconnecting the power supply of the head light. For this purpose a pin and socket connector ❼ can be fund below the headlight mask. Disconnect the pin and socket connector and start the engine with the kickstarter.

! CAUTION !

AS SOON AS THE ENGINE IS RUNNING RECONNECT THE PIN AND SOCKET CONNNECTOR TO MAKE SURE THE HEAD LIGHT IS WORKING.

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 RIGHT UP TO THE TOP. IF THE STAND DRAGS ON THE GROUND, THE MOTORCYCLE CAN GO OUT OF CONTROL.

Shifting/Riding

You are now in first gear, refered to as the drive or uphill gear. Depending on the conditions (traffic, road gradient, etc.), you can shift to a higher gear. Close throttle, at the same time pull clutch lever and shift to the next higher gear. Let clutch lever go again and open throttle. 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 turning the throttle grip all the way, turn throttle back to 3/4; the speed hardly decreases although the engine will use less gas. Never open the throttle wider than the engine can handle. Excessive turning of the throttle grip will increase full consumption.
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 slowely and open throttle or shift down again.
If the engine is killed f.ex. at a crossing, simply pull the clutch lever and start. It is not necessary to switch the gear to NEUTRAL.

⚠ 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 ON UNKNOWN ROADS
– NEVER LEAVE A HELMET ATTACHED TO HELMET LOCK WHEN RIDING YOUR MOTORCYCLE BECAUSE THE HELMET CAN GET CAUGHT IN THE REAR WHEEL AND THROW THE VEHICLE OUT OF CONTROL.
– REPLACE THE HELMET VISOR RESPECTIVELY GOGGLE GLASSES IN PLENTY OF TIME. WHEN LIGHT SHINES DIRECTLY ON SCRATCHED VISOR OR GOGGLES, YOU WILL BE PRACTICALLY BLIND.
– AFTER FALLING WITH THE MOTORCYCLE, CHECK ALL FUNCTIONS THOROUGHLY BEFORE STARTING UP OPERATIONS AGAIN.

! 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.
– SHIFT TO THE NEXT HIGHER GEAR BY 8500 RPM AT THE LATEST.
– NEVER HAVE THE THROTTLE WIDE OPEN WHEN CHANGING DOWN TO A LOWER GEAR. THE ENGINE WILL OVERSPEED, DAMAGING THE VALVES. IN ADDITION, THE REAR WHEEL BLOCKS SO THAT THE MOTORCYCLE CAN EASILY GET OUT OF CONTROL.
– LONG WHEELIE DRIVING CAUSES THE OIL PRESSURE TO DROP. THE OIL PRESSURE WILL AUTOMATICALLY INCREASE AS SOON AS YOU DRIVE ON NORMALLY. DOING WHEELIES FOR A LONG TIME WILL DAMAGE YOUR ENGINE.
– IF THE RED COOLING LIQUID TEMPERATURE LAMP LIGHTS UP WHILE YOU ARE DRIVING, THIS INDICATES COOLING SYSTEM TROUBLE. IMMEDIATELY STOP AND TURN OFF THE ENGINE. DRIVING WITH THE WARNING LAMP ON WILL CAUSE ENGINE DAMAGE.
  – PLACE A CLOTH ON THE RADIATOR CAP. OPEN THE CAP SLOWLY, SO THE EXCESS PRESSURE IN THE COOLING SYSTEM CAN ESCAPE. - CAUTION SCALDING HAZARD! - AND CHECK THE COOLING LIQUID LEVEL.
  – DO NOT DRIVE ON, UNTIL THERE IS SUFFICIENT LIQUID IN THE COOLING SYSTEM. HOWEVER, CALL ON ONE OF KTM'S DEALERS AS SOON AS POSSIBLE IN ORDER TO HAVE THE DEFECT REMEDIED.
– IF ANY ABNORMAL VIBRATIONS OCCUR WHILE DRIVING, CHECK THAT THE ENGINE FASTENING SCREWS ARE TIGHT.
– IN THE EVENT THAT, WHILE RIDING YOUR MOTORCYCLE, YOU NOTICE ANY UNUSUAL OPERATION-RELATED NOISE, STOP IMMEDIATELY, TURN THE ENGINE OFF, AND CONTACT AN AUTHORIZED KTM DEALER.

Braking

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

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

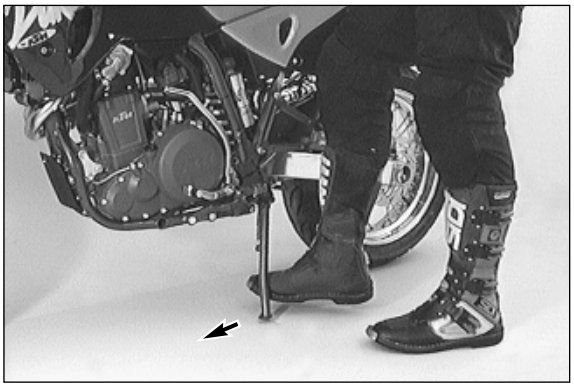
Apply the brakes fully and put the engine into neutral. To stop the engine, switch off the ignition. Close fuel tap. Park on solid ground and lock the vehicle.

⚠ WARNING ⚠

- NEVER LEAVE YOUR MOTORCYCLE WITHOUT SUPERVISION AS LONG AS THE ENGINE IS RUNNING.
- MOTORCYCLE ENGINES PRODUCE A GREAT AMOUNT OF HEAT WHILE RUNNING. THE ENGINE RADIATORS, EXHAUST, EXHAUST SYSTEM, BRAKE DISCS, 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.
- NEVER PARK YOUR MOTORCYCLE IN PLACES WHERE THERE EXIST FIRE HAZARDS DUE TO DRY GRASS OR OTHER EASILY FLAMMABLE MATERIALS.

! CAUTION !

- PARK YOUR MOTORCYCLE, SO THAT IT RESTS STABLY ON THE SIDESTAND (HARD GROUND, LEVEL SURFACE) AND CAN'T TIP OVER.
- DO NOT LEAVE THE PARKING LIGHT ON FOR MORE THAN THREE HOURS WITH THE ENGINE OFF. OTHERWISE YOU WILL NOT BE ABLE TO START THE ENGINE WITH THE ELECTRIC STARTER.
- CLOSE THE FUEL TAP WHEN LEAVING YOUR VEHICLE.OTHERWISE THE CARBURETOR CAN OVERFLOW AND FUEL WILL ENTER THE ENGINE.
- ALWAYS TAKE OUT THE IGNITION KEY WHEN PARKING YOUR MOTORCYCLE SO THAT IT CANNOT BE USED BY UNAUTHORIZED PERSONS.



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.

PERIODIC MAINTENANCE SCHEDULE

Duke 2.98

IF THE MOTORCYCLE IS USED FOR COMPETITIVE RACING, THE 5000 KM (3000 MILES) SERVICE NEEDS TO BE CARRIED OUT AFTER EVERY RACE

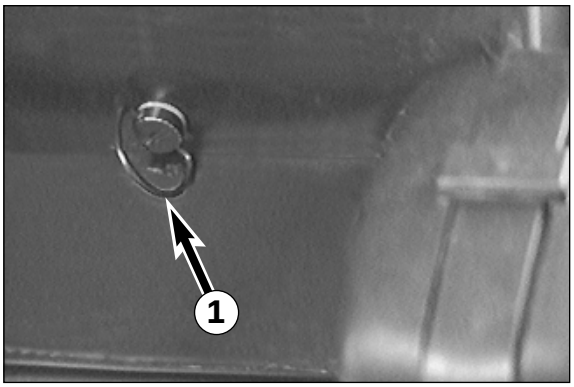
	KTM rider		KTM dealer			
	before each start	after washing	1st service, after 500 km (300 miles)	after 2500 km (1500 miles)	after 5000 km (3000 miles) or once a year	at least once a year
Check engine oil level	●					
Change engine oil			●		●	●
Clean oil screen and magnet of the drain plugs whenever you exchange the engine oil			●			
Change oil filter insert			●		●	●
Change fine screen filter (screwed filter) at front pipe (of the frame)			●		●	●
Check oil lines for leakage and proper instalment without kinks			●		●	
Check valve clearance			●		●	
Clean spark plug and adjust electrode gap					●	
Change spark plug after 10 000 kilometers (6 200 miles)						
Check ignition point					●	
Drain and clean carburetor float chamber		●			●	●
Adjust idling					●	
Check breather hoses of engine gase and gas tank for correct position without buckles			●		●	
Clean air filter and air filter box		●			●	●
Check sprockets, chain guides and chain for wear	●		●		●	
Maintain chain tension eccentrics (Duke)						●
Clean and lube chain	●	●			●	
Check chain tension	●		●		●	
Check cooling liquid level	●		●		●	
Check quality of antifreezer						●
Check cooling system for leaks – visual check	●		●		●	
Check exhaust system for leakage						●
Check exhaust brackets			●		●	
Disassemble and clean spark arrestor discs (USA models)						
Check brake fluid level front and rear	●		●		●	
Change brake fluid						●
Check brake pad thickness	●				●	
Check brake discs					●	
Check condition and correct instalment of brake hoses	●		●		●	
Check free play and easy operation of foot brake pedal	●		●		●	
Check adjustment and function of telescopic fork	●				●	
Check telescopic fork for leaks					●	
Change telescopic fork oil						●
Perform a full maintenance job for the telescopic fork						●
Clean dust scrabber of telescopic fork					●	●
Check steering head bearing clearance / adjust			●		●	
Clean and grease steering head bearings and its seals						●
Check adjustment and funktion of shock absorber	●				●	
Check O-ring of the shock absorber for wear					●	●
Service the shock absorber						●
Grease nipple of the Pro Lever suspension system					●	
Disassemble the Pro Lever suspension system linkage and perform a full maintenance job on it						●
Service swingarm pivot						●
Check spoke tension and join	●		●		●	
Check wheel bearings for clearance	●				●	
Check shock absorber rubbers on the rear hub					●	
Check tire condition and air pressure	●				●	
Check cables for damage and easy working	●				●	
Lube and adjust cables		●	●		●	
Check the electrical system	●		●		●	
Check battery holder, battery and connections					●	●
Check adjustment of headlight					●	
Spray ignition lock, emergency off switch, and light switch with contact spray		●			●	
Check all screws, nuts and hose clamps for proper tightness	●		●		●	
Grease or lube all pivot points and sliding points		●	●		●	

⚠ **WARNING** ⚠

ALL MAINTENANCE AND ADJUSTEMENT OPERATIONS THAT ARE MARKED WITH A * REQUIRE SPECIALIST KNOWLEDGE. FOR YOUR OWN SAFETY, LET THESE TASKS BE CARRIED OUT BY A KTM-DEALER

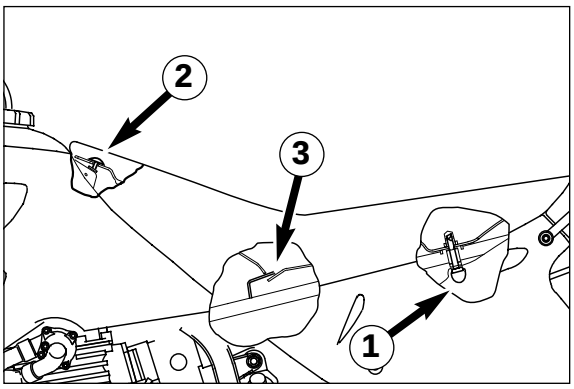
! **CAUTION** !

- 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. If the motorcycle should fall over, fuel can leak from the carburetor or fuel tank
- Do not use toothed washers or spring washers with the engine fastening screws, as these work into the frame parts and keep working loose. Instead, use self-locking nuts.
- Let your motorcycle cool down before beginning any maintenance work in order to avoid getting burned.
- Dispose of oil, grease, filters, fuels, cleaning agents etc. according to your local regulations.
- Under no circumstances may used oil be disposed of in the sewage system or in the open countryside. 1 liter used oil contaminates 1.000.000 liters water.

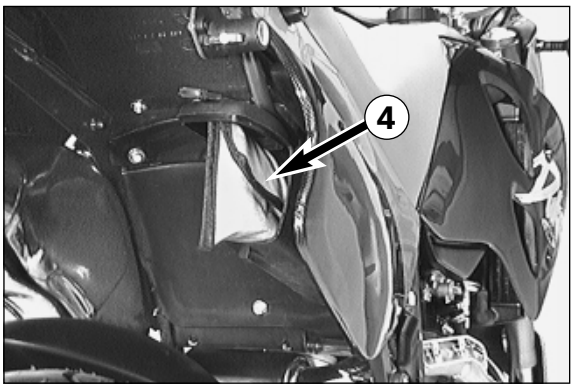


Removing the seat

The seat is provided with a quick-locking mechanism and can therefore be removed very easily. Turn the quick-locking mechanism ❶ on the underside of the fender 180° counterclockwise and lift the rear section of the seat. Pull the seat backwards and unhook it where it is held by the oval head screw ❷.

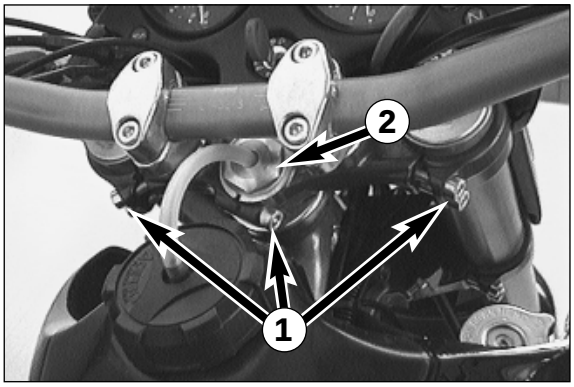


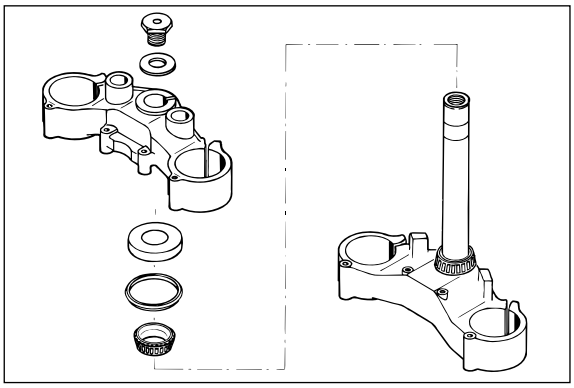
Mounting the seat:
- Hook the seat onto the oval head screw ❷.
- Slide it forward to let the retaining bracket ❸ engage in the seat.
- Press the quick-locking mechanism upward and turn it 180° clockwise.



Tool set

The tool set ❹ is located in the tool box under the right side cover.





Checking and adjusting the steering head bearing*

Check steering head bearing for play periodicaly. To check this, put motorcycle on stand so that the front wheel is off the ground. Now try to move the fork forward and backward - no play should be discernable To adjust, loosen the five clamp screws ❶ of the top triple clamp and turn steering stem bolt clockwise ❷ until there is no more play. Don't tighten the steering stem bolt all the way, otherwise the bearings will be damaged. With a plastic hammer, lightly tap on the top triple clamp to release tension. Re-tight the five clamp screws to 25 Nm (18 ft.lb).

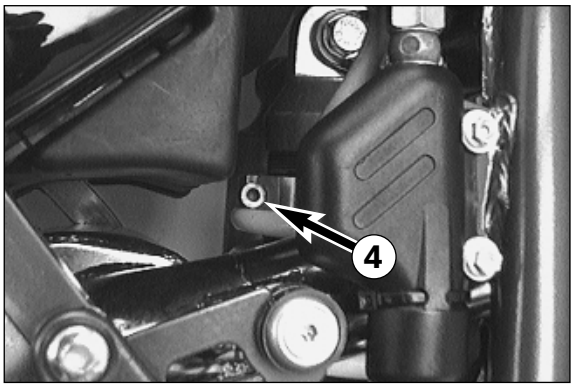
⚠ WARNING ⚠

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

! CAUTION !

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

At least once a year, the steering head bearings should be greased.



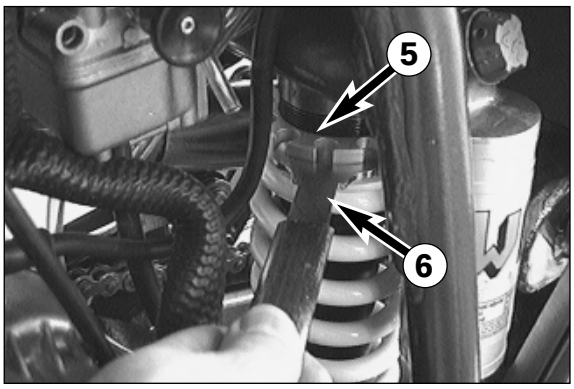
Changing the spring preload of the shock absorber

KTM sets the shock absorber for a driver only, weighing approximately 75 kg (165 lb). If you want to take a passenger with you, of if you weigh considerably more or less than 75 kg (165 lb), you should change the spring preload accordingly. This is easily done.

NOTE:

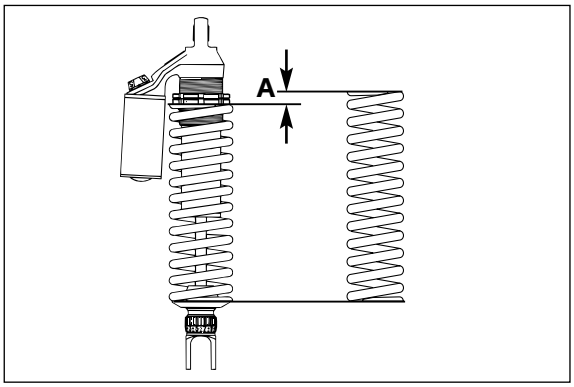
– Before changing the spring preload note down the basic setting, e.g. how many threads are visible above the adjusting ring.
– One rotation of the adjusting ring ❺ changes the spring preload by approximately 2 mm.

Loosen the allan head screw ❹ at the adjustment ring ❺. Use the special wrench ❻ from the tool set to turn the adjusting ring as required. Place the adjusting ring in a suitable position, and tighten the allan head screw.

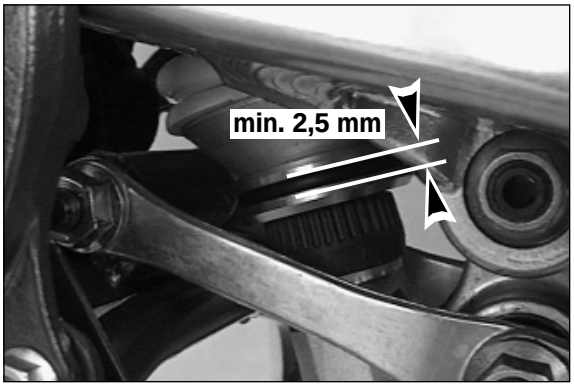


ADJUSTMENT VALUES - SPRING PRELOAD:

Minimum preload	10 mm
Preload driver only 75 kg BASIC SETTING	23 mm
Preload with passenger	28 mm



A = spring preload



Checking the rubber ring on the rear shock absorber

A rubber ring mounted on the rear shock absorber serves as a vibration damper. This ring gets pressed together with time and loses its shock absorbing quality.

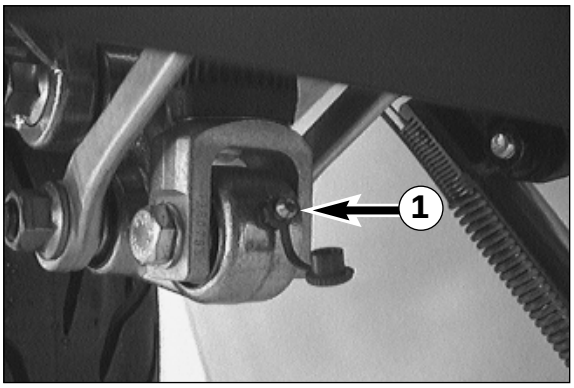
Measure the distance between the two discs at various points around their circumferences. The space should be at least 2.5 mm wide. Have the rubber ring replaced in a KTM garage when compaction due to wear has exceeded the limit.

! CAUTION !

NOT REPLACING THE RUBBER RING IN TIME CAN RESULT IN DAMAGE TO THE SHOCK ABSORBER.

⚠ WARNING ⚠

THE DAMPING UNIT OF THE SHOCK ABSORBER IS FILLED WITH HIGHLY COMPRESSED NITROGEN. NEVER TRY TO TAKE THE SHOCK ABSORBER APART OR TO DO ANY MAINTENANCE WORK YOURSELF. SEVERE INJURIES COULD BE THE RESULT.

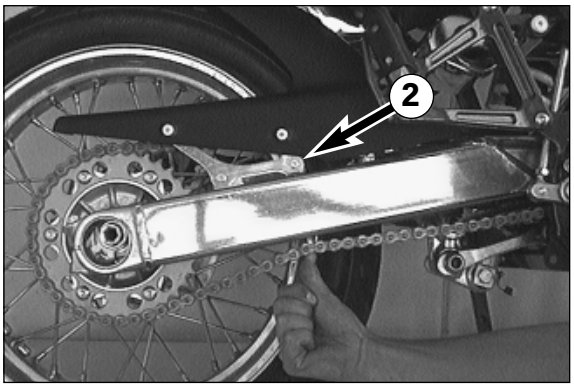


Lubricating the shock absorber linkage

The bearings in the rocker arm must be greased in regular intervals. For this purpose, a grease nipple ❶ is mounted on the rocker arm.

! CAUTION !

AFTER EACH TIME THE MOTORCYCLE IS WASHED, IT IS ESPECIALLY IMPORTANT TO GREASE THE GREASE NIPPLE TO PUSH ANY WATER OUT OF THE BEARINGS.

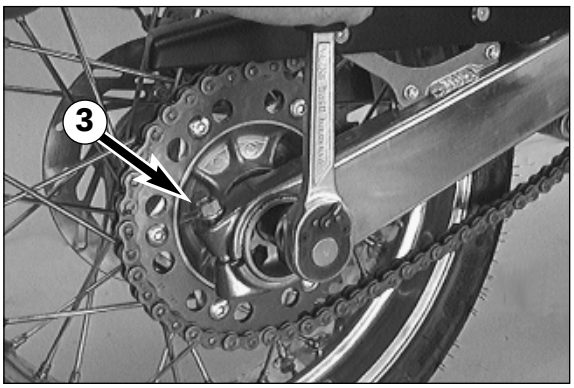


Checking chain tension

To check chain tension, turn off the engine and shift into neutral. Chain tension is correct when the chain can just barely be pushed up to touch the swingarm at the level of the screw ❷ (see illustration). If necessary, correct chain tension.

⚠ WARNING ⚠

- IF CHAIN TENSION IS TOO GREAT, PARTS WITHIN THE SECONDARY POWER TRANSMISSION (CHAIN, CHAIN SPROCKETS, TRANSMISSION AND REAR WHEEL BEARINGS) WILL BE SUBJECTED TO UNNECESSARY STRESS, RESULTING IN PREMATURE WEAR AND EVEN CHAIN BREAKAGE.
- 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.



Correcting chain tension

- Loosen hexagon nuts ❸ on the left and right swingarm fists.
- Loosen allan head screw ❹.
- Turn wheel spindle and eccentrics counterclockwise.

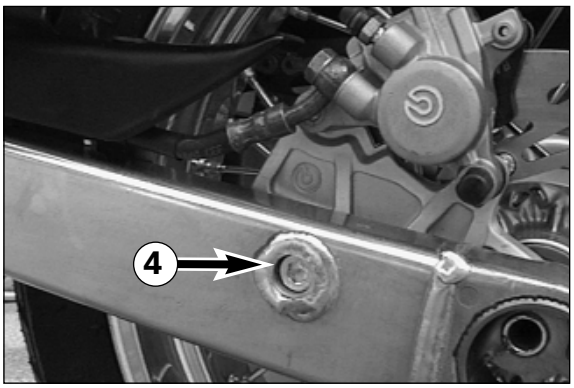
! CAUTION !

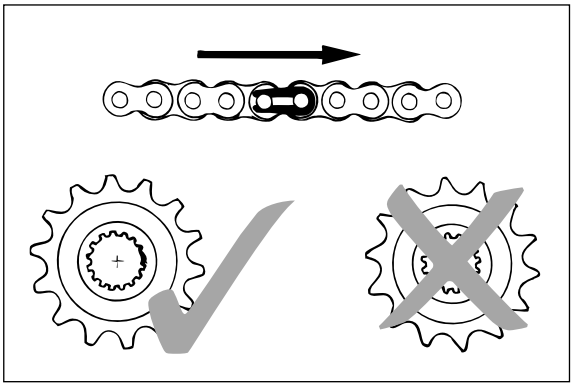
IF THE WHEEL SPINDLE BECOMES LOOSENED DURING THE PROCESS, RETURN ECCENTRICS TO THEIR ORIGINAL POSITION BEFORE RETIGHTENING THE WHEEL SPINDEL (SEE MAINTAINING ECCENTRICS)

- Tighten hexagon nuts on swing arm fists to 40 Nm (30 ft.lb).
- Tighten allan head screw ❹ to 40 Nm (30 ft.lb).

⚠ WARNING ⚠

- DO NOT TRY TO INCREASE CHAIN TENSION BY SIMPLY TURNING WHEEL SPINDLE AND ECCENTRICS. THIS WILL RAISE THE TAIL OF THE MOTORCYCLE AND WORSEN THE MOTORCYCLE'S PERFORMANCE ON THE STRAIGHTAWAY.
- 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.





Chain maintenance

O-ring chains require only modest maintenance. The best way is to use lots of water, but never use brushes or solvents. After letting the chain dry, you can use a special O-ring chain spray (i.e. Shell Advance Bio Chain).

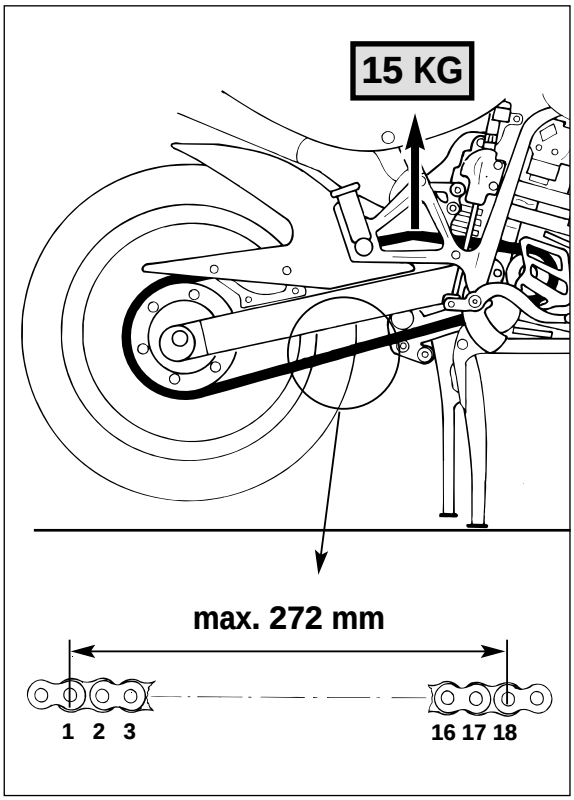
⚠ WARNING ⚠

NO LUBRICATION IS ALLOWED TO REACH THE REAR TIRE OR THE BRAKE DISK, EITHERWISE THE ROAD ADHERENCE AND THE REAR WHEEL BRAKING EFFECTS WOULD BE STRONGLY REDUCED AND THE MOTORCYCLE COULD EASILY GET OUT OF CONTROL.

! CAUTION !

WHEN MOUNTING THE CHAIN JOINT, THE CLOSED SIDE OF THE SAFETY DEVICE MUST POINT IN RUNNING DIRECTION.

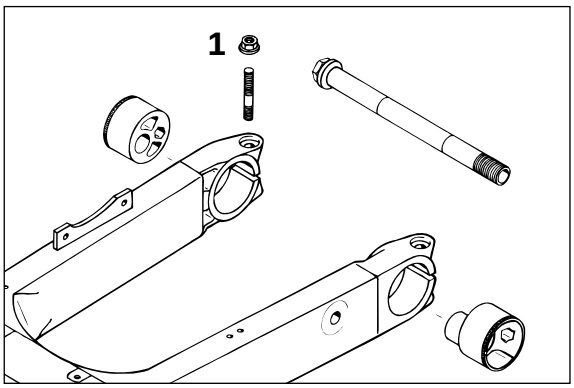
ALSO CHECK SPROCKETS AND CHAIN GUIDES FOR WEAR, AND REPLACE IF NECESSARY.



Chain wear

In order to check the chain wear, regard the following instructions:
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.



Maintaining chain tension eccentrics

To ensure trouble-free adjustment, take the chain tension eccentrics out at least once a year for maintenance them. To do this:

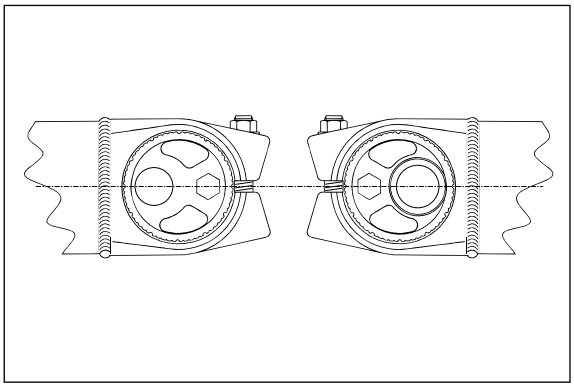
- Remove rear wheel
- Loosen hexagon nuts ❶ on the left and right swing arm fists
- Remove eccentrics
- Clean eccentrics and swing arm fists thoroughly and grease the slide faces with a Molykote grease or spray
- Replace eccentrics (eccentric with the thread goes in the left swing arm fist)
- Turn both eccentrics to the same position (marks should be aligned with the notches in the swing arm fists
- Tighten hexagon nuts on the swing arm fists with 45 Nm (33 ft.lb)
- Mount the rear wheel, tighten the wheel spindle to 80 Nm (59 ft.lb) and adjust the chain tension.

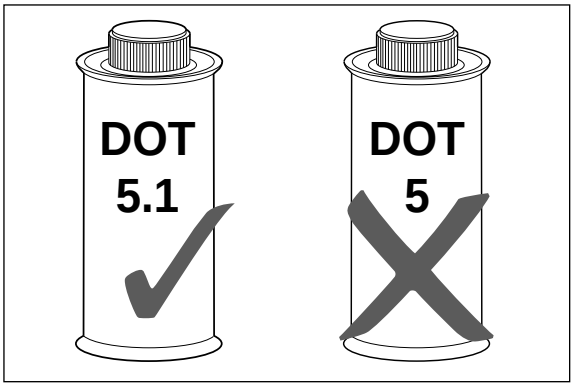
⚠ WARNING ⚠

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.

! CAUTION !

IF THE ECCENTRICS ARE NOT ALIGNED, THE REAR WHEEL WILL REST AT AN ANGLE IN THE SWING ARM. THIS WILL STRESS THE REAR WHEEL AND SWING ARM BEARINGS AND DAMAGE THEM IF NOT CORRECTED.





General informations about disc brakes

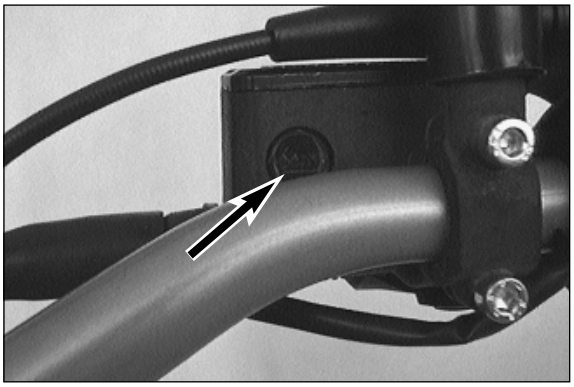
The front wheel brake system has a disc measuring 320 mm in diameter and a four-piston brake caliper which is mounted rigidly on the fork. The rear wheel brake system consists of a 220 mm diameter disc and a "float-mounted" one-piston brake caliper.
No adjustment is necessary, however, before taking off, you should always check the brake fluid level and brake pad wear in both the front and rear brake systems in order to assure they are in perfect working order. If you should notice any changes when applying the brake (eg. too much give , i.e. "spongy" resistance), refrain immediately from using your motorcycle. Take it to a KTM dealer and have the problem taken care of by experts.

⚠ WARNING ⚠

- HAVE ANY REPAIRS ON THE BRAKE SYSTEM BE PERFORMED BY A KTM DEALER
- EVERYTIME BEFORE STARTING YOUR MOTORCYCLE, CHECK BRAKES FOR FUNCTIONING AND BRAKE FLUID LEVELS
- 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
- CHANGE BRAKE FLUID AT LEAST ONCE A YEAR. IF THE MOTORCYCLE IS BEING WASHED VERY OFTEN, CHANGE BRAKE FLUID MORE OFTEN. BRAKE FLUID HAS THE ABILITY TO ABSORB WATER; THEREFORE, STEAM BUBBLES CAN FORM IN "OLD" BRAKE FLUID AT RELATIVELY LOW TEMPERATURES THUS CAUSING THE BRAKE SYSTEM TO FAIL.
- **NEVER USE DOT 5 BRAKE FLUID!** IT IS BASED ON SILICONE OIL AND OF A PURPLE COLOR. SEALS AND BRAKE HOSES MUST BE ESPECIALLY ADAPTED TO IT.
- KTM FILLS THE BRAKE SYSTEMS WITH CASTROL 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.
- IF THE BRAKE FLUID LEVEL DROPS BELOW THE MINIMUM EITHER THE BRAKE SYSTEM HAS A LEAK OR THE BRAKE PADS ARE COMPLETELY WORN DOWN.
- BRAKE LININGS MEASURED AT THEIR THINNEST POINT SHOULD NOT BE LESS THAN 1 MM SINCE EXTREMELY WORN PADS CAN LEAD TO BRAKE FAILURE. FOR YOUR OWN SAFETY DON'T PUT OFF HAVING YOUR BRAKE PADS CHANGED.
- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND GREASE, OTHERWISE THE BRAKING EFFECT WOULD BE STRONGLY REDUCED.
- AFTER HAVING DONE ANY WORK ON THE BRAKE SYSTEM, AND AFTER HAVING MOUNTED THE WHEELS, ALWAYS ACTUATE THE HAND BRAKE LEVER OR BRAKE PEDAL SO THAT THE BRAKE PADS WILL BE APPLIED TO THE BRAKE DISCS TO OBTAIN A PRESSURE POINT.

! 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.

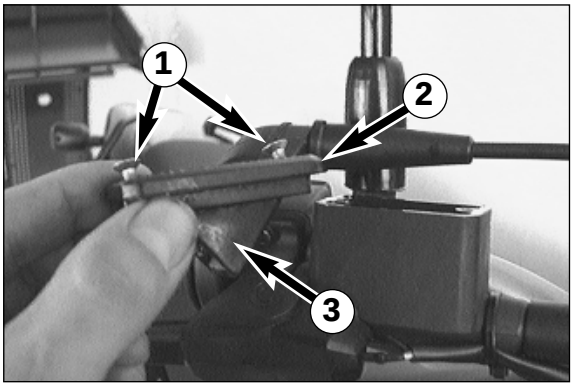


Checking of brake fluid level - front brake

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 go below middle of the glass.

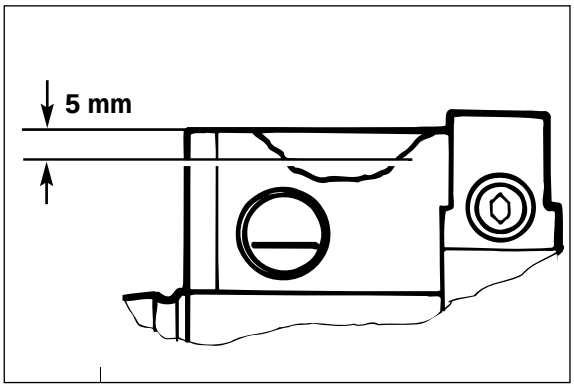
⚠ WARNING ⚠

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



Refilling the front brake fluid reservoir*

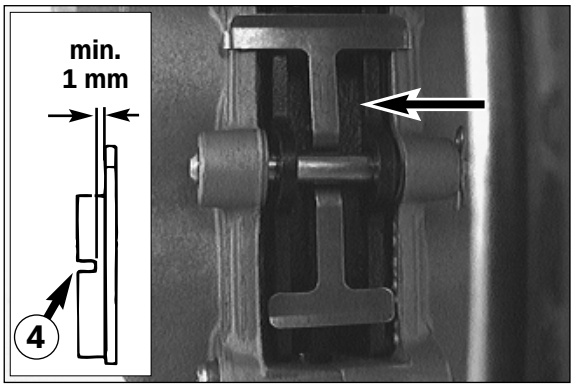
When the brake fluid falls to the middle of the inspection glass, new brake fluid has to be added.
Loosen screws ❶ and remove lid ❷ and membrane ❸.



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

⚠ WARNING ⚠

REFER TO WARNING IN THE CHAPTER ON "GENERAL INFORMATIONS ABOUT DISC BRAKES"



Checking the front brake pads

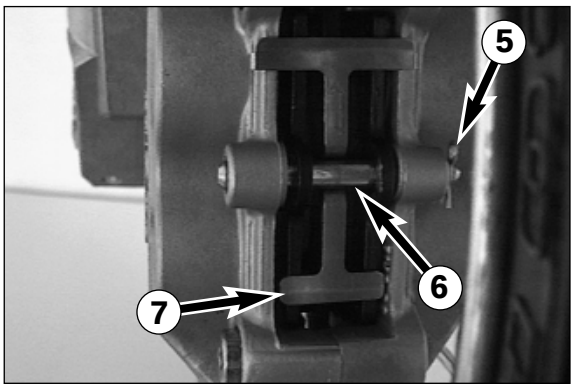
The brake pads can be inspected from behind. Always inspect the brake pad linings before taking off on your motorcycle. They should not be thinner than 1 mm which is the case when the notch ❹ is no longer discernable.

⚠ 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.

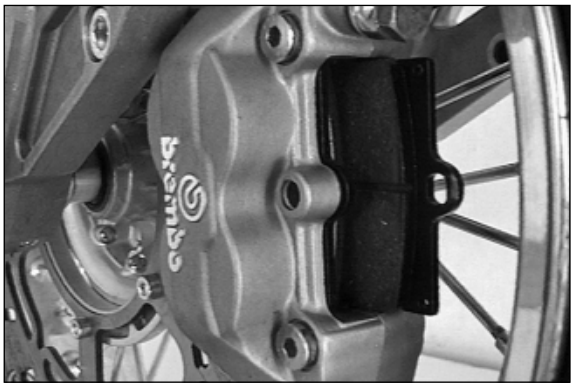
! CAUTION !

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



Replacing front brake pads*

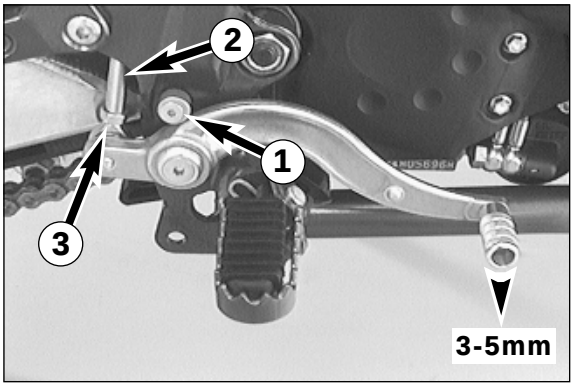
Remove clip ❺ and using a mandrel knock the cotter bolt ❻ out of the brake caliper. Remove retainer spring ❼. Using the old brake pads, push the brake pistons far enough back to allow the new brake pads to be put in place. Before installing the new brake pads, however, the brake caliper should be cleaned thoroughly using compressed air.



Insert new brake pads into the brake caliper, replace retainer spring (arrow pointing upward), and reinsert cotter bolt. Hammer the bolt into the caliper as far as it will go and replace cotter pin.

⚠ WARNING ⚠

- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND GREASE, OTHERWISE THE BRAKING EFFECTS WOULD BE STRONGLY REDUCED.
- AFTER ASSEMBLY, CHECK IF CIRCLIPS HAVE BEEN FITTED CORRECTLY.
- AFTER WORKING ON THE BRAKE SYSTEM, OPERATE THE HAND OR THE FOOT BRAKE SO THAT THE BRAKE PADS LIE AGAINST THE BRAKE DISC AND THE PRESSURE POINT IS ESTABLISHED.
- DO NOT OPERATE THE HAND BRAKE UNLESS THE BRAKE PADS ARE PROPERLY IN PLACE.



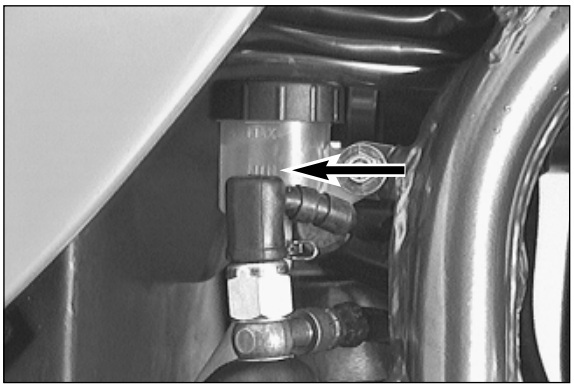
Changing the basic position of the brake pedal*

The basic setting of the foot brake pedal can be changed by turning the stop roller ❶. Using the piston rod ❷, the free play on the foot brake pedal must be set. In order to be able to turn the piston rod, the counter nut must first be loosened.

Measured on the outside, the foot brake pedal must have 3-5 mm 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). Retighten counter nut ❸.

! CAUTION !

IF THIS CLEARANCE IS MISSING, PRESSURE ACCUMULATES IN THE BRAKING SYSTEM AND THE BRAKE PADS BEGIN TO RUB. THE BRAKING SYSTEM OVERHEATS AND CAN FAIL COMPLETELY IN EXTREME CASES.

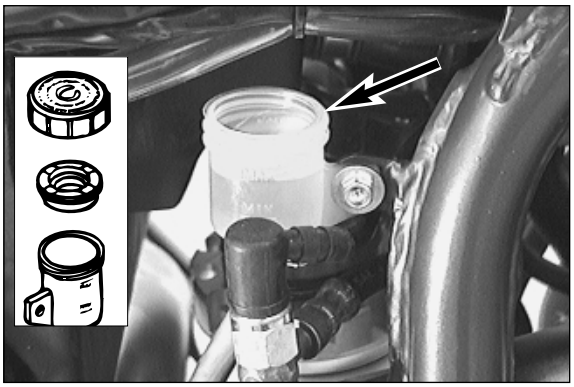


Check the rear brake fluid level

The reservoir for the rear disc brake is located above the main brake cylinder. The level of brake fluid may not fall below the „MIN" mark when the vehicle has been left standing upright

⚠ WARNING ⚠

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



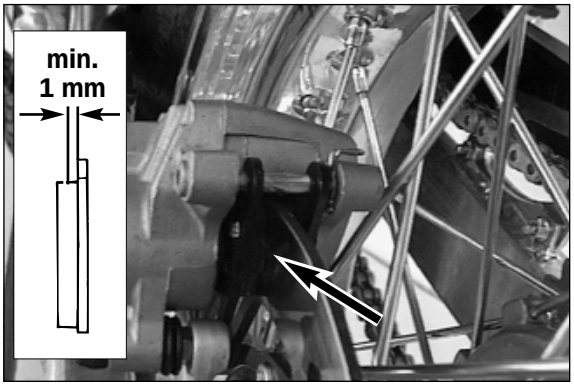
Refilling the rear brake fluid reservoir*

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

For this remove seat and right side cover. Unscrewing the cap ❸ and rubber boot. Add brake fluid DOT 5.1 until it reaches the „MAX" mark, then screw rubber boot and cap back on. Rinse off spilled or overflowing brake fluid with water.

⚠ WARNING ⚠

REFER TO WARNING IN THE CHAPTER ON "GENERAL INFORMATIONS ABOUT DISC BRAKES"



Checking the rear brake pads

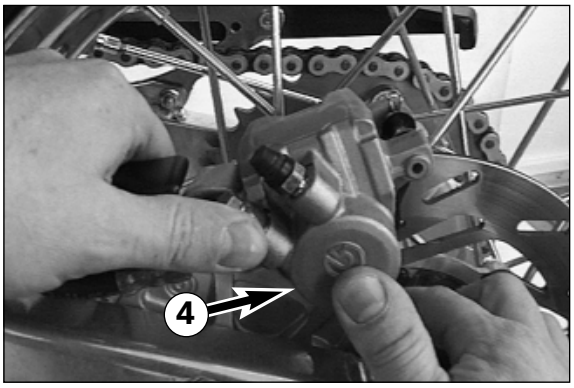
The brake pads can be inspected from the rear. The thickness of the linings may not be less than 1 mm (0.04 in).

⚠ 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.

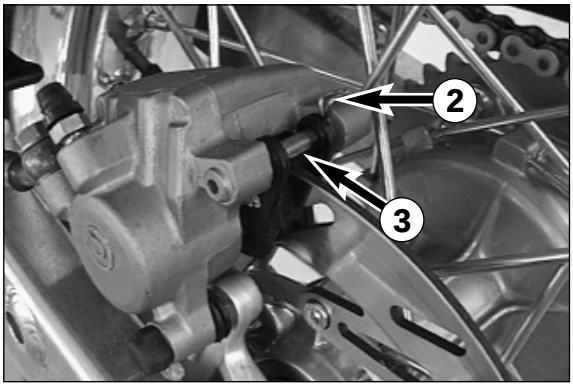
! CAUTION !

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

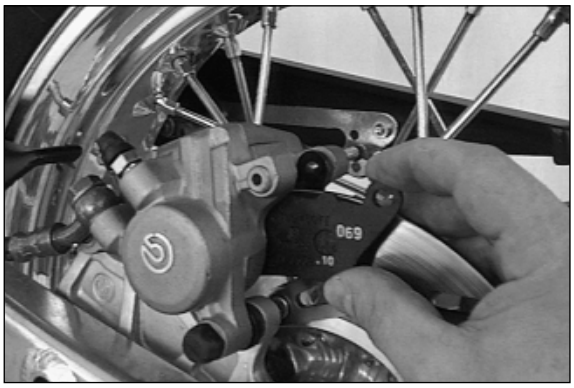


Replacing the rear brake pads *

Press brake caliper ❹ in direction of rear sprocket in order for the brake piston to reach its basic position.



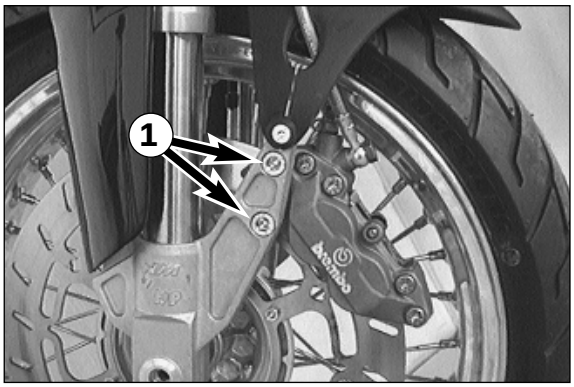
Remove cotter pin ❷, knock out the cotter bolt ❸ from the brake caliper with an insert stake towards the chain wheel and remove brake pads. Carefully clean the brake caliper with compressed air and check sleeves of the guide pins for damage.



Slide right brake pad into the brake caliper and fix it with the bolt. Slide in the left brake pad and knock in the bolt to end position. Mount safety device ❷.

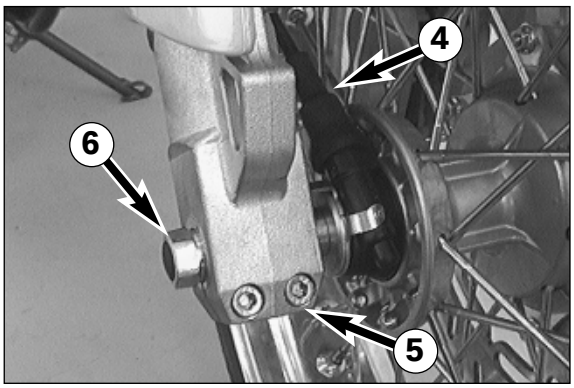
⚠ WARNING ⚠

- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND GREASE, OTHERWISE THE BRAKING EFFECTS WOULD BE STRONGLY REDUCED.
- AFTER ASSEMBLY, CHECK IF CIRCLIPS HAVE BEEN FITTED CORRECTLY.
- AFTER WORKING ON THE BRAKE SYSTEM, USE THE BRAKES SO THAT THE BRAKE PADS LIE AGAINST THE BRAKE DISC AND THE PRESSURE POINT IS ESTABLISHED.
- DO NOT OPERATE THE FOOT BRAKE UNLESS THE BRAKE PADS ARE PROPERLY IN PLACE.



Dismounting and mounting the front wheel*

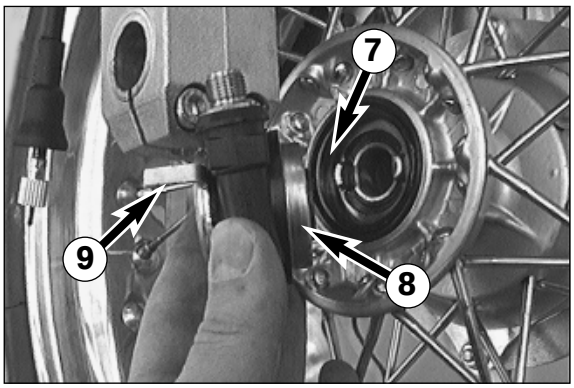
- To remove the front wheel, jack the motorcycle up by the frame so that the front wheel no longer touches the ground.
- Take out both allan head screws ❶ and remove brake caliper from brake disc.



- Screw speedometer cable ❹ from speedometer drive
- Loosen the clamp screws ❺ on the right fork leg axle passage (leave the clamp screws on the left fork fist tightened).
- Loosen wheel spindle ❻.
- Hold the front wheel, pull the wheel spindle out, remove the front wheel from the fork by pulling it forward.

! CAUTION !

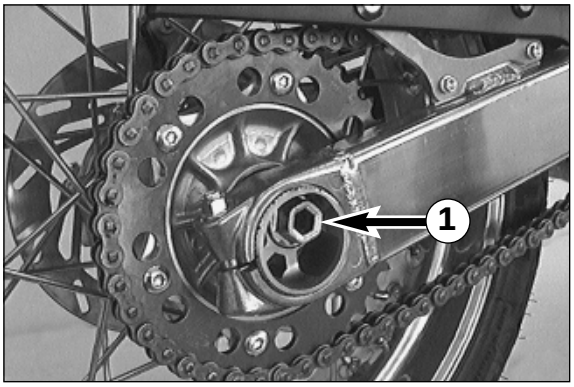
DO NOT OPERATE THE HAND BRAKE WHEN THE FRONT WHEEL HAS BEEN REMOVED.



- Prior to mounting the front wheel, clean and grease the shaft seal ring ❼ and running surface ❽ at the speedometer drive.
- To mount the front wheel insert speedometer drive into the hub
- Raise the front wheel into the fork, insert the tongue ❾ of the retaining bracket into the slot of the right fork leg axle passage.
- Replace the wheel spindle and tighten it with 40 Nm (30 ft.lb)
- Mount the brake caliper, apply Loctite 242 to the thread of the allan head screw ang tighten it 40 Nm (30 ft.lb).
- Attach speedometer drive cable and replace dust cap
- Jack the motorcycle back down, work the front brake and bounce the fork hard a few times to align the fork tubes.
- Now you can tighten the clamp screws on the right fork leg axle passage to 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.
- IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND GREASE, OTHERWISE THE BRAKING EFFECTS WOULD BE STRONGLY REDUCED.



Dismounting and mounting the rear wheel*

– Jack the motorcycle up by the frame so that the rear wheel no longer touches the ground.
– Loosen the wheel spindle ❶.
– Holding the rear wheel, remove wheel spindle.
– Pull down on the rear wheel, pushing it slightly forward and lift the chain from the chain wheel.

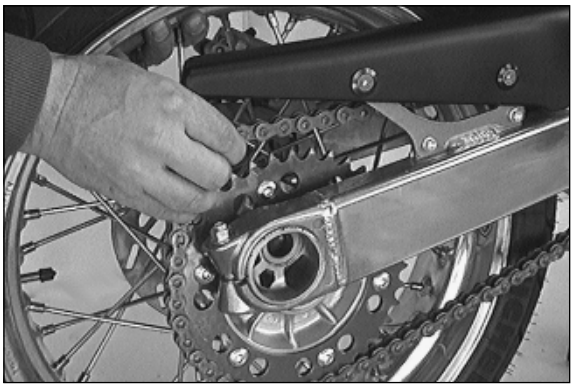
! CAUTION !

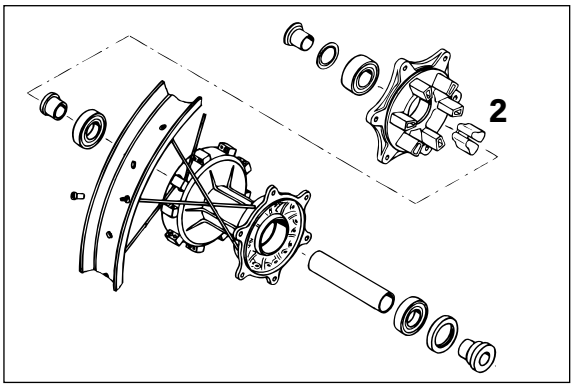
DO NOT OPERATE THE FOOT BRAKE WHEN THE REAR WHEEL HAS BEEN DISMOUNTED.

– Clean the threads of the wheel spindle and apply grease
– Place rear wheel back in the swing arm together with the rear sprocket carrier and put the chain on the chain wheel
– Insert the brake disc into the caliper and replace wheel spindle.
– Tighten wheel spindle to 80 Nm (59 ft.lb)

⚠ WARNING ⚠

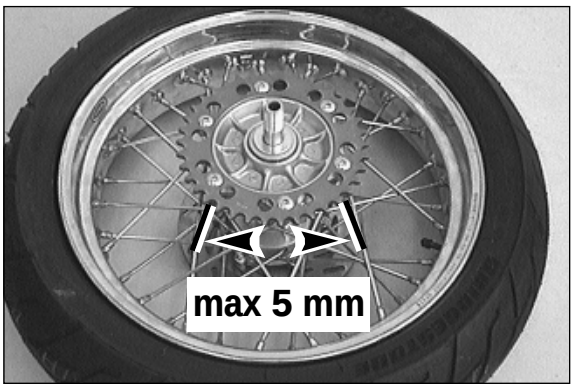
– IF YOU DON'T HAPPEN TO HAVE A TORQUE WRENCH AT HAND, MAKE SURE YOU HAVE THE TIGHTENING TORQUE CORRECTED BY A KTM DEALER AS SOON AS POSSIBLE.
– IT IS VERY IMPORTANT TO KEEP THE BRAKE DISK FREE FROM OIL AND GREASE, OTHERWISE THE BRAKING EFFECTS WOULD BE STRONGLY REDUCED.
– AFTER MOUNTING THE REAR WHEEL, KEEP OPERATING THE FOOT BRAKE UNTIL THE PRESSURE POINT RETURNS.





Checking the shock absorption rubbers in the rear hub*

The Duke models have a shock-absorbed rear wheel hub. For this purpose, the engine power is conveyed from the rear sprocket via 6 shock absorption rubbers ❷ to the rear wheel. These 6 absorption rubbers wear with increasing operation time, and should be checked for wear whenever the rear wheel is dismounted.



For this purpose, lie the rear wheel on a work bench with the rear sprocket upwards, and put the wheel spindle in the hub. Now hold the rear wheel firmly and try to turn the rear sprocket. The rear sprocket may not turn more than maximum 5 mm (0,2 in) measured on the outside. If the play in the chain wheel is larger, all 6 shock absorption rubbers are to be replaced. Check the shock absorption rubbers for signs of damage and dirt.

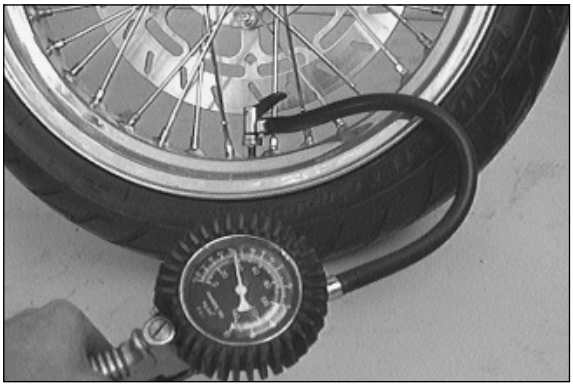
! CAUTION !

IF THE SHOCK ABSORPTION RUBBERS ARE NOT REPLACED IN GOOD TIME, THE REAR SPROCKET CARRIER AND THE REAR HUB WILL BE DAMAGED.

Tires, air pressure

Tire type, tire condition, and how much air pressure the tires have in them affect the way your motorcycle rides, and they must therefore be checked whenever you're getting ready to go anywhere on your motorcycle.

– Tire type and size can be found in the technical specifications and in the homologation certificate
– Tire condition has to be checked every time you want to ride your motorcycle. Before leaving check for punctures and nails or other sharp objects that might have become embedded in the tire.
– Refer to the specific regulations in your country for minimum tire tread requirements. We recommend replacing tires at the latest when the tread is down to 2 mm.



– Tire pressure should be checked regularly on a "cold" tire. Proper pressure ensures optimum driving comfort and extends the life of your tires.

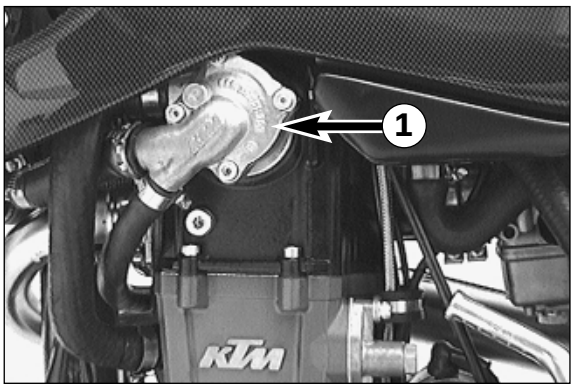
⚠ WARNING ⚠

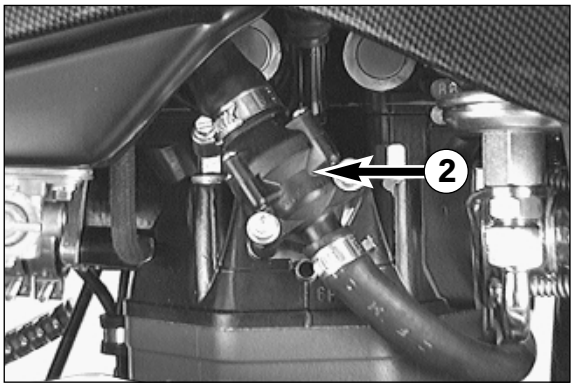
– DO NOT MOUNT TIRES WHICH HAVE NOT BEEN APPROVED BY KTM. OTHER TIRES COULD HAVE ADVERSE EFFECTS ON THE WAY YOUR MOTORCYCLE RIDES.
– THE FRONT AND REAR WHEEL ARE ONLY ALLOWED TO BE TIRED WITH TIRES THAT HAVE THE SAME PROFILE TYPE.
– FOR YOUR OWN SAFETY REPLACE DAMAGED TIRES IMMEDIATELY.
– WORN TIRES 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.
– WHEN MOUNTING TIRES YOURSELF KEEP IN MIND THAT THE REAR WHEEL NEEDS A REINFORCED TUBE (BRIDESTONE 17 CR).
– FOR CORRECT TUBE POSITIONING AFTER MOUNTING THE TIRE FILL THE TUBE WITH AIR UNTIL THE TIRE RESTS CORRECTLY AGAINST THE RIM. THEN DEFLATE THE TUBE AND INFLATE IT TO NORMAL OPERATING PRESSURE (SEE BELOW).

	front tyre air pressure	rear tyre air pressure
operator only	2,0 bar	2,2 bar
operator plus passenger	2,2 bar	2,4 bar

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 screw driver (see illustration). A clear tone must be the result. Dull tones indicate loose spokes. If necessary, have the spokes retightened and the wheel centered by a KTM dealer.





Cooling system

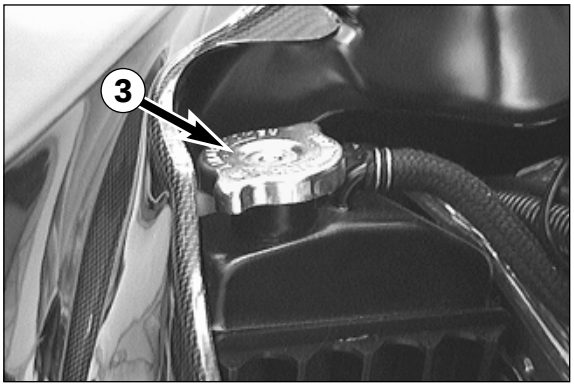
Cooling liquid is circulated by a water pump ❶ located in the engine. When the engine is cold the cooling liquid circulates only through the cylinder and the cylinder head. After the engine has reached its operating temperature (about 70° C, 158° F), the thermostat ❷ opens and the cooling liquid is also pumped through both aluminum radiators.
Air blowing in through the radiators cools the cooling liquid. The slower the speed of the motorcycle, the less the cooling liquid is cooled down. Dirty radiator fins also reduce the cooling efficiency.
If little or no air blows through the radiators, for example when riding through slow traffic or waiting at traffic lights, the cooling liquid temperature will rise. If the cooling liquid temperature rises to 85° C (185° F), the fan on the left radiator will switch on. This fan will provide additional air circulation through the radiator thereby preventing the cooling system from overheating.

! CAUTION !

IF THE RED COOLING LIQUID TEMPERATURE WARNING LAMP LIGHTS UP, THIS WILL MOST LIKELY BE DUE TO A DEFECT IN THE COOLING SYSTEM. IN THIS CASE, STOP IMMEDIATELY AND TURN OFF THE ENGINE. LET THE ENGINE COOL DOWN AND CHECK THE COOLING SYSTEM FOR LEAKS. ALSO CHECK IF THERE IS ENOUGH COOLING LIQUID. **CAUTION - SCALDING HAZARD!** DO NOT DRIVE ON, UNTIL THERE IS SUFFICIENT LIQUID IN THE COOLING SYSTEM. HOWEVER, CALL ON ONE OF KTM'S DEALERS AS SOON AS POSSIBLE IN ORDER TO HAVE THE DEFECT REMEDIED. IF YOU DRIVE ON EVEN THOUGH THE WARNING LAMP IS LIT, YOU WILL DAMAGE YOUR ENGINE.

⚠ WARNING ⚠

IF THE RADIATOR CAP IS REMOVED WHEN THE ENGINE IS HOT, HOT COOLING LIQUID, THAT IS UNDER PRESSURE, CAN SPRAY OUT AND CAUSE SEVERE BURNS.

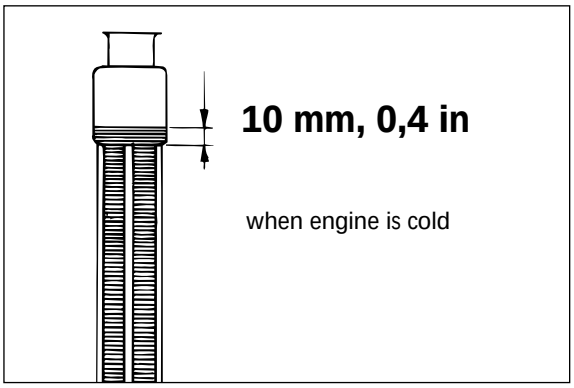


A mixture of 40% antifreezer and 60% water is used as cooling liquid. How-ever, the anti-freeze protection must be at least -25° C (-13° F). Aside from antifreezing protection, this mixture also provides great corrosion protection which is why it must not be replaced by pure water.

! CAUTION !

FOR THE COOLING SYSTEM, USE ONLY HIGH-GRADE ANTIFREEZER. USING LOWERGRADE ANTIFREEZE AGENTS, CAN CAUSE CORROSION AND COOLANT FOAMING.

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

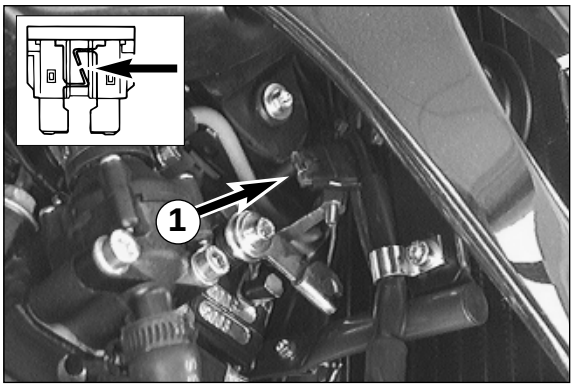


Checking the cooling liquid level

The cooling liquid should be 10 mm (0,4 in) above the cooling elements when the engine is cold (cf. diagram). In the event of the cooling liquid being drained, always fill the system before hand, then top off while the engine is running.

⚠ WARNING ⚠

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

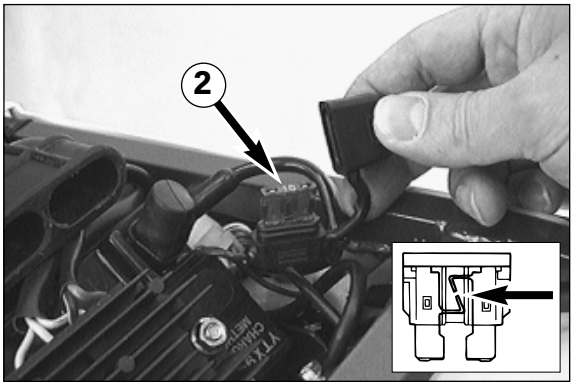


Fuse / fan

The fuse ❶ for the fan is located behind the right radiator. With its 5 amps it is only responsible for protecting the fan circuit. The fuse can be reached from below.
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.

! 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!

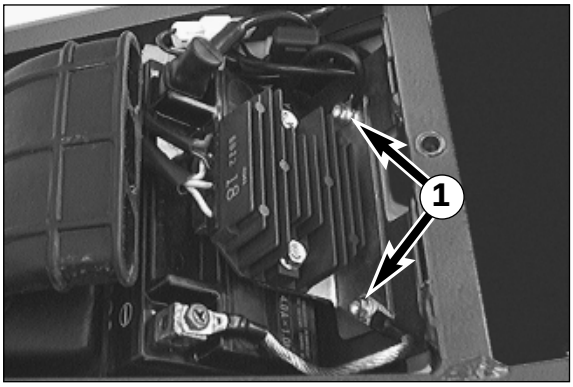


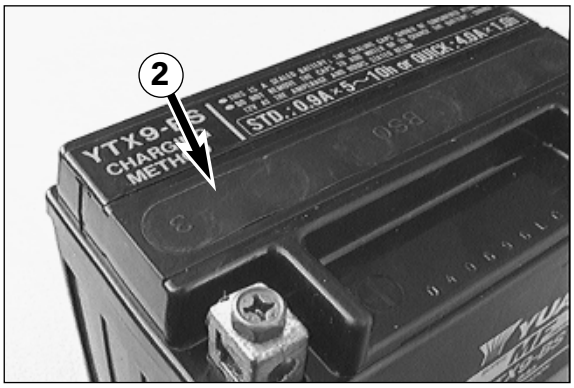
Main fuse

Located near the battery under the seat, the main fuse ❷ protects all power consumers.
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!





Battery

The battery is mounted under the seat (remove the seat, see page 16)
The battery has a closed system and therefore requires no maintenance. 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 screws ❶ and swing retaining bracket and voltage regulator out of the way.
- Remove battery.
- When replacing, connect first the positive and then the negative pole.

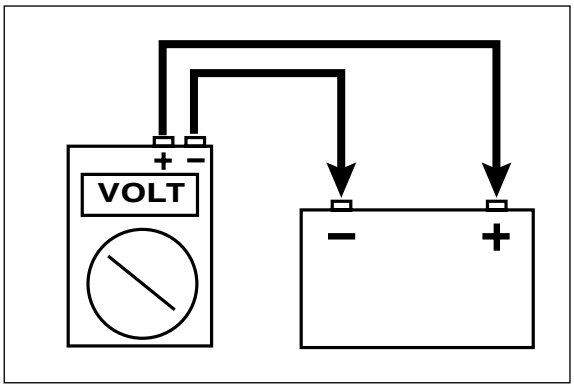
⚠ WARNING ⚠

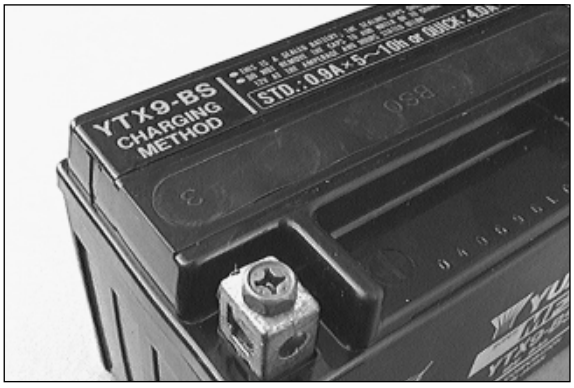
- If electrolyte (sulphuric acid) leaks from the battery, proceed with great care. The electrolyte can cause severe burns.
- In the case of skin contact rinse thoroughly with water.
- In the case of contact with the eyes, thoroughly rinse eyes with water for at least 15 minutes. Immediately consult a 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.

STORAGE:
When preparing the motorcycle for a longer period of standstill, remove the battery and recharge it. Storage temperature: 0 - 35° C. Do not expose to direct sun radiation.





Charging the battery

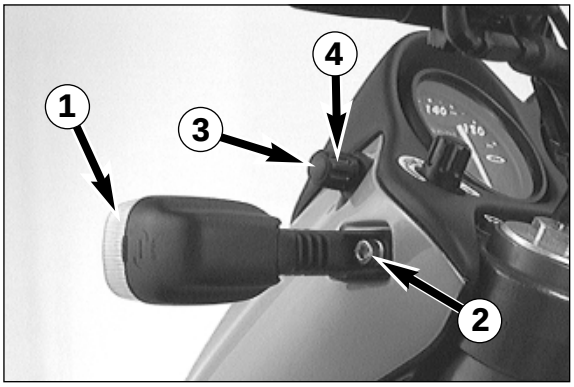
Remove the battery and check the charging level. Use a voltmeter to measure the voltage between the battery poles (off-load voltage).
Accurate results can only be obtained if the battery has neither been charged nor discharged during a period of 30 minutes preceding the measuring.

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

If the battery is empty, it can be recharged for a maximum period of 10 hours at 0.8 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.

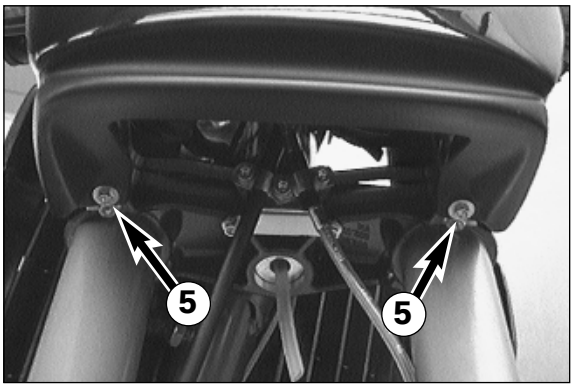


Removing the headlight mask*

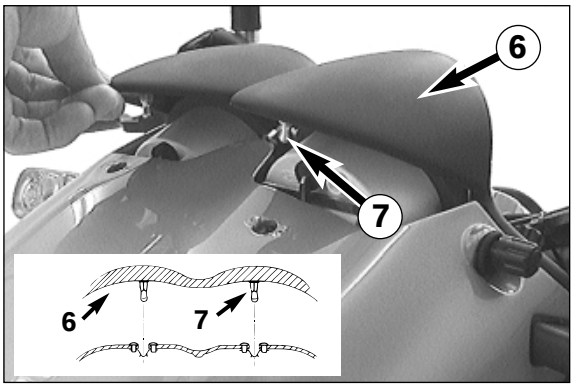
The headlight mask must be removed whenever you want to change the headlight or instrument lamps.

a) Removing the front flashers.
- Remove the lens ❶ by inserting a screw driver in the lateral slot to separate the lens from the flasher housing.
- Remove the reflector from the housing and remove the flasher cables
- Remove the HH screw ❷ and remove the flasher housing

b) Removing the knob of the day mileage indicator.
- Pop off the cap ❸ with a small screwdriver
- use a Phillips screw driver (size 1) to remove the screw inside the knob ❹, remove the knob.



c) Remove the collar screws ❺ on the bottom side of the headlight mask.

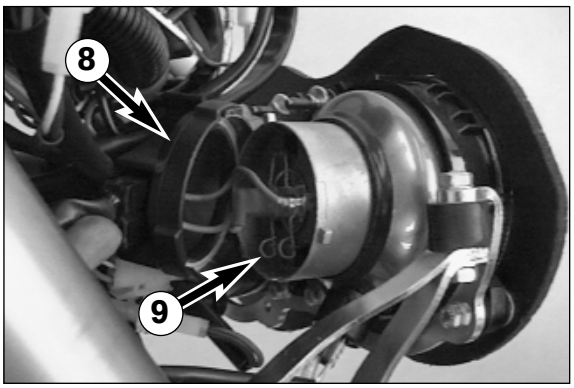


d) Lift the instrument cover ❻ up, in order to release the retaining pins ❼ at the spring clasps.

e) Remove the headlight mask, pulling it forward.

MOUNTING THE HEADLIGHT MASK

Reverse the above steps.
- Run the flasher cables outside through the corresponding openings before tightening the headlight mask
- the brown flasher cable is ground
- Finally, check the electrical system for proper functioning.



Replacing the headlight bulb*

The headlights are accessible after you have removed the headlight mask.
- Turn the cover ❽ counterclockwise, and remove it.
- Detach the spring bar ❾, and remove the lamp from the headlight
- insert and connect a new H1 lamp (12 V 55 W)

! CAUTION !

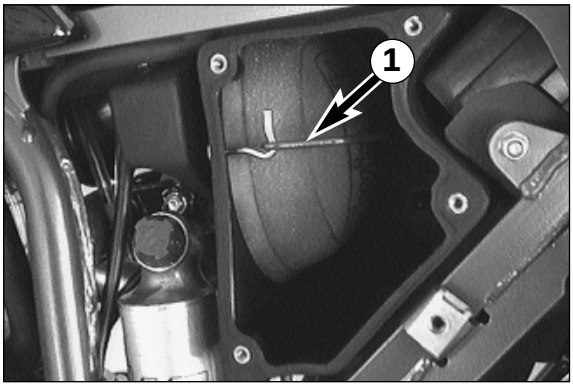
THE GLASS OF THE BULB MUST BE FREE OF OIL AND GREASE. THE HEAT CAUSES THE OIL TO VAPORIZE. THE RESULTING VAPOR ON THE REFLECTOR DECREASES THE BRIGHTNESS OF THE HEADLIGHT.
- Start the engine and check the headlight for proper functioning.
- Place the cover in position, and turn it clockwise.

Replacing the instrument lights*

The instruments are accessible after you have removed the headlight mask.
- Simply remove the sockets from the housing, pulling them out by the cables
- Remove the bulb from the socket.

Replacing the indicator lamps*

The lamps are accessible after you have removed the headlight mask.
- Pull the cable together with the bulb socket and the bulb downwards and out of the indicator lamp. Replace the bulb.



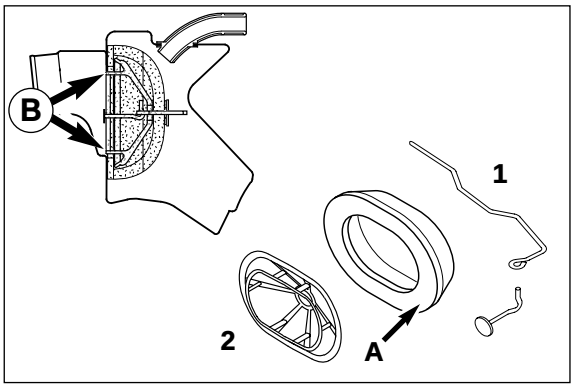
Cleaning the air filter*

Remove seat and left side cover. Remove the filter box cover. Unhook the filter holder ❶ , swing it backwards and take air filter and filter support out of the filter box.

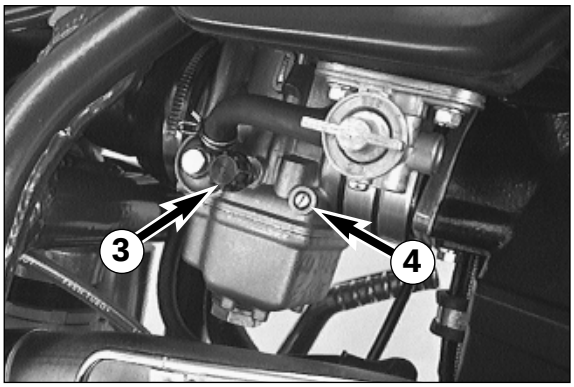
! CAUTION !

DO NOT CLEAN FOAM RUBBER FILTER WITH FUEL OR PETROLEUM SINCE THESE DAMAGE THE FOAM. KTM RECOMMENDS THE PRODUCTS OF THE COMPANY PUTOLINE FOR AIR FILTER MAINTENANCE. „ACTION CLEANER“ FOR CLEANING PURPOSES AND „ACTION FLUID“ TO OIL THE FOAM RUBBER FILTER.

Thoroughly wash the foam rubber filter in special cleaning fluid and allow to try well. Only press out the filter, do not wring out under any circumstances. Oil the dry foam rubber filter with a high grade filter oil. Also clean the air filter box. Check carburetor collar for damage and tight fit.

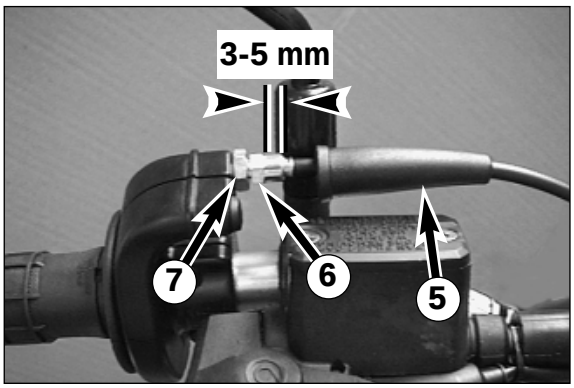


Mount the air filter on the filter support ❷. Grease the front side Ⓐ of the filter, to improve the seal. Mount the air filter and the filter support in the filter box. Make sure they are centered Ⓑ, and lock into place with the filter bracket ❶.



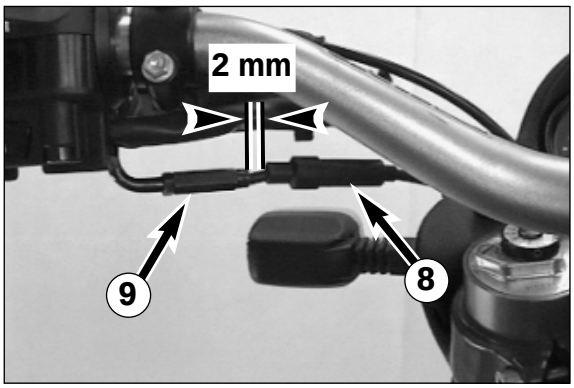
Adjusting idle speed*

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 throttle stop screw ❸ is used to adjust the basic position of the slide. Turning in clockwise direction will increase the idling speed, turning in counterclockwise direction will reduce the idling speed. Normal idling speed 1400 - 1500 rpm.
The mixture control screw ❹ never should be changed.



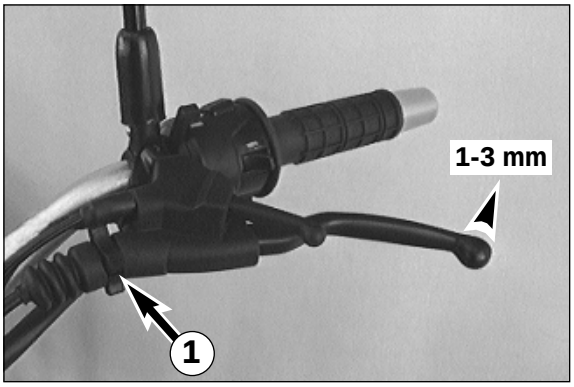
Adjusting the throttle cable*

There must always be a 3-5 mm (0.1-0.2 in) play in the throttle cable. To check this, move back the protective cover ❺ on the throttle grip. You must be able to lift the outer covering of the cable 3-5 mm from the adjusting screw ❻, until resistance is felt.
To adjust, loosen the counter nut ❼ and turn the adjusting screw accordingly. Finally tighten counter nut and slide the protective cover back on.



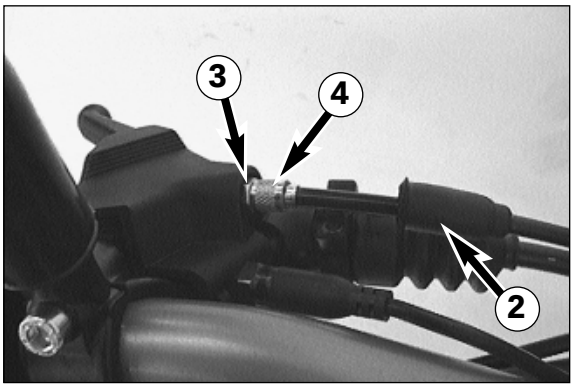
Adjusting the choke cable*

At the choke cable, there must always exist a play of approx. 2 mm (0.1 in). To check this, push choke lever fully forward and pull protective cover ❽ from the adjuster piece ❾. Now, it must be possible to lift the outer covering of the cable by approx. 2 mm from the adjuster piece until feeling a resistance. If necessary, loosen counter nut and readjust play by turning the adjuster piece. Tighten counter nut, and slide on protective cover.



Adjusting the clutch cable

When the engine is cold, the play at the clutch lever should be 1-3 mm (0.04-0.12 in) (measured at the outer edge).
To adjust the clutch cable turn the adjusting nut ❶ accordingly.



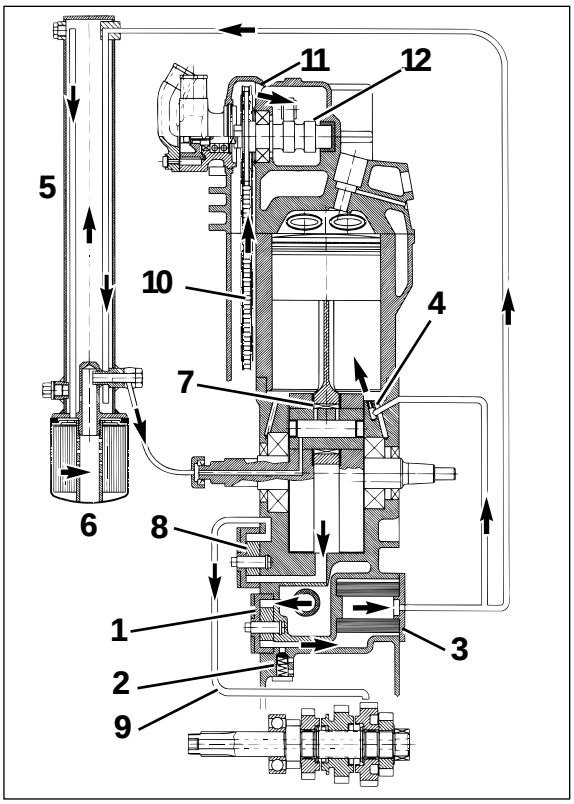
Checking the adjustment of the hand decompression cable*

To check, set piston at compression, so that the valves are closed. While doing this, slowly operate the kick starter until the clicking sound (disengaging) of the automatic decompression release can be heard. Now it must be possible to operate the decompression lever 25 mm (1 in) until resistance is felt (the exhaust valves begin to open). To adjust move back the protective cover ❷, loosen the counter nut ❸ and correct the adjusting screw ❹ accordingly. Tighten counter nut and push back protective cover.

! CAUTION !

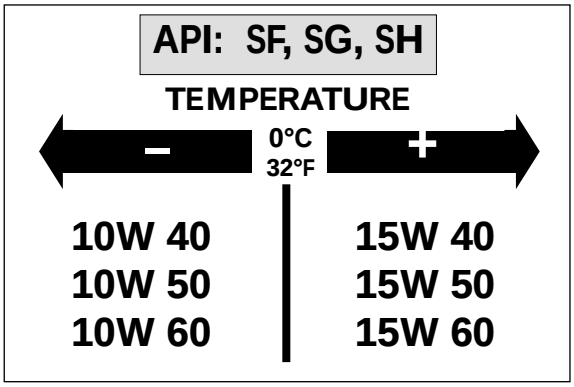
IF THERE IS NO PLAY IN THE DECOMPRESSION LEVER, THIS CAN RESULT IN ENGINE DAMAGE.

NOTE:
No adjustment need be made to the automatic decompressor.



Oil circuit

The oil pump ❶ pumps the engine oil past the by-pass valve ❷ through the oil filter ❸. After the oil filter, an oil line branches off to a jet ❹ which sprays engine oil onto the piston pin bearing and piston head. The second oil line takes the main flow of oil into the front pipe of the frame ❺, where the engine oil is cooled down. Afterwards the engine oil runs through the fine screen filter ❻, which filters out even the finest impurities. The cleaned engine oil is pumped through the oil line and the clutch cover into the crankshaft to the conrod bearing ❼ and drips into the crankcase. An additional oil pump ❽ sucks the engine oil out of the crankcase and pumps it through the oil line ❾ to the gear wheels of the 4th and 5th gear. Via the gear wheels, the engine oil reaches the oil sump. The timing chain ❿ runs through the oil sump and transports the engine oil upwards to the cylinder head. Through the bore hole ⓫ the oil reaches the camshaft ⓬ and the valves.

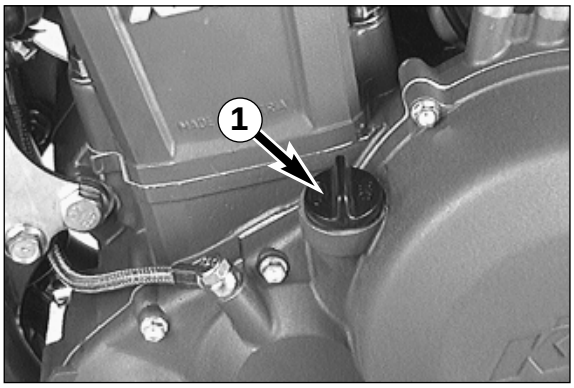


Engine oil

Only use high-quality oils meeting or surpassing the quality requirements of API classes SF, SG, or SH (for specifications see containers). You may use either mineral oils or synthetic oils fulfilling the above criteria.

! CAUTION !

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

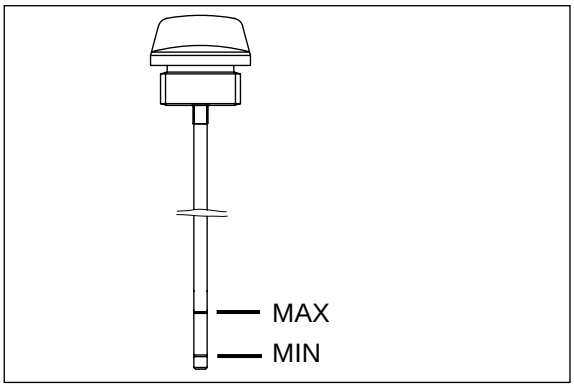


Checking engine oil level

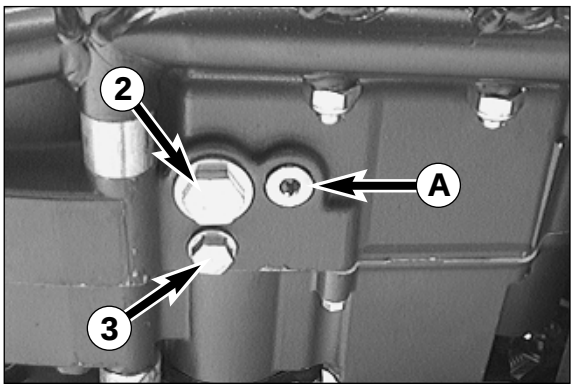
Allow the engine to run at idle speed for about 4 minutes. Turn off the engine and place the motorcycle on a flat, level surface (main stand). Take out the oil dipstick ❶ and wipe it off with a cloth.
TWIST THE OIL DIPSTICK ALL THE WAY IN AND THEN RETRIEVE IT. The oil level should be between the two marks on the dipstick. Add engine oil if necessary.

! CAUTION !

- INSUFFICIENT OIL OR POOR QUALITY OIL RESULTS IN PREMATURE WEAR OF THE ENGINE.
- CHECKING THE ENGINE OIL LEVEL WHEN THE ENGINE IS COLD RESULTS IN AL FALSE READING ON THE OIL DIPSTICK AND THEREFORE AN INCORRECT OIL LEVEL.
- DO NOT OVERFILL THE ENGINE CASE.
- DO NOT UNDERFILL THE ENGINE CASE.



Check the engine for leaks.



Oil change and bleeding of the oil system *

NOTE: For improved cooling of the engine oil the front pipe of the frame is integrated into the oil circuit. When changing the oil, the engine oil must be drained from the front pipe.
The engine oil change is to be carried out when the engine is still warm.

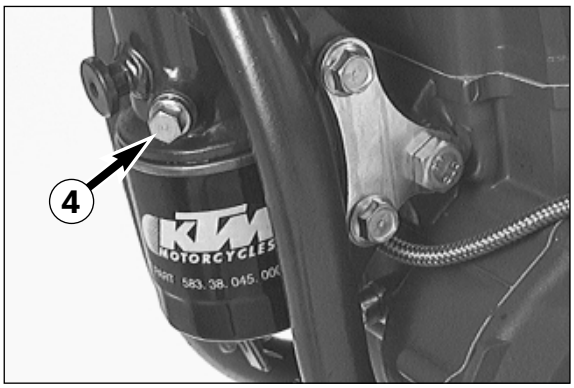
⚠ WARNING ⚠

AN ENGINE HAVING BEEN RUN WARM, AND THE ENGINE OIL IN IT ARE VERY HOT - DO NOT BURN YOURSELF.

Place the motorcycle on a horizontal surface. Remove the two plugs ❷ and ❸, and drain oil into a container. Models with integrated font pipe: Remove cover, unscrew plug ❹ at the lower end of the front pipe and drain oil.

! CAUTION !

PLUG Ⓐ MUST NOT BE REMOVED, THIS IS PART OF THE BY-PASS VALVE.

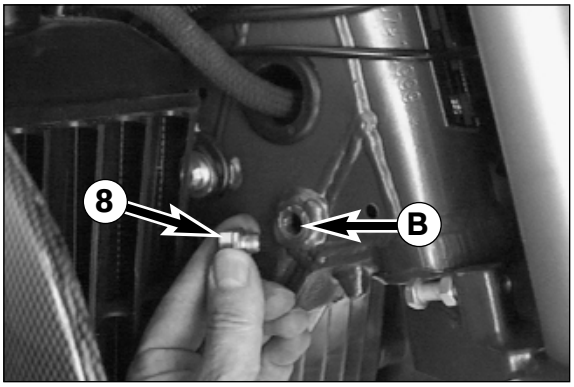


Clean all 3 plugs thoroughly with a fireproof solvent and compressed air, in order to remove the metal abrasion. After all the oil has drained through, clean sealing areas and install plugs with gaskets. Tighten plug ❷ with 30 Nm (23 ft.lb) and plugs ❸ and ❹ with 20 Nm (15 lb.ft).

Remove oil dipstick on the clutch cover, fill with 2,0 litre engine oil and attach plug again.

! CAUTION !

IF THE ENGINE OIL HAS BEEN DRAINED FROM THE FRONT PIPE OF THE FRAME, YOU MUST BLEED THE OIL SYSTEM (SEE PAGE 32) !



To allow the air to escape from the front pipe of the frame, remove plug ❽ next to the steering head. Start engine and let it run in idle (1-2 minutes) until oil escapes at the bore ❽. As soon as oil starts to escape, turn off the engine, and mount plug together with the gasket.

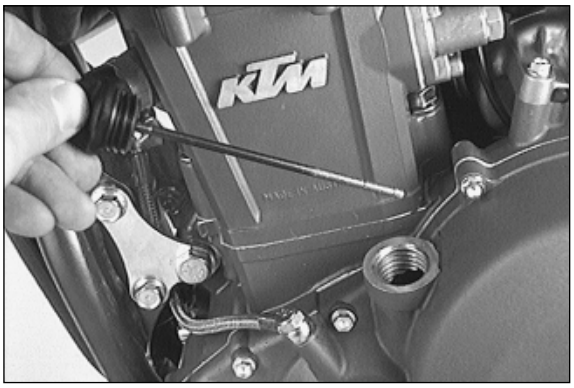
! CAUTION !

DO NOT REV UP THE ENGINE DURING THE BLEEDING PROCEDURE BECAUSE NOT ALL THE LUBRICATING POINTS WILL ALREADY HAVE BEEN SUPPLIED WITH SUFFICIENT AMOUNTS OF OIL.

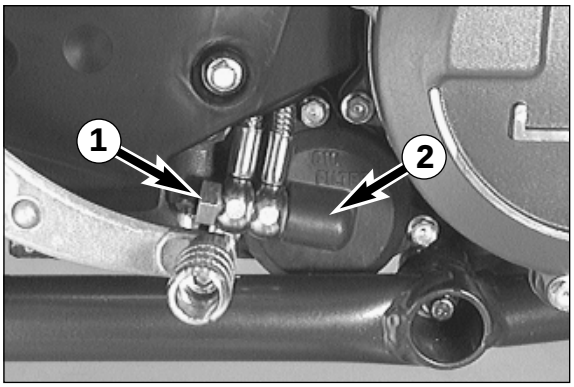
Warm up engine, check engine oil level and refill up to the marking MAX. Finally, check the oil system for leaks.

! CAUTION !

INSUFFICIENT OIL OR POOR QUALITY OIL RESULTS IN PREMATURE WEAR OF THE ENGINE. USE ONLY RECOMMENDED BRAND MULTIGRADE ENGINE OILS FOR 4-STROKE ENGINES FOR LUBRICATING THE ENGINE.

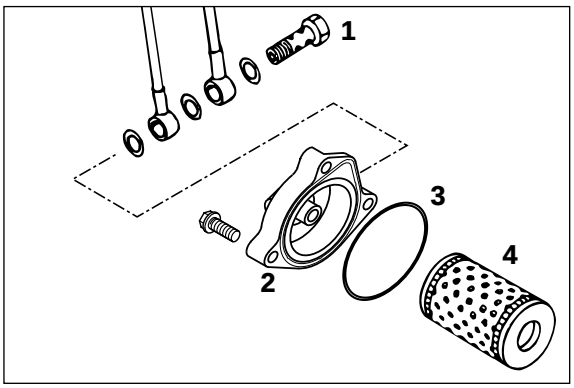


NOTE:
DISPOSE OF USED OIL PROPERLY! UNDER NO CIRCUMSTANCES MAY USED OIL BE DISPOSED OF IN THE SEWAGE SYSTEM OR IN THE OPEN COUNTRYSIDE. 1 LITER OIL CONTAMINATES 1.000.000 LITER WATER.

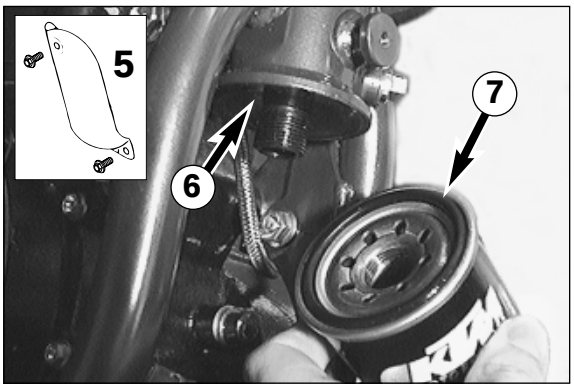


Changing oil filter *

Replace the oil filter when changing the engine oil. Press the foot brake pedal and place a screwdriver or similar between foot brake pedal and stopper roll so that the oil filter cover is more accessible. Remove banjo bolt ❶ and the three screws. Remove oil filter cover ❷ and oil filter. Clean filter housing, oil filter cover, and sealing surfaces. Check oil duct in oil filter cover if clogged.



Check the O-ring ❸ for damage. O-rings need not be replaced unless damaged. Press the O-ring into the groove of the filter cover. Fit new oil filter ❹ with rubber gasket on the fitting in oil filter cover and mount cover with filter. Mount three screws and tighten with 5 Nm (4 ft.lb). Mount hollow screw with seal rings and tighten with 15 Nm (11 ft.lb). Start engine and check oil system for leakage.



Changing the fine screen filter *

Replace the fine screen filter when changing the engine oil. To do so, loosen the three screws and remove the cover ❺. Loosen the fine screen filter with an oil filter wrench; you will be able to unscrew it the rest of the way with your bare hand. Let engine oil flow out of the main frame tube.
Clean sealing surfaces on the frame tube ❻, fill new fine screen filter with engine oil, and oil rubber seal ❼. Replace fine screen filter and screw it back in place, your bare hand will do.
Start motor, bleed oil system (see Changing the Engine Oil) and make sure fine screen filter does not leak.

! CAUTION !

- USE ONLY ORIGINAL KTM FINE SCREEN FILTERS. USING ANOTHER FILTER BRAND CAN RESULT IN DAMAGE TO THE ENGINE.
- **IF THE ENGINE OIL HAS BEEN DRAINED FROM THE FRONT PIPE OF THE FRAME, YOU MUST BLEED THE OIL SYSTEM !**

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.	Operating errror	Turn on the ignition, switch the gear to neutral and switch the emergency OFF switch on, swing up side stand.
	Discharged battery.	Starting see Driving Instrctions page13. Recharge the battery and investigate the causes for discharging; contact a KTM dealer.
	Defect ignition lock or emergency OFF switch	Check ignition lock and emergency OFF switch, contact a KTM dealer.
Engine doesn't crank; and headlight don't light up.	Blown main fuse	Remove seat and replace the main fuse. If fuse blows again contact a KTM dealer
	Discharged battery.	Charge battery as indicated in the manual and determine cause of discharge. Contact a KTM dealer.
The engine cranks only with pulled clutch lever	The diode at the connector support is defect (interrupted)	Contact a KTM dealer; the diode must be replaced.
Engine cranks with gear engaged.	Defect safe-starting system.	Contact a KTM dealer.
Engine cranks but doesn't start.	Operating error	Open fuel tap, tank fuel, you did not use choke i.e. the warmstart device. Pay attention to starting off information (see driving instructions).
	Fuel supply interrupted	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
	Flooded engine	See driving instructions
	Sooty or wet spark plug	Clean or replace spark plug
	Electrode gap too large	Adjust spark plug elektrode gap to 0,7 mm
	Spark plug connector or spark plug faulty	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 produced, loosen spark plug cap from ignition cable, hold about 5 mm from ground and actuate kickstarter – If a spark now occurs, replace spark plug cap – If no spark is produced, control ignition system
	The plug connection of the CDI-unit, the pulse generator or the ignition coil has oxydized	Remove the seat, the right side cover and the fuel tank. Clean the plug connection and treat it with contact spray
	Water in carburetor or jets blocked	Dismount and clean carburetor
	Carburetor does not fit in properly at intake flange	Check if carburetor is fitted in correctly
Engine fails to idle	Glogged idling jet	Disassemble carburetor and clean jets
	Oncorrect adjustment of adjusting screws on carburetor	Have carburetor adjusted
	Defective ignition system	Have ignition system checked

TROUBLE	CAUSE	REMEDY
Engine does not rev high	Carburetor fuel level too high because – Float needle is dirty or worn out – Float leaks – Float has no axial play	Dismount carburetor and check if worn out Replace float needle Replace float Abrade float
	Loose carburettor jets	Tighten jets
	Electronic ignition timing faulty	Have ignition system checked
Engine will not reach full power	Fuel supply partically interrupted or carburetor dirty	Clean and check fuel system as well as carburetor
	Float leaks, or no axial play	Replace or abrade the float
	Air filter very dirty	Clean or replace air filter, contact a KTM dealer
	Exhaust system leaking or deformed	Check if exhaust system is damaged
	Valve clearance to small	Have valve clearance adjusted
	Loss of compression because hand decompressor has no play	Check setting of the hand decompression cable
	Electronic ignition timing faulty	Have ignition system checked
Engine misfires or backfires into carburetor	Fuel shortage	Clean and check fuel system and carburettor
	Engine takes in unmetered air	Check intake flange and carburettor for tight fit
Engine overheats	Insufficient cooling liquid	Refill cooling liquid (see maintenace work), check cooling system for leaks
	Radiator fins are extremely dirty	Clean radiator with water jet
	Foam forms in cooling system	Replace cooling liquid, use antifreezer with brand name
	Bent radiator hose	Shorten or replace cooling hose
	Thermostat defective	Remove and check thermostat (opening temperature 70°C (158°F) or replace it, contact a KTM dealer
	Blown fan fuse	Replace fuse and check if fan operates properly (see below)
	Defect thermoswitch	Contact a KTM dealer
	Fan defective	Check if fan operates properly. To do this, start the engine, then bypass the connections to the thermoswitch (bottom right radiator), contact a KTM dealer
High oil consumption	Buckling gear ventilation hose	Readjust or replace ventilation hose
	Engine oil level too high	Check engine oil level when the engine is warm; correct if necessary
	Engine oil too thin (viscosity)	Use thicker engine oil; see chapter „Engine oil“
All switched on lamps blown out	Voltage regulator faulty	Remove seat and check connections. Have voltage regulator checked
The neutral lamp is not on even though the gear is in neutral	Defect indicator lamp.	Replace indicator lamp
	Defect neutral switch.	Connect cable to ground; neutral switch must be replaced if indicator lamp lights up.
	Loose connections, defect cable.	Check connections and cables.
The battery is discharged	The ignition (power consumer) hasn't been switched off	Recharge the battery according to the relevant instructions.
	The battery isn't charged by the generator because	Remove seat and check voltage regulator connections; voltage regulator and generator should be checked by a KTM dealer.

CLEANING

Clean your motorcycle regularly in order to keep its painted finish looking shiny and new.
The best manner would be to use warm water that has been mixed with a normal trade washing detergent and a sponge. The hard dirt can be removed before 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 DISTURBINGS OR LEAD TO A PREMATURE DESTRUCTION OF THESE PARTS.

- You should use normal trade-mark detergents to clean the engine. Strongly dirted parts should be cleaned additionally with the help of a paint brush.
- After the motorcycle has been rinsed with a soft water jet, it should be dried by air pressure and a cloth. Then take a short drive until the engine has reached the working temperature and also use the brakes. Due to the heat, the water also evaporates at the unapproachable 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.
- After the motorcycle has cooled down, oil and grease all sliding and pivot points. Treat the chain with a chain spray too.
- Finally all painted parts should be treated with a gentle paint cleaner.
- To prevent failures in the electric system, you should treat the ignition lock, the emergency off switch, light switch and the socket connectors with contact spray.

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, oil filter and fine screen filter (old engine oil contains aggressive contaminations).
- Check antifreezer and amount of cooling liquid.
- Check antifreezer and cooling liquid level.
- Let the engine warm up again.
- Drain fuel from float chamber. By this means, carburetor jets are prevented from becoming resinous by the old 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.
- Servicing the shock absorber linkage and swing arm bearings.
- Remove 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 IS EXTREMELY BAD TO LET THE ENGINE RUN FOR SHORT PERIODS OF TIME WHEN THE MOTORCYCLE IS KEPT IN STORAGE. SINCE IN THIS CASE THE ENGINE WOULD NOT GET WARM ENOUGH, THE STEAM PRODUCED DURING THE COMBUSTION PROCESS WOULD CONDENSE AND CAUSE RUSTING ON CRANKSHAFT, MAIN BEARING, AND EXHAUST SYSTEM.

RE-INITIATION AFTER TIME OF STORAGE:

- Mount the charged battery (regard polarity).
- Fill up tank with fresh fuel and turn the fuel tap to the ON position.
- Check motorcycle as before each start.
- Take a short, careful test ride first.

TECHNICAL SPECIFICATIONS - CHASSIS KTM 640 DUKE e

Type	**640 DUKE last edition**		
Frame	Central chrome-moly-steel frame		
Fork	type	WP - 4054 Roma Top adjuster	
	wheel travel	140 mm (5,5 in)	
	standard adjustment compression	driver only = 14,	with passenger = 14
	standard adjustment rebound	driver only = 14,	with passenger = 14
	fork leg projection upper fork bridge	10 mm (0,4 in)	
	oil capacity per fork leg	appr. 740 ccm (45 cubic in) / SAE 5	
	air chamber lenght	100 mm (4 in)	
Rear suspension	WP central shock absorber with PRO-LEVER linkage to rear- swing-arm with needle bearing		
Shock absorber	type	WP central shock absorber BAVP	
	rear wheel travel	170 mm (6.7 in)	
	standard adjustment compression	driver only = 3,	with passenger = 5
	standard adjustment rebound	driver only = 5,	with passenger = 3
	spring preload	driver only = 23 mm (0.9 in),	with passenger = 28 mm (1.1 in)
	spring type	70 - 260	
Front brake	Disc brake with carbon-steel brake disc Ø 320 mm (12,6 in) and 4-piston brake caliper		
Rear brake	Disc brake with carbon-steel brake disc Ø 220 mm (8,7 in) and single-piston brake caliper floated		
Tyres	front: 120/70 R 17 58H		rear: 160/60 R 17 69H
Air pressure rider only	2.0 bar (29 psi)		2.2 bar (32 psi)
Air pressure with passenger	2.2 bar (32 psi)		2.4 bar (35 psi)
Fuel tank capacity	11,3 liter (3 US gallons), out of this 1,5 liter (0,42 US gallons) reserve		
Final drive ratio	17 : 38		
Chain	o-ring $^{5}/_{8}$ x $^{1}/_{4}$"		
Lamps	low beam	H1 12V 55W (socket P14,5s)	HS1 12V 35/35W (socket Px43t)
	high beam	H1 12V 55W (socket P14,5s)	HS1 12V 35/55W (socket Px43t)
	parking light	12V 4W (socket Ba9s)	12V 4W (socket W2.1 9,5D)
	speedometer, tachometer light	12V 1,2W (socket W2x4,6d)	12V 1,2W (socket W2x4.6d)
	indicator lamp	12V 1,2W (socket W2x4,6d)	12V 1,2W (socket W2x4.6d)
	stop and taillight	12V 21/5W (socket BaY15d)	12V 21/5W (socket BaY15d)
	flasher	12V 10W (socket Ba15s)	12V 10W (socket Ba15s)
Battery	maintenance-free battery 12V 8Ah		
Steering angle	62,5°		
Wheel base	1460 ± 15 mm (57.5 ± 0.6 in)		
Seat high	860 mm (33.9 in)		
Ground clearance	250 mm (9.9 in)		
Dead weight without fuel	145 kg (3 lbs)		
Max. permissible front axle load	150 kg (2 lbs)		
Max. permissible rear axle load	200 kg (4 lbs)		

TORQUES		
Front axle	M 17	40 Nm (30 ft.lb)
Rear axle	M 20x1.5	80 Nm (59 ft.lb)
Hex. nut swing arm bolt	M 14x1.5	100 Nm (74 ft.lb)
Clamping screw upper fork bridge	M 8	25 Nm (18 ft.lb)
Clamping screw lower fork bridge	M 8	15 Nm (11 ft.lb)
AH screws front brake caliper	M10	40 Nm (30 ft.lb)
AH screw rear brake caliper support	M10	40 Nm (30 ft.lb)
Collar nuts chain tension eccentrics	M10	40 Nm (30 ft.lb)
Clamping screws fork stubs	M 8	15 Nm (11 ft.lb)
Other screws chassis	M6 M8 M10	10 Nm (7 ft.lb) 25 Nm (22 ft.lb) 45 Nm (33 ft.lb)

TECHNICAL DATA – ENGINE KTM 640 LC4 e

Type	**640 LC4-E**
Design	Liquid-cooled single cylinder 4-stroke engine with balancer shaft and electric starter
Displacement	625 ccm
Bore / Stroke	101 / 78 mm
Ratio	11,0 : 1
Fuel	unleaded premium gasoline with a least RON 95
Valve timing	4 valves over rocker arm and 1 overhead camshaft, camshaft drive through single chain
Camshaft	249° (249)
Valve timing by 1 mm valve clearance	IO 13° BTDC EO 53° BBDC IC 51° ABDC EC 11° ATDC
Valve diameter	Intake: 36 mm Exhaust: 30 mm
Valve clearence cold	Intake: 0.15 mm Exhaust: 0.15 mm
Crank shaft bearing	2 cylinder roller bearing
Connecting rod bearing	needle bearing
Top end bearing	bronze bushing
Piston	cast aluminium alloy
Piston rings	1 compression ring, 1 taper face ring, 1 oil scraper ring
Engine lubrication	2 Eaton-Oilpumps
Quantity of engine oil	see page 38
Engine oil	2.1 liters including frame
Primary ratio	straight geared spur wheels 30 : 81 teeth
Clutch	multi disc clutch in oil bath
Transmission	5-speed claw shifted
Ignition system	contactless DC- CDI ignition with digital advanced system type KOKUSAN
Ignition timing	adjustment to max. 38° BTDC at 6000 rpm
Generator	12V 200W
Spark plug	NGK DR8EA
Spark plug gap	0.7 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° C (–13° F)
Starting equipment	electric starter, kick starter

ASSEMBLY CLEARANCE, WEAR LIMIT		
Crank shaft	axial play	.0.03 - 0.12 mm
	run out of crank stud	.max. 0.08 mm
Connecting rod bearing	radial play	.max. 0.05 mm
	axial play	.max. 1.10 mm
Cylinder	bore	.max. 101.04 mm
Piston	assembly clearance	.max. 0.12 mm
Piston rings end gap	compression rings	.max. 0.80 mm
	oil scraper ring	.max. 1.00 mm
Valves	seat sealing intake	.max. 1.50 mm
	seat sealing exhaust	.max. 2.00 mm
	run out of valve heads	.max. 0.05 mm
	valve guides diameter	.max. 7.05 mm
Oil pumps	clearance outer rotor - housing	.max. 0.20 mm
	clearance outer rotor - inner rotor	.max. 0.20 mm
Bypaß valve	minimum spring length	.25.00 mm
Clutch	Length of springs	.min. 35.00 mm (new 37.00 mm)
	wear limit organic	.min. 2.50 mm
Camshaft	diameter of bearing bolt (needle bearing)	.min. 19.97 mm
Transmission shafts	axial play	.0.10 - 0.40 mm

TIGHTENING TORQUES - ENGINE

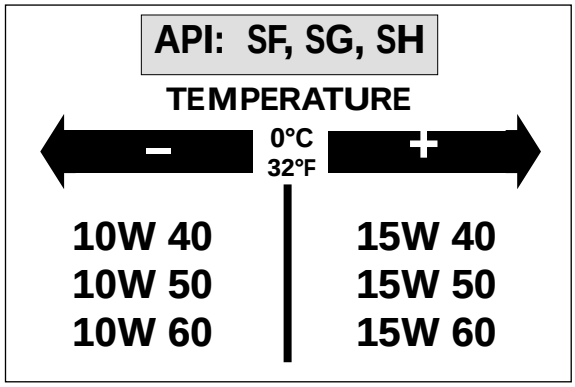
Hexagon nut at primary gear	M20x1.5	Loctite 242 + 170 Nm	(125 ft.lb)
Collar nut flywheel	M16x1.25 LH thread	80° C + 150 Nm	(132 ft.lb)
Hexagon nut for inner clutch hub	M18x1.5	80 Nm	(60 ft.lb)
Kickstarter stop screw	M12x1.5	50 Nm	(35 ft.lb)
Allan head screws oil pump	M6	Loctite 242 + 8 Nm	(6 ft.lb)
Allan head screws freewheel hub	M6x12/M6x12.5	Loctite 648 + 18 Nm	(13 ft.lb)
Hexagon screw camshaft gear	M10	Loctite 242 + 35 Nm	(26 ft.lb)
Allan head screw cylinder head top sect.	M6x25/M6x65/M6x70 (8.8)	8 Nm	(6 ft.lb)
Allan head screw cylinder head top sect.	M6x50/M6x55 (12.9)	20 Nm	(15 ft.lb)
Cylinder head screws	M10	50 Nm	(37 ft.lb)
Collar nuts at cylinder base	M10	40 Nm	(30 ft.lb)
Hexagon screw chain sprocket	M10	Loctite 242 + 40 Nm	(30 ft.lb)
Oil drain plug	M22x1.5	30 Nm	(22 ft.lb)
Magnetic plug	M12x1.5	20 Nm	(15 ft.lb)
Plug bypass valve	M12x1.5	20 Nm	(15 ft.lb)
Hollow screws oil lines	M8x1	10 Nm	(7.4 ft.lb)
Hollow screws oil lines	M10x1	15 Nm	(11 ft.lb)
Jet screw clutch cover	M8	10 Nm	(7,4 ft.lb)
Screw plug timing-chain tensioner	M12x1.5	20 Nm	(15 ft.lb)
Counternuts valve adjusting screws	M7x0.75	20 Nm	(15 ft.lb)
Crankshaft locking bolt	M8	25 Nm	(19 ft.lb)
Engine mounting bolt	M8	40 Nm	(30 ft.lb)
Engine mounting bolt	M10	70 Nm	(50 ft.lb)

GEAR RATIOS

Primary ratio	Transmission	Original final drive ratio	Available chain drive sprockets	Available final drive sprockets
30:81	1st gear 14:35 2nd gear 15:24 3rd gear 18:21 4th gear 20:19 5th gear 22:18	17:38	16 for chain 17 5/8 x 1/4"	38 for chain 42 5/8 x 1/4"

BASIC CARBURETOR SETTING

	640 LC4-E 25 kW with KAT	**640 LC4-E** 37 kW with KAT
Type	PHM 40 SD	PHM 40 SD
Carb.-setting number	210198	210198
Main jet	155	155
Needle jet	DR 268	DR 268
Idling jet	45	45
Jet needle	K 51	K 51
Needle clip pos. f. top	4. from top	4. from top
Mixt. adj. screw open	1.5 turns	1,5 turns
Throttle valve	40	40
Starting jet	55	55
Performance restrictor	slide stop 28mm	–



Engine oil

Use only oil brands, which meet quality requirements of API-classes SF, SG or SH (informations on bottles) or higher. Both, mineral and synthetic oils with above specifications can be used.

! CAUTION !

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

Schaltplan

Beschreibung Schaltplan

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FN 102019 d - Landesgericht Ried im Innkreis