OWNER'S HANDBOOK

1988

for 2-stroke motorcycles

125 / 250 / 350 / 500

cm^3

1.88

Art.Nr. 201.31

INTRODUCTION

Welcome to Team KTM! You have just purchased the finest off-road competition motorcycle available, and we wish you good luck in your riding and racing.

This handbook will provide you with important information on maintenance, adjustment and repair of your new KTM. It has been written to cover all 1988 KTM 2-Stroke models with the sizes 125 cc to 500 cc and was established from the newest versions. However, the right to modifications in the interest of technical improvement is reserved without updating the current issue of Owner's Handbook. For more specific information on the engine, an Owner's Technical Repair Manual is available at your KTM Dealer.

We strongly suggest that you read this handbook carefully and completely, before you take your first ride. Also, pay special attention to warnings and notes.

IMPORTANT: If you don't follow this point, injuries can occure.

CAUTION: If you don't follow these points, parts can be damaged on the motorcycle.

NOTE: These points include basic adjustments and useful hints.

Perform maintenance work regularly and professionally. For service work you are not able to do yourself, please see your KTM Dealer.

KTM MOTOR-FAHRZEUGBAU
Aktiengesellschaft
A-5230 MATTIGHOFEN

INDEX

ATTACHMENTS: 1 parts poster - chassis
1 parts poster - engine (with techn. data)
1 Maintenance instructions for Marzocchi Fork USD 40 (only for motorcycles with Marzocchi forks)

IMPORTANT - safety warnings

- Gasoline is highly flammable and poisonous. Extreme caution should be used when working with gasoline. Do not refuel the motorcycle with the engine running. Take special care to not spill gasoline on the engine or exhaust pipe while the motorcycle is hot, wipe up spills promptly. If gasoline is swallowed, inhaled, or splashed into the eyes contact a physician immediately.
- Motorcycle engines produce a great amount of heat while running. The engine, exhaust pipe, muffler, brake rotors, and shock absorbers can become very hot. Do not touch any of these parts after operating the motorcycle, and take care to park it where pedestrians are not likely to touch it and get burned.
- When transporting your KTM keep it upright with tiedowns or other mechanical fasteners and be sure that the fuel petcock is in the off position. If the motorcycle should tip over it is possible for gasoline to leak out of the carburetor or fuel tank.
- Do not start the engine and allow it to idle in a closed area. Exhaust fumes are poisonous and can cause loss of consciousness and death. Always provide adequate ventilation while the engine is running.
- Remember to dress for the ride. Smart KTM riders always wear a helmet, boots, padded riding pants, gloves, jackets and eye protection every time they ride, whether it is a 100-mile enduro or a quick trip through the gears for test purposes.
- If possible check level of cooling liquid when engine is cold. If you have to open the radiator cap when engine is hot, use a rage to cover the cap and open slowly to release pressure.
- Change brake fluid at least once a year. If M/C is being washed very often, change brake fluid more often. Brake fluid has the ability to absorb water; therefore, if the brake fluid is „old" it will build water bubbles already by low temperature. This will cause the brake system to fail.
- Never mix brake fluid DOT 3 or DOT 4 (alcohol based) with DOT 5 (silicone based). KTM M/C's use DOT 4 brake fluid.
- After mounting the wheels, use the brakes so the brake pads lay against the disc.

CAUTION - hints to the motorcycles

- Only use super gasoline ROZ 98 mixed with high-grade two-stroke engine oil.
  Do not use any brand of gasoline that contains methanol or alcohol in any form, also do not use any octane boosters or additives that contain any form of alcohol. These additives can cause engine failures, and use of same will void your warranty.
- Only use high grade 2-stroke engine oil from known brands.
  Premix Ratio: 125 – 1:30
  250 – 1:40
  350 – 1:50
  500 – 1:50
  Not enough oil or low-grade oil can cause erosion of the piston. Using too much oil, the engine can start smoking and foul the spark plug.
- Ride your motorcycle with low but changing load the first 500 km (310.7 miles) or 5 hours.
- Don't ride your M/C with full load when engine is cold, it can cause engine damage. Always warm up engine or ride by low load first.
- Be very careful when adjusting the carburetor to make the engine run leaner. Reduce jets step by step, number by number to prevent over heating and locking of pistons. (Seizures)
- Never attempt to kickstart or turn the engine over with the spark plug unscrewed from the cylinder head and connected to the ignition, or with the spark plug lead ungrounded. There is considerable risk of fire or ignition system damage in either case.
- Never use teethed lockwashers on the mounting screws only self securing nuts. Teeth washers or spring washers can work themselves into the frame parts and become loose.
- If you remove the rear axle, always grease the axle and alu-nuts to prevent the threads from getting locked.
- Avoid using pressure washer when cleaning M/C. Water can get into carburetor, electricity, etc.
- Everytime you wash your M/C, re-grease the grease nipples, to make sure water which might be trapped inside the pivot get pressed out.
- For the cooling system only use high-grade anti-freeze agent by a premix ratio of 2:1 with water. Using lower-grade anti-freeze agent, it can come to corrosion and building up of foam.
- Don't let brake fluid get in touch with paint, it is an effective paint remover.
- Only use ORIGINAL KTM SPARE PARTS if it is necessary to replace parts.

Pre-operation instructions

Although your KTMT-Motorcycle was inspected after the set up from your dealer, you should go through the following steps before the first use:

ON ENGINE:

- check oil level in transmission
- check carburetor and intake manifold if mounted correctly
- check throttle cable for easy handling, and if slide returns to the idling position after letting go the throttle
- check clutch play and adjust if necessary
- check spark plug and plug connector if mounted correctly
- **check to ensure all engine mounting bolts are tight**
- tighten all hose clamps at cooling system
- check coolant level in radiator

ON CHASSIS:

- check if chain is properly adjusted
- tighten front and rear axle
- check steering head bearing and adjust if necessary
- tighten swing arm bolt
- check to ensure all screws and nuts are tight
- adjust free play of brake levers, and check pressure point of brakes
- check brake fluid level in both reservoirs
- check brakes for proper performance
- airfilter to be checked for proper installation
- correct air pressure of tires
- check damping system of shock absorber
- check damping system of up-side-down fork
- make sure the tank breathing hose is not obstructed or pinched
- check electrical system

Necessary work after the first use

(after 100 km/62 miles or approximately 1 hour)

ON ENGINE:

- re-tighten cylinder head with requested torque
- change transmission oil and check if engine lost oil
- **check to ensure all engine mounting bolts are tight**
- check ignition/firing point and tighten flywheel nut
- check transmission vent hose if proper installed
- adjust idling
- check cooling system for leakage
- check coolant level in radiator
- make sure cooling system hoses are not colgged, obstructed or pinched

ON CHASSIS:

- check if chain is properly adjusted and oil chain
- check if all screws and nuts are tight
- tighten all spokes on rear and front wheel
- adjust all cables
- check free-play of steering head bearing
- check silencer packing (MX)
- re-grease grease nipples on swingarm and links
- check brake fluid level in reservoirs
- check brake hoses for proper installment

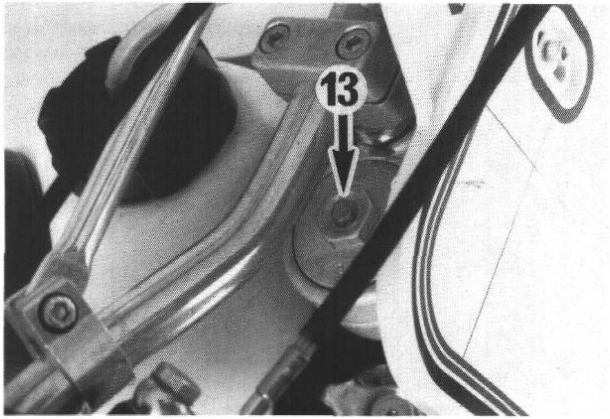
WHITE POWER FRONT FORK 4054

NOTE: The adjustment of the White Power fork can be changed in the following points:

- The **spring preload** can be increased through adding spacers (a max. of 25 mm). At White Power, the springs were measured before mounting and if necessary spacers were already added to level out already excisting differences. Therefore, DO NOT MIX original spacers in the fork legs.
- Through the oil level the **damping degree** can be adjusted. The more oil you use, the bigger dimension „A", the harder the fork will be.

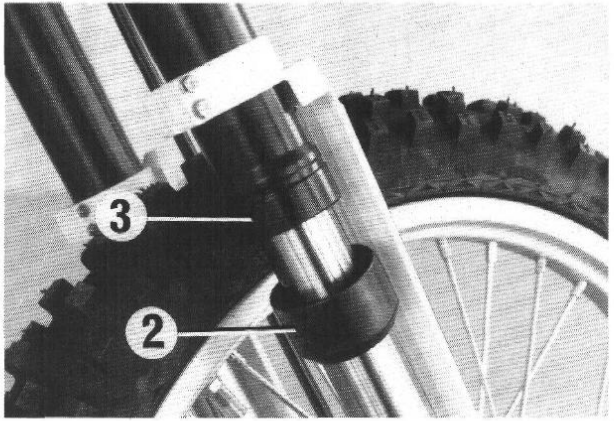
Airpressure

By riding, airpressure can build up in the fork. To release the airpressure, open the bleeding screw (13) a few turns before every ride. The more the fork seals are worn, the faster pressure can build up.



Clean dust scrapers

The dust scrapers (2) should at the latest be cleaned after 2 races. Clean more often, if necessary. To do so, remove dust scrapers from the outer tube (3), clean the inside and outside thoroughly, then replace them.



Check oil level

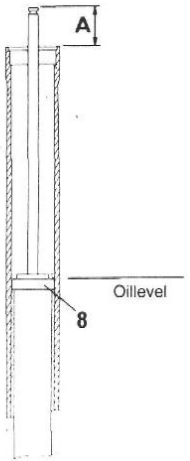
After 2 races check oil level. Remove handlebar, unscrew top screws (1), compress fork and remove parts 4-7 from the piston rod. Return fork slowly until oil will be pressed upwards from the bottom across the guide (8) of the piston rod (10). Now measure the projecting part (A) of the piston rod.

NOTE:
The oil quantity can influence the dampening on compression stroke. The fork gets the harder the more oil will be filled in or the bigger the dimension A will be.

A = 120 mm	soft
A = 140 mm	middle
A = 160 mm	hard

BASIC ADJUSTMENT: A = 140 mm

After measuring the dimension A fit parts 4-7 in correct order and mount cap screws.



Change fork oil

After 4 races change oil. Loosen top caps (1) and remove fork legs. Remove top caps, push outer tube (3) against the stop over the inner tube (9) and remove parts 4-7. Turn fork leg upside down put it into a drain pan and drain oil. Let piston rod (10) rest on the ground and jounce inner tube a few times to pump the remaining oil out of the dampening system. Let fork legs drain a few minutes. Then put fork legs up again, pull inner tube against the stop out of the outer tube, fill in approx. 640 cc oil, mount upper plug, push inner tube approx. 150 mm into the outer tube and pump with piston rod to air the dampening part. Then wait a few minutes and check oil level as described above.

Oil quantity: approx. 640 cc shock absorber oil SAE 10 per fork leg
(Best if set to dimension „A".)

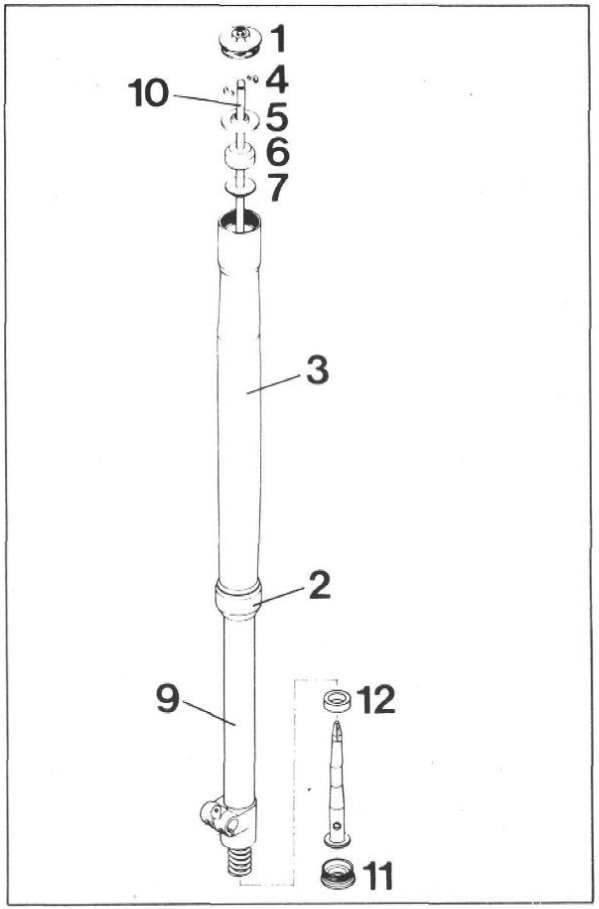
Change the preload

The preload is increased by adding preload bushes (12). To do so, remove fork legs, turn them upside down, remove lower plugs (11), add preload bush (see illustration) and mount plugs.

BASIC SETTING FOR 70 KG BODY WEIGHT:
NO PRELOAD BUSHES.

Your KTM-dealer stocks preload bushes.

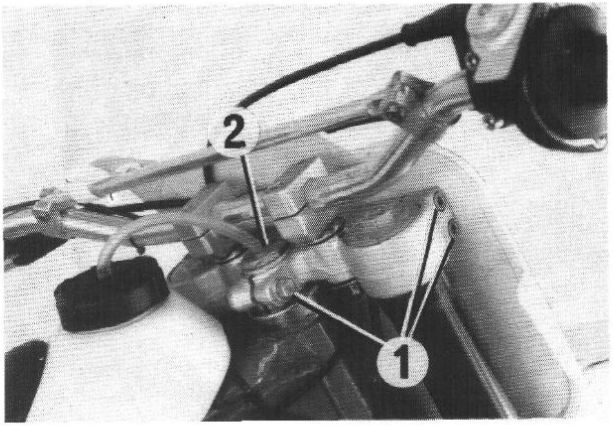
CAUTION: Preload bushes should not exceed a total height of 25 mm, otherwise the absorbtion elements will be damaged on jouncing.



Check and adjust steering head bearing

Check steering head bearing for play periodicaly. If the bearing is without play, the pivot or even the bearing race can be damaged.
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. To adjust, loosen the five pinch bolts (1) of the top triple clamp and turn steering stem bolt clockwise (2) until there is no more play. Don't tighten the steering stem bolt all the way, otherwise the bearings will be damaged. With a plastic hammer, lightly rap on the triple clamp to release tension. Re-tight the five pinch bolts.

At least once a year, the steering head bearings should be smeared with waterproof grease.



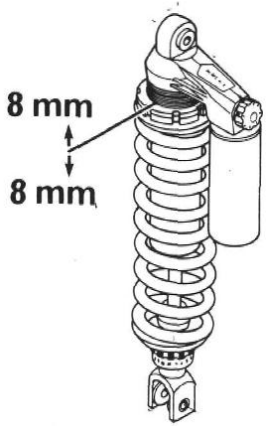
REAR SUSPENSION

Adjusting the suspension

The center is adjusted by trial and error for riders heavier or lighter than 70 kg (154 lbs.)

Setting procedure: With the rider normally seated, the rear-wheel suspension is compressed approx. 90 mm (3.5 in.).
To obtain access remove seat, side-panels and exhaust muffler, release carburetor sleeve, remove the 3 securing bolts and pull back the rear of the frame. Using the No. 2 C-spanner from the tool kit, release the setting locknut, set as required then lock. Lubricate the thread with molybdenum disulphide grease.

NOTE: Before changing the shock preload, measure the spring and write down the length. Only change the preload a maximum of ± 8 mm from the standard setting, otherwise the suspension performance will decrease.
If in doubt, if standard setting is still given, check as follows: Loosen spring, messure the length and preload 20 mm on spring.
After changing the setting, mount removed parts.

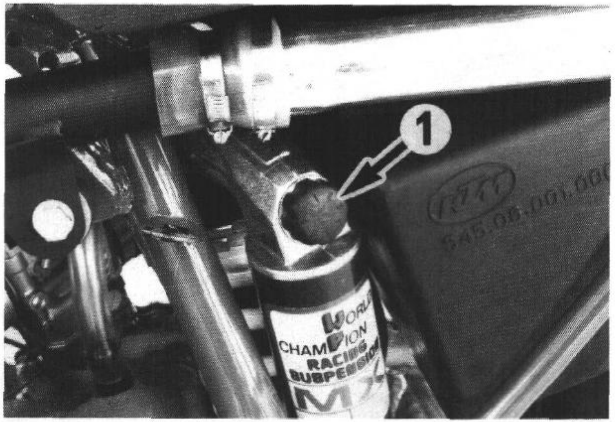


Shock absorber compression setting

The shock absorger damping level is infinitely adjustable with the 7-stage ratchet adjuster (1).

Shock absorber position 1 = soft compression
Shock absorber position 7 = hard compression

BASIC SETTING FOR 70 KG (154 lbs.) BODY WEIGHT: SETTING 1



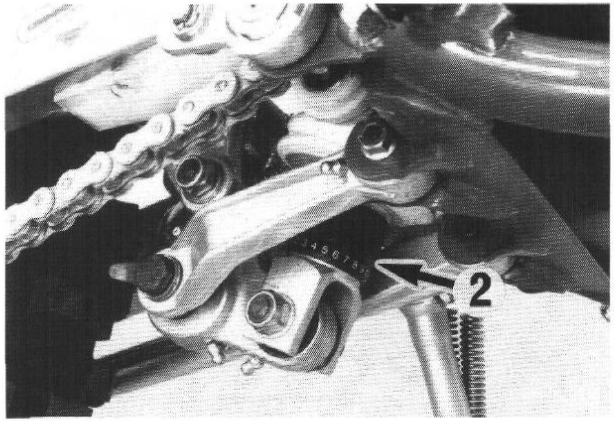
Shock absorber rebound setting

The shock absorber rebound setting comprises 11 positions. The 11-position ratchet adjuster (2) is located beneath the spring retaining washer.
In order to increase central strut tension, the rebound setting must also be set to a „stronger" level.

Shock absorber position 1 = low setting (fast shock absorber return)
Shock absorber position 11 = high setting (slow shock absorber return)

BASIC ADJUSTMENT FOR 70 KG (154 lbs.) RIDER BODY WEIGHT:

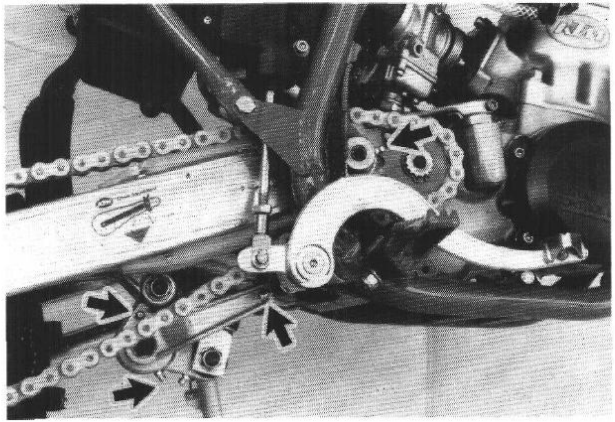
SETTING 3



Grease swingarm pivot and suspension linkage

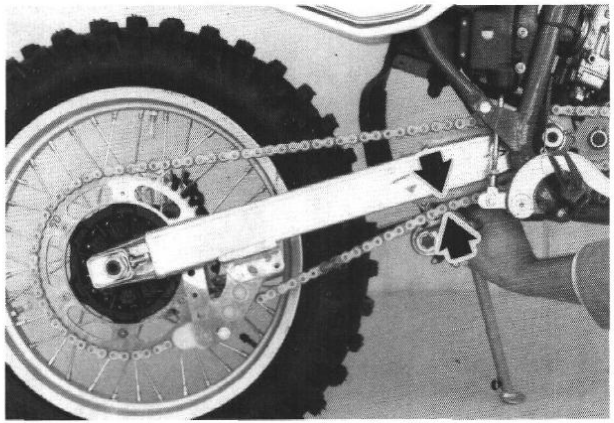
Grease nipples are mounted on the suspension linkage and swingarm pivot. These fittings must be re-greased periodically to prevent water and dirt from getting into the pivots. To do so, will save expensive repairs in the long run.

CAUTION: After each time the motorcycle is washed, it is especially important to grease the fittings to push any water out of the bearing.

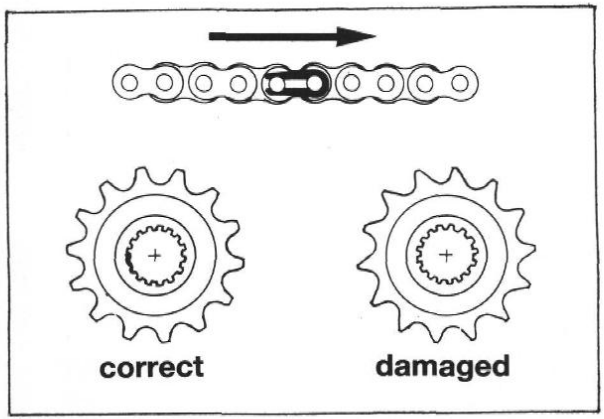


Chain tension, chain maintenance

The chain should be so loose, that when transmission is in neutral the distance between chain and chain guide is 2–5 mm.
Chain adjuster to be re-adjusted at the left as well as at the right for same distance.
For long chain life, good maintenance is very important. Chains without O-rings should be cleaned in Petroleum regularly and afterwards treated with hot grease or chain spray.
O-ring chains on the other hand are very simple to clean. The best way is to use lots of water, but never use brushes or cleaning liquids. After letting the chain dry, you can use a special O-ring chain spray.



CAUTION: When mounting the chain masterlink clip, the closed side of the masterlink clip must point in running direction.
Also check sprockets and chain guides for wear, and replace if necessary.
NOTE: If you mount a new chain, the sprockets should also be replaced. New chains wear fastet if used on old used sprockets.



DISC BRAKES

In general:

The new brakes uses a „floating" mount. This means that the brake calipers are not solidly attached to the fork or caliper carrier, which enables it to „float" for maximum braking contact.

Usage of the different brake pad types

For normal riding conditions, we suggest using organic brake pads. For very dirty conditions (i.e. water mixed with sand or mud) we recommend using sintered brake pads.

IMPORTANT:

- Check the piston to caliper face tolerance (dimension K) at the rear brake caliper periodically.
- 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, if the brake fluid is „old" it will cause the brake system to fail.
- Never mix brake fluid DOT 3 or DOT 4 (alcohol based) with DOT 5 (silicone based). For KTM Motorcycles, you should use DOT 4.
- After mounting the wheels, use the brakes so the brakes pads lay against the disc.

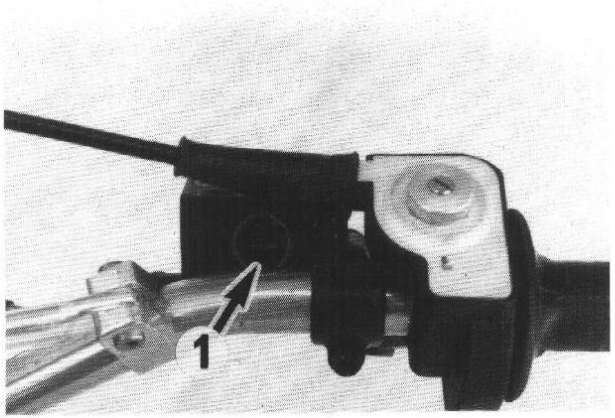
CAUTION:

- Don't let brake fluid get in contact with paint, it is an effective paint remover.

FRONT BRAKE

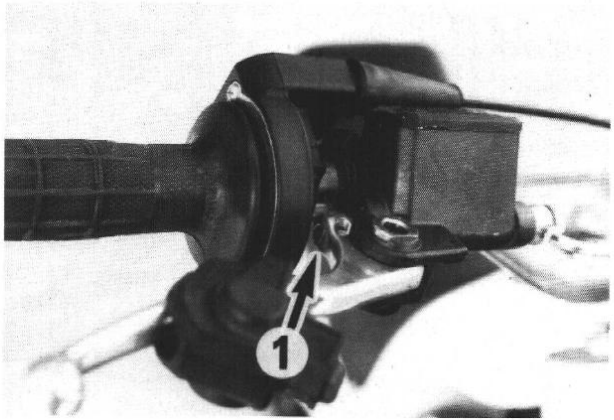
Checking of brake fluid level

The brake fluid reservoir is linked with the hand brake cylinder at the handlebar and the reservoir is provided with an inspection glass (1). With the reservoir in a horizontal position, the brake fluid level should not go below middle of the glass. The reservoir should be kept completely full at all times for best performance.

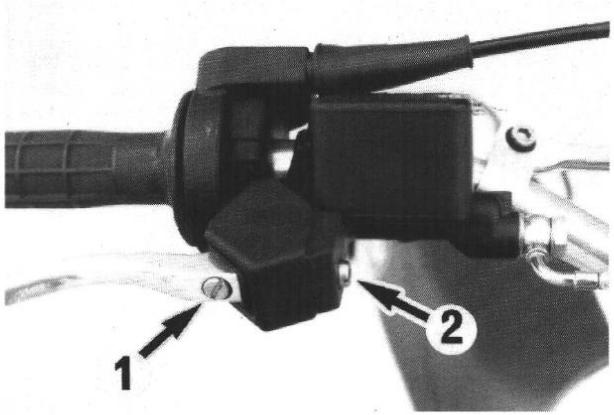


Setting of pressure point

The pressure point is the point of resistance felt on the hand brake lever when the brake pads contact the brake disc. The hand brake lever movement from start to pressure point can be adjusted by adjustment screw (1). This way the play can be adjusted to fit any size hand.

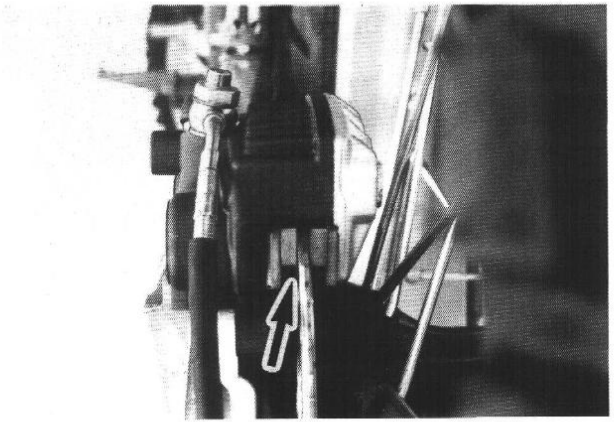


NOTE:
With the Magura hand brake cylinder, the basic position of the hand brake lever can be adjusted with screw (2) as well as the pressure point.
This adjustment has to be made before setting the pressure point.



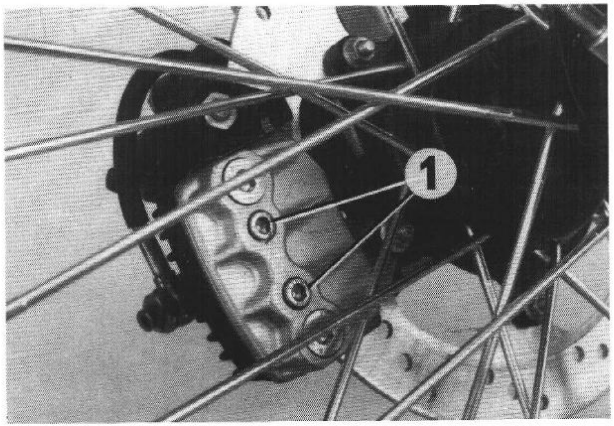
Checking brake pads

Brake pads can be checked from beneath (front wheel) or from the back (rear wheel). Brake pad thickness should never go below 1 mm.



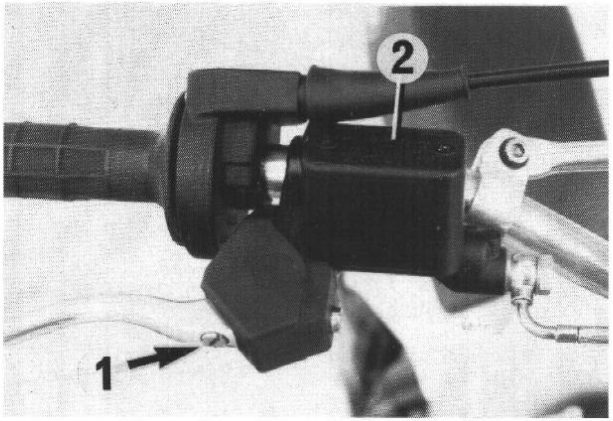
Replacing the brake pads

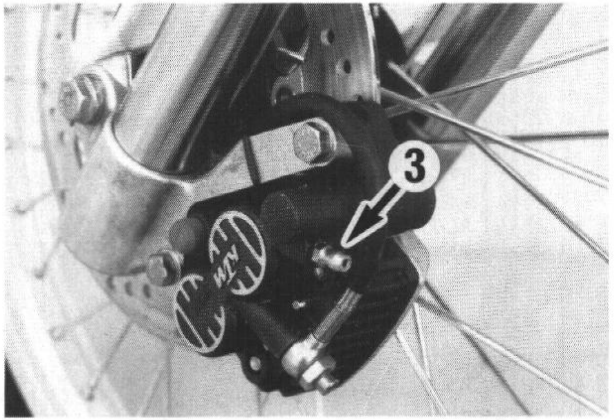
With a 5 mm hexagon pin spanner remove bolts (1) and pull the pads out of the bottom of the caliper. Push pistons in and clean caliper. Check all rubber seals and chatter spring if damaged. Re-install brake pads. BE SURE THE BRAKE PAD WITH THE HEAT INSULATOR IS MOUNTED ON THE PISTON SIDE.
Screw bolts back in and through pumping press brake pads against disc.



Bleeding the front brake

- Turn the lever adjusting screw (1) completely counterclockwise to remove all pressure from the master cylinder piston rod.
- Remove the fluid reservoir cover (2).
- Turn the handlebars so that the fluid reservoir is completely horizontal, and fill it up with DOT 4 brake fluid.
- Attach a length of clear fluid hose (5 mm diameter) to the oleed nipple (3) on the brake caliper, and drop the end of the hose into a container to hold the overflow fluid.
- Pump the brake lever approx. 4 to 5 times, the, while holding pressure against the lever, open the bleed nipple. If there is any air in the system you will see bubbles coming out of the bleed nipple.
- Close the bleed nipple and release the lever and pump it back up again. Do not release the lever unless the bleed nipple is closed.
- Repeat the process of pumping and then opening the bleed nipple until no more air bubbles are visible in the expelled fluid.
- While repeating the bleeding operation, check the fluid lever in the reservoir and top us if necessary, to prevent air from getting into the system. **Do not let the reservoir run out of fluid!**
- To check to make sure there is no air trapped behind the caliper pistons, push the pistons in all the way. Remove the brake pads and pump both pistons out approximately 13 mm (0.51 inch).
- Pull the brake lever all the way back to the grip and secure it there with a rubber band to ensure that the master cylinder fluid supply orifice is closed.
- Now put pressure on both pistons, open the bleed nipple, push the pistons in all the way and close bleed nipple again.
- Re-install brake pads, if necessary replace.
- Fill the fluid reservoir and pump the pads against the disc.
- Top the fluid reservoir up right to the edge, and re-install the lid so there is no air in the reservoir.
- Adjust the lever to a comfortable position with adjusting screw.

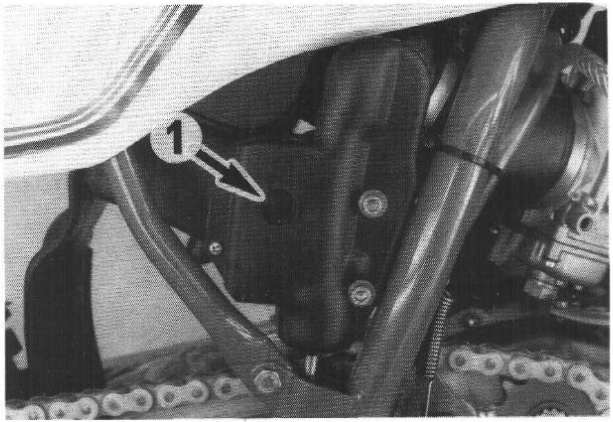




REAR BRAKE

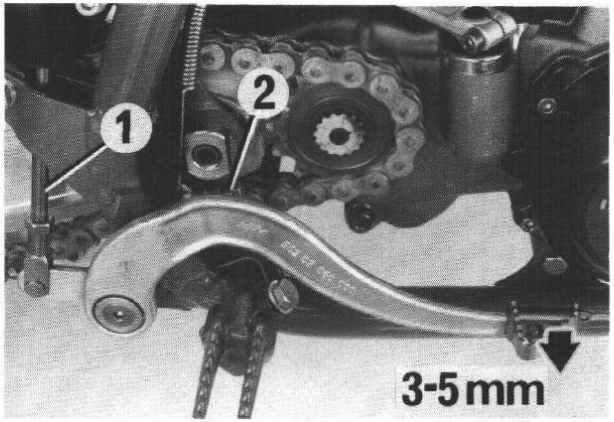
Checking of brake fluid level

The brake fluid container is linked with the foot brake cylinder and the container is provided with an inspection glass (1). With the container in a vertical position, the brake fluid level should not go below middle of the glass.



Rear brake lever

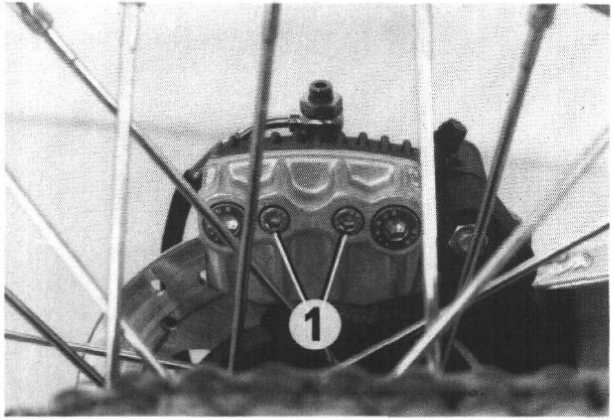
To adjust the rear brake lever, use hexagon screw (1) and the push rod (2). The free play on the front edge of the brake lever should never be less than 3-5 mm. If the free play is less than 3-5 mm, pressure can build up in the brake system and the brake pads will drag, wear out quicker, cause excessive heat and possibly lock.



Checking brake pads (see „Front brake")

Replacing the brake pads

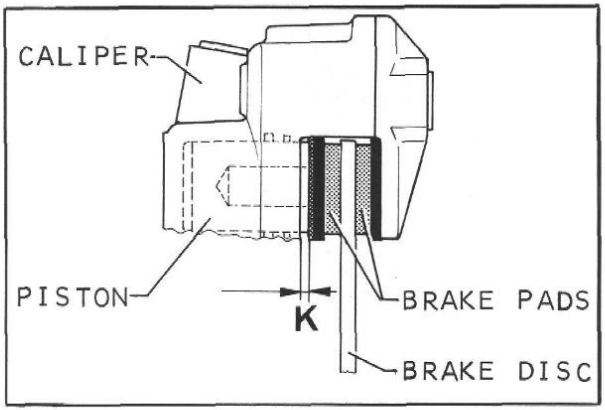
With a 5 mm Allen wrench remove bolts (1) and pull the pads out of the back of the caliper. Push pistons in and clean caliper. Check all rubber seals and the chatter spring if damaged. Re-install brake pads; BE SURE THE BRAKE PAD WITH THE HEAT INSULATOR IS MOUNTED ON THE PISTON SIDE. Make sure you check the caliper piston to caliper face tolerance (as described) before screwing the bolts back in. Tighten bolts and by pumping, press brake pads against disc.



Caliper to piston tolerance

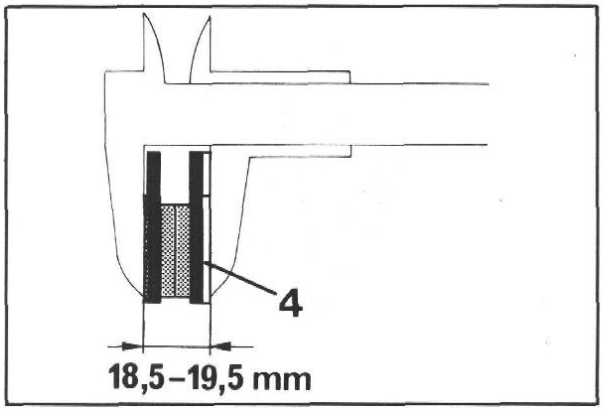
If an inconsistant rear brake application point or double pumping of the brake pedal becomes necessary, you should check the piston to caliper face tolerance. This situation is caused by an excessive caliper piston tolerance and engine vibration at full throttle pushing the caliper pistons back. This vibration effect can be eliminated by maintaining a caliper to piston tolerance (dimension K) of 0.5 to 1.8 mm (0.020 to 0.071 inch) – see ill.
Dimension K increases through wear of the brake pads.
To balance out the wear and to maximize the life of the brake pads, you can add shims (4) which are of the same shape as the brake pads. These shims are available in 1 mm, 2 mm, and 3 mm thickness through KTM Parts Department.

CAUTION:
The piston to caliper tolerance should never be less than 0.5 mm and not more than 1.8 mm, otherwise the brake will fail.



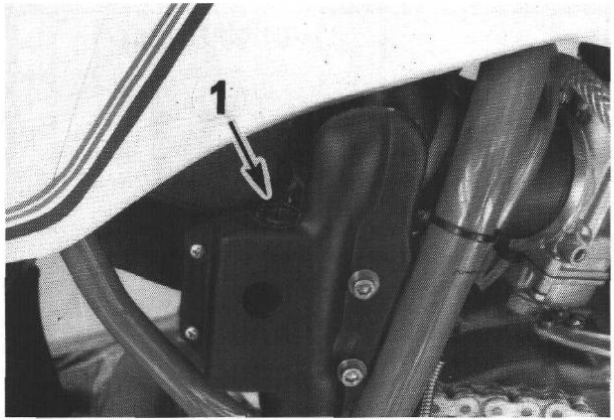
You can also messure the total brake pad thickness (including shims) which chould be 18.5 to 19.5 mm (0.73 to 0.77 in.) **NOT MORE.**

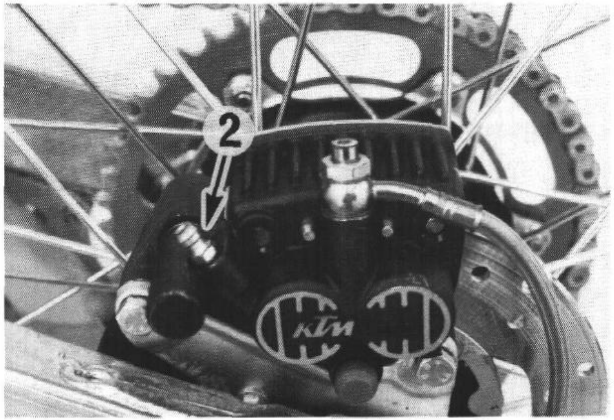
The total brake pad thichness (including shims) should be 18.5 to 19.5 mm (0.73 to 0.77 inch) NOT MORE (see ill).



Bleeding the front brake

- Turn the lever adjusting screw (1) completely counterclockwise to remove all pressure from the master cylinder piston rod.
- Remove the fluid reservoir cover (2).
- Turn the handlebars so that the fluid reservoir is completely horizontal, and fill it up with DOT 4 brake fluid.
- Attach a length of clear fluid hose (5 mm diameter) to the oleed nipple (3) on the brake caliper, and drop the end of the hose into a container to hold the overflow fluid.
- Pump the brake lever approx. 4 to 5 times, then, while holding pressure against the lever, open the bleed nipple. If there is any air in the system you will see bubbles coming out of the bleed nipple.
- Close the bleed nipple and release the lever and pump it back up again. Do not release the lever unless the bleed nipple is closed.
- Repeat the process of pumping and then opening the bleed nipple until no more air bubbles are visible in the expelled fluid.
- While repeating the bleeding operation, check the fluid lever in the reservoir and top up if necessary, to prevent air from getting into the system. **Do not let the reservoir run out of fluid!**
- To check to make sure there is no air trapped behind the caliper pistons, push the pistons in all the way. Remove the brake pads and pump both pistons out approximately 13 mm (0.51 inch).
- Pull the brake lever all the way back to the grip and secure it there with a rubber band to ensure that the master cylinder fluid supply orifice is closed.
- Now put pressure on both pistons, open the bleed nipple, push the pistons in all the way and close bleed nipple again.
- Re-install brake pads, if necessary replace.
- Fill the fluid reservoir and pump the pads against the disc.
- Top the fluid reservoir up right to the edge, and re-install the lid so there is no air in the reservoir.
- Adjust the lever to a comfortable position with adjusting screw.



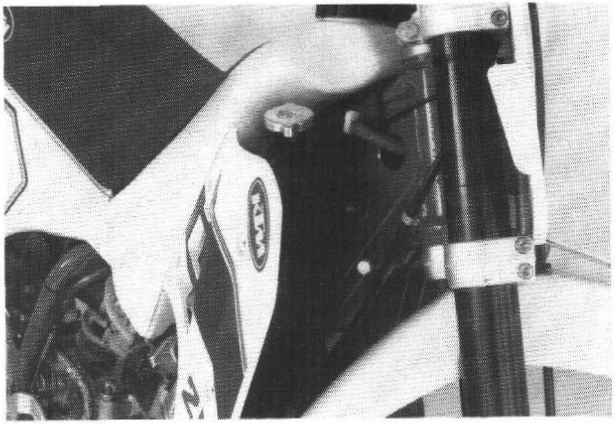


Cooling system

The engine water pump ensures forced circulation of the coolant.
The coolant consists of a 2:1 mixture of antifreeze and water.
In addition to frost protection, it ensures good corrosion resistance, and therefore should never be replaced with plain water.

CAUTION:
For the cooling system, use only with high-grade antifreeze. Using lower-grade antifreeze agents, can cause corrosion and coolant foaming.

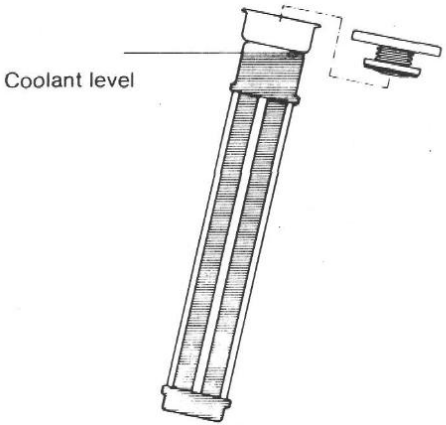
Pressure induced by heating of the coolant in the system is controlled by a valve in the radiator cap; a water temperature rising up to 120° C (248° F) is admissible, without fear of problems.



Coolant level check

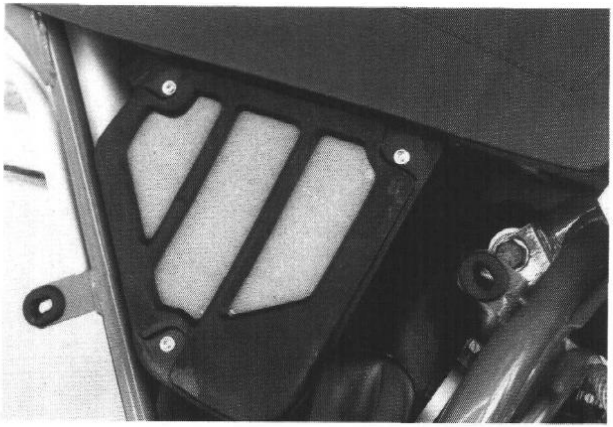
The coolant level should be checked both when the engine is running and cold. Please see the coolant level as indicated in the illustration.
In the event of the coolant being drained, always fill the system before hand, then top off while the engine is running.

IMPORTANT:
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.



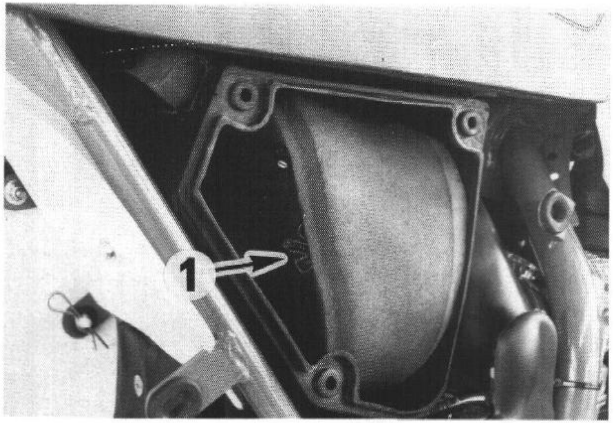
Cleaning of pre-filter

There is a pre-filter in the airbox cover to keep the air filter free of rough dirt. To clean the pre-filter, remove the side panel and dairbox cover. Clean the airbox cover/pre-filter with soap and water and dry thoroughly. Do **not** oil the pre-filter.



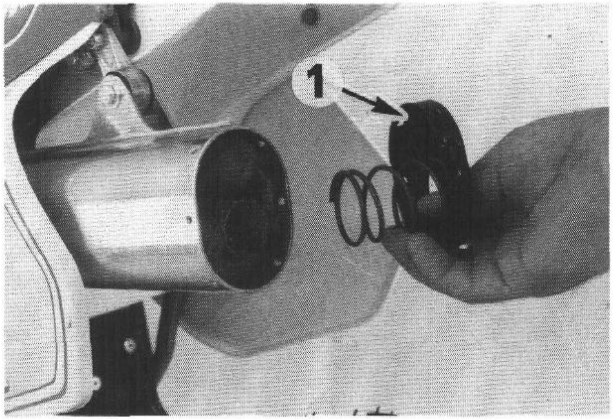
Cleaning of air filter

The air filter must be cleaned after each ride or after riding in heavy dust. To clean the filter, first remove the side cover and the airbox cover. Loosen wing-nut (1) and remove filter and cage from airbox. Foam filter should be cleaned first in solvent and then in warm soapy water, and then dried completely. Re-oil filter with Twin Air foam filter oil or equivalent. Check filter element for cuts or holes; check airboot for cuts or holes and for secure clamps; clean filter box and inspect if drain tube is clean; grease sealing edge of filter element before re-installing.



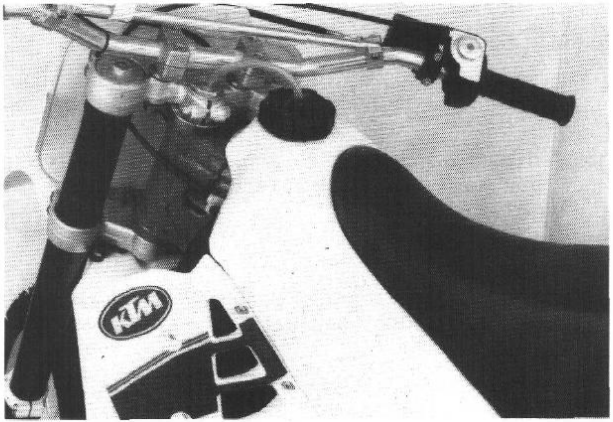
Exhaust system

Exhaust systems with removable exhaust end caps (1) are filled with basalt rockwool. The basalt rockwool filling should be checked before every race. Basalt rockwool which is coked up or too loose may result in performance loss. Replace coked up basalt wool with new rockwool. If it is packed too loose, repack it with fresh basalt rockwool. The new rockwool should be pushed firmly into the exhaust with a blunt object.
Your KTM-Dealer stocks basalt rockwool in pre-packed sizes.



Fuel system

Every six months empty the fuel tank, clean the fuel cock and check the fuel line. Check the tank vent and the filler cap gasket. If necessary, clean the carburetor, check components for wear and replace all gaskets. Then readjust the carburetor.



CARBURETOR ADJUSTMENT

Basic information on the original carburetor setting

The original carburetor setting correspond to an altitude of approx. 500 meters (1600 ft.) above sea level, and ambient temperature of approx. 20° C (68° F), mainly cross-country use, central European super fuels (ROZ 98 MOZ) with a mixing ratio (high-grade 2-stroke oil : fuel) as mentioned in the technical data.

Basic information on a change of the carburetor setting

Always start out from the original carburetor setting. Essential requirements are a clean air filter system, air-tight exhaust system and intact carburetor. Experience has shown that adjusting the main jet, the idling jet and the jet needle is sufficient and that changes of other parts of the carburetor do not greatly affect engine performance.

RULE OF THUMB:	high altitude or high temperatures	➧	choose leaner carburetor adjustment
	low altitude or low temperatures	➧	choose richer carburetor adjustment

CAUTION: In the case of a leaner adjustment of the carburetor proceed cautiously. Always gradually reduce the jet size by one number to avoid overheating and piston seizure.

NOTE: If despite a changed adjustment the engine does not run properly, look for mechanical faults and check the ignition system.

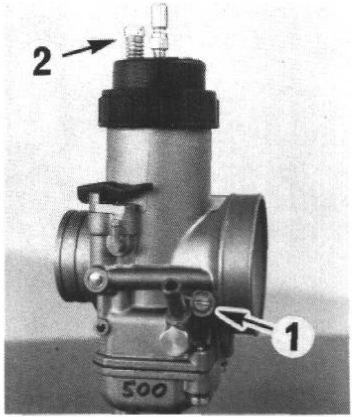
DEFINITIONS

Mixture too rich: too much fuel in proportion to air.

Mixture too lean: not enough fuel in proportion to air.

Idling range (A):

Operation with throttle valve closed. This range is influenced by the positions of the air or mixture control screw (1) and the throttle stop screw (2). Carry out any adjustment in the idling range with warm engine only.
Turn the throttle stop screw so that the engine runs at fast idling speed. Then adjust the air or mixture control screw until the engine is running as evenly and smoothly as possible. Turn back the throttle stop screw until the engine is just running smoothly without missing.



Air control screw

With the air control screw the air supply in the idling range is adjusted. To get a richer mixture turn the air control screw clockwise, to get a leaner mixture turn the air control screw counterclockwise.

The following carburetors are supplied with an air control screw:
- Dell 'Orto VHSB 37 AS
- Dell 'Orto VHSB 38 AS
- Dell 'Orto PHSB 35 MS

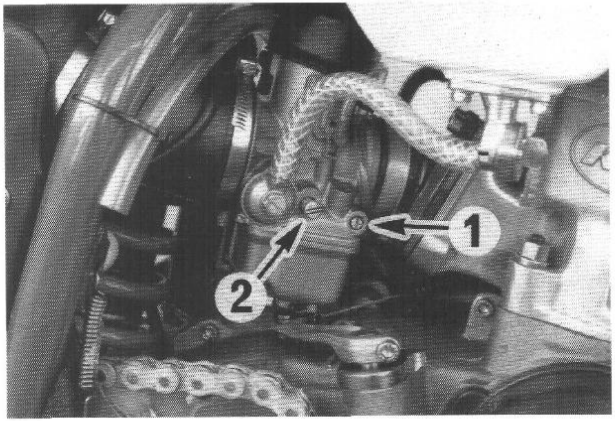
Mixture control screw

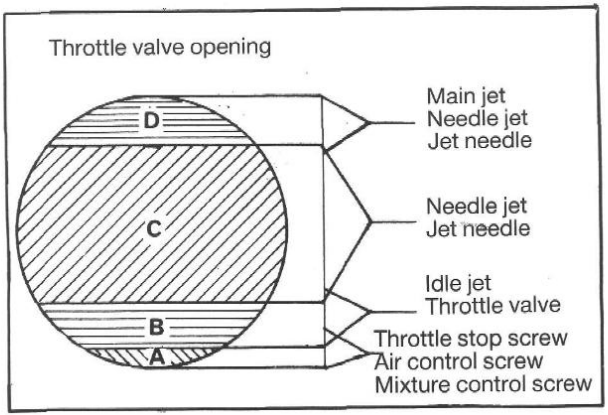
With the mixture control screw the fuel supply in the idling range is adjusted. To get a leaner mixture, turn the mixture control screw clockwise; to get a richer mixture, turn the mixture control screw counterclockwise.

The following carburetors are supplied with a mixture control screw:
- Dell 'Orto PHBE 38 QD
- Dell 'Orto PHBE 38 GD
- Dell 'Orto PHBE 38 MS

Opening up (B)

Engine behaviour when the throttle opens. The idle jet and the shape of the throttle slide influence this range. If, despite the correct idling speed and part-throttle response, the engine sputters and smokes when the throttle is fully opened and develops its full power not smoothly but suddenly at high engine revs, then it will in most cases be found that the fuel level is too high or the float valve is leaking.





Part throttle range (C):

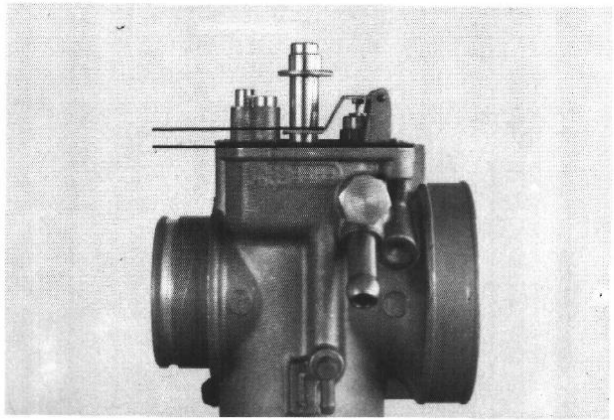
Operation with partly open throttle. This range is mainly influenced by the needle jet and the jet needle (shape and position). The optimum part throttle setting is controlled by the idling setting in the lower range and by the main jet in the upper range. If the engine runs on a four-stroke cycle or with reduced power when it is accelerated with the throttle partly open, then the engine pings, especially when accelerating under full power at maximum engine revs, the jet needle should be raised.
If these faults should occur at the lower end of the part throttle range at a four-stroke running, adjust the idling range leaner; by pinging of the engine, adjust the idling range richer.

Full throttle range (D):

Operation with the throttle fully open (flat out). This range is influenced by the main jet. If the porcellain of a new spark plug is found to have a very light or white coating after a short distance of riding flat out, a larger main jet is required. If the porcellain should be dark brown or black with soot, the main jet must be replaced by a smaller one.

Check float level

To check the float level, remove carburetor from engine, then remove float bowl. Hold carburetor in vertical position, as shown in Fig. Float arm should be parallel with the float bowl sealing surface.

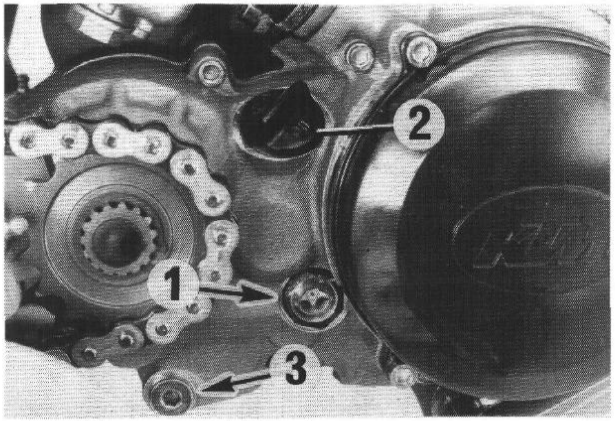


Check transmission oil level - 125 cc

For checking the transmission oil level a sight glass (1) is provided next to the ignition cover. With the motorcycle parked on a horizontal surface the oil level should be approx. in the middle of the sight glass. If required top up with engine oil SAE 30.

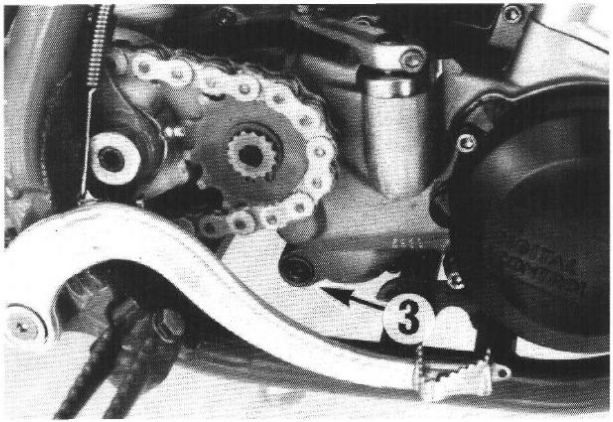
Check transmission oil level - 250, 350, 500 cc

These models do not have a sight glass. In order to check transmission oil level, the oil has to be drained and messured. See Technical Data for suggested fill quantity.



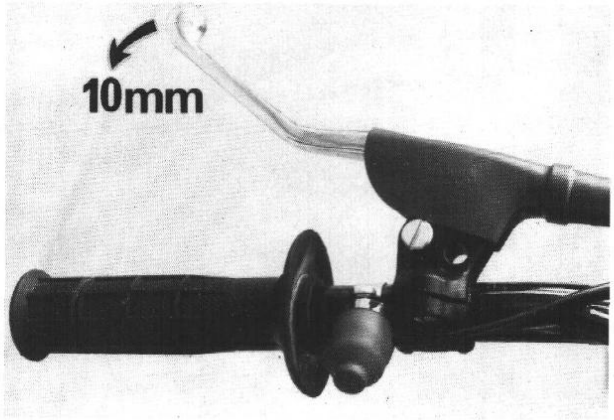
Changing transmission oil

The engine should be warmed up first, then the motorcycle is placed on a level surface and oil drain plug (3) removed to allow old oil to flow out.
The 125 cc engine has a second oil drain plug on the clutch cover. Clean magnet and fit the drain plug once more, remove filler cap (2) and top up with (see „Technical Data"). Mount filler cap, run the engine and check for leaks.



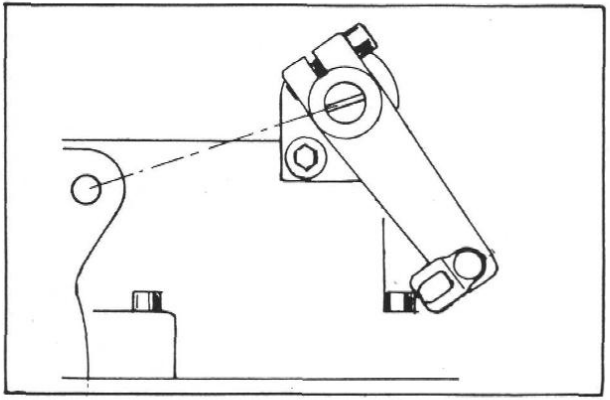
Clutch lever adjustment

Always check the play on the clutch control lever and adjust if necessary. The free play at the end of the lever should be approx. 10 mm.



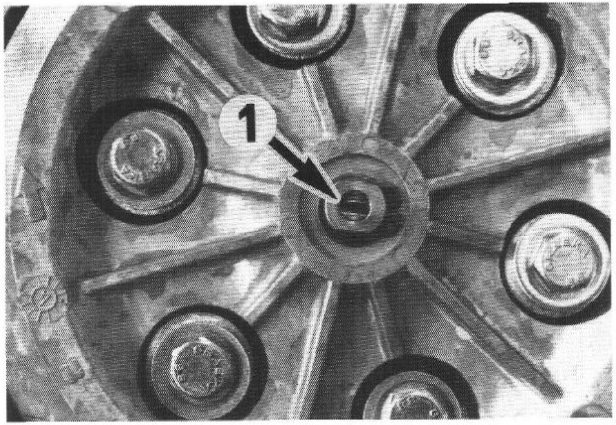
Checking of clutch disengagement position (125, 250)

In order to obtain an exact disconnection of the clutch, even the clutch's disengagement has to be correctly adjusted. For checking the adjustment, unhook the clutch cable.
Use a screw driver to turn the clutch release shaft clockwise to the stop. The slot on the upper side of the release shaft should be positioned such that its prolongation points towards the rear right stud of the cylinder foot (see ill.)



Adjustment of clutch disengagement (125, 250)

Drain off cooling agent (only 125) and gear lubricant oil, unhook clutch cable, detach clutch cover, remove cotter pin at adjustment mechanism. To correct the adjustment, turn push rod (1) of clutch pressure cap. Then the adjustment is completed secure push rod with a split pin. Hook up clutch cable and adjust it. Mount clutch cover. Refill gear lubricant oil and cooling agent.



PERIODIC MAINTENANCE SCHEDULE

* **Note:** If you operate your KTM motorcycles in muddy conditions then use a high pressure washer often, then double the normal 2× recommendation.

	as necessary	after washing	before the race or after the race	after 2 races	2× per year*
Change transmission oil level	●		●		
Change transmission oil	●			●	
Check clutch free play	●				
Check ignition timing	●				
Check sparkplug gap and electrode	●			●	
Change sparkplug	●				●
Check intake manifold for leaks and cracks	●		●		
Check carburator float bowl for water	●	●			
Clean carburator and adjust idle	●				●
Clean airfilter element box and check air boot	●	●	●		
Check chain, sprockets, guides and chain stretch	●		●		
Clean and oil chain	●	●	●		
Check chain tension	●		●		
Check coolant level	●		●		
Check cooling system leaks	●		●		
Check exhaust pipe cracks	●		●		
Repack and add rockwool to silencer	●			●	
Check exhaust pipe and silencer grommets	●				
Check brake fluid level front and rear	●		●		
Change brake fluid	●				●
Check disc brake pads	●		●		
Check disc rotor	●		●		
Inspekt both front and rear brake hose	●		●		

	as necessary	after washing	before the race or after the race	after 2 races	2× per year*
Check rear foot pedal free play and movement	●		●		
Check caliper to piston tolerance (rear brake)	●		●		
Check front fork action	●		●		
Clean fork seals dust covers	●		●		
Change fork oil (after 4 races)	●				
Check steering head bearing free play	●		●		
Clean and regrease steering head bearings	●				●
Check shock spring preload setting	●		●		
Grease Pro Lever Linkage System	●	●	●		
Grease swingarm needle bearings	●	●	●		
Check for even spoke tension and rim alignment	●				
Check wheel bearings, regrease if necessary	●				
Check tires for cuts and air pressure	●		●		
Check cable free movement	●		●		
Adjust and oil control cables	●		●		
Check electrical connections	●		●		
Check all bolts, nuts, screws and clamps for proper tightness	●		●		
Clean and lubricate control lever pivot points	●	●			

Technical Specifications - Chassis

	125 MX	125 E-XC	125 E-GS	250 MX	250 E-XC	250 E-GS	350 E-XC	350 E-GS	500 MX
Frame	Central chrome-moly-steel frame								
Fork	White Power K1MX88/ Marzocchi USD 40-125			White Power K2MX88/ Marzocchi USD 40-250			White Power K2MX88/ Marzocchi USD 40-250		White Power K5MX88
Whell travel fr./r.	300/340 mm			300/345 mm			300/350 mm		
Rear suspension	Central shock absorber with PRO-LEVER linkage to rear swing-arm with needle bearing								
Front brake	Disc brake with carbon-steel brake disc ∅ 240 mm, 2-piston brake caliper floated, effective braking surface 30 cm^2								
Rear brake	Disc brake with carbon-steel brake disc ∅ 200 mm, 2-piston brake caliper floated, effective braking surface 30 cm^2								
Tyres front	90/90-21	3.00-21	3.00-21	80/100-21 90/90-21	3.00-21	3.00-21	3.00-21	3.00-21	80/100-21 90/90-21
Tyres rear	4.60-18	4.60-18	4.60-18	110/100-18 120/80-18	4.50-18	4.50-18	4.50-18	4.50-18	120/100-18 130/80-18
Fuel tank capacity	8 liter			9 liter	9 or 12 liter		9 or 12 liter		9 liter
Final drive ratio	13:50	13:48	13:45	13:50	13:50	14:45	14:52	14:50/14:45	14:50
Chain	$^5/_8 \times {}^1/_4''$								
Steering angle	62,5°								
Wheel base	1460 ± 10 mm			1480 ± 10mm			1480 ± 10 mm		1480±10mm
Seat high	950 mm			960 mm			960 mm		960 mm
Ground clearance	380 mm			385 mm			385 mm		385 mm
Dry-weight	88 kg 193,6 lbs.	91 kg 200,2 lbs.	95 kg 209 lbs.	98 kg 215,6 lbs.	102 kg 224,4 lbs.	105 kg 231 lbs.	103 kg 226,6 lbs.	107 kg 235,4 lbs.	102 kg 224,4 lbs.

KTM recommends

SHELL SUPER FORK-
Fluid for forks

Recommended for racing motorcycles. Specially developed for motorcycle suspensions. The high viscosity index warrants usability the year round. Shell Super Fork is highly compatible with pakking materials and has excellent antiwear properties.

SHELL CHAIN SPRAY

Shell Chain Spray specially developed for drive chains of bicycles and motorcycles and also for the lubrication of links, cables etc. requiring a permanent wear protective lubricating film.

SHELL DONAX YB

Heavy duty break fluid of outstanding quality for disk and drum breaks.

SAE J 1703
DOT 4 and 3

GLYCOSHELL 400

Service life antifreeze of top quality. For cooling systems of modern engines with their highly developed light alloys.

SHELL RENTINAX A

Water-resistant multi purpose **grease** on lithium soap basis with EP additives, specially developed for motor vehicles: Grease for chassis, waterpump, friction and roller bearings.

NLGI 2

SHELL ROTELLA X

Single-grade engine oil for diesel and gasoline engines. Used from KTM for transmission lubrication.

API: CC and SF
CCMC: D 1
MIL-L-46152 B

KTM MOTOR-FAHRZEUGBAU

AKTIENGESELLSCHAFT

5230 MATTIGHOFEN, AUSTRIA