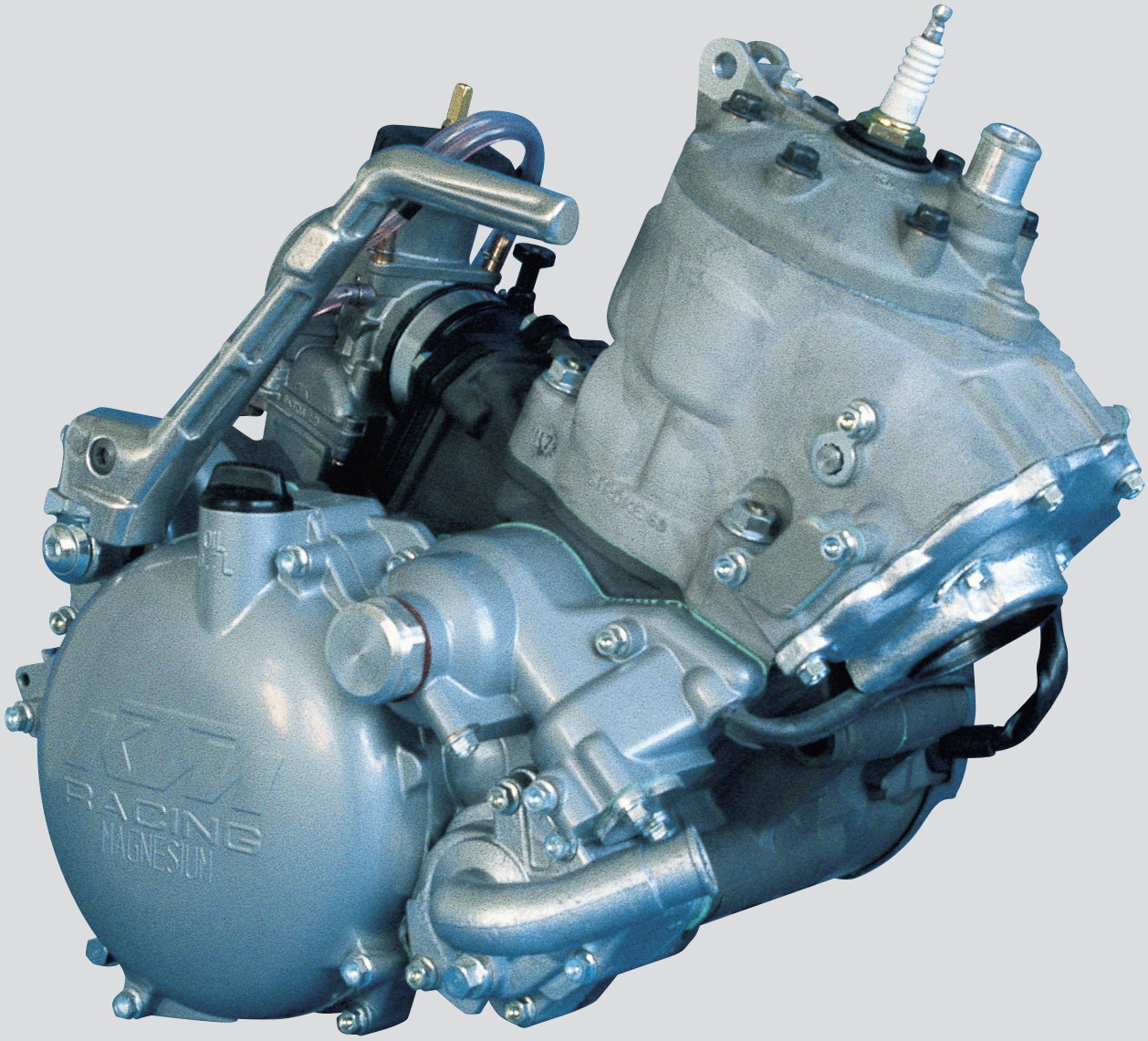
125 / 200

REPAIR MANUAL ENGINE

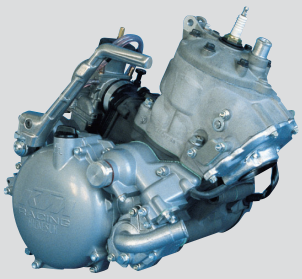


KTM SPORTMOTORCYCLE AG
5230 Mattighofen
Austria
www.ktm.at

125/200

REPAIR MANUAL ENGINE

KTM SPORTMOTORCYCLES



1 SERVICE-INFORMATIONS

2 GENERAL INFORMATION

3 REMOVING AND REFITTING ENGINE

4 DISASSEMBLING THE ENGINE

5 SERVICING INDIVIDUAL COMPONENTS

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7 ELECTRICAL

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9 TECHNICAL SPECIFICATIONS

10 PERIODIC MAINTENANCE SCHEDULE

11 WIRING DIAGRAMS

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IMPORTANT INFORMATION/UPDATING INSTRUCTIONS

To be able to continue using the existing loose-leaf repair instructions, simply print the following pages and insert them in the existing repair instructions:

15,17,18,21,23,27,39,43,44,69,70,73-85,91,107-129,135-139,155-158

Remove page (s)	Replace by page (s)	Insert page (s)	after page
2-1	2-1C		
2-2	2-2C bis 2-3C		
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3-4 bis 3-5	3-4C		
5-1	5-1C		
5-4 bis 5-5	5-4C bis 5-5C		
6-10 bis 6-11	6-10C bis 6-11C		
7-1 bis 7-3	7-1C bis 7-13C		
9-1	9-1C		
9-16 bis 9-28	9-16C bis 9-36C		
10-1	10-1C		
10-6	10-6C bis 10-9C		
11-1	11-1C		
11-15	11-15C bis 11-18C		

KTM REPAIR MANUAL IN LOOSE-LEAF FORM

STORING THE REPAIR MANUAL IN THE BINDER

– Put the index into the binder.
– Put the front page of the repair manual (210x297 mm) into the transparent pocket provided for this purpose on the outside of the binder.
– Put the spine label (170x45 mm) into the transparent pocket provided for this purpose on the spine of the binder.
– Put the summary list of contents (150x297 mm) into the transparent pocket provided for this purpose on the inside of the binder or insert this page on the beginning of the manual.
– Then insert the individual chapters of the manual between the sheets of the index according to the page number printed in the right bottom corner of each page.
  Example: page no. 3-5 3 = chapter 3 5 = page 5
  All pages with a page number that begins with the digit 3, for example, must be put under the index heading „Chapter 3“.
– Index sheets that have not been marked with a certain chapter are for your personal convenience. The respective headings can be entered in the list of contents.

EXPLANATION - UPDATING

3.205.74-E Repair Manual 125/200 SX, MXC, EXC

Basicversion Modelyear 1999
(Engine number with first digit "9")

3/1999

3.205.88-E Updating of Rep.Manual 3.205.74-E

Modelyear 2000/2001
(2000: Engine number with first digit "0")
(2001: Engine number with first digit "1")

8/2000

3.210.27-E Updating of Rep.Manual 3.205.74-E

Modelyear 2002
(Engine number with first digit "2")

7/2001

3.206.005-E Updating of Rep.Manual 3.205.74-E

Modelyear 2003
(Engine number with first digit "3")

11/2002

Modification / Updating:
Technical Details, Technical Specifications,
Periodic Maintenance Schedule, Wiring Diagrams

Edition 11/2002

INTRODUCTION

This repair manual offers extensiv repair-instructions and is an up-to-date version that describes the latest models of the series. However, the right to modifications in the interest of technical improvement is reserved without updating the current issue of this manual.

A description of general working modes common in work shops has not been included. Safety rules common in the work shop have also not been listed. We take it for granted that the repairs are made by qualified profesionally trained mechanics.

Read through the repair manual before beginning with the repair work.

⚠ WARNING ⚠

STRICT COMPLIANCE WITH THESE INSTRUCTIONS IS ESSENTIAL TO AVOID DANGER TO LIFE AND LIMB.

! CAUTION !

NON-COMPLIANCE WITH THESE INSTRUCTIONS CAN LEAD TO DAMAGE OF MOTORCYCLE COMPONENTS OR RENDER MOTORCYCLES UNFIT FOR TRAFFIC !

„NOTE" POINTS OUT USEFUL TIPS.

Use only **ORIGINAL KTM SPARE PARTS** when replacing parts.

The KTM high performance engine is only able to meet user expectations if the maintenance work is performed regularly and professionally.

TÜV MANAGEMENT SERVICE ISO 9001

REG.NO. 12 100 6061

KTM Austria's certificate of achievement for its quality system ISO 9001 is the beginning of an ongoing total reengineered quality plan for a brighter tomorrow.

KTM Sportmotorcycle AG
5230 Mattighofen, Austria

REPLY FAX FOR REPAIR MANUALS

We have made every effort to make our repair manuals as accurate as possible but it is always possible for a mistake or two to creep in.

To keep improving the quality of our repair manuals, we request mechanics and shop foremen to assist us as follows:

If you find any errors or inaccuracies in one of our repair manual – whether these are technical errors, incorrect or unclear repair procedures, tool problems, missing technical data or torques, inaccurate or incorrect translations or wording, etc. – please enter the error(s) in the table below and fax the completed form to us at 0043/7742/6000/5349.

NOTE to table:
- Enter the complete item no. for the repair manual in column 1 (**e.g.: 3.206.005-E**).
  You will find the number on the cover page or in the left margin on each right page of the manual.

- Enter the corresponding page number in the repair manual (**e.g.: 5-7c**) in column 2.

- Enter the current text (inaccurate or incomplete) in column 3 by quoting or describing the respective passage of the text. If your text deviates from the text contained in the repair manual, please write your text in German or English if possible.

- Enter the correct text in column 4.

Your corrections will be reviewed and incorporated in the next issue of our repair manual.

Item no. of repair manual	Page	Current text	Correct text

Additional suggestions, requests or comments on our Repair Manuals (in German or English):

Name mechanic/shop foreman **Company/work shop**

GENERAL INFORMATION 2

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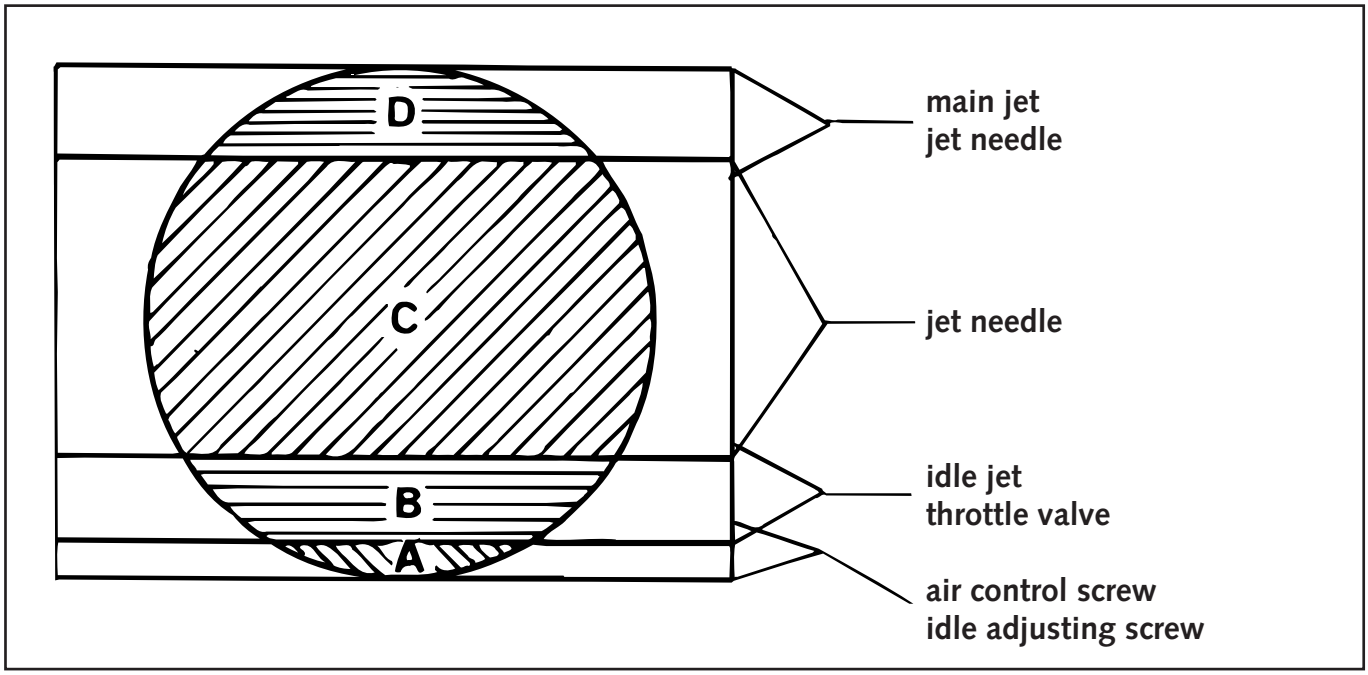
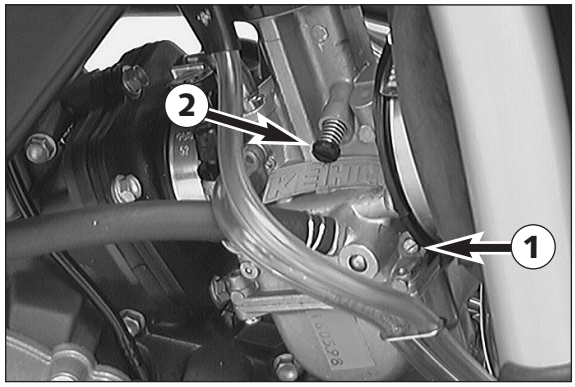
CARBURETOR ADJUSTMENT 2-3
BLEEDING OF THE HYDRAULIC CLUTCH 2-4
OIL PUMP ADJUSTING -
MODELS WITH SEPARATE LUBRICATION 2-5
CHECK OF EXHAUST CONTROL 2-6

Art No 3.206.005-E



mixture too lean:
not enough fuel in proportion to air

mixture too rich:
too much fuel in proportion to air



Idling range A

Operation with closed throttle valve. This range is influenced by the position of the air control screw ❶ and the idle adjusting screw ❷. Only make adjustments when the engine is hot.
To this end, slightly decrease the idling speed of the engine by means of the idle adjusting screw. Turning it clockwise produces a higher idling speed and turning the screw counterclockwise produces a lower idling speed. Create a round and stable engine speed using the air control screw (basic position of the air control screw = open by 1.5 turns and 1,25 on EXE and Supermoto). Then adjust to the normal idling speed by means of the idle adjusting screw.

Opening up B

Engine behavior when the throttle opens. The idle jet and the shape of the throttle valve influences this range. If, despite good idling-speed and part-throttle setting, the engine sputters and smokes when the throttle is fully opened and develops its full power not smoothly but suddenly at high engine speeds, the mixture to the carburetor will be too rich, the fuel level too high or the float needle is leaking.

Part-throttle range C

Operation with partly open throttle valve. This range is only influenced by 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, the jet needle must be lowered by one notch. If 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, make the idling range leaner; if the engine pings, 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 and the jet needle. If the porcelain of the new spark plug is found to have a very bright or white coating or if the engine rings, after a short distance of riding flat out, a larger main jet is required. If the porcelain is dark brown or black with soot the main jet must be replaced by a smaller one.

Carburetor adjustment

Basic information on the original carburetor setting
The original carburetor setting was adapted for an altitude of approx. 500 meters (1600 ft.) above sea level, and the ambient temperature of approx. 20° C (68° F), mainly for off-road use and central European premium-grade fuel (125: ROZ 98 / 200: ROZ 95).

Mixing ratio 2-stroke motor oil : super fuel 1:40.

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 an 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 will 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

⚠ WARNING ⚠

- Only use premium-grade gasoline (125: ROZ 98 / 200: ROZ 95) mixed with high-grade two-stroke engine oil. Other types of gasoline can cause engine failure, and use of same will void your warranty.
- Only use high-grade 2-stroke engine oil of known brands.
- 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.
- In the case of a leaner adjustment of the carburetor proceed cautiously. Always reduce the jet size in steps of 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.

Basic information on carburetor wear
As a result of engine vibrations, throttle valve, jet needle, and needle jet are subjected to increased wear. This wear may cause carburetor malfunction (e.g., overly rich mixture). Therefore, these parts should be replaced after 10 000 kilometers (6 000 miles).

jet needle	throttle valve open	effect
NOZ C	0–¼	
NOZ D	0–¼	⊖
NOZ E	0–¼	⊖⊖
NOZ F	0–¼	⊖⊖⊖
NOZ G	0–¼	⊖⊖⊖⊖
NOZ H	0–¼	⊖⊖⊖⊖⊖
NOZ I	0–¼	⊖⊖⊖⊖⊖⊖

Explanation - Example

Compared to the needle NOZ D, the jet needle NOZ F is two steps leaner in the range from the closed position of the throttle to 1/4 throttle. Otherwise, there are not differences.

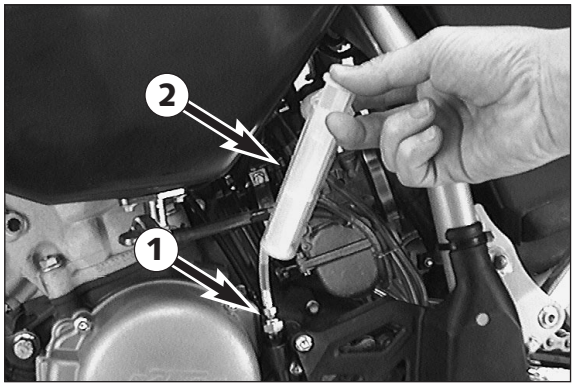
NOZ F	0–¼	⊖⊖

jet needle	throttle valve open	effect
R 1466D	0–¼	
R 1467D	0–¼	⊖
R 1468D	0–¼	⊖⊖
R 1469D	0–¼	⊖⊖⊖
R 1470D	0–¼	⊖⊖⊖⊖
R 1471D	0–¼	⊖⊖⊖⊖⊖

Explanation - Example

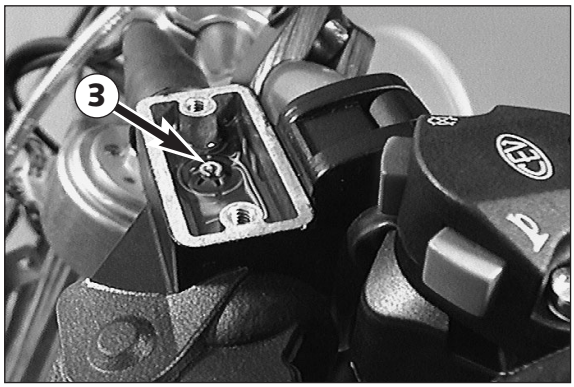
Compared to the needle R 1467D, the jet needle R 1469D is two steps leaner in the range from the closed position of the throttle to 1/4 throttle. Otherwise, there are not differences.

R 1469D	0–¼	⊖⊖



Bleeding of the hydraulic clutch

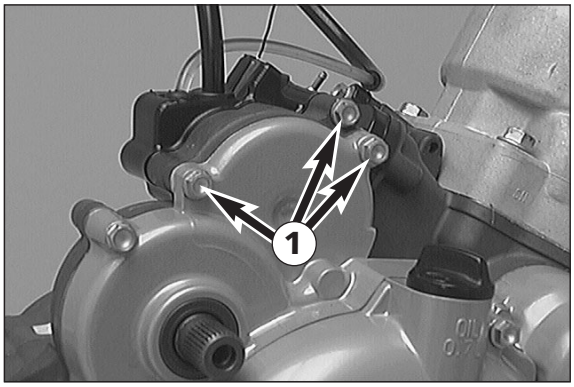
– Remove screws and take off cover together with rubber bellows.
– At the slave cylinder of the clutch, remove the bleeder nipple ❶. Instead of mount the bleeder syringe ❷ which is filled with SAE 10 biodegradable hydraulic oil (ex. Shell Naturelle HF-E15).



– Refill oil, until oil is discharged from the bore ❸ of the master cylinder in a bubble-free state. Make sure that the oil does not overflow.

! CAUTION !

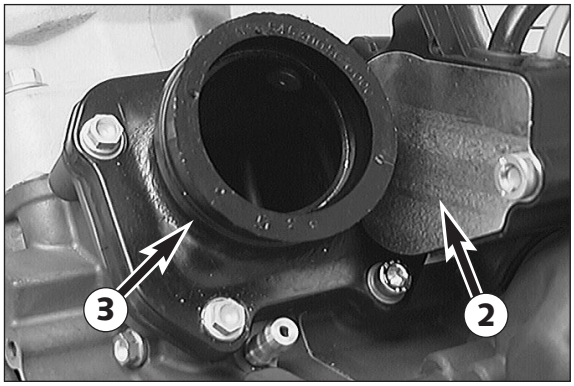
HAVING COMPLETED THE BLEEDING PROCEDURE, YOU HAVE TO VERIFY THAT THE OIL LEVEL IN THE MASTER CYLINDER IS CORRECT. FOR FILLING OF THE MASTER CYLINDER, USE SAE 10 BIODEGRADABLE HYDRAULIC OIL ONLY (EX. SHELL NATURELLE HF-E15); NEVER USE BRAKE FLUID NOR MIX BIODEGRADABLE HYDRAULIC OILS WITH MINERAL OILS.

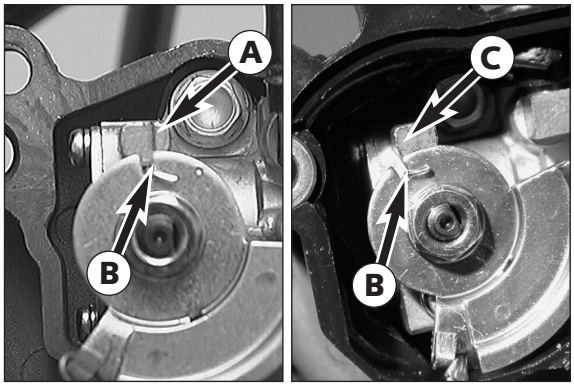


Adjusting oil pump (only with separate lubrication)

NOTE: Prior to adjusting the oil pump, you have to check and, if necessary, adjust the clearance of the throttle cable.

– Loosen the 3 bolts ❶ of the oil pump housing and remove the oil pump cover ❷. To make adjustment and control easier, loosen the bolts of the intake flange ❸, remove 4 of them and move the flange sidewards.

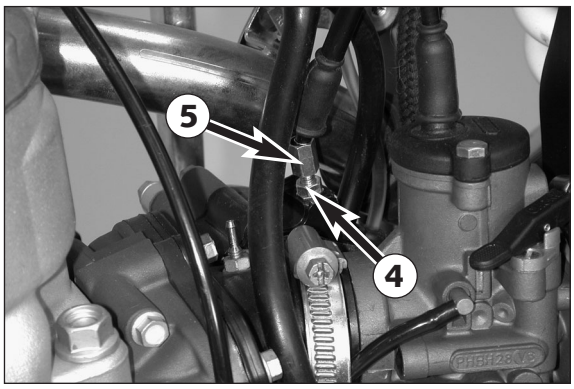




– If the oil pump has been adjusted correctly, the mark Ⓐ must coincide with the notch Ⓑ on the cable pulley (except 125 EXE and 125 Supermoto).
– On 125 EXE- and 125 Supermoto-models the notch Ⓑ must coincide with the edge Ⓒ.

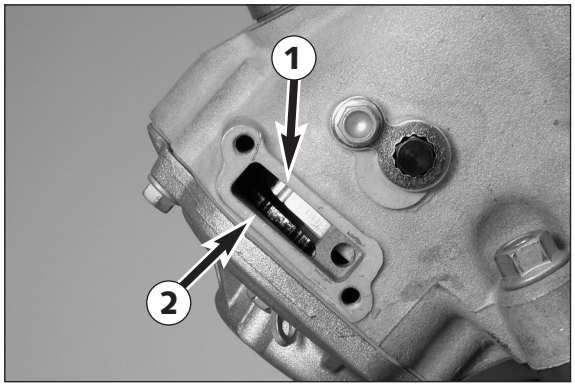
! CAUTION !

IF THE ADJUSTMENT OF THE OIL PUMP IS NOT CORRECT, THE ENGINE IS NOT SUPLIED WITH THE CORRECT AMOUNT OF OIL AND THIS CAN RESULT IN ENGINE DAMAGE.



– If necessary, loosen the lock nut ❹, and correct the adjustment by turning the adjusting screw ❺ as required.
– Following the adjustment procedure, the lock nut has to be tightened again.

– Mount cover ❷ and flange ❸, tighten the 2 bolts.

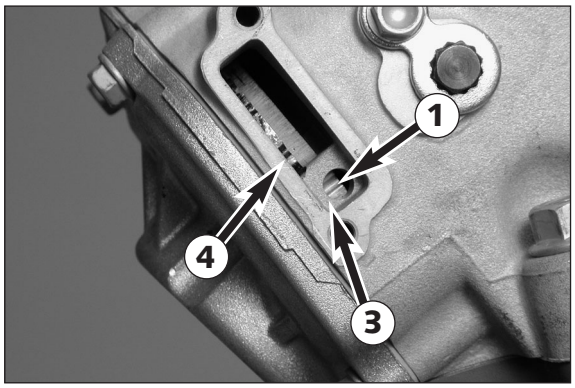


Check of the exhaust control (engine running)

– Remove the left side cover from the cylinder.
– Start engine.
– Mark ❶ of the control segment is near by mark ❷ of the guide plate.

! CAUTION !

BASE POSITION MUST BE ADJUSTED WITH A DEPTH GAUGE - SHOWN IN CHAPTER 6-10 - DIMENSION „Z“.



– Open throttle flap, with increasing the revolutions mark ❶ moves downwards to the bore in the housing ❸.

! CAUTION !

– MARK ❹ IS NOT USED.
– IF MARK ❶ DOES NOT REACH BORE ❸ OR DOES NOT MOVE, THE EXHAUST CONTROL MECHANISM IS TO BE OVERHAULED.

– Mount cover and tighten the bolts.

REMOVING AND REFITTING ENGINE 3

INDEX

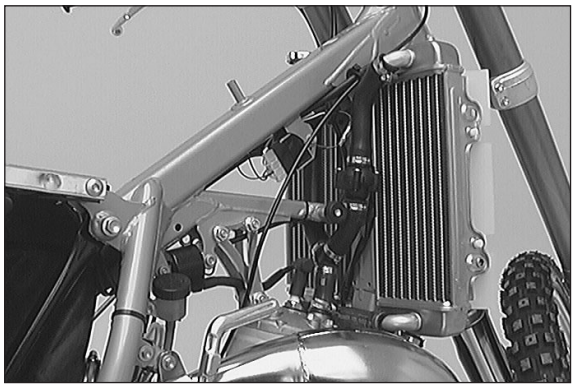
REMOVING THE ENGINE 3-2
REFITTING THE ENGINE 3-3

Art No 3.206.005-E

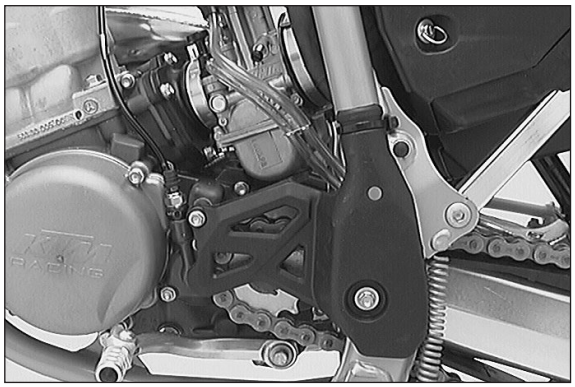
Removing the engine

NOTE: The cylinder head and the cylinder can be removed without previously removing the engine. It is also possible to work on the clutch, the primary drive and the shift drum locating device without previously removing the engine. The water pump can be removed and installed without previously removing the clutch cover.

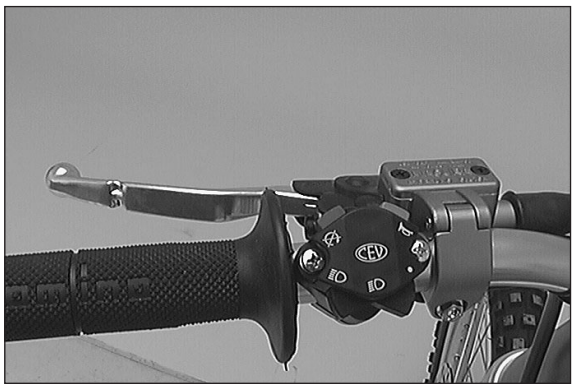
– Thoroughly clean the motorcycle.
– Use a suitable supporting device to jack up the motorcycle.
– Remove the seat and the tank with the spoilers.



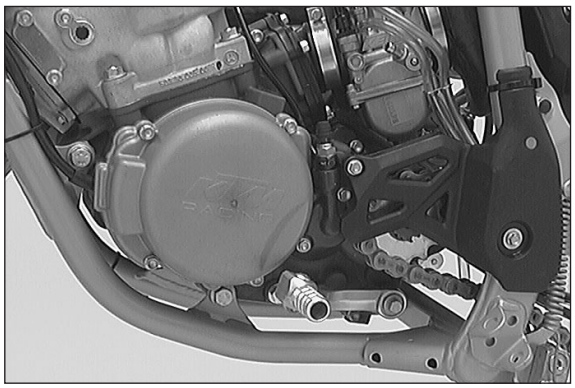
– Drain the cooling liquid.
– Remove the exhaust system and the engine brace.
– Disconnect the radiator hoses at the engine.
– Remove the carburetor.



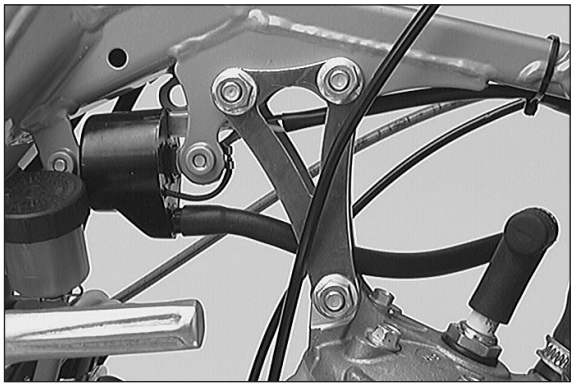
– Dismount the brake cylinder cover.
– Remove the engine sprocket cover and the chain.
– Disconnect the electrical wires.



– Unscrew the clutch master cylinder and reposition the clutch line such that it will not get entangled when the engine is lifted out.
– Unhook the return spring of the foot brake pedal from the clutch cover.

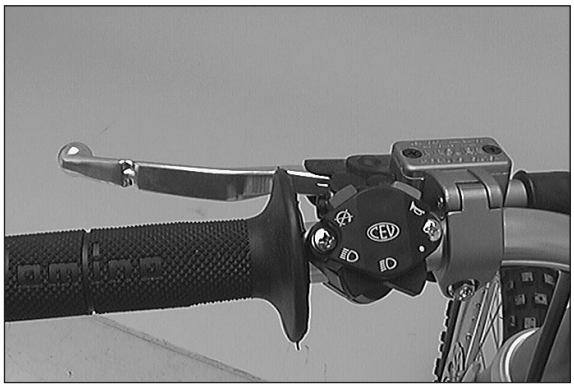


– Undo the engine mounting bolts.
– Remove the swingarm pivot and pull the swingarm backwards.
– Lift the engine out of the frame on the left side.

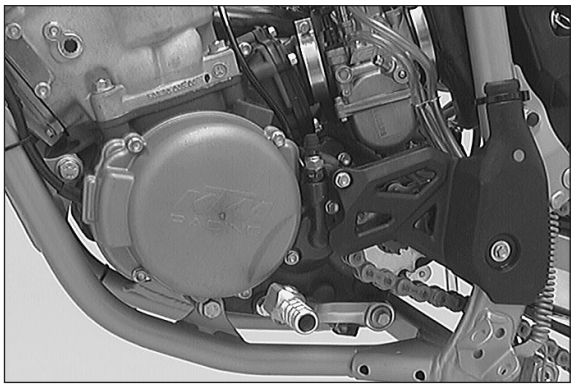


Installing the engine

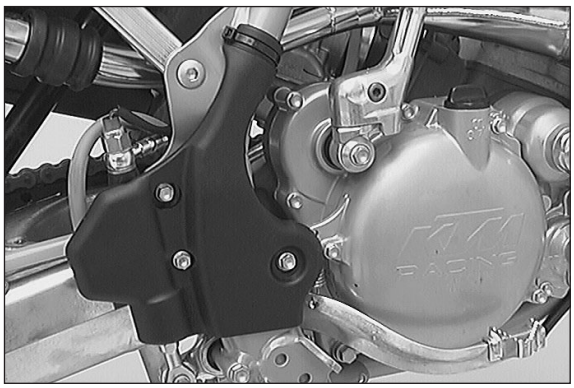
– Lift the engine into the frame from the left side, slightly grease and mount the swingarm pivot. Tighten collar nut with 100 Nm (74 ft.lb.).
– Twist in the engine mounting bolts.
– Mount the engine brace.



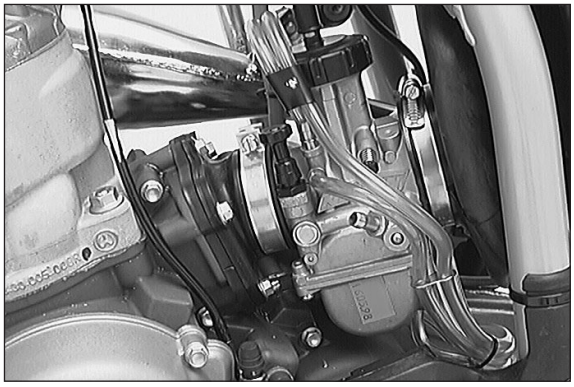
– Connect the electrical wires.
– Position clutch line correctly, and mount clutch master cylinder at handlebar.



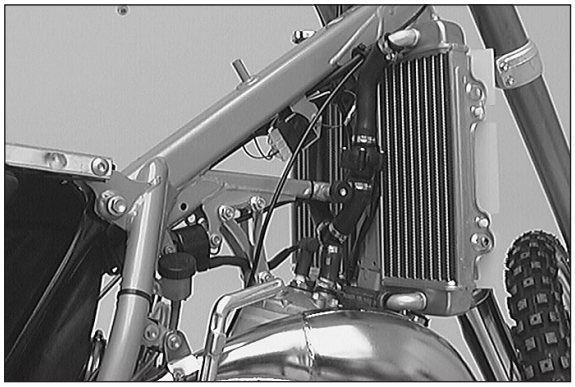
– Mount the chain and the engine sprocket cover.



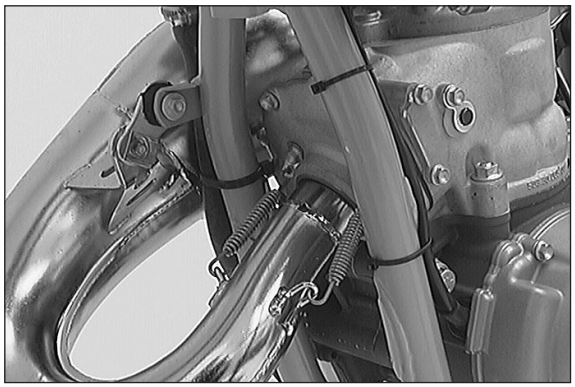
– Mount brake cylinder cover.



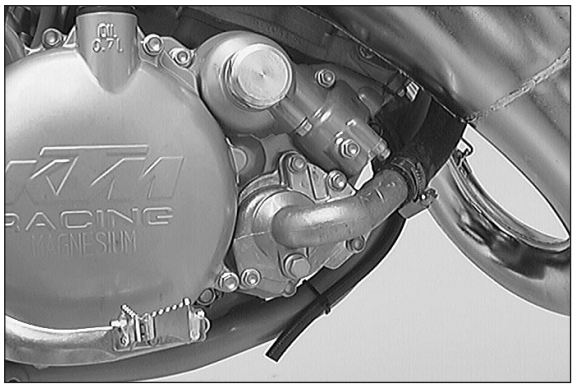
– Mount the carburetor.



– Connect the radiator hoses to the engine and fill the cooling system with a mixture of 40 % antifreeze and 60 % water. For this purpose twist out the bleeder screws at the cylinder head and at the right radiator. Retighten the screws as soon as the cooling liquid that emerges is free of air bubbles.



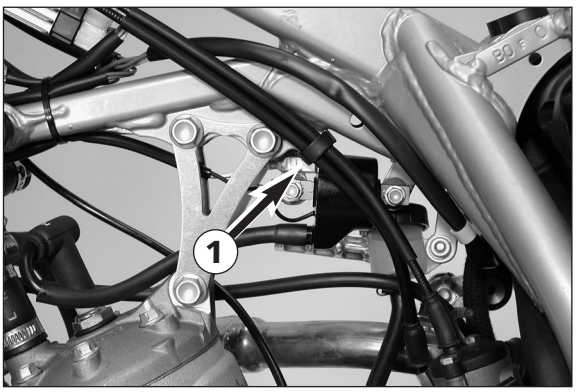
– Mount the exhaust system.
– Mount the tank with the spoilers and the seat.



– Fix the breather tube to the frame.

– Check the electrical system for faultless operation.
– Adjust the carburetor.
– Test ride.

– After the test ride, check the engine, the cooling system and the exhaust system for leaks.



Fixing the cables to the frame - Models with separate lubrication

! CAUTION !

TO PREVENT DISENGAGEMENT OF THE THROTTLE CABLE AND THE OIL PUMP CABLE IT IS NECESSARY TO FIX ❶ THE CABLES ABOVE THE CARBURATOR TO THE FRAME.

DISMANTLING THE ENGINE 4

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REED VALVE HOUSING, INTAKE FLANGE AND CLUTCH COVER 4-5
REED VALVE HOUSING, INTAKE FLANGE AND OIL PUMP
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Art No 3.206.005-E