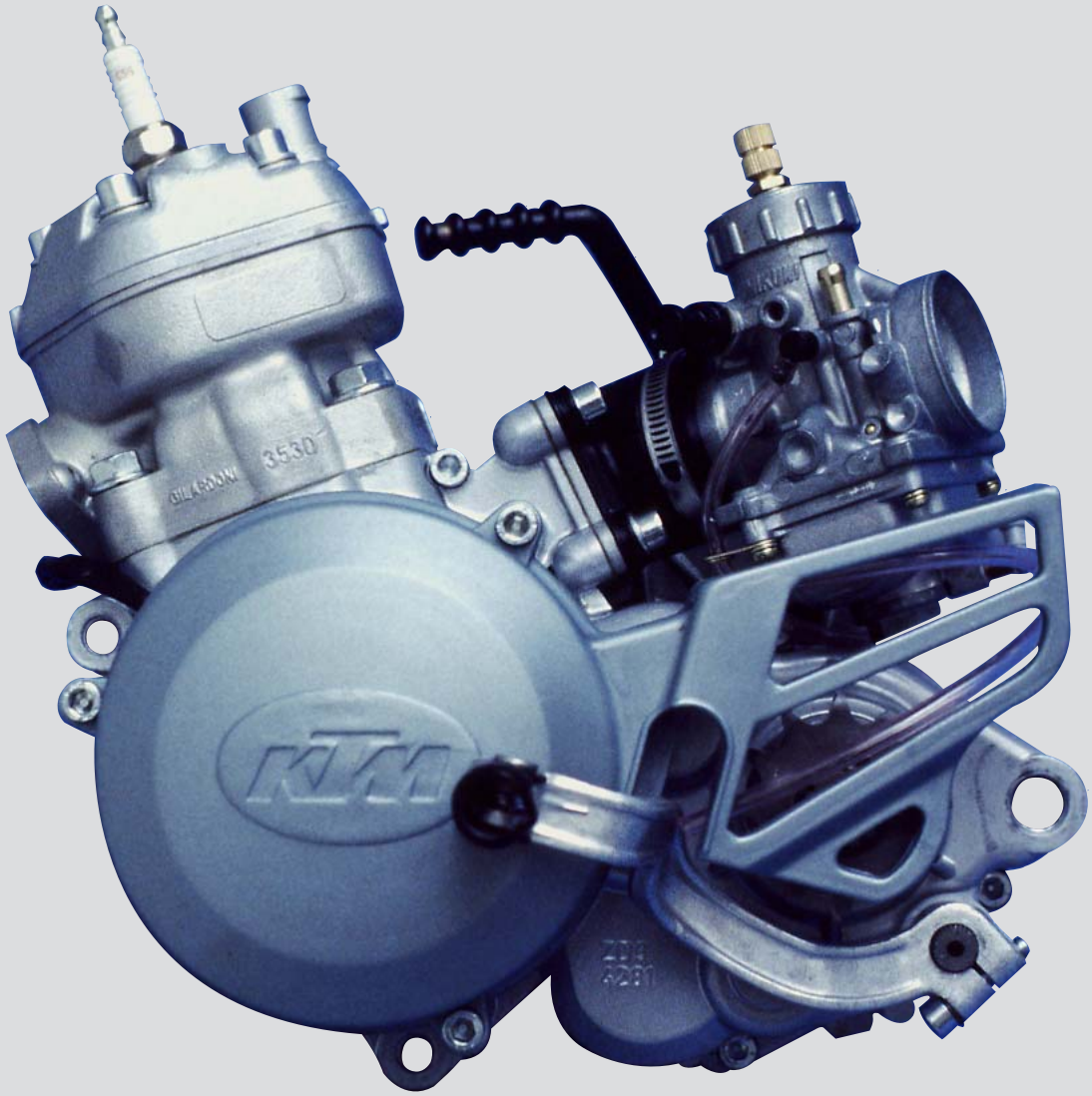
60 SX / 65 SX

KTM SPORTMOTORCYCLES

REPAIR MANUAL
ENGINE



KTM SPORTMOTORCYCLES

KTM SPORTMOTORCYCLE AG
5230 Mattighofen
Austria
www.ktm.at

60 SX/65 SX

REPAIR MANUAL ENGINE

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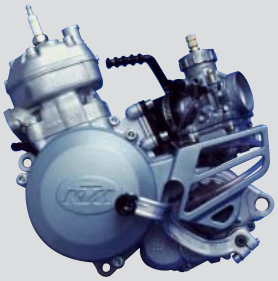


IMPORTANT INFORMATION/UPDATING INSTRUCTIONS

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:

7, 9, 17-20, 25, 26, 29-38, 41-46, 51-61, 63, 67-81, 83, 89-91

Remove page (s)	Replace by page (s)	Insert page (s)	after page
2-3 to 2-6	2-3d to 2-6d		
3-4	3-4d		
4-1 to 4-8	4-1d to 4-9d		
5-2 to 5-7	5-2d to 5-7d		
6-1 to 6-9	6-1d to 6-10d		
7-1	7-1d		
7-4	7-4d		
8-1 to 8-13	8-1d to 8-12d		
9-1	9-1d		
9-6	9-6d to 9-8d		

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

This repair manual contains the following supplements:

3.205.46-E Repair Manual 60 SX / 65 SX

Basicversion Modelyear 1998 **3/1998**

3.205.75-E Updating of Rep.Manual 3.205.46-E

Modelyear 1999 **5/1999**

3.210.05-E Updating of Rep.Manual 3.205.46-E

Modelyear 2000/2001 **2/2001**

2000: from engine number B60 000 001
from engine number B65 000 001
2001: from engine number B65 100 001

3.210.36-E Updating of Rep.Manual 3.205.46-E

Modelyear 2002 **11/2001**

from engine number B65 200 001

3.210.66-E Updating of Rep.Manual 3.205.46-E

Modelyear 2003 **6/2002**

from engine number B65 300 001

Modification / Updating:
Special tools, technical details model 2003, ignition, measurements with PVA, technical specification, periodic maintenance schedule

Edition 6/2002

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.: 3.210.66-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

INDEX

Art.-No. 321066-E

Carburetor adjustment

Basic information about 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 (ROZ 95).
Mixing ratio 2-stroke motor oil : super fuel 1:40 .

Basic information of changing 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.

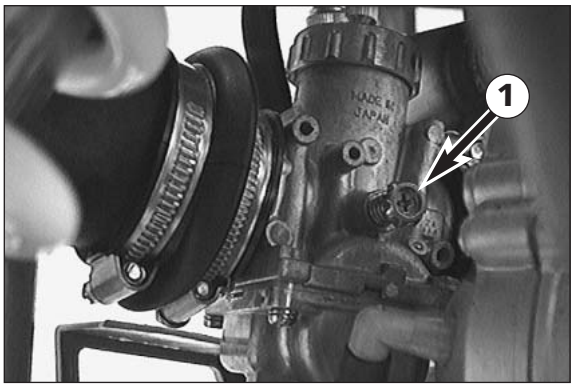
RULE OF THUMB:	high altitude or high temperatures	choose leaner carburetor adjustment
	low altitude or low temperatures	choose richer carburetor adjustment

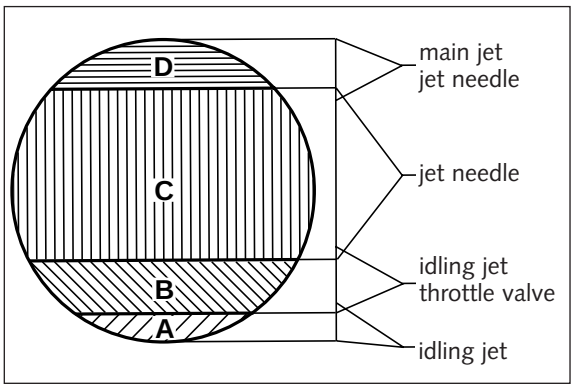
⚠ **WARNING** ⚠

- Only use premium-grade gasoline 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 (i. e. Shell Advance Racing X).
- 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 1000 hours of using.



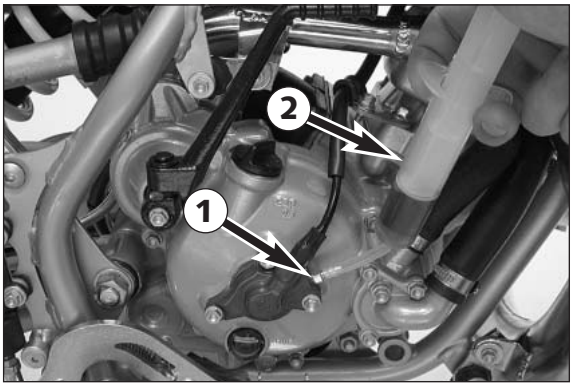


Idling range – A
Operation with closed throttle valve. This range is influenced by the idle adjusting screw ❶. Only make adjustments when the engine is hot.
The idling speed can be changed by turning the idle adjusting screw. Turning it clockwise produces a higher idling speed and turning the screw counterclockwise produces a lower idling speed.

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.

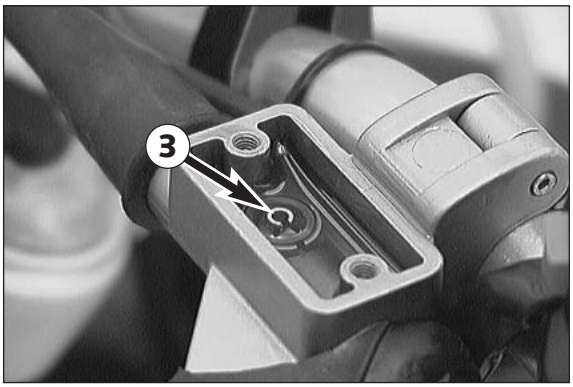
Part-throttle range – C
Operation with partly open throttle valve. This range is only influenced by the jet needle (shape and position). The optimum part-throttle setting is controlled by the idling setting in the lower range and by the main jet in the upper range. If the engine runs on a four-stroke 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.



Bleeding of the hydraulic clutch

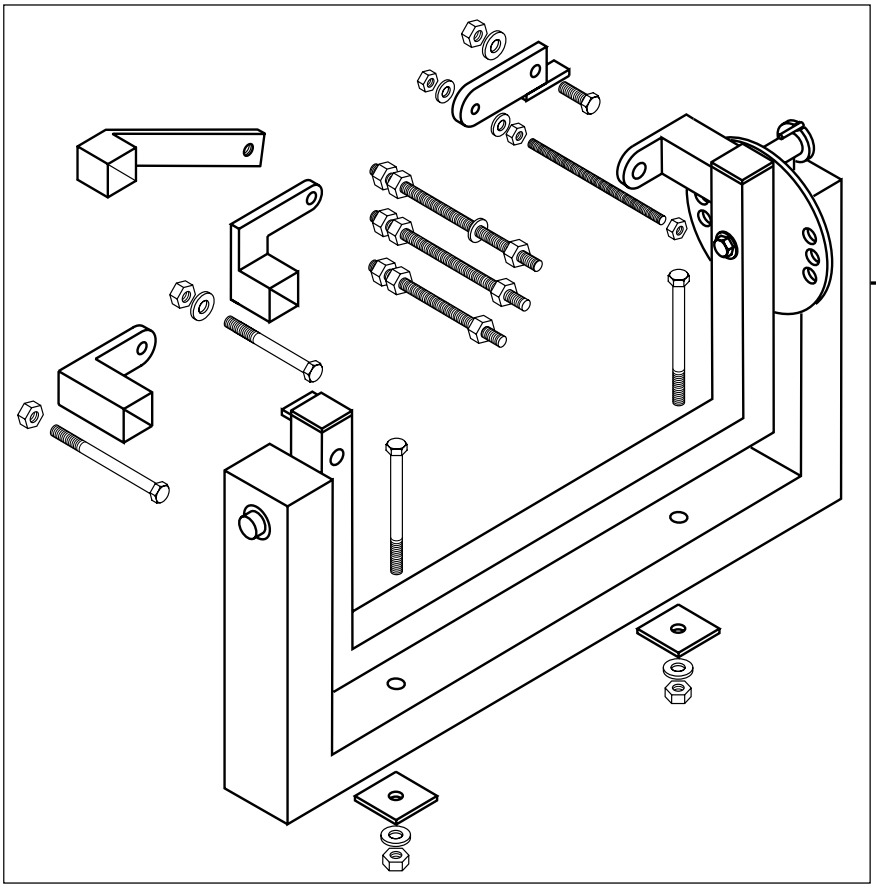
– For bleeding, the cover of the master cylinder of the clutch needs to be removed.
– At the slave cylinder of the clutch, remove the bleeder nipple ❶. Instead of, mount the bleeder syringe ❷ which is filled with SAE 10 hydraulic oil.



– 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 !

KTM USES BIODEGRADABLE HYDRAULIC OIL FOR THE HYDRAULIC CLUTCH CONTROL. NEVER MIX BIODEGRADABLE HYDRAULIC OILS WITH MINERAL OILS.
ALWAYS USE BIODEGRADABLE HYDRAULIC OIL SAE 10 (e.g. Shell Naturelle HF-E15) TO FILL UP THE MASTER CYLINDER. NEVER REFILL WITH MINERAL HYDRAULIC OIL OR BRAKE FLUID.



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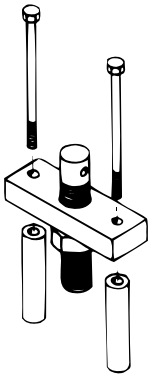

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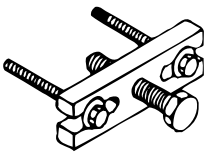

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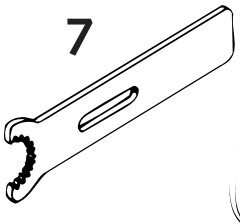

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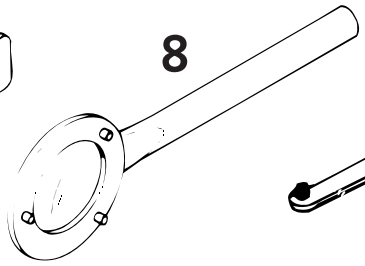

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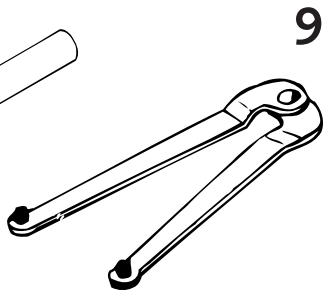

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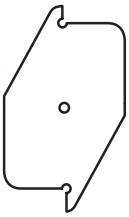

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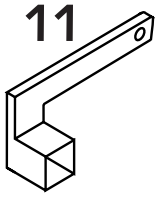

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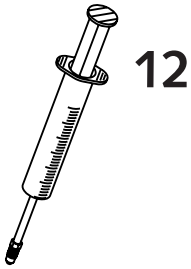

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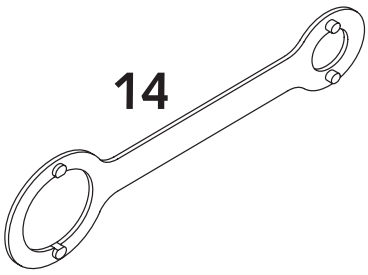

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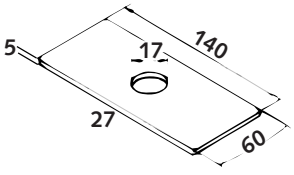


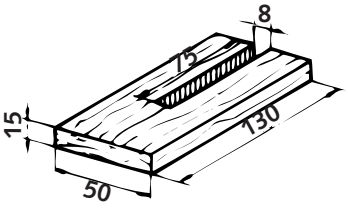


FIG.	DESCRIPTION	PART NUMBER
1	Engine mounting rack	560.12.001.000
2	Mounting tool for crankshaft	491.12.008.000
3	Bearing puller	151.12.017.000
4	Internal bearing puller 12 - 16 mm	151.12.018.000
5	Loctite 243 blue 6 ccm	6 899 785
6	Puller for flywheel	590.29.021.000
7	Holding spanner for primary gear	490.12.004.000
8	Holding spanner for inner clutch hub	490.12.003.000
9	Holding spanner for flywheel	151.12.021.000
10	Adjusting plate - ignition up to engine number 100 000	460.29.022.000
	Adjusting plate - ignition from engine number 100 001 on	461.29.006.000
	Adjusting plate - ignition from engine number 300 001 on	461.29.006.100
11	Engine holder for engine	460.29.002.000
12	Bleeding syringe for hydraulic clutch	503.29.050.000
13	Magneto extractor	546.29.009.044
14	Holding spanner for flywheel	546.29.012.100

Art.-No. 321066-E

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 commercially available 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. OTHERWISE WATER MIGHT RUN INTO ELECTRICAL COMPONENTS, CONNECTORS, SHEATHED CABLES, BEARINGS, CARBURETOR ETC. AND CAUSE MAILFUNCTIONS, I.E., LEAD TO THE PREMATURE DESTRUCTION OF THESE PARTS.

- You should use commercially available detergents to clean the motorcycle. Heavily soiled parts should also be cleaned with the help of a paint brush.
- Befor cleaning with water, plug the exhaust pipe to prevent water ingress.
- After the motorcycle has been rinsed with a soft water jet, it should be dried by air pressure and a cloth. Then take a short drive until the engine has reached its operating temperature, and also operate the brakes. The heat also causes the water at the inaccessible parts of the engine and the brakes to evaporate.
- 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 the gliding bearing parts. Also treat the chain with a chain spray.
- To prevent failures in the electric system, you should treat the short circuit button with a contact spray.

STORAGE

If you want to put your motorcycle away for longer periods of time, please observe the following instructions:

- Clean motorcycle thoroughly (see chapter: CLEANING)
- Change engine oil (old engine oil contains aggresive contaminations).
- Check antifreeze and amount of cooling liquid.
- Let the engine warm up again, close fuel tap and wait until the engine dies off by itself. In this way, the carburetor jets are prevented from becoming resin-clogged 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.
- Let fuel flow out of tank into an appropriate basin.
- Correct tire pressure.
- Lubricate bearing points of the control levers, foot rests, etc. as well as the chain.
- The storage place should be dry and not be subject to overly great temperature fluctuations.
- Cover the motorcycle with an air permeable tarpaulin or blanket. Do not use non-air-permeable materials, as possible humidity might not be able to escape and thereby cause corrosion.

! CAUTION !

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

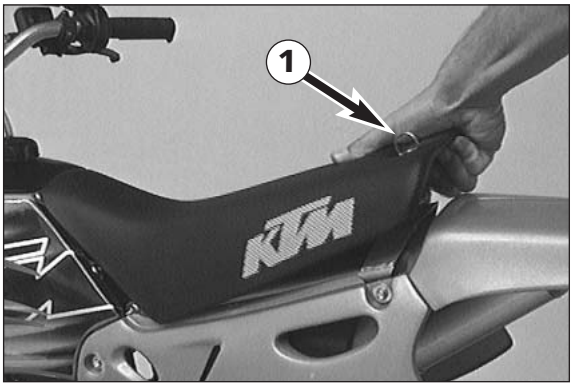
USE AFTER PERIOD OF STORAGE

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

REMOVING AND REFITTING ENGINE 3

INDEX

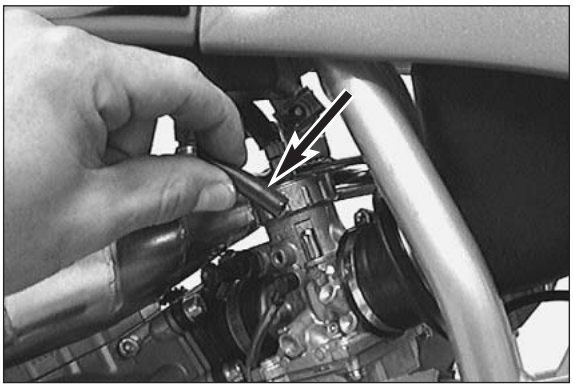
Art.-No. 321066-E



Removing the engine

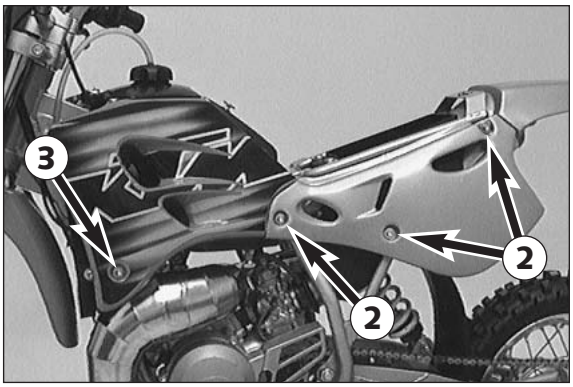
Before removing the engine thoroughly clean the entire motorcycle.
Let the motorcycle cool down before commencing to remove the engine.
Danger of burns!

– Jack the motorcycle up on a stable supporting device.
– Turn the quick release device ❶ of the seat (180°), slightly lift the rear portion of the seat and pull it backwards.

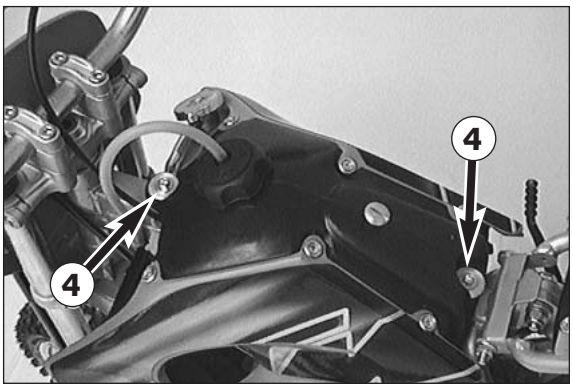


– Close the fuel tap and disconnect the hose from the carburetor.

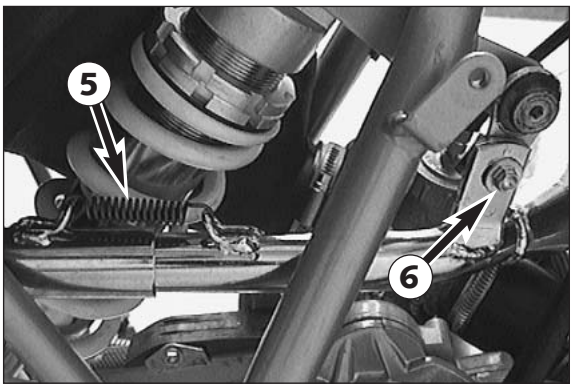
– Remove the chain joint and take off the chain.



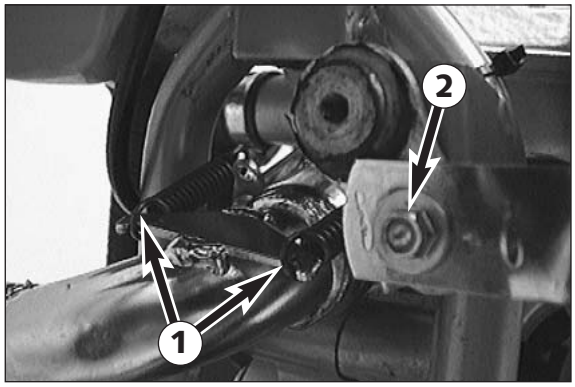
Removing tank and exhaust system up to model 2001
– Undo the three bolts ❷ on the left and right side and remove both side covers.
– Remove the bolts ❸ of the left and right tank spoilers.



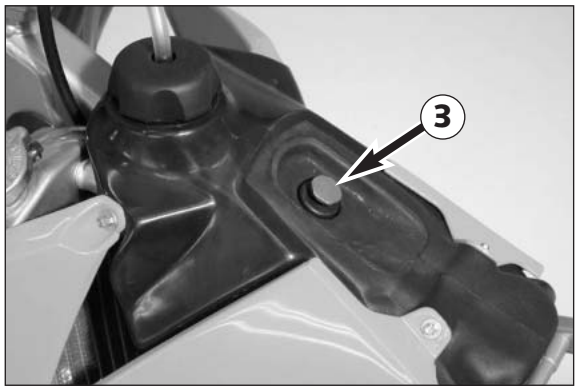
– Remove the two bolts ❹ together with their washers and lift off the tank.



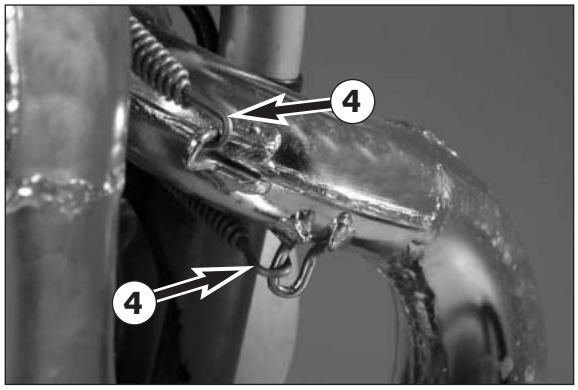
– Unhook spring ❺ and remove bolt ❻.



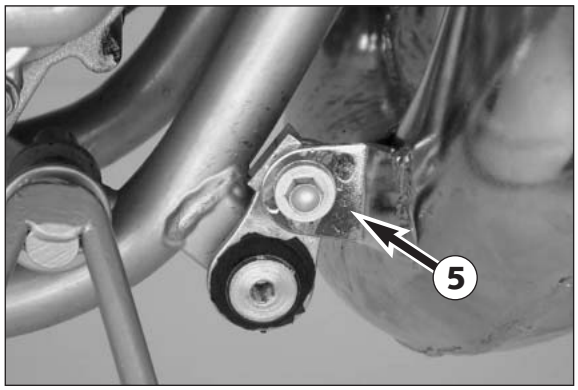
– Unhook the two springs ❶ of the exhaust pipe and remove the nut ❷.
– Remove the exhaust pipe from the vehicle.



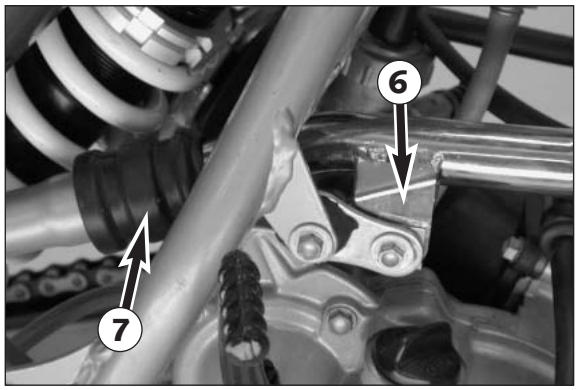
Removing tank and exhaust system from model 2002 on
– Undo the bolt ❸ and remove.
– Lift of tank together with spoilers.



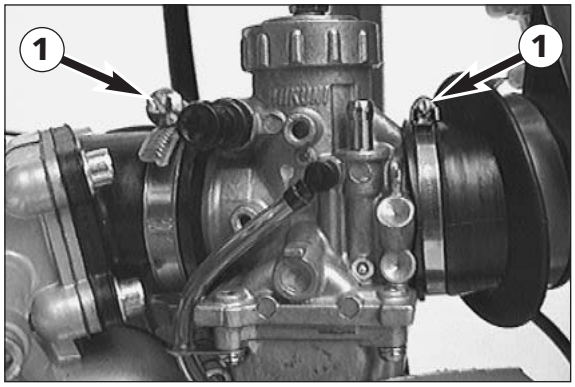
– Unhook the two springs ❹ of the exhaust pipe.



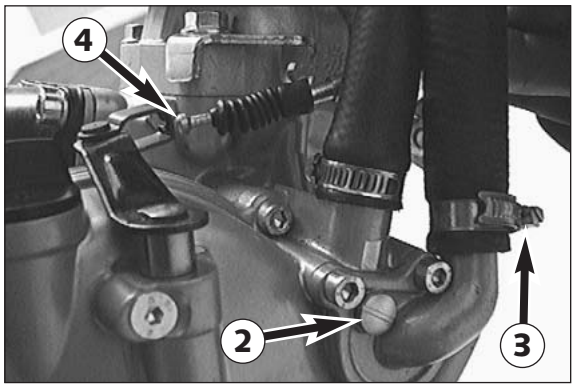
– Remove the bolt of the front exhaust bracket ❺.



– Remove the bolt of the rear exhaust bracket ❻.
– Pull exhaust pipe out of the rubber sleeve ❼, take of the exhaust pipe.

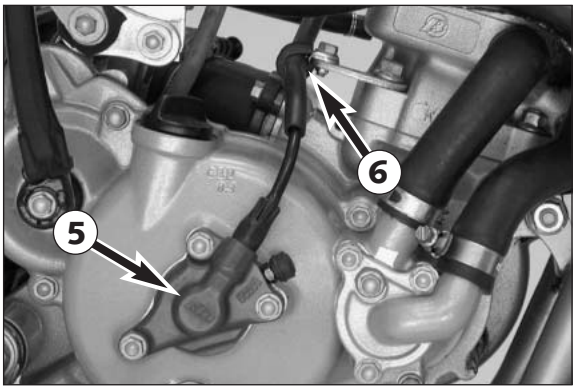


– Loosen the two hose clamps ❶ and remove the carburetor.
– Let the fuel of the float chamber run out into an appropriate basin.
– Put the carburetor into a clean cloth and lay it on the air filter box.

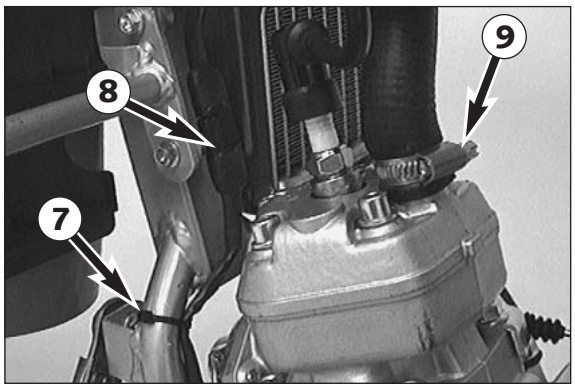


– Remove the radiator cap.
– Remove drain screw ❷ at the water pump cover and drain cooling liquid.
– Loosen hose clamp ❸ and disconnect the radiator hose.

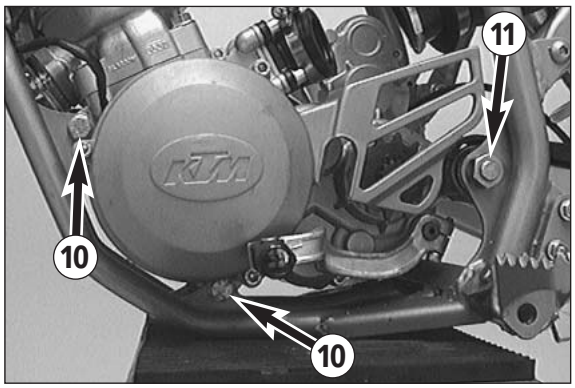
Clutch control up to model 2001:
– Push the clutch release lever to front and hook out the clutch cable ❹. Then move the release lever into its original position.
– Hook out the clutch cable at the clutch cable support.



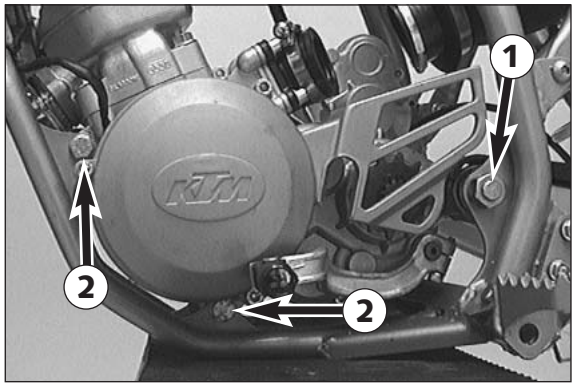
Clutch control from model 2002 on:
– Remove the bolts of the clutch cylinder and take of the clutch cylinder ❺.
– Remove bracket ❻ and hang clutch cylinder aside.



– Disconnect spark plug connector, remove cable tie ❼ and disconnect the two pin connector ❽.
– Loosen hose clamp ❾ and disconnect radiator hose at the cylinder head.



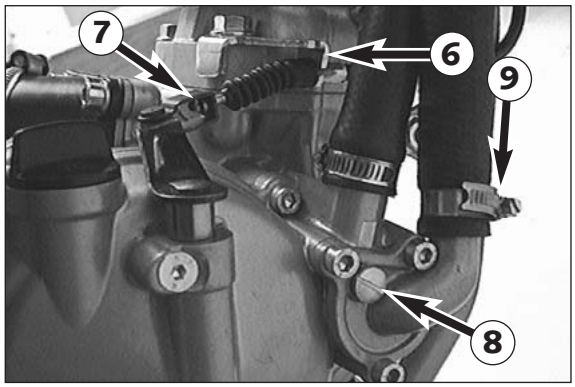
– Remove the two engine fastening bolts ❿ and swingarm pivot ⓫.
– Lift the engine out of the frame.



Installing the engine

– Lift the engine into the frame and correctly position it.
– Slightly grease the swingarm pivot ❶ and insert it but do not tighten it yet.
– Slightly grease, insert and tighten (25 Nm/19 ft.lb) the two engine fastening bolts ❷.
– Tighten the swingarm pivot (40 Nm/30 ft.lb).

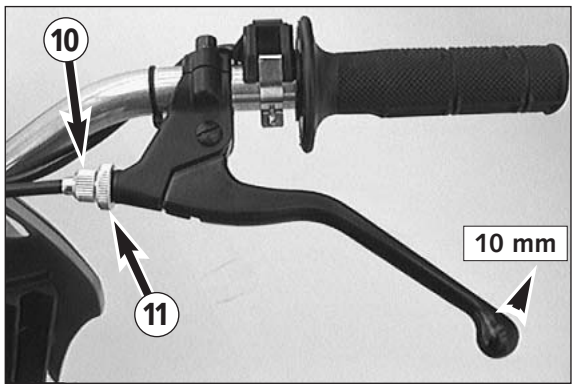
– Connect the two pin connector ❸ and attach the cable to the frame with a cable tie ❹.
– Mount the spark plug connector on the spark plug.
– Put the radiator hose onto the connection device on the cylinder head and fix it with the hose clamp ❺.



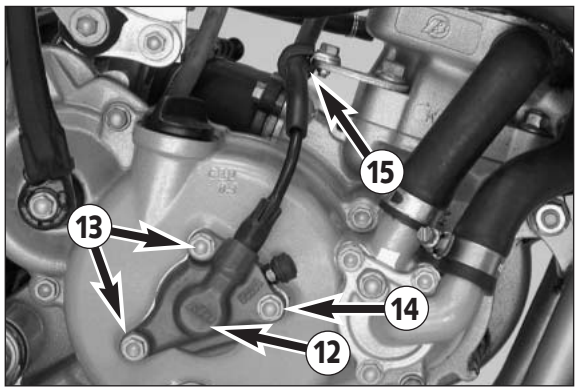
Clutch control up to model 2001:

– Hook the clutch cable onto the clutch cable support ❻, push the clutch release lever forwards and hook the clutch cable ❼ onto the clutch release lever. Then move the release lever back into its original position.

– Mount the screw ❽ of the water pump cover with a new seal ring.
– Connect the radiator hose to the water pump and fix it with the hose clamp ❾.



– Use the adjusting screw ❿ on the clutch lever to adjust the clutch cable. The clearance measured at the outer end of the clutch lever must be 10 mm (do not forget to release counter nut ⓫ before you commence). Finally, retighten counter nut ⓫.

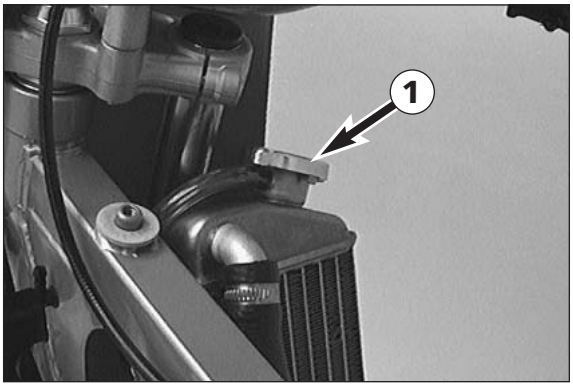


Clutch control from model 2002 on:

– Mount clutch cylinder ⓬ and tighten the bolts to 10 Nm (7 ft.lb).

NOTE: two bolts M6x16 are used in position ⓭, one bolt M6x20 in position ⓮.

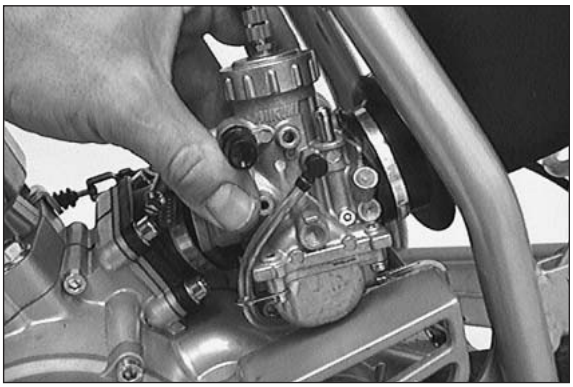
– Mount bracket ⓯ and tighten bolt with 10 Nm (7 ft.lb)



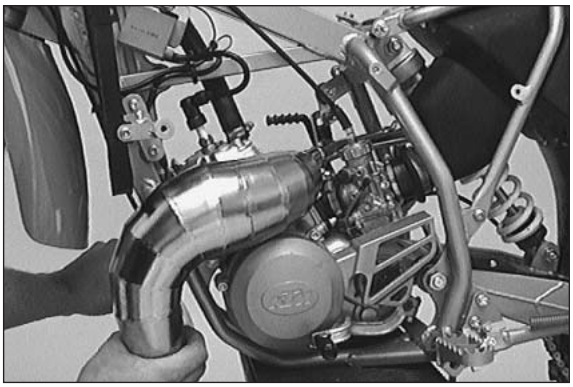
– Fill approximately 0.30 l of antifreeze into the cooling system, then top it up with water.

Total capacity: 0.55 l

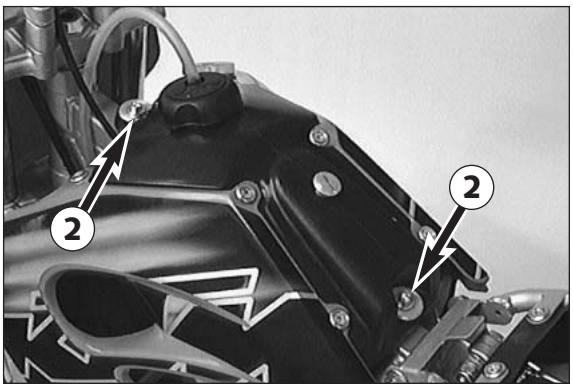
– Mount the radiator cap ❶.



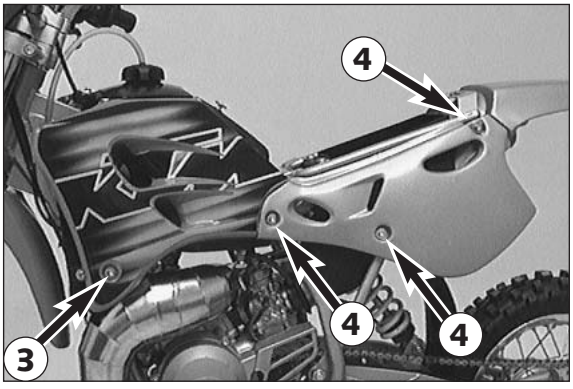
– Insert the rear end of the carburetor into the carburetor connection boot and the front end into the intake flange.
– Mount and tighten both hose clamps.



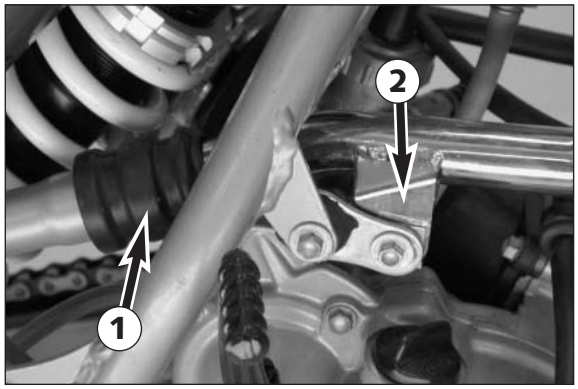
Mount tank and exhaust system up to model 2001
– Position the exhaust and hook in the two front springs as well as the rear spring.
– Use the two bolts to fix the exhaust to the silentblocks.



– Correctly position the tank and fix it with two bolts ❷ and their washers.

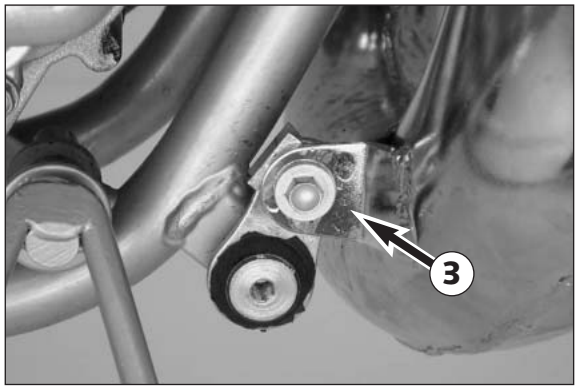


– Mount bolt ❸ on the left and on the right side.
– Mount the left and ride side covers and fix them with 3 bolts ❹.
– Connect the fuel hose to the carburetor.

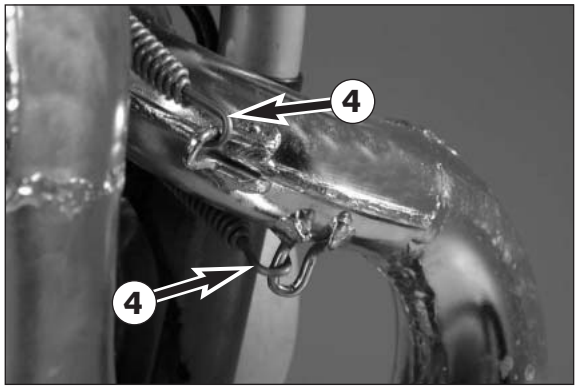


Mount tank and exhaust system from model 2002 on

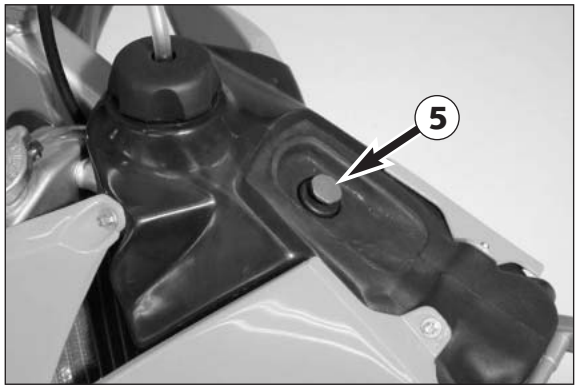
– Push exhaust pipe into the rubber sleeve ❶ and tighten the bolt of the rear exhaust pipe bracket ❷.



– Tighten the bolt of the front exhaust pipe bracket ❸.



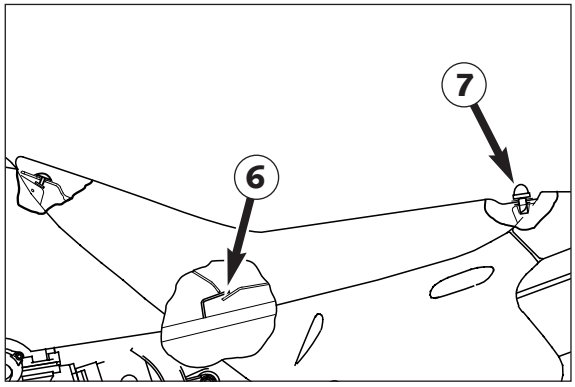
– Hook the spring ❹.



– Correctly position the tank and mount the bolt ❺ with the tank roller, tighten the bolt to 10 Nm.

– Connect the fuel hose to the carburetor.

– Mount the chain and the chain joint. When mounting the chain joint make sure that the closed side of the safety device is facing the moving direction.



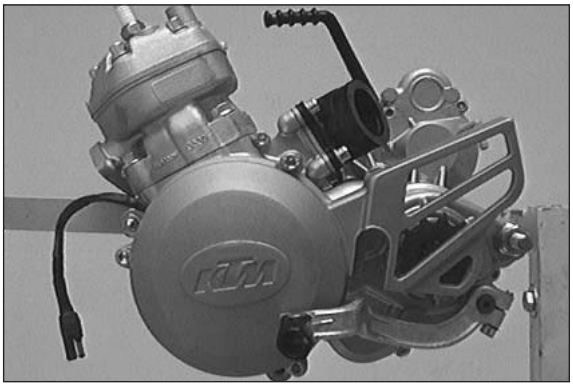
– Mount the seat. Make sure that the retaining bracket ❻ is properly hooked onto the seat. Insert the quick release device ❼ into the corresponding support and turn it (180 °).

After installing briefly warm up the engine and top up the cooling liquid. If the engine is working properly a short, careful test ride can be taken. After the test ride check the engine and the exhaust system for leaks.

DISASSEMBLING THE ENGINE 4

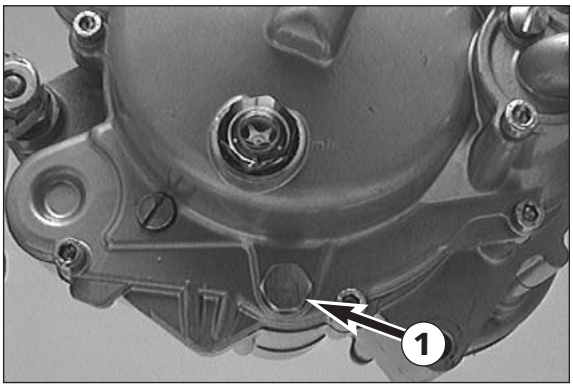
INDEX

Art.-No. 321066-E



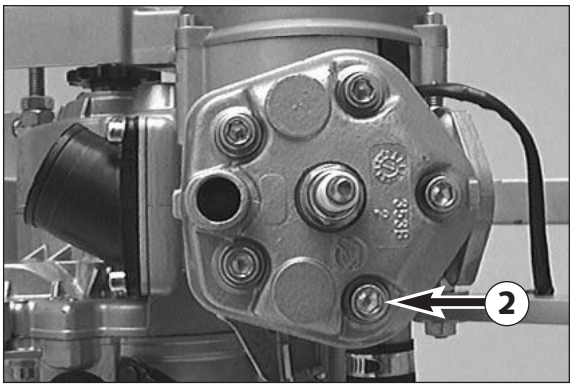
Clamp the engine into the mounting rack, move of the kickstarter and shift lever

– Thoroughly clean the engine before disassembling.
– Clamp the engine into the mounting rack.
– Remove the kickstarter and the shift lever.



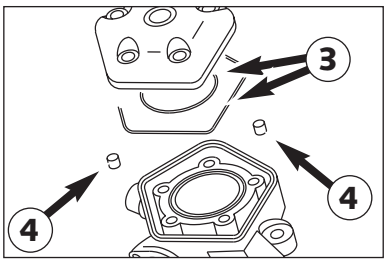
Draining the gear oil

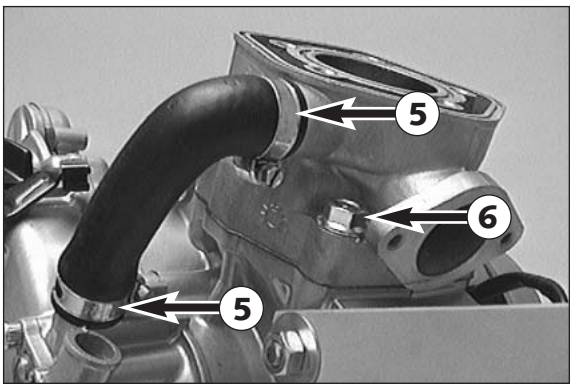
– Remove the drain plug ❶ together with the seal ring and drain the gear oil.



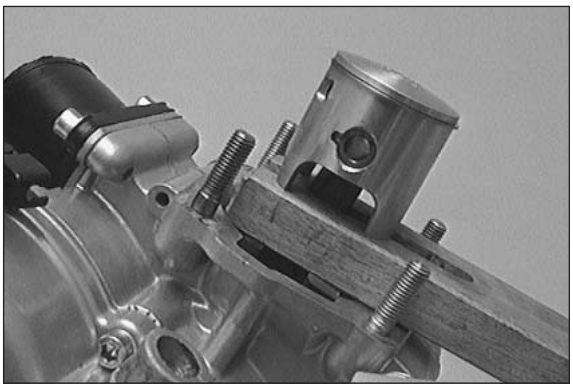
Dismount of cylinder head, cylinder and piston

– Remove all cylinder head bolts ❷ and take off the cylinder head.
– Take the two O-rings ❸ out of the grooves in the cylinder.
– Remove both dowels ❹ (from model 2003 onward)

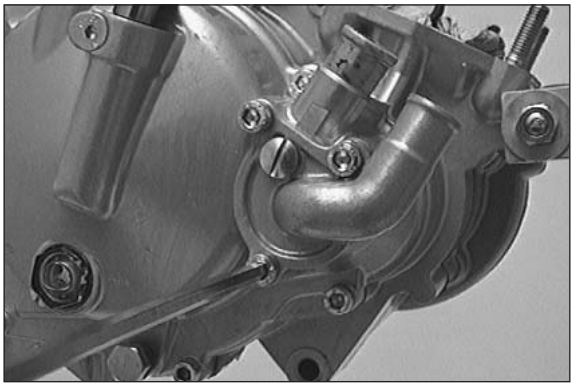




– Undo the two hose clamps ❺ and remove the preformed hose.
– Remove the four collar nuts ❻ at the cylinder base and the bracket of the clutch cable.
– Carefully lift off the cylinder.



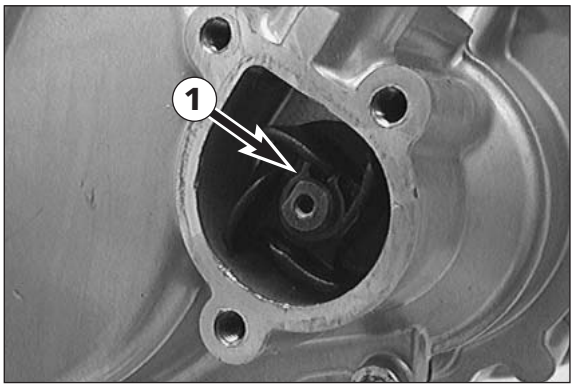
– Put a clean cloth on the crankcase and place the piston on the self-made wooden mounting device.
– Remove the piston pin retainers and push the piston pin out of the piston without applying undue force.
– Remove the piston and take the piston pin bearing out of the conrod eye.
– Remove the cylinder base gasket.



Dismantle the water pump

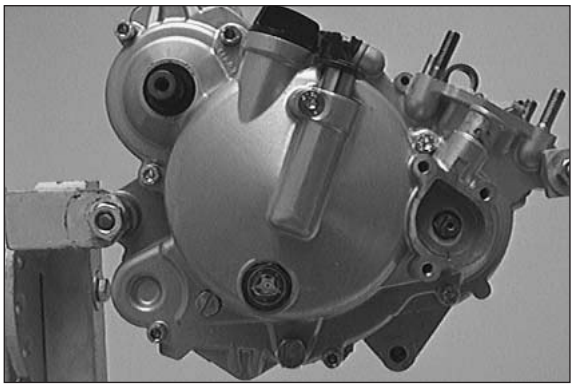
NOTE: The water pump of engine models B60 000 201 or higher and B 65 000 211 or higher need not be disassembled to remove the clutch cover. The water pumps of these engines remain in the clutch cover.

– Undo the 3 bolts and remove the water pump cover together with the O-ring.



– Remove the circlip ❶ of the water pump wheel and pull the water pump wheel off the crankshaft.

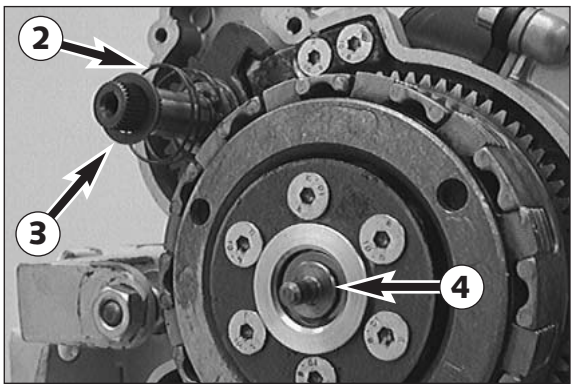
NOTE: If the water pump wheel doesn't come off the crankshaft easily, it can be pulled off using the clutch cover after undoing the bolts of the clutch cover.



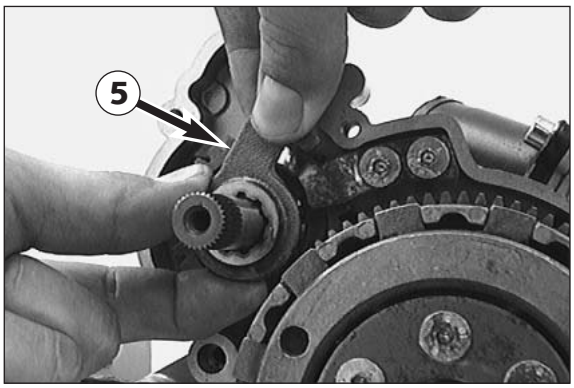
Remove the clutch cover

– Undo all bolts of the clutch cover and remove the clutch cover together with the gasket.

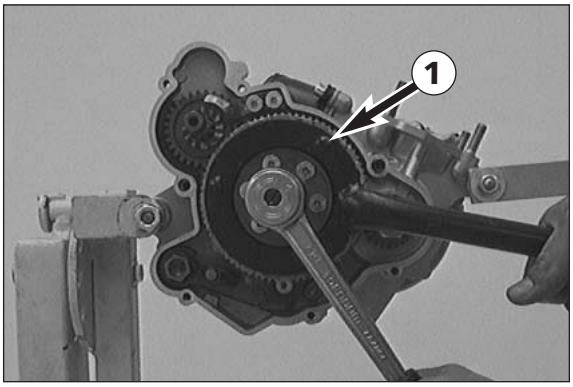
NOTE: When removing the clutch cover keep the stop disc ❸ of the kickstarter shaft in mind (can stick to the inside of the clutch cover).



– Remove ratchet gear spring ❷, stop disc ❸ and thrust bearing ❹.

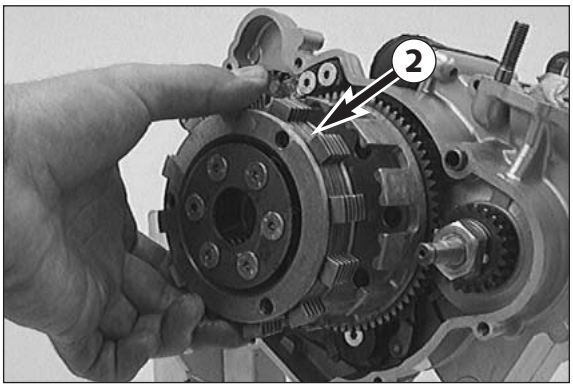


– Slightly turn the ratchet gear ❺ counterclockwise and pull it off the kickstarter shaft.



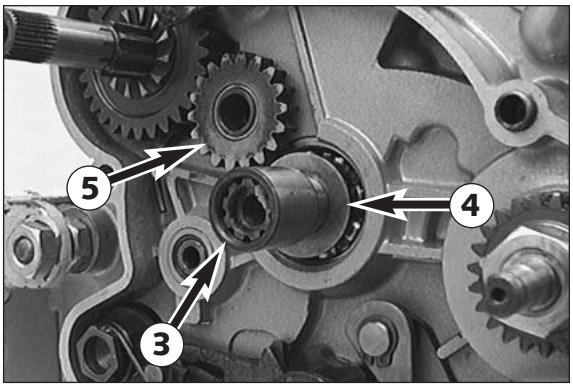
Dismantle clutch

– Apply the clutch holder 490.12.003.000 ❶ to the inner clutch hub and undo the HH bolt.
– Take off clutch holder, HH bolt and crown gear.

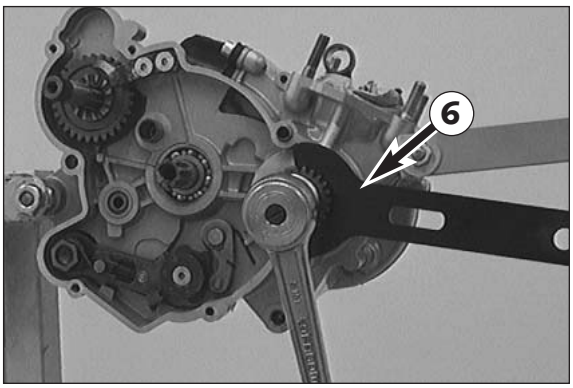


– Take the disc package ❷ out of the outer clutch hub.

NOTE: The disc package consists of lining discs and steel discs, pressure springs, the spring retainer and its screws, the pressure cap and the inner clutch hub.
The disc package need not be disassembled further unless it must be repaired.



– Take the two stop discs, the outer clutch hub, the bearing bush ❸ and the stop disc ❹ behind the bearing bush off the main shaft.
– Remove the intermediate starter gear ❺.



Primary drive

– Undo the lock washer of the primary pinion.

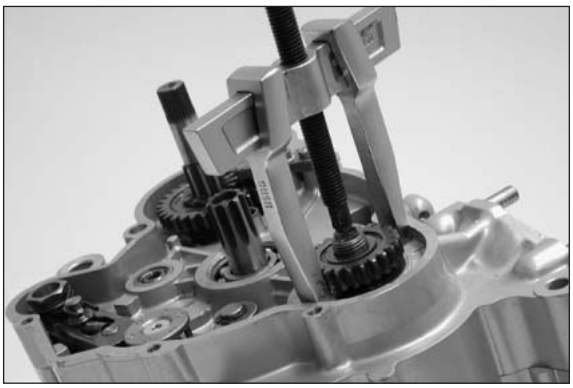
NOTE: Newer engine models have a locking disc instead of a lock washer.

– Apply the primary pinion holding tool 490.12.004.000 ❻ and undo the hexagon nut.

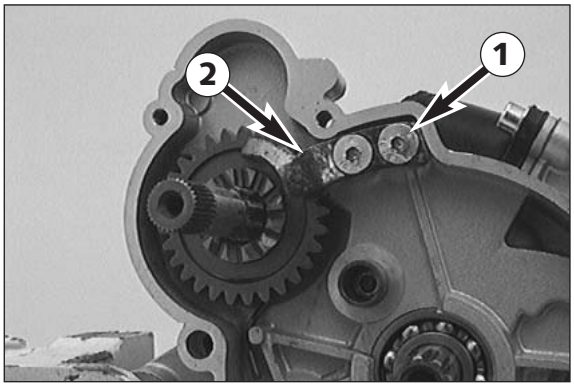
! CAUTION !

TO PREVENT DAMAGING OF THE CRANKSHAFT, DO NOT BLOCK THE PRIMARY DRIVE WITH A GEAR WHEEL SEGMENT OR A SIMILAR TOOL TO UNDO THE HEXAGON NUT OF THE PRIMARY PINION.

– Take the holding tool, the hexagon nut, the lock washer (or the locking disc in the case of newer engine models) and the primary pinion off the crankshaft.
– Take the woodruff key out of the crankshaft.

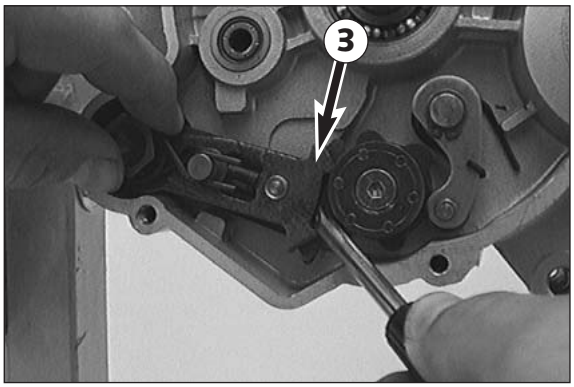


NOTE: From engine number B60 000201 and B65 000211 onwards the primary pinion needs to be pulled off with a suitable extractor, on this engines a woodruff key is not longer used.



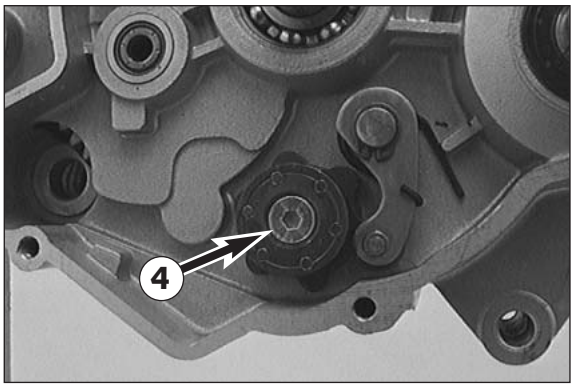
Remove kickstarter shaft

– Remove the two bolts ❶ and the stop plate ❷.
– Take the complete kickstarter shaft out of the housing.



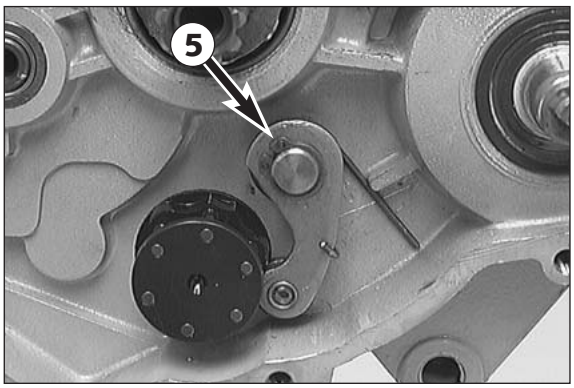
Remove shift shaft and shifting mechanism

– Push the slide plate ❸ backwards with a screwdriver and simultaneously pull the shift shaft out of the housing.

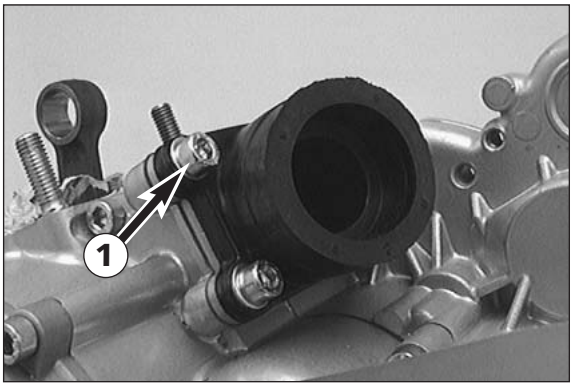


– Remove bolt ❹ and pull the shift drum locating device off the shift roller.

NOTE:
– Engine models 99 have the shift roller and shift drum locating device combined in one single unit (i.e. without bolt ❹). The shift drum locating device can only be replaced together with the shift roller. For this purpose, the housing halves must be separated.
– From Model 2000 onwards the shift roller and the shift drum locating device are separated and fixed together with bolt ❹.

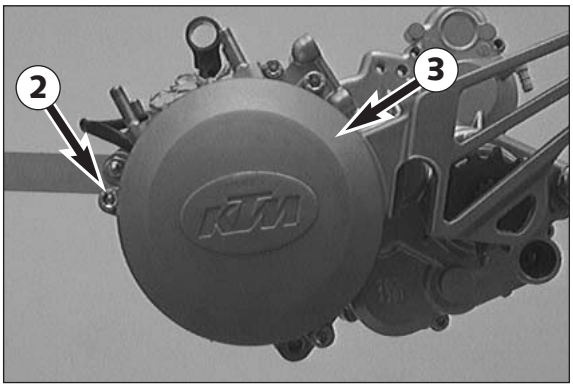


– Remove circlip ❺ and the locking lever together with the locking spring.



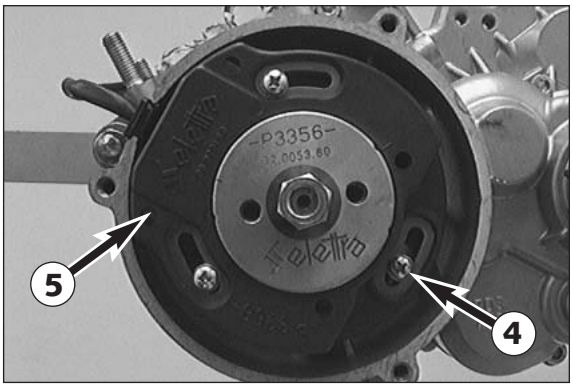
Remove intake flange and reed valve housing

– Remove the four bolts ❶ of the intake flange and take the intake flange off together with the reed valve housing and the gasket.

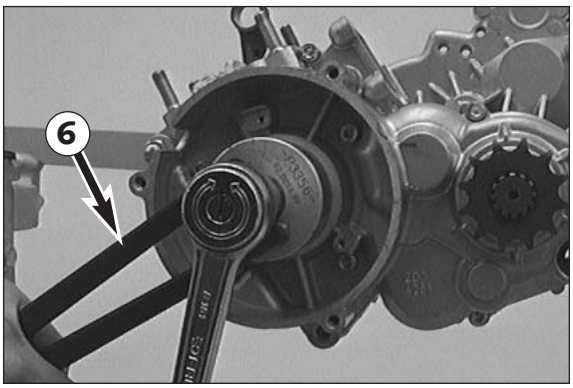


Remove ignition system (up to model 2002)

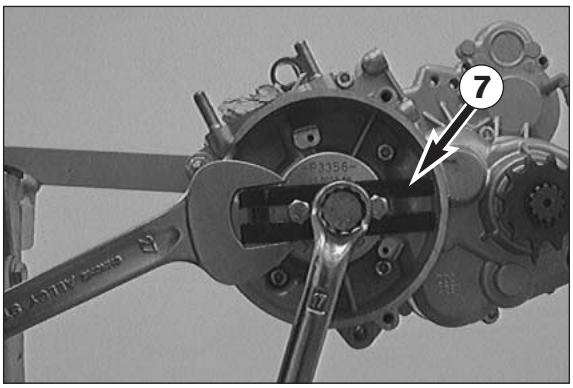
– Undo all three bolts ❷ of the ignition cover and remove the ignition cover ❸ together with the O-ring.



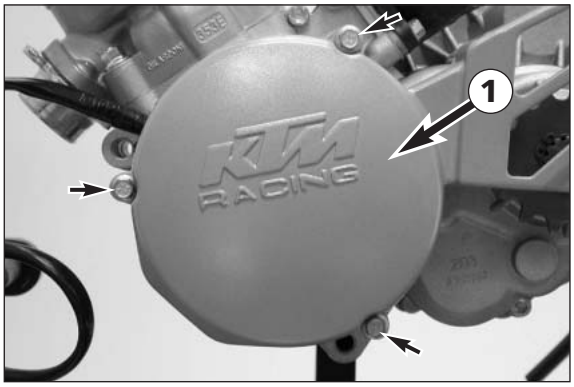
– Undo the three bolts ❹ and remove the stator ❺.



– Insert the holding tool 151.12.021.000 ❻ into the two bores of the rotor and undo the hexagon nut of the rotor.
– Remove the hexagon nut together with the spring ring behind the hexagon nut.

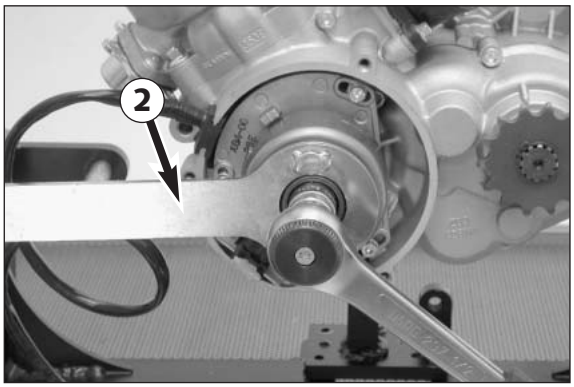


– Apply the extractor 590.29.021.000 ❼ as shown in the illustration and pull the rotor off the crankshaft.

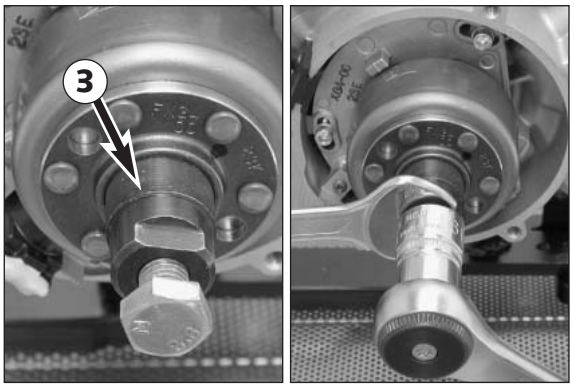


Remove ignition system (from the model 2002)

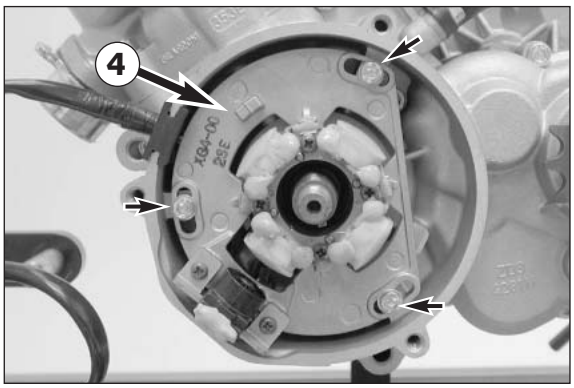
– Loosen all 3 screws on the ignition cover and remove ignition cover ❶.



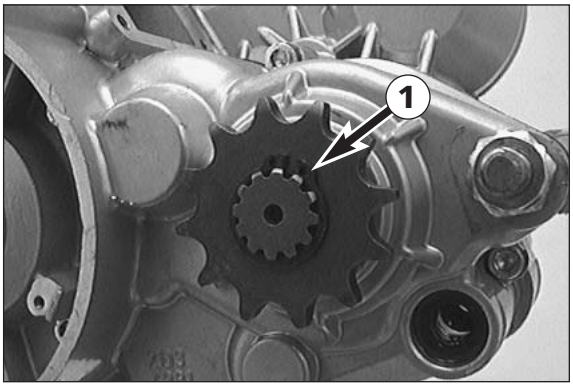
– Hold the rotor with the holding spanner 546.29.012.100 ❷ and remove the collar nut together with the spring washer



– Screw the rotor extractor 546.29.009.044 ❸ in the rotor, hold the rotor extractor while pulling the rotor off the crankshaft by tightening the puller screw.

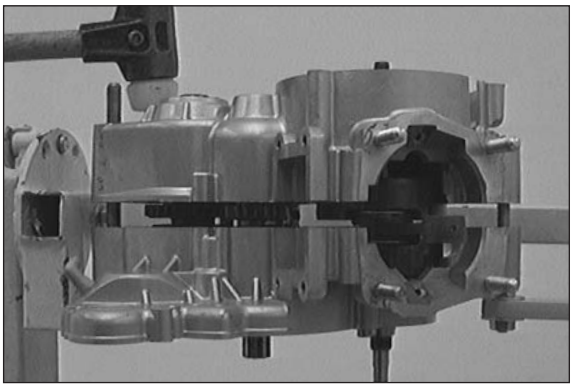


– Loosen the 3 screws and remove the stator ❹.



Removing the engine sprocket

– Take the circlip ❶ off the countershaft and pull the engine sprocket off the countershaft.
– Pull the distance bushing off the countershaft (pointed pliers).

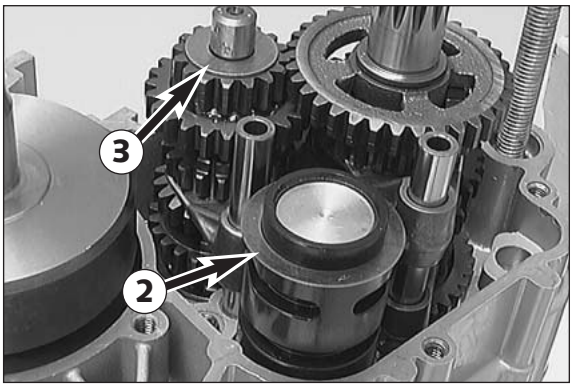


Separating the housing halves

– Swing the ignition side upwards and remove all bolts from the housing
– Release the device that holds the engine in the mounting rack.
– Lift off the left half of the housing, applying suitable tools to the cast-on lifting points provided for that purpose or slightly tap the countershaft with a plastic hammer to separate the two housing halves from each other.

! CAUTION !

TO PREVENT DAMAGING OF THE SEALING SURFACES, DO NOT FORCE THE HOUSING HALVES APART WITH A SCREWDRIVER OR A SIMILAR TOOL.

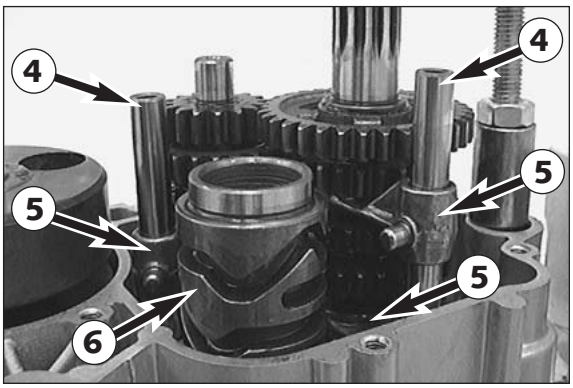


Removing the transmission shafts

– Lift off the left housing half and remove the gasket.

NOTE: When removing the left half of the housing, keep in mind that the washers of the main shaft and the shift roller can stick to the inside of the engine housing.

– Take the stop disc ❸ and the distance disc ❷ off the main shaft.
– Pull the two dowels out of the housing.
– Take the O-ring off the countershaft.
– Clamp the right half of the housing into the mounting rack.



– Pull the shift rails ❹ approx. 1.5 cm (0.6 in) upwards and swing them sideways together with the shift forks ❺.
– Pull the shift roller ❻ together with the spacing washer (if any) out of the engine housing.

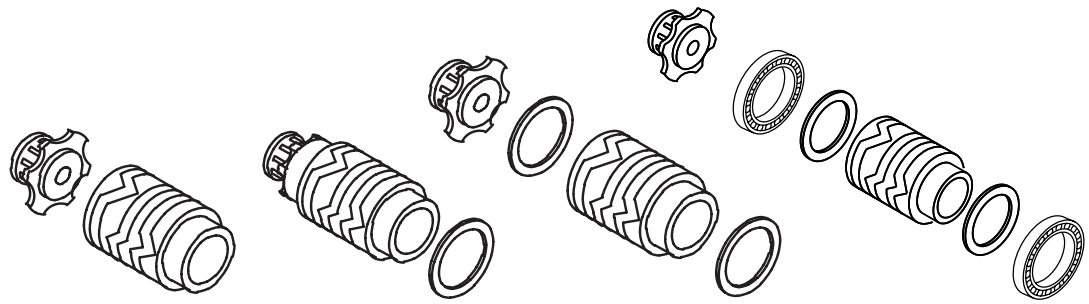
NOTE: The spacing washers on the shift roller serve to adjust the axial play. They must be mounted in precisely the same position when the engine is reassembled.

– Take the shift rails and shift forks out of the housing half.

NOTE:
– The shift forks of the countershaft are identical but, when reusing them, it is recommended to mount them in the same position as previously. When disassembling the transmission, it is therefore recommended to mark the shift forks accordingly.
– From Model 2001 onwards the shift rails are spring loaded, due to this it is better to pull out the shift rails from the shift forks, the upper springs remain in the shift rails and the lower springs must be pulled out of the casing. After doing this, swing the shift forks aside.

! CAUTION !

MAKE SHURE NOT TO LOOSE THE SHIFT ROLLERS



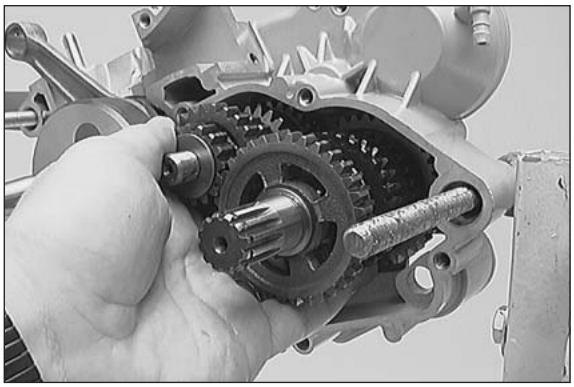
Design 1 Design 2 Design 3 Design 4

Design 1: Model 1998

Design 2: Model 1999 and Model 2000 with engine number:
B60 000201 - B60 001754
B65 000211 - B65 002272

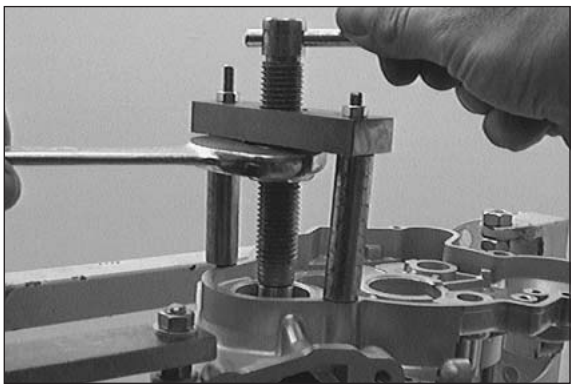
Design 3: Model 2000 with engine number:
B60 001755 onwards
B65 002273 - B65 004044

Design 4: Model 2001 from engine number on:
(B65) 100001



– Take both transmission shafts together out of the right housing half.

NOTE: When removing the transmission shafts keep in mind that the stop disc of the countershaft can stick to the inside of the housing.



Removing the crankshaft of the engine housing

– Place special tool 491.12.008.000 on the housing half and press crankshaft out of the housing half.

NOTE: If the procedure described above is not sufficient to remove the crankshaft from the housing, heat the housing half to a temperature of approx. 100° C. Then the crankshaft can easily be pulled out of the bearing seat.

– Clean all parts and check for wear. Replace worn parts, if any.

NOTE: All gaskets, shaft seal rings, O-rings and bearings should be exchanged on the occasion of each complete engine overhaul.

! CAUTION !

WHEN REMOVING THE CRANKSHAFT, IT IS RECOMMENDED TO HAVE A SECOND PERSON HOLDING THE CRANKSHAFT TO PREVENT DROPPING AND DAMAGING.

SERVICING ON INDIVIDUAL COMPONENTS 5

INDEX

Art.-No. 321066-E

Repair manual KTM 60 SX + 65 SX

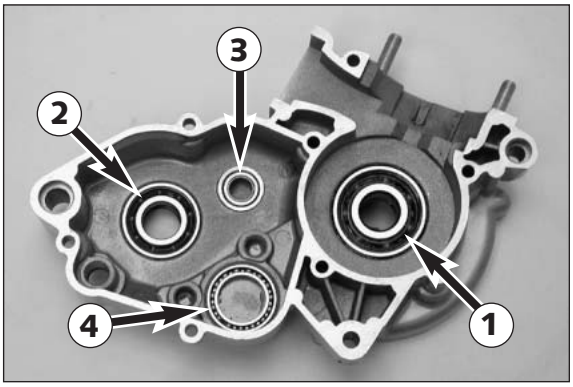
IMPORTANT NOTE REGARDS WORKING ON ENGINE HOUSING

Read through the following section before commencing work. Then determine the assembly sequence so that the engine housing halves only need to be heated up once before replacing the bearings.

Having first removed the dowels, in order to expel the bearings or remove them with light mallet blows, the housing halves must be placed on a suitably large plane surface, supporting the whole of the sealing surface without damaging it. A wooden panel is best used as a base.

Bearings or shaft seal rings should not be hammered into their seats. If no suitable press is available, use a suitable mandrel and hammer them in with great care. Cold bearings will practically drop into their seats at an engine housing temperature of approx. 150° C.

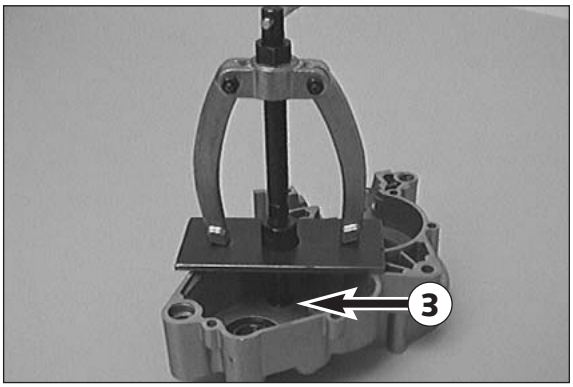
After cooling, should the bearings fail to lock in the bore, they are bound to rotate after warming. In that event the housing must be replaced.



Works on the left housing half

Remove the shaft seal rings and use a hotplate to heat the housing half to a temperature of approx. 150° C.

NOTE: After heating the housing to approx. 150° C, simply tap the housing half onto a plane wooden surface and the bearings will normally simply drop out of their seats. If necessary, press the bearings out of their seats. To prevent damaging of the bearings during the installation process, it is recommended to use tools (mandrels) that will only exert pressure on the external ring of the bearings.

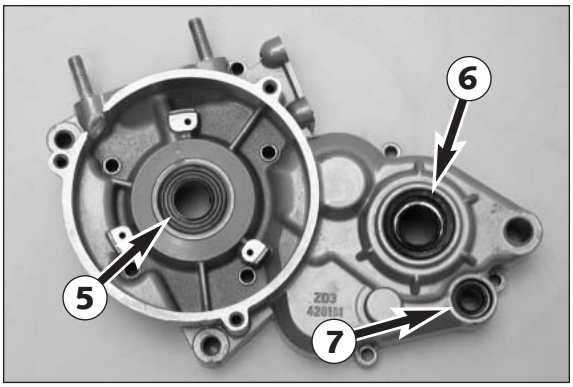


Grooved ball bearing of the crankshaft ❶
Apply a suitable mandrel on the outside to press the grooved ball bearing inwards. Insert a new grooved ball bearing from inside and press it all the way into its seat.

Grooved ball bearing of the countershaft ❷
Apply a suitable mandrel on the outside to press the grooved ball bearing inwards. Insert a new grooved ball bearing from inside and press it all the way into its seat.

Needle bearing of the main shaft ❸
Use extractor 151.12.017.000 with insert 151.12.018.000 (12-16 mm) to pull the needle bearing out of the housing. Insert a new needle bearing and press it all the way into its seat.

Grooved ball bearing of the shift roller ❹
Use an extractor with an suitable insert to pull the needle bearing out of the housing. Insert a new needle bearing and press it all the way into its seat.

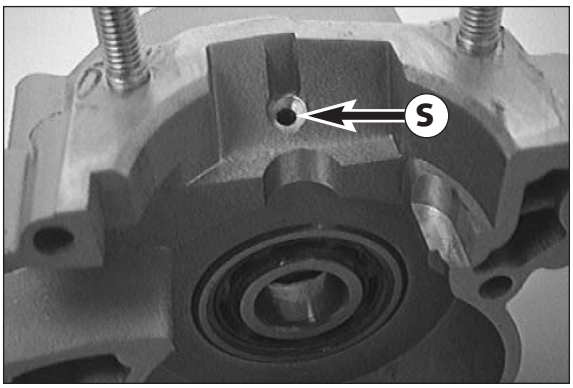


Shaft seal ring of the crankshaft ❺
Insert a new shaft seal ring from the outside, the sealing lip facing inwards, and press the shaft seal ring flush into its groove.

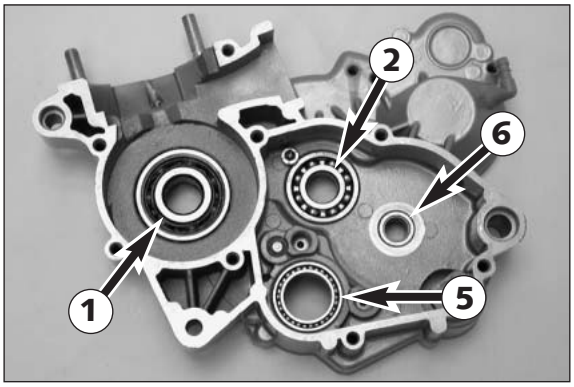
Shaft seal ring of the countershaft ❻
Insert a new shaft seal ring from the outside, the sealing lip facing inwards, and press the shaft seal ring flush into its groove.

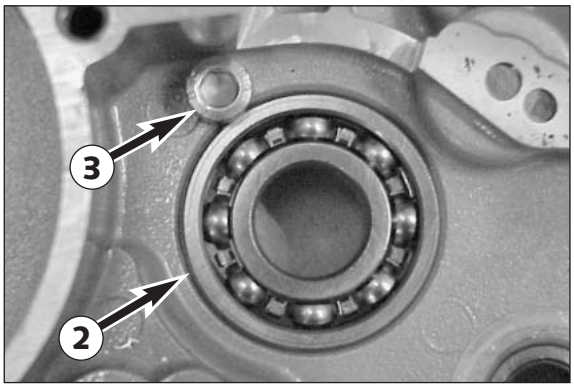
Shaft seal ring of the shiftshaft ❼
Insert a new shaft seal ring from the outside, the sealing lip facing inwards, and press the shaft seal ring flush into its groove.

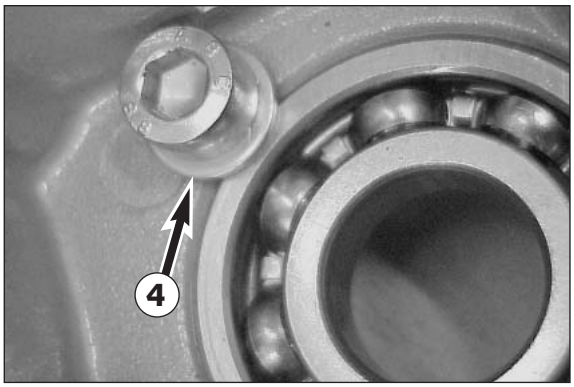
Let the engine half cool down and check all bearings for tight fit.

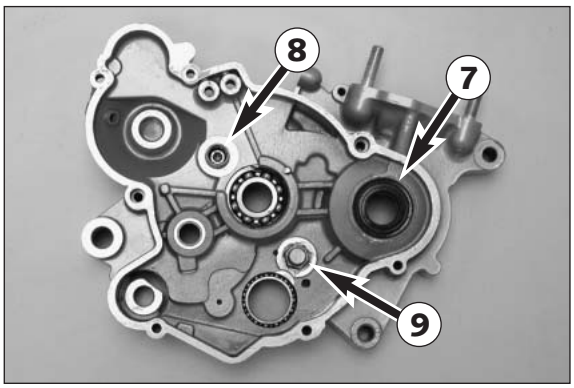


Finally, make sure that the lubrication bore Ⓢ for the grooved ball bearing of the crankshaft is not obstructed.









Works on the right housing half

Remove the shaft seal rings and use a hotplate to heat the housing half to a temperature of approx. 150° C.

NOTE: After heating the housing to approx. 150° C, simply tap the housing half onto a plane wooden surface and the bearings will normally simply drop out of their seats. If necessary, press the bearings out of their seats. To prevent damaging of the bearings during the installation process, it is recommended to use tools (mandrels) that will only exert pressure on the external ring of the bearings.

Grooved ball bearing of the crankshaft ❶
Apply a suitable mandrel on the outside to press the grooved ball bearing inwards. Insert a new grooved ball bearing from inside and press it all the way into its seat.

Grooved ball bearing of main shaft ❷
Remove bolt ❸

NOTE: Engines from Model 99 onwards are provided with a bolt that secures the grooved ball bearing of the main shaft in the housing, this bolt must be removed before.

Apply a suitable mandrel on the outside to push the grooved ball bearing inwards.
Insert the new grooved ball bearing from the inside and press it all the way into the seat.
Apply Loctite 243 to the thread of bolt ❸ and mount the bolt.

! CAUTION !

TO PREVENT DAMAGING OF THE ENGINE HOUSING, ONLY APPLY MODERATE PRESSURE WHEN INSERTING THE NEW GROOVED BALL BEARING.

NOTE: The bolt used to secure the grooved ball bearing can be subsequently installed in earlier models not originally equipped with this particular feature. In this case an additional washer ❹ must be used.

Grooved ball bearing of the shift roller ❺
Apply a suitable mandrel on the outside to press the grooved ball bearing inwards. Insert a new grooved ball bearing from inside and press it all the way into its seat.

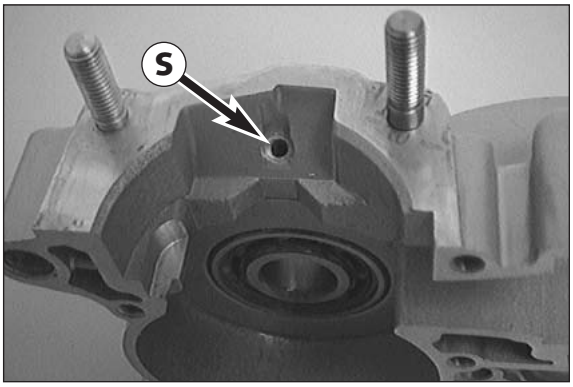
Needle bearing of the countershaft ❻
Use an appropriate mandrel to remove the grooved ball bearing, applying the mandrel on the outside and pressing the grooved ball bearing inwards. Insert a new grooved ball bearing from the inside and press it flush into its seat.

Shaft seal ring of the crankshaft ❼
Insert a new shaft seal ring from the outside, the sealing lip facing inwards, and press the shaft seal ring flush into its groove.

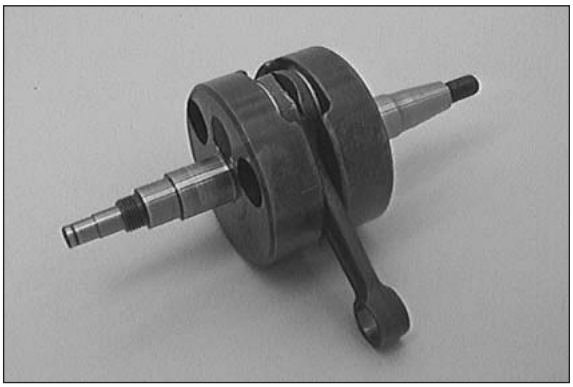
Bearing bolt of the intermediate starter gear ❽
Experience has shown that it is practically never necessary to replace the bearing bolt. To replace the bearing bolt remove the AH bolt in the bearing bolt and pull the bearing bolt out of the housing. When reinstalling the bolt, apply Loctite 243 to the AH bolt.

Bearing bolt of the locking lever ❾
Twist the bearing bolt of the locking lever out with a socket wrench. Before reinstalling, apply Loctite 243 to the bearing bolt.

Let the engine half cool down and check all bearings for tight fit.



Finally, make sure that the lubrication bore ❺ for the grooved ball bearing of the crankshaft is not obstructed.



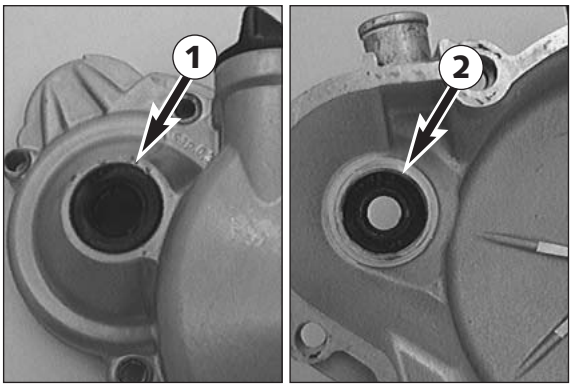
Measuring the crankshaft

Before reusing the crankshaft check the crankshaft journals for run-out.

Run-out of crankshaft journals: max. 0.05 mm (0.0019 in)

Check radial clearance at the conrod bearing.

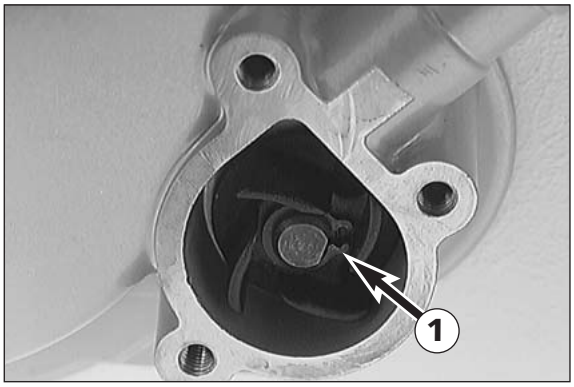
Radial clearance: max. 0.03 mm (0.0012 in)



Works on the clutch cover

Shaft seal ring of the kickstarter shaft ❶
Remove the old shaft seal ring, pressing it outwards from inside. Insert the new shaft seal ring from the outside and press it flush into its groove (open side facing inwards).

Shaft seal ring of the water pump ❷
Use an appropriate mandrel to remove the old shaft seal ring, applying the mandrel on the outside to press the ring inwards. Press the new shaft seal ring all the way into its groove (lettering must be visible).



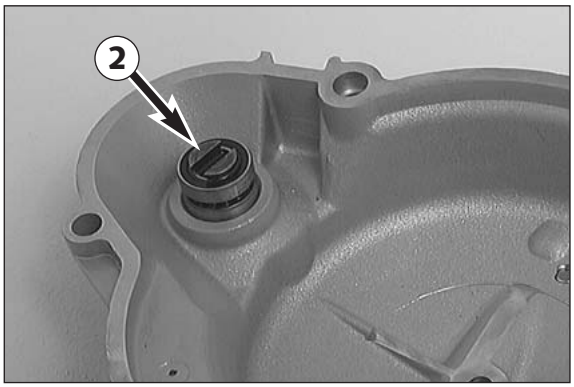
Dismantle water pump

Only for engines from the following engine numbers onwards

B60 000 201

B65 000 211

– Remove the 3 screws and take off the water pump cover together with the O-ring.
– Remove the circlip ❶ and pull the water pump wheel off the water pump shaft.



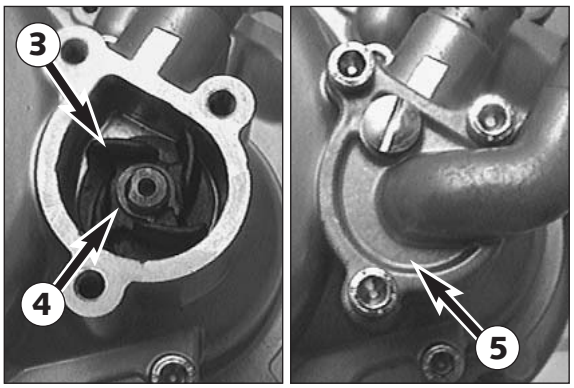
– Press the water pump shaft incl. the grooved ball bearings out of the clutch cover.

NOTE: Grooved ball bearings remaining in the housing can be pulled out of the clutch cover with an extracting tool.

Shaft seal ring of water pump
Remove the old shaft seal ring, pushing it inwards from outside.
Insert the new shaft seal ring from the inside with the open side facing the outside and press it flush into the seat.

Grooved ball bearing of the water pump
Pull the water pump shaft out of the clutch cover together with the grooved ball bearings.
Pull both grooved ball bearings off the water pump shaft.
First mount the grooved ball bearing sealed on two sides, pushing it all the way onto the shaft until it hits the stop. Then mount the grooved ball bearing sealed only on one side, making sure the open end is on the inside (see pict.).

– Grease the shaft seal ring of the water pump.
– Press the water pump shaft all the way into the clutch cover.

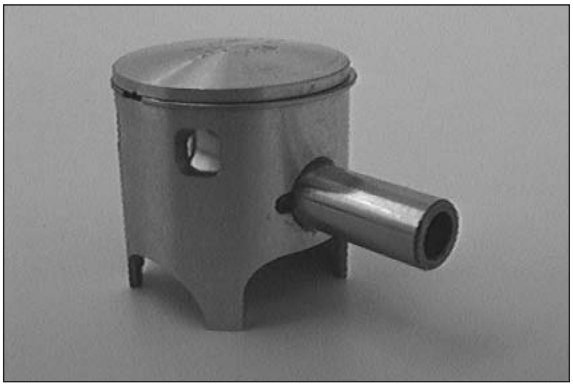


– Mount the water pump wheel ❸ on the water pump shaft and mount the circlip ❹.

! CAUTION !

TO PREVENT LOOSENING OF THE WATER PUMP WHEEL, MAKE SURE THAT THE CIRCLIP IS PROPERLY FASTENED.

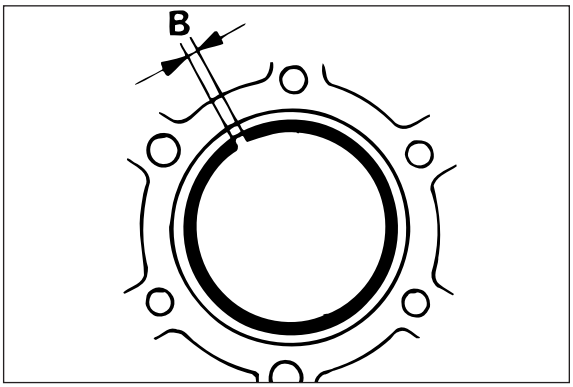
– Use a bit of grease to fix the O-ring in the groove of the water pump cover. Then mount the water pump cover ❺ using the 3 screws provided for this purpose, tighten the screws with 10 Nm.



Checking the piston

Before reusing a piston perform the following checks:

1. Check the piston surface for pressure marks and grooves. Shallow grooves can be removed with a fine-grained emery block.
2. Piston ring groove - the piston ring must not jam in the piston ring groove. The piston ring groove can be cleaned with a discarded piston ring or abrasive paper (grain 400).
3. The piston ring locking device must fit tight in the piston and should not be worn.
4. Check the piston ring for wear and check the end gap.

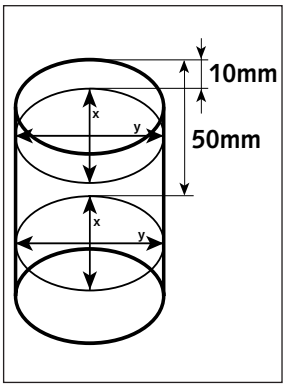


Piston ring end gap

– Insert piston ring into the cylinder and adjust. Piston ring must be approx. 10 mm (0.5 in) from top of cylinder.
– The end gap Ⓑ can now be checked with a feeler gauge.

End gap max. 0.20 mm (0.0078 in)

NOTE: If the end gap is larger check piston and cylinder for wear. If piston and cylinder wear are within the permitted tolerance limits, replace the piston ring.



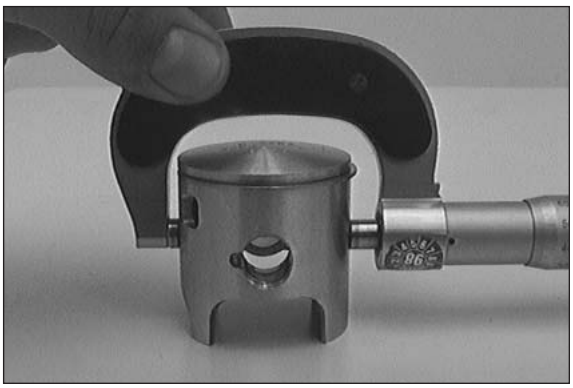
Measuring piston and cylinder, piston fitting clearance

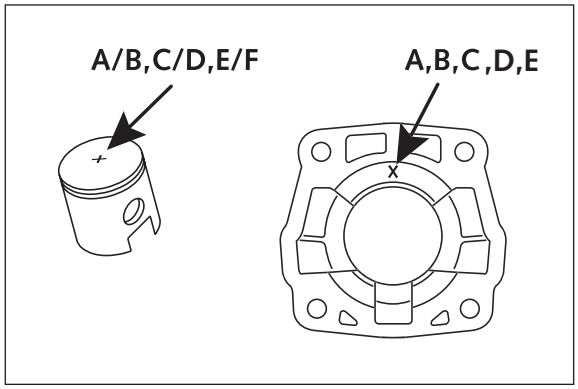
– To determine cylinder wear, measure the cylinder 10 mm and 50 mm from the top using a micrometer (shown in the drawing).
– Measure the cylinder diameter in the X and the Y axis to establish any ovality.

– The piston is measured at the piston skirt, transverse to the piston pin 32 mm below the top, as shown in the illustration.
– The smallest cylinder diameter minus the largest piston diameter determines the piston fitting clearance.

Piston fitting clearance: 0.055 - 0.065 mm

NOTE:
– If the piston fitting clearance exceeds 0.09 mm, install a larger piston.
– If the piston mounted is marked with „C“ (on CR 60) or „E/F“ (on CR 65) and the piston fitting clearance exceeds 0.09 mm, replace piston and cylinder.



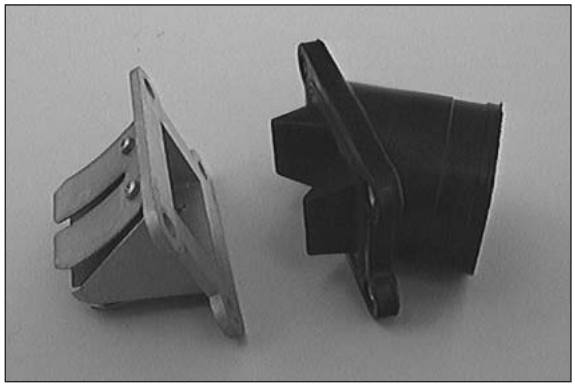


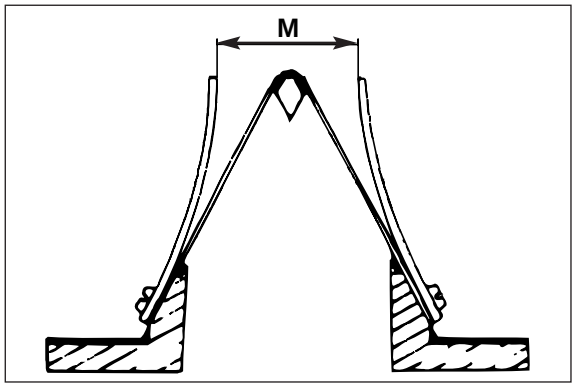
NOTE: When replacing piston and cylinder always make sure to use a piston and cylinder of the same type. The type identification mark can be found on the cylinder base or the piston head, respectively.

The table below indicates the tolerance thresholds for the listed components.

Always keep in mind that a minimum piston fitting clearance of 0.055 mm is required.

	MARK	PISTON	CYLINDER
CR-60	**A**	43.455 – 43.465 mm	43.495 – 43.505 mm
	B	43.466 – 43.475 mm	43.506 – 43.515 mm
	C	43.476 – 43.485 mm	43.516 – 43.525 mm
CR-65	**A/B, A**	44.960 – 44.970 mm	45.025 – 45.030 mm
	A/B, B	44.960 – 44.970 mm	45.031 – 45.035 mm
	C/D, C	44.971 – 44.980 mm	45.036 – 45.040 mm
	C/D, D	44.971 – 44.980 mm	45.041 – 45.045 mm
	E/F, E	44.981 – 44.990 mm	45.046 – 45.050 mm





Reed valve housing, intake flange

NOTE: The reed membrane gradually lose their tension during operation, thus reducing the overall performance of the engine. Damaged or worn reed membrane must therefore be replaced.
If the sealing surfaces of the reed valve housing are also damaged, replace the entire reed valve housing.

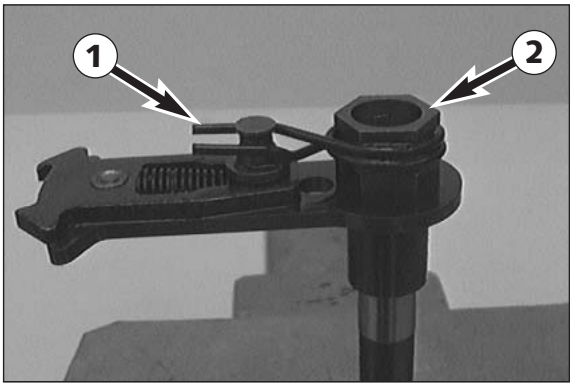
! CAUTION !

WHEN MOUNTING THE REED VALVE HOUSING BE SURE TO APPLY LOCTITE 243 TO ALL BOLTS.

Intake flange
Check for cracks and other damage.

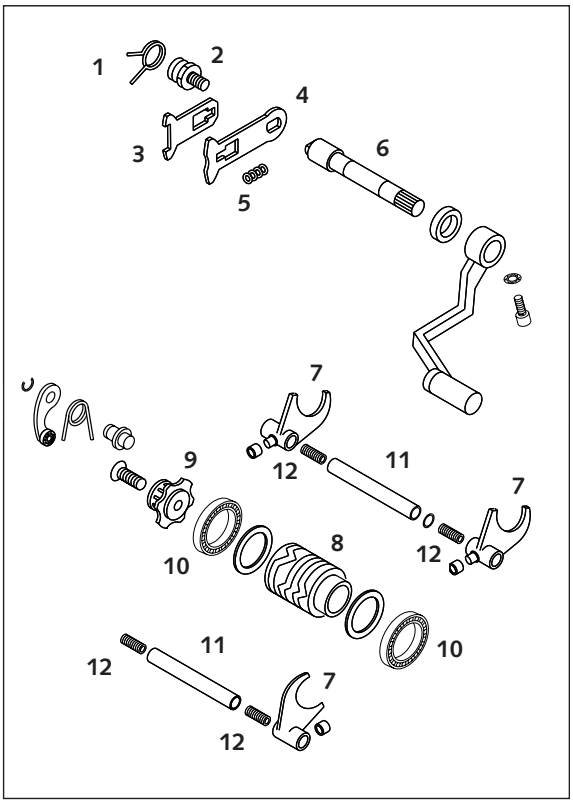
Reed valve housing
Measure the distance Ⓜ between the stop plates with a sliding gauge. In the case of a deviation from the distance value indicated below, bend the stop plates accordingly to achieve an appropriate distance value.

Distance Ⓜ = 17 mm



Disassembling the shifting shaft

– Clamp the shifting shaft into the vise (use protective jaws).
– Remove the return spring ❶ and twist the spring holder ❷ off the shifting shaft ❻.
– Take the shift quadrant ❹ off the shifting shaft ❻ together with the slide plate ❸ and the pressure spring ❺.
– Remove the pressure spring ❺, shift the slide plate ❸ and take it out of the shift quadrant ❹.



Shifting mechanism - Checking parts for wear

Slide plate ❸
Check the contact surfaces for the locking piece for wear. Check the return surface at the slide plate for wear (replace it if deep grooves are detected).

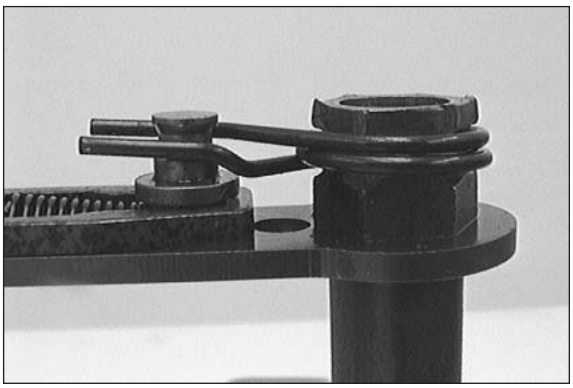
Shift quadrant ❹
Check the contact surfaces for the locking piece for wear.
Check the guide bolt for tight fit and wear.

Pressure spring ❺
Check the preload of the pressure spring for the slide plate.

Shift forks ❼
Check the blades of the shift forks and the driving pin for the shift roller for wear.

Shift roller ❽
Check the shift grooves for wear.
Check the pivot points of the shift roller for wear.

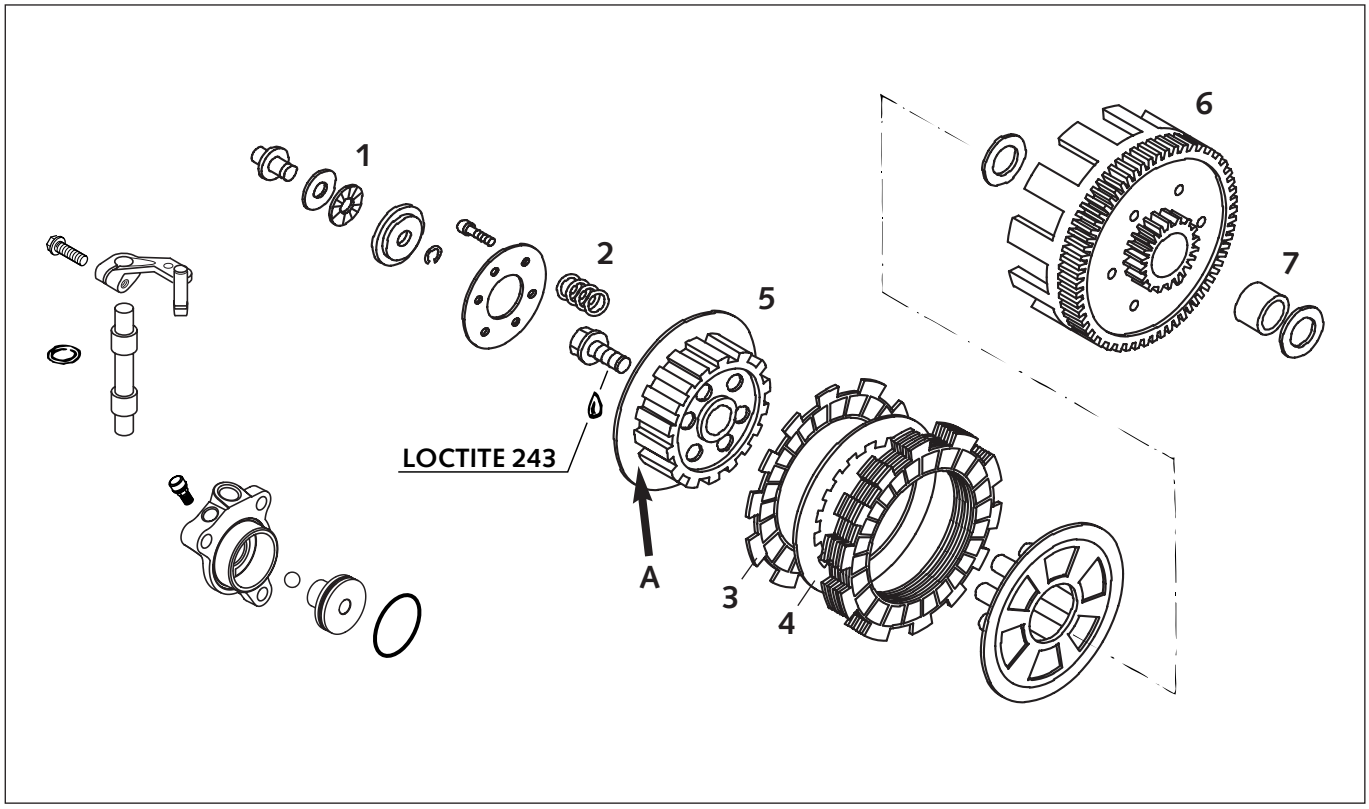
NOTE:
– Engine Models 99 have the shift roller and shift drum locating device combined in one single unit.
– On engine from Model 2001 the shift roller ❽ is fitted with grooved ball bearings ❿ and the shift rails ⓫ are spring loaded ⓬.

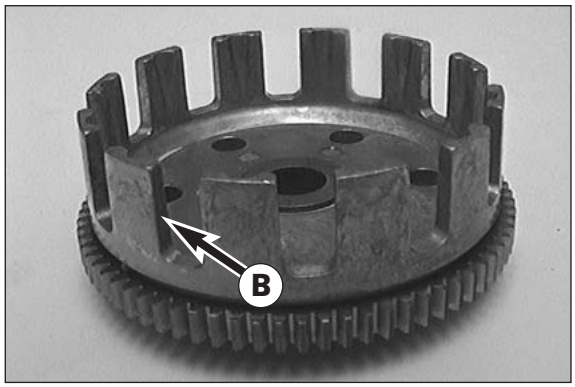


Preassembling the shifting shaft

– Insert the slide plate into the shift quadrant and slide it.
– Then insert the pressure spring.
– Degrease the thread of the spring holder and apply a small quantity of Loctite 243. Position the slide plate together with the shift quadrant on the shifting shaft and secure both with the spring holder.
– Mount the return spring.

NOTE: When mounting the return spring keep in mind that the offset must be on top.





Clutch - Checking parts for wear

Check the following components for wear:

Thrust bearing ❶

Clutch springs ❷
Minimum length 25 mm (1.0 in) (new spring: 27 mm/1.06 in), if necessary replace all 6 clutch springs together.

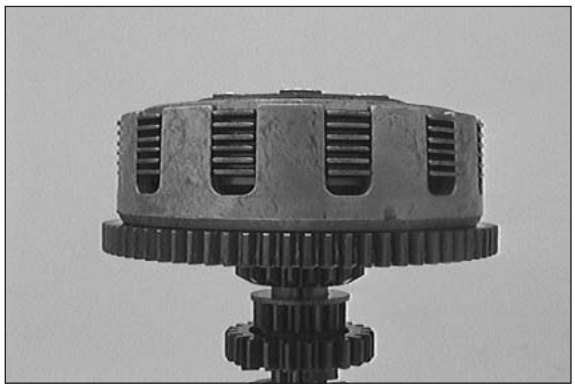
6 lining discs ❸
The lining discs must be plane. Minimum thickness: 1.80 mm (0.07 in).

5 steel discs ❹
The steel discs must be plane. Minimum thickness: 0.95 mm (0.037 in).

Inner clutch hub ❺
Check the contact surface for the steel discs for damage.
At the inner clutch hub, check the contact surface Ⓐ for the lining disc for damage. If grooves are deeper than 0.50 mm (0.02 in) replace the inner clutch hub.

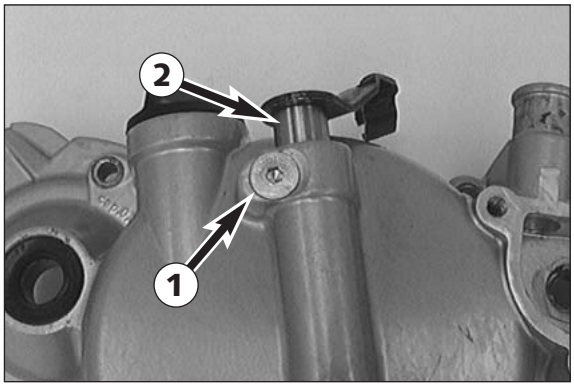
Outer clutch hub ❻
Check the contact surfaces Ⓑ for the lining discs for wear. If grooves are deeper than 0.50 mm (0.02 in) replace the outer clutch hub.

Bearing bush ❼
Insert the bearing bush into the outer clutch hub and check for play.



Preassembling the disc package

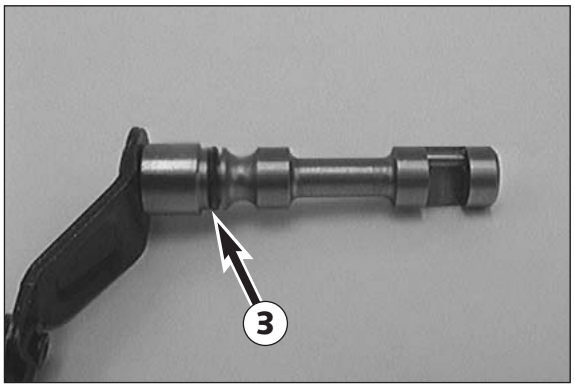
- Clamp the main shaft into the vise (use protective jaws).
- Mount the stop disc (≠ 1.50 mm/0.06 in), the inner ring, the needle bearing and the outer clutch hub
- Insert the pressure cap.
- Insert 5 steel discs and 6 lining discs, beginning with a lining disc and always inserting a steel disc between two lining discs.
- Insert the spring retainer, insert in the flat-head bolts and gradually tighten to 12 Nm, taking three turns.
- Take the disc package out of the outer clutch hub.



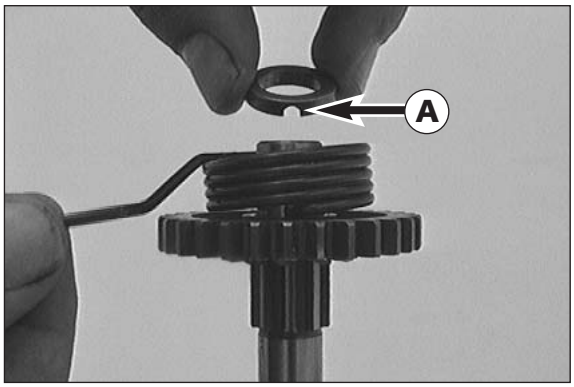
Preassemble and assemble the clutch release

(only models up to 2001)

– To disassemble the clutch release, remove the flat-head bolt ❶.
– Now pull the clutch release shaft ❷ out of the clutch cover.
– Clean all components and check for wear

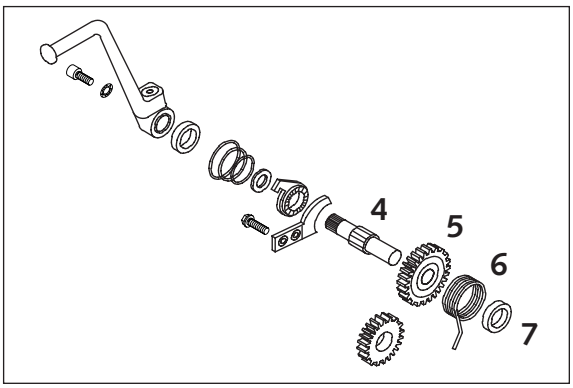


– The O-ring ❸ must easily turn on the clutch release shaft.
– To mount the clutch release shaft oil it and insert it into the clutch cover. Then mount the flat-head bolt.
– Finally, make sure that the clutch release shaft can easily be rotated in the clutch cover.



Preassembling the kickstarter shaft

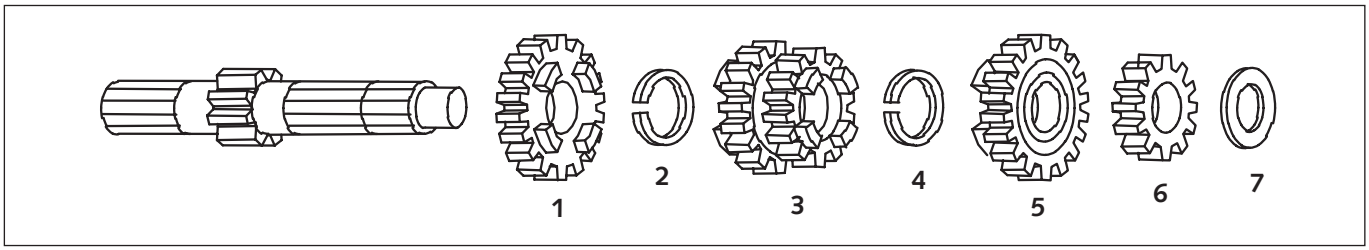
– Clamp the kickstarter shaft ❹ into the vise (use protective jaws) with the teeth facing downwards.
– Put the kickstarter gear ❺ on the kickstarter shaft with the ratchet teeth facing downwards.
– Hook the kickstarter spring ❻ into the bore in the kickstarter shaft and position the driving hub ❼ on the shaft so that the opening Ⓐ slips over the end of the kickstarter spring.
– Take the kickstarter shaft out of the vise.



Transmission - Checking parts for wear

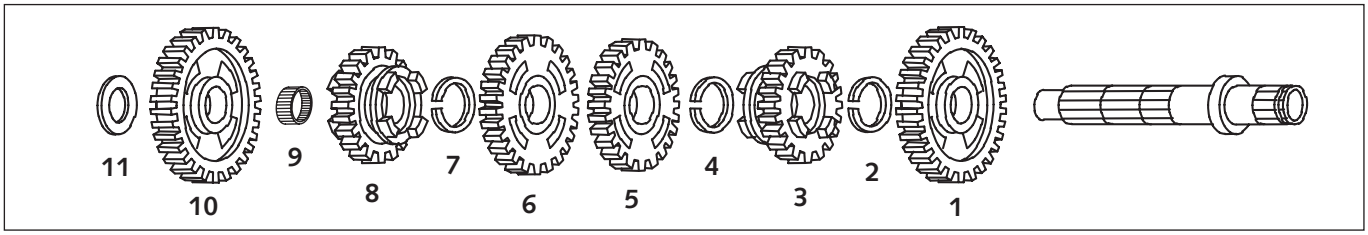
Clamp the main shaft or countershaft, respectively, in the vise (use protective jaws). Remove the gears and check the following parts for wear and grooves:
- Pivot points of the main shaft and countershaft and pivot points of the idler gears.
- Shifting claws of the gears.
- Tooth faces of all gears.
- Tooth profiles of the main shaft and countershaft and of the corresponding gears.
- Check the tooth profiles of all change gears for easy operation.

Thoroughly clean all components and replace defective parts.
New axial locking rings must be mounted whenever repair work is performed on the transmission.



Assembling the main shaft

- Clamp the main shaft into the vise (use protective jaws), the toothed end facing downwards.
- Thoroughly oil all parts before mounting.
- Mount the idler gear ❶ for the 5th gear with the shifting claws facing upwards. Then mount the axial locking ring ❷ with the sharp edge facing upwards.
- Mount the sliding gear ❸ for the 3rd /4th gear with the smaller gear facing upwards on the main shaft. Then mount the axial locking ring ❹ with the sharp edge facing upwards.
- Mount the idler gear ❺ for the 6th gear with the shifting claws facing downwards and the fixed gear ❻ for the 2nd gear with the milled side facing downwards.
- Mount the stop disc ❼.
- Finally, check all gears for smooth operation.



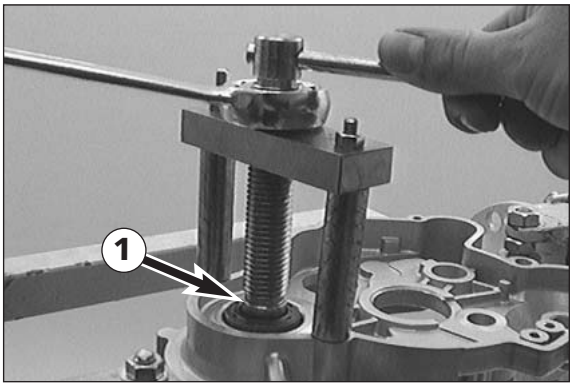
Assembling the countershaft

- Clamp the countershaft into the vise (use protective jaws), the toothed end facing downwards.
- Thoroughly oil all parts before mounting.
- Put the idler gear ❶ for the 2nd gear on the shaft with the chamfered tooth faces facing downwards. Then mount the circlip ❷ with the sharp edge facing upwards.
- Mount the sliding gear ❸ for the 6th gear with the shift groove facing upwards. Then mount the circlip ❹ with the sharp edge facing downwards.
- Mount the idler gear ❺ for the 3rd gear with the collar facing upwards and the idler gear ❻ for the 4th gear with the collar facing downwards.
- Mount the circlip ❼ with the sharp edge facing upwards.
- Mount the sliding gear ❽ for the 5th gear with the shift groove facing downwards.
- Slide needle bearing ❾ onto the shaft (from engine number B65 002273 onwards).
- Mount the idler gear ❿ for the 1st gear with the opening facing downwards, then mount the stop disc ⓫.
- Finally, check all gears for smooth operation.

ASSEMBLING THE ENGINE 6

INDEX

Art.-No. 321066-E

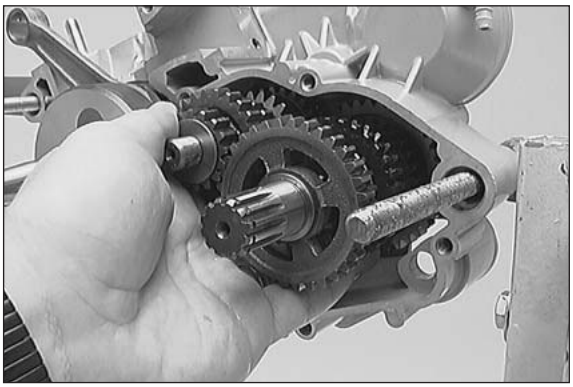


Inserting the crankshaft

– Clamp the right half of the housing onto the mounting rack.
– Grease the shaft seal ring of the crankshaft and oil the grooved ball bearing of the crankshaft.
– Mount the crankshaft mounting tool 491.12.008.000 with mounting sleeve ❶ and insert the crankshaft all the way.

! CAUTION !

THE CONROD MUST BE DIRECTED TOWARDS THE CYLINDER WHEN THE CRANKSHAFT IS INSERTED!

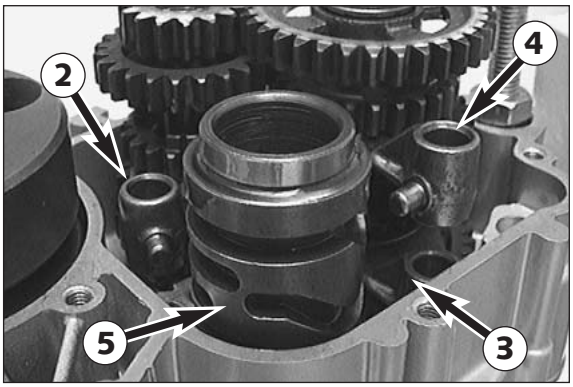


Mount transmission and shift mechanism

– Hold the main shaft and the countershaft with one hand as shown in the illustration and insert both shafts together into the bearing seats.

! CAUTION !

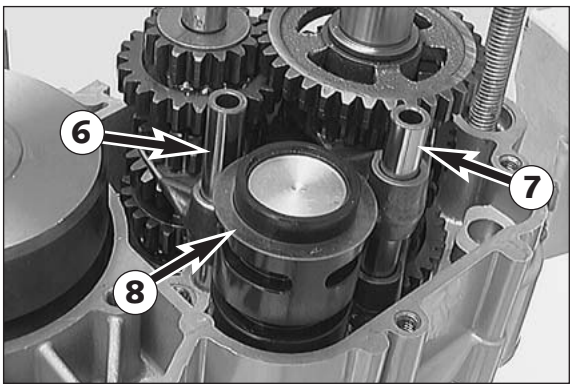
MAKE SURE THAT THE LOWER STOP DISC OF THE COUNTERSHAFT IS CORRECTLY POSITIONED. THE TWO TOP GEARS MUST BE ON THE SAME LEVEL.



– Hook the shift fork with the smaller jaw width ❷ onto the sliding gear of the main shaft.
– Slightly lift the lower sliding gear of the countershaft with a screwdriver and hook it into the shift fork ❸.
– Hook the other shift fork ❹ onto the upper sliding wheel of the countershaft.

! CAUTION !

– BE SURE TO HOOK USED SHIFT FORKS ONTO THE SAME SLIDING GEAR AS PREVIOUSLY. THEREFORE, MOUNT THE SHIFT FORKS ACCORDING TO THE MARKS APPLIED DURING THE DISASSEMBLING PROCESS.
– TAKE CARE NOT TO LOOSE ONE OF THE SHIFT ROLLER.

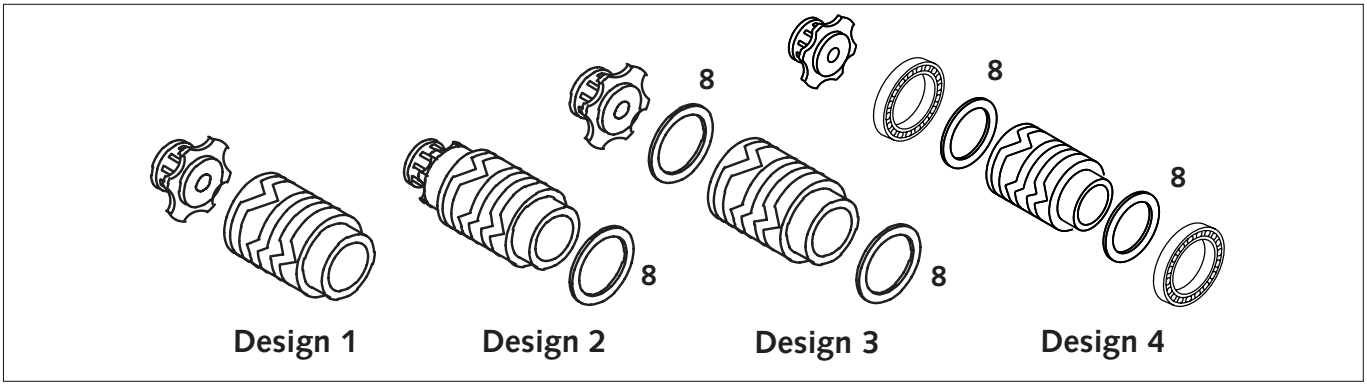


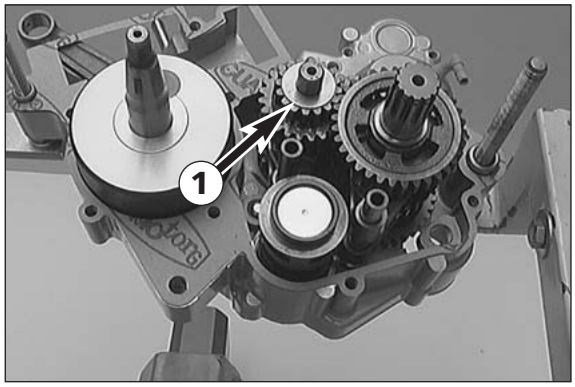
– Use a bit of grease to fix the spacing washer ❽ on the shift roller.
– Grease the shift roller ❺ at the pivot point and insert it into its bore in the housing.
– Hook the shift forks onto the shift roller.

NOTE: from Model 2001 the shift rails are spring loaded, fix the lower springs with grease onto the shift rails.

– Insert the short shift rail ❻ into the shift fork of the main shaft and the long shift rail ❼ into the shift forks of the countershaft.
– Push the shift forks all the way into their bores in the housing.

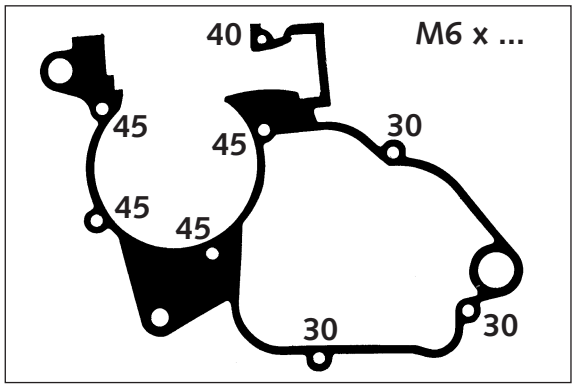
NOTE: Now it should be easily possible to rotate the transmission shafts.

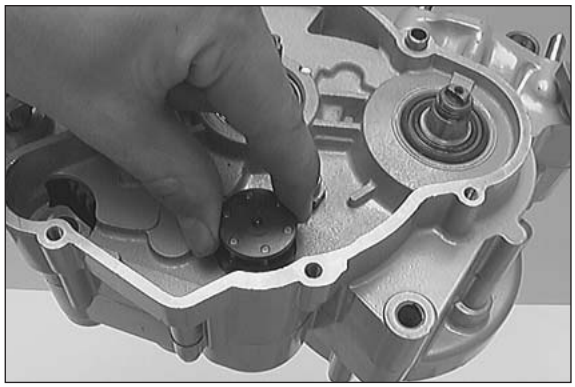




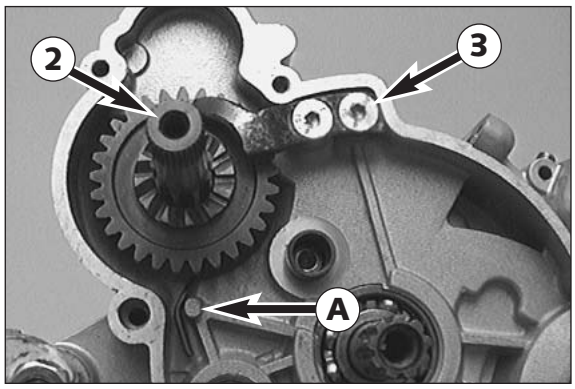
Assembling the engine housing

– Release the device holding the engine on the mounting rack.
– Insert both dowels into the right half of the housing.
– Grease the shaft seal rings of the crankshaft and the countershaft.
– Put the stop disc ❶ on the main shaft.
– Apply a small quantity of grease to the sealing surface of the housing and mount a new gasket.
– Put the left half of the housing onto the right half while slightly rotating the transmission shafts.
– Grease the bolts of the housing (threads and contact surfaces of the bolt heads) and mount them.
– First tighten the four bolts of the ignition housing in diagonal order. Tightening torque: 10 Nm (7 ft.lb).
– Then tighten all other bolts (10 Nm/7 ft.lb) and check all shafts for smooth operation.
– Clamp the engine into the mounting rack.



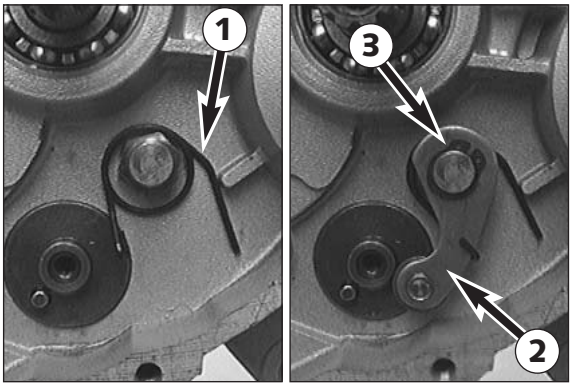


– After tightening the housing screws, check the axial play of the shift roller. The axial play of the shift roller should be 0.30 mm (0.012 in). The axial play can be adjusted by putting spacing washers onto the shift roller.



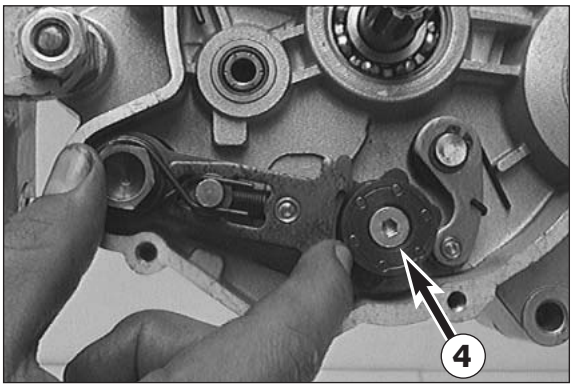
Mount kickstarter shaft

– Insert the preassembled kickstarter shaft ❷ into its bore in the housing and hook the kickstarter spring onto its supporting nose in the housing Ⓐ.
– Degrease and apply Loctite 243 to the threads of the two flat-head bolts ❸. Use the two flat-head bolts to mount the stop plate on the housing.
– Check the kickstarter gear for smooth operation.

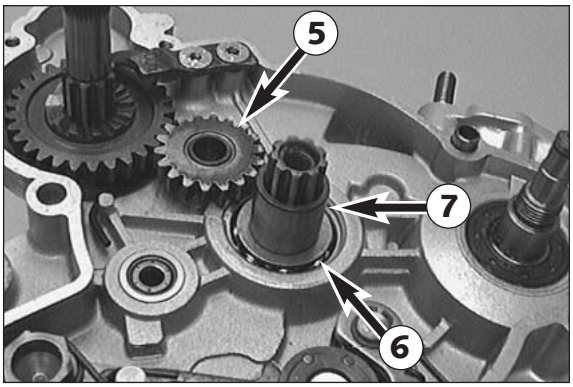


Mount shift mechanism and shift shaft

– Insert the locking spring ❶ into the housing as indicated in the illustration.
– Mount the locking lever ❷ with the roller facing the housing. Then mount the circlip ❸ with the sharp edge facing upwards.
– Hook the locking spring onto the locking lever.

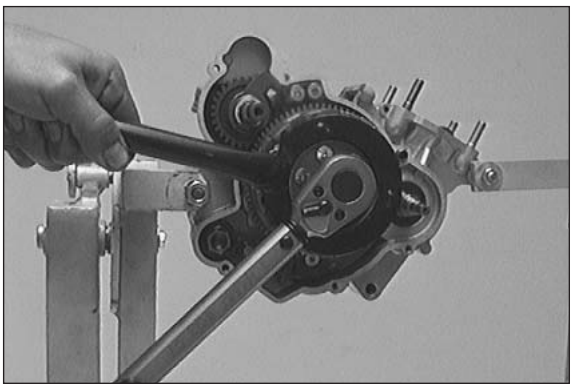


– Push the locking lever backwards with a screwdriver and mount the shift drum locating device on the shift roller.
– Degrease and apply Loctite 243 to the thread of bolt ❹ and use the bolt to fasten the shift drum locating device to 14 Nm/10 ft.lb.
– Grease the shaft seal ring of the shift shaft.
– Grease the preassembled shift shaft and carefully insert it into the housing. Push the slide plate backwards and insert the shift shaft all the way into the housing.
– Mount the shift lever and test all gears. Then remove the shift lever.

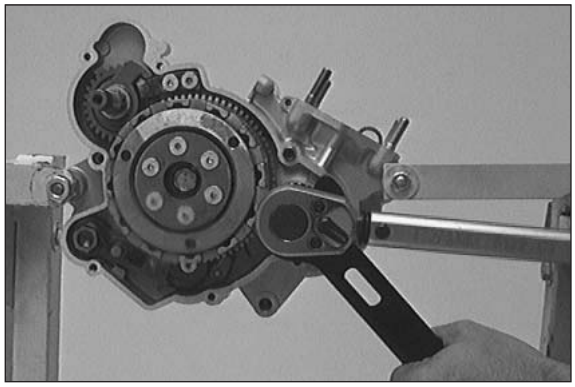


Assemble clutch

– Mount the intermediate starter gear ❺ on the bearing pin with the collar facing the housing.
– Mount the stop disc ❻ and the greased bearing bush ❼ on the main shaft.
– Mount the outer clutch hub and the stop disc (17.2x30x1.5 mm) on the main shaft.



– Mount the preassembled disc package.
– Apply Loctite 243 to the bolt and mount it together with a new crown gear.
– Mount the clutch holder 490.12.003.000 and tighten the bolt with 60 Nm (44 ft.lb).

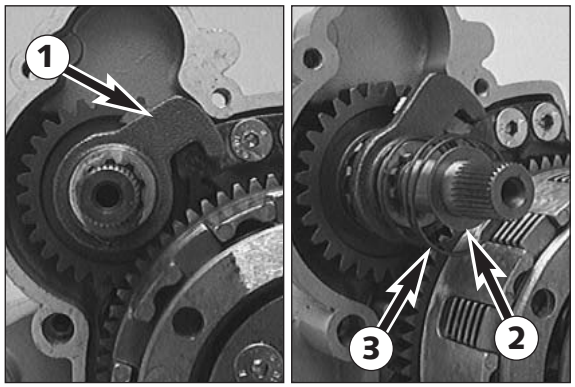


Mount primary drive

– Insert the woodruff key onto the crankshaft (up to engine number B60 000200 and B65 000210) and mount the primary pinion with the flat section of the collar facing outwards.

NOTE: degrease the cone before mounting the primary pinion.

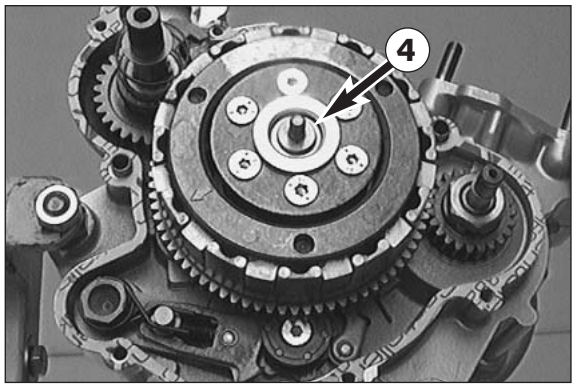
– Degrease the thread of the crankshaft and apply Loctite 243.
– Mount a new lock washer and the hexagon nut.
– Mount the primary pinion holding tool 490.12.004.000 and tighten the hexagon nut with 40 Nm (30 ft.lb).
– Remove the primary pinion holding tool and bend the edges of the lock washer upwards at the flat section of the primary pinion and at the hexagon nut.



NOTE: Engines from model 99 onwards have a locking disc instead of a lock washer.

Mount ratchet gear, preload the kickstarter shaft

– Mount the ratchet gear ❶ on the kickstarter shaft as shown in the illustration.
– Preload the kickstarter shaft counterclockwise and let the ratchet gear engage with the stop plate (for this only a small amount of preload is required).
– Oil the sliding surfaces and mount the stop disc ❷ and the ratchet disc spring ❸ with the smaller diameter facing the ratchet gear.

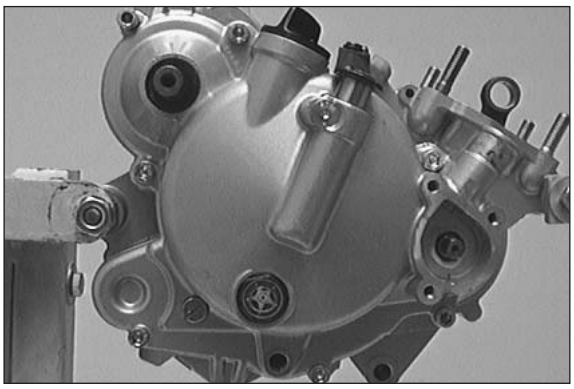


Mount clutch cover

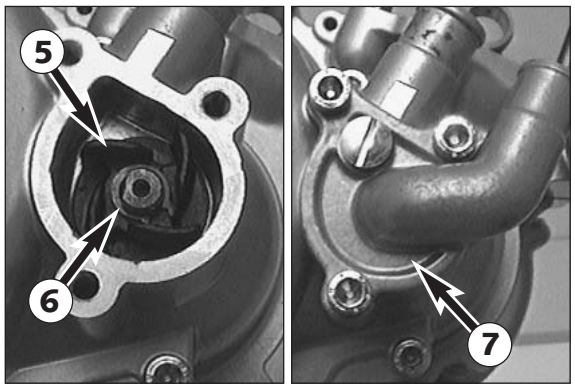
Only for engines with the following engine numbers:

B 60 000 001 – B 60 000 200
B 65 000 001 – B 65 000 210

– Make sure that both dowels are mounted in the engine housing.
– Apply a thin coat of grease to the sealing surface of the housing and mount a new clutch cover gasket.
– Insert the thrust bearing ❹ into the spring retainer.
– Grease all shaft seal rings in the clutch cover.



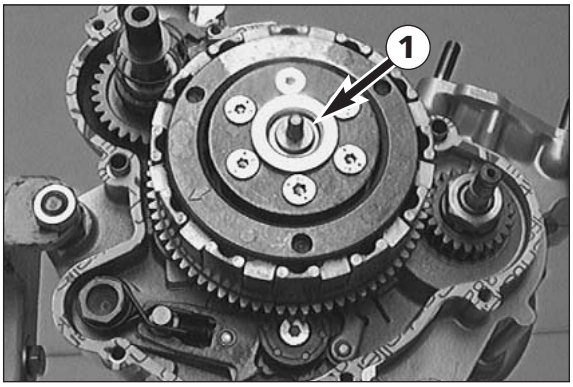
– Rotate the clutch release shaft until the clutch release lever faces the engine housing when the clutch cover is mounted (see illustration).
– Carefully mount the clutch cover.
– Insert all bolts into the clutch cover and tighten with 10 Nm (7 ft.lb) (for the bolt lengths please refer to the drawing).
– Check the kickstarter shaft for smooth operation.



– Put the water pump wheel ❺ onto the crankshaft. Then mount the circlip ❻ with the sharp edge facing outwards.
– Insert a new O-ring into the groove of the water pump cover ❼ and mount the cover with 3 bolts.

! CAUTION !

TO PREVENT ENGINE DAMAGE, MAKE SURE THAT THE CIRCLIP IS PROPERLY FASTENED.

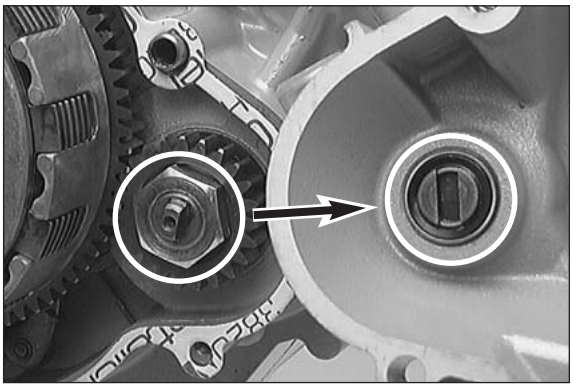


Mount clutch cover

Only for engines with the following engine numbers onwards:

B 60 000 201
B 65 000 211

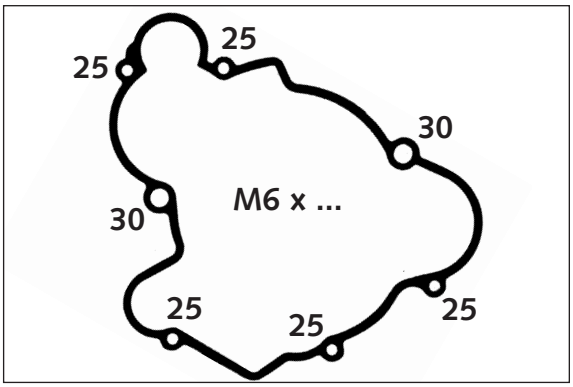
- Make sure that both dowels are mounted in the engine housing.
- Apply a thin coat of grease to the sealing surface of the housing and mount a new clutch cover gasket.
- Insert the thrust bearing ❶ into the spring retainer.
- Grease all shaft seal rings in the clutch cover.

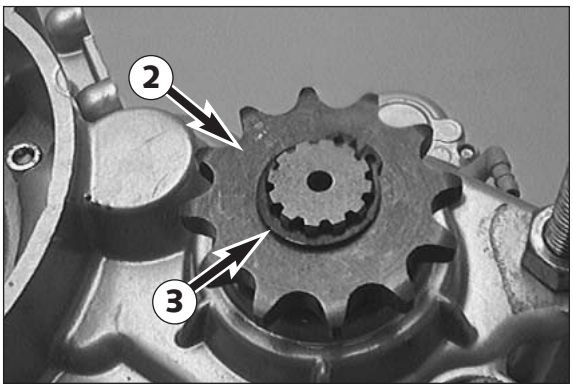


- Rotate the clutch release shaft until the clutch release lever faces the engine housing when the clutch cover is mounted (see illustration) – models up to 2001.
- Carefully mount the clutch cover.
- Insert all bolts into the clutch cover and tighten with 10 Nm (7 ft.lb) (for the bolt lengths please refer to the drawing).
- Check the kickstarter shaft for smooth operation.

! CAUTION !

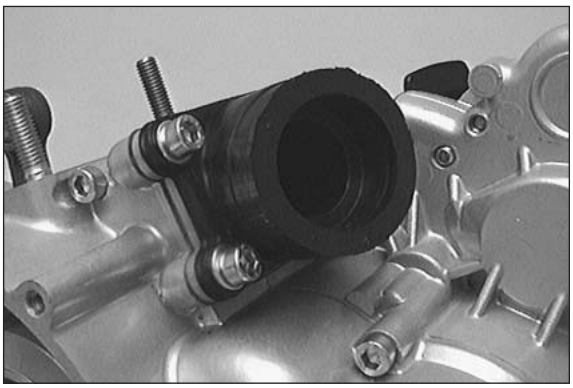
WHEN MOUNTING THE CLUTCH COVER MAKE SURE THAT THE FLAT SECTION OF THE CRANKSHAFT ENGAGE INTO THE OPENING OF THE WATER PUMP SHAFT. IF NECESSARY SLIGHTLY ROTATE THE CRANKSHAFT WHEN MOUNTING THE COVER.





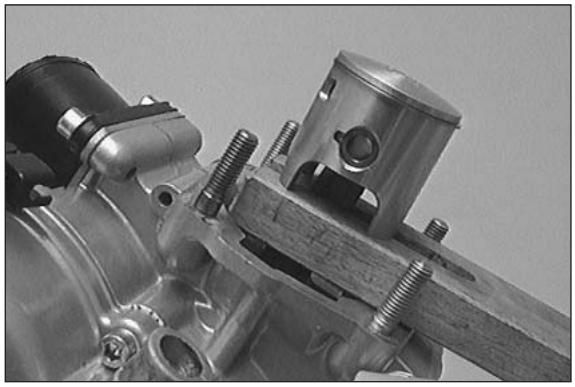
Mount the engine sprocket

- Oil the O-ring and mount it onto the countershaft.
- Slide the distance bushing onto the countershaft so that the O-ring slips into the chamber of the distance bushing.
- Put the engine sprocket ❷ onto the countershaft with the collar facing to the housing and secure with the circlip ❸ (sharp edge outwards).



Mount reed valve housing and intake flange

- Insert the reed valve housing with a new seal, mount the intake flange and fasten with 4 bolts.



Mount piston and cylinder

- Before mounting, thoroughly oil the sliding surfaces of all components.
- Insert the needle bearing into the conrod eye, mount the piston (the arrow in the piston head pointing in the direction of the exhaust port).
- Mount the piston pin and the wire circlips with the open side facing downwards.
- Mount the cylinder base gaskets (nominal gasket thickness: 0.70 mm/ 0.027 in).
- Put the piston onto a self-made wooden mounting tool and align the piston rings.
- Mount the cylinder, remove the mounting tool and diagonally clamp the cylinder down using the two collar nuts.

Adjusting dimension "X"

NOTE: Dimension "X" is the distance between the upper piston edge and the upper cylinder edge with the cylinder clamped down and the piston in position TDC.
Dimension "X" must be adjusted particularly carefully by inserting cylinder base gaskets of different thicknesses.

! CAUTION !

IF DIMENSION "X" IS TOO LARGE, THE COMPRESSION VALUE WILL DECREASE, THUS REDUCING THE OVERALL ENGINE OUTPUT. IF DIMENSION "X" IS TOO SMALL, THE ENGINE WILL „PINK“ AND OVERHEAT.

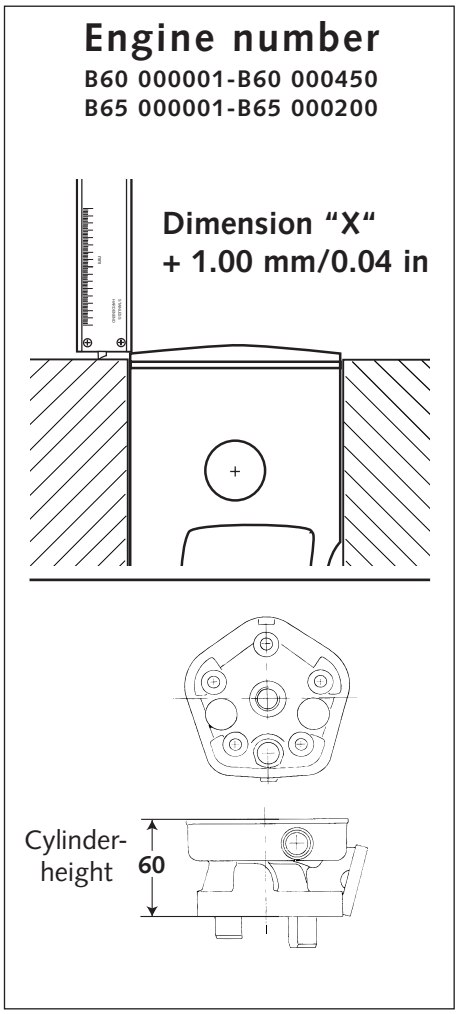
NOTE: Before checking dimension "X", check if the letter "K" is engraved on the right side of the cylinder (at the cylinder base). A different dimension "X" applies to engines marked with a "K".

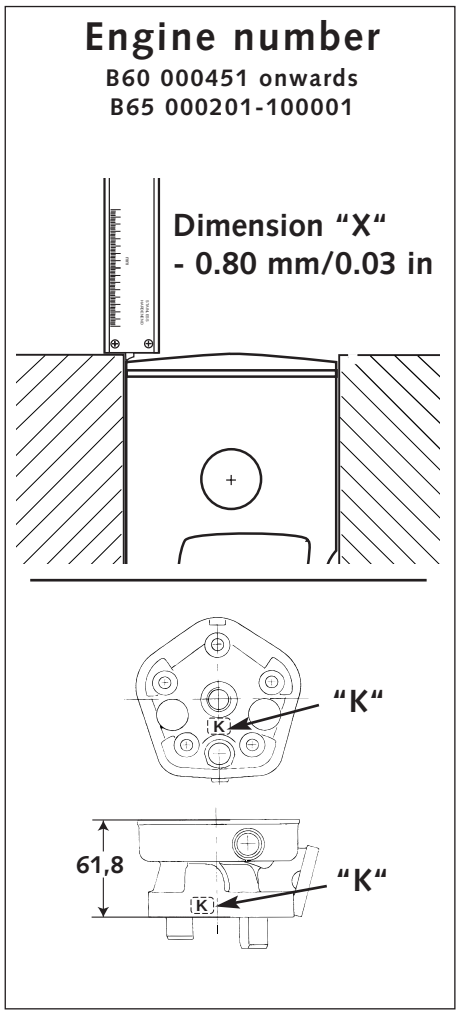
– Position the sliding gauge on the cylinder and turn the piston to TDC by turning the flywheel. Read the value indicated by the sliding gauge. For the right dimension "X" see scetch below.

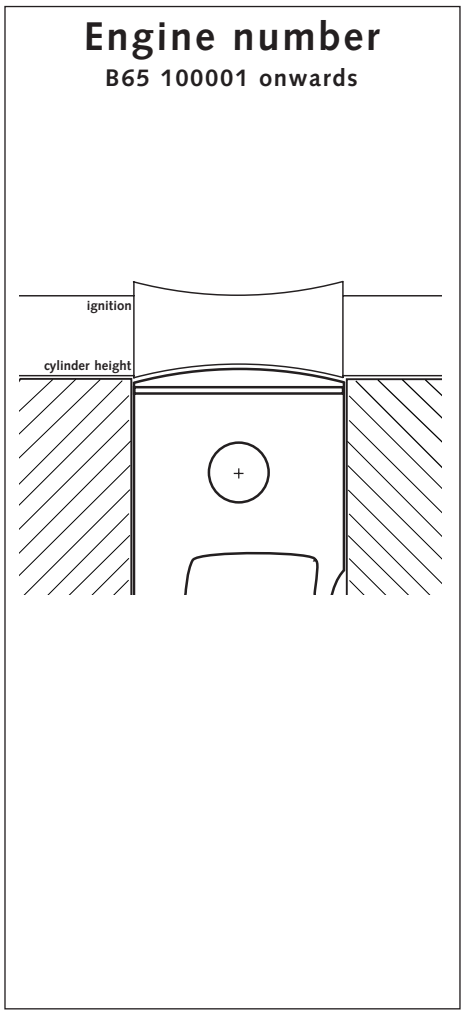
NOTE: from engine number B65 100001 dimension "X"is adjusted with special tool 460.29.022.000 or 461.29.006.000.

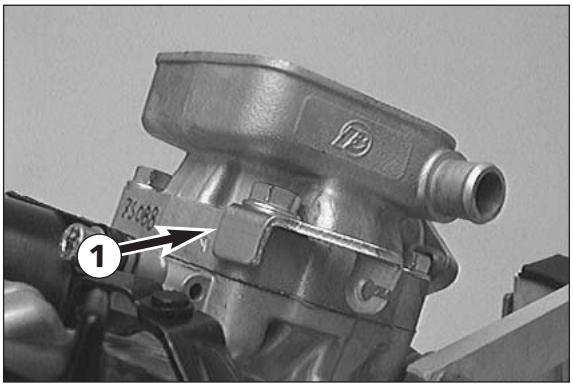
– Adjust dimension "X" by adding or removing cylinder base gaskets.

NOTE: Adding of cylinder base gaskets increases and removing cylinder base gaskets reduces dimension "X".

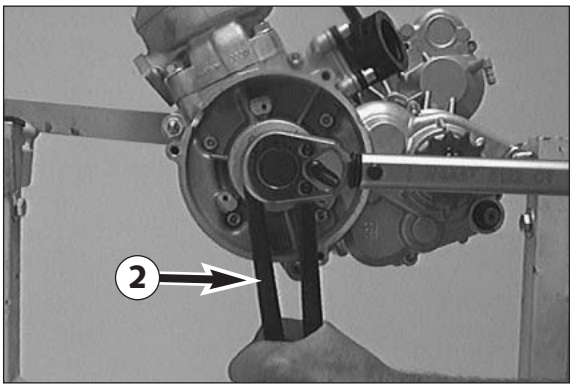






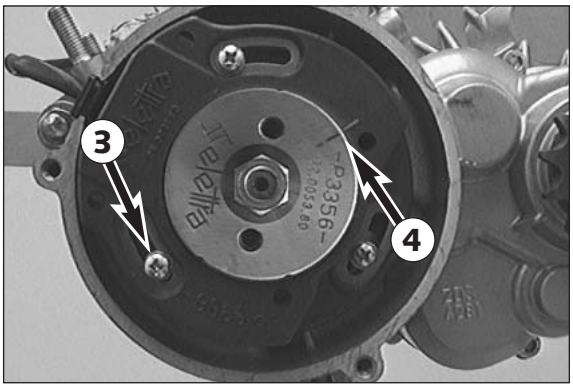


– Mount the two remaining collar nuts at the cylinder base and tighten all four collar nuts with 18 Nm (13 ft.lb.). Do not forget to mount the suspension bracket ❶ for the clutch cable or hydraulic pipe of the clutch control.



Ignition, adjusting the ignition up to model 2002

– Insert the woodruff key into the crankshaft.
– Mount the rotor on the crankshaft. Then mount the spring ring with the hexagon nut.
– Insert the holding tool 151.12.021.000 ❷ into the two bores and tighten the hexagon nut with 33 Nm (25 ft.lb).

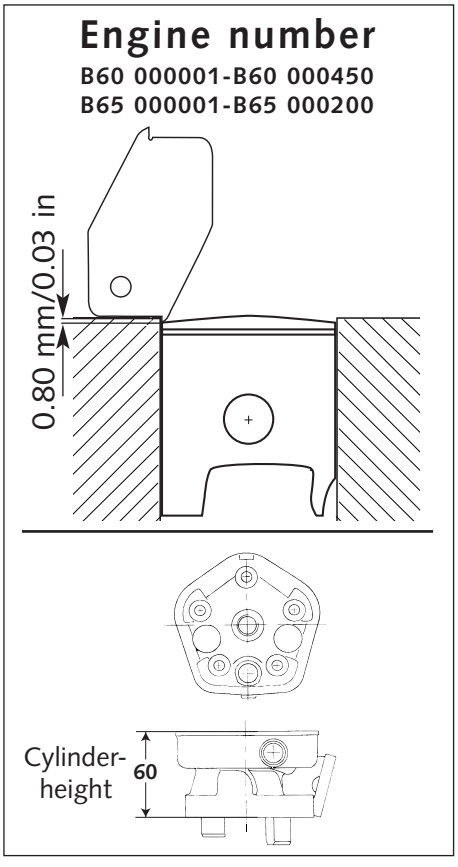


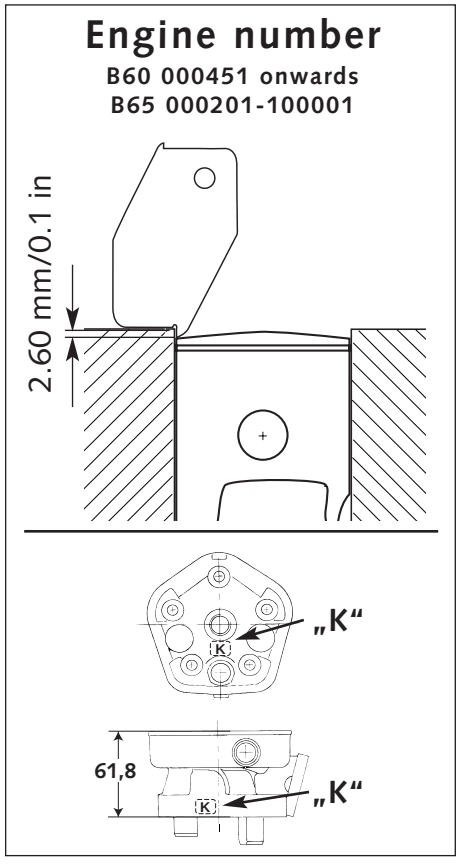
– Apply Loctite 243 to the threads of the three bolts ❸ and use these to fasten the stator (but do not yet tighten the bolts).
– Apply silicon to the cable guide and mount it in its opening in the housing.
– Set the piston to UT and put the adjusting plate (460.29.022.000 or 461.29.006.000) onto the cylinder.
– Turn the rotor counterclockwise until the upper edge of the piston touches the adjusting plate. Keep in mind the cylinder height stated below for your engine number.
– Now turn the stator until the two marks ❹ coincide.

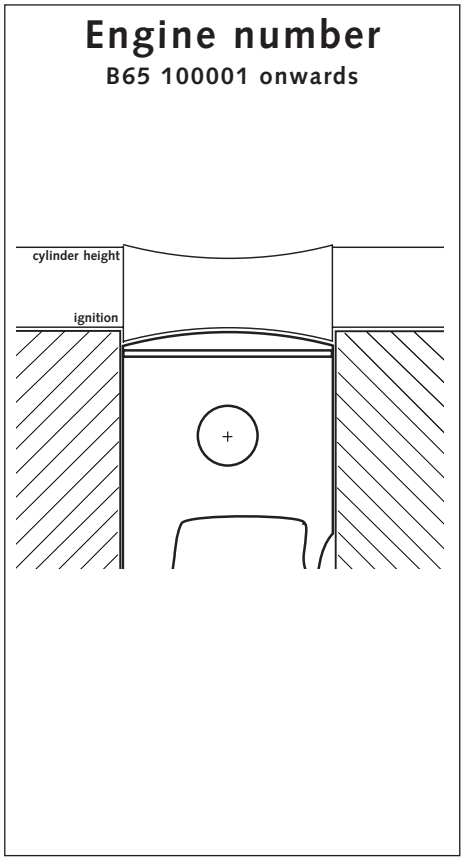
! CAUTION !

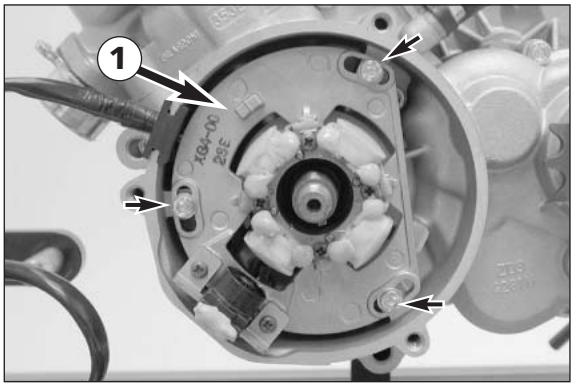
BEFORE CHECKING THE IGNITION THE DIMENSION „X“ MUST BE ADJUSTED CORRECTLY

– Tighten the three bolts of the stator.
– Once again check the distance between the edge of the piston and the upper edge of the cylinder using the adjusting plate. If necessary readjust the distance by rotating the stator.



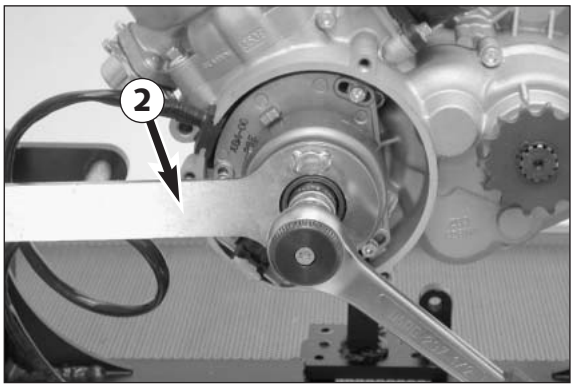




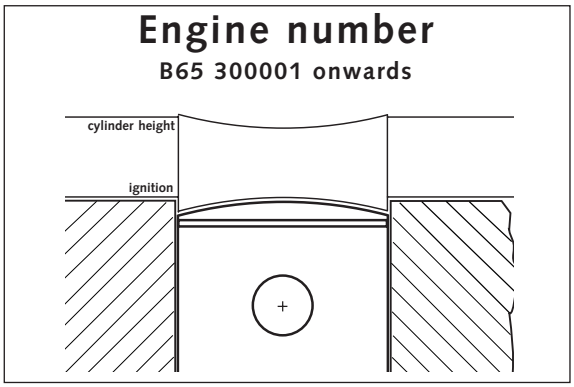


Ignition, adjusting the ignition from model 2003

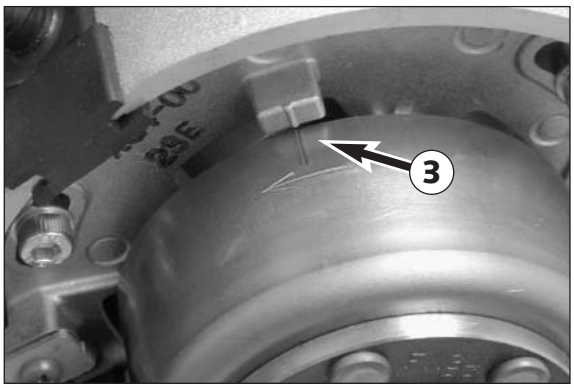
– Apply Loctite 243 to the thread of the three M5x16 Allen head bolts and fasten the stator ❶ but do not tighten yet.
– Apply silicone to the cable guide and mount in the housing opening.



– Insert the Woodruff key in the crankshaft.
– Slip the rotor on the crankshaft and mount the circlip with the collar nut.
– Insert the retaining tool 546.29.012.100 ❷ in the 2 bores and tighten the collar nut to 33 Nm.



– Set piston to BDC and place the adjusting plate (461.29.006.100) on the upper edge of the cylinder.
– Turn the rotor in a counter-clockwise direction until the upper edge of the piston is flush with the adjusting plate (see drawing).

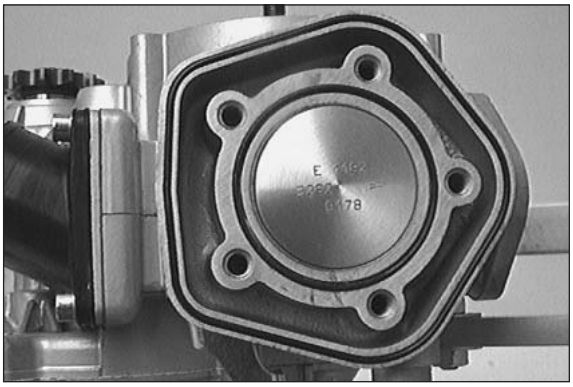


– Turn the stator until both marks ❸ align.

! CAUTION !

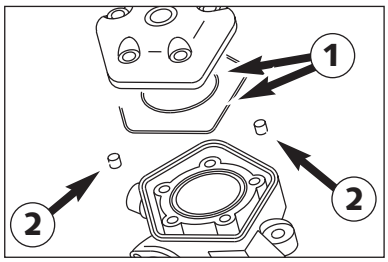
BEFORE YOU ADJUST THE IGNITION, THE "X" MEASUREMENT MUST BE CORRECTLY ADJUSTED.

– Tighten the 3 Allen head bolts on the stators to 6 Nm.
– Check the distance between the upper edge of the piston to the upper edge of the cylinder with the adjusting plate again and correct if necessary by turning the stator.

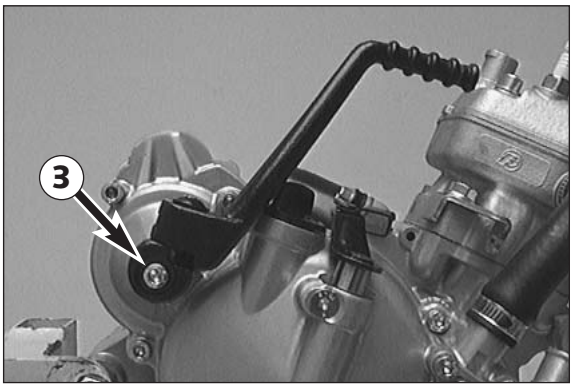


Mount cylinder head

– Clean the sealing surfaces of the cylinder and the cylinder head and insert the O-rings ❶ into the grooves (you can apply a small quantity of grease to keep the O-rings in the grooves).
– Mount both dowels ❷ (from model 2003 on)

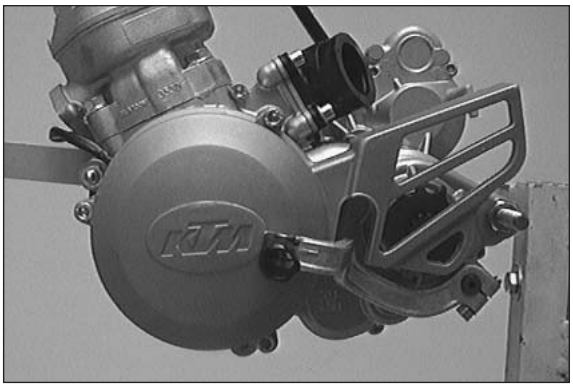


– Mount the cylinder head with the water nozzle (intake side) facing backwards.
– Mount the cylinder head bolts with new copper gaskets and gradually tighten the bolts one after the other, taking three turns, until the prescribed tightening torque of 18 Nm (13 ft.lb) is reached. During the first turn only slightly tighten the bolts until slight resistance is felt.



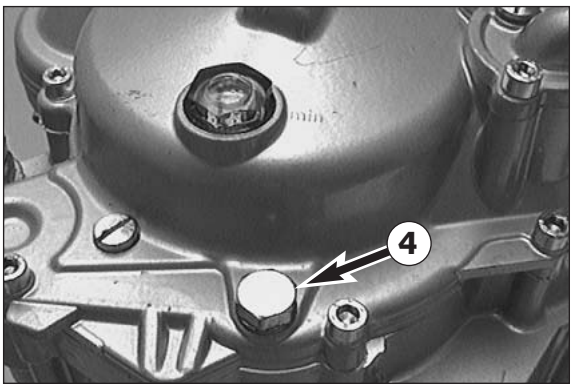
Mount kickstarter

– Mount the kickstarter on the kickstarter shaft as shown in the illustration.
– Mount bolt ❸ with the crown gear.



Mount ignition cover

– Insert a new O-ring into the groove of the ignition cover (up to model 2002) and mount the ignition cover.
– Mount the shift lever on the shift shaft in the desired position and fasten it with the clamp bolt.



Adding gear oil

– Once again make sure that the gear oil drain plug ❹ is tightened to 15 Nm/11 ft.lb.
– Then remove the plug of the clutch cover and add 0.30 l engine oil 20W-40 (i.e. Shell Advance Ultra 4). Mount the plug.

TROUBLE SHOOTING 7

INDEX

Art.-No. 321066-E

TROUBLE	CAUSE	REMEDY
Engine fails to start	Operating error	Open fuel tap, replenish fuel, do not use choke
	Fuel supply interrupted	Close fuel tap, loosen fuel hose at carburettor, lead into a basin and open fuel tap, – if fuel leaks out, clean carburettor – if no fuel leaks out, check tank ventilation, i.e. clean fuel tap
	Electrode distance too great	Reduce electrode distance (0.60 mm)
	Plug fouled by oil, wet or bridged	Clean spark plug or renew
	Ignition wire or spark plug connector damaged	Dismount spark plug, connect ignition cable, hold to ground (blank place on engine) and actuate kickstarter, 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
	Kill button wire or short-circuit switch faulty	Disconnect black coloured cable from short circuit button at ignition coil and check ignition spark. If the spark is O.K. repair defective part of cable or ignition switch
	Loose ignition cable connectors	Inspect cable connectors
	Spark too weak	Examine ignition system
	Water in the carburetor and jets blocked	Dismantle and clean carburetor
Engine without idle running	Idle adjusting screw out of adjustment	Readjust idle running or replace idle adjusting screw
	Ignition system damaged	Examine ignition system
	Wear	Overhaul engine
Engine has not enough power	Charred glass fiber yarn in silencer	Renew filling
	Air filter obstructed	Clean or renew airfilter
	Fuel supply partly interrupted or blocked	Blow through fuel pipe and clean carburetor
	Loss of compression through loose spark plug	Tighten spark plug
	Exhaust system damaged	Check exhaust system for damage
	Engine has not enough preignition	Check and adjust ignition

TROUBLE	CAUSE	REMEDY
Engine has not enough power	Reed paddles tensionless or damaged, surface of reed valve housing damaged	Replace reed paddles or reed valve housing
	Wear	Overhaul engine
Engine revs not up and running in four stroke cycle	Carburetor overflows if level adjust too high, float needle seating is dirty or enlarged	Clean carburetor, if necessary replace float needle and adjust level
	Loose carburetor jets	Tighten jets
High rpm misfiring	Incorrect heat range spark plug or low quality spark plug	Refer to technical data section
	Loose, corroded or non conductive ignition socket connector	Check and seal with silicon
Engine spluters into the carburetor	Lack of fuel	Clean fuel pipes, examine tank aeration and clean
	Spark plug with incorrect heat value (Ignition by incandescence)	Fit correct spark plug
	Engine takes air out of control	Check intake flange and carburettor if firmly setted
Engine overheating	Insufficient liquid in cooling system	Top up coolant and bleed cooling system check cooling system for leaks
	Radiator fins clogged	Clean radiatar fins with water jet
	Frothing in cooling system	Renew coolant using branded anti-freeze/anti-corrosive (Shell Advance Coolant)
	Pinched or kinked water hoses	Replace with correct routed hoses
	Incorrect ignition timing because of loose stator bolts	Readjust to correct ignition timing specifications, secure bolts with Loctite 243
	Incorrect compression ratio	Measure and adjust compression ratio
Emission of white smoke (steam)	Cylinder head or O-ring of cylinder head gasket leaks	Check cylinder head, replace O-ring
Excessive oil escapes from transmission breather tube	Excessive oil quantity in transmissi-on	Correct transmission oil level
Water in transmission oil	Shaft seal ring of the water pump defect	Replace shaft seal ring of the water pump.

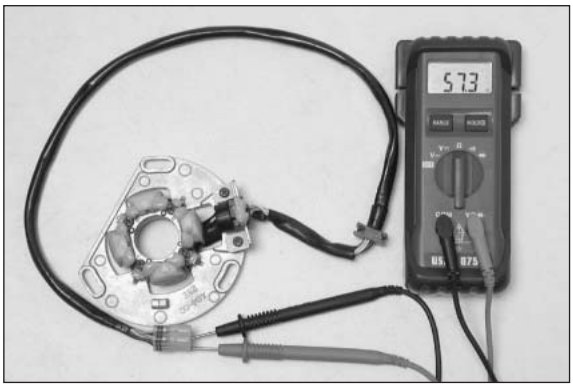
Resistor values of the ignition system (up to model 2002) - Stator

– Unplug the ignition stator and measure the resistance of the stator using a digital measuring tool.
– The resistance must be 110 Ω +/- 15 Ω at 20° C.

NOTE: it is not neccessary to take the stator out of the engine housing.

Ignition coil

– Undo the spark plug cap
– Measure the resistor of the secundary side of the Ignition coil between high tension lead and mass (metal surface of the housing) of the coil.
– The resistance must be 4950 Ω +/- 200 Ω at 20° C.



Resistor values of the ignition system (from model 2002) - Stator

– Unplug the connector on the ignition stator and measure the resistance of the stator coils at 20° C using a digital multimeter.

Pulse generator: between the white/red and white/blue cable
Multimeter display: 310 Ω +/-20 %

CDI voltage supply: between the green/blue and black cable
Multimeter display: 55 Ω +/-20 %

Capacitor charging coil: between the black/red and green/white cable
Multimeter display: 900 Ω +/-20 %

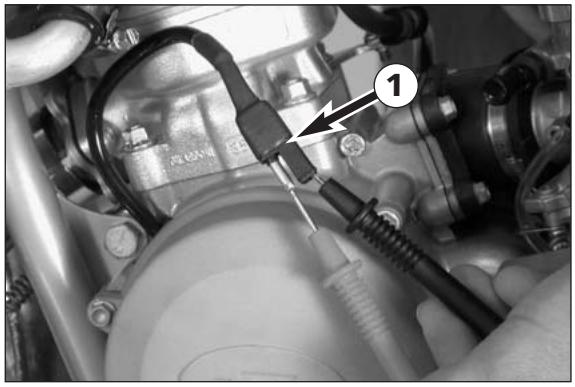
NOTE: the stator does not need to be removed to measure.

Ignition coil

– Unscrew the spark plug connector and disconnect the cable for the primary drive.
– Measure the resistance on the primary side of the ignition coil between the primary drive plug and the ignition coil ground.
Multimeter display: under 10 Ω at 20° C

– Measure the resistance on the secondary side of the ignition coil between the high voltage cable and the ignition coil ground.
Multimeter display: 7900 Ω +/-20 % at 20° C

NOTE: the ignition coils do not need to be removed to measure.



Measuring static ignition values with peak voltage adapter (up to model 2002)

Measuring conditions:
- cold engine
- seat and tank removed
- all connector and socket connectors and the ground connection in a non-corroding condition
- kick the kick starter forcefully at least 5 times for each measurement

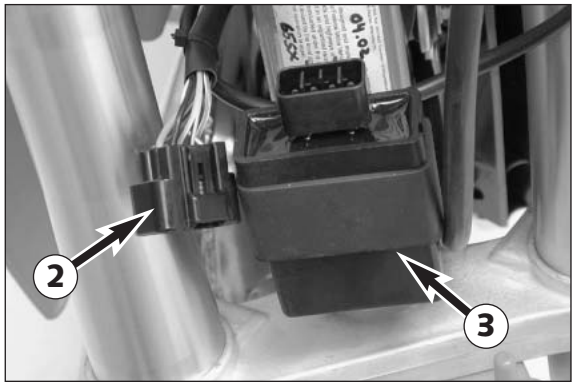
Check the **pulse generator/charging coil** for an output signal – two-pin connector ❶:

- Disconnect connector ❶, randomly apply the measuring leads of the peak voltage adapter to each socket
  Multimeter display: 210 volts +/- 10 volts

- Same measurement with connector ❶ connected to the ignition coil
  Multimeter display: 210 volts +/- 10 volts

Measuring static ignition values with peak voltage adapter (from model 2003)

Measuring conditions:
- cold engine
- remove starting number plate
- unscrew sparkplug, plug on and hold against ground
- all plug and socket connectors and ground connections in a non-corroding condition
- depress the kickstarter forcefully at least 5 times for each measurement



Check the **pulse generator** for output signal – white/red and white/blue cables:
- Apply the red measuring tip of the peak voltage adapter to the white/red cable and the black measuring tip to the white/blue cable, disconnect plug ❷ to disconnect the CDI unit ❸
  Multimeter display: 10 volts +/-1 volt

- Same measurement with CDI unit connected
  Multimeter display: 6 volts +/-1 volt

Check the **CDI voltage supply** for output voltage – green/red and black cables:
- Apply the red measuring tip of the peak voltage adapter to the green/red cable and the black measuring tip to the black cable, disconnect plug ❷
  Multimeter display: 40 volts +/-5 volts

- Same measurement with CDI unit connected
  Multimeter display: 35 volts +/-5 volts

Check **capacitor charging coil** for output voltage – black/red and green/white cables:
- Apply the red measuring tip of the peak voltage adapters to the black/red cable and the black measuring tip to the green/white cable, disconnect plug ❷
  Multimeter display: 270 volts +/-20 volts

- Same measurement with CDI unit connected
  Multimeter display: 230 volts +/-20 volts

Check the **primary voltage output** for ignition coil control (orange cable):

- Apply the red measuring tip of the peak voltage adapter to the (ground) and the black measuring tip to the orange cable, CDI unit and ignition coil connected
  Multimeter display: 230 volts +/-20 volts

NOTE: if no voltage can be measured during the test, check the respective cable for continuity before replacing any parts.

TECHNICAL SPECIFICATIONS 8

INDEX

Art.-No. 321066-E

TECHNICAL SPECIFICATIONS - ENGINE 60 SX / 65 SX '98 / '99

Engine	CR-60	CR-65
Design	Liquid cooled single cylinder two-stroke engine with reed valve intake	
Displacement	59.41 ccm	63.58 ccm
Bore/stroke	43.5 / 40 mm (1.71/1.57 in)	45 / 40 mm (1.77/1.57 in)
Compression ratio	9.1 : 1	
Fuel	SUPER fuel, research octane 95, mixed with high grade two stroke oil	
Oil/gasoline ratio	1 : 40 when using high grade two stroke oil (i.ex. Shell Advance Racing X), when in doubt, please contact your importer	
Lubrication	mixture lubrication	
Crankshaft bearing	2 deep-groove ball bearing	
Connecting rod bearing	needle bearing	
Piston pin bearing	needle bearing	
Piston rings	1 compression ring	
Primary drive	straight cut spur gears, 23:75 t	
Transmission	6 speed, claw actuated	
Gear ratio	1st gear 13 : 37 2nd gear 16 : 34 3rd gear 18 : 31 4th gear 21 : 30 5th gear 23 : 28 6th gear 24 : 26	
Transmission oil	0.30 liter (0.0792 USgal) engine oil 10W40 (z B. Shell Advance Ultra 4)	
Ignition system	contactless controlled ignition (Selettra NW21)	
Spark plug	Champion C 55	
Electrode gap	0.60 mm (0.0236 in)	
Carburetor	Mikuni VM 24	
Coolant	0.55 liter (0.145 Usgal), mixture coolant : water = 2 : 1, at least -25° C (-13° F)	
Air filter	wet foam type air filter insert	

BASIC CARBURETOR SETTING	
Carburetor	Mikuni VM 24
Main jet	200
Needle jet	N-8
Idling jet	30
Jet needle	5114-3
Needle position from top	3.
Throttle valve	2.0
Starting jet	20

TECHNICAL SPECIFICATIONS – CHASSIS 60 SX / 65 SX '98 / '99

Frame	single downtube, split-cradle
Fork	telescopic fork (Paioli)
Wheel travel front/rear	200 mm (8 in) / 230 mm (9.2 in)
Rear suspension	central shock absorber (Paioli)
Front brake	Disc brake Ø 200 mm (8 in), 1 piston
Rear brake	internal expanding, single/cam drum brake Ø 100 mm (4 in)
Tyres	front: Bridgestone M39 60/100-14 rear: Bridgestone M40 80/100-12
Air pressure	front / rear: 1.0 bar (14 psi) / 1.0 bar (14 psi)
Fuel tank capacity	3.5 liter (0.92 USgal)
Final drive ratio	12 : 46
Chain	1/2 x 3/16" 108 rolls
Steering angle	63.5 °
Wheel base	1128 mm (44.4 in)
Seat height, unloaded	740 mm (29.1 in)
Ground clearance	265 mm (10.4 in)
Dead weight without fuel	52 kg (114.8 lbs)
Rider's body height	max. 160 cm (63 in)
Rider's body weight	max 50 kg (110 lbs)
Recommended age of rider	8 to 12 years
Engine	CR 60 / CR 65

STANDARD ADJUSTMENT – FORK	
Spring	2.91 N/mm
Preload bushing - length	80 mm
Oil capacity per fork leg	170 ccm
Fork oil	SAE 7,5

TECHNICAL SPECIFICATIONS - ENGINE 60 / 65 SX 2000

Engine	CR-60	CR-65
Design	Liquid cooled single cylinder two-stroke engine with reed valve intake	
Displacement	59,41 ccm	63,58 ccm
Bore/stroke	43.5 / 40 mm(1.71/1.57 in)	45 / 40 mm (1.77/1.57 in)
Compression ratio	9.1 : 1	
Fuel	SUPER fuel, research octane 95, mixed with high grade two stroke oil	
Oil/gasoline ratio	1 : 40 when using high grade two stroke oil (i.ex. Shell Advance Racing X), when in doubt, please contact xour importer	
Lubrication	mixture lubrication	
Crankshaft bearing	2 deep-groove ball bearing	
Connecting rod bearing	needle bearing	
Piston pin bearing	needle bearing	
Piston rings	1 compression ring	
Primary drive	straight cut spur gears, 23:75 t	
Transmission	6 speed, claw actuated	
Gear ratio	1st gear 13 : 37 2nd gear 16 : 34 3rd gear 18 : 31 4th gear 21 : 30 5th gear 23 : 28 6th gear 24 : 26	
Transmission oil	0,30 liter (0,0792 USgal) engine oil 20W30 (z B. Shell Advance Ultra 4)	
Ignition system	contactless controlled ignition (Selettra NW21)	
Spark plug	Champion C 55	
Electrode gap	0.60 mm (0.0236 in)	
Carburetor	Mikuni VM 24	
Coolant	0.55 liter (0.145 Usgal), mixture coolant : water = 2 : 1, at least -25° C (-13° F)	
Air filter	wet foam type air filter insert	

BASIC CARBURETOR SETTING	
Carburetor	Mikuni VM 24
Main jet	200
Needle jet	N-8
Idling jet	30
Jet needle	5114-3
Needle position from top	III
Throttle valve	2.0
Starting jet	20

TECHNICAL SPECIFICATIONS – CHASSIS 60 / 65 SX 2000

Frame	single downtube, split-cradle
Fork	telescopic fork (Paioli)
Wheel travel front/rear	200 mm (8 in) / 230 mm (9.2 in)
Rear suspension	central shock absorber (White Power)
Front brake	Disc brake Ø 198 mm (7.8 in), 1 piston
Rear brake	Disc brake Ø 160 mm (6.3 in), 1 piston
Tyres	front: 60/100-14“ rear: 80/100-12“
Air pressure	front / rear: 1.0 bar (14 psi) / 1.0 bar (14 psi)
Fuel tank capacity	3.5 liter (0.92 USgal)
Final drive ratio	12 : 46 t
Chain	1/2 x 1/4" (415) 108 rolls
Steering angle	63.5 °
Wheel base	1128 mm (44.4 in)
Seat height, unloaded	740 mm (29.1 in)
Ground clearance	265 mm (10.4 in)
Dead weight without fuel	52 kg (114.8 lbs)
Rider's body height	max. 160 cm (63 in)
Rider's body weight	max 50 kg (22.7 lbs)
Recommended age of rider	8 to 12 years
Engine	CR 60 / CR 65

STANDARD ADJUSTMENT – FORK	
Spring	2.91 N/mm
Preload bushing - length	80 mm
Oil capadity per fork leg	170 ccm
Fork oil	SAE 7.5

STANDARD ADJUSTMENT - SHOCK ABSORBER	
	WP 0318U706
Compression adjuster	3
Rebound adjuster	6
Spring	40-220
Spring preload	7 mm (0.3 in)

TECHNICAL DATA - ENGINE 65 SX 2001

Engine	CR-65
Design	Liquid cooled single cylinder two-stroke engine with reed valve intake
Displacement	63.58 ccm
Bore/stroke	45 / 40 mm (1.77/1.57 in)
Compression ratio	9.1 : 1
Fuel	SUPER fuel, research octane 95, mixed with high grade two stroke oil
Oil/gasoline ratio	1 : 40 when using high grade two stroke oil (i.ex. Shell Advance Racing X), when in doubt, please contact xour importer
Lubrication	mixture lubrication
Crankshaft bearing	2 deep-groove ball bearing
Connecting rod bearing	needle bearing
Piston pin bearing	needle bearing
Piston rings	1 compression ring
Primary drive	straight cut spur gears, 23:75 t
Transmission	6 speed, claw actuated
Gear ratio	1st gear 13 : 37 2nd gear 16 : 34 3rd gear 18 : 31 4th gear 21 : 30 5th gear 23 : 28 6th gear 24 : 26
Transmission oil	0.30 liter (0.0792 USgal) engine oil 20W30 (z B. Shell Advance Ultra 4)
Ignition system	contactless controlled ignition (Selettra NW21)
Spark plug	NGK BR 10 EG
Electrode gap	0.60 mm (0.0236 in)
Carburetor	Mikuni VM 24
Coolant	0.55 liter (0.145 Usgal), mixture coolant : water = 2 : 1, at least -25° C (-13° F)
Air filter	wet foam type air filter insert

Art.-No. 321066-E

BASIC CARBURETOR SETTING	
Carburetor	Mikuni VM 24
Main jet	200
Needle jet	N-8
Idling jet	30
Jet needle	5114-3
Needle position from top	III
Throttle valve	2.0
Starting jet	20

TECHNICAL DATA - CHASSIS 65 SX 2001

Frame	single downtube, split-cradle
Fork	telescopic fork (Paioli)
Wheel travel front/rear	200 mm (8 in) / 230 mm (9.2 in)
Rear suspension	central shock absorber (White Power)
Front brake	Disc brake Ø 198 mm (7.8 in), 1 piston
Rear brake	Disc brake Ø 160 mm (6.3 in), 1 piston
Tyres	front: 60/100-14“ rear: 80/100-12“
Air pressure	front / rear: 1.0 bar (14 psi) / 1.0 bar (14 psi)
Fuel tank capacity	3.5 liter (0.92 USgal)
Final drive ratio	12 : 46 t
Chain	1/2 x 1/4" (415) 108 rolls
Steering angle	63.5 °
Wheel base	1128 mm (44.4 in)
Seat height, unloaded	740 mm (29.1 in)
Ground clearance	265 mm (10.4 in)
Dead weight without fuel	52 kg (114.8 lbs)
Rider's body height	max. 160 cm (63 in)
Rider's body weight	max 50 kg (22.7 lbs)
Recommended age of rider	8 to 12 years
Engine	CR-65

STANDARD ADJUSTMENT – FORK	
Spring	2.91 N/mm
Preload bushing - length	80 mm
Fork oil	SAE 7.5

STANDARD ADJUSTMENT - SHOCK ABSORBER	
	WP 0318U706
Compression adjuster	3
Rebound adjuster	6
Spring	40-220
Spring preload	7mm (0.3 in)

TECHNICAL SPECIFICATIONS - ENGINE 65 SX 2002

Engine	CR-65
Design	Liquid cooled single cylinder two-stroke engine with reed valve intake
Displacement	63.58 ccm
Bore/stroke	45 / 40 mm (1.77/1.57 in)
Compression ratio	9.1 : 1
Fuel	SUPER fuel, research octane no 95, mixed with high grade two stroke oil
Oil/gasoline ratio	1 : 40 when using high grade two stroke oil (i.ex. Shell Advance Racing X), when in doubt, please contact our importer
Lubrication	mixture lubrication
Crankshaft bearing	2 deep-groove ball bearing
Connecting rod bearing	needle bearing
Piston pin bearing	needle bearing
Piston rings	1 compression ring
Primary drive	straight cut spur gears, 23:75 t
Clutch	multiple disc clutch in oil bath, hydraulic operated (Shell HF-E15)
Transmission	6 speed, claw actuatedGear ratio 1st gear 13 : 37 2nd gear 16 : 34 3rd gear 18 : 31 4th gear 21 : 30 5th gear 23 : 28 6th gear 24 : 26
Transmission oil	0.30 liter (0.0792 USgal) engine oil 20W-40 (z B. Shell Advance Ultra 4)
Ignition system	contactless controlled ignition (Selettra NW21)
Spark plug	NGK BR 8 ECM
Electrode gap	0.60 mm (0.0236 in)
Carburetor	Mikuni VM 24
Coolant	0,55 liter (0.145 Usgal), mixture coolant : water = 2 : 1, at least -25° C (-13° F)
Air filter	wet foam type air filter insert

BASIC CARBURETOR SETTING	
Carburetor	Mikuni VM 24
Main jet	200
Needle jet	N-8
Idling jet	30
Jet needle	5114-3
Needle position from top	III
Throttle valve	2.0
Starting jet	20

Art.-No. 321066-E

TECHNICAL SPECIFICATIONS – CHASSIS 65 SX 2002

Frame	Central chrome-moly-steel frame
Fork	telescopic fork (Marzocchi USD Ø 35)
Wheel travel front/rear	220 mm (8.7 in) / 270 mm (10.7 in)
Rear suspension	central shock absorber (White Power)
Front brake	Disc brake Ø 200 mm (7.9 in), 1 piston
Rear brake	Disc brake Ø 160 mm (6.3 in), 1 piston
Tyres	front: 60/100-14“ rear: 80/100-12“
Air pressure	front / rear: 1.0 bar (14 psi) / 1.0 bar (14 psi)
Fuel tank capacity	3.4 liter (0.92 USgal)
Final drive ratio	14 : 50 t
Chain	1/2 x 1/4" (415) 108 rolls
Steering angle	63.8 °
Wheel base	1137 mm (44.7 in)
Seat height, unloaded	750 mm (30 in)
Ground clearance	290 mm (11.5 in)
Dead weight without fuel	55 kg (121.4 lbs)
Rider's body height	max. 160 cm (63 in)
Rider's body weight	max 50 kg (22.7 lbs)
Recommended age of rider	8 to 12 years
Engine	CR 65

STANDARD ADJUSTMENT – FORK	
Spring	3.14 N/mm
Preload bushing - length	10 mm
Oil capadity per fork leg	210 ccm
Fork oil	SAE 7.5

STANDARD ADJUSTMENT - SHOCK ABSORBER	
	WP 0318W708
Compression adjuster	3
Rebound adjuster	6
Spring	40-220
Spring preload	7 mm (0.3 in)

TECHNICAL SPECIFICATIONS - ENGINE 65 SX 2003

Engine	CR-65
Design	Liquid cooled single cylinder two-stroke engine with reed valve intake
Displacement	64.85 ccm
Bore/stroke	45 / 40.8 mm (1.77/1.6 in)
Compression ratio	9.1 : 1
Fuel	SUPER fuel, research octane no 95, mixed with high grade two-stroke oil
Oil/gasoline ratio	1 : 40 when using high grade two-stroke oil (e.g. Shell Advance Racing X), when in doubt, please contact our importer
Lubrication	mixture lubrication
Crankshaft bearing	2 deep-groove ball bearing
Connecting rod bearing	needle bearing
Piston pin bearing	needle bearing
Piston rings	1 compression ring
Primary drive	straight cut spur gears, 23:75 t
Clutch	multiple disc clutch in oil bath, hydraulic operated (Shell HF-E15)
Transmission	6 speed, claw actuated
Gear ratio	1st gear 13 : 37 2nd gear 16 : 34 3rd gear 18 : 31 4th gear 21 : 30 5th gear 23 : 28 6th gear 24 : 26
Transmission oil	0.30 liter (0.0792 USgal) gear oil 20W30 (e.g. Shell Advance Ultra 4)
Ignition system	Moric Digital 2M1
Spark plug	NGK BR 8 ECM
Electrode gap	0.60 mm (0.0236 in)
Carburetor	Mikuni VM 24
Coolant	0.55 liter (0.145 Usgal), mixture coolant : water = 2 : 1, at least -25° C (-13° F)
Air filter	wet foam type air filter insert

BASIC CARBURETOR SETTING	
Carburetor	Mikuni VM 24
Main jet	200
Needle jet	N-8
Idling jet	30
Jet needle	5114-3
Needle position from top	III
Throttle valve	2.0
Starting jet	20

TECHNICAL SPECIFICATIONS – CHASSIS 65 SX 2003

Frame	Central chrome-moly-steel frame
Fork	telescopic fork (Marzocchi USD Ø 35)
Wheel travel front/rear	220 mm (8.7 in) / 270 mm (10.7 in)
Rear suspension	central shock absorber (White Power)
Front brake	Disc brake Ø 200 mm (7.9 in), 1 piston
Rear brake	Disc brake Ø 160 mm (6.3 in), 1 piston
Tires	front: 60/100-14“ rear: 80/100-12“
Air pressure	front / rear: 1.0 bar (14 psi) / 1.0 bar (14 psi)
Fuel tank capacity	3.4 liter (0.92 USgal)
Final drive ratio	14 : 50 t
Chain	1/2 x 1/4" (415) 108 rolls
Steering angle	63.8 °
Wheel base	1137 mm (44.7 in)
Seat height, unloaded	750 mm (30 in)
Ground clearance	290 mm (11.5 in)
Dead weight without fuel	55 kg (121.4 lbs)
Rider's body height	max. 160 cm (63 in)
Rider's body weight	max 50 kg (22.7 lbs)
Recommended age of rider	8 to 12 years
Engine	CR 65

STANDARD ADJUSTMENT – FORK	
Spring	3.14 N/mm
Preload bushing - length	10 mm
Oil capacity per fork leg	210 ccm
Fork oil	SAE 7.5

STANDARD ADJUSTMENT - SHOCK ABSORBER	
	WP 0318X713
Compression adjuster	3
Rebound adjuster	6
Spring	40-220
Spring preload	7mm (0.3 in)

TOLERANCES AND FITTING CLEARANCES			
Crankshaft	run out of crank stud	max. 0.050 mm	0.00196 in
Conrod bearing	radial play	max. 0.030 mm	0.00118 in
Piston pin bearing	radial play	max. 0.030 mm	0.00118 in
Piston	fitting clearance	min. 0.055 mm	0.00216 in
Piston ring	end gap	max. 0.20 mm	0.00780 in
Clutch springs	length min.	25 mm (new 27 mm)	0.98 in (new 1.06 in)
Clutch discs	thickness	min 1.8 mm	0.0708 in
Transmission shafts	end float	0.10 - 0.20 mm	0.00394 – 0.00787 in

TIGHTENING TORQUES - ENGINE		
Hexagon nut – primary gear	M14x1.25	Loctite 243 + 40 Nm/30 ft.lb
Hexagon nut – primary gear	M10	Loctite 243 + 60 Nm/44 ft.lb
Collar nut – flywheel	M10x1.25/M12x1	33 Nm/30 ft.lb
HH bolt – cylinder head	M 7	18 Nm/11 ft.lb
Collar nut – cylinder base	M8	25 Nm/19 ft.lb
Hexagon bolt – inner clutch hub	M10	Loctite 243 + 60 Nm/44 ft.lb
Bolt – clutch	M6	12 Nm/9 ft.lb
Oil drain plug	M8	15 Nm/11ft.lb
Bolts – clutch cover	M6	8 Nm/6 ft.lb
Kickstarter stop plate	M6	Loctite 243 + 13 Nm/10 ft.lb
Screws – stator	M4	Loctite 243 + 2 Nm/1,5 ft.lb
AH bolts – stator	M5	Loctite 243 + 6 Nm/4,5 ft.lb
Shift drum locating device	M6	Loctite 243 + 14 Nm/11 ft.lb
Other bolts – engine	M5 M6	6 Nm/4.5 ft.lb 10 Nm/7 ft.lb

TIGHTENING TORQUES - CHASSIS		
Hexagon bolt - brake caliper front	M8	Loctite 243 + 20 Nm/15 ft.lb.
Flat head bolt - brake discs	M6	Loctite 243 + 10 Nm/7 ft.lb.
Hexagon nut - front wheel spindle	M10	30 Nm/22 ft.lb.
Hexagon nut - front wheel spindle	M12x1	50 Nm/37 ft.lb.
Hexagon nut - rear wheel spindle	M12x1	50 Nm/37 ft.lb.
Hexagon nut - swingarm bolt	M12x1	40 Nm/30 ft.lb.
Clamping bolts - top triple clamp	M8	20 Nm/15 ft.lb.
Clamping bolts - bottom triple clamp	M8	15 Nm/11 ft.lb.
Clamping bolts - front wheel axle clamp	M6	10 Nm/7 ft.lb.
AH bolt - handlebar clamp	M8	20 Nm/15 ft.lb.
Hexagon bolt - handlebar clamp	M8	20 Nm/15 ft.lb.
AH bolt - handlebar support	M10	Loctite 243 + 40 Nm/30 ft.lb.
Hexagon nut fork tube	M20x1.5	10 Nm/7 ft.lb.
Hexagon bolt - shock absorber top/bottom	M10	45 Nm/33 ft.lb.
Sprocket bolts	M8	Loctite 243 + 35 Nm/26 ft.lb.
Ball joint for push rod	M6	Loctite 243 + 10 Nm/7 ft.lb.
Tire holder	M8	5 Nm/4 ft.lb.
Spoke nipple	M3.5	3-4 Nm/4-5.5 ft.lb.
Other bolts chassis	M5 M6 M8 M10	6 Nm/4.5 ft.lb. 10 Nm/7 ft.lb. 25 Nm/18 ft.lb. 40 Nm/30 ft.lb.

PERIODIC MAINTENANCE SCHEDULE 9

INDEX

Art.-No. 321066-E

PERIODIC MAINTENANCE SCHEDULE 60 SX + 65 SX	KTM rider		KTM dealer	
2.98	before each start	after washing	Service after 20 hours	once a year
Check transmission oil level	●		●	
Change transmission oil				●
Check spark plug and electrode gap			●	
Check carburetor for tight fit on the intake flange		●	●	
Check intake manifold for leaks and cracks	●			
Drain and clean carburetor float chamber		●		●
Check idle setting when engine is warm			●	
Check air filter, filter box and filter boot		●		●
Check sprockets, chain guides and chain for wear		●	●	
Clean and lube chain		●	●	
Check chain tension	●		●	
Check coolant level	●		●	●
Check quality of antifreeze				●
Check cooling system for leaks - visual inspection	●		●	●
Check exhaust system for leaks			●	
Check exhaust brackets		●	●	
Check brake fluid level	●		●	●
Change brake fluid				●
Check brake lining thickness (rear)			●	●
Check thickness of disc brake pads (front)	●		●	●
Check brake drum and brake disc			●	
Check freeplay and operation of hand brake lever and foot brake lever	●		●	
Inspect condition and installation of brake hose	●		●	●
Check fork for function and tightness		●	●	
Service front fork completely				●
Check steering head bearing clearance / adjust		●	●	
Clean and grease steering head bearings				●
Check shock absorber for function and tightness	●		●	
Check bearings of swingarm for play			●	
Clean and grease bearings of swingarm				●
Check tightness of spokes and rim join	●		●	
Check wheel bearings for clearance		●	●	
Check tire condition and air pressure	●		●	
Check cables for damage, correct instalment and easy working	●		●	
Lube and adjust cables		●	●	
Check all screws, nuts and hose clamps for proper tightness	●		●	
Grease or lube all pivot points and sliding components		●	●	

Art.-No. 321066-E

PERIODIC MAINTENANCE SCHEDULE 2001

65 SX

	A washed motorcycle can be checked more quickly which saves money!	Service every 20 hours	once a year
ENGINE	Check transmission oil level		
	Change transmission oil		
	Check spark plug, change it if necessary, set electrode gap		
CARBURETOR	Check carburetor for tight fit at intake flange		
	Check intake flange for cracks		
	Check idle setting when engine is warm		
ADD-ON-PARTS	Check cooling system for leaks, antifreeze protection		
	Check exhaust system for leaks and suspension		
	Check actuating cables for damage, smooth operation, and kink-less arrangement, and adjust and lubricate		
	Clean air filter and air filter box		
BRAKES	Check brake fluid level, lining thickness, brake discs		
	Check brake lines for damage and leaks		
	Check/adjust smooth operation, free travel of handbrake levers		
	Check screws of brake system for tight fit		
CHASSIS	Check suspension strut and fork for leaks and proper function		
	Check swinging-fork pivot		
	Check/adjust steering-head bearing		
	Check all chassis screws for tight fit (fork plates, axle nuts, swinging-fork pivot, suspension strut)		
WHEELS	Check spoke tension and rim joint		
	Check tire condition and inflation pressure		
	Check chain, chain wheels, chain wheel guides for wear, tight fit, and tension		
	Lubricate chain		
	Check wheel bearings for play		

IMPORTANT RECOMMENDED MAINTENANCE PROCEDURES TO BE PERFORMED BASED ON A SEPARATE SUPPLEMENTARY ORDER

	once a year
Drain and clean the carburetor's float chamber	
Perform complete fork maintenance	
Perform complete suspension strut maintenance	
Clean and lubricate the swinging-arm bearing	
Clean and lubricate the steering-head bearing and sealing elements	
Change brake fluid	

MAINTENANCE WORK DONE BY KTM AUTHORISED WORKSHOPS IS NOT A SUBSTITUTE OF CARE AND CHECKS DONE BY THE RIDER!

VITAL CHECKS AND CARE PROCEDURES TO BE CONDUCTED BY THE OWNER OR THE MECHANIC

	before each start	after every cleaning	for cross country use	once a year
Check transmission oil level				
Check coolant level				
Check brake fluid level				
Check brake pads for wear				
Check brake performance				
Lubricate and adjust actuating cables and nipples				
Remove and clean dust sleeves of telescopic fork in regular intervals				
Clean and lubricate chain, check tension and readjust it if necessary				
Clean air filter and filter box				
Check tire inflation pressure and wear				
Check fuel line for leaks				
Drain and clean float chamber				
Verify smooth operation of all controls				
Treat exposed metal components (except for the brake and exhaust systems) with wax-based anti-corrosion agents				
Check all bolts, nuts, and hose clamps for their tight fit in regular intervals				

Art.-No. 321066-E

PERIODIC MAINTENANCE SCHEDULE 2002

65 SX

	A washed motorcycle can be checked more quickly which saves money!	Service every 20 hours	once a year
ENGINE	Check transmission oil level		
	Change transmission oil		
	Check spark plug, change it if necessary, set electrode gap		
CARBURETOR	Check carburetor for tight fit at intake flange		
	Check the intake flange and carburetor connection boot for cracks and tightness		
	Check idle setting when engine is warm		
	Check the bleeder hose for damage, kink-free installation and passage		
ADD-ON-PARTS	Check cooling system for leaks, antifreeze protection		
	Check exhaust system for leaks and suspension		
	Check actuating cables for damage, smooth operation, and kink-less arrangement, and adjust and lubricate		
	Check oil level of the clutch master cylinder		
	Clean air filter and air filter box		
BREAKS	Check brake fluid level, lining thickness, brake discs		
	Check brake lines for damage and leaks		
	Check/adjust smooth operation, free travel of handbrake levers		
	Check screws of brake system for tight fit		
CHASSIS	Check suspension strut and fork for leaks and proper function		
	Clean dust bellows		
	Bleed fork legs		
	Check swinging-fork pivot		
	Check/adjust steering-head bearing		
	Check all chassis screws for tight fit (fork plates, axle nuts, swinging-fork pivot, suspension strut)		
WHEELS	Scheck spoke tension and rim join		
	Check tire condition and inflation pressure		
	Check chain, chain wheels, chain wheel guides for wear, tight fit, and tension		
	Lubricate chain		
	Check wheel bearings for play		

IMPORTANT RECOMMENDED MAINTENANCE PROCEDURES TO BE PERFORMED BASED ON A SEPARATE SUPPLEMENTARY ORDER

	once a year
Perform complete fork maintenance	
Perform complete suspension strut maintenance	
Clean and lubricate the swinging-arm bearing	
Clean and lubricate the steering-head bearing and sealing elements	
Clean and adjust carburator	
Change hydrulic clutch fluid	
Change brake fluid	

MAINTENANCE WORK DONE BY KTM AUTHORISED WORKSHOPS IS NOT A SUBSTITUTE OF CARE AND CHECKS DONE BY THE RIDER!

VITAL CHECKS AND CARE PROCEDURES TO BE CONDUCTED BY THE OWNER OR THE MECHANIC

	before each start	after every cleaning	for cross country use	once a year
Check transmission oil level				
Check coolant level				
Check brake fluid level				
Check brake pads for wear				
Check brake performance				
Lubricate and adjust actuating gascable and nipples				
Remove and clean dust sleeves of telescopic fork in regular intervals				
Bleed fork legs regulary				
Clean and lubricate chain, check tension and readjust it if necessary				
Clean air filter and filter box				
Check tire inflation pressure and wear				
Check fuel line for leaks				
Drain and clean float chamber				
Verify smooth operation of all controls				
Treat exposed metal components (except for the brake and exhaust systems) with wax-based anti-corrosion agents				
Treat all electric plug-in connections with contact spray				
Check all screws, nuts, and hose clamps for their tight fit in regular intervals				

PERIODIC MAINTENANCE SCHEDULE 2003

65 SX

	A clean motorcycle can be checked more quickly which saves money!	Service every 20 hours	once a year
ENGINE	Check transmission oil level		
	Change transmission oil		
	Check spark plug, change it if necessary, set electrode gap		
CARBURETOR	Check carburetor for a tight fit at intake flange		
	Check the intake flange and carburetor connection boot for cracks and tightness		
	Check idle setting when engine is warm		
	Check the bleeder hose for damage, kinkless installation and passage		
ADD-ON-PARTS	Check cooling system for leaks, antifreeze protection		
	Check exhaust system for leaks and suspension		
	Check actuating cables for damage, smooth operation, and kinkless arrangement, and adjust and lubricate		
	Check oil level of the clutch master cylinder		
	Clean air filter and air filter box		
BREAKS	Check brake fluid level, lining thickness, brake discs		
	Check brake lines for damage and leaks		
	Check functiuon/adjust smooth operation, free travel of handbrake levers		
	Check screws of brake system for a tight fit		
CHASSIS	Check suspension strut and fork for leaks and a proper function		
	Clean dust bellows		
	Bleed fork legs		
	Check swinging-fork pivot		
	Check/adjust steering-head bearing		
	Check all chassis screws for a tight fit (fork plates, axle nuts, swinging-fork pivot, suspension strut)		
WHEELS	Check spoke tension and rim joint		
	Check tire condition and inflation pressure		
	Check chain, chain wheels, chain wheel, chain joint guides for wear, tight fit, and tension		
	Lubricate chain		
	Check wheel bearings for play		

IMPORTANT RECOMMENDED MAINTENANCE PROCEDURES TO BE PERFORMED BASED ON A SEPARATE SUPPLEMENTARY ORDER

	once a year
Perform complete fork maintenance	
Perform complete suspension strut maintenance	
Clean and lubricate the swinging-arm bearing	
Clean and lubricate the steering-head bearing and sealing elements	
Clean and adjust carburator	
Change hydrulic clutch fluid	
Change brake fluid	

MAINTENANCE WORK DONE BY KTM AUTHORISED WORKSHOPS IS NOT A SUBSTITUTE FOR CARE AND CHECKS DONE BY THE RIDER!

VITAL CHECKS AND CARE PROCEDURES TO BE CONDUCTED BY THE OWNER OR THE MECHANIC

	before each start	after every cleaning	for cross country use	once a year
Check transmission oil level				
Check coolant level				
Check brake fluid level				
Check brake pads for wear				
Check brake performance				
Lubricate and adjust actuating ga scable and nipples				
Remove and clean dust sleeves of telescopic fork at regular intervals				
Bleed fork legs regularly				
Clean and lubricate chain, check tension and readjust it if necessary				
Clean air filter and filter box				
Check tire inflation pressure and wear				
Check fuel line for leaks				
Drain and clean float chamber				
Verify smooth operation of all controls				
Treat exposed metal components (except for the brake and exhaust systems) with wax-based anti-corrosion agents				
Treat all electric plug-in connections with contact spray				
Check all screws, nuts, and hose clamps for their tight fit at regular intervals				

RECOMMENDED INSPECTION OF THE 65 SX ENGINE BY YOUR KTM WORKSHOP (ADDITIONAL ORDER FOR THE KTM'S WORKSHOP)

	30 hours	45 hours	60 hours	90 hours	120 hours	135 hours
Check the reed-type intake valve for wear						
Check the clutch shoes for wear						
Check the length of the clutch springs						
Check the cylinder and piston for wear						
Check the eccentricity of the crankshaft journal						
Check the radial clearance of the conrod bearings						
Check the radial clearance of the piston pin main bearing						
Check the crankshaft main bearing for wear						
Replace the crankshaft bearings and conrod bearings						
Check the entire transmission including roller and bearings for wear						

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