

# REPAIR MANUAL 2004-2006

**250/300**

**SX, SXS, MXC, EXC**

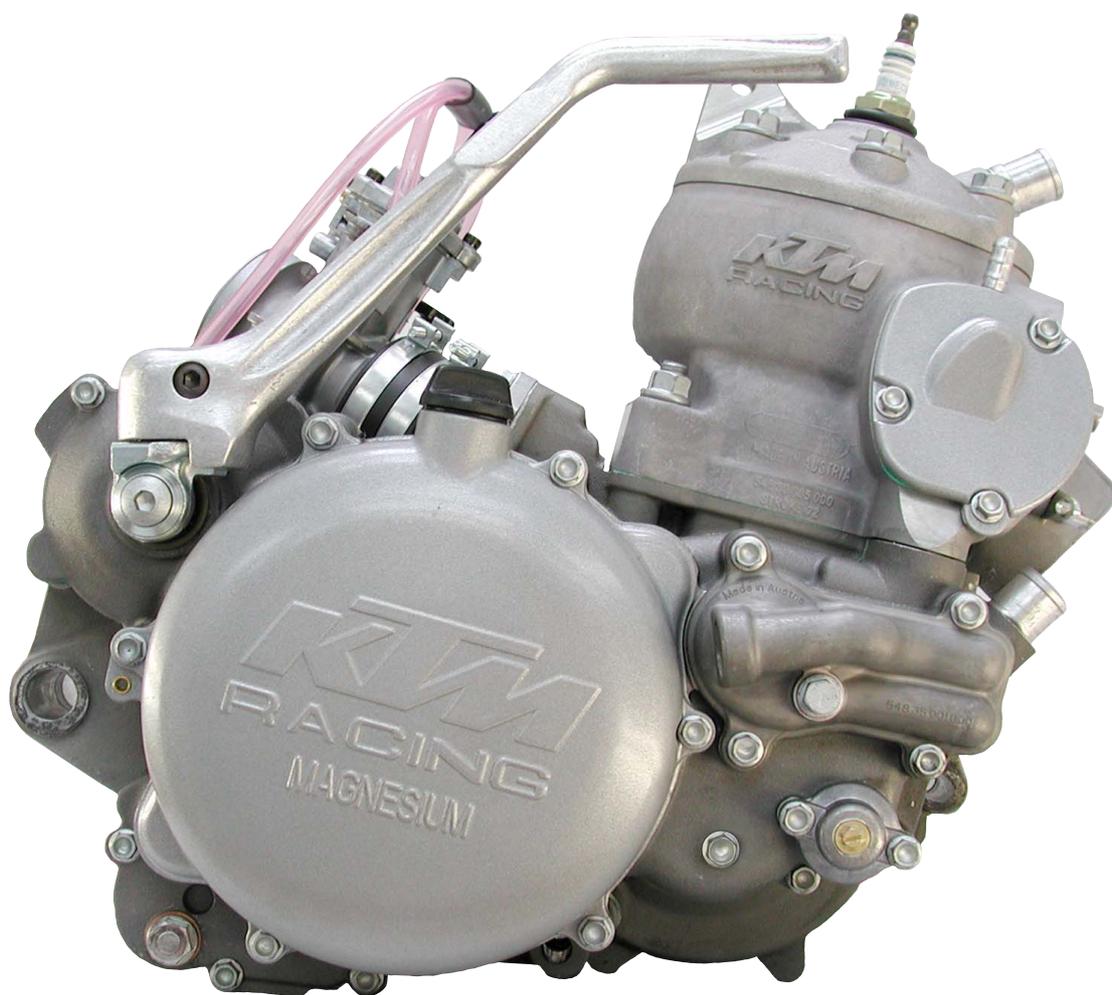
**EXC SIX DAYS, XC, XC-W**

REPARATURANLEITUNG

MANUALE DI RIPARAZIONE

MANUEL DE REPARATION

MANUAL DE REPARACION



Art.NR.: 3.206.032-E

**KTM**



**REPAIRMANUAL2004-2006**  
250/300  
SX, SXS, MXC, EXC, EXC SIX DAYS, XC, XC-W



KTM Group Partner





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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:

**1,3,7,9,13,15-22,27,29,31,33,38,41,47-50,54,57,61,63-69,71,80-85,87,  
90-96,101,103-119,121,123,126-127,129-159**

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Art.- Nr. 3.206.032-E

Repair manual KTM 250 / 300

## 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 at 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  
 For example: All pages with a page number that begins with the digit 3, 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

<b>3.206.011-E</b>	<b>Repair Manual 250/300 SX, MXC, EXC</b> Basic version Model year 2004 (Engine number with first digit "4")	<b>7/2003</b>
<b>3.206.022-E</b>	<b>Update of Rep.Manual 3.206.011-E</b> Model year 2005 (Engine number with first digit "5")	<b>5/2004</b>
<b>3.206.032-E</b>	<b>Update of Rep.Manual 3.206.011-E</b> Model year 2006 (Engine number with first digit "6")	<b>11/2005</b>

**Modification / Updating:**

**Technical Details Model 2006, Bleeding the hydraulic clutch,  
Changing the brake fluid, Technical Specifications, tightening torques,  
Periodic Maintenance Schedule**



## INTRODUCTION

This repair manual offers extensive 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 procedures common in workshops 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 professionally trained mechanics.

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

△                      **WARNING**                      △

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

!                      **CAUTION**                      !

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

**“NOTE“ POINTS OUT USEFUL TIPS.**

Use only ORIGINAL KTM SPARE PARTS.

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



REG.NO. 12 100 6061

In accordance with the international quality management ISO 9001 standard, KTM uses quality assurance processes that lead to the highest possible product quality.

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## 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 manuals - 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:**

- Enter the complete item no. for the repair manual in column 1 (e.g.: **3.206.032-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.: **5-7**) 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):

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Name mechanic/shop foreman

Company/work shop



# GENERAL INFORMATION

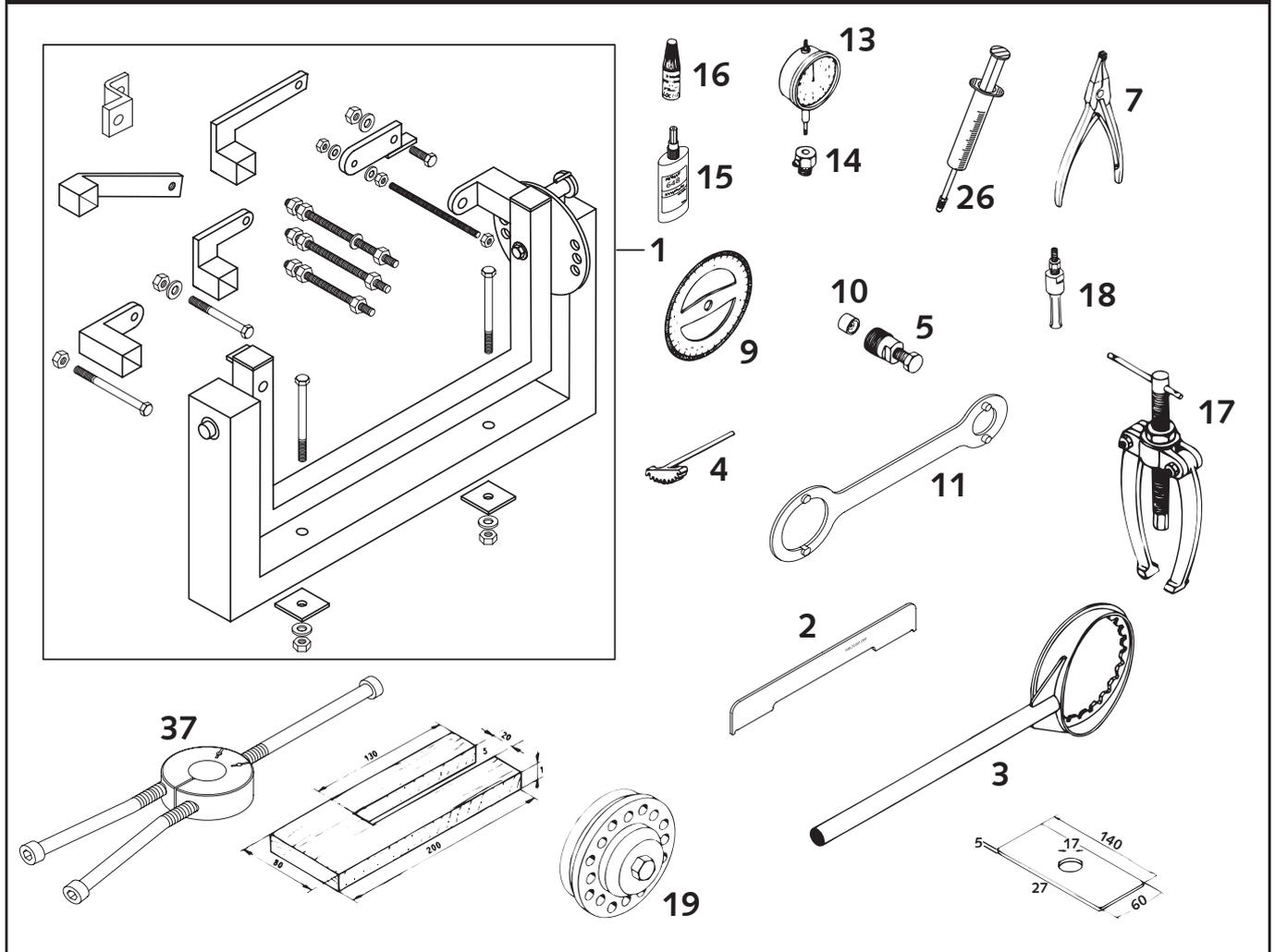
# 2

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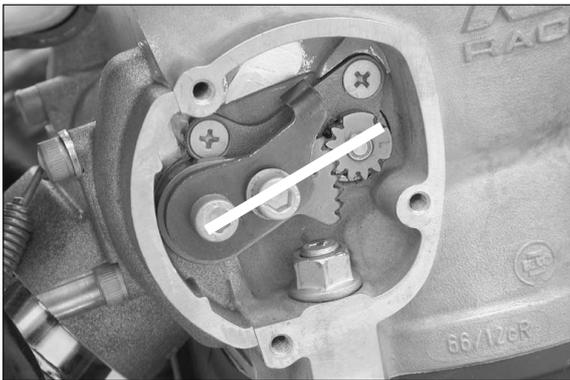
## SPECIAL TOOLS - ENGINE 250 / 300



Art.- Nr. 3.206.032-E

Repair manual KTM 250 / 300

Fig.	Part no.	Description
1	560.12.001.000	Universal engine work stand
2	548.29.001.000	Adjusting plate "dimension X"
3	546.29.003.000	Clutch holder
4	560.12.004.000	Gear wheel segment
5	546.29.009.044	Magneto extractor M 27x1
7	510.12.011.000	Circlip pliers
10	510.12.016.000	Protection cap
11	546.29.012.100	Holding spanner for flywheel
13	501.12.013.000	Dial gauge 0-10 mm
14	501.12.030.000	Dial gauge support
15	584.29.059.000	Loctite 648 green 24 ccm
16	6 899 785	Loctite 243 blue 6 ccm
17	151.12.017.000	Bearing puller
18	151.12.018.100	Internal bearing puller 18-23 mm
18	151.12.018.000	Internal bearing puller 12-16 mm
18	151.12.018.200	Internal bearing puller 5-7 mm
19	546.29.027.000	Clutch rivetting tool
26	503.29.050.000	Vent syringe for hydraulic clutch
37	584.29.037.043	Mounting tool inner ring NJ 207



### Checking the setting of the TVC system

The function of the TVC system is checked with the engine running. This test checks the start of advance and the end of advance.

- To do this, remove the left control cover.
- Connect a rev counter (either to the ignition cable or to the cable in the electronics box, depending on the rev counter design).
- Start engine, accelerate gently and observe when the TVC system starts to advance (tooth segment creeps upwards).

model 2004/2005	start of advance	end of advance
model 300 2006		
hard spring (green)	5200 rpm	7900 rpm
middle spring (yellow)	5200 rpm	7500 rpm
soft spring (red)	5200 rpm	7000 rpm

model 250 2006	start of advance	end of advance
hard spring (green)	5500 rpm	7900 rpm
middle spring (yellow)	5500 rpm	7500 rpm
soft spring (red)	5500 rpm	7000 rpm

- If necessary, turn the adjusting screw **A**. Always note the original position (factory setting) of the adjusting screw to be able to turn it back if necessary.

NOTE: Twisting the adjusting screw in delays the commencement of adjustment by the TVC system, twisting the adjusting screw out means that the TVC system will perform the adjustment earlier.

**! CAUTION !**

SINCE EACH ENGINE IS ADJUSTED FOR MAXIMUM PERFORMANCE ON THE TEST STAND, THE ADJUSTING SCREW SHOULD ONLY BE TURNED OR ADJUSTED IF ITS POSITION IS ACCIDENTALLY CHANGED.

### Engine characteristic

NOTE: The engine characteristic can be modified through various thicknesses of the auxiliary spring **1**. An auxiliary spring designed for "good driveability" (smooth power application) is mounted in the condition at delivery.

One of the auxiliary springs can be mounted if you prefer an "even smoother power application" or an "aggressive engine characteristic".

Auxiliary spring for good driveability (mounted in condition at delivery)  
Spare part number 546.37.072.300, YELLOW color mark

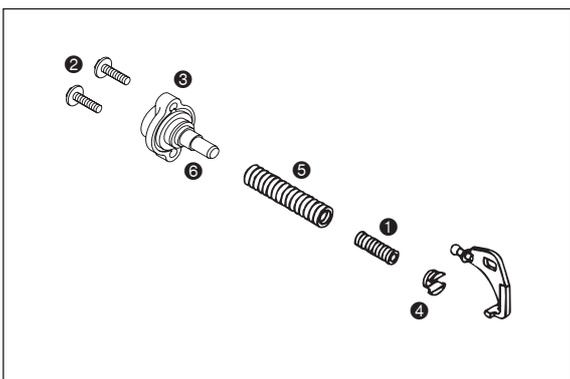
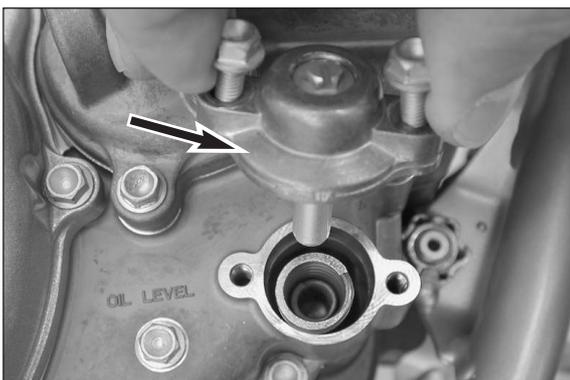
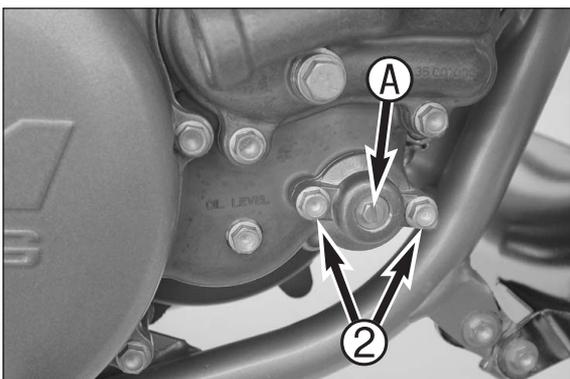
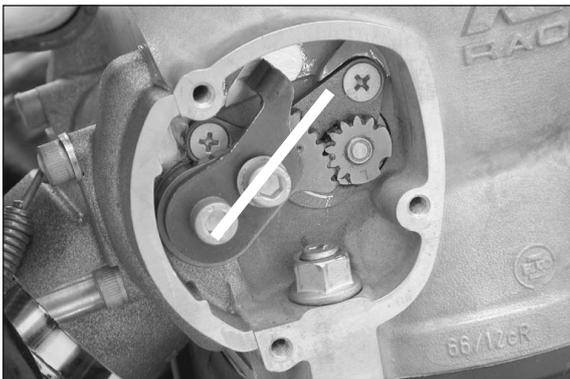
Auxiliary spring for an even smoother power application (included in scope of supply) Spare part number 548.37.072.100, GREEN color mark

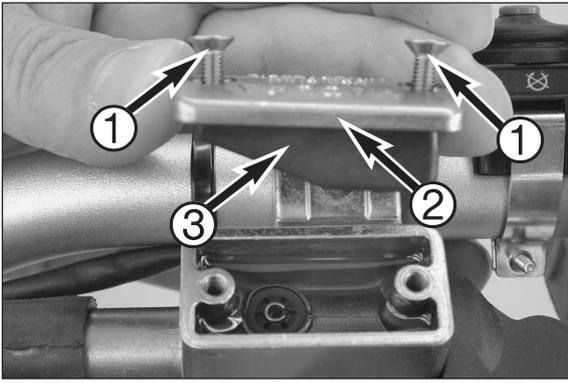
Auxiliary spring for aggressive engine characteristic (included in scope of supply). Spare part number 548.37.072.000, RED color mark

- To mount, tilt the motorcycle approx. 45° to the left, remove both screws **2** lift off the closing cover **3** lift off the closing cover **4** from the clutch cover.
- Pull both springs off the spring insert, mount the desired auxiliary spring **1** and adjusting spring **5** and slide into the clutch cover together until the recess in the spring insert **4** engages in the clutch cover.
- Check the O-ring in the closing cover, mount the closing cover ensuring that the dolly screw **6** engages in the auxiliary spring.

Make sure you do not turn the dolly screw since as will impair the engine characteristic.

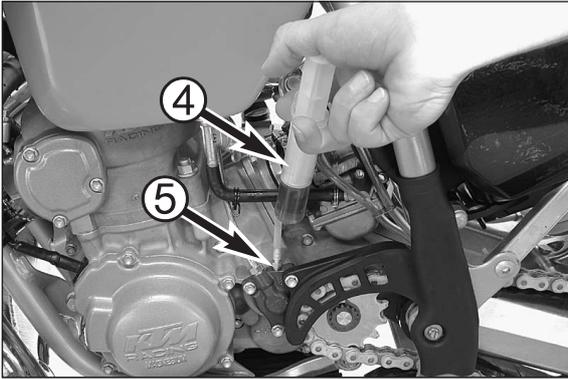
NOTE: If you prefer a smoother engine power application, you can mount a different ignition rotor and a different exhaust. Ask your KTM dealer for more information.



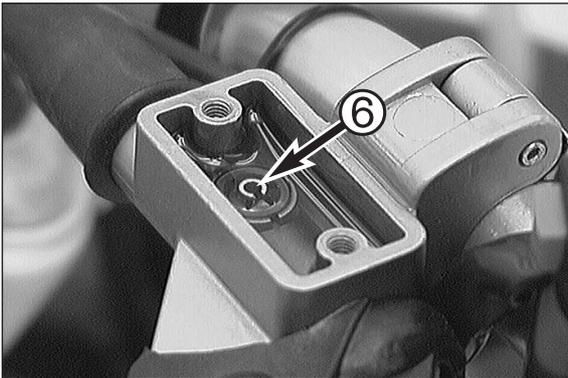


### Bleeding the hydraulic clutch (up to model 2005)

- Turn the handlebar until the master cylinder is in a horizontal position.
- Remove the screws ①, the cover ② and the rubber boot ③.



- Fill the bleeder syringe ④ 503.29.050.000 with a **suitable** fluid (up to model 2005 - Motorex Kupplungs-Fluid 75).
- Remove the bleeder screw ⑤ from the slave cylinder and mount the bleeder syringe ④.



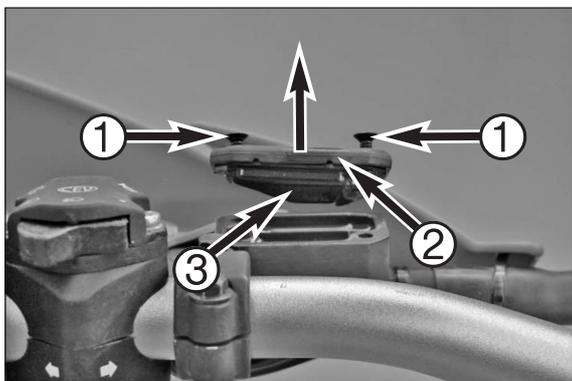
- Press oil into the system until the fluid runs out of the hole ⑥ in the master cylinder without bubbles. Occasionally extract the fluid from the master cylinder reservoir to keep it from overflowing.
- After bleeding, remove the bleeder syringe ④ and mount the bleeder screw ⑤.
- Correct the oil level with the master cylinder in a horizontal position to 4 mm under the upper edge.
- Mount the rubber boot ③ and cover ② with the screws ①.

!

### CAUTION

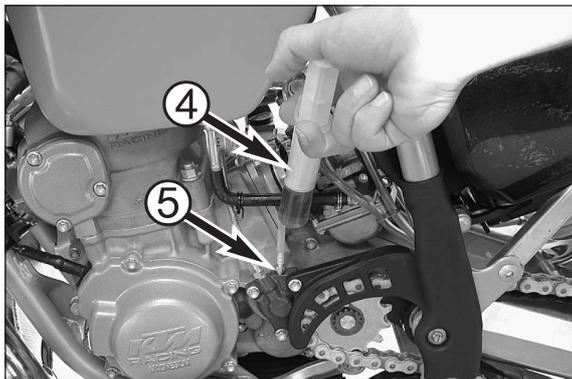
!

- KTM USES BIODEGRADABLE, HYDRAULIC MINERAL OIL TO ACTUATE THE HYDRAULIC CLUTCH **UP TO THE 2005 MODEL**. Do NOT MIX THIS OIL WITH ANY OTHER HYDRAULIC OIL. ALWAYS USE ORIGINAL KTM HYDRAULIC OIL TO MAKE SURE YOUR CLUTCH OPERATES SMOOTHLY. NEVER REFILL WITH BRAKE FLUID.



### Bleeding the hydraulic clutch (as of model 2006)

- Turn the handlebar until the master cylinder is in a horizontal position.
- Remove the screws ①, the cover ② and the rubber boot ③.



- Fill the bleeder syringe ④ 503.29.050.000 with a **suitable** fluid (as of modell 2006 - brake fluid DOT 5.1).
- Remove the bleeder screw ⑤ from the slave cylinder and mount the bleeder syringe ④.



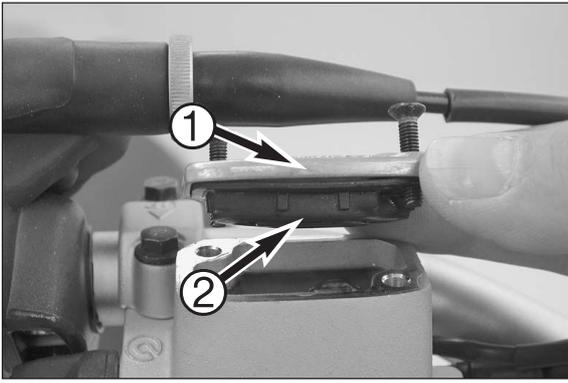
- Press oil into the system until the fluid runs out of the hole ⑥ in the master cylinder without bubbles. Occasionally extract the fluid from the master cylinder reservoir to keep it from overflowing.
- After bleeding, remove the bleeder syringe ④ and mount the bleeder screw ⑤.
- Correct the oil level with the master cylinder in a horizontal position to 4 mm under the upper edge.
- Mount the rubber boot ③ and cover ② with the screws ①.
- Wash off any overflowing or spilled brake fluid with water.

!

### CAUTION

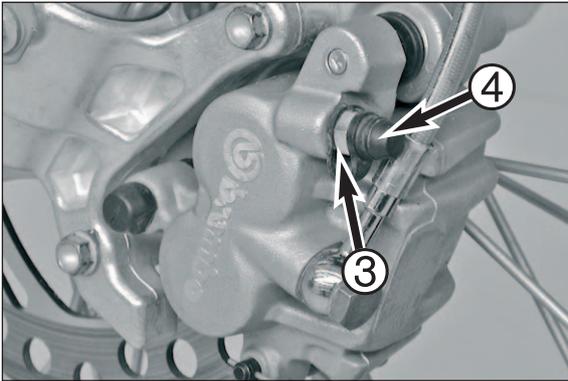
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- BREMBO CLUTCH FITTINGS ARE INSTALLED **STARTING WITH THE 2006 MODEL** AND FILLED WITH DOT 5.1 BRAKE FLUID. TO MAKE SURE THE CLUTCH OPERATES SMOOTHLY, NEVER ADD HYDRAULIC OIL TO THESE SYSTEMS.
- NEVER USE DOT 5 BRAKE FLUID. IT IS BASED ON SILICONE OIL AND DYED PURPLE. GASKETS AND BRAKE HOSES WILL BE DAMAGED IF DOT 5 BRAKE FLUID IS USED.
- BRAKE FLUID CAN CAUSE SKIN IRRITATIONS. AVOID CONTACT WITH THE SKIN OR EYES. IF BRAKE FLUID SPLASHES INTO YOUR EYES, RINSE THOROUGHLY WITH WATER AND CONSULT A DOCTOR.
- MAKE SURE NO BRAKE FLUID COMES INTO CONTACT WITH PAINTED PARTS AS BRAKE FLUID WILL CORRODE THE PAINTWORK!
- ONLY USE CLEAN, NEW BRAKE FLUID FROM TIGHTLY SEALED CONTAINERS.

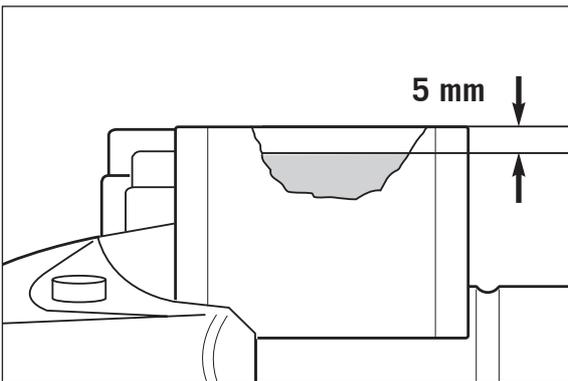


### Changing the front brake fluid

- Move the hand brake cylinder into a horizontal position.
- Disassemble the cover ① together with the rubber boot ② from the brake fluid reservoir.
- Use a syringe to extract the used brake fluid and add fresh DOT 5.1 brake fluid (Motorex Brake Fluid DOT 5.1).



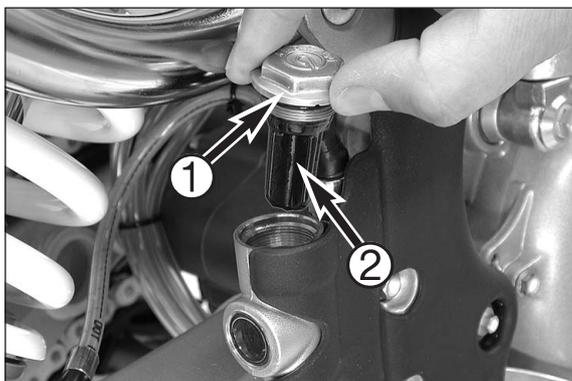
- Use a commercial extractor (shop equipment) to extract the used brake fluid out of the system through the bleeder screw ③ on the brake caliper. Make sure the brake fluid reservoir is always filled with enough fresh brake fluid.
- Tighten the bleeder screw ③ and attach the dust cap ④ again.



- Add DOT 5.1 brake fluid (Motorex Brake Fluid DOT 5.1) up to 5 mm under the top edge of the reservoir. Remount the rubber boot, cover and screws.
- Wash off any overflowing or spilled brake fluid with water.
- Actuate the hand brake lever until you feel the point of pressure.

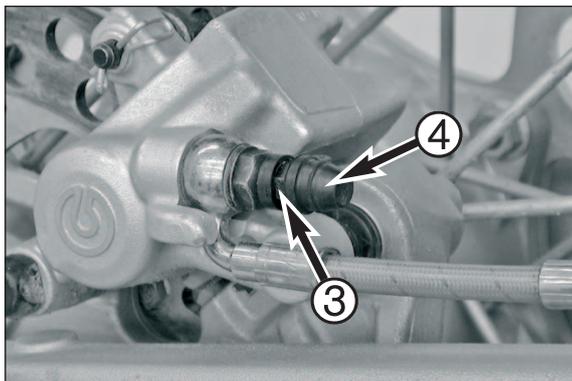
### ! CAUTION !

- NEVER USE DOT 5 BRAKE FLUID. IT IS BASED ON SILICONE OIL AND DYED PURPLE. GASKETS AND BRAKE HOSES WILL BE DAMAGED IF DOT 5 BRAKE FLUID IS USED.
- BRAKE FLUID CAN CAUSE SKIN IRRITATIONS. AVOID CONTACT WITH THE SKIN OR EYES. IF BRAKE FLUID SPLASHES INTO YOUR EYES, RINSE THOROUGHLY WITH WATER AND CONSULT A DOCTOR.
- MAKE SURE NO BRAKE FLUID COMES INTO CONTACT WITH PAINTED PARTS AS BRAKE FLUID WILL CORRODE THE PAINTWORK!
- ONLY USE CLEAN, NEW BRAKE FLUID FROM TIGHTLY SEALED CONTAINERS.



### Changing the rear brake fluid

- Move the vehicle into a vertical position.
- Disassemble the screw cap ❶ together with the rubber boot ❷ from the brake fluid reservoir.
- Use a syringe to extract the used brake fluid and fill with fresh DOT 5.1 brake fluid (Motorex Brake Fluid DOT 5.1).



- Use a commercial extractor (shop equipment) to extract the used brake fluid out of the system through the bleeder screw ❸ on the brake caliper. Make sure the brake fluid reservoir is always filled with enough fresh brake fluid.
- Tighten the bleeder screw ❸ and attach the dust cap ❹ again.



- Fill with DOT5.1 brake fluid (Motorex Brake Fluid DOT 5.1) up to the mark A on the inside of the reservoir.
- Check the O-ring of the screw cap for damage, exchange it if necessary and remount the screw cap again.
- Wash off any overflowing or spilled brake fluid with water.
- Press the foot brake pedal until you feel the point of pressure.

!

### CAUTION

!

- NEVER USE DOT 5 BRAKE FLUID. IT IS BASED ON SILICONE OIL AND DYED PURPLE. GASKETS AND BRAKE HOSES WILL BE DAMAGED IF DOT 5 BRAKE FLUID IS USED.
- BRAKE FLUID CAN CAUSE SKIN IRRITATIONS. AVOID CONTACT WITH THE SKIN OR EYES. IF BRAKE FLUID SPLASHES INTO YOUR EYES, RINSE THOROUGHLY WITH WATER AND CONSULT A DOCTOR.
- MAKE SURE NO BRAKE FLUID COMES INTO CONTACT WITH PAINTED PARTS AS BRAKE FLUID WILL CORRODE THE PAINTWORK!
- ONLY USE CLEAN, NEW BRAKE FLUID FROM TIGHTLY SEALED CONTAINERS.

### Checking brake pads and brake disks

- See Owner's Manual

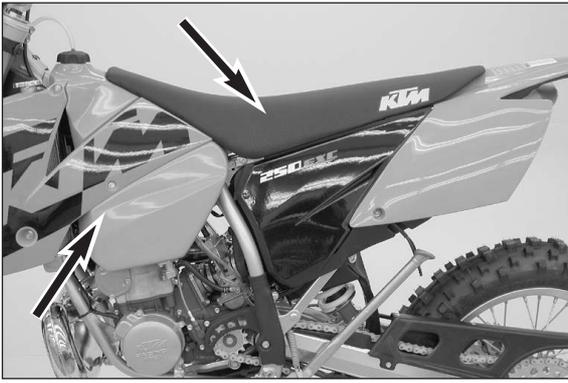
# REMOVING AND REFITTING ENGINE

# 3

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<b>REFITTING THE ENGINE</b> .....	<b>3-4</b>

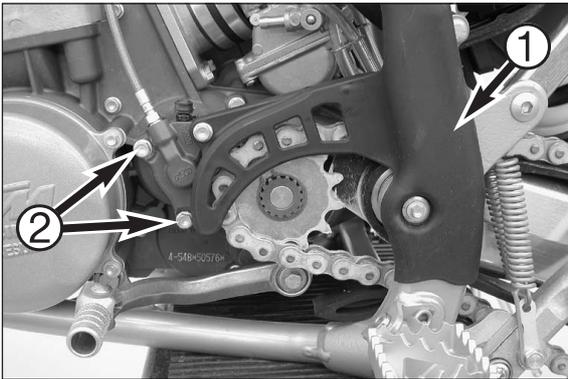




## Removing the engine

NOTE: The cylinder head and the cylinder can be dismantled even if the engine remains mounted. Likewise, work on the clutch, primary drive, gearshift mechanism, and ignition system can also be carried out.

- Clean the motorcycle thoroughly.
- Jack up the motorcycle on a suitable stand and allow the engine oil to drain.
- Remove the seat and the tank with the spoilers.



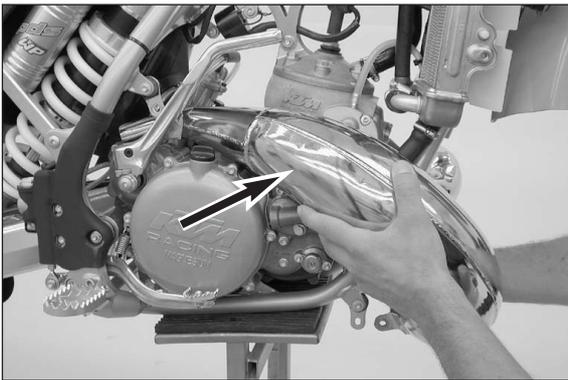
- Remove the sprocket cover **1** and the chain.
- Remove the 2 screws **2**, and dismount the clutch slave cylinder.

!

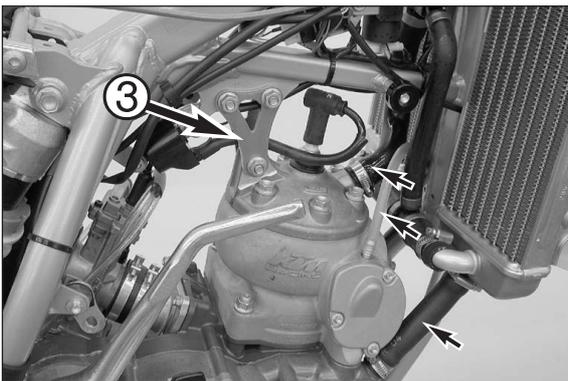
**CAUTION**

!

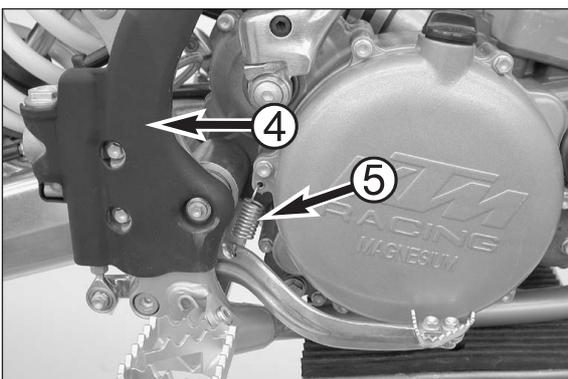
Do NOT ACTUATE THE CLUTCH LEVER WITH THE CLUTCH SLAVE CYLINDER DISMOUNTED.



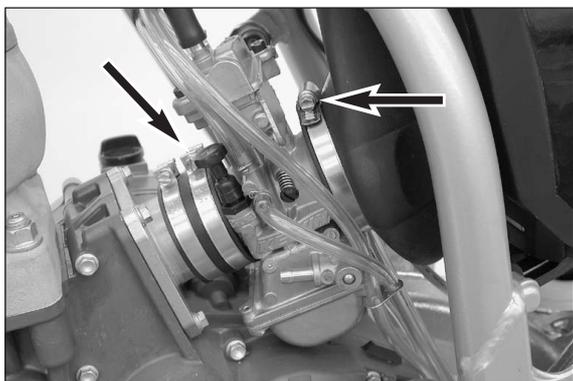
- Dismount the exhaust system.



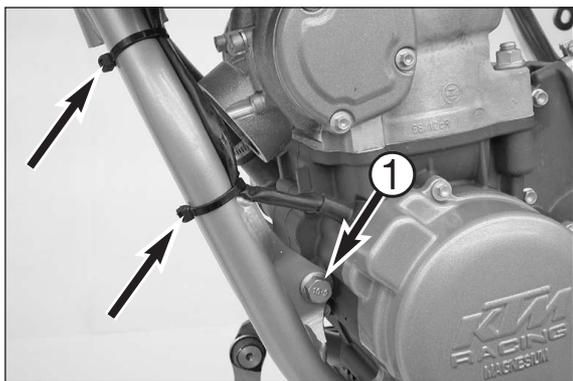
- Drain the coolant, and disconnect the radiator hoses from the engine.
- Dismount the engine strut **3**.
- Disconnect the plug-and-socket connector of the ignition system and spark-plug connector.
- Disconnect the transmission vent hose.



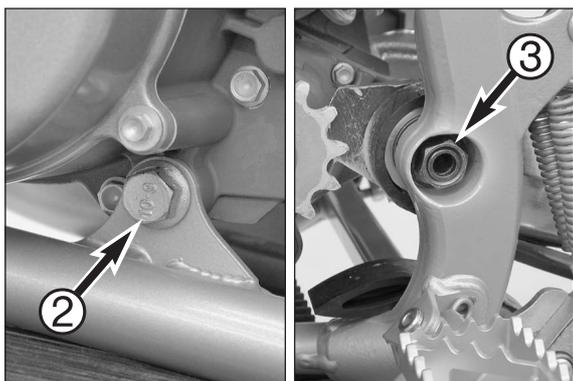
- Remove the footbrake cylinder cover **4**.
- Disengage and remove spring **5**.



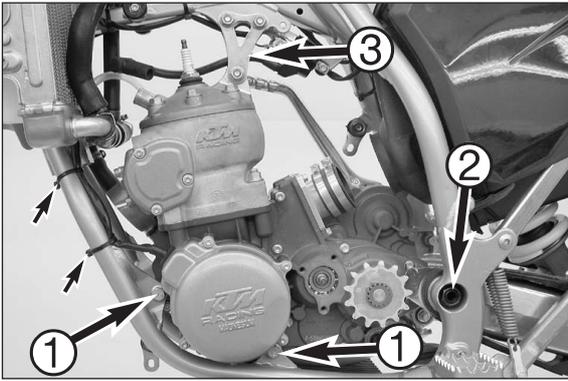
- Loosen both hose clamps, and pull the carburetor out of the carburetor connection boot and intake flange.



- Remove the engine fastening screw ❶.
- Remove the cable ties and loose the ignition cable from the frame.



- Remove the engine fastening screw ❷.
- Remove the hexagon nut of the swingarm pivot ❸.
- Remove the swingarm pivot, and pull the swing arm backward out of the frame so as to make lifting the engine out of the frame easier.
- Lift the engine out of frame.

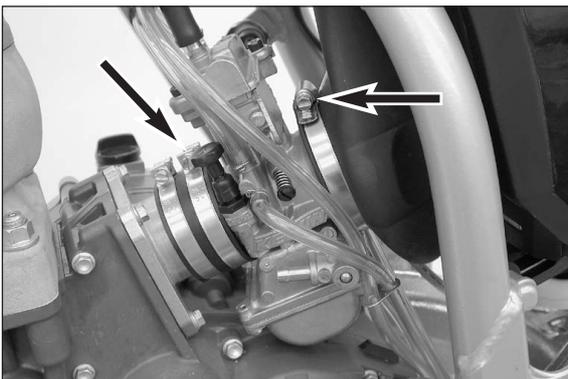


### Refitting the engine

- Lift the engine into the frame and move it into the correct position.
- Slightly grease the two engine fixing screws **1** and mount but do not tighten yet.
- Slightly grease the swing arm pivot, mount the hexagon nut **2** and tighten to 100 Nm.
- Tighten the engine brace **3** to 33 Nm and the engine fixing screws **1** to torque (see TECHNICAL SPECIFICATIONS).
- Fasten the cables to the frame with two cable ties.



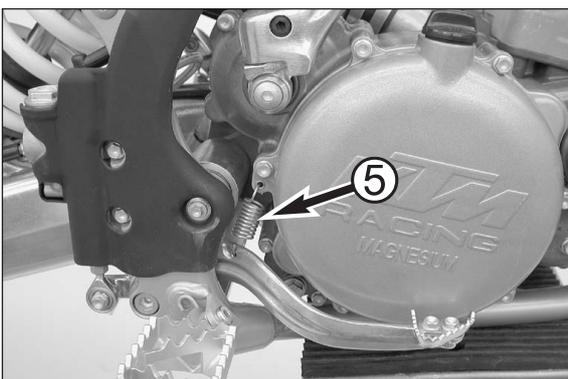
- Connect the plug and socket connection and fasten the cable to the frame with a cable tie **4**.
- Connect the spark plug connector to the spark plug.



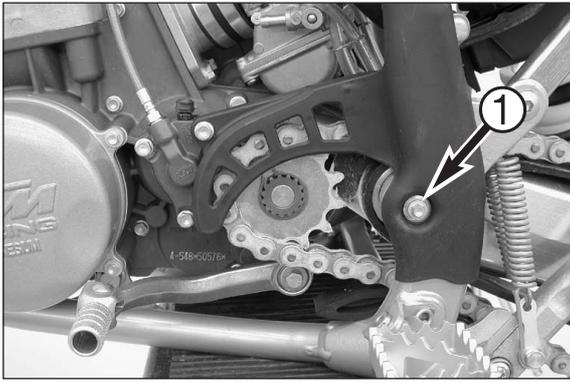
- Insert the rear end of the carburetor in the carburetor connection boot and the front end in the intake flange.
- Mount and tighten both hose clamps.



- Mount the radiator hoses.
- Fasten the transmission vent hose.



- Attach the spring **5** on the foot brake lever to the clutch cover.
- Mount the brake cylinder cover.



- Mount the chain.



**WARNING**



WHEN MOUNTING THE CHAIN JOINT MAKE SURE THAT THE CLOSED SIDE OF THE RETAINER POINTS IN THE RUNNING DIRECTION.

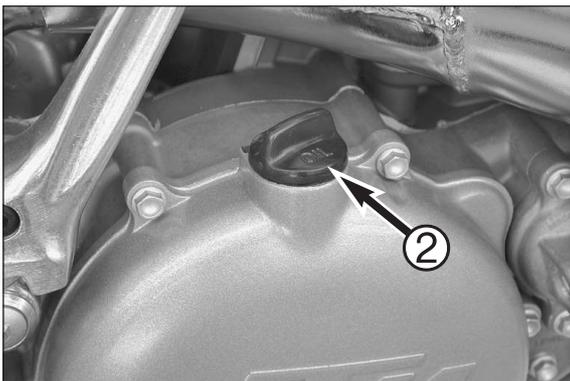
- Mount the clutch slave cylinder together with the chain guard and tighten the three screws to 10 Nm.
- Tighten the screw ❶.



- Mount the exhaust system.



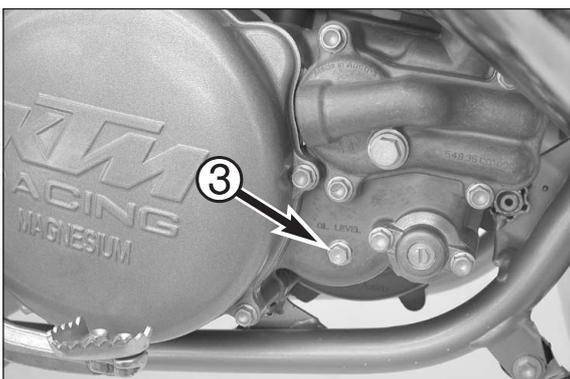
- Mount the tank with the spoiler and seat. When mounting the seat, make sure the locating tab engages in the seat.
- Connect the fuel hose to the carburetor.



Filling up the transmission oil:

- Remove the plug ❷ and top up with engine oil 15W-50 (i. e. Motorex TOP SPEED 4T).

Quantity of oil: 0.70 liters



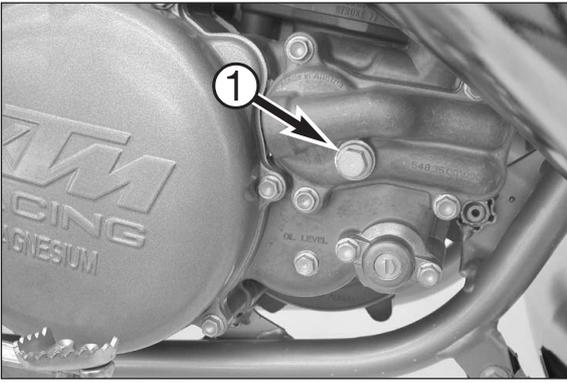
- In order to check the transmission oil level the control screw ❸ on the clutch cover is to be removed. Oil should just barely escape from the inspection opening when the motorcycle is in an upright position.



**CAUTION**



TRANSMISSION AND CLUTCH WILL BE SUBJECT TO EXCESSIVE WEAR AND TEAR, IF YOU USE TOO LITTLE OR LOW GRADE OIL. USE ONLY HIGH-GRADE OIL (I.E. MOTOREX TOP SPEED 4T).

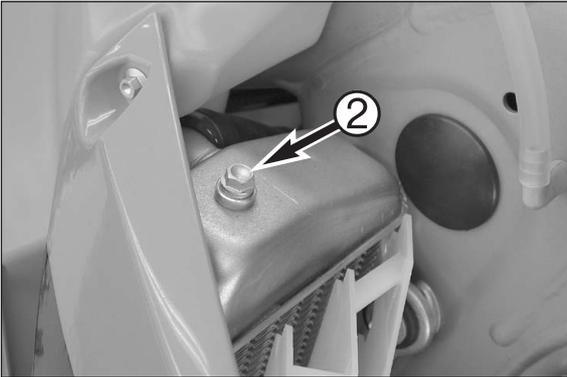


Filling up the cooling liquid:

- Make sure that the drain screw ❶ is fastened.
- Pour approx. 0.50 litres (0.13 US gallons) of coolant into the system.

Coolant:

50% anti freeze : 50% pure water, at least -25 °C



- Remove the screw ❷ on the right radiator and tilt the motorcycle to the right approx. 30 degree angle.
- Now add cooling liquid until it emerges free of bubbles at the right radiator. Then immediately mount the screw so that no more air can enter the right radiator.
- Return the motorcycle to its original position and top up the left radiator until the coolant can be seen approx. 10 mm (0.4 in) above the radiator fins.



# DISASSEMBLING THE ENGINE

# 4

## INDEX

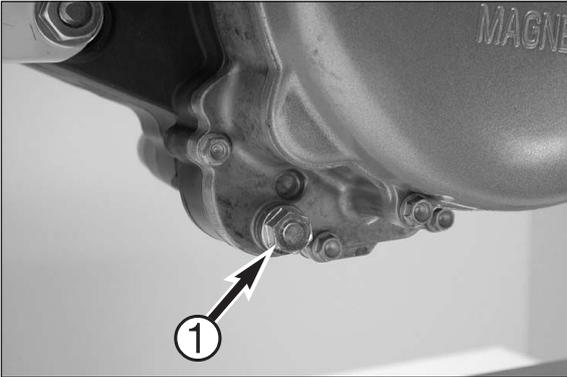
<b>PREPARATION</b> .....	<b>4-2</b>
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### Preparation

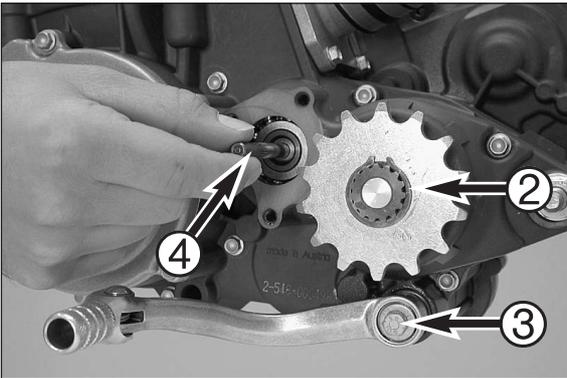
- Clean the engine thoroughly.
- Clamp the engine into the workstand.
- Remove the kickstarter.



### Draining the gear oil

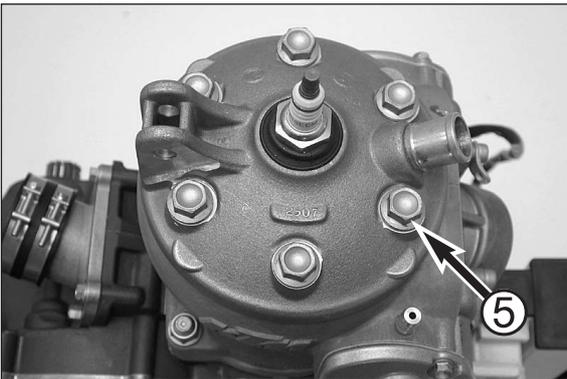
NOTE: The transmission oil should already be drained when the engine is dismantled. Otherwise, the transmission oil will leak out of the drive shaft following the removal of the slave cylinder of the clutch.

- Unscrew plug ①, allowing oil to drain.



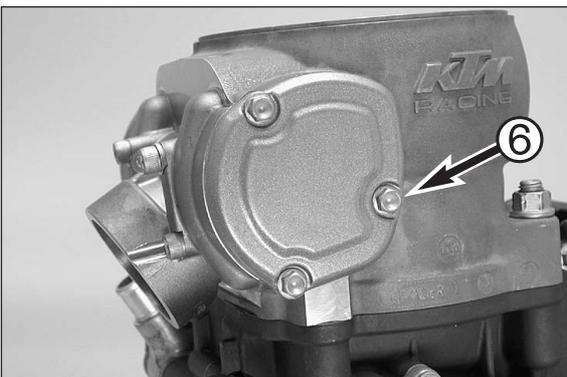
### Dismounting the sprocket and shift lever

- Remove circlip ② from the countershaft using circlip pliers. Slide off the engine sprocket, distance bushing and O-ring.
- Undo the bolt ③ and remove the shift lever.
- Pull out the clutch push rod ④ from drive shaft.

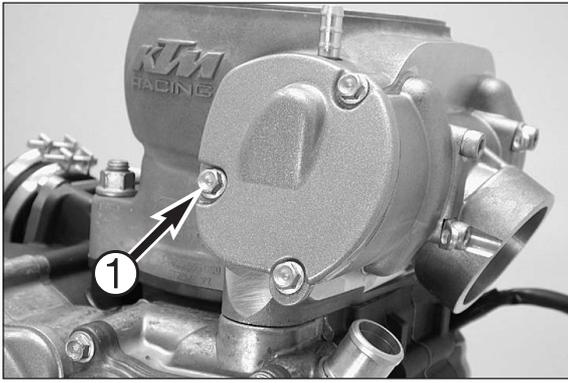


### Dismounting the cylinder head, cylinder and piston

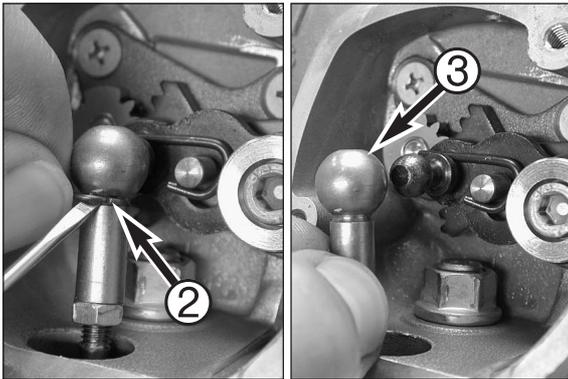
- Unscrew the 6 collar bolts ⑤ and remove the cylinder head and the two O-rings.



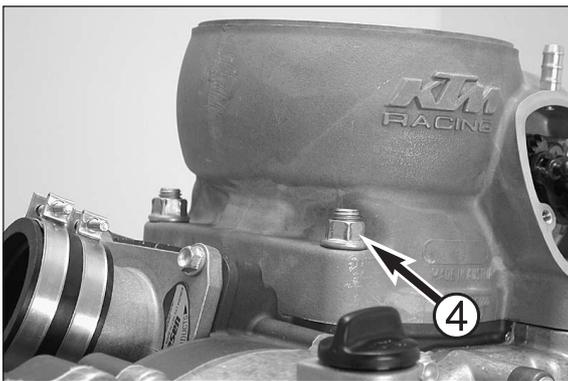
- Undo the 3 bolts ⑥ and remove the left control cover together with the gasket.



- Undo the bolts **1** and remove the right control cover together with the gasket.



- Remove the securing clip of the ball socket **2** and unhook the ball socket **3** from the adjusting lever.



- Remove the 4 collar nuts **4** on cylinder base and remove the cylinder.
- Remove the cylinder base gasket.



- Cover the crankcase.
- Place piston on a wooden jig and remove both piston pin locking pins.
- Expel the piston pin from the piston without exerting undue force. Use a suitable mandrel if necessary.
- Remove the piston and the piston pin needle-bearing from the conrod eye.

!

**CAUTION**

!

THE PISTON PIN MUST NEVER BE FORCED OUT WITH A PUNCH. THIS WOULD DAMAGE THE CONROD BEARING.

**NOTE:**

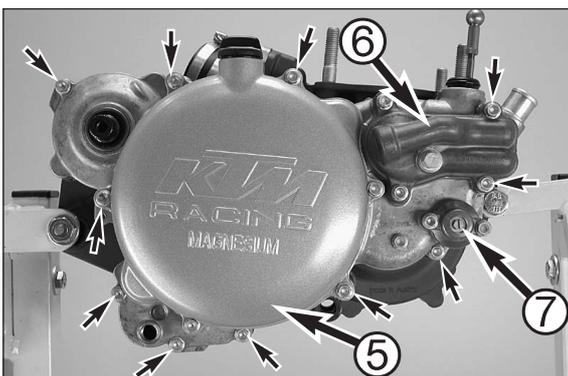
2 PISTON RINGS ARE INSTALLED STARTING WITH THE 2005 MODEL.

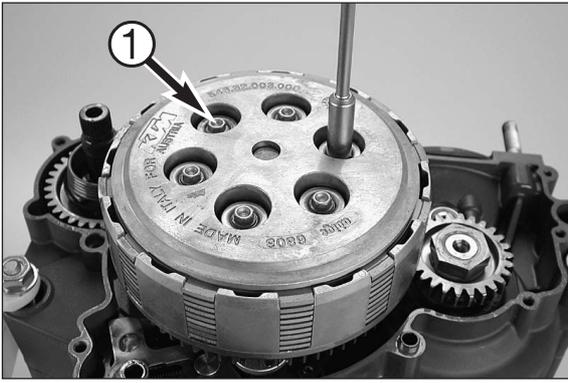
**Dismounting the clutch cover**

- Remove the collar bolts and the clutch cover including the gasket.

**NOTE:**

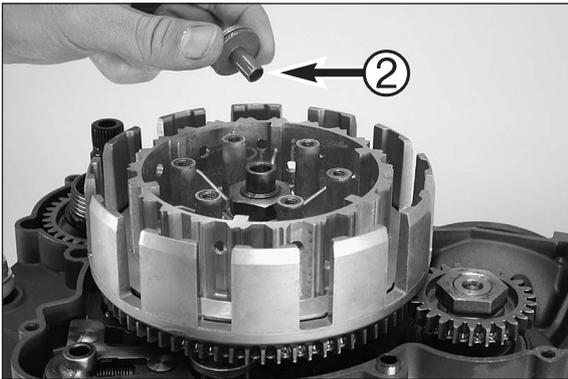
- The water pump cover **6**, the outer cover **5** and the cover lid **7** do not need to be removed.
- The water pump and the centrifugal timer remain in the clutch cover.



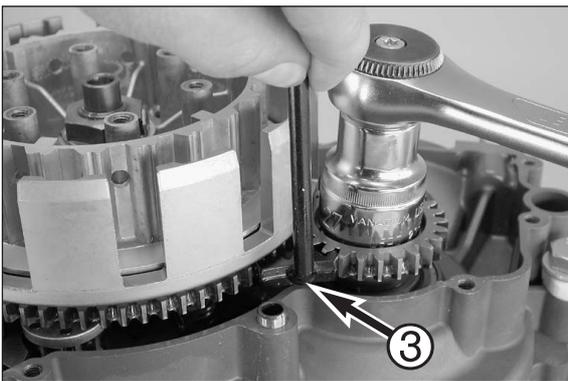


### Dismounting the pressure cap and the clutch discs

- Loosen the collar bolts ① in a diagonally opposite sequence to prevent wedging of the discs as the springs expand.
- Remove the collar bolts, springs and spring retainers.

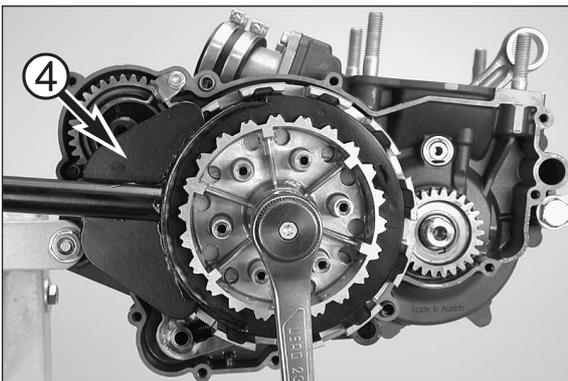


- Take the pressure cap and the disc package out of the outer clutch hub.
- Take the thrust bearing ② off the drive shaft.

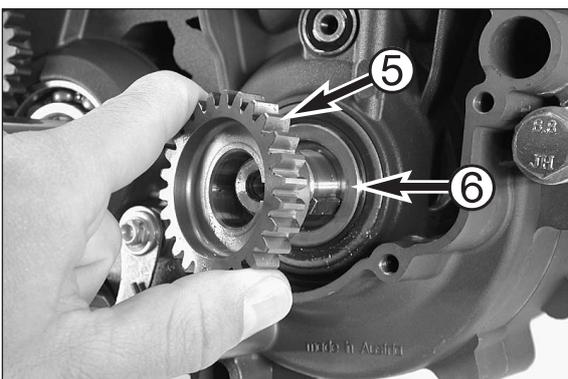


### Dismounting the primary drive

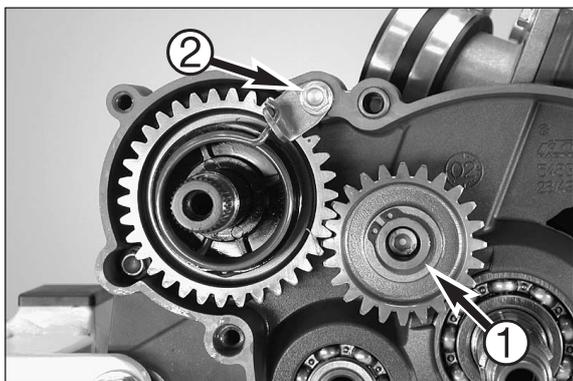
- Block the primary gear with the gear wheel segment ③ 560.12.004.000 (see illustration).
- Undo the hexagon nut (LH thread) and remove it together with the detent edged ring.



- Release the lock washer of the inner clutch hub.
- Connect the clutch holder ④ 546.29.003.000 to the inner clutch hub and loosen the hexagon nut (see illustration).
- Remove the clutch holder.
- Remove the inner and the outer clutch hubs together with the bearing from the main shaft.



- Pull the primary gear ⑤ and the distance bushing ⑥ off the crankshaft.



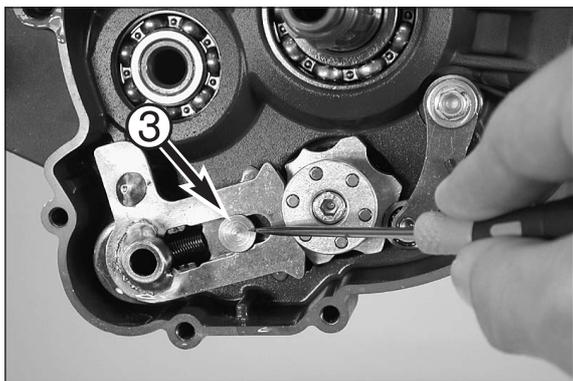
### Dismounting the kickstarter shaft

- Remove the circlip ❶ and the kickstarter intermediate gear.
- Carefully release the collar bolt ❷ the kickstarter spring is tensioned, release the tension on the kickstarter spring and unhook the spring hanger.

**! CAUTION !**

CAREFULLY RELEASE THE KICKSTARTER SPRING! DANGER OF INJURY!

- Pull the kickstarter shaft together with the ratchet gear, spring, and disc out of the engine casing.
- Take care of the stop disc, which could stay in the housing.



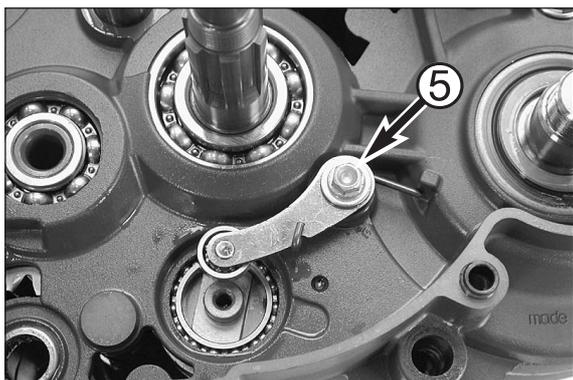
### Dismounting the shift lock

- Press the sliding plate ❸ back with a bolt driver so it no longer engages with the driver for the shaft roller, at the same time remove the shift shaft from the housing.

NOTE: Watch the stop disc which remains in the housing.



- Loosen the AH bolt ❹ and remove the shift lock.



NOTE: Disassemble locating lever only if the engine case must be replaced.

- Remove bolt ❺ and the locking lever with the spring and bush.



### Dismounting the ignition cover

- Undo the 4 bolts and remove the ignition cover together with the gasket.

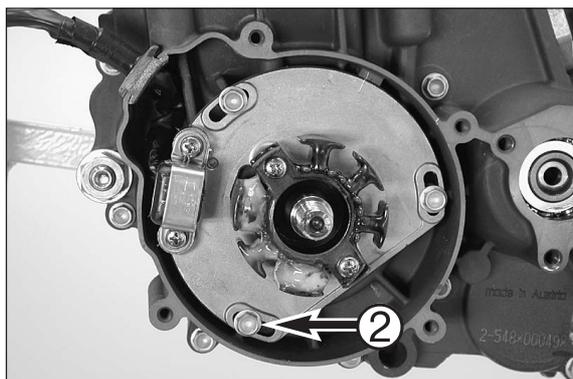


### Dismounting the ignition

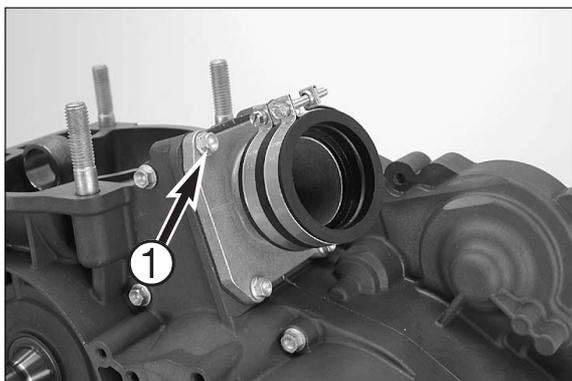
- Apply the holding spanner ❶ 546.29.012.100 and undo the collar nut.
- Remove the collar nut and the spreader ring.



- Put the protection cover 510.12.016.000 on the crankshaft thread, screw in the flywheel extractor 546.29.009.044 and remove the flywheel.

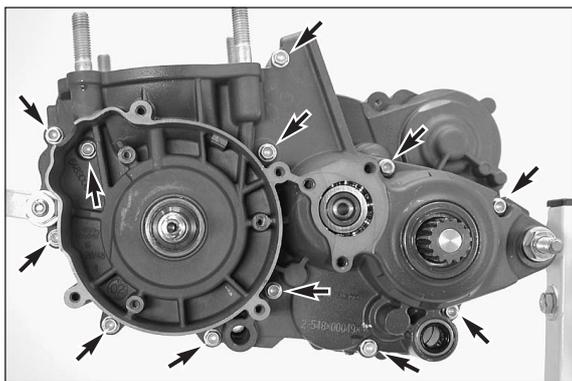


- Undo the 3 bolts ❷ and remove the stator together with the base plate.



### Dismounting the reed valve housing

- Remove the 4 collar bolts ❶.
- Remove the reed valve housing with the intake flange or rubber sleeve.



### Parting the engine housing halves

- Face ignition-gear upwards and remove all 12 housing bolts.
- Loosen the 2 engine fixtures on the engine work stand.

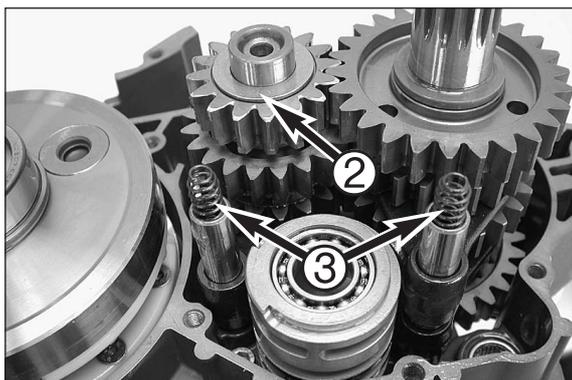


- Lift the left-hand housing half with suitable tools on the bosses provided, or part with a few light plastic mallet blows against the countershaft from the right-hand housing half.

### ! CAUTION !

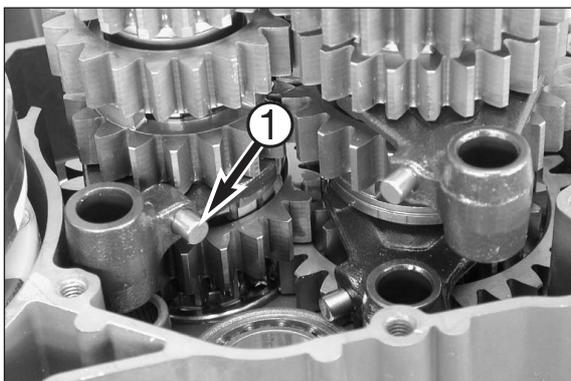
LEVERING APART WITH A SCREW DRIVER OR SIMILAR TOOL MUST BE AVOIDED, AS THE SEAL FACES ARE EASILY DAMAGED.

NOTE: Pay attention to stop disk ❷ on the main shaft when separating the engine housing half (it can stick to the inside of the housing).



### Dismounting the gearshift mechanism and transmission

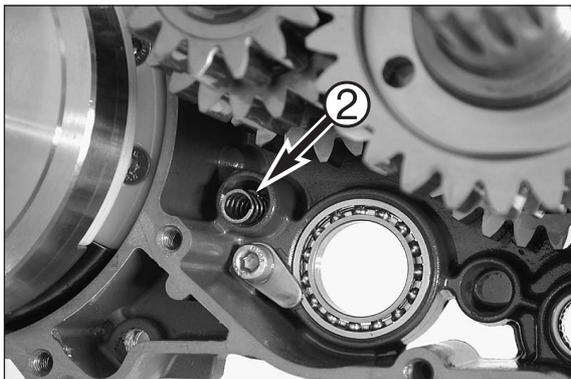
- Remove stop disk ❷ from the main shaft.
- Pull the 2 pressure springs ❸ out of the shift rails.



- Pull out the shift rails and swing the shift forks aside.
- Pull the shift roller out of the bearing seat.
- Remove the shift forks.

NOTE: When dismantling, pay attention to the needle rollers **1**, which could stay behind in the shift drum.

As the shift forks differ from each other, be sure to mark them accordingly when you remove them.



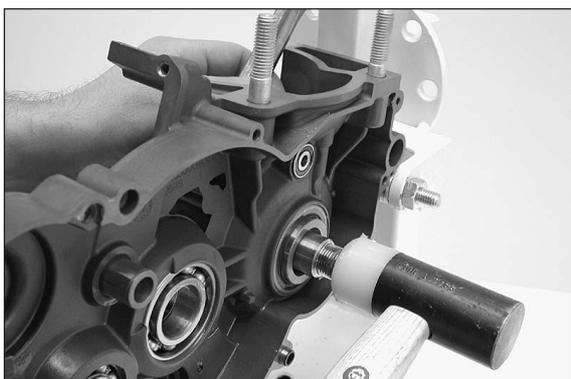
- Remove the pressure spring **2** from the engine case.



- Pull the drive shaft together with the countershaft out of the bearing seats.



- Remove 1st-gear idler gear **3** with the needle cage and the two stop discs from the engine case.



### Dismounting the crankshaft

- Pull the crankshaft from the bearing seat (if necessary, use a plastic hammer and tap carefully on the crankshaft journal).
- Remove the O-ring from the crankshaft.
- Clean all parts and check for wear, replace if necessary.

NOTE: When an engine is completely overhauled it is recommended that all gaskets, shaft seal rings and O-rings are renewed.



# SERVICING INDIVIDUAL COMPONENTS

# 5

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### IMPORTANT NOTE REGARDS WORKING ON ENGINE HOUSING

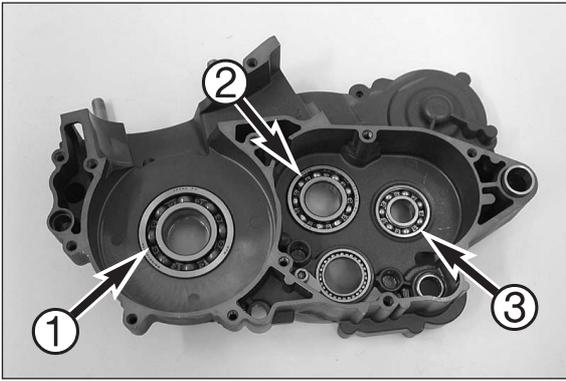
Read through the following section before commencing work. Then determine the assembly sequence so that the engine housing halves only need to be heated up once before replacing the bearings.

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 normally 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 this event the housing must be replaced.





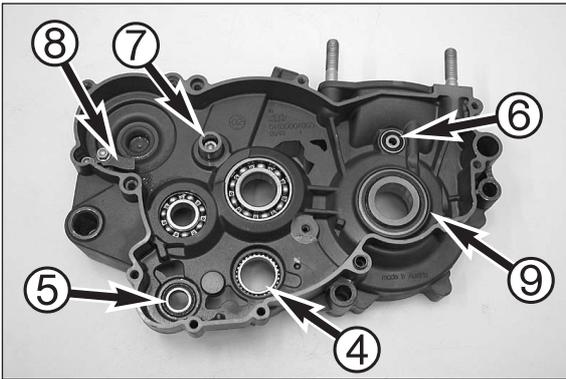
### Servicing the right engine housing half

- Remove all shaft seal rings and use an oven to heat the casing half to approx. 150°C.

The bearings usually fall out of their seat of their own accord by knocking the housing half on a plane piece of wood when the housing has a temperature of 150° - 180° C. At this housing temperature, the new (cold) bearings can be inserted in the bearing seats without pressing.

Grooved ball bearing of crankshaft **1**

Press the old grooved ball-bearing inwards. Press in the new grooved ball bearing from inside up to the stop.



Grooved ball bearing of main shaft **2**

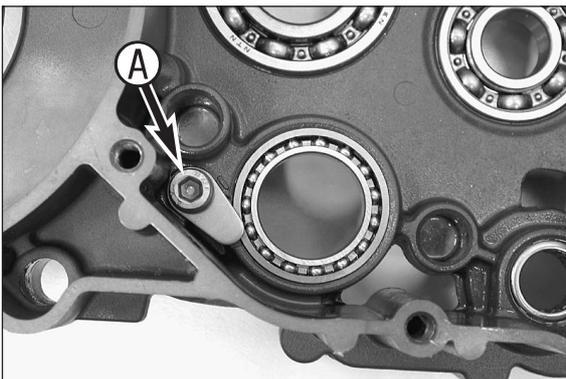
Press in the new ball bearing from inside up to the stop.

Grooved ball bearing of countershaft **3**

Press in the new grooved ball bearing from downward to the stop.

Grooved ball bearing of the shift roller **4**

Remove bolt **A** and press bearing towards the inside. Press in the new ball bearing from the inside to the stop and secure the retaining bolt with Loctite 243.

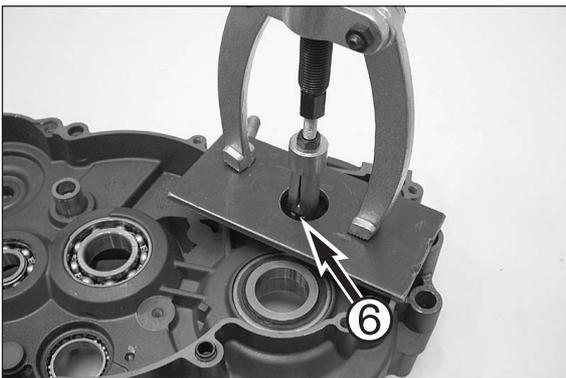


Needle bushing of the shift shaft **5**

Press the old needle bushing inwards, press in the new needle bushing flush from the outside.

Grooved ball bearing of centrifugal timer **6**

Use a self-made "supporting plate" to support the puller to avoid damage to the housing (see illustration). Pull out the bearing using a Ø 5-8 mm inside puller 151.12.018.100. Press in the new grooved ball bearing to the stop.



Bearing bolt kickstarter intermediate gear **7**

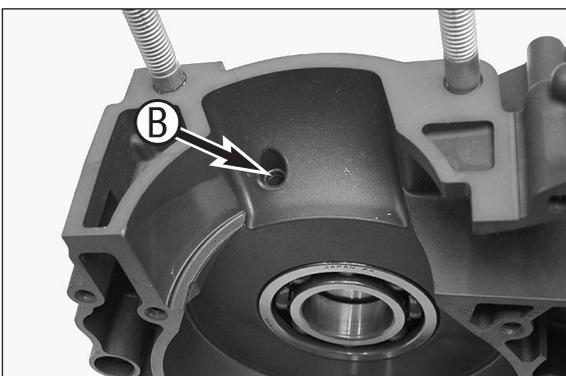
Experience has shown that it is never necessary to replace the bearing bolt. It is not recommended to mount a used bearing bolt in a new housing half, as it is practically impossible to remove it without causing damage.

Kickstarter release plate **8**

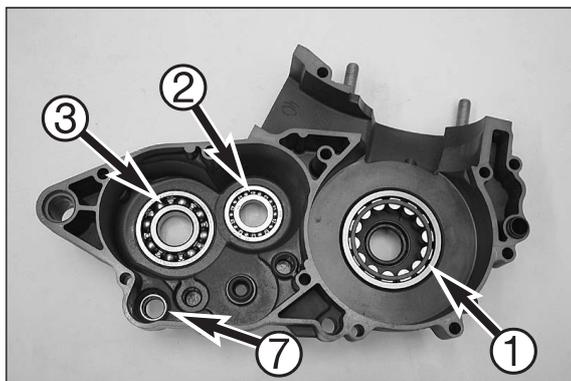
Secure the screws with Loctite 243 when changing the release plate.

Crankshaft seal ring **9**

Press in the new shaft seal ring from the outside with the sealing lip facing inward, until flush.



- Finally check clear passage of the crankshaft ball bearing lubrication bore **B**.



### Servicing the left engine housing half

- Remove all shaft seal rings and use an oven to heat the casing half to approx. 150°C.

The bearings usually fall out of their seat of their own accord by knocking the housing half on a plane piece of wood when the housing has a temperature of 150° - 180° C. At this housing temperature, the new (cold) bearings can be inserted in the bearing seats without pressing.

#### Crankshaft roller bearing ①

Remove the old roller bearing and press in a new roller bearing up to the stop. The inner ring on the crankshaft must also be renewed (see paragraph about crankshaft).

#### Needle bearing of drive shaft ②

Press the old grooved ball bearing inward, press the new grooved ball bearing from the inside up to the stop.

#### Grooved ball bearing of countershaft ③

Press the old ball bearing inwards, press in the new ball bearing to the stop from inside.

#### Crankshaft seal ring ④

Press in a new shaft seal ring from the outside until the sealing lip is flush with the inner surface.

#### Counter shaft seal ring ⑤

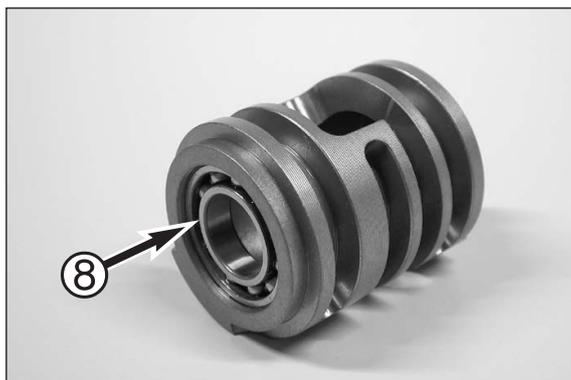
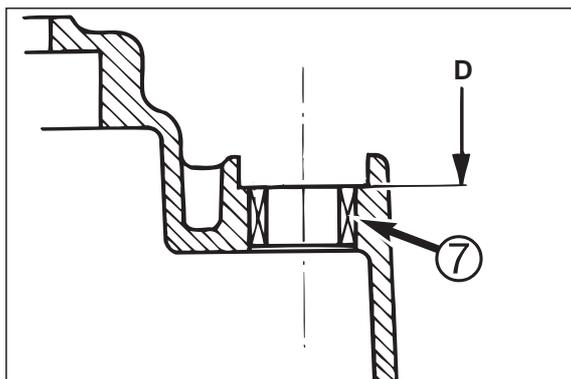
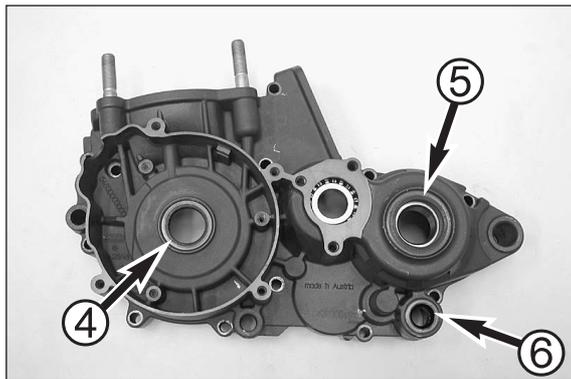
Press in the new shaft seal ring, until it is flush with machined surface.

#### Shift shaft seal ring ⑥

Press in the new shaft seal ring, until it is flush with machined surface.

#### Needle bushing of shift shaft ⑦

Remove the shaft seal ring and press the old needle bushing inwards. Press in the new needle bushing from the outside to the collar ①.



#### Grooved ball bearing of shift roller ⑧

Heat the shift drum to approx. 150° C.

The grooved ball bearing should fall out of the bearing seat automatically at this temperature.

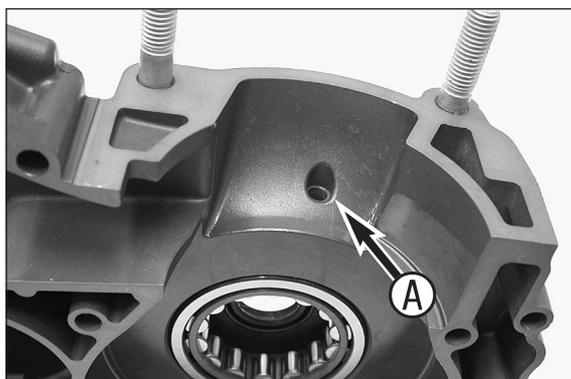
If necessary, tap the shift drum on a flat wooden surface.

NOTE: Never heat the shift roller with a welding torch or similar device as you will damage the coating.

Insert a new grooved ball bearing and press it in gently up to the stop.

When the housing half has cooled off, check to see that the bearings are tight.

- Finally check clear passage of the crankshaft roller bearing lubrication bore A.





**Crankshaft**

- When replacing the roller bearing, the inner crankshaft ring must also be renewed.
- Heat special tool 584.29.037.043 on a heating pad up to approx. 150°C and slip it on the inner ring immediately. Press the special tool together tightly to obtain a good heat transfer and pull the inner ring off the crankshaft.
- To mount the new inner ring, heat the special tool again to approx. 150°C, engage the inner ring and slip it on the crankshaft journal immediately.

**! CAUTION !**

NEVER CLAMP THE CRANKSHAFT WITH A STUD OR WEB IN THE VICE, AND NEVER TRY TO KNOCK THE BEARING INNER RING FREE. THE CRANKSHAFT WEBS MAY BE COMPRESSED AND THE CON-ROD PLUG AND BEARING MAY BE DAMAGED, THEREBY MAKING THE CRANKSHAFT UNUSABLE.

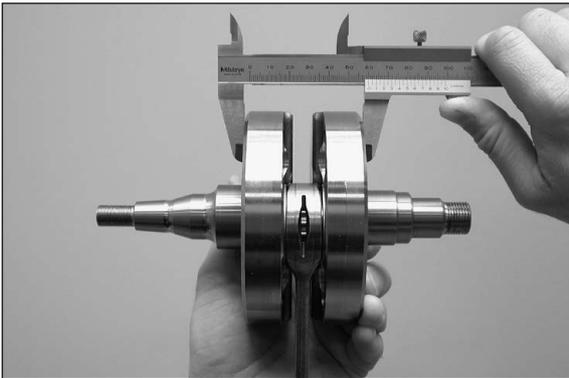
NOTE: Distance adjustment of the main bearings is not required.



**Crankshaft webs - measure outer dimension**

Crankshaft webs - measure the outer dimension with a sliding caliper as illustrated.

Crankshaft webs - outer dimension = 60 mm ± 0.05 mm



**Check the piston**

If a used piston is to remain in service then the following should be checked:

1. Piston running surface: Check for pressure marks (seizing marks), minor friction marks can be removed with a fine abrasive stick.
2. Piston ring groove: The piston ring may not jam in the groove. Use an old piston ring or sandpaper (400 grit) to clean the groove.
3. The piston ring anti-rotation device must fit tightly in the piston and must not be worn.
4. Check the piston rings for wear and check the end gap.



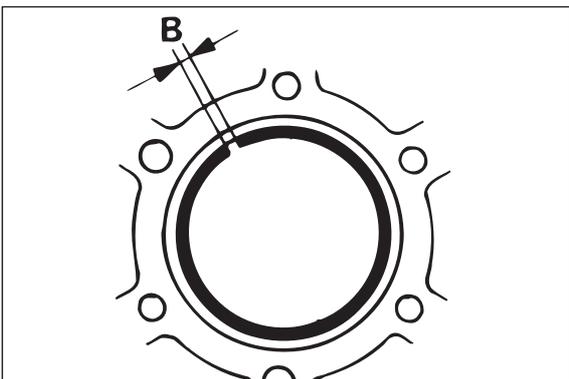
**Piston ring end gap**

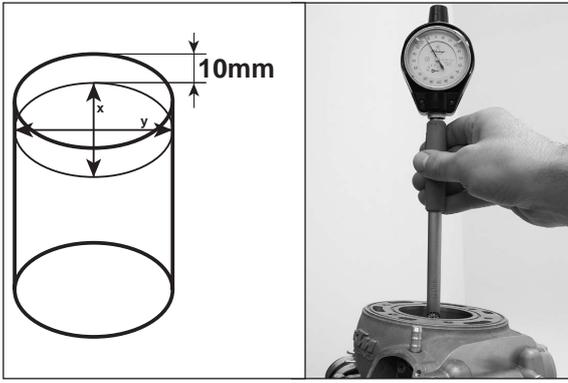
- Insert the piston ring into the cylinder and adjust it. The piston ring must be approx. 10 mm (1/2 inch) from the top of the cylinder.
- The end gap **B** can now be checked with a feeler gauge.

Piston ring end gap: max. 0.40 mm

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

2 piston rings are installed starting with the 2005 model.





### Measuring pistons and cylinders, establishing the piston mounting clearance

- Measure the cylinder diameter approx. 10 mm below the top of the cylinder edge.
- Check the diameter in several corresponding places to see if the cylinder has worn oval.



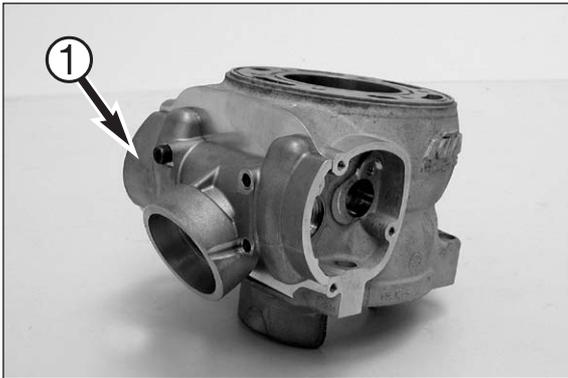
- The piston is measured at the piston skirt transverse to the piston pin approx. 50 mm under the upper edge of the piston.

Model 250:      Piston size I: 66.340 mm - 66.350 mm  
                       Piston size II: 66.351 mm - 66.360 mm

Model 300:      Piston size I: 71.940 mm - 71.950 mm  
                       Piston size II: 71.951 mm - 71.960 mm

- The piston mounting clearance is the difference between the smallest cylinder diameter and the piston diameter.

Piston mounting clearance: 0.06 mm - 0.1 mm



### Recoated cylinder

To recondition the old cylinder all exhaust control components must be removed. The intermediate flange ① remains with the cylinder. The piston size is stamped into the bottom of the piston.



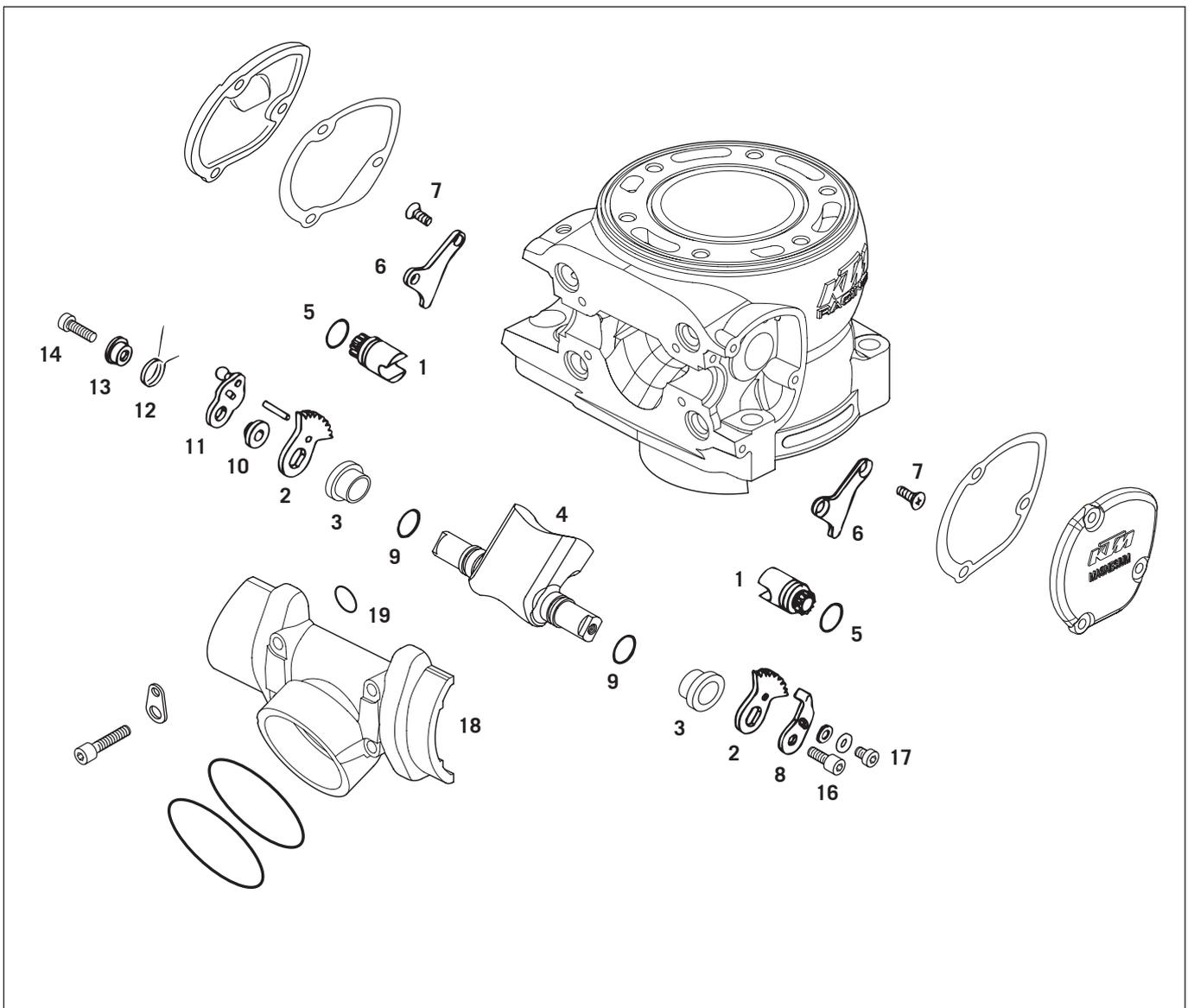
### Nikasil coating of cylinder

Nikasil is the brand name for a cylinder coating process, developed by the piston manufacturer Mahle. The name is derived from the two materials used in this process - a nickel layer into which the particularly hard silicon carbide is imbedded.

The main advantages of the Nikasil coating are:

- excellent heat dissipation and thus better power output
- low wear
- low weight of the cylinder.

NOTE: The worn coating can be regenerated at low cost provided that the cylinders running surface is flawless.



### Cylinder exhaust control system

Dismantle and clean all the exhaust control components, check for signs of wear and damage.

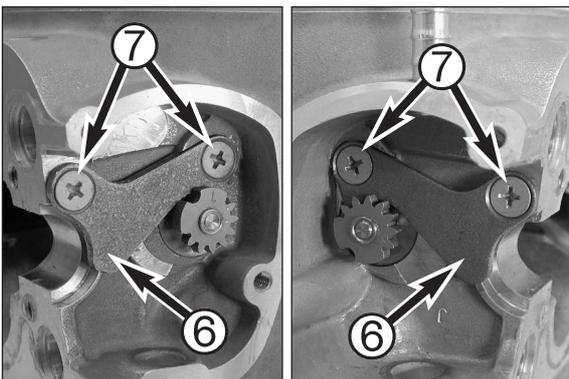
Control rollers ❶ - Check the clearance of the bearings. Remove oil-derived deposits. Check the tothing of the control rollers for signs of wear.

Gear segments ❷ - Check the tothing of the gear segments and control rollers for signs of wear.

Bearing sleeves ❸ - Check the bearing sleeves of the control flap for play and easy operation.

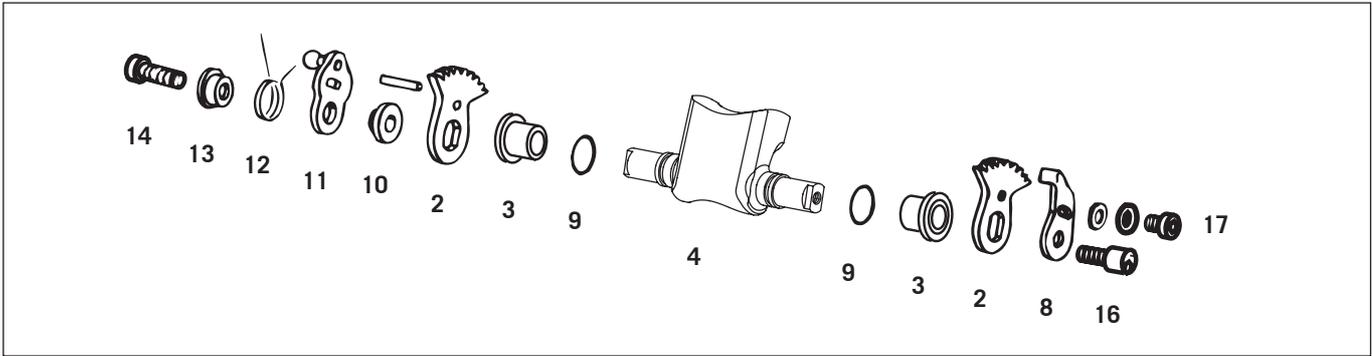
Control flap ❹ - Clean the control flap. The control flap must not graze inside the exhaust port.

O-rings ❺, ❾ + ❶❸ - Check the O-rings of the control flap and control rollers for signs of wear. Renew if necessary.

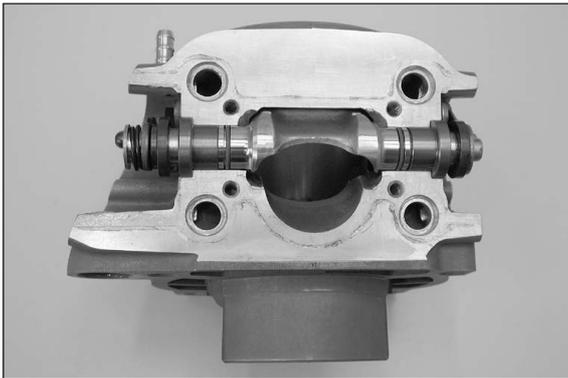


### Cylinder preassembly

- Mount the O-rings (16x2 mm) ❺ on the control rollers and grease.
- Place the control rollers ❶ in the cylinder and mount the retaining brackets ❻; secure the flat-head screws ❼ with Loctite 243.

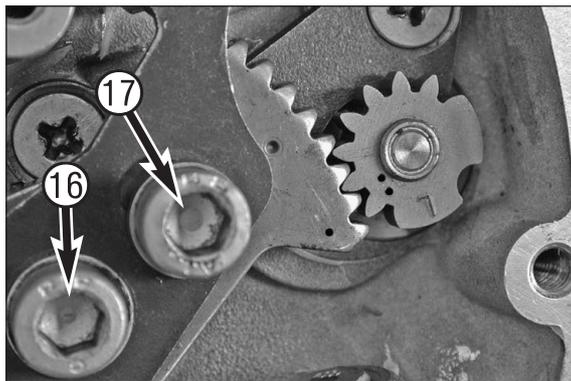


- Mount and grease the O-rings (15x1.50 mm) ⑨ on the control flap and grease.
- Slightly grease the bearing sleeves ③ and plug them on the control flap.
- Mount the toothed segments ② (the toothed segment with the cylindrical pin has to be mounted on the right side).
- On the right-hand side, mount the bearing bushing ⑩ with the collar outside, the adjusting lever ⑪ with the ball head on outside, the overload spring ⑫ with the short leg on outside and the spring sleeve ⑬ to the control flap.
- Coat allan head bolt ⑭ with Loctite 243 and bolt up about 5 revolutions, hook the short leg of the overload spring on to the cylinder pin (see illustration) and tighten the allan head bolt.
- Mount the stop plate ⑧ on the left side. Do not tighten bolts ⑯ + ⑰ yet as they will be used to adjust the exhaust control (measurement Z).
- Turn the control rollers ① in the cylinder in such a way that the ports are completely open and no edges protrude.

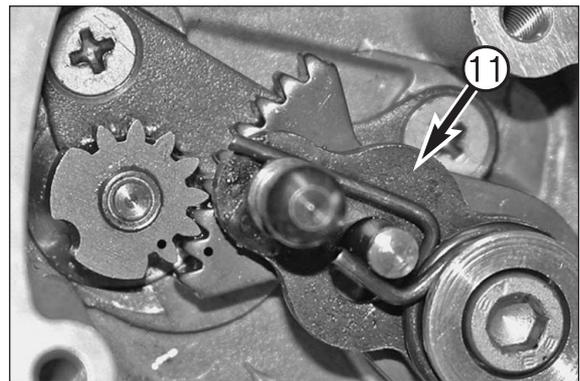


- Place preassembled control flap in the cylinder, engage the gear segments in the control rollers in such a manner that, when the control flap is open (pivoted right to the top), the markings of the gear segments and the gear rollers coincide. Please check that the two control rollers do not block the cross-section of the port when the control flap is open.
- Coat the sealing surface thinly with silicon and mount intermediate flange ⑯ with 4 silicon O-rings (11.3x2.4 mm).
- Finally check the smooth running of the exhaust control system.

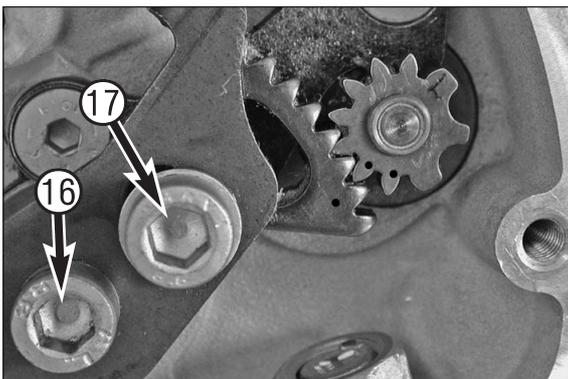
NOTE: It must be possible to push adjusting lever ⑪ further upwards against the spring force.

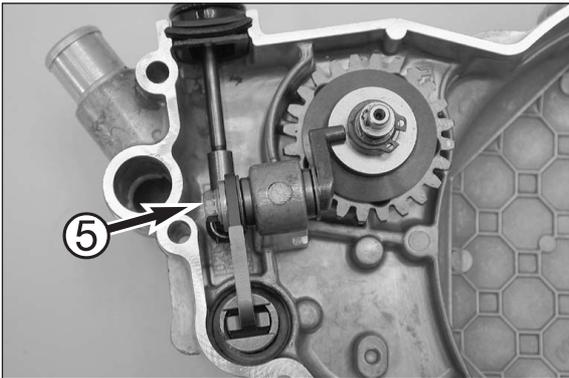
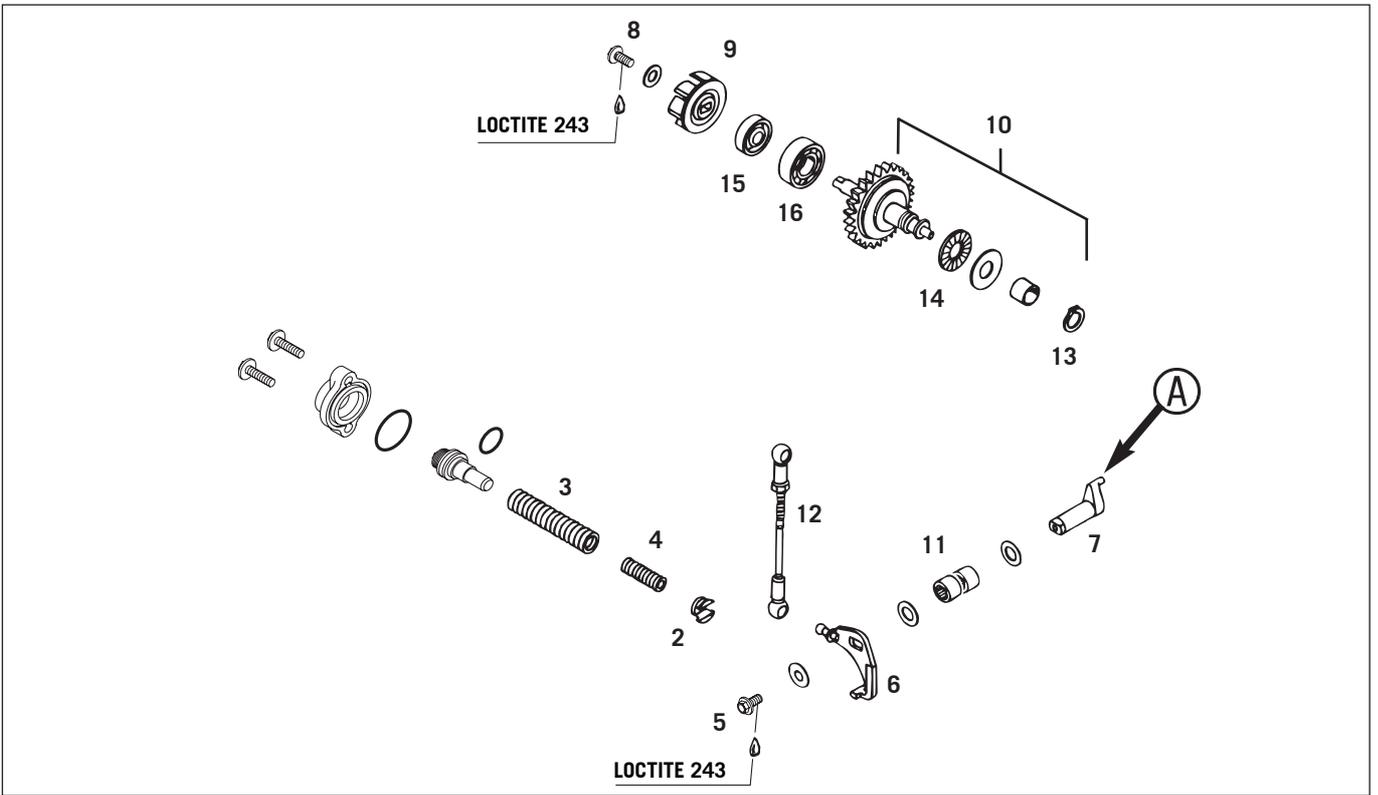


**Model  
2004  
2005**



**as of Model  
2006**





**Exhaust control, clutch cover**

- Remove bolts ①, the spring insert ②, the control spring ③ and the auxiliary spring ④ from the clutch cover.
- Remove bolt ⑤ with the rocker arm ⑥ and the control lever ⑦.
- Take off the water pump cover, remove the allen head bolt ⑧ and take off the water pump wheel ⑨.
- The centrifugal timer ⑩ can be pulled out of the bearing.
- Clean all parts and check for signs of wear.

Check play and easy operability of the adjusting lever in the bearing ⑪.

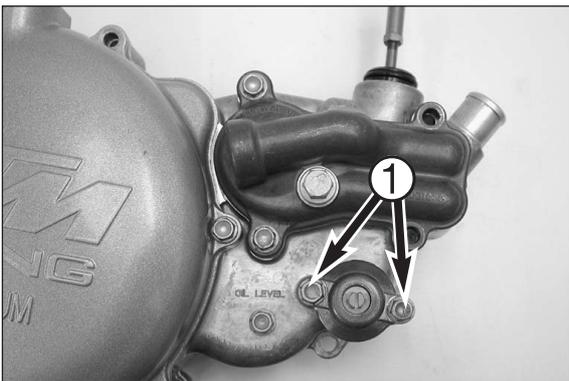
Check pin A of adjusting lever for wear.

Check linkage ball heads bm for clearance.

Remove circlip ⑬ and check the axial bearings ⑭ and washers for signs of wear.

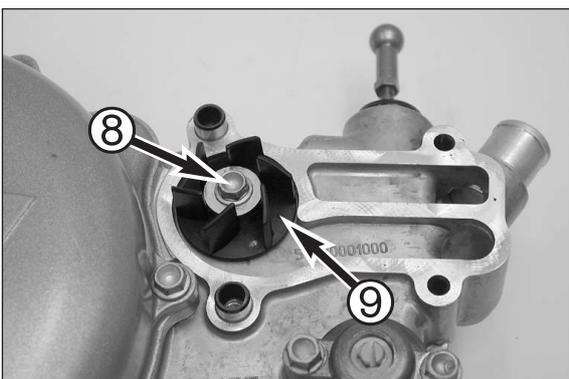
If the water pump shaft seal ring ⑮ is replaced, it should be coated with Loctite 243 on the outside.

Check grooved ball bearing ⑯ for clearance



**Preassembly of clutch cover**

- Grease water pump shaft seal ring ⑮ and mount the centrifugal timer ⑩.
- Apply Loctite 243 to bolt ⑤ and mount together with rocker arm ⑥ and control lever ⑦.
- Mount control spring ③, auxiliary spring ④ and spring ② insert in the clutch cover and fix with bolts ①.
- Mount water pump wheel ⑨, coat bolt ⑧ with Loctite 243 and mount with washer.
- Mount dowels of the water pump cover.
- Mount a new Form-ring und fix the water pump cover with 2 bolts.

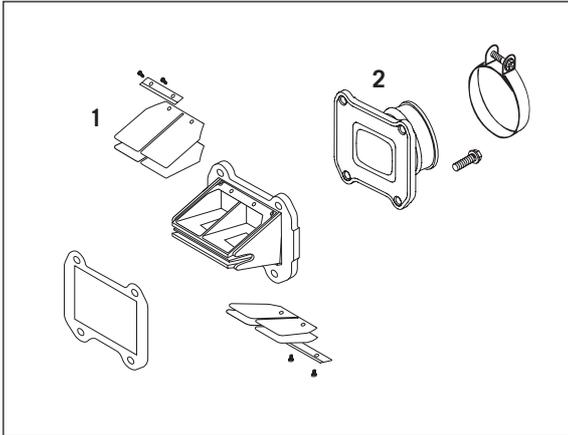


250 SX/SXS



**Reed valve housing (250 SX/SXS)**

NOTE: Reed paddles ❶ gradually lose tension through operation, resulting in power loss. Damaged or worn reed paddles must be replaced.



Intake flange ❷

Check for firm mounting and for signs of damage.

EXC/EXC SIX DAYS/MXC/XC/XC-W

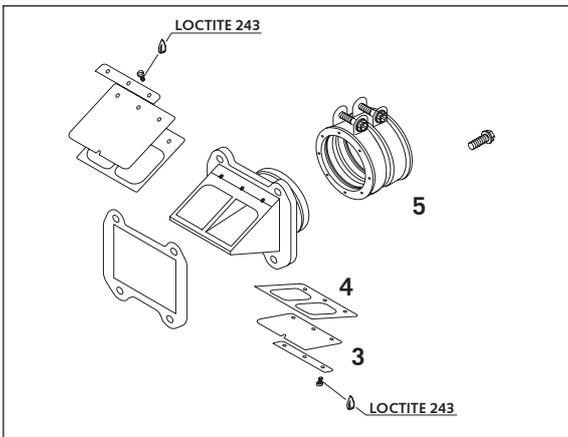


**Reed valve housing (EXC/EXC SIX DAYS/MXC/XC/XC-W)**

NOTE: Reed paddles ❸ gradually lose tension through operation, resulting in power loss. Damaged or worn reed paddles must be replaced.

**! CAUTION !**

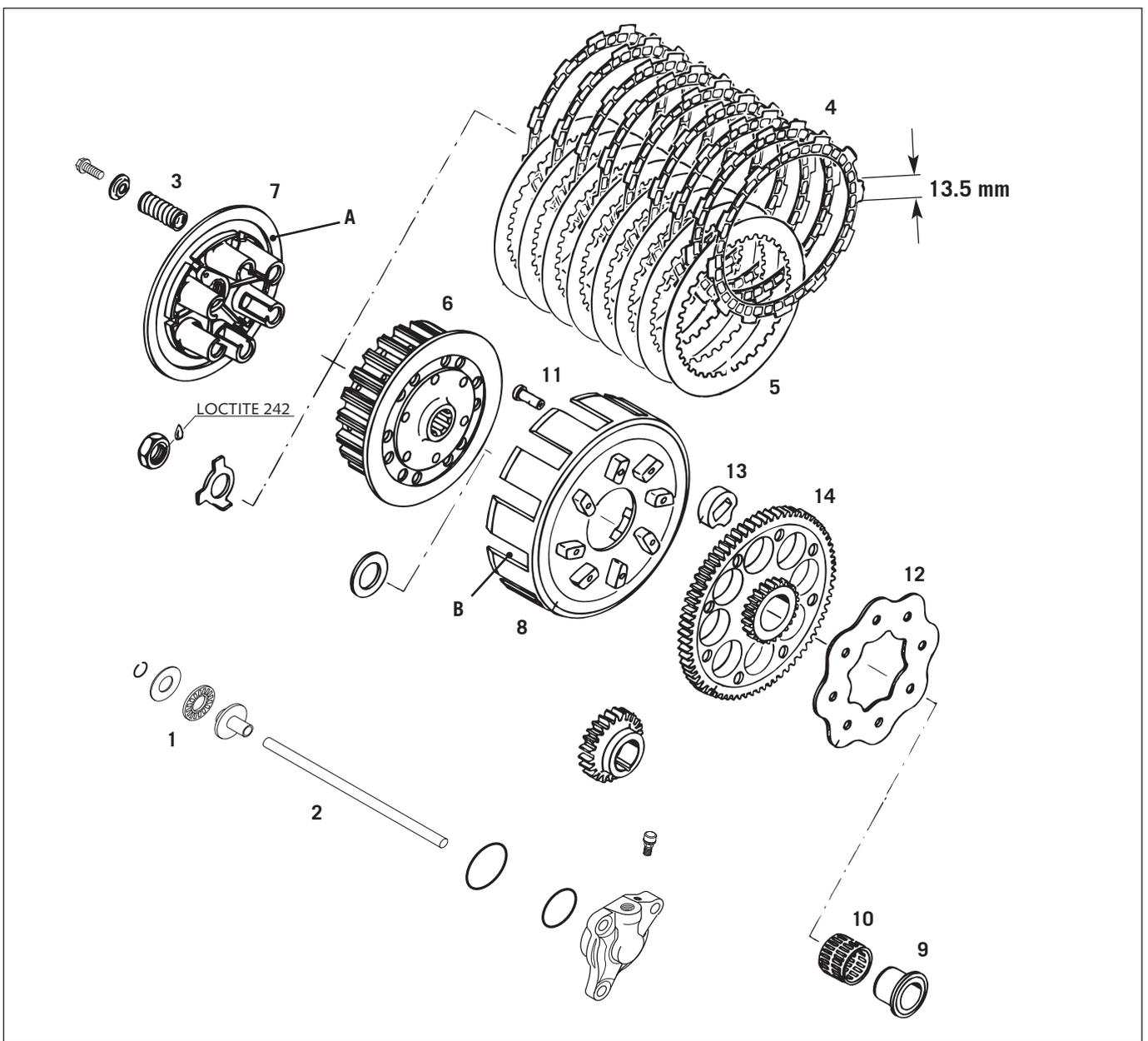
- Place the plate ❹ with the softer surface on the reed valve housing.
- Secure all of the screws on the reed valve housing with Loctite 243.



Rubber sleeve ❺

Check for firm mounting and for signs of damage.

NOTE: When mounting the rubber sleeve make sure that the arrow on the sleeve points towards the intake.



## Clutch

Thrust bearing ①  
check for wear

Push rod ②  
Check for wear. Minimum length: 192 mm (new: 192.50 mm)

Clutch springs ③  
New spring length 42 mm / 1.69 in (new 43 mm / 1.73 in). Replace all 6 springs if applicable.

9 Lining discs ④  
Minimum thickness 2.60 mm (0.102 in) / new disc 2.70 mm (0.106 in). Discs must be plane; there must be minimum spacing of 13.50 mm (0.531 in) between starting surfaces.

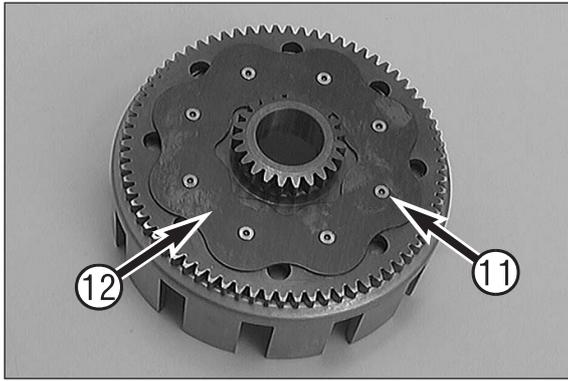
8 Steel discs ⑤  
Must be plane, check for mechanical damage.

Inner clutch hub ⑥  
Check the contact surfaces of steel discs on the inner clutch hub, maximum 0.50 mm (0.02 in) indentations.

Pressure cap ⑦  
Check the contact surfaces ④ between lining disc and pressure cap for signs of mechanical damage and score marks.

Outer clutch hub ⑧  
Check the start surfaces ⑤ of clutch discs on for wear. If indentations exceed 0.50 mm (0.02 in), replace outer clutch hub (see below).

Check the inner ring ⑨ and needle cage ⑩ for wear.



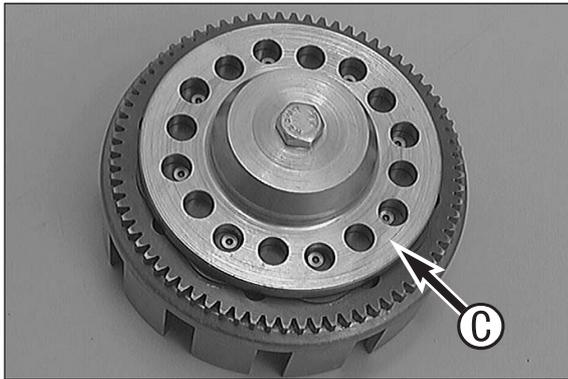
### Replace outer clutch hub

- Drill open the clutch rivets 11 in area of retaining bracket 12 and remove parts.

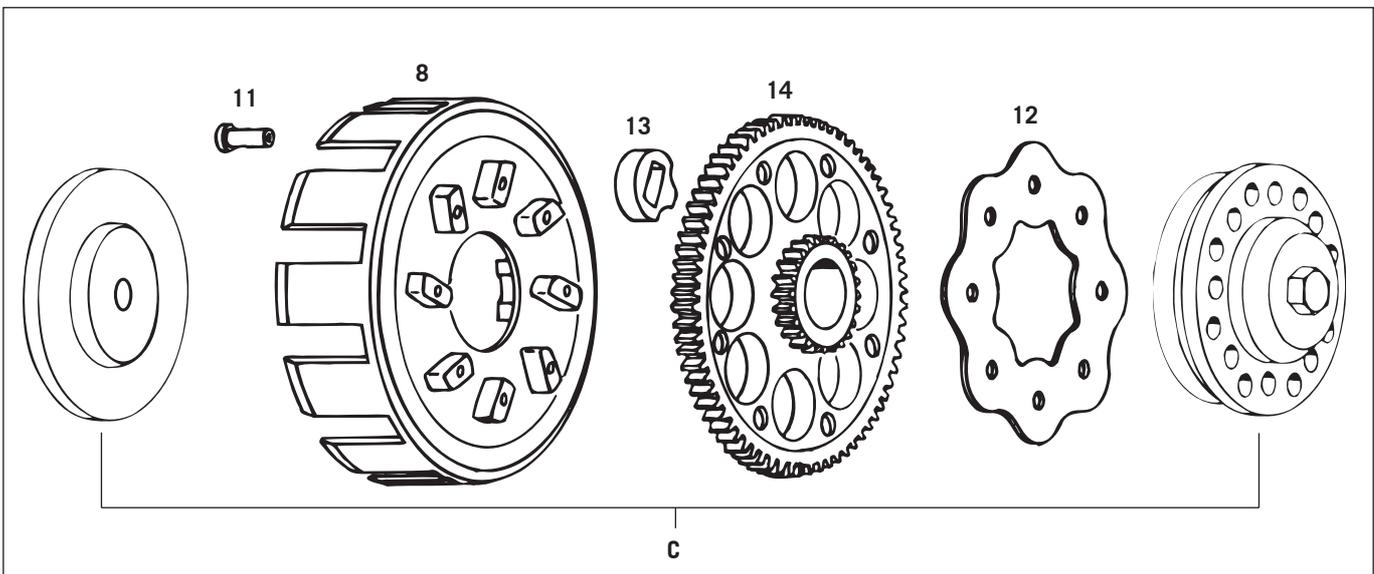
NOTE: Check the 8 absorbing elements for signs of mechanical damage, replace all 8 where applicable.

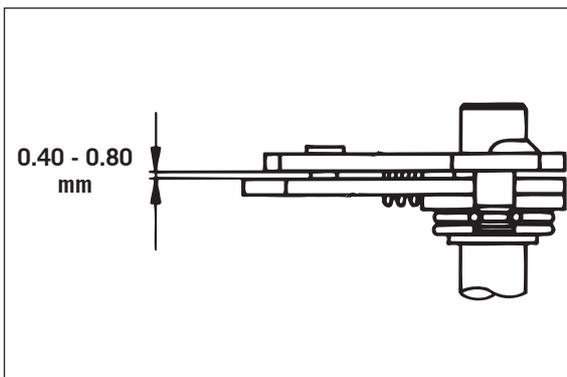
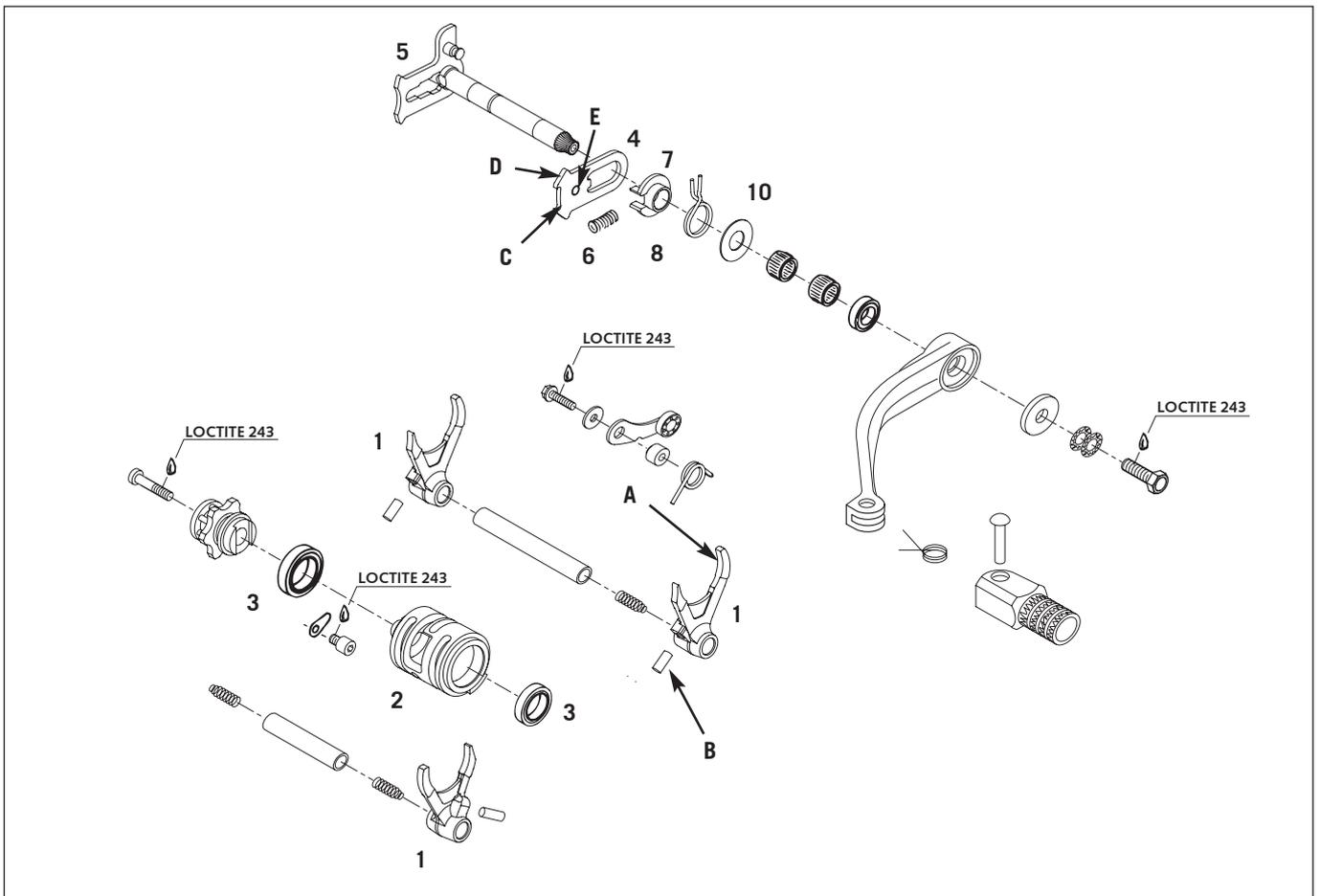
! **CAUTION** !

THE ABSORBING ELEMENTS ARE WIDER THAN THE PRIMARY GEAR CROWN. TO ENSURE THAT THE OUTER CLUTCH HUB AND RETAINING BRACKET ARE POSITIONED DIRECTLY ON THE PRIMARY GEAR CROWN 14, THE PARTS MUST BE HELD IN POSITION UNDER TENSION WITH THE CLUTCH RIVETTING TOOL C WHILE RIVETING.



- Apply the special tool 549.29.027.000 as illustrated, screw on and lock the rivets using a pointed and round mandrel.





### Shift mechanism

#### Shift forks ①

Check the shift fork blades **A** and shift roller driving pin **B** for signs of wear.

#### Shift roller ②

Check the shift grooves for wear.

Check the position of shift roller in grooved ball bearings ③.

#### Slide plate ④

Check the slide plate at meshing points **C** for wear.

Check the return surface **D** for wear (renew, if strongly notched).

Check that the guide pin **E** is securely fixed and check for wear.

#### Sliding guides

Check the sliding guides (excess between guide pin and shift quadrant not to be more than 0.7 mm / 0.03 in).

#### Grooved ball bearings ③

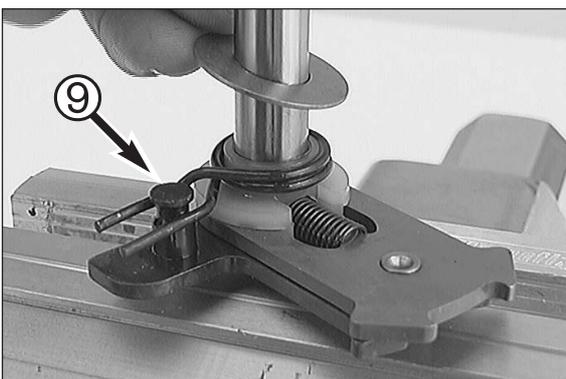
Check the grooved ball bearings for easy movement.

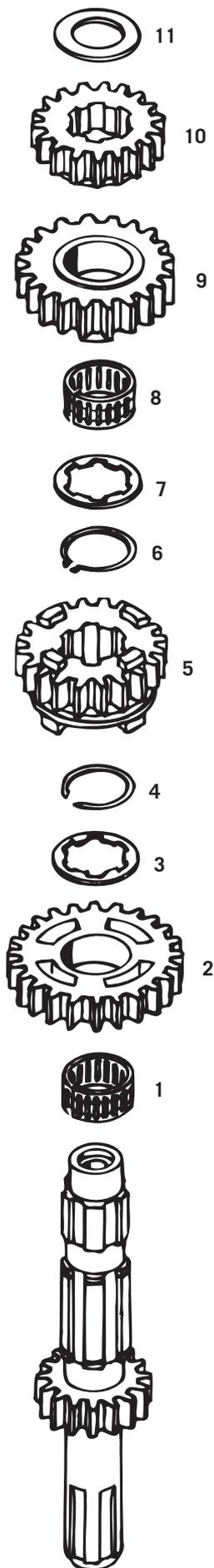
#### Shift mechanism

Assemble the shift mechanism (see below) and check free play between slide plate ④ and shift quadrant ⑤. Free play should be 0.40 - 0.80 mm (0.016 - 0.032 in).

### Preassembly the shift shaft

- Fix the shift shaft in vice at shorter end (use covered clamps).
- Mount the slide plate ④ with guide pins downwards, hook guide pins into shift quadrant ⑤.
- Mount the pressure spring ⑥.
- Slide on spring guide ⑦, slide on return spring ⑧ with offset end upwards over the spring guide and lift offset end over bolt ⑨ (see illustration).
- Mount the stop disc ⑩ (14x30x1 mm).





### Transmission

Secure the mainshaft or countershaft in the vice (using soft jaw-covers). Remove the gears and check the following for wear:

- Needle bearing
- Mainshaft and countershaft pivot points including idler gears
- Shift dogs and gear wheels
- Tooth faces of all gears
- Tooth profile of mainshaft and countershaft and corresponding gears
- Easy operation of gear-change

Carefully clean components and replace damaged components.

NOTE: Always place circlips with sharp edge facing the components secured, ensuring that they are not overexpanded (use special pliers).

Check that after any repair of the transmission, circlips should axially not move more than 0.20 mm (0.006 in) and must not seize between stop discs.

### Assembly mainshaft

- Fix the mainshaft in a vice with the toothed end upwards (use covered clamps).
- Oil all parts before assembly.
- Mount the split needle cage ① on the mainshaft, push the 5th idler gear ② over it with collar downwards.
- Place internally toothed stop disc ③ (25.2x32x1 mm) in position and mount circlip ④ (25x1.64 mm) with sharp edge upwards.
- Place the 3rd sliding gear ⑤ in position with shift groove downwards, mount circlip ⑥ (25x1.64 mm) with the sharp edge downwards and internally toothed stop disc ⑦ (25.2x32x1.5 mm)
- Mount the split needle cage ⑧, the 4th idler gear ⑨ with the shift dogs downwards 2nd gear ⑩ with the collar downwards and the stop disc ⑪ (20.2x33x1.5 mm).
- Finally check all gears for easy running.



## Transmission

Secure the mainshaft or countershaft in the vice (using soft jaw-covers). Remove the gears and check the following for wear:

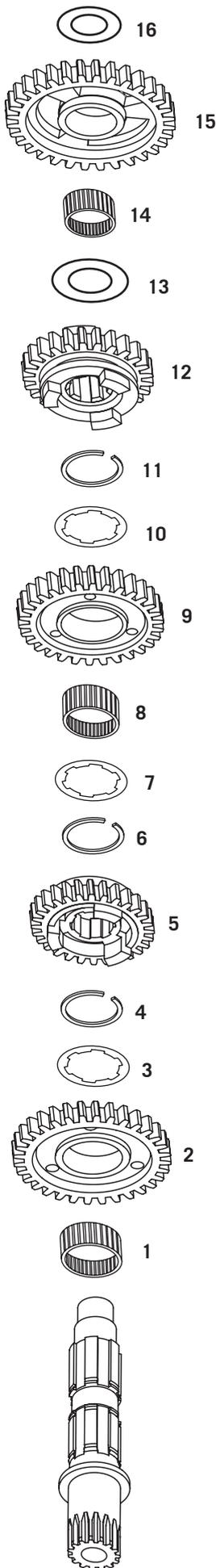
- Needle bearing
- Mainshaft and countershaft pivot points including idler gears
- Shift dogs and gear wheels
- Tooth faces of all gears
- Tooth profile of mainshaft and countershaft and corresponding gears
- Easy operation of gear-change

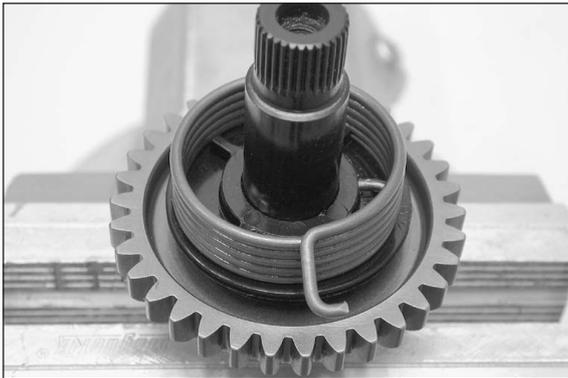
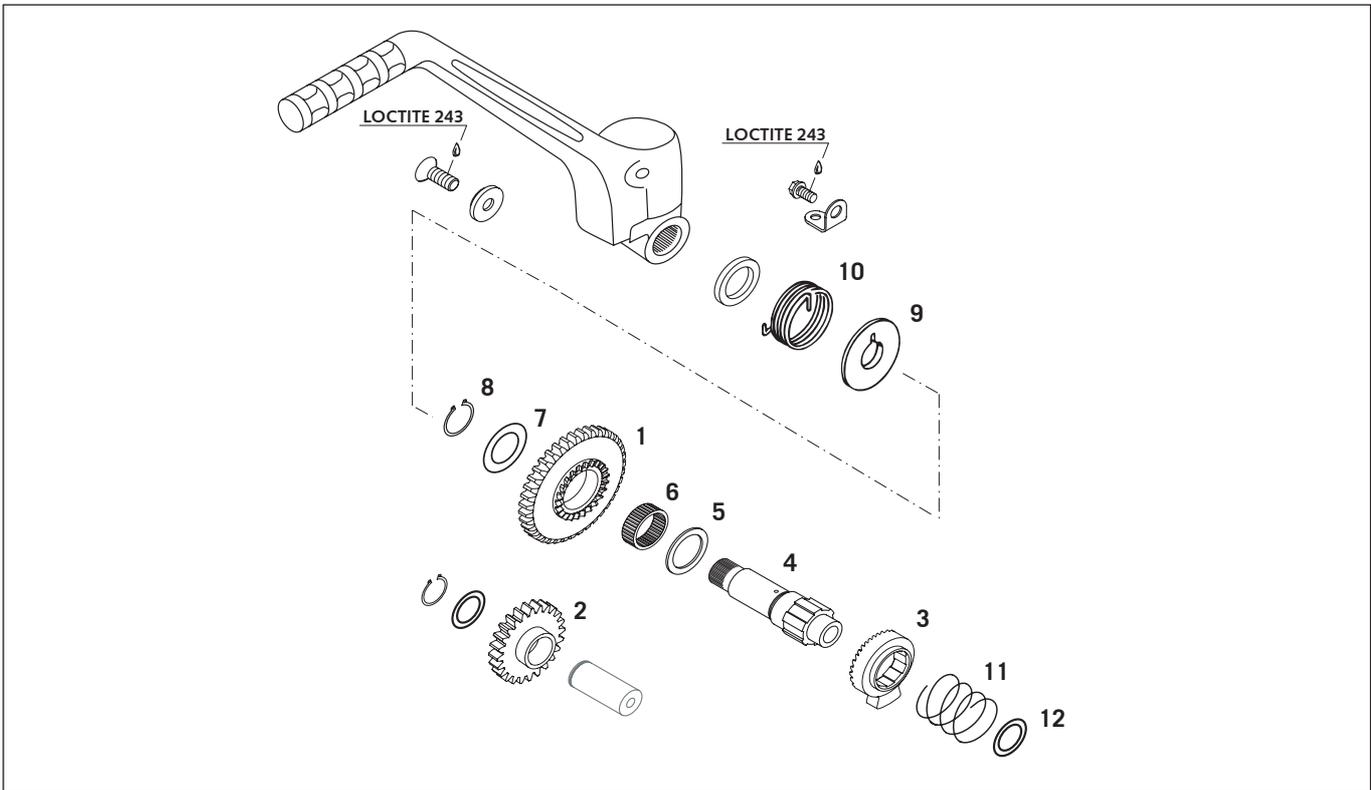
Carefully clean components and replace damaged components.

NOTE: Always place circlips with sharp edge facing the components secured, ensuring that they are not overexpanded (use special pliers). Check that after any repair of the transmission, circlips should axially not move more than 0.20 mm (0.006 in) and must not seize between stop discs.

## Assembly countershaft

- Fix the countershaft in a vice with the toothed end (use covered clamps).
- Oil all parts before assembly.
- Mount the split needle bearing ① on the main shaft and slide the 2nd idler gear ② over the bearing with the collar facing down.
- Mount the internally toothed stop disk ③ (25.2x32x1 mm) and circlip 4 (25x1.64) with the sharp edge facing up.
- Mount the 4th sliding gear ⑤ with the shift groove facing down, mount circlip ⑥ (25x1.64) and stop disk ⑦ (25.2x32x1.5).
- Slide on the split needle bearing ⑧ with the 3rd idler gear ⑨.
- Mount the internally toothed stop disk ⑩ (25.2x32x1.5) over the bearing and mount circlip ⑪ (25x1.64).
- Mount sliding gear 5 ⑫, slide on the stop disk ⑬ (20x32x1) and mount needle bearing ⑭.
- Slide on the 1st idler gear ⑮ with the shift groove facing down and the stop disk ⑯ (17.2x30x1).
- Finally check all gears for easy running.





### Checking the kickstarter for wear

Take all the components off the kickstarter shaft and clean them.

#### Kickstarter gear ①

Check the tothing for wear and the bearing for clearance.

#### Kickstarter idler gear ②

Check the bearing for clearance and seizing marks. Check the tothing for wear. It is constantly engaged with the outer clutch hub.

#### Kickstarter ratchet gear ③

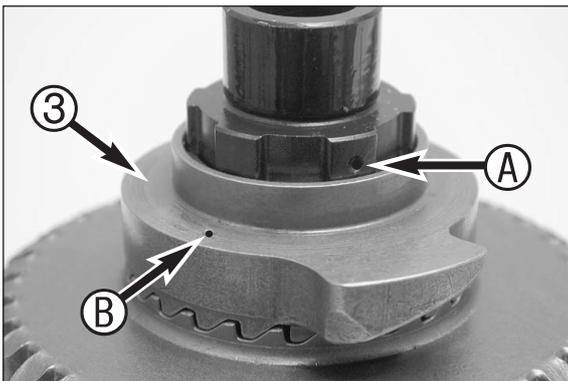
Check the inclined surface and the tothings for wear.

#### Kickstarter shaft ④

Check the bearing positions and tothings for wear and damage. Check the oil bore for the kickstarter gear for unobstructed passage.

### Assembling the kickstarter shaft

- Clamp the kickstarter shaft ④ with the toothed end facing upward into a vise (use protection jaws).
- Mount stop disc ⑤, needle bearing ⑥ and kickstarter gear ① with the locking teeth facing downward.
- Slip on the stop disc ⑦ and mount the circlip ⑧ with the sharp edge facing upward.
- Mount the driving hub ⑨ such that the recess is located above the bore in the kickstarter shaft.
- Mount the kickstarter spring ⑩ and hook the starter spring leg into kickstarter shaft bore.
- Unclamp the kickstarter shaft.
- Slide the kickstarter ratchet gear ③ on the kickstarter shaft until mark A is one tooth behind mark B (see illustration).
- Mount the ratchet gear spring ⑪ and the stop disc ⑫ on the kickstarter shaft.



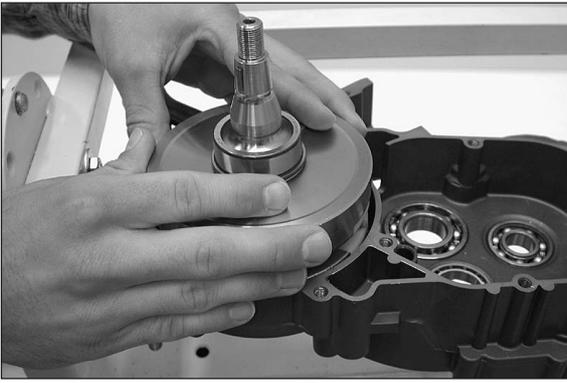
# ASSEMBLING THE ENGINE

# 6

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- Secure the right-hand housing half in the engine work stand.

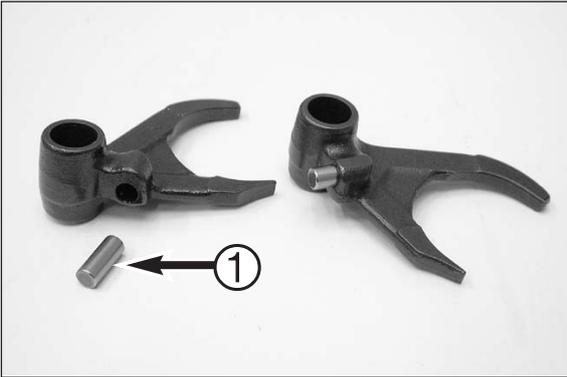
### Crankshaft

- Insert the crankshaft from above through the grooved ball bearing and push carefully as far as it will go.

**! CAUTION !**

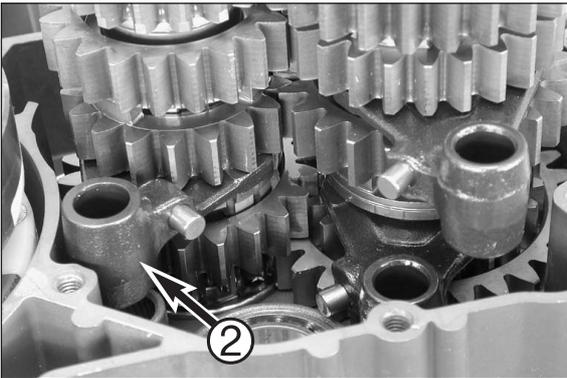
WHEN PUSHING IN THE CRANKSHAFT, MAKE SURE THE CONROD IS FACING THE CYLINDER.

NOTE: To make it easier to mount the crankshaft, heat the crankshaft bearing with a hot air blower.



### Transmission

- Oil the driving pin ① for the shift forks and mount.
- Fix the lower stop disc on the countershaft with a small amount of grease.
- Mount the drive shaft together with the countershaft, and insert them into the bearings as far as they will go.
- Oil the shift forks prior to mounting.



- Shift fork ② with the shorter shift dog belongs to the main shaft.
- Mount the two other shift forks at the countershaft, using the marks applied before disassembly for better orientation.

**! CAUTION !**

ALL OF THE SHIFT FORKS ARE DIFFERENT SO GO BY THE MARKS MADE DURING DEMOUNTING WHEN YOU MOUNT THEM AGAIN.

NOTE: If you did not make any marks during demounting, mount the shift forks for the countershaft such that the distance between the shift bolts is the greatest.



- Attach the shift fork in the sliding gears.
- Clean the thread on the shift roller and insert it in to the grooved ball bearing.
- Attach the shift forks to the shift roller.

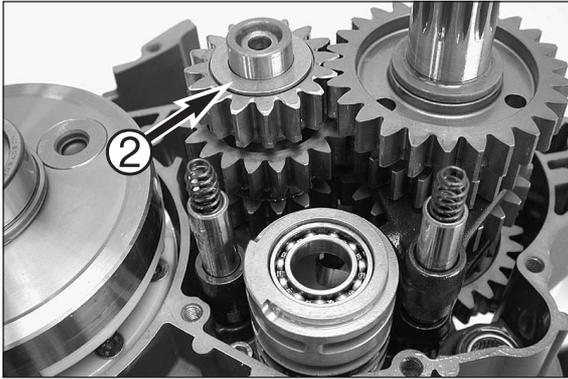
**! CAUTION !**

WHEN INSERTING THE SHIFT FORKS, MAKE SURE THE DRIVING PINS DO NOT FALL OUT OF THE SHIFT FORKS.



- Fix the 3 pressure springs ❶ with ample amounts of grease in the gearshift rails.

NOTE: The bottom of the longer gearshift rail does not have a spring.



- Oil the gearshift rails and insert them into the gearshift forks (short gearshift rail toward drive shaft). Insert the gearshift rails into the casing bores as far as they will go.

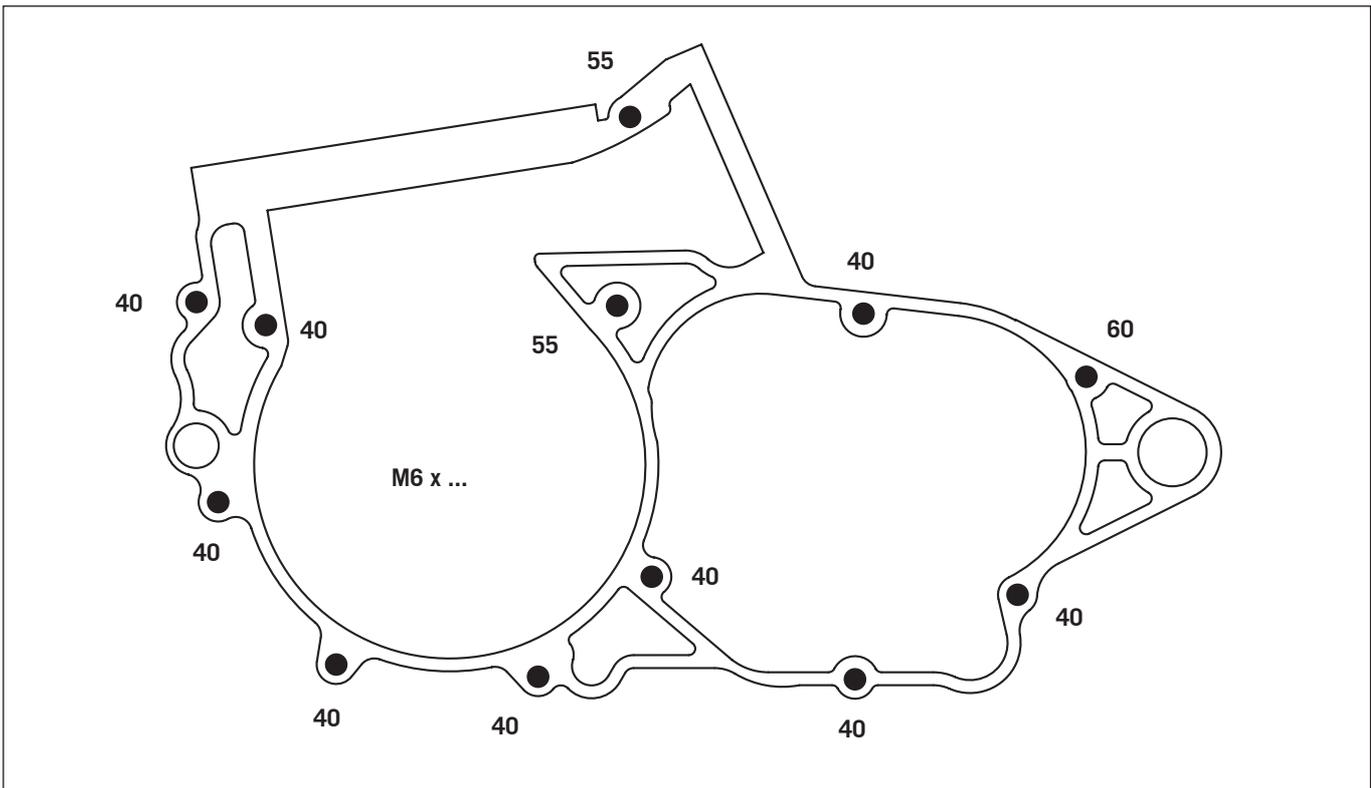
NOTE: It will now be possible to gently turn gear shafts.

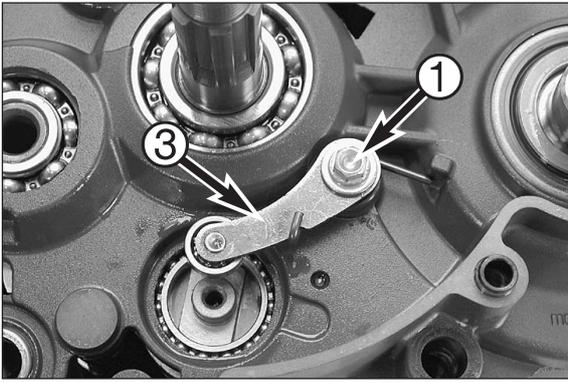
- Mount stop disk ❷ (20.2x33x1.5 mm) on the main shaft.



### Assembling the engine housing

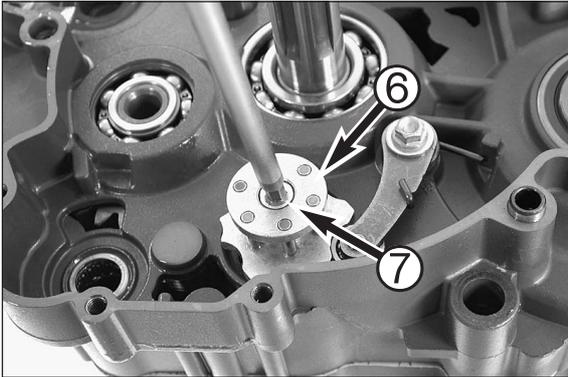
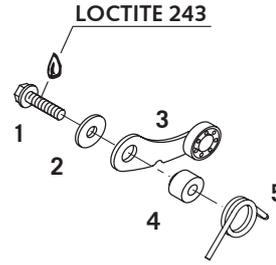
- Remove the engine fastener from the engine work stand.
- Make sure both fitting collars are positioned in the right housing half, the stop disk in the main shaft and the grooved ball bearing in the shift roller.
- Apply a light coat of grease to the sealing surfaces of the housing and position the new gasket.
- Grease the shaft seal rings in the left-hand half and place the left-hand half in position.
- Position the bolts and tighten to 10 Nm.
- Cut off any excess seal length around the cylinder support and the reed housing.
- Fix the engine in the work stand.



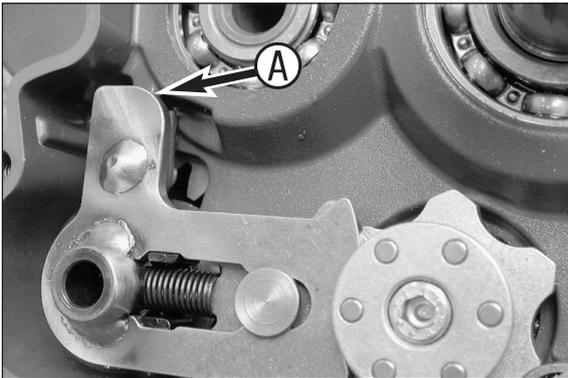


### Mounting the shift mechanism

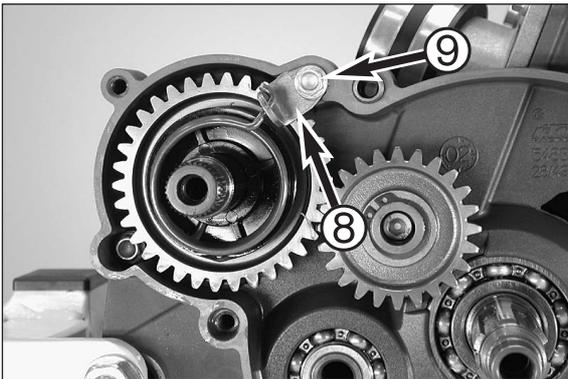
- Slip the disc ②, the locking lever ③, the locking spring sleeve ④ and the locking lever spring ⑤ onto the bolt ① (M5x20).
- Apply Loctite 243 to the thread of the screw ① and mount all parts at one time.



- Slide the shift locating drum ⑥ onto the shift roller. Please note that the flat portions are eccentric. Here, the locking lever has been drawn away from the shift roller.
- Coat allen head bolt ⑦ with Loctite 243 and mount.



- Grease the pre-mounted shift shaft at the bearing positions and push into the bearings together with the stop disk until the shift rail touches the driver for the shaft roller.
- Now squeeze, and push shift shaft in to the stop.
- Check that the legs of the return spring surround both the left and right side of the housing nose A.
- Mount the foot shift lever and shift through all gears. When shifting through the gears, turn the countershaft. Then remove the foot shift lever.



### Mounting the kickstarter shaft

- Oil the bearing bore for the kickstarter shaft.
- Insert the preassembled kickstarter shaft into the bearing bore such that the ratchet gear is positioned behind the release plate.
- Attach the spring hanger ⑧ to the starter spring, apply Loctite 243 to the thread of screw ⑨ (M6x10), pretension the starter spring approx. 90° in a clockwise direction and fix the spring hanger to 10 Nm.
- Adjust the starter spring so that the distance to the kickstarter shaft is the same all around.

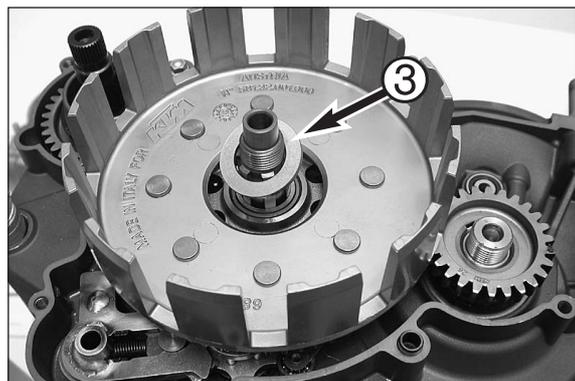


- Oil the starter idler ⑩ on the inside and mount on the journal with the high collar facing the engine housing.
- Slip on the stop disc (17.2x25x1 mm) and mount the circlip with the sharp edge showing upwards.

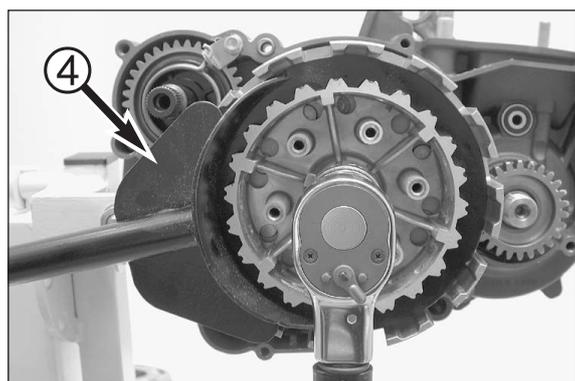


### Mounting the primary drive and clutch

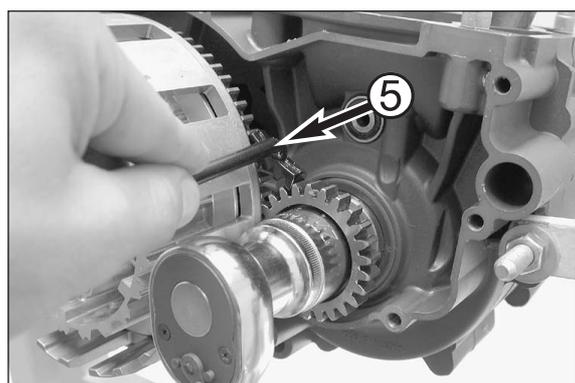
- Grease the crankshaft seal ring.
- Put the oiled O-ring (25x1.50 mm) onto the crankshaft and mount the distance bushing with the chamfer facing the crank web.
- Place primary gear ❶ onto crankshaft with the collar downwards.
- Put the inner ring onto the main shaft with the collar facing downwards, then mount the oiled needle cage ❷.



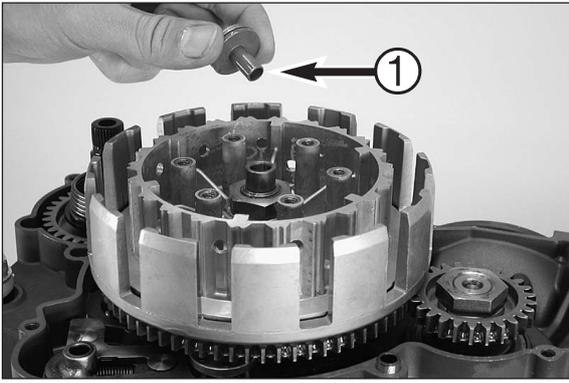
- Mount the outer clutch hub and stop disc ❸.



- Mount the inner clutch hub, the new lock washer and the hexagon nut to the main shaft.
- Degrease the thread on the shift shaft and apply Loctite 243.
- Position clutch holder ❹ 546.29.003.000 and tighten the hexagon nut to 100 Nm.
- Remove the clutch holder and secure the hexagon nut by bending both brackets of the lock washer upwards.

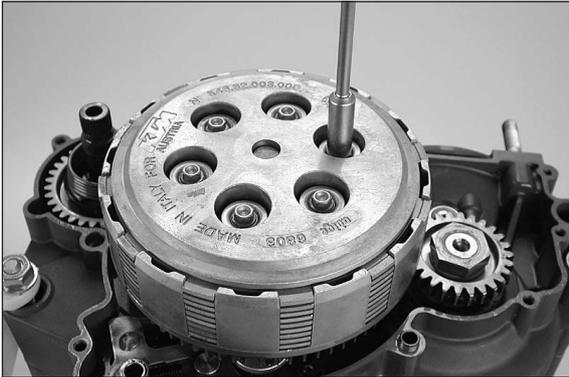


- Degrease the thread on the crankshaft and apply Loctite 243.
- Fit the locking washer and the hexagon nut (left hand thread) by hand.
- Block the primary drive with gear segment ❺ 560.12.004.000 and tighten the primary gear hexagon nut to 150 Nm.
- Remove the gear segment and check the easy running of the primary drive by turning the crankshaft.



**Mounting the clutch discs and pressure cap**

- Oil the thrust bearing ❶, and slide it over the drive shaft.



- Oil the lining discs before mounting.
- Beginning with one lining disc, mount alternately 9 lining discs (= 2.70 mm / 0.10 in) and 8 intermediate discs (= 1.20 mm / 0.047 in), with a lining disc forming the final layer upwards.

NOTE: Mount the clutch disks with the sharp edge facing up.

- Place pressure cap into position; fit the clutch springs, the spring retainer and the collar bolts.
- Tighten the collar bolts crosswise. Do not apply more than 10 Nm to prevent damaging the threads in the inner clutch hub.



**Mounting the clutch cover**

- Make sure the 3 dowels are mounted in the engine housing.
- Grease the shaft seal ring and kickstarter shaft support and fix the clutch cover gasket with a small amount of grease.
- Apply silicone to area A and carefully mount the preassembled clutch cover. Turn the crankshaft slightly to allow the centrifugal timer to engage in the primary pinion.

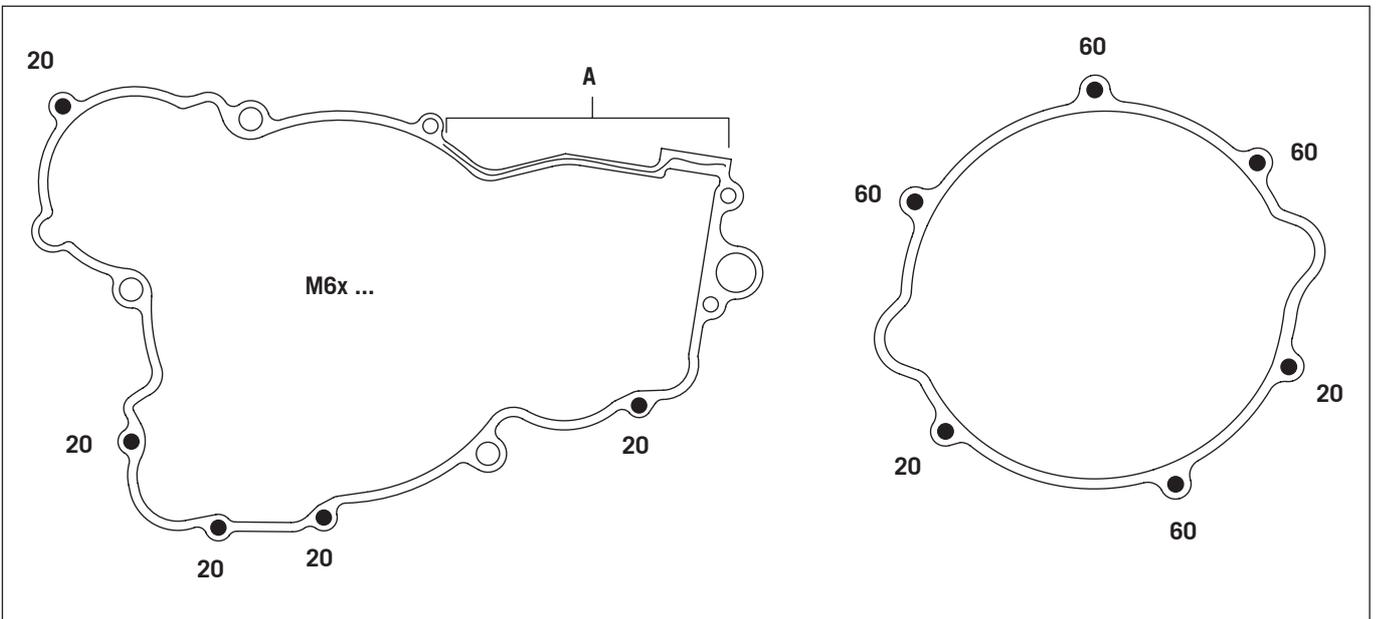
NOTE: Some of the gaskets already have an incorporated silicone track. If so, no silicone must be applied to area A.

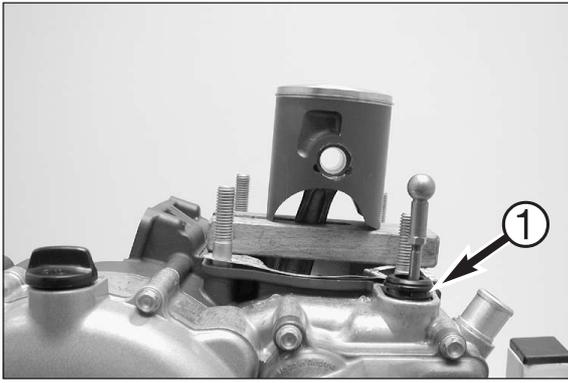
- Fit the collar bolts (see sketch for bolt lengths) and tighten to 10 Nm.
- Then check the easy running of all shafts.
- Check the seal groove on the outer clutch cover for damage, clean and mount the outer clutch over together with the gasket (see illustration of screw length).

NOTE: If the clutch cover cannot be mounted, verify whether or not the kickstarter spring has been positioned correctly.

Art.- Nr. 3.206.032-E

Repair manual KTM 250 / 300



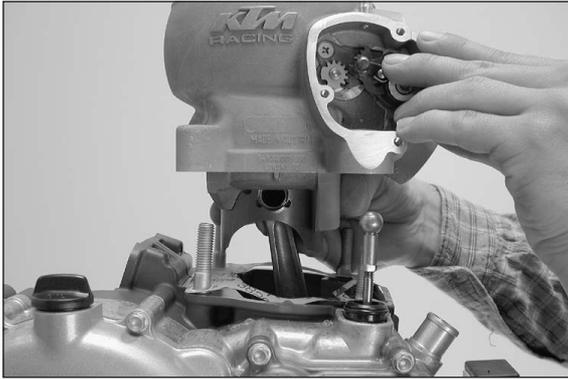


### Mounting the piston and cylinder

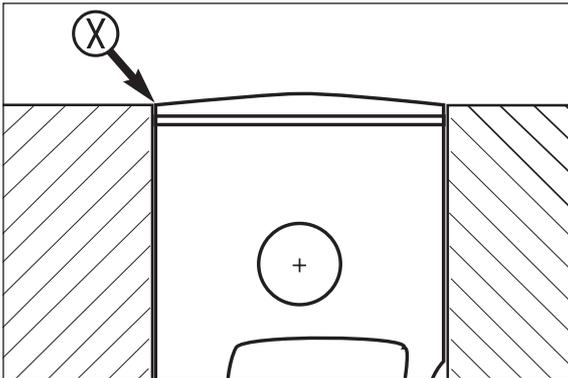
- Before assembly, oil all parts thoroughly at the sliding points.
- Insert the needle bearing in the conrod eye, attach the piston (the arrow on the base of the piston should point towards the exhaust port) and mount the piston pin.
- Mount 2 new wire circlips with the open side facing down.
- Mount the cylinder base gaskets.
- Place the piston on a self-made wooden stand and adjust the piston ring.
- Oil the sealing element support ❶.

#### NOTE:

2 piston rings are installed starting with the 2005 model.



- Mount the pre-mounted cylinder, remove the wooden stand and tighten all 4 collar nuts crosswise to 35 Nm.



### Adjusting dimension "X"

NOTE: Dimension "X" is the dimension from the upper edge of piston to the upper edge of the cylinder with the cylinder under low tension and the piston in TDC position.

The dimension "X" should be adjusted extremely carefully by inserting cylinder base gaskets of suitable thicknesses.

#### ! CAUTION !

IF THE DIMENSION "X" IS TOO LARGE, THE COMPRESSION RATIO WILL BE REDUCED AND THE ENGINE WILL LOSE POWER. ON THE OTHER HAND, IF THE DIMENSION "X" IS TOO SMALL, THE ENGINE WILL PING AND OVERHEAT.



#### 250 SX/SXS

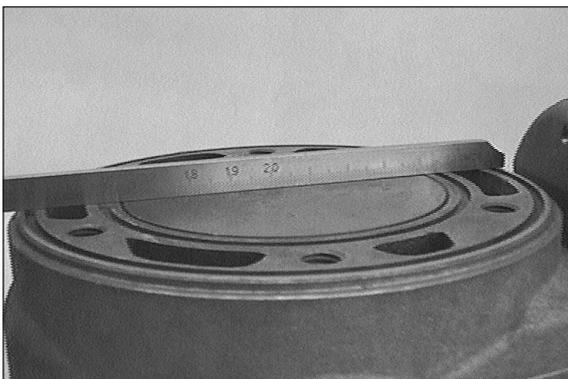
##### all 2006 250 models

- Move the piston to TDC and apply the adjusting gauge 548.29.001.000 to the center of the cylinder, transversal to the driving direction. Use a feeler gauge to measure the gap between the upper edge of the piston or cylinder and the adjusting gauge.

#### 250 EXC/EXC SIX DAYS 2004/2005

##### all 300 models

- Move the piston into the TDC position and place a sliding gauge or straight edge across the cylinder. Use a feeler gauge to measure the gap between the upper edge of the piston or cylinder and the sliding gauge.

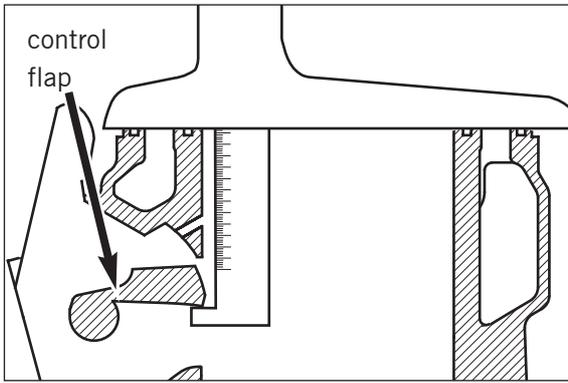


- If correctly adjusted, the adjusting plate or sliding gauge should fit flush against the upper edge of the piston and cylinder.
- Correct by adding or removing cylinder base gaskets.

$$\text{Dimension "X"} = 0 \text{ mm} + 0.1 \text{ mm}$$

#### ! CAUTION !

THE PISTON MUST NOT PROTRUDE BEYOND THE CYLINDER'S UPPER EDGE.



### Adjusting the control flap (dimension "Z")

NOTE: Dimension "Z" is the distance from the lower edge of the control flap to the upper edge of the cylinder, as measured in the centre of the exhaust port.

250/300 Model 2004/2005  
300 Model 2006

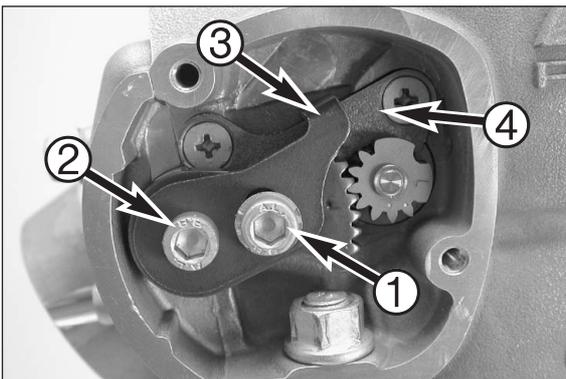
Dimension "Z" = 48.5 mm  $\begin{matrix} 0 \\ -0.2 \end{matrix}$

250 Model 2006

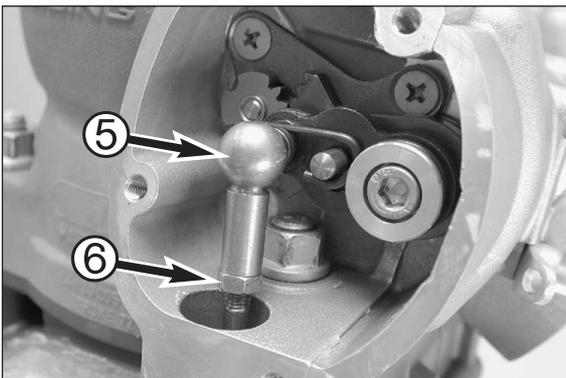
Dimension "Z" = 47.5 mm  $\begin{matrix} 0 \\ -0.2 \end{matrix}$



- Undo the bolts of the stop plate (left side of the cylinder) ① and ② and apply Loctite 243 to the threads. Then mount both bolts but do not tighten them yet.
- Set the preselected value on the depth gauge and fix.
- Swivel control flap upwards and hold depth gauge into cylinder as shown in the illustration.
- The Control flap must rest against depth gauge.



- Allow the bump plate ③ to rest against the retaining bracket ④.
- Secure the bump plate fastening bolts ① and ②.
- Having tightened the bolts ① + ②, you have to check the dimension "Z" again and correct it, if necessary.

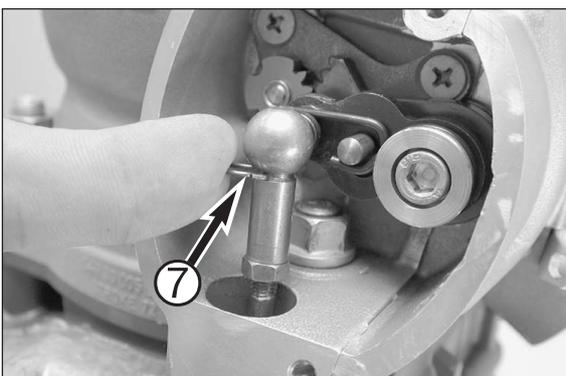


- Press the control flap all the way down and press the ball socket ⑤ onto the ball of the control lever.

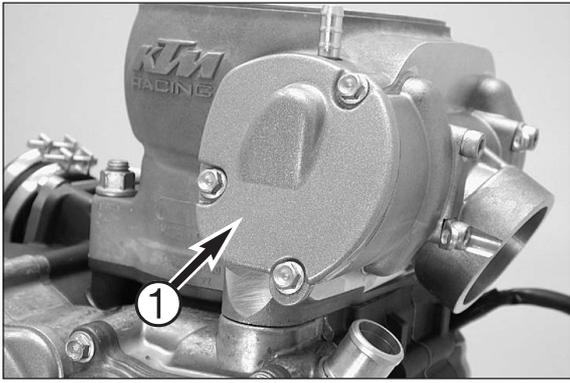
When pressing ball socket do not:

- pull the linkage too far up (max. 1 mm).
- swivel control flap upwards.

- Adjust the linkage length if necessary.
- To do so, loosen the counter nut ⑥ and turn the ball socket accordingly.
- Retighten the counter nut.

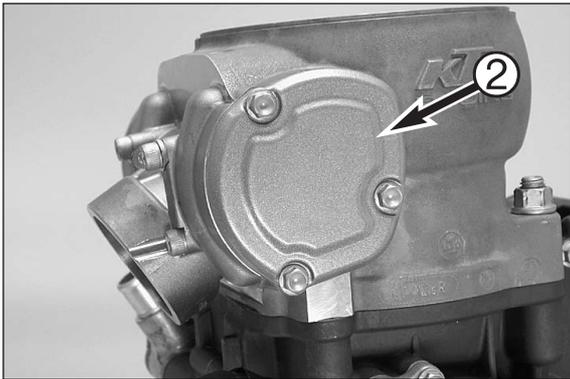


- Refit the ball socket and fit the safety device ⑦.



### Mounting the steering covers

- Mount the right control cover ❶ including the gasket and fasten with 3 bolts.

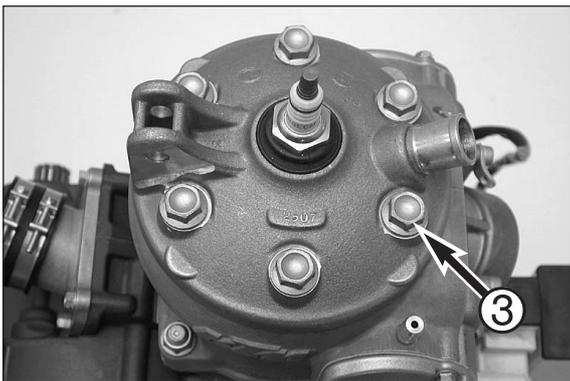


- Place the gasket in position and fix the left-hand steering cover ❷ on the cylinder.



### Mounting the cylinder head

- Clean the cylinder and the cylinder head sealing surface, place the O-rings in the grooves.
- Mount the cylinder head with the water nozzle on the exhaust side.

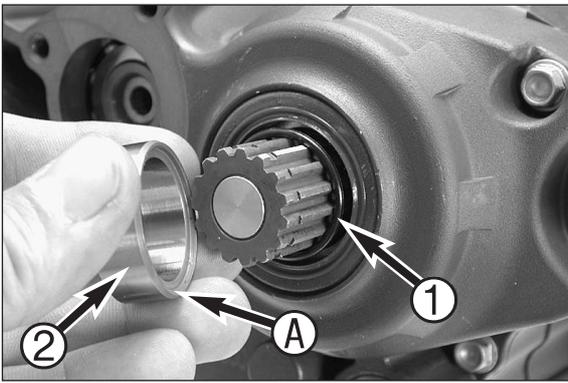


- Oil the collar nuts ❸ at the threads and contact faces.
- Mount the collar screws with new copper seal rings and tighten to the specified torque in 3 stages.
- In the first stage, only tighten until a slight resistance is felt.



### Mounting the reed valve housing

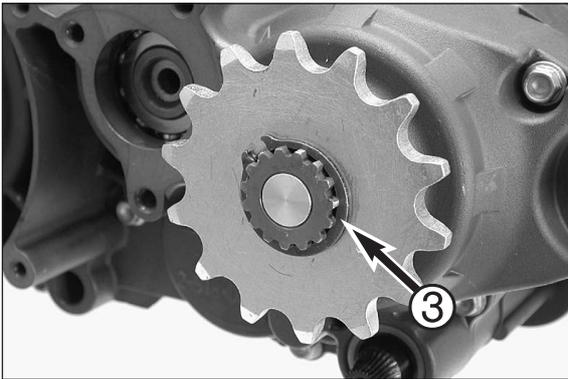
- Insert the reed valve housing into the intake port together with the intake flange or rubber sleeve and fasten the 4 screws.



### Mounting the engine sprocket

- Lubricate O-ring ① with oil and slide over the counter shaft.
- Slide the distance bushing ② over the countershaft so that the O-ring rests in bevel A and the dust lip on the shaft seal ring does not slip inside.

NOTE: Use a new O-ring (24.8x2.2 mm) starting with the 2005 model. It should also be fit retroactively.



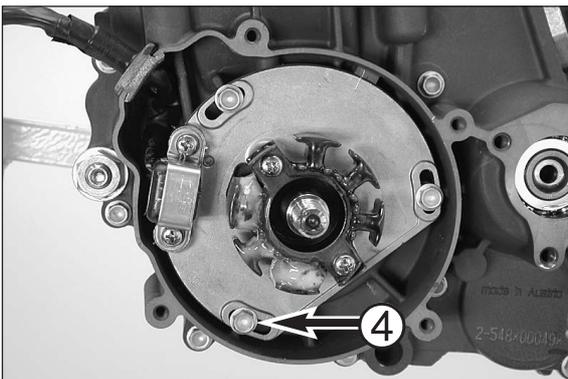
- Slide the sprocket onto the countershaft with the collar facing inward, and fix it with the circlip ③ (sharp edge facing outward).

!

**CAUTION**

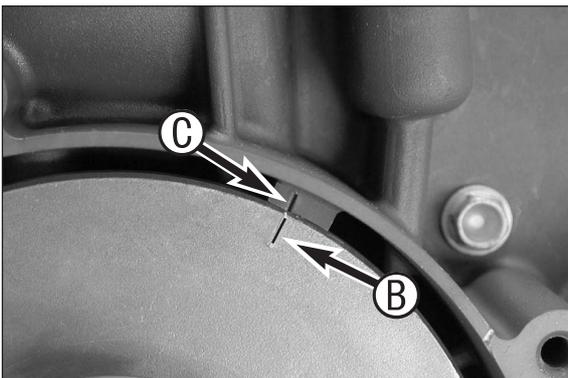
!

THE CHAIN SPROCKET MAY NOT HAVE ANY AXIAL CLEARANCE, OTHERWISE CHECK WHETHER O-RING ① WAS MOUNTED.



### Mounting the ignition

- Insert the woodruff key into the crankshaft.
- Apply Loctite 222 to 3 bolts ④ and fix the stator (do not tighten the 3 bolts yet).



- Turn the stator until mark B on the stator coincides with mark C in the housing.
- Tighten the 3 bolts on the stator with 6 Nm.



- Mount the rotor.
- Mount the detent edged ring and the nut.
- Hold the rotor with the holding spanner 546.29.012.100 and tighten the nut to 60 Nm.



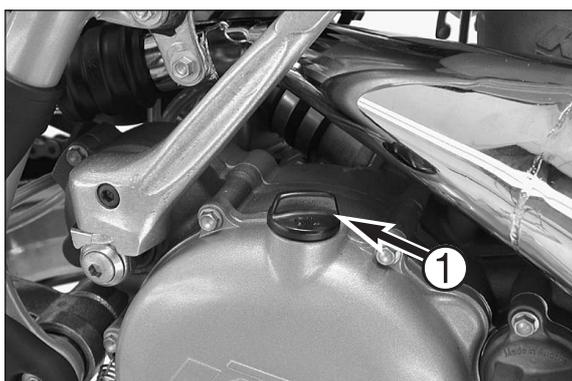
### Mounting the ignition cover

- Put on a new gasket, and fix the ignition cover by means of the 4 bolts.



### Mounting the starting lever and shift lever

- Mount the kickstarter. Secure the kickstarter screw with Loctite 243 and tighten to 25 Nm.
- Mount the shift lever. Secure the screw on the shift lever with Loctite 243 and tighten to 14 Nm.
- Operate the kickstarter a few times and check if the engine turns freely.
- Oil the push rod, and insert it into the drive shaft.
- Mount oil drain plug..



### Filling up the transmission oil

NOTE: The transmission oil should be filled in only after the engine has been mounted. Otherwise, a part of the transmission oil would leak out through the drive shaft.

- Pour in 0.7 litres engine oil (see technical data engine), replace plug **1** and check engine for leaks.

**! CAUTION !**

TRANSMISSION AND CLUTCH WILL BE SUBJECT TO EXCESSIVE WEAR AND TEAR, IF YOU USE TOO LITTLE OR LOW GRADE OIL. USE ONLY HIGH-GRADE OIL (E.G. **MOTOREX TOP SPEED 15W/50**).

Quantity of oil: 0.70 liter



### Check the transmission oil level

In order to check the transmission oil level the control bolt **2** is to be removed. Oil should just barely escape from the inspection opening when the motorcycle is in an upright position. If necessary, remove the plug **1** and top up with oil.

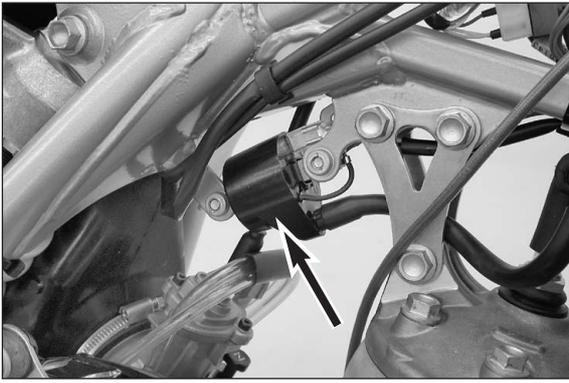
# ELECTRICAL

# 7

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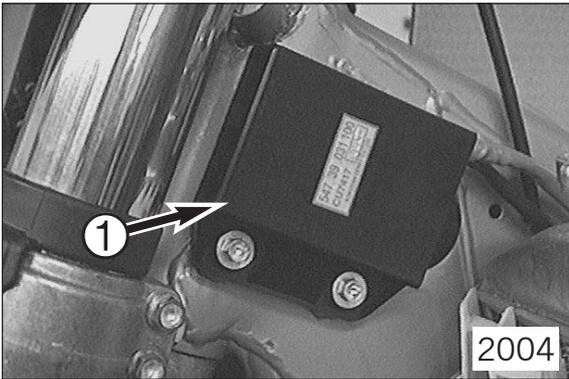


**Ignition coil**

- Disconnect all cables and remove the spark plug connector.
- Use an ohmmeter to measure the following values.

NOTE: The indicated setpoint values correspond to a temperature of 20° C.  
 Replace the ignition coil if the measured values deviate significantly from the setpoint values.

Measurement	Cable colors	Resistance
Primary coil	white/blue - ground	0.425 - 0.575 Ω
Secondary coil	white/blue - ignition wire	10.8 - 16.2 kΩ



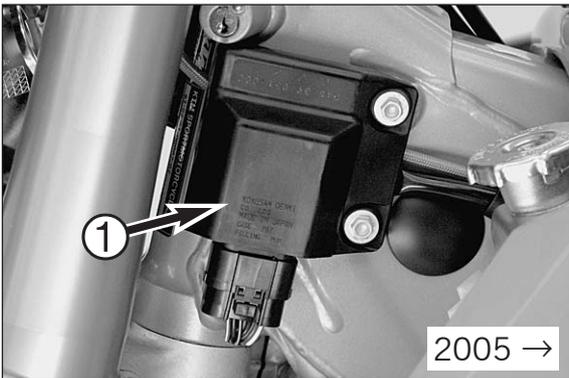
**CDI unit**

- Check the digital box for damage.
- Check the cables, plug and socket connections of the CDI unit ❶.

NOTE: The CDI unit function can only be checked on an ignition test bench.

**! CAUTION !**

NEVER USE A COMMERCIAL MEASURING DEVICE TO CHECK THE CDI UNIT. COMMERCIAL MEASURING DEVICES CAN DESTROY HIGHLY SENSITIVE ELECTRONIC COMPONENTS.



**Checking the voltage regulator**

- Start the engine and switch on the low beam.
- Connect a voltmeter to the two terminals of the capacitor.
- Accelerate the engine to a speed of 5000 r.p.m. and read off the voltage.

Nominal value: 14.0 - 15.0 V

- In the case of a significant deviation from the nominal value:
- Check the capacitor
  - Check the connector between the stator and the voltage regulator-rectifier and between the voltage regulator and the cable tree.
  - Check the stator.
  - Replace the voltage regulator-rectifier.

**Checking the voltage regulator (250 EXC USA)**

- Start the engine.
- Connect a voltmeter to the two terminals of the capacitor.
- Accelerate the engine to a speed of 5000 r.p.m. and read off the voltage.

Nominal value: 14.0 - 15.0 V

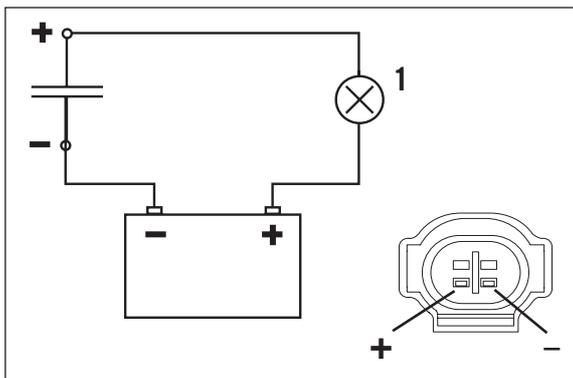
- In the case of a significant deviation from the nominal value:
- Check the capacitor
  - Check the connector between the stator and the voltage regulator-rectifier and between the voltage regulator and the cable tree.
  - Check the stator.
  - Replace the voltage regulator-rectifier.





### Checking the capacitor

- Discharge the capacitor by bridging the two connections with a cable bridge and dismount it.
- Connect the negative pole of a 12V battery with the negative terminal of the capacitor. The connection between the positive pole of the battery and the positive terminal of the capacitor is made with a test lamp ❶.
- When the power circuit is closed, the test lamp must light up briefly and return to its dark state after 1 second at the latest.
- If the test lamp does not go out or does not light up at all, the capacitor is faulty.



### Spark plug

- Set the electrode distance.

Electrode distance: 0.60 mm

Insulator

Check for cracks and fissures.

!

**CAUTION**

!

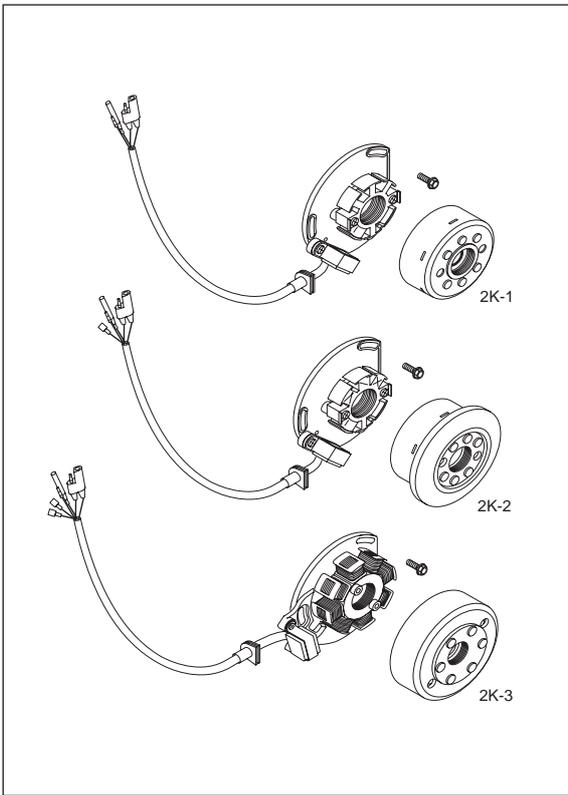
ALWAYS USE A SPARK PLUG WITH RESISTOR. OTHERWISE PROBLEMS CAN OCCUR IN THE CDI UNIT.

### Ignition

#### General information:

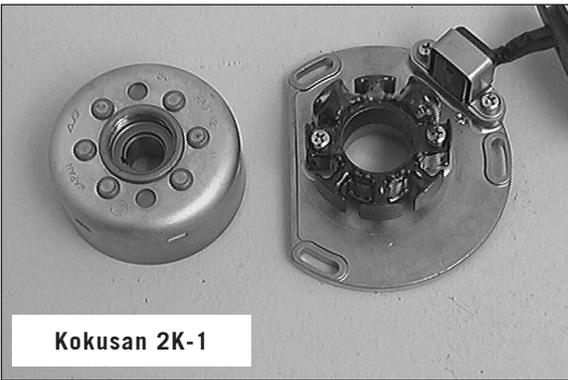
The measurements described below will only reveal severe problems. Coil short circuits leading to weak ignition sparks or low generator output, respectively, can only be detected with the help of an ignition test bench. In the case of malfunction always check the cables and the plug and socket connections of the ignition system first.

Make sure to select the correct measuring range when performing measurements.



#### Check the stator and pulse generator

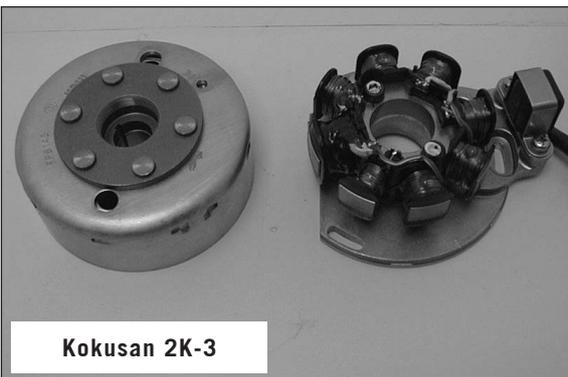
Use an ohmmeter to perform the following measurements:



Kokusan 2K-1



Kokusan 2K-2



Kokusan 2K-3

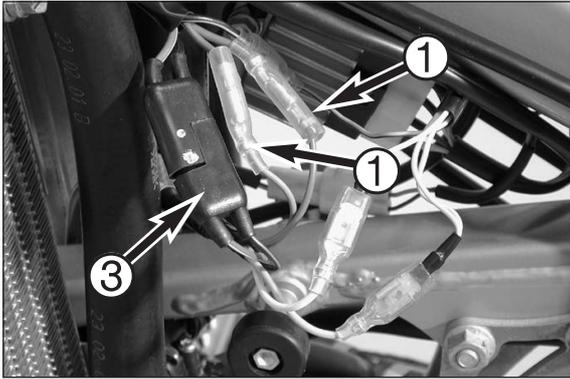
Ignition	Measure	Cable colors	Resistance
<b>2K-1</b>	Pulser coil	red - green	100 Ω ±15%
	Exciter	black/red - red/white	24 Ω ±15%
<b>2K-2</b>	Pulser coil	red - green	100 Ω ±15%
	Exciter	black/red - red/white	24 Ω ±15%
	Charge coil	ground - yellow	0.74 Ω ±15%
<b>2K-3</b>	Pulser coil	red - green	100 Ω ±15%
	Exciter	black/red - red/white	12.7 Ω ±15%
	Charge coil	ground - yellow	0.65 Ω ±15%
		white - yellow	0.16 Ω ±15%

NOTE: The measuring must be performed at a temperature of 20° C. Otherwise significant deviations must be expected. Replace the stator if the measured values deviate significantly from the setpoint values.

## STATIC IGNITION VALUES 250 SX, 250-300 EXC/MXC (KOKUSAN 2K-1, 2K-3) 2004

### Measuring conditions:

- cold engine
- seat and tank removed
- all connectors and the ground connection in a non-corroded condition and connectors tightly connected
- spark plug unscrewed and spark plug connector attached to ground
- light switch turned off
- the gap between the rotor and pulse generator must be set to 0.75 mm
- kick the kick starter forcefully at least 5 times for each measurement



### Static ignition values 250 SX, 250-300 MXC/EXC (except 250 EXC USA)

Check the **pulse generator** for an output signal - two-pin connector ① with green and red cable colors (also see circuit diagram on opposite page):

- Apply the red measuring lead of the peak voltage adapter to the green cable and the black measuring lead to the red cable, disconnect both connectors ① to disconnect the CDI unit ②

Multimeter display: 6 volts  $\pm$  1 volt  
(250 SX: 5 volts  $\pm$  1 volt)

- Take the same measurement with the CDI unit connected

Multimeter display: 3 volts  $\pm$  1 volt  
(250 SX: 9 volts  $\pm$  1 volt)

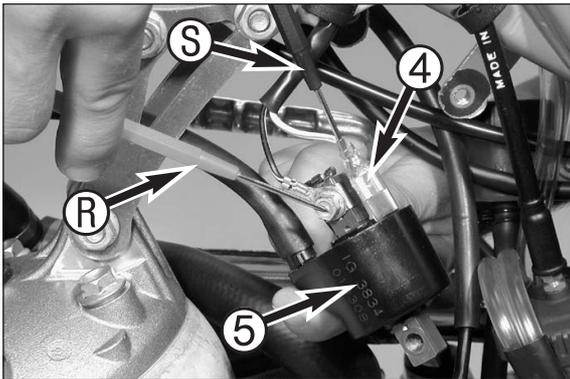
Check the **generator charging coil** for ignition capacitor charge and output voltage - two-pin connector ③ with black/red and red/white cable colors (also see circuit diagram on opposite page):

- Apply the red measuring lead of the peak voltage adapter to the black/red cable and the black measuring lead to the red/white cable, disconnect connector ③ to disconnect the CDI unit ②

Multimeter display: 35 volts  $\pm$  5 volts

- Take the same measurement with the CDI unit connected

Multimeter display: 200 volts  $\pm$  10 volts



Check the **primary voltage output** ④ for ignition coil control (also see circuit diagram on opposite page) and output voltage (blue/white cable color):

- Apply the red measuring lead ⑥ of the peak voltage adapter to the black/white cable (ground) and the black measuring lead ⑤ to the blue/white cable, CDI unit ② and ignition coil ⑤ connected

Multimeter display: 200 volts  $\pm$  10 volts

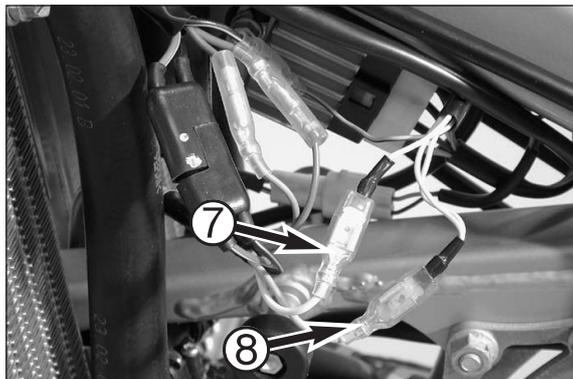
NOTE: The ignition coil does not need to be removed to take a measurement.



## STATIC GENERATOR VALUES 250-300 MXC/EXC (KOKUSAN 2K-3) 2004

### Measuring conditions:

- cold engine
- seat and tank removed
- all connectors and the ground connection in a non-corroded condition and connectors tightly connected
- light switch turned off
- kick the kick starter forcefully at least 5 times for each measurement



### Static generator values 250-300 MXC/EXC (except 250 EXC USA)

Check the **generator output** ⑥ (also see circuit diagram on opposite page) for voltage between the following cable colors:

- between yellow and brown (ground), connector ⑦ disconnected

Multimeter display (250): 19 volts  $\pm$ 2 volts  
(300): 15 volts  $\pm$ 1 volts

- between white and brown (ground), connector ⑧ disconnected

Multimeter display (250): 24 volts  $\pm$ 2 volts  
(300): 19 volts  $\pm$ 1 volts

- Repeat both measurements with connectors ⑦ and ⑧ connected. The measured values should be the same.

NOTE: The black measuring lead of the peak voltage adapter must be applied to the ground.

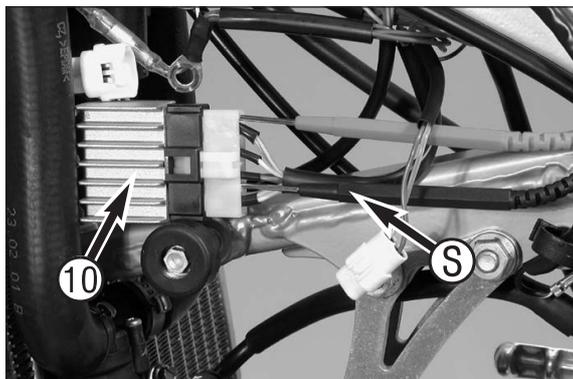
Check **regulator rectifier** output voltage ⑨ (also see circuit diagram on opposite page) cable colors yellow/red, regulator rectifier ⑩ connected, capacitor ⑪ disconnected:

- between yellow/red and brown (ground)

Multimeter display: 14 volts  $\pm$  1 volt

### NOTE:

- The black measuring lead ⑤ of the peak voltage adapter must be applied to the ground.
- 300 MXC USA corresponds to 300 EXC Europe but with less accessories (blinkers, horn, no capacitor installed). Features no rectification, only an over-voltage regulation.

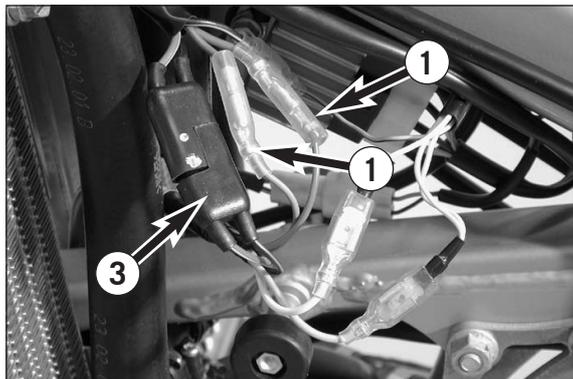




## STATIC IGNITION AND GENERATOR VALUES 250 EXC USA (KOKUSAN 2K-2) 2004

### Measuring conditions:

- cold engine
- seat and tank removed
- all connectors and the ground connection in a non-corroded condition and connectors tightly connected
- spark plug unscrewed and spark plug connector attached to ground
- light switch turned off
- the gap between the rotor and pulse generator must be set to 0.75 mm
- kick the kick starter forcefully at least 5 times for each measurement



### Static ignition values 250 EXC USA

Check the **pulse generator** for an output signal - two one-pin connectors ❶ with green and red cable colors (also see circuit diagram on opposite page):

- Apply the red measuring lead of the peak voltage adapter to the green cable and the black measuring lead to the red cable, disconnect both connectors ❶ to disconnect the CDI unit ❷

Multimeter display: 3.5 volts  $\pm$  1 volt

- Take the same measurement with the CDI unit connected

Multimeter display: 2 volts  $\pm$  0.5 volt

Check the **generator charging coil** for ignition capacitor charge and output voltage - two-pin connector ❸ with black/red and red/white cable colors (also see circuit diagram on opposite page)

- apply the red measuring lead of the peak voltage adapter to the black/red cable and the black measuring lead to the red/white cable, disconnect connector ❸ to disconnect the CDI unit ❷

Multimeter display: 45 volts  $\pm$  5 volts

- Take the same measurement with the CDI unit connected

Multimeter display: 220 volts  $\pm$  10 volts

Check the **primary voltage** output ❹ for ignition coil control (also see circuit diagram on opposite page) and output voltage (blue/white cable color):

- apply the red measuring lead ❶ of the peak voltage adapter to the black/white cable (ground) and the black measuring lead ❷ to the blue/white cable, CDI unit ❷ and ignition coil ❸ connected

Multimeter display: 210 volts  $\pm$  10 volts

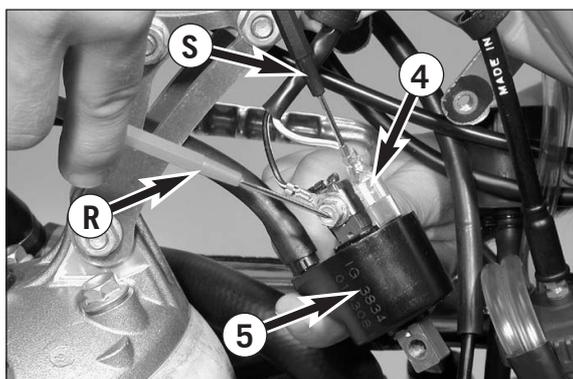
NOTE: The ignition coil does not need to be removed to measure.

### Static generator values 250 EXC USA

Check the **generator output** ❺ for the lighting system (also see circuit diagram on opposite page) for voltage:

- between yellow and brown (ground), connector disconnected

Multimeter display: 10.5 volts  $\pm$  1 volt





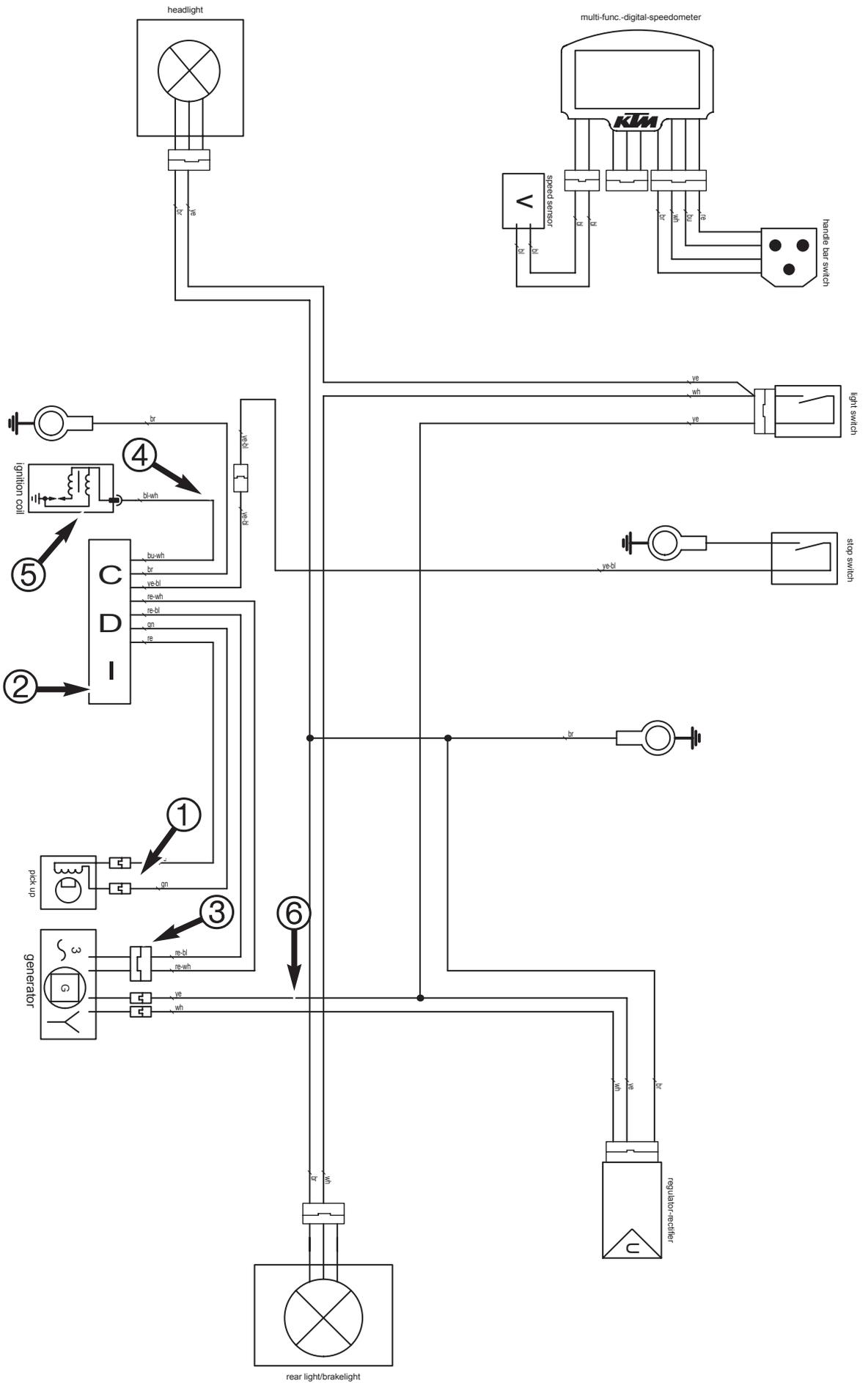
EXC-USA 250 2004

wiring diagramm

main harness

523.11.075.000

22.05.2003



## STATIC IGNITION VALUES

250 SX, 250/300 MXC/EXC (KOKUSAN 2K-1, 2K-3) 2005  
250 SX/SXS, 250/300 EXC/EXC SIX DAYS, 300 XC/XC-W (KOKUSAN 2K-1, 2K-3) 2006

### Measuring conditions:

- cold engine
- seat and tank removed
- all connectors and the ground connection in a non-corroded condition and connectors tightly connected
- spark plug unscrewed and spark plug connector attached to ground
- light switch turned off
- the gap between the rotor and pulse generator must be set to 0.75 mm
- kick the kick starter forcefully at least 5 times for each measurement



### Static ignition values (except 250 EXC USA)

Check the **pulse generator** for output signal - 4-pole plug ① with cable colors green, red, black/red and red/white (also see wiring diagram on opposite page):

- Apply the red measuring tip of the peak voltage adapter to the green cable and the black measuring tip to the red cable, disconnect plug ① to disconnect the CDI unit ②

Multimeter display: 6 volts  $\pm$  1 volt  
(250 SX: 5 volts  $\pm$  1 volt)

- Take the same measurement with the CDI unit connected

Multimeter display: 3 volts  $\pm$  1 volt  
(250 SX: 9 volts  $\pm$  1 volt)

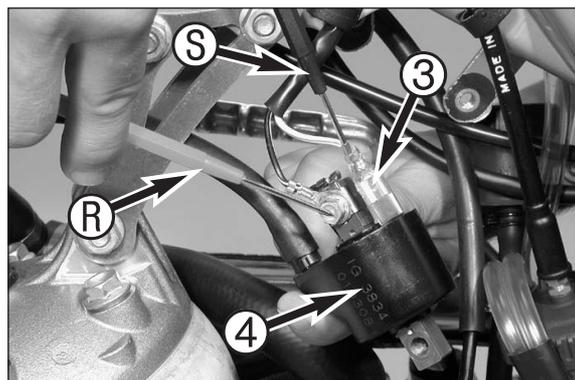
Check the generator charging coil for the ignition capacitor charge and output voltage 4-pole plug ① with green, red, black/red and red/white cable colors (also see circuit diagram on opposite page).

- Apply the red measuring lead of the peak voltage adapter to the black/red cable and the black measuring lead to the red/white cable, disconnect connector ① to disconnect the CDI unit ②

Multimeter display: 35 volts  $\pm$  5 volts

- Take the same measurement with the CDI unit connected

Multimeter display: 200 volts  $\pm$  10 volts



Check the **primary voltage output** ③ for ignition coil control (also see circuit diagram on opposite page) and output voltage (white/blue cable color):

- Apply the red measuring lead ③ of the peak voltage adapter to the black/white cable (ground) and the black measuring lead ⑤ to the white/blue cable, CDI unit ② and ignition coil ④ connected

Multimeter display: 200 volts  $\pm$  10 volts

NOTE: The ignition coil does not need to be removed to take a measurement.



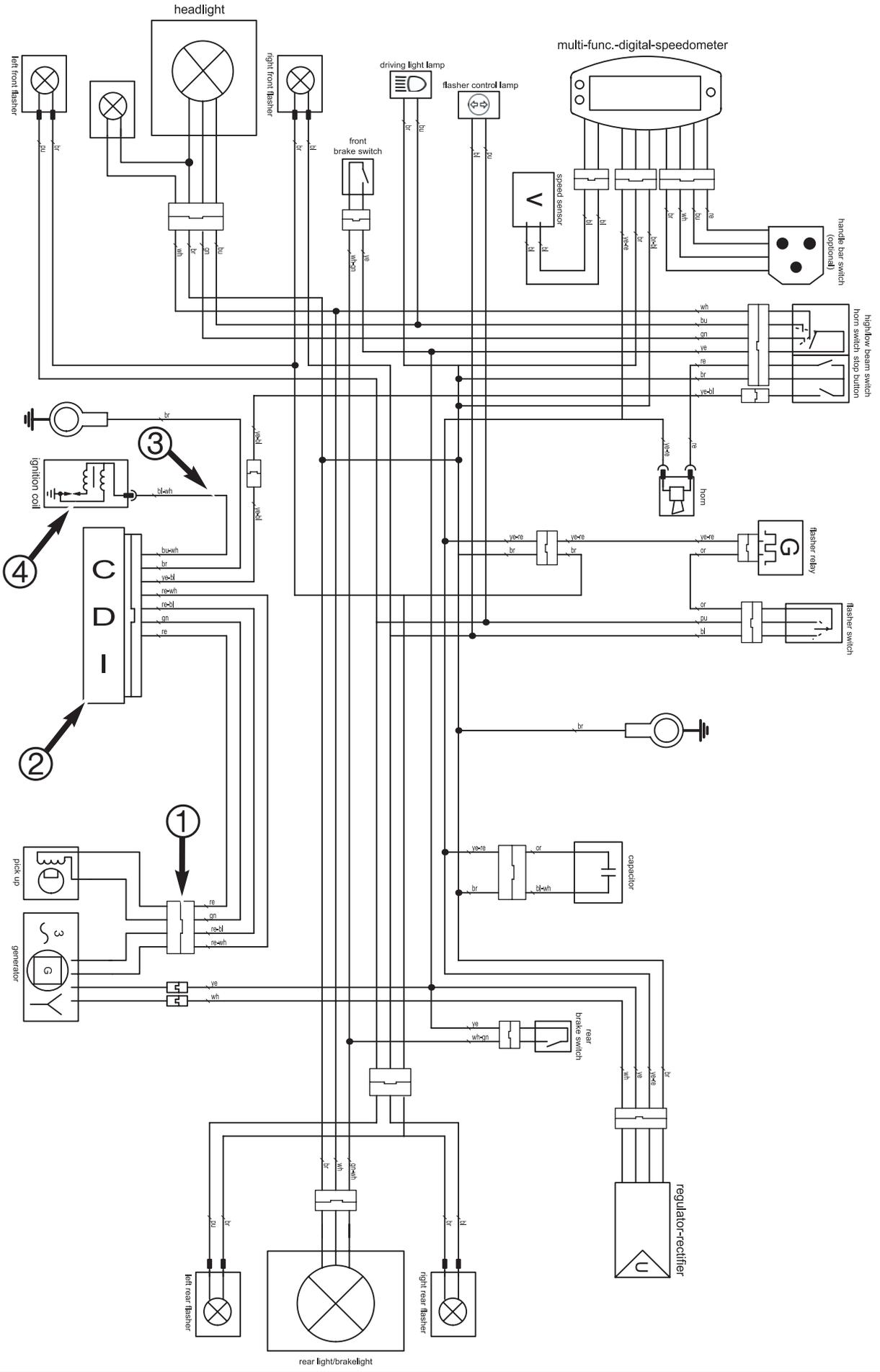
EXC 250-300 2005

wiring diagram

main harness

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20.02.2004



Art.- Nr. 3.206.032-E

Repair manual KTM 250 / 300



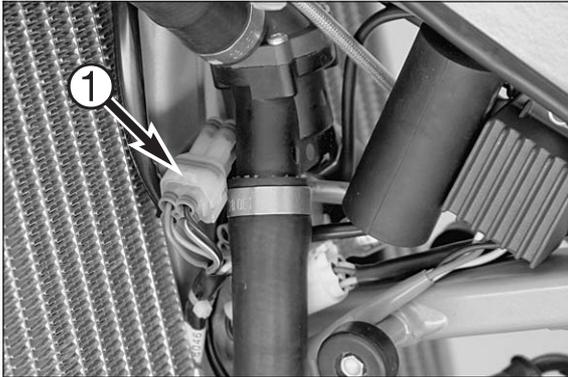


## STATIC IGNITION AND GENERATOR VALUES

### 250 EXC USA (KOKUSAN 2K-2) 2005 250 XC/XC-W (KOKUSAN 2K-2) 2006

#### Measuring conditions:

- cold engine
- seat and tank removed
- all connectors and the ground connection in a non-corroded condition and connectors tightly connected
- spark plug unscrewed and spark plug connector attached to ground
- light switch turned off
- the gap between the rotor and pulse generator must be set to 0.75 mm
- kick the kick starter forcefully at least 5 times for each measurement



#### Static ignition values

Check the **pulse generator** for output signal - 4-pole plug **1** with cable colors green, red, black/red and red/white (also see wiring diagram on opposite page):

- Apply the red measuring tip of the peak voltage adapter to the green cable and the black measuring tip to the red cable, disconnect plug **1** to disconnect the CDI unit **2**

Multimeter display: 3.5 volts  $\pm$  1 volt

- Take the same measurement with the CDI unit connected

Multimeter display: 2 volts  $\pm$  0.5 volt

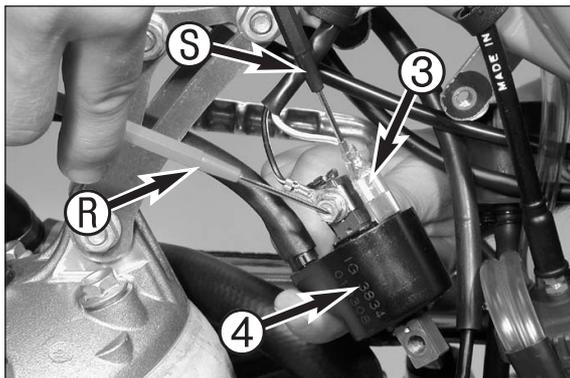
Check the **generator charging coil** for ignition capacitor charge and output voltage - two-pin connector **3** with green, red, black/red and red/white cable colors (also see circuit diagram on opposite page)

- apply the red measuring lead of the peak voltage adapter to the black/red cable and the black measuring lead to the red/white cable, disconnect connector **3** to disconnect the CDI unit **2**

Multimeter display: 45 volts  $\pm$  5 volts

- Take the same measurement with the CDI unit connected

Multimeter display: 220 volts  $\pm$  10 volts



Check the **primary voltage** output **3** for ignition coil control (also see circuit diagram on opposite page) and output voltage (blue/white cable color):

- apply the red measuring lead **1** of the peak voltage adapter to the black/white cable (ground) and the black measuring lead **5** to the blue/white cable, CDI unit **2** and ignition coil **4** connected

Multimeter display: 210 volts  $\pm$  10 volts

NOTE: The ignition coil does not need to be removed to take a measurement.

#### Static generator values 250

Check the **generator output** **5** for the lighting system (also see circuit diagram on opposite page) for voltage:

- between yellow and brown (ground), connector disconnected

Multimeter display: 10.5 volts  $\pm$  1 volt



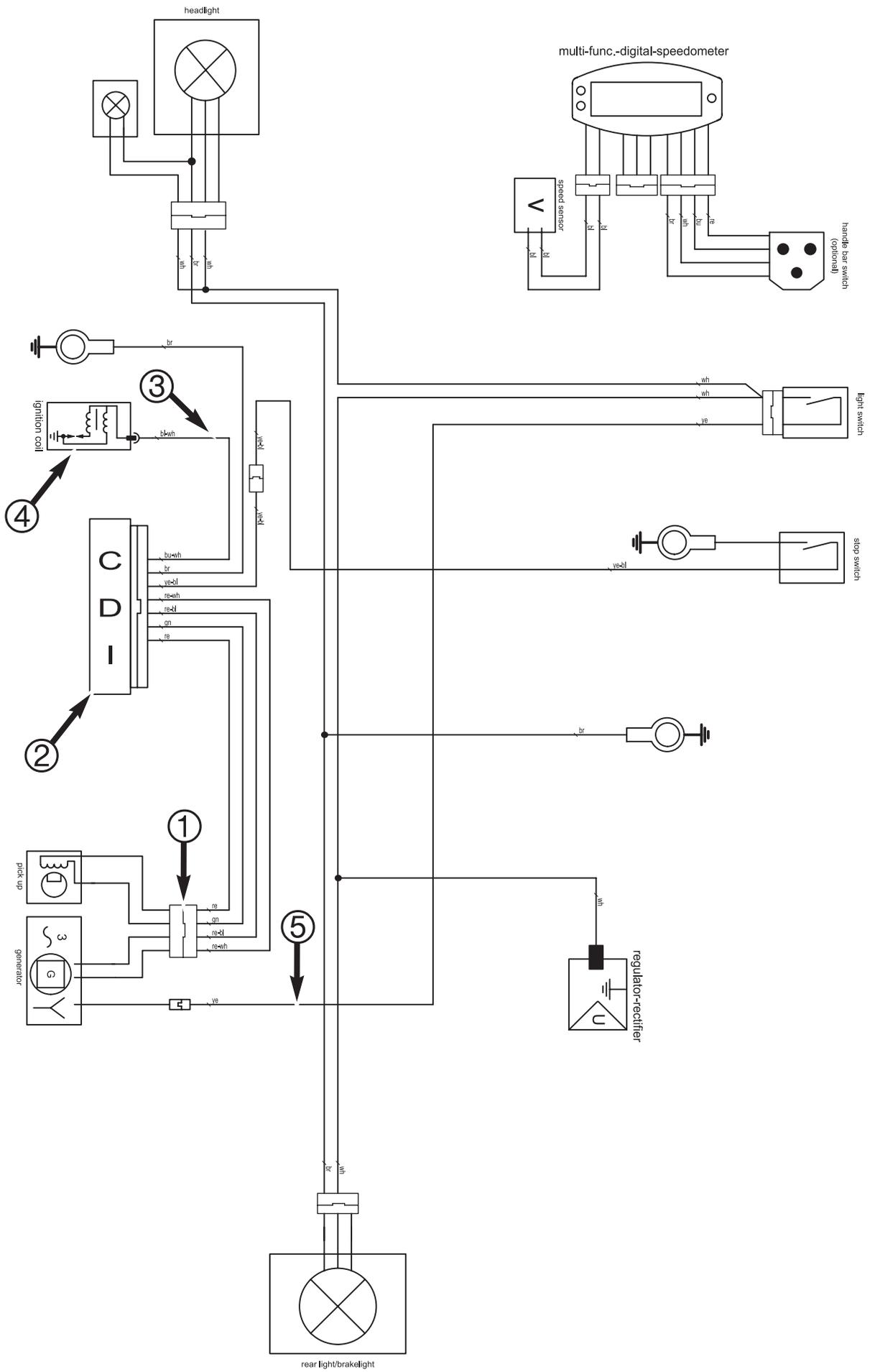
EXC-USA 200-250 05

wiring diagram

main harness

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20.02.2004



Art.- Nr. 3.206.032-E

Repair manual KTM 250 / 300



# FUEL SYSTEM

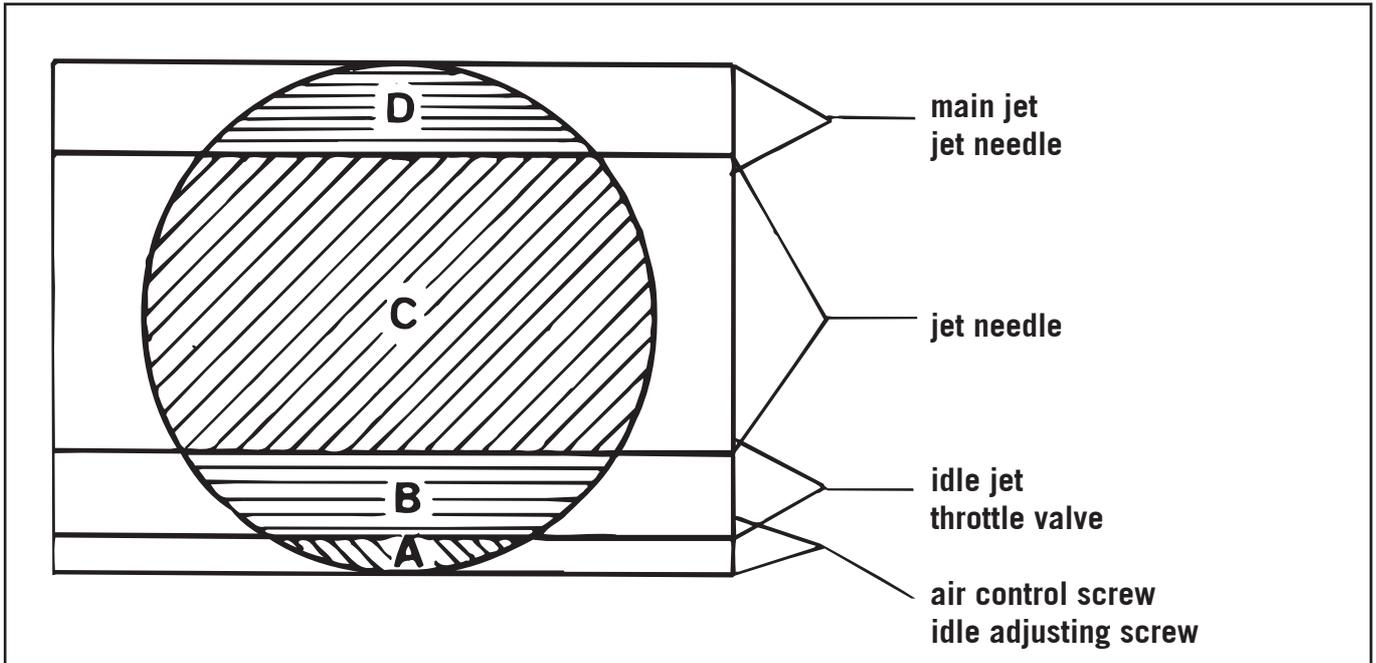
# 8

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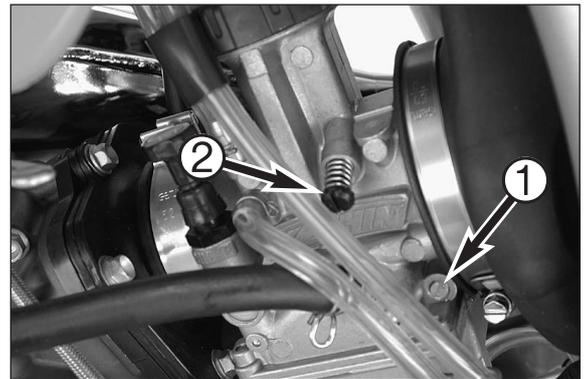


## OPERATING RANGES OF THE CARBURETOR



mixture too lean:  
not enough fuel in proportion to air

mixture too rich:  
too much fuel in proportion to air



### Idling range A

Operation with closed throttle valve. This range is influenced by the position of the air control screw ① and the idle adjusting screw ②. Only make adjustments when the engine is hot.

To adjust, slightly increase the idling speed of the engine by means of the idle adjusting screw. Turning it clockwise produces a higher idling speed and turning the screw counterclockwise produces a lower idling speed. Create a round and stable engine speed using the air control screw (basic position of the air control screw = open by 1.0 turns). Then adjust to the normal idling speed by means of the idle adjusting screw.

NOTE: The engine braking effect will be lost if the idling speed is too high.

### Opening up B

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

### Part-throttle range C

Operation with partly open throttle valve. This range is only influenced by the jet needle (shape and position). The optimum part-throttle setting is controlled by the idling setting in the lower range and by the main jet in the upper range. If the engine runs on a four-stroke cycle or with reduced power when it is accelerated with the throttle partly open, the jet needle must be lowered by one notch. If then the engine pings, especially when accelerating under full power at maximum engine revs, the jet needle should be raised.

If these faults should occur at the lower end of the part throttle range at a four-stroke running, make the idling range leaner; if the engine pings, adjust the idling range richer.

### Full throttle range D

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

### Carburetor adjustment

#### Basic information on the original carburetor setting

The original carburetor setting was adapted for an altitude of approx. 500 meters (1600 ft.) above sea level, and the ambient temperature of approx. 20° C (68° F), mainly for off-road use and central European premium-grade fuel (ROZ 95/98). Mixing ratio 2-stroke motor oil : super fuel 1:40 - 1:60.

#### Basic information on a change of the carburetor setting

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

#### RULE OF THUMB:

- high altitude or high temperatures → choose leaner carburetor adjustment
- low altitude or low temperatures → choose richer carburetor adjustment

**⚠ WARNING ⚠**

- Only use premium-grade gasoline ROZ 95/98 mixed with high-grade two-stroke engine oil. Other types of gasoline can cause engine failure, and void your warranty.
- Only use high-grade 2-stroke engine oil of known brands.
- Not enough oil or low-grade oil can cause erosion of the piston. Using too much oil, the engine can start smoking and foul the spark plug.
- In the case of a leaner adjustment of the carburetor proceed cautiously. Always reduce the jet size in steps of one number to avoid overheating and piston seizure. Too much oil will cause smoke to form, the sparkplug to become sooty and the octane number will begin to decrease.

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

Engine vibrations subject the throttle slide, jet needle, float needle valve and the needle jet to extreme wear. This wear may cause carburetor malfunction (e.g., overly rich mixture). These parts should be replaced after 100 operating hours. The carburetor body, main jet holder and the float support should be replaced after 200 operating hours.

JET NEEDLE TYPE	RANGE OF ACTION	
	RICHER	LEANER
NOZE	←————→	
NOZF	←————→	
NOZG	←————→	
NOZH	←————→	
NOZI	←————→	

#### Explanation of table - Example

Compared to the needle NOZI, the jet needle NOZG is two steps leaner in the range from the closed position of the throttle to 1/4 throttle. Otherwise, there are no differences.

**! CAUTION !**

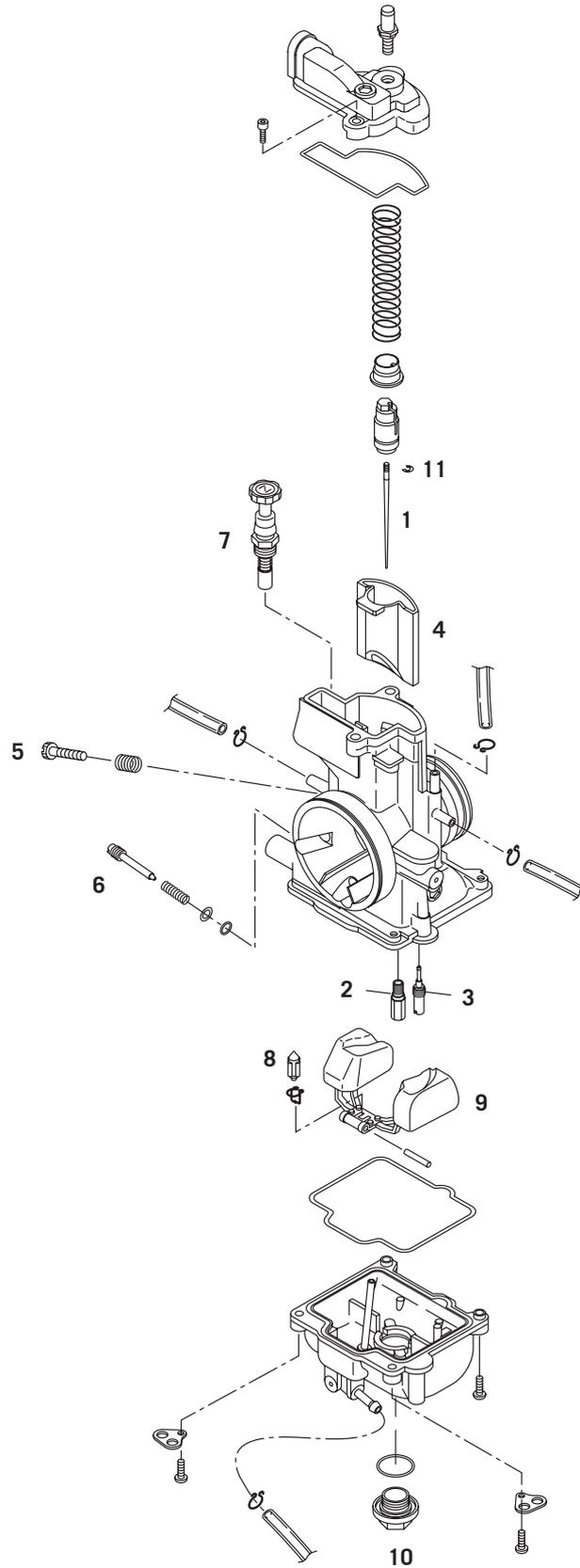
PAY ATTENTION TO THE CORRECT NEEDLE DESIGNATION WHEN REPLACING THE JET NEEDLE. DETAILED INFORMATION ON THE TYPE OF JET NEEDLE FOR THE RESPECTIVE MODELS CAN BE FOUND IN THE CARBURETOR SETTING TABLE.

JET NEEDLE TYPE	RANGE OF ACTION	
	RICHER	LEANER
N3EG	←————→	
N3EH	←————→	
N3EW	←————→	

JET NEEDLE TYPE	RANGE OF ACTION	
	RICHER	LEANER
N8RF	←————→	
N8RG	←————→	

JET NEEDLE TYPE	RANGE OF ACTION	
	RICHER	LEANER
N1EE	←————→	
N1EF	←————→	
N1EG	←————→	

# CARBURETOR KEIHIN PWK 36S AG, PWK 38S AG


**DESIGNATION:**

1 Jet needle  
 2 Main jet  
 3 Idling jet  
 4 Throttle slide

5 Idle adjusting screw  
 6 Air control screw  
 7 Choke  
 8 Float needle

9 Float  
 10 Plug  
 11 Clamping spring

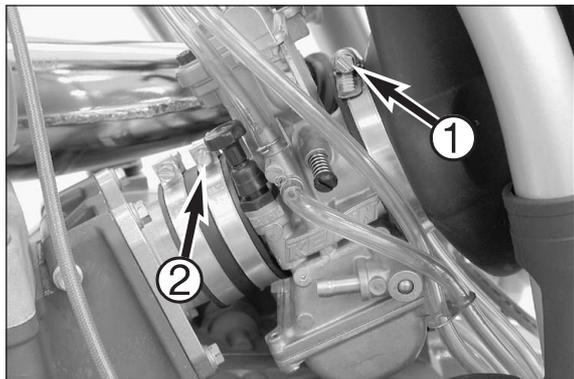
## Dismounting and installing the carburetor

NOTE: Before you start working on the carburetor, you should clean the motorcycle thoroughly.

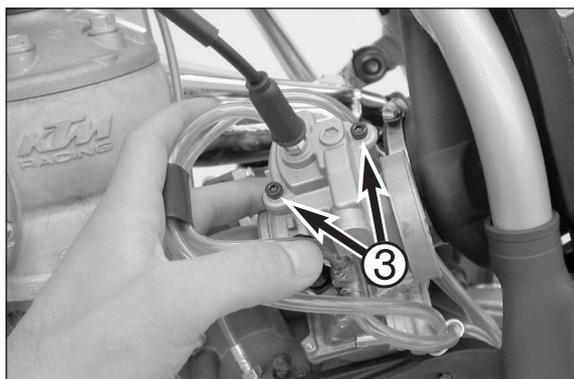
- Dismount the seat and the tank with the spoilers.



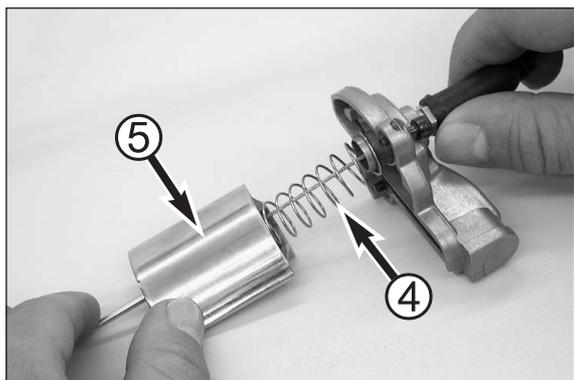
- Loosen the 2 hose clamps ① + ② and pull the carburetor out of the connection boot.



- Unscrew the two screws ③ and remove the carburetor cover together with the throttle slide.



- Press the slide spring ④ together and detach the throttle cable from the throttle slide ⑤.

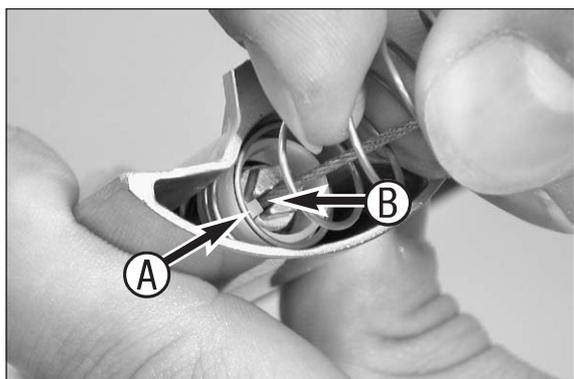


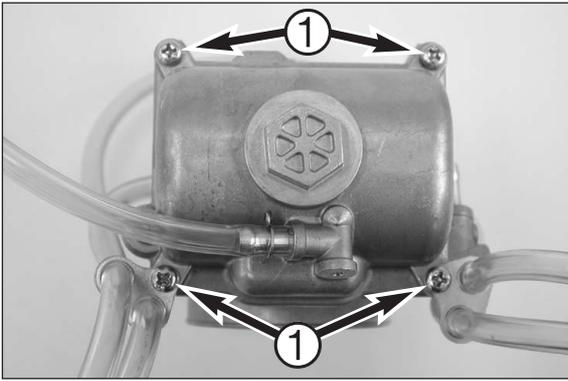
- When remounting, make sure that the tab A on the spring retainer engages in the nipple groove B.

- To mount, insert the carburetor in the boots and fix with the 2 hose clamps. Make sure the carburetor is mounted in a position vertical to the motorcycle and does not touch the engine housing.

- Mount the tank and the seat.
- Place the carburetor ventilation hoses correctly.

- Start the engine and check the carburetor for proper functioning. Turn the handlebar all the way to the left and right. The engine speed should not change, otherwise check whether the throttle cable has been placed correctly.

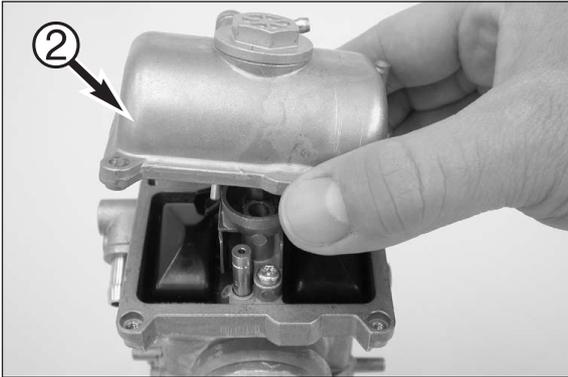




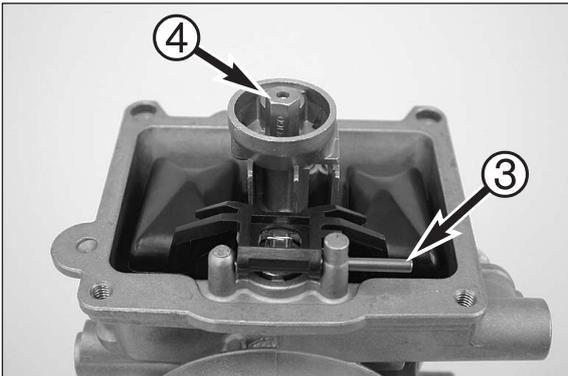
## Disassembling the carburetor

NOTE: Before you start disassembling the carburetor, you should look for a clean workplace. It should offer you enough space to lay out all individual components of the carburetor in perfect order.

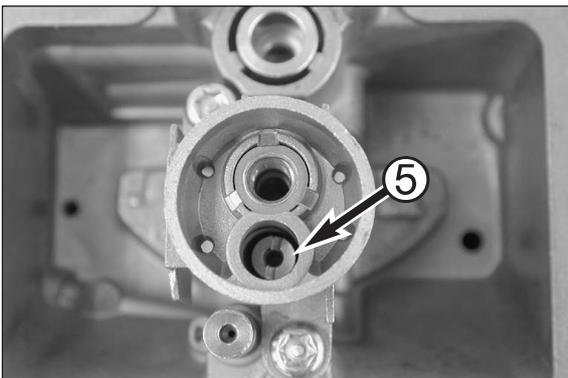
- Dismount the carburetor and remove any coarse dirt.
- Loosen the four screws ① on the float chamber and detach all of the vent hoses from the carburetor.



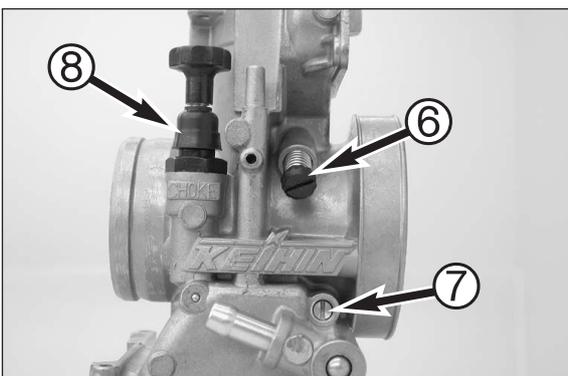
- Remove the float chamber ②.



- Pull out the float hinge pin ③ and remove the float together with the float needle valve.
- Remove the main jet ④.



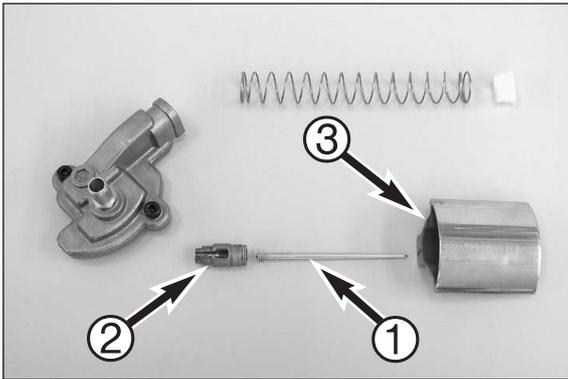
- Remove the idling jet ⑤.



- Unscrew the idle adjusting screw ⑥ together with the spring and remove.
- Screw the air control screw ⑦ all the way in, counting and making a note of the number of turns.
- Unscrew the air control screw and remove it together with the spring, washer and O-ring.
- Unscrew the starting piston ⑧.



- Remove the nipple ② in the throttle slide ③ to be able to remove the jet needle ①.



### Checking the jet needle and throttle slide

#### Jet needle:

Check the jet needle for bending and wear.

#### Throttle slide:

Check for damage and wear.

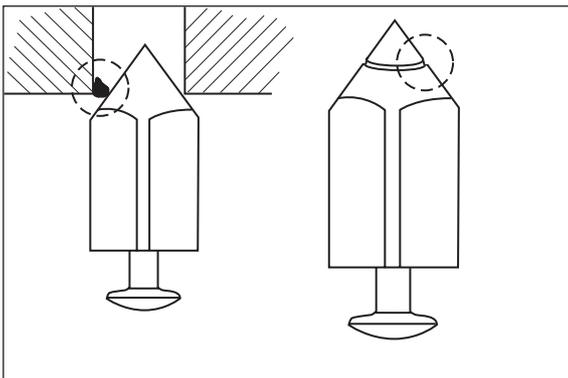
NOTE: engine vibrations subject the throttle slide, jet needle, float needle valve and needle jet to extreme wear. Wear leads to the malfunctioning of the carburetor (e.g. over-enrichment). These parts should be replaced after 100 operating hours. The carburetor body, main jet holder and float support should be replaced after 200 hours.



### Checking the starting piston

The starting piston should be easy to operate.

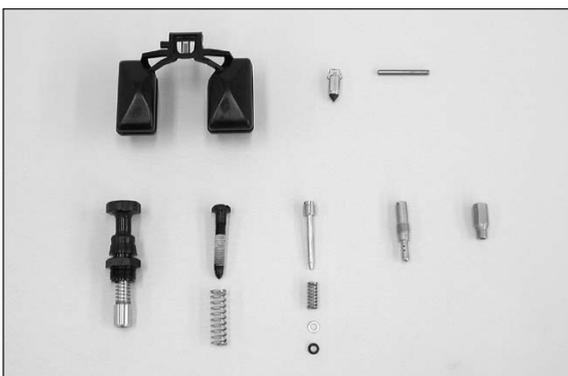
The piston ④ must not have any extreme scores or deposits..



### Checking the float needle valve

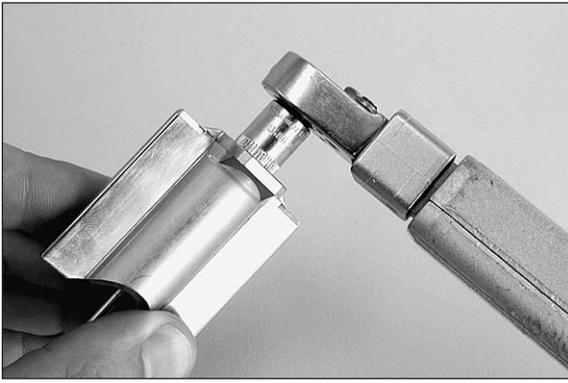
Check the sealing surface of the needle valve for notches.

There must not be any dirt between the valve seat and the float needle.



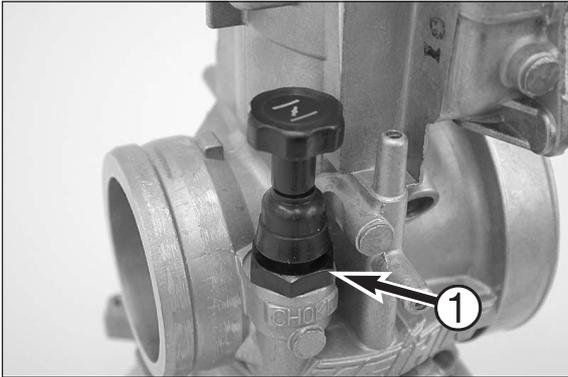
### Checking the carburetor jets and gaskets

- Thoroughly clean all jets and other parts and blow compressed air through them.
- Clean the carburetor housing and blow compressed air through all the ducts in the carburetor.
- Check all gaskets for damage and replace them if necessary.

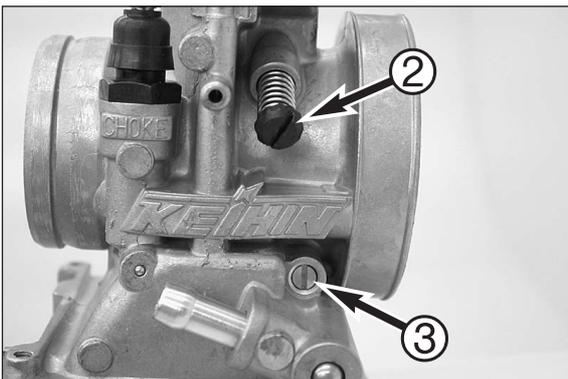


### Assembling the carburetor

- Insert the jet needle and clamping spring in the throttle side, screw on the nipple and tighten to 4Nm.

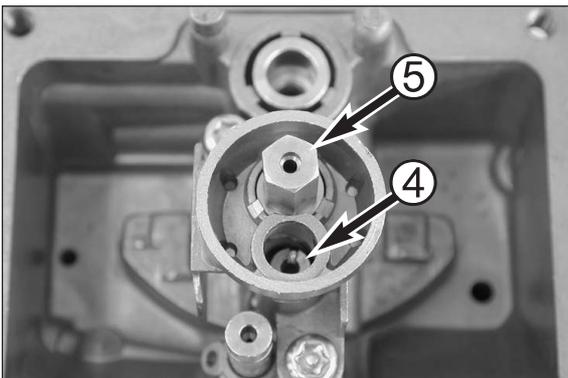


- Mount the starting piston ① and actuate several times, checking for smooth operation. Also check whether the starting piston locks correctly.

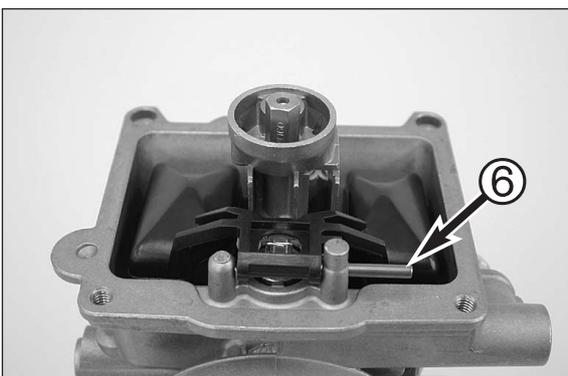


- Mount the idle adjusting screw ② and spring.
- Mount the spring, washer and O-ring on the air control screw ③ and screw it all the way in.
- Turn the air control screw back the number of turns that you noted down when it was dismantled.

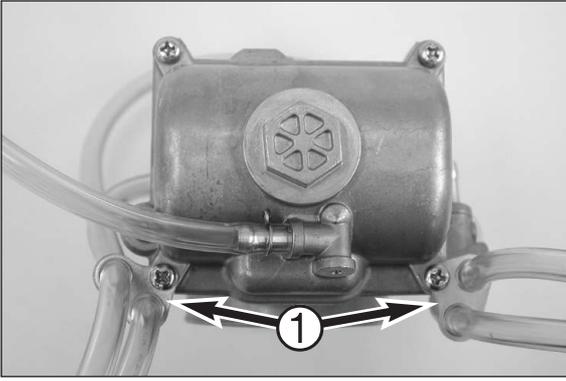
NOTE: See the Technical Specifications for the basic carburetor setting.



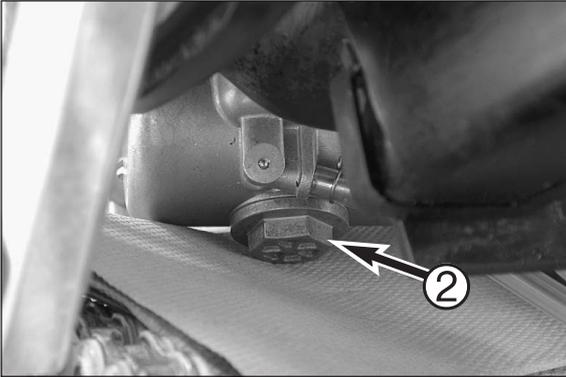
- Mount the idling jet ④ and the main jet ⑤.



- Position the float and the float needle valve and mount the float hinge pin ⑥.
- Check the float level.



- Mount all of the vent hoses and position the retaining brackets ❶.
- Mount the float chamber together with the retaining brackets.



#### Draining the carburetor float chamber

- Close the fuel tap and place a cloth under the carburetor to catch any draining fuel.
- Open the plug ❷, drain the remaining gasoline from the float chamber and clean the plug with compressed air.
- Mount the plug and gasket, tighten to 4 Nm, open the fuel tap and check the float housing for leaks.



#### Checking the float level

- Arrange the carburetor diagonally at about 60° so that the spring in the float needle valve is not pressed together.
- In this position, the edge of the float should be parallel with the float chamber sealing surface (see illustration).

# TROUBLE SHOOTING

# 9

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**TROUBLE SHOOTING 250 / 300 .....9-2**



## TROUBLE SHOOTING

If you let the specified maintenance work on your motorcycle be carried out, disturbances can hardly be expected. Should an error occur nevertheless, we advise you to use the trouble shooting chart in order to find the cause of error.

TROUBLE	CAUSE	REMEDY
Engine fails to start	Operating error	Open fuel tap, switch on ignition, refill fuel, do not use choke
	Fuel supply interrupted	Close fuel tap, loosen fuel hose at carburettor, lead into a basin and open fuel tap, <ul style="list-style-type: none"> <li>– if fuel leaks out, clean carburettor</li> <li>– if no fuel leaks out, check tank ventilation, i.e. clean fuel tap</li> </ul>
	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 kick the kickstarter, a strong spark must be produced at the spark plug <ul style="list-style-type: none"> <li>– If no spark is produced, loosen spark plug cap from ignition cable, hold about 5 mm from ground and kick the kickstarter</li> <li>– If a spark is produced, replace spark plug cap</li> <li>– If no spark is produced, check the ignition system</li> </ul>
	Kill button wire or short-circuit switch faulty	Disconnect yellow-black coloured cable from CDI and check ignition spark. If the spark is O.K. repair defective part of the cable, ignition lock 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 fails to idle	Idle adjusting screw out of adjustment	Readjust idle running or replace idle adjusting screw
	Ignition system damaged	Examine ignition system
	Wear	Overhaul engine
Engine lacks power	Charred glass fiber yarn in silencer	Renew filling
	Air filter blocked	Clean or renew airfilter
	Control flap does not work	Check control flap, joint rod and centrifugal timer
	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 doesn't have enough pre-ignition	Check and adjust ignition

TROUBLE	CAUSE	REMEDY
Engine lacks power	Reed paddles tensionless or damaged, surface of reed valve housing damaged  Wear  Electronical ignition timing faulty	Replace reed paddles or reed valve housing  Overhaul engine  Check ignition system
Engine does not rev high	Carburetor overflows if level is adjusted too high, float needle seating is dirty or enlarged  Loose carburetor jets	Clean carburetor, if necessary replace float needle and adjust level  Tighten jets
High rpm misfiring	Incorrect heat range spark plug or low quality spark plug  Incorrect or faulty spark plug connector  Loose, corroded or non conductive ignition socket connector	Refer to technical data section  Test and/or replace spark plug connectors with correct type  Check and seal with silicon
Engine splutters	Lack of fuel  Spark plug with incorrect heat value (Ignition by incandescence)  Engine takes air out of control	Clean fuel pipes, examine tank aeration and clean  Fit correct spark plug  Check intake flange and carburettor if firmly settled
Engine overheating	Insufficient liquid in cooling system  Cooling system not or insufficiently bled  Radiator fins clogged  Frothing in cooling system  Pinched or kinked water hoses  Incorrect ignition timing because of loose stator bolts  Incorrect dimension "X"	Top up coolant and bleed cooling system check cooling system for leaks  Bleed cooling system (see operating instructions)  Clean radiator with water jet  Renew coolant using branded anti-freeze/anti-corrosive  Replace with correct routed hoses  Readjust to correct ignition timing specifications, secure screws properly with Loctite 243  Measure and adjust to correct specifications
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 transmission  Water pump shaft seal ring or right-hand crankshaft seal ring defect	Correct transmission oil level  Replace shaft seal ring and change gear oil, check coolant
All switched on lamps blown out	Silicon O-rings of control roller or of control flap leaks  Voltage regulator faulty	Replace O-rings  Check control connections of voltage regulator.

# TECHNICAL SPECIFICATIONS

# 10

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## TECHNICAL SPECIFICATIONS – ENGINE 2004

ENGINE	250 SX/SXS	250 EXC	300 MXC/EXC
Design	Liquid-cooled single-cylinder two-stroke engine with KTM Twin Valve Control exhaust system and KTM Torque Chamber		
Piston displacement	249 ccm	249 ccm	293.15 ccm
Bore / stroke	66.4 / 72 mm	66.4 / 72 mm	72 / 72 mm
Fuel	unleaded fuel with at least RON 95 (SXS- RON 98), mixed with high grade two stroke oil		
Oil / gasoline ratio	1:40 – 1:60 (SXS-1:40) when using high grade, two- stroke oil. When in doubt, please contact your importer or use 1:40 mix ratio to be on the safe side		
Crankshaft bearing	1 deep-groove ball bearing / 1 cylinder roller bearing		
Connecting rod bearing	needle bearing		
Piston pin bearing	needle bearing		
Piston	cast piston		
Piston ring	one plain compression ring	two plain compression rings	two plain compression rings
Dimension "X" <small>(upper edge piston- upper edge cylinder)</small>	0 + 0.1 mm (0 + 0.004 in)		
Ignition timing	1.9 mm BTDC		
Spark plug	NGK BR8 ECM	NGK BR7 ES	NGK BR 7 ES
Electrode gap	0.60 mm		
Dimension "Z" <small>(height of the control flap)</small>	48.5 - 0.2 mm		
TVC start open	5200rpm		
TVC fully open	7000rpm (red spring), 7500rpm (yellow spring)		
Primary drive	straight cut spur gears, primary ratio 26:72		
Clutch	multiple disc clutch in oil bath, hydraulically operated (Motorex Kupplungs- Fluid 75)		
Transmission	5 speed, claw actuated		
Gear ratio	250 SX/SXS	250/300 EXC	300 MXC
1st gear	14 : 28	14 : 30	14 : 28
2nd gear	16 : 26	17 : 26	16 : 26
3rd gear	18 : 24	19 : 23	18 : 24
4th gear	21 : 24	20 : 20	21 : 24
5th gear	22 : 21	29 : 23	22 : 21
Gear lubrication	0.7 liters Motorex Top Speed 4T 15W50		
Available chain sprockets	13t / 14t / 15t for chain 5/8 x 1/4"		
Coolant	1.2 litres, 50% anti freeze, 50% pure water, at least -25 °C (-13 °F)		
Ignition system	KOKUSAN 2K-1	KOKUSAN 2K-3	KOKUSAN 2K-3
Generator output	no generator	12V / 110 W	12V / 110 W
Ignition system USA	KOKUSAN 2K-1	KOKUSAN 2K-2	KOKUSAN 2K-2
Generator output	no generator	12V / 40 W	12V / 40 W
Carburetor	flat-slide carburetor, carburetor setting see table		
Air filter	wet foam type air filter insert		

### BASIC CARBURETOR SETTING

	250SX/SXS	250 EXC USA 300 MXC, EXC USA	250/300 EXC-EU 250/300 EXC-AUS
Carburetor	Keihin PWK 38 S AG	Keihin PWK 36 S AG	Keihin PWK 36 S AG
Carburetor setting number	180303	191102	171102
Main jet	165 (162,168)	160 (162)	160 (162)
Idling jet	40 (38)	35	35
Starting jet	85	85	85
Jet needle	NOZG (NOZH/NOZF)	N3EH (N3EW)	N3CJ (N3EW/N3EH)
Needle position from top	IV	III	I
Slide	6.5	7	7
Air adjustment screw open	1	1	3.5
Performance restrictor	-	-	38 mm
Power jet nozzle	-	-	-

## TECHNICAL SPECIFICATIONS - CHASSIS 2004

CHASSIS	250 SX/SXS	300 MXC	250/300 EXC
Frame	Central chrome-moly-steel frame		
Fork	White Power – Upside down 48 MA		
Wheel travel front/rear	300/335 mm		
Rear suspension	WP PDS 5018 (Progressive Damping System) shock absorber, aluminium swingarm		
Front brake	Disc brake with perforated brake disc Ø 260 mm (10.2 in), brake caliper floated		
Rear brake	Disc brake with perforated brake disc Ø 220 mm (8.7 in), brake caliper floated		
Brake discs	Wear limit max. 0.4 mm		
Front tires	80/100 - 21" 51M, M59	–	90/90 - 21" MT83
Front tires USA		80/100 - 21" 51M, M59	80/100 - 21" 51M, M59
Air pressure offroad	1.0 bar (14 psi)	1.0 bar (14 psi)	1.0 bar (14 psi)
Air pressure road driver only	–	1.5 bar (21 psi)	1.5 bar (21 psi)
Rear tires	110/90 - 19" 62M, M70	–	140/80 - 18" MT 83
Rear tires USA		110/100 - 18" 64M, M402	110/100 - 18" 64M, M402
Air pressure offroad	1.0 bar (14 psi)	1.0 bar (14 psi)	1.0 bar (14 psi)
Air pressure road driver only	–	2.0 bar (21 psi)	2.0 bar (21 psi)
Fuel tank capacity	7.5 liters	11 liters	9 / 11 liters
Final drive ratio	13:50t	–	13:42t / 13:50t
Final drive ratio USA		13:50t	13:50t
Chain	5/8 x 1/4 "		
Available final sprockets	38t, 40t, 42t, 45t, 48t, 50t, 52t		
Bulbs	headlight	HS1 12V 35/35W	
	parking light	12V 5W (base W2.1x9.5d)	
	brake-rear light	12V 21/5W (base BaY15d)	
	flasher light	12V 10W (base Ba15s)	
	license plate illumination	12V 1.2W (base W2.1x4.6d)	
Steering head angle	63°		
Wheel base	1475 ± 10 mm		
Seat height, unloaded	925 mm		
Ground clearance, unloaded	385 mm		

### STANDARD ADJUSTMENT-FORK

	250 SX	250 SXS	250/300 EXC/MXC
	WP 4860 MXMA 14.18.Y7.45	WP 4860 MXMA 14.18.Y7.61	WP 4860 MXMA 14.18.Y7.46
Compression adjuster	18	18	20
Rebound adjuster	18	20	20
Spring	4.4 N/mm	4.4 N/mm	4.0 N/mm
Spring preload	6 mm	513 mm (total genght with spacers)	5 mm
Air chamber length	90 mm	90 mm	120 mm
Fork oil	SAE 5	SAE 5	SAE 5

### STANDARD ADJUSTMENT - SHOCK ABSORBER

	250 SX	250 SXS	250/300 EXC/MXC
	WP 5018 PDS-DCC 12.18.Y7.69	WP 5018 PDS-BAVP 12.18.Y7.79	WP 5018 PDS-MCC 12.18.Y7.70
Compression adjuster	12 LS (low speed) 2 HS (high speed)	15 LS (low speed) 2 HS (high speed)	19 -
Rebound adjuster	26	24	24
Spring	84/250	84/240	88/250
Spring preload	5 mm	6 mm	5 mm

## TECHNICAL SPECIFICATIONS – ENGINE 2005

ENGINE	250 SX/SXS		250 EXC/EXC SIX DAYS	300 MXC/EXC/EXC SIX DAYS
Design	Liquid-cooled single-cylinder two-stroke engine with KTM Twin Valve Control exhaust system and KTM Torque Chamber			
Piston displacement	249 ccm		249 ccm	293.15 ccm
Bore / stroke	66.4 / 72 mm		66.4 / 72 mm	72 / 72 mm
Fuel	unleaded fuel with at least RON 95 (SXS- RON 98), mixed with high grade two stroke oil			
Oil / gasoline ratio	1:40 – 1:60 when using high grade, two- stroke oil (Motorex Cross Power 2T), When in doubt, please contact your importer			
Crankshaft bearing	1 deep-groove ball bearing / 1 cylinder roller bearing			
Connecting rod bearing	needle bearing			
Piston pin bearing	needle bearing			
Piston	cast piston			
Piston ring	two plain compression rings			
Dimension "X" <small>(upper edge piston- upper edge cylinder)</small>	0 + 0.1 mm			
Ignition timing	1.9 mm BTDC			
Spark plug	NGK BR8 ECM		NGK BR7 ES	NGK BR 7 ES
Electrode gap	0.60 mm			
Dimension "Z" <small>(height of the control flap)</small>	48.5 - 0.2 mm			
TVC start open	5200rpm			
TVC fully open	7000rpm (red spring), 7500rpm (yellow spring), 7900rpm (green spring)			
Primary drive	straight cut spur gears, primary ratio 26:72			
Clutch	multiple disc clutch in oil bath, hydraulically operated (Motorex Kupplungs- Fluid 75)			
Transmission	5 speed, claw actuated			
Gear ratio	250 SX	250 SXS	250/300 EXC/EXC SIX DAYS	300 MXC
1st gear	14 : 28	14 : 28	14 : 30	14 : 28
2nd gear	16 : 26	15 : 24	17 : 26	16 : 26
3rd gear	18 : 24	18 : 24	19 : 23	18 : 24
4th gear	21 : 24	21 : 24	20 : 20	21 : 24
5th gear	22 : 21	22 : 21	29 : 23	22 : 21
Gear lubrication	0.7 liters Motorex Top Speed 4T 15W50			
Available chain sprockets	13t / 14t for chain 5/8 x 1/4"			
Coolant	1.2 litres, 50% anti freeze, 50% pure water, at least -25 °C (-13 °F)			
Ignition system	KOKUSAN 2K-1		KOKUSAN 2K-3	KOKUSAN 2K-3
Generator output	no generator		12V / 110 W	12V / 110 W
Ignition system USA	-		KOKUSAN 2K-2	KOKUSAN 2K-2
Generator output	-		12V / 40 W	12V / 40 W
Carburetor	flat-slide carburetor, carburetor setting see table			
Air filter	wet foam type air filter insert			

### BASIC CARBURETOR SETTING

	250 SX/SXS	250 EXC USA, 300 MXC/EXC USA 250 EXC SIX DAYS, 300 EXC SIX DAYS	250 EXC EU/AUS 6.6 KW 300 EXC EU/AUS 9.2 KW
Carburetor	Keihin PWK 38 S AG	Keihin PWK 36 S AG	Keihin PWK 36 S AG
Carburetor setting mark	TBC YMD	G01A0	3600A
Carburetor setting number	-	191102	171102
Main jet	168 (165,170)	160 (162)	160 (162)
Idling jet	42 (40)	35	35
Starting jet	85	85	85
Jet needle	NOZF (NOZG/NOZE)	N3EH (N3EW)	N3CJ (N3EW/N3EH)
Needle position from top	IV	III	I
Throttle valve	6.5	7	7
Air adjustment screw open	1	1	3.5
Performance restrictor	-	-	slide stop 38
Power Jet nozzle	-	-	-

## TECHNICAL SPECIFICATIONS – CHASSIS 2005

CHASSIS	250 SX/SXS	300 MXC	250/300 EXC/SIX DAYS
Frame	Central chrome-moly-steel frame		
Fork	White Power – Upside down 48 MA		
Wheel travel front/rear	300/335 mm		
Rear suspension	WP PDS 5018 (Progressive Damping System) shock absorber, aluminium swingarm		
Front brake	Disc brake with perforated brake disc Ø 260 mm, brake caliper floated		
Rear brake	Disc brake with perforated brake disc Ø 220 mm, brake caliper floated		
Brake discs	Wear limit 2.50 mm front / 3.50 mm rear		
Front tires	80/100 - 21" 51M, M59	–	90/90 - 21" MT 83
Front tires USA	–	80/100 - 21" 51M, M59	80/100 - 21" 51M, M59
Air pressure offroad	1.0 bar	1.0 bar	1.0 bar
Air pressure road driver only	–	1.5 bar	1.5 bar
Rear tires	110/90 - 19" 62M, M70	–	140/80 - 18" MT 83
Rear tires USA	–	110/100 - 64M, M402	110/100 - 18" 64M, M402
Air pressure offroad	1.0 bar	1.0 bar	1.0 bar
Air pressure road driver only	–	2.0 bar	2.0 bar
Fuel tank capacity	7.5 liters	10.5 liters (Reserve 1.7 liters)	8.5 liters or 10.5 liters
Final drive ratio	13:48 t	–	13:40 t
Final drive ratio USA	13:48 t	13:50 t	13:50 t
Chain	5/8 x 1/4 "		
Available final sprockets	38t, 40t, 42t, 45t, 48t, 49t, 50t, 51t, 52t		
Bulbs	headlight	12V 35/35W Bilux (base Ba20d)	
	parking light	12V 5W (base W2.1x9.5d)	
	brake-rear light	12V 21/5W (base BaY15d)	
	flasher light	12V 10W (base Ba15s)	
	license plate illumination	12V 1.2W (base W2.1x4.6d)	
Steering head angle	63°		
Wheel base	1475 ± 10 mm		
Seat height, unloaded	925 mm		
Ground clearance, unloaded	385 mm		

### STANDARD ADJUSTMENT – FORK

	250 SX	250 SXS	250/300 EXC/MXC	250/300 EXC SIX DAYS
	WP 4860 MXMA PA 14.18.7A.03	WP 4860 MXMA PA CC 14.18.7A.15	WP 4860 MXMA 14.18.7A.04	WP 4860 MXMA PA 14.18.7A.22
Compression adjuster	22	24	20	18
Rebound adjuster	20	25	20	19
Spring	4.4 N/mm	4.4 N/mm	4.0 N/mm	4.2 N/mm
Spring preload	5 mm	5.5 mm	5 mm	5 mm
Air chamber length	100 mm	-	110 mm	110 mm
Fork oil	SAE 5	SAE 5	SAE 5	SAE 5

### STANDARD ADJUSTMENT – SHOCK ABSORBER

	250 SX	250 SXS	250/300 EXC/MXC	250/300 EXC SIX DAYS
	WP 5018 PDS DCC 12.18.7A.03	WP 5018 PDS II DCC 12.18.7A.11	WP 5018 PDS MCC 12.18.7A.04	WP 5018 PDS DCC 12.18.7A.19
Compression adjuster	15 LS (low speed) 2 HS (high speed)	12 LS (low speed) 2 HS (high speed)	15 -	15 LS (low speed) 2 HS (high speed)
Rebound adjuster	22	25	22	24
Spring	76 N/mm linear	84/250	76 N/mm linear	84/250
Spring preload	7 mm	5 mm	7 mm	6 mm

## TECHNICAL SPECIFICATIONS - ENGINE 250 2006

MOTOR	250 SX / SXS / XC	250 EXC / EXC SIX DAYS / XC-W
Design	Liquid-cooled single-cylinder two-stroke engine with KTM Twin Valve Control exhaust system and KTM Torque Chamber	
Piston displacement	249 ccm	249 ccm
Bore / stroke	66.4 / 72 mm	66.4 / 72 mm
Fuel	unleaded fuel with at least RON 95 (SXS- RON 98), mixed with high grade two stroke oil	
Oil / gasoline ratio	1:60 when using high grade, two- stroke oil (Motorex Cross Power 2T), When in doubt, please contact your importer	
Crankshaft bearing	1 deep-groove ball bearing / 1 cylinder roller bearing	
Connecting rod bearing	needle bearing	needle bearing
Piston pin bearing	needle bearing	needle bearing
Piston	cast piston	cast piston
Piston ring	two plain compression rings	two plain compression rings
Dimension "X" <small>(upper edge piston- upper edge cylinder)</small>	0.0 + 0.1 mm	0.0 + 0.1 mm
Ignition timing	1.9 mm BTDC	1.9 mm BTDC
Spark plug	SX/SXS - NGK BR8 ECM XC - NGK BR7 ES	NGK BR7 ES
Electrode gap	0.60 mm	0.60 mm
Dimension "Z" <small>(height of the control flap)</small>	47.5 mm	47.5 mm
TVC start open	5500 rpm	5500 rpm
TVC fully open	7000 rpm (red spring), 7500 rpm (yellow spring), 7900 rpm (green spring)	
Primary drive	straight cut spur gears, primary ratio 26:72	
Clutch	multiple disc clutch in oil bath, hydraulically operated (Motorex Brake Fluid DOT 5.1)	
Transmission	5 speed, claw actuated	5 speed, claw actuated
Gear ratio		
1st gear	14 : 28	14 : 30
2nd gear	15 : 24	17 : 26
3rd gear	18 : 24	19 : 23
4th gear	21 : 24	20 : 20
5th gear	22 : 21	29 : 23
Gear lubrication	0.7 liters Motorex Top Speed 4T 15W50	0.7 liters Motorex Top Speed 4T 15W50
Available chain sprockets	13t / 14t for chain 5/8 x 1/4"	13t / 14t for chain 5/8 x 1/4"
Coolant	1.2 litres, 50% anti freeze, 50% pure water, at least -25 °C	
Ignition system	SX - KOKUSAN 2K-1 XC / SXS - KOKUSAN 2K-2	EXC / EXC SIX DAYS - KOKUSAN 2K-3 XC-W - KOKUSAN 2K-2
Generator output	SX - no generator XC / SXS - 12V / 40 W	EXC / EXC SIX DAYS - 12V / 110 W XC-W - 12V / 40 W
Carburetor	flat-slide carburetor, carburetor setting see table	flat-slide carburetor, carburetor setting see table
Air filter	wet foam type air filter insert	wet foam type air filter insert

## TECHNICAL SPECIFICATIONS - ENGINE 300 2006

ENGINE	300 EXC / EXC SIX DAYS / XC-W	300 XC
Design	Liquid-cooled single-cylinder two-stroke engine with KTM Twin Valve Control exhaust system and KTM Torque Chamber	
Piston displacement	293.15 ccm	293.15 ccm
Bore / stroke	72 / 72 mm	72 / 72 mm
Fuel	unleaded fuel with at least RON 95, mixed with high grade two stroke oil	
Oil / gasoline ratio	1:60 when using high grade, two- stroke oil (Motorex Cross Power 2T), When in doubt, please contact your importer	
Crankshaft bearing	1 deep-groove ball bearing / 1 cylinder roller bearing	
Connecting rod bearing	needle bearing	needle bearing
Piston pin bearing	needle bearing	needle bearing
Piston	cast piston	cast piston
Piston ring	two plain compression rings	two plain compression rings
Dimension "X" <small>(upper edge piston- upper edge cylinder)</small>	0.0 + 0.1 mm	0.0 + 0.1 mm
Ignition timing	1.9 mm BTDC	1.9 mm BTDC
Spark plug	NGK BR7 ES	NGK BR7 ES
Electrode gap	0.60 mm	0.60 mm
Dimension "Z" <small>(height of the control flap)</small>	48.5 mm	48.5 mm
TVC start open	5200 rpm	5200 rpm
TVC fully open	7000 rpm (red spring), 7500 rpm (yellow spring), 7900 rpm (green spring)	
Primary drive	straight cut spur gears, primary ratio 26:72	
Clutch	multiple disc clutch in oil bath, hydraulically operated (Motorex Brake Fluid DOT 5.1)	
Transmission	5 speed, claw actuated	5 speed, claw actuated
Gear ratio		
1st gear	14 : 30	14 : 28
2nd gear	17 : 26	15 : 24
3rd gear	19 : 23	18 : 24
4th gear	20 : 20	21 : 24
5th gear	29 : 23	22 : 21
Gear lubrication	0.7 liters Motorex Top Speed 4T 15W50	0.7 liters Motorex Top Speed 4T 15W50
Available chain sprockets	13t / 14t for chain 5/8 x 1/4"	13t / 14t for chain 5/8 x 1/4"
Coolant	1.2 litres, 50% anti freeze, 50% pure water, at least -25 °C	
Ignition system	KOKUSAN 2K-3	KOKUSAN 2K-3
Generator output	12V / 110 W	12V / 110 W
Carburetor	flat-slide carburetor, carburetor setting see table	flat-slide carburetor, carburetor setting see table
Air filter	wet foam type air filter insert	wet foam type air filter insert

### BASIC CARBURETOR SETTING

	250 SX/SXS	250 XC/XC-W 300 XC/XC-W 250/300 EXC SIX DAYS	250 EXC EU/AUS 6.6 KW 300 EXC EU/AUS 9.2 KW
Carburetor	Keihin PWK 36 S AG	Keihin PWK 36 S AG	Keihin PWK 36 S AG
Carburetor setting mark	FK0100	FK0080	3600B
Main jet	158 (155,160)	160 (162)	160 (162)
Idling jet	42 (40)	35	35
Starting jet	85	85	85
Jet needle	N1EF (N1EG/N1EE)	N8RF (N8RG)	N3CJ (N8RF/N8RG)
Needle position from top	III	250 - IV    300 - III	I
Throttle valve	6.5	7	7
Air adjustment screw open	1	1	3.5
Performance restrictor	-	-	slide stop 38

## TECHNICAL SPECIFICATIONS - CHASSIS SX / SXS / EXC / EXC SIX DAYS 2006

CHASSIS	250 SX / SXS	250/300 EXC / EXC SIX DAYS
Frame	Central chrome-moly-steel frame	
Fork	WP – Up Side Down 4860	
Fork offset (caster)	SX - adjustable 18mm/20mm SXS - adjustable 17.5mm/20.5mm	EXC - 20mm EXC SIX DAYS - adjustable 18mm/20mm
Wheel travel front/rear	300/335 mm	
Rear suspension	WP PDS 5018 (Progressive Damping System) shock absorber, aluminium swingarm	
Front brake	Disc brake with perforated brake disc Ø 260 mm, brake caliper floated	
Rear brake	Disc brake with perforated brake disc Ø 220 mm, brake caliper floated	
Brake discs	Wear limit 2.50 mm front / 3.50 mm rear	
Front tires	80/100-21" Bridgestone M59	90/90-21" Pirelli MT 83
Air pressure offroad	1.0 bar	1.0 bar
Air pressure road driver only	-	1.5 bar
Rear tires	110/90-19" Bridgestone M70	140/80-18" Pirelli MT 83
Air pressure offroad	1.0 bar	1.0 bar
Air pressure road driver only	-	2.0 bar
Fuel tank capacity	appr. 7.5 liters	appr. 8.5 liters or appr. 10 liters
Final drive ratio	SX - 13:48 t / SXS - 13:50 t	EXC - 13:40 t (13:50 t) / EXC SIXS DAYS - 13:50 t
Chain	5/8 x 1/4 "	
Available final sprockets	38t, 40t, 42t, 45t, 48t, 49t, 50t, 51t, 52t	
Bulbs		
headlight	-	12V 35/35W (base Ba20d)
parking light	-	12V 5W (base W2.1x9.5d)
brake-rear light	-	12V 21/5W (base BaY15d)
flasher light	-	12V 10W (base Ba15s)
instrument light	-	12V 1.2W (base W2.1x4.6d)
Steering head angle	63.5°	
Wheel base	1475 ± 10 mm	
Seat height, unloaded	925 mm	
Ground clearance, unloaded	385 mm	
Weight (without fuel)	97.7 kg	250 - 102.6 kg / 300 - 102.8 kg

### STANDARD ADJUSTMENT – FORK

	250 SX	250 SXS	250/300 EXC	250/300 EXC SIX DAYS
	WP 4860 MXMA PA 14.18.7B.03	WP 4860 MXMA PA CC 14.18.7B.15	WP 4860 MXMA 14.18.7B.04	WP 4860 MXMA PA 14.18.7B.28
Compression adjuster	18	22	20	20
Rebound adjuster	20	24	21	20
Spring	4.4 N/mm	4.4 N/mm	4.0 N/mm	4.2 N/mm
Spring preload	5 mm	5 mm	5 mm	3 mm
Air chamber length	100 mm	-	110 mm	110 mm
Fork oil	SAE 5	SAE 5	SAE 5	SAE 5

### STANDARD ADJUSTMENT – SHOCK ABSORBER

	250 SX	250 SXS	250/300 EXC	250/300 EXC SIX DAYS
	WP 5018 PDS DCC 12.18.7B.03	WP 5018 PDS II DCC 12.18.7B.11	WP 5018 PDS MCC 12.18.7B.04	WP 5018 PDS DCC 12.18.7B.25
Compression adjuster	15 LS (low speed) 2.5 HS (high speed)	12 LS (low speed) 2 HS (high speed)	15 -	15 LS (low speed) 1.5 HS (high speed)
Rebound adjuster	22	25	22	22
Spring	76 N/mm linear	84/250	76 N/mm linear	76/250
Spring preload	5 mm	5 mm	5 mm	5 mm

## TECHNICAL SPECIFICATIONS - CHASSIS XC / XC-W 2006

CHASSIS	250/300 XC-W	250/300 XC
Frame	Central chrome-moly-steel frame	
Fork	WP – Up Side Down 4860	
Fork offset (caster)	20mm	adjustable 18mm/20mm
Wheel travel front/rear	300/335 mm	
Rear suspension	WP PDS 5018 (Progressive Damping System) shock absorber, aluminium swingarm	
Front brake	Disc brake with perforated brake disc Ø 260 mm, brake caliper floated	
Rear brake	Disc brake with perforated brake disc Ø 220 mm, brake caliper floated	
Brake discs	Wear limit 2.50 mm front / 3.50 mm rear	
Front tires	80/100-21" Bridgestone M59	80/100-21" Bridgestone M59
Air pressure offroad	1.0 bar	1.0 bar
Air pressure road driver only	1.5 bar	-
Rear tires	110/100-18" Bridgestone M402	110/100-18" Bridgestone M402
Air pressure offroad	1.0 bar	1.0 bar
Air pressure road driver only	2.0 bar	-
Fuel tank capacity	appr. 11 liters	appr. 11 liters
Final drive ratio	13:50 t	13:50 t
Chain	5/8 x 1/4 "	
Available final sprockets	38t, 40t, 42t, 45t, 48t, 49t, 50t, 51t, 52t	
Bulbs	area code ZA only	
headlight	12V 35/35W (base Ba20d)	-
parking light	12V 5W (base W2.1x9.5d)	-
brake-rear light	12V 21/5W (base BaY15d)	-
flasher light	-	-
instrument light	12V 1.2W (base W2.1x4.6d)	-
Steering head angle	63.5°	
Wheel base	1475 ± 10 mm	
Seat height, unloaded	925 mm	
Ground clearance, unloaded	385 mm	
Weight (without fuel)	250 - 101.6 kg / 300 - 101.8 kg	100.6 kg

### STANDARD ADJUSTMENT – FORK

	250/300 XC-W	250/300 XC
	WP 4860 MXMA 14.18.7B.04	WP 4860 MXMA PA 14.18.7B.28
Compression adjuster	20	20
Rebound adjuster	21	20
Spring	4.0 N/mm	4.2 N/mm
Spring preload	5 mm	3 mm
Air chamber length	110 mm	110 mm
Fork oil	SAE 5	SAE 5

### STANDARD ADJUSTMENT – SHOCK ABSORBER

	250/300 XC-W	250/300 XC
	WP 5018 PDS MCC 12.18.7B.04	WP 5018 PDS DCC 12.18.7B.25
Compression adjuster	15 -	15 LS (low speed) 1.5 HS (high speed)
Rebound adjuster	22	22
Spring	76 N/mm linear	76/250
Spring preload	5 mm	5 mm

## TIGHTENING TORQUES - ENGINE

Flange bolts - cylinder-head	M 8	27 Nm
Nuts-cylinder base	M 10	35 Nm
Flywheel collar nut	M 12x1	60 Nm
Exhaust control - retaining bracket	M 5	Loctite 243 + 7 Nm
Exhaust control - control flap	M 6	Loctite 243 + 10 Nm
Exhaust control - lever for control segment	M 5	Loctite 243 + 6 Nm
Shift roller - bearing retaining bracket	M 6	Loctite 243 + 10 Nm
Shift lock	M 6	Loctite 243 + 10 Nm
Locking lever	M 5	Loctite 243 + 6 Nm
Idler bolt	M 6	Loctite 270 + 10 Nm
Kickstarter release plate	M 6	Loctite 243 + 10 Nm
Spring hanger for kickstarter	M 6	Loctite 243 + 10 Nm
Spring hanger on kickstarter	M 6	Loctite 243 + 10 Nm
Oil drain plug with magnet	M 12x1.5	20 Nm
Water pump wheel	M 5	Loctite 243 + 6 Nm
Drain plug on water pump cover	M 10	15 Nm
Nut for primary sprocket (LH thread)	M 18x1.5	Loctite 270 + 150 Nm
Nut for inner clutch hub	M 18x1.5	Loctite 270 + 100 Nm
Crankcase	M 6	10 Nm
Spark plug	M 14x1.25	25 Nm
Kickstarter lever	M 8	Loctite 243 + 25 Nm
Shift lever	M 6	Loctite 243 + 14 Nm
Cover screws	M 5	6 Nm
Ignition / stator	M 5	Loctite 222 + 6 Nm
Other bolts	M 6	10 Nm
	M 8	25 Nm
	M 10	45 Nm

## TOLERANCES AND FITTING CLEARANCES

Piston fitting clearance	0.06 - 0.1 mm
Piston ring end gap	0.3–0.4 mm
Connecting rod bearing - radial clearance	0.015–0.037 mm
Transmission shafts end float	0.1–0.4 mm
Clutch springs - length	Ø 2.5 new = 43 mm, minimum length = 42 mm
Crankshaft web	60 mm ± 0.05 mm

## GASKET THICKNESSES

Crankcase	0.5 mm
Clutch cover	0.8 mm
Cylinder bottom gasket	as required
Available cylinder bottom gaskets	0.2/0.4/0.5/0.75 mm
Cylinder-head gasket	O-rings
Outer clutch cover	Formring
Water pump cover	Formring

## TIGHTENING TORQUES - CHASSIS

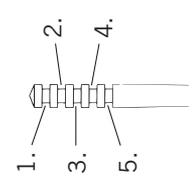
Collar screw, front wheel spindle	M24x1.5	40 Nm
Brake caliper, front	M8	Loctite 243 + 25 Nm
Brake disks up to model 2005	M6	Loctite 243 + 10 Nm
Brake disks as of model 2006	M6	Loctite 243 + 14 Nm
Clamping screws, upper fork bridge model 2004	M8	Loctite 243 + 20 Nm
Clamping screws, lower fork bridge model 2004	M8	Loctite 243 + 15 Nm
Clamping screws, upper fork bridge (EXC / XC-W) as of model 2005	M8	Loctite 243 + 20 Nm
Clamping screws, lower fork bridge (EXC / XC-W) as of model 2005	M8	Loctite 243 + 15 Nm
Clamping screws, upper fork bridge (SX) Model 2005	M8	Loctite 243 + 15 Nm
Clamping screws, lower fork bridge (SX) Model 2005	M8	Loctite 243 + 10 Nm
Clamping screws, upper fork bridge (SX / XC / EXC SIX DAYS) as of model 2006	M8	Loctite 243 + 17 Nm
Clamping screws, lower fork bridge (SX / XC / EXC SIX DAYS) as of model 2006	M8	Loctite 243 + 12 Nm
Steering head screw, top	M20x1.5	10 Nm
Steering head screw, bottom as of model 2006	M20x1.5	Loctite 243 + 60 Nm
Clamping screws, fork stubs model 2004	M8	Loctite 243 + 10 Nm
Clamping screws, fork stubs as of model 2005	M8	Loctite 243 + 15 Nm
Collar nut, rear wheel spindle	M20x1.5	80 Nm
Hexagon nut, swing arm boltn	M16x1.5	100 Nm
Hexagon collar screw, handlebar clamp	M8	Loctite 243 + 20 Nm
Allan head screw, handlebar support	M10	Loctite 243 + 40 Nm
Shock absorber, top model 2004	M12	Loctite 243 + 60 Nm
Shock absorber, bottom model 2004	M12	Loctite 243 + 60 Nm
Shock absorber, top as of model 2005	M12	Loctite 243 + 70 Nm
Shock absorber, bottom as of model 2005	M12	Loctite 243 + 70 Nm
Sprocket screws	M8	Loctite 243 + 35 Nm
Ball joint for push rod	M6	Loctite 243 + 10 Nm
Engine mounting bolt model 2004	M10	45 Nm
Engine mounting bolt as of model 2005	M10	60 Nm
Engine brace	M8	33 Nm
Rim lock	M8	10 Nm
Screw adjusting ring spring preload shock abs	M6	8 Nm
Spoke nipple	M4.5 / M5	4.5-6 Nm
Collar nut to fasten seat	M12x1	20 Nm
SLS valve	M16x1.5	15 Nm
Other screws on chassis	M6	10 Nm
	M8	25 Nm
	M10	45 Nm
Other collar nuts on chassis	M6	15 Nm
	M8	30 Nm
	M10	50 Nm

# KTM 250, 300 MXC/EXC EUR/USA 2004 KEIHIN PWK S36 AG

## VERGASERREGULIERUNG CARBURETOR SETTING

MEERESHÖHE ALTITUDE	TEMPERATUR →	-20°C bis -7°C -2°F to 20°F	-6°C bis 5°C 19°F to 41°F	6°C bis 15°C 42°F to 60°F	16°C bis 24°C 61°F to 78°F	25°C bis 38°C 79°F to 98°F	37°C bis 49°C 99°F to 120°F
3000 m 10000 ft ↑ 2301 m 7501 ft	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155	2 35 N3EW 1 155	
2300 m 7500 ft ↑ 1501 m 5001 ft	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155	2 35 N3EW 1 155
1500 m 5000 ft ↑ 751 m 2501 ft	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EG 4 162	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155
750 m 2500 ft ↑ 301 m 1001 ft	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 38 N3EG 5 165	1 35 N3EG 4 162	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158
300 m 1000 ft ↑ Meeresniveau Sea level	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 40 N3EG 5 168	1 38 N3EG 5 165	1 35 N3EG 4 162	1 35 N3EH 3 162	1 35 N3EH 2 160	1 35 N3EW 2 160

LSCHR = Luftregulierschraube offen  
 LD = Leerlaufdüse  
 POS = Clip Position von oben  
 HD = Hauptdüse  
**Schieber = 7 mit Ausschnitt**  
**Zerstäuber = 7,45 mit Ausschnitt**



AS = Air screw open from fully-seated  
 IJ = Idling jet  
 POS = Clip position from top  
 MJ = Main jet  
**Slide = 7**  
**Atomizer = 7,45**

**NICHT FÜR STRASSENBETRIEB**  
 Kraftstoff: Euro-Super bleifrei ROZ 95  
**NOT FOR HIGHWAY USE**  
 Fuel: Euro-Super unleaded ROZ 95

# KTM 250 SX / SXS EUR/USA 2004 KEIHIN PWK S38 AG

VERGASERREGULIERUNG  
CARBURETOR SETTING

MEERESHÖHE ALTITUDE	TEMPERATUR ↑	-20°C bis -7°C -2°F to 20°F	-6°C bis 5°C 19°F to 41°F	6°C bis 15°C 42°F to 60°F	16°C bis 24°C 61°F to 78°F	25°C bis 38°C 79°F to 98°F	37°C bis 49°C 99°F to 120°F
3000 m 10000 ft ↑	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 40 NOZG 4 165	1 40 NOZG 3 165	1 40 NOZH 3 162	1,5 38 NOZH 2 160	2 35 NOZH 1 158	
2300 m 7500 ft ↑	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 40 NOZG 4 168	1 40 NOZG 4 165	1 40 NOZH 3 165	1 40 NOZH 3 162	1,5 38 NOZH 2 160	2 35 NOZH 1 158
1500 m 5000 ft ↑	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 40 NOZF 4 170	1 40 NOZG 4 168	1 40 NOZH 4 165	1 40 NOZH 3 165	1 40 NOZH 3 162	1,5 38 NOZH 2 160
750 m 2500 ft ↑	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 42 NOZF 5 172	1 40 NOZF 4 170	1 40 NOZH 4 168	1 40 NOZH 4 165	1 40 NOZH 3 165	1 40 NOZH 3 162
300 m 1000 ft ↑ Meeresniveau Sea level	LSCHR AS LD IJ NADEL NEEDLE POS POS HD MJ	1 45 NOZF 5 175	1 42 NOZF 5 172	1 40 NOZF 4 170	1 40 NOZH 4 168	1 40 NOZH 4 165	1 40 NOZH 3 165

LSCHR = Luftregulierschraube offen

LD = Leerlaufdüse

POS = Clip Position von oben

HD = Hauptdüse

Schieber = 6,5 mit Ausschnitt

Zerstäuber = 7,45 mit Ausschnitt

AS = Air screw open from fully-seated

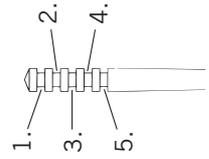
IJ = Idling jet

POS = Clip position from top

MJ = Main jet

Slide = 6,5

Atomizer=7,45



**NICHT FÜR STRASSENBETRIEB**

Kraftstoff: Euro-Super bleifrei ROZ 95

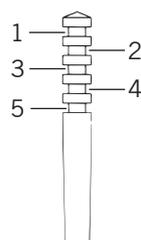
**NOT FOR HIGHWAY USE**

Fuel: Euro-Super unleaded ROZ 95

VERGASERREGULIERUNG CARBURETOR SETTING KEIHIN PWK S 38 AG		250 SX / SXS 2005						
MEERESHÖHE ALTITUDE ↓	TEMPERATUR TEMPERATURE →	-20°C bis -7°C	-6°C bis 5°C	6°C bis 15°C	16°C bis 24°C	25°C bis 38°C	37°C bis 49°C	
		-2°F to 20°F	19°F to 41°F	42°F to 60°F	61°F to 78°F	79°F to 98°F	99°F to 120°F	
3000 m 10000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 42 NOZF	1,5 42 NOZF	1,5 42 NOZG	2 40 NOZG	2,5 38 NOZH		
2301 m 7501 ft	POS POS HD MJ	4 168	3 168	3 165	2 162	2 160		
2300 m 7500 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 42 NOZE	1 42 NOZF	1,5 42 NOZF	1,5 42 NOZG	2 40 NOZG	2,5 38 NOZH	
1501 m 5001 ft	POS POS HD MJ	4 170	4 168	3 168	3 165	2 162	2 160	
1500 m 5000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 45 NOZE	1 42 NOZE	1 42 NOZF	1,5 42 NOZF	1,5 42 NOZG	2 40 NOZG	
751 m 2501 ft	POS POS HD MJ	4 172	4 170	4 168	3 168	3 165	2 162	
750 m 2500 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 45 NOZD	1 45 NOZE	1 42 NOZE	<b>1</b> <b>42</b> <b>NOZF</b>	1,5 42 NOZF	1,5 42 NOZG	
301 m 1001 ft	POS POS HD MJ	5 175	4 172	4 170	<b>4</b> <b>168</b>	3 168	3 165	
300 m 1000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 48 NOZD	1 45 NOZD	1 45 NOZE	1 42 NOZE	1 42 NOZF	1,5 42 NOZF	
Meeresniveau Sea level	POS POS HD MJ	5 178	5 175	4 172	4 170	4 168	3 168	

Art.-Nr. 3.206.032-E

LSO = Luftregulierschraube offen  
LD = Leerlaufdüse  
POS = Nadel Clip Position von oben  
HD = Hauptdüse



ASO = Air screw open from fully-seated  
IJ = Idling jet  
POS = Needle clip position from top  
MJ = Main jet

**NICHT FÜR STRASSENBETRIEB**

Kraftstoff: Super Bleifrei ROZ 95/98

**NOT FOR HIGHWAY USE**

Fuel: unleaded fuel with at least RON 95/98  
USA = Premium PON 91/94

**EXC Modelle:** Die oben angeführten Vergaserregulierungen gelten nur für entdrosselte Motorräder.

Um die volle Motorleistung zu erhalten, sind neben der Vergaserregulierung auch noch andere Maßnahmen erforderlich, Ihr KTM Händler hilft Ihnen gerne.  
**WENN SIE ÄNDERUNGEN AM MOTORRAD VORNEHMEN, GEHT DIE STRASSENZULASSUNG VERLOREN, DER BETRIEB AUF ÖFFENTLICHEN STRASSEN IST DANN VERBOTEN UND STRAFBAR! AUSSERDEM ERLISCHT DER VERSICHERUNGSSCHUTZ!**

**EXC models:** The carburetor adjustments described above only apply to dethrottled motorcycles. Other measures will be required in addition to the carburetor adjustment for full engine performance. Your KTM dealer will be pleased to assist you.

**CHANGES TO YOUR MOTORCYCLE WILL CAUSE YOU TO LOSE YOUR ROAD APPROVAL. IT WILL BE ILLEGAL TO OPERATE THE MOTORCYCLE ON PUBLIC ROADS! YOUR INSURANCE COVERAGE WILL ALSO BE CANCELLED!**

**Modelli EXC:** Le tarature suindicate del carburatore valgono solo per motociclette potenziata. Per ottenere la piena potenza del motore sono richieste, oltre alla taratura del carburatore, anche altre misure. Il vostro concessionario KTM sarà sempre disposto ad aiutarvi.

**MODIFICHE APPORTATE ALLA MOTOCICLETTA DETERMINANO LA PERDITA DELL'OMOLOGAZIONE STRADALE, L'IMPIEGO SU STRADE PUBBLICHE DI CONSEGUENZA E VIETATO E PASSIBILE DI PENA! INOLTRE DECADE LA COPERTURA ASSICURATIVA!**

**Modèles EXC :** Les réglages de carburateur décrits ci-dessus valent seulement pour des machines débridées. Pour obtenir la pleine puissance, d'autres mesures sont nécessaires en plus de ces réglages. Les agents KTM connaissent ces mesures.

**QUAND ON EFFECTUE DES TRANSFORMATIONS SUR UNE MOTO, L'HOMOLOGATION N'EST PLUS VALABLE, L'UTILISATION SUR LA VOIE PUBLIQUE EST INTERDITE ET TOMBE SOUS LE COUP DE LA LOI. DE PLUS LA COUVERTURE D'ASSURANCE DISPARAIT.**

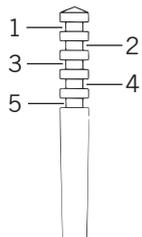
**Modelos EXC:** Los reglajes del carburador arriba indicados son válidos solamente para motocicletas sin reducción. Para alcanzar la potencia plena del motor, además de la regulación del carburador son necesarias también otras medidas. Su distribuidor KTM le ayudará con todo gusto.

**SI EFECTÚA CAMBIOS EN LA MOTOCICLETA, SE PIERDE EL PERMISO DE CIRCULACIÓN EN CARRETERAS; LA CIRCULACIÓN EN VÍAS PÚBLICAS QUEDA ENTONCES PROHIBIDA Y ES PUNIBLE. ¡ADEMÁS CADUCA LA PROTECCIÓN DEL SEGURO!**

Repair manual KTM - 250 / 300

VERGASERREGULIERUNG CARBURETOR SETTING KEIHIN PWK S 36 AG		250/300 MXC/EXC/EXC SIX DAYS 2005					
MEERESHÖHE ALTITUDE ↓	TEMPERATUR TEMPERATURE →	-20°C bis -7°C -2°F to 20°F	-6°C bis 5°C 19°F to 41°F	6°C bis 15°C 42°F to 60°F	16°C bis 24°C 61°F to 78°F	25°C bis 38°C 79°F to 98°F	37°C bis 49°C 99°F to 120°F
3000 m 10000 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155	2 35 N3EW 1 155	
2300 m 7500 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155	2 35 N3EW 1 155
1500 m 5000 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N3EG 4 162	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158	1,5 35 N3EW 2 155
750 m 2500 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 38 N3EG 5 165	1 35 N3EG 4 162	1 35 N3EH 3 162	1 35 N3EH 3 160	1 35 N3EH 2 160	1 35 N3EW 2 158
300 m 1000 ft ↑ Meeresniveau Sea level	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 40 N3EG 5 168	1 38 N3EG 5 165	1 35 N3EG 4 162	1 35 N3EG 3 162	1 35 N3EH 3 160	1,5 35 N3EH 2 160

LSO = Luftregulierschraube offen  
LD = Leerlaufdüse  
POS = Nadel Clip Position von oben  
HD = Hauptdüse



ASO = Air screw open from fully-seated  
IJ = Idling jet  
POS = Needle clip position from top  
MJ = Main jet

#### NICHT FÜR STRASSENBETRIEB

Kraftstoff: Super Bleifrei ROZ 95

#### NOT FOR HIGHWAY USE

Fuel: unleaded fuel with at least RON 95  
USA = Premium PON 91

**EXC Modelle:** Die oben angeführten Vergaserregulierungen gelten nur für entdrosselte Motorräder.

Um die volle Motorleistung zu erhalten, sind neben der Vergaserregulierung auch noch andere Maßnahmen erforderlich, Ihr KTM Händler hilft Ihnen gerne.

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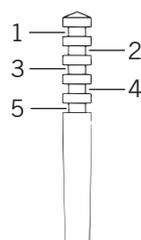
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VERGASERREGULIERUNG CARBURETOR SETTING KEIHIN PWK 36S AG		250 SX / SXS 2006						
MEERESHÖHE ALTITUDE ↓	TEMPERATUR TEMPERATURE →	-20°C bis -7°C	-6°C bis 5°C	6°C bis 15°C	16°C bis 24°C	25°C bis 36°C	37°C bis 49°C	
		-2°F to 20°F	19°F to 41°F	42°F to 60°F	61°F to 78°F	79°F to 98°F	99°F to 120°F	
3000 m 10000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 42 N1EF	1 40 N1EF	1 40 N1EG	1,5 38 N1EG	2 38 N1EH		
2301 m 7501 ft ↑	POS POS HD MJ	3 158	3 158	2 155	2 152	1 150		
2300 m 7500 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 42 N1EE	1 42 N1EF	1 40 N1EF	1 40 N1EG	1,5 38 N1EG	2 38 N1EH	
1501 m 5001 ft ↑	POS POS HD MJ	3 160	3 158	3 158	2 155	2 152	1 150	
1500 m 5000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 45 N1EE	1 42 N1EE	1 42 N1EF	1 40 N1EF	1 40 N1EG	1,5 38 N1EG	
751 m 2501 ft ↑	POS POS HD MJ	4 162	3 160	3 158	3 158	2 155	2 152	
750 m 2500 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 45 N1ED	1 45 N1EE	1 42 N1EE	<b>1</b> <b>42</b> <b>N1EF</b>	1 40 N1EF	1 40 N1EG	
301 m 1001 ft ↑	POS POS HD MJ	4 165	4 162	3 160	<b>3</b> <b>158</b>	3 158	2 155	
300 m 1000 ft ↑	LSO ASO LD IJ NADEL NEEDLE	1 48 N1ED	1 45 N1ED	1 45 N1EE	1 42 N1EE	1 42 N1EF	1 40 N1EF	
Meeresniveau Sea level	POS POS HD MJ	5 168	4 165	4 162	3 160	3 158	3 158	

Art.-Nr. 3.206.032-E

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LD = Leerlaufdüse  
POS = Nadel Clip Position von oben  
HD = Hauptdüse



ASO = Air screw open from fully-seated  
IJ = Idling jet  
POS = Needle clip position from top  
MJ = Main jet

**NICHT FÜR STRASSENBETRIEB**

Kraftstoff: Super Bleifrei ROZ 95/98

**NOT FOR HIGHWAY USE**

Fuel: unleaded fuel with at least RON 95/98  
USA = Premium PON 91/94

**EXC Modelle:** Die oben angeführten Vergaserregulierungen gelten nur für entdrosselte Motorräder.

Um die volle Motorleistung zu erhalten, sind neben der Vergaserregulierung auch noch andere Maßnahmen erforderlich, Ihr KTM Händler hilft Ihnen gerne.  
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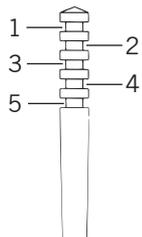
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Repair manual KTM - 250 / 300

VERGASERREGULIERUNG CARBURETOR SETTING KEIHIN PWK 36S AG		250 EXC / EXC SIX DAYS / XC / XC-W 2006						
MEERESHÖHE ALTITUDE ↓	TEMPERATUR TEMPERATURE →	-20°C bis -7°C -2°F to 20°F	-6°C bis 5°C 19°F to 41°F	6°C bis 15°C 42°F to 60°F	16°C bis 24°C 61°F to 78°F	25°C bis 36°C 79°F to 98°F	37°C bis 49°C 99°F to 120°F	
3000 m 10000 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N8RF 4 160	1 35 N8RG 3 160	1 35 N8RH 3 158	1,5 35 N8RH 2 155	2 35 N8RH 1 155		
2300 m 7500 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N8RF 4 162	1 35 N8RF 4 160	1 35 N8RG 3 160	1 35 N8RH 3 158	1,5 35 N8RH 2 155	2 35 N8RH 1 155	
1500 m 5000 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 35 N8RF 4 165	1 35 N8RF 4 162	1 35 N8RF 4 160	1 35 N8RG 3 160	1 35 N8RH 3 158	1,5 35 N8RH 2 155	
750 m 2500 ft ↑	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 38 N8RF 5 168	1 35 N8RF 4 165	1 35 N8RF 4 162	1 35 N8RF 4 160	1 35 N8RG 3 160	1 35 N8RH 3 158	
300 m 1000 ft ↑ Meeresniveau Sea level	LSO ASO LD IJ NADEL NEEDLE POS POS HD MJ	1 40 N8RE 5 170	1 38 N8RF 5 168	1 35 N8RF 4 165	1 35 N8RF 4 162	1 35 N8RF 4 160	1 35 N8RG 3 160	

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#### NICHT FÜR STRASSENBETRIEB

Kraftstoff: Super Bleifrei ROZ 95

#### NOT FOR HIGHWAY USE

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USA = Premium PON 91

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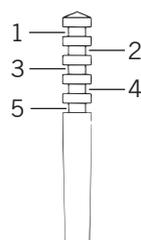
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301 m 1001 ft ↑	POS POS HD MJ	4 168	4 165	3 162	<b>3</b> <b>160</b>	3 160	2 158	
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Repair manual KTM - 250 / 300



# PERIODIC MAINTENANCE SCHEDULE

# 11

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<b>MODEL 2006</b> .....	<b>.11-5</b>





## PERIODIC MAINTENANCE SCHEDULE 2004 / 2005

250/300 SX/MXC/EXC

A clean motorcycle can be checked more quickly which saves money!		1st service after 10 hours or 1000 kilometers	after 20 hours or 2000 kilometers	after 4000 kilometers or once a year
ENGINE	Check gear box oil level		●	
	Change gear box oil	●		●
	Check spark plugs, adjust distance between electrodes	●	●	
	Renew spark plugs			●
CARBURETOR	Check the carburetor connection boot for cracks and leaks			●
	Check idle speed setting	●		●
	Check that vent hoses are not damaged or bent	●		●
ADD-ON-PARTS	Check cooling system for leaks, check quantity of antifreeze	●		●
	Check exhaust system for leaks and fitment			●
	Check cables for damage, smooth operation, bends; adjust and lubricate	●		●
	Check oil level of the clutch master cylinder	●	●	●
	Clean air filter and filter box			●
	Check electric wires for damage and bends			●
	Check headlamp setting			●
	Check function of electric systems (low beam, high beam, break light, indicator, indicator lamps, speedometer illumination, horn, emergency OFF switch or button)	●		●
BRAKES	Check brake fluid level, lining thickness, brake lining	●		●
	Check brake lines for damage and leaks	●		●
	Check/adjust smooth operation and free travel of handbrake/foot brake lever	●		●
	Check tightness of brake system screws	●		●
CHASSIS	Check shock absorber and fork for leaks and function	●		●
	Clean dust bellows			●
	Bleed fork legs			●
	Check swing arm bearings			●
	Check/adjust steering head bearings	●		●
	Check tightness of all chassis screws (triple clamps, fork leg axle passage axle nuts and screws, swing arm bearings, shock absorber)	●		●
WHEELS	Check spoke tension and rim joint	●		●
	Check tires and air pressure	●		●
	Check chain, rear sprockets and chain guides for wear, fitment and tension	●		●
	Lubricate chain	●		●
	Check clearance of wheel bearings	●		●
<b>IMPORTANT RECOMMENDED MAINTENANCE WORK THAT CAN BE CARRIED OUT BY EXTRA ORDER</b>				
			at least once a year	every 2 years or 20000 km
Check function of exhaust control			●	
Complete maintenance of fork			●	
Complete maintenance of shock absorber				●
Clean and grease steering head bearings and gasket elements			●	
Clean and adjust carburetor			●	
Replace glass fibre- yarn filling of the exhaust main silencer			●	
Treat electric contacts and switches with contact grease			●	
Change hydraulic clutch fluid			●	
Change break fluid			●	

**IF MOTORCYCLE IS USED FOR COMPETITION THE 4000KM SERVICE SHOULD BE CARRIED OUT AFTER EVERY RACE!**

SERVICE INTERVALS SHOULD NEVER BE EXCEEDED BY MORE THAN 5 HOURS OR 500 KM!

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

**IMPORTANT CHECKS AND MAINTENANCE TO BE CARRIED OUT BY THE RIDER**

	Before each start	After every cleaning	For cross-country use	Once a year
Check gear box oil level	●			
Check brake fluid level	●			
Check brake pads for wear	●			
Check lights for function	●			
Check horn for function	●			
Lubricate and adjust cables and nipples		●		
Bleed fork legs regularly			●	
Remove and clean dust bellows regularly			●	
Clean and lubricate chain, check tension and adjust if necessary		●	●	
Clean air filter and filter box			●	
Check tires for pressure and wear	●			
Check cooling liquid level	●			
Check fuel lines for leaks	●			
Empty and clean float chamber		●		
Check all control elements for smooth operation	●			
Check brake performance	●	●		
Treat blank metal parts (with the exception of brake and exhaust systems) with wax-based anti corrosion agent		●		
Treat ignition, steering lock and light switches with contact spray		●		
Check tightness of screws, nuts and hose clamps regularly				●

<b>RECOMMENDED INSPECTION OF THE 250/300 ENGINE USED FOR ENDURO COMPETITIONS BY YOUR KTM WORKSHOP (ADDITIONAL ORDER FOR THE KTM WORKSHOP)</b>						
	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 exhaust control for proper functioning and smooth running	●	●	●	●	●	●
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		●		●		●

<b>RECOMMENDED INSPECTION OF THE 250/300 ENGINE USED FOR HOBBY- ENDURO BY YOUR KTM WORKSHOP (ADDITIONAL ORDER FOR THE KTM WORKSHOP)</b>						
	60 hours	90 hours	120 hours	180 hours	240 hours	270 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 exhaust control for proper functioning and smooth running	●	●	●	●	●	●
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.



# PERIODIC MAINTENANCE SCHEDULE 2006

250 SX/SXS/XC/XC-W/EXC/EXC SIX DAYS  
300 XC/XC-W/EXC/EXC SIX DAYS

A CLEAN MOTORCYCLE CAN BE CHECKED MORE QUICKLY WHICH SAVES MONEY!		after every race	1st service after 10 hours	every 20 hours	every 40 hours	at least once a year
<b>ENGINE</b>	Check gear box oil level			●		
	Change gear box oil	●	●		●	●
	Check spark plugs, adjust distance between electrodes		●	●		
	Renew spark plugs	●			●	
	Clean the spark-plug connector and check for a tight fit	●		●	●	
	Check the screws on the kick starter and shift lever for a tight fit	●		●	●	
<b>CARBURETOR</b>	Check the carburetor connection boot and intake flange for cracks or leaks	●			●	●
	Check idle speed setting	●	●		●	●
	Check that vent hoses are not damaged or bent	●	●		●	●
<b>ADD-ON-PARTS</b>	Check cooling system for leaks, check quantity of antifreeze	●	●		●	●
	Check exhaust system for leaks and fitment	●		●	●	
	Check cables for damage, smooth operation, bends; adjust and lubricate	●	●		●	
	Check the fluid level in the master cylinder of the hydraulic clutch	●	●	●	●	
	Clean air filter and filter box	●	●	●	●	●
	Check electric wires for damage and bends	●			●	
	Check headlamp setting	●			●	
	Check function of electric systems (low beam, high beam, break light, indicator, indicator lamps, speedometer illumination, horn, emergency OFF switch or button)	●	●		●	
<b>BRAKES</b>	Check brake fluid level, brake lining thickness and brake discs	●	●		●	
	Check brake lines for damage and leaks	●	●		●	
	Check/adjust smooth operation and free travel of handbrake lever / foot brake pedal	●	●		●	
	Check the screws and guide bolts on the brake system for a tight fit	●	●		●	
<b>CHASSIS</b>	Check shock absorber and fork for leaks and function	●	●	●	●	
	Clean dust bellows	●		●	●	
	Bleed fork legs	●		●	●	
	Check swing arm bearings	●			●	
	Check/adjust steering head bearings	●	●		●	
	Check tightness of all chassis screws (triple clamps, fork leg axle passage axle nuts and screws, swing arm bearings, shock absorber)	●	●		●	
<b>WHEELS</b>	Check spoke tension and rim joint	●	●	●	●	
	Check tires and air pressure	●	●	●	●	
	Check chain, rear sprockets and chain guides for wear, fitment and tension	●	●	●	●	
	Lubricate chain, Clean and grease the adjusting screws on the chain tensioner	●	●	●	●	
	Check clearance of wheel bearings	●	●		●	

SERVICE INTERVALS SHOULD NEVER BE EXCEEDED BY MORE THAN 5 HOURS!

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

<b>IMPORTANT RECOMMENDED MAINTENANCE WORK THAT CAN BE CARRIED OUT BY EXTRA ORDER</b>	<b>every 20 hours</b>	<b>every 40 hours</b>	<b>every 80 hours</b>	<b>every 120 hours</b>	<b>at least once a year</b>	<b>every 2 years</b>
Clean and adjust carburetor					C/H	
Check the reed-type intake valve for wear	C	C/H	C/H	C/H		
Check the wear on the clutch disks and length of the clutch springs	C	C/H	C/H	C/H		
Check the cylinder and piston for wear	C	C/H	C/H	C/H		
Check function of exhaust control	C/H	C/H	C/H	C/H		
Check piston pin bearing	C	C/H	C/H	C/H		
Replace the crankshaft main bearings			C	H		
Replace the conrod bearings		C	C	C/H		
Check the entire transmission, the shift mechanism and bearings		C	C	C/H		
Complete maintenance of fork	C	C	C/H	C	C/H	
Complete maintenance of shock absorber			C			C/H
Clean and grease steering head bearings and gasket elements					C/H	
Replace the sealing cup for the foot brake cylinder	C	C/H	C/H	C/H		
Replace glass fibre- yarn filling of the exhaust main silencer	C	C/H	C/H	C/H		
Treat electric contacts and switches with contact grease					C/H	
Change brake fluid	C	C/H	C/H	C/H	C/H	
Change hydraulic clutch fluid					C/H	

**C** = FOR COMPETITIVE OFFROAD RACING (COMPETITION)

**H** = FOR OFFROAD HOBBY USE

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

<b>IMPORTANT CHECKS AND MAINTENANCE TO BE CARRIED OUT BY THE RIDER</b>	<b>before each start</b>	<b>after every cleaning</b>	<b>for cross country use</b>	<b>once a year</b>
Check gear box oil level	●			
Check brake fluid level	●			
Check brake pads for wear	●			
Check lights for function	●			
Check horn for function	●			
Lubricate and adjust cables and nipples		●		
Bleed fork legs regularly			●	
Remove and clean dust bellows regularly			●	
Clean and lubricate chain, check tension and adjust if necessary		●	●	
Clean air filter and filter box		●	●	
Check tires for pressure and wear	●			
Check cooling liquid level	●			
Check fuel lines for leaks	●			
Empty and clean float chamber		●		●
Remove, clean and oil the throttle slide		●		
Check all control elements for smooth operation	●			
Check brake performance	●	●		
Treat blank metal parts (with the exception of brake and exhaust systems) with a wax-based anti corrosion agent		●		
Treat ignition, steering lock and light switches with contact spray		●		
Check tightness of screws, nuts and hose clamps regularly				●



# WIRING DIAGRAM

# 12

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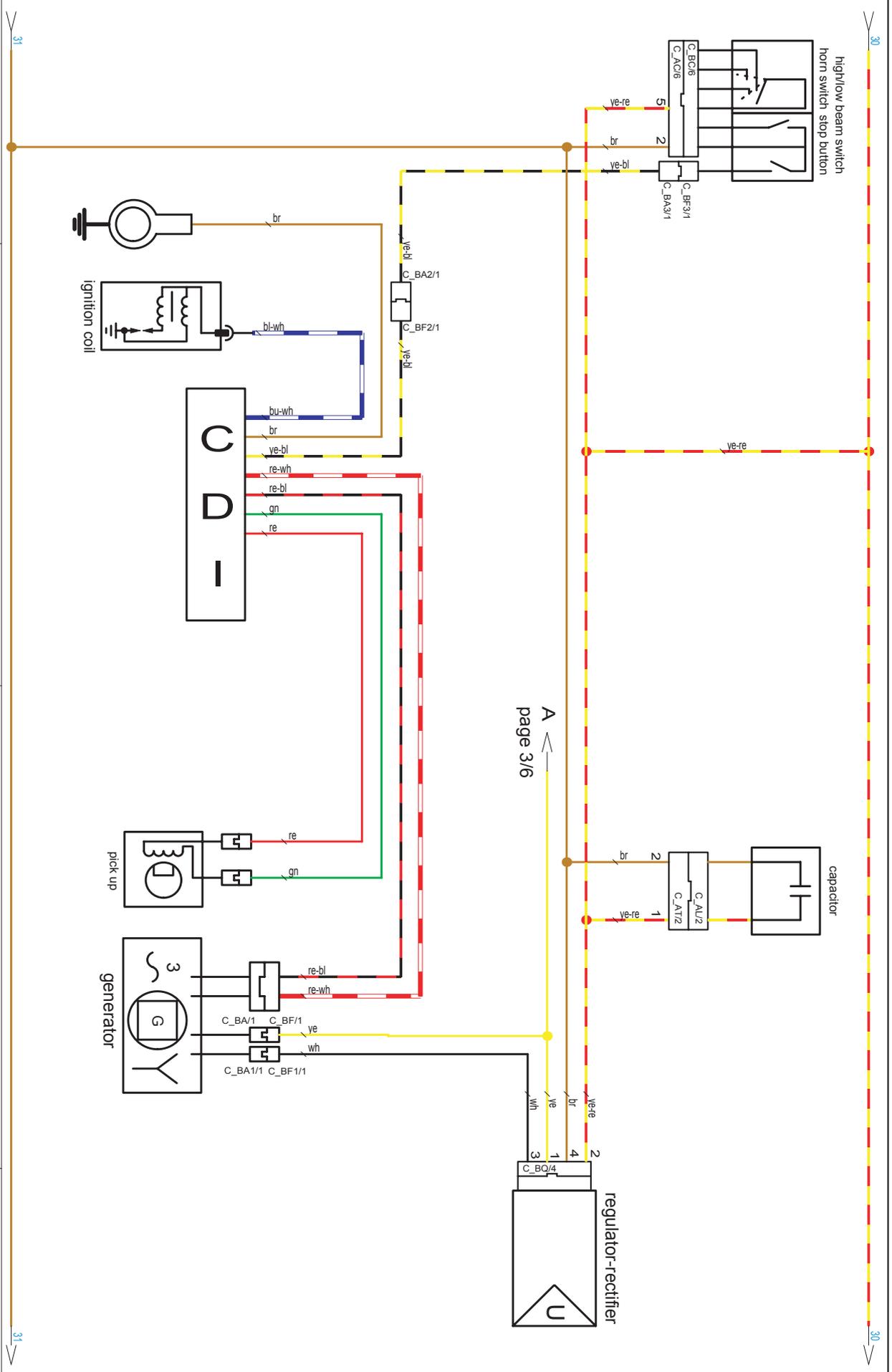


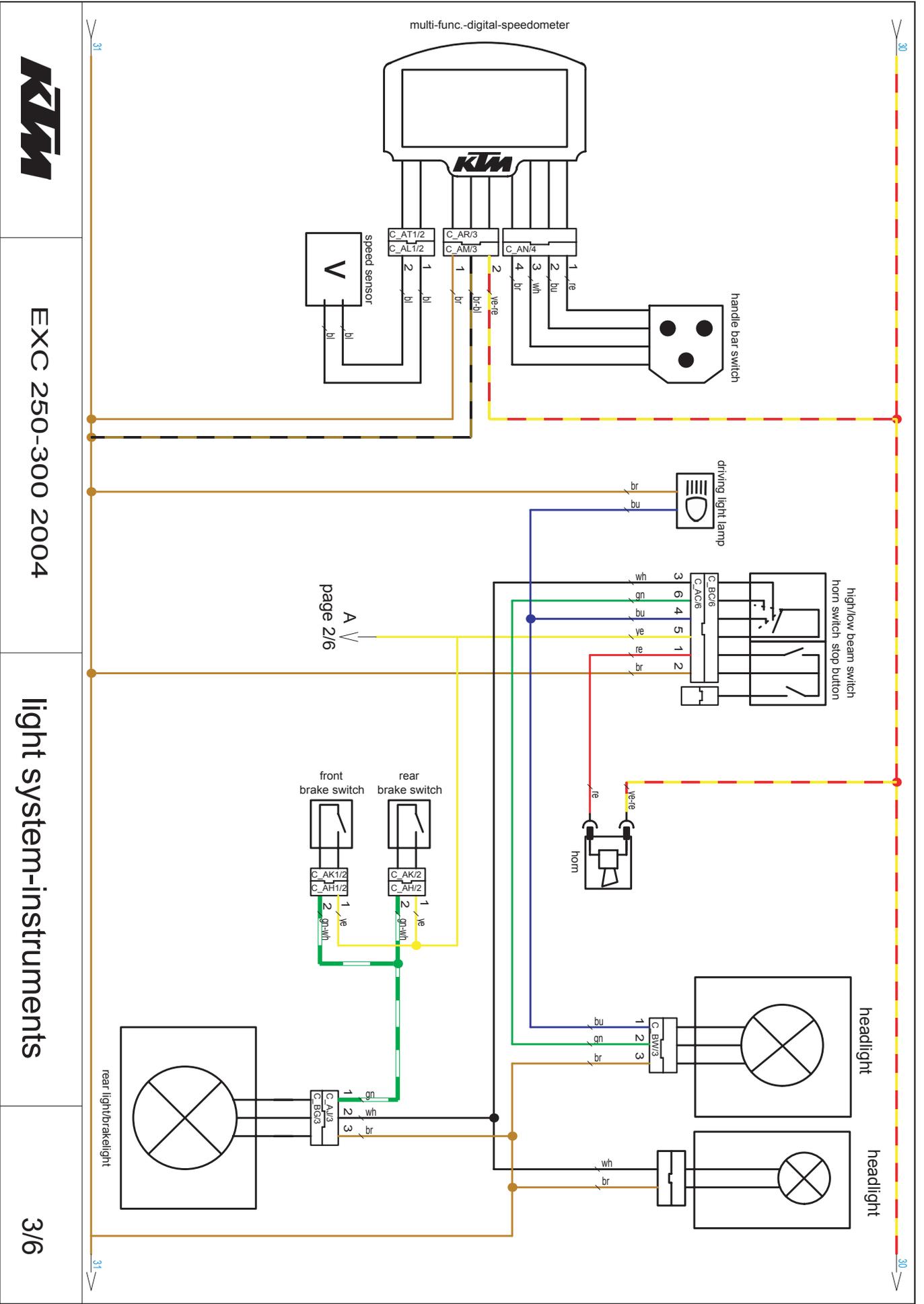


EXC 250-300 2004

CDI - charging circuit

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EXC 250-300 2004

light system-instruments

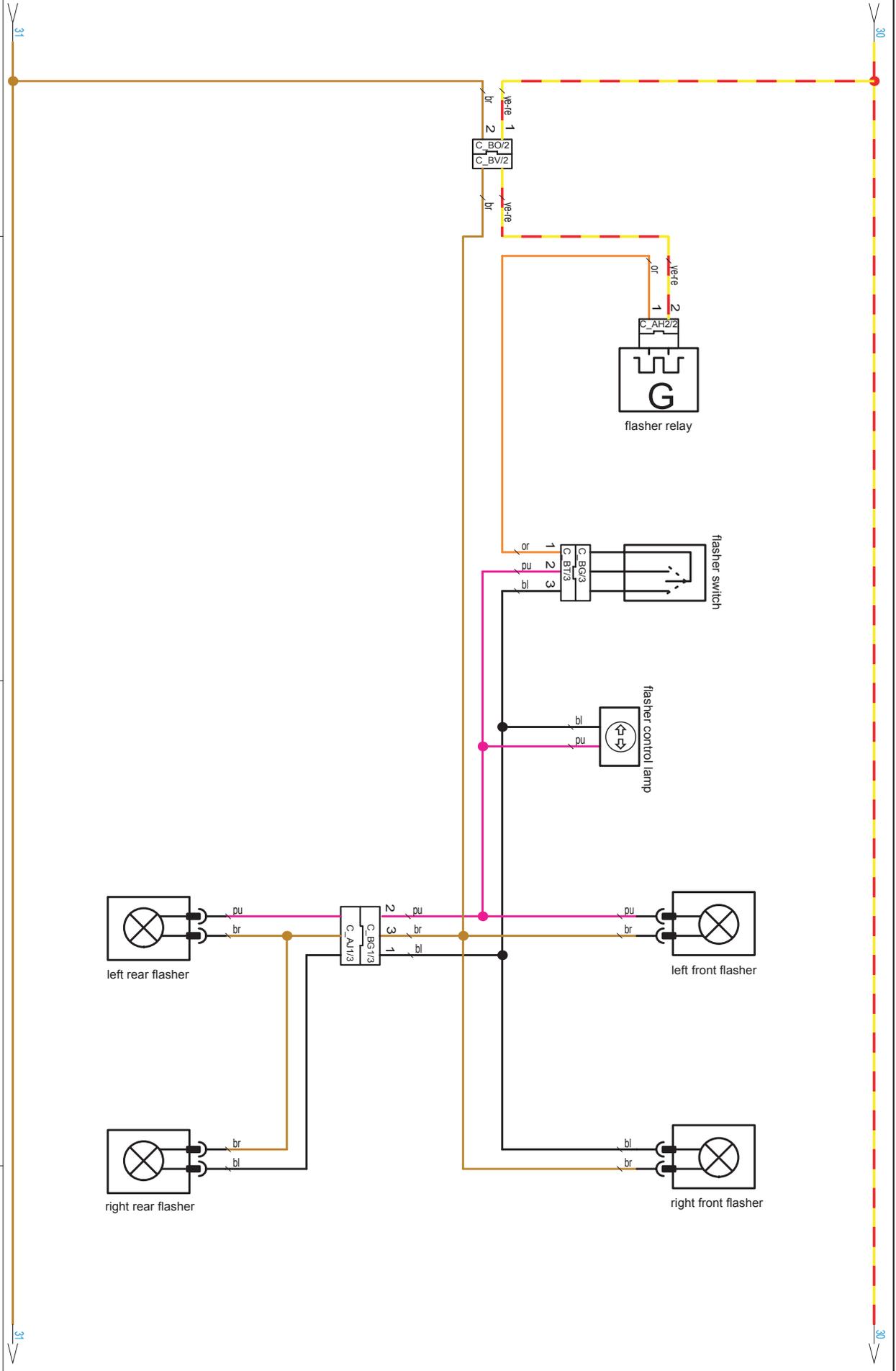
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EXC 250-300 2004

turn indicator system

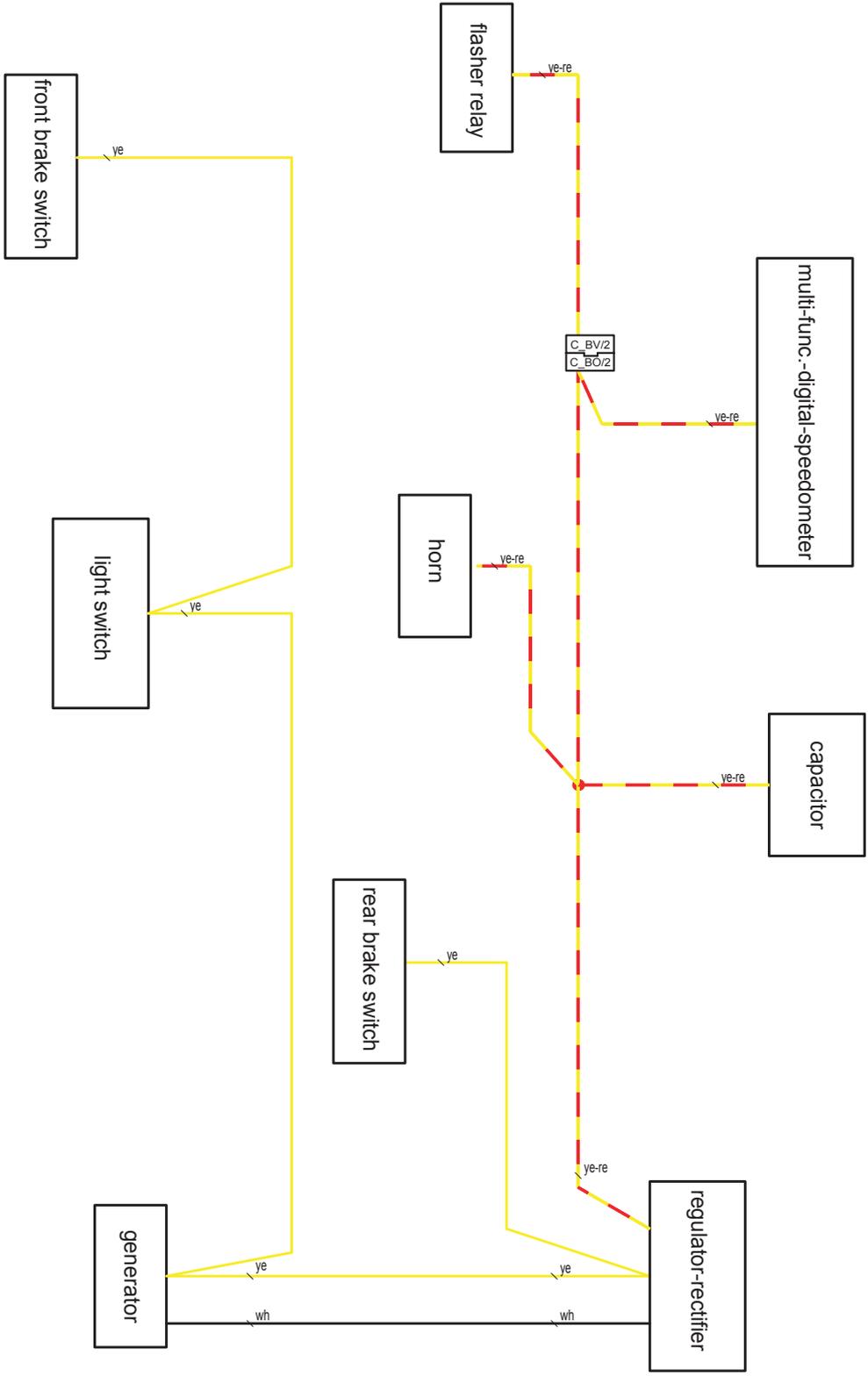


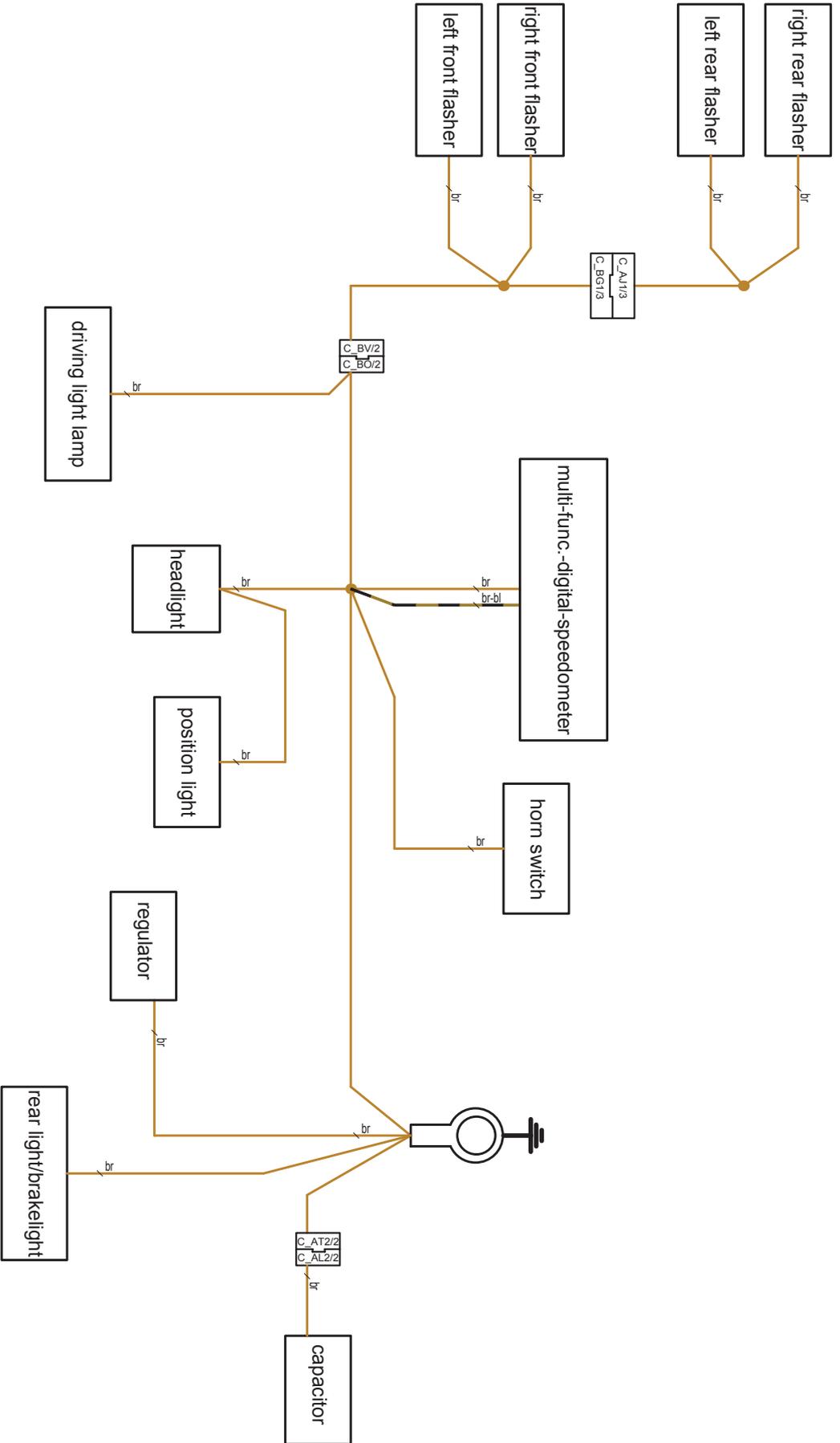


EXC 250-300 2004

positive connection

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EXC 250-300 2004

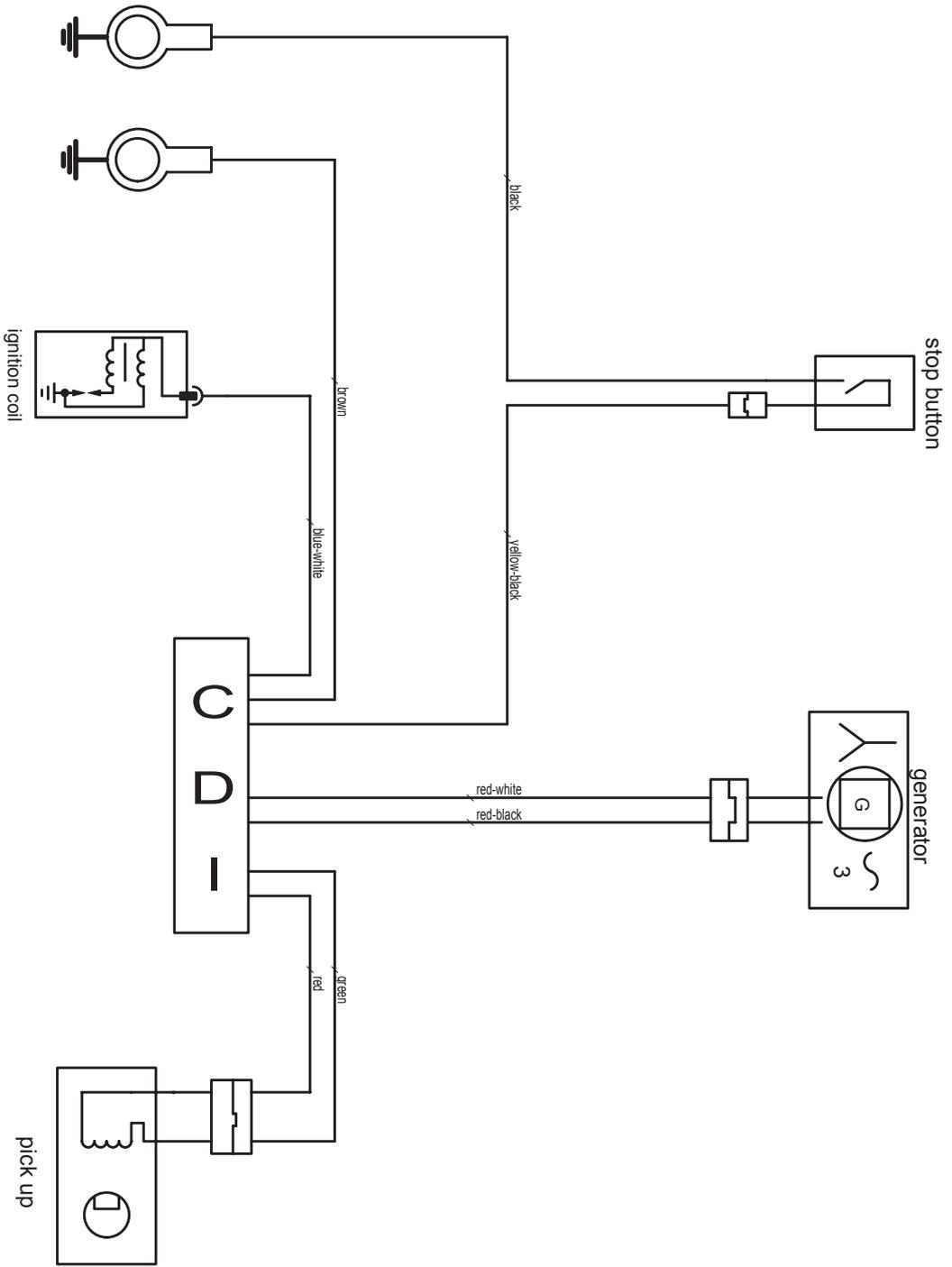
ground connection



**KTM**

SX 250

19.05.2003



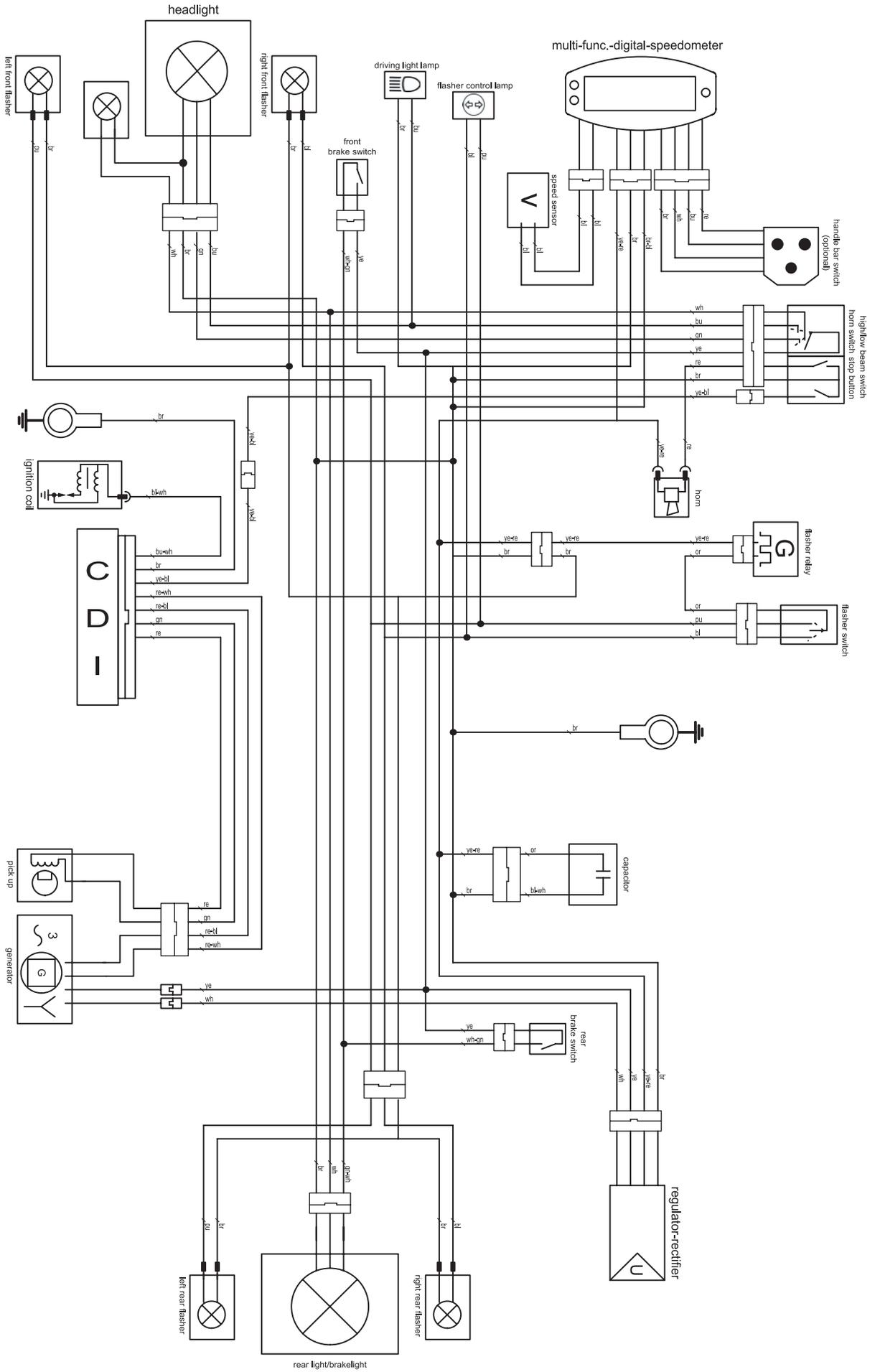


EXC 250-300 2005  
EXC SIX DAYS 250-300 05/06

wiring diagram

main harness

20.02.2004



Art.- Nr. 3.206.032-E

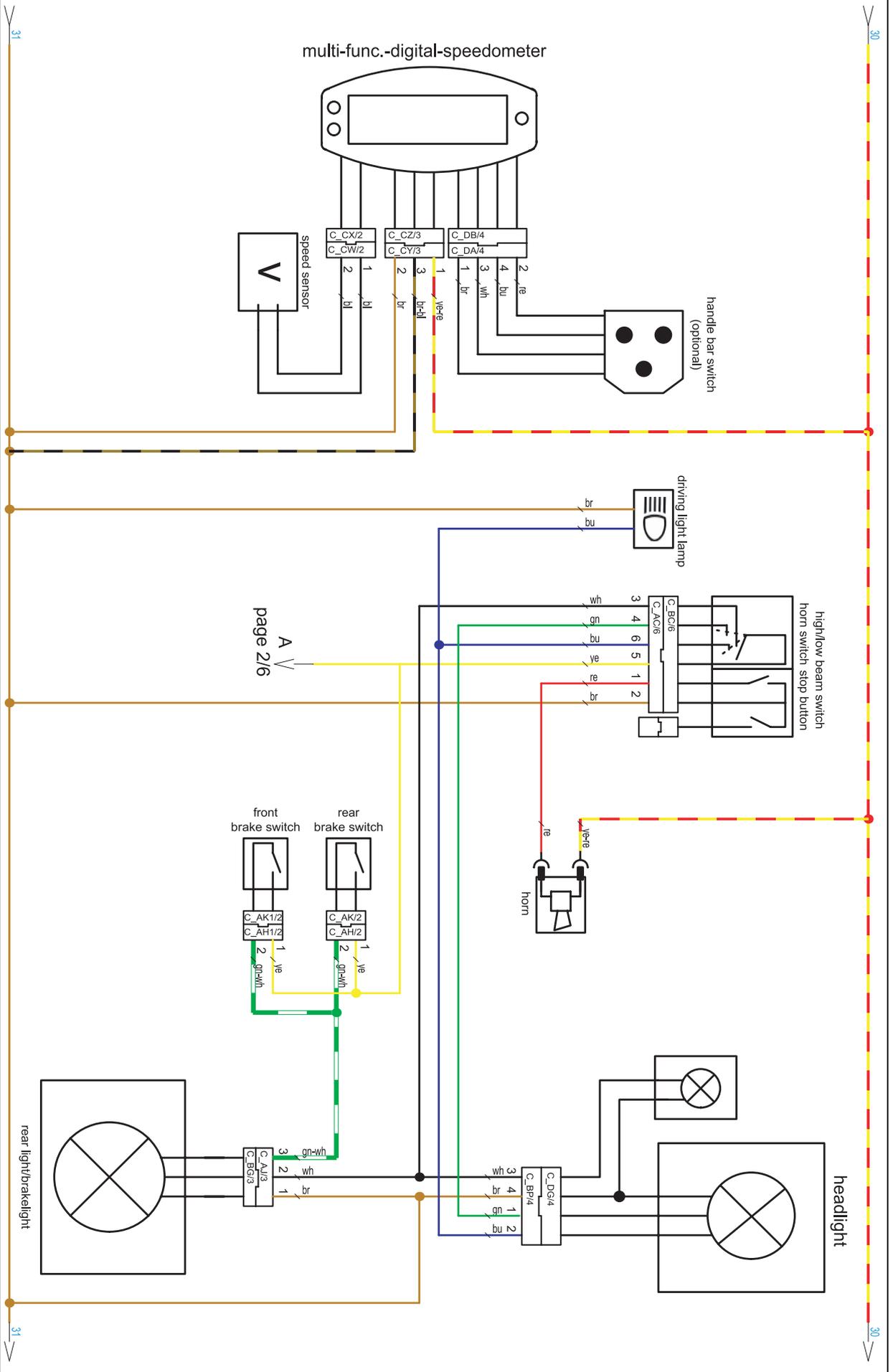
Repair manual KTM - 250 / 300





EXC 250-300 2005  
EXC SIX DAYS 250-300 05/06

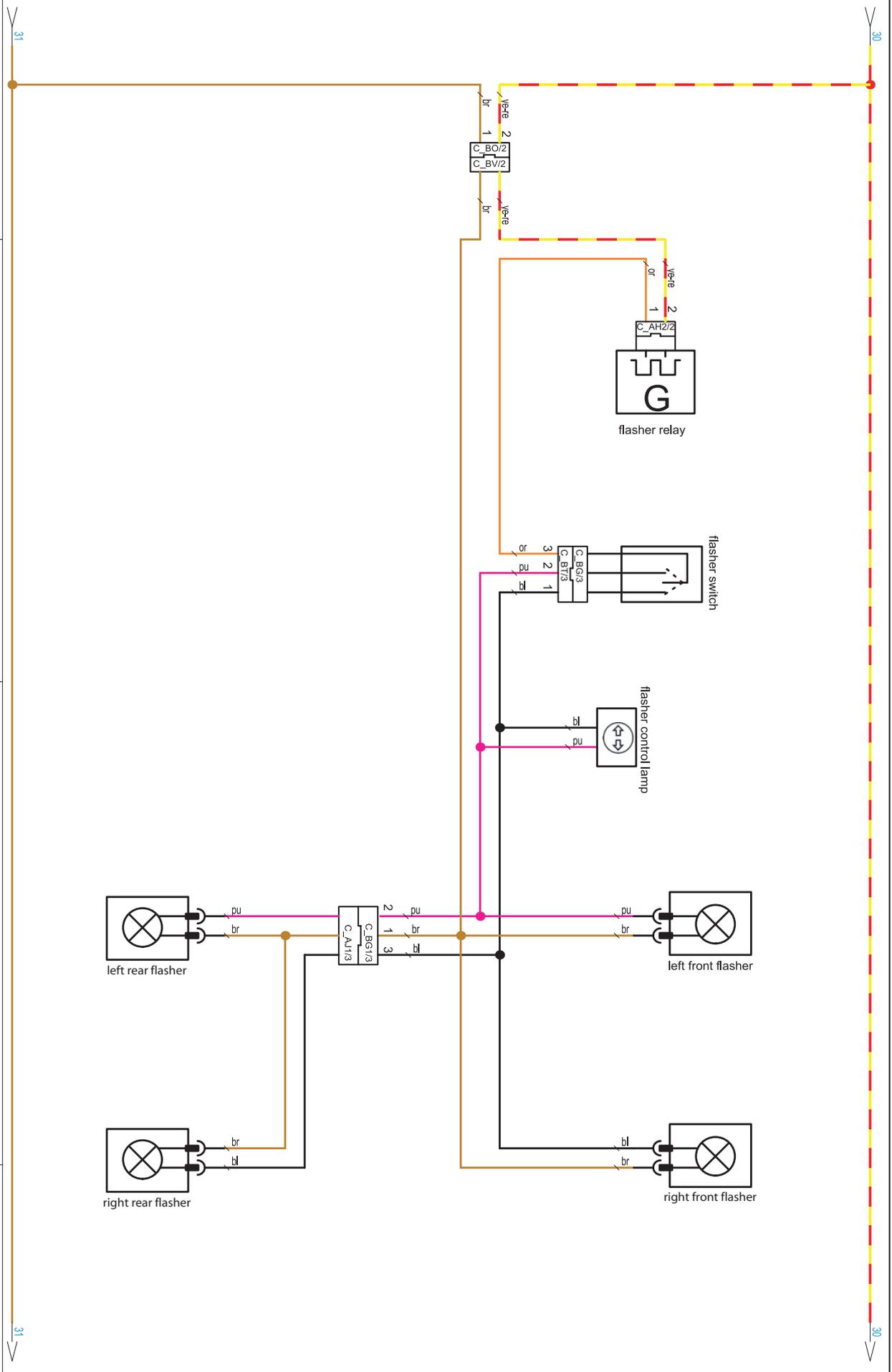
light system-instruments

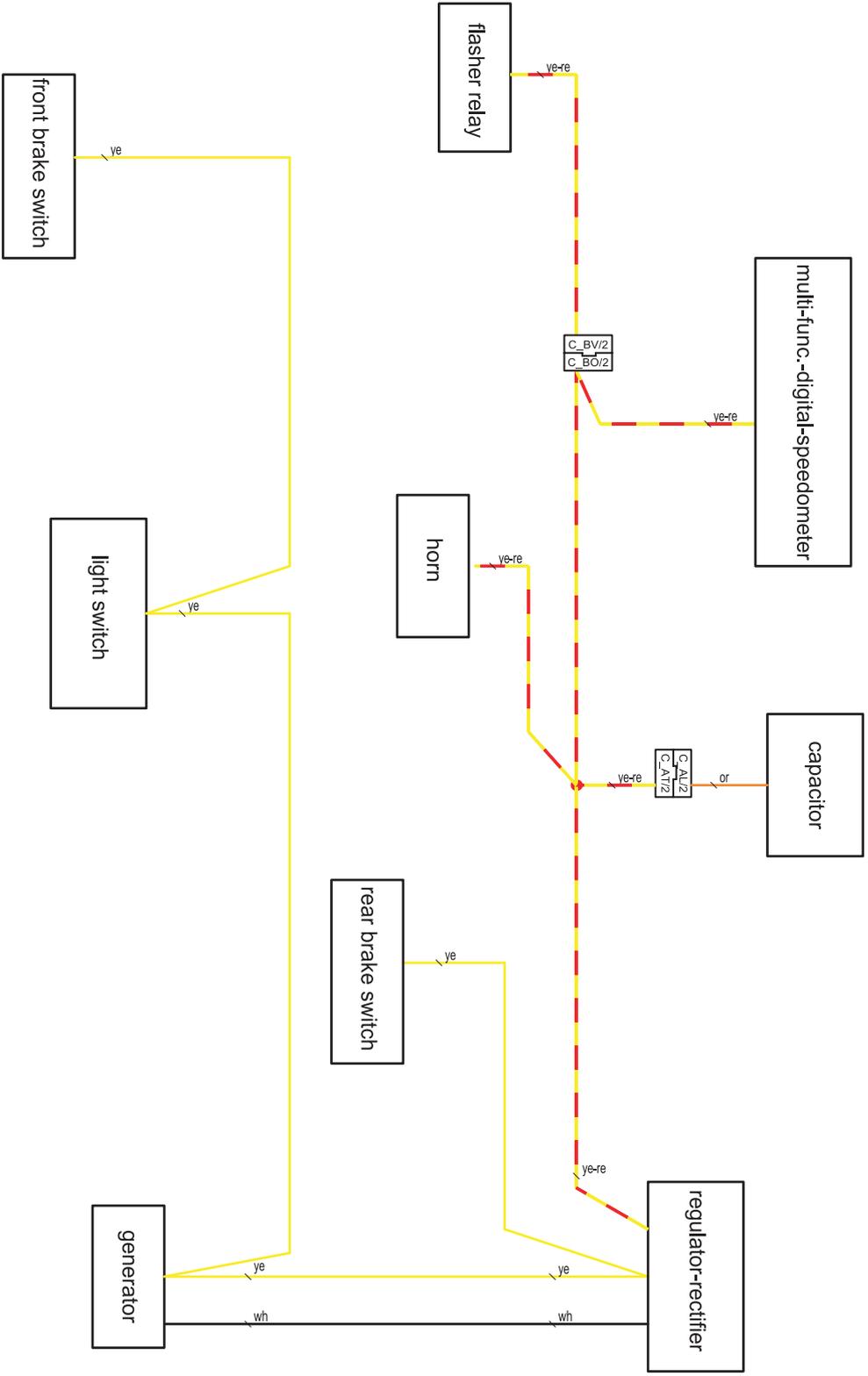




EXC 250-300 2005  
EXC SIX DAYS 250-300 05/06

# turn indicator system





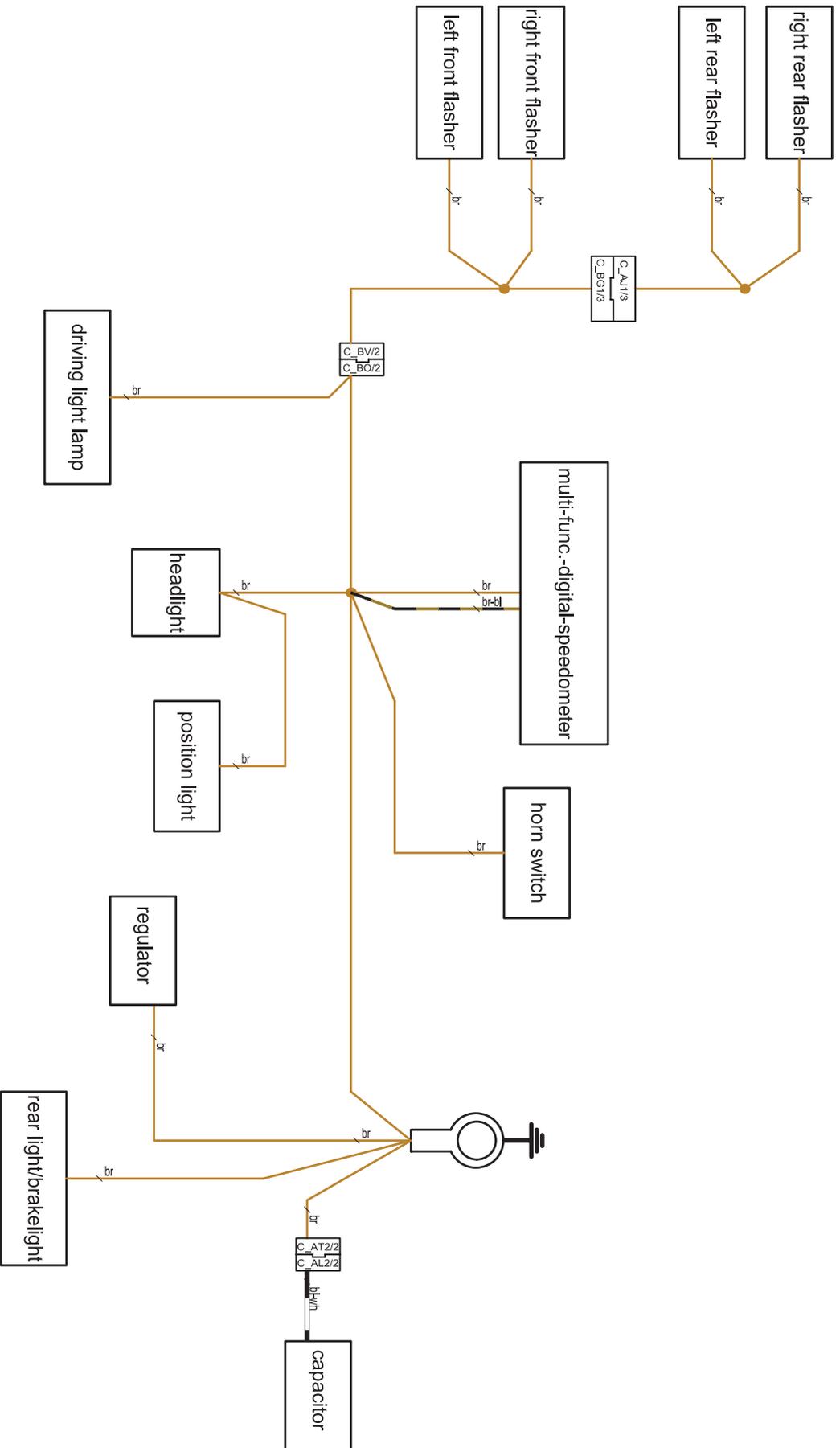
EXC 250-300 2005  
EXC SIX DAYS 250-300 05/06

positive connection



EXC 250-300 2005  
EXC SIX DAYS 250-300 05/06

ground connection







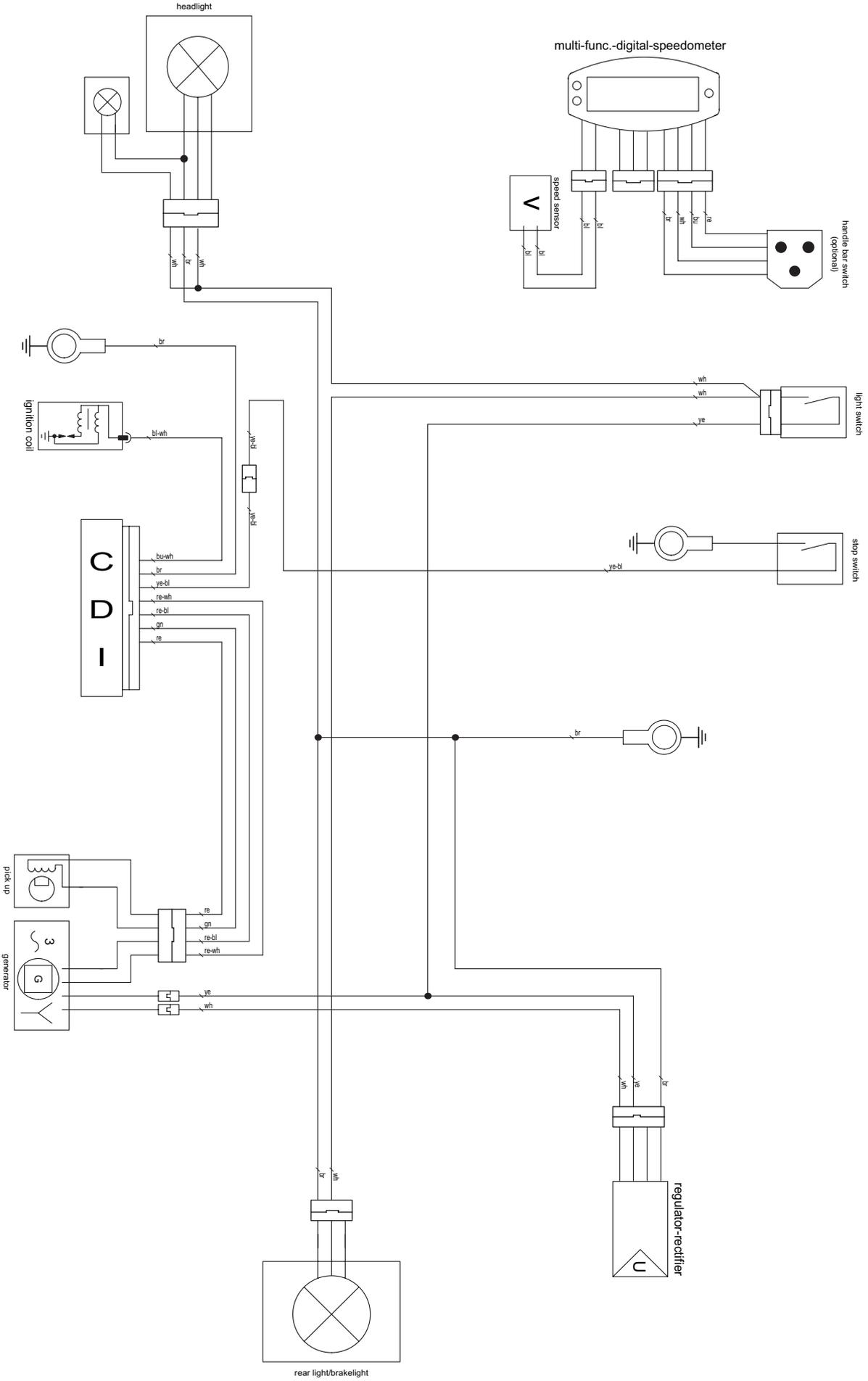
EXC-USA 300 2005

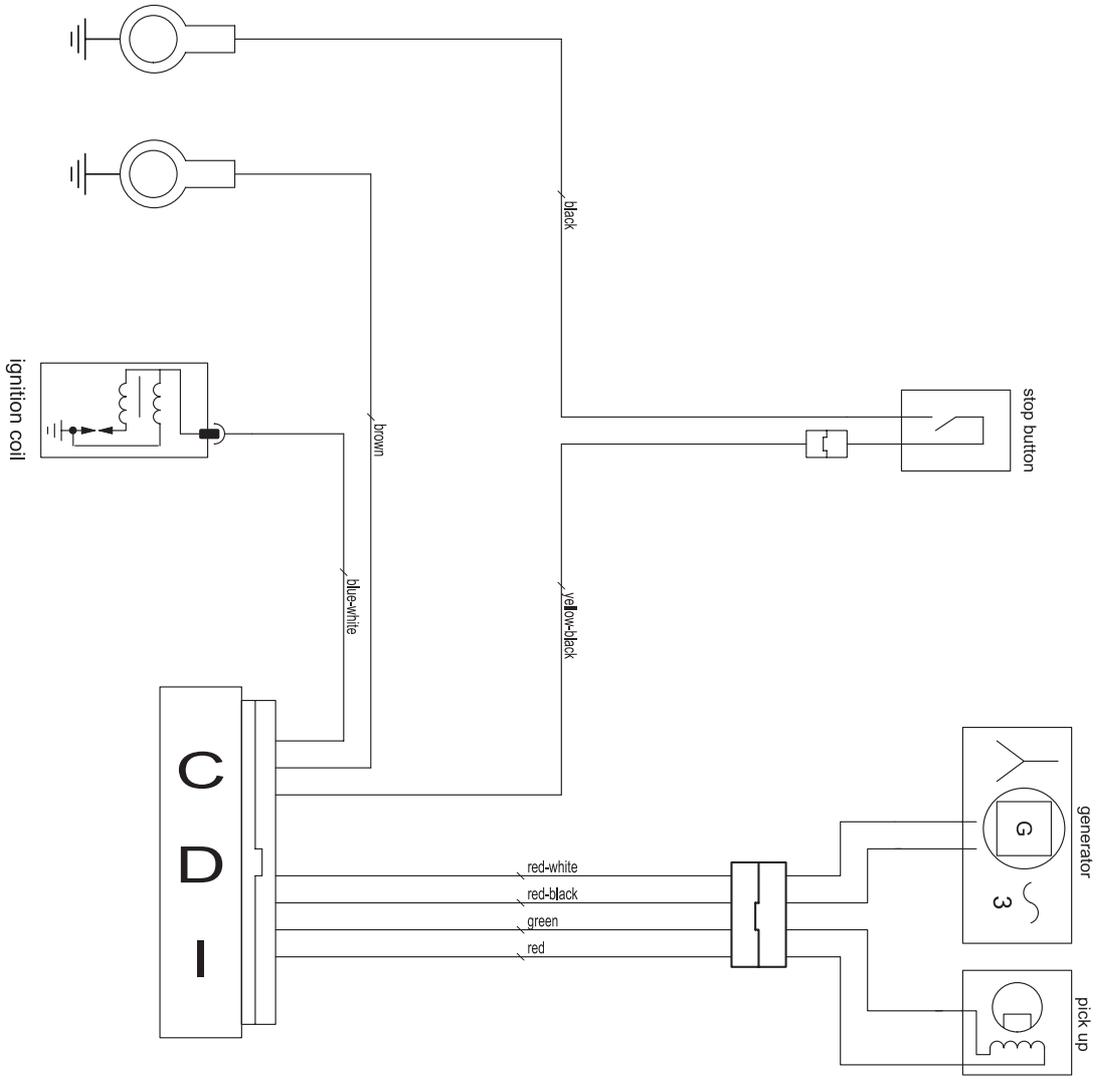
wiring diagram

main harness

548.11.075.100

20.02.2004





SX 250 2005

548.39.032.000

19.05.2003

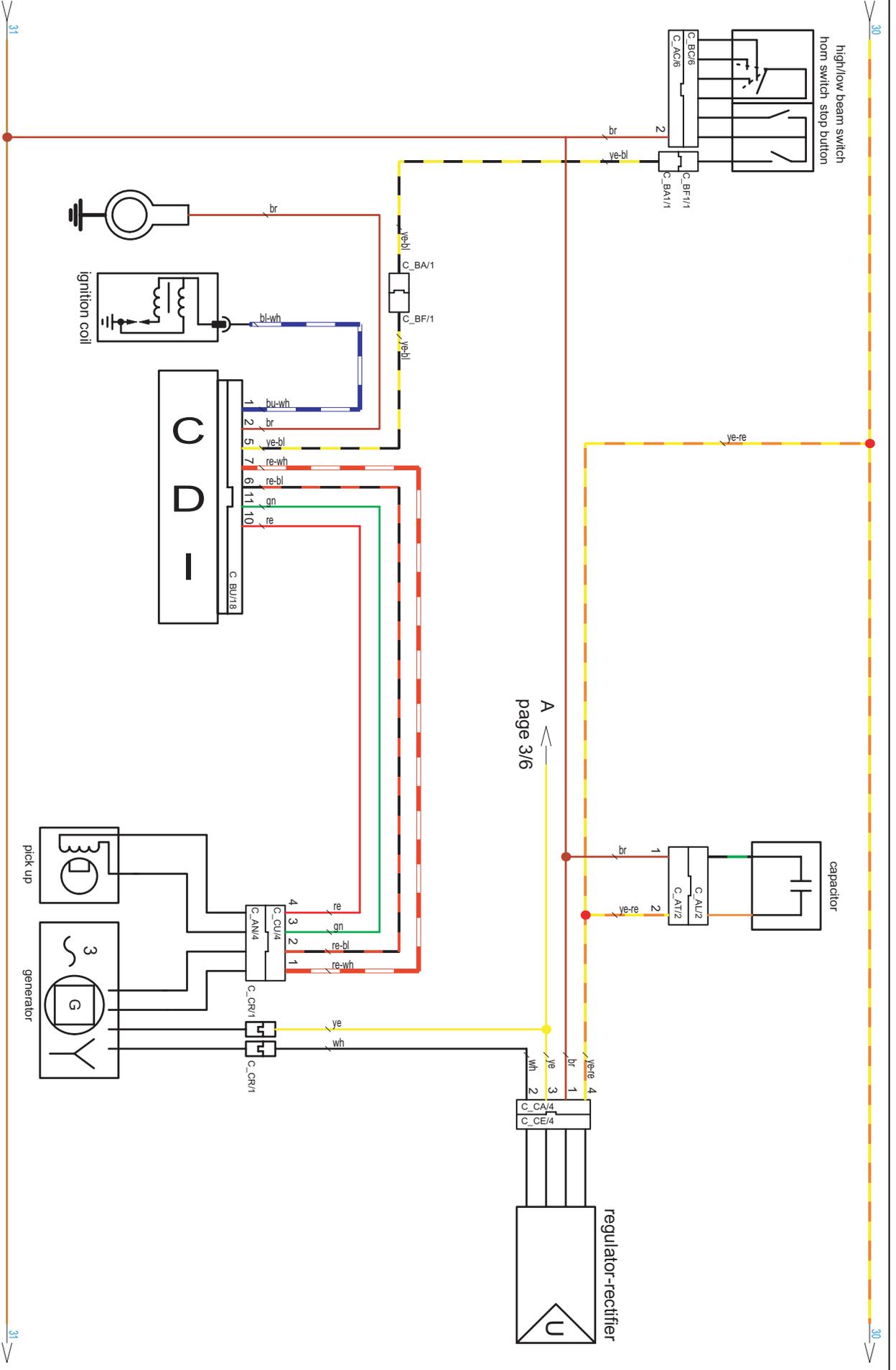




EXC 250-300 2006

CDI - charging circuit

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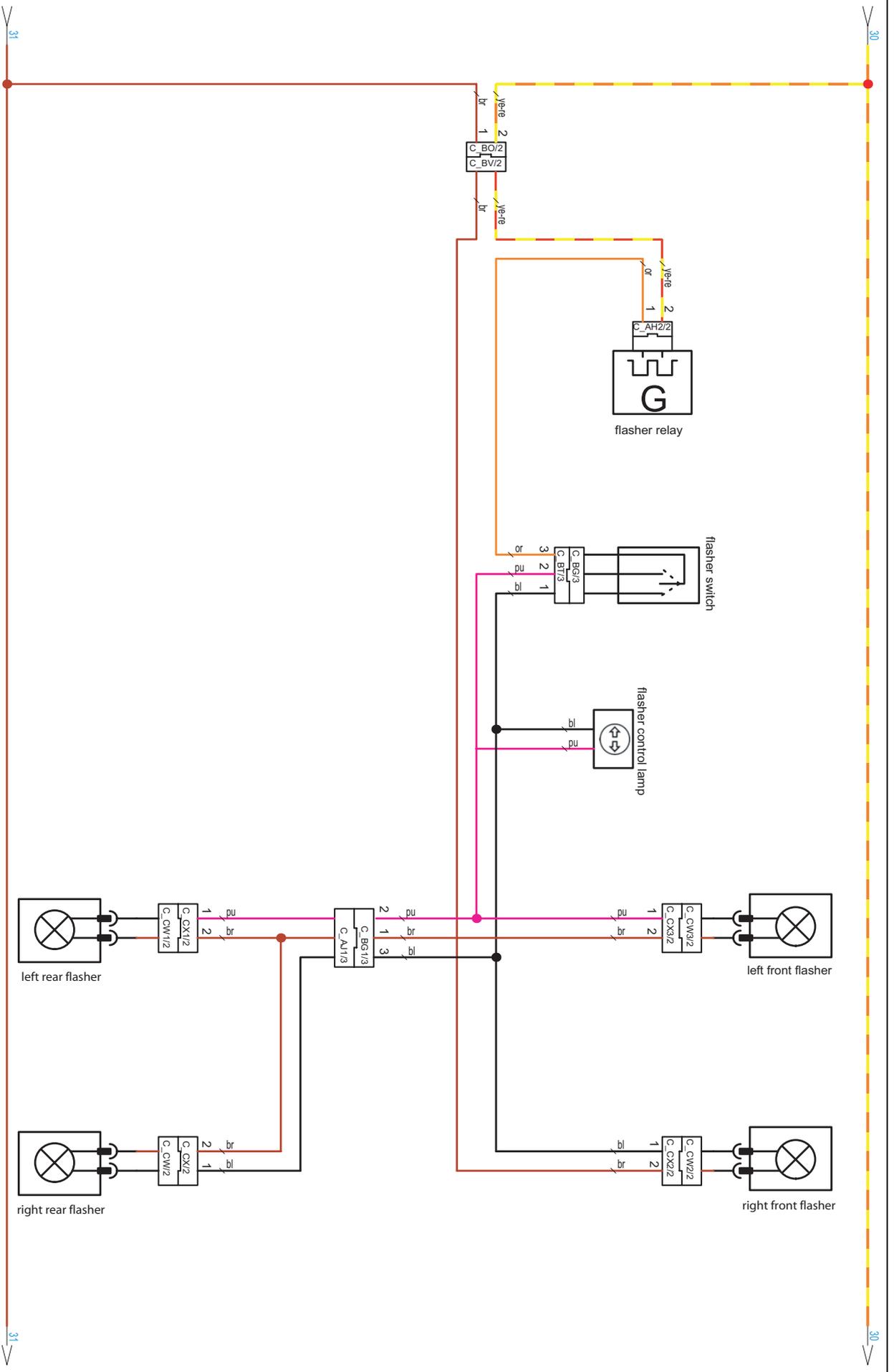




EXC 250-300 2006

turn indicator system

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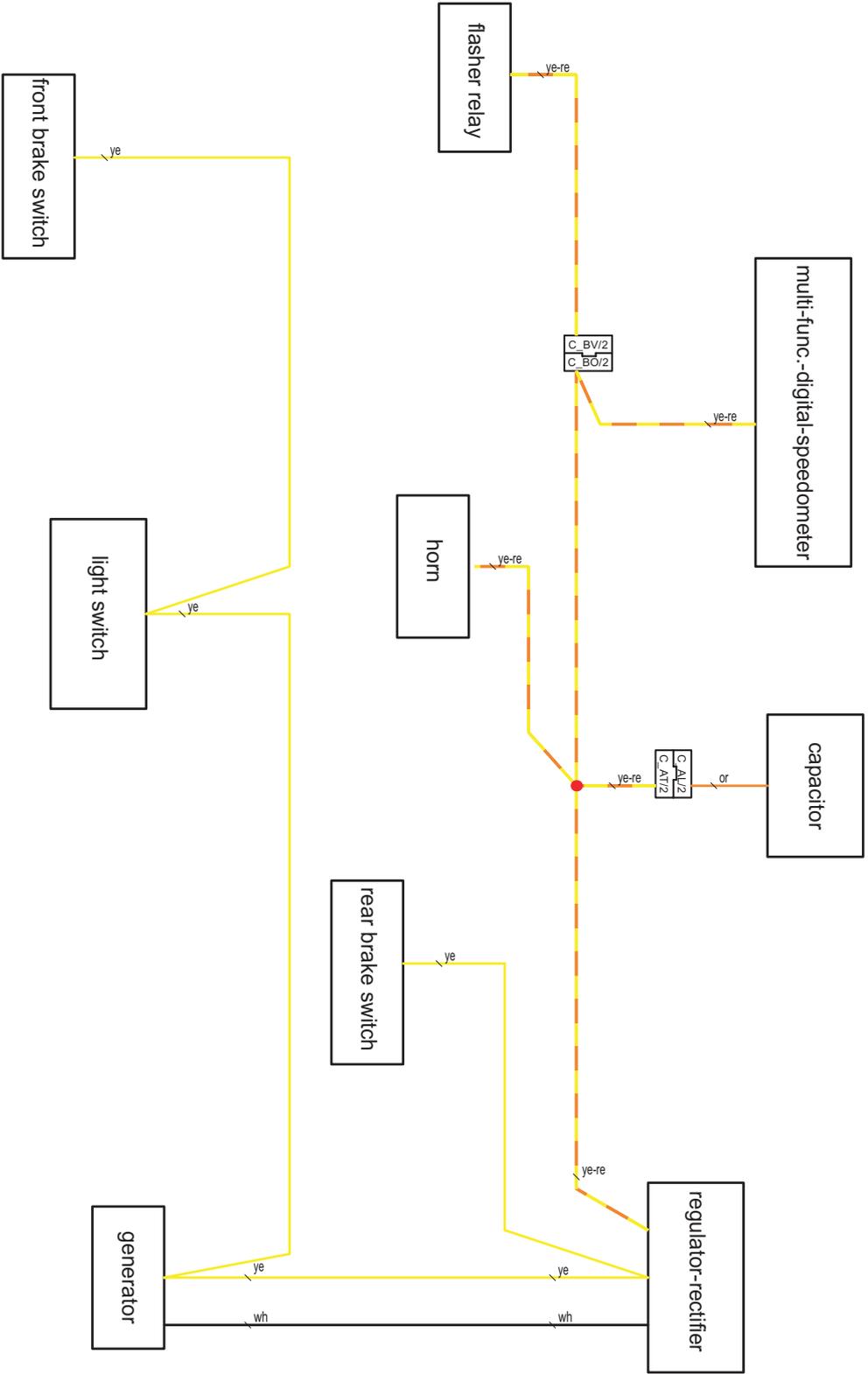


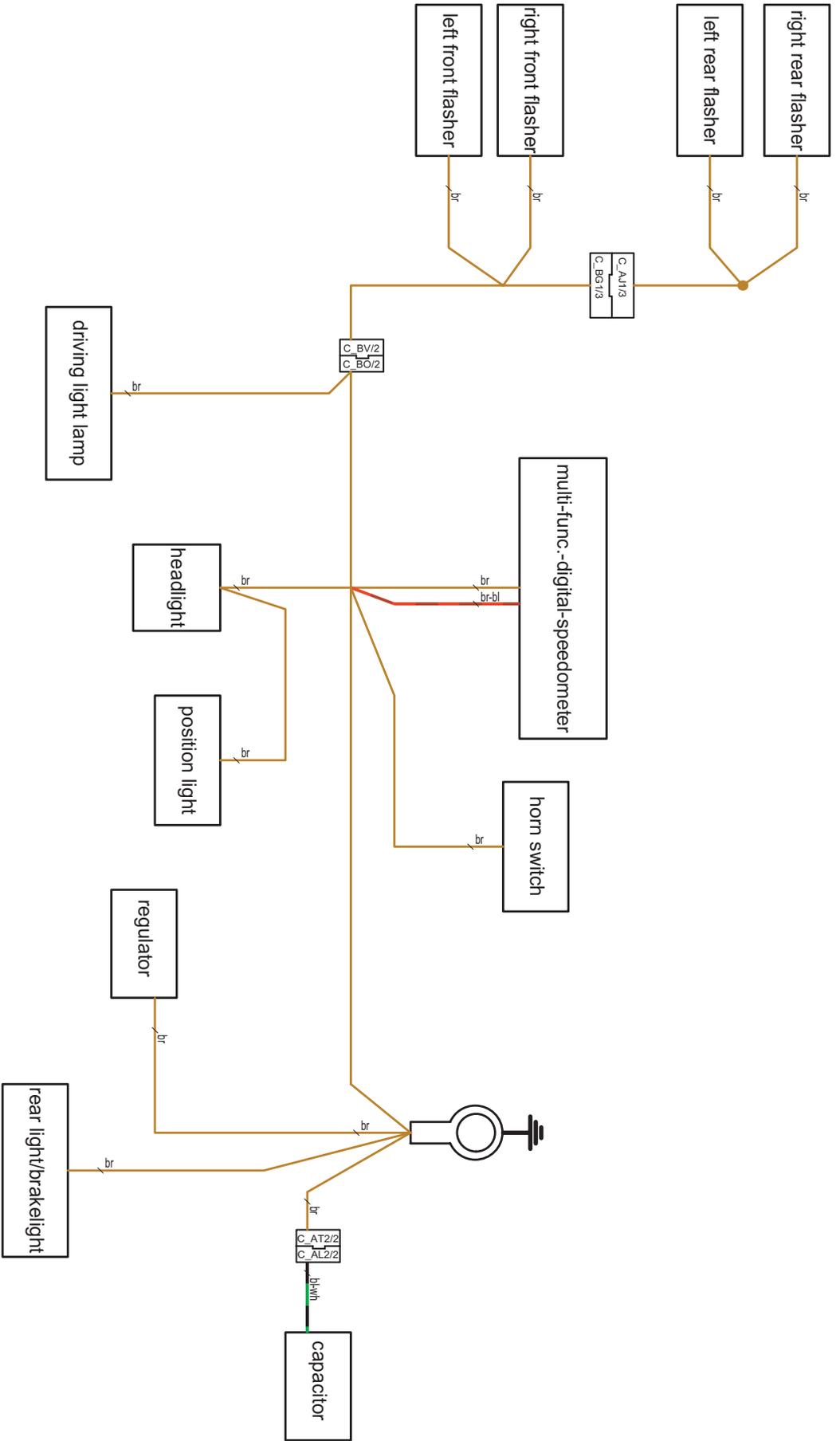


EXC 250-300 2006

positive connection

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EXC 250-300 2006

ground connection

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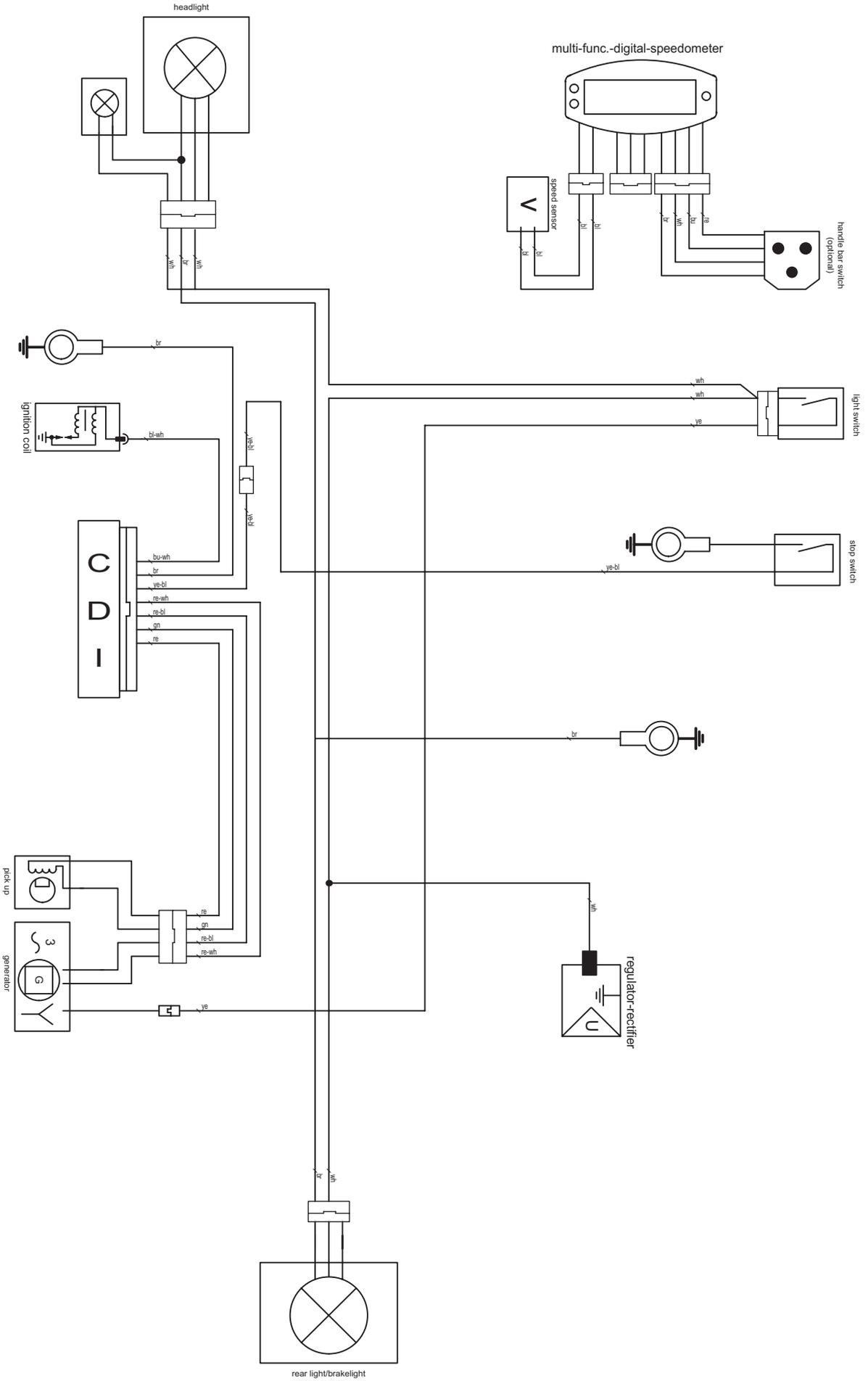
XC-W 250 2006

wiring diagram

main harness

548.11.075.000

20.02.2005



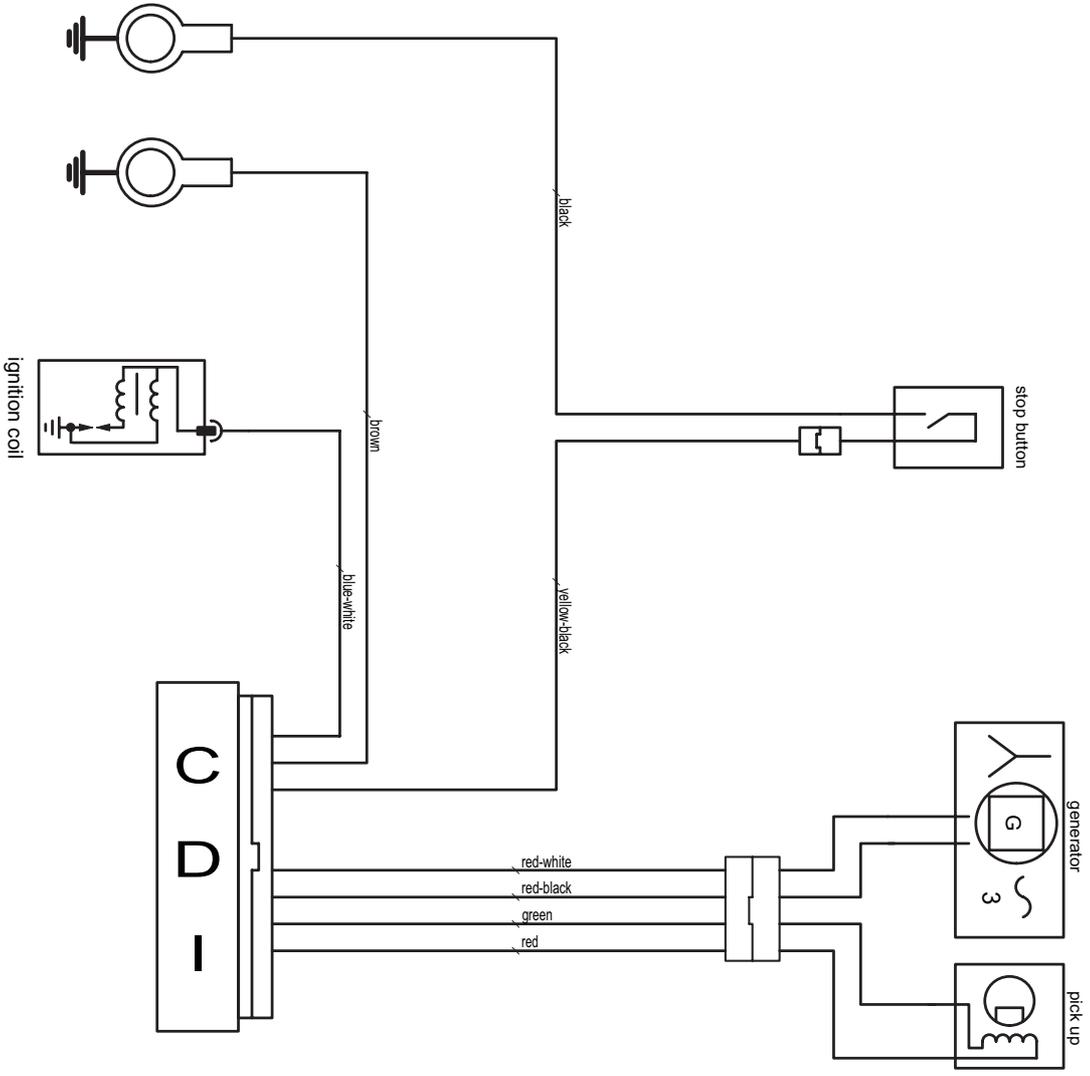




250 SX/SXS/XC 300 XC 2006

548.39.032.000

26.03.2005



ENGLISH	DEUTSCH	ITALIANO
Capacitor	Kondensator	Condensatore
CDI	CDI	CDI
Driving light lamp	Fernlichtkontrolle	Spia abbagliante
Flasher relay	Blinkerrelais	Relè indicatori
Flasher switch	Blinkerschalter	Deviatore indicatori di direzione
Front brake switch	vorderer Bremslichtschalter	Interruttore luce ant. di stop
Flasher control lamp	Blinkerkontrolle	spia lampeggiatori
Generator	Generator	Generatore
Handle bar switch for -multi-func.-digital-speedometer funzione	Lenkerschalter für Kombiinstrument	Interruttore sul manubrio per tachimetro multi-
Headlight	Scheinwerfer	Faro anteriore
High / low beam switch	Auf-Abblendschalter	Commutatore abbagliante/anabbagliante
Horn	Hupe	Avvisatore acustico
Horn switch	Hornschalte	Interruttore avvisatore acustico
Ignition coil	Zündspule	Bobina d'accensione
Left front flasher	linker vorderer Blinker	Indicatore ant. sx
Left rear flasher	linker hinterer Blinker	Indicatore post. sx
Multi-func.-digital-speedometer	Multifunktionsdigitaltacho	Tachimetro digitale multifunzione
Pick up	Impulsgeber	Pick up
Position light	Standlicht	luce di posizione
Rear brake switch	hinterer Bremslichtschalter	Interruttore luce post. di stop
Rear light / brakelight	hinteres Begrenzungslicht / Bremslicht	Luce post. di posizione/stop
Regulator-rectifier	Regelgleichrichter	Regolatore-raddrizzatore
Right front flasher	rechter vorderer Blinker	Indicatore ant. dx
Right rear flasher	Rechter hinterer Blinker	Indicatore post. dx
Speed sensor	Geschwindigkeitssensor	Sensore velocità
Stop switch	Stop schalter	Interruttore d'emergenza

**CABLE COLORS**

bl: black  
 ye: yellow  
 bu: blue  
 gn: green  
 re: red  
 wh: white  
 br: brown  
 or: orange  
 pi: pink  
 gr: grey  
 pu: purple

**KABELFARBEN**

bl: schwarz  
 ye: gelb  
 bu: blau  
 gn: grün  
 re: rot  
 wh: weiß  
 br: braun  
 or: orange  
 pi: rosa  
 gr: grau  
 pu: violett

**COLORI DEI CAVI**

bl: nero  
 ye: giallo  
 bu: blu  
 gn: verde  
 re: rosso  
 wh: bianco  
 br: marrone  
 or: arancione  
 pi: rosa  
 gr: grigio  
 pu: violetto

<b>ENGLISH</b>	<b>FRANCAIS</b>	<b>ESPAÑOL</b>
Capacitor	Condensateur	Condensador
CDI	CDI	CDI
Driving light lamp	Temion feu route	Lampara aviso luces largas
Flasher relay	Relais de clignotants	Relé de la luz intermitente
Flasher switch	Bouton de clignotants	Interruptor de la luz intermitente
Front brake switch	Contacteur de frein avant	Interruptor de luz del freno delantero
Flasher control lamp	Temion de clignoteur	Lampara aviso intermitentes
Generator	Genrateur	Generador
Handle bar switch for multi-func.-digital-speedometer	Contacteur au guidon pour ordinateur de bord	Interruptor de manillar para instrumento combinado
Headlight	Phare	Faro
High / low beam switch	Contacteur code/phare	Interruptor de encender/apagar la luz larga
Horn	Avertisseur sonore	Cláxon
Horn switch	Bouton d'avertisseur sonore	Interruptor del cláxon
Ignition coil	Bobine d'allumage	Bobina de encendido
Left front flasher	Clignotant avant gauche	Luz intermitente izquierda delantera
Left rear flasher	Clignotant arrière gauche	Luz intermitente izquierda trasera
Multi-func.-digital-speedometer	Ordinateur de bord	Velocímetro digital multifuncional
Pick up	Capteur d'allumage	Generador de impulsos
Position light	Feu de position	Luz de posicion
Rear brake switch	Contacteur de frein arrière	Interruptor de luz del freno trasero
Rear light / brakelight	Feu rouge/stop	Luces de parqueo traseras /luces de freno
Regulator-rectifier	Régulateur/redresseur	Regulador rectificador
Right front flasher	Clignotant avant droit	Luz intermitente derecha delantera
Right rear flasher	Clignotant arrière droit	Luz intermitente derecha trasera
Speed sensor	Capteur de vitesse	Sensor de velocidad
Stop switch	Contacteur stop	Interruptor parada
<b>CABLE COLORS</b>	<b>COULEUR DE CABLE</b>	<b>COLOR DE CABLE</b>
bl: black	bl: noir	bl: negro
ye: yellow	ye: jaune	ye: amarillo
bu: blue	bu: bleu	bu: azul
gn: green	gn: vert	gn: verde
re: red	re: rouge	re: rojo
wh: white	wh: blanc	wh: blanco
br: brown	br: brun	br: marron
or: orange	or: orange	or: naranja
pi: pink	pi: rose	pi: rosado
gr: grey	gr: gris	gr: gris
pu: purple	pu: violet	pu: violeta

**horn switch**

cable color	re	br
HORN 	●	●
OFF		

**light switch  
high/low beam switch**

cable color	bu	ye	gn	wh
LIGHT OFF				
P.LIGHT- LO 		●	●	●
HI 	●	●		
P.LIGHT- 		●	●	●

**brake switch**

cable harness	gn-wh	ye
cable switch	bl	bl
pushed	●	●
unpushed		

**flasher switch**

cable harness	or	pu	bl
TURN L 	●	●	
TURN R 	●	●	●
OFF			

**stop switch**

cable harness	ye-bl	br
cable switch	ye-bl	br
pushed	●	●
unpushed		