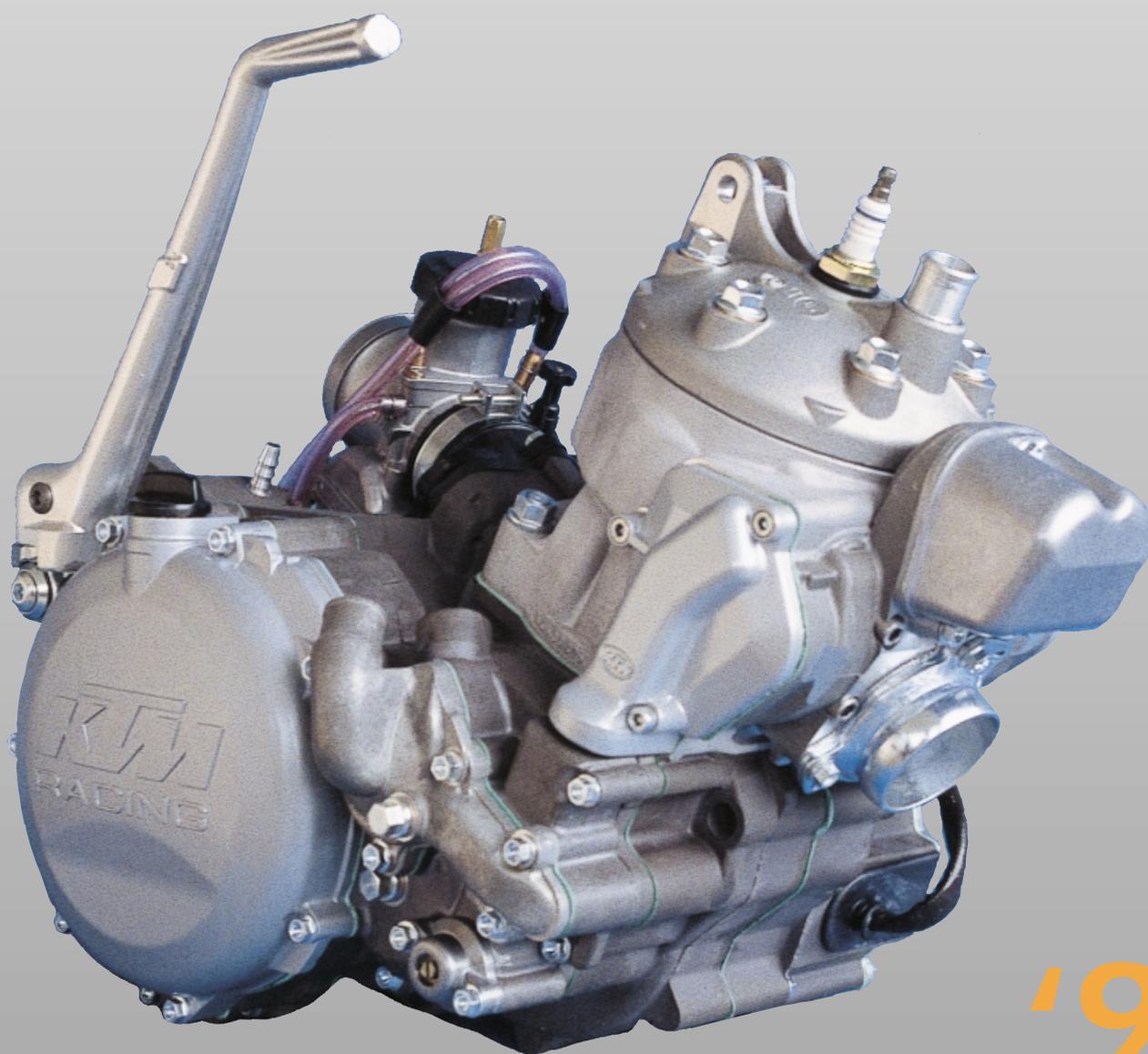




REPARATURANLEITUNG  
REPAIR MANUAL  
MANUALE DI RIPARAZIONE  
MANUEL DE RÉPARATION  
MANUAL DE REPARACIÓN

MOTOR  
ENGINE  
MOTORE  
MOTEUR  
MOTOR

**250 / 300 / 380**



**'98**

7. 97

ART. NR. 3.205.20

|          |  |          |
|----------|--|----------|
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(see at the end of this repair manual)

## INTRODUCTION

THIS REPAIR MANUAL OFFERS EXTENSIV REPAIR-INSTRUCTIONS AND IS AN UP-TO-DATE VERSION THAT DESCRIBES THE LATEST MODELS OF THE SERIES. HOWEVER, THE RIGHT TO MODIFICATIONS IN THE INTEREST OF TECHNICAL IMPROVEMENT IS RESERVED WITHOUT UPDATING THE CURRENT ISSUE OF THIS MANUAL.

A DESCRIPTION OF GENERAL WORKING MODES COMMON IN WORK SHOPS HAS NOT BEEN INCLUDED. SAFETY RULES COMMON IN THE WORK SHOP HAVE ALSO NOT BEEN LISTED. WE TAKE IT FOR GRANTED THAT THE REPAIRS ARE MADE BY QUALIFIED PROFESIONALLY TRAINED MECHANICS.

READ THROUGH THE REPAIR MANUAL BEFORE BEGINNING WITH THE REPAIR WORK.

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**⚠      WARNING      ⚠**

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

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**!      CAUTION      !**

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

---

„NOTE” POINTS OUT USEFUL TIPS.

USE ONLY **ORIGINAL KTM SPARE PARTS** WHEN REPLACING PARTS.

THE KTM HIGH PERFORMANCE ENGINE IS ONLY ABLE TO MEET USER EXPECTATIONS IF THE MAINTENANCE WORK IS PERFORMED REGULARLY AND PROFESSIONALLY.

FOR TECHNICAL DATA SEE LAST SECTION OF THIS MANUAL. UP-TO-DATE INFORMATION IS PUBLISHED IN OUR UPDATED SPARE PARTS CATALOGUES.



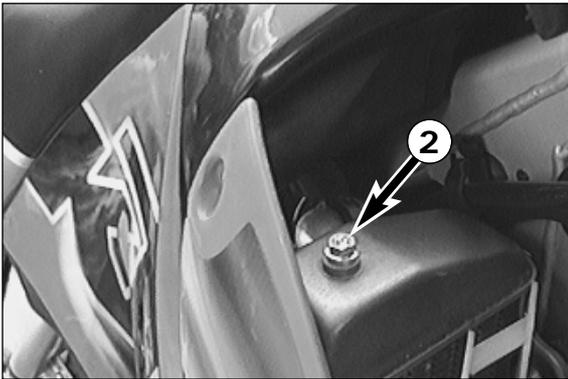
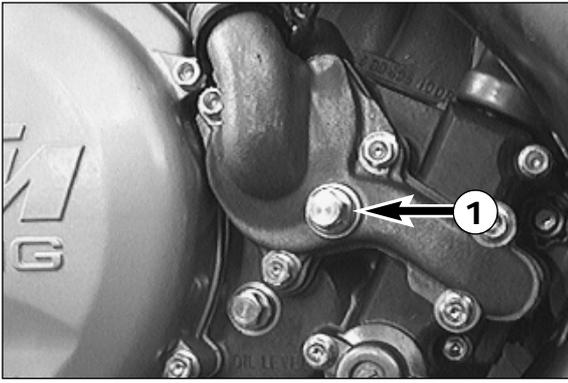
KTM AUSTRIA'S CERTIFICATE OF ACHIEVEMENT FOR ITS QUALITY SYSTEM ISO 9001 IS THE BEGINNING OF AN ON- GOING TOTAL RE-ENGINEERED QUALITY PLAN FOR A BRIGHTER TOMORROW.

KTM SPORTMOTORCYCLE AKTIENGESELLSCHAFT  
5230 MATTIGHOFEN, AUSTRIA

ALL DESIGN AND ASSEMBLY MODIFICATION RIGHTS RESERVED.

# 1.0 General

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### 1.1 Bleeding the cooling system

If the coolant has been drained, the cooling system must be bled as follows after refilling.

- Make sure that the drain screw ❶ is fastened.
  - Pour approx. 0.5 litres coolant into the system.
- 
- Remove the screw ❷ on the right radiator and tilt the motorcycle to the right approx. 30 degree angle.
  - Now pour coolant into the system until it escapes from the right radiator free of bubbles and replace the screw ❷ immediately so that no more air may reach 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 above the radiator fins.
  - Check the coolant level again after a short ride.

### 1.2 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 MOZ). 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**

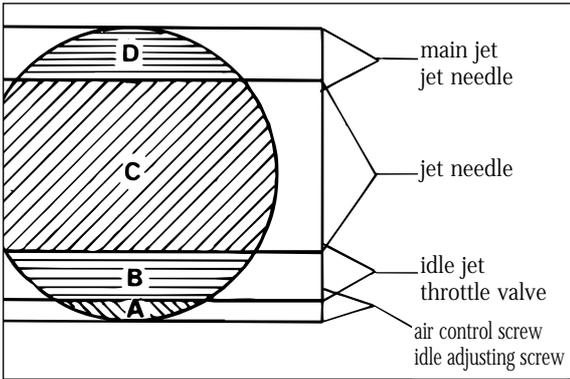
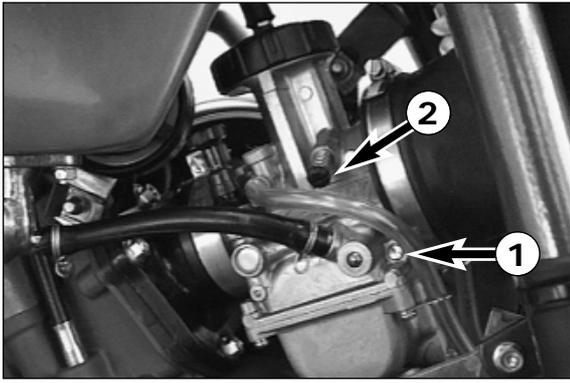


- ONLY USE PREMIUM-GRADE GASOLINE ROZ 95 MIXED WITH HIGH-GRADE TWO-STROKE ENGINE OIL. OTHER TYPES OF GASOLINE CAN CAUSE ENGINE FAILURE, AND USE OF SAME WILL VOID YOUR WARRANTY.
- ONLY USE HIGH-GRADE 2-STROKE ENGINE OIL OF KNOWN BRANDS.
- NOT ENOUGH OIL OR LOW-GRADE OIL CAN CAUSE EROSION OF THE PISTON. USING TOO MUCH OIL, THE ENGINE CAN START SMOKING AND FOUL THE SPARK PLUG.
- IN THE CASE OF A LEANER ADJUSTMENT OF THE CARBURETOR PROCEED CAUTIOUSLY. ALWAYS REDUCE THE JET SIZE IN STEPS OF ONE NUMBER TO AVOID OVERHEATING AND PISTON SEIZURE.

NOTE: IF DESPITE A CHANGED ADJUSTMENT THE ENGINE DOES NOT RUN PROPERLY, LOOK FOR MECHANICAL FAULTS AND CHECK THE IGNITION SYSTEM.

#### Basic information on carburetor wear

As a result of engine vibrations, throttle valve, jet needle, and needle jet are subjected to increased wear. This wear may cause carburetor malfunction (e.g., overly rich mixture). Therefore, these parts should be replaced after 10000 kilometers (6000 miles).



### 1.3 Definitions

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

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

#### 1.3.1 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 this end, 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 1.5 turns). Then adjust to the normal idling speed by means of the idle adjusting screw.

#### 1.3.2 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.

#### 1.3.3 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.

#### 1.3.4 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.

| jet needle    | throttle valve open | effect |
|---------------|---------------------|--------|
| <b>N 85 A</b> |                     |        |
| <b>N 85 B</b> | 0 - 1/4             | ⊖      |
| <b>N 85 C</b> | 0 - 1/4             | ⊖⊖     |
| <b>N 85 D</b> | 0 - 1/4             | ⊖⊖⊖    |
| <b>N 85 E</b> | 0 - 1/4             | ⊖⊖⊖⊖   |
| <b>NOZ E</b>  |                     |        |
| <b>NOZ F</b>  | 0 - 1/4             | ⊖      |
| <b>NOZ G</b>  | 0 - 1/4             | ⊖⊖     |
| <b>NOZ H</b>  | 0 - 1/4             | ⊖⊖⊖    |
| <b>NOZ I</b>  | 0 - 1/4             | ⊖⊖⊖⊖   |

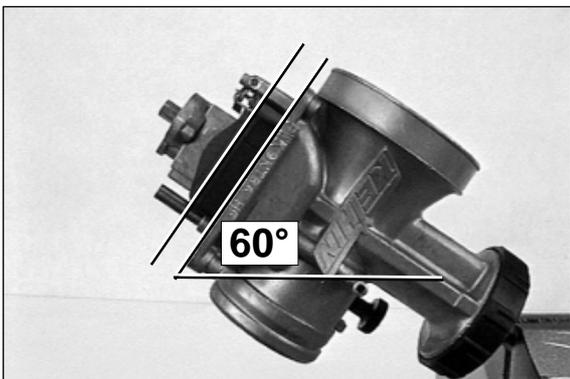
#### Explanation - Example

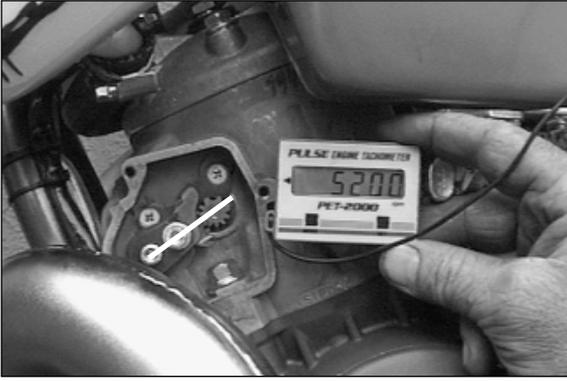
|               |         |    |
|---------------|---------|----|
| <b>N 85 C</b> | 0 - 1/4 | ⊖⊖ |
|---------------|---------|----|

Compared to the needle N 85 A, the jet needle N 85 C is two steps leaner in the range from the closed position of the throttle to 1/4 throttle. Otherwise, there are not differences.

### 1.4 Checking the float level

Arrange the Keihin 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).



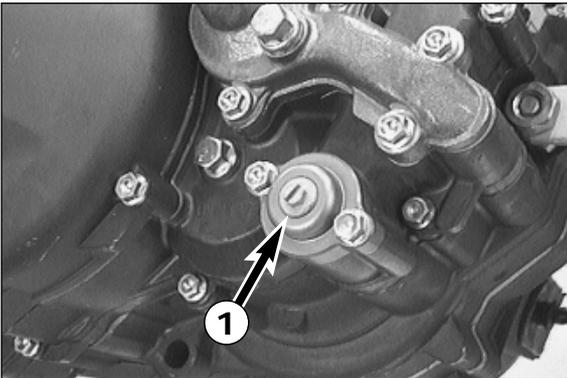


## 1.5 Checking the setting of the TVC system

NOTE: THE FUNCTION OF THE TVC SYSTEM IS CHECKED WITH THE ENGINE RUNNING. THIS TEST CHECKS THE START OF ADVANCE AND THE END OF ADVANCE.

- For this, remove the left control cover.
- Connect a rev counter (either to the ignition cable or to the blue/white 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).

|      | START OF ADVANCE: | END OF ADVANCE: |
|------|-------------------|-----------------|
| 250: | at 5400 rpm       | at 7550 rpm     |
| 300: | at 5300 rpm       | at 7400 rpm     |
| 380: | at 5200 rpm       | at 7200 rpm     |

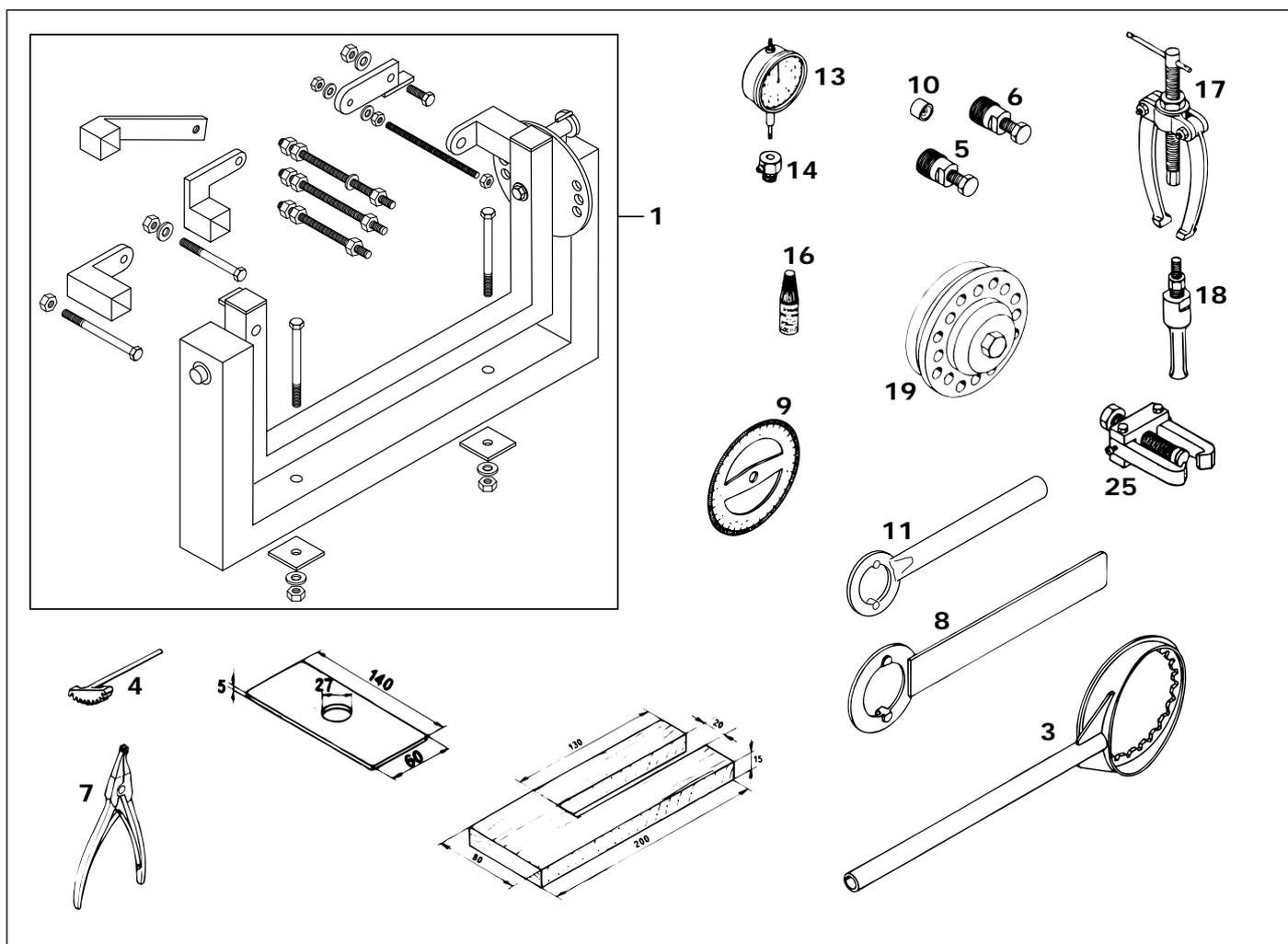


- If necessary, turn the adjusting screw ❶.

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.

## 1.6 Special tools

1  
5



| FIG. | PARTNO.        | DESCRIPTION                          |
|------|----------------|--------------------------------------|
| 1    | 560.12.001.000 | REPAIR STAND '96                     |
| 3    | 546.29.003.000 | HOLDING PLATE 250                    |
| 4    | 560.12.004.000 | GEAR WHEEL SEGMENT                   |
| 5    | 546.29.009.044 | PULLER FOR FLYWHEEL                  |
| 6    | 6 276 807      | PULLER FOR FLYWHEEL                  |
| 7    | 510.12.011.000 | SPECIAL CIRCLIP PLIER                |
| 8    | 544.12.012.000 | HOLDING SPANNER FOR FLYWHEEL SEM     |
| 9    | 510.12.014.000 | TIMING DEGREE DISC                   |
| 10   | 510.12.016.000 | PROTECTION CAP                       |
| 11   | 546.29.012.000 | HOLDING SPANNER FOR FLYWHEEL KOKUSAN |
| 13   | 501.12.013.000 | DIAL GAUGE                           |
| 14   | 501.12.030.000 | DIAL GAUGE SUPPORT                   |
| 16   | 6 899 785      | LOCTITE 242 BLUE                     |
| 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 | RIVETTING TOOL                       |
| 25   | 0276 179 000   | EXTRACTOR PRIMARY GEAR               |



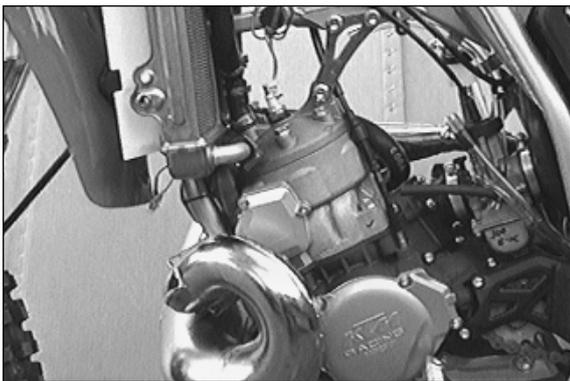
# 2.0 Removing engine / Refitting engine

| Chap. | Component / Component unit | Page |
|-------|----------------------------|------|
| 2.1   | Removing engine .....      | 2-1  |
| 2.2   | Refitting engine .....     | 2-2  |

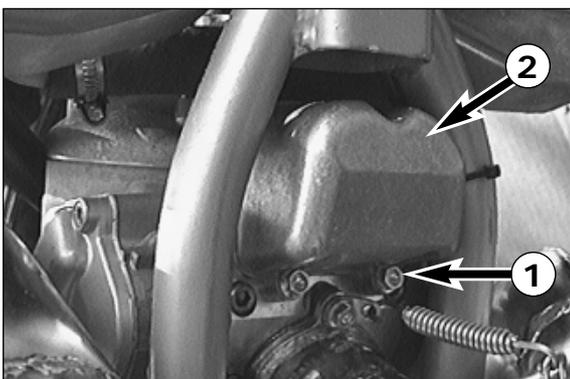


## 2.1 Removing the engine

- Thoroughly clean the motorcycle.
- Use a suitable supporting device to jack up the motorcycle.
- Remove the seat and the tank with the spoilers.
- Drain the cooling liquid.
- Remove the exhaust system and the engine brace.
- Disconnect the radiator hoses at the engine.
- Remove the carburetor.

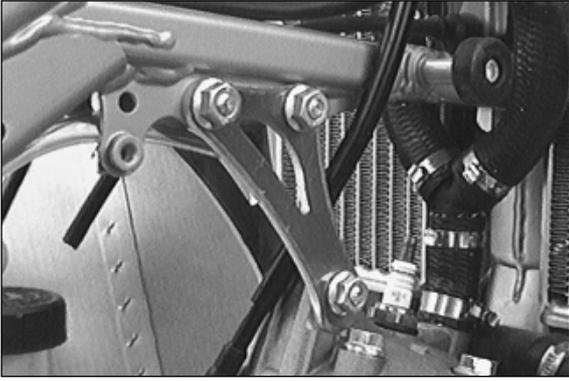


- Remove the engine sprocket cover and the chain.
- Disconnect the electrical wires.
- Unhook the clutch cable from the clutch lever.



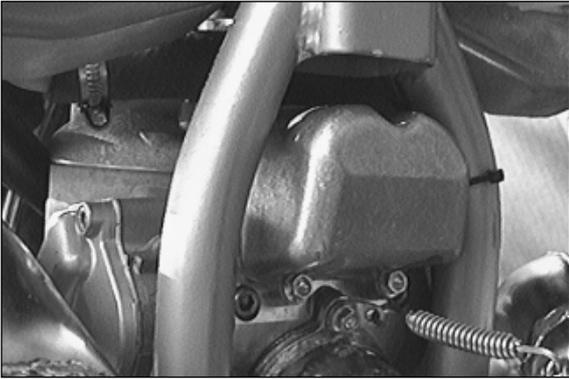
- Undo the three screws ❶ and remove the compensation chamber ❷ of KTC system including O-ring.
- Undo the engine mounting screws.
- Remove the swingarm pivot and pull the swingarm backwards.
- Lift the engine out of the frame on the left side.

NOTE: THE ENGINE NEED NOT BE REMOVED TO REMOVE THE CYLINDER HEAD AND THE CYLINDER. IT IS ALSO POSSIBLE TO WORK ON THE CLUTCH, THE PRIMARY DRIVE AND THE SHIFT MECHANISM WITHOUT PREVIOUSLY REMOVING THE ENGINE.

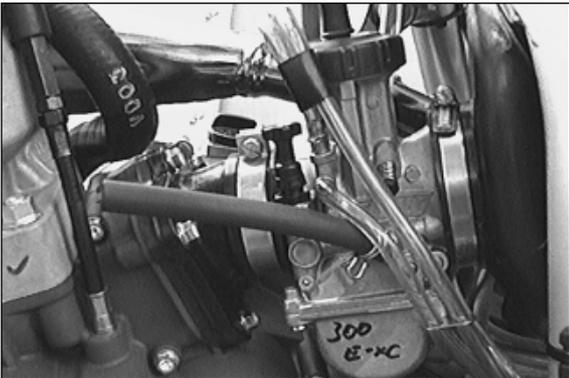


## 2.2 Installing the engine

- Lift the engine into the frame from the left side, slightly grease and mount the swingarm pivot.
- Twist in the engine mounting screws.
- Mount the engine brace.



- Insert a new O-ring into the groove of the compensation chamber of KTC system with O-ring.
- Fix the compensation chamber with 3 screws and tighten the screws with 6 Nm.
- Connect the electrical wires.
- Mount the chain and the engine sprocket cover.



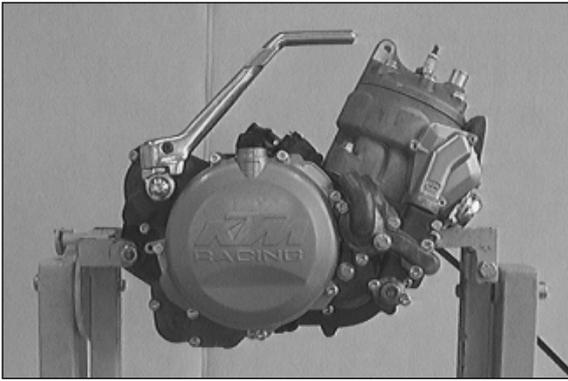
- Mount the carburetor.
- Connect the radiator hoses to the engine and fill the cooling system with a mixture of 40 % antifreeze and 60 % water.
- Mount the exhaust system.
- Mount the tank with the spoilers and the seat.
- Start the engine and bleed the cooling system.



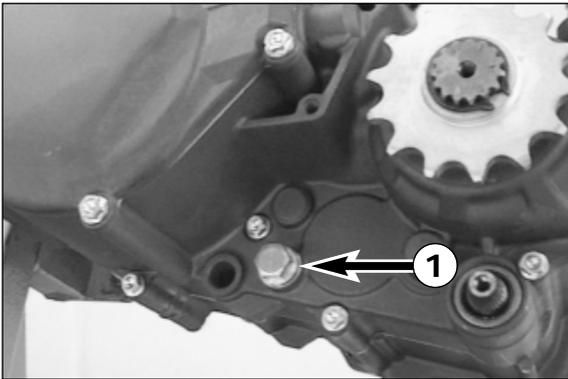
- Warm up the engine and check if the TVC system is properly adjusted.
  - Check the electrical system for faultless operation.
  - Adjust the carburetor.
  - Test ride.
- After the test ride, check the engine and the cooling system for leaks and make sure that all liquid levels are correct.

# 3.0 Dismantling engine

| <b>Cap.</b> | <b>Component / Component unit</b>           | <b>Page</b> |
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| 3.1         | Drain gear oil . . . . .                    | 3-2         |
| 3.2         | Cylinder head, cylinder, piston . . . . .   | 3-2         |
| 3.3         | Clutch cover . . . . .                      | 3-3         |
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| 3.15        | Crankshaft . . . . .                        | 3-6         |

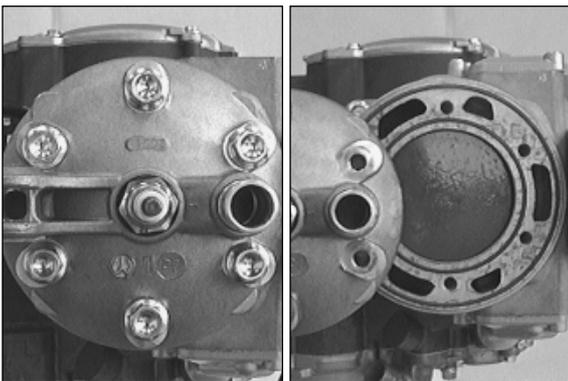


- Cleaning the engine thoroughly.
- Place engine work stand in a vice and clamp the engine into the workstand.
- Remove the kickstarter together with the distance bushing behind and the foot shift lever.



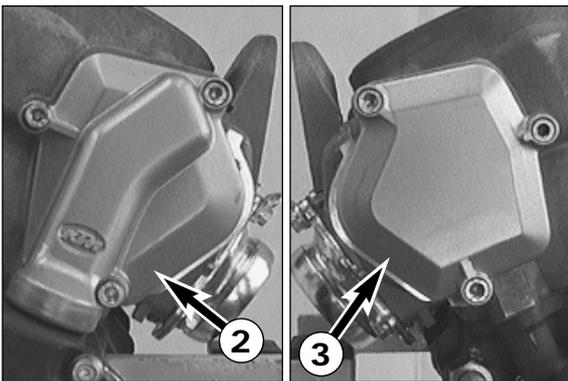
### 3.1 Draining gear oil

- Unscrew plug ①, allowing oil to drain.

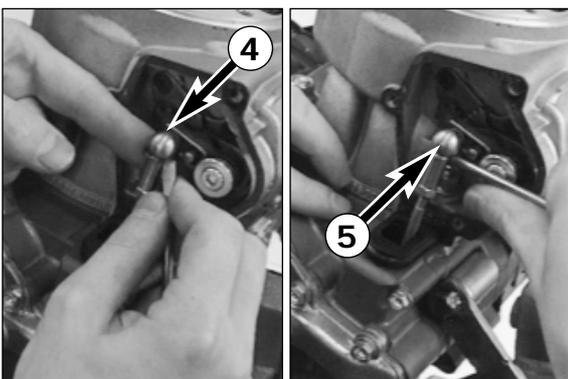


### 3.2 Cylinder head, cylinder, piston

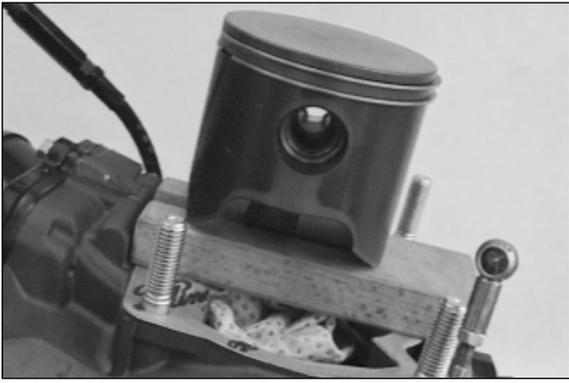
- Unscrew the 6 M8 collar screws.
- Remove cylinder head and the two O-rings.



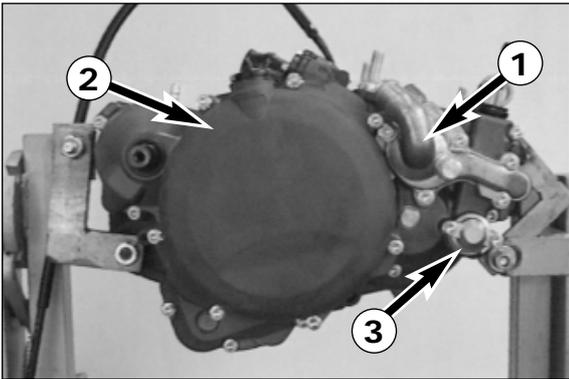
- Undo the screws and remove the left control cover ② together with the gasket.
- Undo the screws and remove the right control cover ③ together with the gasket.



- Remove the securing clip of the ball socket ④ and unhook the ball socket ⑤ from the adjusting lever.
- Remove the 4 collar nuts on cylinder base and remove cylinder.



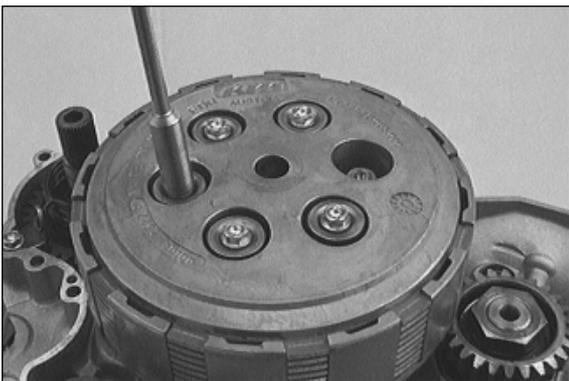
- Cover the crankcase.
- Place piston on wooden jig and remove both piston pin locking pins.
- Expel piston pin from piston without exerting undue force. Use a suitable mandrel if necessary.
- Remove piston and piston pin needle-bearing from conrod eye.
- Remove the cylinder base gasketS.



### 3.3 Clutch cover

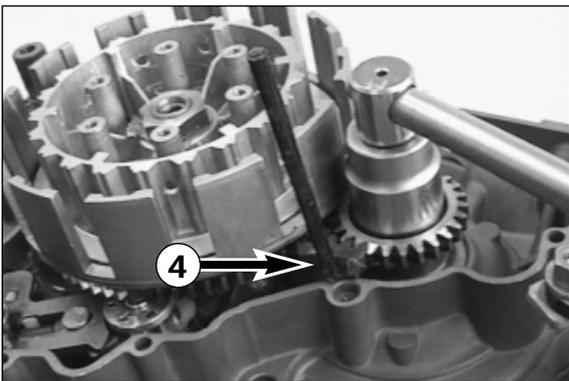
- Remove collar screws and clutch cover including gasket.

NOTE: THE WATER PUMP COVER ❶, THE OUTER COVER ❷ AND THE COVER LID ❸ DO NOT NEED TO BE REMOVED. THE WATER PUMP AND THE CENTRIFUGAL TIMER REMAIN IN THE CLUTCH COVER.



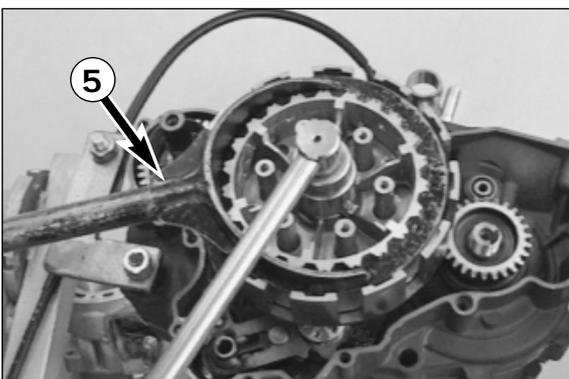
### 3.4 Clutch discs

- Loosen collar screws in diagonally opposite sequence to prevent wedging of discs as springs expand.
- Remove collar screws, springs and spring retainer.
- Remove the pressure cap and pull out the clutch push rod together with the thrust bearing.
- Take the disc package out of the outer clutch hub.

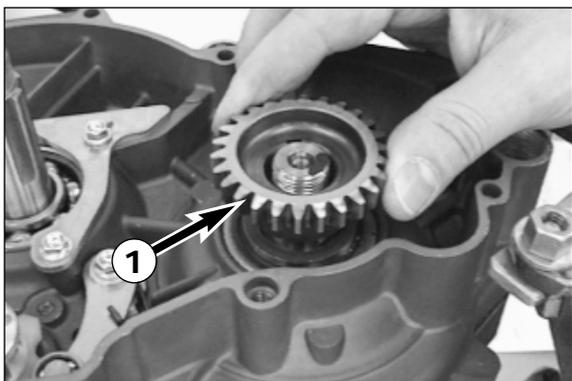


### 3.5 Primary drive

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

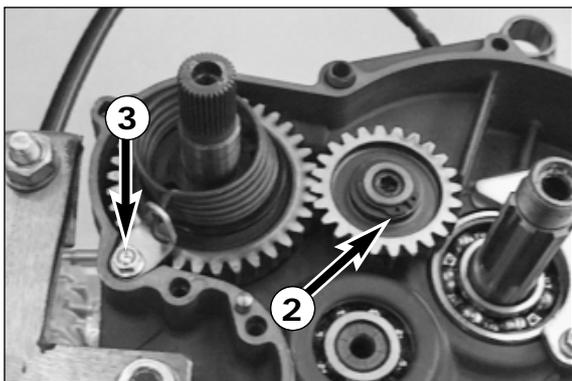


- Release the lock washer of the inner clutch hub.
- Connect clutch holder ❸ to inner clutch hub and loosen hexagon nut (see illustration).
- Remove clutch holder.
- Remove inner clutch hub and outer clutch hub together with bearing from main shaft.



- Pulling the primary gear **1** off the crankshaft.

NOTE: THE PRIMARY GEAR AND THE OUTER CLUTCH HUB BELONG TOGETHER. ALWAYS REPLACE BOTH TOGETHER!

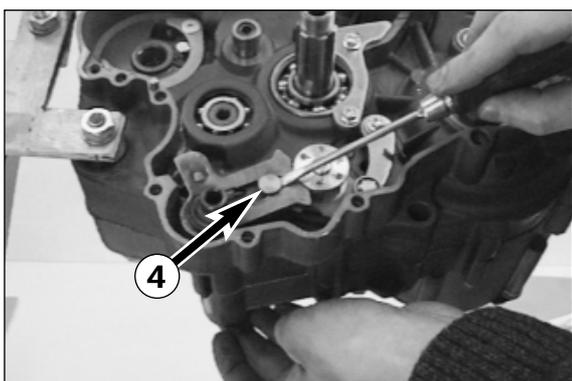


### 3.6 Kickstarter

- Remove circlip **2** and kickstarter intermediate gear.
- Carefully release collar screw **3** kickstarter spring is tensioned, release tension on kickstarter spring and unhook spring hanger.
- Take the complete kickstarter shaft out of the housing.
- Take care of the stop disc, which stays in the housing.

**! CAUTION !**

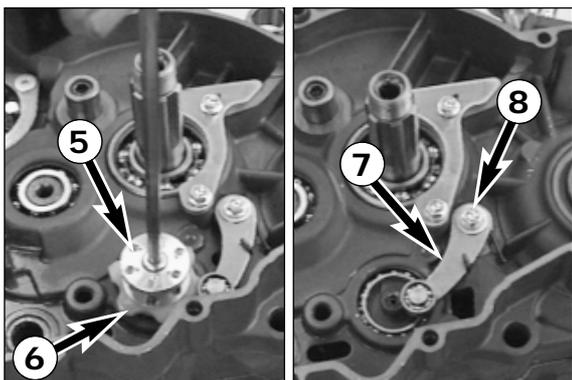
CAREFULLY RELEASE THE KICKSTARTER SPRING! DANGER OF INJURY!



### 3.7 Shift system

- Press the sliding plate **4** back with a screw driver so it no longer engages with the driver for the shaft roller, at the same time remove shift shaft from the housing.

NOTE: WATCH THE STOP DISC WHICH REMAINS IN THE HOUSING.

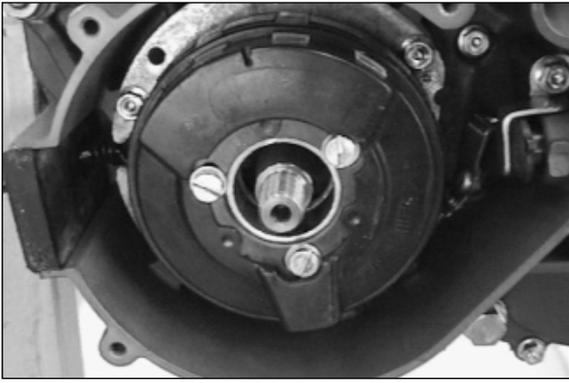


- Remove allen head screw and take driver for roller **5** and locking piece **6** from the shift roller.
- Disassemble locating lever **7** only if the engine case must be replaced.
- Remove allen head screw **8** and locking lever with spring.



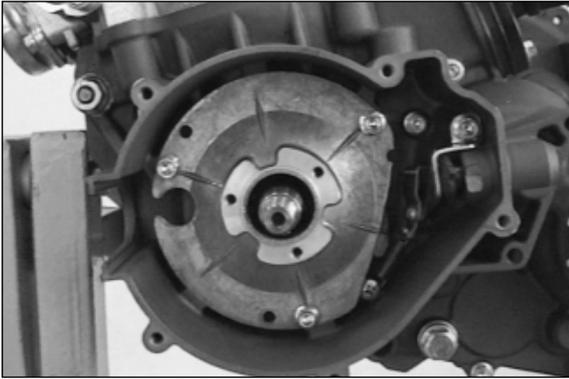
### 3.8 Ignition (Kokusan)

- Undo the 5 screws and remove the ignition cover together with the gasket.
- Hold the flywheel with the holding spanner and undo the collar nut.
- Put the protection cover on the crankshaft thread, twist in the flywheel extractor and remove the flywheel.
- Undo the 3 screws and remove the stator together with the base plate.

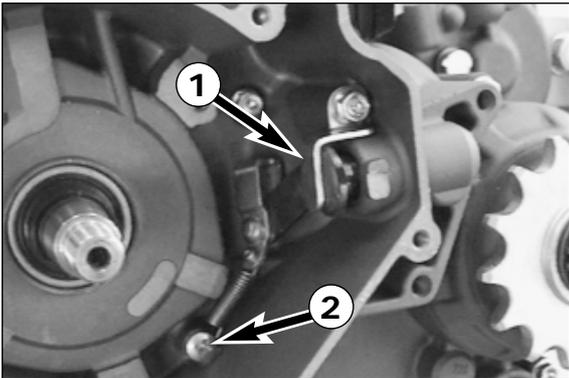


### 3.9 Ignition system (SEM)

- Remove ignition cover and gasket.
- Hold the flywheel with the special tool and undo the collar nut.
- Place protective cap on crankshaft thread.
- Screw flywheel extractor in position and remove flywheel.
- Unscrew screws and remove stator.



- Loosen collar screws and remove base plate.



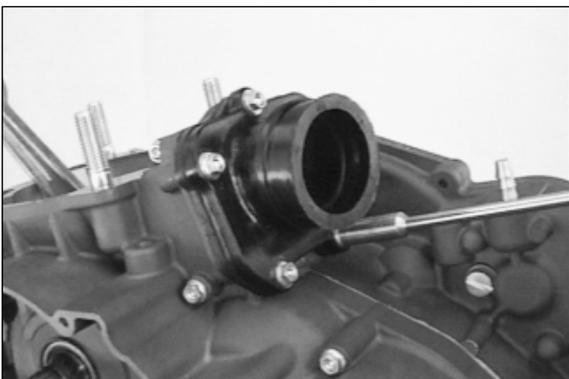
### 3.10 Clutch release shaft

- Unhook clutch cable.
- Remove collar screws and retaining bracket ❶.
- Unscrew screw ❷.
- Turn clutch release shaft approx. 70 degrees anti-clockwise and pull out of housing.



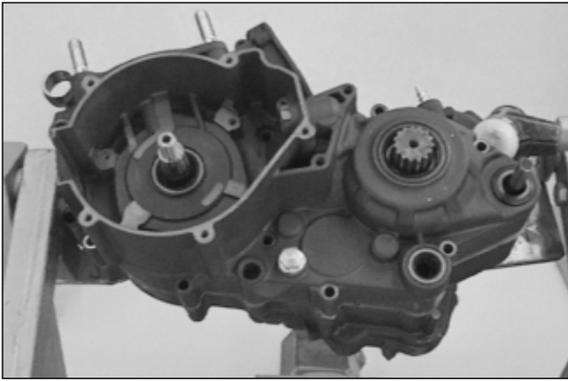
### 3.11 Engine sprocket

- Remove circlip from countershaft using circlip pliers.
- Slide off engine sprocket, distance bushing and O-ring.



### 3.12 Intake flange, reed valve housing

- Remove the 5 collar screws.
- Remove intake flange and reed valve housing.



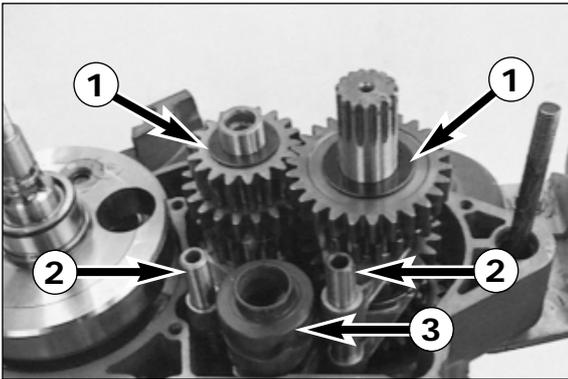
### 3.13 Parting of engine housing halves

- Top ignition-gear upwards and remove all housing screws.
- Release engine mounting brackets on work stand.
- Lift left-hand housing half with suitable tools by 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, SINCE THE SEAL FACES ARE EASILY DAMAGED.

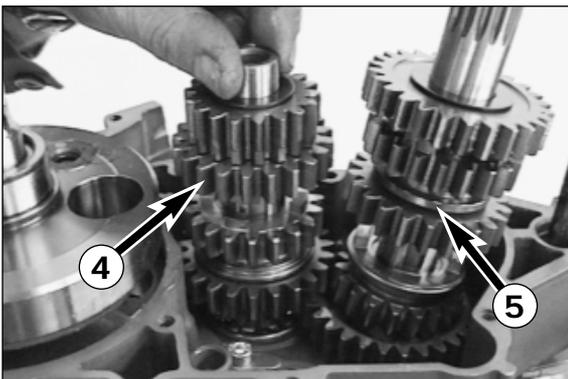
NOTE: WATCH GEAR SHAFT STOP DISCS **1** TO PREVENT THEM STICKING TO INSIDE OF HOUSING.



### 3.14 Shift mechanism, transmission

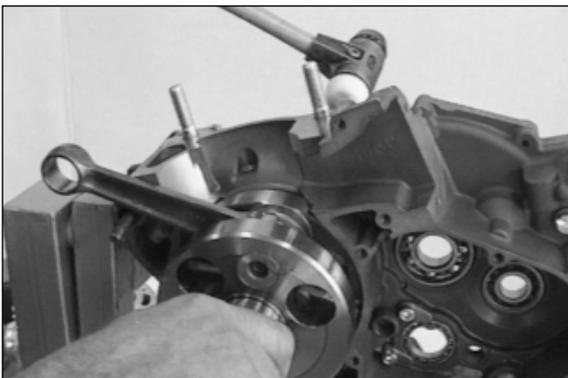
- Pull out the shift rails **2** and swing the shift forks aside.
- Pull the shift roller **3** out of the bearing seat.
- Remove the shift forks.

NOTE: ALTHOUGH THE COUNTER SHAFT SHIFT FORKS ARE IDENTICAL THEY SHOULD BE REFITTED IN THE SAME POSITION AS BEFORE IF REUSED. THEREFORE MARK ACCORDINGLY UPON REMOVAL.



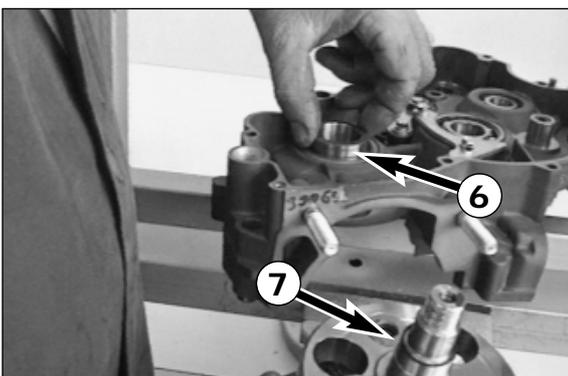
- Push drive shaft **4** approx. 30 mm upwards and remove countershaft **5**. It is then possible to remove the mainshaft completely from bearing.

NOTE: WATCH COUNTERSHAFT STOP DISC TO PREVENT IT STICKING TO THE HOUSING.



### 3.15 Crankshaft

- Pull crankshaft out of bearing seat (if necessary by tapping gently with a plastic hammer).



- Take distance bushing **6** out of seal shaft ring and remove O-ring **7**.
- 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.

# 4.0 Servicing on individual components

| Chap.  | Component / Component unit                 | Page |
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| 4.21.2 | Check stator (SEM)                         | 4-12 |

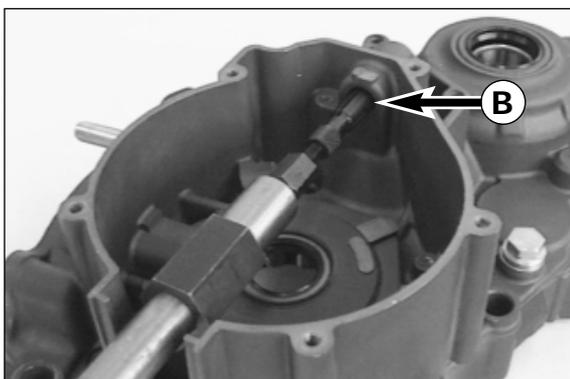
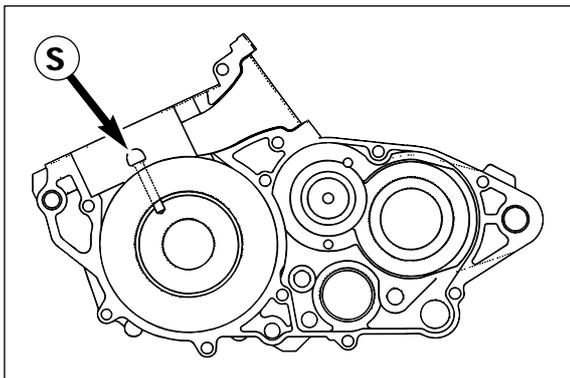
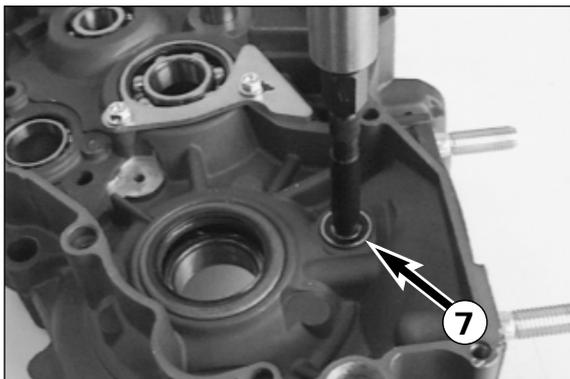
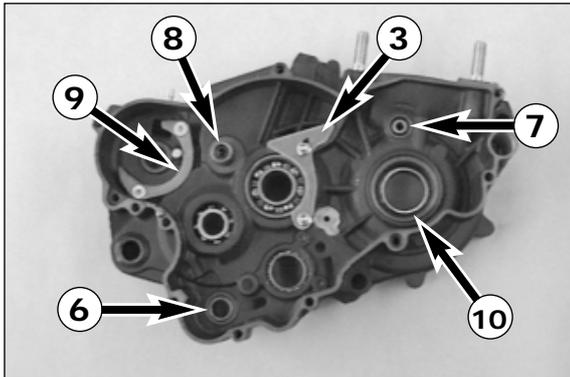
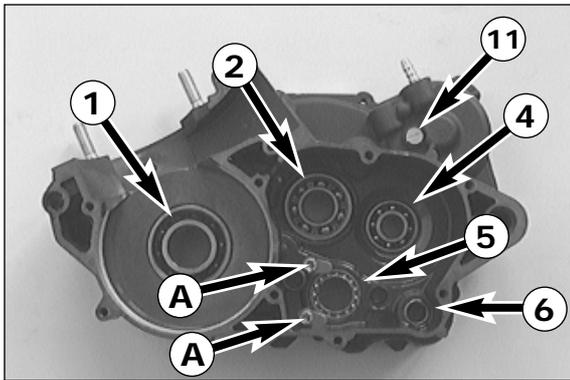
## Engine housing

NOTE: READ THROUGH THE FOLLOWING SECTION BEFORE COMMENCING WORK. THEN DETERMINE THE ASSEMBLY SEQUENCE SO THAT THE ENGINE HOUSING HALVES ONLY NEED TO BE HEATED UP ONCE BEFORE REPLACING THE BEARINGS.

HAVING FIRST REMOVED THE DOWELS, IN ORDER TO EXPEL THE BEARINGS OR REMOVE THEM WITH LIGHT MALLET BLOWS, THE HOUSING HALVES MUST BE PLACED ON A SUITABLY LARGE PLANE SURFACE, SUPPORTING THE WHOLE OF THE SEALING SURFACE WITHOUT DAMAGING IT. A WOODEN PANEL IS BEST USED AS A BASE.

BEARINGS OR SHAFT SEAL RINGS SHOULD NOT BE HAMMERED INTO THEIR SEATS. IF NO SUITABLE PRESS IS AVAILABLE, USE A SUITABLE MANDREL AND HAMMER THEM IN WITH GREAT CARE. COLD BEARINGS WILL PRACTICALLY DROP INTO THEIR SEATS AT AN ENGINE HOUSING TEMPERATURE OF APPROX. 150° C.

AFTER COOLING, SHOULD THE BEARINGS FAIL TO LOCK IN THE BORE, THEY ARE BOUND TO ROTATE AFTER WARMING. IN THAT EVENT THE HOUSING MUST BE REPLACED.



#### 4.1 Right-hand housing half

Heat housing half to 150° C by means of hot plate.

##### GROOVED BALL BEARING OF CRANKSHAFT ①

Press old grooved ball-bearing inwards. Press in new ball bearing to the stop. The open side of the ball cage must be towards the bottom (outside) of the case.

##### GROOVED BALL BEARING OF MAIN SHAFT ②

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

!

#### CAUTION

!

DO NOT USE FORCE WHEN PRESSING THE GROOVED BALL BEARING AGAINST THE RETAINING BRACKET ③ TO AVOID A BENDING OF THE BRACKET, WHICH WOULD RESULT IN EXCESSIVE AXIAL PLAY OF THE MAINSHAFT.

##### GROOVED BALL BEARING OF COUNTERSHAFT ④

Press in new grooved ball bearing from downward to the stop. The open side of the ball cage must be face inwards.

##### GROOVED BALL BEARING OF THE SHIFT ROLLER ⑤

Remove retaining screw ① and press bearing inwards. Press in new ball bearing from inside to the stop and secure retaining screw with Loctite 242.

##### NEEDLE BUSHING OF THE SHIFT SHAFT ⑥

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

##### GROOVED BALL BEARING OF CENTRIFUGAL TIMER ⑦

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° C. If necessary use a 6 mm internal bearing extractor and guide hammer (see illustration). Press in new grooved ball bearing to the stop.

##### BEARING BOLT KICKSTARTER INTERMEDIATE GEAR ⑧

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 ⑨

When replacing the release plate, secure the flat-head screws with Loctite 242.

##### CRANKSHAFT SEAL RING ⑩

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

##### STOP SCREW KICKSTARTER ⑪

When mounting the stop screw, it must be secured with Loctite 242. Do not forget new copper seal ring.

##### RETAINING BRACKET ③

When replacing the retaining bracket, the two collar screws are to be secured with Loctite 242.

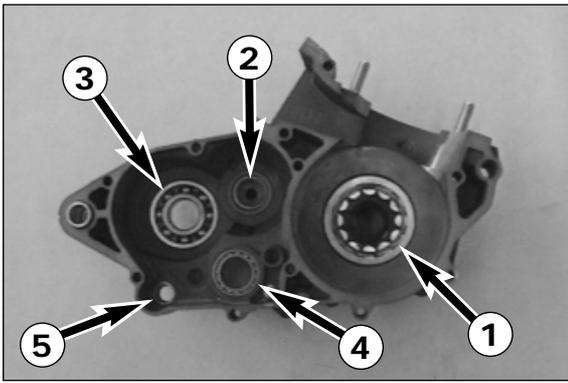
Finally check clear passage of the crankshaft ball bearing lubrication bore ⑤.

#### 4.2 Left-hand housing half

##### NEEDLE BUSHINGS OF CLUTCH RELEASE ⑧

Remove seal ring from bore.

Knock needle bushings out of bore using a 12-16 mm extractor and guide hammer (see illustration). Press in new needle bushings and seal ring in succession to the stop.



– Remove shaft seal rings, heat housing half to 150° C by means of hot plate.

**CRANKSHAFT ROLLER BEARINGS ①**

Press old roller bearing inwards, press in new ball bearing to the stop with the open side of ball cage downwards (outside).

**NEEDLE BEARING OF DRIVE SHAFT ②**

Pull out the old bearing with a bearing extractor. In order to apply the extractor vertically, a steel plate (see special tools) should be laid on the sealing face of the housing. The extractor wedge-grip should be supported over case walls. New bearing should then be pressed in from inside.

**GROOVED BALL BEARING OF COUNTERSHAFT ③**

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

**GROOVED BALL BEARING OF SHIFT ROLLER ④**

Ball bearing falls out of its seat of its own accord when housing half has been heated to approx. 150° C. If necessary, knock housing half on a plane piece of wood. Press in new grooved ball bearing to the stop.

**NEEDLE BUSHING OF SHIFT SHAFT ⑤**

Remove shaft seal ring and press old needle bushing inwards. Press in new needle bushing from the outside to the collar ⑩.

**CRANKSHAFT SEAL RING ⑥**

Press in new crankshaft seal ring from the outside, with sealing lip facing inwards. The seal ring is 1 mm (0.03 in) lower than the upper edge of the collar (see sketch).

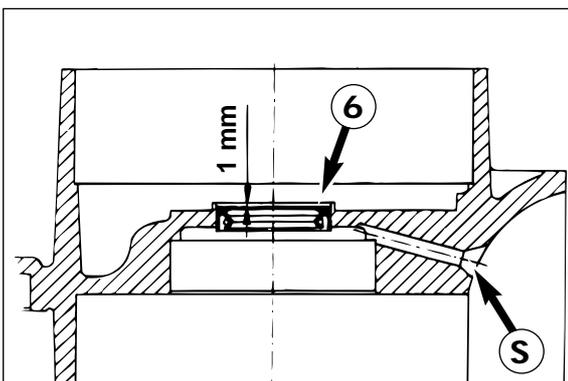
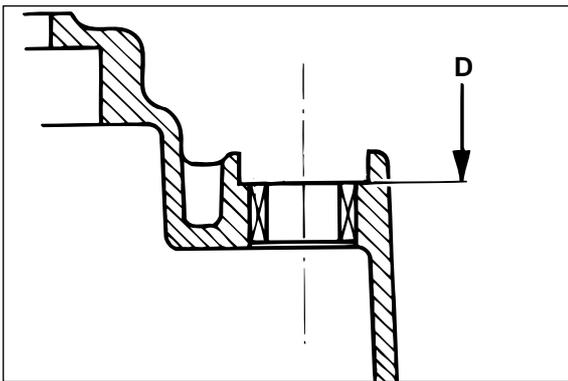
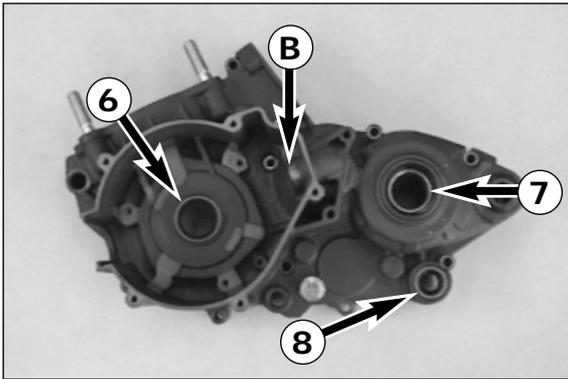
**COUNTER SHAFT SEAL RING ⑦**

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

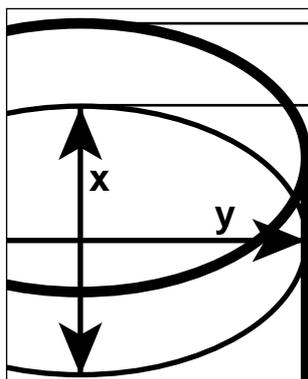
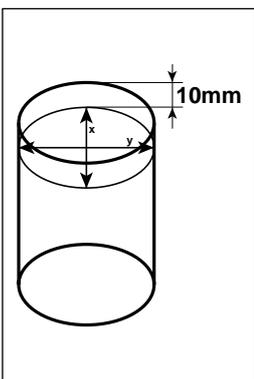
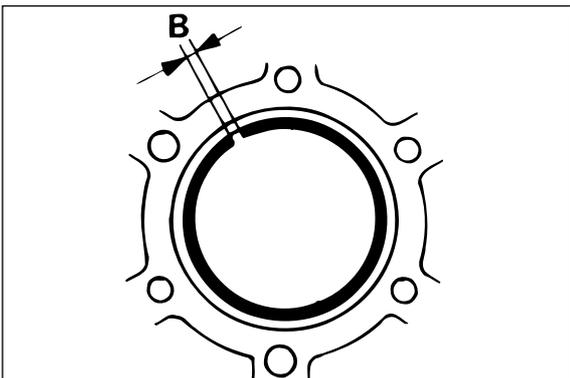
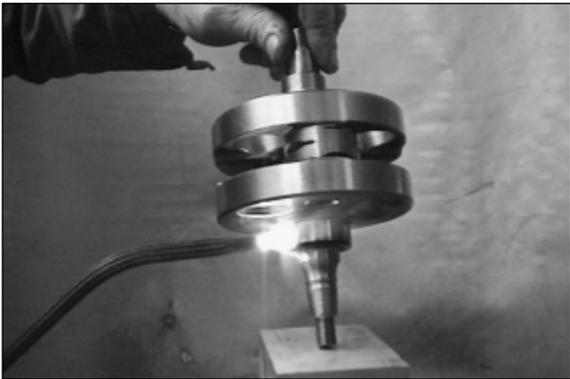
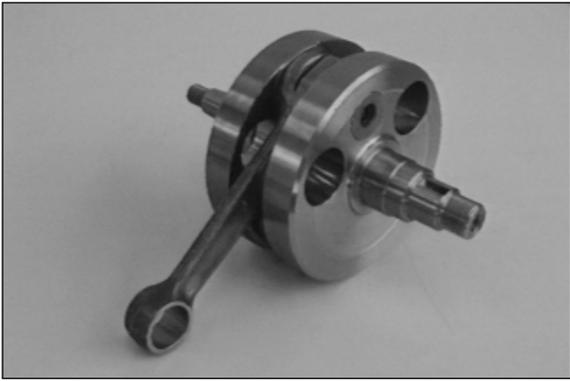
**SHIFT SHAFT SEAL ⑧**

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

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



– Finally check free passage of crankshaft roller bearing lubrication bore ⑨.



### 4.3 Crankshaft

- When replacing the roller bearing, the inner crankshaft ring must also be renewed. Heat the inner ring until it drops out of its seat.
- Before pressing the new inner ring in position, an intermediate plate must always be placed between the two crank webs. The plate must be such as to be supported on both sides, so that the crankshaft remains free.
- Heat new inner ring to approx. 150° C and press into position. Make sure inner ring is heated quickly.

**! 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-RODPLUG AND BEARING MAY BE DAMAGES, THEREBY MAKING THE CRANKSHAFT UNUSABLE.

NOTE: DISTANCE ADJUSTMENT OF THE MAIN BEARINGS IS NOT REQUESTED.

### 4.4 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 GROOVES: The piston rings must not get jammed in the grooves. For cleaning the grooves, use an old piston ring or abrasive paper (grain size 400).
3. THE PISTON RING LOCATING PINS must be firmly seated in the piston and must not be worn out.
4. Check PISTON RINGS for wear and check end gap.

### 4.5 Piston ring end gap

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

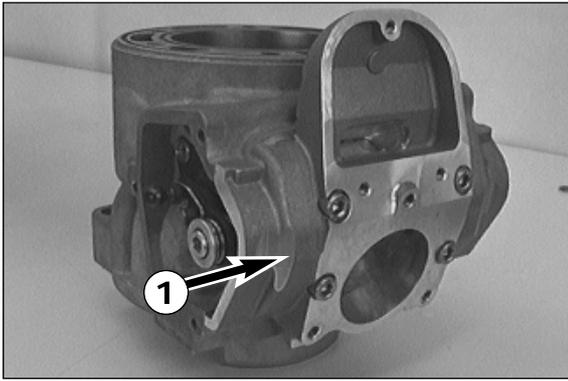
COMPRESSION RINGS: MAX. 0.40 mm (0.015 in)

NOTE: IF THE END GAP IS GREATER CHECK PISTON AND CYLINDER FOR WEAR. IF PISTON AND CYLINDER WEAR ARE WITHIN THE PERMITTED TOLERANCE LIMITS, REPLACE THE PISTON RING.

### 4.6 Checking cylinder for wear

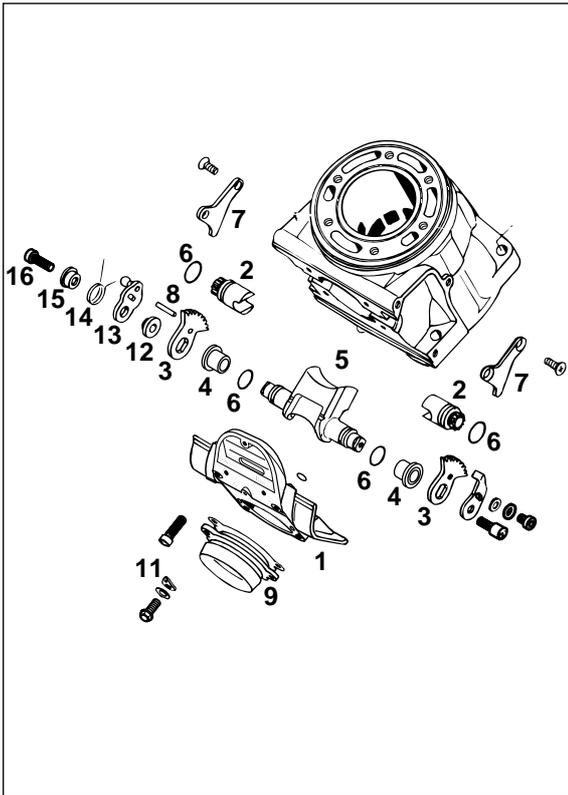
Measure diameter of cylinder approx. 10 mm below top of cylinder edge. Check diameter in several corresponding places to see if cylinder is worn oval. Cylinder diameter - piston size

|                       |             |
|-----------------------|-------------|
| Cylinder diameter 250 | Piston size |
| 67,500 - 67,512 mm    | ..... 1     |
| 67,513 - 67,525 mm    | ..... 2     |
| Cylinder diameter 300 | Piston size |
| 72,000 - 72,012 mm    | ..... 1     |
| 72,013 - 72,025 mm    | ..... 2     |
| Cylinder diameter 380 | Piston size |
| 78,000 - 78,012 mm    | ..... 1     |
| 78,013 - 78,025 mm    | ..... 2     |



If the cylinder diameter is greater than 67,525 mm / 72,025 mm or 78,025 mm, the Nikasil cylinder must be reconditioned or replaced.

NOTE: FOR RECONDITIONING OF THE OLD CYLINDER ALL EXHAUST CONTROL COMPONENTS MUST BE REMOVED. THE INTERMEDIATE FLANGE ❶ REMAINS WITH THE CYLINDER. RECONDITIONED CYLINDERS ARE AVAILABLE ON ORDER FROM YOUR KTM DEALER. THE PISTON SIZE IS STAMPED INTO THE BOTTOM OF THE PISTON.



#### 4.7 Cylinder exhaust control system

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

##### CONTROL ROLLERS ❷

Check clearance of bearings.

Check toothing of control rollers for signs of wear.

##### GEAR SEGMENTS ❸

Check toothing of gear segments and control rollers for signs of wear.

##### BEARING SLEEVES ❹

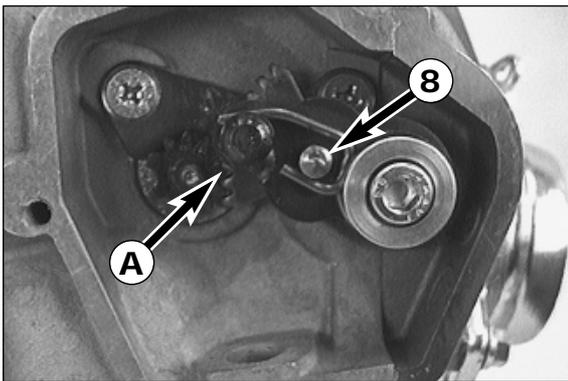
Check bearing sleeves of the control flap for play and easy operation.

##### CONTROL FLAP ❺

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

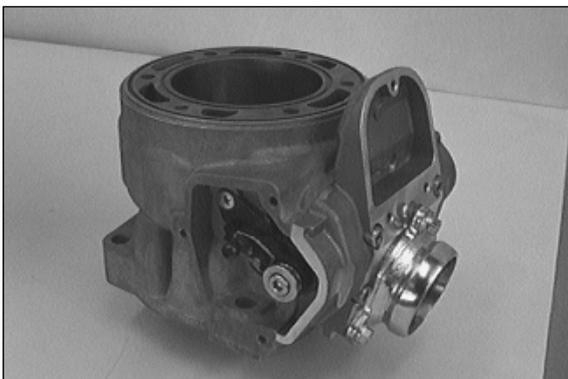
##### SILICON O-RINGS ❻

Check silicon O-rings of control flap and control rollers for signs of wear.

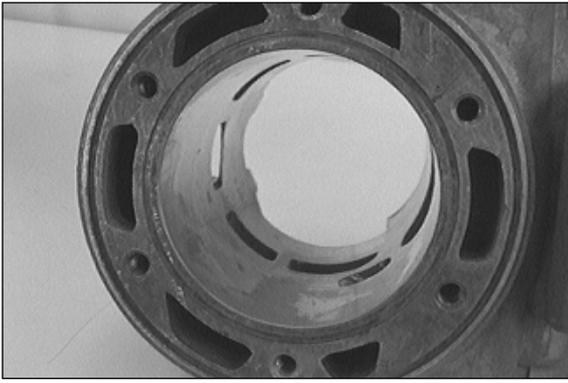


#### 4.8 Cylinder preassembly

- Mount silicon O-rings ❻ on control rollers and grease.
- Place control rollers ❷ in cylinder and mount retaining brackets ❷; secure flat-head screws with Loctite 242.
- Mount and grease silicon O-rings ❻ on control flap and grease.
- Mount bearing sleeves ❹ and gear segments ❸; mount gear segment with cylinder pin on right-hand side.
- Turn control rollers ❷ in cylinder in such a way that ports are completely open and no edges protrude.
- Place control flap ❺ in cylinder, engage gear segments in control rollers in such a manner that, when the control flap is open (pivoted right to the top), the markings A 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 sealing surface thinly with silicon and mount intermediate flange ❶ with O-rings.
- Mount exhaust flange ❾ and spring hanger ❶.
- Fix left-hand gear segment with collar screw and washer, secure screw with Loctite 242.
- On the right-hand side, mount bearing bushing ❶ with collar outside, adjusting lever ❶ with ball head on outside, overload spring ❶ with short leg on outside and spring sleeve ❶ to control flap.
- Coat allan head screw ❶ with Loctite 242 and screw up about 5 revolutions, hook the short leg of the overload spring on to the cylinder pin ❶ (see illustration) and tighten the allan head screw.
- Finally check smooth running of exhaust control system.



NOTE: IT MUST BE POSSIBLE TO PUSH ADJUSTING LEVER ❶ FURTHER UPWARDS AGAINST THE SPRING FORCE.



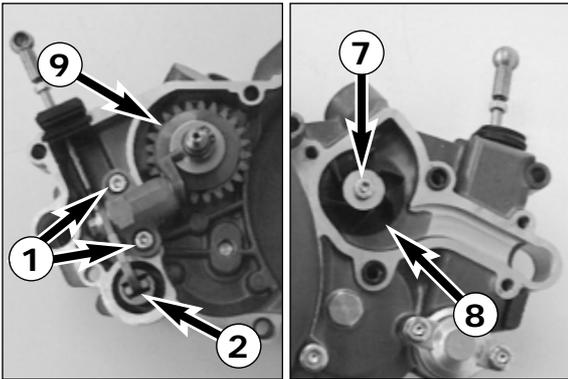
#### 4.9 Nikasil coating of cylinder

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 inbedded. 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.

4



#### 4.10 Exhaust control, clutch cover

- Remove screws 1 and take off the bearing support.
- Take cup tappet 2, adjusting spring 3 and auxiliary spring 4 out of clutch cover.
- Take off water pump cover, remove allen head screw 7 and take off water pump wheel 8.
- The centrifugal timer 9 can be pulled out of the bearing.
- Clean all parts and check for signs of wear.

Check clearance of the BEARING OF THE ADJUSTING LEVER 10.

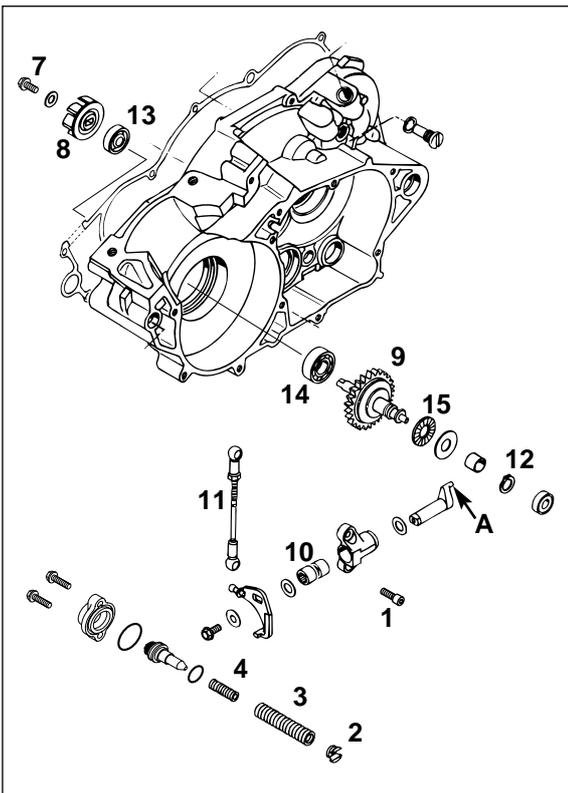
Check PIN A of adjusting lever for wear.

Check LINKAGE BALL HEADS 11 for clearance.

Remove CIRCLIP 12 and check AXIAL BEARINGS 13 and WASHERS for signs of wear.

If the WATER PUMP SHAFT SEAL RING 14 is replaced, it should be coated with Loctite 242 on the outside.

Check GROOVED BALL BEARING 15 for clearance



#### 4.11 Preassembly of clutch cover

- Grease water pump shaft seal ring 14 and mount centrifugal timer 9.
- Fit adjusting spring 3, auxiliary spring 4 and cup tappet 2 in the clutch cover.
- Fit bearing support with control lever and linkage 11. Secure both screws 1 with Loctite 242.
- Mount water pump wheel 8, coat screw 7 with Loctite 242 and mount with washer.
- Mount dowels of the water pump cover.
- Position gasket and fix water pump cover with 5 collar screws. The two screws mounted at the dowels must each be provided with one copper gasket.

#### 4.12 Reed valve housing, intake flange

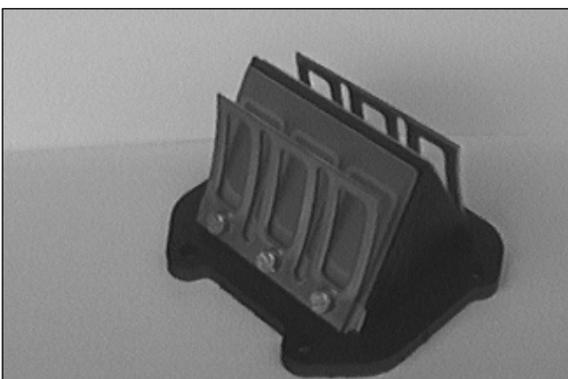
NOTE: REED PADDLES A GRADUALLY LOSE TENSION THROUGH OPERATION, RESULTING IN POWER LOSS. DAMAGED OR WORN REED PADDLES MUST BE REPLACED. IF THE REED B SEALING SURFACES OF THE REED VALVE HOUSING ARE ALSO DAMAGED, REPLACE THE COMPLETE REED VALVE HOUSING.

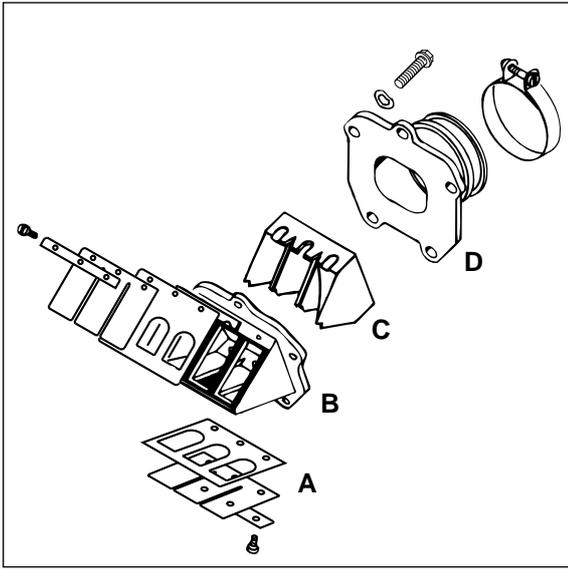
!

**CAUTION**

!

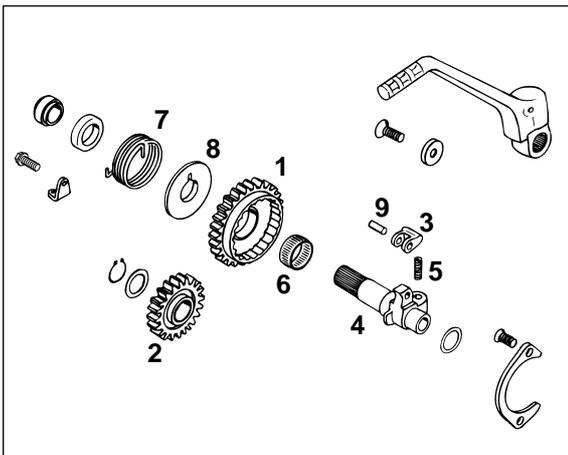
SECURE ALL SCREWS OF THE REED VALVE HOUSING WITH LOCTITE 242.





VELOCITY INSERT ⑥  
Check for firm mounting and for signs of damage.

INTAKE FLANGE ①  
Check for cracks and other signs of damage.



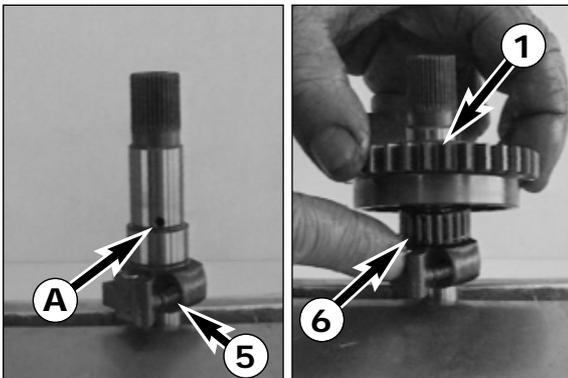
### 4.13 Kickstarter

STARTER GEAR ①  
Check clearance of starter gear.

STARTER INTERMEDIATE GEAR ②  
Check clearance of starter intermediate gear.

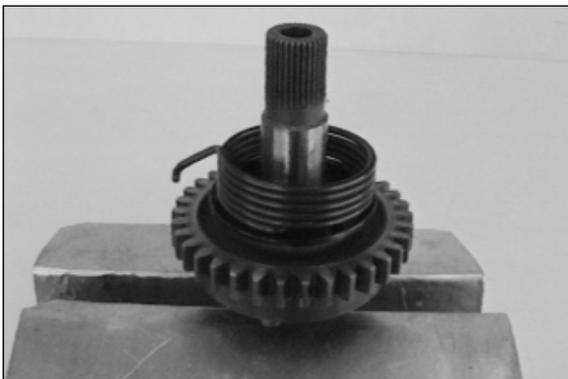
LOCKING PAWL ③  
Check for signs of wear and damage.  
For changing the locking pawl, press bearing needle ⑨ out of the kickstarter shaft.

KICKSTARTER SHAFT ④  
Check for signs of wear and damage.



### 4.14 Assemble of kickstarter shaft

- Fix the kickstarter shaft ④ in a vice with the toothed end upwards (use covered vice clamps).
- Mount ratchet spring ⑤ on kickstarter shaft as shown in the illustration.
- Place needle cage ⑥ in position, push starter gear over it, pressing locking pawl ③ inwards so that starter gear passes smoothly over it.
- Hook legs of the starter spring ⑦ into driving hub ⑧, push both together on the starter shaft, hook starter spring leg into kickstarter shaft bore ④.



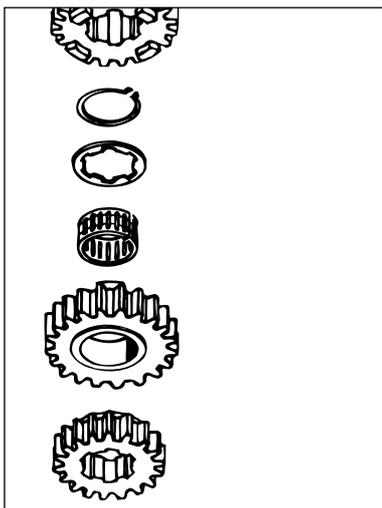
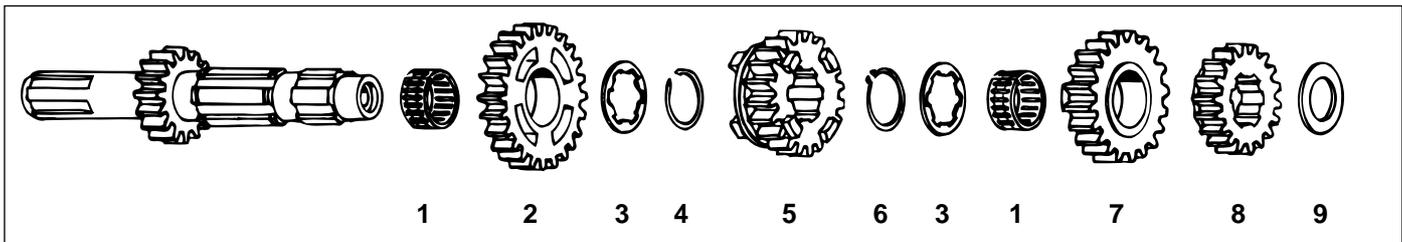
### 4.15 Transmission

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

- A) NEEDLE BEARING
- B) MAINSHAFT AND COUNTERSHAFT PIVOT POINTS INCLUDING IDLER GEARS
- C) SHIFT DOGS AND GEAR WHEELS
- D) TOOTH FACES OF ALL GEARS
- E) TOOTH PROFILE OF MAINSHAFT AND COUNTERSHAFT AND CORRESPONDING GEARS
- F) EASY OPERATION OF GEAR-CHANGE

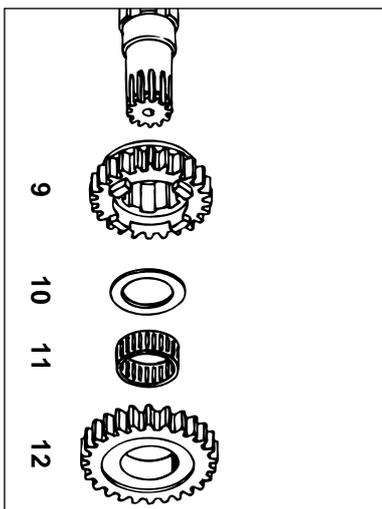
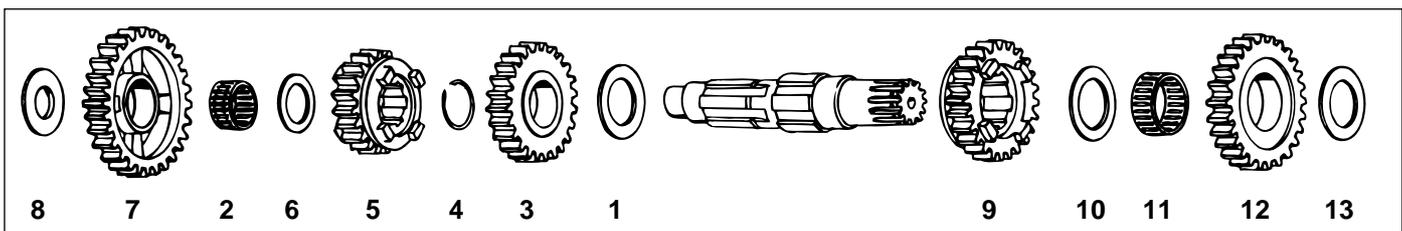
Carefully clean components and replace damaged components.

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 0,2 MM (0.006 IN) AND MUST NOT SEIZE BETWEEN STOP DISCS.



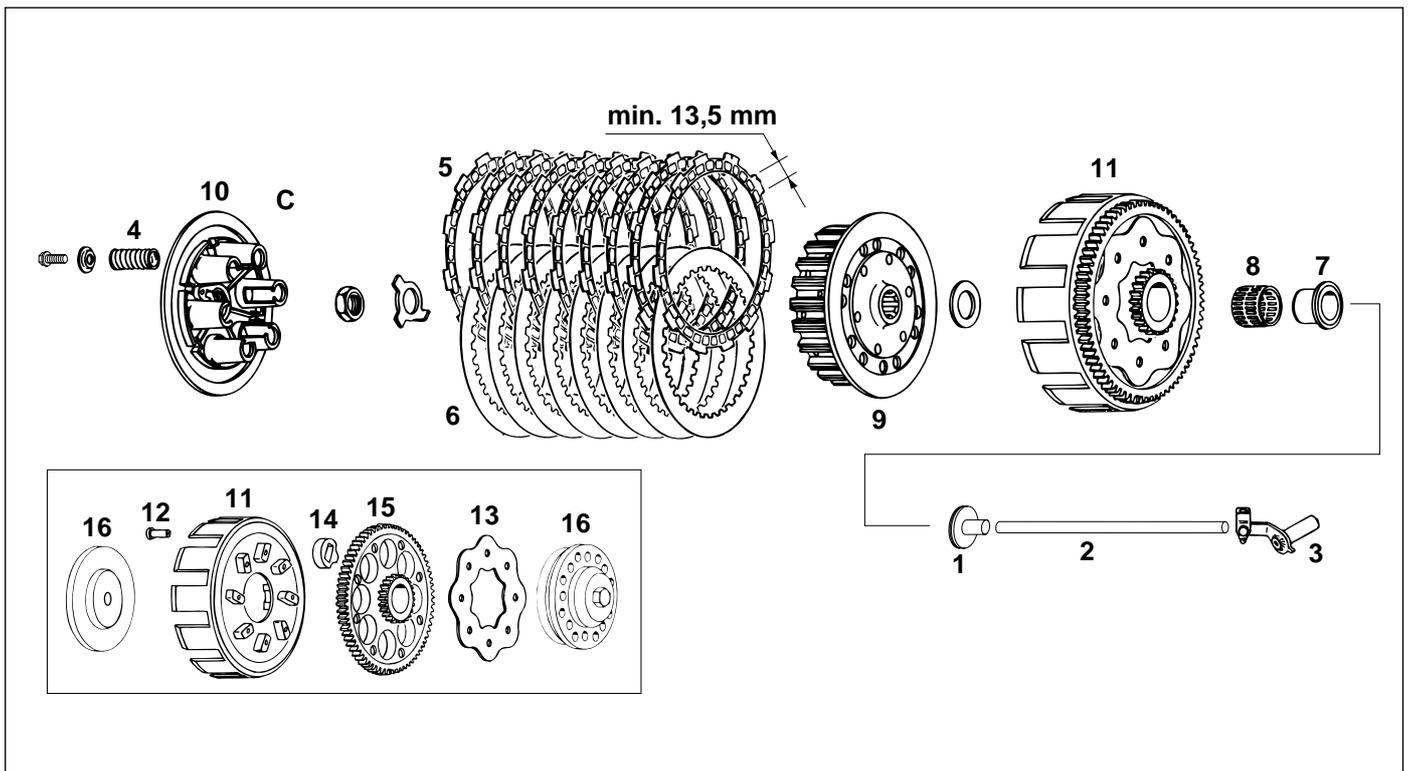
#### 4.15.1 Assembly mainshaft

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



#### 4.15.2 Assemble countershaft

- Fix countershaft in vice with toothed end (use covered clamps).
- Oil all parts before assembly.
- Push stop disc 8 (25,2x40x1,5 mm) onto countershaft.
- Mount 3<sup>rd</sup> idler gear 11 with shift dog recesses upwards and circlip (25x4 mm) 10 with sharp edge upwards.
- Mount 5<sup>th</sup> sliding gear 9 with shift groove downwards, stop disc 6 (24,2x36x1,5 mm), needle cage 2, 1<sup>st</sup> free gear 7 with shift dog recesses downwards and stop disc 13 (17,2x34x1,5-2 mm) with collar upwards on the countershaft.
- Remove countershaft from vice and fix again with toothed end upwards.
- Mount 4<sup>th</sup> sliding gear 9 with shift dog upwards, stop disc 10 (28,2x42x1,5 mm), needle cage 11, 2<sup>nd</sup> idler gear 12 with shift dog recesses downwards and stop disc 13 (25,2x40x1,5 mm).
- Finally check all gears for easy running.



#### 4.16 Clutch

Check the following parts for wear:

THRUST BEARING ①

PUSH ROD ②

CLUTCH SPRINGS ④

New spring length 43 mm (1.69 in). Used springs may not be more than 1 mm (0.04 in) shorter than the new ones; replace all 6 springs if applicable.

9 LINING DISCS ⑤

Minimum thickness 2.6 mm (0.102 in) / new disc 2.7 mm (0.106 in). Discs must be plane; there must be minimum spacing of 13.5 mm (0.531 in) between starting surfaces.

8 STEEL DISCS ⑥

Must be plane, check for mechanical damage.

INNER CLUTCH HUB ⑨

Check contact surfaces of steel discs on the inner clutch hub, maximum 0.5 mm (0.02 in) indentations.

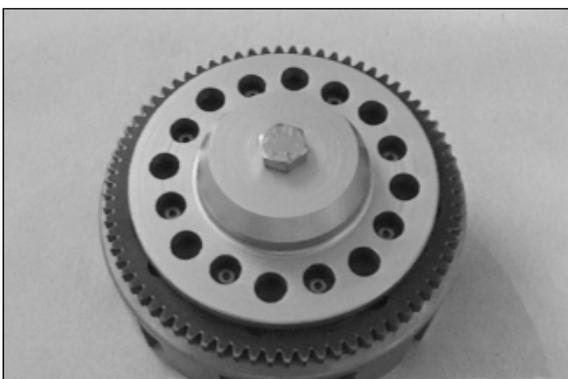
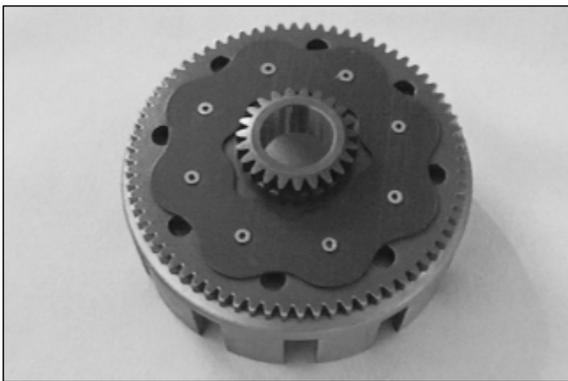
PRESSURE CAP ⑩

Check contact surfaces ④ between lining disc and pressure cap for signs of mechanical damage.

OUTER CLUTCH HUB ⑪

Check start surfaces ① of clutch discs on for wear. If indentations exceed 0.5 mm (0.02 in), replace outer clutch hub (see below).

Mount inner ring ⑦ and needle cage ⑧ and check for clearance.

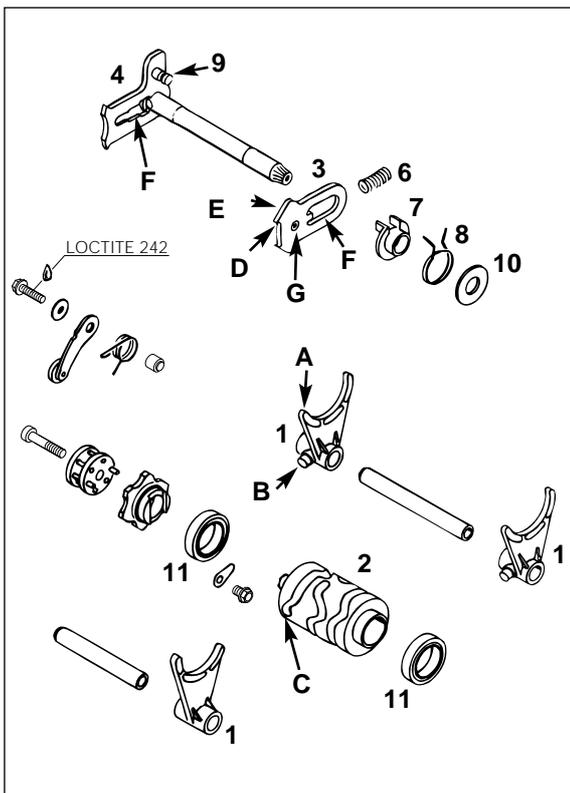


#### 4.17 Replace outer clutch hub

- Drill open the clutch rivets ⑫ in area of retaining bracket ⑬ and remove parts.
- Check 8 absorbing elements ⑭ for signs of mechanical damage, replace all 8 where applicable.

**! CAUTION !**

THE ABSORBING ELEMENTS ⑭ ARE WIDER THAN THE PRIMARY GEAR CROWN ⑮. TO ENSURE THAT THE OUTER CLUTCH HUB ⑪ AND RETAINING BRACKET ⑬ ARE POSITIONED DIRECTLY ON THE PRIMARY GEAR CROWN, THE PARTS MUST BE HELD IN POSITION UNDER TENSION WITH THE CLUTCH RIVETTING TOOL ⑯ WHILE RIVETING.



### 4.18 Shift mechanism

#### SHIFT FORKS ①

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

#### SHIFT ROLLER ②

Check shift grooves **C** for wear.

Check position of shift roller in grooved ball bearings **11**.

#### SLIDE PLATE ③

Check slide plate at meshing points **D** for wear.

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

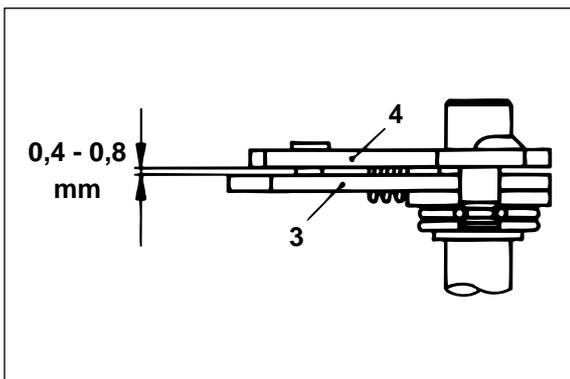
Check that guide pin **G** is securely fixed and check for wear.

#### SLIDING GUIDES ⑤

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

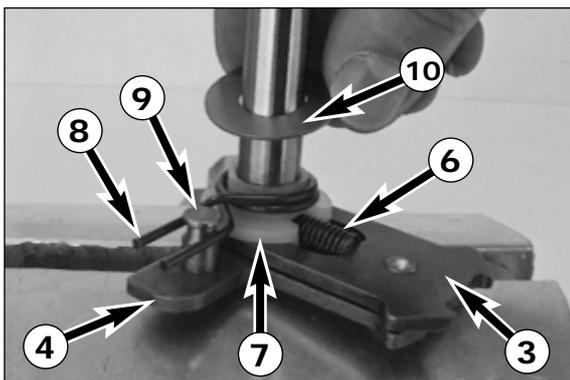
#### BALL BEARINGS ⑪

Check ball bearings for easy movement.



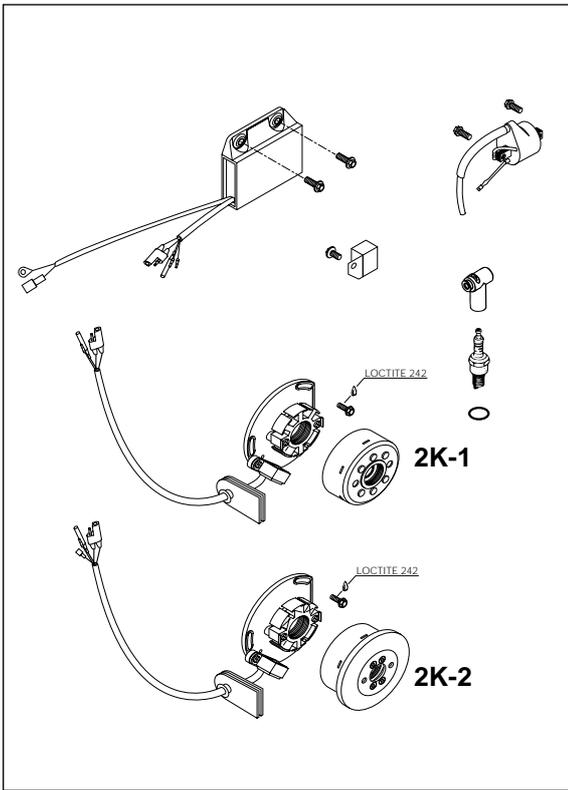
#### SHIFT MECHANISM

Assemble shift mechanism (see below) and check free play between slide plate **3** and shift quadrant **4**. Free play should be 0.4 - 0.8 mm (0.016 - 0.032 in).



### 4.19 Preassembly of shift shaft

- Fix shift shaft in vice at shorter end (use covered clamps).
- Mount slide plate **3** with guide pins downwards, hook guide pins into shift quadrant **4**.
- Mount 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).



## 4.20 Ignition (Kokusan)

### 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.

### 4.20.1 Spark plug (NGK BR 8 ECM)

- Set the electrode distance.

ELECTRODE DISTANCE: 0.60 MM (0.024 IN)

INSULATOR

Check for cracks and fissures.

!

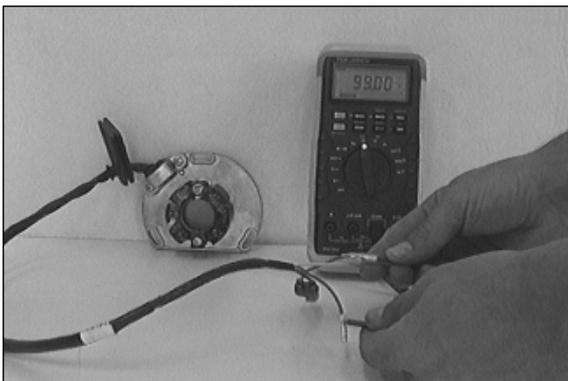
**CAUTION**

!

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

4

11



### 4.20.2 Check stator and pulse generator (Kokusan)

Use an ohmmeter to perform the following measurements:

| IGNITION    | MEASURE     | CABLE COLOURS         | RESISTANCE              |
|-------------|-------------|-----------------------|-------------------------|
| <b>2K-1</b> | Pulser coil | red – green           | 100 $\Omega$ $\pm$ 20%  |
|             | Exciter     | black/red – red/white | 25 $\Omega$ $\pm$ 20%   |
| <b>2K-2</b> | Pulser coil | red – green           | 100 $\Omega$ $\pm$ 20%  |
|             | Exciter     | black/red – red/white | 25 $\Omega$ $\pm$ 20%   |
|             | Charge coil | ground – yellow       | 0,75 $\Omega$ $\pm$ 20% |

NOTE: THE MEASURING MUST BE PERFORMED AT A TEMPERATURE OF 20° C. OTHERWISE SIGNIFICANT DEVIATIONS MUST BE EXPECTED.

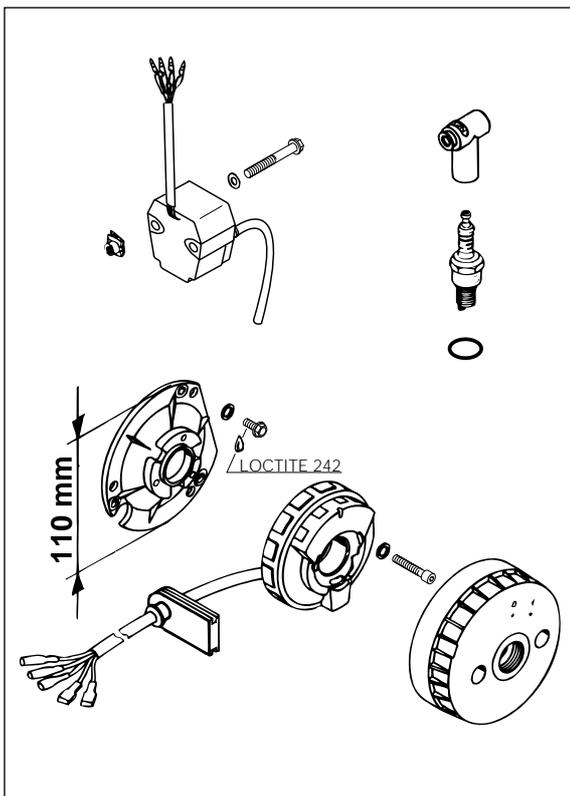
REPLACE THE STATOR IF THE MEASURED VALUES DEVIATE SIGNIFICANTLY FROM THE SETPOINT VALUES.



**Kokusan 2K-1**



**Kokusan 2K-2**



## 4.21 Ignition (SEM)

### 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.

### 4.21.1 Spark plug (NGK BR 8 ECM)

- Set the electrode distance.

ELECTRODE DISTANCE: 0.60 mm (0.024 in)

#### INSULATOR

Check for cracks and fissures.

**! CAUTION !**

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

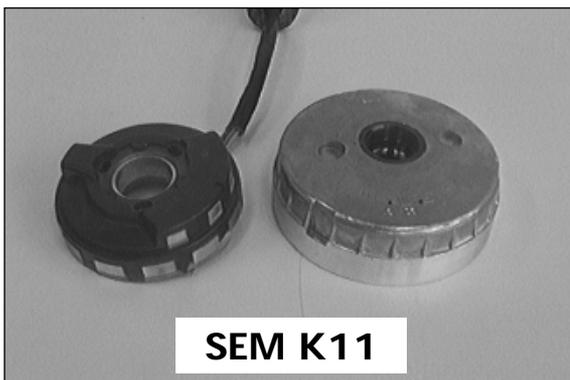
### 4.21.2 Check stator (SEM)

Perform the following measurements with an ohmmeter.

| +POLE  | -POLE  | RESISTANCE   |
|--------|--------|--------------|
| black  | red    | 1,7 kΩ       |
| black  | green  | 165 Ω ± 20 Ω |
| green  | green  | 165 Ω ± 20 Ω |
| green  | red    | 1,7 kΩ       |
| yellow | yellow | 1,0 Ω        |

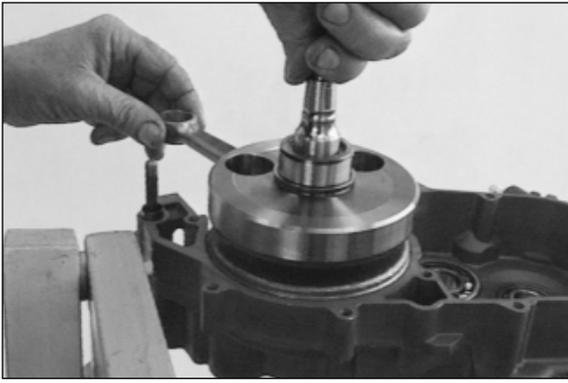
NOTE: THE MEASURING MUST BE PERFORMED AT A TEMPERATURE OF 20° C. OTHERWISE SIGNIFICANT DEVIATIONS MUST BE EXPECTED.

REPLACE THE STATOR IF THE MEASURED VALUES DEVIATE SIGNIFICANTLY FROM THE SETPOINT VALUES.



# 5.0 Engine assembly

| <b>Cap.</b> | <b>Component / Component unit</b>             | <b>Page</b> |
|-------------|---|-------------|
| 5.1         | Mounting crankshaft . . . . .                 | 5-2         |
| 5.2         | Transmission, shift mechanism . . . . .       | 5-2         |
| 5.3         | Assembly of engine housing . . . . .          | 5-3         |
| 5.4         | Clutch release shaft . . . . .                | 5-3         |
| 5.5         | Shift system . . . . .                        | 5-3         |
| 5.6         | Kickstarter . . . . .                         | 5-4         |
| 5.7         | Primary drive, clutch . . . . .               | 5-4         |
| 5.8         | Clutch discs, pressure cap . . . . .          | 5-5         |
| 5.9         | Clutch cover . . . . .                        | 5-5         |
| 5.10        | Piston, cylinder . . . . .                    | 5-6         |
| 5.11        | Adjust dimension „X“ . . . . .                | 5-6         |
| 5.12        | Adjust control flap (dimension „Z“) . . . . . | 5-6         |
| 5.13        | Cylinder head . . . . .                       | 5-7         |
| 5.14        | Reed valve, intake flange . . . . .           | 5-7         |
| 5.15        | Left hand side cover . . . . .                | 5-8         |
| 5.16        | Chain sprocket . . . . .                      | 5-8         |
| 5.17        | Mounting ignition (Kokusan) . . . . .         | 5-8         |
| 5.18        | Mounting ignition (SEM) . . . . .             | 5-8         |
| 5.19        | Adjusting ignition point (SEM) . . . . .      | 5-9         |
| 5.20        | Filling with gear oil . . . . .               | 5-9         |
| 5.21        | Kickstarter, shift lever . . . . .            | 5-9         |



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

### 5.1 Crankshaft

Insert crankshaft from above through grooved ball bearing and push carefully as far as stop.

**! CAUTION !**

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

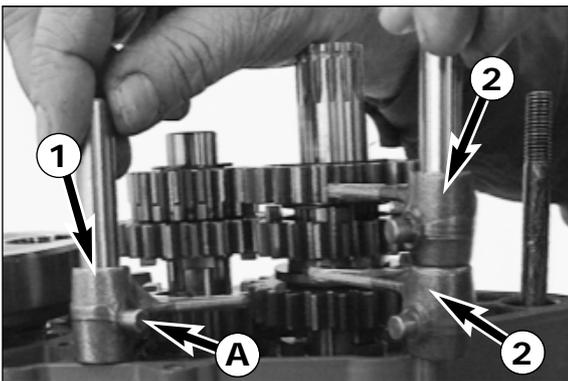


### 5.2 Transmission

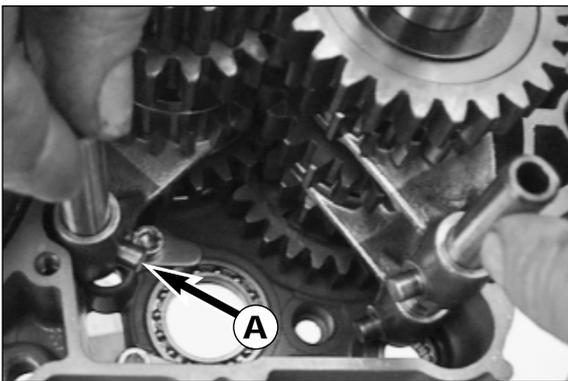
- Introduce countershaft and stop disc approx. 2.0 mm (0.1 in) into the bearing and hold slightly at an angle.
- Fit the mainshaft and introduce the countershaft in the bearing up to the stop.
- Shift fork ① with driving pin ④ in the middle belongs to the mainshaft.
- Mount the two other shift forks ② at the countershaft, using the marks applied before disassembly for better orientation.

**! CAUTION !**

USED SHIFT FORKS SHOULD BE MOUNTED IN THE SAME SLIDING GEAR AS BEFORE. WATCH AT THE MARKINGS FROM DISMANTLING.

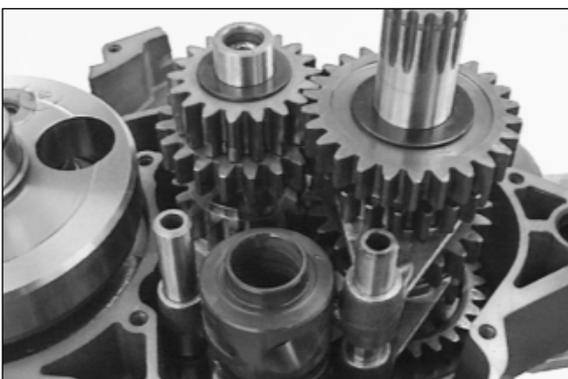


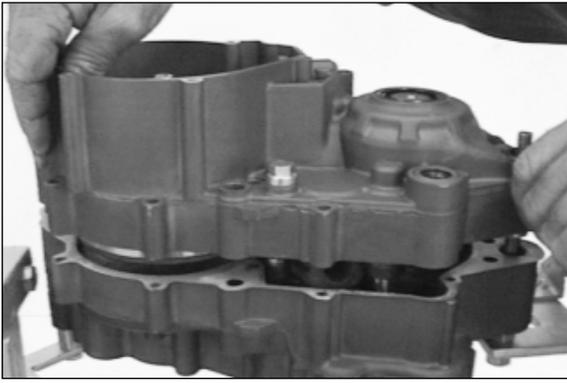
- Hook shift forks in the sliding gears.
- Insert shift rails in shift forks (short rail towards mainshaft) and jointly pivot sideways (see illustration).



- Prior to mounting, turn shift roller in such a way that the driving pin ④ can be hooked in at the lowest point of the middle shift groove.
- Insert shift roller in ball bearing.
- Hook in shift forks and push shift rails into bearing bores.

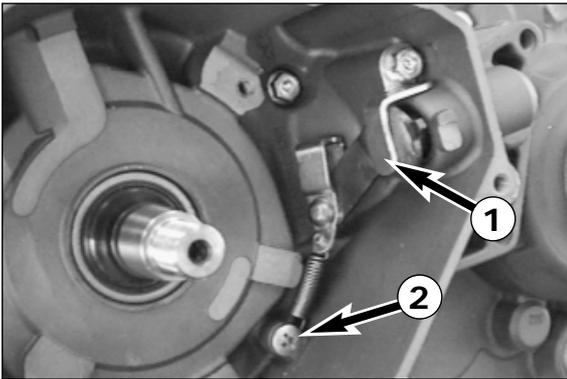
NOTE: IT MUST NOW BE POSSIBLE TO GENTLY TURN GEAR SHAFTS.





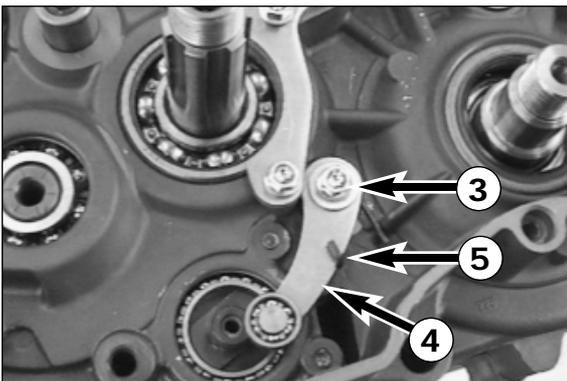
### 5.3 Assembling the engine housing

- Remove engine fastener from engine work stand.
- Check that both dowels are in proper place in right-hand housing and that transmission shaft stop discs have been mounted.
- Apply light coat of grease to sealing surfaces of the housing and position new gasket.
- Grease shaft seal rings in left-hand half and place left-hand half in position.
- Position screws and tighten with 8 Nm (6 ft.lb).
- Gently knock crankshaft with plastic hammer and check easy running of shafts.
- Fix engine in work stand.



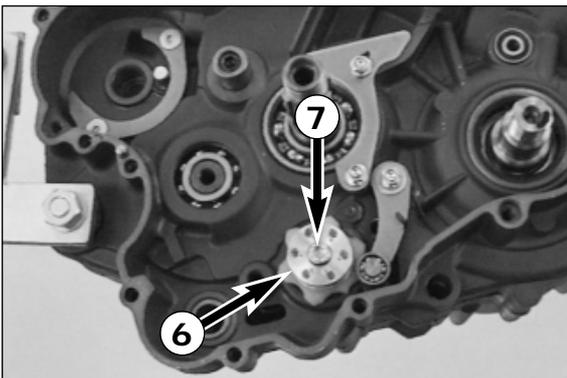
### 5.4 Clutch release shaft

- Apply grease to needle cages and seal ring, and mount clutch release shaft.
- Insert retaining bracket ① coat collar screw with Loctite 242 and mount.
- Coat screw ② with Loctite 242 and use it to fix the clutch release lever spring.

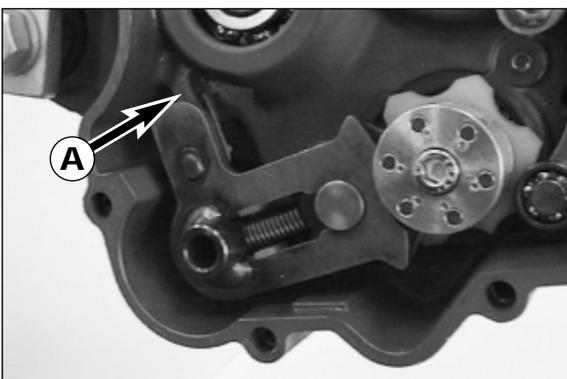


### 5.5 Shift mechanism

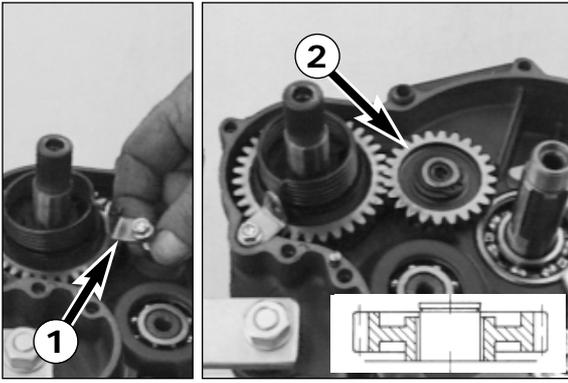
- Place locating spring with bent leg upwards into engine housing.
- Insert collar sleeve ⑤ into spring with collar upwards.
- Coat collar screw ④ with Loctite 242.
- Insert locating lever with roll upwards and fix all parts with collar screw.
- Hook locking spring ⑥ to lever.



- Mount roller locking device (plastic part) to shift roller. Ensure that the flat parts are not in the middle. Pull locking lever from shift roller.
- Mount driver for shift roller ⑥.
- Coat allen head screw ⑦ with Loctite 242 and mount.

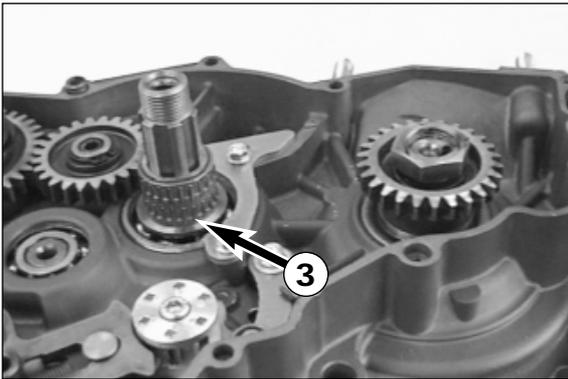


- Grease assembled shift shaft and push into bearings together with stop disc until slide plate contacts driver for shaft roller.
- Now squeeze, and push shift shaft in to the stop.
- Check that legs of return spring surround both left and right side of housing nose ①.
- Mount the foot shift lever and shift through all gears. Then remove the foot shift lever.



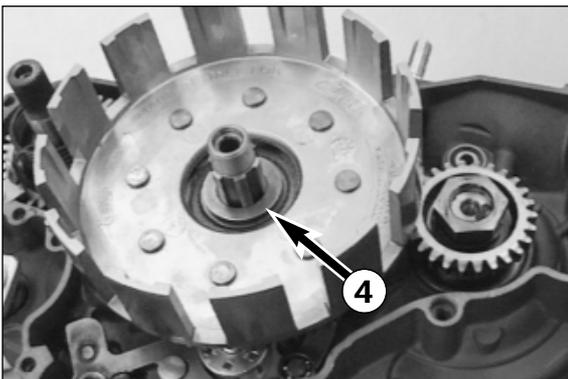
## 5.6 Kickstarter

- Place spacing washer on the stop face and place preassembled kickstarter shaft in bearing bore in such a way that the locking pawl is outside the release plate.
- Hook spring hanger **1** to starter spring, coat allen head screw with Loctite 242, tighten starter spring approx. 90° clock-wise and fix spring pawl with allen head screw.
- Adjust starter spring so that the distance to the kickstarter shaft is the same all around.
- Place starter intermediate gear **2** with the high collar (see sketch) showing towards the engine casing on to the bearing.
- Slip on stop disc and mount circlip with the sharp edge showing upwards.

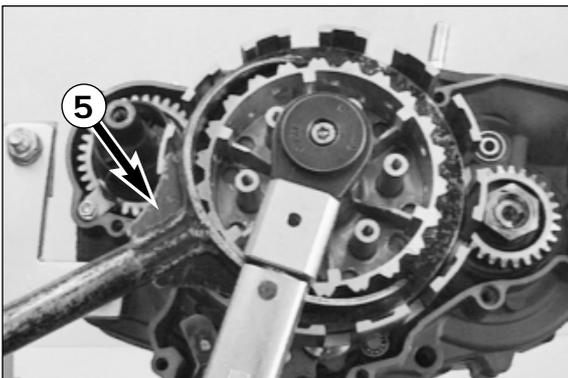


## 5.7 Primary drive, clutch

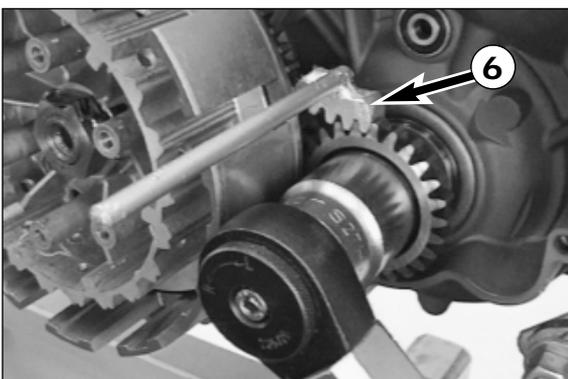
- Grease crankshaft seal ring.
- Put the oiled O-ring onto the crankshaft and mount the distance bushing with the chamfer facing the crank web.
- Insert woodruff key into crankshaft.
- Place primary gear onto crankshaft with collar downwards.
- Apply Loctite 242 to thread.
- Fit locking washer and hexagon nut (left hand thread) by hand.
- Put the inner ring onto the main shaft with the collar facing downwards, then mount the oiled needle cage **3**.



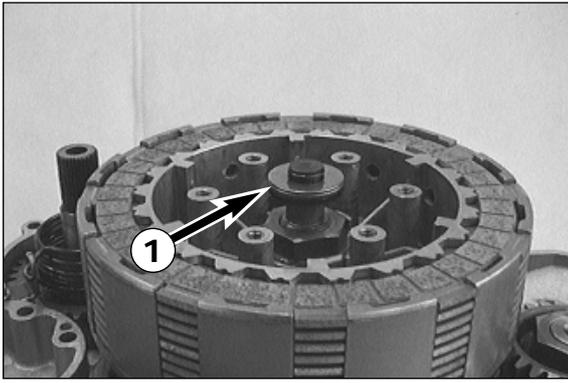
- Mount outer clutch hub and stop disc **4**.



- Mount inner clutch hub, new lock washer and hexagon nut to main shaft.
- Position clutch holder **5** and tighten hexagon nut with 100 Nm (74 ft.lb.).
- Remove the clutch holder and secure the hexagon nut by bending both brackets of the lock washer upwards.

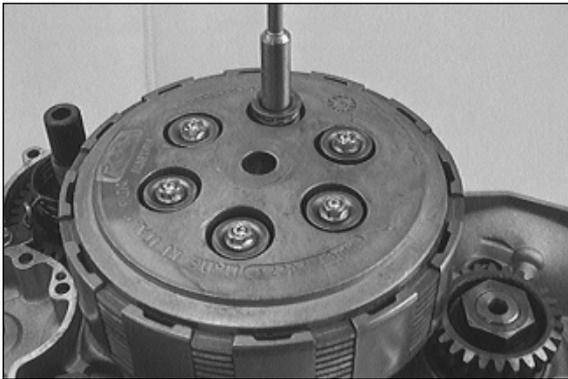


- Block primary drive with gear segment **6** and tighten primary gear hexagon nut with 150 Nm (110 ft.lb.).
- Remove gear segment and check easy running of primary drive by turning crankshaft.

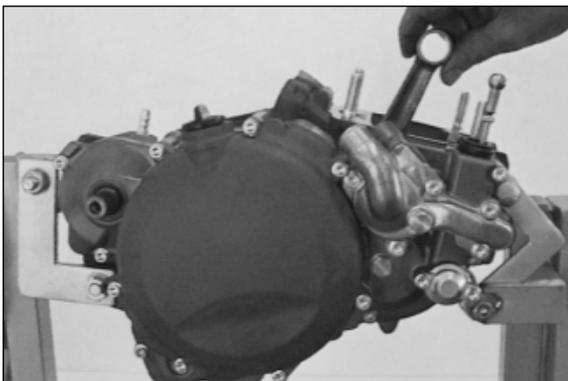


### 5.8 Clutch discs, pressure cap

- Oil lining discs before mounting.
- Beginning with one lining disc, mount alternately 9 lining discs ( $\neq 2,7 / 0.1$  in mm) and 8 intermediate discs ( $\neq 1,2$  mm / 0.047 in), with a lining disc forming the final layer upwards.
- Oil the push rod and insert it into the main shaft.
- Oil the thrust bearing ❶ and put it onto the main shaft.

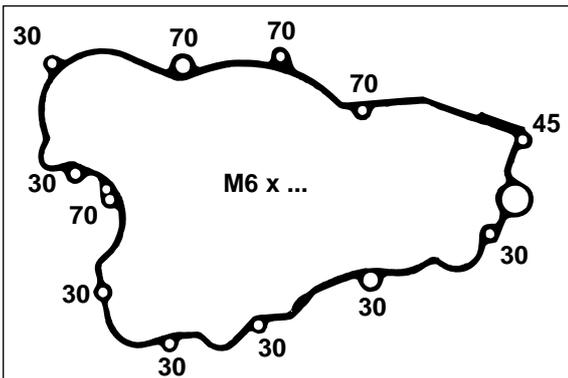


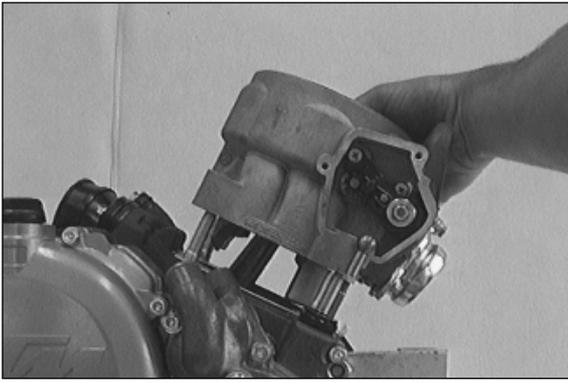
- Place pressure cap into position; fit clutch springs, spring retainer and collar screws.
- Tighten the collar screws crosswise. Do not apply more than 6 Nm (4.5 ft.lb.) to prevent damaging of the threads in the inner clutch hub.



### 5.9 Clutch cover

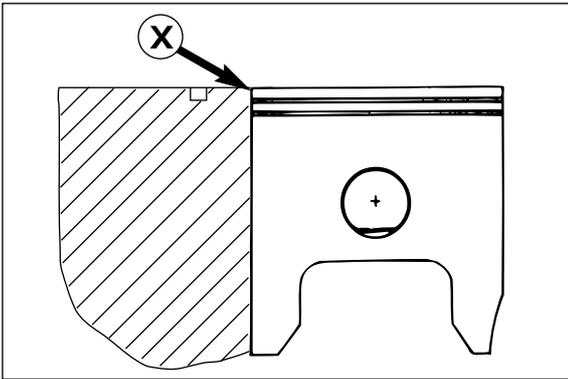
- Check whether both dowels are mounted in clutch cover or engine housing.
- Grease kickstarter shaft seal ring and position clutch cover gasket. Secure gasket with a little grease.
- Carefully position preassembled clutch cover and press into place, turning crankshaft so that centrifugal timer can engage in the primary gear.
- Fit collar screws (see sketch for screw lengths) and tighten with 8 Nm (6 ft.lb.).
- Then check easy running of all shafts.





## 5.10 Piston and cylinder

- Before assembly, oil all parts thoroughly at the sliding points.
- Insert needle bearing in conrod eye, mount piston (arrow on piston head shows direction for exhaust duct).
- Mount piston pin and wire circlips with open side showing downwards (see sketch).
- Mount cylinder base gaskets.
- Place piston on selfmade wooden stand and position piston ring.
- Place on preassembled cylinder, remove wooden stand and tighten cylinder down crosswise, using two nuts.



## 5.11 Adjusting Dimension „X“

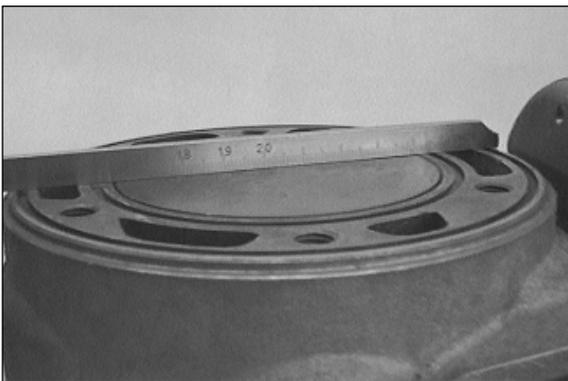
DIMENSION „X“ IS THE DIMENSION FROM UPPER EDGE OF PISTON TO UPPER EDGE OF CYLINDER WITH CYLINDER UNDER LOW TENSION AND PISTON IN TDC POSITION.

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 LOOSES POWER. ON THE OTHER HAND, IF THE DIMENSION „X“ IS TOO SMALL, THE ENGINE WILL PING AND OVERHEAT.

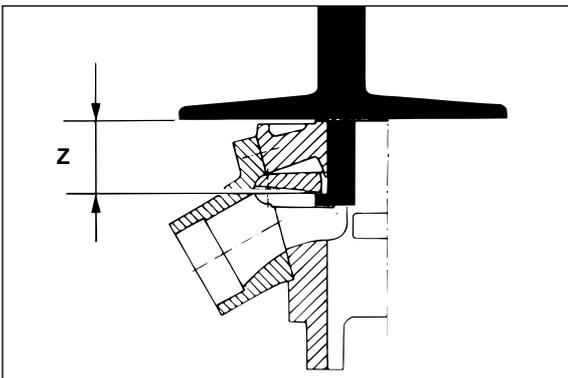
5



- Place slide caliper on cylinder and use feeler gauge to measure distance between piston and slide caliper.

$$\text{DIMENSION "X"} = 0 \text{ MM} + 0.1 \text{ MM (0.004 IN)}.$$

- Tighten the collar nuts at the cylinder base with 35 Nm (26 ft.lb).



## 5.12 Adjusting 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.

$$250 : Z = 48.0 \text{ MM} + 0.2 / - 0.6 \text{ MM}$$

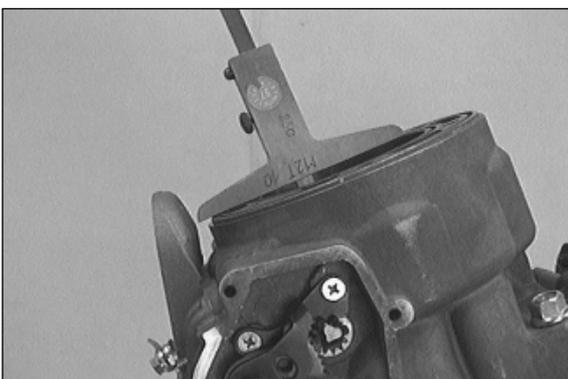
$$300 : Z = 46.0 \text{ MM} + 0.2 / - 0.6 \text{ MM}$$

$$380 : Z = 50.5 \text{ MM} + 0.2 / - 0.6 \text{ MM}$$

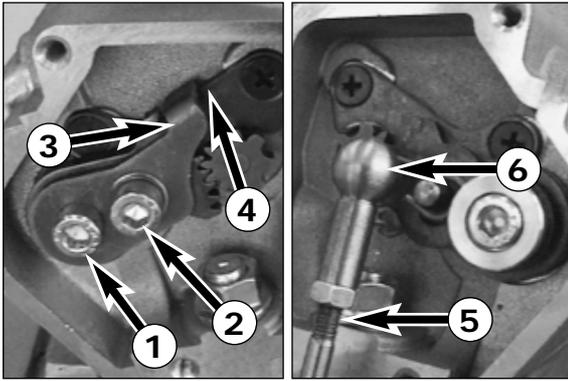
$$250 : Z = 1.889 \text{ IN} + 0.008 \text{ IN} / - 0.024 \text{ IN}$$

$$300 : Z = 1.811 \text{ IN} + 0.008 \text{ IN} / - 0.024 \text{ IN}$$

$$380 : Z = 1.988 \text{ IN} + 0.008 \text{ IN} / - 0.024 \text{ IN}$$



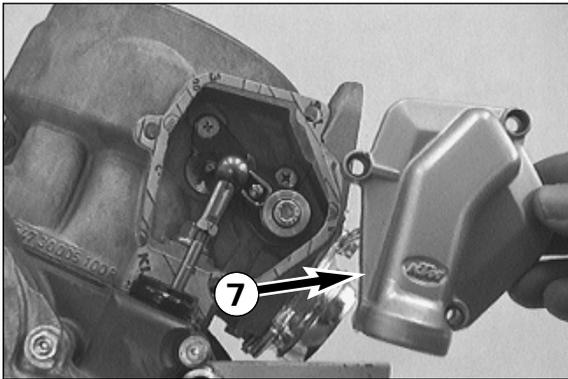
- Undo the screws of the stop plate (left side of the cylinder) ❶ and ❷ and apply Loctite 242 to the threads. Then mount both screws but do not tighten them yet.
- Set preselected value on depth gauge and fix.
- Swivel control flap upwards and hold depth gauge into cylinder as shown in the illustration.
- Control flap must rest against depth gauge.
- Allow bump plate ❸ to rest against retaining bracket ❹.



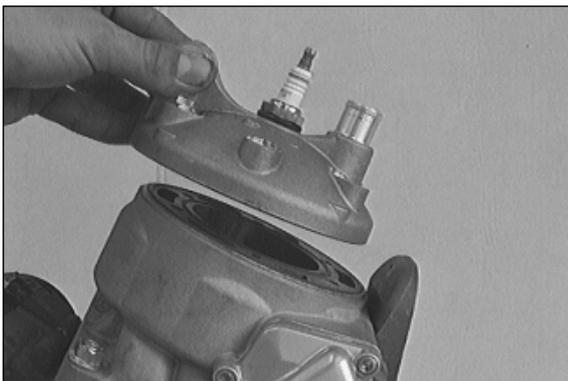
- Secure bump plate fastening screws **1** and **2**.
- Remove depth gauge.
- Press linkage of control flap **5** down-wards as far as stop and press ball socket **6** onto ball of adjusting lever.

When pressing ball socket do not:

- pull the linkage too far up (max. 1 mm / 0.04 in).
- swivel control flap upwards.
- Adjust linkage length if necessary.
- To do so, loosen counter nut and turn ball socket accordingly.
- Retighten counter nut.

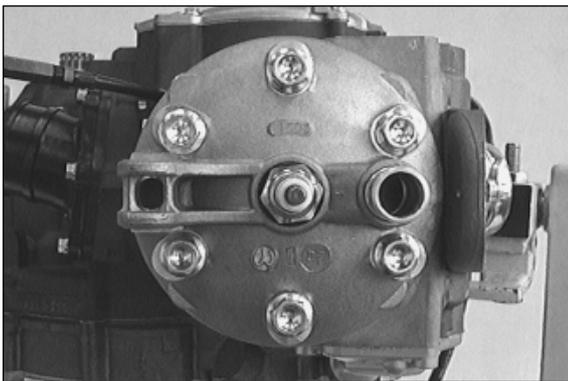


- Once adjustments are completed, remove ball socket once again and fit gasket for control cover.
- Refit ball socket and fit safety device.
- Secure gasket with grease and fit control cover **7**.

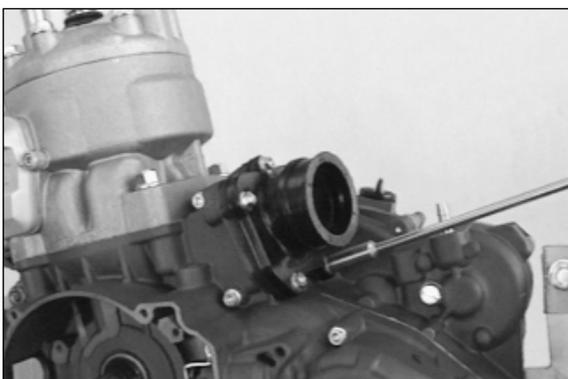


### 5.13 Cylinder head

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

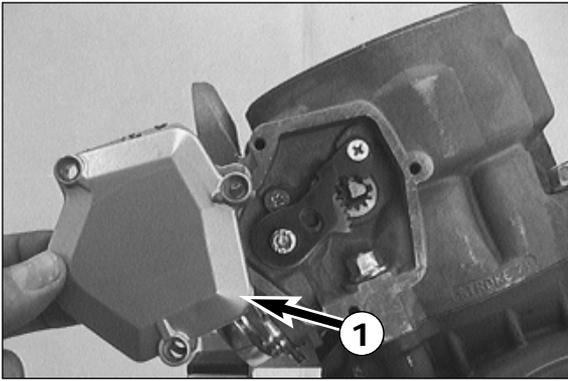


- Mount the collar screws with new copper gaskets and tighten them crosswise, taking three turns to achieve the total tightening torque of 35 Nm (25 ft.lb.).
- In first stage, only tighten until slight resistance is felt.



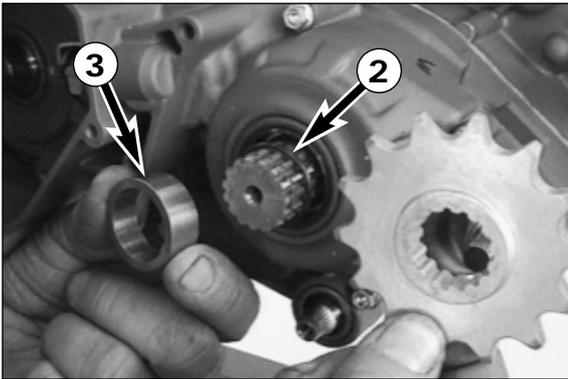
### 5.14 Reed valve housing, intake flange

- Place reed valve housing with velocity insert in inlet duct and fix intake flange with the 5 collar screws.



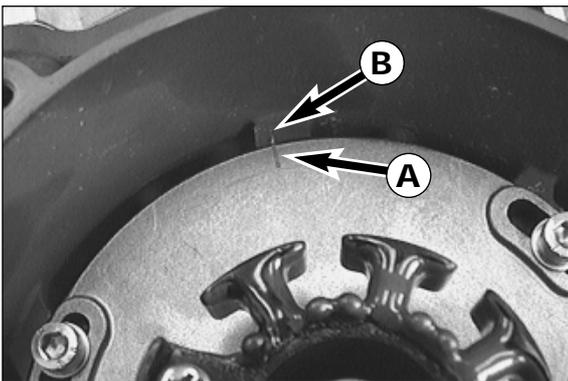
### 5.15 Left-hand steering cover

- Place gasket in position and fix left-hand steering cover ① on cylinder.



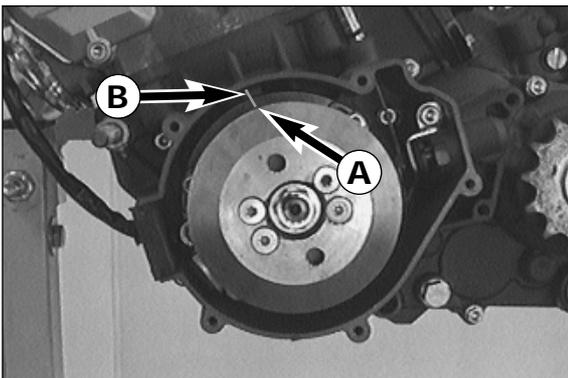
### 5.16 Engine sprocket

- Lubricate O-ring ② with oil and slide over counter shaft.
- Slide distance bushing ③ in position so that O-ring is in correct position.
- Slide engine sprocket onto counter shaft with the high collar showing outwards and secure with circlip (sharp edge towards the outside).

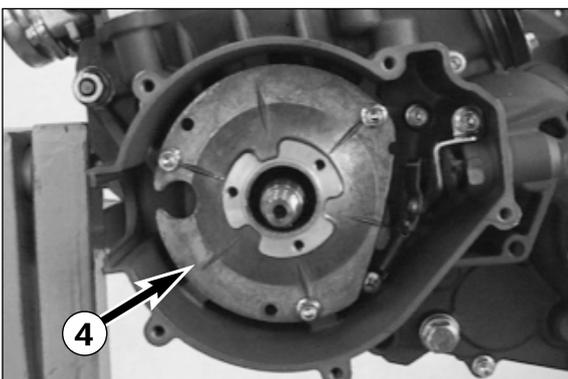


### 5.17 Mounting the ignition (Kokusan)

- Insert the woodruff key into the crankshaft.
- Apply Loctite 242 to 3 screws and fix the stator.
- Turn the stator so that mark ④ on the stator coincides with mark ③ in the housing. Then tighten the three screws of the stator.

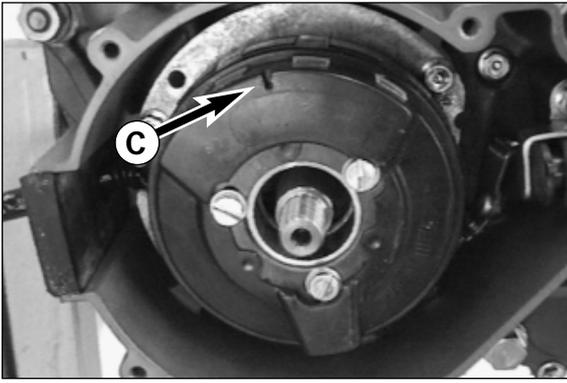


- Mount the rotor.
- Mount the detent edged ring and the nut.
- Hold the rotor with the holding spanner and tighten the nut with 60 Nm (45 ft.lb.).
- Hook the clutch cable onto the clutch release lever.
- Mount the gasket and fix the ignition cover with 5 collar screws.



### 5.18 Mounting ignition (SEM)

- Place woodruff key in crankshaft, mount base plate ④ and tighten the three collar screws.
- Mount the stator on the base plate and insert the three fillister head screws, tightening them only slightly so that the stator can still be turned.



### 5.19 Adjusting ignition point (SEM)

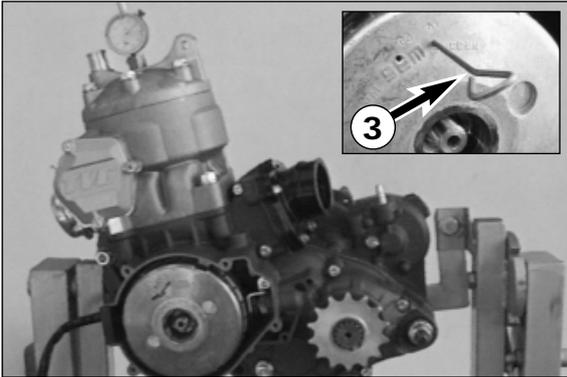
- Mount flywheel.
- Screw dial gauge into spark plug thread.
- Place adjusting pin ③ in flywheel bore ("91") 2 mm (0.08 in) and turn flywheel until pin slots into recess ④ in stator.
- Turn flywheel and stator jointly to TDC.
- Turn dial gauge scale to 0 and turn flywheel with stator clockwise accordingly to preignition.

#### IGNITION POINT:

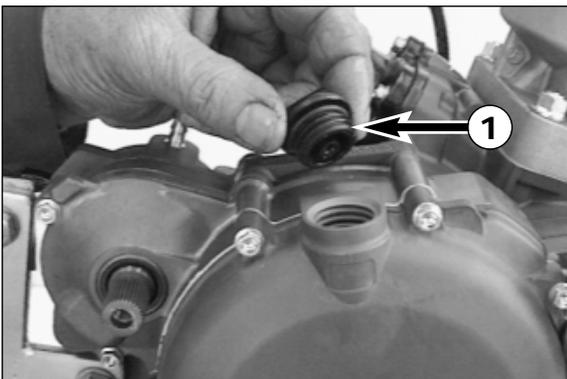
250 EGS = 1.2 MM / 0.047 IN (13.5 DEG.) BEFORE TDC.

300 EGS = 1.2 MM / 0.047 IN (13 DEG.) BEFORE TDC.

380 EGS = 1.4 MM / 0.055 IN (13 DEG.) BEFORE TDC.

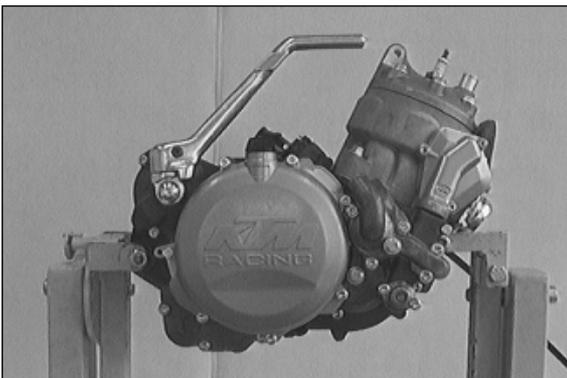


- Carefully remove flywheel to prevent further turning of stator.
- Tighten the three stator cylinder screws.
- Mount flywheel and tighten collar nut with 60 Nm (45 ft.lb).
- Check ignition point once more.
- Remove dial gauge and fit spark plug with OR.
- Hook clutch cable to release lever.
- Mount gasket and fix ignition cover with 5 collar screws.



### 5.20 Filling in gear oil

- Mount oil drain screw with new gasket and tighten.
- Fill in 0.8 liters SAE 30 engine oil and check that engine does not leak.
- Mount plug ①.



### 5.21 Starting lever, foot shift lever

- Push distance bushing onto kickstarter shaft and mount kickstarter.
- Mount shift lever.
- Operate the kickstarter a few times and check if the engine turns freely.



# 6.0 Electrical

| <b>Cap.</b>                       | <b>Component / Component unit</b>                           | <b>Page</b>   |
|-----------------------------------|---|---------------|
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| <b>Wiring diagramms . . . . .</b> |   | <b>Cap. 9</b> |



### 6.1 Checking the voltage regulator (Tympanium)

NOTE: THE VOLTAGE REGULATORS ARE CONNECTED DOWNSTREAM OF THE SWITCHES. ONE OF THE VOLTAGE REGULATORS REGULATES ONLY THE BRAKE LIGHT CIRCUIT, THE OTHER REGULATES THE CIRCUIT FOR THE HEAD LIGHT, THE TAIL LIGHT, THE SPEEDOMETER ILLUMINATION AND THE HORN.

A defect voltage regulator can cause different kinds of trouble:

- NO VOLTAGE IN THE CIRCUIT  
In this case, the voltage regulator must be disconnected at idle speed. The voltage regulator is defect if the power consumers now work properly.  
If the power consumers are still not supplied with power, the switch, the wiring harness or the ignition system must be checked for defects.
- EXCESSIVE VOLTAGE IN THE CIRCUIT  
The bulbs burn out.  
Connect a voltmeter (yellow cable = positive, brown cable = negative) to check the voltage. Start the engine and switch on the power consumers.

At an engine speed of 3000 r.p.m, the voltage regulator must supply a voltage of 12.0 - 14.0 V A.C. At higher engine speeds, the limit of 14.0 V should not be exceeded either.

If the reading significantly deviates from the nominal value, replace the voltage regulator.



### 6.2 Checking the voltage regulator-rectifier (Shindengen)

- Start the engine and switch on the low beam.
- Connect a voltmeter to the two terminals of the capacitor (red/white cable = positive, brown cable = negative).
- 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:

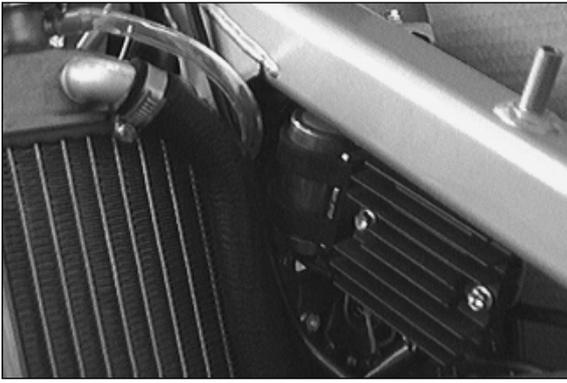
- Check the capacitor
- Check the connector between the stator and the voltage regulator-rectifier and the connector between the voltage regulator-rectifier and the cable tree.
- Check the stator.
- Replace the voltage regulator-rectifier.



### 6.3 Checking the voltage regulator (Kokusan)

A defect voltage regulator can cause different kinds of trouble:

- NO VOLTAGE IN THE CIRCUIT  
In this case, the voltage regulator must be disconnected at idle speed. The voltage regulator is defect if the power consumers now work properly.  
If the power consumers are still not supplied with power, the switch, the wiring harness or the ignition system must be checked for defects.
- EXCESSIVE VOLTAGE IN THE CIRCUIT  
The bulbs burn out. In this case the voltage regulator must be replaced.



## 6.4 Checking the capacitor

- Discharge the capacitor by bridging the two terminals with a screwdriver and remove.
- 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 (marked +) is made with a test lamp .
- When the power circuit is closed, the test lamp must begin to light up. As capacitor charging increases, the brightness of the test lamp must decrease.
- The test lamp must go out after 0,5-2 seconds (depending on the lamp capacity).
- If the test lamp does not go out or does not light up at all, the capacitor is faulty.

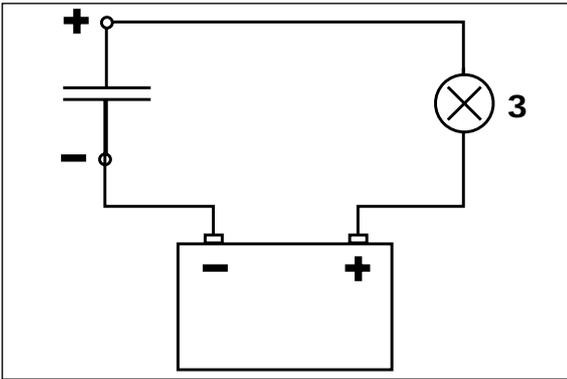
!

**CAUTION**

!

DISCHARGE THE CAPACITOR BEFORE AND AFTER EACH TEST.

WHEN INSTALLING THE CAPACITOR, MAKE SURE THAT THE TERMINALS ARE CONNECTED IN ACCORDANCE WITH THEIR MARKINGS (CONNECT RED/WHITE CABLE TO + TERMINAL)



## 6.5 Ignition coil (SEM)

As this ignition coil uses electronic components, you are advised not to use conventional measuring instruments. An accurate function test can only be carried out on an ignition test bench.



## 6.6 Ignition coil (Kokusan)

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

| MEASUREMENT    | CABLE COLOURS              | RESISTANCE             |
|----------------|----------------------------|------------------------|
| primary coil   | blue/white - ground        | 0,425 - 0,575 $\Omega$ |
| secondary coil | blue/white - ignition wire | 10,8 - 16,2 k $\Omega$ |

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.



## 6.7 CDI unit

Check the cables and plug and socket connections of the CDI unit. 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.



# 7.0 Trouble shooting

| <b>Cap.</b> | <b>Component / Component unit</b> | <b>Page</b> |
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| 7.1         | Trouble shooting .....            | 7-2         |

## 7.1 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 o ignition, replenish fuel, do not use choke   |
|  | Fuel supply interrupted                         | Close fuel tap, loosen fuel hose at carburettor, lead into a basin and open fuel tap,<br>– if fuel leaks out, clean carburettor<br>– if no fuel leaks out, check tank ventilation, i.e. clean fuel tap   |
|  | Electrode distance too great                    | Reduce electrode distance (0.60 mm)  |
|  | Plug fouled by oil, wet or bridged              | Clean spark plug or renew  |
|  | Ignition wire or spark plug connector damaged   | Dismount spark plug, connect ignition cable, hold to ground (blank place on engine) and actuate kickstarter, a strong spark must be produced at the spark plug<br>– If no spark is produced, loosen spark plug cap from ignition cable, hold about 5 mm from ground and actuate kickstarter<br>– If a spark now occurs, replace spark plug cap<br>– If no spark is produced, control ignition system |
|  | 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 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 without idle running              | Idle adjusting screw out of adjustment          | Readjust idle running or replace idle adjusting screw  |
|  | Ignition system damaged                         | Examine ignition system  |
|  | Wear  | Overhaul engine  |
| Engine has not enough power              | Charred glass fiber yarn in silencer            | Renew filling  |
|  | Air filter obstructed                           | Clean or renew airfilter   |
|  | 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 has not enough preignition               | Check and adjust ignition  |

| TROUBLE   | CAUSE   | REMEDY   |
|---|---|--|
| Engine has not enough power                             | Reed paddles tensionless or damaged, surface of reed valve housing damaged<br>Wear<br>Electronical ignition timing faulty   | Replace reed paddles or reed valve housing<br>Overhaul engine<br>Have ignition system checked  |
| Engine revs not high and running with four stroke cycle | Carburetor overflows if level adjust too high, float needle seating is dirty or enlarged<br>Loose carburetor jets   | Clean carburetor, if necessary replace float needle and adjust level<br>Tighten jets   |
| High rpm misfiring                                      | Incorrect heat range spark plug or low quality spark plug<br>Incorrect or faulty spark plug connector<br>Loose, corroded or non conductive ignition socket connector  | Refer to technical data section<br>Test and/or replace spark plug connectors correct type<br>Check and seal with silicon   |
| Engine splutters into the carburetor                    | Lack of fuel<br>Spark plug with incorrect heat value (Ignition by incandescence)<br>Engine takes air out of control   | Clean fuel pipes, examine tank aeration and clean<br>Fit correct spark plug<br>Check intake flange and carburettor if firmly settled   |
| Engine overheating                                      | Insufficient liquid in cooling system<br>Cooling system not or insufficiently bled<br>Radiator fins clogged<br>Frothing in cooling system<br>Pinched or kinked water hoses<br>Incorrect ignition timing because of loose stator screws<br>Incorrect dimension „X“ | Top up coolant and bleed cooling system check cooling system for leaks<br>Bleed cooling system (see operating instructions)<br>Clean radiator fins with water jet<br>Renew coolant using branded anti-freeze/anti-corrosive<br>Replace with correct routed hoses<br>Readjust to correct ignition timing specifications, secure screws properly with Loctite 242<br>Measure and adjust to correct specification |
| 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<br>Water pump shaft seal ring or right-hand crankshaft seal ring defect<br>Silicon O-rings of control roller or of control flap leaks  | Correct transmission oil level<br>Replace shaft seal ring and change gear oil, check coolant<br>Replace O-rings  |
| All switched on lamps blown out                         | Voltage regulator faulty  | Control connections of voltage regulator. Check voltage regulator  |
|   |   |  |



# 8.0 Technical data / maintenance schedule

| <b>Cap.</b> | <b>Component / Component unit</b>            | <b>Page</b> |
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| 8.3         | Maintenance schedule . . . . .               | 8-6         |

## 8.1 TECHNICAL DATA - ENGINE (all models out of USA)

| Engine   | 250 SX   | 250 EXC, EGS                   | 300 EXC, EGS                   | 380 SX                       | 380 EXC, EGS                 |
|--|--|--------------------------------|--------------------------------|------------------------------|------------------------------|
| Design   | Liquid-cooled single-cylinder two-stroke engine with Twin Valve Control exhaust system and KTM Torque Chamber                              |                                |                                |                              |                              |
| Piston displacement  | 249 ccm  | 297 ccm                        | 368 ccm                        |                              |                              |
| Bore / stroke  | 67.5 / 69.5 mm (2.66 / 2.74 in)  | 72 / 73 mm (2.84 / 2.88 in)    | 78 / 77 mm (3 / 2.98 in)       |                              |                              |
| Fuel   | SUPER fuel, research octane no 95, mixed with high-grade two stroke oil (Shell Advance Racing X)   |                                |                                |                              |                              |
| Oil / gasoline ratio   | 1:50 - 1:60 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  | cast piston                    | cast piston                    |                              | cast piston                  |
| Piston ring  | two plain compression rings  |                                |                                |                              |                              |
| Dimension "X" <small>(height edge piston, upper edge cylinder)</small> | 0 + 0.1 mm (0 + 0.004 in)  |                                |                                |                              |                              |
| Ignition timing  | 1.9 mm (0.07 in) (17 °) BTDC   | 1.2 mm (0.05 in) (13.5 °) BTDC | 1.2 mm (0.05 in) (13.5 °) BTDC | 2.1 mm (0.08 in) (17 °) BTDC | 1.4 mm (0.06 in) (13 °) BTDC |
| Spark plug   | NGK BR 8 ECM   |                                |                                |                              |                              |
| Electrode gap  | 0.6 mm (0.024 in)  |                                |                                |                              |                              |
| Dimension "Z" <small>(height of the control flap)</small>              | 48 mm (1.9 in)   | 46 mm (1.7 in)                 | 50.5 mm (1.99 in)              |                              |                              |
| TVC start open   | 5400/min   | 5300/min                       | 5200/min                       |                              |                              |
| TVC fully open   | 7550/min   | 7750/min                       | 7200/min                       |                              |                              |
| Primary drive  | straight cut spur gears, primary ratio 25:72   |                                |                                |                              |                              |
| Clutch   | multiple disc clutch in oil bath   |                                |                                |                              |                              |
| Transmission   | 5 speed, claw actuated   |                                |                                |                              |                              |
| Gear ratio   |  |                                |                                |                              |                              |
| 1 <sup>st</sup> Gear   | 15:29  | 15:29                          | 15:29                          | 15:29                        | 15:29                        |
| 2 <sup>nd</sup> Gear   | 17:27  | 18:26                          | 18:26                          | 18:26                        | 18:26                        |
| 3 <sup>rd</sup> Gear   | 19:25  | 19:22                          | 19:22                          | 19:24                        | 19:22                        |
| 4 <sup>th</sup> Gear   | 21:23  | 21:20                          | 21:20                          | 21:23                        | 21:20                        |
| 5 <sup>th</sup> Gear   | 23:21  | 23:18                          | 23:18                          | 23:21                        | 23:18                        |
| Gear lubrication   | 0.8 l engine oil 20W-40 (Shell Advance VSX4)   |                                |                                |                              |                              |
| Rear wheel ratio   | 14:50  | 14:50 / 15:48 / 15:40 / 13:50  | 14:50 / 15:48 / 15:40          | 14:50                        | 13:50 / 15:40                |
| Available chain sprockets  | 13t / 14t / 15t for chain $\frac{5}{8} \times \frac{1}{4}$ "   |                                |                                |                              |                              |
| Available final sprockets  | 38t / 40t / 42t / 45t / 48t / 50t / 52t for chain $\frac{5}{8} \times \frac{1}{4}$ "   |                                |                                |                              |                              |
| Coolant  | 1.3 litres, 40% anti freeze, 60% water, at least -25 °C (-13 °F)   |                                |                                |                              |                              |
| Ignition system  | KOKUSAN 2K-1   | SEM K11                        |                                | KOKUSAN 2K-1                 | SEM K11                      |
| Generator output   | no generator   | 12V 130W                       |                                | no generator                 | 12V 130W                     |
| Carburetor   | flat-slide carburetor, carburetor setting see table 3  |                                |                                |                              |                              |
| Air-filter   | wet foam type air filter insert  |                                |                                |                              |                              |

| 8.2 TOLERANCES AND FITTING CLEARANCES     |  |  |
|---|--|--|
| Piston fitting clearance                  | 0.05 mm (250) 0.06 mm (300) 0.08 mm (360)    |  |
| Piston ring end gap                       | 0.3 – 0.4 mm                                 |  |
| Connecting rod bearing - radial clearance | 0.021 – 0.032 mm                             |  |
| Transmission shafts end float             | 0.1 – 0.2 mm                                 |  |
| Clutch springs - length                   | Ø 2.5 mm new = 43 mm, minimum length = 42 mm |  |
| 8.4 GASKET THICKNESSES                    |  |  |
| Crankcase                                 | 0.5 mm                                       |  |
| Clutch cover                              | 0.5 mm                                       |  |
| Cylinder bottom gasket                    | as required                                  |  |
| Available cylinder bottom gaskets         | 0.2/0.4/0.5/0.7 mm                           |  |
| Cylinder-head gasket                      | O-rings                                      |  |

| 8.3 TIGHTENING TORQUES               |                    |   |
|--------------------------------------|--------------------|---|
| Flange bolts - cylinder-head         | M 8                | 35 Nm (25 ft.lb)  |
| Nuts-cylinder base                   | M 10               | 35 Nm (25 ft.lb)  |
| Flywheel collar nut                  | M 12x1             | 60 Nm (44 ft.lb)  |
| Nut for primary sprocket (LH thread) | M 18x1.5           | 150 Nm (108.5 ft.lb)                                    |
| Nut for inner clutch hub             | M 18x1.5           | 100 Nm (75 ft.lb)                                       |
| Crankcase and cover bolts            | M 6                | 8 Nm (6 ft.lb)  |
| Swingarm pivot                       | M 14               | 100 Nm (100 ft.lb)                                      |
| Collar nut rear wheel spindle        | M 20x1.5           | 80 Nm (60 ft.lb)  |
| Other screws                         | M 6<br>M 8<br>M 10 | 10 Nm (8 ft.lb)<br>30 Nm (21 ft.lb)<br>50 Nm (36 ft.lb) |

| 8.5 BASIC CARBURETOR SETTING |                   |   |   |                   |                       |
|------------------------------|-------------------|---|---|-------------------|-----------------------|
|                              | 250 EGS AUSTRALIA | 250 SX EUROPE<br>250 EXC EUROPE<br>250 EGS FRANCE | 300 EXC EUROPE<br>300 EGS AUSTRALIA<br>300 EGS FRANCE | 380 EGS AUSTRALIA | 380 SX, EXC<br>EUROPE |
| Carburetor                   | Keihin PWK 38     | Keihin PWK 38                                     | Keihin PWK 38   | Keihin PWK 38     | Keihin PWK 38         |
| Carburetor setting number    | 240496            | 280495  | 210495  | 300596            | 200596                |
| Main jet                     | 175 (170/180)     | 175 (170)   | 175 (170)   | 175 (170/165)     | 175 (165/170)         |
| Idling jet                   | 45 (42/48)        | 45 (42)   | 45 (42/48)  | 45 (42/40)        | 45 (42/48)            |
| Starting jet                 | 85                | 85  | 85  | 85                | 85                    |
| Jetneedle                    | N85C (N85D)       | N85D (N85E)                                       | N85D  | NOZG (NOZH/NOZI)  | NOZH (NOZI)           |
| Needle position from top     | III               | III   | III   | II                | II                    |
| Throttle valve               | 6                 | 6   | 6   | 6                 | 6                     |
| Air adjustment screw open    | 1.5               | 1.5   | 1.5   | 1.5               | 1.5                   |

TABLE 3

**8.1 TECHNICAL DATA - ENGINE (only USA)**

| Engine   | 250 SX   | 250 EXC, M-XC                | 300 EXC, M-XC                | 380 SX       | 380 EXC, M-XC |
|--|--|------------------------------|------------------------------|--------------|---------------|
| Design   | Liquid-cooled single-cylinder two-stroke engine with <b>KT™</b> Twin Valve Control exhaust system and <b>KT™</b> Torque Chamber            |                              |                              |              |               |
| Piston displacement  | 249 ccm  | 297 ccm                      | 368 ccm                      |              |               |
| Bore / stroke  | 67.5 / 69.5 mm (2.66 / 2.74 in)  | 72 / 73 mm (2.84 / 2.88 in)  | 78 / 77 mm (3 / 2.98 in)     |              |               |
| Fuel   | SUPER fuel, research octane no 95, mixed with high-grade two stroke oil (Shell Advance Racing X)   |                              |                              |              |               |
| Oil / gasolin ratio  | 1:50 - 1:60 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  | cast piston                  | cast piston                  | cast piston  | cast piston   |
| Piston ring  | two plain compression rings  |                              |                              |              |               |
| Dimension "X" <small>(height edge piston, upper edge cylinder)</small> | 0 +0.1 mm (0 + 0.004 in)   |                              |                              |              |               |
| Ignition timing  | 1.8 mm (0.07 in) (17 °) BTDC   | 2.0 mm (0.08 in) (17 °) BTDC | 2.2 mm (0.09 in) (17 °) BTDC |              |               |
| Spark plug   | NGK BR 8 ECM   |                              |                              |              |               |
| Electrode gap  | 0.6 mm (0.024 in)  |                              |                              |              |               |
| Dimension "Z" <small>(height of the control flap)</small>              | 48 mm (1.9 in)   | 46 mm (1.7 in)               | 50.5 mm (1.99 in)            |              |               |
| TVC start open   | 5400/min   | 5300/min                     | 5200/min                     |              |               |
| TVC fully open   | 7550/min   | 7750/min                     | 7200/min                     |              |               |
| Primary drive  | straight cut spur gears, primary ratio 25:72   |                              |                              |              |               |
| Clutch   | multiple disc clutch in oil bath   |                              |                              |              |               |
| Transmission   | 5 speed, claw actuated   |                              |                              |              |               |
| Gear ratio   |  | EXC                          | M-XC                         | EXC          | MXC           |
| 1 <sup>st</sup> Gear   | 15:29  | 15:29                        | 15:29                        | 15:29        | 15:29         |
| 2 <sup>nd</sup> Gear   | 17:27  | 18:26                        | 18:26                        | 18:26        | 18:26         |
| 3 <sup>rd</sup> Gear   | 19:25  | 19:22                        | 19:24                        | 19:24        | 19:24         |
| 4 <sup>th</sup> Gear   | 21:23  | 21:20                        | 21:23                        | 21:23        | 21:23         |
| 5 <sup>th</sup> Gear   | 23:21  | 23:18                        | 23:21                        | 23:21        | 23:18         |
| Gear lubrication   | 0.8 l engine oil 20W-40 (Shell Advance VSX4)   |                              |                              |              |               |
| Rear wheel ratio   | 14:50  | 14:52                        | 14:50                        | 14:52        | 14:52         |
| Available chain sprockets  | 13t / 14t / 15t for chain 5/8 x 1/4"   |                              |                              |              |               |
| Available final sprockets  | 38t / 40t / 42t / 45t / 48t / 50t / 52t for chain 5/8 x 1/4"   |                              |                              |              |               |
| Coolant  | 1.3 litres, 40% anti freeze, 60% water, at least -25 °C (-13 °F)   |                              |                              |              |               |
| Ignition system  | KOKUSAN 2K-1   | KOKUSAN 2K-2                 | KOKUSAN 2K-1                 | KOKUSAN 2K-2 | KOKUSAN 2K-2  |
| Generator output   | no generator   | 12V 40W                      | no generator                 | no generator | 12V 40W       |
| Carburetor   | flat-slide carburetor, carburetor setting see table 3  |                              |                              |              |               |
| Air-filter   | wet foam type air filter insert  |                              |                              |              |               |

| 8.2 TOLERANCES AND FITTING CLEARANCES     |   |               |               |
|---|---|---------------|---------------|
| Piston fitting clearance                  | 0.05 mm (250)                             | 0.06 mm (300) | 0.08 mm (380) |
| Piston ring end gap                       | 0.3–0.4 mm                                |               |               |
| Connecting rod bearing - radial clearance | 0.021–0.032 mm                            |               |               |
| Transmission shafts end float             | 0.1–0.2 mm                                |               |               |
| Clutch springs - length                   | Ø 2.5 new = 43 mm, minimum length = 42 mm |               |               |

| 8.4 GASKET THICKNESSES            |                    |
|-----------------------------------|--------------------|
| Crankcase                         | 0.5 mm             |
| Clutch cover                      | 0.5 mm             |
| Cylinder bottom gasket            | as required        |
| Available cylinder bottom gaskets | 0.2/0.4/0.5/0.7 mm |
| Cylinder-head gasket              | O-rings            |

| 8.3 TIGHTENING TORQUES               |                    |  |
|--------------------------------------|--------------------|--|
| Flange bolts - cylinder-head         | M 8                | 35 Nm (25 ft. lb)  |
| Nuts-cylinder base                   | M 10               | 35 Nm (25 ft. lb)  |
| Flywheel collar nut                  | M 12x1             | 60 Nm (45 ft. lb)  |
| Nut for primary sprocket (LH thread) | M 18x1.5           | 150 Nm (110 ft. lb)  |
| Nut for inner clutch hub             | M 18x1.5           | 100 Nm (75 ft. lb)   |
| Crankcase and cover bolts            | M 6                | 8 Nm (6 ft. lb)  |
| Swingarm pivot                       | M 14               | 100 Nm (103 ft. lb)  |
| Collar nut rear wheel spindle        | M 20x1.5           | 80 Nm (60 ft. lb)  |
| Other screws                         | M 6<br>M 8<br>M 10 | 10 Nm (8 ft. lb)<br>30 Nm (22 ft. lb)<br>50 Nm (37 ft. lb) |

| 8.5 BASIC CARBURETOR SETTING |                                       |                         |
|------------------------------|---------------------------------------|-------------------------|
|                              | 250 SX/MXC/EXC USA<br>300 MXC/EXC USA | 380 SX/MXC/EXC<br>USA   |
| Carburetor                   | Keihin PWK 38<br>240496               | Keihin PWK 38<br>200597 |
| Carburetor setting number    | 175 (170/180)                         | 175 (165/170/180)       |
| Main jet                     | 45 (42/48)                            | 45 (42/48)              |
| Idling jet                   | 85                                    | 85                      |
| Starting jet                 | N85C (N85D)                           | NOZG (NOZH)             |
| Jetneedle                    | III                                   | III                     |
| Needle position from top     | 6                                     | 6                       |
| Throttle valve               | 1.5                                   | 1.5                     |
| Air adjustment screw open    |                                       |                         |

TABLE 3

## 8.3 PERIODIC LUBRICATION AND MAINTENANCE SCHEDULE

125-380 7.97



**AT A REGULAR COMPETITION USE OF THE BIKE, THE 4000 KM (2500 MILES) SERVICE IS TO BE DONE AFTER EVERY RACE**

**KTM rider**

**KTM dealer**

|   | KTM rider         |               | KTM dealer  |  |   |                      |
|---|-------------------|---------------|---|--|---|----------------------|
|   | before each start | after washing | 1st service after 1000 km (600 miles) or 10 hours | after 2000 km (1250 miles) or 20 hours | after 4000 km (2500 miles) or once a year | at least once a year |
| Check transmission oil level  | •                 |               |   |  |   |                      |
| Change transmission oil   |                   |               | •   |  | •   | •                    |
| Check spark plug and electrode gap  |                   |               |   | •                                      | •   | •                    |
| Change spark plug   |                   |               |   |  | •   |                      |
| Check exhaust control for function  |                   |               |   |  |   | •                    |
| Check intake manifold for leaks and cracks  | •                 |               |   |  | •   |                      |
| Drain and clean carburetor float chamber  |                   | •             |   |  | •   |                      |
| Adjust idling   |                   |               | •   |  | •   |                      |
| Check breather hoses of engine case and gas tank for correct position without buckles |                   |               | •   |  |   |                      |
| Clean and check airfilter element, box and carburetor connection boot                 |                   | •             |   |  | •   | •                    |
| Check chain, sprockets, guides and chain wear   | •                 |               | •   |  | •   |                      |
| Clean and oil chain   | •                 |               |   |  | •   |                      |
| Check chain tension   | •                 |               | •   |  | •   |                      |
| Check coolant level   | •                 |               | •   |  | •   |                      |
| Check quality of antifreeze   |                   |               |   |  |   | •                    |
| Check cooling system for leaks - visual inspection                                    | •                 |               | •   |  | •   |                      |
| Check exhaust system for cracks and leaks   |                   |               |   |  | •   |                      |
| Replace glass fiber yarn of silencer  |                   |               |   |  | •   |                      |
| Check condition of exhaust brackets   |                   |               |   |  | •   |                      |
| Check brake fluid level front and rear  | •                 |               | •   |  | •   |                      |
| Change brake fluid  |                   |               |   |  |   | •                    |
| Check thickness of disc brake pads  | •                 |               |   |  | •   |                      |
| Check brake discs   |                   |               |   |  | •   |                      |
| Inspect condition and installation of front and rear brake hoses                      | •                 |               | •   |  | •   |                      |
| Check free travel and free movability of hand brake lever and foot brake lever        | •                 |               | •   |  | •   |                      |
| Check hydraulic oil level of hydraulic clutch (125/200)                               |                   |               |   | •                                      | •   |                      |
| Change hydraulic oil of hydraulic clutch (125/200)                                    |                   |               |   |  |   | •                    |
| Check telescopic fork action  | •                 |               |   |  | •   |                      |
| Check telescopic fork for leaks   |                   |               |   |  | •   |                      |
| Slide up dust scrabbers of telescopic fork and remove dirt                            |                   | •             | •   | •                                      | •   |                      |
| Clean dust scrubber of telescopic fork (WP Extreme fork)                              |                   | •             |   | •                                      | •   |                      |
| Loosen the bleeding screws of telescopic fork   |                   |               |   |  | •   |                      |
| Change oil of telescopic fork   |                   |               |   |  |   | •                    |
| Service telescopic fork completely  |                   |               |   |  |   | •                    |
| Check steering head bearing free play   |                   |               | •   |  | •   |                      |
| Clean and regrease steering head bearing  |                   |               |   |  | •   | •                    |
| Check setting and damping of shock absorber   | •                 |               |   |  | •   |                      |
| Service shock absorber completely   |                   |               |   |  |   | •                    |
| Grease Pro Lever Linkage System   |                   |               |   |  |   | •                    |
| Grease swingarm needle bearings   |                   |               |   |  |   | •                    |
| Check for even spoke tension and rim alignment  | •                 |               | •   |  | •   |                      |
| Check wheel bearings  | •                 |               |   |  | •   |                      |
| Check tires for cuts and air pressure   | •                 |               |   |  | •   |                      |
| Check cables for damage and free movement   | •                 |               |   |  | •   |                      |
| Adjust and oil control cables   |                   | •             | •   |  | •   |                      |
| Check electrical system   | •                 |               | •   |  | •   |                      |
| Check battery holder and connections (A, CH)  |                   |               |   |  | •   |                      |
| Check adjustment of headlight   |                   |               |   |  | •   |                      |
| Treat light switch, flasher switch and ignition lock with contact spray               |                   | •             |   |  | •   |                      |
| Check all bolts, nuts, screws and clamps for proper tightness                         | •                 |               | •   |  | •   |                      |
| Clean and lubricate control lever pivot points  |                   | •             | •   | •                                      | •   |                      |

# SERVICE

Model I

125/250/300/380 EXC '98 '99

Kabelstrangnummer  
vorne 503 11 075 000  
hinten 503 11 076 000

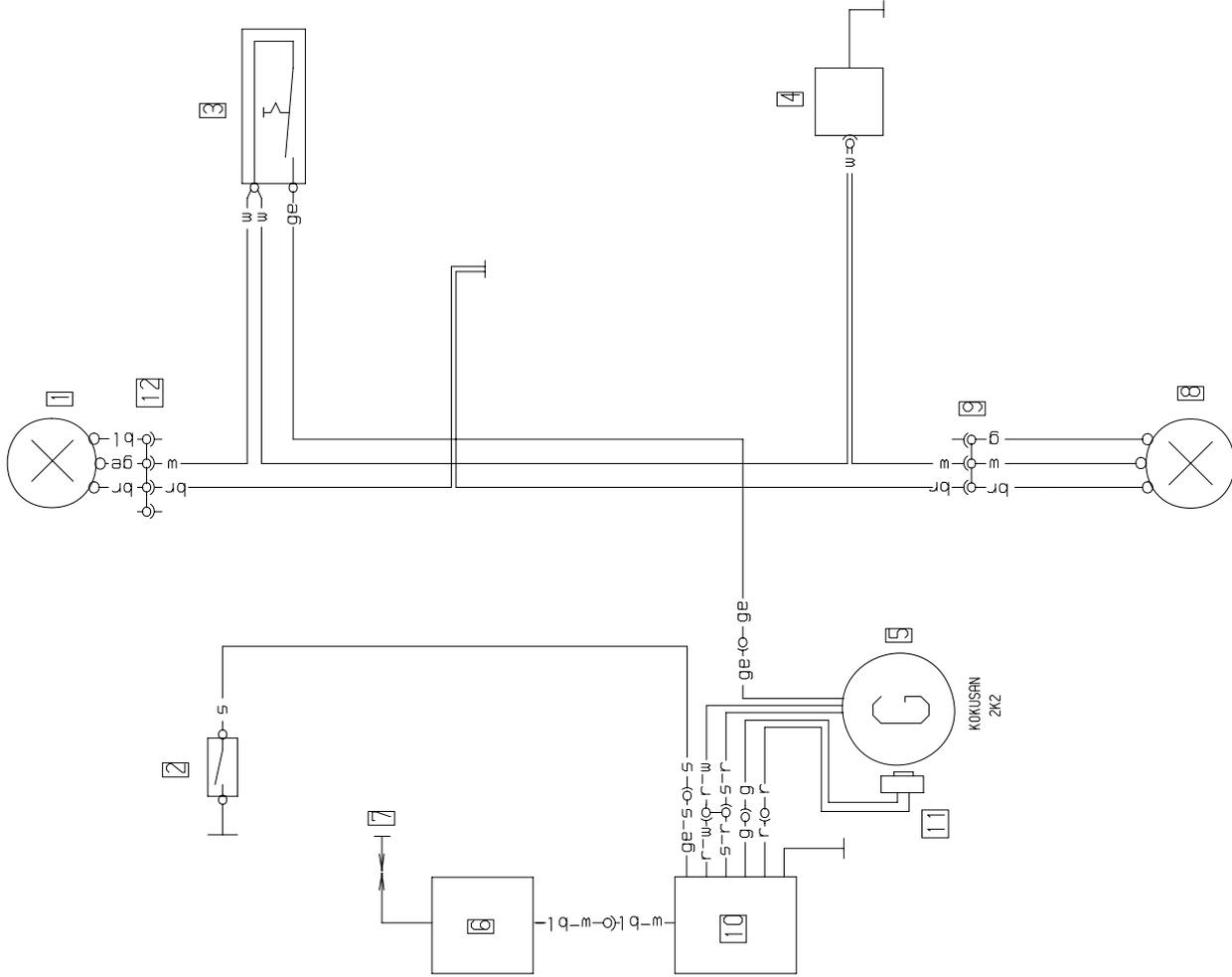
Land  
USA

Datum, Name  
22.06.98 KE

Zeichnungsnummer  
22C8-USA

Änderungsstand

Kabelstrangbezeichnung  
no 125-EXC USA '98  
hi 125-380 EXC '98



| Deutsch              | Englisch                | Italienisch            | Französisch             |
|----------------------|-------------------------|------------------------|-------------------------|
| 1 Scheinwerfer       | 1 headlight             | 1 fano                 | 1 phare                 |
| 2 Kurzschlußtaster   | 2 short-circuit button  | 2 interr cortocircuito | 2 bouton d'arret        |
| 3 Lichtschalter      | 3 light switch          | 3 interr della luce    | 3 interr d'eclairage    |
| 4 Spannungsbegrenzer | 4 voltage limiter       | 4 regol di tens        | 4 regulateur            |
| 5 Generator          | 5 generator             | 5 dinamo               | 5 generateur            |
| 6 Zündspule          | 6 ignition coil         | 6 bobina d'accens      | 6 bobine d'allumage     |
| 7 Zündkerze          | 7 spark plug            | 7 candela              | 7 bougie                |
| 8 Schlußlicht        | 8 rearlight             | 8 fanale posteriore    | 8 feu arriere           |
| 9 3-pol Stecker      | 9 multip cont plug (3)  | 9 connettore a 3 poli  | 9 connect multiple (3)  |
| 10 CDI-Einheit       | 10 CDI-unit             | 10 CDI-seatola         | 10 CDI-unite            |
| 11 Impulsgeber       | 11 pulser coil          | 11 distributore        | 11 generateur d'impuls  |
| 12 4-pol Stecker     | 12 multip cont plug (4) | 12 connettore a 4 poli | 12 connect multiple (4) |
| bl blau              | bl blue                 | bl blu                 | bl bleu                 |
| br braun             | br brown                | br marrone             | br brun                 |
| ge gelb              | ge yellow               | ge giallo              | ge jaune                |
| gr grau              | gr grey                 | gr grigio              | gr gris                 |
| g grün               | g green                 | g verde                | g vert                  |
| o orange             | o orange                | o arancione            | o orange                |
| r rot                | r red                   | r rosso                | r rouge                 |
| s schwarz            | s black                 | s nero                 | s noir                  |
| v violett            | v violet                | v violetto             | v violet                |
| w weiß               | w white                 | w bianco               | w blanc                 |

| Spanisch               |
|------------------------|
| 1 fano                 |
| 2 interruptor a masa   |
| 3 interruptor d'luz    |
| 4 regulador de tension |
| 5 generador            |
| 6 bobina de encendido  |
| 7 bujia                |
| 8 luz de trasera       |
| 9 conect multiple (3)  |
| 10 unidad cdi          |
| 11 generador de impuls |
| 12 conect multiple (4) |
| bl azul                |
| br marron              |
| ge amarillo            |
| gr gris                |
| g verde                |
| o naranja              |
| r rojo                 |
| s negro                |
| v violeta              |
| w blanco               |

# SERVICE

Model I

250/300/380 EXC '98

Kabelstrangnummer  
vorne 547 11 075 200  
hinten 583 11 076 000

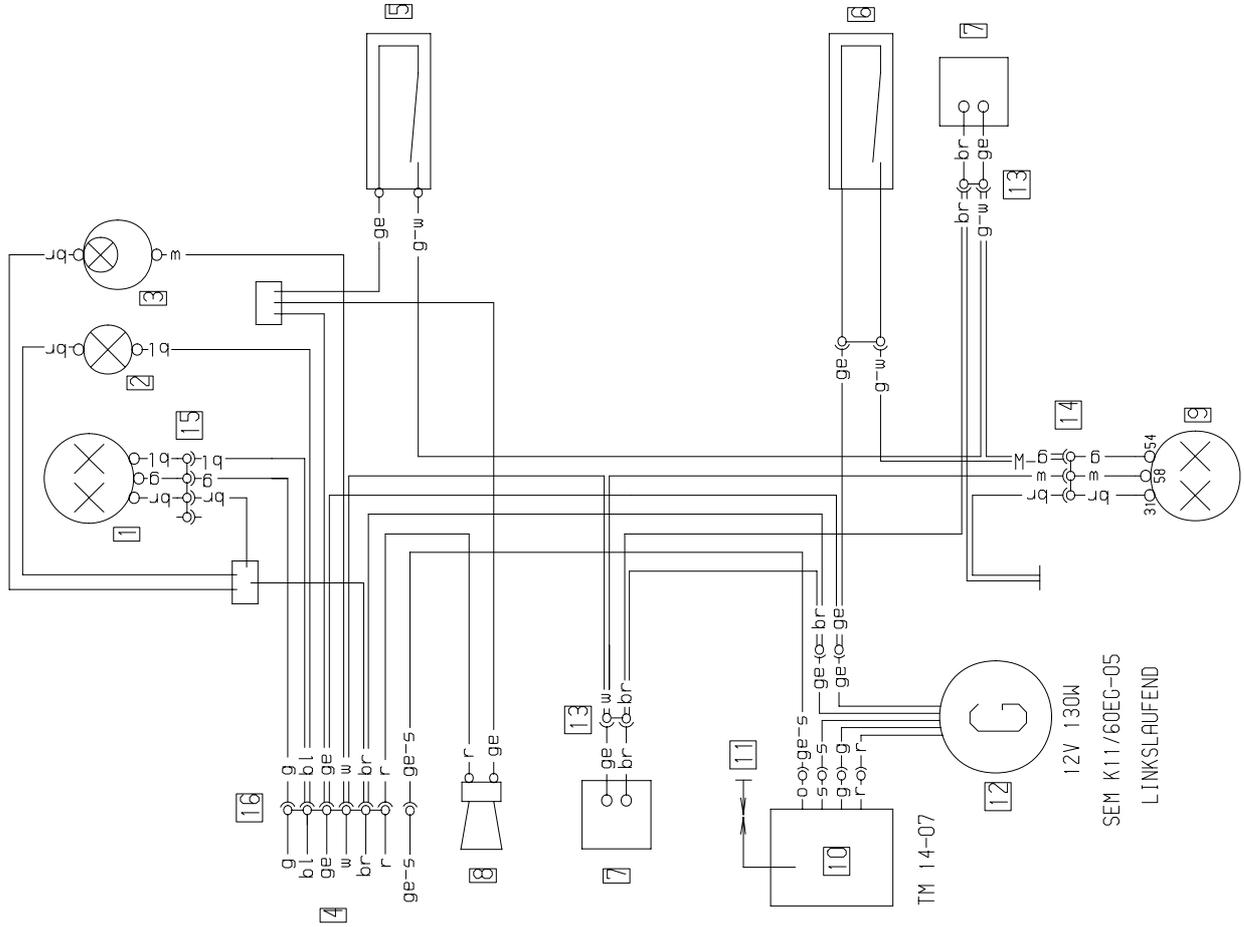
Land  
Europa

Datum, Name  
07 07 98 KE

Zeichnungsnr  
22C8-01V

Andersungsstand

Kabelstrangbez  
vo 250-380 EXC EU '98  
hi 125-380 EXC '98



| Deutsch              | Englisch                | Italienisch             | Französisch             |
|----------------------|-------------------------|-------------------------|-------------------------|
| 1 Scheinwerfer       | 1 headlight             | 1 fano                  | 1 phare                 |
| 2 Fernlichtkontrolle | 2 high beam indicator   | 2 spia abbagliante      | 2 témoin feu route      |
| 3 Tachobeleuchtung   | 3 speedometer light     | 3 luce tachimetro       | 3 éclair comp vitesse   |
| 4 zum Kombischalter  | 4 to combinat switch    | 4 multi comando         | 4 comando               |
| 5 Bremslichtsch vo   | 5 stoplight switch f    | 5 int luce arresto ant  | 5 contact de stop av    |
| 6 Bremslichtsch hi   | 6 stoplight switch r    | 6 int luce arresto post | 6 contact de stop arr   |
| 7 Spannungsbegrenzer | 7 voltage limiter       | 7 regol di tens         | 7 régulateur            |
| 8 Schnarre           | 8 horn                  | 8 clacson               | 8 klaxon                |
| 9 Brems-Schlußlicht  | 9 rear-stoplight        | 9 fanal post di freno   | 9 feu arr et de stop    |
| 10 Zündspule         | 10 ignition coil        | 10 bobina d'accens      | 10 bobine d'allumage    |
| 11 Zündkerze         | 11 spark plug           | 11 candela              | 11 bougie               |
| 12 Generator         | 12 generator            | 12 dinamo               | 12 générateur           |
| 13 2-pol Stecker     | 13 multip cont plug (2) | 13 connettore a 2 poli  | 13 connect multiple (2) |
| 14 3-pol Stecker     | 14 multip cont plug (3) | 14 connettore a 3 poli  | 14 connect multiple (3) |
| 15 4-pol Stecker     | 15 multip cont plug (4) | 15 connettore a 4 poli  | 15 connect multiple (4) |
| 16 9-pol Stecker     | 16 multip cont plug (9) | 16 connettore a 9 poli  | 16 connect multiple (9) |
| 16 Parallelverbinder | 16 parallel connector   | 16 parallelo composto   | 16 parallele connecteur |
| bl blau              | bl blue                 | bl blu                  | bl bleu                 |
| br braun             | br brown                | br marrone              | br brun                 |
| ge gelb              | ge yellow               | ge giallo               | ge jaune                |
| gr grau              | gr grey                 | gr grigio               | gr gris                 |
| g grün               | g green                 | g verde                 | g vert                  |
| o orange             | o orange                | o arancione             | o orange                |
| r rot                | r red                   | r rosso                 | r rouge                 |
| s schwarz            | s black                 | s nero                  | s noir                  |
| v violett            | v violet                | v violetto              | v violet                |
| w weiß               | w white                 | w bianco                | w blanc                 |

| Spanisch                     |
|------------------------------|
| 1 fano                       |
| 2 control luces largos       |
| 3 luz tacometro              |
| 4 llave combinada            |
| 5 interr luces de freno del  |
| 6 interr luces de freno tras |
| 7 regulador de tension       |
| 8 claxon                     |
| 9 luz freno tras             |
| 10 bobina de encendido       |
| 11 bujia                     |
| 12 generador                 |
| 13 conector multiple (2)     |
| 14 conector multiple (3)     |
| 15 conector multiple (4)     |
| 16 conector multiple (9)     |
| 16 conector paralelo         |
| bl azul                      |
| br marron                    |
| ge amarillo                  |
| gr gris                      |
| g verde                      |
| o naranja                    |
| r rojo                       |
| s negro                      |
| v violeta                    |
| w blanco                     |

Kontaktbelegung -  
Lichtschalter (Typ CEV 9610)

|             | g | bl | ge | w  | br  |
|-------------|---|----|----|----|-----|
| LICHT       | o |    | ge | r  | br  |
| Abblendl    | • |    | w  | /s |     |
| Fernlicht   |   | •  |    |    |     |
| HUPE        |   | •  |    |    |     |
| ZÜNDUNG RUS |   |    |    |    |     |
|             | 5 | 2  | 1  | 3  | 6 4 |

SERVICE

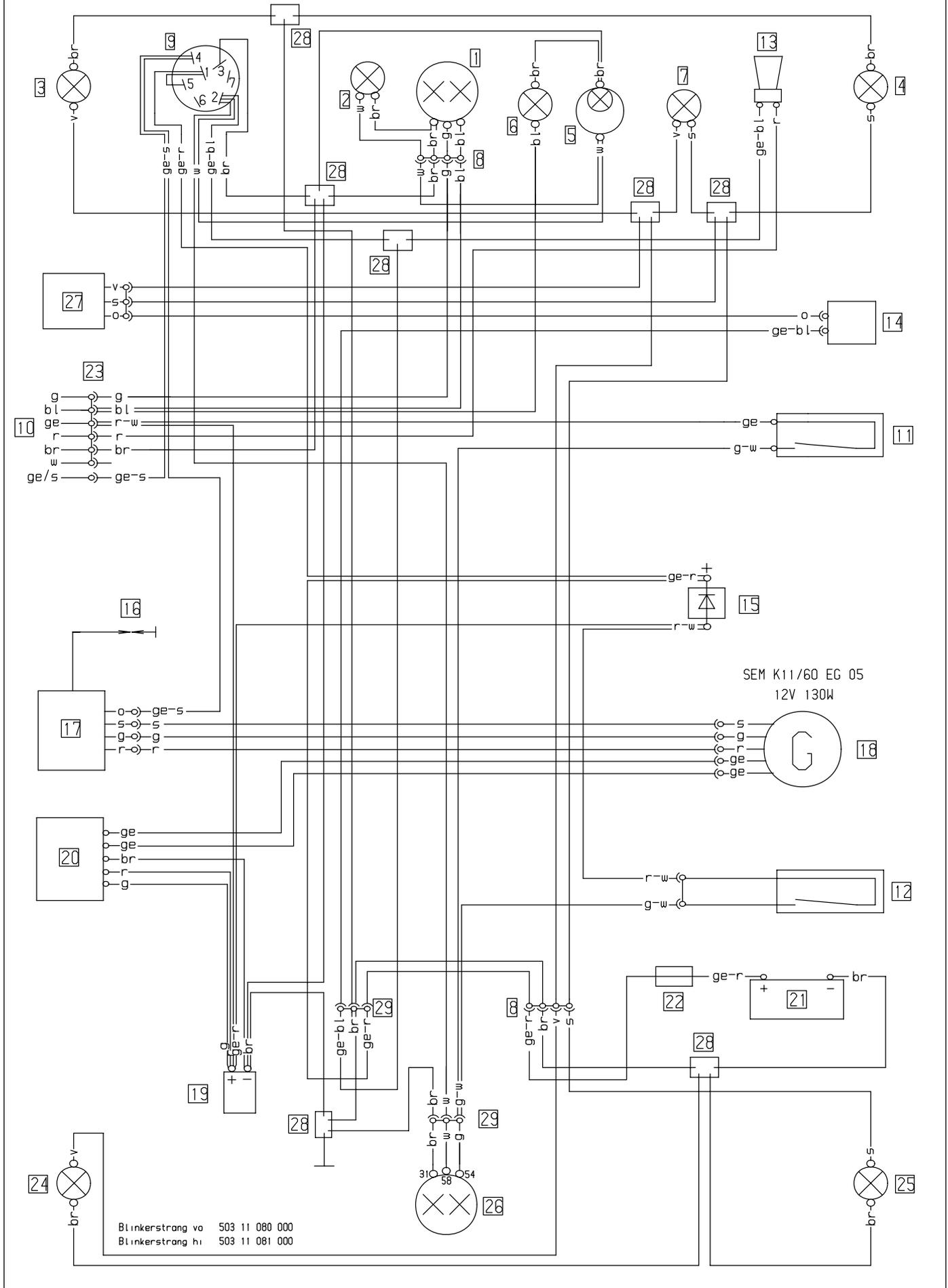
Modell 250-380 EGS '98

Kabelstrangnummer  
vorne 546 11 475 300  
hinten 503 11 076 000

Land  
Europa

Datum, Name  
02 07 97 KE

Kabelstrangbez  
vo 250-380 EGS '98  
hi 125-380 EGS '98



Blinkerstrang vo 503 11 080 000  
Blinkerstrang hi 503 11 081 000

| Deutsch               | Englisch                | Italienisch              | Französisch             |
|-----------------------|-------------------------|--------------------------|-------------------------|
| 1 Scheinwerfer        | 1 headlight             | 1 faro                   | 1 phare                 |
| 2 Standlicht          | 2 parking light         | 2 luce di posizione      | 2 feu de position       |
| 3 Blinker li vo       | 3 turn indic left fr    | 3 lampegg ant sn         | 3 clignoteur av gauche  |
| 4 Blinker re vo       | 4 turn indic right fr   | 4 lampegg ant dx         | 4 clignoteur av droit   |
| 5 Tachobeleuchtung    | 5 speedometer light     | 5 luce di tachimetro     | 5 éclair comp vitesse   |
| 6 Fernlichtkontrolle  | 6 high beam indicator   | 6 spia abbagliante       | 6 témoin feu route      |
| 7 Blinkerkontrolle    | 7 turn indicator        | 7 spia lampeggiatori     | 7 témoin de clignoteur  |
| 8 4-pol Stecker       | 8 multip cont plug (4)  | 8 connettore a 4 poli    | 8 connect multiple (4)  |
| 9 Zündschloß          | 9 ignition lock         | 9 accensione             | 9 contact d'allum       |
| 10 zum Kombischalter  | 10 to combinat switch   | 10 multicomando          | 10 commodo              |
| 11 Bremslichtsch vo   | 11 stoplight switch f   | 11 int luce arresto ant  | 11 contact de stop av   |
| 12 Bremslichtsch hi   | 12 stoplight switch r   | 12 int luce arresto post | 12 contact Harr de stop |
| 13 Horn               | 13 horn                 | 13 clacson               | 13 klaxon               |
| 14 Blinkgeber         | 14 turn indicator       | 14 trasmett di lampeg    | 14 centrale clignot     |
| 15 Diode              | 15 diode                | 15 diodo                 | 15 diode                |
| 16 Zündkerze          | 16 spark plug           | 16 candela               | 16 bougie               |
| 17 Zündspule          | 17 ignition coil        | 17 bobina d'accens       | 17 bobine d'allumage    |
| 18 Generator          | 18 generator            | 18 dinamo                | 18 generateur           |
| 19 Kondensator        | 19 capacitor            | 19 condensatore          | 19 condensateur         |
| 20 Spannungsregler    | 20 voltage regulator    | 20 regol di tens         | 20 regulateur           |
| 21 Batterie 1 2Ah     | 21 battery 1 2Ah        | 21 batteria 1 2Ah        | 21 batterie 1 2Ah       |
| 22 Stecksicherung 10A | 22 fuse 10A             | 22 fusibile 10A          | 22 fusible 10A          |
| 23 6-pol Stecker      | 23 multip cont plug (9) | 23 connettore a 9 poli   | 23 connect multiple (9) |
| 24 Blinker li hi      | 24 blinker left rear    | 24 lampegg post sn       | 24 clign arr gauche     |
| 25 Blinker re hi      | 25 blinker right rear   | 25 lampegg post dx       | 25 clign arr droite     |
| 26 Brems-Schlußlicht  | 26 rear-stoplight       | 26 fanal post di freno   | 26 feu arr et de stop   |
| 27 Blinkerschalter    | 27 blink switch         | 27 int lampeggiatori     | 27 contact d clignoteur |
| 28 Parallelverbinder  | 28 parallel connector   | 28 parallelo composto    | 28 parallele connecteur |
| 29 3-pol Stecker      | 29 multip cont plug (3) | 29 connettore a 3 poli   | 29 connect multiple (9) |

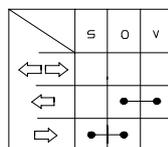
| Deutsch   | Englisch  | Italienisch | Französisch | Spanisch    |
|-----------|-----------|-------------|-------------|-------------|
| bl blau   | bl blue   | bl blu      | bl bleu     | bl azul     |
| br braun  | br brown  | br marrone  | br brun     | br marron   |
| ge gelb   | ge yellow | ge giallo   | ge jaune    | ge amarillo |
| gr grau   | gr grey   | gr grigio   | gr gris     | gr gris     |
| g grün    | g green   | g verde     | g vert      | g verde     |
| o orange  | o orange  | o arancione | o orange    | o naranja   |
| r rot     | r red     | r rosso     | r rouge     | r rojo      |
| s schwarz | s black   | s nero      | s noir      | s negro     |
| v violett | v violet  | v violetto  | v violet    | v violeta   |
| w weiß    | w white   | w bianco    | w blanc     | w blanco    |

| Spanisch                          |
|-----------------------------------|
| 1 faro                            |
| 2 luz de posicion                 |
| 3 interm izquierdo delantero      |
| 4 intermitente derecho delantero  |
| 5 luz tacometro                   |
| 6 lampara aviso luces largas      |
| 7 lampara aviso intermitentes     |
| 8 conector multiple (4)           |
| 9 llave de contacto               |
| 10 interruptor combinado          |
| 11 interr luz de freno del        |
| 12 interr luz de fren tras        |
| 13 claxon                         |
| 14 conjunto del intermintente     |
| 15 diodo                          |
| 16 bujia                          |
| 17 bobina de encendido            |
| 18 generador                      |
| 19 condensador                    |
| 20 regulador de tension           |
| 21 bateria 12V 1 2Ah              |
| 22 fusible principal 10A          |
| 23 conector multiple (4)          |
| 24 intermitente izquierdo trasero |
| 25 intermitente derecho trasero   |
| 26 luz de freno trasero           |
| 27 interruptor clignoteur         |
| 28 parallele connecteur           |
| 29 conector multiple (3)          |

Kontaktbelegung  
Zündschloß (Typ CEV 7-pol )

|      | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------|---|---|---|---|---|---|---|
| PARK | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| AUS  |   |   | ○ | ○ |   |   |   |
| EIN  | ○ | ○ |   |   | ○ | ○ |   |
| EIN  | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Blinkerschalter



Kontaktbelegung -  
Lichtschalter (Typ CEV 9610)

|             | g | bl | ge | w | ge /s | r | br |
|-------------|---|----|----|---|-------|---|----|
| LICHT       |   |    |    |   |       |   |    |
| Abblendl    | ○ | ○  | ○  |   |       |   |    |
| Fernlicht   |   | ○  | ○  | ○ |       |   |    |
| HUPE        |   |    |    |   |       | ○ | ○  |
| ZÜNDUNG AUS |   |    |    |   | ○     | ○ |    |
|             | 5 | 2  | 1  | 3 | 6     | 4 |    |

# SERVICE

Modell I

125/250 EXC '98 Sixday

Kabelstrangsnummer  
vorne 503 11 075 300  
hinten 503 11 076 000

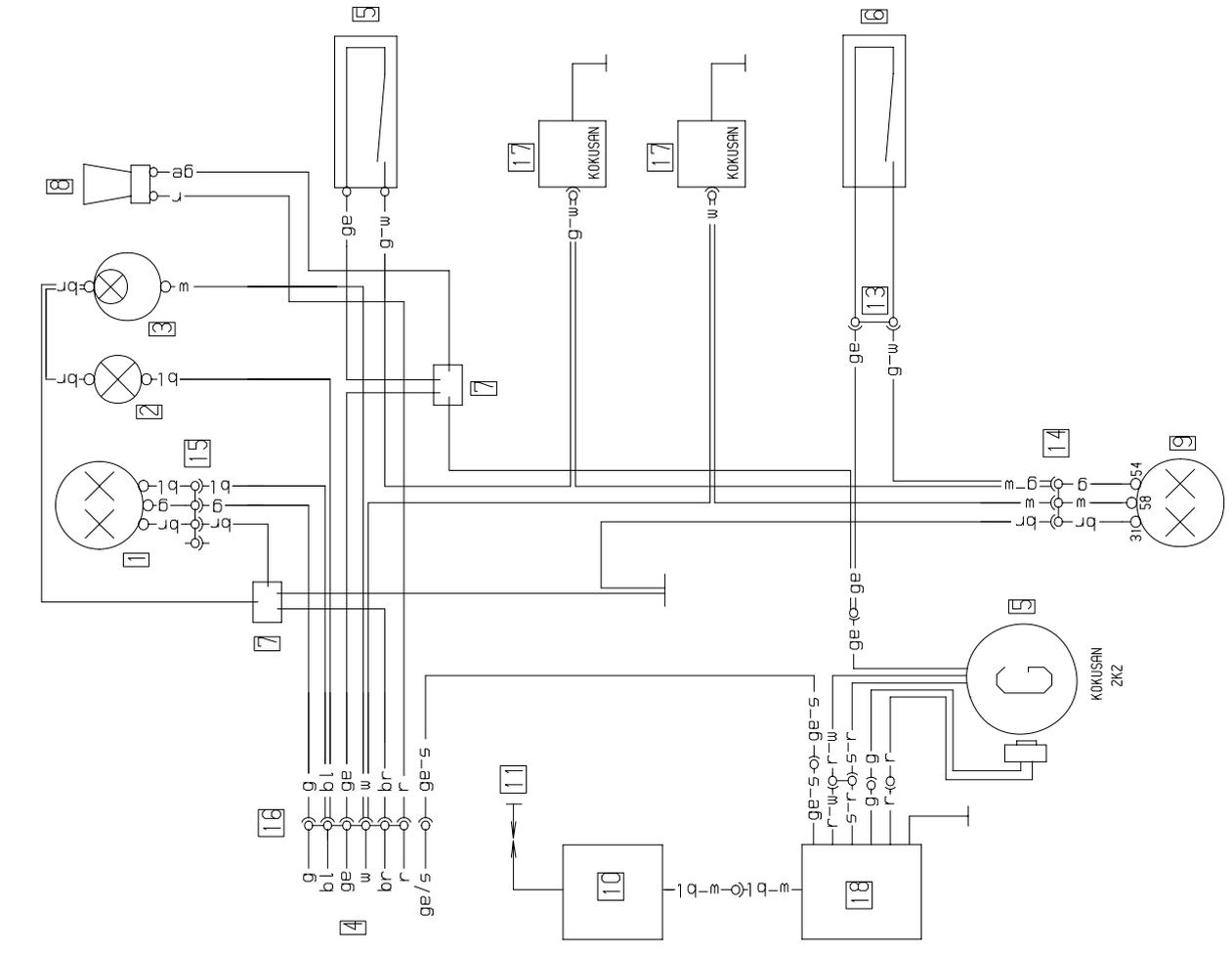
Land  
**Diverse**

Datum, Name  
11 07 97 KE

Zeichnungsnr  
125XC98

Änderungsstand

Kabelstrangbezeichnung  
vo Sixday 125 '98  
hi 125-380 EXC '98



| Deutsch              | Englisch                | Italienisch                | Französisch             |
|----------------------|-------------------------|----------------------------|-------------------------|
| 1 Scheinwerfer       | 1 headlight             | 1 faro                     | 1 phare                 |
| 2 Fernlichtkontrolle | 2 high beam control     | 2 spia abbagliante         | 2 témoin feu route      |
| 3 Tachobeleuchtung   | 3 tachometer light      | 3 luz del tacometro        | 3 éclair comp vitesse   |
| 4 zum Kombischalter  | 5 stoplight switch f    | 4 multicomando             | 4 comando               |
| 5 Brennschaltch vo   | 5 stoplight switch r    | 5 interruptor de stop av   | 5 contact de stop av    |
| 6 Brennschaltch hi   | 7 parallel connector    | 6 interruptor de stop post | 6 contact de stop der   |
| 7 Parallelverbinder  | 8 horn                  | 7 parallelo composto       | 7 parallele connecteur  |
| 8 Schnarre           | 9 rear-stoplight        | 8 claxon                   | 8 klaxon                |
| 9 Brems-Schlußlicht  | 10 ignition coil        | 9 fanal post di freno      | 9 feu arr et de stop    |
| 10 Zündspule         | 11 spark plug           | 10 bobina d'allumage       | 10 bobine d'allumage    |
| 11 Zündkerze         | 12 generator            | 11 candela                 | 11 bougie               |
| 12 2-pol Stecker     | 13 multip cont plug (2) | 12 dinamo                  | 12 generateur           |
| 13 3-pol Stecker     | 14 multip cont plug (3) | 13 commettore a 2 poli     | 13 connect multiple (2) |
| 14 4-pol Stecker     | 15 multip cont plug (4) | 14 commettore a 3 poli     | 14 connect multiple (3) |
| 15 6-pol Stecker     | 16 multip cont plug (6) | 15 commettore a 4 poli     | 15 connect multiple (4) |
| 17 Spannungsregler   | 17 voltage limiter      | 16 commettore a 6 poli     | 16 connect multiple (6) |
| 18 CDI-Einheit       | 18 CDI-unit             | 17 regol di tens           | 17 regulateur           |
| bl blau              | bl blue                 | 18 CDI-segala              | 18 boitier CDI          |
| br braun             | br brown                | bl blu                     | bl bleu                 |
| ge gelb              | ge yellow               | br marrone                 | br brun                 |
| gr grau              | gr grey                 | ge giallo                  | ge jaune                |
| g grün               | g green                 | gr grigio                  | gr gris                 |
| o orange             | o orange                | g verde                    | g vert                  |
| r rot                | r red                   | o arancione                | o orange                |
| s schwarz            | s black                 | r rosso                    | r rouge                 |
| v violett            | v violet                | s nero                     | s noir                  |
| w weiß               | w white                 | v violetto                 | v violet                |
|                      |                         | w bianco                   | w blanc                 |

| Spannisch                    |
|------------------------------|
| 1 faro                       |
| 2 control luces largas       |
| 3 luz tacometro              |
| 4 llave combinada            |
| 5 interr luces de freno del  |
| 6 interr luces de freno tras |
| 7 conector paralelo          |
| 8 claxon                     |
| 9 luz freno tras             |
| 10 bobina de encendido       |
| 11 bujia                     |
| 12 generador                 |
| 13 conector multiple (2)     |
| 14 conector multiple (3)     |
| 15 conector multiple (4)     |
| 16 conector multiple (6)     |
| 17 regulador de tension      |
| 18 unidad cdi                |
| bl azul                      |
| br marron                    |
| ge amarillo                  |
| gr gris                      |
| g verde                      |
| o naranja                    |
| r rojo                       |
| s negro                      |
| v violeta                    |
| w blanco                     |

Kontaktbelegung -  
Lichtschalter (Typ CEV 9610)

|             | g | bl | ge | w | r | br |
|-------------|---|----|----|---|---|----|
| LICHT       |   |    | ge | w | r | br |
| Abblendl.   |   |    |    |   |   |    |
| Fernlicht   |   |    |    |   |   |    |
| HUPE        |   |    |    |   |   |    |
| ZÜNDUNG AUS |   |    |    |   |   |    |
|             | 5 | 2  | 1  | 3 | 6 | 4  |

KTM-SPORTMOTORCYCLE AG  
A-5230 Mattighofen • Postfach 91 • Austria  
Internet: <http://www.ktm.co.at>  
FN 102019 d - Landesgericht Ried im Innkreis



320520



250 / 300 / 380 '98

ART. NR. 3.205.20