CHAIN LUBRICATION SYSTEM

CLS 200µ - V2

⚠ Page 17 new calibration values

CLS - Chain Lube Systems

Installation Instructions – Important Information

Publisher

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Disclaimer:

No liability can be accepted for damages caused, either directly or indirectly, by the chain lubrication system, its installation or use.

Guarantee

The chain lubrication system *CLS 200µ* is guaranteed for 24 months from the date of purchase.

Contents

Dear Motorcycle Friend,

You have chosen the motorbike chain lubrication system *CLS 200µ*. We would like thank you for showing confidence in our product.

Correct installation and use of the system will assure you of the following important benefits:

- no need for expensive cleaning and lubrication of chain and sprockets. Your bike's chain will be continuously supplied with drops of lubricant. This lubrication can be controlled to suit requirements.
- the life of the drive chain set will be significantly increased. Experience thus far shows that no noticeable wear of chain and sprockets occurs. The pay-back period for the chain lubrication system is short due to the considerably extended life of the chain set.
- testing and registration of the chain lubrication system by the German Standards Authority (TÜV) guarantees you a product that meets all safety requirements.
- the recommended lubricant is environmentally compatible and is used only in very limited quantities.
- These installation instructions inform you about:
  - proper installation,
  - safe use,
  - what to do in the event of faults.

Please note the following important information:

The motorcycle chain lubrication system has a type approval from the German Kraftfahrt-Bundesamt in Flensburg:

EWG-BG Nr. e1*97/24*97/24/8/IX*0490*00

For the motorcycle chain lubrication system, the PARTS REPORT No. 374-007-01 FBKA and the EXPERT STATEMENT No. 37-0013-01-FBKA of the TÜV AUTOMOTIVE GMBH, Business Group TÜV Southern Germany dated 13.03.2001 and 07.11.2001 respectively apply.

This Report and Statement can be found on our internet web page www.cls200.de.

You can fit the chain lubrication system by yourself or have it installed by a competent dealer.

Best wishes and safe riding,
CLS - Chain Lube Systems.

1 Safety

Read the installation instructions carefully prior to fitting and commissioning of the chain lubrication system. Take note of all instructions and tips!

Safety points in the installation instructions are marked as follows:

Risk of death or serious injury and damage to property!

Risk of injury and damage to property!

Risk of system failure and damage to property!

Environmental hazard!

Useful hint or tip.

Failure to follow the safety instructions can cause accidents, injury, damage to property or environmental pollution.

Liability cannot be accepted for injury, damage or loss resulting from any failure to follow the safety instructions.

All parts and components are to be used only in accordance with, and for the purpose detailed in, the installation instructions.

- All enclosed parts should be kept out of reach of children as small parts and oil could easily be swallowed. Packaging presents a danger of suffocation for children. Particular care should be taken with these items during storage and installation.
- Avoid contact with the instant adhesive as it can stick body parts together. Skin, eyelids and other objects are glued together in a very short time. Note carefully the instructions for use for the instant adhesive! In the event of accidental contact seek medical attention immediately!
- The chain lubricant used is part synthetic and non-toxic. Nevertheless avoid contact with skin, mucous membrane and eyes. In the event of swallowing seek medical attention immediately!

- Do not dispose of lubricant along with household refuse. Deposit it only at suitable facilities intended for the disposal of used oil, eg at filling stations, garages, etc. Clean up spillages using only suitable proprietary products.
- When the chain lubrication system is correctly installed the operational safety of your bike is not adversely affected. Nevertheless, before each journey ensure correct fitting, particularly that:
  - the function of moving parts of the bike are not restricted in any way.
  - the oil tubes cannot come into contact with moving/ rotating parts. In the event of damage to the oil tube lubricant can escape or parts of the tubing can get into the drive mechanism.
  - the electrical cables and oil tubes are correctly installed. Freely moving cables or tubes can affect the bike's handling and lead to accidents.
  - the tube endpiece is correctly positioned at the sprocket, as required by regulation. Lubricant must not get onto the tyre tread or brakes while the bike is moving.
  - the oil tank is properly secured so that it cannot be damaged and that no lubricant can escape should the bike fall over.

2 General Information

2.1 Set-up

The chain lubrication system *CLS 200µ* operates without a pump. The lubricant makes its way in minimal doses by means of gravity from the lubricant tank (6) via the filter (4), flow adjuster (5), electric control box (3), lubricant pipe (2) and the tube endpiece (7) to the sprocket.

The flow adjuster (5) permits course adjustment of the lubricant flow. Fine adjustment is achieved using the rotary switch (1) mounted in the cockpit.

The electronic control box contains a microprocessor, a magnetic valve, polarity and overvoltage protection, a temperature sensor and other components.

The components within the electronic control box are completely sealed in a plastic resin to protect against vibration.

The plug and socket connection between the electronic control box and the rotary switch is watertight when properly connected and locked.

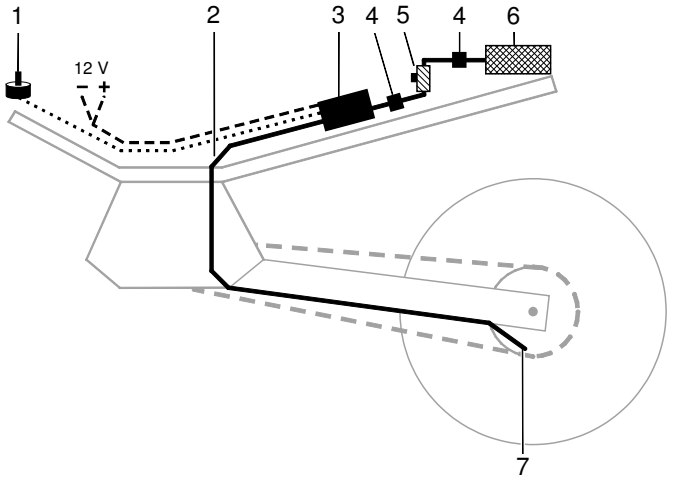


Figure 1 Schematic diagram of Function

1 Rotary switch
2 Lubricant pipe
3 Electronic control box
4 Oil filter
5 Flow adjuster
6 Lubricant tank
7 Tube endpiece

2.2 Operation

The microprocessor controls the flow of lubricant by means of the magnetic valve. The flow rate is dependant upon the position of the rotary switch (1, Figure 1) and the external temperature. When the valve opens lubricant flows through the tube onto the sprocket.

In this switching position the green LED on the electronic control box illuminates. The LED flashes when the system is active.

The lubricant finds its way from the sprocket onto the chain by means of centrifugal force.

This creates a thin film of oil which lubricates and cleans the chain.

The lubricant consumption is about 0.5 litre over 20 000 km (12 500 miles). By comparison, that is about 25 % of typical consumption using chain sprays. The best lubricant for use with the system has proven to be that of the STIHL company.

Use of the lubrication system increases the life of the chain set by a factor of 2 to 4, dependant upon its quality, riding style and setting.

The rotary switch permits adjustment of the rate of lubricant flow while riding. Lubricant consumption is increased at higher riding speeds and in wet weather.

The temperature sensor and microprocessor compensate for changes in the viscosity of the lubricant which result from varying ambient temperatures. At increased temperatures the opening intervals of the magnetic valve are shortened.

The bike battery can cope with the very minimal energy consumption of the chain lubrication system. The electronic controls monitor the battery voltage. On starting the engine the battery voltage varies. The electronic controls react to this voltage variation by switching the system on.

When the engine is switched off, the system automatically switches off and lubrication ceases. Current consumption of the electronic controls is then about 200 µA (less than the self-discharging of the battery).

Use of the chain lubrication system CLS 200µ has proven itself in practice. At the end of the test, our test bike, a 1998 Kawasaki ZX-9R, had travelled over 75 000 km (46 875 miles) with the original chain set. Given the average life of a chain set of about 20 000 km (12 500 miles), the system has already paid for itself at this distance.
And of course, there's no need for manual lubrication.

3 Packaging and Contents

The complete chain lubrication system *CLS 200µ* is packed in a box 25 x 26 x 9 cm.

The weight, including 1 litre of lubricant, is 1.6 kg.

Store in a dry place.

Open the packaging carefully! This will avoid damage to components. Do not open with a knife!

Risk of damage to property and to the environment!
The lubricant bottle can be damaged.
Do not drop the container!
Avoid bumping during transport!

In the box you will find

- not illustrated:
  - 1 litre chain lubricant in plastic bottle
  - 1 PVC tube, 3 mm nominal dia., approx. 1.5 m long including end piece
  - 1 PVC tube 1.0 m long
  - 1 Velcro, approx. 800 mm long
- and the following parts (Figures 2 to 4):

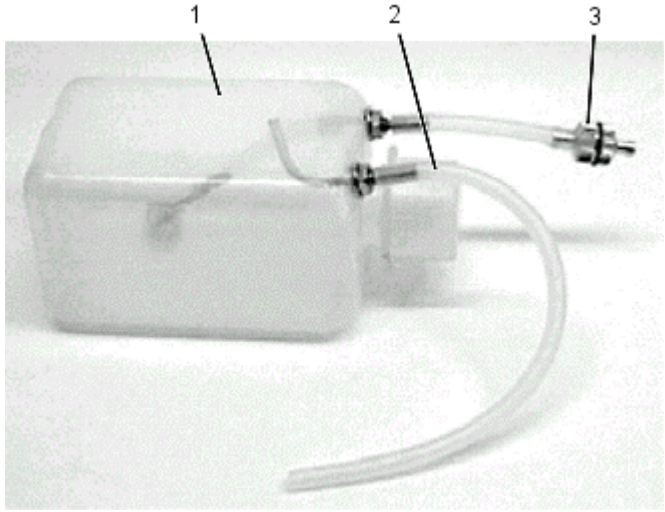


Figure 2 Lubricant tank and connections
1 Lubricant tank
2 Breather tube
3 Oil filter

The lubricant tank is available in three sizes, 150 ml, 250 ml, or 500 ml.

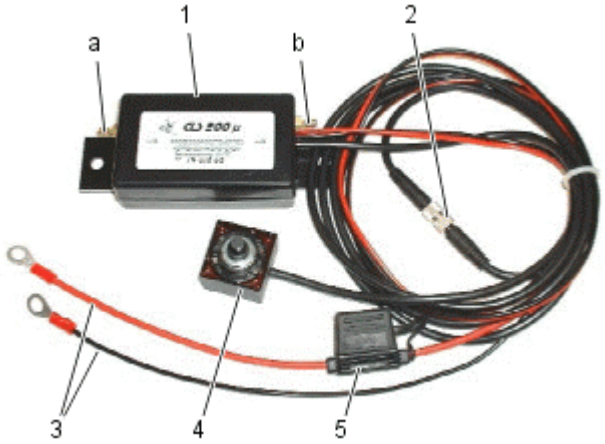


Figure 3 Electronic Control Box and Rotary Switch

1 Electronic control box
- a tube connection - entry
- b tube connection - exit

2 Plug connection for rotary switch
3 12 V connection cable
4 Rotary switch
5 Fuse holder

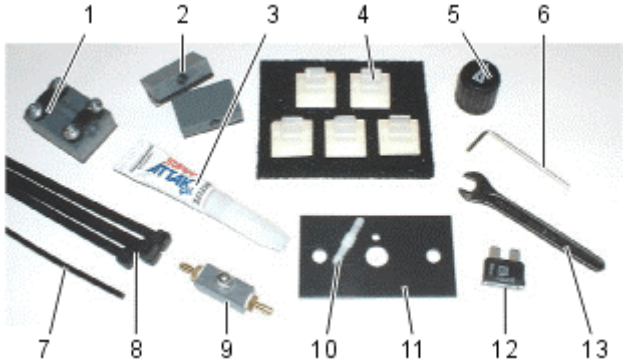


Figure 4 Small components in polythene bag

1 1 mounting block with 2 retaining straps and 4 screws
2 2 routing blocks
3 1 tube instant adhesive Loctite 454
4 5 tube retainers (cable clips)
5 1 knob for rotary switch, lid with arrow
6 1 Allan key 2mm
7 1 tube endpiece, black (spare)
8 6 cable ties, 280 mm
9 1 flow control valve
10 1 tube connector
11 1 plastic mounting plate (rotary switch mount/ drilling template)
12 1 fuse 1A (spare)
13 1 spanner 7 mm

4 Installation

4.1 Preliminary Observations

The Tank doesn't have to be positioned higher than the Electronic Unit.

First of all, identify a location on your motorbike for fixing the lubricant tank and electronic control box.
The best place is generally in the tail area, but not in the vicinity of hot engine parts or in the flow path of the engine cooling air as increased ambient temperatures influence the integrated temperature measurement and thus the release of lubricant.

Prior to installation and commissioning of the system it is recommended that deposits of old chain grease be removed from the chain guard and from around the front sprocket.
These deposits will be released by use of the lubricant and can lead to increased soiling of the tail and rear wheel rim.

4.2 Tools and Accessories

For installation you will need:

- hand drill,
- 10 mm and 3.5 mm drill bits for fixing the rotary switch (if not using the fixing plate),
- 6 mm drill bit for screw fixing the electronic control box,
- cross head screwdriver,
- long nose pliers for tightening the rotary knob,
- ruler or dividers,
- knife or scissors,
- cable ties and isolating tape,
- a clean cloth,
- methylated spirit or alcohol.

4.3 Fitting the Oil Tank and Electronic Control Box

1. Position the previously assembled oil tank such that it will not be damaged by any sharp objects. The lid must be easily accessible for refilling. The best location for the oil tank is generally in the vicinity of the rear light.
2. Secure the oil tank using cable ties, isolating tape and foam packaging. The oil tank must be positioned with the connections at the top to allow for airing. The connection with the rigid internal tube serves as a breather and must not be blocked.
3. Route the breather tube (2, Figure 2) above the oil tank and fix using cable clips. For additional security fix the clips with instant glue.

Health risk from the instant glue!
The glue can stick body parts together in seconds!
Work with care. Keep the instant glue away from children!

Advice for working with instant glue:

- Spread the adhesive thinly and evenly over the area to be fixed.
- Press firmly for a few seconds on the part to be fixed, but without moving it.
- Do not exert force on the glued joint for about 10 minutes.
- To accelerate hardening at low temperatures it is recommended that the affected parts be pre-heated with a hair dryer.

4. Use the tubing to connect the oil filter (3, Figure 2) with the flow control valve and the flow control valve with the entry connection of the electronic control box (2a, Figure 5). Push the tubing firmly home on the connection nipple.
5. Secure the electronic control box, either with two cable ties to a part of the frame or by means of screws (not supplied) through both fixing lugs to a plastic part of the bike. To screw fix, drill two holes of 6 mm diameter, 113 mm apart.

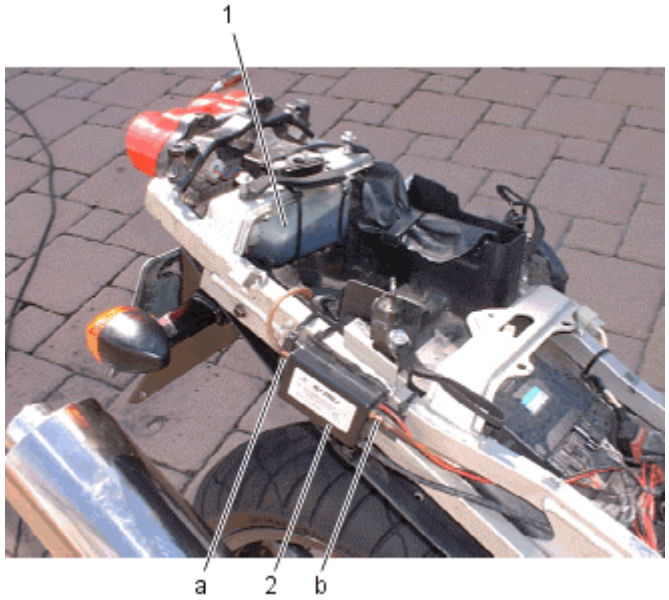


Figure 5 Example of Fixing the Oil Tank and Electronic Control Box
1 Oil tank
2 Electronic control box
a Tube connection - entry with oil filter
b Tube connection - exit

4.4 Fixing the Rotary Switch

The rotary switch allows the optimal lubricant flow to be set and adjusted during the journey.

Risk of Accidents!
When choosing a location for the switch, make sure that it can be readily operated while riding without compromising safety.

1. Identify a suitable location in the cockpit area for the rotary switch.
2. Mount the rotary switch, either using the fixing plate which should be fixed using two screws (not supplied) or without it by drilling two holes (use the fixing plate as a template).

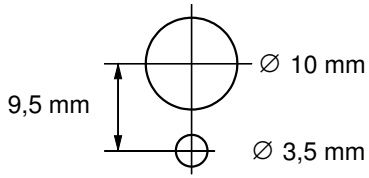


Figure 6 Sketch showing fixing holes

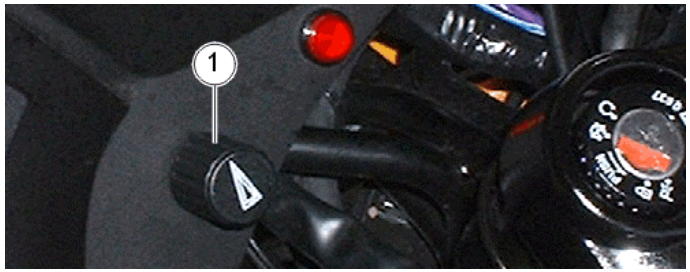


Figure 7 Example of Rotary Switch Location
1 Knob with lid

3. Secure the rotary switch using the nut (14 mm spanner). Make sure that the locating pin engages into the hole.
4. Attach the knob to the pillar of the rotary switch and secure with the nut located within the knob. Fit the lid to the knob.

Risk of Accidents!
Route the cable such that it will not restrict the steering of the motorbike!

5. Install the cable (grey with black plug) from the rotary switch (4, Figure 3) to the electronic control box and secure it with cable ties, cable clips or insulating tape.

6. Connect the cable from the rotary switch with that from the electronic control box. Note the polarity protection on the plug and socket and connect by pushing together until the dark grey enclosure (2, Figure 3) locks.

4.5 Installing the oil line

4.5.1 Fixing the Tube Retainers

To fix the retainers for the tubing from the electronic control box to the tube endpiece, proceed as follows:

Fire risk and health risk from solvents!
Shut off all sources of ignition!
Ensure the work area is well ventilated!

1. Using a clean cloth and methylated spirits, thoroughly clean and remove all traces of grease from the swing arm at the points where the tube mounting block and both routing blocks are to be fixed.
   If the swing arm is anodized, it must first be roughened with emery paper!
2. Fix the mounting block (2, Figure 8) to the underside of the swing arm using instant glue. The mounting block secures the tube endpiece which dispenses the lubricant. Therefore, to ensure the mechanical stability of the tube endpiece, it must be placed as close as possible to the sprocket.
3. Only fix the tube endpiece at the rear wheel sprocket and not at the forward driving sprocket (as that will cause excessive centrifugal throw).

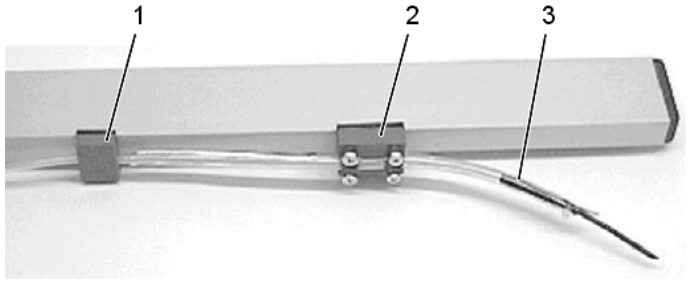


Figure 8 Fixing the Retainer Blocks to the Swing Arm (Example for demonstration)
1 First routing block
2 Mounting block with retainer straps
3 Tube endpiece

4. In the same way fix the two routing blocks to the underside of the swing arm.
   The first routing block (1, Figure 8) should be mounted close to the tube endpiece (8 mm dia.) to retain the 5 mm tube.
   The second routing block (4, Figure 10) should be mounted on the forward part of the swing arm.

4.5.2 Fixing the Tube Endpiece

Risk of Accidents!
The tube endpiece must not come into contact with the sprocket or the chain! Check that the endpiece moves freely; also while pushing the bike backwards!

1. Fix the tube endpiece to the mounting block with the two clamps and four screws. The steel wire in the tube endpiece provides mechanical stability. By bending the steel wire the exact position in relation to the sprocket can be set.
2. **Bend the tube endpiece so that the black coloured end where the lubricant flows out is slightly above the chain at the sprocket (Figure 9).**
3. After tighten the screws of the mounting block (3, Figure 9) please check and ensure that the endpieceme is grinding on the rear sprocket.

   This is very important because of a incorrect fixing of the endpiece will lead to lube the chain insufficiantly and will pollute your bike more than usual.

   If necessary, the black colored end can be shortened for best fitting.

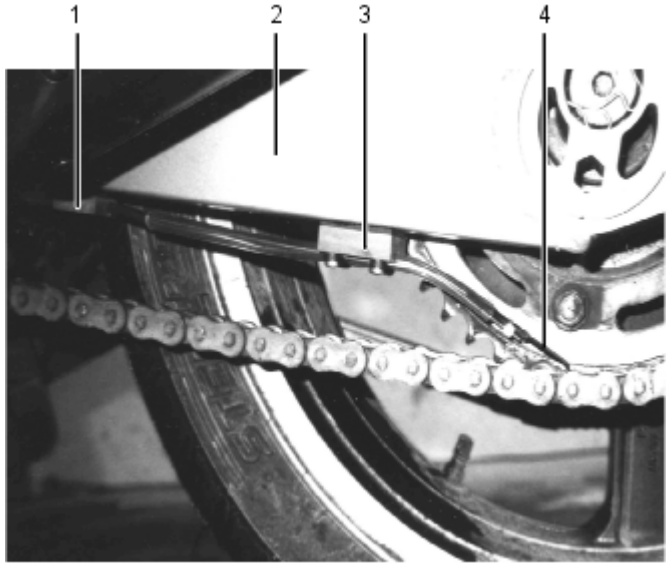


Figure 9 Fixing the Tube Endpiece
1 First routing block
2 Swing arm
3 Mounting block with retaining clamps
4 Tube endpiece

4.5.3 Fitting the Oil Tube

Install the oil tube in the following sequence:

1. Fit the oil tube by running it from the tube end piece towards the electronic control box.
2. Push the tubing through the two routing blocks on the swing arm.
3. Route the oil tube such that it will not obstruct the chain while riding. The oil tube must not be under tension (Figure 10).

Leave the tube about 15 cm longer than required. In the event of possible future damage to the tube by rubbing against the chain, the damaged section can be cut out and the surplus length pulled through.

4. Secure the oil tube using cable clips and/or cable ties. Further secure the clips with instant glue to ensure no movement.
5. In a similar manner, fit the oil tube in the upper area to the electronic control box. Here too, make sure that the tube cannot become squashed or damaged, eg while fitting the seat.
6. Firmly push the upper end of the tube onto the exit connection of the electronic control box (2b, Figure 5).

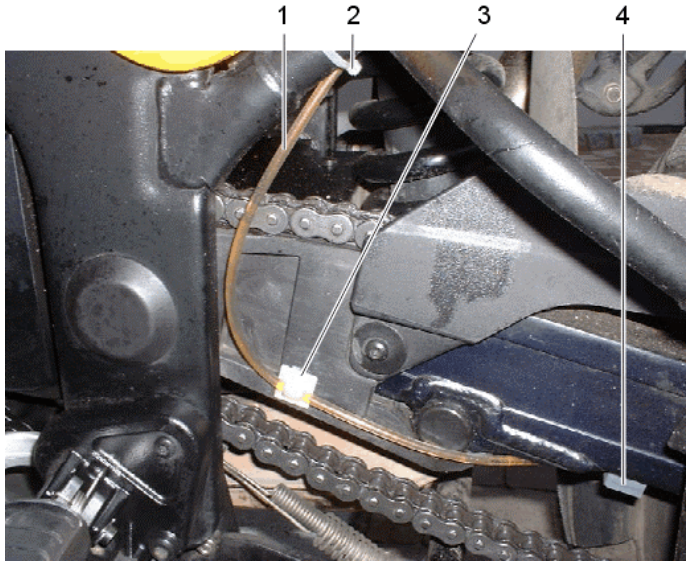


Figure 10 Fitting the Oil Tube (Routing the Oil Tube upwards)
1 Oil tube
2 Cable tie
3 Routing block or cable clip
4 Routing block

4.6 Installing the Flow Adjuster

The flow adjuster is used to pre-set the flow rate of lubricant.

It is inserted in the tube before the electronic control box and in the direction of lubricant flow. The direction of lubricant flow is indicated by an arrow on the front of the electronic control box.

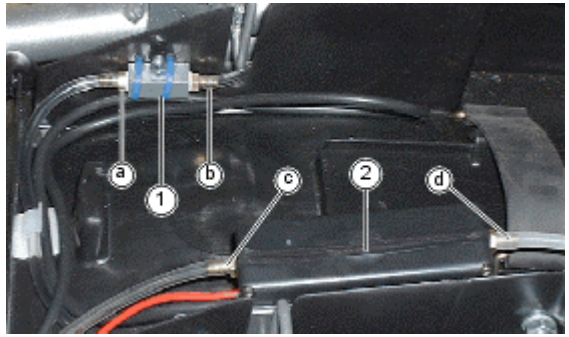


Figure 11 Example of installation of the Flow Adjuster

1 Flow adjuster
- a Connection to the electronic controls
- b Connection from the lubricant tank/filter

2 Electronic Control Box
- c Exit
- d Entry with oil filter (from flow adjuster)

Make sure that the flow adjuster remains accessible for easy adjustment.
Secure the flow adjuster with cable ties or insulating tape.
Push the tube ends firmly onto the connection nipples.

4.7 Connecting the Cable

The electrical supply for the electronic control box is obtained from the 12 V vehicle battery.

Install the red/black cable with the fuse holder (3, Figure 3) to the battery.

Risk of electric shock and damage to property in the event of a short circuit! Follow the correct sequence when working with the battery!

Proceed as follows:

1. Disconnect the earth cable (-) of the battery and bend it to the side.
2. Connect the red wire (+) of the lubrication system to the positive terminal of the battery.
3. Connect the black wire (-) of the lubrication system together with the earth cable to the negative terminal of the battery.

5 Airing the System

To air the system, proceed as follows:

1. Turn the rotary switch to the fully clockwise position (maximum lubrication flow).
2. Fill the lubricant tank about to about 80 % full with chain lubricant. Ensure that the end of the breather connection within the tank is not covered with lubricant. If it is, there is a possibility that a small quantity of lubricant might escape if the tank becomes warm.
3. Start the engine. Within a few seconds the magnetic valve within the electronic control box will switch on. The green LED will illuminate.
4. Before the lubricant will flow by itself from the tank to the chain, the tube firstly needs to be filled. Hold the breather tube closed at the tank and gently squeeze the flexible tank or blow into the breather tube until lubricant flows out of the tank and into the tube.

Environmental hazard from exhaust gases and lubricant!
Don't let the engine run longer than necessary!
Collect any lubricant that flows out and dispose of it properly!

5. Allow the lubricant to flow just long enough to completely fill the tube and all air to be expelled from the system.
6. Switch the engine off. This will cause the flow of lubricant to cease.

6 Setting the System

6.1 Course Setting using the Flow Adjuster

To allow setting of the flow adjuster the rotary switch (Figure 7) must be in the fully open position (turned fully clockwise).

To set the lubricant flow rate, apply the following guidelines (Version V2 on the label):

External Air Temp.	Time per drop		
	„530“ Chain	„525“ Chain	„520“ Chain
10 °C / 50 °F	36 sec.	42 sec.	49 sec.
15 °C / 59 °F	24 sec.	28 sec.	33 sec.
20 °C / 68 °F	17 sec.	20 sec.	23 sec.
25 °C / 77 °F	12 sec.	14 sec.	16 sec.
30 °C / 86 °F	9 sec.	10 sec.	12 sec.

1. Unscrew the nut from the flow adjuster. Don’t loose the washer!
2. Start the engine in order to open the magnetic valve.
3. Using the Allan key, turn the grub screw of the flow adjuster until the lubricant flows out at the rate indicated in the above table. After some turns the correct setting will be reached immediately.
   - screw in = less lubricant
   - screw out = more lubricant
4. Fit the washer to prevent the ingress of air into the system.
5. Refit the nut. Tighten carefully and without force, using the spanner. The grub screw is thus secured against accidental movement.

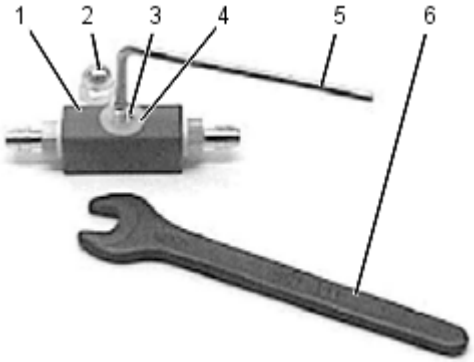


Figure 12 Setting the Flow Rate

1 Flow adjuster
2 Nut
3 Grub screw
4 Washer
5 Allan key 2 mm
6 Spanner 7 mm

6.2 Close Setting with the Rotary Switch

Close setting of the lubricant flow rate using the rotary switch can be carried out while riding.

The lubricant flow can be adjusted through twelve discreet settings of the rotary switch.

- Set fully to left (OFF):
  - the magnetic valve is closed, no lubricant flows.
- Ten intermediate settings for normal operation:
  - 1 = minimal flow rate
  - 10 = maximum flow rate
- Set fully to right (continually ON):
  - the magnetic valve is open, lubricant flows continually, the LED illuminates.

Settings for use while riding

Dry road surface	
Switch position 2	up to 120 km/h (62 mph)
Switch position 3	up to 150 km/h (93 mph)
Switch position 4	up to 200 km/h (125 mph)
Switch position 5	up to 250 km/h (156 mph)
Switch position 6	above 250 km/h (156 mph)

Rain or wet street	
In town	+ 2 switch positions
Country roads	+ 2 - 4 switch positions
Motorways	+ 2 - 5 switch positions

It is not necessary to adjust the settings if the given speeds are exceeded for short periods (up to about 20 minutes).

If, despite adjustment of the close setting, generally too much or too little lubricant flows, it will be necessary to adjust the course setting using the flow adjuster.

7 Using the System

- Check first of all that all components are adequately secured and that no tubes or cables are compressed.
- Set the rotary switch to position 3.
- Ride the bike for a few kilometres, then check that the system is operating (the green LED on the electronic control box illuminates periodically and remains on for a few seconds - dependant on setting).
- The setting for the optimal rotary switch position can only be determined after riding for a number of kilometres.
- When the correct lubrication rate is achieved the chain will have a light sheen and the O-rings (where fitted) will not run dry.
- After riding in the rain it is recommended that a distance of about 20 km be ridden with the rotary switch positioned fully right (continually on). Thus the rain washed chain will be fully relubricated.
- Thereafter the previously indicated basic settings for the rotary switch can be resumed.
- Because the microprocessor automatically compensates for the temperature related flow properties of the lubricant, it is not necessary to make any manual adjustment of the system to compensate for varying external temperatures.
- It is recommended that an increased lubrication rate is selected during long journeys at high speed. This is because the strain on the drive chain is very high and the increased centrifugal forces and slipstream result in only part of the lubricant finding its way onto the chain.
- During the first few kilometres of system use, the fresh lubricant will release any old dirt from the chain. This will result in additional soiling of the rear wheel and chain guard. This phenomenon will disappear with time as a continual flow of fresh lubricant keeps the chain clean.

Environmental hazard from lubricant! Collect any lubricant that flows out and dispose of it properly!

- If the swing arm of the motorbike has to be removed during servicing, cut the lubricant tube at a suitable point and reconnect it on reassembly using the tube connecting piece supplied.
  Thereafter air the system as described in chapter 5.

- When recharging the battery while it is still fitted to the bike, the chain lubrication system must be switched off. If not, the voltage variation across the battery will cause the system to activate. Turn the rotary switch fully anti-clockwise (OFF position) or disconnect the electrical supply to the electronic control box.

Risk of system failure and damage to property!
Do not use BIO-lubricants!

Fluffing caused by bio-lubricants can choke the system. Its contents can attack the O-rings of the chain and lead to premature wear.

The recommended lubricant for use with the system is the part synthetic non-toxic chain lubricant produced by STIHL.

The chain lubrication system is matched to this lubricant.

The lubricant can be obtained from CLS - Chain Lubrication Systems or from specialist retailers.

All individual parts of the chain lubrication system are available as spare or replacement parts from CLS - Chain Lubrication Systems.

8 Care and Maintenance

Fire risk and risk to health!
The recommended cleaning material is flammable and harmful to health.
Follow the manufacturer's safety advice!

Use paraffin (kerosene) to clean the chain lubrication system (lubricant tank, tubing, electronic control box).

Do not use thinners or petrol based cleaning fluids.

Remove splashes of lubricant from the wheel rim, exhaust and fairing using regular bike and moped cleaning oil.

Aluminium wheel rim cleaner has proven to be best for cleaning parts soiled by lubricant. Please read carefully the manufacturer's information. Polished aluminium in particular can suffer attack.
Rinse with plenty of water!

9 Fault Finding

Symptom	Possible Cause	Solution
No lubricant flows when airing	- Grub screw on flow control valve not opened	- Open grub screw
	- Tube compressed	- Locate the compressed tube and remove pressure
	- Crossed connections to the lubricant tank	- Remake the connections correctly
Magnetic valve does not open (green LED does not illuminate)	- Engine is not running (Valve only opens when engine is running)	- Start engine
	- Cables crossed; wrong polarity	- Reconnect cables with correct polarity
	- Fuse blown due to damaged positive lead (red wire)	- Locate damaged cable, repair with insulating tape, insert replacement fuse **Fire Risk!** **Never bridge out or repair fuse!** **Only use a replacement fuse of the same type and rating!**
	- Rotary switch not connected or switched to the OFF position (fully left)	- Connect rotary switch or turn to right
After airing air bubbles continue to gather in the lubricant tube (initially occurring air bubbles should no longer exist after a long journey)	- tube not sealed (eg washer at flow control valve missing, loose securing nut or loose tube connection)	- identify unsealed area, fit seal/washer, tighten securing nut, push tube ends firmly onto the connection nipples
	- Damaged tubing (even tears small enough not to permit lubricant to escape can allow air to enter)	- cut out the damaged section of tube, reconnect using the tube connector supplied; if necessary replace the tube

Symptom	Possible Cause	Solution
System leaks when the engine is switched off	- Damaged tube	- cut out the damaged section of tube, reconnect using the tube connector supplied; if necessary replace the tube
	- Magnetic valve not closing (may be obstructed by a dirt particle)	- disconnect the tubes from the electronic control box, turn the rotary switch fully clockwise (continually ON), rinse system with paraffin using a single use syringe
	- Flow adjuster installed after the electronic control box	- re-install the flow adjuster in the correct position before the electronic control box
No lubricant flow	- Tube endpiece is blocked by dirt	- clean the blocked end piece with a suitable needle - after than check and ensure that the endpiece is in the correct position

Additional Information for CLS SPEED

The chain lubrication system CLS SPEED is additionally supplied with a speed sensor to ensure that the lubricant flow is automatically adjusted to suit the speed of travel.

This sensor is a megnetic field sensor (red) which is fitted to the end of a 1.5m long cable.

The sensor comprises a high performance magnet (10mm diameter, 4mm thick) which is best mounted on the sprocket or the brake disc.

The magnet must pass the front face of the sensor with a spacing of between 5mm and 10mm.

Installation:

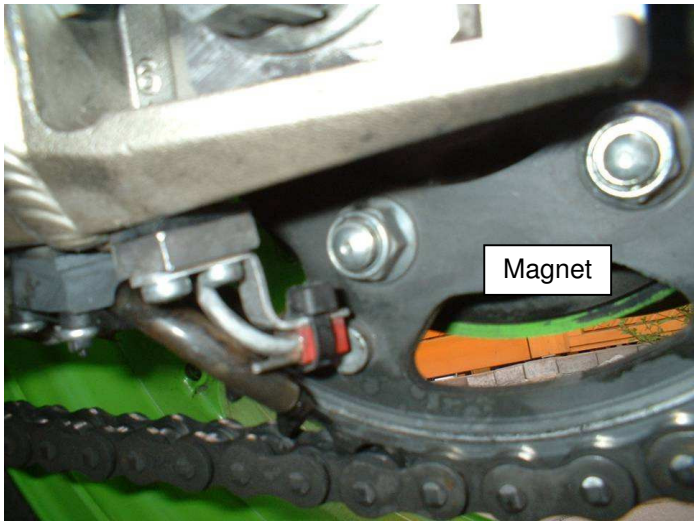
- identify a suitable position for the aluminium fixing block
- thoroughly degrease the mounting position on the swing arm and fix the block with instant adhesive. Allow to harden for 5 minutes.

In the case of an anodised swing arm, thoroughly roughen the fixing position to provide a key.

- fix the magnet to the sprocket or brake disc, **degrease this too beforehand. Use a two part adhesive to fix.**
- Shorten the fixing bracket as necessary (eg using metal cutters) and align so that the sensor passes directly over the magnet. Glue the sensor to the fixing bracket and further secure with a small cable tie if necessary.
- Screw the bracket to the mounting block and align once again.

  Spacing front face of sensor to magnet approx. 5 – 10mm
- Route the cable such that it will not be damaged.
- Set the rotary switch to position 0 (fully left position).

  Start the engine. When the sensor recognises the magnet the green LED on the electronic controls will illuminate.
- Set the rotary switch to position 4.



Setting the System

For CLS Speed the basic setting is somewhat different to that for the CLS 200µ.

Please use this table to set the system.

Ambient temperature	Period between drops		
	530 chain	525 chain	520 chain
10 °C	32 sec.	36 sec.	42 sec.
15 °C	21 sec.	25 sec.	29 sec
20 °C	15 sec.	18 sec.	20 sec.
25 °C	11 sec.	13 sec.	14 sec.
30 °C	8 sec.	9 sec.	11 sec