

CLS • Chain Lube Systems



ANBAUANLEITUNG

EVO
Tour/sport

5 Jahre
Garantie!



INNOVATIVES MOTORRADZUBEHÖR

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Herausgabedatum

August 2012

Firmenanschrift

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Haftungsausschluss

Für Schäden, die auf das Schmiersystem, seine Montage oder Handhabung zurückgeführt werden können, wird keine Haftung übernommen.

Garantie

Die Garantie für das Kettenschmiersystem CLS EVO Tour/CLS EVO Sport beträgt 60 Monate ab Kaufdatum.



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Dear motorbike friends,

You have chosen the motorbike chain lubrication system from CLS. We would like to thank you for placing your trust in our product. Correct installation and use of the system will bring you considerable advantages:

- No more laborious cleaning and greasing the chain and sprockets. While running the bike's chain will be continually supplied with drops of oil. The lubrication can be adjusted to suit your needs.
- The life expectancy of the chain set is increased considerably. Experience to date suggests that no notable wear occurs on the chain and sprockets. This significantly extended life of the chain set means that the system pays for itself after a short time.
- Independent testing and accreditation by TÜV Süddeutschland (the Technical Inspection Authority of Southern Germany) guarantees you a product complying with all relevant safety requirements. The recommended lubricant is environmentally compatible and is only used in very small quantities.
- These installation instructions inform you about:
 - appropriate fitting.
 - safe use.
 - actions in the event of malfunction.

Please note the following important information:

The motorbike chain lubrication system has been granted Type Approval by the German Federal Dept. of Transport:

EWG-BG No. e1*97/24/*97/248/1X*0490*00

Also:

Parts Approval Certificate No. 374-007-01 FBKA and Approval Report No. 374-0013-01-FBKA NG02 of the TÜV AUTOMOTIVE GmbH, business group TÜV Süddeutschland dated 07.11.2001. A copy of this approval and report can be found on our website www.cls200.de

You can undertake installation of the chain lubrication system yourself or you can have it fitted by a garage. The installation can be added to the vehicle documents by your local vehicle registration office.

Recommendation for the entry:

Digit entry 33 M. Chain lubrication system type: CLS EVO

With best wishes for a safe journey,

CLS - Chain Lube Systems
Heiko Höbelt e.K.



1 Safety

Read the installation instructions carefully prior to fitting and commissioning 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 systems CLS EVO Tour and CLS EVO Sport operate with a pump. The lubricant makes its way in minimal doses from the lubricant oil tank (6) via the filter (5), the pump (3), the oil line (2) and the nozzle (7) to the sprocket.

The rotary switch (1), or alternatively the CLS control display (1a), adjusts the lubricant flow.

The electronic control box (3) contains switching technology, a micro-processor, polarity and overvoltage protection and other components. The components within the electronic control box are completely sealed in a plastic resin to protect against vibration and dampness.

The plug and socket connection between the controls and the rotary switch / CLS control display panel is watertight when properly connected and locked.

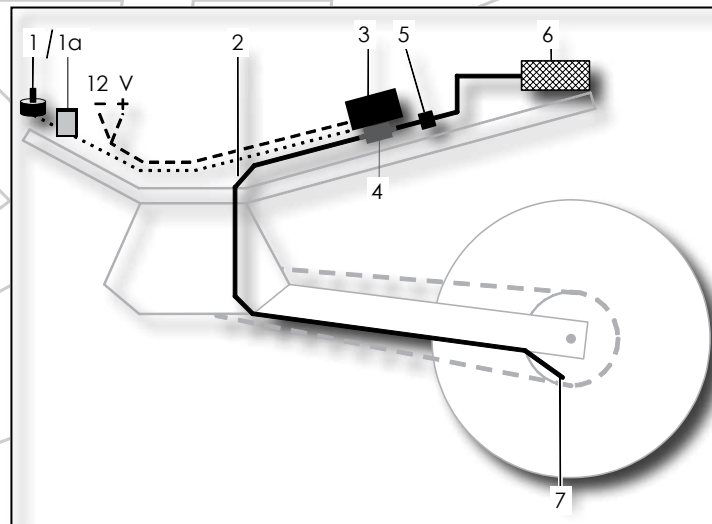


Figure 1 Schematic diagram of Function

- 1 Rotary switch
- 1a CLS Control Display panel
- 2 Oil line
- 3 Electronic control box
- 4 Pump
- 5 Oil filter
- 6 Lubricant oil tank
- 7 Nozzle

2.2 Operation

The lubricant is drawn from the oil tank via a filter and a pump to the nozzle at the sprocket. A microprocessor controls the pump and, in turn, the flow of lubricant. The external temperature (viscosity of the lubricant) is irrelevant.

With each stroke of the pump a drop of oil is pushed towards the face of the sprocket via the tubing system and the nozzle. It is important that the angled face of the nozzle lies flat on the sprocket. Whilst travelling, the lubricant disperses evenly to the edge of the sprocket by means of centrifugal force.

The oil gets into the slit between the chain inner plate and the chain roller. By capillary effect the oil then gets drawn between the chain roller and pin to the other side and so lubricates the whole surface between the roller and bushing with a thin film of oil.

The surfaces of the chain roller and bushing are the most important surfaces for lubrication on a sealed ring chain. The surfaces between the chain rollers and the sprockets are of secondary importance, but these are lubricated too. The space between the chain bushing and pin is lubricated by the integral grease filling and held in place by the sealing ring. When correctly adjusted an anthracite coloured film of oil will be visible on the chain roller, which will leave a slightly damp oil film on the finger if touched.

The thin film of oil ensures that the chain remains clean as almost no dirt sticks to it. This reduces wear and so extends the life of the chain.

The chain oiler CLS EVO Tour/Sport increases the operational performance of your chain by a factor of 2 to 4, regardless of chain quality, alignment or tension, riding style or adherence to system operation recommendations (eg increased lubrication rate during/after riding in wet weather, off road tours...).

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 330µA (less than the self-discharge rate of the battery).

Use of the CLS chain lubrication system has proven itself in practice. When installed and used correctly it proves to be extremely economic and clean. The operational life of the chain is extended significantly. Our first test motorbikes, a ZX-9R and a ZZR 1100, ran more than 75,000km (46 875 miles) and 86,000km (53,750 miles) respectively with their first chains.

As a result of the increased chain performance the chain oiler pays for itself after about 20,000km (12,500 miles) and, of course, there's no need for manual lubrication.

At the end of the test period, 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. To clean the chain, simply wipe the surface with a dry or lightly oily cloth.



3 Packaging and Contents

The chain lubrication systems CLS EVO Tour and CLS EVO Sport come packed in a box measuring 25 x 26 x 9 cm. The weight, including 1 litre of lubricant oil, is 1.7 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!

Figure 2

100ml lubricant tank

- 1 Pendulum lubricant oil line
- 2 Breather tube





Figure 3 Lieferumfang

In the box you will find:

- 1 Electronic control box
- 1 Dosing pump
- 1 Lubricant oil tank 100ml
- 0,5 Litre chain lubricant oil

Rotary switch control version:

- 1 Rotary switch
- 1 Knob for the rotary switch with cap
- 1 plastic mounting plate (rotary switch mount/drilling template)

CLS Control display panel version:

- 1 CLS Control display panel
- 1 mounting plate for the CLS Control display panel

In all versions:

- 5 rubber routing blocks
- 1 tube instant adhesive
- 4 cable clips (only suitable for use in the vehicle interior !!!)
- 1 fuse 4A
- 2 tube connectors
- 6 cable ties
- 1 magnet and a sensor mounting set (CLS EVO Sport only)
- 1 PE tube nominal size 3mm, approx. 1.5m with tube endpiece
- 1 PE tube approx. 1m
- 1 hook & loop tape approx. 800mm long
- 1 nozzle mounting bracket with 2 fixing clamps and 4 screws

4 Installation

4.1 Preliminary Observations

Before commencing, please read the installation instructions in full and then proceed step by step!
The tank does not have to be positioned higher than the electronic control unit. However the end of the airing tube must remain higher than the oil level, even when the bike is leaning into a curve.
First of all, identify a location on your motorbike for fixing the lubricant oil tank, controls and pump. The best place is generally in the tail area or beneath the rear side panel.
The CLS website contains a comprehensive picture gallery showing installations for many current models.



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 as 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, (for installation of rotary switch in part of the fairing)
- 10 mm and 3.5 mm drill bits
- cross head screwdriver,
- 9 mm socket wrench
- ruler or dividers,
- knife or scissors,
- cable ties and isolating tape,
- a clean cloth,
- brake cleaner,

- Dremel or medium emery paper (to roughen the adhesion area of an anodised swing arm)
- side cutters

4.3 Fitting the Oil Tank and Electronic Controls

1. Position the previously assembled oil tank such that it will not be squeezed or damaged by any sharp objects. The connections to the tank (at least the airing tube) must be positioned at the top. We recommend using the CLS aluminium tank bracket (not included).
2. Secure the oil tank using the hook & loop strap supplied. The oil tank must be able to be positioned with the lid at the top for refilling. Take particular note of this when determining the length of the oil line from the tank to the pump.



Figure 4 Oil tank retained by velcro strap



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!

The connection with the silicone tube serves as a breather and must not be blocked.

3. Mount the end of the breather tube above the oil level using a cable clip and a tube connector. The end of the tube must remain above the oil level when the bike is tilted / leaning into a curve. This step can be carried out after installation is complete and the system vented.



Figure 5 Oil tank in CLS aluminium tank bracket (not included)



Figure 6 Airing tube fixed above the oil level with a cable clip and tube connector.

4. . Install the pump using the enclosed holders, by spuer-gluing the holders (clean spots before for reliable adhesion) the or attaching them with cable ties. Connect the hose, coming from the oil tank, to the entry side of the pump. Cut the hose to a proper length. Make sure everything stays clean when installing the oil pipeline.

Do not immediately attach the hose, coming from the sprocket, to the oil pump.

It is highly recommendet to vent the pump in two steps: first, to the exit of the pump, then the rest of the hose. Further instructions can be found on page 29, under „5. Venting the system“.



Figure 7 Pump rubber retainer glued to the bike frame. Controls connected to the pump.

5. The control box can be mounted in any suitable position on the bike. The pump is connected to the control box by a cable connected by means of two spade connectors. Polarity is not important when connecting the pump.



Figure 8 Control box mounted on the vehicle

4.4 Connecting the Power Supply

The electrical supply for the electronic control box must be obtained exclusively from the 12 V vehicle battery, not from the cable harness (except certain KTM models which have a suitable accessory connection in the lighting unit). The system requires the variable battery voltage present when the engine is running to switch itself on and the constant voltage when the engine stops to switch off again.

Note! There are a number of vehicles which also require the supplementary black/red cable to be connected to a switched positive+ (rear light).

These include certain Honda models, VFR 800 from 2002, Veradera from 2002, VTR etc., certain KTM models of the old LC 4 Series, 990 SM models from 2012, and certain Kawasaki models such as Z 750, ER-6 and the 650 Versys models. This is not an exclusive list.

The reason for this is the type of alternator controller used in these motor-bikes. These controllers supply (variable) charging voltage to the battery only when the battery voltage falls below a certain value. During the period when the battery is not being charged, the system would not be active. Connecting the supplementary cable ensures that the system switches on with the ignition.

Check that the electronic control box automatically switches on when the engine is running, that it remains on and switches off with the engine. The blue LED on the control box should illuminate within a few seconds of the engine starting and flash or remain illuminated when the pump is pumping oil. Should the LED go out after a few seconds this indicates that the supplementary cable must be connected.

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.
4. If required, connect the supplementary cable to a switched positive (+) terminal of the rear light.

4.5 Fixing the Rotary Switch / Display Panel

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 / display, make sure that it can be readily operated while riding without compromising safety.

4.5.1 Installing the Rotary Switch

1. Identify a suitable location in the cockpit area or on the side of the bike for the rotary switch.
2. Either use the plastic plate supplied as a template to mount the rotary switch in the fairing, or as a fixing plate or pattern to mount the rotary switch on the side of the bike.



Figure 9 Bore holes using the template supplied.



Figure 10 10mm hole for the rotary switch and 3.5mm hole for the locating pin on the cockpit fairing



Figure 11 Installed rotary switch with knob and cap



Figure 12 Rotary Switch mounted on the side of the motorbike

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 9 mm nut located within the knob. Press the lid with line marking into the knob.
5. Install the cable from the rotary switch to the electronic control box and secure it to existing wiring or to the frame with cable ties.
6. Connect the cable from the rotary switch with that from the electronic control box. Push the cables together and secure the connection with the coupling nut.

4.5.2 Installing the CLS Control Display Panel

The CLS Control Display panel is intended for motorbikes with tubular handlebars.

1. Fit the display panel bracket to the handlebars by holding the bracket still with pliers and pressing the fixing strap with your fingers onto the handlebars. You should be able to pull the strap another one or two notches tighter so that the bracket can no longer move.



Figure 13 Fitting the display bracket to the handlebar



Figure 14 Trimmed mounting strap



Figure 15 Fitted CLS Key Control Display

2. Carefully cut off the excess strap without opening the interlock edge on the hidden side. Allow 2-3 mm of the strap to protrude beyond the interlock edge. This keeps the edge covered so that it is not inadvertently opened. Should this happen, you will need a new strap.
3. Install the cable from the display panel to the electronic control box and secure it to existing wiring or to the frame with cable ties.
4. Connect the cable from the display panel with that from the electronic control box. Push the cables together and secure the connection with the coupling nut.



Important general note!!! Under no circumstances should a pressure washer be used on the rotary switch or the display panel. The high pressure will force water into the housings leading to failure. This is not covered by warranty!

4.6 Installing the oil line

4.6.1 Preparing for Installation

Important note!!! Before commencing, please read the installation instructions in full, decide how best to route the oil line, then fit it step by step!



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!

Tips for working with instant adhesive:

Spread the adhesive thinly and evenly across the surface to be joined. Without delay, firmly press the item to be fixed and hold for several seconds until it is secure.

Do not apply any pressure to the glued part for at least 10 minutes. Anodized areas (swing arm) must be partially roughened approx 1 cm² to the bare aluminium using rough emery paper or a Dremel with grinding attachment.

To attach the fixings and route the oil line from the sprocket to the pump proceed as follows:



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

Using a clean cloth and brake cleaning fluid, thoroughly clean and remove all traces of grease from the swing arm at the points where the tube mounting blocks are to be fixed.

If the swing arm is anodized, it must first be roughened with emery paper over an area of 1 cm².

Ascertain whether your motorbike swing arm is anodized.

4.6.2 Installing the oil line on the swing arm

Installing the oil line is the most demanding part of the whole installation. When this is done well, the chain oiler is near invisible.

Depending on the swing arm there are various ways to conceal the oil line and the speed sensor (CLS EVO Sport).

The following paragraph shows various installation methods for various swing arms.

The angled face of the nozzle must always lie flat against the rear sprocket. The centrifugal force at the drive sprocket (front) is about 3.5 times higher, so please only install the nozzle at the rear sprocket. There the lubricant is drawn away as a thread and forced into the chain by means of centrifugal force. However any pressure exerted on the sprocket by the nozzle must only be minimal.

The nozzle must not deform or distort as it could then catch in the chain or sprocket when pushing the bike backwards.

The ideal position for the nozzle is just forward of the point where the chain meets the sprocket. The chain must not be able to come into contact with the nozzle. Take care that neither the sprocket mounting nor any screws can come into contact with the oil line when the wheel is rotating (particularly on Triumph models with a single-sided swing arm).

Installation of the oil line is always carried out from the bottom to the top.

Lay the oil line in the mounting block. Rotate the oil line in the mounting block such that the steel wire lies against the edge of the block, depending on which direction the wire is to be bent. This will keep the wire stable and prevent it from turning any further.

Lightly tighten up the clamp such that the tube can still be moved.



When mounting the nozzle on the outer side of the sprocket allow the tube with nozzle to overlap by a distance of about 4-5 fingers width.

Installation on double-sided swing arms

The long piece of wire pointing to the pump can be shortened. To do this cut open the outer sleeve along the steel wire to the desired length and shorten the wire and the outer sleeve as appropriate.



Figure 16 Nozzle on sprocket



Figure 17 Oil line in mounting block

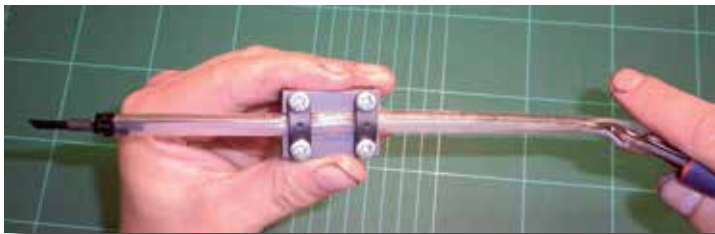


Figure 18 Cut the outer sleeve parallel to the steel wire



Figure 19 Cut open to the desired length



Figure 20 Cut off the outer sleeve all the way around



Figure 21 Shorten the steel wire with wire cutters

If installing the nozzle to the inner face of the sprocket, allow about 3 – 4 cm of the strengthened tubing to extend on the side towards the pump. This relatively long piece of the oil line will be needed for bending around the sprocket.



Figure 22 Installation on a single-sided swing arm or on the inside face of the swing arm



Figure 23 Mounting block fitted to a single-sided swing arm



Figure 24 Mounting block fitted to a double-sided swing arm



Figure 25 Mounting block fitted to the inner face of the swing arm

Thread the rubber routing blocks supplied onto the oil tube and push them towards the mounting block until they are approx. 8 – 10 cm apart.



Figure 26 Blocks threaded onto oil line

Hold the mounting block with the clamped in oil tube against the swing arm and bend the oil tube roughly into position. The exact alignment of the oil tube will be carried out after the system is vented. Glue the mounting block with the pre-installed oil line onto the swing arm.

Position the oil line on/under the swing arm roughly as it will later be installed and route the tube below and around the swing arm pivot point then upwards.

This should simplify the installation.

The rubber routing blocks will be glued to the swing arm.

Please pay particular attention to ensure that the surfaces are completely clean and, if anodized, that the anodizing is removed at the appropriate areas.



Figure 27 Routing the oil line on the inner face of the swing arm

Push the first of the rubber blocks threaded onto the oil line into position, glue it to the swing arm, push the next rubber block into position, and so on...



Figure 28 Routing the oil line beneath the swing arm and around the pivot point

4.7 Installation on a double-sided swing arm

When removing the rear wheel from a double-sided swing arm the oil line will need to be released from the clamp as otherwise there is a risk that when refitting the wheel the oil line will be bent leading to loss of the nozzle. Do not be tempted to bend the oil line to the side as in time this will cause the steel wire to lose its tension. Regardless of fixing arrangement care must be taken to ensure that the clamp and screws are accessible to allow the oil line to be removed for tyre changes.

Fixing arrangement 1:

Mounting block on the underside of the swing arm, nozzle on the outer face of the sprocket.

The nozzle must always sit with the cut edge flatly on the face of the sprocket; here on the external face of the sprocket. The ideal position for the nozzle is just forward of the point where the chain meets the sprocket. The nozzle is only visible when kneeling next to the motorbike and looking at the swing arm directly from the side.

Fixing arrangement:

Mounting block on the inner face of the swing arm, nozzle on the outer face of the sprocket.

For this arrangement there must be adequate space between the swing arm and the sprocket for installation of the oil line/nozzle.

On the Husqvarna Nuda 900, for example, the mounting block is affixed to the inner face of the swing arm and the nozzle laid against the outer face of the sprocket.

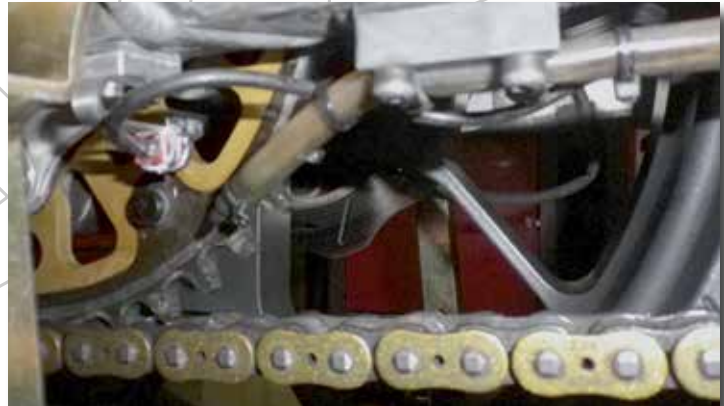


Figure 29 Mounting under the swing arm. Nozzle to the outer face of the sprocket.



Figure 30 View of the mounting block on the inner face

Fixing arrangement 3:

Mounting block on the inner face of the swing arm, nozzle on the inner face of the sprocket.

The Aprilia Shiver has a triangular swing arm; it is not practicable to fix the mounting block to the underside. The mounting block is fixed to the inner face of the swing arm. The oil line is bent around the sprocket and the nozzle run to the inner face of the sprocket.



Figure 31 Oil line lead in a curve around the sprocket. Nozzle mounted to the back of the wheel.

Also on Enduro motorbikes such as this Triumph Tiger 800 the nozzle is positioned on the inner face of the sprocket. This helps protect the nozzle during off-road riding. Moreover the mounting block cannot be fixed to the underside of the swing arm due to the presence of the chain guard.



Figure 32 Oil line lead in a curve around the sprocket. Nozzle mounted to the back of the wheel.

4.8 Installation on a single-sided swing arm

At first glance it appears to be much more difficult to mount the nozzle at the sprocket on a single-sided swing arm. In practice, installation can be carried out very elegantly. On a single-sided swing arm the nozzle is generally mounted to the rear face of the sprocket.



Figure 33 Oil line on a Honda VFR 800. In the background, the speed sensor of the CLS EVO Sport.



Figure 34 Oil line on a Triumph Sprint GT.

4.9 Routing the oil line on the swing arm

When routing the oil line up to the control box take care that the tube cannot come into contact with the chain or the tyre and, where possible, that it remains concealed. This is best achieved by routing the oil line wherever possible on the inner face and underside of the swing arm, beneath and around the swing arm pivot, then upwards. The airing tubes from the engine housing can usually be found between the engine and the swing arm. Route the oil line upwards behind these tubes so it is concealed by the bike's frame, cables and wiring to terminate at the lubrication system pump. Leave a short loop of tubing (5 – 8 cm) lying in the bike to allow for suspension movement, so that the tube will not be stretched or pulled out.

Ensure that the oil line cannot come into contact with the chain or the tyre, or that it can get squeezed during compression or extension of the suspension.

Where possible the oil line should be routed along the inner side of the swing arm. Ensure there is a sufficient gap between the oil line and the tyre.

The oil line is fixed to the underside of the swing arm and goes beneath and around the swing arm pivot, then runs upwards concealed among the engine airing tubes which are usually located between the swing arm and the engine.



Figure 36 Oil line routed beneath the swing arm and around the pivot.



Figure 35 Oil line routed along the inner side of the swing arm.

Should it not be possible to conceal the oil line it can be covered with shrink sleeving to camouflage it, as in this Ducati Monster 796.



Figure 37 Oil tube on the frame of the Ducati Monster 796 covered in shrink sleeving between the mounting blocks.

On the Husqvarna Nuda 900 the oil line is also visible and camouflaged by shrink sleeving. This makes the oil line and the original piping indistinguishable.



Figure 38 Visible oil line at the swing arm pivot point on the Husqvarna Nuda 900 covered with shrink sleeving.

4.10 Installing the sensor bracket for the CLS EVO Sport

Route the speed sensor cable down parallel to the oil line, initially without fixing them together. This will be only done after the sensor is aligned with the bracket when the cable will then be run upwards and fixed to the oil line. Take care that the cable cannot come into contact with the chain, the rear wheel or the exhaust.



Figure 39 Installed sensor aligned on the sprocket

Identify a location on the sprocket for the magnet. Take care that when rotating the magnet has enough room and will not get caught on the swing arm or any other part. Align the sensor with the bracket such that the front edge of the sensor head is directly opposite the magnet. The separation between the magnet and sensor can be up to 3.5 cm.



Figure 40 Magnet glued to the sprocket

Using side cutters, cut off the excess retaining strap and file smooth the sharp edges and corners. Roughen the contact area of the sensor on the bracket.

Glue the sensor to the retaining strap with the front edge aligned with the magnet. Further secure the sensor to the strap with cable ties.

The operation of the sensor can be checked once the complete system is installed. To do this switch the rotary switch / display to the furthest left position / 0, start the system / the engine and turn the magnet towards the sensor. When the magnet and sensor are opposite each other the blue LED on the electronic control box will illuminate. Subsequently select the appropriate rotary switch setting / lubrication setting (see chapter 6.1.1 on page 30).



Figure 41 Retaining strap screwed to the bracket



Figure 43 Retaining strap angled as required to suit the spacing from the magnet.



Figure 42 Retaining strap angled through 90°



Figure 44 Retaining strap shortened.

5. Entlüften des Systems



After installing the system, without having the hose connected to the exit of the pump, the system is vented. This is best done in two steps: first, to the exit of the pump,



Bild 45 Venting the pump, using the syringe

then the rest of the pipeline. The reason behind this, is the oil throwing bubbles when flowing through the pump. If you immediately inject the oil into the oil pipeline, it will throw bubbles because of the vacuum. Fill up the oil tank up to about 90%. Put the syringe in the exit of the pump. Now pull the oil until it reaches the syringe to vent the pump. This way, you won't have any problems venting the rest of the pipeline later on.



Bild 46 Syringe with silicon hose is being put on the nozzle and the oil pipeline is vented

Installation manual for the CLS EVO Tour/Sport

When venting the system, pull about 15ml of oil into the syringe; during the process, press the syringe about 5 times against the direction of the flow and then continue to pull the oil back in. By doing so, bubbles that are eventually stuck inside the pump are being released. If no more bubbles are coming out of the pump (not even small ones), detach the syringe.

Now, loosen the holder of the oil pipeline at the sprocket and take the pipeline to your side. Place the syringe with the silicone hose on the nozzle and pull the syringe completely. The oil is now being sucked through the pipeline and thus the system is vented. As soon as all air is removed from the system and the pipeline is fully filled with oil, up to the nozzle, carefully remove the syringe from the nozzle. Make sure not to accidentally pull the nozzle out of the pipeline.

Put the oil pipeline back into its position at the sprocket and make sure the nozzle is touching the sprocket tension free. The nozzle must NOT be moving, touching the chain or come in contact with screws or sprocket holders, when reversing the motorcycle! This is very important!



6. Using the System

The chain oiler is operated using the rotary switch or the CLS control display panel. Both operating devices do the same job. The only difference is that the panel displays the selected setting and alerts you after 5 minutes by flashing when the system has been switched off, setting 0, or set to increased lubrication, settings H₊, H_± oder H₋.

6.1 The Rotary Switch

The rotary switch has 11 discreet settings. Anti-clockwise, in the extreme left position, the system is switched off. In service, eg when parking, it is not necessary to manually switch off; the system does this by itself. Turning the switch to the right increases the lubrication appropriately. The recommended setting depends on the chain width; the width of your chain can be found from the bike user instructions or from your motor-bike dealer.

6.1.1 Schalterstellungen des Drehschalters und des Tastendisplays

The basic setting for your system is determined by the size of your bike's chain. Set the rotary switch or CLS display panel according to the adjacent table.

For off-road use or use in wet weather set the system to rotary switch positions 9 to 11. That equates to CLS display panel settings H₊, H_± and H₋. At these settings the system supplies a drop of oil every 90 seconds, 55 seconds and 30 seconds respectively. Ensure that you return the system to its normal setting 5 minutes after riding in the rain or off-road.

Switch and display panel settings

Position 1	
Position 2	520er pitch chain
Position 3	
Position 4	525er pitch chain
Position 5	
Position 6	530er pitch chain
Position 7	
Position 8	
Position 9 or H ₊	1 drop oil / 90 sec. Off-road or damp surface
Position 10 or H _±	1 drop oil / 55 sec. Off-road, damp surface or light rain
Position 11 or H ₋	1 drop oil / 30 sec. Heavy rain

6.2 CLS Control Display

User Instructions for the CLS Control Display Panel

The display panel comprises two, seven segment digit readouts for the selected setting, a key each for switching up and down and two LED lights positioned right and left of the digital readouts. The left symbol is a chain link; the right symbol is a heated handgrip.



Figure 47 Display in Chain Oiler mode (left green LED is illuminated) on setting 2.

Using the CLS Control for two CLS Systems (CLS Heat and CLS Chain Oiler)

Choice of connected system (Dual display for both systems)

Next to the readout for the selected setting, and beneath the LEDs, on either side, there are symbols for a chain link on the left and a heated handgrip on the right.

Depending upon which system you wish to control with the display panel, set the panel as follows.

Setting Chain Oiler:

Press the left key with the symbol for the chain oiler. The green LED will illuminate and the system displays the current setting on the readout. You can now adjust the setting up or down by pressing the arrow keys as appropriate. The system saves the setting and displays this by a brief flash of the readout. The readout clears after 6 seconds. Should you wish to adjust the heated grips system press the right key and proceed exactly as described before.

Using the CLS Control for one CLS System (CLS Heat heated handgrips system or CLS Chain Oiler)

If you have a CLS Display for only one system and with only one cable connection, the second system is automatically disabled. You can activate the display panel by pressing either of the keys. For dual display there is a red tape attached to the cable to the heated grips system to avoid confusion during installation. The display panel retains the last settings, even when the engine is turned off or the battery disconnected.

7. Setting the System

Set the rotary switch or CLS Control Display according to the size of your chain. The chain dimensions can normally be found on the side of the chain links (the description 50 means a 530 pitch chain).

This setting is intended for riding on main and country roads in dry weather. Should the weather deteriorate or the ground surface change, adjust the system to suit using the rotary switch or CLS control display panel.

High Speed:

+1 at speeds above 160 km/h (100 mph) (CLS EVO Tour only)

Rain:

Persistent rain setting 11 /H Ξ

Wet surface and light rain setting 10 /H Ξ

Damp surface setting 9/H Ξ

If using the CLS Control Display, the display panel will flash every 5 minutes to remind you that the system is supplying increased lubrication at setting H Ξ , H Ξ or H Ξ .



Despite increased lubrication the chain can become washed out after very heavy rain. Therefore after travelling in rain it is necessary to keep the system set to H Ξ for a further 5 minutes, even if the road surface is drying out. The system will remind you to reduce lubrication by flashing after 5 minutes.

Off-road:

The CLS EVO Tour and Sport have two settings for use off-road. The setting 10/H Ξ for heavily soiled terrain such as mud, deep water and sand.

The setting 9/H Ξ for dusty or loose surfaces.

8. Care and Maintenance

The CLS EVO is maintenance free. Check the oil level from time to time. One fill should suffice for 10,000 – 12,000 km (6,250 – 7,500 miles), depending on the chosen system (EVO Tour / EVO Sport), the chain dimensions and the frequency of wet weather or off-road use.

9. Fault Finding

Symptom	Possible Cause	Solution
Oil does not flow	<ul style="list-style-type: none"> - Tank empty - Nozzle not on the sprocket - Controls not properly connected to the battery - Rotary switch / display panel not connected to the control box 	Refill the oil tank and vent the line Align the nozzle at the sprocket Connect the control box to the battery Connect the display panel to the control box
Blue LED on the control box does not illuminate	<ul style="list-style-type: none"> - Engine is off - Wrong polarity - Fuse blown due to damaged positive (+) cable - One or both cables not reconnected to the battery - Supplementary cable required 	<ul style="list-style-type: none"> - Start engine - Reconnect the cables with correct polarity - Repair damaged part and replace the fuse - Connect supplementary cable
Oil continues to drip after engine is switched off	<ul style="list-style-type: none"> - Damaged tube - Supplementary cable connected to a permanent positive (+) terminal - Battery charger connected 	<ul style="list-style-type: none"> - Repair tube - Connect supplementary cable to a switched positive (+) terminal - Withdraw fuse while recharging battery
Missing nozzle	<p>- Oil line not removed from the clamp when removing the wheel. The nozzle cannot be simply pushed to the side as the steel wire will lose its stability.</p> <p>A depressed nozzle will slip down into the chain when the bike is pushed backwards and will be pulled out or part of the oil line broken off.</p>	Replace the nozzle properly (with shrink sleeve over the nozzle and tube) and always undo the clamp before removing the wheel.

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