



Slamtail™
SUSPENSION

OPERATING INSTRUCTIONS FOR:

REV. 12-04-15

☐ SLAMTAIL SUSPENSION KIT

P/No. ST3-001A-01

☐ SLAMTAIL SPRING PRE-LOAD ADJUSTER KIT

P/No. ST3-008A-01 (OPTION)





OPERATING INSTRUCTIONS INDEX

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1.0 SPRING PRE-LOAD ADJUSTER SYSTEM

1.1 How it works:

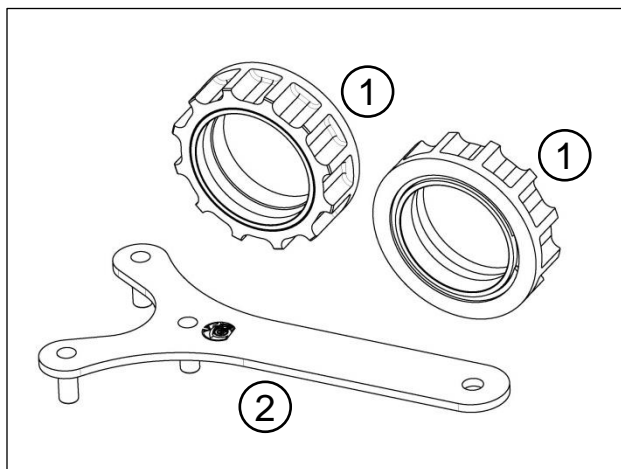
The Slamtail Spring Pre-Load Adjuster Kit is an option kit available from the manufacturer.

All Softail® motorcycles have an integrated spring pre-load adjuster system integrated into the OEM spring and shock units.

Not all Softail® owners use or are aware of this feature. Adjusting the spring pre-load increases the initial spring rate of the rear suspension and is a very effective way of increasing the load carrying and handling capability of the motorcycle.

The Slamtail pre-load adjuster system design and adjustment process is very different to the OEM system, but the resultant effect on the increase in spring rate has the same effect.

1.2 Adjuster kit components:



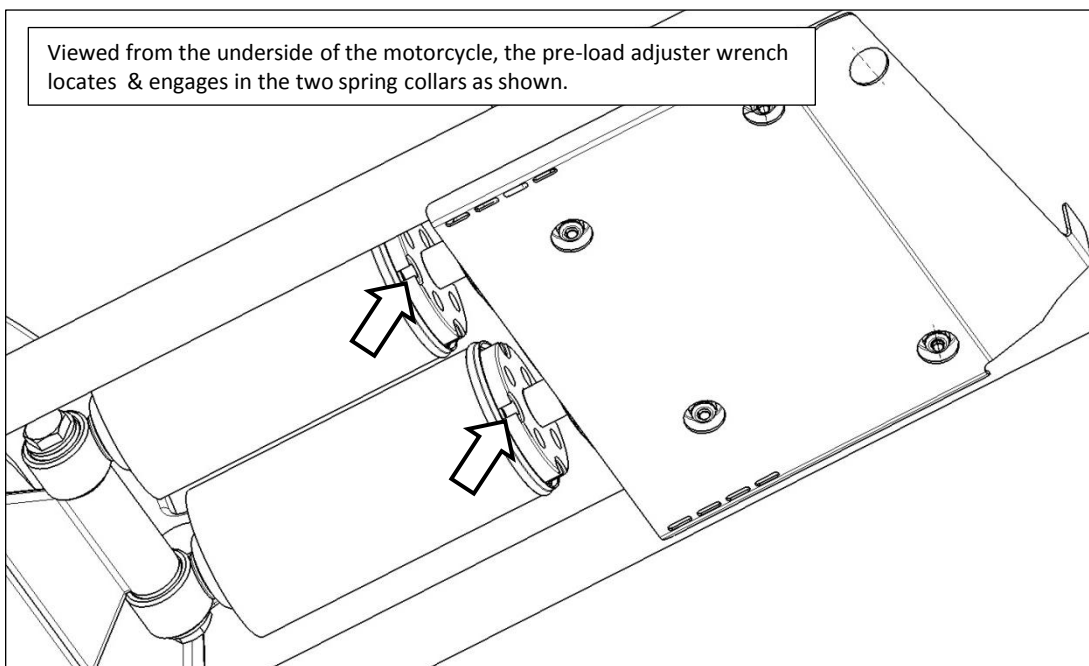
1. Spring Pre-load adjuster collar and seat assemblies.

Note: These parts should be fitted during the installation process otherwise the entire Slamtail installation will need to be removed from the bike, and the spring/shock assemblies disassembled in order to fit these seat/collar assemblies under the spring.

2. Pre-Load Adjuster wrench.

1.3 Accessing the pre-load adjuster:

Viewed from the underside of the motorcycle, the pre-load adjuster wrench locates & engages in the two spring collars as shown.

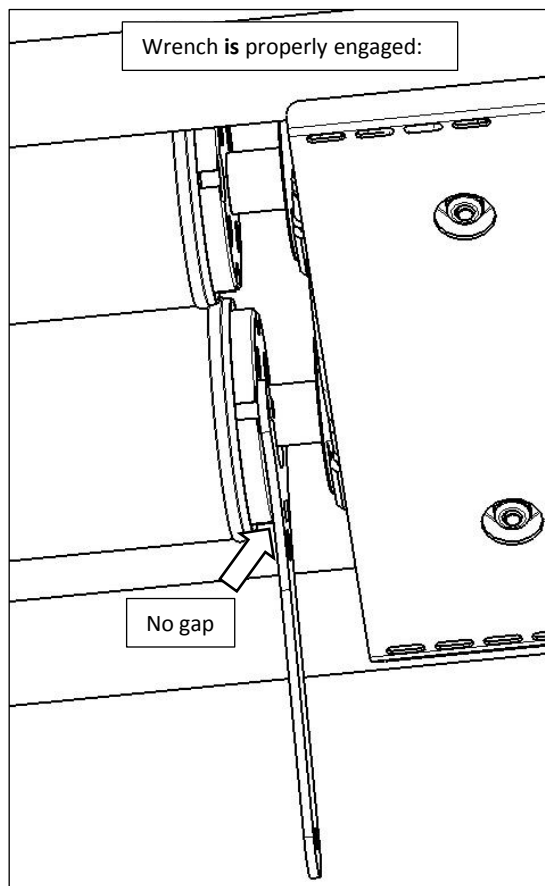
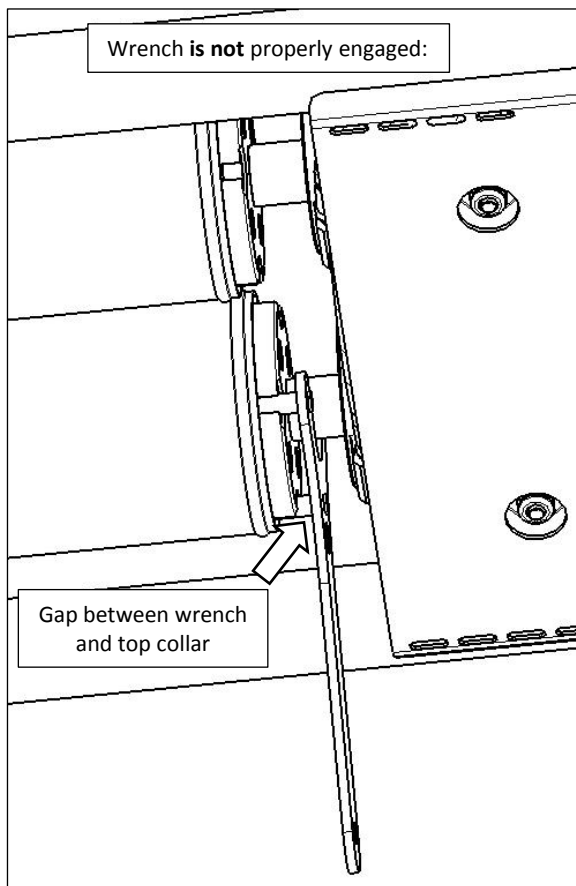




1.4 Pre-Load Adjusting procedure:

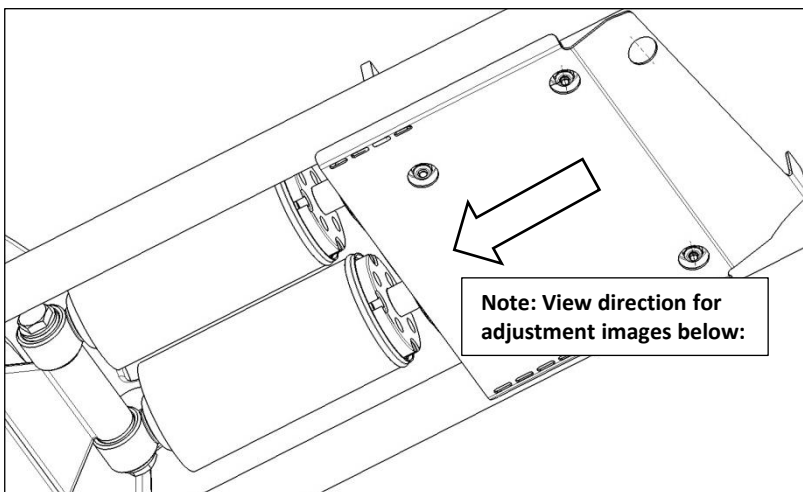
In order for this adjustment to be carried out correctly, the motorcycle must be in this condition:

- Slamtail ride height system in the fully **DOWN** position.
- Remove all extra weight off the rear suspension so the bike is un-laden (if the bike has baggage or pannier bags fitted, you may need to place a jack under the frame rail in order to lift the bike slightly so as the shock unit carries minimum weight).
Note: The threshold for lifting the bike is when the Slamtail rams start moving inward (forward), stop lifting just before this occurs, as it may make the adjuster wrench impossible to install for adjusting or to remove it when you're done adjusting.
- Install the Pre-load adjuster wrench into the top collars as shown below.
- You may need to rotate the collar slightly with the wrench until it can fully engage with the adjuster as shown, if the wrench isn't sitting hard against the top collar, the wrench drive pins will not engage.



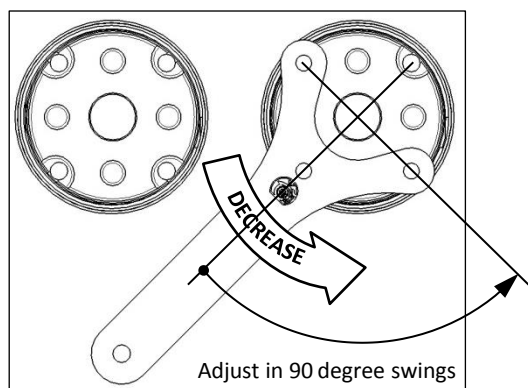
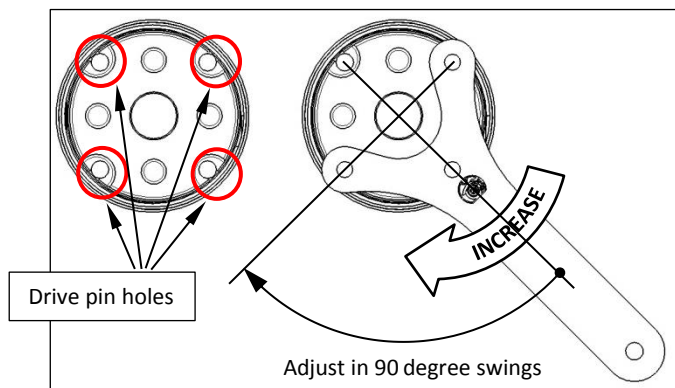


1.4 Pre-Load Adjusting procedure:



To **Increase** pre-load, rotate **Clockwise** as viewed

To **Decrease** pre-load, rotate **Anti-Clockwise** as viewed



Important! – Both collars must be adjusted the same amount, if you loose count, go back to the start.

Note: Maximum adjustment from full soft (minimum preload) to full hard is **2 full turns**, which is equivalent to 8 X 90 degree sweeps. The manufacturer advises that at first adjust the top collars by **1 full turn** = 4 X 90 degree sweeps, then test ride the bike. If you require more pre-load then try another **½ turn** = 2 sweeps. The increase in ride harshness can be sudden, so try to start with smaller amounts first.

2.0 OPERATIONAL SAFETY:

2.1 Neutral lamp lock-out:

The integrated system electronics are configured so as to disable the remote and on-board switch signal when the neutral lamp is NOT on. (when the transmission is in gear).

This stops the ride height being changed when the motorcycle is in gear/mobile.

2.2 Droop Function:

At all times, the un-sprung mass of the rear suspension can return to full droop position.

The hydraulic ram/actuators design allow the rear wheel to droop freely irrespective of the ride height setting. This is of major benefit to motorcycle stability as the rear tyre contact patch will always be pushed downwards onto the ground by the rear suspension weight.

Most Softail® threaded lowering kits hold the rear suspension at the lowered position which can allow the rear tyre to break traction especially on wet and rough surfaces.

2.3 Oil leakage/drain control:

In the unlikely event that the hydraulic rubber bladder system tank or related hydraulic components release fluid, this fluid will be absorbed by the neoprene rubber sheet under the power unit. Any further subsequent flow will be directed through drain holes that are designed to channel fluid away from the rear tyre.

2.4 On-board toggle switch:

In the event of the remote control key fob having flat batteries or being lost, there is an integrated toggle switch mounted next to the transmission side cover that allows easy operation and adjustment of the ride height system.

3.0 SYSTEM TESTING:

To commence system testing, the assumption is that the Slamtail system has been installed on a compatible motorcycle according to the “**Slamtail Installation Instructions**” document enclosed in the product packaging, or viewed/downloaded from www.slamtail.com

- ☐ Check that a 15A fuse has been installed in the fusible link located next to the battery.
- ☐ When the system is installed from the factory, the ride height is in the “UP” position.

3.1 Toggle switch testing:

- ☐ Firstly test the Slamtail toggle switch, located on the transmission side cover.
- ☐ Turn the ignition switch to the “ON” position and ensure that the neutral lamp is ON.



Transmission case mounted toggle switch

- ☐ Assuming the system is in the “UP” factory supplied position:
- ☐ Press the toggle switch lever down. (Only a light press is required)
- ☐ The hydraulic power unit will start to run and lower the motorcycle.
- ☐ Depending on whether the ride height has been set at 2” maximum travel or 2½” maximum travel, the system will drop the bike down to a stop which is where the rams bottom out.
- ☐ When the system reaches the bottom, the pump will keep running whilst you hold the toggle down.
Release the toggle lever when the motorcycle stops moving.

Note: Holding the toggle lever down after the system has bottomed will active a hydraulic bypass valve. No purpose is served by continually pressing on the lever after the bike has stopped moving other than draining the battery, if the engine isn’t running.



- ☐ Now lift the toggle lever upwards.
- ☐ The hydraulic power unit will start to run and raise the motorcycle.
- ☐ When the system reaches the top, the pump will keep running whilst you hold the lever up.
Release the toggle lever when the motorcycle stops moving.

Note: Holding the toggle lever up after the system has topped out will active a hydraulic bypass valve. No purpose is served by continually pressing on the lever after the bike has stopped moving other than draining the battery, if the engine isn’t running.

When the motorcycle engine and transmission are hot, the bypass valve controlling the upward movement may let out a “squawk” or “squeal” type noise, this is normal, as the hydraulic fluid is forced through the pressure relief valve.

Operating notes:

The purpose of the toggle switch is as a back-up function for the remote control key-fobs.

If the remote key-fobs are lost, damaged, or have flat batteries, the toggle switch can be used to perform the same function.



3.2 Key-Fob Testing:

To commence system testing, the assumption is that the Slamtail system has been installed on a compatible motorcycle according to the “**Slamtail Installation Instructions**” document enclosed in the product packaging, or viewed/downloaded from www.slamtail.com

- ☐ Check that a 15A fuse has been installed in the fusible link located next to the battery.
- ☐ When the system is installed from the factory, the ride height is in the “UP” position.
- ☐ Turn the ignition “ON”, and ensure that the Neutral lamp is ON.

Remote control Key-fob testing: (both key-fobs)



- ☐ Assuming the system is in the “UP” factory supplied position:
- ☐ Press the remote “D” = DOWN button.
- ☐ The hydraulic power unit will start to run and lower the motorcycle.
- ☐ Depending on whether the ride height has been set at 2” maximum travel or 2½” maximum travel, the system will drop the bike down to a stop which is where the rams bottom out.
- ☐ When the system reaches the bottom, the pump will keep running whilst you hold the button on. Release the button when the motorcycle stops moving.

Note: Holding the button on after the system has bottomed will activate a hydraulic bypass valve. No purpose is served by continually pressing on the button after the bike has stopped moving other than draining the motorcycle battery, if the engine isn’t running.



- ☐ Now press the “U” = UP button.
- ☐ The hydraulic power unit will start to run and raise the motorcycle.
- ☐ When the system reaches the top, the pump will keep running whilst you hold the button on. Release the toggle lever when the motorcycle stops moving.

Note: Holding the button on after the system has topped out will activate the hydraulic bypass valve. No purpose is served by continually pressing on the button after the bike has stopped moving other than draining the battery, if the engine isn’t running.

When the motorcycle engine and transmission are hot, the bypass valve controlling the upward movement may let out a “squawk” or “squeal” type noise, this is normal, as the hydraulic fluid is forced through the pressure relief valve.



4.0 KEY-FOB

4.1 Replacement Remotes:

If you loose, or damage a remote control key-fob, you can order a new one from the manufacturer www.slamtail.com
You will need to follow the program procedure below in order for the remote work.

4.2 Maximum number of remotes per system:

The integrated Electronics program in your Slamtail kit will only recognise **two** remote controls at any time.
If you purchase a **third** remote control, and program it to the instructions, only it, and the last programmed remote will work on the system. So the oldest programmed remote (in sequence) will no longer work.
(This process can be repeated, with the oldest programmed remote no longer working).

4.3 Programming remotes:

The Slamtail on-board electronics are programmed individually and uniquely to operate with your key-fobs.

This procedure must be followed if you order a new key-fob from the manufacturer.

You will need to check the other remote control still works, and if not, use the following procedure:

4.4 Programming procedure:

- Ensure the motorcycle transmission is in neutral.
- Turn the ignition switch **OFF**.
- Hold the remote control you wish to program in your hand, and push **BOTH UP & DOWN buttons** simultaneously with your thumb.
- Whilst the buttons are both pressed down, turn the ignition switch **ON**.
- Count at least 12 seconds, then turn the ignition switch **OFF**.
- Now release both remote control buttons.
- Turn the ignition on again, and test the remote is working.
(If not, repeat process. NB - Over 10 seconds must pass before the on-board ECU is synced with the remote).



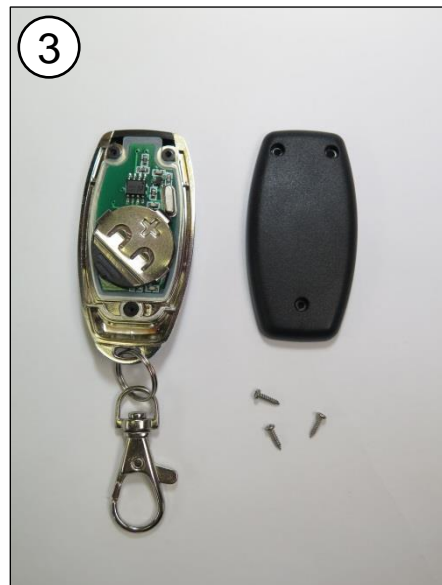
4.5 Replacing batteries in Slamtail remote control key-fob:



Slamtail remote control key-fob.



Remove rear cover by removing 3 off screws with a small Phillips head screw driver.



Rear cover removed



Gently slide out the battery pack which has a small plastic retaining hoop.



Note orientation of batteries and plastic retaining hoop.
Battery **POSITIVE** facing upward as shown.

Remove and replace 2 off CR-2016 3V Lithium button cell batteries as shown and re-assemble.



Warning: Use only 3V Lithium CR-2016 batteries



5.0 SYSTEM SPECIFICATIONS:

5.1 Hydraulic Power unit:

- 12V DC Electric motor.
- Current = 10A (nominal)
- Fuse = 15A - Automotive mini (APM, ATM) type blade (located in fusible link next to battery)
- Bi-Directional Gear-type pressure pump with pressure relief valve.
- Double piloted check control valve system.
- Sealed hydraulic system & tank.
- Integrated Electronics control module, compliant to IP54 (enclosures ingress protection).
(Tolerance of water splashed from any direction shall have no harmful effect. **System will not tolerate immersion**).
- Hydraulic Oil = AW ISO 68 - High Quality Hydrocracked oil based anti wear formula.

5.2 Hydraulic Rams (actuators):

- Single feed hydraulic actuator with floating piston, 43mm Dia. with X-section NBR75 dynamic sealing rings.
- Breather port feed through height adjuster screw.
- SAE 4340 steel Actuator housing with EN Plating.
- Gas Nitrided SAE 4340 steel piston rod - 19mm ($\frac{3}{4}$ " Dia. with NBR90 wiper-ring.

5.3 Hydraulic hoses:

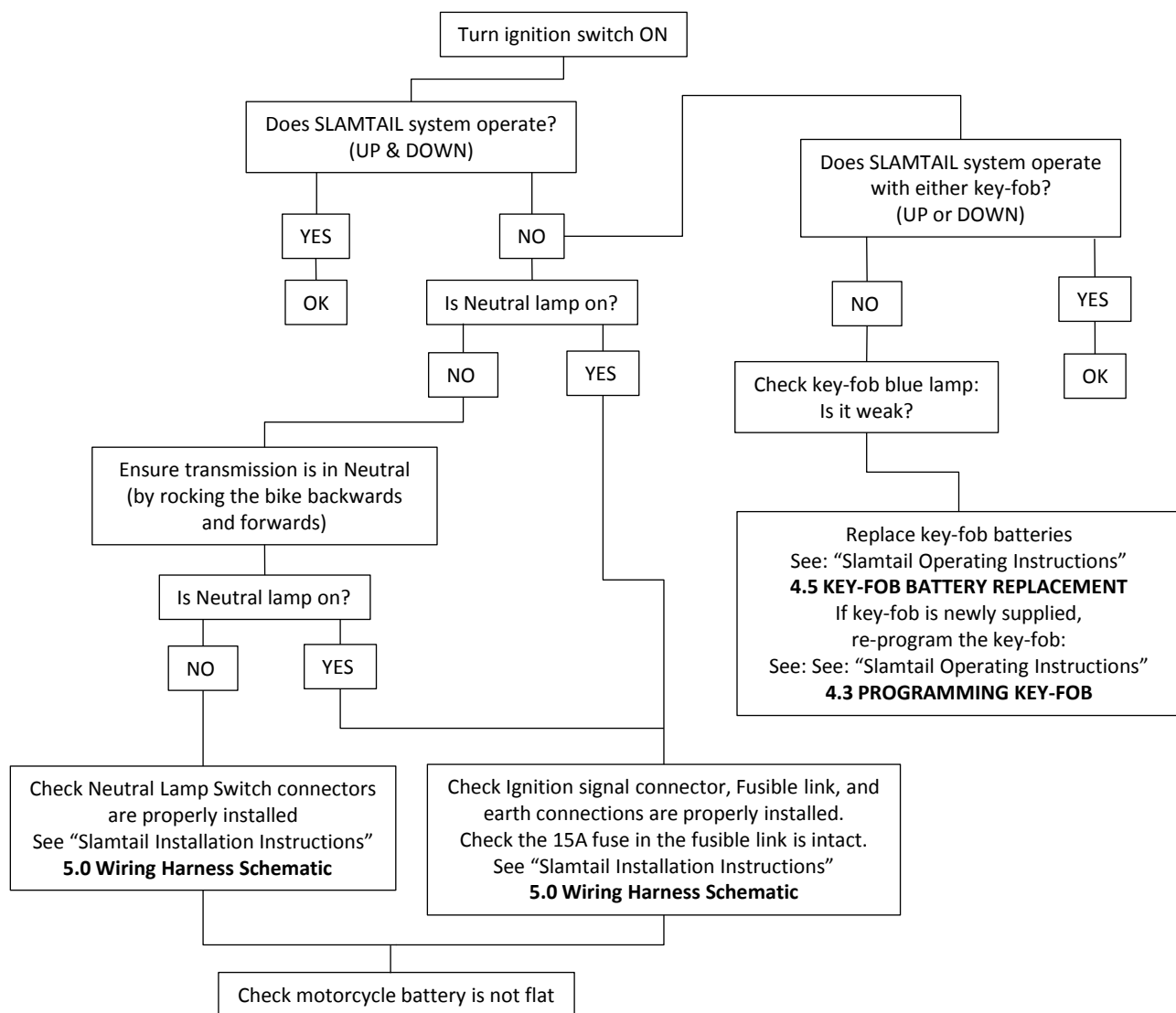
- PTFE lined, Braided Stainless Steel High Pressure Hydraulic Hose, -3 size with clear plastic protective cover.
- Burst pressure 12,000 PSI
- Stainless Steel swaged end fittings and collars.
- Pressure tested to 5000 PSI.

5.4 Remote Control Key-fobs:

- Communication band = 433MHz.
- Operating voltage = 6V (2 X 3.0V batteries)
- Replacement batteries = CR 2016 3V button style.
- Operating range up to 20 metres unidirectional (fresh batteries).
- Programmed to on-board ECU.
- Operating range = up to 15 metres (direct visibility).
(Note – deterioration of operational range is proportional to the battery strength).
- Battery life up to 2 years (depending on usage).
- Operating temperature range -10° to 40°C



6.0 Fault Diagnostic Check diagram:





7.0 SYSTEM OPERATIONAL NOTES:

7.1 System Operation:

Important! - Read:

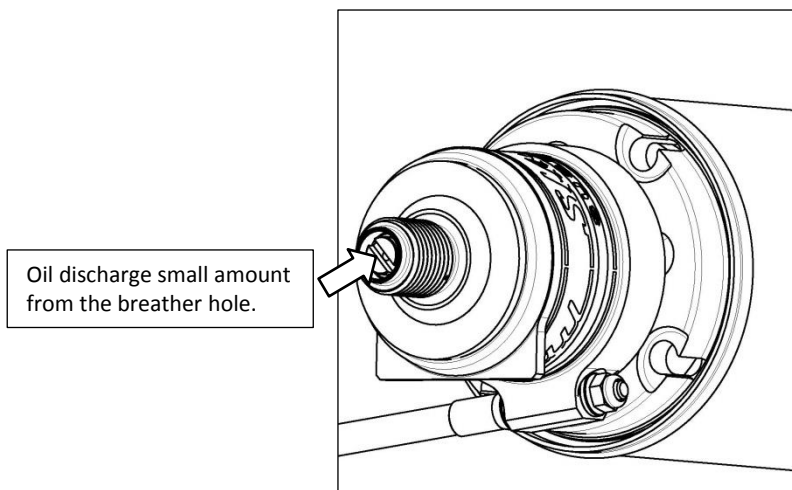
Avoid operating the system continuously up and down, over and over without the engine running. (Excessive usage of the system will shorten service life).

The Slamtail system feeds off the motorcycle 12V battery power supply, and draws up to and over 10 Amps, and **WILL** drain the battery with prolonged use. This can be avoided by running the engine during ride height adjustment.

If the motorcycle battery is not in good condition, and it's current output is below optimal, the Slamtail current draw will drain it quickly and potentially leave you stranded.

7.2 Running Notes:

The Hydraulic Ram assemblies may discharge a small amount of oil through a hole in the centre of the ride height adjustment screws. This is normal, as these small holes are the breather for the hydraulic ram assemblies. This oil is the residue from the hydraulics assembly process and this discharge will eventually cease.



7.3 Maintenance:

The Slamtail system has no requirement for scheduled maintenance. The entire is sealed and has no service access or provisions. If the system requires rebuilding for any reason, this must be done by an authorized Slamtail dealer technician.

Long-term system storage:

If you intend to store your Slamtail equipped bike for extended periods, the manufacturer recommends that the ride height is adjusted/set to about half way, or half travel. This leaves no residual loads on any of the system components.



P.O. Box 4210
Essendon Fields
Victoria Australia
A division of M-Sport Design Pty Ltd
ABN 76 079 370 835

shop@slamtail.com
www.slamtail.com

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