



**MSCMOTO**

STEERING DAMPER SERVICING

AXIS STEERING DAMPER



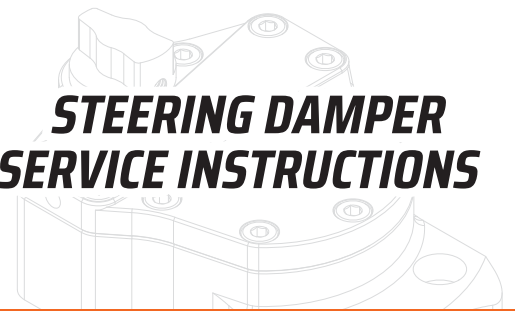
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## STEERING DAMPER SERVICE INSTRUCTIONS



# AXIS & RM3 STEERING DAMPER



## BEFORE YOU START

**A Steering Damper service should be carried out by someone with previous experience in working on motorcycle engines, suspension components or similar.**

With the help of this manual most people can complete a full service on the AXIS or RM3 steering damper without issues. However, if you are not confident in your abilities, or are inexperienced with mechanical tasks, please contact MSC and we can arrange the servicing for your Steering Damper.

**Please note;** Our development never stops, therefore over the years there have been subtle changes made to our products so some steps of this manual might differ slightly to the steering damper unit you have.

## TOOLS REQUIRED FOR THIS SERVICE:

- HIGH QUALITY 3mm & 4mm Allen key, for units built prior 2021
- T25 TORX and a T20 TORX key for units built post 2021
- O'ring pick/removing tool, ideally with angled tip
- 5wt suspension oil, we use MOTUL 5wt oil
- Brake cleaner, rags and a clean workspace
- It is a good idea to have access to other general tools too

**PLEASE ENSURE YOU ARE WEARING EYE PROTECTION  
WHEN USING AN AIR GUN & AEROSOL SOLVENT SPRAYS  
(BRAKE CLAN, DEGREASER ETC)**



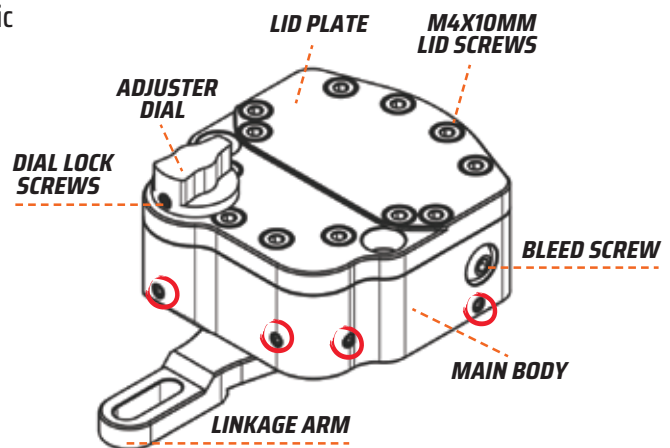
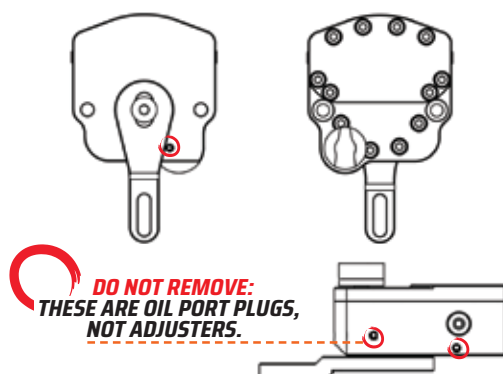
## WHAT YOUR SERVICE KIT INCLUDES:

- 2mm Allen Key, M6 x 12mm countersink screw - link arm
- 16mm ID x 2.5mm O'ring - output shaft
- B5036 O'ring - large perimeter seal (ONLY FOR AXIS Dampers)
- B5035 - O'ring - large perimeter seal (ONLY FOR RM3 Dampers)
- B5006 O'ring - small adjuster shaft seal
- Spring - adjuster detent spring
- 3mm stainless steel ball - adjuster detent ball
- M5 x 6mm + o'ring installed bleed screw - x2
- M4 x 10mm socket screw - spare screws for lid.
- M4 x 4 grub screw - adjuster dial lock screws x2
- Syringe for bleeding oil

**KEEP OUT OF REACH FROM CHILDREN**

## STEERING DAMPER OVERVIEW

An overview of your MSC Damper and its components. Please refer to this drawing when we refer to specific mechanisms in the servicing steps.



AXIS DAMPER Pictured. RM3 Damper is essentially the same mechanically, however slightly different shape housing.

## STEPS FOR DISASSEMBLY

### STEP 1

Start by removing the bleed screws located on the side of the unit. Once the bleed holes are open you can move the linkage arm carefully side to side and pump the old oil out into a used oil container.



### STEP 2

Loosen and then remove all the lid screws in the top face of the damper unit. Remove the lid once all screws are removed. **Note:** Some models need the adjuster dial removed before all the lid screws can be removed. (See step 8)

### STEP 3

Remove the lid perimeter o-ring and clean out the inside of the damper unit, just to ensure you don't make too much mess. (A thorough clean will be done a bit later.) Also, remove the lid perimeter o-ring at this stage.



### STEP 4

Flip the damper body over. Using a **high-quality** allen key, loosen the linkage arm screw from the linkage arm a few turns. **DO NOT** fully remove just yet.

### STEP 5

Hold the damper body in your hand and then using a hammer **carefully** tap the linkage arm screw to separate the linkage arm from the internal damping vane. Once it's free, remove the linkage arm screw from the assembly.



TAP HERE

## STEPS FOR DISASSEMBLY

### STEP 6

Press on the output shaft and remove the vane out of the damper body, you can now remove the adjuster needle with a flat blade screw driver. The needle is down in the 10mm hole inline with where the adjuster dial sits.



### STEP 7

Using an o-ring pick, carefully remove the main shaft seal in the groove around the shaft output hole.

**Warning:** Take care during this step not to mark or gouge the groove in the housing as it can cause permanent damage to the body affecting the seal surface.

### STEP 8

Using the supplied 2mm allen key, locate the locking screws in the back of the dial and fully remove the first of 2 locking screws. Hold down on the top of the adjuster dial and then loosen the second locking screw which is deeper in the same hole. This second screw being released will allow the dial to pop up and be removed. Be careful here as there is a small spring and ball for the detents. (You can save these parts to keep as spares for the reassembly later on.)



### STEP 9

Once the dial is off, you can push the adjuster spindle out and replace the o-ring. It is rare to need to do this. If the dial is moving smoothly and you can feel all 10 detents it is not needed to pull this mechanism apart.

### STEP 10

Now all parts are disassembled, give everything a thorough clean and inspect all parts for damage or excessive wear.

## STEPS FOR ASSEMBLY

### STEP 1

Insert the main shaft o-ring into the groove in the body around the shaft output hole. Use a generous amount of high-quality grease or assembly lube. We use a silicone grease which is available at any bearing & seal wholesaler.



### STEP 2

Carefully insert the vane back into the body. The vane will slide in easily until the shaft touches the o-ring. Once the shaft is at the o-ring you will need to push firmly until it clicks through the oring. When the vane is inserted you can push the vane side to side to check everything is moving freely.

### STEP 3

Flip the body back over and place on a soft rag on a flat firm surface so you can install the linkage arm. To do this, put the link arm on the shaft and then **carefully** tap it down with a hammer. It is a press fit so be careful and tap evenly to make sure the arm goes on straight. A good idea is to start the press fit with the link arm screw until it is halfway fitted. Once the link arm is on, install the screw using blue loctite.



### STEP 4

Flip the damper unit back over once again to install the lid plate, ensuring the adjuster needle is installed if you had removed for cleaning. Turn the needle fully clockwise until it bottoms then turn anti-clockwise 1 turn so there is room for orientating when you put the lid on. Fit the lid perimeter o-ring in the groove around the main body face. **Note: 2x O rings supplied. Smaller O ring is for RM3, Larger O ring is for AXIS.** When placing the lid onto the damper body, make sure the adjuster needle and spindle are located together.

## STEPS FOR ASSEMBLY

### STEP 5

Holding pressure down on the lid, place the M4x10mm screws into the lid and evenly tighten the screws until all screws are tightened. Ensuring the perimeter o-ring does not lift as the Damper won't seal or seat properly.

### STEP 6

Check the link arm moves side to side and the adjuster dial rotates. If all lid screws are tight and everything is smooth and free you can start filling/bleeding the unit.



## FILLING AND BLEEDING

Filling a steering damper can be done multiple ways but the end result is to have the system filled with **5WT FORK OIL** and have **NO** air bubbles at all. **Bleeding should be done with the adjuster in the full anticlockwise position.**

### OPTION 1 - SYRINGE FILLING

The cleanest way to fill your steering damper at home is to use a syringe and a flat-end needle. Although slower than bathing (option 2), this is our preferred method. Start by Filling the syringe with oil and purge the air from the syringe. Put one of the bleed screws into the side holes on the unit. Have the link arm in the centre of its travel, then squeeze the oil into the unit through the bleed hole until it overflows. Insert the second bleed screw into this hole, flip the unit over and remove the first bleed screw and then repeat filling this side with oil until it overflows. Install the bleed screw on this side.

Now move the arm side to side to pump oil around the system. You can feel air in the system when you move the arm as you will feel "free play" or "backlash".

Repeat the process of filling and squeezing oil into each side until you stop seeing air bubbles coming out and the unit feels smooth and no free play. (air in the system)

### OPTION 2 - OIL BATH OR BUCKET

The more messy, yet faster approach is to fill a clean container to a level where the unit can be fully submerged in oil.

Hold the damper unit under the oil and move the arm side to side to pump the oil through the system.

Once the unit feels like it has oil throughout the system, install the bleed screws **with the unit still submerged**.

Now move the arm side to side to pump oil around the system and feel for air, you can feel air in the system when you move the arm as you will feel "free play" or "backlash".

If you can feel air in the system, we recommend using a syringe to bleed air bubbles out through the bleed holes.

## MSC MOTO PRO TIPS

Whenever you are performing a task like servicing your steering damper, there are always little ideas and tricks you can learn from others who have done the task many times before! Funnily enough we have done this quite a few times here at MSC Moto Australia, so we thought we would write down some tips and tricks to help you out.

### 1 - USING YOUR DAMPER BRACKET AS A WORK STAND

Remove your steering damper mount bracket from your bike, or if you have a bracket from a previous bike you no longer have fitted and then use that bracket for a work stand. We still use this in our assembly of all new units as it keeps the damper unit stable and flat to help you not lose some of the tiny parts or have you accidentally drop the unit off the bench.

### 2 - HIGH-QUALITY TOOLS

Always use new allen keys and torx bits when removing screws or tightening them. We all have that oldset of junk allen keys somewhere in the bottom of the toolbox but we suggest taking the extra time and finding a new or high-quality tools to avoid stripping or rounding out any of the screws.

### 3 - KEEP IT CLEAN

Wearing oil-proof surgical gloves is a great idea if you have them. We use them because after 8 hours of non-stop working with your hands in hydraulic oil it's possible to get irritation to your skin. It's most likely not a problem for most people doing just 1 steering damper service but if you have sensitive skin can be a good idea.

### 4 - TAKING CARE OF YOUR DAMPER

Don't wash your steering damper in a caustic-based truck wash or degreaser as it can dull the anodised colour. Just use a dish soap or normal bike wash product with warm water.

### 5 - STAY ORGANISED

Make sure you have a very clean workspace and also work on a bench. This way if you drop any tiny parts you will be able to find them and prevent damaging anything also. It's also a good idea to inspect the unit prior to cleaning to see where any parts may have been leaking or need attention.

## SERVICE NOTES

Jot down any notes from your service that you may need to remember next time:

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