

*Installer  
notes  
v19*





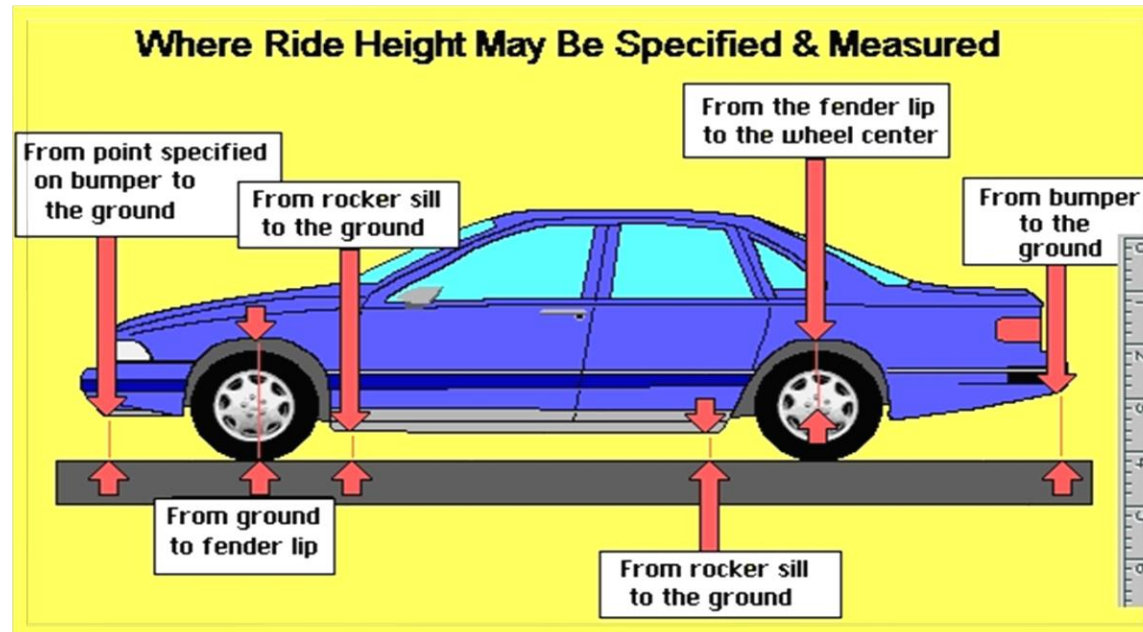
# Points to note

The MSS Ride Management System received are direct from the factory, made from race technology materials and as such operates above the road or track intended use. There, however, a few points to note and these are as follows..;

- Refer to the car manufacturers workshop manual
- Use the provided sheet on the 4<sup>th</sup> page of this document to collect vehicle data information as a point of reference – **this is key**.
- Test drive the vehicle and ensure that all prior noises and rubbing issues are investigated/noted before beginning the installation.
- Check for signs of worn bushes and all suspension related parts prior to beginning the installation – **this is key**.
- Each spring is made from long lasting metal materials and coated with multiple durable flexible paint.
- Each fitting kit part is made from high strength 6082 alloy, which has excellent corrosion resistance and widely used in motorsport. *Certificate of Conformity is issued by Aalco Southampton, UK – [www.aalco.co.uk](http://www.aalco.co.uk).*
- Each MSS CNC fitting part (adjusters; spacers; tools) is further anodized mainly to match the MSS branding colour.
- During installation, do not be alarmed where the coating on the sleeves of the adjuster or spring coupler is slightly scratched, the fitting is purposely designed to be a tight fit thus some markings may occur.
- The threaded part of each adjuster has been coated with a lubricant to aid the bedding-in process. We recommend that you do not fully remove the threaded part apart as there may be a risk of cross threading when replacing.
- The rubber slip mats supplied are noise isolators primarily.
- The unique chamfered edge design of the CNC parts ensures that the spring does not catch the edges on seating.
- The product supplied has been in development and testing on public roads as well as at various race tracks in UK / Europe since 2010. We, however, welcome any feedback you may want to share to help us improve on the product.



# Ride height measuring points



- There is much debate as to from where to measure the ride height of a vehicle. None is right nor wrong however the tolerances or variations is what drives one particular favoured method used by race teams and aftermarket tuning workshops.
- That method is to...;
  - 1) ***measure from fender to top of wheel centre cap;***
  - 2) ***then measure diameter of wheel centre cap and divide by 2;***
  - 3) ***now add value to previous measurement from #1 above for a total accurate figure.*** This method eliminates uneven ground.
- Some useful information about ride height can be found at <http://iracing.wikidot.com/components:ride-heights>.



# Confirm Current Vehicle Data

## MSS: Data Sheet

**NOTE:** For ride height measurement, ensure that you measure from the fender edge to wheel hub centre – see previous page for assistance.

Vehicle Make		Model	
Body Type		Mileage	
Fuel Level			
Tyre (tire) Size		Make	
Tread	N/S/F	O/S/F	N/S/R O/S/R
Damage	N/S/F	O/S/F	N/S/R O/S/R
Stock Vehicle: Ride Height Unladen (mm)	N/S/F	O/S/F	N/S/R O/S/R
WITH MSS: Ride Height Unladen (mm)	N/S/F	O/S/F	N/S/R O/S/R
WITH MSS: Vehicle Corner Weight Unladen (kg)	N/S/F	O/S/F	N/S/R O/S/R
Total Vehicle Weight (kg)			



# Important Guidelines

We want you to be safe enjoying our products as a customer for many years to come. To ensure that, we have put together some key 'DOs' & 'DON'Ts' guidelines set out below. For your safety and that of other road users, we strongly recommend that you adhere to all of the noted guidelines without exceptions.

## DO

- Upon receiving your kit, do check to ensure that all the parts listed on the following pages are in the package sent.
- Tell us of any missing or faulty parts by phone or email. We will ship replacements same day at no extra cost to you.
- We recommend getting a qualified professional workshop with the expertise to safely install our product on your vehicle.
- Where you have uprated Anti-Roll Bars or Rear Sway Bar, set these to their softest settings then fine tune thereafter.
- After installation, drive at moderate speeds for the first 500 miles to allow the suspension to set to position naturally.
- Familiarise yourself with the new handling trait in the first 500 miles as the vehicle may handle different to prior.

## DON'T

- Under no circumstances should you attempt install of our products yourself. Failure to take note may result in serious injury.
- The product supplied is for the vehicle model range noted at the point of purchase and should not be fitted to other vehicles.
- All parts supplied MUST be used in the installation. Omission(s) may cause premature failure or introduce unwanted noise.
- We do not recommend using different parts to what we supply when fitting our products. Everything that is required is in the kit sent and there should be no modifying of parts supplied in anyway. Failure to take note may result in suspension failure.

*Thank you* for following the guidelines | MSS – Modular Suspension Solutions



# Middle Adjustable content

(for vehicles supplied with **middle** located rear adjusters)

Each MSS Ride Management System should include all of the following parts...see image below for reference;

- 2x large orange springs for the front axle (**NOTE**: on some platforms these are used on the rear axle also – check the install notes for your specific vehicle for further info or email [support@mss.company](mailto:support@mss.company) for assistance).
- 2x large black adjusters (*made up of 2 threaded parts that mate together*). **NOTE**: on some platforms these are used on the rear axle also – check the install notes for your specific vehicle for further info or email [support@mss.company](mailto:support@mss.company) for assistance
- 2x small rear orange springs labelled MSS Streets; MSS Sports; MSS Track;
- 2x small black combined coupler/adjuster (*made up of 2 threaded parts that mate together*)
- 2x small rubber slip mats to seat at the top or bottom (check the install notes for your vehicle for info)
- 2x spanners in zinc appearance, or adjusters (small or large)
- 2x rear black springs labelled MSS Basic, MSS Standard (shipped by default for most vehicles) or MSS Advanced.

MSS Adjustable Front Ride Management System + MSS Adjustable Rear Ride Management System = MSS Fully Adjustable Ride Management System





# Top Adjustable content

(for vehicles supplied with **top** located rear adjusters)

Each MSS Ride Management System should include all of the following parts...see image below for reference;

- 2x large orange springs for the front axle (**NOTE:** on some platforms these are used on the rear axle also – check the install notes for your specific vehicle for further info or email [support@mss.company](mailto:support@mss.company) for assistance).
- 2x large black adjusters (*made up of 2 threaded parts that mate together*). **NOTE:** on some platforms these are used on the rear axle also – check the install notes for your specific vehicle for further info or email [support@mss.company](mailto:support@mss.company) for assistance
- 2x small rear orange springs labelled MSS Streets; MSS Sports; MSS Track;
- 2x small rear black adjusters (*made of 2 threaded parts that mate together*). **NOTE:** check the install notes for your vehicle for info
- 2x small rear rubber slip mats to seat at the top or bottom (check the install notes for your vehicle for info)
- 2x small rear couplers to enable stacking of the rear orange and black springs.
- 1x spanners in zinc appearance, for adjusters (small or large)
- 2x rear black springs labelled MSS Basic, MSS Standard (shipped by default for most vehicles) or MSS Advanced.

MSS Adjustable Front Ride Management System + MSS Adjustable Rear Ride Management System = MSS Fully Adjustable Ride Management System





# Standard content

(fixed front | adjustable rear)

Each MSS Ride Management System should include all of the following parts...see image below for reference;

- 2x large front orange non adjustable springs.
- 2x small rear orange springs labelled MSS Streets; MSS Sports; MSS Track;
- 2x small rear black adjusters (*made of 2 threaded parts that mate together*). **NOTE:** check the install notes for your vehicle for info
- 2x small rear rubber slip mats to seat at the top or bottom (check the install notes for your vehicle for info)
- 2x small rear couplers to enable stacking of the rear orange and black springs.
- 1x spanners in zinc appearance, for adjusters (small or large)
- 2x rear black springs labelled MSS Basic, MSS Standard (shipped by default for most vehicles) or MSS Advanced.

MSS Standard Front  
Ride Management System



MSS Adjustable Rear Ride Management System



MSS Standard  
Ride Management System





# MSS – *simple yet effective*

We are often asked, “*Isn’t MSS just another set of lowering springs?*”. The short answer is “*No!*”. To answer the question in detail, we have provided on this and the next page a comprehensive response on the 8 differences between MSS and the competition.

## **IMPORTANT POINT:** MSS products focuses on comfort and performance

- 1) The front springs are single form linear or uniquely developed *stacked* progressive arrangement, both supplied with the MSS adjuster.
- 2) The rear springs are uniquely developed *stacked* progressive arrangement, with a top mounted or the patented middle located adjuster.
- 3) MSS Streets and MSS Sports are the comfort/performance products, whilst MSS Track is developed for regular track use.
- 4) **KEY POINT:** MSS products are the only modular design in the marketplace, enabling ease of upgrade as well as ability to choose a product to fit current and future needs. The modular does not only stop there, most parts are transferable to other vehicle platforms.
- 5) **KEY POINT:** The Modular design also allows any of the three front springs (*Std fixed height; Comfort (previously named Street) ; Dynamic (previously named Track)*) to function seamlessly with any of the three rear adjustable ride management systems. A unique, flexible and future proof product.
- 5) **KEY POINT:** The patented rear adjuster makes adjustment even easier and is adoptable to other platforms.



# MSS – *simple yet effective*

6) **KEY POINT:** MSS product for a vehicle platform fits all models in the range, regardless of axle weight/load. No other product on the market offers this level of flexibility, which protects your investment affording you the opportunity to upgrade your vehicle to a higher model in the range.

7) We spend hours of time on dry and as well as wet roads testing, allowing us to test extensively to be able to determine what is best; safe; ideally suited for dry as well as wet tarmac use. Testing continues long after products are released.

8) We are established for developing, with our partners, suitably calibrated fully adjustable suspension spring solutions for the factory active and passive shock absorbers and ride height advisory ensures safe operation of OE suspension component parts.

In regard to the Audi MagneRide shock absorbers, we have knowledge dating back to 2010 and experience covering road as well as track use. That knowledge gained means we are able to develop springs calibrated through extensive road and track test to enable active and passive factory shock absorbers to be effective in use for daily driving, track use for fun or competition.

Where we fall short, contact me directly and we will put things right.

William Blankson | Founder | **MSS** – Modular Suspension Solutions

e-Mail: [william.blankson@mss.company](mailto:william.blankson@mss.company)



# Front or Rear axle:

## *noise diagnosis*

Drive the vehicle over rough roads/speed humps and note down all noises (rubbing; creaks; clunks; squeaks etc) prior to the installation.

After the installation of MSS parts, check to see if these noises are still there or otherwise. If these noises are still present then they should be investigated from a safety point of view and resolved.

All noises introduced after installing the MSS products should be investigated and resolved. We list below some of the known issues and how to resolve these.

- 1) **CLUNKS:** check that the drop links have been replaced and tighten securely/correctly. Check the boot / trunk located tools that none has come loose and touching other tools in the same location .
- 2) **CREAKS or SQUEAKS:** The rear MSS Black and Orange springs may have sharp edges as part of the manufacturing process and can lead to a tight fit to the spring spacer and rear adjuster. To resolve this issue, it may be necessary to round off any sharp edges found.
- 3) **SQUEAKS:** Whenever a vehicle is lifted off the ground or suspension parts are removed / re-installed the existing rubber bushes typically fitted with the anti-roll bars may introduce noise for a few miles post install. This is normal and should be monitored . Expect the noise to go away after 48-hours. If the noise persist longer or gets louder then get this investigated and resolved.
- 4) **THUDS or CLUNKS:** The front spring should be seated correctly and against the stopper tab at the bottom of the strut. If this moves all of 1mm away from the stopper tab, it may cause the springs to come in to contact with metal parts of the strut and cause a low volume 'thud' or 'clunk' noise especially over speed humps or potholes.
- 5) Typically, clunk noises should be resolved as a high priority and investigated immediately.
- 6) On hearing any noise, reduce top speed to down to below 50mph and get the issue investigated immediately.
- 7) Our products are tested with original vehicle parts and therefore we are unable to give compatibility assurances of non-standard parts.

# Front axle *installation tips & notes*



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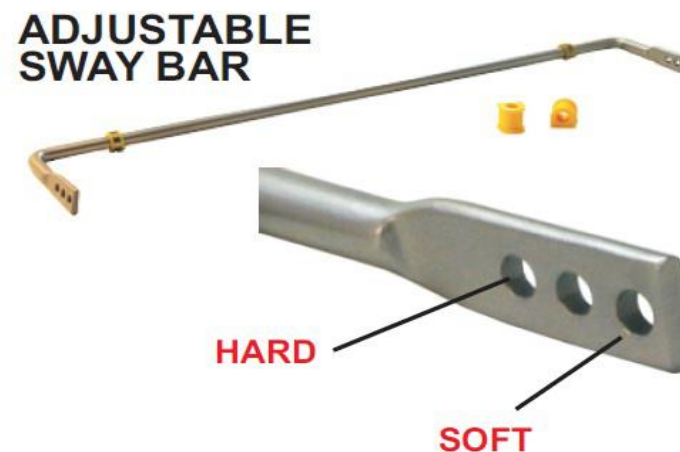


# Front axle -1:

## *installation tips & notes*

### **FRONT AXLE**

- The MSS front springs (standard or adjustable) are a direct replacement for the OEM springs.
- In tests, our observations were as follows
  - Allow 200 miles (not kilometres) to pass to determine the ride and handling change
  - After 500 miles (not kilometres), the springs settle and you can check alignment or make final adjustment to the ride height
  - By 2,000 miles (not kilometres) the springs will be set and there will be no further lowering
- Initial alignment post install is recommended to set a base-line. A further alignment should be checked and corrected after 500 miles.
- Correct alignment is key to getting the best and optimum from the MSS product. We recommend the OEM alignment settings then fine tune as required to suit each individual driving preferences.
- In tests, our observations were that front aftermarket anti-roll bar (ARB) was not necessary, the OEM ARB is more than adequate. Our recommendation is to keep the OEM ARB for the front axle. Where an aftermarket ARB is already fitted, we advice that this is set to the softest option – see image below for reference.



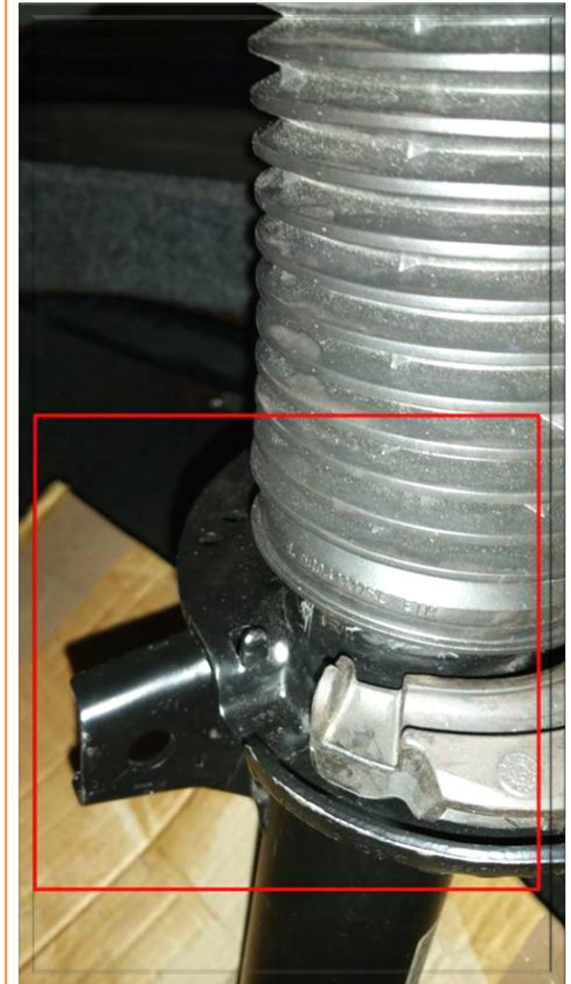


# Front axle -2:

## *installation tips & notes*

### FRONT AXLE

- Ensure the springs are seated correctly at the top against our adjuster which fits to the OEM upper strut bearing OEM part, which rotates to relief tension build up.
- Ensure the springs seat in the rubber mat at the bottom of the strut correctly and pushed to the tab stopper - see image to the right. If the springs are not seated correctly then they will touch parts of the strut and cause noise. This also applies to the stock springs and not just MSS products. A 1mm gap is enough to cause noise because tolerance is tight and the spring must seat exactly, there are no margins on the MQB front strut.
- Heavy duty yet compact spring compressors can be used to take load off the springs to enable adjustment by hand however great care **must** be taken when using spring compressors to ensure there are no injuries to you or others – please take note of this important warning.





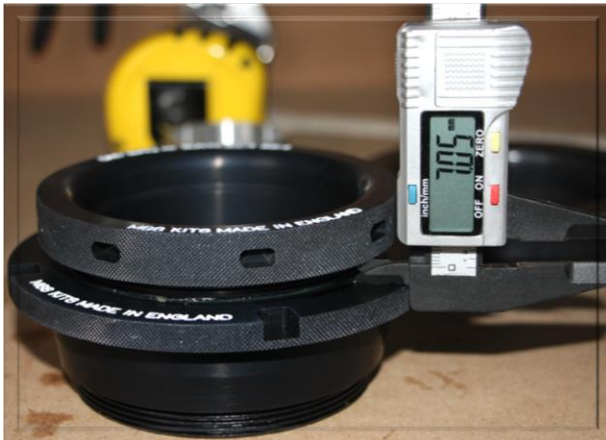
# Front axle -3:

## *installation tips & notes*

### FRONT AXLE

The following information is for the front adjustable products;

- each front adjuster full turn yields a 3mm adjustment (*upwards or downwards*);
- the first image shows adjustment towards the lowest setting with 7.05mm thread showing – can be set to below 1mm;
- the middle image shows adjustment at the mid-point setting with 15.44mm thread showing ;
- the last image shows adjustment at the highest point setting with 30.82mm thread showing ;



The following information is relevant to the *front* and *rear* axle;

- Allow 200 miles (not kilometres) to gauge the effect of the change post install;
- Allow 500 miles (not kilometres) to pass so that the springs settle for a true reflection of what we designed;
- After 2,000 miles (not kilometres), the springs become fully set and will not lower further;

# Rear axle *installation tips & notes*



"MagneRide™ is a registered trademark of BWI Group. Used by permission."



MSS rear ride management system  
with middle located adjuster/coupler



MSS rear ride management system  
with top mounted adjuster



# Rear axle -1:

## *install tips & notes*

### REAR AXLE

- The 2x slip mats shipped with each product is for the adjuster where it seats against the underside of the body and should be used to eliminate noise from metal-to-metal contact. The slip mat replaces the OEM rubber seat fitted from the factory.
- OEM tyre pressures recommendation and alignment and works well with our products.
- Corner balancing to achieve close to the 50% crossweight is now possible with MSS enabling rear adjustment. This is a very useful tool to dial-in the required handling trait. Your workshop may be able to help set the vehicle up as desired based on what you prefer. For further reading see <http://iracing.wikidot.com/components:corner-weights>.
- When fitting the spring to the bottom control arm cup, there is an OEM rubber seat inside the cup where the spring must fit to. It is important that the spring is secured properly inside the cup as OEM to ensure that the spring does not move around.
- Aftermarket Anti-Roll Bars or Rear Sway Bar can be great tools for *fine tuning* the handling and these worked well with MSS. We recommend the softest setting to start off with then fine tune to suit individual driving preferences.
- With safety in mind, we highly recommend using the services of a qualified workshop with trained technicians qualified to undertake the installation of suspension products on your vehicle. We do not recommend undertaking the installation yourself/alone.
- We are aware of customers using 15mm spacers on the front axle and 10mm spacers (both hub centric) of their VW Golf MK7 with the OEM wheels. These compliment our products with no reported rubbing on OEM wheels/tires.
- Customers have successfully used aftermarket camber plates with our products, noticeably from [Integrated Engineering](#). These compliment our products especially for track use. There are no reported negative effects on handling nor ride comfort.
- **We recommend that the rear ride height is always set to at least 5mm higher** (positive rake) than the front axle to ensure that the product performs as per our design especially in regards to ride comfort – this is key.



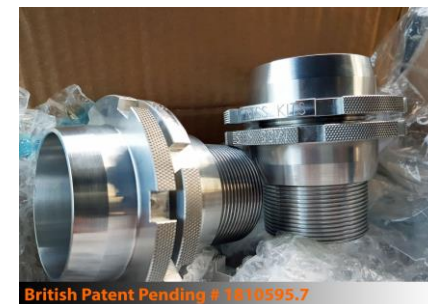
# Rear axle -2:

## *install tips & notes*

### SPRING STACKING ARRANGEMENT – PLEASE READ INFORMATION CAREFULLY

The determining factor for which way to stack the Orange and Black spring is the adjuster sleeve outside diameter size (information applies to top or bottom mounted adjusters and Centre located adjusters) and as follows;

- 1) Where the adjuster mounts to the top, or bottom (*future products may be developed this way*), part of the vehicle and the sleeve has a 64mm outside diameter, the threaded part of the adjuster stem is 45mm tall and the **Orange** spring also has a 64mm inside diameter then our **Orange** spring should be fitted to the adjuster and then the 64mm to 64mm coupler joins to the Black spring.
- 2) Where the adjuster mounts to the top, or bottom (*future products may be developed this way*), part of the vehicle and the sleeve has a 64mm outside diameter and the **Orange** C has a 60mm inside diameter opening then our Black spring should be fitted to the adjuster and then the 64mm to 60mm coupler joins to the **Orange** spring.
- 3) Where the adjuster mounts to the top, or bottom (*future products may be developed this way*), part of the vehicle and the sleeve has a 60mm outside diameter, the threaded part of the adjuster stem is 65mm tall and the **Orange** spring also has a 60mm inside diameter then our **Orange** spring should be fitted to the adjuster and then the 60mm to 64mm coupler joins to the Black spring.
- 4) Where the combined adjuster/coupler is centrally located and has a 64mm sleeve one end that is part of the threaded part and a 60mm sleeve seat the other end then the 60mm sleeve should always be fitted to the **Orange** spring.
- 5) Where the combined adjuster/coupler is centrally located and has a 64mm sleeve one end that is part of the threaded part and a 64mm sleeve seat the other end then the **Orange** spring should always should be fitted to this side.
- 6) All parts must seat flush. If any part is not seated flush, refer to the NOTES on next page.
- 7) Supplied rubber slip mat must be used to stop noise from adjuster contacting with vehicle body.
- 8) Supplied sleeve seat rings should be used to allow easier adjustment.





# Rear axle -3:

## *install tips & notes*

### REAR SPRING FITMENT

For some vehicle platforms, noticeably VAG MQB, 64mm-to-60mm spring spacers (*couplers*) are used – see middle image below.

Follow the instructions below to ensure that the right fitment is used and that each part seats flush.

- 1) The 64mm section fits to the Black rear spring and the 60mm section fits to the Orange rear spring.
- 2) Ensure the Orange spring with 61.61mm inside diameter sits at the top of the arrangement.
- 3) This then fits to the 60mm outside diameter of the rear adjuster.
- 4) Ensure the Black spring with 64.03mm inside diameter sits on the bottom of the arrangement.
- 5) This then fits to the OEM rubber mat inside the control arm cup.
- 6) It is **IMPORTANT** that each spring seats flush to the spacer, adjuster and OEM rubber mat inside the control arm cup.
- 7) The writing must be the right way up so that it can be read normally and both sides must be stacked the same – **this is key**.





tested by **Eibach** / endorsed by **BWI Group**

*Thank you* for purchasing *MSS Ride Management System*, our *signature* product and one we are pleased to share its benefits with you.

#### **Brief History of MSS (Brand / Products)**

MSS, the *brand*, is a creation born in 2010 from my desire to gain *passive* Coilover handling and features such as rake; corner balance; raise or lower the ride height individually at each wheel whilst retaining the '*in-dash*' functionality for street use or track use of my Audi MK2 (8J) TT-RS vehicle equipped with the Audi TT MagneRide™ semi-active dampers.

#### **Partnership with Eibach**

During the months of February and March of 2013, Eibach subjected the *MSS Ride Management System* to ISO tests applied to all their new and OE products at their test proving ground, resulting in partnership and public endorsement - see [Eibach on MSS](#). The partnership enables us to gain access to the expertise and experience Eibach expert engineers. The benefit to ours customers is a product that is well engineered yet simple to fit, use and maintain.

#### **Endorsement by BWI Group**

During the months of May to June of 2016, Tier 1 OE suspension and brakes supplier, BWI Group, subjected the *MSS Spring* to same ISO tests applied to all their newly developed and OE products at their test facilities in Paris, France. Resulting in a formal lifetime exclusive endorsement contract on all current and future shock absorbers developed by BWI Group. This was the first time a non-OE solution has been recognised by BWI Group and was attributed to the work we at MSS have undertaken on the BWI MagneRide™ shock absorbers since 2009.

William | Founder | MSS | e-Mail: [William.blankson@mss.company](mailto:William.blankson@mss.company)