

! Dear Customer please choose a part of this document that is particular to the product you purchased.

Disclaimer

This document is the property of 4x4 AirSeals and should not be redistributed or replicated / reprinted , it is for the sole use of visual reference of 4x4 AirSeals customers. Please consult with your vehicles workshop manual and take all necessary precautions with regard to protecting your safety whilst working on your vehicle !protecting yourself and your vehicles systems from damage, the information below as been collated from our own personal & customer experiences and should be used as a guide only, we are not qualified motor vehicle repairers and we advise that you research the task in hand before commencing with your repair .



4x4AirSeals - Disco 3/4 &RR

Sport

Air Compressor Piston Seal Replacement instructions

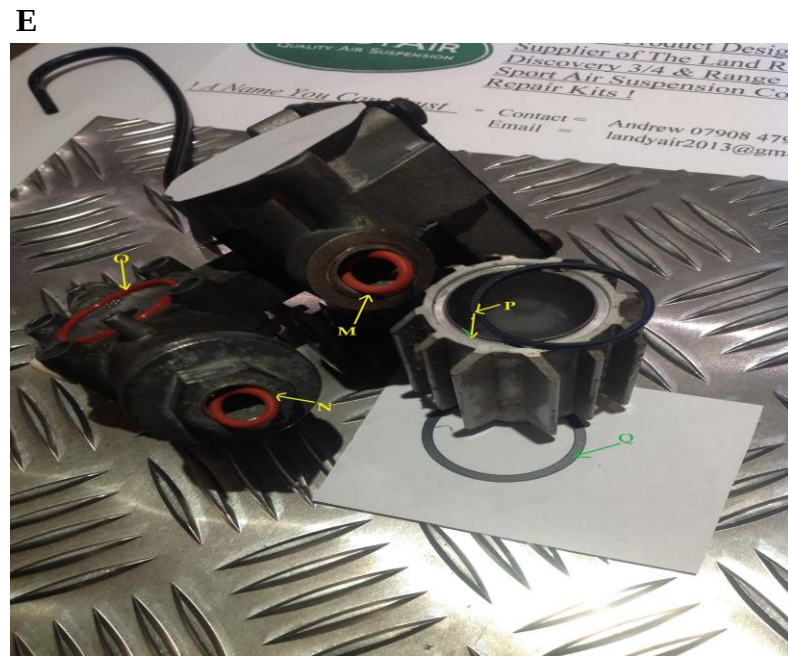
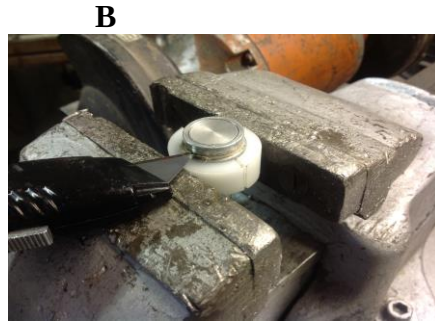
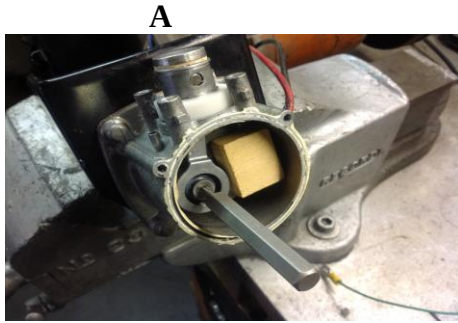
Thank you for purchasing this product from **4x4Airseals** , before fitting your repair kit , would you please take time and visit our website www.4x4airseals.com through these instruction sheets.

On our site there is a section for **Technical information** under the Navigation heading , in this section you will find instruction video tutorial for this particular product ,we advise watching the videos titled below : (further video tutorials will be updated soon).

Piston Seal Kit



For location of O rings and gaskets M,N,O,P&Q Refer to drawing Picture E your old base gasket Q needs to be removed from the actual compressor crank housing ,the bottom of the piston cylinder presses down on it when all the components are assembled.



The pictures **A B C & D** show how the disassembly tools are used ! this will reduce the risk of breakage of the piston connecting rod .

Connecting Rod Removal

- 1 Remove face plate retained by 3 screws
- 2 Remove 4 off cylinder head bolts , cylinder can be removed to one side , take note that the metal shim does not fall out when removing the cylinder head ! if it becomes dislodged from its seating try to observe its orientation on re assembly .
- 3 Remove Piston Liner make sure O ring in the top of the liner remains in place at all times.
- 4 Remove Piston Wear Ring By unwrapping it from around the body of the piston .
- 5 Rotate crank and fit pr assembly tool **A** under piston head and rotate crank until piston seats correctly within the recess in the tool in compressor housing ,the little block of wood can be used to wedge the crankshaft counter weight to aid crank pin removal .

6 Using the exact size T25 Torx fitting tool slacken the crank bolt, remove the wood block and rotate crank and remove tool **A** , unscrew crank bolt fully until con rod becomes detached , rotate crank until it will allow complete removal of the connecting rod from the housing.

Piston Seal Installation

- 1 Refer to Picture **C** cut away the old seal in 2 places to allow 2 thin bladed screwdrivers to gain access under the clamp ring illustrated in picture **D** ! make sure your white pre assembly support ring is fitted around the piston, position the assembly in the vice,
- 2 **! Tighten the vice only enough to secure the piston with the minimal amount of vice pressure so that it does not deform the shape of the piston itself and allows you to remove the clamp ring without the assembly sliding out of the jaws , you can grind 2 flats opposite each other on the white pre-assembly tool to allow a more efficient clamping force this will minimize the risk of the assembly sliding upwards out of the vice whilst removing the clamp ring illustrated in picture E .**
- 3 It is advisable to use a smaller bladed screwdriver to initially lift the clamp ring by gently tapping the blade into the 2 gaps opposite each other created by your Stanley knife blade in the previous process this will lift the clamp ring slightly and allow you to remove the rest of the old piston seal ! then gently tap in a larger blade screwdriver into the 2 gaps evenly this will lift the clamp ring to a higher level, you can now position your 2 larger bladed screwdrivers under the clamp ring illustrated in **picture D** and gently pry the clamp upwards evenly & slowly until it is removed from the piston , clean up any burrs caused by the disassembly process to the clamp ring or piston head.
- 4 Fit your new cup seal onto the connecting rod making sure it fully seated on the seating face ,place a little loctite on the inside of the clamp ring and by using a 1/2 socket of similar circumference tap down the clamp ring until it comes in contact with the newly fitted seal making sure you do not damage the seal outside profile (**Very important that you do not squash the seal by applying too much downward force when fitting the clamp ring , too much force will deform the seal outside profile which may cause the piston to run tight in the bore resulting in reduced pumping pressure and excessive heat**) ,tap the clamp ring down in increments, check to see on each increment if the seal revolves ! if it revolves tap the clamp ring down a little more ! until the seal will not revolve, fitting the clamp ring in this manner will not deform the newly fitted seal and ensure it is securely fitted with the minimum of downward pressure on the clamp ring .

Connecting Rod installation

- 1 Clean and remove old gasket compound and old piston seal dust from the compressor housing , place a little loctite on connecting rod crank bolt threads ,rotate crank counter weight to a position where you can fit the piston head back through the hole in housing refit the crank bolt and secure in the reverse order of the disassembly procedure utilizing the disassembly tools.
- 2 Rotate crank until the piston is at highest point , fit the new piston wear ring around the body of the piston making sure it locates within the recess in the piston body .

- 3 Fit the bore liner onto the piston slowly until the complete piston head enters the bore position the bore liner back into its final position, the piston should slide up and down in the bore without excessive resistance ! this will indicate the piston seal and wear ring are installed correctly .
 - 4 Refit the cylinder head onto the piston bore liner observing the shim valve plate is positioned correctly and does not become trapped and damaged whilst refitting the cylinder head into its position .
 - 5 Refit and tighten the 4 cylinder head bolts evenly , make sure you do not over tighten these bolts as the aluminium bolt securing locations can easily crumble .
 - 6 Lightly coat the compressor housing face where the face plate fits with a light coating of instant gasket compound , Refit the front compressor housing face plate and secure with the 3 screws.
-

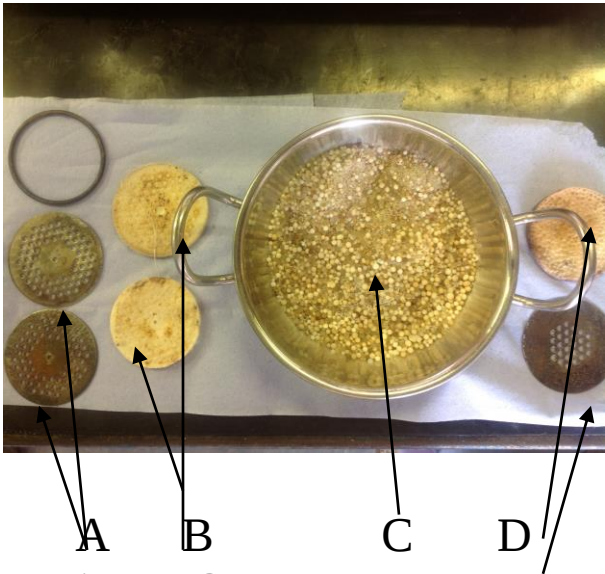
4x4AirSeals - Disco 3/4 & RR Sport

Air Dryer Filtration Repair Kit fitting instructions

Air Dryer Filtration Kit

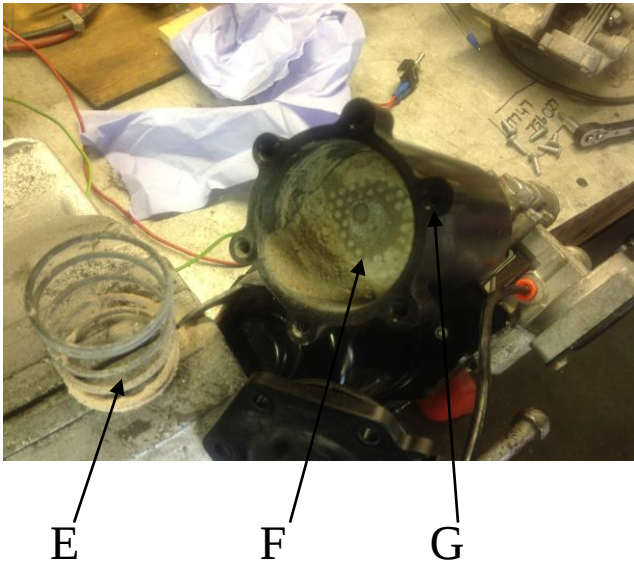


PICTURE 1



Picture 3

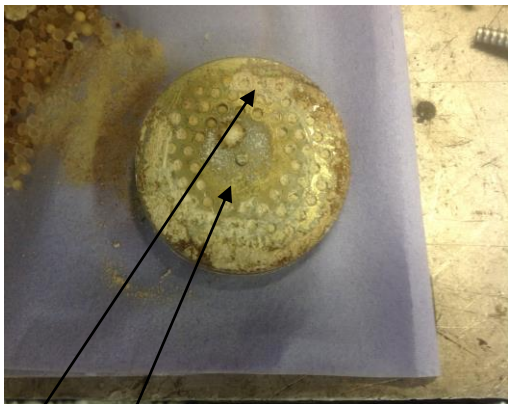
PICTURE 2



Picture 4 Main Filter Plate

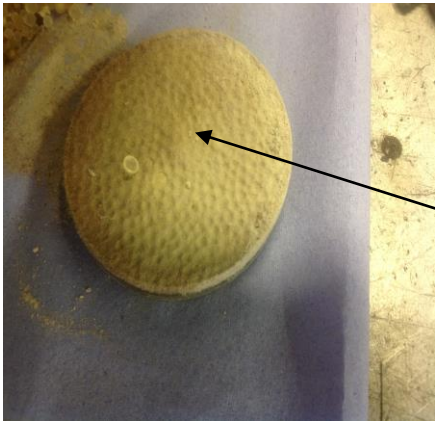


Perished Granules

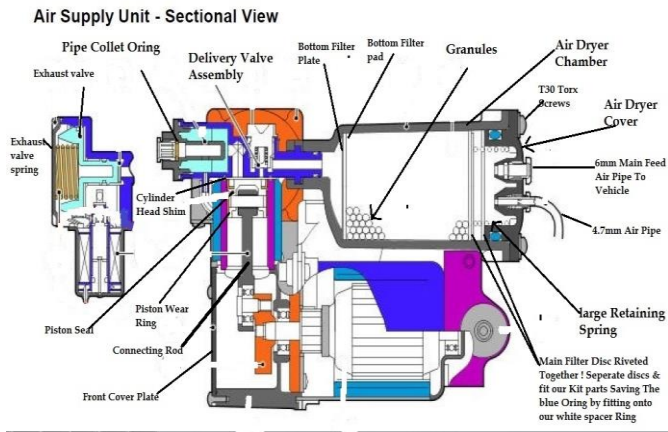


Holes blocked

Remove rivet



Blocked filters





Separate main filter disc and fit kit parts as per hand held left illustration

Instructions

Remove 6 off T30 Torx retaining bolts securing the end cap , observe the position of the small air pipe clipped into the end cap before removing , remove end cap followed by the large tension spring.

Prepare an area on your work bench to catch the filtration media when you remove the **main filter disk F** ! which is made up of 1000s of tiny granules(**Picture 3**), remove the **main filter plate F** , empty contents into a bowl which can be then discarded .Clean out the inside of the Air Dryer Housing with some wire wool before removing the Remaining filter Plate assembly **D** in picture 1 at the bottom of the Air Dryer unit, this will avoid dust entering into the piston cylinder assembly .

When you have removed the remaining filter plate assembly **D** that is in the bottom of the dryer there is a filter pad on one side of the this plate, peel the filter off the plate and unblock the holes in the plate & wire brush the plate until the plate is clean & smooth, stick the new filter pad **Y** back to the plate by placing a smear of contact adhesive or silicone sealant around the face near the circumference of the metal plate and then stick the pad to it ensuring the pad is central to the plate and no silicone or contact adhesive is blocking any holes in the metal plate.

Before refitting the bottom plate back in the bottom of the Air dryer ensure the bottom face where the metal plate locates is absolutely smooth and free from rust ! this face plays an important part by sealing the metal plate not allowing dust or debris to enter the compressor cylinder and exhaust valve / delivery valve assembly, fit the bottom plate with newly fitted filter pad back into the air dryer (**filter pad facing towards end cap**) .

Place the compressor in a vice with the Air Dryer in a vertical position (make sure the metal filter plate you have just fitted does not fall out) empty the packet of granules (slowly) into the Air Dryer , settle the granules to a level plain, fit your remaining filter pad **Y** on top of the granules , fit one of the Metal filter plates **A** on top of the filter pad **Y** , now fit & position filter spacer ring **X** (complete with remaining filter installed in the centre and original O ring installed around the outside of spacer ring) on top of the recently installed metal plate , fit the remaining metal plate **A** on top of the spacer ring you have just installed .

! Summarise order of components in the air dryer starting with an empty air dryer

Metal plate **D**, Filter **Y** , Granules , Filter **Y** , metal plate **A** ,Spacer Ring assembly **X**(with Oring) , metal plate **A** , Spring **E** , Air Dryer Cover with T30 fixing screws.)

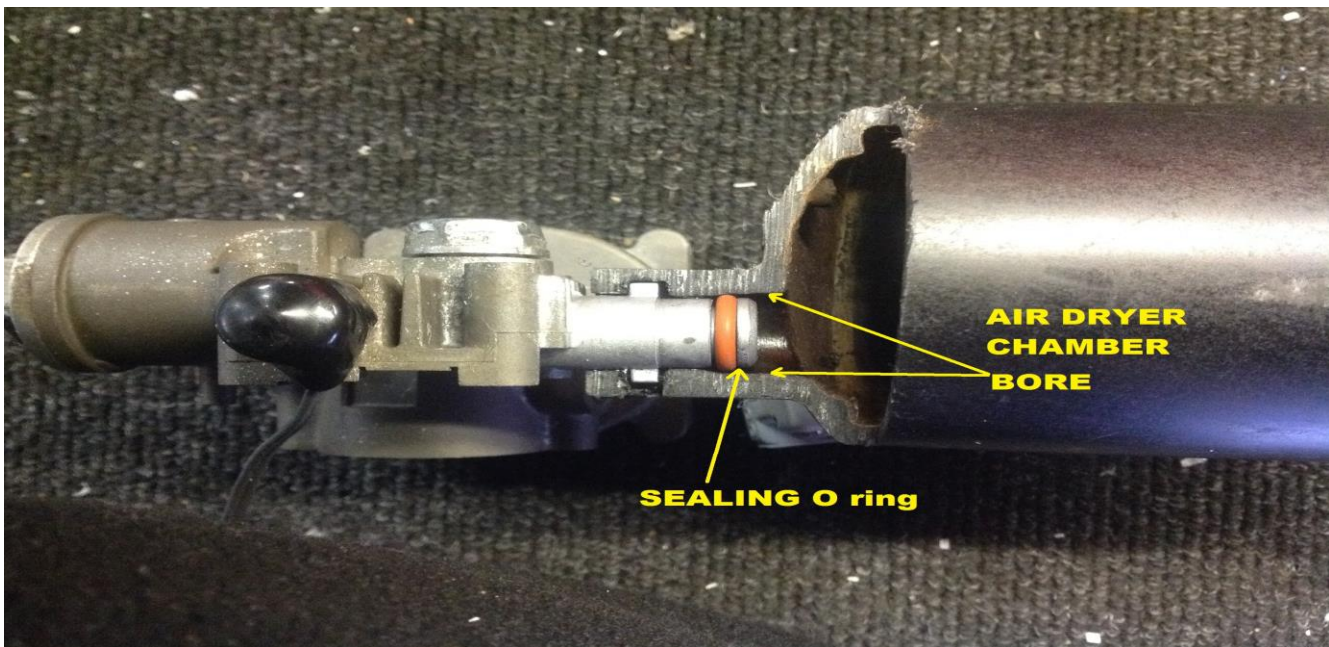
Refit the large spring on top of your newly installed Air dryer components , Refit your Air dryer cover and secure with the original T30 Torx head screws.

4x4AirSeals - Disco 3/4 &RR

Sport

Air Dryer Chamber sealing Oring fitting instructions

Picture 1





Important Initial Step CHECKING FOR LEAKS

! Please take all appropriate safety precautions when testing with this level of Air Pressure ! on the work bench or under your car, eye protection, safety clothing must be worn

!It is important that you to test for leakage at the Air dryer Chamber joint sealing O ring in **picture**

1 ! If you find that there is air leakage from the joint using gas leak detector spray ,with a pressure of approximately 15.8 bar trapped inside the Air Dryer Unit then you will need to fit the small silicone O ring supplied in the kit. **If it is not possible for you to test on the workbench with this level of air pressure ! then tests with compressor fitted on the vehicle is an option ,When the compressor runs on 1st start up of the vehicle ! then switches off automatically ! at this stage spray leak detector around the air dryer joint .**

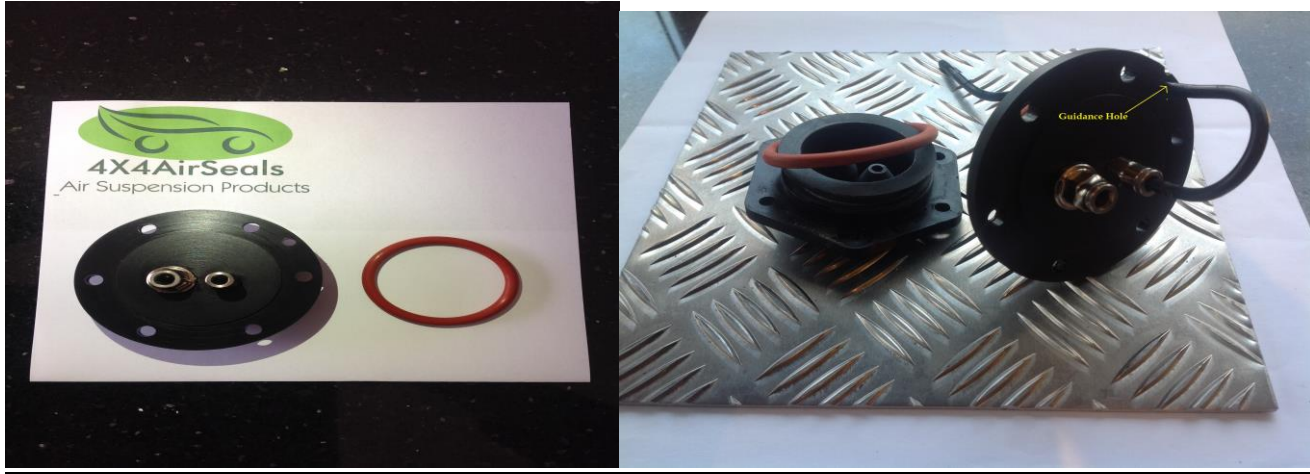
Air Dryer Joint O ring

If you found a leak at the main joint then you will have to remove the air dryer unit from the compressor cylinder head housing by removing the securing bolt underneath the dryer unit (near the cover) and then twist/rotate the air dryer unit anticlockwise slightly until the peg lines up with the dryer unit joint slot and then by gradually pulling on the dryer unit you will be able to remove the unit, it can be quite tight but be patient it will become detached , remove the old O ring and make sure the aluminium boss is polished smooth and free from oxidisation and also clean out the groove were your old oring was located, clean out the inside of the dryer unit particularly were the O ring seats it is very important to make sure this area is smooth and free from damage.Fit your new O ring into the groove, smear some grease preferably silicone on the O ring to ease assembly of the dryer unit , Refit the dryer unit in reverse order of disassembly taking plenty of time to ease it back onto the spigot. Take care you do not damage your new O ring .

Refit the securing bolt under the dryer unit so that the dryer unit is secured.

4x4AirSeals

Air Dryer Cover fitting instructions



Fitting New Air Dryer Cover

Using a t30 torx tool, remove the 6 off torx screws securing your original cover to the air dryer chamber itself , Remove your old cover & discard, **Lubricate your new O ring (supplied with your cover)** with silicone grease or similar !(this will aid installation of the cover into the air dryer chamber) fit your newly lubricated new O ring onto your new air dryer cover , Using wire wool remove any scaling inside the air dryer chamber were the air dryer cover is seated ! particularly were the O ring is situated, refit the large spring into your new cover and refit your new cover onto the air dryer chamber unit in the same orientation as the original cover and secure it with the 6 off T30 torx screws ! , Feed the 3/16 air pipe thru the guidance hole in the cover as illustrated in the picture.

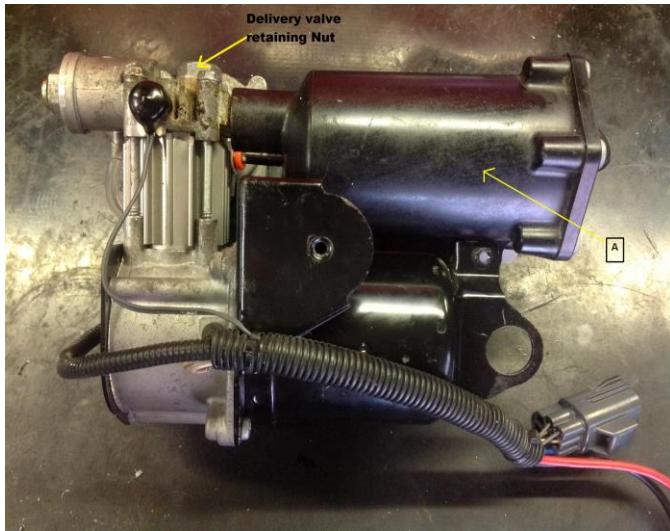
Compressor Recommissioning procedure

- 1 When you have refitted your compressor back on your vehicle ! please ensure you dont have any leaks on any other part of your vehicles Air suspension system ! if there is a leak in the system it will result in the compressor running indefinitely and thus reaching a unhealthy temperature .
- 2 If your vehicle is positioned on its lowest height setting when you refit your compressor and the receiver tank is totally empty of pressure ! on first start up only allow the compressor to run approximately in 5 minute intervals maximum ! until the height is returned to normal ride automatically ,allow sufficient time for the compressor to cool between intervals until this condition is achieved, do not try to adjust the suspension height whilst the compressor is trying to replenish the tank and lift the car to normal ride height .
- 3 When the car as returned to normal ride height , take note how long the period the compressor is switched off whilst the vehicle is ticking over and is on level ground over a 15 minute period this will give you a good indication whether there is a leak in the system which will result in the compressor switching on & off in short frequent cycles ! if this is the case find out the route cause of the problem , failure to identify a leak will affect the longevity of the compressor unit and can in some cases display a fault message similar to a worn compressor unit ' Not filling the resorvoir quickly enough '.
- 4 When the compressor as switched off and everthying appears normal , drive the vehicle normally and allow the compressor to cool under normal conditions , cycling the suspension up and down whilst the vehicle is stationary over many cycles is not good for the compressor unit ! Especially a newly rebuilt unit .

4x4AirSeals- Discovery 3/4 & RR Sport

- Delivery Valve Fitting Instructions

Picture 1



Picture 2



Generally the delivery valve rarely requires changing or servicing if you suspect that your delivery valve is functioning incorrectly or you suspect that it may be broken, then you will need to unscrew the delivery valve retaining nut pictured by the yellow arrow in **picture 1**, please be aware on occasion this nut can be very tight and you need to make sure you have the correct fitting socket or spanner as the nut is made from aluminium and can easily be damaged, it is very important! that when you apply the necessary force to unscrew this nut! that you support the complete cylinder head assembly as the twisting force could possibly break the 4 off cylinder head bolts and also damage the casting beyond repair, once you have removed the nut lift out the old spring and then remove your old delivery valve, clean out the pocket and fit your new parts in the same order, remove the old O ring and remove any oxidation from the retaining nut and fit your new O ring onto the retaining nut, refit your retaining nut and tighten.

Dear Customer,

Thank you for your recent order with us! please take time to read the note below which is guide with regard to installing your compressor back on your vehicle.

Recommissioning procedure

- 1** When you have refitted your compressor back on your vehicle ! please ensure you dont have any leaks on any other part of your vehicles Air suspension system ! if there is a leak in the system it will result in the compressor running indefinately and thus reaching a unhealthy temperature .
- 2** If your vehicle is positioned on its lowest height setting when you refit your compressor and the receiver tank is totally empty of pressure ! on first start up only allow the compressor to run approximately in 5 minute intervals maximum ! until the height is returned to normal ride automatically ,allow sufficient time for the compressor to cool between intervals until this condition is achieved, do not try to adjust the suspension height whilst the compressor is trying to replenish the tank and lift the car to normal ride height .
- 3** When the car as returned to normal ride height , take note how long the period the compressor is switched off whilst the vehicle is ticking over and is on level ground over a 15 minute period this will give you a good indication whether there is a leak in the system which will result in the compressor switching on & off in short frequent cycles ! if this is the case find out the route cause of the problem , failure to identify a leak will affect the longevity of the compressor unit and can in some cases display a fault message similar to a worn compressor unit ' Not filling the resorvoir quickly enough '.
- 4** When the compressor as switched off and everthying appears normal , drive the vehicle normally and allow the compressor to cool under normal conditions , cycling the suspension up and down whilst the vehicle is stationary over many cycles is not good for the compressor unit ! Especially a newly rebuilt unit .

