



DISTRIBUTORS OF ALL MAJOR BRANDS

✉ Unyawo Park , 31 Koeberg Rd , Brooklyn , 7405  
 ☎ Tel 021 511 4615 ☎ Fax 088 021 511 4615  
 📧 gremeltech@absamail.co.za

P.O. Box 6247, Roggebaai, 8012  
 🌐 www.airsprings.cc  
 ⓘ info@airsprings.co.za



**GRK35033D : Land Rover Discovery 2 Compressor Replacement  
TD5 & V8**

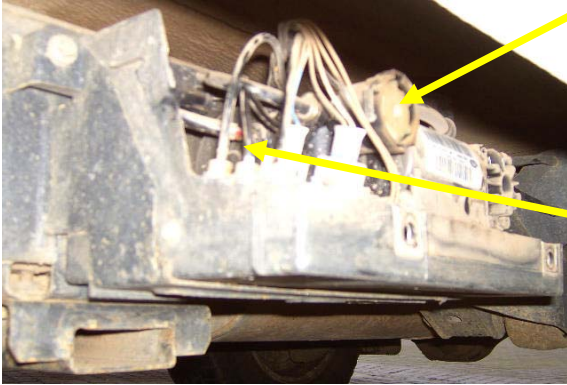
Part	Qty	Code
ViAir Compressor 350C 12V,10 bar,42 lpm,17a Max,100% Duty,Chrome,Sealed	0	GRV35033
Adapter 1/4F 1/4F Chrome	0	GRXADA1/4F1/4F
Piping (Nylon 6mm) Yellow	5	GRXPIPENY
Adap Str 1/4M Push Fit 6mm	1	GRXADA1/4MPS6
Piping (Nylon 4mm) 2mm ID Black	5cm	GRXPIPENY4
T Piece Nylon Push Fit 4mm OD	1	GRXTEENYPS4
Adap Str Plastic Push Fit 4 to 6 mm	1	GRXADAPS6PS4
Adap Str 1/4M Push Fit 6mm	1	GRXADA1/4MPS6
Quick Coupler F 1/4M PCL	1	GRXQCKF1/4MP
Distribution Block 4 Port 1/4F, 36mm Diag mounting	1	GRXDIST4P1/4F
Self Tapping Screws 5mm D x 25mm L	2	GRXNUTBOLT
Cable Ties 4.7mm W x 20mm L (Cabelok CB3=InsulokT50R)	4	GRXCABTIE
Bush 1/8F 1/4M Chrome	1	GRXBSH1/8F1/4M
Nipple 1/8M SM (Tank Valve)	1	GRXNIP1/8MSM
Switch ELP Electrical SPST 25A ON/OFF	1	GRXSWESPST25A



**Other popular purchases for this vehicle are:**

LAN04	Air Spring Discovery 2 Rear (1998-2004)
GRKLROVER8	Land Rover Disco 2 Basic Air Recovery Kit
GRV35033	ViAir Compressor 350C 12V, 26A Switch, 10 bar, 42 L/min, 17 Amps Max, 100% Duty, Chrome, Sealed

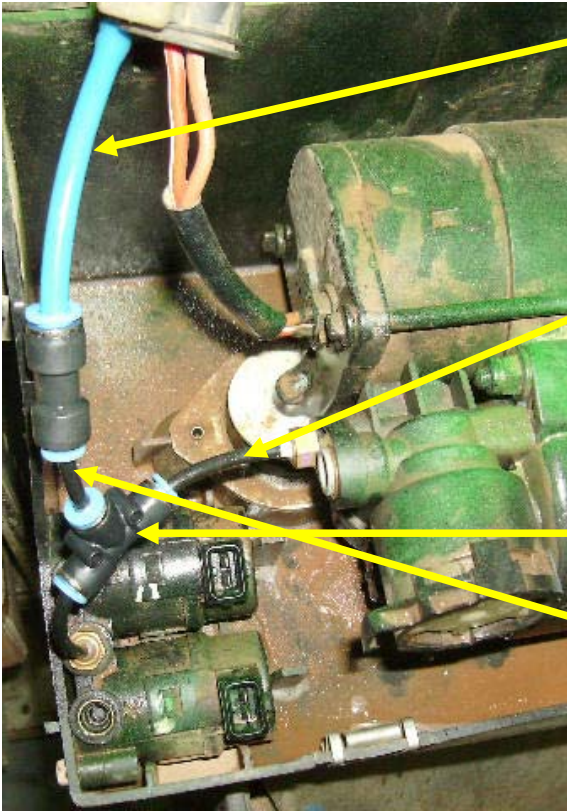
## INSTALLATION



Pressure relief valve.

Remove the cover of the compressor box, located under the middle of the vehicle on the passenger side.  
Find the 2 solenoids in one corner.

The yellow nylon pipe connects to the **centre** of three 4mm black pipes in the Compressor/Manifold box,



Route the 6mm Nylon pipe out of the Compressor box towards the chosen location for the replacement compressor. We suggest the engine bay on the passenger side against the bulkhead (picture shown later). This needs around 2.5m of 6mm pipe.  
The kit contains 5metres in case you want to install the compressor in another location.

The Central black air pipe runs from the solenoids to the Land Rover Wabco compressor.  
Cut this black 4mm pipe pipe (at 90 degrees!) in the middle of the solenoid and compressor ends, using a blade or stanley knife.

Attach the Black nylon 4mm Tee Piece to rejoin the 2 ends just cut.

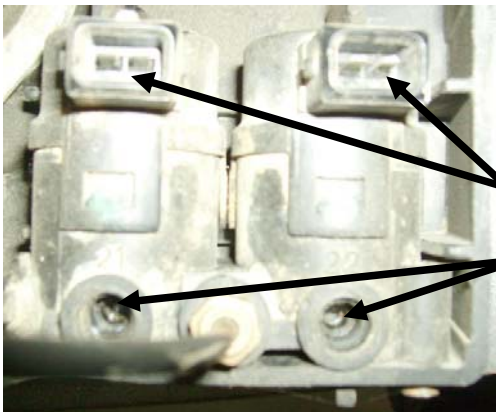
Follow with the 5cm piece of black 4mm pipe and then the 4mm-to-6mm converter, with the 6mm Nylon pipe attached to the opposite side.

Push to connect fittings:

The pipe seals in a small O ring in the bottom of the fitting.

It is **ESSENTIAL** that the outside of the pipe is clean and scratch free and cut at 90 degrees, otherwise the fitting will leak slowly.

Do **NOT** use **side cutters** to cut the pipe. Use a sharp Blade like a Stanley carpet knife or a Swiss army knife etc.



The pipe should be firmly inserted into the collar.

(Removal of the pipe is achieved by releasing the pressure in the system and pushing the collar towards the thread of the fitting while pulling the pipe in the opposite direction)

Airspring solenoid coil terminals

The **2 outside pipes (to the airsprings)** **NOT to be cut** have been removed for illustration.



**Compressor Wiring:**

The old compressor (Wabco 415 403 401 0 = Land Rover RQG100041)\_connector inside the compressor box is shown here, with two wires:

**Brown:** Join to the new compressor Earth (**Black**)

**Red & White :** Join to the new compressor +12V supply (**Red**).

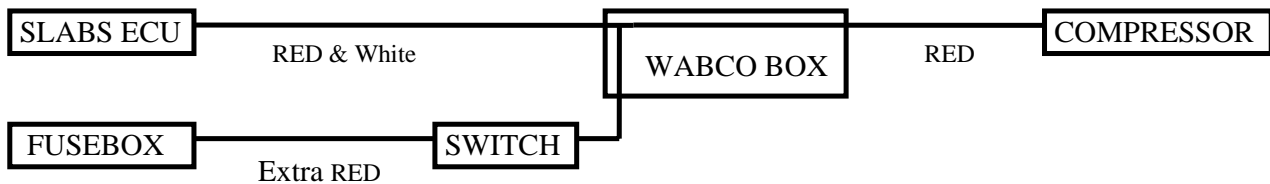
Cut these 2 wires at the point shown and connect to the new compressor using a connector block.

The **Red & White** wire is controlled by the Disco 2 “SLABS” ECU which operates a relay to supply fused current to the compressor by watching the position of the height sensors, so that when one of the sensors is “low” the compressor is switched on.

The compressor should switch off when the sensor(s) reaches the correct position for the suspension.

If it keeps on pumping when air is not being used to change the suspension height then there is probably a leak in the system

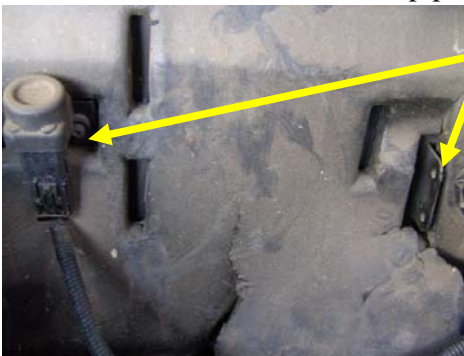
To use the compressor to pump tyres, an extra red wire needs to be joined to the red wire above. This extra new wire will supply current to the compressor through the supplied switch, even when the SLABS ECU has switched off the Red & White compressor wire.



To pump the tyres, attach a hose to the Quick Coupler and switch on the Compressor using the manual switch.)

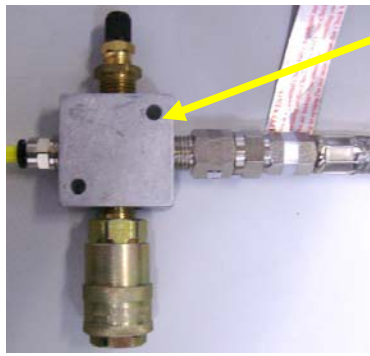


We suggest locating the replacement compressor in the engine bay on the passenger side against the bulkhead. This needs around 2.5m of 6mm pipe.



This picture shows 2 possible usefull mounting points (special mounting brackets to be made by the customer)

The normal mounting method of drilling holes for the four rubber feet is an alternative.



The Distribution Block should be located close to the compressor.

Find a suitable mounting point and attach with the 2 self tapping screws provided after connecting as below.

Distribution Block connections (4 x 1/4" Female)

- 1) Compressor Outlet (1/4" Male with non return valve)
- 2) An emergency Schrader type valve (used to provide air from a filling station Tyre inflater) and 1/4" bush.
- 3) A Female Quick-coupler 1/4" thread, to accept a Tyre hose.
- 4) A 6mm Push to connect fitting to connect to the pipe from the Wabco Compressor box.



The Disco 2 actually does not need a special compressor unless the system (Air spring, Pipe, Solenoid) has an air leak, in which case the SLABS will continually switch on the compressor in an attempt to inflate the air spring, causing the compressor to **overheat** and fail.

Gremeltech recommends replacement with a **100% duty cycle** compressor like the ViAir **V35033**, making the compressor **immune** to overheating problems.

The ViAir **V35033** compressor pumps to a spec of **10.4 bar max**. It pumps at **42 litres per minute at 0 bar** (into free air), **22.5 lpm at 7 bars** and about **17 lpm at 10 bars**.

It draws 17 Amps max, duty cycle **100%**, i.e. Continuous Duty at 7 bars. Built-in Thermal cut out.

Fills a 5 litre tank from 0 to 10 bar in 2.3 mins.

### Old Compressor Condition

This "piggyback" method of installing a new compressor relies on a "reasonable" seal inside the old compressor head area.

If the compressor head seal inside the piston or the reed valve is broken, then instead of pumping the airsprings, the new compressor will leak past the old compressor head, into the old compressor inlet pipe.

### Testing how badly worn your compressor head area is:

With the air suspension at the High position, apply 12V and Earth to one of the airspring solenoid coil terminals (see page 3)

Assuming that solenoid is not leaking, and the compressor tank is full, (System has just been raised), the airspring should not lose pressure.

Most owners / repair shops buy a complete new box (+- R 6150 incl VAT), so consequently there are a lot of "low cost / free" parts available at Land Rover repair places.

It is possible to get another box at a very low price if your compressor head area has been badly damaged and swap compressors for one with burnt out electrical parts.

### Old Solenoid Condition

There are 3 solenoids in the box, one exhaust solenoid and 2 air spring solenoids.

A marginal leak in the exhaust solenoid will make the compressor work a bit harder to get the airsprings up to pressure. If the leak does not allow pressure to build up to 7 bars, then the airsprings will not inflate fully. Any of the 3 solenoids can be replaced cheaply with second hand parts as discussed on the previous page. If an airspring solenoid is leaking, then it must be replaced or properly repaired as a slow leak will cause deflation of the air springs, by slowly leaking past the compressor head.

### Old pressure relief valve.

The pressure relief valve protects against over pressure from the compressor.

This part can also be swapped from another compressor box if found to be faulty.

### Existing Air System:

The old Compressor box input/output connections consist of :

- 10mm air intake line from the drier (40cm outside the box),
- a wiring harness (compressor wires and 3 sets of solenoid wires)
- 2 x 4mm nylon pipes running to the left and right rear airsprings.

Inside the box there is an exhaust port (8mm brass circle with no pipe connection, for deflating airsprings and relieving over pressure) and an over pressure relief valve (38mm diameter white plastic circle) connected to the compressor.

### System operation

#### **Inflation** of an airspring:

The Height sensor on one side registers low

The SLABS ECU computer opens the solenoid for that side and switches on the compressor.

The compressor inflates the airspring until the height sensor registers correct.

The SLABS ECU computer closes the solenoid for that side and switches off the compressor, sealing the air pressure in that airspring.

#### **Deflation** of an airspring:

The Height sensor on one side registers high

The SLABS ECU computer opens the solenoid for that side and the deflation solenoid attached to the compressor.

The airspring deflates until the height sensor registers correct.

The SLABS ECU computer closes both solenoids sealing the air pressure in that airspring.

Note that if the **rear shocks are worn**, the chassis may not move to the correct height and the Air suspension SLABS ECU may do strange things.

**Leaks in the system** cause the compressor to continually overheat, often with insufficient cooling time, consequently causing heat damage to the compressor. This is the most **common cause of OEM compressor failure**, where the piston, ring and cylinder are badly worn.

Air Springs are similar to those on large trucks and luxury buses.

OEM Air springs by Dunlop last about 100-150 000 km before they begin to leak.

Gremeltech sells replacement air springs by Arnott using a different rubber that lasts much longer.

The most common place for OEM leaks is just under the rollover lip, so when searching for leaks select Extended height (Off Road) mode.

The joint between the rubber and top or base can also get damaged.

Serious leaks cause a hissing noise, easily detected.

Use a spray bottle with 1 Sunlight liquid dishwasher to 3 water.

Spray the 2 Air Springs, the 2 Height sensors, Solenoids in the Compressor box and the pipe and its connections.

## Compiled by [www.landyzone.co.uk](http://www.landyzone.co.uk) (Battenberg)

Simply put, the air suspension on the Disco II consists of an air spring at each back wheel, a way of inflating them independently and a computer to monitor the height of the car and keep it all level.

### The Disco II air suspension consists of the following components:

- Air springs
- Pipes that join the air bags to the valve block and supply air to the compressor
- A valve block to control independent inflation/deflation of the air bags
- A compressor to supply compressed air
- Air scrubbers/filters to clean and de-moisturise the air
- Ride height sensors to feedback levelling and height information to the computer
- A computer to control the valve operation and activation of the compressor

### Component Locations:

- **Air bags:** There are two air bags, one at each back wheel (there is no air suspension on the front)
- **Air Pipes:** the supply air to the compressor runs along the chassis to the compressor from behind the top light cluster at the rear left hand side of the car. The supply to the air bags runs from the compressor valve block along the chassis to each of the rear air bags. There is a supply to the valve block that runs from the compressor.
- **The valve block:** this is contained in the compressor unit black box on the outside of the chassis rail under the passenger seat (UK models)
- **Compressor:** this is contained in the black box on the outside of the chassis rail under the passenger seat (UK models)
- **Air Scrubbers/Filters:** there is an air scrubber on the compressor unit and the filter is behind the light cluster on the end of the supply pipe.
- **Ride height sensors:** these are small matchbox size boxes with a plastic arm. They are attached to the chassis rail on each side at the front of the rear wheel arches and have a link bar which attaches to the rear arm to the axle and an electrical connection.  
the sensors work on a hall effect principle, basically a rotating magnet inside a coil.
- **Computer:** this is the SLABS ecu ('Self Levelling' and ABS ecu) and is found behind the dashboard glove box.

### Modes of operation.

1. **Normal driving mode:** this is the normal operation height of the suspension
2. **Extended height mode:** (user controlled), this is activated via a button on the dashboard. Activation/dis-activation comes with a dashboard light and audio chimes. This mode raises the back end for extra off road ground clearance.
3. **Dropped height mode:**, (user controlled) this is for hitching a trailer or caravan and needs a remote key fob, although you can buy these keyfobs from ebay etc... This key fob accessory needs to be programmed to your car by a dealer. This mode drops the back end down below 'normal' operation levels.
4. **Grounded Chassis Mode:** (automatic) this mode is automated by the SLABS ecu. If it detects that the chassis is grounded using the traction control sensors. It automatically raises the chassis beyond extended height temporarily in an attempt to jack the chassis out of its grounded situation.
5. **Transport Mode:** (dealer only) This is only available to a dealer or someone with a 'testbook' computer, it lowers the suspension right down, for use when the car is on a transporter.

### Quirks and safety.

The suspension will rise about 20mm once the engine is started and all the doors closed. This is normal.

The suspension will drop about 20mm once the engine is switched off and all the doors are closed after exiting the car. You can usually see this happen and hear the air rushing out. This is normal.

The 'extended mode' will return to 'normal mode' once the car drives over 18mph. lights will flash on the dash and you will hear the chimes. This is normal.

For safety, all the doors including the bonnet and boot must be shut to allow any changes in the suspension height. (Remember this if you are making a repair!)

### **Troubleshooting.**

Land Rover recommend that the air bags be changed every 5 years as they become porous with age – so if they haven't been changed, change them..!

Sinking on one side or the other is a sure sign of an air leak on that side, if it regains normal height after running the engine (remember doors closed!) then the compressor is ok and you should be looking at replacement air bags. Replace them in pairs!

Spraying soapy water on them when in 'extended height' mode is a good telltale for an air leak. Find the bubbles and you have found the leak!

Very few people have had an air pipe wear through by rubbing on the chassis, this is not a common fault. If this happens then the compressor will be constantly on (when the engine is running) and the car will not lift on that side.

Over inflation on one side or the other is a sign of a defective ride height sensor, this will pump the air bag to the max and will cause the front to dip down on the opposing side. **DO NOT DRIVE THE CAR** if this happens, Get it recovered and replaced immediately! Air bags have exploded due to over inflation. At any road speed this could be lethal... believe me, they go with a bang!!!

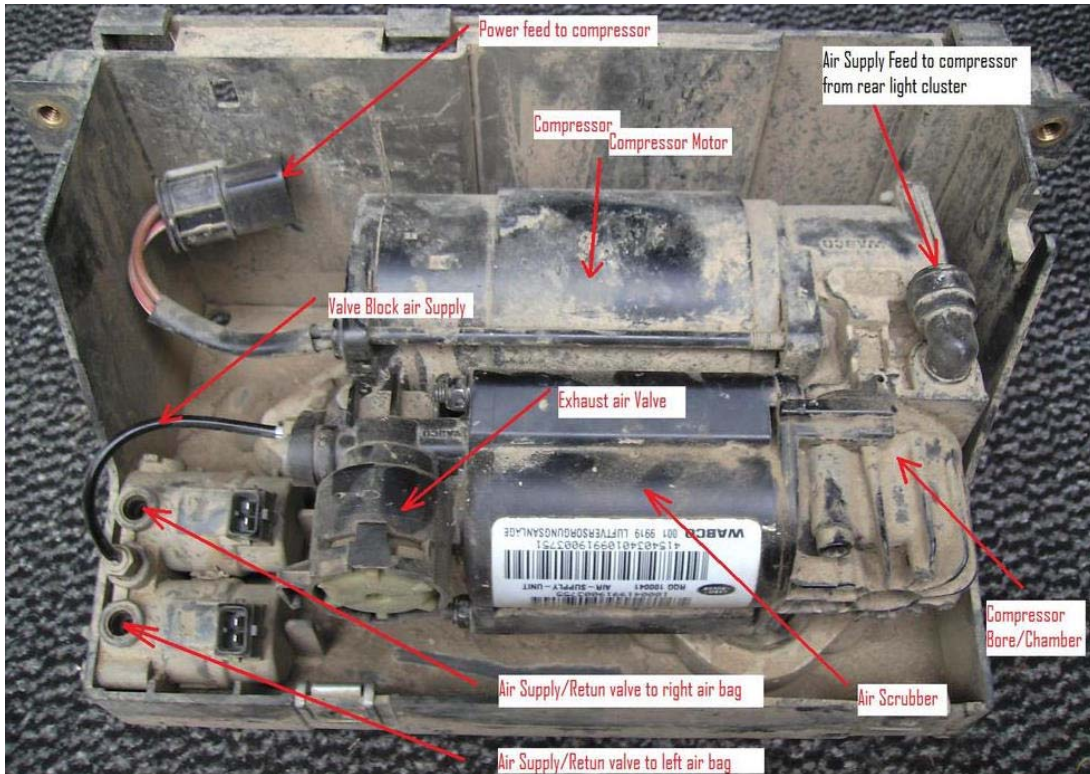
Replacing them is an easy job, but for safety sake must be done with caution given the fault.

Expect a further hour or two costs for calibration at the dealer for a ride height sensor.

Sinking on both sides and not able to regain height is probably a failed compressor or faulty valve block. Some people have claimed to source just the valve block, mostly the compressor and valve block come as one unit.

When attempting to do any repair on the suspension, pay attention to whether to support the chassis or the axle or both

## Inside the compressor unit:



## Replacing an Air Bag

1. Jack car really high put stands under chassis letting axle dangle
2. remove jack and put under diff pan
3. take off wheel, jack axle slightly
4. carefully take off two air bag retaining clips at mounting at top
5. remove air supply pipe fitting with a 10mm spanner and install into the new airspring
6. remove bag like light bulb
7. lock new bag in
8. use jack to raise axle and get pipe on
9. put clips back on
10. jack up axle really high to fool sensors into low ride height
11. close all doors including boot and open drivers window
12. start car through drivers window and run for a few seconds to put just a touch of air in the bag
13. stop engine and check that bag is inflating properly and square run engine again till bag inflated
14. put on wheel
15. take off stands and jack

## Replacing a faulty ride height sensor.

- Take your keys out of the ignition.
- DO NOT RUN THE ENGINE until you have completed the job
- if the car is up on one side due to over inflation, release air pressure at the valve block on the appropriate side by slowly slackening off the pipe union. DO NOT WORK IN THE WHEEL ARCH until correct ride height has been restored.
- chock, jack, put chassis on stands and remove road wheel.
- locate electrical connection on sensor and unplug, unbolt sensor and replace.
- restore electrical connection
- replace wheel
- with all doors closed run engine and observe.
- use a tape measure to compare sides, measure from the hub of the wheel to the top of the wheel arch. If it is wildly out, go see a dealer.