



Digital Adrenaline For Your...
Range Rover
4.6L



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A division of Powerchip Group

This data sheet explains why the POWERCHIP is the best way of improving your vehicle, to give you faster, smoother acceleration, in all conditions.

Make	Land Rover
Model	Range Rover 4.6
Engine	48D
Year	May 95 to Sep 99
Powerchip Code	LAN0008

Power

In standard form the Land Rover Range Rover 4.6 produces 225 hp, however the addition of a Powerchip will improve the engine power to 247 hp.



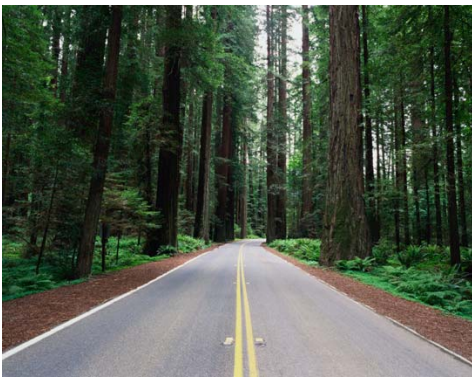
Power (hp)			
Standard	Bronze/ Silver	Gold 91	Gold 93
225	N/A	243	247

The extra performance attained by the POWERCHIP, means that your car responds so much better than a standard Range Rover 4.6. You will find the car responds with less effort, really pushing you back in the seat, to give you a much more enjoyable and safe driving experience. The POWERCHIP will tap into your Land Rover's 'hidden reserves', for more punch, more pull, and more driving fun - and you really notice the power increase!

Torque

Torque is a measurement of your engines pulling power, and it's torque that pulls you up hills. With the POWERCHIP, you really notice the increase in torque right throughout the rev range, giving you far greater flexibility at low engine revolutions. Towing will become effortless, and you will no longer **need** to take the engine to the redline in each gear to get the performance you demand...It's always on tap for when you really need it!

Torque (lb.ft)			
Standard	Bronze/ Silver	Gold 91	Gold 93
286	N/A	306	311



Acceleration

Increased Power and Torque results in faster acceleration. And it is not just standing start acceleration that is improved, your in-gear acceleration is improved and faster.

If overtaking is important to you, you will feel safe knowing that you spend less time on the "wrong side of the road", improving the safety of your car, for you and your family or passengers.

Maybe you feel that you need that extra bit of power when you are lined up at the "traffic light grand prix" against another car with similar (or more) power. If you want to have an unfair advantage to give you more of an leap away from the lights, you need a POWERCHIP for your Range Rover 4.6.

Fitting Details

Your car uses 2 plug-in pull-out chips. Fitting is easy and the Powerchip can be installed in about 30 minutes. The Powerchip is currently in stock at our Upgrade Center located in Santa Monica, California, and will be delivered by FedEx Next Day courier. You simply read and follow the full fitting instructions (including diagrams and photos) to install the new Powerchip. This can be done using simple tools, and it is designed so that any home handyman can complete the task, quickly, simply and easily.

Manufacturers Tolerances

Land Rover de-tunes its cars to allow for drivers that do not service their cars regularly or those who are non-enthusiasts. The Range Rover 4.6 is 'de-tuned' to be able to run on the poorest grade of fuel that the car is likely to encounter anywhere in the world, and also to allow for the small percentage of owners who put their cars reliability to the test due to their lack of knowledge. In general, our clients are enthusiasts who place more emphasis on the performance of the vehicle, and as such the POWERCHIP does not need to be programmed as conservatively as the standard software.



Modified Spark Advance

The Powerchip modifies the ignition timing on the Range Rover 4.6 where possible on both part and full throttle to ensure the car is running at optimum tune throughout the rev range. We are able to achieve significant gains because of the time spent adjusting these settings for optimal performance.

Driveability

Beyond the impressive torque and power gains on full throttle, many hours were spent refining the part throttle timing maps for maximum throttle response and driveability. Both the full throttle and part throttle maps are changed for improved driveability in day-to-day driving.

So you don't need to be on the racetrack to use the POWERCHIP and to notice the improvements in the way the car responds.

49 State Emissions Legal

The Powerchip complies with U.S. EPA Memorandum 1A, or it has not been found nor is believed to be unlawful for use under the provisions of the Clean Air Act. Currently, Powerchip is not legal in California for vehicles that may be used on a highway.



Our Satisfaction Guarantee

Every Powerchip sold in North America comes with an unconditional 14 day money back guarantee. This ensures that the Powerchip will live up to your expectations, not ours! If for any reason you are unsatisfied with the Powerchip, you may return the Powerchip to your place of purchase for a full refund of the purchase price (not including shipping and handling).

Our satisfaction guarantee offers you total peace of mind, and makes the purchase of the Powerchip risk free.

By purchasing a Powerchip you have nothing to loose.

Warranty

The Powerchip Gold 93 comes with a thirty six month warranty, offering you peace of mind knowing that if anything happens to the Powerchip in that time, we will replace it without charge to you. An optional extended Powerchip warranty is also available at an additional \$90 at the time of ordering. This extends the warranty period on any Power chip to six years. An optional Powertrain Warranty is also available for \$190 at the time of ordering your Powerchip. This would cover damage to the drivetrain in the unlikely event of damage caused by the Powerchip.

The terms and conditions of the Powerchip warranties can be viewed in detail on our web site at <http://www.powerchipgroup.com>.



If your car is covered by a new or dealer warranty, the dealer may not 'void' a warranty simply because you have fitted an aftermarket product. SEMA, the automotive aftermarket industry body has made the following statements regarding aftermarket products such as performance chips...

"The vehicle manufacturer is not allowed to void the vehicle warranty just because aftermarket equipment is installed on the vehicle. ..."

"...In cases where such a failed aftermarket part is responsible for a warranty claim, the (vehicle) manufacturer must arrange a settlement with the part manufacturer, but the new vehicle warrant is not void under the law."

"If the failure to honor a claim involves the new-vehicle warranty, and it appears that the (vehicle) manufacturer is improperly denying a claim, the incident should be reported to the Federal Trade Commission (FTC)."

Octane ratings

The Powerchip is designed to get the best from your engine, and to do this you must use a good quality of fuel. It's simply not possible to get more power from late model fuel injected cars using poor quality fuels, such as 87 octane.

The Powerchip takes advantage of the tolerances that motor manufacturers build in to allow the car to run well on poor fuel. By removing this tolerance, the additional spark advance of a Powerchip unleashes the potential that is locked away with the restrictive factory presets.

Powerchip Gold 91 is designed to run on fuel with an octane rating of either 91 or 92. Powerchip Gold 93 is designed to run on fuel with an octane rating of 93 or higher.



The minimum octane fuel that can be used with the Powerchip is 91 octane. We recommend that you use the highest-octane fuel available to you, such as 92, 93 or 94 octane if a higher than 91 octane fuel is available.

Value for a Lifetime

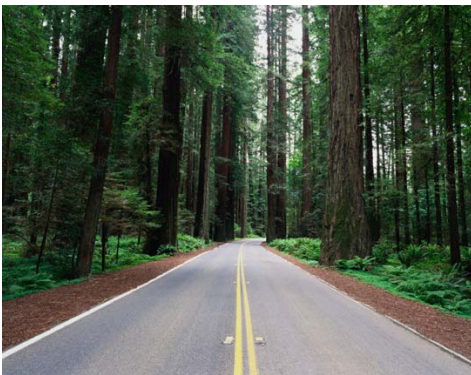
The investment you make in the Powerchip will last for as long as you keep your car, and for most of our customers, that is normally for 3 or 4 years. So when you consider the benefits of the chip over a number of years, it is not a lot to pay for extra performance. As a percentage of the total cost of your car, the Powerchip works out to be very cost effective. Also, with the Powerchip, you can expect your car to command a higher price when it comes to sell your car.

Cost Effectiveness

As we all know, modifying late model vehicles is not a cheap exercise, however, when you look at it on a horsepower per dollar basis, the POWERCHIP comes in ahead of any other modification you could make to your Land Rover. Have a look at just how well the POWERCHIP stacks up:

Price	\$640
hp Gain	22 hp
Price/hp	\$29.09

As you can see, the POWERCHIP is excellent value for money compared with other modifications you might be planning in the future.



COST USD(\$)			
Bronze	Silver	Gold 91	Gold 93
N/A	N/A	\$640	\$640

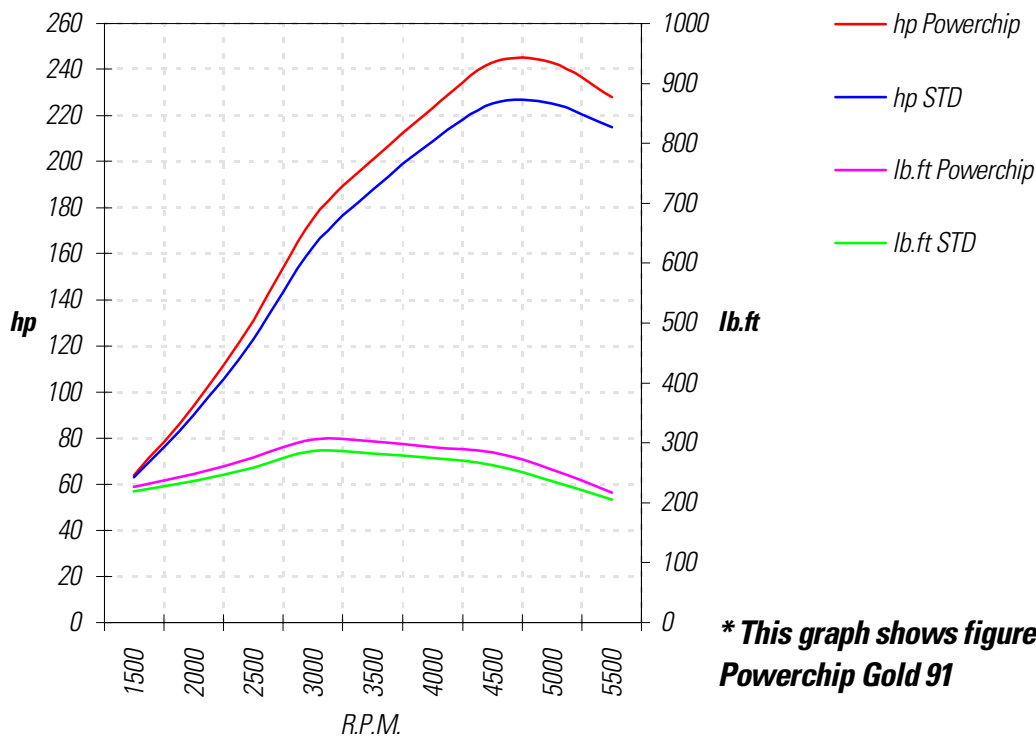
Ask the Experts

Your POWERCHIP Power Consultant is trained to provide you with the best information about getting more performance for your car. We have a specific Power Consultant who is responsible for the Land Rover range, and he is an expert at answering all of your technical questions, especially about the Range Rover 4.6.

Gold 91 Performance Data for your...

*Land Rover Range Rover 4.6 **

R.P.M.	hp STD	hp Powerchip	hp Gain	lb.ft STD	lb.ft Powerchip	lb.ft Gain
1500	63	64	1	219	226	7
2000	90	94	4	236	248	12
2500	123	131	8	259	275	16
3000	163	175	12	286	306	20
3500	188	201	13	282	302	20
4000	209	223	14	274	293	19
4500	225	243	18	263	284	21
5000	225	243	18	236	255	19
5500	215	228	13	205	217	12

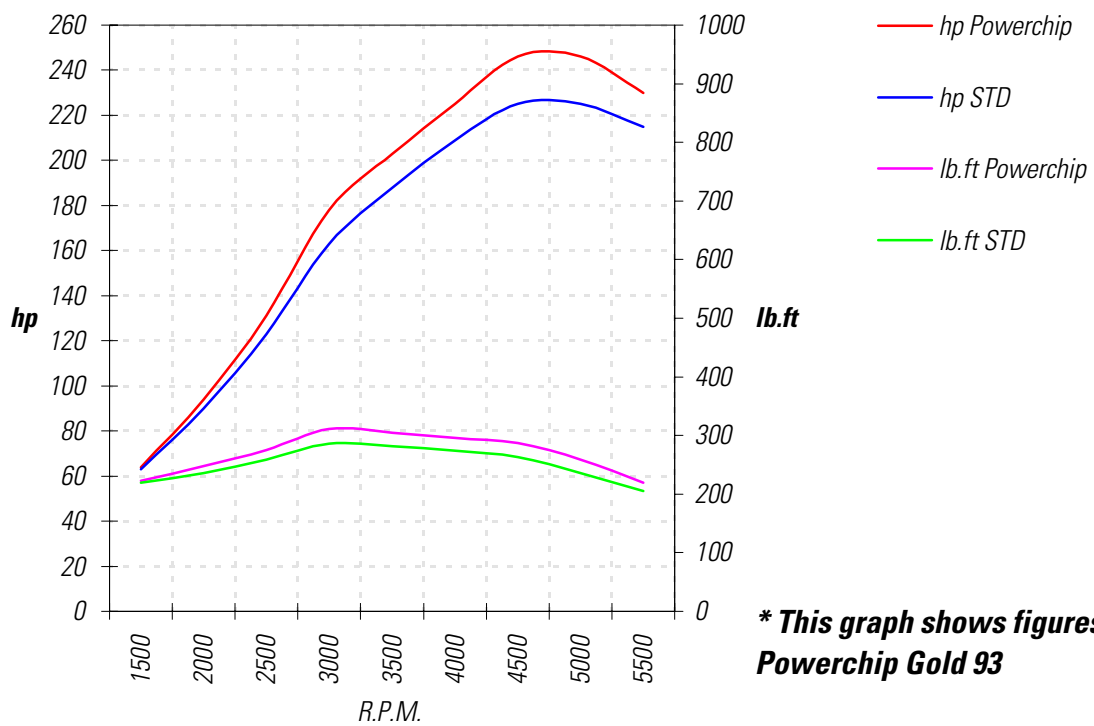


MODEL	ENGINE	VERSION	CAPACITY	Max hp	Max lb.ft	0-60 Auto	0-60 Man
Range Rover 4.6	48D	Standard	4554cc	225	286	N/A	12.7
Range Rover 4.6	48D	Gold 91	4554cc	243	306	N/A	12.1

Gold 93 Performance Data for your...

*Land Rover Range Rover 4.6 **

R.P.M.	hp STD	hp Powerchip	hp Gain	lb.ft STD	lb.ft Powerchip	lb.ft Gain
1500	63	64	1	219	223	4
2000	90	94	4	236	248	12
2500	123	131	8	259	275	16
3000	163	178	15	286	311	25
3500	188	203	15	282	305	23
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4500	225	246	21	263	287	24
5000	225	246	21	236	259	23
5500	215	230	15	205	219	14



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POWERCHIP™

POWERCHIP

Fitting Instructions

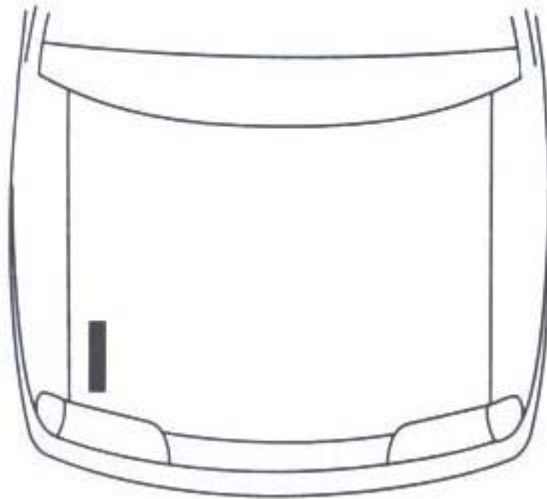
Range Rover, 4.6

Tools Required.

- Phillips Head Screwdriver
- Flat Blade Screwdriver
- Torx 15, 20, 25
- Very Small Flat Blade Screwdriver

Locating & Access To ECU.

Allocate 30 minutes towards the installation and testing of the POWERCHIP. It should be done when you are not rushed for time, and can concentrate on the installation.



The ECU is under a



hidden shield

Underbonnet. You will need to undo three spring bolts to remove the cover.



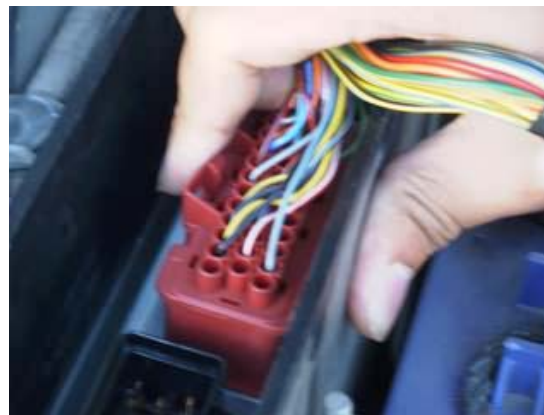
This will allow you to access the ECU. Two Phillips screws need to be removed to allow the cover to come off.



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Once the plugs are removed the ECU can be pulled upwards firmly to be removed from the box. Remove the E.C.U. from the car and place it on a clean work bench.



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The cover of the ECU has six tabs.



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20 screws that will need to be removed to expose the circuit board. There are a further eight to loosen the top board to allow access to the chip.

The top circuit board can now be lifted gently way.



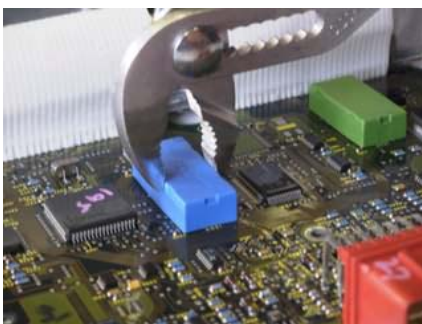
up and out of the

There are two removable chips on the board, chip with the blue colour is to be replaced.



only the longer

Removing Standard Chip.



Gently grip the multitrips or side, as shown now remove the



blue chip cover with similar and rock to one in the pictures. You may cover.

The chip is now exposed and ready to be removed. Using a small flat bladed screwdriver inserted between the chip and socket and prise gently



upwards. Do a little at a time and swap ends occasionally until the chip is free of the socket.

Plugging in Powerchip.

Now Take the POWERCHIP

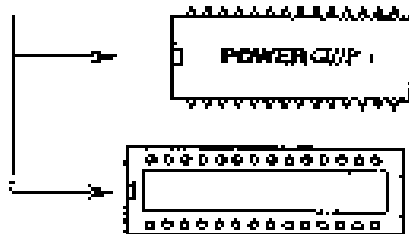


Place the chip over socket, with **be sure that:**

1. The chip is the right way round (check the way the chip is pointing).
2. All the pins line up exactly to go into the holes in the socket. If necessary to bend the pins slightly to get them to line up. POWERCHIP must be inserted so that the divot on the chip and the divot on the socket are on the same side.



Ensure that chip's 'divot' is located on same side as socket's divot.



When you are happy with the position of the pins, gently push it into the socket. Make sure the pins go straight into the holes. (The chip may 'click' into place when it is fully in.)

Final Checks.

Reassemble the E.C.U., fix it back to the car and re-connect the cable connector. Make sure the clip goes fully home. If it does not it means that the connector is not engaging properly. **Make sure the car idles before putting the ECU back in place.** Start the car and make sure the engine runs at idle. If this is ok the POWERCHIP is now successfully installed.

