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Welcome to the dealer's guide to Unichip. The aim of this brochure is to give you an overview of the Unichip range, as well as an understanding of how the chip works, and how it can benefit your business.

If you have any additional queries don't hesitate to call the Unichip Europe team on (+44) 01268 530322.



## CONTENTS

1	Contents
2	The history of Unichip
3	What is Unichip?
4	How does Unichip work? Why use Unichip?
5	Unichip features
6	The benefits of Unichip
7	The main parameters controlled by Unichip
8	How does Unichip increase performance?
9	Unichip vs. other solutions
10	Why offer Unichip?
11	How will becoming a dealer benefit my business?
12	The Unichip range: ECUs and Harnesses
13	The Unichip range: Map switches
14	How Unichip simplifies advanced tuning
15	Unichip tuning pots
16	Unichip dealer startup pack
17	Unichip modified case study
18	Unichip turbo case study
19	Unichip diesel case study
20	The Unichip organisation



# THE HISTORY OF UNICHIP

The Unichip was invented in 1995 by Automotive Technician, Pieter De Weerd to enable a skilled tuner to modify and customise a car's electronics to increase performance. Unichip is one of the largest and most advanced performance tuning companies in the world, manufactured in South Africa at the 18,000 square foot electronic assembly Unichip facility.

The Unichip undergoes continual development, the product available today represents the 25th evolution of this technology. There are about 600 Unichip dealers across 57 countries currently using it as their preferred ECU tuning solution. The manufacturer of Unichip – Dastek, uses the latest design and production techniques to create a universal performance remappable ECU that works with the majority of car's available in the world today.





# WHAT IS UNICHIP?

Designed to improve the performance of any petrol or diesel car, Unichip works by optimising the standardised settings of your ECU. The Unichip allows you to boost performance as well as improve fuel economy.

A Unichip can be installed by a dealer or by the customer through a Unichip U-Fit PowerPlug. Whichever method you choose to connect a Unichip – you can rest assured that the performance of your vehicle will increase substantially.

The Unichip is a full reprogrammable performance enhancing chip that is powerful enough to read and manipulate all the signals received by the engine's electronic control unit.

This means that a professional vehicle performance specialist can extract the best performance from an engine in the safest and most reliable way.

Many modern performance chips simply change one or two signals, such as the fuel pressure and throttle response. These signals are changed permanently, which means your vehicle has increased fuel pressure and a more sensitive throttle at all times, regardless of whether it is driving off road, towing a caravan or trailer, driving at very high speeds or on a cold winter's morning.

With a Unichip, the vehicle engineer maps all engine inputs in three dimensions. Put simply, the Unichip will control power delivery using many different engine signals and with consideration of many different environmental factors.

## HOW DOES UNICHIP WORK AND ON WHAT VEHICLES?

Unichip is a piggyback system that can be installed on any vehicle with an ECU, which means that it does not permanently change or reprogram the inputs from the vehicle's ECU. The system simply intercepts the signals from the various engine components, changes them as required and sends them on to the ECU.

Once the Unichip has been fitted directly onto the vehicle, it is permanently fixed to the wiring harness. If the customer has opted for a Unichip Easy Connect, they can plug it in and remove it as they wish, such as when they take the vehicle for a service or replace the vehicle.



“Unichip works with a variety of cold air intakes, exhaust systems and other performance components.”

## WHY USE UNICHIP?

The method in which a Unichip is installed is far superior to regular re-flashes being that a Unichip is installed live. With the Unichip product the dealer will wire it into the car on the rolling road, so tuning parameters can be adjusted while the car is running.

Through this, the dealer can increase fuel pressure, decrease fuel pressure, adjust boost, adjust ignition timing, adjust variable valve timing with use of a VTEC driver, adjust throttle response and many other parameters. Because it can be tuned live, you can also get the best out of any modifications up close and in real time to get those modifications working optimally in harmony.





## UNICHIP FEATURES

- Road speed governor delimiting for Japanese imports, with conversion of electronic speedometers from KMH to MPH
- The U-Fit range has a zero footprint installation, and is easily removable with no sign of the install
- Dyno-tested and field-tested to ensure maximum reliability over the lifetime of your engine
- Tuned for your environment to suit climatic conditions such as air pressure, humidity and temperature
- Custom-engineered software for your engine, with your specific performance components
- Works with a variety of cold air intakes, exhaust systems & other performance components
- Crafted to output power more smoothly, eliminating weak areas in the power curve
- Conversion of mechanical injection systems to full 3D fuel & ignition control
- Conversion from flap type air flow meters to less restrictive hot film meters
- Calibration of electronic speedometers when larger wheels have been fitted
- Does not permanently or temporarily alter the factory computer software
- Adds power to stock and modified engines – with up to 30% more power
- Safely maximizes engine power output across the entire RPM band
- Custom tunable for custom add-on components for the most power
- Multi-processor computer for a new level of engine management
- Drive additional fuel injectors, with variable blend control
- Conversion to individual throttle bodies on certain cars
- Equal or better fuel mileage - varies by application
- Data logging facility whilst connected to a laptop
- Multiple maps to suit different fuels
- Activation of gear shift lights
- No hi-octane fuel requirements
- Available for most vehicles
- Full throttle gear changes

# THE BENEFITS OF UNICHIP

Unichip is an advanced physical map-based system that will track driver demand and driver RPM, manipulating those signals in a very specific way. The all-encompassing nature of the Unichip means that it can manipulate throttle maps, injection pump timing as well as adjust boost pressure with total accuracy. Alternatives such as tuning boxes and re-flashes are far cruder in comparison and offer far less control when modifying your car.

One of the greatest benefits of Unichip is that there is no trace left on the car once a Unichip has been removed. When a car is rudimentarily modified through a re-flash, the changes are logged in the car and will be detected by the supplier of the car. If you have a car under warranty or through a hire purchase agreement, this is even more inadvisable. With a Unichip, you can modify your car safely and discreetly giving you total peace of mind. An additional, significant benefit of Unichip is that for those owners concerned about the vulnerability of their car – an anti-theft security map can be installed, to secure the vehicle from key cloning and vehicle theft. Anyone attempting to drive your car without your key, will soon find that it has been rendered useless.

## Better Fuel Economy

In light of ever-increasing fuel prices, achieving better fuel economy has become a priority for most people. Unichip can help achieve this by enabling a map to deliver the optimum amount of fuel and boost for the most efficiency.

## Max Safe Power

Many performance chips simply increase the fuel pressure, boost and throttle input. The feeling of power is great, but there is nothing that monitors engine temperature, changes inputs for different driving needs, measures over-fueling and the fuel-air mixture or the many other elements that are required to deliver safe power.

## Anti-Theft

Select and lock the vehicle in this setting when you park somewhere and are worried about the safety of the vehicle. In this mode the engine is rendered completely powerless.

## Road Speed Limiting

Road-speed signals are normally digital signals generated by the speed sensor in the transmission. It can also be inductive signals, or sometimes the ABS system will send road-speed information over the CAN bus to the ECU. The ECU uses the speed signal to calculate road speed and automatic transmission shift points. You can use the Unichip to manipulate the road-speed signal in order to remove road-speed limiter.



## Towing & 4x4

Getting the most power from your engine does not always help when you are driving in a technical off-road section where good throttle response is more important than pure engine power.

For these conditions, you can select an off-road setting on your Unichip, that gives you more low-down power at low engine speeds. This is also an ideal setting if you are towing a large caravan or boat or towing someone who does not have the power of a Unichip.

## WHAT ARE THE MAIN PARAMETERS A UNICHIP CAN CONTROL?

The Unichip piggyback ECU allows a car to be live mapped on a rolling road to control the following:

### Ignition

Alter ignition timing in a 3D\* map down to 0.1 degree resolution.

### Fueling

Alter fuel mixture in a 3D\* map by +-50%. If you want to install larger fuel injectors, these are easily accommodated and injector scaling is quick and simple.

### Valve timing

The Unichip can be used to control variable valve timing on modern VVT engines to increase power output.

### Induction

Variable induction systems can be controlled by the Unichip to improve performance.

### Idle speed stabilization

The Unichip can control idle speed stabilization, to allow an engine to idle when performance camshafts are fitted.

### Turbocharger boost levels

The Unichip can control turbo wastegate solenoid systems to increase boost pressure to safely improve performance. Boost limits can be altered or imposed.

### Aftermarket turbo or supercharger installations

The Unichip piggyback ECU will work in conjunction with aftermarket turbocharger and supercharger installations, controlling boost levels, fuel and ignition parameters.

### Rev limiters

The Unichip piggyback ECU is designed to allow engine rev limits to be altered or implemented.

### Water injection control

For high performance turbocharger applications, the Unichip piggyback ECU can control the activation of water or water / methanol injection into the inlet manifold to help reduce detonation at high boost levels.

### Intercooler water spray control

For high performance turbocharger applications, Unichip can control the use of intercooler water spray to help reduce air charge temperatures.

### Nitrous oxide activation and mapping

Automatic secondary map when water or nitrous is active.  
Automatic switch back to primary map when water or nitrous is low or de-activated

### Launch control

The Unichip piggyback ECU can run a variety of switchable launch control strategies. Simply select first gear, hold down the clutch, floor the throttle and let the Unichip provide you with the perfect performance getaway.

\* A 3D map consists of a table of engine speed versus engine load, plus a value for fueling or ignition timing at any combination of speed or load. This method is used to map the most advanced standalone ECU's on the market accurately and safely, which is why the same functionality is built into the Unichip.



## HOW DOES UNICHIP INCREASE PERFORMANCE?

Unichip works by altering and optimising the original factory settings of a vehicle. Modern engine management systems rely on engine sensors to function, the Unichip piggyback ECU intercepts these engine sensor signals, enabling the original engine management system's settings to be refined and enhanced to reflect the cars given environment – even if no other mechanical modifications are carried out. The result is an expertly Unichip tuned engine that reaches it's full potential in terms of power, fuel consumption and drive-ability.

**“Unichip is more than just a chip, it's a multifunctional supplementary ECU”**

The Unichip ECU also allows Unichip dealers to fine-tune not only an engine's fuel and ignition requirements, but a whole host of other performance related functions. This enables owners of modified vehicles to extract the ultimate potential from popular engine upgrades including performance induction systems, camshafts, exhaust manifolds / systems and even turbocharger conversions. Unichip is more than just a chip, it's a multifunctional supplementary ECU that's capable of being custom 'live-mapped, in exactly the same way as much more expensive stand-alone engine management systems.



# UNICHIP vs. OTHER TUNING SOLUTIONS

## Fault Checking and Repairs

Remapped vehicles can cause difficulties when trying to diagnose faults. Unichip can quickly be removed to help a service technician diagnose and repair a vehicle with ease without knowing the Unichip was ever installed.

## Warranties and Services

When vehicles are returned to main dealers for servicing, warranty and recalls, it's common for the dealer to reflash the ECU or even run ECU updates. With other tuning techniques that would mean critical tuning settings being overwritten and lost. However, with Unichip nothing is lost and the Unichip can even be removed so the dealer wouldn't know it was fitted, keeping any warranty intact. This can be invaluable for hire purchase, personal contract purchase and lease agreements ensuring the vehicle is returned in its original state.

## Custom Tuning

The claim for a totally custom tune from most ECU re-mappers can be a bit misleading as that process with anything other than Unichip can run into thousands of pounds. What is generally the case will be that a generic calibration that is known to work for the vehicle will be used. This can of course give a nominal performance increase, but it's not going to give the best results for the vehicle and its setup, even with any additional air fuel ratio and throttle tweaks.

However, with Unichip you can tune the vehicle for a wide range of driving conditions from light throttle to full power and change fuel mixtures, ignition timing, boost pressure, throttle opening, boost solenoid duty, fuel rail pressure, torque limitations and many more parameters in real time. This gives you the ability to quickly create a custom tune that would otherwise take hours.

## Pops and Crackles

By using Unichip you can tune to adjust the tone and effect of pops and crackles for optimum effect, with other approaches this kind of tuning can actually produce a relentless and ultimately annoying noise that you have no control over. With Unichip you can turn it off and on at the push of a button, or even have maps at varying degrees of pops and crackles from mild to wild!

## Consistent Results

Due to factory installed engine control computers getting more and more advanced, tuning an engine to allow for their changes in parameters can be nigh on impossible, what worked on the dyno may all go out the window in the real world. However, Unichip works in harmony with the factory ECU bringing out the best of the engine being tuned whatever the climate, or road conditions the vehicle may be in.

## Better the system you know...

Unichip allows the tuner to work with one dedicated system so that they can become an expert with the Unichip software so instead of struggling to locate maps they require in the factory ECU they can concentrate on tuning a system they know and understand.

## Hardware modifications

The factory ECU can't account for modifications such as a turbo conversion, and in some cases may put the engine under stress as a result. The Unichip however can measure additional sensors as they are added for all your modifications, keeping your engine safe and optimising results from your mods as it works alongside the vehicles ECU. As you further modify your vehicle the Unichip can be remapped very efficiently, you can even remove the Unichip entirely and swap it between vehicles making use of the 5 maps to cater for the different set ups.

## Tuner Friendly

The Unichip really is a tuner friendly control unit that far outweighs ECU remapping, giving the power back to the tuner and the features that customers want.

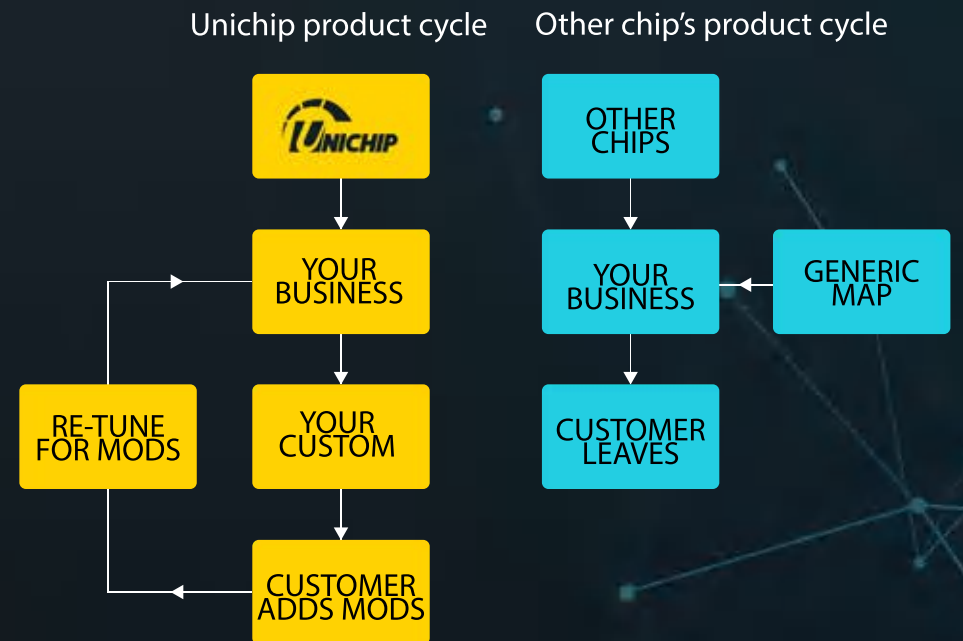
# WHY OFFER UNICHIP?

With Unichip you can offer far more than a traditional remap, you can offer your customers choice.

By putting the power of a Unichip map switch in your client's hand, not only do you give them the opportunity to choose how their vehicle drives, you also provide yourself the chance to offer a bespoke product unique to your business.



## THE UNICHIP CUSTOMER RELATIONSHIP VS. OTHER CHIPS





## HOW WILL BECOMING A UNICHIP DEALER BENEFIT MY BUSINESS?

Unichip is an established worldwide brand with a strong foothold in the international tuning community. As a Unichip dealer in the UK you will become part of the global Unichip family that is tried and tested on a wide range of vehicles with solid results.

## HOW LONG DOES IT TAKE TO FIT A UNICHIP?

How fast a Unichip can be installed depends on the type of vehicle. The vast majority of Unichips can be installed and tuned in 3 hours. If a Unichip U-Fit PowerPlug has been purchased, this can be easily installed by the customer, so it can be added or removed whenever desired.

## DO I NEED TO BE TRAINED TO FIT UNICHIP?

Due to the unique nature of Unichip we require our official dealers/fitters to have full training on the Unichip to ensure a high standard of supply, fit, and tune across the board. Our training will give you a deeper understanding of the Unichip, from the way it works to the advantages it gives over other ECU solutions on the market. This knowledge combined with the strong standing and good reputation of Unichip will give you the tools to not only fit but also sell the Unichip effectively creating another revenue stream for your business and bringing more customers through your door.



# UNICHIP ECU RANGE

We have 4 main chips available for our dealers in Europe.



## Unichip Q

- Suited for 4 cylinder naturally aspirated and turbo diesel vehicles
- Allows tuning of turbo boost pressure
- Fuel tuning and ignition tuning via the 13x24 map sets
- Unit also has ability to store 5 user selectable map sets
- Also control Vtec, shift light, rev limits, road speed limits, intercooler spray, launch control



## Unichip Q+

- Suited for factory and aftermarket petrol turbo charged vehicles
- Same as Q with additional benefits of:
  - 2 inbuilt drivers to allow use of boost control solenoid or additional fuel injector
  - Aftermarket boost control not required



## Unichip Q4

- Suited for all vehicles
- Same as Q and Q+ with additional benefits of:
  - Additional manipulation tables available, most commonly used for electronic fly by wire
  - Throttle control giving ability for anti-theft maps, aggressive throttle, smoother driving, and towing. Great for 4x4 by manipulating throttle to give much better fuel economy and control of power



## Unichip X

- Included in this latest evolution of Unichip modules, all of the features you would come to expect from the previous range with the addition of a new customizable tuning platform, 6 way channel, CAN data stream manipulation, plus two inbuilt drivers

# UNICHIP HARNESSES

The U-connect system is a wiring harness that enables the complete Unichip installation without cutting or tampering with the original wiring harness of the vehicle. You simply unplug the ECU wiring and install this system between the male and female plugs. All the necessary original male and female plugs are included in the harness. This way you can add or remove the complete Unichip system whenever you want. Once removed there will be no footprint or trace of the original installation at all. The U-connect is available for most electronically controlled diesel vehicles and some petrol versions.



# UNICHIP MAP SWITCHES

We have 4 unique map switches available for the Unichip.

## Key Fob Switch



- Sleek design
- 5 position map
- Remote connection
- 2 programmable buttons
- Dirt and dust resistant
- Secure immobilizer option
- Connects to any Unichip kit
- Installs in under 60 seconds!

## Membrane Map Switch



- Sleek design
- 5 position map
- On the fly changes
- Dirt and dust resistance
- Mounted inside vehicle
- Connects to any Unichip kit
- Installs in under 60 seconds!

## Bluetooth Module



- Remote control
- 5 position map
- Remote connection
- Connects to any Unichip kit
- Installs in under 60 seconds!
- \*Phone not included.

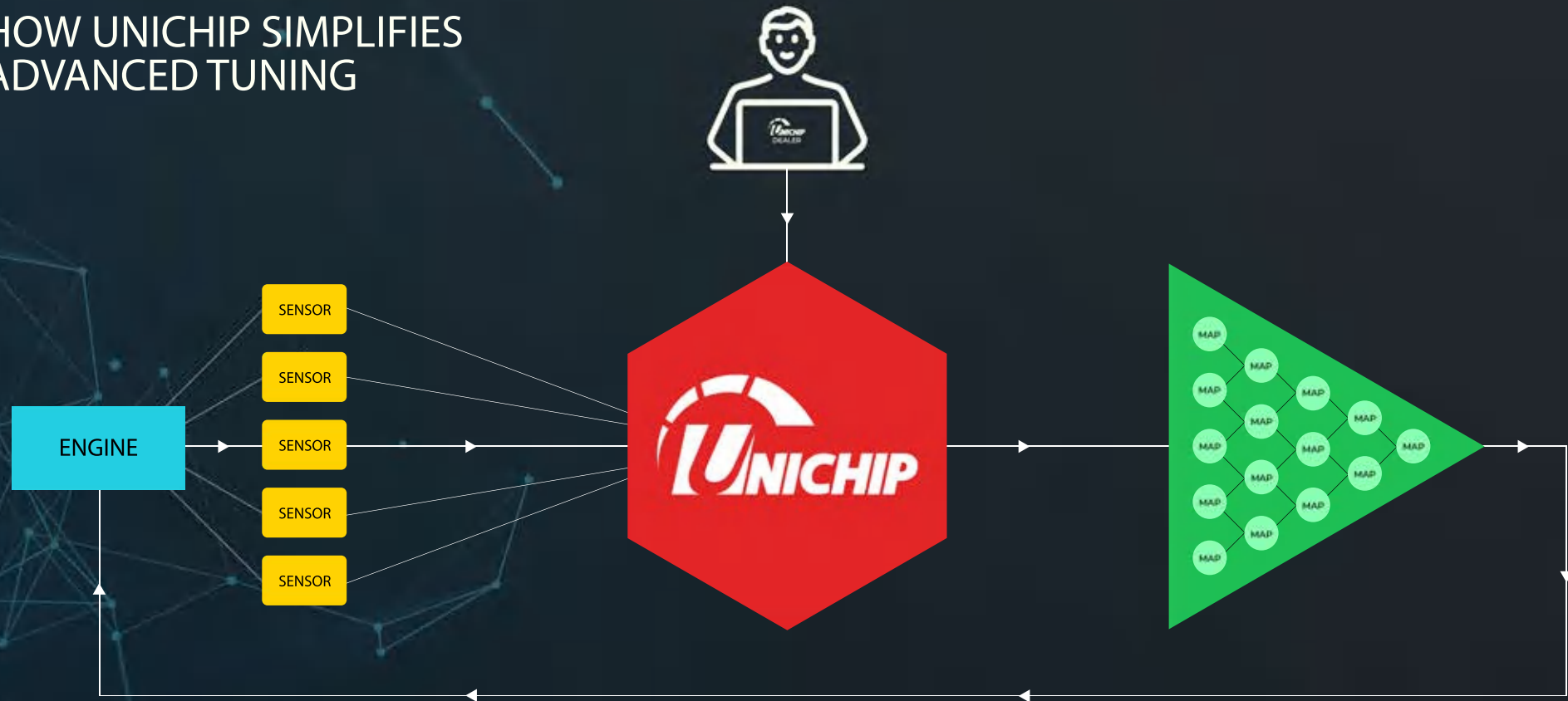
## Rotary Switch



- 5 position map
- Ideal for motorsports
- On the fly changes
- Dirt and dust resistant
- Mounted inside vehicle
- Connects to any Unichip kit
- Installs in under 60 seconds!



# HOW UNICHIP SIMPLIFIES ADVANCED TUNING



## STAGE 1

Sensors collect and send data about air/fuel ratios, temperature, boost etc from the engine and pass them on to the ECU.

## STAGE 2

Unichip intercepts sensor data from both factory sensors and any additional mods and makes changes to enhance performance as necessary based on adjustments programed by the tuner/dealer.

## STAGE 3

Data from the Unichip is received by the factory ECU map table, meaning changes by the Unichip are applied across all factory maps, thus all parameters can be manipulated without any changes to the factory maps themselves. That data is then sent back to the engine.

*NB. The illustration above is a simplification of the Unichip tuning process and contains enough elements to illustrate the process in it's basic form. The Unichip is capable of manipulating a wide range of sensor signals from the engine.*

# UNICHIP TUNING POTS

As opposed to the vast majority of tuning solutions, Unichip's tuning pots teamed with the piggyback ECU provide the ability to live tune the vehicle, meaning no stopping or starting the engine to test parameters and as a result a huge time advantage on the dyno. The vehicle can be tuned on the fly, with parameters being stored as you go.

Connected to  
Unichip

Connected to  
Laptop



Pots are assignable, meaning things such as boost, variable cam, nitrous control, throttle manipulation and any thing else you have within the maps on the Unichip software can be controlled, not just fuel and timing.

The unit itself is built for life in the dyno. Made from industrial grade materials, it's made to last.

When you are happy with changes made on the pots, simply press "INSERT" to store those changes and move to the next stage.

# UNICHIP DEALER STARTUP PACK

Fully stocked dealer packs contain everything below, and come with full training on the Unichip range and tuning techniques.

## Dealer Kit Includes:

- 2 Day training course
- Access to the dealer website
- Full dealer manual
- 1 x Unichip Q
- 1 x Unichip Q+
- 1 x Unichip Q4
- 1 x Tuning modules and cables
- 1 x Waterproof boot
- 1 x Bridge plug
- 1 x Cloth tape





# MODIFIED CASE STUDY

## HONDA CIVIC TYPE R

The customer had purchased this vehicle and wanted to get the full potential out of the modifications he had made. The car was to be used for track use and he wanted to get the VTEC to come in earlier, as well as the Unichip we installed a VTEC driver which enables us to tune the system.

- Increase in power and torque
- Custom tune for modifications on the vehicle
- VTEC driver enabling VTEC tuning, removing power dip.

Once installed and on the dyno we were very impressed with the results from bolt on modifications, custom exhaust manifold, full exhaust system and induction kit now tuned taking it to just shy of 227 bhp and removing the usual power dip.



BHP  
BEFORE  
UNICHIP

BHP  
AFTER  
UNICHIP

TORQUE  
BEFORE  
UNICHIP

TORQUE  
AFTER  
UNICHIP

Chip Type: Unichip Q

Mods: Exhaust manifold, cold air intake

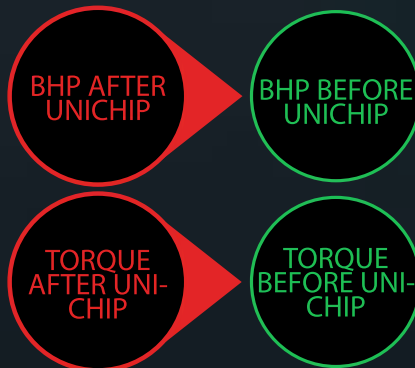
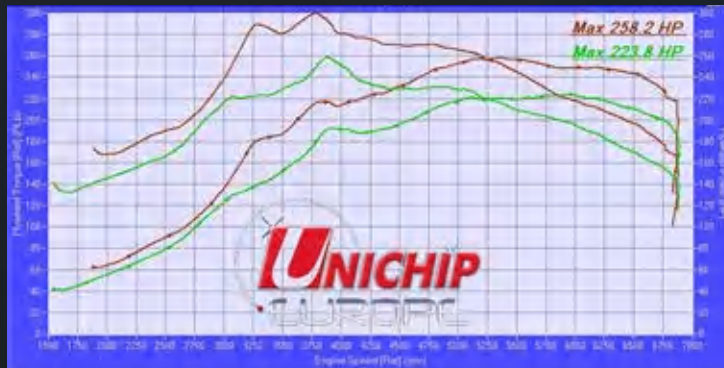
# TURBO CASE STUDY

## SUBARU WRX HAWKEYE

Using the latest Unichip Q4 we take control of boost pressure, ignition timing, fuel mixtures and throttle control system, making a very unique and fully customizable tuning product. The Unichip is the perfect ECU control system to grow with your chosen modification route. The Unichip can be custom remapped for any mods you make.

Impressive gains over a standard car. By utilising a 3 port boost control valve we can get the turbo on much earlier, making the car feel much more eager and sporty.

- Anti theft
- Economy/valet mode
- Medium boost
- Sport
- Sport plus



Chip Type: Unichip Q4

Mods: Air filter, back box



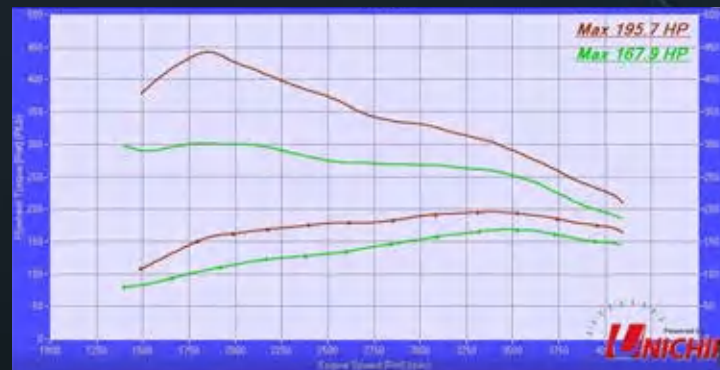


# DIESEL CASE STUDY

## TOYOTA LANDCRUISER 100 SERIES

100 series Toyota Land Cruiser fitted with the 4.2td HD-FTE with 5 user selectable maps: high/low boost, throttle booster, towing, off road and anti theft/immobiliser map, also available in the U fit application.

- 5 User selectable maps
- High power map with throttle booster
- Towing map
- Off Road map with dulled throttle
- Anti theft map
- Remote key fob map switching.



BHP AFTER UNICHIP

BHP BEFORE UNICHIP

TORQUE AFTER UNICHIP

TORQUE BEFORE UNICHIP

Chip Type: Unichip Q+

Mods: None



## THE UNICHIP ORGANISATION



## HOW DO I BECOME A UNICHIP DEALER?

Call us on  
(+44) 01268 530322

Or email us at  
[info@unichipeurope.com](mailto:info@unichipeurope.com)

Once you have confirmed your interest, we can arrange your training and supply a dealer package to get you started.

*Having originally been developed in South Africa Unichip quickly grew to become a global brand. With headquarters in Africa, Europe, USA and Australia the Unichip family is truly international and as such is tried and tested on a wide range of vehicle makes, models and types from off-road to commercial vehicles, track cars and drag cars.*

