



Autologic

Total Diagnostics for Land Rover

Designed by

Autologic Diagnostics Ltd





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1. INTRODUCTION

Autologic has been developed by Autologic Diagnostics Ltd to provide specialist Land Rover, BMW, Mercedes-Benz, Volvo, Jaguar, Porsche and VAG workshops with dealer-level diagnostics to enable them to be totally independent of main dealer facilities.

Autologic is designed and manufactured by Autologic Diagnostics Ltd and is contained in a rugged notebook-sized casing, using a 12.1" colour touch screen. *Autologic* utilises the latest solid-state technology, contains no moving parts and uses no disk or CD media. Access to vehicle systems is via a touch-button interface with an intuitive menu structure. A large number of pages are backed-up by help screens, displaying nominal values and pin configurations and, in relevant sections, a graphing facility is also available.

The system is backed up by a software development programme to keep *Autologic* up-to-date with current vehicles and by telephone/fax/email support staffed by Land Rover-trained technicians. Vehicle-oriented diagnostic training courses are offered periodically to enable *Autologic* users to keep up with new technology.

Keep in touch with *Autologic* via our web site www.autologic-diagnostics.co.uk





2. LANDROVER PRODUCT DESCRIPTION

Autologic is a lightweight, hand held console with a 12.1" coloured screen, programmed for touch screen capability. Operation is carried out by means of touching screen buttons, labelled with headings familiar to those who work regularly with Land Rover vehicles. Information is immediate, revealing fault codes and dynamic information.

The *Autologic* system for Land Rover vehicles provides a facility for independent specialists to access the diagnostics and programming capabilities of cars manufactured since 1989. This includes Defender, Defender 07, Classic Range Rover, Discovery, Discovery 2, Freelander, Range Rover 95/99 model-year, Freelander 2001, Year 2000 Range Rover, 2002 Range Rover, 2006 Range Rover, Range Rover Sport, Discovery 3 and Freelander 2. All system fault codes can be read and re-set, ECU identities may be read, dynamic data is provided for all systems where applicable, programming of security market options may be carried out and the GM3 body controller on new model Range Rovers can be fully accessed and programmed.

System diagnostic & programming capabilities by vehicle:

- **DEFENDER to 07 Model Year**
 - Engine management for 14CUX, GEMS, MEMS, EGR, Td5, BMW M52 (South Africa)
 - Td5 ECU programming
 - Td5 Performance tunes
 - ABS
 - Lucas10AS Security diagnostics

- **DEFENDER 07 Model Year**
 - 2.4 Duratorq Engine
 - 2007 Instrument Cluster
 - ABS Control Module
 - Security Control Module

- **DISCOVERY**
 - Engine management for 14CUX, GEMS, MEMS, EGR, EDC
 - Airbag
 - ABS
 - Lucas 10AS Security diagnostics

- **DISCOVERY 2**
 - Engine management for Td5, Motronic 5.2.1
 - Td5 ECU programming
 - Td5 Performance tunes
 - Body Control Unit (BCU)
 - SLABS
 - ACE
 - Airbag
 - Automatic transmission

- **DISCOVERY 3 / LR3**
 - 2.7 TDV6 Diesel Engine
 - TdV6 Performance tunes
 - 4.0 V6 and 4.4 V8 petrol Engines
 - CHASSIS SYSTEMS
 - All terrain control
 - Ride level control

- Steering Angle Sensor
- ABS
- DRIVE SYSTEMS
 - SPEED CONTROL
 - REAR DIFFERENTIAL
 - TRANSMISSION CONTROL
 - TRANSFER BOX CONTROL
- BODY SYSTEMS
 - Lighting system
 - Wiper and windshield washer
 - Door locks
 - Hood and tailgate
 - Window systems
 - Sliding roof
 - Mirror movement
 - Seat adjustment monitor
 - Pedal / steering column
 - Key switch status
 - Fuel flap status
 - Alarm system
 - Parking brake
 - Parking aid
 - Restraints
 - Instrument cluster
 - Auxiliary heater
 - Audio front control
 - HVAC control
 - Service Reset
 - Vehicle Configuration

- **FREELANDER to 2001**
- Engine management for MEMS, EDC
- MEMS3 performance tunes
- Central Control Unit (CCU)
- Airbag
- ABS

- **FREELANDER 2001 onwards**
- Engine management for EMS2000 Petrol, DDE Td4, MS43 (NAS V6), MEMS3
- Td4 DDE4.0 programming
- Td4 performance tunes
- Programming of MEMS 3 1.8 petrol
- MEMS3 performance tunes
- Central Control Unit (CCU)
- Airbag
- ABS
- Updated ECUS for SRS, ABS, SAWDOC
- Automatic transmission
- Cruise control
- Immobilizer (EWS3)
- Pre-Delivery Inspection (PDI)
- LCS coding
- Instrument pack
- Fuel Burning Heater

- **CLASSIC RANGE ROVER**
- Engine management for 14CUX, EGR
- Airbag SPS, MPS

- Air suspension
- ABS
- **P38 RANGE ROVER to 1999**
- Engine management for GEMS, EDC
- Body Control Module (BeCM)
- Electronic air suspension
- Heating & ventilation (HEVAC)
- ZF Automatic transmission
- ABS
- Airbag

- **P38 RANGE ROVER 2000 to 2002**
- Engine management for Motronic 5.2.1, EDC
- Body Control Module (BeCM)
- Electronic air suspension
- Heating & ventilation (HEVAC)
- ABS
- Airbag
- Petrol gearbox
- Diesel gearbox
- Cruise control

- **L322 RANGE ROVER 2002 onwards**
- TD6
- 2.7 TDV8 Diesel Engine
- 2.7 TDV8 Performance Tunes
- 4.4 V8 Petrol Engine
- 4.2 V8 Supercharged Petrol Engine
- ABS
- Airbag
- Air conditioning
- Fuel burning heater
- Headlamp control
- Immobilizer
- Instrument pack
- Parking distance control
- Security
- Transfer box
- Vehicle information systems
- Air suspension – Electronic height control
- Automatic gearbox
- Body controller (GM3)
- Power steering
- Central locking
- Washers & wipers
- Windows & sunroof
- Rain sensor
- Seat memory
- Service Interval Reset
- Vehicle Personalisation and configuration

- **RANGE ROVER SPORT**
- 2.7 TDV6 Diesel Engine
- 2.7 TdV6 performance tunes
- 4.4 V8 petrol Engines
- 4.2 V8 Supercharged Petrol Engine
- CHASSIS SYSTEMS
 - All terrain control

- Ride level control
- Steering Angle Sensor
- ABS
- DRIVE SYSTEMS
 - SPEED CONTROL
 - REAR DIFFERENTIAL
 - TRANSMISSION CONTROL
 - TRANSFER BOX CONTROL
- BODY SYSTEMS
 - Lighting system
 - Wiper and windshield washer
 - Door locks
 - Hood and tailgate
 - Window systems
 - Sliding roof
 - Mirror movement
 - Seat adjustment monitor
 - Pedal / steering column
 - Key switch status
 - Fuel flap status
 - Alarm system
 - Parking brake
 - Parking aid
 - Restraints
 - Instrument cluster
 - Auxiliary heater
 - Audio front control
 - HVAC control
 - Active Roll Control
 - Service Interval Reset
 - Vehicle Configuration

- **FREELANDER 2 / LR2 2007 ONWARDS**

- 2.2 I4 Diesel Engine
- 3.2 I6 Petrol Engine
- DRIVE SYSTEMS
 - Transmission Control
 - Rear Differential Control
- CHASSIS SYSTEMS
 - All Terrain Control
 - Steering Angle Sensor
 - ABS Control
- BODY SYSTEMS
 - Body Controller
 - Headlamp Control
 - Entertainment Systems
 - HVAC Control
 - Parking Assist Control
 - Restraints Control
 - Restraints Occupants Classification
 - Door and Seat Control
 - Trailer Module
 - Instrument Cluster Control Module
 - Service Interval Reset
 - Vehicle Configuration



Leads & connectors:

- 3m extension cable
- OBD11 connector and 1m cable
- ABS connector and 1m cable
- 14CUX/Air suspension connector and 1m cable
- Airbag connector and 1m cable
- EGR connector and 1m cable
- Battery extension connector and 3m cable
- USB connector cable for Internet upgrades

System packaged in a lightweight, ruggedised flight case

2.1 ELECTRONIC SYSTEMS DESCRIPTION

All ABS units	Live Data, Activations, Brake Bleeding, Fault Code Diagnostics
Diesel EGR	Live Data, Read Fault Codes, Component Activations
Petrol 14CUX	Live Data, Fault Code Autologic Diagnostics Ltdtics
Petrol GEMS	Live Data, Fault Code Autologic Diagnostics Ltdtics, Component Activations, Reset Adaptations, ECU replacement, Security reprogramming
Petrol MEMS	Live Data, Fault Code Autologic Diagnostics Ltdtics, Component Activations, Reset Adaptations, Idle Control, Open Loop Tune, Security Reprogramming
Petrol MEMS3	Live Data, Fault Code Autologic Diagnostics Ltdtics, Component Activations, Reset Adaptations, Idle Control, Open Loop Tune, Security Reprogramming
Lucas 10AS security	Live Data, EKA, Component Activations, PLIP programming, Market Programming. FULL SECURITY CUSTOMIZATION, not available from Land Rover
Diesel TD5	Live Data, Fault Code Diagnostics, Injector Activations, Cylinder Balancing, Security Programming, Programming Tunes, ECU programming, Performance Tuning
Petrol M52 (S.A Defenders)	Live Data, Reset Adaptations, Carbon Monoxide Adjust, Fault Code Diagnostics, Security Programming
Diesel DDE (Range Rover Td6)	Live Data, Fault Coded Diagnostics, Injector Activations, Cylinder Balancing, Security Programming, Programming Tunes, ECU programming, Performance Tuning
All Airbags	Live Data, Fault Code Diagnostics
Air suspension (Discovery 2)	Live Data, Fault Code Diagnostics, Component Activations, Instrument Pack Test, ECU Programming, ECU Replacement, Air Suspension Calibration
Active Cornering Enhancement (ACE) Discovery 2	Live Data, Fault Code Diagnostics, Component Activations, Response Test, System Bleed
Auto Gearbox	Live Data (Speeds, Torques, Adaptive Pressures, Switches), Reset Adaptations, Fault Code Diagnostics
Petrol Motronic	Live Data, Component Activations, Fault Code Diagnostics, Rest Adaptive Values, Security Learn mode, Idle Adjust , ECU replacement and programming, Performance tuning
Petrol EMS2000 Freelander V6	Live Data, Component Activations, Fault Code Diagnostics, Immobilisation Learn, Adaptations, CO Adjustment
Diesel DDE4 (Freelander TD4)	Live Data, Component Activations, Fault Code Diagnostics, Synchronise Immobilisation
Cruise control	Live Data, Fault Code Diagnostics
Fuel Burning Heater	System Prime, Live Data, Faults, Component Activations
Instrument Pack	Live Data, Component Activations, Fault Code Diagnostics
EWS Immobiliser	Live Data, ECM Synchronisation, Key Identification, Key Programming, Fault Code Diagnostics
Petrol MEMS3 (Freelander 2001)	Live Data, Component Activations, Fault code Diagnostics, Immobilisation Learn, Throttle Adjust, Adaptations, ECM Programming, Performance Tuning
Petrol MS43 (Freelander NAS 2001)	Live Data, Component Activations, Fault code Diagnostics, Programming information, Adaptations
Air Suspension (Classic, New Shape Range Rover)	Live Data, System Raise / Lower, Lock modes, Component Activations, System Height calibration, Fault Code Diagnostics
Heating and Ventilation (New Shape Range Rover)	Live Data, Component Activations, Blend Flap calibration, Fault Code Diagnostics
SAWDOC Immobiliser	Live data, ECM Synchronisation, Key Identification, Key Programming

2.2 RANGE ROVER 2002 MY

System coverage & description

Petrol Motronic 7.2	Live Data, Activations, Fault Code Diagnostics, Clear Adaptations, Clear Driver Demand
Diesel DDE	Live Data, Activations, Fault code Diagnostics, Idle Speed Adjust
ABS	Live Data, Component Activations, Fault Code Diagnostics, Static test, Steering Angle Calibration, ECU variant coding, Wheel Locking Test
Airbag	Dynamic Data, Fault code Diagnostics
Air Conditioning	Live Data, Fault Code Diagnostics
Fuel Burning Heater	Live Data, Component Activations, Fault Code Diagnostics, System prime
Headlight Control	Live Data, Front / Rear / Trailer / Indicator outputs, Headlight levelling control, Fault Code Diagnostics
Immobiliser (EWS)	Live Data, Key Programming, ECM synchronisation
Instrument Pack	Live Data, Component Activations, Fault Code Diagnostics, Vehicle stored data
Parking Distance Control	Live Data, Sound Activations, Fault code Diagnostics
Security and Electronic Steering Lock	Live Data, Activations, Electronic Steering Lock Faults
Transfer Box	Live Data, ECU calibration, Fault code Diagnostics
Vehicle Information Systems	Live Data and Faults for <ul style="list-style-type: none"> • Bord Monitor • Radio • Video module • GPS navigation • Digital Sound Processor • Steering Wheel ECU
Air Suspension	Live Data, Component Activations, Fault Code Diagnostics, Transport Mode, ECU Production mode, ECU reprogramming, Air suspension calibration
Auto Gearbox	Live Data, Activations, Fault Code Diagnostics
GM3 Body Controller	Live Data and Fault Diagnostics for <ul style="list-style-type: none"> • Power steering • Mirrors • Washers and wipers • Windows and sunroof • Rain sensor • Seat Memory
Vehicle Personalisation	Configurable options for <ul style="list-style-type: none"> • Locking • Security Acknowledgement • Exterior Lighting • Parking Distance Control • Instrument Pack Units

2.3 EXAMPLE SCREEN SHOTS

SELECT VEHICLE SYSTEM

PETROL ENGINE (ME7.2)	DIESEL ENGINE (DDE4)	ABS	AIRBAG
AIRCON	BODY CONTROLLER (GM3)	FUEL BURNING HEATER	HEADLIGHT CONTROL
IMMOBILISER (EWS3)	INSTRUMENT PACK	PARKING AID	SECURITY
TRANSFER BOX	VEHICLE INFORMATION SYSTEMS	AIR SUSPENSION	AUTOMATIC GEARBOX

HELP <BACK

ENGINE AND OTHER ECU LINKS

IGNITION TIMING ADVANCE	20.00
SECURITY LEARN	YES
SECURITY MOBILISED	YES
XFER BOX VOLTS	12
ABS VOLTS	12

Page 2 of 2 HELP GRAPH <BACK

2.4 DISCOVERY 3/LR3, RANGE ROVER SPORT, FREELANDER 2/LR2

System coverage & description

Live Data, Activations (if supported by the ECU) and Fault Code Diagnostics are provided for all ECUs. In addition the following extra functions are implemented in the list below.

TDV6, NAV6, NAV8	Fuel pump lift reset, powertrain transport mode activate/deactivate, adaptations reset
Transmission, transfer case	Adaptation Clear, Transfer Case Calibration
Ride level control (air suspension) (discovery 3 and range rover sport)	Standard height calibration, height lowering, calibration restore, geometry setup (tight/normal tolerance settings)
Steering angle sensor	Sensor calibration
Parking brake	Service modes, unjamming procedure
Restraints	New module calibration (activation)
Instrument pack	Service interval reset, transport mode activate/deactivate
Vehicle configuration (Discovery 3 and Range Rover Sport)	Customisable options include speed locking, mirror dip on reverse, parking aid, language, speed control, lazy entry, windshield wiper options, alarm options, tyre pressure monitoring options (including the ability to disable tyre pressure monitoring), headlamp delay and daytime running lamps.
Vehicle configuration (Freelander 2)	Customisable options include home safe lighting delay, daytime running lamps, speed locking, unlock settings, units, park assist, language, speed control and steering lock options.
Key programming	Program existing and new (blank) keys, key history
After market add-ons configuration	Configurable add-on options include trailer module and auxiliary driving lamps.
Module programming	Programming new (blank) and existing ECUs utilises an automated process to ensure ECUs are updated with the latest programming files.

2.5 DEFENDER 07

System coverage & description

Live Data, Activations (if supported by the ECU) and Fault Code Diagnostics are provided for all ECUs. In addition the following extra functions are implemented in the list below.

Vehicle configuration	Customisable options include tyre circumference, powertrain speed limiter, instrument pack speed limiter and fuel tank volume.
Module programming	Programming new (blank) and existing ECUs utilises an automated process to ensure ECUs are updated with the latest programming files (Instrument Pack and Powertrain only).
Security	EKA, PLIP programming, 10AS and Powertrain Synchronisation. FULL SECURITY CUSTOMIZATION, not available from Land Rover



3. PERFORMANCE TUNE

- The engine management system is re-mapped with *Autologic's* own vehicle tune through the diagnostics
 - The ECU does not need to be removed nor does it need to be opened
 - No add-in boxes
 - No splicing into the vehicle's harness
- In all cases the power delivered by the engine is increased
- In most cases, fuel consumption is improved
- Only applicable to vehicles that have FLASH programmable ECU's, 2001 onwards. TD5 vehicles up to 2002 may not have a FLASH programmable ECU, but can have one fitted as a replacement
- The performance upgrade can be carried out while you wait
- Performance Tuning may affect your insurance premium and you may be required to inform your insurance company if the ECU is upgraded.
- The turbo diesels show improvements up to about 30 % more power and torque
- Sharper throttle response
- Quicker acceleration

Vehicle Range currently covered:

New Defender
Defender TD5
Discovery 2 TD5
Discovery 3 TDV6
Freelander TD4
Freelander 1.8 (2001 onwards)
Freelander 2
Range Rover TD6
Range Rover Sport TDV6
Range Rover TDV8
Range Rover Sport TDV8

Cost to the *Autologic* workshop

Turbo Diesel £220 +VAT (excluding Range Rover Sport & Discovery 3)
Non-Turbo Naturally aspirated petrol vehicles £220 +VAT
Ranger Rover Sport / Discovery 3 TDV6 chip £275 +VAT
TDV8 Chip £275 +VAT

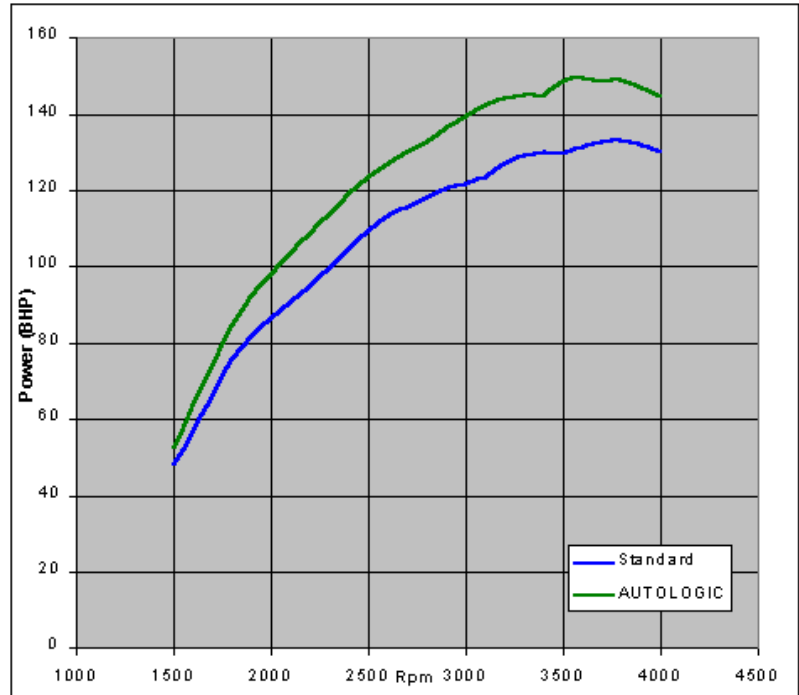
FREELANDER TD4

POWER

20 BHP increase at 3100 rpm

Standard Max Power 131 BHP

AUTOLOGIC Max Power 149 BHP

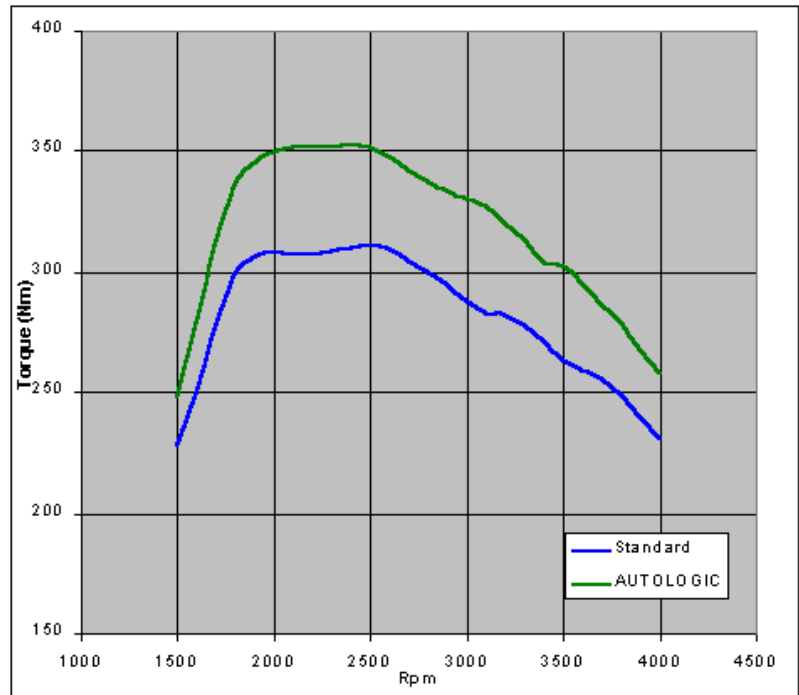


TORQUE

44 Nm increase @ 2000 rpm

Standard Max Torque 311Nm

AUTOLOGIC Max Torque 352 Nm



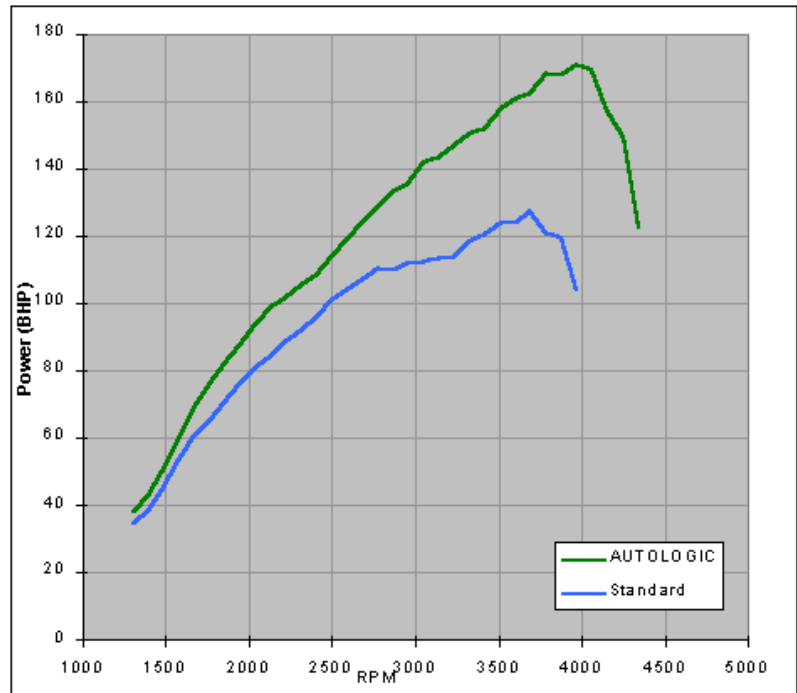
DEFENDER TD5

POWER

35 BHP increase at 3700 rpm

Standard Max Power 123 BHP

AUTOLOGIC Max Power 170 BHP

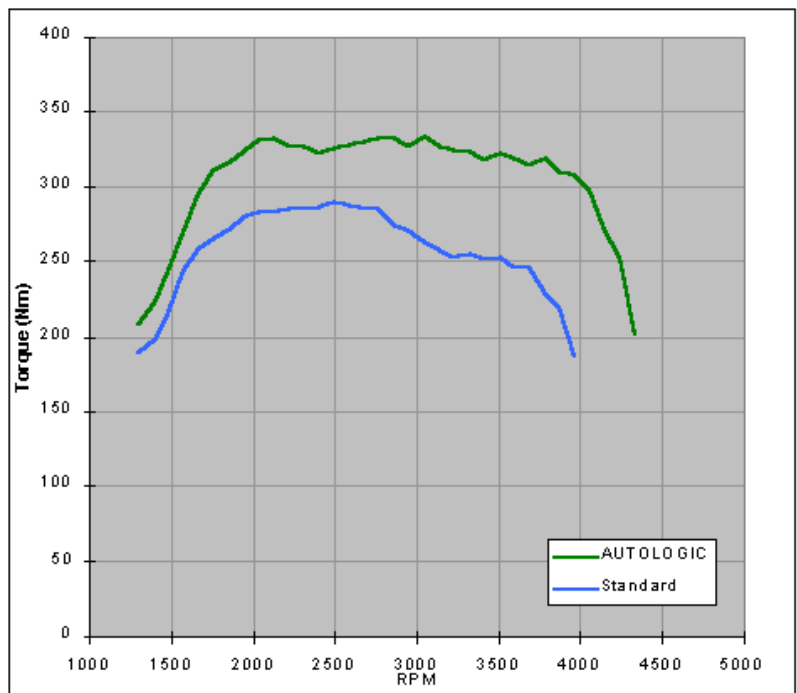


TORQUE

70 Nm increase @ 3500 rpm

Standard Max Torque 290Nm

AUTOLOGIC Max Torque 333 Nm



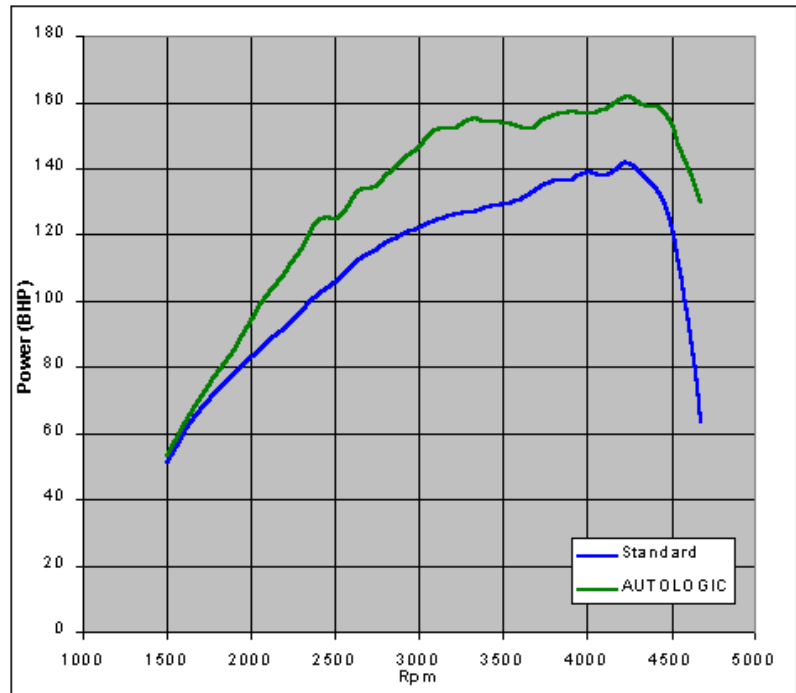
DISCOVERY 2 TD5

POWER

39 BHP increase at 4572 rpm

Standard Max Power 142 BHP

AUTOLOGIC Max Power 162 BHP

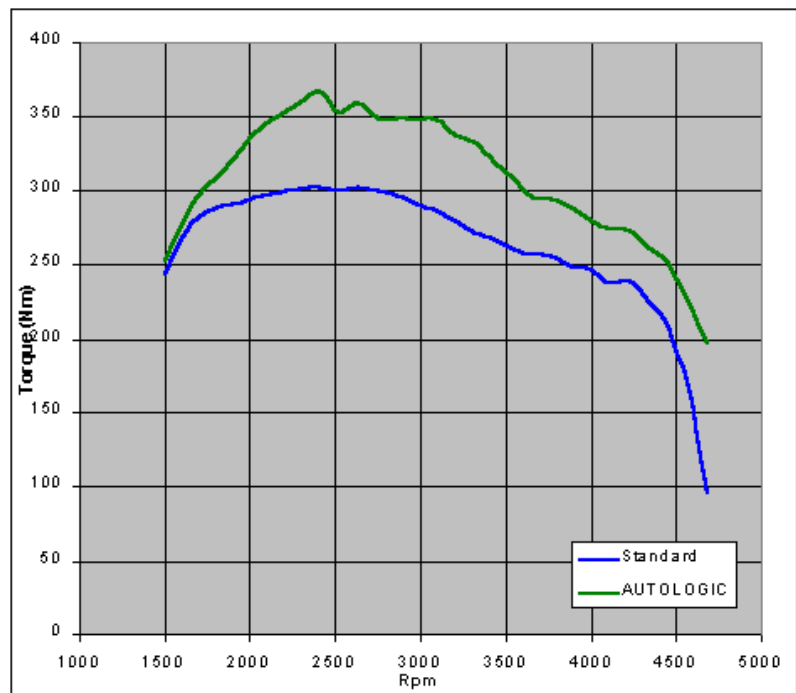


TORQUE

57 Nm increase @ 2410 rpm

Standard Max Torque 302Nm

AUTOLOGIC Max Torque 368 Nm



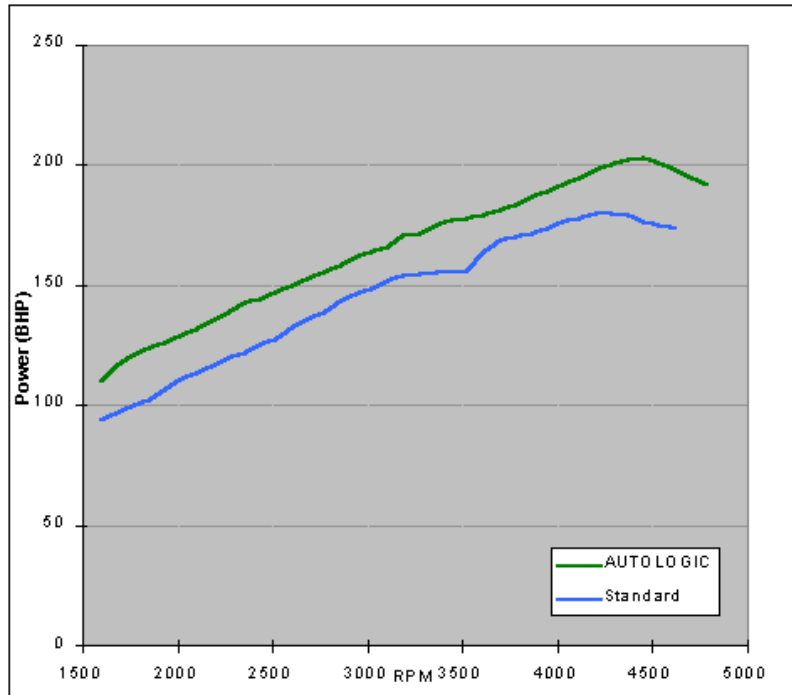
NEW RANGE ROVER TD6

POWER

27 BHP increase at 4200 rpm

Standard Max Power 180 BHP

AUTOLOGIC Max Power 203 BHP

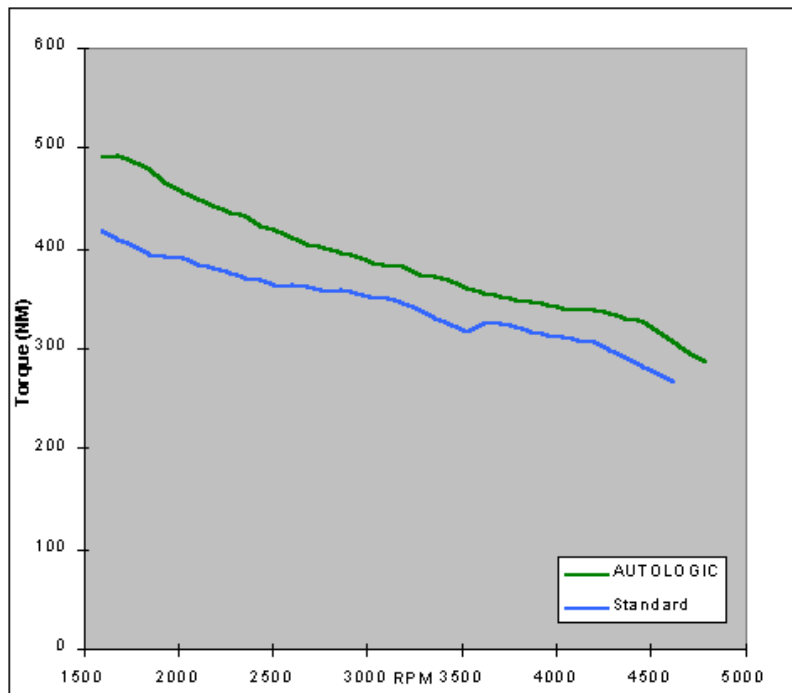


TORQUE

85 Nm increase @ 1800 rpm

Standard Max Torque 418Nm

AUTOLOGIC Max Torque 493 Nm

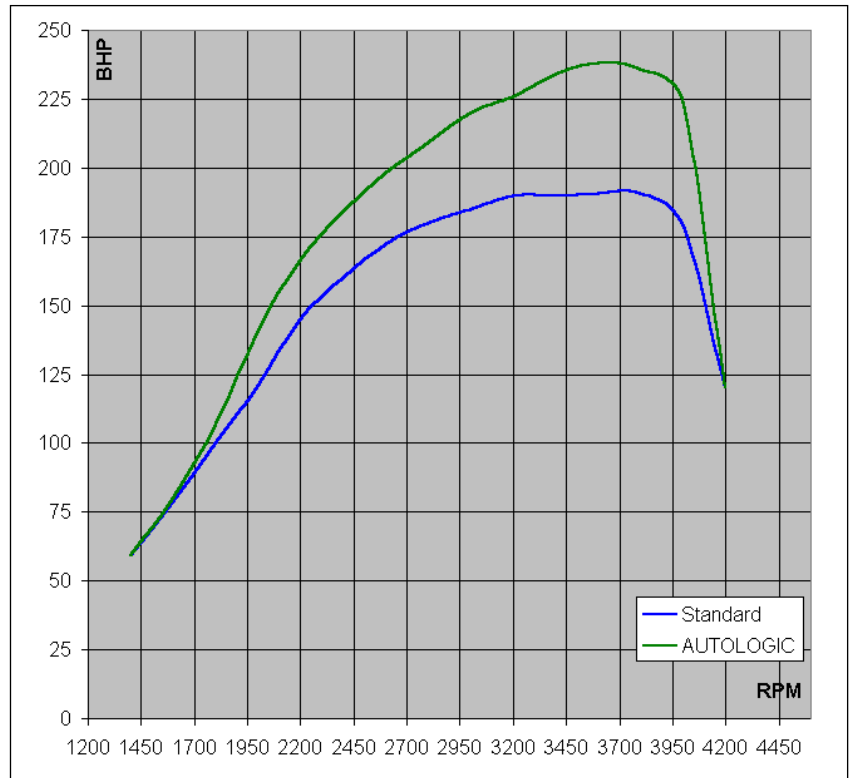


Discovery 3/Range Rover Sport TdV6

POWER

Standard Max Power
191 BHP @ 3553 rpm

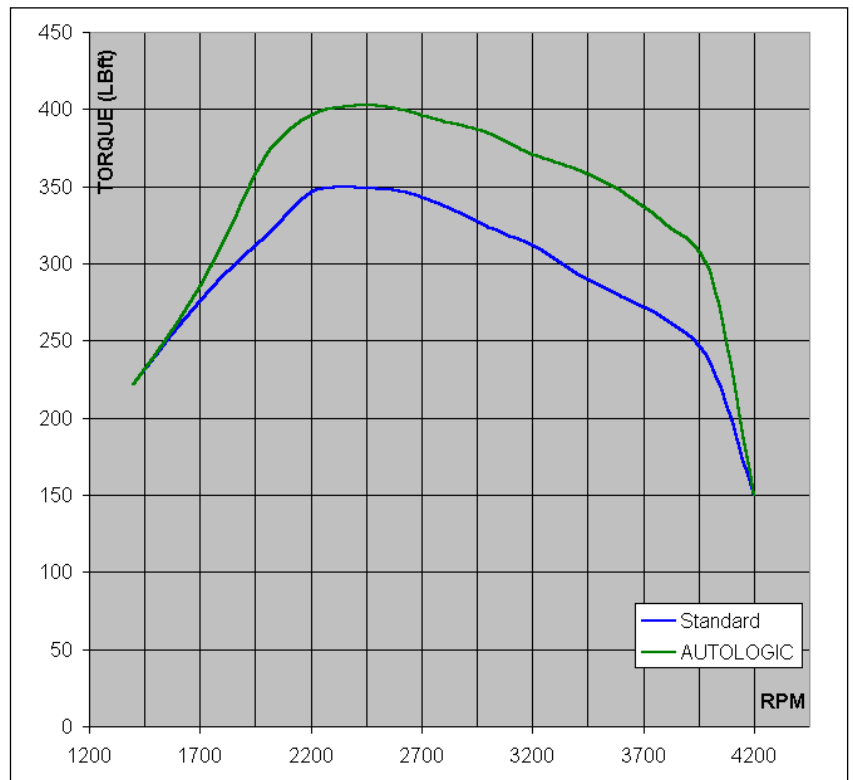
AUTOLOGIC Max Power
240 BHP @ 3653 rpm



TORQUE

Standard Max Torque
348 lbft @ 2455 rpm

AUTOLOGIC Max Torque
400 lbft @ 2598 rpm

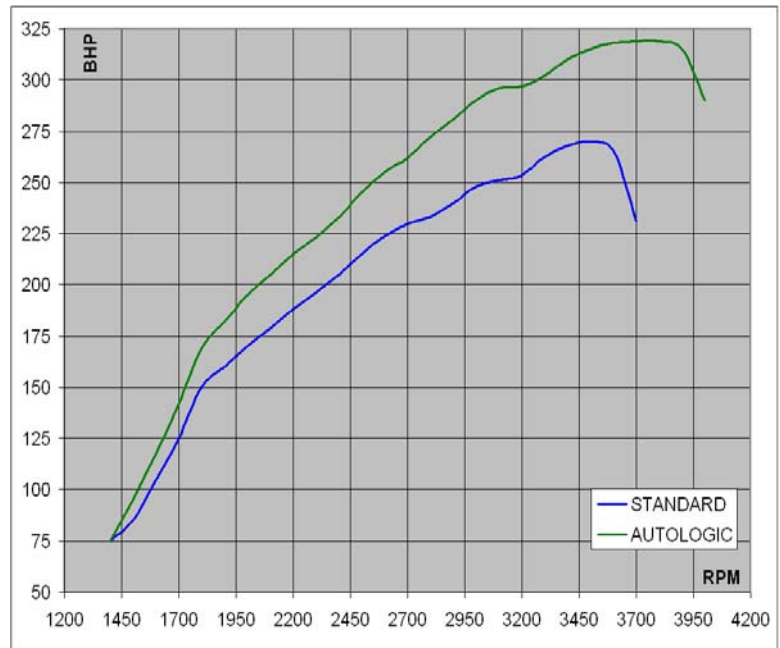


Range Rover TDV8 3.6 (Lion) Diesel Accelerate through 300 BHP

POWER

Standard Max
Power
261 BHP

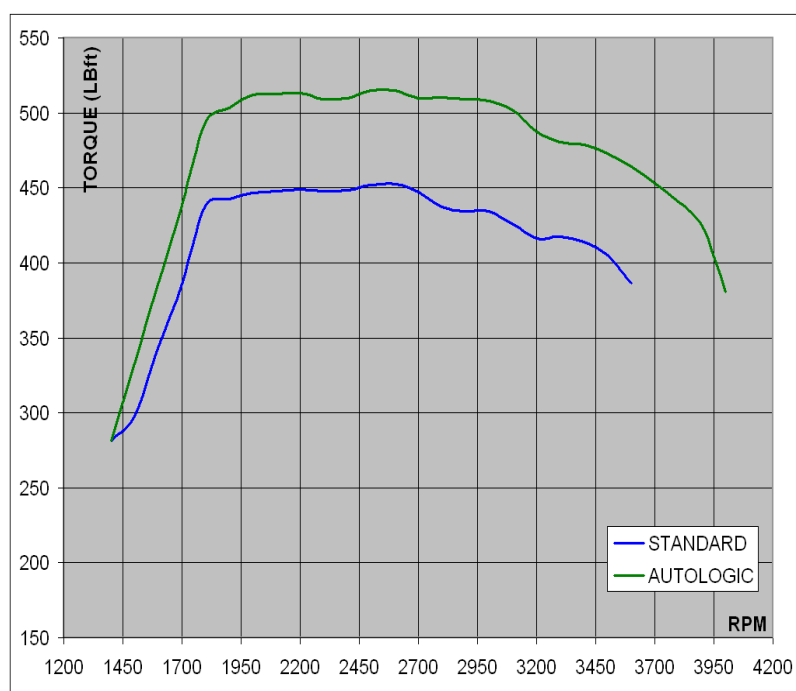
AUTOLOGIC
Max Power
318 BHP



TORQUE

Standard Max Torque
450 lb ft

AUTOLOGIC Max
Torque
515 lb ft

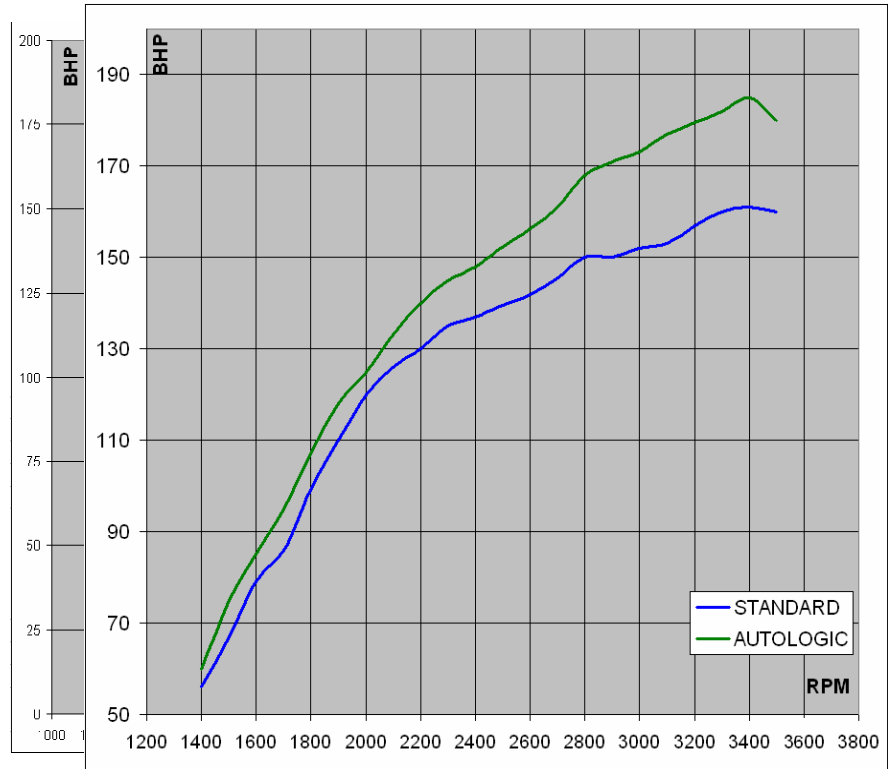




Freelander 2 2.2L Diesel

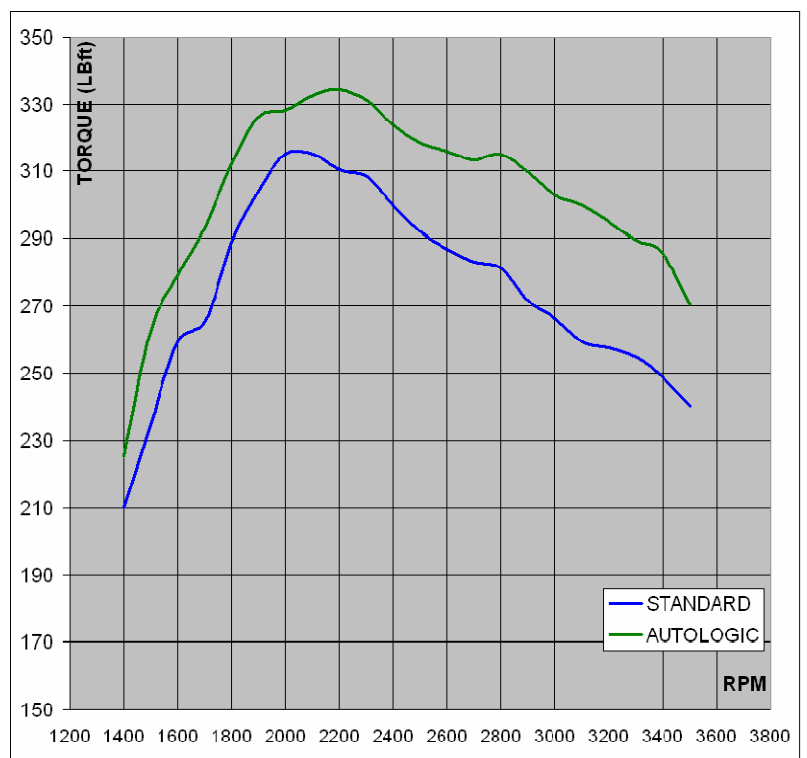
POWER

Standard Max Power
161 BHP
Standard Max Power
163 BHP
AUTOLOGIC Max Power
188 BHP
AUTOLOGIC Max Power
186 BHP



TORQUE

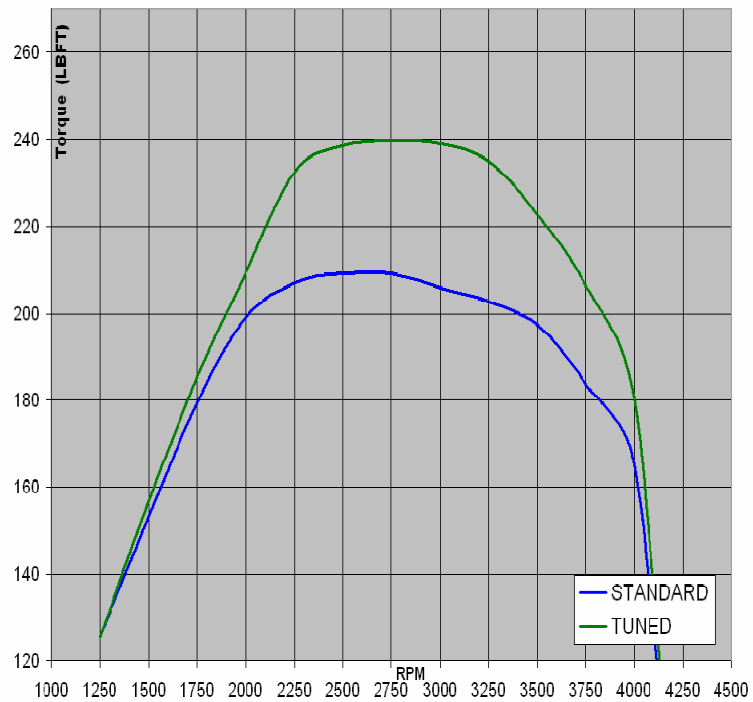
Standard Max Torque
318 lb ft
AUTOLOGIC Max Torque
335 lb ft



TORQUE

Standard Max Torque
239 LBFT

AUTOLOGIC Max Torque
267 LBFT



Defender 2007 2.4L 4-CYL Diesel (Defender 90 Hardtop Base model)

6. SYSTEM SUPPORT

Support is implemented via telephone, email and the *Autologic* website. When making a call you should have the following information available:

- Software version number and serial number
- Vehicle type and VIN number
- System e.g. Air suspension, Airbag etc.
- Function e.g. Read Fault, dynamic information etc
- Description of problem

Most technical calls should be resolved simply on the telephone. Should there be a software bug, this will normally be resolved within 24 hours and a revised version can be downloaded from our web site to your *Autologic*.