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ENGINE - 3.9 V8

Type	3.9 Litre V8	
Firing order	1-8-4-3-6-5-7-2	
Cylinder Numbers		
Left bank	1-3-5-7	
Right bank	2-4-6-8	
No 1 Cylinder location	Pulley end of left bank	
Timing marks	On crankshaft vibration damper	
Spark plugs		
Make/type(8.13:1 Compression)	Champion RN11YCC	
Gap	0.84-0.96mm (0.033-0.038 in)	
Make/type(9.35:1 Compression)	Champion RN11YCC	
Gap	0.84-0.96mm (0.033-0.038 in)	
Coil		
Make/type	Bosch 0-221-122-392, (ETC 6574)	
Compression ratio	8.13:1 or 9.35:1	
Fuel injection system	Lucas 14 CUX Hot-wire air flow sensor system electronically controlled	
Valve Timing		
	Inlet	Exhaust
Opens	32° BTDC	70° BBDC
Closes	73° ABDC	35° ATDC
Duration	285°	285°
Valve peak	104° ATDC	114° BTDC
Idle speed - controlled by EFi system		
- all loads off in neutral	665 to 735 rev/min	
- auto gearbox in gear, air con operating	650 ± 28 rev/min	
- auto gearbox in gear, air con off	600 ± 28 rev/min	
- manual gearbox	700 ± 28 rev/min	
- manual gearbox, air con operating	750 ± 28 rev/min	
Base idle speed	525 ± 25 rev/min - <i>See FUEL SYSTEM, Fault diagnosis, Base Idle Speed Setting</i>	
Ignition Timing - dynamic at 800 rev/min max, vacuum disconnected		
8.13:1 compression, non catalyst	2° BTDC ± 1°	
9.35:1 compression, non catalyst	4° BTDC ± 1°	
9.35:1 compression, catalyst	5° BTDC ± 1°	
Exhaust gas		
CO content at idle	0.5 to 1.0% max.	

Distributor

Make/type	Lucas 35DLM8 electronic
Rotation	Clockwise
Air gap	0.20-0.35mm

Part number

	Lucas	Rover
8.13:1, non catalyst	42584A	ERR 4753
9.35:1, non catalyst	42552A	ERR 4754
9.35:1, catalyst	42583A	ERR 4755

Centrifugal Advance

Decelerating check-vacuum hose disconnected
Distributor rpm decelerating speeds

8.13:1 non catalyst

2000	Distributor advance	5° 30' to 8° 30'
1400		6° 18' to 8° 30'
800		2° to 4°

9.35:1 non catalyst

2200	Distributor advance	7° to 10°
1400		7° 48' to 10°
650		1° to 3°

9.35:1 catalyst

2200	Distributor advance	5° 30' to 8° 30'
1400		6° 18' to 8° 30'
800		2° to 4°

Fuel

8.13:1, non catalyst	91 RON minimum unleaded
9.35:1, non catalyst	95 RON minimum unleaded
9.35:1, catalyst	95 RON minimum unleaded
USA-Premium unleaded (PUG)	CLC or AKI 90 octane minimum 95 RON minimum

Australian market variations

Fuel	91 RON minimum unleaded
Compression ratio	8.13:1
Spark plug	Champion RN11YCC
Spark plug gap	0.84-0.96mm (0.033-0.038 in)
Ignition Timing at 800 rev/min max (vacuum pipe disconnected)	2° BTDC ± 1°
Exhaust gas idle CO	1% max (hot)



ENGINE - 4.2 V8

Type 4.2 Litre V8

Firing order 1-8-4-3-6-5-7-2

Cylinder Numbers

Left bank 1-3-5-7

Right bank 2-4-6-8

No 1 Cylinder location Pulley end of left bank

Timing marks On crankshaft vibration damper

Spark plugs

Make/type Champion RN11YCC

Gap 0.84-0.96mm (0.033-0.038 in)

Coil

Make/type Bosch 0-221-122-392, (ETC 6574)

Compression ratio 8.94:1

Fuel injection system Lucas 14 CUX Hot-wire air flow sensor system electronically controlled

Valve Timing

	Inlet	Exhaust
Opens	28° BTDC	72° BBDC
Closes	64° ABDC	20° ATDC
Duration	272°	272°
Valve peak	108° ATDC	116° BTDC

Idle speed - controlled by EFi system

- all loads off in neutral 665 to 735 rev/min
 - auto gearbox in gear, air con operating 650 ± 28 rev/min
 - auto gearbox in gear, air con off 600 ± 28 rev/min
 - manual gearbox 700 ± 28 rev/min
 - manual gearbox, air con operating 750 ± 28 rev/min

Base idle speed 525 ± 25 rev/min -

See FUEL SYSTEM, Fault diagnosis, Base Idle Speed Setting

Ignition Timing

Dynamic, vacuum disconnected 8° BTDC ± 1° at 800 rev/min max

Exhaust gas

CO content at idle 0.5 to 1.0% max.

Distributor

Make/type	Lucas 35DLM8 electronic
Rotation	Clockwise
Air gap	0.20-0.35mm
Lucas	42510A
Rover Part number	ERR 0744

Centrifugal Advance

Decelerating check-vacuum hose disconnected

Distributor rpm decelerating speeds

2200	7° to 10°
1400	7° 48' to 10°
800	1° to 3°

Fuel

UK, Europe and Rest of World	95 RON minimum unleaded
USA - Premium unleaded (PUG)	CLC or AKI 90 octane minimum 95 RON minimum



ENGINE - 300Tdi

ENGINE

Type 2.5 Litre Turbo diesel with intercooler
Firing order 1-3-4-2
Injection timing 1,54 mm lift at T.D.C.
 - with electronic EGR 1,40 mm lift at T.D.C.

Timing marks:

Valve timing - manual Slot for pin in flywheel and TDC mark on front pulley
 Valve timing - automatic Slot for pin in ring gear, access through rear engine
 pla TDC mark on front pulley

Injection timing Dial gauge inserted into pump
Tappet clearances - inlet and exhaust 0,20 mm cold

Valve timing:

	Inlet	Exhaust
- Opens	16° B.T.D.C.	51° BBDC
- Closes	42° ABDC	13° ATDC
- Peak	103° ATDC	109° BTDC
- Lift	9,67 mm	9.97 mm

Maximum governed speeds:

- Full load (speed cut-off starts) 4000 rev/min
 - No load (flight speed) 4600 + 40 - 120 rev/min
 - Idle speed 720 ± 20 rev/min
 - Die-down time 4 seconds

INJECTION PUMP**Make/type:**

- Standard Bosch rotary R509 type with boost control and two speed mechanical governor with auto advance and solenoid electrical shut-off. Tamper proof sealing on flight speed and fuel adjustment screws. Constant volume delivery valves.
 - with Electronic EGR Bosch rotary R509/1 type with boost control and two speed mechanical governor with auto advance and solenoid electrical shut-off. Tamper proof sealing on flight speed and fuel adjustment screws. Constant volume delivery valves. GST start up excess fuel control. Throttle position sensor for EGR.

Direction of rotation Clockwise, viewed from drive end
Advance box (two stage) 7° advance with 3° start retard

Back leakage rate 150-100 Atmospheres:

- New nozzle 7 seconds
 - Original nozzle 5 seconds

INJECTORS**Make/type**

- Standard and Electronic EGR	Bosch KBAL 90 P37
Nozzle type	DSL A 145P366
Opening pressure (working pressure)	Initial pressure 200 atmospheres
Secondary 280 atmospheres	
- EDC feedback injector 1 in each engine.....	Bosch KBAL 90 P38
Nozzle type	DSL A 145P365
Opening pressure (working pressure)	Initial pressure 200 atmospheres
Secondary 300 atmospheres	
- EDC standard injector 3 in each engine	Bosch KBAL 90 P36
Nozzle type	DSL A 145P365
Opening pressure (working pressure)	Initial pressure 200 atmospheres
Secondary 300 atmospheres	

GLOW PLUGS

Make/type	Probe type, No.0100226129A Beru 12 volts
Time to reach operating temperature of 850° C.....	8 seconds

TURBOCHARGER

Make/type	Allied signal
Maximum boost pressure	0.8-1.0 bar (12-15lbf/in ²) measured at wastegate actuator 'T' piece