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2015.0 DISCOVERY 4 / LR4 (LA), 303-01B

# ENGINE – V6 S/C 3.0L PETROL (G1513720)

## SPECIFICATIONS

### Engine Data

ENGINE DESCRIPTION	ENGINE CAPACITY	MAXIMUM ENGINE TORQUE (EEC) (SAE)	MAXIMUM ENGINE POWER (EEC) (SAE)	COMPRESSION RATIO	BORE	STROKE
• 90° "Vee" • 6 Cylinder • 24 Valves	2.995 ccm	450 Nm at 3.500 - 5.000 RPM	250 kW at 6.500 RPM	10.5 ± 0.50	84.5 ± 0.000 mm	89 ± 0.0 mm

### Engine Firing Order

FIRING ORDER
1:4:2:5:3:6

### Engine Valve Clearance (cold)

INTAKE VALVE (MM)	EXHAUST VALVE (MM)
0.18 - 0.22	0.23 - 0.27

### Spark Plugs

SPECIFICATION	SPARK PLUG GAP
SILZKAR7C-10S	0.9 - 1.0 mm

### Lubricants, Fluids, Sealers and Adhesives



#### NOTE:

When servicing or draining the engine oil, the 0w20 oil is compatible with 5w20. Any residue mix is acceptable.

DESCRIPTION	SPECIFICATION
Engine Oil - Vehicles manufactured up to 2015	SAE 5W20 WSS-M2C925-A <b>or</b> SAE 0W20 STJLR.51.5122
Engine Oil - Vehicles manufactured from 2015	SAE 0W20 STJLR.51.5122

DESCRIPTION	SPECIFICATION
Sealant	WSE-M4G323-A6
Core plug and stub pipe retainer	WSK-M2G349-A7
Jaguar Premium Cooling System Fluid	WSS-M97B44-D

## Capacities

DESCRIPTION	LITRES
Engine oil, initial fill	9.65
Engine oil, service fill with oil filter change	8.0
Engine oil, service fill without oil filter change	7.5

## Cylinder Head and Valve Train

ITEM	SPECIFICATION
Cylinder head <b>maximum</b> permitted warp (flatness specification)	0.2 mm (0.008 in)
Cylinder block <b>maximum</b> permitted warp (flatness specification)	0.2 mm (0.008 in)
Valve guide inner diameter (mm)	5.51 ± 0.01
Intake valve effective length (mm) (tip to gauge line)	117.58 ± 0.10
Exhaust valve effective length (mm) (tip to gauge line)	94.75 ± 0.10
Valve stem to guide clearance intake diametrical (mm)	0.042 - 0.057
Valve stem to guide clearance exhaust diametrical (mm)	0.060 - 0.075
Valve head diameter intake (mm)	31.6-Overall diameter-33 ± 0.10
Valve head diameter exhaust (mm)	26-Overall diameter-28 ± 0.10
Intake valve face angle (degrees)	44.875 ± 0.125
Exhaust valve face angle (degrees)	44° 52' 30" ± 7' 30"
Valve stem diameter intake (mm)	5.4705 ± 0.0075
Valve stem diameter exhaust (mm)	5.4525 ± 0.0075
Valve spring free length (mm) - inlet	46.1
Valve spring free length (mm) - exhaust	46.1
Valve spring installed height (mm) - inlet	36.78
Valve spring installed height (mm) - exhaust	37.07
Camshaft lobe lift intake (mm)	10

ITEM	SPECIFICATION
Camshaft lobe lift exhaust (mm)	9.36
Camshaft journal to cylinder head bearing surface clearance diametrical (mm)	0.025 - 0.065
Camshaft journal diameter - all positions	26.965 ± 0.01
Bearing diameter - all positions	27.01 ± 0.01
Camshaft journal maximum run out limit (mm)	
Camshaft journals to end journals	0.03
Camshaft journals to adjacent journals	0.015
Camshaft journal maximum out of round (mm) - all journals	0.005

## Crankshaft Pin and Bearing



### NOTE:

**Make sure that the crankshaft pin journal classification number is noted correctly, so that the correct bearing is installed.**

CRANKSHAFT PIN DIAMETER BEARING SIZE (MM)	CRANKSHAFT PIN LETTER
55.982 - 55.988	A - G
55.989 - 55.994	H - N
55.995 - 56.000	P - W
<b>Crankshaft Pin Letter</b>	<b>Color</b>
A - G	Brown/Yellow (Part Number - DX23-6211-BFA)
H - N	Brown/Red (Part Number - DX23-6211-BEA)
P - W	Brown/Blue (Part Number - DX23-6211-BDA)

## Torque Specification



### NOTE:

**A = Refer to procedure for correct torque sequence.**

DESCRIPTION	NM	LB-FT	LB-IN
Engine cover mounting bolts	10	7	88
Power steering pump pulley retaining bolts	25	18	221

DESCRIPTION	NM	LB-FT	LB-IN
Power steering pump retaining bolts	25	18	221
Power steering pump bracket to engine retaining bolts	25	18	221
Generator retaining bolts	48	35	425
Starter motor retaining bolts	48	35	425
Air conditioning compressor retaining bolts	25	18	221
Engine mounting to engine mounting bracket retaining nuts	48	35	425
Engine mounting to subframe retaining nuts	63	46	558
Engine mounting bracket to engine retaining bolts	48	35	425
Crankshaft damper pulley retaining LH threaded bolt	200 + 270°	148 + 270°	1770 + 270°
Drive plate retaining bolts	45 + 90°	33 + 90°	398 + 90°
Exhaust manifold heat shield retaining bolts	A	-	-
Exhaust manifold retaining bolts	A	-	-
Engine wiring harness bracket retaining bolts	10	7	88
Coolant outlet pipe	10	7	88
Charge air cool retaining bolts	25	18	221
Intake manifold retaining bolts	25	18	221
Oil Cooler retaining bolts	13	10	115
Knock sensor (KS) retaining bolt	20	14	177
Ignition coil retaining bolts	8	-	71
Spark plugs	20	15	177
Fuel rail retaining bolts	A	-	-
High pressure fuel line retaining bolts	A	-	-
High pressure fuel pump retaining bolts	12	9	106
Oil filter housing assembly retaining bolts	12	9	106
Oil filter cap	28	21	248
Lifting eye bolts	25 + 90°	18 + 90°	221 + 90°
Manifold absolute pressure and temperature (MAPT) sensor retaining bolts	5	-	44
Coolant pump retaining bolts	12	9	106
Variable valve timing (VVT) oil control solenoid retaining bolts	10	7	88
Camshaft position (CMP) sensor retaining bolts	10	7	88

DESCRIPTION	NM	LB-FT	LB-IN
Camshaft cover retaining bolts	13	10	115
Front upper timing cover retaining bolts	12	9	106
Front lower timing cover retaining bolts	A	-	-
Engine rear cover retaining bolts	A	-	-
VVT to camshaft retaining bolts	32	24	283
Camshaft bearing caps retaining bolts	11	8	97
Primary timing chain fixed guide retaining bolts	12	9	106
Primary timing chain tensioner retaining bolts	12	9	106
Primary timing chain tensioner guide blade retaining bolts	25	18	221
Auxiliary chain tensioner guide retaining bolts	21	15	186
Auxiliary chain fixed guide retaining bolt	12	9	106
Oil pump sprocket retaining bolt	25	18	221
Cylinder head retaining bolts	A	-	-
Engine oil level (EOL) sensor retaining bolt	12	9	106
Oil pan extension to oil pan body retaining bolts	12	9	106
Oil pan body to engine retaining bolts	25	18	221
Oil pan drain plug	24	17	212
Oil transfer tube to Oil pan body retaining bolts	11	8	97
Oil pump to cylinder block retaining bolts	25	18	221
Pick-up pipe to oil pump retaining bolts	12	9	106
Windage tray retaining bolts	25	18	221
Piston cooling jet retaining bolts	12	9	106
Cylinder block coolant draining plug	50	37	442
Balance shaft assembly retaining bolts	25 + 90°	18 + 90°	221 + 90°-
Rear balance weight assembly retaining nuts	25 + 38°	18 + 38°	221 + 38°
Rear balance weight assembly chain bracket retaining bolt	25	18	221
Connecting rod bolts	20 + 125°	14 + 125°	177 + 125°