

Specifications

Engine

Spark plugs	Bosch X5DC
Spark plug gap:	
Standard	0.6 - 0.7 mm (0.024 - 0.028 in)
Service limit	0.8 mm (0.032 in)
Valve clearances - engine cold (maximum coolant temperature 20°C/68°F):	
Intake	0.15 - 0.20 mm (0.006 - 0.008 in)
Exhaust	0.25 - 0.30 mm (0.010 - 0.012 in)
Idle speed	950 ± 50 rpm
Throttle and 'choke' cable free play	0.5 - 1.0 mm (0.02 - 0.04 in)
Clutch cable free play - at handlebar lever:	
75 models	2.0 - 2.5 mm (0.08 - 0.10 in)
100 models	4.0 - 4.5 mm (0.16 - 0.18 in)
Length of clutch inner cable at gearbox end	75 ± 1 mm (2.95 ± 0.04 in)

Cycle parts

Brake pad/shoe friction material minimum thickness	1.5 mm (0.06 in)
ABS wheel speed sensor clearance	0.35 - 0.65 mm (0.0138 - 0.0256 in)
Drum rear brake free play - at pedal tip	15 - 25 mm (0.6 - 1.0 in)

Tyre pressures - tyres cold:

	Front	Rear
75 models:		
Solo	29 psi (2.00 bar)	36 psi (2.50 bar)
Pillion	34 psi (2.30 bar)	42 psi (2.90 bar)
100 models:		
Solo	33 psi (2.25 bar)	36 psi (2.50 bar)
Pillion - up to 112 mph (180 km/h)	33 psi (2.25 bar)	39 psi (2.70 bar)
Pillion - above 112 mph (180 km/h)	39 psi (2.70 bar)	42 psi (2.90 bar)

Note: information is correct at time of writing - check with machine's handbook or label on rear mudguard for updated information. Pressures apply to original equipment tyres only - check with BMW dealer/importer or tyre manufacturer or agent if non-standard tyres are fitted - pressures may vary.

1.2 Servicing specifications

Torque wrench settings

	Nm	lbf ft
Engine oil filter:		
1 st stage		Lightly oil filter seal, screw on by hand until seal seats on machined surface
2 nd stage		Tighten through 1/2 turn maximum (10 - 12 Nm, 7.5 - 9 lbf ft)
Engine oil pan (sump) and filter cover screws	7 ± 1	5 ± 0.5
Engine oil drain plug	32 ± 4	23.5 ± 3
Gearbox oil filler and drain plugs	20 ± 3	15 ± 2
Final drive case oil filler plug	20 ± 2	15 ± 1.5
Final drive case oil drain plug	25 ± 3	18.5 ± 2
Spark plugs	20 ± 2	15 ± 1.5
Front fork oil drain plugs:		
1985-95 75 models, all 100 models	9 ± 1	6.5 ± 0.5
1993-on 75 models	Not available	
Front fork oil filler plugs		
1985-95 75 models, all 100 models	15 ± 2	11 ± 1.5
1993-on 75 models	Not available	
Steering stem top bolt	74 ± 5	54.5 ± 4
Steering stem adjuster sleeve - late 75 models	45 ± 3	33 ± 2
Steering stem adjuster sleeve locknut - late 75 models	45 ± 3	33 ± 2
Swinging arm adjustable pivot stub	7.3 ± 0.5	5.4 ± 0.4
Swinging arm adjustable pivot stub locknut	41 ± 3	30 ± 2

Recommended lubricants

Engine		
Capacity - at oil and filter change		3.75 lit (6.6 imp pint, 3.9 US qt)
Recommended oil		Good quality HD oil suitable for 4-stroke spark ignition engines. API classification SF, SH or SH
Viscosity		See chart in <i>Daily (pre-ride) checks</i>
Gearbox and final drive case		
Capacity:		
Gearbox		850 ± 50 cc (1.50 ± 0.09 imp pint, 0.90 ± 0.05 US qt)
Final drive case		260 cc (0.46 imp pint, 0.28 US qt)
Recommended oil		Good quality hypoid gear oil of API class GL-5 or to specification MIL-L-2105 B or C
Viscosity:		
Above 5°C (41°F)	SAE 90	
Below 5°C (41°F)	SAE 60	
Alternatively	SAE 80WB0	
Coolant		See Chapter 5
Fuel		See Chapter 6
Front forks		
Capacity - per leg:		
K75 S, any model with 'S' suspension		260 ± 10 cc (9.86 ± 0.35 imp fl oz, 9.47 ± 0.34 US fl oz)
K100 all other 75 models		330 ± 10 cc (11.62 ± 0.35 imp fl oz, 11.16 ± 0.34 US fl oz)
K100 RS, K100 RT, K100 LT		360 ± 10 cc (12.67 ± 0.35 imp fl oz, 12.17 ± 0.34 US fl oz)
Recommended oil		Use specified brands and types only - see Chapter 8
Brake fluid		DOT 4, eg ATE 'SL'
Splined couplings and joints, ie clutch plate, gearbox input shaft, final drive shaft		Staburags NBU 30 PTM compound, Optimol Paste PL or Uni Moly 220 Slip Agent
Front wheel, steering head and swinging arm pivot bearings		Good quality high melting-point lithium fibre-based grease, eg Shell Retinax A
Fluidbloc steering head damper		Silicone grease only eg 'Silicone Grease 300 Heavy
All other greasing points		As wheel bearing type
Battery terminals		Petroleum jelly (Vaseline) or acid-free grease eg Bosch Ft 40 V1
Control cable nipples and all other pivots		Engine oil or light machine oil
Control cables		Nylon lined - if lubrication is considered necessary use only suitable lubricant

Specifications

Engine

Bore	67 mm (2.64 in)		
Stroke	79 mm (2.78 in)		
Number of cylinders	75 models	100 models	
Capacity	3	4	
	740 cc (45 cu in)	987 cc (60 cu in)	
	UK 75 models,	Late US 75 models*	100 models
	early US 75 models		
Compression ratio	11.0 : 1	10.5 : 1	10.2 : 1
Claimed maximum power - DIN (kw/bhp @ rpm)	55/75 @ 8500	51/70 @ 8200	66/90 @ 8300
Claimed maximum torque - DIN (Nm/lb ft @ rpm)	68/50 @ 6750	65/48 @ 6500	86/63 @ 6300
<i>*Changeover date approximately mid-1986</i>			
Cylinder identification	Numbered consecutively front to rear. Number 1 cylinder at front (cam chain) end		
Firing order:			
75 models	3 - 1 - 2		
100 models	1 - 3 - 4 - 2		
Direction of rotation	Anti-clockwise, looking at ignition trigger from front of machine		

Compression pressure - see Section 2

Good	Over 10.0 bar (145 psi)
Normal	8.5 - 10.0 bar (123 - 145 psi)
Poor	Below 8.5 bar (123 psi)

Valve timing - at 5/100 preload and 3 mm (0.12 in) lift

	UK models	US models
Intake opens	5° BTDC	5° AT
Intake closes	27° ABDC	27° AT
Exhaust opens	28° BBDC	28° BT
Exhaust closes	5° BTDC	5° BT

Valve clearances - engine cold (maximum coolant temperature 20°C/68°F)

Intake	0.15 - 0.20 mm (0.006 - 0.008 in)
Exhaust	0.25 - 0.30 mm (0.010 - 0.012 in)

Camshafts and cam followers

Camshaft bearing journal OD:	
At front (thrust) bearing	29.980 - 29.993 mm (1.1803 - 1.1808 in)
At all other bearings	23.980 - 23.993 mm (0.9441 - 0.9446 in)
Cylinder head bearing ID:	
At front (thrust) bearing	30.020 - 30.041 mm (1.1819 - 1.1827 in)
At all other bearings	24.020 - 24.041 mm (0.9457 - 0.9465 in)
Camshaft radial clearance	0.027 - 0.061 mm (0.0011 - 0.0024 in)
Camshaft base circle	30.000 mm (1.1811 in)
Cam lift:	
Intake	9.3927 mm (0.3698 in)
Exhaust	9.3819 mm (0.3694 in)
Cam follower OD	33.475 - 33.491 mm (1.3179 - 1.3185 in)
Cylinder head bore ID	33.500 - 33.525 mm (1.3189 - 1.3199 in)
Cam follower/cylinder head clearance	0.009 - 0.050 mm (0.0004 - 0.0020 in)

Valves, guides and springs

Valve head diameter:	
Intake	34 mm (1.3386 in)
Exhaust	30 mm (1.1811 in)
Valve head rim thickness:	
Standard	1.350 - 1.650 mm (0.0532 - 0.0650 in)
Service limit	1.000 mm (0.0394 in)
Valve head maximum runout	0.030 mm (0.0012 in)
Valve overall length:	
Intake	111.000 mm (4.3701 in)
Exhaust	110.610 - 110.810 mm (4.3547 - 4.3626 in)
Valve stem OD:	
Intake	6.960 - 6.975 mm (0.2740 - 0.2746 in)
Exhaust	6.945 - 6.960 mm (0.2734 - 0.2740 in)
Valve guide ID	7.000 - 7.015 mm (0.2756 - 0.2762 in)
Valve stem/guide clearance:	
Intake - standard	0.025 - 0.055 mm (0.0010 - 0.0022 in)
Exhaust - standard	0.040 - 0.070 mm (0.0016 - 0.0028 in)
Intake and exhaust - service limit	0.150 mm (0.0059 in)
Valve guide overall length	45 mm (1.7717 in)
Valve guide OD	12.964 - 13.044 mm (0.5104 - 0.5135 in)
Cylinder head bore ID	13.000 - 13.018 mm (0.5118 - 0.5125 in)
Valve guide oversize available	+ 0.2 mm (+ 0.0079 in)
Valve seat angle	44° 10' - 44° 30'
Valve seat width	1.5 mm (0.0591 in)
Valve seat oversize available	+ 0.2 mm (+ 0.0079 in)
Valve spring standard free length	44.500 mm (1.7520 in)
Spring force at 20 mm (1.14 in) test length	740 - 800 N (166.36 - 179.85 lbf)

Pistons and gudgeon pins

Piston standard OD:	At size code A	At size code B
Mahle - nominal	66.970 mm (2.6366 in)	66.980 mm (2.6370 in)
Mahle - actual	66.963 - 66.977 mm (2.6363 - 2.6369 in)	66.973 - 66.987 mm (2.6367 - 2.6373 in)
KS - nominal	66.973 mm (2.6367 in)	66.983 mm (2.6371 in)
KS - actual	66.966 - 66.980 mm (2.6365 - 2.6370 in)	66.976 - 66.990 mm (2.6368 - 2.6374 in)
Piston weight group	+ or - stamped in piston crown. All pistons must be of same weight group, ie carry the same marking	
Gudgeon pin OD	17.996 - 18.000 mm (0.7085 - 0.7087 in)	
Piston bore and small-end bearing bush ID	18.002 - 18.006 mm (0.7088 - 0.7089 in)	
Piston/gudgeon pin clearance	0.002 - 0.010 mm (0.0001 - 0.0004 in)	

Piston rings

Top compression ring:	
Thickness	1.178 - 1.190 mm (0.0464 - 0.0469 in)
End gap - installed	0.250 - 0.450 mm (0.0098 - 0.0177 in)
Ring/groove side clearance - 75 models (Mahle)	0.050 - 0.062 mm (0.0020 - 0.0032 in)
Ring/groove side clearance - 75 models (KS)	0.040 - 0.072 mm (0.0016 - 0.0028 in)
Ring/groove side clearance - 100 models	0.013 - 0.027 mm (0.0005 - 0.0011 in)
Second compression ring:	
Thickness	1.478 - 1.490 mm (0.0582 - 0.0587 in)
End gap - installed	0.250 - 0.450 mm (0.0098 - 0.0177 in)
Ring/groove side clearance - 75 models (Mahle)	0.040 - 0.072 mm (0.0016 - 0.0028 in)
Ring/groove side clearance - 75 models (KS)	0.030 - 0.062 mm (0.0012 - 0.0024 in)
Ring/groove side clearance - 100 models	0.012 - 0.026 mm (0.0004 - 0.0010 in)
Oil scraper ring:	
Thickness	2.975 - 2.990 mm (0.1171 - 0.1177 in)
End gap - installed	0.200 - 0.450 mm (0.0079 - 0.0177 in)
Ring/groove side clearance	0.020 - 0.055 mm (0.0008 - 0.0022 in)

Connecting rods and bearings

Maximum permissible weight difference between connecting rods - without bearing shells	± 4 grams (0.1411 oz)
<i>Note: all rods must always be of same weight category, ie carry the same colour coding or weight stamp</i>	
Small-end bearing bore ID - less bush	20.000 - 20.021 mm (0.7874 - 0.7882 in)
Big-end bearing bore ID	41.000 - 41.016 mm (1.6142 - 1.6148 in)
Big-end bearing width	21.863 - 21.935 mm (0.8615 - 0.8636 in)
Crankshaft big-end journal width	22.065 - 22.195 mm (0.8687 - 0.8738 in)
Connecting rod axial play (endfloat) - at big-end	0.130 - 0.312 mm (0.0051 - 0.0123 in)
Crankpin standard OD	37.976 - 38.000 mm (1.4951 - 1.4961 in)
Size groups:	
White	37.976 - 37.984 mm (1.4951 - 1.4954 in)
Green	37.984 - 37.992 mm (1.4954 - 1.4957 in)
Yellow	37.992 - 38.000 mm (1.4957 - 1.4961 in)
Big-end bearing radial clearance	0.030 - 0.066 mm (0.0012 - 0.0026 in)
Undersize bearing shells available:	
1st stage (1 paint mark)	-0.25 mm (-0.0098 in)
2nd stage (2 paint marks)	-0.50 mm (-0.0197 in)

Crankshaft and main bearings

Crankcase bearing bore ID	49.000 - 49.016 mm (1.9291 - 1.9298 in)
Crankshaft endfloat	0.060 - 0.183 mm (0.0032 - 0.0072 in)
Thrust bearing width:	
Standard	23.000 mm (0.9055 in)
At 1st stage undersize - crankshaft reground by	
-0.25 mm (-0.01 in)	23.200 mm (0.9134 in)
At 2nd stage undersize - crankshaft reground by	
-0.50 mm (-0.02 in)	23.400 mm (0.9213 in)
Main bearing journal standard OD	44.976 - 45.000 mm (1.7707 - 1.7717 in)
Size groups:	
White	44.976 - 44.984 mm (1.7707 - 1.7710 in)
Green	44.984 - 44.992 mm (1.7710 - 1.7713 in)
Yellow	44.992 - 45.000 mm (1.7713 - 1.7717 in)
Main bearing radial clearance	0.020 - 0.056 mm (0.0008 - 0.0022 in)
Undersize bearing shells available:	
1st stage (1 paint mark)	-0.25 mm (-0.0098 in)
2nd stage (2 paint marks)	-0.50 mm (-0.0197 in)

Primary drive

Reduction ratio - crankshaft to output/balancer shaft 1:1

Torque wrench settings - 75 models

	Nm	lbf ft
Cylinder head cover bolts	8 ± 1	6 ± 0.5
Crankshaft (engine right-hand) cover bolts	8 ± 1	6 ± 0.5
Cam chain (engine front) cover screws	7 ± 1	5 ± 0.5
Cam chain top guide rail Torx screws	9 ± 1	6.5 ± 0.5
Camshaft bearing cap nuts	9 ± 1	6.5 ± 0.5
Camshaft sprocket bolts	54 ± 6	40 ± 4.5
Cam chain tensioner mounting screws	9 ± 1	6.5 ± 0.5
Crankshaft sprocket and ignition rotor flange retaining bolt	50 ± 6	37 ± 4.5
Cylinder head bolts - bolt threads lightly oiled:		
1st stage	30 ± 4	22 ± 3
2nd stage - after 20 minute wait	45 ± 5	33 ± 4
Connecting rod big-end bearing cap retaining nuts:		
1st stage - to preload shells	30 ± 3	22 ± 2
2nd stage - applies to all models	Tighten (rotate) nuts through an angle of 80°	
Crankshaft main bearing cap bolts	50 ± 6	37 ± 4.5
Crankcase lower section to cylinder block:		
10 mm bolt - output shaft rear	40 ± 5	29.5 ± 4.5
8 mm bolt or screw - output shaft front	18 ± 2	13 ± 1.5.5
6 mm bolt or screw	7 ± 1	5 ± 0.5
Oil/water pump assembly mounting screws	7 ± 1	5 ± 0.5
Auxiliary drive shaft bearing retainer screws	9 ± 1	6.5 ± 0.5
Bellhousing Torx screws	9 ± 1	6.5 ± 0.5
Starter clutch body/auxiliary drive shaft - 6 mm bolts	9 ± 1	6.5 ± 0.5
Alternator drive flange/auxiliary drive shaft retaining bolt	33 ± 4	24 ± 3
Engine and transmission unit/frame mountings	40.5 ± 4	30 ± 3

Torque wrench settings - 100 models

	Nm	lbf ft
Cylinder head cover drain plugs - early models only	7	5
Cylinder head cover bolts	8 ± 1	6 ± 0.5
Crankshaft (engine right-hand) cover bolts	8 ± 1	6 ± 0.5
Cam chain (engine front) cover screws	7 ± 1	5 ± 0.5
Cam chain top guide rail Torx screws	9 ± 1	6.5 ± 0.5
Camshaft bearing cap nuts	9 ± 1	6.5 ± 0.5
Camshaft sprocket bolts	54 ± 6	40 ± 4.5
Cam chain tensioner mounting screws	9 ± 1	6.5 ± 0.5
Crankshaft sprocket and ignition rotor flange retaining bolt	50 ± 6	37 ± 4.5
Cylinder head bolts - bolt threads lightly oiled:		
1st stage	30 ± 4	22 ± 3
2nd stage - after 20 minute wait	45 ± 5	33 ± 4
Connecting rod big-end bearing cap retaining nuts:		
1st stage - to preload shells	30 ± 3	22 ± 2
2nd stage - applies to all models	Tighten (rotate) nuts through an angle of 80°	
Crankshaft main bearing cap bolts	50 ± 6	37 ± 4.5
Crankcase lower section to cylinder block:		
10 mm bolt - output shaft rear	40 ± 5	29.5 ± 4.5
8 mm bolt or screw - output shaft front	18 ± 2	13 ± 1.5.5
6 mm bolt or screw	7 ± 1	5 ± 0.5
Oil/water pump assembly mounting screws	7 ± 1	5 ± 0.5
Auxiliary drive shaft bearing retainer screws	9 ± 1	6.5 ± 0.5
Bellhousing Torx screws	9 ± 1	6.5 ± 0.5
Starter clutch body/auxiliary drive shaft:		
8 mm screws	24	18
6 mm bolts	9 ± 1	6.5 ± 0.5
Alternator drive flange/auxiliary drive shaft retaining bolt	33 ± 4	24 ± 3
Engine and transmission unit/frame mountings:		
Early (1984, 1985) models	32	23.5
Late (1986 on) models	40.5 ± 4	30 ± 3

Specifications

Clutch friction plate

Diameter:

75 models	165 ± 1 mm (6.50 ± 0.04 in)
100 models	180 ± 1 mm (7.09 ± 0.04 in)

Thickness:

Standard	5.05 - 5.55 mm (0.1988 - 0.2185 in)
Service limit	4.50 mm (0.1772 in)

Torque wrench settings - 75 models

	Nm	lbf ft
Clutch housing/engine output shaft retaining nut	140 ± 5	103 ± 4
Cover plate/housing bolts or screws	19 ± 2	14 ± 1.5

Torque wrench settings - 100 models

	Nm	lbf ft
Clutch housing/engine output shaft retaining nut:		
1st stage	140 ± 5	103 ± 4
2nd stage release, then tighten to	90 - 114	66 - 84
Cover plate/housing bolts or screws	19 ± 2	14 ± 1.5

Specifications

Gearbox

Reduction ratios - inclusive of input shaft/layshaft reduction of 1.944 : 1 (35/18T):

1st	4.497 : 1
2nd	2.959 : 1
3rd	2.304 : 1
4th	1.879 : 1
5th	1.666 : 1
Layshaft and output shaft standard endfloat	0.050 - 0.150 mm (0.0019 - 0.0059 in)
Input shaft preload:	
Tolerance	0.030 - 0.080 mm (0.0012 - 0.0032 in)
Approximate equivalents of preload values, expressed in friction values:	
0.030 mm (0.0012 in) preload	0.19 ± 0.02 Nm (0.14 ± 0.01 lbf ft)
0.055 mm (0.0022 in) preload	0.34 ± 0.02 Nm (0.25 ± 0.01 lbf ft)
0.080 mm (0.0032 in) preload	0.50 ± 0.02 Nm (0.37 ± 0.01 lbf ft)

Gearbox lubrication

Recommended oil	Good quality hypoid gear oil of API class GL-5 or to specification MIL-L-2105 B or C
Viscosity:	
Above 5°C (41°F)	SAE 90
Below 5°C (41°F)	SAE 80
Alternatively	SAE 80W90
Capacity	850 ± 50 cc (1.50 ± 0.09 Imp pint, 0.90 ± 0.05 US qt)

Torque wrench settings

	Nm	lbf ft
Selector lever/gearchange pedal shaft grub screw	17 ± 2	12.5 ± 1.5
Neutral detent assembly plug	13 ± 2	9.5 ± 1.5
Front cover retaining screws	9 ± 1	6.5 ± 0.5
Gearbox/bellhousing retaining screws	16 ± 1	12 ± 0.5
Engine and transmission unit/frame mountings:		
Early (1984, 1985) 100 models	32	23.5
Late (1986 on) 100 models, all 75 models	40.5 ± 4	30 ± 3
Filler and drain plugs	20 ± 3	15 ± 2

Specifications

Coolant

Type	Distilled water with antifreeze
Recommended antifreeze	BMW-approved good quality long life antifreeze, glycol-based, with corrosion inhibitor, free from nitrides eg: Fricotin ICI 007 or 012 antifreeze Glycoshell P300 Hoechst Genantin VP 1719 BASF Glysantin G41/23
Mixture ratio:	
Standard (down to -28°C/ -18°F)	60% water : 40% antifreeze
Alternative (down to -35°C/ -33°F)	50% water : 50% antifreeze
Capacity overall:	
75 models	Approx 3.00 lit (5.3 Imp pint, 3.2 US qt)
100 models	Approx 3.25 lit (5.7 Imp pint, 3.4 US qt)
Capacity of individual components - approximate:	
Radiator - 75 models	2.50 lit (4.4 Imp pint, 2.6 US qt)
Radiator - 100 models	2.80 lit (4.9 Imp pint, 3.0 US qt)
Expansion tank	0.40 lit (0.7 Imp pint, 0.4 US qt)

Radiator

Filler cap valve opens at	1.00 - 1.15 bar (14.5 - 16.7 psi) - approximately equal to temperature of 120°C (248°F)
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Expansion tank

Filler cap valve opens at	0.1 bar (-1.5 psi)
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Thermostat

Opens at	85°C (185°F)
Fully open at	92°C (198°F)

Electrical components

Cooling fan	Cuts in at 103°C (217°F)
Coolant overheat warning lamp	Lights at 111°C (232°F)

Torque wrench settings

	Nm	lbf ft
Coolant drain plug	9 ± 1	6.5 ± 0.5
Water pump impeller:		
Early models - 8 mm nut	21 ± 2	15.5 ± 1.5
Late models - 8 mm bolt	33 ± 4	24 ± 3
Oil/water pump assembly mounting screws	7 ± 1	5 ± 0.5
Oil/water pump cover screws	7 ± 1	5 ± 0.5
Coolant pipe stub mounting screws	7 ± 1	5 ± 0.5
Radiator mounting bolt or nut	8 ± 1	6 ± 0.5

1 General description

pressurised, the pressure being controlled by a valve contained in the spring loaded radiator cap. By pressurising the coolant to recommended the cool before the ca

4 Place a recept

Recommended fuel grade - see Section 21 for full information

Early 100 models	Leaded premium*
Later 100 models	Unleaded or leaded regular*
UK 75 models, early US 75 models	Unleaded or leaded premium*
Later US 75 models	Unleaded or leaded regular*
*Premium is defined as:	
Leaded	* Premium (super, 4-star) grade petrol (gasoline) to German DIN 51600 standard or equivalent, minimum octane rating 98 Research Method (RM/RON), 88 Motor Method (MM/MON)
Unleaded	Premium (super, 4-star) grade petrol (gasoline) to German DIN 51607 standard or equivalent, minimum octane rating 95 Research Method (RM/RON), 85 Motor Method (MM/MON)
*Regular is defined as:	
Leaded	Regular (2-star) grade petrol (gasoline) to German DIN 51600 standard or equivalent, minimum octane rating 91 Research Method (RM/RON), 82.5 Motor Method (MM/MON)
Unleaded	Regular (2-star) grade petrol (gasoline) to German DIN 51607 standard or equivalent, minimum octane rating 91 Research Method (RM/RON), 82.5 Motor Method (MM/MON)

Note: Information is correct at time of writing - for confirmation of details check with rider's handbook supplied with machine, or with a local BMW dealer or the BMW importer

Fuel system

Type	Bosch LE-Jetronic
Fuel pump pressure approximate	2.5 bar (36 psi)
Regulator safety valve opens at	4.7 bar (68 psi)
Idle speed	950 ± 50 rpm
Maximum permissible CO value	2.0 - 2.5% (by volume) at idle speed
Injectors shut off at:	
75 models	8905 rpm
100 models	8770 rpm

Engine oil

Quantity:	
At oil change	3.50 lit (6.2 Imp pint, 3.7 US qt)
At oil and filter change	3.75 lit (6.6 Imp pint, 3.9 US qt)
Recommended oil	Good quality HD oil suitable for 4-stroke spark ignition engines, API classification SF, SG or SH
Viscosity	See chart in <i>Daily (pre-ride) checks</i>

Engine lubrication system

Relief valve opens at	5.4 bar (78 psi)
Oil pressure warning lamp lights below	0.2 - 0.5 bar (3 - 7 psi)
Filter bypass valve opens at pressure differential of	1.5 bar (22 psi)

Torque wrench settings

	Nm	lbf ft
Intake stub mounting bolts	7 ± 1	5 ± 0.5
Fuel rail mounting bolts	7 ± 1	5 ± 0.5
Pressure regulator mounting nut	25 ± 3	18.5 ± 2
Air filter lower section mounting bolts	21 ± 1	15.5 ± 0.5
Exhaust pipe retaining nuts at cylinder head	21 ± 2	15.5 ± 1.5
Exhaust pipe/silencer clamp bolt	20.5 ± 2	15 ± 1.5
Silencer/footrest mounting bolt	9 ± 1	6.5 ± 0.5
Silencer cover mounting screws	6 ± 1	4.5 ± 0.5
Oil/water pump assembly mounting screws	7 ± 1	5 ± 0.5
Oil/water pump cover screws	7 ± 1	5 ± 0.5
Oil pump pickup mounting screw	7 ± 1	5 ± 0.5

Specifications

Ignition system

Type	Bosch VZ-51L or VZ-52L	
Static ignition timing:	Crankshaft angle	Piston position
US 75 models	4° BTDC	0.10 mm (0.0039 in) BTDC
100 models, UK 75 models	6° BTDC	0.24 mm (0.0095 in) BTDC
Advance starts at	1300 rpm	
Advance range:		
US 75 models	26°	
100 models, UK 75 models	24°	
Maximum advance at	8650 rpm	
Retard starts at:		
75 models	8777 rpm	
100 models	8650 rpm	
Fuel injection shuts off at:		
75 models	8905 rpm	
100 models	8770 rpm	
Starter motor lockout effective above	711 rpm	
Cylinder identification	Numbered consecutively front to rear, Number 1 cylinder at front (cam chain) end	
Firing order:		
75 models	3-1-2	
100 models	1-3-4-2	
Direction of rotation	Anti-clockwise, looking at ignition trigger from front of machine	

Ignition HT coil

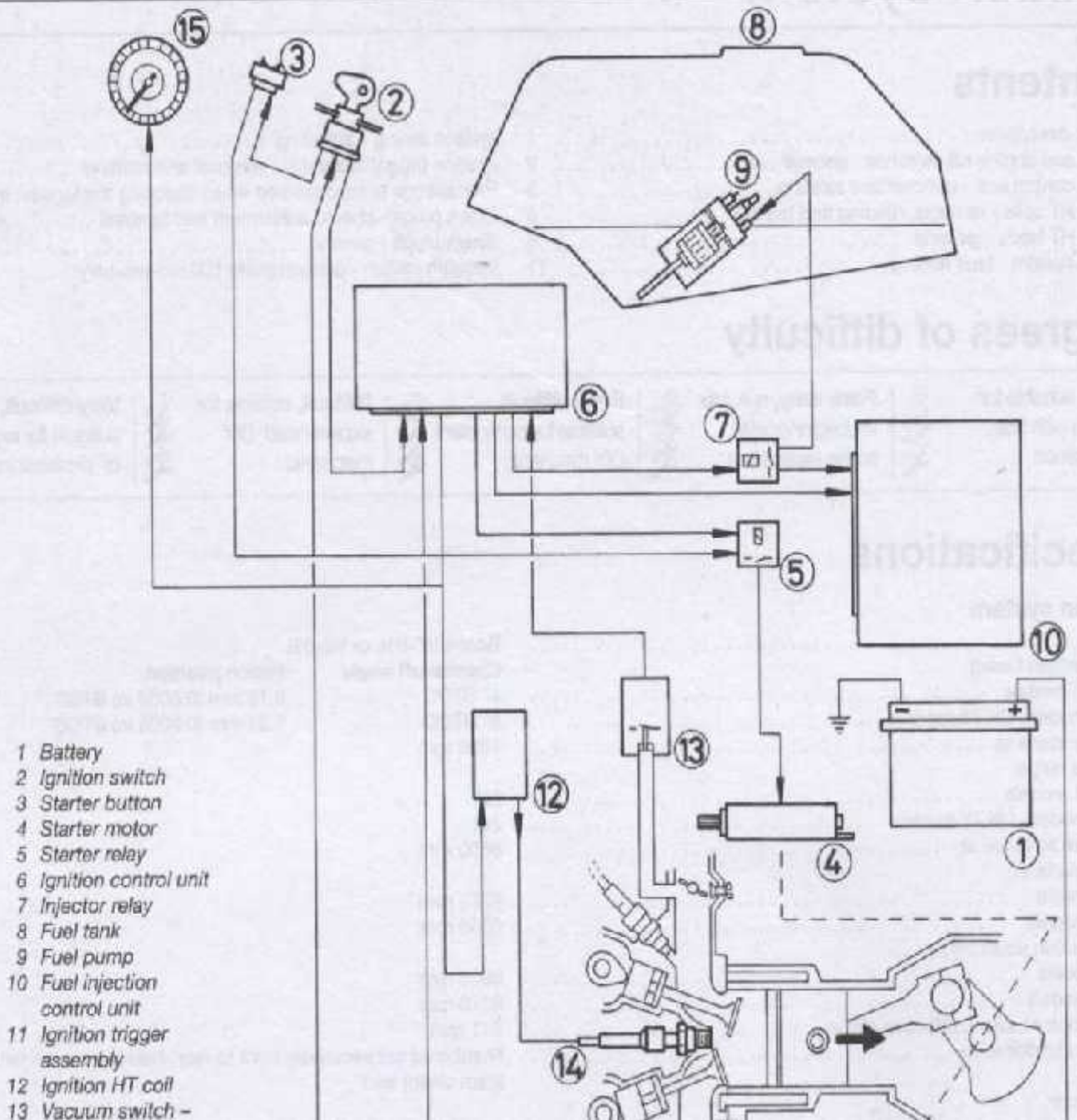
75 models	
Primary winding resistance	0.8 ohm
Secondary winding resistance	10 K ohm
Suppressor (HT lead connector)	1 K ohm or 0 ohm (marked)
100 models	No resistance values available at time of writing

spark plugs

spark plug	Bosch
spark plug type	X5DC
spark plug gap:	
Standard	0.6 - 0.7 mm (0.024 - 0.028 in)
Service limit	0.8 mm (0.032 in)
spark plug resistance	5 K ohm

torque wrench settings

	Nm	lbf ft
spark plugs	20 ± 2	15 ± 1.5
ignition trigger backplate screws	3.5 ± 0.5	2.5 ± 0.5
ignition trigger cover screws	6 ± 1	4.5 ± 0.5
ignition HT coil mounting bolts	5 ± 0.5	3.5 ± 0.4



Specifications

Front forks – 1985 to 1992 75 models, all 100 models

Type	Fichtel and Sachs
Travel:	
K75S, any model with 'S' suspension	135 mm (5.32 in)
All other models	185 mm (7.28 in)
Stanchion OD	41.325 - 41.350 mm (1.6270 - 1.6280 in)
Lower leg ID	41.400 - 41.439 mm (1.6299 - 1.6315 in)
Stanchion/lower leg clearance	0.050 - 0.114 mm (0.0020 - 0.0045 in)
Stanchion maximum warpage	0.100 mm (0.0039 in)
Stanchion installed height (test length) - from top of stanchion to top machined surface of bottom yoke	180 mm (7.0866 in)
Fork spring free length:	
Top spring - K75S, any model with 'S' suspension	Not available
Main spring - K75S, any model with 'S' suspension	Not available
Main spring - all other models	395 - 401 mm (15.5512 - 15.7874 in)
Main spring wire diameter	4.67 - 4.73 mm (0.1839 - 0.1862 in)
Fork oil capacity - per leg:	
K75S, any model with 'S' suspension	280 ± 10 cc (9.86 ± 0.35 Imp fl oz, 9.47 ± 0.34 US fl oz)
K100, all other 75 models	330 ± 10 cc (11.62 ± 0.35 Imp fl oz, 11.16 ± 0.34 US fl oz)
K100RS, K100RT, K100LT	360 ± 10 cc (12.67 ± 0.35 Imp fl oz, 12.17 ± 0.34 US fl oz)

Front forks – 1985 to 1992 75 models, all 100 models (continued)

Recommended fork oil:

Aral	1010 shock absorber oil
Aral	P3441 shock absorber oil
Bel-Ray	SAE 5 Fork Oil (with 'Seal Swell')
BP	Aero Hydraulic
BP-Olex	HLP 2849
Castrol	Fork Oil Extra Light
Castrol	DB Hydraulic Fluid
Castrol	1/-318 Shock Absorber Oil
Castrol	LHM - only for temperatures below 0°C (32°F)
Castrol	AWH 15
Esso	Univis 13 Telefork Oil or Comfort
Golden Spectro	Suspension Fluid Very Light
Mobil	Aero HFA shock absorber oil
Mobil	DTE 11 shock absorber oil
Premium Fork Lubricant	Spectro SAE10 - for competition use only
Shell	Aero Fluid 4
Shell	4001 shock absorber oil
Wack Chemie	SAE 5 (red) high-performance telescopic fork

Front forks - 1993-on K75, K75S, K75RT models

Type	Showa
Travel	136 mm (5.32 in)
Stanchion OD	41.4 mm (1.630 in)
Stanchion maximum warpage	0.1 mm (0.004 in)
Stanchion installed height (test length) from top of stanchion to top machined surface of bottom yoke	180 mm (7.0866 in)
Oil capacity (per leg) - at oil change	410 cc (14.43 Imp fl oz, 13.88 US fl oz)
Oil capacity (per leg) - dry	420 cc (14.78 Imp fl oz, 14.20 US fl oz)
Manufacturer's oil recommendation	Esso Comfort

Torque wrench settings - 75 models

	Nm	lbf ft
Steering stem top bolt - early models	74 ± 5	54.5 ± 4
Steering stem adjuster sleeve - late models	45 ± 3	33 ± 2
Steering stem adjuster sleeve locknut - late models	45 ± 3	33 ± 2
Steering head bearing adjusting knurled circular nut	Tightened until free play is just removed from	
Handlebar clamp bolts	22 ± 2	16 ± 1.5
Handlebar mirror retaining nuts	16 ± 3	12 ± 2
Front forks - 1985-92 models:		
Damper rod Allen screw	20 ± 2	15 ± 1.5
Oil filler plug	15 ± 2	11 ± 1.5
Oil drain plug	9 ± 1	6.5 ± 0.5
Front forks - 1993-on models	Not available	
Fork yoke pinch bolts - Fichtel and Sachs forks:		
Top yoke pinch bolts	21 ± 2	15.5 ± 1.5
Bottom yoke pinch bolt	43 ± 3	32 ± 2
Fork yoke pinch bolts - Showa forks:		
Top yoke pinch bolts	26	19
Bottom yoke pinch bolts (new bolts - see text)	50	37
Fluidbloc retaining screws or bolts	9 ± 1	6.5 ± 0.5
Fork brace/lower leg mounting bolts	21 ± 2	15.5 ± 1.5
Stand mounting bracket/gearbox bolts	41 ± 5	30 ± 4
Centre and side stand pivots	41 ± 5	30 ± 4
Footrest plate/gearbox bolts	15 ± 2	11 ± 1.5
Pillion footrest/footrest plate retaining nuts	29 ± 3	21.5 ± 2
Rear brake pedal pivot	25 ± 3	18.5 ± 2
Fairing mounting bracket/steering head screws or bolts - K75 S	9 ± 1	6.5 ± 0.5

Specifications

Final drive

	Standard	Optional
Final drive ratio:		
75S	3.20 : 1 (32/10T)	3.09 : 1 (34/11T)
All other 75 models	3.20 : 1 (32/10T)	3.36 : 1 (37/11T)
K100RS	2.82 : 1 (31/11T)	2.91 : 1 (32/11T)
All other 100 models	2.91 : 1 (32/11T)	3.00 : 1 (33/11T)
Pinion backlash	0.070 - 0.160 mm (0.0028 - 0.0063 in)	
Pinion wheel taper roller bearing preload:	0.050 - 0.100 mm (0.0020 - 0.0039 in)	
Tolerance	600 - 1600 N (134.89 - 359.69 lbf)	
Approximate equivalent, expressed in friction values		

Final drive lubrication

Recommended oil	Good quality hypoid gear oil of API class GL-5 or to specification MIL-L-2105 B or C
Viscosity:	
Above 5°C (41°F)	SAE 90
Below 5°C (41°F)	SAE 80
Alternatively	SAE 80W90
Capacity	260 cc (0.46 Imp pint, 0.28 US qt)

Rear suspension

Level	110 mm (4.33 in)
Spring free length:	
K75S	Not available
All other 75 models	271 - 277 mm (10.6693 - 10.9055 in)
100 models - except K100LT	265 - 269 mm (10.4331 - 10.5905 in)
Spring wire diameter:	
75 models	9.00 mm (0.3543 in)
100 models - except K100LT	9.86 mm (0.3882 in)

Torque wrench settings

	Nm	lbf ft
Swinging arm fixed pivot stub retaining screws	9 ± 1	6.5 ± 0.5
Swinging arm adjustable pivot stub	7.5 ± 0.5	5.4 ± 0.4
Swinging arm adjustable pivot stub locknut	41 ± 3	30 ± 2
Final drive case/swinging arm bolts	40 ± 3	29 ± 25
Suspension unit mountings	51 ± 6	37.5 ± 4
Final drive pinion retaining nut	200 ± 20	148 ± 15
Drive pinion assembly/drive case retaining threaded ring	118 ± 12	87 ± 9
Final drive case cover screws or bolts	21 ± 2	15.5 ± 1.5
Speedometer impulse transmitter retaining screw	2.5 ± 0.5	1.8 ± 0.4
Final drive case oil filler plug	20 ± 2	15 ± 1.5
Final drive case oil drain plug	25 ± 3	18.5 ± 2

Specifications

Wheels

Size:	Front	Rear
K75C, K75T, 1987-89 K75	MTH 2.50 x 18E	MTH 2.75 x 18E also 2.75 x 17
K75RT, 1990-on K75	MTH 2.50 x 18E	MTH 2.75 x 17
1986-90 K75S, all 100 models	MTH 2.50 x 18E	MTH 2.75 x 17E also 3.00 x 17
1991-on K75S (with 3-spoke design wheel)	MTH 2.50 x 18E	MTH 3.00 x 17
Rim maximum runout - radial and axial	0.50 mm (0.0197 in)	
Wheel bearing size (front)	6005 25 mm x 47 mm x 12 mm	

Brakes

Type:	Front	Rear
K75, K75C, K75T	Twin hydraulic discs	SLS drum - rod operated
K75S, K75RT, all 100 models	Twin hydraulic discs	Single hydraulic disc

Disc brakes - front and rear

Disc diameter	285 mm (11.22 in)
Disc thickness:	
Standard	4.300 - 4.400 mm (0.1693 - 0.1732 in)
Service limit	3.556 mm (0.1400 in)
Disc maximum warpage	0.200 mm (0.0079 in)
Brake pad friction material thickness:	
Standard - approximate	5.0 mm (0.1969 in)
Service limit	1.5 mm (0.0591 in)
Front master cylinder piston OD	13 mm (0.5118 in)
Rear master cylinder piston OD:	
Up to late 1988	13 mm (0.5118 in)
From late 1988	12 mm (0.4724 in)
Caliper piston OD	38 mm (1.4961 in)
Recommended brake fluid	DOT 4 - eg ATE 'SL'

Drum brake

Drum ID:	
Standard	200.00 mm (7.8740 in)
Maximum	201.16 mm (7.9197 in)
Brake shoe friction material minimum thickness	1.5 mm (0.0591 in)

ABS components

Controlled minimum speed	2.5 mph (4.0 kph)
Power rating of system - whilst riding	0.6A
Wheel speed sensor clearance	0.35 - 0.65 mm (0.0138 - 0.0258 in)

Tyres

Note: check with BMW importer/dealer for currently approved makes and types of tyre

Size:	Front	Rear
K75C, K75T, 1987-89 K75	100/90 - 18 56 H, also 100/90 H 18	120/90 - 18 65 H, also 120/90 H 18
1990-on K75	100/90 x 18 56 H	130/90 x 17 68 V
K75RT	100/90 x 18 56 V	130/90 x 17 68 V
K75S, all 100 models	100/90 V 18, also 100/90 x 18 56 V	130/90 V 17, also 130/90 x 17 68 V
Radial tyres - 100 models*	100/90 VR 18	140/80 VR 17

Pressures and tread depth see Daily (pre-ride) checks

*Radial tyres are only recommended for certain 100 models - check with BMW importer/dealer. Radial tyres must be used on both wheels. See Section 20 for clearance details.

Torque wrench settings

	Nm	lbf ft
Front wheel spindle retaining collar Allen screw	33 ± 4	24 ± 3
Front wheel spindle clamp bolts	14 ± 2	10 ± 1.5
Rear wheel mounting bolts	105 ± 4	77.5 ± 3
Front brake disc mountings	29 ± 3	21.5 ± 2
Rear brake disc mounting screws	21 ± 2	15.5 ± 1.5
Brake caliper mounting bolts	32 ± 2	23.5 ± 1.5
Brake pipe retaining plastic nut at steering head - early 75 models, all 100 models	10 ± 1	7.5 ± 0.5
All brake hose or pipe unions	7 ± 1	5 ± 0.5
Brake caliper bleed nipples	7 ± 1	5 ± 0.5

Specifications

Electrical system

Voltage	12V
Earth (ground)	Negative (-)

Battery

Manufacturer	BMW - Mareg
Capacity:	
Standard - models up to 1986	20 Ah
Standard - models from 1987 on	25 Ah
Optional - all models	30 Ah (may be fitted to K100LT as standard)
Electrolyte specific gravity	1.280 @ 20°C (68°F)

Alternator

Type	Bosch 0.120.339.546, G1 - 14V 33A 27
Rated output	460W / 14V 33Ah
Reduction ratio	1.5 : 1
Maximum speed	12,300 rpm
Voltage regulator	Bosch 1.197.311.001, EL 14V 4C
Charge starts at	950 ± 50 rpm
Regulated voltage	13.7 - 14.5 volts
Stator winding resistance - across phase outputs	0.28 ohm ± 10% @ 60°C (140°F)
Resistance between slip rings - exciter winding	4.0 ohm ± 10% @ 60°C (140°F)
Stator/rotor air gap	0.22 mm (0.0087 in)
Rotor maximum runout at claw poles	0.05 mm (0.0020 in)
Slip ring maximum runout	0.03 mm (0.0012 in)
Slip ring OD:	
Standard	27.8 mm (1.0945 in)
Service limit	26.8 mm (1.0551 in)
Brush projection:	
Standard	10 mm (0.3937 in)
Service limit	5 mm (0.1969 in)

Starter motor

Type	Nippon Denso 028000 - 8990
Power	0.7kW (1 hp)
Reduction ratio - overall	27:1
Lockout effective above	711 rpm
Brush length - see text:	
Standard - approximate	12 mm (0.4724 in)
Service limit	50% of new length

Fuses

1 Instrument cluster, stop and tail lamps	7.5A
2 Parking lamp	7.5A
3 Turn signals, clock	15A
4 Power socket - where fitted	15A
5 Optional extra equipment - where fitted	15A
6 Fuel pump	7.5A
7 Horns, radiator fan	15A

Bulbs

Headlamp	12V, 60/55W
Parking lamps	12V, 4W
Tail lamp	12V, 10W
Stop lamp	12V, 21W
Turn signal lamps	12V, 21W
Turn signal warning lamps	12V, 4W
All other warning and instrument illuminating lamps	12V, 3W

Torque wrench settings

	Nm	lbf ft
Alternator shock absorber body retaining nut	45 ± 6	32.5 ± 4
Alternator mounting bolts	22 ± 3	16 ± 2
Starter motor mounting bolts	7 ± 1	5 ± 0.5