Technical Data
for the MG YB Series

We often get asked questions on technical matters relating to basic specification data on the MG Y Type, so it seems sensible to make available a printed sheet with all the usual data on it.
Source: Maintenance Manual and Instruction Book for the MG One and a Quarter Litre (Series 'Y') - available as a reprint in full from the MG Octagon Car Club - see Links page. While every effort has been made to carefully copy and reproduce the data shown accurately, your attention is drawn to our DISCLAIMER.
NB This data is correct for the MG YB - not the MG YA or YT!

MG YB only

ENGINE:
Type: XPAG/SC2. Four cylinders, water cooled, with overhead valves, push-rod operated, with detachable head.

Bore	66.5 mm (2.62 in.).
Stroke	90 mm (3.54 in.).
Capacity	1250 c.c. – (76.28 cu. in.).
Bore/stroke ratio	1.353 to 1.
Compression ratio	7.2/7.4.
Depth of head	45.5 c.c.
Cylinder head gasket	0.045 in (1.14mm.) thick copper and asbestos.
RAC Rating	10.97 hp.

CONNECTING ROD:

Type	Steel.
Length	178 mm with loose steel shell white-metal bearings.
Bore at big-end	48.658 mm – 48.671 mm.
Bore at small end	18 mm. +.03 mm. –.01 mm.
Width at big-end	27.865 mm – 27.890 mm.
Width at small end	19 mm.
Gudgeon pin	Type: Clamp. Dia.: 18 mm. – .015mm. Length 58.5mm. – .010mm.

CRANKSHAFT:	*Diameter*	*Width*	*Radius*
Main journal (front)	52 mm – .035 mm. – .015 mm.	38 mm.	2.5 mm.±.15 mm.
Intermediate journal	52 mm – .035 mm. – .015 mm.	38 mm – .02 mm. – .01 mm.	2.5 mm.±.15 mm.
Main journal (rear)	52 mm – .035 mm. – .015 mm.	40 mm.	2.5 mm.±.15 mm.
Minimum regrind	50.50 mm.		
Crankpin journal	45 mm – .035 mm. – .015 mm.	28 mm – .015 mm. – .010 mm.	2.5 mm.±.15 mm.
Minimum regrind	43.75 mm.		

MAIN BEARINGS:
Bore size of crankcase for main bearings 56.34 mm. ± .02mm.

	Diameter	*Width*	
Main bearing (front)	52.020 mm. 52.005 mm.	35.12 mm. 34.88 mm.	
Main bearing (inter.)	52.020 mm. 52.005 mm.	37.955 mm. 37.925 mm.	Radius 2.75 mm. U/cut .25 mm.
Main bearing (rear)	52.020 mm. 52.005 mm.	35.12 mm. 34.88 mm.	

Main bearing clearance on crankshaft diameter .020 mm
.055 mm.

Main bearing (inter.) end-float on crankshaft .035 mm.
.095 mm.

BIG-END BEARING:	*Diameter*	*Width*	*Thickness*
	45 mm.	22.46 mm.	1.825 mm.
		22.21 mm.	1.831 mm.

Big-end clearance on crankshaft diameter .011 mm.
.056 mm.

CRANKSHAFT REGRIND

Bearing and crankshaft dia. undersize	*Reference*	*Crankshaft main journal std. and regrind sizes*	*Crankpin journal std. and regrind sizes*	*Main bearings std. and regrind sizes*
Standard	Standard	52 mm.	45 mm.	52.020 mm. 52.005 mm.
.5 mm. (.020 in.)	R.2	51.5 mm.	44.5 mm.	51.520 mm. 51.505 mm.
1.00 mm. (.040 in.)	R.4	51.00 mm.	44.00 mm.	51.020 mm. 51.005 mm.

Camshaft driving chain. Renold chain number 114036 (duplex)
Type: Roller $^{3}/_{8}$ in. pitch. 60 pitches endless.

CAMSHAFT BEARINGS:

Front Bearing: White metal. Outside diameter 43.61 mm. Press fit in cylinder block. Inside diameter to be reamed in position in cylinder block to 41 mm.+.05 mm/+.08 mm.

Centre and rear bearings: Zinc alloy
Outside diameter 43.5 mm.+.00 mm.
– .02 mm.
Inside diameter 23 mm. +.015 mm.
– .005 mm.

Bore of cylinder block for bearings 43.5 mm. +.02 mm.
– .01 mm.

CAMSHAFT:

End-float: .005 in. – .013 in. (.125 mm. – .325 mm.).

Diameter of shaft for bearing:
Front: 41 mm. + .01 mm.
– .02 mm.
Centre and rear: 23 mm. +.05 mm.
– .08 mm.

Cam lift 5.334 mm. = 8 mm. at valve.

Cam Timing 5 – 45 – 45 – 5

VALVES AND GUIDES

Valve port throat diameter Inlet: 30 mm.
Exhaust: 26 mm.

Valve head diameter Inlet: 33 mm.
Exhaust: 31 mm.

Valve stem diameter 8 mm.±.01 mm.

Valve seat angle 30˚.

Valve guides Bore: 8.06/8.08 mm.
Outside diameter: 14 mm. +.02 mm.
+.04 mm.

Valve guide length Inlet: 59 mm.
Exhaust: 54 mm.

Valve spring pressure	*Inner*	*Outer*
Shut	31 lb. (14.1 kg)	62 lb (28.1 kg)
Open	43 lb (19.5 kg)	80 lb (37.2 kg)

Valve lift 8.0 mm.

Valve timing

Exhaust opens	45˚ B.B.D.C.
Exhaust shuts	5˚ A.T.D.C.
Inlet opens	5˚ B.T.D.C.
Inlet shuts	45˚ A.B.D.C.
Valve clearance (early models)	.019 in. (.48 mm.). (engine hot)
Valve clearance (commencing Engine No. XPAG/SC2/18097)	.012 in. (.30 mm.). (engine hot)

LUBRICATION:

Oil pump speed	Half engine speed, gear type.
Oil pressure	40 lb./sq. in. to 45 lb./sq. in. (2.8 kg./cm.^{2} to 3.2 kg./cm.^{2}).
Oil pump by-pass	60 lb./sq. in. (4.2 kg./cm.^{2}).
Oil sump capacity	9 Pints (5.1 litres).
Oil sump capacity (commencing Engine No. XPAG/SC2/17383)	10.5 Pints (6.0 litres).
Oil filter	Full-flow type.

IGNITION:

Ignition timing	T.D.C.
Order of firing	1, 3, 4, 2.
Sparking plugs	Champion L.10.S. 14 mm. (Champion NAB on later models)
Sparking plug gap	.020 in. to .022 in. (.51 mm. to .56 mm.).
Contact Breaker Gap	.014 - .016 in. (.36 mm. - .40 mm.)

PISTONS:

Type: Aluminium alloy, tin coated, controlled expansion.

	Width	*Diameter*
Compression ring groove	.0886 in. (2.250 mm.)	2.381 in. (60.477 mm.).
	.0887 in. (2.253 mm.)	2.385 in. (60.579 mm.).
Oil control ring groove	.1576 in. (4.003 mm.)	2.389 in. (60.680 mm.).
	.1577 in. (4.006 mm.)	2.393 in. (60.782 mm.).
Side clearance of rings in grooves	.001 in. (.025 mm.).	
	.002 in. (.050 mm.).	
	Width	*Radial thickness*
2 off. Compression rings	.0885 in. (2.248 mm)	.109 in. (2.768 mm.).
		.101 in (2.565 mm.).
1 off Slotted oil control ring (8 slot)	.1575 in. (4.0 mm.)	.105 in. (2.667 mm.).
		.097 in. (2.464 mm.).
Piston ring gap	.006 in. to .010 in. (.15 mm. to .25 mm.).	
Gudgeon pin bore	18 mm. – .0001 in. (.0025 mm.). – .0003 in. (.0076 mm.).	

PISTON AND CYLINDER BORE SIZES (XPAG Engines)

REPLACEMENT CYLINDER BLOCKS (Normal Standard and Oversize Bores)

Cylinder bore oversize in thousandths of an inch	*Cylinder bore size in mm.*	*Cylinder bore size in inches*	*Piston size reference*
Standard	66.50	2.6181	A…OK
19.7	67.00	2.6378	C…OK
39.4	67.5	2.6575	E…OK

Note: After oversize "E" the cylinder bores are relined to standard.

Bore sizes will be found stamped on the top front left-hand side of the cylinder block.

STANDARD AND OVERSIZE RANGES

When fitting new pistons selective assemble is necessary, and to facilitate this the pistons are marked on their crowns with an indication of their bore size. Note particularly that the pistons markings indicate the correct size cylinder bore for which they are suitable, the correct working clearance having been allowed in the grading operation. **The piston size should therefore correspond with the marking on top of the face of the cylinder block** on the right-hand side, which indicates the actual size of each cylinder bore.

The bores and pistons are graded in four sizes: –

Bores of normal size ±.000 in. to +.00049 in.–marked "STD"
Bores of normal size ±.0005 in. to +.00099 in.–marked +.0005.
Bores of normal size ±.0010 in. to +.00149 in.–marked +.0010.
Bores of normal size ±.0015 in. to +.00199 in.–marked +.0015.

The piston clearance is .0021 in. minimum to .0029 in. maximum (.056 mm. to .073 mm), measured at the top of the skirt, immediately below the oil control ring, and across the thrust faces, i.e. at 90˚ to the gudgeon pin axis. This is important as the piston skirt is tapered and oval, and the extreme edge of the skirt and clearance can only be measured in this one position. There is .005 in. (.127 mm.) ovality at the extreme bottom edge of the skirt and the clearance measures at 90˚ to the gudgeon pin centre line at the bottom of the skirt should be .00125 in. (.0317 mm.) less than that at the top.

To facilitate correct measurement of the bores and pistons, the actual sizes of the various gradings are given at the top of page v *(sic see below).*

The markings on the top face of the cylinder block will indicate these sizes clearly.

Oversize bores on reconditioned engines supplied under the M.G. reconditioned engine scheme are limited to two oversizes: –

+.020 in. graded in 4 sizes as the standard settings
+.040 in. graded in 4 sizes as the standard settings

The actual sizes of these pistons and bores are provided in the tables on the following page *(sic see below).*

Note : Badly worn cylinder bores which will not clean up at the maximum oversize bore must be relined to "standard" size and limits.

STANDARD PISTON SIZES

Production engines with bores .002 in. oversize or over are made into +.010 in. bores and graded in the same steps are the standard bore engines

Piston size (across thrust faces below oil rings)		*Piston marking*	*Suitable fore bore size*	
in.	*mm.*		*in.*	*mm.*
2.6156 2.6160	(66.436) (66.446)	To suit "STD" bore	2.6181 2.6185	(66.500) (66.510)
2.6161 2.6165	(66.449) (66.459)	To suit +.0005 bore	2.6186 2.6190	(66.513) (66.523)
2.6166 2.6170	(66.462) (66.472)	To suit +0010 bore	2.6191 2.6195	(66.525) (66.535)
2.6171 2.6175	(66.474) (66.484)	To suit +0015 bore	2.6196 2.6200	(66.538) (66.548)

OVERSIZE PISTON SIZES (+.020 in. RANGE)

Piston size (across thrust faces below oil rings)		*Piston marking*	*Suitable fore bore size*	
In.	*mm.*		*in.*	*mm.*
2.6356 2.6360	(66.944) (66.954)	To suit +.0200 bore	2.6381 2.6385	(67.008) (67.018)
2.6361 2.6365	(66.957) (66.967)	To suit +.0205 bore	2.6386 2.6390	(67.021) (67.031)
2.6366 2.6370	(66.970) (66.980)	To suit +0210 bore	2.6391 2.6395	(67.033) (67.043)
2.6371 2.6375	(66.982) (66.992)	To suit +0215 bore	2.6396 2.6400	(67.046) (67.056)

OVERSIZE PISTON SIZES (+.040 in. RANGE)

Piston size (across thrust faces below oil rings)		*Piston marking*	*Suitable fore bore size*	
In.	*mm.*		*in.*	*mm.*
2.6556 2.6560	(67.453) (67.463)	To suit +.0400 bore	2.6581 2.6585	(67.516) (67.526)
2.6561 2.6565	(67.465) (67.475)	To suit +.0405 bore	2.6586 2.6590	(67.529) (67.539)
2.6566 2.6570	(67.478) (67.488)	To suit +0410 bore	2.6591 2.6595	(67.541) (67.551)
2.6571 2.6575	(67.490) (67.500)	To suit +0415 bore	2.6596 2.6600	(67.554) (67.564)

PROPELLER SHAFT:

Type	Hardy Spicer needle bearing (balanced).
Length	Face to face 45 $^{5}/_{16}$ in. (1.151 m.).
Tubular shaft	2½ in. diameter (6.35 cm.).
Joint size	KR–1111. GB 22/1118–GB 65.

CLUTCH:

Type	Single dry plate–Borg & Beck
Diameter	8 in. (20.3 cm.).
Facings	RYZ
Thrust springs	150 to 160 lb./in. (26.8 to 28.6 kg./cm.). Colour "Brown"
Clutch plate damper springs	6 off (Black/Green)

GEARBOX:

Four speed, synchromesh second, third, and fourth gears

Oil capacity 1¼ pints (0.7 litre)

Gearbox ratios		*Overall ratios*
Top	1 to 1	5.125 to 1
Third	1.385 to 1	7.098 to 1
Second	2.07 to 1	10.608 to 1
First	3.50 to 1	17.937 to 1
Reverse	350 to 1	17.937 to 1

INSTRUMENTS:

Speedometer	British Jaeger Model 58597. Type SC.52
Reduction gear for speedometer	$^{6}/_{15}$ ratio

HYDRAULIC DAMPERS:

Girling piston type front and rear

Type:	Front	Luvax Girling PVA6X.
	Rear	Luvax Girling PVA6.

COOLING SYSTEM:

Cooling by radiator, pump and fan with thermostat control

Total capacity of system	13½ pints (7.7 litres).
Capacity of radiator	7½ pints (4.3 litres).
Circulation	By pump fitted in front of cylinder block.
Drain taps	1. Bottom of radiator 1. Front end of cylinder block below exhaust manifold

FUEL SYSTEM:

Fuel tank capacity (level checked by electric gauge on instrument panel)	8 gals. (36 litres).		
Fuel delivery	S.U. electric pump. 12-volt. Type "L".		
Carburetter	S.U. 1¼ in. semi-downdraught. Type H.2 Spec. 456.		
	Standard	*Richer*	*Weaker*
Carburretter needles	"F.I."	"D.K."	"E.F."

STEERING:

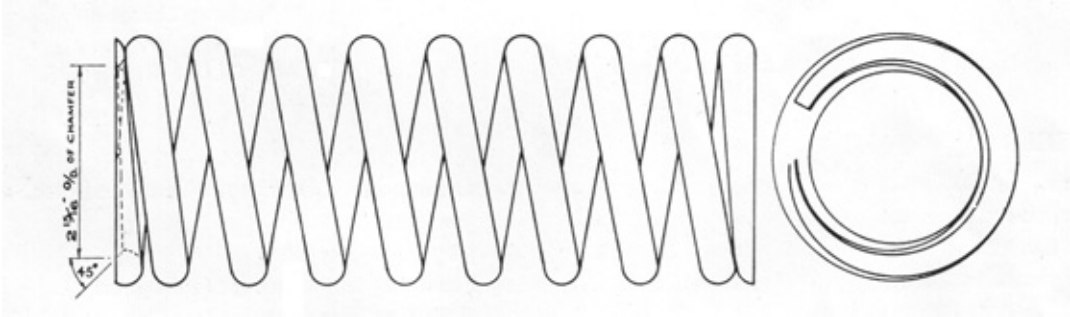
Rack and pinion	2.625 turns from lock to lock.
Steering wheel	Adjustable for length 3 in. (76.2 mm.).

FRONT AXLE:

Camber of wheel	Nil. ±1˚.
Castor angle	1˚ ±½˚.
King-pin angle	9˚- 10.½˚.
Toe-in	Nil.
Knuckle angle	10˚.

FRONT SUSPENSION:

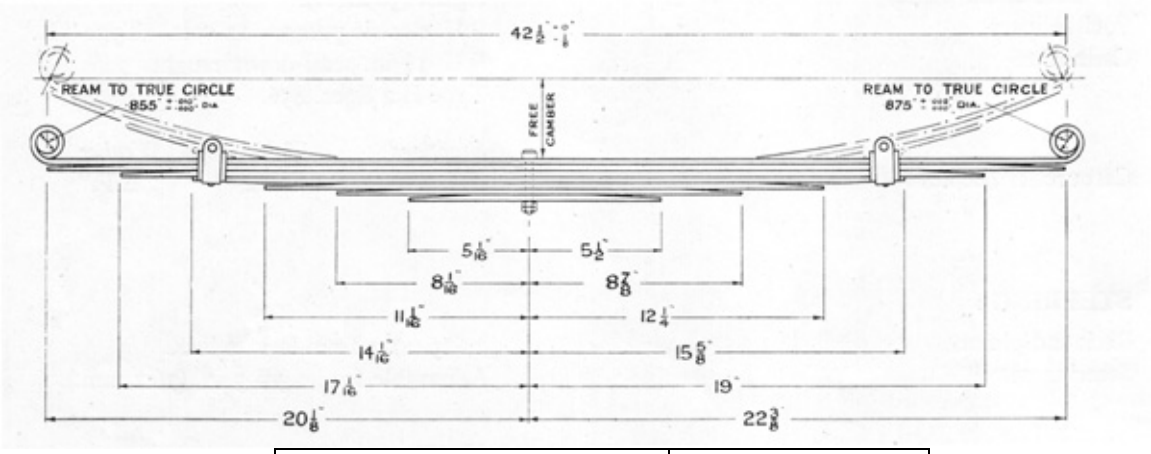
Independent, with coil springing.



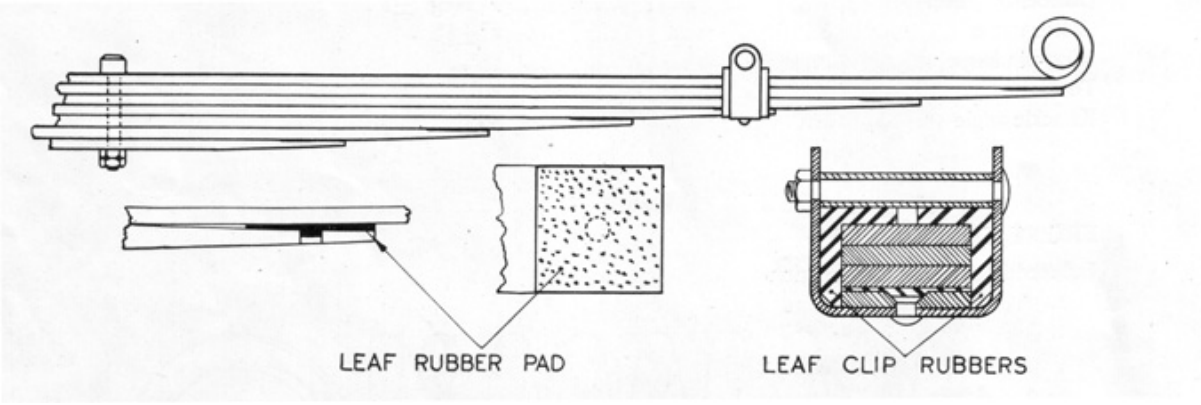
WIRE DIA.(GROUND)	.538"
MEAN COIL DIA.	3.238"
RATE	435 LB/INCH
No OF EFFECTIVE COILS	7.34
FREE LENGTH	9.82' ± 1/16"
TO CARRY 1023 LB. AT:-	7.47" ± 1/32"
TO CARRY 1390 LB AT:-	6.63" ± 1/32"
SOLID HEIGHT	5.025

REAR AXLE:

Type	Semi floating.
Crown wheel and pinion	Hypoid.
Oil capacity	2¼ pints (1.3 litre).
Axle tooth ratio	5.125 to 1 ($^{8}/_{41}$).
Crown wheel and pinion backlash	By spacers and special tools.



No OF LEAVES	7 x ¼" x ½"
WORKING LOAD	650 LBS
STATIC DEFLECTION	3"
MEAN RATE	216.6 LBS/INS
FREE CAMBER	4"
MAX. DEFLECTION	6¼"



WHEELS:

Type	Dunlop No. CDM.317 Ventilated disc.
Wheel size	4J X 15.
Tyre size	5.50–15.
Tyre pressures	Front: 22 lb. per sq. in. (1.5 kg./cm.^{2}). Rear: 24 lb. per sq. in. (1.68 kg./cm.^{2}).

BRAKES:

Type	Lockheed hydraulic. Hand brake cable to rear only.
Linings	Ferodo M.R.19.
Brake-drums	9 in. diameter +.005 in./ – .000 in. (22.9cm. diameter +.127mm./ – .000mm.).
Length of lining	8¾ in. (22.22 cm.).
Width	1½ in. (3.81 cm.).
Thickness	$^{3}/_{16}$ in. (4.76 mm.).
Number per car	8.
Rivets	Hollow countersunk head (brass).
Number of rivets per lining	12.

GENERAL DIMENSIONS:

Wheelbase	8 ft. 3 in. (2.515 m.).
Track: Front	3 ft 11 $^{3}/_{8}$ in. (1.203 m.).
Rear	4 ft. 2 in. (1.270 m.).
Overall length	13 ft. 8 in. (4.165 m.).
Overall width	4 ft. 9 in. (1.45 m.).
Overall height	4 ft. 9 in. (1.448 m.).
Ground clearance	6 in. (15.2 cm.).
Turning circle	33 ft. (10.21 m.). L/H and R/H lock.

WEIGHTS:

Complete car	20 cwt. 3 qr. (1054 kg.).
Front	10 cwt. (506 kg.).
Rear	10 cwt. 3 qtr (508 kg.).
Chassis	10 cwt. 2 qr. 22 lb (543 kg.).
	Bumpers fitted, less wings and lamps.
Power unit (with gearbox)	3 cwt. 2qr. 5lb. (180 kg.).

PERFORMANCE:

Brake horse-power	46 b.h.p. at 4,800 r.p.m.
Maximum torque	702 lb. in. (8.1 kg.). at 2,400 r.p.m.
Litres per ton-mile	2480. Top gear.
M.p.h per 1,000 r.p.m.	14.5. Top gear.
K.p.h. per 1,000 r.p.m.	23.33. Top gear.
Engine speed per 10 m.p.h.	689 r.p.m. Top gear.
*Petrol consumption	36.5 m.p.g. at 30 m.p.h.
	(13 km. per litre at 48 k.p.h.)
	32.7 m.p.g. at 40 m.p.h.
	(11.5 km. per litre at 64 k.p.h.)
	29.0 m.p.g. at 50 m.p.h.
	(10.3 km. per litre at 80 k.p.h.)

***ACCELERATION:**

0–30 m.p.h. (0–40 k.p.h.) in 7.5 seconds
0–50 m.p.h. (0–80 k.p.h.) in 18.8 seconds
0–60 m.p.h. (0–100 k.p.h.) in 29.5 seconds

Brake horse-power per litre capacity	36.8.
Maximum speed	69 m.p.h. (100 k.p.h.) average.

***BRAKING. DRY CONCRETE:**

30 m.p.h. (48.2 k.p.h.) 31 feet (9.45 m.).
50 m.p.h. (80.4 k.p.h.) 92 feet (28.04 m.).
70 m.p.h. (112.6 k.p.h.) 227 feet (69.19 m.).
Hand brake braking. Dry tarmac. 30 m.p.h. (48.2 k.p.h.) 45 feet (13.7 m.).

* Extracts from Motoring Press

ELECTRICAL:

12-volt ignition and equipment; coil ignition controlled by automatic advance and retard mechanism, incorporated in the distributor. Dynamo output controlled by automatic compensated voltage control unit.

Starter type	Lucas Model M.35G1.
Starter switch	Lucas Model ST.18. Type L/15.
Distributor type	Lucas Model DKYH.4A. (Part No. 40089).
	Later models are Part No. 40058F.
	Rotation – anti clock.
Dynamo	Lucas Model CP.39.PV2.
Dynamo speed	1.16 engine speed.
Coil type	Lucas Model Q12–8. Type L/O.
Control unit	Lucas Model RF.95/2. Type L/2, 12 volt.
Battery	Lucas 12-volt, 51-amp. Type GTXW.9A.

Windscreen wiper	Lucas Model CR.2.DA.36.

LAMPS:

Headlamps	Lucas Model MBD.140.
Sidelamps	Lucas Model 1130.
Fog-lamp	Lucas Model FT.57. Type L/1.
Stop and tail-lamp	Lucas Model ST.50.
Reverse and tail-lamp	Lucas Model RT.50

Reprints of the full Maintenance Manual And Instruction Book for the MG YB can be obtained from the MG Octagon Car Club. See the Links page for contact details.