

SECTION
POWER UNIT.

SUB SECTIONS.
ENGINE

SECTION NUMBER	SUB-SECTION	INFORMATION SUPPLIED BY
1.	CYLINDERS.	MR. A. J. HENDERSON MR. A. J. HENDERSON
2.	CYLINDER BLOCK.	
3.	CYLINDER BLOCK.	
4.	CYLINDER HEAD.	
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11.	PISTON RINGS.	
12.	VALVE ASSEMBLY, VALVES	
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15.	CRANKSHAFT, BEARING, DRIVE	
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ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series MGA Twin Cam EX.187	Book No.	TD/G1.
Section	ENGINE	Sheet No.	1 of 19
Sub-Section	GENERAL	Date	

UNIT TYPE: 1.6 Litre Twin O.H.C. BC.16 GB
LOCATION OF ENGINE NO: Plate - Rear end of cylinder block
STROKE 88.9 mm. 3.5 ins. **BORE:** 75.395 mm. 2.9683 ins.
CUBIC CAPACITY (TOTAL): 96.906 cub.ins. 1588 ccs.
NUMBER OF CYLINDERS: Four
COMPRESSION RATIO: 9.9 : 1
FIRING ORDER: 1. 3. 4. 2.

<u>STANDARD POWER OUTPUT</u>	<u>H.C.</u>	<u>L.C.</u>
Max. Horse Power 108	B.H.P. at 6700 R.P.M.	B.H.P. at R.P.M.
Max. B.M.E.P. 165	LB/Sq.In. at 4500 R.P.M.	LB/Sq.In. at R.P.M.
Max. Torque 105	Lb.Ft. at 4500 R.P.M.	Lb.Ft. at R.P.M.
GROSS POWER OUTPUT (S.A.E. CORRECTED)		
Max. Horse Power 110	B.H.P. at 6750 R.P.M.	B.H.P. at R.P.M.

PISTON SPEED AT MAXIMUM B.H.P. 3910 Ft/Min. at 6700 R.P.M.
B.H.P. PER LITRE: 68
B.H.P. PER SQ. IN. PISTON AREA: 5.90
PEAK PISTON SPEED: at 7800 r.p.m. Valve Crash 4550 f.p.m.
VALVE GEAR ARRANGEMENT: Overhead Camshaft
VALVE OPERATION: Direct Camshaft on Inverted Bucket Tappets
IGNITION TIMING (initial setting): T.D.C. (8.3 CR - 8° BTDC)
COMPRESSION PRESSURE, CRANKING: 195 Lb. per Sq. In.
ENGINE/STARTER RATIO: 1 : 13.3
ENGINE SUSPENSION: Rubber bonded to steel
DRY WEIGHT WITH CLUTCH: 414 Lbs.
BIG END BOLT TORQUE TIGHTNESS: 600 Lb. ~~ft~~ ins
CYLINDER HEAD NUT TORQUE TIGHTNESS: 850 Lb. ~~ft~~ ins
MAIN BEARING STUD NUT TORQUE TIGHTNESS: 900 Lb. ~~ft~~ ins
CRANKING SPEED 220 r.p.m.

Details of Modifications	Change Point	Note Reference
B.H.P. Additions and Corrections Compression Pressure Added Cranking Speed Added 8.3 CR - 8° BTDC added for Service		TD. MGR 31 TD. MGR. 35 TD. MGR 57
Issue 1. 2. 3. 4.		Section B. 1

ENGINEERING TECHNICAL D. TA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX. 187)	Book No. TD/G. 1.
Section	ENGINE	Sheet No. 2 of 19
Sub-Section	CYLINDER BLOCK & CRANKCASE	Date

MATERIAL: Cast Iron BS. 1452/17.			
BORE DIAMETERS:	NOMINAL STANDARD:	2.9683/2.9698	ins. 75.395 75.433 mms.
	FOR OVER SIZES:	FIRST:	2.9783/2.9798 ins. 75.649 75.687 mms.
		SECOND:	1.9883/2.9898 ins. 75.903 75.941 mms.
		THIRD:	2.9983/2.9998 ins. 76.157 76.195 mms.
	FOR LINERS:	FOURTH:	3.0083/3.0098 ins. 76.411 76.449 mms.
		STANDARD:	ins. mms.
		OVERSIZE:	ins. mms.
VALVE SEATS:	ANGLE:	INLET:	deg.
		EXHAUST:	Not applicable deg.
	WIDTH:	INLET:	ins. mms.
		EXHAUST:	Not applicable ins. mms.
VALVE THROAT DIAMETER:		INLET:	ins. mms.
		EXHAUST:	Not applicable ins. mms.
VALVE INSERT RECESS:	DEPTH:	INLET:	ins. mms.
		EXHAUST:	Not applicable ins. mms.
	DIAMETER:	INLET:	ins. mms.
		EXHAUST:	Not applicable ins. mms.
VALVE INSERT DEPTH:		INLET:	ins. mms.
		EXHAUST:	Not applicable ins. mms.
NUMBER OF MAIN BEARINGS: 3			
CASTING MACHINING SIZES:	FOR MAIN BEARINGS:	FRONT:	2.146/2.1465 ins. 54.508/54.521 mms.
		CENTRE:	2.146/2.1465 ins. 54.508/54.521 mms.
		REAR:	2.146/2.1465 ins. 54.508/54.521 mms.
	FOR VALVE GUIDES:	INLET:	ins. mms.
		Not applicable	
		EXHAUST:	ins. mms.
Details of Modifications		Change Point	Note Reference
Issue 1.			Section B. 2

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (K.L.187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 3 of 19
Sub-Section	CYLINDER BLOCK & CRANKCASE.	Date

INSERT DIAMETER:	OUTER:	INLET:	ins.	mm.
		EXHAUST:	Not applicable	mm.
	INNER:	INLET:	ins.	mm.
		EXHAUST:	Not applicable	ins.

INTERFERENCE FIT OF INSERTS:	INLET:	Not applicable
	EXHAUST:	

CYLINDERS:	AMOUNT OF OFFSET:	None
	WALL FINISH:	25 - 40 micro ins.

CYLINDER LINERS: (When fitted).	MATERIAL:		
	TYPE:		
	OUTSIDE DIAMETER:	ing.	mm.
	REDUCTION FOR LEAD IN:	Not fitted as standard	
	POSITION WHEN FITTED:	(Relative to top of block).	
	THICKNESS OF WALL:	ins.	mm.
	HONING SIZE OF BORE AFTER ASSEMBLY		
METHOD OF RETAINING:			

Details of Modifications	Change Point	Note Reference
Issue 1.		Section B 3

ENGINEERING TECHNICAL DRAWING

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX.187)	Book No.	TD/G.1.
Section	ENGINE	Sheet No.	4 of 19
Sub-Section	CYLINDER HEAD.	Date	

MATERIAL: Aluminium BS. 1490 LM24-			
TYPE: Twin O.H.C 80° inc Angle between Inlet & Exhaust Valves.			
TOTAL CAPACITY:		1588.326 ccs.	96.926 cub.ins.
TOTAL UNSWEPT VOLUME PER CYLINDER:		(i.e. Combustion Volume) 44.543	ccs.
AVERAGE COMBUSTION SPACE VOLUME PER CYLINDER:		(i.e. Cylinder Head) 86.572	ccs.
CASTING MACHINING SIDES. VALVE GUIDES.	INLET:	.5623/.563. ^{Only}	ins. 14.282/14.30 ^{mins.}
	EXHAUST:	.5623/.563	ins. 14.282/14.30 ^{mins.}
DEPTH: INSERT RECESS: DIAMETER:	INLET:	Autentic Iron	ins. mms.
	EXHAUST:	Inserts are Cast In	ins. mms.
	INLET:	Position	ins. mms.
	EXHAUST:		ins. mms.
INSERT DEPTH:	INLET:	.395/.400	ins. 10.033/10.16 ^{mins.}
	EXHAUST:	.395/.400	ins. 10.033/10.16 ^{mins.}
INSERT DIAMETER: OUTER: INNER: Before casting into Cyl. Head	INLET:	Minor 1.714/1.719	ins. 43.536/43.663 ^{mins.}
	EXHAUST:	Minor 1.557/1.562	ins. 39.548/39.675 ^{mins.}
	INLET:	1.1875	ins. 30.162 ^{mins.}
	EXHAUST:	1.10.	ins. 27.94 ^{mins.}
INTERFERENCE FIT OF INSERT:	INLET	14° inc Taper From Minor dia	ins.
	EXHAUST	To Major Dia	ins.
MAX PERMISSIBLE WARP FOR REFITTING:			
MAX PERMISSIBLE REDUCTION OF METAL: (refacing head). None (Important).			
VALVE SEATS: WIDTH:	INLET:		45 deg.
	EXHAUST:		45 deg.
	INLET:	.0625 ins.	1.5875 mms.
	EXHAUST:	.0625 ins.	1.5875 mms.
Details of Modifications		Change Point	Note Reference
Issue 1.		Section B4	

ENGINEERING TECHNICAL D.T.A

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX.187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 5 of 19
Sub-Section	CYLINDER HEAD	Date

VALVE THROAT DIAMETERS.	INLET: 1.312	ins.	33.325	mms.	
	EXHAUST: 1.22.	ins.	30.988	mms.	
TYPE: Copper, Steel & Clayboard.					
CYLINDER HEAD	NOMINAL THICKNESS:	.038.	ins.	.965.	mms.
	COMPRESSED THICKNESS:	.030/.033	ins.	.763/.832	mms.
GASKET:	CAPACITY: For each Cylinder.			3.897	ccs.

CYLINDER HEAD STUD NUT TORQUE TIGHTNESS: 850 lbs.Ins.

TAPPET BUSHES BS.1452/17 Cast Iron
with SCREWED PLUGS added

Details of Modifications	Change Point	Note Reference
Tappet bushes fitted in head	1587	TD.MGR.22
Issue 1 to 2.		Section B.5

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (M187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 6 of 19
Sub-Section	CRANKSHAFT	Date

MATERIAL:	Steel 48.22.E.		
TYPE:	Balanced.		
WEIGHT:	32 lbs	OVERALL LENGTH:	21.37/64 ins. 548.08 mms.
THRUST TAKEN AT:	Centre Journal.		
NUMBER OF JOURNALS:	3.		

MAIN BEARING JOURNAL DIAMETER:	Mfg.	2.0005/2.001 ins. 50.813/50.829 mms.	
	1st UNDERSIZE; (finished):	ins.	mms.
	2nd UNDERSIZE; (finished):	ins.	mms.

MAIN BEARING JOURNAL LENGTH	FRONT:	1.528/1.544 ins. 38.811/39.218 mms.	
	INTERMEDIATE:	None	ins. mms.
	CENTRE:	1.471/1.473 ins. 37.363/37.414 mms.	
	REAR:	1.494/1.498 ins. 37.948/38.049 mms.	

RADIUS OF FILLET:	3/32 ins		
MINIMUM PERMISSIBLE REGRIND DIAMETER:			

METHOD OF SEALING OIL	FRONT END SHAFT:	Burtonwood Oil Seal	
	REAR END SHAFT:	Packing Seal	

THRUST WASHER SIZE (if fitted):	.091/.093 ins		
PERMISSIBLE AMOUNT OF END FLOAT:	Max .006 ins		
DIAMETRICAL CLEARANCE:			

CRANKPIN BEARING JOURNALS	LENGTH:	1.223/1.225 ins. 31.064/31.115 mms.	
	DIAMETER:	1.8764/1.8759 ins. 47.664/47.648 mms.	
	1st UNDERSIZE (finished):	ins.	mms.
	2nd UNDERSIZE (finished):	ins.	mms.

RADIUS OF THROW:	1.750 ins		
MINIMUM PERMISSIBLE REGRIND DIAMETER:			
RADIUS OF FILLET:	3/32 ins.		

Details of Modifications	Change Point	Note Reference
Regrid not recommended Undersize deleted		

Issue 1. 2.	Section B. 6
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ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (KX187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 7 of 19
Sub-Section	MAIN BEARINGS	Date

TYPE:	Half Bearings		
MATERIAL:	Vandervell VP.3 Lead Indium		
NUMBER OF MAIN BEARINGS:	3.		
LENGTH	FRONT:	1.245 1.255	ins. 31.623/31.877 mm.
	INTERMEDIATE:	None	ins. mm.
	CENTRE:	1.245 1.255	ins. 31.623/31.877 mm.
	REAR:	1.245 1.255	ins. 31.623/31.877 mm.
CLEARANCE ON CRANKSHAFT (diameter): .002/.0037 ins			
SIDE CLEARANCE BETWEEN THRUST BEARING AND SHAFT:			
DIAMETER:	FRONT:	2.003/2.0042	ins. 50.876/50.907 mm.
	INTERMEDIATE:	None	ins. mm.
	CENTRE:	2.003/2.0042	ins. 50.876/50.907 mm.
	REAR:	2.003/2.0042	ins. 50.876/50.907 mm.
UNDERSIZES AVAILABLE: .010 .020 .030 .040 ins			
MAIN BEARING BOLT DIAMETER: (Stud) 1/2 ins. 12.7 mm.			
MAIN BEARING BOLT TORQUE TIGHTNESS: 900 lbs./ mm XX			

Details of Modifications	Change Point	Note Reference
900 lbs. ins was 70 lbs. ft		TD.MGR.28
Issue 1. 2.		Section B. 7

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (K187)	Book No. TD/C. 1
Section	ENGINE	Sheet No. 8 of 19
Sub-Section	CONNECTING RODS BH & LH	Date

TYPE: Big End Out at 47° 109° off set. small end bushed

MATERIAL: Steel Stamping AS. 17. T (EM. 18. T.)

WEIGHT WITH BEARING: (Complete with bolts, Lockwashers etc) 2 lbs 1 oz. 12 drams approx

LENGTH, CENTRE TO CENTRE: 6.498/6.502 ins ins. 165.049/165.151. mms.

SMALL END LUBRICATION: Oil mist through hole at top of small end.

SMALL END:	<p>TYPE: Bushed (Fully Floating)</p> <p>BORE SIZE: 875/.8755 ins. 22.225/22.238. mms.</p> <p>WIDTH: 1. ins. 25.40. mms.</p>
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BIG END BEARINGS:	<p>TYPE: Half Bearing. Vanderwall VP.3 Lead Indium</p> <p>DIAMETER: 1.8784/1.8796 ins. 47.711/47.742 mms.</p> <p>WIDTH: .995 1.005 ins. 25.273/25.527 mms.</p> <p>DIAM. CLEARANCE: .002 ins. .0037</p>
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END FLOAT ON CRANKPIN, NOMINAL: .010 ins

BIG END BOSS	<p>BORE SIZE 2.021/2.0215 ins. 51.333/51.346 mms.</p> <p>WIDTH: 1.213/1.215 ins. 30.810/30.861 mms.</p>
BOLTS OR STUDS:	<p>LENGTH: Under Head 2.1/32 ins. 51.594 mms.</p> <p>DIAMETER: .371/375 ins. 9.423/9.525 mms.</p>

TYPE OF LOCK: Tabwasher Under Bolt Head

NUT DEVICE:

TORQUE TIGHTNESS OF CON ROD BIG END BOLT: 600 lbs/ft.

Details of Modifications	Change Point	Note Reference
600 lbs. ins was 35 lbs. ft.		TD.MGR.28
Issue 1. 2.		Section B. 8

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (KX187)	Book No.	TD/C.1.
Section	ENGINE	Sheet No.	9 of 19
Sub-Section	GUDGEON PIN	Date	

TYPE: Plain Fully Floating

MATERIAL: Nicrocose.

METHOD OF SECURING: Circlips in piston

DIAMETER: INNER: .5525/.5725 ins. 14.033/14.541 mm.

OUTER: .8748/875 ins. 22.220/22.225 mm.

LENGTH: 2.4225/2.4375 ins. 61.531/61.912 mm.

WEIGHT: 4 ozs approx.

FIT IN CON. ROD: .0000/.0007 ins.

FIT IN PISTON: .0003" clearance (Finger Push Fit)
.0001" interference (By Selection)

GUDGEON PIN CLAMP TORQUE TIGHTNESS: lbs/ins.

Details of Modifications	Change Point	Note Reference
Issue 1.		Section B. 9

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX187)	Book No. TD/C. 1.
Section	ENGINE	Sheet No. 10 of 19
Sub-Section	PISTONS	Date

TYPE:
MATERIAL: HG 402 Heat Treated.
SURFACE FINISH:
REMOVAL: Upwards.
OVERSIZES AVAILABLE: .010 .020 .030 .040 ins.
PISTON HEAD CAPACITY C.C.: CCS.

GUDGEON PIN HOLE:	DIAMETER: .8749/8751 ins. 22.222/22.227 mms.	FINISH: ins. mms.
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WEIGHT OF PISTON:	STRIPPED: 13 oss 5 drms approx COMPLETE WITH RINGS & GUDGEON PIN: 18 oss 12 drms approx
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COMPRESSION HEIGHT (from gudgeon pin axis)	TOP OF CROWN: 2.250 ins. 57.1488 mm BOTTOM OF CROWN: 1.6875 ins.
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MAX VARIATIONS BETWEEN PISTONS: * 2 drms
LENGTH OF PISTON: 3.6875 ins. 93.662 mms.
NOMINAL DIAMETER STANDARD (maximum): 2.9425/2.946 Measured at:- Top of Piston
BORE SIZE MARKING LOCATION:

Diametrical Clearance at Right Angles to Gudgeon Pin.	GROOVES	WIDTH	DEPTH
.0035/.0066" INTERMEDIATE CLEARANCE	BOTTOM OF SKIRT: TOP	.0565"/.0575"	.2803"/.2933"
INTERMEDIATE CLEARANCE	TOP OF SKIRT: 2nd	.0565"/.0575"	.2803"/.2933"
.0058/.0083"	BOTTOM LAND: 3rd	.0565"/.0575"	.2803"/.2933"
.0123/.017"	INTERMEDIATE LAND: 4th	.15775"/.15875"	.155"/.1616"
See Note below	TOP LAND: Skirt (if fitted)	NOTE. Measured from Standard Nominal Diameter	

OVALITY: .004"/.006" at bottom to .008"/.010" at top of skirt measured on Gudgeon Pin Axis.
NOTE:- Diametrical clearance bottom edge of intermediate land .023"/.017"
 " " " " Top edge of Top Land .0226"/.0272".
 Piston is tapered between these points.

Details of Modifications	Change Point	Note Reference
ovality .012"/.014" to .016"/.018"	Service Requirements	TD.MER.57

Issue No. 2. **Section B. 10**

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX.187)	Book No.	TD/G, 1
Section	ENGINE	Sheet No.	11 of 19
Sub-Section	PISTON RINGS	Date	

MATERIAL: Cast Iron HL.22.

SURFACE FINISH: 1, 2, 3, & 4 Rings:-Granolite Treated

COMPRESSION RINGS: Number, position and type.

Number of Rings - 3.
Top Ring:-Parallel faced
2nd & 3rd Rings:-Taper Faced

OIL CONTROL RINGS: Number, position and type.

Number of Rings - 1
Positioned above Gudgeon Pin

Twin segment scraper (with expander ring)
ASH 672 H & G No. E.1198

DIMENSIONS		TOP RING	2nd RING	3rd RING	4th RING
TYPE		Parallel	Taper	Taper	Twin segment Scraper
NOMINAL DIAMETER		3.31/32"	3.31/32"	3.31/32	3.31/32"
WIDTH:		.054/.055"	.054/.055"	.054/.055"	.1552/.1562
THICKNESS:		.124 .131	.124 .131	.124 .131	.124 .131
GROOVE CLEARANCE:		.0015/.0035"	.0015/.0035/	.0015/.0035"	.00155/.00355
RING GAP (fitted)	MINIMUM:	.008"	.008"	.008"	.008"
	MAXIMUM:	.013"	.013"	.013"	.013"
SCRAPER SLOTS:	WIDTH:				
	DEPTH:				
RING TO CYLINDER WALL PRESSURE:		35 lb/Sq.in	35 lb/Sq.in	35 lb/Sq.in	60 lb/Sq.in

Details of Modifications	Change Point	Note Reference
Twin segment scraper was Micro land scraper	after 750	TD.MGR/12
Ring to Cylinder wall pressure added	2057	TD.MGR.22
Expander ring added		TD.MGR.37
Top ring Chromium Plated deleted	Engine 2251	
Issue 1. 2. 3. 4. 5. 6.		Section B. 11

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 12 of 19
Sub-Section	VALVE ASSEMBLY - VALVES	Date

TYPE: Poppet.									
MATERIAL:	INLET: BS.52. EXHAUST: KE.965 (Stellited On Seat).								
POSITION: 80°inc Angle in Cylinder Head									
OPERATION: Direct Camshaft on inverted Bucket Tappets.									
TIMING. INLET OPENS AT .430° PISTON TRAVERSE (top of crown to face of block)									
TIMING:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">INLET OPEN AT:</td> <td style="width: 50%;">20 deg. B.T.D.C.</td> </tr> <tr> <td>INLET CLOSES AT:</td> <td>50 deg. A.B.D.C.</td> </tr> <tr> <td>EXHAUST OPENS AT:</td> <td>50 deg. B.B.D.C.</td> </tr> <tr> <td>EXHAUST CLOSES AT:</td> <td>20 deg. A.T.D.C.</td> </tr> </table>	INLET OPEN AT:	20 deg. B.T.D.C.	INLET CLOSES AT:	50 deg. A.B.D.C.	EXHAUST OPENS AT:	50 deg. B.B.D.C.	EXHAUST CLOSES AT:	20 deg. A.T.D.C.
INLET OPEN AT:	20 deg. B.T.D.C.								
INLET CLOSES AT:	50 deg. A.B.D.C.								
EXHAUST OPENS AT:	50 deg. B.B.D.C.								
EXHAUST CLOSES AT:	20 deg. A.T.D.C.								

TIMING MARKINGS (Location of). On Crankshaft & Halfspeed Shaft Gears also on Camshaft Chain Wheels.

BOUNCE SPEED 7800 Crank R.P.M. approx

WEIGHT:	INLET: 3 ozs EXHAUST: 3 ozs
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DIMENSIONS	- INLET -	- EXHAUST -
OVERALL LENGTH:	4.665"/4.675"	4.625"/4.635"
AMOUNT OF LIFT:	.375"	.375"
VALVE FACE OUTSIDE DIAMETERS:	1.591"/1.597"	1.435"/1.441"
VALVE FACE INSIDE DIAMETER:	1.441"/1.447"	1.285"/1.291"
HEAD DIAMETER:	1.591"/1.597"	1.435"/1.441"
STEM DIAMETER:	.34175"/.34225"	.34175"/.34225"
STEM CLEARANCE IN GUIDE:	.00155"/.00255"	.00155"/.00255"
RUNNING CLEARANCE AT TAPPETS/ ROCKERS : COLD	.014"/.015"	.016"/.015"
CLEARANCE FOR SETTING ROCKERS VALVE TIMING, ROCKERS :	.021"	.021"
ANGLE OF FACE:	45°	45°

Details of Modifications	Change Point	Note Reference
.016" / 17" was .018" .014"/.015 was .016"/.017" Inlet & At T.D.C. deleted.	From Outset Correction	TD. 102/18
Issue 1. 2. 3.		Section B. 12

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EK. 187)	Book No.	TD/G.1.
Section	ENGINE	Sheet No.	13 of 19
Sub-Section	VALVE ASSEMBLY, GUIDE & SPRINGS	Date	

VALVE GUIDES.

TYPE: Stopped (Pressed in)
MATERIAL: Cast Iron BS.1452/12.

DIMENSIONS:	- INLET -	- EXHAUST -
OVERALL LENGTH:	2.1/16 ins.	2.7/16 ins.
OUTSIDE DIAMETER:	.5645/.5655 ins.	.5645/.5655 ins.
INSIDE DIAMETER:	.3438/.3443 ins.	.3438/.3443 ins.
LENGTH OF SALIENT:	3/4 ins.	27/32 ins.
DISTANCE-TOP OF SEAT TO END OF GUIDE:	ins.	ins.
INTERFERENCE FIT:	.0015/.0032 ins.	.0015/.0032 ins.
LENGTH OF COUNTERBORE:	None ins.	.375 ins.
DIAMETER OF COUNTERBORE:	None ins.	.40625 ins.

VALVE SPRINGS.

TYPE: Twin Helical
MATERIAL: EN.49D (Shot Blown)

DIMENSIONS:	- INLET -		- EXHAUST -	
	Inner	Outer	Inner	Outer
FREE LENGTH:	2.415 ins.	2.695 ins.	2.415 ins.	2.695 ins.
MAXIMUM WORKING LENGTH:	1.625 ins.	1.78 ins.	1.625 ins.	1.78 ins.
SOLID LENGTH NOT TO EXCEED:	1.137 ins.	1.312 ins.	1.137 ins.	1.312 ins.
EXTERNAL DIAMETER:	.932 ins.	1.282 ins.	.932 ins.	1.282 ins.
INTERNAL DIAMETER:	.700 ins.	.962 ins.	.700 ins.	.962 ins.
PRESSURE WHEN COMPRESSED TO: ^{Inner} 1.25 ^{Outer} 1.455 ins. (Full Lift Load).	72 lbs.	138 lbs.	72 lbs.	138 lbs.
PRESSURE WHEN COMPRESSED TO: ^{Inner} 1.625 ^{Outer} 1.78 ins. (fitted load, no lift).	49 lbs.	98 lbs.	49 lbs.	98 lbs.
NUMBER OF ACTIVE COILS:	7.8	6.2	7.8	6.2
DIAMETER OF WIRE:	(.116) 11 S.W.G. (160) 8S.W.G.		(.116) 11S.W.G. (160) 8S.W.G.	

Details of Modifications	Change Point	Note Reference
2.415" & 2.695" was 2.305" & 2.54" 1.137" & 1.312" was 1.14" & 1.28" 72 & 138 was 65 & 125 lbs 49 & 98 was 42 & 84 lbs	Eng. No. 2251	TD.MCR.28
Issue 1, 2, 3.		Section B. 13

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EK187)	Book No. TD/3.1.
Section	ENGINE	Sheet No. 14 of 19
Sub-Section	VALVE ASSEMBLY TAPPETS.	Date

TYPE: Inverted Bucket
MATERIAL: Chilled Cast Iron 1/2% Moly (18T Tensile Min)
TYPE OF ADJUSTMENT: Shim
OUTSIDE DIAMETER BODY: 1.4995/1.4990 ins.
OUTSIDE DIAMETER WORKING FACE: 1.4995/1.4990 ins.
OVERALL LENGTH OF BODY: ~~1.5"~~ 1.5"
CLEARANCE BETWEEN TAPPET AND TAPPET GUIDE: .00025/.00175 ins.
CONTOUR OF BOTTOM FACE (FOOT) OF TAPPET: Flat
ROCKER RATIO: None.

Details of Modifications	Change Point	Note Reference
1/2% Moly added 1.5" was 1.25"	Eng. No. 2211 Eng. No. 1087	TD.MGR.28 TD.MGR.42
Issue 1, 2, 3, 4		Section B. 14

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EK187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 15 of 19
Sub-Section	CAMSHAFT, BEARINGS & DRIVE	Date

CAMSHAFT. Number of Camshafts - 2.

MATERIAL: Monikron (High Duty Cast Iron)

METHOD OF TAKING THRUST: Thrust Flange on Camshaft Locating In Groove on Cylinder Head.

MAXIMUM END FLOAT: .001/.005 ins.

AMOUNT OF LIFT: .375 ins.

NO. OF BEARING JOURNALS: 3.

CAM HEEL-TO-TOE DIMENSION: 1.478"/1.482" ins. 37.541/37.643 mms.

LENGTH OF BEARING JOURNALS:

	Front	Centre	Rear		Front	Centre	Rear
	1.625	1.34375	1.5625	ins.	41.275	34.131	39.687

	Front	Centre	Rear		Front	Centre	Rear
DIAMETER OF BEARING JOURNALS:	1.250/1.2505	1.250/1.2505	1.250/1.2505	ins.	31.750/31.763	31.750/31.763	31.750/31.763
					mms.	mms.	mms.

CAMSHAFT BEARINGS

TYPE: Half Bearings.

LENGTH OF BEARINGS: 1.495/1.505 ins. 37.973 38.227 mms.

	1.2515/1.2525	1.2515/1.2525	1.2515/1.2525		31.788/31.813	31.788/31.813	31.788/31.813
DIAMETER OF BEARINGS:				ins.	mms.	mms.	mms.

MATERIAL: D.2 Bimetal

DIAMETRICAL CLEARANCE: .001/.0025 ins.

CAMSHAFT DRIVE

TYPE: Chain Wheel

MATERIAL: Steel EN.9.T.

FIT ON CAMSHAFT: .000/.003 ins Clearance

HOW SECURED: Fitted Bolts and wired

Details of Modifications	Change Point	Note Reference

Issue 1. Section B. 15

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EK187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 15A of 19
Sub-Section	HALFSPEED SHAFT, BEARINGS & DRIVE	Date

OBJECT HALFSPEED SHAFT.			
MATERIAL: Steel Stamping M. 32B.			
METHOD OF TAKING THRUST: Thrust Plate at Front End.			
MAXIMUM END FLOAT: .003/.006			ins.
XXXXXXXXXXXX			ins.
NO. OF BEARING JOURNALS: 3			
XXXXXXXXXXXX DIMENSION			ins. mms.
LENGTH OF BEARING JOURNALS:	Front Centre Rear	ins	Front Centre Rear mms.
	1.5 1.1875 .875		38.10 30.162 22.225
DIAMETER OF BEARING JOURNALS:	Front 1.78875/1.78925	ins.	45.434/45.447 mms.
	Centre 1.72875/1.72925	ins.	43.910/43.923 mms.
	Rear 1.62275/1.62325	ins.	41.218/41.230 mms.
XXXXXXXXXXXX HALFSPEED SHAFT BEARINGS			
TYPE: Split Bush Pressed Into Crankcase.			
LENGTH OF BEARINGS:	Front Centre Rear	ins	Front Centre Rear mms.
	1.46875 1.125 .8125		57.306 28.575 20.637
DIAMETER OF BEARINGS:	Front 1.79025/1.79075	ins.	45.472/45.485 mms.
	Centre 1.73025/1.73075	ins.	43.948/43.961 mms.
	Rear 1.62425/1.62475	ins.	41.256/41.269 mms.
MATERIAL: Babbitted Sheet Steel			
DIAMETRICAL CLEARANCE: .001/.002 ins.			
XXXXXXXXXXXX HALFSPEED SHAFT DRIVE			
TYPE: Gear			
MATERIAL: Steel Stamping M. 36.T.			
FIT ON XXXXXXXXXXXX HALFSPEED SHAFT .0008" tight .0008" clearance (fit by Selection).			
HOW SECURED: Bolt & Tabwasher			
Details of Modifications	Change Point	Note Reference	
Issue 1.		Section B. 15A	

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 16 of 19
Sub-Section	CHAIN DRIVE & GEAR DRIVE.	Date

<u>CHAIN DRIVE.</u>	Endless Chain		
PITCH:	.375 ins		
NO. OF PITCHES:	132		
NO. OF TEETH (WHEEL)	CRANKSHAFT Halfspeed Shaft	25.	
	CAMSHAFT:	2 off	25.
DISTANCE BETWEEN WHEEL CENTRES:		ins.	mm.
TIMING MARKS:	On Chain Wheel & Camshafts. (Vernier Timing).		

<u>GEAR DRIVE:</u>			
NUMBER OF	CRANKSHAFT Halfspeed Shaft.	52.	
TEETH:	CRANKSHAFT:	26.	
OVERALL DIAMETERS:	Crankshaft; Halfspeed Shaft	ins.	70.642 137.394 mm.
	2.7812 5.4092		
MAX. BACKLASH BETWEEN TEETH:	.002/.003 ins.		
DISTANCE BETWEEN GEAR WHEEL CENTRES:	Nom 3.942	ins.	100.127 mm.
PITCH CIRCLE:	Crankshaft; Halfspeed Shaft.	ins.	66.751 133.502 mm.
	2.628 5.256		
TIMING MARKS:	'T' Marks on Crankshaft & Halfspeed Shaft Gears to be opposite on Assembly.		

Details of Modifications	Change Point	Note Reference
Issue 1.		Section B.16

ENGINEERING TECHNICAL D. TA.

Model	M.G. 2 Seater Series M.G.A. Twin Cam (EX187)	Book No.	TD/C. 1.
Section	ENGINE	Sheet No.	17 of 19
Sub-Section	LUBRICATION SYSTEM	Date	

TYPE: Pressure Feed (Wet Sump). TYPE OF PUMP: Hobourn Eaton (Eccentric Rotor). TYPE OF PUMP DRIVE: Gear From Halfspeed Shaft. RATIO OF DRIVE: 1/2 Engine Speed.			
NORMAL PRESSURE:	RUNNING: 50-60	Lbs.per.sq.in.at	30 mph.
	IDLING: 10-15	Lbs.per.sq.in.at	700 rpm.
PUMP CAPACITY	3.25	Imp.Galls.per Min. at	1000 Pump rpm.
PUMP TEST PRESSURE (HOT)		Lbs.per.sq.in. at	Pump rpm.
PUMP INTERNAL GEARS	NUMBER OF TEETH:	Not applicable	
	PITCH CIRCLE:	Not applicable	ins. mms.
IDLER GEAR	BORE DIAMETER:	Not applicable	ins. mms.
	OVERALL DIAMETER:	"	ins. mms.
	OVERALL LENGTH:	"	ins. mms.
DRIVING GEAR.	OVERALL DIAMETER:	Not applicable	ins. mms.
	OVERALL LENGTH:	"	ins. mms.
CLEARANCE BETWEEN GEARS OR ROTOR AND, NOT TO EXCEED. END COVER: BODY:			
FILTER:	MAKE:	Tecalomit	
	TYPE:	Full Flow.	
	LOCATION:	Offside of Cylinder Block & Crankcase (R.H. Drive)	
	CAPACITY:	150 G.P.H.Nominal..	
FILTER BYE PASS VALVE OPENS AT: 13 - 17 Lbs.per.sq.in.			
PRESSURE LUBRICATION TO: Crankshaft, Halfspeed Shaft, Camshaft Chain Adjuster, Chain & Gear Lubrication Jets, Oil Pump Drive Gear & Conn Rod Big Ends.			
LEAK LUBRICATION TO: Halfspeed Shaft Thrust Plate, Camshaft Thrust Faces, Tappets, Valve Gear, Idler Sprocket & Distributor.Drive.			
Details of Modifications		Change Point	Note Reference
Issue 1.			Section B. 17

ENGINEERING TECHNICAL DATA

Model	2 Seater Series H.O. Twin Cam (EX107)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 18 of 19
Sub-Section	LUBRICATION SYSTEM	Date

SPLASH FEED TO: Cylinder Wall, Distributor Drive & Timing Chain

OIL MIST TO:

OIL PRESSURE RELIEF SPRING:	NUMBER OF FREE COILS: 18
	RATE PER INCH: 18.96 lbs/ins.
	PRESSURE AT FITTED LENGTH: 16 ⁺ 1/2 lbs
	FITTED LENGTH: 2.156 ins. 54.76 mm.
	FREE LENGTH 3.0 ins. 76.2 mm.
	GAUGE OF WIRE (.064) 16 S.W.G.
	INTERNAL DIAMETER: .341/356 ins. 8.661/9.042 mm.
	EXTERNAL DIAMETER: .469/484 ins. 11.913/12.296 mm.
	RELIEF VALVES OPEN AT: 50 lbs. per sq. ins.

BIG END DRILLING: See diagram on Sheet 19.

MAINS DRILLING POSITION AND SIZE: 7/32" dia.

LUBRICANT TYPE:

CAPACITY AT DIPSTICK POSITIONS. (Power Unit at installed Angle).	POSITION	CRANKCASE PLUS FILTER FROM DRY STATE.	CRANKCASE ONLY REFILL AFTER DRAINING.	OIL FILTER FROM DRY STATE.
	NORMAL			
	LOW FULL	14 pts. 10oz.	12 pts. 8 oz.	1 pt.
	EDGE			

LOCATION OF DIPSTICK: Direct into Oil Reservoir on Nearside of Engine (R.H. Drive)

DIPSTICK GRADING
(If different to above)

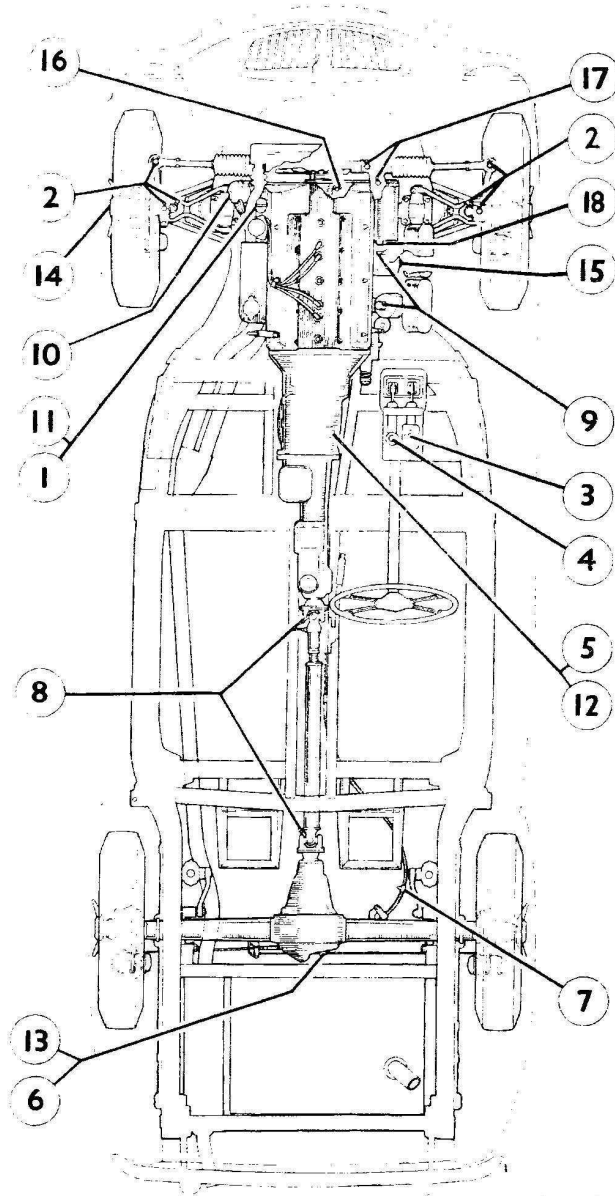
LOCATION OF OIL FILLER: Front end of Exhaust Camshaft Top Cover.

Details of Modifications	Change Point	Note Reference
Revised DRY and RE-FILL		TD/MGR.12
Issue 2.		Section B. 18.

ENGINEERING TECHNICAL DATA

Model	M.G. 2 Seater Series M.C.4, Twin Cam (EX187)	Book No. TD/G.1.
Section	ENGINE	Sheet No. 19 of 19
Sub-Section	LUBRICATION SYSTEM	Date

- LUBRICATION DIAGRAM -



Details of Modifications	Change Point	Note Reference
Issue 1.		Section B. 19