

GENERAL SPECIFICATION

ENGINE

GENERAL

Number of cylinders	4	
Bore	3.751-3.752 in.	95.28-95.31 mm.
Stroke	2.731-2.732 in.	69.34-69.37 mm.
Cubic capacity	120.5 cu.in.	1973 c.c.
Compression - ratio	8.4:1	
- pressure (at sea level)	150-170 lb/sq.in.	10.5-11.9 kg/sq.cm.
Firing order	1,3,4,2.	

PERFORMANCE

Maximum power - STROMBERG	140 H.P. @ 6500 rev/min.
- DELLORTO	144 H.P. @ 6500 rev/min.
Maximum torque - STROMBERG	130 lb.ft. (17.97 kg.m) @ 5000 r.p.m.
- DELLORTO	137 lb.ft. (18.94 kg.m) @ 5500 r.p.m.
Maximum engine speed	7000 rev/min.

CYLINDER HEAD

Material	Aluminium alloy
Gasket	Steel/asbestos
Valve timing - Inlet opens	21° B.T.D.C.
- closes	71° A.B.D.C.
- Exhaust opens	71° B.B.D.C.
- closes	21° A.T.D.C.
Angle of valve seats and faces	45°
Valves - Head diameter - Inlet	1.40 in. 35.56 mm.
- Exhaust	1.215 in. 30.86 mm.
- Stem diameter - Inlet	0.281 in. 7.137 mm.
- Exhaust	0.281 in. 7.137 mm.
- Stem clearance in guide:	
- Inlet	0.0003/0.0018 in. 0.0076/0.0457 mm.
- Exhaust	0.0003/0.0018 in. 0.0076/0.0457 mm.
- Valve clearance	
(cold) - Inlet	0.005/0.007 in. 0.13/0.18 mm.
- Exhaust	0.010/0.012 in. 0.25/0.31 mm.
Valve springs - type	Dual
- free length - inner	1.475 in. 37.465 mm.
outer	1.845 in. 46.863 mm.
- rate - inner	60 lb. 27.22 kg.
outer	126 lb. 57.15 kg.
Valve guides - bore in head	
- internal diameter	0.4690/0.4695 in. 11.9126/11.9125 mm.
(to ream after fitting)	0.2813/0.2823 in. 7.1450/7.1704 mm.
- length - inlet	2.100 in. 53.34 mm.
exhaust	2.100 in. 53.34 mm.
CAMSHAFTS - end float	0.001/0.008 in. 0.0254/0.2032 mm.
- running clearance	0.001/0.0025 in. 0.0254/0.0635 mm.

GUDGEON (PISTON) PIN

Type	Fully floating
Location	Circlips
Diameter	1.00 in. 25.40 mm.
Class of fit	Finger push fit at 20°C (68°F)

PISTON and LINER

Piston - type	Solid skirt
- material	Aluminium alloy
- length	2.963 in. 75.260 mm.
- area	11.04 sq.in. 71.23 sq.cm.
Piston - compression height	1.611/1.615 in. 40.919/41.021 mm.
- rings - compression	2
- oil control	1
- diameter - Grade 'A'	3.746//3.7472 in. 95.1662/95.1789 mm.
- Grade 'B'	3.7472/3.7477 in. 95.1789/95.1916 mm.
- gudgeon pin bore	
offset	0.06 in. towards thrust face 1.524 mm.
- clearance in cylinder liner	
(measured at grade diameter)	0.0038/0.0048 in. 0.0965/0.1219 mm.
- ring to groove clearance:	
compression	0.0015/0.0035 in. 0.0381/0.0889 mm.
oil control	0.0015/0.0025 in. 0.0381/0.0635 mm.
- grade diameter measured at	0.594 in. from skirt edge 15.0876 mm.
Cylinder liner - type	Slip-fit, wet
- material	Cast iron
- internal diameter:	
Grade 'A'	3.7510/3.7515 in. 95.2754/95.2881 mm.
Grade 'B'	3.7515/3.7520 in. 95.2881/95.3008 mm.
- fitted height above block (nip)	0.004/0.006 in. 0.1016/0.1524 mm.
- permissible variation between adjustment liners	0.001 in. 0.0254 mm.

LUBRICATION SYSTEM

Pump - type	Eccentric rotor, with non-adjustable plunger type relief valve.
- drive	Toothed belt
- inner and outer rotor clearance	0.006 in. (Max) 0.1524 mm.
- inner and outer rotor float	0.0005/0.0015 in. 0.0127/0.0381 mm.
- outer rotor to housing clearance	0.001/0.003 in. 0.0254/0.0762 mm.
Filter - type	Full flow, AC Delco SF, disposable canister.
Oil pressure at 2500 rev/min. normal operating temperature	60 lb./sq. in. 4.2 kg./sq.cm.

FUEL SYSTEM

Pump - type	S.U. electric AUF 300
Carburettor - number and type	Two, STROMBERG (variable choke) 175 CD 2 SE - Emission Controlled vehicles.
- idle speed - STROMBERG	Two, DELLORTO (fixed choke) DHLA 40 - Non-emission controlled vehicles.
- settings - STROMBERG:	950/1000 rev./min.
needle	800 rev./min.
spring colour	B.1CM
damp oil	Blue
- DELLORTO:	SAE 20W/50
choke	1.38 in. 35 mm.
main jet	130
main air corrector jet	160
float assembly	7298.01
slow running jet	50 (approx. 1st 100 engs was 55)
slow running air	7850 -1/140 (approx. 1st 100 engs.
corrector jet	was 7850-2/120)
pump jet	40
starter jet	70
main emulsion tube	7772.5 (approx. 1st 100 engs was 7772.1)
starter emulsion tube	7482.1
needle valve	7180 - 15
- clearance between carb	
adaptor & inlet manifold	
STROMBERG	0.070 in. 1.8 mm.
- clearance between coils	
of Thackeray washers	
DELLORTO	0.040 in. 1.02 mm.
- distance between floats	
and , including	
gasket	0.57-0.59 in. 14.5 - 15 mm.
Emission control system	Evaporation control, with carbon canister for emission controlled vehicles.
Octane - minimum requirement	91RM ('Regular', 'Intermediate', 'Premium', '3 star' under BS 4040).
Air cleaner	Dry, paper element.

IGNITION SYSTEM

Type	Coil, with ballast resistor, and distributor.
Coil - type	Lucas 16C6, or A.C. Delco.
Distributor - type - exhaust emission	Lucas 25D.4
- non exhaust emission	Lucas 23D.4
- direction of rotation	
(from drive end)	Clockwise
- drive	Offset dog

Distributor - contact breaker gap	0.014/0.016 in.	0.36/0.41 mm.
- contact lever spring tension	18/24 oz.	0.51/0.68 kg.
- firing angles	0°, 90°, 180°, 270°	
- cam dwell angle	60° + 1°	
Centrifugal advance - STROMBERG	CRANKSHAFT REV/MIN.	CRANKSHAFT DEGREES
(includes an idle retard capsule		B.T.D.C. (add
giving 5° to 7° retard, at 10 in.		static settings)
Hg. and above)		
	Below 1000	No advance
	1200	2.0
	1400	4.4
	1600	6.8
	1800	9.0
	2000	11.4
	2200	13.6
	2400	16.0
	2500	17.0 Max. advance
Centrifugal advance - DELLORTO	Below 1000	No advance
	1200	2.0
	1400	4.4
	1600	6.8
	1800	9.0
	2000	11.4
	2200	13.6
	2400	16.0
	2500	17.0 Max. advance
Ignition advance control	Fully automatic	
Ignition timing (static) - STROMBERG	10° B.T.D.C.	
- DELLORTO	12° B.T.D.C.	
(dynamic) - STROMBERG	1° - 3° B.T.D.C. @ 975 rev/min.,	
	Hg.min.	
Toothed driving belt tension, using		
Kent Moore gauge - Cold	5.5-7.7 lb.	2½-3½ Kiloponds
		24.52-34.32 N
Sparking plugs - type	Champion N7Y	
- points gap - STROMBERG	0.025 in.	0.64 mm.
- DELLORTO	0.023 in.	0.58 mm.

COOLING SYSTEM

Type	Liquid, pressurized, cowlled engine drive centrifugal pump, and fan. System must contain a minimum 25% "SHELLSAFE" ('SHELLZONE', N.America) anti-freeze at all times.	
Pressure	10 lb/sq.in.	0.7 kg/sq.cm.
Thermostat - nominal opening temperature	82°C	
Fan belt tension	0.5 in. total movement.	12.7 mm.
Impeller to water pump housing clearance	0.020/0.030 in.	0.508/0.762 mm.
Dimension between pump body and pulley	3.875 in.	98.4 mm.

ELECTRICAL SYSTEM

Voltage	12v
Polarity	Negative earth
Fuses (fuse box)	3 x 35 amp (Battery, ignition, accessories circuits).
Fuses (located in luggage compt. German market only)	2 x 5 amp
Battery - type	Lucas 'Pacemaker' A211
- capacity	50 amp. hr.
- plates per cell	11
Alternator - type	A.C. Delco DN460, with integral regulator control box.
- output	35 amp
Starter motor	Lucas 3M100
Instruments	Smiths electrical water temperature, fuel, and voltmeter, Mechanical oil pressure.
Horns	Twin, Lucas 9H Hi and Lo note
Windscreen wiper	Combined wipe/wash column switch, with flick wipe, Lucas 14W self switching, two speed.
Rear Lights	Dimmer relay (except U.S.A.) (Also fused for German market only).

TRANSMISSION

Clutch - type	Borg and Beck, diaphragm spring
- driven plate - diameter	8½ in. 216 mm.
- number of springs	6
Gearbox (manual)	4 forward (synchromesh), and reverse speeds.
- ratios	1st 2nd 3rd 4th Reverse
	3.12 1.99 1.295 1.00 3.32
Road speed @ 1000 rev./min in 4th.	18.09 miles/hr. 29.11 km/hr.
Gearbox selector axial loading for 1st/2nd. 3rd/4th.	25 - 35 lb. 11.3-15.9 kg.
for reverse	40 - 45 lb. 18.1-20.4 kg.
Adjustment by shims	0.020 in. 0.51 mm.
Primary shaft assembly	
- abutment washer sizes	0.054-0.056 in. & 1.37-1.42 mm. & 0.058-0.060 in. 1.47-1.52 mm.
Layshaft end float	
- adjustment thrust washers, sizes	0.006-0.008 in. 0.15-0.20 mm. 0.058-0.060 in. 1.47-1.52 mm. 0.061-0.063 in. 1.55-1.60 mm. 0.064-0.066 in. 1.63-1.68 mm. 0.067-0.069 in. 1.70-1.75 mm.
Mainshaft assembly	
- gap between baulking ring and gear faces	Not less than 0.025 in. 0.64 mm.
End float in 1st gear bush	0.004-0.009 in. 0.1-0.23 mm.

REAR AXLE

Type	Semi-floating hypoid	
Final drive	Hypoid bevel gears	
- ratio	3.727	
Oil capacity	2.5 Im. pints, 3.0 U.S. pints, 1.42 litres	
Bearings - pinion	Taper roller	
- pre-load - new	10 - 15 lb.in.	0.12-0.17 kg.m
- used	8 - 12 lb.in.	0.09-0.14 kg.m
- differential and crown wheel assembly	Taper roller	
side bearings pre-load - new	3 lb.	1.36 kg.
- used	1 lb.	0.45 kg.
- hub	Ball	
Differential and hypoid gear		
- pinion shaft diameter	0.6242/0.6248 in.	15.8547/15.8699 mm.
- pinion clearance on shaft	0.0027/0.0053 in.	0.0686/0.1346 mm.
- permissible run-out of differential case flange	0.001 in. maximum	0.0254 mm.
- permissible run-out of hypoid gear	0.002 in. maximum	0.0508 mm.
- hypoid gear and pinion backlash	0.005/0.007 in.	0.127/0.178 mm.

FRONT SUSPENSION

Type	Independent, double wishbones, coil springs, and telescopic dampers	
Steering geometry - front wheel alignment	0 to 0.090 in. toe in 0 to 2.3 mm.	
- camber angle	-1° + 0.5° (kerb weight)	
- castor angle	2° 30' to 3° (kerb weight), within 15' side for side.	
- steering pivot inclination	7° 55' to 10° 25'	

Note: car must be standing level within 0.24 in. (6.1 mm) side for side at the front and rear.

Clearance between bump stop and seating 0.87 in. 22.1 mm.
(under normal laden conditions, i.e. car weight + 2 x 150 lb (68 kg.))

REAR SUSPENSION

Type	Live axle, four links, coil springs and telescopic dampers	
Clearance between bump stop and seating	1.97 in.	50 mm.
(under normal laden conditions, i.e. car weight + 2 x 150 lb (68 kg.))		

BRAKES

Type	Hydraulically operated, servo assisted, dual line. Failure warning on L.H.D. cars. Girling 14F caliper disc, self adjusting	
Front		
- friction pad minimum thickness	$\frac{1}{8}$ in.	3.2 mm.
- permissible run-out of disc	0.004 in. maximum	0.1 mm.

Rear	Girling HL3 drum	
- drum permissible diameter after service refacing	9 in. x 1 $\frac{3}{4}$ in.	228.6 mm x 44.45 mm.
- drum permissible run-out of braking surface, checked on axle shafts.	8.06 in. maximum	204.7 mm.
	0.004 in. maximum	0.1 mm.

WHEELS AND TYRES

WHEELS

Type	Cast Aluminium, flat hump, safety ledge	
Rim Size	5½J x 13 in.	5½J x 330 mm.
Permissible lateral run-out (checked on vertical inside face of flange)	0.04 in. maximum	1 mm.
Permissible radial run-out (checked on tyre seat face of flange)	0.04 in. maximum	1 mm.

TYRES

Type	Pirelli 185-70 HR 13; Dunlop 185-70 HR 13.	
Pressures, front and rear all conditions (cold)	24 lb./sq.in.	1.69 kg/sq.cm.
Vehicle capacity rate (U.S.A. only)	2566 lb.	1164 kg.
Maximum tyre load rating (Australia only)	1090 lb.	494.4 kg.

STEERING

Type	Rack and pinion, with intermediate jointed shaft. Safety energy absorbing column.	
Ratio	16.3:1	
Turns, lock to lock	3.16	
Steering wheel diameter	15 in.	381 mm.
Turning diameter - between kerbs	31ft. 6 in.	9.6 m.
- wall to wall	33ft. 6 in.	10.2 m.
Overall length of steering shaft	29.86-29.9 in.	758-759 mm.
Overall length of lattice section	10.37 in. and over	263 mm.

DIMENSIONS

Overall length	13ft. 6in.	4.115 m.
width	5ft. 3 in.	1.60 m.
height (with hood erected)	3ft. 11 $\frac{1}{2}$ ins.	1.206 m.
Wheelbase	7ft. 8 in.	2.337 m.
Track - front	53.31 in.	1.354 m.
- rear	52.44 in.	1.332 m.
Ground clearance (minimum)	6.75 in.	171.45 mm.
Effective head room	35 in.	889 mm.

Maximum effective leg room (throttle)	42.5 in.	1.079 m.
Shoulder room	22 in.	559 mm.
Hip room	23 in.	584 mm.
Useable luggage capacity	6 cu.ft.	924 kg.
Weight - shipping	2036 lb.	924 kg.
- complete kerb	2116 lb.	960 kg.
- European maximum gross		
(includes optional extras)	2666 lb.	1209 kg.
- engine	275 lb.	125 kg.

CAPACITIES

Fuel tank	11 Imp.gals	50 litres	13.2 US gals.
Oil - sump	12.3 Imp.pints	7 litres	14.8 US pints
- sump including filter	13.3 Imp.pints	7.6 litres	15.9 US pints
- cooler	1.0 Imp.pint	0.6 litres	1.2 US pints
Gearbox	3.5 Imp.pints	1.98 litres	4.2 US pints
Rear axle	2.5 Imp.pints	1.42 litres	3.0 US pints
Cooling system (with heater)	12 Imp.pints	6.82 litres	14.4 US pints
includes 3 Imp.pints (3.6 US pints, 1.71 litres) of "Shellsafe" (Shell zone - USA) anti-freeze.			

BULB CHART

LAMP	TYPE FOR:				WATTS	BULB No.
	North America	LHD (Europe)	LHD (France)	RHD (U.K.)		
Headlights	SB*	SB* & 6W	Bulb (Yellow)	SB* & 6W	-	-
- Watts	50/40	Pilot 60/50	&6W Pilot 45/40	Pilot 75/50	-	-
- Lucas part no.	54522231	54523079 and 501	411 & 233	54526337 and 501	-	-
Side light/flasher	SBC	-	-	-	6/21	380
Front flasher	-	SCC	SCC	SCC	21	382
Stop/tail) Rear	SBC	SBC	SBC	SBC	6/21	380
Rear flasher) Lights	SCC	SCC	SCC	SCC	21	382
Reverse) Cluster	SCC	SCC	dealer supply (yellow)	SCC	21	382
Number plate	Festoon	Festoon	Festoon	Festoon	6	254
Side marker	MCC	-	-	-	6	989
Interior Light	Festoon	Festoon	Festoon	Festoon	6	254
Heater console	MES	MES	MES	MES	2.2	987
Warning signs & lights	Peanut	Peanut	Peanut	Peanut	2	281
Instruments	MES	MES	MES	MES	2.2	987

* Sealed beam light unit

Engine

Gear Box

Rear Axle

Front Suspension

Control rod rear nut	32	4.42
Wheel nuts	51	7.05
Shock absorber upper mounting nut	32	4.42
Shock absorber lower mounting nut	57	7.88

	lb.ft.	kg.m
Front Suspension (continued)		
Upper and lower arm ball joint retaining nut	33	4.56
Control rod lower arm attachment bolts	32	4.42
Retaining nuts for suspension arm fulcrum bolts		
- lower arm	32	4.42
- upper arm	37	5.12
Retaining nuts for steering arm securing bolts	25	3.46
Retaining nuts for tie rod ball joint	24	3.32
Retaining nuts for upper fulcrum bolts	36	4.98
Replacement upper ball joint attachment bolts	22	3.04
Front axle mounting retaining nuts	32	4.42
Rear Suspension		
Shock absorber upper mounting securing nuts	32-35	4.42-4.84
Spring mounting upper and lower retaining nuts	32-35	4.42-4.84
Suspension upper and lower arm retaining nuts	50	6.91
Brakes		
Master cylinder tipping valve securing nut	35-40	4.84-5.53
Front brake caliper attaching bolts	33	4.56
Front brake disc lock bolts	18	2.49
Steering		
Steering shaft coupling upper pinch bolt	32-35	4.42-4.84
Steering gear attachment bolts	19	2.63
Steering wheel attachment nut	30	4.15
Steering column upper support bracket bolts	18	2.49
Steering column lower support bracket bolts	32	4.42
Steering column bracing bolts	32	4.42

APPROVED LUBRICANTS

COMPONENT	AIR °C	TEMP. °F	SHELL	B.P.	ESSO	CASTROL	FINA	MOBIL	TEXACO	DUCKHAMS
ENGINE/ OIL CAN	Above 0	Above 32	Shell Super Motor Oil	B.P. Super Viscstatic 20W/50	Uniflo	Castrol GTX or Castrol Super 20W/50	Fina Super Grade Motor Oil 20W/50	Mobiloil Super 10W/50	Havoline Motor Oil 20W-50	Duckhams Q20-50
	Below 0	Below 32	Shell Super Motor Oil	B.P. Super Viscstatic 10W/40	Uniflo	Castrolite or Castrol GTZ	Fina Super Grade Motor Oil 10W/30	Mobiloil Super 10W/50	Havoline 10W-40	Duckhams Q10-40
REAR AXLE *	Above 0	Above 32	Shell Spirax 90EP	B.P. Gear Oil 90 EP	Esso Gear Oil GX90/140	Castrol Hypoy	Fina Pontonic MP SAE 90	Mobilube H.D.90	Multigear Lubricant EP 90	Duckhams Hypoid 90
	Below 0	Below 32	Shell Spirax 80EP	B.P. Gear Oil 80 EP	Esso Gear Oil GX 80	Castrol Hypoy Light	Fina Pontonic MP SAE 80	Mobilube H.D.80	Multigear Lubricant EP 80	Duckhams Hypoid 80
GEARBOX			Shell Super Motor Oil	B.P. Super Viscstatic 20W/50	Uniflo	Castrol GTZ or Castrol XL	Fina Super Grade Motor Oil 20W/50	Mobiloil Super 10W/50	Havoline Motor Oil 20W/50	Duckhams Q20-50
GREASE POINTS			Shell Retinax 'A'	BP Energ grease L2	Esso MP Grease H	Castrol LM Grease	Fina Marson HTL 2	Mobilgrease Super or Mobilgrease MP	Marfak All Purpose	Duckhams LB 10 Grease
BRAKE FLUID			Castrol/Girling Green 1735 D.O.T. 3. Where this proprietary fluid is not available, others which meet SAE J1703C specification may be used.							
ANTI-FREEZE			Use only Shell 'Shellsafe' ('Shellzone', U.S.A. only) all year.							

* If the axle has to be drained before completing 10,000 miles (15,000 km), or if new hypoid gears have to be fitted, use only Castrol Thio-Hypoy FD for refilling the axle.

Sealer for camshaft covers	Silastic 732 RTV	
- journal diameters - front	1.9590/1.9585 in.	49.7586/49.7459 mm.
2nd	1.9490/1.9485 in.	49.5046/49.4919 mm.
3rd	1.9390/1.9385 in.	49.2506/49.2379 mm.
4th	1.9290/1.9285 in.	48.9966/48.9839 mm.
rear	1.7490/1.7485 in.	44.4246/44.4119 mm.
Cam followers - bore in camshaft housings	1.3750/1.3756 in.	34.925/34.9402 mm.
- outside diameter	1.3742/1.3745 in.	34.905/34.912 mm.

AUXILIARY SHAFT

Running clearance	0.0009/0.0025 in.	0.023/0.064 mm.
Shaft diameter		
End float	0.0005/0.0015 in.	0.0127/0.0381 mm.

CRANKSHAFT

Balance	Within 0.2 oz.in.	14.42 gr.cm.
Diameter - main journal		
(No. 1 to 4 inc.)	2.4995/2.5005 in.	63.487/63.513 mm.
- main journal (No. 5 only)	2.500/2.5005 in.	63.500/63.513 mm.
- crankpin	1.9975/1.9985 in.	50.736/50.762 mm.
End float - dimension	0.003/0.008 in.	0.076/0.203 mm.
- controlled by	Standard thickness washers on rear main bearing.	
Bearings (main) - number	5	
- type	Steel backed, leaded bronze	
- static clearance*	0.00125/0.0025 in.	0.03175/0.0635 mm.
* bearing clearance is measured with Plastigage		

FLYWHEEL

Maximum run-out (lateral)	0.004 in.	0.102 mm.
Starter ring gear - run out - lateral	0.016 in.	0.406 mm.
- radial	0.006 in.	0.152 mm.

CONNECTING ROD

Type	'I' section	
Material	Steel forging	
Distance between centres	5.5 in. + 0.001 in.	139.7 mm+ 0.0254 mm.
Bearings (big end) - type	Steel backed, leaded bronze.	
- static clearance*	0.001/0.0032 in.	0.0254/0.0813 mm.
- end float on crankpin	0.004/0.010 in.	0.102/0.254 mm.
Small end bore (bushed)	1.0002/1.0004 in.	25.405/25.410 mm.
* bearing clearance is measured with plastigage.		