LOTUS ELAN +2

Workshop Manual

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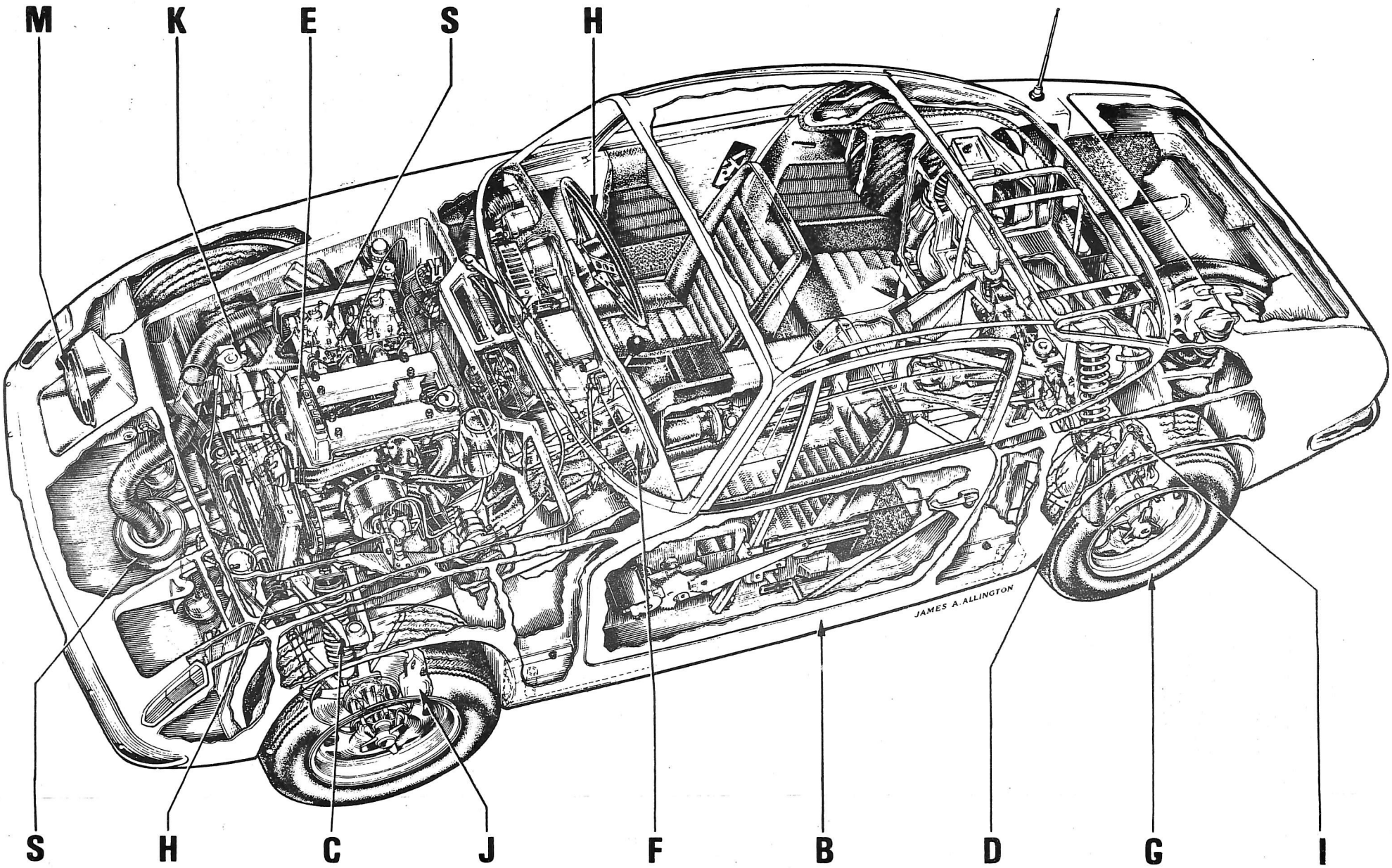
NOTE: Lotus policy is one of continuous product improvement and the right is reserved to alter specifications at any time without prior notice.

Whilst reasonable efforts have been made to ensure that at the time of publishing this manual is correct, the descriptions and illustrations appearing are not binding.

E. & O.E.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JAMES A. ALLINGTON

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INTRODUCTION

This Workshop Manual, which is in loose-leaf form for easy amendment, has been compiled to assist Lotus Dealers throughout the world in the efficient repair and maintenance of the Lotus Elan + 2 models.

The various units and systems of the vehicle are dealt with in sections which are listed on page 5, each being distinguished by a reference letter, this letter being the same as is used in other service publications (i.e., A = chassis in Parts Lists and in the Labour Schedule). Each section thus referred to opens with a contents page so that any particular operation can be easily located.

Service Information

Design changes, product improvements or changes in procedure subsequent to the publishing of this manual are given in Service/Parts Bulletins which are issued regularly to all authorised Lotus Dealers. Should existing instructions be affected or additional information be needed, new pages to this manual will be issued to Lotus Dealers when convenient.

To ensure the manual is kept up-to-date, write the Bulletin number, the section and page number it affects and the subject matter in the space provided on page 8.

Technical Data

Comprehensive information regarding dimensions, tolerances, weights and torque loading figures of all nuts and bolts are given on page commencing 9.

Recommended Lubrication and Maintenance

Attention is drawn to Section 'O' of this manual for the Factory approved recommended lubricants and intervals of Periodical Maintenance.

Frost Precautions

Attention is drawn to the recommendations given in Section 'K' (Cooling System) of this manual on the importance of taking proper precautions against damage by frost.

Paint and Body Protection

When work is carried out on any part of the car where damage could be caused to the paint and body, i.e. working on the engine, or removing the windscreen, it is recommended that body protection covers be used.

SECTION CHECK LIST.

The number of pages in each section is correct at:- September 1974

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SERVICE BULLETIN RECORD

To ensure that the information contained in the manual is up-to-date, Lotus Dealers are asked, when they receive them, to record in the columns below, the bulletin numbers with their subjects and the section and page number affected.

If reference is then made to these columns before turning to the appropriate section, it will be seen immediately if any ammendment subsequent to the publishing of the manual, is applicable.

Bulletin Number	Date	Section	Page No.	Subject

VEHICLE IDENTIFICATION (Chassis Numbering)

Commencing at the 1st. January 1970, a new format has been used for Vehicle Identification. An example of a new chassis number is given below, together with the full identification breakdown.

7001.010001 L	Both chassis and body numbers being the same
7001.	Denotes year and month of manufacture (1970, January)
01	Denotes the production batch
0001	Denotes the chassis number
L	Denotes the model

As there are at present, 16 different model types, the following codes will be used for model identification.

Elan STD.	Coupe	G. Britain & N.Ireland	A
Elan STD.	Coupe	Export	B
Elan STD.	Convertible	G. Britain & N.Ireland	C
Elan STD.	Convertible	Export	D
Elan S/E	Coupe	G.Britain & N.Ireland	E
Elan S/E	Coupe	Export	F
Elan S/E	Convertible	G.Britain & N.Ireland	G
Elan S/E	Convertible	Export	H
Elan Federal	Coupe	Export	J
Elan Federal	Convertible	Export	K
Elan +2 'S'		G.Britain & N.Ireland	L
Elan +2 'S'		Export	M
Elan +2 'S' Federal		Export	N
Europa		G.Britain & N.Ireland	P
Europa		Export	Q
Europa Federal		Export	R

NOTE: Commencing at 1st. January 1972, the 'Batch No.' is no longer used.

7201	Denotes year and month of manufacture (1972, January)
0001	Denotes the chassis Number
L	Denotes the model

TECHNICAL DATA

Index

DIMENSIONS

Wheelbase	96 in. (243.8 cm.)
Track (at wheel hub) - Front	54 in. (137 cm.)
- Rear	55 in. (139.7 cm.)
Overall - Length	168¾ in. (428.6 cm.)
- Width	66¼ in. (168.2 cm.)
- Height	47 in. (119.3 cm.)
Ground clearance (design)	6½ in. (13.5 cm.)
Turning circle	28 ft. (8.5 m.)
Kerb weight (unladen)	2086 lbs. (946 kg.)
Capacity weight	788 lbs. (358 kg.)

CAPACITIES

Engine sump (including filter)	7½ pints (4 litres; 9 US pints)
Gearbox	1¾ pints (.99 litres; 2.1 US pints)
Rear Axle	2 pints (1.2 litres; 2.4 US pints)
Coolant (with heater)	14 pints (7.9 litres; 16.8 US pints)
Fuel	13 galls. (59 litres; 15.6 US galls.)

ENGINE

General

Number of Cylinders	4
Capacity	95.06 cu. in. (1558 cc.)
Stroke	2.864 in. (72.746 mm.)
Bore - Grade 1	3.2500/3.2503 in. (82.550/82.558 mm.)
- Grade 2	3.2503/3.2506 in. (82.558/82.565 mm.)
- Grade 3	3.2506/3.2509 in. (82.573 mm.)
- Grade 4	3.2509/3.2513 in. (82.580 mm.)
Compression - Ratio	9.5: 1 except S130; 10.3: 1 S130 only
- Pressure (at sea level)	In excess of 160 lbs. sq. in. (11.248 kg.sq.in.) Each Cylinder within 20 lbs.sq.in. (1.406 kg.sq.cm.) of each other.

Performance

Max BHP (net) @ r.p.m. - Weber	- S/E		93 @ 6,000
	- 'S'		101 @ 6,250
	- S130		126 @ 6,500
	- Zen. Stromberg	- S/E	101 @ 6,500
		- 'S'	101 @ 6,500
		- S130	113 @ 6,500
Max Torque @ r.p.m. - Weber	- S/E		106 lbs.ft. (14.655 kg.m.) @ 5,000
	- 'S'		106 lbs.ft. (14.655 kg.m.) @ 5,000
	- S130		113 lbs.ft. (15.622 kg.m.) @ 5,000

Max.Torque @ r.p.m. - Zen. Stromberg - S/E	103 lbs. ft. (14.240 kg.m.) @ 5,000
- 'S'	103 lbs. ft. (14.240 kg.m.) @ 5,000
- S130	104 lbs. ft. (14.378 kg.m.) @5,000
Road speed per 1,000 r.p.m. in Top Gear (all)	17.8 m.p.h. (28.6 km.h.)

Cylinder Head

Material	Aluminium
Gasket	Copper/asbestos
Cylinder head identification - Small valve	'S' (& Fed. Big valve)
- Big valve	'N' or 'H' (& S/E Stromberg)
Cylinder head depth - Small valve	4.638/4.643 in. (11,78/11.79 cm.)
- Big valve	4.598/4.603 in.(11.68/11.69 cm.)
Maximum permissable metal removal - Small valve	.045 in. (1.14 mm.)
- Big valve	.010 in. (.254 mm.)
Valve timing - Inlet opens	26° B.T.D.C.
- Inlet closes	66° A.B.D.C.
- Exhaust opens	66° B.B.D.C.
- Exhaust closes	26° A.T.D.C.
Angle of valve seats and faces	45°
Valves - Head diameter - Inlet (except S130)	1.526/1.530 in. (38.760/38.62 mm.)
- Inlet (S130 only)	1.560/1.566 in. (39.776 mm.)
- Exhaust	1.321/1.325 in. (33.553/33.655 mm.)
- Stem diameter - Inlet	.310/.311 in. (7.874/7.899 mm.)
- Exhaust	.310/.311 in. (7.874/7.899 mm.)
- Stem clearance guide - Inlet	.0013/.0023 in. (.007/.058 mm.)
- Exhaust	.0025/.0030 in. (0.63/.076 mm.)
- Clearance (cold) - Inlet	.005/.007 in. (.127/177 mm.)
- Exhaust (to Engine 9951)	.006/.008 in. (.152/.203 mm.)
- Exhaust (from Engine 9952)	.009/.011 in. (.228/.279 mm.)
Valve springs - Type	Dual
- Free length - Inner	1.130 in. (28.70 mm.)
- Outer	1.450 in. (36.83 mm.)
- Rate - Inner @ .92 in. (23.4 mm.)	12.4 lbs. (5.6 kg.)
- Inner @ .58 in. (14.7 mm.)	33.5 lbs. (15.2 kg.)
- Outer @ 1.7 in. (29.7mm.)	45 lbs. (20.4 kg.)
- Outer @ .83 in. (21.1 mm.)	109 lbs. (49.4 kg.)
Valve guides - Internal Dia. (to ream after fitting)	.3113/.3123 in. (7.90/7.932 mm.)
- Length - Inlet	1.520 in. (38.608 mm.)
- Exhaust	1.480 in. (37.592 mm.)
- Fitted height above head	.320 in. (8.128 mm.)
Camshafts - Journal diameter	1.000/1.005 in. (25.4/25.413 mm.)
- End float	.003/.010 in. (0.76/.254 mm.)
- Bearings - Number	5
- Type	Steel backed, white metal
- Running clearance	0.005/.002 in. (.013/.050 mm.)
Cam followers - Bore in Head	1.375/1.3756 in. (34.925/34.940 mm.)
- Outside diameter	1.3742/1.3745 in. (34.904/34.912 mm.)
- Follower to head clearance	.0005/.0014 in. (.013/.136 mm.)

Valve guides

Outside diameter of guide - All engines:	Inlet & Exhaust
Standard	.5000/.5005 in. (12.700/12.713 mm.)
.001 in. (.0254 mm.) oversize	.5010/.5015 in. (12.725/12.738 mm.)
.005 in. (.127 mm.) oversize	.5050/.5055 in. (12.827/12.839 mm.)
.006 in. (.1524 mm.) oversize	.5060/.5065 in. (12.852/12.865 mm.)

Diameter of bore in cylinder head - All engines:	
Standard	.4990/.4995 in. (12.675/12.687 mm.)
.001 in.(.0254 mm.) oversize	.5000/.5005 in. (12.700/12.713 mm.)
.005 in. (.127 mm.) oversize	.5040/.5045 in. (12.802/12.814 mm.)
.006 in. (.1524 mm.) oversize	.5050/.5055 in. (12.827/12.839 mm.)
Interference fit - All guides - All engines	.0005/.0015 in. (.0127/.0381 mm.)

Valve seat inserts

Outside diameter of insert - All engines:	Inlet	Exhaust
Standard	1.6235/1.6245 in. (41.237/41.262 mm.)	1.4985/1.4995 in. (38.062/38.087 mm.)
.005 in. (.127 mm.) oversize	1.6285/1.6295 in. (41.364/41.389 mm.)	1.5035/1.5045 in. (38.189/38.214 mm.)
.010 in. (.254 mm.) oversize	1.6335/1.6345 in. (41.491/41.516 mm.)	1.5085/1.5095 in. (38.316/38.341 mm.)
.015 in. (.381 mm.) oversize	1.6385/1.6395 in. (41.618/41.643 mm.)	1.5135/1.5145 in. (38.214/38.239 mm.)

Diameter of bore in cylinder head - All engines:		
Standard	1.6200/1.6210 in. (41.148/41.173 mm.)	1.4950/1.4960 in. (37.973/37.998 mm.)
.005 in. (.127 mm.) oversize	1.6250/1.6260 in. (41.275/41.300 mm.)	1.5000/1.5010 in. (38.100/38.125 mm.)
.010 in. (.254 mm.) oversize	1.6300/1.6310 in. (41.402/41.427 mm.)	1.5050/1.5060 in. (38.227/38.252 mm.)
.015 in. (.381 mm.) oversize	1.6350/1.6360 in. (41.529/41.554 mm.)	1.5100/1.5110 in (38.354/38.379 mm.)

Interference fit - All inserts - All engines	.0025/.0045 in. (.521/.114 mm.)

Jackshaft

Bearings - Number	3
- Type	Steel backed, white metal
- Length - Front	.75 in. (19.05 mm.)
- Centre	.64 in. (16.26 mm.)
- Rear	.75 in. (19.05 mm.)
- Running clearance	.001/.002 in. (.025/.050 mm.)
Journal diameter	1.560/1.5605 in.(39.624/39.637 mm.)
End float	.0025/.0075 in. (.063/.190 mm.)

Crankshaft

Balance	Within .2 oz.in. (14.42 gr.cm.)
Diameter - Main journals	2.1255/2.1260 in. (53.987/54.000 mm.
- Crankpin	1.9370/1.9375 in. (49.199/49.211 mm.
End float - Dimension	.003/.008 in. (.076/.203 mm.)
- Controlled by	Thrust washers on centre main bearing
Bearings - Number	5
- Type	Steel backed, lead bronze with lead overlay
- Running clearance	.0015/.0030 in. (.038/.076 mm.)
Maximum undersize for regrind	.03 in. (.762 mm.)

Flywheel

Maximum run-out (lateral)	.004 in. (.101 mm.)
Starter ring gear - Run out - Lateral	.016 in. (.406 mm.)
- Radial	.006 in. (.152 mm.)

Connecting Rod

Type	'H' section
Material	Steel forging
Distance between centres	4.799/4.801 in. (12.19/12.24 cm.)
Bearings - Type	Steel backed, lead bronze with lead overlay
- Running clearance	.0005/.0022 in. (.013/.513 mm.)
- End float on crankpin	.004/.010 in. (.101/.254 mm.)
Small end bore (bushed) - Grade 'A'(silver)	.8124/.8125 in. (20.635/20.637 mm.)
- Grade 'B'(green)	.8125/.8127 in. (20.637/20.642 mm.)

Gudgeon (Piston) Pin

Type	Floating
Location	Circlips
Diameter - Grade 'A'	.8121/.8122 in. (20.627/20.628 mm.)
- Grade 'B'	.8122/.8123 in. (20.628/20.632 mm.)
Class of fit	Finger push fit.

Piston

Type	Solid skirt
Material	Tin-plated aluminium alloy
Length	2.687 in. (68.250 mm.)
Compression Height	1.536/1.538 in. (39.014/39.065 mm.)
Maximum permissible weight variation per set	4 grammes
Rings - Compression	2
- Oil control	1
Diameter - 'A' type - Grade 1	3.2470/3.2473 in. (82.474/82.481 mm.)
- Grade 2	3.2473/3.2476 in. (82.481/82.489 mm.)
- Grade 3	3.2476/3.2479 in. (82.489/82.497 mm.)
- Grade 4	3.2479/3.2482 in. (82.497/82.504 mm.)
- 'C' type - Grade 1	3.2467/3.2470 in. (82.466/82.474 mm.)
- Grade 2	3.2470/3.2473 in. (82.474/82.481 mm.)
- Grade 3	3.2473/3.2476 in. (82.481/82.489 mm.)
- Grade 4	3.2476/3.2479 in. (82.489/82.497 mm.)
Piston clearance in cylinder bore - 'A' type	.0027/.0033 in. (.068/.083 mm.)
- 'C' type	.0030/.0036 in. (.076/.091 mm.)
Gudgeon pin bore offset	.04 in. (1.016 mm.) towards thrust face
Ring gap (fitted) - Compression	.009/.014 in. (.229/.356 mm.)
- Oil control	.010/.020 in. (.254/.508 mm.)
Piston ring to groove clearance - Compression	.0016/.0036 in. (.041/.091 mm.)
- Oil control	.0018/.0038 in. (.046/.097 mm.)

Lubrication System

Pump - Type	Eccentric lobe
- Drive	Gear on jackshaft
- Inner and outer rotor clearance	.006 in. (.15 mm.) Maximum
- Inner and outer rotor end float	.005 in. (.13 mm.) Maximum
- Outer rotor to housing clearance	.010 in. (.25 mm.) Maximum
Normal pressure (hot)	35/40 lbs.in.sq. (2.4/2.8 kg.cm.sq.)
Filter	Full flow (renewable element or throw-away canister)

FUEL SYSTEM

Pump - Operation		Lever by eccentric on jackshaft		
- Pressure		1.25/2.5 lbs. in. sq. (.087/.176 kg. cm.sq.)		
Air Cleaner type		Paper Element (dry)		
Carburetter	- Type and Number	Weber 40 DCOE 31, two		
	- Slow running speed	800/900 r.p.m.		
		S/E	S	S130
	- Choke	32 mm.)	30 mm.)	33 mm.)
	- Main Jet	115)	110)	120)
	- Air Corrector Jet	150)	155)	155)
	- Slow Running Jet	45 F.8)	45 F.8)	50 F.8)
	- Accelerator Pump Jet	35)	35)	35)
	- Accelerator Pump Stroke	10 mm.		
	- Starter Air Jet	100		
	- Starter Petrol Jet	F.5/100		
	- Emulsion Tube	F.11		
	- Needle Valve	1.75		
	- Air Trumpet length	1.5 in. (3.8 cm.)		
Carburetter	- Type and Number	Zenith-Stromberg 175 CD 2 S, two		
	- Slow running speed	800/900 r.p.m.		
	- Needle	B.1Y		
	- Spring Colour	Natural		
	- Damper Oil	SAE 20W/50		
Carburetter (Exhaust Emission) -				
	- Type and Number	Zenith-Stromberg 175 CD 2SE, two		
	- Slow running speed	950 r.p.m.		
	- Needle	B.1G		
	- Spring Colour	Blue/Black		
	- Damper Oil	SAE. 20W/50		

IGNITION SYSTEM

Type	Coil and Distributor	
Firing Order	1,3,4,2	
No.1. Cylinder	Nearest to Radiator	
Ignition Advance Control	Fully Automatic	
Ignition Timing (static)* -		
Weber Carburetters (except 'S 130')	10° B.T.D.C.	(41189)
Weber & Dellorto Carburetters ('S 130')	12° B.T.D.C.	(41189)
Zenith Stromberg Carburetters (non Exhaust Emission)	9° B.T.D.C.	(40953)
Zenith Stromberg Carburetters	9° B.T.D.C.	(40953)
Zenith Stromberg Carburetters (Exhaust Emission)	5° B.T.D.C.	(41225)
Dellorto Carburetters (ECE 15) - Static	10° B.T.D.C.	(41225) (with vac ret cap)
- Idle	5°	

Coil	Lucas LA.12
Sparking Plugs:	
Type - Non Exhaust Emission	Champion N7Y
- Exhaust Emission	Autolite AG.32 (for sustained high speed driving use Autolite AG.22)
Gap - Non Exhaust Emission	.020/.023 in. (.508/.584 mm.)
- Exhaust Emission	.025 in. (.635 mm)

* Ignition settings may need SLIGHT alteration to meet local fuel requirements

Distributor

Type - Non Exhaust Emission	23 D.4
- Exhaust Emission	25 D.4
Direction of rotation (from above)	Anti-clockwise
Drive	Gear on Jackshaft
Contact Breaker gap	.014/.016 in. (.35/.40 mm.)
Contact Lever Spring tension	18/24 oz. (.51/.68 kg.)
Firing angles	0° 90° $270^{\circ} \pm 1^{\circ}$
Cam dwell angle	$60^{\circ} \pm 3^{\circ}$
Despatch No. - Weber & Dellorto Carburetters	41189A
- Zenith-Stromberg Carbs (Non-Emission)	40953
- Zenith Stromberg Carbs (Exhaust Emission)	41225A
Centifugal advance - Distributor Despatch No.	41189A or, 41225A when 5° suction retard capsule fitted:

Crankshaft r.p.m.	Crankshaft degrees B.T.D.C. (Add Static Settings)
Below 1,000	No advance
1,250	2.5
1,500	4.5
1,750	7.0
2,000	9.3
2,250	11.5
2,500	14.0 Maximum advance

Centrifugal advance - Distributor Despatch No. 40953:

crankshaft r.p.m.	crankshaft degrees B.T.D.C.(Add Static Settings.)
Below 500	No advance
1,000	5.6
1,500	10.5
2,000	16.0
2,500	16.8
3,000	17.8
3,500	18.6
4,000	19.5
4,500	20.5
5,000	21.5
5,500	22.5
6,000	23.0
6,500	24.0 Maximum advance

COOLING SYSTEM

Type	Centrifugal pump and fan
Radiator cap relief valve pressure	7 lbs.in.sq. (.49 kg.cm.sq.)
Thermostat nominal opening temperature	78° C.
Fan belt tension (at longest run)	½ in.(12.7mm.) total up-and-down movement.
Impeller vanes to water pump housing clearance	.020/.030 in.(.508/.762 mm.)

CLUTCH.

Make and Type	Borg & Beck, diaphragm spring
Operation	Hydraulic
Driven Plate - Diameter	8 in.(20.3 cm.)
- Number of Springs	6
Clutch assembly adjustment	See Section 'Q'
Bore of - Master Cylinder	5/8 in. (15.87 mm.)
- Slave Cylinder	7/8 in. (22.22 mm.)

GEARBOX.

Type	4 forward speeds, all synchromesh and reverse.
Bearings - Mainshaft	Ball
- Countershaft	Rollers
Adjustment - 1st. gear end float	.005/.010 in.(.127/.254mm.)
- 2nd. gear end float	.005/.010 in.(.127/.254mm.)
- 3rd. gear end float	.005/.016 in.(.127/.406mm.)
- Countershaft	.008/.020 in.(.203/.508mm.)

Ratios	Semi-close ratio	Close ratio
Top	1.000 : 1	1.000 : 1
3rd.	1.396 : 1	1.230 : 1
2nd.	2.009 : 1	1.636 : 1
1st.	2.972 : 1	2.510 : 1
Reverse	3.324 : 1	2.807 : 1
Speedometer gears -	3.777 : 1 final drive	3.555 : 1 final drive
Driving gear	109E 17285B, 7 teeth	109E 17285B, 7 teeth
Driven gear	109E 17322B, 24 teeth	105E 17322B, 22 teeth
	Green	Natural

REAR AXLE

Final drive		Hypoid gear
Bearings -	Pinion	Taper rollers
-	Differential/crown wheel assembly	Taper rollers
Adjustment -	Pinion bearing pre-load	9/11 lbs.in. (.10/.12 kg.m.)
-	Crown wheel/pinion backlash	.005/.007 in. (.127/.177 mm.)
Number of teeth -	Crown wheel	34) 3.777 : 1
-	Pinion	9)
Number of teeth -	Crown wheel	32) 3.555 : 1
-	Pinion	9)
Final drive ratio -	Standard	3.777 : 1
-	Optional	3.555 : 1

		semi-close ratio		close ratio	
Overall ratios -	Top	3.777 : 1	3.555 : 1	3.777 : 1	3.555 : 1
-	3rd.	5.272 : 1	4.962 : 1	4.645 : 1	4.372 : 1
-	2nd.	7.587 : 1	7.142 : 1	6.179 : 1	5.796 : 1
-	1st.	11.225 : 1	10.565 : 1	9.480 : 1	8.923 : 1
-	Reverse	12.554 : 1	11.816 : 1	10.602 : 1	9.978 : 1

FRONT SUSPENSION

Type		Independent
Spring -	Number of coils	15.6
-	Wire diameter	.343 in. (8.71 mm.)
-	Rate	110 lbs.in. (1.267 kg.m.)
-	Length - Free*	14.19 in. (36.04 cm.)
	- Fitted*	8.6 in. (21.8 cm.)
Front hub end float		.002/.004 in. (.05/.10 mm.)

* Spring, Part No. 50C 010A (see Section 'C') - Free length 14.59 in. (37.04 cm.)
- Fitted length 9.0 in. (22.86 cm.)

STEERING

Type	Rack and pinion
Steering angles - Camber	Zero to + 1° (Positive)
- Castor	3° ± 30' (Positive)
- Swivel pin (kpi)	9° ± 30'
Toe - in	3/16 in. (4.76 mm.) to Zero
Condition for checking toe - in	6½ in. (16.5 cm.) ground clearance at bottom of chassis closing plate (see section 'C')

REAR SUSPENSION

Type	Independent
Spring - Number of coils	9.7
- Wire diameter	.434 in. (11.02 mm.)
- Length - Free	16.0 in. (40.6 cm.)
- Fitted	8.6 in. (21.8 cm.)
- Rate	93 lbs. in. (1.071 kg.m.)
Wheel camber	1° to Zero (Negative)
Toe - in	3/16 in. (4.76 mm.) to Zero

BRAKES

Make and type	Girling hydraulic, servo assisted
Front brakes - Disc diameter	10 in. (25.4 cm.)
- Pads material	Ferodo DS.31, Mintex M.33 or Ferodo FER 2430F
Rear brakes - Disc diameter	10 in. (25.4 cm.)
- Pads material	Ferodo DA.3
Handbrake - Type	Mechanical, on rear only
- Pads material	Don. 117
Total disc run out	.004 in. (110 mm.)

WHEELS AND TYRES

Wheel - Type	Lotus 'knock-on'
- Size	5½J
Tyres* - Type	Firestone F.100 tubeless or, Goodyear G800 with tubes or, Dunlop SP Sport with tubes
- Size	165 x 13

Tyres - Pressure (cold):	At speeds BELOW 100 mph (160 kph)	At sustained speeds ABOVE 100 mph (160 kph)
- Front	20 lbs.in.sq. (1.41 kg.cm.sq.)	26 lbs.in.sq. (1.83 kg.cm.sq.)
- Rear	24 lbs.in.sq. (1.69 kg.cm.sq.)	30 lbs.in.sq. (2.11 kg.cm.sq.)

NOTE: It is NOT necessary to increase the tyre pressures for any reason other than those given.

* If inner tubes are fitted, it is essential that these are of the correct type for radial ply tyres.

ELECTRICAL EQUIPMENT

Battery

Type	Exide 6 VTA 29 L
Capacity @ 20 hr. rating	39 amp.hr.
Voltage and polarity	12 volt positive earth (negative earth from 50/1087)

Fuses

Quantity	12 -- 'S' Type, 2 -- Others

Generator

Type	Lucas C.40
Maximum output	22 amps. @ 2250 r.p.m.
Cutting-in speed	1450 r.p.m. Maximum @ 13.0 volts.
Field resistance	6.0 ohms.
Brush spring tension	30 ozs. (.85 kg.) Maximum 13 ozs. (.36 kg.) Minimum
Control box type	RB.106/2 or RB.340

Alternator

Type	Lucas 17 ACR
Maximu output (hot)	36 amps. @ 6,000 r.p.m.
Nominal system voltage	12
Earth polarity	Negative
Rotation	Clockwise from drive end
Number of poles	12
Stator phases	3
Slip ring brush length (new)	.5 in. (12.7 mm.)
Brush spring tension	7/10 ozs. (.19/.28 kg.) with brush face flush with brush box housing
Rotor winding resistance	4.165 $\pm$ 5% ohms. @ 20° C.
Stator winding resistance	.133 ohms. per phase
Regulating voltage	14.1 to 14.5 volts.

Starter

Type	Lucas M.35G
Drive	'SB' (inboard)
Brush spring tension	30/34 ozs. (.85/.96 kg.)
Light running current	45 amps. @ 9,500/11,000 r.p.m.
Lock torque	7.7 lbs.ft. (1.06 kg.) @ 330/350 amps with a voltage of 7.5/7.1

Lamp Bulbs (all 12 volt)

Headlamp - RHD	Sealed beam unit (60/45W)
- LHD	410 (45/40W)
- France	411 (45/40W) yellow
- North America	Sealed beam unit
Sidelamp	989 (6W)
Front and rear indicators	382 (21W)
Stop and tail lamps	380 (21/6W)
Rear number plate lamp	989 (6W)
Panel (instrument) lamps	987 (2.4W); later models 504 (3W)
Interior (roof) lamps	254 (6W festoon)
Warning lamps	281 (2W)
Reverse lamp)	273 (21W festoon)
Under-bonnet lamp)	254 (6W festoon)
Boot (trunk) lamp) where	254 (6W festoon)
Door trailing edge lamp) fitted	254 (6W festoon)
Door lower edge lamp)	254 (6W festoon)
Fog lamp)	453 (55W capless)
Spot lamp)	453 (55W capless)

ADDITIONAL INFORMATION

FUEL SYSTEM

Zenith-Stromberg Carburetters Identification:

Emission Type:	E26 S 710 Front) E26 S 711 Rear)	Fixed needle B.1G with idle return valve
	G26 S 710 Front) G26 S 711 Rear)	Fixed needle B.1G with addition of throttle edge drilling and deletion of idle return valve
Non-Emission Type:	F26 S 710 Front) F26 S 711 Rear)	Fixed needle B.1Y with side entry balance pipe

	1 26 S 710 Front)	Adjustable needle B.1Y with
	1 26 S 711 Rear)	side entry balance pipe
	J26 S 710 Front)	Adjustable needle B.2AR with
	J26 S 711 Rear)	overhead balance pipe

Dellorto Carburettors	Domestic (To: 73101710L)	European ECE.15 (From: 73101711L)
Type	DHLA-40	DHLA-40E
Part No. (identification)		
- Front	Q026 S 0710W	R026 S 0710W
- Rear	Q026 S 0711W	R026 S 0711W
Colour code	Red	Red
Settings:		
Choke	33 mm.	32 mm.
Auxilliary venturi	7848-1	7848-1
Main jet	120	120
Main air corrector	130	160
Idling jet	50.02	50L
Idling jet holder	7850-2(120)	7850-1(140)
Pump jet	45*	33
Starter jet	70	70
Main emulsion tube	7772-5	7772-5
Starter emulsion tube	7482-1.28	7482-1.28
Needle valve	150.33	150.33
Float assembly	7298-01	7298-02
Air trumpet length	40 mm.	40 mm.

* Use 35 if necessary to improve driving

5 - SPEED GEARBOX

Ratios	- O/D (5th)	0.800:1
	- 4th	1.000:1
	- 3rd	1.370:1
	- 2nd	2.010:1
	- 1st	3.200:1
Overall Ratios	- O/D (5th)	3.016:1
	- 4th	3.777:1
	- 3rd	5.165:1
	- 2nd	7.578:1
	- 1st	12.064:1
	Reverse	13.070:1

TORQUE LOADING FIGURES

ENGINE	lbs.ft.	kg.m.
Cylinder head (tighten cold)	60 - 65	8.29 - 8.98
Cylinder head to front cover	10 - 15	1.38 - 2.07
Sparking plugs	24 - 28	3.31 - 3.87
Camshafts - Bearing caps	9	1.24
- Sprockets	25 - 30	3.45 - 4.14
- Cover	7	.96
Crankshaft - Main bearing caps	55 - 60	7.60 - 8.29
- Connecting rod (big-end) caps	44 - 46	6.08 - 6.36
- Pulley	24 - 28	3.31 - 3.87
Flywheel	45 - 50	6.22 - 6.91
Front (timing) cover - ¼ in. (UNF and UNC)	5 - 7	.69 - .96
- 5/16 in. (UNF and UNC)	10 - 15	1.38 - 2.07
- Back plate to cylinder block	6 - 8	.83 - 1.10
Timing chain tensioner - Sprocket pin	40 - 45	5.53 - 6.22
- Retaining bolt	45 - 50	6.22 - 6.91
- Pivot pin	40 - 45	5.53 - 6.22
Jackshaft - Sprocket	12 - 15	1.65 - 2.07
- Thrust plate	5 - 7	.69 - .96
Oil filter centre bolt	12 - 15	1.65 - 2.07
Oil pump to cylinder block	12 - 15	1.65 - 2.07
Oil sump to cylinder block	6 - 8	.83 - 1.10
Oil sump drain plug	20 - 25	2.76 - 3.45
Fuel pump to cylinder block	12 - 15	1.65 - 2.07
Exhaust manifolds to cylinder head	12 - 15	1.65 - 2.07
Rear oil seal carrier (crankshaft) to cylinder block	12 - 15	1.65 - 2.07
Generator to mounting bracket	15 - 18	2.07 - 2.48
Carburetter trumpet nuts	8	1.10
CLUTCH		
Clutch housing to gearbox	40 - 45	5.53 - 6.22
Clutch assembly to flywheel	12 - 15	1.65 - 2.07
Fluid pipe nuts	5 - 7	.69 - .96
GEARBOX		
Rear extension to gearbox main casing	20 - 25	2.76 - 3.45
Mainshaft nut	20 - 25	2.76 - 3.45
Plugs - Drain	25 - 30	3.45 - 4.14
- Filler/level	25 - 30	3.45 - 4.14

FINAL DRIVE	lbs.ft.	kg.m.
Differential - Casing to crown wheel	30 - 35	4.14 - 4.83
- Cap retaining bolts	45 - 50	6.22 - 6.91
- Bearing adjusting nuts	12 - 15	1.65 - 2.07
- Housing to carrier	15	2.07
Pinion bearing nut	30 - 35	4.14 - 4.83

FRONT SUSPENSION AND STEERING		
Stub axle retaining nut	65 - 75	8.98 - 10.36
Ball joint - To vertical link	38 - 42	5.25 - 5.80
- To upper wishbone	12 - 15	1.65 - 2.07
Lower wishbone - To trunnion*	35	4.83
- To damper*	50 - 60	6.91 - 8.29
Inner wishbone retaining nut*	50 - 60	6.91 - 8.29
Caliper mounting plate to hub	22 - 27	3.04 - 3.73
Steering arm to vertical link	22 - 27	3.04 - 3.73
Steering tie-rod ball joint	26 - 28	3.59 - 3.87
Steering column impact clamp	26 - 32	3.59 - 4.42

*Tighten with suspension in static ride condition

REAR SUSPENSION AND DRIVE SHAFTS		
Damper retaining nut*	45 - 50	6.22 - 6.91
Rotoflex couplings	35 - 40	4.38 - 5.53
Mountings - Wishbone*	35 - 40	4.83 - 5.53
- Lotacone	22 - 27	3.04 - 3.73
- Differential torque road	22 - 27	3.04 - 3.73

*Tighten with suspension in static condition

HUBS		
Brake disc to hub	22 - 27	3.04 - 3.73
Front hub spindle nut*	5-6	.69 - .83
Rear hub retaining nut	100 - 110	13.82 - 15.20
Wheel nuts (octagonal)	200 - 220	27.65 - 30.42

*Tighten nuts to this torque loading while rotating hub to ensure bedding of taper rollers. Slacken nut one 'flat', then insert split pin.

BRAKE AND CLUTCH HYDRAULIC SYSTEM CONNECTIONS

	lbs.ft.	kg.m.
3/8 in. UNF female (bundy and hose connections)	8 - 10	1.10 - 1.38
3/8 in. UNF male (bundy to master cylinder, multi-ways, etc.)	5 - 7	.69 - .96
7/16 in. UNF male (pressure differential warning valve)	7 - 10.5	.96 - 1.45
3/8 in. bore servo bundy (5/8 in. UNF male)	14 - 21	1.93 - 2.90
Stop lamp switch	12 - 15	1.65 - 2.07
Brake hose to banjo	12 - 15	1.65 - 2.07

Torque Wrenches

Torque wrenches in daily use should be checked at intervals, not exceeding 3 months, to ensure that accuracy is maintained.

GENERAL - NUT AND BOLTS.

1/4 in. UNF and UNC	5 - 7	.69 - .96
5/16 in. UNF and UNC	12 - 15	1.65 - 2.07
3/8 in UNC	17 - 22	2.35 - 3.04
3/8 in. UNF	22 - 27	3.04 - 3.73
7/16 in. UNC	30 - 35	4.14 - 4.85
7/16 in. UNF	40 - 45	5.53 - 6.22
1/2 in. UNC	45 - 50	6.22 - 6.91
1/2 in. UNF	50 - 60	6.91 - 8.29
9/16 in. UNC	60 - 70	8.29 - 9.68
9/16 in. UNF	65 - 75	8.98 - 10.36
5/8 in. UNC	75 - 85	10.36 - 11.75
5/8 in. UNF	100 - 110	13.82 - 15.20