

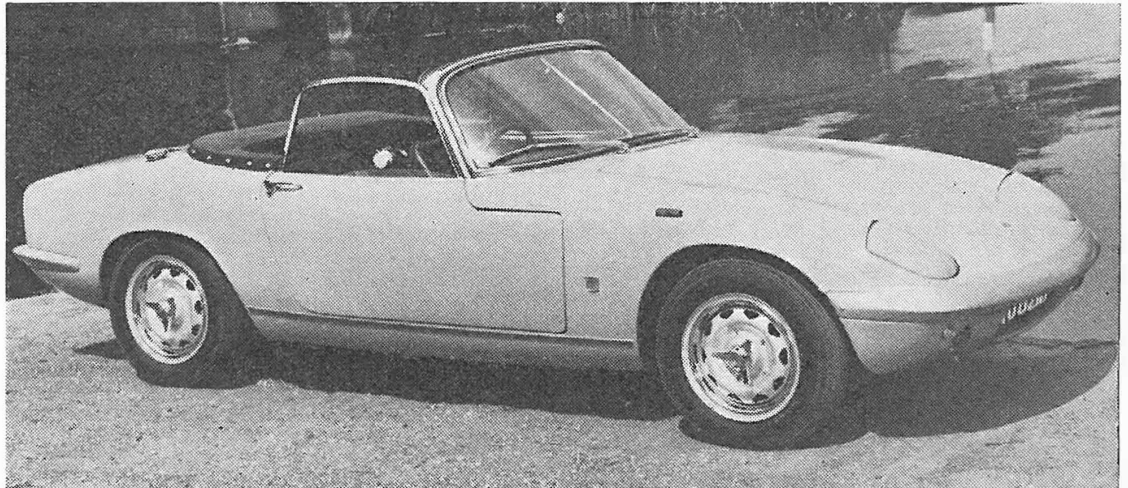
Motor Trader

SERVICE DATA No. 464

LOTUS ELAN

Manufacturers: Lotus Cars Ltd., Norwich, Norfolk

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DISTINGUISHING FEATURES: The Elan model is readily identifiable from its distinctive styling and from the front by the concealed headlamps which are featured on this model

WITH this article in the Service Data sheet series, we depart from our usual style of presentation. In order to give the maximum information possible within the available space, opportunity has been taken to devote the accompanying four-page Service Supplement exclusively to the Lotus engine. Other mechanical components, together with routine service operations are detailed with this eight-page article. To preserve correct repair sequence, and where service attention involving the engine unit is concerned, reference is made in the appropriate place in this main article, thus engine removal from the car is

dealt with in this article, while the routine operations involved in servicing the unit, i.e. decarbonisation and description of processes involved are dealt with in the Service Supplement. In this way it is hoped that confusion of reference may be avoided and that the engine supplement will serve the dual purpose of companion article to this data sheet and be applicable to the Ford Cortina

Lotus car, as certain engine similarities exist. Transmission of the drive is taken through a single dry plate diaphragm spring clutch to a four-speed all-synchromesh gearbox. In design, this gearbox is near identical with that fitted to the Ford Cortina Lotus and blocker type ring synchromesh is used. From the output shaft of the gearbox, the drive is taken to the hypoid bevel reduction gear

contained within the axle casing. Drive to the rear road wheels is transmitted through short universally jointed drive shafts bolted up at their inner ends to splined truncated drive shafts located each side of the axle casing.

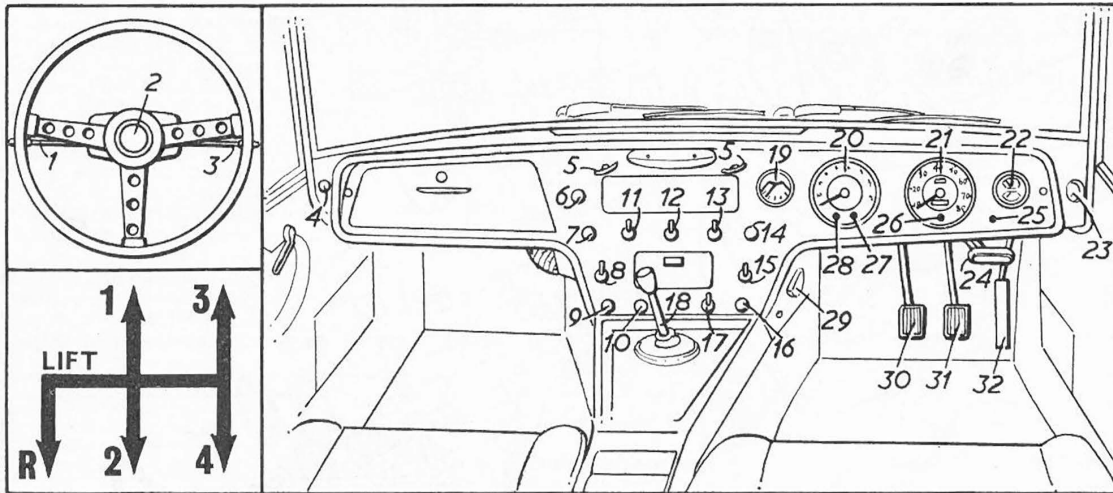
Suspension is independent front and rear and effected through coil springs and wishbone links at the front and by similar but McPherson strut type units at the rear. Wide based lower wishbones provide location. In the case of the front suspension, telescopic hydraulic shock absorbers are co-axially mounted within the suspension springs and those of the rear suspension are integral parts of each unit.

Braking is by Girling hydraulic disc units on front and rear wheels. Those at the front of the vehicle are mounted in conventional manner to the wheel hubs and the rear units are fitted to the inner sides of each rear wheel hub.

Steering is by rack and pinion.

Vehicles are identified by serial numbers and engine numbers. The vehicle serials carry the prefix 36, Coupé fixed head, 45, Coupé drop-head and commence at 0001. This serial, together with other relevant information is to be found on a plate fixed to the passenger side of the bulkhead. The engine number is stamped on side of block below the inlet manifold. It is essential that all these numbers and letters from the vehicle identification plate are quoted when referring to the vehicle manufacturers, or distributors, or when ordering spare parts.

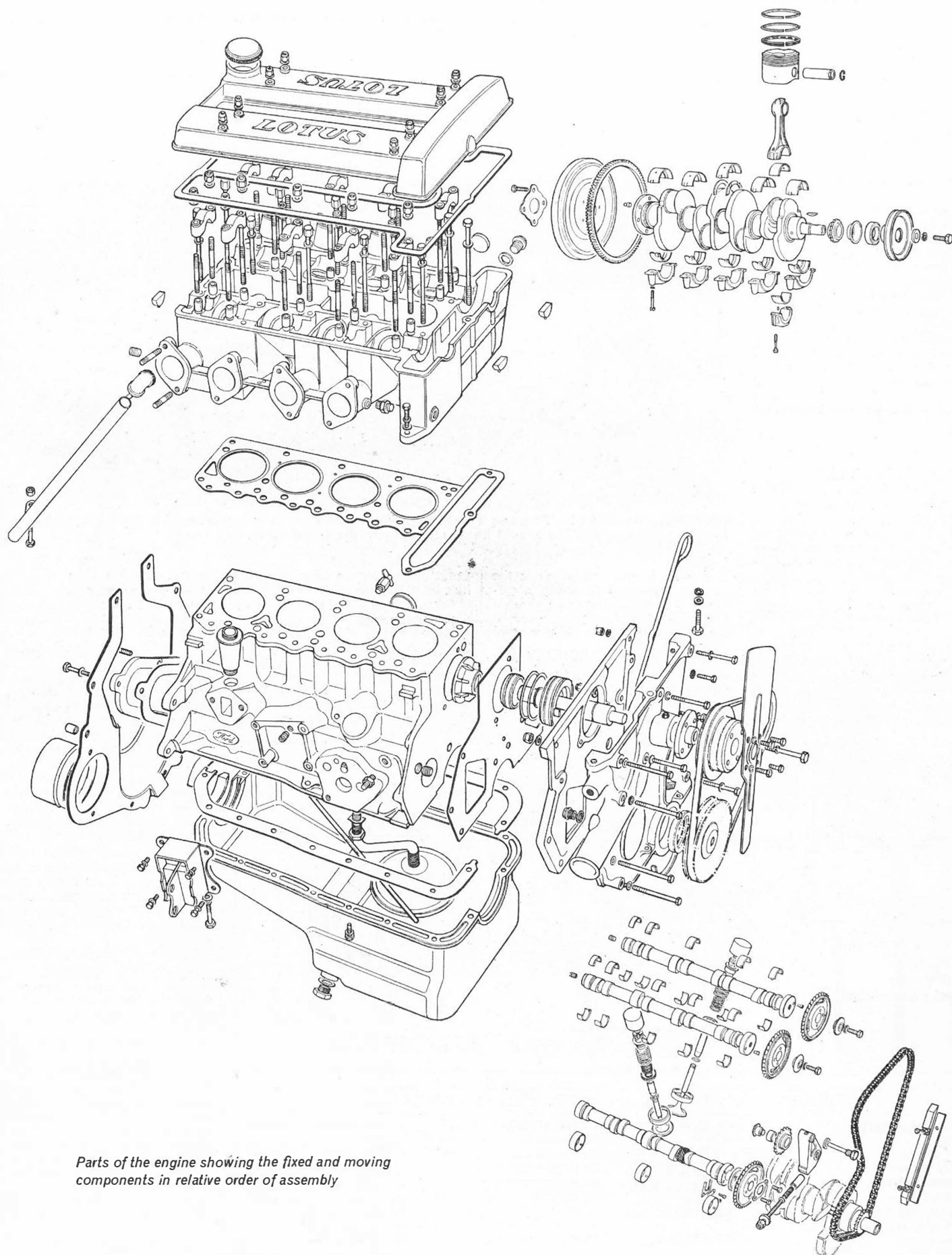
Service policy of the manufacturers is that all matters relating to service work, Warranty claims and so forth are handled through the Lotus Distributor network to whom all such queries should be addressed.



INSTRUMENTS, CONTROLS, GEAR POSITIONS, AND BONNET LOCK

- | | | | |
|-------------------------------|--------------------------------------|--|------------------------------|
| 1. Headlamps flasher | 9. Variable speed wipers and washers | 17. Lights master switch | 25. Handbrake warning light |
| 2. Horn | 10. Ignition/starter switch | 18. Gearlever | 26. Indicators warning light |
| 3. Indicators | 11. Heater fan motor switch | 19. Fuel gauge | 27. Ignition warning light |
| 4. Cold air vent | 12. Panel lights switch | 20. Engine rpm indicator | 28. Main beam warning light |
| 5. Bonnet release | 13. Interior lights switch | 21. Speedometer | 29. Headlamps dipswitch |
| 6. Cigar lighter | 14. Choke control | 22. Combined water temp. and oil pressure gauges | 30. Clutch pedal |
| 7. Heater regulator | 15. R/h electric window switch | 23. Cold air vent | 31. Brake pedal |
| 8. L/h electric window switch | 16. Headlights switch | 24. Handbrake | 32. Accelerator |

Inset top left shows position of steering column mounted controls and lower: operative positions of the centre mounted gearlever.



Parts of the engine showing the fixed and moving components in relative order of assembly

The manufacturers place special emphasis upon the fact that every Lotus service department is, in their own words, "better equipped with every facility to carry out service and repairs than the owner driver".

ENGINE

Descriptive detail of the engine appears in the accompanying four-page Service Supplement No. 452/C113.

Removal

Take off bonnet after removal of two retaining springs. Disconnect battery leads, drain oil from engine and gearbox and coolant from system. Remove top and bottom hoses and radiator core mounting nuts on underside of bodyshell above steering rack. Remove top pipe and hose and thermostat housing, pull off coolant temperature gauge connection. Undo jubilee clip and remove hose from heater take-off point. Undo heater control valve cable at valve.

Part exhaust manifold/downpipe clamp and remove, undo and remove pipe clip and front section of downpipe from rear sections. Undo all other pipes, wires and controls to and from engine and ancillary components. Undo air box clamping bolt and remove air box and gasket. Undo eight Nyloc mounting nuts and remove double spring washers from carburettor manifold. Take off carburettors complete with air box from manifold studs and remove four "O"-ring gaskets.

Jack up car and support on stands. Remove 2BA bolts holding exhaust pipe to gearbox. Remove four bolts securing gearbox mounting cross-member to chassis, two nuts holding crossmember to gearbox and take out crossmember. Undo speedo drive cable at gearbox end. Remove clutch slave cylinder after undoing securing circlip and withdrawing cylinder through its mounting lug. Unclip clutch hydraulic pipe from its location on bellhousing, after releasing "P"-clip held by a bolt at top right-hand side of housing. Arrange suitable slings around front and rear of engine unit, passing slings around sump. Take weight of engine unit on slings and remove four engine mounting bolts (two per side). Note: that lower left-hand bolt secures earth strap. Raise engine slightly and ease unit forwards until bellhousing contacts engine mounting brackets on chassis members. Tilt engine to right-hand side of car to

clear brackets and lift unit up and out of car.

Replacement of Engine

In general terms, replacement of engine is a reversal of removal sequence detailed above. Note following points: Alignment of tailshaft and propeller shaft splines is effected through access hole on right-hand side of propeller shaft tunnel. This access hole is revealed after taking out right-hand seat and trim. This part of engine/gearbox replacement is a two-man job, the assistant guiding tailshaft into its alignment position in propeller shaft tunnel while unit is manipulated on slings.

TRANSMISSION

Clutch

Borg and Beck single dry plate diaphragm spring unit. Hydraulic actuation of release mechanism, master cylinder bore dia. $\frac{5}{16}$ in, and slave cylinder bore dia. $\frac{7}{16}$ in.

Sintered bronze bush self-lubricating release bearing, fit with flat face towards crankshaft and shouldered face towards clutch.

No provision for external adjustment of clutch unit provided. Access to clutch unit for service replacement after removal of engine/gearbox unit and parting them at bellhousing revealing clutch which is retained on flywheel face by six hexagon-headed set bolts and located by two dowels.

Under no circumstances should any attempt be made to repair clutch pressure plate assembly. In cases where transmission faults are traced to a faulty clutch, a replacement unit should be used.

Gearbox

Four-speed, synchromesh on all forward ratios, centre change speed lever operates selector rods direct.

Propeller shaft yoke end slides on splined end of extended mainshaft and in bush in rear extension housing.

To Remove Gearbox

Gearbox must be removed with engine as detailed in previous section, since access for separate removal with engine unit in situ is very limited and complete engine/gearbox removal is recommended for all service work where access to clutch, gearbox, etc. is involved.

To Dismantle Gearbox

With gearbox on bench or mounted upright on suitable stand, first

remove clutch operating mechanism.

Remove release bearing and arm assembly, secured by retaining spring, place assembly to one side. Take off bellhousing by removing four bolts and lockwashers securing it to gearcase. Drive out clutch release arm fulcrum pin if necessary.

Take off gear lever housing by removing four bolts and lockwashers securing it to extension housing. If reverse relay lever is to be removed, invert housing, tap firmly on hard wood to remove retaining dowel and withdraw lever. Remove gearbox top cover plate—four bolts and lockwashers, taking care to preserve selector shaft locating springs which are located in cover plate end flange. Take out selector shaft springs and balls and with gearbox in neutral, remove locking wire from selector bolt heads, unscrew square-head taper bolts securing selector forks to shafts. Draw out 3rd/4th selector shaft to rear, supporting sleeve for 3rd/4th shaft, then take out sleeve.

Partially withdraw 1st/2nd gear selector shaft, remove floating pin from cross drilling at forward end, rotate shaft through 90° and withdraw it from casing. Withdraw reverse selector shaft to rear, rotating through 90° clockwise to prevent it fouling extension housing. Lift off selector forks. Preserve interlock plungers. Remove extension housing by undoing five securing bolts and lock-washers, remove speedometer driven gear and gear bearing from extension housing and draw off extension housing. Mark sandwich plate and gearcase to facilitate alignment of dowel and locating hole in sandwich plate. With brass drift, free layshaft at bellhousing end and drive out layshaft with dummy shaft, allow laygear cluster to rest on casing bottom. Withdraw complete mainshaft assembly to rear, note that top gear blocker ring will be loose on main drive gear, and should be removed. Also 13 needle rollers from drive gear internal bore. Remove primary shaft bearing retainer, three bolts and lockwashers, detach bearing circlip and press out gear and bearing into box. Take out laygear and two thrust washers. Note needle rollers (20 each end). Draw out reverse idler shaft.

To Dismantle Mainshaft

Prise up tab on washer and remove retaining nut and extract speedo drive gear from mainshaft.

Extract locating ball and remove spacer. Remove 3rd gear and 3rd/top gear synchronized assembly. Remove small diameter circlip at forward end of mainshaft. Locate adaptors on rear face of 3rd gear and in base of plate on bed of press. Press mainshaft out of 3rd/top gear synchronizer and 3rd gear while supporting mainshaft from beneath. In a similar manner remove mainshaft bearing, sandwich plate, 1st gear, 1st/2nd gear synchronizer and 2nd gear from mainshaft. Note: synchronizer hubs and sleeves are mated together and also to mainshaft. Mating marks are etched on corresponding splines of hub and sleeve, and near hub and mainshaft splines. Synchronizer and hub assembly are serviced as a unit. Note also that 1st gear rotates on hardened steel bush that is lubricated via three holes in 1st gear adjacent to dog teeth. Assembly is reversal of dismantling process, see following notes.

To Assemble Gearbox

Reverse process of dismantling noting following points: Mainshaft: assemble 2nd gear, dog teeth to rear. Locate a blocker ring on cone face of 2nd gear. Assemble 1st/2nd gear synchronizer. Ensure that mating marks are aligned. Locate 1st/2nd gear synchronizer, selector fork groove to rear, make sure mating marks are aligned. Fit blocker ring in 1st/2nd gear synchronizer so that cut-outs in blocker ring fit over blocker bars. Locate hardened steel bush in 1st gear, shoulder in bush away from 1st gear dog teeth. Fit to shaft so that dog teeth are located next to blocker ring and 1st/2nd gear synchronizer. Note possibility that slight interference fit may exist between this bush and mainshaft. Position sandwich plate on mainshaft, dowel hole to rear, and fit bearing. Locate adaptor over bearing, insert assembly and fit slave ring. Ensure that cut-outs in 2nd gear blocker ring line up with blocker bars in 1st/2nd gear synchronizer, also that mating marks line up and press mainshaft down to assemble 1st/2nd gear synchronizer. Slide 3rd gear on to shaft, dog teeth away from thrust collar on shaft and locate blocker ring on tape face of gear. Locate 3rd/top gear synchronizer hub on shaft, long boss to front. Assemble 3rd/top gear synchronizer hub, also synchronizer sleeve, then spacer, locating ball, speedometer drive gear, tab washer

CRANKSHAFT AND CON. RODS

Diameter	Main Bearings				Crankpins
	2.1255-2.1260in				2.0825-2.0830in
	Front	Centre	Inter.	Rear	
Length (in)	1.219-1.239	1.247-1.249	1.273-1.283	1.308-1.328	1.062-1.066 in.
Running clearance: main bearings big ends					.0015-.003in .005-.0022in .005-.008in
End float: crankshaft* big ends					.004-.010in not quoted not quoted .2 oz. in
Undersizes					
Con. rod centres					
Crankshaft balance to within					
* oversize thrust washers					.0025, .005, .0075 .010in

GENERAL DATA

Wheelbase	7ft 0in
Track: front	3ft 11in
rear	4ft 0 $\frac{1}{2}$ in
Turning circle	29ft 6in
Ground clearance (design)	6 $\frac{1}{2}$ in
Tyre size: front	165-13
rear	
Overall length	12ft 1in
Overall width	4ft 8in
Overall height (hood up)	3ft 10in

and retaining nut. Tighten nut to torque of 25-25lb.ft.

Assemble main drive gear (later models). Position main drive gear bearing on gear, external circlip groove away from gear and press on bearing. Fit smaller diameter circlip in groove provided in main drive gear shaft. Reassemble layshaft and retaining washers, and locate 20 needle rollers in each recess at layshaft ends. Place layshaft in bottom of box. Locate thrust washers each end of laygear, tongues locate in recesses provided. Fit main drive gear to box, followed by circlip and drive gear bearing retainer. Install reverse idler gear and shaft. Fit 13 needle rollers to counter-bore of main drive gear, *do not* use grease. Position a blocker ring over taper face of top gear and gasket over rear face of gearbox. Offer up and assemble mainshaft assembly, fit layshaft. Fit extension housing. Further assembly is reversal of dismantling process already described.

Final Drive & Rear Suspension

Chassis-mounted casing containing hypoid bevel reduction gear. Fixed length final drive shafts fitted with special rubber constant velocity universal joints providing shock cushioning on drive take-up. Alternative ratio units available.

Independent rear suspension employs Chapman strut system incorporating modified form of McPherson strut units with coil springs and

hydraulic dampers. Wide based lower wishbones provide lateral and longitudinal location.

To Remove Rear Suspension

Jack up rear of car, and remove road wheel. Position second jack under strut housing with jack crutch under housing and take weight of car on this jack. Secure suspension coil spring with suitable straps or clamps and undo three $\frac{7}{8}$ -in Nyloc nuts securing Rotoflex coupling to rear axle differential shaft and withdraw the 3in bolts. Undo $\frac{7}{8}$ -in Nyloc nuts and take out bolts securing lower wishbone to strut housing. Slacken inner wishbone/chassis mounting bolts and allow wishbone to lower itself about these points. Remove rubber cap on top deck of boot behind rear seat, take out split pin and take off castellated nut of rear suspension strut. Lower suspension unit (without complete lower wishbone) to floor. Lower wishbone may be removed after taking out two $\frac{7}{8}$ -in attachment bolts.

To remove drive shafts, take off caliper after removing two wire-locked mounting bolts; remove Rotoflex coupling adjacent to brake disc by taking off three bolts fitted through disc and spider and take out drive shaft complete with inner and outer Rotoflex couplings, which may be dismantled by removing six bolts retaining them to each end of shaft.

To dismantle hubs, remove bearing retainer circlip located behind

outboard drive shaft spider. Undo $\frac{5}{8}$ -in Nyloc nut on outboard drive shaft and take off two spacer washers. With suitable puller take hub off taper and keyed end of outboard drive shaft, which may now be pulled inwards through strut housing. Inner bearing will come away with shaft and may be parted after removal of securing circlip and tapping off shaft. Remove outer bearing retainer circlip and with suitable drift, tap out outer bearing from inner side of strut housing.

Reassembly of components is a reversal of procedure detailed above.

To remove differential assembly: jack up vehicle and support it on stands. Take off rear road wheels. Remove rubber cap on left-hand side of body decking to gain access to top of suspension strut mounting. Undo three bolts on each spider to release Rotoflex coupling each side of differential unit. Release clevis pin of handbrake push/pull rod on left-hand caliper. Undo two bolts which pass through outer ends of lower wishbone and strut housing and slacken off inner bolts at attachment points of lower wishbone to chassis. Undo four $\frac{5}{8}$ -in propeller shaft pinion flange securing bolts and nuts. Raise boot carpet and undo two $\frac{5}{8}$ -in Nyloc nuts and take off washers from differential mounting bolts. N.B.: earth wire is attached to right-hand mounting bolt. Release differential torque stabilising rods each side of unit by removing nut at rear of each Metalastik bush and $\frac{5}{8}$ -in nut locating rod to stud welded

to chassis. Ease unit out from left-hand side.

Axle units should not be serviced without range of special tools and fixtures to facilitate setting of clearances exactly to datum figures necessary and to within the relatively fine limits required for work involved in dismantling and reassembling the crown wheel and pinion.

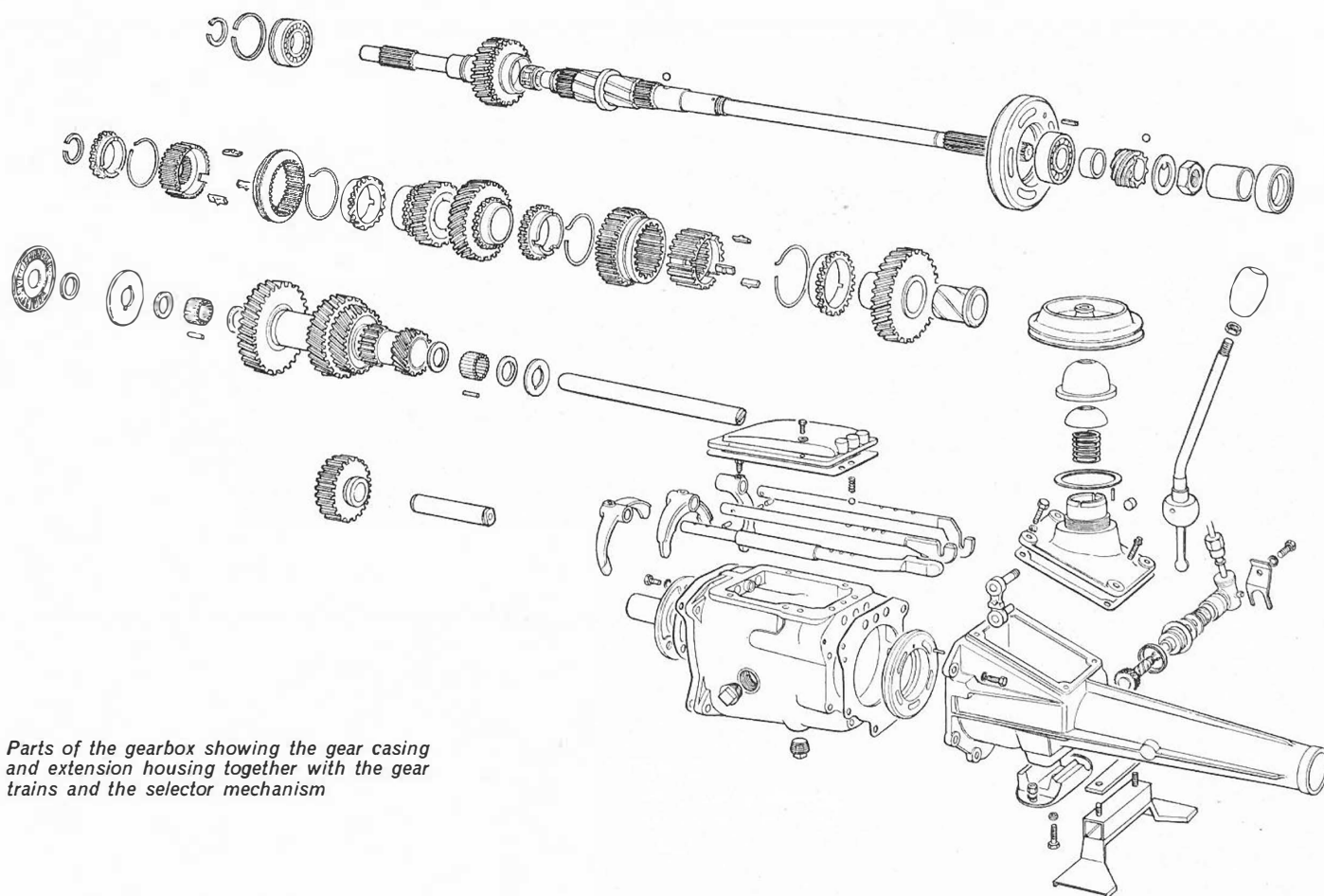
Bevel pinion shaft runs in taper roller bearings, outer races pressed into final drive housing. Collapsible spacer between inner races, which are nipped up by driving flange and nut. Flange hub passes through lipped oil seal in housing.

Bearings adjusted to give 9-11lb in pre-load with oil seal excluded, by collapsible spacer.

Pinion mesh adjustment by shim between pinion and inner race of rear bearing. Shims available in 13 thicknesses in .010in steps from .1304 to .1428in.

Crown wheel spigoted on one-piece differential cage and retained by six self-locking setscrews. Differential side bevel gears have spherical thrust washers behind, planet bevel pinions have flat thrust washers.

Differential assembly carried in taper roller bearings in split housings, with ring-nuts for bearing and mesh adjustment. Bearing caps have hollow dowels. Tighten ring-nuts to spread bearing housing .005-.007in overall (special fixture advisable for checking spread), then turn both ring-nuts equally to adjust mesh for .005-.007in backlash. Final tightening



Parts of the gearbox showing the gear casing and extension housing together with the gear trains and the selector mechanism

CARBURETTORS					
TYPE	40DCOE 18	40DCOE 18	40DCOE 31	40DCOE 31	40DCOE 31
Part No. *Used on	26S 710 26S 711 Elan (Pre. '68) Std. Cortina (Pre. '67)	A26S 710 A26S 711 S/E Elan (Pre. '68) S/E Cortina (Pre. '67)	B26S 710 B26S 711 Cortina ('67)	C26S 710 C26S 711 Std. Elan ('68)	D26S 710 D26S 711 S/E Elan ('68)
Choke	30mm	32mm	30mm	30mm	'68 32mm
Main jet	115	115	110	115	115
Air correction	200	150	155	200	150
Slow running jet	45F9	45F9	45F9	50F8	50F8
Pump jet	40	40	35	40	40
Pump stroke	10mm	10mm	16mm	10mm	10mm
Trumpet length	1 $\frac{3}{4}$ in	1 $\frac{3}{4}$ in	1 $\frac{1}{2}$ in	1 $\frac{1}{2}$ in	1 $\frac{1}{2}$ in
Reference to Cortina is Cortina Lotus					

PROPELLER SHAFT	
Type	tubular-needle roller brg.
FINAL DRIVE	
Type	hypoid
Crownwheel/bevel pinion teeth ratio	3.77:1

STEERING BOX	
Make	Alford & Alder
Type	rack and pinion
Adjustments: rack end float mesh	shims screw/locknut

GEARBOX	
Type	Synchromesh
No. of forward speeds	4
Gear ratios: 1st	2.97:1
2nd	2.01:1
3rd	1.04:1
4th	1:1
Rev	3.32:1

CHASSIS DATA	
Clutch: make type	Borg & Beck
	8in sdp. diaphragm spring

BRAKES		
Type	Girling hydraulic disc	
	Front	Rear
Disc diameter	9 $\frac{1}{2}$ in	10in
Pads: type	DA4	DS 5S
colour coding	2 blue spots	3 blue spots
	2 yelw. spots	
min. thickness	$\frac{1}{16}$ in	$\frac{1}{16}$ in
replace when worn to	$\frac{3}{16}$ in	
Handbrake pad/disc clearance		.003in
N.B.: Pad Colours: DS31—blue/white/dark violet DA3—3 yellow, 2 blue, 1 dark violet spots		

SHOCK ABSORBERS	
Type	Telescopic hyd.
Service	Replacement

FRONT-END SERVICE DATA	
Castor	3° ± 30'
Camber	{ Front 0° to +1° Rear 1° to 0°
Swivel pin inclination	{ Front $\frac{1}{8}$ " to $\frac{1}{4}$ " Toe-in Rear $\frac{1}{8}$ " to Zero

must be made from crownwheel side.

Assembly sequence of dowel type differential unit, involving dowel method of differential assembly was introduced on car No. 492 (approx). When replacing differential carrier in casing, Lotus Part No. A26004, replacement follows a reversal of dismantling process. Later assemblies require great care on reassembly, and a trial assembly should be made using a standard gasket .009-.011in thick. Insert outboard drive shafts with bearings and check shaft concentricity in differential casing by examining shaft entry into casing. Fore and aft adjustments are obtained by fitting gasket of correct thickness. Vertical adjustments are obtained by rotation of nosepiece in casing. When shafts are truly concentric in casing and may be turned manually with least effort, differential unit should operate at its quietest in normal running conditions.

Note: when using replacement components: New nosepieces must be drilled and reamed using jig No. 26T094 (Lotus) and two securing bolt holes enlarged to .340-.345in. Two dowels, part No. 26R013 must be driven into nosepiece using a new gasket, part No. 26R014 and red Hermatite sealing compound. Check nosepiece for free movement. Clean joint faces and smear them with red Hermatite. Locate gasket and casing in position and secure with eight $\frac{7}{8}$ in U.N.C. hexagonal bolts. Fit drive shafts and rotate them to check for free movement and then tighten bolts.

CHASSIS

Brakes

Hydraulic, Girling disc brakes on front and rear wheels. Rear brake units mounted on inner side of each suspension wheel bearing are fitted

with additional handbrake-operated mechanism. This incorporates additional pads and levers connected via push/pull rods to chassis mounted fulcrum, which is cable operated from handbrake lever.

Pedal operated brakes are self-adjusting, in that they are self-compensating for wear, but regular inspection is necessary to ensure that friction pads are not worn beyond the minimum thickness ($\frac{1}{16}$ in). Replacement of pads is recommended at a wear limit of $\frac{3}{32}$ in, and handbrake cable adjusters should be set to provide a clearance of .003in between each pad and brake disc with lever in "off" position.

To renew front wheel pads, jack up front of car and chock rear road wheels. Remove wire clips from pad retaining pins, and take out pins and remove worn pads. Prior to insertion of new pads, all road dirt etc. should be cleaned from pad slots and pistons should be forced back slightly to allow for new, thicker pads to be inserted. Depress pedal several times to ensure correct operation. Replacement of rear wheel pads is carried out in similar manner to that already described. It should be noted that to avoid confusion over pad replacement, retaining pins do not pass through pad plates on rear calipers.

Handbrake pads are renewed as follows: jack up rear of vehicle after chocking front wheels. Remove rear wheels. Unscrew adjustment nut on handbrake lever clamping bolt, preserving spring locking clip which will be removed. Unscrew nut and remove spring washer from bolt fitted through handbrake pad retaining fingers. Take out bolt and two retaining fingers. Swing lever outwards as far as possible away from brake disc, unhook worn pads by pulling horizontally from lever pivot pins in caliper body. On inboard pads, it may be necessary to pull on actuation rods.

Provision for adjustment at handbrake adjustment nuts on inner side of each rear caliper and in event of excessive movement in handbrake lever, slack can be taken up at cable adjuster, located on left-hand side of chassis-gearbox mounting on the earlier models, and on the right-hand side engine mounting on later models. Locknut and screw provided for adjustment in each case.

Front Suspension

Coil springs and wishbone links. Co-axially mounted telescopic hydraulic shock absorbers.

To dismantle front suspension, jack up vehicle and place it on suitable stands, with rear wheels chocked.

Remove road wheels and undo brake hose at caliper end. Remove Nyloc nuts from steering arm ends and part track rods and steering arms with suitable tool. Lower end of taper ball pin will be found to have an engagement centre for this purpose. Take off lock nut, nut cap, washers and rubber bush from end of anti roll bar on each front suspension unit and lower anti roll bar about its axis on chassis mountings clear of vehicle. Unscrew and remove brake caliper/caliper mounting plate bolts and take off spring washers. Part caliper from disc. Remove dust cap, which is push fit in hub. Take out split pin and unscrew slotted nut from stub axle. Remove thrust washer and withdraw brake and hub assemblies complete.

To dismantle hub assembly, undo four bolts retaining brake disc to hub and part hub from disc. Bearings and rings may then be extracted as required or necessary.

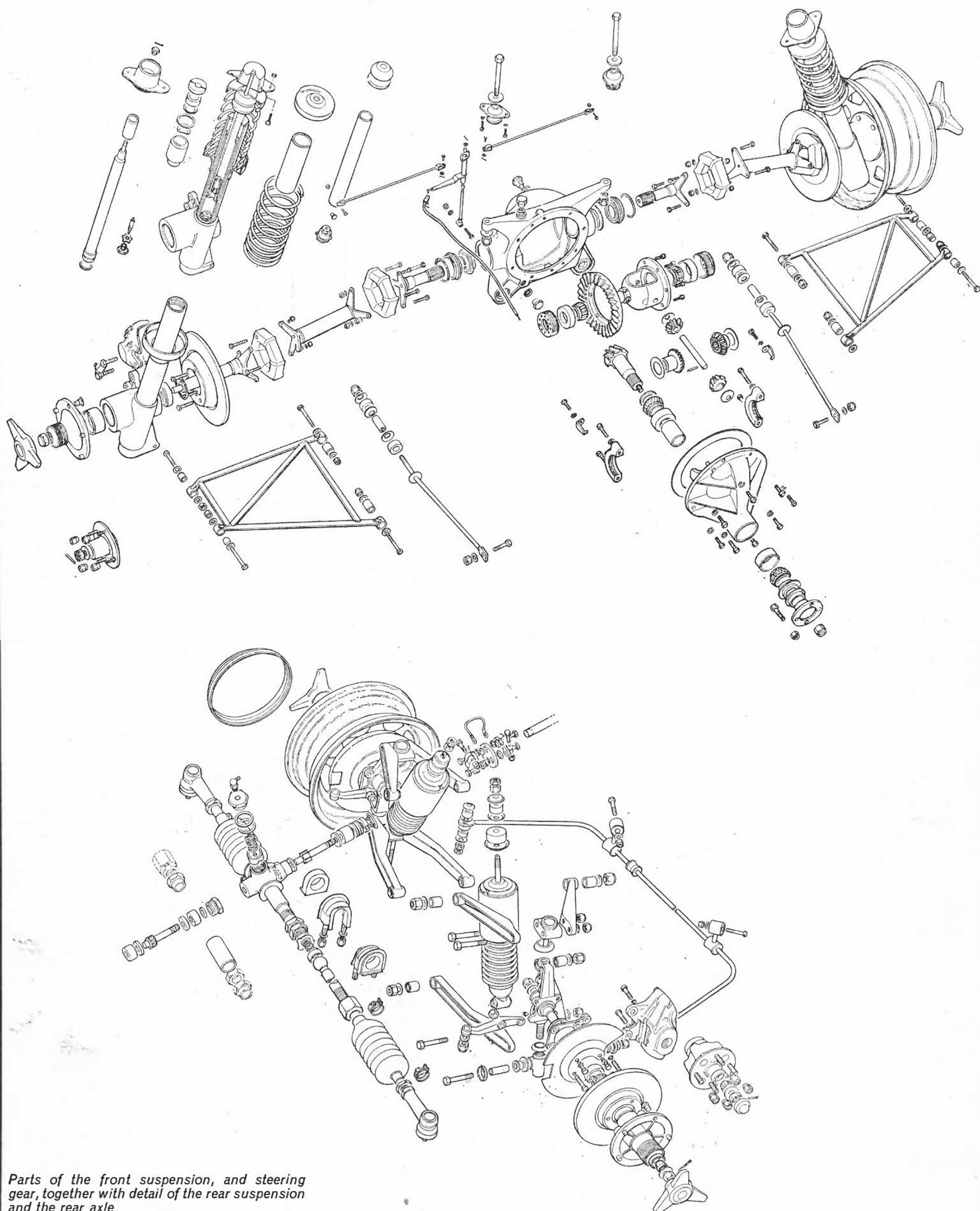
To dismantle wishbones, Unscrew two Nyloc nuts holding top wishbone members to chassis mounted pivots and reverse the washers. Unscrew nuts of two bolts clamping top wishbone to upper ball joint assembly.

Take off washers and remove top wishbone halves. Unscrew two Nyloc nuts and remove bolts clamping lower wishbone halves to trunnion assembly and lower end of spring damper unit. Take off nuts holding front and rear lower wishbone members to chassis mounted pivots. Remove washers and take out two lower wishbone halves from pivot points. With suitable press remove Clatonrite bushes from inner ends of upper and lower wishbone halves. Undo locknuts at top of spring damper unit mounting and remove cup washers and rubbers, noting assembly sequence, take out spring damper.

To dismantle vertical link assembly: remove disc brake dust cover, after removing two Nyloc nuts securing steering arm to vertical link. Take out two bolts from dust cover side and remove steering arm through its slot in vertical link. Undo two upper bolts securing dust cover to link assembly and part caliper mounting bolt which is sandwiched between dust cover and vertical link. Screw out vertical link from bronze trunnion and withdraw seal. N.B. Vertical link and trunnion are left-hand threaded on left-hand side of car and right-hand threaded on right-hand side of car. A r.h. trunnion is further identified by its being turned down at its lower end. Take off steel sleeve, two rubber rings and two nylon bushes from trunnion.

Remove Nyloc nut and washer end, with suitable press, part vertical link from tapered pin of its ball joint. Undo Nyloc nut and plain washer and, with suitable press part stub axle from vertical link.

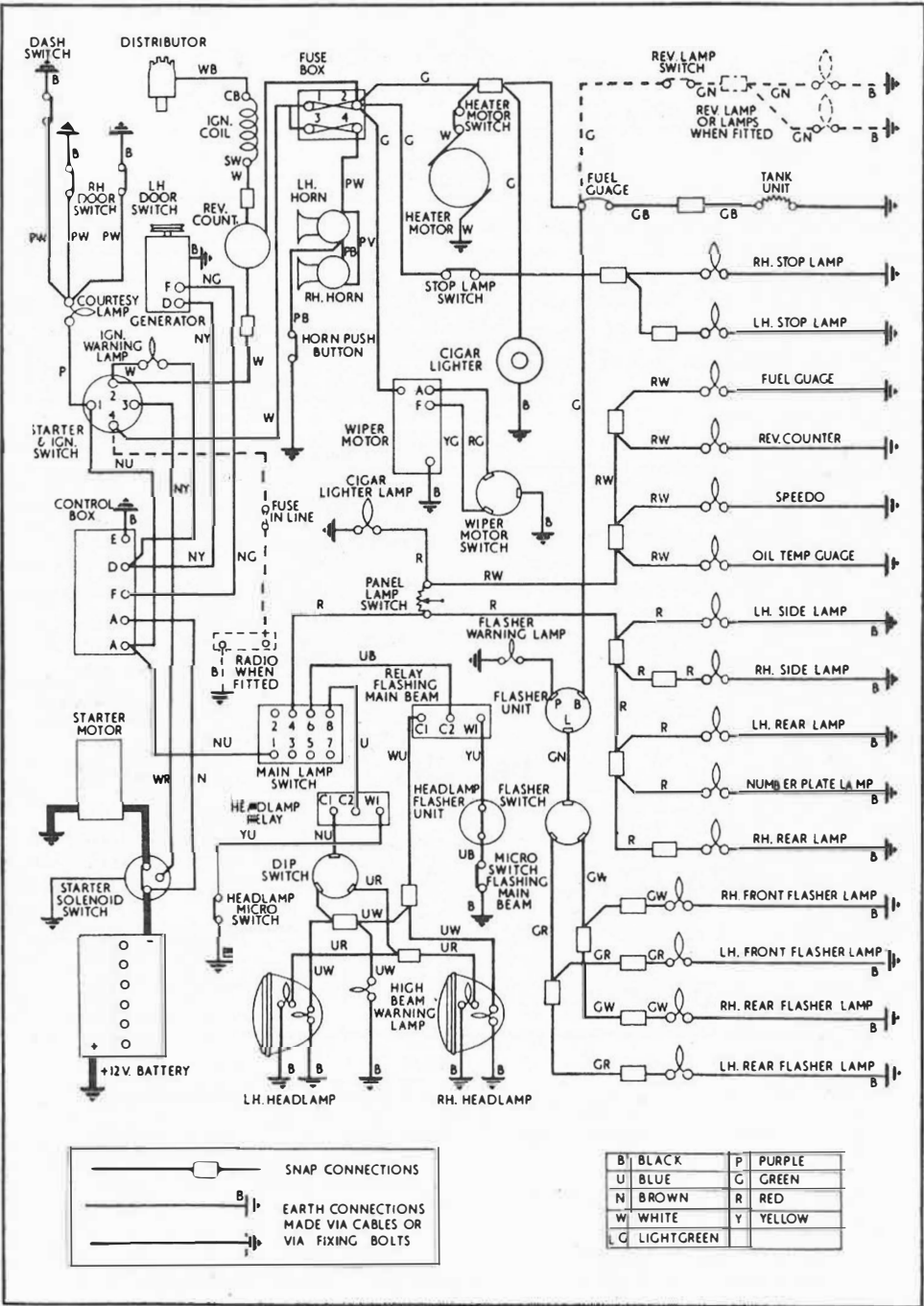
In the main, replacement of parts is a reversal of the dismantling procedure. Note that hub end-plate should be .002-.008in and slotted nut may be adjusted one flat to achieve this condition, after having tightened it to torque of 5lb.ft.



Parts of the front suspension, and steering gear, together with detail of the rear suspension and the rear axle

Lamps	Model	Part No.	Voltage	Wattage	Cap
Head R.H.D. dip, left	F700	59768B	12	60/45	Sealed Beam
Export Europe (except countries stated)	F700	59769B	12	45/40	Unified
Export France	F700	59770B	12	45/40	European Unified
Export Sweden	F700	58688E	12	45/40	European Unified
Export NADA	F700	59773B	12	50/40	European Sealed Beam
Side/flasher (Switzerland)	691	52548B	12	6/21	S.B.C.
Front flasher	691	53956B	12	21	S.C.C.
Stop tail flasher & reflex (L.H.D.)					
R.H.	684	54151B	12	21/6/21	SBC/SCC
L.H.	684	54152B	12	21/6/21	SBC/SCC
Side	658	52539	12	6	MCC

LUCAS EQUIPMENT	
GENERATOR	
Model C40-1	Part No. 22700K
CONTROL BOX	
Model RB106-2	Part No. 3729OF
STARTING MOTOR	
Model M35G-1	Part No. 25083F
Drive "SB" inboard	
DISTRIBUTOR	
Model 23D4	Part No. 40953A
Max. centrifugal advance (crank degrees) 22°-26°	
No advance below 400 r.p.m. (crank)	
Centrifugal advance springs	
Part No. 544 158 59 544 167 50	
Max. vacuum advance (crank degrees)	
No Vac	
IGNITION COIL	
Model HA12	Part No. 45132D
Primary resistance 3-3.4 ohms	
Running current at 1,000 r.p.m. 1.2 amp	
WINDSCREEN WIPER	
Model DR3A	Part No. 75501A (Motor)
Wiper arm	54710008
Wiper blade	54711283
FUSE UNIT	
Model 4FJ	Part No. 54038033
Fuse ratings 35A	

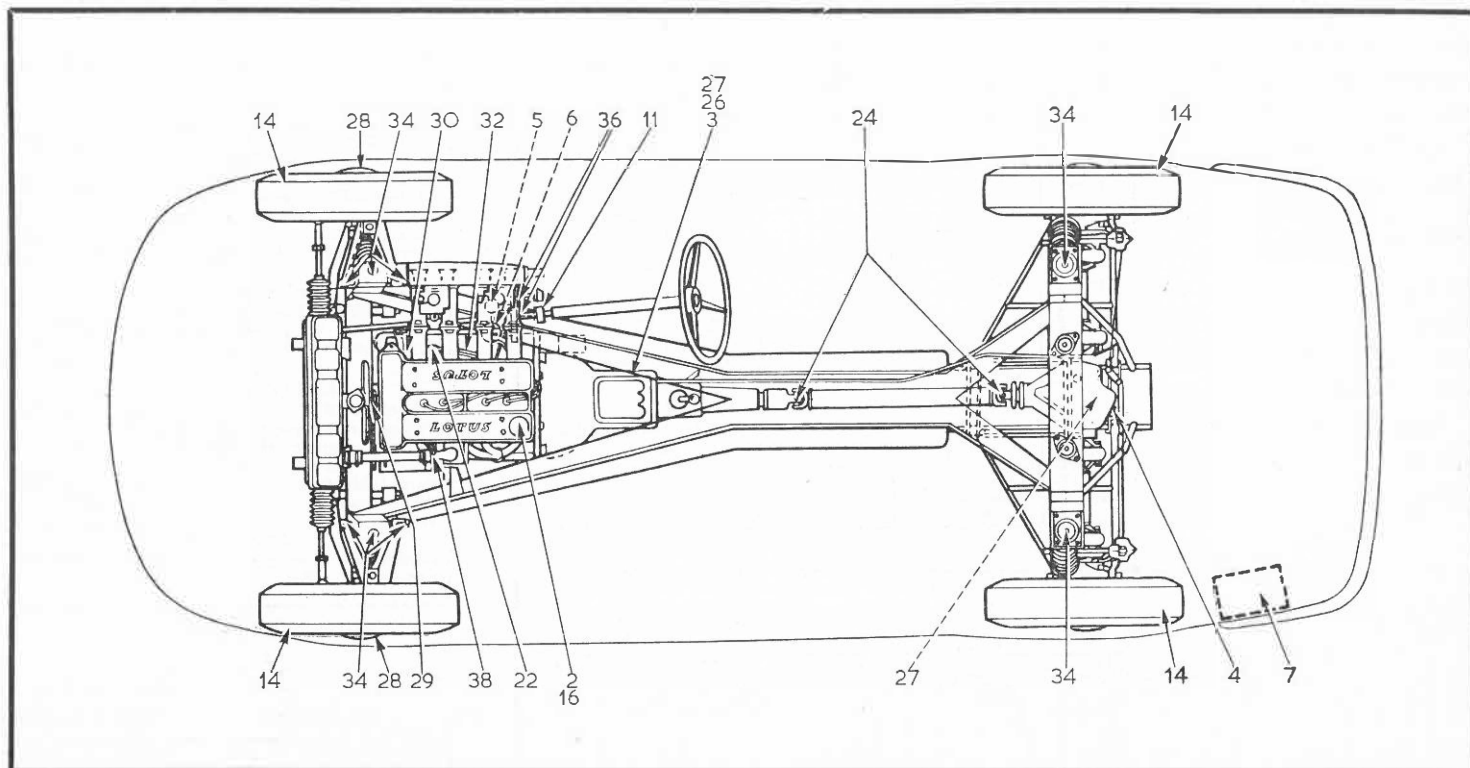


Wiring diagram by permission of Lotus Cars Ltd.

SWITCHES	Model	Part No.
Ignition/starter	47SA	31912K
Starter solenoid	2ST	76445H
Lighting { R.H.D. L.H.D. }	71SA	34403E
Direction indicator	57SA	31788D
Dip (L.H.D.)	125SA	34828B
Stop light	103SA	34536B
Panel	2SH	5403360
Wiper	4R	78438A
	89SA	34325K
Interior:		
Heater/interior light (coupe)	65SA	31828D
Battery Master	57SA	31788D

ITEM	Part No.
*Rack	743221
Outer casing:	
Motor to wheelbox	54717021
Wheelbox to wheelbox	745043
Short, wheelbox	740746
Wheelbox	72776A

TUNE-UP DATA	
Firing order	1-3-4-2
Tappet clearance (cold):	
inlet	.005—.007in
exhaust	.006—.008in
Valve timing:	
exhaust camshaft on full lift at	110° BTDC
inlet camshaft on full lift at	100° BTDC
Standard ignition timing:	
(distributor A26M009)	7° BTDC
(distributor B26M009)	14° BTDC
(distributor C26M009)	10° BTDC
Distributor contact points gap	.014—.016in
Plugs: make	Autolite
type	AG.22
size	14mm
gap	.023—.028in
Carburettor: make	Weber
	Lotus Cars Ltd.
	See table p. v
Air cleaner: make	AC
type	paper element
Fuel pump: make	AC
type	mechanical
pressure	1½—2½ psi



KEY TO MAINTENANCE DIAGRAM

(ROUTINE SERVICES)

EVERY 1,500 MILES

- *1. Chassis lubrication points—grease or oil gun
- 2. Engine sump
- 3. Gearbox
- 4. Rear axle
- 5. Clutch master cylinder reservoir
- 6. Brakes master cylinder reservoir
- 7. Battery electrolyte level
- *8. Throttle linkages, hinges, catches, door locks etc.—oil can
- *9. Vertical movement of carburettor on manifolds
- *10. Carburettor slow running adjustment
- 11. Steering assembly security and condition
- *12. Electrical system operation
- *13. Headlamps alignment
- 14. Correct tyre pressures
- *15. Water hose connections security

EVERY 3,000 MILES (as for 1,500 Miles plus following)

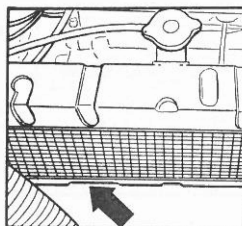
- 16. Engine sump—drain and refill
- *17. Valve clearances
- *18. Fan belt tension
- *19. Timing chain tension
- *20. Sparking plugs—clean, check and reset gaps
- *21. Heater system and operation of valve—check
- 22. Distributor—oil shaft bearing, auto advance mechanism and contact breaker pivot, smear cam with grease, clean and reset points
- *23. Front wheel alignment—check and reset, if necessary
- 24. Propeller shaft and drive shafts—check tightness of nuts and bolts etc.
- *25. Road wheels—change round, incorporate spare

EVERY 6,000 MILES (as for 3,000 Miles plus following)

- 26. Gearbox—drain and refill
- 27. Differential unit—check and top up
- 28. Front hubs—repack with grease
- 29. Water pump—lubricate
- 30. Engine oil filter element—renew
- *31. Cylinder head holding down bolts, manifolds, exhaust system engine, mountings and distributor fitting—check
- 32. Fuel pump filter—clean
- *33. Brake discs, pads, caliper mountings—check
- 34. Wishbone and damper connections, front and rear—check

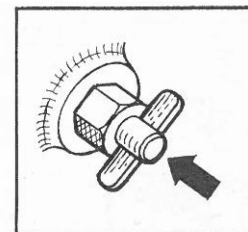
EVERY 12,000 MILES (as for 6,000 Miles plus following)

- *35. All engine ancillaries—check condition
- 36. Master cylinders and actuating mechanisms—check
- *37. Vacuum connections on headlamps system—check
- 38. Dynamo rear bearing—lubricate
- * Not shown on diagram N.B. Renew air cleaner element at 12,000 miles



DRAINING POINTS

Left: shows the location of the radiator matrix drain tap and right: the cylinder block drain tap



FILL-UP DATA

	Pints	Litres
Engine sump (incl. filter)	7½	4
Gearbox	1¼	.99
Rear axle	2	1.13
Cooling system (incl. htr.)	14	7.95
Fuel tank	10 galls	45
Tyre pressure*: front	18 psi	1.266 kg/cm ²
rear	22psi	1.547 kg/cm ²

*Fast touring: front—22psi (1.547 kg/m²) rear—26psi (1.828 kg/m²)

RECOMMENDED LUBRICANTS

Component	Castrol	Esso	Mobil	Shell	B.P.
Engine:	Castrol XL	Extra 20W/50	Mobiloil Super	X-100 20W/50	Super Viscostatic 20 W/50
Gearbox	Hypoy Light	Gear Oil GP80	Mobilube GX80	Spirax 80EP	Gear oil SAE80EP
Rear axle	—	AL1763	—	S6909	X5116
Chassis greasing points	Castrollease LM	Multipurpose Grease	Mobilgrease MP	Retinax A	Energrelase L2
Brakes and Clutch	Castrol/Girling "Crimson" Hydraulic Fluid or fluid which complies with SAE 70 R3 specification.				