

**Bulletin**

MODEL: BENTLEY MARK VI

This bulletin cancels  
all previous Service  
Bulletins numbered  
BB-16

PERIODIC LUBRICATION AND ADJUSTMENTSCHEDULE "A", "B" & "C"GENERAL:

For the purpose of assisting Retailers with the maintenance of Bentley cars in their areas, a system of periodic lubrication and adjustment on a fixed mileage basis has been evolved.

It is recommended that Retailers institute this as a normal maintenance routine and that appropriate arrangements be made with any owners wishing to avail themselves of this service. We would also stress the value of this service in maintaining a permanent contact with all known owners in a Retailer's territory.

It will be noticed that this system is a consolidation of the various maintenance routines into three sections or schedules, and as such, does not in any way supersede the instructions given in the handbook to owners desirous of carrying out their own maintenance inspections.

The three Schedules "A", "B" and "C" cover the whole vehicle and operate in the following manner:-

SCHEDULE "A" :- To be carried out at the conclusion of every 5,000 miles, covers all the items associated with engine, chassis and coachwork requiring lubrication, cleaning and adjustment.

SCHEDULE "B" :- To be carried out at the conclusion of every 10,000 miles. In addition to the repetition of the whole of Schedule "A", it covers the complete change of lubricant of all the main components, together with the inspection and rectification of those items not included at the lower mileage.

SCHEDULE "C":- To be carried out at the conclusion of every 20,000 miles. This schedule especially covers the requirements of periodic servicing of the automatic gearbox, rear axle and the propellor shaft ball and trunnion joint (where applicable).

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SCHEDULE "A"  
EVERY 5,000 MILESLUBRICATION:

1. Bonnet fasteners and locks.
2. Door locks and hinges and boot lid lock.
3. Ignition distributor shaft, contact breaker pivots and cam.
4. Steering column controls, accelerator mechanism.
5. Brake system pivot pins and bearings.
6. Propellor shaft universal joints (3 points) and sliding joint (1 point)

OIL LEVEL CHECKS:

1. Steering box, (or pump reservoir on power assisted steering gear).
2. Chassis lubrication tank.
3. Brake master cylinder reservoir.
4. Gearbox.
5. Rear axle.
6. Front and rear shock absorbers.
7. Drain and refill crankcase. Renew oil filter element.
8. Carburetter air valve guides.

ENGINE AND CHASSIS ADJUSTMENTS:

1. Check coolant level and top up if required (When climatic conditions warrant, check specific gravity of coolant and advise owner if additional anti-freeze is required).
2. Check fan belt and power steering pump driving belts where applicable. Adjust if necessary.
3. Check and reset inlet tappet clearances.
4. Clean sparking plugs. Check and reset gaps.  
Note Lodge CLNP platinum pointed plugs should be cleaned by abrasive means as infrequently as possible. We recommend that this should not be done at intervals of less than 20,000 miles unless the Retailer has Lodge Platinum Plug Special Cleaning Equipment.
5. Clean contact breaker points. Reset gaps check and reset ignition timing.
6. Check functioning of fuel pump (Disconnect electrical leads and check each pump independently).
7. Check and adjust clutch pedal free movement (Synchromesh gearbox).
8. Adjust brakes and servo.
9. Check for excessive leakage at any point in the central chassis lubrication system.
10. Check and adjust tyre pressures.
11. Clean oil bath air filter element if fitted and refill with oil.
12. Clean carburetter air valves.

ELECTRICAL SYSTEM:

1. Check battery acid level. Top up with distilled water if required. Clean, re-vaseline and tighten battery terminals.
2. Check complete electrical system for correct functioning.

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ROAD TEST:

1. Test car on road.

SCHEDULE "B"EVERY 10,000 MILES

1. Repeat Schedule "A".
2. Drain and refill gearbox (Synchromesh type only).
3. Drain and refill rear axle.
4. Check starter motor reduction gear oil level and refill if required.
5. Clean carburetter air filter element.
6. Clean the fuel strainers.
  1. The main fuel filter on the chassis cross member just forward of the petrol tank.
  2. The filter gauze in the carburetter float chamber feed connection.
  3. The filter gauzes in the fuel pumps.
7. Lightly oil dynamo rear bearing.
8. Grease propellor shaft universal joint and sliding joint, where applicable.
9. Check oil level in the suspension dampers.
10. Renew power steering reservoir filter element.

SCHEDULE "C"EVERY 20,000 MILES

1. Repeat Schedule "B".
2. Drain and refill automatic gearbox. Clean oil breather in top of dipstick.
3. Renew the felt strainer pad in the base of the chassis lubrication pump.
4. Inspect dynamo brushes for wear.
5. Release - but do not remove the drain plug in the fuel tank to allow any accumulated water to escape.
6. Examine the front propellor shaft universal bearing and if there are signs of external grease leakage repack with 1½ ozs of Mobilgrease No.2. Do not disturb unless leakage is apparent.

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MODEL BENTLEY MOTOR

MODIFICATIONCATEGORY 2CARBURETTOR.

The S.A.E. viscosity 20 oils hitherto recommended and used in the guide of the carburettor piston air valve, have caused sticking and sluggishness in the rise and fall of the piston, particularly in cold weather. It is therefore recommended that thinner oils of S.A.E. viscosity 10 now be used for this purpose.

The cap nut at the top of the air valve chamber should be unscrewed, the damper plunger withdrawn and the oil in the guide soaked up by means of absorbent material attached to the end of a piece of stiff wire.

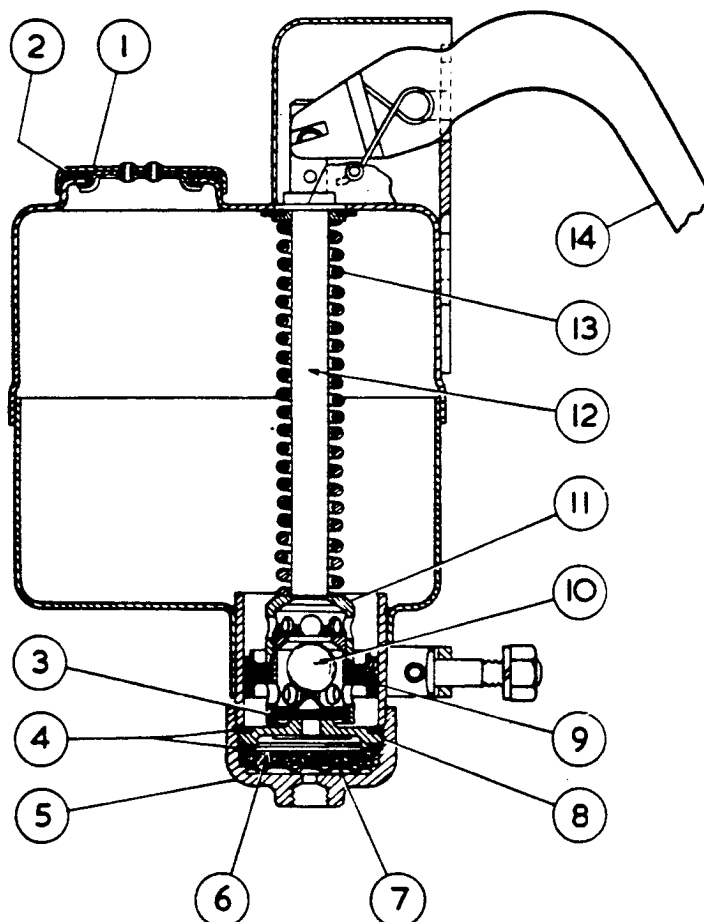
Fill up the guide with an S.A.E. 10 oil and replace the damper plunger and cap nut.

Any of the following proprietary brands of oil are of S.A.E. viscosity 10 or lighter, but any good quality S.A.E. 10 oil is suitable.

Price's.....	"Motorine U.C.L".
Wakefield's.....	"Wakefield Oilit".
Shell.....	"Donax A.1".
Vacuum.....	"Mobil Handy Oil".
Essolube.....	"Esso shock absorber oil light".

LUVAX-BIJUR FOOT OPERATED CHASSIS OIL PUMP(INTERNAL OIL LEAKAGE BY GRAVITATION)FOR INFORMATION:

Cases have arisen where there has been a continual oil leak by gravity feed from the chassis oil pump to the centralised oiling system after the piston of the oil pump has reached the end of its stroke, due to the leather piston valve disc (3 Fig.1), not correctly seating against the raised face of the brass strainer plate (8) when the pump is not in operation. Gravity feed from the pump will allow too much oil to reach the various points fed by the pump, especially the bearings of the stub axles and the centre steering lever, causing an external leakage from the latter two points. (Refer to Service Bulletin No: BB-53 Section Q).

Notation List for Fig.1.

1. Filling Cap.
2. Filling cap joint  
(washer.
3. Piston valve disc.
4. Strainer plate joint  
washers (2 Off).
5. Cylinder cap nut.
6. Tank strainer.
7. Tank strainer support
8. Strainer plate.
9. Piston cup.
10. Piston valve ball.
11. Piston rod valve nut.
12. Piston rod.
13. Piston rod spring.
14. Pedal.

Fig.1. Section through Luvax-Bijur chassis oil pump.



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1. CAUSE:

- (i) The cylinder cap nut (5) insufficiently screwed up thereby preventing the piston valve disc (3) from making contact with the raised face of the strainer plate (8), and also allowing oil to find its way past the two strainer plate joint washers (4).
- (ii) Foreign matter on oil sealing face of the piston valve disc and the strainer plate.
- (iii) The spun over portion of the piston valve which retains the piston valve disc (3) in position making contact with the face of the strainer plate (8), thus preventing the disc from making contact with the raised portion of the strainer plate.

2. CHECKING FOR OIL LEAKAGE FROM PUMP:

- (i) Ascertain that the pump is full of oil.
- (ii) With the pedal (14) in the up position, disconnect the two oil feed pipes from the three-way connection at the bottom of the pump.
- (iii) Place a piece of paper beneath the three-way connection and note after about half-an-hour, whether any oil has dripped on to the paper. If oil is found to have escaped, then proceed to effect a cure as described in the following paragraph.

3. REMEDY:

- (i) Check the cylinder cap nut (5) for tightness. If slack, then fully tighten up and re-check for oil leakage as described in the previous paragraph. After tightening up the nut, it will most probably be necessary to re-align the three-way connection by either fitting a new aluminium joint washer between it and the nut, or adding an additional washer.
- (ii) Should screwing up the cap nut not have effected a cure, then remove the nut and examine whether the upper joint washer (4) has been making contact with the lower face of the tank cylinder. Fit two new joint washers if necessary and again re-check for oil leakage. If a leakage still persists, then it will be necessary to remove the pump from the dashboard in order to remove the piston valve assembly for cleaning purposes etc.
- (iii) To gain access to the nuts of the three bolts securing the pump to the dashboard, it will first be necessary to lift up the carpet and the insulating material beneath it at the rear of the dashboard sufficiently, so as to allow the removal of the nuts, the bevelled and spring washers. While removing the pump, care should be taken not to lose the three plain washers fitted between the pump and the front of the dashboard.

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- (iv) To remove the piston valve assembly complete with rod and spring, proceed as follows:-
- a) Remove the filling cap. Remove the nut and spring washer from the cheese-headed pedal pin and slide the pedal spring cover forwards and remove.
  - b) Place a piece of cloth over the end of the pedal and the "hairpin" type pedal spring to prevent loss of the latter while removing the pedal pin.
  - c) Tap out the pedal pin, collect the "hairpin" type spring and slide the pedal off the flats on the piston rod pin and remove the latter from the piston rod (12).
  - d) Remove the cap nut (5) and then push the piston valve assembly complete with rod and spring downwards to remove. Ascertain that the leather joint washer as fitted to the collar near the top of the piston rod, is in position on the collar, if not, then remove it from the tank and place it on the collar to prevent loss.
- (v) Clean out the oil tank, the piston valve assembly and syringe around the piston valve ball (10) to remove all traces of foreign matter.
- (vi) If upon examination, there is evidence that the spun over portion of the piston valve has been making contact with the face of the strainer plate (8) denoted by circular markings on the latter, then it will be advisable to re-assemble the parts removed from the pump and fit a replacement one.
- NOTE: Reconditioning of an oil pump, which is supplied as a complete unit, is usually not undertaken except by the Manufacturers, and it is customary to fit a complete replacement and return the original one for repair, except in circumstances which render this course impracticable. In the latter case, it will be permissible to attend to the piston valve and strainer plate as follows:-
- (vii) Lightly flatten the spun over portion of the piston valve to give clearance between it and the strainer plate, also remove the latter from the cap nut, mount it in a lathe and turn off an amount not exceeding 0.010" (0.25 mm) from the non-raised face, to ensure an oil tight seating between the raised portion of the strainer plate and the disc (3).
  - (viii) To re-assemble the parts removed from the pump, proceed as follows:-
    - a) Oil the piston cup (9). With the leather joint washer in position on the collar near the top of the piston rod (12), fit the piston valve, rod and spring assembly to the tank.
    - b) Fit the piston rod pin to the top of the piston rod, slide the pedal on to the flats on the pin, pass the pedal pin through the coils of the pedal spring, hook the shorter leg of the spring into the accommodating notch in the pedal and then with the

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pedal fully depressed, hook the long leg of the spring under the small projecting pin as shown in Fig.1.

- c) Fit the pedal spring cover, making sure that it is pushed fully home against the pedal pin before tightening up the nut of the pin.
- d) With the strainer support (7), the strainer (6), the strainer plate (8) and the two joint washers (4), in position in the cap nut (5), fit the nut to the tank and fully screw it up.
- (ix) Fill the pump with thin oil or paraffin and test for leakage, and if satisfactory, drain out and refit to car, bearing the following in mind.

Do not omit to replace the three plain distance washers on the pump securing studs prior to offering up the pump to the dashboard. The rubber seal should also be in position against the pedal spring cover. Fill the pump with the recommended grade of oil.

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GEARBOX LUBRICANTS.

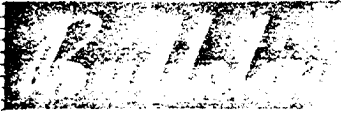
In order to prolong the life of first speed gears, it has been decided to introduce Hypoid oils for the gearbox in place of ordinary mineral oils.

The following are approved, superseding those previously recommended:-

Wakefield's ..... Hypoid 80

Prices ..... EP-80

Shell ..... Spirax EP-80



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FOR INFORMATION:LUBRICANTS

We now recommend that Shell Retinax "A", High Melting Point Grease should be used in place of Shell Retinax "H".

Retailers are therefore advised that this grease should now be used for lubrication of the Front Hubs and the Distributor Lubricator.

The Lubrication Chart, RR/D2b should be altered accordingly until new Charts are available.

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FOR INFORMATION:AUTOMATIC GEARBOX

The following information is given for guidance when draining or filling of the gearbox is necessary.

Recommended Fluids;

The Automatic Gearbox should be filled and topped up only with Automatic Transmission Fluid, Type "A", having an Armour Qualification number prefixed by AQ/ATF.

Any of the following may be used:-

Vacuum Oil Co. ...	Mobiloil Fluid-200 ...	Type AQ/ATF.101.
Shell ...	Donax T.6 ...	Type AQ/ATF.103.
Wakefield's ...	Castrol T.Q. ...	Type AQ/ATF.156.
General Motors ...	Hydra-Matic Fluid	

Capacity ... .. 20 Imp. Pints.

To Drain Gearbox and Fluid Coupling:

It is necessary to remove two drain plugs, one in the gearbox sump and one in the fluid coupling.

- (i) Clean the area around the sump drain plug and remove plug.
- (ii) Remove the lower bell-housing cover, and if the drain plug on the fluid coupling is not at the lowest point, turn the engine by means of the starter motor to bring plug to this position, and remove the plug.
- (iii) After draining, securely replace both plugs.

To Fill a New Gearbox, or, After Complete Draining:

- (1) Remove the dipstick, and through the dipstick filling orifice, add 12 Imp. pints (14 U.S. pints) of a recommended gearbox fluid. See Fig.1.

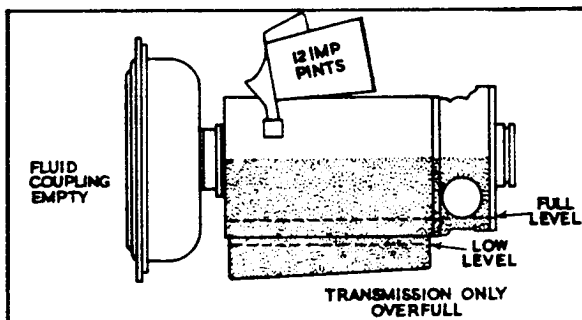


FIG. 1. FIRST FILL-IN.

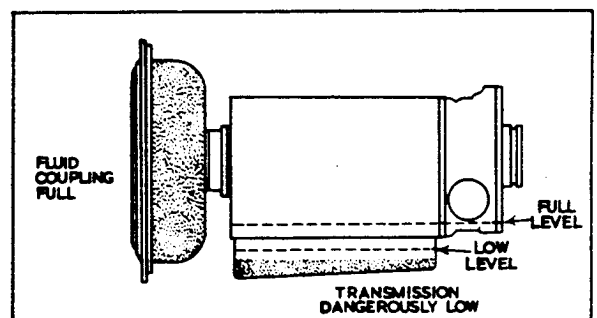


FIG. 2. AFTER FAST-IDLE RUN.

- (ii) Check that the control lever is at "N" (Neutral) and that the hand brake is on, and run the engine at a fast idle for approximately 5 minutes. Switch off the engine. See Fig. 2.

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- (iii) Add a further 6 Imp. pints (7 U.S. pints). Run the engine at a slow idle and check the fluid level with the dipstick. Add further fluid to bring the level up to the "FULL" mark on the dipstick. See Figs. 3 and 4.

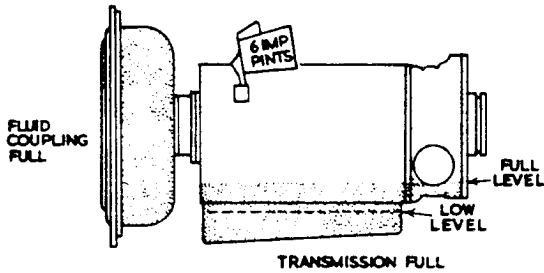


FIG. 3. SECOND FILL-IN.

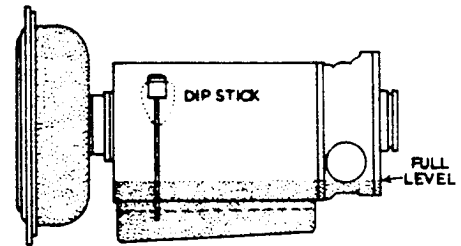


FIG. 4. CHECKING LEVEL.

"LOW" to "FULL" is approximately 2 pints.

NOTE: Do not overfill; if necessary, drain off to obtain correct level.

Always check oil level with engine warm and running at a slow idle, this allows the fluid coupling to fill and so gives an accurate reading. See Fig. 4.

### Refilling after Draining Sump only:

- (i) Check sump drain plug is securely tightened.
- (ii) Add 8 Imp. pints (10 U.S. pints) of a recommended gearbox fluid through the dipstick filling orifice.
- (iii) Check that the control lever is at "N" (Neutral) and that the hand brake is on, and run the engine at a fast idle for approximately 3 minutes. Reduce engine speed to a slow idle and check the fluid level with the dipstick. With the engine still running, add further fluid to bring the level up to the "FULL" mark. See "NOTE" above.

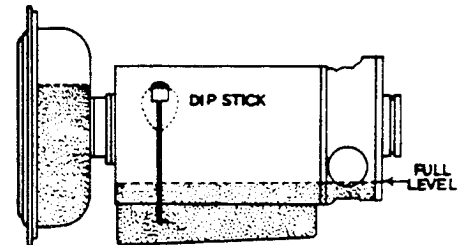


FIG. 5. INCORRECT READING, FLUID COUPLING NOT FILLED BY ENGINE.

### Topping-up Gearbox:

- (i) Set the control lever in neutral.
- (ii) Run the engine for approximately 3 minutes, and check the fluid level while the engine is still running.
- (iii) Add fluid as necessary, until the level reaches the mark on the dipstick, taking care not to overfill.

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MAINTENANCE DATA CHARTBENTLEY MARK VI, 'R' TYPE & CONTINENTAL SPORTS SALOON.

The accompanying Maintenance Data Chart EM/C1a is intended as a means of easy reference in connection with the periodic maintenance of post-war Bentley cars. It is necessarily abbreviated, and it has therefore been thought advisable to expand the information by means of this explanatory Bulletin.

As continual reference to this Bulletin would detract from the ease and rapidity with which the chart can be used, explanation of the notes on the more commonly used items have been printed on the chart itself.

It will be noted that certain figures differ from those in the Instruction Books and previous technical literature issued by Bentley Motors Ltd, and it should be understood that the information on the chart supersedes any given in previous publications.

EXPLANATION.NOTE:

- F. The poundage is measured by means of a spring balance at  $17\frac{1}{2}$ " from the axial centre line of the assembly with the radial driving springs removed. The figure quoted will be satisfactory under normal conditions, but a variation of plus or minus 1-lb. is permissible to suit individual engines. Generally speaking, a lower setting is beneficial in dealing with a low speed period on pick-up, while a higher poundage may be better to damp out periods at engine speeds of 2,000 - 3,000 r.p.m.
- G. The clearance between the friction liner and the pressure plate is set by means of the inner nut on the servo shaft. Slacken the outer locknut, tighten the inner nut until the pressure plate is just in contact with the liner, then slacken the nut back one third of a turn. This gives .018" clearance between the two surfaces. Secure the locknut.
- H. The front end ball joint of the side steering tube and the ball joints of the cross steering tubes are spring loaded and not adjustable. The rear end of the side steering tube is adjusted as follows:-  
Screw in the rear end slotted retaining nut until the assembly is choc-a-bloc, slacken the nut back .200 inches and split pin.
- M. Relating to INDIA "SPEED SPECIAL" TYRES only. It is of the utmost importance in the interests of safety that the tyre pressures quoted on the chart for these tyres are maintained.
- O. The Factory setting for toe-in on new cars is from  $\frac{3}{32}$ " to  $\frac{3}{16}$ "; this allows for the settling down of the various Silentbloc rubber bushes of the front suspension and this setting should be used if the Silentbloc bushes are renewed. Under normal running conditions, the toe-in must be set to within the limits of  $\frac{1}{16}$ " to  $\frac{1}{8}$ ".

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*Newsletter*

MODEL BENTLEY MARK VI

For Information.ENGINE OIL.

We now recommend that the engine oil should be changed at periods of 2,500 miles.

This recommendation does not affect the oil changes at Schedules A & B, but Owners should be advised to arrange to have the engine oil changed midway between each Schedule.

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FOR INFORMATIONLUBRICANTS: BENTLEY MARK VI CARS

The following Esso Engine Oil has now been officially approved for use in Bentley Mark VI motor cars:-

Esso Extra Motor Oil,      20W/30 grade

Will all Retailers and Service Personnel please make this addition to The Lubricants Chart until such time as the chart is reprinted.

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CATEGORY CAUTOMATIC TRANSMISSION FLUIDS

Automatic transmission fluids made to the Dexron specification are now available. The purpose of this Service Bulletin is to advise Distributors, Retailers and Service personnel that fluids made to the Dexron specification and shown in the following chart are approved for topping-up or refilling the Four Speed Automatic Gearbox fitted to Bentley 'R' type cars.

It is most important however that a new or reconditioned automatic gearbox should initially be filled with a Type A Suffix A fluid shown in the following chart. On completion of the first 12,000 miles (20000 km.), or 12 months of Service life, the automatic gearbox should be drained and then refilled with any fluid shown in the chart.

Type A Suffix A fluids and Dexron fluids are miscible and therefore either can be used for topping-up purposes.

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APPROVED FLUIDS - Four Speed Automatic Gearbox

	Type A Suffix A Fluids	Dexron Fluids - U.S.A. and Canada only	Dexron Fluids - All countries other than U.S.A. and Canada
B.P.	B.P. Automatic Transmission Fluid	B.P. Autran DX (Dexron)	B.P. Autran DX (Dexron)
CASTROL	Castrol TQ	Castrol TQ Dexron ®	Castrol TQ Dexron ®
ESSO	Esso Automatic Transmission Fluid	Esso Automatic Transmission Fluid (Dexron)	Esso Automatic Transmission Fluid (Dexron)
MOBIL	Mobilfluid 200 AQ/ATF 752 A OR AQ/ATF 2320 A	Mobil ATF 220 Dexron	Mobil ATF 220 (Dexron)
REGENT	-	Regent Texamatic Dexron	Regent Texamatic Dexron
SHELL	Donax T6	Shell Donax T6 (Dexron ®)	Shell Automatic Transmission Fluid (Dexron ®)

Note: Dexron is a registered trade name.