

Watford
Bushey Vale. Garage 3466

AUSTIN LIGHT CARS

RUNNING AND MAINTENANCE INSTRUCTIONS

including Series :

"Seven "	A.R.R., A.C.A.
"Big Seven "	C.R.V., C.R.W.
"Ten "	G.R.L., G.C.E.
"Twelve "	H.R., H.C.
"Fourteen "	F.R., F.C.



THE AUSTIN MOTOR CO. LTD.
LONGBRIDGE [BOX 41] BIRMINGHAM
[G. P. O.]

Publication 2230K.

August, 1951

PRICE - TWO SHILLINGS AND SIXPENCE

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- "SEVEN" four cylinders A.R.R., A.C.A.
"BIG SEVEN" four cylinders C.R.V., C.R.W.
"TEN" four cylinders G.R.L., G.C.E.
"TWELVE" four cylinders H.R., H.C.
"FOURTEEN" six cylinders F.R., F.C.



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PRINTED IN ENGLAND.

A FOREWORD

THE information contained in this Handbook is intended only to guide and assist the owner or driver of an Austin vehicle to preserve it in its proper satisfactory running condition.

The publication must not be considered as a complete manual, and the Company does not accept responsibility for any failure due to inadequate maintenance.

The handbook does not in any manner vary or extend the liability of the Company, which is limited to the Warranty issued with the vehicle. Where no information is given for a particular adjustment it may be regarded as one which the average owner would entrust to a garage. When the occasion for adjustments of this character arises the owner should seek the aid of the local Austin Dealer.

Both owner and dealer are encouraged to call upon the Service Department of the Company for advice, whether upon the management of the vehicle, the effecting of adjustment, or methods of repair. Owners need not suppose that they will have to apply all the attentions given in this book, but careful notice should be taken of the chapters dealing with maintenance.

CAUTION

PARTS of genuine Austin manufacture only should be used when a replacement is made, to ensure that the service given by the original shall be maintained by the replacement. Imitations cannot be relied upon to do this.

If imitations are used, the Company's guarantee is infringed and becomes null and void.

Always get your replacements from authorised Austin Dealers, as they stock only genuine Austin Spare Parts.

Should repairs be executed other than by an authorised Austin Dealer, for safety's sake always obtain a guarantee that genuine Austin Spare Parts are used.

See the statement at the end of this book with reference to Accessories.

In correspondence always quote your vehicle Body Number and Series Letters to be found on plate on Toolbox under nearside of bonnet, and also Chassis Number to be found on the frame side member, under the bonnet on the offside.

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LEADING DIMENSIONS

Dimensions.	Seven.	Big Seven.	Ten.	Twelve.	Fourteen.
Wheelbase	6ft. 9ins. 2,057 mm.	7ft. 3½ ins. 2,222.5 mm.	7ft. 9¾ins. 2,380 mm.	8ft. 10¼ins. 2,699 mm.	9ft. 3 ⅞ ins. 2,838 mm.
Track—Front	3ft. 4ins. 1,016 mm.	3ft. 7¼ins. 1,095 mm.	3ft. 9¾ins. 1,162 mm.	4ft. 2 ⅞ins. 1,276 mm.	4ft. 2 ⅞ ins. 1,276 mm.
Rear	3ft. 7ins. 1,092 mm.	3ft. 9ins. 1,143 mm.	3ft. 10 ⅞ins. 1,181 mm.	4ft. 5 ⅞ins. 1,355 mm.	4ft. 5 ⅞ins. 1,355 mm.
Overall Length	10ft. 7ins. 3,226 mm.	11ft. 2ins. 3,404 mm.	12ft. 10ins. 3.9 m.	14ft. 4.26 m.	14ft. 6ins. 4.4 m.
Overall Width	4ft. 3ins. 1.2 m.	4ft. 6ins. 1,371 m.	4ft. 9ins. 1.4 m.	5ft. 3½ins. 1.6 m.	5ft. 3½ins. 1.6 m.
Ground Clearance	6½ins., 155 mm.	5¾ins., 146 mm.	6½ins., 155 mm.	6¾ins., 172 mm.	6¾ins., 172 mm.
Ditto Export	7½ins., 190 mm.	6¾ins., 172 mm.	6¾ins., 168 mm.	7¾ins., 197 mm.	7¾ins., 197 mm.
Weight of Saloon (approximately)	12 cwt. 2 qrs. 635 kgms.	14 cwt. 2 qrs. 740 kgms.	18 cwt. 2 qrs. 914.4 kgms.	22 cwt. 3 qrs. 1,156 kgms.	23 cwt. 2 qrs. 1,194 kgms.
Engine :					
R.A.C. Rated H.P.	7.8	7.99	9.996	11.9	15.96
Brake h.p.	17	25	32.7	33.7	50
	at 3,800 r.p.m.	at 4,000 r.p.m.	at 4,000 r.p.m.	at 3,600 r.p.m.	at 4,000 r.p.m.
Bore and Stroke	2.2ins. x 3ins. 56mm. x 76mm.	2.235in. x 3.5ins. 56.77 mm. x 88.9 mm.	2.4995in. x 3.5ins. 63.5 mm. x 89 mm.	2.73in. x 4in. 69.35 mm. x 101.6 mm.	2.58in. x 3.335in. 65.5 mm. x 84.63 mm.
Cubic Capacity	45.6 c.i. 747.5 cc.	54.926 c.i. 900 cc.	68.7 c.i. 1,125 cc.	93.6 c.i. 1,535 cc.	104.4 c.i. 1,711 cc.
Main Bearings	3	3	3	3	4
Batteries	6 volts. 51 ampere-hour	6 volts. 63 ampere hour	12 volts. 50 ampere-hour	12 volts. 50 ampere-hour	12 volts. 50 ampere-hour

Turning circle

Ratios

Tyres

38' 2"	38'	42' 2"	43' 10"
22.94	21.1	18.53	20.37
13.85	12.78	12.08	13.28
8.73	8.04	7.68	8.44
5.25	5.25	4.89	5.375
40-17	525-16	575-600-16	575-600x16

AFTER IDLENESS

What to do to a motor vehicle in preparation for the road, after it has been standing or laid up for a lengthy period.

Engine.

It is most important to note that it is not merely sufficient to pour oil into the crankcase to the correct level before starting up, but that the crankshaft must be turned by hand to ensure all the passages are filled and bearing surfaces fed with oil.

It is equally important to pour an egg-cupful of oil (and there are special brands for the purpose) through the sparking plug hole of each cylinder. With the sparking plugs removed it is easier to turn the crankshaft, and this should be done vigorously so that the pistons, cylinder walls and gudgeon pins are well lubricated.

Then fill radiator with water, if possible warm, and carefully inspect all water joints for leaks, particularly rubber connections. See that the drain taps are free and closed.

Chassis.

Check oil levels in gearbox and rear axle. Grease all nipples with the grease gun, and oil connections with the oilcan, as per instructions in this Handbook.

Examine the brake pedal and hand-lever for travel. The vehicle may have been left when adjustment was advisable.

Check tyres for correct pressure.

If the vehicle is fitted with hydraulic shock absorbers it would be advisable to check the level of the fluid.

Electrical Equipment.

It is assumed that if a vehicle has been left standing for a considerable time the battery will have been removed: therefore after replacing a freshly charged battery see that all the connections are good—dry and free from corrosion.

Carefully wipe the distributor head with a clean rag. Before replacing the sparking plugs check over the points with the gauge. Test the lighting circuit and see that the bulbs are all functioning.

Body.

See that the instruments are all in order and that the sliding roof (if fitted), door-locks, etc., are all free and easy in operation.

Fuel Supply.

Before filling up with petrol examine the strainer in the petrol pump to see if any gumming has taken place. This also applies to the small strainer in the carburetter. Use the hand priming lever to fill the carburetter.

Starting the Engine.

It is important to avoid excessive use of the strangler or choke if the engine does not start at once, as this may cause fouling of the plugs as well as washing away the protective coating of oil on the pistons and cylinder bores.

With the engine started, warm up fairly slowly, at an even speed, and watch oil pressure gauge for a steady reading.

Tyres.

Thoroughly examine all tyres, check for correct pressures and see that valve caps are fitted.

CAPACITIES

When to Change the Engine and Gearbox Oil

Capacities.	Seven.	Big Seven.	Ten.	Twelve.	Fourteen.
Fuel Tank (Petrol)	5 galls.	6 galls.	6 galls.	8 galls.	8 galls.
Miles per gallon ..	42	40	35	28	26
Engine Sump (Oil)	4 pin.s.	5 pints.	6 pints.	8 pints.	8 pints.
†Change the oil every ..	2,000 to 3,000 miles.	2,000 to 3,000 miles.	2,000 to 3,000 miles.	2,000 to 3,000 miles.	2,000 to 3,000 miles.

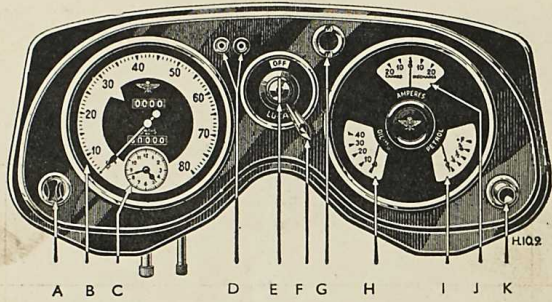
†When the car is new or after overhaul change first at 500 miles.

"Sevens" and "Big Sevens" do approximately 1,400 miles to the gallon of oil. "Tens" 1,200 m.p.g. "Twelves" 1,000 m.p.g., and "Fourteens" approximately 800 m.p.g.

Gearbox (Oil) ..	1½ pints.	1½ pints.	2 pints.	4 pints.	4 pints.
†Change every ..	5,000 miles.	5,000 miles.	5,000 miles.	5,000 miles.	5,000 miles.
Rear Axle (Oil) ..	¾ pint.	1 pint.	1 pint.	1½ pint.	1½ pint.
†Change every ..	5,000 miles.	5,000 miles.	5,000 miles.	5,000 miles.	5,000 miles.
Cooling System (Water).	9½ pints.	13 pints.	17½ pints.	22 pints.	23¾ pints.

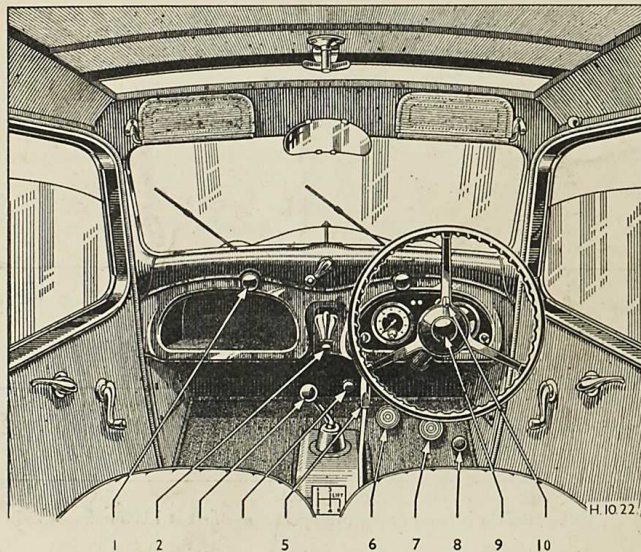
†When the car is new or after overhaul change first at 1,000 miles.

INSTRUMENTS AND CONTROLS



"Ten," "Twelve" and "Fourteen" Instrument Panel.

- | | | |
|-----------------------|---------------------------|--------------------------|
| A Panel Light Switch. | D Inspection Lamp Points. | G Ignition Warning Lamp. |
| B Trip Speedometer. | E Ignition Key. | H Oil Gauge. |
| C Eight-day Clock. | F Lighting Switch. | I Fuel Gauge. |
| | J Ammeter | K Starter Switch. |



"Ten," "Twelve" and "Fourteen" Controls.

- | | | |
|------------------------------------|--------------------|---------------------------------|
| 1. Windscreen Wiper Control. | 5. Handbrake Lever | 8. Accelerator Pedal. |
| 2. Strangler and Throttle Control. | 6. Clutch Pedal | 9. Horn Button |
| 3. Change Speed Lever. | 7. Brake Pedal. | 10. Direction Indicator Switch. |
| 4. Dip and Switch Control. | | |

THE INSTRUMENTS.

Petrol and Oil Gauges; Speedometer; Windscreen Wiper.

A FULL range of instruments is provided on all Austin cars. They are of the highest quality and the following notes explain their uses.

Petrol Gauge.

The petrol gauge is electrically operated and automatically indicates the contents of the tank when the ignition control is switched on.

When the tank is being refilled switch the ignition off to stop the engine and then switch on again and the needle will indicate the amount of spirit entering the tank. The gauge requires no attention.

Oil Gauge.

The oil gauge indicates when oil is being pumped through the engine lubrication system and it should be looked at frequently when the engine is running to ascertain that sufficient pressure is maintained.

When the engine is cold high pressure will be recorded but this is likely to drop as the oil becomes warmer. If no pressure be registered the engine should be stopped and the cause of the fault ascertained. Otherwise serious damage may be caused.

Flickering of the needle may indicate a serious shortage of oil, or a broken pipe line may be the trouble.

On an Austin "Seven" the gauge records up to 10 lbs. per square inch but when the engine is hot only from one to five pounds may be recorded, according to engine speed.

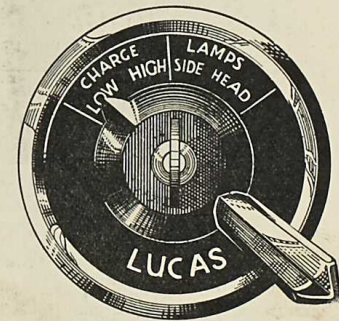
On the Austin "Big Sevens," "Tens," "Twelves" and "Fourteens" the gauge may indicate a pressure of 35 lbs. per square inch or more when the engine is cold, or from 20 to 30 lbs. when hot. With the engine running at a constant speed the needle should be quite steady.

Windscreen Wiper.

To start the Austin "Seven" and "Big Seven" windscreen wiper pull out the handle and swing the cleaning arm into position on the screen. Then move the control switch to the left.

To stop the wiper, move the switch to the right and replace the curved handle into the top of the switch.

On Austin "Tens," "Twelves" and "Fourteens" the wiper on the driver's side is started by pulling out the knob on the fascia board and turning it to the left. After this blade is in operation, the second blade may be started by pulling its knob and turning it to the right.



"Seven" Lighting and Charging Switch.

The second blade should be stopped first by pulling its knob and turning it to the left; to stop the first blade, pull the knob and turn to the right.

Switchbox.

When the engine is not in use the ignition key should be withdrawn from the switch box.

For Austin "Sevens" there are two positions of the main switch to control rate of charge of the batteries. "Low Charge" should be used when the car is running long journeys without lights and with little use of the starter motor. The switch should be at "High Charge" when frequent use is made of the headlamps, starter motor or other electrical equipment.

The dynamos on Austin "Big Sevens," "Tens," "Twelves" and "Fourteens" have compensated voltage control and the main switch only operates the lighting of the head and side lamps.

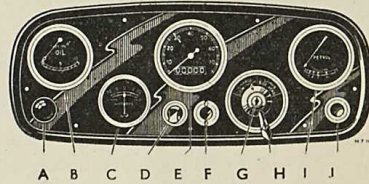
Ammeter.

The ammeter indicates the rate of charge or discharge of the batteries, but does not include current used by the starter motor.

No discharge should be indicated with no electrical equipment in use or with headlamps on when the car is running at about 20 miles or 30 kms. per hour, or faster.

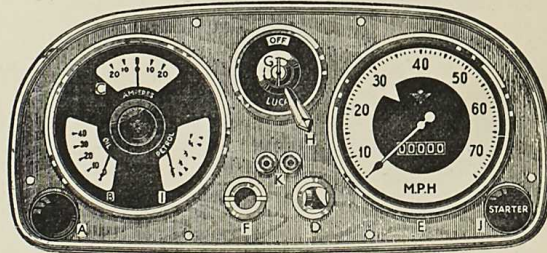
Austin "Seven" Instruments and also "Big Seven" (Two-door Model).

A—Strangler.
B—Oil Gauge.
C—Ammeter.
D—Dash Lamp Switch.
E—Speedometer.



F—Warning Lamp.
G—Ignition Key.
H—Light Switch.
I—Fuel Gauge.
J—Starter Control.

Austin "Big Seven" Instruments
(Four-door Model)



A—Throttle and Strangler.
B—Oil Pressure Gauge.
C—Ammeter.
D—Panel Light Switch.
E—Speedometer.

F—Ignition Warning Light
G—Ignition Key.
H—Light Switch.
I—Petrol Gauge.
J—Starter.
K—Inspection Lamp Points.

K—Inspection Lamp Points.

Speedometer.

The main reading of the speedometer indicates miles or kilometres up to 100,000 and the figures automatically return to zero.

On speedometers with a trip section the trip figures record up to 1,000 miles or kilometres and can be set to zero by pushing up the knob at the bottom (right) of the speedometer and turning it to the left.

The Clock.

An eight-day clock is fitted to some models and is wound by turning the knob at the bottom until a definite stop is felt. The hands are set by pulling and turning the knob.

To regulate the clock, disconnect the speedometer and remove it from the instrument panel. Slide open the dust cover at the side of the clock, and the regulator lever will be seen underneath. If the clock loses move the lever towards "F" or vice versa.

Traffic Signals.

The Traffic Indicators are controlled from the steering wheel. Normally after the car has turned a corner they automatically return, but when only a slight turn has been made it may be necessary to switch off the indicators by hand.

ADJUSTABLE STEERING

Operating the Wheel of the Austin "Fourteen."

THE Austin "Fourteen" is fitted with the Bluemel-Douglas Adjustable Steering Wheel, which enables the driver, by moving the steering wheel up or down the column and in conjunction with the adjustable seat, to get the most comfortable position. This fitting was also available at an extra charge on the "Twelve."

The position of the wheel can be varied to the extent of 3 inches. The wheel slides up and down the steering column, which is splined. To operate, open the clamp round the bottom of the boss. The wheel then can be raised or lowered into the desired position and locked again by pressing down the clamp with the palm of the hand.

The plated spring at the bottom of the wheel, which closes as the wheel is pressed down to the lower position, is to protect the column top and to act as a dust cover. If this spring is lifted when the wheel is in the highest position the splines on the column can be seen, and it is advisable very occasionally to wipe the splined column with a perfectly clean rag and to apply a spot of thin oil.

Adjustment.

If it is found that the wheel can be moved upwards or downwards when the clamp is closed, this can be remedied as follows. The clamp should be opened and the head of the knurled nut turned very slightly. When the clamp is closed the wheel should be immovable upward or downward.

If after turning the knurled nut the wheel can be moved, the nut is not sufficiently tight, but it must be emphasised that only a very slight movement of the nut is necessary, or the wheel will be too tight for easy movement on the splines and it will be impossible to close the clamp.

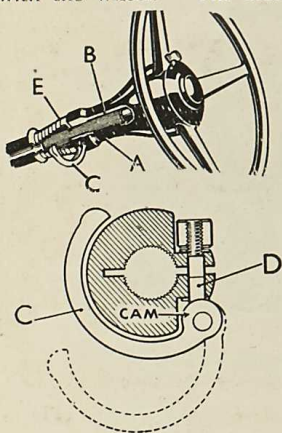
The controls are made telescopic so that they move up or down with the wheel. The steering is not in any way interfered with even when the clamp is open but it is, of course, advisable to keep this closed.

Removing the Wheel.

Before removing the wheel the central electrical controls must be taken out. First disconnect the wires at the junction box and take out the two small grub screws immediately underneath the steering wheel. Turn the wheel to full lock, left or right, and withdraw the electrical controls.

Next remove the circlip fitted in a groove at the top of the splined steering column. This circlip prevents the wheel being pulled off the column, and should be sprung very carefully into the groove on reassembly. If it is damaged a new one should be obtained.

The work should be done by an Austin Dealer.



A—Wheel Boss C—Fixing Clamp.
B—Splines. D—Clamping bolt.
E—Spring cover over splines.

STARTING THE ENGINE

Special Throttle and Strangler Control; The Petrol Pump.

BEFORE attempting to start the engine see that the gear lever is in "neutral" and the handbrake "on." These controls should always be left like this when the car is not in use.

In cold weather it is desirable to crank the engine by hand before using the electric starter motor, in order to free the moving parts from cold "gummy" oil, and save the drain on the battery.

Switch the ignition "on" by turning the key to the right. Pull out the air strangler and slow running control, and operate the starter by pulling the starter knob of the Austin "Seven" and "Big Seven," or pressing the button of the larger models.

In cold weather keep the clutch pedal depressed while operating the starter motor.

To warm up the engine quickly the strangler control may be left in the "fast warming" position, by turning it to the left when about half-way out, or in the second position, by turning it to the right when nearly closed. **Release this control as soon as the engine is warm.**

Never leave the ignition switched "on" when the engine is not running. The warning red lamp on the switchboard will remind you of this.

Starting Difficulties.

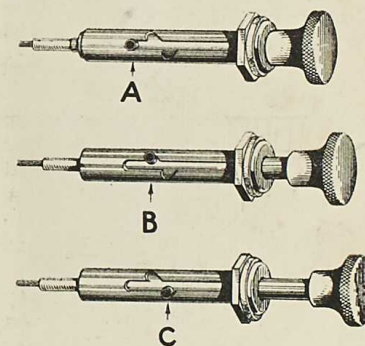
It is advisable to prime the petrol pump, which feeds the carburetter, by depressing several times the flat lever (A) below it. See "The Fuel System."

If upon operating the starter switch the starter does not revolve, the starting system is out of order. See "Electrical Equipment."

If the engine revolves and the petrol supply is satisfactory and yet the engine does not fire, it is evident that the ignition system is at fault. See "The Ignition System."

If the items already mentioned are in order, but the engine does not start, or runs very erratically, it is probable that the carburetter is out of adjustment. See "The Carburetter."

An aid to easier starting when cold is to refill the radiator with warm water.



Strangler and Throttle Control.

A—Normal Position. B—Fast Idling.
C—Warming Up.

Avoid over enriching the mixture by using the air strangler when restarting a hot engine.

Difficult, in starting may be caused either through sucking too much petrol into the cylinders, or too little. When starting with the throttle all but closed, a strong suction takes effect on the pilot jet.

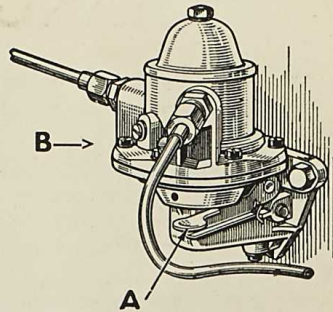
If the engine fails to start and petrol drips from the carburetter it is almost certain that the mixture getting into the cylinders is too rich. The throttle should then be opened, by the accelerator pedal, half-way to reduce the suction. On firing, the engine will "race" and the throttle should be almost closed. If the engine does not fire close the throttle entirely, and try again.

After a stop in hot weather, failure of the engine to start is more likely to be due to a too rich mixture than too lean, and one should stop the engine by the switch only after quite closing the throttle. Re-start the engine with the throttle closed.

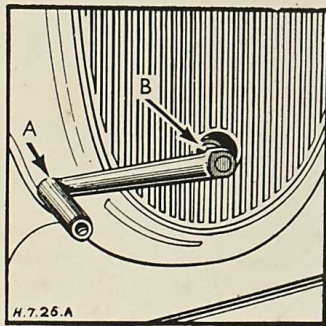
If after the foregoing measures have been carried out the engine fails to start the reason will probably be due to faulty ignition or carburation.

Ignition : First examine the wires and see that the sparking plugs are connected. Then test the gap of the plug points by means of the thick end of the gauge provided in the tool kit. If the points are dirty, clean them before replacing the plug.

Carburation : The slow running jet may be stopped up or the main jet choked. Blow them out with a tyre pump. Never attempt to clean them by passing a wire or other metal object through them. This will injure the jets.



Petrol Pump Priming Lever (A)
Drain Plug (B)



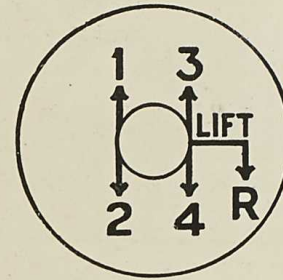
"Seven" Starting Handle in position

Oil at A and B and keep in position as shown.

CHANGING GEAR

THE driving seat of Austin Cars is adjustable for position and this convenience should be taken advantage of to obtain the greatest comfort.

To engage first gear, push out the clutch and move the gear lever into the first speed position.



The Gear Positions.

Sometimes it may happen that when the clutch is let in there is no apparent drive from the engine. That is because there has been no proper engagement of the gears. Therefore, push out the clutch again and it will almost certainly be found that the lever can then be moved to give the proper gear engagement without using force.

Start on first speed, accelerate to about 8 m.p.h., push out the clutch, move the lever to neutral and continue the movement of the lever steadily to the second speed position and let in the clutch gently.

In moving from second to third speed, a similar action takes place. Accelerate to about 18 m.p.h., declutch, release the accelerator, move the lever to neutral and continue the movement of the lever steadily into the third speed position.

To move from third to top, declutch, and move the lever steadily into the position desired. It assists the change from top to third, and third to second if the accelerator is held down while the change is made.

Always change gear early on a hill; never allow the engine to labour in any gear and expect it to pick up speed on changing into a lower one when the car has nearly stopped. Do not persist in attempting to drive the car uphill in top gear when the speed falls below 18 m.p.h.—change down.

Reversing.

If the car has been driven back by the reverse gear wait until it is stationary before engaging a forward speed. Do not engage the reverse gear when the car is travelling forward. Serious damage to the gears would be the result.

Keep the foot off the clutch pedal except where it may be necessary in heavy traffic. Even then do not allow the weight of the foot to be taken by the pedal. The slipping of the clutch caused by this practice heats and wears it badly.

THE COOLING SYSTEM

CLEAN soft water or rain water should be used, if possible, for the cooling system and the radiator should be filled to within one inch (2.5 cm.) of the top.

Occasionally flush the system by opening the drain cocks and running clean water through until it comes out clear, meantime rocking the car to stir up sediment.

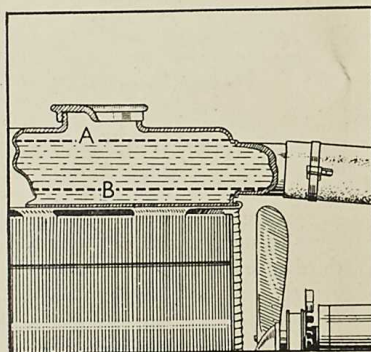
On the "Seven" adjustment is made by releasing the clamping nut on the fan bracket and then turning the spindle, which is in the form of a crank, until the necessary tension is obtained in the fan belt.

To adjust the fan belt on the other models slacken the locking nuts and raise or lower the dynamo until the desired tension of the belt is obtained. Then securely lock the dynamo in position again. The belt should be free to move about an inch each way.

Poor grade oil, insufficient oil or water, excessive carbon deposit in the cylinders, retarded ignition, incorrect carburettor adjustment, or poor water circulation may cause overheating, which should not be allowed.

The engine should not be allowed to run too cool. A muff will assist to keep it at the correct temperature in cold weather.

In very cold weather the cooling system should be drained, when the car is not in use, to prevent the water freezing and causing damage. Anti-freezing mixture can be used, such as Smith's "Bluecol" and Price's "Zero." Follow the instructions of the suppliers.



H.7.45.A

A—Maximum Water Level.
B—Danger Low Level.

The Thermostat.

On some models Engine temperature is maintained by a Smith bellows type thermostat incorporated in the radiator hose pipe. This is entirely automatic and needs no attention.

When the engine is being decarbonised, the thermostat may be tested by placing it in boiling water and allowing the water to circulate over the element. The valve should then open.

WHEELS and TYRES

Correct Inflation Pressure; How to Use the Jack.

TYRES are an important item in the running cost of a car and they should have regular attention to ensure long life.

It is important to maintain correct pressures, and a check should be made at least once a week. Glance at the tyres daily to see that none is unduly slack.

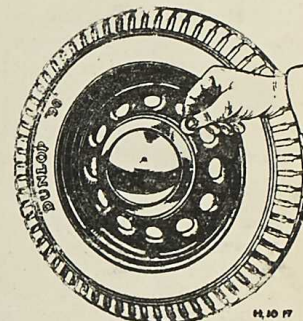
If, on account of tyre wear steering develops a tendency to wobble or the car to "wander," front tyre pressure may temporarily be increased. The front tyres should be kept at equal pressures.

Tyres may be inflated above the minima indicated if heavy loads are carried.

Weekly examination should be made of tyres for cuts, and nails and flints should be removed.

Valve lock nuts, if fitted, must be kept tight, or the tube may "creep" and be damaged.

It is beneficial to change tyres occasionally, front tyres from left to right, to equalise wear. In case of premature wear on the front tyres misalignment of the wheels may be suspected. See "Steering Adjustment."



Use a Screwdriver or Coin to remove Wheel Centre.

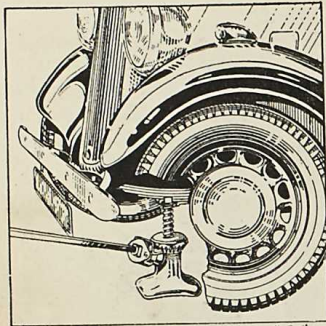
Recommended Tyre Pressures

Car.	Tyre Size.	Pounds per square inch.		
		Front Tyres	Rear Tyres.	
			Car Light.	Fully Laden.
"Seven"	4.75—16	20	18	22
	4.00—18	22	—	26
	4.00—17	22	22	26
	3.50—19	22	22	—
"Big Seven"	4.75—16	20	20	24
"Ten"	5.25—16	24	22	24
	4.75—18	26	—	36
"Twelve" and "Fourteen"	5.50—16	26	26	30
	5.75—16	24	24	28

Changing a Wheel.

Before changing a wheel see that the handbrake is fully "on" and if on a hill scotch at least one wheel with a brick or large stone.

Test the pressure of the spare tyre before fitting.

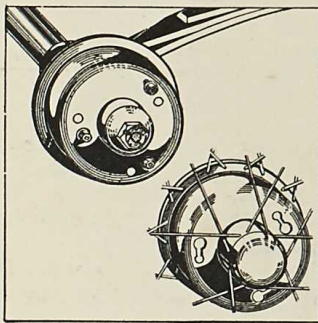


Jacking a "Ten" Front Wheel.

When removing a rear wheel the jack should be placed at the front end of the rear springs; between the rear mudguards and the forward edge of the tyre.

On "Sevens" the head of the jack fits between the two clips which embrace the spring leaves.

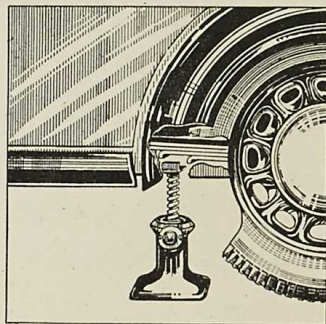
On the larger models the jack head should engage between two turned-down spring leaf ends.



Austin "Seven" Wheels except the latest models manufactured will slide over the nuts if turned to the left.

The jack should be adjusted by hand to nearly the height required. The base should stand firmly on the ground.

When a front wheel is to be removed from a "Seven" or "Big Seven" place the jack under the front axle, near but not under the big nut at the end. On the "Ten" place the jack head between the two turned-down spring leaf ends immediately in front of the axle. On the "Twelve" and "Fourteen" the jack should be placed below the projection on the sloping part of the front axle.



Jacking a Rear Wheel.

A little oil smeared on the studs will facilitate removal of the nuts on a future occasion. Wipe the back of the brake drum with an oily rag for the same purpose.

On replacing the wheel make certain that all nuts are screwed up tight before removing the jack.

REGULAR ATTENTIONS

Greasing, Oiling and Minor Adjustments.

REGULAR attention to oiling, greasing and minor adjustments is necessary in order to preserve the dependability built into Austin cars.

Some owners prefer to do their own maintenance, and when the car is used daily it should be serviced weekly.

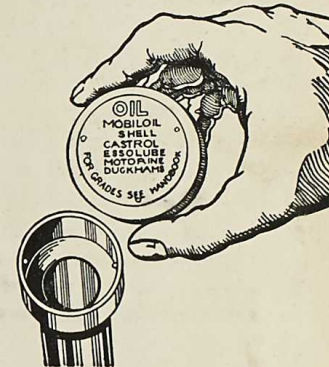
Under more arduous conditions, for instance, very dusty or very muddy roads, long distances at high speeds or with heavy loads, it will be advisable to attend to the lubrication of chassis parts more frequently.

Always on replenishing the petrol tank also check the level of the radiator water; it should be about one inch from the top of the filling orifice. On long daily runs examine the level of the engine oil and replenish if necessary.

After the car has been washed, or driven through water, the brake linings may be wet. Apply the brakes a number of times for some distance in order to dry them. Wet brakes are dangerous.

See chart on page 7 for capacities and when to drain the various oil chambers.

See page 21 for list of recommended oils and greases.



Use only recommended oils.

WEEKLY ATTENTIONS (or every 500 miles).

Assuming that not more than 500 miles (800 kilometres) are covered weekly, the following work should be done every week:—

Examine brakes and adjust if necessary.

Examine engine oil level and replenish if necessary.

Examine tyres for cuts, nails or flints and check pressures. (See "Care of the Tyres.")

Grease with the Gun :

Swivel axles (2 each). (One each on "Seven" and "Big Seven.")
Steering cross tube (2).

Steering side tube (2). (Use oilcan on early "Sevens.")

Road spring bushes (12) on models not fitted with rubber bushes ("Tens," "Twelves" and "Fourteens.")

On "Sevens" and "Big Sevens": Grease the front spring bushes (4) and rear spring bushes (2). Oil lightly the clutch release ring on "Seven" only.

Oil the brake pedal shaft (under the steering box, except on "Ten"), and, with a brush dipped in oil, the brake cross shaft bearings.

Grease fan bearing weekly on "Seven" and "Twelve."

MONTHLY (or every 2,000 miles).

Examine gear box and replenish with engine oil to the level of the filler of the "Seven," "Big Seven" and "Ten" or the right-hand side overflow plug of the "Twelve" and "Fourteen" Also replenish rear axle, up to filler plug level.

Lubricate, with **special oil**, the steering box, using the grease gun adaptor.

Examine the back axle and replenish with **special oil** to level of filler, using the grease gun adaptor. The filler is on the left-hand side of the axle casing.

Grease front hubs if required. Do not use too much grease or it will exude on to the brake shoes. Grease also rear hubs of "Sevens" and "Big Sevens."

Grease the forward, splined end, of the propeller shaft. The grease nipple is on the shaft and the car may have to be moved to expose the nipple.

On "Sevens" and "Big Sevens," also grease the front end of the torque tube, using the adaptor.

Oil dynamo lubricators, using **special oil**.

Check tension of fan belt.

Oil: Steering pillar (under the steering wheel); all brake connections; all carburetter control connections; ignition distributor bearing (see "Electrical Equipment").

Examine battery (see "Electrical Equipment"), ignition leads, sparking plug terminals and all electric cables.

Clean dynamo and starter motor commutators and brushes.

OCCASIONAL ATTENTIONS.

Occasionally examine all nuts and bolts, including bolts holding the body to the chassis, road spring clips, spring shackle bolts, cylinder head nuts, wheel nuts, brake and steering connections.

The radiator should be flushed through occasionally. Rock the car and run water through until it comes out clean.

Engine, gearbox and rear axle oil should be changed in accordance with the recommendations on page 7.

Every 2,000 to 3,000 miles (3,200 4,800 km.) the sump of the Austin "Seven" or the oil strainer in the base of the sump of larger cars, should be removed and cleaned with petrol. Take care to make a perfect joint on replacing, first smearing the flanges with grease.

Frequently while the engine is running watch the oil pressure gauge to see that oil is circulating freely.

LUBRICATION

USE ONLY THE RECOMMENDED OILS AND GREASES.

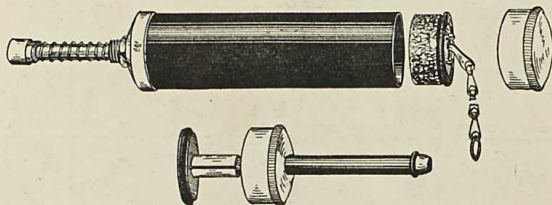
THE correct lubrication of all working parts is of vital importance. Only the officially recommended oils and greases should be used, as follows:—

Engine :	Wakefield	Essolube	Price's	Duckham's	Vacuum	Shell	Regent
Summer and Winter	Castrol XL	Essolube 30	Energol SAE. 30	Duckham's NP "Thirty"	Mobiloil A	Double Shell	Regent Motor Oil 30
Gear Box	Castrol XXL	Essolube 40	Energol SAE. 40	Duckham's NP "Forty"	Mobiloil BB	Triple Shell	Regent Motor Oil 40
Wheel Hubs and Grease Gun	Ca. trol ease Heavy	Esso Grease	Belmoline C.	Duckham's H.B.B. Grease	Mobilgrease No. 4	Shell Retinax R.B.	Roller Bearing Grease
Rear Axle and Steering Box	Castrol Hi-Press	Esso Expee Compound 146	Energol E.P. SAE. 140	Duckham's XS. Press 140	Mobilul e GX 140	Shell Spirax 140 E.P.	Thuban 140 E.P.
Distributor Dynamo and Oil Can	Wakefield Oilit	Esso Handy Oil	Energol SAE. 20	Duckham's NP "Twenty"	Mobil Handy Oil	Single Shell	Regent Home Lubricant
Upper Cylinder Lubrication	Wakefield Castrollo	Essomix	Energol U.C.L.	Duckham's Adcolids	Mobil Uppertube	Shell Donax U	Regent Upper Cyl. Lub.
Springs, Rusted Parts or Squeaks	Castrol Penetrating Oil	Esso Penetrating Oil	Energol Penetrating Oil	Duckham's Laminoid Liquid	Mobil Spring Oil	Shell Donax P.	Regent Penetrating Oil

The Grease Gun.

The grease gun is filled by removing the end cap and the cork. Leave plenty of room to re-insert the cork. A dust cap covers the ram.

When the ram is returned, by the spring, to its extended position it creates a vacuum and the high pressure chamber is automatically refilled.



The Grease Gun.

A—Ram. B—Cover. C—Adaptor. D—Cork Plunger.

Hold the gun directly in front of the nipple to be charged, not at an angle. Three or four strokes of the gun are usually sufficient.

To use the adaptor, remove the end cap **and** the cork. Insert the plunger of the adaptor into the barrel of the gun. Use the adaptor in the same way as the high pressure gun.

Engine Attentions.

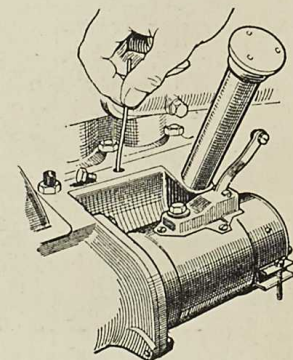
Periodical attention to the engine are enumerated under the heading "Regular Attentions," and in the charts on the following pages.

The level of oil in the engine sump should be checked frequently and the sump drained and replenished regularly. The oil level should not be below $\frac{1}{2}$ in. of the bottom or above the "FULL" mark on the dip rod. Wipe the rod before checking the level.

When draining the sump of Austin "Big Sevens," "Tens," "Twelves," and "Fourteens" the oil strainer at the base of the sump should be removed (it has six nuts) and thoroughly cleaned in petrol. Wash it with a brush; never use a rag.

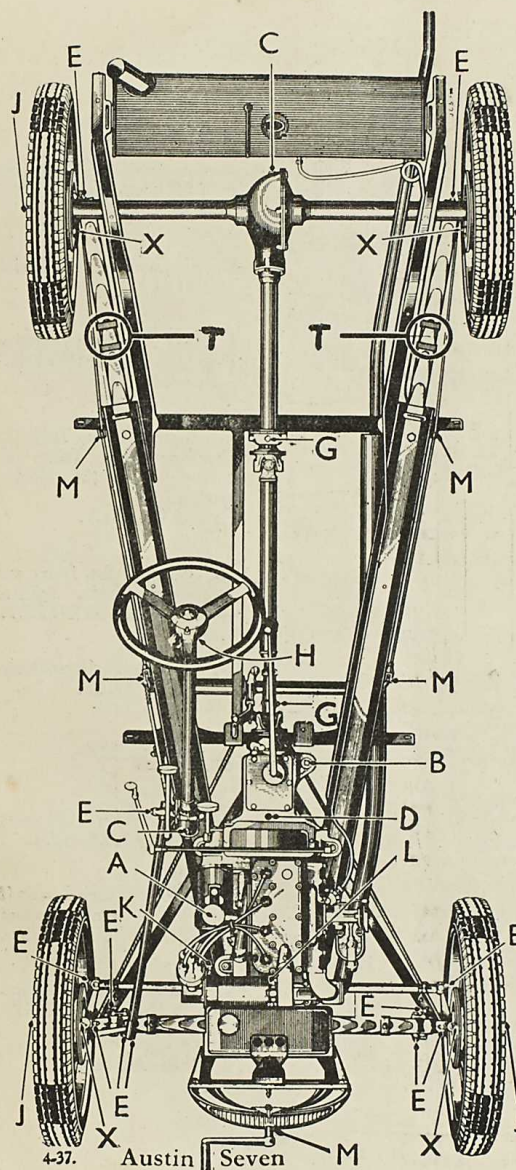
Every 2,000 to 3,000 miles the sump of the Austin "Seven" should be removed and the gauze oil tray and sump cleaned with a brush and petrol. Be careful not to break the joint washer or a new one must be used. Smear each side of the joint with grease before replacing, and tighten the nuts gradually all round in turn.

Austin "Seven" big-end bearings are lubricated by oil falling from two jets at the top of the crankcase, on the right-hand side. The jets are covered by two plugs, which should be removed occasionally and the jets cleaned with a piece of stiff wire, of not more than $\frac{1}{32}$ in. diameter.



Cleaning the oil jets of the Austin "Seven."

Austin "Seven" Lubrication Chart



A. Crankcase, Replenish to full mark on dip-stick WEEKLY.

B. Gearbox. Replenish MONTHLY.

C. Rear Axle and Steering Box. Replenish MONTHLY—Special Oil.

D. Clutch withdrawal sleeve—Oil WEEKLY.

E. Steering Cross Tube (2), Steering Side Tube (2), Swivel axles (2), Spring bushes (6). Grease WEEKLY

G. Torque tube, front end (also one nipple on rear end of propeller shaft on earlier models).

Propeller shaft, splined end Grease MONTHLY.

H. Top of steering column. Oil MONTHLY.

J. Hubs. Grease MONTHLY.

K. Distributor. Oil sparingly every 1,000 miles.

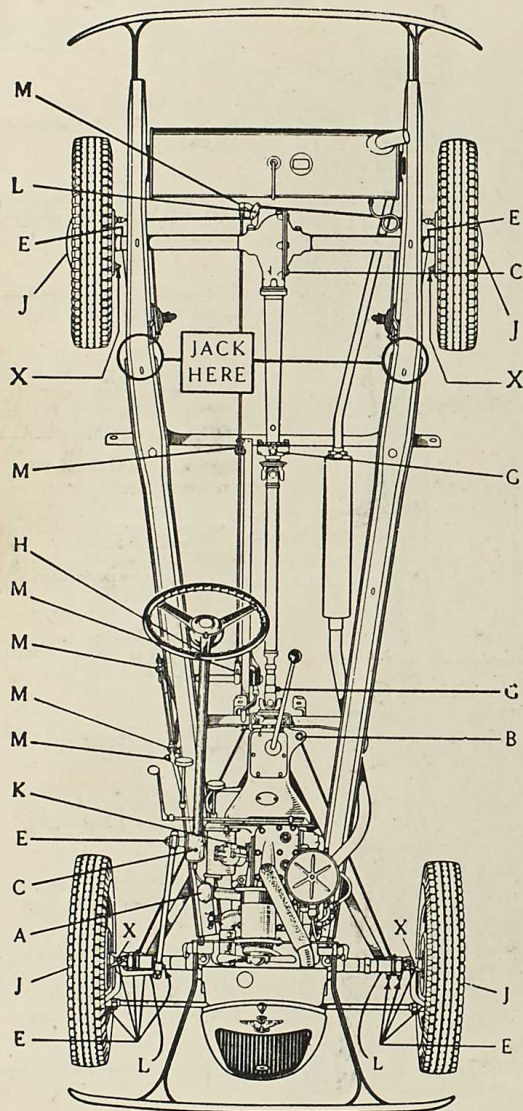
L. Fan bearing. Grease WEEKLY.

M. Brake and throttle control joints, starting handle, and brake pedal shaft. Oil MONTHLY.

T. Jacking Pads on Springs

X. Brake Adjusters.

Austin "Big Seven" Lubrication Chart



H 7. 44 B.

A. Crankcase — Replenish to full mark on dip-stick WEEKLY.

B. Gearbox — Replenish MONTHLY.

C. Rear Axle and Steering Box—Replenish MONTHLY—Special Oil.

E. Steering Cross Tube (2), Steering Side Tube (2), Swivel axles (2), Spring bushes (6). Grease WEEKLY.

G. Torque Tube, front end Propeller shaft, splined end.—Grease MONTHLY.

H. Top of steering column—Oil MONTHLY.

J. Hubs—Grease MONTHLY.

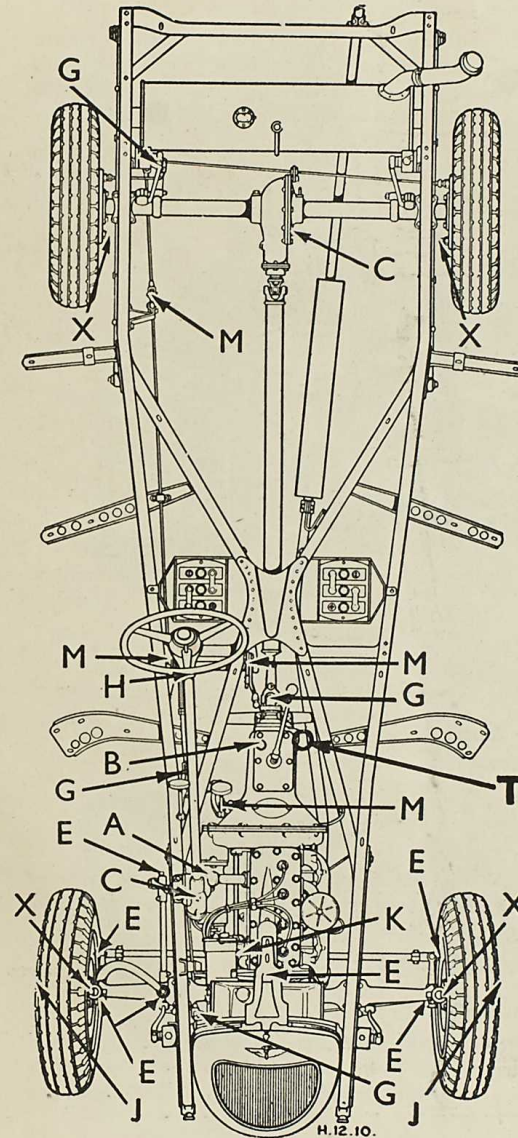
K. Distributor—Oil sparingly every 1,000 miles.

L. Brake Balance Lever (1) and Front Brake Swivels (2)—Grease MONTHLY.

M. Brake and throttle control joints, Oil WEEKLY.

X. Brake Adjusters.

Austin "Ten," "Twelve" and "Fourteen" Lubrication Chart



H. 12. 10.

A. Crankcase—Replenish to full mark on dip-stick WEEKLY.

B. Gearbox. Replenish MONTHLY (at the side on "Tens" as shown at "T")

C. Rear Axle and Steering Box. Replenish MONTHLY (special oil).

E. Steering Side Tube (2), Cross Tube (2), Swivel Axles (2 each), Brake Pedal Shaft (1), Fan Bearing (Twelve only). Grease WEEKLY.

G. Propeller Shaft splined end, Brake Balance Levers (2). Grease MONTHLY.

H. Top of Steering Column. Few drops of oil MONTHLY.

J. Front Hubs. Grease OCCASIONALLY.

K. Distributor. Oil (sparingly) every 1,000 miles.

M. Brake and Throttle Control Joints, Clutch Pedal Shaft. Oil MONTHLY.

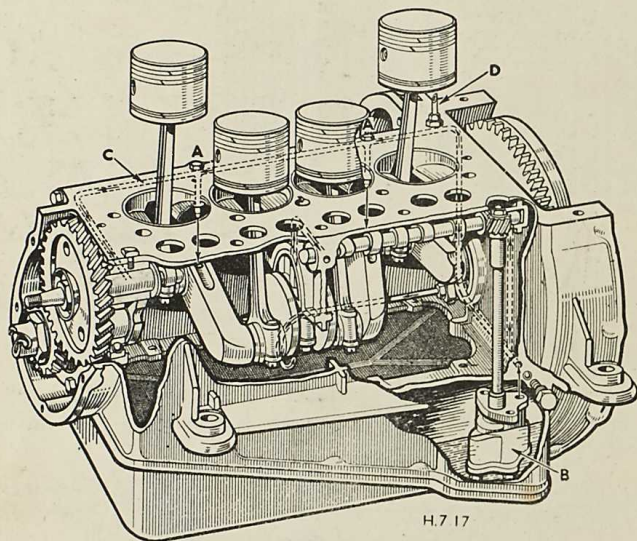
X.—Brake adjusters.

Grease Spring Shackles (12) Weekly on models where rubber bushes are not fitted

Oil Gauge.

The oil gauge on the instrument board will register a higher pressure than normal when the engine is cold. When the engine is warm it should be steady and the cause of any unusual variation should be investigated.

A relief valve is fitted to the left-hand side of the crankcase of Austin "Big Sevens," "Tens," "Twelves" and "Fourteens." If the gauge fails to register verify the adjustment of this valve and see that the spring loaded ball seats properly. Otherwise this valve should not be touched.



The Austin "Seven" Engine.

A—The oil jets. B—Oil pump.
C—Oil ways. D—To pressure gauge.

"Seven" Clutch.

On the Austin "Seven" the clutch withdrawal sleeve should be oiled weekly. It can be seen from the driving seat if the clutch pedal is depressed slightly. See illustration on page 39.

No lubrication is necessary for other clutches.

Speedometer Drive.

The flexible shaft of the speedometer drive from the gearbox should be lubricated with a few drops of oil from the speedometer end about every 2,000 miles (3,000 km.). To do this uncouple the union nut behind the speedometer.

The shafting should also be taken down and thoroughly cleaned about every 6,000 miles (10,000 km.). It should then be lubricated along

its whole length by applying grease, so that when the shaft is replaced in its tubing there will be a good supply of lubricant.

A little grease should also be smeared round the flange where it rubs the washer of the key piece which connects to the speedometer.

The Gearbox and Rear Axle.

Maintain the oil level of the gearbox to the bottom of the filler plug hole on Austin "Sevens," "Big Sevens" and "Tens" and the overflow plug on the right-hand side of Austin "Twelve" and "Fourteen" gearboxes. Top up rear axle to filler plug level.

Drain and refill after the first 1,000 miles (1,600 km.) and then every 5,000 miles (8,000 km.).

The Hubs.

Front and rear hubs of Austin "Sevens" and "Big Sevens" should be given sufficient grease, but not too much or the brakes may be rendered ineffective.

Grease is injected by the gun adaptor through plugs on each hub (see illustration on page 62).

On the Austin "Tens," "Twelves" and "Fourteens" only the front hubs should be given grease. Unscrew the hub caps, pack with grease and replace.

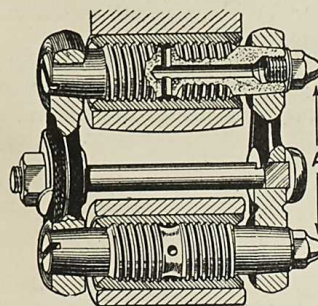
Other Parts.

Other parts of the car should be oiled and greased in accordance with the Chassis Lubrication Diagrams on pages 23, 24 and 25, and the instructions under "Regular Attention."

Grease Nipples.—If a grease nipple becomes choked, unscrew it and clean it with paraffin or petrol. If it cannot be cleared fit a new one.

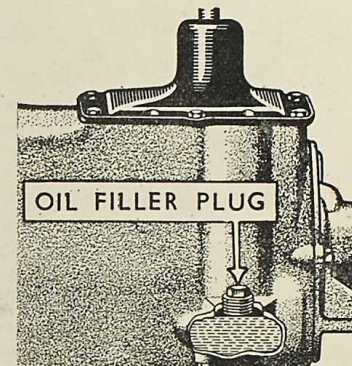
Road Springs.—Road springs should be sprayed with penetrating oil occasionally. This will prevent squeaking in wet weather. Rock the car during spraying.

Spring Bushes.—Spring bushes do not require lubrication on Austin "Tens," "Twelves" and "Fourteens" in the case of models fitted with "Silentbloc" bushes. Bushes provided with grease nipples should be lubricated weekly. The "Seven" and "Big Seven" front spring bushes have four grease nipples.



Greaser Type Spring Shackle
(Fitted to some "Ten," "Twelve" and "Fourteen" models).

A—Grease Nipples.



"Seven," "Big Seven" and "Ten"
Gearbox Filler.

THE PETROL PUMP

How Fuel is supplied from the Tank to the Carburetter.

PETROL is drawn from the tank at the rear by means of an A.C. petrol pump which advances the fuel in the correct quantity demanded by the carburetter, no more and no less.

Service on the petrol pump is available at all Austin Dealers and at all A.C. service stations, which are prepared with parts and fixtures for repairing and adjusting all pumps if any trouble is experienced with the fuel supply.

Make sure that any difficulty is not due to causes apart from the pump before attempting to do anything to the pump.

If there appears to be lack of fuel at the carburetter, first ascertain if there is fuel in the tank, and if not, replenish. Make sure that the piping and connections between the tank and the pump, and between the pump and the carburetter, are not leaking, and in case of broken or damaged piping replacement should be made.

It may be that the filter cover of the petrol pump is loose. If this is the case, tighten the main nut at the top, first ascertaining that the cork gasket lies flat on its seat and is not broken or unduly compressed. A gasket compressed hard may need to be renewed.

Clean the Filter.

Occasionally remove the cover and clean the filter screen underneath it. Also remove any sediment from the chamber below the filter by means of drain plug marked "F" (see page 29).

When re-assembling, take care that the cork gasket is replaced correctly, with the fibre washer under the head of the screw.

If petrol appears to be leaking at the edge of the diaphragm tighten the cover screws alternately and securely, but do not dismantle the pump body.

Sometimes there appears to be a leakage of fuel at the diaphragm edge. The leakage may actually exist at one of the pipe fittings and the fuel has run down the pump to the diaphragm flange.

In hot weather when petrol is likely to evaporate, and when difficulty might be expected on cold mornings it is advisable to fill the carburetter by operating the hand priming lever on the pump before attempting to start the engine.

The pumping action of the diaphragm can be distinctly felt until the carburetter bowl is full. It will be appreciated, however, that if the engine comes to rest when the rocker arm is on the high point of the eccentric the priming lever will be inoperative. In this event, the engine should be turned over by hand one revolution.

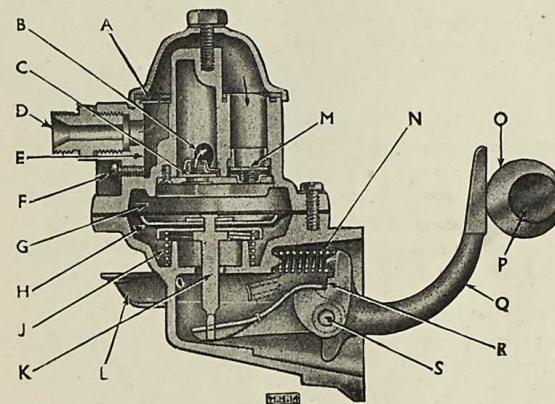
After removal of the upper casting on any type of A.C. fuel pump it is important that the cover should only be replaced while the pump pull rod is at the top of its stroke. This is to ensure sufficient flexing of the diaphragm to allow its normal working movement.

The pump should only be dismantled by a service station equipped with the necessary special tools.

How it works.

By revolving shaft (P) the eccentric (O) will lift rocker arm (Q) which is pivoted at (S) and which pulls the pull rod (K), together with the diaphragm (H), downward against the spring pressure (J), thus creating a vacuum in the pump chamber (G).

Fuel from the rear tank will enter at (D) into sediment chamber (E) and through the filter gauze (A) and suction valve (M) into pump chamber



The A.C. Petrol Pump.

F—Drain Plug. L—Priming Lever.

(G). On the return stroke spring pressure (J) pushes the diaphragm (H) upward, forcing the fuel from chamber (G) through pressure valve (C) and opening (B) into the carburetter.

When the carburetter bowl is filled the float in the float chamber will shut off the inlet needle valve, thus creating a pressure in pump chamber (G). This pressure will hold diaphragm (H) downward against the spring pressure (J) and it will remain in this position until the carburetter requires further fuel and the needle valve opens.

The rocker arm (Q) is in two pieces, the outer one operating the inner by making contact at (R) and the movement of the eccentric (O) is absorbed by the "break" when fuel is not required.

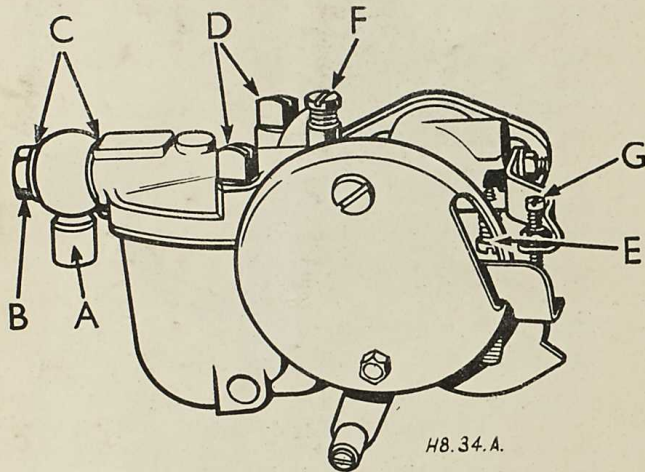
Spring (N) is merely for the purpose of keeping the rocker arm (Q) in constant contact with the eccentric (O) to eliminate noise.

THE CARBURETTER

Cleaning and Adjustment for Good Performance

ON the Austin "Seven" a Zenith horizontal type carburetter is fitted, and on other models the carburetter is the Zenith down-draught type.

The operation of each is similar and maintenance is the same, with or without an air cleaner and intake silencer.



The Horizontal Carburetter (without Air-Cleaner.)

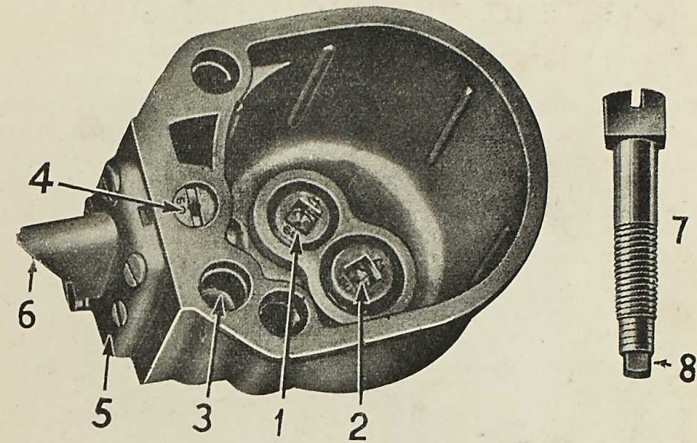
- | | |
|------------------------------|---------------------------------|
| A—Petrol Union. | D—Retaining Bolts |
| B—Union Nut and Filter Plug. | E—Slow Running Adjusting Screw. |
| C—Washers. | F—Air Regulating Screw. |
| | G—Connecting Link Screw. |

Petrol enters the carburetter at the union A and passes through a filter, which should be removed occasionally for cleaning by unscrewing nut B. Take care to replace washers C on re-assembling.

The float chamber can be dismantled for inspecting the jets by taking out the square-ended retaining bolts D. One end of the long bolt D is squared to form a key for the removal of the Main Jet (1) and the Compensating Jet (2). A screwdriver will undo the screw over the Slow Running Jet (4).

Petrol enters the float chamber through the needle seating and the float rises to close the needle when the chamber becomes full. The petrol then flows through the main and compensating jets and rises in the capacity well. From the jets it flows along two separate channels into a common channel in the emulsion block (5). Here petrol from the capacity well is in direct communication with the atmosphere.

All petrol from the jets and the well is centred in one channel in the emulsion block and is led to the nozzle (6) projecting into the choke tube, which in turn leads to the inlet manifold.



The Carburetter Bowl.

- | | | |
|---------------------|--------------------------------|-------------------|
| 1—Main Jet. | 3—Capacity Well. | 5—Emulsion Block. |
| 2—Compensating Jet. | 4—Slow Running Jet. | 6—Nozzle. |
| 7—Retaining Bolt. | 8—Squared end to form jet key. | |

Starting Difficulties.

No adjustments should be made unless absolutely necessary.

Difficulty in starting may be due to the strangler flap not closing properly, in which case the control wire should be adjusted. Also check that use of choke slightly opens the throttle by means of connecting link.

Weak mixture can be enriched by turning the air regulating screw (F) to the right. Mixture too rich will cause the engine to choke while slow running when warm, or to misfire.

Slow running may be adjusted by means of the throttle control stop screw (E) and the air regulating screw (F).

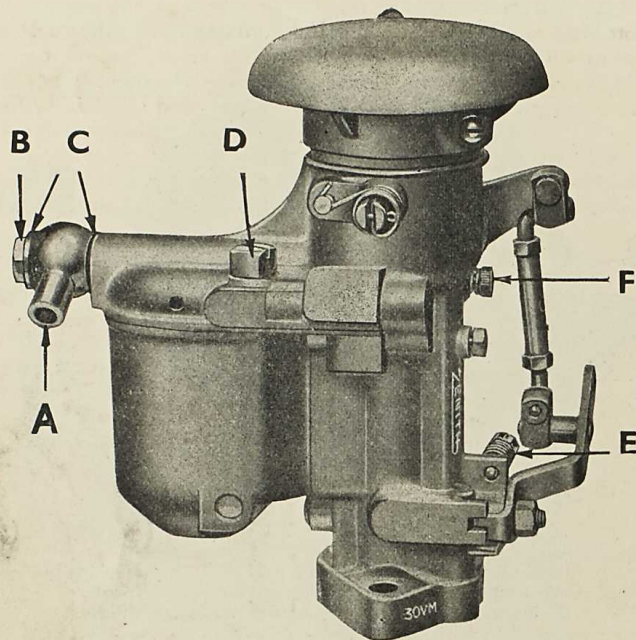
Poor acceleration in cold weather may be caused by the engine not being sufficiently warm, or the mixture being too weak.

Lack of power and speed may be caused by the jets becoming choked. Clean them by washing them in petrol and blowing air through them with a tyre inflator. Wire must never be used. All jets should be cleaned occasionally.

There are no moving parts in the carburetter which require adjustment but the filter, float chamber and jets may need cleaning occasionally.

On replacing the float see that the letters "TOP" are upwards. All joints must be made air tight on re-assembling pipes or other connections.

After the car has been standing for a long time the carburetter should be primed by operating the petrol pump with the hand lever. See "Starting the Engine."



The Downdraught Carburettor (without Air-Cleaner).

- A—Petrol Union. C—Washers. E—Throttle Adjustment.
 B—Union Nut and Filter Plug. D—Retaining Bolt. F—Air Regulator.

Standard Settings.

Zenith jet sizes usually run in fives ; the higher the number the larger the jet.

Standard settings are as follow :—

	"Seven"	"Big Seven"	"Ten"	"Twelve"	"Fourteen"
Choke	17	23	23	25	23
Main Jet	57	90	95	105	102
Compensating Jet ..	50	50	50	60	87
Slow Running Jet ..	60	60	60	55	60
Progression Jet ..	50	—	60	100	110
Needle Seating ..	1.5 mm.	1.5 mm.	1.5 mm.	1.5 mm.	1.5 mm.
Capacity Tube ..	2	—	2	2	2

Settings are likely to be varied according to special requirements.

"Leaded" Fuels.

Note that careful attention should be given to the valves and other adjustments when using "leaded" petrol. (See Valve Tappets, page 53.)

The deposit from such fuels can be removed by "scrubbing" the valves and their seats with a stiff wire brush of the type used for cleaning files (a "file card"), after which the valves can be ground-in in the normal manner.

We would recommend this method of cleaning for all valves, whether they have operated with leaded or ordinary fuels, as it eliminates the possibility of leaving small deposits on the valve seats which cause damage or prolong the "grinding-in" process.

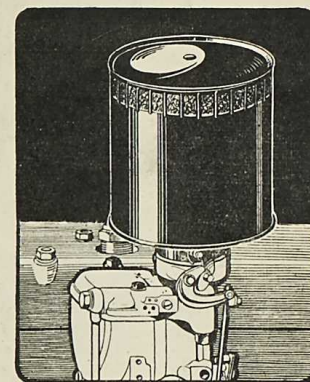
The Air Cleaner.

At frequent intervals, say weekly, where dust is constantly experienced, the A.C. oil wetted air cleaner needs cleaning and re-oiling.

It is pulled off from the carburettor and the louvred end of the cleaner is swilled in a shallow pan of petrol.

After drying, the metal gauze mesh should be re-oiled with engine oil, allowing the surplus to drain off before refitting the cleaner.

If the air cleaner is neglected it becomes choked with dirt, sufficient air cannot pass, the mixture is too rich, and petrol consumption is increased.



Oil Wetted Air Cleaner and Silencer.

Oil Bath Air Cleaner.

On certain models a special type of Oil Bath Air Cleaner and Intake Silencer is fitted to the carburettor.

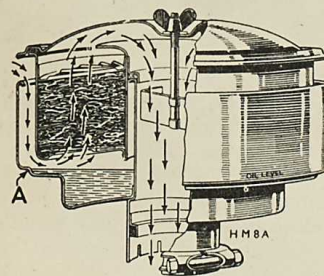
It is important that oil should be maintained to the correct level indicated by the white line on the casing.

Each time the engine oil is drained, remove the air cleaner complete, unscrew the butterfly nut at the top and take out the gauze unit. The oil bath immediately beneath the gauze should be cleaned and refilled with oil of the same grade as used in the engine. About half a pint is necessary.

The bath should be renewed more frequently under very dusty running conditions.

Occasionally—every 5,000 to 6,000 miles, or more frequently in dusty districts—wash the gauze unit in petrol and allow it to dry before replacing.

It is important that the cleaner should receive these attentions in order to maintain its cleaning efficiency and consequent protection for the engine.



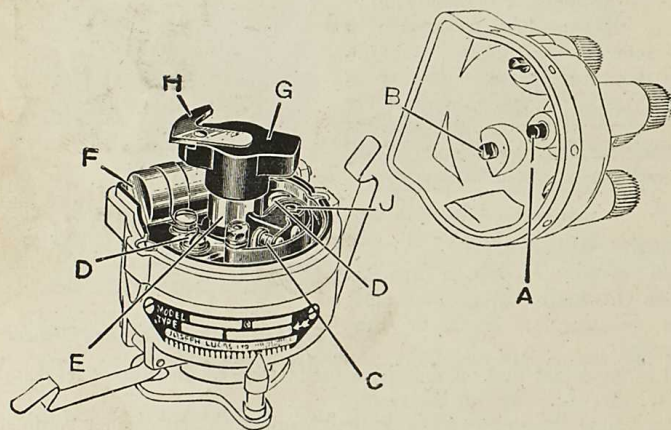
Oil-Bath Air Cleaner
 A—Oil Level.

IGNITION SYSTEM

Cleaning the Distributor ; Lubrication ; Fault Finding.

THE coil ignition equipment is provided with an automatic advance mechanism, which relieves the driver of the necessity of constant adjustment of the hand ignition control. Its advantages are particularly evident when accelerating, and during hill climbing, the danger of pre-ignition, knocking or "pinking" being very much reduced.

The device is housed in the distributor unit, and it consists of a centrifugally operated mechanism by means of which the ignition is advanced in proportion to engine speed.



Distributor and Contact Breaker.

- | | | |
|-----------------------------|-------------------|----------------------------|
| A—Carbon Brush | D—Locking Screws. | G—Rotating distributor arm |
| B—Electrode in Distributor. | E—Rotating Cam. | H—Metal Electrode. |
| C—Contacts. | F—Condenser. | J—Contact breaker pivot. |

The ignition should be inspected occasionally and the following instructions carried out.

Remove the distributor moulding by pushing aside its two securing springs and see that the electrodes are clean and free from deposit. Wipe out the distributor with a dry duster and clean the electrodes with a cloth moistened with petrol. See that the carbon brush in the centre of the moulding is clean and moves freely in its holder.

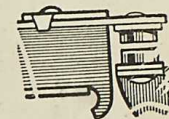
Examine the contact breaker. It is important that the contacts are kept free from any grease or oil. If they are burned or blackened, they may be cleaned with a very fine carborundum stone, or fine emery cloth. Afterwards polish with a cloth moistened with petrol. Care must be taken that all particles of dirt and metal dust are wiped away. It is possible that misfiring may be caused if the contacts are not kept clean.

Contact Breaker Gap.

After the first 500 miles running it is usual for the car to be taken to a Service Station for various minor adjustments to the engine. As most of the bedding down occurs during this period, the contact breaker gap should be checked at the same time, and, if necessary, reset to .012in. maximum opening, and the cam must be given a smear of engine oil.

The contact breaker should then only need adjustment at long intervals. It is not advisable to alter the setting unless the gap varies considerably from the gauge provided in the tool kit.

If adjustment is necessary, proceed as follows: turn the engine in the position to give maximum opening of the contacts, then, using the ignition screwdriver, slacken the two screws securing the contact breaker plate and move the plate until the contacts are set to the gauge. Tighten the screws.



The Contacts.

Do not attempt to clean up the contacts if they become rugged, but have them attended to by a skilled mechanic.

Lubrication.

The distributor spindle bearing is lubricated by means of an oiler through which one or two drops of thin machine oil should be added every 1,000 miles (1,600 km.).

Every 3,000 miles (5,000 km.), give the cam and also the pivot on which the contact breaker works a smear of Mobilgrease No. 2. Withdraw the rotating arm from the top of the spindle by lifting it off, and add a few drops of thin oil to the top of the spindle. Do not remove the screw exposed to view as there is a clearance between the screw and the inner face of the spindle through which the oil passes to lubricate the cam bearing.

The moving parts of the automatic timing control must be lubricated with a good grade of thin engine oil. To render the control accessible, remove the distributor moulding and lift off the rotating distributor arm, then remove the contact breaker base moulding by withdrawing its two securing screws.

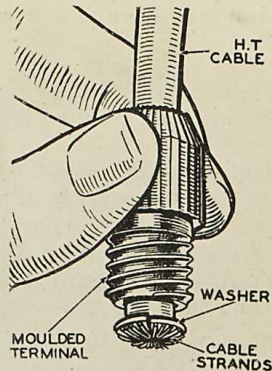
Ignition Coil.

The coil unit requires no attention beyond seeing that the terminal connections are kept tight, and the moulded coil is kept clean.

High Tension Cables.

When the high tension cables to the sparking plugs show signs of perishing or cracking, they must be replaced. Use only 7 mm. rubber-covered ignition cable.

To connect the cable to the distributor or coil terminals, thread the lead through the terminal nut bare the end of the cable about $\frac{1}{4}$ in., pass it through the washer and bend back the strands. Tighten the terminal to make a good connection.



Cable Terminal.

Ignition Faults.

If the engine will not fire, or fires erratically, the trouble may arise from the petrol supply. If sooted plugs are suspected, dismantle and clean them.

If the batteries have run down, or the terminals have worked loose, there will be no spark, and the same results can be expected if the distributor electrodes and contact breaker have been neglected and are dirty.

The coil can be tested by removing the cable from the centre socket on the distributor cover, and holding the end of this cable about $\frac{1}{4}$ in. from some metal part of the car, while the ignition switch is on and the engine is turned. A strong and regular spark will result if the coil is in order. Clean the top of the coil, and ensure that the terminals are tight before making this test.

To test for short circuits in the low tension wiring (the cables from the switchboard to coil, coil to distributor, and distributor to chassis) which would equally cause irregular running, have the engine turned while the ignition is switched on and watch the ammeter reading. It should rise and fall as the contact breaker points close and open. This test will also indicate if the contact breaker is functioning correctly. If the contacts remain open, or do not fully close, the reading will not fluctuate.

If the high tension cables from the distributor to the plugs are not securely attached to the distributor, misfiring may occur. Or if the rubber insulation on the cables shows signs of perishing and cracking, there may be leakage of the current giving rise to the same symptoms. Renewing the cables is then the remedy.

If, after verifying these points, the trouble remains undiscovered, the equipment should be examined and tested at the nearest service depot.

Ignition Warning Lamp.

When the engine is stopped the ignition switch should always be turned to "off" or the batteries will discharge. A warning lamp is provided in the switchbox which gives a red light when the ignition is "on" and the engine is stationary.

Should the bulb of the warning lamp fail, it can be removed from its socket when the small cover plate, holding the red glass, is unscrewed. The replacement bulb should be a 2.5 volt, .5 watt., screw cap type (No. C.252 A.).

Sparking Plugs.

The sparking plugs fitted included:—K.L.G. Type L777, K.L.G. Corundite F.50X, Lodge C.14.S, or Champion L.10.

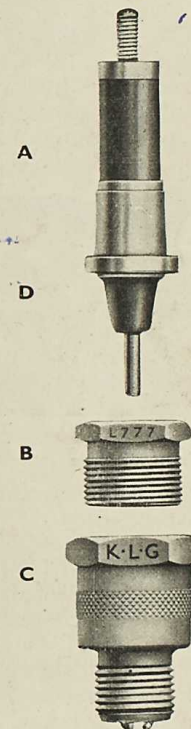
The gaps between the firing point of the central electrode and the earth points are set at .018 to .020 of an inch. A gap too wide would cause misfiring, especially at high speeds, and under heavy pulling at low speed with an open throttle. A gap too small would cause poor idling.

After the first thousand miles it may be necessary to clean the plugs, to remove carbon deposit from the interior insulation.

To clean an L777 plug, the insulated centre "A" must be removed from the plug body "C" by unscrewing the gland nut "B."

When "B" is unscrewed, the gland nut with the central electrode may be withdrawn. Wipe the lower mica insulation carefully with a rag soaked in petrol. If the carbon deposit is hard, soak the electrode in petrol for an hour or so, this will soften the carbon.

Some plugs cannot be separated and are best cleaned on a special sandblasting machine.



Type L777 Sparking Plug.

A—Insulated Centre C—Plug Body.
B—Hexagonal Gland Nut. D—Mica Centre

The mica insulation "D" should be thoroughly cleaned and polished, and the central electrode scraped clean.

Scrape out the inside of the body and clean the earth points. Wash the plug body in petrol and dry it.

To re-assemble, make sure that the internal washer is in place, before inserting the electrode. Tighten the gland nut to secure gas tightness, reset the earth points to .018in. to .020in. To do this it may be necessary to bend each earth point toward the central electrode. **The central electrode must not be levered toward the earth points.**

If the sparking plug washer has been completely flattened, replace it with a new one.

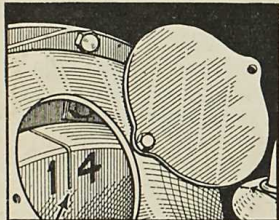
Poor grade oil, improper carburetter adjustment, low grade petrol, excessive use of choke, faulty cables and distributor points out of adjustment, may cause fouled sparking plugs.

It is important that sparking plugs should be renewed every 10,000 miles.

Timing the Ignition.

In the event of the distributor being removed, the ignition-timing must be re-set.

Remove all the sparking plugs except No. 1 (at the front) and turn the crankshaft by the starting handle until compression is felt.

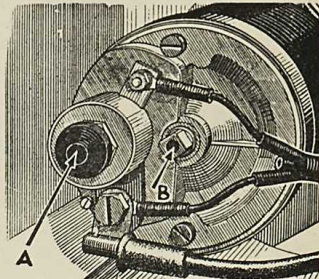


Top Dead Centre Mark on Flywheel.
(On "Fourteen" the mark is 1/6.)

Remove the clutch cover and a line will be seen on the flywheel marked 1/4 in the case of **four-cylinder engines**, and 1/6 for **six-cylinders**. This line should be at top dead centre for "Seven," "Big Seven" and "Ten," but for the "Twelve" and "Fourteen" the flywheel should be turned back until this mark is in advance of top dead centre, as follows:—

Austin "Twelve" 1/2 in. (12.75 mm.)

Austin "Fourteen" 3/4 in. (6.5 mm.)



Use a spanner on the squared end if the starter pinion jams (not "Seven").

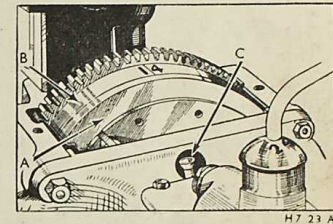
A—Rubber Cap on Solenoid Starter Switch
B—Squared End of Shaft.

Remove the distributor cover by springing back the two securing clips. The screw for the clip to the distributor casing should be slackened, and the casing turned anti-clockwise until the contact breaker points just begin to open; this is the position at which the spark occurs. It is essential to see that the rotating arm is then pointing to the position of No. 1 electrode. The screw should then be re-tightened.

The distributor cover should then be refitted, and secured in its proper position by the two clips.

If, after this, the ignition seems too much or too little advanced, it can be adjusted by loosening the clamping screw of the distributor fixing clip, and moving the distributor casing relative to the clip a slight amount, anti-clockwise to advance the timing, or clockwise to retard. Only an extremely small movement is required. Then tighten the screw.

If the leads from the distributor have been disconnected for any purpose, they must be replaced correctly, in the sequence marked on the distributor cover, thus:—1, 3, 4, 2, the firing order for **four-cylinder engines** and 1, 5, 3, 6, 2, 4, for **six-cylinders**.



The Austin "Seven."

A—Flywheel. B—Flywheel Rim Carrying Timing Mark.
C—Clutch Ring Oiler.

ELECTRICAL EQUIPMENT

Cleaning the Commutators and Brushes; Battery Attention.

AUSTIN "Tens," "Twelves" and "Fourteens" have a 12-volt electrical system. That on Austin "Sevens" and "Big Sevens" is 6-volt. The units are arranged on the single wire system, one path for the current being provided by the frame, with which all units must have metallic contact. The positive pole is earthed.

Dynamo.

The Austin "Seven" dynamo is of the third-brush-control type, with two charging rates, "High" and "Low," controlled from the switch-board.

Other Austin models have compensated voltage control dynamos, and output is automatically varied according to the state of the batteries, whether fully charged or discharged, and according to the current taken by lamps or other accessories.

The only parts of either type of dynamo needing attention are the commutator and brushes. These are readily accessible when the cover, near the end of the dynamo, is removed. They should be kept free of oil. Carbon dust should be blown away and the parts cleaned with a soft rag or, if very dirty, fine glass paper. The brushes should slide freely in their holders and should bed evenly on the commutator. Renew worn brushes.

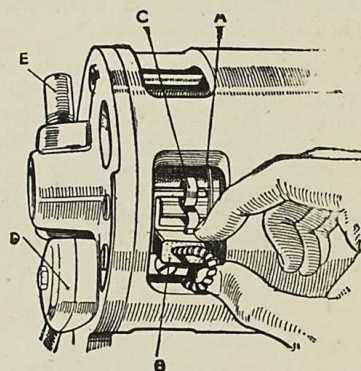
Unscrew the cap of the lubricator at the commutator end every 10,000 miles. If the lubricating wick is dry the cap must be filled with Vaseline brand petroleum jelly.

Dynamo bearings should be packed with grease when the car is being overhauled.

Starting Motor.

Clean the commutator and brushes of the starting motor as on the dynamo.

If the starter-pinion jams it can be released by turning the squared end of the starter shaft with a spanner, taking off the metal cap to reach it. (Two small screws hold this cap in position.)



A—Commutator.
B—Brush.
C—Brush Spring.
D—Terminal Box.
E—Lubricator.

If the engine fails to start at the first attempt do not use the starter again until the engine has stopped completely, or the gearing may be damaged.

Ammeter Readings.

The ammeter indicates the rate at which the batteries are being charged or discharged, but not the amount of current used by the starter motor.

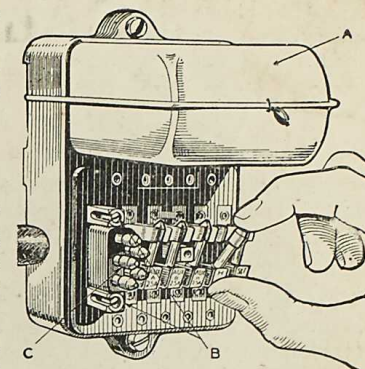
With all lights on and at a speed of about 30 miles an hour, the ammeter should show a charge of one or two amperes.

Investigate the cause of a discharge, with no lamps on, or failure to show any charge when the engine is running fast.

Cut-out, Regulator and Fuses.

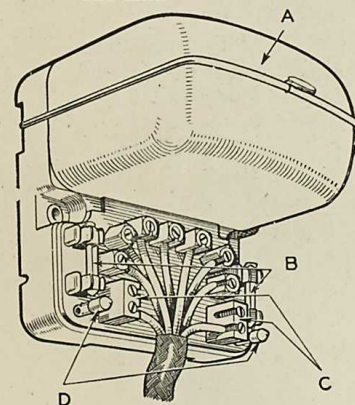
On the Austin "Big Sevens," "Tens," "Twelves" and "Fourteens" the cut-out, regulator and fuses are mounted as one unit, which also forms a junction box.

On the Austin "Seven" the cut-out is mounted with two fuses as one unit.



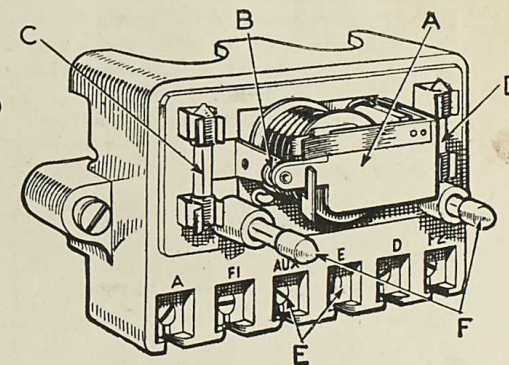
"Twelve" and "Fourteen" Regulator and Fuses.

- A—Regulator and Cut-out Cover.
E—Accessories terminals.
C—Spare fuses.



Austin "Ten."

- A—Regulator and cut-out cover.
B—Accessories fuses.
C—Accessories terminals.
D—Spare fuses.



Austin "Seven" Cut-out and Fuses.

- A—Cut-out Armature. D—Dynamo field fuse.
B—Contacts. E—Accessories terminals.
C—Accessories fuse. F—Spare fuses.

The cut-out closes the charging circuit when engine speed is high enough for the dynamo to charge the batteries and prevents the batteries discharging through the dynamo when the engine slows down or stops.

Fuses.

The following fuses are provided :—

Austin **"Sevens"**: (1) Dynamo Field Fuse; (2) Petrol Gauge, Stop Light, Trafficators, Screen Wiper, Horn and other instruments.

Austin **"Tens"**: (1) Screen Wiper; (2) Horn, Trafficators, Stop Light, Petrol Gauge.

Austin **"Twelves"** and **"Fourteens"**: (1) Screen Wiper and Interior Lights; (2) Horn and Trafficators; (3) Stop Light and Petrol Gauge; (4) Headlamps; (5) Side and Tail Lamps.

Before replacing a blown fuse ascertain the cause of the breakdown, e.g., examine wiring for short circuits.

If a fuse blows repeatedly and you cannot trace the cause take the car to an electrical service depot.

Batteries.

Austin **"Seven"** and **"Big Seven"** batteries are 6-volt and Austin **"Ten," "Twelve"** and **"Fourteen"** batteries are 12-volt.

The level of the acid in the batteries should be checked regularly, weekly in hot weather, and distilled water should be added to bring the acid just level with the tops of the separators.

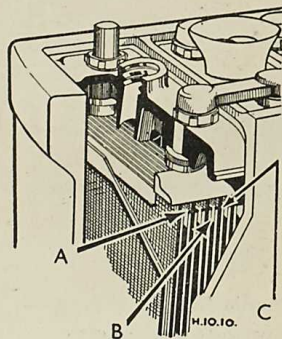
Use only distilled water, unless acid is spilled, when diluted sulphuric acid solution should be added to correct the specific gravity.

Occasionally check the specific gravity of the acid by hydrometer. The readings should be 1.285 to 1.3 fully charged, 1.21 half charged and 1.15 discharged, at a temperature of 60 degrees F. (15.5 degrees C.).

Keep the batteries clean and dry and the terminals smeared with grease to prevent corrosion.

Do not hold a naked light near the batteries and do not leave the batteries discharged. If the car is not in use have the batteries charged fortnightly.

Full instructions for first charging new batteries are attached to them by the makers and should be rigidly adhered to.

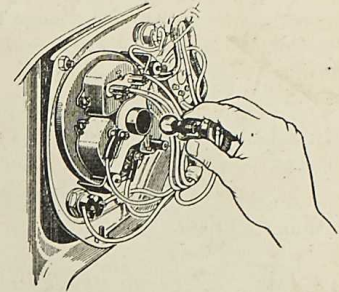


The Battery.

A—Top of Separators. B—Top of Plates.
C—Acid Level.

Petrol Gauge.

The petrol gauge only functions when the ignition is switched on. If it fails, examine the fuse.



"Ten," "Twelve," "Fourteen."
How the instrument panel lamps pull out.

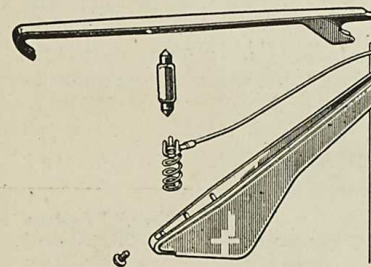
Windscreen Wiper.

The motors of windscreen wipers should not need attention.

Do not use the wiper blade on a dry screen and be careful not to force it sideways when cleaning the glass.

Direction Indicators.

Every two or three months raise each traffic indicator arm and apply a little oil, with a brush or rag, to the catch pin between the arm and the operating mechanism.



The festoon bulb of a direction indicator.

If the light fails to appear when the arm is raised, examine the bulb. To remove the bulb, switch the indicator on, hold the arm horizontally and switch off.

Withdraw the screw on the underside of the arm and slide off the metal plate. In replacing the plate, slide it on in an upward direction so that the side plates engage with the slots on the underside of the spindle bearing. Replace the fixing screw.

Do not remove the bulb with the switch "on."

If the indicators fail to operate examine the fuse and wiring and, if a new fuse blows, take the car to a service depot.

Electric Horn.

If the horn fails to function ascertain if all wiring connections are good and fuses intact, and also that the horn mounting is not loose. Vibration may cause trouble.

The Lamps.

It is important that headlamps should be aligned so that the normal driving beams are projected straight ahead, parallel to the road and to each other. The adjustable mounting is locked by one nut.

To replace a bulb remove the front by slackening the fixing screw at the bottom of the lamp and swing it aside from the slot. On some models the front is located by a spring clip. In replacing, press on the front, locating the top of the rim first.

To focus a headlamp, slacken the clamping clip on the bulb holder at the back of the reflector and move the bulb backwards and forwards to find the best position. Lock the adjustment by tightening the clamping clip.

Austin "Seven" and "Big Seven" headlamps have three focussing positions on the bayonet holder.

Lamp reflectors are covered with a protective coating and may be cleaned with a soft cloth. **Do not use water or metal polish.**

A foot-operated switch controls the two beams of the headlamps, one for the main driving filament and the other for "dipping."

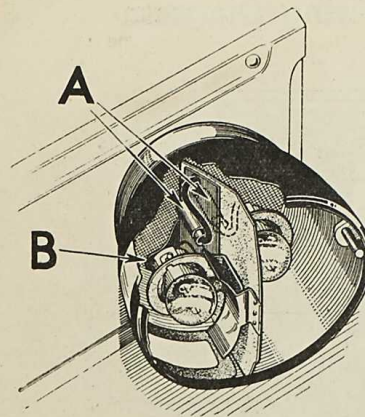
In the case of "dip-and-switch" headlamps, a fuse protects the solenoid which operates the the dipping reflector.

Panel Lights.

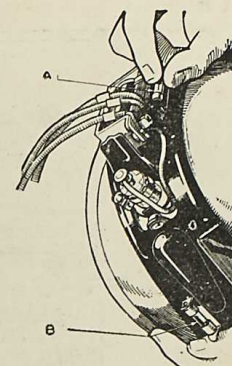
The instruments are illuminated by three (Austin "Seven" and "Big Seven" two) lamps controlled by the same switch. The lamp holders of the "Seven" swing aside for removal of the bulb. On the larger models the holders are pulled straight back from sockets at the rear of the instruments.

NORMAL BULB SIZES.

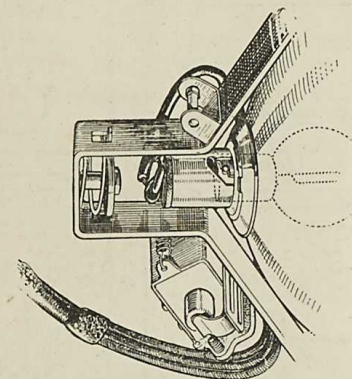
BULB SIZES.	"Sevens" (6-Volt).	"Big Seven" (6-Volt).	"Tens," "Twelves" and "Fourteens" (12-Volt).
Headlamps ..	18 Watts. Single Contact	24 Watts Single Contact	36 Watts. Single Contact
Side, Stop, Tail ..	3 Watts. Single Contact	3 Watts. Single Contact	6 Watts. Single Contact.
Direction Indicators	3 Watts. Festoon	3 Watts. Festoon	3 Watts. Festoon.
Panel Lights ..	3 Watts. Single Contact.	3 Watts. Single Contact	2.4 Watts. Screw Tyye
Ignition Warning ..	2.5 Volts. M.E.S.	2.5 Volts. M.E.S.	2.5 Volts. M.E.S.
Roof Lamp ..	—	3 Watts. Double Contact	6 Watts. Double Contact



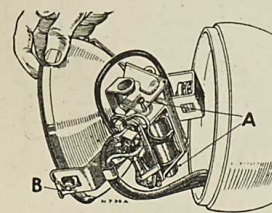
Combined stop and tail lamp.
(Seven and Big Seven).
A—Cable Sockets. B—Bulb Contact.



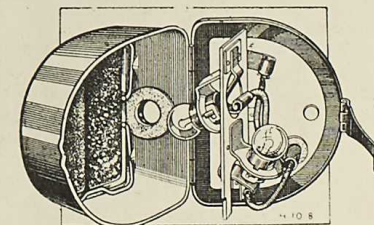
Dipping Reflector.
A—Dipper Fuse. B—Spare Fuse.



The Austin "Seven" and "Big Seven" Headlamps have three focussing positions on the bayonet holder.

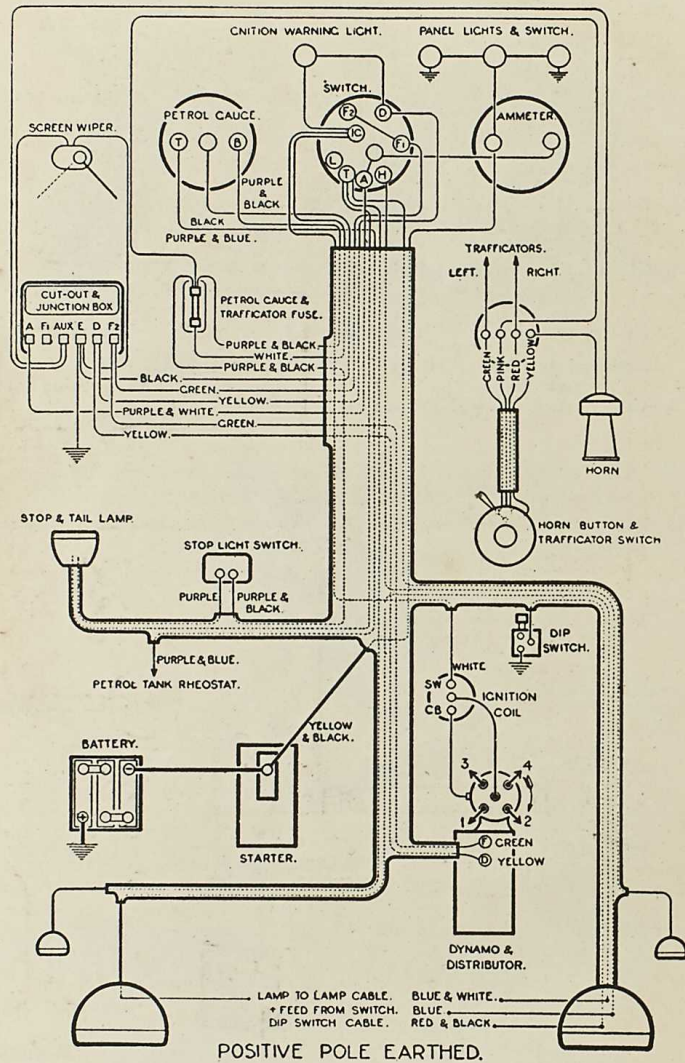


"Seven" and "Big Seven" Headlamp Reflector.
By easing the solenoid plunger A, or oiling the pivots B, of the dipping reflector easy operation is assured.

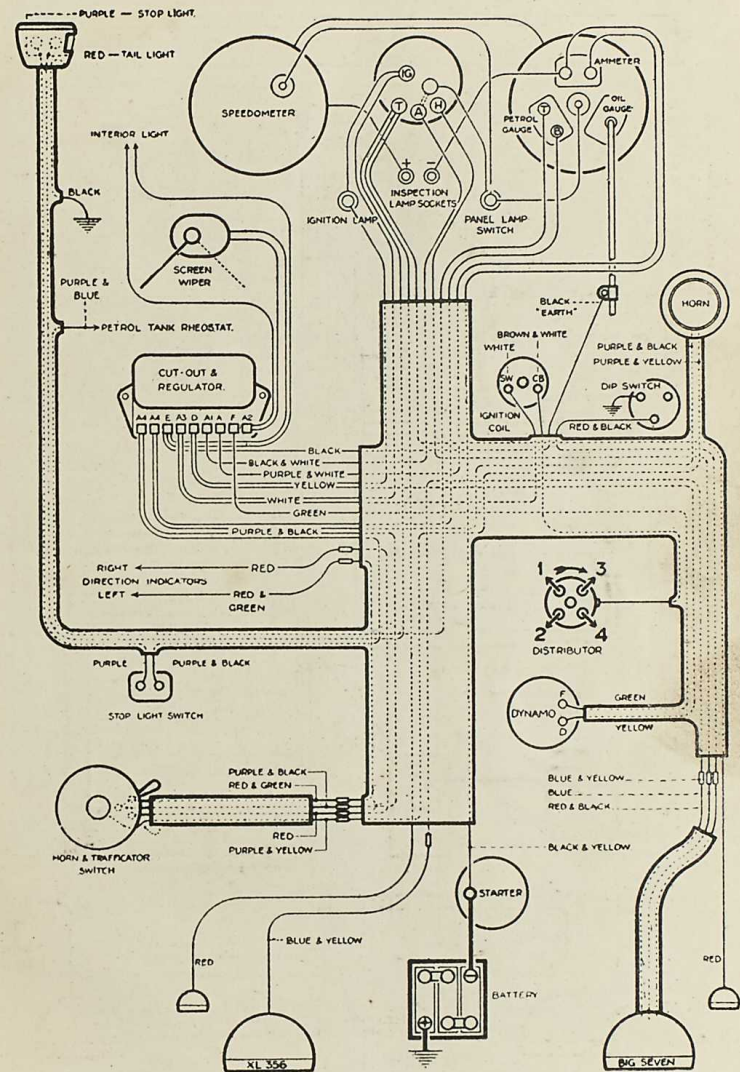


Stop and Tail Lamps.
("Ten," "Twelve" and "Fourteen.")

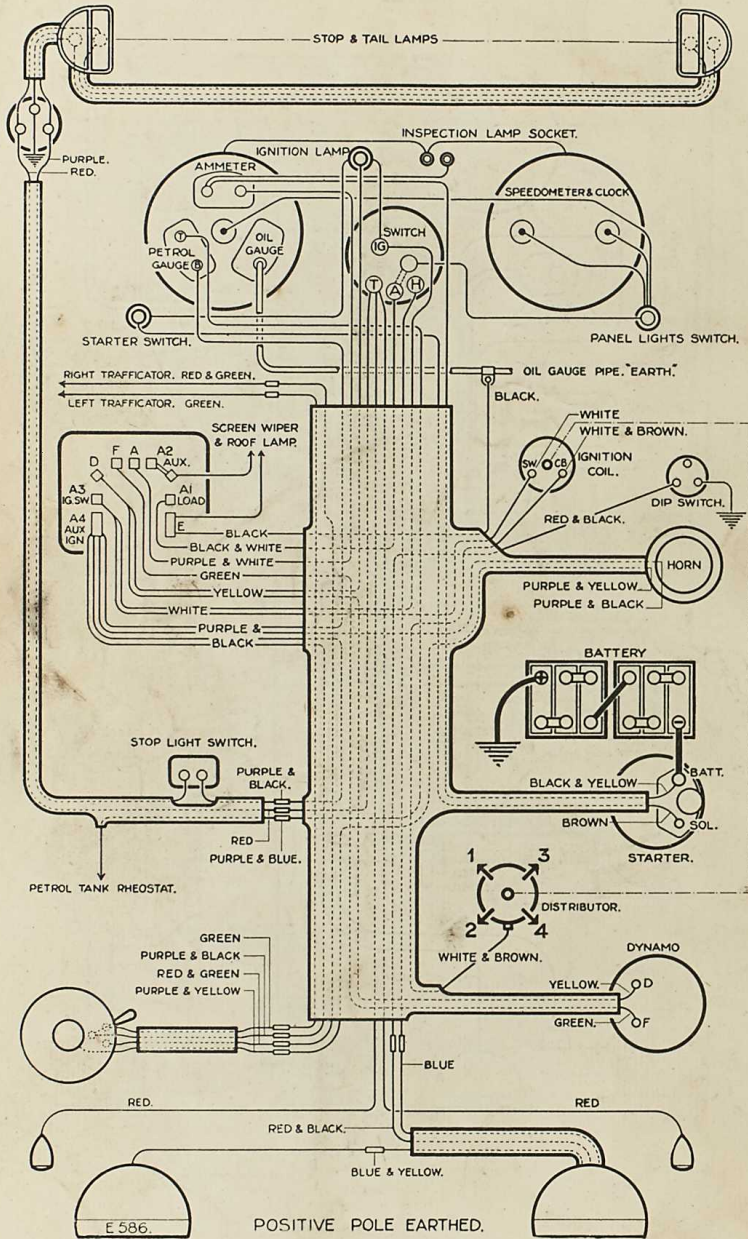
Austin "Seven" Wiring Diagram



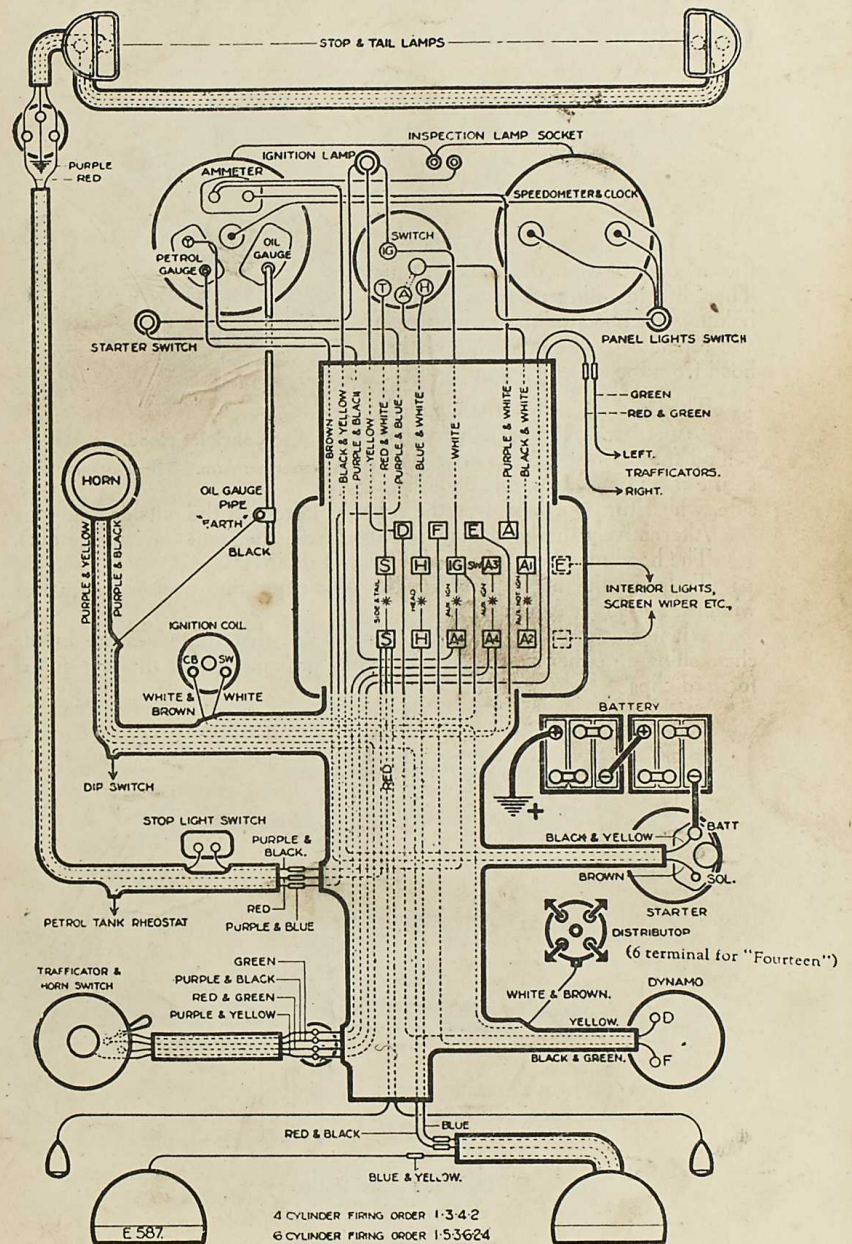
Austin "Big Seven" Wiring Diagram



Austin "Ten" Wiring Diagram



Austin "Twelve" and "Fourteen" Wiring



HOODS AND SCREENS

THE CABRIOLET HOOD.

The Cabriolet hood is easily operated, but care must be taken not to damage the fabric and not to roll it up while wet. Always leave the hood up to dry after rain or after the car has been washed.

To lower the hood, first unfasten the two clips over the windscreen. Then lift the hinged stretcher arm holding the hood to the canopy rail and separate the leading edge of the hood from the arm.

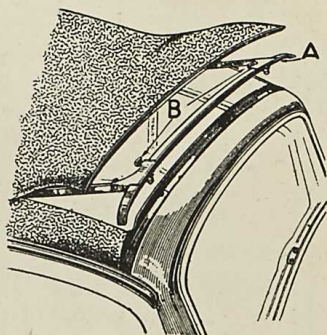
The hood is now free to be pulled over to the back of the car. Standing behind the car, roll up the hood and secure it by two straps, one on either side, which turn outward over the roll and fasten on the outside.

Alternatively the hood may be rolled from the front (i.e., inside out).

The hood may be left in this position if desired.

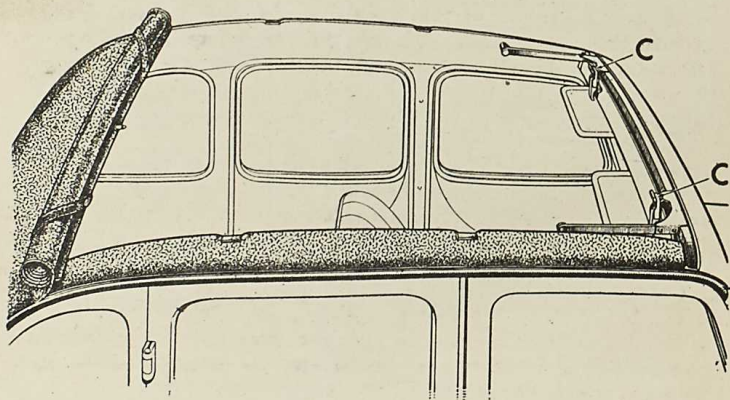
To lower the hood, unfasten the two clips, one over each quarter window, and lower carefully.

When erecting the hood, take care to see that the edges are in the channelling on either side of the car before fastening either the rear or the forward clips.



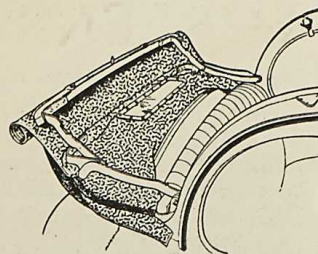
Cabriolet Hood.

A—Stretcher Arm. B—Fastenings.



The Cabriolet Hood Rolled open.

C—The Front Fasteners.



Cabriolet Hood Lowered.

Dust may be brushed from the hood and oil spots removed with a cloth dampened by petrol. Butter will remove tar spots.

Occasionally test the bolts holding the rear window to the fabric.

Doors (all Models).

The doors should receive occasional attention. Locks and hinges need oiling to keep them in good working order. Buffers can be adjusted to prevent rattles.

Window regulators should not need attention for a considerable period, as they are packed with grease before leaving the Works.

Do not slam the doors.

Austin "Seven" Seats.

Austin "Sevens" and "Big Sevens" have Moseley "Float-on-Air" pneumatic cushions and these should not be inflated hard. The seat should be quite soft to the touch and it should be possible to press one's fingers down to the board in the middle of the cushion.

Adjustment is made by withdrawing the valve from the cushion about one inch.

Roll back the rubber band and withdraw the plug. The cushions can be inflated orally quite easily. Moisten the plug before re-inserting it and roll back the ring before pushing back the valve into the cushion.

Side Screens.

Open car side-screens can be carried in the doors of Austin "Sevens." To remove them from the body slacken the setscrews with a coin or a screwdriver and lift them. There are slots in the doors for the pegs and felt to prevent rattles.

Hood.

In order to lower the hood on open car, disconnect the press studs on either side holding the hood to the side-screens and unfasten the two catches at the top of the windscreen.

Standing at the right of the car, lift the hood with the right hand and break the frame at the centre with the left hand. Fold right back on to the

rubber stops and pull out the hood material to hang in one fold behind the car. Turn the valances under the hood sticks.

Secure the hood fittings by means of the two leather straps on the side of the body, roll up the hood and tuck in the ends.

The cover should be pulled on evenly, with the two fasteners uppermost. Connect the straps on the back rail of the body to the fasteners on the cover. The straps at the end of the cover are to secure the cover to the hood frame.

On some models there are two straps with which to secure the back light to the top rail.

Do not lower the hood when wet.

Before raising the hood, undo all the straps and pull out the hood material. Lift the front rail upwards and forwards and straighten the frame. Secure the fasteners at the windscreen and fasten the press studs

DON'T!—

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- make a fast run with the radiator muff down.
- leave the car in gear or with the handbrake off.
- be cruel to the starter if the engine will not fire.
- touch the starter switch while the car is in gear.
- put an excessive quantity of lubricant in the gear box.
- coast with a gear engaged and the clutch held out.
- fill the radiator with cold water when the engine is hot.
- leave the ignition switched on when the engine is not running.
- forget to turn the key to switch on the ignition when starting up.
- run the engine in a closed garage. (The exhaust gases are highly toxic and a very small amount in a restricted atmosphere will produce grave, if not fatal results.)

RUNNING ADJUSTMENTS

How to Keep the Engine in Tune; Clutch Adjustments.

Tappet Adjustment.

IN order to obtain the full power of the engine and maintain silence in the valve operation, it is essential to keep the tappets correctly adjusted.

Remove the valve covers and have the engine turned slowly with the starting handle. While each valve is closed the clearance between the valve stem and the tappet screw should be .004in., and equal to the thickness of the thin blade of the combined sparking plug and tappet clearance gauge in the tool kit.

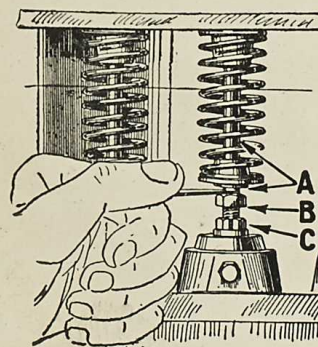
For adjustment, loosen locknut "C" and raise or lower screw "B" with the special spanners supplied. Set each valve in turn. The adjustment should be checked when the engine is hot.

Decarbonising.

After the first 2,000 miles (3,000 km.) when the engine is new and subsequently every 5,000 miles (8,000 km.) the cylinder head should be decarbonised and valves ground in.

First drain the water from the radiator and cylinder block. Remove the dynamo and fan (except on the "Seven") and disconnect the sparking plug leads and detach the top radiator hose.

Remove cylinder head nuts and, with the cylinder-head lifting screw inserted in the place of sparking plugs at either end of the head, lift the head by rocking it gently. If the joint be broken carefully the gasket may be fit for use again.



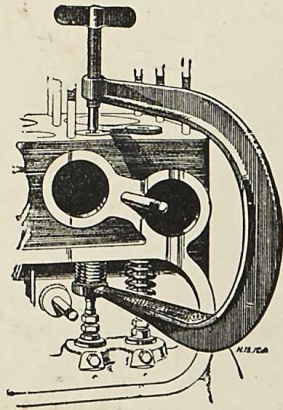
Tappet Adjustment.

A—Valve Stem. B—Tappet Screw.
C—Locknut.

Clean the cylinder-head combustion chamber with a file or knife, and emery cloth, and also the piston crowns and valve tops. Take care not to damage the pistons. While working on one piston stuff rag into the other cylinder bores and water holes in order to exclude dirt.

Valve Grinding.

Before grinding-in valves remove the inlet and exhaust manifold and carburetter, and disconnect the carburetter control and the air strangler wire. Also remove valve side cover and washer by undoing the two milled nuts.



The Valve Lifter.

Use a valve lifter to lift the valve springs prior to taking out the cotters and freeing the valves. After the valve has been cleaned smear a little grinding compound on its face and proceed to grind. A light spring placed on the valve stem before insertion into the block is helpful. The valve should be rotated backward and forward, advancing a short step at intervals until the seating is quite clean and free from "pitting."

The valves should be done singly and each replaced in its original position. Do not allow grinding compound to enter the cylinders.

On replacing a valve smear the stem with graphite grease. The valve spring lifter must be used to replace the springs, the cups and the cotters. Cotters should be handled with care and it is essential that the cup fits snugly over the cotters.

The cylinder head gasket should be replaced with the beaded side downwards. Lightly grease both sides of the joint.

When replacing the cylinder head the nuts on the holding-down studs should be tightened a little at the time in turn, commencing from centre and working outwards.

Do not forget to refill the radiator. Tighten the nuts again when the engine is warm.

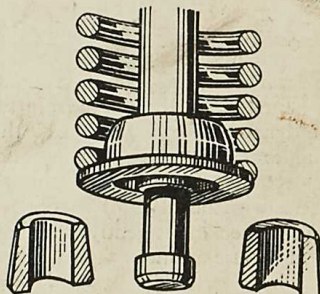
Tappet clearance should be re-checked and cylinder-head nuts tightened again if necessary after the car has run 100 miles (160 km.).

Clutch Adjustment.

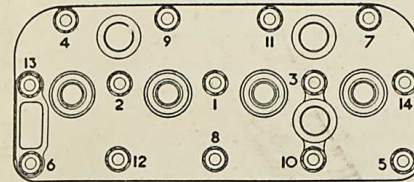
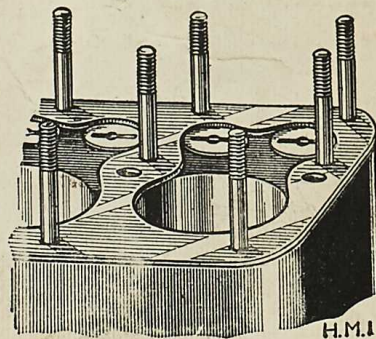
Occasional adjustment to the clutch pedal may be necessary. The pedal should have free movement of from $\frac{3}{8}$ in. to $\frac{1}{2}$ in.

The foot should not be held against the clutch when driving or slip may be caused. Too much oil in the gear box may penetrate to the clutch and cause slip, in which case the clutch should be syringed with petrol while the pedal is depressed and the engine turned by hand. After

Replace the cylinder head gasket with the beaded edges downwards.

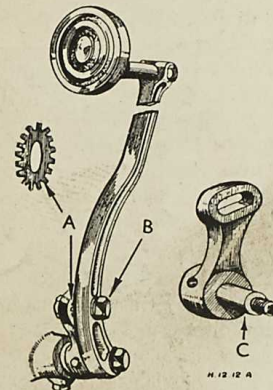


Split-type Cotter.



Tighten cylinder head nuts from the centre outwards.

(The 7 H.P. head is illustrated.)



"Twelve" and "Fourteen" Clutch Pedal Adjustment.

A—Lock Washer. B—Locking Bolt.

C—Adjusting Quadrant.

Austin "Twelves."

To adjust the "Twelve" or "Fourteen" pedal slacken the nut on the locking bolt, near the lower end of the pedal lever, and the nut on the end of the shaft. Depress the pedal slightly so that the locking bolt moves forward in the slot about $\frac{3}{8}$ in. (16 mm.). Tighten the nuts securely.

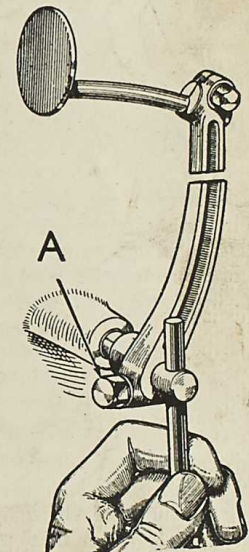
syringing the clutch wait for the oil to drain away (see that the hole in the bottom of the flywheel housing is clear) and lubricate pedal joints.

Austin "Sevens."

To adjust the Austin "Seven" clutch pedal slacken the clamping screw at the bottom of the pedal lever and depress the pedal sufficiently to give the free movement required. Securely tighten the clamping screw.

Austin "Big Sevens" and "Tens."

To adjust the Austin "Big Seven" and "Ten" clutch pedal, first put a tommy bar into the hole in the clutch operating shaft, slacken the clamping screw and depress the pedal as necessary. Securely tighten the clamping screw.



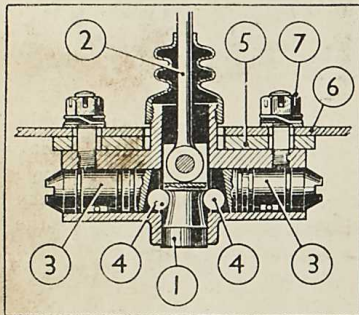
Austin "Big Seven" and "Ten" Clutch Pedal Adjustment.

A—Adjustment Bolt.

GIRLING BRAKES

Operation, Adjustment, Maintenance and Assembly.

GIRLING brakes are fitted to the Austin "Ten," "Twelve" and "Fourteen," and advice or attention can be had from any Austin Dealer. Slightly modified Girling Brakes are fitted to the "Big Seven." See page 60 for "Seven" brake details.



The Expander Unit.

The brakes are actuated by the expander unit. The cone (1) when pulled by the rod (2) forces apart the plungers (3) by means of the rollers (4). The plungers engage with the webs of the brake shoes.

The housing (5) is lightly held on the back plate (6) by nuts and spring washers (7) so that it floats between the brake shoes, which are thus self-centring. When the brake shoes are removed split pins hold the plungers (3) in the housing.

The adjuster unit, which is held firmly on the back plate by its housing (B) has two somewhat similar plungers (C) held apart by the adjuster (A), a conical ended screw, which provides adjustment to the shoes.

Adjustment.

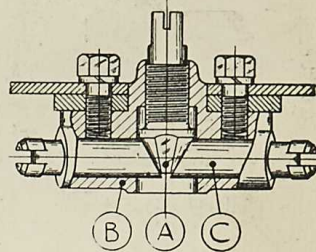
In making normal adjustment to take up this wear of the brake linings, the rods and linkages under no circumstances should be altered. There is only one operation necessary at each wheel to adjust the brake shoes.

This is as follows:—

On the opposite side of the drum whence the operating rod protrudes will be seen the square-ended brake shoe adjuster.

This can be turned a notch at a time, which can be felt and heard and is the engagement of the four flat sides of the cone on the inner end of the adjuster engaging with the plungers which support the shoes.

Turn the adjuster in a clockwise direction as far as it will go. The



The Adjuster Unit.

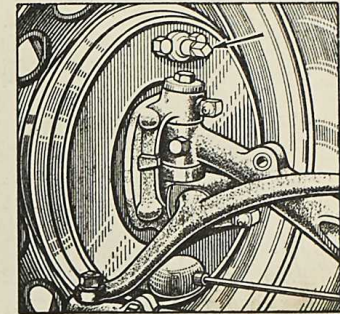
brake shoes are then hard on and the adjuster should be turned back one full notch to give the shoes the necessary clearance from the drum. On "Seven" and "Big Seven," three notches is the usual adjustment.

Each drum should be treated similarly, and it is not necessary to jack up the wheels.

After adjustment is completed, press the brake pedal down as hard as possible once or twice in order to centralise the brake shoes in the drums.

The handbrake operates on all wheels, and it is important that no attempt should be made to adjust the brakes with the handbrake on.

The illustration shows the adjuster of a front brake; on the rear brakes the adjuster will be found immediately in front of the axle (except on the "Seven" when the adjuster is immediately above the axle).



H.10.12

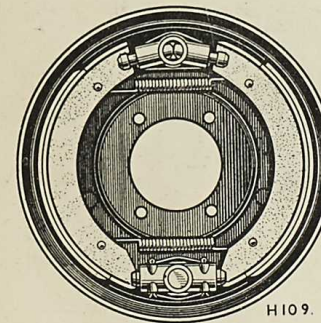
The Arrow indicates the Adjuster.

Dismantling the Brakes.

First jack up the car and remove the road wheel.

The brake drum is mounted on the hub and held by small countersunk screws. Mark the position of the drum on the hub, take out the screws and remove the drum.

To remove the shoes place a large screwdriver, or other lever, against one of the studs on the back plate behind the shoes and lift one shoe out of the groove in the plunger at the expander end. Both shoes and springs can now be removed, leaving the expander and adjuster units in position on the back plate. Do not detach these units and be careful not to overstretch the springs.



H10.9.

The Brake Assembly.

Clean down the back plates, check the expander and adjuster units for free working and slack back the adjuster anti-clockwise as far as it will go. The adjuster should turn quite freely in the housing. Inspect the shoe pull-off springs and replace if they are stretched or damaged.

It is necessary to reline all four shoes of one axle at the same time.

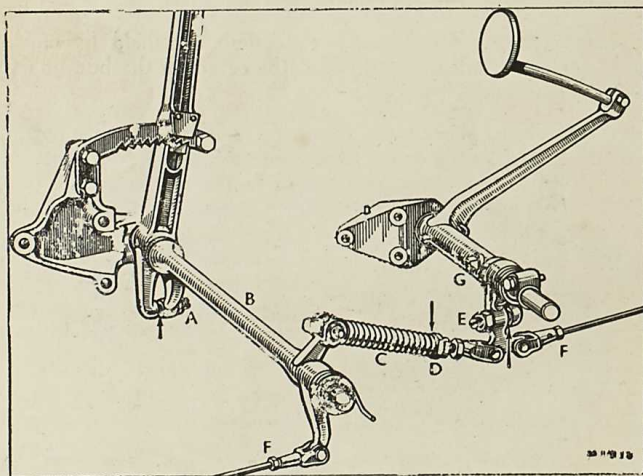
In refitting the shoes be sure that the springs are between the shoe webs and the back plate. Hook the shoes together with one spring at the adjuster ends and assemble on the adjuster unit first, crossing the two shoes to do so. Place one shoe in position on the expander unit, replace the second spring and lever the other shoe into position. Refit the hub and brake drum.

To centralise the shoes and ensure correct clearance between the shoes and the drums, slack off the set pins that hold the adjuster unit to the back plate, and, by turning the adjuster in a clockwise direction at far as it will go, put the brake shoes hard on. Then screw up the pins holding the adjuster unit tightly and slack off the adjuster one full notch. When all drums have been treated in this manner press the brake pedal down as hard as possible once or twice, to ensure that the shoes are centralised. The shoes should now be quite free of the drums.

While the shoes have been removed it would be as well to make sure that the expander unit is able to float on the back plate. Should it be removed, when refixing it to the back plate screw the nuts up quite tight with the double coil spring washer underneath. Then slack the nuts back one complete turn before inserting the split pin. The unit will then float on the back plate and be self-centralising.

Rods and Linkages.

Should it be necessary at any time to adjust one of the rods, or fit a new one, the following precautions should be taken:—



Austin "Ten" Brake Operating Assembly.

- | | | |
|------------------------------|------------------|-----------------------------|
| A—Handbrake adjusting screw. | C—Spring. | E—Footbrake adjusting screw |
| B—Cross Shaft. | D—Locknut. | F—Brake Rod adjustments. |
| | G—Grease nipple. | |

(Arrows indicate clearances of 1/32 in)

When the handbrake is in the off position the adjusting screw (A) on the cross shaft (B) should be adjusted until it protrudes approximately 1/8in. from its boss and there is a clearance of 1/32in. between the face of the screw and the bottom of the handbrake lever. The rear brake rod (F) should be adjusted to suit this position.

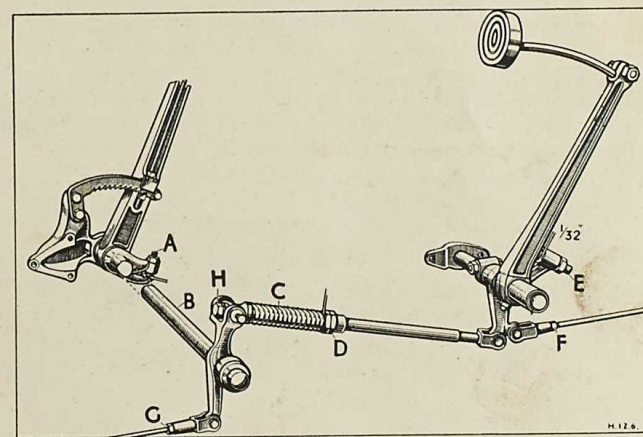
When the brake pedal has from 1/4in. to 1/2in. free movement from the floorboard there should be 1/32 in. clearance between the face of the forward adjusting screw (E) and the pedal shaft. The front brake rod (F) should be adjusted to suit this position.

The front brakes are operated by direct pull and the rear brakes are operated through a special spring (C) mounted on a sliding push rod between the pedal shaft and the brake cross shaft. There should be 1/32in. clearance between this spring and the locking nut (D).

Unit Assembly.

Should it be necessary to fit new transverse rods on either axle, remove the shoes as previously described. Next remove the expander unit by undoing the two castle nuts holding it to the back plate, drawing the rod attached to it through the rubber cover.

To remove the rod, the expander plungers must be withdrawn by



Brake Operating Assembly, "Twelves" and "Fourteens."

- | | | |
|------------------------------|------------------|-----------------------------|
| A—Handbrake adjusting screw. | C—Spring. | E—Footbrake adjusting screw |
| B—Cross Shaft. | D—Locknut. | F—Brake Rod adjustments |
| | G—Grease nipple. | |

(Arrows indicate clearance of 1/32 in.)

removing the split pins which retain them. The rod and the expander cone can now be drawn out taking care that the two small rollers are not lost. Knock out the pin attaching the short rod to the expander cone and fit the new rod. Re-assemble the expander unit, making sure the rollers are properly in place.

If there is any difficulty in re-assembling the rollers, a little grease smeared on them and the slots in which they work will hold them in place while being assembled.

Now push the rod through the dust cover, and tighten up fully the two castle nuts holding the unit to the back plate, not forgetting the double spring washer underneath them. Slack back the castle nuts one complete turn, thus allowing the unit to float on the back plate in the manner it is intended, and insert a split pin in them. Re-assemble shoes and brake drum or hub assembly.

Re-connect the brake rods and press the brake pedal down as hard as possible once or twice in order to centralise the brake shoes in the drums.

The brake balance levers should be greased monthly, and the nipple on the brake pedal shaft weekly.

AUSTIN "SEVEN" BRAKES

Similar Adjustment but Different Operation and Assembly.

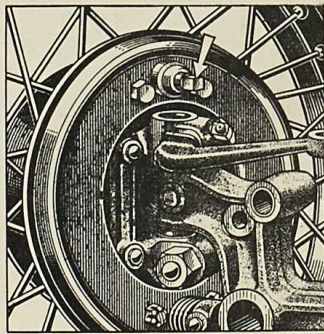
BRAKES on the Austin "Seven" have plungers with a Girling Adjuster unit similar to that described for the larger models, but are operated by cam and lever on most models. Some were fitted with rear brakes identical to the "Big Seven."

On earlier models the rear brakes are adjusted by turning a wing nut reached by removing a disc from the car floor in front of driver's seat.

Front brakes are adjusted by attention to clamping screw on cable slide near rear of gearbox.

Where there is individual adjustment at each wheel to take up wear on the brake linings, cables and linkages should not be altered.

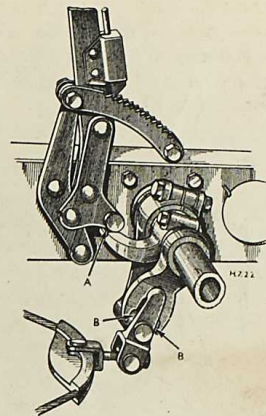
Opposite to the operating lever on the brake back plate is the square head of the brake adjuster. Turn the adjuster clockwise as far as it will go. The brake shoes are then on, and the adjuster should be turned



Austin "Seven" Brake Adjuster.

back three full notches to give the shoes the necessary clearance from the drum. Each notch can be felt and heard when the flat sides of the cone on the inner end of the adjuster engage with the plungers supporting the shoes.

When any adjustment is being made all four brakes should be checked. Do not attempt to make adjustment with the handbrake on.



"Seven" Brake Setting.

A—Handbrake Roller.

B—Equal clearances with pedal depressed.

Brake Assembly.

The brakes are automatically compensated as between the front and rear pairs, and between each front brake.

In the event of the brake cross shaft assembly or brake cables being dismantled, on re-assembly the handbrake lever should be placed fully off. Then bring the pad on the lever of the cross shaft up to the hand-brake roller. With the cross shaft in this position the front end of each rear brake cable should be adjusted, by screwing the fork on or off the end of the cable, so that the cable is just taut. The front brake cable should be adjusted to similar tension by means of the screw holding the cable compensating link to the cross shaft arm.

After reassembling see that with the pedal depressed there is approximately equal clearance on either side of the boss of the balance lever and the jaws of the forked lever.

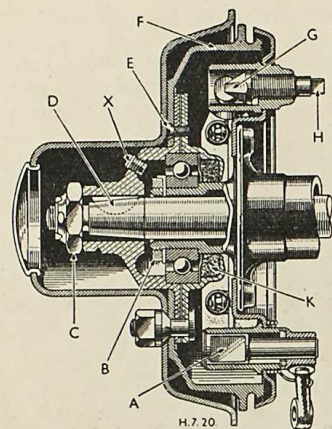
On latest "Sevens" and "Big Sevens" the handbrake lever should be placed fully "off" and the brake cross shaft turned until the projecting pad on it is against the handbrake roller. With the cross shaft in this position the rear brake pull rods should be adjusted by screwing on or off one or both of the fork ends, as required.

The front brake cable should be adjusted until it is almost taut.

Next ascertain that the brake pedal has about a quarter of an inch free movement. If it has more, or less, adjustment should be made by slackening the nuts on the brake pedal pull rod (by the side member of the chassis frame). There should be 1/32in. clearance between the inner nut on this pull rod and the cross shaft trunion pin.

The centre one of the three springs is to hold the brake rods in light tension and prevent rattle.

It is strongly advised that the brake operating rods and cables be adjusted only by authorised Austin Dealers.



Austin "Seven" Rear Hub.

- | | |
|------------------|------------------|
| A—Brake Cam. | F—Brake Drum. |
| B—Bearing Nut | G—Adjuster Cone. |
| C—Axle Shaft Nut | H—Adjuster Head. |
| D—Axle Key | K—Felt Washer. |
| E—Set Screw. | X—Grease Plug. |

For the rear wheel brakes remove the wheel nuts and axle shaft nut, having first taken out the split pin; extract the outer portion of the hub by screwing the extractor on the screwed end, and turning the extractor bolt, which bears on the end of the axle shaft. Remove the key from its keyway in the axle shaft.

Next remove the bearing nut, having first knocked back the tab of the washer locking it, and prise the inner portion of the hub or felt housing, together with felt packing and bearing, off the end of the axle casing. Do not damage the paper washer between the hub and the felt housing faces, as it is important to make a good joint on re-assembling to prevent the hub lubricant penetrating the brake. If this inner portion of the hub does not come off the axle casing easily, the outer half should be refitted as closely as possible, using the wheel nuts to draw the two halves together.

Then use the hub extractor a second time, and so remove the hub together with bearing and packing. The brake shoes can now be pulled off the plungers, and the springs unhooked. The old linings can be detached by punching or drilling out the rivets.

The brake linings should be clamped to the shoes while the riveting is in progress, as it is essential that they should bed down on the shoes over their whole area. When the linings have been rivetted in position, bevel off at each end for about $\frac{1}{4}$ inch (6 mm.) with a coarse file.

Relining the Brakes.

It is always necessary to re-line all four brake shoes on the one axle at the same time, and before or after the re-lining it may be necessary to slack off the brake adjustment before the brake drum can be removed or replaced.

After re-lining the brakes, make sure that the hubs contain sufficient lubricant, and re-adjust the brakes.

To re-line the rear brakes it is necessary to remove the wheel, and then the brake drum, by unscrewing the three screwdriver screws which secure it to the hub; and, before the shoes can be removed for re-lining, the hub and wheel bearing must be extracted.

For this a special hub extractor is necessary.

Reassembling.

To reassemble, replace the shoes, with their springs, in position on the plungers. Replace the inner portion of the hub or felt housing with the bearing and packing on the axle casing end, and push up home by tightening the bearing nut, which must be locked by the locking washer in the same way as before dismantling. Replace the paper joint washer on the felt housing face, insert the key in the shaft, push the hub over the axle shaft, on the key, and draw it up to the felt housing by the wheel nuts on their studs.

When the joint faces of the hub and the felt housing are together, replace the axle nut and tighten securely up to the hub boss. *Remember to insert the split pin through the nut.* Then remove the wheel nuts from the hub, fit the brake drum, and insert and tighten the three screwdriver screws.

Front Brakes.

For the front brakes, the operation is somewhat different. Having removed the wheel, the hub cap and the axle nut, screw on the extractor and draw off the hub complete with brake drum. The brake shoes are then clear for removal.

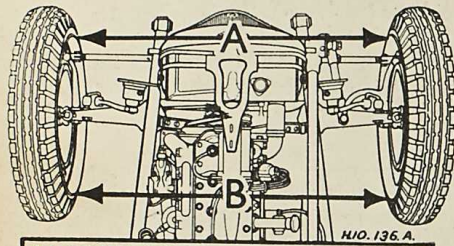
On reassembling remember to fit a new split pin through the axle and nut. There is a hole in the end of the hub through which the pin can be inserted.

If it is desired to separate the two portions of the front hub the grease plug should be removed, otherwise this plug will foul the outer hub bearing when the two parts of the hub are separated.

STEERING ADJUSTMENTS

Correct Setting of the Track Rod; Steering Box Details.

A LL Austin front wheels should "toe-in" $1/8$ in. (3 mm.); i.e., they should not be parallel, but the rims should be closer in front of the axle than behind, when measured at axle height.



ALIGNMENT MEASUREMENTS

Front Wheels should "toe in."
A is $1/8$ in. less than B.

Facilities are provided to adjust end play at the worm, end play in the steering cross shaft, and also the mesh of the worm and sector.

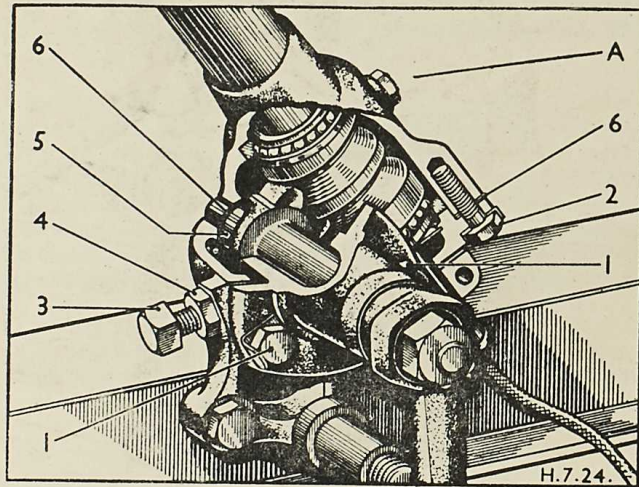
To take up end play at the worm, remove the end cover by taking out screws (2). With a knife blade separate and remove one or more

Adjustment is made by lengthening or shortening the cross-steering tube (or track-rod) by screwing the socket on or off the tube, as required. Remove the steering arm from the swivel axle without dismantling it from the cross-tube.

As this adjustment may affect the engagement of the ball pins with the ball cups in the tubes, it should be done by an Austin Dealer.

Austin "Sevens."

The steering box of the Austin "Seven" is of the "hour-glass" worm and sector type.



Austin "Seven" Steering Box.

1, 3 and 4—Mesh Adjustments. 2—End Cover Nuts. 5—Thrust Button. 6—Shims.
A—Oil Plug.

of the thin shims. Replace the end cover and test for end play, removing further shims if necessary.

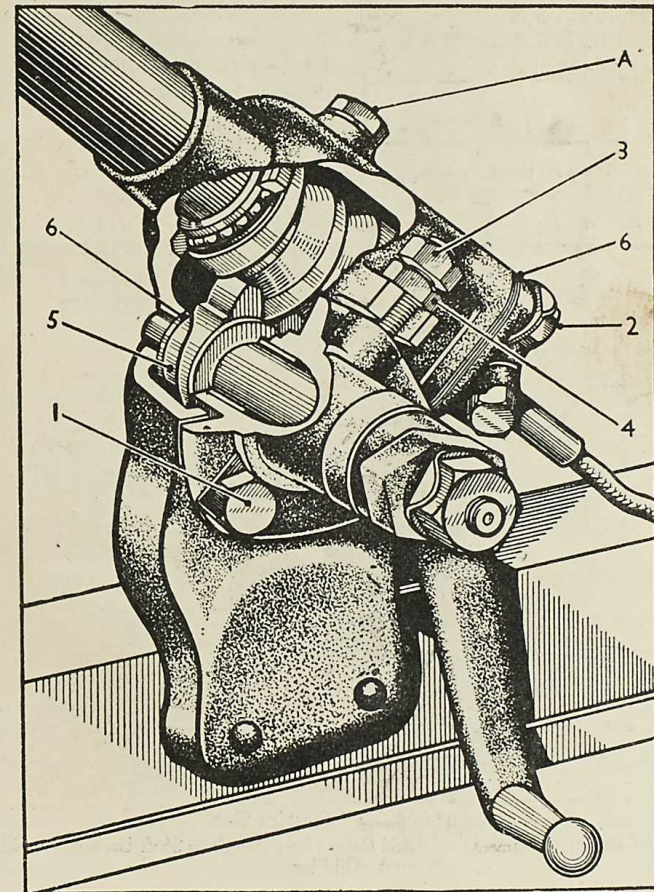
To take up end play at the steering cross shaft, remove the shaft and add one or more shims, as required.

To adjust the mesh of the worm and sector, slightly loosen the three nuts (1) and the lock-nut (4) and turn screw (3) clockwise to take up slack. Tighten the screws and lock-nut and test for mesh. This adjustment should be carried out with the road wheels in the straight ahead position. On this type of steering there is the minimum back-lash in the straight-ahead position, the back-lash increasing towards the full lock.

Before dismantling the steering it is important to disconnect the horn and trafficator control wires and loosen the clip at the bottom of the steering column. A special guide is necessary for re-assembly.

These adjustments should be made by an Austin Dealer.

Austin "Big Seven."



Austin "Big Seven" Steering Box. H.7.38.A

1, 3 and 4—Mesh Adjustments. 2—End Cover Nuts. 5—Thrust Button. 6—Shims.
A—Oil Plug.

This steering box is of the "hour-glass" worm and sector type. Facilities are provided to adjust end play at the worm, end play in the steering cross shaft, and also the mesh of the worm and sector.

These adjustments should be made only by an Austin Dealer.

To take up end play at the worm, remove the end cover by taking out screws (2). With a knife blade separate and remove one or more of the thin shims. Replace the end cover and test for end play, removing further shims if necessary.

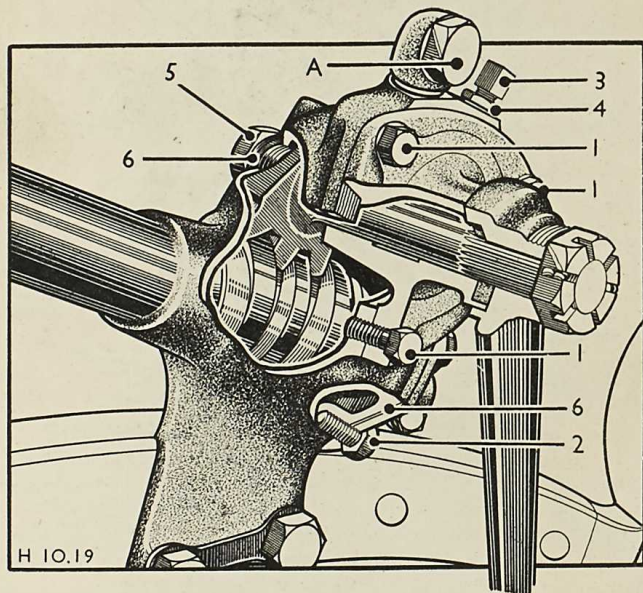
To take up end play at the steering cross shaft, remove the shaft and add one or more shims, as required.

To adjust the mesh of the worm and sector, slightly loosen the three nuts (1) and the lock-nut (4) and turn screw (3) clockwise to take up slack.

Tighten the screws and lock-nut and test for mesh. This adjustment should be carried out with the road wheels in the straight ahead position. On this type of steering there is the minimum back-lash in the straight-ahead position, the back-lash increasing towards the full lock.

Before dismantling the steering, it is important to disconnect the horn and trafficator control wires and loosen the clip at the bottom of the steering column. A special guide is necessary for re-assembly.

Austin "Tens."

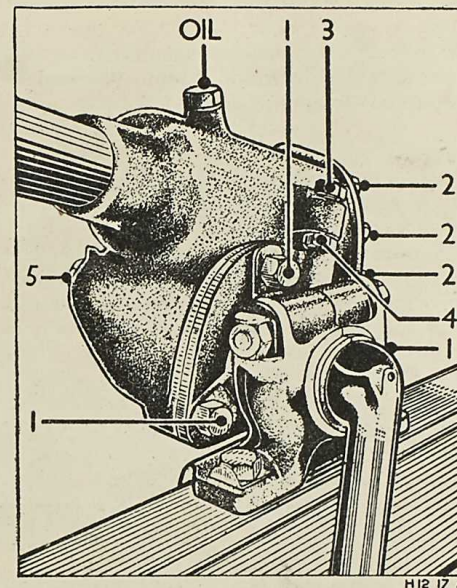


Austin "Ten" Steering Box.

1, 3 and 4—Mesh Adjustments. 2—End Cover Nuts. 5—Cross Shaft Locknut. 6—Shims. A—Oil Plug.

"Tens"—"Twelves"—"Fourteens."

The steering box of the Austin "Tens," "Twelves" and "Fourteens" is of the worm and sector type and facilities are provided to adjust end play at the worm and sector.



Austin "Twelve" and "Fourteen" Steering Box.

1, 3 and 4—Mesh Adjustment. 2—End Cover Nuts. 5—Cross Shaft Locknut.

To take up end play at the worm, remove the end cover by taking out screws (2). With a knife blade separate and remove one or more of the thin shims. Replace the end cover and test for end play, removing further shims if necessary.

To take up end play at the steering shaft, unbend the lock washer, unscrew the nut (5) and remove one or more shims, as required. Replace the nut, test for end play and turn up the lock washer.

To adjust the mesh of the worm and sector, slightly loosen the three nuts (1) and the locknut (4) and turn screw (3) clockwise to take up slack. Tighten the screws and locknut and test for mesh. This adjustment should be carried out with the road wheels in the straight ahead position. On this type of steering there is the minimum back-lash in the straight-ahead position, the back lash increasing to the full lock.

Before dismantling the steering, it is important to disconnect the horn and trafficator control wires and loosen the clip at the bottom of the steering column. A special guide is necessary for re-assembly

THE SHOCK ABSORBERS

Adjustment of Hydraulic and Friction Types.

LUVAX Hydraulic Shock Absorbers are fitted to Austin "Tens," "Twelves" and "Fourteens." Austin "Sevens" and "Big Sevens" have friction type shock absorbers.

Hydraulic Type.

Luvax Export type shock absorbers are distinguished by a metal tag attached to the filler plug bearing the words "Luvax Export Fluid." Every 6,000 to 8,000 miles (9,000 to 12,000 km.) unscrew the filler plug at the top of the Luvax Hydraulic Shock Absorbers and examine the level of the fluid.

Add sufficient "Luvax Export Fluid" to bring the level to within about $\frac{3}{8}$ in. (2 cm.) of the top. The recuperator chamber must not be allowed to become empty, otherwise air will enter the working chamber and impair the action of the shock absorber.

The setting can be varied by turning the regulator screw under the filler plug, a quarter of a turn to the left to decrease damping, or vice versa. The screw is locked by a leaf spring.

A syringe with a rubber tube may be used for filling. Fill and then draw off as much fluid as can be reached by the tube.

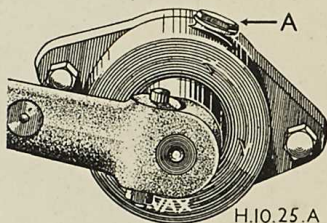
If the Luvax shock absorbers do not have a metal tag attached to the filler plug as described above, they are filled with standard Luvax Hydraulic Shock Absorber Fluid, and this fluid will not mix with the Export Fluid. In this case care must be taken when replenishing to see that the standard fluid is used.

Luvax fluid is obtained from Lucas Service Depots.

Friction Type.

No adjustment is necessary to the rear shock absorbers of Austin "Sevens" and "Big Sevens," which are of the friction type.

The front shock absorber is set to correct tension before it leaves the factory, and adjustment should be made only when the spring movement seems too free. Normally the full benefit of the shock absorbers will not be felt when the car is travelling at low speeds, when spring movement is



The Hydraulic Shock Absorber Filler Plug (A)

very limited, but as speed increases their effect becomes more pronounced, especially over bad roads. Testing should be carried out at comparatively high average touring speeds and adjustment made to suit these conditions.

The frictional resistance required to control the springs is comparatively small and care should be taken not to alter the pressure more than necessary.

If the spring action seems too retarded or stiff, reduce the frictional resistance of the shock absorbers by unscrewing the centre adjusting nut, first slackening the lock-nut. If the spring action is too free turn the adjusting nut to the right.

Periodically, especially in wet weather, the large end of the shock absorbers should be taken apart by withdrawing the centre bolt, and thoroughly cleansed. The centre pin and washers should be lightly smeared with grease.

If this is not done, the shock absorbers are liable to become tight and an excessive load thrown on the pins and bushes at the end of the arms, causing rapid wear. In addition, great strain is imposed on the bracket holding the shock absorber to the frame.

TOOLS AND ACCESSORIES

- | | |
|---|---|
| Set Spanners $\frac{3}{16}$ in. x $\frac{1}{4}$ in. ;
$\frac{5}{16}$ in. x $\frac{3}{8}$ in. ; $\frac{7}{16}$ in. x $\frac{1}{2}$ in. | Combination Pliers. |
| Tappet Adjusting Spanner,
$\frac{1}{8}$ in. x $\frac{3}{16}$ in. | Distributor Screwdriver and Gauge. |
| Adjustable Spanner (Sevens 4in.,
Others 6in.). | Extra Ignition Key. |
| Box Spanners $\frac{3}{16}$ in. x $\frac{1}{4}$ in. ; $\frac{5}{16}$ in.
x $\frac{3}{8}$ in. ; $\frac{3}{8}$ in. x $\frac{1}{2}$ in. (all models). | Wheel Brace. |
| Box Spanner $\frac{7}{16}$ in. x $\frac{1}{2}$ in. (not
Sevens). | Jack, with handle. |
| Box Spanner $\frac{11}{16}$ in. (Twelves and
Fourteens only). | Two Tyre Levers (Sevens one
only). |
| Tommy Bar. | Tyre Inflator. |
| Sparking Plug Spanner (Tens and
Fourteens). | Tyre Valve Tool (not Sevens). |
| Sparking Plug and Tappet Clear-
ance Gauge. | Starting Handle. |
| Cylinder Head Lifter (Not Sevens). | Grease Gun, with adaptor. |
| Valve Spring Lifter and Screw. | Hub Cap Spanner (Sevens only). |
| Screwdriver. | Hub Cap and Starting Nut Spanner
(not Sevens). |
| | Spare Cylinder Head Joint. |
| | Exhaust Manifold and Induction
Pipe Washer (not Sevens). |
| | Carburettor Joint Washer (Tens). |
| | Two Hose Clips. |

This list has been subject to modification from time to time.

EQUIPMENT

THE AUSTIN MOTOR CO., LTD., accept no liability under the terms of their Warranty for Tyres, Speedometers, or the Electrical Equipment, or other Goods, including Coachwork, not of their own manufacture.

All claims relating to any of these parts or fittings or orders for repairs to them should be addressed to their manufacturers.

For our clients' convenience, we give below the names and addresses of the manufacturers or suppliers of the goods in question. Further information may be obtained on application to them.

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