

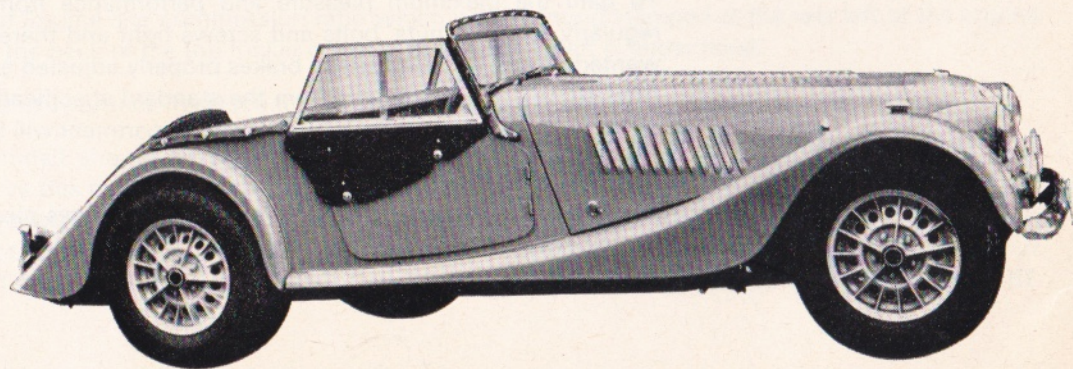
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**+8** Morgan Owners Handbook

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**The Morgan +8**

MORGAN MOTOR CO. LTD., PICKERSLEIGH ROAD, MALVERN LINK, Worcestershire, England. Tel.: Malvern 3104/5

## FOREWORD

The object of this book is to provide the owner with a clear picture of the car and its needs. Technical terms have been avoided where possible.

Each car is carefully built and tested, but the continued satisfaction of the owner is largely in his own hands. The best of cars will not run well unless careful attention is paid to their upkeep.

To gain the maximum pleasure and performance from your Morgan, lubricate regularly, keep all nuts, bolts and screws tight and thereby reduce rattles and unwanted noises, and lastly keep brakes properly adjusted and in good working order. Alterations and adjustments from the standard specification are not recommended but should it seem necessary our Service Department will be pleased to give advice if contacted.

In all communications relating to Service and Spares please quote the chassis and engine number.



## TOURING ADVICE

The high compression ratio engine of your Plus 8 car has been designed to use 100 Research octane petrol, 5-star rating in the United Kingdom. This fuel is not always obtainable in some European countries. When your car is to be used in these countries where 100 Research octane petrol is unobtainable, it is essential that adjustments be made to retard the ignition timing to avoid damage being caused to the engine. Your Morgan agent is equipped to make the necessary adjustments, or alternatively advice can be obtained from the factory if the following information is given.

- (i) Chassis No. of Car. Stamped on top face of chassis cross member under seat.
- (ii) Serial No. of Engine and compression ratio which will be found stamped at the rear left of the engine adjacent to the back of the top rocker cover or the centre of left cylinder head.
- (iii) The country or countries in which it is intended to use the car.

The adjustments recommended should be carried out by your Morgan Distributor, or Rover dealer prior to your departure. Failure to observe this requirement will be taken into consideration should any claim be made under the terms of the Warranty in respect of any engine damage resulting from using fuels other than those of 100 Research octane rating. Research octane is the currently accepted method of octane rating designation employed throughout the industry. THE IMPORTANCE OF ALWAYS USING THE CORRECT TYPE OF SPARKING PLUGS CANNOT BE OVERSTRESSED.

## SECTION ONE

**DATA—ENGINE**

TYPE	..	..	..	..	..	..	..	V8
BORE	..	..	..	..	..	..	..	3.500 in. (88.9 mm)
Stroke	..	..	..	..	..	..	..	2.800 in. (71.12 mm)
No. of Cylinders	..	..	..	..	..	..	..	8
Cylinder Capacity	..	..	..	..	..	..	..	215 cu in. (3,528 cc)
Compression Ratio	..	..	..	..	..	..	..	10.5:1
BHP (gross)	..	..	..	..	..	..	..	184 at 5,200 rpm
Max Torque (gross)	..	..	..	..	..	..	..	226 lb ft (31 mkg at 3,000 rpm)

**Valves**

Type	..	..	..	..	..	..	..	Pushrod OHV
Timing: Inlet opens	..	..	..	..	..	..	..	30° b t d c
Inlet closes	..	..	..	..	..	..	..	75° a b d c
Exhaust opens..	..	..	..	..	..	..	..	68° b b d c
Exhaust closes..	..	..	..	..	..	..	..	37° a t d c
Tappets	..	..	..	..	..	..	..	Hydraulic Self adjusting type

**Ignition**

Type	..	..	..	..	..	..	..	Coil. Lucas BA 7
Timing, Static—full retard	..	..	..	..	..	..	..	6° B T D C Mark on Crankshaft pulley
Firing order	..	..	..	..	..	..	..	1, 8, 4, 3, 6, 5, 7, 2
Sparking plugs	..	..	..	..	..	..	..	Champion L87Y or L92Y. 14 mm with suppressed leads
Sparking plug point gap	..	..	..	..	..	..	..	.025 in. (0.60 mm)
Distribution contact breaker gap	..	..	..	..	..	..	..	Dwell angle 26° to 28°, .015 in. gap



**Lubrication**

Type	..	..	..	..	..	..	..	Full pressure
Oil pressure	..	..	..	..	..	..	..	30 to 40 lb/sq in. (3.8 to 4.6 kg/cm <sup>2</sup> ) at 50 mph (80 kpm) in top gear with engine warm (2,400 rpm)
Oil filter—internal	..	..	..	..	..	..	..	Gauze pump intake filter in sump
Oil filter—external	..	..	..	..	..	..	..	Full-flow

**GENERAL****Capacities**

	<i>Imperial Unit</i>	<i>US Unit</i>	<i>Litres</i>
Engine sump oil	8 pints	9.3 pints	4.5
Extra when refilling after fitting a new filter	1 pint	1.2 pints	0.5
Gearbox	Moss 2.5 pints Rover 3 $\frac{1}{4}$ pints	Moss 3 pints Rover 4 pints	Moss 1.3 Rover 1.8
Rear Axle	2.5 pints	3 pints	1.3
Fuel tank	13.5 gallons	16.1 gallons	61.0
Cooling System (including heater)	16 pints	18.6 pints	9.0
Anti-Freeze	33 $\frac{1}{3}$ % Bluecol (AA coloured green) for protection down to -31 °F		

**Fuel System**

Fuel pump	..	..	..	..	..	..	AC Mechanical
Carburetter	..	..	..	..	..	..	2 SU type HS6 or HIF6
Air cleaner	..	..	..	..	..	..	Twin paper element type

**Cooling system**

Type	..	..	..	..	..	..	Pump, thermostatically controlled electric fan
Pressure	..	..	..	..	..	..	15 lb/sq in.

**Electrical system**

Type	..	..	..	..	..	..	Negative earth
Voltage	..	..	..	..	..	..	12 volt
Battery	..	..	..	..	..	..	Lucas Type D13, 58 A/H or A13, 60 A/H
Charging circuit	..	..	..	..	..	..	Alternator with current-voltage regulator
Alternator belt adjustment	..	..	..	..	..	..	$\frac{1}{2}$ in. free movement

**Clutch**

Size	..	..	..	..	..	..	9 $\frac{1}{2}$ in. diameter
Operation	..	..	..	..	..	..	Hydraulic

**Moss Gear box**

No. of speeds	..	..	..	..	..	..	4 forward and 1 reverse. Synchromesh on 2, 3 and 4
Ratios: 1st	..	..	..	..	..	..	2.97:1
2nd	..	..	..	..	..	..	1.745:1
3rd	..	..	..	..	..	..	1.205:1
4th	..	..	..	..	..	..	1.00:1
Reverse	..	..	..	..	..	..	2.97:1

**Rover Gear box**

No. of speeds	..	..	..	..	..	..	4 forward all synchromesh and reverse
Ratios: 1st	..	..	..	..	..	..	3.625:1
2nd	..	..	..	..	..	..	2.133:1



3rd	..	..	..	..	..	..	1.391 :1
4th	..	..	..	..	..	..	1.00 :1
Reverse	..	..	..	..	..	..	3.43 :1

**Rear axle**

Ratio	..	..	..	..	..	..	Hypoid Limited Slip 3.58 :1 or 3.31 :1
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**Steering and front wheel alignment**

Type	..	..	..	..	..	..	Cam and peg in conjunction with AC Delco collapsible column
Number of turns lock to lock	..	..	..	..	..	..	2.25
Castor	..	..	..	..	..	..	4°
Camber	..	..	..	..	..	..	2°
King pin inclination	..	..	..	..	..	..	2°
Toe-in	..	..	..	..	..	..	$\frac{1}{8}$ in. to $\frac{3}{16}$ in. (3.2 mm to 4.8 mm)

**Suspension**

Front	..	..	..	..	..	..	Independent, vertical sliding pillars, coil springs
Rear	..	..	..	..	..	..	Rigid axle, semi-elliptic leaf springs
Shock absorbers, front	..	..	..	..	..	..	Telescopic
Shock absorbers, rear	..	..	..	..	..	..	Lever

**Brakes**

Front	..	..	..	..	..	..	Girling 16 P or M16 P Callipers, 11 in. diameter Discs
Rear	..	..	..	..	..	..	Girling 9 x 1 $\frac{3}{4}$ in. Drums

### Overall Dimensions

### Body Dimensions

## Weights

Complete with tools and fuel	..	..	..	1,900 lbs (860 kgs)
Shipping weight..	..	..	..	1,875 lbs (850 kgs)



## **INSTRUMENTS AND CONTROLS**

### **Instruments**

**Speedometer.** Indicates the vehicle speed and total mileage and is fitted with a trip which is cancelled by the serrated knob (situated in side of glove box) and turning clockwise.

**Ignition warning light** (red in speedometer). This serves the dual purpose of reminding the driver to switch off the ignition before leaving the vehicle and of acting as a no charge indicator. With the ignition switch 'on', the warning light should be illuminated only when the engine is stopped or turning over very slowly. As the engine accelerates the light should dim and eventually go out at a fairly low engine speed. Failure of the light to behave in this fashion will indicate a broken alternator drive belt or other fault in the charging system.

**Headlight warning light** (blue in speedometer). Glows blue when headlights are on main beam, no light when dipped.

**Oil pressure gauge.** This indicates the pressure of oil being pumped to the bearings. It does not show the amount of oil in the sump (excepting that if the oil level is dangerously low the pressure usually falls due to overheating). The oil pressure gauge should read 30 to 40 lb/sq in. at 50 mph (80 kph) in top gear with the engine warm. A low oil pressure is quite normal if the engine is idling or running at low speeds.

**Ammeter.** This instrument indicates the rate of charge or discharge of the battery. The rate of charge can fall off rapidly due to the alternator regulator when the battery is in fully charged condition.

## Foot operated controls

**Water temperature gauge.** This is electrically operated, acting only when ignition is switched on. The normal reading is on or just above 'N' segment.

**Fuel gauge.** Operates only when ignition is on, tank capacity  $13\frac{1}{2}$  Imperial gallons (16.1 US gallons; 61 litres).

**Revolution counter.** Shows engine speed in revolutions per minute and is calibrated in divisions of 100. It is of the electric impulse type.

**Direction indicator light.** A warning light with arrows shows when the indicators are operating, also indication is given by audible 'ticking'.

**Hazard warning light.** This indicates when hazard lights are flashing (all 4 direction lights flashing together).

**Handbrake warning light.** Shows red when the handbrake is in on position.

**Accelerator.** The pedal is connected by a Bowden cable to the carburettor throttle. Do not depress pedal when starting engine from cold.

**Foot brake pedal.** Actuates the brakes on all 4 wheels hydraulically, and also closes the circuit to the rear brake lights. These only operate when the ignition is switched on.

**Clutch.** Press pedal to disengage drive from engine to gearbox. **Do not rest your foot on the pedal when driving or hold the clutch out to free wheel as this will CAUSE UNNECESSARY WEAR.**

**Foot control lubricator.** Front suspension lubrication control. Depress as instructed (see page 34).

## Hand operated controls

**Engines fitted with hand operated choke control**

**Cold start (Choke).** Pull out the control to the stop when starting, when engine is sufficiently warm push control back to half-way. After three or four minutes driving as the engine reaches normal temperature it will be possible with a clockwise movement to push the control right in without causing the engine to run with undue hesitation.



**Combined direction indicator, horn, headlamp main beam and headlamp flasher control.** This antennae control is positioned on the right hand side of the steering column.

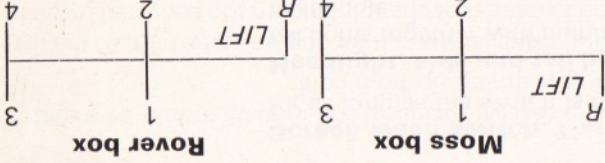
(a) **Direction indicator control**—Press the control downwards for right hand turns and upward for left hand turns.

(b) **Headlamp main beam control**—With the headlamps on dipped-beam, push the control directly away from the steering wheel for main beam operation. The direction indicators can still be operated with the headlamp main beam in operation.

(c) **Headlamp flasher control**—Press the control towards the steering wheel to flash the headlamps on to main beam. The control is spring-loaded and will return to its original position when released.

(d) **Horn control**—To operate the horn, press the end of the control towards the steering column.

**Gear lever.** Always select neutral position before starting the engine. The lever requires lifting to engage reverse gear.



**Handbrake.** This is of the 'fly-off' type. To operate the handbrake pull backwards, the lever is fixed in the 'on' position by pressing the cap on top of the lever which engages the pawl in the ratchet. To release brake pull the lever to the rear and allow to go forward to the full extent. Red warning light shows until handbrake is 'off'.

**Heater switch.** This controls the recirculatory heater and has three positions, off, slow and fast.

**Steering lock, ignition and starter switch.** This switch is located on the steering column and has 4 positions. **IMPORTANT: Take note of key number.**

1st position: Steering wheel lock in operation and ignition off, key can be extracted in this position.

2nd position: Moving clockwise 'garage lock'. Ignition off, but steering unlocked which allows the car to be moved and steered by hand.

3rd position: Ignition on.

4th position: Is spring loaded and brings in the starter motor.

To prevent the starter being operated whilst the engine is running a safety device is incorporated whereby it is necessary to switch the key back to 'garage lock' position before the starter can be engaged again.

**Parking light switch.** This switch turns off the near-side side and rear lights for parking purposes.

**Engine cannot be started when parking switch is 'on'.**

**Screen wash switch.** This switch is spring loaded and will deliver water to the windscreen for as long as the switch is depressed.

**Headlight, side and tail light switch.** This is a two position switch. First position side and tail lights together with number plate light and instrument light. Second position as above plus headlights.

**Spotlight switch.** Two position switch. First position near side spotlight only. Second position both spotlamps.

**Windscreen wiper switch.** Two position switch, first position slow, second position fast.

**Hazard switch.** This switch when depressed operates all 4 direction lights together.

**Seat control.** When moved this allows the seat (both passenger and drivers) to be moved fore and aft to various positions.



## **RUNNING IN**

During the first 30 hours or so of their working life, the moving parts of a new car require a 'bedding-in' or polishing process, such as is provided by light, and medium running.

Long trouble-free life, particularly of engine, rear axle and brakes depends on this careful running-in, which can only be achieved by restraint on the part of those who drive the vehicle during this initial time.

The engine may seem to lack power for the first 200 to 300 miles (320—480 km) whilst this process is taking place. The power will then improve as the car is used for the first 2,000 miles (3,200 km), and this will be accompanied by a corresponding improvement in fuel consumption.

It is suggested that for the first 500 miles (800 km) engine speed should not exceed 2,500 rpm.

Both long periods of idling and excessive racing of the engine should be avoided at all times and particularly during warming up from cold.

Do not allow the engine to 'labour' especially when driving up steep hills. At the first sign of this change down, bearing in mind that changing down too early can result in undesirable racing of the engine.

Vary the rpm occasionally whenever possible. Releasing the accelerator now and again will give the engine a better start in life.

As the machined surfaces approach their optimum condition, it becomes necessary to reset the adjustments to suit the more flexible engine. Your Morgan dealer will attend to this when he carries out the first 1,000 mile service.

## SECTION TWO

### **ROUTINE MAINTENANCE AND ADJUSTMENTS** **NOTES ON GENERAL MAINTENANCE**

In this section will be found all the information necessary to maintain your car in good mechanical condition in a temperate climate. Climatic and operating conditions affect maintenance intervals to a large extent; in many cases, therefore, the determination of such intervals must be left to the good judgement of the owner or to advice from a Morgan distributor or dealer, but the recommendations will serve as a firm basis for maintenance work.

#### **Important points**

1. Depress the 'one shot' lubricator for a few seconds daily or every 200 miles (320 km) if touring. Lubrication is preferable when the engine oil is cool.
2. Every 500 miles or weekly, whichever comes first, check the engine oil level, the radiator coolant level, windscreen washer reservoir, and battery electrolyte level.
3. Every month check tyre pressures and inspect tyre treads; when used for competitions or high speed touring check daily. Inspect front wheel tread wear and if uneven have wheel alignment checked. Check brake and clutch fluid levels.
4. Owners are under a legal obligation to maintain all exterior lights in good working order; this also applies to headlamp beam setting, which should be checked at regular intervals by your garage.

**Fuel recommendations.** The engine is designed to run on 100 Research octane fuel, 5-star grade in the United Kingdom.



**Engine.** Under adverse conditions such as driving over dusty roads or where short stop-start runs are made, oil changes, attention to the flame traps and breather filter replacement must be more frequent.

**Air cleaner and propeller shaft.** When the car is driven over dusty or sandy roads the air cleaner should be changed more frequently and the propeller shaft serviced over shorter intervals to prevent ingress of abrasive materials.

**Lubricants.** Great importance is attached to the nature of lubricants used, and therefore specific recommendations are shown in the following table. Should for any reason these oils not be available in certain overseas territories, the Morgan distributor or dealer for the area will be able to recommend suitable alternatives.

### Recommended Lubricants

These recommendations apply to temperate climates where operational temperatures may vary between approximately 10°F (—12°C) or 90°F (32°C). Lubricants marked with an asterisk (\*) are multigrade oils suitable for all temperature ranges. Information on recommended lubricants for use under extreme winter or tropical conditions can be obtained from the Morgan Motor Co. or your local Distributor or Rover dealer.

	<b>SHELL</b>	<b>ESSO</b>	<b>BP</b>	<b>CASTROL</b>	<b>MOBIL</b>	<b>DUCKHAMS</b>
<b>Engine</b>	*Shell Super Oil	Uniflo	*BP Visco-Static 10W-40	GTX	Mobiloil Super or Mobiloil Special 10W-30 Mobiloil Super	Duckhams Q20/50
<b>Rover gearbox</b>	Shell Super Oil	Uniflo	BP Visco-Static 10/40	GTX	Mobilube GX 90 HD 90	Duckhams Q20/50
<b>Moss gearbox</b>	Spirax 90 EP	Esso Gear Oil G90 140	Transmission Oil EP SAE 90	Castrol Hypoy	Mobilube GX 90 HD 90	Duckhams Hypoid 80
<b>Rear axle</b>	S6721A	—	Lim Slip Gear Oil 90/1	Castrol Hypoy LS	Mobilube 46 SAE 90	Duckhams Hypoid 90DL
<b>Steering box</b>	Spirax 90 EP	Esso Gear Oil G90/140	BP Gear Oil SAE 90 EP	Castrol Hypoy	Mobilube GX 90 HD90	Duckhams Hypoid 140
<b>Wheel bearings</b>	Retinax A	Esso Multi-Purpose	Energrease L2	Castrol Grease LM	Mobil Grease MP or Super	Duckhams LB 10
<b>Chassis grease points</b>	Retinax A	Esso Grease H	Energrease L2	Castrol Grease LM	Mobilgrease MP or Super	Duckhams LB 10
<b>Oil can</b>	X-100 Motor Oil 20/20W	Engine Oil	Energol Motor Oil SAE 20W	Castrolite	Engine Oil	Duckhams Q20/50



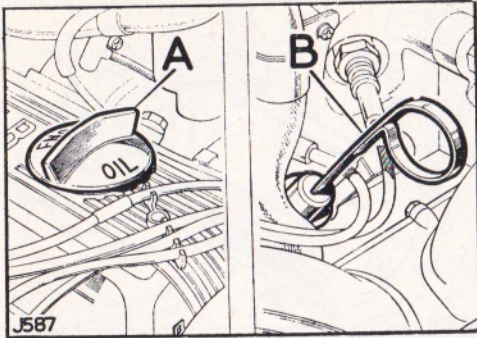


Fig. 1 Engine oil filler cap and oil level dipstick

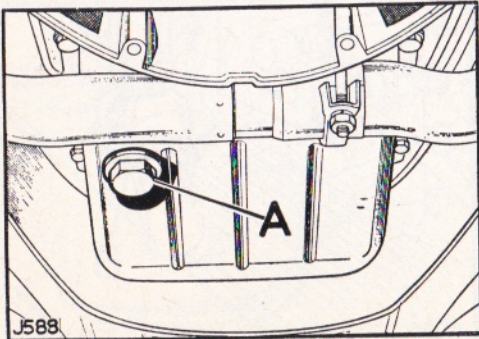


Fig. 2 Engine sump drain plug

### Engine lubrication

The engine oils recommended are of such a quality that they maintain sufficient body when hot, and are fluid enough to give early lubrication of the cylinder walls when starting up from cold.

### Engine oil level. (Fig. 1)

Engine oil level should be checked every 500 miles (800 km) or weekly whichever comes first. Stand the car on level ground and allow the oil to drain back into the sump. Withdraw the dipstick (B) at left hand side of engine; wipe it clean and re-insert to its full depth and remove a second time to take the reading. Add oil as necessary through the screw on filler cap (A) marked 'Engine Oil', on the right-hand rocker cover. Never fill above 'High' mark.

### Engine oil changes and filter replacements. (Fig. 2-3)

Engine oil changes and filter replacement should be undertaken every 5,000 miles (8,000 km) or every six months whichever comes first. To change the oil: run the engine to warm up oil and then switch off ignition. Remove the drain plug situated in the bottom of the sump at the left hand side. Allow oil to drain away completely and replace the plug.



To change the filter:

1. Place oil tray under engine.
2. Unscrew the filter (B) clockwise by the hexagon (A) on end of casing.
3. Smear a little clean engine oil on the rubber washer (C) of the new filter then screw the filter on clockwise until the rubber sealing ring touches the oil pump cover face, then tighten a further half turn. Do not over-tighten.

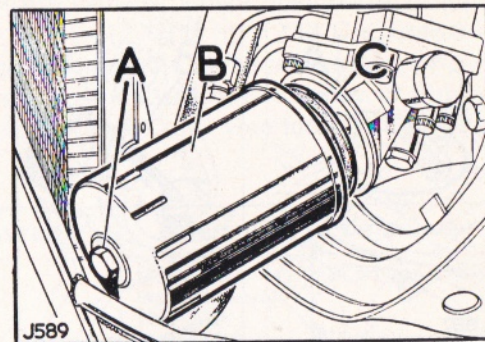
Refill with oil of the correct grade through the screw-on filler cap on the right-hand front rocker cover; the capacity is 9 Imperial pints, 10.5 US pints (5.0 litres). This includes 1 Imperial pint, 1.2 US pints (0.5 litres) for the filter.

Run engine and check for oil leaks at filter and drain plug.

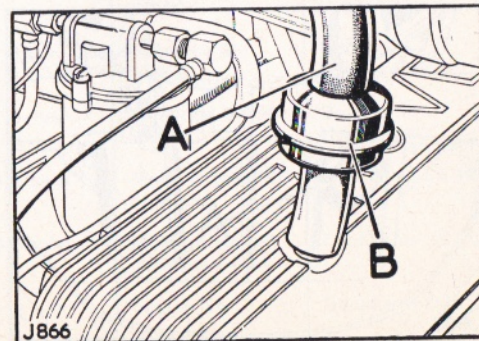
#### **Engine flame traps. (Fig. 4)**

Engine flame traps should be cleaned every 20,000 miles (37,000 km) as follows:

1. Remove the flame traps (B) one on top of each rocker cover, by pulling off the hoses (A).
2. Wash by swilling in a dish of petrol.
3. Replace the flame traps, which are located in position by the hoses.

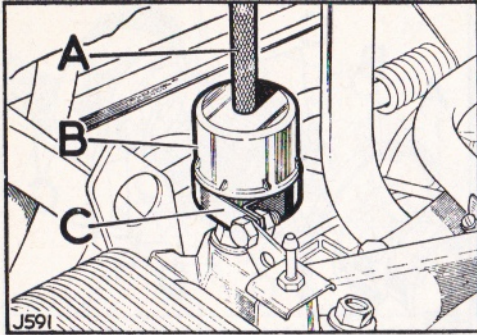


**Fig. 3 Oil filter for engine**

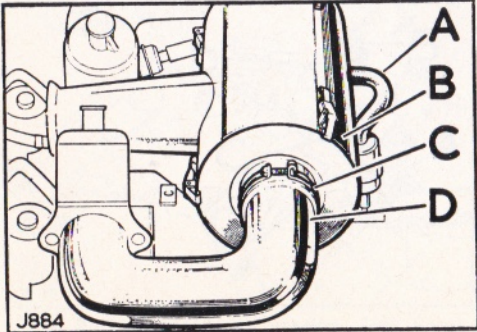


**Fig. 4 Engine flame trap, left-hand illustrated**





**Fig. 5 Breather filter for engine**



**Fig. 6 Air cleaner removal**

### Engine breather filter

The engine breather filter should be replaced every 20,000 miles (32,000 km) as follows: (Fig. 5).

1. Remove air cleaner as detailed under 'Air cleaner'.
2. Disconnect top hose.
3. Slacken clip (C) and withdraw filter (B) from bottom hose and clip.
4. Fit new filter with 'IN' uppermost. Alternatively, if filter is marked with arrows they must point downwards. Refit hoses and tighten clip.

### Air cleaner

Air cleaner elements should be replaced every 10,000 miles (16,000 km). The frequency of changes should be halved under severe dusty conditions, as performance will be seriously affected if the car is run with an excessive amount of dust or industrial deposit in the element.

To remove air filter proceed as follows: (Fig. 6)

1. Remove bonnet.
2. Slacken off the hose clips (C) on each side of the air cleaner and release the two elbows (D).
3. The air cleaner (B) can now be removed by disconnecting the hose (A) from the engine breather filter, then withdraw the air cleaner by easing it up from the domed retaining studs.

To replace the air cleaner element proceed as follows : (Fig. 7)

1. Release the three clips at (G) at each side of air cleaner casing and withdraw the frames and elements.
2. To replace the elements remove the screw and washer (F) on the frame (B). Remove end cap (E) and sealing washer (C).
3. Discard old elements (D) and replace with new units.
4. Ensure that sealing washers (C) on frame and end cap are in good condition and correctly located.
5. Check condition of rubber seals (A) on end of air cleaner frame. Replace if necessary.
6. Re-assemble elements to air cleaner and air cleaner to engine by reversing the removal procedure.

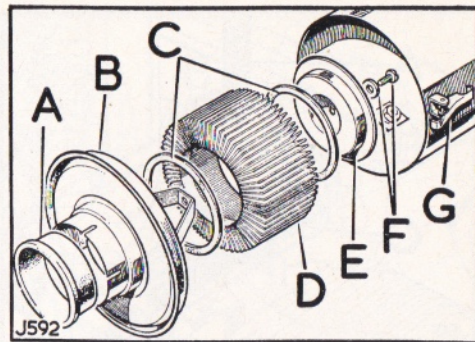
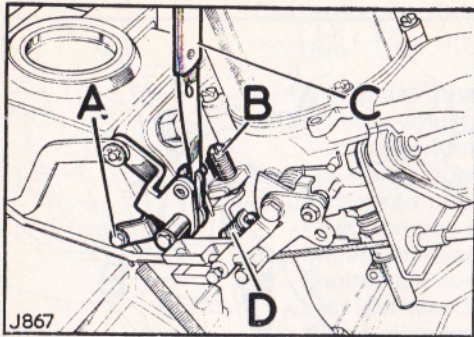
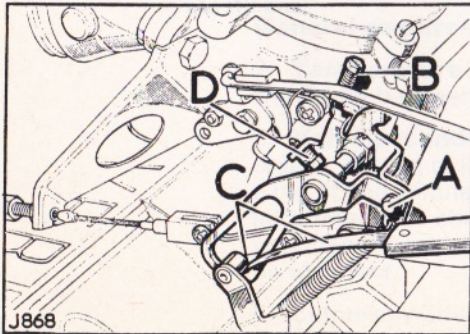


Fig. 7 Air cleaner element replacement





**Fig. 8 Throttle lever setting, right-hand viewed from rear**



**Fig. 9 Throttle lever setting, left hand viewed from rear**

### **H56—Carburetter slow-running adjustment**

Cars with Moss gearboxes have S.U., type HS6 carburetters.

Slow running adjustments will normally be carried out every 5,000 miles (8,000 km) during routine servicing but should the carburetters require adjustment, proceed as follows:

1. Run the engine until normal operating temperature is obtained.
2. Remove air cleaner as previously described.
3. Slacken screws (A) Fig. 8, securing throttle lever to carburetter lever on each carburetter.
4. Using an approved carburetter throttle balancing device, turn the slow-running adjustment screws (B) Figs. 8 and 9, until an identical reading is obtained on both carburetters at an engine speed of 600/650 rpm. Should a throttle balancing device not be available the synchronisation of the throttle setting can be checked by listening to the 'hiss' of each carburetter either directly or by means of a rubber tube held near the intake. The intensity of the noise should be equal and if one carburetter is louder than the other its throttle adjusting screw (B) should be turned back until the intensity of 'hiss' is equal.
5. Place a .006 in. (0.15 mm) feeler gauge (C) Fig. 8, between the right leg of the fork and the pin on the right-hand carburetter. Apply light pressure to the linkage to hold the feeler, then tighten throttle lever securing screw (A) Figs. 8 and 9.
6. Place a .006 in. (0.15 mm) feeler gauge (C) Fig. 9, between the lower side of the throttle roller and counter shaft lever on the left-



hand carburetter. Apply light pressure to the lever to hold the feeler, then tighten throttle lever securing screw (A) Figs. 8 and 9.

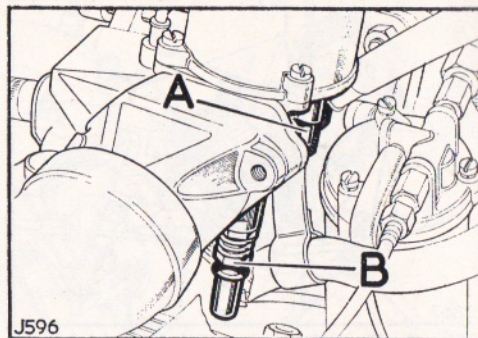
7. The fast-idle screws (D) Figs. 8 and 9 should not require adjustment, however if adjustment becomes necessary pull out the cold start control and speed up the engine slightly. Adjust fast-idle adjustment screws until an identical reading is obtained on both carburetters with the balancing device (or hiss method), at an engine speed of 1,100 rpm. Push the cold start control in again.

8. Replace the air cleaner.

9. Check the mixture on each carburetter separately by lifting the carburetter piston approximately  $\frac{1}{32}$  in. (1 mm) by means of the lift pin (A) Fig. 10, situated on the front of the carburetter body. There is approximately  $\frac{3}{16}$  in. (4.5 mm) free movement of the lift pin before it contacts the piston.

10. If the engine speeds up immediately the mixture is too rich and the mixture adjustment nut (B) Fig. 10, must be screwed up, thus weakening the mixture ; if the engine speed decreases immediately the mixture is too weak and the mixture adjustment nut should be unscrewed to enrich the mixture. In either case turn one flat at a time and check after adjustment. If the engine speed momentarily increases very slightly the adjustment is correct.

11. Road test car for 3 miles (5 km) and stabilise carburetter temperature and repeat checks 9 and 10. Re-check slow running adjustment. If incorrect, adjust by turning each slow running screw an equal amount.



**Fig. 10 Carburetter mixture adjustment screw and lift pin**



**Carburettor linkages and carburettor adjustments**—Cars with Rover gearboxes have S.U. type HIF6 carburettors adjusted as below. Figs. 8HIF6. 9HIF6. 10HIF6.

1. Carburettor mixture ratio is pre-set and sealed and must not be interfered with. The only adjustments which can be carried out are engine idle speed and fast idle speed.

Accurate engine speed is essential during carburettor adjustments, therefore, the contact breaker dwell angle, ignition timing and automatic ignition advance mechanism, should all be checked and reset if necessary before commencing carburettor adjustments.

Check engine idle speed at the service intervals mentioned above, adjust if necessary.

Engine idle speed for standard vehicles 600-650 revs/min.

Engine idle speed for emission controlled vehicles 700-750 revs/min.

Fast idle speed for both standard and emission controlled vehicles 1100-1200 revs/min.

When checking engine speed, use an independent and accurate tachometer. The tachometer fitted to the car is not suitable.

### **General requirements when setting carburettors**

2. **Temperature:** Whenever possible the ambient air temperature of the setting environment should be between 15.5 to 26.5°C (60° to 80°F).

3. **Vehicle conditions.** Idling adjustments should be carried out on a fully warmed up engine, that is, at least 5 minutes after the thermostat has opened. This should be followed by a run of one minute duration at an engine speed of approximately 2,500 revs/min. before further adjustments or checks are carried out. This cycle may be repeated as often as required. It is important that the above cycle is adhered to, otherwise, overheating may result and settings may be incorrect.

4. Before any attempt is made to check settings a thorough check should be carried out to see that the throttle linkage between the pedal and carburettors is free and has no tendency to stick. Ensure that the choke control is fully pushed in.

1. To adjust engine speed, proceed as follows:
2. Run the engine until warm. See note concerning general requirements when setting carburetters.
3. Switch off engine and remove air cleaner as described previously.
4. Slacken the screws securing the throttle lever to the carburetter lever on each carburetter, thus allowing individual adjustment of carburetters.
5. Start the engine.

### Engine idle speed adjustment

6. Use special spanner and slacken off carburetter idle adjusting screw lock nuts.
7. Adjust idle screws by equal amounts to give a speed of 600-650 revs/min. for standard vehicles and 700-750 revs min. for emission controlled vehicles.
8. When both carburetters have been adjusted, tighten the idle screw lock nuts.

### Fast idle speed adjustment

9. Pull the mixture control until the mark on the fast idle cam is opposite the centre line of the fast idle screw.
10. Using the special spanner, slacken the lock nut.
11. Adjust the fast idle screw to give an engine speed of between 1100 and 1200 revs/min. for both standard and emission controlled vehicles.

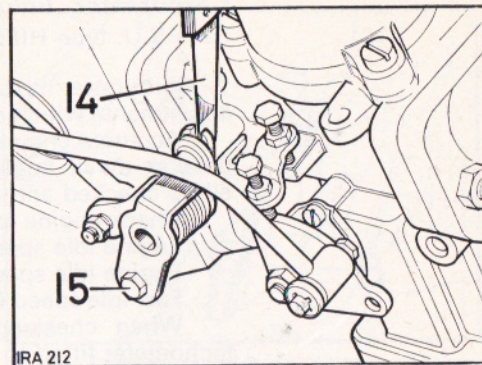


Fig. 8 HIF6 throttle lever setting right-hand

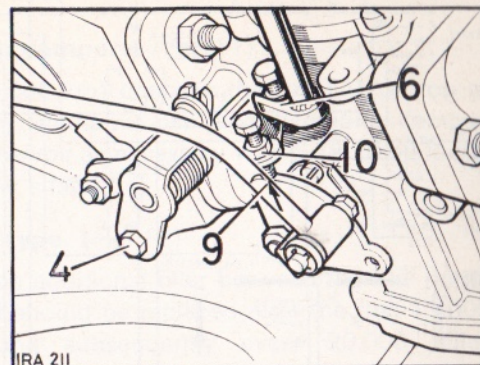


12. Balance carburettor air flow as follows:  
Check and if necessary zero the gauge, by means of the adjustment screw on the carburettor balancing device. Place the balancer on to the carburettor adaptors, ensuring that there are no air leaks.

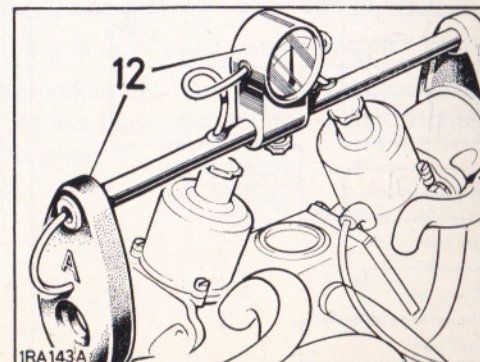
Note the reading on the gauge; if the pointer is in the zero sector of the gauge, no adjustment is required. If the needle moves to the right, decrease the air flow through the left-hand carburettor by unscrewing the idle adjusting screw or increase the air flow through the right-hand carburettor by screwing in the idle adjusting screw. Reverse the procedure if the needle moves to the left.

13. Should the idling speed rise too high or drop too low during balancing, adjust to the correct idle speed maintaining the gauge needle in the zero sector. With the carburettor balance correctly adjusted, the difference in engine speed with the balancer on or off will be negligible, approximately plus or minus 25 revs/min.  
If there is a considerable change of engine speed this indicates incorrect mixture setting and specialised workshop attention to the carburettor will be necessary.

14. On the right-hand carburettor place a 0.15 mm (0.006 in.) feeler between the right leg of the fork on the adjusting lever and the pin on the throttle lever.
15. Apply light pressure to the linkage to hold the feeler, then tighten the throttle lever securing screws.
16. Switch off engine and replace the air cleaner.

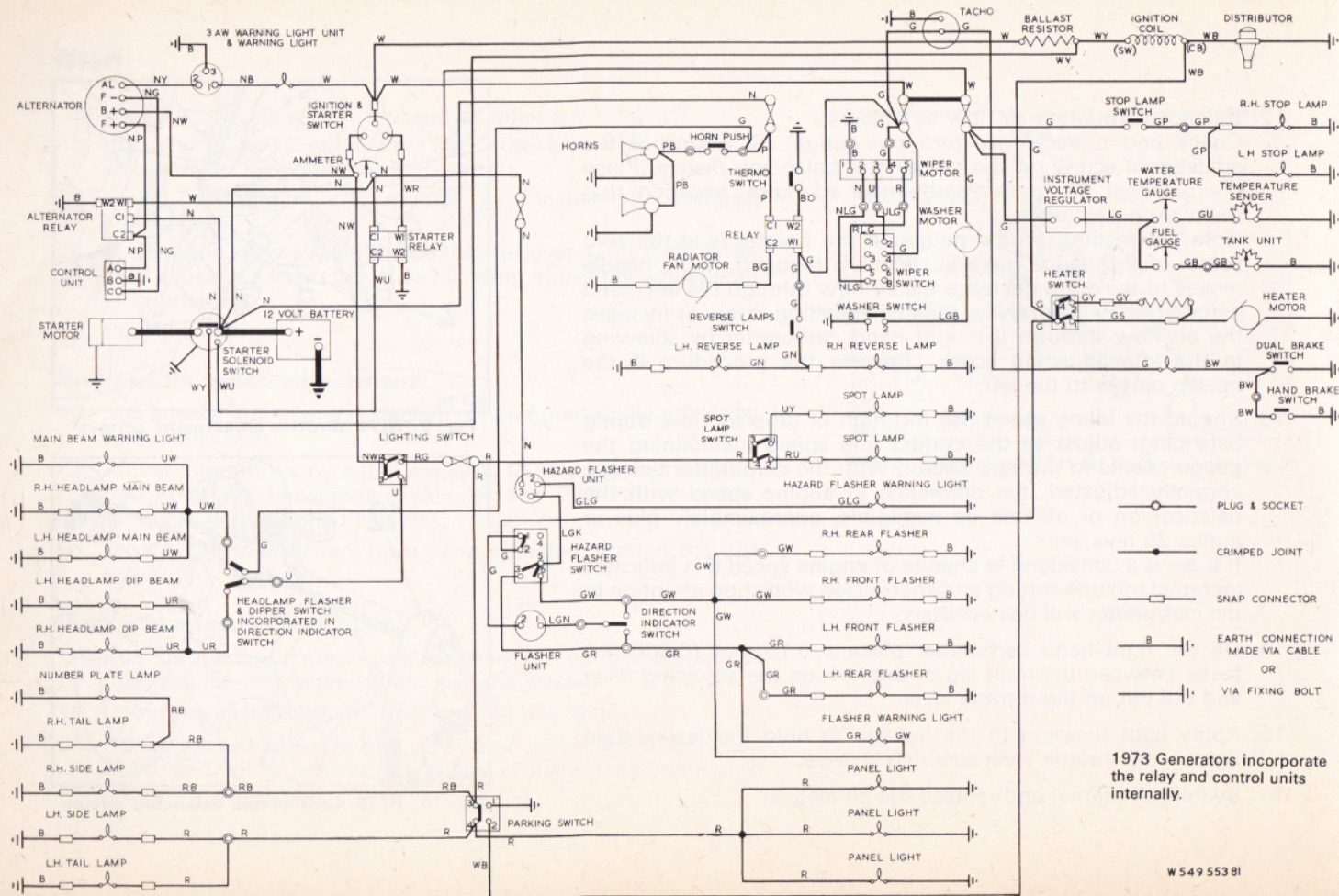


**Fig. 9 HIF6 throttle adjustment screws**



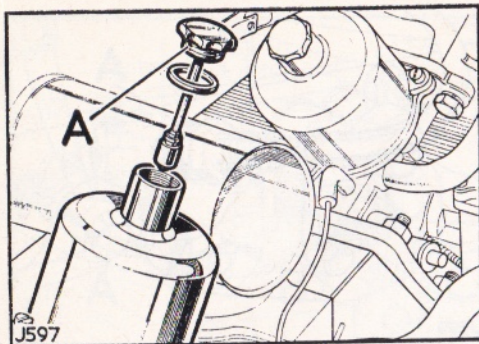
**Fig. 10 HIF6 Carburettor balancing device**

# WIRING DIAGRAM

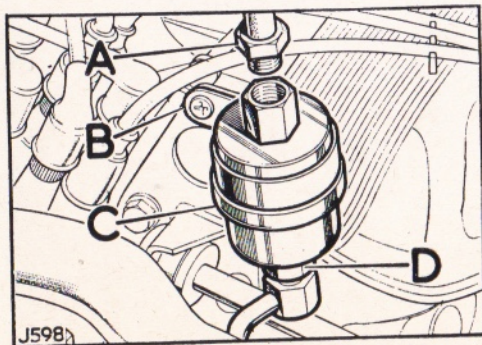


1973 Generators incorporate the relay and control units internally.





**Fig. 11 Hydraulic damper for carburettor**



**Fig. 12 Fuel filter, cartridge type**

### **Carburettor hydraulic dampers. (Fig. 11)**

Every 10,000 miles (16,000 km) unscrew the cap (A) on top of each Suction Chamber, withdraw cap and hydraulic damper, replenish the damper reservoir as necessary with SAE 20 oil to the level of the inner hollow shaft.

### **Fuel filter, cartridge type. (Fig. 12)**

The cartridge provides an additional filter between the fuel pump and the carburettor and should be replaced after the first 10,000 miles (16,000 km) and subsequently every 20,000 miles (32,000 km) as follows:

1. Disconnect fuel pipes (A) and (D) from each end of filter.
2. Slacken clip (B) securing filter (C) and withdraw unit.
3. Fit new filter with end marked 'IN' downwards. Alternatively if the filter is marked with arrows they must point upwards. Tighten securing clip and refit fuel pipes.

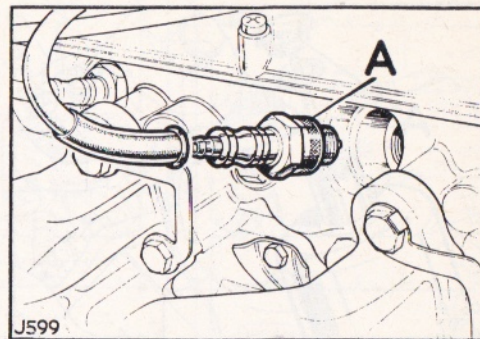
### **Sparkling plugs. (Fig. 13)**

Sparkling plugs should be checked every 5,000 miles (8,000 km) and replaced every 10,000 miles (16,000 km).

**IMPORTANT—Take great care when fitting sparking plugs not to cross-thread the plug otherwise costly damage to the cylinder head will result.**

Check or replace the sparking plugs (A) as applicable; if the plugs are in good condition clean and reset the electrode gaps to .025 in. (0.60 mm), at the same time scrape the end of the central electrode until bright metal can be seen.

It is important that the correct sparking plugs are used—CHAMPION L87Y or L92Y.



**Fig. 13 Sparking plug**



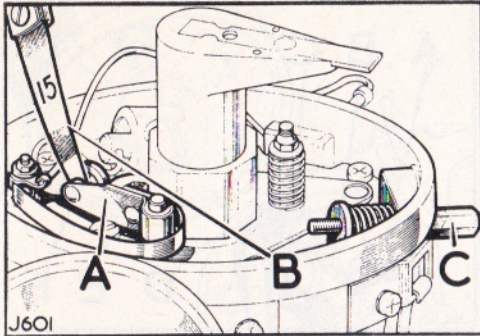


Fig. 14 Distributor contact points

### Distributor contact points

To obtain satisfactory engine performance it is essential that the contact points are adjusted every 10,000 miles (16,000 km) to the correct dwell angle  $26^{\circ}$ — $28^{\circ}$  using suitable workshop equipment. If it becomes necessary to change the contact points, and specialised checking equipment is not available, they may be adjusted as follows: (Fig. 14)

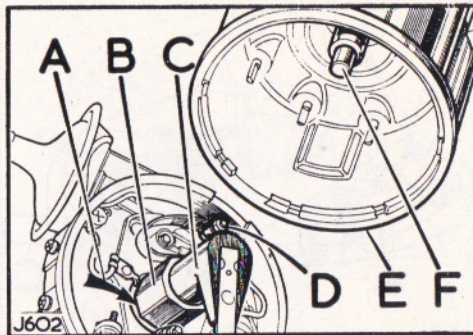
1. Remove distributor cap; then turn the engine, using  $\frac{15}{16}$  in. AF socket spanner on the front pulley retaining bolt, until the contacts (A) are fully open.
2. The clearance should be .014 to .016 in. (0.35 to 0.40 mm) with the feeler gauge (B) a sliding fit between the contacts.
3. Adjust by turning the adjusting nut (C) clockwise to increase gap and anti-clockwise to reduce gap.
4. Replace distributor cap.

**IMPORTANT**—At the first available opportunity after the points have been set in this manner they should be finally set to the correct dwell angle using the specialist equipment.

**Distributor maintenance.** (Fig. 15)

Lubricate as follows every 10,000 miles (16,000 km) :

1. Remove distributor cap (E) and rotor arm (C).
2. Lightly smear the cam (B) with clean engine oil.
3. Add a few drops of thin machine oil to lubricate the cam bearing and distributor shaft at point (A).
4. Remove the nut (D) on the terminal block and lift off the spring and remove contact, also remove adjustable contact secured with a screw. Ensure that the contacts are free from grease or oil ; if they are burned or blackened, clean with a fine carborundum stone and wipe with a petrol soaked cloth. Add a smear of grease to contact pivot before replacing the contacts. Then adjust as detailed in previous operation.
5. Wipe the inside and outside of the distributor cap (E) with a soft dry cloth ; ensure that the small carbon brush (F) works freely in its holder.
6. Replace rotor arm and distributor cap.
7. Adjust contact points. Dwell angle  $26^{\circ}$ — $28^{\circ}$ .



**Fig. 15 Distributor maintenance**



**Windscreen washer**

The water level in the windscreen washer should be checked every 5,000 miles (8,000 km). This is located on the bulkhead in the engine compartment on the opposite side to the steering column. Top up reservoir to within 1 in. (25 mm) below top of orifice provided. Use Clearalex windscreen washer powder in the container, this will remove mud, flies and road film. In cold weather, to prevent freezing of the water, the reservoir should be mixed one part methylated spirits to 20 parts water.

**Alternator drive belt adjustment**

Every 10,000 miles (16,000 km) check by thumb pressure between the alternator and crank shaft pulleys at mid point. Movement should be  $\frac{7}{16}$  to  $\frac{9}{16}$  in. (11 to 14 mm).

If necessary adjust as follows :

1. Slacken the bolts securing the alternator to the front cover; also the fixing at the adjustment link.
2. Pivot the alternator inwards or outwards as necessary and adjust until the correct tension is obtained.
3. Tighten alternator adjusting bolts.

### **Radiator water level**

Check the radiator header tank every 500 miles or weekly whichever comes first. The correct level is 2 to 2½ in. (5—6.5 cm) below the top of the filler neck with the engine cold.

**To prevent corrosion of the aluminium alloy engine parts it is imperative that the cooling system is filled with a solution of water and anti-freeze (Bluecol AA coloured green or conforming to British standard N3150) winter or summer, or water and inhibitor during the summer months only (Marston Lubricants SQ36.) Never fill or top-up with plain water.**

The cooling system is pressurised and great care must be taken when removing the radiator filler cap, especially when the engine is hot. The filler cap is situated on the separate header tank on the left hand side of the engine.

If the cooling system is being refilled after draining or a large quantity of water is needed :—

1. Fill radiator with a solution of either water and anti-freeze or water and inhibitor. See next item for details of anti-freeze and inhibitor solutions and quantity to be used.
2. Run engine at a fast idle until top radiator hose is warm, that is thermostat open.
3. Switch off engine and fill header tank to just below the top of the cross pipe which is inside the header tank.

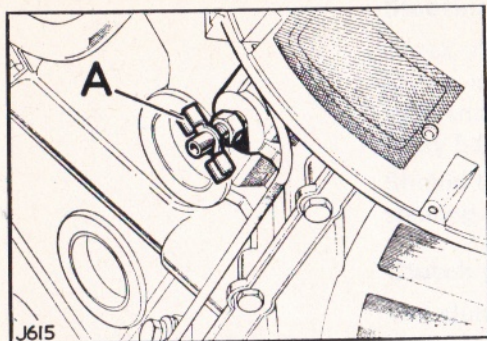
Replace cap, run engine for approximately 20 seconds, switch off and make final check.

Use soft water whenever possible ; if the local water supply is hard, rain water should be used.

### **Electrically operated radiator fan**

The fan is controlled automatically by means of an electrical contact switch situated in the engine water passage. The fan operates only when the engine is switched on and temperature is above 83°C. Fan may be checked when the car is stationary, by switching ignition 'on', removing terminal connector from Otter switch on top of engine and earthing on the engine (ie steel component), the fan should operate, even though temperature is below 83°C.





**Fig. 16 Cylinder block drain tap**

### **Frost precautions and engine protection**

Recommended additives are :

Anti-freeze—Bluecol AA, coloured green.

One part anti-freeze to two parts water.

Inhibitor—Marston Lubricants SQ36. Coolant inhibitor concentrate. 3 fluid ounces to one gallon of water.

To ensure that the solution is fully effective at all times the cooling system should be drained and refilled every twelve months.

Proceed as follows :

1. Ensure that the cooling system is leak-proof; anti-freeze solutions are far more 'searching' at joints than water.
2. Drain and flush the system. Draining points are situated at the bottom of the radiator and two on the cylinder block—one each side of the engine. (Fig. 16)
3. Pour in approximately one gallon (1.2 US gallons ; 4.5 litres) of water, add anti-freeze or inhibitor in proportions stated and then top up as detailed under 'Radiator water level'.

### **Front suspension**

Lubrication of the sliding axles is carried out by the 'one shot' lubrication system. The plunger which operates the system is situated in the middle of the metal scuttle and is foot operated. The plunger should be depressed daily or every 200 miles (370 km) whichever comes first, preferably when the engine oil is cold. The plunger should be held down for a few seconds during which time a very small decrease in oil pressure may be noticed on the oil gauge.

The sliding axles are also provided with grease nipples which should be lubricated with grease every 5,000 miles (8,000 km). The grease helps to retain the oil supplied by the 'one shot' system.

**The importance of frequent lubrication to the sliding axles cannot be too highly stressed as comfort is to a large extent dependent on the free working of these parts and neglect will result in tightness which not only makes the springing harsh, but results in excessive wear, necessitating renewal before it should be necessary.**



### **Steering**

Check oil level in steering box every 5,000 miles (8,000 km), and top up with one of the recommended lubricants. (Page 16). Grease nipples are situated one at each end of the track rod and one at each end of the drag link and should be greased every 5,000 miles (8,000 km).

Should the steering become stiff a small amount of lubricating oil or grease on the steering friction dampers may prove beneficial.

### **Clutch plunger lubrication (Moss gearbox only)**

The clutch plunger should be lubricated every 5,000 miles (8,000 km). Access is through a hole in the top of the transmission cover at the front, ahead of the brake lever, onto a grease nipple fitted to the magnesium transmission housing. A lifting flap is provided in the leather cover over the housing.

### **Gearbox**

The gearbox oil level should be checked every 5,000 miles (8,000 km) and topped up if necessary with the correct lubricant. A heavy oil or grease should not be used as this will spoil the operation of gear-changing.

With the Moss box to check the oil level withdraw the dipstick which is situated on the left hand side of the gearbox beneath the flap of the gearbox cover, wipe clean, and re-insert the stick and push it fully home before withdrawing for reading. The correct level is the top mark. The dipstick orifice is also the oil filler point.

The Rover gearbox is filled to the top of the filler plug hole with engine oil.

### **Rear axle**

It is essential to drain and replenish the axle with 'Hypoid' limited slip oil at 5,000 miles (8,000 km). A drain plug is provided at the base of the axle.

During the 'running in' period the limited slip friction discs may be heard to 'knock' when the car is on full lock. This noise should cease after a mileage of approx. 3,000 miles (4,800 km).

**The hypoid bevel gears and limited slip differential fitted in the rear axle require a special lubricant to ensure efficient operation and long life.**

It is advisable to completely drain and replenish with new 'Hypoid' oil every 5,000 miles (8,000 km), and in any event do not exceed a period of 10,000 miles (16,000 km).

It is desirable to have the oil level checked during this period and if the oil level is below the plug on the rear do not 'top up' but drain the oil and refill with new oil, this will overcome the danger of mixing the various grades of oil.

Clean away grit from filler plug and refill until oil reaches the level of the filler plug on the rear of the axle case.

### **Front and rear wheel hubs**

Every 5,000 miles (8,000 km) the recommended grease should be packed into the front wheel hubs and pumped into the rear wheel hubs via the grease nipples, which can best be got at by removing the floor of the luggage compartment.



### **Rear road springs**

The rear road springs should be painted or sprayed with engine oil every 5,000 miles (8,000 km).

It is the area around the tips of the blades which most requires the lubricant, as it is at these points that one blade presses upon the next. The spring clip should also be oiled.

Oil should be kept away from the rubber bushes located at each end of each spring.

### **Other lubrication points**

A grease nipple is provided on both universal shaft joints and also on the shaft spline and these should be attended to every 5,000 miles (8,000 km).

The following items should be oiled at least at each major service, to prevent unnecessary wear :

Rear brake yoke pins, and balance lever pivots.

Door hinges and locks.

Bonnet catches and tape seating.

Accelerator linkage.

Wheel studs (to prevent rusting).

### **Brake and clutch fluid reservoirs**

The brake and clutch fluid reservoirs are situated under the bonnet on the bulkhead on the same side of the car as the driver.

Every 5,000 miles (8,000 km) remove the covers and check fluid level in the reservoirs. If necessary replenish to within  $\frac{1}{2}$  in. (12 mm) of the top with Castrol Girling Crimson Brake and Clutch Fluid (SAE70R3). Replace covers ensuring that the rubber sealing rings are in good condition and that the ventilation holes are unblocked.

If significant topping-up is required check master cylinders, slave cylinders and pipes for leakage; any leakage must be rectified immediately.

After approximately 3 years or 40,000 miles (64,000 km) the seals and cups of the hydraulic system should be inspected and if necessary replaced.

### **Front brake pads**

Hydraulic disc brakes servo assisted are fitted to the front wheels and the correct brake adjustment is automatically maintained, no provision is therefore made for adjustment.

Every 5,000 miles (8,000 km) (more frequently if used in competitions) check the thickness of the brake pads and renew if the minimum thickness is less than  $\frac{1}{8}$  in. (3.00 mm). Also check for oil contamination of brake pads and discs.

If replacement or rectification is necessary this should be carried out by your Morgan Distributor or Dealer.



### **Rear brake drums**

Hydraulic drum brakes, servo assisted are fitted to the rear wheels and should be inspected and checked every 5,000 miles (8,000 km) or before if the brake pedal has excessive free movement. To adjust proceed as follows:

1. Jack up rear of vehicle and remove rear wheels (the last operation is not essential but makes the task easier).
2. Turn the adjuster nut in a clockwise direction until the shoes contact the drum and release back one or two notches until the drum is free. The single adjuster is placed facing in a forward direction on the backplate.

There is a heavy drag on the rear wheels due to the action of the limited slip differential and axle oil; do not confuse this with brake drag.

### **The handbrake**

Adjustment of the rear brake shoes automatically re-adjusts the handbrake mechanism. The rods are correctly set before leaving the works and only mal-adjustment will result from tampering with the mechanism. Cable adjustment may be made by turning the adjuster at the rear of the handbrake cable. The lever compensating mechanism on the rear axle should be kept free and well oiled.

### **Bleeding the brake system**

If the brakes feel spongy, this may be caused by air in the hydraulic system. This air must be removed by bleeding the hydraulic system at the disc and drum cylinders. Bleeding must be carried out at all points.

1. Start with the front near side brake and attach a length of rubber tubing to the bleed nipple which is situated at the top inside of the brake caliper and allow the lower end of the tube to hang into a glass jar containing new brake fluid.
2. Unscrew the bleeder nipple one complete turn with a suitable spanner and pump the brake pedal slowly, pause at each end of each stroke to allow the master cylinder piston to recuperate. Continue pumping until the fluid issuing from the tube shows no signs of air bubbles when the tube is held below the surface of the fluid in the jar.
3. Hold the tube under the fluid surface and, with foot brake fully depressed, tighten the bleeder nipple.
4. Continue as above with the other front brake and then the rear pair. The bleed nipple will be found on the back plate of the rear brakes near the point where the hydraulic tube joins the brake.

The fluid in the reservoir should be replenished throughout the operation, to prevent another air lock being formed, using only new fluid. Two people are needed to complete this operation.



### Battery

The battery is situated below the floor of the luggage compartment and acid level should be checked every week or after 500 miles (800 km) whichever comes first.

Keep the battery top clean and the terminals tight and well smeared with petroleum jelly. Also check the security and good electrical contact of the battery to the earthing point. (NEGATIVE TO EARTH).

At each servicing ascertain the specific gravity by taking hydrometer readings. The specific gravity should be :

	<i>Temperatures below</i>	<i>Temperatures above</i>
	<i>80°F (25.5C)</i>	<i>80°F (25.5C)</i>
Fully charged .. ..	1.270 to 1.290	1.210 to 1.230
Three-quarter charged ..	1.240	App. 1.180
Half-charged .. ..	App. 1.210	App. 1.140

If the battery is only half charged it should be bench charged and the electrical equipment on the car checked.

In hot climates it will be necessary to top up the battery at more frequent intervals.

In very cold weather it is essential that the car is used immediately after topping up, to ensure that the distilled water is thoroughly mixed with the electrolyte. Neglect of this precaution may result in the distilled water freezing and causing damage to the battery. Avoid the use of a naked light when examining the cells.

### **Road wheels**

The Plus 8 is fitted with aluminium alloy road wheels with steel ferrules around fixing studs. Wheel nuts should be checked for tightness when the car is new and after the first 500 miles (800 km) also subsequent to any wheel change. Torque required 65/70 lbs ft. On new wheels it is important that the ferrules bed in correctly. Wheels are balanced before the car leaves the factory, but a check at 500 miles (800 km) is advisable, and rebalancing when new tyres are fitted or changed.

### **Tyre pressures**

Tyre pressures should be checked weekly and at every maintenance inspection.

Maximum tyre life and performance will be obtained only if the tyres are maintained at correct pressures.

	<i>lbs/sq in.</i>	<i>kg/cm<sup>2</sup></i>
Normal (front and rear)	22	1.54
High speed (front and rear)	26	1.83
Racing (front and rear)	35-40	2.46-2.81

Wherever possible check with the tyres cold, as the pressure is about 3 lb/sq in. (0.2 kg/cm<sup>2</sup>) higher at running temperature. Always replace the valve caps, as they form a positive seal on the valves.



When high-speed touring or taking part in competitions, the tyre pressures should be checked much more frequently, even to the extent of a daily check.

Any unusual pressure loss (in excess of 1 lb/sq in. (0.05 kg/cm<sup>2</sup>) per week) should be investigated and corrected.

Always check the spare wheel, so that it is ready for use at any time.

At the same time, remove embedded flints, etc. from the tyre treads with the aid of a penknife or similar tool. Clean off any oil or grease on the tyres, using petrol sparingly.

Wheel and tyre units are accurately balanced on initial assembly with the aid of clip-on weights secured to the wheel rims.

### **Wheel balance** (see road wheels)

When tyres are changed, road wheels should be carefully checked for possible damage.

When replacements are required, the tyres should be as currently specified by the Company. They should be of the same type and make as those previously fitted.

### **Headlamp beam setting**

This operation should be carried out every 10,000 miles (16,000 km) but is best left in the hands of your garage. They can however be set reasonably accurately as follows:

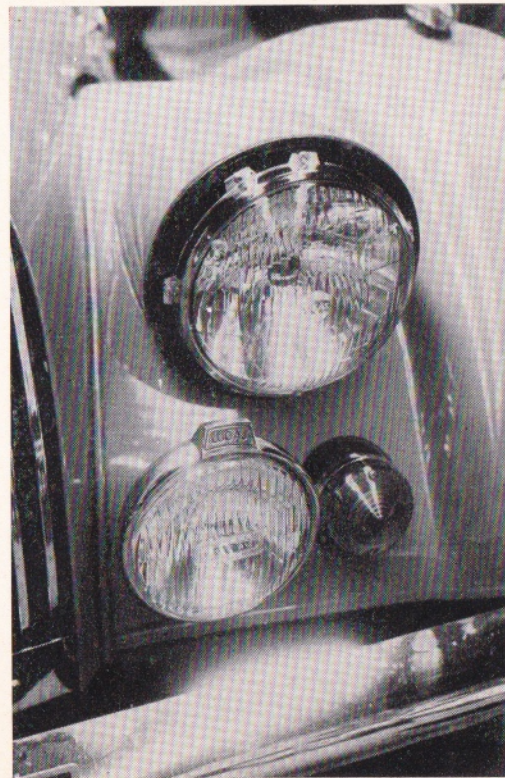
Place the car 25 feet (7.6 m) away from a blank wall, taking care that the car stands on a level surface, and that the front of the car is parallel to the wall. The car must be unladen. Do this job at night, or pick a spot which is well shaded, so that the light spots thrown by the lamps can be clearly seen.

When correctly set the light spots from the lamps should be  $2\frac{1}{2}$  in. (63 mm) below the centre of the headlamps. The beams should also be parallel with each other. If they require adjustment, remove the moulding surrounding the lamp—and the beam adjustment screws will be exposed.

The top screw controls vertical adjustment and the lower screw the horizontal adjustment. It is preferable to start with the screws well in so that the moulding does not interfere with them when replaced.

### **Driving and fog light adjustment**

Lights should be secured so that it is just possible to set these manually.





## SECTION III

### GENERAL CARE

This section deals with items for which no regular intervals can be given for attention and maintenance.

#### Headlamp

The headlights are sealed beam units with the filaments sealed in a glass unit consisting of the lens and reflector, only the complete unit is replaceable.

To renew the sealed beam light unit, remove the moulding surrounding the lamp. Five screws are now visible. Remove the three cross-headed screws being careful not to disturb the other two, otherwise beam setting will be necessary. Draw out sealed beam unit, remove connector and replace with new sealed beam unit.

#### Fuse box

The fuse box is located under the bonnet on top of the scuttle. The cover is a snap fit and when removed will reveal 4 fuses and two spares.

## **Fuses**

Fuse (35 amp) in holder marked 1 and 2 is for sidelights, rear lights and driving lights. Fuse (35 amp) in holder marked 3 and 4 is for constant current auxiliaries, ie : horn, head light flasher. The spare fuses are both 35 amp.

Fuse (2 amp) in holder marked 5 and 6 and Fuse (15 amp) in holder marked 7 and 8 are for ignition and auxiliaries, ie : screen wiper, washer, heater, stop lights.

## **High tension cables**

High tension cables should be renewed if signs of cracking or perishing appear. These can be obtained as a set from your Morgan/Lucas Agent or an individual lead can be replaced.

Only 7 mm PVC or Neoprene covered rubber insulated ignition cable should be used.

## **Horns**

Twin Lucas miniature windtone horns are used and are situated just below the radiator. An adjustment screw is provided to take up wear. Proceed as follows:

1. Disconnect the horn not to be adjusted, making sure that the end of the disconnected cable is prevented from earthing.
2. Depress the horn control and turn the adjustment screw in an anti-clockwise direction until the horn just fails to sound. Then rotate the screw clockwise for one-quarter turn.
3. Reconnect horn and proceed with second instrument in a similar manner.



### **Front wheel track**

In the normal course of wear and tear, or due to minor impacts, the wheels may cease to point directly in the direction of motion. The most obvious indication of this is if the tyres wear excessively on one side or the other. If this is suspected, ask your garage to check the alignment of the front wheels. The correct setting is that the front wheels should 'toe-in'  $\frac{1}{8}$ — $\frac{3}{16}$  in. The adjustments are made to the track rod ends which are threaded for this purpose.

### **Front suspension damper blades**

On certain cars which have covered considerable mileage, faults are sometimes noticed in respect of front wheel vibration even though the wheels are correctly balanced. This can be overcome by making sure that the flat spring sheet blade mounted from the stub axle to the chassis side member is secured without any radial movement at the chassis end. This blade should slide inwards and outwards only. Any sideways or radial movement should be reduced to a minimum by adjusting the shims. These shims are locked in place by the two bolts which secure the steel clamps to the chassis. It may also be necessary to renew the damper blades if worn edges are apparent.

### **Brakes**

The brakes will be inspected regularly during normal servicing but should the car be used for competition work, brake wear will be much more rapid and therefore inspection and perhaps replacement of pads or shoes be necessary during the period in between.

Cleanliness is essential when dealing with brakes, as no method is known of successfully removing grease or oil from brake linings. Always replace with genuine Morgan relined shoes or pads as they will have the correct grade of lining, ground to the correct contour and inspected to conform to the original specification.

### **Front brake pads—*Removal***

1. Jack up front of the car and remove road wheels.
2. Remove hairpin clips and withdraw the pad retaining pins.
3. Withdraw pads complete with anti-rattle springs and damping shims.
4. Measure the linings and if less than  $\frac{1}{8}$  in. (3 mm) renew pads. If pads are not to be renewed mark each one in order that it may be fitted in its original position.

### ***Replacement***

1. Push in the pistons with an even pressure to the bottom of the cylinder bores. Then slide the pads into position, together with the damping shims. Ensure arrow cut-out in shim points in direction of rotation.
2. Refit the anti-rattle springs, one on each pad then replace the pad retaining pins, ensuring that the anti-rattle springs are clipped under the pins. Fit new harpin clips.
3. Pump the foot pedal until a solid resistance is felt. This repositions the piston and puts the pad in slight frictional contact with the disc.
4. Refit the road wheels, remove car from jack and road test car.



### **Rear brake shoe replacement**

1. Jack up the car and remove road wheels.
2. Remove the countersunk screw and take off brake drum.
3. Dismantle the brake by prising one shoe out of the groove in the wheel cylinder piston with a large screwdriver. Both shoes and pull off springs can now be removed, leaving the wheel cylinders and pivot pins in position on the backplate. Do not detach these units from the backplate. To prevent loss of brake fluid, place an elastic band over the wheel cylinder pistons to hold these in place.
4. Clean down backplate and check wheel cylinders for leaks and freedom of motion. It is important that the adjuster is turned back (anti-clockwise) to the full 'off' position and is working freely.
5. To fit replacement shoes, first attach shoe springs (new if possible) to shoes. Be sure that the springs are between the shoe webs and backplate, otherwise shoes will not be flat on backplate. Keep all grease off linings and do not handle linings more than necessary. Place shoes with springs attached against backplate. Shoes have half round slots at one end. Fit these slots to the pivot pin, then insert the other end of the shoe in the wheel cylinder piston. Place the screwdriver under the web of the remaining shoe and against the backplate. Ease the shoes into the grooves on the piston.
6. Refit drums ; be sure these are clean and free from grease, etc.
7. Tighten up adjusters until the wheel just locks and then slacken off until the wheel spins freely.
8. Refit road wheels, jack down and road test.

### **Coach work**

To maintain the good appearance of your coachwork it should be washed frequently with cold or luke warm water, with a little car shampoo added to assist in dissolving traffic film. When surplus dirt has been washed off, clean the body with a sponge and plenty of fresh water, then rinse and rub down with a clean chamois leather.

In order to restore the paintwork to its original lustre, a thin application of wax polish is recommended. If the car is kept in a clean condition by subsequent washing and leathering, approximately once a week, it will be found that the frequent use of wax polish is unnecessary.

Combined cleaner and polishing liquids are not recommended on the synthetic enamel paintwork.

Tar on the body may be removed by dipping a soft cloth into a mixture of  $\frac{2}{3}$  petrol and  $\frac{1}{3}$  clean engine oil, and using one finger, rubbing the spot gently until it has been removed. Then wash the mixture away with clean water.

The chromium plated parts should be washed in the same way as the paintwork, and then dried thoroughly with a duster. If, due to neglect, rust staining has appeared, it may be removed by rubbing lightly with a mild glass or mirror cleaner, but where parts have been severely stained due to insufficient cleaning in the recommended manner, it may be necessary to use a proprietary brand of chromium cleaner to restore the lustre to the surface. Many such



cleaners however are abrasive and continuous use may damage the plated surface. After use, all traces of the cleaner should be removed and the surface finally washed and polished as previously described. Ordinary metal polish should not be used.

Windscreen wiper blades should be washed frequently with windscreen washer fluid, clean water or soapless detergent to maintain their efficiency.

The interior of the car should be wiped over periodically with a damp sponge and then polished dry with a soft duster. A mild detergent may be used in extreme cases.

### **Hood**

When erecting the hood, always fix the eyelets in the back curtain over the turn-buttons first and then fix snaps across the top of the windscreen. If secured at the front first some strain will be necessary to pull the eyelets over the turn-buttons, which in time will pull away from the fabric.

However, it is recommended that if the hood is tight when dismantling it is advisable to release it at the turn-buttons, which avoids straining at the eyelets.

It is not intended that the tonneau cover over the rear compartment should remain in position when the hood is up as the turn-buttons do not allow for the double thickness, and unnecessary strain is placed on the hood fabric and turn-buttons alike.

### Side curtains

It should be remembered that Vybak is easily scratched and soiled, spoiling vision at the sides. When not in use therefore, do not throw the side curtains carelessly into the rear compartment or they may move about and become damaged.

### Hydraulic dampers

The telescopic piston type dampers fitted to front and rear respectively should not require any attention such as 'topping-up'. They should however be kept as clean and free from oil and dirt as possible so that heat generated by their normal function will dissipate quickly.

### Fuel filler caps

Two fuel filler caps are provided, one each side of the spare wheel. This allows the tank to be filled extremely quickly during competitions and ensures that 'blow back' will not occur during fast refuelling, provided both are open.

### Jacking system

The jack is used in the following manner:

First make sure the car cannot move backwards or forwards by using the brakes or chocking the car firmly.

The jack may be used for lifting front wheels by placing it under the bottom cross axle tube, care should be taken not to damage brake pipe.

Rear wheels can be lifted by using the jack directly under the rear chassis box cross member.

Care must be taken if the car is lifted on cambered surfaces.

### Spanner tightening torques

Cylinder head	..	..	..	65/70 lbs ft	Inlet manifold	..	..	..	..	25/30 lbs ft
Rear main bearing bolts	..	..	..	65/70 lbs ft	Exhaust manifold	..	..	..	..	10/15 lbs ft
Other main bearing bolts	..	..	..	50/55 lbs ft	Rocker shaft standards	..	..	..	..	25/30 lbs ft
Big end bearings	..	..	..	30/35 lbs ft						



## **SERVICE**

Our Service depot is especially equipped to take care of customer's requirements, and can at all times undertake anything from adjustments to major repairs and complete overhauls, at reasonable charges consistent with expert workmanship.

Parts sent for repairs must be consigned carriage paid and should be clearly labelled with the sender's name and address, along with chassis and engine number.

Instructions should be sent separately stating whether an estimate is required before putting the work in hand. When it is inconvenient to send repairs to the works an accredited 'Morgan' Dealer should be consulted.

## **NOTIFICATION OF SALE CARDS**

The Morgan Motor Co. Ltd., introduced these cards to enable the Company to deal with claims promptly and it is most important that the cards are completed and returned without delay. Failure to return these cards may jeopardize any future claims being met.

## **WARRANTY**

The goods manufactured by The Morgan Motor Co. Ltd. are supplied with the following express Warranty which excludes all warranties, conditions and liabilities whatsoever implied by Common Law, and is subject to the Supply of Goods Act, 1973.

In the event of any defect being disclosed in any part or parts of the goods and if the part or parts of the goods alleged to be defective are returned to the Company's works carriage paid within 12 months or 12,000 miles, whichever occurs first, from the date when the goods are delivered new to the retail customer, the Company undertakes to examine same and should any fault due to defective materials or workmanship be found on examination by the Company, it will repair the defective part or supply free of charge a new part in place thereof. This Warranty is limited to the delivery to the purchaser free at the Company's works of part or parts whether new or repaired in exchange for those acknowledged by the Company to be defective.

The Company gives no warranty of the goods except as herein stated, but desires and expects that customers shall make a thorough examination before purchasing. Persons dealing in the Company's goods are in no way



the legal Agents of the Company and have no right or authority to assume any obligations on its behalf expressed or implied or to bind it in any way.

For the purpose of this Warranty the term 'Goods' means and includes new cars or vans or chassis or parts thereof including replacement parts manufactured by the Company.

It does not include Tyres, Speedometers, or Electrical Equipment or other proprietary articles or goods not of the Company's own manufacture although supplied by the Company. Proprietary articles are covered by the warranty (if any) given by separate manufacturers. On second-hand goods no Warranty is given by the Company or is to be implied.

The Company's responsibility is limited to the terms of this warranty and it shall not be answerable for personal injury, or consequential or resulting liability damage or loss arising from any defects.

The Warranty is dependent upon the strict observance by the purchaser of the following provisions:

(a) The purchaser shall send to the Company's works such part or parts as are alleged to be defective promptly on discovery of the claimed defect. Transportation is to be prepaid and the said part or parts to be properly packed for transport and clearly marked for identification with the full name and address of the purchaser and with the car and chassis numbers of the vehicle from which the parts were taken.

(b) The purchaser shall post to the Company on or before despatch of such parts as are alleged to be defective a full and complete description of the claim and the reasons therefor.

(c) The decision of the Company on all claims shall be final and the purchaser agrees to accept its decision on all matters relating to defects and the exchange or replacement of parts.



## MORGAN SPORTS CAR CLUB

As you are now the possessor of a Morgan Car, you may care to share your enthusiasm with other current or previous owners of Morgan cars.

To this end, the Club which was founded by a group of enthusiastic owners exists to promote meetings of a social and competitive nature for its Members. It is recognised by the RAC for the promotion of such events, and is associated with Midland Association of Car Clubs.

President is Mr. Peter Morgan, and the Club enjoys a favourable degree of Factory encouragement and support.

Your £2.00 Annual Membership in Great Britain, or £1.00 for Overseas Membership, entitles you to participate in all Club events, which include the entire range of motoring competition—*ie*: Rallies, Driving

Tests, Sprints, etc., and every kind of Social activity. We also receive many invitations to other Club events, and you will be kept notified of these activities through the *Monthly Miscellany*, the Editor of which will be grateful for any contributions in the form of articles, experiences or criticisms.

You are also entitled to purchase and display car badges, ties, flannel scarves or silk squares, also lapel badges, all bearing the Club emblem and colours.

As a historical fact, the Club was founded in 1951, and has acquitted itself well by winning team awards in National Rallies and Races.

So may we invite your application for Membership, to enable you to share our activities.

All enquiries should be addressed to the Club Secretary :

MR. CHARLES SMITH  
23 Seymore Avenue, Worcester  
England

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