

The image shows the front cover of a book. The cover is a solid, vibrant blue color. Along the left edge, which is the spine of the book, there are four circular holes, two near the top and two near the bottom. The paper around these holes is frayed and white. The text 'TRIUMPH SPITFIRE IV HANDBOOK' is printed in white, bold, sans-serif capital letters in the lower right quadrant of the cover.

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# TRIUMPH SPITFIRE IV HANDBOOK

Publication Part No. 545220

7th Edition



*Issued by*  
TRIUMPH MOTORS  
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COVENTRY, ENGLAND

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Note. When L.H. or R.H. is used in the text, this refers to the Left-hand or Right-hand of the vehicle, viewed from the driver's seat. R.H.Stg. refers to vehicles provided with Right-hand steering: L.H.Stg. refers to Left-hand steering.

The information contained herein applies to a range of vehicles and not to a specific vehicle. For the specification of a particular vehicle, an Owner should consult his Distributor or Dealer.

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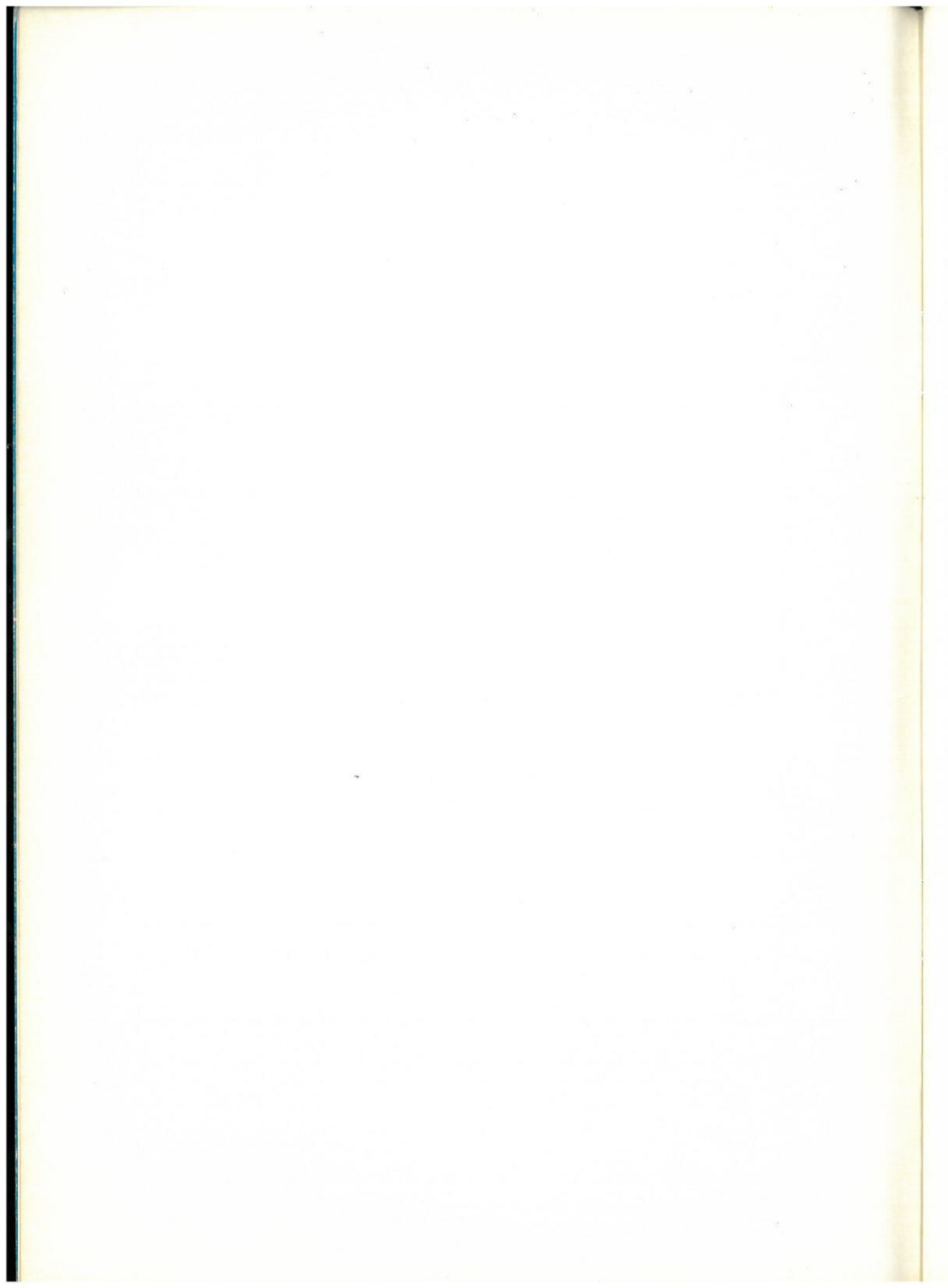
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## INTRODUCTION

Upon taking delivery of your new car it is in your interest to read the contents of this Handbook and so become familiar with the controls and other features that are provided for your comfort and safety.

A combined steering-column lock and ignition switch fitted to the vehicle is of particular importance and, if used properly, will greatly reduce the possibility of the car being stolen.

The lock key number appears only on the tag attached to the larger key of your key-set and does not appear on the lock or key. Enter the key number in your diary NOW and store the key tag in a safe place at home. This will enable you to order the correct key if required and prevent duplication of the key by unauthorized persons. Instructions for using the switch are given in the following pages under the heading 'Controls, Instruments and Indicators'.

### Servicing

Before receiving your new car it will have undergone an inspection to ensure that all systems are working and the vehicle is complete to specification.

After completing 1,000 miles (1600 km) the vehicle should be returned to the supplying Distributor/Dealer who will carry out the first important service and make whatever adjustments are required, free of charge except for the cost of lubricants.

Subsequent to the free service, maintenance and servicing of the vehicle is the responsibility of the owner who is advised to make full use of the planned maintenance described in the 'Passport to Service' booklet and operated by all Triumph franchise holders. The operations carried out by your Distributor or Dealer will be in accordance with current recommendations and may be subject to revision from time to time.

**Passport to Service.** A list and the frequency of service operations required to maintain the vehicle in proper running order is given in a separate booklet provided with the car and entitled 'Passport to Service'. This also includes the 'Owners Service Statement' and has provision for the Distributor/Dealer to certify that the work has been performed in accordance with Triumph recommendations. Regular use of the 'Passport to Service' at the specified intervals is the best safeguard against the possibility of abnormal repair bills at a later date and would constitute proof of regular servicing, thus enhancing the value of your car to a prospective buyer.

**Triumph Distributors and Dealers** are provided with the latest information concerning special tools and workshop techniques, enabling them to undertake your service and repairs in the most efficient and economic manner.







## CONTROLS, INSTRUMENTS AND INDICATORS

### Speedometer (Fig. 3)

The speedometer 'A' indicates the road speed of the vehicle in miles and kilometres per hour. It also combines the following indicators:

- D *Trip odometer*—The figures within the aperture above the centre of the dial may be used to record the distance of each journey, provided that the figures are pre-set to zero by turning the knob that extends downwards from behind the instrument.
- E *Odometer*—The figure within the aperture below the centre of the dial records the total mileage of the vehicle and may be used as a guide to periodic lubrication and maintenance.
- F *Ignition warning light*—The ignition warning light at the bottom right of the dial glows red when the ignition is switched on. See 'Running Instructions' on page 24.
- G *Oil pressure warning light*—The oil pressure warning light at the bottom centre of the dial glows green when the ignition is switched on. See 'Running Instructions' on page 24.
- H *Main beam warning light*—The main beam warning light at the bottom left of the dial glows blue when the main beams are selected.

### Tachometer (Fig. 3)

The tachometer 'C' indicates the engine speed in revolutions per minute and is calibrated in increments of 500, extending to 7000 r.p.m. Recommendations concerning the speed range are given under 'Running Instructions' on page 25.

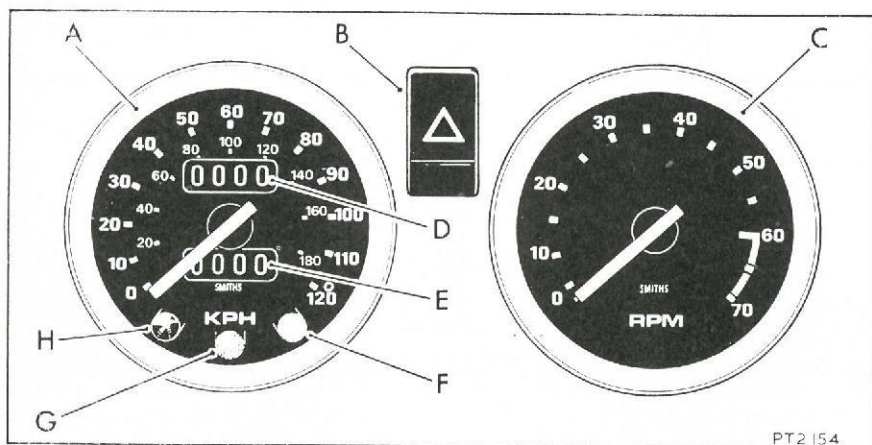


Fig. 3



## CONTROLS, INSTRUMENTS AND INDICATORS

### Temperature Gauge (Fig. 4)

The gauge 'B' is marked 'C' (cold) and 'H' (hot), indicating the temperature of the coolant as it leaves the cylinder head. It is effective when the ignition is switched on. See 'Running Instructions' on page 25.

### Fuel Gauge (Fig. 4)

The gauge 'D' indicates the contents of the fuel tank. Allow thirty seconds for the gauge needle to reach a steady reading after switching on the ignition.

### Hazard Warning Switch (Fig. 3) L.H.S. only

If the vehicle is immobilised and constitutes a hazard to other vehicles, warning may be given by using the "hazard warning system". To operate, depress the lower portion of the switch 'B' when all turn-signal lamps and the hazard monitor 'A' (Fig. 4) will flash intermittently.

### Lighting Switch (Fig. 4)

To operate the three-position lighting switch 'C':

1. Fully press the top of the switch bar to extinguish all external driving lamps.
2. Move the switch bar to its level position for illuminating the front and rear parking lamps and licence plate.
3. Fully press the bottom of the switch bar to illuminate all external driving lamps.

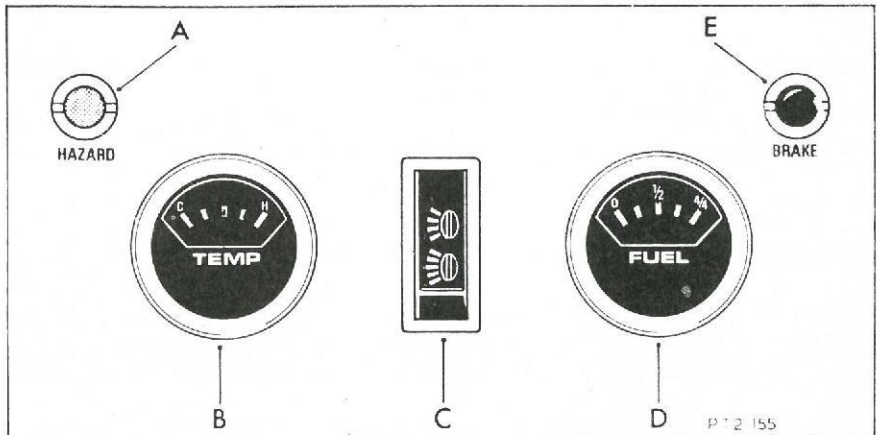


Fig. 4

## CONTROLS, INSTRUMENTS AND INDICATORS

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### Ignition/Starter Switch and Steering Lock (Fig. 5)

There are four switch positions that need to be understood for correct operation of the combined switch/lock. These are as follows:

0. All electrical circuits switched off: mechanical lock pre-set when key is removed.
1. Auxiliary position: permits the use of a radio while the ignition is switched off.
2. Ignition: all ignition-controlled circuits energized.
3. Start: turning the key against spring pressure to this position actuates the starter motor and when released the key returns to position '2'.

#### *Unlock sequence (clockwise)*

Insert the key and turn it to position '1'. If difficulty is encountered, turn the steering wheel slightly to relieve the load on the lock bolt. The steering wheel should now be free to turn.

To switch on the ignition, turn the key to position '2'. Further movement to position '3' operates the starter motor. The key will return to position '2' when released.

#### *Locking sequence (anti-clockwise)*

Turning the key from position '2' to '1' will switch off the ignition. Push the key fully towards the lock and turn it to position '0'. Withdraw the key and move the steering wheel slightly to ensure that the lock bolt is fully engaged.

**WARNING.** If for any reason the ignition is switched off while the car is in motion **DO NOT ATTEMPT TO DEPRESS OR TURN THE KEY TO POSITION '0'**, as this constitutes part of the steering lock sequence. The designed operating sequence prevents the engine being started with the steering **LOCKED**. Serious consequences can result from alterations or substitution of the ignition start switch which would permit the engine to be started with the **LOCK ENGAGED**. Under no circumstances must the ignition start function be separated from the steering lock.

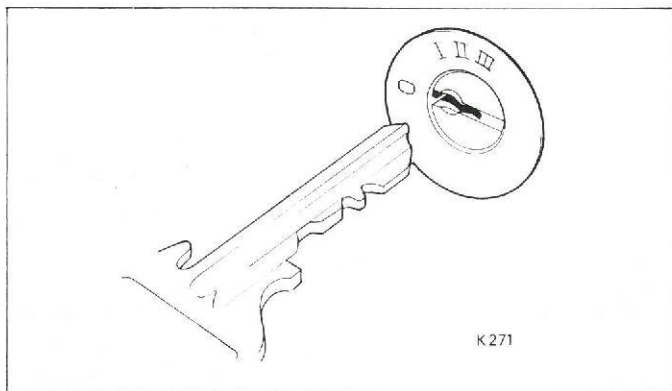


Fig. 5

## CONTROLS, INSTRUMENTS AND INDICATORS

### Horns

The horns are sounded by pressing the button in the centre of the steering wheel.

### Headlamp Dip and Flasher Switch (Fig. 6)

With the "lighting switch" (page 9) at position 3, move the switch lever "down" for "dipped beams" or "up" for "main beams". "Pulling" the lever towards the steering wheel rim will "flash" the main beams, regardless of the "lighting switch" position.

### Turn Signal Control (Fig. 7)

To indicate a left-hand turn, move the lever anti-clockwise. Move it clockwise for right-hand turns. Operation of the signal lamps and the signal monitor is cancelled when the steering wheel is returned to the straight ahead position.

### Turn Signal Monitor (Figs. 1 and 2)

A green monitor on the fascia glows intermittently when the ignition is switched on and the turn signal control operated.

### Windscreen Wiper and Washer Control (Figs. 1 and 2)

A dual purpose control operates the two-speed wiper motor and screen washer jets. From the "off" position (full anti-clockwise), turn the control clockwise to the next position for slow wiping, or fully clockwise for fast wiping. The wipers park automatically at the base of the windscreen when the control is returned to the "off" position. The wipers operate only when the ignition is switched on.

Clear mud from the screen by repeatedly pushing the control to spray clean fluid as the wiper blades operate. Refer to windscreen washer (page 34).

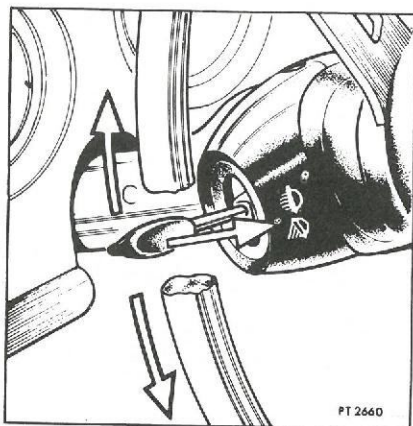


Fig. 6

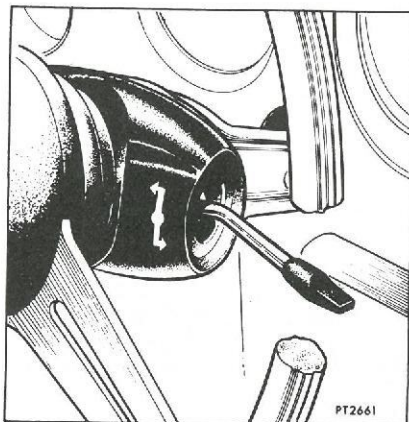


Fig. 7



## CONTROLS, INSTRUMENTS AND INDICATORS

### Choke Control (Figs. 1 and 2)

The choke control is used to enrich the petrol-air mixture for easy starting from cold. Pull the control half out for normal cold starting and fully out for extremely cold conditions. Since all engines adopt their own characteristics, experience will determine the best position. Push the control fully home as soon as the engine will run without choke.

### Gear Selector Lever (Fig. 8)

The gear positions are indicated on the lever knob. To engage reverse, press the lever down and move the lever sharply to the extreme left and forward. Engage reverse only when the vehicle is stationary.

### Overdrive Switch (optional) (Fig. 8)

A slide switch incorporated in the gear lever knob operates the overdrive (when fitted). To engage the overdrive move the switch rearward; to disengage, move the switch forward. See 'Running Instructions' on page 26.

### Handbrake lever (Figs. 1 and 2)

To apply the rear wheel brakes, pull the control lever upwards, where it is retained by a ratchet and pawl. Release the handbrake by pulling the lever slightly upwards before depressing the button to free the pawl; then allow the lever to move downwards to the "off" position.

### Pedals (Figs. 1 and 2)

The pedals are arranged in the conventional positions. The brake pedal operates the brake hydraulic system to apply the brakes on all four wheels. Warning lights at the rear of the vehicle function automatically when the brake pedal is pressed while the ignition is switched on.

To avoid needless wear of the clutch withdrawal mechanism, do not rest the foot on the clutch pedal while driving.

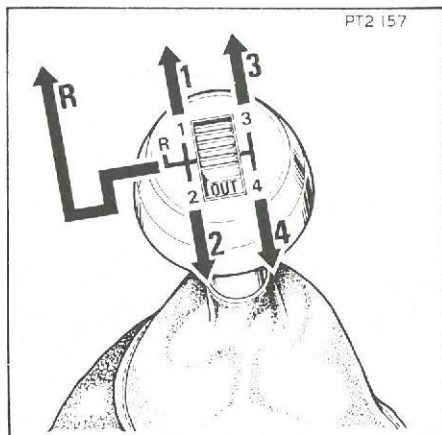


Fig. 8

BODY FITTINGS

Keys

The car is provided with two sets of keys, comprising:

- 2. Ignition and steering column lock keys.
- 2. Door lock keys.
- 2. Luggage compartment lock keys.

**CAUTION:** The ignition and steering column lock key is supplied complete with an identification disc. This must not be mislaid since it provides the only record of the key. In the event of the loss of keys the disc will have to be submitted to your selling dealer to obtain duplicates.

Door Locks (Figs. 1 and 2)

Both doors have anti-burst locks and are opened from the outside and inside by pulling remote control levers.

To lock the doors from the outside, close the door and insert the appropriate key and turn it a quarter turn towards the front of the car. Turning the key a quarter turn towards the rear of the car unlocks the door. To open the door pull the recessed lever (Fig. 1).

Both doors may be locked from the inside by moving button (A) (Fig. 2) forward. This condition is cancelled by pulling lever (B) to open the door or when the door is unlocked from the outside with the key.

Door Windows (Fig. 2)

Turn the handle (C) to lower or raise the door windows.

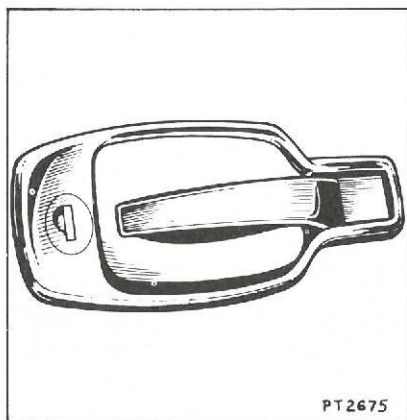


Fig. 1

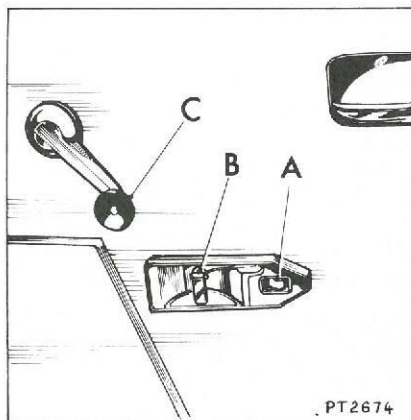


Fig. 2

## BODY FITTINGS

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### Bonnet Catch (Fig. 6)

The bonnet is opened by lifting a lever on each side to release the catches. Raise the bonnet from the rear until it is fully open and held by a folding strut (Fig. 3). To close, pull the centre folding part of the strut while simultaneously supporting and lowering the bonnet. To fasten the catches press each lever flush with the side of the bonnet.

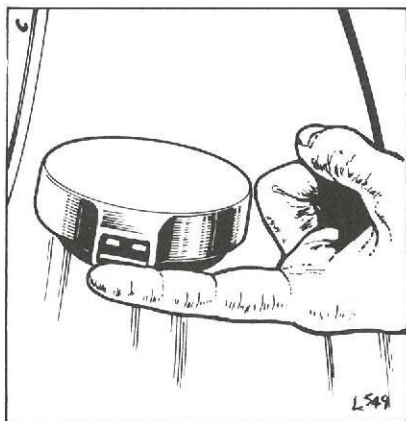
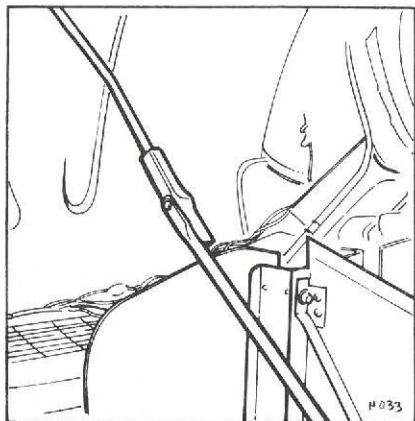
### Fuel Filler Cap (Fig. 4)

The fuel filler cap located forward of the luggage compartment lid is opened by lifting a small lever at the side of the cap. Press the cap to close.

### Luggage Compartment Lock (Fig. 5)

To open the luggage compartment lid, pivot the lock cover plate (A) away as shown to expose the lock, insert the key and turn it clockwise to release the lock. Twist the turn button anti-clockwise and lift the lid to its limit before lowering it on to the telescopic support.

Close the lid by raising it slightly to release the catch in the support, lower the lid and when almost closed push down gently on the lid to engage the catch. Turn the key anti-clockwise to lock, remove the key and pivot the cover plate over the lock to prevent ingress of dirt and moisture.



### Ash Tray

Raise the flap for access to the tray when required. Lift out the complete unit for emptying. For location, see page 6.

### Sun Visors

Two adjustable sun visors are padded to reduce risk of impact injury and may be swung downwards to eliminate sun glare. The passenger's visor is provided with a vanity mirror.

### Rear View Mirror

The fully adjustable interior mirror is mounted on a break-away support for personal safety. If, through impact, the stem is dislodged from its mounting, it can be refitted as follows:

Take out two securing screws and remove the mounting plate and carrier from the screen header rail. Slide the mirror stem into the carrier, replace the end blocks and secure the assembly to the header rail.

### Key Illumination

A light bulb mounted under the facia operates to illuminate the area of the ignition switch when either door is opened.

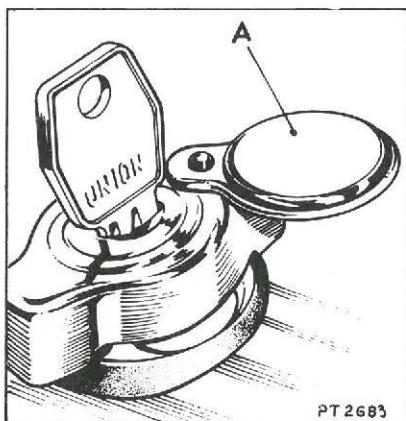


Fig. 5

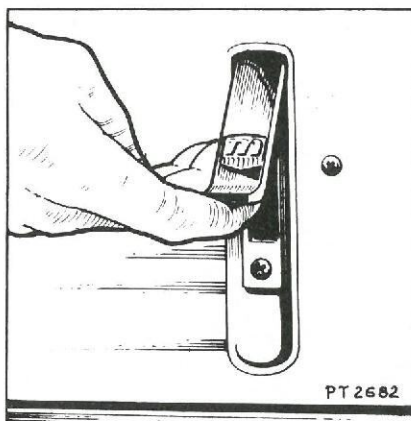


Fig. 6



### SOFT TOP

The soft top is made from P.V.C. material, and is supported by a hinged frame. The assembly folds down into the rear of the car and is protected by a soft top cover.

#### Lowering the Soft Top

Unclip the fasteners securing the fabric to the centre and rear hoodstick (Fig. 7) and tilt the seats forward. Release the soft top header rail from the windscreen frame by turning the catch levers in the direction shown in Fig. 8 and the fasteners (four each side Fig. 9) securing the edges of the hood to the body.

Push the soft top header rail rearwards and slightly upwards while knocking the centre hoodstick forwards, until the assembly begins to fold. **DO NOT PULL the second hoodstick downwards.** Continue lowering the frame and pull the fabric flat over the luggage compartment lid (Fig. 10).

Fold the fabric forward over the hoodsticks and turn the sides inward (Fig. 11). Ensure that the Vybak windows are free from distortion and the hood fabric is not trapped by the hoodsticks.

#### Soft Top in the Down Position

Retain the soft top in position by fitting the cover (Fig. 14) as follows:

Attach the cover to the fasteners and continue working towards the centre and locate the three hooks (Fig. 12) on the cover under the bottom hoodstick.

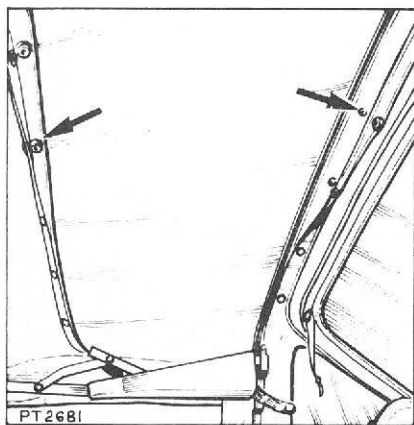


Fig. 7

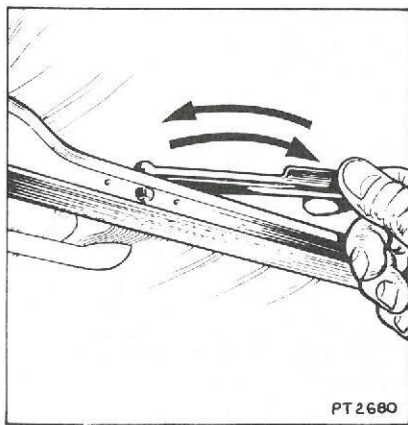


Fig. 8

**Raising the Soft Top**

Unfasten and remove the hood cover. Fold the sides of the hood fabric outwards and pull the fabric rearwards over the luggage compartment lid. Lifting the soft top header rail, raise the assembly sufficiently to allow the fabric to lie evenly over the frame.

Secure the fasteners (four each side Fig. 9) to the body. Locate the soft top header rail on the windscreen header rail and turn the levers (Fig. 8) inwards. Knock the centre hoodstick rearwards as far as possible, and secure the fasteners (Fig. 7).

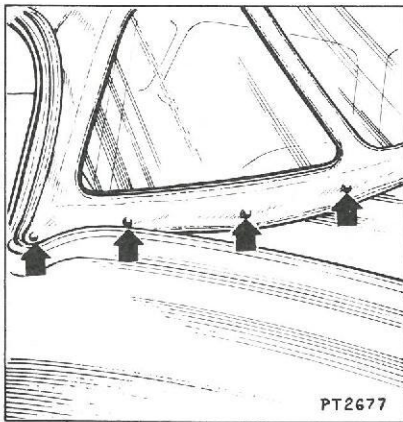


Fig. 9

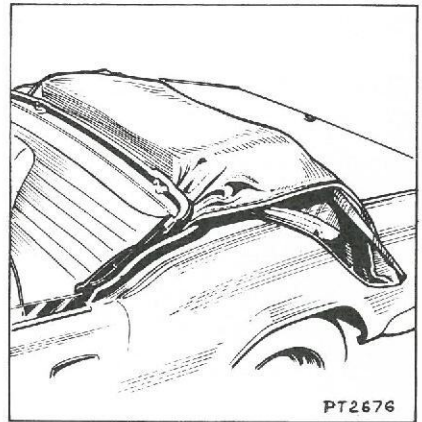


Fig. 10

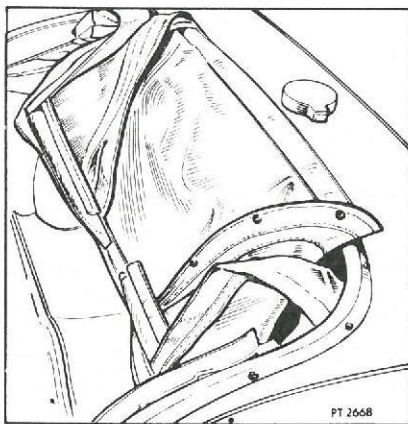


Fig. 11

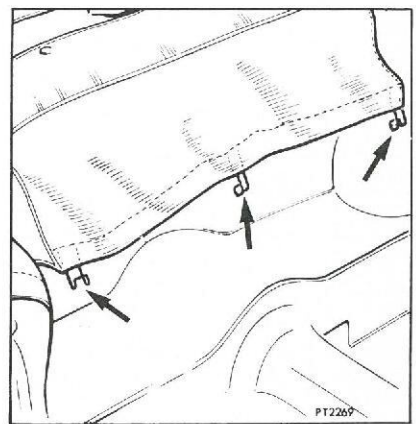


Fig. 12

## BODY FITTINGS

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### Opening Rear Window (Fig. 15)

To open the rear window, release the zip-fastener and roll the Vybak panel downwards. Retain the rolled panel in position by attaching the straps to the press fasteners located on the back wall of the rear compartment.

### Tonneau Cover (Optional) (Fig. 13)

The tonneau cover provides weather protection for the vehicle interior when the soft top is lowered. It incorporates press-studs for securing to the car and a zip fastener which permits access to either or both of the front seats.

### Sun Visors

Two adjustable sun visors are padded to reduce the risk of impact injury. The passenger's sun visor combines a vanity mirror.

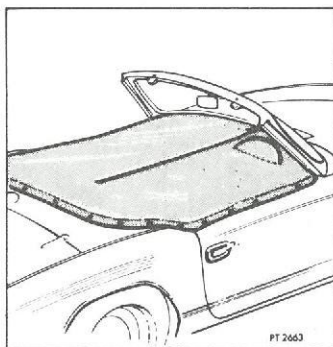


Fig. 13

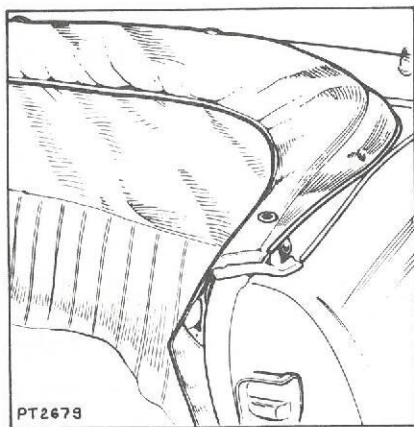


Fig. 14

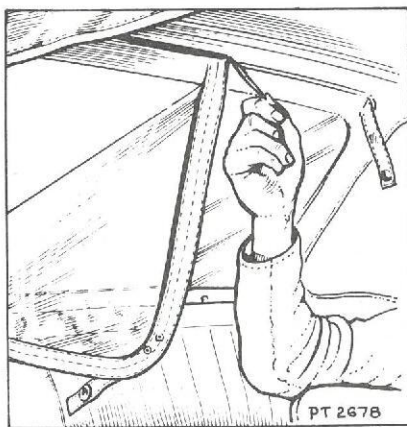


Fig. 15

### HARD TOP (Original)

The vehicle may be used as an open sports car by removing the hard top assembly as follows:

Unscrew the domed-head bolts securing the hard top side brackets to the door pillar brackets (A) (Fig. 16).

Remove the domed-head bolts and washers securing the hard-top to the windscreen header rail (Fig. 17) and the rear deck panel (Fig.18).

With the aid of an assistant carefully lift off the hard top assembly.

To refit the hard top, reverse the foregoing procedure.

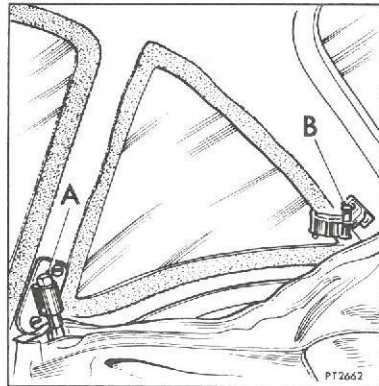


Fig. 16

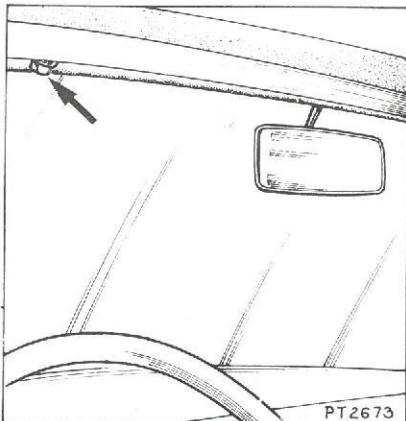


Fig. 17

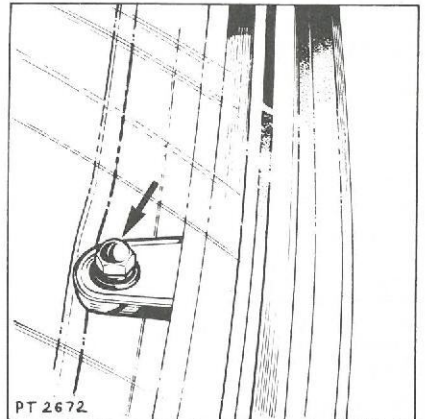


Fig. 18



### SEATS AND SAFETY HARNESS

Access to the space behind the seats is gained by lifting the lever (1) (Fig. 1), and tilting either seat forward. A self-locking catch will operate when the seat is returned to its normal upright position.

#### Seat Adjustment (Fig. 1)

By moving the lever (2) outwards and holding it against spring pressure, the seat may be slid forward or rearward as required. When the lever is released, a locking pawl will engage the nearest notch in the seat runner. Slight movement of the seat may be required to ensure that the seat is safely locked.

To adjust the angle of the seat back-rest raise the lever (3), move the seat as required and release the lever to lock the back-rest at the chosen angle. If unrestrained, the back-rest will return to the vertical position when the lever is raised.

#### Safety Harness Fixings (Fig. 2)

Three anchorage points for each seat are provided for attachment of the safety harness. The lower anchorage (1) is situated on the floor adjacent to the sill and rearwards of the seat. The upper anchorage (2) is located on the rear inner wheel arch. The third point (3) incorporates the buckle unit and is fixed to the transmission tunnel between the two seats.

#### Using the Harness

*To fasten*—Pass the section of the belt, extending from the upper anchorage point (3), over the shoulder and diagonally down across the chest. Pass the lower part of the belt over the lap and push the belt tongue into the buckle unit nearest to the wearer until a 'click' is heard, indicating that the harness is safely locked.

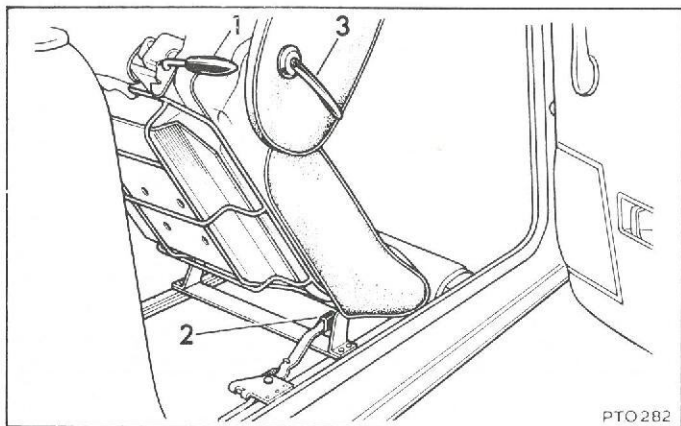


Fig. 1

## SEATS AND SAFETY HARNESS

*To release*—Press the button on the buckle unit nearest the wearer and remove the belt tongue. To avoid damaging the belts when not in use ensure that they are stowed on the hook (4) (Fig. 2).

*Adjustment*—The harness should be so adjusted that the hand will just pass between the belt and chest.

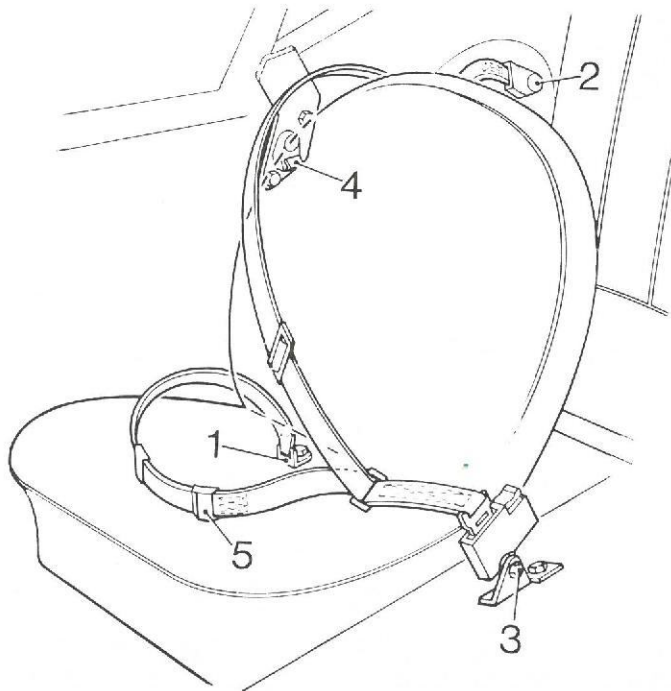
*To lengthen*—Lift the adjuster (5) on the lap part of the harness and lean into the harness until the correct adjustment is obtained.

*To shorten*—Pull the loose end of the belt through the adjuster.

### Cleaning

An occasional wipe with a warm soapy sponge will keep the belts clean. Do not use a bleach or dye as they may affect the efficiency of the material.

**IMPORTANT:** The belts must not be allowed to rub against sharp surfaces on seats or bodywork. Harness that has been cut, frayed, damaged or used in cars involved in severe accidents should be renewed.



L409

Fig. 2

### HEATING AND VENTILATION SYSTEM

The unit provides air, heated by coolant from the engine cooling system or, at outside (ambient) temperature. Two fascia-mounted controls and a booster fan enable the volume, distribution, and temperature of the air to be varied. Full heat output of the heater unit is not available until the engine has reached normal operating temperature.

#### Air Distribution Lever

Air enters the intake grille forward of the windscreen and is directed as required by setting the lever 'A'. Moving the lever to the extreme left (position '1'), directs air to the footwells. Moving the lever to a mid-position '2', which is indicated by a detent in the quadrant, directs all air to the screen. Moving the lever to the extreme right (position '3') shuts-off the air supply from the intake grille.

#### Air Temperature Lever

The lever 'B' operates a valve which governs the flow of coolant through the heater element. When the lever is at position '1' (cold), the valve is closed. Progressive movement of the lever towards the left opens the valve to permit an increasing volume of coolant to flow through the heater element until maximum is reached at position '2' (hot).

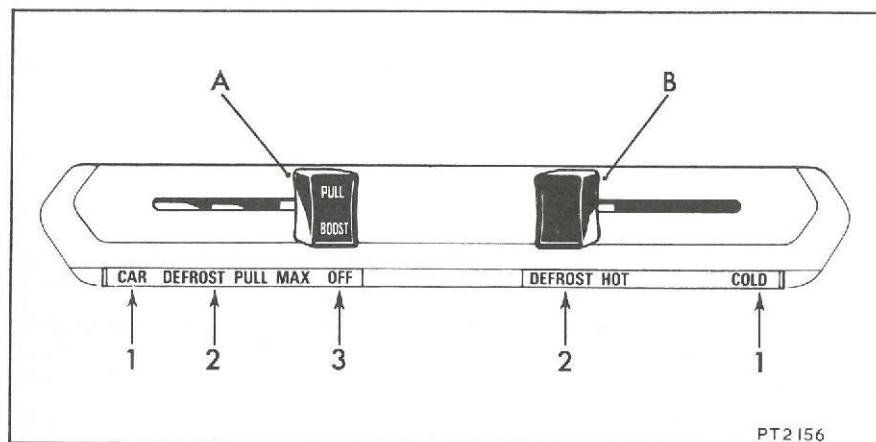


Fig. 1

## HEATING AND VENTILATION SYSTEM

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### **Booster Fan**

The two-speed booster fan, controlled by a knob on lever 'A', may be used to increase the flow of heated or unheated air to the footwells or screen. For slow-speed operation pull out the knob to its first position (indicated by a spring-loaded detent), or pull fully out for high-speed operation. To switch off push the knob fully in.

### **Lever Settings**

*To turn heating system off*—Place lever (A) in the 'off' position and lever (B) to 'cold'.

*Cold air ventilation*—Move lever (A) to 'car' and lever (B) to 'cold'. Operate booster fan to increase air flow if required.

*Warm air ventilation*—Place lever (A) to 'car' and lever (B) to 'hot' and if necessary operate booster fan.

*Windscreen defrosting*—Move lever (A) to 'screen' and lever (B) to 'hot'. Increase air flow by operating booster fan.

Additional ventilation is available by lowering the side windows by turning the handle (C) (page 13). When the optional hard top is fitted the rear quarter lights may be opened by pulling the catch (B) (page 19) forward.



## RUNNING INSTRUCTIONS

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### RUNNING INSTRUCTIONS

#### Choice of Fuel

Always use fuel with an octane rating best suited to your engine (see Page 32).

#### Filling up with Fuel

When filling up with fuel take care to ensure that the tank is not overfilled so that fuel becomes visible in the filler intake tube. Should this be done and the car left in the sun, there will be a considerable risk of fuel leakage due to expansion, and consequent danger from exposed fuel. If inadvertently overfilled and the car is to be parked, take care to park it in the shade with the filler intake as high as possible.

#### Empty Fuel Tank

If the tank is allowed to become completely empty, replenish the tank and prime by cranking the engine continuously with the starter for a period not exceeding six seconds. Repeat the procedure until the engine starts.

#### Starting the Engine from Cold

Check that the gear lever is in the neutral position and the handbrake applied. Pull out the mixture control (choke); in extreme cold conditions it may be necessary to pull the control to its fullest extent.

Switch on the ignition and check that the ignition and oil pressure warning lights glow, and the fuel gauge registers. NOTE: After switching the ignition on, the fuel gauge needle moves slowly across its scale, taking some thirty seconds to reach a steady reading. This slow reaction eliminates needle flutter.

*Starter*—Operate the starter and as soon as the engine starts, release the ignition key and warm up the engine at a fairly fast idling speed (see “Warming up”).

Do not operate the starter for longer than five to six seconds and wait until the engine has stopped before re-using the starter. If after a few attempts, the engine fails to start, switch off the ignition and investigate the cause. Continued use of the starter will not only discharge the battery but may also damage the starter.

*Oil Pressure Warning Light (Green)*—The warning light should go out soon after the engine is running. If the light continues to glow, stop the engine immediately and investigate the cause. Start by checking the oil level.

*Ignition Warning Light (Red)*—The warning light should go out immediately the engine is started. If this does not occur, an incorrectly adjusted or broken fan belt, or other fault in the charging system is indicated.

*Mixture control (Choke)*—Always use the minimum setting for the shortest possible time. As soon as possible after the engine has started, push the control completely home.

To obtain a fast engine speed, set the control to within the first 1 in (6 mm) approximately of its initial movement.

### **Warming up**

Research has proved that the practice of warming up an engine by allowing it to idle slowly is definitely harmful. The correct procedure is to let the engine run fairly fast, approximately 1,000 rev/min, so that it attains its correct working temperature as quickly as possible. Allowing the engine to run slowly in a cold state leads to excessive cylinder wear, and far less damage is done by driving the car straight on to the road from cold than by letting the engine idle slowly in the garage.

### **Temperature gauge**

When the engine is running, the gauge indicates the temperature of the coolant leaving the cylinder head. As overheating can cause serious damage, the reading should be noted and after the initial rise in temperature during the warming-up period, any sudden upward change in the reading calls for immediate investigation.

### **Running-in**

The importance of correct running-in cannot be too strongly emphasized, for during the first few thousand miles of motoring, all working surfaces of the vehicle are 'bedding down'.

Avoid placing heavy loads upon the engine, such as using full throttle at low speeds or when the engine is cold. Running-in should be progressive and no harm will result from the engine being allowed to 'rev' fairly fast for short periods provided that it is thoroughly warm and not pulling hard.

Always select a lower gear if necessary to relieve the engine load. Full power should not be used until at least 1,000 miles (1600 km) have been covered, and even then it should be used only for short periods at a time. These periods can be extended as the engine becomes more responsive.

### **Maximum Engine Speeds**

After 'running-in' has been completed, drivers are advised to restrict the engine speed to a maximum of 6,000 rev/min. Under no circumstances must the engine speed be allowed to exceed this figure as indicated by a red segment on the tachometer dial.

## **RUNNING INSTRUCTIONS**

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### **Overdrive Unit (Optional fitment)**

An overdrive unit serves as a convenient method of providing alternative gear ratios to reduce engine speed which, with proper use, can effect fuel economy.

Do not change from overdrive into direct gears at engine speeds in excess of 4,750 r.p.m.

### **Tandem Brake Line Failure Indicator**

Vehicles fitted with tandem braking systems employ a tandem master cylinder for transmitting pressure to independent front and rear braking systems. Both systems are connected to opposing sides of a pressure differential warning actuator (P.D.W.A.) which operates an electrical switch when a pressure drop on one side of the valve causes a shuttle to move from its mid-position. In this event the 'Brake Line Failure' indicator (page 7) glows brightly to indicate a fault in the system which must be rectified before taking the vehicle on the road.

### **Wet brakes**

When the vehicle is being washed or driven through water the brake linings may become wet. To dry them, apply the brakes several times while the vehicle is moving slowly. Driving with wet brakes is extremely dangerous.

### **Towing**

For recovery, the car should be towed with the key in the ignition/steering lock at position '1'. For tow-starting the key should be at position '2'. See page 10.

## WHEELS AND TYRES

**General**

Tyres of the correct type and dimensions, at the correct cold inflation pressures, are an integral part of the vehicle's design and regular maintenance of tyres contributes not only to safety but to the designed functioning of the vehicle. Road-holding, steering and braking are especially vulnerable to incorrectly pressurized, badly fitted or worn tyres.

Tyres of the same size and type but of different make have widely varying characteristics. It is therefore recommended that tyres of the same make are fitted to all wheels.

**Radial and Cross-ply Tyres**

It is both dangerous and, in the U.K. illegal, to use on the public roads a vehicle fitted with unsuitable combinations of tyres. The following recommendations should therefore be observed:

1. Do not mix radial-ply and cross-ply tyres on the same axle.
2. Do not fit radial-ply tyres to the front wheels and cross-ply to the rear wheels.
3. With suitable tyre pressure adjustments it may be possible to obtain acceptable handling with cross-ply on the front wheels and radial-ply tyres on the rear wheels, but this combination is not recommended.

**Size, Type, Pressures**

The pressures recommended (see 'General Specification') provide optimum ride and handling characteristics for all normal operating conditions. The pressures should be checked, and adjusted if necessary, once per week. This should be done with the tyres cold. Tyre temperatures and pressures increase when running. Bleeding a warm tyre to the recommended pressure will result in under-inflation which may be dangerous. A slight natural pressure loss occurs with time. If this exceeds 2 lb/in<sup>2</sup> (0.14 kg/cm<sup>2</sup>) per week, the cause should be investigated and rectified.

It should be noted that it is an offence in the U.K. to use a motor vehicle if a tyre is not so inflated as to make it fit for the use to which the vehicle is being put.

The spare wheel tyre should be maintained at the highest pressure quoted in 'General Specification', and adjusted to the correct pressure for its position when fitted for use.

**Wear**

All tyres fitted as original equipment include wear indicators in their tread pattern. When the tread has worn to a remaining depth of 0.06 in (1.5 mm) the indicators appear at the surface as bars which connect the tread pattern across the full width of the tyre. It is illegal in the U.K. and certain other countries to continue to use tyres after the tread has worn to less than 1 mm depth.

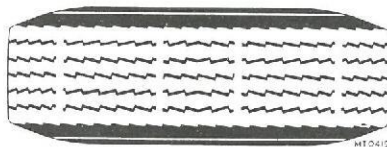


Fig. 1



## WHEELS AND TYRES

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It should be noted that the properties of many tyres alter progressively with wear. In particular the 'wet grip' and aquaplaning resistance are gradually but substantially reduced. Extra care and speed restriction should therefore be exercised on wet roads as the effective tread depth diminishes.

Incorrect wheel alignment will accelerate tyre wear. Fins on the inside or outside edges of the tread pattern are caused by excessive toe-in or toe-out respectively. As fins may also be caused by high cornering speeds or road camber it is better to have the cause ascertained by having the wheel alignment checked (see page 54).

### Damage

Excessive local distortion can cause the casing of a tyre to fracture and may lead to premature tyre failure. Tyres should be examined especially for cracked walls, exposed cords, etc. Flints and other sharp objects should be removed from the tyre tread; if neglected they may work through the cover. Any oil or grease which may get onto the tyres should be cleaned off by using fuel sparingly. Do not use paraffin (kerosene), which has a detrimental effect on rubber.

### Repairs

#### *Tubeless tyres*

A temporary repair can be made to tubeless tyres, using a special kit, provided the puncturing hole is small and confined to the central tread area. The following precautions, must, however, be observed.

1. Do not use more than one plug in each hole.
2. Do not use the tyre for high speeds.
3. Ensure that a permanent 'cold patch' or vulcanized repair is made at the earliest opportunity.

#### *Tubes*

When repairing tubes, have punctures or injuries vulcanized. Ordinary patches should only be used for emergencies. Vulcanizing is absolutely essential for tubes manufactured from synthetic rubber.

### Winter Tyres

Winter tyres are designed to give improved traction and braking in mud and snow. Their performance on hard surfaces may, however, be inferior to normal road tyres and extra care is required when using them under normal conditions.

### Racing and Competition Tyres

Should the vehicle be tuned to increase its maximum speed, or be used for racing or competition, consult the respective tyre company regarding the need for tyres of special or racing construction.

### Valves

Whenever a new tubeless tyre is fitted, the Schrader snap-in type valve must also be renewed. To facilitate fitting, lubricate the valve with soap solution before using a special tool to snap the valve squarely into an airtight position in the rim hole.

### Spare Wheel, Tools and Lifting Jack

A spare wheel, lifting jack and handle together with a tool kit are located in the luggage compartment. The spare wheel is secured by a nut and may be released using the wheel nut box spanner and tommy bar supplied in the tool kit.

### Using the Jack (Fig. 2)

In the interests of safety, place the jack under a body mounting bolt at the corner of the chassis nearest to the wheel being lifted. Make sure the jack lifting pad is square on the chassis and the base stands firmly on the ground.

### Wheels Changing Procedure

1. Firmly apply the handbrake and chock the wheel diagonally opposite the one being lifted.
2. Remove the spare wheel from the luggage compartment and make sure that its tyre pressure is correct.
3. Using the wheel nut spanner, slacken slightly the wheel nuts (Fig. 3).
4. Place the jack in position and lift the wheel clear of the ground. Should it be necessary to lift the vehicle whilst it is on sloping ground, exercise the greatest care.
5. Remove the wheel nuts, hub trim and lift off the wheel.
6. Fit spare wheel together with hub trim and replace wheel nuts. Tighten wheel nuts evenly taking care not to trap the hub trim.
7. Lower the wheel and remove jack.
8. Tighten wheel nuts securely and press hub trim (which should rock on its springs), to ensure that the wheel nuts are correctly positioned.

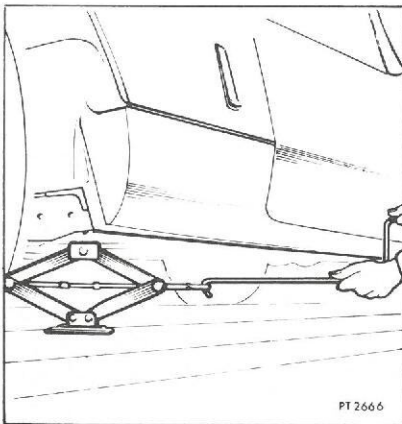


Fig. 2

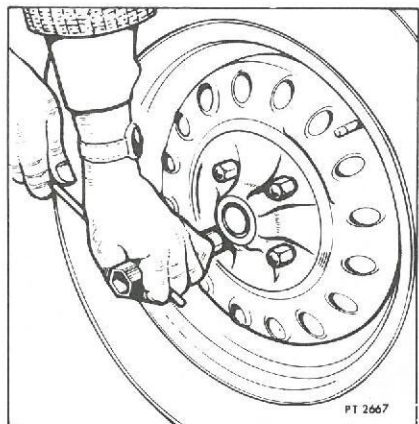


Fig. 3

## COOLING SYSTEM

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### COOLING SYSTEM

The pressurised "no loss" cooling system incorporates a translucent plastic overflow reservoir, mounted forward of the radiator, which collects excess coolant from the radiator as the coolant in the system expands with heat. Depression created as the system cools, causes the coolant to flow back from the reservoir into the radiator. The level which is visible through the translucent reservoir should be maintained at least half full when cold. (See Fig. 1).

#### Pressure cap

A pressure cap on the radiator header tank permits a maximum pressure of 13 lb/in<sup>2</sup> (0.9 kg/cm<sup>2</sup>) to build up within the system as engine temperature increases. This enables the system to operate at temperatures above the normal boiling point of coolant at atmospheric pressure. Because of this feature, it is **extremely dangerous to remove the cap from a hot engine** as the coolant will immediately boil when pressure is released. See 'WARNING' on page 34.

#### Draining

Stand the car on level ground, move the heater control lever to 'HOT' and remove the pressure cap. Remove the cylinder block drain plug, slacken the bottom hose clip and disconnect the hose from the radiator.

#### Filling

Refit the bottom hose and cylinder block drain plug. Fill the radiator, fit the pressure cap and half-fill the expansion tank. Run the engine at 1,000 r.p.m. approx. for three minutes, stop the engine and top up the radiator.

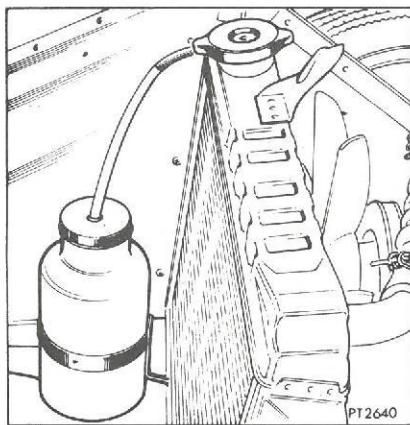


Fig. 1

### Frost precautions

The cooling system cannot be completely drained by the normal draining procedure. Therefore frost damage will not be prevented by merely draining the system but should be protected by use of anti-freeze additives.

Anti-freeze can remain in the cooling system and will provide adequate protection for two years provided that the specific gravity of the coolant is checked periodically and topped up with new anti-freeze as required.

After the second winter the system should be drained and thoroughly flushed by using a hose inserted in the radiator filler orifice. Before adding new anti-freeze examine all joints and renew defective hoses to make sure that the system is leakproof.

At the lower limit of protection, a mixture of water and anti-freeze will reach a 'mushy' state with a viscosity that can impair circulation and immobilize or damage the water pump. Therefore, consult the following chart for quantities of anti-freeze required to protect the system at temperatures likely to be encountered.

ANTI-FREEZE CONCENTRATION		25%	30%	35%	50%	
SPECIFIC GRAVITY OF COOLANT AT 15°C (60°F)		1.039	1.048	1.054	1.076	
ANTI-FREEZE QUANTITY		PINTS IMP.	2.0	2.4	2.8	4.0
		LITRES	1.1	1.35	1.6	2.3
DEGREE OF PROTECTION	<b>Complete</b> Car may be driven away immediately from cold	-12°C 10°F	-16°C 3°F	-20°C -4°F	-36°C -33°F	
	<b>Safe Limit</b> Coolant in mushy state. Engine may be started and driven away after short warm-up period	-18°C 0°F	-22°C -8°F	-28°C -18°F	-41°C -42°F	
	<b>Lower Protection</b> Prevents frost damage to cylinder head, block and radiator. Thaw out before starting engine.	-26°C -14°F	-32°C -25°F	-37°C -35°F	-47°C -53°F	



### FORECOURT SERVICE

This section describes the services most frequently required for normal motoring: These are freely available from the forecourts of most filling stations.

#### **Recommended Fuel**

The engine is designed to operate on fuel having a minimum octane rating of 97 (Research Method): This is equivalent to the British Standard 4-star rating.

Where such fuels are not available and it is necessary to use fuels of lower or unknown rating, the ignition timing must be retarded from the specified setting (see 'General Specification'), to prevent audible detonation (pinking) under all operating conditions. otherwise serious damage to the engine can occur.

The use of lower octane fuels will result in the loss of engine power and efficiency.

In the interests of public health and to assist in keeping undesirable exhaust emissions as low as possible do not use fuel of an octane rating in excess of that recommended.

#### **Lubricants and Additives**

Few owners of cars appreciate that the oils recommended on page 68 for their engine, gearbox and axle already contain special additives. The basic use of oil is obvious to most people, but some do not fully appreciate that the oil companies market oil as part of their service to the motor industry. Thus we as car manufacturers co-operate closely with them during the development of the various units and in fact prescribe the physical requirements of the lubricant to ensure that unsolved lubrication problems are never passed to the owner.

A number of garages stock expensive additives for use in the various mechanical units and due to some high pressure salesmanship it could be tempting to consider the purchase of them. However, provided that the car is given attention at the specified periods and only lubricants recommended by this company are used, the vehicle should continue to give satisfaction. We as manufacturers, would be doing the owner a dis-service by recommending expensive lubricants that were not absolutely necessary to the correct functioning of his vehicle.

On the question of warranty, we would not wish to be dogmatic and would not refuse a warranty claim simply because an owner has used additives. However, if it was apparent from close examination that oil additives were directly responsible for component failure then the warranty would be affected.

### Engine

Most manufacturers of mass-produced vehicles use special lubricants for the factory fill to ensure the quickest and safest method of bedding-in the mating surfaces of the engine. To use additives which are friction reducing during the running-in period may have an adverse rather than an advantageous effect and prolong the running-in period unnecessarily.

When a new car is delivered, the engine sump contains an adequate quantity of special running-in oil. Provided that the level is not allowed to fall below the 'low' mark on the dipstick during the running-in period, topping up should be unnecessary.

At the completion of the first 1,000 miles (1600 km) it is important that the special oil is drained and the engine sump replenished to the 'high' mark on the dipstick with a recommended grade of oil.

Oils of low viscosity are specified for general use and especially those known as 'multigrade' types, thus the use of an upper cylinder lubricant tends to become unnecessary even if the owner indulges in a considerable amount of stop/start motoring during the winter period.

### Gearbox and Rear Axle

In the gearbox of all modern cars synchronizing cones are employed to simplify gear changes. The mating cone surfaces are designed with relief grooves to exude oil when engagement is taking place and the special materials used are chosen to give the desired friction characteristic. Any additive which affects the correct synchronization may cause noisy gear changing and adversely affect the life of the driving dogs.

The oils used in vehicle rear axles, namely the hypoid type oils, are highly loaded with additives and it is wrong to think that extra additives will give advantageous results.

The gearbox and final drive units are factory filled with a special oil, formulated to give all necessary protection to new gears. **This oil must not be drained** but may be topped-up with any of the recommended oils as required when making periodic checks.

## FORECOURT SERVICE

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### Engine

Once a week or prior to starting out on a long run, or every 250 miles (400 km), check the level of oil in the engine sump. If the engine has been running, wait a few minutes to allow the oil to drain back into the sump.

Withdraw the dipstick (arrowed Fig. 1), wipe it clean and push it fully home before again withdrawing it for reading. Add oil via the filler cap (1) (Fig. 2) until the level reaches the high mark on the dipstick. **Do not overfill**, and ensure that the filler cap and dipstick are replaced.

### Coolant (Fig. 3)

**WARNING:** To avoid injury from scalding when it is necessary to remove the pressure cap from a hot engine, exercise great care by protecting the hands against escaping steam. Slowly turn the pressure cap anti-clockwise until resistance of the safety stop is felt. Leave the cap in this position until all pressure is released. Press the cap downwards against the spring to clear the safety stops, and continue turning until it can be lifted off. See 'Pressure cap', page 30.

Maintain the level of coolant in the expansion tank at half-full by topping-up as necessary when the system is cool. Refer to page 31 for anti-freeze protection.

### Windscreen Washer (2) (Fig. 2)

Examine the water level in the plastic windscreen washer container. To refill the reservoir, hold the plastic tubing while unscrewing the cap (2). Fill with clean soft water to the bottom of the neck and replace the cap. If the wiper blades tend to smear, a little household detergent added to the water in the reservoir will help to prevent this.

To avoid frost damage during cold weather, either empty the reservoir or fill with a mixture of 1 part de-natured alcohol (methylated spirits) to 2 parts of water. Do not use glycol anti-freeze.

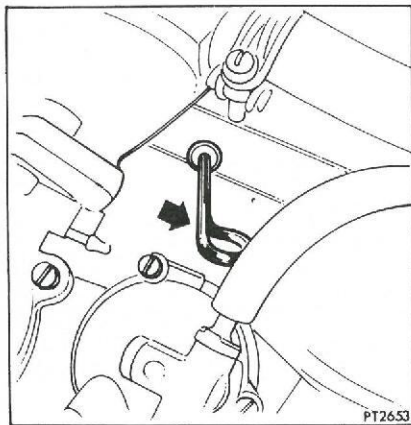


Fig. 1

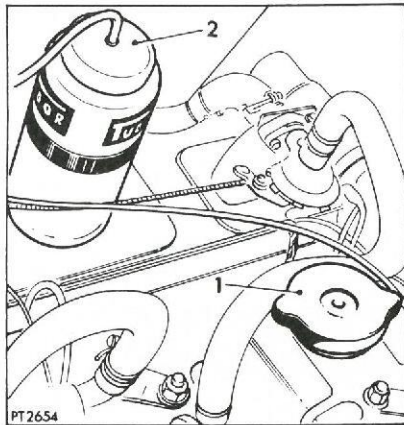


Fig. 2



**Battery**

At periods not exceeding four weeks, examine the level of the electrolyte in the cells and top up with distilled water if necessary. The electrolyte level should just cover the separators. More frequent checks should be made during hot weather and if the car is subjected to long journeys.

**IMPORTANT:** Never use a naked flame when examining the battery since the mixture of oxygen and hydrogen given off by the battery is dangerously explosive.

**Brake fluid (Fig. 4)**

Check the level of fluid weekly by looking at the translucent filler (if fitted on the brake master cylinder) or by wiping clean and removing the metal filler cap (1). Top up when required with new fluid of the type recommended. Do not allow the fluid level to drop below the danger mark on the translucent filler—a sudden appreciable drop in the reservoir fluid level must be investigated and the cause rectified immediately. Do not take off the cap unless you need to—re-seal the brake fluid tin and refit the reservoir cap immediately.

**Clutch fluid (Fig. 4)**

Check the level of fluid monthly by wiping clean and removing the cap (2) from the clutch master cylinder reservoir. If required, top up with new brake fluid of the recommended type. Re-seal the brake fluid tin and refit the reservoir cap immediately.

**Tyre pressures**

Check pressures weekly and examine the tyres for cuts, tread depth and defects. Adjust the pressures while the tyres are cold. See 'General Specification'.

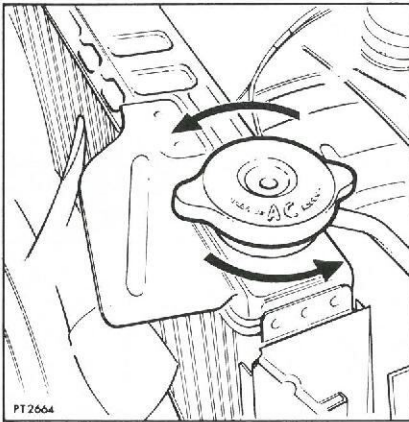


Fig. 3

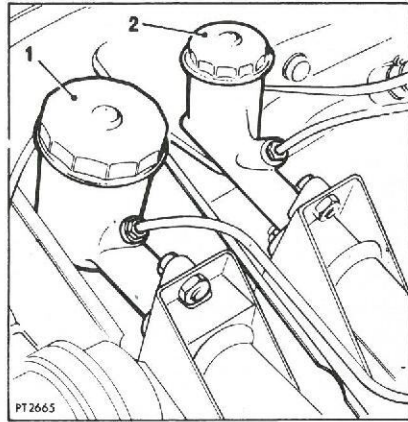


Fig. 4



### MAINTENANCE AND ADJUSTMENTS

#### General

The 'Passport to Service' booklet issued with each new vehicle lists all maintenance needs and the frequency at which they are required. The following pages of this Handbook describe the methods of accomplishing the necessary operations and adjustments.

#### ENGINE

##### Engine Oil Change

To drain the sump, unscrew the drain plug three complete turns to direct the oil stream into a receptacle while the engine is warm. When the rate of flow lessens, remove the plug completely. Refit the plug and refill the sump with the appropriate grade of engine oil. **The use of additives is unnecessary.**

If the vehicle is used for competitive sports events or subjected to sustained high speeds, use oil of a higher viscosity than those listed under 'Recommended Lubricants'.

##### Oil filter renewal (Fig. 1)

To renew the filter, unscrew it from the cylinder block and discard. Wipe the engine joint face clean and smear with oil. Ensuring that the rubber sealing ring is correctly positioned on the new filter, screw this tightly home on the cylinder block.

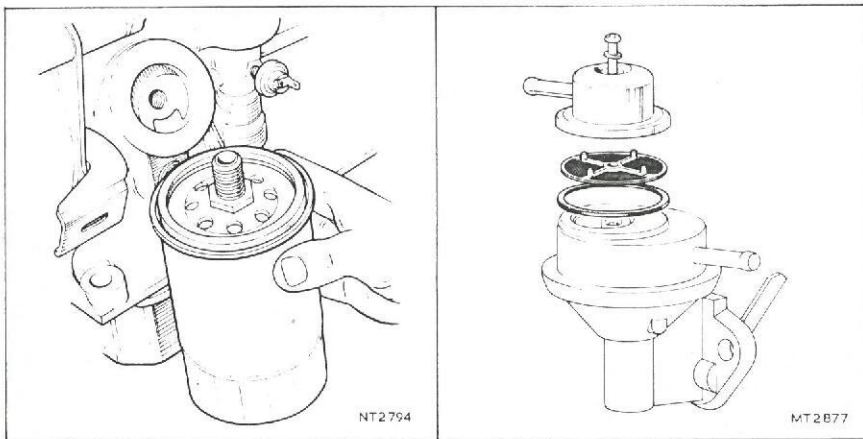


Fig. 1

Fig. 2

### Fan Belt Adjustment (Fig. 3)

The fan belt should be sufficiently tight to drive the water pump and alternator without unduly loading the bearings.

To adjust the belt, slacken the pivot bolt nut (1) and the adjustment bracket bolt (2). Pivot the alternator away from the engine until the belt can be moved  $\frac{1}{2}$  in (12 mm) at the mid-point of its longest run. Maintaining the alternator in this position, tighten the bolt (1) and nut (2).

### Fuel pump (Fig. 2)

Remove the centre-bolt from the fuel pump top cover, withdraw the filter gauze and wash it in clean fuel. Renew the gasket if necessary and refit the filter gauze and cover.

**NOTE:** Air leakage at the gasket or centre-bolt washer will prevent proper functioning of the pump.

### Rocker Clearances (Fig. 4)

Adjust the valve rocker clearances, at valve stem tip, to 0.010 in (0.25 mm) when cold, in the following sequence.

Adjust Nos. 1 and 3 valves with Nos. 8 and 6 valves open.

"	"	5	"	2	"	"	"	4	"	7	"	"
"	"	8	"	6	"	"	"	1	"	3	"	"
"	"	4	"	7	"	"	"	5	"	2	"	"

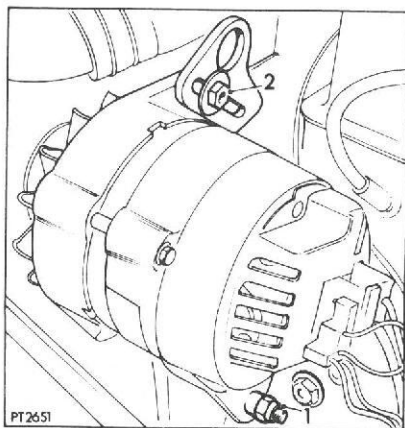


Fig. 3

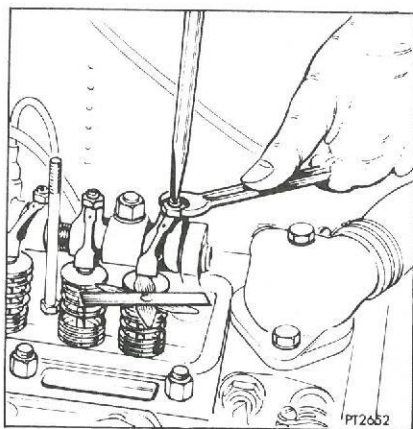
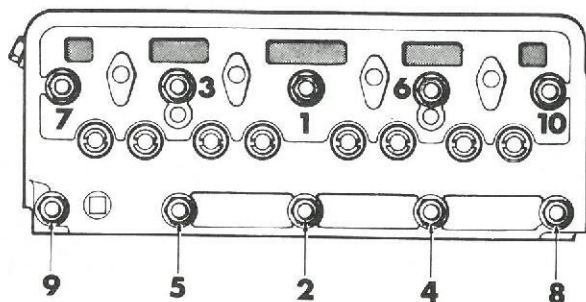


Fig. 4

## MAINTENANCE AND ADJUSTMENTS

### Cylinder Head Nuts (Fig. 5)

Tighten the cylinder head nuts in the order shown. Slacken them by reversing the sequence. Tightening torque 46 lbf ft.



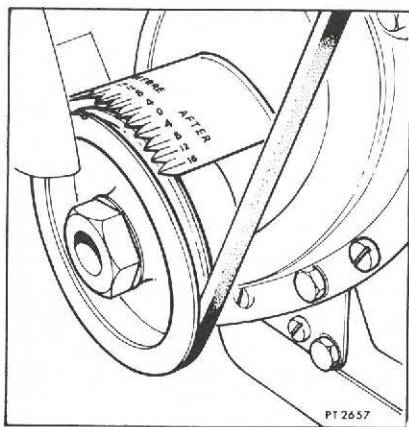
PT2644

### Top dead centre (Fig. 6)

Numbers 1 and 4 pistons are at 'top dead centre' (top of the cylinders) when a white 'V' shaped groove on the periphery of the crankshaft pulley is aligned with the zero mark on a serrated indicator attached to the timing cover.

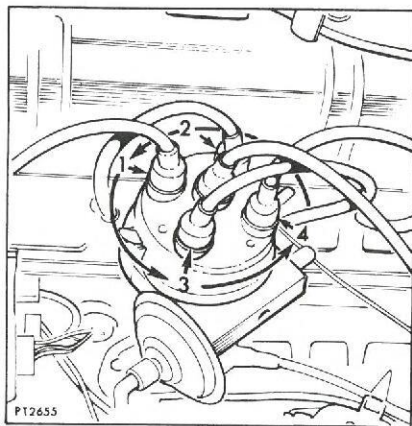
### Sparking Plugs

Remove the sparking plugs for cleaning and reset the gaps to 0.025 in (0.63 mm). Clean the ceramic insulators and examine them for cracks or other damage likely to cause "H.T." tracking. Test the plugs and renew those which are suspect.



PT2657

Fig. 6



PT2655

Fig. 7

## DISTRIBUTOR

### Checking Advance Mechanism

Remove the distributor cover and grasp the rotor arm firmly. Viewing from above, turn the rotor arm anti-clockwise and release it. The rotor arm should return to its original position without showing any tendency to stick.

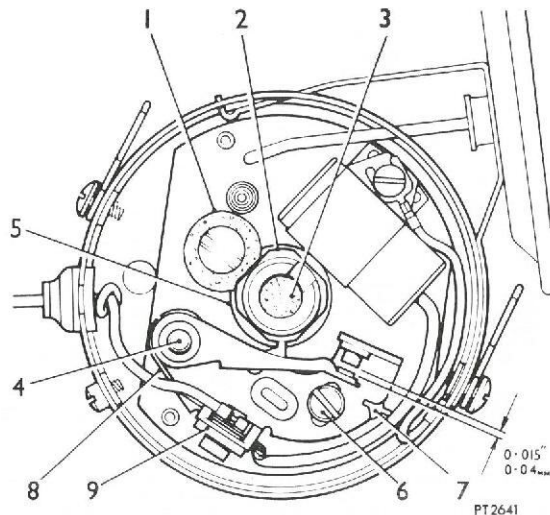
### Lubrication (Fig. 8)

Remove the rotor arm and smear light grease sparingly around the felt pad (1) and cam surface (2). Using clean engine oil, apply: two drops to the exposed felt pad in the top of the cam (3), one drop to the centre of the pivot post (4), and five drops through the cavity at the lower edge of the cam (5), and wipe clean the faces of the contact breaker points.

Refit the rotor arm with its drive lug correctly engaging the spindle slot and push it onto the spindle as far as possible.

### Contact Breaker Gap Adjustment (Fig. 8)

Turn the crankshaft until the contacts are fully open. Using a 0.015 in (0.4 mm) feeler gauge, check the gap; the gauge should be a sliding fit in the gap. If the gap varies appreciably from the gauge thickness, slacken the contact plate securing screw (6) and adjust the gap by inserting a screwdriver in the notched end of the plate (7). Turn the screwdriver anti-clockwise to decrease, or clockwise to increase the gap. Retighten the securing screw.





## MAINTENANCE AND ADJUSTMENTS

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### Renewing Contacts (Fig. 8)

*To remove*—Push the moving contact spring (8) away from the terminal post (9) and simultaneously lift the contact arm from the pivot post.

Detach the two leads from the terminal post, remove the securing screw (6) and lift out the fixed contact assembly.

*To refit*—Wipe preservative from the new contact faces, locate the fixed contact over the pivot post and loosely secure it to the base plate with the screw (6).

Attach the two leads to the terminal post and, compressing the spring blade against the moving contact arm, lower the assembly over the pivot post. Locate the spring in the terminal post to securely trap the two connectors behind it.

Adjust the contact gap and tighten the screw (6).

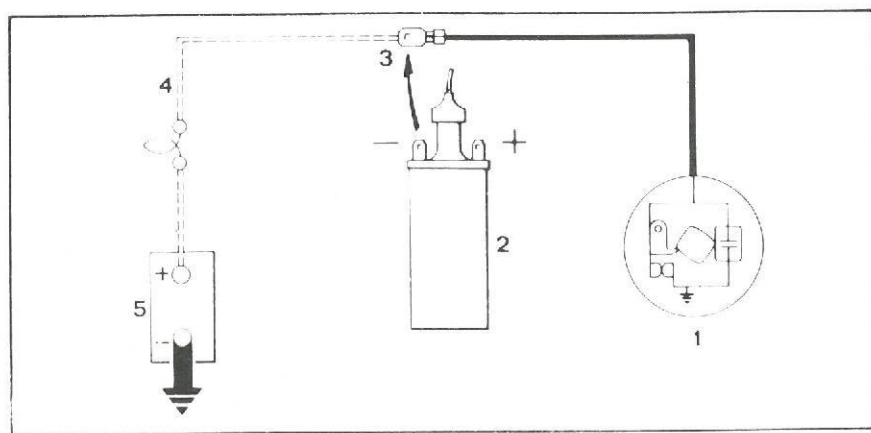


Fig. 9

### Ignition Timing (Static)

1. Adjust the contact breaker gap as described previously, disconnect the distributor L.T. wire from the coil and reconnect it to a test lamp circuit as shown on Fig. 9.
2. Slowly rotate the crankshaft in its running direction to bring the pulley notch nearly up to the edge of the scale (see Fig. 6) at which point the test lamp should be illuminated. Continue turning the crankshaft in the same direction and stop at the point where the lamp is extinguished.
3. If timing is correct, the pulley notch will be aligned with 8 degree before mark on the timing scale. If correction is needed, continue as follows:
  - (a) Align the pulley notch with the 8 degree before mark on the scale.
  - (b) Slacken the clamp bolt and rotate the distributor body anti-clockwise past the test lamp illumination position: Slowly rotate it clockwise to the point where the lamp is extinguished.
  - (c) Tighten the clamp bolt and recheck the timing by repeating the instructions given in paragraph 2.

### High Tension Cables (Fig. 7)

All high tension cables fitted to the ignition system are made from carbon impregnated nylon or cotton cords encased in rubber or neoprene to form a high resistive conductor. Replacement cables should be obtained from a Triumph Dealer and must be the same length and type as the original.

## MAINTENANCE AND ADJUSTMENTS

### Air Cleaner (Fig. 10)

Remove the air cleaner assembly from the carburettors and clean the paper elements as follows: Pull off the air intake pipes from the container (1). Remove four bolts (2) securing the assembly to the carburettor intake flanges. Detach the fuel pipe linking the carburettor float chambers and lift the air cleaner from the engine. Remove the bolt (3) holding the closing plate (4) to container (1) and split the assembly taking care not to damage gasket (5). Take out the paper elements (6) and clean between the folds of the paper with a low pressure air line or soft brush.

Assemble the air cleaner in the reverse order renewing gaskets (8) if damaged and ensuring they are fitted with the holes corresponding to those in the closing plate. Refit the assembly to the carburettors and replace the fuel pipe linking the float chambers.

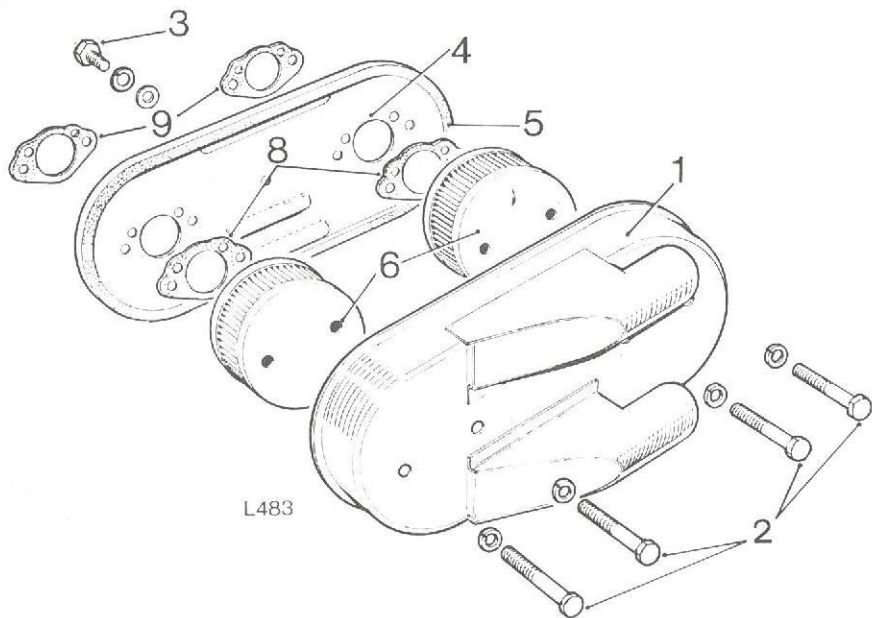


Fig. 10

## CARBURETTER

### Piston Damper/s (Fig. 11)

Unscrew the hexagon plug from the top of the carburettor suction chamber and withdraw the damper. Top up the dash-pot with the seasonal grade of engine oil until the level (1) is 0.5 in (13 mm) above the top of the hollow piston rod. Re-insert the damper and tighten the hexagon plug.

### Carburettor Adjustments

Before making any adjustments to the carburettor, ensure that:

- (a) the throttle control operates smoothly,
- (b) the mixture control (choke) has a minimum of  $\frac{1}{16}$  in (1.6 mm) free movement before it starts to pull on the cam lever,
- (c) the fast idle screw (2) is clear of the cam when the choke control is pushed fully in,
- (d) the suction chamber piston falls freely onto the bridge when the lifting pin (Fig. 12) is fully depressed and released. If the piston sticks, refer to "Sticking Piston".

### Idling Adjustment (Fig. 11)

While the engine is at normal running temperature, turn the throttle adjusting screw (3) as required to achieve the desired idle speed.

If the engine does not idle smoothly check the mixture by depressing the piston lifting pin approximately  $\frac{1}{32}$  in (0.8 mm) after taking up free movement and note the engine response;

- (a) a considerable increase in engine speed indicates that the mixture is too rich,
- (b) an immediate decrease in speed indicates a weak mixture,
- (c) a very slight increase in speed indicates correct mixture.

Turn the jet adjusting nut (4) up to weaken or down to richen until the fastest idling speed consistent with even running is obtained.

Readjust the throttle adjusting screw (3) to give the desired idle speed.

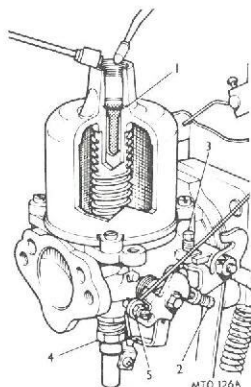


Fig. 11

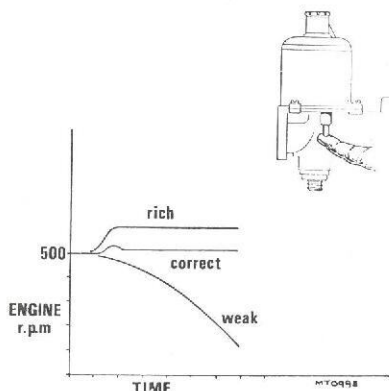


Fig. 12



## MAINTENANCE AND ADJUSTMENTS

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### Fast Idling (Fig. 11)

Pull out the choke control until the linkage is about to move the jet. Start the engine and adjust the fast idle screw (2) to give an engine speed of approximately 1,000 r.p.m. Push the control fully in and check that there is a small clearance between the end of the screw and the cam face against which it operates.

### Sticking Piston (Fig. 13)

If the piston tends to stick in the bore of the suction chamber, this may be caused by a bruised suction chamber or an accumulation of dirt within the chamber. The procedure for cleaning is as follows:

1. Remove the air cleaner.
2. Mark the piston chamber and carburettor body to facilitate identical reassembly.
3. Take out three screws and carefully remove the suction chamber, piston and needle assembly.
4. Using a petrol-moistened cloth, clean the inside bore of the suction chamber and the corresponding faces of the piston.
5. Lightly oil the piston rod only and reassemble as previously marked.
6. Refill the piston damper. See "Piston Dampers", page 43.

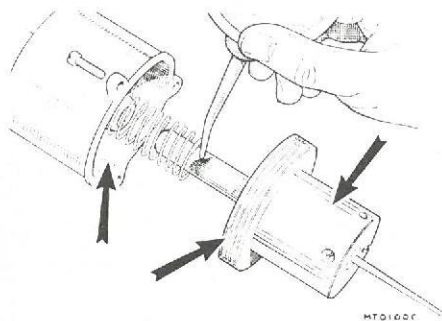


Fig. 13

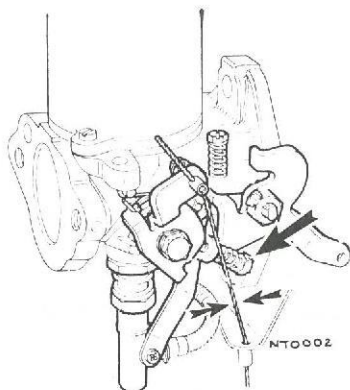


Fig. 14

### Tuning Twin-Carburetters (Figs. 11 and 15)

The performance and balance of twin-carburetters is affected by the general condition of the engine, including valve seats, rocker clearances, ignition settings and induction joints. Ensure that the oil filler cap and dipstick are in place as air entering at these points will also affect slow running.

Tuning procedure is as follows:

1. Warm the engine to normal running temperature, stop the engine and remove the air cleaners.
2. Slacken the clamping bolts (6) and (7) and disconnect the mixture control (choke) wire (5).
3. Unscrew each throttle adjusting screw until it is just clear of its stop and the throttle closed. Reset both adjusting screws  $1\frac{1}{2}$  turns open.
4. Remove the piston/suction chamber units as described under "Sticking Piston" (single carb.).
5. Screw the jet adjusting nut (4) until the jet is flush with the bridge of each carburettor or fully up if this position cannot be achieved.
6. Refit the piston/suction chamber unit and check to ensure that the piston falls freely onto the bridge when lifted and released.
7. Turn the adjusting nut (4) down two complete turns on both carburetters.
8. Restart the engine and adjust both throttle adjusting screws (3) to give the desired idling speed and an equal intensity of "hiss" from the intake of each carburettor.

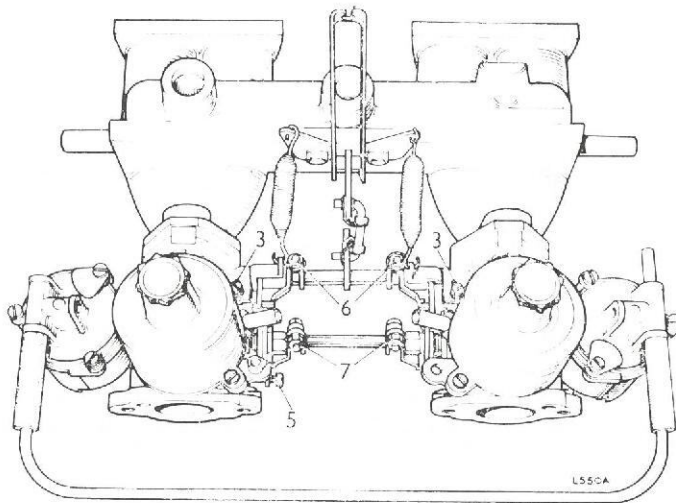


Fig. 15

## MAINTENANCE AND ADJUSTMENTS

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9. Turn both jet adjusting nuts up to weaken or down to richen, by the same amounts, to give the fastest idling speed consistent with even running.
10. Readjust the throttle adjusting screws (3) if required, to correct the idling speed.
11. Check for correct mixture by gently pushing the lifting pin of the front carburetter up  $1/32$  in (0.88 mm) after free movement has been taken up. The graph (Fig. 12) illustrates the possible effect on engine speed. Readjust the mixture strength if necessary. Repeat the operation on the rear carburetter and after adjustment re-check since both are inter-dependent.
12. Set the throttle interconnection clamping levers (6) so that the link pin is 0.006 in (0.15 mm) away from the lower edge of the fork. Tighten the clamp bolts.
13. With both jet levers at their lowest positions, set the jet lever clamp bolts (7) so that both jets commence to move simultaneously.
14. Reconnect the mixture control (choke) wire (5) with about  $1/10$  in (1.6 mm) free movement before it starts to pull on the jet levers.
15. Pull the mixture control knob until the linkage is about to move the jets and adjust the fast idle screws (2), comparing the intensity of the air intake "hiss" to give an engine speed of about 1,000 r.p.m. when hot. Ensure that clearance exists between each screw and cam when the knob is pushed fully in.

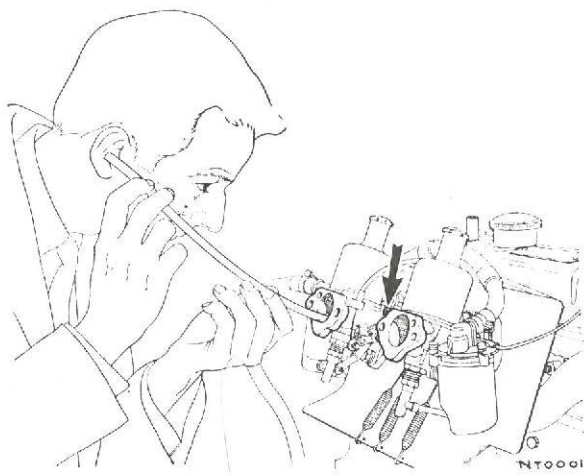


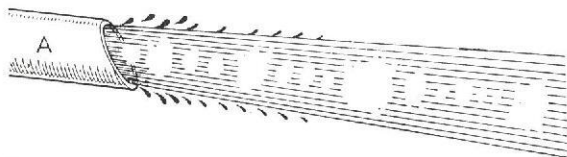
Fig. 16

## DIAGNOSIS

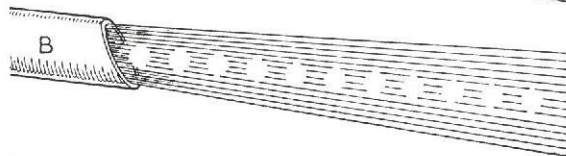
Symptom	Cause	Remedy
Erratic running Stalling at idling Lack of power High fuel consumption	Sticking piston: Dirty piston and suction chamber Bent needle	Clean Fit new
Hesitation at pick-up	Low damper oil level Incorrect oil grade (too thin)	Top up Replace with correct grade
Fuel leak from float-chamber/feed pipe union	Rubber sealing washer displaced or damaged	Renew
Float-chamber flooding	Dirty or worn float-chamber needle valve (dirty fuel) Punctured float Incorrect fuel level	Clean or renew valve (flush system) Fit new Check and reset level

### *The effect of mixture strength on exhaust smoke*

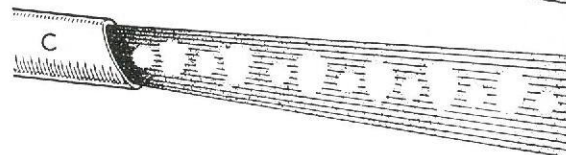
A. **TOO WEAK:** Irregular note, splashy misfire, and colourless.



B. **CORRECT:** Regular and even note.



C. **TOO RICH:** Regular or rhythmical misfire, blackish.



MT0999

**Fig. 17**



## MAINTENANCE AND ADJUSTMENTS

### BRAKES

The braking system employs self adjusting disc brakes for the front, and leading and trailing manually-adjusted drum brakes for the rear wheels. The handbrake is mechanically linked by cable to operate the rear wheel brakes only.

#### Front disc pads (Fig. 18)

At regular intervals visually inspect the brake pad linings for wear and before the linings are worn to a minimum thickness of  $\frac{1}{16}$  in (1.6 mm), renew the pads as follows:

1. Lift and safely support the front of the car and remove the road wheels.
2. Remove the spring clips (1), pull out the retaining pins (2) and withdraw the pads (3) and damping shims.
3. Open the bleed screw one turn, push back both calliper pistons as far as necessary to allow entry of the new unworn pads. Re-tighten the bleed screw.
4. Insert the brake pads complete with damping shims, ensuring that the angled edge of the shim rests on the brake pad and the arrow on the shim points in the direction of disc forward rotation.
5. Refit the pad retainers (2) and secure them with the spring clips (1).
6. Pump the pedal until solid resistance is felt, top up the master cylinder (page 35) if required, and lower the car to the ground.

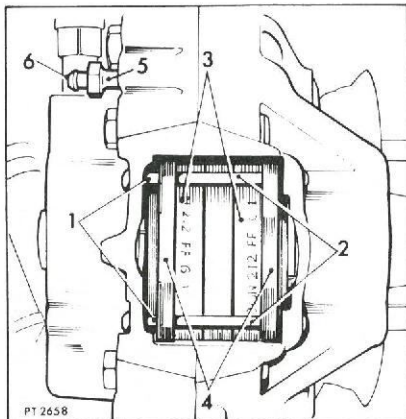


Fig. 18

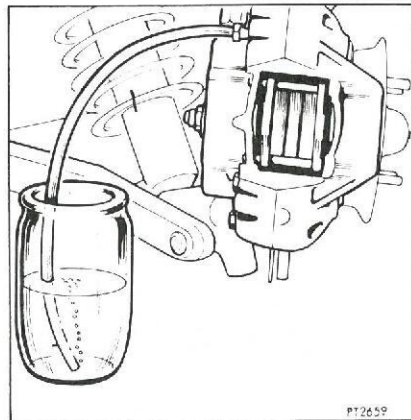


Fig. 19

### Rear drum brakes

*Inspecting linings*—Raise the rear wheels, place supports under the chassis frame and fully release the handbrake. Remove two countersunk screws from each brake and withdraw the drums. Examine the shoes for wear and blow out loose dust before re-fitting the drums.

*Brake-shoe renewal*—When it becomes necessary to renew the brake-shoes, it is essential to use only genuine shoes, with the correct grade of lining. Always fit new shoes as complete sets, never individually or as a single wheel set. Serious consequences could result from out-of balance braking due to the mixing of linings.

*Brake-shoe adjustment*—Turn the adjusters (one on each wheel—see item 2, Fig. 20) in a clockwise direction, viewed from the centre of the car, to lock both wheels. Turn back the adjusters until each wheel is just free to rotate and lower the car to the ground.

### Handbrake Adjustment

Handbrake "free-travel" is reduced to normal when the rear brake shoes are correctly adjusted.

### Handbrake Cable Guides (Fig. 21)

Smear grease around the handbrake cable guides (shown arrowed) and clevis pins.

### Procedure for Bleeding

1. Ensure that the reservoir is topped up to the correct level and that the level is maintained throughout the bleeding operation.
2. Wipe clean the front bleed nipple, furthest from the master cylinder and attach to it a short length of small bore rubber tubing. Allow the tube to hang in a clean container partially filled with hydraulic fluid so that the end is below the level of the fluid.
3. Unscrew the bleed screw one half-turn.
4. Operate the pedal with a succession of rapid long and short strokes as follows: Push the pedal through its full stroke followed by two or three short rapid strokes; then allow the pedal to return to its stop unaided (foot removed). Observe the fluid being discharged into the glass container and when all bubbles have ceased to appear, bleeding is complete. Securely tighten the bleed screw, and remove the tubing from the nipple.
5. Top-up master cylinder and repeat operations 2, 3 and 4 on the remaining front brake and rear brakes working in a clockwise direction for R.H.S. cars and anti-clockwise for L.H.S.
6. Top-up master cylinder and road-test car.

**NOTE:** Hydraulic fluid that has been exposed to the atmosphere or expelled from the system during bleeding must never be used for topping-up and should be discarded.

## MAINTENANCE AND ADJUSTMENTS

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### Preventive maintenance

In addition to the recommended periodical inspection of brake components it is advisable as the car ages, and as a precaution against the effects of wear and deterioration, to make a more searching inspection and renew parts as necessary.

It is recommended that:

1. Disc brake pads, drum brake linings, hoses and pipes should be examined at intervals no greater than those laid down in the Passport to Service.
2. Brake fluid should be changed completely every 18 months or 18,000 miles (30000 km) whichever is the sooner.
3. All fluid seals in the hydraulic system and all flexible hoses should be examined and renewed if necessary every 3 years or 36,000 miles (60000 km) whichever is the sooner. At the same time the working surface of the pistons and of the bores of the master cylinder, and other slave cylinders should be examined and new parts fitted where necessary. The brake servo filter should be renewed.

Care must be taken always to observe the following points:

- (a) At all times use the recommended brake fluid.
- (b) Never leave fluid in unsealed containers. It absorbs moisture quickly and this can be dangerous if used in the system in this condition.
- (c) Fluid drained from the system or used for bleeding is best discarded.
- (d) The necessity for absolute cleanliness throughout cannot be over-emphasized.

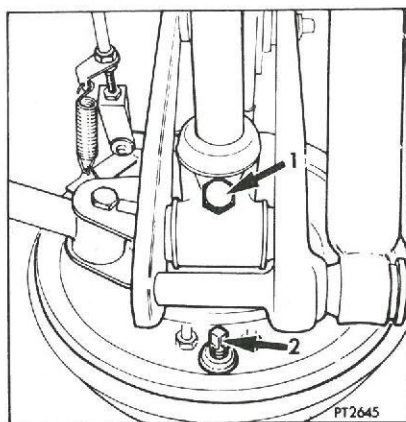


Fig. 20

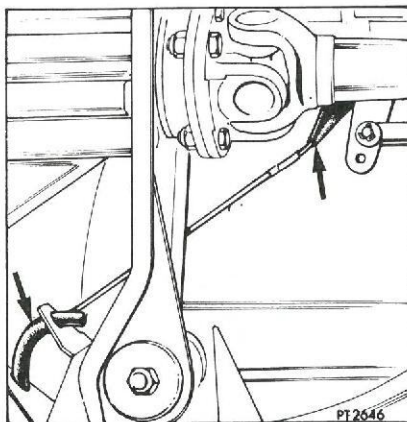


Fig. 21



### SPLIT HYDRAULIC SYSTEM (L.H. Steering only)

A split hydraulic system employs a tandem master cylinder to pressurise front and rear brake lines independently.

A brake line failure in either line is indicated to the driver by illumination of the brake line failure warning light mounted on the fascia panel (22) (Fig. 2 page 7).

The warning system is actuated by a pressure differential warning actuator.

The system circuit is amalgamated with the oil pressure indication circuit—see Wiring diagram—so that when the ignition circuits are energised both warning lights will illuminate faintly to indicate no bulb filament failure.

When the engine is started the oil pressure will rise causing the oil pressure switch to break the earth contact. Both warning lights will extinguish.

Should pressure loss occur in either brake line the pressure differential warning actuator switch will operate. The “BRAKE” warning light will glow brightly.

Should the oil pressure fall below the safe operating pressure while the engine is running the oil pressure switch will actuate. Both the “OIL” and the “BRAKE” warning lights will glow faintly.

### Bleeding the Hydraulic Braking System

#### General

If air has entered one of the hydraulic braking systems then only the system affected need be bled. During bleeding, exercise care, as described in the following procedure, to avoid moving the shuttle from its mid-position. However, if the shuttle has moved during bleeding or subsequent to a fault condition, centralise the shuttle by performing operations 1 to 5 page 52.

#### Preparation for Bleeding

Before commencing to bleed the brakes ensure that all the bleed nipples are clean and, taking care to avoid dirt entering the fluid reservoir, remove its filler cap and top-up with new hydraulic fluid. During the bleeding operation keep the level of fluid above the dividing partition in the reservoir.

**NOTE:** Hydraulic fluid that has been exposed to the atmosphere or expelled from the system during bleeding must never be used for topping-up and should be discarded. Use new fluid from a sealed container, resealing the container after use.



## MAINTENANCE AND ADJUSTMENTS

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### Procedure

Commence with the brake, of the pair being bled, farthest from the master cylinder. If both systems are to be bled, bleed the rear brakes first. When bleeding the rear brakes, release the handbrake and turn the brake adjusters to lock the shoes against the drums. When the bleeding is completed adjust the brakes as detailed on page 49.

1. Attach a rubber tube of approx.  $\frac{1}{4}$  in (6 mm) bore to the brake bleed nipple allowing the other end of the tube to hang submerged in a jar containing a quantity of clean brake fluid.
2. Unscrew the bleed-screw enough to allow the fluid to be pumped out (half a turn is normally sufficient).
3. Depress the brake pedal and allow it to return slowly noting that only a LIGHT pedal effort is required and the pedal must NOT be pushed through at the end of the stroke. (In addition, never "try" the pedal until all air has been dispelled and the system fully bled, as either action will cause the shuttle to move and actuate the switch). Pausing between each depression of the pedal, continue pumping until all air has been dispelled from the bleed-screw nipple (denoted by the absence of bubbles in the fluid being pumped into the jar).
4. With the pedal depressed, close the bleed-screw nipple and repeat the operation on the other brake.

### Procedure for Re-Centralising the P.D.W.A. Shuttle

If, for reasons previously described, the P.D.W.A. shuttle requires to be re-centralised, adopt the following procedure.

1. Fit a rubber tube, as described in 1 above, to a brake bleed-screw nipple at the opposite end of the car to that which has just been bled.
2. Open the bleed-screw.
3. Switch the ignition on but **DO NOT START THE ENGINE**. (The brake warning light will glow but the oil warning light will remain extinguished).
4. Exert a steady pressure on the brake pedal until the brake light dims and the oil light glows. (A click should be felt on the pedal as the shuttle returns to its mid-position).
5. Tighten the bleed-screw.

**NOTE:** If the pedal has been pushed too hard the shuttle will move to the other side of the valve, thus requiring the procedure to be repeated on a brake at the opposite end of the car.

### TRANSMISSION

#### Gearbox (Fig. 22) (and overdrive when fitted)

With the vehicle standing on level ground, remove the oil filler (2) and top up the gearbox until the oil is level with the bottom of the filler plug threads. Allow surplus oil to drain away before refitting the plug and wiping clean. An oil transfer hole between the gearbox and overdrive unit provides a common oil level. Maintenance of the overdrive unit is thus limited to ensuring that the correct oil level is maintained in the gearbox.

#### Final drive unit (Fig. 23)

Remove the oil level plug and using the same dispenser as for topping-up the gearbox and the same oil, i.e. extreme pressure (Hypoid) lubricant, top up the final drive unit until the oil is level with the bottom of the filler plug threads.

Allow the surplus oil to drain away before refitting the level plug and wiping clean.

#### Universal coupling bolts

Maintain the tightness of the coupling bolts to a torque of 20 lbf ft (2.8 kgf m).

#### Rear Hubs (Fig. 20 page 50)

Remove the plug (1) and fit a grease nipple. Using a grease gun, pump until grease exudes from the bearing. Remove nipple, replace the plug and remove surplus grease.

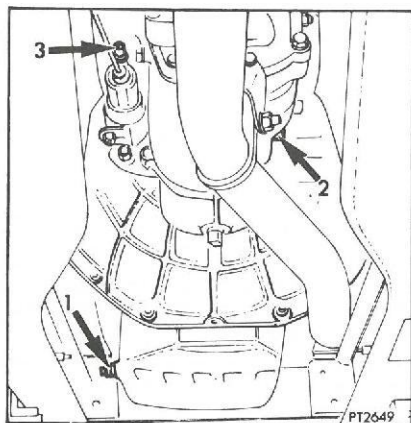


Fig. 22

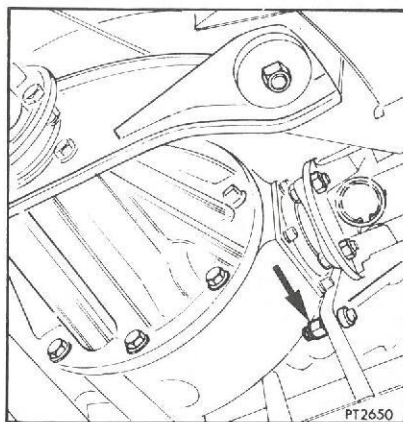


Fig. 23

## MAINTENANCE AND ADJUSTMENTS

### STEERING AND FRONT SUSPENSION

#### Wheel Balance

For many reasons, tyres sometimes wear unevenly, thus causing an unbalanced wheel condition which accelerates further uneven wear until excessive vibration or wheel shimmy results and as the process is gradual, an owner grows accustomed to and is unaware of the change that has taken place. It is therefore advisable to have wheel balance checked at regular intervals, such as when checking front and rear wheel alignment at 6,000 mile (10,000 km) intervals.

#### Front and Rear Wheel Alignment

Incorrect wheel alignment can cause excessive and uneven tyre wear. The front wheels should toe-in  $\frac{1}{16}$  in to  $\frac{1}{8}$  in (1.6 to 3.2 mm) when the vehicle is unladen. Similarly, the rear wheels should toe-in 0 to  $\frac{1}{16}$  in (0 to 1.6 mm).

Because the use of special equipment is necessary to check these dimensions, the work should be entrusted to a Triumph Distributor or Dealer.

#### Steering Unit (Fig. 24)

Remove the plug from the top of the unit (shown arrowed) and fit a screwed grease nipple. Apply the grease gun and give five strokes only. Remove the nipple and refit the plug. Over greasing can cause damage to the rubber bellows.

#### Lower Steering Swivel (Fig. 25)

Remove the plug (c) and fit a grease nipple. Using a grease gun charged with a recommended E.P. oil (see page 68) pump the gun until surplus oil exudes from the bearing. Remove the nipple and refit the plug.

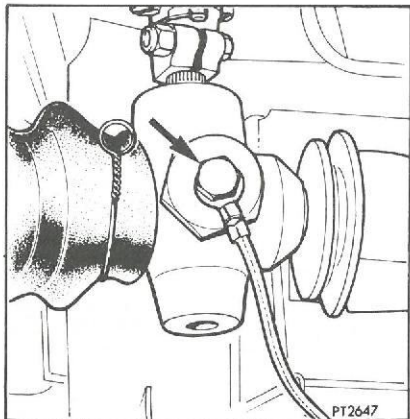


Fig. 24

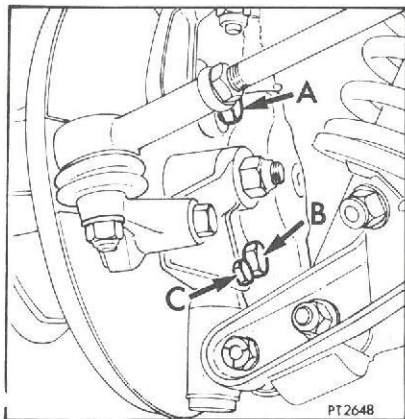


Fig. 25

### Front Hubs (Fig. 26)

Jack up each front wheel in turn, remove the road wheel and check the hub bearings for end float. If excessive, adjust as follows:

1. Prise off the grease cap (11) and withdraw the split pin (12).
2. Whilst spinning the hub tighten the slotted nut (10) to 5 lb/ft and unscrew the nut one flat to give 0.002 in to 0.008 in (0.05 mm to 0.2 mm) hub end float.
3. Fit a new split pin, replace the dust cover and road wheel. Repeat operation on opposite hub.

At major overhaul periods or every 12,000 miles if the car is being used for competition work, re-pack the front hubs with grease as follows:

1. Jack up the front of the car and remove road wheel.
2. Without disturbing the hydraulic pipe unions, unscrew the caliper securing bolts (A and B, Fig. 25) and lift the caliper from the disc, tying it to a convenient point to prevent it hanging by the attached hydraulic pipe. Note the number of shims fitted between the caliper and the vertical link.
3. Prise off grease cap (11), withdraw the split pin (12) and unscrew the slotted nut (10). Remove the "D" washer (9) and pull the hub assembly from the stub axle.
4. Wash all grease from the hub and bearings. Pack the hub and bearings with grease, working it well into the rollers and re-assemble.
5. Adjust the end float as described above.
6. Re-assemble the brake caliper unit, refitting any shims removed during dismantling.
7. Refit the road wheel, lower the jack, and repeat the above operations with the opposite wheel hub.

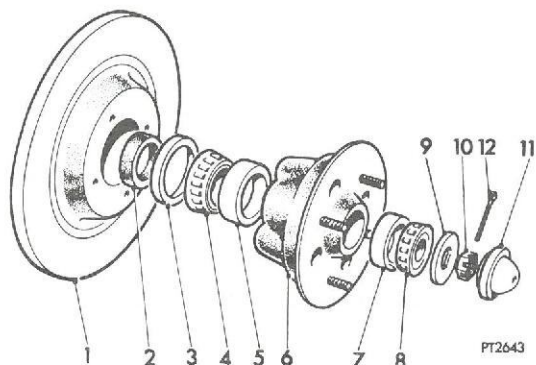


Fig. 26



## ELECTRICAL SYSTEM

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### ELECTRICAL SYSTEM

#### Fuses

The fuse assembly is a component of the main harness. It is secured to an aperture provided on the bulkhead by integral plastic clips. The unit contains three operational fuses and has provision to house two spares. The fuses are protected by a pull-off transparent plastic cover.

Failure of a particular fuse is indicated when all the circuits protected by it become inoperative. If a new fuse fails establish the cause and rectify the fault before fitting a second replacement.

<b>Fuse</b>	Manufacturer	..	..	..	Lucas
	Rating	..	..	..	35 amp.
	Lucas Part No.	..	..	..	188218
	Stanpart No.	..	..	..	58465

#### Circuits

The fuse fed by a white cable from the ignition/starter switch protects the following circuits:

Windscreen wiper	Stop lamp
Fuel indication	Reverse lamp
Temperature indication	Turn signal

The fuse fed by a red/green cable from the master light switch protects the following circuits:

Front parking lamp	Tail lamp
Front marker lamp	Plate illumination lamp
Rear marker lamp	Instrument illumination

The fuse fed by a brown cable from the battery protects the following circuits:

Headlamp flasher	Horn
Key warning	Hazard warning
Courtesy light	

### RADIO FACILITY

The wire harnesses include a facility for this operational extra item.

## CHARGING SYSTEM

**CAUTION:** THE ALTERNATOR CONTAINS POLARITY SENSITIVE COMPONENTS THAT MAY BE IRREPARABLY DAMAGED IF SUBJECTED TO INCORRECT POLARITY.

TO PREVENT DAMAGE TO COMPONENTS, DO NOT MAKE OR BREAK ANY CONNECTIONS IN THE CHARGING CIRCUIT—INCLUDING THE BATTERY LEADS—WHILE THE ENGINE IS RUNNING. RUN THE ALTERNATOR ONLY WITH ALL CONNECTIONS MADE OR WITH THE UNIT DISCONNECTED.

**Alternator**

The Lucas 15ACR alternator—which contains its own control unit—has a nominal output of 28 amps. The unit is driven by a vee belt which should be adjusted as detailed in Maintenance. The rotor runs on two “lubricated for life” ball bearings. No periodic lubrication is required.

## BATTERY

The battery is located on the bulkhead. This is normally a Lucas “Pacemaker” unit featuring an “Aqualok” topping up device. Topping up procedure is detailed on page 35.

**Lucas “Pacemaker” data:**

Capacity—at 20-hour rate	..	..	40 amp-hour
Plates per cell	..	..	9
Charge rate	Initial	..	2.5 amp.
	Normal	..	3.5 amp.
	Boost	..	36 amp.

Ensure that the battery top and terminals remain clean and dry. Coat terminals with petroleum jelly (Vaseline) to prevent corrosion.

Check electrolyte level monthly and if required replenish with distilled water. If electrolyte has been spilled, clean the affected area with a cloth moistened with ammonia to neutralise the acid and prevent acid corrosion.

Ensure that the battery is always firmly clamped in position by the retaining assembly. When fitting battery leads do not hammer terminals to terminal posts. Such action may damage battery.

The battery will deteriorate rapidly if left in a discharged condition. If the unit is reduced to a low state of charge it should be recharged at the first opportunity.

## ELECTRICAL SYSTEM

### HEADLAMPS

NOTE: IF BEAM AIMING IS NOT INTENDED DO NOT DISTURB BEAM AIMING SCREWS "A" AND "B" (Fig. 1).

#### Beam Aiming

It should be possible to adjust the beams without removing the headlamp surround. Screw "A" positions the beam in the horizontal plane. Screw "B" controls beam height.

Beam aiming can best be accomplished using equipment such as Lucas "Beam-setter" or "Lev-L-Lite". This service is available at Triumph distributors or dealers and will ensure maximum road illumination with minimum discomfort to other road users.

#### Filament Failure (Fig. 2)

Remove two bolts (1 and 2). Remove nut (3) and lift headlamp surround from upper retainers. Remove three screws (4, 5 and 6) to release retaining rim and light unit. Pull connector from sealed beam light unit or bulb. Renew light unit or bulb and reassemble.

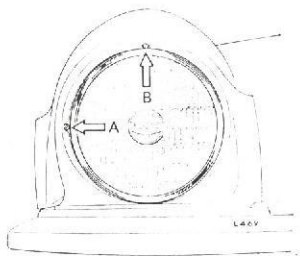


Fig. 1

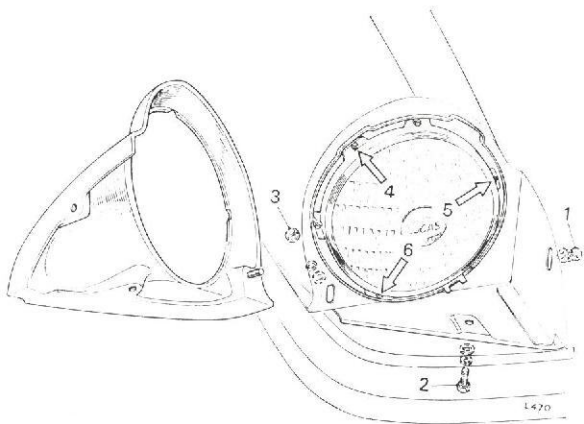


Fig. 2

## BULB CHART

Lamp	Watts	Lucas Part No.	Stanpart No.	
Headlamps—R.H. Dip—	U.S.A. ..	50/41	54522231	★
	France ..	45/40	411	
	Other R.H. Dip markets	60/50	54523079	★
L.H. Dip .. ..	60/45	54521872	512231	★
Front parking lamps .. ..	6	207	57591	
Front flasher lamps .. ..	21	382	502379	
Front marker lamps .. ..	4	222	501436	
Rear marker lamps .. ..	4	222	501436	
Tail/stop lamps .. ..	5/21	380	502287	
Rear flasher lamps .. ..	22	382	502379	
Reverse lamp .. ..	22	382	402379	
Plate illumination lamp .. ..	5	207	57591	
Instrument illumination .. ..	2·2	987	59492	
Courtesy light .. ..	2·2	987	59492	
Warning lights .. ..	2·2	987	59492	

★ Scaled beam light unit



# ELECTRICAL SYSTEM

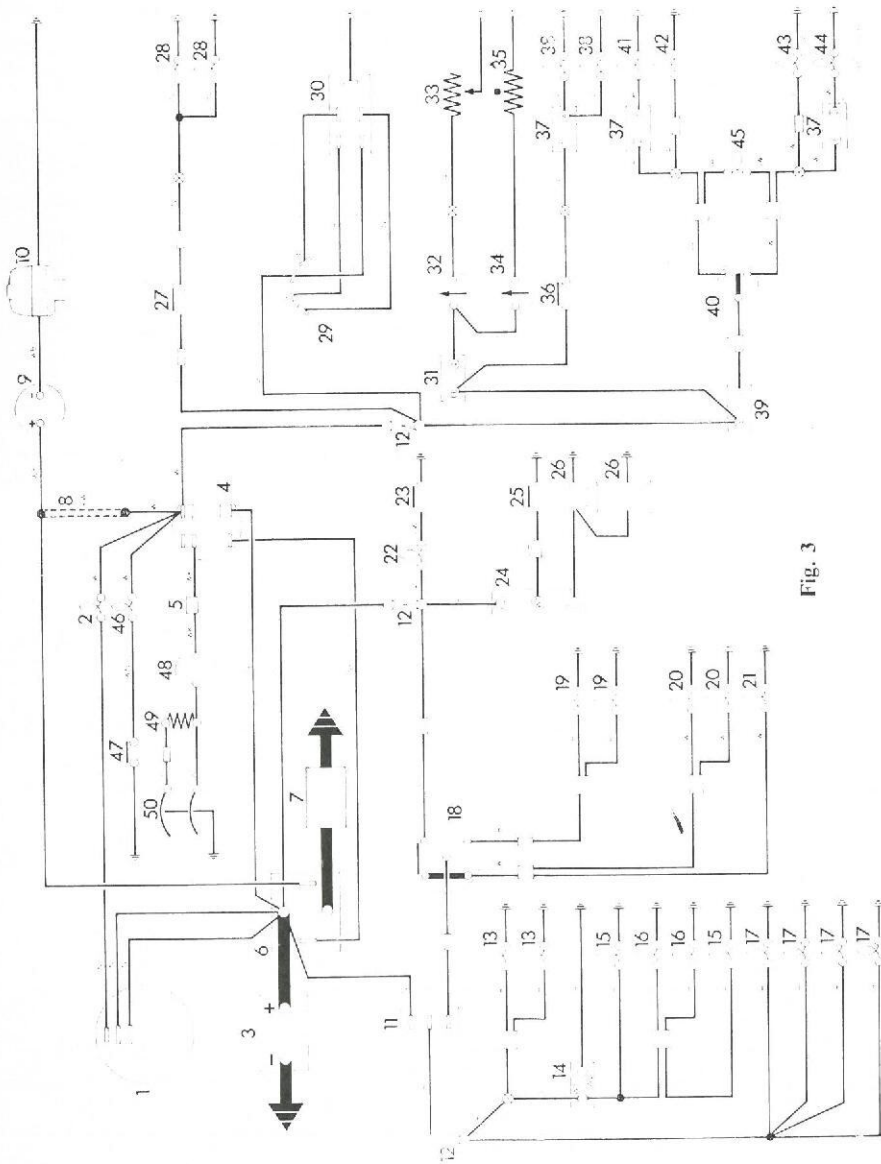


Fig. 3









## CLEANING

### Interior

Clean the carpets with a semi-stiff brush or a vacuum cleaner, preferably before washing the outside of the car. The most satisfactory way to give carpets a thorough cleaning is with UNIPART\* Upholstery Cleaner diluted one part with eight parts of warm water. Apply vigorously with a semi-stiff brush, and remove the surplus with a damp cloth or sponge. Carpets should not be cleaned by 'dry-clean' process. The upholstery and roof lining may be treated with undiluted Unipart Upholstery Cleaner spread thinly over the surface to be cleaned with a 1 in (25 mm) brush or cloth. Leave for five minutes, then wipe off with a moist sponge or cloth. UNIPART\* Upholstery Cleaner can be used for cleaning and renovating all the usual upholstery material and rubber, but it should not be used on painted surfaces.

### Body

Wash the bodywork frequently, using a soft sponge and plenty of water containing UNIPART\* Car Shampoo. Large deposits of mud must be softened with water before using the sponge. Smears should be removed by a second wash in clean water, and with the sponge if necessary. When dry, clean the surface of the car with a damp chamois-leather. In addition to the regular maintenance, special attention is required if the car is driven in extreme conditions such as sea spray or on salted roads. In these conditions and with other forms of severe contamination an additional washing operation is necessary which should include under-body hosing. Any damaged area should be immediately covered with paint and a complete repair effected as soon as possible. Before touching-in light scratches and abrasions with paint thoroughly clean the surface. Use petrol or white spirit (gasoline or hydrocarbon solvent) to remove spots of grease or tar.

The application of UNIPART\* Car Polish is all that is required to remove traffic film and to ensure the retention of the new appearance.

### Bright trim

Never use an abrasive on stainless, chromium, aluminium, or plastic bright parts and on no account clean them with metal polish. Remove spots of grease or tar with petrol or white spirit (gasoline or hydrocarbon solvent) and wash frequently with water containing UNIPART\* Car Shampoo. When the dirt has been removed polish with a clean dry cloth or chamois-leather until bright. Any slight tarnish found on stainless or plated components which have not received regular attention may be removed with UNIPART\* Chrome Cleaner. An occasional application of light mineral oil or grease will help to preserve the finish, particularly during winter, when salt is used on the roads, but these protectives must not be applied to plastic finishes.

### Windscreen

If windscreen smearing has occurred it can be removed with UNIPART\* Screen Cleaner.

\* UNIPART products mentioned above are obtainable from your Distributor, Dealer or other UNIPART Stockist.

## SERVICE

### SERVICE PARTS AND ACCESSORIES

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For more information on **UNIPART** see your British Leyland Distributor or Dealer.

Genuine British Leyland parts and accessories are supplied in cartons and packs bearing either or both of these symbols.



Safety features embodied in the vehicle may be impaired if other than genuine parts are fitted. In certain territories legislation prohibits the fitting of parts not to the vehicle manufacturer's specification. Owners purchasing accessories while travelling abroad should ensure that the accessory and its fitted location on the vehicle conform to mandatory requirements existing in their country of origin.

### SERVICE EXCHANGE SCHEME

(Home Market only)

The Service Exchange Scheme has been designed as a money-saver.

The scheme covers a range of assemblies for cars produced in the last 10 years. Your Distributor or Dealer will supply any exchange assembly offered for your vehicle at a price which allows for the return of the old one to us for rebuilding to 'as new' standard, at one of our specialist factories or by the original supplier.

The use of this technique reduces the cost but not the quality, and each replacement assembly carries the same warranty as a new one.

Ask your Distributor or Dealer for full details and for examples of the money you can save by taking advantage of the Service Exchange Scheme.

**Service Division**

## MAINTENANCE SUMMARY

Description	Page ref.	Intervals in Miles X 1000		
		3	6	12
<b>ENGINE COMPARTMENT</b>				
Check/top up engine oil level .. .. .	34	X		
Check/top up cooling system .. .. .	34	X	X	X
Check/top up brake fluid reservoir .. .. .	35	X	X	X
Check/top up clutch fluid reservoir .. .. .	35	X	X	X
Check/top up windscreen washer fluid reservoir	34	X	X	X
Check/top up battery .. .. .	35	X	X	X
Check/top up carburetter piston damper .. .. .	43		X	X
Drain engine oil and refill .. .. .	36		X	X
Renew oil filter/element .. .. .	36			X
Clean fuel pump filter gauze .. .. .	37			X
Lubricate distributor and check automatic advance	39		X	X
Check/adjust distributor points .. .. .	39		X	X
Check/adjust ignition timing .. .. .	41		X	X
Clean/adjust sparking plugs .. .. .	38		X	
Renew sparking plugs .. .. .	38			X
Check/adjust valve rocker clearances .. .. .	37			X
Renew carburetter air cleaner element .. .. .	42			X
Check/adjust driving belt .. .. .	37	X	X	X
Check/adjust carburetter settings .. .. .	43		X	X
Lubricate accelerator linkage/pedal fulcrum and check operation .. .. .			X	X
Check battery condition; clean and grease connections	57		X	X
Check for oil/fuel/fluid leaks .. .. .		X	X	X
Check leaks from cooling and heater systems ..		X	X	X
<b>UNDERBODY</b>				
Check/top up level of gearbox overdrive oil ..	53		X	X
Check/top up level of final drive unit oil .. .. .	53		X	X
Lubricate steering rack and pinion .. .. .	54		X	X
Lubricate lower steering swivels .. .. .	54		X	X
Lubricate handbrake linkage and cable guides ..	49		X	X
Check transmission, engine, final drive, suspension and steering unit for oil leaks .. .. .		X	X	X
Check visually brake, fuel and clutch pipes, hoses, unions for chafing, leaks and corrosion ..		X	X	X

## MAINTENANCE SUMMARY

Description	Page ref.	Intervals in Miles X 1000		
		3	6	12
<b>UNDERBODY (continued)</b>				
Check exhaust system for leakage and security ..		X	X	X
Check tightness of suspension fixings, tie-rod levers, steering unit attachments and steering universal joint coupling bolts .. .. .				X
Check tightness of propeller shaft coupling bolts				X
Check condition of steering unit/joints for security backlash and gaiter condition .. .. .		X	X	X
<b>EXTERIOR</b>				
Adjust front hubs .. .. .	55			X
Lubricate rear hubs .. .. .	53			X
Check front and rear wheel alignment with tracking equipment .. .. .	54		X	X
Inspect brake pads for wear, and discs for condition	48	X	X	X
Inspect brake linings for wear and drums for condition .. .. .	49			X
Check tightness of road wheel fastenings .. .. .		X	X	X
Check that tyres are in accordance with specification	72	X	X	X
Check visually for cuts in tyre fabric, exposure of ply or cord structure, lumps or bulges and tread depth		X	X	X
Check/adjust tyre pressures, including spare .. .. .	72	X	X	X
Check headlamp alignment .. .. .	58	X	X	X
Check, if necessary replace, windscreen wiper blades		X	X	X
<b>INTERIOR</b>				
Check brake pedal travel and handbrake operation		X	X	X
Check function of all electrical systems and screen- washer .. .. .		X	X	X
Lubricate clutch and brake pedal pivots .. .. .			X	X
Lubricate all locks, door hinges, strikers and bonnet release .. .. .			X	X
Check condition and security of seats and seat belts		X	X	X
Check rear view mirrors for looseness, cracks and crazing .. .. .		X	X	X



# RECOMMENDED LUBRICANTS

## RECOMMENDED LUBRICANTS AND ANTI-FREEZE SOLUTIONS ALL SEASONS — BRITISH ISLES

(The products recommended are not listed in order of preference)

COMPONENT	BP	CASTROL	DUCKHAMS	ESSO	MOBIL	PETROFINA	TEXACO	SHELL
ENGINE CARBURETTOR DASHPOT AND OIL CAN	BP Super Visko-Static 20W-50	Castrol GTX	Duckhams Q20-50	Esso Uniflow	Mobiloil Super 10W/50 or Mobiloil Special 20W/50	Fina Super Grade Motor Oil SAE 20W/50	Havoline Motor Oil 20W-50	Shell Super Multigrade
KING PIN LOWER SWIVELS, GEARBOX AND OVERDRIVE, REAR AXLE.	BP Gear Oil SAE 90 EP	Castrol Hypoy	Duckhams Hypoid 90	Esso Gear Oil GX 90/140	Mobilube HD 90	Fina Pontonic MP XP 90/140	Multigrade Lubricant EP 90	Shell Sprax 90 EP
FRONT AND REAR HUBS, BRAKE CABLES, GREASE GUN	Energrease L2	Castrol LM Grease	Duckhams LB 10	Esso Multi-purpose Grease H	Mobilgrease MP	Fina Marson HIL 2	Marlak All purpose	Shell Retimax A
CLUTCH AND BRAKE RESERVOIRS	CASTROL GHLING, BRAKE AND CLUTCH FLUID CRIMSON OR UNIPART 550 BRAKE FLUID WHERE THESE PROPRIETARY BRANDS ARE NOT AVAILABLE, OTHER FLUIDS WHICH MEET SAE J1703c SPECIFICATION MAY BE USED.							
APPROVED ANTI-FREEZE SOLUTIONS	Smiths Bluecol	Castrol Anti-Freeze	Duckhams Anti-Freeze	Esso Anti-Freeze	Mobil Permazone	Fina Thermidor	Texaco Anti-Freeze PT	Shell Anti-Freeze
WHERE THESE PROPRIETARY SOLUTIONS ARE NOT AVAILABLE, OTHERS WHICH MEET BSI 3151 or 3152 SPECIFICATION MAY BE USED.								

# RECOMMENDED LUBRICANTS

## RECOMMENDED LUBRICANTS AND ANTIFREEZE SOLUTIONS — OVERSEAS

(The products recommended are not listed in order of preference)

COMPONENT	Air temp.		API Designation	BP	CASTROL	DUCK-HAMS	ESSO	MOBIL	PETRO-FINA	SHELL	TEXACO
	°C	°F									
ENGINE	over 30	over 80		*Super Visco-Static	Castrol GTX or Castrol Super 20W/50	Q20-50	Esso Extra Motor Oil 20W/50	Mobilil Super 5W/20	Fina Supergrade Motor Oil 20W/50		Havoline 20W/50
CARB. DASHPOTS	30 to 0	80 to 30	SD or SE		Castrolite or Castrol GTZ	Q10-40	Esso Extra Motor Oil 10W/30	Mobilil Super 10W/50	Fina Supergrade Motor Oil 10W/40	Shell Super Motor Oil	Havoline 10W/30
OIL CAN	0 to -20	30 to -4			Castrol 5W/20	Q5-30	Esso Extra Motor Oil 5W/20	Mobilil 5W/20	Fina Supergrade 5W/30		Havoline 5W/20
GEARBOX AND OVERDRIVE REAR AXLE	over 0	over 30	GL4	Gear Oil SAE 90 EP	Castrol Hypoy	Duckhams Hypoid 90	Esso Gear Oil GX 90	Mobilube HD 90	Fina Pontonic MP SAE 90	Shell Spirax 90 EP	Multigear Lubricant EP 90
LOWER STEERING SWIVELS	below 0	below 30	GL4	Gear Oil SAE 80 EP	Castrol Hypoid 80	Duckhams Hypoid 80	Esso Gear Oil GX 80	Mobilube HD 80	Fina Pontonic MP SAE 80	Shell Spirax 80 EP	Multigear Lubricant EP 80
FRONT AND REAR HUBS BRAKE CABLES GREASE GUN				Energ grease 1-2	Castrol LM Grease	Duckhams LB 10	Esso Multi-purpose Grease H	Mobilgrease MP	Fina Marson HTL 2	Shell Retinax A	Martax All-purpose
*Oils marked thus are available in Multigrade forms with viscosity characteristics appropriate to the ambient temperature range in individual markets.											
CLUTCH AND BRAKE RESERVOIRS	CASTROL GIRLING BRAKE AND CLUTCH FLUID CRIMSON or UNIPART 550 BRAKE FLUID. Where these proprietary brands are not available, other fluids which meet the SAE J1703c specification may be used.										
APPROVED ANTIFREEZE SOLUTIONS	Smiths Bluecol BP Anti-freeze Duckhams Anti-freeze Castrol Anti-freeze Esso Anti-freeze Mobil Permatone Fina Thermidor Shell Anti-freeze Startex Anti-freeze Where these proprietary solutions are not available, others which meet BS1 3151 or 3152 specification may be used.										

## GENERAL SPECIFICATION

### Engine

Number of cylinders .. .. .	4
Bore of cylinders .. .. .	2.9 in (73.7 mm)
Piston area .. .. .	26.5 in <sup>2</sup> (171.0 cm <sup>2</sup> )
Stroke of crankshaft .. .. .	2.99 in (76.0 mm)
Engine capacity .. .. .	79.2 in <sup>3</sup> (1296 cm <sup>3</sup> )
Compression ratio .. .. .	9.0:1
Valve rocker clearances .. .. .	0.010 (0.25 mm)
Valve timing .. .. .	Inlet-opens 18° B.T.D.C. -closes 58° A.B.D.C. Exhaust-opens 58° B.B.D.C. -closes 18° A.T.D.C.
Maximum power (net) .. .. .	61 b.h.p. @ 5500 r.p.m.
Maximum torque (net) .. .. .	818 lbf ft @ 2900 r.p.m.
Maximum b.m.e.p. (net) .. .. .	130 lb/in <sup>2</sup> @ 2900 r.p.m.

### Transmission (Manual)

Clutch .. .. .	6½ in dia. (165 mm). Single plate diaphragm spring type. Hydraulically operated release mechanism.
Gearbox .. .. .	Synchromesh on all forward gears.
	<i>O/D</i> <i>O/D</i>
	<i>Top</i> <i>Top</i> <i>3rd</i> <i>3rd</i> <i>2nd</i> <i>1st</i> <i>Reverse</i>
Gearbox ratio to 1 .. .. .	0.797    1.00                      1.39    2.16    3.50    3.99
*Overdrive ratio .. .. .	0.797
Overall ratios to 1 .. .. .	3.10    3.89    4.31    5.41    8.41    13.65    15.55
Engine r.p.m. @ 10 m.p.h. .. .. .	471    599    656    834    1295    2100    2395
Engine r.p.m. @ 10 km p.h. ... .. .	295    372    410    518    803    1304    1488
Road speed @ 1000 engine r.p.m.	
m.p.h. .. .. .	21.2    16.7
km.p.h. .. .. .	34    27
Rear axle-ratio .. .. .	3.98:1

### Cooling system

Type .. .. .	Pressurized 'No-loss' system incorporating an overflow reservoir.
Circulation .. .. .	By Impellor type pump. Thermostatically controlled flow.
Fan .. .. .	Polypropylene, 7 blades, 11.5 in dia. (292 mm). 'V' belt drive.
Pressure cap .. .. .	13 lb/in <sup>2</sup> (0.91 kg/cm <sup>2</sup> ).

### Fuel system

Pump .. .. .	Mechanically operated diaphragm type.
Carburettors .. .. .	Twin SU-HS2E side draught. Exhaust emissions control.
Needle size .. .. .	
Air cleaner .. .. .	Combined air cleaners and silencers. Replaceable paper element.

## GENERAL SPECIFICATION

### Manifolds

Inlet .. .. .	Water heated aluminium alloy casting.
Exhaust .. .. .	Cast iron.

### Lubrication system

Oil pump .. .. .	Wet sump. Sealed oil filler cap on rocker cover.
Pump pressure @ 2000 r.p.m. .. .. .	High capacity rotor pump pressure feeding crankshaft and camshaft bearings.
Oil filter .. .. .	40-60 lb/in <sup>2</sup> (2.8-4.2 kg/cm <sup>2</sup> ).
	'Full-flow' disposable cartridge type.

### Crankcase ventilation

Oil filler .. .. .	Closed circuit breathing from rocker cover to constant depression chamber of carburettors.
	Scaled cap on rocker cover.

### Ignition system

Coil .. .. .	Lucas, type 15C6, 6 volt with ballast resistor in harness.
Distributor	A.C.-Delco with centrifugal and vacuum advance control.
Contact gap .. .. .	0.015 in (0.4 mm)
Rotation .. .. .	Anti-clockwise (viewed from top of rotor arm)
Firing order .. .. .	1:3:4:2. Cylinders numbered from front of engine, i.e. timing chain end.
Timing .. .. .	8° B.T.D.C. (static)
Sparking plugs-type .. .. .	Champion N-9Y
-gap .. .. .	0.025 in (0.64 mm)

### Electrical system

Voltage .. .. .	12
Polarity .. .. .	Negative earth.
Fuse box-fuses .. .. .	35 amp.
Battery .. .. .	12 volt, 40 amp. hr @ 20 hr rate.
Alternator .. .. .	Lucas type 16 ACR: fflominal output 34 amps.
	'V' belt drive.
Starter motor .. .. .	Lucas M35, inertia type.

### Brakes

Front .. .. .	Caliper disc 9 in dia (229 mm)
Rear .. .. .	Drum type with 7 in × 1.25 in (178 mm × 32 mm) leading and trailing shoe.
Operation .. .. .	Hydraulic (foot brake)
Handbrake .. .. .	Mechanically operated rear brakes.



## GENERAL SPECIFICATION

### Chassis data

Wheelbase .. .. .	83 in (2110 mm)
Track (2 up condition)	
-front .. .. .	49 in (1245 mm) (wire wheels 49.5 in (1251 mm)
-rear .. .. .	50 in (1270 mm) (wire wheels 50.25 in (1276 mm)).
Toe-in (kerb)	
-front .. .. .	$\frac{1}{16}$ to $\frac{1}{8}$ in (1.6 mm to 3.2 mm)
-rear .. .. .	$\frac{1}{32}$ to $\frac{3}{32}$ in (0.8 mm to 2.4 mm)
Ground clearance (2 up condition)	5 in (127 mm).
Turning circle (between kerbs) ..	24 ft (7.3 metres)

### Overall dimensions

Length .. .. .	149 in (3875 mm)
Width .. .. .	58.5 in (1488 mm)
Height-unladen	
Soft top fully erected .. .. .	47.5 in (1205 mm)
Soft top lowered .. .. .	44.25 in (1125 mm)

### Weights (approximately)

Dry (excluding optional equipment) ..	1636 lb (743 kgs).
Basic kerb (including fuel, water and tools) .. .. .	1710 lb (778 kgs).
Kerb (including options) .. .. .	1814 lb (825 kgs).
Gross vehicle weight-max .. .. .	2240 lb (1017 kgs).

### Capacities

	<i>Imperial</i>	<i>Metric</i>
Fuel tank .. .. .	7.25 gallons	33.0 litres
Engine sump and oil filter .. .. .	8.0 pints	4.5 "
Engine sump-drain and refill .. .. .	7.0 "	4.0 "
Gearbox .. .. .	1.5 "	0.85 "
Gearbox and overdrive .. .. .	2.7 "	1.5 "
Rear axle .. .. .	1.0 "	0.57 "
Cooling system with heater .. .. .	8.0 "	4.5 "

### Wheels and tyres

Wheels .. .. .	Steel disc type 4½J rims.
Tyres	
-Home market .. .. .	Dunlop SP68 155-SR-13 radial ply tubeless. Goodyear G800 155-SR-13 radial ply tubeless.
-Other markets .. .. .	Dunlop D75 5.20S-13 cross ply tubeless.

Inflation pressures (all conditions) ..	<i>Front</i>	<i>Rear</i>
	21 lb/in <sup>2</sup>	26 lb/in <sup>2</sup>
	1.4 kg/cm <sup>2</sup>	1.8 kg/cm <sup>2</sup>



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Service Division

