In all communications relating to Service or Spares, please quote the Commission Number (Chassis Number), paint and trim numbers. These are stamped on a plate attached to the left-hand door rear closing face. The Commission Number is also stamped on a plate attached to the left-hand windscreen pillar and is visible through the screen.

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.

The Manufacturers reserve the right to vary their specifications with or without notice, and at such times and in such manner as they think fit. Major as well as minor changes may be involved in accordance with the Manufacturers' policy of constant product improvement.

Whilst every effort is made to ensure the accuracy of particulars contained in this Handbook, neither the Manufacturer nor the Dealer, by whom this Handbook is supplied, shall in any circumstances be held liable for any inaccuracy or the consequences thereof.

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IMPORTANCE
CATALYTIC CONVERTER SPECIFICATION VEHICLES ONLY

The TR7 (Catalytic Converter Specification) is designed to operate on UNLEADED fuels of 91 octane.

It is essential that only unleaded fuels are used in this vehicle otherwise serious damage can be caused to the Catalytic Converter.

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 which 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 a 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.

Any completing 1000 miles (1600 km) the vehicle should be returned to the supplying Dealer who will carry out the first important service and make whatever adjustments are required, free of charge except for cost of lubricants.

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

The 'Passport to Service' which includes the 'Owners Service Statement' has provision for the Dealer to certify that the work has been performed in accordance with Rover-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.

Rover-Triumph 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.
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CONTROLS, INSTRUMENTS AND INDICATORS

Ignition/Starter Switch and Steering Lock

0. All electrical circuits switched off; mechanical lock preset 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 'II'.

Unlock sequence (clockwise) Insert the key and turn it to position I. 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.

NOTE: This operation should be performed only after the following requirements have been carried out in the correct sequence: 1. OCCUPANTS SEATED; 2. DOORS CLOSED; 3. SEAT BELTS FASTENED; 4. GEAR LEVER NEUTRAL. Refer to 'Running Instructions'.

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

Locking sequence (anti-clockwise) Push the key fully towards the lock and turn it to position 'I'. 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 'O', 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.

Speedometer
The speedometer indicates the road speed of the vehicle in miles and kilometres per hour. It also combines the following indicators:
(a) 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 set to zero by turning clockwise the knob that extends downwards from behind the instrument.
(b) 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.

Tachometer
The tachometer indicates the engine speed in revolutions per minute and is calibrated in increments of 500, extending to 7,000 r.p.m.

Recommendations concerning the speed range are given under 'Running Instructions'.

Clock
The hands of the electrically operated clock can be reset by turning the knob located below the instrument extending from the lower facia rail.

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

When the ignition is switched off, the needle should return to zero.

Water Temperature Indicator
The gauge 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.

When the ignition is switched off, the needle should return to zero.
Warning Lights

(c) Main beam — The 'Beam' indicator glows blue when main beams are selected and is extinguished during dipped beam operation.

(d) and (e) Direction indicator monitors — The arrowed indicator (d) glows green intermittently when the steering column switch is moved to signal a left-hand turn. The indicator (e) glows similarly when the switch is moved to signal a right-hand turn.

(f) Demist — The 'Demist' indicator glows when the backlight heater element is switched on.

(g) Ignition — The 'Ignition' indicator glows red when the ignition is switched on and is extinguished when the engine is running.

(h) Oil pressure — The 'Oil' indicator glows red when the ignition is switched on and is extinguished when the engine is running.

(i) Brakes — When the ignition is switched on and the handbrake is applied the 'Brake' indicator will glow. Should failure of the front or rear brake lines occur, the 'brake' indicator will glow.

(k) Belts — The 'Seat Belt warning light' will glow when the ignition is switched on and a vehicle occupant has not fastened a seat belt. This will be accompanied by an audible alarm. Refer to 'Rear, Instructions'.

(l) Choke — The 'Choke' indicator glows red when the 'cold start' control is pulled and is extinguished when the control is pushed fully home.

(m) Fuel — The 'Fuel' indicator glows red when the quantity of fuel in the tanks falls below 6.8 litres (1.5 gallons). Fuel surge may cause the indicator to glow intermittently before the fuel is reduced to this amount.

(n) E.G.R. service — The E.G.R. indicator will glow at a predetermined mileage (12,500 miles) indicating that E.G.R. maintenance is required. The warning light is operative only with the ignition switched on. Refer to 'Emission and Evaporative Control Systems'.

(o) Catalyst service — (Catalytic Converter Equipped vehicles only). At the completion of 25,000 miles the warning light will glow, indicating that the exhaust catalytic converter requires replacement. Refer to 'Emission and Evaporative Control Systems'.

NOTE: Both E.G.R. and Catalyst warning lights should illuminate when the starter motor is operated. Failure to do so indicates bulb failure.

Combination Switch

The steering-column combination switch serves the following purposes:

Horns (A) — To operate the horns, press the end of the control.

Direction indicators (L and R) — To indicate a left-hand turn, move the lever anti-clockwise. Move it clockwise for right-hand turns. This control is effective only when the ignition is switched on.

Head lamp main beam (B) — To operate the main beams, push the lever fully forward away from the steering wheel. Pull the lever to its neutral (central) position for dipped beams. This control is effective only when the 'Master Lighting Switch' is moved to the headlamp position.

Windscreen Wiper and Washer Control

The control is effective only when the ignition is switched on.

For continuous operation of the two-speed wiper, move the control downwards to position '1' for slow-speed operation, or fully downwards to position '2' for high-speed operation. For brief use of the wiper, pull the control towards the steering wheel against spring pressure. Wiping will cease when the control is released.

To operate the windscreen washer, press the knob on the end of the control.
Master Lighting Switch

To operate the three position lighting switch:
- Move the switch bar to the upper position to extinguish all external and facia lamps.
- Move the switch bar to the mid position to illuminate front and rear parking and marker lamps and the facia lamps.
- Move the switch bar to the lower position to raise and illuminate the headlamps and illuminate the parking, marker and facia lamps.

NOTE: If the headlamp lift mechanism fails to raise the headlamps, refer to 'Electrical System' — Headlamps.

Back Light Heater Switch

Depress the switch to operate the back-light defroster heater which will operate only when the ignition is switched on. A lamp incorporated in the instrument panel will illuminate while the heater is operating. Do not leave switched on for longer than is necessary because of heavy current consumption. To switch off, depress the switch again.

Hazard Warning Switch

If the vehicle is immobilized and constitutes a hazard to other road users, warning may be given by using the 'hazard warning system'. To operate move the switch bar to the lower position.

Instrument Illumination Rheostat

From the 'off' position (fully anti-clockwise), turn the switch knob clockwise to illuminate the instruments at high intensity, and further clockwise to diminish the intensity.

See 'Master Lighting Switch'.

Gear Selector Lever

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

Handbrake Lever

To apply the rear wheel brakes, pull the handbrake lever upwards; it is retained by a ratchet and pawl. Release the hand brake by pulling it slightly upwards as the button is depressed to free the pawl; then allow the lever to move downwards to the off position.

See 'Warning light cluster'.

Pedals

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.
BODY FITTINGS

Keys
Two keys and a duplicate set are provided, the larger key is used for operating the ignition/steering column lock and door lock; the small key operates the glovebox and luggage compartment locks.

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
Key locking — With button ‘A’ raised, close the door, insert the key into the lock and turn it a quarter turn towards the front of the vehicle. Return the key to the vertical position to withdraw it.

To unlock — Insert the key, turn it a quarter turn rearwards and return it to the vertical position to withdraw it.

Keyless locking — Either door may be locked from the inside by pressing the button ‘A’ downwards. This position is cancelled when the door is unlocked from the outside or when button ‘A’ is lifted and the lever ‘B’ is pulled from the inside.

To lock either door from the outside (as an alternative to using the key), hold the external release lever in the open position and depress button ‘A’ before closing the door.

Do not leave the keys in the car.

IMPORTANT: Do not force down button ‘A’ when the door is open.

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

Ashtrays
Swivel the top of the tray outwards for use and press closed when not required. To remove an ashtray, open, depress the spring clip to release the top edge and pull the bottom edge clear of the surround.

Bonnet: Release Control
To open the bonnet, pull the control knob located below the fascia at the left-hand side of the car. This disengages the locking plate and allows the bonnet to spring open sufficiently to insert fingers and release the safety catch. When fully opened the bonnet is held by a support stay.

To close, disengage the stay and lower the bonnet firmly pressing its catch into positive engagement with the locking plate.

Driving 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 to its original position.

The driving mirror is adjustable for direction and may be temporarily ‘dipped’ to prevent reflected glare from the headlamps of following vehicles by pushing the ‘tab’ that extends below the mirror. Reverse the procedure to regain normal adjustment.

Door Mirror
The driver's door mirror should be adjusted to provide an area of vision slightly overlapping that of the interior rear view mirror.
BODY FITTINGS

Cigar lighter
The cigar-lighter is operated by pushing its knob inwards to heat the element. When a predetermined temperature is reached, the element is ejected from the 'heat' position from whence it may be withdrawn for use. A small pilot lamp is incorporated within the element carrier to facilitate replacement of the element during darkness.

Sun visors
Two adjustable sun visors (that on the passenger's side having a vanity mirror) are padded to reduce the risk of impact injury. Either visor can be swung downwards or can be unclipped from the driving mirror bracket and swung sideways to eliminate sun glare.

The drivers sun visor incorporates a ticket pocket.

Glovebox locker
To open, turn the knob and lower the hinged lid. The lid is retained in the closed position by a spring catch.

To lock, insert the key and turn it clockwise.

Radio Facility
A manually operated radio aerial is fitted in the rear wing panel and is raised by lifting the protruding lip. Ensure that the aerial is lowered before entering an automatic car wash.

Loudspeaker units are fitted in the door panels.

Heated back-light
The heated back-light window has the heating element on the inside surface of the glass and with reasonable care will last indefinitely. The following practices will damage the element and must be avoided:
1. Scratching off labels and advertising stickers.
2. Wiping the glass with the back of a ringed hand.
3. Stowing hard and metal objects so that they abrade the glass.
4. Cleaning with harsh abrasives.

Courtesy Lamp
The roof lamp is operated by a switch on each door pillar. The lamp can be illuminated when the doors are closed by operating a switch located at the edge of the lens.

Opening Roof (Optional)
To open the roof panel, pull the handle downwards, turn a half turn anti-clockwise and pull the panel rearwards. To close, reverse the procedure.
BODY FITTINGS

Luggage Compartment

To open, turn the unlocked handle clockwise, raise the lid to its limit and lower the lid onto its telescopic support.

Interior Stowage Space

In addition to the glovebox, further stowage space is provided for small packages, maps, etc. in the centre console armrest, in rear quarter panel pockets and on the rear shelf behind the seats. It is dangerous practice to place heavy or sharp objects on the rear shelf as these can become lethal projectiles in the event of an impact.

Fuel Filler Cap

To open, turn the cap a quarter turn anti-clockwise and lift off.

SEATS AND SAFETY HARNESS

Seat Adjustment

Either front seat can be adjusted for leg reach while the occupant is seated by lifting a bar against spring pressure to release the seat runner. The seat can then be moved to the desired position before allowing the bar to engage in its nearest locking notch. Some additional seat movement may be necessary to achieve this.

The angle of the seat back rest can be altered to provide a reclining position. To achieve this, raise and hold the lever and, using controlled body pressure, move the backrest to the desired position. Release the lever to lock the backrest at the chosen angle. The seat back, if unrestrained, will return to the upright position when the locking lever is raised.

Head Restraints

The head restraints should be adjusted to support the back of the head and not the neck. This can be achieved by lifting or lowering the device as required.
Description of Inertia Reel Type Harness

One end of the harness (A) is attached to a self-retracting inertia reel mounted behind the passenger compartment. The harness passes through a ‘running eye’ (B) and the buckle (C) before passing to a fixed point (D) on the seat frame.

The harness is prevented from unreeling when retardation of the vehicle causes the displacement of a heavy steel ball. This tilts a pivoting plate which applies a positive lock to the reel mechanism.

Using the Harness

While seated remove the buckle (C) from the stowage unit (E), pull the strap (A) away from the ‘running eye’ (B) until a loop is formed and pass the arm nearer the door through the loop. Continue pulling the harness over the hips until the buckle (C) can be inserted into the buckle unit (F) mounted on the transmission tunnel. A positive ‘click’ ensures that the harness is safely locked.

To release the harness, depress the release button (G), when the harness tongue will automatically disengage from the buckle unit and retract towards the door pillar.

To obtain the maximum designed protection from the safety harness it is essential that it is properly fitted over the body. The lap strap (H) should be placed so it rests securely over the boney part of the hips. The shoulder strap (A) should pass over the shoulder and diagonally downwards across the body. No adjustment is required as the automatic retraction of the reel retains the harness at the correct tension.

In its normal fitted position the reel will allow the harness to extend and retract to permit normal body movement without locking but will lock automatically in the event of emergency braking.

Harness Stowage

The harness is self-retracting but to provide an easily accessible position of the locking buckle (C) always replace it in the stowage unit (E).

Cleaning

An occasional wipe with a warm soapy sponge will keep the harness clean. Do not use bleach or dyes otherwise the efficiency of the harness may be affected.
SEATS AND SAFETY HARNES

Inertia Reel Mechanism Check

Every 10,000 km (6,000 miles), carry out the following road check to ensure that the safety harness inertia reel mechanisms for both driver and passenger continue to operate satisfactorily.

IMPORTANT. Road test must only be carried out under maximum safe road conditions, i.e. level, dry road with no following or oncoming traffic of any kind.

(a) With the safety harness fitted to driver and passenger as previously described, start the engine and accelerate the vehicle to approximately 24 km/h (15 m.p.h.); ensuring that it is safe to do so, brake sharply.
(b) The safety harness should automatically lock, holding both driver and passenger securely in position.

It is important when braking that the reaction of both driver and passenger is normal, i.e. the body must not be thrown forward in anticipation, thus causing a 'snatching' action of the reel which will not operate the locking mechanism. The harness is locked by retardation of the car, not by body movement.

AIR CONDITIONING (Optional)

The system is controlled by four levers mounted in the central console.

Vent — Lever ‘A’ controls the volume of dehumidified unheated air flowing through the fascia central air vents. The vent control flap may be closed or opened by moving the lever to its upper or lower position respectively.

Temperature — Lever ‘B’ controls the temperature of dehumidified air flowing through the footwell or windscreen vents.

Air — Lever ‘C’ controls the respective volumes of fresh or recirculated air flowing through the unit.

With the lever in its topmost position airflow through the unit is negligible.

Moving the lever to the first detent (Max) provides maximum boosted flow of recirculated air. As the lever is moved downwards recirculated air is supplemented by increasing amounts of fresh air.

Positions 3, 2 and 1 operate a three speed blower fan providing fresh air only.

The air control also operates the condenser fan motors which will run independently of the ignition circuits and may continue to run after switching off the ignition until the condenser has cooled.

Distribution — Lever ‘D’ controls the distribution of air between the windscreen and footwells.

Air Conditioning Cut Out Switch — This is a fuel saving device which provides manual override of the air conditioning refrigeration system.

![Air Conditioning Controls](image-url)
HEATING AND VENTILATION SYSTEM

The system is controlled by four levers mounted in the central console.

**Vent** — Lever ‘A’ controls the volume of unheated air flowing through the fascia central air vents.

The vent control flap may be closed or opened by moving the lever to the upper or lower position respectively.

**Temperature** — Lever ‘B’ controls the temperature of air flowing through the footwell or windscreen vents.

**Air** — Lever ‘C’ controls the volume of fresh air flowing into the vehicle. Moving the lever to its upper position closes a flap valve and prevents air flow. Moving the lever downwards increases the air flow which can be boosted at low road speeds by further movement of the lever to positions 1, 2 and 3 which operates a blower fan at low or high speeds.

**Distribution** — Lever ‘D’ controls the distribution of heated air between the windscreen and footwells.

Fascia side vents
A swivelling air vent located at either end of the fascia is provided with a valve that can be opened or closed by turning the control knob below the vent.

This admits unheated air which can be directed as required by adjusting the vanes.

Fascia central air vents
By suitable adjustment of the vent control lever, unheated air can be directed through the central air vents to the car interior. The flow may be directed as required by adjusting the vanes.

Air extraction
Whilst the vehicle is in motion, stale air from the interior flows via slots located at the base of the rear window into the luggage compartment, from where it is extracted by a low pressure air stream through the grills in the roof quarter panels.

Footwell ventilation
Cold air may be admitted to the footwells by pushing open a flap valve located in the outboard side panel of each footwell.
RUNNING INSTRUCTIONS

Seat Belt Warning System

Your 1976 Triumph is fitted with a seat belt warning system which will, when used correctly, be of major benefit and minimum inconvenience to the driver and may save lives.

The basis of the system is to warn you both audibly and visually to wear your seat belt whilst driving the car.

A seat belt warning light located on the facia, and an electric buzzer will operate for a maximum period of eight seconds after the ignition is switched on and the driver's seat belt is not coupled.

Immediately the belt is coupled the buzzer will cease to operate but the warning light will remain illuminated for the complete eight seconds.

Audible Alarm System

The Audible Alarm System functions when the ignition key is positioned in the switch and the driver's door is open. The "warning" denoted by a continuous buzzing sound will terminate when the driver's door is closed or the ignition key is completely removed.

Use of the Choke Control — Not Catalytic Converter Specification

Under cold ambient temperatures — Pull the choke control out fully to start the engine. As soon as the engine starts push the choke control in until the engine maintains an idling speed of approximately 1100 r.p.m. The choke control should be pushed in as soon as the engine will maintain normal running with its use.

Under warm ambient temperatures — Use full choke to start the engine, but immediately after the engine fires return the choke control to the fast idle position where a definite notch will be felt on the cable pull. After approximately one minute driving return the control knob to the fully in position.

Starting a hot engine — When re-starting a hot engine, depress the throttle pedal to about one-third of its travel before operating the starter switch. The choke control should not be used.

Starting Procedure — Catalytic Converter Specification only

Depress the throttle pedal fully and release. Crank the engine until it starts: DO NOT touch the throttle during this operation.

As soon as the engine is running, blip the throttle in order to set the auto-choke in its correct running position.

Preparing to Drive

When seated in the car with the seat belts fastened it is good practice to switch on the ignition and check the gauges and warning lights before driving off.

To Disengage Steering Lock and Start Engine

Insert the key and turn in clockwise direction. If difficulty is experienced in turning the key, this can be rectified by simultaneous movement of the steering wheel.

Turn the key clockwise to symbol II (Ignition) the ignition will be switched on.

To start the engine, the key should be turned a little more against spring pressure to symbol III ("Start"), as soon as the engine fires release the key which will return automatically under spring pressure to the ignition position (symbol II).

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.

To Stop Engine and Engage Steering Lock

Turn the key in an anti-clockwise direction from the "ignition" position (symbol II) to the "lock" position (symbol 0). This action stops the engine.

Removal of the key in this position automatically actuates the steering lock mechanism. (See Audible Alarm System). Slight movement of the steering wheel may be necessary to ensure the lock bolt is fully engaged.

WARNING: If, for any reason, the (ignition) engine is switched off while the car is in motion DO NOT ATTEMPT TO TURN THE KEY INTO THE "LOCK" POSITION 0, as this constitutes part of the locking sequence.

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 of load. Full power should not be used until at least 1,600 km (1,000 miles) 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.
RUNNING INSTRUCTIONS

Maximum Engine Speeds
After running-in has been completed, drivers are advised to restrict engine speeds as follows:

Maximum recommended engine speed (continuous) 6000 rev/min.
Maximum recommended engine speed (intermittent) 6500 rev/min.

Towing (Manual transmission)
For recovery, the car should be towed with the key in the ignition/steering lock at position 'I'. For tow-starting the key should be at position 'H'.

Two towing brackets are fitted beneath the front bumper. It is recommended that when towing, ropes should be attached to either, but not both brackets.

Roof Rack
Bulky rather than heavy loads no greater than 50 kg (110 lb.) may be carried on a roof rack. Any load on the roof may affect the handling of the car, especially in a cross wind or when cornering.

AUTOMATIC TRANSMISSION

Introduction
The transmission consists of two main parts — a fluid driven torque converter capable of varying torque-multiplication, and a hydraulically controlled epicyclic gearbox, featuring planetary gears which provide reverse and three forward ratios.

Selector lever positions
A selector lever, is mounted on the transmission tunnel. The upper face of the quadrant is marked with the symbols 'P', 'R', 'N', 'D', '2', '1', which indicate the following functions:

- 'P' for park.
- 'R' for reverse.
- 'N' for neutral.
- 'D' for automatic forward drive.
- '2' for first and second gear only.
- '1' for first gear hold.

A safety lock prevents inadvertent selection of 'R', 'P', 'N' or '1', by hauling movement of the selector lever into these positions until a button on top of the lever is depressed. The button must also be depressed to allow disengagement of 'P'.

Free movement of the lever is permitted to allow unhindered selection between 'D' and '2' during normal driving and also of 'N' from 'R'.

![Automatic transmission gear lever](image-url)
AUTOMATIC TRANSMISSION

Starting the engine
The starter switch will operate only when the selector lever is placed either in 'Park' or 'N'. This safety feature prevents possible damage resulting from vehicle movement when starting the engine in a confined space.

For normal starting, first APPLY THE HAND BRAKE and move the selector lever to 'N', then start the engine as described under 'Running Instructions'. Should the vehicle be on a steep incline, start the engine without moving the lever from 'Park' position (see 'Park').

Release the hand brake and use the accelerator pedal to accelerate the car from rest. The transmission will start in first gear, automatically selecting second and third at varying speeds in accordance with load and throttle opening. Smaller throttle openings will result in gear shifts at lower speeds than will occur with a fully open throttle.

Normal driving
When the engine is started without the use of the choke, release the accelerator pedal and allow the engine to revert to idling. Move the selector lever to 'D', where it may be left for all normal driving.

NOTE: Under fast-idle conditions when using the choke control for cold starting, movement of the selector lever from 'N' or 'Park' will produce a cushioned thump; this is not detrimental to the car or transmission.

Manual control
Manual selection of first, second and third gears can be made by engaging '1', '2' and 'D' in sequence.

'1'
Engagement of '1' from rest holds the transmission in first and prevents automatic up-shift to second.

If '1' is selected during second gear operation, the transmission will remain in second gear until the road speed drops below the 2 - 1 shift speed given in the 'General Specification'; first gear will then be engaged and held.

'2'
Engagement of '2' renders third gear inoperative and permits automatic shifts between first and second gears only.

If position '2' is selected during third gear operation an immediate down-shift to second gear will result; third gear will remain inoperative until 'D' is re-selected. Refer to 'shift speeds' under 'General Specification'.

'D'
See 'Normal Driving'.

'Park'
Selection of 'Park' operates a mechanical device which locks the transmission, preventing the car from moving forward or backward. This position must be selected ONLY when the vehicle is at rest.

When parking on an incline, APPLY THE HAND BRAKE AS AN ADDITIONAL PRECAUTION. When about to move off, move the selector to the appropriate driving position before releasing the hand brake.

Maximum acceleration
Maximum acceleration is achieved by pushing the accelerator pedal to the full throttle position, i.e. about seven eighths of available pedal movement. Further downward movement, overcoming built-in resistance, will bring the pedal to the kick-down position.

Automatic down-shifts
Down-shifts will occur in relation to throttle position and load, or when the accelerator is depressed to the kick-down position. To protect the engine, down-change speeds are pre-set.

Halt/manoeuvring/creep
To halt the vehicle in traffic, release the accelerator pedal and apply the foot brake. It will be noted that there is a slight 'creep' when the engine is idling and the selector lever is at '1', '2' or 'D'. This feature can be used to advantage in traffic, or to 'hill-hold' on a slight incline, when the vehicle will be prevented from rolling backward. Use can be made of the tendency to creep when manoeuvring the car in a confined space and using the left foot for braking or when moving away on icy roads.

NOTE: To avoid overheating when '1', '2', 'D' or 'R' is selected and the vehicle is stationary, do not run the engine above idling speed, except when using the choke. Select 'Park' or 'N' for prolonged periods of idling.

Emergency braking procedure
FIRST GEAR MUST BE ENGAGED AND RETAINED before descending long steep gradients, such as those encountered in Alpine regions. To achieve this, adopt either of the following procedures:

1. Stop the vehicle, move and retain the selector in position '1'.
2. Move and retain the selector in position '1' and reduce the road speed below the 2 - 1 shift speed given in the 'General Specification'.

Towing
When ascending long gradients steeper than 1 in 15 whilst towing a caravan, etc., engage position '1'.

See 'Normal Driving'.
AUTOMATIC TRANSMISSION

Emergency starting
An emergency start cannot be made by towing or pushing.

Vehicle recovery
For local recovery, the vehicle can be towed a maximum distance of 32 km (20 miles) at a speed NOT EXCEEDING 48 km/h (30 m.p.h.) provided that the transmission is undamaged, the oil level is correct and the selector lever is at 'N'.

If the transmission unit is damaged, or if the towing distance will exceed 32 km (20 miles) the propeller shaft must first be completely removed. Alternatively, the car can be towed while the rear wheels are lifted.

Maintenance
Refer to 'Maintenance and Adjustments'.

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.

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 a week. This should be done with the tyres cold. Tyre temperatures and pressures increase when running. Bleeding a warm tyre, the recommended pressure will result in under-inflation which may be dangerous. A slight natural pressure loss occurs with time. If this exceeds 0.14 kg/cm² (2 lb/in²) per week, the cause should be investigated and rectified.

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

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 General Specifications).
WHEELS AND TYRES

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 using a suitable cleaner. 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.

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 and tools

The spare wheel and tools are housed below the luggage compartment floorboards. Inflate the tyre to the highest pressure specified in the ‘General Specification’ section and adjust to the correct pressure when required.

Lifting jack

Two jacking points are provided at each side of the car under the sills, one forward of the rear wheel and the other rearward of the front wheel. The jacking points are conical pins which accommodate the top plate of the lifting jack.

Position the head of the jack under the relevant point, ensuring that it locates correctly over the pin. Engage the hooked end of the handle with the eye of the screwed rod and wind the handle to take the weight of the car.

WARNING. It is unsafe to work under the car using only the jack to support it. Always use stands or other suitable supports under the rear axle or front chassis members to provide adequate support and safety.

Neglect of the jack may lead to difficulty in a roadside emergency. Examine the jack occasionally, clean and grease the thread to prevent the formation of rust.
WHEELS AND TYRES

Road wheel and securing nuts

Should it be necessary to lift the vehicle when on an inclined road surface, exercise the greatest care. Firmly apply the handbrake and chock one of the wheels not being lifted.

Remove the spare wheel from the luggage compartment and make sure that its pressure is correct.

Place the jack in position, slacken the wheel nuts and lift the wheel clear of the ground.

Completely remove the wheel nuts, remove the hub trim, exchange the road wheels and replace the hub trim and wheel nuts.

Lower the jack and securely tighten the wheel nuts.

COOLING SYSTEM

Expansion Tank

The pressurized ‘No loss’ system incorporates an expansion tank (1) which collects excess coolant spilled from the radiator as the coolant expands when heated. Displaced coolant returns to the radiator as the system cools. Maintain the level of coolant in the expansion tank at half-full when cold.

Pressure Cap

A pressure cap on the expansion tank permits a build-up of pressure 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 pressure cap (1) or the filler plug (2) from a hot engine as the coolant will immediately boil when pressure is released.

DANGER. 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.
Draining

When the engine is cold, remove the pressure cap (1), the filler plug (2) and the cylinder block drain plug (4).

Slacken the bottom hose clip (3) and disconnect the hose from the radiator.

Filling

Reft the bottom hose (3) ensuring that all hoses are in good condition and the hose connections are tight.

Refit the cylinder block drain plug (4).

Fill the system through the filler orifice (2) and refit the sealing plug. Half fill the expansion tank and refit the pressure cap (1).

Warm the engine by running at approximately 1,200 r.p.m. for three minutes, stop the engine, remove the filler plug (2), completely fill the system with coolant and refit the plug.

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 before the onset of the second winter and topped up with new anti-freeze as required.

After the second winter the system should be drained and thoroughly flushed. 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.

<table>
<thead>
<tr>
<th>ANTI-FREEZE CONCENTRATION</th>
<th>25%</th>
<th>30%</th>
<th>35%</th>
<th>50%</th>
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<tbody>
<tr>
<td>SPECIFIC GRAVITY OF COOLANT AT 15-50°C (60°F)</td>
<td>1.039</td>
<td>1.048</td>
<td>1.054</td>
<td>1.076</td>
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<tr>
<td>ANTI-FREEZE QUANTITY</td>
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<table>
<thead>
<tr>
<th>DEGREE OF PROTECTION</th>
<th>Complete</th>
<th>Safe Limit</th>
<th>Lower Protection</th>
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<tbody>
<tr>
<td></td>
<td>cooled</td>
<td>in a mushy</td>
<td>prevents frost</td>
</tr>
<tr>
<td></td>
<td>-12°C</td>
<td>-16°C</td>
<td>damage of</td>
</tr>
<tr>
<td></td>
<td>10°F</td>
<td>3°F</td>
<td>cylinder head,</td>
</tr>
<tr>
<td></td>
<td>-18°C</td>
<td>-22°C</td>
<td>block and</td>
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<td></td>
<td>0°F</td>
<td>-8°F</td>
<td>radiator. Thaw</td>
</tr>
<tr>
<td></td>
<td>-26°C</td>
<td>-32°C</td>
<td>out before</td>
</tr>
<tr>
<td></td>
<td>-14°F</td>
<td>-25°F</td>
<td>starting the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>engine.</td>
</tr>
</tbody>
</table>
ELECTRICAL SYSTEM

Alternator

To prevent damage to the alternator, do not run the engine while the battery or any of the charging circuit cables are disconnected. Ensure that all electrical connections in the charging circuit are maintained tight at all times. Should it be necessary to run the engine while the charging circuit is incomplete, disconnect the electrical cables from the alternator.

IMPORTANT. The alternator has polarity-sensitive components that may be irreparably damaged if subjected to incorrect polarity. Ensure that the battery earth lead is always connected to the battery negative terminal.

Battery

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

Check the electrolyte level monthly and, if required, replenish with distilled water as detailed in 'Periodic Checks'. If electrolyte has been spilled, clean the affected area with a cloth moistened with ammonia to neutralize 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 the terminals to the terminal posts. Such action may damage the 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.

Fuses

A fusebox is mounted on a relay plate and is accessible after removal of the cover panel at the front end of the glovebox. The unit contains four operational fuses and has provision for two spares in the pull-off cover.

Failure of a particular fuse is indicated when all circuits protected by it become inoperative. Before renewing a blown fuse inspect the wiring of the units that have failed for evidence of a short circuit or other fault. If a new fuse blows immediately and the cause of the trouble cannot be found, have the circuit checked by your Dealer.

Circuits

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

- Air conditioning system
- Cigar lighter
- Clock
- Interlock system
- Horn
- courtesy lamp
- Hazard warning system

Two fuses, each fed by a white cable from the ignition/starter switch protect the following circuits:

- Air conditioning control system
- Reverse lamp
- Seat belt warning system
- Heater motor
- Windscreen washer
- Stop lamp
- Direction indicator
- Windscreen wiper

The in-line fuse fed by a red/green cable from the master lighting switch protects the following circuits:

- Cigar lighter illumination
- Heater control illumination
- Front parking lamp
- Front marker lamp
- Instrument illumination
- Plate illumination lamp
- Rear marker lamp
- Tail lamp

An in-line fuse protecting the heated backlight is located on the R.H. side of the passenger footwell.
ELECTRICAL SYSTEM

Headlamps
In the event of electrical failure, the headlamps can be raised manually as follows: disconnect plug in engine bay, (refer to underbonnet label), and locate the knob situated below the headlamp motor and turn it only in the direction indicated in the illustration, until the headlamp is raised fully. To lower, continue to turn the knob in the same direction until the headlamp is lowered.

DO NOT TURN THE KNOB IN THE WRONG DIRECTION.

Filament failure — Raise the affected headlamp manually. Take out four screws (1) and remove the cowl.

Remove three screws (2) to release the retaining rim and light unit. Pull the connector from the light unit or bulb. Renew faulty item and reassemble.

Beam Aiming — Adjust screw ‘A’ to move the beam in a vertical plane; adjust screw ‘B’ to move the beam in a horizontal plane.

NOTE: To comply with the legal requirements, beam checking and resetting should be entrusted to a Rover-Triumph Dealer who has special equipment for this purpose.

Front Parking and Direction Indicator Lamps
Remove two screws and withdraw the lamp lens to gain access to the parking bulb and direction indicator bulb.

Rear Direction Indicator, Stop/Park and Reverse Lamps.
Open the luggage compartment lid. Remove the screws and turn back the trim panel to gain access to the lamp cluster.

Twist the appropriate bulb holder from the lamp cluster. Renew the bulb and reassemble.
Side Marker Lamps

Unscrew the two nuts and washers, detach the cover and pull out the bulb holder. Renew the bulb and re-assemble.

Plate Illumination Lamp

Remove two screws and detach the cover to gain access to the bulb(s).

Courtesy Lamp

Disconnect the battery and lift off the lens by gently squeezing the longest sides. Carefully prise out the bulb and insert a new one. Re-fit the lens by engaging the top clips and squeezing the lens into position. Reconnect the battery.

Windscreen Wipers

Service position of driver's wiper arm and blade — Wet the windscreen. Switch on ignition and wipers. Stop the wiper assembly in a vertical position by switching off the ignition at an appropriate moment. Lift the wiper arm and blade from the screen so that it falls into its service position.

Do not switch on the ignition until the arm is returned to its normal position on the screen. If this is done, the panoramic arm will jam, the motor will stall and the appropriate fuse will 'blow' to prevent damage to the arm or motor.

Renew driver's wiper blade — Depress the clip and withdraw the wiper blade from the pivot block.

Renew passenger's wiper blade — Depress the clip and withdraw the wiper blade from the arm.

Renew passenger's wiper arm and blade — Lift the wiper arm and blade from the screen so that it falls into its service position. Position a screwdriver against the drive spindle and impart a twisting action to lift the clip from the spindle groove. Pull off the assembly by hand.
BULB CHART

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Headlamp</td>
<td></td>
<td></td>
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<tr>
<td>L.H. Dip Normal</td>
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<td>Rear marker lamp</td>
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<tr>
<td>Tail lamp</td>
<td>21</td>
<td>382</td>
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</tr>
<tr>
<td>Stop lamp</td>
<td>21</td>
<td>382</td>
<td>GLB 382</td>
<td>502379</td>
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<tr>
<td>Rear flasher lamp</td>
<td>21</td>
<td>382</td>
<td>GLB 382</td>
<td>502379</td>
</tr>
<tr>
<td>Reverse lamps</td>
<td>21</td>
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<td>GLB 382</td>
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<tr>
<td>Plate illumination lamp</td>
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<td></td>
<td>GLB 386</td>
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<td>Instrument panel illumination</td>
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<tr>
<td>Warning lights</td>
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</table>

CARE OF BODYWORK

Washing

Avoid using a dry cloth to wipe dust from the paintwork and chromium surfaces. Dust is an abrasive and if removed in this way it will scratch the polished surfaces. Wash the car frequently with plenty of running water and a clean, soft sponge. Soften, and if possible remove the mud with water before using the sponge. When all dirt is removed, sponge off and dry with a clean, damp chamois-leather. Never wash or polish the car under a hot sun.

Removing Grease and Tar

Remove grease or tar with methylated spirits (alcohol). White spirit is also effective, but this must not be applied to rubber, particularly the windscreen wiper blades.

Glass Surfaces

Glass is easily scratched. This can be avoided by always using a damp-chamois-leather which is especially reserved for use on glass only. If silicone polishes have been used on the body, take care that the polish does not come into contact with the glass. It is extremely difficult to remove and causes the windscreen to smear.

Chromium Plating and Stainless Steel

Frequent washing and thorough drying is recommended, especially during the winter months when there is likelihood of corrosion through contamination with road salt.

Polishing

After a period of use, the formation of traffic film will cause the paintwork to lose some of its luster, even though the car has been carefully and regularly washed. The original brilliance may be restored after washing by using a reputable non-abrasive cleaner and polish.

Being the most durable, wax preparations are preferable, but where these are used regularly the old wax must first be removed with a cleaner before further application of new wax. The frequency at which polishing is necessary will depend upon local conditions of air pollution.

Interior of Car and Soft Top

Brush and clean the inside of your car each time and wash and polish the outside. Use a vacuum cleaner where possible and ensure complete removal of all dust from the interior and trim.

Wash the upholstery and soft top with lukewarm, non-caustic, soapy water. Do not use detergents or household cleaners as these may cause damage.

Remove all traces of soap with a clean, damp cloth and thoroughly dry the upholstery with a dry duster or towel.

Wipe the fascia and instrument panel with a damp cloth only. Wax or other polishes should not be used inside the car.

Opening Roof

Periodically, clean the sliding roof side rail rebate and, if sticking or jamming occurs, lubricate very sparingly using a silicone base aerosol penetrating fluid.

Inflammability

The car interior conforms to State and Federal laws on flammability. To preserve this condition do not clean interior other than as described above.
Lubrication

The lubrication systems of your new car are filled with high-quality oils. Continue to use high-quality oils of the correct viscosity range for the engine, gearbox and rear axle during subsequent maintenance or when topping up. Adhere to the servicing intervals stated in the ‘Maintenance Summary’.

The use of oils that are not to the recommended specification can lead to high oil and fuel consumption, excessive wear, and may result in premature damage to engine, gearbox or rear axle components.

Oils to the recommended specification marketed by reputable oil companies contain additives which disperse corrosive acids formed by combustion. The additives also assist in preventing the formation of sludge which can restrict the oil circulation.

Do not use additional additives.

Engine Oil

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 (1,600 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.

Once a week, or prior to starting out on a long run, or every 250 miles (500 km), check the level of oil in the engine sump, first making sure that the car is standing on level ground. If the engine has been running, wait a few minutes to allow the oil to drain back into the sump.

Withdraw the dipstick (1), wipe it clean and push it fully home before again withdrawing it for reading. Add oil via the filler cap (2) until the level reaches the ‘high’ mark on the dipstick. DO NOT OVERFILL, and ensure that the filler cap and dipstick are replaced.
PERIODIC CHECKS

Engine Oil Change

To drain the sump unscrew the drain plug (3) 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.

Oil Filter Element

To renew the filter element unscrew the securing bolt (4), remove the container (5) and discard the element (6). Wash out the container and insert a new element.

Renew the sealing ring (7) ensuring that it is correctly located in the cylinder block and re-attach the filter assembly by tightening the bolt (4) sufficiently to ensure an oil-tight joint.

Manual Gearbox

With the vehicle standing on level ground, remove the oil level plug (arrowed) and, using a suitable dispenser such as a pump-type oil can with flexible nozzle filled with an appropriate extreme pressure (Hypoid) lubricant, 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 level plug and wiping clean.

Rear Axle

Remove the oil level plug (shown arrowed), and top-up the rear axle with an appropriate extreme pressure (Hypoid) lubricant until the oil is level with the bottom of the filler plug threads. Allow surplus oil to drain before fitting the plug and wiping clean.
PERIODIC CHECKS

Automatic Transmission Unit

Check the oil level as follows:
1. With foot-brake firmly applied, run engine for several minutes, passing selector through the complete range to ensure transmission system is primed.
2. Put transmission into the ‘P’ (Park) position and apply the handbrake.
3. Switch off engine.
4. Wipe dipstick with clean, non-fluffy cloth and dip immediately.
5. After topping-up, repeat steps 1 to 4.

DO NOT OVERFILL THE TRANSMISSION.

NOTE: When operating at high ambient temperatures and on unmetalled roads, periodically inspect and remove dust and mud deposits from the slots and screen on the underside of the torque converter housing. and from the underside of the transmission oil sump; these deposits can adversely affect proper cooling of the unit.

Coolant

CAUTION. 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 (8) 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.

Maintain the level of coolant in the expansion tank at half-full by topping-up as necessary when the engine is cool. Refer to ‘Cooling System’ for anti-freeze protection.

Screen Washer

Check the level of water in the translucent windscreen washer container (9) and, if required, replenish the container with clean soft water. The addition of a small amount of mild detergent will help prevent smearing.

During freezing conditions it is beneficial to fill the container with a mixture of one part methylated spirits (wood alcohol) to two parts of water. This will assist in the dispersal of snow and ice from the screen.

Do not add anti-freeze solutions to the container as this will discolor the paint work and damage wiper blades and sealing rubber.

Should a screen washer jet become obstructed, a strand of Bowden cable, or a fine pin, not greater than 0.7 mm (0.030 in.) diameter, can be used to clear the jet orifice.
PERIODIC CHECKS

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. Check more often during hot weather and before long journeys.

When a Lucas 'Pacemaker' battery is fitted, first make sure that the car is standing on level ground, then lift and tilt the battery cover. If the electrolyte level is below the separators, add distilled water until the filling tubes are full and the trough is just covered. Replace the cover immediately.

WARNING. Never use a naked flame to examine a battery as gases given off by it are dangerously explosive.

Clutch Fluid

Check the level of fluid monthly by wiping clean and removing the cap 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.

Brake Fluid

Check the level of fluid weekly by examining the fluid reservoir. 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 reservoir — a sudden appreciable drop in fluid level must be investigated and the cause rectified immediately. Do not take off the cap (11) unless you need to; 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' for correct pressures.

ROUTINE SERVICING

1,000 Miles (1,600 km.) Free Service

At the completion of 1,000 miles (1,600 km.) or as near to this figure as possible, it is important that the car is returned to the selling Dealer, who will complete, free of charge except for the cost of oil and grease, a free service.

The importance of carrying out this free service cannot be over-emphasised, as it corresponds with the end of the running-in period when many of the components will have settled down, thus necessitating re-adjustment. Furthermore, the special running-in engine oil, used for the initial fill, is unsuitable for normal motoring and must, therefore, be replaced by the correct grade of oil.

Scheduled Maintenance

The 'Maintenance Summary' lists all the maintenance operations and the frequency at which they are required. Because of the need to use specialized equipment and techniques, especially on operations concerned with 'Emission and Evaporative Control Systems' and in compliance with the terms of the 'Emission Warranty', it is strongly recommended that all the 'scheduled services' are entrusted to your Distributor or Dealer.
EMISSION AND EVAPORATIVE CONTROL SYSTEMS
North America excluding Catalytic Converter Specification

All Triumph models entering the North American market incorporate efficient emission control systems. These systems enable the vehicles to conform with all current Federal Regulations governing the emission of hydrocarbons, carbon monoxide, nitric oxide and the emission of fuel, by evaporation, from the fuel delivery system. Emission and evaporative control systems for the catalytic converter specification are written separately.

Fuel

The TR.7 (U.S.A.) performs efficiently on fuels of 91 octane (Regular fuel).

NOTE: THE ENGINE IS DESIGNED TO USE EITHER LEADED OR UNLEADED FUEL.

Emission Control Systems — Servicing

The importance of servicing at the correct intervals cannot be overstressed. Improvements in design and manufacturing techniques count for nothing if the servicing standards are not upheld.

Routine servicing, carried out at the mileage intervals quoted in the Maintenance Summary helps to prevent deterioration of the systems.

Carburetters

The engine is fitted with two ZENITH CDSEV carburetters which are prime components of the emission system and great care is exercised during the manufacture and initial adjustment of these instruments. Adjustment of the carburetters necessitates the use of specialist equipment and must be carried out by British Leyland Dealers.

Carburettor Controls

The throttle rod linkage will not require adjustments during normal operation. To ensure complete throttle closure a degree of "lost motion" or slackness is incorporated into the linkage; no attempt must be made to adjust this out.

Carburettor Servicing Schedules

To maintain the carburettor at peak efficiency, regular servicing as detailed in the 'Maintenance Summary' is essential. The appropriate servicing operations should be performed by authorized dealers, who are trained in the use of the special equipment needed.
EMISSION AND EVAPORATIVE CONTROL SYSTEMS

Crankcase Breathing (Fig. 1)
Crankcase breathing and evacuation of 'blow by' gases is achieved by utilizing the characteristic partial vacuum in the constant depression carburetters. By this method crankcase emissions are burned in the engine combustion process (Fig. 1). A wire gauze strainer in the engine top cover acts as an oil separator/flame trap.

Anti Run-on Valve (Fig. 1)
This valve prevents the 'running-on' of the engine after the ignition is switched off when, due to the heat of the engine, a condition of compression ignition is set up. The method of achieving a cut off is by applying a slight 'vacuum' to the float chamber of the carburetters when the ignition is switched off.

System Description
With the ignition off, a solenoid is activated which operates a valve that seals off the inlet to the bottom of the canister. With the inlet sealed a connection to the intake manifold applies a partial vacuum to the canister and consequently to the float chamber via an interconnecting pipe. The vacuum thus applied is sufficient to prevent fuel being drawn into the engine. When the engine has stopped and the oil pressure drops to zero, the solenoid is deactivated and the engine is thus ready again for operation.

Servicing
The system requires no servicing other than checking for deterioration and leak free connection of the system piping.

Function Checks
If the system is not working then it will be apparent by engine running-on. A system check can be made by applying current to the solenoid which, if working correctly, will stop the engine.

---

1. Crankcase purge line
2. Carburettet float chamber vent pipe
3. Canister purge line
4. Charcoal canister
5. Fuel tank vent pipe
6. Anti run-on valve
7. Manifold vacuum line
8. Electrical connections for anti run-on valve
9. Purge air to canister
10. Flame arrestor
A. 3/4 in. restrictor
B. 3/8 in. restrictor

Fig. 1 Crankcase and Canister Purge System
Evaporative control system

The evaporative control system uses an activated adsorption canister through which the fuel tank is vented. The following are features of the evaporative control system (see Fig. 2).

1. Both carburettor float chambers are vented to the engine during open throttle conditions and to the adsorption canister at closed throttle.
2. The constant depression of the carburetters is used to induce a purge condition through the adsorption canister via the running-on control valve. The crankcase breathing is also linked into the system.
3. A separator tank prevents fuel surges from reaching the canister and thus saturating the system.
4. The fuel filler cap is sealed to prevent evaporative losses.
5. The fuel tank filler tube extends into the tank to prevent complete filling and so allow for expansion of fuel in hot weather.

Warning: The use of compressed air to clean an adsorption canister or clear a blockage in the evaporative system is very dangerous. An explosive gas present in a partly saturated canister may be ignited by the heat generated when compressed air passes through the canister.

Servicing

Minimal servicing is required on the evaporation control system apart from renewing the adsorption canister at the specified interval, and checking visually the security of piping on the system.
EMISSION AND EVAPORATIVE CONTROL SYSTEMS

Exhaust Gas Recirculation (E.G.R.) System

System Description

To reduce the nitric oxides content in the exhaust, the peak combustion temperatures are lowered by recirculating a controlled quantity of the exhaust gases through the combustion process.

The E.G.R. valve is mounted on the inlet manifold. A control signal, taken from a throttle edge tapping in the carburettor, gives no recirculation at idle or full load, but does allow an amount of recirculation, dependent on the vacuum signal and a metering profile on the valve, Fig. 3 under part load conditions.

Servicing

After the completion of the initial 1000 miles check the security of the E.G.R. valve and lines. On the completion of subsequent 12,500 miles periods, a service indicator light, located on the facia will indicate that the following checks are necessary:
3. Clean the valve and pipework.
4. Reset the service indicator.

NOTE: It is recommended that this work is carried out by a British Leyland Dealer. As E.G.R. Service Repair Kit together with a Service Indicator Reset Key can be purchased from a British Leyland Dealer. Complete details on the servicing of the E.G.R. system are detailed in Repair Operation Manual Pt. No. RTC 9200 obtainable from British Leyland Dealers.

Fig. 3 Exhaust Gas Recirculation System

EMISSION AND EVAPORATIVE CONTROL SYSTEMS

Catalytic Converter Specification Only

All Triumph models entering the North American markets incorporate efficient emission control systems. These systems allow the vehicles to conform with all current State and Federal Regulations governing the emission of hydrocarbons, carbon monoxide, nitric oxide and the emission of fuel, by evaporation, from the fuel delivery system.

Fuel

The TR.7 (U.S.A.) performs efficiently on fuels of 91 octane (Regular fuel).

NOTE: IT IS ESSENTIAL THAT UNLEADED FUELS ARE USED IN THIS VEHICLE OTHERWISE SERIOUS DAMAGE CAN BE CAUSED TO THE CATALYTIC CONVERTER.

Emission Control Systems — Servicing

The importance of servicing at the correct intervals cannot be over-stressed as improvements in both design and manufacturing techniques count for nothing if the servicing standards are not upheld.

Routine servicing, carried out at the mileage intervals quoted in the Maintenance Summary helps to prevent deterioration of the systems.

Carburettor

The Stromberg CD4VT175 emission carburettor is the prime component of the emission system and great care is exercised during the manufacture and initial adjustment of this instrument. Adjustment of the carburettor necessitates the use of specially designed equipment and must be carried out by British Leyland Dealers.

Carburettor Controls

The throttle rod linkage will not require adjustments during normal operation. To ensure complete throttle closure a degree of "lost motion" or slackness is incorporated into the linkage; no attempt must be made to adjust this out.

Carburettor Servicing Schedules

To maintain the carburettor at peak efficiency, regular servicing as detailed in the Maintenance Summary is essential. The appropriate servicing operations should be performed by authorized dealers, who are trained in the use of the special equipment needed.
Crankcase Breathing (Fig. 1)

Crankcase breathing and evacuation of ‘blow by’ gases is achieved by utilizing the characteristic partial vacuum in the constant depression carburettor. By this method crankcase emissions are burned in the engine combustion process (Fig. 1). A wire gauze strainer in the engine top cover acts as an oil separator/filme trap.

Anti Run-On Valve (Fig. 1)

This valve prevents the ‘running-on’ of the engine after the ignition is switched off when, due to the heat of the engine, a condition of compression ignition is set up.

The method of achieving a cut off is by applying a slight ‘vacuum’ to the float chamber of the carburettor when the ignition is switched off.

System Description

When the ignition is switched off a solenoid is activated which operates a valve that seals off the inlet to the bottom of the intake carister. With the inlet sealed a connection to the inlet manifold applies a partial vacuum to the canister and consequently to the float chamber via an interconnecting pipe. The vacuum thus applied is sufficient to prevent fuel being drawn into the engine. When the engine has stopped and the oil pressure drops to zero the solenoid is deactivated and the engine is thus ready again for operation.

Servicing

The system requires no servicing other than checking for deterioration and leak free connection of the system piping.

Function Checks

If the system is not working then it will be apparent by engine running-on. A system check can be made by applying current to the solenoid which, if working correctly, will stop the engine.

---

Fig. 1 Crankcase and Canister Purge System

1. Crankcase purge line
2. Carburettor float chamber vent pipe
3. Canister purge line
4. Charcoal canister
5. Fuel tank vent pipe
6. Anti run-on valve
7. Manifold vacuum line
8. Electrical connections for Anti run-on valve
9. Purge air to canister
10. Flame arrester

A. $\frac{3}{16}$in. restrictor
B. $\frac{1}{4}$in. restrictor
Evaporative Control System

The evaporative control system uses an activated adsorption canister through which the fuel tank is vented. The following are features of the evaporative control system (see Fig. 2):

1. The carburettor float chamber is vented to the engine during open throttle conditions to the adsorption canister at closed throttle.
2. The constant depression of the carburettor is used to induce a purge condition through the adsorption canister via the running-on control valve. The crankcase breathing is also linked into the system.
3. A separator tank prevents fuel surges from reaching the canister and thus saturating the system.
4. The fuel filler cap is sealed to prevent evaporative losses.
5. The fuel tank filler tube extends into the tank to prevent complete filling and so allow for expansion of fuel in hot weather.

**WARNING:** The use of compressed air to clean an adsorption canister or clear a blockage in the evaporative system is very dangerous. An explosive gas present in a partly saturated canister may be ignited by the heat generated when compressed air passes through the canister.

**Servicing**

Minimal servicing is required on the evaporation control system apart from renewing the adsorption canister at the specified intervals and checking visually the security of piping on the system.
Exhaust Gas Recirculation (E.G.R.) System
System Description
To reduce the nitric oxide content in the exhaust, the peak combustion temperatures are lowered by recirculating a controlled quantity of the exhaust gases through the combustion process.

The E.G.R. valve is mounted on the inlet manifold. A control signal, taken from a throttle edge tapping in the carburettor, gives no recirculation at idle or full load, but does allow an amount of recirculation, dependent on the vacuum signal and a metering profile on the valve, Fig. 3 under part load conditions.

Servicing
After the completion of the initial 1000 miles check the security of the E.G.R. valve operating lines. On the completion of subsequent 12,500 mile periods, a service indicator light, located on the facia will indicate that the following checks are necessary:
(1) Security of E.G.R. valve operating lines.
(2) Operation of the E.G.R. valve.
(3) Clean the valve and pipework.
(4) Reset the service indicator.

NOTE: It is recommended that this work is carried out by a British Leyland Dealer. An E.G.R. Service Repair Kit together with a Service Indicator Reset Key can be purchased from a British Leyland Dealer. Complete details on the servicing of the E.G.R. system are detailed in Repair Operation Manuals, Pt. No. RTC 9200, obtainable from British Leyland Dealers.

Catalytic Converters
A catalytic converter is fitted into the exhaust system in order to reduce carbon monoxide and hydrocarbon emissions.

On completion of each 25,000 miles the necessity for renewal of the catalytic converter will be indicated by the catalytic converter warning light. It is recommended that this work be carried out by a British Leyland Dealer (A Catalytic Converter Service Repair Kit together with a Service Indicator Reset Key can be purchased from a British Leyland Dealer).

NOTE: Complete details on servicing the exhaust system and catalytic converter renewal are given in Repair Operation Manual Pt. No. 45638 obtainable from British Leyland Dealers.

The following precautions apply to catalytic devices:
(1) The catalytic converter contains ceramic material. Avoid heavy impacts on the converter casing.
(2) Use unleaded gasoline only. The use of leaded gasoline will seriously impair the efficiency of the emission control system.
(3) The reaction in the catalytic converter increases exhaust system temperatures. Care must be taken to avoid exhaust system contact with easily combustible materials such as dry grass.

Misfiring
If the engine misfires, the cause must be immediately rectified to prevent catalytic converter damage.

The use of any device that requires an insert into a spark plug hole in order to generate air pressure, i.e. tyre pump or paint spray attachment could also result in catalytic converter damage.
### MAINTENANCE SUMMARY

**KEY:** MILEAGE x 1000 MILES

<table>
<thead>
<tr>
<th>Description</th>
<th>Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td></td>
</tr>
<tr>
<td>Check/top up engine oil</td>
<td>X</td>
</tr>
<tr>
<td>Check/top up cooling system</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust operation of all washers and top up reservoirs(s)</td>
<td>X</td>
</tr>
<tr>
<td>Renew engine oil</td>
<td>X</td>
</tr>
<tr>
<td>Renew engine oil filter</td>
<td>X</td>
</tr>
<tr>
<td>Lubricate accelerator control linkage and pedal pivot — check operation</td>
<td>X</td>
</tr>
<tr>
<td>Check cooling/heater systems for leaks and hoses for security and condition</td>
<td>X</td>
</tr>
<tr>
<td>Check for oil leaks</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust torque of cylinder head nuts/bolts</td>
<td>X</td>
</tr>
<tr>
<td>Check driving belts, adjust or renew</td>
<td>X</td>
</tr>
<tr>
<td>Check security of engine mountings</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust carburettor idle settings</td>
<td>X</td>
</tr>
<tr>
<td>Top up carburettor piston damper(s)</td>
<td>X</td>
</tr>
<tr>
<td>Renew carburettor/air intake air cleaner element(s)</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust deceleration by pass valve</td>
<td>X</td>
</tr>
<tr>
<td>Check security of EGR valve operating lines</td>
<td>X</td>
</tr>
<tr>
<td>Check EGR system</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust choke settings (Manual choke)</td>
<td>X</td>
</tr>
<tr>
<td>Check air-intake temperature control system (excluded on Catalytic Converter vehicles)</td>
<td>X</td>
</tr>
<tr>
<td>Check crankcase breathing and evaporative loss systems hoses for security</td>
<td>X</td>
</tr>
<tr>
<td>Check crankcase breathing and evaporating loss systems. Check hoses/pipes and restrictors for blockage, security and condition</td>
<td>X</td>
</tr>
<tr>
<td>Renew adsorption canister</td>
<td>X</td>
</tr>
<tr>
<td>Renew catalytic converter (excluded on non-Catalytic Converter vehicles)</td>
<td>X</td>
</tr>
</tbody>
</table>

**NB:** These service schedules are based on annual mileage of approximately 12,500 miles. Should the vehicle complete substantially less miles than this per annum, it is recommended that a 'C' and 'D' Service should be completed at six and twelve monthly intervals respectively.

**Description**

- Check security of distributor vacuum unit
- Lubricate distributor
- Check/adjust ignition timing using electronic equipment
- Check ignition wiring for fraying, chafing and deterioration
- Check operation of distributor vacuum unit
- Clean distributor cap, check for cracks and tracking
- Renew spark plugs
- Check coil performance on oscilloscope
- Check/top up gearbox oil
- Check/top up rear axle/final drive oil
- Check for oil leaks
- Check tightness of propeller shaft coupling bolts
- Check/top up automatic gearbox fluid
- Lubricate automatic gearbox exposed selector linkage
- Check clutch pipes for leaks and chafing
- Check/top up clutch fluid reservoir
- Lubricate clutch pedal pivots
- Check steering rack/gear for oil/liquid leaks
- Check security of suspension fixings
- Check condition and security of steering unit joints and gaiters
- Check/adjust front (and rear) wheel alignment
- Adjust front hub bearing end-flats
- Lubricate steering rack and pinion
- Check shock absorbers for fluid leaks

**Brakes**

- Inspect brake pads for wear and discs for condition
- Inspect brake lineings/pads for wear, drums/discs for condition

**Intervals**

<table>
<thead>
<tr>
<th>Description</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Transmission</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Steering and Suspension</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Brakes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
## Maintenance Summary

### Key: Mileage x 1000 Miles

<table>
<thead>
<tr>
<th>Description</th>
<th>Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>X X X X X</td>
</tr>
<tr>
<td>B-3, 9, 16, 22, 28, 34, 41, 47</td>
<td>X X X X X</td>
</tr>
<tr>
<td>C-6, 19, 31, 44</td>
<td>X X X X</td>
</tr>
<tr>
<td>D-12.5, 37.5</td>
<td>X X X</td>
</tr>
<tr>
<td>E-25, 50</td>
<td>X</td>
</tr>
</tbody>
</table>

**NB:** These service schedules are based on annual mileage of approximately 12,500 miles. Should the vehicle complete substantially less miles than this per annum, it is recommended that a ‘C’ and ‘D’ Service should be completed at six and twelve monthly intervals respectively.

### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check cris/top up brake fluid reservoir(s)</td>
<td>X</td>
</tr>
<tr>
<td>Check footbrake operation; adjust to manufacturers instructions (Self-adjusting)</td>
<td>X</td>
</tr>
<tr>
<td>Check handbrake operation; adjust to manufacturers instructions</td>
<td>X</td>
</tr>
<tr>
<td>Lubricate brake pedal pivot(s)</td>
<td>X</td>
</tr>
<tr>
<td>Lubricate handbrake mechanical linkage and cable guides</td>
<td>X</td>
</tr>
<tr>
<td>Check visually, hydraulic pipes and unions for chafing, leaks and corrosion</td>
<td>X</td>
</tr>
<tr>
<td>Check brake servo hose(s) for security and condition</td>
<td>X</td>
</tr>
<tr>
<td>Electrical</td>
<td>X</td>
</tr>
<tr>
<td>Check function of original equipment i.e. interior and exterior lamps, horns, wipers and warning indicators</td>
<td>X</td>
</tr>
<tr>
<td>Check/top up battery electrolyte</td>
<td>X</td>
</tr>
<tr>
<td>Clean and grease battery connections</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust headlamp alignment</td>
<td>X</td>
</tr>
<tr>
<td>Check, if necessary, renew wiper blades</td>
<td>X</td>
</tr>
<tr>
<td>Check output of charging system</td>
<td>X</td>
</tr>
<tr>
<td>Exhaust and Fuel Pipes</td>
<td>X</td>
</tr>
<tr>
<td>Check exhaust system for leaks and security</td>
<td>X</td>
</tr>
<tr>
<td>Check fuel system for leaks, pipes and unions for chafing and corrosion</td>
<td>X</td>
</tr>
<tr>
<td>Check condition of fuel filler cap seal</td>
<td>X</td>
</tr>
<tr>
<td>Wheels and Tyres</td>
<td>X</td>
</tr>
<tr>
<td>Check/adjust tyre pressures including spare</td>
<td>X</td>
</tr>
<tr>
<td>Check that tyres comply with manufacturers specification</td>
<td>X</td>
</tr>
<tr>
<td>Check tightness of road wheel fastenings</td>
<td>X</td>
</tr>
<tr>
<td>Check tyres for external cuts in tyre fabric, exposure of ply or cord structure, lumps or bulges</td>
<td>X</td>
</tr>
</tbody>
</table>

**NB:** These service schedules are based on annual mileage of approximately 12,500 miles. Should the vehicle complete substantially less miles than this per annum, it is recommended that a ‘C’ and ‘D’ Service should be completed at six and twelve monthly intervals respectively.

### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check tyres for tread depth and visually for external cuts in fabric, exposure of ply or cord structure, lumps or bulges</td>
<td>X</td>
</tr>
<tr>
<td><em>Important if tyres do not conform with legal requirements report to owner</em></td>
<td>X</td>
</tr>
<tr>
<td>Body</td>
<td>X</td>
</tr>
<tr>
<td>Lubricate all locks and hinges (Not steering lock)</td>
<td>X</td>
</tr>
<tr>
<td>Check condition and security of seats and seat belts</td>
<td>X</td>
</tr>
<tr>
<td>Check rear view mirrors for cracks and crazing</td>
<td>X</td>
</tr>
<tr>
<td>Check operation of all door, bonnet and boot locks</td>
<td>X</td>
</tr>
<tr>
<td>Check operation of seat belt warning system</td>
<td>X</td>
</tr>
<tr>
<td>Check operation of seat belt inertia reel mechanism</td>
<td>X</td>
</tr>
<tr>
<td>Check operation of window controls</td>
<td>X</td>
</tr>
<tr>
<td>Check tightness of sub-frame/body mounting</td>
<td>X</td>
</tr>
<tr>
<td>Ensure cleanliness of controls, door handles, steering wheel</td>
<td>X</td>
</tr>
<tr>
<td>General</td>
<td>X</td>
</tr>
<tr>
<td>Road/roller test and check function of all instrumentation</td>
<td>X</td>
</tr>
<tr>
<td>Report additional work required</td>
<td>X</td>
</tr>
<tr>
<td>At 19,400 miles (or 18 month intervals)—</td>
<td>X</td>
</tr>
<tr>
<td>Renew hydraulic brake fluid</td>
<td>X</td>
</tr>
<tr>
<td>At 37,500 miles (or 3 years)—</td>
<td>X</td>
</tr>
<tr>
<td>Examine all fluid seals and flexible hoses in the brake and clutch systems and renew if necessary</td>
<td>X</td>
</tr>
<tr>
<td>Examine working surfaces of pistons and bores in master, slave and wheel cylinders and renew parts where necessary</td>
<td>X</td>
</tr>
<tr>
<td>Renew air filter in brake servo unit</td>
<td>X</td>
</tr>
</tbody>
</table>
### Lubrication Recommendations

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>TEMPERATURE RANGE</th>
<th>SERVICE CLASSIFICATION</th>
<th>S.A.E. VISCOSITY SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine and Carburetor Dampers</td>
<td>Above 14°F (−10°C)</td>
<td>API S.E.</td>
<td>SAE 10 W/50; SAE 20 W/50</td>
</tr>
<tr>
<td></td>
<td>-5°F to 50°F (−20°C to +10°C)</td>
<td></td>
<td>SAE 10 W/40; SAE 20 W/40</td>
</tr>
<tr>
<td></td>
<td>Below 14°F (−10°C)</td>
<td></td>
<td>SAE 10 W/30; SAE 10 W/40; SAE 10 W/50</td>
</tr>
<tr>
<td>Gearbox and Final drive</td>
<td>Above 22°F (0°C)</td>
<td>API G.L.4</td>
<td>SAE 5 W/20; SAE 5 W/30</td>
</tr>
<tr>
<td></td>
<td>Below 22°F (0°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering Rack, Hubs &amp; Chassis Grease Points</td>
<td>All</td>
<td>NLGL2 Multipurpose Grease</td>
<td>SAE 90 Hypoid</td>
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<td>SAE 80 Hypoid</td>
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<tr>
<td>Brake and Clutch Fluid</td>
<td>All</td>
<td>DOT 3 (FMV SS116) AND SAE Specification J.1703d</td>
<td></td>
</tr>
<tr>
<td>Anti-freeze</td>
<td>Permanent type ethylene glycol base with suitable inhibitor for mixed metal systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windshield Washer</td>
<td>Windshield Washer Anti-freeze Fluid (Proprietary Brands)</td>
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<td></td>
</tr>
</tbody>
</table>

### Approved Automatic Transmission Fluids

(The products listed are not in order of preference)

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.P.</td>
<td>B.P. Autran B</td>
</tr>
<tr>
<td></td>
<td>Esso Glide</td>
</tr>
<tr>
<td></td>
<td>Donax T7 S.795</td>
</tr>
<tr>
<td></td>
<td>Mobil ATF 210</td>
</tr>
<tr>
<td></td>
<td>Castrol TQF</td>
</tr>
<tr>
<td></td>
<td>Texamatic 6991, Type F</td>
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<tr>
<td></td>
<td>Dukhams Q Mate</td>
</tr>
<tr>
<td></td>
<td>Fina Purimatic 33F</td>
</tr>
<tr>
<td></td>
<td>Filtrate auto. trans. fluid F</td>
</tr>
<tr>
<td></td>
<td>Amoco ATF Type F</td>
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<tr>
<td></td>
<td>Sunamatic 126</td>
</tr>
<tr>
<td></td>
<td>Transantar 33</td>
</tr>
<tr>
<td></td>
<td>Diamond ATF Special F</td>
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<tr>
<td></td>
<td>Appolloil Mission F</td>
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</table>

<table>
<thead>
<tr>
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<th>Product</th>
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<tbody>
<tr>
<td>Automatic Transmission Services</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Veedol GmbH</td>
</tr>
<tr>
<td></td>
<td>Gulf Oil (GB) Ltd.</td>
</tr>
<tr>
<td></td>
<td>Rudolf Fuchs Mineralölwerk KG</td>
</tr>
<tr>
<td></td>
<td>Tiona Petroleum Co.</td>
</tr>
<tr>
<td></td>
<td>Valvoline Oil Co.</td>
</tr>
<tr>
<td></td>
<td>Aral Aktiengesellschaft</td>
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<tr>
<td></td>
<td>Motul S.A.</td>
</tr>
<tr>
<td></td>
<td>Elf Union</td>
</tr>
<tr>
<td></td>
<td>Wenzel &amp; Weidmann GmbH</td>
</tr>
<tr>
<td></td>
<td>Pennzoil Company</td>
</tr>
<tr>
<td></td>
<td>Century Oil Co.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Transmission Fluid</td>
<td>Total ATF 33</td>
</tr>
<tr>
<td></td>
<td>Veedol ATF F</td>
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<tr>
<td></td>
<td>Gulf ATF, Type F</td>
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<tr>
<td></td>
<td>Fuchs Automatic TF</td>
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<tr>
<td></td>
<td>Flo Matic ATF Type F</td>
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<tr>
<td></td>
<td>Valvoline ATF Type FA</td>
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<td>Aral Getriebeol ATF 33</td>
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<td>Motul Omniol 126F</td>
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<td>Elftrans F</td>
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<td></td>
<td>Ecubsol ATF 33-F</td>
</tr>
<tr>
<td></td>
<td>Pennzoil Hydra Flo</td>
</tr>
<tr>
<td></td>
<td>Transfluid F</td>
</tr>
</tbody>
</table>
### General Specification

#### Engine
- Number of cylinders: 4 in line — inclined 45°
- Bore of cylinders: 3.56 in (90.3 mm)
- Stroke of crankshaft: 3.07 in (78 mm)
- Engine capacity: 122 in³ (1998 cm³)

#### Cooling System
- Type: Pressurized 'No loss' system incorporating a separate expansion tank
- Circulation: Impellor type pump driven by idler shaft skew gears, thermostatically controlled flow
- Fan: Polypropylene, 13 blades, 356 mm (14 in) dia with viscous coupling 'V' belt drive
- Pressure cap: 15 lb/in² (1.05 Kgs/cm²)

#### Lubrication System
- Pump: High capacity rotor pump pressure feeding crankshaft, idler shaft, camshaft and rocker shaft bearings
- Oil filter: 'Full-flow' type with replaceable element
- Sealed cap on camshaft cover

#### Fuel System
- Pump: Mechanically operated diaphragm type
- Carburettor (Non Catalytic Converter Spec.): Twin side-draught Stromberg 175 CDS/EJ
- Carburettor (Catalytic Converter Spec. only): Single side-draught Stromberg CD4VT175

#### Air Cleaner
- Combined air cleaner and silencer with replaceable paper element. Temperature controlled inlet air flow.

#### Ignition System
- Coil: Lucas, type 15C6, 6 volt with ballast resistor incorporated in the wiring harness
- Electronic, with centrifugal advance and vacuum retard controls
- 0.014 in. - 0.016 in. (0.4 mm)
- Anti-clockwise viewed from top of rotor arm: 1:3:4:2. Cylinder numbered from front of engine, i.e. timing chain end
- 10 degrees before top dead centre
- 2 degrees after top dead centre
- N-12Y
- 0.025 in (0.63 mm)

#### Transmission (Manual)
- Clutch: 216 mm (8.5 in) dia. single dry plate diaphragm type. Hydraulically operated
- Gearbox: Synchronesh on all forward gears
- Final drive ratio: 3.63:1
- Final drive ratio (Automatic): 3.27:1

#### Gearbox ratio to 1
- Top: 1.00
- 3rd: 1.25
- 2nd: 1.78
- 1st: 2.65
- Reverse: 3.01

#### Overall ratios to 1
- 1.63:1
- 4.56:1
- 6.47:1
- 9.62:1
- 10.95:1

#### Engine r.p.m. at 10 m.p.h.
- 559
- 700
- 994
- 1479

#### Engine r.p.m. at 10 km p.h.
- 347
- 435
- 617
- 918

#### Road speed at 1000 engine r.p.m.
- m.p.h.: 17.9
- km.p.h.: 28.8

#### Maximum recommended road speeds in intermediate gears corresponding to engine speed of 6000 rev/min
- m.p.h.: 86
- km p.h.: 139

#### Electrical System
- Voltage: 12
- Polarity: Negative ground
- Fuse box — fuses: 3 x 50 amp. 2 x 35 amp. 1 x 15 amp.
- Battery: 12 Volt 50 amp. hour at 20 hr. rating
- Alternator: Lucas 17 ACR or 25 ACR
- Starter motor: Lucas ZM108PE

#### Gearbox — Automatic
- Borg Warner Type: 3rd
- 2nd
- 1st
- Rev

#### Transmission conversion range
- 1.00:1.91
- 1.45:2.77
- 2.39:4.57
- 2.09:3.99

#### Overall ratios to 1
- 3.27:6.25
- 4.74:9.05
- 7.83:14.94
- 6.85:13.08

#### Road speed corresponding to 1000 engine r.p.m.
- m.p.h.: 19.9
- Km.p.h.: 32.0

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GENERAL SPECIFICATION

Brake System
Front ............................................... Caliper disc 248 mm (9.75 in) dia.
Rear .................................................. Drum type with 264 x 38 mm (8 x 1.5 in)
Operation .............................................. self-adjusting leading and trailing shoes
Divided hydraulic system operating front and rear
brakes independently through a tandem master
cylinder. Pressure differential switch operates
warning lamp on fascia
Servo .................................................. Direct acting servo provides a nominal boost
ratio of 2:1

Chassis Data:
Wheelbase .......................................... 85 in. (2160 mm)
Track — front ........................................ 55.5 in. (1409 mm)
Track — rear .......................................... 55.3 in. (1404)
Toe-in (front) ........................................... 0.062 in. (1.5 mm)
Turning circle (between kerbs) ..................... 29.0 ft. (8.8 metres)
Turning circle (between walls) ..................... 31.5 ft. (9.5 metres)
Ground clearance (2 up) ........................... 4.5 in. (114 mm)

Overall Dimensions
Length .................................................. 164.5 in. (4179 mm)
Width .................................................. 66.2 in. (1681 mm)
Height .................................................. 49.9 in. (1268 mm)

Weights (approximate)
Dry ..................................................... 2147 lbs. (974 kg)
Kerb — basic ......................................... 2241 lbs. (1017 kg)
Kerb (inc. options) ................................ 2354 lbs. (1068 kg)
Gross vehicle weight ............................... 2820 lbs. (1279 kg)
Vehicle capacity .................................... 435 lbs. (197 kg)
Max. axle load — front ............................. 1500 lbs. (680 kg)
Max. axle load — rear ............................. 1350 lbs. (612 kg)
Towing capacity — braked trailer ................. 1680 lbs. (764 kg)
Roof rack — Max. load ............................ 110 lbs. (50.0 kg)

Capacities (nominal)
Engine sump and oil filter ......................... U.S.A. 14.4 gals. 12.0 gals
Engine — drain and refill ........................ Imperial 9.5 pts. 8.0 pts
Gearbox — from dry ............................... 8.5 pts. 7.0 pts
Rear axle — from dry ............................. 2.5 pts. 2.0 pts
Cooling system (including reservoir and heater or 2.75 pts. 2.25 pts
air conditioning unit) ............................ 15.5 pts. 13.0 pts
Automatic transmission .......................... 11.0 pts. 9.0 pts
Automatic transmission with oil cooler .......... 11.6 pts. 9.5 pts

Pressurised air system ................................

Tyres
Inflation Pressures

Table

\[
\begin{array}{|c|c|c|c|}
\hline
\text{Size} & \text{Loading Condition} & \text{Front} & \text{Rear} \\
& & \text{kg/cm}^2 & \text{lb/in}^2 & \text{kg/cm}^2 & \text{lb/in}^2 \\
\hline
175/70 HR 13 & All & 1.68 & 24 & 1.96 & 28 \\
\hline
\end{array}
\]

AUTOMATIC TRANSMISSION SHIFT SPEEDS

Throttle Position Zero Throttle Light Throttle Part Throttle
Selector 1 2 D D
Shift 2—1 1—2 2—3 3—2
Road speed m.p.h. 37—44 8—12 12—16 30—40
Km.p.h. 60—71 13—19 19—26 48—54
Throttle Position Kickdown
Selector D D D 1 D D 2 2
Shift 1—2 2—3 3—2 2—1 3—1 1—2 2—1
Road speed m.p.h. 38—44 65—71 58—66 30—38 30—38 38—44 30—38
Km.p.h. 61—71 105—114 93—106 48—61 48—61 61—71 48—61

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