The

ONE-POINT-FIVE

WORKSHOP MANUAL

NOTE

Refer to the end of the appropriate Section for the latest instructions when carrying out work on the vehicle.

Additional copies of this publication (Part No. AKD760B) can only be obtained from a Riley Distributor.

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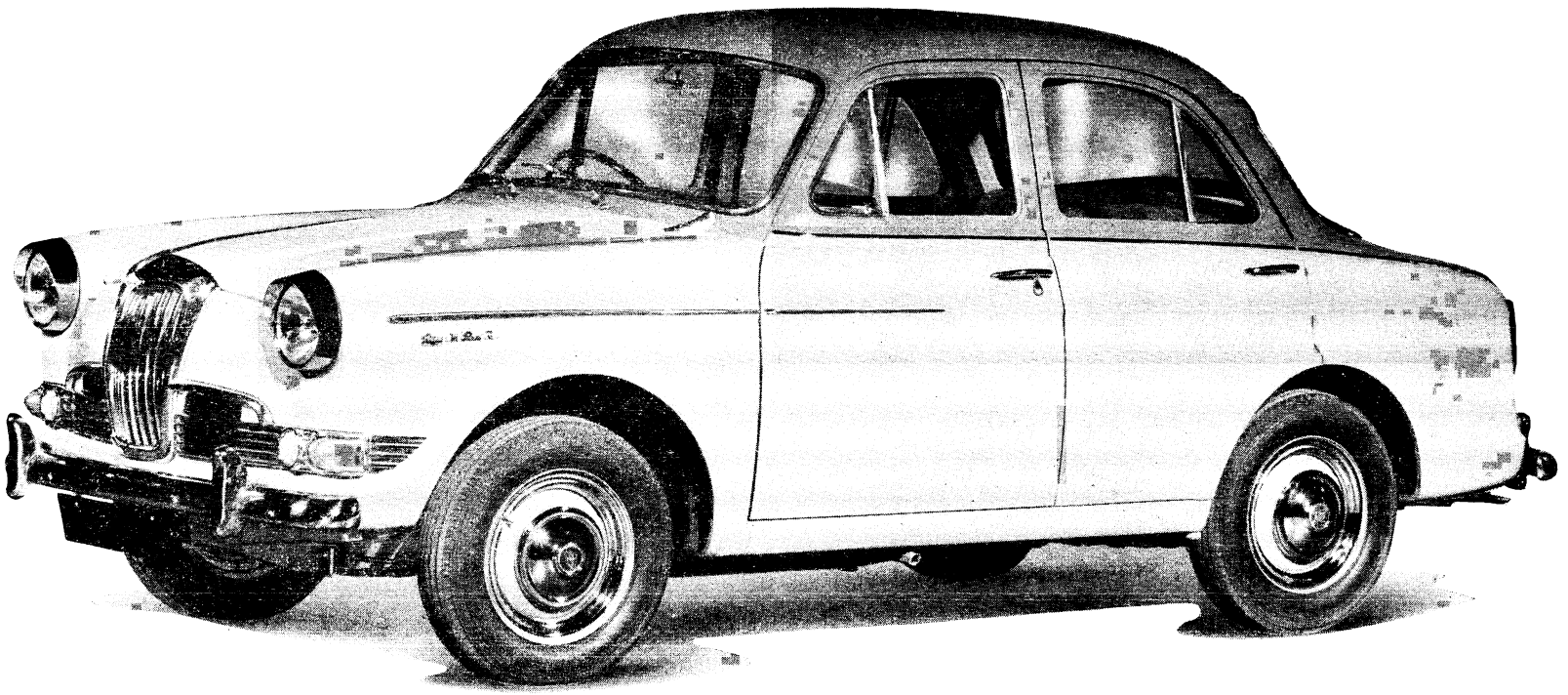
THE RILEY ONE-POINT-FIVE



CONTENTS

INTRODUCTION

This Manual has been prepared to provide the service operator with the necessary information for the maintenance and repair of the Riley One-Point-Five.

The Manual also serves as a ready reference book for service supervision and covers items of procedure for the guidance of both the fully qualified and the less-experienced mechanic.

UNIT ARRANGEMENT

In the Manual the complete vehicle is divided into sections each of which deals with an assembly or major component and carries a reference letter. Where necessary, a section is divided into two parts, one part having a single and the other a double reference letter.

A section having a single reference letter contains information and instructions which apply to the particular assembly or component when fitted to other B.M.C. vehicles.

A section having a double reference letter contains information and instructions which apply only when the assembly or component is fitted to the Riley One-Point-Five.

NUMBERING OF PAGES AND ILLUSTRATIONS

The pages and illustrations are numbered consecutively within each section, and the section title and letter(s) are shown at the top of each page.

SERVICE TOOLS

Use of the correct tools contributes to an efficient, economic, and profitable repair. References have therefore been made to such tools throughout the Manual.

GENERAL DATA

ENGINE

Type	15R.
Number of cylinders	4.
Bore	2·875 in. (73·025 mm.).
Stroke	3·5 in. (88·9 mm.).
Capacity	90·88 cu. in. (1489 c.c.).
Firing order	1, 3, 4, 2.
Compression ratio	8·3 : 1.
Capacity of combustion chamber (valves fitted)	39·2 c.c. (2·4 cu. in.).
Valve operation	Overhead by push-rod.
B.M.E.P.	138 lb./sq. in. (9·71 kg./cm.²) at 3,200 r.p.m.
Torque	83 lb. ft. (11·47 kg. m.) at 3,200 r.p.m.
Oversize bore: 1st	·010 in. (·254 mm.).
Max.	·040 in. (1·016 mm.).

CRANKSHAFT

Main journal diameter	2·0005 to 2·001 in. (50·813 to 50·825 mm.).
Minimum regrind diameter	1·96 in. (49·78 mm.).
Crankpin journal diameter	1·8759 to 1·8764 in. (47·648 to 47·661 mm.).
Crankpin minimum regrind diameter	1·835 in. (46·61 mm.).
Main bearings	
Number and type	3 shell-type.
Material: Bottom half	Steel-backed white metal.
Top half	Steel-backed white metal.
Length	1·375 in. (34·925 mm.).
End-clearance	·002 to ·003 in. (·051 to ·076 mm.).
End-thrust	Taken by thrust washers at centre main bearing.
Running clearance	·0005 to ·002 in. (·0127 to ·0508 mm.).

CONNECTING RODS

Length between centres	6·5 in. (165·1 mm.).
Big-end bearings	
Material: Bottom half	Steel-backed lead-bronze, lead-indium-plated.
Top half	Steel-backed lead-bronze, lead-indium-plated.
Bearing side-clearance	·008 to ·012 in. (·203 to ·305 mm.).
Bearing diametrical clearance	·001 to ·0025 in. (·0254 to ·063 mm.).

PISTONS

Type	Aluminium alloy. Anodised.
Clearances: Bottom of skirt	·0017 to ·0023 in. (·0432 to ·0584 mm.).
Top of skirt	·0035 to ·0042 in. (·0889 to ·1067 mm.).
Oversizes	+·010 in., +·020 in., +·030 in., +·040 in. (+·254 mm.), (+·508 mm.), (+·762 mm.), (+1·02 mm.).

GENERAL DATA—*continued*

PISTON RINGS

Compression: Plain	Top ring.
Tapered	Second and third rings.
Width	·0615 to ·0625 in. (1·56 to 1·58 mm.).
Thickness	·111 to ·118 in. (2·81 to 3·0 mm.).
	·119 to ·126 in. (3·02 to 3·2 mm.) from Engine No. 15R/U/H791.
Fitted gap	·008 to ·013 in. (·20 to ·33 mm.).
Clearance in groove	·0015 to ·0035 in. (·038 to ·089 mm.).
Oil control type	Slotted scraper.
Width	·1552 to ·1562 in. (3·94 to 3·99 mm.).
Thickness	·111 to ·118 in. (2·81 to 3·0 mm.).
	·119 to ·126 in. (3·02 to 3·2 mm.) from Engine No. 15R/U/H791.
Fitted gap	·008 to ·013 in. (·20 to ·33 mm.).
Clearance in groove	·0018 to ·0038 in. (·046 to ·096 mm.).

GUDGEON PIN

Type	Clamped.
Fit in piston	·0001 to ·00035 in. (·0025 to ·009 mm.). Hand push fit at 68° F. (20° C.).
Fit in connecting rod	·0001 to ·0006 in. (·0025 to ·0150 mm.).
Diameter (outer)	·6869 to ·6871 in. (17·447 to 17·452 mm.).

VALVES AND VALVE GEAR

Valves

Seat angle: Inlet	45°.
Exhaust	45°.
Head diameter: Inlet	1·500 to 1·505 in. (38·10 to 38·23 mm.).
Exhaust	1·281 to 1·286 in. (32·54 to 32·66 mm.).
Stem diameter: Inlet	·3422 to ·3427 in. (8·691 to 8·704 mm.).
Exhaust	·34175 to ·34225 in. (8·680 to 8·693 mm.).
Valve lift	$\frac{5}{16}$ in. (7·937 mm.).
Valve stem to guide clearance: Inlet	·0015 to ·0025 in. (·038 to ·063 mm.).
Exhaust	·002 to ·003 in. (·051 to ·076 mm.).
Valve rocker clearance: Running	·015 in. (·38 mm.) hot.
Timing	·026 in. (·66 mm.).
Timing markings	Dimples on timing wheels.
Chain pitch and number of pitches	$\frac{3}{8}$ in. (9·52 mm.), 52 pitches.
Inlet valve: Opens	5° B.T.D.C.
Closes	45° A.B.D.C.
Exhaust valve: Opens	40° B.B.D.C.
Closes	10° A.T.D.C.

with ·021 in. (·53 mm.) valve rocker clearance (for checking purposes only).

VALVE GUIDES

Length: Inlet	$1\frac{7}{8}$ in. (47·63 mm.).
Exhaust	$2\frac{13}{64}$ in. (55·95 mm.).
Diameter—inlet and exhaust: Outside	·5635 to ·5640 in. (14·312 to 14·325 mm.).
Inside	·34425 to ·34475 in. (8·744 to 8·757 mm.).
Fitted height above head	·625 in. (15·87 mm.).

GENERAL DATA—*continued*

VALVE SPRINGS

Free length—inlet and exhaust: Inner	1 31/32 in. (50·0 mm.).
Outer	2 3/64 in. (51·99 mm.).
Number of working coils: Inner	6½.
Outer	4½.
Pressure:	
Valve open—inlet and exhaust: Inner	50 lb. (22·7 kg.).
Outer	105 lb. (47·6 kg.).
Valve closed—inlet and exhaust: Inner	30±2 lb. (13·6±·9 kg.).
Outer	60·5±2 lb. (27·4±·9 kg.).

TAPPETS

Type	Flat base. Barrel type.
Diameter	·81125 to ·81175 in. (20·605 to 20·618 mm.).
Length	2·293 to 2·303 in. (58·25 to 58·5 mm.).

ROCKERS

Bore of rocker arms	·7485 to ·7495 in. (19·01 to 19·03 mm.).
Rocker ratio	1·4 : 1.

CAMSHAFT

Journal diameters: Front	1·78875 to 1·78925 in. (45·43 to 45·44 mm.).
Centre	1·72875 to 1·72925 in. (43·91 to 43·92 mm.).
Rear	1·62275 to 1·62325 in. (41·22 to 41·23 mm.).
End-float	·003 to ·007 in. (·076 to ·178 mm.).
Bearing: number and type	3 thinwall steel-backed white metal.
Outside diameter (before fitting)	Front 1·920 in. (48·76 mm.), centre 1·860 in. (47·24 mm.), rear 1·754 in. (44·55 mm.).
Inside diameter (reamed in position)	Front 1·790 in. (45·47 mm.), centre 1·730 in. (43·94 mm.), rear 1·624 in. (41·25 mm.).
Clearance	·001 to ·002 in. (·0254 to ·0508 mm.).

ENGINE LUBRICATION SYSTEM

Oil pump

Type	Eccentric rotor.
Relief pressure valve operates	50 lb./sq. in. (3·52 kg./cm.²).
Relief valve spring: Free length	2·859 in. (72·638 mm.).
Fitted length	2·156 in. (54·769 mm.) at 13½ lb. (6·12 kg.) load.

Oil filter

Type	Tecalemit or Purolator (element Part No. 8G683).
Capacity	½ pint (·28 litre).

Oil pressure

Normal running	50 lb./sq. in. (3·52 kg./cm.²).
Idling (minimum)	15 lb./sq. in. (1·05 kg./cm.²).

TORQUE WRENCH SETTINGS

Cylinder head nuts	40 lb. ft. (5·53 kg. m.).
Main bearing nuts	70 lb. ft. (9·7 kg. m.).
Connecting rod set screws	35 lb. ft. (4·83 kg. m.).
Clutch assembly to flywheel bolts	25 lb. ft. (3·46 kg. m.).
Bevel pinion nut	140 lb. ft. (19·35 kg. m.).
Flywheel securing bolts	35 to 40 lb. ft. (4·84 to 5·53 kg. m.).
Steering-wheel nut	41 lb. ft. (5·76 kg. m.).
Road wheel nuts	37 to 39 lb. ft. (5·02 to 5·4 kg. m.).

GENERAL DATA—*continued*

FUEL SYSTEM

Carburetter

Make and type	S.U. H4 semi-downdraught (twin).
Diameter	1½ in. (38·1 mm.).
Needle	Standard AD, Rich AR, Weak HA.
Jet	·090 in. (2·29 mm.).
Piston spring	Red.

AIR CLEANER

Make and type	A.C. oil bath.

FUEL PUMP

Make and type	S.U. electric—high-pressure.
Delivery test	10 gal. 3·5 pints per hr. (47·4 litres per hr.).
Suction lift	33 in. (83·8 cm.).
Output lift	48 in. (121·9 cm.).

COOLING SYSTEM

Type	Pressurized radiator. Thermo-siphon, pump- and fan-assisted.
Thermostat setting	70 to 75° C. (158 to 167° F.).

IGNITION SYSTEM

Sparking plugs	Champion N5 (formerly NA8).
Size	14 mm.
Plug gap	·024 to ·026 in. (·625 to ·660 mm.).
Coil	Lucas HA12.
Distributor	Lucas. Type DM2.
Distributor contact points gap	·014 to ·016 in. (·35 to ·40 mm.).
Timing	6° B.T.D.C.

CLUTCH

Make and type	Borg & Beck A6–G. Single dry plate.
Diameter	8 in. (20·3 cm.).
Facing material	Wound yarn.
Pressure springs	6.
Colour	Black and yellow.
Damper springs	6.
Colour	Black and light green.
Release lever ratio	4·6 : 1.

GEARBOX

Number of forward speeds	4.
Synchromesh	Second, third, and fourth gears.
Ratios: Top	1·0 : 1.
Third	1·3736 : 1.
Second	2·2143 : 1.
First	3·6363 : 1.
Reverse	4·7552 : 1.

Overall ratios:	Top	3·73 : 1.
	Third	5·12 : 1.
	Second	8·25 : 1.
	First	13·56 : 1.
	Reverse	17·73 : 1.
Speedometer gear ratio		5/13.

STEERING

Type	Rack and pinion.
Steering-wheel turns—lock to lock	2⅜.
Steering-wheel diameter	16½ in. (41·9 cm.).
Camber angle	¾°.
Castor angle	3°.
King pin inclination	9°.
Toe-in	Wheels parallel.

FRONT SUSPENSION

Type			Independent torsion bar.
Effective diameter			·750 in. (19·05 mm.).
Dampers (front)			Lever arm type.
Damper settings:	Rebound:	Blow-off	1,000±100 lb. in. (11·5±1·15 kg. m.) at 180°/sec. at 18° C.
		Time setting	200±49·7 lb. in. (2·3±·573 kg. m.) at 20°/sec. at 18° C.
	Compression:	Blow-off	800±60 lb. in. (9·2±·691 kg. m.) at 180°/sec. at 18° C.
		Time setting	200±49·7 lb. in. (2·3±·573 kg. m.) at 20°/sec. at 18° C.

REAR SUSPENSION

Type			Semi-elliptic.
Spring details:			
Number of leaves			7.
Width of leaves			1½ in. (38·1 mm.).
Gauge			7/32 in. (5·56 mm.).
Working load			500 lb. (227 kg.).
Free camber			4⅜ in. (111·1 mm.).
Dampers (rear)			Lever arm type.
Damper settings:	Rebound:	Blow-off	800±80 lb. in. (9·2±·92 kg. m.) at 180°/sec. at 18° C.
		Time setting	150±40 lb. in. (1·73±·46 kg. m.) at 20°/sec. at 18° C.
	Compression:	Blow-off	400±49·7 lb. in. (4·6±·573 kg. m.) at 180°/sec. at 18° C.
		Time setting	150±40 lb. in. (1·73±·46 kg. m.) at 20°/sec. at 18° C.

PROPELLER SHAFT

Type	Tubular. Reverse spline.
Make and type of joints	Hardy Spicer. Needle-roller.
Propeller shaft length (between centres of joints)	38⅞ in. (98·7 cm.).
Diameter	2 in. (50·8 mm.).

REAR AXLE

Type	Three-quarter-floating.
Ratio	11/41.
Adjustment	Shims.

GENERAL DATA—*continued*

ELECTRICAL EQUIPMENT

System	12-volt. Positive earth.
Charging system	Compensated voltage control.
Battery	Lucas GTW9A/2 (early models). Lucas GTZ9A (early models—export only). Lucas BT9A (later models). Lucas BTZ9A (later models—export only).
Capacity	58-amp.-hr. at 20-hr. rate.
Starter motor	Lucas 4-brush. M35G/1.
Dynamo	Lucas C39PV/2.
Control box	Lucas RB106/2.
Cut-out:	
Cut-in voltage	12·7–13·3.
Drop-off voltage	8·5–11·0.
Reverse current	5·0 amps. (max.).
Regulator:	
At 1,500 r.p.m. dynamo speed:	
Open-circuit setting at 20° C. (68° F.)	15·4–16·4 volts.

For ambient temperatures other than 20° C. the following allowances should be made to the above setting:
For every 10° C. (18° F.) above 20° C. subtract ·1 volt.
For every 10° C. (18° F.) below 20° C. add ·1 volt.

BRAKES

Type	Girling hydraulic (front and rear).
Front	Two leading shoes.
Rear	Single leading shoe.
Drum size	Front 9 in. (22·8 cm.). Rear 8 in. (20·3 cm.).
Lining dimensions: Front	8·66 in. × 2·25 in. (21·99 cm. × 5·71 cm.).
Rear	7·66 in. × 1·5 in. (19·45 cm. × 3·81 cm.).
Lining area: Front	78 sq. in. (503·1 cm.²).
Rear	46 sq. in. (296·7 cm.²).
Material	AM2.

WHEELS

Type: Ventilated disc	3·00 × 14.

TYRES

Size	5·00—14.
Tyre pressures: Normal—front and rear	22 lb./sq. in. (1·55 kg./cm.²).
Fully loaded: Front	24 lb./sq. in. (1·69 kg./cm.²).
Rear	26 lb./sq. in. (1·83 kg./cm.²).

CAPACITIES

	Imp.	*U.S.*	*Litres*
Engine sump (including filter)	8 pts.	9·6 pts.	4·5
Gearbox	5 pts.	6 pts.	2·84
Rear axle	1·75 pts.	2·1 pts.	1·0
Cooling system	13 pts.	15·6 pts.	7·38
Steering rack	·5 pt.	·6 pt.	·28
Fuel tank	7 gal.	8·4 gal.	32·0

GENERAL DATA—*continued*

GENERAL DIMENSIONS

Wheelbase	86 in. (2·185 m.).
Overall length	153·25 in. (3·892 m.).
Overall width	61 in. (1·55 mm.).
Overall height	59·75 in. (1·51 m.).
Ground clearance	$6\frac{1}{2}$ in. (16·51 cm.).
Weight: fully equipped with tools, spare wheel, oil, water, and 7 gallons of fuel (8·4 U.S. gal., 32 litres)	2,104 lb. (954 kg.) approx.
Turning circle: Left lock	32 ft. 11 in. (10·033 m.).
Right lock	34 ft. 3 in. (10·44 m.).
Track: Front	$50\frac{7}{8}$ in. (1·292 m.).
Rear	$50\frac{5}{16}$ in. (1·277 m.).

GENERAL INFORMATION

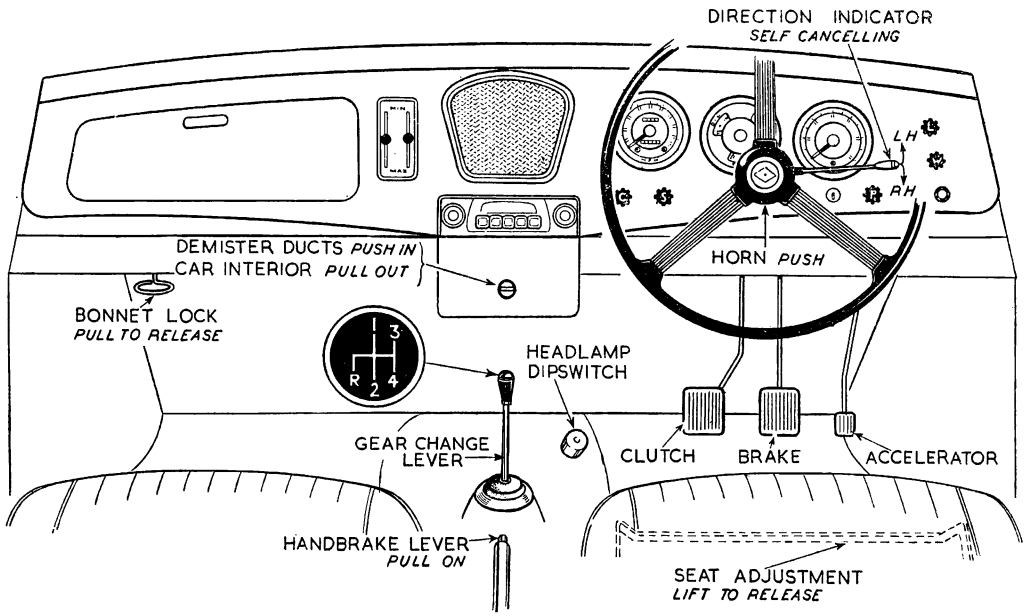
CONTROLS

Gear lever

The gear change lever positions are clearly shown in the diagram below.

To engage reverse gear move the lever to the left of the neutral position until resistance is felt, apply side pressure to the lever to overcome the resistance, and then pull it backwards to engage the gear.

Synchromesh engagement is provided on second, third, and fourth gears.



The location of the driving controls

Pedals

The left-hand pedal operates the clutch, the centre pedal operates the brakes, and the right-hand pedal the accelerator.

Do not allow the foot to rest on the clutch while driving or excessive wear of the operat.ng mechanism will result.

Hand brake

The hand brake is applied by pulling upwards on the lever situated behind the gear lever and between the two front seats. The ratchet mechanism will be heard to engage, holding it in the 'on' position.

To release the hand brake pull upwards on the lever, depress the plated button on the end, and push the lever downwards to the 'off' position.

Headlamp dip switch

The foot-operated headlamp beam dipping switch is to the left of the clutch pedal. It is of the repeating type, lowering the beams on one application and raising them on the next. The headlamp beam warning light glows when the beams are in the raised position.

Direction indicators and horns

The self-cancelling direction indicator control is mounted on an arm on the steering column below the steering wheel. The direction indicators will operate only when the ignition is switched on, and a warning light in the speedometer or, on later models, in the end of the lever flashes when they are operating.

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

Ignition switch

The switch is situated on the facia panel below the revolution indicator and is operated by a removable key which also locks both front doors and the luggage boot lid.

The switch must not be left on when the engine is not running or the battery will discharge itself through the coil should the contact breaker points be closed.

The fuel pump and fuel and temperature gauges are brought into action by this switch, which is also the master switch for the windshield wipers, indicators, ventilation blower motor and stop lamps.

Starter switch (marked 'S')

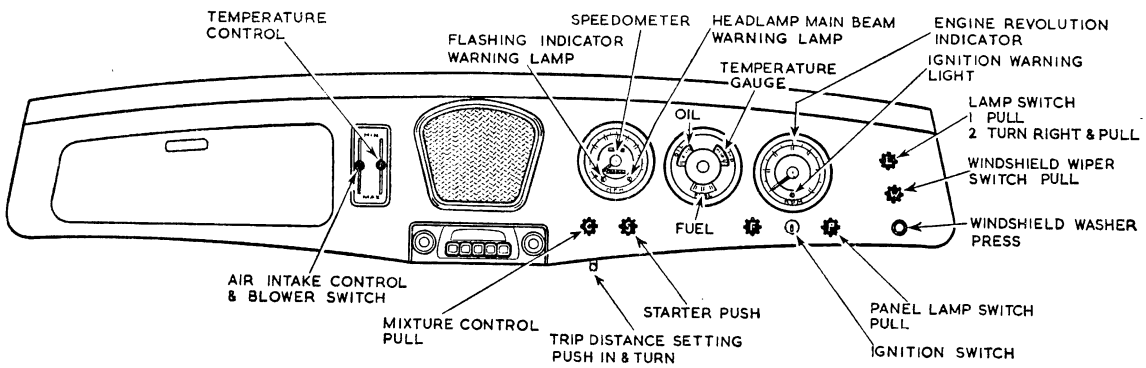
Push the knob smartly and firmly to operate the starter motor. Release it immediately the engine starts. If the engine fails to start first time wait until it has come to rest before operating the control again.

Choke or mixture control (marked 'C')

To enrich the mixture pull out the knob marked 'C'.

The control is self-locking in several positions, giving the richest mixture when it is fully out. Weaken the mixture by turning the knob clockwise and pushing it inwards. Return the control to its normal running position (pushed right in) as soon as possible after starting the engine.

Do not use the control when the engine is warm.



The instruments and switches

Panel lamp switch (marked 'P')

Pull the switch outwards to operate the panel lamps. They will operate only when the lighting switch is on.

Windshield wiper switch (marked 'W')

Pull the control outwards to set the wipers in motion. The blades are automatically parked when the control is pushed inwards to the 'off' position.

The wiper switch will operate only if the ignition switch is on.

Lamps switch (marked 'L')

Pull out the control to the first stop to switch on the pilot lamps, tail lamps, and radiator badge lamp. Turn the controls lightly clockwise and pull out to the second stop to switch on the headlamps. The headlamp beams may be raised or lowered by use of the foot-operated dipping switch.

Speedometer

In addition to showing the car speed this has total distance and trip recorders. The trip recorder can be set to zero by pushing the resetting knob inwards and turning it anti-clockwise.

Engine revolution indicator

The speed of the engine is indicated by this dial, which is calibrated in hundreds of revolutions per minute. Normal use of the engine will not require speeds over 5,000 r.p.m.; with care and under favourable conditions 5,500 r.p.m. may be attained, but this speed must never be exceeded.

Temperature gauge

The needle registers the coolant temperature only when the ignition is switched on. The normal running temperature is indicated by a marked division two-thirds of the way across the scale. Should there be a sudden change from the usual running temperature, immediate attention should be given to the cooling system and the cause of the trouble rectified.

Oil gauge

The normal working pressure when the engine is warm is 50 lb./sq. in. (3·52 kg./cm.²), whilst 15 lb./sq. in. (1·05 kg./cm.²) at least should be shown when the engine is ticking over.

Fuel gauge

This shows the amount of fuel in the tank and operates only when the ignition is switched on.

Warning lamps

The ignition warning lamp is in the lower half of the revolution indicator dial. The bright-red light will go out as the engine speed is increased; should it glow at all engine speeds the dynamo is not charging the battery, and after ascertaining that the dynamo belt is not broken the circuit should be examined.

On the right-hand side of the speedometer is the headlamp main beam warning lamp. Coloured dark red to avoid dazzle, the warning light glows when the headlamp beams are in the raised position and is extinguished when the beams are dipped for approaching traffic.

The warning lamp situated in the direction indicator switch indicates when the flashing indicators are operating.

Interior lamp

The interior lamp is controlled by a separate switch on the lamp and also by an automatic switch fitted on each front door pillar. With both front doors closed the lamp may be switched on or off by operating the switch on the lamp.

The act of opening either front door will switch on the lamp and closing either door will extinguish it.

Windshield washer (optional extra)

To operate the washer press the control button for a moment while the engine is running. In cold weather it is important to fill the reservoir with a mixture of water and Trico to prevent freezing of the water in the container and on the surface of the windshield.

Do not use radiator anti-freeze solution in the windshield-washing equipment.

Door locks

Front and rear doors are locked from the inside by pushing the interior handles forward; both front handles will return to their central position and the rear handles will remain forward. Pull the handles rearwards to unlock and open the doors. Front doors cannot be locked by pushing the handles forward prior to closing the doors; the closing action will automatically release the lock and so obviate the risk of locking oneself out of the car. Either front door may be locked from the outside with the ignition key.

Luggage boot

Turn the handle to open the boot lid.

The lid is held by a telescopic-type support which automatically locks in the open position.

To close, first raise the boot lid to trip the support lock and then lower the lid to the closed position, turning the handle to secure it.

The luggage boot lid may be locked in the closed position with the ignition key.

Bonnet

Release the bonnet catch by pulling the ring-type handle in the left-hand corner below the fascia panel. Insert a finger between the right-hand side of the radiator top and the bonnet, push the safety catch lever, and raise the bonnet.

As the bonnet is raised the support rod will automatically spring into engagement and the bonnet will be held in the open position. To close the bonnet raise the bonnet slightly and push the support towards the rear of the car to break the link, lower the bonnet, and apply double hand pressure to force the bonnet down into the fully closed position. The safety catch and bonnet lock will both be heard to engage.

Fuel filler

The fuel filler is located towards the rear on the right-hand side of the body. The tank is sealed by a cap with a bayonet-type fixing. Turn the cap anti-clockwise to remove.

Spare wheel

The spare wheel is stored in a separate compartment beneath the luggage boot floor and is secured by a bolt and clamp plate.

The spare wheel should always be maintained in good repair and inflated to the recommended pressure, otherwise its value in an emergency is reduced and tiresome roadside pumping may be involved. The spare wheel should also be exchanged with the road wheels periodically to ensure even wear on all tyres—every 3,000 miles (5000 km.) is recommended.

Jack

A special jack is housed in the tool roll located in the luggage boot and lifts both wheels on one side of the car simultaneously.

When raising a wheel the arm of the jack must engage the special socket bracket fitted beneath the centre of the front doors. The hole of the socket is normally closed with a rubber plug.

Ensure that the jack is leaning slightly outwards at the top when starting the lift, and place blocks of wood on each side of the two wheels remaining on the ground to prevent the car rolling if the hand brake is released.

Use the combined starting handle and wheel nut spanner to operate the jack.

Heating and ventilating system

The heating and ventilating system is provided for two purposes: (*a*) heating or ventilating the interior of the car, (*b*) demisting and defrosting the windshield. The air may be cold, or heated by water from the engine cooling system.

Air distribution is regulated by dashboard controls which can be used to vary the temperature and quantity of the air delivered to the car interior or to the windshield, and in warm weather the same controls can be used to deliver unheated air for ventilation.

Correct use of the heater controls will ensure complete comfort for the driver and passengers under all weather conditions, and the following notes are provided in order that the owner may become fully conversant with the functions of the various controls and thus obtain the best results from the heating equipment.

Booster blower

To meet extreme conditions an electric booster blower is incorporated in the heater system and its use greatly increases the quantity of air fed into the heater. The blower may be brought into operation when the car is stationary or travelling at low speed in order to compensate for the lack of the ram effect into the air intake normally caused by the forward motion of the vehicle. The blower is brought into operation by moving the air intake lever to the position marked 'MAX'.

Temperature control

This control regulates the temperature of the air supplied to the car interior. When moved to the lower 'MAX' position maximum heat will be obtained, and when moved to the upper 'MIN' position the heat supply is completely shut off. Intermediate positions can be selected to meet varying conditions.

Air control

The control on the front of the heater outlet box will regulate the quantity of air delivered to the car interior or to the windshield for demisting or defrosting. To obtain the maximum delivery at the windshield push the control fully in, and for delivery at toeboard level pull the control fully out. Should delivery to both car and windshield be desired, a midway position should be selected.

Air intake control

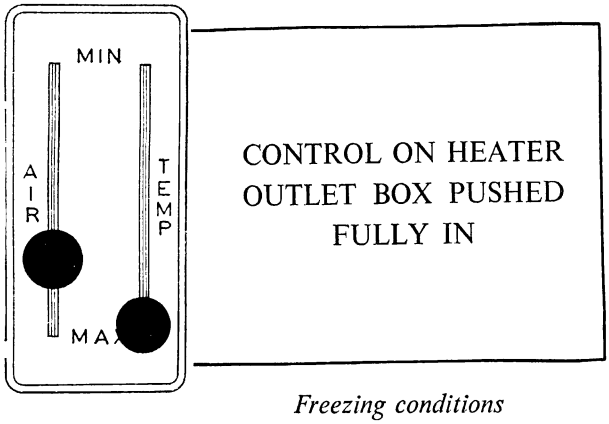
When the control is in the upper 'MIN' position the air intake duct is closed to prevent cold air entering the car. The control must be moved downwards to open the intake duct before the heater system will operate with a full flow of air. By moving the lever downwards to the first stop, which is approximately two-thirds of its total travel, the air intake flap will be fully opened. Further downward movement of the lever to the 'MAX' position will switch on the blower motor and augment the quantity of air fed to the car interior.

If the entry of exhaust fumes or other offensive odours surrounding the car should become objectionable it is advisable to move the lever to the 'MIN' position and so close the air intake until conditions improve.

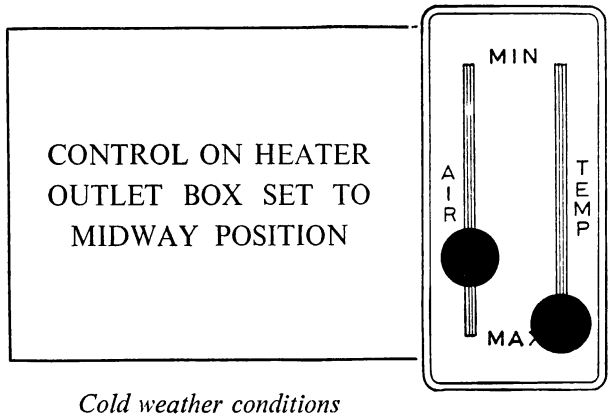
The following instructions give lever positions to meet certain basic conditions likely to be encountered. They are provided as a guide but it will be appreciated that a wide variety of settings can be made to meet varying conditions.

Freezing conditions

To remove ice from the windshield the temperature control should be set in the 'MAX' position and the air control on the front of the heater box pushed fully in. The air intake control should remain in the 'MIN' position until the engine is warm enough to heat the incoming air. Move the control to the first stop as soon as the engine has warmed up. Switch on the booster blower by further movement of the lever if stationary or travelling at a downward low speed.



Freezing conditions



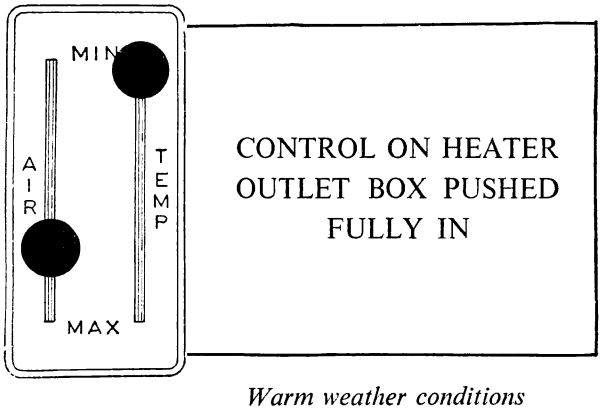
Cold weather conditions

Cold weather

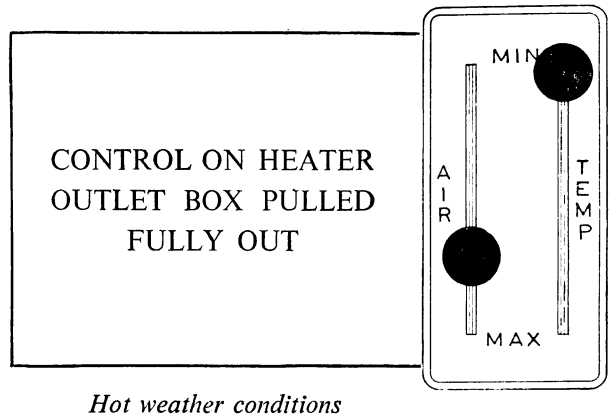
To prevent mist forming on the windshield and to introduce hot air to the interior of the car the air control on the front of the outlet box should be set in the midway position and the temperature control moved towards the 'MAX' position. The air intake control should remain in the 'MIN' position until the engine is warm enough to heat the incoming air; it must then be moved downwards to the first stop. Switch on the booster blower by further downward movement of the lever if stationary or travelling at a low speed.

Warm weather

To ensure a supply of cool air at head level the air control on the front of the heater box should be pushed fully in and the temperature control moved to the 'MIN' position. The air intake control must be set in the open position (moved to the first stop). Switch on the booster blower by further downward movement of the lever to increase the supply of air.



Warm weather conditions



Hot weather conditions

Hot weather

When a general circulation of cold air is required the air control on the front of the heater outlet box should be pulled fully out and the temperature control moved to the 'MIN' position. The air intake control must be set in the open position (moved towards the first stop). Switch on the booster blower by further movement of the lever to increase the supply of air.

CAR NUMBER IDENTIFICATION CODE

The car number symbol consists of three letters and two figures followed by the usual serial number of the vehicle.

The first letter when related to the code provides an indication of the make and model of the vehicle—Riley One-Point-Five.

The second letter provides an indication of the type of vehicle—Saloon, etc.

The third letter indicates the colour in which the vehicle is finished.

The first figure indicates the class to which the vehicle belongs—R.H.D. Home, L.H.D., etc.

The second figure indicates the type of paint used to finish the car—cellulose, synthetic, Synobel, etc.

From this it will be clear that when an owner quotes the code number of his car it is a relatively simple matter to obtain a comprehensive picture of the vehicle concerned by reference to the following tabulated code to the symbols.

Model	*Code*	*Type*	*Code*	*Colour*	*Code*	*Class*	*Code*	*Paint*	*Code*
Wolseley 6/80	A	Saloon 4-door	A	Black	A	R.H.D. Home	1	Synthetic	1
Wolseley 4/50	B	Saloon 2-door	B	Light Grey	B	R.H.D. Export	2	Synobel	2
Morris Six	C	Tourer	C	Dark Red	C	L.H.D.	3	Cellulose	3
Morris Oxford	D	2-seater	D	Dark Blue	D	North America	4	Metallic	4
Morris Cowley	E	Van	E	Mid Green	E	C.K.D.—R.H.D.	5	Primed	5
Morris Minor	F	Truck	F	Beige	F	C.K.D.—L.H.D.	6	Cel. body,	
Morris 5-cwt.	G	Cab	G	Brown	G			synthetic	
M.G. Midget	H	Mail	H	C.K.D. Finish	H			wings	6
M.G. 1¼-litre	J	Engineers	J	Dark Grey	J				
M.G. Magnette	K	Chassis	K	Light Red	K				
Riley 1½-litre	L	Traveller	L	Light Blue	L				
Riley 2½-litre	M	Coupé	M						
Wolseley 4/44	N								
Quarter-ton	O								
Half-ton	P			Ivory	P				
Wolseley 6/90	R			White	R				
Isis	S			Mid Grey	S				
Wolseley 15/50	T			Light Green	T				
Riley 2·6	U			Dark Green	U				
Riley 1·5	V								
Wolseley 1500	W								

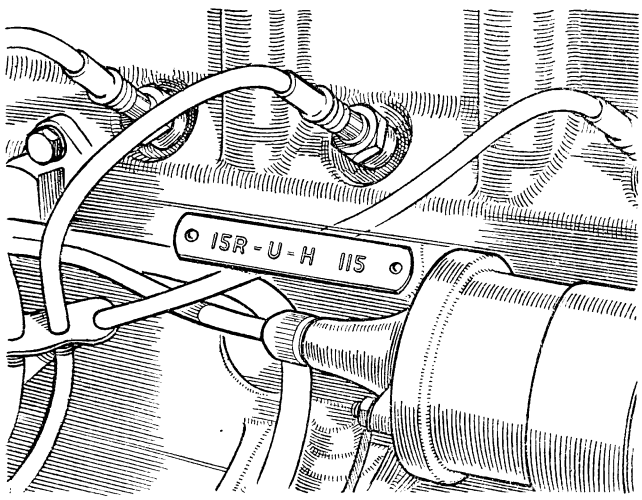
Code example for one-colour finish:
DAC 12/1001—Oxford, Saloon 4-door—Dark Red—R.H.D. Home—Synobel—Car No. 1001.

Code example for duotone finish:
KAKP 33/1002—M.G. Magnette, Saloon 4-door—Light Red (Top), Ivory (Bottom), L.H.D.—Cellulose—Car No. 1002.

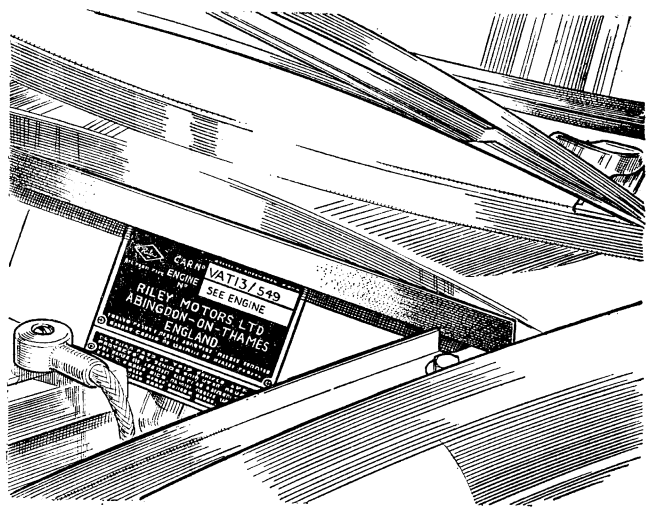
Owing to the fact that the technique required to effect repairs to the different paint finishes varies considerably, and that the correct paint **must** be used for such purposes, it is to be noted that the second figure of the symbols is of particular importance as it defines the nature of the paint used by the Factory to finish the car.

LOCATION OF MAJOR COMPONENT SERIAL NUMBERS

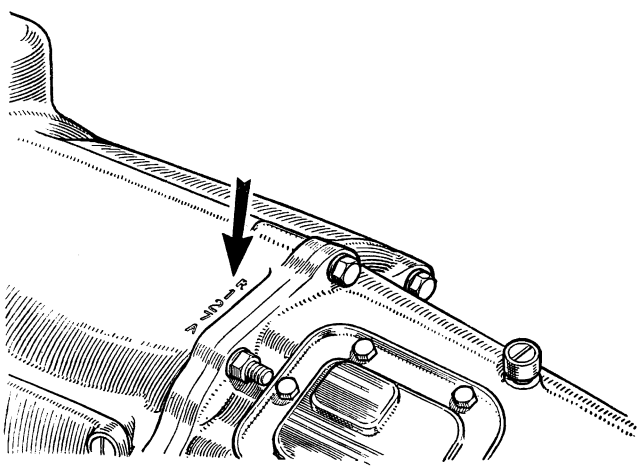
The major components of the vehicle have serial numbers. When in communication with the Company or your Dealer always quote the car and engine numbers. The registration number is of no assistance and is not required. The car number will be found stamped on the identification plate located under the bonnet on the dash panel or, in the case of later cars, on the front door pillar. The engine number is stamped on a plate fixed to the right-hand side of the cylinder block. Other major components have their serial numbers stamped upon them and their locations are illustrated below.



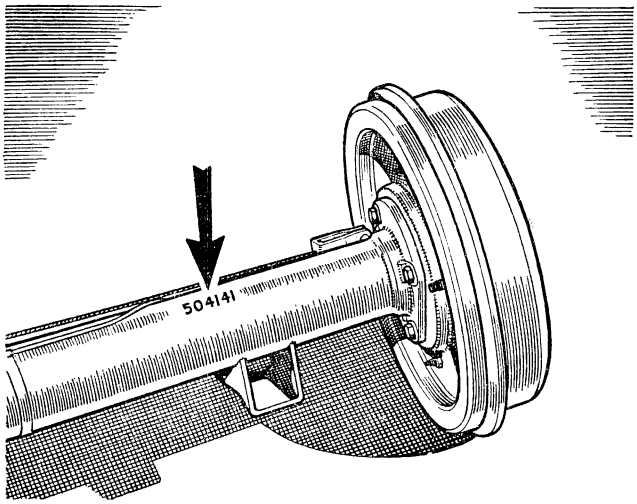
Engine Number. This is stamped on a plate secured to the right-hand side of the cylinder block above the oil filter (and on the identification plate)



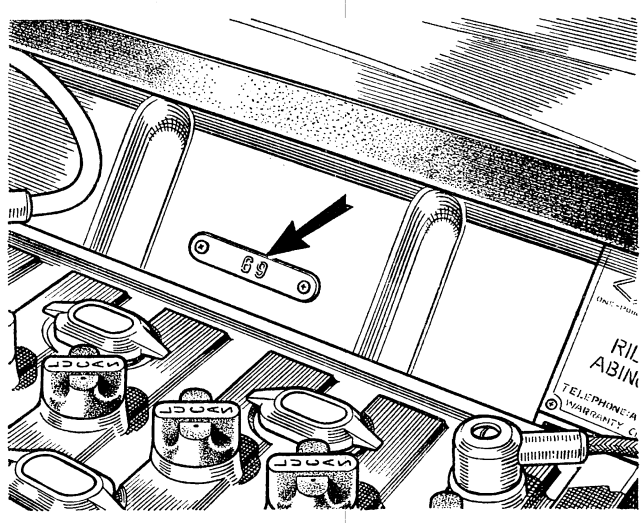
Car (Chassis) Number. This is stamped on a plate secured to the dash panel under the bonnet. On later cars the plate is attached to the front door pillar



Gearbox Number This is stamped on the top of the gearbox casting, forward of the gearbox extension joint



Rear Axle Number. Stamped on the front of the left-hand rear axle tube adjacent to the spring seat



Body Number. Stamped on a plate mounted on the dash panel under the bonnet

POWER UNIT SERIAL NUMBER CODING

The engine number on later models comprises a series of letters and numbers, presenting in code the capacity, make and type of unit, ancillaries fitted, and the type of compression, together with the serial number of the unit.

1st PREFIX GROUP—Cubic capacity, make, and type

1st Prefix number
- 8—803 c.c.
- 9—950 c.c.
- 12—1200 c.c.
- 15—1500 c.c.
- 22—2200 c.c.
- 25—2500 c.c.
- 26—2600 c.c.

1st Prefix letter
- A–Z
- B—B.M.C. Industrials
- G—M.G.
- H—Miscellaneous special
- J—Commercial
- M—Morris
- R—Riley
- W—Wolseley

2nd Prefix letter A–Z used for the variations of engine type

2nd PREFIX GROUP—Gearbox and ancillaries

A—Automatic gearbox
M—Manumatic clutch
N—Steering column gear change gearbox
O—Overdrive (Borg-Warner)
P—Police specification
U—Centre or side gear change gearbox

3rd GROUP—Compression and serial number

H—High compression
L—Low compression
} and serial number of unit

CODE EXAMPLE

15R/U/H123456

- 123456 — Serial Number
- H — High Compression
- U — Centre Gear Change Gearbox
- 15R — 1500 c.c. Riley

COMMUNICATING WITH THE COMPANY

For all Home trade inquiries the address is:
RILEY MOTORS LIMITED
Abingdon, Berkshire.
Telephone: Abingdon 251–2–3–4.
Telegrams to: Riley, Abingdon.

For all Overseas inquiries the address is:
NUFFIELD EXPORTS LIMITED
Cowley, Oxford, England.
Telephone: Oxford, England, 77733.
Telex: Morex, Oxford, England.
Cables: Morex, Oxford, England.

CLAIMS UNDER WARRANTY

Claims for the replacement of material or parts under Warranty must always be submitted to the supplying Distributor or Dealer, or, when this is not possible, to the nearest Distributor or Dealer, informing them of the Vendors' name and address.

PRESERVATIVE ON EXPORT CARS

To remove the hard film preservative from the external plated parts a cloth dipped in a solution of equal parts of white spirit and petrol (gasoline) should be used. Take care to keep this solvent from anything other than the plated components.

IDENTIFICATION OF UNIFIED SCREW THREADS

The general standardization of Unified screw threads makes it necessary to identify all nuts, bolts, and set screws with these threads in order to ensure their being matched with correspondingly threaded components and the fitting of correct replacements.

Identification has been standardized and is effected in the following manner:

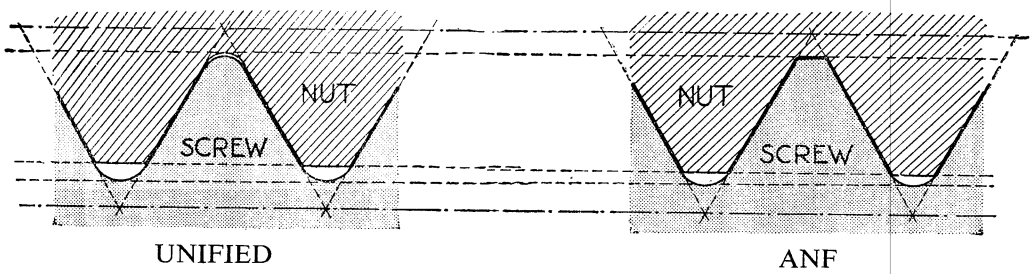
Nuts. By a circular groove turned on the end face of the nut or by connected circles stamped on one flat of the hexagon.

Bolts and set screws. By a circular depression turned on the head or by connected circles stamped on one flat of the hexagon.

Wheel stud nuts. By a notch cut in all the corners of the hexagon.

It is of the utmost importance that any nuts, bolts, or set screws marked with the above identifications are used only in conjunction with associated components having Unified threads and that only replacement parts with Unified threads are used, as these are *not* interchangeable with Whitworth, BSF, or Metric threads.

The Unified thread is, however, interchangeable with the American National Fine (ANF) thread for all practical purposes.



This illustration of the Unified thread and the ANF thread to the same scale indicates their close relationship

Spanners. It is to be noted that all ANF- and Unified-threaded nuts and hexagon-headed bolts are made to the standard American hexagon sizes and that spanners of the appropriate size must be used when tightening or loosening them.

KEY TO SPANNER SIZES (*Nominal widths between jaws*)

Diameter of screw thread (*inches*)	$\frac{1}{4}''$	$\frac{5}{16}''$	$\frac{3}{8}''$	$\frac{7}{16}''$	$\frac{1}{2}''$	$\frac{9}{16}''$	$\frac{5}{8}''$	$\frac{3}{4}''$	$\frac{7}{8}''$	$1''$
For BSF screws and nuts	·448	·529	·604	·705	·825	·925	1·016	1·207	1·309	1·489
For ANF screws and nuts	·440	·504	·566	·629	·755	·880	·944	1·132	1·320	1·508
For Unified screws	·440	·504	·566	**·630**	·755	**·817**	·943	1·132	1·321	1·509
For Unified nuts (normal)	·440	·504	·566	**·692**	·755	**·880**	·943	1·132	1·321	1·509
For Unified nuts (heavy)	—	—	—	—	—	—	**1·069**	**1·258**	**1·446**	—

NOTE.—In the case of some Unified-threaded components the size of the hexagon for the nut is different from that of the bolt. Where this occurs the spanner size is shown in heavy type in the above table.

PART NAME ALTERNATIVES

	Part Name	*Alternatives*
ENGINE	Gudgeon pin	Piston pin. Small-end pin. Wrist pin.
	Scraper ring	Oil control ring.
	Core plug	Expansion plug. Welch plug. Sealing disc.
	Oil sump	Oil pan. Oil reservoir.
CONTROLS	Mixture control	Choke. Strangler.
GEARBOX	Gear lever	Shift lever.
	Change speed fork	Shift fork. Selector fork.
	First motion shaft	Clutch shaft. First reduction pinion. Main drive pinion. Drive gear.
	Layshaft	Countershaft.
AXLE	Crown wheel	Ring gear. Spiral drive gear.
	Bevel pinion	Small pinion. Spiral drive pinion.
	'U' bolts	Spring clips.
	Axle shaft	Half-shaft. Hub driving shaft. Jack driving shaft.
	Differential gear	Sun wheel.
	Differential pinion	Planet wheel.
STEERING	Swivel pin	Pivot pin. Steering pin. King pin.
	Stub axle	Swivel axle.
	Track-rod	Cross-tube.
	Draglink	Side-tube. Steering connecting rod.
ELECTRICAL	Dynamo	Generator.
	Control box	Voltage regulator. Cut-out. Voltage control.
EXHAUST	Silencer	Muffler.
BODY	Bonnet	Hood.
	Wing	Mudguard. Fender.

FROST PRECAUTIONS

Steps must be taken to prevent the water in the cooling system from freezing during frosty weather. Water, when it freezes, expands, with the result that there is a very considerable risk of bursting either the radiator, heater element, or the cylinder block by the pressure generated. Since no provision is made for draining the heater unit, draining the radiator and cylinder block is not a sufficient safeguard.

The cooling system is of the sealed type and relatively high temperatures are developed in the radiator upper tank. For this reason anti-freeze solutions having an alcohol base are unsuitable owing to their high evaporation rate producing a rapid loss of coolant and a consequent interruption of circulation. Only anti-freeze of the ethylene glycol type incorporating the correct type of corrosion inhibitor is suitable and owners are recommended to use Bluecol, Shell Snowflake, or Esso Anti-freeze.

The recommended quantities of anti-freeze for different degrees of frost are:

Down to	*Down to*
7° *F.* (—14° *C.*)	0° *F.* (—18° *C.*)
15% solution	20% solution
Quantity $1\frac{3}{4}$ pints (1 litre)	Quantity $2\frac{1}{2}$ pints (1·42 litres)

Where temperatures below 0° F. (—18° C.) are likely to be encountered, a solution of at least 25 per cent. of anti-freeze must be used to ensure immunity from trouble. Consult the makers on this matter.

First decide what degree of frost protection is required before adding the anti-freeze.

Make sure that the cooling system is watertight and examine all joints, renewing any defective rubber hose.

Before adding anti-freeze to the cooling system it is advisable to clean the cooling system thoroughly by swilling out the water passages with a hose inserted in the filler, and with the drain taps open.

Avoid excessive topping up, otherwise there is a risk of losing valuable anti-freeze due to expansion of the solution. Top up only when the system is at its normal running temperature.

Generally speaking, anti-freeze is not injurious to cellulose paint provided it is wiped off in reasonable time.

Do not use radiator anti-freeze in the windshield-washing equipment.

RUNNING-IN SPEEDS

The treatment given to a new car will have an important bearing on its subsequent life, and engine speeds during this early period must be limited. The following instructions should be strictly adhered to.

During the first 500 miles (800 km.)

DO NOT exceed 45 m.p.h. (72 km.p.h.).

DO NOT operate at full throttle in any gear.

DO NOT allow the engine to labour in any gear.

MAINTENANCE ATTENTION

500 MILES (800 Km.) FREE SERVICE

During the early life of the car, soon after it has completed 500 miles (800 km.), you are entitled to have it inspected free of charge by the Riley Dealer from whom you purchased it, or, if this should not be convenient, by any other Riley Dealer by arrangement. This attention given during the critical period in the life of the car makes all the difference to its subsequent life and performance.

This service includes:

1. Drain oil from engine, gearbox, and rear axle, and refill.
2. Oil and grease all points of the car.
3. Tighten cylinder head and manifold nuts to recommended pressures.
4. Check tightness of valve rocker shaft brackets to recommended pressures.
5. Check valve rocker clearances, and reset if necessary.
6. Tighten fan belt if necessary.
7. Check all water connections, and tighten clips if necessary.
8. Examine and clean carburetters, and reset slow-running adjustment if necessary.
9. Examine, and adjust if necessary, sparking plug and distributor points.
10. Check working of automatic ignition controls and, if necessary, reset ignition timing.
11. Check front wheel alignment and steering connections. Adjust if necessary.
12. Check tightness of universal joint nuts, wheel nuts, spring clips, hydraulic damper mounting bolts, and wing (fender) bolts.
13. Check clutch pedal for free movement, and bleed if necessary.
14. Check fluid level in brake **(Girling)** and clutch **(Lockheed)** master cylinders, and top up if necessary.
15. Check braking system functionally, and bleed lines if necessary.
16. Check electrical system functionally.
17. Examine battery and top up to proper level with distilled water. Clean and tighten terminals.
18. Inspect hydraulic dampers for leaks.
19. Test tyres for correct pressures.
20. Check doors for ease in opening and closing. If necessary, lightly smear with a suitable lubricating agent all dovetails and striking plates.

Regular servicing, as proven by presentation of completed voucher counterfoils, could well enhance the value of your vehicle in the eyes of a prospective purchaser.

ALL MATERIALS CHARGEABLE TO THE CUSTOMER

PERIODICAL

Daily

Check oil level in crankcase. Top up if necessary.
Check water level in radiator. Top up if necessary.

Weekly

Test tyre pressures, and regulate if necessary.

1,000 miles (1600 km.) service

1. *Engine*
   Top up carburetter piston dampers.
   Lubricate carburetter controls.
   Top up radiator.
   Check level of oil in air cleaner.
2. *Clutch*
   Check level of fluid in clutch master cylinder.
3. *Brakes*
   Check brake pedal free travel and report if adjustment is required.
   Make visual inspection of brake lines and pipes.
   Check level of fluid in brake master cylinder.
4. *Hydraulic dampers*
   Examine all hydraulic dampers for leaks.
5. *Electrical*
   Check battery cell specific gravity readings and top up to correct level.
6. *Lubrication*
   Top up oil levels in engine, gearbox, and rear axle.
   Lubricate all nipples except steering rack.
7. *Wheels and tyres*
   Check tyre pressures.
   Check wheel nuts for tightness.

2,000 miles (3200 km.) service

Carry out the **1,000 miles (1600 km.) service.**

3,000 miles (4800 km.) service

1. *Engine*
   Top up carburetter piston dampers.
   Lubricate carburetter controls.
   Top up radiator.
   Clean and re-oil air cleaner.
   Check dynamo drive belt tension.
2. *Ignition*
   Check automatic ignition control, lubricating drive shaft, cam, and advance mechanism.
   Check, and adjust if necessary, distributor contact points.
   Clean and adjust sparking plugs.
3. *Clutch*
   Check level of fluid in clutch master cylinder.
4. *Brakes*
   Check brakes, and adjust if necessary.
   Change wheels round diagonally, including spare, to regularize tyre wear.
   Make visual inspection of brake lines and pipes.
   Check level of fluid in brake master cylinder.
5. *Hydraulic dampers*
   Examine all hydraulic dampers for leaks.
6. *Body*
   Lubricate door hinges, bonnet lock, and operating mechanism.
7. *Electrical*
   Check battery cell specific gravity readings and top up to correct level.
   Lubricate dynamo bearing.
8. *Lubrication*
   Change engine oil.
   Top up oil levels in gearbox and rear axle.
   Lubricate all nipples except steering rack.
9. *Wheels and tyres*
   Check tyre pressures.

4,000 miles (6400 km.) service

Carry out the **1,000 miles (1600 km.) service.**

5,000 miles (8000 km.) service

Carry out the **1,000 miles (1600 km.) service.**

6,000 miles (9600 km.) service

1. *Engine*
   Top up carburetter piston dampers.
   Lubricate carburetter controls.
   Top up radiator.
   Check dynamo drive belt tension.
   Lubricate water pump sparingly.
   Check valve rocker clearances, and adjust if necessary.
   Clean and re-oil air cleaner.
   Clean fuel pump filter.

MAINTENANCE ATTENTION—*continued*

6,000 miles (9600 km.) service—*continued*

2. *Ignition*
   Check automatic ignition control, lubricating drive shaft, cam, and advance mechanism.
   Check, and adjust if necessary, distributor contact points.
   Clean and adjust sparking plugs.
3. *Clutch*
   Check level of fluid in clutch master cylinder.
4. *Brakes*
   Check brakes, and adjust if necessary.
   Change wheels round diagonally, including spare, to regularize tyre wear.
   Make visual inspection of brake lines and pipes.
   Check level of fluid in brake master cylinder.
5. *Hydraulic dampers*
   Examine all hydraulic dampers for leaks and top up if required.
6. *General*
   Tighten rear road spring seat bolts.
7. *Body*
   Check, and tighten if necessary, door hinges and striker plate securing screws.
   Lubricate door hinges, bonnet lock, and operating mechanism.
8. *Electrical*
   Check battery cell specific gravity readings and top up to correct level.
   Lubricate dynamo bearing.
9. *Lubrication*
   Change oil in engine, gearbox, and rear axle.
   Fit new oil filter element.
   Lubricate all nipples except steering rack.
   Repack front hub caps with grease.
10. *Wheels and tyres*
    Check tyre pressures.
    Check wheel alignment.

7,000 miles (11200 km.) service

Carry out the **1,000 miles (1600 km.) service.**

8,000 miles (12800 km.) service

Carry out the **1,000 miles (1600 km.) service.**

9,000 miles (14400 km.) service

Carry out the **3,000 miles (4800 km.) service.**

10,000 miles (16000 km.) service

Carry out the **1,000 miles (1600 km.) service.**

11,000 miles (17600 km.) service

Carry out the **1,000 miles (1600 km.) service.**

12,000 miles (19200 km.) service

1. *Engine*
   Remove carburetter suction chambers and pistons, clean, reassemble, and top up.
   Remove carburetter float-chambers, empty sediment, and refit.
   Lubricate carburetter controls.
   Check valve rocker clearances, and adjust if necessary.
   Clean and re-oil air cleaner.
   Check dynamo drive belt tension.
   Lubricate water pump sparingly.
   Clean fuel pump filter.
2. *Ignition*
   Check automatic ignition control, lubricating drive shaft, cam, and advance mechanism.
   Check, and adjust if necessary, distributor contact points.
   Fit new sparking plugs.
3. *Clutch*
   Check level of fluid in clutch master cylinder.
4. *Steering*
   Check steering and suspension moving parts for wear.
5. *Brakes*
   Check brakes, and adjust if necessary.
   Change road wheels round diagonally, including spare, to regularize tyre wear.
   Make visual inspection of brake lines and pipes.
   Check level of fluid in brake master cylinder.
6. *Hydraulic dampers*
   Examine all hydraulic dampers for leaks, and top up if required.
7. *Radiator*
   Drain, flush out, and refill radiator.
8. *General*
   Tighten rear road spring seat bolts.
9. *Body*
   Check, and tighten if necessary, door hinges and striker plate securing screws.
   Lubricate door hinges, bonnet lock, and operating mechanism.
10. *Electrical*
    Check battery cell specific gravity readings and top up to correct level.
    Lubricate dynamo bearing.
    Check headlamp beam setting, and reset if necessary.
11. *Lubrication*
    Drain and flush out engine, filling with fresh oil.
    Change oil in gearbox and rear axle.
    Fit new oil filter element.
    Lubricate all grease nipples.
    Lubricate steering rack.
    Lubricate speedometer and tachometer drive cables.
    Repack front hubs with grease.
12. *Wheels and tyres*
    Check tyre pressures.
    Check wheel alignment.

24,000 miles (38400 km.) service

Carry out the **12,000 miles (19200 km.) service** but instead of flushing out the engine carry out the following operation:

1. *Engine*
   Remove engine sump and pick-up strainer, clean, and reassemble, filling with fresh oil.