

BOOK No. 100/AN2.

DRIVER'S HANDBOOK

Car, 2-Seater, 4-wheeled
LIGHT UTILITY

Austin
10 H.P.



Austin Motor Company's 2086
Publication No.

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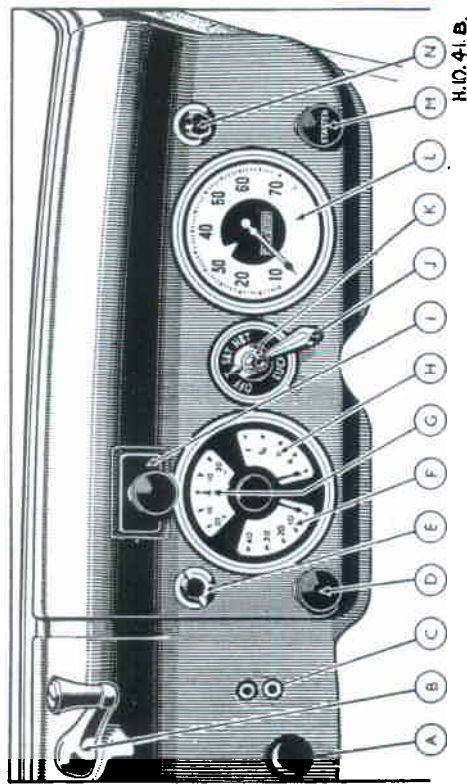
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PRINTED IN ENGLAND

1.—VEHICLE DATA.

ENGINE...	Four cylinder. Side valves. Oil capacity : approximately 7 pints, measured by dipstick. Use M.160 oil. Oil pressure (normal) 35-40 lbs. per sq. in. at 25 m.p.h. in top gear, when engine is hot.
GEARBOX	Synchromesh. Oil capacity 1½ pints. Use M.220 oil.
REAR AXLE	Spiral Bevel. Oil capacity 2½ pints. Use C.600 oil.
COOLING	Belt driven pump circulation. Capacity 20½ pints.
FUEL FEED	Rear petrol tank. 8½ gallons capacity, measured by electric gauge on instru- ment panel. A.C. pump, and Zenith downdraught carburettor.
ELECTRICAL	12-volt, battery under bonnet. Coil ignition.
BRAKES	Girling.
TYRES	6-16.
MAXIMUM PERMISSIBLE ROAD SPEEDS IN GEARS:—	
Miles per hour.	
New Engine	1st 6½ 2nd 11 3rd 17½ Top 30
Engine run-in (After 500 miles)	12 20 32 55

2.—CONTROLS.



H.D. 41. B.

Controls

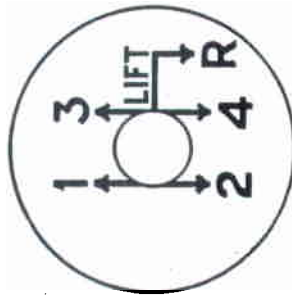
A	Trafficator Control	H	Petrol Gauge
B	Windscreen winder	I	Screenwiper Control
C	Two pin socket	J	Lighting Switch
D	Air Choke	K	Ignition Switch
E	Ignition Warning Lamp	L	Speedometer
F	Oil Pressure Gauge	M	Starter Knob
G	Ammeter	N	Panel Light Switch

3.—FOOT CONTROLS.

- (a) **Accelerator** : The right-hand pedal which operates the carburetter throttle.
- (b) **Brake** : The centre pedal which operates the brakes on all four wheels.
- (c) **Clutch** : The left-hand pedal. Do not rest your foot on this pedal when driving and do not hold the clutch out to "free wheel."

4.—HAND CONTROLS.

- (a) **Brake** : Operates on all four wheels.
- (b) **Gear Lever** : For selecting the gears. It should always be in neutral when starting the engine. Lift the lever to engage reverse gear.



The Gear Positions.

- (c) **Carburetter easy starting air choke control (D).**

(1.) For starting from cold, pull out air choke to limit until engine fires. As soon as the engine is running, push knob about half way back and turn it left to lock in warming-up position.

(d) **Ignition Switch (K)** : Centre of Instrument Panel. Turn clockwise to switch on. Do not leave switch "on" when vehicle is stationary—the red warning lamp is a reminder.

(e) **Lighting Switch (J)** : Centre of panel, on same mounting as ignition switch. There are four positions :—

1. Off.
2. "T." Tail lamp or rear axle flood lamp only.
3. "S. & T." Side lamps and tail lamp or rear axle flood lamp.
4. "H. & T." All lamps.

Rear axle floodlamp switch : This is fitted on rear chassis cross member, and is a changeover switch for tail lamp or rear axle floodlamp.

(f) **Trafficator (A)** : A manually-operated trafficator is provided for giving a nearside signal. The knob is conveniently placed to driver's left hand.

(g) **Windscreen Wipers (I)** : The windscreen wiper on the driver's side is started by pushing in the knob and turning it to the left. After this blade is in operation, the second blade may be started by pushing in its knob and turning to the right. The second blade should be stopped first by pushing in the knob and turning to the left ; to stop the first blade, push in the knob and turn to the right. The wipers operate only when the ignition switch is "On."

5.—INSTRUMENTS.

(a) **Speedometer (L)** : Registers vehicle speed and total mileage.

(b) **Oil Pressure Gauge (F)** : Indicates the oil pressure in the engine. It does not show the quantity of oil in the sump.

(c) **Ammeter (G)** : Indicates the flow of current into or out of the battery. With the automatic voltage control system, little or no charge is shown when battery is in a well-charged condition.

(d) **Ignition Warning Light (E)** : On instrument panel. Glows red when the ignition is switched on and fades out when the dynamo is charging the battery.

(e) **Petrol Gauge (H)** : The Petrol Gauge indicates the contents of the tank when the ignition control is switched on.

When the tank is being filled, switch off and stop the engine and then switch on again, and the needle will record the amount of fuel entering the tank. The capacity of the tank is 8½ gallons.

6.—THE OIL GUN.

The gun as supplied is used for forcing oil C600 through the nipples. Charge the gun by unscrewing the end cap and fill to three-quarters of its capacity. Replace end cap. Connect to nipple and push gun body hard. Repeat strokes according to the amount of lubricant required in the bearing. Always clean nipples carefully before applying the gun.

7.—STARTING THE ENGINE.

(a) Before starting the engine, check the oil level in the sump and the water level in the radiator.

(b) Make sure there is sufficient petrol in the tank.

(c) Turn ignition switch (K) "on."

(d) See that the gear lever is in neutral position. If the engine is cold pull out the "air choke" (D) (see "Controls").

(e) Pull starter knob (M) firmly (in cold weather the engine should first be rotated several times with the starting handle and the radiator completely blanked off by fastening muff flap in position across front). Do not hold out the starter knob if the engine fails to start promptly. Allow a short interval

8.—DRIVING.

MAXIMUM PERMISSIBLE ROAD SPEEDS IN GEARS:—

New Engine Engine run-in (After 500 miles)	Miles per hour.			
	1st	2nd	3rd	Top
...	6½	11	17½	30
...	12	20	32	55

- (The gearbox has four forward speeds and a reverse).
- (a) To engage first gear, press down clutch pedal (*i.e.*, declutch) and move the gear lever into the first speed position.
- (b) It may happen that when the clutch is let in, there is no apparent drive from the engine. That is because there has been no proper engagement of the gear. Therefore, declutch again, and it will certainly be found that the lever can then be moved so as to give the proper gear engagement. Do not use force, but always move gear lever as far as it will go.
- (c) Start on first speed, accelerate to about 8 m.p.h.,* release the accelerator, declutch, move the lever to neutral, and continue the movement of the lever steadily to the second speed position and let in the clutch gently.
- (d) In moving from second to third speed, a similar action takes place. Accelerate to about 12 m.p.h.,* release the accelerator, declutch, move the lever to neutral and continue the movement of the lever steadily into the third speed.
- (e) To move from third to top, declutch, and move the lever steadily into the position desired. It assists the change down from top to third, and third to second if the accelerator is kept slightly depressed while the change is made.
- (f) Gear changing may be slightly stiff in a new vehicle until the moving parts have eased in use. Changing should be done deliberately, but not hurriedly.

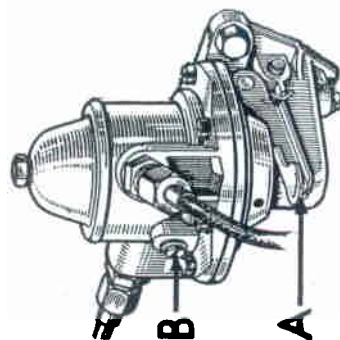
*Figures given are those for an engine that has been run-in.

between each successive attempt to start, and if the engine does not fire in a reasonably short time look for the trouble or report. Never pull out the starter knob unless the engine is stationary.

(f) As soon as the engine starts, gradually release the air choke to the warming-up position, which is found by turning the knob to the left. Do not use the accelerator while the choke is out, but push air choke right back as soon as the engine will run without it.

(g) When the vehicle has been parked for some time the petrol in the carburetter may have evaporated or leaked away. Before attempting to start the engine, refill the carburetter by operating the hand priming lever (A) on the petrol pump.

(h) The pumping action can be distinctly felt until the carburetter bowl is full. If the pumping action cannot be felt, turn the engine with the starting handle about one full turn, when the priming lever should be free to pump.



Petrol Pump.
A—Priming Lever.
B—Drain Plug.

(i) Do not allow the engine to race when first starting up, as time must be allowed for the oil to circulate and lubricate the engine bearings. Let the engine idle fairly fast for a few minutes before moving off, or get into top gear as soon as possible after having started. Blanking off the radiator will assist to warm up quickly, but always completely uncover the radiator before moving off, unless otherwise instructed.

(g) Always change gear early on a hill. Never allow the engine to labour in any gear and expect it to pick up speed on changing into a lower one when the vehicle has nearly stopped. Do not persist in attempting to drive the vehicle uphill in top gear when the speed falls below 20 m.p.h.—change down early.

(h) If the vehicle has been driven back in reverse gear, wait until it is stationary before engaging a forward speed, and do not engage the reverse gear when the vehicle is travelling forward, or serious damage to the gears will result.

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

(j) When descending a long hill, or before commencing a steep descent, engage one of the lower gears, and do not accelerate. The engine will then help to retard the speed of the vehicle. When using the brake, keep the clutch in, disengaging it at the last moment if stopping.

(k) What Not to Do.

Please do not make the following mistakes:—

Do not forget the ignition switch when starting up.

Do not forget to release the air choke control after starting the engine.

Do not make a fast run with the radiator covered.

Do not continue pulling out the starter knob if the engine will not fire.

Do not pull the starter knob while a gear is engaged.

Do not leave the vehicle in gear with handbrake off.

Do not coast with a gear engaged and the clutch held out.

Do not fill the radiator with cold water when the engine is hot.

Do not leave the ignition switched on when the engine is not running.

Do not allow the engine to run at high speeds for the first 500 miles.

On no account run the engine in a closed garage. The exhaust gases are highly toxic and a very small amount in a restricted atmosphere will produce grave, if not fatal results.

9.—PERIODICAL ATTENTIONS.

(Items not covered by the Tasks).

DAILY :

Engine : Check level of oil in sump and top up if necessary to full mark on dipstick. Use M.160 oil.

Radiator : Check level of water in radiator and top up if necessary. Fill to within 2ins. of bottom of filler.

Fuel Tank : Check quantity of fuel in tank and fill up.

Tyres : Examine all tyres for correct inflation.

WEEKLY :

Tyre Pressures : Check with the gauge provided and inflate to correct recommended pressures.

OTHER INTERVALS :

Engine Sump : Every 2,000 miles drain sump and refill with new oil M.160.

On new and reconditioned engines the sump should be drained and refilled with new oil M.160 after the first 250 and 1,000 miles. At the same time as these changes are made the cylinder head nuts should be tested and tightened if necessary.

Oil Bath Air Filter : Dismantle, wash element in petrol, clean out bowl and refill with oil M.160 to correct level each time engine oil is changed (or more frequently in dusty conditions). See page 22.

Gearbox : Drain when oil is warm (after a run), and refill to the level of the filler plug with new oil M.220 every 5,000 miles. See page 30.

Rear Axle : Drain when oil is warm (after a run) and refill to the level of the filler plug with new oil C.600 every 5,000 miles. See page 32.

Front Wheel Hubs : Lubrication should be carried out by Workshops every 10,000 miles. Dismantle hubs, clean races, repack with fresh Grease G.S. Reassemble. (Early vehicles were fitted with an oil nipple at this point, but Drivers must not lubricate—Hub Lubrication is to be carried out by Workshops only.)

10.—THE SIXTEEN TASKS SYSTEM.

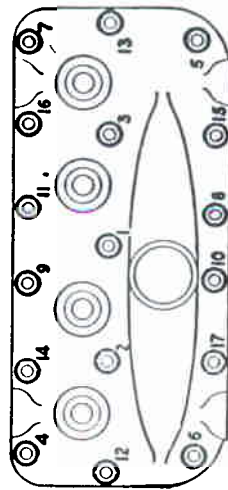
Where "Inspect and Tighten" appears, it must be understood that it is not intended that nuts should be tested with a spanner every 14 days, but that the joint should be examined for signs of movement or leakage. Tighten only if either condition exists.

TASK No. 1.

ENGINE.

A. INSPECT GAS-TIGHT JOINTS AND TIGHTEN IF NECESSARY.

1. Sparking plug joints.
(See item 2, page 13).
2. Cylinder head joint.
Use $\frac{3}{16}$ in. spanner.



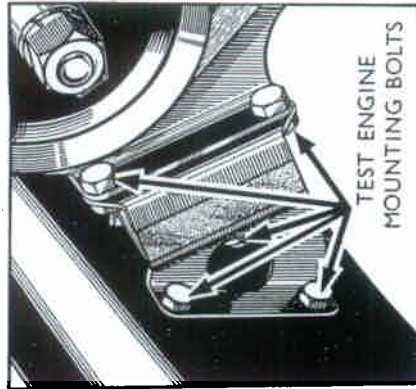
Tighten Cylinder Head Nuts from the Centre and work outwards. (Not to be done by driver except under supervision. Report if evidence of oil or water leak).

3. Exhaust and inlet manifold joints, including manifold pipe joint.
Use $\frac{1}{2}$ in. spanner.

For manifold joints test five nuts—two of which hold flange yokes to manifold. (See page 22). Report if tightening does not cure any leaks found

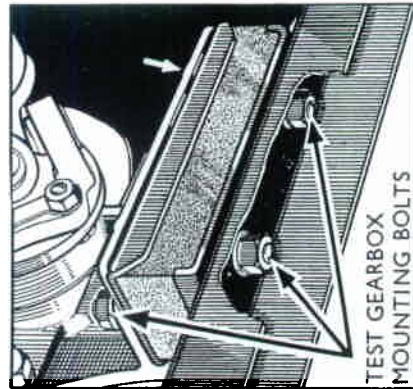
B. INSPECT ENGINE MOUNTING.

1. Engine front suspension.



There is a live rubber mounting at each side of the engine at the front. The rubber is held between two plates which are bolted to chassis and engine front plate. Test seven nuts on each, using $\frac{1}{2}$ in. spanner.

2. Engine rear assembly bolts.



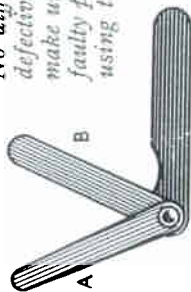
There is one flexible mounting, bolted to gearbox rear cover, and short chassis cross member. Test four nuts to rubber mounting, and four nuts and bolts between chassis and cross member. Use $\frac{1}{2}$ in. spanner.

3. All brackets mounted on engine.
Check air filter clip and support, and crankcase vent pipe.
4. Silencer and exhaust pipe brackets.

C. START ENGINE AND TEST FOR DEFECTS.

1. Listen for knocks.
2. Listen for uneven firing, with engine warm and idling rather fast; if uneven, short circuit plugs in turn by placing hammer head between terminal and cylinder head. Locate defective cylinder, change plug or clean if necessary.

No difference will be noted when shorting the defective cylinder; shorting other plugs will make uneven running more pronounced. Clean faulty plug and re-set gap to .018in. to .020in. using thick gauge "A". Do not bend centre electrode. Gauge marked "B" is for valve tappet clearance.



The removal or fitting of the plugs for Nos. 2 and 3 cylinders must be effected with the standard $\frac{7}{16}$ in. open-ended spanner; the special box spanner provided is for use with plugs for Nos. 1 and 4 cylinders.

3. Check idling when engine is warm and report if engine races or stalls.
4. Examine exhaust for excessive smoke.
 - (a) If black, check to make sure that choke control is operating correctly. Inspect exterior of carburettor (which may be flooding) for evidence of petrol. Report defects.
 - (b) If blue, check oil level in sump. If oil level too high, report, as this condition may be due to water in the sump.
5. Examine exhaust system for leakage, and tail pipe for clogging.

Switch off. (Make the following tests under supervision only):

6. Test for weak compression.
Turn the engine by hand. In two revolutions of the engine there should be four even compressions.

- (a) Valve trouble.

Check tappet clearance, using the gauge "B" (see illustration page 14), provided in the toolkit. The correct clearance is .010in. If incorrect, report.

- (b) Piston trouble.

Add a little oil M.160 through the sparking plug hole of the affected cylinder. If the compression is improved, it may be assumed that the leakage is past the piston and the trouble should be reported.

- (c) Gasket trouble.

(Check with the engine running). A gasket leaking can be heard and probably water will appear at the joint. Leakage between cylinders will result in no compression in two cylinders. The engine must be warm and the air choke out of action for these tests.

D. REPORT DEFECTS.

TASK No. 2.

ENGINE LUBRICATION SYSTEM.

A. CHECK OIL LEVEL AND REFILL IF NECESSARY.

In addition to daily replenishment and periodic oil changing.

Oil filler is on outside of engine.

B. INSPECT OIL-TIGHT JOINTS. If any joint leaks tighten gently and report if tightening does not cure.

1. Crankcase joints.

Use special $\frac{3}{8}$ in. spanner for 18 sump studs and $\frac{1}{2}$ in. spanner for flywheel housing bolts and nuts.

2. Sump drain plug.

Use $\frac{5}{8}$ in. spanner.

3. Tappet gear cover plate.

On nearside of engine block ; use $\frac{3}{16}$ in. spanner on two studs.

4. Timing case joints.

Use $\frac{1}{2}$ in. spanner on nine nuts.

5. Oil pipe unions.

Do not over-tighten pipe unions and take care not to twist pipes at soldered joints.

C. INSPECT EXTERNAL OIL PIPES FOR :

1. Rubbing.
2. Kinks.

D. REPORT DEFECTS.

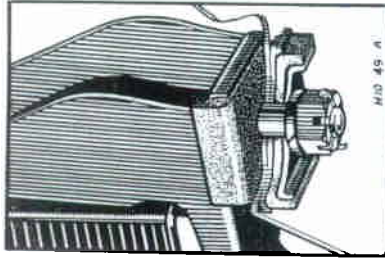
16

TASK No. 3.

ENGINE COOLING SYSTEM.

A. INSPECT AND TIGHTEN IF NECESSARY.

1. Radiator and bonnet fittings.
2. Radiator mounting blocks.



There are two bolts through rubber pads at the bottom of the radiator which should be inspected, but do not remove split pins unless nuts are definitely loose and need tightening. Check the bolt from top of cowel to radiator top tank. Where rubber mountings are used do not over-tighten. Use $\frac{1}{2}$ in. spanner.

B. INSPECT WATER JOINTS AND TIGHTEN IF NECESSARY.

1. Hose joint clips.

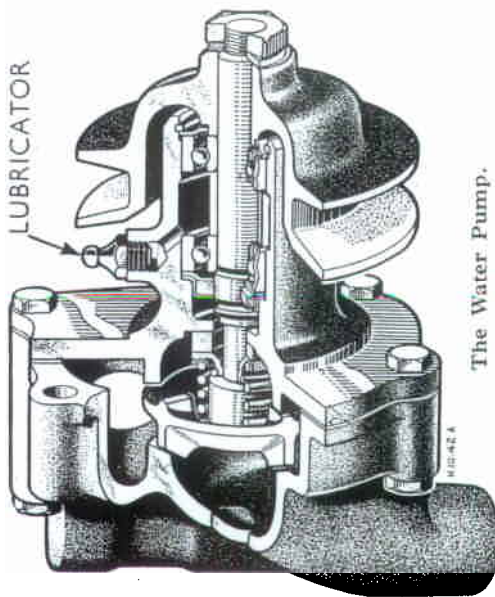
There are two clips or straps on each of the rubber hoses ; these should be tightened if water leaks are present.

2. Water pump.

Lubricate only with oil C.600. If water leak is present, report.

17

LUBRICATOR



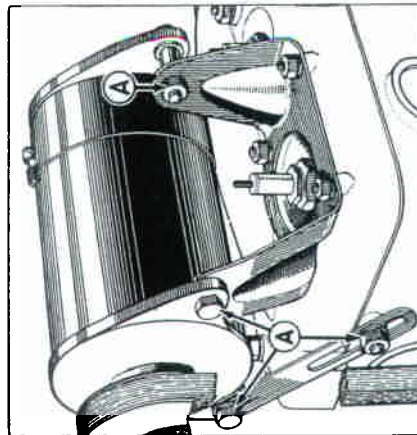
The Water Pump.

C. INSPECT AND ATTEND TO FAN BELT TENSION.

1. Clearance, bent fan blades, loose bolts.
2. Adjust belt if necessary. Report worn belt or pulleys.

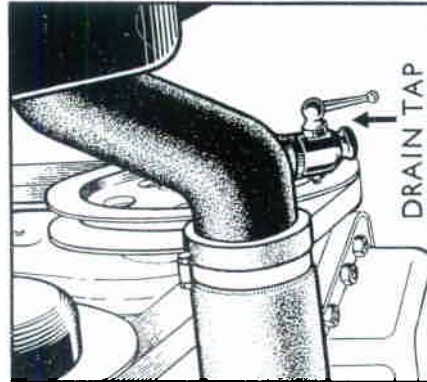
Adjustment of belt ; The belt should be just sufficiently tight to prevent slip, yet it should be possible to move the belt laterally about one inch each way. To make the adjustment, slacken the bolts A indicated, which hold the dynamo in position, and raise or lower the dynamo until the desired tension of the belt is obtained. Then securely lock the dynamo in position again.

Use $\frac{3}{8}$ in. and $\frac{1}{4}$ in. spanners.



D. INSPECT CIRCULATION, OVERFLOW.

1. Test overflow pipe.
Attach tyre pump or other rubber tubing to bottom of overflow pipe (below radiator) and apply a little air pressure to keep pipe free.
2. Examine radiator for leaks, dirty water and clogging of air passages through the block.
To clean air passages, direct water jet through radiator from under bonnet, forcing mud or other obstructions out towards radiator front cowl. When clearing obstructions from radiator air passages, care should be taken to avoid damaging the fins and tubes.
3. Ensure pump is working.
This can be observed through the filler inlet of the radiator when engine is running. If pump is working the water will swirl as it enters the radiator top tank.
4. Clean drain cock passage with wire during Frost Precautions only.



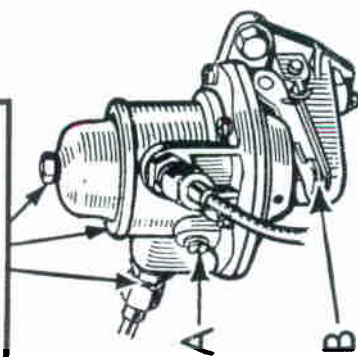
Top up radiator when system is HOT.

E. REPORT DEFECTS.

TASK No. 4. **FUEL SUPPLY SYSTEM.** **A. INSPECT FOR LEAKS AND ADJUST IF NECESSARY.**

1. Flooding carburettor.
Report if carburettor leaks petrol, or engine runs unevenly or "hunts" when idling; also report black smoke from exhaust.
2. Leaking unions or tank drain plug.
3. Cracked, kinked or rubbing supply pipes.
4. Seams of tank.
5. Petrol pump.
Make sure that piping and connections between tank and petrol pump, and between the pump and the carburettor, are not leaking. The cover of the petrol pump may be loose. If leaks show here, tighten the stud at the top, first noting that the washer lies flat on its seat and is not broken or unduly compressed. A washer compressed hard may need to be replaced. Remove drain plug from side of pump to clear any sediment that has collected.

INSPECT FOR LEAK



A. Drain Plug. B. Hand Priming Lever.

B. INSPECT MOUNTINGS AND TIGHTEN IF NECESSARY.

1. Fuel tank mounting "U" bolts and nuts.
One "U" bolt through frame at each side of tank. Use $\frac{1}{8}$ in. spanner.
2. Mounting of petrol pump and carburettor.
Use $\frac{1}{4}$ in. spanner.

C. EXAMINE FOR FREE FLOW OF FUEL.

1. Pipe for kinks.
2. Filter in carburettor petrol pipe union.
Turning engine with starting handle while union is disconnected will produce spurts of petrol from union if system is clear.
3. Operation of petrol pump.
Use of hand priming lever will produce similar results while union is loose, or with float chamber removed.
Take care when tightening unions; the hollow bolt through carburettor union is easily broken if too much pressure is applied with the spanner.
Use $\frac{5}{8}$ in. and $\frac{3}{4}$ in. spanners.

D. REPORT DEFECTS.

TASK No. 5.

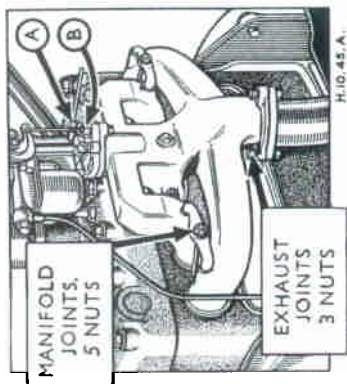
CARBURETTER AND CONTROLS.

A. LUBRICATE CONTROL GEAR (with oil can. Oil M.160).

1. Control rod joints ; hand, foot, air choke, etc.
2. Butterfly spindle bearing.

B. INSPECT AND TIGHTEN ASSEMBLY.

1. Carburettor flange joint.
(B. in illustration).
2. Inlet manifold joint.
Use 1/4 in. spanner.
3. Suction timing unions.
(A. in illustration).
Use adjustable spanner.



C. ATTEND TO AIR FILTER ON CARBURETTER.

It is important that oil shall be maintained to the correct level indicated by the line on the casing. Unscrew the butterfly nut on top and take out the gauze unit. The oil bath immediately below the gauze should be inspected and refilled with oil. For cleaning and refilling the cleaner should be removed from the carburettor. The bath should be cleaned frequently under very dusty conditions. Use oil M.160. (See page 11).



Oil Bath Air Filter.
A.—Oil Level.

D. DRIVERS ARE NOT TO ALTER JET SETTINGS OR MAKE CARBURETTER ADJUSTMENTS.

E. REPORT DEFECTS.

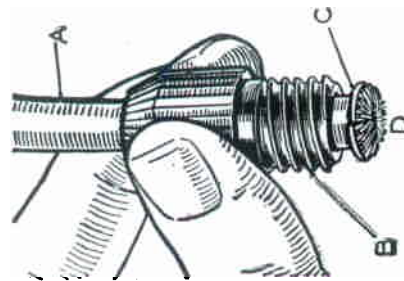
TASK No. 6.

H.T. LEADS.

A. HIGH TENSION LEADS.

1. Inspect all terminals and tighten if necessary.
2. Clean off oil, grease or dirt.
3. Secure leads from hot parts and from rubbing.

B. REPORT DEFECTS.

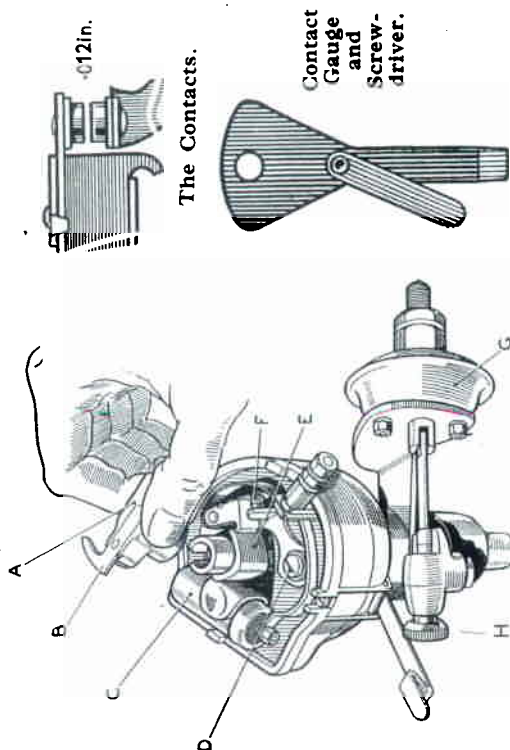


High Tension Terminal.

- A H.T. Cable.
- B Moulded Terminal.
- C Washer.
- D Cable Strands.

TASK No. 7. COIL IGNITION.

- A. 1. Inspect and tighten assembly if necessary and see that automatic advance and retard is free.
When engine is running, opening and closing the throttle should cause the distributor head to turn slightly. Report if there is no movement, but engine should not be specially started for this check.
2. Clean distributor head and check operation of contact breaker.
3. Inspect H.T. wires, for shorts, cracks, frayed or rubbed portions.
Inspect contact points for correct opening; gap should be .012in. (12 thousandths), measured by gauge supplied with ignition screwdriver. Make this test under supervision only.



A-Distributor Rotor.
B-Rotating Electrode. C-Condenser.
D-Screw securing contact plate.

E-Cam. F-Contacts.
G-Suction timing control.
H-Timing control screw.

B. CLEAN ALL EARTH CONNECTIONS AND TIGHTEN WHERE NECESSARY, INCLUDING WIRELESS INTERFERENCE SUPPRESSERS.

C. REPORT DEFECTS.

24

TASK No. 8.

STEERING.

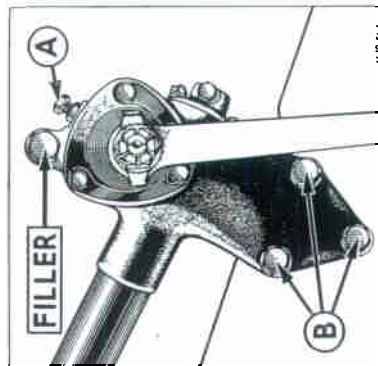
A. INSPECT ASSEMBLY AND TIGHTEN IF NECESSARY.

(Do not disturb split pins, locking plates or tab washers unless nuts are loose.)

Check steering box where it bolts to frame (see "B" in illustration below). Use $\frac{1}{4}$ in. spanner on three bolts.

B. LUBRICATE ALL WORKING JOINTS :

1. Top up steering box.



The steering box should be topped up with oil C.600; take out the hexagon plug on the side of steering box to inject the oil.

Before removing filler plug, carefully clean it and the surrounding surface. Grit allowed to enter the casing will cause wear.

Do not disturb adjusting bolt marked "A" in illustration.

Use oil can at small hole immediately below steering wheel.

2. Swivel pins.
Swivel pins to be lubricated more frequently if steering is stiff. Lubricate with axle jacked up to allow lubricant to penetrate thrust side of bearing. Use oil C.600.
3. Drag link ends (Side rod). Use oil C.600.
4. Track rod ends (Cross rod).
Drag link and track rod ends must be oiled at each end with the gun. Use oil C.600.

25

C. INSPECT ALL JOINTS AND BEARINGS FOR WEAR.

1. End play in steering column.
The steering column should be quite free to turn but there must be no end play. Test by push and pull movement at steering wheel.
Also check bracket under dash. Use $\frac{3}{16}$ in. spanner on two nuts of clip.
2. Play in drag link or track rod joints.
Excessive movement can be detected by grasping the joint and moving it up and down. If the joint is in order no excessive movement will be felt
3. Play in swivel pins or bushes.
Jack up front axle and attempt to rock the wheel by grasping at top and watch at the same time if movement occurs on the stub axle.
4. Play in road wheel bearings.
Repeat as in Item 3, but observe if movement occurs between brake drum and brake anchor plate (small movement is permissible but report if it is excessive)
5. Loose drop arm.
While the steering wheel is turned to and fro, watch for any movement of the drop arm on the rocker shaft.
6. Bent steering rods or levers.
 - (a) Track rod.
 - (b) Drag link.
 - (c) Steering arms.

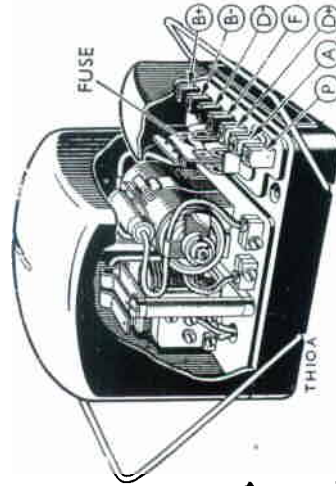
D. REPORT DEFECTS.

26

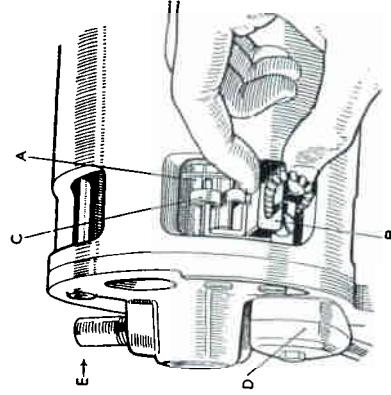
TASK No. 9. CHARGING SYSTEM.

A. INSPECT MOUNTING AND ASSEMBLY AND TIGHTEN IF NECESSARY.

1. Dynamo mounting bolts.
Give lubricator a half turn (when fitted).
2. Adjust dynamo belt if necessary. Inspect for worn belt or pulleys.
Use $\frac{5}{16}$ in. and $\frac{1}{4}$ in. spanners. (See page 18).
3. Dynamo terminal box (keep clean).
4. Mounting bolts of regulator and cut-out.
5. Watch charging with engine running fast. Report if ammeter weak or unsteady, or if red warning light is not going out. Note that as voltage control regulator is fitted, charging rate will be low when battery is fully charged.



Cut-out and Regulator.



The Dynamo with Commutator Cover removed.

- A. Commutator. B. Brush.
D. Terminal box. C. Brush Spring.
E. Lubricator.

B. INSPECT FOR CORRECT LOCATION OF COMMUTATOR COVER.

27

C. CLEAN BATTERY VENTS: SEE THAT VENT HOLES IN VENT PLUGS ARE CLEAR. CLEAN AND SMEAR VASELINE BRAND PETROLEUM JELLY ON TERMINALS. SEE THAT TERMINALS ARE TIGHT AND CABLES CLEAN.

Use 1/4 in. spanner.

D. INSPECT BATTERY MOUNTING AND TIGHTEN IF NECESSARY.

E. TOP UP ELECTROLYTE WITH DISTILLED WATER: DRY OFF ANY SPILT.

Take care not to over-fill the battery. The separator plates can be seen through the vent plugs, and the electrolyte level should be 1/4 in. to 3/8 in. above the plates. Never use tap water. In very cold weather run engine immediately to prevent freezing of the water added to the battery.

F. REPORT DEFECTS.

TASK No. 10.

STARTER MOTOR AND LIGHTS.

A. INSPECT MOUNTING OF MOTOR AND SWITCH AND TIGHTEN IF NECESSARY.

If starter pinion jams when operating the switch, it can usually be released by engaging top gear and pushing vehicle backwards. If this fails, the starter can be released by turning the squared end of the starter shaft by means of a spanner. To obtain access to this squared end withdraw the metal cap, which is secured by two screws.

B. CLEAN AND TIGHTEN TERMINALS IF NECESSARY.

One main starter lead will be found attached to terminal on side of motor.

C. INSPECT ALL CABLES FOR RUBBING AND SHORTS.

Check for unduly noisy operation and tendency to jam or failure to engage.

D. INSPECT EXPOSED LEADS AND LIGHT MASKS AND CLEAN IF NECESSARY.

E. INSPECT :

1. Mounting bolts and brackets of
 - (a) All lamps.
 - (b) Switchboard.
 - (c) All electrical accessories.
 - (d) Check operation of screenwipers, and add a spot of oil M.160 to the spindle bearings.
2. All screwed terminals, and tighten where necessary.

F. SEE THAT ALL LAMPS ARE IN ORDER, INCLUDING CORRECT SUBDUING OF LIGHT, AND ALL LEADS FREE FROM SHORTS.

G. REPORT ANY DEFECTS.

TASK No. 11.

CLUTCH AND GEARBOX.

A. INSPECT ASSEMBLY AND MOUNTING AND TIGHTEN IF NECESSARY.

B. TEST FOR SUFFICIENT FREE MOVEMENT OF CLUTCH PEDAL.

There must be half an inch free movement of the pedal before the pressure indicates the clutch is being operated.

C. LUBRICATE AND ADJUST IF NECESSARY.

There is a lubrication point under clutch pedal, and also at clutch operating shaft, but no lubrication of the clutch withdrawal race is necessary.

D. INSPECT THE FOLLOWING FOR WEAR :

Pedal shaft and cross shaft bearings.

E. INSPECT OIL-TIGHT JOINTS.

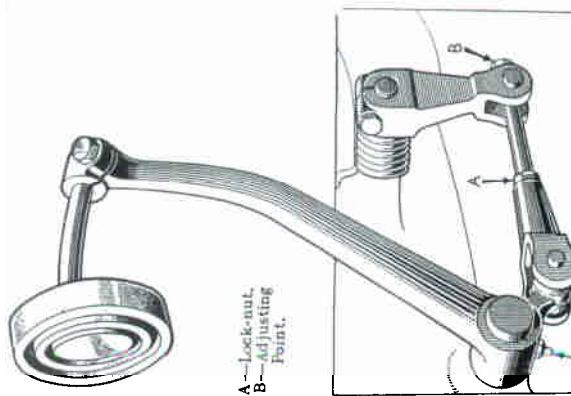
- *1. Covers and bolted joints.
- *2. Drain plug.
3. Leakage from bearings.

*Tighten if necessary.

F. INSPECT GEARBOX OIL LEVEL AND TOP UP IF NECESSARY.

Before removal, carefully clean combined level and filler plug and surrounding surfaces. Top up to level of filler plug with oil M.220, if necessary. Remove plug in floor to obtain access.

G. REPORT DEFECTS.



Oil Nipple.

TASK No. 12.

TRANSMISSION, AXLE, SHAFTS AND JOINTS.

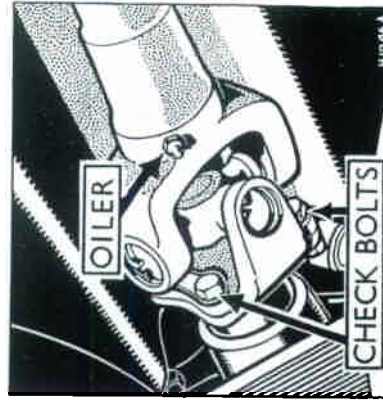
A. INSPECT ASSEMBLY AND TIGHTEN IF NECESSARY.

1. Nuts and bolts of universal couplings.

Use ½ in. spanner.

B. INSPECT AND LUBRICATE THE FOLLOWING :

1. Sliding splines.

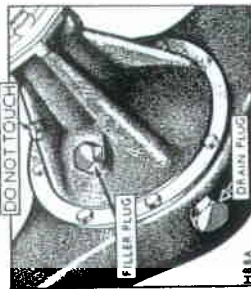


There is a nipple on front end of propeller shaft to lubricate the sliding spline or telescopic joint. Use oil C.600.

FRONT AND REAR AXLES.

C. INSPECT REAR AXLE OIL LEVEL AND REFILL IF NECESSARY.

Rear axle oil level should be up to filler plug hole. Do not inspect immediately after a journey; give the oil time to settle down. Before removal, carefully clean combined level and filler plug and surrounding surfaces. Top up to level of filler plug with oil C.600. Test filler and drain plugs with spanners supplied.



D. INSPECT ASSEMBLY AND TIGHTEN IF NECESSARY.

1. All bolted up joints (report leaks if tightening does not cure).
Use 1/2 in. spanner on gear carrier bolts.
2. All brackets fitted to axles.
Brake balance levers.
3. All spring holding down bolts.
Look for signs of movement between spring and axle, denoting slackness.
4. Grease wheel nut studs occasionally, and each time wheels are removed.
Attend to wheel nuts with axle jacked up and hand brake on. Nearside nuts have left-hand threads; offside, right-hand.
Use wheelbrace.

E. INSPECT FOR BACKLASH AND WORN BEARINGS.

1. Oil leaks from bevel pinion bearing
2. Oil leaks from hub bearings

} Indicated by splashes on chassis frame and wheels.

Grasp propeller shaft by the hand and test by turning it backwards and forwards. There should be very little movement possible.

F. INSPECT ROAD WHEELS FOR DAMAGE.

G. REPORT DEFECTS.

TASK No. 13.

CHASSIS AND SPRINGS.

A. LUBRICATE :

1. Spring shackles.

Two nipples on rear of each spring, one facing outward and one facing inward.

2. Shock absorbers.

If it is suspected that the damping of the springs is inadequate, the rear shock absorbers must be removed for topping up.

Fill to the bottom of filler

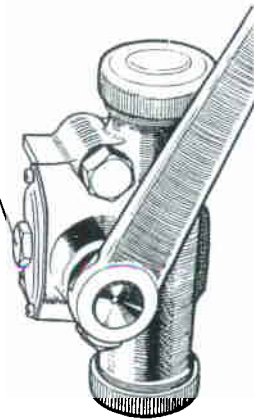
plug hole with Fluid Brake Hydraulic No. 3.

The shock absorber link bearings are of rubber and should never be lubricated.

Tighten anchor bolts if slack.

Use $\frac{5}{8}$ in. and $\frac{1}{2}$ in. spanners.

FILLER PLUG



B. INSPECT FOR WEAR.

1. Clean road springs and inspect for broken leaves or loose clips. (Do not remove gaiters if fitted).

Brush sides of spring leaves with engine oil M.160.

2. Inspect for broken dowel pins (indicated by spring leaves out of position).

C. REPORT DEFECTS.

34

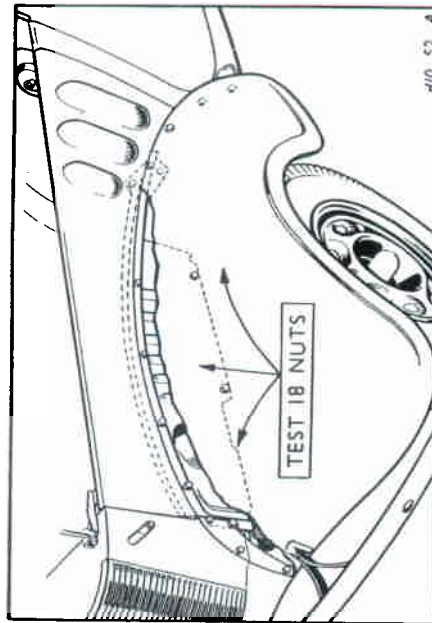
TASK No. 14.

FRAME AND BODY FITTINGS.

A. INSPECT ALL FRAME AND BODY FITTINGS AND BRACKETS, AND TIGHTEN WHERE NECESSARY.

1. Mudguard, fitchplate and radiator cowl are secured on each side of vehicle by bolts as shown in accompanying illustration. There are 16 each side, and 2 on top secure the bonnet side to body and radiator. Test with $\frac{1}{4}$ in. spanner.

2. There is also a row each side of bolts to frame for full length of floor inside body.



3. Test security of spare wheel mounting on top of cab, and also rope hooks on sides of vehicle and on tail-board.

4. Check bumper bars front and rear for security ; check for loose or bent door hinges (shown by doors not closing easily and securely), and also examine wind-screen fittings.

35

TASK No. 15.

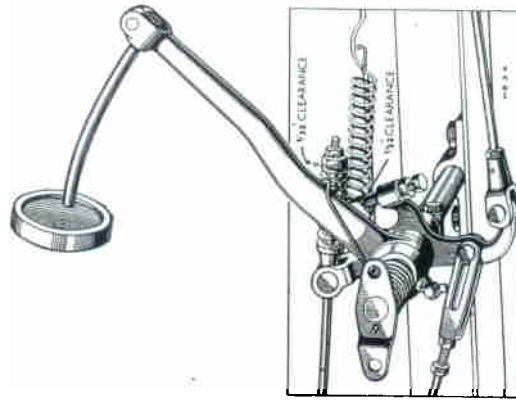
BRAKES.

A. LUBRICATE ALL BEARINGS, JOINTS, ETC.

Oil all brake gear joints and apply the gun to nipple under brake pedal. There is an oil nipple on each brake balance lever, mounted on front and rear axle casing.

B. INSPECT ASSEMBLY AND TIGHTEN IF NECESSARY.

1. All bolted brackets and levers.
2. Adjustment lock nuts.
3. Check working of pull off springs on pedals.



The Brake Operating Assembly.
Check for tightness the lock-nut shown at end of slotted link; keep link well oiled. Nipple below foot brake lever should receive regular attention.

4. Check pedal for clearance and operation.

B. REPORT ANY DEFECTS IN CAB, SUPERSTRUCTURE OR TARPAULIN.

1. Inspect for cracked or buckled wings, damaged body-work and tailboard hinges, strained or bent tow hooks or buffer bar, worn or torn canvas covers, bent or broken superstructure rails and brackets, worn or damaged seats and seat fittings and floorboards.

C. LUBRICATE DOOR LOCKS, HINGES AND OTHER BODY FITTINGS.

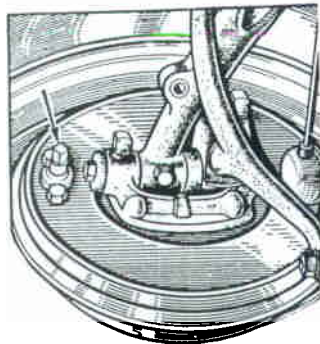
1. Check cab doors, tailboard, bonnet side panels, and check adjustment and security of driving mirrors.
2. Lightly oil the joints of the manually operated traffic indicator control under instrument panel.

D. REPORT DEFECTS.

C. INSPECT FOR WEAR AND ADJUST IF NECESSARY, UNDER SUPERVISION WHEN POSSIBLE.

1. Brake Adjustment.

As the brake linings wear, the foot pedal travel will gradually increase. When a point is reached where the pedal travel exceeds about three inches before solid resistance is obtained, the brake shoes must be adjusted.



The Arrow Indicates a Front Brake Adjuster.

There is a similar adjuster on each rear brake.

adjuster should be turned back one notch to give the shoes the necessary clearance from the drum.

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

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

It is important that no attempt should be made to adjust the brakes with the handbrake on.

Use $\frac{3}{8}$ in. spanner.

2. Handbrake Adjustment.

The handbrake is automatically adjusted when dealing with the foot brakes, as described.

DO NOT INTERFERE WITH OR ALTER THE LENGTH OF THE RODS CONNECTING THE BRAKE BALANCE LEVERS.

D. REPORT DEFECTS.

TASK No. 16. TYRES AND TOOLS.

A. CHECK TYRE PRESSURE INCLUDING SPARE. INFLATE IF NECESSARY TO CORRECT PRES-SURE FOR VEHICLE. REPORT ANY UNDUE OR UNEVEN WEAR.

NOTE.—SEE THAT ANY NEW TYRES FITTED ARE RECORDED IN A.B.412 WITH DATE, SPEEDOMETER READING AND SERIAL NUMBER OF OLD AND NEW TYRES.

B. REMOVE OIL, TAR, FLINTS AND STONES FROM TYRES.

C. INSPECT AND TIGHTEN SPARE TYRE MOUNT-ING.

D. CHECK TOOLS (see List page 44), EXCHANGE DAMAGED TOOLS. MAKE GOOD DEFICIENCIES.

E. SEE THAT FIRE EXTINGUISHER IS FULL AND READY FOR USE.

F. TYRE FITTING HINTS.

1. To avoid trapping the tube between the edge of the cover and the rim, always inflate the tube very slightly before placing it in the cover.
2. During the final inflation see that the edges of the cover are seated evenly round the edge of the rim. Check this by the moulded line on the cover, which should be about a quarter of an inch from the rim all the way round.

UNEVEN WEAR.

To minimise the effect of wear, turn the tyres periodically, say every 3,000 to 4,000 miles.

3. Exchange the near and offside tyres so that unequal weight distribution and consequent wear caused by road camber are shared. The spare tyre should be used in turn with the others.

CHANGING A WHEEL.

4. NOTE.—The nearside wheel nuts and studs have left-hand threads and the nuts are marked with the letter "L."
5. Before removing a wheel see that the handbrake is on firmly and if on a hill scotch one or two of the wheels. Check the spare tyre for correct pressure and adjust the jack nearly to the height required by turning the head.
6. When changing a front wheel place the jack under the axle beam immediately below spring mounting. For a rear wheel, place jack under spring as close as possible to axle.
7. If any tyres are fitted with a chevron pattern, the point of the chevron should point upward when viewed from the front of the vehicle. Ignore any instructions moulded on the side of such tyres.
8. On fitting the spare wheel, tighten the nuts alternately and securely before removing the jack and test the nuts again when the wheel is on the ground.

G. REPORT DEFECTS.

11.—FROST PRECAUTIONS.

A. PROTECTION BY USE OF ANTI-FREEZE MIXTURE.

Vehicles with Anti-freeze mixture in the cooling system have an identification mark on the Header tank of the radiator, under the bonnet in the form of a disc painted in a specified colour. The colour will be changed each year.

The following precautions are necessary on vehicles so marked :—

1. When frost is expected or when the vehicles are to be used in very low temperatures, make sure that the strength of the solution is, in fact, up to the strength ordered.
2. The strength of the solution must be maintained by topping up with Anti-freeze solution as necessary. Topping with water reduces the degree of protection afforded.
3. TOP UP WHEN SYSTEM IS HOT.
4. If the cooling system has to be emptied, run the mixture into a clean container and use again.
5. If for any reason the mixture is lost and the system is filled with water, **REMOVE THE PAINTED METAL DISC ON THE HEADER TANK.**

B. PROTECTION BY DRAINING THE COOLING SYSTEM.

On vehicles where Anti-freeze is not used, the following precautions must be taken during frosty weather to obviate any damage due to the freezing of the cooling system.

1. Whenever frost precautions are ordered the cooling system must be completely drained. It is not sufficient merely to close radiator shutters or to cover the cooling system with muffs.
2. The cooling system is fitted with one drain cock, which must be opened to drain the system completely. It is essential that vehicle stands on level ground while draining.
3. Drain cock is positioned at base of radiator. (See illustration page 19).
4. Drain cock must be tested at frequent intervals by inserting a piece of wire to ensure that it is clear. This should be done immediately the drain cock is opened, so that any obstructions freed by the wire may be flushed out by the water.
5. When draining in very cold weather, do so when the engine is hot and do not leave the vehicle until the water is properly drained.
6. When completely drained, the engine should be run for a timed minute.
7. Place a notice on the radiator to the effect that it is empty.

12.—LIST OF TOOLS AND ACCESSORIES.

Austin Part No.	Austin Part No.
Double-ended spanners :—	8H.345 Radiator muff.
2H.88 $\frac{3}{16}$ in. $\times$ $\frac{1}{4}$ in.	2H.3609 Lifting jack.
2H.89 $\frac{1}{8}$ in. $\times$ $\frac{3}{16}$ in.	2H.3570 Tyre pump.
2H.83 $\frac{1}{16}$ in. $\times$ $\frac{1}{2}$ in.	2H.1683 Dunlop tyre valve tool.
2H.3127 { Box spanner :— $\frac{3}{16}$ in. $\times$ $\frac{1}{4}$ in.	2H.3735 Oil gun.
2H.86 Tommy bar.	2H.3444 Hammer.
2H.2647 Adjustable spanner.	2H.3453 Oil funnel.
2H.1361 Tappet adjusting spanner.	2H.3435 Tyre pressure gauge.
2H.84 Screwdriver.	2H.3884 Oil can (under bonnet).
2H.1697 Distributor screwdriver and gauge.	2H.3446 15ft. wire.
2H.2977 Tappet clearance and sparking plug gauge.	2H.3741 Spare sparking plug.
1G.878 Starting handle.	2H.3958 Inspection lamp, with cable, and plug.
2H.110 Combination pliers.	2H.3790 Spare head and side lamp bulbs in box.
2H.3752 Sparking plug spanner.	2H.3445 Insulating tape.
2H.918 Wheel-nut brace.	2H.2037 Tool wrap.
	2H.3436 Tool bag.

This list is subject to modification from time to time.

