

*Instruction Book*

of the

**HEALEY**

2.4 LITRE

Donald Healey Motor Co. Ltd.

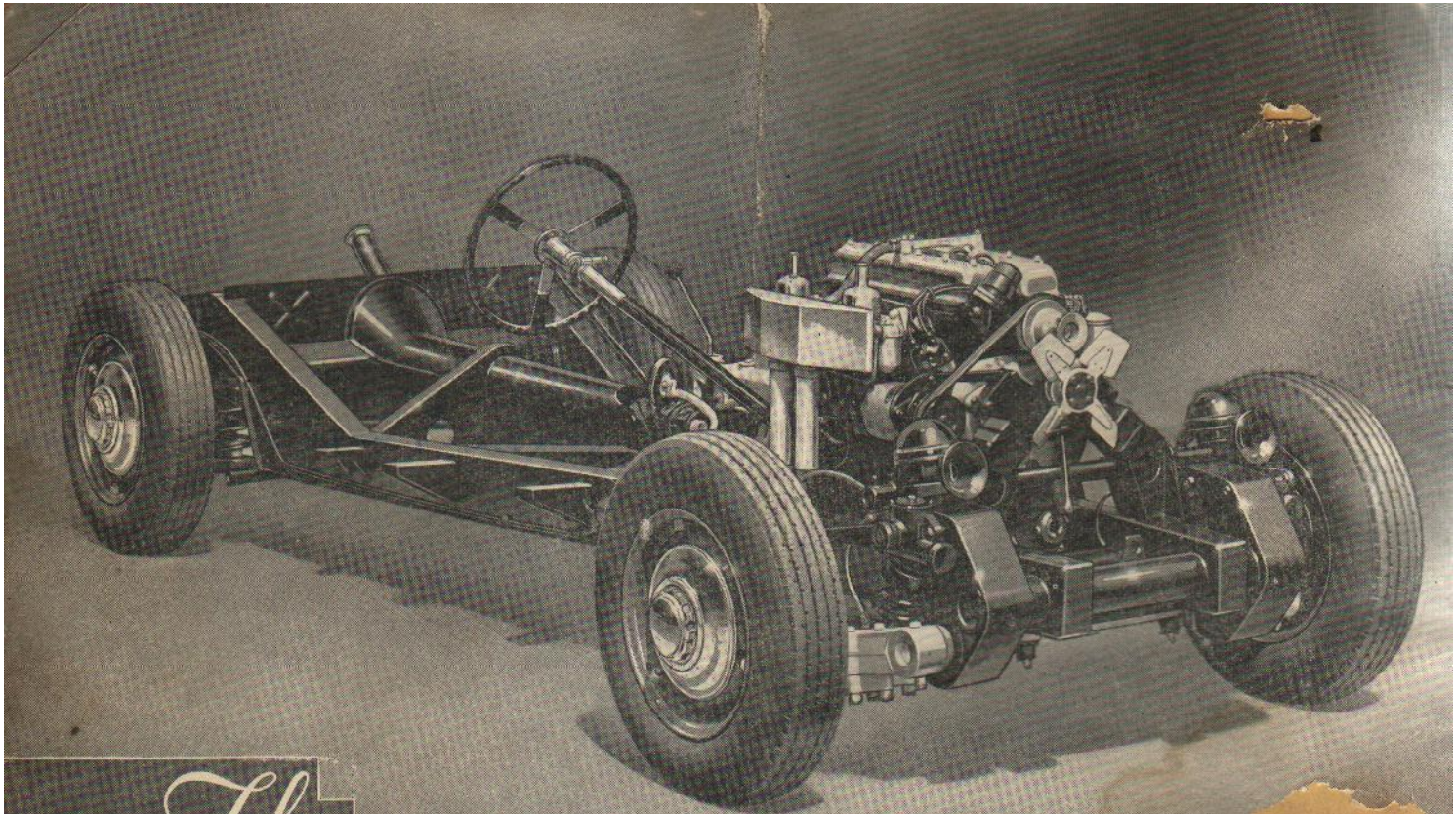
WARWICK

ENGLAND

**NOTE**

The Car Number is stamped on a plate on the bulkhead under the bonnet, and also on the Chassis Front Engine Bearer.

This number should be quoted in all correspondence.



*The*  
**HEALEY** 2.4 *Litre Chassis*

## GENERAL DATA

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ENGINE : 4 Cylinder O.H.V.

CAPACITY : 2443 c.c.

BORE : 80.5 mm. (3.16 in.)

STROKE : 120 mm. (4.7 in.)

R.A.C. RATING : 16.

BRAKE HORSE POWER : 104 at 4500 r.p.m.

FIRING ORDER : 1, 2, 4, 3.

IGNITION TIMING : 4° B.T.D.C. Full Advance

SPARKING PLUGS : Lodge HNLP, set to gap of .025 in.

THE CONTACT BREAKER GAP SHOULD BE : .012 in.—.015 in.

GEAR RATIOS : Top 3.5—Third 4.963  
Second 7.542—First 12.761—Reverse 12.761

### Overall Dimensions :

SALOON—Height 4ft. 8in. Width 5ft.  
5½in. Length 14ft. 6in.

ROADSTER—Height 4ft. 7in. Width 5ft.  
5½in. Length 14ft. 4in.

TYRES : 5.75 x 15 in.

The correct Tyre Pressures are 22 lbs. per sq. inch for the front and 22 lbs. per sq. inch for the rear. In order to obtain the maximum of comfort and life from the Tyres, it is essential that these pressures are maintained.

The Tyre pressures should be checked weekly.

CARBURETTERS : Two S.U. Horizontal H.4 Instruments.

CAPACITY OF FUEL TANK : 14 Gallons (including 1½ gallons reserve).

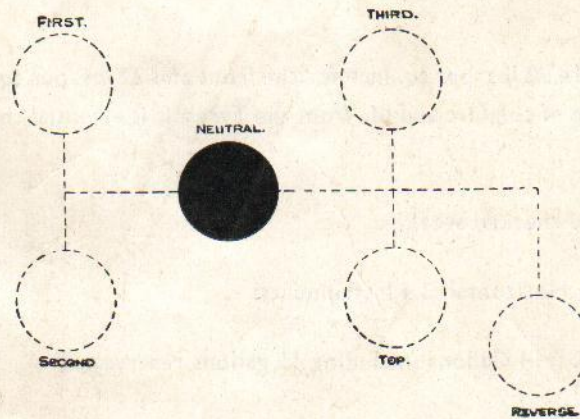
CAPACITY OF COOLING SYSTEM : 20 Pints.

# COOLING SYSTEM

The Filler Cap for the Radiator is under the Bonnet, the cooling system has two draining points.

- (1) **Radiator Drain.** This is located on the offside at the base of the radiator.
- (2) **Cylinder Block Drain.** This is located on the nearside of the Engine, above the Starter Motor.

The HEALEY Radiator Block is fitted with an automatic pressure release valve which seals the system. It is important therefore that the Filler Cap should **NOT** be unscrewed if the Radiator Temperature Gauge is reading 200°F or above.



## **RESERVE PETROL**

To change over on to Reserve Petrol supply ( $1\frac{1}{2}$  gallons) press switch on Instrument Panel marked 'R,' the Green petrol warning light will then come on and will remain on so long as the reserve switch is left on.

## **PETROL PUMPS**

Main and Reserve S.U. Electric Pumps are situated in the boot, being on the nearside.

## **Recommended Running-in Speeds are :**

0-500 miles do not exceed 2,700 R.P.M.

500-1,000 miles do not exceed 3,200 R.P.M.

1,000-2,000 miles do not exceed 4,000 R.P.M.

# LUBRICATION

CAPACITY OF ENGINE SUMP : 14 Pints.

CAPACITY OF GEARBOX : 2 Pints.

CAPACITY OF REAR AXLE : 5 Pints.

## RECOMMENDED LUBRICANTS

	Shell	Vacuum	Esso	Price's	Wakefield
Engine—Summer —Winter ..	Double Shell	Mobiloil " A "	Essolube 30	Motorine M	Castrol XL
Gearbox .. ..	Double Shell	Mobiloil " A "	Essolube 30	Motorine M	Castrol XL
Rear Axle .. ..	Triple Shell	Mobiloil " BB "	Essolube 40	Motorine C	Castrol XXL
	Shell Spirax	Mobilube " EP "	Essoleum	Motorine EP	Castrol
	EP 140		Expee		Hi-Press
Wheel Hubs and Suspension Links	Shell Retinax	Mobil Hub	Compound 140	Belmoline C	Castrolase
Chassis .. ..	R.B.	Grease	Esso Grease	Belmoline C	Heavy
	Shell Retinax	Mobilgrease	Esso Fluid	Belmoline C	Castrolase
	R.B.	No. 2	Grease	Belmoline RB	CL
Universal Joints ..	Shell Retinax	Mobilgrease	Esso Universal	Belmoline RB	Castrolase
	R.B.	No. 5.	Joint Grease	Motorine EP	Unijoynt
Steering Box ..	Shell Spirax	Mobilube " EP "	Essoleum	Motorine EP	Castrol
	E.P. 140		Expee		Hi-Press
Shock Absorbers..	Shell Donax	Mobil Shock	Compound 140	Motorine SA	Wakefield
	A.I.	Absorber Oil	Esso Shock		Girling
		Light	Absorber Oil		Damper Oil
			Light		Thin

**NOTE :** It is most unwise to mix different brands of lubricant, particularly in the Engine, and this practice is not to be recommended.

**DO NOT** let your engine idle, or race, when cold, but let it run briskly. The best speed is between 1000 r.p.m. and 1500 r.p.m.

**DO** keep your foot off the Clutch Pedal—unless you are changing Gear.

**DO NOT** allow your Engine to labour at any time.

**REMEMBER** the HEALEY has been designed for the sporting enthusiast, and will give many thousands of miles of motoring, **providing** it is lubricated regularly.

# TAPPET ADJUSTMENT

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During the initial running-in period of the car it may be found that the Tappet clearances need re-setting ; that is possibly, after 1,000 miles.

This will necessitate the removal of the fume extractor pipe, the ignition harness and the rocker gear covers. Should the gaskets between covers and head be damaged, it is essential that new gaskets be fitted.

When the rocker covers have been removed, and prior to the checking of tappet clearances, it is a good plan to check the tightness of the cylinder head holding-down nuts, particularly during this initial running period.

These nuts should be tightened from the centre outwards in order to prevent distortion of the cylinder head. The tightness of inlet and exhaust manifold fixing nuts should also be checked.

To set the clearances on any given valve it is necessary to ensure that the valve is completely shut ; that is, when the piston is at the top of its compression stroke.

Then the lock nut on the end of the rocker should be slackened off, and by means of a screwdriver and feeler gauge the necessary clearance can be obtained by adjusting the ball pin in the rocker end (see illustration). The lock nut should then be tightened and the clearance re-checked.

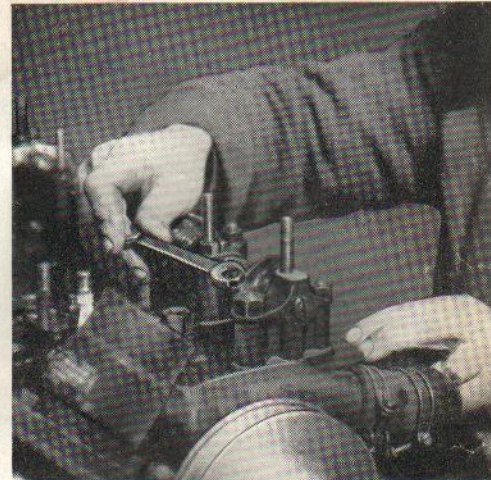
## TAPPET CLEARANCES ARE :

- .003 in. on inlet valves.
- .004 in. on exhaust valves.

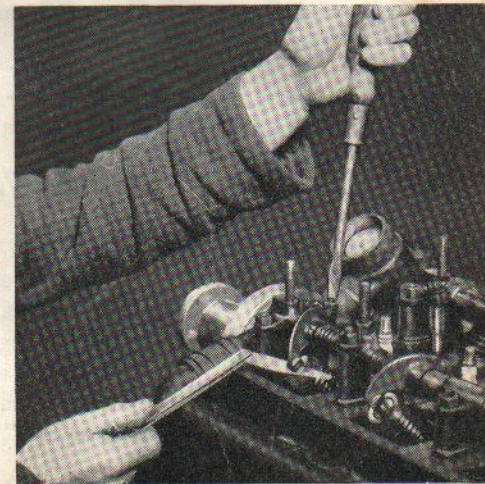
The clearances must be set whilst the engine is still hot.

**NOTE :** When making this adjustment, be sure that the hands and spanners are free from dirt and grit.

(Note : Two illustrations. (1) Slackening a lock nut.  
(2) Setting the tappet clearance.)



(1)



(2)



RECOMMENDED LUBRICANTS—HEALEY 2.4 litre.

	Shell	Vacuum	Esso	Price's	Wakefield
Engine—Summer	Double Shell	Mobiloil "A"	Essolube 30	Motorine M	Castrol XL
—Winter	Double Shell	Mobiloil "A"	Essolube 30	Motorine M	Castrol XL
Gearbox ...	Triple Shell	Mobiloil "BB"	Essolube 40	Motorine C	Castrol XXL
Rear Axle ...	Shell Spirax EP 140	Mobilube "EP"	Essoleum Expee Compound 140	Motorine EP	Castrol Hi-Press
Wheel Hubs and Suspension Links	Shell Retinax R.B.	Mobil Hub Grease	Esso Grease	Belmoline C	Castrol ease Heavy
Chassis ...	Shell Retinax R.B.	Mobilgrease No. 2	Esso Fluid Grease	Belmoline C	Castrol ease CL
Universal Joints	Shell Retinax R.B.	Mobilgrease No. 5	Esso Universal Joint Grease	Belmoline RB	Castrol ease Ualjoynt
Steering Box ...	Shell Spirax E.P. 140	Mobilube "EP"	Essoleum Expee Compound 140	Motorine EP	Castrol H-Press
Shock Absorbers	Shell Donax A.1	Mobil Shock Absorber Oil Light	Esso Shock Absorber Oil Light	Motorine SA	Wakefield Girling Damper Oil Thin

July, 1947

DONALD HEALEY MOTOR CO., LTD

### STEERING GEAR

The Steering Gear box should be kept as full as possible, and is filled through a Plug at the top. We recommend that a good quality Oil with an S.A.E. Viscosity Number of 140 is used, but on NO ACCOUNT should grease be used.

### ROAD SPRING DAMPERS

The Hydraulic Dampers Pressure Recuperation type, require no adjustment, and no attempt should be made to disassemble the movement.

The only attention these

Dampers require is the topping up with fluid every 25,000 miles, and the only type of fluid to be used is Girling Piston Type Damper thin Fluid. These Dampers should be filled through the Filler-Plug at the top of the body.

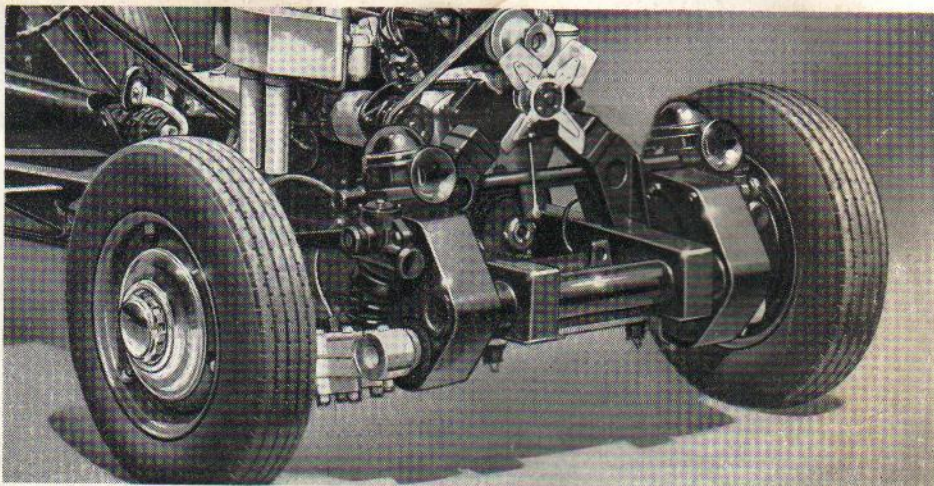
IT IS ESSENTIAL TO SEE THAT NO DIRT OR FOREIGN MATTER ENTERS THE MOVEMENT THROUGH THE FILLER PLUG HOLE.

### ADJUSTMENT OF CASTER ANGLE

The HEALEY is fitted with an exclusive (patented) eccentric at the end of the Shock absorber arm, which is bolted to the Wheel Bracket. By removing the Split Pin and slackening the nut the eccentric may be moved by means of a Spanner placed on the Hexagon between the Shock Absorber Arm and the Wheel Bracket. These eccentrics are set at the Works at  $.0^\circ$  but should more or less Caster Angle be required a variation of  $0^\circ$  to  $3^\circ +$  or  $-$  is obtainable through this adjustment.

It is NOT recommended that owner drivers make this adjustment without first consulting their nearest HEALEY Service Agent.

Toe in of Front Wheels should be  $\frac{3}{16}$ ".



# ROUTINE MAINTENANCE

## ENGINE

The lubrication of the Engine is maintained by a Gear-driven, self-priming pump of high capacity, the oil being passed through a full flow filter. For servicing this filter see Special Tecalomit Service Instruction Leaflet.

There is a pressure feed to all engine bearings. The Oil Filler orifice will be found on the near-side of the engine.

The Oil level in the sump should be checked, and if necessary topped up each 250 miles, rather than waiting until the level has become dangerously low.

The oil level dipstick is situated on the near-side of the engine, just forward of the exhaust pipe, and should always be wiped clean to ensure a correct reading.

The sump drain plug will be found on the off-side of the engine sump.

It is essential that after the first 500 miles the oil be drained from the engine and the sump refilled with the correct amount of the recommended lubricant.

The Sump should be drained and refilled at subsequent intervals of 1,500 miles.

As a guide to owners the minimum oil pressures should be 17 lb. per square inch at 30 m.p.h., 25 lb. per square inch at 50 m.p.h. and at 70 m.p.h. 33 lbs. per square inch.

At tick over speeds the pressure should be between 5 and 8 lb. per square inch.

Should it be found necessary to alter the oil pressure, an oil pressure release valve will be found on the near-side of the crankcase, just behind the exhaust manifold. To increase the oil pressure the adjusting screw should be turned clockwise. Make certain that the locknut is tightened after any adjustment. It is strongly recommended that this adjustment should be carried out by an authorised HEALEY Distributor or Dealer.

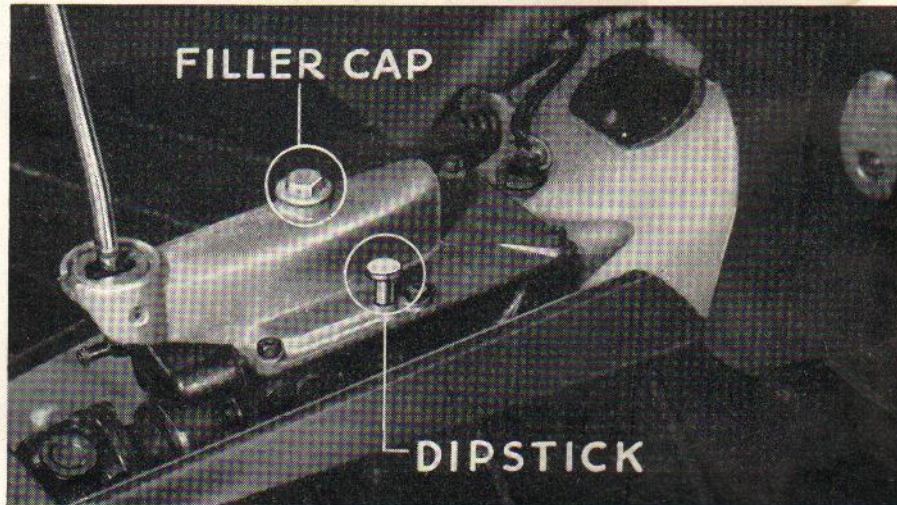
## GEARBOX

This component should be drained completely after the first 500 miles and subsequently at intervals of 5,000 miles.

The drain plug will be found on the underside of the gearbox. The Filler Cap and dipstick are located underneath the gearbox tunnel and forward of the gear change lever.

Replenishment should occur at intervals of 1,000 miles. Great care should be taken to see that the gearbox is not overfilled above the mark on the dipstick.

**NOTE :** On NO account should a heavy oil be used.



## CLUTCH

This is of the dry plate type, and as a carbon ring is used on the withdrawal mechanism no lubrication is necessary other than attention from an oilcan to the various pins and toggle levers in the actuating mechanism.

The correct amount of free movement at the clutch pedal should be  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in.

## FRONT HUBS

Remove the Wheel Discs by unscrewing Centre Nut, Screw Nipple., supplied loose in Tool Kit, into Hub Cap and give two strokes with the grease gun every 5,000 miles. Retain Nipple for future use.

## REAR HUBS

Remove Wheel Disc, Wheel and Hub Disc, and give the exposed nipples two strokes with the Grease Gun every 5,000 miles.

## CHASSIS

It is necessary that the following points should receive three or four strokes with the grease gun every 1,000 miles, on their respective nipples.

1. Water Pump.
2. Ball Race on front end of Torque Tube.

(Over

3. The Two Universal Joints between the Gear Box and Torque Tube—every 5,000 miles.
4. There are twelve Grease Nipples on the Steering and independent front suspension, their lubrication being dealt with in the brief description headed "Front Suspension."
5. One on each Handbrake Cable.

The following points should receive the attention of an Oil Can at regular intervals, light oil only being used.

1. Accelerator body and fork-end connection at the Carburettors.
2. Hand Brake relay mechanism.
3. Hand Brake cable fork-ends at rear back plates.
4. Choke and Ignition cables.

The Clutch and Brake Pedals are fitted with Oil retaining bearings, but these should nevertheless occasionally receive attention from an Oil Can.

### REAR AXLE

As with the Gearbox and the engine, the rear axle should be drained after the first 500 miles and subsequently replenished each 2,000 miles. It is necessary to pre-warm the oil slightly before filling so that the oil will flow more readily into the casing.

The combined filler cap and level plug will be found on the near side of the differential casing and is reached by removing the rear seat cushion and undoing the screws holding the seat pan. The rear seat pan can then be removed.

**NOTE 1.** Do not rotate the wheels during this filling operation, otherwise overfilling may result.

### NOTE 2.

1. Oil should be drained from the Engine, Gearbox and rear axle after the car has been running for some time ; the lubricant being warm, is then in a more fluid state and more readily drained off.
2. When filling with Oil, or greasing, make sure that there is no dirt around the grease nipples or filling points. If this is not done, dirt and grit may enter the mechanism, thereby causing rapid and unnecessary wear.
3. Make sure that all drain plugs and fillers are replaced and securely tightened.

These are of the Lockheed two leading shoe hydraulic type, and being hydraulically operated, all the brakes are fully compensated.

The Hand Brake is an independent system operated by cables, and these cables require no further adjustment after they are set at the Factory. The hand brake adjustment being taken care of, when the foot brake adjustment is made (see below).

## **FOOT BRAKE ADJUSTMENT**

Adjustment to the foot brake is made individually at each brake drum. The front brakes being two leading shoe type, have two adjusting points at each drum, but there is only one at each Rear brake drum.

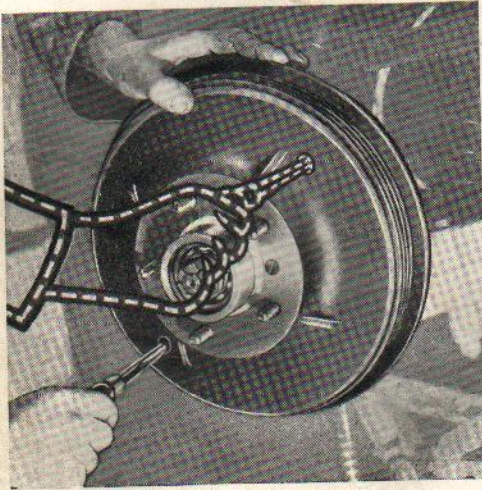
There are six adjustment points in all.

### **To adjust front brakes, proceed as follows :**

Remove Wheel Disc and Wheel, a hole will then be exposed in the drum. Rotate the drum until the hole is opposite the adjusting screw in the brake cylinder, at approximately the top of the brake back plate. Insert a screwdriver and turn in a clockwise direction until the shoe is just rubbing the drum then turn **BACK ONE Notch**, now rotate the drum through 180 degrees and another adjusting screw will be seen. Adjust as above.

As the Brake Shoes are fully floating and in order to obtain correct close adjustment, the brake pedal should then be pressed two or three times in order to centralize the shoes. The adjustment operation as outlined above should then be repeated.

## B R A K E S



**To adjust rear brakes, proceed as follows :**

Remove Wheel Disc and Wheel. Turn drum until the hole is at the bottom of the back plate and opposite the adjusting screw. Insert screwdriver and turn in a clockwise direction until BOTH Shoes are just rubbing the drum then turn back one notch.

As the Brake Shoes are fully floating and in order to obtain correct close adjustment, the brake pedal should then be pressed two or three times in order to centralize the shoes. The adjustment operation as outlined above should then be repeated.

It is strongly recommended that when adjusting the brakes ALL Brakes are adjusted as above and NOT just one individual brake.

The brakes are then correctly adjusted and no further adjustments are necessary.

## **ELECTRICAL SYSTEM**

A pair of 6 volt 63 AMP. HR. capacity batteries are situated under the Rear Seat Pan. The most important thing to ensure is that the electrolyte—which is the liquid in the battery—is maintained in level to just over the top of the separators by means of distilled water. Tap Water should Never be used.

Terminals and connectors should be kept lightly smeared with grease such as Vaseline.

A Positive earth type of 12 volt system is employed ; i.e. the positive lead from the Battery is earthed to the Chassis.

The Dynamo is of the C.V.C. type, i.e. compensated voltage control, which means that the charging rate is entirely automatic ; that is, when the state of the battery is low, the dynamo is allowed to charge at quite a heavy rate until the battery condition is normal.

This will be shown on the ammeter by a gradual DECREASE in the charging rate.

A spare fuse will be found in the fuse-box, which is located under the bonnet and attached to the near-side of the bulkhead.

## **LAMP BULBS**

The Head Lamp Bulbs are "Prefocus" type which ensures that the Filaments are always positioned correctly with respect to the focal point of the reflector.

The Fog Lamps are of a similar type, also containing "Prefocus" Bulbs. Information as to adjustment of setting can be obtained from the "Lucas Electrical Equipment Supplementary Information for Healey Cars."



## GENERAL INFORMATION

The Side or Parking Lamps are contained in the Headlamps.

Details of the Bulbs fitted are as follows :—

### HEADLAMPS (All Models)

Near-side, 12 volt 48  
and 48 watt. Left Dip  
Lucas Bulb No. 302.

Off-side 12 volt 48 watt.  
Lucas Bulb No. 185.

### FOGLAMPS (Roadster & Saloon)

12 volt 48 watt. Lucas  
Bulb No. 185.

### PARKING OR SIDE LAMPS (All Models)

12 volt 6 watt. Lucas  
Bulb No. 989.

### REAR LAMP BULBS (Roadster & Saloon)

Two Tail 12 volt 6 watt.  
Lucas Bulb No. 989.  
One Stop 12 volt 24 & 6  
watt. Lucas Bulb No.  
189.

One Reversing 12 volt  
24 watt. Lucas Bulb  
No. 199.

### REAR LAMP BULBS (Sportsmobile)

Two Stop Tail 12 volt  
6 and 24 watt. Lucas  
Bulb No. 189.

Two Reversing 12 volt  
24 watt. Lucas Bulb  
No. 199.

Number Plate, 12 volt  
6 watt. Lucas Bulb  
No. 207.

### TRAFFICATORS (Saloon & Sportsmobile)

12 volt 3 watt Lucas  
Bulb No. 256.

### INTERIOR LIGHT (Saloon)

12 volt 6 watt Lucas  
Bulb No. 254.

### INTERIOR LIGHT (Sportsmobile)

12 volt 6 watt. Lucas  
Bulb No. 207.

### MAP LIGHT (Sportsmobile)

12 volt 6 watt Lucas  
Bulb No. 207.

### WARNING LIGHTS (All Models)

2.5 volt 0.2 amps. Lucas  
Bulb No. 970.

### PANEL LIGHTS (All Models)

12 volt 2.2 watt. Lucas  
Bulb No. 987.

### AUXILIARY LIGHTS

The Panel lights and roof light only function when the side lights are switched on. The reversing light functions automatically when the gear lever is in the reverse position and the side lights are switched on.

# GENERAL INFORMATION

## **JACKING POINTS**

There are two jacking points situated in the front members of the cruciform bracing in the centre of the Chassis.

The Jack, which has an integral handle, is located in the tail of the Car beside the spare wheel.

To insert the jack, a trap door in the front floorboards is lifted and the spigot of the jack inserted in the tube which is then visible. Owing to the adjustment of the front seats it may be necessary to move either front seat, back one or two notches before the trap door can be fully opened.

## **IMPORTANT**

It is essential to see that the Hand Brake is fully ON before commencing to Jack up the Car.

## **WHEEL DISCS**

These are held in position by means of the Centre Nut and can be removed quite easily by hand. It is not necessary to remove the discs in order to inflate the tyres.

**CORRECT POSTAL ADDRESS**

Any HEALEY owner wishing to communicate with the Company  
in connection with his car should address his letter as follows :

**DONALD HEALEY MOTOR CO. LTD.**

**(SERVICE DEPARTMENT)**

**MILLERS ROAD**

**THE CAPE**

**WARWICK - - - ENGLAND**

Telephone and Telegrams : Warwick **676-7**

# HEALEY

## *Car Prices*

2.4 Litre Saloon	-	£1,750 0 0	Purchase Tax -	£973 14 6
2.4 Litre Roadster	-	£1,500 0 0	Purchase Tax -	£834 16 8
2.4 Litre Chassis	-	£950 0 0	Purchase Tax, calculated on completed car.	
2.4 Litre D.H. Coupe	£1,850 0 0	Purchase Tax -	£1,029 5 6	

October, 1948.