



250 GT/E coupé pininfarina 2+2



operating, maintenance and service handbook

ferrari

250 gt/e pininfarina coupé 2+2

**operating, maintenance
and service handbook**

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Ferrari

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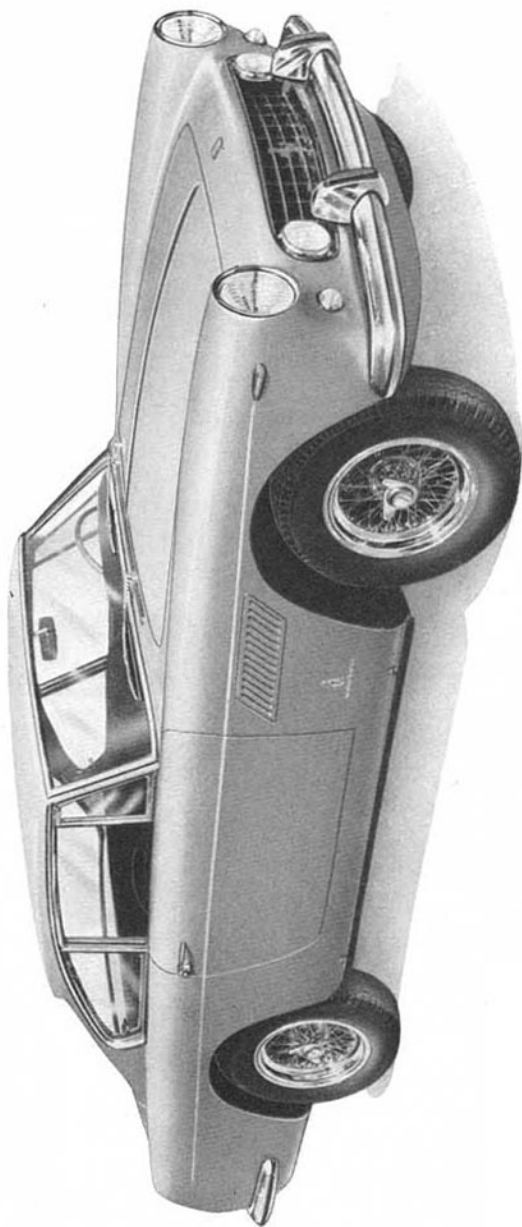


Fig. 1 - Ferrari 250 GT/E Coupé Pininfarina 2+2.

- **The 250 GT Ferrari is a high performance car, built to the exacting standards of an advanced design. It deserves and requires skilled attention.**

- **The manual includes a comprehensive description of the various features of the car and we recommend that it be consulted before servicing, or work of any kind, is attempted.**

- **For maintenance operations, or work that would involve special equipment, we suggest that our Concessionaires be contacted.**

- **Should repairs or new parts become necessary, only genuine Ferrari spares may be used. These are obtainable from our Concessionaires.**

- **The factory trained staff available at our Concessionaires are always at the disposal of Ferrari owners for information or advice.**



	Litres	Gallons/Pints	
WATER	11	2	3
FUEL	90	19	7
	Kilograms.		
OIL			
Sump	9	—	15
Filters	1	—	2
Gearbox & Overdrive	4.6	—	6
Rear axle	1.8	—	5
Steering box	0.4	—	1



**Identification
Numbers**

Fig. 2 - Chassis number.
Nearside of front cross
member.

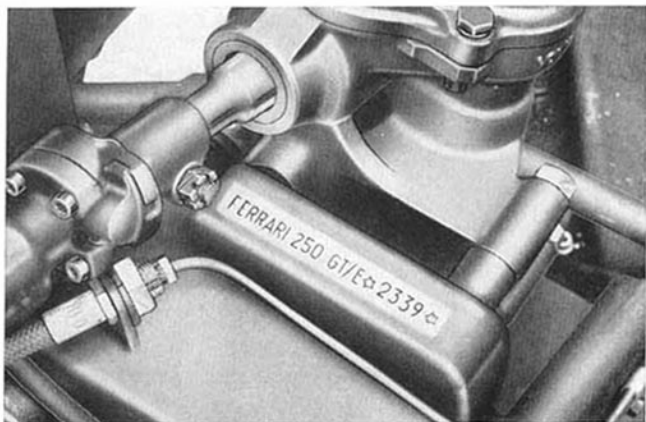
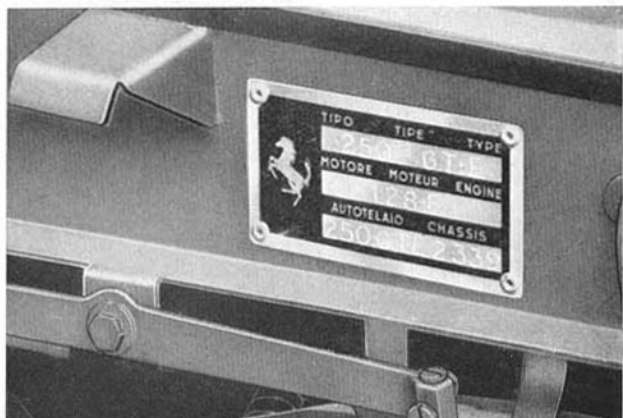


Fig. 3 - Engine number.
Timing casing and Fly-
wheel bell housing.

Fig. 4 - General data
plate.
Bulkhead.



ENGINE

Cylinders	12
Arrangement	V 60
Bore	73 mm
Stroke	58.8 mm
Total displacement	2953.211 cc
Compression ratio	9.2 to 1
Max. power at 7000 r.p.m.	235 bhp net

CHASSIS

Wheel base	m. 2.600	8'6"
Max. length	m. 4.700	15'5"
Max. width	m. 1.710	5'10"
Min. height from the ground (loaded)	m. 0.145	5"
Max. height (loaded)	m. 1.340	4'5"
Front track (loaded)	m. 1.395	4'7"
Rear track	m. 1.387	4'6"
Min. turning circle	m. 12.2	40'1"
Weight empty	kg. 1310	25.7 cwt.
Overall weight full load (4 persons)	kg. 1695	33.2 cwt.
High octane fuel consumption (normal) for 100 Km.	Litres 16	17.7 mpg.
Oil consumption (normal) engine cruising speed for 100 Km.	grs. 100	
Maximum speed	km. 230	143 mph.
Tyres (front and rear)	185 x 15 - 6.50/6.70 x 15	
Front tyre pressure	} Pirelli } Cinturato	Kg/cm. 1.7/2 29 lbs/sq.ins.
Rear tyre pressure		Kg/cm. 2.1/2.3 33 lbs/sq.ins.
Electric Installation	12 volts.	

PERFORMANCE

Maximum speeds in gears

MAXIMUM SPEEDS AT 7000 r.p.m.					
ratio	1st.	2nd.	3rd.	4th.	4th. at 1000 r.p.m.
7/32	74 KMH 46 MPH	110 KMH 68 MPH	150 KMH 93 MPH	188 KMH 116 MPH	26.857 KMH 17 MPH
8/34	79 KMH 49 MPH	119 KMH 74 MPH	160 KMH 99 MPH	202 KMH 125 MPH	28.857 KMH 18 MPH
5th. automatic overdrive is fitted - exclusively - with ratio 7/32 and provides a max. speed of 230 KMH. 143 MPH.					

HILL CLIMBING

	1st.	2nd.	3rd.	4th.	overdrive
gradient in %	47	29	19	12	4
speed in KMH and MPH	60 KMH 37 MPH	92 KMH 57 MPH	122 KMH 76 MPH	153 KMH 94 MPH	185 KMH 115 MPH

Maximum range, without refuelling

at normal speed on road : about 500 Km/300 miles.

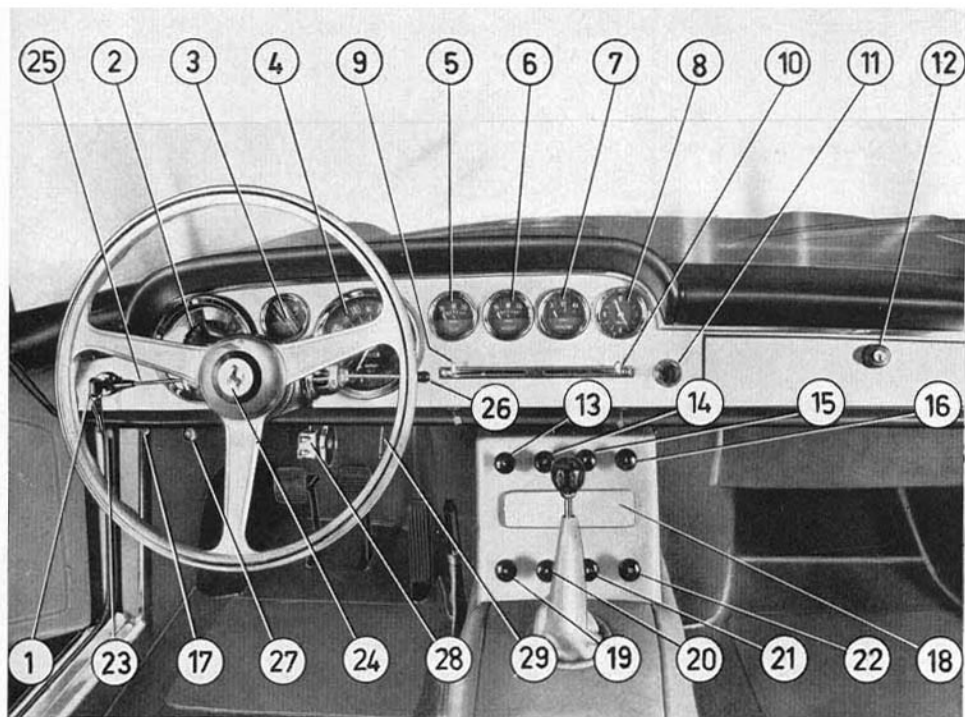


Fig. 5 - Drives and various controls.

1. Ignition lock switch

By turning the key clockwise, the first trip (90°) completes the panel light, de-mister, blower and windscreen wiper circuits, should the separate controls for these circuits be left on.

The second trip (180°) completes the ignition and dynamo warning light circuits.

The starter is operated by depressing the key in the second trip (180°) position.

2. Revolution Counter

Reads to 8,000 r.p.m.
Each division equals 250 r.p.m.
Numbered every 500 r.p.m.

3. Oil pressure gauge

Minimum pressure at 700-800 r.p.m. - 35-40 lbs sq.in.
Minimum pressure at 7000 r.p.m. - 55-60 lbs sq.in.

- | | |
|----------------------------------|--|
| 4. Speedometer | Reads to 180 mph
Each division equals 5 mph
Numbered every 10 mph |
| 5. Oil Temperature gauge | Maximum Temperature 110-115° C or 230-235° F. |
| 6. Water temperature gauge | Maximum Temperature 90-95° C or 190-195° F |
| 7. Fuel level Indicator | Shows quantity of fuel in the tank. The Red warning light comes on when there are only 2½ to 3 gallons left. |
| 8. Clock | — |
| 9. Heater Temperature control | To increase the temperature, move the control lever to the right. |
| 10. Heater Air control | To increase the flow of fresh air move the control lever to the right. |
| 11. Lighter | Push the knob in, towards the dashboard. The Lighter then works automatically, springing out when ready for use. |
| 12. Glove pocket | Press the catch to open. This catch has its own key. |
| 13. Lights switch
Marked 'I.' | Draw the knob out from the dashboard. If lever 25 is forwards, this merely switches the side lights on. Flicking lever 25 back towards the steering wheel, switches the headlamps on, but with the beams dipped. Rotating the knob 'L' a quarter turn clockwise, and then drawing it out a further notch, switches the headlamps on. The beams will be at dipped with lever 25 to the rear; flicking this lever forward towards the dashboard, sets the lights onto full beam. |

- | | |
|---|--|
| 14. Panel Lights.
Switch marked 'P' | This is a Rheostat switch. Rotate the knob clockwise to switch on. Further rotation dims the lights. |
| 15. Fog light switch 'F' | Draw the knob out to switch on. |
| 16. Inside light switch 'I' | Draw the knob out to switch on. |
| 17. Windshield washing pushknob (*) | Pressing this knob with the foot squirts water onto the windscreen. |
| 18. Radio-set | |
| 19. Windscreen wiper switch, marked with a 'W' | Turn the knob clockwise to operate. The first position operates the blades at half speed, the second at full speed. |
| 20. Petrol pump switch marked 'A' | Draw the knob out to operate the pump. A blue warning light, marked Autoflux and situated in the revolution counter, shows when this pump is operating. |
| 21. Electric fan and heating switch 'D' | Draw the knob out to operate. |
| 22. Rear electric fan switch 'B' | Draw the knob out to operate. |
| 23 - Socket | |
| 24 - Warning horn push button | |
| 25. Indicator and Dipping switch | This lever works in two planes : Vertically to operate the Turn Indicators and horizontally to operate the headlamp dipping. The latter operation was described with switch number 13. Flick the lever down to operate the offside flashers, indicating a right-hand turn, and up for a lefthand turn. |

(*) N. B. This knob has been moved since the diagram was drawn.

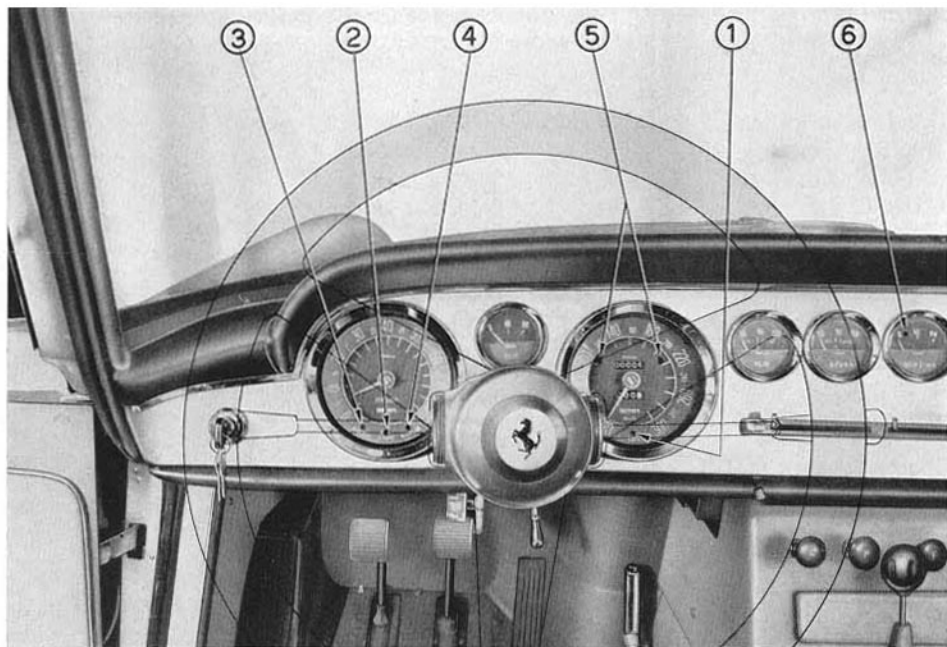


Fig. 6 - Various driving aids.

- 1) green warning for side lights; 2) dynamo and ignition warning (red); 3) orange warning for heating and electric fan; 4) Blue warning for electric fuel pump; 5) Red warning for Indicator flashers; 6) Red warning for fuel level.

26. **Overdrive switch**

Flick the lever forwards to engage overdrive.

27. **Starter knob**

See page 14.

28. **Radiator blind control**

Turn the handwheel clockwise to raise the blind. Pull the release catch, situated on top of the control, to the rear to lower the blind.

29. **Bonnet catch.**

Draw the lever up to open.

30. **Choke**

Pull out to operate.

31 & 32. **Air duct controls**

Pull out to increase the fresh air flow.

33 & 34. **Dashboard ventilator controls**

Turn to increase the fresh air flow.

35 & 36. **Car interior heater doors**

Pull open to allow heated air to enter the car interior.

(*) Not shown on diagram.

Running-in

Although the engine has been thoroughly bench-tested before being installed, it is still necessary to run the car in for the first 2000 miles. The following speeds are the maximum allowed :

Distances in miles	Maximum speeds in MPH and Km/h allowed			
	First	Second	Third	Fourth
Up to 1000	30 mph 50 km/h	40 mph 70 km/h	55 mph 95 km/h	80 mph 130 km/h
From 1000 to 2000	40 mph 70 km/h	55 mph 95 km/h	75 mph 120 km/h	90 mph 150 km/h

Also, when starting :

1. Do not operate the starter for longer than three seconds at a time.
2. Use the electric petrol pump for starting from cold. The pump should be switched off when it has finished ticking, before attempting to use the starter.
3. Allow the engine to run at 2,000 rpm for at least 1 minute, 2-3 mins : in cold weather, before moving off.

When driving :

1. Never accelerate hard.
2. Never use the maximum speeds in the above table as cruising speeds.
3. From time to time, release the accelerator for a second or two.
4. Avoid heavy or long braking, at least for the first 1000 miles.

RUNNING-IN

Engine oil changes

The engine oil should be changed at the following intervals :

- | | | |
|------|------------------|--------------|
| 1st. | change after | 500 miles |
| 2nd. | » | » 1500 miles |
| 3rd. | » | » 2500 miles |
| | Thereafter every | 250 miles. |

Gearbox and rear axle

The oil should be changed at 2,500 miles.

Cylinder head nuts

These must be checked for tightness at 500 miles (correct torque 62-66 lbs/ft).

Steering adjustments

After the first 3,000 miles, check the play in the sector shaft and adjust if necessary - see page 64.

CHECKS

Before use, check.

1. Check the water level in the radiator
2. Check the sump oil level
3. Check the tyre pressure
4. Check the level of the brake reservoir.

Fuel

98/100 Octane fuel only to be used.

Oil

The sump oil level should be kept up to the maximum line on the dipstick - measured before running the engine.

Water

The correct level is 1" below the bottom of the filler neck. The level should never be allowed to drop more than 2" below the bottom of the filler neck.

To check the level when the engine is hot, or overheating, cover the radiator cap with a rag and twist anti-clockwise by a quarter turn : allow the pressure to escape and then unscrew. If it is found necessary to replenish, pour water in slowly, with the engine ticking over.

Tyres

Check the tyres are not wearing unevenly at least every fortnight.

Starting

COLD START

Check the gear lever is in neutral.

Draw out the choke, if the weather is very cold. This should be pushed in slowly after starting.

Turn on the electrical petrol pump, switching off when it ceases pumping.

Depress the ignition key, releasing it as soon as the engine fires.

It eases starting to depress the clutch pedal, but never press the accelerator until the engine has started.

Should the engine prove difficult to start, stop trying to start for a minute or two, to save the battery.

Should the engine still not start, the battery may be low, the plugs may be dirty, or the contact breaker points incorrectly set, or the coils faulty.

A fuse may be blown or the slow running jets may be blocked.

Never rev-up until the oil is warm.

Check that the oil pressure at tick-over is not below 35 lbs.

Check that the dynamo warning light goes out as soon as the engine reaches 1000 rpm.

WARM START

No choke will be necessary - press down on the accelerator slowly, releasing it gradually as soon as the engine fires.

Never pump the accelerator repeatedly.

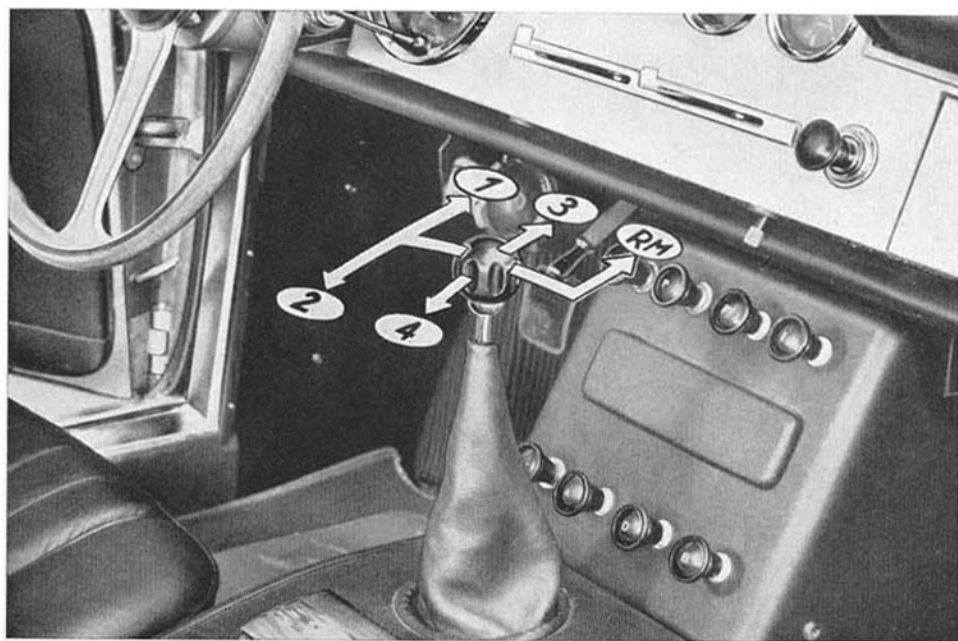


Fig. 7 - Gear positions.

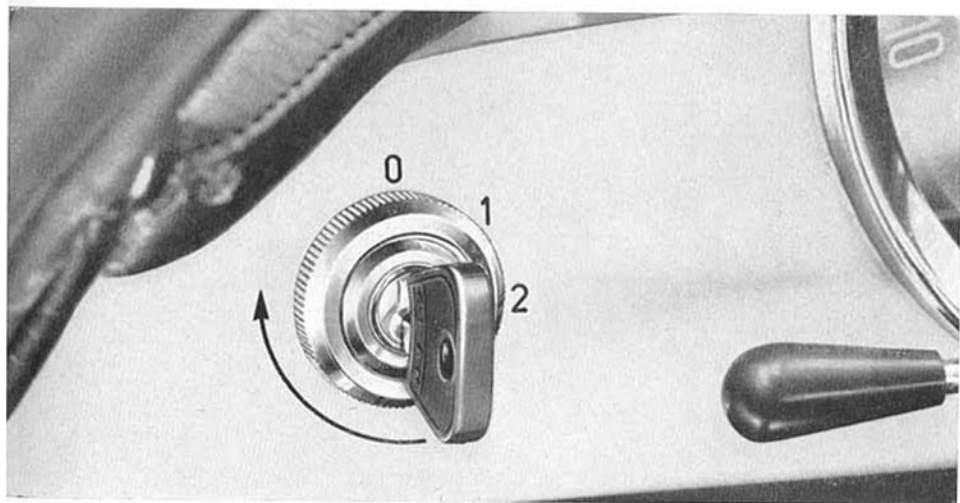


Fig. 8 - Ignition switch positions.

Driving pointers

1. Never exceed 7000 rpm.
2. Try to form a habit of glancing at the oil, water and ammeter gauges occasionally.
3. Should the oil pressure gauge read less than 55-60 lbs/sq in. at maximum rpm with warm oil, the engine must be stopped immediately and the cause investigated.
4. Never accelerate hard before the oil has reached its working temperature of 130° F/60° C.
5. Never drive with the foot resting on the clutch pedal, and do not keep the clutch depressed for long periods in traffic.

Wintry conditions

Shell antifreeze is recommended for use in the following quantities :

Temperature	Antifreeze
About - 8° C	2 Litre or 3 ½ pts.
» - 15° C	3.1 » or 5 ½ pts.
» - 25° C	4.5 » or 8 pts.

If antifreeze has not been mixed with the coolant, it is important that the coolant is drained immediately after use.

Diagrams on page 17 show where the drain cocks are situated.

Draining the coolant

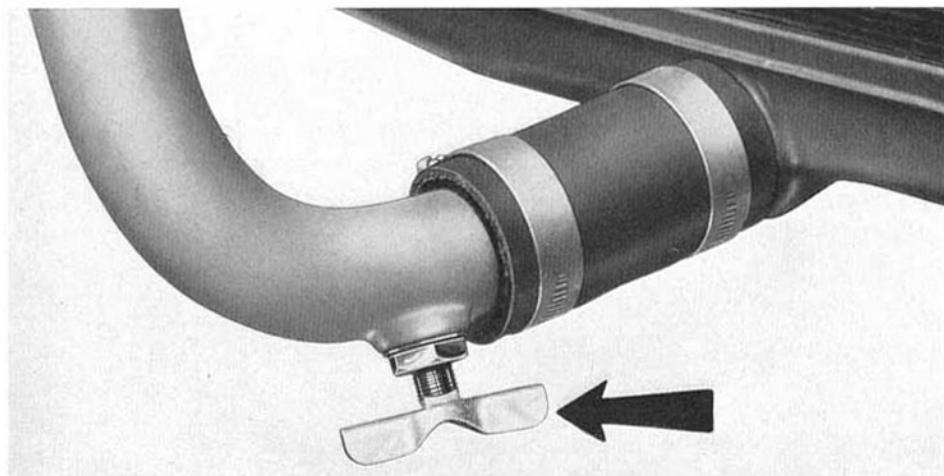


Fig. 9 - Radiator drain cock.

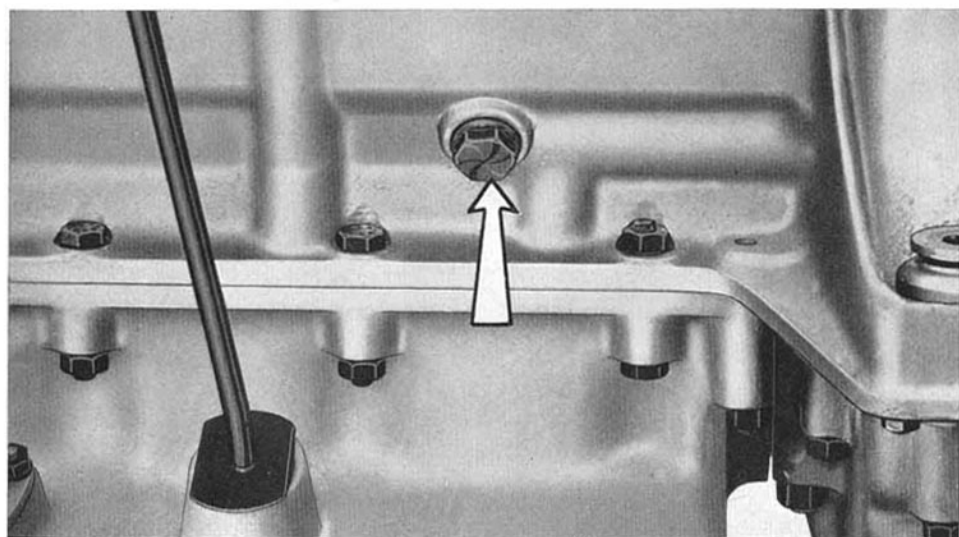


Fig. 10 - Crankcase drain cock.

Heating and ventilation

The car heating and ventilation equipment is situated at the centre of the dashboard and comprises :

1. A water radiator inside the heater box.
2. A fresh air intake between the windscreen and the rear of the bonnet.
3. A cable operated throw cock for warm water from the radiator.
4. A demister fan to draw fresh air over the heater.
5. There is also a fan behind the rear seat, for demisting the rear window.

Hot weather

Fresh air may be induced by :

1. Moving the facia mounted air control lever to the right and opening the heater doors - situated either side of the heater box - see fig. 11 - item 6.
2. Turning the facia ventilator controls to permit a full air flow.
3. Pulling knobs 7 & 8 diagram 11, to admit fresh air around the passenger's and driver's feet.
4. The air flow produced by action No. 1 may be increased by switching on the fan - though this is not effective above 40 mph.

Mild weather

De-misting.

Leave the heater doors closed but move the facia mounted air control lever to the right. The use of the fan will accelerate de-misting.

Cold weather

Heating, de-misting and de-frosting.

Move the heater temperature control lever fully to the right, but the air control lever only partially to the right.

Ventilation and heating - continued

Open the heater doors and switch on the fan - marked 'D'.

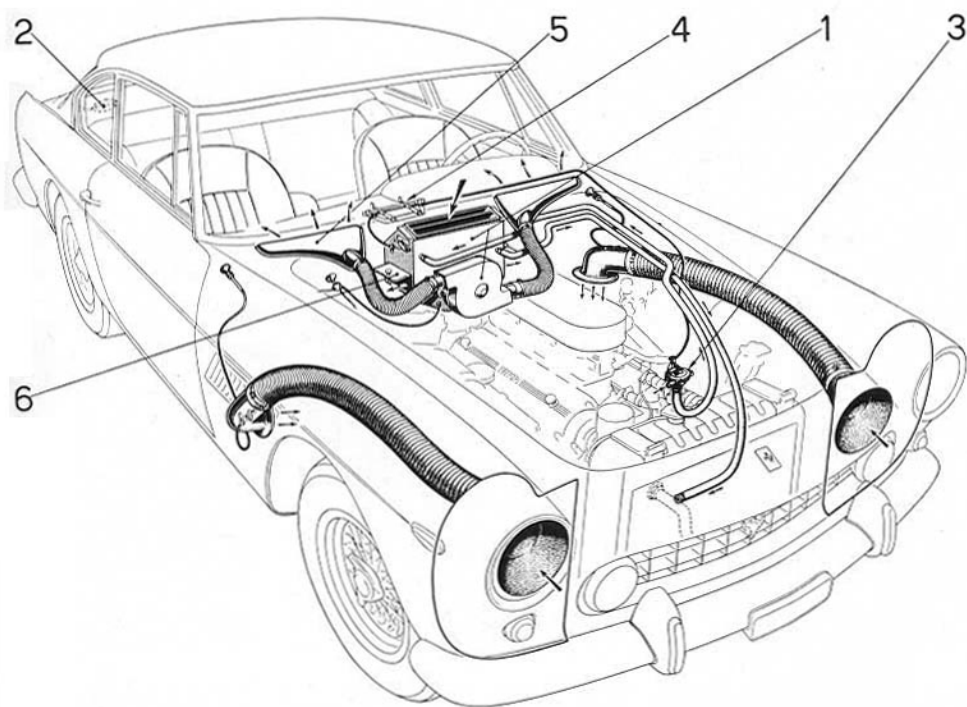


Fig. 11 - Ventilation and heating installation.

- 1) Ventilator and heating motor unit;
- 2) rear ventilator motor unit;
- 3) warm water cock;
- 4) controls group;
- 5) de-mist warm air inflow;
- 6) heater doors.

Front seats adjustment

Front seats may be adjusted backwards and forwards by pulling up on Bar 1 (Fig. 12).

The rake of the seat backrests may be adjusted by rotating cam 1. Fig. 13 - there are two of these cams per seat and they must both be turned when altering the rake.



Fig. 12 - Front seats adjustment : 1) lever.

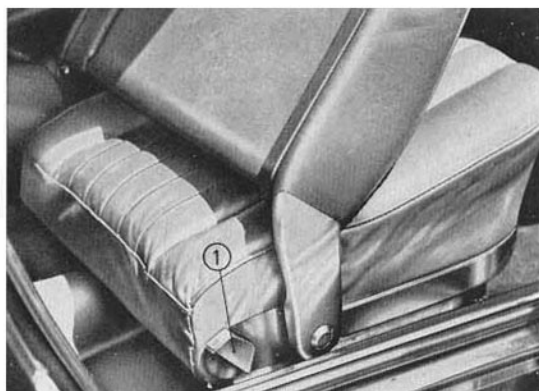


Fig. 13 - Rake : 1) rotating cam.

Operating the windows

To raise or lower the side windows, turn handle 1) fig. 14.

Swivelling quarter lights are on the front doors and are controlled by handwheels (2).

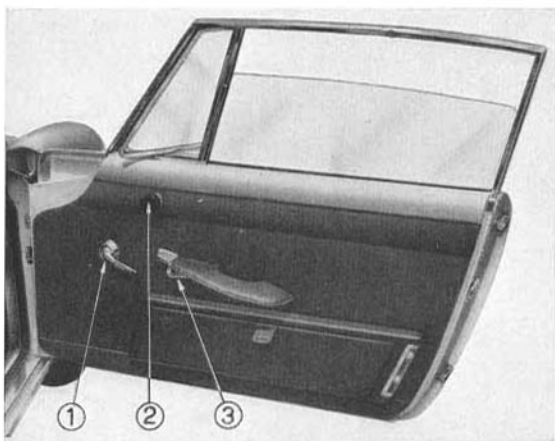


Fig. 14 - 1) Handle to raise side window; 2) quarter light knob; 3) door lever.

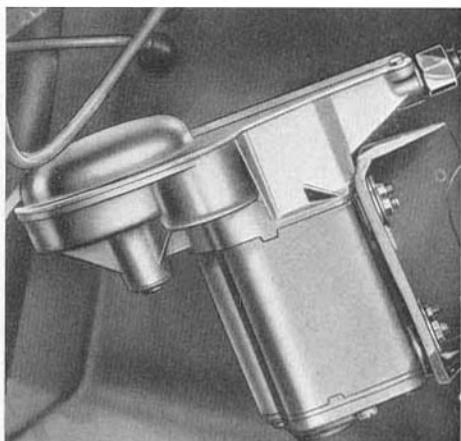


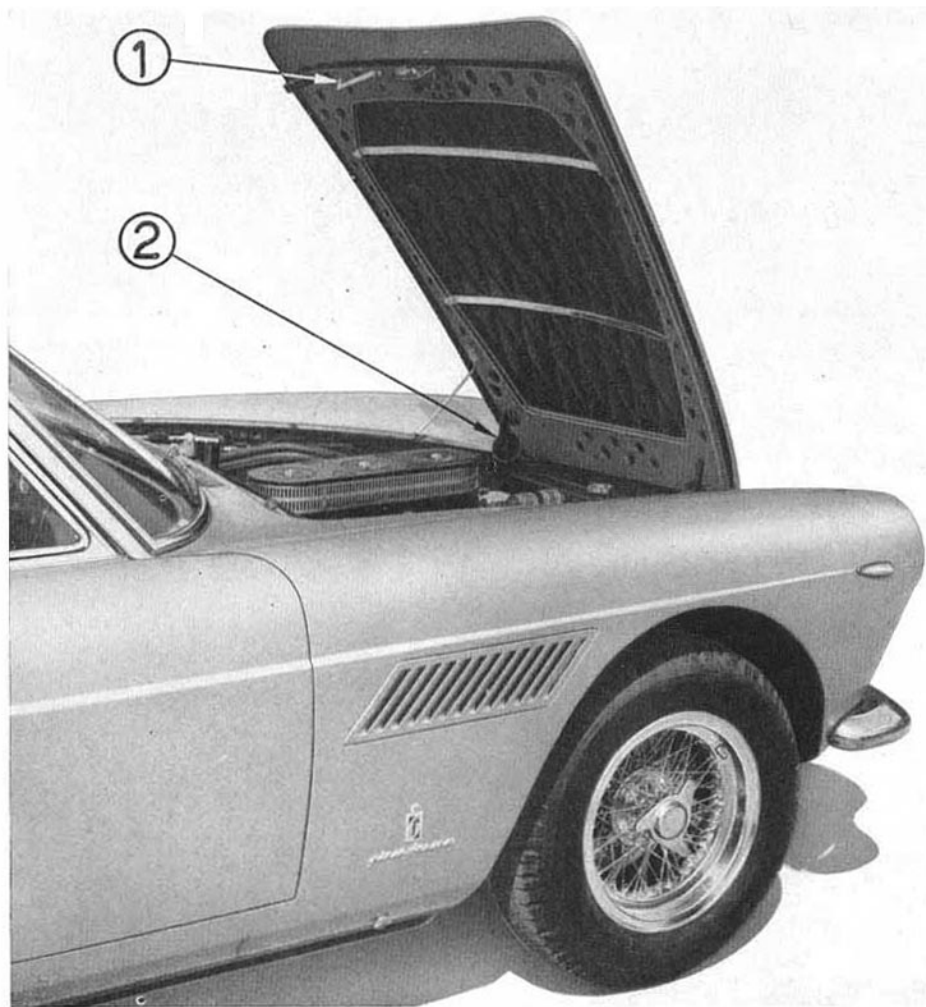
Fig. 15 - Windscreen wiper motor.

Windscreen wiper

To remove the motor, disconnect the battery, break the connection to the motor, remove the motor cover plate, and disconnect the flexible drive.

Undo the mounting nuts.

When assembling, make sure the flexible drive is clean and greased.



Opening the bonnet

The bonnet is hinged at the front end, and is opened by pulling up lever 29 (fig. 5), pushing the safety catch 1 (fig. 16) forward, and lifting by the rear edge. Two spiral springs hold the bonnet open, though a small stay is also provided to prop the bonnet open, say, in a wind. To close, it is sufficient to lower the bonnet for the first 10-12 inches, and then let it fall.

Opening the boot

Press the barrel of the boot lock and lift the lid.

There is a small stay, similar to the one on the bonnet, fitted at the bottom left hand corner of the lid.

The spare wheel, the jack and the tool kit are located in the boot.

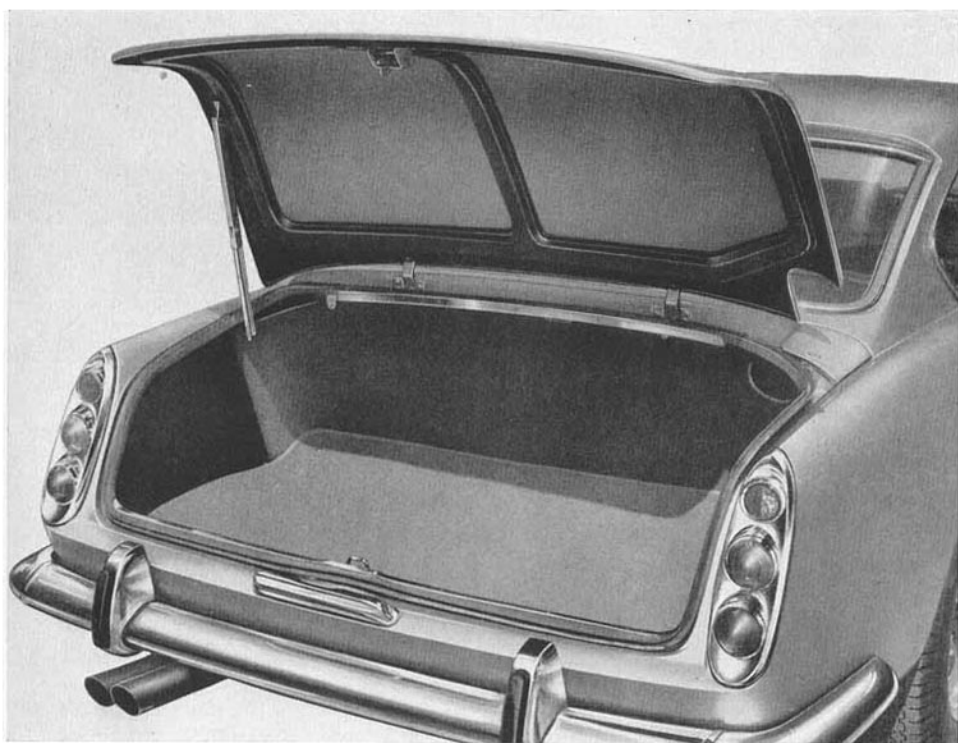


Fig. 17 - Boot.

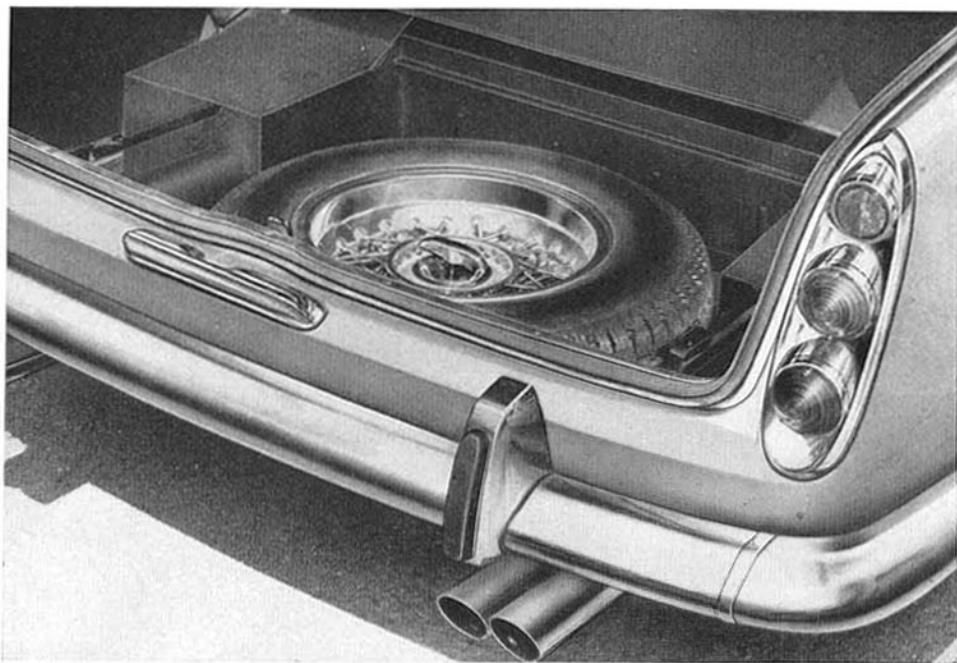


Fig. 18 - Housing the spare wheel in the boot.

Jacking up the car.

Remove the chromed plug, insert the jack and wind - see fig. 19.

To remove the wheels

Offside - Tap the hub caps clockwise

Nearside - Tap the hub caps anti-clockwise.

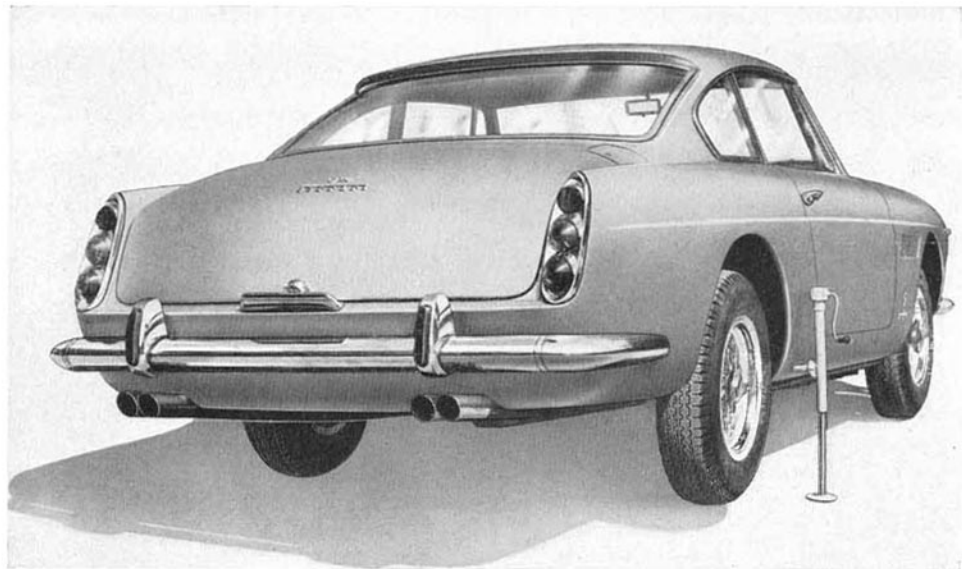


Fig. 19 - Jacking-up the car.

Washing the car

1. We would suggest this is done on a proper washdown so that the paint is not damaged.
2. Never wash the car under a full sun or when the coachwork is still warm.
3. We would suggest that the brakes be applied lightly once or twice immediately after a washdown, to dry out the pads.

Lubrication

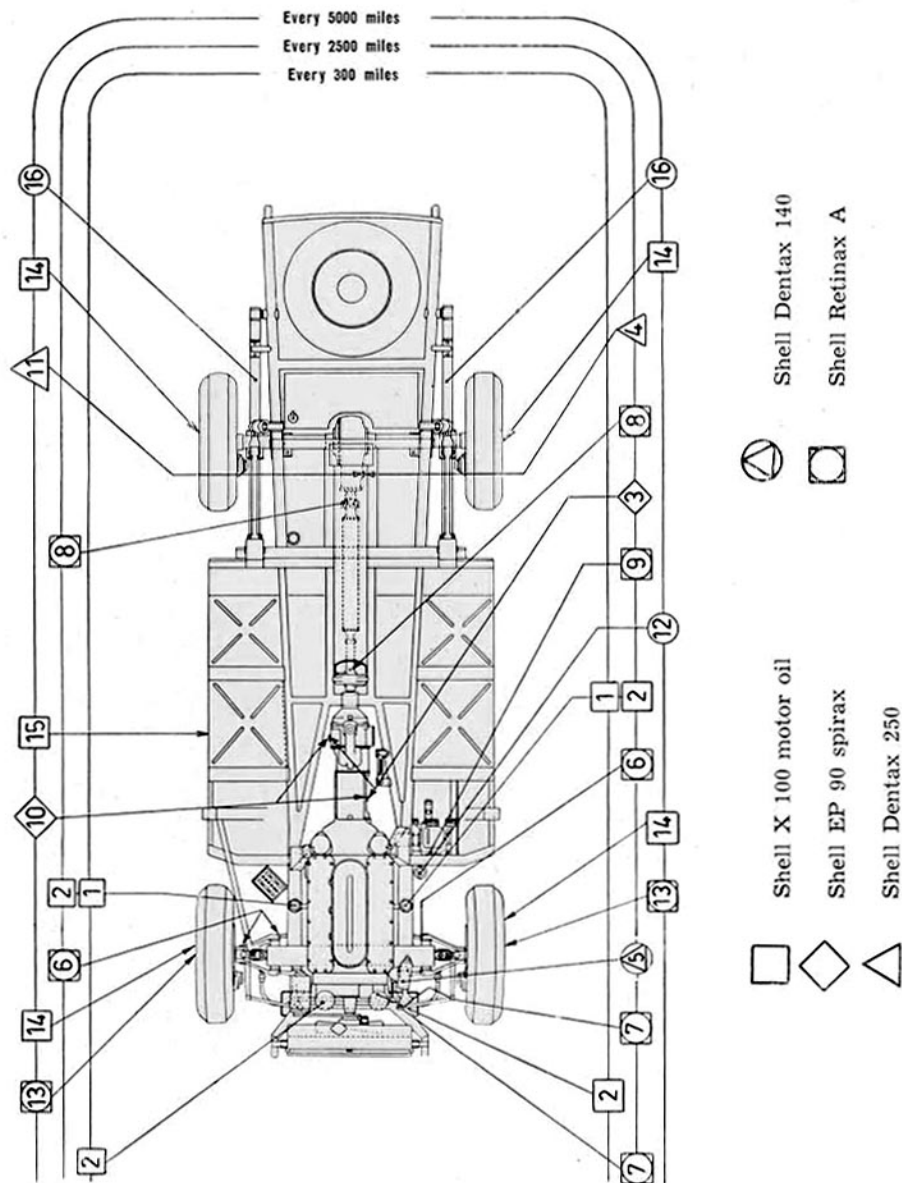
Each 300 miles	1) Check the engine oil level	see page 28
Each 2500 miles	2) Change the engine oil and filters	» » 28
	3) Check the oil level in the gear box and overdrive	» » 58
	4) Check the oil level in the rear axle	» » 60
	5) Check the oil level in the steering box	» » 64
	6) Grease the front wheel suspension arm pivots	» » 61
	7) Grease the steering drag link joints	» » 65
	8) Grease the universal joint and the sliding coupling of the propeller shaft	» » 59
	9) Grease the clutch drive shaft	» » 55
Each 5000 miles	10) Change the oil in the gear box and the overdrive	» » 58
	11) Change the oil in the rear axle	» » 60
	12) Top up the level of the brake fluid supply tank	» » 69
	13) Grease the front wheel bearings	» » 66
	14) Lubricate the wheel hubs	» » 66
	15) Lubricate door hinges and bonnet locks	» » 25
	16) Wash the rear leaf springs with oil	» » 62

- NOTE:** 1. In winter, or very wet weather, carry out items 6, 7, and 8 more frequently.
2. See Fig. 20 for location of filler plugs, grease nipples etc.



Lubrication

Fig. 20 - General lubrication diagram.



Lubrication

Engine lubrication is by a gear pressure pump mounted in the engine timing case, and the oil is filtered by a fine straining filter PH3, and a second partial filter PB50.

The oil level should not be allowed to drop below the minimum level on the dipstick, nor filled above the maximum. The level should be checked before starting the engine, and every 300 miles.

With a new car, or overhauled engine, oil changes should be made as indicated in page 12.

The oil pressure may be regulated by an adjustable cap on the pressure relief valve, but should the pressure drop below the minimum permissible (see page 7) it is best that a skilled mechanic adjust the relief valve.

Never allow the engine to run with the pressure below normal.

Max. oil pressure - 7000 RPM	85 psi
Min. oil pressure at 7000 RPM	55-60 psi
Min. oil pressure at 700-800 RPM	35-40 psi

LUBRICATION

Every 2500 miles

Change the cartridge bodies of both filters using the special tool to remove them from their seats. This is most important in the interest of long engine life.

Be sure there are no oil leaks after the change.

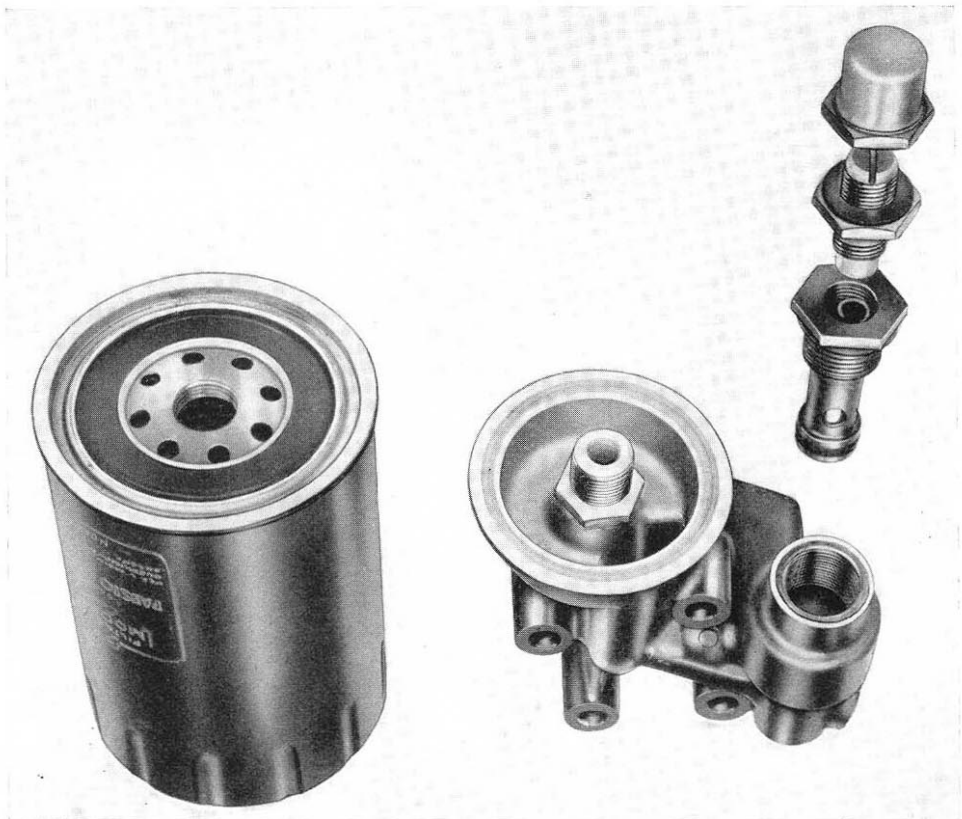


Fig. 21 - Oil filter.

LUBRICATION

Changing from a non-detergent to a detergent oil

A detergent oil will clean the deposits, left in various parts of the engine by a non-detergent oil, which may clog the filters and cause damage to the big-end and main bearings. It is advisable to carry out the following procedure.

1) Draining the oil :

Warm engine to working temperature

Drain the oil

Remove filters, wash them with petrol and blow them through with compressed air.

2) Fill with new oil

3) Change the oil, as above, after **300 miles**, but fit new filters

4) Thereafter change the oil every **2500 miles**.



LUBRICATION LUBRICANTS TO BE USED

ENGINE	In Summer	with temperature over +15°C Shell X 100 40 or Shell X 100 Multigrade 20W/40
	Middle season	with temperature from -5°C up to +15°C Shell X 100 30 or Shell X 100 Multigrade 20W/40
	In Winter	with temperature below -5°C. Shell X 100 20W or Shell X 100 Multigrade 10W/30

WARNING : IN RESTORING THE OIL LEVEL IN THE SUMP NEVER USE OIL OF A DIFFERENT TYPE OR QUALITY

GEARBOX AND OVERDRIVE	Shell Spirax EP 90
REAR AXLE	Shell Dentax 250
STEERING BOX	Shell Dentax 140
BRAKE FLUID SUPPLY TANK	Shell Donax B SAE 70 R3 Dunlop Racing Brake Fluid (Castrol)
FRONT-WHEEL SUSPENSION ARMS STUB AXLE PINS UNIVERSAL JOINT STEERING TIE ROD KNUCKLES	Shell Retinax A
FRONT WHEEL BEARINGS	Shell Alvania Grease 3 or Shell Retinax DX
COOLING SYSTEM	Shell Anti-Freeze

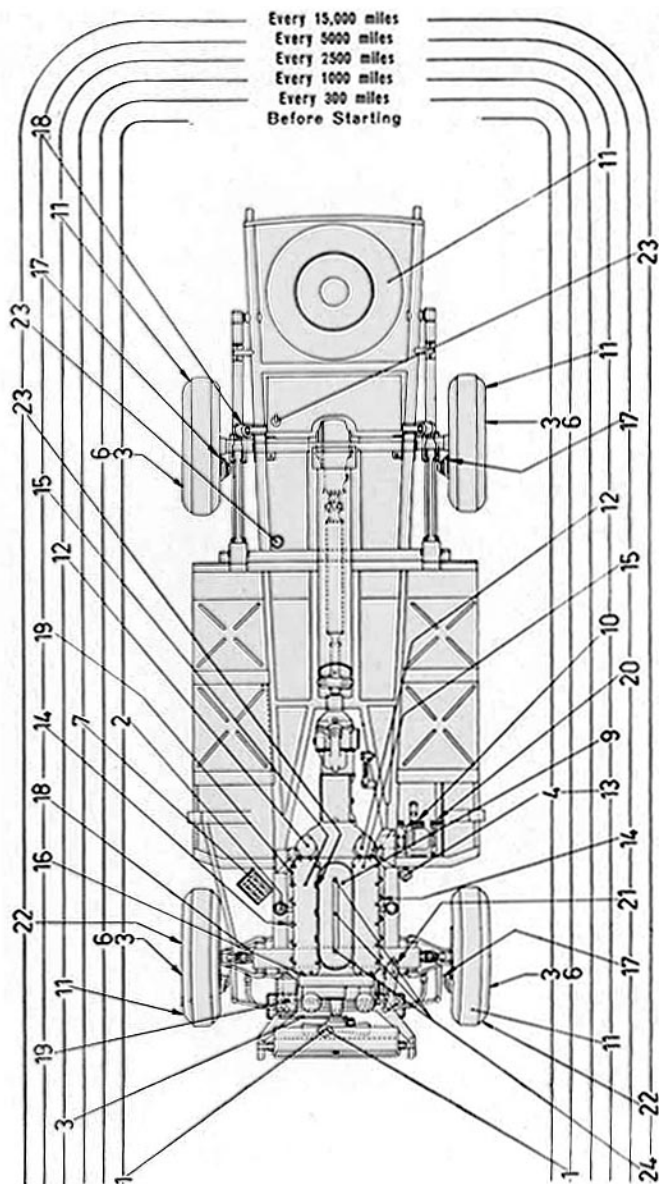
GENERAL

Before using the car	1) Check the radiator level	page. 13
	2) Check the engine oil level	» 28
	3) Check the tyre pressures	» 76
	4) Check the brake fluid level	» 69
Every 300 miles	5) Check the radiator level	» 53
	6) Check the tyre pressures	» 76
Every 1500 miles	7) Check the level of the electrolyte in the batteries	» 80
Every 2500 miles	8) Check the tension of the dynamo driving belt	» 54
	9) Clean the carburettor air filters	» 45
	10) Check the foot brake pedal adjustment	» 73
	11) Change the tyres around	» 78
	12) Check, and if necessary, clean and adjust the contact breaker points	» 47
	13) Inject two or three drops of oil into the dynamo	» 79
Every 5000 miles	14) Change the spark plugs	» 50
	15) Check the valve clearance	» 35
	16) Check the timing chain tension	» 38
	17) Change the disc brake pads and bleed the system	» 71
	18) Check the operation of the shock absorbers and their bushes for wear	» 63
	19) Check the starter motor brushes and commutator	» 79
	20) Adjust the clutch pedal travel	» 55
	21) Adjust the play in the steering gear	» 64
	Every 10,000 miles	22) Check the front wheel 'toe out' and camber
23) Clean the petrol filter		» 39
24) Check the carburettors and controls		» 40

N. B. Should at any time the front suspension suffer a severe shock, toe out and camber must be checked. In this case the joints should be replaced.

GENERAL

Fig. 22 - Routine maintenance operations diagram.



Timing system

Each cylinder head has a single centrally set camshaft, driven, at the front end, by chain.

There are two valves per chamber set at 60°.

The valve rockers are fitted with adjustable tappets and roller cam followers.

VALVE TIMING DATA

Inlet	Opens Closes	27° before TDC 65° after BDC
Exhaust	Opens Closes	74° before BDC 16° after TDC
Valve clearance with cold engine	Inlet exhaust	(mm. 0.15) .006" (mm. 0.20) .008"

Valve clearance adjustment

The valve clearance should be set with a cold engine, using the proper tools. The clearance between the valve stem and tappet should be .006" inlet and .008" exhaust.

When the clearances are set, place the steel or brass shim, provided in the tool kit, behind the timing housing cover, fit the rocker cover down on its gasket and remove the shim before tightening the cover nuts. This is to prevent the rocker cover catching, and distorting the 'O' ring in the rear of the timing housing.

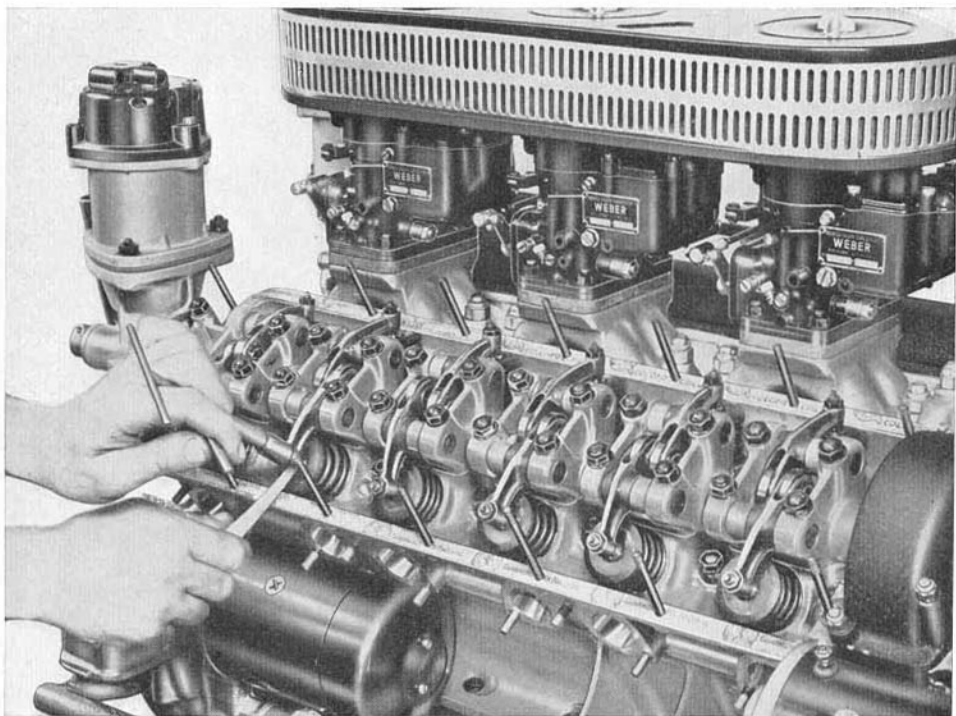


Fig. 23 - Adjusting the valve clearance.

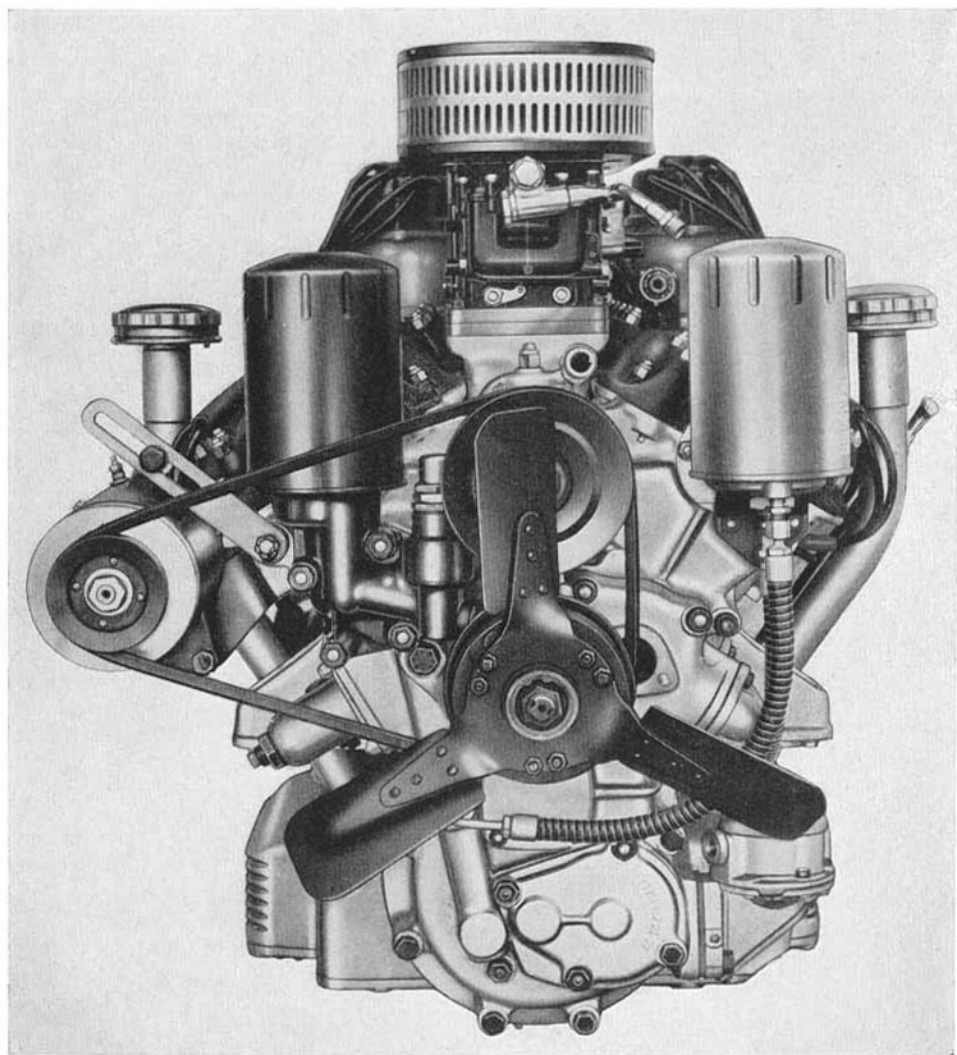


Fig. 24 - Front view of the engine.

Timing chain

Should it be necessary to adjust the timing chain tension, slacken lock-nut (1) Fig. 27.

This slackens the grip of the casing onto the chain tensioner and allows the tensioner to take up tension automatically, as it is spring loaded.

Screw up pin (2) Fig. 27, until it is felt to bear against the tensioner, tighten its lock-nut, and then tighten lock-nut (1) to 62-66 lbs/ft.

WARNING

Should it be necessary to change one or more cylinder head gaskets, make sure lock nut (1) is tightened to 62-66 lbs/ft, after 300 miles have been completed.

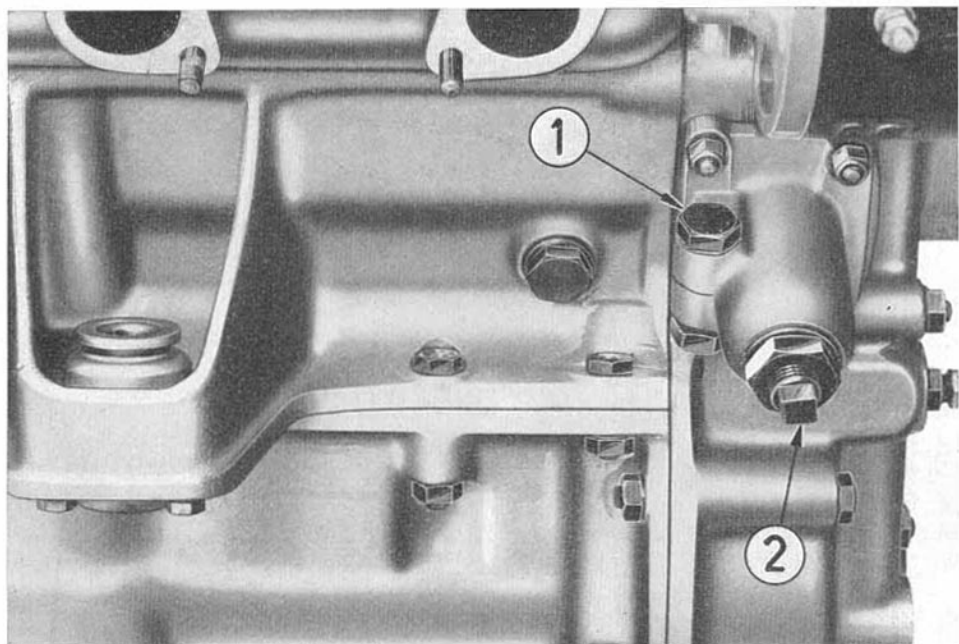


Fig. 27 - Tensioner casing lock-nut (1) Adjuster pin (2).

Fuel pumps

Fuel is pumped to the carburettors by a mechanical pump, with a diaphragm-type **Fispa Sup. 150**, and fitted with a wire gauze filter (Fig. 28) also by an auxiliary electrical pump, type **Fispa PBE 10** (Fig. 29).

Fuel starvation could be caused by

1. The pump filter clogging.
2. Inlet or delivery valves or seats, dirty or worn. If so, wash in petrol and replace worn parts.
3. Worn or torn diaphragm.

It is possible to check on the diaphragm by seeing if petrol drips from the pump air vent.

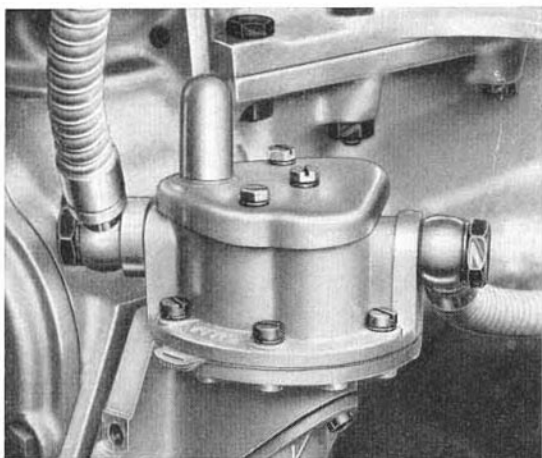


Fig. 28 - Mechanic fuel pump.

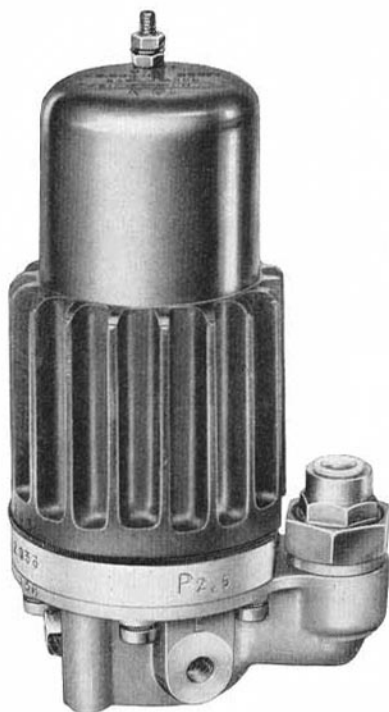


Fig. 29 - Auxiliary electric pump.

CARBURETTORS

Carburation is by three double choke 40 DCL/6 **Weber** carburetors.

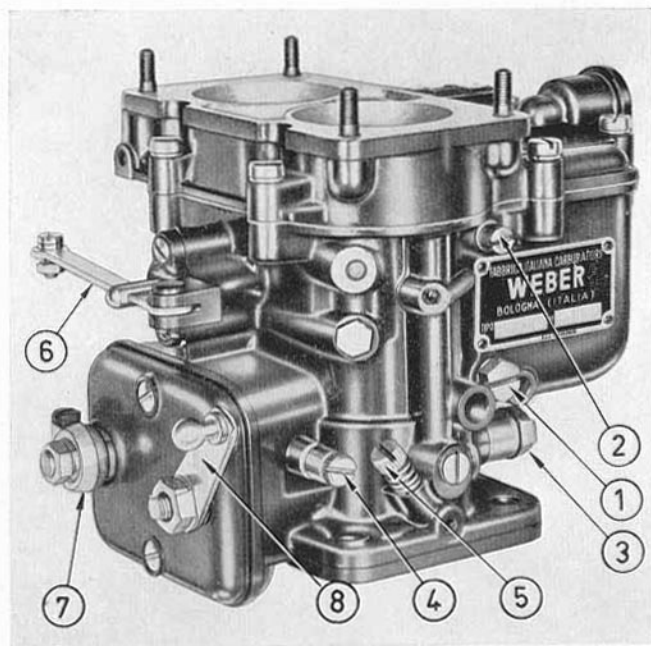


Fig. 30 - Carburettor Weber 40 DCL/6 - seen from the offside.

- 1) main jet ;
- 2) slow running jet ;
- 3) pickup pump drive ;
- 4) adjustment screw for min. opening of throttle;
- 5) idling mixture adjustment screw ;
- 6) choke lever ;
- 7) synchronisation clamp for second throttle ;
- 8) driving lever ;
- 9) throttle clamp bolt.

ADJUSTMENT DATA

Diffusers	mm. 27	Center squares	mm. 2.50
Main jets	mm. 1.50	Air brake jets	mm. 1.80
Slow running jets	mm. 0.60	Needle valve seat	mm. 1.75
Pump jets	mm. 0.60	Starting jet	mm. 1.40
Pump stroke	mm. 3	Sump F/8 with 20 holes	

Float level - 3 mm between top of float and cover.

CARBURETTORS

Never try to tune the carburettors.

The operation described below should only be attempted by trained personnel ; the description itself is only intended as a guide and does not include sufficient detail to tune the carburettors properly.

Tuning should only be necessary if the engine hesitates on pickup, or is irregular or tends to stop when idling, and should be done with a warm engine and after a check has been made on the ignition, and cylinder compressions.

BALANCING THE CARBURETTORS

Equipment required

1. Synchro tester.
2. Screwdriver.
3. 8 mm box spanner.

Procedure

1. Remove air cleaners complete.
2. Release the clamp bolts on the accelerator linkage on the front two carburettors - bolts situated on the near side.

3. Release the throttle clamps (9) Fig. 30 on all carburettors.
4. Place the synchro tester in the offside intake of the rear carburettor, and adjust the valve in the centre of the tester so that the float is half way up the gauge glass, and coincident with one of the scribe marks. The gauge glass must be vertical. The valve in the centre of the tester must not be moved again, throughout the remaining adjustments.
5. Place the tester in the near side intake of the same carburettor.
6. By means of the throttle adjusting screw - located in the near side of the carburettor, opposite No. 4 Fig. 30. Adjust the throttle opening until the float on the testers is in the same position as before.

N. B. If the float is higher up the gauge glass than in the first instance, when the tester is inserted, unscrew the throttle adjusting screw $\frac{1}{8}$ turn, remove the tester, tap the butterfly closed with a screw-driver, and replace tester.

Remember, only when the float has to be moved **down** the gauge glass must the operation described just above be completed, as the butterfly valve will not move by itself when the throttle adjusting screw is **unscrewed** - applicable to near-side intakes only.

7. Repeat placing the tester in the intakes of the middle and then the front carburettors, dealing with the offside intakes first, and always adjusting the tester float to the same scribe mark on the gauge glass.

8. Repeat the operation, starting on the offside intake of the carburettor and finishing on the nearside of the front carburettor, arriving at a final engine tick-over of 750 RPM.

9. Assuming all throttle openings are now the same, i.e. balanced, tighten up on all the throttle clamp bolts (9) Fig. 30 taking care not to disturb the nut adjacent to clamp (7) Fig. 30.

10. Tighten the remaining two clamp bolts on the accelerator linkage of the front two carburettors.

11. Slow running mixture adjustment.
Screw in the idling mixture adjustment screw (5) Fig. 30 on the offside of the rear carburettor. This cuts out the two cylinders served by this intake - slowly screw out again until the engine is heard to pick up on all 12 cylinders - unscrew by a further $\frac{1}{8}$ turn. Complete this operation on the remaining five screws.

12. Refit air cleaners.

Adjustment of carburettors by synchroniser

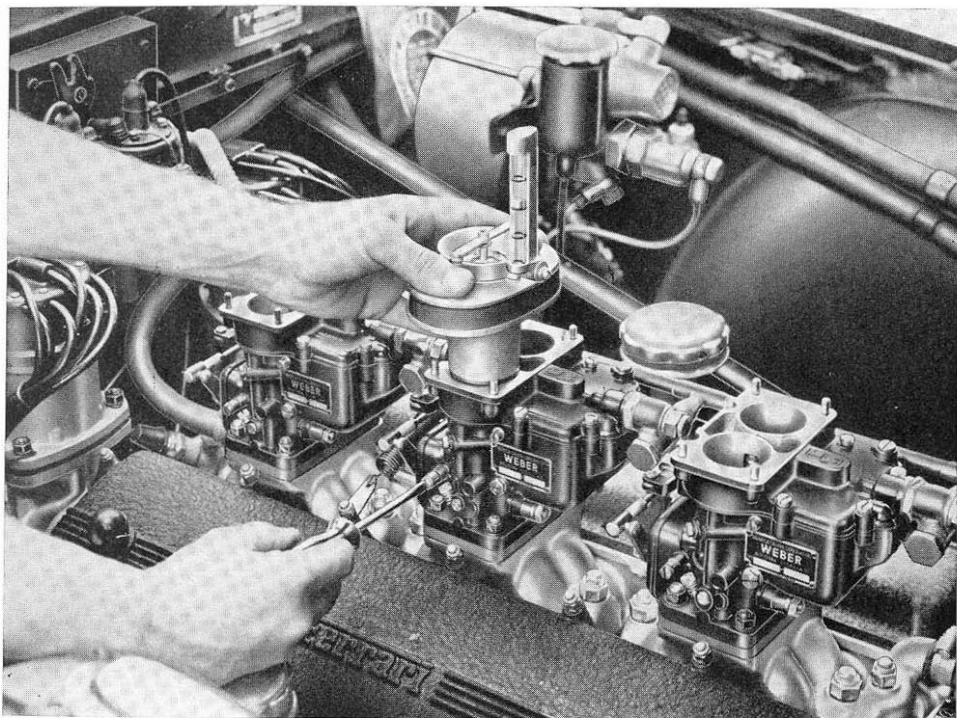


Fig. 31 - Synchroniser for carburettors adjustment.

The carburettors will be correctly tuned when, on a road test, with a warm engine and in top gear, the car accelerates cleanly over 1000 RPM. If a popping noise is heard in the exhaust on the overrun from 6000 RPM in second gear, richen the idling mixture a little.

Air cleaner

Each carburettor is equipped with an air cleaner of special fabric and circular in shape.

The three cleaners are contained in one housing the cover of which is easily removed by unscrewing the three wing nuts on the top.

Each 2500 miles

Take care of the filter elements when removing them from the housing : wash them in petrol ; blow them through with compressed air (from the inside outwards) and then wet them with engine oil.

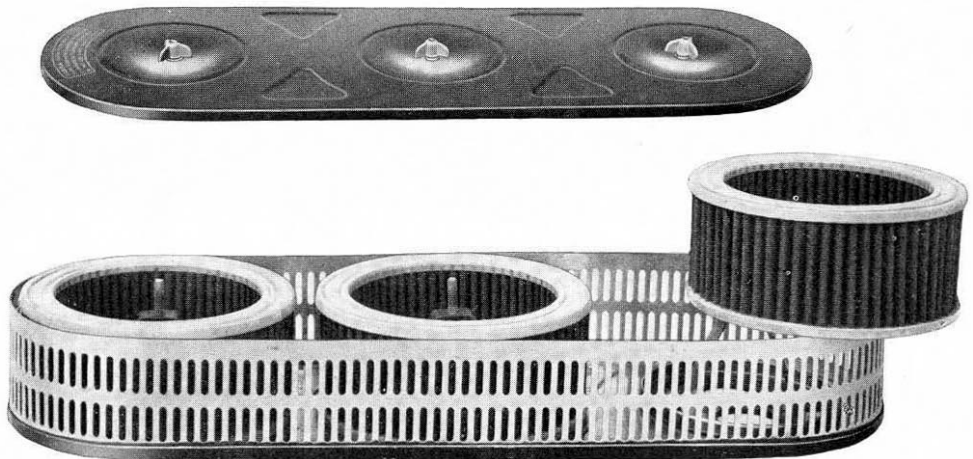


Fig. 32 - Air cleaner.

Ignition

A 12v battery supplies current to two coils and two distributors (one for each bank of cylinders).

Each distributor has two sets of contacts and an automatic advance device which works on a variable curve designed to give maximum engine power throughout the rev range.

Firing order

1 - 7 - 5 - 11 - 3 - 9 - 6 - 12 - 2 - 8 - 4 - 10

No. 1 cylinder is the front cylinder on the offside bank, No. 7 the rear on the nearside.

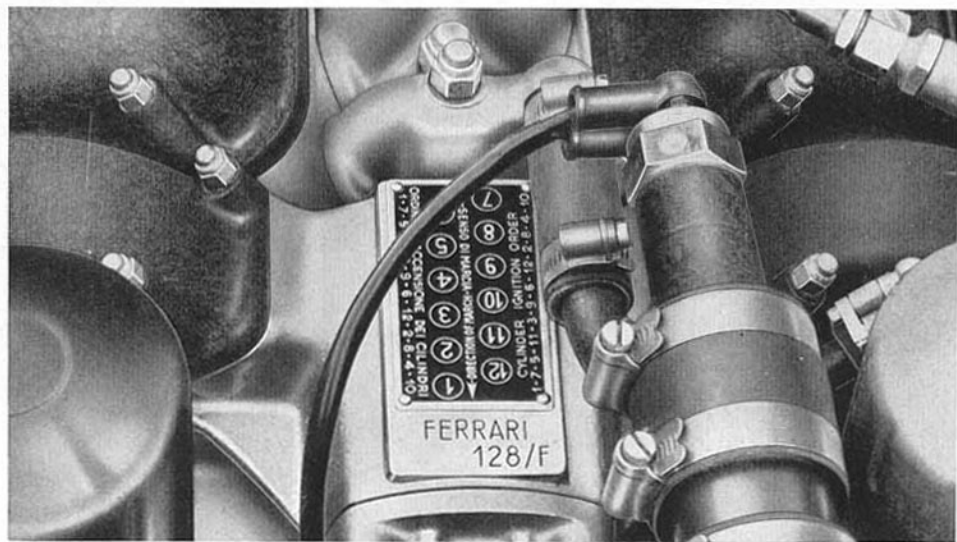


Fig. 33 - Firing order.

Ignition spark advance

distributor	fixed spark advance	maximum spark advance
Marelli S 85 A V 12°-15°	10°-12°	3300 r.p.m. to 7000 r.p.m. 40°-42°

Ignition

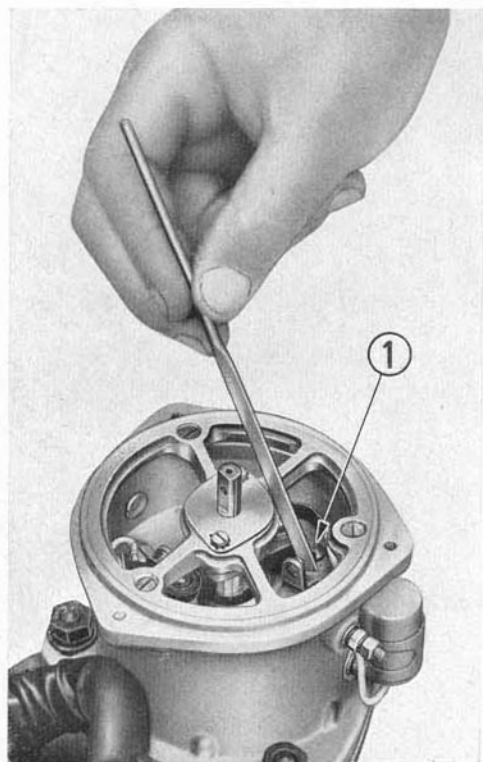


Fig. 34 - Ignition distributor : 1) screw for setting the contacts.

Contact breaker setting

The gap should be .015" - .017"

The adjustment is made on an adjusting screw (screw 1 Fig. 34).

The contacts should be kept clean and if necessary ground with a very fine file.

Every 2,500 miles

Remove the rotor arm - clean the contacts with a cloth soaked in petrol and check the gap setting. Clean the inside of the cap.

Ignition

Timing check

Offside bank

- 1) Remove distributor cap and check the contact breaker setting.
- 2) The static ignition timing is 10° before TDC, marked on the flywheel as AF 10, marked just before 1/6.

It is more accurate to check the automatic advance by stroboscope.

- Remove the flywheel inspection cover and set the engine to 5000-5500 rpm.
- Shine the pistol on the flywheel opposite the datum point, when the mark 42 AM should be coincident. Adjust, if necessary, by turning the distributor.

Nearside bank

The static ignition timing is 10° before TDC, marked on the flywheel as 10 AF, just before 7/12.

Ignition

Synchronising the opening of the contacts after stripping, or when replacing the contacts.

The gap between the opening of one set of contacts to the other must be 60° - measured by fitting a dial face on top of the distributor.

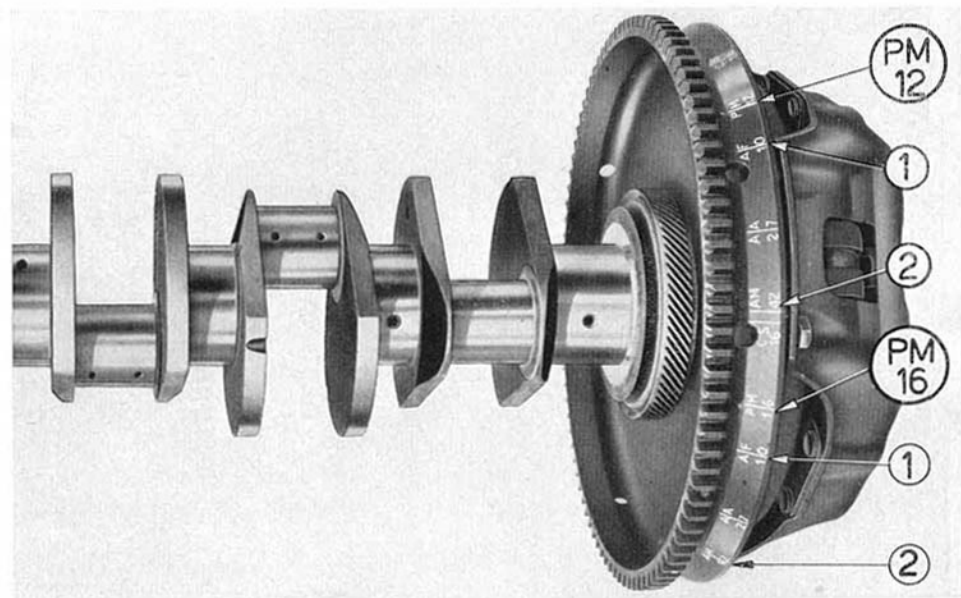


Fig. 35 - Reference points engraved on flywheel : 1) reference point 10 AF of spark advance; 2) reference point 42 AM of max. spark advance.

Ignition

Spark Plugs

Every 2500 miles clean the spark plugs and check the gap between the electrodes ; Reset if necessary. The gap between the electrodes should be of $0.55 \div 0.60$ mm.

Every 5000 miles. Change the plugs.

We recommend Marchal HF 34 spark plugs.

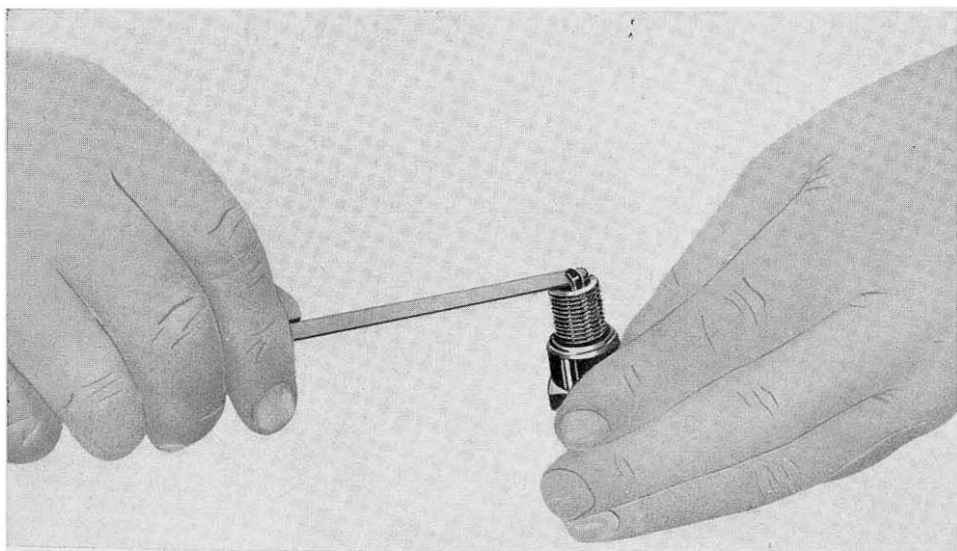


Fig. 36 - Setting the electrodes gap.

Cooling system

Water circulation for the cooling of the engine is by means of a centrifugal pump, fixed on the front of the timing housing and driven by its chain.

Every 10,000 miles. Check the sealing of the pump.

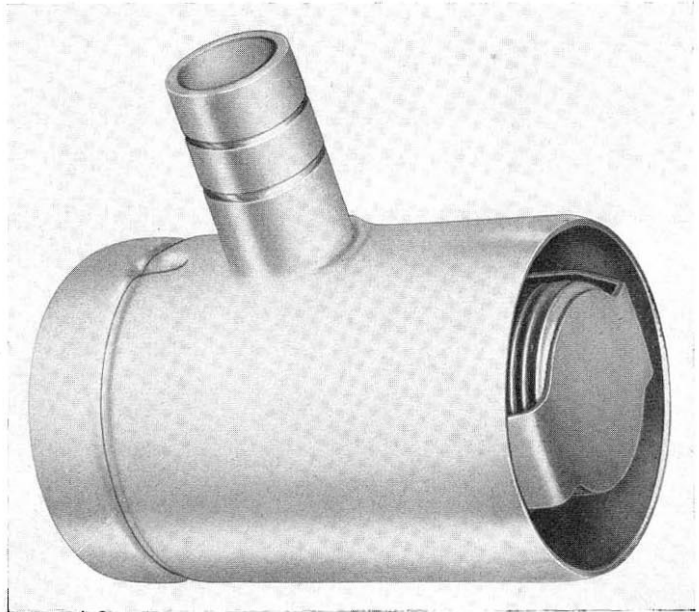


Fig. 37 - Thermostat.

THERMOSTAT

This is situated in the top radiator hose and is set to open at 70° - 77° C/155° - 165° F.

The water temperature should never rise above 90° - 95°C/190° - 195° F.

The system is pressurised at 7 lbs sq.in.

Peugeot Fan

There is a thermostatic switch fitted in the top radiator hose, which closes at 84°C/178°F allowing current to pass to an electromagnetic switch engaging the fan. The thermostatic switch disengages the fan when the temperature falls below 75°C/159°F.

There is an adjustment on the electro magnetic switch, to make sure the fan works at the A/M temperatures.

Every 2500 miles Check the lead and brush and the gap between the armature and the electro magnet. The gap should be .004"-.014". See Fig. 38.

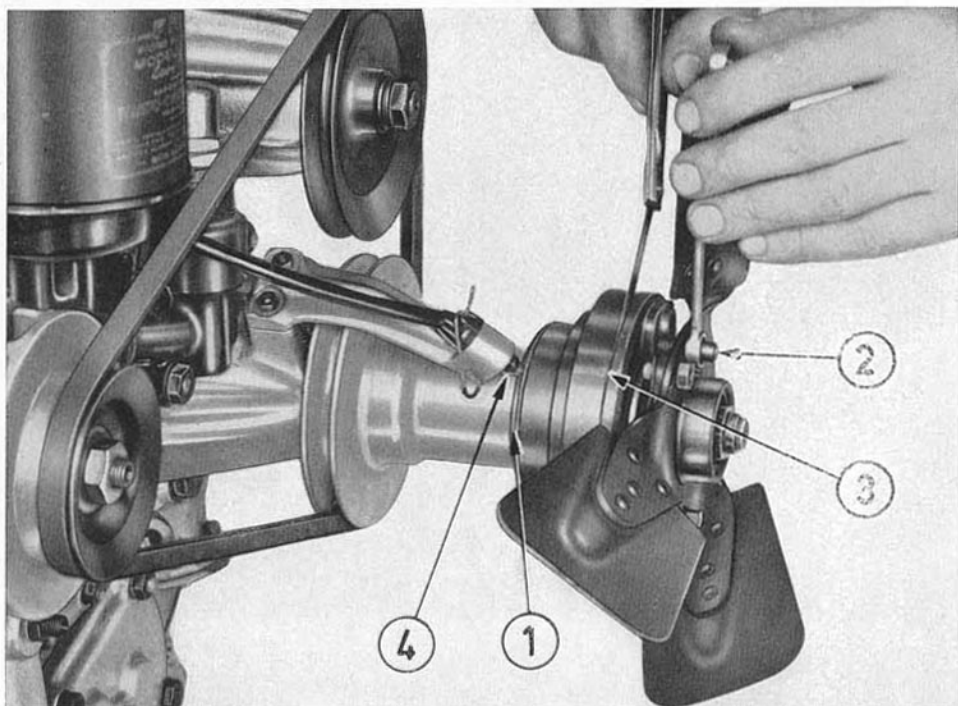


Fig. 38 - Fan-drive: 1) insulated ring for the contact; 2) gap adjusting screws; 3) gap between the free floating pulley and the driven body of the fan; 4) current brush.

Cooling - Radiator

Every 300 miles check the level, if necessary adding soft water - e.g. rain water.

Should the level need constantly topping up, check the radiator cap valve and seating, the hose couplings and the water pump for leaks.

Every so often say 6 monthly or before filling with antifreeze, the system should be flushed through with a solution of $3\frac{1}{3}$ gallons of water and 14 oz of sodium carbonate.

Allow the engine to idle for 15 mins., drain, allow the engine to cool and then hose clear water through the system, leaving the drain tap open.

Fill with water and allow the engine to tick over for a few minutes.

Drain and refill once more.

Cooling

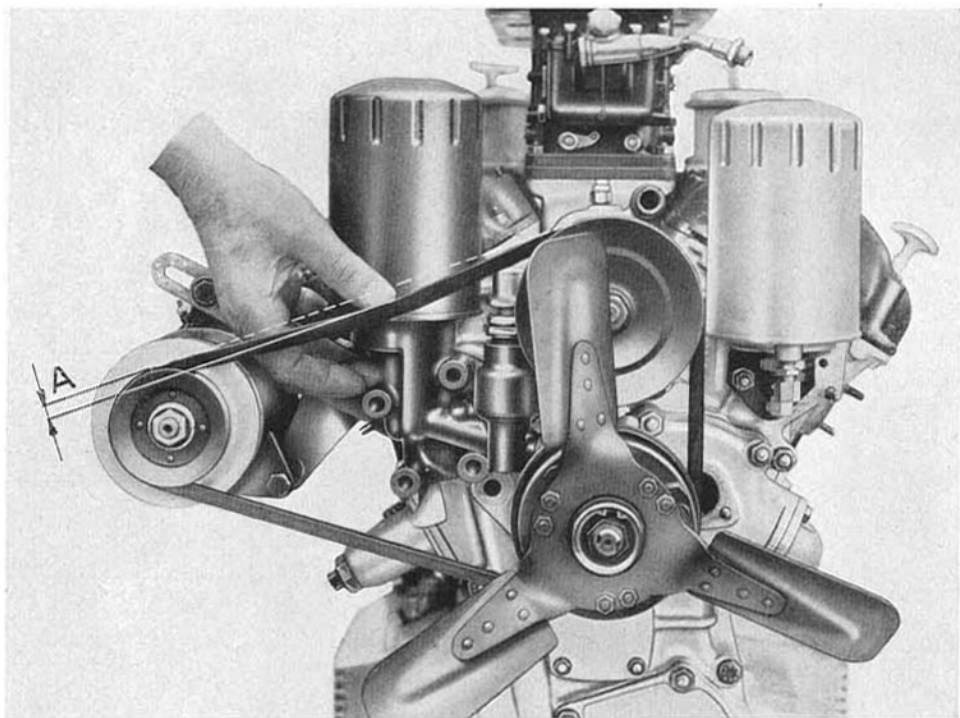


Fig. 39 - Checking the dynamo belt tension.

Every 2,500 miles - check the dynamo belt tension, press down on the belt, which should give $\frac{1}{4}$ " - $\frac{1}{2}$ ".

If necessary, adjust by loosening the pivot and clamping bolts, and moving the dynamo to the correct tension. Tighten up the bolts. See fig. 39.

CLUTCH

The clutch has a single plate and is mechanically operated.

Free travel should measure 1½ - 2".

Every 5000 miles

Adjust the free travel by loosening the lock nuts on linkage (4) fig. 40, tightening the rear nut and then locking up.

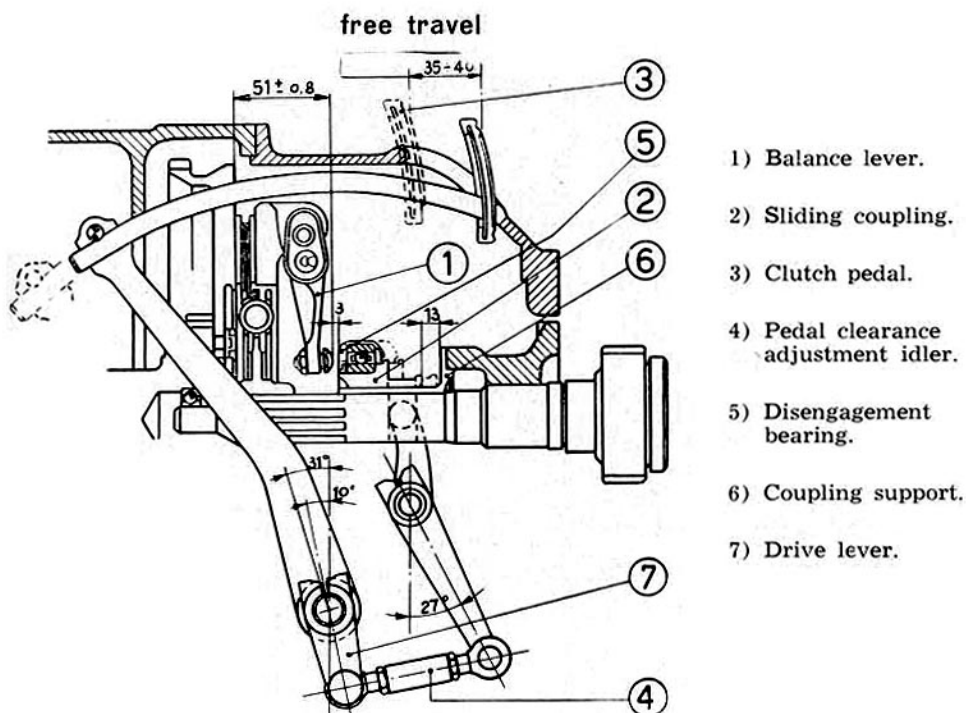


Fig. 40 - Clutch diagram.

Gear Box

The gear box is in unit with the engine, and has synchromesh on all four gears, a reverse and an overdrive 5th gear.

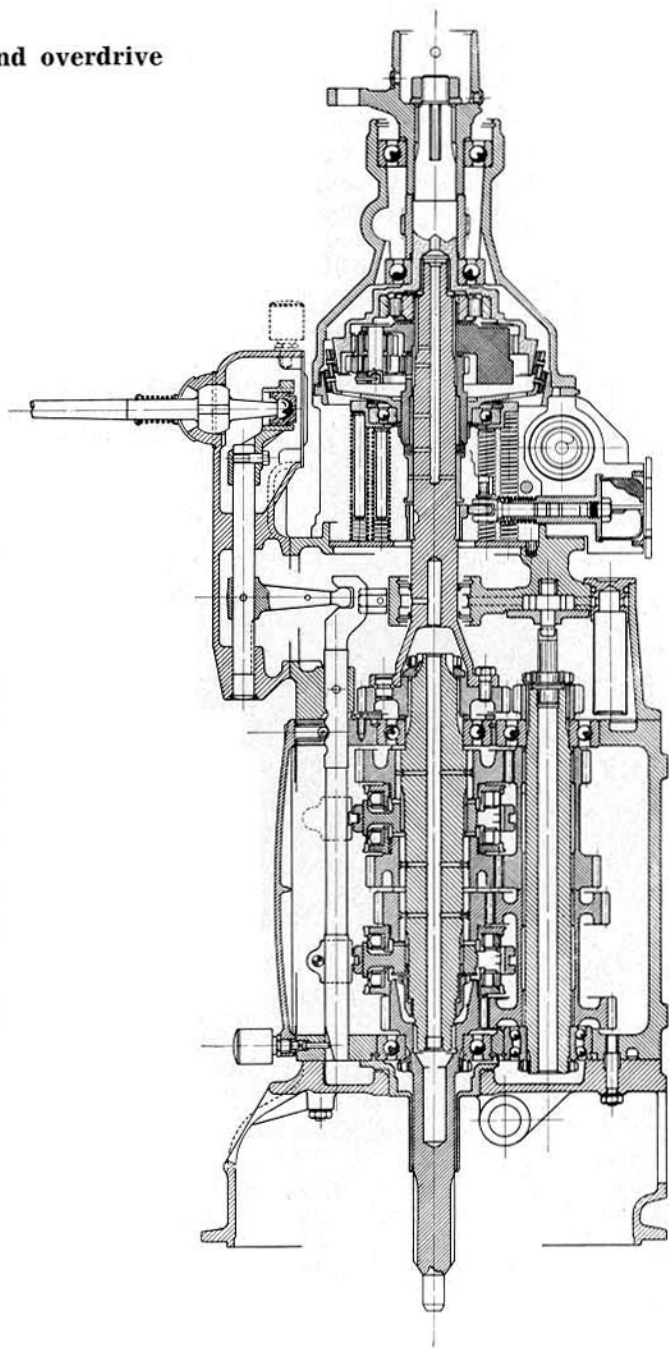
Overdrive is higher geared by 22½% allowing the car to maintain high averages with less fuel consumption, and less engine wear.

Engagement is by switch, but :

1. Never use overdrive before the gearbox oil is warm.
2. Slightly release the accelerator on engagement.
3. Accelerate slightly on disengagement.

Gearbox and overdrive

Fig. 41 - Longitudinal section of gearbox and overdrive.



Gear ratios

Gear ratio	1st. speed	-	1 : 2.536
	2nd. speed	-	1 : 1.777
	3rd. speed	-	1 : 1.256
	4th. speed	-	1 : 1
	5th. speed (overdrive)	-	1 : 0.778
	Reverse	-	1 : 3.218

Every check or adjustment to the gearbox must be performed by a specialised workshop.

Each 2500 miles check that the oil level is still 1 cm. below the filling hole. (See fig. 42).

Each 5000 miles change the oil.

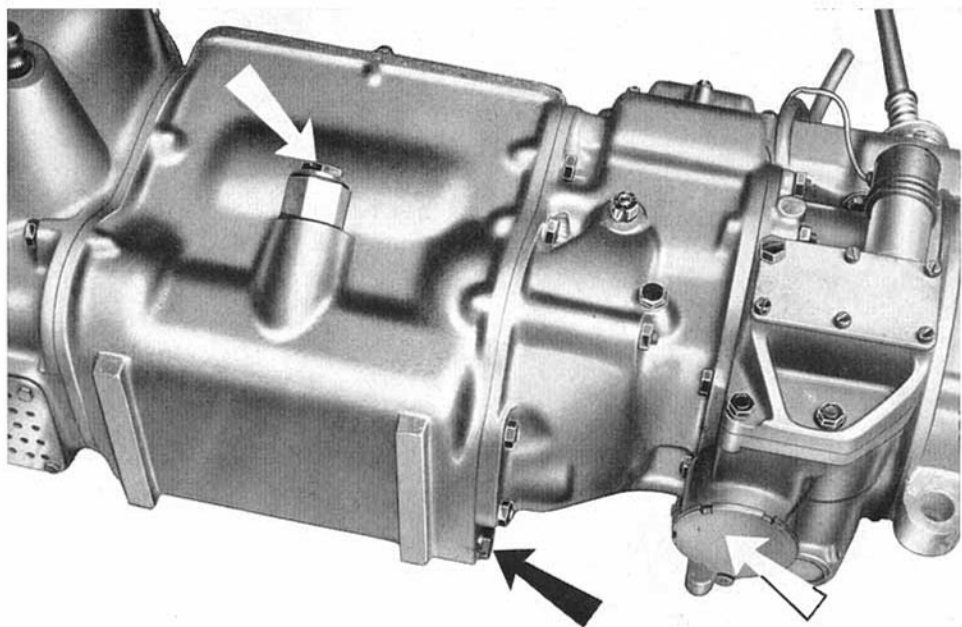


Fig. 42 - Filler and drain plugs.

Prop shaft

Every 2500 miles

Pump Retinax A grease into the sliding coupling (2) fig. 43. Remove screw (1) fig. 43, fit a grease nipple in its place, and pump the same type of grease into the universal joint, and also into the ball pin flange centering the prop shaft.

Replace the screw afterwards.

Every 5000 miles

The universal joint must be checked by a Ferrari Concessionaire.

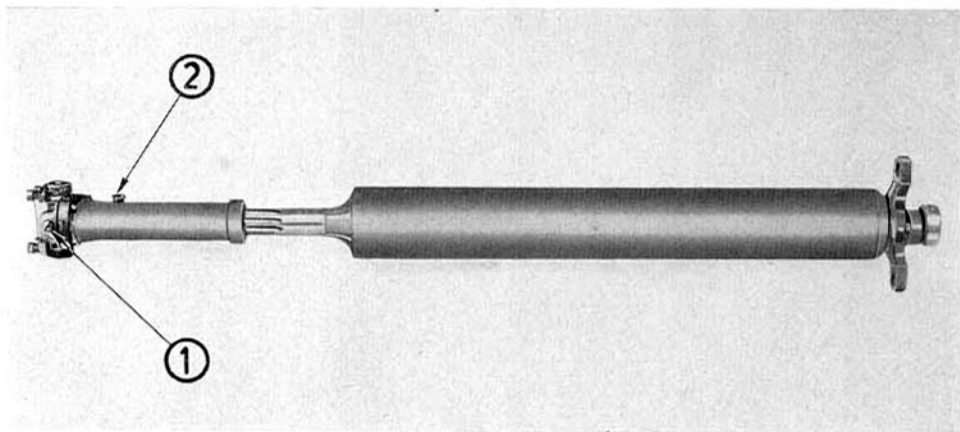


Fig. 43 - Propeller shaft with joints.

Rear axle

The rear axle is located by two pairs of radius arms.

The standard ratio is $7/32 = 4.56$ to 1.

Final ratio: gearbox - rear axle with 7/32 crown wheel and pinion	1st. speed	-	1 : 11.59
	2nd. speed	-	1 : 7.76
	3rd. speed	-	1 : 5.72
	4th. speed	-	1 : 4.56
	5th. speed (overdrive)	-	1 : 3.53
	Reverse	-	1 : 14.60

Rear axle

Each 2500 miles check the oil level by removing the side plug and, when necessary, filling to the level of the top threads.

Every 10,000 miles adjustments should be carried out by a Ferrari Concessionaire.



Fig. 44 - Rear axle : 1) Filler plug ; 2) oil drain plug.

Front wheel suspension

Front suspension is independent by wish bones, helical springs and telescopic shock absorbers. An anti-roll bar is also fitted. (see fig. 45).

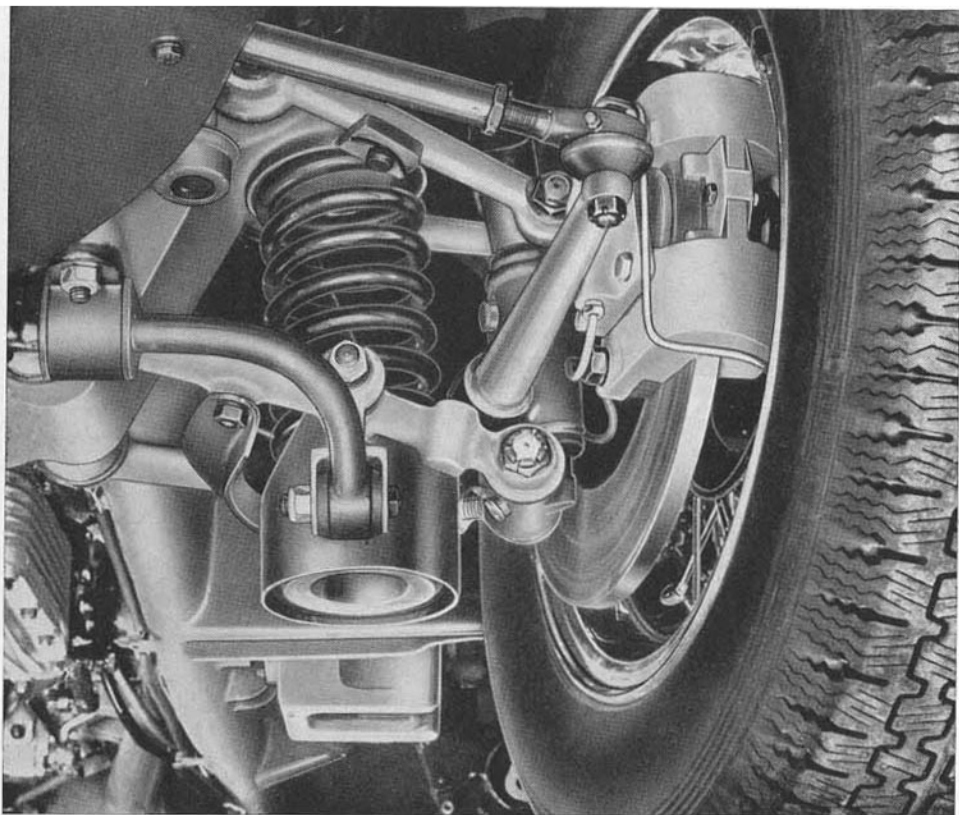


Fig. 45 - Front-wheel suspension.

Every 2,500 miles. Grease all the joints and the king pin rollers; also have the shock absorbers checked if damping seems uneven.

Rear suspension

Rear suspension is by semi-elliptic springs with swing shackles fore and aft. Polythene strips are fitted between each leaf, and damping is by telescopic shock absorbers (fig. 46).

Every 5000 miles. Examine shackles, silent blocs radius arms.

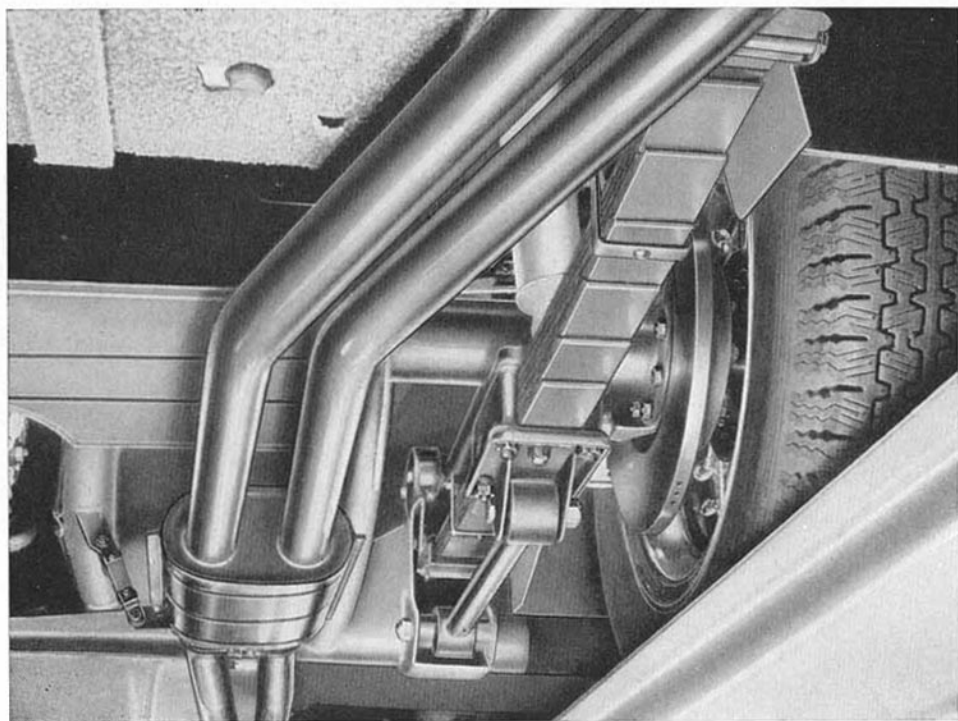


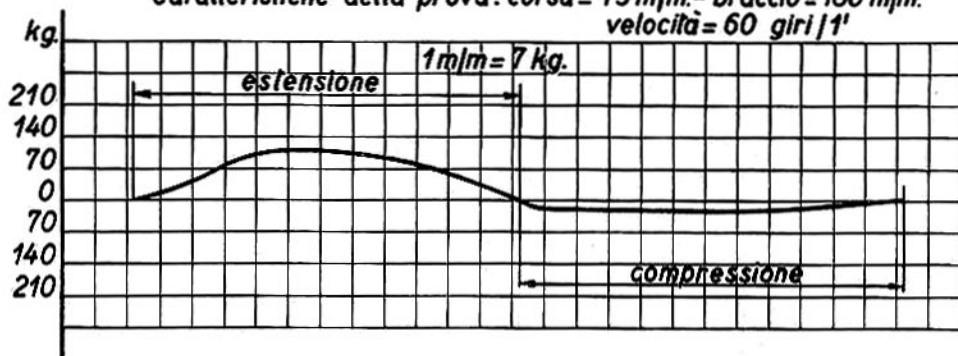
Fig. 46 - Rear suspension.

Front Shock absorbers

Calibration : extent : Kgs. 105 - Compression : Kgs. 20.

Calibration diagram

*Caratteristiche della prova: corsa = 75 m/m. - braccio = 180 m/m.
velocità = 60 giri / 1'*

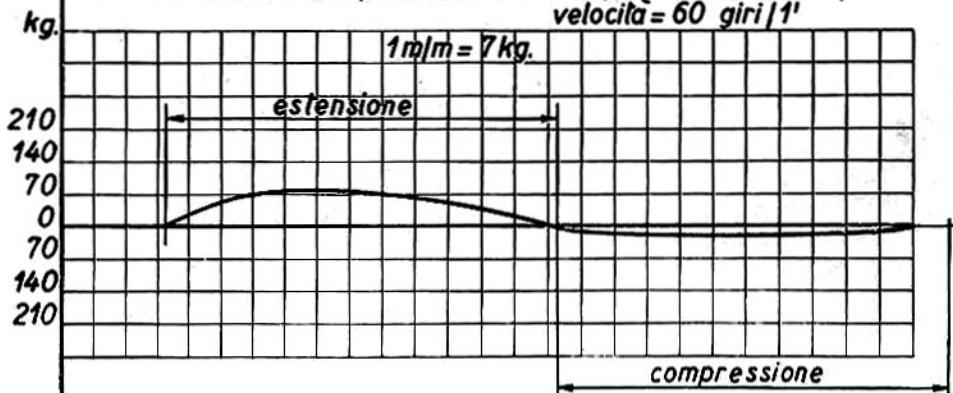


Rear shock absorbers

Calibration : extent : Kgs. 80 - Compression : Kgs. 20.

Calibration diagram

*Caratteristiche della prova: corsa = 75 m/m. - braccio = 180 m/m.
velocità = 60 giri / 1'*



Steering

Steering is by worm and peg.

Every 2500 miles check the steering box oil level.

It is important that :

1. There is no wear in the linkage.
2. The wheels are balanced.
3. Toe-out is correctly adjusted.
4. Tyres are at the correct pressures, and evenly worn.
5. The correct amount of play only is allowed in the box.

Every 5000 miles

1. Set the wheels straight.
2. Loosen the lock nut (2).
3. Screw the register pin right in.
4. Lock up.

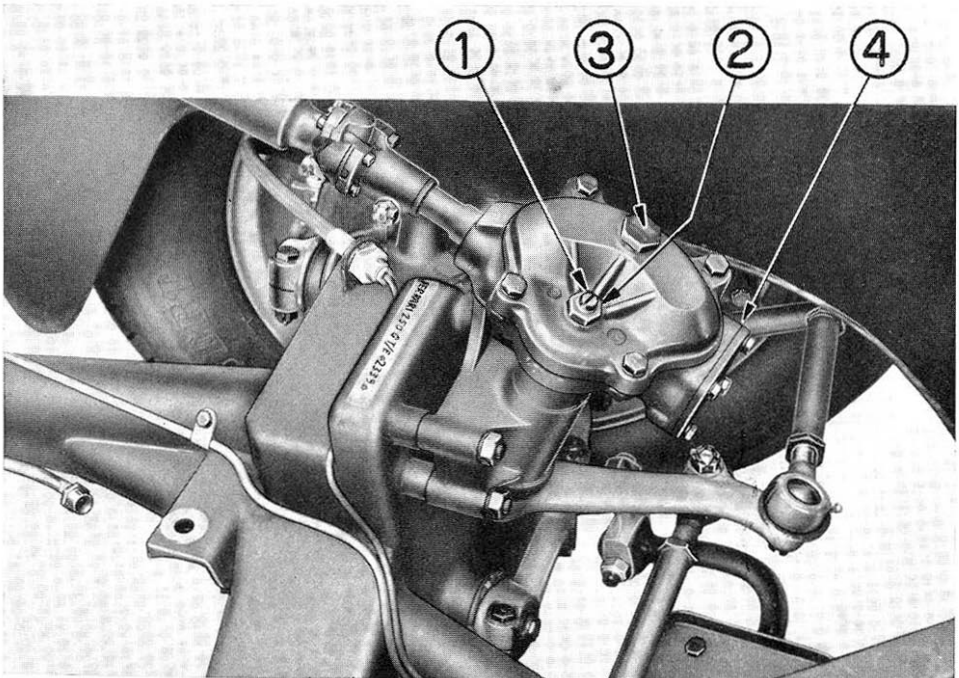


Fig. 47 - Steering box : 1) register screw ; 2) lock nut ; 3) Oil cap ; 4) Bearings adjustment lining.

Steering

Track rod ends are fitted with ball joints which should be checked and, if necessary, replaced every 10,000 miles.

Min. turning circle : 40' 1" - this is not adjustable.

Every 2,500 miles lubricate the track rod ends.

Every 5,000 miles check the ball joints for wear.

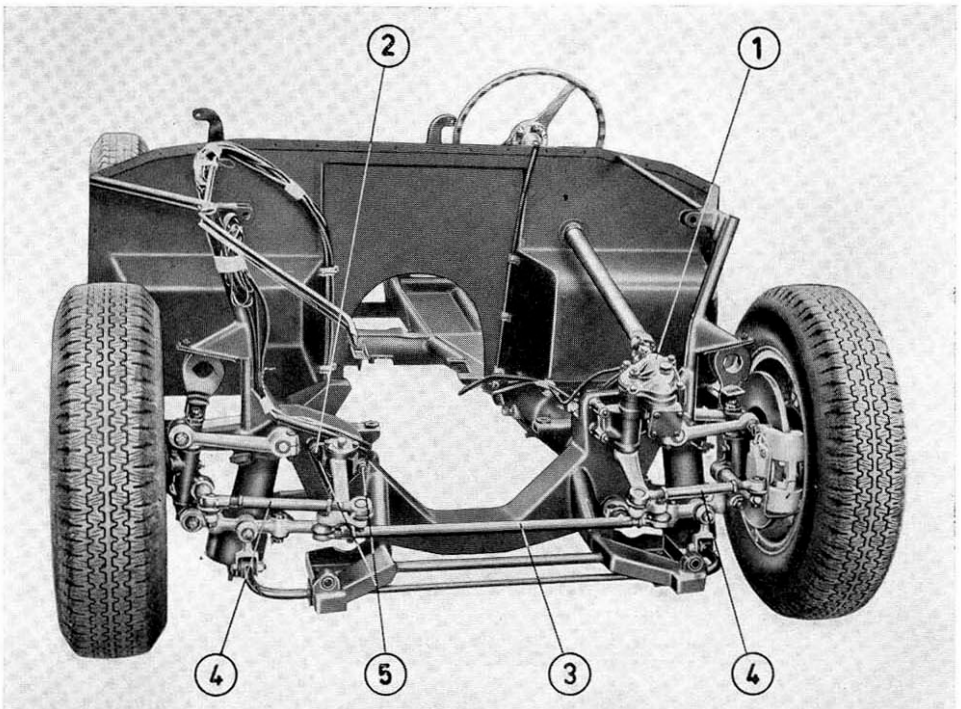


Fig. 48 - Steering layout diagram.

- 1) steering box ; 2) steering idler arm and bracket ; 3) track rod ; 4) side tie rods ;
5) turning circle stops.

Front wheels

Every 10,000 miles check the camber and toe-out to avoid abnormal tyre wear and ensure stability.

This must be carried out with the car in full running trim, fuel tank full and 2 people on board, by a Ferrari Concessionaire.

Camber angles with a static load (theoretic 1°) fig. 49.

$$B = A + 6 \text{ mm. (minimum value)}$$

$$B = A + 9 \text{ mm. (maximum value)}$$

Camber adjustment

Camber angles cannot be adjusted, but must be checked.

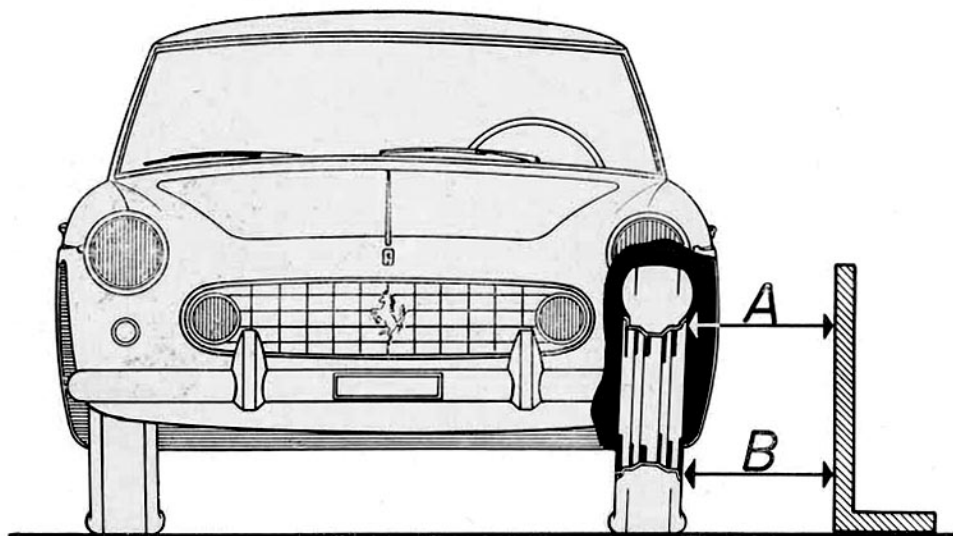
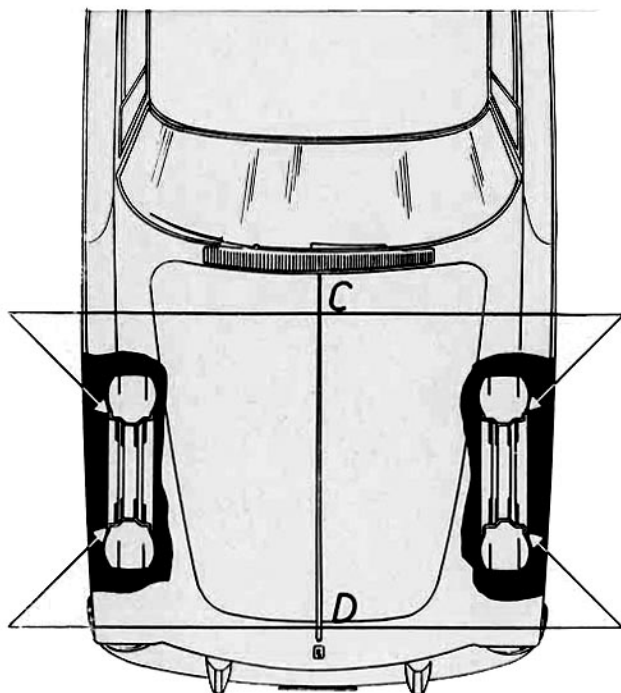


Fig. 49 - Camber check.

Front wheel toe-out adjustment

1. Set the front wheels straight to the front, by aligning the scribe marks on the column and steering-box.
One of the steering-wheel spokes should be vertical.
2. Adjust the tie-rods to within 1 mm. of 263 mm.
3. Adjust the track rod to give the required toe-out - see fig. 50.



Values of toe-out

(see fig. 50).
Measured between the
inside tyre rim :

$$D = C + 1.5 \text{ mm.}$$

Tie rods length

(measured between
joint centres):

Lateral 263 mm. \pm 2 mm.
Central 630 mm. \pm 2 mm.

If these limits do not
give the required toe-out
the chassis alignment
will have to be checked.

Fig. 50 - Adjusting toe-out.

Brakes - Layout diagram

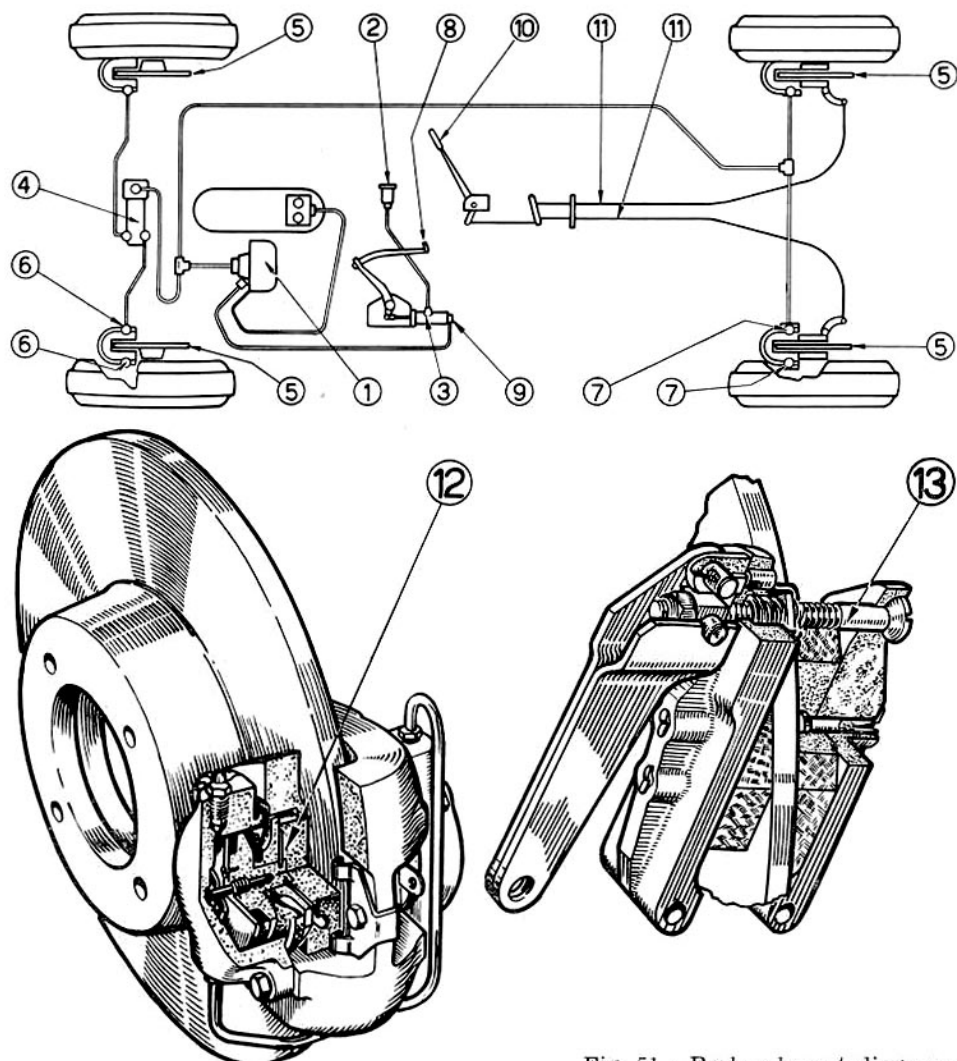


Fig. 51 - Brakes layout diagram :
 1) Brake servo ; 2) Feed tank ; 3) Master cylinder ; 4) Booster ; 5) Brake discs ;
 6) Wheel cylinders ; 7) Wheel cylinders ; 8) Brake pedal ; 9) Brake light switch ;
 10) Hand brake ; 11) Hand brake cables ; 12) Brake pads ; 13) Hand brake
 adjusting screws.

Brakes

The brake system consists of :

- Disc brakes on four wheels, hydraulically operated.
- Servo unit acting on all wheels.
- Booster acting on front wheels only.
- Hand brake acting on rear wheels only.

Hand brake

The hand brake is mechanically operated. The rear wheels should be locked when the brake lever has completed half of its total travel. The correct adjustment is .004" clearance between the pads and the disc.

Hydraulic system

Every 3000 miles check the level in the feed tank - this must never drop below $\frac{1}{4}$ full. Only use Shell Donax B SAE 70 R3 or Dunlop Racing Brake Fluid (Castrol) oil.

Always replace the fluid throughout when the pads are changed, taking care to use new fluid from sealed tins.

A spongy feel to the brake pedal indicates air in the system.

Brakes

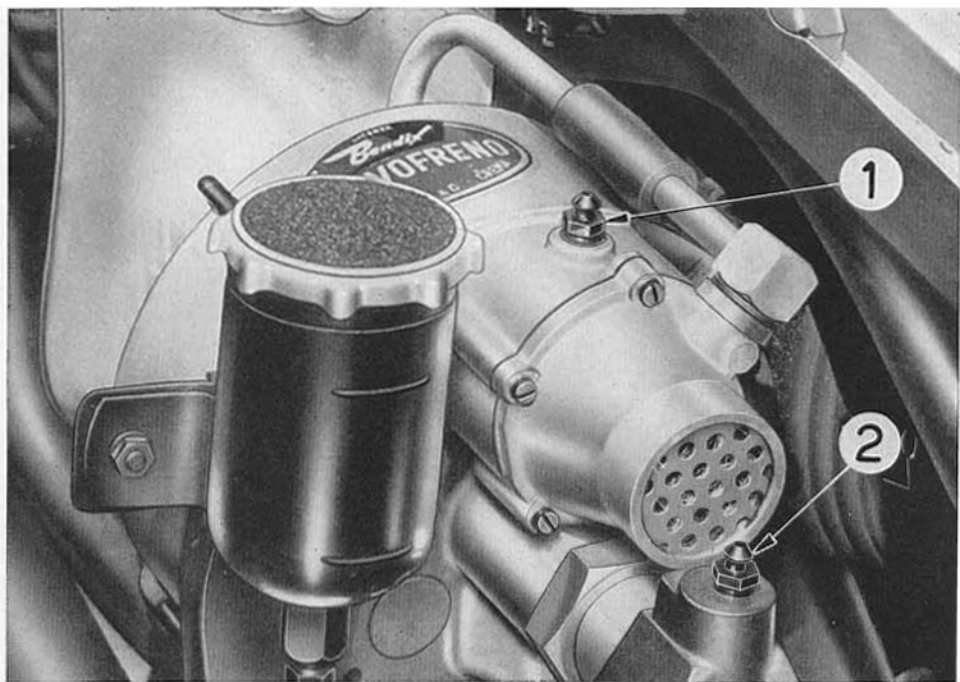


Fig. 52 - Bleeding the brake servo : 1-2) brake servo drainage screws.

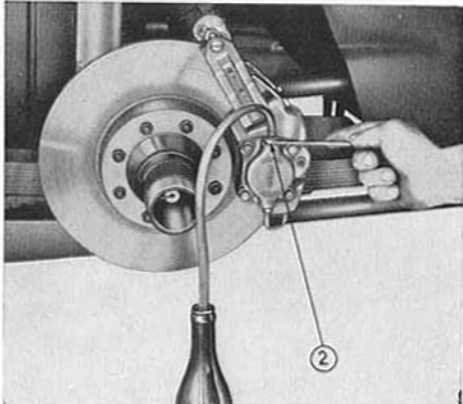
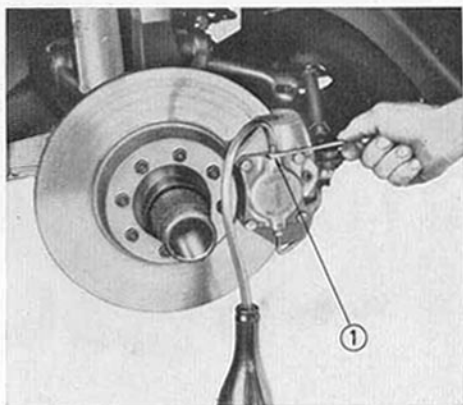


Fig. 53 - Bleeding the front and rear wheel cylinders : 1) front cylinder draining screw ; 2) rear cylinder draining screw.

Bleeding the brakes

1. During bleeding, the feed tank must be kept over $\frac{3}{4}$ full with its cap screwed down.
2. Bleeding the servo.

Fit a rubber pipe onto the bleed valve, the other end hanging into a glass bottle. Press the brake pedal down, closing the bleed valve before allowing the pedal to return. Repeat until no air bubbles come out with the fluid. Then do the same for the other bleed valve on the unit.
3. Follow the same procedure for the front and rear wheels.
4. Finally repeat bleeding on the servo. The pedal should now feel firm, but if it does not, repeat the above.

It is suggested the whole operation be repeated after a road test of about five miles.

There should be a gap of between .040" - .060" between the cap and the driving piston of the master cylinder.

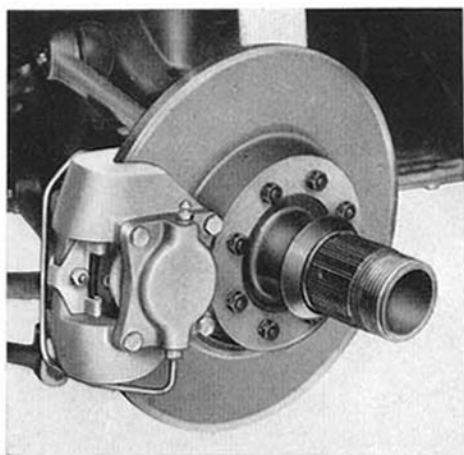


Fig. 54 - Front brake.

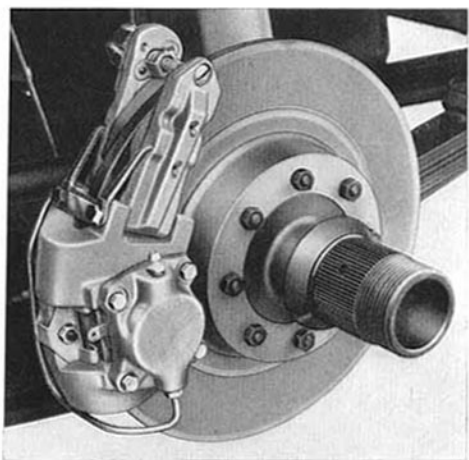


Fig. 55 - Rear brake.

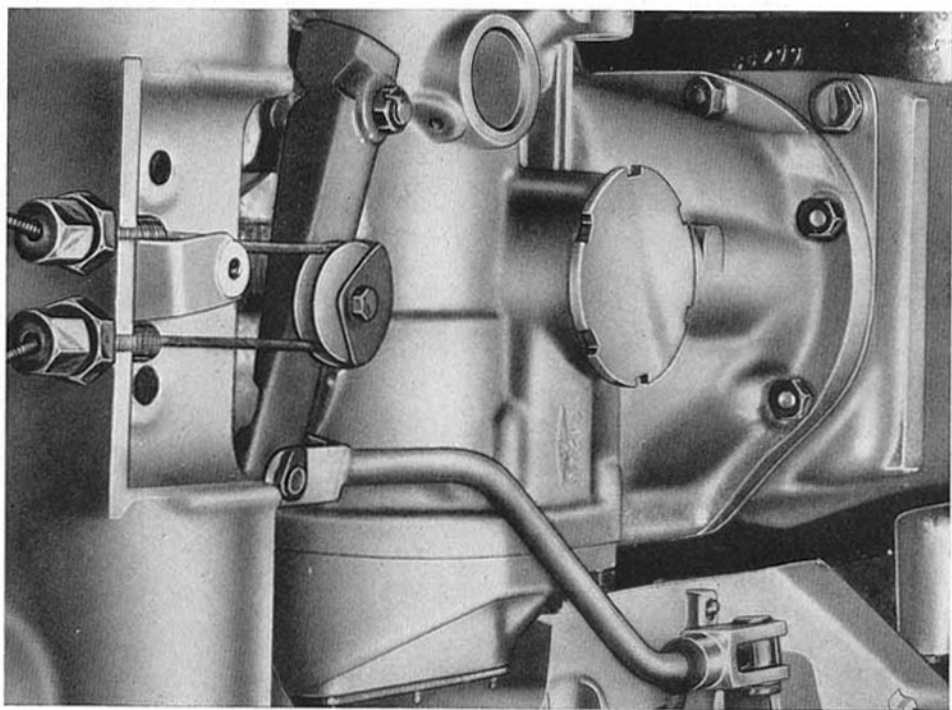


Fig. 56 - Hand brake.

Brakes

Every 2500 miles, or when the brakes pull or the pedal free play becomes excessive, it will be necessary to check the pads.

If the pads are not worn more than $\frac{3}{16}$ " , and the pistons are free in the wheel cylinders, it should only be necessary to bleed the system.

Every 5000 miles Replace the brake pads, and check the discs.

These may be ground, if scored, providing not more than .040" is removed.

They should also be checked for warping, no more than .002" out of true being permissible.

If the brake pedal does not feel firm after assembly and bleeding, the master and wheel cylinder rubbers should be replaced.

A 30 mile drive will be necessary to bed-in the new pads.

Pads of the following material are recommended.

Front brakes	Mintex VBO 5083
Rear brakes	Mintex VBO 5201

Brakes

Braking room

The stopping distance of a car increases with its speed, and varies according to road conditions, state of the tyres and the load being carried.

A careful driver should always bear his braking distances in mind.

The figures obtained in fig. 57 were taken in perfect conditions.

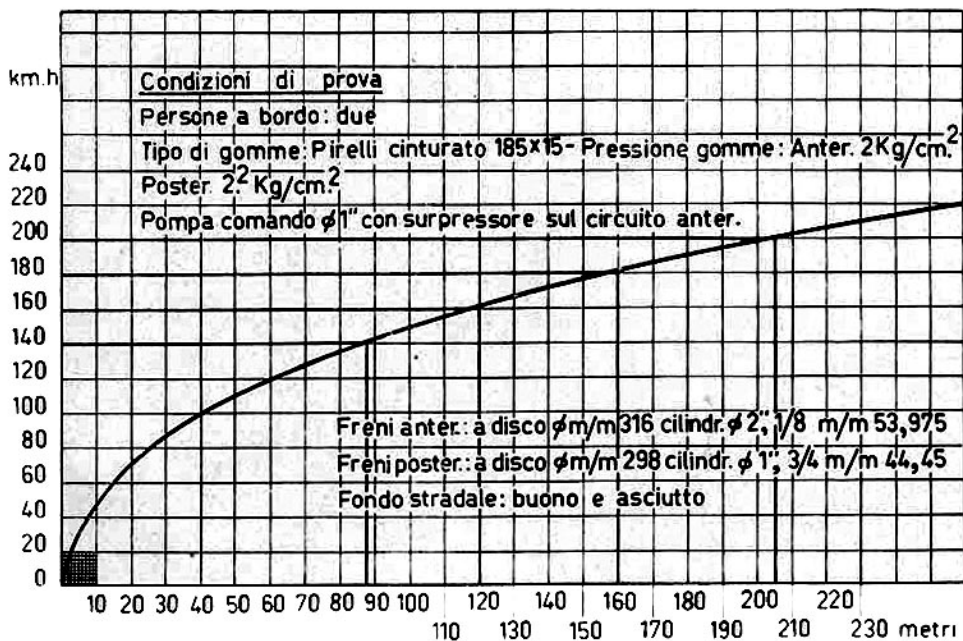


Fig. 57 - Diagram to determine braking distances.

Wheels

Wheels are balanced before leaving the factory, and should be re-balanced whenever a tyre is removed.

Unbalanced wheels will cause wear in the steering, uneven tyre wear, and will affect stability.

Every 3000 miles grease the front wheels hub bearings. The rear wheels need no lubrication.

It is necessary to dismantle the hubs to check bearing lubrication and clearances.

It is recommended to have this operation performed on a balancing machine.

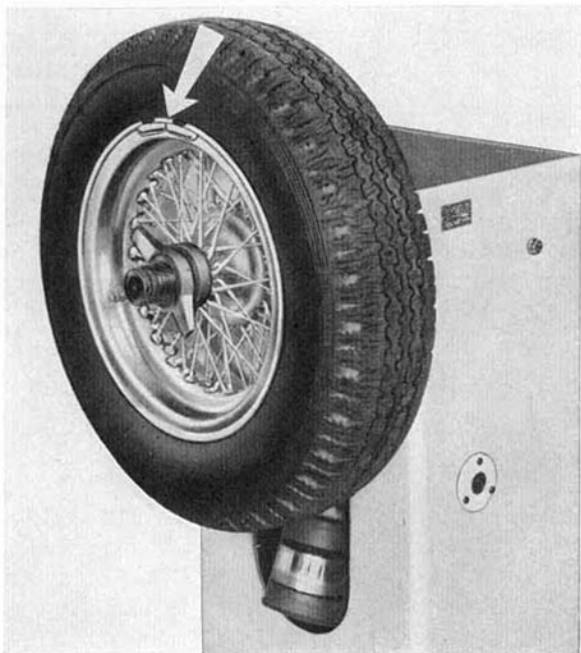


Fig. 58 - Balancing the wheels: balancing weights.

Tyres

Inflation pressures - Cold tyres

It is important to keep the tyres at the right pressures to obtain long tyre life.

NORMAL PRESSURE FOR HALF LOAD				
Tyres	Front		Rear	
	Kg/cmq.	lbs/sq. in.	Kg/cmq.	lbs/sq. in.
Dunlop 185/15	1.7	24.3	2.1	30
Pirelli 185 x 15	1.7	24.3	2.1	30

PRESSURE FOR FULL LOAD AND ON MOTOR ROAD				
Tyres	Front		Rear	
	Kg/cmq.	lbs/sq. in.	Kg/cmq.	lbs/sq. in.
Dunlop 185/15	2	28.6	2.3	33
Pirelli 185 x 15	2	28.6	2.3	33

With the right pressure, the full width of the tread works, and so wear is uniform.

With low pressure, the tyre overheats and the tread shoulders wear, tending to tear.

With high pressure, comfort is impaired and the tread wears more in the centre.

Chassis servicing

Tyres



Fig. 59 - Right pressure.

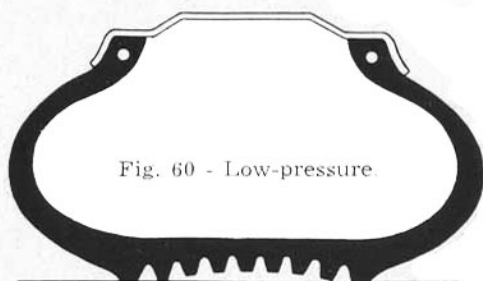


Fig. 60 - Low-pressure.



Fig. 61 - Excessive pressure.



Tyres

Exchanging tyres

Change the tyres round as per fig. 62 every 2,500 miles, to ensure even wear.

At the same time, check the wheel balance.

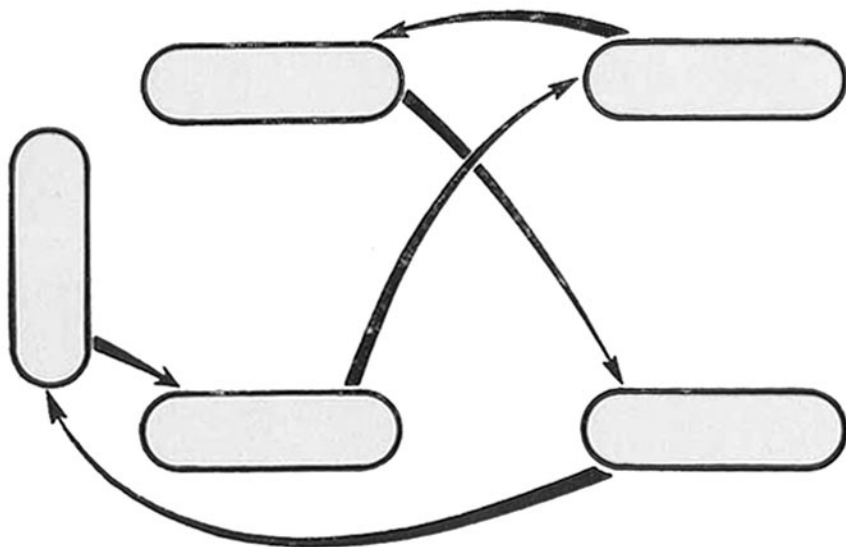


Fig. 62 - Wheel change sequence.

General

The 12v electrical installation is insulated throughout and fully fused.

Electric equipment

Battery - capacity	65 A/h.
Dynamo	{ Marelli DN 51 B = 300/12/2500 S
	{ Marelli DN 63 B = 400/12/2300 S
Voltage regulator	Marelli I R 19 E/300/12 - I R 50 A
Starter motor	Marelli MT 21 F = 18/12 D 9
Distributor	Marelli S 85 A - 12 V - 15°
Coil	Marelli 12V - B 202 A - B 2 R 201 A
Windscreen wiper	Lucas = 2 speed

Dynamo and starter motor

Every 2500 miles squirt one or two drops of oil into the oil hole on the dynamo.

Every 5000 miles dynamo, and every **10,000 miles** starter motor.

Check and renew the brushes if worn. Check for ovality or burning on the commutators.

If any is apparent, they will have to be skimmed.

Battery

- Avoid flattening the battery.
- Use the starter, horn and lights as little as possible.
- Never fit bulbs of a higher wattage.
- Always switch the ignition off when the engine is not running, as damage may occur to the coils.
- Keep the battery clean and dry on the outside, and never rest spanners etc. on the top.

Every 1000 miles check the electrolyte covers the plates by $\frac{5}{16}$ " and that the terminals are tight and covered in vasoline. If the car is not being used, arrange for the battery to be charged. Pure distilled water only must be used for topping up.



Fig. 63 - Battery mounting.

Lighting

Front lights

1. Full and dipped beam headlamps (lamp: 40-45W double filament).
2. Side lights with indicator flashers (lamp: 5-20 W double filament).
3. Fog lights (lamp: 45 W).

Fig. 64 - Front lights.

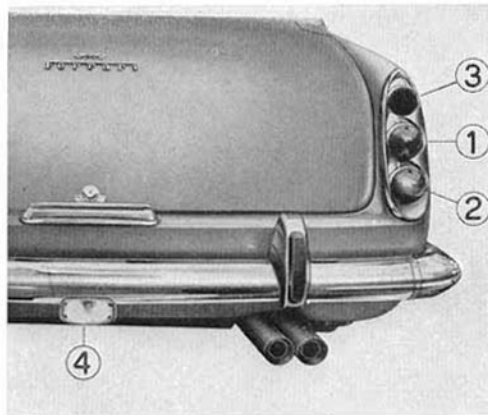


Fig. 65 - Rear lights.

Rear lights

1. Direction indicator (lamp: 20 W).
2. Side lights and stop (lamp : 5-20 W double filament).
3. Reflector.
4. Reverse light. This only operates when the side lights are on and reverse gear is engaged. (Lamp 20 W).

There are also indicator flashers mounted on the side of the wings.

Number plate lights.

Lamps fitted inside the bonnet and boot, and courtesy roof and door lamps.



Lighting - Replacing the bulbs

Replacing the headlamp bulbs

It is necessary to remove the lamp and rim from the car, replacing the bulb through the rear of the optique.

Replacing the rear lamp bulbs

Unscrew the plastic lens to remove the bulb.

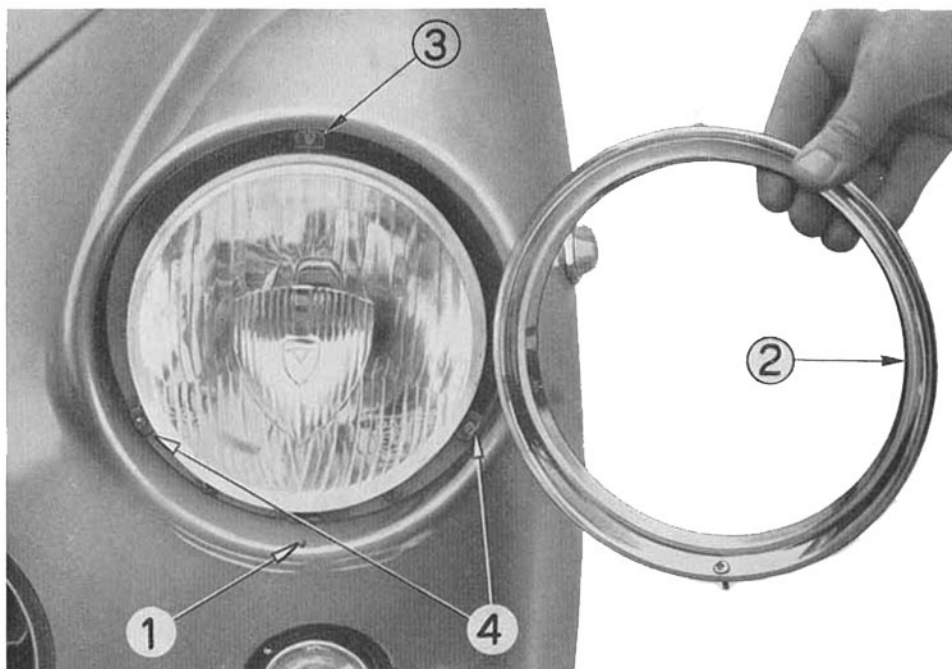


Fig. 66 - Front lamps : 1) rim fixing screws ; 2) Rim ; 3) Adjustment screw for the beam in vertical direction ; 4) adjustment screws for the beam in horizontal direction.

Lighting - Focusing the headlamps

Fig. 67 - Screen with grating for Beamsetter device: 1) reference line for antidazzle; 2) reference line for fog lights.

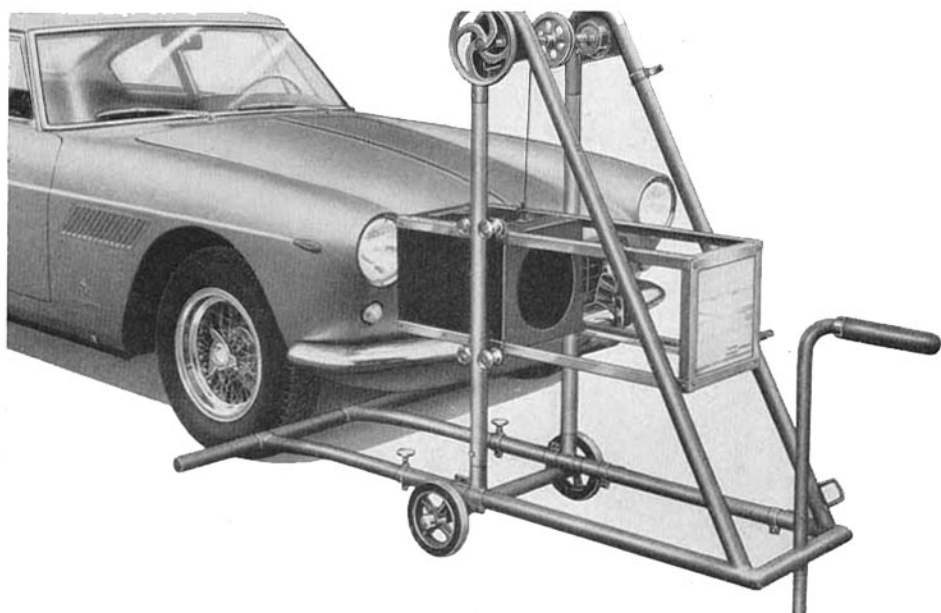
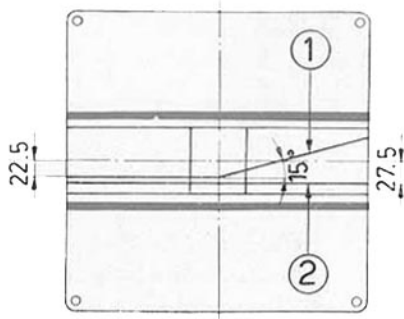


Fig. 68 - Focussing headlamps

Headlamp alignment

Using a beam setter, place the car on a flat surface, as shown above.

Lighting

Headlamps

Data

Projector base	A = 1340 mm. 52.75"
Main beam height	B = 600 mm. 23.62"
Dipper beam height	C = 470 mm. 18.10"
Projector height	D = 780 mm. $\pm 10.30.71'' \pm 1/3''$

Where a beam-setter is not available, adjust the beams on a wall as in Fig. 69.

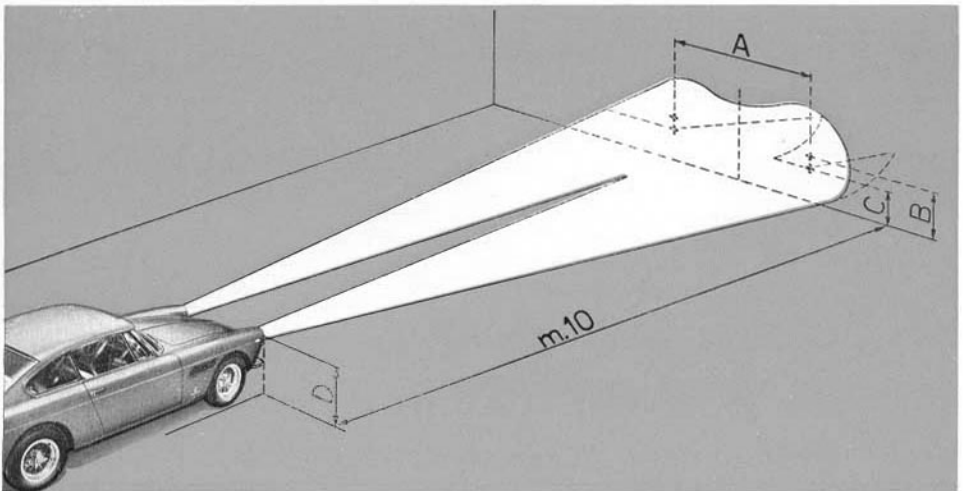


Fig. 69 - Headlamp geometry.

Lighting

Fog lights

Data

Fog lights base	A = 900 mm.	35.43"
Height of light centre	H = 230 mm.	max. 5.05"

Place the car 33 ft from a wall and adjust the beams as above.

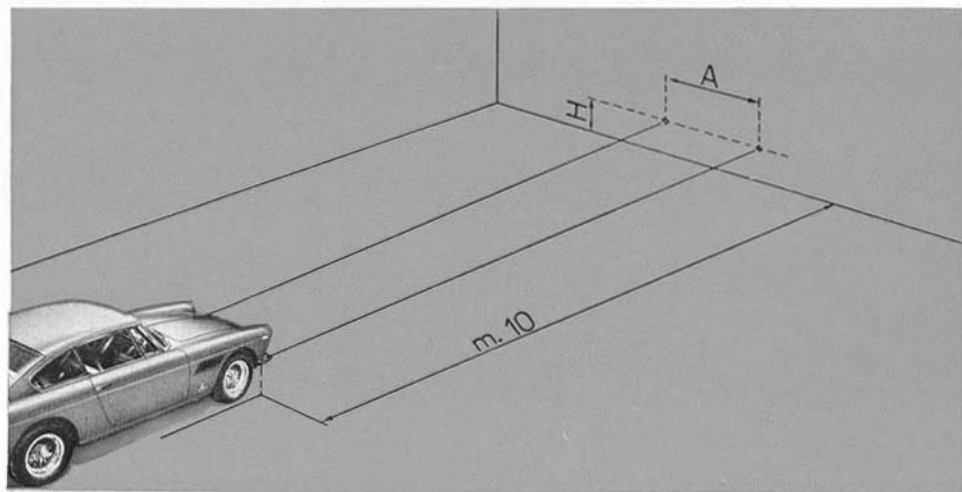


Fig. 70 - Fog light focussing.

Fuse box

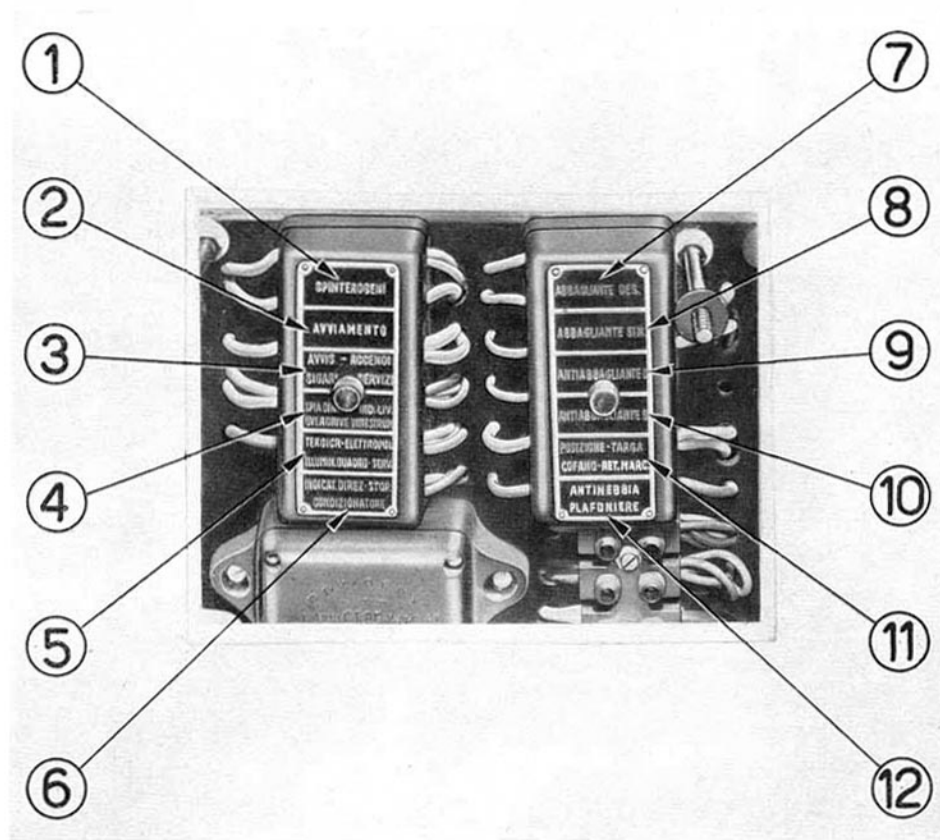
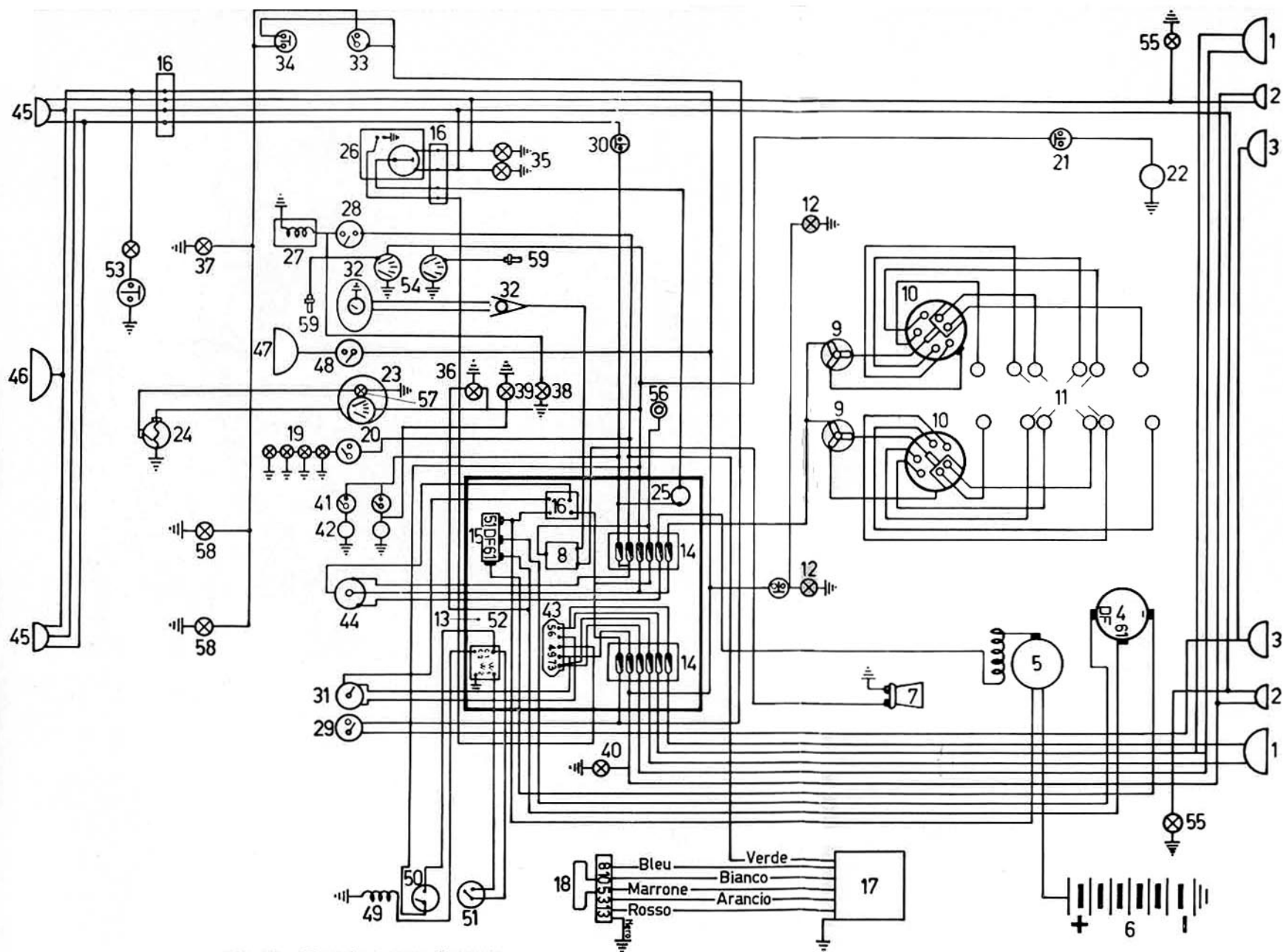


Fig. 71 - Fuse box.

- | | |
|---|--|
| 1) Coil ignition. | 6) Stop and indicators - Heater fan. |
| 2) Starter. | 7) RH. Headlamp main beam. |
| 3) Horn and cigar lighter. | 8) LH. Headlamp main beam. |
| 4) Dynamo warning lamp - fuel level -
Overdrive - Fan - Instruments. | 9) RH. Headlamp dipped beam. |
| 5) Windscreen wiper - Electric pump -
Panel lights. | 10) LH. Headlamp dipped beam. |
| | 11) Number plate - bonnet - Reverse
lamp. |
| | 12) Fog lights. Roof lamp. |



CAPTION

- 1) Headlamps and dip
- 2) Front lights and indicators
- 3) Fog lights
- 4) Dynamo
- 5) Starter
- 6) Battery
- 7) Horn
- 8) Horn relays
- 9) Ignition coils
- 10) Distributor
- 11) Spark plugs
- 12) Bonnet light
- 13) Panel
- 14) Installation fuses
- 15) Dynamo regulator
- 16) Terminal board
- 17) Windscreen wiper motor (2 speeds)
- 18) Switch for a/m. motor
- 19) Panel lights
- 20) Rheostat for panel
- 21) Thermocontact driving the fan
- 22) Fan for radiator
- 23) Petrol gauge
- 24) Tank level
- 25) Direction indicator relays
- 26) Commutator with direction indicator
- 27) Electric pump
- 28) Electric pump switch
- 29) Fog light switch
- 30) Hydraulic switch for stop lights
- 31) Outside light commutator
- 32) Horn push button
- 33) Inside light switch
- 34) Automatic switch for inside lights
- 35) Direction indicator lights
- 36) Dynamo charge lights
- 37) Inside lights lamp
- 38) Indicating lamp for electric pump
- 39) Heater fan indicating lamp
- 40) Indicating lamp for headlights
- 41) Conditioner switches
- 42) Conditioner electric fans
- 43) Deviolux (Front light commutator relay)
- 44) Ignition switch
- 45) Rear lights
- 46) Number plate light
- 47) Reverse lamp
- 48) Reverse light switch (on the gearbox)
- 49) Solenoid Overdrive
- 50) Switch on gearbox driving the Overdrive
- 51) Switch below the steering for Overdrive
- 52) Relay driving the Overdrive
- 53) Boot light
- 54) Water and oil thermometers
- 55) Side direction indicators (arrows)
- 56) Lighter
- 57) Signaling light for fuel level
- 58) Side door lamps
- 59) Thermocontacts for water and oil thermometers

Fig. 72 - Electric system diagram.

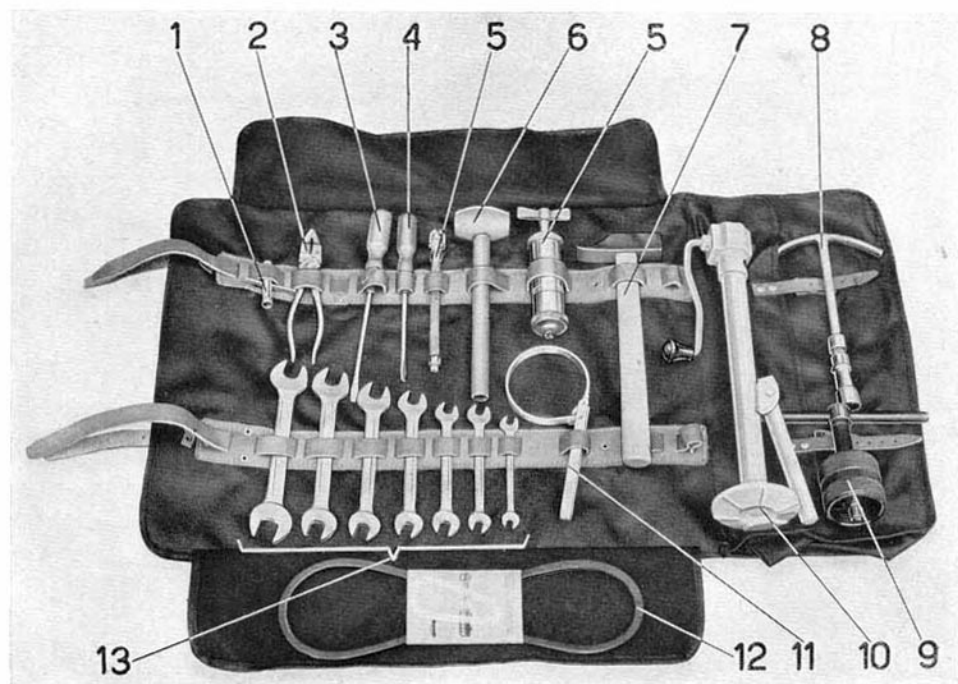


Fig. 73 - Tool kit.

- | | |
|---------------------------|----------------------|
| 1) Jet Key. | 8) Plug spanner. |
| 2) Pliers. | 9) Hub puller. |
| 3) Screwdriver. | 10) Jack. |
| 4) Screwdriver. | 11) Filter remover. |
| 5) Grease gun and nozzle. | 12) Dynamo Belt. |
| 6) Copper hammer. | 13) Set of spanners. |
| 7) Hammer. | |

