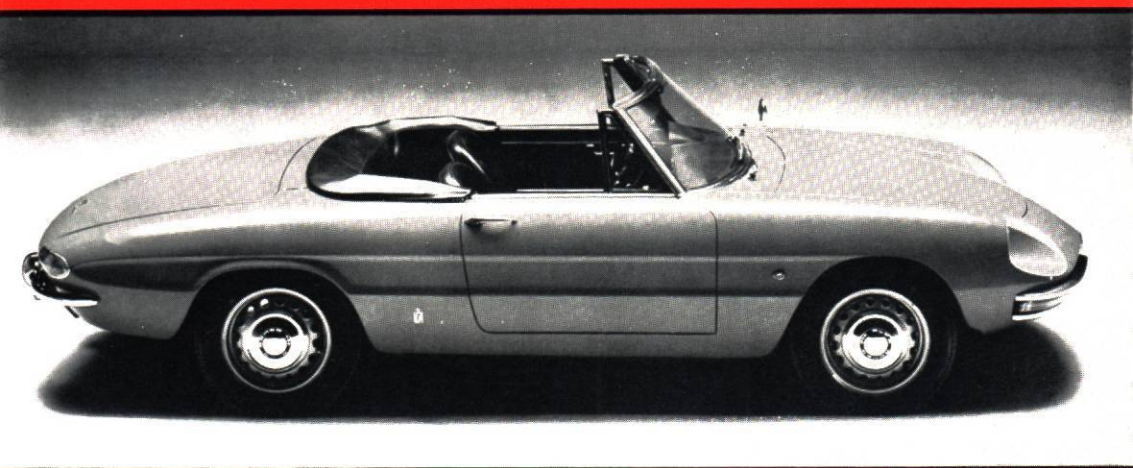
ALFA ROMEO SPIDER 1600



INSTRUCTION BOOK

WARNING

Beware of the danger of carbon monoxide! Never run the engine in an enclosed space. The exhaust gases contain carbon monoxide, a deadly gas. Carbon monoxide is particularly dangerous as, being it colorless, odorless and tasteless, its presence is very difficult to detect.

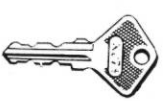
It is a good rule to make a note of the symbol stamped on the key handle.

Ignition and antitheft device key

SYMBOL

Key to driver's door, glove compartment, trunk lid

SYMBOL



When ordering duplicate keys, **please quote the symbol.**

The operation and maintenance instructions contained in this handbook

MUST BE CAREFULLY OBSERVED

by every owner who desires to get the best from this vehicle and to ensure a long life for every component.

Owners are recommended, in their own interest, to entrust all maintenance and repair work to an authorized Alfa Romeo Service Station as such Stations are equipped with the proper tools and staffed by specially trained mechanics who are kept up-to-date by our technical literature.

Owners are reminded that Alfa Romeo cannot be responsible for any errors made by unauthorized service stations or for any damage resulting from the use of nongenuine spare parts and/or lubricants other than those recommended.

Direzione Assistenza

The data relating to weights, consumptions and speeds are approximate only; Alfa Romeo reserves the right to change without notice any features and data given in this book.

Alfa Romeo take steps to ensure the optimum performance of their cars by providing clients with special services during the entire life of their vehicles.

The Service Coupon Book, supplied with every new vehicle, bears the conditions that govern the provision of Alfa Romeo Services and the replacement of damaged parts during the period covered by the guarantee.

Every purchaser of an Alfa Romeo motorcar is supplied with two coupons covering certain free maintenance during the guarantee period, and he

must use these coupons on completion of the mileage as stated thereon.

The labor cost of the maintenance work listed on the coupons is free, but the lubricants used are to user's account.
Any work not covered by free coupons but found necessary during the inspection will be subject to the General Terms of Guarantee.
The coupons should be used whenever possible at the garage of the Agent that sold the car and during normal working hours.

GUARANTEE

The Supplier guarantees the products of the Factory for 6 months from the date of delivery to the Client; the guarantee does not cover tyres and non-essential accessories if made by third parties, nor does it cover spare parts.

The guarantee covers the free repair of, or free supply and replacement of, any parts found to be unserviceable **because of an acknowledged defect of materials**; defects will be acknowledged after prior investigation of them and of their causes exclusively by the manufacturer's workshops or by workshops authorized by the manufacturer, and at the said workshops.

Should the Purchaser insist on the services of an Alfa Romeo technician for the purpose of inspecting faulty or allegedly faulty parts, the expenses of such a technician will be the responsibility of the Purchaser. **Delays, if any, shall not entitle the Purchaser to receive compensation for damages, nor to any extension of his rights under the guarantee.**

The guarantee shall lapse automatically:

if the products are used otherwise than in accordance with the manufacturer's instructions;

if they are modified, repaired or dismantled elsewhere than in the manufacturer's workshops or workshops authorized by the manufacturer;

if bodies of different origin which have not been previously approved by the manufacturer are fitted to the chassis.

The Purchaser shall not be entitled, in any of the cases stipulated by this articles, to claim cancellation of the Contract or compensation for damages.

Contents

In the engine compartment (bulkhead panel)

- Chassis serial no. (metal stamped)
- Finish paint plate (paint type & manufacturer's name)
- Identification plate (car model & type approval number)

- Engine no. metal stamped **on crankcase R.H. side**

On contacting the Factory or a Member of our Service Organization please state: car model, chassis no., registration date, distance covered and car's purchase data.

Specification

Engine

Number and layout of cylinders	4 in line
Bore and stroke	78 x 82 mm. (3.071 x 3.228 in.)
Total displacement	1570 c.c. (95.81 cu. in.)
Max. power at 6000 rpm	109 CV (DIN) / 125 HP (SAE)

Chassis

Min. turning circle	10,500 mm (413.4")
Number of seats	2
Tyres (Michelin **XA** - Pirelli Cinturato **S**)	155-15

Fuel consumption

Per **100 Km** to Italian C U N A standards (full load)

	G.B.	U.S.
approx. **10.5 lt**	(32 mpg)	(27 mpg)

Fuel, oil and water

Water approx.	**7.5 lt**	(1.65 gals)	(1.98 gals)
Fuel	**46 lt**	(10.1 gals)	(12.1 gals)

For best engine performance the use of premium grade fuel is advised.

Fuel reserve	**6 to 7 lt**	(1.3-1.5 gals)	(1.6-1.8 gals)

Oil

Engine (sump and filter) when full*	**5.00 Kg**	(4.95 qts)	(5.95 qts)
Engine (sump and filter) danger level	**3.25 Kg**	(3.2 qts)	(3.8 qts)

* This quantity is that needed for regular changing.
The total amount of oil in the circuit (sump, filter and passages) is 5.75 Kg (5.7 qts GB) (6.8 qts US).

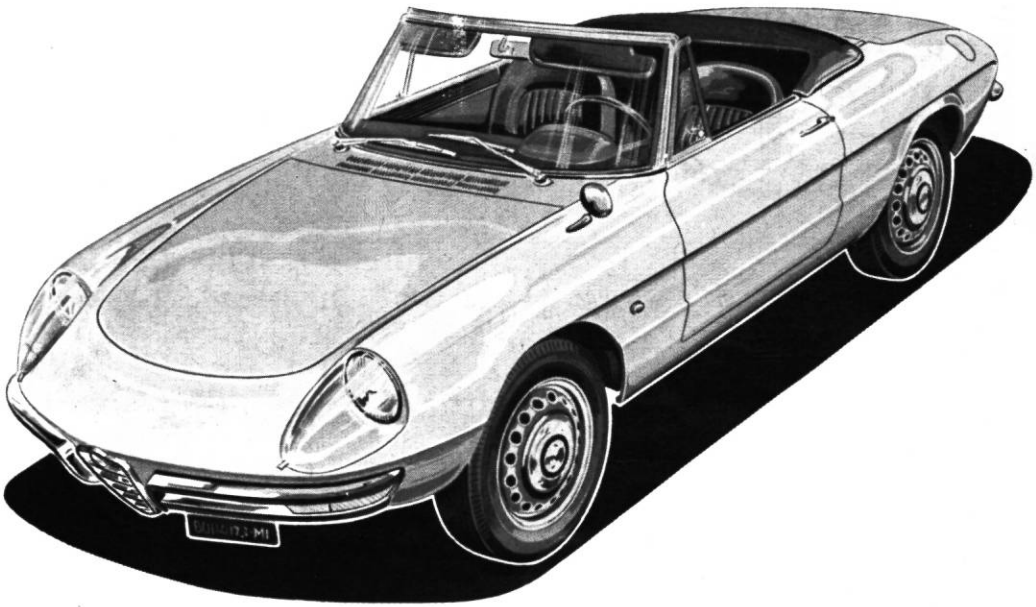
Gearbox	**1.65 Kg**	(3.2 pints)	(3.8 pints)
Differential	**1.25 Kg**	(2.5 pints)	(3.0 pints)
Steering box	**.25 Kg**	(.5 pint)	(.6 pint)

PERFORMANCE (with 41 : 9 final drive)

GEAR	AFTER RUNNING IN	
	Km/h	mph.
1st	**44**	27
2nd	**74**	46
3rd	**108**	67
4th	**146**	91
5th	over **185**	115
Rev.	**48**	30

The maximum speeds indicated should not be exceeded or mechanical damage may result.

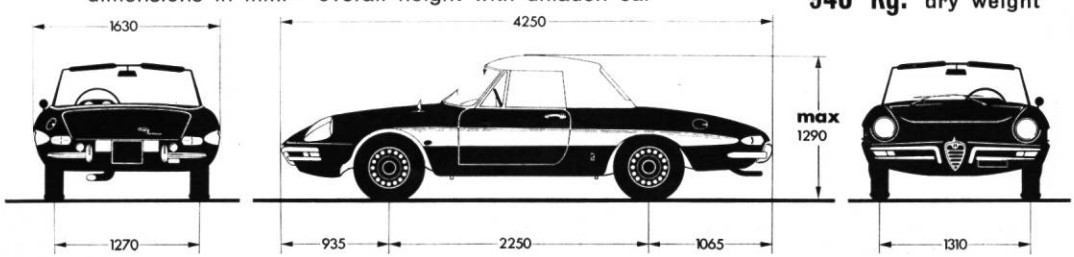
The performance given are applicable for use under environmental conditions as found in center Europe.

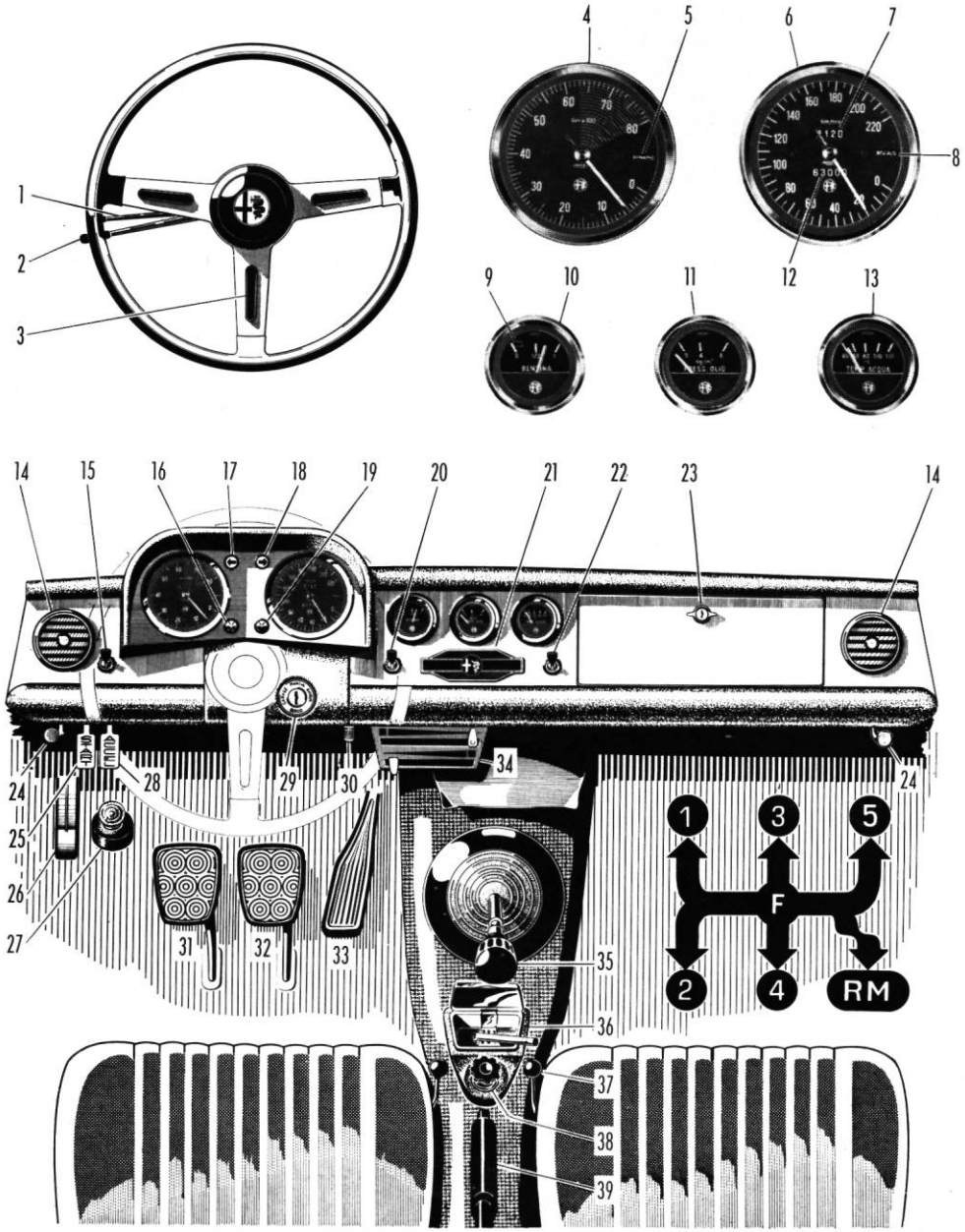


940	Kg	=	2,072 lbs
935	mm	=	36.8 in.
1065	mm	=	41.9 in.
1270	mm	=	50.0 in.
1290	mm	=	50.8 in.
1310	mm	=	51.6 in.
1630	mm	=	64.2 in.
2250	mm	=	88.6 in.
4250	mm	=	167.3 in.

dimensions in mm. - overall height with unladen car

940 Kg. dry weight





Controls and instruments

DRIVING SEAT

Controls

1 Direction indicator switch

2 Headlamp, dipping & flashing switch

3 Horn control

15 Dashboard light switch (acts only when parking lights are on)

20 Windshield wiper switch

25 Choke lever

26 Bonnet catch release

27 Windscreen washer: when the control is pressed the windscreen wiper also comes into action

28 Hand throttle

29 Ignition switch & antitheft

30 Trip odometer reset

31 Clutch

32 Brake

33 Accelerator

35 Gear lever

39 Handbrake (for emergency and parking)

Instruments

4 Tachometer

5 Generator warning light

6 Speedometer

7 Trip odometer

8 Blower warning light

9 Fuel reserve warning light

10 Fuel level indicator

11 Oil pressure gauge

12 Main odometer

13 Water temperature indicator

16 External light warning

17 Direction indicator warning light (left-hand)

18 Direction indicator warning light (right-hand)

19 Headlamp high beam warning light

Luxury fittings

14 Air outlets (adjustable)

21 Radio compartment

22 Blower switch

23 Glove compartment

24 Air flow control (through outlets)

34 Heating, ventilating and demisting

36 Ash tray

37 Seat positioning lever

38 Cigarette lighter: insert cigarette, press down outer edge of the lighter: this brings into operation an electric element which lights the cigarette and turns itself off after a few seconds. When external lights are on a lamp lights up around the lighter as an aid in locating it.

WARNING FOR THE FIRST 1900 miles (3000 km.)

RUNNING IN

To allow the various parts of the car, **particularly the engine, gearbox and differential,** to settle in gradually, a running-in period is necessary, during which maximum performance must not be demanded of the car.

RECOMMENDATIONS FOR THE FIRST 1900 MILES

Mileage reading	Max recommended speeds				
	1st	2nd	3rd	4th	5th
Up to **600** (1000 Km)	**16** 25 Km/h	**28** 45 Km/h	**40** 65 Km/h	**56** 90 Km/h	**71** 115 Km/h
from **601** to **1900** (1001 to 3000 Km)	**22** 35 Km/h	**34** 55 Km/h	**50** 80 Km/h	**68** 110 Km/h	**87** 140 Km/h

Cold starting:

— Press in choke as soon as possible.

— Before driving, run engine at approx. 1500 r.p.m. for at least 1 minute in summer and 2-3 minutes in winter.

While driving:

— Do not drive at max. recommended speeds for long periods.

— Never fully depress the accelerator pedal.

— Now and then release the accelerator pedal.

— Avoid full and extended braking during the first 600 miles.

DURING RUNNING-IN STRICTLY FOLLOW THE ABOVE INSTRUCTIONS!

Note: The same recommendations apply also in the case of engine reconditioning involving the replacement of cylinder barrels, pistons, piston rings and bearings.

COUPONS A AND B OF SERVICE COUPON BOOK

At the first **450-750** mi. (700-1200 Km) and at the first 3100-3750 mi. (5000-6000 Km) carry out the servicing included in coupons **A** and **B** of Service Coupon Book.

STARTING THE ENGINE

Insert the key.

Turn the key to **GARAGE** position. To help in freeing the steering block, slightly rotate the wheel in both directions.

Turn the key to **MARCIA** position. Ignition circuits are on (generator warning light lit).

Turn the key further to **AVVIAM.** The starting motor comes into action and the key, as soon as released, returns automatically to **MARCIA.** If the engine fails to start, the key must be returned to **GARAGE** and the operation repeated.

STOPPING THE ENGINE

Return the key to **GARAGE.** In such a position the ignition is « off » and the wheels can be steered even if the key is withdrawn.

ANTITHEFT DEVICE / STEERING BLOCK

Turn the key back to **BLOCCO.** By withdrawing the key the steering is blocked; to engage the block properly slightly rotate the wheel in both directions.

Never withdraw the key before the car has come to a complete stop as the « steering block » condition may occur.
MARCIA = ignition; AVVIAM. = starting; BLOCCO = block.

From cold

Before starting the engine make sure the gear lever is in neutral. Pull out the choke, insert the key in the ignition switch and start the engine. Particularly when starting from cold in winter, it is advisable, in order to facilitate starting, to press the clutch pedal down fully and the accelerator through about one quarter of its stroke while at the same time operating the choke lever.
As soon as the engine fires release the ignition key.

If the engine fails to start at once, do not keep the starting motor running (or the battery will soon become discharged) but wait a few minutes and try again.

If it still will not start, look for the cause as follows:

- the battery charge may be too weak to rotate the starting motor sufficiently fast to start the engine;
- the ignition equipment may be defective (dirty plugs, excessive spark gaps, oxidized contact-breaker points, wet or cracked distributor cap, damaged distributor or coil);
- the carburettor may be dirty and jets clogged;
- electric circuits may be broken or fuses blown.

When the engine has started move choke lever halfway back until the engine is warm and then push it down.

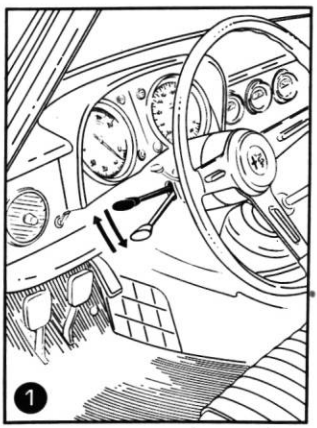
Do not accelerate the engine until it has warmed up, since when the engine is cold the oil cannot reach all points requiring lubrication.

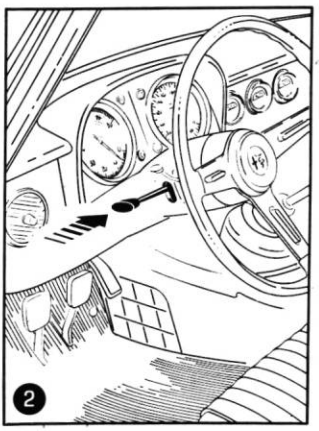
Make sure the oil pressure shown by the gauge is as prescribed (page 29).

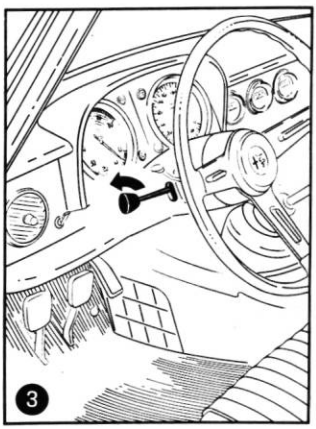
Make sure the generator warning light goes off as soon as engine speed exceeds 1,100 r.p.m.

Hot engine

In summer, or when the engine is already hot do not use the choke. Starting will be facilitated if the accelerator is depressed about half way so that the carburettor throttles are opened in order to lean the mixture.







The switch lever may be in either of the two positions. The warning light on the dashboard is out.

1 Lights off

Press on the knob irrespective of the position of the switch.

2 Flashing

Irrespective of the position of the lever, turn the knob to the first notch. The warning light on the dashboard will light up and flashing is still possible by pressing the knob.

3 Parking lights and number plate light

From position 3 turn the knob forward to the second notch.

If the lever is up, the **dipped lights** come on (no flashing).

If, on the other hand, it is down, the **beam lights** come on (flashing possible).

The movement of the lever up and down allows the lights to be **dipped** or returned to **beam.**

The lights are extinguished by turning the knob back over the notches.

1 Lights off

While driving

Take care not to run the engine beyond the maximum R.P.M.

Check the oil pressure gauge from time to time and stop the engine if the pressure with a hot engine and at maximum revolutions should fall below 50 psi (3.5 Kg/cm^2) (page 25).

When shifting gears, take care to depress the clutch pedal fully; this will ensure smooth operation of gearbox and save synchronizers from excessive wear.
Do not rest your foot on clutch pedal when not actually using it.

Do not drive at high speed until the oil in the engine, in the gearbox and in the differential has warmed up properly.

The level of coolant in the radiator should be about 1 inch (2 to 3 cm) below the bottom rim of the filter orifice. If the level should drop to 2 inches (4 to 5 cm) when the engine is running, it is unnecessary to fill up provided that it does not continue to fall.
To check the coolant level when the engine is hot, and particularly when gauge shows a temperature around 100°C (212°F), it is essential to turn the radiator cap only as far as the first notch to allow the pressure within the radiator to drop. If a large quantity of water has to be added to a hot engine, the water should be poured slowly and the engine left running so as to prevent any sudden cooling and the possibility of damage.

While parking

Never leave the key in the « **MARCIA** » position (ignition « on ») to prevent battery discharge and coil damage. Apply the hand brake and, when parking the car uphill or downhill, shift into a low gear and steer the front wheels in such a direction as to cause the car, should the hand brake disengage accidentally, to move toward the kerb.

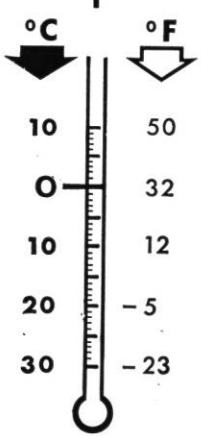
Antifreeze

In places where the temperature falls below freezing point, a suitable antifreeze must be added to the engine cooling water to prevent the water in the radiator from freezing while the car is in motion and the water in the engine from freezing during prolonged stops.

Recommended products	
AGIP	F1 antifreeze
SHELL	Antifreeze

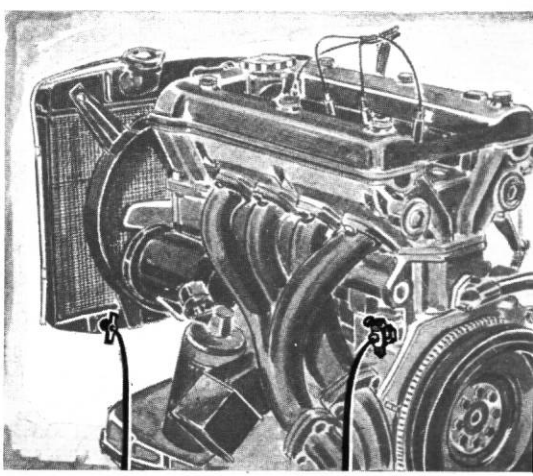
Quantities of antifreeze to be used, depending on the lowest anticipated temperature . . . . . :

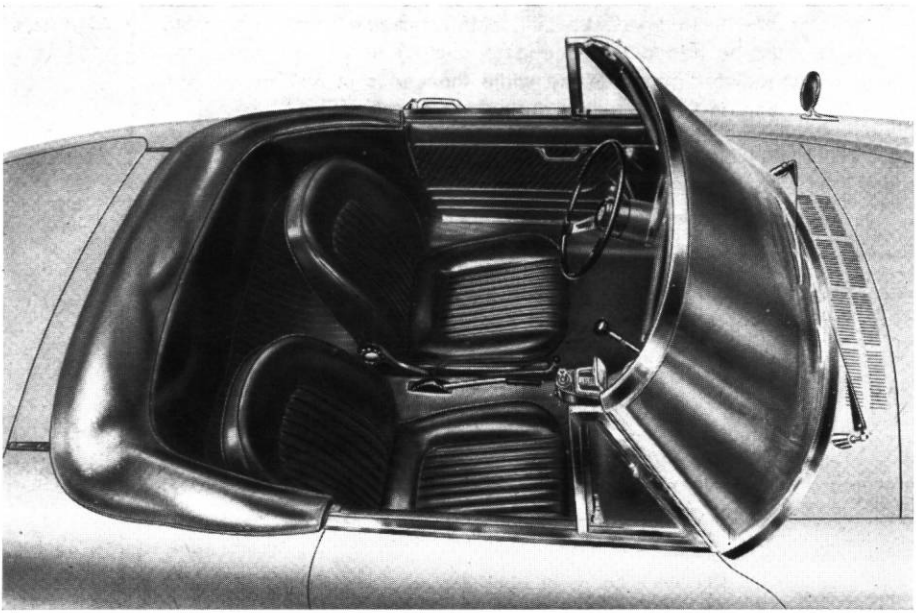
- **1.5** litres . . . . (2 3/4 pints) (3 1/4 U.S. pints)
- **2.25** litres . . . (4 pints) (4 3/4 U.S. pints)
- **3** litres . . . . . (5 1/4 pints) (6 1/4 U.S. pints)



Draining off the water

In icy weather even a short stop may be enough to freeze the engine water if an antifreeze has not been added.
If no antifreeze is used, **to avoid very serious damage,** it is essential to drain the radiator, the engine and the heating system by opening the cocks positioned at the bottom of the radiator and on the left-hand side of the engine and by shifting the heater temperature control to the MAX. position (see page 18).





Sun visors

- The car is equipped with padded sun visors. The passenger's visor is provided with a vanity mirror.

Rearview mirror

- The rearview mirror has a day/night antiglare device.

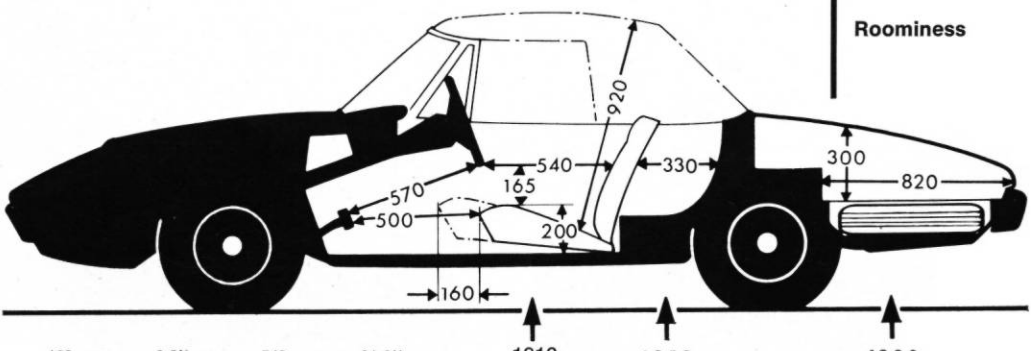
Lighting

- Internal lighting is provided by a lamp in the rearview mirror; the switch has two positions: light always on and courtesy light automatically operated when opening doors.

Hand grip

- On the passenger's door there is a hand grip.

Roominess



160 mm = 6.3"
165 mm = 6.5"
200 mm = 7.9"
300 mm = 11.8"
330 mm = 13"
500 mm = 19.7"

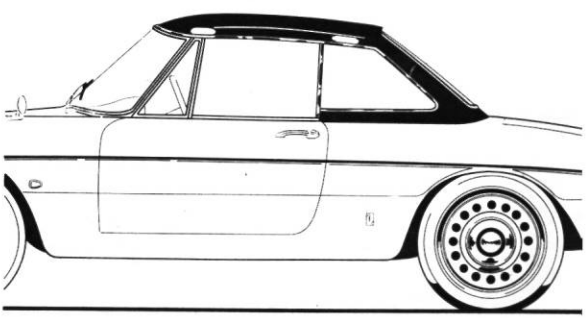
540 mm = 21.3"
570 mm = 22.4"
820 mm = 32.3"
920 mm = 36.2"
1250 mm = 49.2"
1300 mm = 51.1"
1310 mm = 51.5"

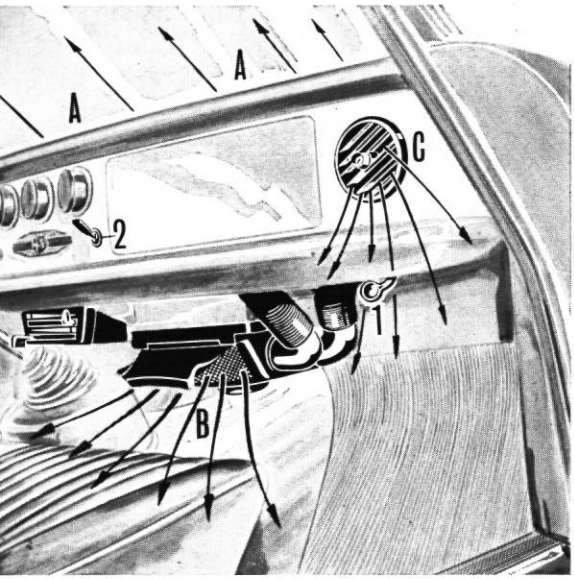
Front seats

- The positioning of the front seats is controlled by a lever situated on the front edge of each seat: by freeing the lever the seat may be moved to the position desired.
  A knob situated on the inner side of the seats controls the angle of the backrests; these may also be tipped forward to facilitate access of passengers to the rear seat.

HARD TOP

Provision is made for the installation of the hard top. Attachment is effected through the hooks suitably provided on the body.





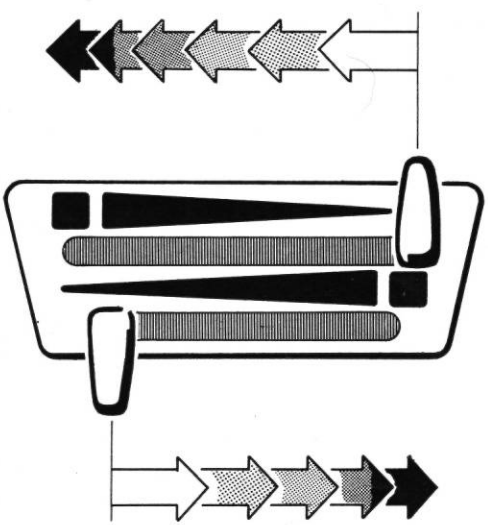
Air enters through:

A for demisting (warm or cold air)

B for ventilation and heating.

According to its position, the adjustable opening **B** regulates the flow of air between the heater and the demister: for maximum demisting, close the opening **B.**

C Ram intake ventilation without heating. Opening and closing of outlet (adjustable in position), is controlled by the lever **1** under the dashboard. A similar outlet is at driver's side.

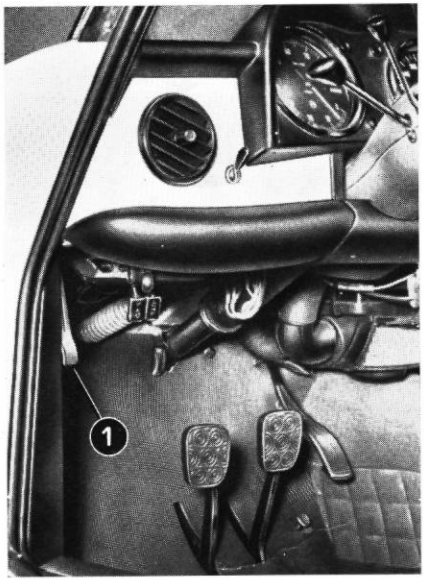


CONTROL OF VENTILATION

The movement of the lever gradually regulates the flow of air through the openings **A** and **B.**
In order to produce a satisfactory flow of air into the car at low speeds, switch on the electric blower by means of switch **2.** A warning light (**8**, page 9) indicates that this has been done.

REGULATOR OF TEMPERATURE

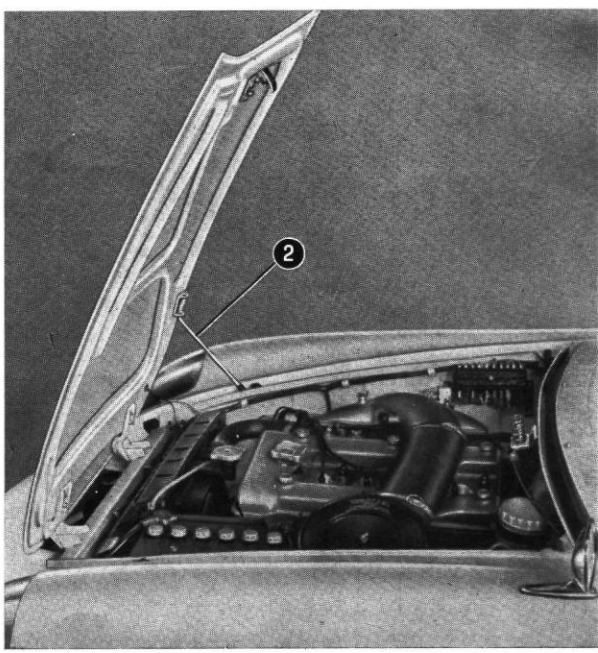
The air admitted to the car can be heated by the movement of the lever which gradually increase the temperature of the air.



To open

The bonnet opens opposite travel direction; to release the catch, pull the lever **1** under the dashboard.

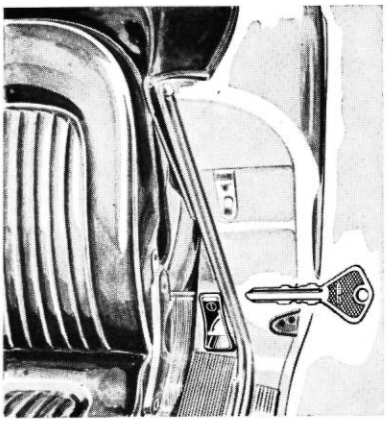
To hold the bonnet in open position, place the rod **2** as shown in the illustration.



Illumination of the engine

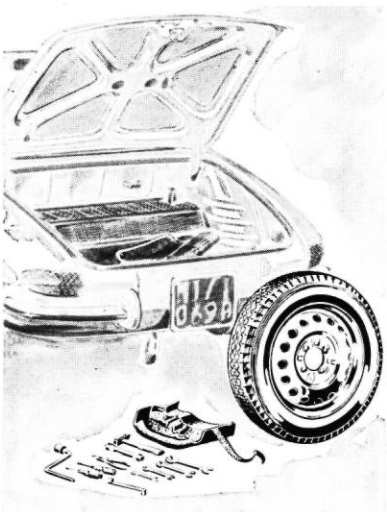
The illumination of the engine compartment is effected by a light fixed under the bonnet. It operates automatically when the bonnet is raised and the external lights are on.

To open



Lift the lever situated on the door jamb on the passenger's side.
The lock utilises the same key as the doors.
The lid of the boot automatically remains in the open position.

Equipment

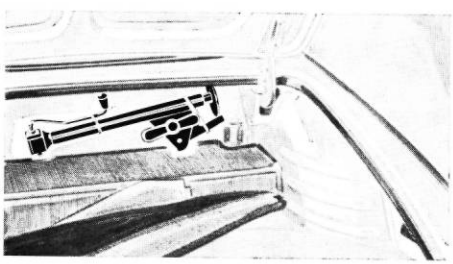


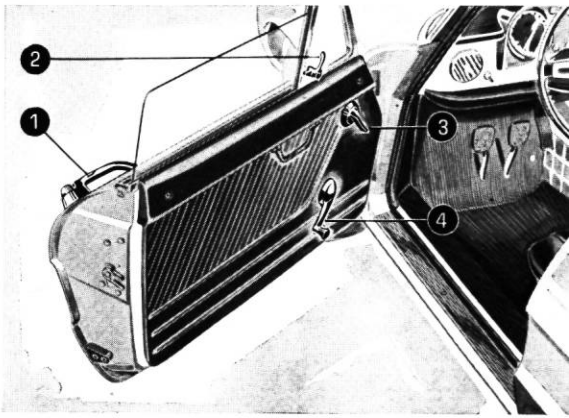
In the boot there are:

- the spare wheel: under the mat
- the tool kit: on the L.H. side
- the jack: on the bulkhead.

TOOL KIT

- Wheel brace
- Pliers
- Box spanner for plugs
- Tommy bar for plug spanner
- Phillips screwdriver
- Screwdriver.





1 Handle: both doors can be locked from the outside

2 Ventilating window control (with a safety catch)

3 Lever to actuate and release the safety device

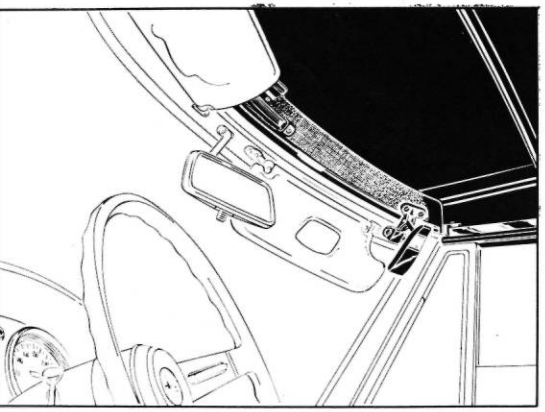
4 Window regulator handle

SAFETY BELTS

Provision is made for the fitting of safety belts. Suitably reinforced attachment points are located:

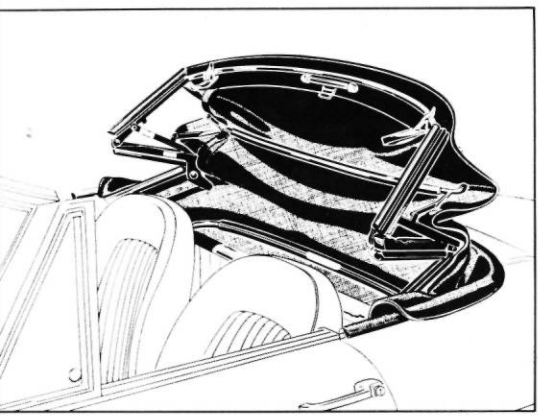
- for lap belts: on the central tunnel and on side rail
- shoulder belts: on the central tunnel and on rear side panel in the tonneau.

Furthermore, all three attachment points can be used for the installation of lap and diagonal design belts.

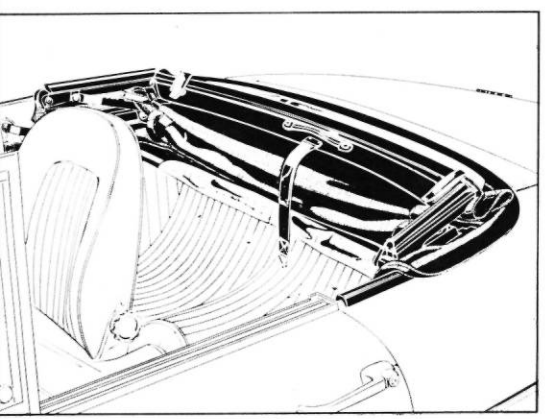


Folding the top

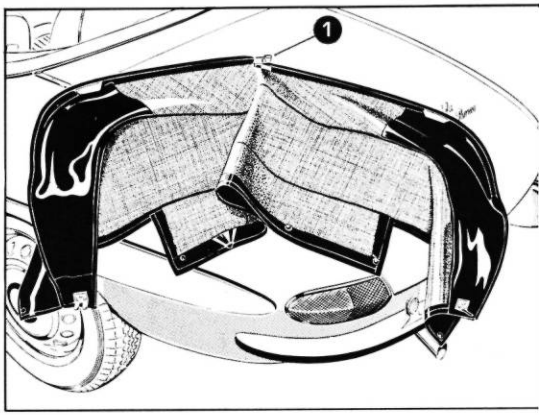
Lower the side windows.
Release the toggle clamps, securing the top to the windshield bow.



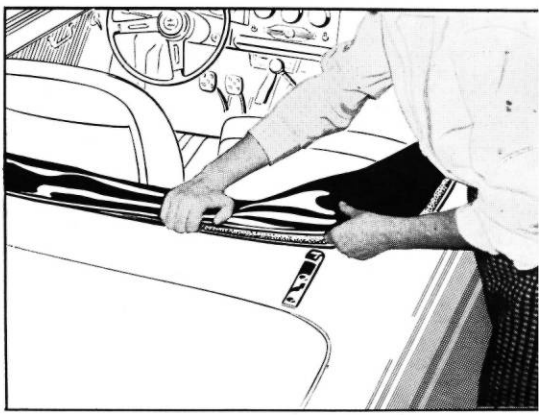
Push the top frame backward.



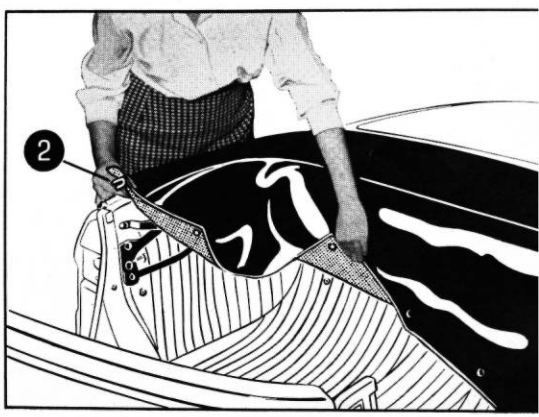
Fold the top into its housing taking care not to crumple the plastic window. When folded, fasten the top with the proper self-sticking strap.



Take the top cover out of the boot; connect the two bows with the bayonet joint **1.**



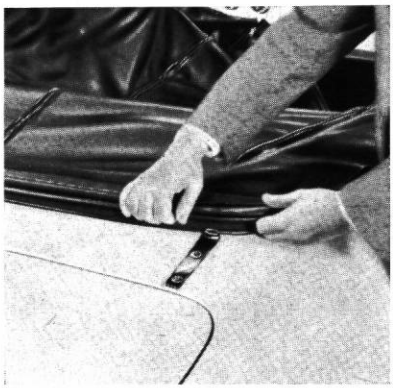
Spread the cover onto the top and engage the bows in the hooks on the body.



Insert the forks **2** into their seats in the door jambs. Finally, secure the cover to the inside of the car with the fasteners.

Note: to raise the top reverse the folding procedure.

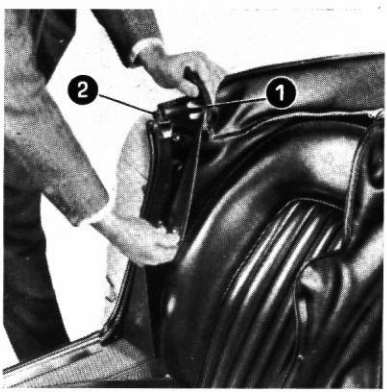
Installation



Optionally, the car is supplied with a tonneau cover.

To fit the cover, proceed as follows:

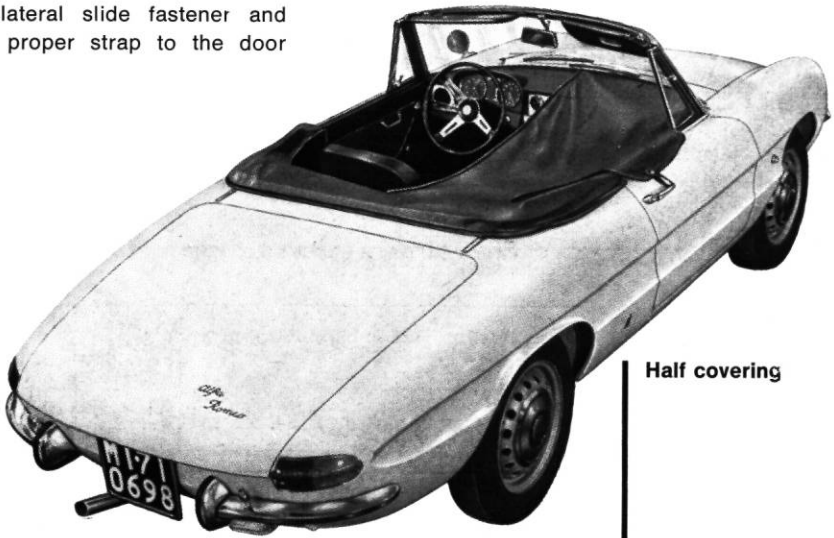
- Fully lower the top into its housing.
- Lay the tonneau cover out over the seats and engage the rear bow in the hooks on the body.



- Insert forks **1** into their seats **2** in the door jambs.
- Secure the cover to door jambs with the fastener.

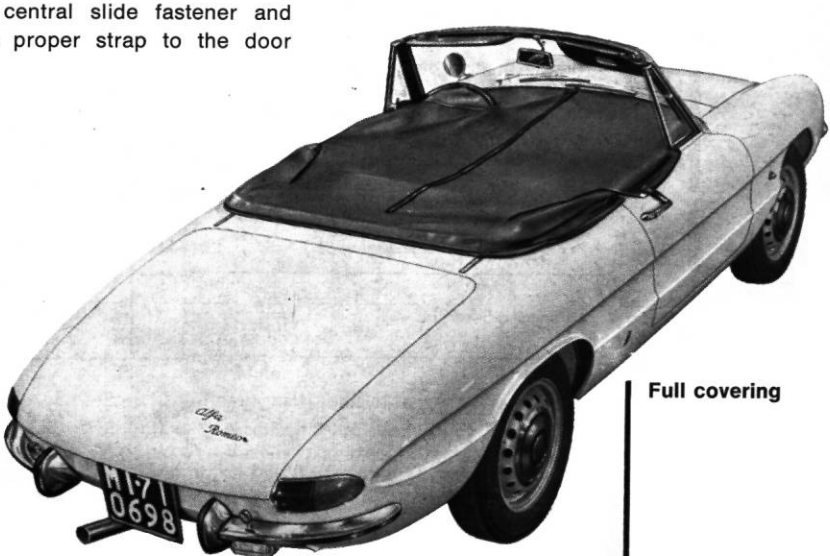
- Attach the front edge of tonneau cover to the dashboard with the proper retainers.

- Close the lateral slide fastener and anchor the proper strap to the door handle.



Half covering

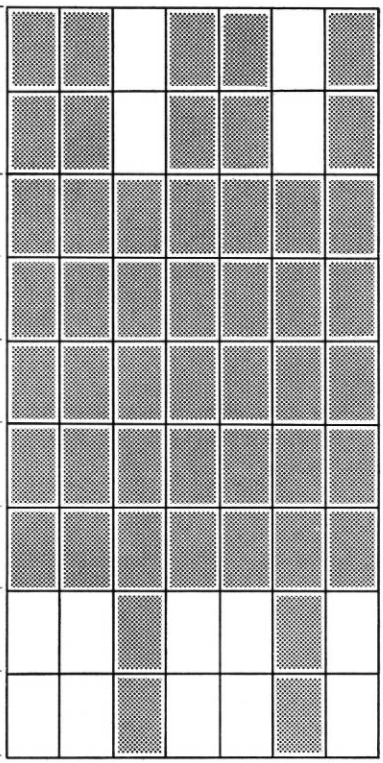
- Close the central slide fastener and anchor the proper strap to the door handle.



Full covering

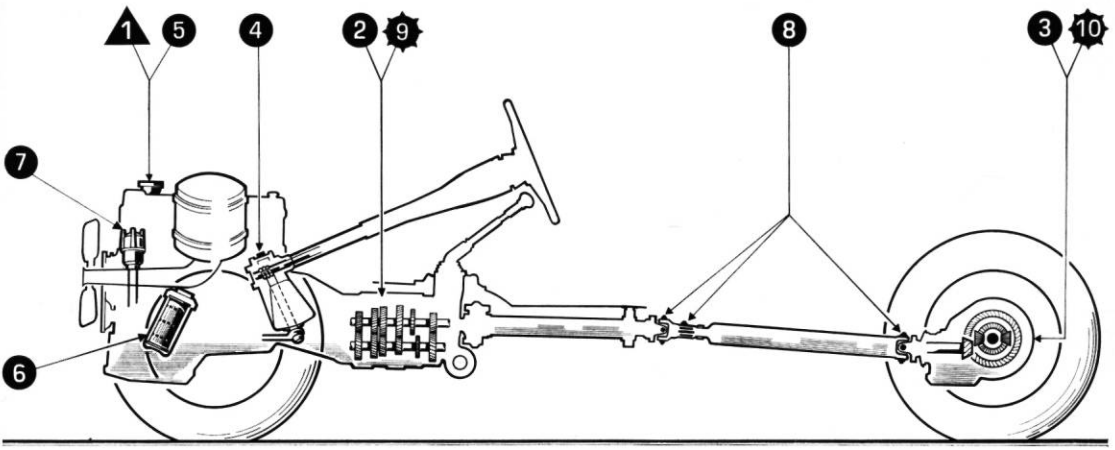
LUBRICATION

EVERY 300 mi. (500 Km.)	1	**C**heck level of engine oil and top up if necessary. **W**hen checking push the dipstick all the way down. Never allow the oil to fall below the minimum or to exceed the maximum level while topping up.
At the first 450-750 mi. (700-1200 Km.)	—	**C**arry out the **Coupon A** from the Service Coupon Book
At the first 3100-3750 mi. (5000-6000 Km.)	—	**C**arry out the **Coupon B** from the Service Coupon Book
EVERY 3750 mi. (6000 Km.)	2	**C**heck level of gearbox oil and top up if necessary.
	3	**C**heck level of differential oil and top up if necessary.
	4	**C**heck level of steering box oil and top up if necessary.
	5	**C**hange engine oil (or every 6 months whichever comes first). When topping up never exceed the max. level.
	6	**C**hange oil filter element.
	7	**G**rease ignition distributor.
	8	**G**rease propeller shaft universal joints & sliding yoke.
EVERY 11,250 mi. (18,000 Km.)	9	**C**hange gearbox oil.
	10	**C**hange differential oil.
DISCONTINUOUSLY		**G**rease the linkage joints & hinges of: — carburettor — clutch — brakes — doors & lids **G**rease flexible shafts.



7,500	11,250	15,000	18,750	22,500	26,250	30,000

MILEAGE COVERED
TICK EACH ITEM AT THE RESPECTIVE MILEAGE



RECOMMENDED LUBRICANTS

PART	Classification	Recommended commercial equivalents	
		AGIP	SHELL
Engine *	SAE 20 W/40 API MS	F.1 Supermotoroil Multigrade 20 W/40	X-100 Multigrade 20 W/40
Gearbox	SAE 90	F.1 Rotra SAE 90	Dentax 90
Steering box and differential	SAE 90 API EP	F.1 Rotra Hypoid SAE 90	Spirax 90 EP
Propeller shaft universal joints and sliding yoke	NLGI 1	F.1 Grease 15	Retinax G
Front wheel bearings	NLGI 2/3	F.1 Grease 33 FD	Retinax AX

* For steady temperatures below 0 °C (32 °F) we advise the use of
- AGIP F.1 Supermotoroil Multigrade 10 W/40
- SHELL Super Motor Oil

SAE - Society of Automotive Engineers
API - American Petroleum Institute
NLGI - National Lubricating Grease Institute

In Countries where the recommended lubricants are not available, it is possible to replace them with products of other leading makes provided that **in accordance with the prescribed specifications and grades.**

Lubrication

Oil change (engine warmed up)

With the engine stopped, drain off old oil thoroughly.

Remove the filter body and clean the inside of it.

Replace the filter element.

Refill with new oil.

Exceptional use of single grade oils

Should the recommended engine lubricating oil of multigrade type not be available on the market, it can be replaced by the following single grade oils, taking account of the prevailing temperature conditions.

		AGIP	SHELL
+ 10°C/50°F	Above	F.1 Motor HD SAE **40**	X-100 M.O. **40**
	Below	F.1 Motor HD SAE **30**	X-100 M.O. **30**

Replacement of non-detergent oils with detergent oils

If the engine has been run with non-detergent oil, detergent oil must not be added as deposits, adhering to various parts of the engine and flushed off by the detergent oil, quickly clog the oil filter and thus causing damage to main and connecting rod bearings and other parts through lack of lubrication.

To replace non-detergent oil with detergent oil proceed as follows:

1 **Drain off old** oil and replace it in the normal way.

2 **After 130 - 150 miles** (200-250 km) change oil and filter element again.

3 **Then follow** the standard lubrication schedule.

Oil replacement after engine reconditioning

With a reconditioned engine follow the instructions given for the running in period.

OIL PUMP

Maintenance

The oil pressure is adjusted by a valve in the pump body. **If the pressure falls below the minimum values,** an authorized Alfa Romeo Service Station must be consulted to trace and remedy the fault.

Oil pressures with hot engine

Idle	minimum	**.5-1** Kg/cm² (7 to 14 psi)
Max. revs.	minimum	**3.5** Kg/cm² (50 psi)
	maximum	**4.5-5** Kg/cm² (65 to 70 psi)

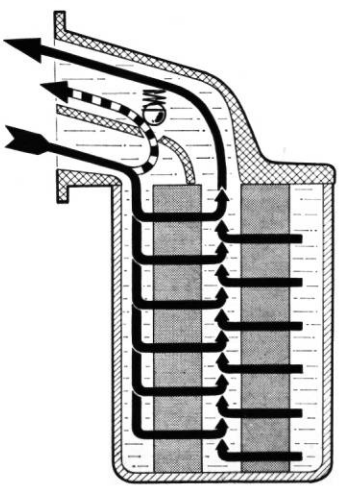
OIL FILTER

Maintenance

To remove impurities the engine oil is filtered by a full-flow filter in series with the delivery circuit. The filter is fitted with a valve that by-passes the element if it should become clogged.

When replacing the filter element thoroughly clean the case.
It should be remembered that the periodical replacement of the element, perfect cleaning and careful assembly of the filter are essential for best engine performance.
On reassembling the filter, always replace the seal with a new one.

After refitting the filter to the engine, make sure that there are no oil leaks.



Oil flow with normal operation

Oil flow in an emergency

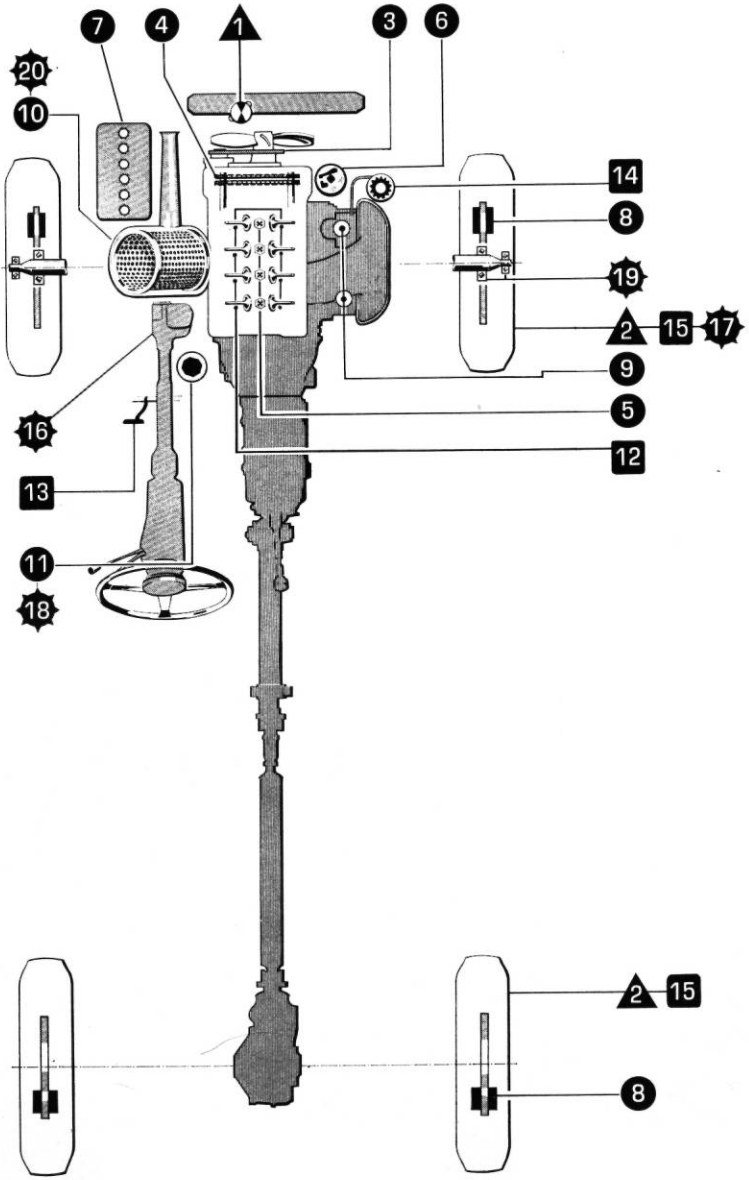
EVERY 300 mi (500 Km.)	1	Check radiator water level.	
	2	Check tyre inflation pressures.	
450-750 mi. (700-1200 Km.)	—	Carry out the **Coupon B** from the Service Coupon Book.	
3100-3750 mi. (5000-6000 Km.)	—	Carry out the **Coupon A** from the Service Coupon Book.	
EVERY 3750 mi. (6000 Km.)	3	Check tension of generator & fan driving belt.	
	4	Check timing chain tension.	
	5	Check spark plugs.	
	6	Check contact-breaker point gap.	
	—	Check timing.	
	7	Check battery electrolyte level.	
	8	Check brake pads.	
	9	Clean carburettor strainers & jets.	
	10	Clean air filter element - More frequently when running on dusty roads usually.	
	11	Check level of fluid in brake reservoir.	
EVERY 7500 mi. (12,000 Km.)	12	Check valve clearances.	
	13	Check clutch pedal free travel.	
	14	Clean fuel filter element or replace, if necessary.	
	15	Change over wheels & rebalance.	
EVERY 11,250 mi. (18,000 Km.)	—	Check pipes & hoses of cooling circuit for condition and leaks.	
	16	Check steering linkage for play.	
	17	Check front wheel toe-in and camber.	
	18	Change brake fluid-or once a year whichever comes first.	
	19	Adjust front wheel bearing clearance & repack with grease.	
	20	Replace air filter element. More frequently when running on dusty roads usually.	
EVERY 22,500 mi. (36,000 Km.)	—	General inspection of brake system.	
	—	Tighten all bolts and nuts.	

at the first

7,500 | 11,250 | 15,000 | 18,750 | 22,500 | 26,250 | 30,000

TICK EACH ITEM AT THE RESPECTIVE MILEAGE

MILEAGE COVERED


7
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18
2
15
8

Tightening torque specifications

To avoid stressing the metal, tighten as follows **with a torque wrench set to the prescribed torque.**

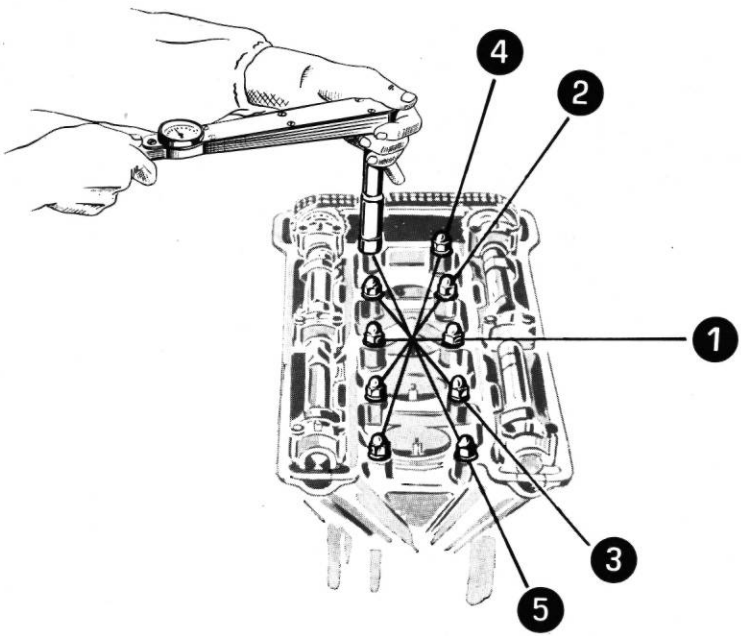
Main bearing caps: lubetorque to . . . . **34-36** ft.lbs. (4.7-5 kgm.)

Connecting rod bearing caps: lubetorque to . . . . . **36-38** ft.lbs. (5-5.3 kgm).

Camshaft journal caps: lubetorque to . . . **15-16** ft.lbs. (2-2.2 kgm.)

Cylinder head nuts

Tightening sequence



Tightening torque specifications

After reconditioning, lubetorque when cold to . . . . **45-46** ft.lbs. (6.2-6.4 kgm.)

Warm up the engine and when hot retighten without unscrewing to . . . . . **47.7-48.5 ft.lbs.** (6.6-6.7 kgm.)

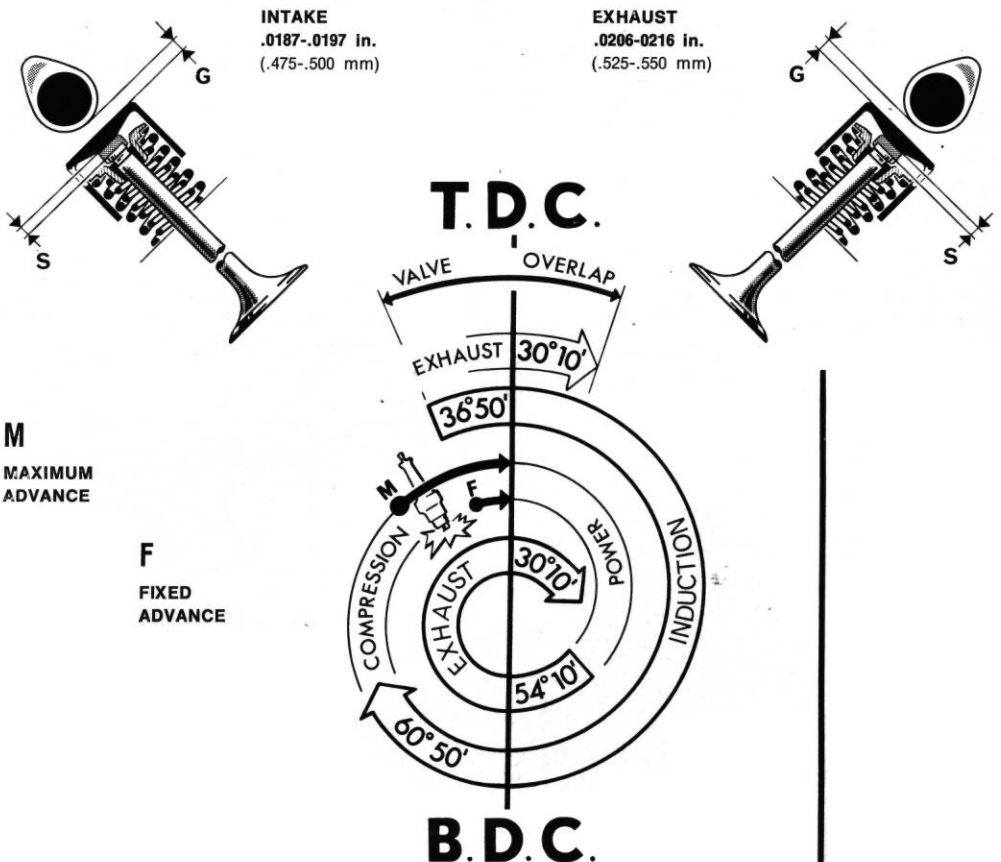
When the cylinder head gasket is replaced, retighten after the first 300 miles (500 km.) Unscrew by one quarter turn and retighten when cold to . . . . . **45-46** ft.lbs. (6.2-6.4 kgm.)

The V-mounted overhead valves are directly operated by two camshafts acting through oil bath cups.

Valve clearance adjustment

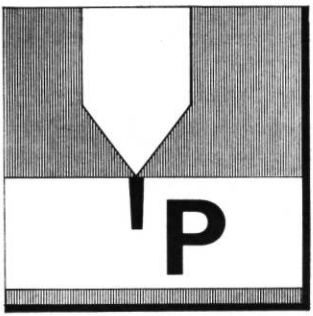
When the engine is cold, carefully measure the clearance **G** with a feeler gauge. If the clearance is not as specified, remove camshafts and valve cups; measure the thickness **S** of the adjusting pad on each valve stem and replace it with another of proper thickness so that the clearance is the correct shown in the diagram.

To facilitate this adjustment the pads are made available in a series of thickness ranging from **1.3 to 3.5 mm** (.05 to .14 in.) in increments of **.025 mm.** (.001 in.).



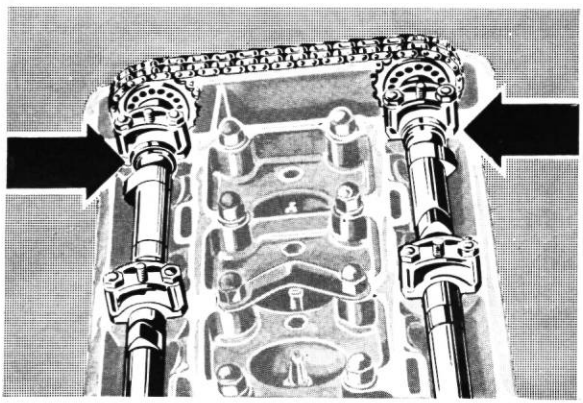
Checking and timing

Top dead center



The valve timing is correct when:

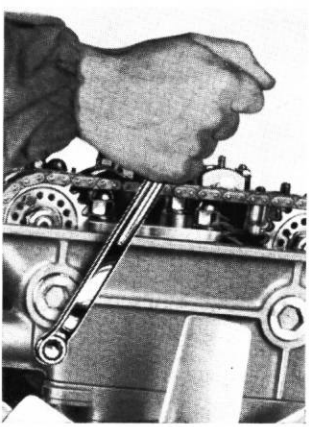
- no. 1 piston on compression stroke, the timing mark cut in the crankshaft pulley and marked **P,** is in line with the reference plate and...



- ...when the timing marks cut on the camshaft front journals are in line with those on the journal bearings.

  No. 1 cylinder cams must be positioned as shown in the illustration, i.e. **POINTING OUTWARD.**

Chain tension adjustment



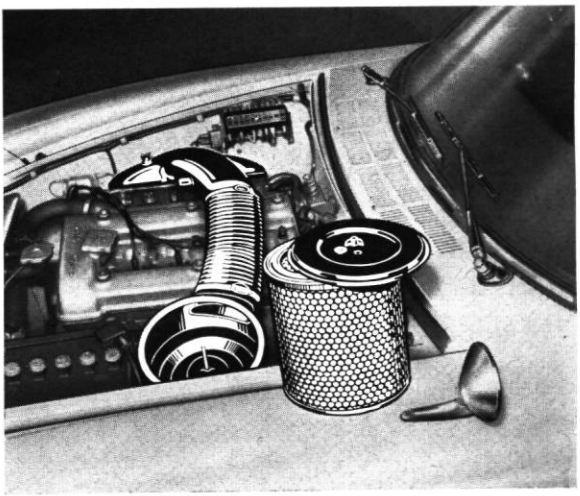
Proceed as follows:

- slacken off the setscrew securing the chain tensioner;
- run engine at idling speed to allow the tensioner to tighten the chain;
- lock the chain tensioner setscrew firmly.

Air filter

The air filter is equipped with a pleated element offering the maximum filtering surface. At the prescribed intervals remove the cover of the filter, withdraw the element and clean it carefully from inside with low pressure compressed air. Moreover at the prescribed intervals change the element.

Element
FISPA Li. 1753



Fuel pump

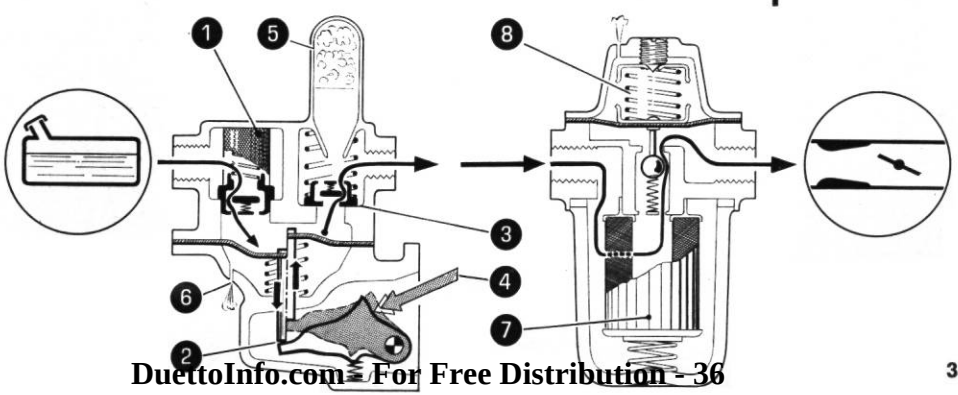
The fuel supply is effected by a mechanical pump located on the right-hand side of the engine and actuated by the distributor drive shaft.

The fuel sucked by the fuel pump reaches the carburettor through a bowl filter on the right-hand side of the engine compartment.

The filter incorporates a device which regulates the outlet pressure of the fuel.

At the prescribed intervals clean or change the filter element, if necessary.

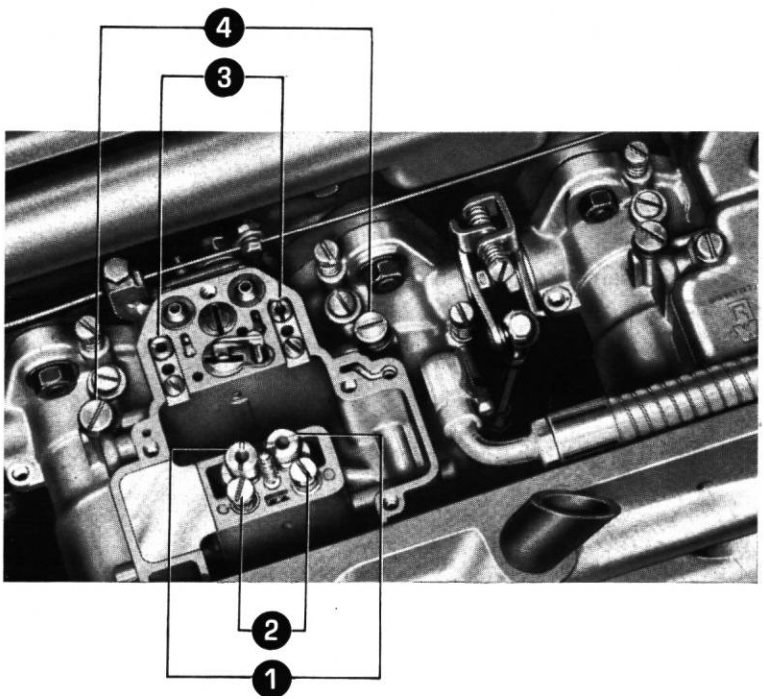
1 Filter and inlet valve
2 Diaphragm control
3 Outlet valve
4 Push rod operating the pump
5 Vapour trap
6 Vent hole (and seepage warning)
7 Filter element
8 Pressure regulating device



2 CARBURETTORS
WEBER
40 DCOE 27

Rating:

❶	Main jets	120
	Main air restrictor jets	180
❷	Idling jets	50 F 11
	air restrictor jet	120
❸	Choke jets	65 F 5
❹	Acceleration pump jets	35
	Venturis (mm)	30



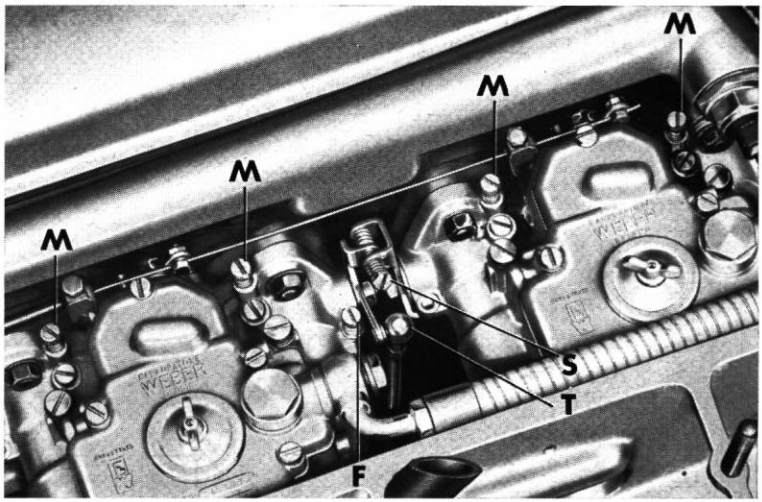
IDLE ADJUSTMENT

F Adjusting screw for minimum opening of throttle

M Idling mixture adjusting screw

S Screw for synchronizing throttles of the two carburettors

T Joint for control linkage (to pedal)



Preparatory steps

Check the ignition timing and inspect the electric system (spark plugs, distributor, coil etc.) for proper operation.
Remove the air filter element and clean thoroughly.
Check the flexible mounts between carburettors and intake manifold for tightness.

Aligning the throttle valves

Detach the control linkage **T** from carburettors.
Slacken the screws **F** and **S** almost fully.
Operate the throttles a few times, making sure that there are no binding.
Fully depress the throttle control lever of rear carburettor so that the throttles are fully closed; then screw in the screw **S** until contact is made.

Idle

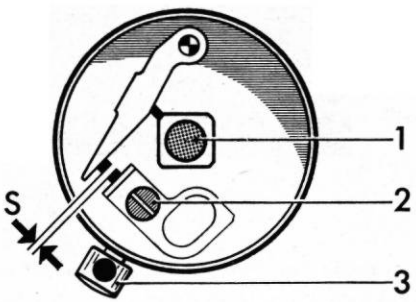
Back off the screws **M** of **half a turn** from closed position.
Tighten the screw **F** to contact, then screw it in **one more turn** to ensure feeding to engine.
Connect the control linkage **T** to carburettors.
Start the engine and warm it up. If necessary, back off the screw **F** very slowly until the engine runs at about 600-700 r.p.m.

Engine maintenance

The ignition system is of the battery and coil type with a centrifugal advance governor.

Firing order: 1 - 3 - 4 - 2

Ignition distributor



At the prescribed intervals:

Check with a feeler gauge the contact-breaker point gap:

S = .0138 to .0157 in. (.35-.40 mm)

Adjust by means of screw **2** if necessary.
If contacts are burnt or pitted, they may be smoothed with a very fine file and then cleaned with petrol.
Soak the felt **1** with oil.

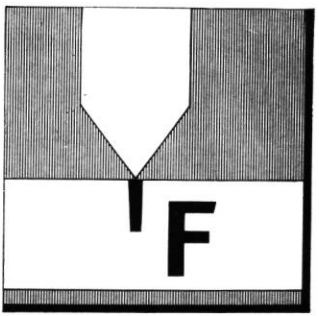
Apply some drops of oil through the lubricator **3**.
Lightly smear the distributor cam with grease.

Check the inside of the distributor cap for any sign of moisture, carbon deposits or cracks. Check also the central power electrode for free movement in its seat, and that spring action is effective. At last, check the rotor arm for proper insulation and terminals on brush and cap for good operating conditions.

Checking the ignition timing

To check the ignition timing, proceed as follows:

- rotate the crankshaft to bring no. 1 cylinder piston to the compression stroke, that is with both valves closed;
- by slightly rotating the crankshaft, bring the fixed advance mark **F** cut in the drive pulley into line with the reference plate;
- remove the distributor cap and check that the contact-breaker points begin to open when the engine is turned further in its normal direction of rotation.

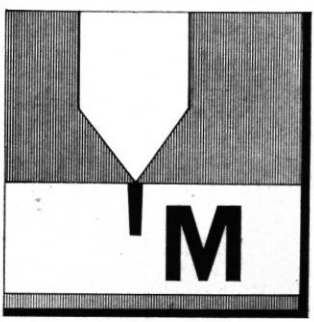


FIXED ADVANCE

2°/4° BTDC

A more accurate check can be made with a **stroboscopic gun** as follows:

- run the engine at about 5,000-5,300 r.p.m. and direct the light from the stroboscopic gun onto the pulley;
- if the timing is correct, the **M** (max. advance) stamped on the pulley will be seen in line with the reference plate;
- if it is found that the max. advance is greater or less than the prescribed value, adjust the fixed advance accordingly, as it is better to have correct timing at high speeds.



MAX. ADVANCE

40°/43° BTDC at 5000 rpm

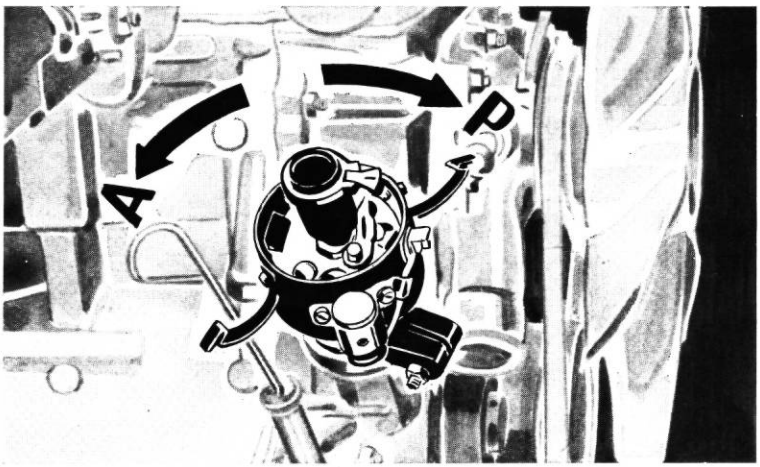
Timing adjustment

If the timing requires adjustment proceed as follows:

1 unscrew the nut on the bolt securing the distributor body;

2 rotate the distributor body anti-clockwise or clockwise according to whether it is necessary to advance **A** or to retard **P** the ignition setting;

3 retighten the nut, taking care not to move the distributor body.



Timing after removal of distributor from engine

To re-set the timing after the distributor has been removed from the engine proceed as follows:

1 rotate the crankshaft to bring No. 1 piston to the compression stroke, that is with both valves closed;

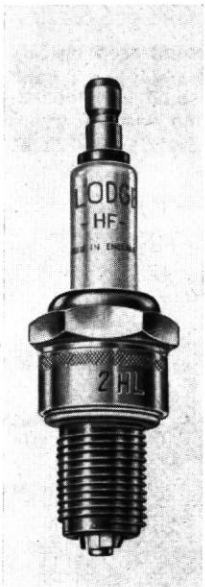
2 by slightly rotating the crankshaft, bring the fixed advance mark **F** into line with the reference plate;

3 remove the distributor cap and rotate the drive shaft by hand to bring the rotor arm in line with the contact for No. 1 cylinder.

4 make sure that in this position the contact-breaker points are about to open;

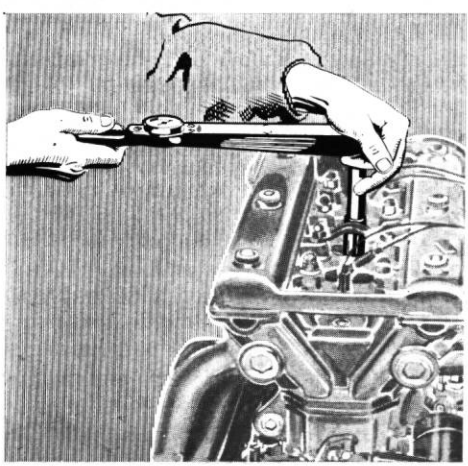
5 then without disturbing the drive shaft, mount the distributor on its bracket and tighten the distributor bracket bolt.

6 check the ignition timing as described in the previous page.



Spark plugs:
LODGE 2 HL

The spark plugs are of the type with four points and a central electrode.
The only maintenance required is occasional cleaning with a brush of the central and earth electrodes.
No routine adjustment is necessary of the gap between the electrode and points.



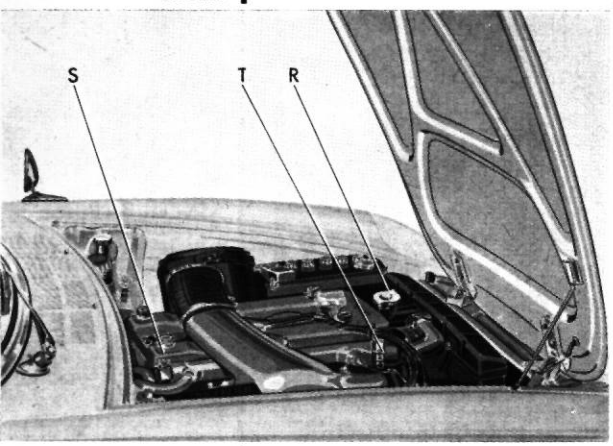
The spark plugs should be tightened when cold to a torque of **18-25.3 ft. lbs (2.5-3.5 kgm)**; lubricate the threads with graphite grease before fitting.

Engine maintenance

Water pump

Engine cooling is assured by forced water circulation, by means of a centrifugal pump.
The water pump built into the fan bracket is driven by the belt which drives both the fan and the generator.

Cooling circuit



S Air bleed screw

R Radiator cap

T Thermostat

The thermostat **T** is fitted in the water outlet hose between the cylinder head and the radiator.

To ensure the rapid warming-up of the engine, the thermostat must not open until the water has reached the prescribed temperature of **180°-189 °F (82°-87 °C).**

As it is possible for the water to reach a temperature of 212°-221 °F (100°-105 °C) the cooling system including the radiator is under pressure.

Should excessive water consumption occur, make sure that there are no leaks from the rubber hoses: also check the radiator cap, and make sure that the spring, the rubber seal and the valve are in good order. In case of doubt replace the cap.

Cleaning the system

To ensure the efficient operation of the cooling system, it is recommended that the radiator and engine be flushed out periodically to remove scale and other deposits. Proceed as follows:

- thoroughly drain off water from the engine and radiator;
- fill the engine and radiator with a solution of about 1.8 Imp. gals — 2.1 U.S. gals (8 litres) of water and 10.6 ozs (300 gr.) of sodium bicarbonate;
- run the engine slowly for 10-15 minutes;
- drain off the solution;
- allow the engine to cool down and then circulate running water while leaving the drain cock open;
- refill the engine and radiator with water and run the engine slowly for a few minutes;
- drain the circuit once more.

It is advisable to flush the cooling circuit as described above before adding antifreeze.

Refilling the system

When refilling the cooling system after draining it completely, the following procedure should be observed to ensure that the circuit is completely filled:

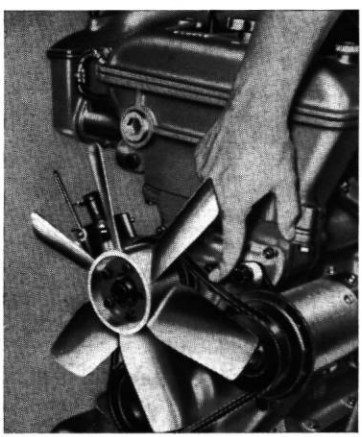
- loosen the air bleed screw in the cooling circuit (14 mm - 9/16" hex. wrench);
- check that the heating system is in operation making sure that the TEMPERATURE control lever is in the **MAX.** position (see page 18);
- fill the cooling system with water, making sure that all the air is bled from the bleed screw from which water should appear;
- retighten the bleed screw;
- return the TEMPERATURE control lever to the **MIN.** position.

Adjusting the tension of fan, water pump and generator driving belt

If the tension is insufficient, the belt will slip and wear prematurely; furthermore:
the cooling action will be affected because of the reduced speed of the fan and water pump;
the battery charging current will be reduced owing to the slower generator speed.

If the tension is excessive, the generator and water pump bearings will be overloaded with the consequent risk of damage.
Therefore it is necessary to check the belt tension at the prescribed intervals.

The tension is correct when on pressing the belt down the amount of play is approximately 1/2 in. (1-1.5 cm).



Checking

To tighten the belt unscrew the nut on the adjusting arm pivot pin, the nut of the securing bolt and move the generator outwards.
Carefully retighten the nuts after adjusting the belt tension.

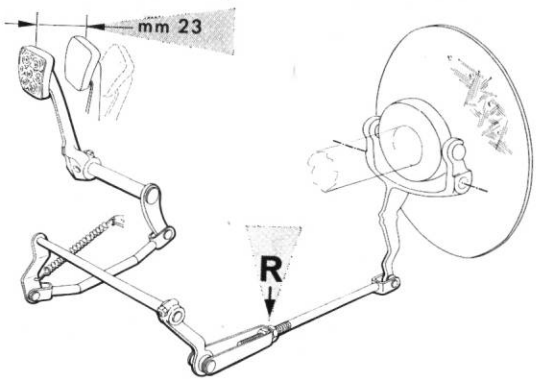
The clutch is of the single plate dry type. Its operation is ensured by 9 helical springs.

Pedal free travel

The pedal should move through:

a free travel of approximately 1 inch. (23 mm)

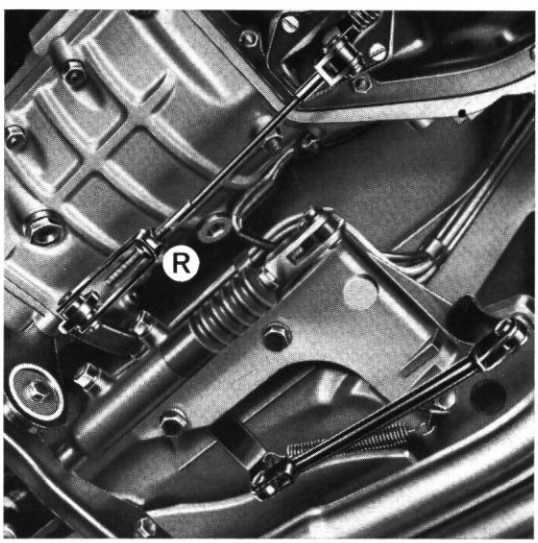
before actual disengagement begins.



Adjusting the pedal free travel

When, owing to wear on the clutch disc facing, the pedal free travel is reduced to **1/2 inch** (10-12 mm) the free travel must be restored by means of the adjusting rod.

This is done by means of the adjusting nut **R**.

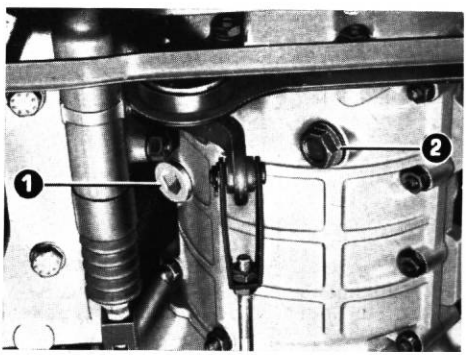


The gearbox has 5 synchromesh forward gears, and one reverse.
The gear lever is floor mounted.

Transmission ratios

1st	3.30 : 1
2nd	1.99 : 1
3rd	1.35 : 1
4th	1.00 : 1
5th	.79 : 1
Reverse	3.01 : 1

Any inspection or adjustment of the gearbox must be done only by an **authorized Alfa Romeo Service Station.**



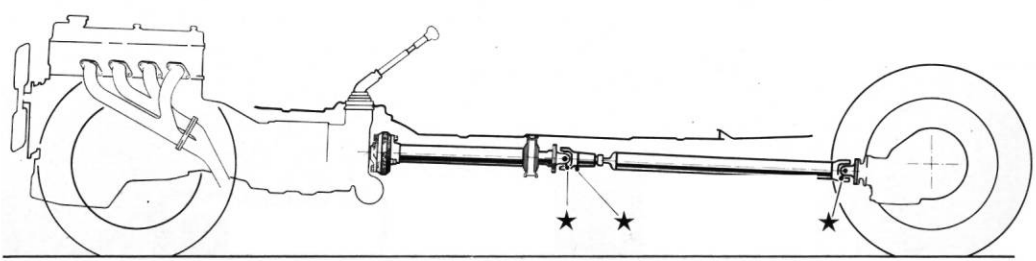
1 **Filler plug**
Check that gearbox is full of oil to the bottom edge of the filler orifice.

2 **Drain plug**

PROPELLER SHAFT

The propeller shaft is in two sections and has an intermediate flexible support attached to the body.
The front shaft is provided with a rubber coupling at the gearbox end; a universal joint is provided at each end of the rear shaft.

★ **Grease the universal joints and the sliding yoke at the scheduled intervals.**



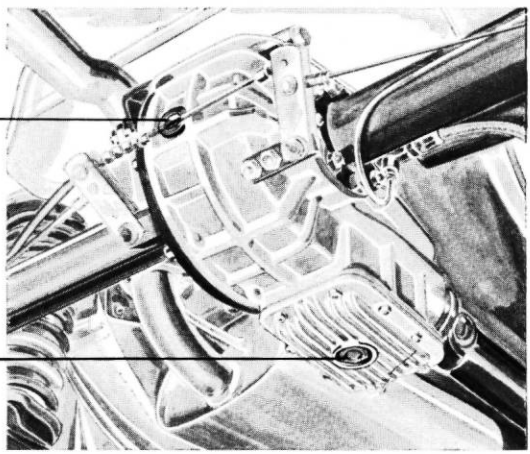
The rear axle is attached longitudinally to the supporting structure by means of two radius rods with rubber bushes at the ends; transverse attachment is effected by means of an upper reaction trunnion with arms hinged to the body and to the rear axle through rubber bushes. The final drive is of the hypoid type.

Overall ratios

with **41 : 9** final drive

in 1st	**15.049 : 1**
in 2nd	**9.055 : 1**
in 3rd	**6.172 : 1**
in 4th	**4.555 : 1**
in 5th	**3.603 : 1**
in Reverse	**13.710 : 1**

Check oil level or change the oil at the prescribed intervals.



Filler plug. Check that gearbox is full of oil to the edge of the filler orifice.

Drain plug

REAR SUSPENSION

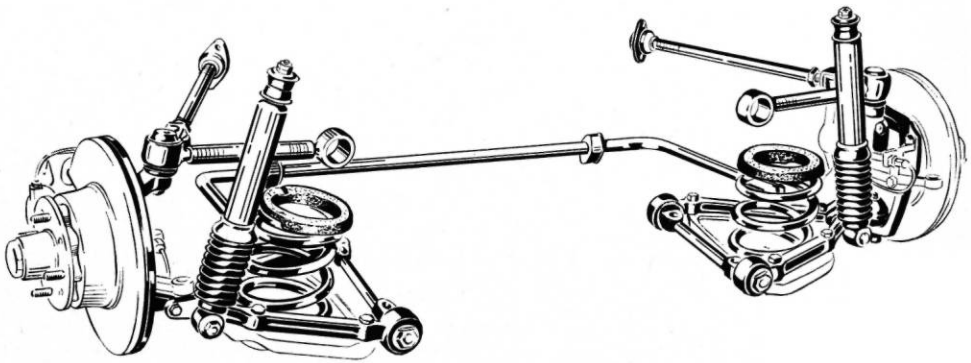
The rear suspension consists of coil springs and large diameter telescopic shock absorbers coaxial with the springs.

The upward movement of the rear axle is limited by a rubber pad and the rebound by a fabric and rubber strap.

The suspension units do not require any regular lubrication. Whenever the damping action of the shock absorbers is uneven, have them checked by an authorized Service Station.

FRONT SUSPENSION

The front wheels are independently suspended and connected to the body by transverse arms.

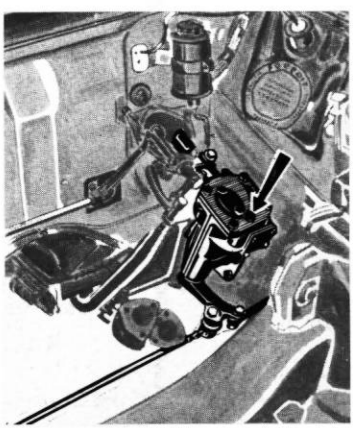


Suspension components require no regular lubrication being provided with special seals that retain the grease packed in on assembly.

Whenever the damping action of the shock absorbers is uneven, have them checked by an authorized Service Station.

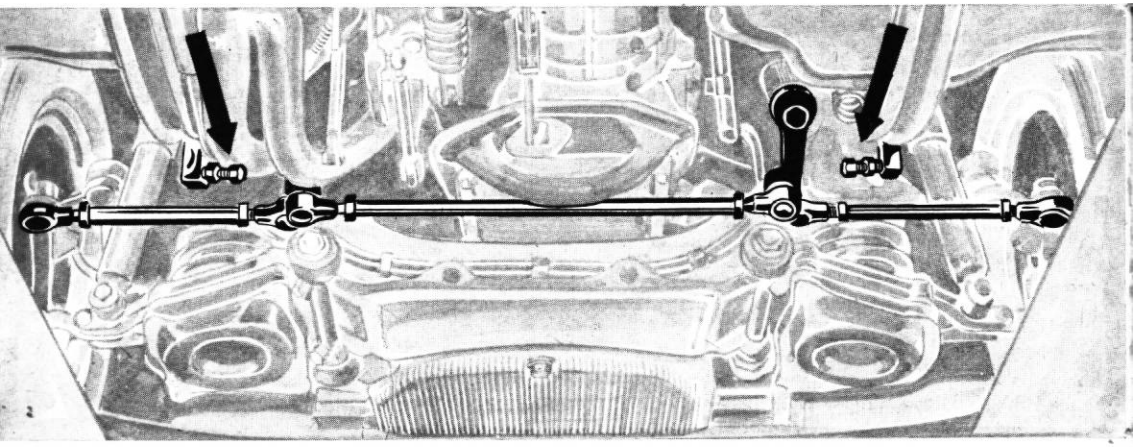
STEERING GEAR

This models is produced alternatively with steering of the worm and roller or recirculating ball type.



At the prescribed intervals check:
the oil level in the steering box (by removing the plug shown in the figure);
the steering linkage joints for play;
the worm and roller for play.
The steering of the recirculating ball type does not require any regular adjustment.

The ball and socket joints of the rods **do not require any lubrication.** The turning circle may be adjusted by means of the screws indicated in the diagram.



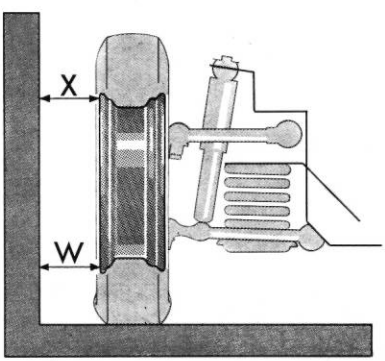
FRONT WHEELS

To avoid uneven and premature tyre wear, and to ensure positive and stable steering, front wheel toe-in and camber must be set to the prescribed values.
At the prescribed intervals check and adjust the toe-in.
Check the camber.
In order to obtain the correct results these checks should be carried out by specialized mechanics using suitable equipment.
It is recommended that this operation should be entrusted to an autorized Service Station.

Camber check

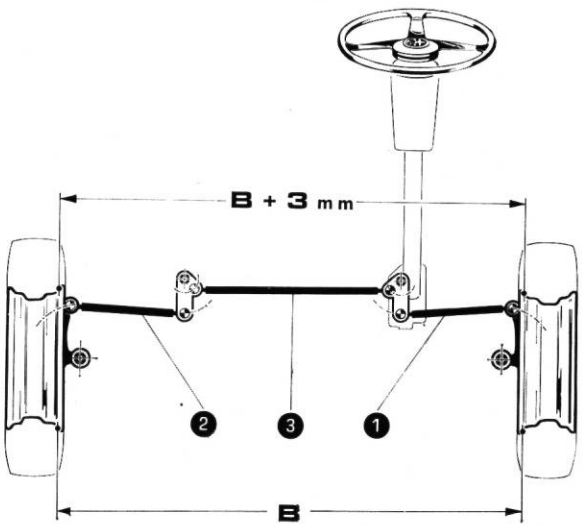
With the car loaded as prescribed the reading should be:

W = X + 5 mm (.2″)



Toe-in

With the car loaded as prescribed:



3 mm = .12″

Toe-in adjustment

Bring and lock steering wheel in the central position, i.e. with the spokes symmetrically disposed in relation to the vertical;

starting with the track rod **1** on the steering box side, place the corresponding wheel in the straight-ahead position (toe-in nil);

measure the length thus obtained of the track rod on the steering box side and adjust the arm **2** on the other side to the same length;

bring the right-hand wheel to the straight-ahead position by adjusting the center track rod **3**;

shorten both outer track rods **equally** until the prescribed toe-in is obtained.

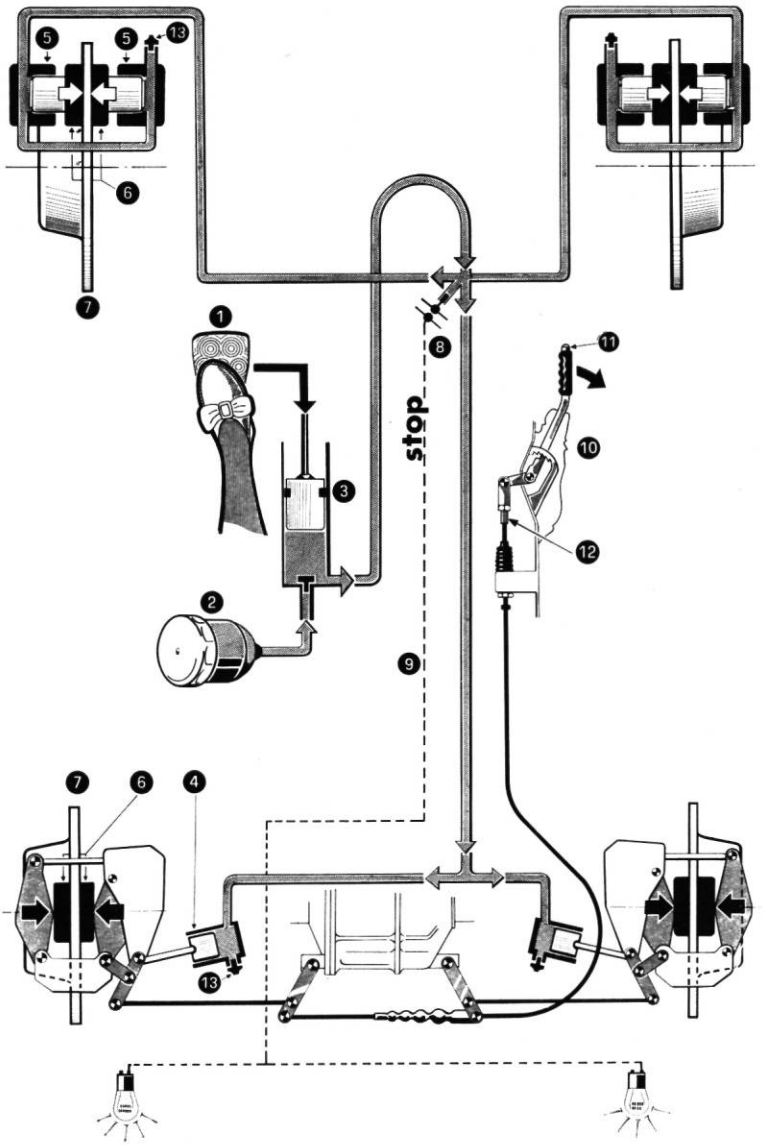
Length of track rods

As measured between ball joint centres, the length should fall within the following limits:

❶ ❷	**11.02 ± .3 in. (280 ± 8 mm)**	❸ **21.26 ± .4 in. (540 ±10 mm)**

It these values cannot be restored, the cause will probably be attributable to distortion of the body resulting from a collision.

Operating diagram

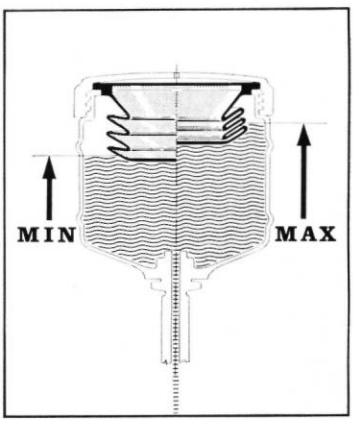


1 Brake pedal
2 Fluid reservoir
3 Master cylinder
4 Rear cylinders
5 Front cylinders
6 Friction pads
7 Discs
8 Stop light switch
9 Stop light cable
10 Hand brake handle
11 Hand brake handle release
12 Hand brake adjuster
13 Bleed screws

Hydraulic brake

The Dunlop hydraulic brake system consists of four caliper type disc brakes operated by a master cylinder. The friction pads of the front brakes are directly actuated by the cylinders integral with the calipers; the pads of the rear brakes are actuated through a pair of pressed steel levers by push rods connected to remote operating cylinders mounted on the rear axle.
The brake pads are automatically self-adjusting.

To maintain the brakes in good operating condition, follow the servicing instructions given below:



* Take care to prevent the **minimum level** of fluid in the reservoir from falling below the **max. level** by more a quarter.

* For renewal or topping up, it is absolutely essential to use only

Castrol Girling Brake Fluid Amber

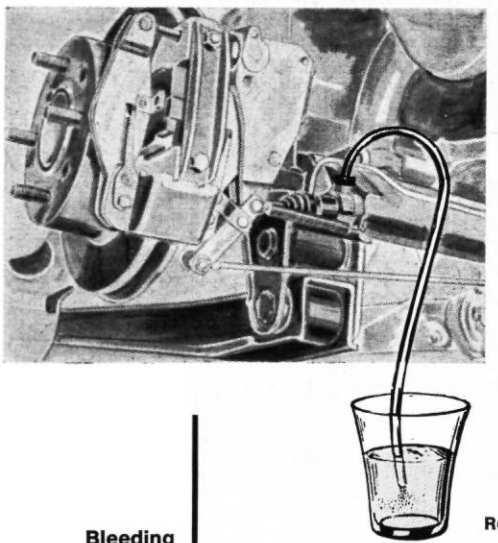
from freshly opened sealed containers. After topping up and before the reservoir cover is fitted, reassemble the reservoir sealing bellows making sure it is correctly positioned between body and cover.

* Renew the brake fluid at the prescribed periods. For effective and reliable operation of the brake system, the pipes must always be full of fluid and free of air bubbles.
Excessive and spongy brake pedal action is an indication of the presence of air bubbles in the system.
Compressed air must not be used for replenishing the system.
Should flushing of the brake circuit be required, use exclusively fluid of the specified type.

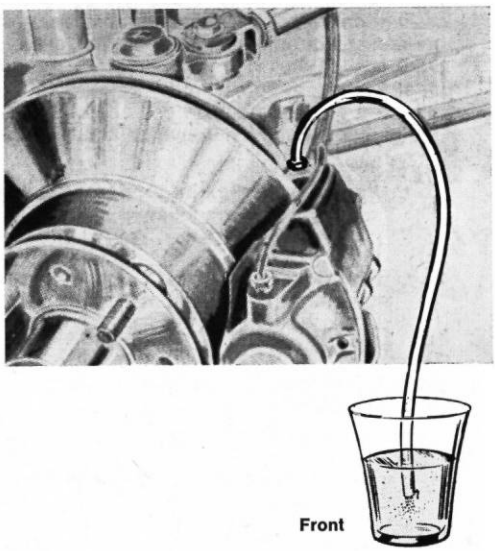
Compressed air or alcohol must on no account be used to dry a flushed system.

Hand brake (for parking and emergency)

The hand brake is mechanically-operated and acts directly on the rear brake pads.
No regular adjustment is required, as the pre-set running clearance is maintained automatically.
A slack hand brake linkage is adjusted by means of the adjusting nut; the hand brake is correctly adjusted when the wheels become locked as the handle is drawn through half its total travel.



Rear



Front

Bleeding of air

Bleeding should be executed with the greatest care observing the following instructions:

❶ Fill be reservoir, if necessary, with the genuine fluid freshly drawn from sealed containers; during bleeding operations take care that the fluid level does not drop below the full level by more than a quarter.

❷ Commence bleeding at the rear brakes as follows:
Place a rubber pipe over the bleed screw placing the other end in a glass container to collect the fluid.
Slacken off the bleed screw.
Depress the brake pedal several times allowing it to return slowly until the pipe discharges fluid free from air bubbles.
Hold the pedal down and tighten the bleed screw.

✻ If the bleeding has been carefully performed it will be found that when the brake pedal is pressed a firm and direct action on the fluid can be felt, immediately at the end of the free travel.
If not, repeat the procedure.

Friction pad inspection and replacement

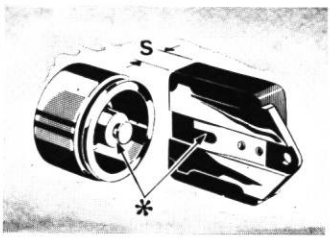
To be carried out with the wheels removed.

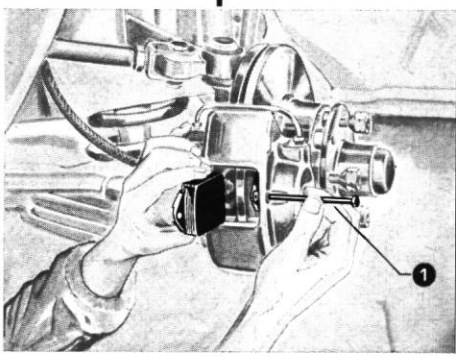
Front brakes

Withdraw the pin **1** and take the pads out.

Thickness **S**
new
.64 in. (16 mm.)

wear limit
.32 in. (8 mm.)
REPLACE





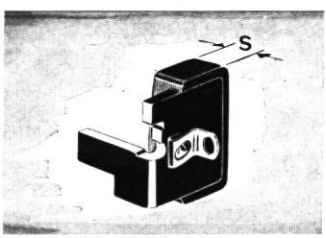
Before inserting the pads return the pistons to the bottom of cylinders taking care not to damage the dust excluders.
Insert the pad assemblies in the calipers ensuring that the clip properly locates in the retaining groove on piston *.

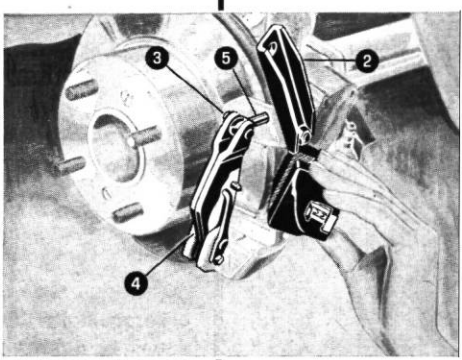
Rear brakes

Unlock and swing out the cap **2** and remove the pads.

Thickness **S**
new
.69 in. (17.5 mm.)

wear limit
.40 in. (10 mm.)
REPLACE





To insert new pads withdraw the hinge pin **3** and pull levers **4** apart until new pads can be inserted. Unscrew the cross bolt **5** in anticlockwise direction until holes for hinge pin **3** are aligned; then slide the pin in and secure with the cotter pin.
Refit cap **2** and lock in place.

Bedding down

Bed down the pads by applying the brake pedal a few times.

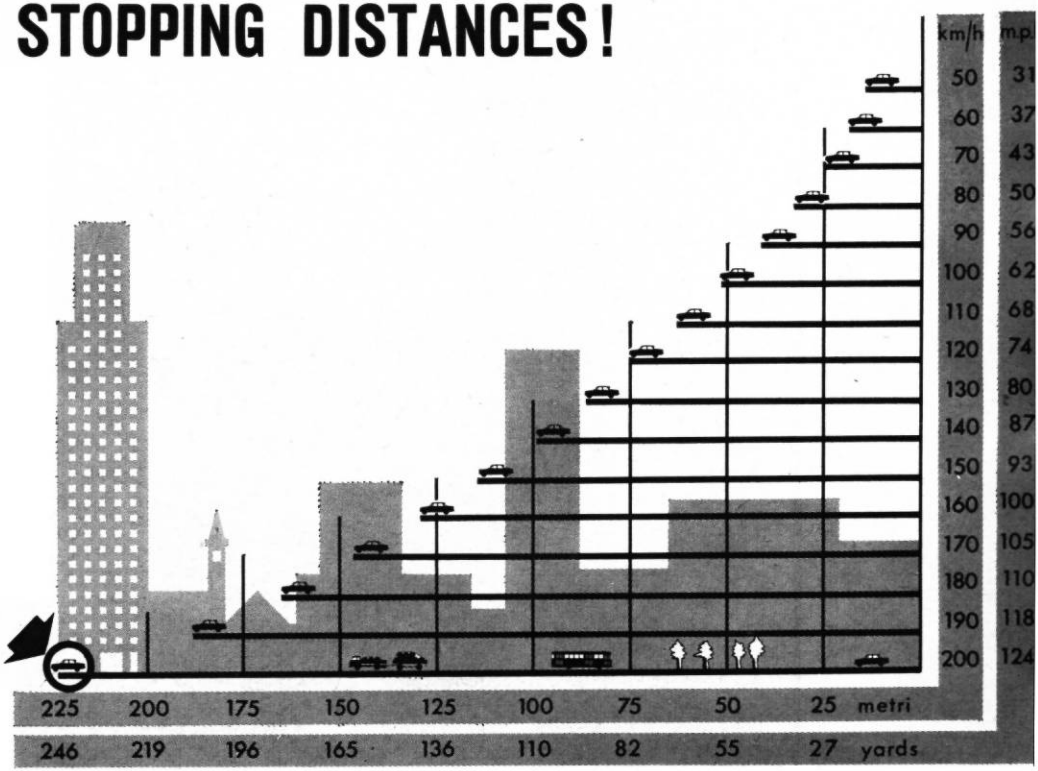
Cleaning instructions

To clean the outside of the brake assemblies use a suitable household detergent in hot water; then thoroughly dry all components with compressed air.

Never use petrol, trichloroethylene or similar solvents to clean the brakes as these substances are detrimental to the rubber seals.

When cleaning the underside of car or while washing the body, it is recommended to mask off the brakes and to avoid striking violently the brake components with jets of water.

STOPPING DISTANCES!



The distance in which the car can be brought to a stop after application of the brakes increases considerably as the speed increases; the distance also varies according to the road surface, and it is much greater when the road is wet or slippery.

The diagram shows stopping distance for various speeds based on ideal conditions, i.e. flat, dry, asphalt roads, good tyres, well adjusted brakes and loads properly distributed over the car.

For safety's sake always bear these stopping distances in mind at all times.

The dimensions of the pressed steel wheels are:

4½ J × 15

Wheel removal

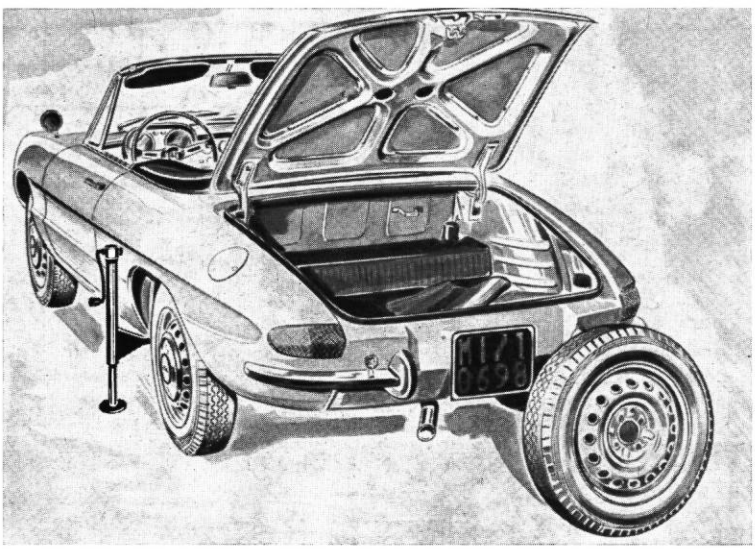
Raise the car by inserting the jack arm in the special socket on the underside of the body longitudinal member.
Before operating the jack, apply the handbrake.

Left-hand wheels: turn the nuts clockwise to unscrew.

Right-hand wheels: turn the nuts anti-clockwise to unscrew.

Wheel replacing

Tighten the nuts carefully in diagonal order. **Check again tightness of nuts after lowering the jack.**



Maintenance

At the prescribed intervals, adjust the front wheel bearings and pack with grease, if necessary.

Have this operation performed with the greatest care and by skilled operators and the aid of the suitable equipment.

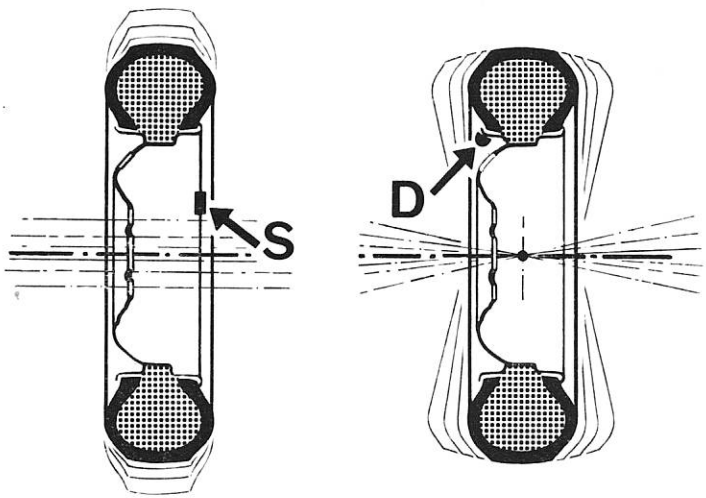
The rear wheel bearings being pre-packed and sealed do not require lubrication.

Each wheel, complete with its tyre, is statically and dynamically balanced at the factory.

Whenever a tyre is changed, the wheel must be rebalanced.

It should be remembered that unbalanced wheels cause unstable steering, abnormal steering gear wear and uneven tyre wear.

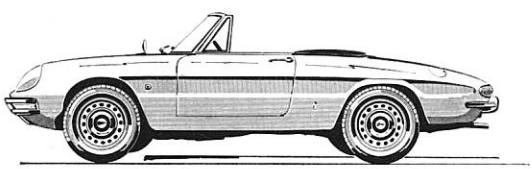
Balancing



Balance weight location

S Static **D** Dynamic

TYRES



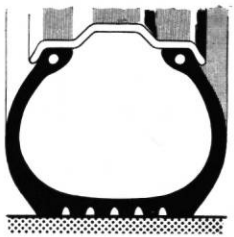
Inflation pressures when cold

24 p.s.i. (1.7 kg/cm²) **24 p.s.i.** (1.7 kg/cm2)	**24 p.s.i.** (1.7 kg/cm²) **26 p.s.i.** (1.8 kg/cm²)	**PIRELLI** **MICHELIN**	With reduced load & occasional short bursts of maximum speed.
27 p.s.i. (1.9 kg/cm²) **26 p.s.i.** (1.8 kg/cm2)	**27 p.s.i.** (1.9 kg/cm²) **30 p.s.i.** (2.1 kg/cm²)	**PIRELLI** **MICHELIN**	With full load and continuous maximum speed on MOTORWAY.

Pressure

The tyre gives optimum performance, the tread works over its entire width, thus ensuring **uniform tyre wear and long life.**

YES

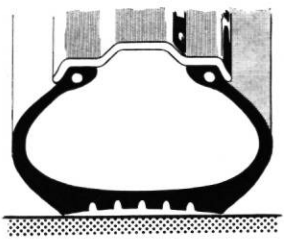


Correct

Too low

The tyre will overheat: **the sides of the tread will wear quickly** and the **tyre plies will tend to separate.**

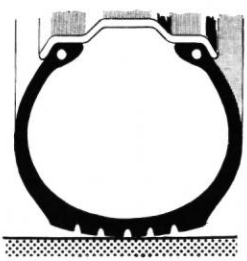
NO



Too high

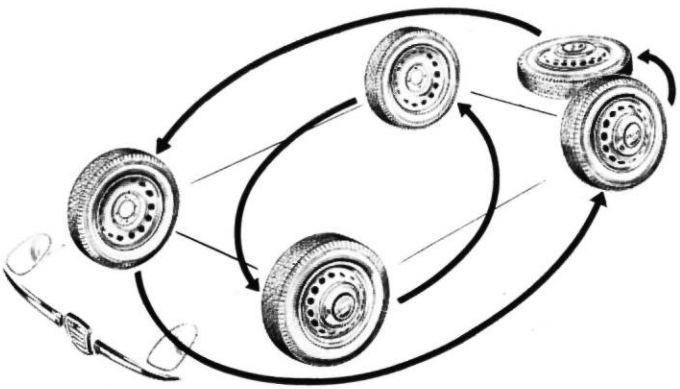
Riding confort will be reduced, and the tyre will suffer **from excessive wear in the centre of the tread and vulnerability to knocks.**

NO

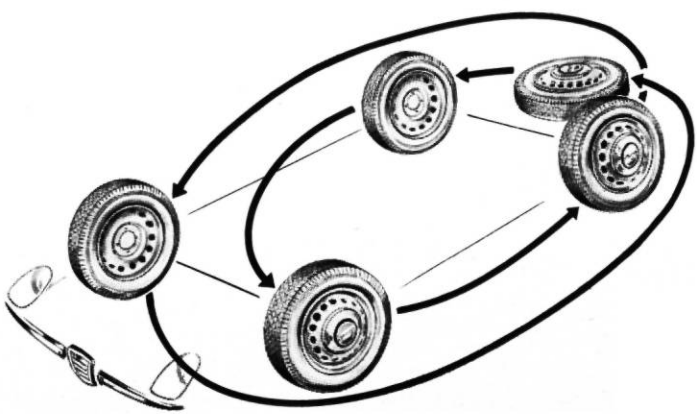


Changing over

To ensure even and uniform tyre wear and long tyre life, front and rear wheels and the spare should be changed over **at the prescribed intervals.**



Michelin diagram



Pirelli diagram

Body maintenance

Washing the car

The body should be washed frequently depending on the use of the car, the environmental conditions and, the state of the roads. Moreover the lighter is the finish paint shade the more frequent should be the washing.
Avoid washing the car in the sun and proceed as follows:
— first flush the car all over with jets of water to remove the dust;
— prepare a solution of suitable detergent in water (.2% in weight);
— with the solution and a sponge wipe down the whole body;
— rinse thoroughly with plenty of water;
— dry with compressed air, if possible, then with chamois leather.
Note: for cleaning the outside of brakes refer to page 54.

Polishing

To put fresh gloss on the paintwork, polish once or twice a year with a polish suitable for synthetic or nitrocellulose paint, according to the type of paintwork on the car.
On the chromework use petrol to remove grease and a suitable compound to take out any scratches.
Use only woollen cloth for polishing.
Do not use petrol or solvents on rubber mouldings and weatherstrips.
When refuelling or lubricating, be careful not to splash petrol or brake fluid on the paintwork.

Cleaning the windows

Use only a very soft cloth or chamois leather for cleaning the windshield and windows. If the panes are very dirty, use windshield washer fluid. To clean the plexiglass parts (rear window, headlamp glass, ecc.) use a solution of a shampoo in water (.2-.5% in weight). Do not use solvents or similar.

Removing stains

Grease, oil and tar stains may be removed from the paintwork by applying petrol to the stained area, and then rubbing it with a dry cloth. If the tar deposits have hardened, use one of the many preparations available on the market.

Upholstery

Periodically dust the inside upholstery using a vacuum cleaner if possible.
To remove oil and grease stains, use diluted ammonia on the cloth parts, water with neutral soap on the artificial leather and vaseline on the leather.
Use trichloroethlylene or neutral soap to remove stains from the carpets.
The steering wheel and control knobs may be cleaned with petrol.
To clean the folding top use a solution of shampoo in water (.2-.5% in weight).

Laying the car up

If the car will be left unused for any length of time:

- drain all water from the engine radiator and heating system preferably while the engine is hot;
- empty the fuel tank, the fuel pump and the carburettor float chamber;
- clean the oil filter and the fuel filter;
- inject a little engine oil into the cylinders through the spark plug holes and rotate the crankshaft by hand several times in order to spread a film of oil over the cylinder walls;
- remove the battery, store it away from frost, and recharge it once a month;
- jack up the car, clean the tyres and slightly deflate them; if tyres are removed, dust them internally (and their tubes) with talcum powder; store them in a dark and airy but dry place;
- dust the seats and upholstery with moth preventive;
- cover the car with a dust sheet.

To avoid serious damage to the paintwork, do not use polyvinyl-type tarpaulins.

The battery water level should never be more than 3/16″ (4-5 mm) above the plates and must never leave them uncovered.

When filling up the battery, use only distilled water; never add acid.

Make sure that terminals are tight and are sufficiently coated with pure vaseline.

The state of charge can be checked by measuring the specific gravity of the electrolyte with a suitable hydrometer.

The specific gravity/charge ratio is as follows:

specific gravity 1.28 (32° Bé) . . . . . = battery charged;
specific gravity 1.23 (27° Bé) . . . . . = battery half charged;
specific gravity 1.11 to 1.14 (15° to 18° Bé) . . = battery discharged.

If distilled water has been added to a battery, the specific gravity should not be measured until mixing is complete; to facilitate mixing, charge the battery for 30 minutes.

In tropical climates where the temperature is nearly always above 30 °C (85 °F), the specific gravity of the electrolyte, when the battery is fully charged, must be lower than the normal figure, viz. 1.21 (25° Bé).

Regularly: Inspect commutator and brushes of generator and starting motor.

Fairing

The headlamps are provided with a transparent fairing. To remove it, loosen the screw **1** of the chromed retainer and remove the fairing. Retighten the screw **1**.
In place of the fairing a chromed rim, supplied with the car, can be fitted.
To install the rim properly, align the locating dowel with the lower outer hole in the edge of headlamp seat.
The rim is retained by snap springs.

Note: on cars for export to U.S.A the headlamps have chromed rims in place of the fairings. However, the fairings, supplied with the car, can be installed if permitted by local regulations.

Beam alignment

To align the beams, position the car, unloaded on level ground away from a screen perfectly vertical and check for dimension **A** as shown in the figure.

Proceed as follows:

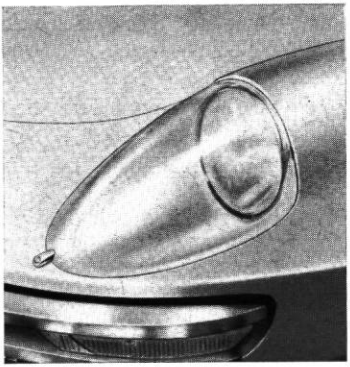
- remove the protecting cover by unscrewing the wingnut from the wheelhouse;
- align the beams by adjusting the proper wingnuts.

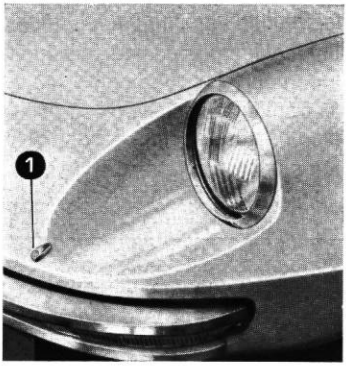
  V = Vertical alignment;
  O = Horizontal alignment.

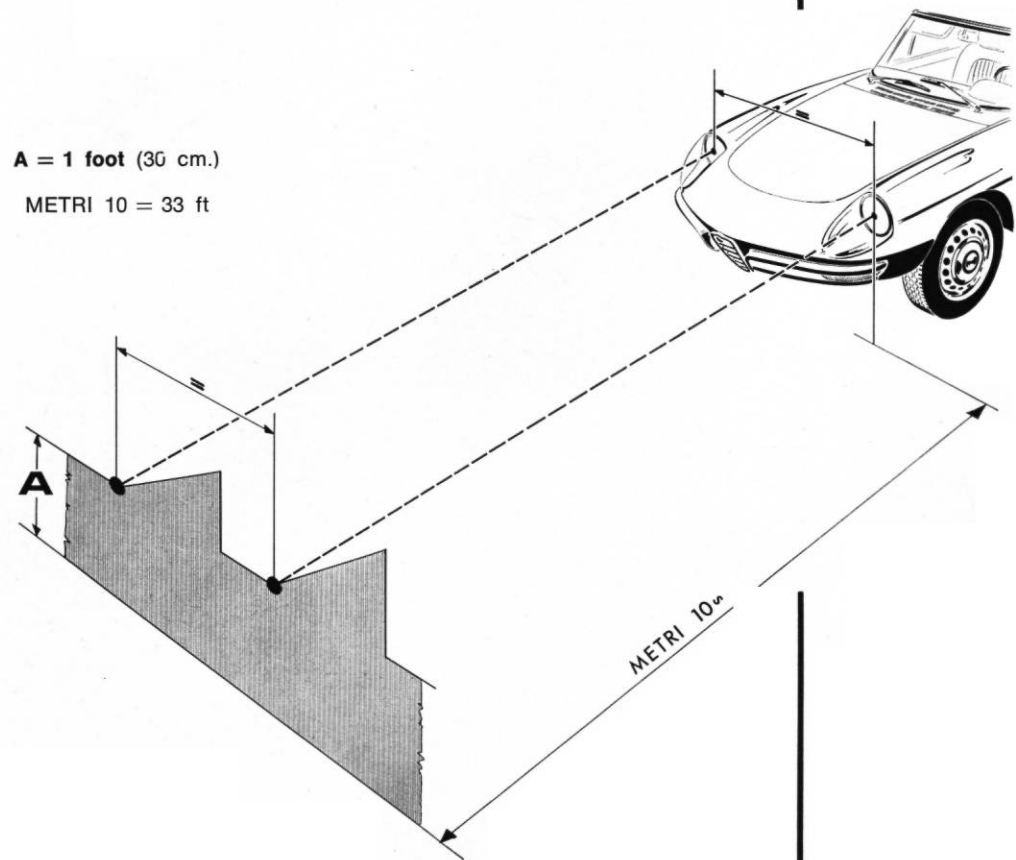
Replacing a bulb

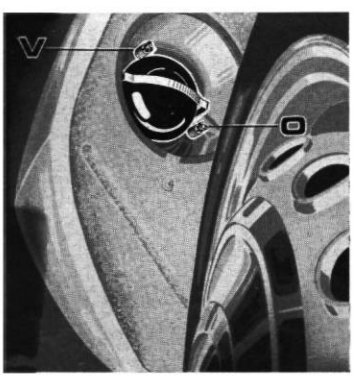
From the wheelhouse remove the following:

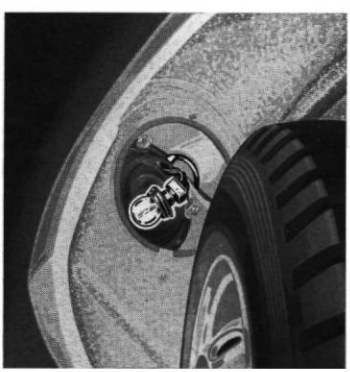
- the protective cover;
- the metal housing;
- the lamp holder after having disconnected the feed wire and the spring clips.



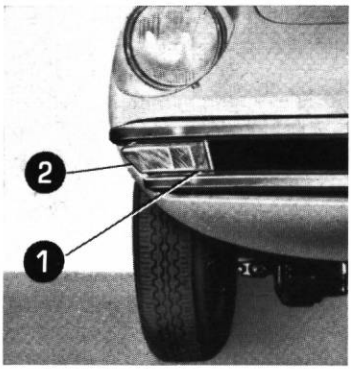



A = 1 foot (30 cm.)
METRI 10 = 33 ft
A
METRI 10


V
O



Front direction indicators and parking lights



1 Parking lights
2 Direction indicators (front)

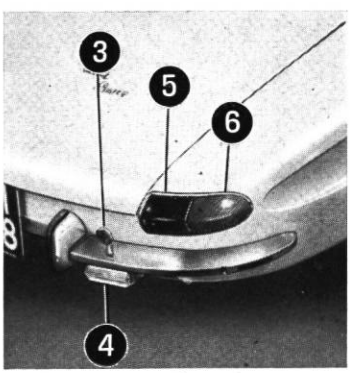
Direction indicators (side)

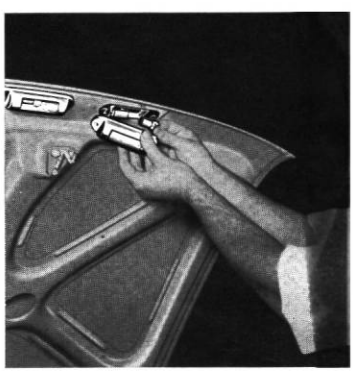
3 Reflectors
4 Reversing light
5 Parking and stop lights
6 Direction indicators (rear)

Number plate and boot lights

Tail direction indicators, parking and stop lights

Number plate and reversing lights





Wiring diagram

1 Battery . . . 12 V 50 Ah
2 Coil . . . . Bosch TK 12 A 19
3 Ignition distr. . Bosch JF 4
4 Starting motor . Bosch EF(R) 12 V .7 PS
5 Generator . . Bosch EG(R) 14V 25A 29
6 Voltage regulat. Bosch VA 14 V 25 A
7 Windshield wip. Bosch WS 13/11 T3 a
8 Warning horn
9 Relay
10 Flasher unit, directional
11 Fuel level indicator
12 Fusebox
12 Connections
13 Junction, single
14 Junction box
15 Blower motor
16 Terminal board
17 Cigar lighter
18 Oil pressure gauge sender
19 Water temperature gauge bulb

SWITCHES

20 Engine compartment light
21 Stop light
22 Reversing light
23 Foot switch for windscreen washer
24 Courtesy light (on rearview mirror)
25 Courtesy light (on door jambs)
26 Ignition
27 Panel light
28 Windshield wiper motor
29 Blower motor
30 Parking lights, headlamp and flashing
31 Direction indicator change-over
32 Warning horn

BULBS

33	High/low beams	45/40 watts asymmetric
34	Rear parking & stop light	5/20 watts
35	Front direction indicator .	20 watts
36	Rear direction indicator .	
37	Reversing light	
38	Front parking light . . .	5 watts globular
39	Side direction indicator .	
40	Number plate	
41	Engine compartment light	5 watts cylindrical
42	Courtesy light	
43	Panel light	3 watts tubular
44	Generator warning . . .	
45	Blower warning	
46	Fuel reserve warning . .	
47	Cigar lighter	
48	Direction indic. warning .	1.2 watts tubular
49	High beam warning . .	
50	Parking light warning . .	

CABLE COLOR CODE

AZ	blue	**GR**	grey	**RO**	pink
BI	white	**MA**	brown	**RS**	red
GI	yellow	**NE**	black	**VE**	green

The figure following the color code on the diagram shows the wire gauge in mm².

PLATE ON FUSEBOX

ACCENS.	SERVIZI MOTORE	SERVIZI VARI	SERVIZI VARI	SERVIZI VARI	LUCI CITTA'	ABB. SINISTRO	ABB. DESTRO	ANABB. SINISTRO	ANABB. DESTRO
IGNITION	ENGINE SIGNALS	OTHER ELECTRIC DEVICES	OTHER ELECTRIC DEVICES	OTHER ELECTRIC DEVICES	PARKING LIGHTS	L.H. HEAD LAMP	R.H. HEAD LAMP	L.H. DIPPED BEAM	R.H. DIPPED BEAM

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