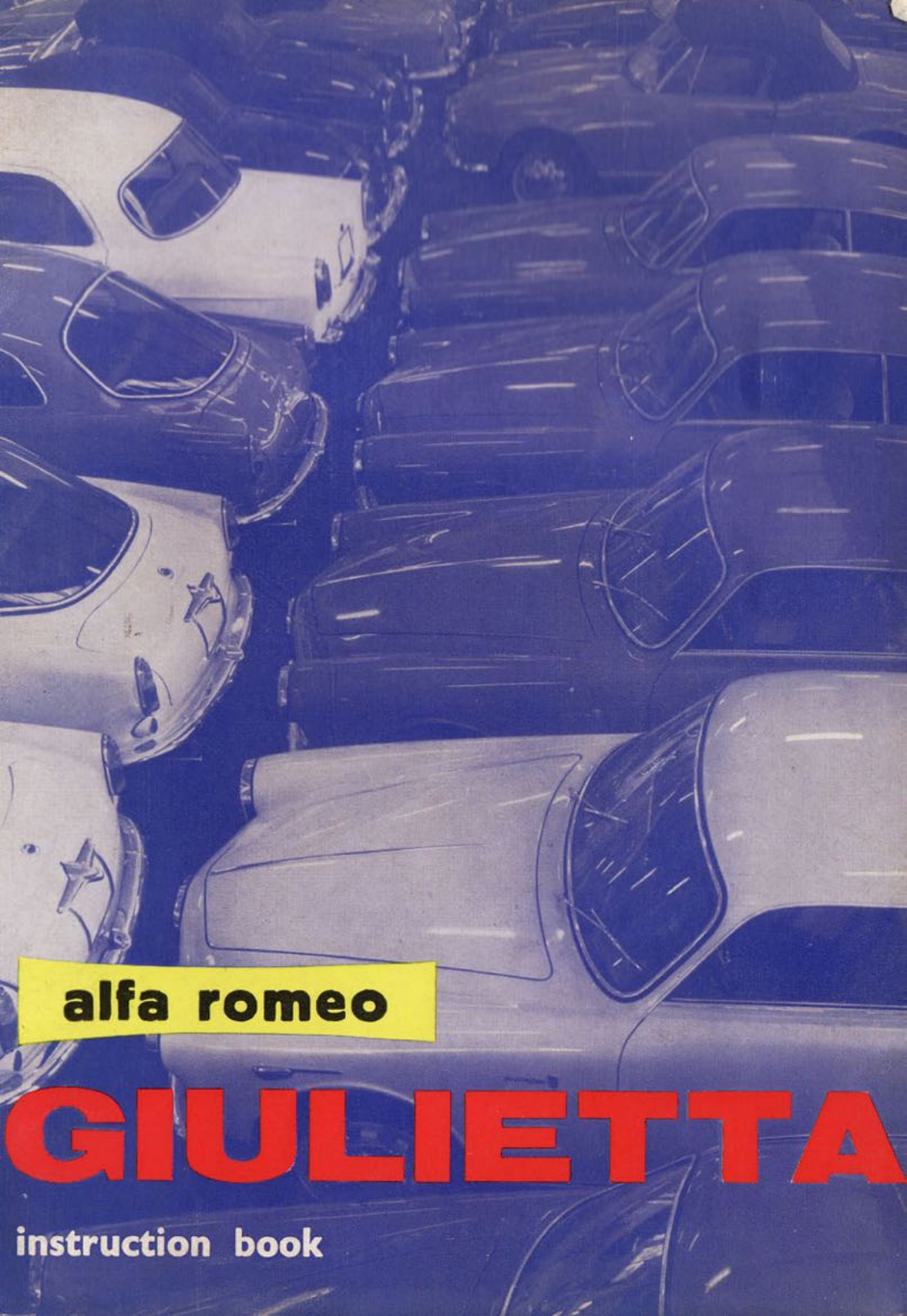


alfa romeo

GIULIETTA

instruction book

Water, fuel and oil

WATER, engine and radiator	7.5	litres	(13	pints)
FUEL:				
— Berlina and t.i.	40	litres	(8 3/4	Galls)
— Sprint, Spider, Spider Veloce	53	litres	(11 1/2	Galls)
— Sprint Veloce, Sprint Speciale, Sprint Zagato	80	litres	(17 1/2	Galls)

OIL:				
— ENGINE (sump and filter):				
Berlina and t.i.	approx. 5.5	kg	(9.6	pints)
Sprint and Spider	approx. 5.7	kg	(10	pints)
Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato	approx. 6.25	kg	(11	pints)
— GEAR-BOX:				
Berlina, t.i., Sprint, Spider	approx. 1.35	kg	(2.4	pints)
Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato	approx. 1.25	kg	(2.2	pints)
— REAR AXLE	approx. 1.25	kg	(2.2	pints)
— STEERING BOX	approx. 0.25	kg	(0.4	pints)

Keys

Make a careful note of the symbol stamped on the key handle. When ordering duplicate keys, **please quote the symbol;** duplicate keys will be supplied in a semi-finished state.

Ignition key:

SYMBOL .....

Keys to doors, dashboard locker, boot lid, fuel filler cover:

SYMBOL .....

Warning

The operation and maintenance instructions contained in this hand book **must be carefully observed** by every user who desires to get best from his vehicle and to ensure a long life for every component.

In his own interests the user is recommended to entrust all maintenance and repair work to an authorised Alfa Romeo Service Station, as such Stations are equipped with the proper tools and jigs and staffed by mechanics who are kept up-to-date by means of our factory instructions.

Users are reminded that Alfa Romeo cannot be responsible for any errors made by unauthorised service stations or for any damage resulting from the use of lubricants other than those recommended.

ALFA ROMEO
Direzione Assistenza Clienti

The data relating to weights, comsumption and speeds are approximate only; the Company reserves the right to modify, without warning, any features and data incorporated in the present handbook.

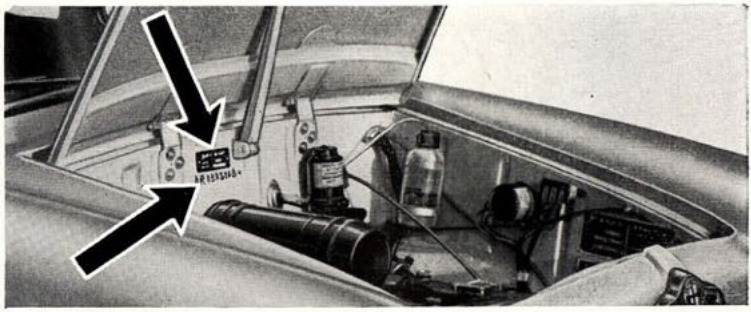
Index

Index

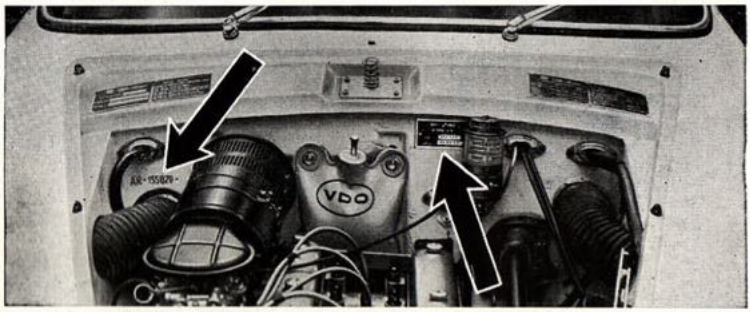
DATA PLATE AND CHASSIS NUMBER

Vehicle identification

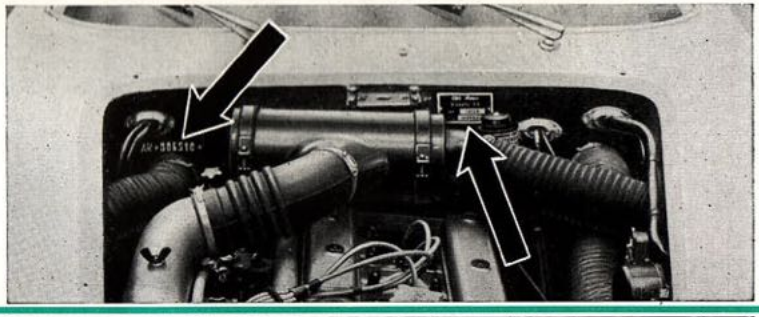
Berlina and t.i.



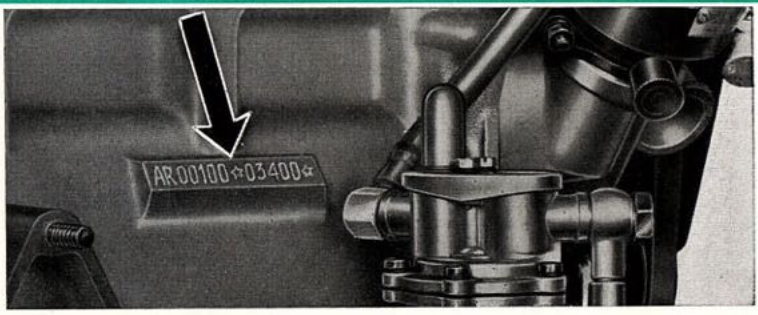
Sprint and Spider



Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato.



ENGINE NUMBER



Main features Instruments and controls

PART I

page

MAIN FEATURES:

CONTROLS AND INSTRUMENTS:

PARTE I

Main features

Engine

Chassis

Number and lay-out of cylinders	4 in line		
Bore and stroke	74 x 75 mm		
Total capacity	1290 cc		
Max. power at 5500 r.p.m.	53 CV (DIN) 60 HP (SAE)		
Front-wheel track	1292 mm.	4 ft.	3 ins.
Rear-wheel track	1270 mm.	4 ft.	2 ins.
Wheel-base	2380 mm.	7 ft.	8 ins.
Min. steering circle	11000 mm.	36 ft.	
Overall length	4033 mm.	13 ft.	4 ins.
Overall width	1555 mm.	5 ft.	1 ins.
Overall height	1405 mm.	4 ft.	7 ins.
Dry weight, incl. tools and jack	915 Kg.	18 cwt.	
Number of seats	4		
Tyres	155 - 15		

Fuel consumption

Per 100 km. (62,5 miles) to Italian CUNA standards	approx. 8.3 litres 1.825 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed
with **9 : 41** bevel coupling	1st	43 km/h 27 m.p.h.
	2nd	70 km/h 44 m.p.h.
	3rd	103 km/h 65 m.p.h.
	4th	140 km/h 87 m.p.h.
	reverse	43 km/h 27 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.

Main features

Engine

Chassis

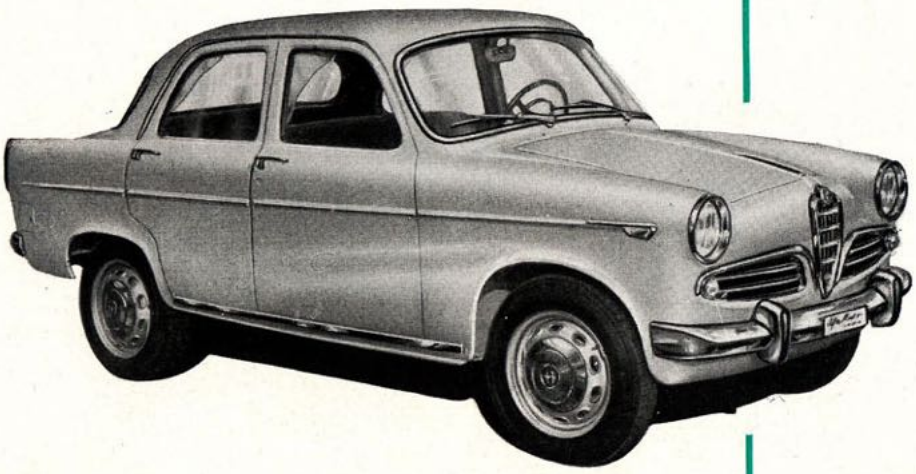
Fuel consumption

Performance after running-in period

Number and lay-out of cylinders	4 in line	
Bore and stroke	74 x 75 mm.	
Total capacity	1290 cc.	
Max. power at 6100 r.p.m.	65 CV (DIN) 74 HP (SAE)	
Front-wheel track	1292 mm.	4 ft. 3 ins.
Rear-wheel track	1270 mm.	4 ft. 2 ins.
Wheel-base	2380 mm.	7 ft. 8 ins.
Min. steering circle	11000 mm.	36 ft.
Overall length	4106 mm.	13 ft. 5 ins.
Overall width	1555 mm.	5 ft. 1 ins.
Overall height	1405 mm.	4 ft. 7 ins.
Dry weight, incl. tools and jack	920 Kg.	18 cwt. 12 lbs.
Number of seats	4	
Tyres	155 - 15	
Per 100 km (62.5 miles) to Italian CUNA standards	approx. 8. 5 litres	1.887 Imp. Gallons

	Gear	Maximum speed
with **9 : 41** bevel coupling	1st	47 km/h 29 m.p.h.
	2nd	78 km/h 49 m.p.h.
	3rd	114 km/h 71 m.p.h.
	4th	155 km/h 96 m.p.h.
	reverse	47 km/h 29 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.



Main features

Engine

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6300 r.p.m.	80 CV (DIN) 91 HP (SAE)

Chassis

Front-wheel track	1292 mm. 4 ft. 3 ins.
Rear-wheel track	1270 mm. 4 ft. 2 ins.
Wheel-base	2380 mm. 7 ft. 8 ins.
Min. steering circle	11000 mm. 36 ft.
Overall length	3980 mm. 10 ft. 7 ins.
Overall width	1535 mm. 5 ft.
Overall height	1320 mm. 4 ft. 4 ins.
Dry weight, incl. tools and jack	880 Kg. 17 cwt. 36 lbs.
Number of seats	2 + 2
Tyres	155 - 15

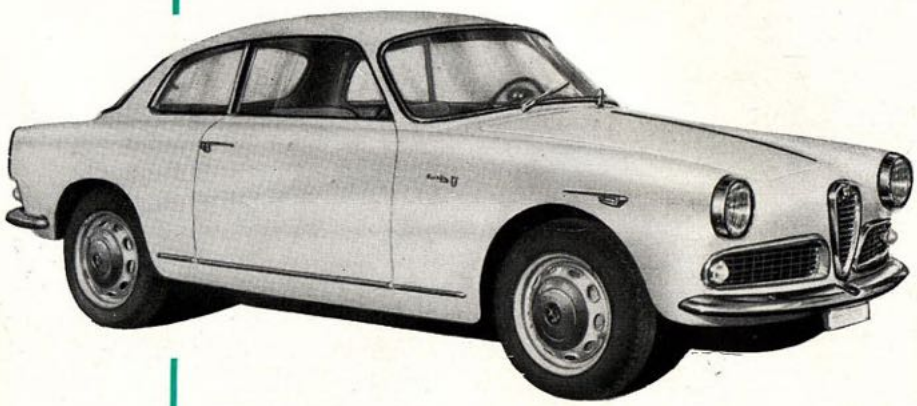
Fuel consumption

Per 100 km (62.5 miles) to Italian CUNA standards	approx. 9 litres 1.979 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed
with **9 : 41** bevel coupling	1st	50 km/h 31 m.p.h.
	2nd	83 km/h 52 m.p.h.
	3rd	121 km/h 75 m.p.h.
	4th	165 km/h 103 m.p.h.
	reverse	50 km/h 31 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.



Main features

SPIDER

Engine

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6300 r.p.m.	80 CV (DIN) 91 HP (SAE)

Chassis

Front-wheel track	1292 mm.	4 ft.	3 ins.
Rear-wheel track	1270 mm.	4 ft.	2 ins.
Wheel-base	2250 mm.	7 ft.	5 ins.
Min. steering circle	10000 mm.	32 ft.	8 ins.
Overall length	3900 mm.	12 ft.	8 ins.
Owerall width	1580 mm.	5 ft.	2 ins.
Overall height (raised hood)	1335 mm.	4 ft.	4 ins.
Dry weight, incl. tools and jack	860 Kg.	16 cwt.	104 lbs.
Number of seats	2		
Tyres	155 - 15		

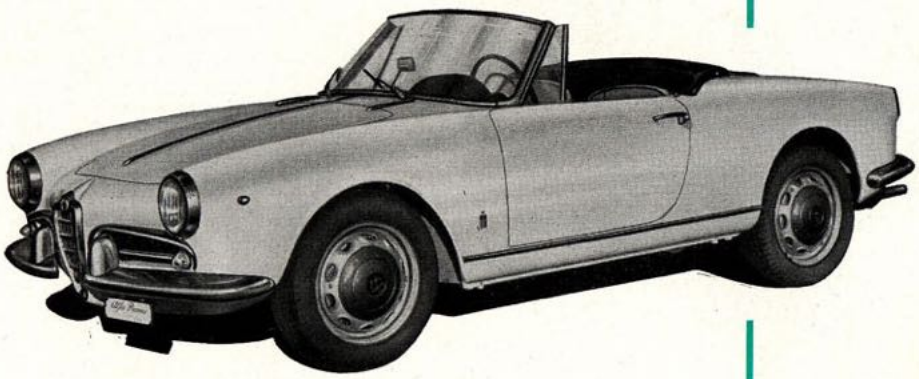
Fuel consumption

Per 100 km. (62.5 miles) to Italian CUNA standards	approx. 9 litres 1.979 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed	
with **9 : 41** bevel coupling	1st	50 km/h	31 m.p.h.
	2nd	83 km/h	52 m.p.h.
	3rd	121 km/h	75 m.p.h.
	4th	165 km/h	103 m.p.h.
	reverse	50 km/h	31 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.



SPRINT VELOCE

Main features

Engine

Chassis

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6500 r.p.m.	90 CV (DIN) 103 HP (SAE)
Front-wheel track	1292 mm. 4 ft. 3 ins.
Rear-wheel track	1270 mm. 4 ft. 2 ins.
Wheel-base	2380 mm. 7 ft. 8 ins.
Min. steering circle	11000 mm. 36 ft.
Overall length	3980 mm. 10 ft. 7 ins.
Overall width	1535 mm. 5 ft.
Overall height	1320 mm. 4 ft. 4 ins.
Dry weight, incl. tools and jack	895 Kg. 17 cwt. 69 lbs.
Number of seats	2 + 2
Tyres	155 - 15

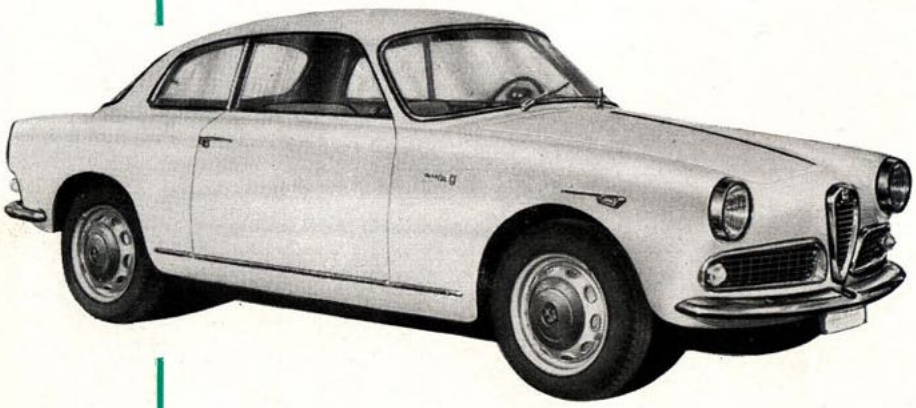
Fuel consumption

Per 100 km. (62.5 miles) to Italian CUNA standards	approx. 11 litres 2.419 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed
with **10 : 41** bevel coupling	1st	55 km/h 34 m.p.h.
	2nd	90 km/h 56 m.p.h.
	3rd	132 km/h 82 m.p.h.
	4th	180 km/h 112 m.p.h.
	reverse	55 km/h 34 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.



Main features

SPIDER VELOCE

Engine

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6500 r.p.m.	90 CV (DIN) 103 HP (SAE)

Chassis

Front-wheel track	1292 mm. 4 ft. 3 ins.
Rear-wheel track	1270 mm. 4 ft. 2 ins.
Wheel-base	2250 mm. 7 ft. 5 ins.
Min. steering circle	10000 mm. 32 ft. 8 ins.
Overall length	3900 mm. 12 ft. 8 ins.
Overall width	1580 mm. 5 ft. 2 ins.
Overall height (raised hood)	1335 mm. 4 ft. 4 ins.
Dry weight, incl. tools amd jack	865 Kg. 17 cwt. 3 lbs.
Number of seats	2
Tyres	155 - 15

Fuel consumption

Per 100 km. (62,5 miles) to Italian CUNA standards	approx. 11 litres 2.419 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed
with **10 : 41** bevel coupling	1st	55 km/h 34 m.p.h.
	2nd	90 km/h 56 m.p.h.
	3rd	132 km/h 82 m.p.h.
	4th	180 km/h 112 m.p.h.
	reverse	55 km/h 34 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.

SPRINT SPECIALE

Main features

Engine

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6500 r.p.m.	100 CV (DIN) 114 HP (SAE)

Chassis

Front-wheel track	1292 mm. 4 ft. 3 ins.
Rear-wheel track	1270 mm. 4 ft. 2 ins.
Wheel-base	2250 mm. 7 ft. 5 ins.
Min. steering circle	10000 mm. 32 ft. 8 ins.
Overall length	4120 mm. 13 ft. 6 ins.
Overall width	1660 mm. 5 ft. 5 ins.
Overall height	1245 mm. 4 ft. 1 ins.
Dry weight, incl. tools and jack	860 Kg. 16 cwt.104 lbs.
Number of seats	2
Tyres	155 - 15

Fuel consumption

Per 100 km. (62.5 miles) to Italian CUNA standards	approx. 11.5 litres 2.527 Imp. Gallons

Performance after running-in period

	Gear	Maximum speed
with **9 : 41** bevel coupling	1st	52 km/h 32 m.p.h.
	2nd	86 km/h 54 m.p.h.
	3rd	126 km/h 79 m.p.h.
	4th	171 km/h 106 m.p.h.
	5th	200 km/h 124 m.p.h.
	reverse	52 km/h 32 m.p.h.

Do not exceed the speeds mentioned above for each gear or mechanical damage may result.

Main features

Engine

Number and lay-out of cylinders	4 in line
Bore and stroke	74 x 75 mm.
Total capacity	1290 cc.
Max. power at 6500 r.p.m.	100 CV (DIN) 114 HP (SAE)

Chassis

Front-wheel track	1292 mm. 4 ft. 3 ins.
Rear-wheel track	1270 mm. 4 ft. 2 ins.
Wheel-base	2250 mm. 7 ft. 5 ins.
Min. steering circle	10000 mm. 32 ft. 8 ins.
Overall length	3920 mm. 12 ft. 8 ins.
Overall width	1540 mm. 5 ft.
Overall height	1250 mm. 4 ft. 1 ins.
Dry weight, incl. tools and jack	770 Kg. 15 cwt. 17 lbs.
Number of seats	2
Tyres	155 - 15

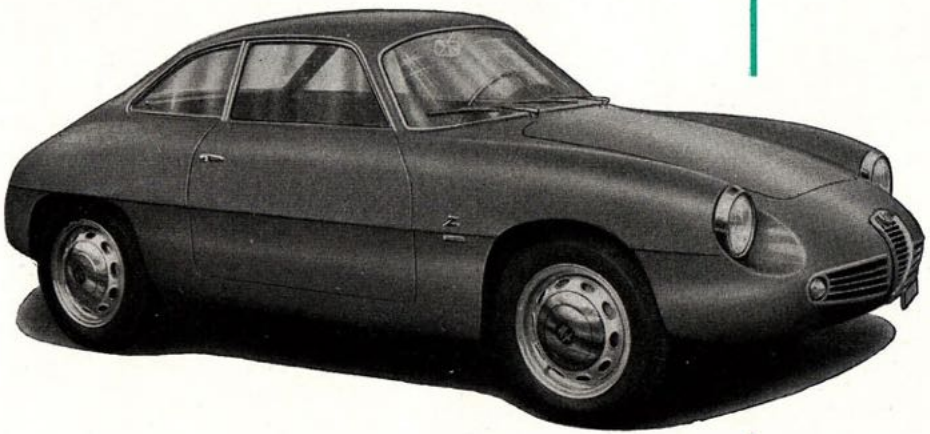
Fuel consumption

Per 100 km. (62.5 miles) to Italian CUNA standards	approx. 11.5 litres 2.527 Imp. Gallons

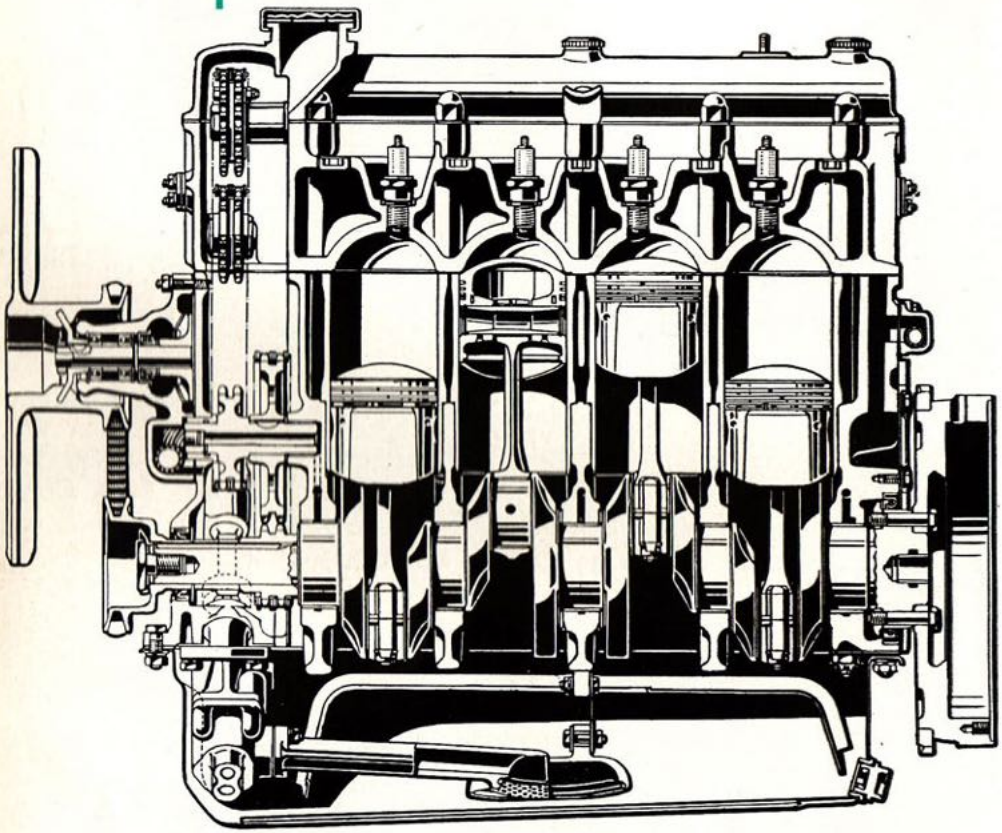
Performance after running-in period

	Gear	Maximum speed
with **9 : 41** bevel coupling	1st	52 km/h 32 m.p.h.
	2nd	86 km/h 54 m.p.h.
	3rd	126 km/h 79 m.p.h.
	4th	171 km/h 106 m.p.h.
	5th	200 km/h 124 m.p.h.
	reverse	52 km/h 32 m.p.h.

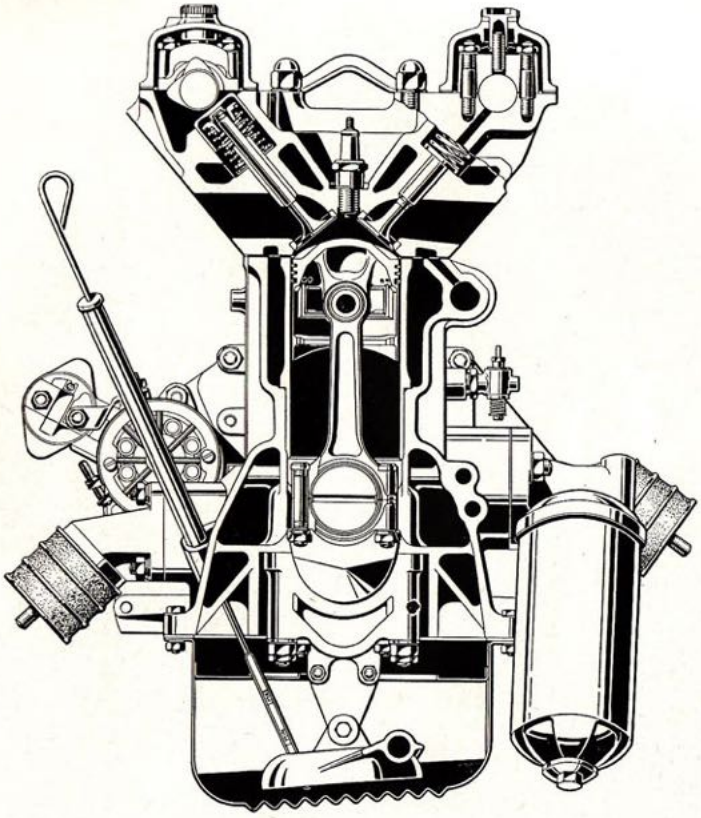
Do not exceed the speeds mentioned above for each gear or mechanical damage may result.



LONGITUDINAL SECTION THROUGH ENGINE



CROSS-SECTIONAL VIEW OF ENGINE



Controls and instruments

Controls


Ignition Switch


Head-lamp signalling button


Head-lamp on-off switch

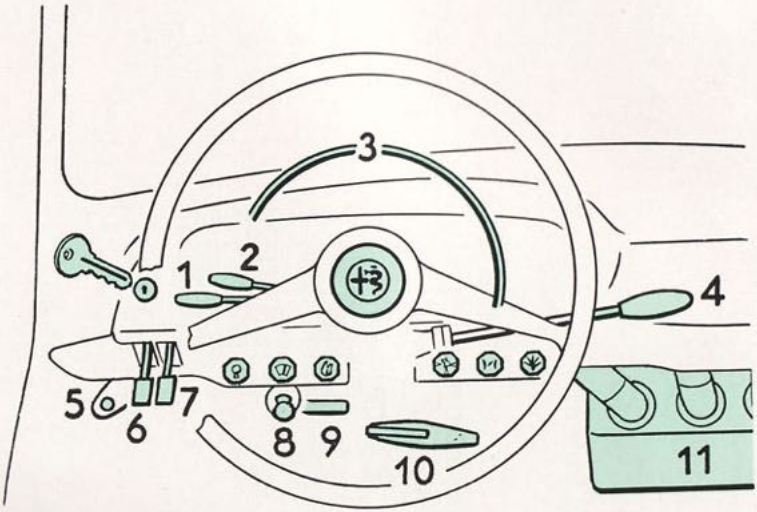

Windscreen wiper button

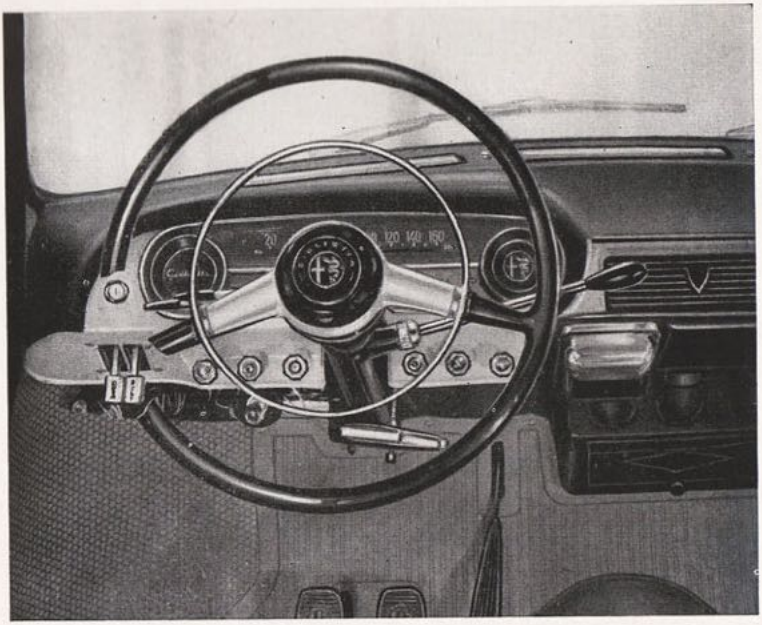

Air-conditioning fan control


Dashboard lighting switch


Accelerator knob

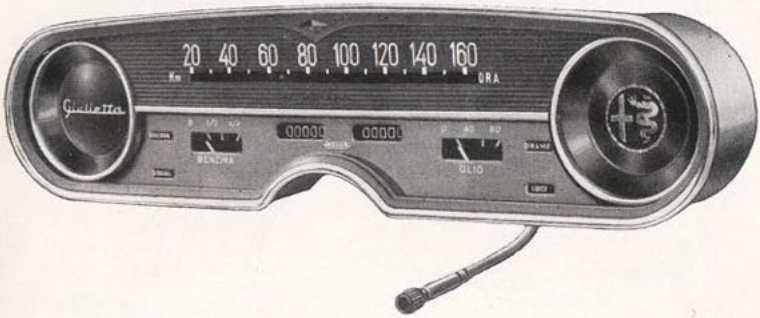

Easy-starting control

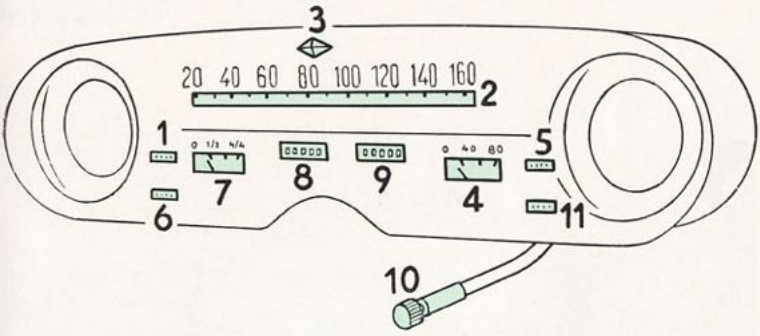




1. Dipping Switch
2. Direction indicators
3. Horn ring
4. Gear-shift lever
5. Socket for lamp
6. Air inlet control
7. Heater control
8. Windscreen washer control
9. Bonnet lock release
10. Hand-brake
11. Heater

Instruments



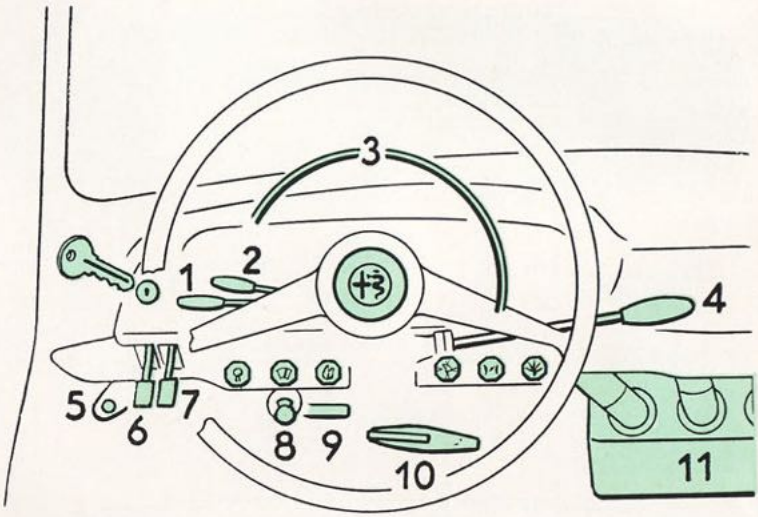


1. Fuell reserve tell-tale
2. Speedometer
3. Direction indicator tell-tale
4. Oil pressure gauge
5. Dynamo charge tell-tale
6. Tell-tale for air-conditioning fan
7. Fuel level indicator
8. Mileage recorder
9. Trip mileage recorder
10. Zero re-setting control for trip mileage recorder
11. Side-light tell-tale

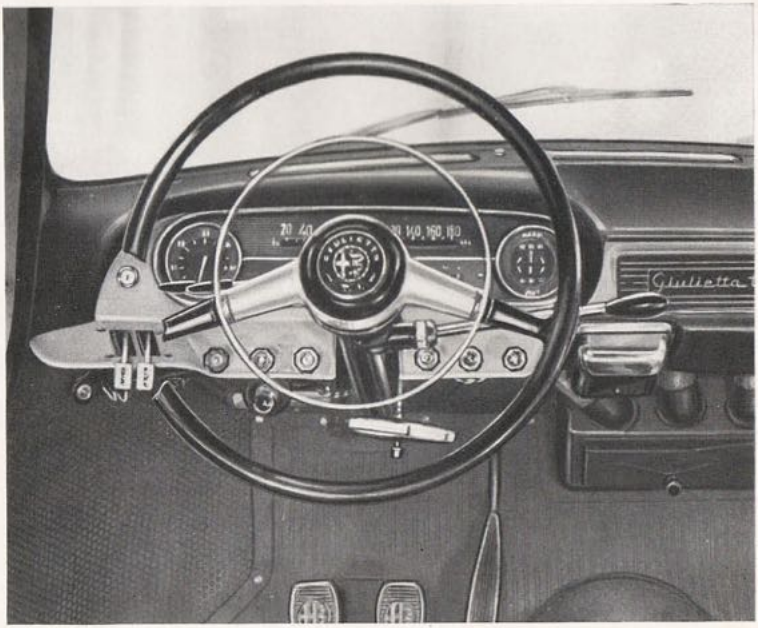
Controls and instruments

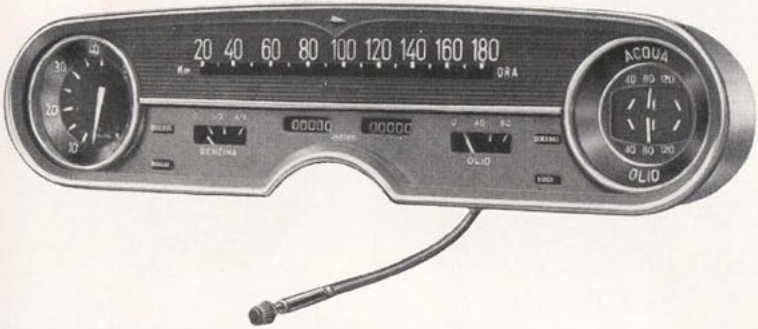
Controls

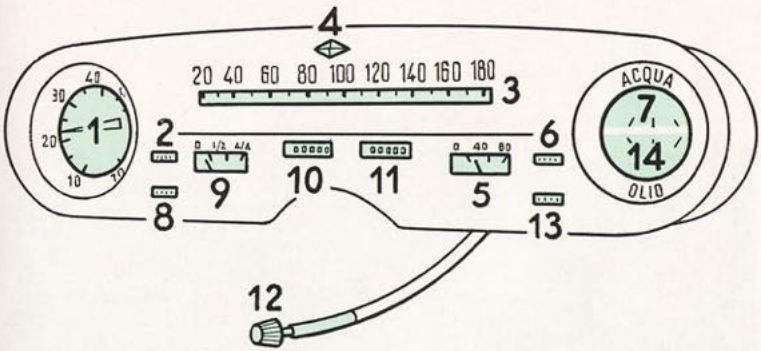
- Ignition Switch
- Head-lamp signalling button
- Head-lamp on-off switch
- Windscreen wiper button
- Air-conditioning fan control
- Dashboard lighting switch
- Accelerator knob
- Easy-starting control



1. Dipping Switch
2. Direction indicators
3. Horn ring
4. Gear-shift lever
5. Socket for lamp
6. Air inlet control
7. Heater control
8. Windscreen washer control
9. Bonnet lock release
10. Hand-brake
11. Heater







Instruments

1. Revolution counter
2. Fuel reserve tell-tale
3. Speedometer
4. Direction indicator tell-tale
5. Oil pressure gauge
6. Dynamo charge tell-tale
7. Water temperature gauge
8. Tell-tale for air-conditioning fan
9. Fuel level indicator
10. Mileage recorder
11. Trip mileage recorder
12. Zero re-setting control for trip mileage recorder
13. Side-light tell-tale
14. Oil temperature gauge

Controls and instruments

Controls


Ignition switch

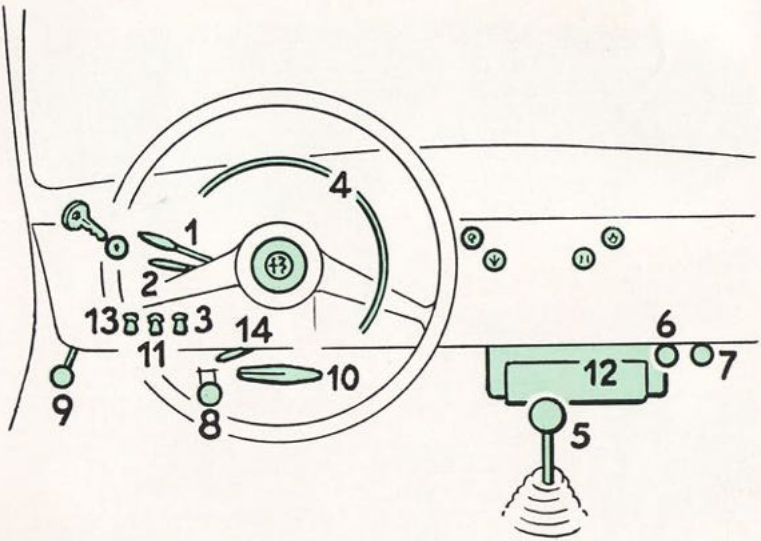

Head-lamp signalling button


Head-lamp on-off switch

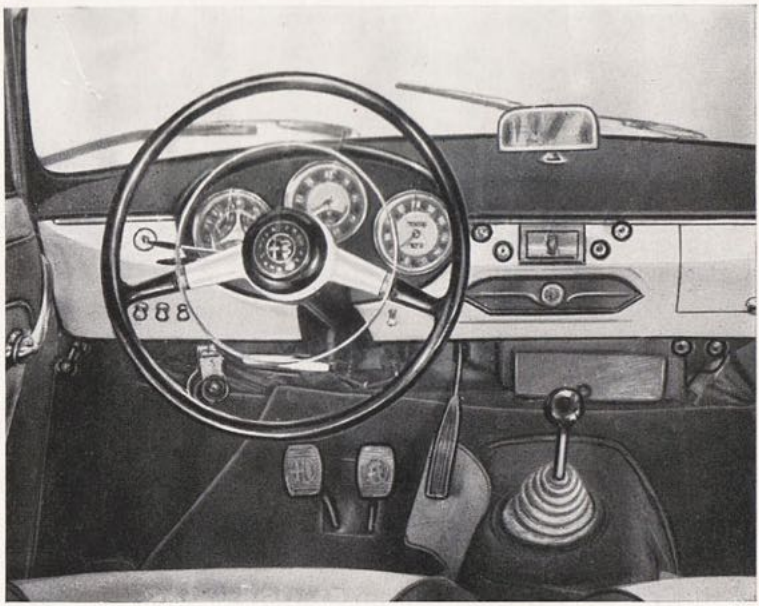

Easy-starting control

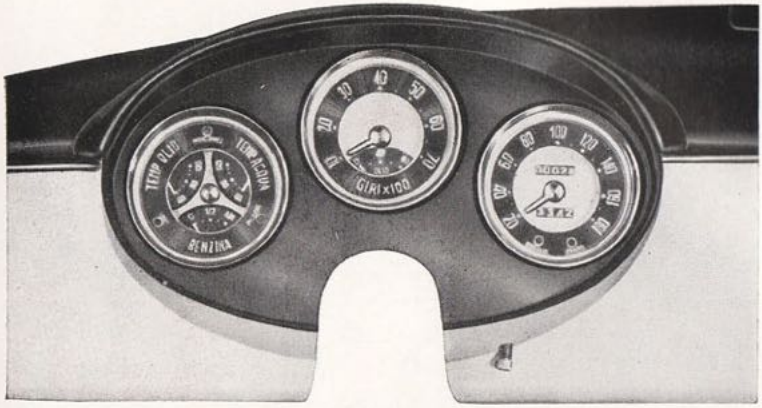

Accelerator knob

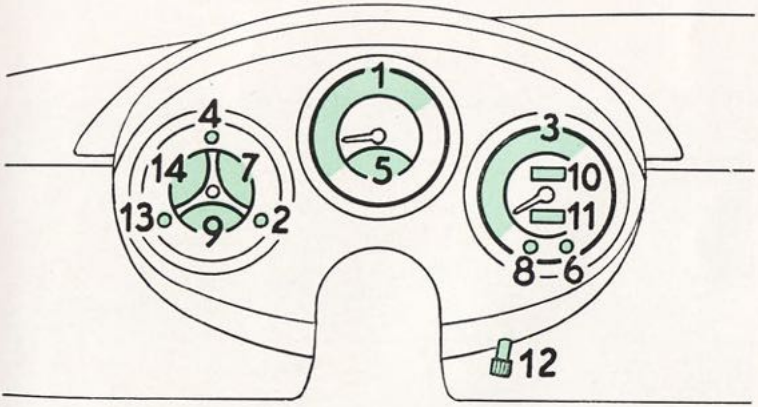

Air-conditioning fan control



1. Dipping Switch
2. Direction indicators
3. Windscreen wiper switch
4. Horn ring
5. Gear-shift lever
6. Air inlet control
7. Heater control
8. Windscreen washer control
9. Bonnet lock release
10. Hand-brake
11. Dashboard lighting switch
12. Heater
13. Switch for interior lighting
14. Ventilation flap control







Instruments

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9. Fuel level indicator
10. Mileage recorder
11. Trip mileage recorder
12. Zero re-setting control for trip mileage recorder
13. Side-light tell-tale
14. Oil temperature gauge

Controls and instruments

Controls


Ignition switch

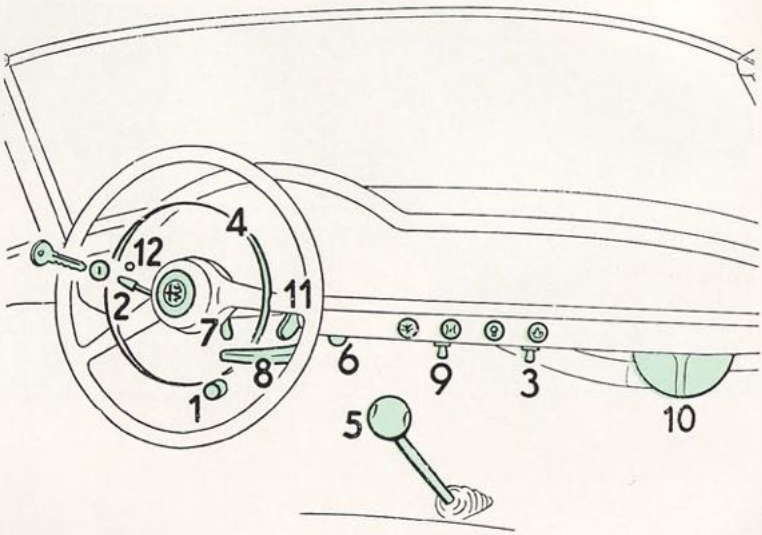

Head-lamp signalling button


Easy-starting control


Accelerator knob


Head-lamp on-off switch


Air-conditioning fan control



1. Dipping Switch
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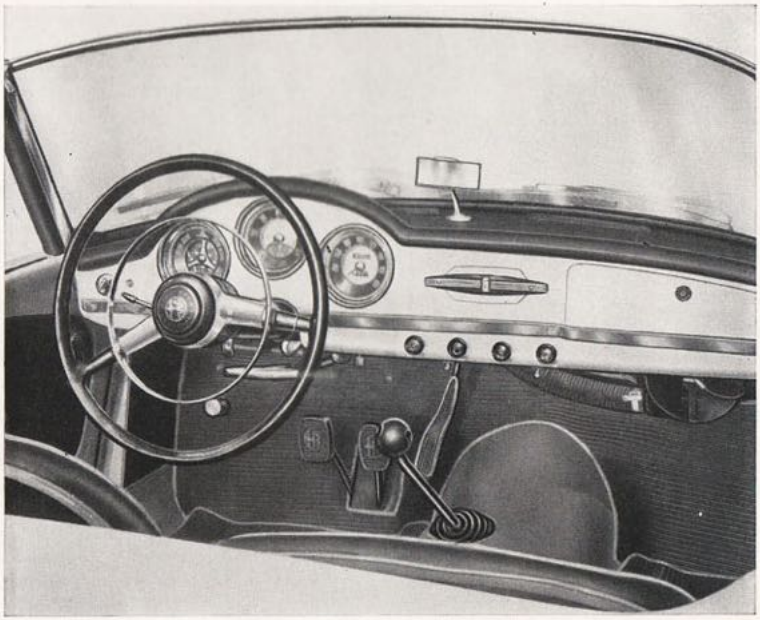
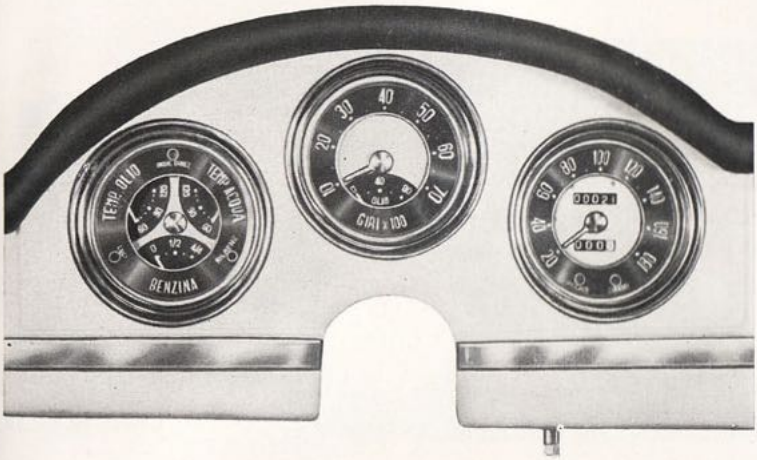
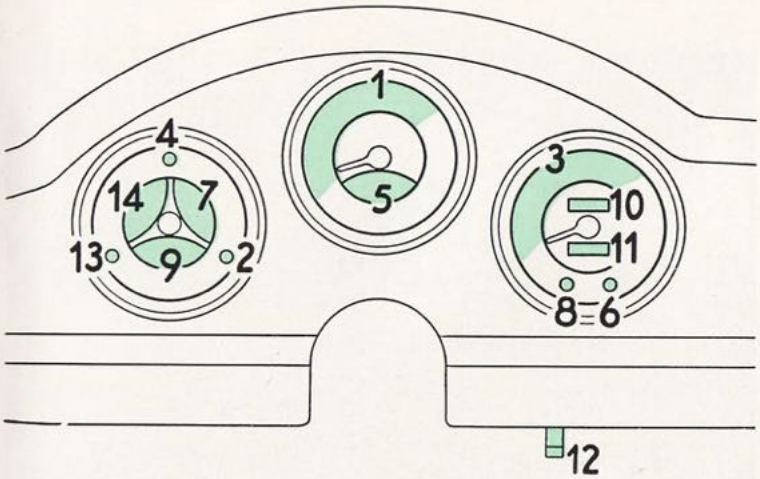
4. Horn ring
5. Gear-shift lever
6. Air inlet control
7. Bonnet lock release
8. Hand-brake
9. Dashboard lighting switch
10. Heater
11. Ventilation flap control
12. Head lamp (undipped beam) tell-tale







Instruments

1. Revolution counter
2. Fuel reserve tell-tale
3. Speedometer
4. Direction indicator tell-tale
5. Oil pressure gauge
6. Dynamo charge tell-tale
7. Water temperature gauge
8. Tell-tale for air-conditioning fan
9. Fuel level indicator
10. Mileage recorder
11. Trip mileage recorder
12. Zero re-setting control for trip mileage recorder
13. Side-light tell-tale
14. Oil temperature gauge

Controls


Ignition switch

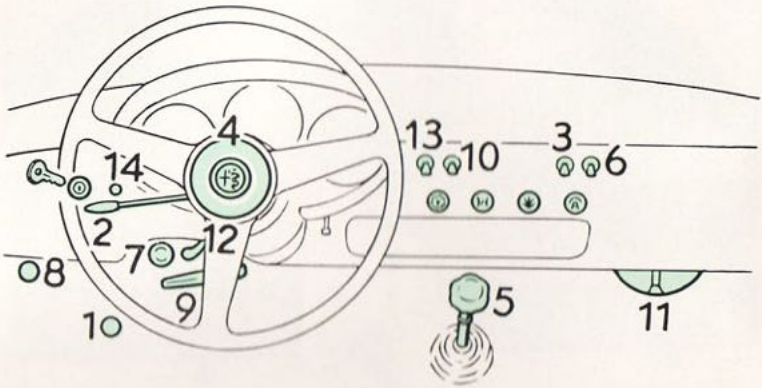

Horn ring


Head-lamp on-off switch

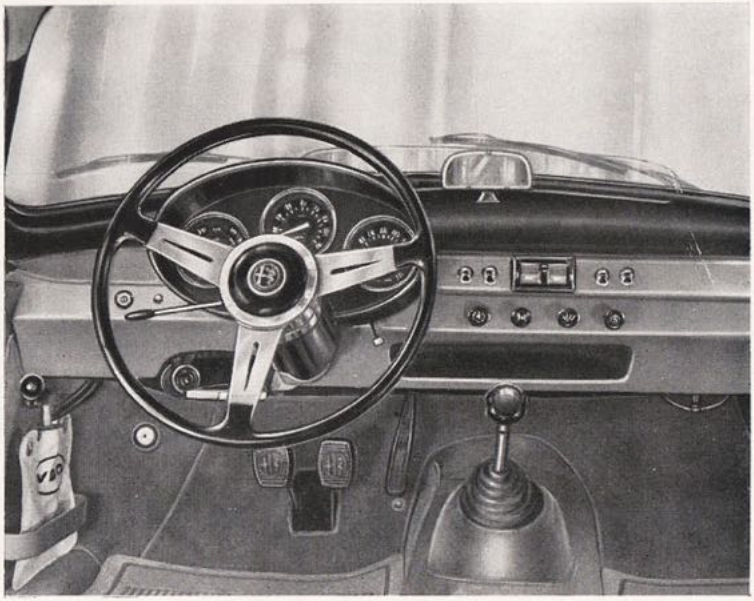

Accelerator knob


Easy-starting control

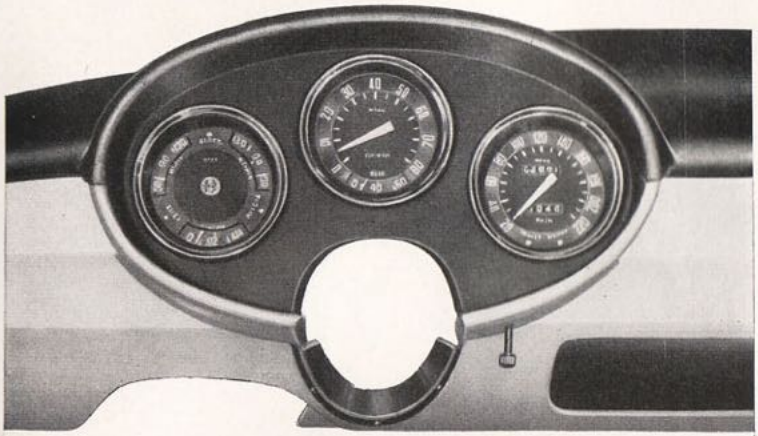

Heater control

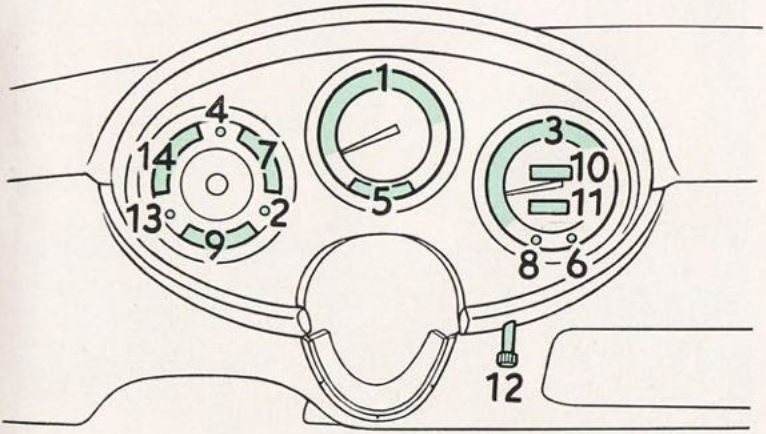


1. Dipping switch
2. Direction indicators
3. Windscreen wiper switch
4. Headlamp signalling button
5. Gear-shift lever
6. Air-conditioning fan control
7. Windscreen washer control
8. Bonnet lock release
9. Hand-brake
10. Dashboard lighting switch
11. Heater
12. Ventilation flap control
13. Switch for interior lighting
14. Head-lamp (undipped beam) tell-tale



Instruments





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Controls


Ignition switch

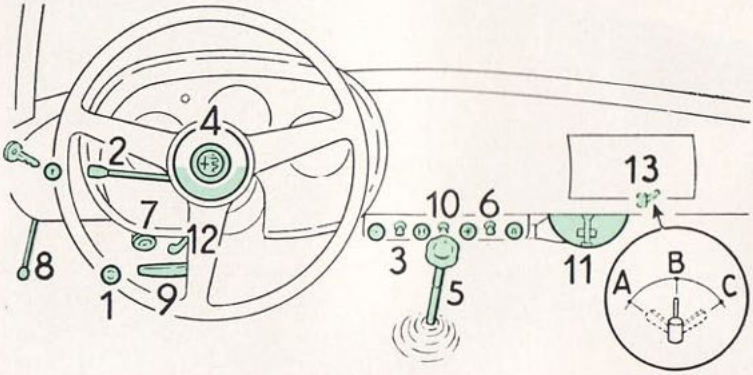

Horn ring


Head-lamp on-off switch


Accelerator knob

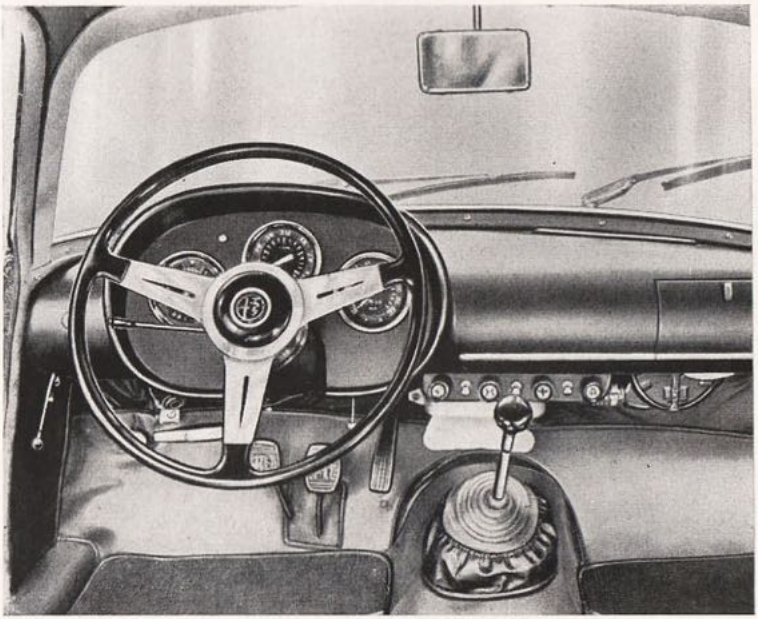

Easy-starting control


Heater control

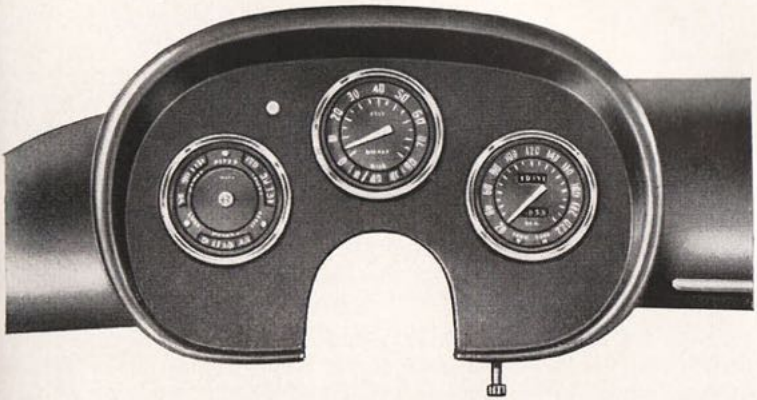


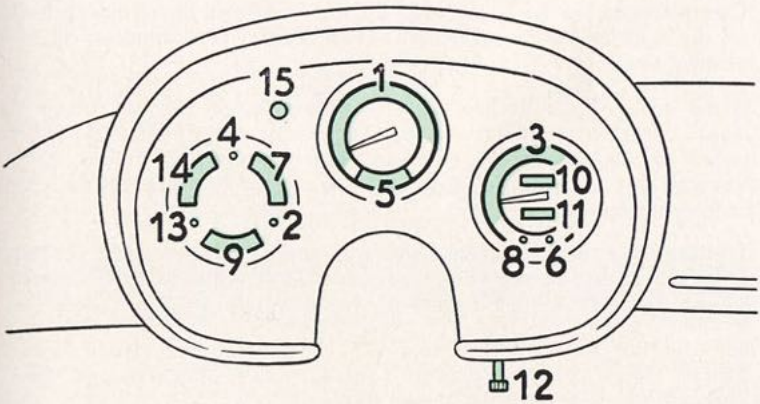
1. Dipping switch
2. Direction indicators
3. Windscreen wiper switch
4. Headlamp signalling button
5. Gear-shift lever
6. Air-conditioning fan control
7. Windscreen washer control
8. Bonnet lock release
9. Hand-brake
10. Dashboard lighting switch
11. Heater
12. Ventilation flap control
13. Reading lamp switch

A. Lamp out
B. Lamp on (when near-side door is open)
C. Lamp always on



Instruments





1. Revolution counter
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10. Mileage recorder
11. Trip mileage recorder
12. Zero re-setting control for trip mileage recorder
13. Side-light tell-tale
14. Oil temperature gauge
15. Head-lamp (undipped beam) tell-tale

Controls and instruments

CONTROLS:

Ignition switch

Insert the key into the lock and turn it in a clockwise direction until a click is heard; this closes the electric circuits and lights the dynamo tell-tale. Push the key right home and turn it again in a clockwise direction; this actuates the starter motor. If a second attempt has to be made to start the engine, first return the key to the zero position.

Easy-starting control

When this knob is pulled right out the necessary rich mixture for cold starting will be provided; with the knob in the half-way position a slightly rich mixture suitable for warming up the engine will be provided.

Accelerator control knob

To keep the engine accelerated, pull out the knob in the case of the Berlina and the t.i. In the case of the Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato the knob must be rotated in a clockwise direction.

Side-lamp and Head-lamp switch

Pull out the knob to switch on the front side lamps and the rear parking and number-plate lamps; the green tell-tale glows to indicate that they are on. To switch on the head-lamps, then turn the knob in a clock-wise direction and pull it outwards.

Dashboard lighting control

To illuminate the dashboard on the Berlina and the t.i., pull out the knob until a click is heard. On the Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato, operate the toggle switch on the dashboard.

Direction indicator switch

Operation of the lever switches on the front and rear flashing lamps on the right or left as applicable. These flashes are repeated on their tell-tale lamp.

Head-lamp dipping switch

In the case of the Berlina, t.i., Sprint and Sprint Veloce, rotate the lever (after first pulling out the head-lamp on-off switch knob) to switch on the main or dipped beam. In the case of the Spider, Spider Veloce, Sprint Speciale and Sprint Zagato the dipping switch is pedal-operated.

Head-lamp signalling button

To flash the head-lamp main beam when approaching a road crossing, press the button in the centre of the steering wheel. When the undipped beam is on this button has no effect.

Windscreen wiper control

Pull out the knob (Berlina and t.i.) or operate the switch (Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato) to switch on the wiper blades.

Windscreen washer button

When the button is pressed a jet of water is sprayed onto the windscreen; in the case of the Sprint, Sprint Veloce, Sprint Speciale and Sprint Zagato the windscreen wiper is also switched on simultaneously.

Zero re-setting control for trip mileage recorder

Turn the knob in a clockwise direction to return the trip mileage recorder to zero.

Hand-brake lever

Pull out the lever to apply the brakes to the rear wheels.

Bonnet Lock release

Operation of this lever releases the latch securing the bonnet.

Lever controlling air inlet to car

By moving the lever (Berlina and t.i.) or pulling out the knob (Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato) the amount of fresh air entering the car is controlled.

Control admitting water to the heater

Pull on the lever (Berlina, t.i., Sprint and Sprint Veloce) to open the valve admitting hot water from the engine to the heater.
In the case of the Spider, Spider Veloce, Sprint Speciale and Sprint Zagato, open the tap fitted to the water pipe under the bonnet.

Heater motor control

By pulling out the knob (in the case of the Berlina, t.i., Sprint, Spider, Sprint Veloce and Spider Veloce) or by operating the switch (in the case of the Sprint Speciale and Sprint Zagato) the fan motor is started up.

INSTRUMENTS

Fuel level Indicator

The indicator shows the amount of petrol left in the tank; when the fuel content falls to 6 to 7 litres (approx. 2 gallons) the red tell-tale lamp lights up.

Oil pressure gauge

The oil pressure gauge shows the pressure in the lubrication circuit. With a hot engine the pressures should be:

Minimum pressure at min. revs: 0.5 to 1 kg/cm² (7 to 14 p.s.i.)
Minimum pressure at max. revs: 3.5 to 4 kg/cm² (50 to 57 p.s.i.)

Water temperature gauge

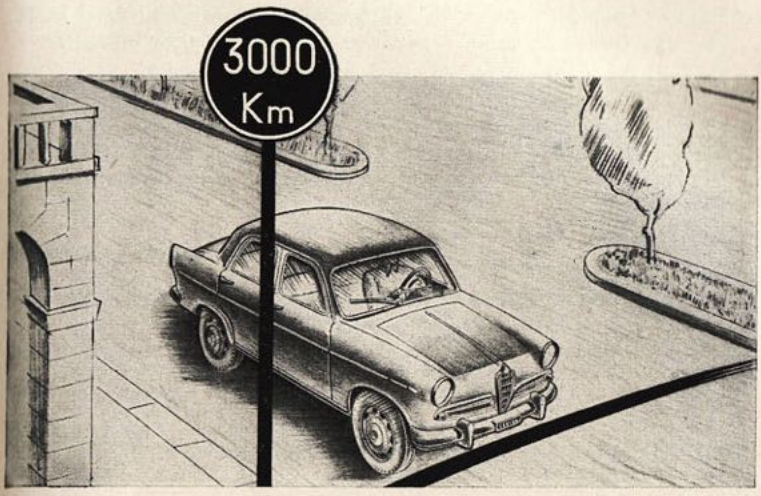
The water thermometer shows the engine cooling-water temperature; this gauge is fitted to the following cars: t.i., Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato.

Max. permissible temperature: 105° to 110 °C (221° to 230 °F).

How to use your car

PART II

SPECIAL CARE FOR FIRST 3000 KM. (2000 MILES)



In order to allow the various main units of the car, **particularly the engine, gear-box and differential,** to bed down gradually, a running-in period of special care must be observed, and during that time the maximum performance must never be demanded of the vehicle. **Nor must the speeds shown in the following table be exceeded.**

Maximum permissible speeds during running-in period

Distances covered		Max. permissible speed				
		1st gear	2nd gear	3rd gear	4th gear	5th gear
During first 1000 km (625 miles)	Berlina and t. i.	25 km 16 miles	45 km 28 miles	70 km 44 miles	95 km 59 miles	— —
	Sprint and Spider	35 km 22 miles	55 km 34 miles	80 km 50 miles	110 km 68 miles	— —
	Sprint Veloce Spider Veloce	38 km 24 miles	64 km 40 miles	93 km 58 miles	126 km 78 miles	— —
	Sprint Speciale Sprint Zagato	34 km 21 miles	58 km 35 miles	84 km 52 miles	114 km 71 miles	134 km 83 miles
From 1000 to 3000 km (625 to 2000 miles)	Berlina and t.i.	30 km 19 miles	55 km 34 miles	85 km 53 miles	115 km 72 miles	— —
	Sprint and Spider	40 km 25 miles	65 km 40 miles	100 km 62 miles	135 km 84 miles	— —
	Sprint Veloce Spider Veloce	46 km 29 miles	78 km 48 miles	113 km 70 miles	153 km 95 miles	— —
	Sprint Speciale Sprint Zagato	42 km 26 miles	70 km 44 miles	102 km 63 miles	138 km 86 miles	162 km 100 miles

On starting

— Before moving off allow the engine to run at around 1500 r.p.m. for one minute in summer and two to three minutes in winter.
— Push in the easy-starting control as soon as possible.

When in motion

— Do not maintain the maximum speeds shown in the table for long periods.
— Never press the accelerator to the floor.
— Release the accelerator from time to time.
— **For the first 1000 km (625 miles)** avoid prolonged and intensive braking.

Change the engine oil and the filter cartridge

— During the running-in period change the engine oil and replace the filter cartridge at the following intervals:

1st change after the first . . . 800/1100 km (500/690 miles)
2nd change not later than . . 3000/4000 km (1875/2500 miles)
Subsequent changes every . . . . . 4000 km (2500 miles)
Every 4000 km (2500 miles) replace the oil filter cartridge.

Change the oil in the gear-box and in the differential housing

After the first 800/1100 km (500/690 miles)

Completely drain the gear-box and the differential housing, and fill up with new oil.

Tighten the cylinder-head nuts

After the first 800/1100 km (500/690 miles)

Tighten the cylinder-head nuts with a torque wrench set for 5.4 to 5.6 kgm.

Adjust play in the steering box

After the first 800/1100 km (500/690 miles)

Adjust the play between the worm and roller in the steering box. Repeat at 4000 km (2500 miles) and 8000 km (5000 miles) and then every 5000 miles.

Fuel

To ensure optimus performance the use of the following fuels is recommended:

— For the Berlina: standard petrol with an octane number of not less than 83 (R.M.).
— For the t.i., Sprint, Spider, Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato: Super petrol with an octane number of not less than 92 (R.M.).

Regularly check:

— the oil level in the sump;
— the water level in the radiator;
— the tyre pressures;
— the electrolyte level in the battery.

Oil in the sump

The level of the oil in the sump is checked with the dip-stick. If necessary top up oil of the prescribed type (see page 57).

Water in the radiator

The level of the radiator water should be 2 to 3 cm. (about 1 inch) below the bottom rim of the filler orifice. If the level should drop to 4 to 5 cm (2 inches) when the engine is running, it is unnecessary to top up provided that the drop does not continue.

WARNING

When checking the level of the radiator water when the engine is hot, and particularly if the gauge shows a temperature around 100 °C (212 °F), unscrew the radiator cap very slowly and stop turning it at the first notch so as to allow the pressure to drop. If a large quantity of water has to be added to a hot engine, the water should be added slowly and the engine left running so as to prevent any sudden cooling and the possibility of deformation caused by contraction.

Tyre pressure

Check fortnightly to make sure that the tyre pressures remain as recommended (see page 106).

Level of the battery electrolyte

The battery electrolyte level should never be higher than 4 to 5 mm. (3/16 inch) above the plates, and the plates should never be left uncovered.

Sparking plugs

When an engine has been unused for some time it is advisable to clean sparking plugs and test them.

Cold engine

Before starting the engine make sure that the gear lever is in neutral. Raise the easy-starting lever, insert the key in the ignition switch and turn it to the right.

To facilitate starting, particularly in cold weather, press in the clutch. As soon as the engine fires release the ignition key.

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

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

— the battery charge may be too weak to rotate the starter motor sufficiently fast to start the engine;

— the ignition equipment may be defective (dirty plugs, excessive spark gaps, oxydised contact points, wet distributor cap, damaged distributor or coil);

— the carburetter may be dirty and jets may be clogged;

— electric circuits may be broken or fuses blown.

When the engine has started move the easy starting control to the middle position while the engine warms up; then push it right in.

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

Make sure that the oil pressure shown by the gauge is as prescribed:

min. pressure at min. revs, with hot engine:
0,5 to 1 kg/cm² (7 to 14 p.s.i.)

Make sure that the dynamo charge tell-tale goes out as soon as the engine speed exceeds 1100 r.p.m.

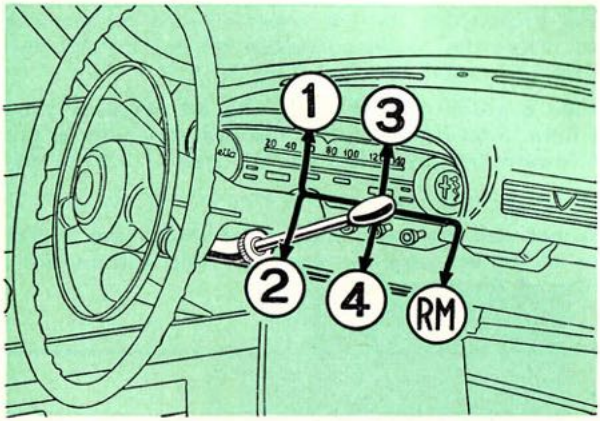
Hot engine

In summer, or when the engine is already hot, do not use the easy-starting device. When the engine is hot, starting will be facilitated if the accelerator pedal is depressed slowly until the carburetter throttle is opened half-way in order to weaken the mixture.

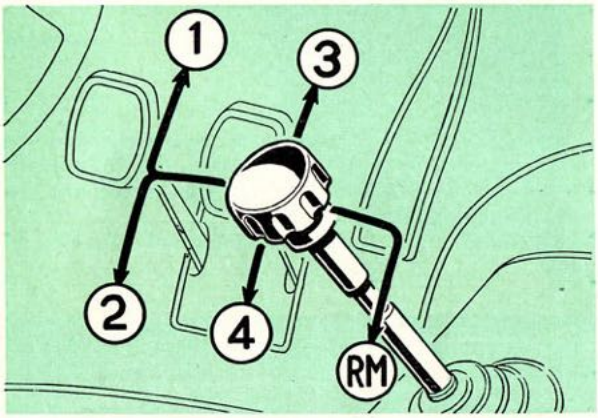
WARNING

In the case of the Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato, particularly when starting from cold in winter, it is advisable, in order to facilitate starting, to press the accelerator through about one quarter of its stroke while at the same time operating the easy-starting device.

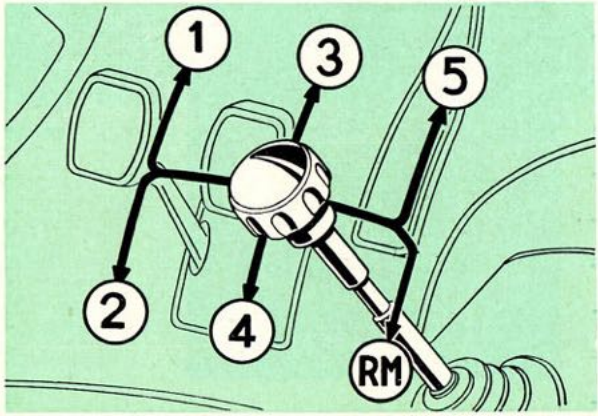
ENGAGING GEAR



Berlina and t. i.



Sprint Spider Sprint Veloce Spider Veloce



Sprint Speciale Sprint Zagato

Take care not to run the engine beyond the maximum revolutions; and during the running-in period do not exceed the maximum recommended road speeds (page 33).

Make a practice of checking the oil pressure gauge from time to time. Stop the engine if the pressure with a hot engine and at maximum revs. should fall below 3.5 kg/cm² (50 p.s.i.).

Do not rest your foot on the clutch when not actually using it.

Do not call on your engine for maximum performance until the oil in the engine, gear-box and differential housing has warmed up properly.

WINTER PRECAUTIONS

Anti-freeze

In zones where the temperature frequently falls below freezing point a good anti-freeze should be used to prevent the freezing of the radiator water while the car is in motion and the engine water during prolonged stops.
The quantities of BP Energol or Shell anti-freeze to be used are as follows:

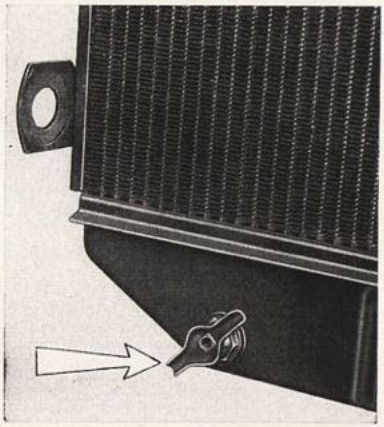
Temperature	Anti-freeze
Approx. — 10 °C (14 °F)	1½ litre (3 pints)
Approx. — 17 °C (2 °F)	2 litres (4 pints)
Approx. — 23 °C (— 9 °F)	2½ litres (5 pints)

Draining off the water

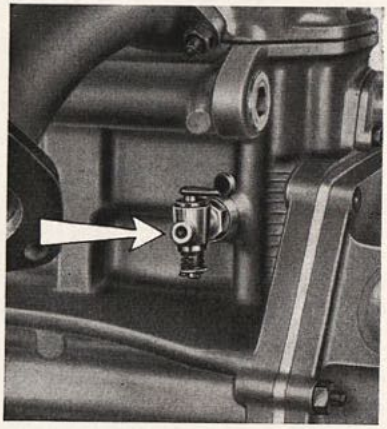
In icy weather even a short stop may be sufficient to freeze up the engine water if an anti-freeze has not been added.

If no anti-freeze is used, it is absolutely essential, **if very serious damage is to be avoided,** for the water to be drained off the radiator, engine and heating equipment by opening the taps located at the bottom of the radiator and on the left-hand side of the engine.

Draining the radiator



Draining the motor



Berlina and t. i.

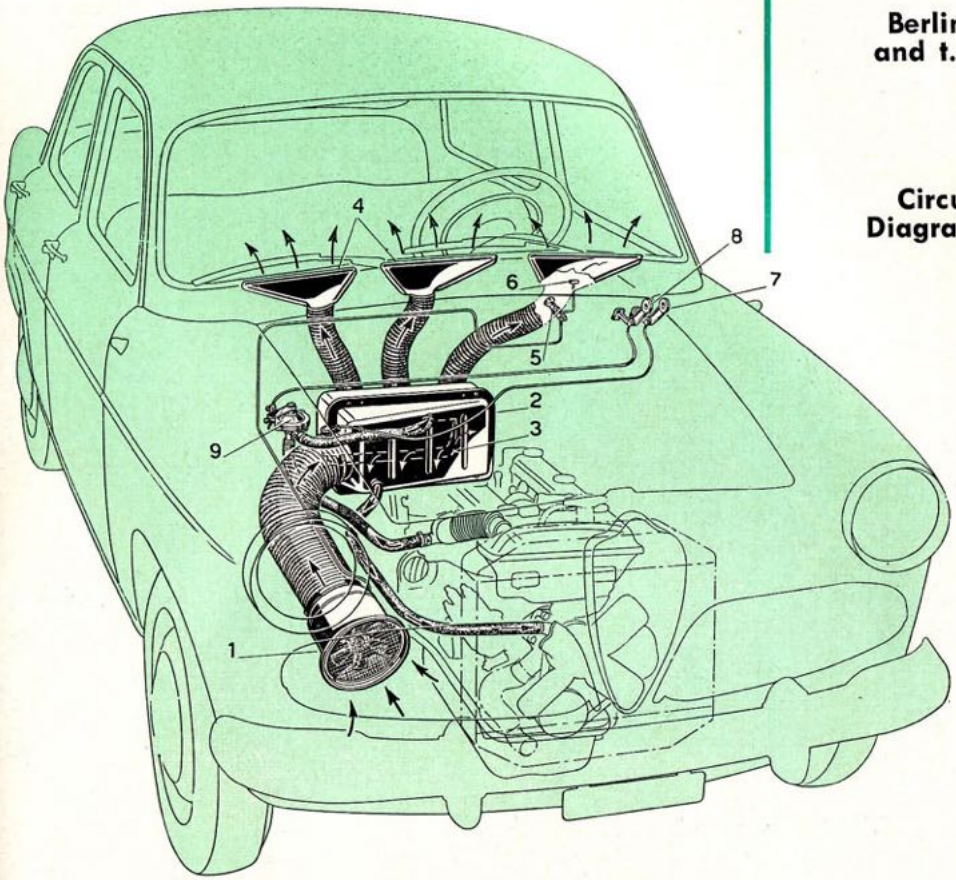
The car interior air-conditioning and heating control unit is located on the left of the scuttle.
Air can be admitted to the car interior dynamically as the vehicle moves forward, or by means of an electric fan in the air inlet duct. Heat is taken from the engine coolant through a radiant-element heat exchanger.
Air enters the car via three nozzles at the base of the windscreen and through the heater outlet; the opening of the latter orifice can be adjusted as necessary by the flap **3.**

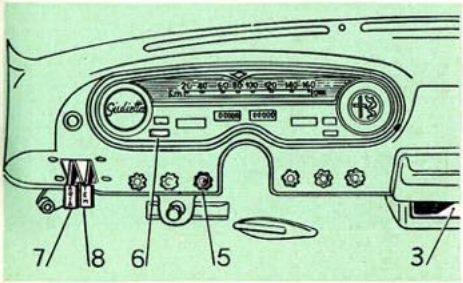
Air-conditioning

Natural ventilation is controlled by means of the control lever **7;** when this lever is fully raised the throttle controlling the air inlet to the car is closed and air cannot enter; when in the lower position the throttle is open and air enters the car.
When the knob **5** is pulled the fan motor is switched on. When travelling at more than 50 to 60 km/h (30 to 38 m.p.h.) this motor may be switched off as the dynamic effect is sufficient to ensure good ventilation.

Heating

To direct hot air into the car, raise lever **8.** This opens valve **9** that stabilises the flow of hot engine water to heat exchanger **2** located beneath the scuttle.
The hot air enters the car via the nozzles at the base of the windscreen and through the heater outlet the opening of which can be adjusted as necessary by means of the flap **3.**
The temperature of the hot air can be adjusted by operating lever **8.** To control the volume of air entering the car, use lever **7** and switch on the heater fan as necessary.





1. Electric booster fan unit - **2.** Heater - **3.** Heater flap - **4.** Windscreen air inlet nozzle - **5.** Booster fan motor control - **6.** Fan motor tell-tale - **7.** Control lever regulating the air inlet - **8.** Water inlet control lever - **9.** Valve controlling the water feed to the heater.

Sprint and Sprint Veloce

The air-conditioning and heating equipment consists of two air intake ducts. The first of these, located on the right of the car, is fitted with a low-consumption fan **1** installed at the duct inlet, and a radiant-element heater **2;** the system utilises the engine coolant water.
The air is sucked in by the fan and passes over the heater and thence into the car through three nozzles **3** located at the base of the windscreen and through the heater outlet; the heater outlet orifice can be adjusted as necessary by means of the flap **4.**
The second duct is located on the left of the engine; through it the air enters the car under the scuttle by means of the dynamic effect of the vehicle's forward motion.

Air-conditioning

The system is operated as follows:

Right-hand duct

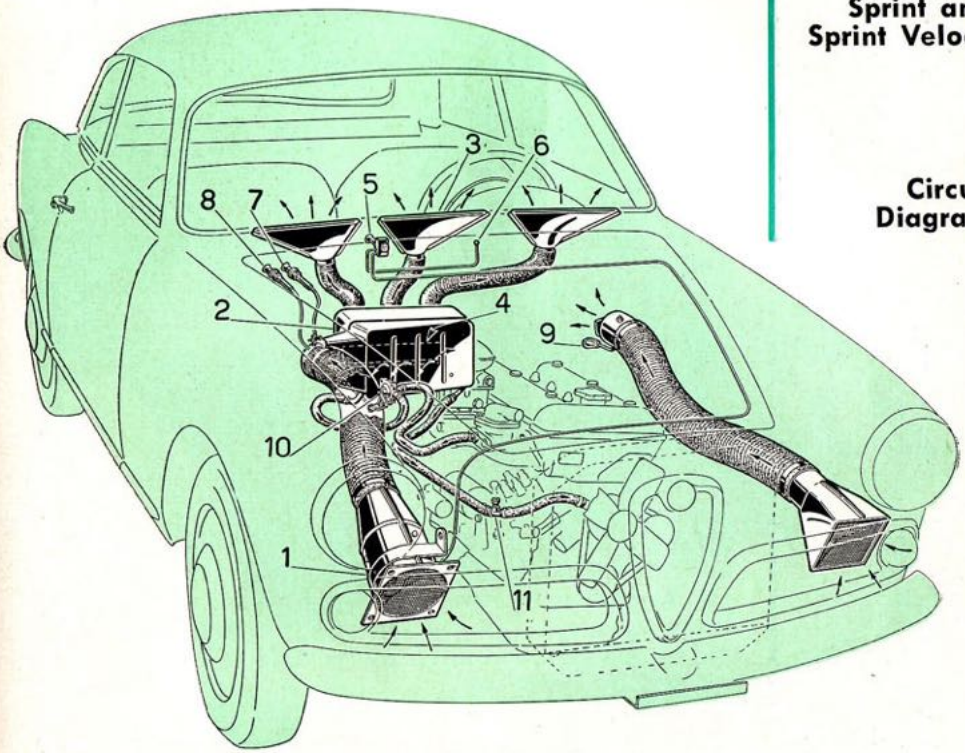
When the knob **7** is pulled right out, the throttle controlling the air inlet to the car is opened and air enters. When the knob **5** is pulled out, the booster fan motor is switched on.
When the car is travelling at more than 50 to 60 km/h (30 to 38 m.p.h.) the fan may be switched off as the dynamic effect is sufficient to ensure good ventilation.

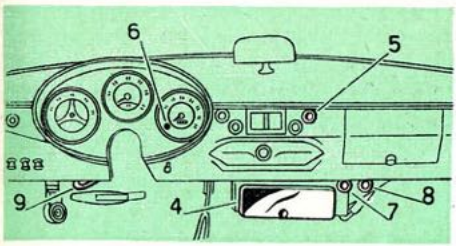
Left-hand duct

Anti-clockwise rotation of the lever **9** on the outlet opens the adjusting throttle and admits air to the car interior. When the lever is turned to the right the air supply is shut off.

Heating

The degree of heating is controlled by the valve **10** which regulates the amount of hot water entering the heater from the engine.
Pulling out the knob **8** adjusts the valve opening and there by the temperature of the air.
To regulate the air inlet, adjust knob **7** and switch on the booster fan an necessary.





1. Electric booster fan unit - **2.** Heater - **3.** Windscreen air inlet nozzle - **4.** Heater flap - **5.** Heater motor on-off switch - **6.** Fan motor tell-tale - **7.** Control knob regulating the air inlet (right-hand duct) - **8.** Water inlet valve control knob - **9.** Control lever regulating the air inlet (left-hand duct) - **10.** Water inlet valve to heater - **11.** Air bleed valve.

Spider
Spider Veloce
Sprint Speciale
Sprint Zagato

The heating and air-conditioning equipment, like that on the Sprint and Sprint Veloce, consists of two air inlet ducts; the first of these, located on the right of the car, is equipped with a low-consumption radiator/booster fan unit **1** fitted beneath the dashboard at the end of the inlet duct.

The air, drawn in by the fan, passes over the heater **2** and enters the car interior through the two nozzles **3** at the base of the windscreen and through the outlet from the heater/fan unit.

Adjustment of the flap **4** controls the volume of air entering the car. Under the bonnet, and on the left of the car, there is a second duct through which air enters the car (under the dynamic effect of its forward motion) through the orifice beneath the dash-board.

Air-conditioning

The system is operated as follows:

Right-hand duct

When the knob **7** is pulled right out, the throttle controlling the air inlet to the car is open and air enters. When the knob **5** is pulled out, the booster fan motor is switched on.

When the car is travelling at more than 50 to 60 km/h (30 to 38 m.p.h.) the fan may be switched off as the dynamic effect is sufficient to ensure good ventilation.

Left-hand duct

Anti-clockwise rotation of the lever **9** on the outlet opens the adjusting throttle and admits air to the car interior. When the lever is turned to the right the air supply is shut off.

Heating

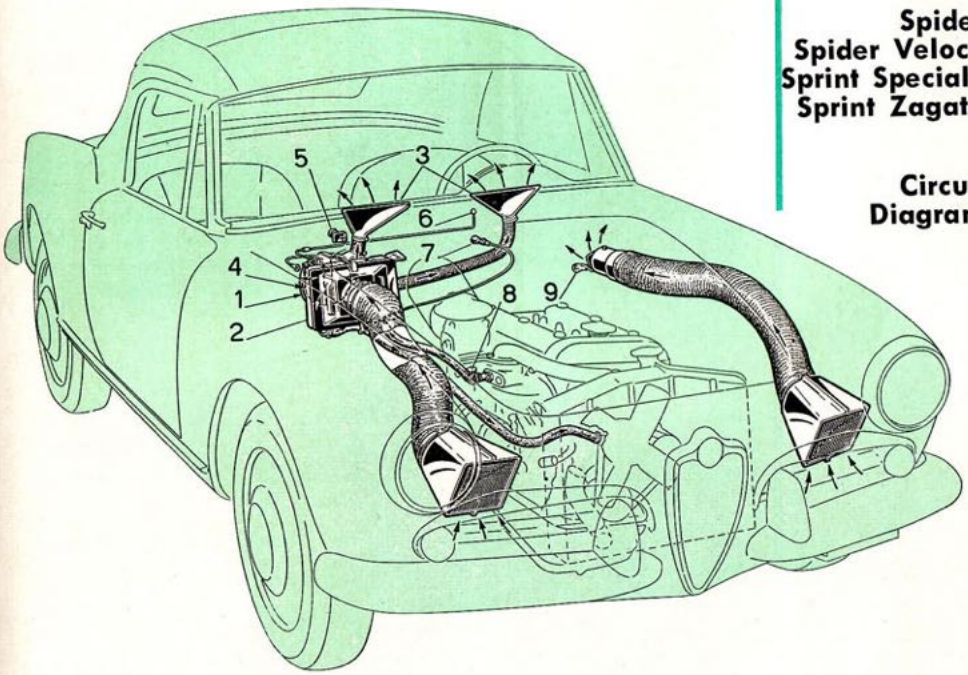
The degree of heating is controlled by adjusting the tap **8** located beneath the bonnet on the water pipe leading from the engine to the heater. Adjustment of the tap position controls the volume of hot water entering the heater and thereby the air temperature.

To regulate the air inlet, adjust knob **7** and switch on the booster fan as necessary.

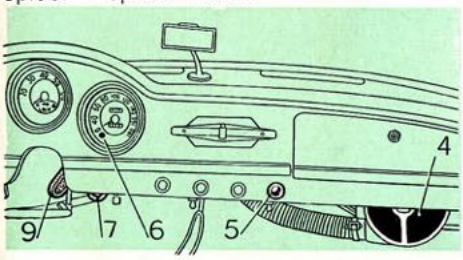
NOTE: The heating equipment is only fitted to the Sprint Zagato when specially ordered.

Spider
Spider Veloce
Sprint Speciale
Sprint Zagato

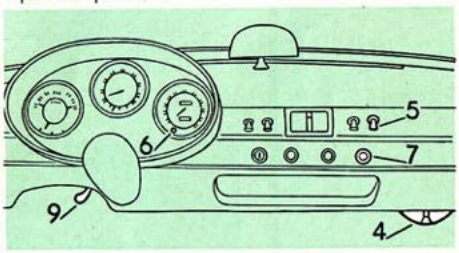
Circuit Diagram



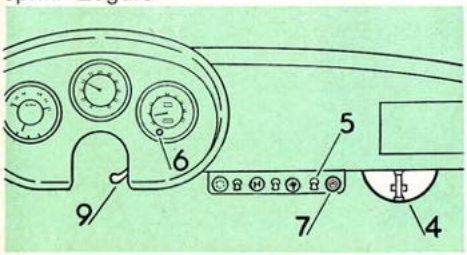
Spider - Spider Veloce



Sprint Speciale



Sprint Zagato



1. Electric booster fan unit - **2.** Heater - **3.** Windscreen air inlet nozzle - **4.** Heater flap - **5.** Heater motor on-off switch - **6.** Fan motor tell-tale - **7.** Control knob regulating the air inlet (right-hand duct) - **8.** Water inlet valve contro tap - **9.** Control lever regulating the air inlet (left-hand duct).

Spider and Spider Veloce

Lowering the hood

To lower the hood proceed as shown in the figures below:

— Release the press-studs securing the side edges of the hood to the coachwork and the hooks that secure it to the windscreen uprights.

— Fold the hood.

— Slightly raise the hood at the same time occurs the disengagement of the lower arms.

LOWERING AND RAISING THE HOOD

Spider and Spider Veloce

-- Lower the hood into its housing.

— Fix the hood to the car with the straps provided.

— Cover the hood with the protective cover and secure it with the press-studs.

To raise the hood proceed as above in the reverse order.

Raising the hood

Lubrication

PART III

PERIODICAL LUBRICATION

PART III

Lubrication

Every 1000 km (625 miles)

1. Check the oil level in the sump.

Lubricate:

Every 4000 km (2500 miles)

2. The top and bottom ball joints of the stub axles and front suspension king pins;

3. The ball joint of the rear axle reaction triangle;

4. The universal joints on the propeller shaft;

5. The ball joints on the steering arms;

6. Replace the engine oil in the sump and the oil filter cartridge.

Top up:

7. The oil in the gear-box;

8. The oil in the differential housing;

9. The oil in the steering-box;

10. The brake fluid feed tank.

Lubricate:

11. The distributor;

12. The bearing at the commutator end of the dynamo;

13. The control linkage to the clutch, gear-box, carburetter, hand brake and foot brake;

14. The windscreen wiper joints and linkage and the flexible drives for the accelerator, hand-brake, easy-starting device and speedometer.

Every 8000 km (5000 miles)

Change the oil:

15. In the gear-box;

16. In the differential housing;

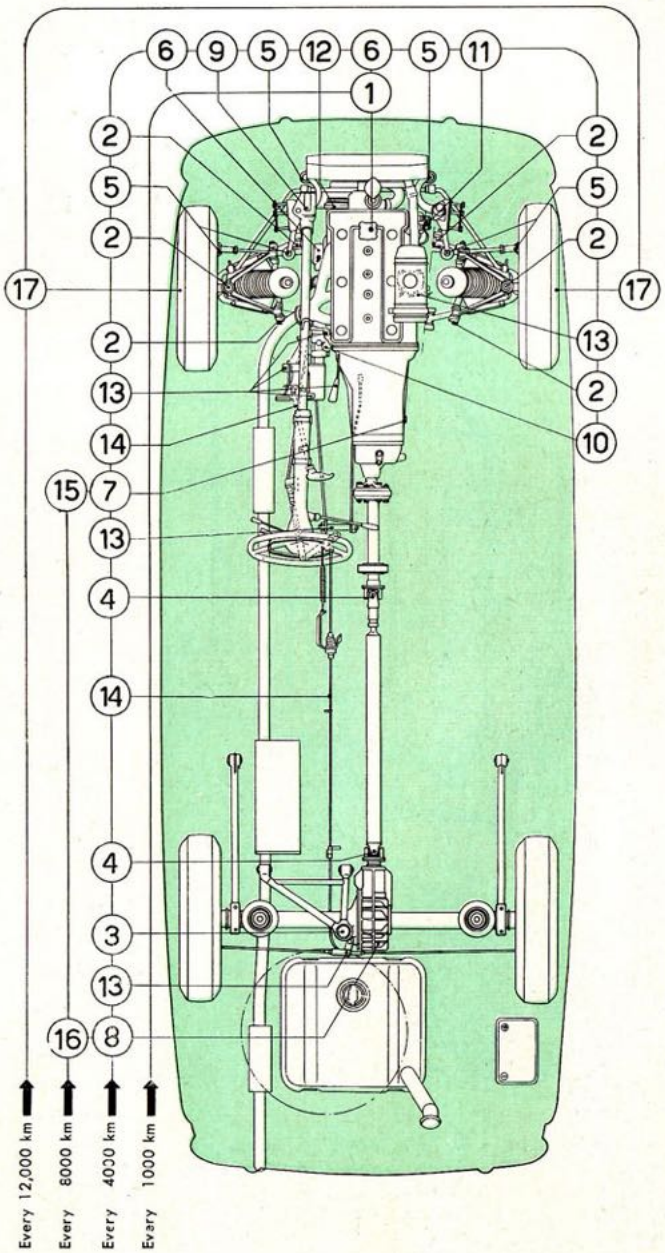
— Grease the hinges and locks on the doors, bonnet and luggage compartment.

Every 12,000 km (7500 miles)

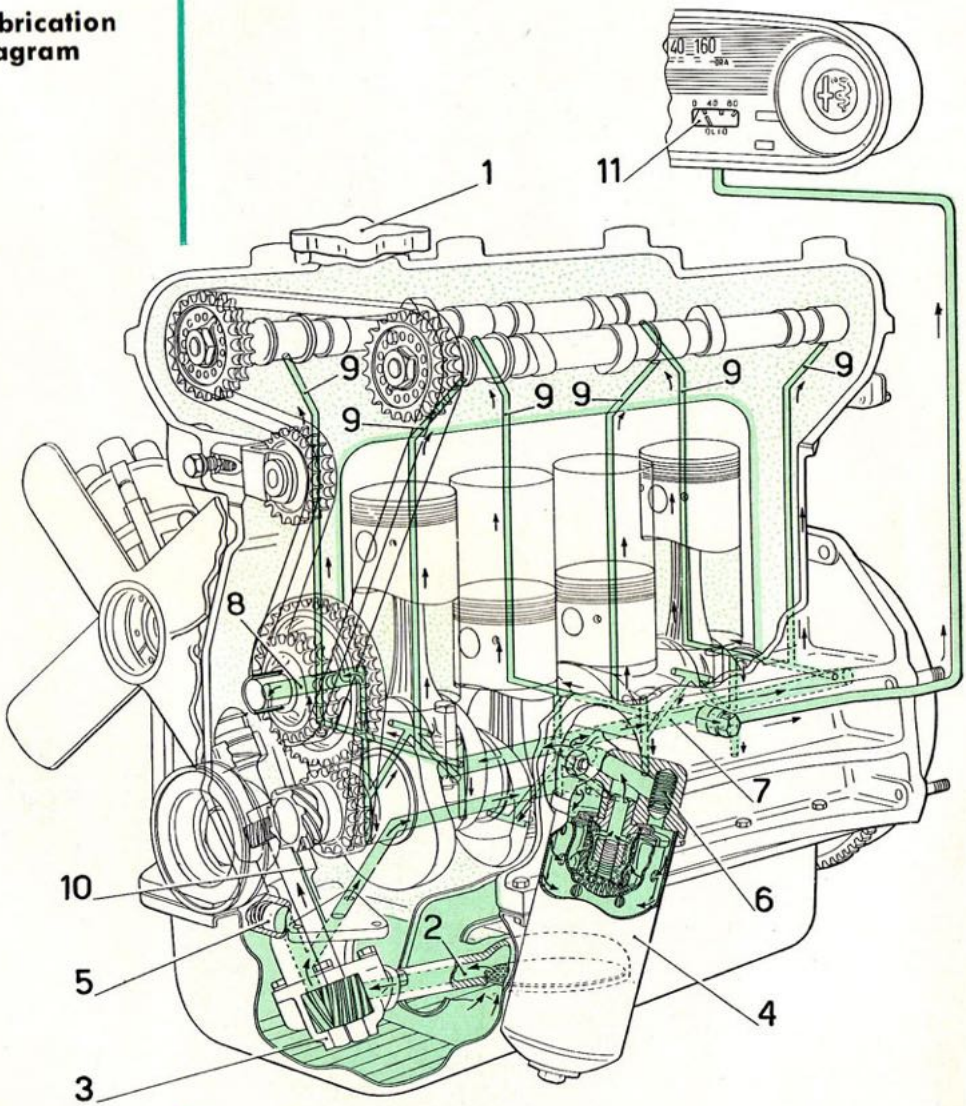
17. Grease the front-wheel bearings.

Use only the recommended lubricants detailed on page 57.

Frequency schedule



Lubrication diagram



1. Oil filler cap - **2.** Oil intake in sump, with filter - **3.** Oil pump - **4.** Oil filter - **5.** Safety valve - **6.** Filter cartridge by-pass valve to operate if cartridge is clogged - **7.** Main oil feed duct - **8.** Oil duct to intermediate timing gear sprocket - **9.** Oil duct to camshafts - **10.** Oil duct to distributor driving gears - **11.** Pressure gauge.

Lubrication

The engine is force-lubricated by means of a submerged gearwheel pump located on the front cover of the crankcase. The distributor spindle is connected to an extension of the pump drive shaft which in turn is driven direct by the crankshaft through a pair of helical gears.
Oil under pressure passes through the filter and then enters the main duct provided in the crankcase.
Secondary ducts lead off the main feed duct and lubricate the bearings of the crankshaft, camshaft and intermediate timing sprocket spindle.
Oils is taken to the connecting-rod bearings and intermediate main bearings through channels machined in the crankshaft; the timing-gear sprockets are splash lubricated; and the chain also carries and distributes the oil it collects.

Sump oil level

The level of the engine oil in the sump should be checked before the engine is first run and then every 1000 Km (625 miles). The level must never be allowed to fall below the bottom mark on the dipstick nor exceed the top mark.

Changing the engine oil and the filter cartridge

When an engine is new or recently overhauled, the engine oil and the cartridge should be changed at more frequent intervals than those show on page 34.

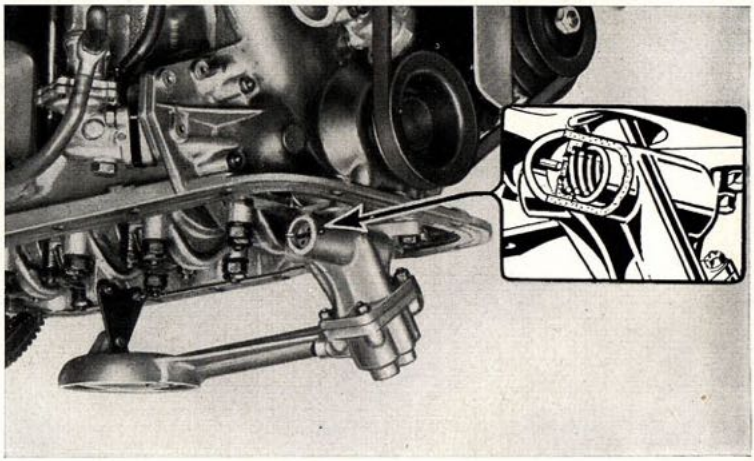
Once an engine is run in, the oil and the cartridge must be replaced every 4000 Km (2500 miles).

The oil pressure is adjusted by a valve on the pump body. If the pressure falls below the minimum values set out in the table, an authorised Alfa Romeo service station must be employed to trace and remedy the fault.

Oil pressures with hot engine

— Maximum pressure at maximum revs: 4.5 to 5 kg/cm² (64 to 70 p.s.i.)
— Minimum pressure at maximum revs: 3.5 kg/cm² (49 p.s.i.)
— Minimum pressure at minimum revs: 0.5 to 1 kg/cm² (7 to 14 p.s.i.)

To increase the oil pressure a shim washer of suitable thickness must be inserted between the spring and the plug in the pump body.
If the pressure is still less than that prescribed, check the pressure gauge with a master gauge; if the trouble persists, check the extent of wear of the pump gears and of the crankshaft and connecting-rod bearings.



OIL FILTER

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 cartridge if it should become clogged.

Every 4000 km (2500 miles).

Fit a new filter cartridge and carefully clean the case.
It should be remembered that the periodical replacement of the cartridge, the perfect cleaning and assembly of the filter are essential if the engine is to give its best performance.
On re-assembling the filter, make sure that the gasket is in a good condition.

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

Lubrication

The recommended engine oils have a highly detergent capacity. If the engine has been run for a long time with non-detergent oils, detergent oil must not be added, as the deposits adhering to the various parts of the engine will be released by the detergent substances and will choke the oil filter and oil ducts with the consequent damage to the crankshaft and connecting-rod bearings and to the all components thereby deprimed of oil.
If it is intended to replace a non-detergent oil with a detergent oil, proceed as follows:

1) Drain off the old oil

- run the engine until it reaches its normal operating temperature;
- completely drain the sump;
- remove the filter case and empty it of oil and sludge;
- examine the filter element which must be in a good condition; if it appears clogged, change it.

2) Fill up with new oil

3) First oil change

- after 200 to 500 km (125 to 300 miles) according to the distance covered with non-detergent oil, drain the sump and filter as described above;
- replace the filter element;
- fill up with new oil.

4) Subsequent oil changes

- After the first oil change as described under 3, proceed as for normal lubrication.

Lubrication

RECOM-MENDED LUBRICANTS AND OILS

The various parts of the car must be lubricated in accordance with the schedule on page 50; always use an oil selected from the following table:

Unit to be lubricated	BP	SHELL	
— **Engine**	BP Energol Visco-Static	Shell X - 100 M.O. 20 W 40	**Lubricants**
— **Gear-box**	BP Energol Gear-oil, SAE 90	Shell Dentax 90	
— **Differential housing** — **Steering box**	BP Energol Gear-oil, EP SAE 90	Shell Spirax 90 EP	
— **Ball joints, front and rear suspension** — **Front suspension arm pivots** — **Universal joints on propeller shaft** — **Steering linkage ball joints**	PB Energrease A 1	Shell Retinax G	
— **Front wheel bearings** — **Distributor**	BP Energrease L 3	—	
— **Front and rear suspension shock-absorbers**	BP Energol Shock-absorber	Shell Donax A 1	**Shock absorber oil**
— **Damper on Solex carburetter throttle counter-weight 35 APAI-G**	BP Energol HD SAE 10 W	Shell Rotella 20	
— **Brake fluid supply tank**	BP Energol brake fluid	Shell Donax B 70 R 1	**Brake fluid**

NOTE: The reference numbers and letter are those used in Italy.

Maintenance

PART IV

Every 1000 km (625 miles)

1. Check the water level in the radiator.

Every 2000 km (1250 miles)

2. Check the battery electrolyte level.

Every 4000 km (2500 miles)

3. Adjust the fan-belt tension.
   — Make sure that all gaskets, hoses, unions and pipes are tight.
4. Balance the wheels and change them round.
5. Adjust the brake-shoe-drum clearance.
6. Check the battery electrolyte density.
7. Clean the air filter.

Every 8000 km (5000 miles)

8. Clean the sparking plugs and check the electrode gaps.
9. Adjust the tension of the valve timing chain.
10. Adjust the distributor contact gap.
11. Clean the fuel filters and the carburetter bowl.
12. Adjust the clutch pedal free travel.
13. Check the play in the steering-gear ball-joints and in the steering box.
14. Check front-wheel toe-in and camber.
15. Check that the shock-absorbers are efficient and secure.
16. Check the rubber pads for the engine mounting, the propeller shaft and the rear axle.
17. Check the valve clearances.
    — Check the valves and ignition timing.
    — Check the cylinder compression.
    — Retighten all nuts and bolts.
    — Check the lighting and signalling equipment.
18. Examine the brake linings for wear.
19. Make sure that the dynamo is securely attached to the engine.
    — Check the dynamo brushes and commutator.

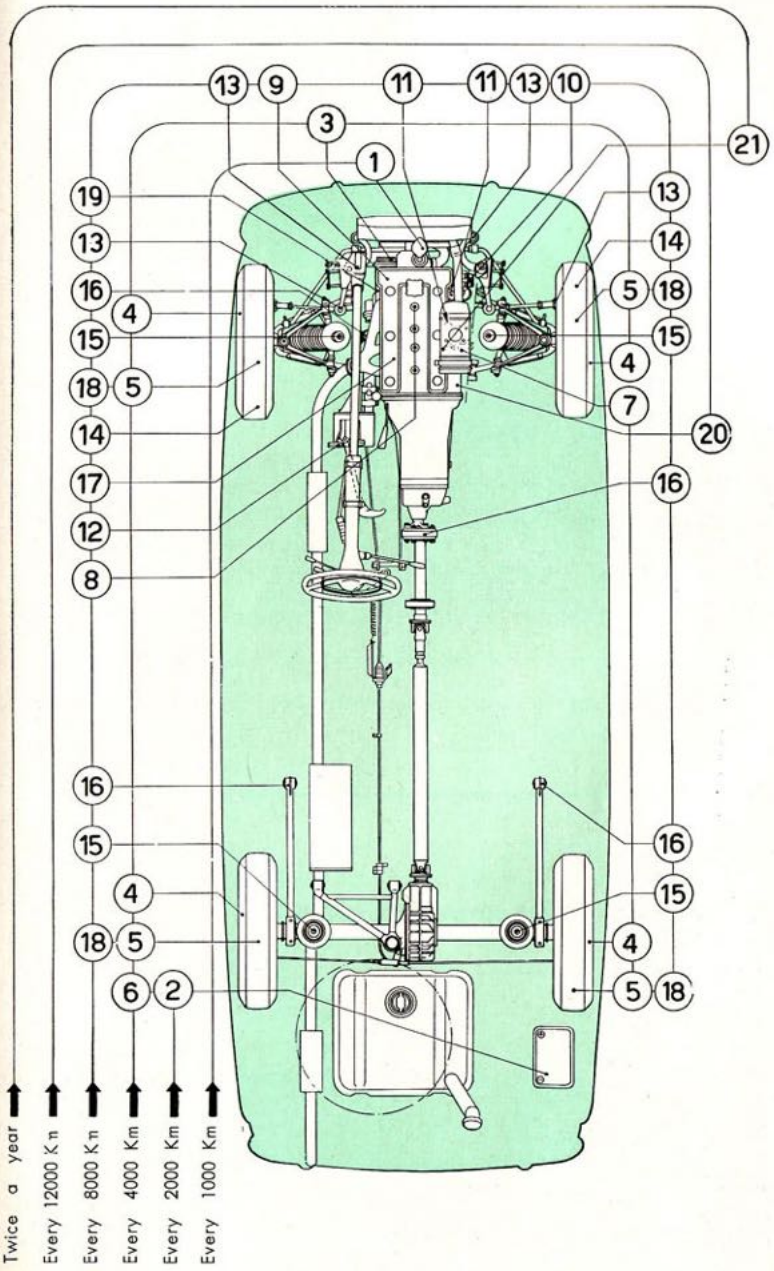
Every 12,000 km (7500 miles)

20. Examine the starter motor brushes and commutator.

Twice a year

21. Remove the 35 APAI-G Solex carburetter throttle counterweight damper, clean it and fill it with fresh oil.

Maintenance diagram



Regular maintenance as described above must be carried out with the greatest possible degree of care, at the intervals stated, and while bearings in mind the following basic rules:

— do not dismantle components or units while hot;

— during dismantling operations always use suitable spanners and screw-drivers, or the appropriate special tools and jigs;

— carefully clean all dismantled parts so that they may be properly examined;

— always use genuine original spares;

— when re-assembling dismantled equipment, always fit new:
  — gaskets to filter covers, plugs, etc.;
  — oil seals and water seals;
  — split pins, set-screws, locking plates, lock-nuts, etc.;

— when refitting the various units, maintain the original order of assembly and observe any reference marks stamped on the individual components;

— tighten nuts with a torque wrench set to the prescribed values;

— carefully straighten all split pins, locking plates and hose clips;

— moderately tighten all unions, taking care not to damage the tubes connected to them.

TIGHTENING NUTS

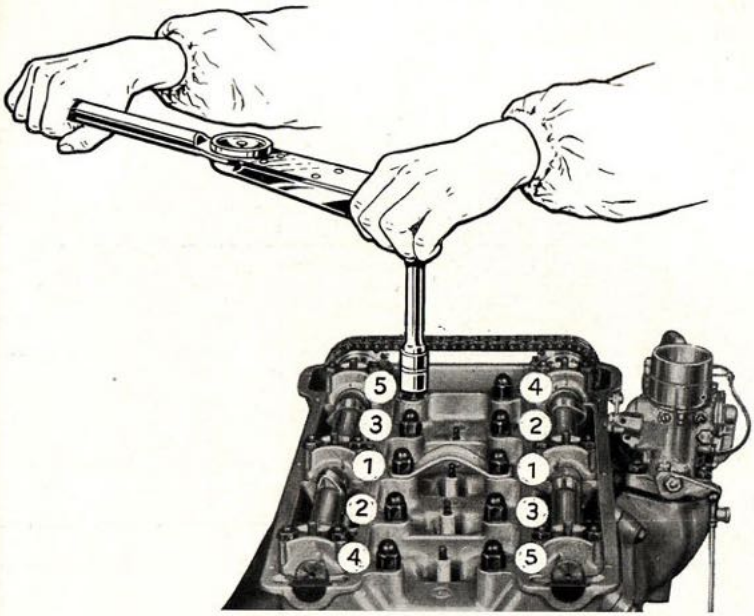
To avoid unduly stressing the metal, the cylinder head nuts, connecting-rod bolts and main bearing cap studs **must be tightened with a torque wrench to the prescribed values.**

Torque-wrench values

The following torque-wrench values must be observed:

Cylinder-head nuts		5.4 to 5.6 kgm.
Main bearing caps		3.2 to 3.5 kgm.
Connecting-rod bearing caps	Berlina, t.i., Sprint, Spider	3.4 to 3.6 kgm.
	Spider Veloce, Sprint Veloce, Sprint Speciale, Sprint Zagato	3.6 to 3.9 kgm.

TIGHTENING NUTS



Cylinder-head nuts tightening order

The cylinder-head nuts must first be tightened when the engine is quite cold, and then again with the engine hot.
To avoid false readings, the nuts must first be slackened by at least one quarter of a turn and then tighten them to the prescribed torque-wrench value.
The threads of the main bearing and connecting-rod bearing caps must be copiously greased.

WARNING

When the cylinder-head gasket is replaced, the nuts must be checked for tightness after the first 500 km. (300 miles) and tightened if necessary to a torque-wrench figure of 5.4 to 5.6 kgm.

The overhead valves are V-located at an angle of 90%; they are driven by twin camshafts acting through oil-bath cups.

Timing data:

Berlina, t. i. Sprint, Spider

Valve Clearances with cold engine	inlet exhaust	0.475 to 0.50 mm. 0.525 to 0.55 mm.
Inlet valves	opening starts closing ends	25° 20' before TDC 68° after BDC
Exhaust valves	opening starts closing ends	61° 20' before BDC 18° 40' after TDC

Sprint Veloce Spider Veloce

Valve Clearances with cold engine	inlet exhaust	0.375 to 0.40 mm. 0.535 to 0.56 mm.
Inlet valves	opening starts closing ends	34° before TDC 63° after BDC
Exhaust valves	opening starts closing ends	63° before BDC 30° after TDC

Sprint Speciale Sprint Zagato

Valve Clearances with cold engine	inlet exhaust	0.275 to 0.30 mm. 0.475 to 0.50 mm.
Inlet valves	opening starts closing ends	46° before TDC 65° after BDC
Exhaust valves	opening starts closing ends	65° before BDC 34° after TDC

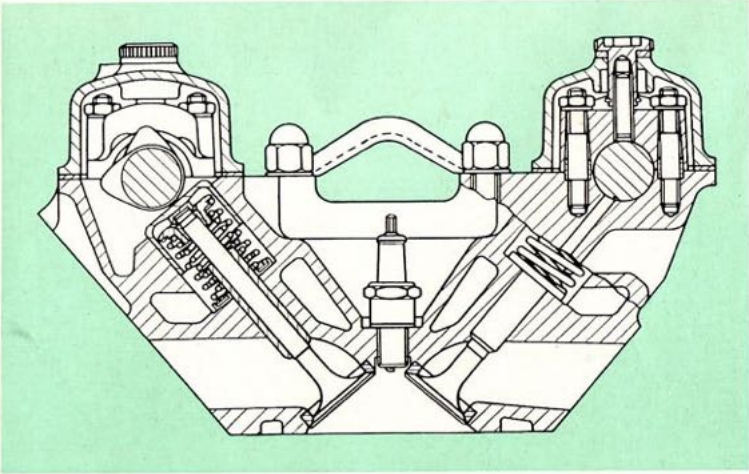
Every 8000 Km. (5000 miles)

Check the valve and cam gap and adjust as necessary.

Valve clearance adjustment

When the engine is cold, carefully measure the clearance with a feeler gauge. If the clearance is incorrect, remove camshaft and valve cups; measure the thickness of the cap on the stem of each valve and replace it with another of proper thickness so that the clearance is that shown in the table.

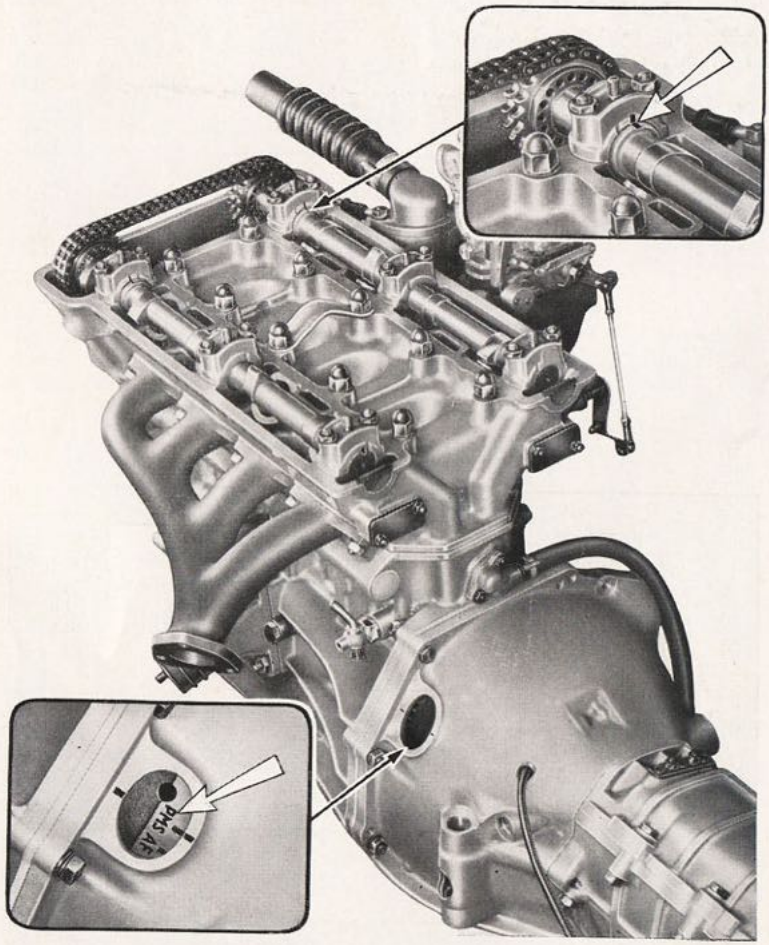
To facilitate this adjustment when the engine is cold, the caps are made available in a series of thicknesses ranging from 1.5 to 2.5 mm. in stages of 0.025 mm.



Sectional view through the cylinder head.

Checking valve timing

The valve timing is correct when, with cylinder No. 1 in the compression phase, the reference mark cut on the flywheel and marked PMS (TDC) is in the centre of the inspection window and when the reference marks cut on the camshaft collars are in line with the marks on the camshaft front bearing caps.



Reference marks to assist in valve timing. (The cams must be in the position shown in the photographs).

If, due to chain stretch or any other cause, the marks on the camshafts have shifted by more than 2° (approx. 1 mm.) in relation to those on the brackets, slacken the bolts and remove the pins securing the sprockets to the camshafts; then, while holding the sprockets firm, rotate the camshafts (using a suitable wrench on the shaft journals) until the reference marks line up. Then refit the pins and tighten the bolts.

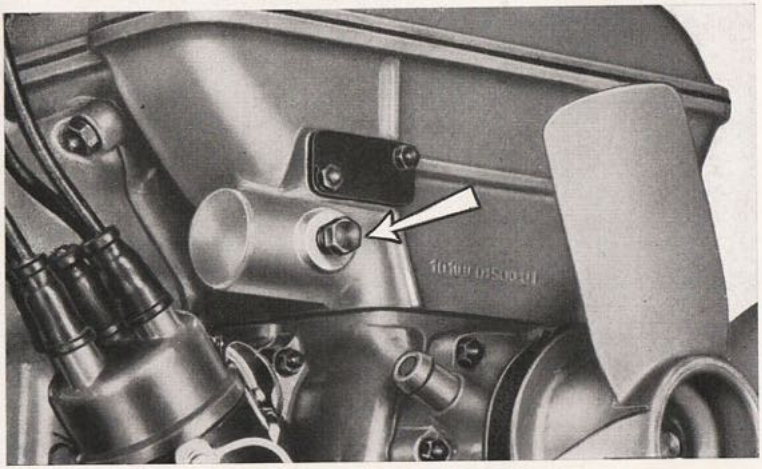
Adjusting chain tension

To tighten the chain, proceed as follows:

— slacken the screw securing the tensioning device;

— run the engine for a few seconds at idling speed to allow the tensioning device to tighten the chain;

— tighten the securing screw.



Chain tensioning screw.

Fuel pump on the Berlina, t. i. Sprint, Spider

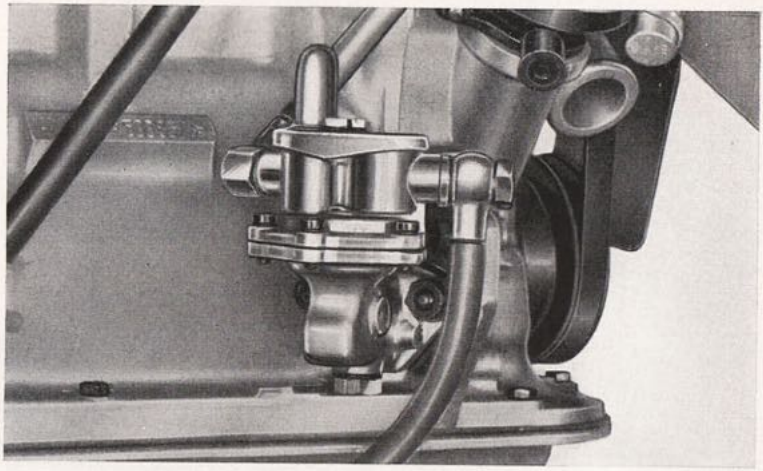
In the case of the Berlina, t.i., Sprint and Spider, the fuel supply is ensured by means of a mechanical pump located on the right-hand side of the engine and actuated by the distributor driving spindle. Should the fuel pump operation prove faulty, first make sure that there are no leaky unions or damaged gaskets, and then:

— check the condition of the filter, and wash it with petrol and an air blast;

— check the condition of the suction and delivery valves and their springs; wash them with petrol and an air blast. If damaged, fit news ones;

— check the condition of the diaphragm and fit a new one if it is worn or damaged.

The presence of leaks is shown by drops of petrol appearing at the drain hole in the pump bottom body.



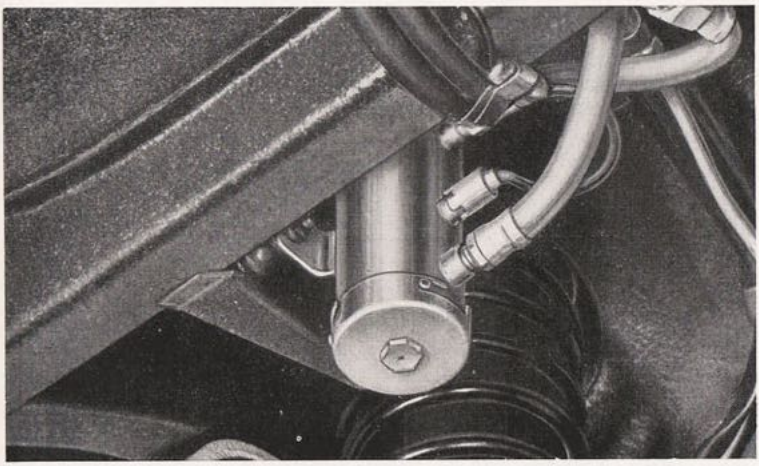
Petrol pump on the Spider Veloce Sprint Veloce Sprint Speciale Sprint Zagato

In the case of the Spider Veloce, Sprint Veloce, Sprint Speciale and Sprint Zagato, the fuel feed is ensured by an electric pump located beneath the car floor near the fuel tank.

Should the fuel pump operation prove faulty, make sure that the fuel line unions are tight and that the electrical leads (both live and earth) are sound.

If the trouble continues, consult an Alfa Romeo authorised Service Station.

To clean the pump, remove the cover and flush the pump with petrol.

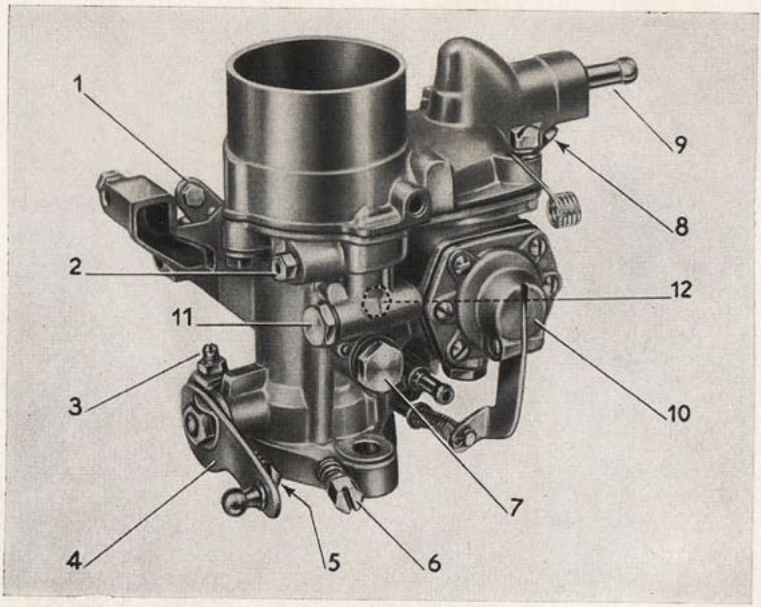


Solex 32 PBIC carburetter - on the Berlina

The Solex 32 PBIC carburetter fitted to the Berlina is of the down-draught type incorporating an easy-starting device and an acceleration pump.

Adjustment data

Choke tube	21
Main jet	105
Main air rectifier jet	180
Idling jet	40
Idling air rectifier jet	100
Easy-starting jet	130
Acceleration pump jet	45



1. Easy-starting control lever - **2.** Idling jet. - **3.** Adjustment screw for maximum throttle opening - **4.** Throttle control lever. - **5.** Adjusting screw for minimum throttle opening - **6.** Adjusting screw for idling mixture. - **7.** Main jet - **8.** Filter - **9.** Fuel inlet union - **10.** Acceleration pump - **11.** Acceleration pump jet - **12.** Easy-starting jet.

Idling speed adjustment

If the engine runs unevenly at idling speed, or tends to stall, the carburetter must be adjusted. This should be done when the engine is hot and after first making sure that the sparking plugs are not defective.

To adjust the idling speed, proceed as follows:

— slightly tighten screw **5** (for adjusting the minimum throttle opening) to make the engine run faster;

— slacken screw **6** (for adjusting the idling mixture) until the engine begins to "hunt"; then tighten it gradually until the engine runs smoothly;

— gradually slacken screw **5** until the engine speed is approx. 450 r.p.m.;

— if the engine again begins to "hunt", slightly tighten screw **6; in no case must this screw be tightened to its maximum extent.**

Carburetter maintenance

Every 8000 Km. (5000 miles)

Clean the filter bowl and the jets. When cleaning the jets, use compressed air only; never use metal probes as such treatment could alter the jet diameter.

When the carburetter requires an overhaul, always consult an authorised Alfa Romeo Service Station.

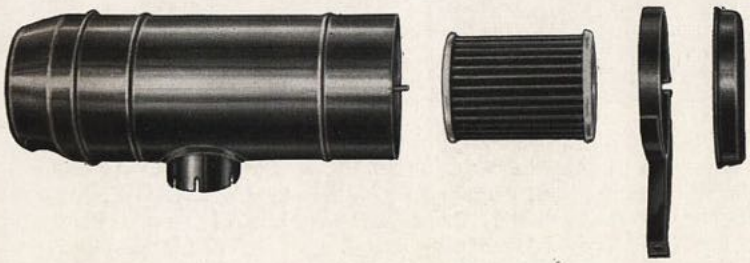
Air cleaner - Berlina

The air filter consists of a silencer and a moulded felt star filter element designed to provide the maximum cleaning surface.

Every 4000 Km. (2500 miles)

Remove the air-cleaner cover and withdraw the filter element.

Cleanse the element carefully by blowing slow pressure air inside it.

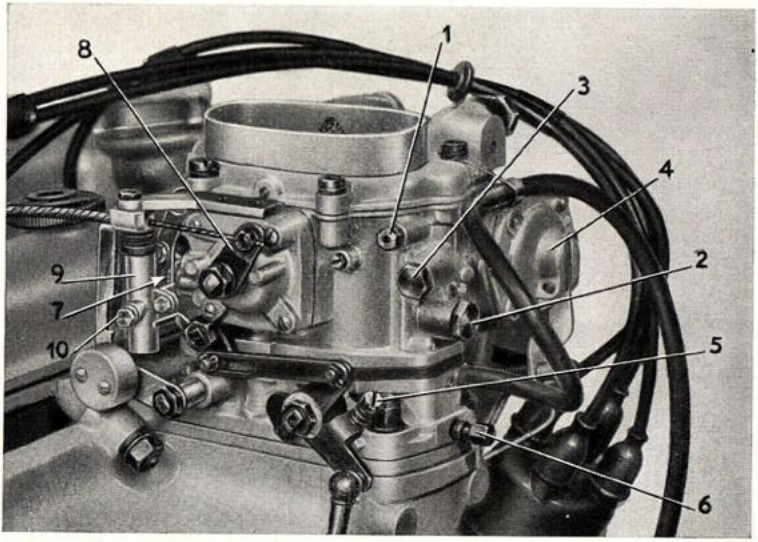


Solex 35 APAI-G carburetter for the t. i.

The vertical twin Solex 35 APAI-G carburetter incorporates an easy-starting device and an acceleration pump.
The throttle in the second chamber (on the engine side) opens when the throttle in the first chamber has travelled through rather more than half its stroke; beneath the throttle in the second chamber is a third throttle, held closed by a counterweight, and this third throttle opens automatically when, with the second throttle partially open, the vacuum within the inlet manifold reaches a pre-set value.

Adjustment data

	1st Chamber	2nd Chamber
Choke tube	24	24
Main jet	130	155
Main air rectifier jet	180	110
Idling jet	40	—
Idling air rectifier jet	100	—
Easy-starting jet	160	—
Accleration pump jet	60	—



1. Idling jet - **2.** Main jet for No. 1 choke tube - **3.** Acceleration pump jet - **4.** Acceleration pump - **5.** Adjusting screw for minimum throttle opening - **6.** Adjusting screw for idling mixture - **7.** Main jet for No. 2 choke tube - **8.** Easy-starting control lever - **9.** Shock-absorber for counterweight on 3rd throttle - **10.** Oil inlet plug.

Idling speed adjustment

If the engine runs unevenly at idling speed, or tends to stall, the carburetter must be adjusted. This should be done when the engine is hot and after first making sure that the sparking plugs are not defective.

To adjust the idling speed, proceed as follows:

— slightly tighten screw **5** (for adjusting the minimum throttle opening) to make the engine run faster;

— slacken screw **6** (for adjusting the idling mixture) until the engine begins to "hunt"; then tighten it gradually until the engine runs smoothly;

— gradually slacken screw **5** until the engine speed is approx. 450 r.p.m.;

— if the engine again begins to "hunt", slightly tighten screw **6; in no case must this screw be tightened to its maximum extent.**

Carburetter maintenance

Every 8000 Km. (5000 miles)

Clean the bowl and the jets. When cleaning the jets, use compressed air only; never use metal probes as such treatment could alter the jet diameter.

Whenever the carburetter requires dismantling, overhauling or adjustment, always consult an authorised Alfa Romeo Service Station.

Twice Yearly.

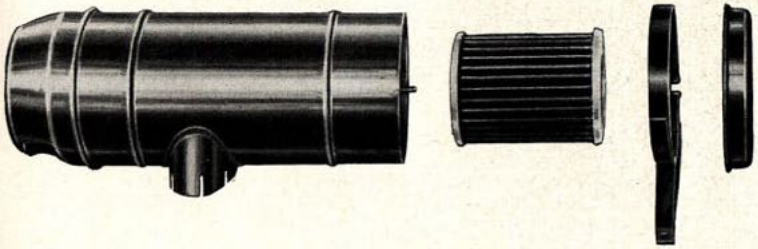
Remove the counterweight shock-absorber, wash it with petrol and refill with fresh oil.

Only the recommended type of oil should be used, and it must be inserted via the orifice closed by plug **10.**

The shock-absorber is full when the oil level reaches the bottom edge of the tapped hole. During the filling operation slowly raise and lower the control rod so that the oil may penetrate beneath the plunger.

Air cleaner - t. i.

The air cleaner is of the same type as that fitted to the Berlina. For maintenance instructions see Page 71.

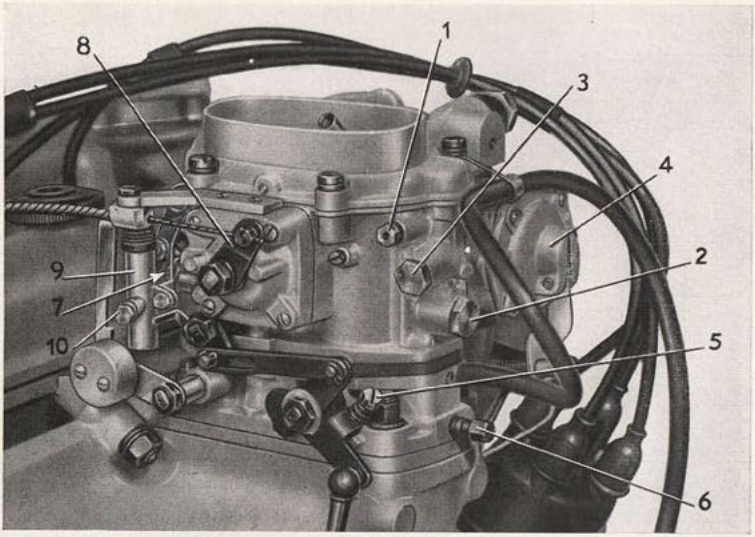


Solex 35 APAI-G carburetter for the Sprint and Spider

The twin vertical Solex 35 APAI-G carburetter incorporates an easy-starting device and an acceleration pump.
The throttle in the second chamber (on the engine side) opens when the throttle in the first chamber has travelled through rather more than half its stroke; beneath the throttle in the second chamber is a third throttle, held closed by a counterweight, and this third throttle opens automatically when, with the second throttle partially open, the vacuum within the inlet manifold reaches a pre-set value.

Adjustment data

	1st Chamber	2nd Chamber
Choke tube	24	24
Main jet	115	160
Main air rectifier jet	150	160
Idling jet	40	—
Idling air rectifier jet	100	—
Easy-starting jet	160	—
Acceleration pump jet	60	—



1. Idling jet - **2.** Main jet for No. 1 choke tube - **3.** Acceleration pump jet - **4.** Acceleration pump - **5.** Adjusting screw for minimum throttle opening - **6.** Adjusting screw for idling mixture - **7.** Main jet for No. 2 choke tube - **8.** Easy-starting control lever - **9.** Shock-absorber for counterweight on 3rd throttle - **10.** Oil inlet plug.

Idling speed adjustment

If the engine runs unevenly at idling speed, or tends to stall, the carburetter must be adjusted. This should be done when the engine is hot and after first making sure that the sparking plugs are not defective.
To adjust the idling speed, proceed as follows:

— slightly tighten screw **5** (for adjusting the minimum throttle opening) to make the engine run faster;

— slacken screw **6** (for adjusting the idling mixture) until the engine begins to "hunt"; then tighten it gradually until the engine runs smoothly;

— gradually slacken screw **5** until the engine speed is approx. 450 r.p.m.;

— if the engine again begins to "hunt", slightly tighten screw **6; in no case must this screw be tightened to its maximum extent.**

Carburetter maintenance

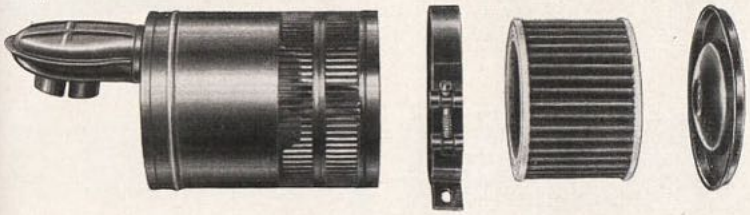
The Solex carburetter fitted to the Sprint and Spider versions differs from that on the t.i. car only where the adjustment data are concerned; maintenance is therefore exactly as described on Page 73.

Air cleaner - Sprint and Spider

The air filter consists of a silencer and a moulded felt star filter element designed to provide the maximum cleaning surface.

Every 4000 Km. (2500 miles)

Remove the air-cleaner cover and withdraw the filter element.
Cleanse the element carefully by blowing slow pressure air inside it.

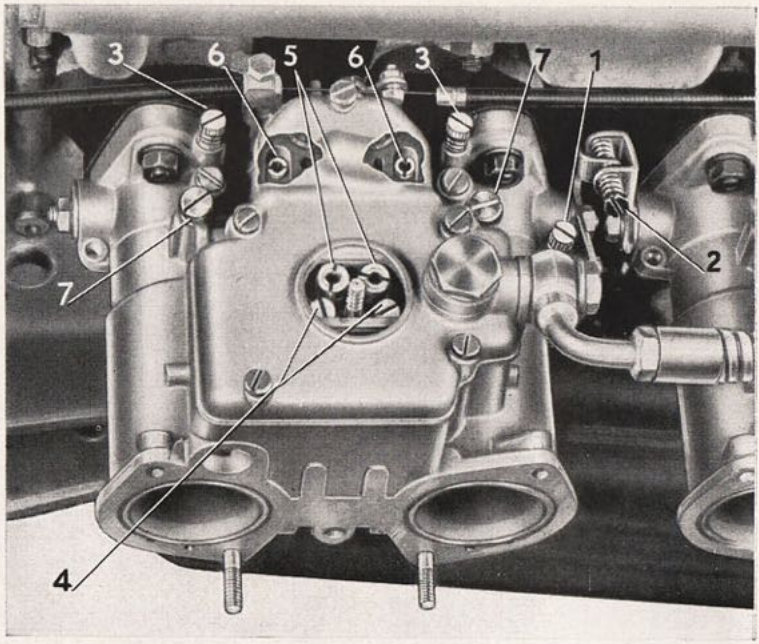


Weber 40 DCOE 2 carburetter for the Sprint Veloce Spider Veloce Sprint Speciale Sprint Zagato

The Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato cars are fitted with two Weber 40 DCOE 2 horizontal twin carburetters.

Adjustment data

Choke tubes	29
Main jets	110
Main air rectifier jets	200
Idling jets	50 (with 150 axial port)
Idling air rectifier jets	120
Easy-starting jets	60 - F 5
Accelerating pump jets	35



1. Adjusting screw for minimum throttle operating - **2.** Synchronisation screw - **3.** Adjusting screws for the idling mixture - **4.** Holder for idling jets - **5.** Air rectifier and main jets - **6.** Easy-staring jets - **7.** Acceleration pump jets.

Adjusting idling speed

Should the engine run unevenly or tend to stall, the carburetters should be adjusted; this should be done when the engine is hot and after making sure that the sparking plugs are in good working order. To adjust the idling speed proceed as follows:

— fully slacken screw **1** (for adjusting the minimum throttle opening in carburetter No. 2) and screw **2** (synchronisation screw on carburetter No. 1). Then tighten the screws until they just touch the striking plates, and then give them a further half turn.

— start the engine and slightly tighten screw **1** to adjust the throttle minimum opening so that the engine runs faster.

— slacken screws **3** (for adjusting the idling mixture) until the engine begins to "hunt"; then tighten them gradually until the engine runs smoothly.

— gradually slacken screw **1** (for adjusting the throttle minimum opening) until the engine is running at about 600/700 r.p.m.

— if the engine again begins to "hunt", slightly tighten screws **3** (for adjusting the idling mixture); **on no account must these screws be fully tightened.**

Carburetter maintenance

For carburetter maintenance see the instructions for the Berlina carburetter on Page 71.
If an overhaul is required, always consult an authorised Alfa Romeo Service Station.

Air cleaner on the Sprint Veloce Spider Veloce Sprint Speciale and Sprint Zagato

The air cleaner consists of a silencer and a moulded felt star filter element designed to provide the maximum cleaning surface.

Every 4000 Km. (2500 miles)

Remove the air-cleaner cover and withdraw the filter element.
Cleanse the element carefully by blowing slow pressure air inside it.

On the Berlina, t.i., Spider and Sprint, the ignition system is of the battery and distribution type with a centrifugal advance device incorporating a pneumatic advance corrector connected to the carburetter.
The pneumatic advance correcting device reduces the consumption of fuel when the engine is running at reduced power.
The distributors on Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato are not fitted with the pneumatic advance correcting device.

Firing order: 1 - 3 - 4 - 2.

Advance data

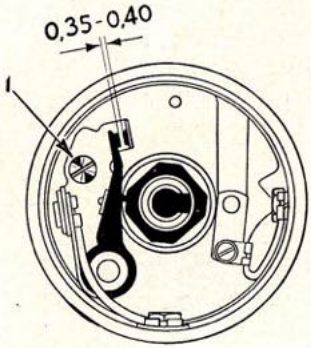
Car	Distributor	AF Fixed Advance	AM Max. Advance
Berlina, t. i. Sprint, Spider	Marelli S71B Lucas DM2	8°	43° ± 3 at 5000 r.p.m.
Sprint Veloce Spider Veloce Sprint Speciale Sprint Zagato	Marelli S73A	5°	46° ± 3 at 5000 r.p.m.

Distributor Contact-breaker gap: 0.35 to 0.4 mm.
This gap can be adjusted by means of adjusting screw **1.** The contacts must always be flat, bright and clean; if necessary they may be trued up with a fine file.
The contacts should be cleaned with a rag dipped in petrol.

Lubrication

Every 2000 Km. (1250 miles) - Marelli distributor.
Tighten by 2/3 turns the grease plug on the distributor body.

Every 4000 Km. (2500 miles) - Marelli distributor.
Refill the grease cup on the distributor with bearing grease BP Energrease L 3.



Every 4000 Km. (2500 miles) Lucas distributor.
Remove the rotor arm and apply several drops of oil both on the cam splindle and around the rotor arm plate in order to lubricate the centrifugal advance mechanism located beneath the plate. Smear a thin coating of grease on the rotor arm.

1. Contact-breaker gap adjustment screw.

Checking ignition timing

To check the ignition timing proceed as follows:

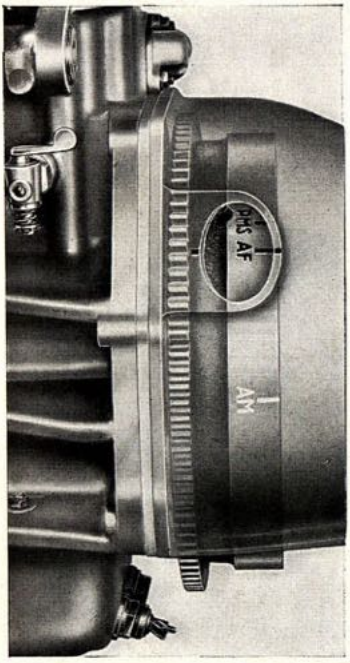
1) turn the crankshaft to bring cylinder No. 1 to the compression phase, that is, with both valves closed;

2) By means of small turns of the crankshaft bring the fixed advance mark **(AF)** cut on the flywheel rim into line with the centre of the inspection window;

3) remove the distributor cap and check whether the contact-breaker points begin to open when the engine is turned slightly in its normal direction of rotation.

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

— disconnect the rubber pipe from the pneumatic advance corrector;
— run the engine at about 5,000/5,300 r.p.m. and direct the light from the stroboscopic gun onto the inspection window. If the timing is correct, the **AM** mark (maximum advance) stamped on the flywheel will be seen to be in line with the centre of the inspection window. If it is found that the maximum advance is greater or less than the prescribed values, adjust the fixed advance accordingly, as it is better to have correct timing at high speeds than at low speeds.



AF (fixed advance and AM (maximum advance) reference marks.

Timing correction

If the timing requires correction proceed as follows:

— slacken the nut on the fixing bolt **1;**

— rotate the distributor body anti-clockwise or clockwise according to whether it is necessary to advance or retard the ignition;

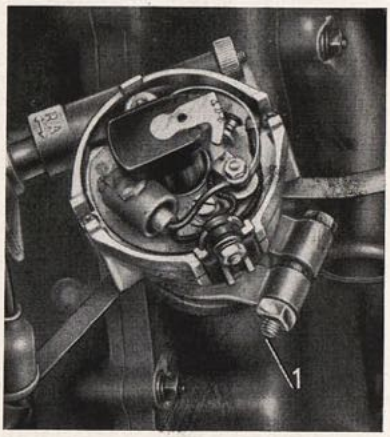
— re-tighten the nut, taking care not to move the distributor body.

In the case of the Lucas distributor, small timing adjustments be made by turning the knurled nut on the distributor body; the ignition is retarded by tightening the nut, and advanced by slackening it.

Timing the distributor after removing it from the engine

To re-time the ignition after removing the distributor from the engine, proceed as follows:

1) rotate the crankshaft to bring the piston in No. 1 cylinder to the compression phase, that is, with both valves closed;
2) by slightly rotating the crankshaft bring the **AF** (fixed advance) mark on the flywheel to the centre of the inspection window;
3) remove the distributor cap and rotate the distributor driving spindle by hand until the rotor arm is opposite the contact for ignition in cylinder No. 1;
4) check to ensure that in this position the contacts are about to separate;
5) at this moment, and without moving the spindle, fit the distributor to its bracket and tighten the nut on the retaining bolt.
6) check the ignition timing as described on the previous page.



1. Nut and bolt securing the distributor body to its bracket.

Sparking plugs

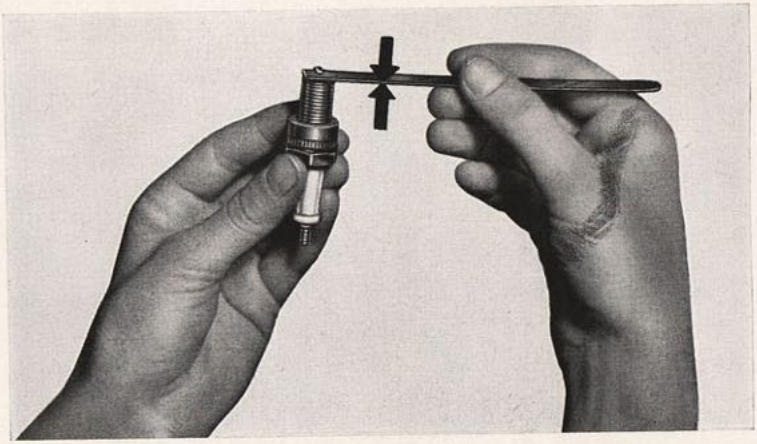
The gap between the sparking plug electrodes must be as shown in the following table:

Car	Sparking Plug	Electrode Gap. mm.
Berlina	Lodge HLN	0.5 to 0.6
t. i.	Lodge HLN	0.5 to 0.6
Sprint and Spider	Lodge 2HLN/G	0.55 to 0.65
Sprint Veloce and Spider Veloce	Lodge RL 47 Lodge 2HLN/G	0.38 to 0.46 0.55 to 0.65
Sprint Speciale and Sprint Zagato	Lodge RL 47	0.38 to 0.46

Tighten spark plugs with a torque wrench to the value of:

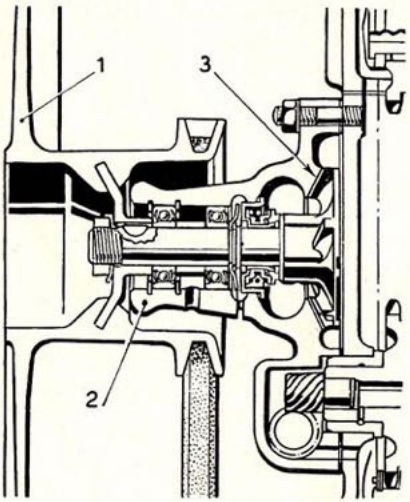
2.5 to 3.5 Kgm

and lubricate the thread with graphited grease.



Checking the electrode gap

Water pump



Engine cooling is assured by a forced water circulation system fitted by a centrifugal pump.
The water pump is incorporated in the fan bracket and is driven by the belt that also drives the fan and the dynamo.

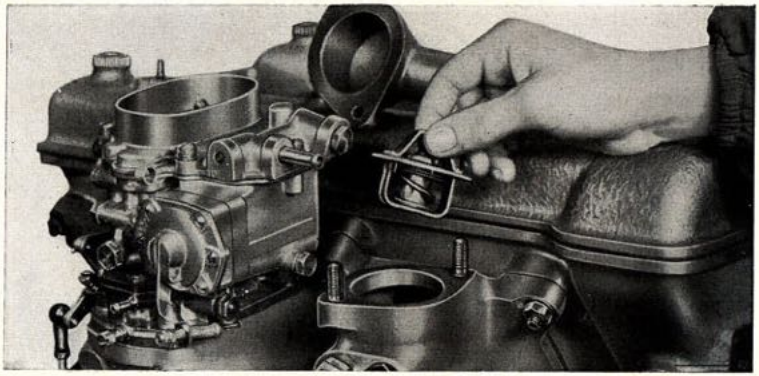
1. Fan - **2.** Pump body - **3.** Impeller.

Thermostat

In the case of the Berlina, t.i., Sprint and Spider the thermostat is located on the inlet manifold. In the case of the Sprint Veloce, Sprint Speciale, Spider Veloce and Sprint Zagato, it is fitted in the water outlet channel between the cylinder head and the radiator.
To ensure the rapid heating-up of the engine, the valve must open at the prescribed temperature:

Opening temperature: 82° to 87 °C (180° to 190 °F).

As the water can reach a temperature of 105° to 110 °C (221° to 230° F) the cooling circuit is under pressure even in the radiator.



Radiator

Should symptoms of excessive water consumption be apparent, check to make sure that there are no leaks around the rubber hose; also check the plug, making sure that the spring, the gasket and the valve are all sound. In the event of doubt always fit a new plug.

Cleaning the cooling circuit

To maintain efficient engine cooling, all scale deposited by the cooling water must be removed from the radiator and engine. To do this proceed as follows:

— completely drain the water from the engine and radiator;

— fill the engine and radiator with a solution of approx. 8 litres (16 pints) of water and 300 grams (three-quarters of a pound) of sodium carbonate.

— run the engine slowly for 10/15 minutes;

— drain off the solution;

— allow the engine to cool down, and then circulate running water through the radiator and engine while leaving the drain tap on the engine open;

— fill up with water and run the engine slowly for a few minutes;

— drain the circuit once more and fill up with fresh water.

The cooling circuit should be washed in this way before adding anti-freeze at the onset of winter.

Adjusting the fan belt tension

The proper belt tension must be maintained.

— **If the tension is insufficient,** the belt will slip and suffer premature wear; in addition:

— the cooling action will be reduced due to the drop in speed of the fan and water pump;

— the battery charging current will be reduced due to the slower dynamo speed.

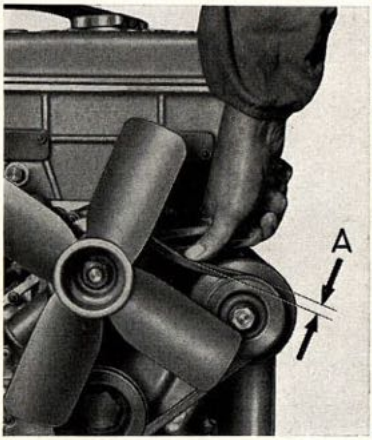
— **If the tension is excessive** the dynamo and water pump bearings will be overloaded with the consequent risk of damage.

Every 4000 Km. (2500 miles)

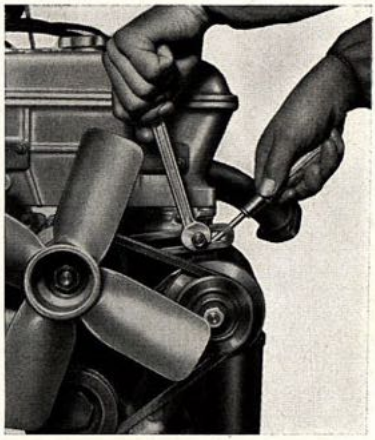
Check the belt tension as shown in the figure below. The tension is correct when:

A = 1 — 1.5 cm. (approx. ½")

To increase the belt tension, slacken the nut on the adjusting bracket and the dynamo securing nut, and move the dynamo outwards. Then **carefully retighten both nuts.**



Checking the belt tension.



Adjusting the belt tension.

Free pedal travel

The clutch is of the single-plate dry type. Its operation is ensured by 9 round helical springs.
The free pedal travel should be:

approx. 23 mm. (1 inch)

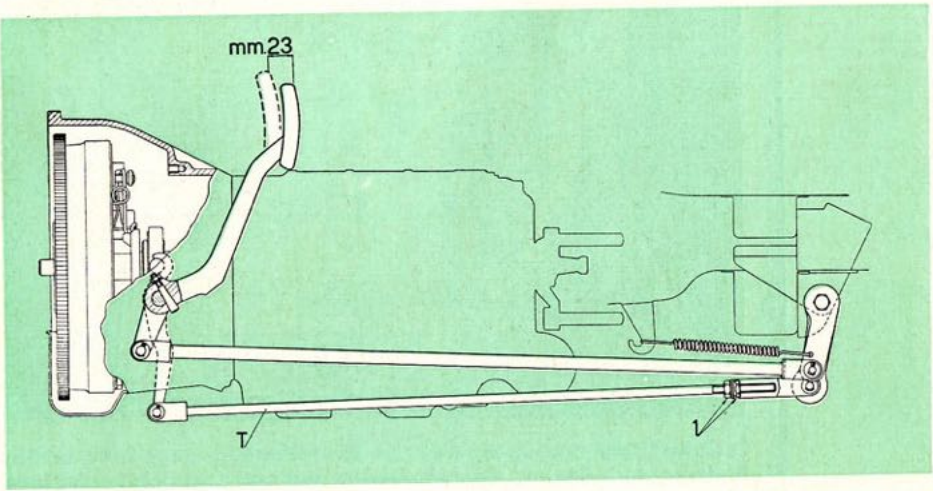
before actual disengagement begins.
With this amount of free play the actual clearance between the thrust ring and the disengagement ring is 2 mm.

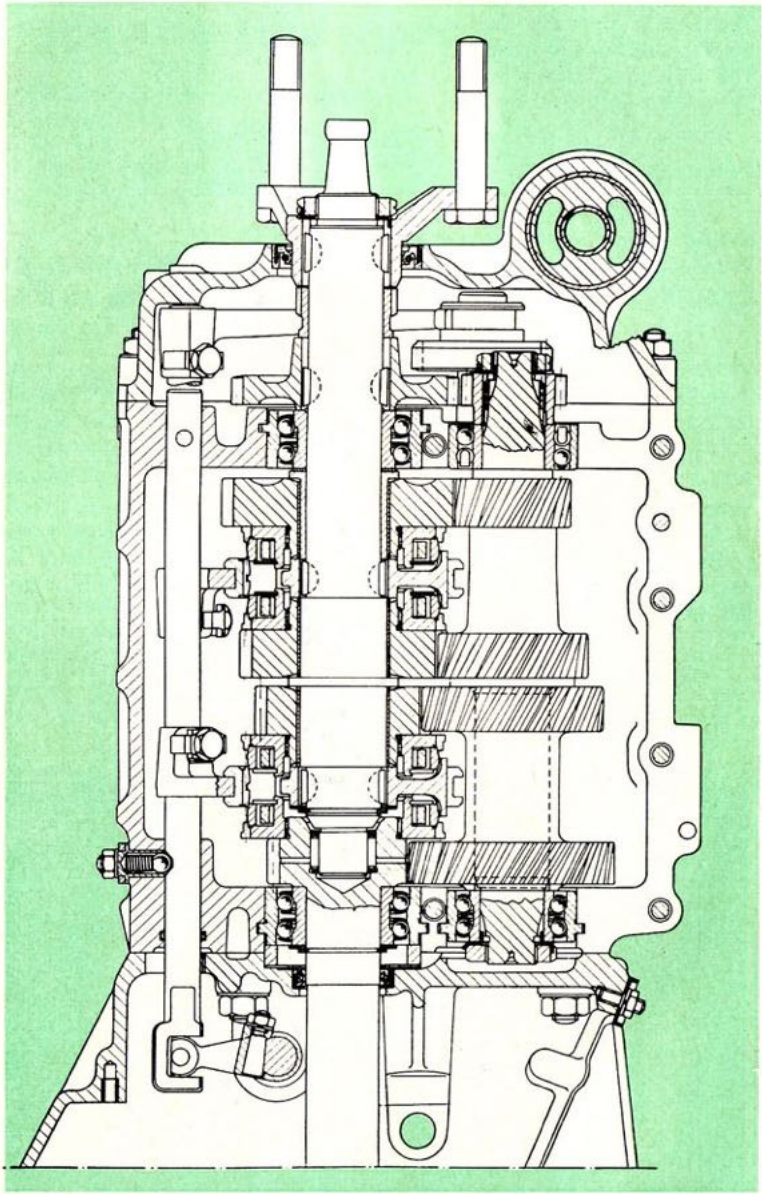
Adjusting the free pedal travel

When, due to wear on the driven plate lining, the free pedal travel is reduced to 10-12 mm. (1/2 inch), the free travel must be restored by means of the adjusting rod **T.** This is done by unscrewing the adjusting nuts **1** until the original free pedal travel is obtained.

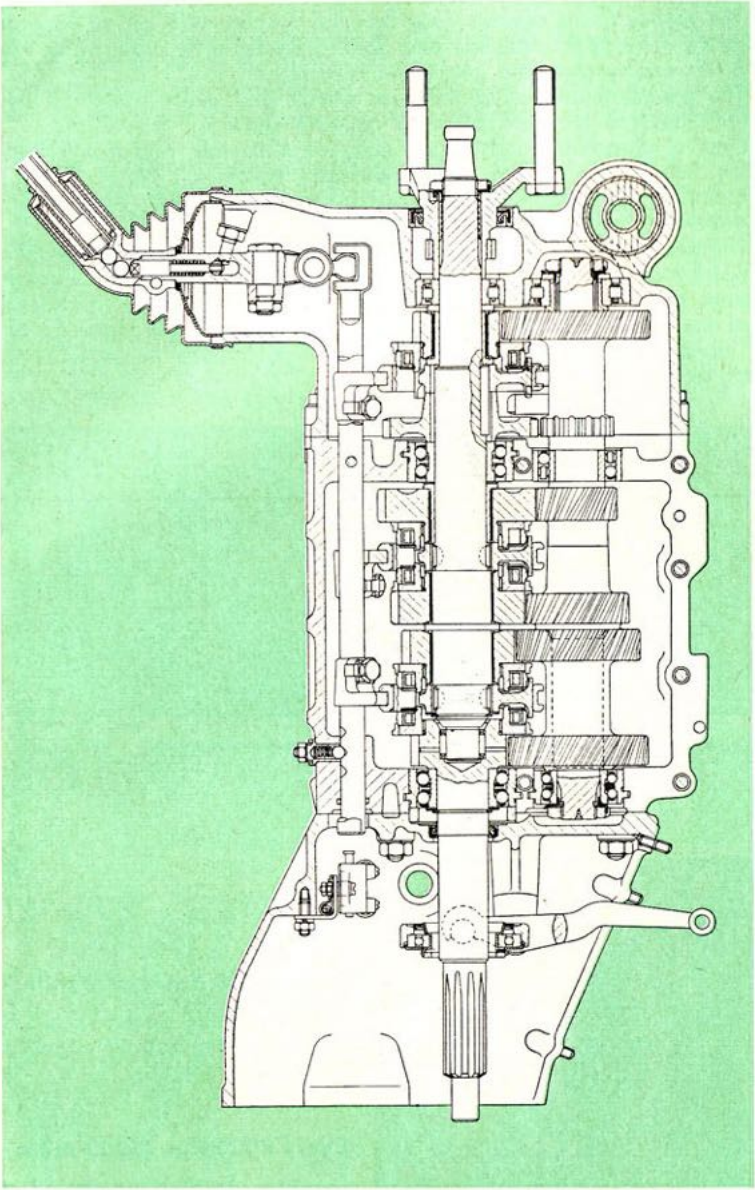
After adjustment carefully secure the adjusting nut with its lock-nut.

When it is no longer possible to restore the free pedal travel to 23 mm. (1 inch) by this means, and if the control linkage is undamaged, the cause will be excessive wear of the clutch lining. It will then be necessary to consult an authorised Alfa Romeo Service Station for the replacement of the lining or the driven plate.





Longitudinal sectional view of the 4-speed gear-box on the Berlina, t.i., Sprint, Spider, Sprint Veloce and Spider Veloce.



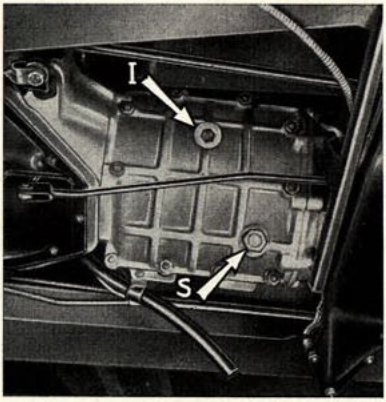
Longitudinal sectional view of the 5-speed gear-box on the Sprint Speciale and the Sprint Zagato.

The 4-speed and reverse gear-box has synchromesh on all forward gears. The Sprint Speciale and Sprint Zagato have a gear-box with 5 forward synchromesh gears and reverse.
The gear-box containing the gear-wheels and shafts consist of two half shells to facilitate assembly and dismantling.
Each synchroniser consists essentially of a flexible ring mounted on the hub of the driven gear-wheel and which, on engagement, is radially compressed and displaced by friction from the outer sliding sleeve.
The flexible ring strikes against a quadrant and rotates the gear-wheel which thus adopts the speed of the sleeve. This facilitates the engagement between the internal teeth of the sleeve and the front teeth of the driven gear-wheel.
Two straps arranged inside the flexible rings increase their synchronising action.

Gear ratios

Gear	Berlina, t.i., Sprint, Spider, Sprint Veloce and Spider Veloce	Sprint Speciale Sprint Zagato
1st.	3.258 : 1	3.258 : 1
2nd.	1.985 : 1	1.985 : 1
3rd.	1.357 : 1	1.357 : 1
4th.	1 : 1	1 : 1
5th	—	0.854 : 1
Reverse	3.252 : 1	3.252 : 1

Any adjustment to the gear-box, whether because of difficult engagement or for any other reason, must be done only by an authorised Alfa Romeo Service Station.



Every 4000 Km. (2500 miles)

Check that the gear-box is full of oil to the bottom edge of the filler orifice **I.**

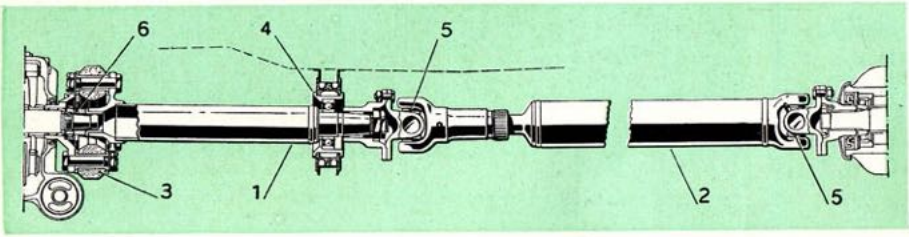
Every 8000 Km. (5000 miles)

Unscrew plug **S** when the oil is hot, drain the gear-box and fill up with fresh oil.

The propeller shaft is in two halves and has an intermediate bracket flexibly attached to the body.
The front section is provided with a rubber coupling at the gear-box end; a roller universal joint is provided at each end of the second section.
If noise is traced to the propeller shaft, consult an authorised Alfa-Romeo Service Station and arrange for the following to be checked: the rubber coupling, bearing in the intermediate bracket, the universal joints, the alignment of the front section and the centring of the shafts.

Every 4000 Km. (2500 miles)

Apply the grease gun to the nipples on the universal joints and the sliding sleeve of the rear section.



1. Front section - **2.** Rear section - **3.** Rubber coupling - **4.** Intermediate bracket - **5.** Roller universal joints - **6.** Oil seal.

Bevel coupling

The rear axle is secured to the supporting structure by means of two hinged longitudinal members through rubber pads. Transverse attachment is effected by means of a reaction triangle with hinged arms linking the body to the rear axle through rubber pads.
The bevel coupling is of the hypoid type.

Car	Bevel coupling	
	Standard	On special request
Berlina, t. i., Sprint, Spider	41 : 9	41 : 8 41 : 10
Sprint Veloce and Spider Veloce	41 : 10	41 : 8 41 : 9
Sprint Speciale and Sprint Zagato	41 : 9	41 : 10 (Sprint Zagato only)

Overall ratios, gear-box rear axle

Total gear-box rear axle ratio with **41 : 8** bevel coupling	in 1st gear: 16.697 : 1 in 2nd gear: 10.173 : 1 in 3rd gear: 6.954 : 1 in 4th gear: 5.125 : 1 in reverse gear: 16.656 : 1
Total gear-box rear axle ratio with **41 : 9** bevel coupling	in 1st gear: 14.844 : 1 in 2nd gear: 9.045 : 1 in 3rd gear: 6.181 : 1 in 4th gear: 4.555 : 1 in 5th gear: 3.890 : 1 in reverse gear: 14.814 : 1
Total gear-box rear axle ratio with **41 : 10** bevel coupling	in 1st gear: 13.357 : 1 in 2nd gear: 8.138 : 1 in 3rd gear: 5.563 : 1 in 4th gear: 4.100 : 1 in reverse gear: 13.333 : 1

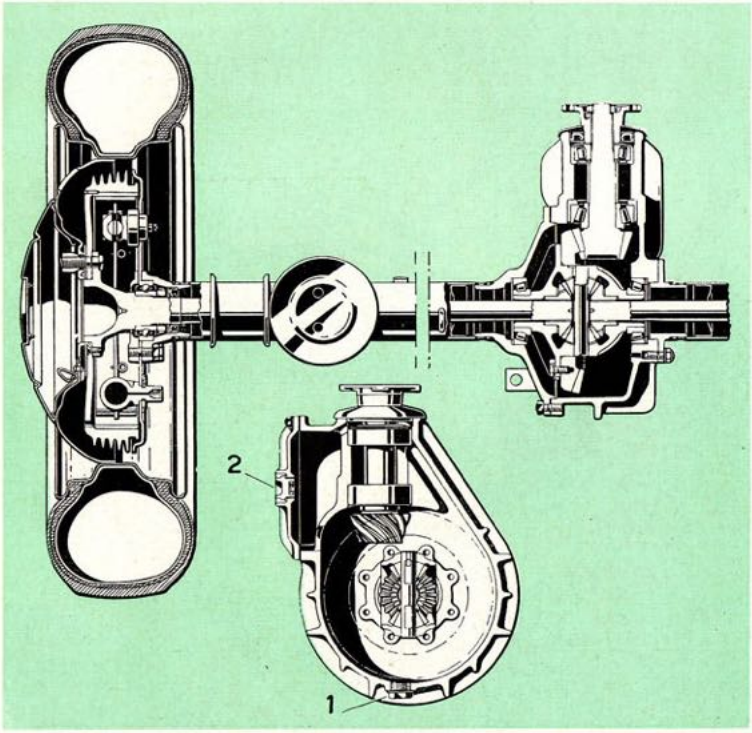
Maintenance

Every Km. 4000 (2500 miles)

Make sure that the oil level reaches to the bottom rim of the filler orifice.

Every 8000 Km. (5000 miles)

Completely drain the differential housing when the oil is hot, and fill up with new oil to the proper level.
When an overhaul is necessary, consult only an authorised Alfa Romeo service station.



Sectional view of the rear axle

1. Oil filler plug - **2.** Oil drain plug.

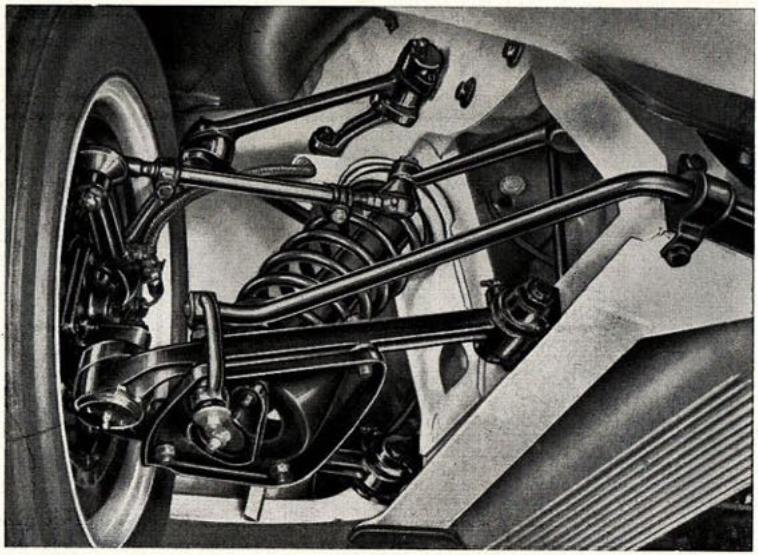
Front suspension

Independent suspension is provided for each front wheel; the wheels are secured to the body by transverse arms.
Coil springs and double-acting hydraulic telescopic shock-absorbers are located between the lower arms and the body.
The suspension system is completed by a transverse stabiliser bar which improves the stability of the vehicle on bends.
Upwards rotation of the arms is restricted by pads on the shock absorbers.
Rotation downwards is restricted by a steel strap one end of which is connected to the body and the other to the lower arm.

Maintenance

Every 4000 Km. (2500 miles)

The front suspension arm joints and the stub axle pins should be lubricated with the prescribed grease.
In addition to the periodical lubrication of the front suspension arm pins, the shock absorbers should be checked by an authorised Alfa Romeo service station whenever their damping action is thought to be irregular.



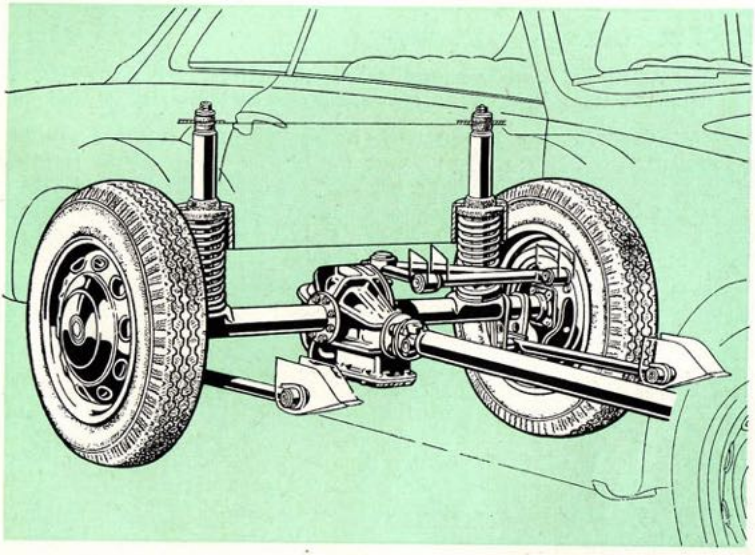
Rear suspension

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

Maintenance

Every 8000 Km. (5000 miles)

Check the spring and shock-absorber suspension points.



Maintenance

The steering box contains a worm and roller gear.

Every 4000 Km. (2500 miles)

Check the oil level in the steering box. Stable steering requires:

a) that there is no abnormal play in the controls (steering-box bearings, roller/worm coupling, ball joints);

b) that the front wheels are properly balanced and that the tyres are inflated to the recommended pressure;

c) that the front suspension is in perfect order.

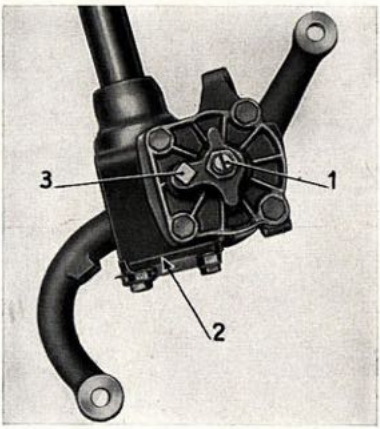
Every 8000 Km. (5000 miles)

Check the steering-box clearance.

— To adjust the gap between worm and roller, use set-screw **1.** After the adjustment secure the set-screw by means of its lock-nut.

— To adjust the gap between the worm bearings, insert a suitable shim **2** between the bearing and the bottom cover of the steering box.
All the above adjustments are designed to eliminate play, though care must be made to ensure that there is no frictional resistance.

It is recommended that this work should always be carried out by an Alfa Romeo service station.



1. Screw to adjust the gap between roller and worm - **2.** Shim to adjust the play in the worm bearings - **3.** Oil filler plug.

All joints on the steering linkage are ball joints.

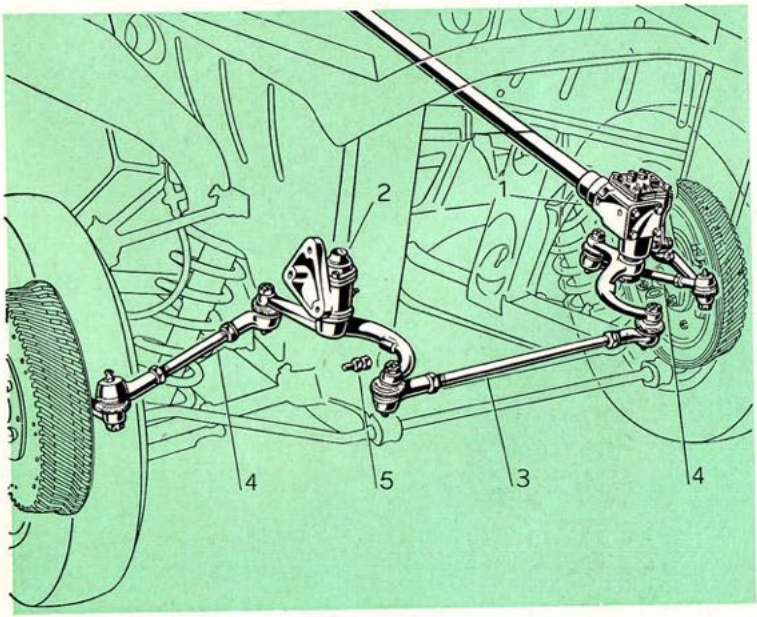
Maintenance

Every 4000 Km. (2500 miles)

Apply the grease gun (using the prescribed grade of grease) to all nipples on the steering linkage ball joints.

Every 8000 Km. (5000 miles)

Check the play in the ball joints; replace any worn ball joints. Any necessary adjustment of the steering circle can be made by means of the adjusting screws **5.**



1. Steering box - **2.** Intermediate arm bracket - **3.** Track rod - **4.** Lateral steering rods - **5.** Steering lock adjustment screws.

To prevent uneven and premature tyre wear, and to ensure smooth and stable steering, front-wheel toe-in and camber must be set to the prescribed values.

Every 8000 Km. (5000 miles)

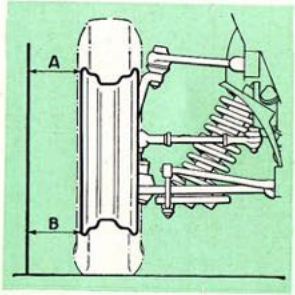
Check toe-in and camber.

Toe-in and camber vary according to the vehicle load; the values should be checked with a normal load, with the car standing on level ground, with full sump, tank and radiator, and with the tyres inflated to the prescribed pressures.

The check should be carried out by specialised mechanics using suitable equipment.

It is recommended that it should only be entrusted to an authorised Alfa Romeo service Station.

Checking front-wheel camber



With the vehicle loaded as above, the camber should be nil, i.e.

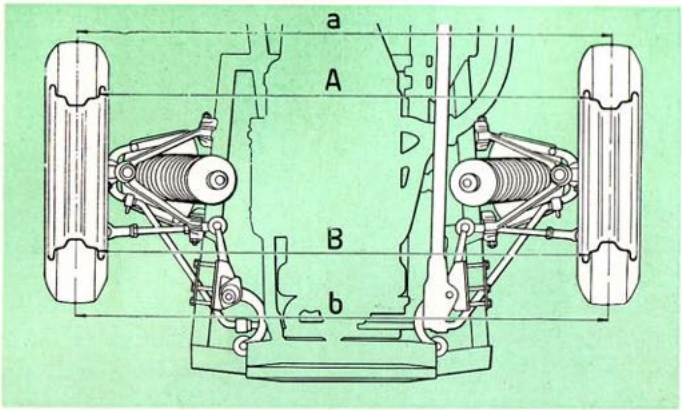
A = B

Adjusting front-wheel camber

The camber should be adjusted as necessary by inserting shims between the top suspension arms and their attachment point on the body.

Checking front-wheel toe-in

Toe-in, with the car loaded as above:
— measured from the inner edge of the rims: **A = B + 3 mm.**
— measured from the centre line of the tread: **a = b + 4 mm.**



To adjust toe-in, proceed as follows:
— position the steering wheel in the central position (i.e. with the spokes symetrically disposed in relation to the vertical) and lock it in that position;
— starting with the lateral arm on the steering-box side, place the corresponding wheel in the straight-ahead position (toe-in nil);
— measure the length, thus obtained, of the lateral arm on the steering-box side, and adjust the arm on the other side to the same length;
— bring the right-hand wheel to the straight-ahead position by adjusting the central arm;
— shorten both lateral arms **equally** until the prescribed toe-in is obtained.

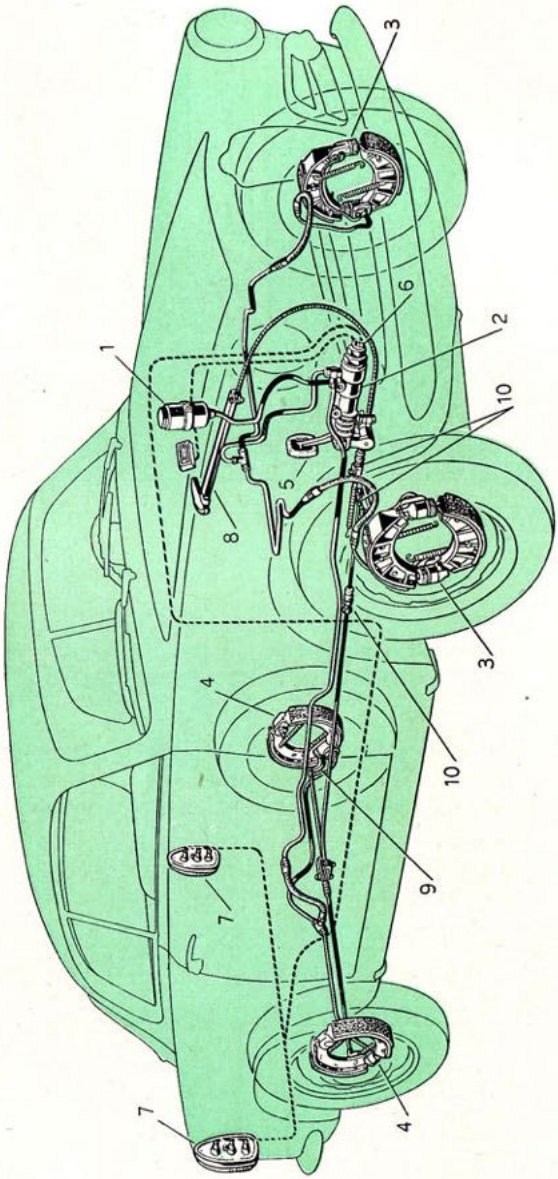
Length of steering linkage

The lenght of the arms, measured between the centres of the ball joints, must be as shown in the following table:

	Berlina, t. i., Sprint Speciale, Sprint Zagato	Sprint, Spider, Sprint Veloce, Spider Veloce
Lateral arms	261 - 281 mm	265 - 285 mm
Track rod	478 - 498 mm	470 - 490 mm

If these values cannot be restored the cause will probably be found in body distortion resulting from a collision.

Circuit diagram



1. Fluid feed tank - **2.** Master cylinder - **3.** Front-wheel brake-shoe cylinder - **4.** Rear-wheel brake-shoe cylinder - **5.** Brake pedal - **6.** Hydraulic pressure switch for stop-lamps - **7.** Rear stop-lamps - **8.** Hand-brake lever (acting on rear wheels) - **9.** Rear-wheel brake cylinder manual control lever - **10.** Hand-brake adjustment point.

The braking system consists of hydraulic brakes acting on all four wheels, and a hand-brake acting on the rear wheels alone. The front-wheel brake drums are provided with helical cooling fins to ensure the rapid dispersal of the heat generated by friction during braking.

Hand-brake

The hand brake is mechanically operated through a wire cable acting on the rear-wheel brake shoes.
If the hand brake is properly adjusted the rear wheels should be locked when the lever is moved through half its total stroke.
Adjustment of the lever is normally effected only when brake-shoe adjustment is required due to lining wear or, in exceptional circumstances, if the cable stretches.
Adjustment is effected at points **10.**

Hydraulic brakes

Every 4000 Km. (2500 miles)

Check the level of the brake fluid in the feed tank, and top up as necessary.
The level must never drop below a quarter of the full mark. When topping up, use only oil of the prescribed quality (see page 57).

Mineral oil must not be used, as they would invariably damage the rubber seals in the pump and cylinders.

For efficient use of the hydraulic brake, the pipe system must always be full of fluid and free of air bubbles. Excessive and resilient brake-pedal travel indicates the presence of air bubbles in the system.
Bleeding should be effected as described on the next page.

Air bleeding

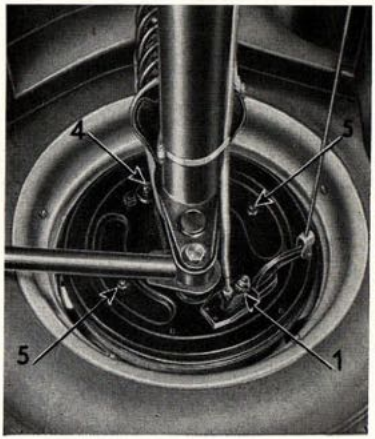
To remove air from the system proceed as follows:

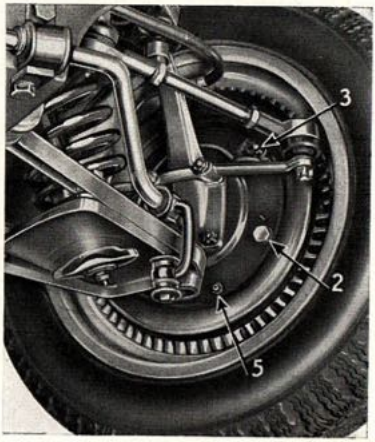
1) Fill the feed tank with the prescribed grade of oil and ensure that, during the bleeding operation, the level does not drop below a quarter of the full mark;

2) Release the air from the rear-wheel cylinders, one at a time, as follows:
   - push a rubber pipe over the draining screw **1;** the other end of the pipe will lead to a glass bottle for collection of the oil;
   - slacken the bleed screw **1;**
   - depress the brake pedal several times, allowing it to return slowly until the rubber pipe discharge oil free from air bubbles;
   - hold the pedal down, and close the air bleed screw **1.**

3) Release the air from the front-wheel brake cylinders as follows:
   - turn the brake-shoe adjusting cams **2** inwards so as to move the shoes as far from the drums as possible;
   - then proceed as for the rear wheels while making sure that the brake pedal is firmly depressed and closing the bleed screw **3** before the pedal is released.

When all air has been drawn off, re-set the brake-shoe clearance by means of the cams **2.**
If the bleeding operation has been carefully performed, it will be found that, when the brake pedal is operated, direct action on the fluid can be felt, free of resilience, immediately at the end of the free play stroke.





Free play of master cylinder actuator

Before the brake pedal actuates the master cylinder it must travel through a free stroke corresponding to a master cylinder actuator stroke of:

1 to 1.5 mm (3/64" to 1/16")

To adjust the brake pedal, tighten or loosen the actuator on the fork connecting the pedal to the actuator, and secure it with the lock-nut.
The brake pedal travel should be adjusted when, as a result of wear of the brake linings, the pedal travels (when braking hard) through more than two-thirds of the total possible distance.

Every 4000 Km. (2500 miles)

Adjusting the play between shoes and drums

Adjust the clearance between the brake shoes and brake drums as follows:

— Rear wheels:

rotate the pin **4** which acts simultaneously on the brackets of both brake shoes;

— Front wheels:

rotate the cams **2.**

The clearance must be adjusted to ensure that the drums may rotate without rubbing on the linings. When it is no longer possible to reduce the brake pedal stroke by merely rotating the cams **2** or the pin **4,** the brake linings must be replaced.

Every 8000 Km. (5000 miles)

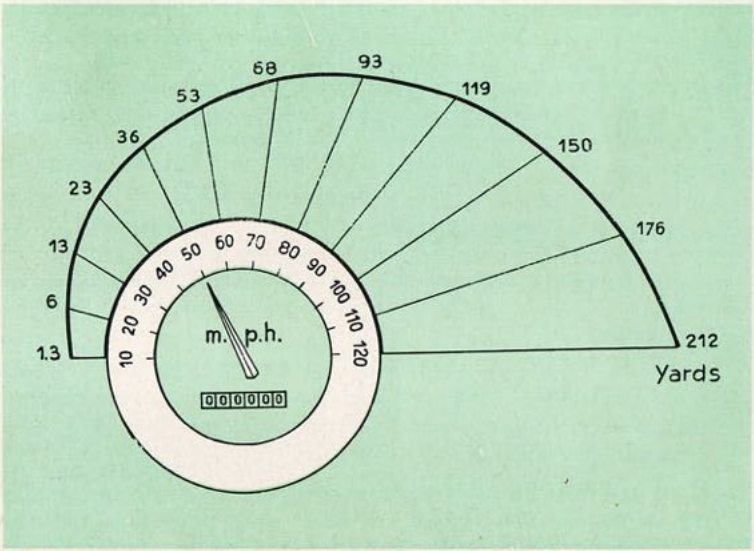
Checking brake linings

Adjusting parallelism

Check the condition of the brake linings; contact between the lining and the drum should be over **the whole width** of the lining. If the wear is on one side only the brake shoe must be adjusted by means of the screws **5** to bring its face square to the drum.

Stopping distances

The distance in which a car can be brought to a standstill after application of the brakes increases considerably as the travel speed increases; the braking distance also depends on the road surface and is much greater when the road is wet or slippery.



Stopping distances diagram.

The above diagram shows the stopping distance for various travel speeds. They have been calculated for dry and level asphalt surfaces, for tyres in good condition, for brakes properly adjusted, and for a well-distributed load.

For safety's sake drivers are strongly urged to bear these braking distances in mind at all times.

The wheels are pressed steel discs; their dimensions are:

4½ J x 15

To remove a wheel

Raise the car by inserting the jack arm in the appropriate socket beneath the car doors.
Before operating the jack, apply the hand brake; as the hand brake affects the rear wheels only, put chucks under the front wheels when raising the rear wheels.

Left-hand wheels:

Turn the nuts clockwise to unscrew them.

Right-hand wheels:

Turn the nuts anti-clockwise to unscrew them.
When replacing wheels, tighten the nuts carefully in diagonal order. Check again for tightness after lowering the jack.

Maintenance

Every 12,000 Km. (7500 miles)

Lubricate the front-wheel hub bearings.
The rear wheel bearings are sealed and factory packed, and do not require lubrication.

The front-wheel hub bearing lubrication must be performed with very great care and only by trained mechanics using suitable equipment.

The correct procedure is as afollows:

— withdraw the hub to grease the inner bearing;

— check the condition of the bearings;

— check the axial play in the bearings and adjust the clearance taking the prescribed pre-load into account.

Approximately 65 grammes of grease (BP Energrease L 3) should be used for each hub; do not exceed this amount or leakage may occur. They grease must be evenly distributed inside the two bearings and in the lateral spaces.

The oil seal must be renewed every time the bearings are removed.

Adjusting axial play in front wheel bearings

Proceed as follows:

— gradually tighten the nut, while rotating the wheel, until a slight resistance to rotation is felt;

— unscrew the nut by ½ to 1 ½ castellations according to circumstances;

— strike the end of the stub axle with a lead mallet in order to pull back the hub, thus partially removing the load from the bearings;

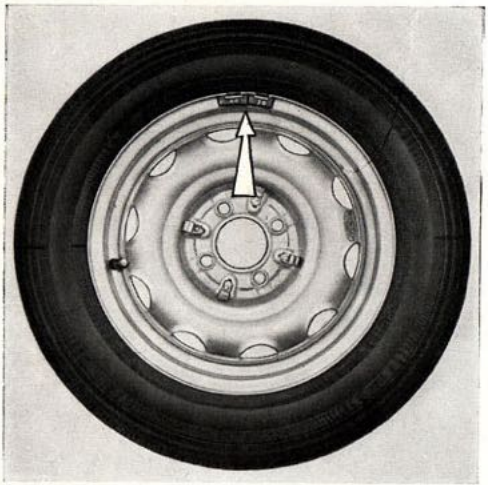
— using the appropriate tool with balanced lever, measure the bearing pre-load.

The pre-load, with the existing used bearings and a new oil seal, **should be to 50 to 60 kgm.** This corresponds to a weight of 0.250 kg. applied with a lever arm of 200-250 mm respectively.
When this pre-load is obtained, insert the split pin to lock the nut, fill the outer cap with grease and fit it to the hub.

WARNING

In view of the importance of the above adjustment, drivers are strongly recommended to entrust the work to an authorised Alfa Romeo service station.

Each wheel, complete with its tyre, is balanced statically and dynamically at the factory by means of suitable tabs and plates.
Whenever a tyre is replaced and inflated the wheel must be re-balanced on a suitable balancing machine.
It should be remembered that a wheel that is out of balance can cause uneven steering, premature wear of the steering gear and irregular tyre wear.



Tabs for dynamic wheel-balancing

Tabs and plates for static wheel-balancing

Wheels balancing

Inflation pressures, with tyres cold

Tyres: 155-15	Pressures			
	Front		Rear	
	kg/cm²	p.s.i.	kg/cm²	p.s.i.
Berlina				
Pirelli Rolle	1.4	20	1.5	21 ½
Pirelli Cinturato	1.4	20	1.5*	12 ½
	1.5	21 ½	1.6**	23
Michelin SDS	1.5	21 ½	1.5	21 ½
Michelin X	1.4	20	1.5	21 ½
t. i.				
Michelin X	1.4	20	1.5*	21 ½
	1.5	21 ½	1.6**	23
Pirelli Cinturato	1.5	21 ½	1.6*	23
	1.6	23	1.7**	24
Sprint				
Michelin X	1.5	21 ½	1.6	23
Pirelli Cinturato	1.5	21 ½	1.6	23
Spider				
Pirelli Cinturato	1.5	21 ½	1.6	23
Michelin X	1.4	20	1.5	21 ½
Sprint Veloce				
Pirelli Cinturato – on the road – up to 160 km/h (100 m.p.h.)	1.6	23	1.7	24
Pirelli Cinturato – on the road – above 160 km/h	1.8	25 ½	1.9	27
Pirelli Cinturato – on the track	2	28 ½	2 to 2.1	28 ½ to 30
Spider Veloce				
Pirelli Cinturato – on the road – up to 160 km/h (100 m.p.h.)	1.5	21 ½	1.6	23
Pirelli Cinturato – on the road – above 160 km/h	1.7	24	1.8	25 ½
Pirelli Cinturato – on the track	1.9	27	2	28 ½
Sprint Speciale Sprint Zagato				
Pirelli Cinturato – on the road – up to 160 km/h (100 m.p.h.)	1.5	21 ½	1.6	23
Pirelli Cinturato – on the road – above 160 km/h	1.8	25 ½	1.9 to 2	27 to 28 ½
Pirelli Cinturato – on the track	2.1	30	2.2	31

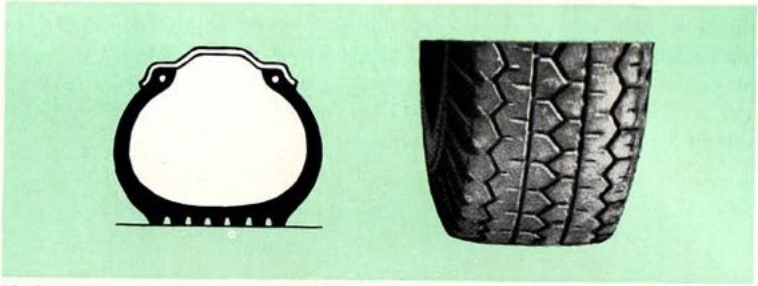
(*) when used as tourer, with low load
(**) when used for sport, with full load

Note: With 4 persons on board and with Pirelli tyres, increase the front-wheel pressure by 0.2 kg/cm² (3 p.s.i.) and the rear-wheel pressures by 0.3 kg/cm² (4 ½ p.s.i.). When using Michelin tyres increase the front-wheel pressure by 0.1 kg/cm² (1 ½ p.s.i.) and the rear-wheel pressure by 0.2 kg/cm² (3 p.s.i.).

Note: On the road, and with 4 persons on board, increase the front-wheel pressure by 0.1 kg/cm² (1 ½ p.s.i.) and the rear-u-heel pressure by 0.2 kg/cm² (3 p.s.i.).

To prevent premature and uneven tyre wear the inflation pressures must be those shown in the table opposite.

Correct pressure



If the pressure is correct, the tyre efficiency will be at its maximum. The entire width of the tread will be utilised, and wear will be uniform and small.

Insufficient pressure

If the pressure is too low, the tyre will heat excessively; the sides of the tread will wear quickly and the tyre plies will tend to separate.

Excessive pressure

If the pressure is too high, the result will be an uncomfortable ride, excessive wear in the centre of the tread and tyre vulnerability to knocks.

WARNING

In summer the prescribed pressures **should be increased** by from 0.1 to 0.2 kg/cm² (1 ½ to 3 p.s.i.).

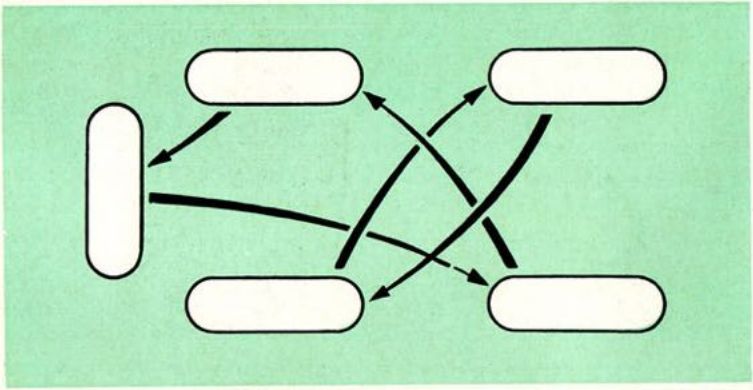
Wheels change over

Every 4000 Km. (2500 miles)

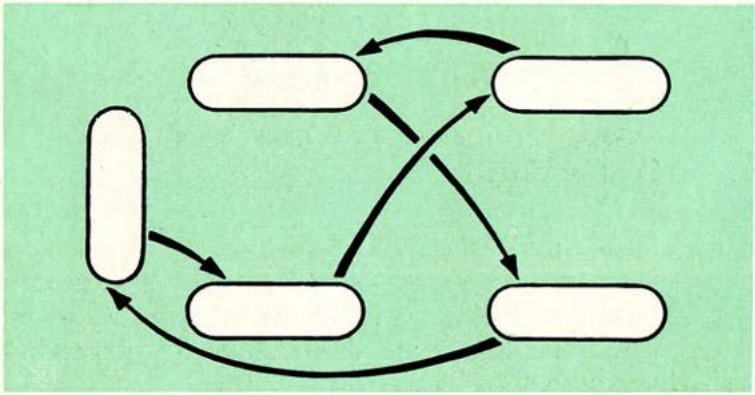
To ensure even and uniform tyre wear and long tyre life, the positions of the wheels should be changed round in criss-cross fashion as shown in the diagram below. The spare wheel must be included in the scheme.

When changing the wheel positions the dynamic and static balance should be checked at the same time.

Michelin change-round



Pirelli change-round



Washing the ca

The car should only be washed by skilled staff in order not to damage the paint-work.
Do not wash the car when it is standing in the sun or when the body is still hot.
Washing should begin at the bottom of car **(care being taken not to let water enter the brake drums)** and proceed upwards to the top.
Do not allow a high-pressure jet of water to strike the paintwork violently; after washing with a water jet, rub the body down with a sponge, taking care to wash the sponge frequently. Always use a **copious flow of water.**
Dry the car with a chamois leather.

WARNING

It is always possible that water may enter the brake drums while the car is being washed; **washing operations should therefore be followed immediately by a careful check to make sure that the brakes operate properly.** This test should consist of a number of light but prolonged brakings designed to heat the brake linings and thereby remove the water on them.

Polishing

To keep the paintwork bright it can be treated once or twice a year with a polish or similar product available on the market. When cleaning plastic parts, do not use a rag dipped in petrol.

Cleaning windows

When cleaning the windows and the windscreen, use a very soft cloth or a chamois leather.
If the windows are very dirty use a glass-cleaning preparation or water mixed with alcohol.

Removing stains

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

Body maintenance

Upholstery

Dust should be removed periodically from all fabric upholstery; a vacuum cleaner is useful for this purpose.
Oil and grease stains can be removed with a little petrol or suitable cleaning agent. Immediately after removing the stain, dust with talc; wait several minutes and carefully brush down.
Leather or imitation leather upholstery must be cleaned with a sponge or a soapy rag; then rinse with water and dry with a chamois leather.

When laying the car up

If the car will be left unused for any length of time the following protective steps should be taken:

— drain all water from the engine and radiator, preferably while the engine is hot;

— empty the fuel tank, the fuel pump and the carburetter bowl;

— clean the oil filter and the fuel filter;

— inject a little engine oil into the cylinders through the sparking-plug holes and turn the engine over 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 re-charge it once a month;

— jack up the car, clean the tyres and slightly lower their pressures; if the tyres are removed, dust them internally (and their tubes) with talcum powder; store them in a dark and airy but dry place;

— smear rust-preventive grease on all unpainted metal parts;

— dust the seats and upholstery with a moth-preventive;

— cover the car with a dust-sheet.

Electrical system

PART V

Electrical system

Attention is drawn to the fact that with all the Lucas or Marelli equipment the positive battery terminal is earthed except in the cases of the Sprint Veloce, Spider Veloce, Sprint Speciale and Sprint Zagato; on these cars the negative battery terminal is earthed.

The entire 12-volt system ir wired with protected and insulated cable in order to reduce the risk of short-circuit to the minimum.

If any instrument fails to operate or any lamp fails to light up, first check the corresponding fuse; if the fuse is sound, check to ensure that the cable terminals are secure and that the bulbs are not loose or burned out. If the trouble persists, consult a specialising service station.

	Berlina, t. i., Sprint, Spider	Sprint Veloce Spider Veloce Sprint Speciale Sprint Zagato
Dynamo	Marelli DNA 44 E	
	Lucas C 39 PV 2	—
Voltage regulator	Marelli IR 32 B	Marelli IR 32 A
	Lucas RB 106/2	—
Starter motor	Marelli MT 40 B	
	Lucas M 325 BZ 2	—
Coil	Marelli B 200 B	
	Lucas LA 12	—
Distributor	Marelli S 71 B	Marelli S 73 A
	Lucas DM 2	—
Windscreen wiper	Marelli TGE 63 A (Berlina and t. i.)	Marelli SW 133 (Sprint Speciale and Sprint Zagato)
	Lucas DR 2 (Sprint and Spider)	Lucas DR 2 (Sprint Vel. and Spider Vel.)
Battery	38 A/h capacity	

To keep the battery efficient proceed as follows:

Electrolyte level

Every 2000 Km. (1250 miles)

— check the electrolyte level; the fluid must not cover the plates by more than 4 to 5 mm (1/4 inch) nor leave them uncovered;

— make sure that the terminals are tight and lightly coated with vaseline to prevent rust and corrosion.

When topping up the battery use only distilled water stored in a glass vessel; never use acid.

If the car must be left unused for a lengthy period, arrange to have the battery charged at least once a month. Never allow it to become fully discharged or plate sulphatation will result.

State of charge

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:

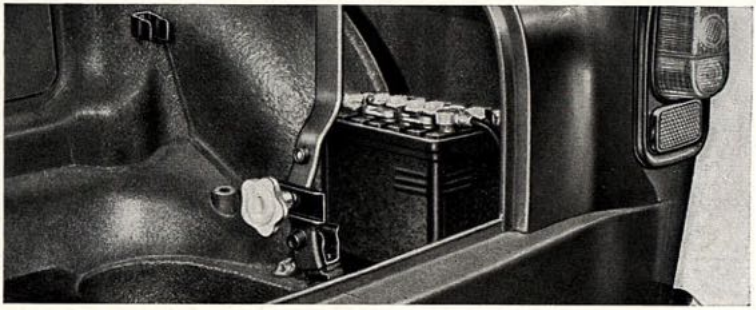
— specific gravity 1.28 (32° Baumé) = battery charged;
— specific gravity 1.23 (27° Baumé) = battery half charged;
— specific gravity 1.11 to 1.14 (15° to 18° Baumé) = battery discharged.

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

NOTE

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° Baumé).

Fitting the battery to the car



Every 4000 Km. (2500 miles)

Inject a few drops of oil into the hole in the rear bearing of the rotor (on the commutator side).
The starter motor does not require lubrication as it has self-lubricating bronze bearings.

Every 8000 Km. (5000 miles)

Check the dynamo brushes and commutator.

Every 12,000 Km. (7500 miles)

Check the starter motor brushes and commutator.
The brushes must be clean and must slide freely in their holders; the working face of the commutator must be cleaned with a cloth dipped in petrol; the brush springs must apply effective pressure.

— When one brush has to be replaced, it is a good rule to replace the other at the same time; always fit new brushes of the prescribed type.

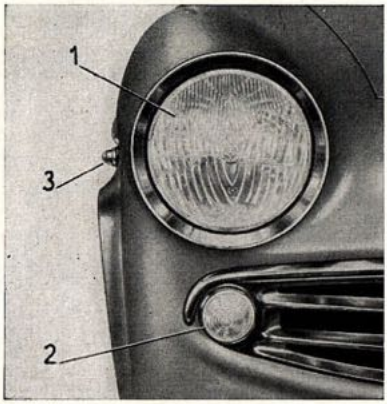
— After replacing the brushes, run the dynamo (or starter motor) with no load and for such time as is necessary to bed the sliding surfaces of the brushes to the commutator.

— If the commutator is burned or ovalized it must be trued on a lathe, care being taken to reduce the diameter as little as possible; after this operation take care to undercut the mica inserts.

The above maintenance work, like all other repair work, must only be undertaken by authorised Alfa Romeo Service stations employing properly trained mechanics.

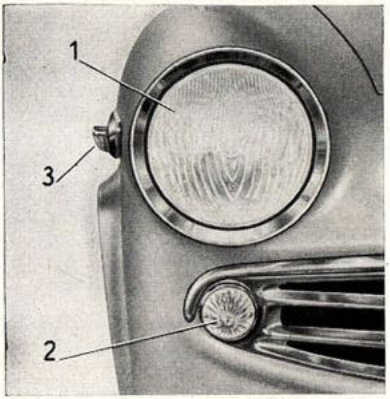
Front lamps:

Berlina



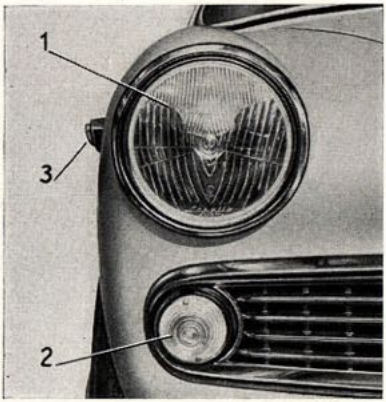
1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

t. i.



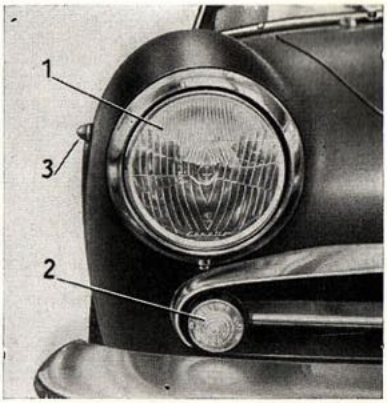
1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

Sprint
Sprint Veloce



1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps, with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

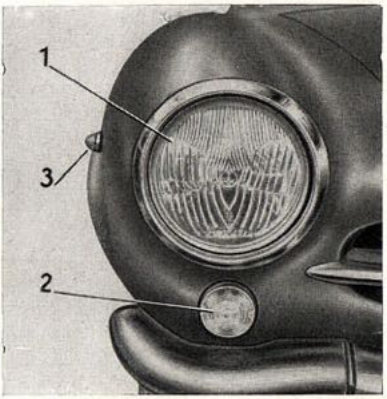
Front lamps



1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

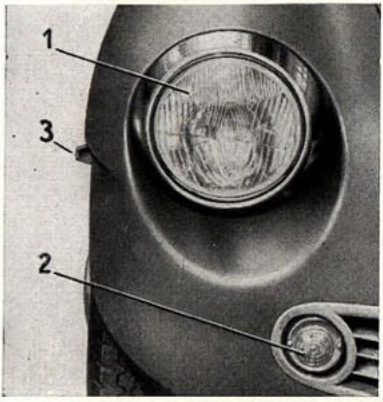
Spide

Spider Veloc



1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

Sprin
Special

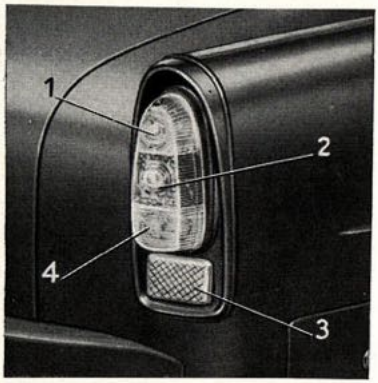


1) Headlamps, dipped and undipped beams.
(double-filament 45 x 40 W bulb).
2) Town lamps with direction-indicating flashers.
(double-filament 5 x 20 W bulb).
3) Lateral direction - indicator flashers.
(5 W bulb).

Sprin
Zagat

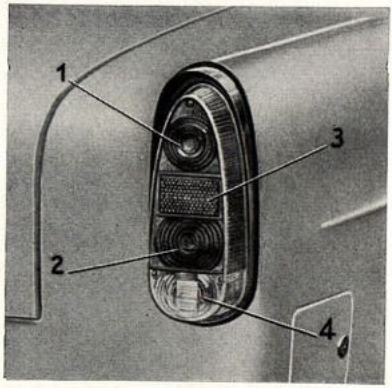
Rear lamps:

Berlina



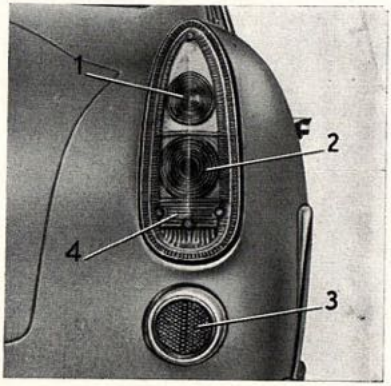
1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.
4) Reversing lamp. This lamp is switched on by engaging reverse when the town lamps are switched on.
(20 W bulb).

t. i.



1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.
4) Reversing lamp. This lamp is switched on by engaging reverse when the town lamps are switched on.
(20 W bulb).

Sprint
Sprint Veloce

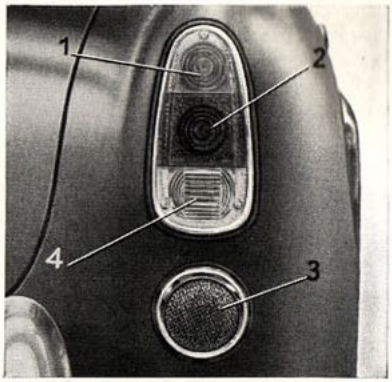


1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.
4) Reversing lamp. This lamp is switched on by engaging reverse when the town lamps are switched on.
(20 W bulb).

Rear lamp

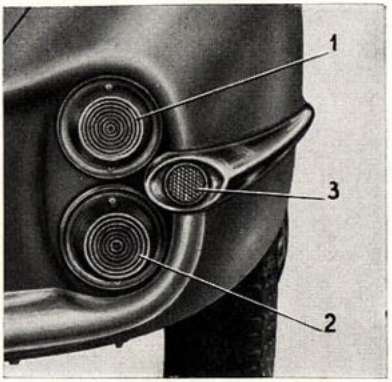
Spid

Spider Velo



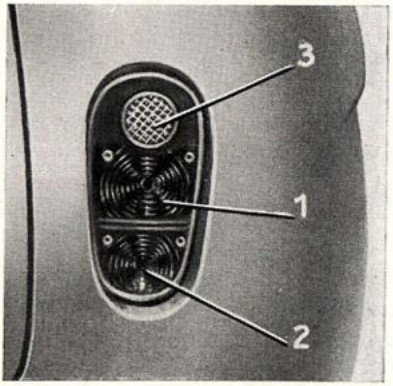
1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.
4) Reversing lamp. This lamp is switched on by engaging reverse when the town lamps are switched on.
(20 W bulb).

Spri
Specia



1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.

Spri
Zagat



1) Direction indicators.
(20 W bulb).
2) Side lamp and stop lamp.
(double-filament 5 x 20 W bulb).
3) Reflector.

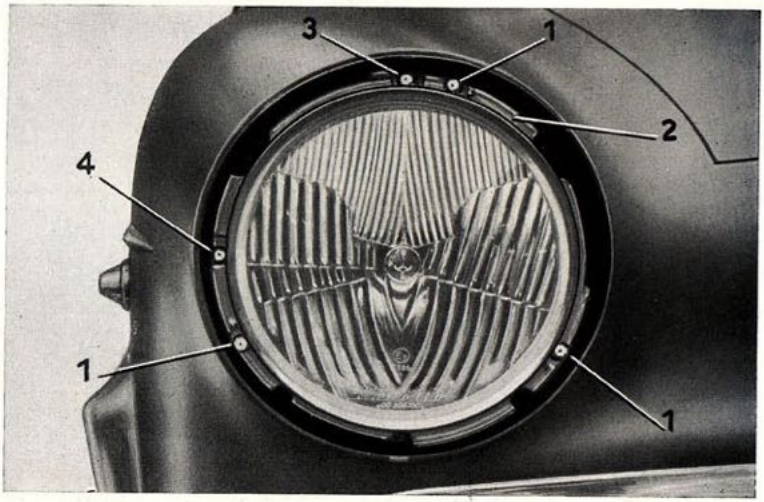
Internal lamps

The Berlina, t.i., Sprint, Sprint Veloce, Sprint Speciale and Sprint Zagato are fitted with internal ceiling lamps that are switched on when the front doors are opened, or by means of a switch on lever. (see under " Instruments and Controls ").

Bulb replacement:

Headlamps

To replace a head-lamp bulb proceed as follows: remove the screw securing the outer rim; then slacken the three screws **1** securing the retaining ring **2;** rotate the retaining ring until the screw heads will pass through the holes, and draw it off; remove the reflector unit and whitdraw the old socket; fit a new complete set and reassemble the unit.



Head-lamp

1. Screws securing the retaining ring - **2.** Retaining ring - **3.** Screw for vertical adjustment of the beam - **4.** Screw for horizontal adjustment of the beam.

Rear lamps

To replace the bulbs in the rear lamp units, remove the screws securing the transparent cover and remove the cover.

NOTE

When replacing a bulb, use only a new bulb of the prescribed type and power.

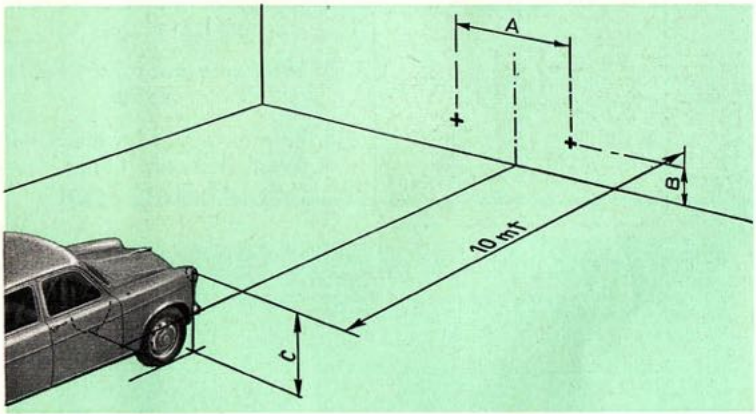
Head-lamp beam adjustment

To focus the head-lamp beams properly proceed as follows:

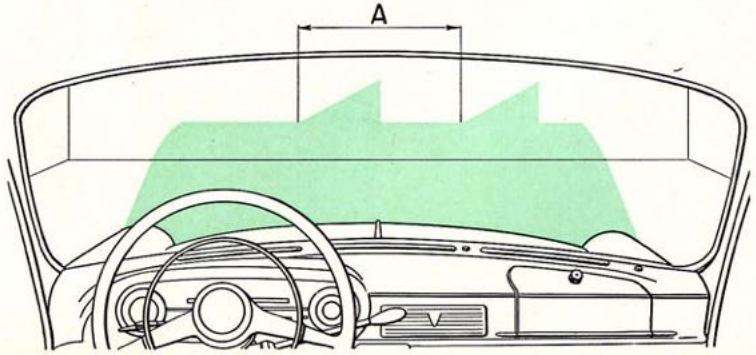
— position the car on level ground 10 metres (32 ft) from a white screen or a light-coloured wall, making sure that the centre line of the car is at right angles to the screen;

— draw a vertical line on the screen in line with the vertical centre-line of the car, and draw one reference cross on each side of the vertical line and equidistant from it. The positions of these crosses must be as in the following table:

	A	B	C
— Berlina and t. i.	120 cm. 47.2 in.	48 cm. 18.9 in.	77 to 78 cm. 30.3 to 30.8 in.
— Sprint and Sprint Veloce	120 cm. 47.2 in.	30 cm. 11.8 in.	67 to 69 cm. 26.3 to 27.1 in.
— Spider and Spider Veloce	120 cm. 47.2 in.	26 cm. 10.2 in.	61 to 62 cm. 24 to 24.4 in.
— Sprint Speciale and Sprint Zagato	110 cm. 43.3 in.	36 cm. 14.1 in.	58 cm. 22.8 in.



— by means of the two adjusting screws **3** and **4** (see figure on opposite page) position each head-lamp beam until the corresponding cross appears in the beam centre.



Headlamp beam focussing with the "Regloscope" device

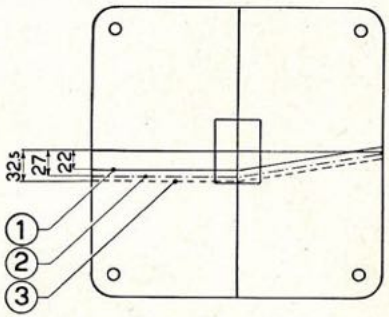
If the Carello "Regloscope" is available the head-lamp beam can be adjusted as follows:

— fit the screen and the Alfa-Romeo grid to the device;

— position the unloaded car on flat ground and move the Regloscope device in front of it as shown in the illustration;

— by means of the beam adjusting screws, bring the top edge of the dipped beam into line with the broken line corresponding to the vehicle being tested.

Screen with grid for the "Regloscope" device



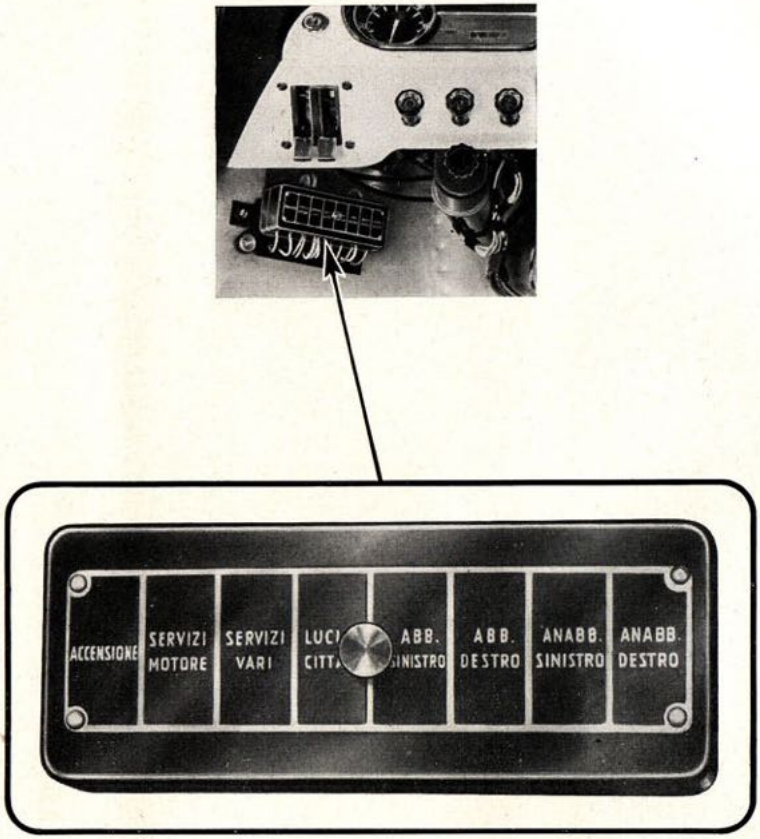
1) Reference grid for the Berlina and t.i.

2) Reference grid for the Spider and Spider Veloce.

3) Reference grid for the Sprint, Sprint Veloce, Sprint Speciale and Sprint Zagato.

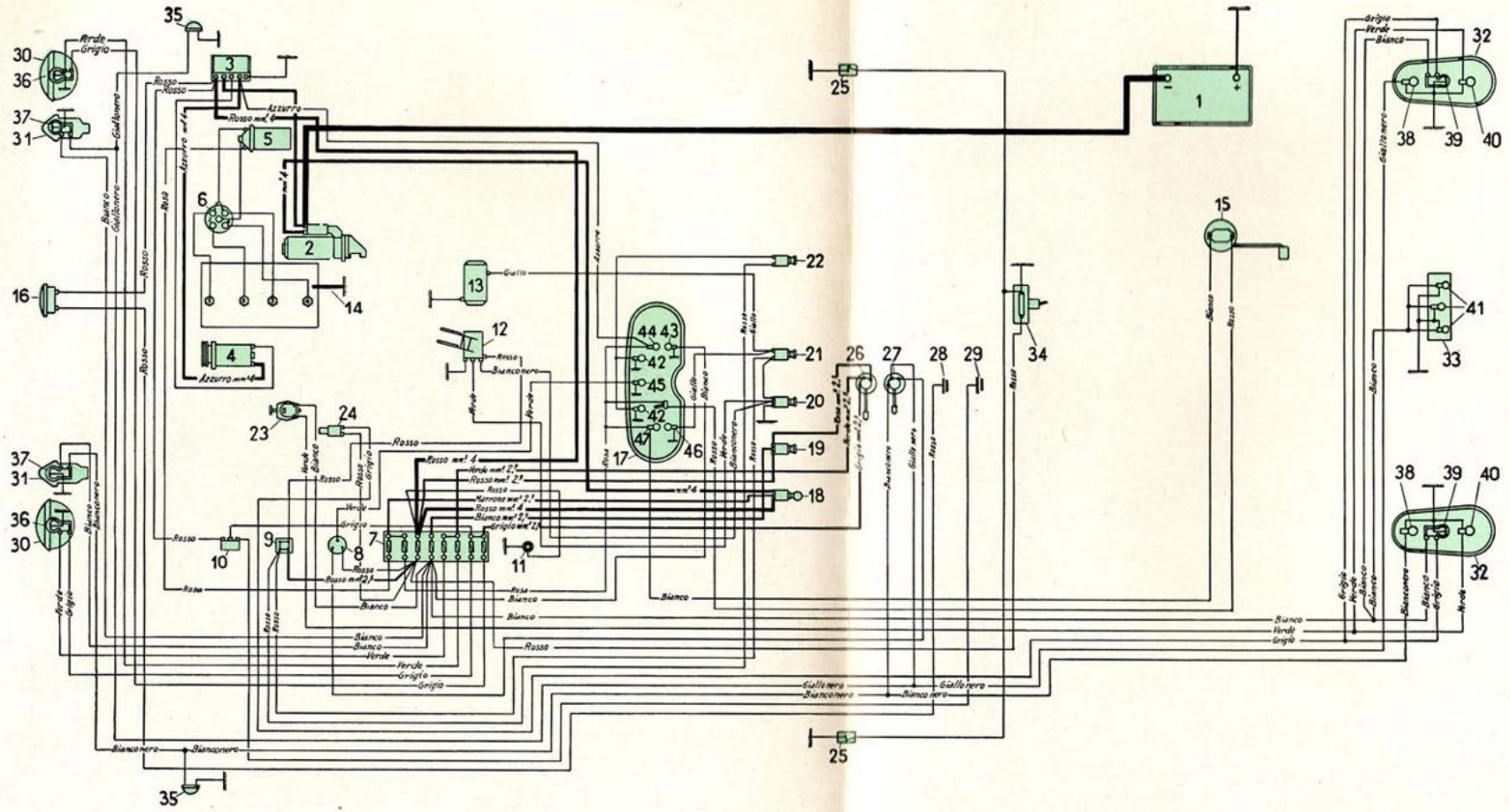
Level area — 5 metres (16 ft) long.

The various instruments are protected by fuses grouped on a fuse-board located as in the following illustration.



Accensione = Ignition
Servizi vari = Miscellaneous services
Abb. sinistro = L.H. main beam
Anabb. sinistro = L.H. dipped beam

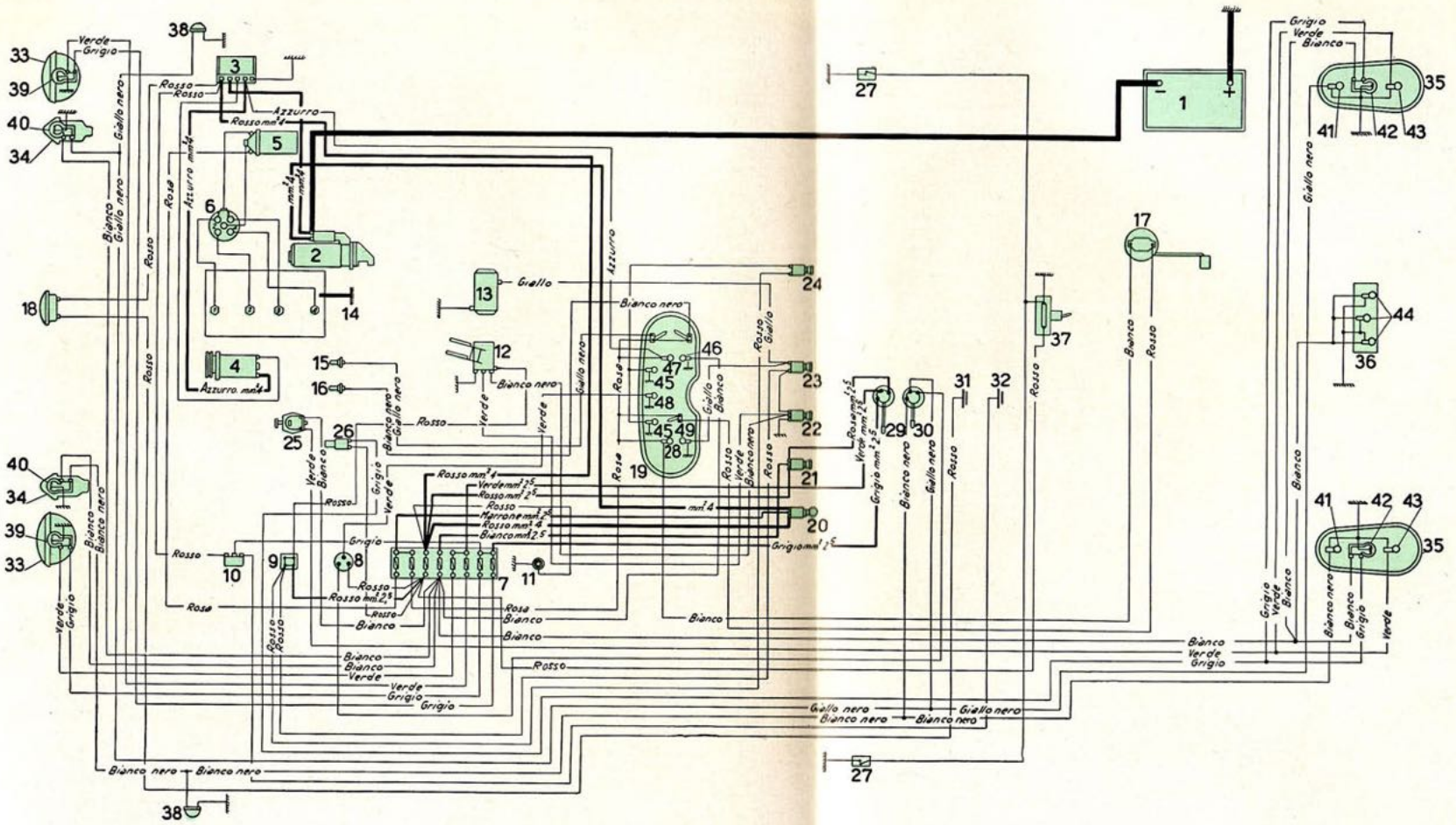
Servizi motore = Engine services
Luci città = Town lamps
Abb. destro = R.H. main beam
Anabb. destro = R.H. dipped beam



ELECTRICAL WIRING DIAGRAM (Berlina)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Electromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Fuel level indicator
16. Horn
17. Instrument panel
18. Ignition switch
19. Headlamp switch
20. Windscreen wiper switch
21. Heater switch
22. Switch for instrumental panel lamps
23. Reversing signal switch
24. Stop signal switch
25. Door-operated switch for roof lamp
26. Dipping switch
27. Direction indicator switch
28. Horn button
29. Button for flashing headlamps
30. Headlamps
31. Front town lamps
32. Rear lamps
33. Number-plate lamp
34. Roof lamp, with 12 V, 3 W bulb
35. Lateral flasher lamps
36. Bulbs, 12 V, 45/40 W, for headlamps
37. Bulbs, 12 V, 5/20 W for front town lamps
38. Bulbs, 12 V, 20 W, for rear flashers
39. Bulbs, 12 V, 5/20 W, for parking and stop lamps
40. Bulbs, 12 V, 20 W, for reversing indicator
41. Bulbs, 12 V, 5 W, for number-plate lamp
42. Bulbs, 12 V, 2.5 W, for instrument panel lamps
43. Bulb, 12 V, 2.5 W, tell-tale lamp for town lamps
44. Bulb, 12 V, 2.5 W, dynamo charge tell-tale
45. Bulb, 12 V, 2.5 W, direction indicator tell-tale
46. Bulb, 12 V, 2.5 W, heater tell-tale
47. Bulb, 12 V, 2.5 W, fuel reserve tell-tale

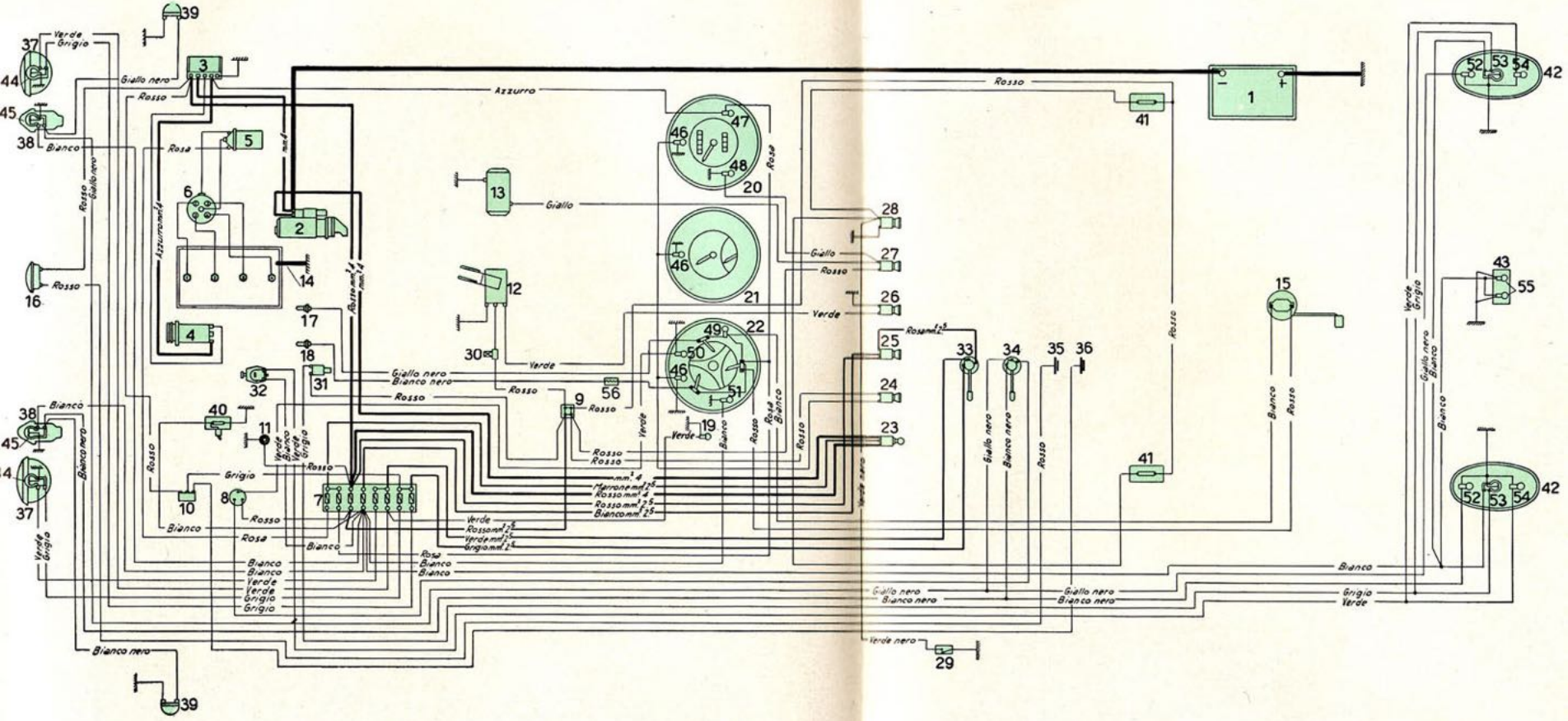
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (t. i.)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Elctromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Water thermometer bulb
16. Oil thermometer bulb
17. Fuel level indicator
18. Horn
19. Instrument panel
20. Ignition switch
21. Headlamp switch
22. Windscreen wiper switch
23. Heater switch
24. Switch for instrument panel lamps
25. Reversing signal switch
26. Stop signal switch
27. Door-operated switch for roof lamp
28. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
29. Dipping switch
30. Direction indicator switch
31. Horn button
32. Button for flashing headlamps
33. Headlamps
34. Front town lamps
35. Rear lamps
36. Number-plate lamp
37. Roof lamp, with 12 V, 3 W bulb
38. Lateral flasher lamps
39. Bulbs, 12 V, 45/40 W, for headlamps
40. Bulbs, 12 V, 5/20 W, front town lamps
41. Bulbs, 12 V, 20 W, for rear flashers
42. Bulbs, 12 V, 5/20 W, for parking and stop lamps
43. Bulbs, 12 V, 20 W, for reversing indicator
44. Bulbs, 12 V, 5 W, for number-plate lamp
45. Bulbs, 12 V, 2.5 W, for instrument panel lamps
46. Bulb, 12 V, 2.5 W, tell-tale lamp for town lamps
47. Bulb, 12 V, 2.5 W, dynamo charge tell-tale
48. Bulb, 12 V, 2.5 W, direction indicator tell-tale
49. Bulb, 12 V, 2.5 W, heater tell-tale

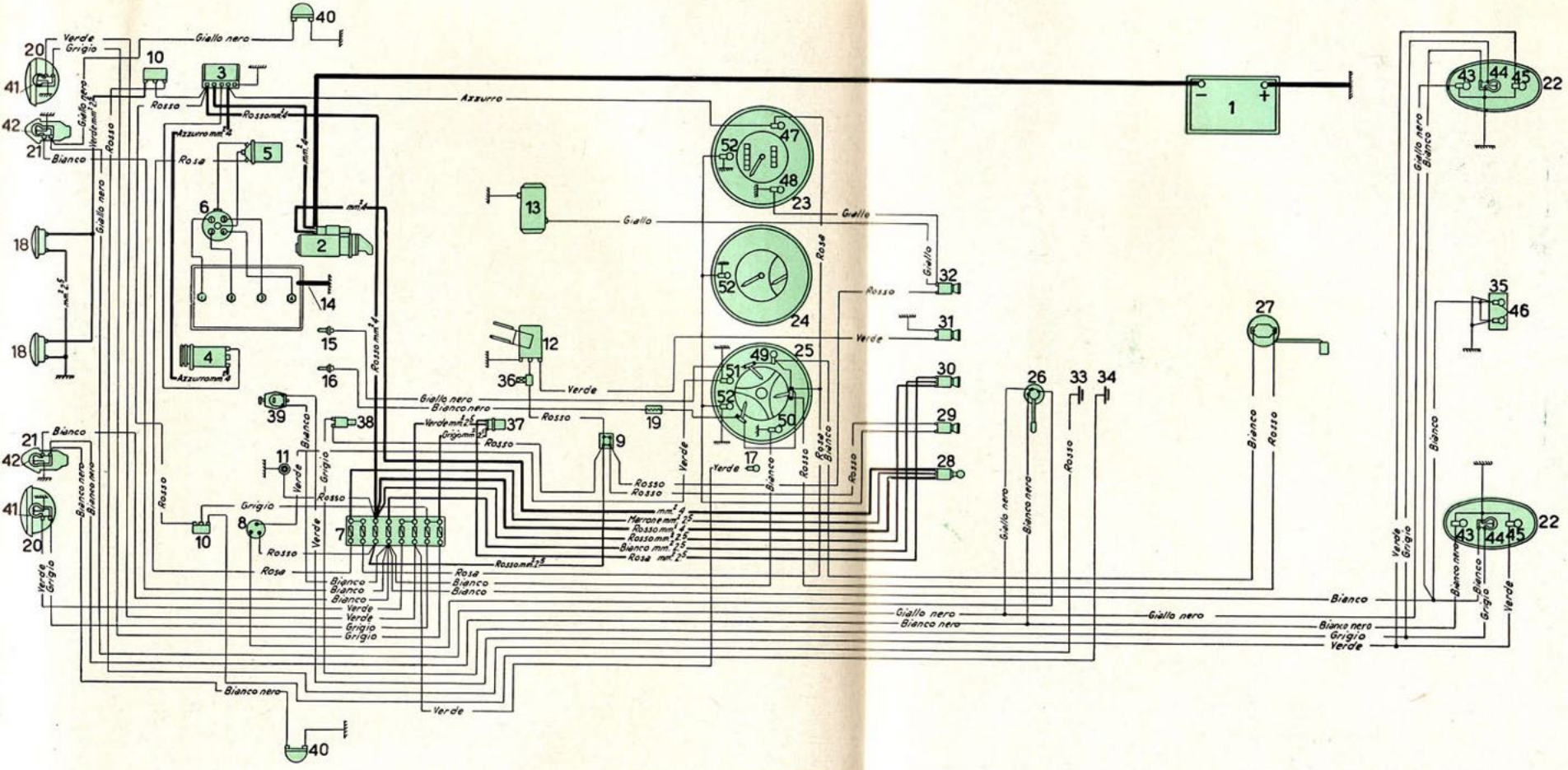
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Sprint)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Electromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Fuel level indicator
16. Horn
17. Water thermometer bulb
18. Oil termometer bulb
19. Headlamp tell-tale socket (for U.S.A. only)
20. Speedometer panel
21. Panel with revolution counter and oil gauge
22. Panel with oil and water thermometer and fuel level indicator
23. Ignition switch
24. Instrument panel lamp switch
25. Switch for headlamps and town-lamps
26. Windscreen wiper switch
27. Heater switch
28. Roof lamp switch
29. Door-operated switch for roof lamp
30. Thermal switch
31. Stop signal switch
32. Reversing signal switch
33. Dipping switch
34. Direction indicator switch
35. Horn button
36. Button for flashing headlamps
37. Headlamps
38. Front town lamps
39. Lateral flashing lamps
40. Under-bonnet lamp with 12 V, 3 W bulb
41. Roof lamps with 12 V, 3 W bulb
42. Rear lamp
43. Number-plate lamp
44. Bulbs, 12 V, 45/40 W, for headlamps
45. Bulbs, 12 V, 5/20 W, for front town lamps
46. Bulbs, 12 V, 2.5 W, for lighting instrument panels
47. Bulb, 12 V, 2.5 W, dynamo tell-tale
48. Bulb, 12 V, 2.5 W, heater tell-tale
49. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
50. Bulb, 12 V, 2.5 W, direction indicator tell-tale
51. Bulb, 12 V, 2.5 W, town lamp tell-tale
52. Bulbs, 12 V, 20 W, for rear flashers
53. Bulbs, 12 V, 5/20 W, for rear parking lamps and stop lamps
54. Bulbs, 12 V, 20 W, for reversing signal
55. Bulbs, 12 V, 5 W, for number-plate lighting
56. Resistance on the oil circuit

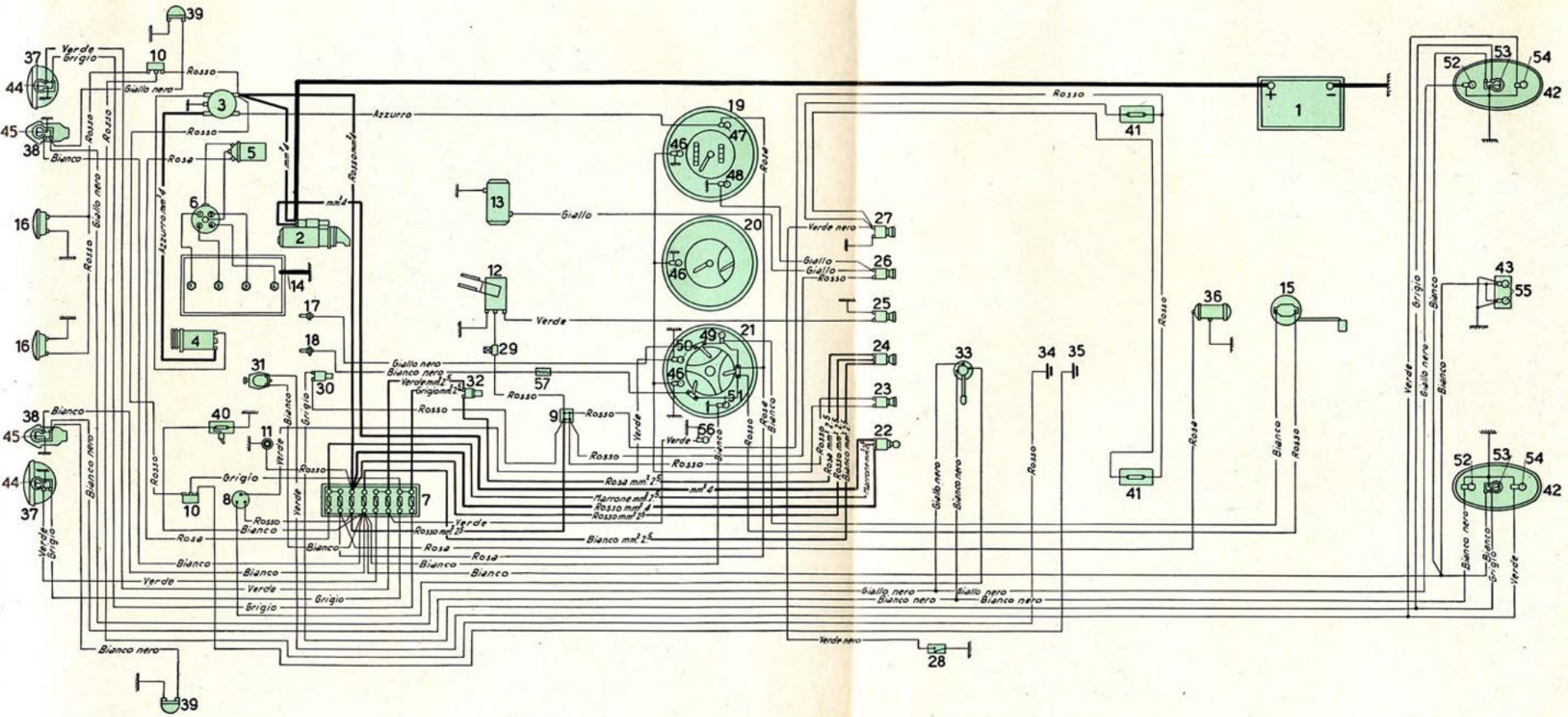
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Spider)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Electromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Water thermometer bulb
16. Oil thermometer bulb
17. Headlamp tell-tale socket
18. Horns
19. Resistance on oil circuit
20. Headlamps
21. Front town lamps
22. Rear parking lamps
23. Speedometer panel
24. Panel with revolution counter and oil gauge
25. Panel with oil and water thermometers and fuel level indicator
26. Direction indicator switch
27. Fuel level indicator
28. Ignition switch
29. Switch for instrument panel lamp
30. Switch for headlamps and town lamps
31. Windscreen wiper switch
32. Heater switch
33. Horn button
34. Button for flashing headlamps
35. Number-plate lamp
36. Thermal switch
37. Foot-operated dipper switch
38. Stop signal switch
39. Reversing signal switch
40. Lateral flashing lamps
41. Bulbs, 12 V, 45/40 W, for headlamps
42. Bulbs, 12 V, 5/20 W, for front town lamps
43. Bulbs, 12 V, 20 W, for rear flashers
44. Bulbs, 12 V, 5/20 W, for rear parking lamps and stop lamps
45. Bulbs, 12 V, 20 W, for reversing signal
46. Bulbs, 12 V, 5 W, for number-plate lamp
47. Bulb, 12 V, 2.5 W, dynamo tell-tale
48. Bulb, 12 V, 2.5 W, heater tell-tale
49. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
50. Bulb, 12 V, 2.5 W, town lamp tell-tale
51. Bulb, 12 V, 2.5 W, direction indicator tell-tale
52. Bulbs, 12 V, 2.5 W, instrument panel lamps

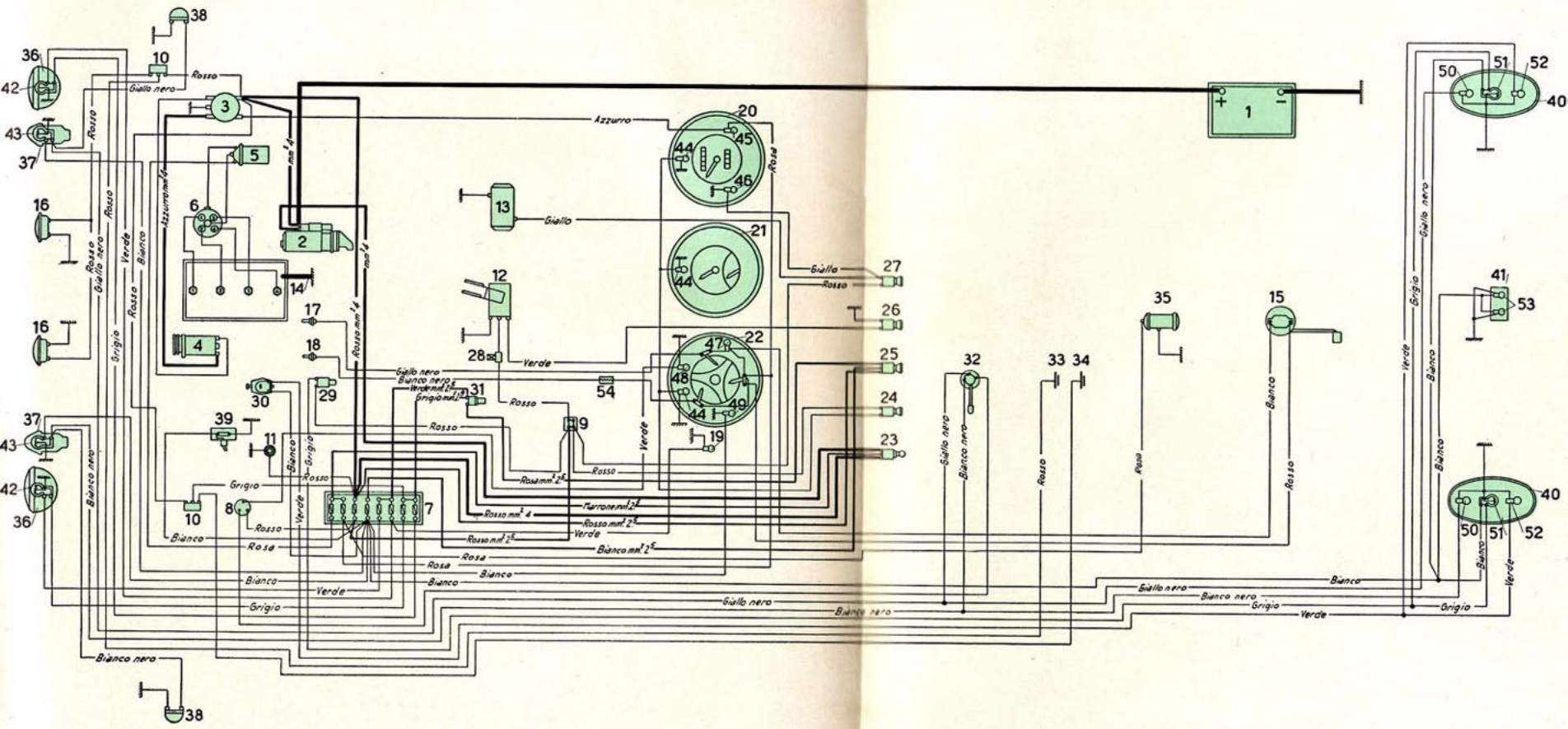
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Sprint Veloce)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Electromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Fuel level indicator
16. Horns
17. Water thermometer bulb
18. Oil thermometer bulb
19. Speedometer panel
20. Panel with revolution counter and oil gauge
21. Panel with oil and water thermometers and fuel level indicator
22. Ignition switch
23. Instrument panel lamp switch
24. Switch for headlamps and town-lamps
25. Windscreen wiper switch
26. Heater switch
27. Roof lamp switch
28. Door-operated switch for roof lamp
29. Thermal switch
30. Stop signal switch
31. Reversing signal switch
32. Dipping switch
33. Direction indicator switch
34. Horn button
35. Button for flashing headlamps
36. Fuel pumps
37. Headlamps
38. Front town lamps
39. Lateral flashing lamps
40. Under-bonnet lamp with 12 V, 3 W bulb
41. Roof lamps with 12 V, 3 W bulb
42. Rear lamps
43. Number-plate lamp
44. Bulbs, 12 V, 45/40 W, for headlamps
45. Bulbs, 12 V, 5/20 W, for front town lamps
46. Bulbs, 12 V, 2.5 W, for lighting instrument panels
47. Bulb, 12 V, 2.5 W, dynamo tell-tale
48. Bulb, 12 V, 2.5 W, heater tell-tale
49. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
50. Bulb, 12 V, 2.5 W, direction indicator tell-tale
51. Bulb, 12 V, 2.5 W, town lamp tell-tale
52. Bulbs, 12 V, 20 W, for rear flashers
53. Bulbs, 12 V, 5/20 W, for rear parking lamps and stop lamps
54. Bulbs, 12 V, 20 W, for reversing signal
55. Bulbs, 12 V, 5 W, for number-plate lighting
56. Socket for headlamp tell-tale
57. Resistance on oil circuit

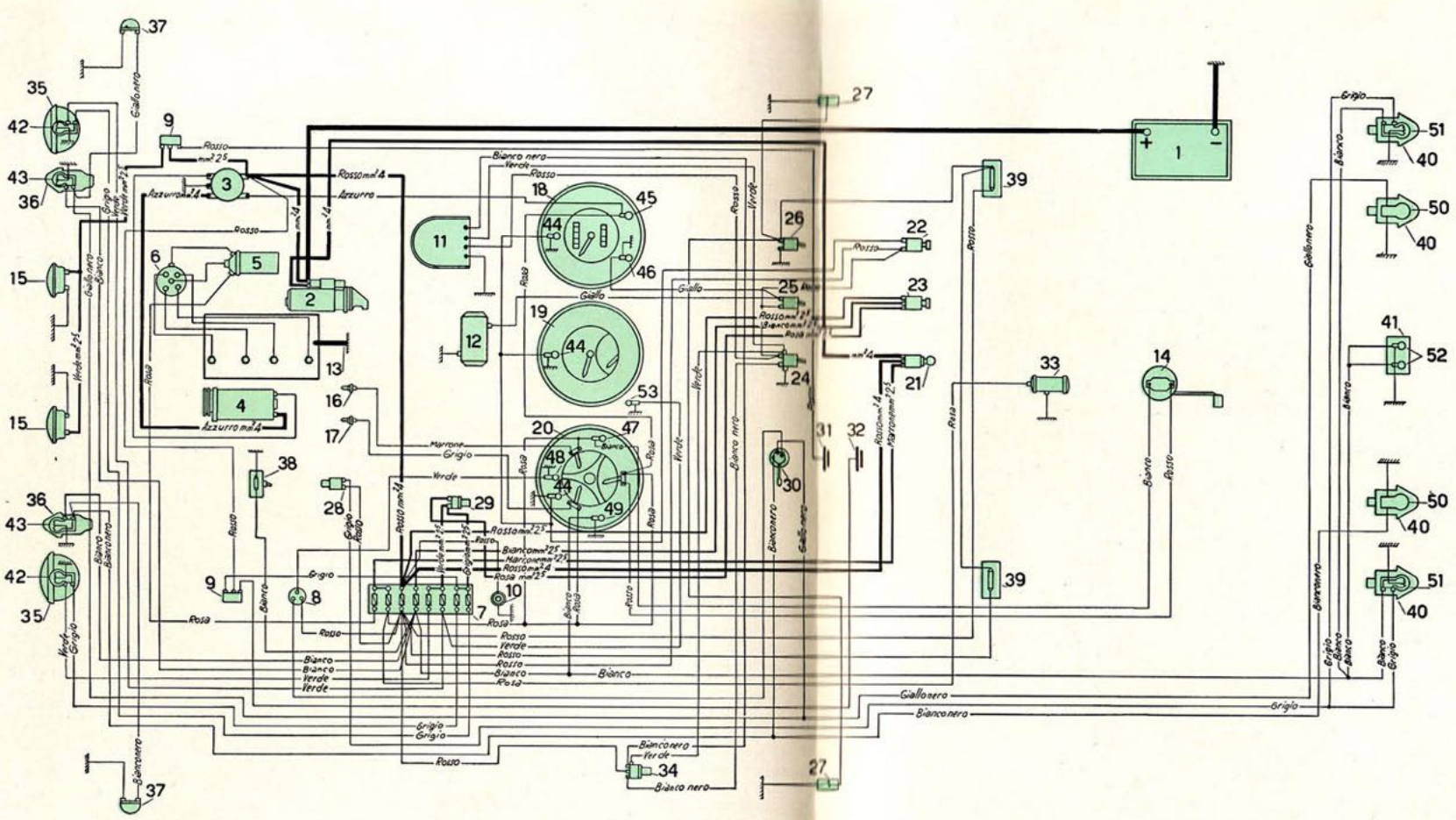
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Spider Veloce)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Terminal board for miscellaneous services
10. Electromagnetic change-over switch for trafficators
11. Socket for inspection lamp
12. Windscreen wiper
13. Heater
14. Earth braid between engine and body
15. Fuel level indicator
16. Horns
17. Water thermometer bulb
18. Oil thermometer bulb
19. Headlamp tell-tale socket
20. Speedometer panel
21. Panel with revolution counter and oil gauge
22. Panel with oil and water thermometers and fuel level indicator
23. Ignition switch
24. Switch for instrument panel lamps
25. Switch for headlamps and town lamps
26. Windscreen wiper switch
27. Heater switch
28. Thermal switch
29. Stop signal switch
30. Reversing signal switch
31. Dipping switch
32. Direction indicator switch
33. Horn button
34. Button for flashing headlamps
35. Fuel pump
36. Headlamps
37. Front town lamps
38. Lateral flashing lamps
39. Under-bonnet lamp, with 12 V, 3 W bulb
40. Rear parking lamps
41. Number-plate lamp
42. Bulbs, 12 V, 45/40 W, for headlamps
43. Bulbs, 12 V, 5/20 W, for front town lamps
44. Bulbs, 12 V, 2.5 W, for instrument panel lamps
45. Bulb, 12 V, 2.5 W, dynamo tell-tale
46. Bulb, 12 V, 2.5 W, heater tell-tale
47. Bulb, 12 V, 2.5 W, fuel level reserve
48. Bulb, 12 V, 2.5 W, direction indicator tell-tale
49. Bulb, 12 V, 2.5 W, town lamp tell-tale
50. Bulbs, 12 V, 20 W, for rear flashers
51. Bulbs, 12 V, 5/20 W, for rear parking lamps and stop-lamp
52. Bulbs, 12 V, 20 W, for reversing signal
53. Bulbs, 12 V, 5 W for number-plate lamp
54. Resistance on oil circuit

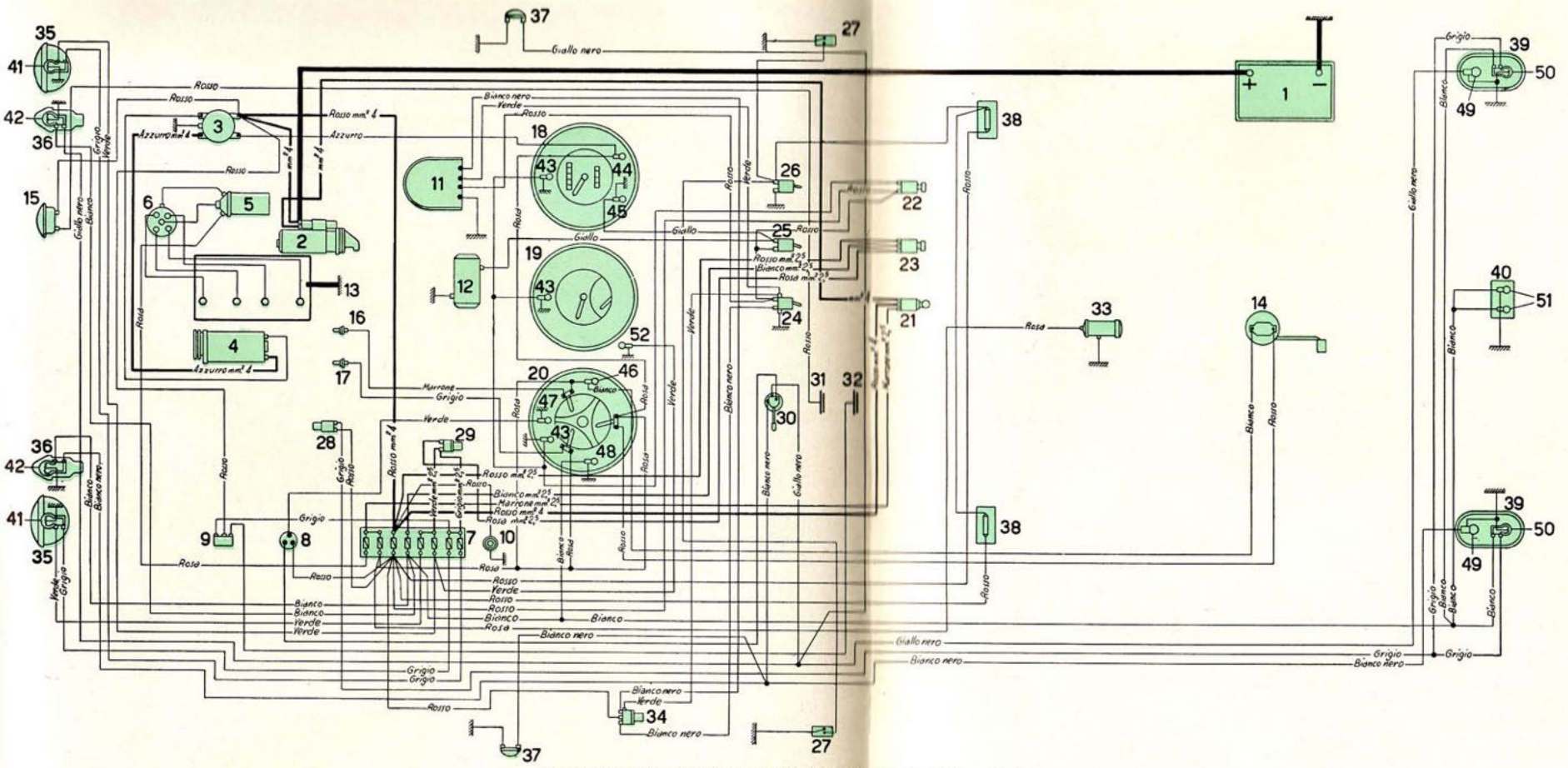
Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey;
Verde = green; Bianco = white; Marrone = brown; Rosa = pink;
Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Sprint Speciale)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Electromagnetic change-over switch for trafficators
10. Socket for inspection lamp
11. Windscreen wiper
12. Heater
13. Earth braid between engine and body
14. Fuel level indicator
15. Horns
16. Water thermometer bulb
17. Oil thermometer bulb
18. Speedometer panel
19. Panel with revolution counter and oil gauge
20. Panel with oil and water thermometers and fuel level indicator
21. Ignition switch
22. Switch for instrument panel lamps
23. Switch for headlamps and town lamps
24. Windscreen wiper switch
25. Heater switch
26. Roof lamp switch
27. Door-operated roof lamp
28. Switch for stop signal
29. Dipping switch
30. Direction indicator switch
31. Horn button
32. Button for flashing headlamps
33. Fuel pump
34. Foot-operated windscreen washer switch
35. Headlamps
36. Front town lamps
37. Lateral flashing lamps
38. Under-bonnet lamp with 12 V, 3 W bulb
39. Roof lamps with 12 V, 3 W bulb
40. Rear parking lamps
41. Number-plate lamps
42. Bulbs, 12 V, 45/40 W, for headlamps
43. Bulbs, 12 V, 5/20 W, for front town lamps
44. Bulbs, 12 V, 2.5 W, for instrument panel lamps
45. Bulb, 12 V, 2.5 W, dynamo tell-tale
46. Bulb, 12 V, 2.5 W, heater tell-tale
47. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
48. Bulb, 12 V, 2.5 W, direction indicator tell-tale
49. Bulb, 12 V, 2.5 W, town lamp tell-tale
50. Bulbs, 12 V, 20 W, for rear flashers
51. Bulbs, 12 V, 5/20 W, for rear parking lamps and stop signal
52. Bulbs, 12 V, 5 W, number-plate lamp
53. Socket for headlamp tell-tale

Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
Rosso = red; Azzurro = blue; Giallo = yellow; Grigio = grey; Verde = green; Bianco = white; Marrone = brown; Rosa = pink; Bianco-nero = black and white; Giallo-nero = black and yellow.



ELECTRICAL WIRING DIAGRAM (Sprint Zagato)

1. Battery
2. Starter motor
3. Voltage regulator
4. Dynamo
5. Coil
6. Distributor
7. Fuse-board with 8 fuses
8. Automatic flasher control
9. Electromagnetic change-over switch for trafficators
10. Socket for inspection lamp
11. Windscreen wiper
12. Heater
13. Earth braid between engine and body
14. Fuel level indicator
15. Horn
16. Water thermometer bulb
17. Oil thermometer bulb
18. Speedometer panel
19. Panel with revolution counter and oil gauge
20. Panel with oil and water thermometers and fuel level indicator
21. Ignition switch
22. Switch for instrument panel lamps
23. Switch for headlamps and town lamps
24. Windscreen wiper switch
25. Heater switch
26. Reading lamp switch
27. Door-operated roof lamp
28. Switch for stop signal
29. Dipping switch
30. Direction indicator switch
31. Horn button
32. Button for flashing headlamps
33. Fuel pump
34. Foot-operated windscreen washer switch
35. Headlamps
36. Front town lamps
37. Lateral flashing lamps
38. Reading lamp
39. Rear town lamps
40. Number-plate lamp
41. Bulbs, 12 V, 45/40 W, for headlamps
42. Bulbs, 12 V, 5/20 W, for front town lamps
43. Bulbs, 12 V, 2.5 W, for instrument panel lamps
44. Bulb, 12 V, 2.5 W, dynamo tell-tale
45. Bulb, 12 V, 2.5 W, heater tell-tale
46. Bulb, 12 V, 2.5 W, fuel reserve tell-tale
47. Bulb, 12 V, 2.5 W, direction indicator tell-tale
48. Bulb, 12 V, 2.5 W, town lamp tell-tale
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Note: Where no cross-section is shown, the cable size is 1 mm²; where no colour is stated the cables are black.
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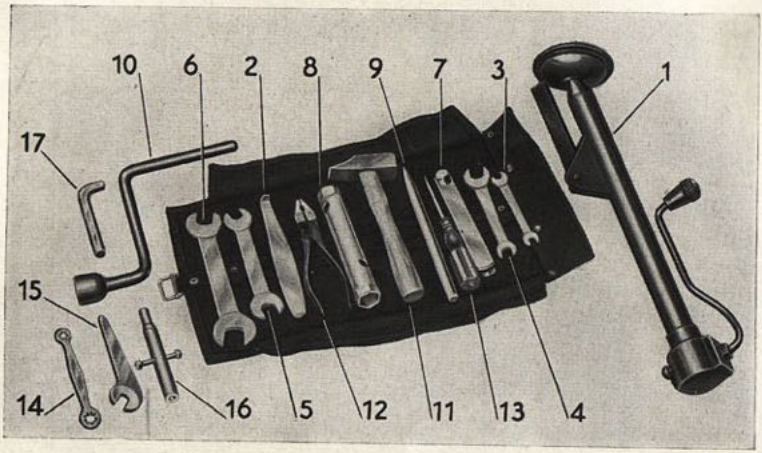
Tool kit



1. Jack - **2.** Hub-cap lever - **3.** Double ended spanner, 8/10 mm - **4.** Double-ended spanner, 11/15 mm - **5.** Double-ended spanner, 14/17 mm - **6.** Double-ended spanner, 18/21 mm - **7.** Plug spanner, 14/17 mm - **8.** Sparking-plug socket wrench - **9.** Tommy bar - **10.** Spanner for wheel nuts - **11.** Hammer - **12.** Pliers - **13.** Screw-driver - **14.** Crownfoot spanner, 10/16 mm (Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato) - **15.** Spanner, 14 mm (Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato) - **16.** Socket wrench, 8/10 mm (Sprint Veloce, Spider Veloce, Sprint Speciale, Sprint Zagato) - **17.** Hexagonal spanner, 10 mm (Spider Veloce).

REGULAR LUBRICATION SCHEDULE

		WORK TO BE DONE	MILEAGE COVERED										
			5,000	7,500	10,000	12,500	15,000	17,500	20,000	22,500	25,000	27,500	30,000
FILLING UP	Engine	Change the oil	■	■	■	■	■	■	■	■	■	■	■
		Change the filter cartridge	■	■	■	■	■		■	■	■	■	■
	Gear-box	Top up	■		■		■		■		■		■
		Change the oil		■		■		■		■		■	
	Differential housing	Top up	■		■		■		■		■		■
		Change the oil		■		■		■		■		■	
	Steering box	Top up	■	■	■	■	■	■	■	■	■	■	■
		Brake-fluid feed tank: Top up	■	■	■	■	■	■	■	■	■	■	■
LUBRICATION		Distributor	■	■	■	■	■	■	■	■	■	■	■
		Stub axles and front suspension arms	■	■	■	■	■	■	■	■	■	■	■
		Ball joint on rear suspension reaction triangle	■	■	■	■	■	■	■	■	■	■	■
		Universal joints and propeller shaft sleeve	■	■	■	■	■	■	■	■	■	■	■
		Steering linkage joints	■	■	■	■	■	■	■	■	■	■	■
		Clutch, brake and carburetter control linkage joints	■	■	■	■	■	■	■	■	■	■	■
		Dynamo bearing (commutator end)	■	■	■	■	■	■	■	■	■	■	■
		Hinges and locks	■		■		■		■		■		■
		Front wheel bearings		■			■			■			■

Special note: Check the engine oil level with the dipstick every 625 miles.

REGULAR MAINTENANCE SCHEDULE

WORK TO BE DONE	MILEAGE COVERED										
	5,000	7,500	10,000	12,500	15,000	17,500	20,000	22,500	25,000	27,500	30,000
Check specific gravity of battery electrolyte	■	■	■	■	■	■	■	■	■	■	■
Adjust fan-belt tension	■	■	■	■	■	■	■	■	■	■	■
Clean air filter	■	■	■	■	■	■	■	■	■	■	■
Check tightness of gaskets, seals, hoses, pipes, unions	■	■	■	■	■	■	■	■	■	■	■
Check clearance between brake linings ad drums	■	■	■	■	■	■	■	■	■	■	■
Cross-over and check balance of wheels	■	■	■	■	■	■	■	■	■	■	■
Check wheel camber and toe-in		■		■		■		■		■	
Adjust play in steering box Check play in ball joints	■		■		■		■		■		■
Check brake linings		■		■		■		■		■	
Adjust free travel of clutch pedal		■		■		■		■		■	
Check shock-absorbers and attachments		■		■		■		■		■	
Check rubber engine and rear suspension mounting blocks and propeller-shaft couplings		■		■		■		■		■	
Clean fuel filter and carburetter bowl		■		■		■		■		■	
Adjust valve timing chain, check valve clearances, valve timing and ignition timing		■		■		■		■		■	
Clean and adjust sparking plug and distributor contacts		■		■		■		■		■	
Check cylinder compression		■		■		■		■		■	
Check all nuts and bolts for tightness		■		■		■		■		■	
Check lighting and signalling equipment		■		■		■		■		■	
Check dynamo brushes, commutator and bracket		■		■		■		■		■	
Check starter motor brushes and commutator		■			■			■			■

Special note: **Every 625 miles** top up the radiator.
Every 1250 miles top up the battery.
Twice a year dismantle the throttle counterweight shock-absorber on the Solex 35 APAIG carburetter, clean it and fill it with fresh oil.

Guarantee

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 warranty card, 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 vouchers covering certain free maintenance during the guarantee period, and **he must use these vouchers on completion of the mileage figures as stated thereon.**

— The labour costs of the maintenance work listed on the vouchers is free, but the lubricants used are for the user's account.

— Any work not covered by the free vouchers but found necessary during the inspection will be subject to the General Terms of Guarantee.

— The vouchers should where possible be used at the garage of the Agent that sold the car and during normal working hours.

BEWARE OF THE DANGERS 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 it is colourless, odourless and tasteless, and is presence is very difficult to ascertain.

ALFA ROMEO - Via Gattamelata, 45 - MILANO

DIASS - Pubblic. N. 772 - 10/1961 (15.000)

Printed in Italy

Ist. It. d'Arti Grafiche - Bergamo

ALFA ROMEO S. P. A.
VIA GATTAMELATA, 45 - TELEFONO 39.77 - MILANO