owner's manual

X1/9

BERTONE

This manual has been prepared to help you become acquainted with your BERTONE X1/9

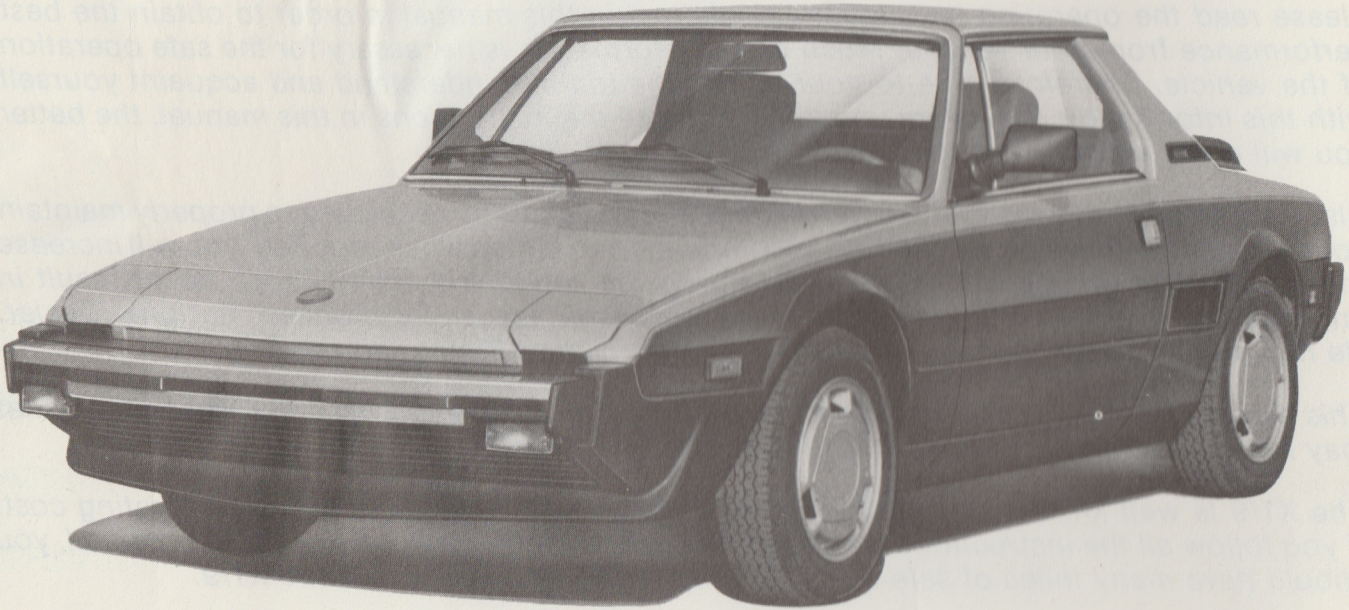
This Owner's Manual contains necessary and useful information about your new Bertone X1/9. Please read the operating instructions contained in this manual in order to obtain the best performance from your vehicle. Much of the information is necessary for the safe operation of the vehicle. Therefore, it is to your advantage to fully understand and acquaint yourself with this information. The more you know and use the instructions in this manual, the better you will enjoy driving your vehicle.

Also contained in this manual are the maintenance operations necessary to properly maintain your vehicle. By having the schedule maintenance performed when required, you will increase the life of your vehicle and its value. Ignoring the scheduled maintenance could result in unnecessary repairs. When service is needed look for an Authorized Bertone Dealer. He has trained personnel and proper equipment for performing the service.

This manual refers X1/9's built for different countries, therefore you will find some features that may not correspond to your own car standard equipment.

The X1/9 is well known for its high degree of serviceability and reasonable operating cost. If you follow all the instructions for operation and maintenance contained in this manual, you should have many miles of safe and pleasurable driving in your Bertone X1/9.

BERTONE



BERTONE X1/9

BEFORE DRIVING YOUR BERTONE X1/9

IDENTIFICATION DATA

(see also page 96)

A - Manufacturer's plate

B - Chassis type and number

C - F.M.V. Safety Standard 115 Tag

D - Vehicle emission control information label

E - F.M.V. Safety Standard Conformity Tag

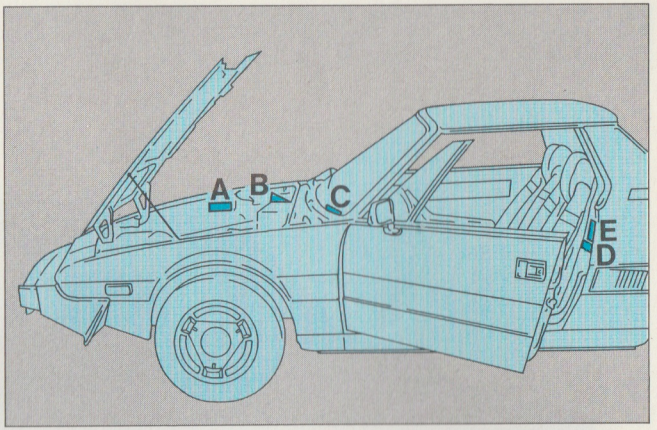
F - F.M.V. Safety Standard 110 Tag

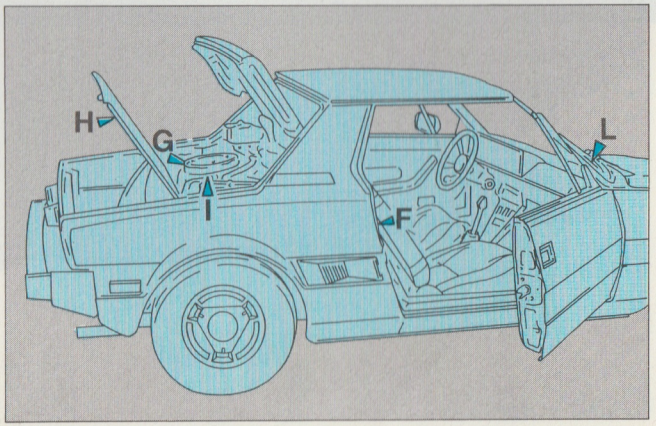
G - Engine type and number - stamped on the engine block

H - Paint information label

I - E.P.A. and California Regulations Conformity Tag

L - Decal "California Exhaust Emission Standards" to section 43200, California Health Safety Code





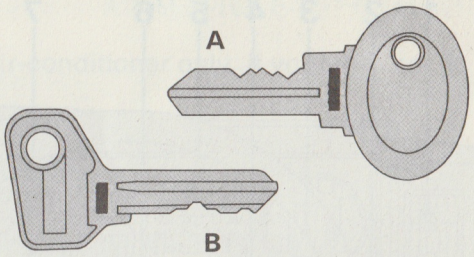
KEYS

Each vehicle is provided with two sets of keys:

A - For ignition switch

B - For doors, hood, trunk, and glove box.

The number of each key is stamped on a self-adhesive label. Record this number in the space provided on the inside front cover of the Owners Warranty and Service Book and in a secure place. If replacement keys are needed, give this key number to your Dealer.



DOORS

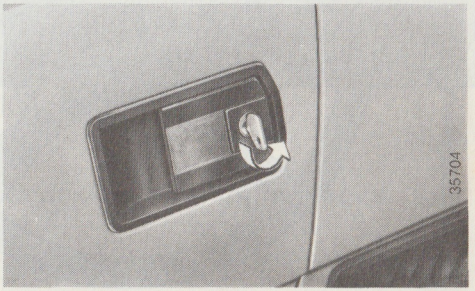
To Open from Outside

Unlock, grip the lever and pull open

To Open from Inside

Pull the lever regardless of door lock button position

The courtesy lamps light up upon opening either door and are connected to a timer. Please see page 17 for complete instructions.



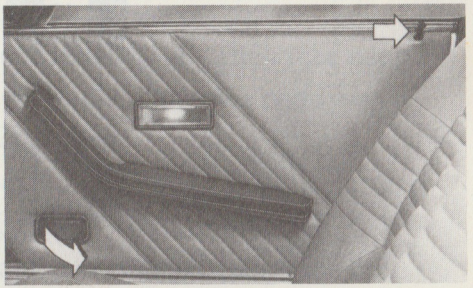
To Lock from Outside

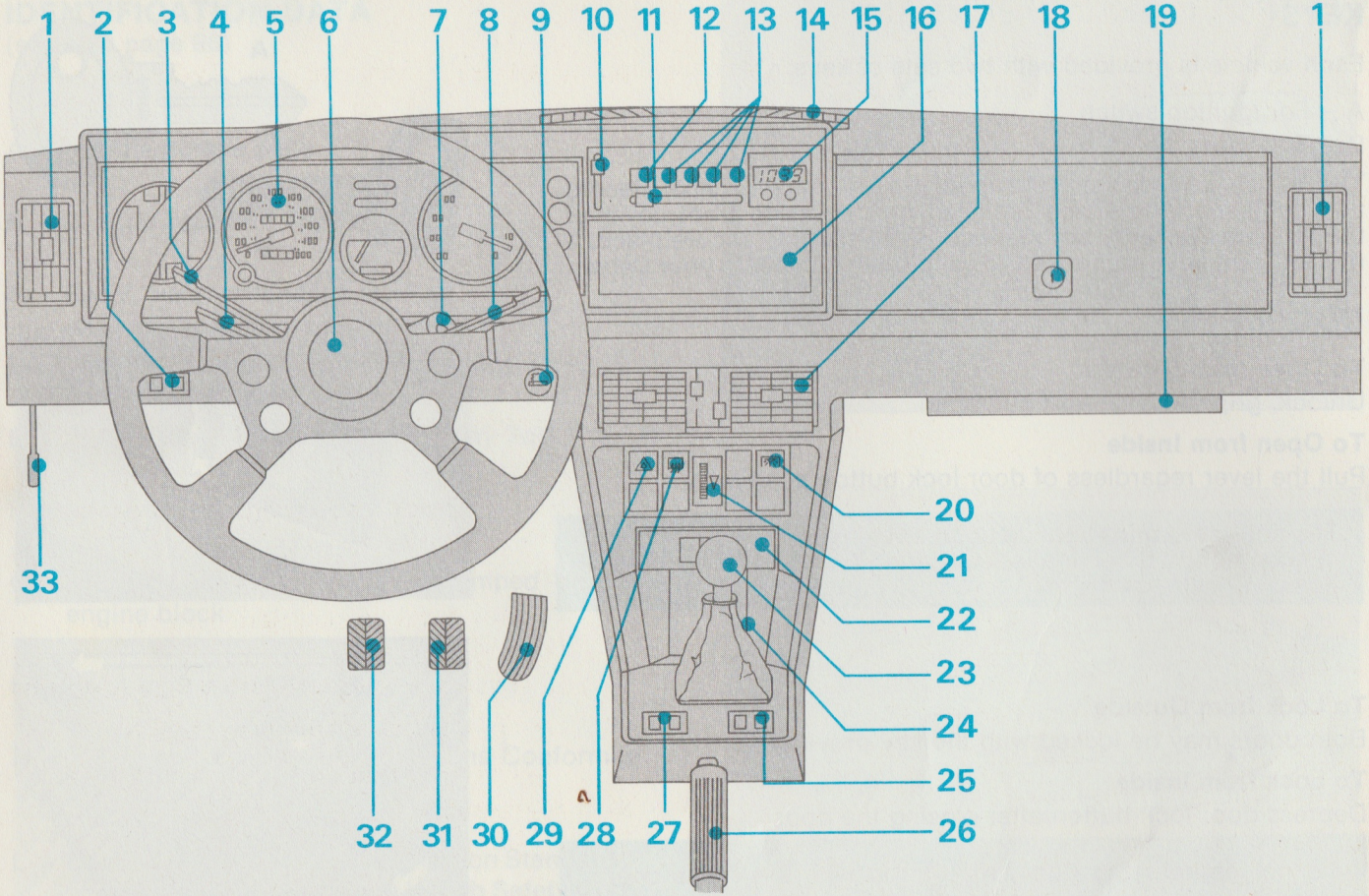
Both doors may be locked with the key provided

To Lock from Inside

Depress door lock button after closing the door

Do not depress the door lock button with the doors open.

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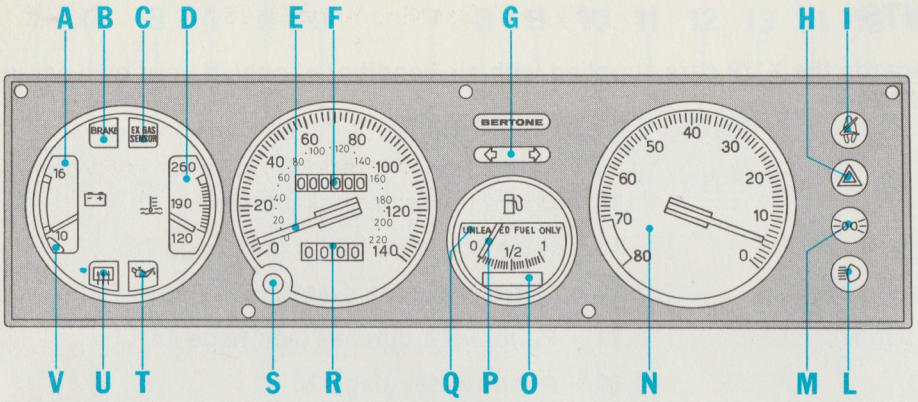
CONTROLS AND INSTRUMENTS

This list and the picture on page 8 regards the X1/9 cars supplied with air-conditioner only. If your own car is supplied with the heater, please see page 23.

1 - Fresh air outlets (see page 22)
2 - Exterior lighting switch (see page 12)
3 - High/low beams dimmer lever (see page 13)
4 - Turn signal indicator lever (see page 13)
5 - Instrument cluster (see page 10)
6 - Horn button
7 - Steering lock ignition switch (see page 12)
8 - Wiper/washer control lever (see page 13)
9 - Cigarette lighter
10 - Fan speed (see page 20)
11 - Air temperature (see page 20)
12 - Air conditioner control (see page 20)
13 - Air conditioner control (see page 20)
14 - Windshield air diffuser
15 - Digital clock - if any -
16 - Radio compartment
17 - Heater and A/C outlets (see page 22)
18 - Glove box with lockable lid
19 - Fuse box drop panel (see page 78)
20 - Courtesy lights switch (see page 17)
21 - Panel light dimmer (see page 14)
22 - Ashtray (see page 16)
23 - Gearshift lever (see page 17)
24 - Storage bin
25 - Power window switch (right) - if any - (see page 30)
26 - Handbrake lever (see page 17)
27 - Power window switch (left) - if any - (see page 30)
28 - Rear window defogger switch (see page 14)
29 - Hazard warning switch (see page 14)
30 - Accelerator pedal
31 - Brake pedal
32 - Clutch pedal
33 - Front hood control lever (see page 25)



INSTRUMENT CLUSTER

A - **Voltmeter** - With engine running, the needle should dwell over the center strip. If the needle moves to either red strip, contact the nearest BERTONE Dealer without delay.

B - **Low Brake Fluid Level/Handbrake ON Indicator (Red)** - With ignition key at MAR the indicator will light to inform the driver that the bulb is operational. In case the indicator remains ON it means either that the handbrake lever is pulled up (brake applied) or that the brake fluid level is too low.

C - **"EX. GAS SENSOR" indicator (Red)** - Lights up:

- Every 30 000 miles to warn the owner of need to replace exhaust gas sensor (Lambda probe)
- On starting; it should go out when engine is started.

D - **Coolant Temperature Gauge** - If the pointer enters the red sector it means that the engine is overheating: it will then be necessary to immediately slown down the engine to idle speed (do not switch off). Should the pointer remain on the red sector, contact the nearest BERTONE Dealer for a cooling system check (including fan circuitry).

E - **Speedometer** - Marked both in MPH and KPH (kilometer per hour). This instrument is factory sealed: any tampering by unauthorized persons will invalidate the Warranty.

F - **Trip Recorder**

G - **Turn Signal Indicator** (Flashes Green)

H - **Hazard Warning Indicator** (Flashes Red)

I - **Fasten Belts Indicator** (Red) and **Chime** - Both will operate for a few seconds after starting if driver's seat belt unfastened. (Chime will also ring if the ignition key is left in the switch and the doors is opened when the engine is off).

L - **High Beam Indicator** (Blue)

M - **Parking Lights Indicator** (Green)

N - **Tachometer** - Yellow sector indicates maximum engine output. Shift to next higher gear before entering this sector. High engine speeds in this sector could be dangerous to the engine and consumes more fuel. The red sector indicates engine over-revving.

O - **Fuel Reserve Indicator** (Red) - Warns that the fuel supply available in the tank is between 1 1/3 and 2 Gals (5 - 7,5 liters).

P - **Fuel Gauge**

Q - **Type of Gasoline to be Used**

R - **Odometer**

S - **Trip Recorder Zeroing Knob** - Turn knob counter-clockwise to zero recorder. Do not turn knob with vehicle moving.

T - **Low Oil Pressure Indicator** (Red) - Lights up when oil pressure is insufficient (usually causen by low oil). Have oil level checked and added if necessary.

U - **Rear Window Defogger Indicator** (Amber)

V - **Battery Charge Indicator** (Red) - With engine off and ignition key at MAR indicator will light to inform driver that the bulb is operational. If indicator comes on with the engine running, this indicates that battery recharging voltage is too low. Have the battery recharging system checked by your Dealer.

Instrument cluster and control panel lights can be tested by turning ignition key to MAR position.

All red indicator lights should be out while driving.

Steering Lock Ignition Switch
(See page 33 for starting procedure instructions)

RUN (MAR) = Engine ignition ON and accessories energized
START (AVV) = Engine starting
STOP (ST) = Steering post anti-theft lock is in place, key removable.

The following circuits are always energized with the ignition key in any position: radiator fan, courtesy light, horns, cigarette lighter, hazard warning and remove key chime, digital clock memory, fuel injectors fan relay.

Remove Key Chime - Operates when either door is opened and the ignition key is in the ignition switch with the engine off.

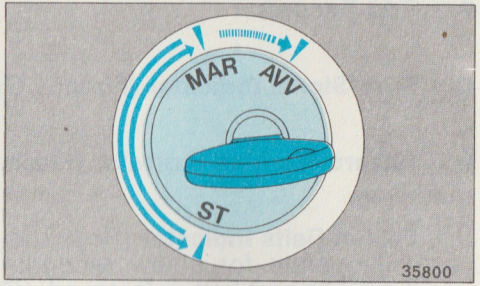
CAUTION:
The total or partial removal of the ignition key will lock the steering wheel even if the car is in motion.

To facilitate the release of the steering post lock, slightly rock the steering wheel while rotating the key. Key must not be left in position RUN when engine is inoperative and must be removed when leaving the car, especially if unattended.

Exterior Lighting Switch
Left = All lights OFF.

With ignition key at RUN:
— Right (first click) = Headlights open, parking and tail lights, headlight flashes (high beams).
— Right (second click) = Headlights open, parking and tail lights, headlight low or high beams and flashes (high beams).

With ignition key removed:
— Right (first click) (night parking only) = Parking and tail lights with indicator, license plate lights, cigarette lighter light, instrument cluster light, headlights closed.
— Right (second click) = All lights OFF. Headlights closed.



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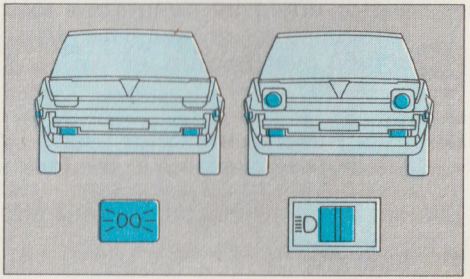
NOTE: MAR - AVV - ST - are Italian designations.

This manual how-ever, will only use the English designations:

RUN - START - STOP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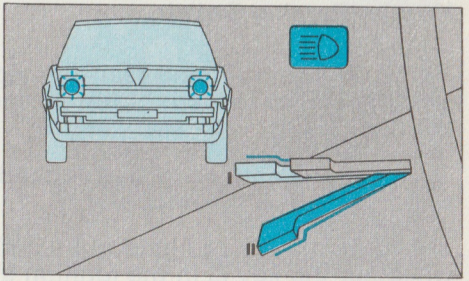
High/low Beams Lever
with exterior light switch shifted right (second click) and ignition key at RUN

I = Low beams
II = High beams

By lifting the lever towards steering wheel, headlight high beams can be flashed even with all lights out for daylight signalling.



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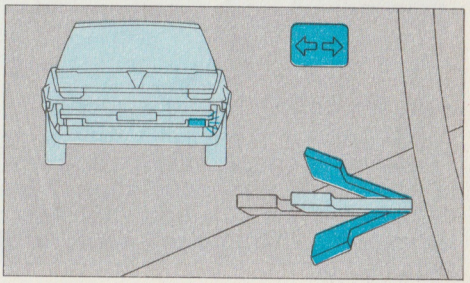
Turn Signal Indicator Lever

Up = Right turn
Down = Left turn

Turn signal indicators operate only when ignition key is at RUN. A green indicator flashes when the turn signal lights are operating.

Turn signal indicators are self-cancelling.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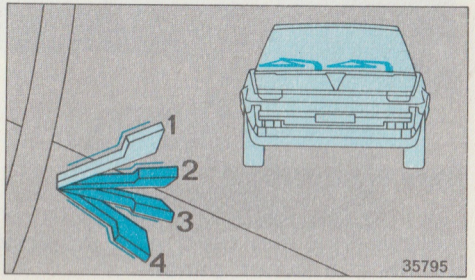
Wiper/Washer Lever
(with ignition key at RUN)

Wipers

1 = Off
2 = Intermittent speed (one sweep every 10 seconds)
3 = Slow speed
4 = Fast speed

When switched off the wipers will automatically park at the base of the windshield.



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Washer

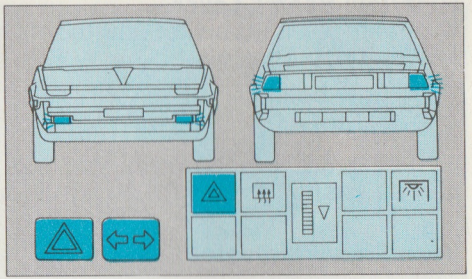
Lift the lever to operate.

Hazard Warning Switch

Turns ON the front and rear turn signal lights which will all flash simultaneously to warn of the presence of the stopped vehicle on the road.

Turn signal and hazard warning indicators on instrument cluster will also flash simultaneously.

The hazard warning lights will function at all times, regardless of wheather the key is in the ignition switch or not.



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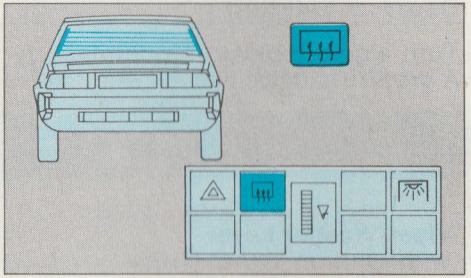
Rear Window Defogger Switch

To prevent condensation and to ensure maximum rearward vision in adverse weather conditions an electrically-heated rear window defogger is fitted. Its operation is controlled by a switch. A yellow indicator is illuminated whenever the rear window defogger is switched on.



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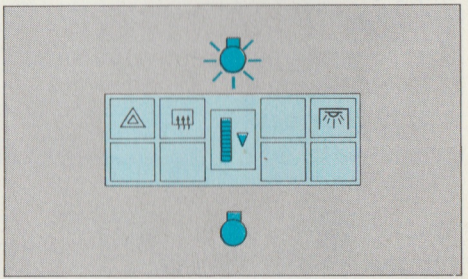
Dash Panel Dimmer

Adjusts light intensity of Air conditioner (or heater) controls, center outlets and switch panel.



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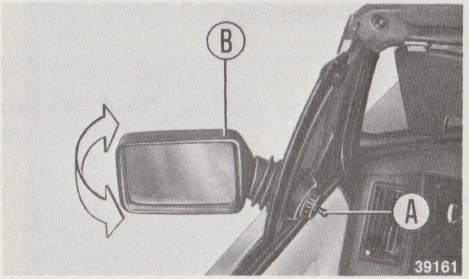
Door Mirrors

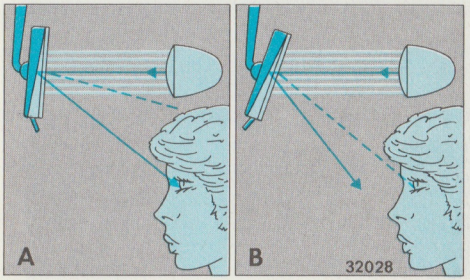
Mirrors are adjustable from inside the car through lever A. If necessary, mirror housing B may be folded against the door for increased clearance.



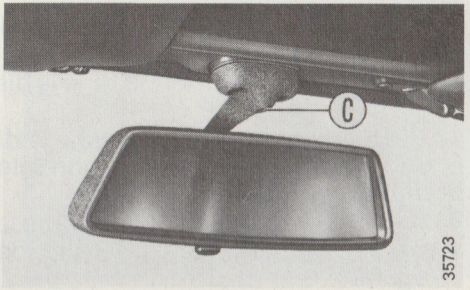
Inner Rear View Mirror

The mirror is mounted on a ball-type joint which permits adjustment in all directions.
It can also be adjusted to avoid glare from a following car. The mirror and stem are designed to disengage from the roof upon impact.

A = Normal position
B = Anti-glare position



Make sure the tab is in position A before adjusting the mirror.

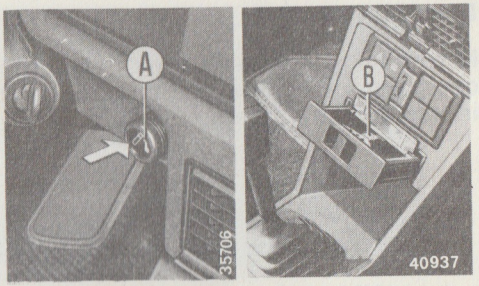


Should the mirror come off, loosen screw C, replace the mirror and retighten the screw.

Cigarette Lighter

To operate, press holder A into socket and release.

Upon reaching the required temperature (after approximatively 15 secs.) holder will return to the extended position ready for use.



Ash Tray

Ash tray is of the drawer type.

To empty, open it, depress stubber B and withdraw tray.

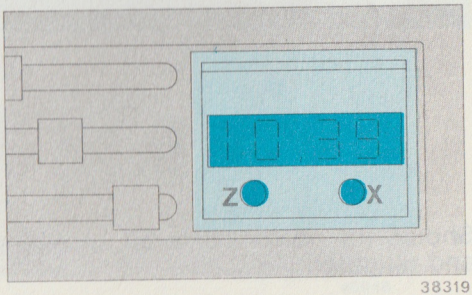
Glove Box

To open the glove box unlock the button using the door key and press in.

Digital Clock

Legible with ignition key at RUN.

— Push button X once and time is displayed in hours. To adjust press button Z
— Push button X twice and time is displayed in minutes. To adjust press button Z
— Push button X thrice and time is displayed in seconds. To reset seconds press button Z. Upon releasing, seconds computation starts from zero.
— When the clock displays hours and minutes press button Z to display minutes and seconds. To reset press button Z again.



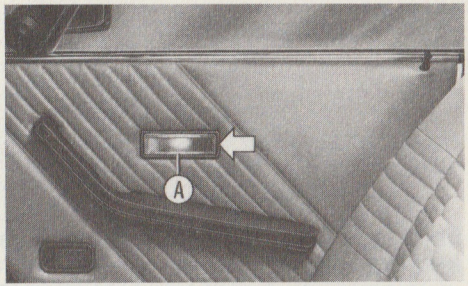
Courtesy Lights

The courtesy lights are mounted on the door trim panels.

The courtesy lamps light up for approximatively 7 seconds when either door is opened or closed. If the engine is started before 7 seconds has elapsed, the lights will shut off.

If the doors are not closed (i.e. while loading parcels) the lights will shut off in 2 minutes

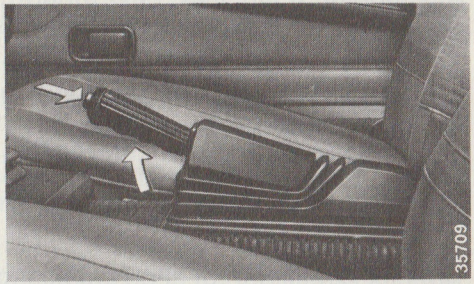
The courtesy lamps can be turned on at any time and for as long as desired by using the courtesy lamps switch located on the console. (See switch no. 20 on page 9).



Hand Brake Lever

To apply pull the lever firmly upwards. To release it, depress the button, lift the lever slightly then ease it fully down.

Indicator B (see page 10) warns the driver that the hand brake is set.

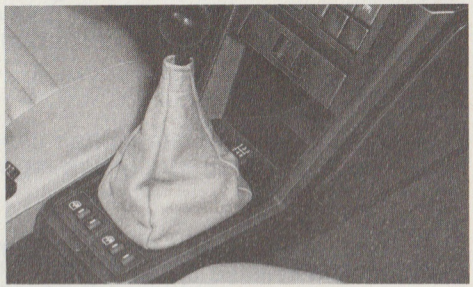


Shift Lever

Shift lever positions are as shown.

To engage reverse (R), bring the car to a dead stop, depress the lever and move to the right and rearward.

With the car stopped, if it is hard to place gearshift lever in first gear, bring clutch pedal up for a moment, then depress it again, and engage first gear.

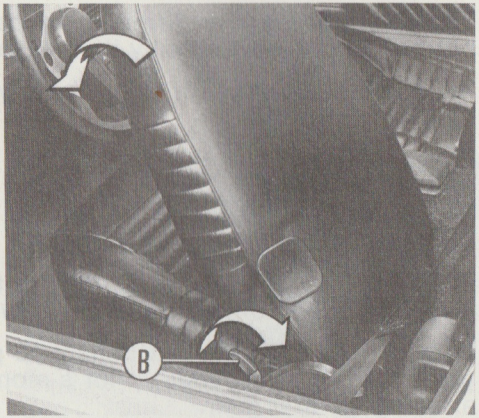


SEATS

For leg reach adjustment move lever A upwards, and slide seat forward on back.

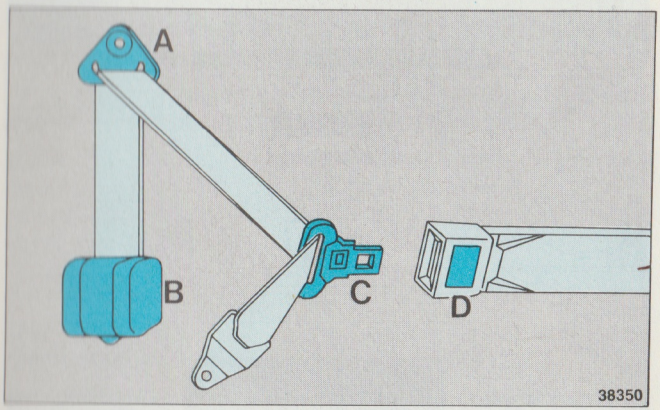
Once the desired position is found, release the lever and make sure the seat has locked.

The seats have a built-in headrest.



To adjust the backrest, lift lever B and move backrest to desired position and release the lever.

SEAT BELTS



Inertia Reel Seat Belts

To Fasten - Insert tongue C into the buckle until a sharp click is heard.

The belt section coming out of the retractor and running through loop **A** is adjustable. It will automatically adjust to the size of the occupant and permits ample freedom of movement. During rapid deceleration the belt will lock in place and provide necessary restraint".

To Unfasten - Press in button D to release the buckle. Tongue C will automatically slide out and the belt will return to the stowed position.

Notes

Make a point of wearing your seat belts at all times, even for short trips. Each belt is intended for use by an adult or a child over six years of age.

Never carry a child on your lap with the belt around the child. Adjust your seat and then fasten your belt while seating upright and well back against the backrest. Make sure that the webbing is not twisted.

The belt should adhere to the body and the lower half of the belt should be fastened round the hips (not the waist), otherwise there is a danger that you might slide under the belt in case of impact. Moreover, sit properly at all times while wearing the belt.

Occasionally, check the bolts for looseness and the webbing for damage. In the event of an accident any seat belt which has been subjected to a shock load should, in the interest of further safety, be replaced.

To clean the belts hand wash in warm water using a mild soap, rinse and allow to dry out of direct sunlight.

Do not use any bleach, dye or other chemicals which might weaken the webbing.

AIR CONDITIONER (where installed)

The air conditioner can only be used when the engine is running.
Before starting the engine push button **STOP** in to prevent the starter from lugging.

Air conditioner controls:

STOP = Off

MAX-A/C = Fast Cool Down. Move lever **A** to the right

A/C = Normal Cooling

HEAT = Heater

DEF = Defrosting. Move lever **A** to the left.

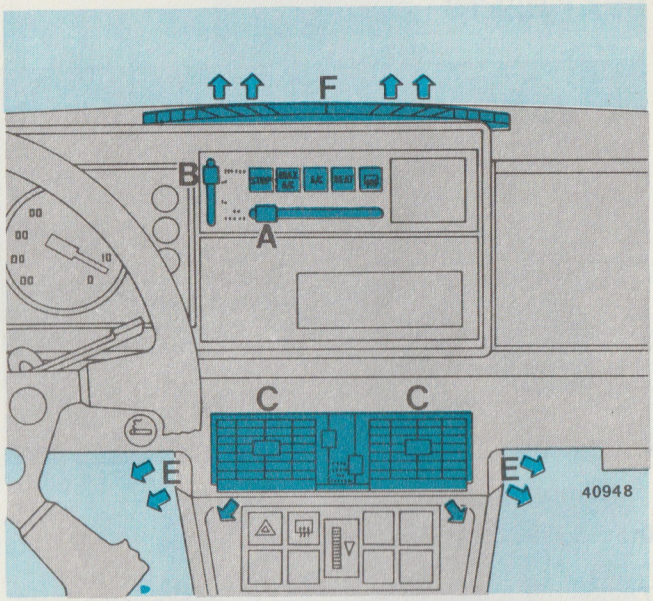
A Air temperature
B Fan speed

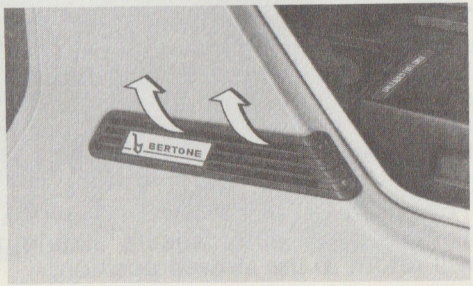
- = *OFF* with buttons **HEAT** or **DEF** depressed
  ON at low speed with buttons **MAX A/C** or **A/C** depressed

LO = Low Speed
ME = Medium Speed
HI = High Speed

With air conditioner in operation, air flows from heater outlets C, side outlets D, floor outlet E and windshield air diffuser.

Stale air extractors on rear pillars increase air circulation when driving with the windows closed.





Fast Cool Down

MAX-A/C When starting out with a hot car, open the windows for a little while to remove the overheated air from the interior.

With engine running push in **MAX-A/C** button and move air temperature lever **A** to the right.

Move fan speed switch **B** to position **HI**. When the desired amount of cooling is obtained, you can adjust cooling by pushing button **A/C** and adjusting lever **A** and setting fan speed as desired.

Operation in Traffic or Polluted Areas

Push in **MAX-A/C** and adjust fan speed switch **B** as required.

To Demist

A/C Push in button **A/C**, move air temperature lever **A** fully to the left. Set fan speed switch **B** to **HI**. Adjust outlets **D** as necessary to direct air to door windows.

Operation when Cruising

Push button **A/C** in and adjust air temperature lever **A** and fan speed switch **B** as desired.

Heating and Ventilation

HEAT Push button **HEAT** and adjust air temperature lever **A** to obtain desired air temperature.

— Right = ambient air
— Intermediate = blended air
— Left = warm air

When **HEAT** button is depressed the air from outside is not conditioned, and the system may provide:

— ventilation when the heater fan is not switched on and the vehicle is moving;

— a positive ventilation when the heater fan is switched on by fan speed switch **B**.

To Defrost

 To clear the windshield, push button **DEF**, set fan speed switch to **HI**, move air temperature lever **A** to the left, and close all outlets.

NOTE - It is recommended that the air conditioner be operated for approx. 15 minutes every two weeks, when not in use.

This will help maintain the components of the system, particularly the compressor, in good working condition.

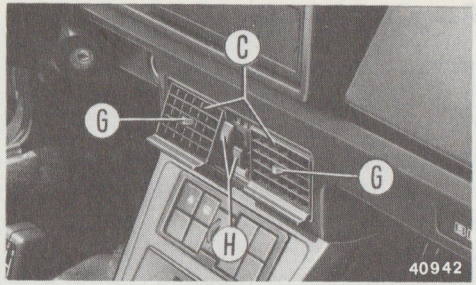
With buttons **STOP** or **MAX-A/C** depressed, outside air is not admitted to the car interior.

Outlets C direct the air flow to the car interior.

Move control **G** for horizontal adjustment.

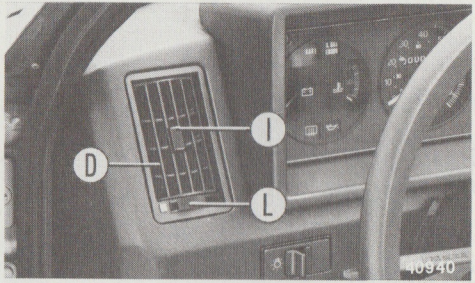
For vertical adjustment move the outlet body as desired.

Controls **H** regulate the air volume of each outlet.
Up (green dots) = Open
Down = Closed



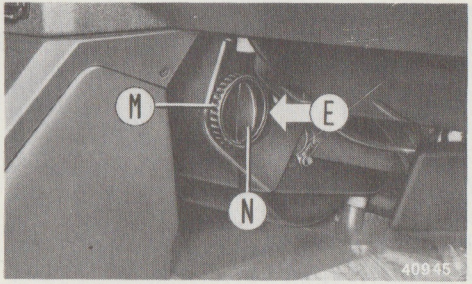
Side Outlets D direct the fresh air flow along the windows.

For outlet adjustment move control **I**.



Control L over green dot = max. amount of air.

Floor Outlets E for air admission to foot well are controlled by knob **M** and damper **N**.



HEATING

Lever A controls the volume of fresh air.
Left = Max. amount of fresh air

Lever B controls the temperature of the heated air.
Left = Max. amount of heated air

Hot air is obtained by setting levers B and A at the left.

If the normal airflow is inadequate (i.e. when the car is stationary or travelling at slow speeds, or when there is a strong following wind) it can be boosted by bringing into operation the two-speed, electrically-operated heater fan through switch D.

0 = Off
1 = Low speed
2 = High speed

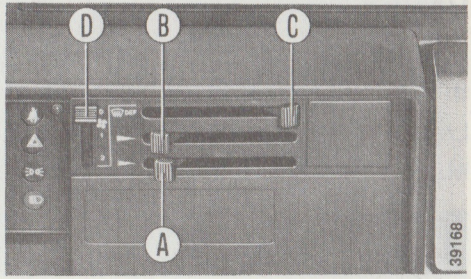
The heater fan electrical circuit is completed when the ignition key is turned to RUN.

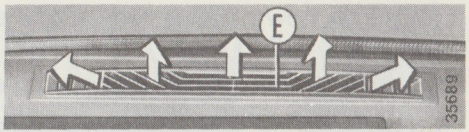
Air enters the car through diffuser E, floor outlet F and heater outlets G. Diffuser E directs the air flow against windshield.

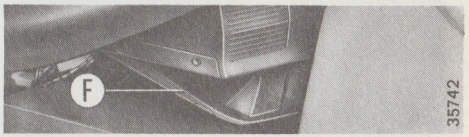
Outlet F directs the air flow to the footwell and is open when lever C is moved completely to the right.

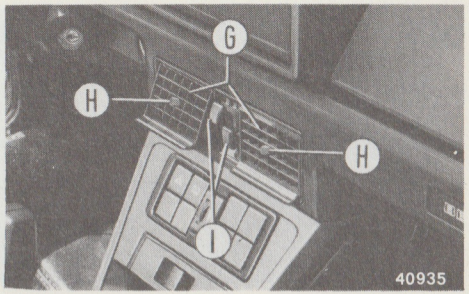
Heater outlets G direct the air flow towards the occupants and are open when lever I is moved completely up. The air flow may be adjusted through lever H.

Heater outlets G may also be adjusted by moving the complete body upwards.









VENTILATION

Lever A sets the flow of fresh air delivered to the car interior through diffuser E, floor outlet F and heater outlets G.

Left = Max. amount of fresh air

Make sure lever B is moved completely to the right.

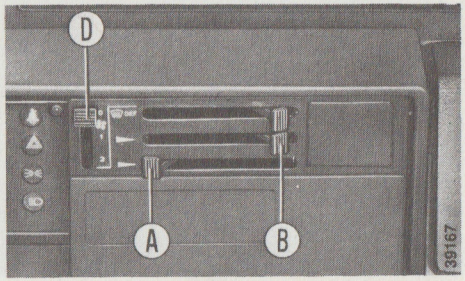
The maximum amount of fresh air is obtained when lever A is completely at the left and lever B at the right.

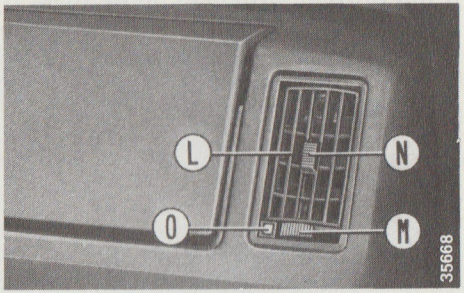
If a greater flow of air is required, the boost fan can be switched on through switch D.

More fresh air is admitted by side outlets L. For vertical adjustment turn control N; for horizontal adjustment rotate the outlet body.

Lever M regulates the fresh air intake of each side outlet.

Lever towards "O" = Max. amount of fresh air



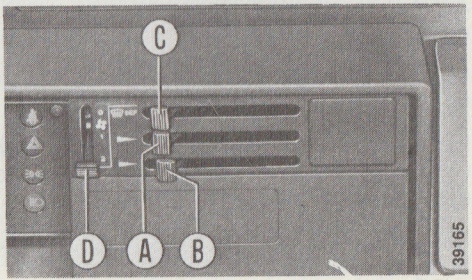


DEMISTING AND DEFROSTING

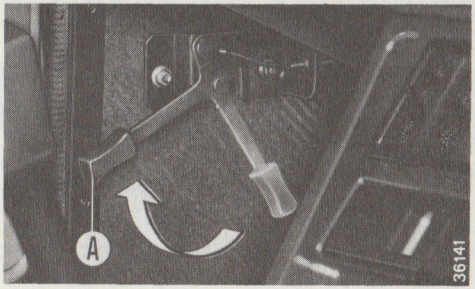
To clear the windshield:

- Move levers A and B fully to the left.
- Switch on the heater fan through switch D (position 2).
- Move lever C fully to the left to close floor outlet F.

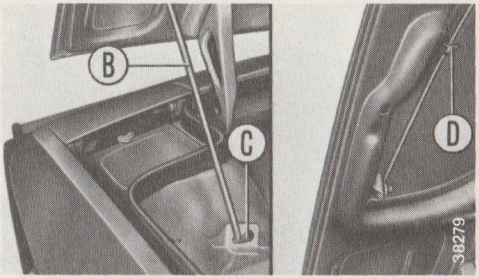
Heated air will flow out of the windshield air diffuser.



FRONT TRUNK LID

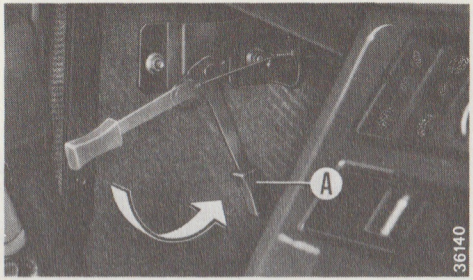


To release pull handle A located underdash, driver's side.



To hold trunk lid open, remove support rod B from fastener D and set it in retainer seat C as shown.

To close trunk lid, remove rod B from retainer seat C and secure it in fastener D. Lower lid carefully and push handle A back to the original position.



Note: the trunk lid cannot be closed by slamming lover it gently, and lock it with handle A.

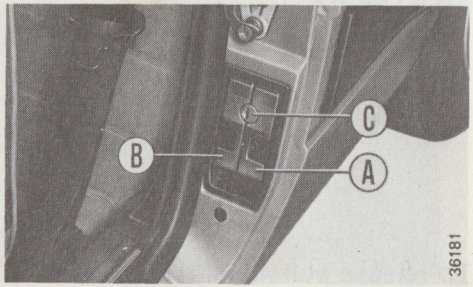
TRUNK LIDS AND ENGINE HOOD

WARNING - If rear spoiler is mounted on your car put the antenna completely down before opening the trunk.

A = Engine Hood Latch Release Lever

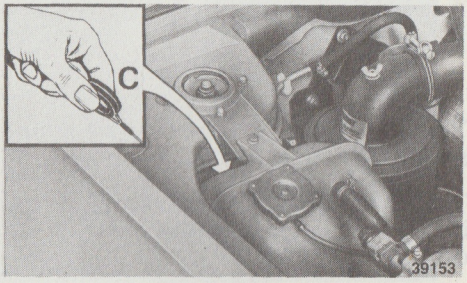
B = Rear Trunk Lid Latch Release Lever.

Both levers are located on left side door jamb: use door key to release lock C and then pull up.



Rear Trunk Lid Emergency Cable

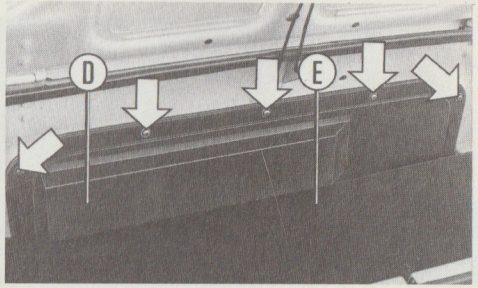
In case the rear trunk lid latch release lever fails to operate, unlock through emergency cable C located on the left side of engine compartment below coolant expansion tank.



Engine Hood Emergency Cable

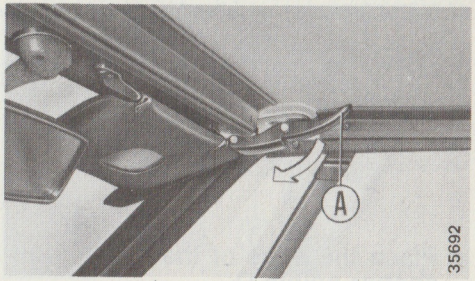
In case engine hood latch release cable fails to operate, unlock through the emergency cable in rear trunk.

To gain access to the cable, remove panel D first then cover E by undoing retaining screws.



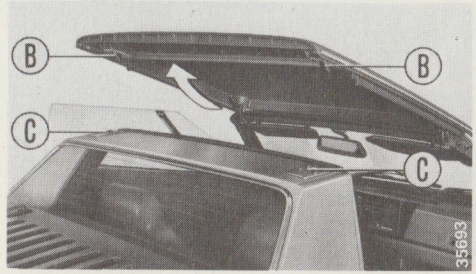
HARDTOP

The hardtop can be stowed in the front trunk without detracting from the available luggage space.



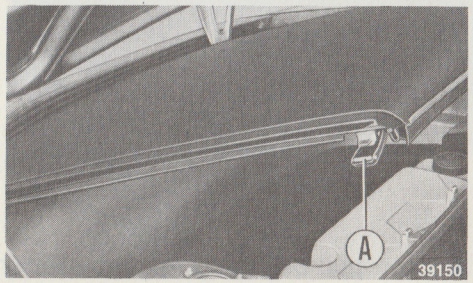
Removal

- Open the front trunk
- Lower the sun visors, release overcenter catches A by pulling downwards.
- Raise the hardtop from inside the car until two lugs B are clear of recesses C.
- Lift off the top and fold back overcenter catches A.

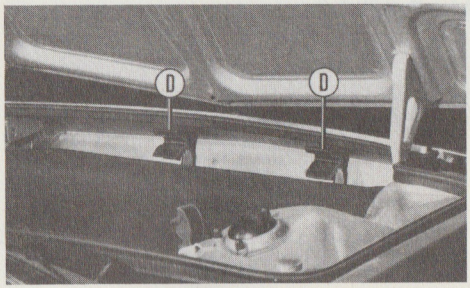


Stowage

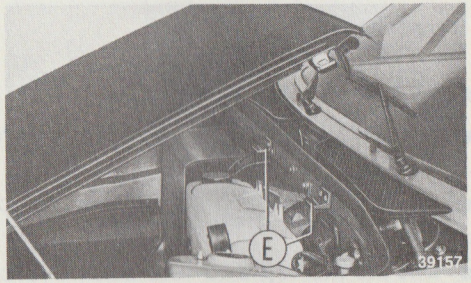
Turn the top so that both catches A face towards the left side of the car.



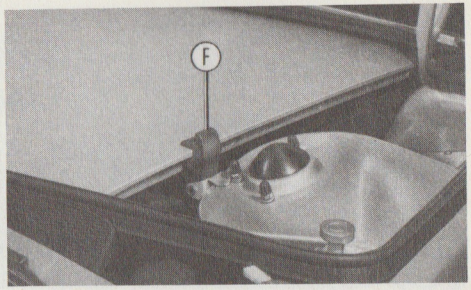
- Place the edge of the hardtop in the trunk so that it engages anchor points D...



- ... and rests on supports E.

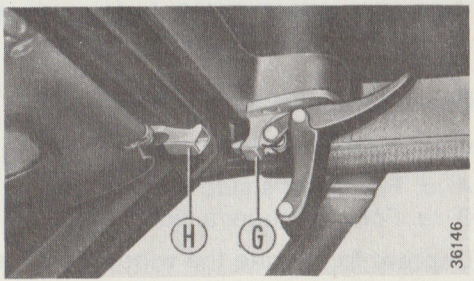


- Then pull back and engage rubber retainers F.

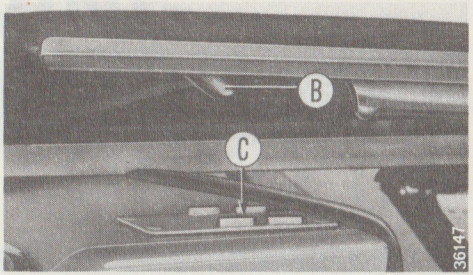


Refitting

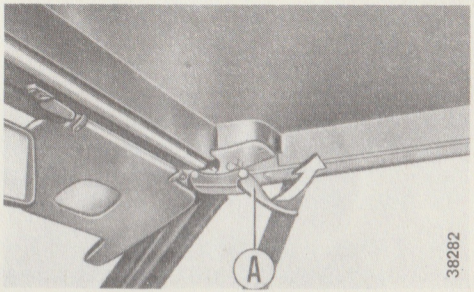
- Fold down sun visors.
- Align lugs G with recesses H.



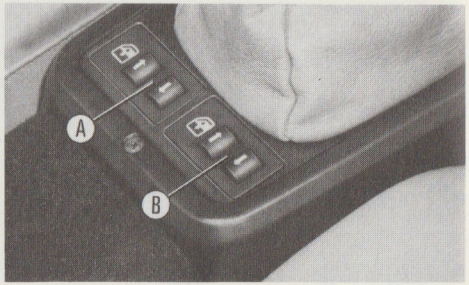
- Insert lugs B in housings C.
- Push down and forward simultaneously the hardtop from the back.



- Lock overcenter catches A.
- Make sure catches have locked correctly.



POWER WINDOWS (where installed)



Power Windows Switches

With ignition key at RUN:

A = For driver's side window

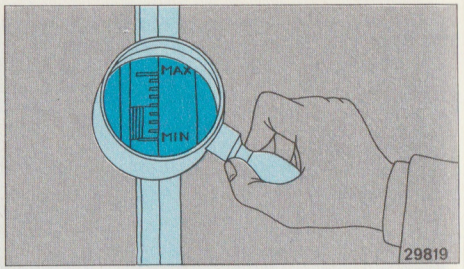
B = For passenger's side window

Depress to operate the window and release to set glass position.

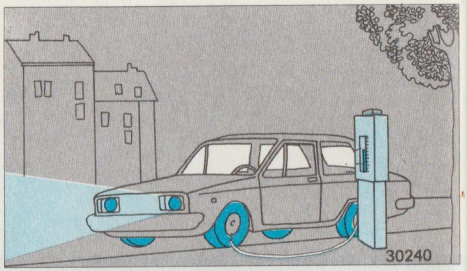
When leaving your car, always remove the ignition key, thus preventing possible injuries to the passengers on board through careless operation of the power windows.

DRIVING YOUR BERTONE X1/9

VITAL CHECKS BEFORE STARTING

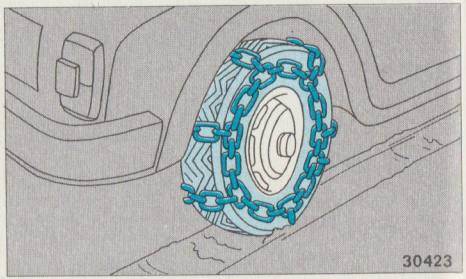


Periodically and before starting on a long journey, check the levels of engine coolant, engine oil, clutch and brake fluid and battery electrolyte. For engine oil grades and corresponding atmospheric temperature see pages 109 and 110.



It is vitally important that tire pressures are correct (see page 110). Before you start a trip, especially if at night-time, check all lights visually.

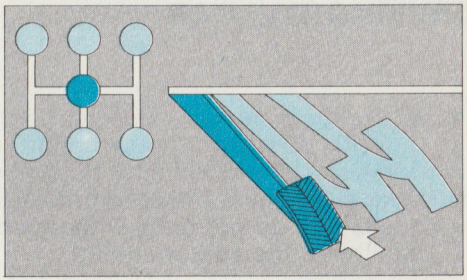
As the winter season approaches and before travelling to a colder climate check the engine coolant for the correct anti-freeze/water strength (see page 67).



Use tire chains or studded tires before starting on a journey on ice or snow-covered roads and remember that while snow chains can be fitted to the driving wheels only, studded tires should be fitted to all wheels.

Your local authorized BERTONE Dealer is conversant with National state requirements and his advices should be obtained.

STARTING THE ENGINE



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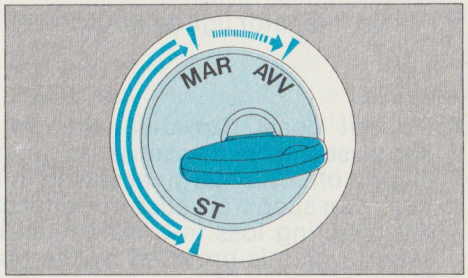


35800

Cold Starts

- Move gearshift lever to neutral.
- Depress clutch pedal, especially in cold climates.
- Insert and turn ignition key clockwise to the stop, that is position START. As soon as engine is started release key which will snap back to position RUN.
  Should the engine fail to start return ignition key back to STOP position and repeat starting attempt.
- Do not step on accelerator pedal until the engine is running smoothly.
- Avoid sudden accelerations when engine is cold.
- Do not continue with repeated starting attempts. If the engine fails to start or stalls at idling, have the fuel and ignition systems checked as soon as possible.

Hot Starts

Turn ignition key without touching accelerator pedal.

DRIVING THE CAR

- Never maintain nor exceed the maximum allowed speeds and do not drive with tachometer pointer steadily on the yellow sector.

- All red indicator lights should be out while driving.

- Do not coast downhill with the clutch pedal depressed, the transmission in neutral or the engine off. The marginal saving in fuel consumption from such a practice does not compensate for the resulting loss in brake lining life and driving safety which is provided by the braking effect of the engine.

- Do not allow the engine to lug, particularly when driving up steep hills. Down shift in order to obtain the maximum engine pulling power.

- Do not ride the clutch, otherwise slippage and damage will result.

- Ensure that both the foot and hand brakes are efficient at all times. After a car wash apply the footbrake a few times so as to restore full brake effectiveness.

- Always apply the foot brake progressively. Remember that wheel locking, especially with an unladen car, will result in dangerous skidding. In case of emergency the hand brake may be used to stop the car.

- On wet or slippery roads hard braking will increase possibility of wheel locking and consequent inevitable loss of handling control. Instead, use the engine braking effect by engaging a gear lower than would normally be required. Braking, if absolutely unavoidable, should be gentle and progressive and, in any case, simultaneous with engine braking.

- On icy roads drive slowly, turn the steering wheel very gently, avoid using the brakes, change gears smoothly and do not drive with the clutch pedal depressed. If the car starts skidding release the accelerator pedal, do not brake, but steer smoothly in the direction of the skid; as the car regains its course, straighten the wheels and accelerate gently.

- When driving in mist or fog during daylight, switch on the low beams: do not use the high beams.

- Before turning or changing lanes, in addition to give the correct signals glance in the mirrors to determine the location of the cars behind you. Before moving back into your lane after overtaking a vehicle wait until it appears in your inner mirror.

- At night when meeting oncoming traffic, keep your eyes on the right side of the road rather than looking straight into the approaching headlights or other light sources: you will avoid being blinded.

RECOMMENDED SHIFTING SPEEDS

1st-2nd	2nd-3rd	3rd-4th	4th-5th
15 mph	25 mph	40 mph	45 mph

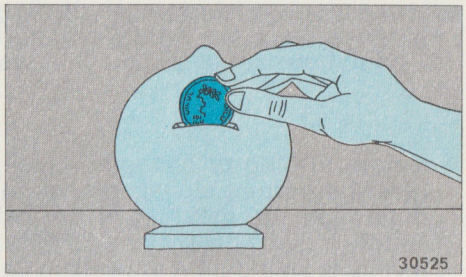
In any case the maximum speed listed on page 105 should never be exceeded.

PARKING

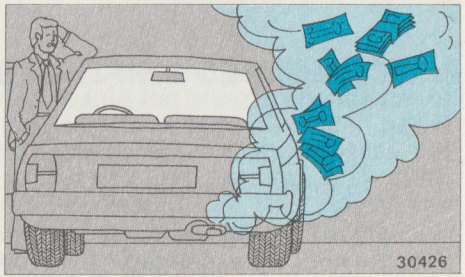
Always apply the hand brake when parking and, if on a grade, for added safety also shift into first or reverse depending on whether the car is heading up- or downhill, and turn the front wheels into the curb.

When the car is left in dark areas always turn on the parking lights.

FUEL CONSUMPTION



Fuel consumption will be kept within reasonable limits when spark plugs are clean and electrode gap correct, and when fuel, iniection system and air cleaner are in good conditions.



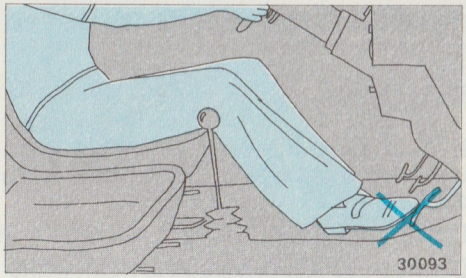
Conversely, fuel consumption increases with the windows open and the tires underinflated.

In particular:

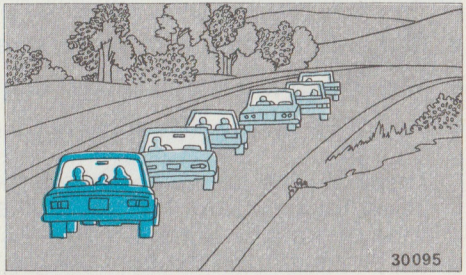
- Avoid idling the engine unnecessarily.

- Do not step on the accelerator pedal: accelerate gently.

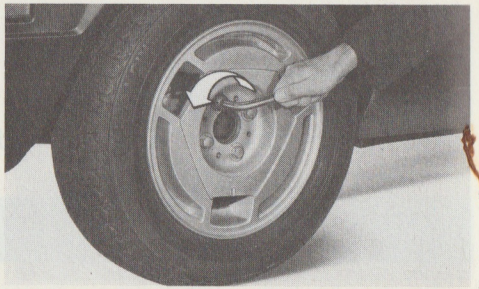
Never race the engine unnecessarily. Avoid sudden starts at full throttle.



- Do not hesitate to up shift whenever possible.
- When driving do not exceed maximum engine speed.
- Driving in a line needs accurate judgement of the speed not only of the preceding car but also of the traffic ahead in order to anticipate sudden stops.
- Switch off the engine when the car is stopped in traffic.



WHEEL CHANGING



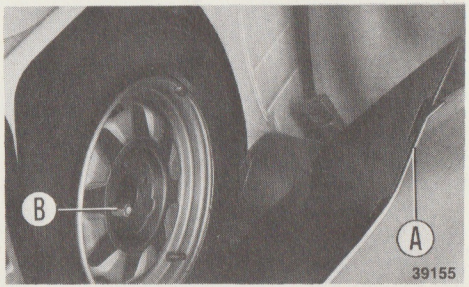
WARNING

If you have a flat tire move the car off the road, turn on the hazard warning lights and use other warning devices to warn other drivers.

Do not allow passengers to remain in car when jacked up.

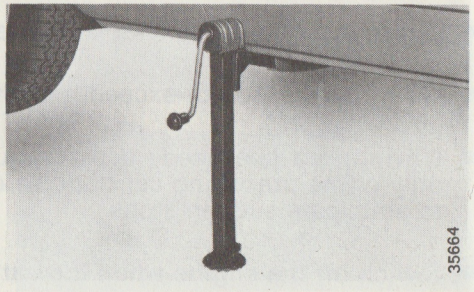
Do not use jack to support car while working underneath car.

- When changing wheel, make sure car is on level and firm ground.
- Apply handbrake.
- Take out tool kit and jack from rear trunk.
  Move the passenger's seatrest forward and remove fold forward panel A. Remove nut B and take out the spare wheel.

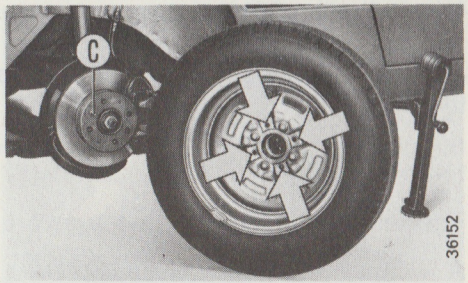


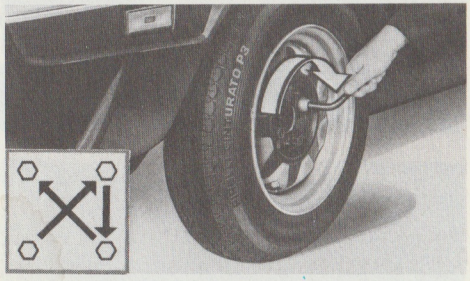
NOTE: To save space on the inside of the car, the spare wheel has a different size tire. The tires on the car are 165/70SR13 while the spare is 145/SR-13. Therefore, when the spare wheel has been mounted, limit its use and drive carefully and at moderate speed. Have the spare wheel replaced as soon as possible.

- Remove the wheel trim with a screwdriver.
- Loosen the wheel bolts about one turn.
- There are two jacking sockets (one each side) underneath the floor pan.
  These are the only place where the car can be jacked.
  Insert the jack lever into the socket all the way. Make sure the base of the jack is on firm ground. Turn the handle attached to the jack and raise the car until the wheel is clear of the ground.



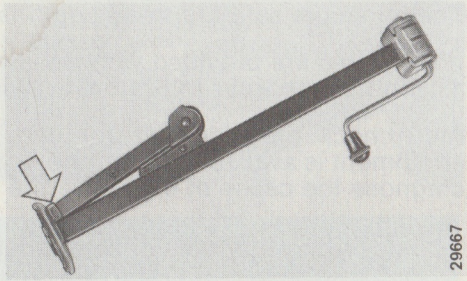
- Remove the bolts and remove the wheel.
- Align the hole in the spare wheel with the peg C on the hub.
- Mount the spare wheel making sure peg C fits a hole in the wheel disc and install bolts.
- Lightly tighten the bolts.





- Lower the car and remove the jack.
- Fully tighten the bolts in a diagonal sequence.
- Make sure that the tire is properly inflated (see page 110).

Before storing the jack, fold back the lever and turn the handle until the lever locks against the base of the jack. This will prevent rattling during driving. Store the jack and tool kit in the rear trunk. Use the strap to secure the jack and tool kit in the trunk.



Following tire replacing, the complete wheel should again be balanced.

Tires

Maintain the correct inflation pressures by checking with a reliable gauge.

In hot climates, do not reduce pressure as this would only increase tire temperature.

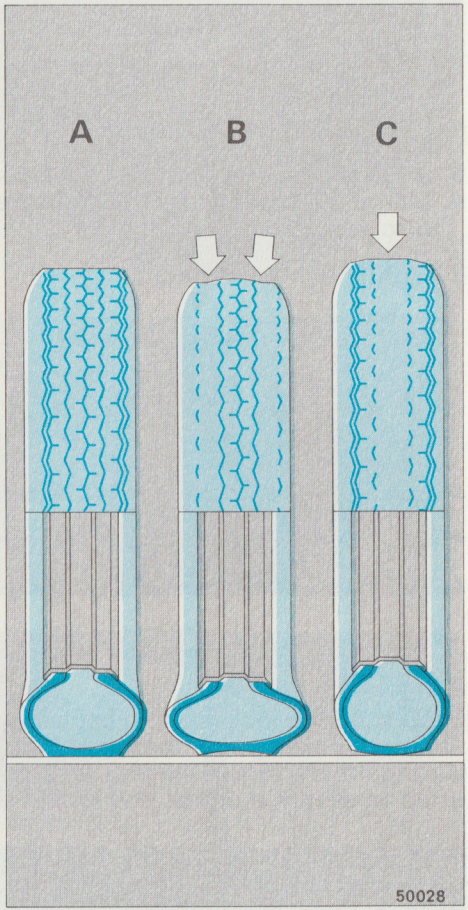
The recommended tire pressures are given on page 110.

A - Correct inflation: Even tire wear.

B - Under-inflation: Excessive wear on the tire shoulders.

C - Over-inflation: Increased wear on the center of the tread.

Check pressure when the tires are cold.



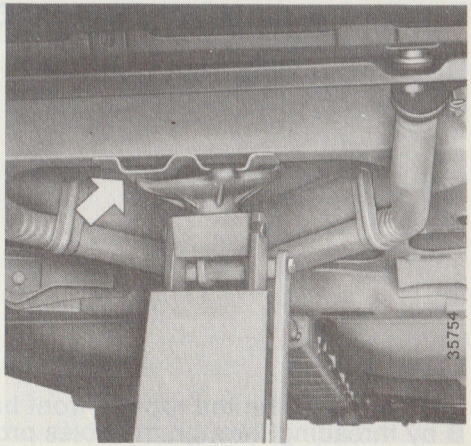
The minimum safe tire tread depth is 0.03937 in (1 mm).

If your tires are provided with tread wear indicators, replace tires as soon as the wear indicators are visible.

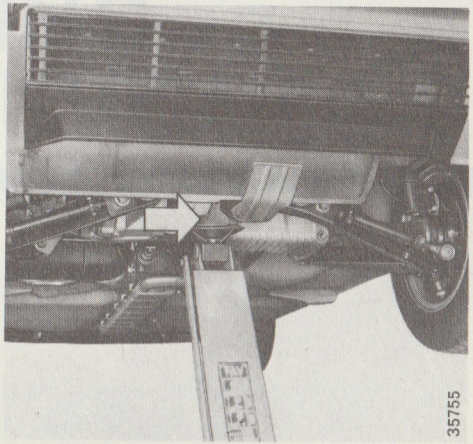
Also check tire sidewalls for cuts and uneven wear. Special equipment is available to Bertone Dealers, which enables them to diagnose the cause of excessive tire wear.

Do not reposition tires or road wheels in a criss-cross fashion.

JACKING



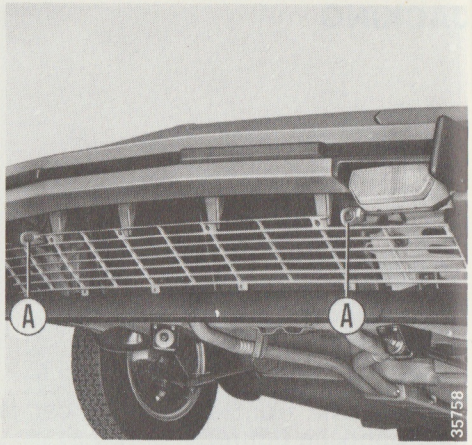
To raise the front end of the car jack up at the front bracket (see opposite figure).

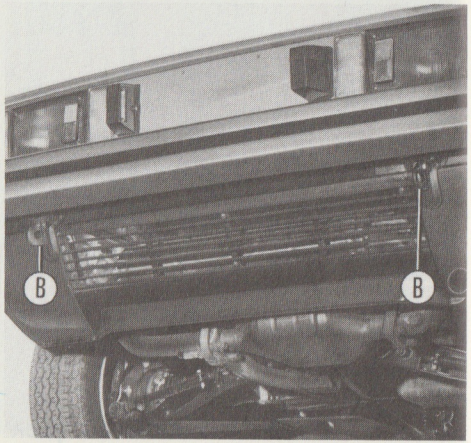


To raise the rear end of the car jack up at the rear bracket.

TOWING BY ANOTHER VEHICLE

For towing fasten the rope to front brackets A or to rear brackets B by threading through the holes provided.





TOWING INSTRUCTIONS

GENERAL

This section contains the recommended towing procedure which will help insure damage-free towing.

Therefore, in the event your vehicle requires towing, this section should be made readily available to tow truck personnel.

IMPORTANT SAFETY NOTICE

Proper towing is important for the safe, reliable operation of the vehicle.

The procedure recommended and described under this section is the effective method of performing towing operations.

It is important to read the various warnings in this section in order to minimize the risk of personal injury to service personnel and to avoid procedures which may damage the vehicle or render it unsafe.

The instructions contained here are not meant to be all inclusive.

BERTONE could not possibly know, evaluate and advise the reader of all conceivable methods of towing or of the possible hazardous consequences of each method.

Consequently we have not undertaken any such broad evaluation.

Accordingly, anyone who uses a towing procedure not recommended by BERTONE must first be thoroughly convinced that neither personal safety nor vehicle safety will be jeopardized by the selected towing method.

GENERAL TOWING INSTRUCTIONS

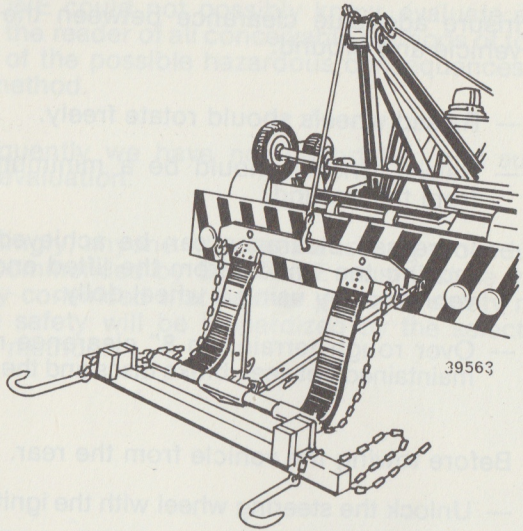
- Vehicle must not be towed at a speed exceeding 30 mph, or for more then a 30 miles.
  - — If the vehicle is to be towed over the specified distance or if the transmission or differential is damaged the vehicle must be towed with the rear driving wheels raised off the ground.
- The transmission must be placed in the neutral position and the parking brake released.

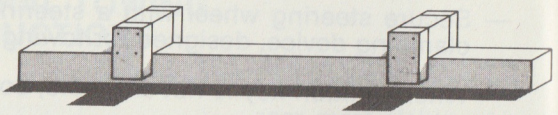
- Insure adequate clearance between the towed vehicle and ground.
  - Raised wheels should rotate freely.
  - Raised wheels should be a minimum of 4" from the ground.
  - Increased clearance can be achieved by removing the wheels from the lifted end of the vehicle or by using a wheel dolly.
  - Over rough terrain, an 8" clearance must be maintained between brake discs and the ground.
- Before towing the vehicle from the rear.
  - Unlock the steering wheel with the ignition key.
  - Secure steering wheel with a steering wheel clamping device, designed for towing service.
  - When ignition key is not available, do not tow vehicle from rear.
- When locked vehicles must be towed and the ignition key is not available, the vehicle must be moved without damaging the steering column anti-theft lock.
- When installing towing equipment, do not damage lights, bumpers or painted surfaces of vehicle.
- Avoid "panic" or "fast" stops during towing because the vehicle may ride up the sling belts, and result in contact between the rear of the wrecker and vehicle.
- Do not allow passengers to ride in towed vehicle.
- Do not allow the fuel tank to support any of the vehicle's weight during towing.
- Follow all state and local laws regarding such items as warning signals, night illumination, speed etc.
- The safety of the operator and all others in the vicinity of the wrecker or the towed vehicle must be considered at all times during a towing operation.
- Use a safety chain system completely independent of the primary lifting and towing attachments.
- Use T-hooks for their ease of hook-up and to avoid damage to axle boots, brake lines and suspensions parts. T-hooks are to be inserted into tie-down eyes.
- Use silicone lubricant on sling straps to prevent damage to rubber strip on bumpers.

STANDARD TOWING EQUIPMENT

The towing procedure illustrated in this section was performed with conventional "sling-type" equipment, which is a commonly used piece of lifting and towing equipment.

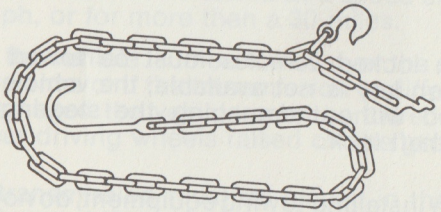
The most widely used and recommended towing equipment is illustrated: here.





Tow trucks should be equipped with:

— A towing sling
— J-hooks, grab hook chains, T-hooks
— Safety chains (not shown)
— A 4 x 4 x 60" wooden crossbeam
— A pair of spacer blocks



FRONT TOW

Not recommended with conventional sling-type equipment.

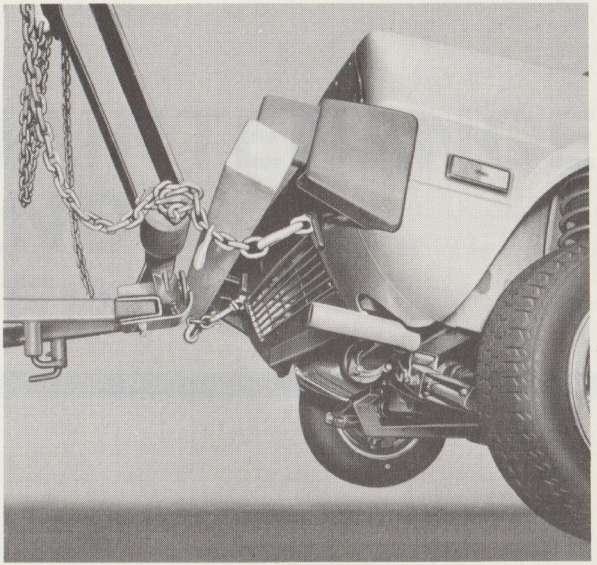
REAR TOW

Attach T-hooks to tie-down eyes.

Position 4 x 4 under bumper.

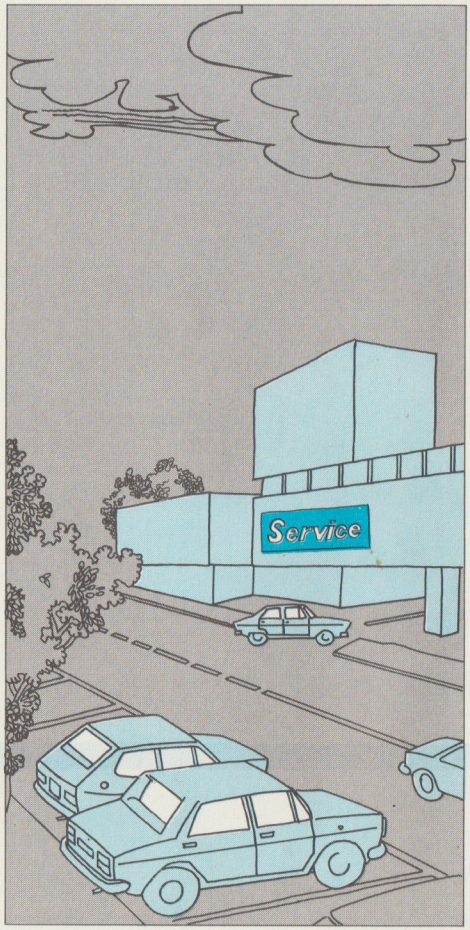
Position towbar behind 4 x 4.

Attach safety chains to lower control arms.



MAINTENANCE AND SERVICE

SERVICE



This section includes all periodical maintenance operations essential for continued effectiveness of the car.

The lubrication, cleaning, inspection and adjustment operations recommended in relation to given mileages are listed on the General Maintenance Schedule. Reference is made to the pages where each operation is described.

The Owner's Warranty and Service Book contains a free service coupon. This service should be performed between 1 300 and 1 800 miles.

Failures, other than those resulting from defects in material or workmanship, which arise solely as a result of owner abuse and/or lack of proper maintenance are not covered by warranty.

For oil grades not mentioned here, see the Fill-up Data Table.

EMISSION CONTROL SYSTEMS

The maintenance operations necessary to ensure the proper functioning of the vehicle emission control systems are printed in red for immediate identification both in the General Maintenance Schedule and in the paragraphs of this section.

The engine tuneup and adjustment specifications are also listed on the E.P.A. Regulations Conformity Tag, located in the engine compartment.

For all these operations it is also recommended to refer to the instructions specified in the Owner's Warranty and Service Book.

WARRANTIES

Your vehicle may be covered by the following written:

1 Limited Warranty

2 Emission control system defects warranty (Federal)

3 Emission control system performance warranty (Federal)

4 For California version vehicles, California Emission Control System Warranty.

Detailed information on these warranties can be found in your owner's warranty and service booklet.

GENERAL MAINTENANCE

■ ■ We recommend that all operations so marked be entrusted to the BERTONE Dealer.

OPERATIONS	See page	Every 15 000 miles	Every 30 000 miles
■ Valve clearance: *Check and adjust, if necessary*	53	●	
■ Air cleaner: *Replace filtering element*	55	●*	●
■ Spark plugs: *Change*	55	●*	●
■ Alternator/water pump and air conditioner drive belts: *Check tension and wear; adjust and replace if necessary*	56	●*	●
■ Oxigen sensor (Lambda probe): *Renew*	65		●
■ Brakes: *Check state of wear of linings, check lines and handbrake efficiency; adjust or replace if necessary*	70	●	
Clutch fluid: *top up if necessary*	72	●	
■ Transaxle: *Replace oil*	72		●
■ Constant-velocity joints: *Check*	72	●	
■ Suspensions and steering: *Check components*	73	●	
Body: *Lubricate door locks and hinges*	75	●	

These operations are not obligatory but only recommended when the car is frequently used in unusual traffic conditions or on sandy and dusty roads.

SPECIAL MAINTENANCE

OPERATIONS	See page	Every 500 miles or weekly	Every 3 000 miles	Every 7 500 miles
Engine oil: *Check level*	54	●		
■ Engine oil and filter: *Change*	54			●
Cooling system: *Check coolant level*	67	●		
Brakes: *Check brake disc pads*	70			●
Clutch fluid reservoir: *Check level*	72	●	●	
Tires: *Check pressure*	40	●		
Battery: *Check terminals and clamps*	76		●	

Checking Tappet Clearance

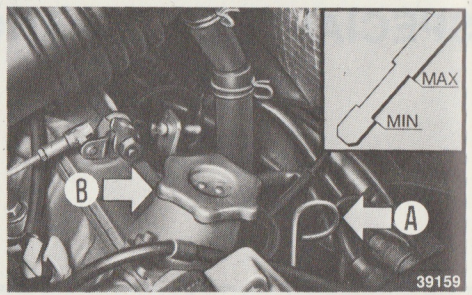
The correct valve clearance, with engine cold, is .011 to .014 in (0,28 to 0,36 mm) for inlet valves; and .015 to .018 in (0,38 to 0,46 mm) for exhaust valves.

Engine Oil Level Checking

Check level when the engine is cold and the car standing on level ground.

Withdraw dipstick A, wipe it dry, replace it and again withdraw it. The correct level is between "MIN" and "MAX" marks on dipstick. If necessary, oil should be added through filler opening B.

Sump capacity from "MIN" to "MAX" marks of dipstick is 2.2 lbs. approx. (1 kg).



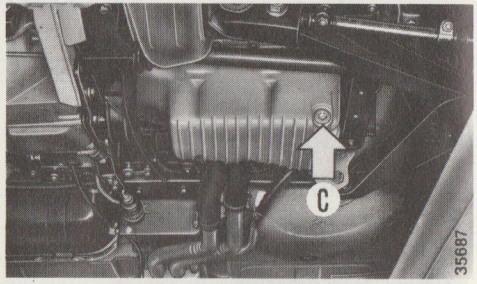
Engine Oil Changing

Engine oil changing should be done every 7.500 miles.

Change the oil when the engine is warm.

To drain the sump, remove oil filler plug B and sump drain plug C.

Oil changing depends on the type of fluid used (single grade or multigrade) and prevailing climatic temperature (See FILL-UP data table).

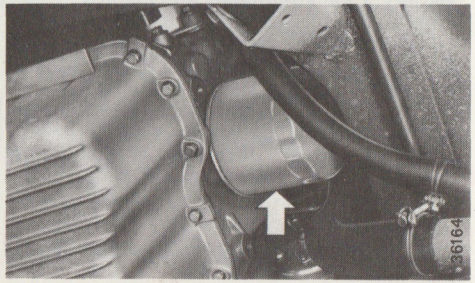


Oil Filter Replacing

While changing the oil, also replace the filter.

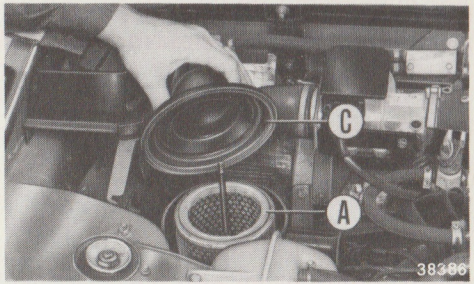
Unscrew the filter from the base and discard.

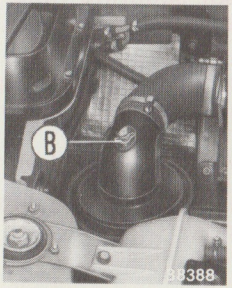
When fitting a replacement filter, coat the rubber on the filter seal with engine oil.

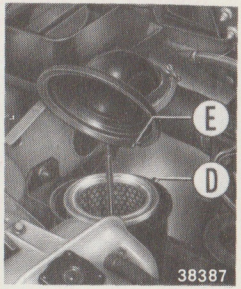


Air Cleaner

To gain access to filtering element A, unscrew wing nut B and remove cover C.
When refitting cover C, insert tab D into slot E on cover then retighten wing nut B.

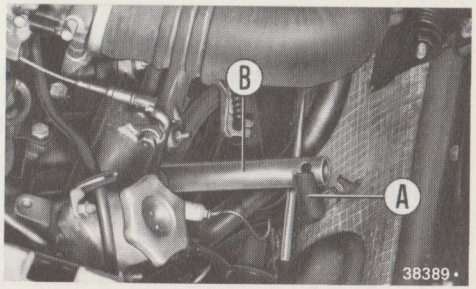






Spark Plugs

To remove the plugs first detach High Tension leads A then use wrench B.
When replacing the plugs, make sure the new ones are of the specified type: if their heat range is wrong, engine malfunction and/or failures may occur.



Belts Driving Alternator, Water Pump and Air Conditioner Compressor (where fitted)

Belt sag should not exceed 1/2 in (1,5 cm) when a pressure of 22 lbs. (10 kg) is applied.

To adjust tension of belts proceed as follows:

- Alternator belt (A):
  loosen nuts B and C and move alternator outwards, then retightenn the nuts.
- A/C compressor belt (D):
  loosen compressor securing nuts E and F, move compressor outwards, then retighten the nuts.
- Water pump belt (G):
  Remove nuts H, remove crankshaft pulley half (I), change shims quantity and reinstall crankschaft pulley half. Then fully tighten nuts.
  Do not discard shims, they will be re-used.

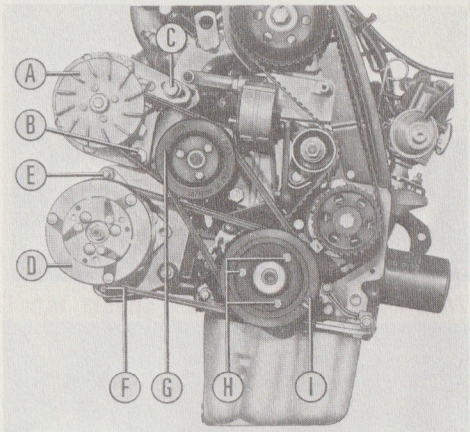
Do not exceed the tension since this would result in abnormal stress on the bearings.

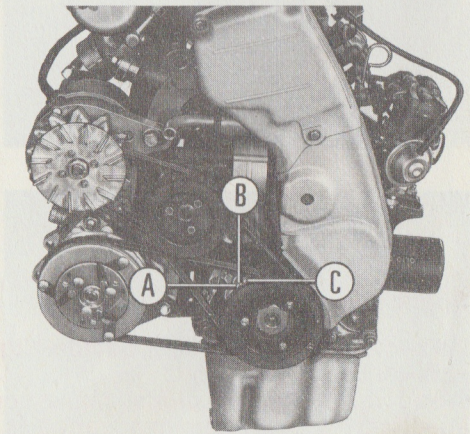
Ignition Timing

Spark advance is set in the factory and no further adjustment is required during the life of the vehicle.
Ignition timing must be checked only if the ignition distributor is removed.

To adjust proceed as follows:

- Engage top gear and move vehicle until cylinder No. 1 is in the compression stroke and the mark on the crankshaft pulley is aligned with fixed timing mark A indicating 10° B.T.D.C.





Ignition: A = 10° (Adv.); B = 5° (Adv.); C = 0° (T.D.C.)

- Remove distributor cap and turn shaft manually until rotor is positioned against contact for firing of cylinder no. 1.
- Without moving distributor shaft, insert distributor in its seat and secure.
- Connect leads going to coil.
- Install cap and check that the leads are correctly connected to spark plugs.
- Connect the rev. counter and the stroboscopic lamp to the engine using spark plug lead for cylinder no. 1 (*).
- Start engine and check ignition timing with the stroboscopic lamp.
- Ignition timing should be 10° B.T.D.C. at 800 to 850 rpm.
- If distributor calibration is not correct, loosen and rotate manually until correct calibration is obtained.

(*) If distributor removal is not required, proceed from this point.

EMISSION CONTROL SYSTEMS

Vehicle emissions are controlled by various devices that make up the crankcase emission control system, the exhaust emission control system and the fuel emission control system.

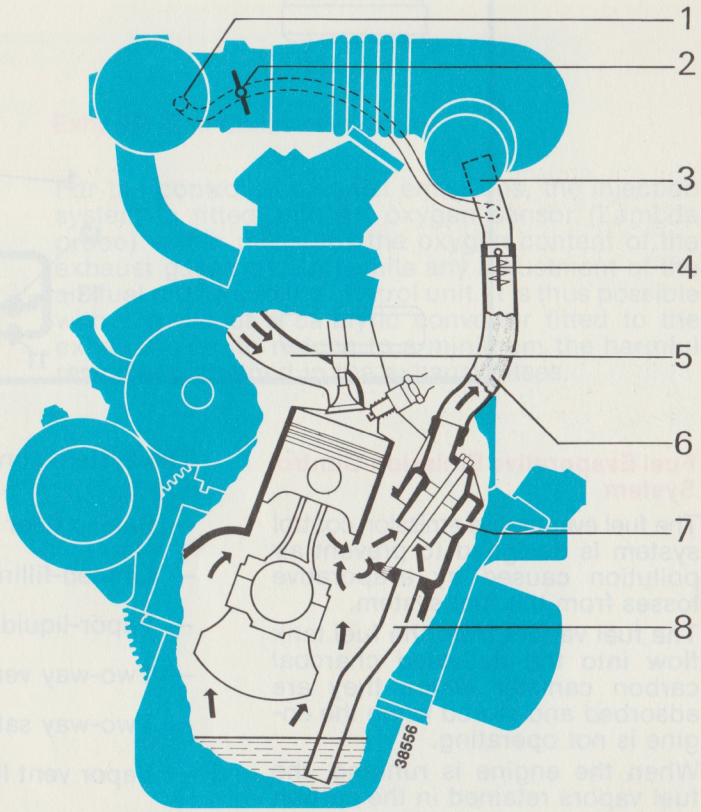
Any modification of the emission control systems is subject to Federal Laws and Regulations and may incur penalties.

Crankcase Emission Control System

This is a closed system designed to prevent any emission of blow-by gases and oil vapors into the atmosphere.

These gases and vapours are piped to an orifice upstream of the throttle plate and are then drawn into the engine when throttle plate is open.

With throttle plate closed, gases and vapors are conveyed downstream of the throttle plate via a secondary hose branched off from the primary one.



1 - Emission feedback port (closed throttle plate)

2 - Throttle plate

3 - Emission feedback port (open throttle plate)

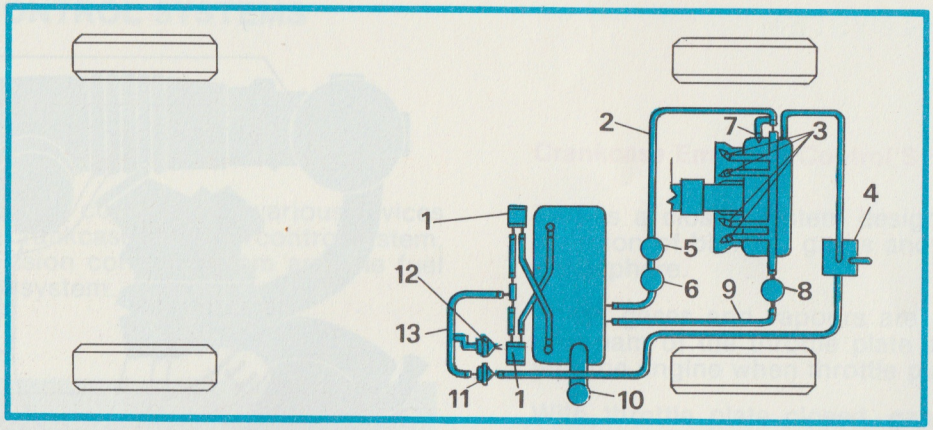
4 - Flame trap

5 - Intake manifold

6 - Sump-to-air cleaner line

7 - Cyclonic trap

8 - Oil drain line into sump



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Fuel Evaporative Emission Control System

The fuel evaporative emission control system is designed to prevent air pollution caused by evaporative losses from the fuel system.

The fuel vapors from the fuel tank flow into the activated charcoal carbon canister where they are adsorbed and stored when the engine is not operating.

When the engine is running, the fuel vapors retained in the carbon canister are purged through a line which conveys them to intake manifold.

The system consists essentially of:

— Sealed filler cap

— Limited-filling tank

— Vapor-liquid separators

— Two-way vent valve

— Two-way safety valve

— Vapor vent line

— Carbon canister

— Purge line

1 - Vapor-liquid separators
2 - Fuel delivery line
3 - Injectors
4 - Vapor storage canister
5 - Fuel filter
6 - Electric fuel pump
7 - Cold start valve
8 - Fuel pressure regulator
9 - Fuel recirculation line
10 - Sealed filler cap
11 - Two-way vent valve
12 - Two-way safety valve
13 - Vapor vent line

FUEL INJECTION SYSTEM

General

This is an electronically-controlled, intermittent low pressure injection system.

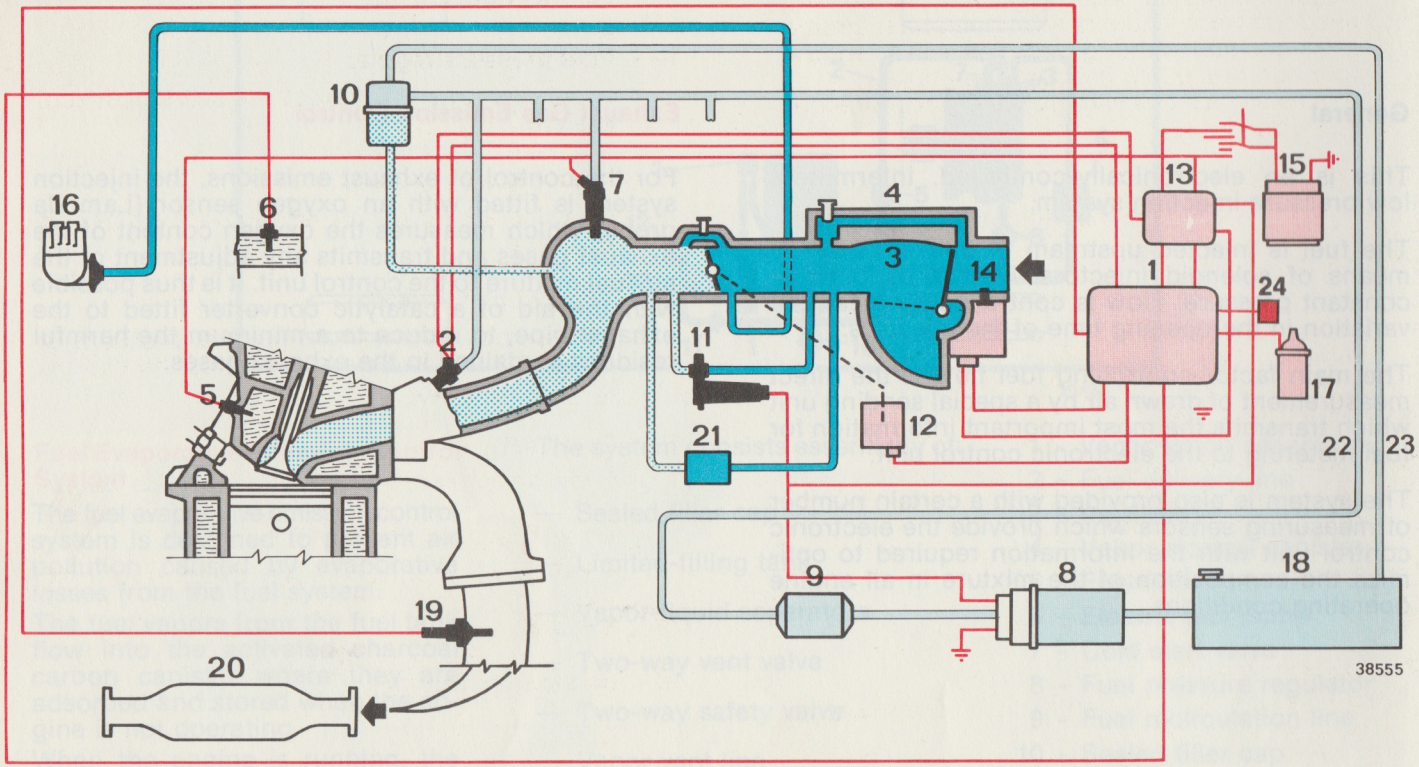
The fuel is injected upstream of intake valves by means of solenoid injectors. Fuel is supplied at constant pressure. Flow is controlled by means of variation in the opening time of the injectors.

The main factor controlling fuel flow is the direct measurement of drawn air by a special sending unit which transmits the most important information for fuel metering to the electronic control unit.

The system is also provided with a certain number of measuring sensors which provide the electronic control unit with the information required to optimize the composition of the mixture in all engine operating conditions.

Exhaust Gas Emission Control

For the control of exhaust emissions, the injection system is fitted with an oxygen sensor (Lambda probe) which measures the oxygen content of the exhaust gases and transmits any adjustment of the air-fuel mixture to the control unit. It is thus possible with the aid of a catalytic converter fitted to the exhaust pipe, to reduce to a minimum the harmful residues contained in the exhaust gases.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1 - **Electronic Control Unit**

Reads all inputs regarding air flow, coolant temperature, cylinder head temperature, throttle plate position, starting phase as well as engine rpm and computes injector open time.
It consists of a box with multiple-pin connector harness.

2 - **Injectors**

Inject fuel in intake manifold near intake valve.

3 - **Air flow sensor**

Measures amount of air drawn into engine and transmits corresponding signal for fuel requirements. Energises the fuel pump.

4 - **Air by-pass duct**

5 - **Thermo time switch**

Operates cold start valve to provide additional fuel for cold starting.

6 - **Temperature sensor**

Signal cylinder head and coolant temperature.

7 - **Cold start valve**

Provides a richer mixture in intake manifold for cold starts.

8 - **Electric fuel pump**

Supplies fuel to the system and recirculates fuel to tank.

9 - **Fuel filter**

On fuel delivery line.

10 - **Fuel pressure regular**

Maintains constant preset base pressure in fuel system.

11 - **Auxiliary air regulator**

Provides additional air during cold starts and warm-up.

12 - **Throttle plate switch**

The switch indicates whether the throttle is at idle or at full throttle and signals the control unit accordingly.

13 - **Relay set**

Supplies power to the control unit and fuel pump.

14 - **Air temperature sensor**

Provides an input signal for the control unit.

15 - **Battery**

16 - **Ignition distributor**

17 - **Coil**

Also provides the electronic control unit with engine rpm and injection point.

18 - **Fuel tank**

19 - Oxygen sensor or Lambda sensor

Signals exhaust gas oxygen content to control unit and allows immediate corrections to air/fuel mixture.

20 - Catalytic Converter

Reduces harmful residues contained in exhaust gases to a minimum.

21 - A/C idle step-up electrovalve

(Air-conditioned cars only)

22 - Fuel delivery line

23 - Fuel return line

24 - Barometric sensor

GENERAL HINTS

You are advised to take the following precautions:

— Never start the engine if the battery is not properly connected.

— Do not use charger with battery leads disconnected.

— Never disconnect battery leads with engine running.

— When charging battery, disconnect battery leads.

— If temperature is above 176° F = 80° C (such as during bodywork repairs) disconnect electronic control unit.

— Never remove or insert control unit harness connector with ignition switched on.

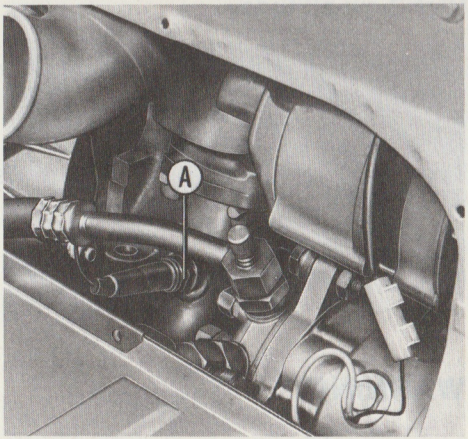
— If the car is to remain out of service for some time, add engine oil to the fuel tank in the percentage of 10% of fuel content.

Oxygen Sensor (Lambda Probe)

An indicator on instrument panel lights up on completion of 30 000 miles (see page 10) signifying that the sensor A must be replaced and counter reset.

If the sensor is not replaced, the exhaust emissions control system is not properly working to reduce to a minimum the harmful residues contained in exhaust gases, in according to Federal Laws and Regulations.

For the Lambda Probe replacement it is suggested that this operation be done by an authorized BERTONE Dealer.



Idling Speed

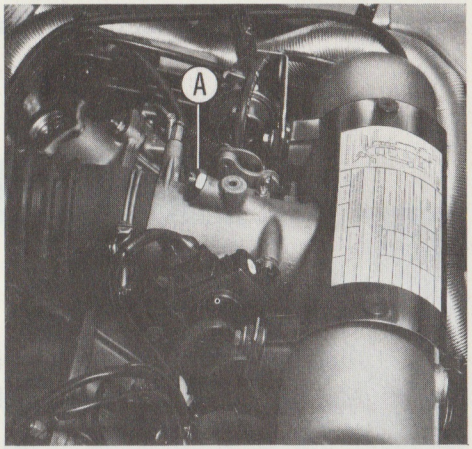
Any adjustment to idling speed must be carried out with a warm engine and with gearshift lever in neutral position.

The engine is assumed to be warm, when the radiator cooling fan has come into operation twice.

When adjusting the idle speed the radiator fan must be off.

To adjust turn by-pass screw A.

Idling speed should be 850 $\pm$ 50 rpm.

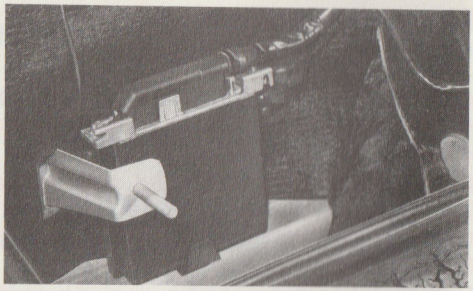


Idle CO Setting

CO emissions at idle are set at the factory and adjustment screw is sealed. No additional adjustment is required when tuning up the engine during the useful life of the vehicle.

High/Low-altitude

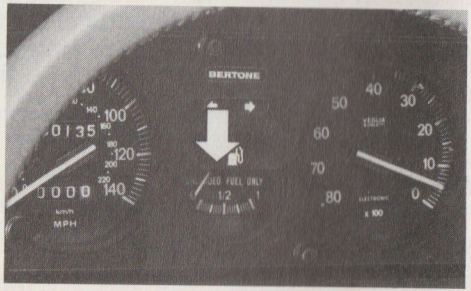
The X1/9 fuel injection system is provided with an electronic control unit.
To allow the vehicle to meet high-low altitude emission standards without any adjustments.
The above electronic control unit is located behind the spare wheel.



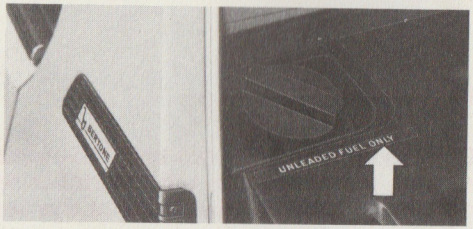
WARNING

Fuel Refilling

Strictly adhere to the label on instrument panel and on filler cap.

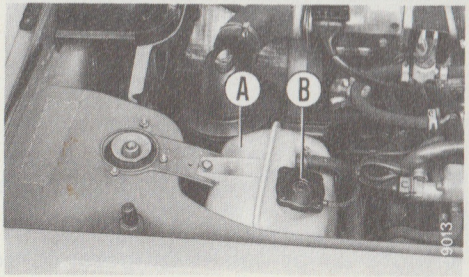


UNLEADED FUEL ONLY



Leaded fuel will damage the catalytic converter beyond repair.
Always refill at Service Stations which carry unleaded fuel (small pump nozzle).

Coolant Circuit



With engine cold, check coolant level in tank A which should be 2/3 full: any additions should be made through tank filler B.

When engine is hot or immediately after stopping the level might rise noticeably.

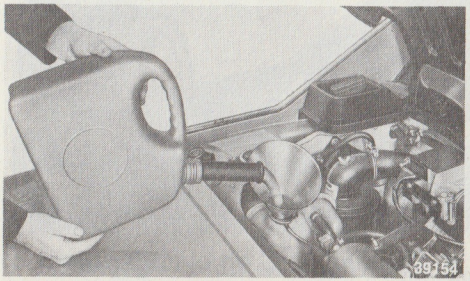
On hot engine, do not unscrew cap B: you may get scorched.

Do not refill with cold water if level is too low.

Should more than 2 consecutive top-ups be required at short intervals, or after limited mileages (500 miles), the system needs checking. This applies also when water temperature gauge pointer stays on the red sector (see page 10).

Antifreeze Mixture

The cooling system is filled with an antifreeze mixture effective down to - 31° F (- 35° C). In case of coolant change or topping-up BERTONE recommends the use of a 50-50 mixture of water and antifreeze fluid, which allows the use of hard or chlorinated water and incorporates oxidation, corrosion, foam and scale inhibiting properties and is effective down to - 31° F (- 35° C). See Fill-up Data Table.



This mixture should be replaced after 45 000 miles or every **two years**, whichever occurs first thus reducing the need for any servicing action on the cooling system.

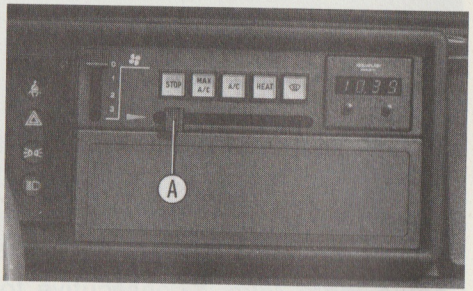
When this mixture is used, plain water may be added only in emergencies (sudden heavy coolant losses).

As soon as possible repair the fault and refill the system with the recommended coolant.

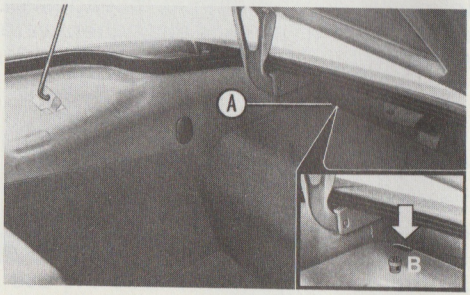
To Drain the Cooling System

Warning to make sure cooling system is cold before starting to drain.

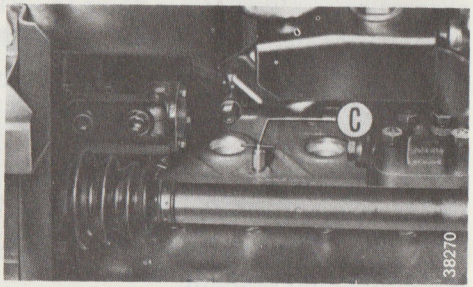
- Move air or heater temperature control lever A completely to the left.



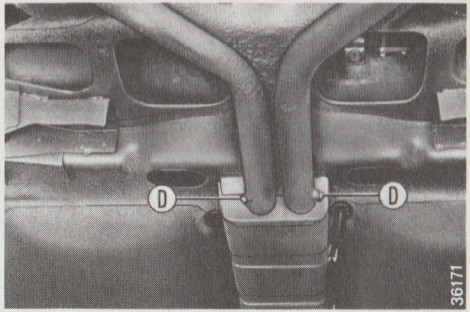
- Remove expansion tank cap, rubber plug and loosen radiator screw-plug B.



- Open valve C on cylinder block.

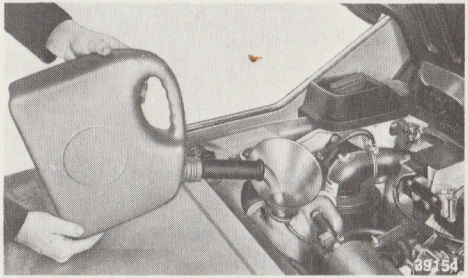


- Take off two drain plugs D.

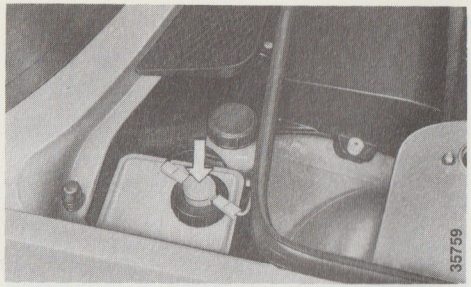


To Fill the Cooling System

- Refit plugs D and close valve C (see page 68).
- Pour the coolant slowly into expansion tank until the coolant flows from the bleeder in radiator screw-plug B (see page 68).
- Refit radiator screw-plug B (see page 68).
- Complete filling the expansion tank.
- Start the engine and accelerate to bring about water recirculation in the radiator.
- Switch off the engine and bleed the system through the bleed screw. When the coolant is free from bubbles retighten the screw.
- Finally, recheck the coolant level with engine cold.



Brakes



Inspection of fluid level in reservoir can be carried out without removing the cap.

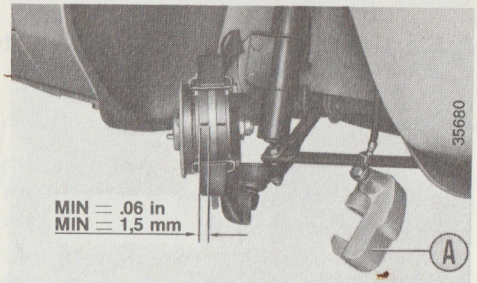
Periodically, check indicator light B (see page 10) efficiency by depressing the reservoir cap with ignition key at RUN.

— When checking brake indicator, make sure handbrake is off:

Use exclusively DOT 3 Motor Vehicle Brake Fluid (to F.M.V.S.S. No. 116). Different fluids may damage the rubber seals beyond repair.

Do not allow the brake fluid to drip on paint finish since it may be corrosive.

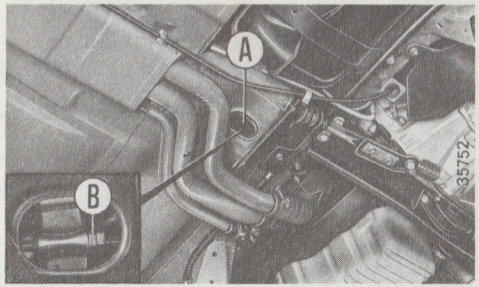
When friction pads housed in caliper A have worn down to a thickness of approx. .06 in (1.5 mm) they need replacing.



Check lines for leaks and tightness.

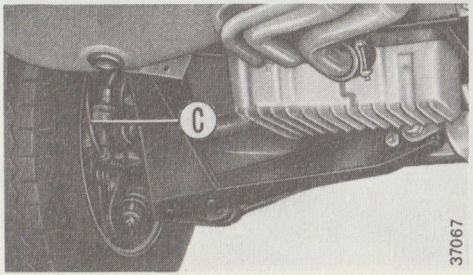
Any other servicing of the brake system should be performed by a BERTONE Dealer.

Handbrake



If excessive lever travel does become apparent, proceed as follows:

- Remove plug A from the underside of the car.
- Pull up the lever three notches.
- Tighten tensioner B until cables C are made taut and lock the tensioner with the locknut.



- Firmly apply the handbrake a few times and check that the lever engages only 4 to 5 teeth of the ratchet and that the rear wheels spin freely with the lever in the fully "off" position.

Bleeding

Bleeding is a delicate operation requiring the necessary know-how and should only be needed when air has entered either one or both brake circuits (line disconnection, fluid drainage, etc.). This is indicated through pedal sponginess and reduced braking effectiveness.

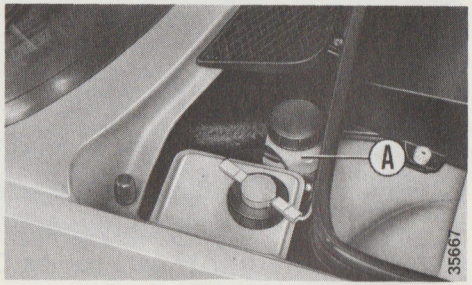
Clutch

The clutch is hydraulically operated, without pedal free play.

Clutch fluid inspection can be carried out through reservoir A.

Use exclusively DOT 3 fluid to F.M.V.S.S. No. 116. Do not use other fluids, otherwise the rubber seals will be damaged beyond repair.

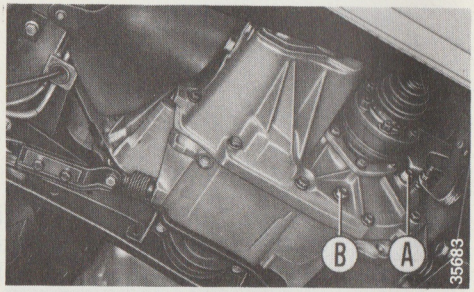
Do not allow the clutch fluid to drip on paint finish since it may be corrosive.



Transaxle Oil

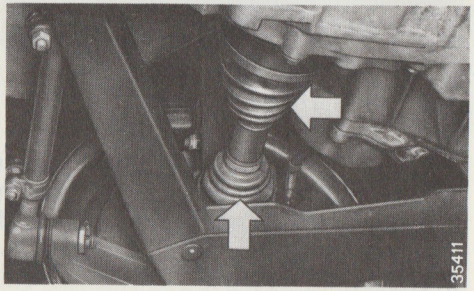
The correct level is up to the opening of filler plug A.

When replacing the oil, let it drain thoroughly from plug B before refilling.



Axle Shaft Constant Velocity Joints

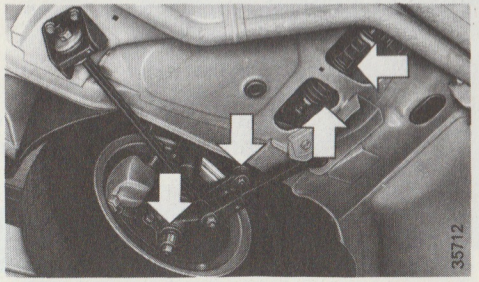
At the mileage prescribed, or whenever underbody inspections are carried out, check the condition of inboard and outboard joint rubber boots.



Steering/Front Suspension Boots and Caps

At the mileage prescribed or whenever underbody inspections are carried out, check the condition of ball joint rubber caps and steering gear rack rubber boots.

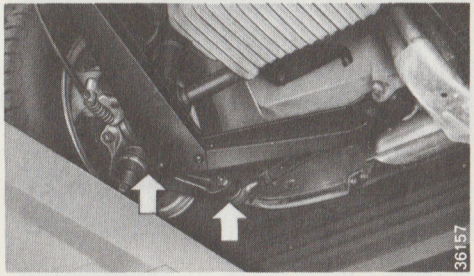
Inefficient joints can inpair driving safety.



Rear Suspension Track Control Arms

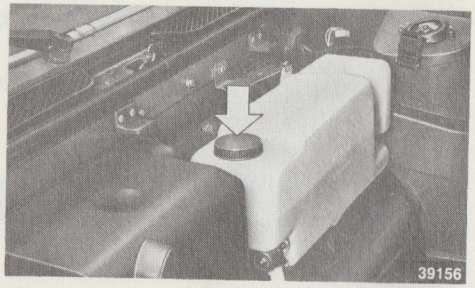
At the mileage prescribed or when carrying out underbody inspection, check that ball joints boots are in good condition.

Inefficient joints can inpair driving safety.



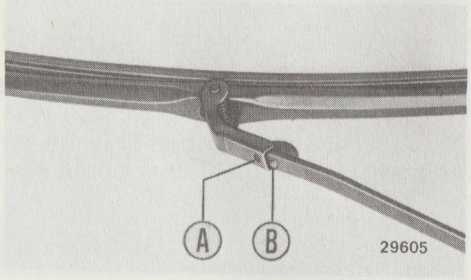
Windshield Washer

The windshield washer container is stowed in the front trunk. Check level frequently and replenish as necessary. If the nozzles fail to operate clean the orifice by means of a pin.



To assist in cleaning the windshield it is recommended that windshield washer fluid be added to the washer bottle.

Should nozzle adjustment be necessary turn both the body and side nozzle with a screwdriver until the jet strikes the top of the swept area of the windshield.

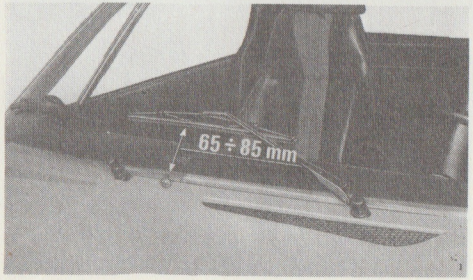


Windshield Wiper

To remove a blade:

- Swing the wiper arm clear of the windshield.
- Release blade carrier A from peg B by freeing the clip in the center and lift off the blade assembly.

To clean the rubber blade use alcohol.



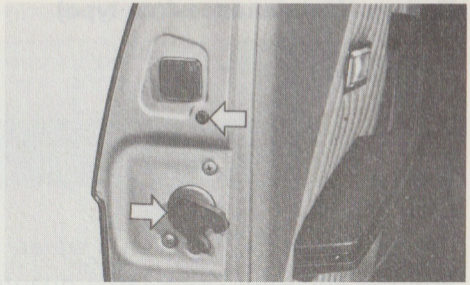
When adjusting wiper arms position on windshield ensure that the distance from windshield base to wiper arm fulcrum is:

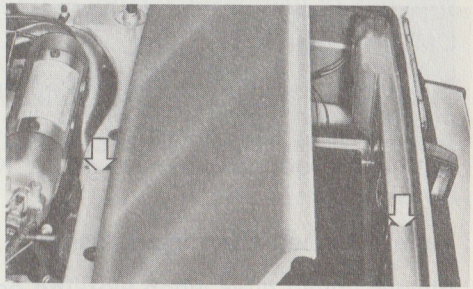
driver's side = 2.5 to 3.3 in (65 to 85 mm)
passenger's side = 2.3 to 3.3 in (60 to 85 mm)

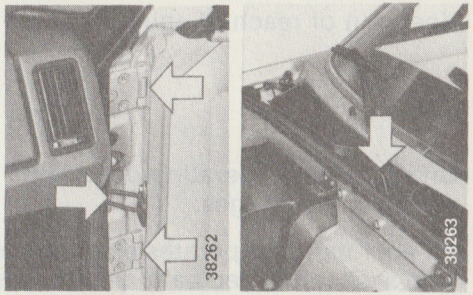
Body Lubrication

Lubricate the following items as required using the recommended products:

- Door lock cylinders with **graphite powder**.
- Door locks through the specially provided hole (near lock) blanked by a plastic plug.
- Lubrication of lock cylinders is not recommended; at most, blow some graphite powder into the cylinder keyhole. In cold climates it is recommended to squirt in some special antifreeze fluid for locks. Repeat the operation every time the car is washed or at least every 15 days. If insertion of key in the frozen lock cylinder proves difficult, simply warm up the key.
- Door hinges and limiter, and seat backrest control with **engine oil**.







- Trunk lids and engine hood catches and hinges with **petroleum jelly.**
- Seat guide rails with **lithium-base grease.**

Battery (Maintenance-free type)

Located in front trunk.

WARNING - The battery contains sulphuric acid. Avoid contact with skin, eyes or clothing.

External antidote: Flush with water.

Internal antidote: Drink large quantities of water or milk. Follow with mik of magnesia, beaten egg or veg. oil.

Call physician immediately.

Eyes: Flush with water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases. Keep sparks, flame, cigarettes away.

Ventilate when charging or using in enclosed space.

Always shield eyes when working near batteries.

Keep out of reach of children.

Under normal operating conditions the battery does not require periodical recharges.

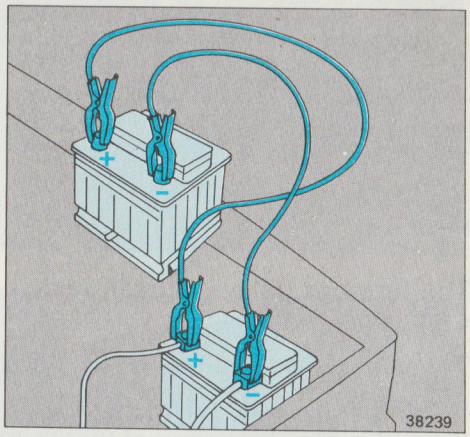
As your car incorporates electronic devices, never run the engine with a disconnected battery, otherwise serious damage will result.

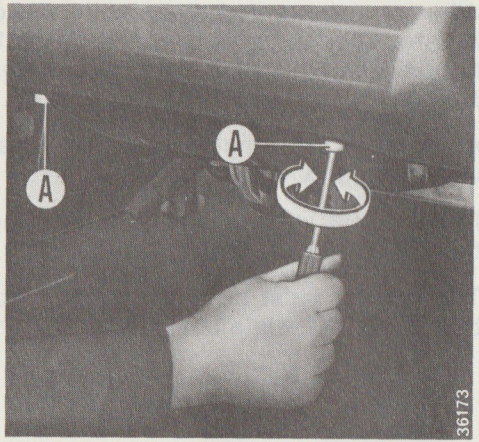
When engine starting requires the use of a second "boost" battery, this must be connected in parallel with the vehicle battery - positive to positive and negative to negative - using heavy duty cables and clamps.

As soon as the engine is started, disconnect the boost battery with engine idling.

In very cold weather avoid connecting a completely discharged battery to a boost battery as the latter could be damaged.

The battery must be disconnected from both cables on the car before connecting a charger.





Fuse Box

The fuse box, relays, buzzer, relay switch, etc... are located on a drop panel.

The panel is located below the glove box.

It can be lowered by rotating the two quick-release screws A located in the front edge of the fuse box.

Fuses

Nine of 7.5 Amps; seven of 10 Amps; three of 20 Amps; four of 25 Amps; six spare fuses.

The protected circuits are listed on pages 102-103-104-105.

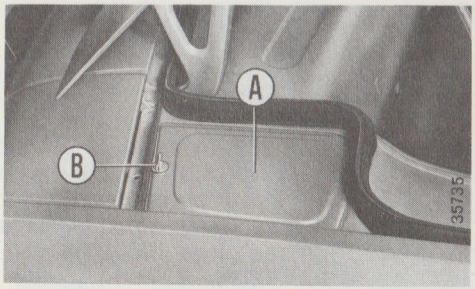
Before renewing a blown fuse trace the cause and remedy accordingly.

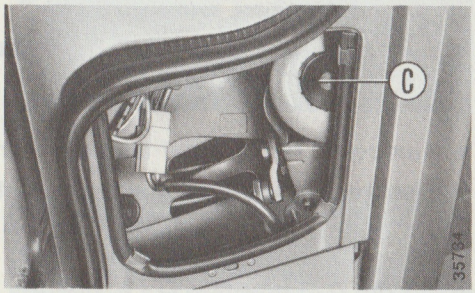
Concealed Headlights - Manual Operation

Provision has been made for manually raising or lowering the headlights should the drive mechanism fail to operate for any reason.

Proceed as follows:

- Open the front trunk, remove cover A and turn wing nut B through 90°.

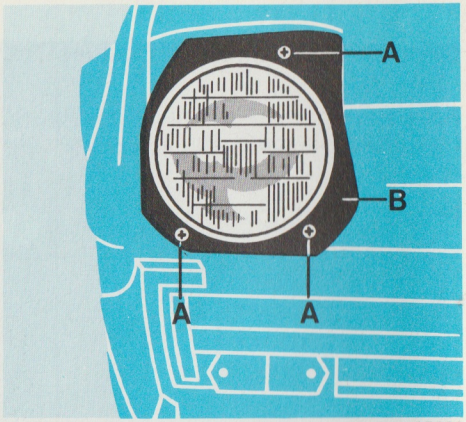




- To raise or lower the lamp turn knob C as necessary.

REPLACING THE BULBS

Caution: Replace blown bulbs with bulbs of the same type and wattage only. Weaker bulbs will diminish visibility whereas stronger bulbs will draw a greater amount of current and overwork the alternator, resulting in progressive battery discharge. For bulb specifications see page 106.

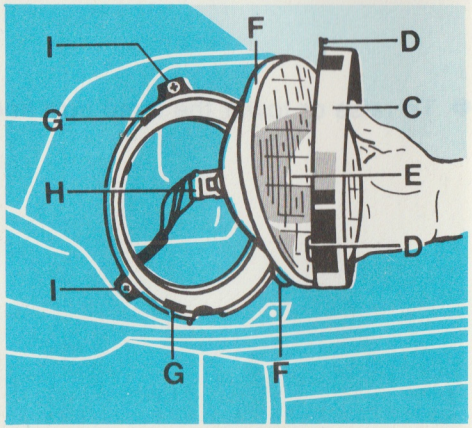


35506

Headlight Sealed Beam Unit Replacement

To Remove:

- Remove screws A and take off carrier B.
- Slacken screws I rotate rim C counterclockwise until lugs D are clear, then pull off.
- Take out lamp unit E.
- Disconnect terminal H.



35507

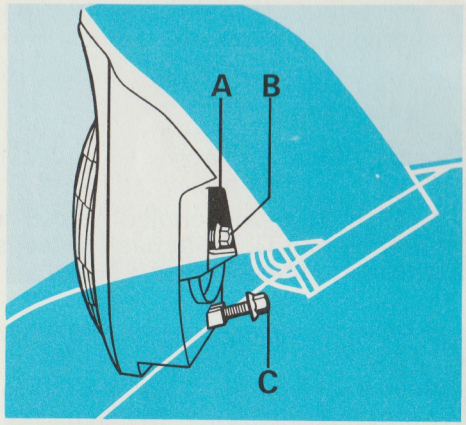
To Replace:

- Position new lamp unit E in the housing inserting registers F (three) in slots G.
- Refit rim C over screws I by sliding through slots D and turn clockwise as far as it will go.
- Retighten screws I.
- Refit carrier B and fully retighten screws A.

Beam Adjustment Screws

Headlamps must be in raised position for access to screws.

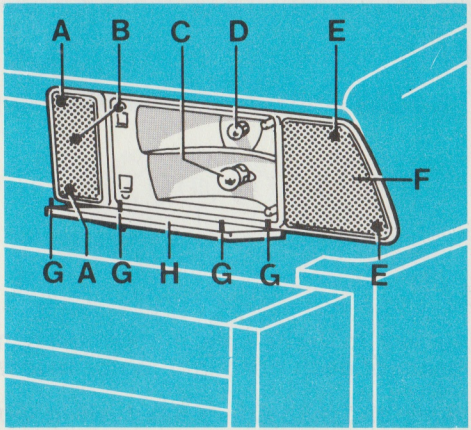
For aiming adjustments, operate on screw B through opening A for horizontal beam corrections and on screw C for the vertical beams through motor unit housing.



24026

Tail, Stop, Turn Signal and Backup Lamp

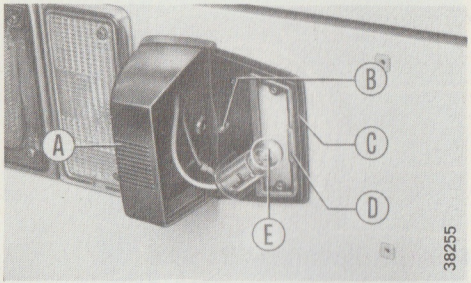
- For access to the turn signal bulb remove two screws E and lens F.
- To reach the tail light bulb D and stop light bulb C remove four screws G and lens H.
- Access to the backup light bulb is gained after removing two screws A and lens B.
  All these bulbs are of the bayonet coupling type.



35508

License Plate Lamps

To reach bayonet coupled bulb E loosen screw B and remove lens-body unit C. To fit back the lens first reposition lug D in the associated recess in lens A.



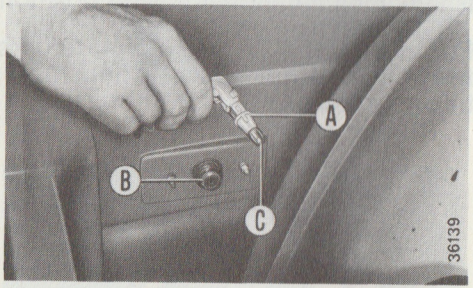
Side Marker Lamps

Access to rear side marker lamp housing is gained from rear trunk.

To remove the bulb disconnect holder A from seat B.

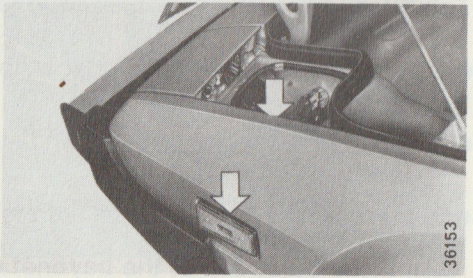
Bulb C is of the push-in type.

To refit the bulb holder press it in housing B.



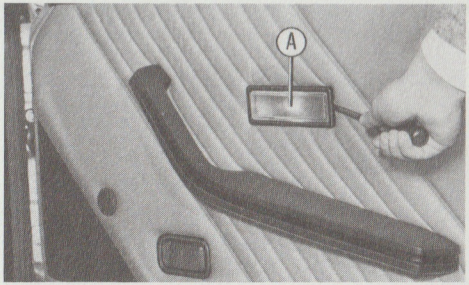
Access to front side marker lamp housing is gained from the inside of each headlight motor recess.

Lamp and bulb are of the push-in type.



Courtesy Lights

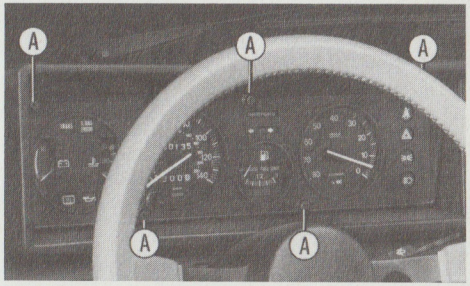
To gain access to bulb pry out body A with a screwdriver.
The festoon bulb is of the snap-on type.



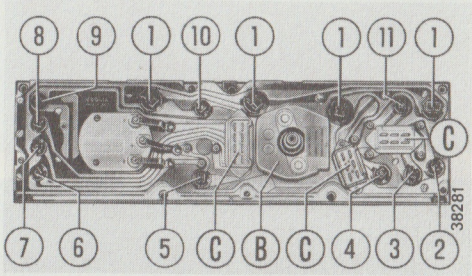
Instrument Cluster and Indicator Light Bulbs

The bulbs may be reached after removing the complete instrument cluster.

- Remove five retaining screws A.
- Pull the instrument cluster forward front the dash-board.
- Disconnect the speedometer cable from housing B and panel connectors C.



1 - Instrument cluster bulbs
2 - Battery charge indicator bulb
3 - Rear window defogger indicator bulb
4 - Low oil pressure indicator bulb
5 - Fuel reserve indicator bulb
6 - High beam indicator bulb
7 - Parking lights indicator bulbs
8 - Hazard warning indicator bulb
9 - Fasten Belts indicator bulb
10 - Turn signal indicator bulb
11 - Low brake fluid level/Handbrake ON indicator bulb



Wedge-coupled bulb holders are of the bayonet-coupled type.

EXTERIOR AND INTERIOR CARE AND CLEANING

Protection from Atmospheric Agents

BERTONE has introduced a series of measures to protect the automobile from the various factors that can cause damage and corrosion.

Briefly summarized, these factors are:

— Atmospheric pollution (urban environments and industrial zones)

— Airborne salts (marine areas, particularly those with warm and humid climates)

— Seasonal and ambiental humidity conditions (use of salt on roads during the winter).

The paint finish and body shell underside can be subjected not only to the chemical action caused by the factors mentioned above, but also to the abrasive action of airborne dust and sand, mud, and loose gravel thrown up by passing cars as well as the damaging action of salt spread on the roads in winter.

BERTONE's answer to this problem can be summarized as follows:

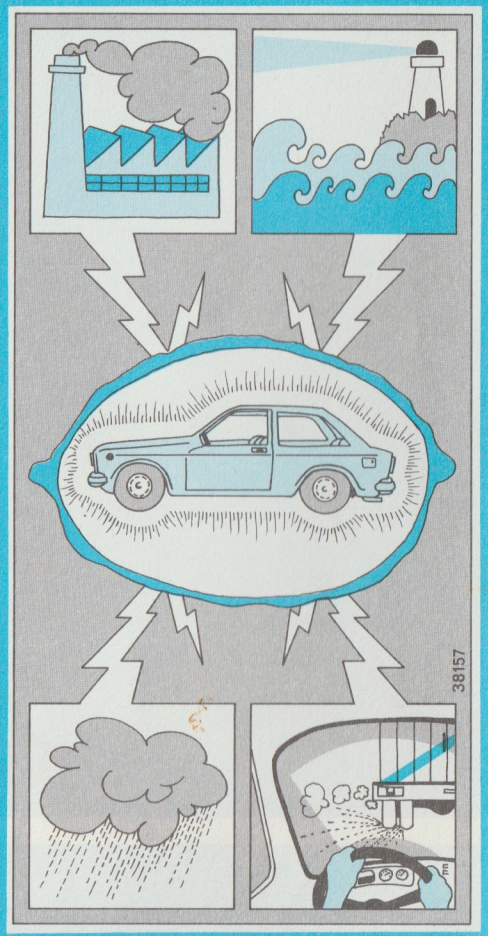
— Corrosion and abrasion resistant paints and painting systems.

— Widespread use of pre-treated and highly corrosion resistant sheet metal.

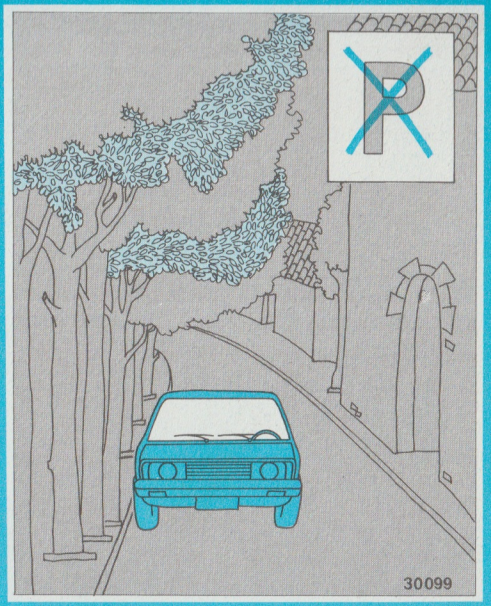
— Spraying of the underside of the floor pan, engine compartment, wheel housings, and the various frame box sections with highly adhesive protective waxes.

— Adequate covering or protective spraying with setting plastic of such particularly exposed parts as the door sill panels, wing interiors, borders, and so on.

— Use of enamels with greater resistance to polluted and industrial atmospheres.



Obviously the factors we have described act in different ways in different cases, according to the environmental conditions and the use of the car. Equally obvious is the fact that the owner who cares about his car and maintains it properly can make it last longer. We would like to list a few useful hints and pieces of advice which, though obvious, often pass unobserved for that very reason. The BERTONE Service Network will be happy to supply more details on request.



Body Paint finish

The paint serves not only an aesthetic function, but also covers and protects the metal on which it is deposited.

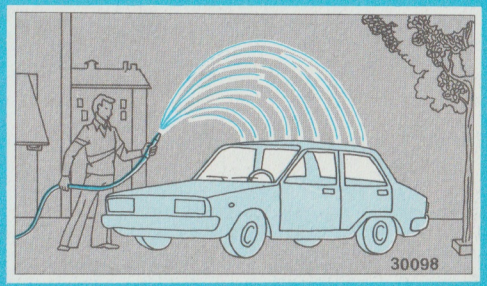
Therefore, any abrasion or deep scratches that expose the sheet metal should be retouched immediately to avoid pitting by rust.

This retouching should always be done with original products (see paint identification plate).

Washing the car is the most important part of paint maintenance.

The frequency of washing depends not only on the frequency of use, but also on the nature of the car's surroundings: washing should be more frequent in more polluted areas, or if the car is often parked under trees which produce harmful resins.

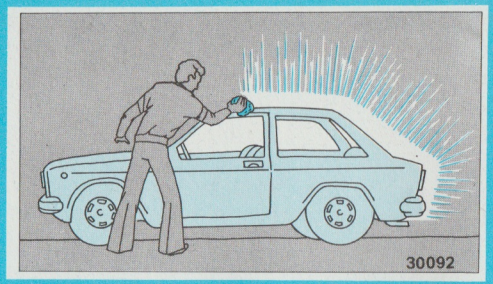
A correct wash should be done as follows: First the car should be hosed down with water at low pressure and washed down with a light (2 - 4%) detergent solution. Rinse the sponge frequently. Rinse the car with a spray of water to carry away the loosened dirt, then dry with an air jet or chamois leather.

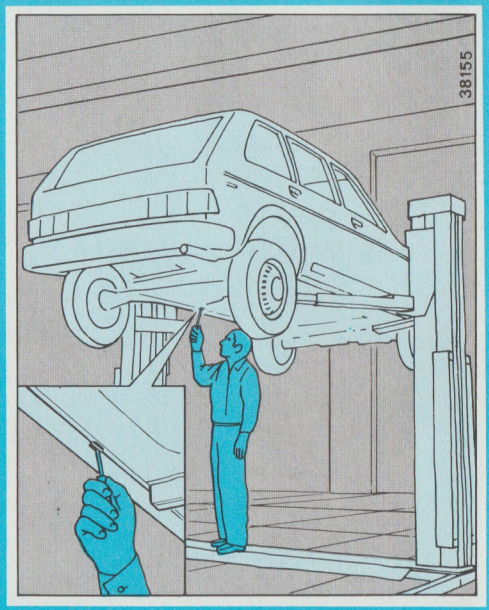


Be particularly careful to dry the less visible areas, such as the door frames, hood and headlight housings, where standing water can collect more easily. Similarly, avoid putting the car in a closed space immediately after washing, so that air circulation can help dry any trapped water.

Do not wash the car after it has been parked in the sun, or if the hood is still hot, as this could adversely affect the brilliancy of the paint.

The occasional use of a silicone car wax will give the paint extra protection and keep it shiny. If the paint becomes cloudy due to smog accumulation, a slightly abrasive light wax polish can be used.





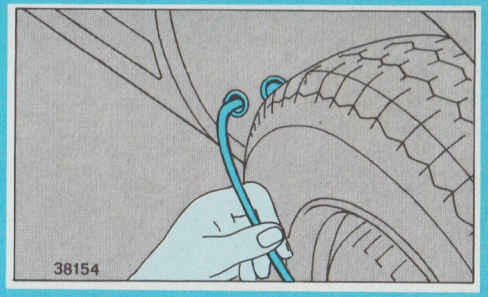
Body Underside

The less accessible areas of the underside and frame box sections have already been treated to ensure long protection.

Regular check-ups should be made on the car. The aim of these is to survey the soundness of the body and mechanical components, as well as to repair any damage. Particular attention should be paid during check-ups to the drainage holes in the underbody box frame sections and door frame undersides. These holes serve to drain any water that may accumulate while driving the car in the rain or while washing it, and so should be kept clear.

In harsh environmental conditions, periodic supplementary protective treatments to frame the box sections and door interiors are recommended.

These treatments must be done with special products and techniques, and so should be left to experts. It should be done at least every two years, and, in more severe cases, annually, preferably at the beginning of winter.



Car Interior

The maintenance of the passenger compartment is no less important than that of the exterior. The same care should be devoted to it.

Check to see that three is no standing water under the mats or floor lining, as this could cause rusting. Dust the seats with a vacuum cleaner.

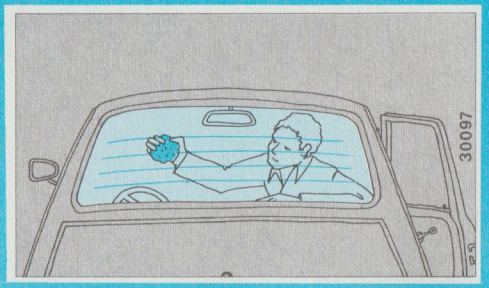
To clean seats made of leather, use a damp sponge and a neutral or bland soap. Rinse several times with a clean damp sponge.

Windows

To ensure perfect visibility, windows should be cleaned with a good quality glass cleaner and then wiped dry. Always use a clean cloth to avoid scratching the glass.

To clean the inside of the windshield, where stubborn grease deposits are likely to be found, use a ammonia water solution.

The inside of the rear window can be cleaned in the same way, but particular care should be used to avoid damaging the defogger wires embedded in the glass.



Engine Compartment

The engine compartment should be well washed at the end of every winter to avoid damage caused by salt on the roads.

Cleaning Plastic Parts

Exterior plastic parts should be washed in the same way as the car itself. If traces of dirt remain, use special plastic cleaners, following the manufacturer's instructions. Interior plastic parts can be cleaned in the same way. Do not use paint cleaners.

Leaving the Car in the Garage

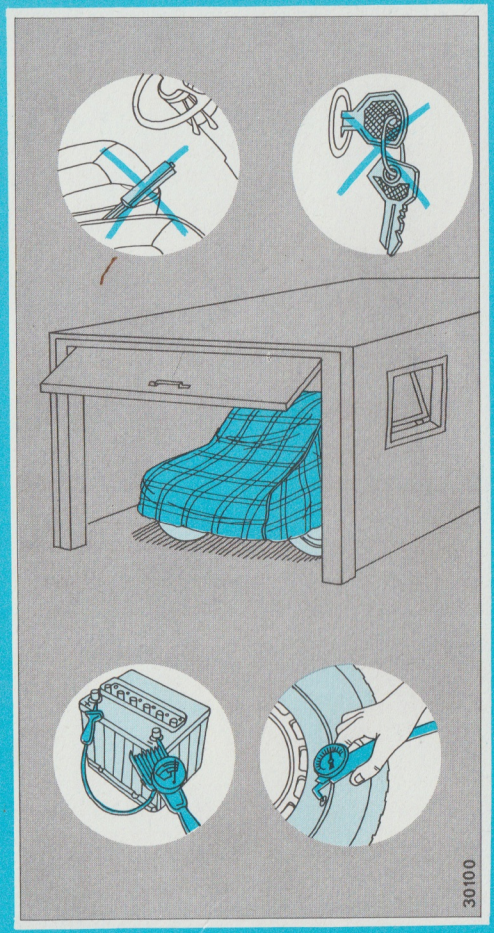
A car left in the garage is subject to damage by humidity, which is generally greater in a closed space than in the open air.

Parking the car in the garage while wet or covered with snow will increase humidity through slow evaporation. In such cases the car should be dried. Do not store large quantities of water in the garage. Make sure that the garage has windows or other openings to ensure adequate ventilation.

Prolonged Inactivity

If the car is to remain inactive over long periods, it is advisable to carry out the following operations:

- Clean and protect the painted areas with silicone wax. Coat the bright metal parts with a standard chrome preservant.
- Store the car in a covered, dry and ventilated place.
- Ensure that the parking brake is released.
- Disconnect the battery terminals.
- Remove the wiper, blades and coat with talc.
- Open the door windows slightly.
- Protect the car using a non-plastic car cover. This should not be waterproof.
- Check the tire inflation pressure periodically.
- Check the battery charge every 1 ½ month. When necessary, use a slow 24 hr. charge.
- Do not empty the cooling system.



CLEANING THE LEATHER UPHOLSTERY

The leather upholstery on seats and door panels is cleaned with a damp cloth, possibly with a mild soap solution.

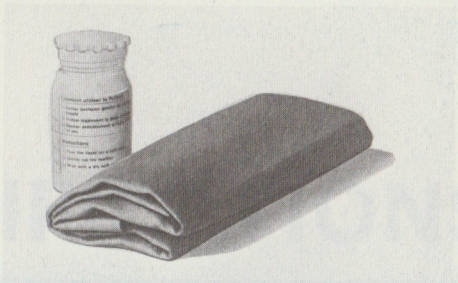
NEVER use thinners or solvents or polishing products

NEVER scrape or rub a stain

NEVER use strong spot removers

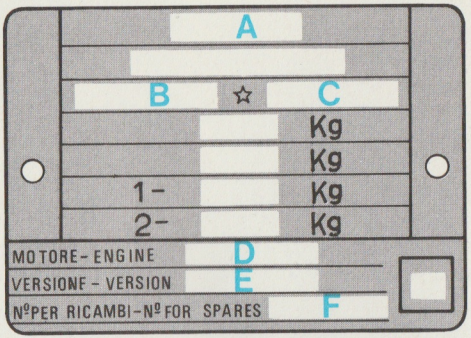
With major stains, use alcohol but carefully - **wipe afterwards with a mild soap solution and lukewarm water.**

The vehicle is supplied with a bottle of leather cleaner.
Use this product in the same way as a liquid soap is used.
It is suggested to use a minimum quantity when applied.



SPECIFICATIONS

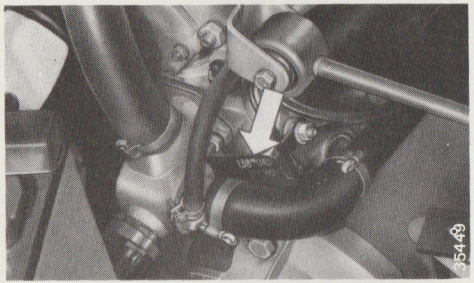
IDENTIFICATION DATA



39090

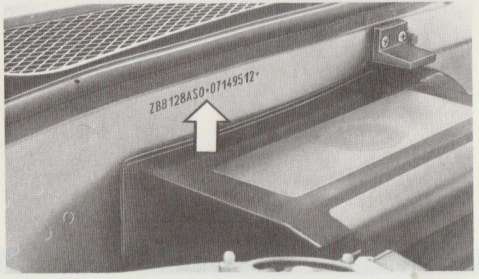
Manufacturer's Plate

A Name of manufacturer
B Manufacturer's code and type of vehicle
C Vehicle identification number
D Engine type
E Body type
F Number for spares



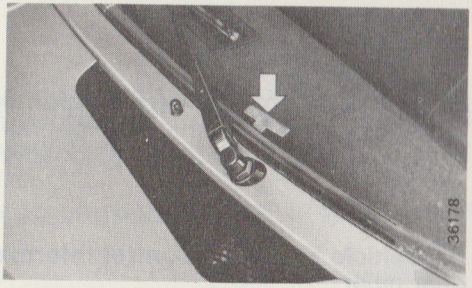
35449

Engine Type (138 BS.031) and Identification Number - Punched on crankcase, flywheel end.

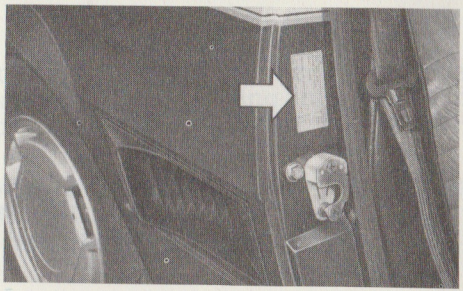


Chassis Type (128 ASO) and Identification Number - Punches on front trunk (permanent structure) right side.

F.M.V. Safety Standard 115 Tag - Type of vehicle and chassis number, located on the top of the dashboard between instrument cluster and windshield.



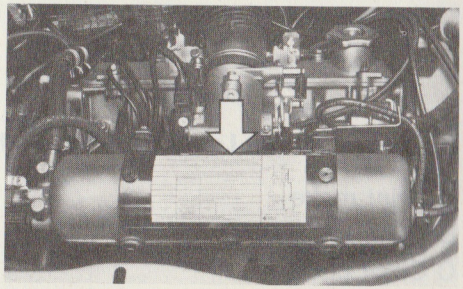
F.M.V. Safety Standard 110 Tag - Tire data and car capacity, located on right door pillar.



Vehicle Emission Control Information Update Label - It shall be affixed near the EPA and California Regulations Conformity Label.

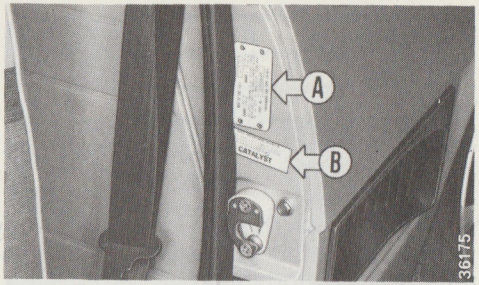
EPA (and California Regulations) Conformity Label - Air pollution and control specifications for correct fuel system tune-up and adjustments, which are automatically provided by the fuel injection system electronic control unit.

It is located on the stainless steel engine manifold shield.

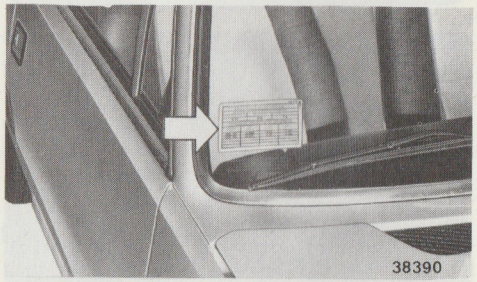


A - F.M.V. Safety Standard Conformity Tag - Month and year of manufacture, gross vehicle weight rating, gross axle weight rating, chassis number and car type, located on left door pillar.

B - Vehicle Emission Control Information Label - Located on left door pillar.

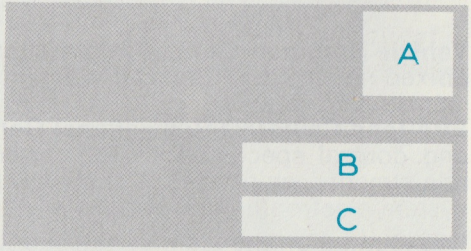


Decal "CALIFORNIA EXHAUST EMISSION STANDARDS" to section 43200, California Health and Safety Code, on windshield, passenger's side.



Paint Information Label - Affixed to the inside of the rear trunk lid.

A Paint make
B Color name
C Color code



ENGINE

Type	138 BS.031
No. of cylinders	Four, in-line
Bore x stroke	3.40 x 2.51 in (86,4 x 63,9 mm)
Displacement	91.41 cu.in (1 498 cm^3)
Compression ratio	8,5 to 1
Maximum power (SAE net)	75 HP
— at	5 500 rpm
Maximum torque (SAE net)	79,6 ft. lb.
— at	3 000 rpm

Valve Gear

Valve position	Overhead
Operation	Overhead camshaft
Drive	Toothed belt
Intake opens	10° B.T.D.C.
Intake closes	54° A.B.D.C.
Exhaust opens	54° B.B.D.C.
Exhaust closes	10° A.T.D.C.
Tappet clearance	
— for timing check	.020 in (0,50 mm)
— Normal (cold)	
Intake	.011 to .014 in (0,28 to 0,36 mm)
Exhaust	.015 to .018 in (0,38 to 0,46 mm)

Fuel System

Electronically controlled fuel injection. 4 injectors, one per cylinder plus one auxiliary valve for cold starting, all supplied at constant pressure

Gasoline flow governed by variation in opening time of injectors.

An air measuring instrument is used for flow variation (air flow sensor).

Electric sensors optimise the mixture in all engine operating conditions by supplying information to the electronic control unit.

Air cleaner with paper cartridge is installed before the air flow sensor.

Lubrication System

Forced circulation by gear pump and pressure limiting valve.

Full-flow cartridge oil filter.

Cooling System

Radiator and expansion tank.

Water circulated by centrifugal pump.

Controlled-bypass thermostat on cylinder head outlet duct.

Fan, driven by electric motor, with engagement controlled by thermostatic switch on radiator. Cut-in temperature: approx. 185° F (85° C).

Ignition System

Capacity-discharge ignition distributor with mechanical advance variator and spark control modulation device.

Firing order	1-3-4-2
Basic ignition timing at 800 to 850 rpm	10° ± 1,5 BTDC
Automatic advance	18° ± 2°

Spark plugs:

Type	CHAMPION RN 9Y
Thread size	0.55 x .049 in (14 x 1,25 mm)
Gap	.027 to .031 in (7 to .8 mm)

BRAKES

Service

Hydraulic disc brakes, of the floating caliper type, on all wheels, with one cylinder to each wheel, pedal operated through tandem piston master cylinder. Independent front and rear circuits.
Automatic wear take-up at front and rear.

Parking

Mechanically operates rear brakes by hand lever control.

DRIVE TRAIN

Clutch

Single plate, dry, with disc spring, hydraulically controlled, automatic wear take up, no pedal free travel.

Transaxle

5-speed all synchromesh. Gear ratios to 1:

1st	2nd	3rd	4th	5th	Reverse
4.09	2.235	1.461	1.033	.863	3.714

Differential and final drive gears in transmission casing.

Final drive helical gear set ratio 13/53

Drive to rear wheels by half-axle swing shafts through constant velocity joints: three-lobe type inboard and ball-type outboard.

SUSPENSIONS

Front

Independent-wheel, strut-and-link, tie rods, coil springs. Permanently lubricated joints.

Rear

Independent-wheel, strut-and-link, coil springs, adjustable cushioned transverse radius rods. Permanently lubricated joints.

STEERING AND WHEELS

Steering

Steering gear type..... rack-and-pinion

Steering column of the breakaway mounted type with 2 universal joints.

No. of steering wheels turn (lock-to-lock) 3.05

Independent and symmetric track rods to each wheel. Permanently lubricated joints.

Min. turning circle dia..... 32 ft. 6 in (9,9 m)

Camber (on rim edge)

Front = 1° ± 30' negative

Rear = 2° ± 20' negative

Toe-in (on rim edge)

Front = .12 ± .04 in (3 ± 1 mm)

Rear = .20 ± .04 in (5 ± 1 mm)

The above data apply to cars laden to the equivalent of 2 adults 300 lbs (136 kg) plus 132 lbs (60 kg) of luggage.

Wheels and Tires

Alloy rim size	5" J x 13"
Radial tires, size.....	165/70 SR 13"
Spare wheel steel rim, size.....	5" J x 13"
Spare wheel radial tire, size	145 SR 13"

ELECTRICAL SYSTEM

Voltage ..... 12 Volts

Alternator

Continuous current rating ..... 70 Amps

Battery (Maintenance-free type)

Capacity at 20-hr discharge rate ..... 55 Amphr

Cold (Approx 32° F – 18° C) high-discharge test current ..... 255 Amps

Fuses

Nine of 7.5 Amps; seven of 10 Amps; three of 20 Amps; four of 25 Amps; six spare fuses.

Protected Circuits

A (20 Amps) Horns

B (10 Amps) Fuel injectors cooling fan and relay switch winding

C (20 Amps) Back window defogger and indicator lamp

Protected Circuits

D (25 Amps) A/C condenser fan (where fitted) or spare fuse

F (25 Amps) A/C compressor switch (where fitted) or spare fuse

G (10 Amps) Electronic fuel injection system

H (7.5 Amps) Headlight raising control switches

K (7.5 Amps) Headlight raising motor right

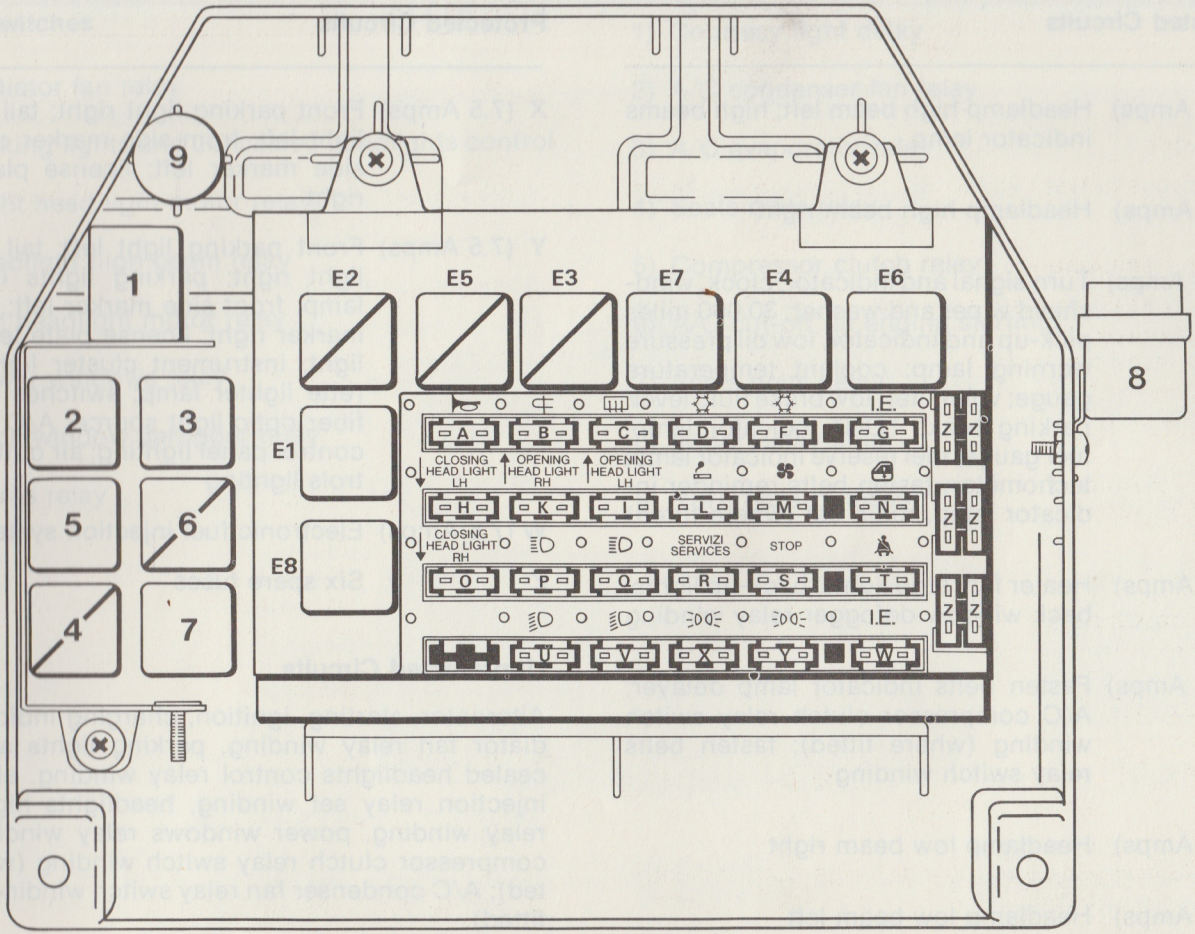
I (7.5 Amps) Headlight raising motor left

L (20 Amps) Cigarette lighter; clock; hazard warming switch; fasten belts and remove key chine; courtesy light delayer, courtesy lamps; aerial motor (where fitted)

M (25 Amps) Engine radiator fan

N (25 Amps) Power windows (where fitted)

O (7.5 Amps) Headlight closing control switch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P (10 Amps) Headlamp high beam left; high beams indicator lamp

Q (10 Amps) Headlamp high beam right

R (7.5 Amps) Turn signal and indicator; clock, windshield wiper and washer; 30.000 miles pick-up and indicator, low oil pressure warning lamp; coolant temperature gauge; voltmeter; low brake fluid level/ parking brake "ON" indicator lamp; fuel gauge, fuel reserve indicator lamp; tachometer; fasten belts reminder indicator lamp, radio set (where fitted)

S (10 Amps) Heater fan; stop lights; back-up lights; back window defogger relay winding

T (7.5 Amps) Fasten belts indicator lamp delayer; A/C compressor clutch relay switch winding (where fitted); fasten belts relay switch winding

U (10 Amps) Headlamp low beam right

V (10 Amps) Headlamp low beam left

X (7.5 Amps) Front parking light right; tail parking light left; from side marker right; tail side marker left; license plate light right

Y (7.5 Amps) Front parking light left; tail parking light right; parking lights indicator lamp; front side marker left; tail side marker right; license plate left; clock light; instrument cluster light; cigarette lighter lamp; switches lighting; fiber optic light source; A/C or eater control panel lighting; air outlets controls lighting

W (7.5 Amps) Electronic fuel injection system

Z Six spare fuses

Unprotected Circuits

Alternator, starting, ignition, charging indicator, radiator fan relay winding, parking lights and concealed headlights control relay winding, electronic injection relay set winding, headlights high beam relay winding, power windows relay winding, A/C compressor clutch relay switch winding (where fitted); A/C condenser fan relay switch winding (where fitted).

Relay Switches

E 1 Radiator fan relay

E 2 Parking lights and concealed headlights control

E 3 Right head light motor relay

E 4 Headlight high beam relay

E 5 Left headlight motor relay

E 6 Power windows relay

E 7 Back window defogger relay

E 8 Horns relay

1) Courtesy light delay

2) A/C condenser fan relay

3) A/C evaporator relay

4) Seats belts relay

5) Compressor clutch relay

6) A/C cut-off (at engine starting)

7) Seats belts delay

8) Wiper delay timer

9) Turn/hazard flasher

Location	SAE Standard	BERTONE Std. Part No.
Headlights (high and low beams)	Quartz halogen headlight unit H6024	
Front lamps		
Turn signal	1034	1/41446/90
Parking	3/32 cp	
Rear lamps		
Stop	1073	1/41460/90
Back-up	32 cp	
Turn signal		
Rear tail lamps	67 - 4 cp	1/41459/90
License plate lamps	1073 - 4 cp	1/41459/90
Side marker lamps	158 - 2 cp	1/41458/90
Courtesy light	—	12 V - 5 W 1/08630/90
Light guide cable lamp Instrument cluster lights "EX. GAS SENSOR" indicator	—	12 V - 3 W 1/41439/90
Turn signal indicator High beams indicator Battery charge indicator Low oil pressure indicator Fuel reserve indicator Parking and tail lights indicator Hazard warning signal indicator Low brake fluid level/ hand brake "ON" indicator Fasten belts indicator Rear window defogger Heater control panel light Cigarette lighter light Ideogram illumination light Air conditioner ideogram light	—	12 V - 1.2 W 1/41437/90

PERFORMANCE

Speeds

Maximum speeds after break-in, fully laden:

	m.p.h.
1st gear	26
2nd gear	42
3rd gear	65
4th gear	91
5th gear	104

Gradeability

Maximum grades climbable, fully laden:

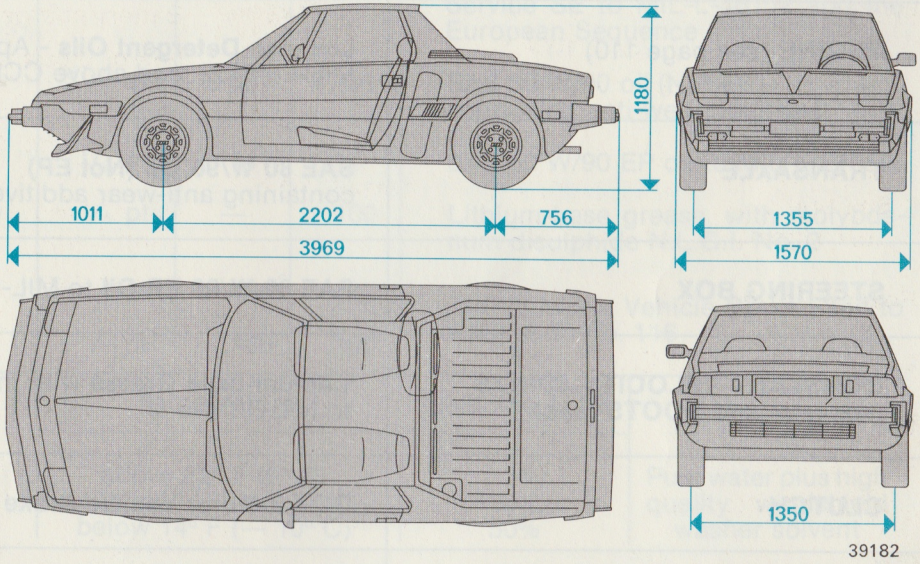
1st gear	45%
2nd gear	25%
3rd gear	15%
4th gear	10%
5th gear	7.5%

WEIGHTS

Shipping weight ..... 2 139 lbs
Curb weight ..... 2 210 lbs
Vehicle load capacity (total 430 lbs):
2 adults (300 lbs) + 130 lbs of luggage
Gross weight (fully laden) ..... 2 640 lbs
Designated seating capacity ... 2 persons
Occupant distribution ..... 2 in front

MAIN DIMENSIONS

in	29.8	39.8	46.5	53.1	53.3	61.8	86.7	156.3
mm	756	1 011	1 180	1 350	1 355	1 570	2 202	3 969



Overall height is measured with unladen car. Trunk volume: front 5.5 cu ft (155 cu dm); rear 4.4 cu ft (125 cu dm).

RECOMMENDED LUBRICANTS AND FLUIDS

	INTERNATIONAL DESIGNATION
ENGINE (see page 110)	**Low-ash Detergent Oils** - Api Service SE - CC To MIL-L-46152, and above CCMC Sequence
TRANSAXLE	**SAE 80 W/90 Oil (Not EP)** containing anti-wear additives for manual transmissions
STEERING BOX	**SAE 80 W/90 EP Oil** to MIL-L-2105 B
CONSTANT-VELOCITY JOINTS (sockets) **and BOOTS** (each)	**Lithium-base Grease** with molybdenum disulphide to N.L.G.I. No. 2
CLUTCH	**DOT 3 Motor Vehicle Brake Fluid** to F.M.V.S.S. No. 116
BRAKE	**DOT 3 Motor Vehicle Brake Fluid** to F.M.V.S.S. No. 116

FILL-UP DATA

	U.S. units	lt	kg	
Fuel tank ..... approx.	12.2 gals	47	—	Unleaded gasolines with octane rating of at least 91 (Research Method).
Radiator, cylinder jackets and heating system	12 1/5 qts	11.6	—	Antifreeze mixture (1)
Engine sump and filter (2)	4 1/3 qts	4.1	3.6	Low-ash content detergent oils-API Service SE to MIL-L-46152 and the European Sequence
Transaxle	3 1/5 qts	3.00	2.700	SAE 80 W/90 oil (Not EP) containing anti-wear additives
Steering box	1/3 pt	.14	.12	SAE 80 W/90 EP oil to MIL-L-2105B
Constant-velocity joints (sockets) and boots (each)	1/5 pt	—	.100	Lithium-base grease, with molybdenum disulphide N.L.G.I. No. 2
Brake control hydraulic system	1 pt	.400	.440	DOT 3 Motor Vehicle Brake Fluid to F.M.V.S.S. No. 116
Clutch control hydraulic system	2/5 pt	.180	.180	DOT 3 Motor Vehicle Brake Fluid to F.M.V.S.S. No. 116

	Temperature	Solvent in bottle	
Windshield washer bottle	above 32° F (0° C)	3%	Pure water plus high quality windshield washer solvent
	down to 14° F (— 10° C)	30%	
	below 14° F (— 10° C)	50%	

(1) The system is filled with a 50-50 mixture of water and antifreeze.

(2) Total capacity of sump, filter and lines is 5 U.S. qts (4,2 kg). The amount indicated is the requirement for periodical oil changes.

RECOMMENDED GRADES

Outdoor temperature		Grade	
Minimum below 5° F (— 15° C)		SAE 10 W	—
Minimum between 5° F to 32° F (— 15° and 0° C)		SAE 20 W	**Multigrade** SAE 15 W/40
Minimum above 32° F (0° C)	Max. up to 95° F (35° C)	SAE 30	
	Max. over 95° F (35° C)	SAE 40	

Do not mix oils of different brands or grades.

TIRE PRESSURE

Front ..... 29 psi

Rear ..... 32 psi

Note: To obtain the required safety in car performance strictly adhere to the pressure ratings given. Tire inflation pressures should be checked with cold tires.

INDEX

Important - All conversions are in U.S. units. They are given merely for Owners' convenience and, though the closest approximation is sought, are normally rounded off for practical reasons. **It must therefore be understood that in case of any discrepancy the metric units are the only valid reference.**

MEMO

STANDARD ACCESSORIES

Tool kit (screw driver double-tipped and wheel bolts wrench) - jack.

REPLACEMENT PARTS

Genuine BERTONE parts are your best guarantee to insure your cars top performance and satisfactory operation of all components.

When ordering from your BERTONE Dealer, please specify (see pages 6-96):

- Model year
- Car model
- Number for spares

BODY PAINT

When ordering body paint, please specify (see pages 6-96):

- Paint make (original paint)
- Color name
- Color code

40 778

BERTONE
Carrozzeria Bertone S.p.A.

Direzione Commerciale — Assistenza Tecnica — Corso Allamano 40/46 — 10095 Grugliasco
TORINO (Italy) - Print No. 7535072 - 2nd Edition - 1985 - Printed in Italy - Tip. Torinese S.p.A.

BERTONE