EUROCARGO 4X4 EURO3

USE AND MAINTENANCE

IVECO

Thank you for deciding on Iveco and at the same time, we would like to congratulate you on your choice: with your truck you have a vehicle at your disposal which distinguishes itself as a result of its excellent performance, low consumption, high reliability and comfort.

We request that you read the operating and maintenance instructions regarding your new vehicle with great care. If you follow these instructions, you can ensure that your vehicle will operate perfectly and have a long service life.

We wish you a long and trouble-free partnership with your vehicle and we would like to remind you that the Iveco Service Organization is always at your disposal wherever you may be, to provide you with a high degree of efficiency and professional advice.

An Iveco vehicle resembles its driver: it is a well thought-out system, planned like an organism and designed so that every one of its thousands of spare parts has been integrated into a "logic of the whole" with the other parts.

Iveco engineers have determined the technical specifications with the highest degree of accuracy in order to guarantee maximum safety and reliability. Every part in the system must function in the manner according to which it was designed, in order that Iveco remains the Iveco which you chose.

The best way of ensuring good results is to consult the Iveco Service Organization whenever problems arise. Known as Iveco Service Logo, Iveco has more than 3.500 service centres throughout the world, and as a result is always easily accessible, wherever you may be.

More than 30.000 technicians and mechanics are employed in these service centres, every one of whom receives professional training and regular refresher courses so that he can skilfully cope with the constant technological development of the vehicles.

The training is, of course, indispensable in order to ensure a precise diagnosis of the service assistance, rapid intervention and high service quality.

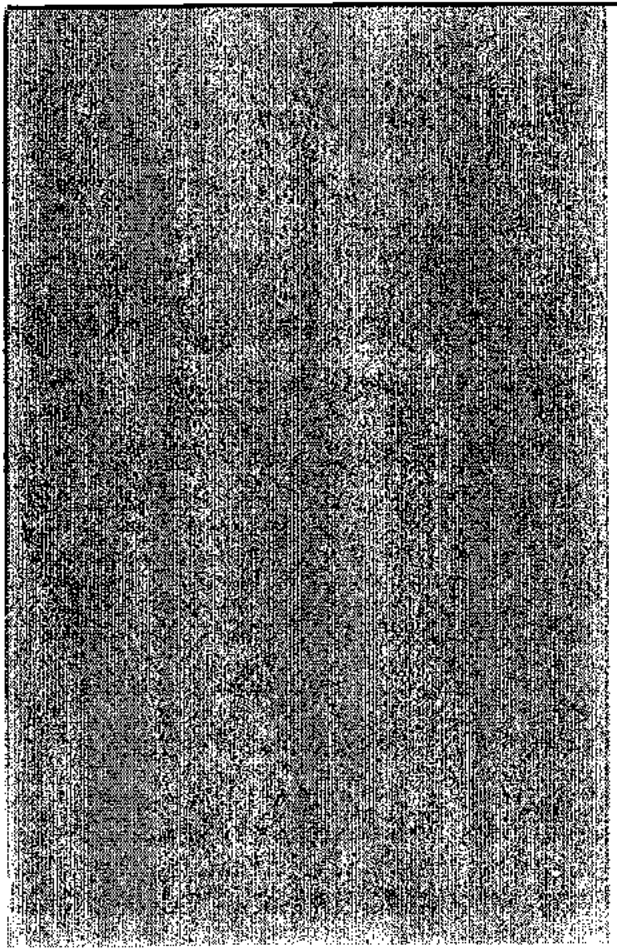
The Service also assures that exclusively IVECO ORIGINAL SPARE PARTS are used, these original spare parts guaranteeing that vehicle original integrity is maintained.
These are in fact the ONLY parts which can be integrated exactly into the "logic of the whole" with which the vehicle was designed and built.

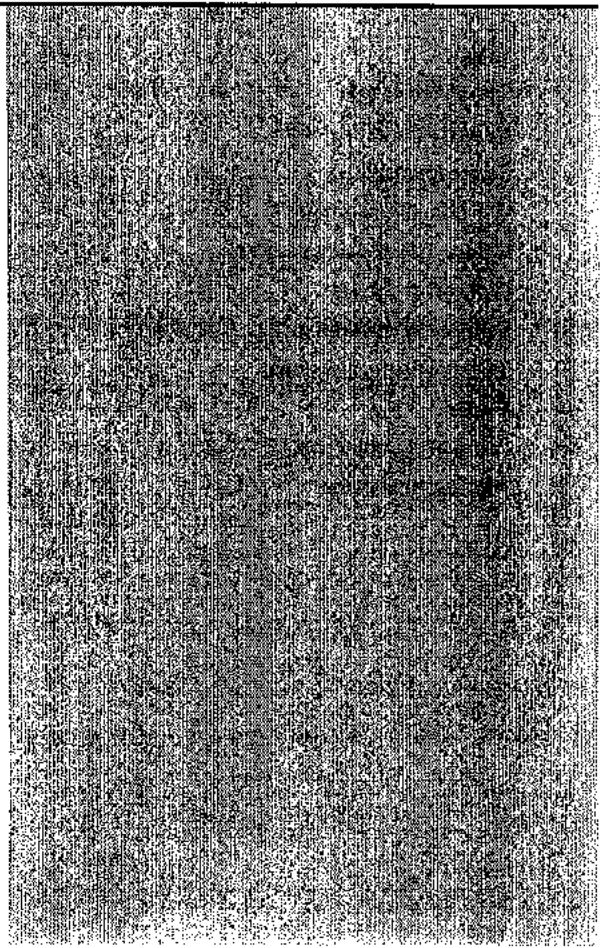
To ensure that your vehicle is always in perfect working order, we recommend the use of the programmed maintenance plan which provides the best guarantee for perfect operation and satisfactory operating costs owing to the fixed periods on which maintenance is due.

EUROCARGO 4X4

Euro 4

USE AND MAINTENANCE

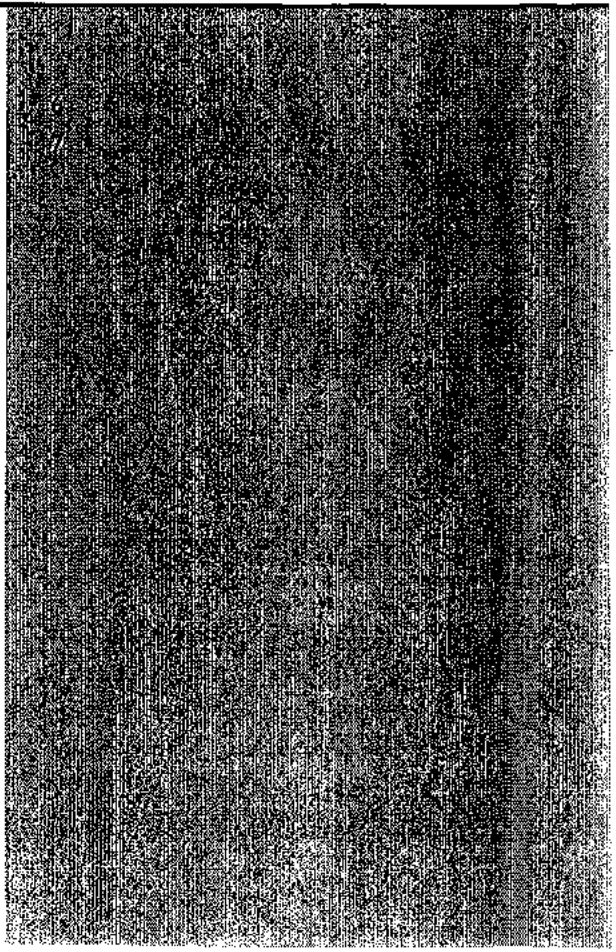


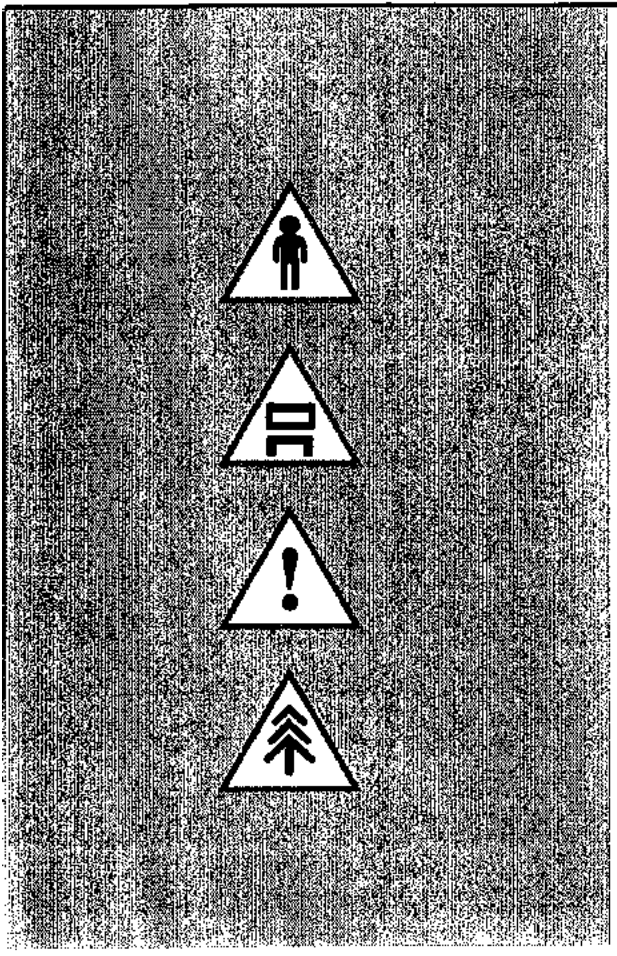


Safety

Safety warnings symbols

Installation of electric/electronic devices





Safety warnings symbols

You will often find these symbols on the following pages; follow the instructions to which they refer, for your own safety and the safety of your vehicle.

Risk of injury: failure to comply with these requirements can result in the risk of serious injury.

Risk of serious damage to the vehicle: Failure to comply with these requirements can result in the risk of serious damage to the vehicle and may even invalidate the warranty.

General risk: combines the risks of both the signs described above.

Safeguarding the environment: indicates the correct behaviour so that vehicle use is as environmentally friendly as possible.

Installation of electric/electronic devices

Installation of accessories, additions and any modifications to the vehicle are to be executed in compliance with the "Directives for converting and fitting out vehicles", available from the Service Network workshops. You are reminded that, particularly for the electrical system, various electrical outlets are provided as standard (or available as an option) in order to simplify and standardise the body builder' work on the electrical system. IVECO authorisation is required for any exception to the "Directives for converting and fitting out vehicles". Failure to comply with the above prescriptions will invalidate the warranty, and in certain cases, the possible loss of vehicle type approval.

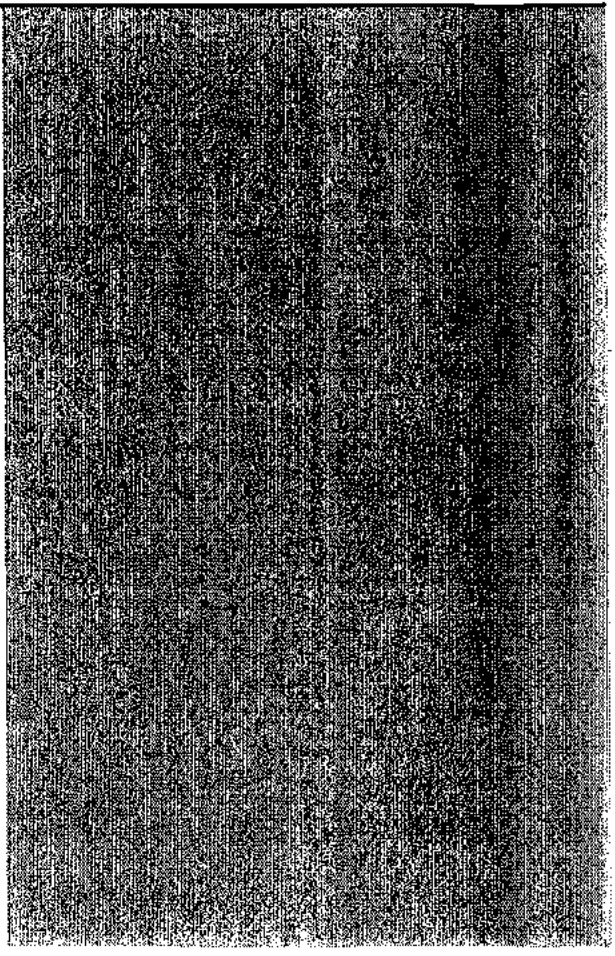
INSTALLATION OF ELECTRIC/ELECTRONIC DEVICES

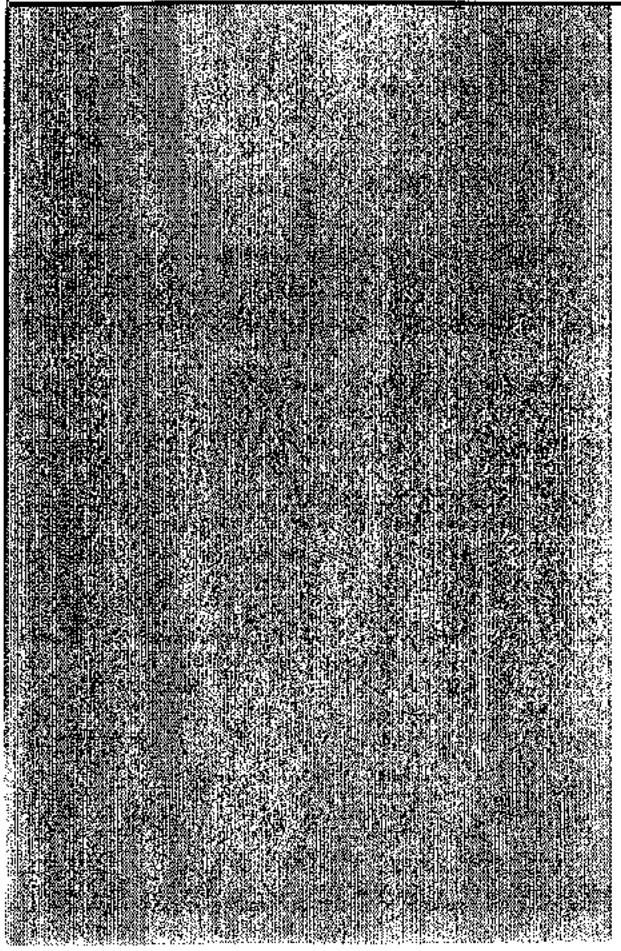
Any electric/electronic devices installed after purchasing the vehicle in an after-sales situation must carry the following mark:

IVECO authorises the installation of transceiver equipment provided it is installed by the IVECO Service Network in compliance with the manufacturer's instructions.

ATTENTION: the installation of devices that modify the vehicle's characteristics may lead to the vehicle being considered as not roadworthy by the relevant authorities and may also lead to invalidation of the warranty, limited to the defects caused by these modifications or to defects directly or indirectly traceable to them.

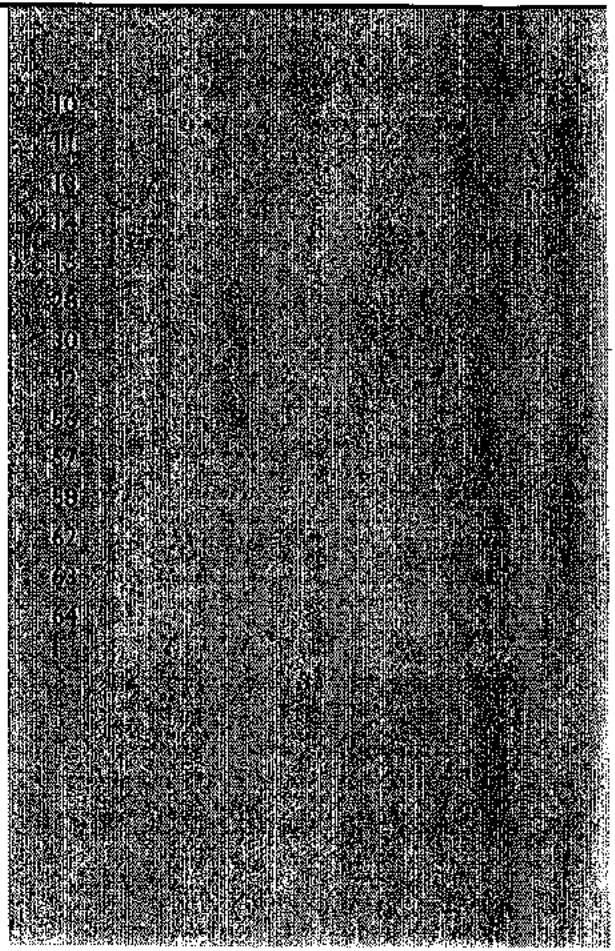
Important! It is forbidden to carry out any modifications to or detach the wiring from the electrical control units; in particular the connecting line between the control units (CAN line) must not be tampered with.

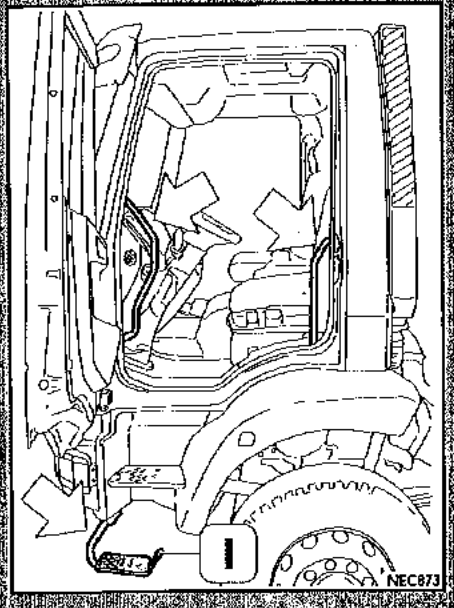




The driver's seat

Access to the cab
Access to the windscreen
Doors
Fuel inlet
Instrument panel and display
Dashboards
Mid panel
Display operation
Mirror heating
Power windows
Upper panel and cab equipment
Rest area
Bunk Module
Refrigerator





Access to the cab

Note The step (1) may move in the direction of the arrow to avoid contact with the ground while driving on uneven roads.

Attention!

- **Risk of injury and accident.** For boarding and exiting use the grip handles and the steps.
- Fully lower the air sprung seat (if provided).
- Never jump out of the cab.
- Keep the access steps clean.

Access to the windscreen

To access the windscreen (e.g. for cleaning) use the steps and handles provided on the front grille.

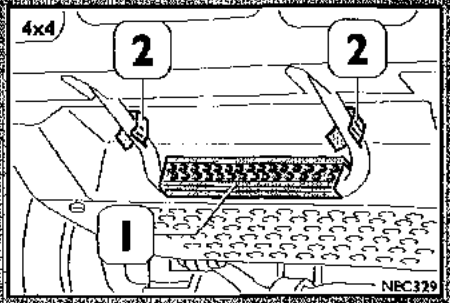
Attention!

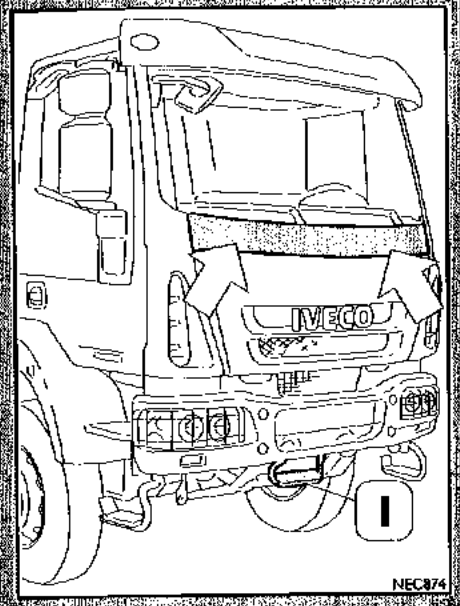
- **Risk of injury and accident.** For boarding and exiting, use the grasping handles and the steps.
- Fully lower the air sprung seat (if provided).
- Never jump out of the cab.
- Keep the access steps clean.

Front footboard

The figure shows the footboard (1) in the rest position. If necessary, to use it disconnect it from the clips(2), lift it slightly and pull it outwards.

When finished using it, return it to its seat.





Handles on the grille

On the front part of the vehicle, there is a handle on the grill and a footboard (1) for accessing the windscreen.

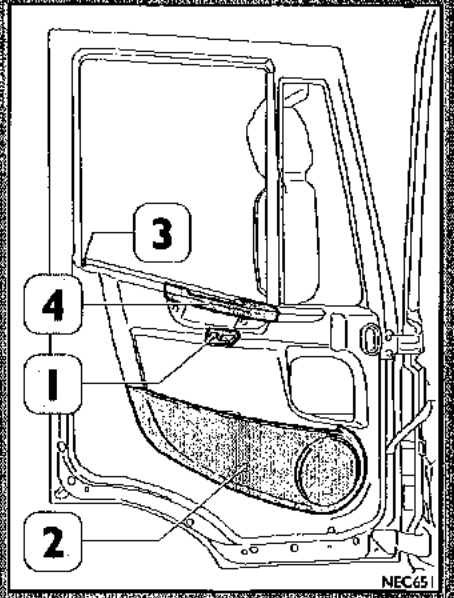
Doors

When the doors are open the two external light fixtures on the upper cross member and the white internal roof light switch ON.

The external light fixtures switch OFF when the doors are closed (they are timer-controlled).

1. Lever for opening the door.
2. Document pocket.
3. Knob for locking the door from the inside.
4. Handle for closing the door.

Note The document pouch, if fitted, contains a speaker



Fuel inlet

The refuelling cap is located on the fuel tank.

Attention!

- Switch off the additional heater, where present, before refuelling.
- If the fuel cap has to be replaced, ask the Service Network for the specific one for the vehicle model.
- Avoid spilling fuel when refuelling. Fuel contains acids which could damage the paint.

Attention!

Safety at service stations. Fuel vapours are extremely flammable and can even be explosive in enclosed spaces. Always take the following precautions when refuelling:

- Switch off the engine.
- Do not smoke or use anything that can produce flames.
- Avoid spilling fuel.
- Switch off all equipment which produces radio frequency (such as mobile phones, CB, other).

Instrument panel and display

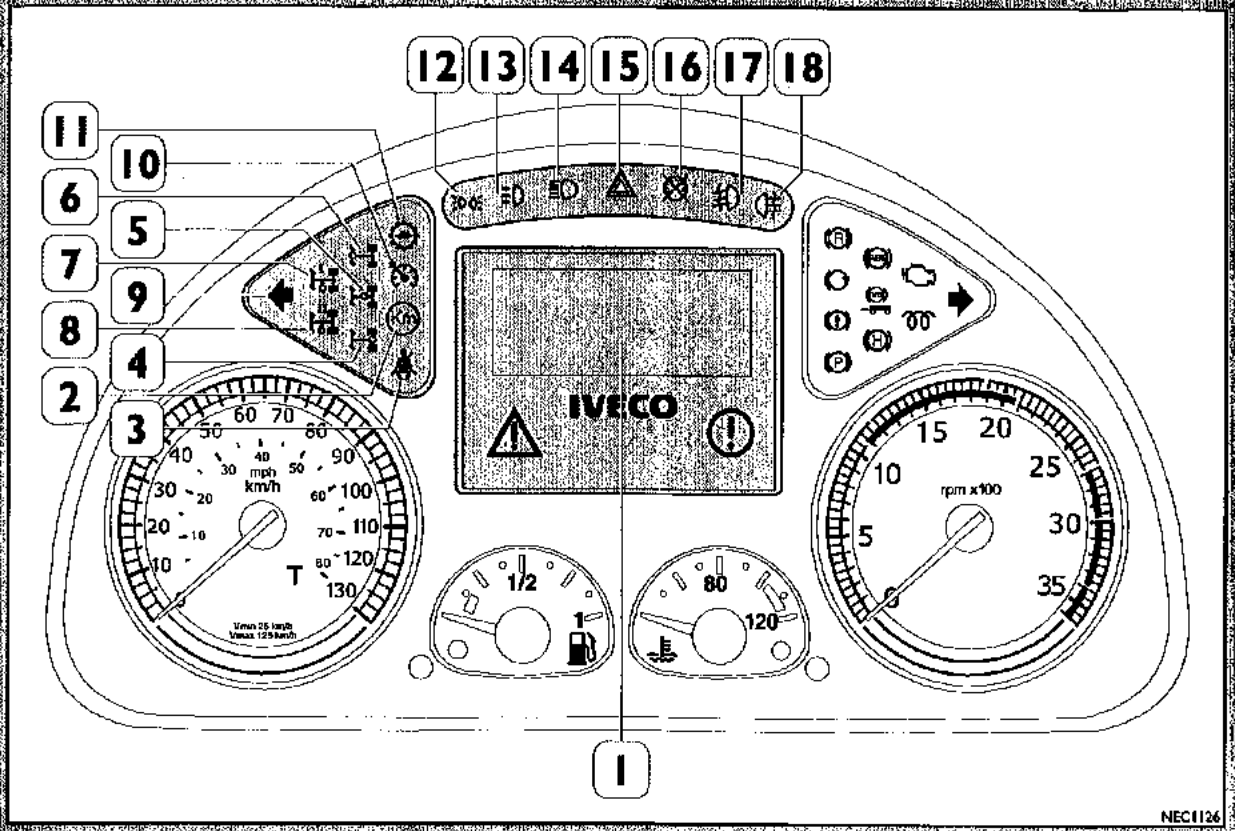
- The system fitted to your vehicle enables you to check and easily use the main function controls. However, to avoid creating potentially dangerous situations, use for other functions, please carefully comply with the following precautions. The system must be used while always maintaining full control of the vehicle. If there is any doubt, stop and carry out the various operations. Lack of attention and/or loss of view of the road by the driver can cause serious accidents. Before starting out become familiar with the vehicle's systems and other controls.

Attention!

Driver comfort. It is the responsibility of the driver to ensure that he is in the best possible position to ensure both his own and other road users' safety.

- The seat and steering wheel adjustment controls can be used to find the most comfortable driving position.
- When driving, the driver's comfort depends on many external factors, such as the road surface, speed, vehicle load, etc. The driver must respond to these external factors in order to maintain comfort and often, especially when the road surface is in poor condition or on dirt roads, the only factor he can control is the vehicle's speed. In these conditions drivers must maintain a speed which ensures their own comfort while respecting the Highway Code.

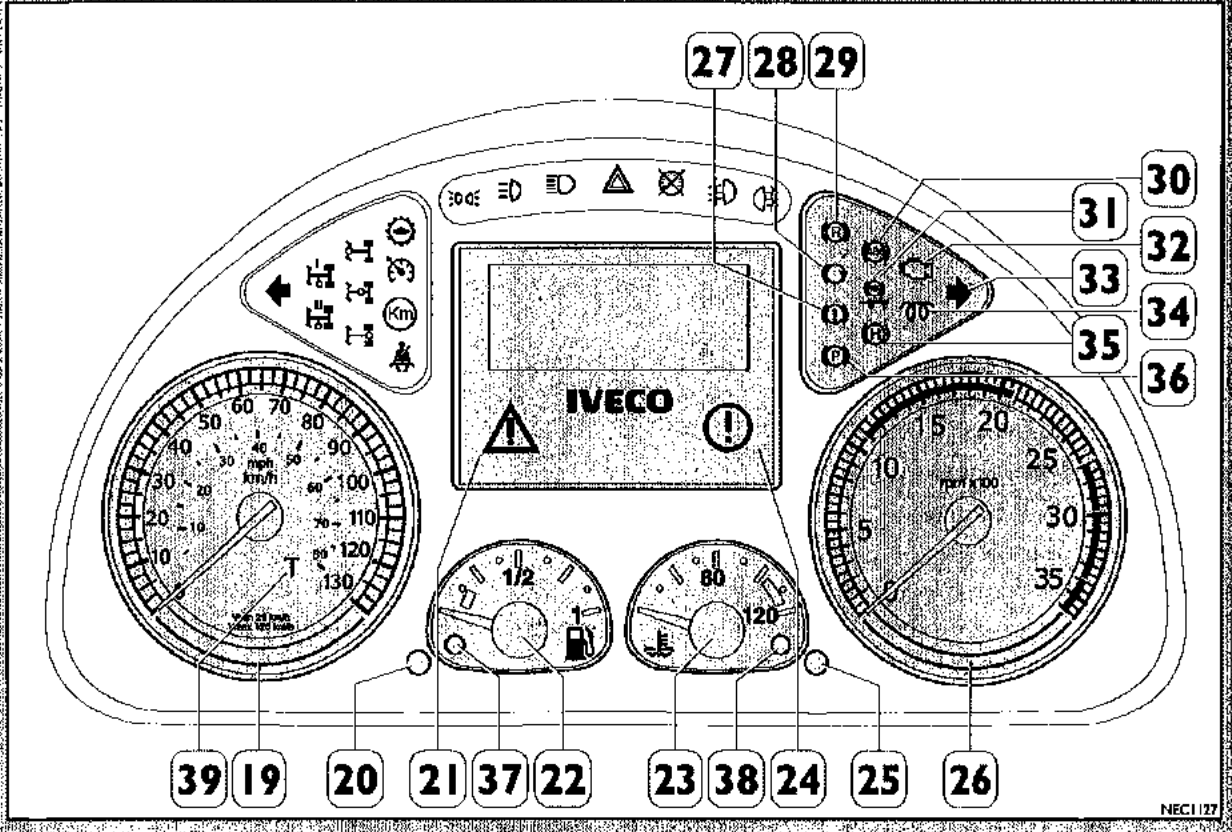
Instrument and warning light key



1. Display.
2. Programmable speed limiter.
3. Seat belts unfastened.
4. Rear differential lock.
5. Longitudinal differential lock (transfer box).
6. Front differential lock.
7. Power take-off I engaged.
8. Power take-off II engaged.
9. Left turn indicator.
10. Cruise Control active.
11. Slow gears engaged.
12. External lights.
13. Additional headlights.
14. High beams.
15. Hazard lights.
16. Dashboard failure.
17. Fog lights.
18. Rear fog lights.

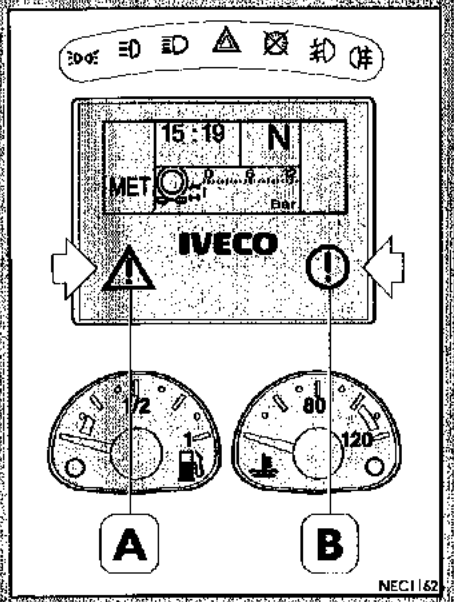
MEANING	IDEOGRAM	REFERENCE
Programmable speed limiter;		2
Seat belts unfastened		3
Rear differential lock		4
Longitudinal differential lock (transfer box)		5
Front differential lock		6
Power take-off I engaged		7
Power take-off II engaged		8
Left turn indicator		9
Cruise Control active		10
Slow gears engaged		11
External lights		12
Additional headlights		13
High beams		14
Hazard lights		15
Instrument panel fault		16
Fog lights		17
Rear fog lights		18

Instruments and warning lights key



19. Tachograph
20. Partial mileage and trip function reset button.
21. Minor anomaly and failure warning light.
22. Fuel level.
23. Coolant temperature.
24. Severe fault warning light (STOP).
25. Display lighting dimmer.
26. Rev counter.
27. Brake system failure.
28. exhaust brake engaged.
29. Retarder engaged.
30. Tractor ABS failure.
31. Trailer ABS failure.
32. OBD warning light (not available).
33. Right turn indicator.
34. Engine preheating.
35. Front parking brake engaged (if fitted).
36. Parking brake engaged (See section "Buzzer activation with parking brake not engaged").
37. Low fuel level.
38. High coolant temperature.
39. Tachograph fault.

MEANING	DIAGRAM	REFERENCE
Brake system fault		27
Exhaust brake ON		28
Retarder engaged		29
Tractor ABS fault		30
Trailer ABS fault		31
OBD warning light (not available)		32
Right turn indicator		33
Engine preheating		34
Front parking brake engaged (if fitted)		35
Parking brake engaged		36



Operation/fault warning lights on display

When the following functions are on, or the failures described on the following pages occur, the relevant symbol will appear on the display.

A - YELLOW (MINOR FAILURE/FAULT):

a) Drive carefully to the nearest Service Network workshop.

b) Top up the relevant fluid to the correct level, if the fault type requires it.

B - RED (SEVERE FAILURE/FAULT - STOP):

Park the vehicle to the side of the road in a safe location, then call the Dealer for assistance or the toll free customer assistance number if the failure occurred outside normal hours or in a remote location (24-hour service).

The tables on the following pages show the ideograms that can appear on the display in the following cases:

- Minor fault:
- Severe failure:
- Operating status.

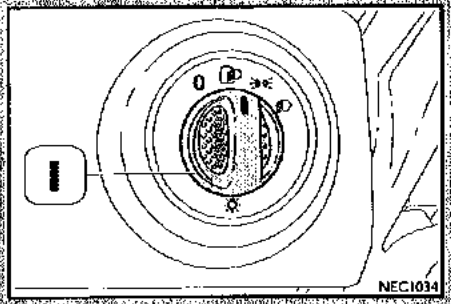
WARNING	SYMBOL	COLOUR
Axle brake pad wear		Red
Rear axle brake pad wear		Red
Low brake fluid level		Red
Low rear axle brake circuit pressure		Red
Low front axle brake circuit pressure		Red
Parking brake failure		Red
Rear AoH converter limit switch		Red
Low engine oil pressure		Red
Low engine oil level		Yellow
Very low engine oil level		Red
Low engine coolant level		Yellow
Very low engine coolant level		Red
Low parking brake pressure		Red
Gearbox fault/failure		Yellow / Red
High gearbox oil temperature		Yellow

MEANING	DIAGRAM	COLOR
Transfer box slow gears engaged		–
Power take-off 3 on		–
No verifiability of a condition for activating the PTO 3		–
SEDC in power take-off mode		–
Insufficient generator charge		Red
Insufficient secondary generator charge (if provided)		Red
Low power steering fluid level		Yellow
Airbag failure		Red
Doors open		Red
Immobilizer fault/ON		Yellow
Immobilizer fault/ON		Yellow
Start-up disabled		Yellow
Tail lift		Red
Fault in lighting system		Yellow
Body tilted		Yellow

MEANING	DIAGRAM	COLOUR
Air filter clogged		Yellow
Water in diesel oil pre-filter		Yellow
Heated mirrors		–
Low windscreen washer fluid level		Yellow
Drive time		Yellow
Scheduled maintenance due date		–
Second speed limitation request		–
Trailer connected electrically		–
Dashboard fault		Yellow
Low external temperature (with buzzer)		–
Alarm		–
CAN network fault/failure	CAN	Yellow / Red
ABS OFF		–
Load information alarm		Yellow
EDC control unit fault/failure		Yellow / Red

MEANING	IDEOGRAM	COLOUR
Body Computer fault/failure	BC	Yellow / Red
MET control unit fault/failure	MET	Yellow / Red
Tachograph fault/failure	TCO	Yellow / Red
Expansion Module control unit fault	EM	Yellow
VCM control unit fault/failure	VCM	Yellow / Red
Transfer box slow gears engaged		–
Driver door control unit fault	DDM	Yellow
Passenger door control unit fault	CDM	Yellow
Bunk control unit fault	BM	Yellow
Supplementary air heater fault		Yellow
Supplementary air heater programming		–
Central locking control unit fault		Yellow
High coolant temperature		Yellow
Excessively high coolant temperature		Red
Battery voltage level too low		Red

MEANING	DISPLAY	COLOUR
Engine PTO active		–



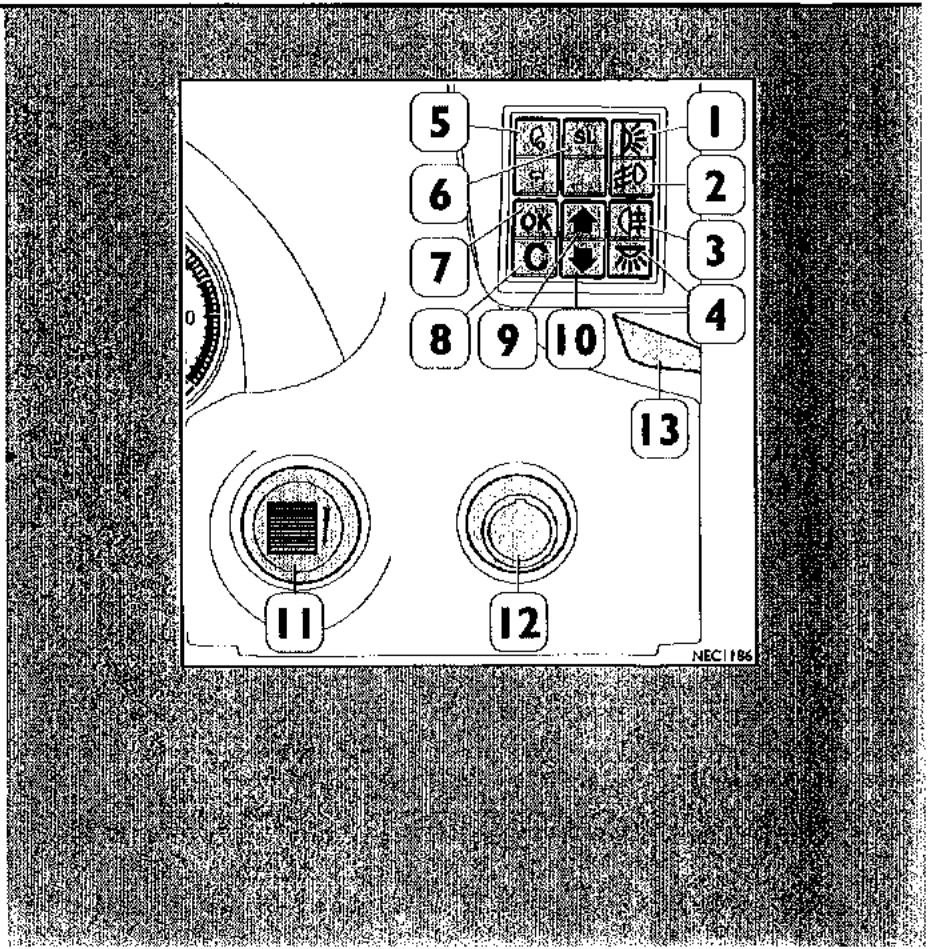
Dashboards

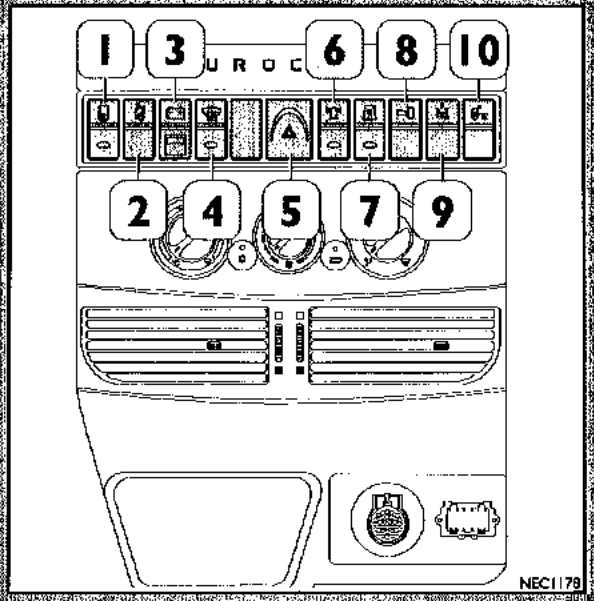
Controls on left frame

1. Exterior lights switch. For light operation see "External light switches" in the chapter "Controls and devices"

Controls on right frame

1. Middle roof ceiling lighting (only long cab + middle roof).
2. Fog lights.
3. Rear fog light.
4. Cab internal lights.
5. Cab tilting release.
6. Programmable speed limiter - Speed limiter.
7. Display submenu/activate display (OK).
8. Main page (C, Cancel).
9. Next page/upper line/next field display button.
10. Previous page/bottom line/previous field display button.
11. Headlight position adjustment.
12. Cigarette lighter.
13. Ashtray.



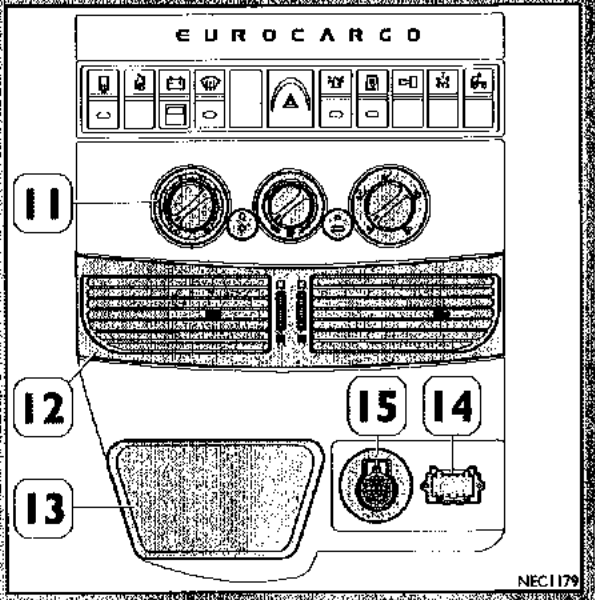


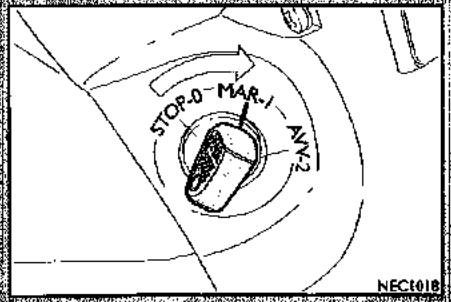
Mid panel

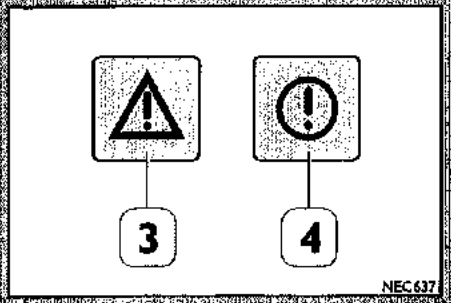
1. Heated mirrors (if provided).
2. Electrical hatch (if fitted).
3. Main current contactor (T.G.C)/A.D.R.
4. Heated windscreen (if provided).
5. Hazard lights.
6. Rotary lights (if provided).
7. Additional heater – Eberspächer (if fitted).
8. Reversing buzzer ON switch (if fitted).
9. Power take-off 1 (PTO 1) (if fitted).
10. Loading platform lighting switch (if fitted).

Note The position of the buttons may vary depending on the version.

11. Heating and ventilation control unit (if fitted).
12. Air vents.
13. Manual gearbox.
14. OBD diagnostics socket.
15. 30 pole diagnostics socket.







Display operation

The display screen changes under following conditions:

- Key to MAR-1 with engine off.
- Key to MAR-1 with engine running.

When turning key to MAR-1, the display shows the control of the main systems present on the vehicle. It shows their presence and status with the warning light (3) and the symbol of the associated function appears on the left of the display when non-critical faults occur.

The (4) warning light and the associated function symbol that appears on the right of the display indicate serious faults.

Warning:

- If several anomaly and/or fault symbols are present simultaneously in the same display strip, they will flash in sequence.

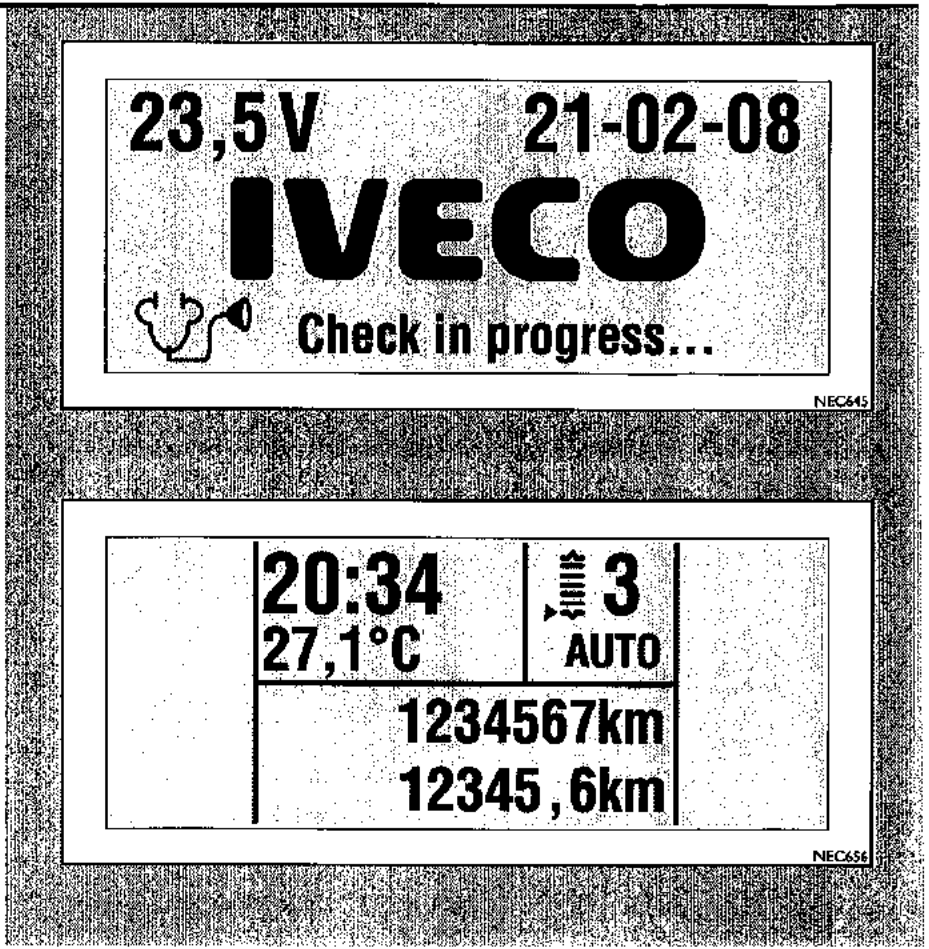
The following is available:

- Up to 4 screens for the Baseline version, accessible by pressing the trip button on the cluster.
- Up to 13 screens for Highline versions, accessible by pressing the buttons on the dashboard.

These screens can be always visible or only with the vehicle stationary.

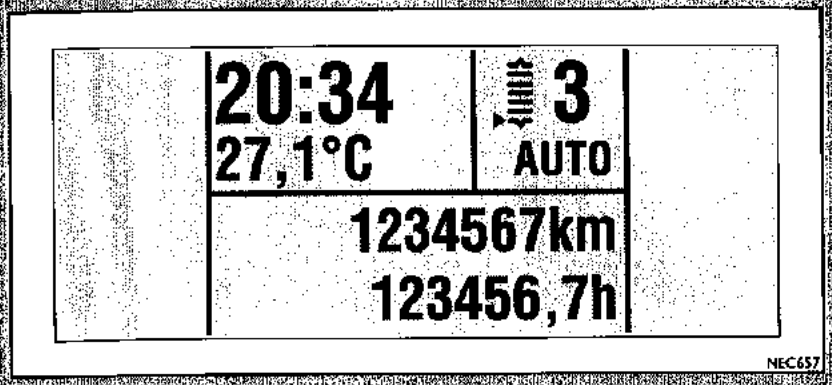
They are described on the following pages.

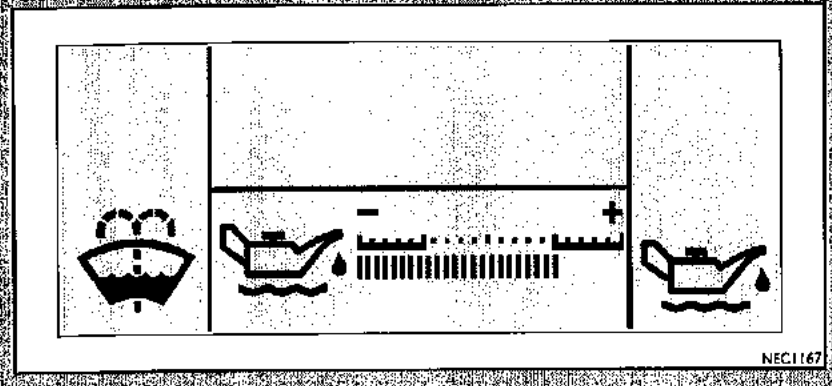
System initialisation screen.



1. Time/external temperature in °C/km/trip km/gear engaged (manual and automatic gearbox).

Screen always visible.





2. Time/external temperature in °C/km/trip hours/gear engaged (manual and automatic gearbox).

Screen always visible.

3. Engine oil level.

Screen active only with vehicle stationary.

The measurement of the oil level is not displayed in the following cases:

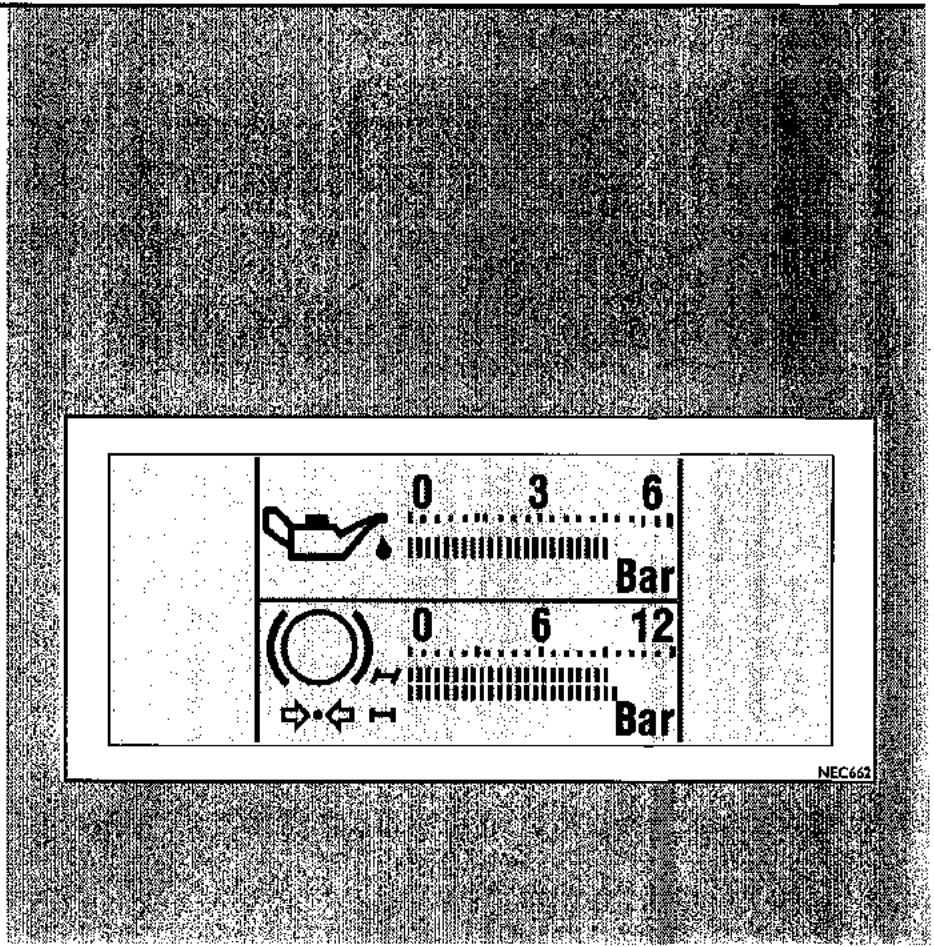
- After a start-up and an engine switch-off if 15 minutes are not waited before turning the key to MAR-1.
- With the key in the MAR-1 position, if the engine is started immediately without waiting for the "Check in progress" message to disappear from the Cluster.
- In the case of a sensor or measurement system fault, signalled by the cluster with

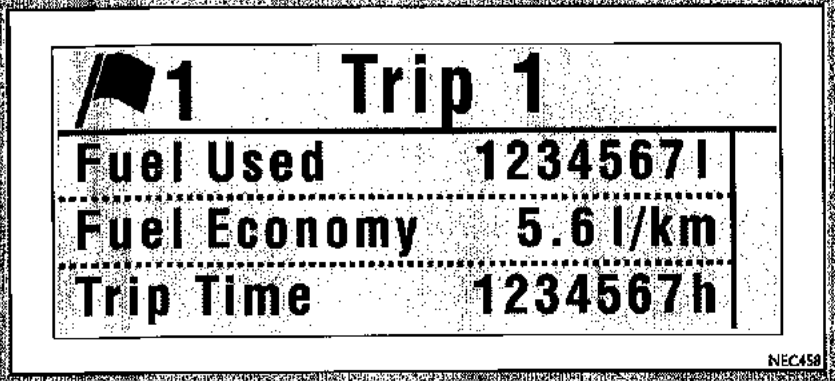
the "MET" or "BC" ideograms and the non serious fault warning light. In this case, contact the *Service Network*.

Note The reading of the oil level is not correct if the vehicle is not on a level surface. In this case, there may be a difference between the reading performed using the dipstick and the reading performed by the sensor.

4. Engine oil pressure/brake circuit air pressure.

Screen always visible.





5. Trip information (1).

Fuel consumed/average consumption/trip hours.

(Only Highline version)

The display can show three items of information.

Pressing the "Menu (OK)" button followed by buttons ⬆ ⬇ you scroll the complete list of all available information. It is possible to select the information to show on the display by pressing the "OK" button while scrolling through the list.

The data shown in the figure can be reset by pressing the reset button located on the display near the fuel level indicator.

Screen always visible.

6. Trip information (2)*.

Fuel consumed/average consumption/trip hours. The data is reset each time the engine starter key is turned to the "Stop" position.

(Only Highline version)

Screen always visible.

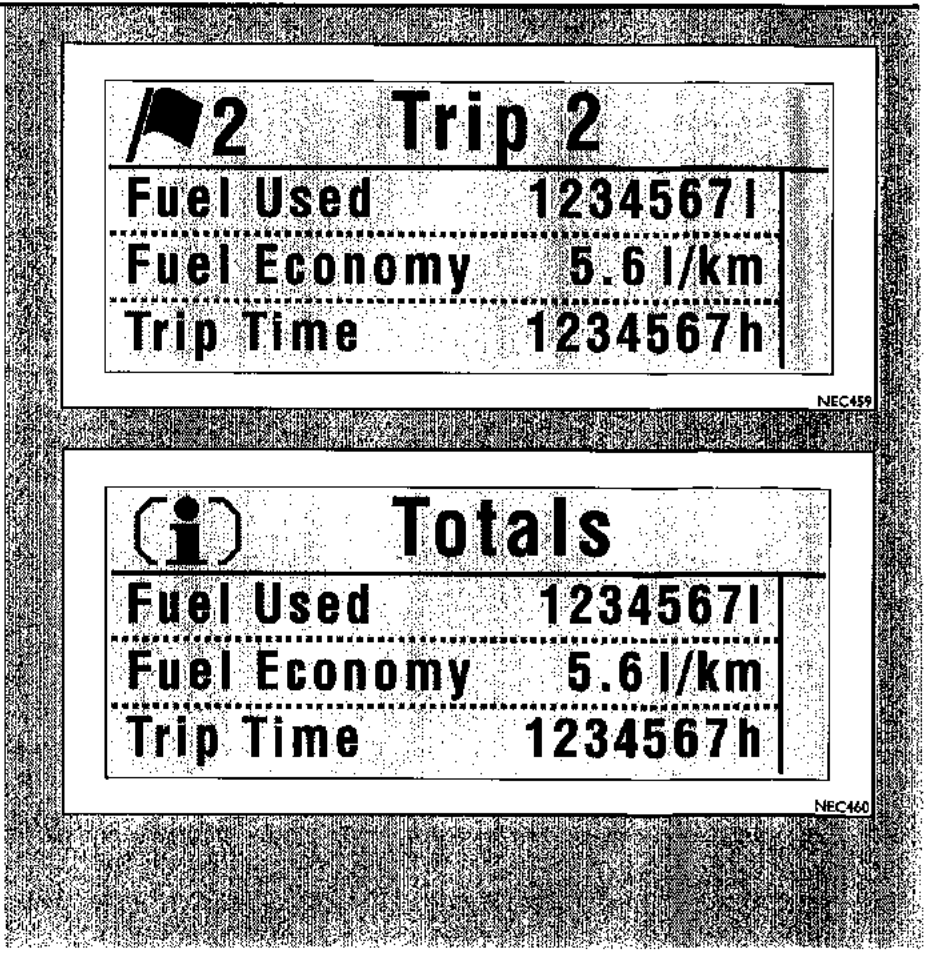
7. Trip total data*.

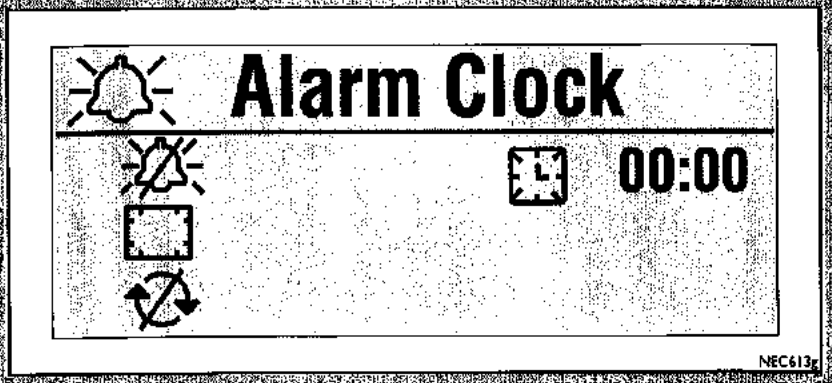
Fuel consumed/average consumption/trip hours.

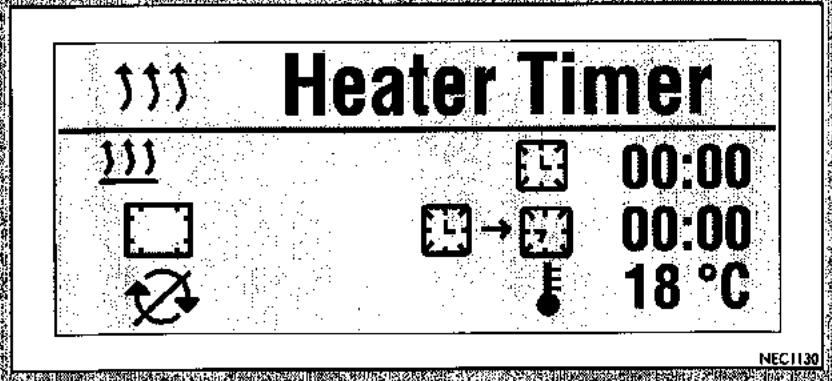
(Only Highline version)

Screen active only with vehicle stationary.

* The display can show three items of information. Pressing the "Menu (OK)" button followed by buttons ⬆ ⬇ you scroll the complete list of all available information. It is possible to select the information to show on the display by pressing the "OK" button while scrolling through the list.







8. "Alarm clock" screen.

It is used to program the alarm clock.

(only Highline version)

Note If you deactivate the T.G.C. using the external manual control or by pressing the ADR button on the dashboard, the alarm clock setting is cancelled.

Screen active only with vehicle stationary.

9. "Heater timer" screen.

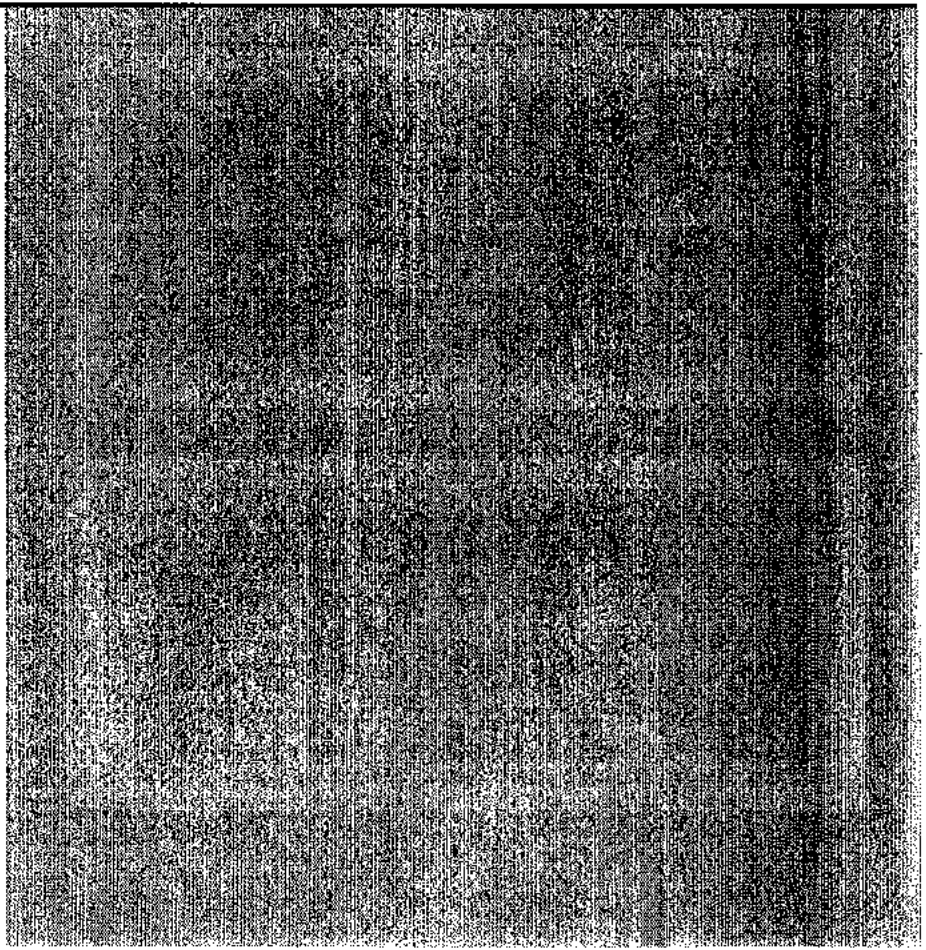
It is used to program the heater using the timer, when the additional heater is fitted.

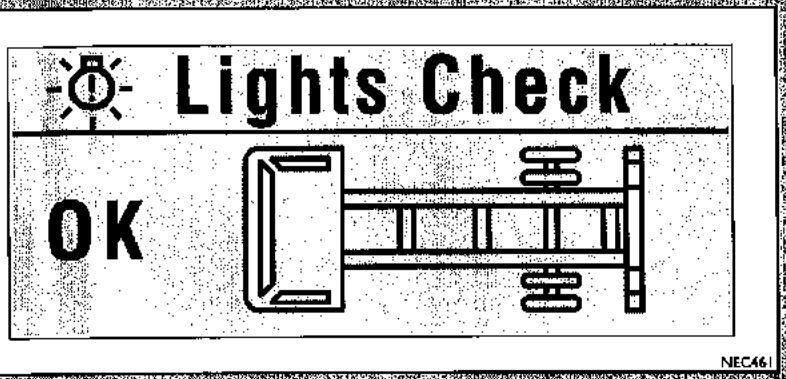
(Only Highline version)

Screen active only with the vehicle stationary.

Note Engine heating is present only with the water heater. If you deactivate the T.G.C. using the external manual control or by pressing the ADR button on the dashboard, the heater setting is cancelled. The temperature reading is present only with the automatic heater or with the additional air heater.

Note ***For ADR vehicles only (transport of dangerous goods):*** only the alarm clock can be set, while the heater can only be switched ON using the button on the dashboard.



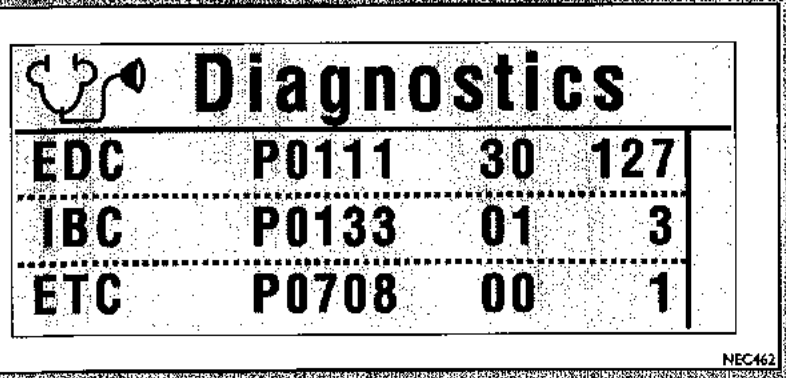


10. "Light control" screen.

It is used to view the operation of the vehicle.

(only Highline version)

Screen active only with vehicle stationary.



11. "Diagnostics" screen.

(only Highline version)

Page configuration is as follows:

First column = system (control unit) with the fault.

Second column = control unit code plus fault code (DTC).

Third column = type of fault.

Fourth column = frequency of fault (since last system reset).

Screen active only with vehicle stationary.

12. "Maintenance" screen.

(Only Highline version)

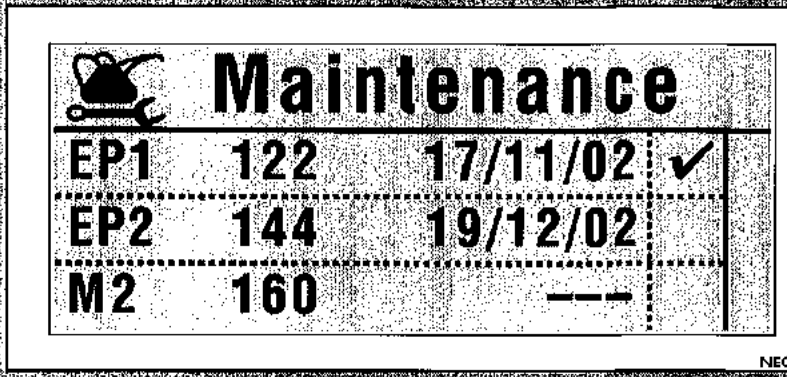
First column = service

Second column = Relative kilometres

Third column = Date serviced

Fourth column = Approved

Screen active only with vehicle stationary.

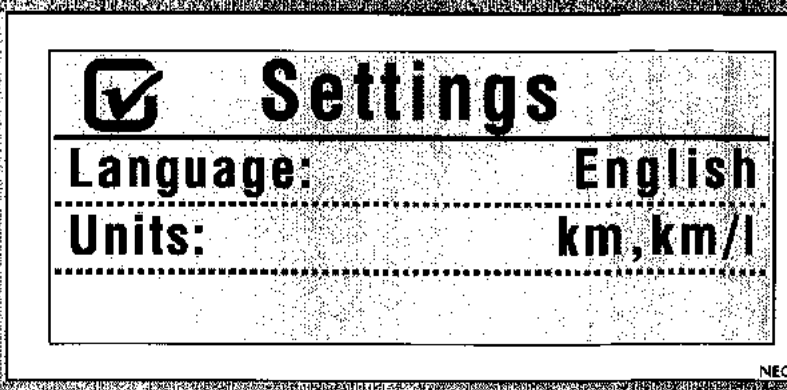


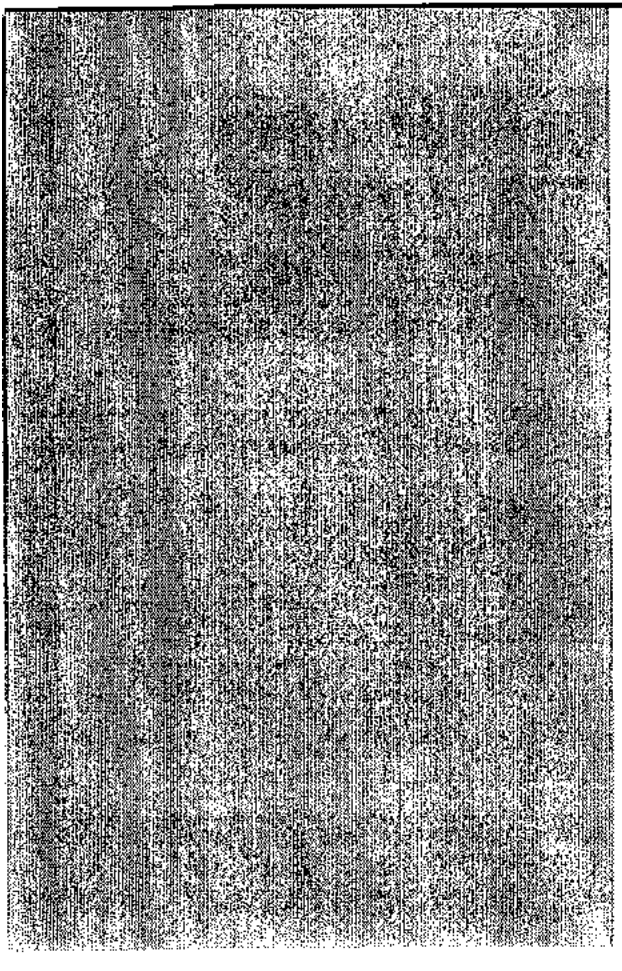
13. "Settings" screen.

Display settings.

(Only Highline version)

Screen active only with vehicle stationary.





Menu structure

When a screen is displayed, it is possible to navigate between the previously described screens in the display menu. To do this, press the buttons on the steering wheel as shown in the following diagram.

	Menu		Submenu	
	System initialisation (Ignition key in "MAR-1" position)			
	Screen 1 (trip km)			
	Screen 2 (trip time)			
	Engine oil level			
	Pressures (engine oil - brake circuit)	MENU		
⬆	Trip 1	OK ➡	Scroll menu options	⬆ +
	Trip 2		Scroll menu options	
	Total trip		Scroll menu options	
⬇	Alarm clock		Select/modify	⬇ −
	Heating timer	ESC ⬅	Select/modify	
	Light check			
	Diagnostics		Scroll menu options	
	–		Scroll menu options /select/modify	
	Settings		Select/modify	

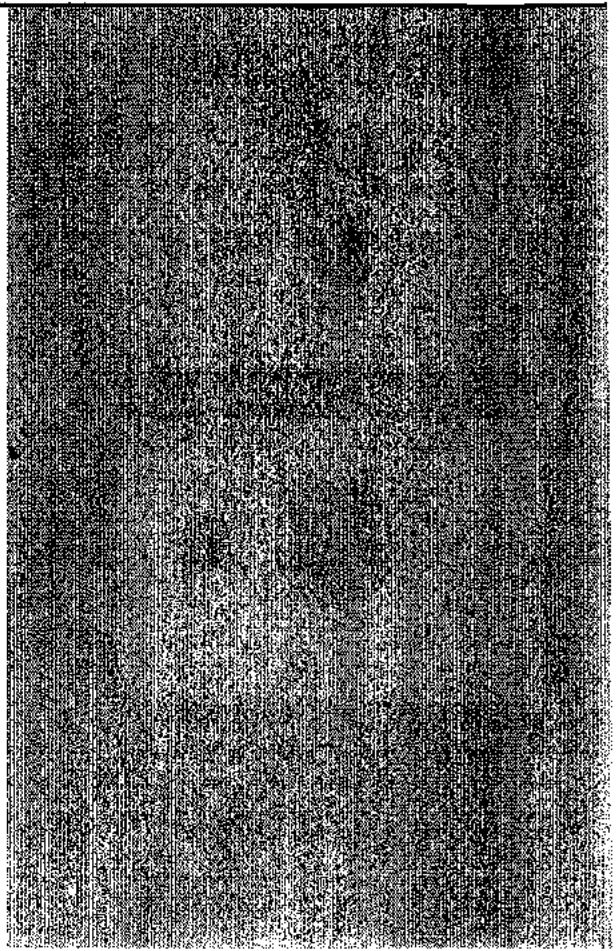
Automatic screens (pop-ups)

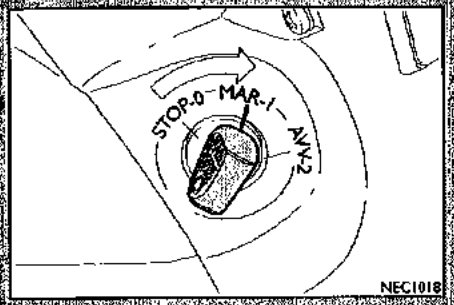
The automatic screens are shown below as they appear on the display when the control is activated.

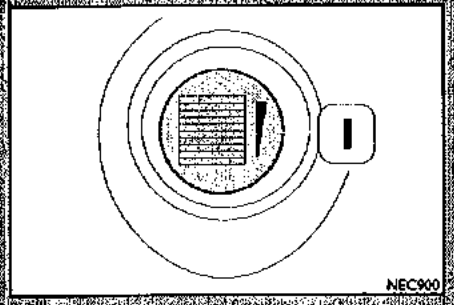
The function is activated for a pre-established time and in the basic page structure; ten seconds after the last operation the display returns to the screen that was active at the time of the event.

The screens are as follows:

1. headlight alignment adjustment;
2. outer rearview mirror adjustment;
3. programmable speed limiter;
4. speed programmer (Cruise Control);
5. power take-off (revolution number);
6. alarm clock;
7. power take-off;
8. brake circuit air pressure.







1. Headlamp position adjustment on vehicles with mechanical suspension

This adjustment is to be made only with the vehicle stationary and with the ignition key in the 'MAR-1' position.

Use the control (1) to adjust the headlight position depending on vehicle load; note that heavier vehicle loads require lower beam adjustment to prevent blinding other road users.

For more precise adjustment, it is advisable to contact the Service Network.

The headlight position is shown on the instrument cluster.

2. External rearview mirror adjustment (if provided)

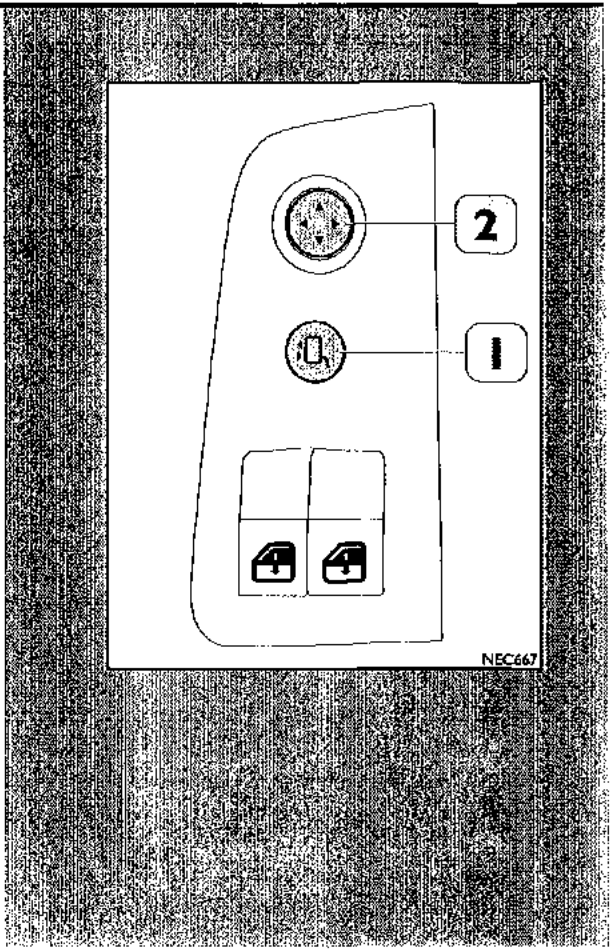
Note Adjustment to be carried out with the vehicle stationary.

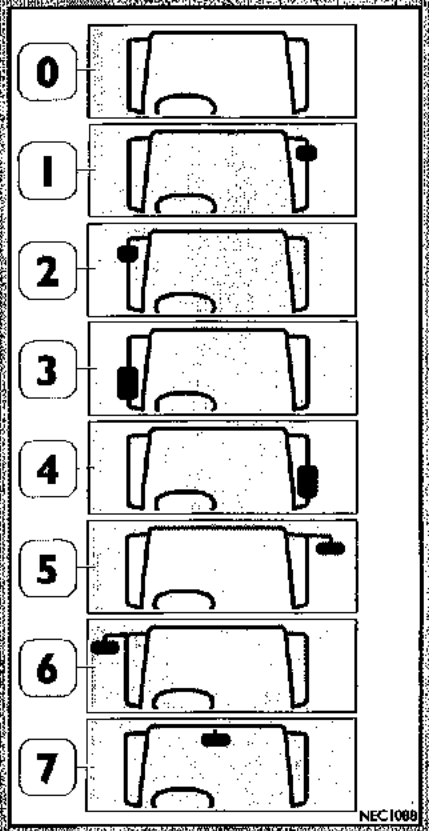
By using the control (1) you can select the vehicle's external mirrors.

Using the control (2) you can adjust the mirror in all four basic positions (up, down, left and right).

The selected mirror sequence is shown on the display in a pop-up window.

The latter is shown in the figure on the next page.





The figure shows the screens displayed when adjusting the rearview mirrors.

0. No mirror selected.
1. Passenger's wide-angle mirror.
2. Driver's wide-angle mirror.
3. Main driver side mirror.
4. Main passenger side mirror.
5. Passenger side close proximity mirror.
6. Driver side close proximity mirror.
7. Front mirror (if fitted).

Note If there is no electrical adjustment, the driver will have to move the mirrors manually.

3. Programmable speed limiter SPEED LIMITER-SL

The programmable speed limiter is a device that makes it possible to set a speed limit lower than speed set in the vehicle.

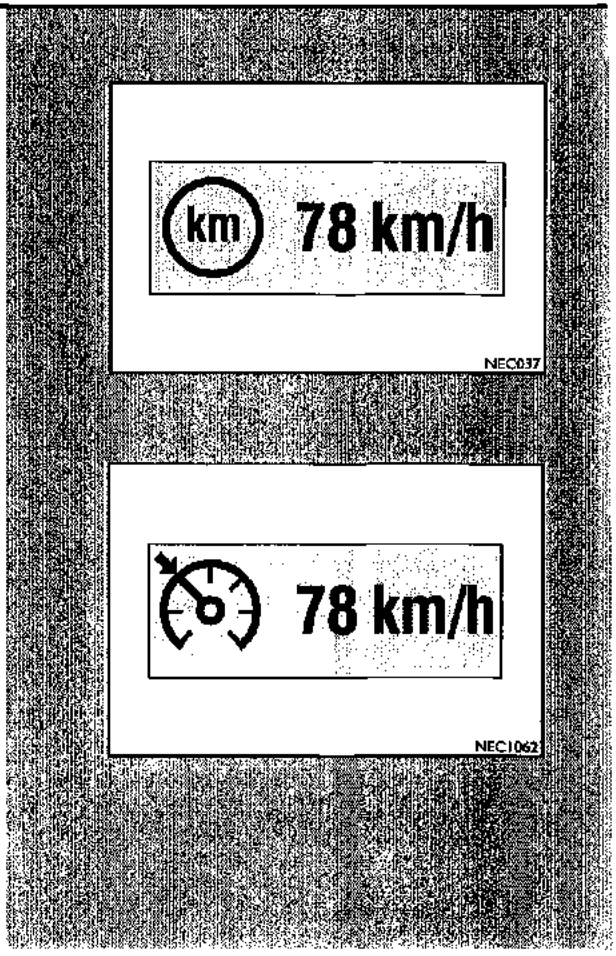
When the required speed is achieved, operate the right steering column switch or the button on the dashboard (depending on the version): the pop-up shown in the figure will appear on the display.

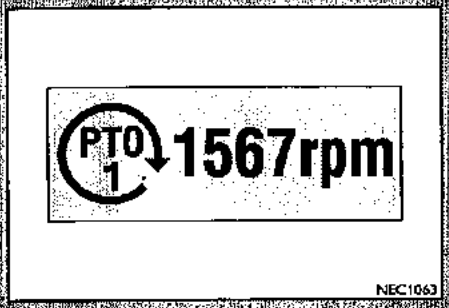
The vehicle cannot exceed the preset speed limit until the control is operated again.

Additional information about the SPEED LIMITER-SL device can be found in the chapter "Start-up and driving".

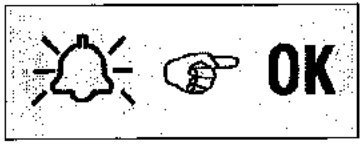
4. Speed programmer (Cruise Control)

Operating instructions in the section "Speed programmer" (Cruise Control-CC)" in chapter "Start-up and driving".





NEC1063



NEC1065

5. Power take-off

RPM.

Operating instructions in the section "PTO" in chapter "Controls and devices".

6. Alarm clock

Operating instructions (➠ Page 54)

7. Power take-off

When the driver decides to engage a power take-off (for PTO operation see the section "PTO" of chapter "Controls and devices") the vehicle's ECU checks if it is possible to continue with engaging the PTO or if the operation must be interrupted.

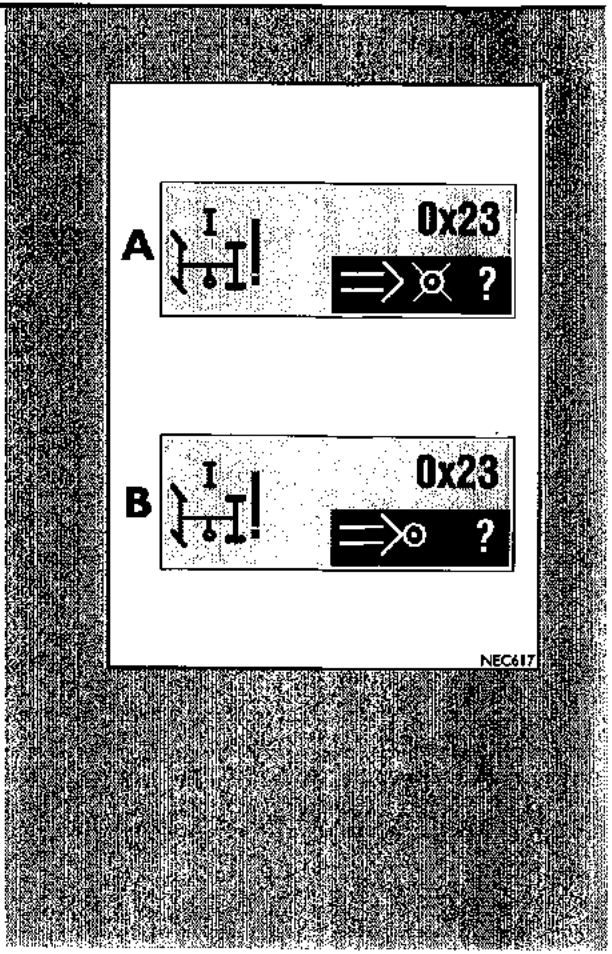
If certain error conditions are present (lack of signal), the power take-off is temporarily disengaged. The pop-up indicated in the figure by letter "A" appears on the display, accompanied by a code. Once the driver has understood the meaning of the code, he can decide UNDER HIS OWN RESPONSIBILITY, whether to continue engaging the power take-off or to turn it off permanently.

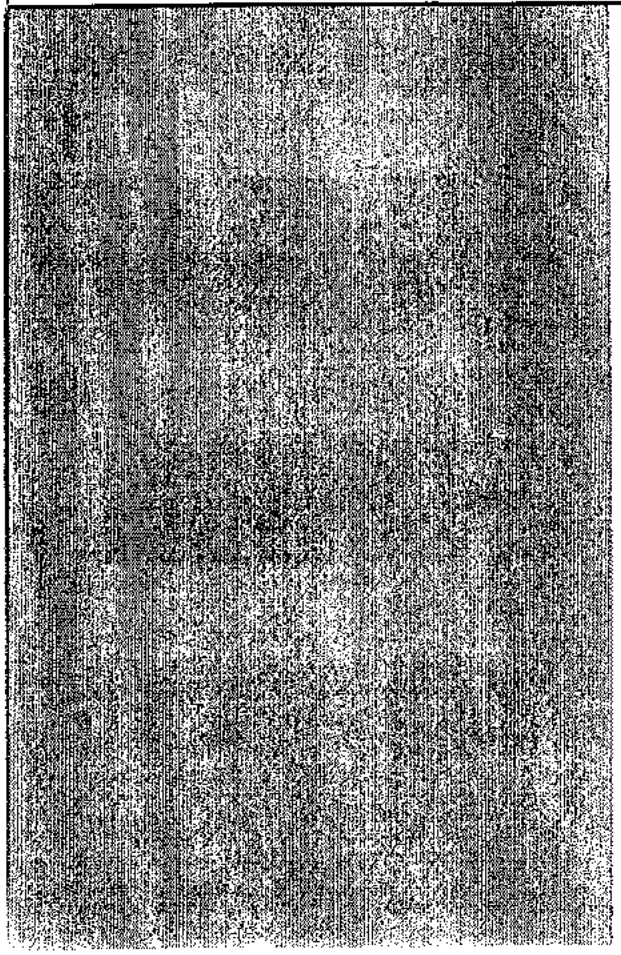
Procedure for engaging the power take-off in the presence of an error (lack of signal detected by control unit)

When the pop-up indicated by the letter "A" appears, the driver is fully responsible for the decision to continue with the power take-off engagement operation. After understanding the code on the display (see the following table) the driver must proceed as follows to engage the PTO:

- Press the ⬆ button on the steering wheel (the pop-up window indicated by letter B will appear).
- Press the 'OK' button on the steering wheel.

The driver must press the ESC button on the steering wheel in order not to engage the power take-off.





Note If no button is pressed for sixty seconds after the pop-up window indicated by letter "A" has appeared, the pop-up will no longer be displayed and the engagement procedure is interrupted.

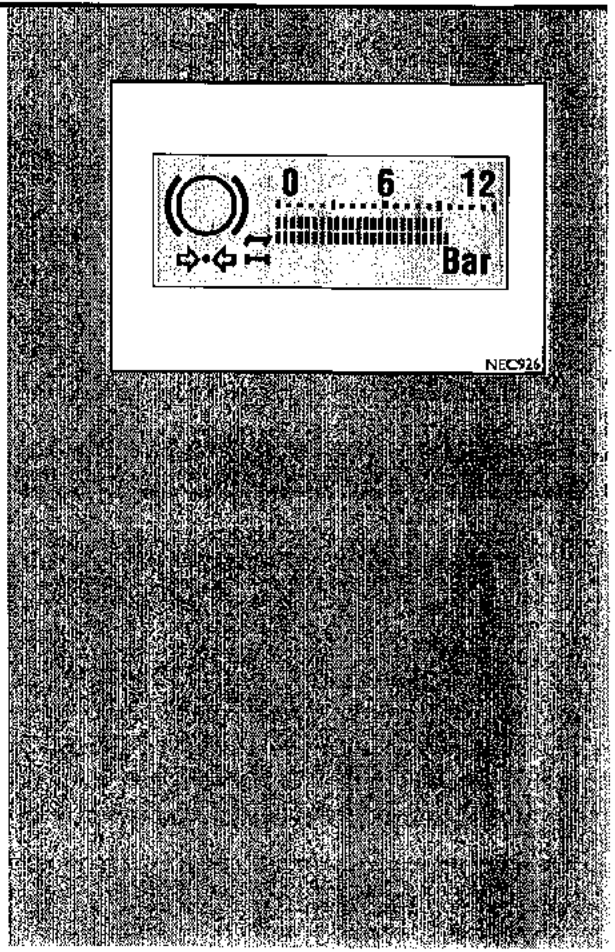
The following tables show the possible messages for the user in case of a fault during PTO engagement.

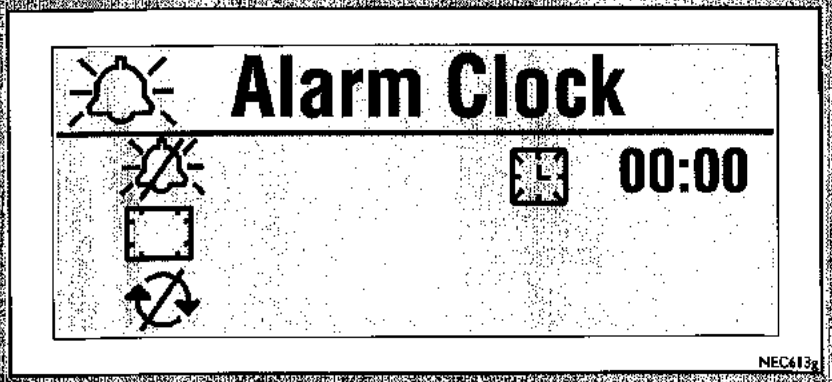
FAULT INDEX	PTO NUMBER	FAULT	POSSIBLE TEXT DISPLAYED
0x1	PTO1	Brake	Brake pedal signal error. Continue with PTO1 mission?
0x2	PTO1	Handbrake	Handbrake signal error. Continue with PTO1 mission?
0x3	PTO1	BC input	Pressure switch signal error. Continue with PTO1 mission?
0x4	PTO1	Clutch	Clutch signal error. Continue with PTO1 mission?
0x5	PTO1	Gear	Gear signal error. Continue with PTO1 mission?
0x6	PTO1	RPM	Engine rpm signal error. Continue with PTO1 mission?
0x7	PTO1	Vehicle speed	Vehicle speed signal error. Continue with PTO1 mission?
0x8	PTO1	Water temperature	Water temperature signal error. Continue with PTO1 mission?
0xA	PTO1	–	Fault A. Continue with PTO1 mission?
0xB	PTO1	–	Fault B. Continue with PTO1 mission?
0xC	PTO1	–	Fault C. Continue with PTO1 mission?
0xD	PTO1	–	Fault D. Continue with PTO1 mission?
0xE	PTO1	–	Fault E. Continue with PTO1 mission?
0xF	PTO2	Brake	Brake pedal signal error. Continue with PTO2 mission?
0x10	PTO2	Handbrake	Handbrake signal error. Continue with PTO2 mission?
0x11	PTO2	BC input	Pressure switch signal error. Continue with PTO2 mission?
0x12	PTO2	Clutch	Clutch signal error. Continue with PTO2 mission?
0x13	PTO2	Gear	Gear signal error. Continue with PTO2 mission?
0x14	PTO2	RPM	Engine rpm signal error. Continue with PTO2 mission?
0x15	PTO2	Vehicle speed	Vehicle speed signal error. Continue with PTO2 mission?
0x16	PTO2	Water temperature	Water temperature signal error. Continue with PTO2 mission?

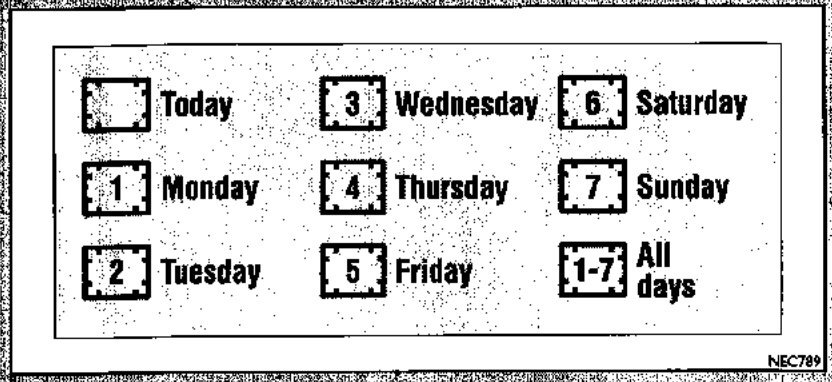
FAULT INDEX	PTO NUMBER	FAULT	PTO SUPERVISOR DISPLAY
0x18	PTO2	–	Fault A. Continue with PTO2 mission?
0x19	PTO2	–	Fault B. Continue with PTO2 mission?
0x1A	PTO2	–	Fault C. Continue with PTO2 mission?
0x1B	PTO2	–	Fault D. Continue with PTO2 mission?
0x1C	PTO2	–	Fault E. Continue with PTO2 mission?
0x1D	PTO3	Brake	Brake pedal signal error. Continue with PTO3 mission?
0x1E	PTO3	Handbrake	Handbrake signal error. Continue with PTO3 mission?
0x1F	PTO3	BC input	Pressure switch signal error. Continue with PTO3 mission?
0x20	PTO3	Clutch	Clutch signal error. Continue with PTO3 mission?
0x21	PTO3	Gear	Gear signal error. Continue with PTO3 mission?
0x22	PTO3	RPM	Engine rpm signal error. Continue with PTO3 mission?
0x23	PTO3	Vehicle speed	Vehicle speed signal error. Continue with PTO3 mission?
0x24	PTO3	Water temperature	Water temperature signal error. Continue with PTO3 mission?
0x26	PTO3	–	Fault A. Continue with PTO3 mission?
0x27	PTO3	–	Fault B. Continue with PTO3 mission?
0x28	PTO3	–	Fault C.
0x29	PTO3	–	Fault D. Continue with PTO3 mission?
0x2A	PTO3	–	Fault E. Continue with PTO3 mission?

8. Brake circuit air pressure

The pop-up window shown in the figure appears on the display at engine start-up if air brake circuit pressure is low. It remains visible until the circuit pressure level is correct.







Programming the alarm clock

Display the "Alarm clock " screen by browsing the display menu using the buttons on the right frame of the dashboard (see "Controls on the right frame"). With the "Alarm clock" screen displayed and using the ⬆ and ⬇ buttons, select the following fields:

- alarm clock activation;
- day of the week (see figure);
- daily alarm (alarm repeated every day)
- set hour;
- set minutes.

After selecting the desired field, again using the ⬆ and ⬇ buttons, the field settings can be changed. To confirm the new settings, press the OK button on the steering wheel.

Note If you deactivate the T.G.C. using the external manual control or by pressing the ADR button on the dashboard, the alarm clock setting is cancelled.

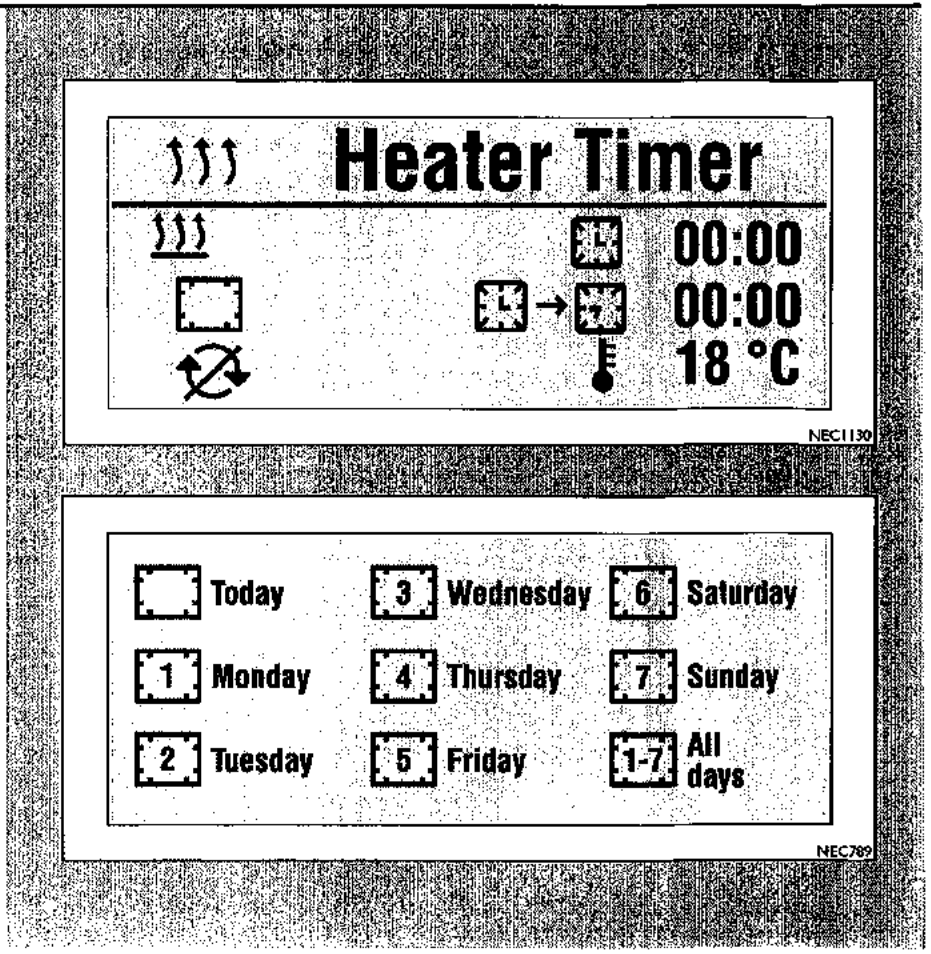
Heater timer

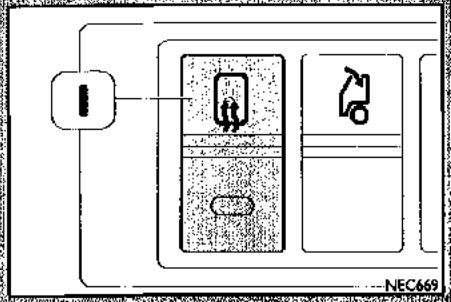
Display the "Heater timer" screen by browsing in the display menu using the buttons on the dashboard as explained in "Controls on the right frame".

Once the "Heater timer" screen is displayed, press the OK button to select the heater symbol. Using the ⬆ and ⬇ buttons, the following fields are selected:

- heater selection: cab area; engine area; cab plus engine area;
- day of the week (see figure);
- repetition;
- set hour;
- set minutes;
- set duration (maximum duration 1.59 hours);
- set interior temperature (between 18°C and 30°C).

After selecting the desired field, again using the ⬆ and ⬇ buttons, the field settings can be changed. To confirm the new settings, press the OK button on the steering wheel.





Mirror heating

(if provided)

Mirror heating is active only with the ignition "ON".

Press the relevant button (1) to switch ON rear-view mirror heating; the relevant icon is displayed on screen.

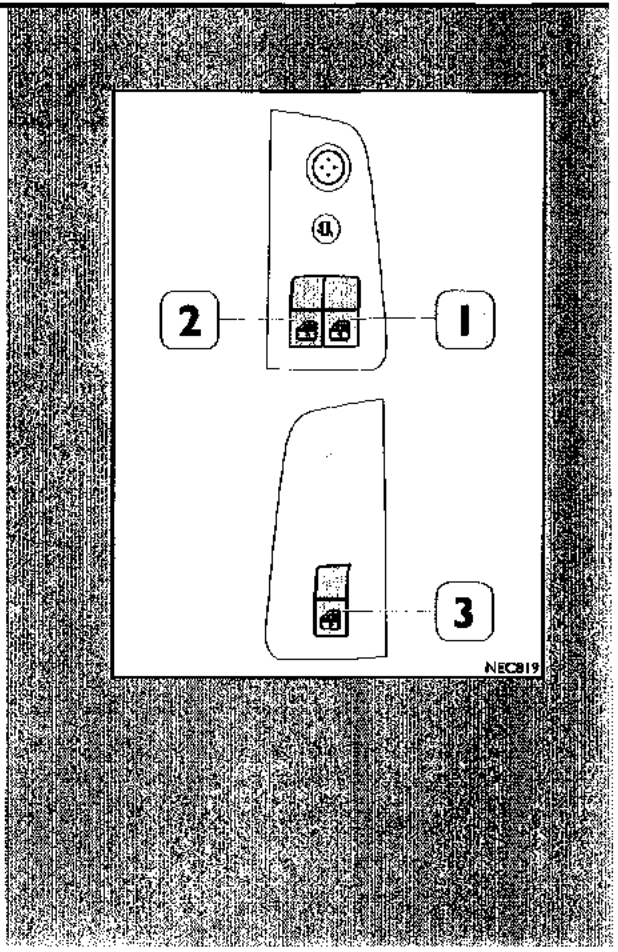
To turn this function off, press the (1) push button again.

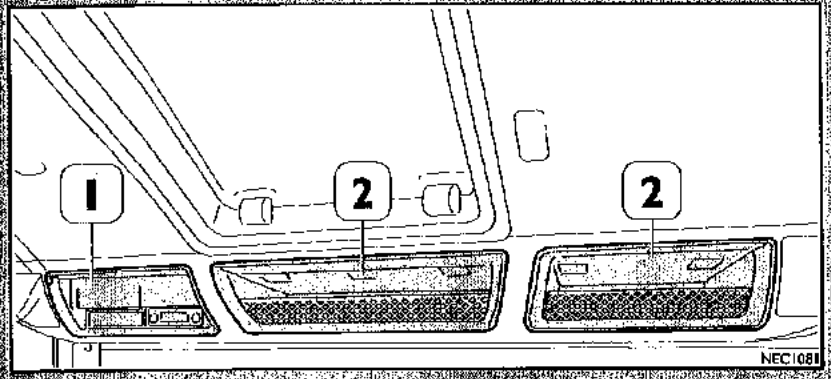
The icon will no longer be displayed. This function can be selected also while driving.

The mirror heating cycle lasts a maximum of 30 minutes.

Power windows

The power window buttons for both driver seat (1) and passenger seat (2) are located on door driver side. The passenger can only operate the windows on the passenger side (3).





Upper panel and cab equipment

Low roof area

There is a console in the top part of the cab above the dashboard for stowing items in general.

1. Panel with compartments for radio and tachograph;
2. Open shelving.

Attention!
Risk of accidents! Do not leave objects in the vehicle while it is moving that could strike the occupants and/or damage the vehicle (e.g. the windows).

- Use the storage/glove compartments that have been expressly provided for stowing objects safely away when driving.

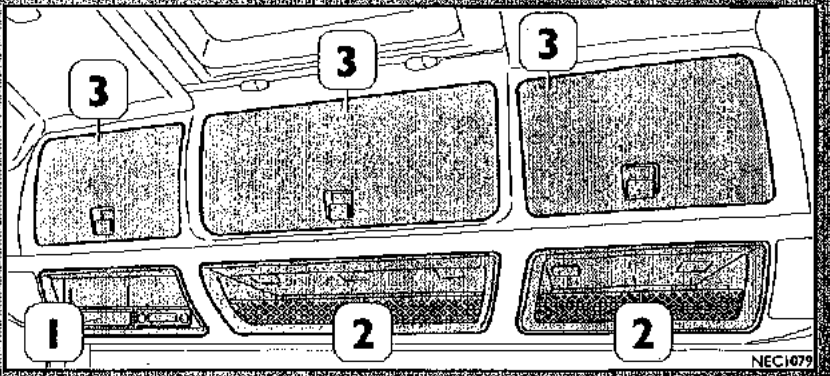
High roof area

This area includes:

1. Panel with compartments for radio and tachograph;

2. Open shelving;

3. Glove compartments with door.



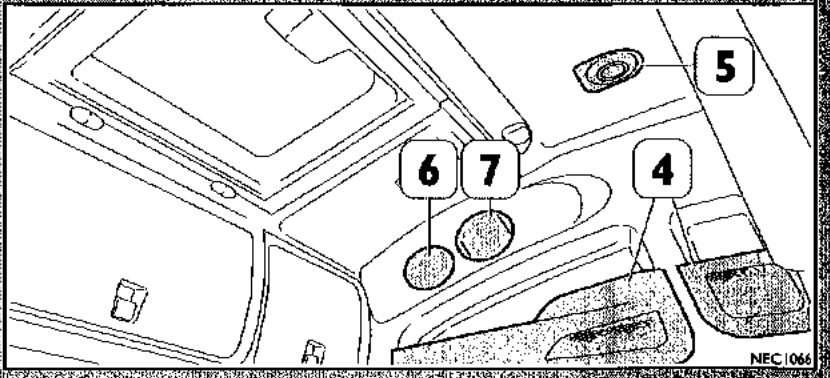
The high-roofed cab also has:

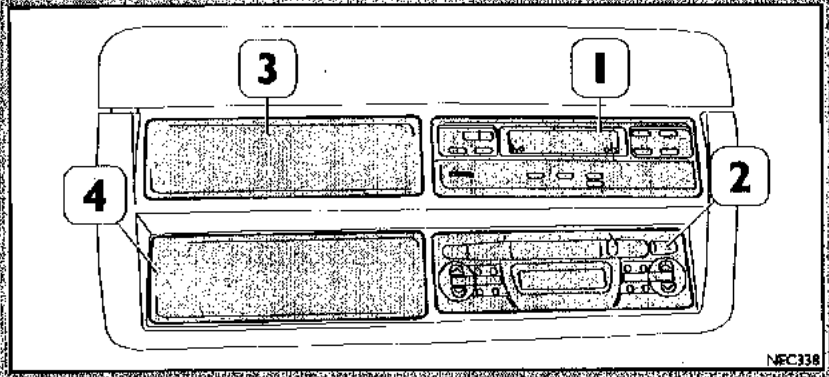
4. Glove compartment;

5. Ceiling light for cab lighting;

6. Pre-installation for additional loudspeakers;

7. Cab ceiling light with dual white / red lighting (night light).





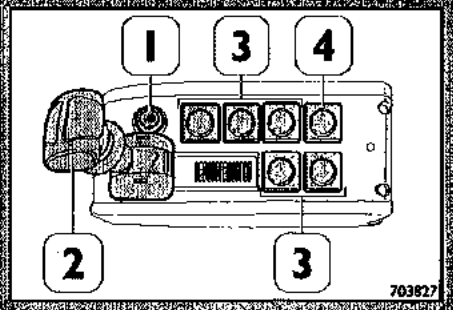
Console on driver's side

1. Electronic tachograph.
2. Compartment for radio.
3. Spare compartment (if a radio is installed, this can house the amplifier or transmitter/receiver unit for a mobile phone, if any).
4. Compartment for CB.

Central tunnel

Vehicles manufactured up to March 2014:

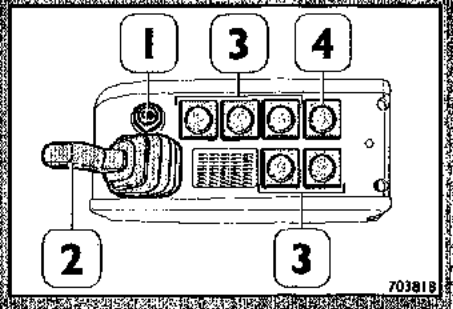
1. 12V socket.
2. Parking brake lever.
3. Pre-installation of pneumatic valves.
4. Pre-installation for Swedish valve.

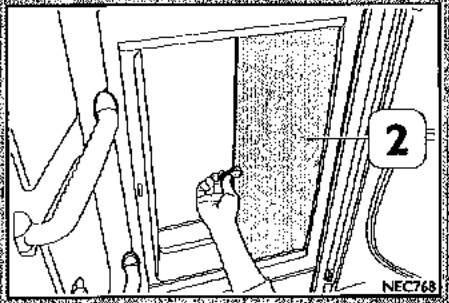


Vehicles manufactured from March 2014:

1. 12V socket.
2. Parking brake lever.
3. Pre-installation of pneumatic valves.
4. Pre-installation for Swedish valve.

The position of the pneumatic valves may vary based on the vehicle configuration.





Rest area

Top bunk + safety net + built-in steps (if provided). To open the bunk, undo the buckles and lower the bunk fully downward. Fasten the protective mesh. A compartment for the built-in ladder is located in the lower part of the bunk.

Note The rest area furnishing may alter according to the options ordered.

Openable hatch with darkening curtain (2)
(if provided).

Available compartments

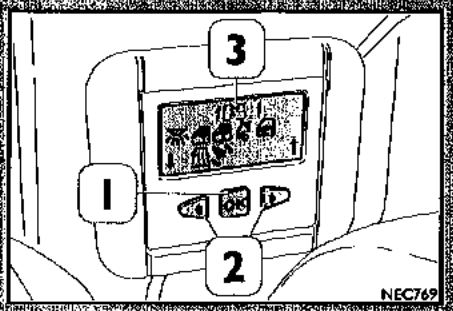
Large compartments are available under the chest cushions. One of these can house the heater. In this case, avoid placing material in direct contact with the heater.

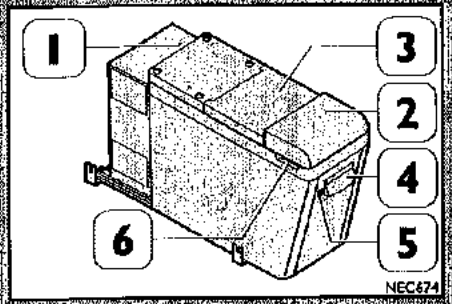
Bunk Module

1. Button to confirm.
2. Buttons for selecting the required function.
3. Clock.

The following functions are available (configuration can vary according to vehicle accessories):

- Hour and minute indication.
- Cab interior lights ON/OFF (white).
- Cab interior lights ON/OFF (red).
- Sun blind opening / closing.
- Door opening / closing.
- Power windows opening / closing.
- Electrical hatch opening / closing.
- Radio and/or compact disc ON/OFF.
- Volume setting of radio and/or compact disc.
- Radio tuning and/or selection of compact disc track.
- Alarm clock function.
- Optional heater ON/OFF.
- Temperature setting (with additional heater on, only).





Refrigerator

1. Adjustable thermostat (OFF-MIN-MED-MAX) on the rear wall. It can be adjusted by inserting a coin or a screwdriver in the slot of the small adjustment wheel.
2. "REFRIGERATOR" compartment cover (to be opened before the compartment cover 3).
3. "FREEZER" compartment cover.
4. Pulling handle.
5. ON/OFF switch with built-in orange warning light in the button.
6. Side niche for facilitating the opening.

When you press the on switch (5), the orange warning light turns ON to confirm the activation.

Access to the (2) "REFRIGERATOR" compartment, e.g. to remove/store bottles, is always possible (even when the vehicle is stopped); however to access the (3)" FREEZER" compartment, it must be removed as follows:

A) Release the hold position by pulling the front handle (4) slightly (upwards to full stroke) and remove the refrigerator by pulling it out.

B) When it is removed, release the handle to retain the position reached; from this position, open the compartment (3) and lower the top partition (max 15°) to access the "FREEZER".

Temperatures reached inside compartments (2) and (3) depend on thermostat setting previously carried out with the control (1).

REFRIGERATOR compartment (2): from 0°C to 4°C.

FREEZER compartment (3): from -10°C to -18°C.

Note Opening the FREEZER compartment (3) cover is possible only after opening the REFRIGERATOR compartment (2).

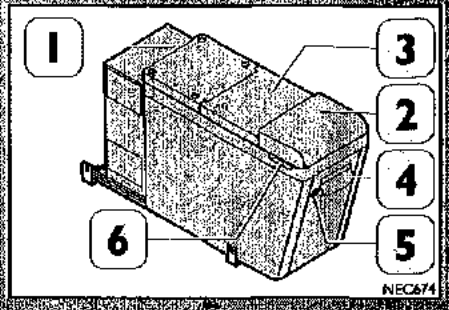
In case of a power failure, the cold temperature accumulated inside the refrigerator makes it possible to preserve the food for a few hours; therefore it is possible to switch OFF the fridge also for power saving purposes.

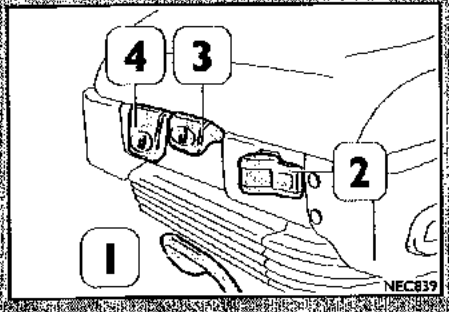
Avoid introducing warm food and make sure that the cover is always closed properly.

Defrosting is required when the frost layer thickness exceeds 4 mm.

Do not use cutting blades or sharp objects for defrosting. For correct maintenance it is recommended to periodically clean the inside of the refrigerator with sodium bicarbonate dissolved in lukewarm water; in any case avoid using abrasive products, detergents and soaps.

Use the sponge located under the cover to wipe out water produced as a result of defrosting. The refrigerator is switched OFF automatically when the cab is tilted.





Air-suspension seat

(if provided)

▶ **Attention!** Adjust the seat only when the vehicle is stationary and check that the seat is fixed into the position selected.

This seat permits the following adjustments:

Longitudinal adjustment

- Pull lever (1) up to release the seat in order to move it forwards or backwards; when releasing the lever, the seat locks in the desired position.

Longitudinal adjustment

- This is achieved through handle (2).

Cushion extension

- This is achieved through handle (3).

Seat tilting

- This is achieved through handle (4).

Backrest adjustment

- This is achieved through handle (5).

Cushion heating

- This is achieved using the switch (6).

Inflation of seat side cushions

- This is achieved by pressing top section of button (7).

Inflation of seat lumbar cushions

- This is achieved by pressing top section of buttons (8)-(9).

Vertical adjustment

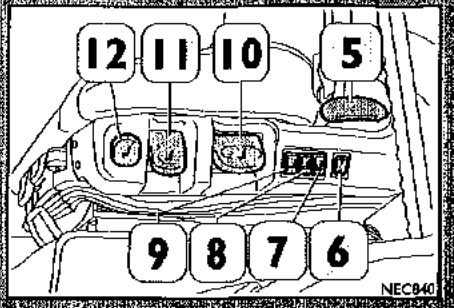
- To raise the seat pull the handle (10) upwards, to lower the seat push the handle downwards (stepwise adjustment).

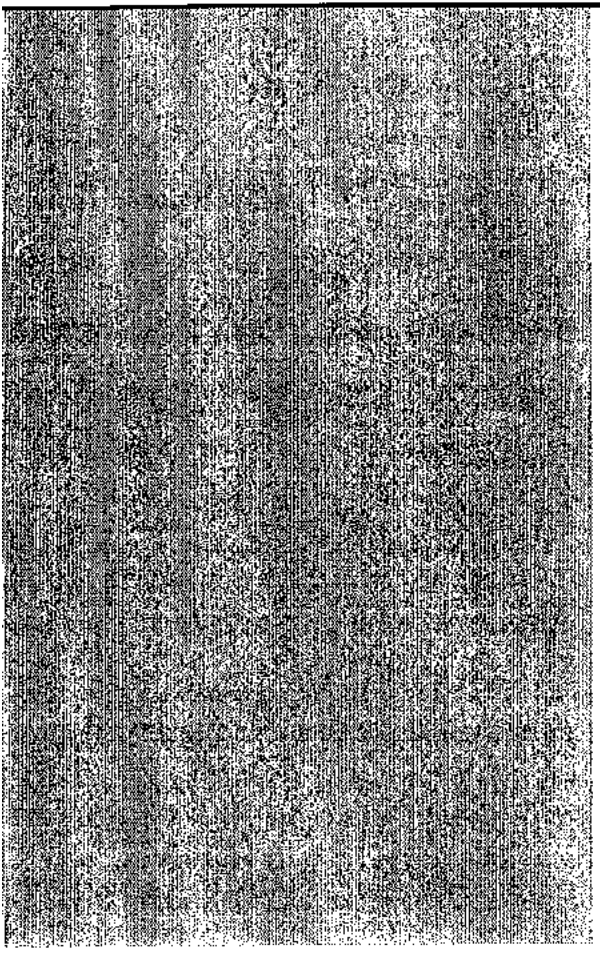
Vertical shock absorber adjustment

- This is achieved with the control (11).

Seat activation and quick air bleed (ON/OFF)

- This is achieved with the control(12).





Rotary device adjustment (for passenger seat, only)

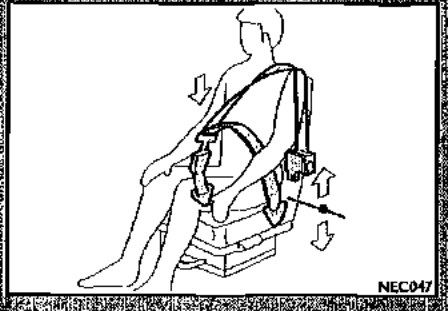
Pull the side lever backwards (below adjustment controls) and turn the seat. The seat can be locked in three different positions: driving direction (straight ahead), 90° and 180°.

Attention! Be sure to use the seat only in the driving direction while driving.

Seat belts

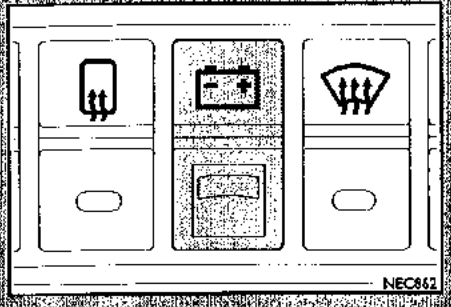
To fasten the seat belt, grip the tongue and insert it into the buckle until hearing the catch engage. To release the belt, press the button located on the top end of buckle.

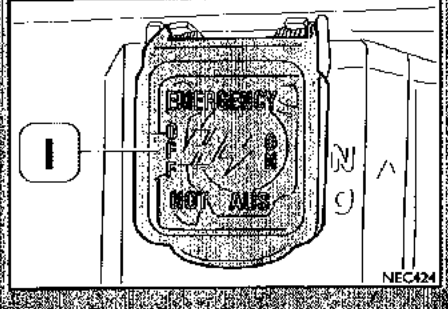
The belt does not require manual adjustment: the belt adjusts automatically to the length most suitable for the driver, allowing full freedom of movement, provided that none of these movements are sudden. The mechanism is sensitive to changes in the vehicle position and so the belt may lock in the following circumstances: braking or sudden acceleration, vehicle on a slope or in a curve.



Warning:

- Move the backrest in nearly vertical position; positions of the seat that interfere with the correct position of the belt represent a risk for occupants and therefore they must be avoided.
- The belt must pass between the neck and the shoulder.
- The belt must not be twisted and must fit comfortably on the lap but not over the abdomen, to avoid the risk of slipping forward.
- From time to time, check that the anchoring screws are fully tightened and that the belt is not cut or frayed.
- If the vehicle is involved in any non-minor accident, replace the belt worn at the time, even though it may appear undamaged: replace when torn or worn (contact *Service Network*).
- Do not undertake modifications that could reduce seat belt functionality.





Manual battery isolator switch

(if provided)

When the vehicle is parked for longer than one day, disconnect manual battery isolator switch according to the instructions provided on it. For 10 seconds after switching OFF the engine (key to OFF), button operation is blocked, unless the additional heater is ON. In this case, switch the additional heater off, then press the button; then wait until the heater washing cycle is completed (approx. 3 min.).

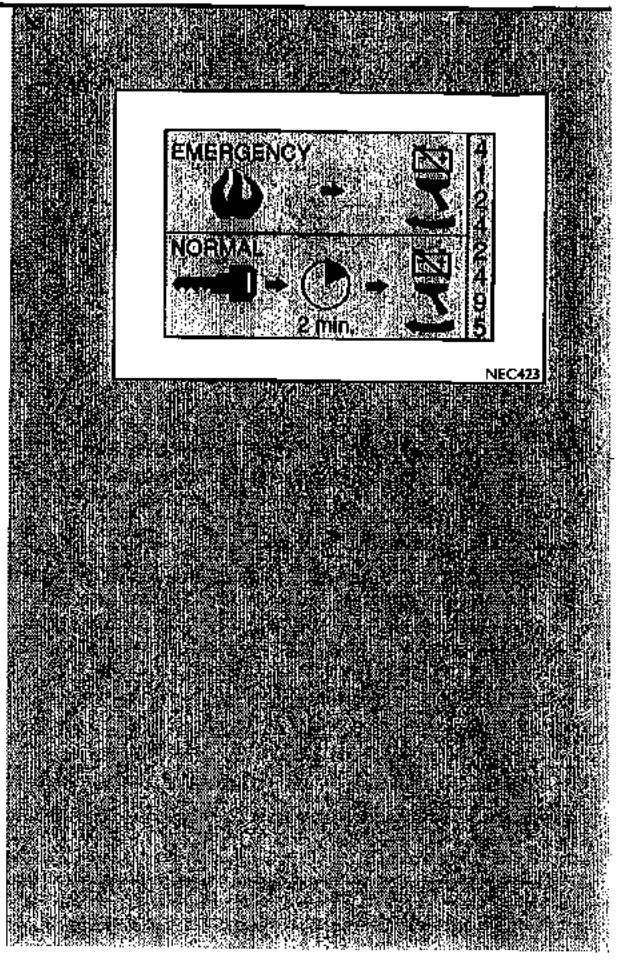
ADR - transport of dangerous goods

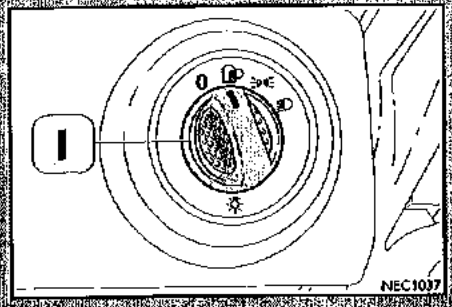
(if provided)

On some versions (ADR - transport of dangerous goods), the battery isolator can be supplemented with switch (1), which must be operated solely by following the information on the illustrated plate next to it.

The ADR switch blocks the electrical system!

When the ADR main switch is pressed, central locking no longer works, with or without the remote control. Both doors must be closed manually.





External light switch

External lighting is turned on using the switch (1) and the steering column switch - left lever.

Switch (1) positions:

O = All off.

= Daytime running lights.

= Side (parking lights) and markers.

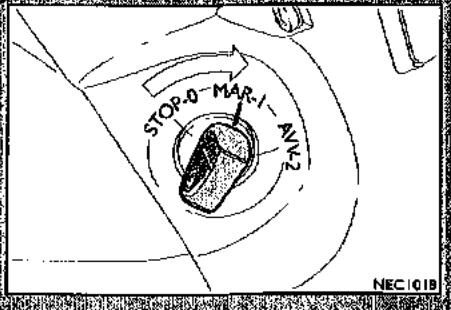
= Engagement of low beam lights, pre-installation for high beam light switching.

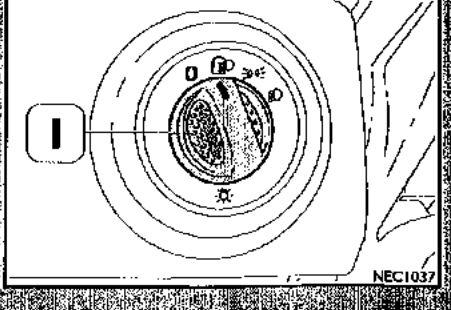
= Position unavailable.

Daytime running lights (D.R.L. - Day Running Light)

(if provided)

With the ignition key in the MAR-I position and switch (1) in position of the symbol the daytime running lights turn on. The warning light appears and both the dashboard and the dashboard controls light up. The fog lights can be engaged while the daytime running lights are on.

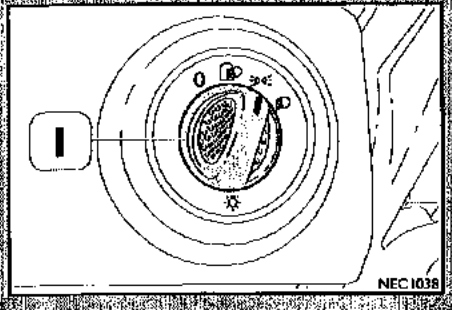


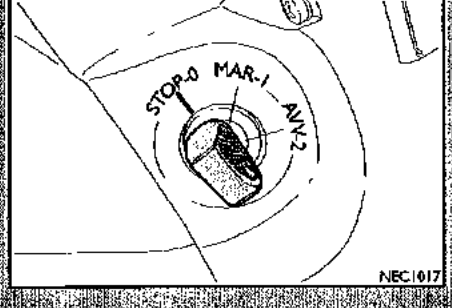


Note Stressing that the use of daytime running lights is regulated by the Highway Code in the country where the vehicle is operated, we remind you that:

– the daytime running lights are an alternative to the low beams during daytime operations where this is required by law. They are permitted where not required.

– the daytime running lights do not replace the low beams when driving at night or inside tunnels.





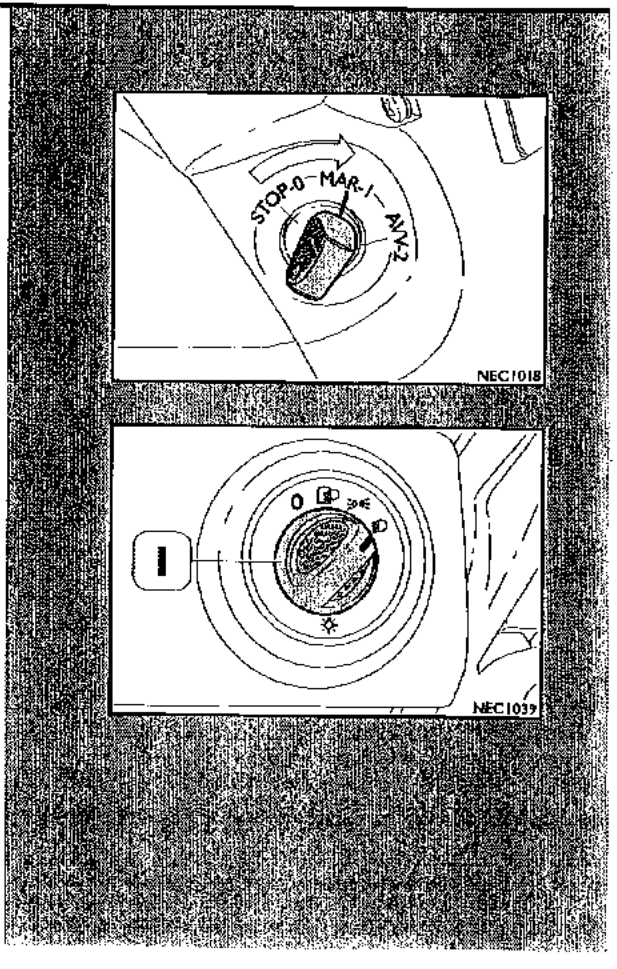
Side lights

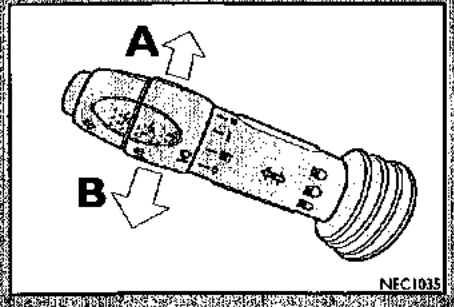
To engage the side lights move the switch (1) to the symbol ≡D◊≡. The ≡D◊≡ warning light appears and both the dashboard and the dashboard controls light up. The side markers switch on when the side lights are engaged.

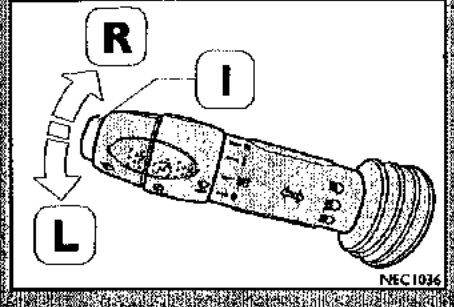
Note With the key in the STOP-0 position, the side lights can be engaged. In this condition, a warning buzzer is activated when opening the driver's door.

Low beam / high beam lights

With the ignition key in the MAR-1 position and switch(1) in position of the symbol ≣D the low beam lights turn on.







Steering column switch - left lever

High beams

To engage the high beam lights move the steering wheel lever in the direction of arrow A. The ≡D warning light will switch on.

Flashing the headlights

Pull the lever in the unstable position towards the steering wheel in direction of arrow B. The ≡D warning light will switch on.

Move the lever to the stable position:

- Up ('R' position): Right turn indicator is engaged, the warning light ➡ flashes on the dashboard.
- Down ('L' position): Left turn indicator is engaged, the warning light ⬅ flashes on the dashboard.

The turn indicators automatically turn off when the vehicle is once again driving straight.

Horn = push button on end (1).

Windscreen wiper control

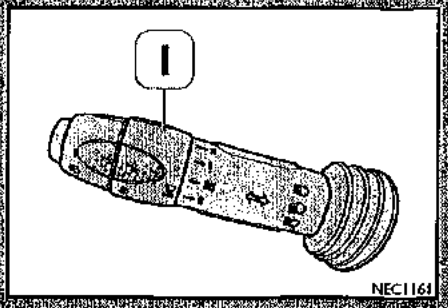
Single windscreen wiper stroke = sliding movement.

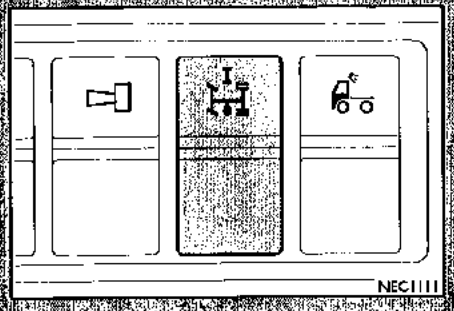
OFF /intermittent = rotary movement of ring nut (1).

Fast/slow speed = rotary movement of ring nut (1).

Windscreen and headlight washers = axial movement of ring nut (1).

Note The headlight washing function is active only with outer lights ON.





2. Engine PTO.

Operation:

- Engine rpm: up to a maximum 1000 rpm.
- Press the button of the relative PTO. The PTO is engaged
- The display will show the indicator light (7) or indicator light (8) (depending on the version) and the engine speed will return to that of cutting in (depending on the version).

Note If the PTO fails to engage after 10 secs, set relevant button to OFF and repeat procedure described. For special versions, PTO parameters can be modified using the Modus tool at any Service Network centre

Differential lock

The differential lock must only be used when driving on muddy and slippery surfaces.

Vehicles equipped with a front differential lock

3-position control

0 = front, rear deactivated.

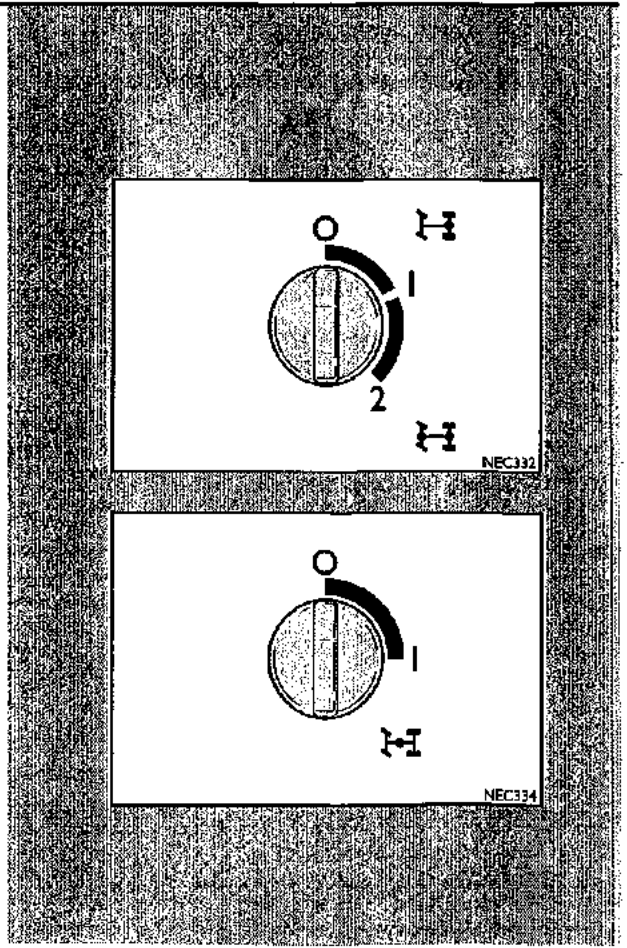
1 = rear engaged, front disengaged.

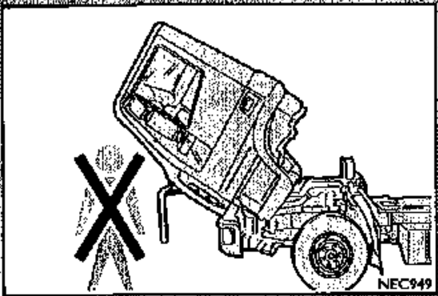
2 = rear and front engaged.

Transfer box lock (2 positions)

0 = not locked.

1 = locked.





Cab tilting

Attention!

Tilt the cab only with the front grille completely open.

Attention!

Risk of accidents. Before tilting the cab:

- Engage the parking brake and stop the engine.
- Remove all non-constrained or heavy objects from the cab.
- Leave an area in front of the cab and all the overlying area free.
- For operations to be carried out with the cab tilted it is essential never to leave it in an intermediate position.
- Tilt the cab only with the front grille completely open.

- **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the mechanical position as described in section "Use of parking brake".

Attention!

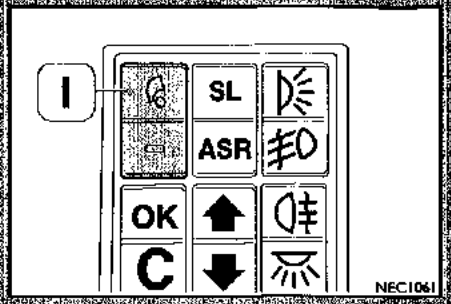
- **Risk of personal injury.** When tilting the cab, make sure no one is standing in front of it.
- Do not open the doors when the cab is tilted, cab weight is difficult to support.

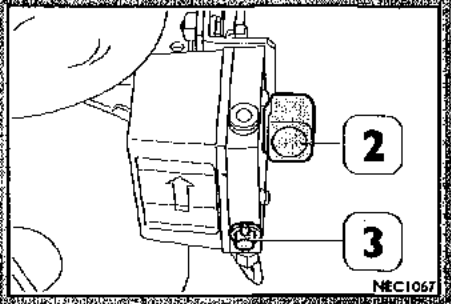
To tilt the cab, proceed as follows:

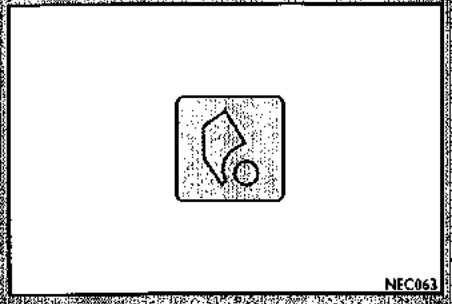
- Press the button (1) on the dashboard.
  The display shows the icon "Cab tilting engaged" (⛟) and the yellow fault indicator turns ON on the instrument panel.
- After making sure that the parking brake lever is mechanically locked in place, exit the vehicle and go to the cab tilting control (hydraulic or electrical, depending on the vehicle model or option), located on the side of the vehicle.

- Insert the lever in the seat (3) and move the reference to the pressurised circuit position.
- Insert the lever in the hand-operated pump (2) drive.
- Raise the cab by operating the lever.

If the hydraulic system is faulty, the cab may be tilted mechanically (e.g. using a crane) after removing the gearbox connection bar and releasing the cab.







Cab lowering

- Move the lever to the circuit decompression position.
- Alternatively operate the lever as for the tilting operation, until completely lowering the cab.
- Make sure that the "cab tilted" warning light on the display is OFF.

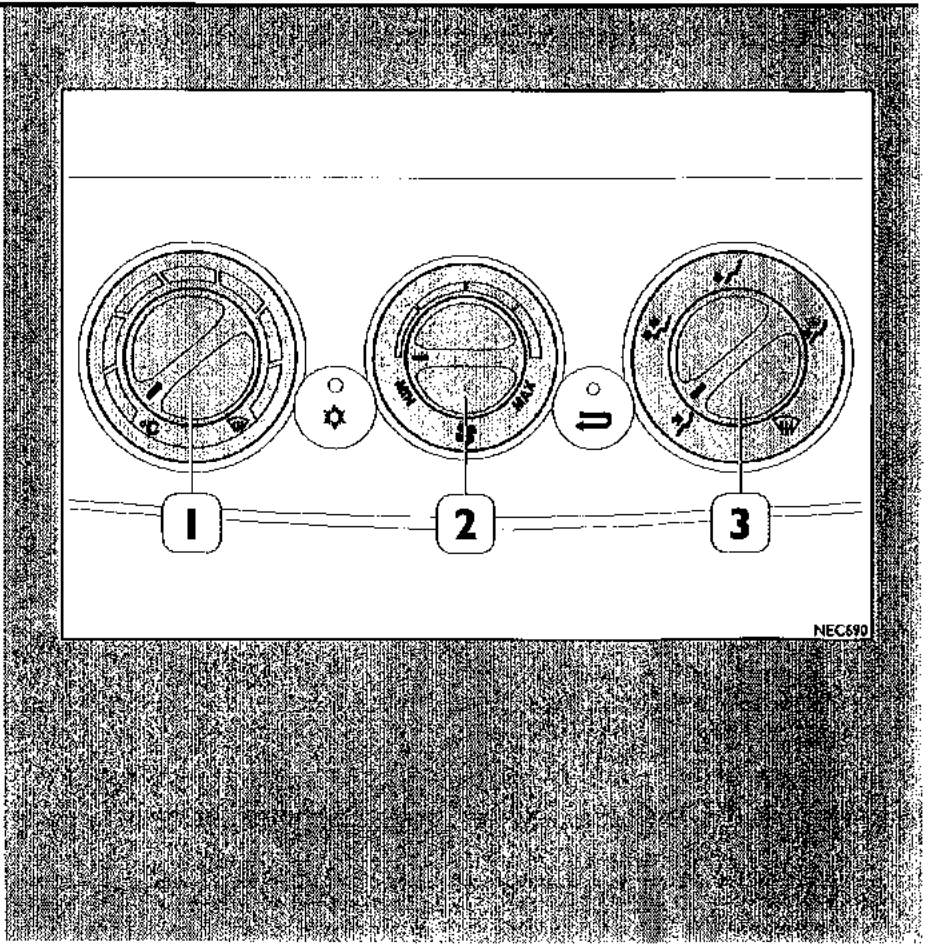
Heating and ventilation

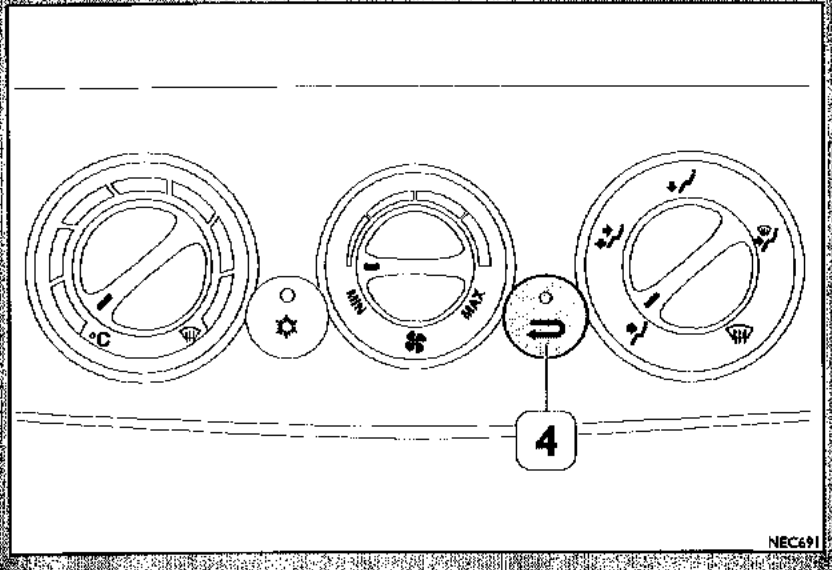
1. Knob for adjusting the air temperature (max and min air temperature/rotation to left cool air - rotation to right hot air - windscreen defrosting).

2. Electro-fan knob with relative operating speeds and operating selection (max and min operating speed/ rotation to left towards minimum speed - rotation to right towards maximum speed).

3. Control knob for air intake:

- air towards occupant's head.
- air towards occupant's head and feet.
- air towards occupant's feet.
- air towards occupant's feet and windscreen.
- air towards windscreen.





4. Switch to turn on air recirculation: prevents the entry of external air.

The prolonged use of recirculated air may make the cab environment unpleasant and cause the windows to fog. If this occurs, turn off the recirculation. This function is particularly useful with high amounts of external pollution (in queues, in tunnels, etc.) and in order to quickly heat up the driver's cab. It is not recommended to use it for long periods, especially when not alone in the vehicle.

Do not use the recirculation function during a rainy/cold day as this could cause the windows to fog up inside.

5. Air conditioner on/off switch.

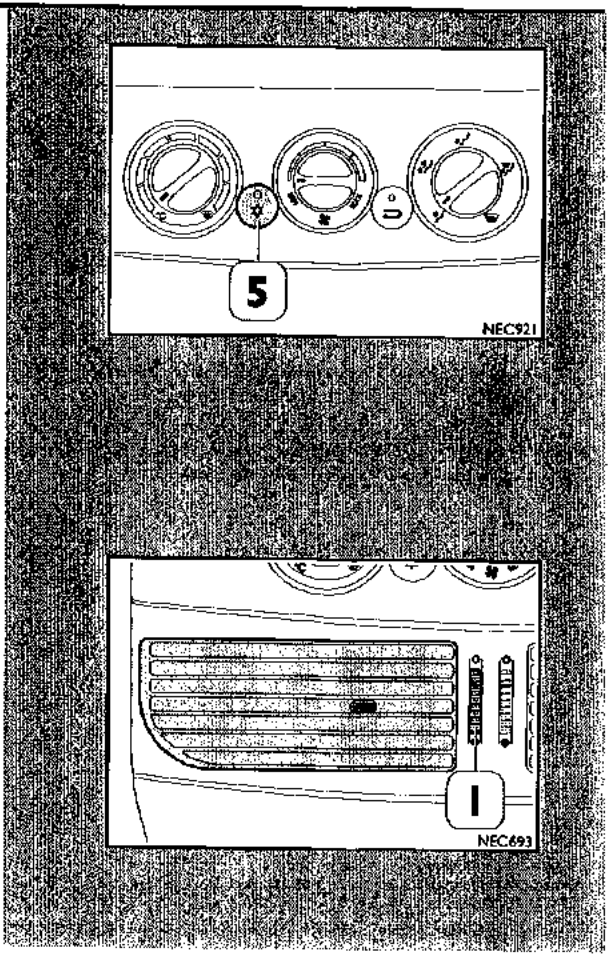
An important feature of the climate control unit is air dehumidification. It is advisable to use it to avoid possible misting.

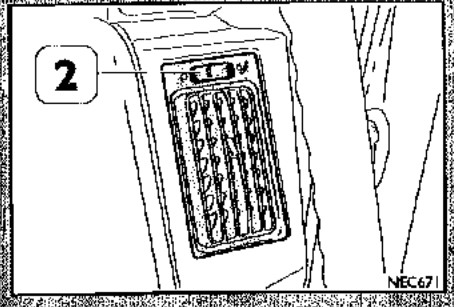
The system uses R134a coolant that, in the case of accidental leaks, does not harm the environment. Do not use R12 liquid (or others) as it is incompatible with the system components and contains CFC (chlorofluorocarbons).

During winter, the system must be operated at least once a month for 10 minutes.

Attention!
Risk of injury: the cryogenic fluid is pressurised and may cause damage due to freezing if it comes into contact with the skin.
▶ Do not tamper with the air conditioning circuit.

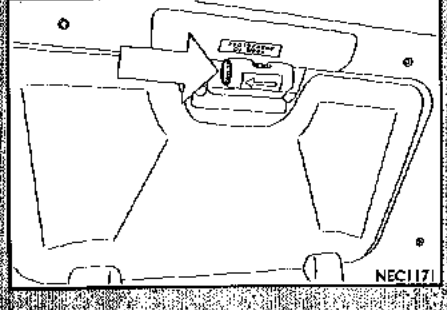
Air vents on the dashboard
(turn the knurled (1) wheel up to open - down to close).





Air vents for side and passenger windows

(turn the knurled (2) wheel to the right to open - to the left to close).



Manually opening hatch

(if present)

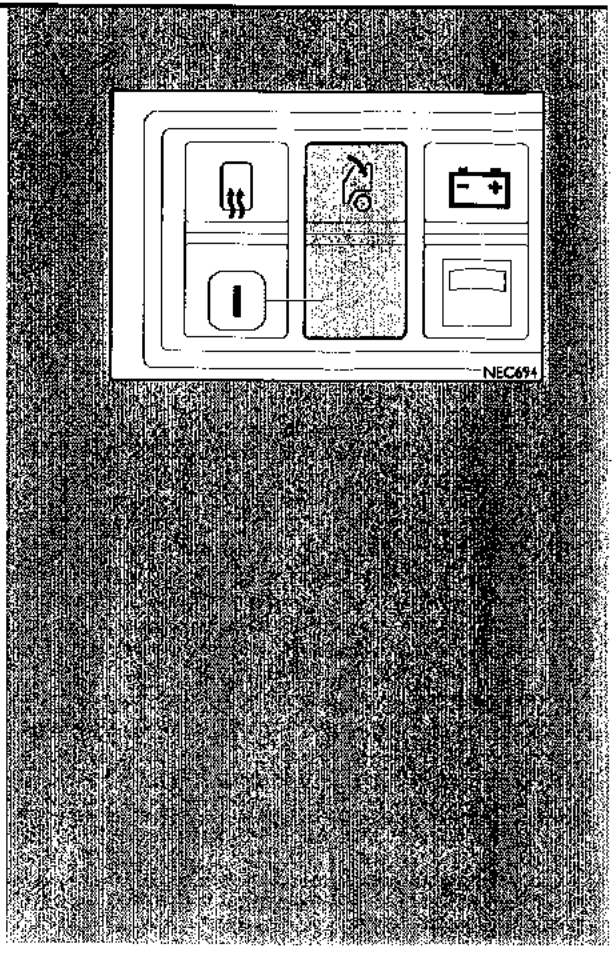
To open the hatch, press the red button shown in the figure and push the handle.

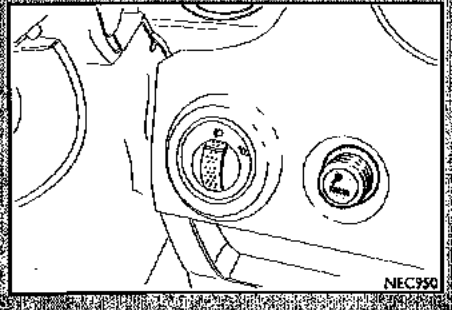
To close the hatch, press the button and pull the handle towards you.

Electrical hatch

(if provided)

Press the button (1) to open or close the hatch.





Cigarette lighter

It is located on the central dashboard. To activate it, press the button.

The button automatically returns to its original position after a few seconds, and the cigarette lighter is ready for use.

Attention!

- Always check that the cigarette lighter switches itself off. The cigarette lighter reaches high temperatures. Handle with care and do not let children use it (risk of fire and/or burns).
- Do not use the ashtray both for cigarette butts and paper (it could catch fire).
- Never use the cigarette lighter as a power socket to connect auxiliary electrical devices.

Voltage reducer

The vehicle system power supply is 12V.

A connection with a voltage reducer is provided on the cable inside the cab (from 24V to 12V).

Never connect an apparatus directly to the 12V output of a single battery.

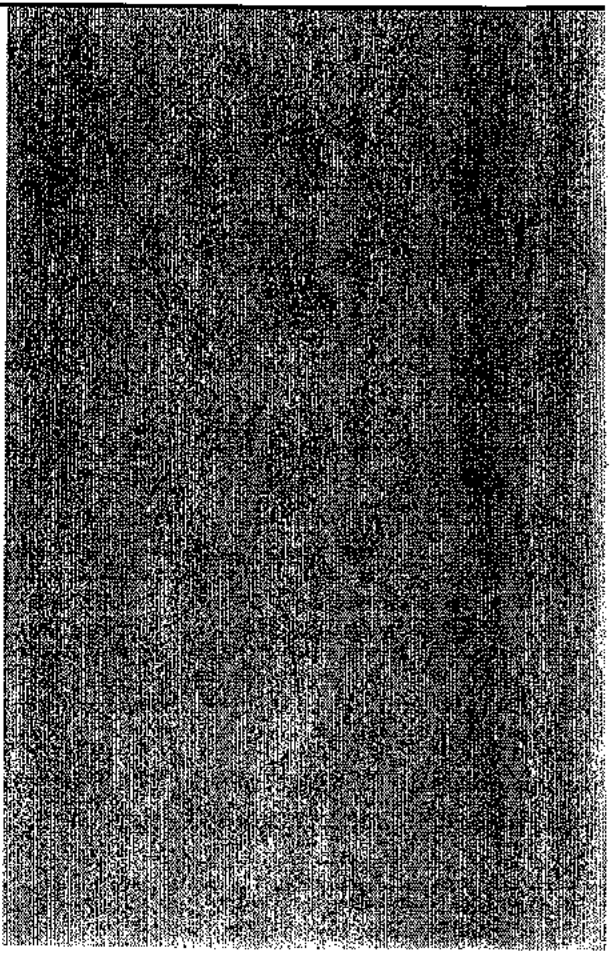
Attention! The voltage reducer (by IVECO) is preset for 20 A max. current absorption at a temperature of 30°C, as measured at the height of the equipment compartment located on the upper cross-member. (At 60°C max. absorption is 10 A). It should not therefore be used for other devices with higher current absorption.

Attention! Power socket There is a socket for connecting supplementary electrical equipment.

Attention! The power socket may be destroyed! Connect only appliances with maximum rating equal or lower to the socket rating.

Attention!

- Connect only devices with pins with a positive pole in the centre of the socket.
- Extended use of the power socket when the engine is not running might discharge the battery.



- The connected supplementary electrical devices must have electromagnetic compatibility compliant with current regulations in order to avoid disturbance of vehicle operation.

Trailer coupling

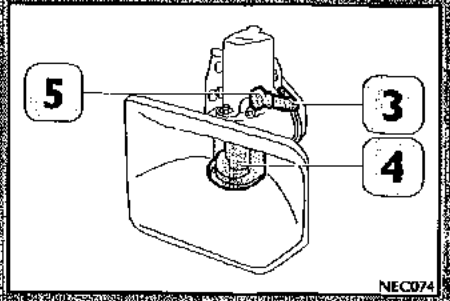
(if provided)

Tow hook Rockinger

Make sure that the lever (3) is in the vertical position (pin lifted).

Coupling is automatic when the trailer drawbar presses against the safety device (4). Lever (3) tripping from the vertical to the horizontal position indicates that coupling is complete. To make sure, check whether pawl (5) is level to its seat. To release the trailer, put lever (3) in the vertical position until pawl (5) protrudes from its seat.

When the hook is not being used, it is always advisable to keep it in a closed position.



Tow hook Ringfeder

- Carry out the coupling by pulling out the safety knob to release it, after having turned it by 1/4 turn in a counter-clockwise direction.
- Lift the coupling lever at the same time.
- Carry out the (automatic) hooking then check whether the safety knob is in the correct position.

Regulations for trailer towing

- Carry out an inspection around the vehicle making sure that it is parked in a safe place, not on a slope or soft terrain.
- Secure the trailer with chocks under the rear wheels.
- The front axle of the trailer must remain movable.
- Adapt the height of the drawbar of the trailer to that of the tow hook.

- Before reversing make sure there is no one between the tractor and the trailer.

After coupling:

- Engage the parking brake.
- Check that the connection has been carried out correctly.
- Connect the joints of the pneumatic pipes and electrical cables.
- Check the efficiency of the braking system and lights.
- Check that the hook and the relevant cross member are secured before starting the vehicle.

▶ **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the mechanical position as described in section "Use of parking brake".

While driving:

- Drive with particular care when towing a trailer.
- If stopping uphill or downhill, make sure the parking brake works perfectly; the vehicle must be prevented from moving.

Important

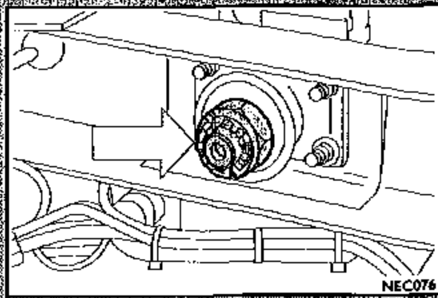
Retighten the tow hook nut to the correct torque.

To perform the operation, first remove the cotter pin that holds the nut.

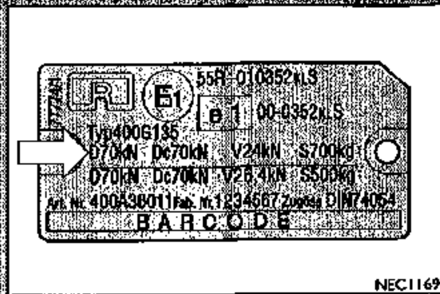
REAR TOW HOOK TIGHTENING TORQUES			
D	BALL DIAMETER	ROCKINGER	RINGFEDER
		Torque (Nm)	
70	40	350+50	minimum 350
	50	minimum 350	350÷450
120	40	630±130	minimum 500

Value "D" is indicated on the plate fixed on the tow hook:

- Rockinger hook



NEC076



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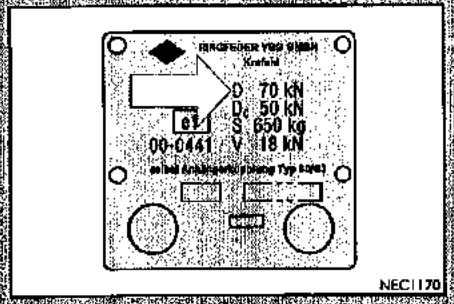


- Ringfeder hook

Reinsert the cotter pin after completing the operation.

If, after tightening the nut to the required torque, the hole for inserting the cotter pin does not coincide with one of the spaces between two contiguous teeth of the nut, do not reduce the tightening torque, but increase it enough to be able to insert the cotter pin. This ensures correct nut tightening.

Accessories fitted by the user

While reminding you that Iveco shops offer high-quality products, we recommend that you follow the following advice:

- In case of additional drilling (e.g. hole for radio aerial) on the cab panelling, suitably protect the part concerned, to prevent early oxidation on internal or external surfaces.
- Take care when fitting (knocks by screwdriver, interference, etc.), to avoid permanent damage to the paint.

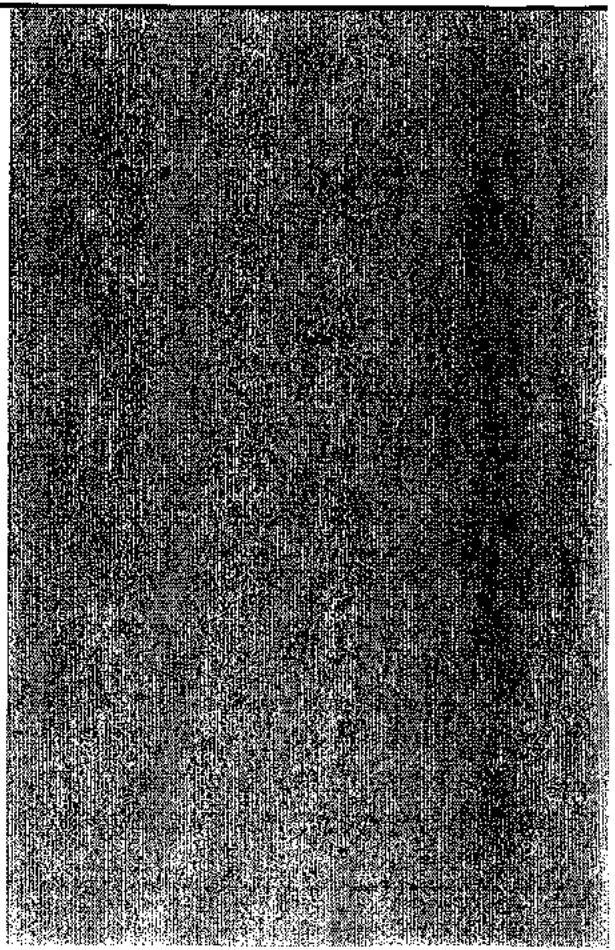
Attention: Disconnect the battery negative pole and then the positive pole before carrying out any work on the vehicle.

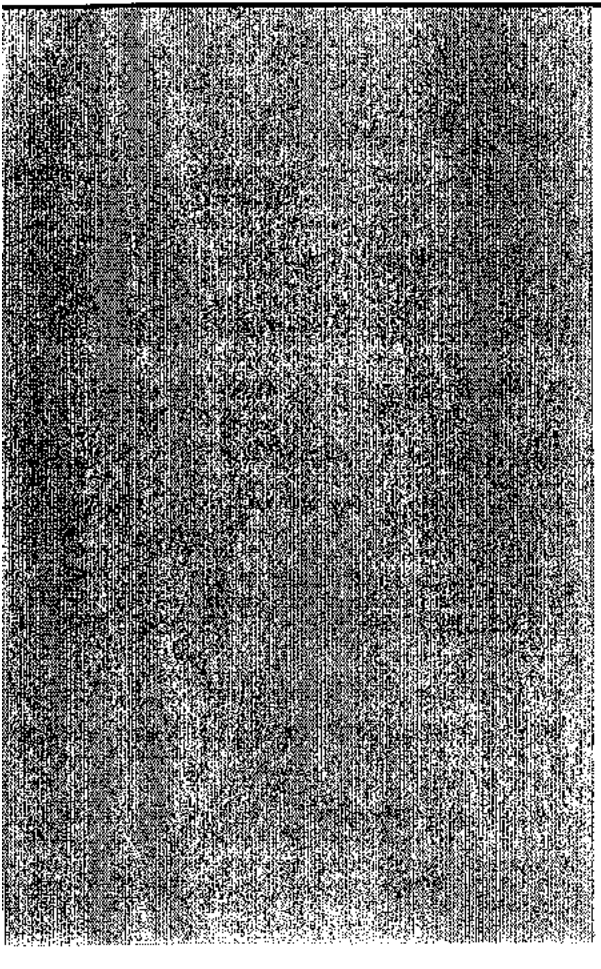
Self-adhesive decals

The removal or application of self-adhesive decals must not be done with sharp tools (e.g. blades, knives, etc.) as they could cause deep scratches on the paintwork with consequent early corrosion of the underlying material.

Radio transmitters and mobile phones

Mobile phones and other radio-transmitter devices (e.g. CB) cannot be used inside the vehicle unless a separate antenna is fitted on the outside of the vehicle. The use of mobile phones, CB transmitters or similar inside the driver's cab (without an external aerial) produces radiofrequency electromagnetic fields which, when amplified by the resonance effects inside the driving area, may cause potential health hazards as well as malfunctions. These may affect the electronic systems fitted in the vehicle, such as the





various electronic modules, ABS, etc.., that may compromise vehicle, and your own, safety.

In addition, the transmission and reception efficiency of these devices may be degraded by the shielding effect of the bodywork.

Installation of additional electrical equipment

Do not install additional electric/electronic equipment not provided for by IVECO or illegal (e.g. C.B. equipment with power levels above the legal limit of 5 W, which could cause noise or electromagnetic interference).

Installation of electric/electronic devices

Installation of accessories, additions and any modifications to the vehicle are to be executed in compliance with the "Directives for converting and fitting out vehicles", available from the Service Network workshops. You are reminded that, particularly for the electrical system, various electrical outlets are provided as standard (or available as an option) in order to simplify and standardise the body builder' work on the electrical system. IVECO authorisation is required for any exception to the "Directives for converting and fitting out vehicles". Failure to comply with the above prescriptions will invalidate the warranty, and in certain cases, the possible loss of vehicle type approval.

INSTALLATION OF ELECTRIC/ELECTRONIC DEVICES

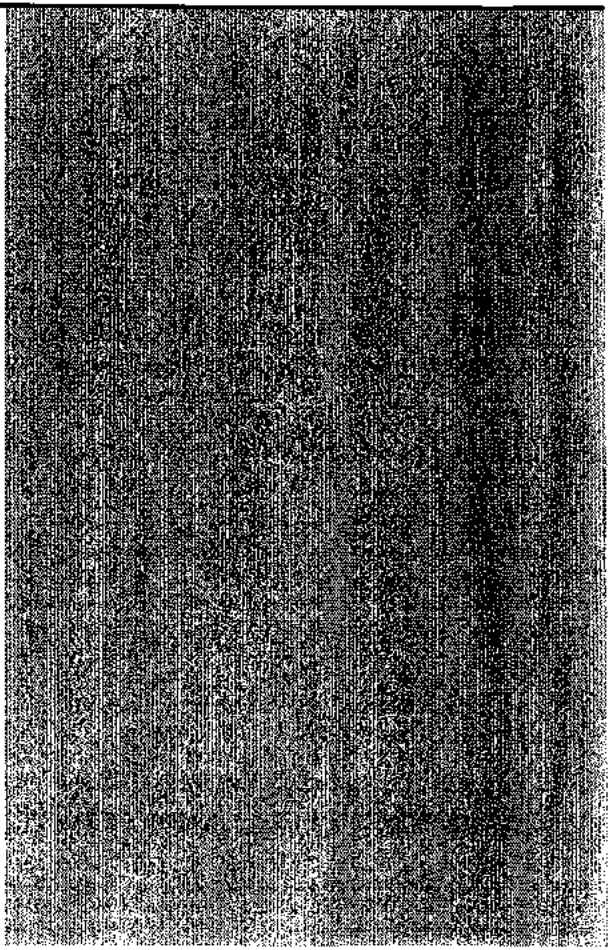
Any electric/electronic devices installed after purchasing the vehicle in an after-sales situation must carry the following mark:

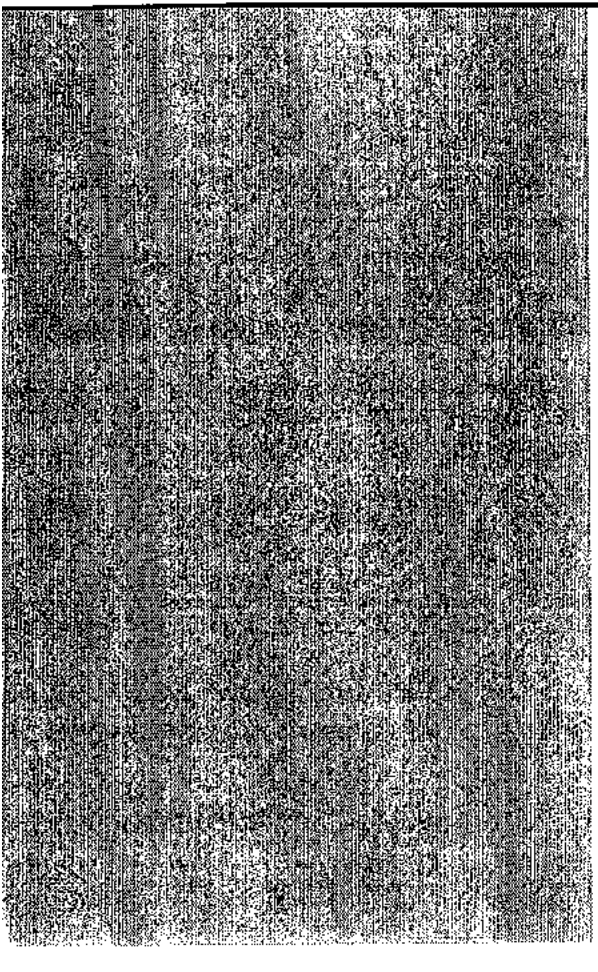
e CE

IVECO authorises the installation of transceiver equipment provided it is installed by the IVECO Service Network in compliance with the manufacturer's instructions.

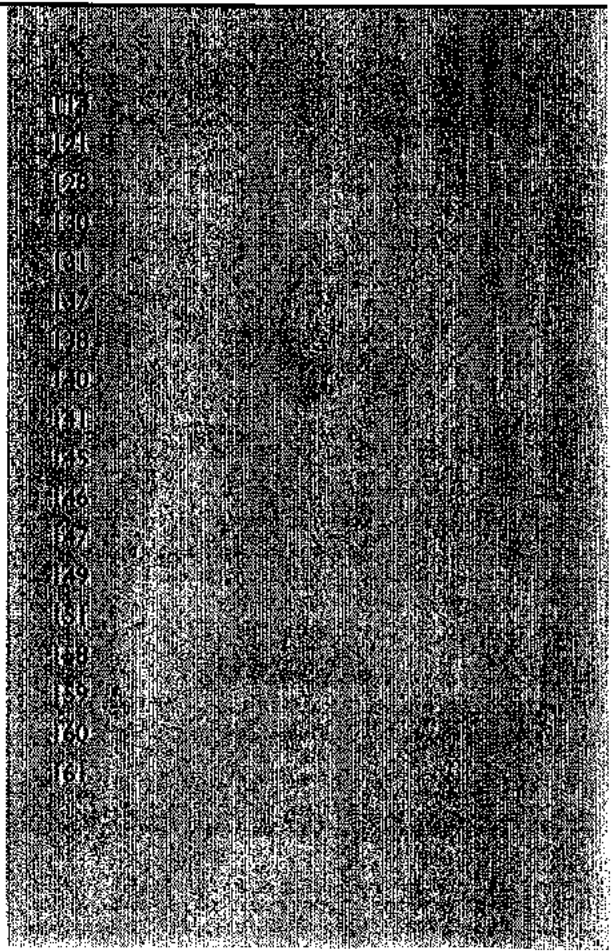
ATTENTION: the installation of devices that modify the vehicle's characteristics may lead to the vehicle being considered as not roadworthy by the relevant authorities and may also lead to invalidation of the warranty, limited to the defects caused by these modifications or to defects directly or indirectly traceable to them.

Important! It is forbidden to carry out any modifications to or detach the wiring from the electrical control units; in particular the connecting line between the control units (CAN line) must not be tampered with.





Start-up and driving



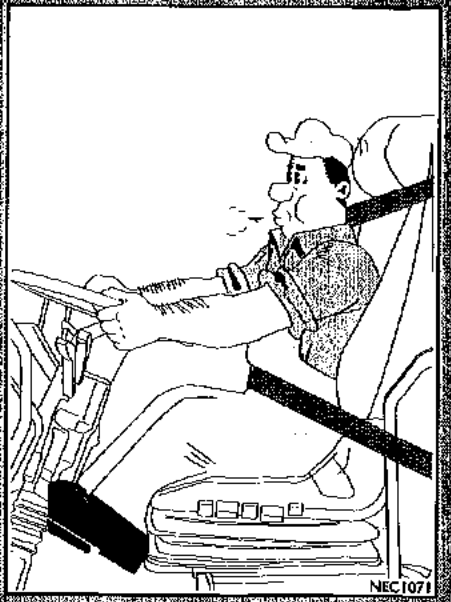
Driving safely

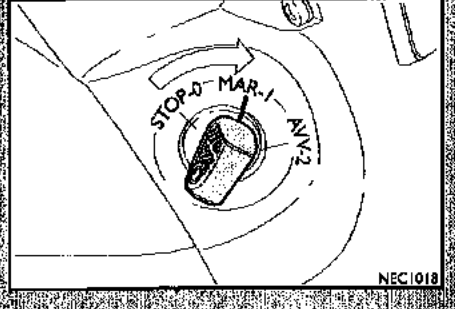
Before starting to drive

- Adjust the seat, wheel and rear view mirrors to the optimum position for driving.
- Check that nothing hinders pedal motion.
- Check horn operation.
- Check the external lighting and, if necessary, clean the light assemblies.
- Check that beam alignment is set correctly, particularly for night driving.
- Check that there are no leaks of oil or other fluids under the vehicle.
- Check that any load is correctly stowed.
- Finally, check that the parking brake is released and that the indicators and warning lights on the dashboard are not indicating any faults. In order to avoid accidental movements of the vehicle, disengage the parking brake while pressing the pedal brake.
- Fasten the seat belts correctly.

Driving

- Long journeys should be undertaken only when the driver is in perfect shape.
- A light meal, based on easily digestible food, will help keep reflexes ready and ensure the concentration necessary for safe driving.
- Abuse of alcohol, drugs and/or certain medicines is very dangerous. Never drive under the influence of alcohol or the effect of drugs or narcotics.
- Careful driving also means being in a position to predict the careless or incorrect behaviour of others, maintaining the speed limits and using the correct lane when on the motorway.
- Always comply with the stopping and driving times indicated by the chrono-tachograph (if fitted).
- Use the indicators when changing direction.
- Keep a safe distance from the vehicle in front; this distance varies depending on speed, weather conditions and traffic and road conditions.
- Do not drive with one hand resting on the gear shift lever; the unintentional force (if even light) applied will cause unnecessary wear on the elements inside the gearbox.
- Do not drive with the gearbox in neutral.
- To avoid early wear on the clutch, never start driving using the long gears.
- Do not drive with a foot on the clutch pedal; this habit can cause early wear of the clutch components.
- Do not drive for too long without a break; stop at regular intervals to stretch legs and freshen up.
- Use the numerous settings of the heating and ventilation system or the air conditioning system to ensure a constant exchange of air.





- Travelling downhill with the engine off: under these conditions, there is no braking effect from the engine and therefore a larger force is required on the brake pedal: use the engine brake with low gears to avoid overheating the brakes.
- If you break down, park the vehicle off the road, switch ON the hazard warning lights and position the warning triangle to signal the presence of the vehicle. Always comply with the current Highway Code.
- Do not apply decals or other stickers on the windows: they may distract or obstruct vision.
- Throwing burning objects such as cigarette butts out of the windows when the vehicle is moving could be dangerous for persons, for other vehicles, for the surrounding environment and for the goods being carried. It could also be hazardous for the vehicle itself.

Parking

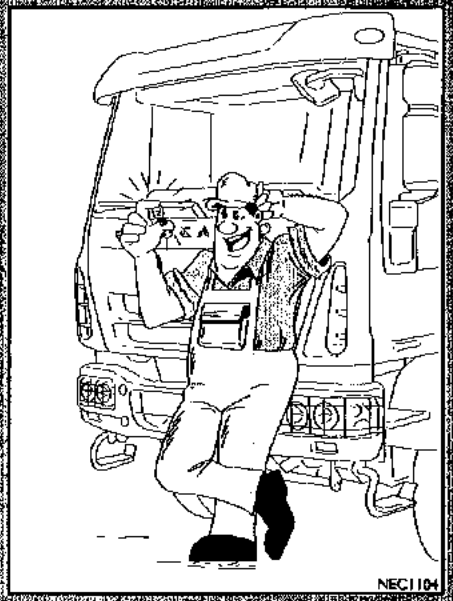
If it is necessary to leave the vehicle stationary, proceed as follows:

- Switch off the engine.
- Engage the parking brake.
- Engage the 1st gear if the vehicle is on an upward slope or reverse if the vehicle is facing downward (only for vehicles with manual gearbox).
- With the engine off, to avoid pointless current absorption and discharging the batteries do not leave the ignition key switched on.

▶ **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the engagement position as described in section "Use of parking brake".

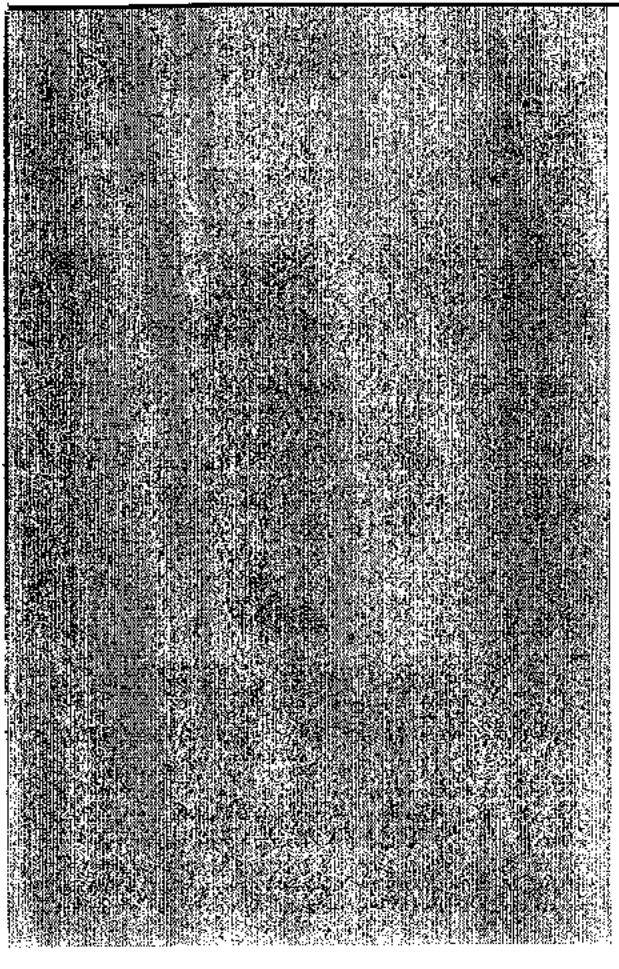
Driving at night

- Drive with particular care, where necessary reducing vehicle speed, particularly on unlit roads. Keep a safe driving distance, greater than when driving in daytime: in fact it is more difficult to estimate the speed of a vehicle when you can only see the lights.
- Stop and take a break at the first signs of drowsiness: continuing would be dangerous for you and for others.
- Use the high beam lights only away from built-up areas and only when doing so will not create any difficulty for other motorists.
- Switch from the high beams to the low beams when encountering other vehicles.



Driving in rain, fog and snow

- If the road is wet, the friction between the wheels and the road surface is greatly diminished and this increases braking distances and reduces adhesion in bends: reduce vehicle speed and keep a greater distance from the vehicles in front.



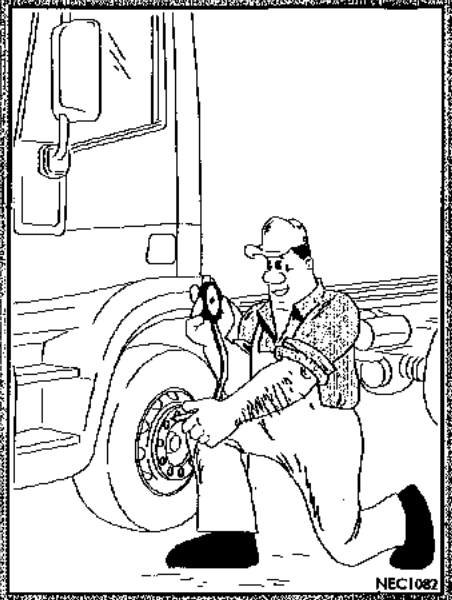
- Heavy rain and fog reduce visibility; to make the vehicle more visible, switch on the low beams during the day as well, in accordance with current local regulations.
- Do not drive through large puddles or sections of flooded road at high speed; so-called aquaplaning may occur causing you to lose control of the vehicle: primarily use the engine brake and avoid sudden braking.
- If outside visibility is poor, position the ventilation controls as shown in the appropriate paragraph, to demist the windows more efficiently.
- Before starting to drive, check the condition of the windscreen wipers; if the temperature drops below 0°C, or if it has snowed, check that the wipers are not stuck to the windscreen. Lift the windscreen wipers when the vehicle is parked to avoid sticking.
- In case of fog, drive very carefully, limiting vehicle speed and not overtaking unless it is strictly necessary.
- Make sure that the cleaning fluid contained in the windscreen / headlight washer reservoir has anti-freeze and scale-inhibiting properties.
- During winter periods, even apparently dry roads may have icy sections: particularly sections shaded from the sun or lined with trees or rocks.

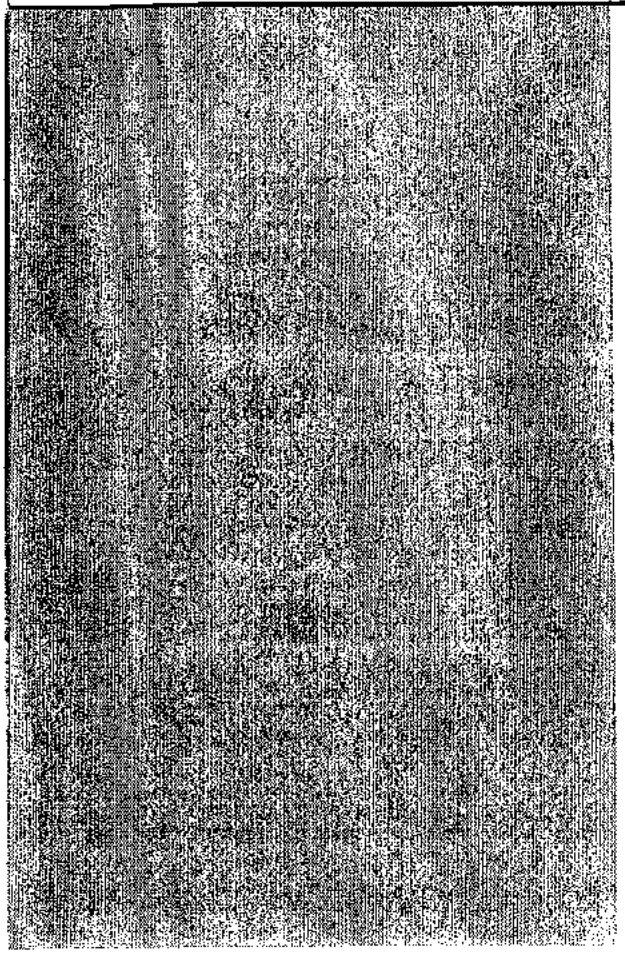
Tyres

The tyres fitted to the vehicle are the "tubeless" type.

You are advised to comply with the following requirements in order to achieve maximum driving comfort, safety and long tyre life:

- Before driving in tight curves, reduce vehicle speed even if vehicle performance allows otherwise.
- Avoid sudden acceleration or over-enthusiastic braking.
- Do not drive for long periods at sustained and constant speed, particularly on uneven terrain.
- Check that the wheels are correctly balanced and aligned.
- Avoid bumping the sides of the tyres (for example, when parking).
- Never tamper with the inflation valve, under any circumstances.
- Do not insert any type of tool between the rim and the tyre.
- Replace the rim if it is distorted in any way.
- In case of an abnormal drop in the pressure, replace the wheel and have it checked.
- Prolonged vehicle stoppage causes deformity in the tyres.
- Tyre pressure, including the spare wheel, must match the values specified in the specific paragraph of this booklet.
- Never use tyres that are second-hand, of unknown origin or more than 6 years old.
- Inner tubes must never be used with tubeless tyres.
- Avoid leaving the vehicle parked for long periods on the edge of a step or other irregular road surfaces.





- Check tyre tread depth regularly, ensuring that it meets the minimum requirements required by law. Some types of tyres have wear indicators and must be replaced as soon as they become visible on the tread. Tread wear increases the risk of aquaplaning.
- Check regularly that the tyres do not display irregular tread wear; if this is the case, contact the Service Network for assistance.

Snow chains

- The use of snow chains is subject to the current legislation applicable in each country.
- The chains must be fitted to the drive wheels only.
- To prevent tyre damage, do not drive on roads that are not covered with snow with the chains fitted. In extreme circumstances (for example, in tunnels), proceed very slowly and remove the chains as soon as possible.
- With the chains fitted, keep to a moderate speed, avoid potholes and do not drive over steps or pavements.
- For some types of chains, the tension has to be re-checked after travelling a few dozen metres.
- Before buying or using snow chains, consult the Service Network, who may be able to provide you with more information on how to choose and use the products available on the market for driving in snow.
- If necessary, when driving on snowy roads, turn OFF the ASR.

Off-road driving

Attention! Before using the vehicle off-road, become familiar with the gear reducer + transfer box controls.

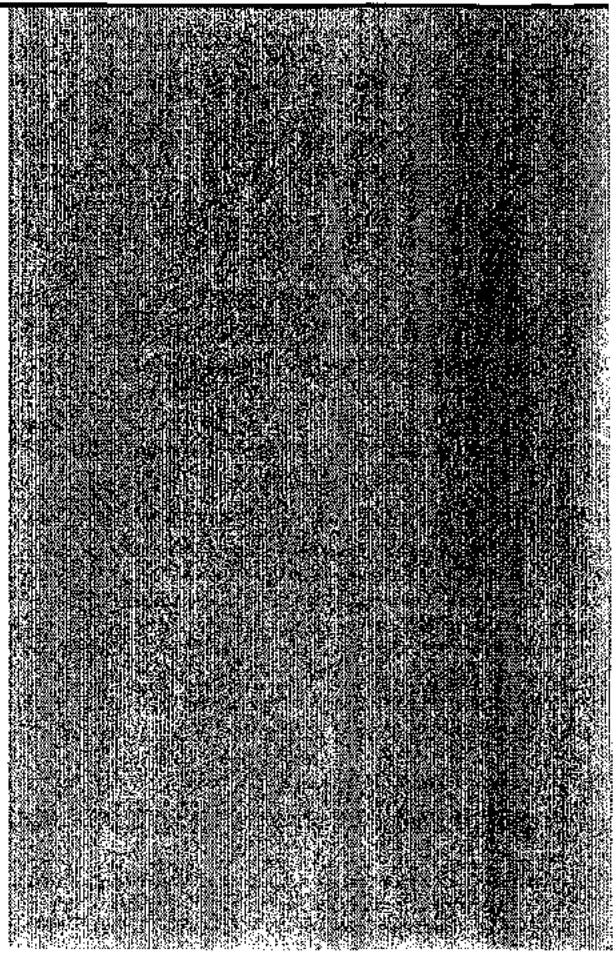
Selecting a suitable gear

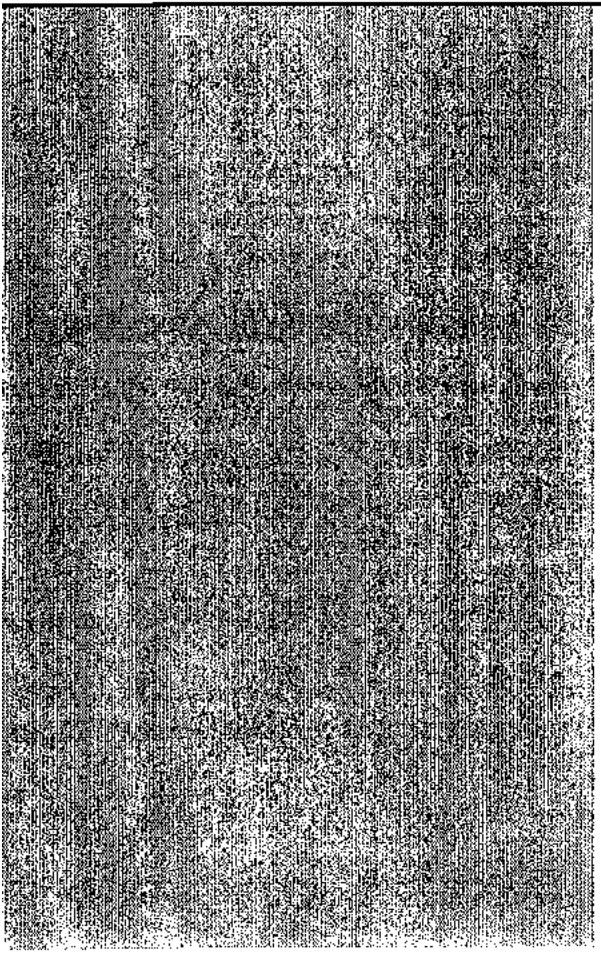
- Before carrying out any manoeuvre, carefully evaluate which gear would be most suitable to use.
- Always select a sufficiently short gear so the vehicle can proceed without having to press the clutch to change the gear.
- When driving on a difficult surface, do NOT shift the gear or press the clutch pedal.
- Use long gears whenever possible; switch to the low gear range when the surface becomes very difficult.
- On slippery or soft surfaces, it is recommended to use long gears.
- On very steep slopes, use the first of the low gears.
- When driving downhill use the braking action of the exhaust brake to control the vehicle speed. Also, before driving down a steep slope, proceed as follows:

  – stop the vehicle a few metres before the slope;

  – put the gearbox in neutral;

  – engage the low gear range and select the first or second gear based on the steep descent of the road.
- Use the accelerator carefully: a sudden increase in the torque transmitted to the wheels could cause them to skid, resulting in a loss of vehicle control.





Vehicle height off the ground

- Always take the vehicle's height off the ground into account, always trying to drive around obstacles that could damage the chassis, the differentials and the mechanical components of the vehicle.
- Pay attention to road sections covered by shrubs and bushes: they could hide large pebbles, trunks, deep holes.

Loss of traction

- Prevent the wheels from turning loadless for a long period of time.
- Instead of forcing the vehicle, remove the obstacles that can be removed.
- Clean the tyre tread.
- Move backward every time possible, then try to drive forward at a high speed; the inertia can help overcome the obstacle.
- To improve the grip of the tyres, it is possible to place shrubs, bags and other similar material in front of them.

Ascents

- Examine the ground.
- Select the first gear and the low gear range to overcome steep ascents. When driving on slippery surfaces, drive on them with a sufficient speed and the longest gear possible to make use of the vehicle's inertia.
- Drive up the hill frontally.
- Do not press down on the clutch, as this manoeuvre would reduce vehicle power and traction.
- Distribute the power by pressing the accelerator.

- In the case of loss of traction or power, press the accelerator and at the same time turn the steering wheel gently from the right to the left.

If the vehicle should stop while driving uphill, proceed as follows:

- Keep the vehicle stationary with the service brake and with the parking brake.
- Restart the engine.
- Select the reverse gear in the low gear range.
- Release the parking brake. Then, release the brake pedal together with the clutch. The vehicle will descend in reverse, with a low speed due to the exhaust brake.
- If while descending the vehicle starts to slip, accelerate slightly to improve the tyre grip.

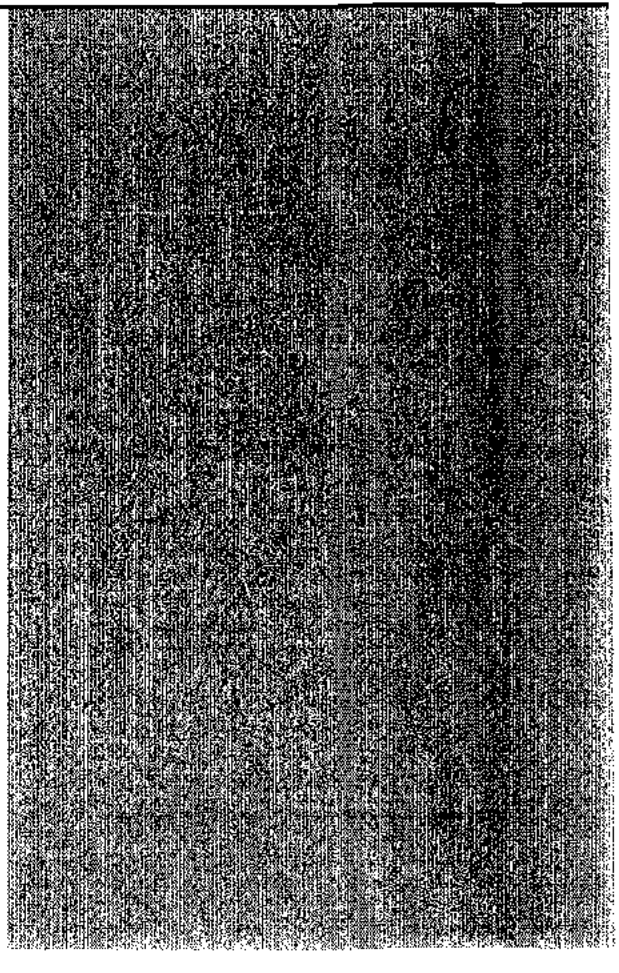
Descents

Attention!

- **Risk of accidents!** Perform the manoeuvres very carefully, the vehicle could turn over.
- Do not press down the clutch pedal while driving downhill unless it is necessary to overcome an obstacle.

Proceed as follows to drive on a descent:

- Stop the vehicle a few metres before driving downhill. Select the first in the low gear range.
- Drive down the hill frontally with the steering wheel as straight as possible.



- Limit the vehicle speed only using the exhaust brake.
- If the vehicle should slip, accelerate gently to maintain a stable direction. Do not try to shift gears or use the brakes.

Driving on a side gradient

▶ **Attention!** Avoid this situation if possible.

- Examine the ground, making sure it is solid and not slippery.
- Prevent the wheels located on the lower side of the vehicle from entering depressions in the ground or that the wheels located higher up run into obstacles.
- Remove everything from the luggage compartment and make sure everything else is well secured. The rear passengers must sit on the upper side of the vehicle or, in extreme situations, must exit the vehicle.
- Select the first in the low gear range. Drive with extreme care.
- If losing the grip on the ground with the vehicle starting to skid, gently turn the steering wheel in the direction of the drop and then straighten it back out in order to restore the vehicle's grip.

'V' shaped ravine

Driving on a 'V' shaped ravine

- Position the wheels on both walls, keeping the vehicle horizontal, always trying to drive around obstacles that could damage the chassis, the differentials and the mechanical components of the vehicle.

- Select the first in the low gear range. Drive slowly, carefully observing the ground and moving the steering wheel gently.

Crossing a 'V' shaped ravine

- Do not face the ravine frontally. Face it diagonally (tangentially).
- Select the first in the low gear range. Take a running start and cross the ravine decisively.

Rocky ground

When crossing a rocky section:

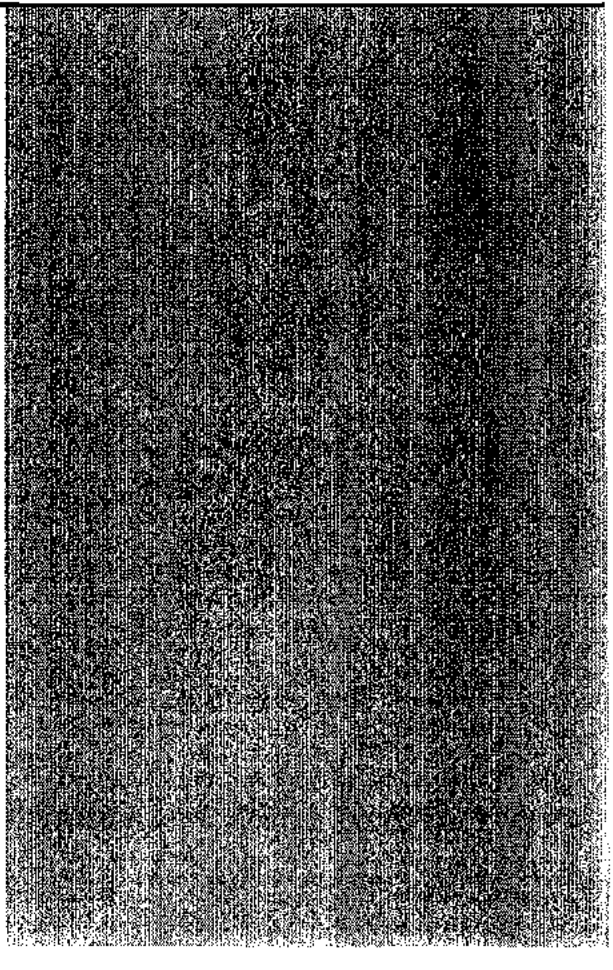
- Increase the pressure of the tyres.
- Select the low gears.
- Proceed carefully to prevent the rocks from damaging the lower part of the vehicle.

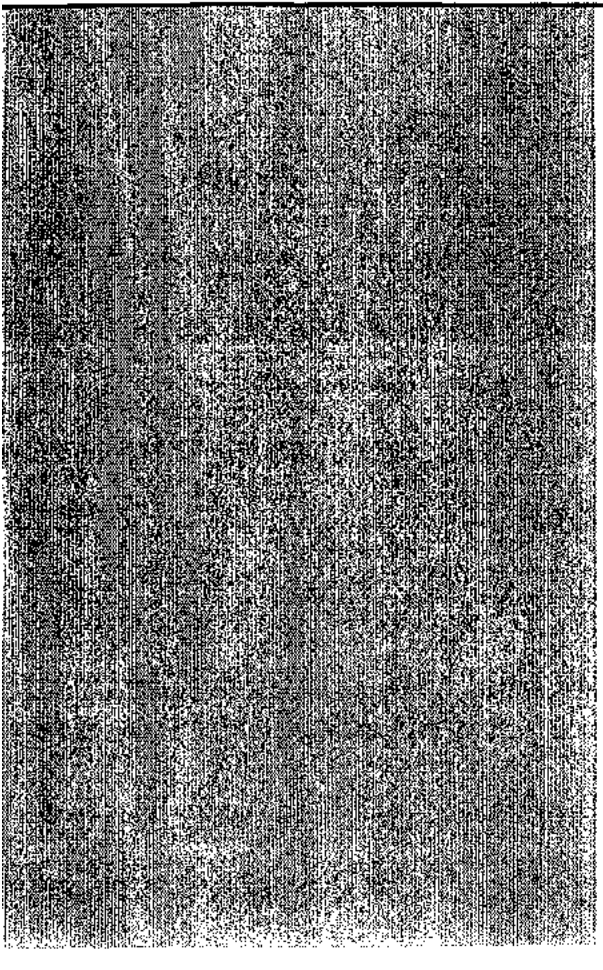
▶ **Attention!** Do not grasp the steering wheel with your thumbs inside the edge of the crown wheel; a sudden movement of the steering wheel could cause serious injuries. Always grasp the steering wheel from the outside of the crown wheel.

Sandy ground

When crossing a sandy section:

- Decrease tyre pressure until the vehicle has suitable traction.
- If the vehicle loses traction, turn the steering wheel gently from the right to the left, pressing the accelerator lightly.





- Do not use the clutch.
- Prevent the wheels from skidding.

Muddy ground

When crossing a muddy section:

- The tyre pressure must be low.
- It is recommended to use the second gear of the low gear range.
- Try not to stop the vehicle to prevent it from getting trapped.
- Move the steering wheel gently, searching for the best path.
- Try to improve the grip on the roadway.

Snowy ground

When crossing a snowy section:

- It is recommended to use short gears;
- Pay attention to the possible presence of sheets of ice and irregular ground surfaces hidden by the snow.

Fords

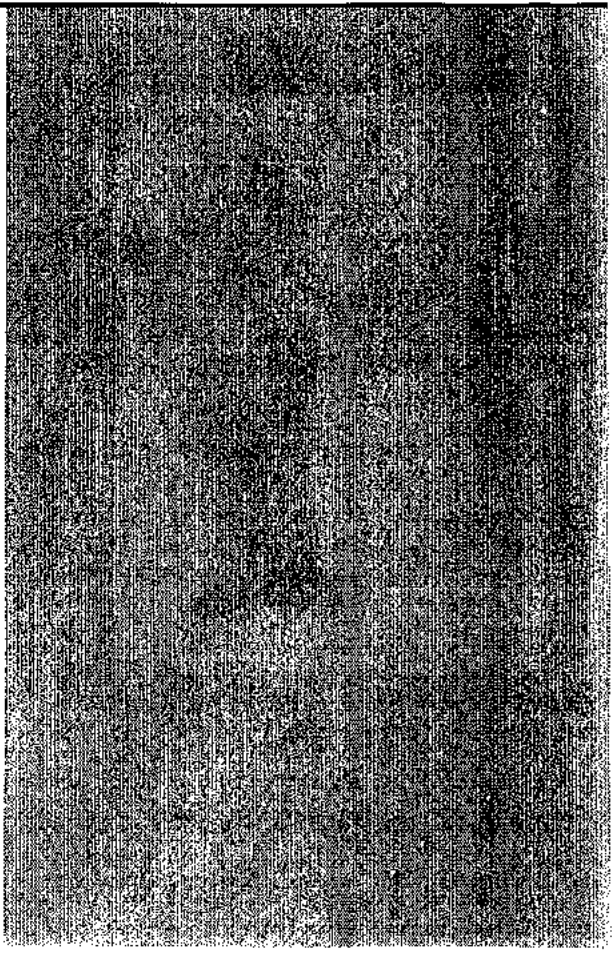
When fording:

- If it is necessary to ford, check the depth and make sure that the bed of sediment located under the water is sufficiently solid.
- Drive at a slow and constant speed; it is recommended to use the low gears.

Attention!

Precautions for fording Avoid this type of situation if possible.

- The level of water must not reach the vehicle exhaust system or the engine's air intake.
- After fording, press down the brake pedal multiple times to eliminate traces of water and restore the correct operation of the braking system.

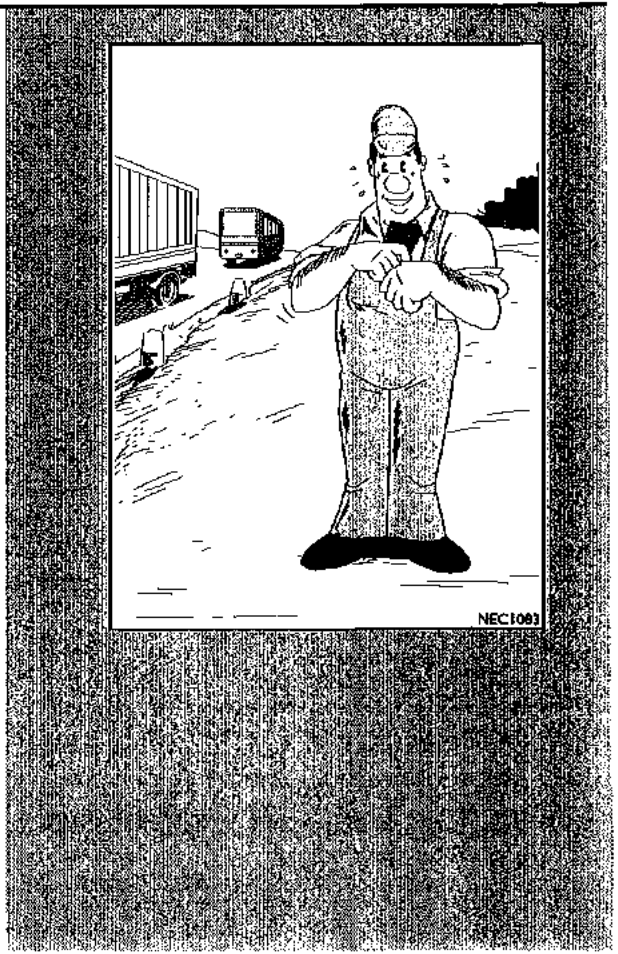


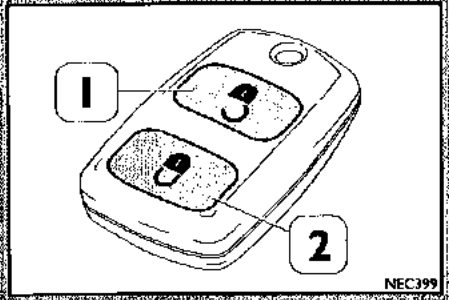
Economical and ecological driving

Attention! The correct use of driving behaviour has a direct effect on fuel consumption and environmental impact. By following a few simple rules without forgoing driving pleasure, you can avoid damaging the environment and at the same time reduce fuel consumption.

- Do not attempt to obtain peak performance from the vehicle when the engine is cold.
- Do not accelerate needlessly while stationary.
- Wherever possible, do not drive with the side windows down; it is better to use the ventilation and air conditioning system sensibly to achieve the best environmental conditions inside the vehicle.
- When traffic and road conditions allow, use a fast gear.
- In slow-moving city traffic or when travelling in a queue at low speed, it is advisable to reduce the use of devices with a high energy consumption (interior ventilation at high speed) to a minimum.
- Racing the accelerator while shifting or before shutting down the engine is pointless and can damage the turbocharger.
- The best fuel consumption to performance ratio will be achieved by keeping the engine speed within the green sector stamped on the rev counter. The red (overspeed) sector must never be used.
- Follow the Plan of Scheduled Maintenance scrupulously: regular maintenance is the best guarantee for safe operation and keeping running costs at optimum levels.

These operations are obligatory during the warranty period and failure to carry them out will invalidate the warranty.





Remote control for central locking

(if provided)

Briefly press the push button (2) on the remote control, pointing it in the direction of the vehicle: the indicators will flash simultaneously to signal that all the doors have locked. To unlock the doors, press button (1), always pointing the remote control in the direction of the vehicle; the indicators will flash to signal that all the doors have unlocked.

Replacing the remote control battery

- Insert a coin or a screwdriver into the slot on the side of the key and carefully open the two halves.
- Change the battery, respecting the polarity.
- Close the two halves of the key, making sure they couple properly.

Note A reduction in the range of action of the remote control is a sign that its battery is running down.

▶ **Attention!** A flat key remote control battery is harmful for the environment. It must be disposed of in specific containers, as prescribed by the laws, or it can be sent to the Service Network, which will dispose of it properly. The remote control contains a CR 2032 3 V lithium battery.

Immobilizer

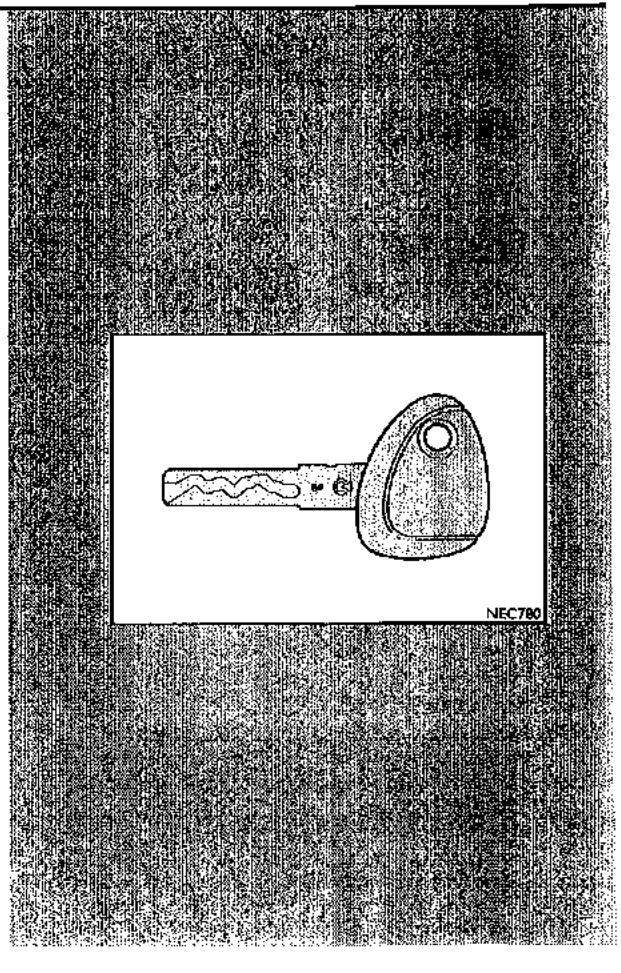
(if provided)

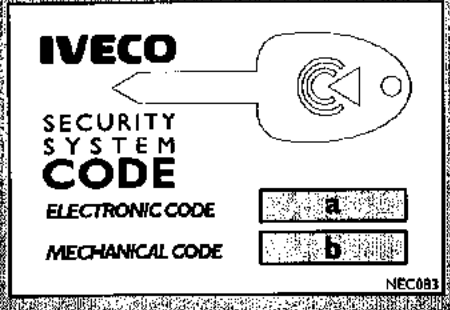
To improve protection against attempted theft, the vehicle is equipped with an electronic engine Immobilizer.

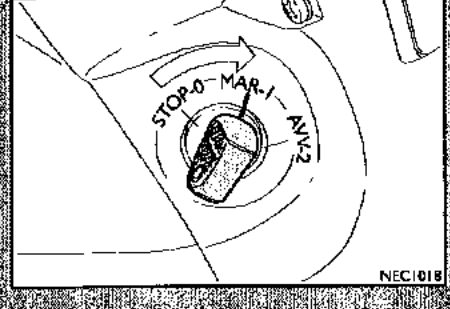
The ignition keys are equipped in fact with an electronic device that transmits a coded signal to the Immobilizer control unit.

Vehicle keys

Two keys are supplied and make up a "Set" (keys + Immobilizer+ ECM).







Code Card

A Code Card is supplied together with the keys and contains:

a. the electronic code to be used in the event of emergency start-up, which has to be activated by the Service Network.

b. the mechanical code of the keys;

The user should always keep the electronic code indicated on the Code Card with him, for possible emergency starting.

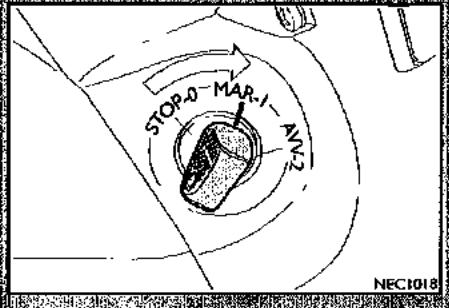
Emergency start-up

It makes it possible to start the engine when the key cannot be recognised or in the case of a Immobilizer control unit failure. It is possible to start the vehicle by entering the ELECTRONIC CODE (a) by pressing the accelerator pedal; proceed as follows:

1. Turn the key to MAR-1. The EDC warning light starts flashing after 2 seconds.
2. Keep the accelerator pedal pressed down for 3 to 6 seconds and then release it.
3. The EDC warning light begins to flash at a lower frequency.
4. When the number of flashes matches the first figure of the ELECTRONIC CODE, press the accelerator pedal down fully and then release it (during this operation the EDC warning light remains off).

5. Continue with the same procedure for the remaining numbers of the ELECTRONIC CODE.
6. If the code entered is correct, the EDC warning light will stop flashing.
7. Start the vehicle.

In any case, contact the Service Network as soon as possible for verification of the system.



Warning

Each key supplied has a common mechanical code and a unique electronic code, different from the others, which must be stored in the system control unit.

When additional keys are requested, remember that the code is recorded on all the keys, including those already in your possession.

Contact the Service Network directly, bringing all the keys in your possession and the Code Card with you.

The codes of any keys not presented during the new memorisation process are erased from the memory; this ensures that lost keys will no longer be able to start the engine.

- The Code Card is an essential and unique element associated with each vehicle; therefore it is recommended to keep it in a safe place. It is therefore recommended to write down the codes without leaving it in the vehicle and to carry it at all times to avoid the risk of losing it.

- If vehicle ownership changes, it is essential that all the keys and the Code Card are handed over to the new owner.

Key switch positions

STOP-0. = Insertion and extraction of the key-engine stop-steering wheel lock, Immobilizer ON.

MAR-1. = Preparation for engine starting-various signals, Immobilizer OFF.

AVV-2. = Engine start-up.

Attention!
Risk of accident Risk of jamming the steering wheel while driving.

- In the event of tampering with the ignition switch (e.g. attempt to steal the car), it is advisable to have the correct operation of the device checked by the Service Network.

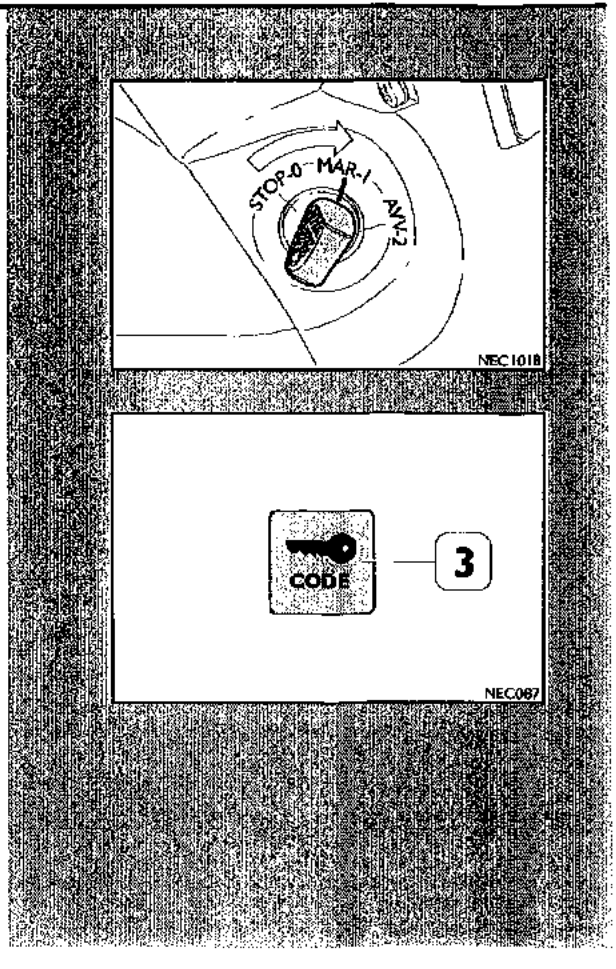
Turning the system on Immobilizer

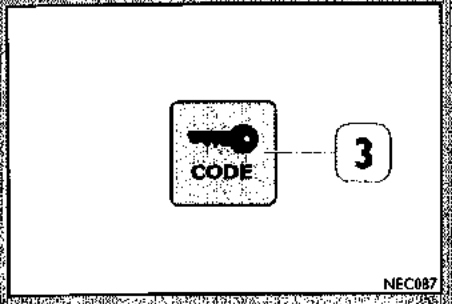
It is enabled when the ignition key is turned to the STOP-0 position: engine stopped, key can be removed.

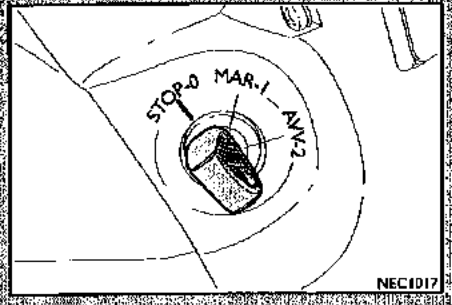
Disengagement Immobilizer

Turn the ignition key to MAR-1, the engine lock is disabled only if the protection system recognises the key code. If the code is valid, the control unit of the protection system sends an appropriate codified signal to the electronic control unit of the engine enabling the starting of the engine.

The fact that the code has been recognised by the system is indicated by the warning light (3) flashing for approximately 4 seconds. Anything else indicates that the code has not been recognised. In this case, it is recommended that the key be turned to the STOP-0 position and then back to MAR-1; if immobilisation continues retry with the other key supplied. If the engine still does not start, contact the Service Network.







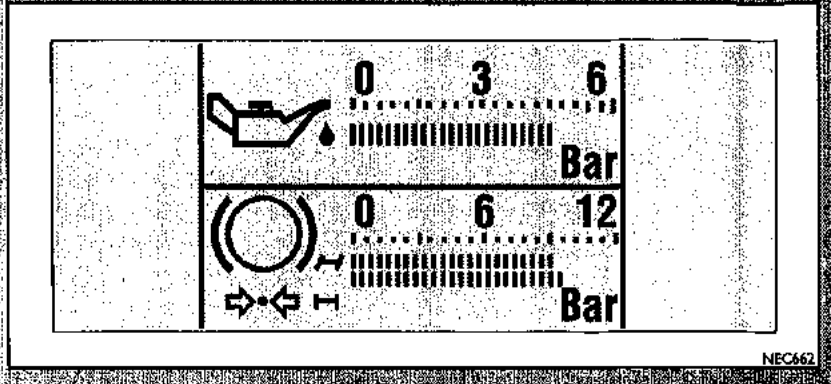
Warning

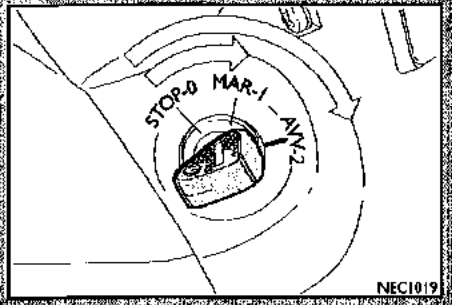
If the warning light (3) lights up temporarily or permanently while driving or when starting the vehicle, this does not necessarily indicate a breakdown of the system but may in certain cases be interpreted as a tampering attempt by a thief or a particularly low battery charge.

If you turn off the engine (STOP-0) and the indicator (3) is on, the next engine start-up may be possible only via the emergency procedure.

Before starting the vehicle

- Via the display check that the pressure gauges show a minimum 6.5 bar for both sections (front and rear axles).
- If one or both of these conditions are not met, there is a failure in the braking system.
- Contact the Service Network immediately.
- If it be absolutely necessary to move the vehicle, use the utmost care since its braking capacity is impaired.





Starting the engine

Starting the engine when the outside temperature is higher than 10°C

- Turn on the main switch (if provided).
- Shift the gearbox lever to neutral and press the clutch pedal (for mechanical gearbox).
- Insert the key in the ignition switch and turn it clockwise to the MAR-1 position.
- Then turn the key to the AVV-2 position and release it as soon as the engine starts. During start-up, it is advisable not to press the accelerator pedal.

The control unit makes a general check approximately every 1-2 seconds before injecting fuel.

If the engine does not start easily, do not run the starter for more than 30 seconds.

In order to allow better thermal operating conditions to be reached, drive the vehicle slowly after starting the engine, therefore keeping the engine rpm in the medium range.

This achieves the following:

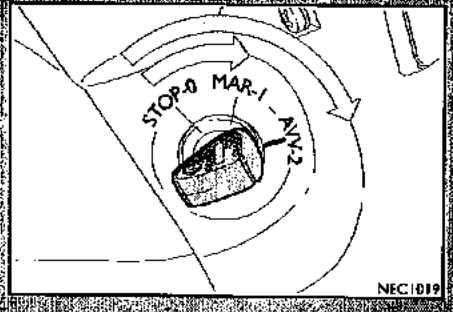
- a continual, regular flow of oil in the entire lubrication circuit;
- exhaust emissions maintained with the specified limits;
- fuel consumption kept low.

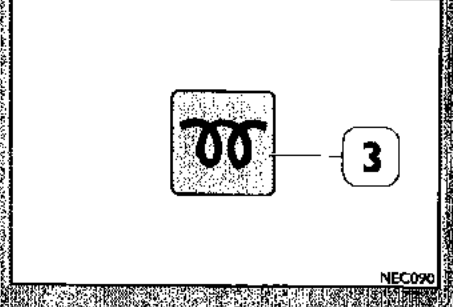
▶ **Attention!** In order to reduce harmful emissions it is advisable not to keep the engine running at idle speed for an extended period, whether cold or hot.

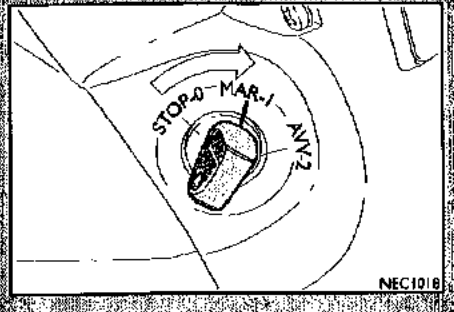
Starting the engine when the outside temperature is lower than 10°C

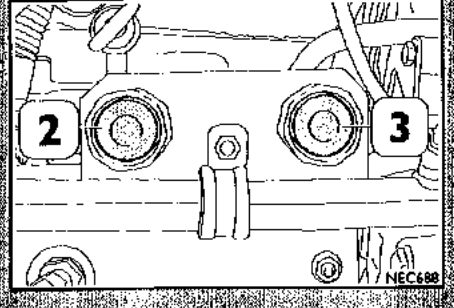
- The vehicle is equipped with an electrical preheating device to warm up the air intake to facilitate engine starting at low temperatures.
- Insert the key in the ignition switch and turn it clockwise to the MAR-1 position.
- Autotest of warning light (3) cuts in for approximately 2 seconds. It stays on if preheating is needed (and for its entire duration), otherwise it goes out.
- Wait until the preheating warning light (3) starts flashing.
- Then turn the key to the AVV-2 position and release it as soon as the engine starts.

Note If the engine does not start within a few seconds from the time the warning light starts flashing, the warning light switches OFF and the preheating system is switched OFF to avoid discharging the batteries. The preheating process must then be repeated.









Starting the engine from the engine compartment

It is possible to start the engine with the cab tilted by means of push button (2) (located on the engine itself); for this purpose, the ignition switch must have been turned to the MAR-I position.

For your safety, it is not possible to start the engine if the gear lever is not in the neutral position and if the parking brake is not engaged.

To stop the engine press the (3) button even after stopping.

▶ **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the engagement position, as described in section "Use of parking brake".

Speed programmer (Cruise Control-CC)

Attention!
Risk of accidents. The system does not control nor adjust the vehicle direction.

- The driver is responsible for driving the vehicle and must always maintain control over all vehicle functions, in particular steering, accelerator and brakes.

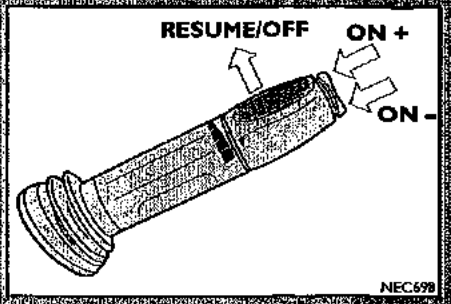
(This function is active from 20 km/h up to the maximum speed of the vehicle on vehicles without EBS. The function is active only if the brake pedal is pressed once)

The system automatically maintains the vehicle speed without using the accelerator pedal.

Should the vehicle speed increase by more than 3 km/h from the set value (e.g. driving downhill), the exhaust brake is automatically enabled to slow down the vehicle and maintain its speed. Cruise Control must not be used in heavy traffic or when it is important to control the speed continuously (e.g. on hills).

It can be enabled when the following conditions are met:

- Engine brake lever/Retarder off.
- Vehicle running with a gear engaged.
- Vehicle speed greater than 20 km/h.
- Brake pedal not pressed.
- Clutch pedal not pressed.



CONTROL	VEHICLE SPEED CONTROL
ON +	Speed increase
ON -	Speed decrease
RESUME	Selecting the last speed stored
OFF	Deleting speed stored

The control is deactivated when the brake pedal or the engine/clutch brake are operated. The same occurs if the minimum speed required is not reached.

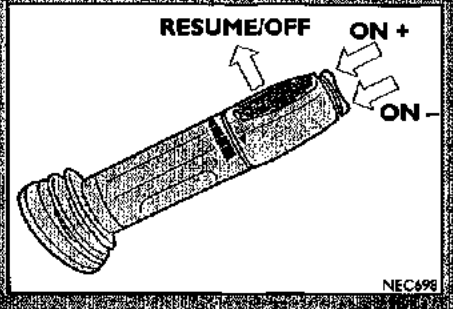
The Cruise Control is not disabled when shifting gears.

The maximum speed limit is stored in the program within the electronic control module and cannot be changed.

1. The ON + rocker switch performs the following functions:
   a) Pressed once, it activates the function and keeps the speed set by the current accelerator pedal position. It is then possible to release the accelerator pedal; the vehicle will keep the cruise speed as set.
   b) When the function is already active, it is used to increase the vehicle speed without using the accelerator pedal.
2. The ON - rocker switch performs the following function:
   when the function is active, it is used to decrease the vehicle speed.
3. When the Cruise Control command lever is turned towards the steering wheel (OFF), the function is disabled.
4. Press the RESUME button again to activate the Cruise Control.
5. Tip Function

If the ON+ or ON- rocker switch is pressed briefly, the vehicle speed varies by steps of 1 km/h (e.g. at a speed of 60 km/h, pressing three times on ON+ 63 km/h is reached; on ON- 57 km/h).

6. Ramp Function
   Keeping it pressed, the speed varies continuously.



Disengagement

The system is disengaged:

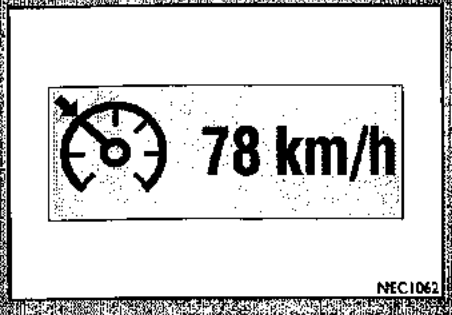
- *Manually* and permanently (using the OFF control).
- *Automatically* and permanently by pressing the brake pedal and using the engine brake.
- *Automatically* and permanently by pressing the accelerator pedal (thus asking for a higher speed than what is set) for more than 30 seconds.

If the clutch pedal is pressed, the system goes momentarily into stand-by.

After switching OFF, it is possible to bring the vehicle back to the cruising speed set previously by simply using the RESUME control.

The system is temporarily disabled when requesting a speed greater than the set limit with the accelerator pedal (for no longer than 30 seconds).

As soon as you release the accelerator pedal, the function automatically resumes the last saved speed.



Warning

The speed value is shown on the display; when using the Ramp Function, the display shows the actual vehicle speed and the setting is the current value at the time the button is released. The value displayed disappears after 10 seconds.

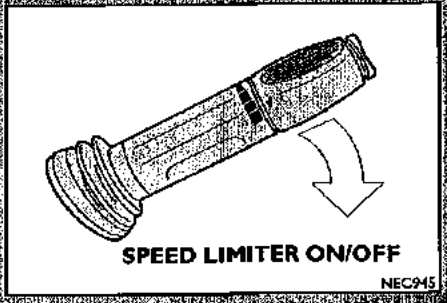
In order not to deactivate the exhaust brake on downhill sections, the Cruise Control remains active if the brake is used at speeds greater than 4 km/hour.

Speed limiter (SPEED LIMITER-SL)

The engine control unit has a function that automatically limits the cruise speed to 90 km/h.

Without button on the dashboard

A lower speed can be selected using the Cruise Control command lever, pushing it downwards until the desired speed is reached.

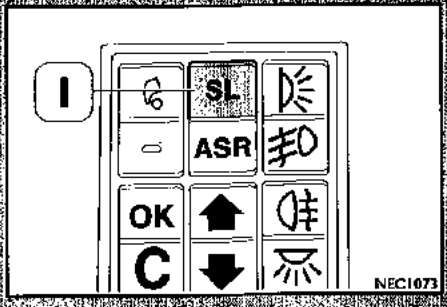


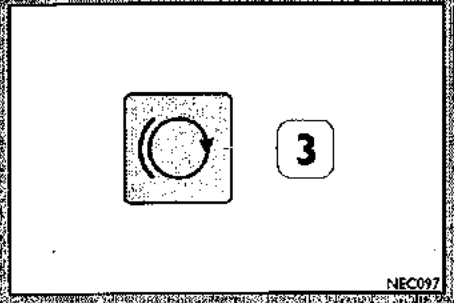
With button on the dashboard

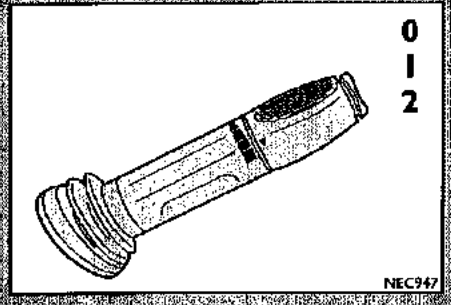
It is possible to select a lower speed using the button (1) on the dashboard when the desired speed is reached.

Warning:

- Cruise Control works only if its preset speed is less or equal the speed set on the speed limiter
- The value shown on the SL display is the maximum speed allowed including all tolerances according to 94/24 EEC and 92/6 EEC standards.
- Within 10 seconds you can slightly adjust the SL value using the ON+/ON- rocker switch on the end of the right steering wheel switch.







Engine brake control

(if provided)

Two control systems are foreseen for the exhaust brake, which can be selected using the right steering wheel switch, to be used in different types of situations/paths:

- combined with the accelerator, with operation upon pedal release; to be used in long downhill sections with a constant gradient;
- combined with the service brake, with operation starting from the first section of pedal stroke and maintenance of the position; to be used essentially to reduce wear to the service brakes on paths where they are used often (e.g.: city driving).

The warning light (3) on the dashboard lights up each time the exhaust brake is engaged.

Vehicles with a manual gearbox

0 = disabled.

1 = exhaust brake combined with the service brake.

2 = exhaust brake combined with the accelerator ("last wins" logic).

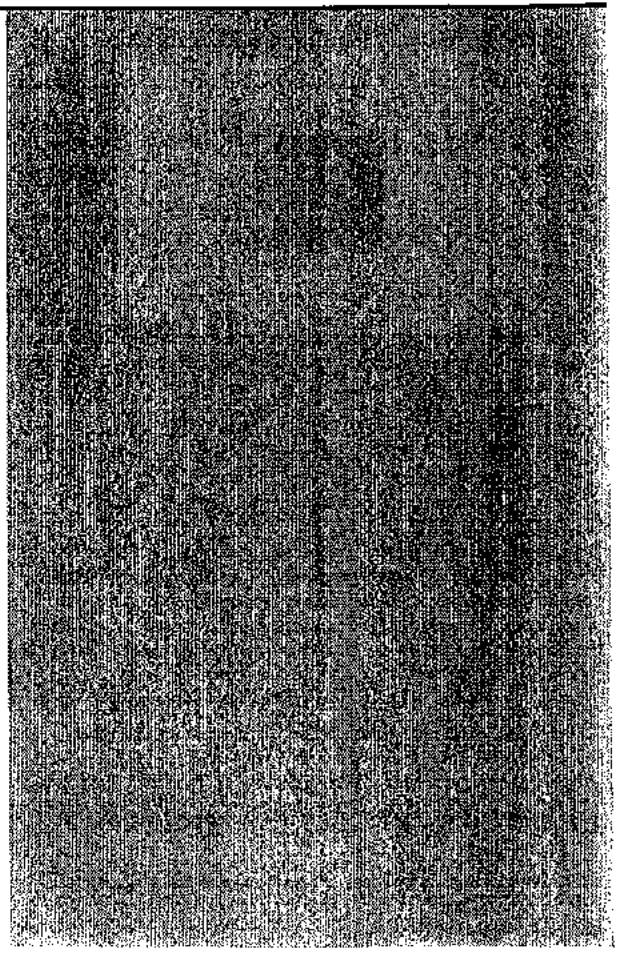
ABS - Anti-Lock Braking System

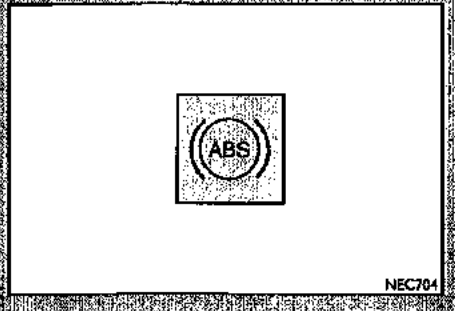
The ABS system allows an optimal braking action together with complete vehicle control.

- It prevents locking on each individual wheel when braking regardless of the grip conditions of the wheels on the road.
- It gives the driver a high degree of safety keeping the vehicle stable and on track.

Comply with the following:

- When braking, the brake pedal may be subjected to light pulsations due to the ABS system.
- When the ABS cuts in and you can feel the pulses on the brake pedal, do not decrease the pressure on the pedal but keep it pressed down without any concern; this way you will stop in the shortest possible distance, compatibly with the road conditions.
- The performance of the system, in terms of active safety, must not lead the driver to take pointless or unnecessary risks.
- Driving must in any case take into account the weather conditions, visibility and traffic.
- Maximum possible deceleration in any case always depends on the grip between the tyres and road surface. Bear in mind that in the event of snow or ice, grip is greatly reduced and therefore, in these conditions, stopping distances remain high even with the ABS system.





Functional diagnostics, any faults or limitations are shown by their respective warning lights on the display.

If the following lights switch on while driving:

- ABS (yellow): there is a small failure with the system that however permits continuing the journey without having to stop.
- ABS (red): there is a serious failure in the system that greatly reduces the braking function. Please go to a service Network Workshop immediately.

Attention!
Risk of accidents: Any damage to the ABS system alters the behaviour of the vehicle when braking.

- You must get to an IVECO workshop as soon as possible and drive with the utmost care.

Buzzer activation

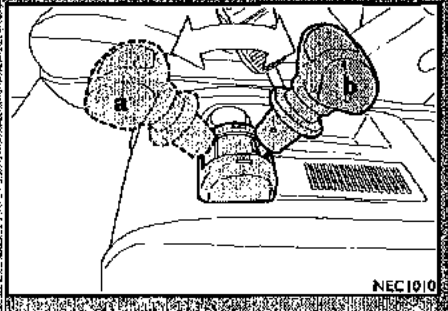
The vehicles are equipped with a warning buzzer that sounds if you forget to turn off the lights and engage the parking brake.

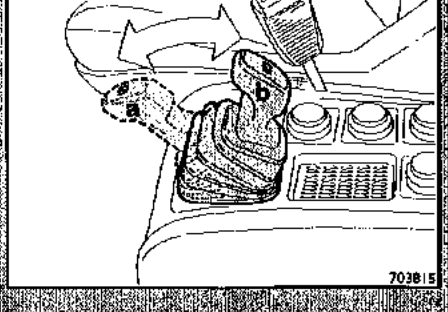
The buzzer is activated in the situations indicated in the tables:

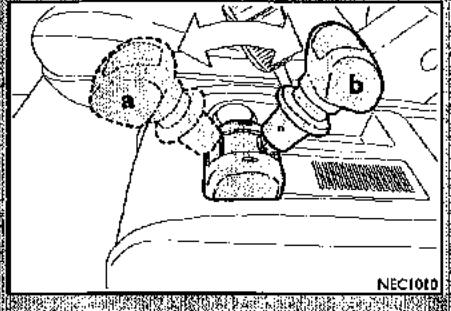
PARKING BRAKE ENGAGED		
Door open	Side lights ON	Side lights OFF
Ignition key in the STOP-0 position	Buzzer ON	Buzzer OFF
Ignition key in the MAR-1 position	Buzzer OFF	

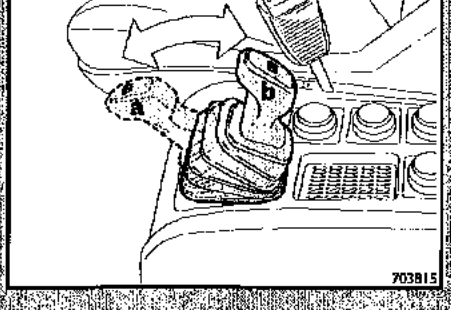
PARKING BRAKE NOT ENGAGED		
Door open	Gearbox in neutral	Gearbox not in neutral
Ignition key in the STOP-0 position	Buzzer ON	
Ignition key in the MAR-1 position	Buzzer ON	Buzzer OFF

PARKING BRAKE NOT ENGAGED	
Belt unfastened	Buzzer ON
Brake pedal not pressed	Buzzer ON









In addition, the buzzer is activated if there is a fault with one of the systems and the relevant symbol and description appear.

Depending on the vehicle equipment, two types of parking brake control levers may be present.

For vehicles manufactured up to March 2014:

- **Attention!** Make very sure that the hand lever is locked in the "b" position and that the parking brake is engaged.

For vehicles manufactured from March 2014:

- **Attention!** Make very sure that the lever is locked in the "b" position and that the parking brake is engaged. The lock is secured in position when the lever is lowered slightly and is stable in position, the buzzer is deactivated (if previously enabled) and the indicator lights up **(P)** on the instrument panel. In case of incorrect locking, repeat the engagement manoeuvre.

Using the parking brake

THE PARKING BRAKE MUST NOT BE USED TO SLOW DOWN THE VEHICLE.

USE THE PARKING BRAKE ONLY WHEN THE VEHICLE IS STATIONARY.

Attention!
Risk of accidents! In order to avoid damage to persons and objects that can be rather severe, the parking brake must always be engaged when stopping the vehicle for long and short periods. Furthermore, it must also be engaged when coupling/uncoupling the trailer/semi-trailer from the tractor. Make sure that the parking brake is engaged before leaving the vehicle. If stopping the vehicle on inclined road:

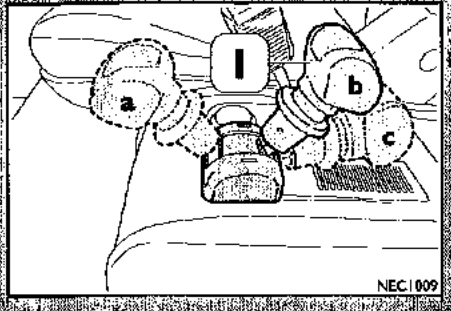
- Use the appropriate wheel chocks to block the vehicle (in front of or behind the rear wheels when vehicle is loaded, or of the front wheels when empty).
- We recommend steering the front wheels in one direction so that the vehicle can not gain speed in case it is accidentally put into motion.

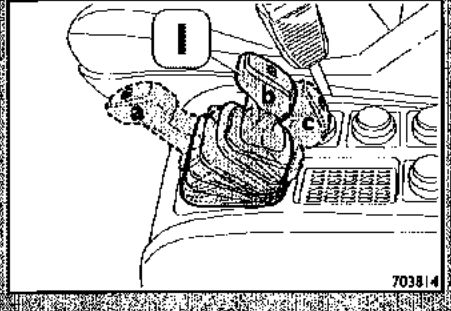

NEC1090

Vehicle parking procedures

Follow these procedures to park the vehicle correctly:

- Stop the vehicle with the service brake;
- Shift the gearbox to neutral;
- Engage the parking brake;
- Switch off the engine.





Parking brake control lever positions

Depending on the vehicle equipment, two types of parking brake control levers may be present.

- For vehicles manufactured up to March 2014.

- For vehicles manufactured from March 2014.

The parking brake lever (1) can be moved into the following positions:

a. Brake disengaged (lever released).

b. Brake engaged.

c. Trailer brake disconnected from the tractor (unstable position - only for towing vehicles).

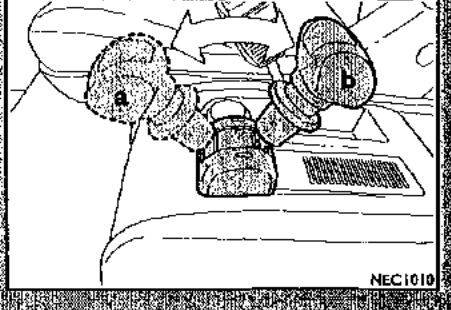
In this position, the driver can check whether the engine parking brake (tractor or truck) is able to keep the truck trailer in place on inclined roads when the parking brake is engaged.

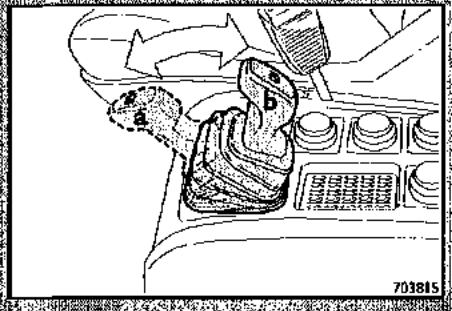
Engaging the parking brake (position b)

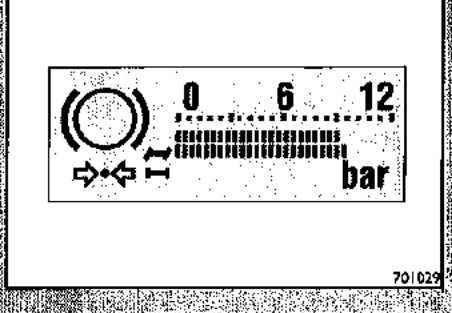
Vehicles manufactured up to March 2014

Grip the lever and shift from position (a) to position (b), making sure that it fully engages the locking point. The warning light (P) on the dashboard switches ON to indicate that the device has been engaged.

- **Attention!** Make very sure that the hand lever is locked in the "b" position and that the parking brake is engaged.







Vehicles manufactured from March 2014

Grip the lever and shift from position (a) to position (b). To ensure that the lever is effectively secured in the locking point, check that:

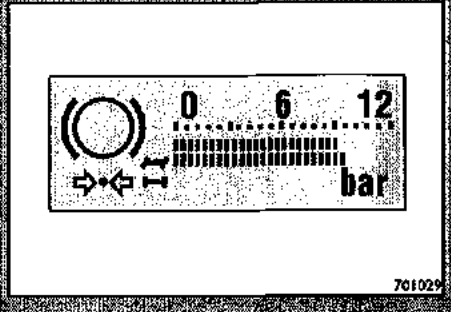
- it is lowered with respect to the target position "b" and that it is stable in position;
- the buzzer warning users of the failure to engage the parking brake is off (if previously on);
- the warning light Ⓟ on the instrument panel turns on.

Attention! Make very sure that the lever is locked in the "b" position and that the parking brake is engaged. The lever is secured in position when the lever is lowered slightly and is stable in position, the buzzer is deactivated (if previously enabled) and the indicator light Ⓟ on the instrument panel is fixed (not flashing). Repeat the engagement manoeuvre.

Disengaging the parking brake (position a)

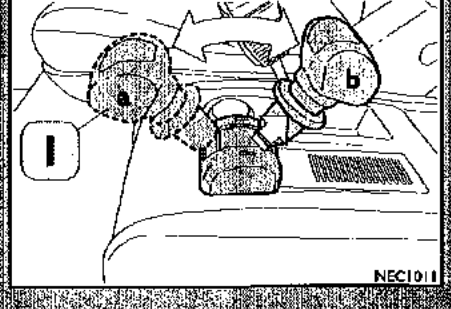
Before disengaging the parking brake, wait for the air pressure inside the supply circuit, which is indicated by the pressure gauges on the instrument panel, to reach working values. The brake can be released when this pressure has been reached (equal to or higher than 8 bar).

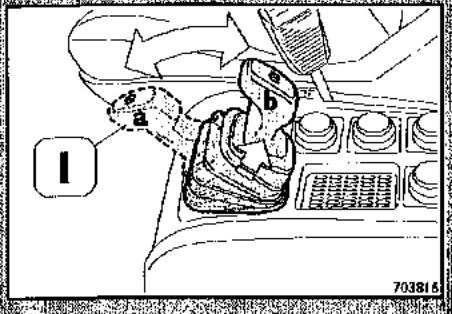
Attention! Risk of accidents! The brake cylinders lock in place if the air pressure does not properly supply the parking brake circuit. To allow the vehicle to move, the brake cylinders must be mechanically released. When the brake cylinders have been released, the vehicle may not be driven and must be towed to a Service Network garage.

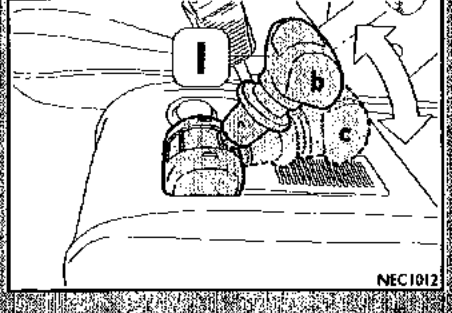


Releasing the brake for vehicles manufactured up to March 2014:

- Lift the safety locking ring (release of the lever restraint system);
- Move the lever (1) so that it is disengaged from position (b) and can be locked into position (a).
  The warning light Ⓟ switches OFF to indicate the device disengagement.







Releasing the brake for vehicles manufactured from March 2014:

- Lift the lever (1) until it releases the end of the vertical stroke (release of the lever restraint system);
- accompany the lever in its movement from position(b) to position (a). The warning light (P) switches OFF to indicate the device disengagement.

Checking parking brake efficiency on trailer vehicles (position c)

From position (b) - parking brake engaged - move the lever (1) to the unstable position (c) and hold the position. In this way the trailer / semi-trailer braking system is disengaged and the braking action is provided only by the tractor spring accumulator cylinders. Brake disengagement is performed by shutting the 3-way valve that supplies air to the pneumatic union between the tractor and trailer. In this condition the tractor parking brake must be able to keep the vehicle locked in place.

Then move the lever (1) into position (b), making sure that it is fully engaged in its locking point.

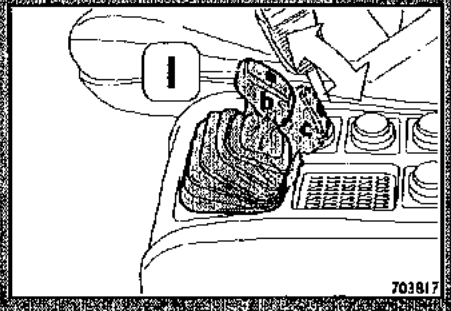
▶ **Attention!** Make very sure that the hand lever is locked in the "b" position and that the parking brake is engaged.

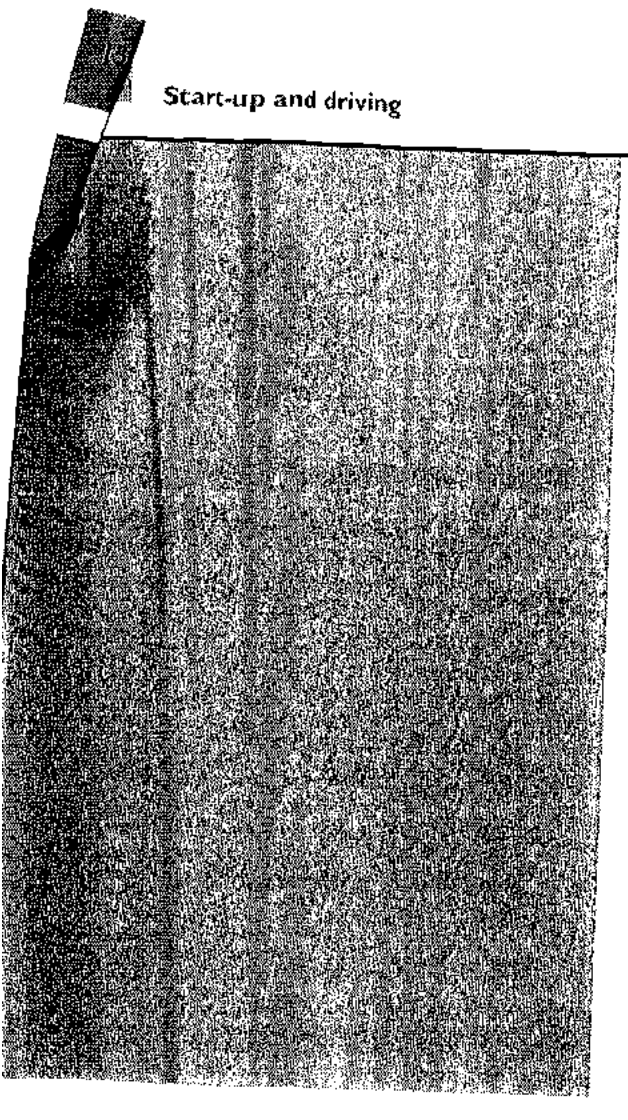
For vehicles produced from March 2014, ensure that once the lever reaches position (b), it is lowered slightly so that the safety locking system is engaged and is stable in position.

- **Attention!** Make very sure that the lever is locked in the "b" position and that the parking brake is engaged. The lever is locked in position when the lever is lowered slightly and is stable in position, the buzzer is deactivated (if previously enabled) and the indicator light (1) on the instrument panel, in case of incorrect locking, repeat the engagement maneuver.

If the brake is not engaged properly, the lever (1) could slip out of position (b) and return to position (a) (see previous pages). The vehicle may be set in motion in this situation.

- **Attention! Risk of accidents!** If the braking strength of the tractor's spring accumulator cylinders is not sufficient to keep the tractor-trailer stationary when parked, appropriate chocks must be used.
  Note: See the manufacturer's documentation for information on the trailer / semi-trailer braking system.





Supplementary valve to release vehicle parking

(if provided)

On the vehicles equipped with this device, before leaving you should:

- Start the engine and keep it running until normal air pressure is reached inside tanks (min 6.5 bar, as shown on display).
- Disengage the parking brake.
- If the vehicle does not move, turn the selector to unlock the parking of the vehicle.
- Start the vehicle.

Stopping the engine

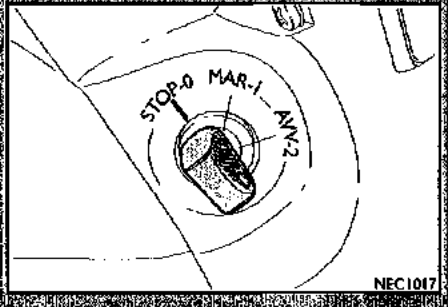
To stop the engine turn the key back to STOP-0.

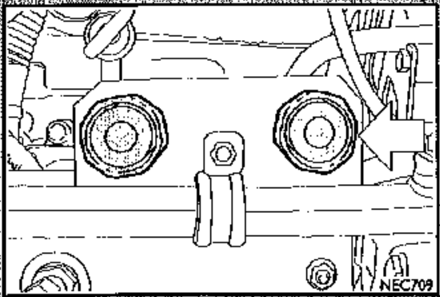
Since immediately after the engine stops, the EDC control unit remains connected to the batteries to carry out checks on the electronic sensors, you must not disconnect the batteries during this period of time (= 10 sec.).

▶ **Attention!** Never leave the vehicle without first applying the parking brake.

▶ **Attention!** Extract the key from the ignition lock only when the vehicle is stationary.

▶ **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the mechanical position as described in section "Use of parking brake".





Shut-down from the engine compartment

When stopping the engine from the ground and after engine has stopped, hold down the red push button shown in the figure for another 3 seconds, for the same reason as described in the previous paragraph.

Attention!

Risk of damaging the vehicle! In the following cases serious electronic faults may result:

- Use the battery isolator (1) to try and stop the engine (to be used in the case of an emergency).
- Connect/disconnect the ECM control unit connectors with engine running or the control unit powered.

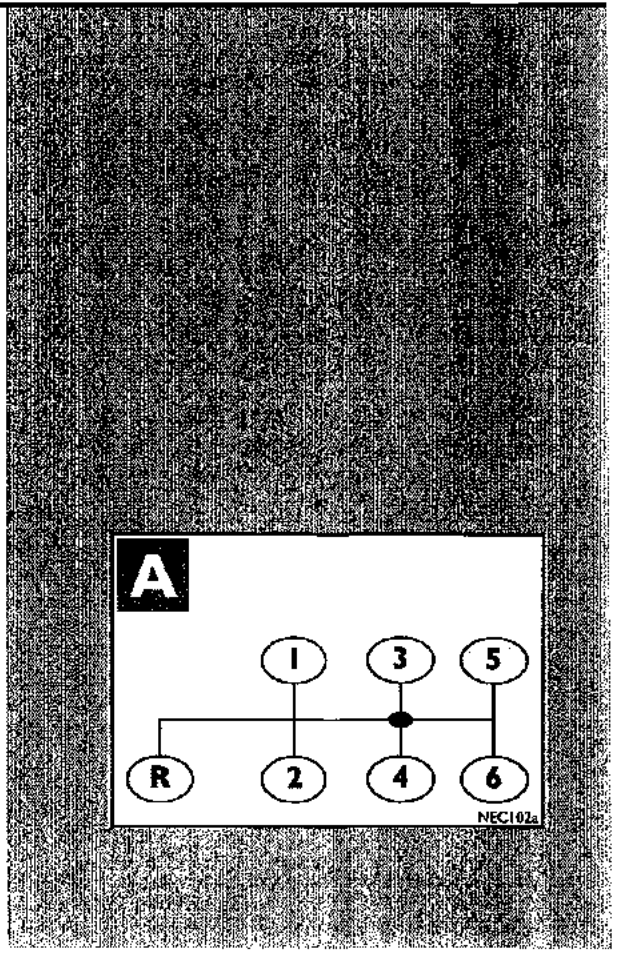
Manual gearbox use

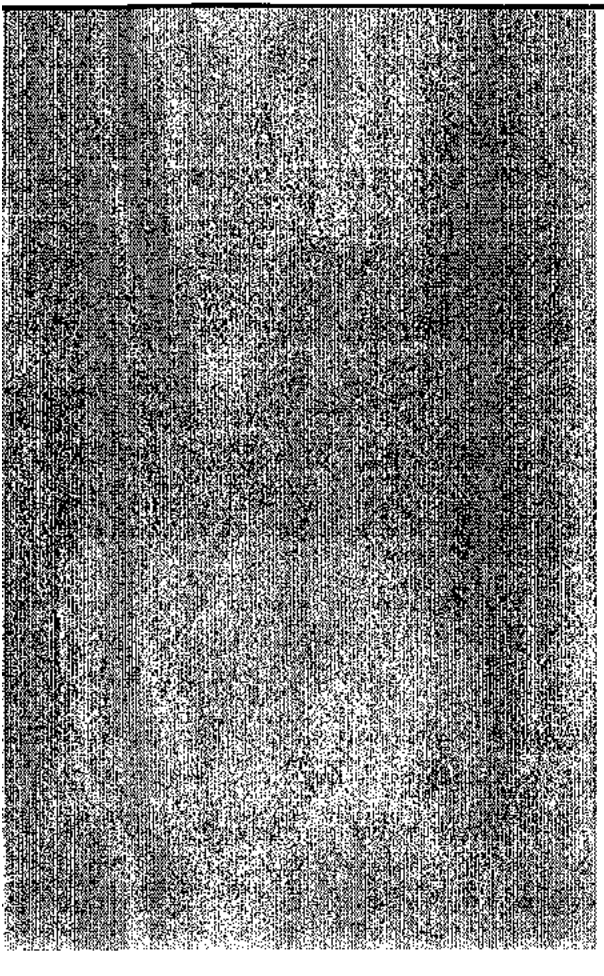
- Fully press down the clutch pedal; move the gear lever to the 1st speed position.
- Disengage the parking brake.
- Slowly release the clutch pedal and gradually accelerate.
- Engage the next gears. The engine must never exceed the rpm corresponding to maximum speeds, even downhill.

▶ **Attention!** Do not drive downhill in neutral or with the clutch disengaged. This may result in propeller shaft failure and personal injuries or collision. When starting, it is mandatory to engage the gears starting from the lowest ones (1st or 2nd). This will prevent early clutch wear.

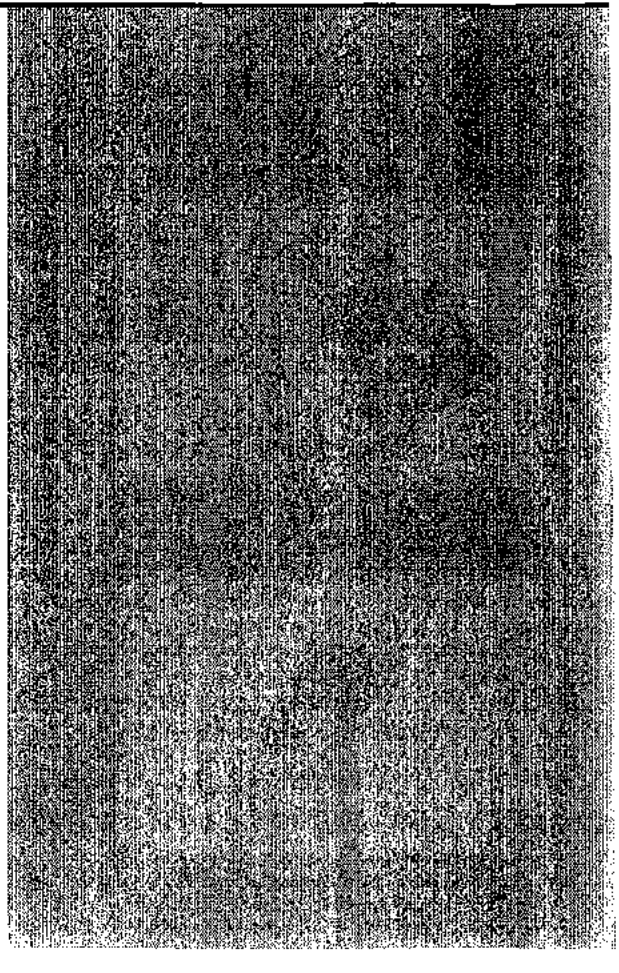
A 6-speed transmissions

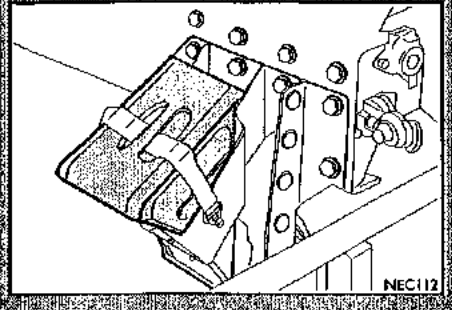
Note The vehicle will not start when a gear is engaged.

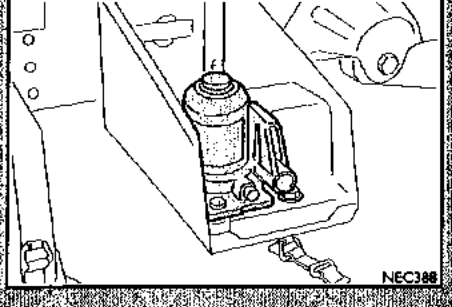




On-board equipment







▶ **Attention!** Each vehicle is delivered with a set of wrenches and other tools to enable the customer to carry out normal operation and maintenance jobs.

Chocks

(if provided)

Jack

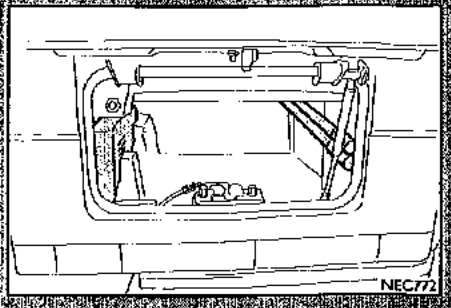
The figure alongside shows the location of the jack for lowering the spare wheel on models with a spare wheel holder at the side.

▶ **Risk of accident!** Do not leave objects in the cab that could move and hinder the controls or strike the occupants in case of a collision.

Jack rod, extension and manoeuvring hook

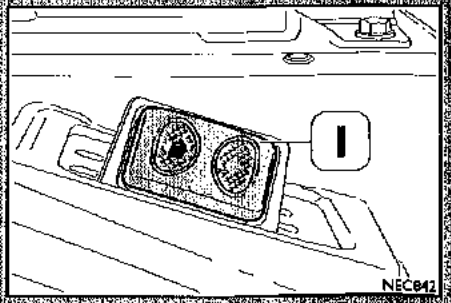
Manoeuvring extension

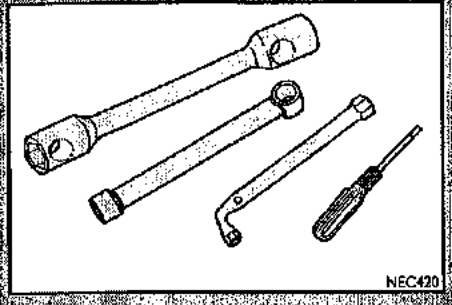
In short cabs the accessories are located behind the driver's seat.

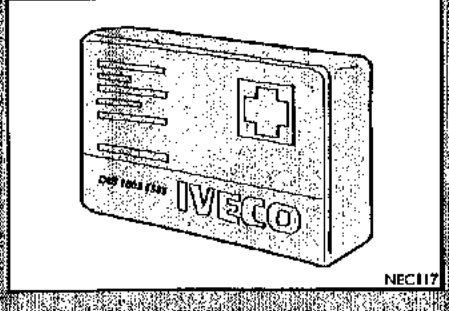


Screw-in handling hook

In long cabs the accessories are located in an external compartment that can be opened with the control (1) on the side of the seat.







Tool kit bag:

Contents:

Double socket wrench for 30 x 32 mm wheels.

Double screwdriver with a flat blade and for Phillips slots.

Double elbowed wrench 10x13 for dismantling front headlights and rear twinned wheels stand (valves on rim).

Wrench for dismantling box jack and for unlocking rear spare wheel holder.

The tool kit is located in the compartment under the passenger's seat.

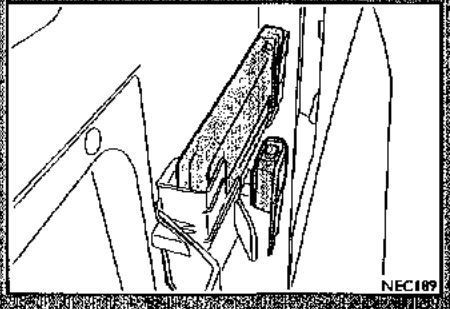
First-aid box

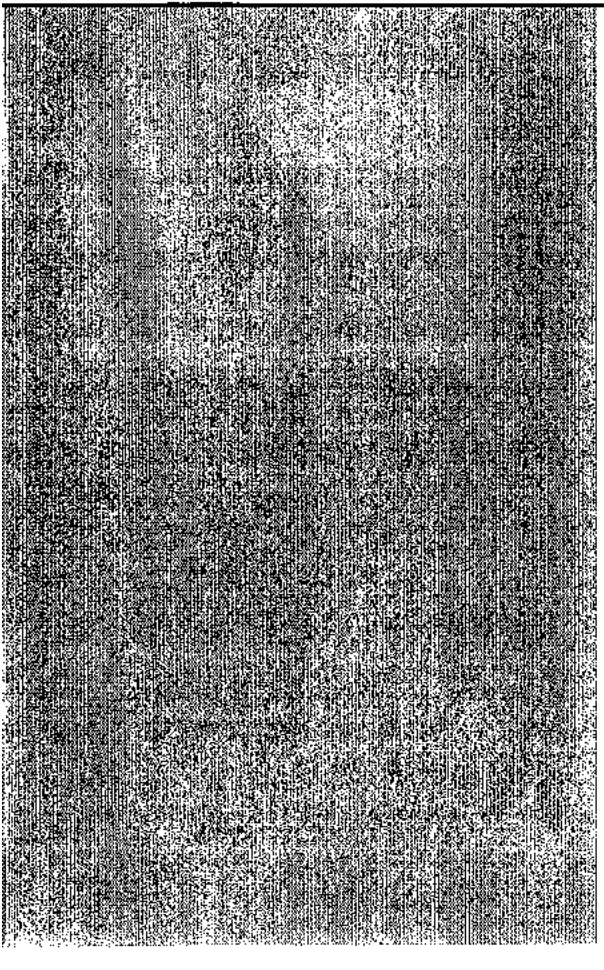
(if provided)

Emergency triangle and emergency lamp

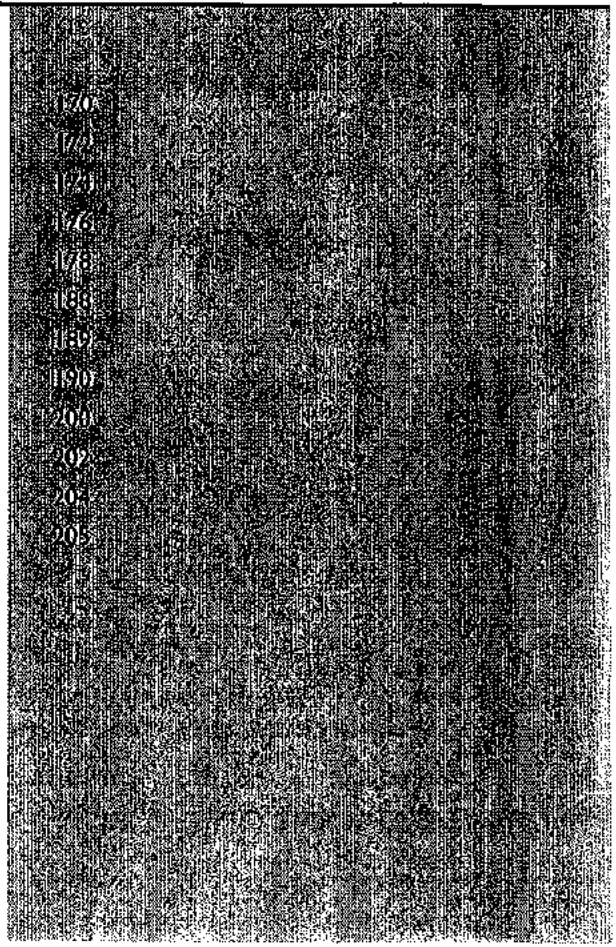
(if provided)

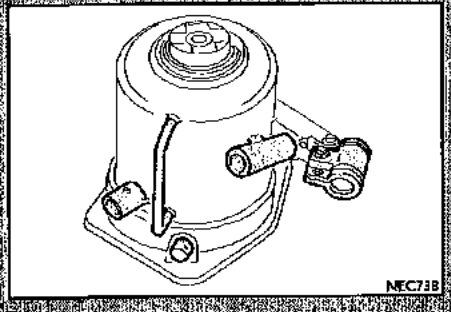
Located internally in the short cabs and in the external compartment of long cabs.





Operator roadside repairs





Jack

(if provided)

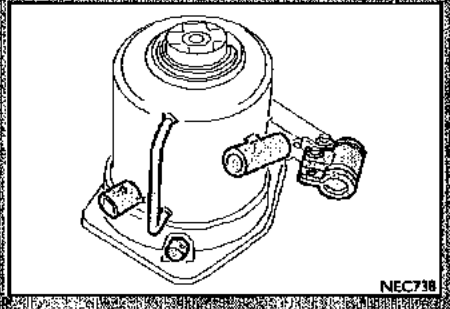
For the rules of inspection and maintenance, follow the instructions provided in the specific documentation provided by the jack manufacturer.

After using it, close it properly.

Attention!

- Risk of accidents. To use the jack you must scrupulously follow the instructions indicated on the plate attached to it.
- This jack must only be used for short periods, e.g. to change the wheel.
- Do not use the jack if the road surface is not solid and compact.
- Do not lift the vehicle without having clearly identified the lifting point.
- Do not position yourself (even partially) under the raised vehicle. If necessary contact the Service Network, which is equipped for this purpose.
- The jack should only be used to change wheels on the vehicle it was supplied with. All other uses, such as lifting other vehicles is strictly forbidden. Under no circumstance use it when carrying out repairs under the vehicle.
- If the jack is not positioned correctly it may cause the raised vehicle to fall. Do not use the jack for loads greater than those indicated on the label attached to it.
- The jack can not be repaired: if broken, it must be replaced with a new, original one.

- No tools other than the supplied lever can be used with the jack.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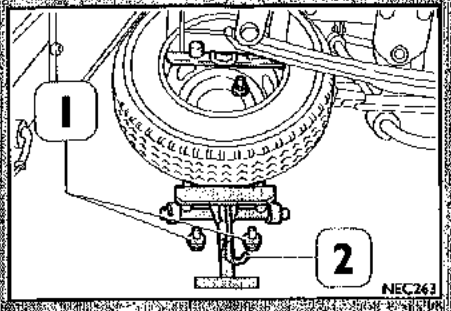
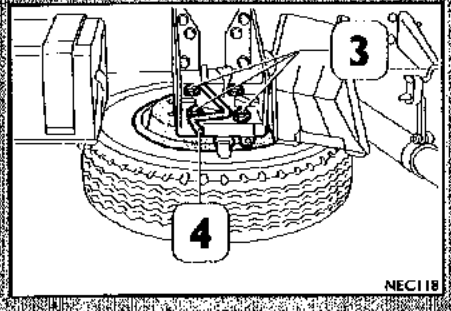




Spare wheel

Models with rear wheel holder.

To remove the wheel, proceed as follows:

- Unscrew both bolts (1) and pull the locking device (2).
- Lower the wheel holder slide and remove the attachment device on the opposite side.
- Remove the wheel nuts.

Attention! When refitting the new wheel, fully tighten the locking device on the spare wheel holder.

Models with side wheel holder.

To remove the wheel, proceed as follows:

- Unscrew the four nuts securing (3) the wheel to the wheel holder.
- Lower the wheel with the aid of the special tool (4).

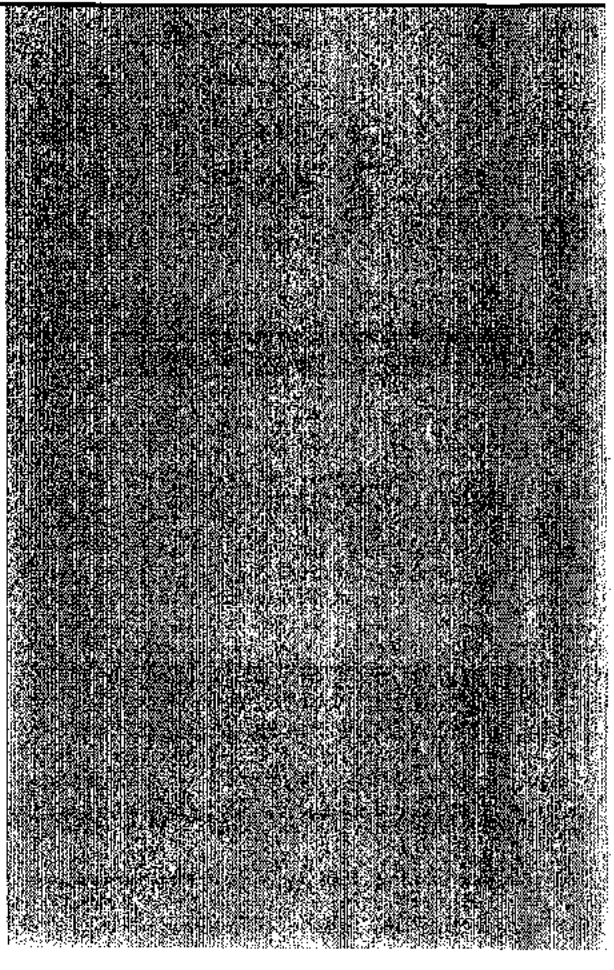
Attention! For reasons of safety, periodically check that the spare wheel is properly secured.

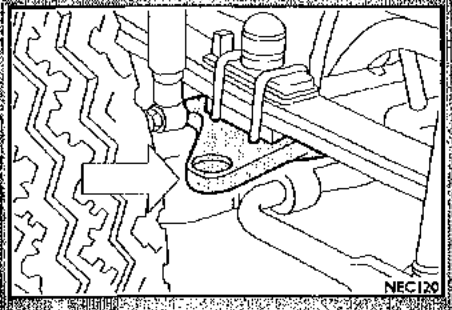
Changing wheels

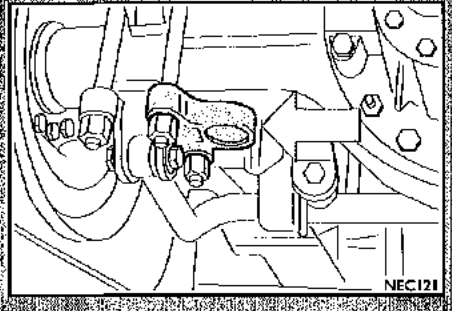
When changing the wheels you must take some simple precautions, as described below:

- Stop the vehicle in a position that does not constitute a traffic hazard and makes it possible to change the wheel safely. If possible the ground should be flat and compact.
- Switch the engine off and engage the parking brake.
- Put the vehicle into first or reverse gear.
- Block the wheels on the ground with chocks (if provided). The chocks must be used paired on the same axle.
- Where required by law, put on the reflector vest before leaving the vehicle.
- Indicate the presence of the parked vehicle in accordance with current regulations in force in the country where driving:
  - hazard lights;
  - reflective triangle;
  - other.

▸ **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the engagement position as described in section "Use of parking brake".







To change a wheel, proceed as follows:

- Stop the vehicle on firm and level ground.
- With the tyre to be replaced still resting on the ground, partially loosen the nuts of the wheel studs.
- Lift the wheel using the jack in correspondence of the points indicated in the two figures respectively for the front and rear axles.

Attention!

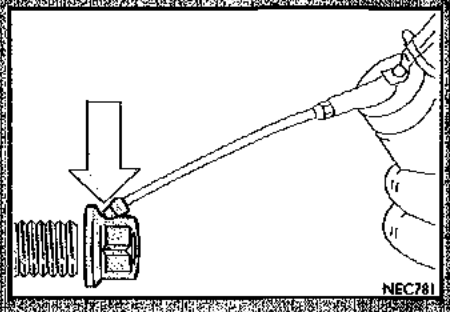
- It is important to remember that before lifting the vehicle, in addition to applying the parking brake, the wheels that remain on the ground must be blocked with chocks (if available).
- The chocks must be used paired on the same axle.

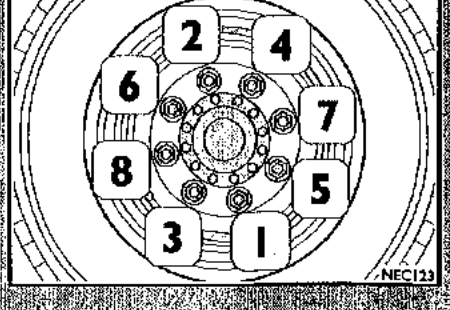
- Carefully clean the wheel studs, nuts and support surfaces before fitting the wheel.
- To achieve full tightening, slightly lubricate the contact surface between the nut and integral washer.

Note The above suggestion may also help if loosening the nuts in the future.

Attention!

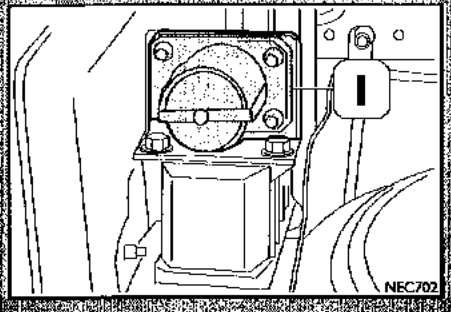
- **Important!** Do not use tools other than those supplied with the vehicle, since they are not suitable for correct tightening.
- With a new vehicle and after every wheel change, the nuts must be retightened after the first 50 km and after every successive 1000 km as stated on the decal.
- To prevent injuries to yourself and others, do not use wheels or fixing components other than the original ones.





- Lock the fixing nuts according to the sequence specified in the figure as described in the steps below using the tools provided.
- Tighten the nuts slightly until the wheel is correctly fastened on its mount.
- Lower the vehicle to the ground and finish tightening the nuts by applying manual force to the end of the lever (approx. 70 kg) (tightening torque applied manually is approximately the same as prescribed).
- Check the pressure in the tyre.

Tightening torques = 580 ÷ 650 Nm (58 ÷ 65 kgm)



Emergency start-up

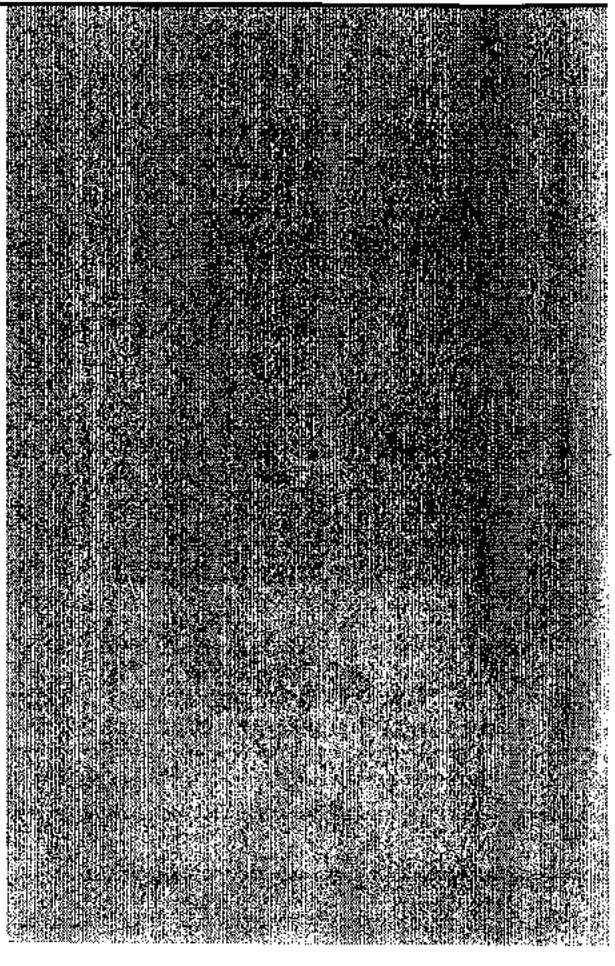
If the batteries are discharged the engine can be started in the following ways:

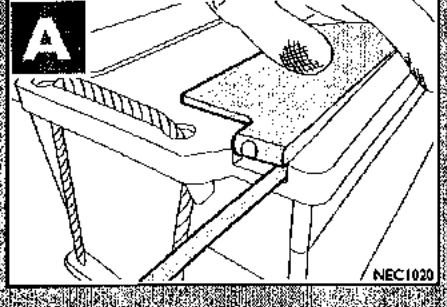
- If the vehicle is equipped with bipolar power sockets (1) it is necessary to connect it to an external 24V DC power source or the bipolar socket of another vehicle using a special cable.
- If vehicle is not equipped with the socket (1), use the emergency start cable and batteries of another vehicle for start-up.
- Use the cable to connect the positive terminals of the two batteries (marked with +).
- Connect a second cable from the negative (- sign) terminal of the charged battery to the ground of the vehicle with the discharged battery.
- Start the engine. When the engine is started, remove the cables by reversing the sequence described for connection.

Attention!

- Before connecting the start cable make sure that the operating tension is equal.
- Start engine using only cables provided; never use quick charge equipment! Observe the safety regulations.
- Use only emergency start cable (cable section to be approx. 70 mm^2) with insulated terminals.
- If recharging with battery charger connected to a network, before starting up the vehicle disconnect the battery chargers from the network.
- Overvoltage can damage the electronic components.

- A flat battery can freeze at -10°C, so before starting it must be thawed out.
- When starting, do not bend over the batteries, the acid fumes can cause severe burns.





Batteries

To ensure improvement of the electrical/mechanical characteristics, Iveco has introduced a new type of battery with significant technical enhancements:

- Better locking of plate assembly inside the container;
- Plates with enhanced mesh and shape;
- Variation of alloy used.

Improvement activity has greatly decreased water consumption, allowing for the development of batteries requiring reduced maintenance and a new type of labyrinth lid without any plugs.

This new type of lid integrates an exhaust system of the products generated by the gasification process via two small holes on the short side.

These must never be plugged by any sort of mounting or mud deposits.

Check (at least once a year) the fluid level inside the battery and top-off only using demineralised water by following the procedure below.

Note Procure the following materials before proceeding:

Distilled water;

Gloves;

Protective glasses;

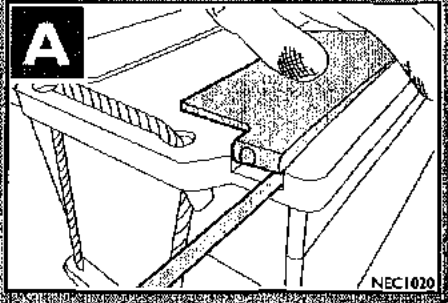
Flat head screwdriver;

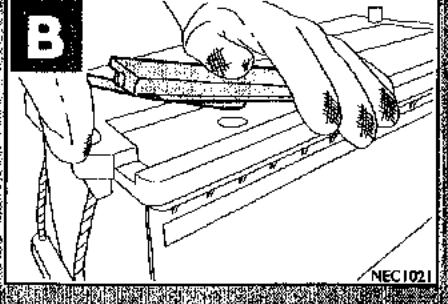
Rubber mallet.

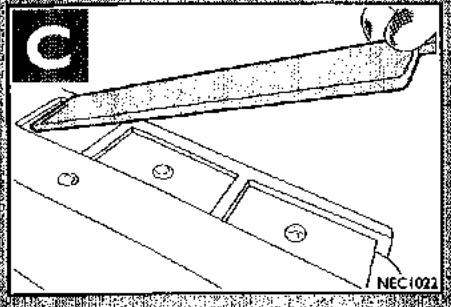
Attention!

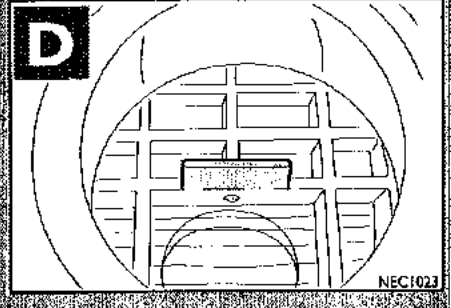
Risk of accidents! Wear gloves and protective glasses. Wear a smock to protect garments. Successively:

- lift the cap wedges by acting on the area of the bleed holes of the wedges (figure A);
- Use a screwdriver to help pry off the cap, **do not try to pull the cap off only after lifting it from the edge because this may cause permanent damage. (Figure B)**







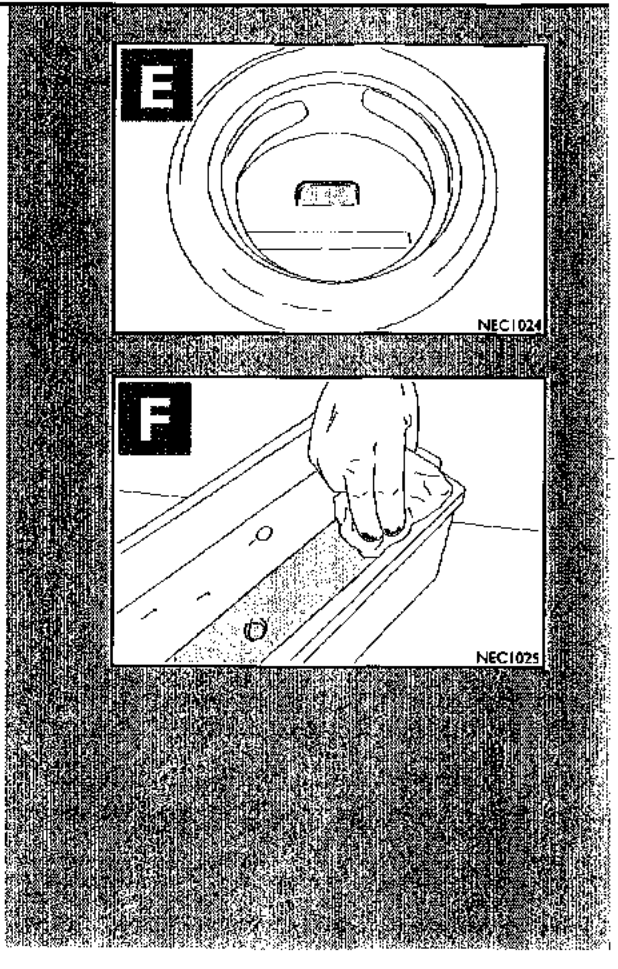


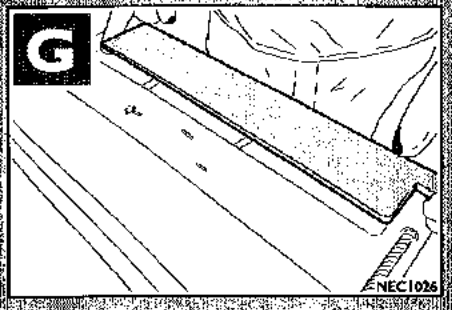
- After all holes have been freed, remove the plugs (figure C).
- Check the level of the electrolyte, using the dipsticks inside the battery.

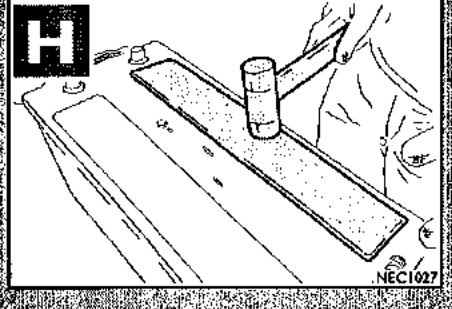
- The plastic dipsticks indicate the maximum electrolyte level (top part) and minimum level (bottom part). They can be of two different types: figure (D); figure (E) – next figure.

- Top-off using mineralised water and make sure to not exceed battery maximum level.

- Dry the plug container (figure F).





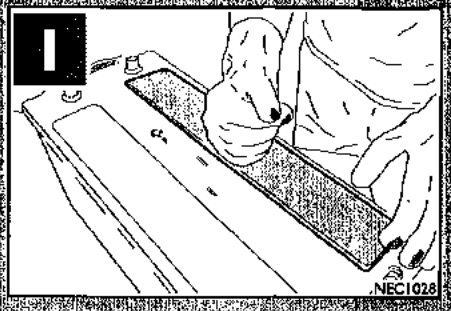


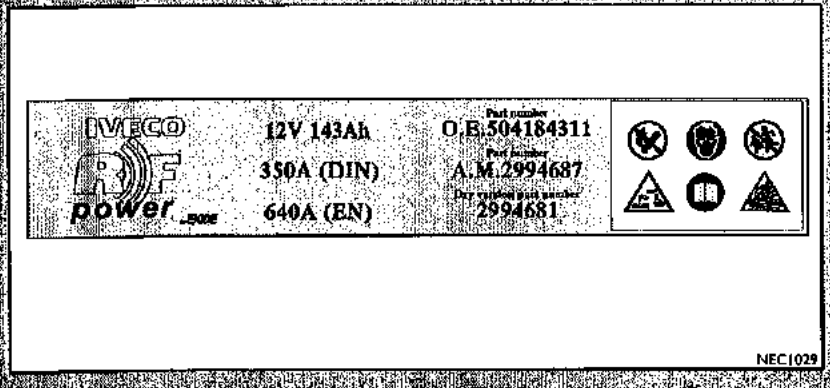
- Replace the plugs using, if necessary, a rubber mallet (figure G, H, I).

Attention! Do not use tools that may damage the caps.

- Figure H

- Figure 1





The battery in use on the vehicle mounts an electronic device below the label that is able to log all relevant battery information.

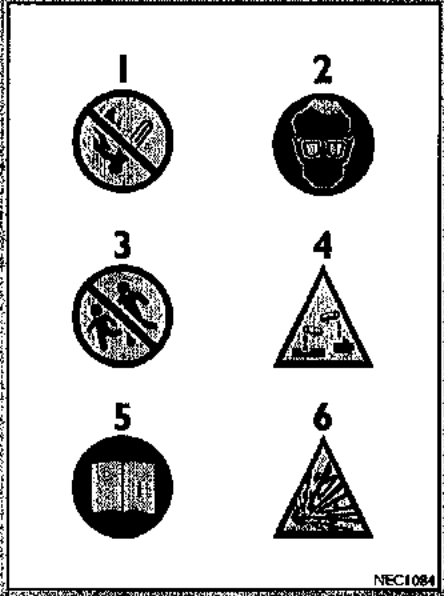
▶ **Attention!** Tampering with the plate voids the warranty.

The device is below the writing "IVECO RF Power", therefore **avoid the following** in order to prevent damaging the device and losing the useful information for battery replacement under warranty:

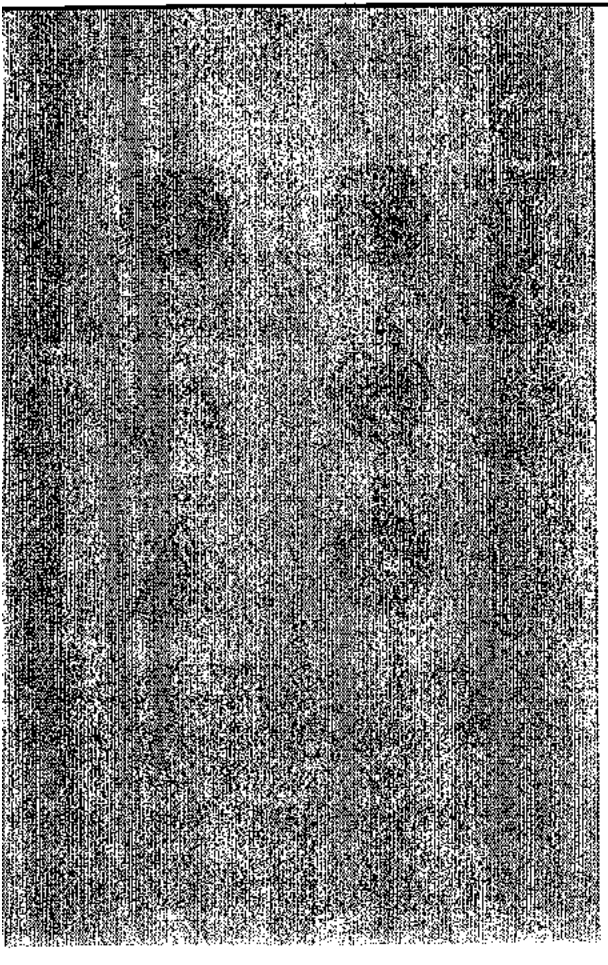
- Wash the battery installation area at high pressure;
- Wash using fluids other than water;
- Remove the label for whatsoever reason;
- Cut the label and/or damage it;
- Place any object above or near the area where the device is installed.

Warning for injury prevention while handling batteries

1. Smoking and handling of fires and naked flames is strictly prohibited. Do not generate sparks. Do not generate sparks while connecting devices or measuring instruments directly to batteries. Before disconnecting batteries, disconnect live devices (tachograph, internal lights, etc.) by removing the corresponding fuse in the control unit. Disconnect the ground first. Avoid short circuits caused by wrong connections or handling with fixed wrenches. Do not remove the caps from the terminals if not necessary. During connection, install the ground cable last.
2. Wear safety goggles or masks!
3. Keep acids and batteries out of the reach of children!
4. The battery contains acid. Wear protection gloves and garments. Do not tilt or overturn the battery; acid leaks from exhaust holes may occur.
5. Pay attention to the warnings in the operating instructions and the documentation of the battery manufacturer.
6. Risk of explosion! Special care is required after recharging the battery or after long trips. While recharging, explosive gas is produced (mixture of hydrogen and oxygen). Provide proper ventilation.



- Batteries include heavy pollutants. To replace the batteries we recommend contacting the Service Network, which is equipped for disposal compatible with the environment and the provisions of the law.
- Incorrect installation of electrical devices may result in serious damage to the vehicle. If, after purchasing the vehicle, accessories are to be installed, please contact the Iveco Service Network, which will recommend the



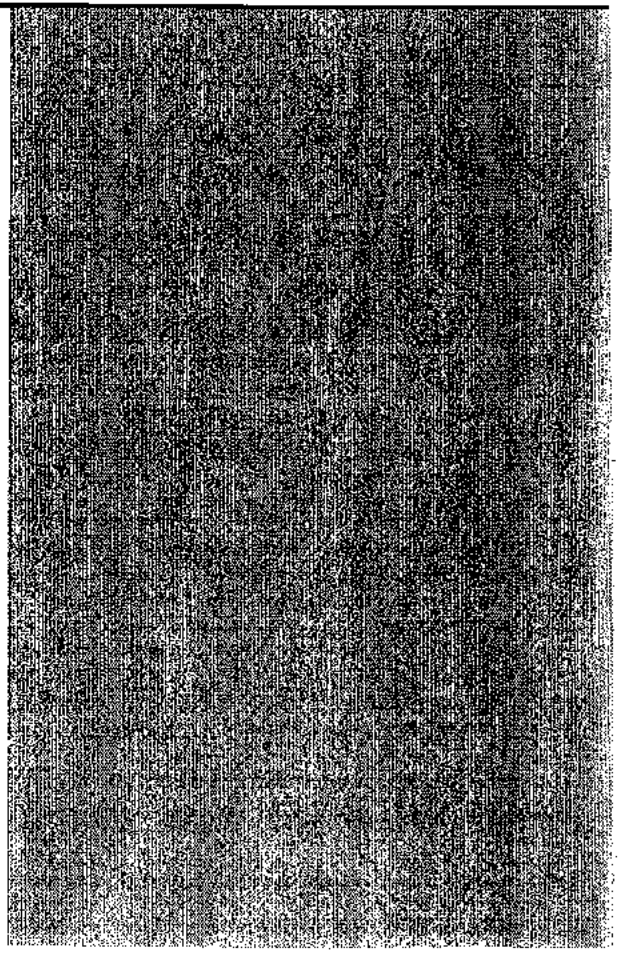
most appropriate equipment and will be able to advise on the necessity of using a battery with greater capacity.

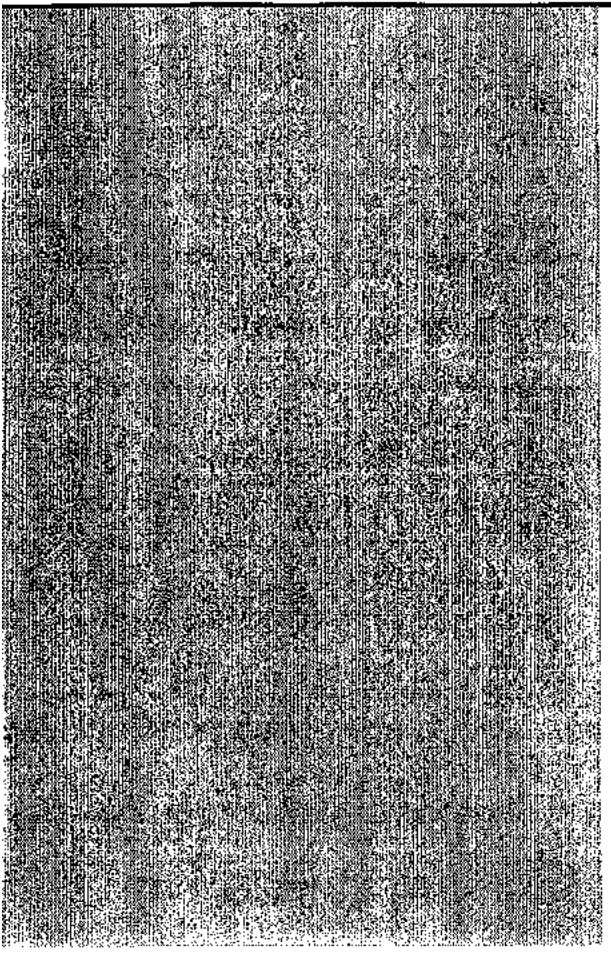
- The battery fluid is toxic and corrosive. Avoid contact with the skin and the eyes. Operations should be performed in a ventilated room and away from unprotected flame or possible spark sources (cigarettes, etc.): fire and explosion hazard.
- If the battery is left at 50% of total capacity, damage may result due to sulphating, impaired start performance and greater exposure to freezing (which may already occur at -10°C).
- The starting procedure described above must be carried out by skilled personnel, since incorrect actions can cause electrical discharges of substantial intensity.
- In order to prevent damage to the electrical equipment of the vehicle, rigorously follow the instructions of the manufacturer of the wiring, which must have sufficient cross-section and adequate length, so that the two vehicles do not touch.
- It is strictly forbidden to use a quick battery charger for emergency start-up: It could damage the electrical systems and in particular the systems that manage ignition and supply.
- Connection and disconnection from battery terminals may generate voltages that adversely affect vehicle electronic systems and control units. Such operations must be carried out by skilled personnel only.

Useful advice

In order to prevent rapid discharge of the battery and to conserve it during operating times, observe the following tips:

- Terminals should always be properly fastened.
- Do not keep devices on for long with engine off (car radio, lights, etc.).
- When the engine is shut off and the vehicle is left after being correctly parked, make sure that no inside or outside lights are left on.
- Before any work is performed on the electrical systems, disconnect the negative pole of the battery.





Precautions to be used with electronic control units installed

To prevent incorrect operations which may permanently impair or decrease control unit operations, follow the instructions described below:

- If arc welding is required on the chassis, disconnect the connectors from the control units; for welding close to the control unit location, remove the control unit from the chassis.
- Do not disconnect and/or connect connectors from/to the control units with engine running or control units powered.
- After any maintenance operation requiring battery disconnection, make sure that the terminals are properly connected to the poles when reconnecting the battery.
- Do not disconnect batteries with the engine on.
- Do not use a battery charger to start the engine.
- Disconnect batteries from on-board wiring for charging.
- Remove electronic control units whenever special operations are to be performed at temperatures exceeding 80°C.

It is strictly prohibited to apply paint to the engine or engine / chassis with control units / electronic components installed. If this seems necessary, use a specially designed, compatible paint (to be verified each time) and protect certain parts in accordance with the instructions given by the manufacturer of each component. Contact the Service Network for further explanations.

Operational precautions that must be observed

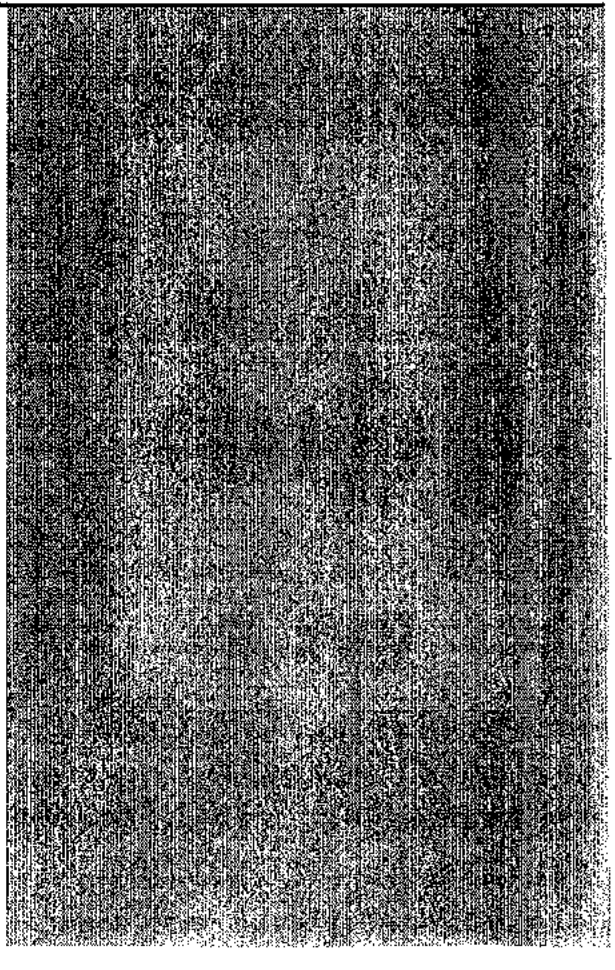
Before performing any repair operation on electrical system ECUs, and specifically before replacing engine start-up contactor if required, strictly comply with following instructions to prevent short circuiting:

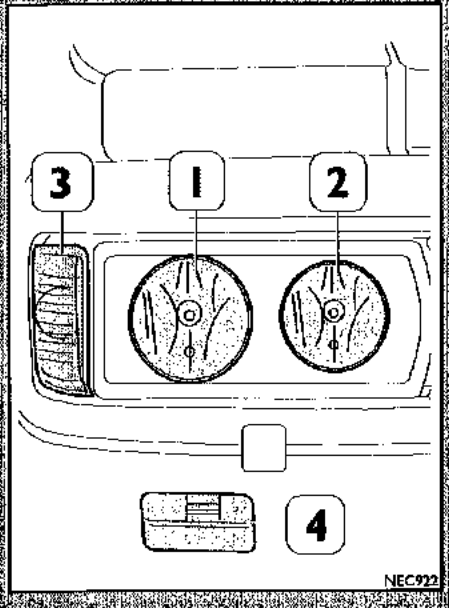
- Before extracting the contactor from the control unit, the main current relay switch must be switched off or battery connection terminals must be disconnected.
- Fit a new remote control switch if the plastic protection is accidentally detached or the remote control switch was opened for any reason when being removed from the control unit.

VDI (Vehicle Data Interface)

The vehicle can be equipped with an electronic component for reading the collected data called VDI (Vehicle Data Interface).

Data obtained from VDI are subjected to tolerances. To obtain this data, you need to use a computer with the necessary software.





Changing bulbs

Front lights (with metal bumpers)

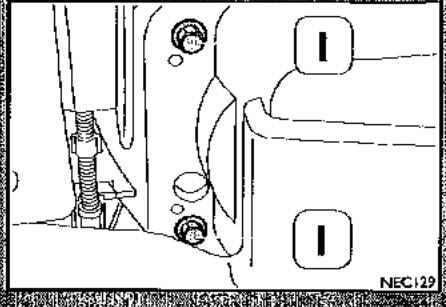
1. Side lights, daytime running lights and low beam lights.
2. High beam lights.
3. Front turn indicators.
4. Fog lights (if applicable).

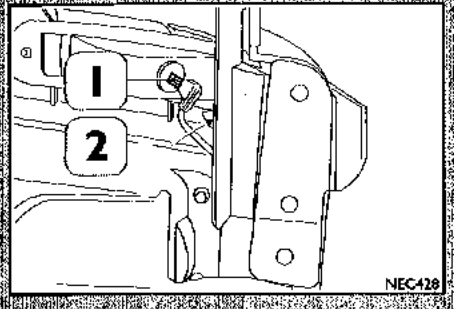
Side lights, low and high beam lights

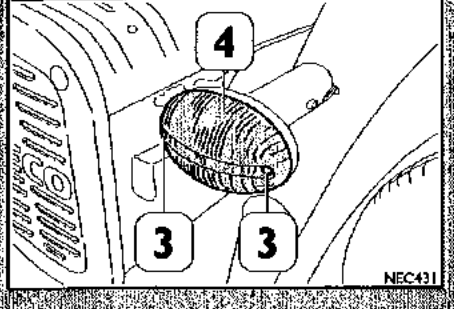
To replace a lamp in the front light assembly, proceed as follows:

- Dismantle the light assembly by removing the screws (1) using the appropriate wrench.
- Then unscrew the cover to gain access to the halogen bulb of the low beams (and/or the side light bulb).
- Remove the connection pin.
- Replace the halogen bulb.
- When fitting the new lamp, do not touch lamp directly with fingers, as this may adversely affect operation.
- Refit the connection pin.
- Remount the cover screwing it back on.
- Following the same procedure, unscrew the adjacent cover to gain access to the high beam light halogen lamp.

▶ **Attention!** The lamps and lamp holder can be very hot.







Front turn indicators

To replace the front indicator bulbs, proceed as follows:

- Remove the connection pins (1) (front turn signals) and (2) (side turn signals).
- Replace the light bulbs.
- Refit the connection pins.

Side turn indicator

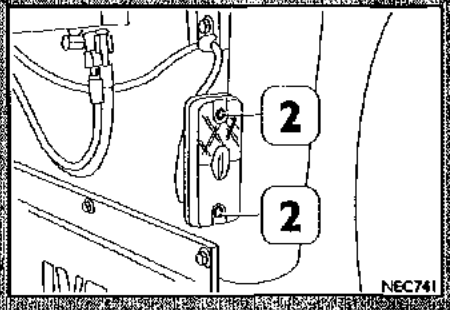
To replace the side indicator light bulbs, proceed as follows:

- Loosen the fixing screws (3).
- Remove the transparent cover (4).
- Replace the lamp.
- Refit the transparent cover(4) and retighten the screws(3).

Side marker lights

To replace the bulb, proceed as follows:

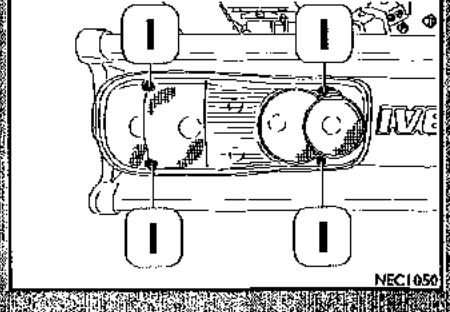
- Loosen the fixing screws (2).
- Replace the defective bulb.
- Retighten the screws (2).

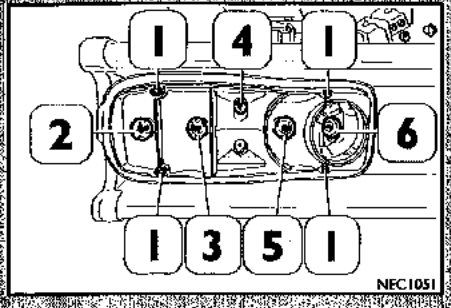


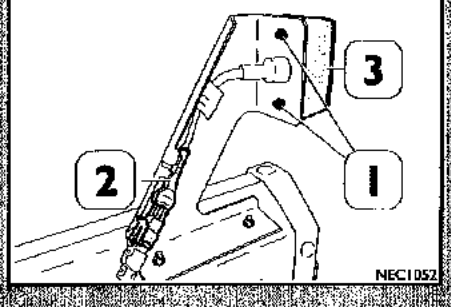
Rear lights

To replace a bulb in the rear light assembly, proceed as follows:

- Loosen the fixing screws (1) of transparent cover.
- Remove the transparent cover.







The bulbs are arranged as specified:

2. Spherical bulb for turn indicator.
3. Round bulb for brake light.
4. Spherical bulb for side lights.
5. Spherical bulb for reverse light.
6. Spherical bulb for rear fog light.

- Refit the transparent cover.
- Retighten the transparent cover fixing screws (1).

Rear markers

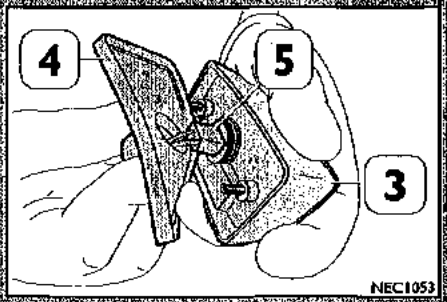
To replace the light bulbs, proceed as follows:

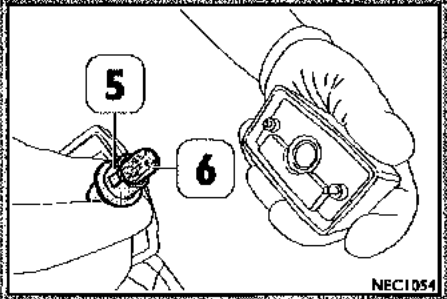
- Unscrew the locking nuts (1) of the light cluster(3).
- Release the connector (2).
- Remove the light cluster(3).

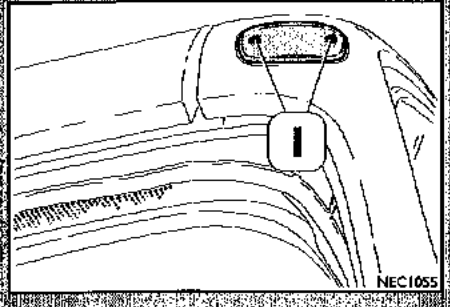
- Remove the gasket (4).

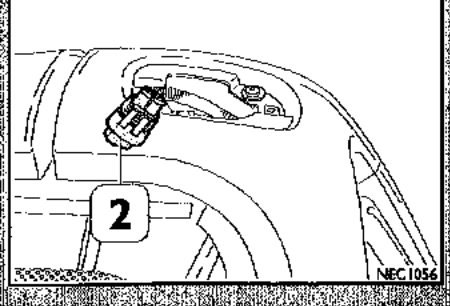
- Remove the bulb holder (5) and replace the bulb (6).

Proceed inversely to mounting sequence.









Top side clearance lights

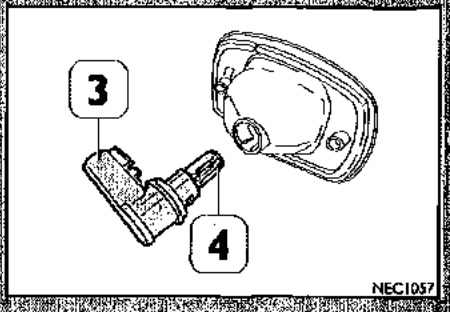
To replace the light bulbs, proceed as follows:

- Loosen the fixing screws (1) of transparent cover.

- Remove the light cluster and release the connector (2).

- Remove the bulb holder (3) and replace the bulb (4).

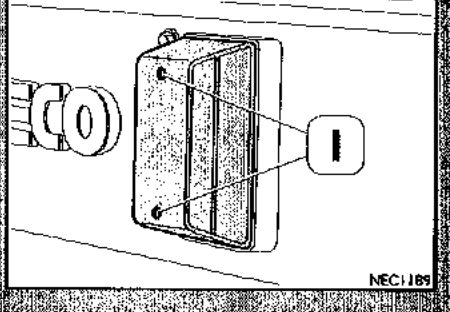
Proceed inversely to mounting sequence.

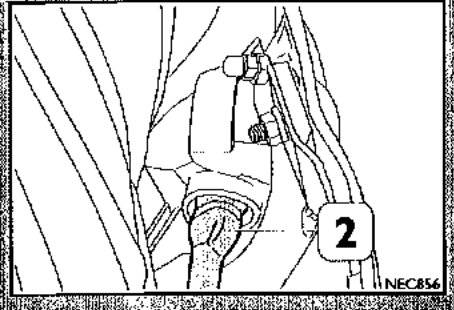


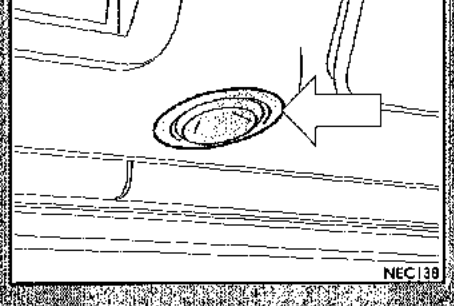
Spherical lamp for number plate light.

- Remove the screws (1).
- Remove the plastic cover.
- Replace the bulb .

Proceed inversely to mounting sequence.







Front markers

To replace the bulb, proceed as follows:

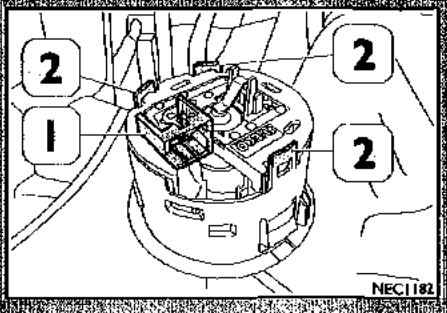
- Remove the connection pin (2).
- Replace the defective bulb.
- Refit the connection pin (2).

Inner lights

- Pry up on the side notches of the external fastening ring and remove it.

Note During the removal phase, be careful not to damage the panel.

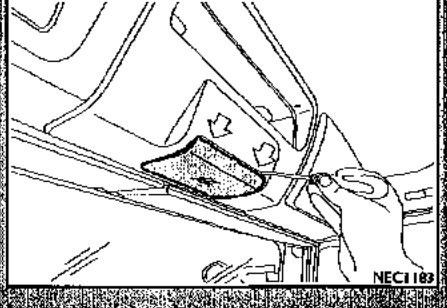
- Disconnect the bulb holder socket from the connector (1).
- Open the bulb holder socket using the side tabs (2).
- Remove the bulb and replace it.
- To refit the bulb, perform the above operations in reverse order.



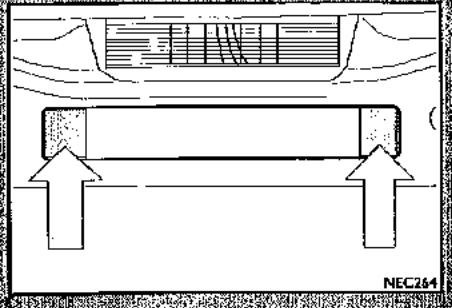
Internal lights (central ceiling light)

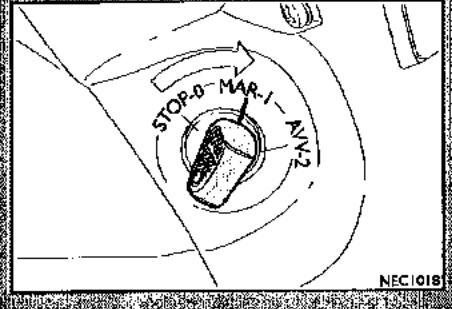
To replace the light bulbs, proceed as follows:

- Using a screwdriver or other suitable tool, pry up in the positions shown in the figure and remove the lens from the panel.
- Replace the bulb .
- Reposition the ceiling light, press fitting it.
- Refit the transparent cover.



Note During the removal phase, be careful not to damage the panel.





Towing the vehicle

(only by means of an approved tow bar: comply with the applicable towing regulations).

Attention!

- If towing is required, proceed as follows: Turn the ignition key to position MAR-I to release the steering lock. Use the screwdriver provided in the equipment and insert it into the point located under the cover shown (on the left-hand side for left-hand drive vehicles and on the right-hand side for right-hand drive vehicles), making sure it is correctly fastened.
- Detach the propeller shaft from the rear axle flange and secure it.
- The engine cannot be used for a tow start under any circumstances.

For towing with the front axle raised, make sure the vehicle ignition system is turned off or the ABS fuses have been removed.

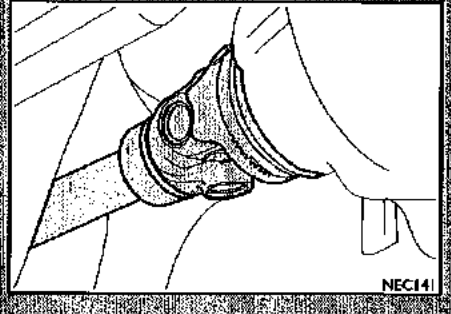
Attention!

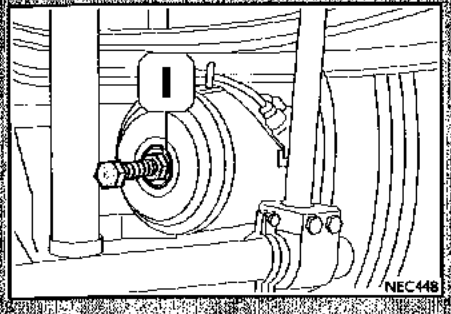
- Do not dismantle the axle shafts from rear axle to prevent major lubricant leaks.
- When towing a loaded vehicle, always use a rigid tow bar and do not lift the vehicle.
- Should this type of fault require lifting the front axle while towing, unload the vehicle or install a lifting bogie below the axle.

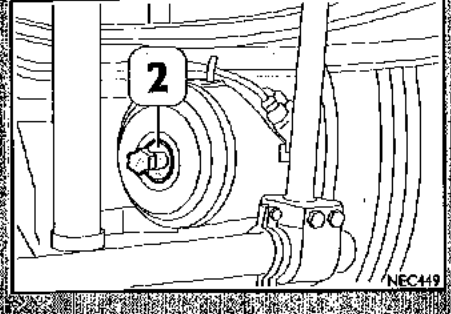
If the vehicle must be towed with damage to its mechanical components, proceed as follows (up to a max. towing distance of 100 km):

- Move the gear shift lever to neutral position in the fast range. (Disconnect the propeller shaft from the rear axle when the clutch is locked or the fast range can not be engaged).
- Max towing speed permitted 40 km/h.

- **Attention!** Should towing be required with the vehicle lifted, it is recommended to drive carefully on even road surfaces at max speed of 30 km/h and not to exceed 30 km/h. Carry out lifting and towing in a manner that complies with the legal provisions. Do not tow the vehicle with the reverse gear engaged to avoid damaging the gearbox.







Spring accumulator cylinder

If compressed air fails to reach the parking brake circuit, the vehicle is automatically braked by the spring accumulator cylinder. For towing purposes, release the brake through the brake release device. To achieve this, position chocks at the drive wheels and engage the parking brake lever.

Then proceed as follows:

- Turn the centre screw on the rear part of the cylinder counter-anticlockwise (from position "1" to position "2") to complete the stroke; do not exceed 35 Nm.
- Carry out the same operation on the cylinder of the opposite wheel.

Attention!

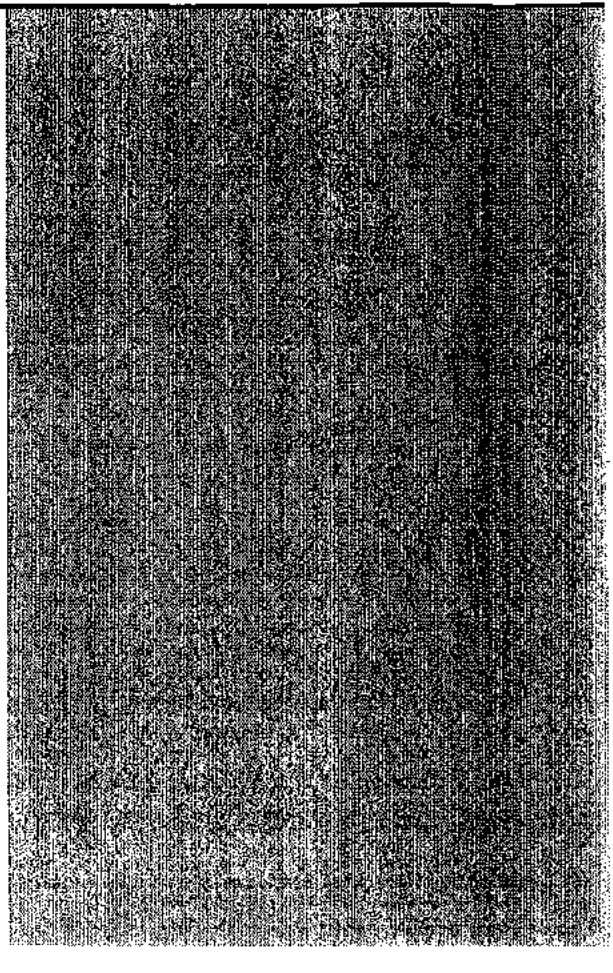
Under special circumstances, should the power steering assist mechanism fail, remember that the effort required for steering is considerably higher, even if the mechanical connection between the steering wheel and wheels that control the vehicle is still present. An optional integrated release mechanism

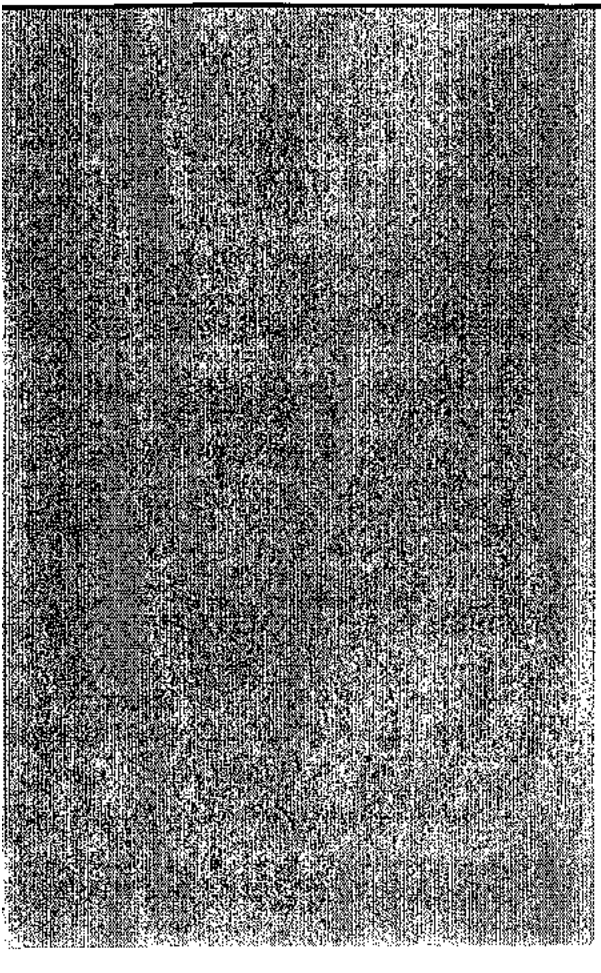
can be fitted on several models; turning the screw counter-clockwise on the mechanism releases a red pin to indicate the release position, while the screw remains fully engaged. It is also recommended to fill the tanks of the pneumatic system through the towing vehicle.

Attention!

Notice. After operating on the emergency release device, the vehicle must only be towed and must under no circumstances be driven autonomously.

- To restore both the functions and efficiency of the braking system, contact any workshop of the Service Network.





In case of anomalies on the engine cooling system

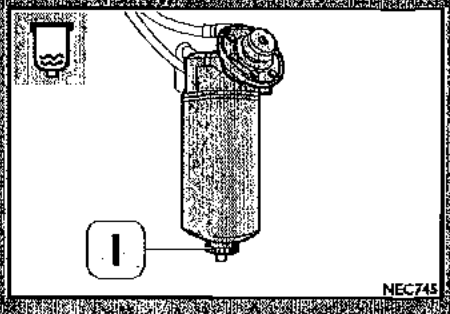
Fan

If the indicator for excessive coolant temperature lights up, stop the engine immediately and contact a Service Network workshop.

In case of anomalies on the engine electrical system

Fuel pre-filter

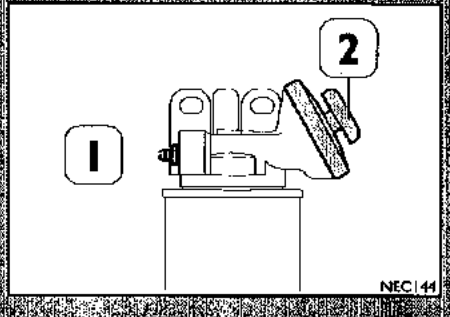
If the water in fuel pre-filter warning light illuminates on the display, drain off the water by unscrewing the cock (1).

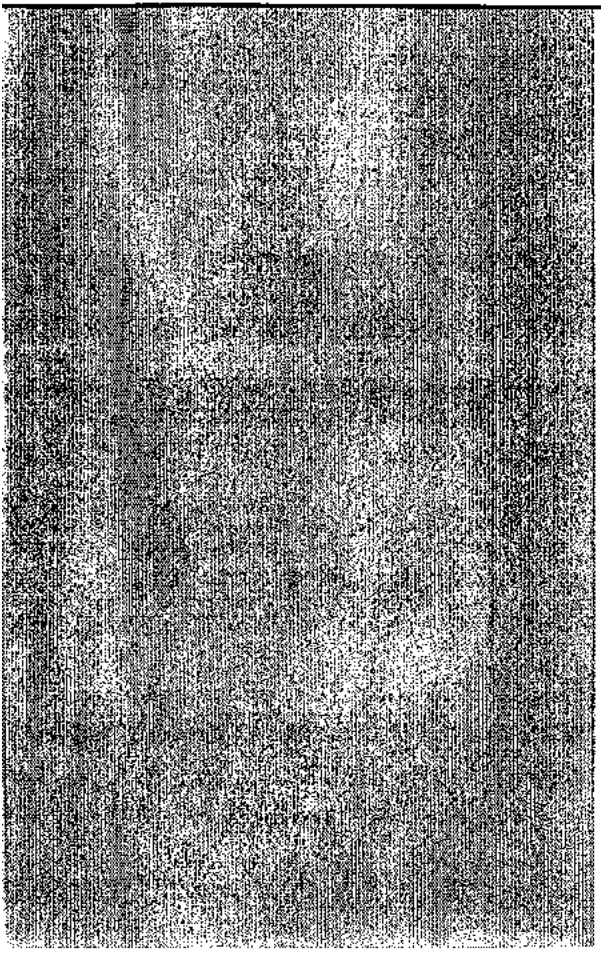


Bleeding air from the fuel circuit

Air bleeding from the fuel system shall be performed as follows:

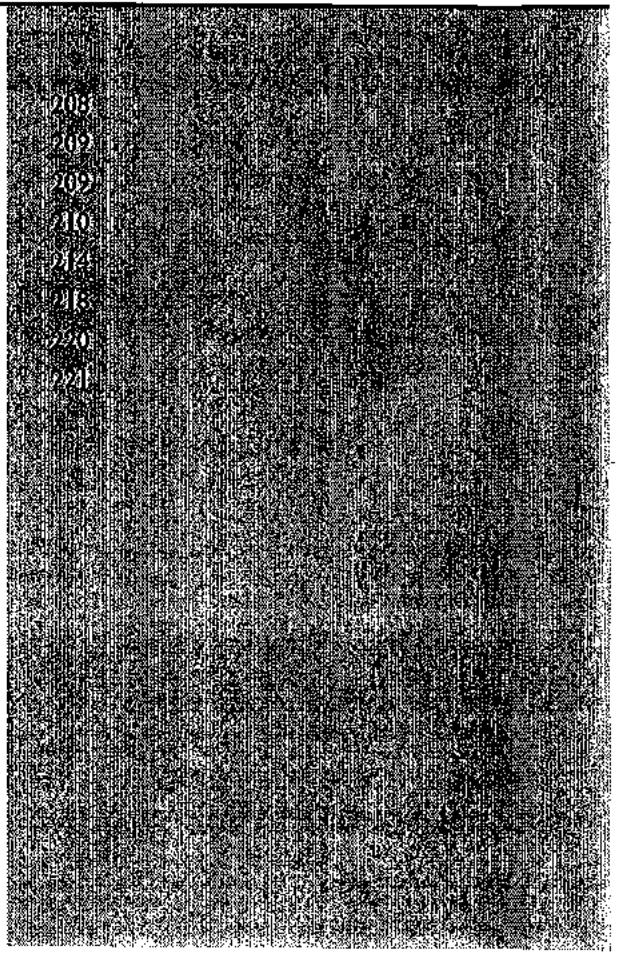
- Loosen the screw (1), connecting it to an appropriate pipe to direct the bleeding residues to suitable containers.
- Operate the manual control of the priming pump (2) until the fuel that exits the bleed screw does not contain air (1).
- Retighten the screw (1).
- Continue to activate the manual control until the priming pump (2) begins to run empty.
- Start the engine and let it run idle for a few minutes to remove any residual air.

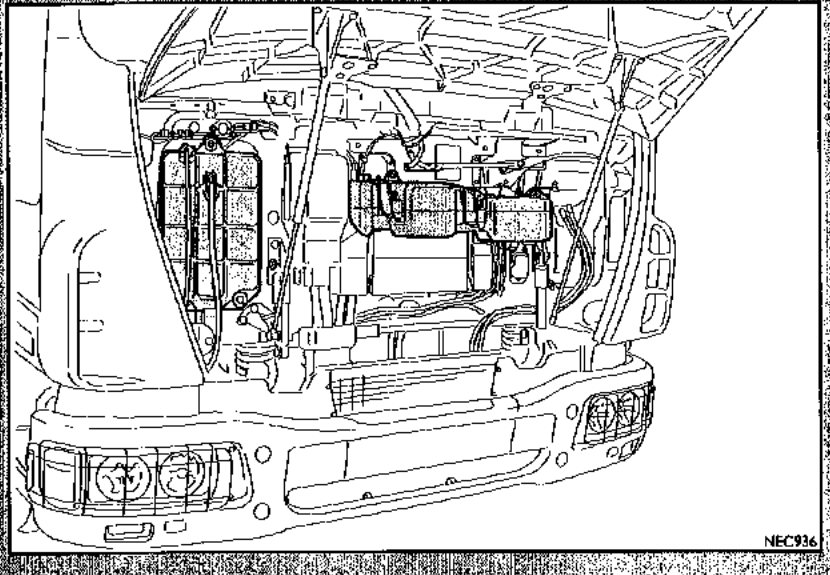




- **Fire hazard!** Be careful to tighten the bleeder screws to prevent dangerous fuel leaks.

Operator checks





Grille opening

- To open the front grille, simply pull and lift it.
- Do not operate the wipers when the front grille is lifted to avoid removing part of the grille paint.

Checks to be carried out

Before each trip

1. Engine oil.
2. Engine coolant.
3. Wiper fluid.
4. Power steering.

Every week

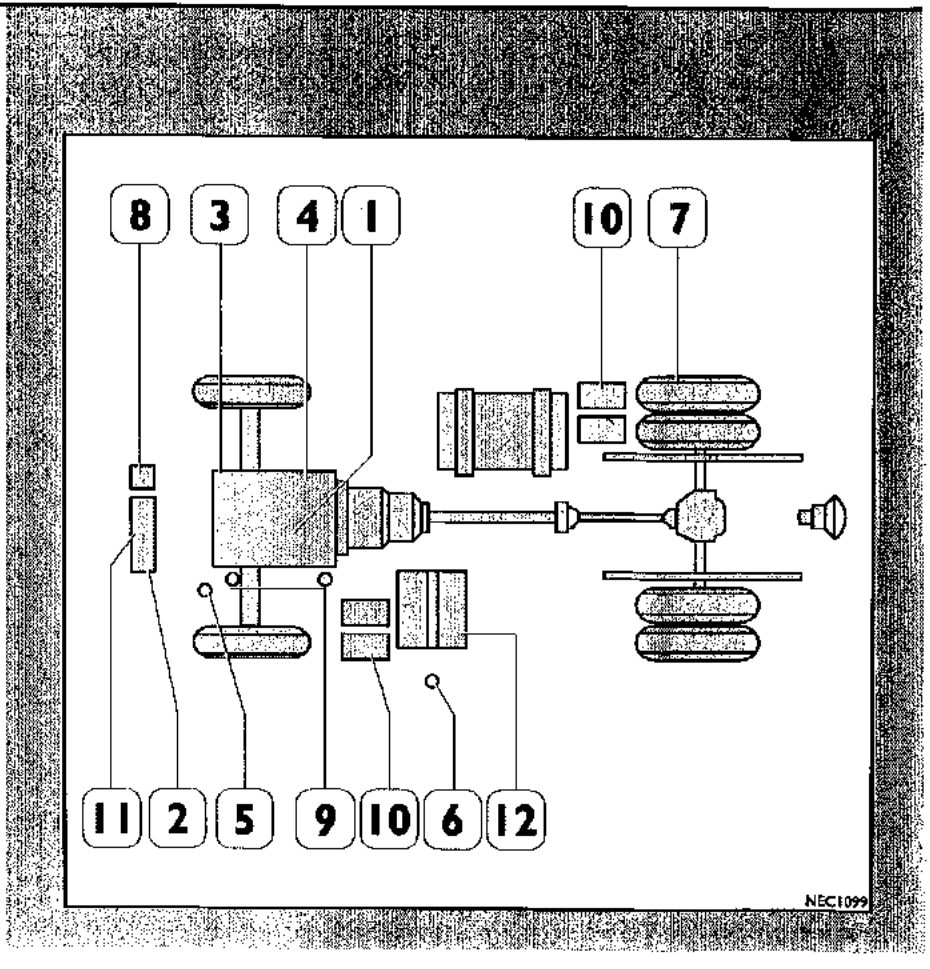
5. Fuel pre-filter.
6. Air drier.
7. Tyres.
8. Clutch fluid.
9. Cab tilting indicator light.

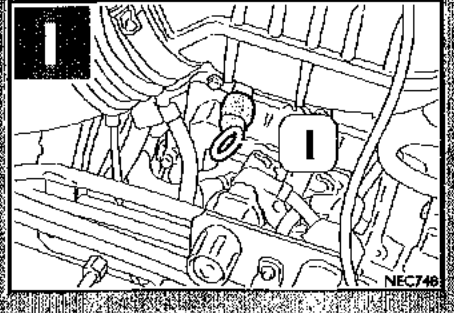
Every six months

10. Air tanks.
11. Pollen filter.

Every year

12. Batteries.





Before each trip

Check with the indicators on the Instrument Cluster:

- Engine oil level (at least 30 minutes after stopping the engine).
- Engine oil temperature.
- Engine oil pressure.
- Air pressure.
- No symbol displayed showing failures.

1. In the case of system fault, check the oil level via the dipstick (1) (by tilting the cab). This level must be between the reference marks on the dipstick.

If necessary, top up through the filler (2).

Attention!

- **Fire hazard.** After topping up, close the filler (2) properly to prevent dangerous oil leaks while driving.

Use the specific recommended product for topping up:

Urania LD 7

Urania FE

In any case, refer to the fluids and lubricants tables provided in the "Technical Specifications" (➠ Page 268)chapter.

2. Check the coolant level. It must be between the MAX and MIN reference.

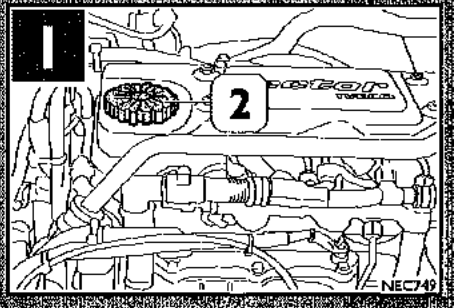
Top-up from the filler (1) only.

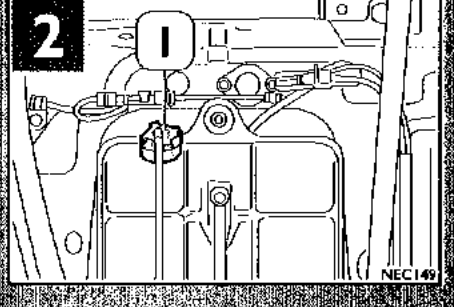
Attention!

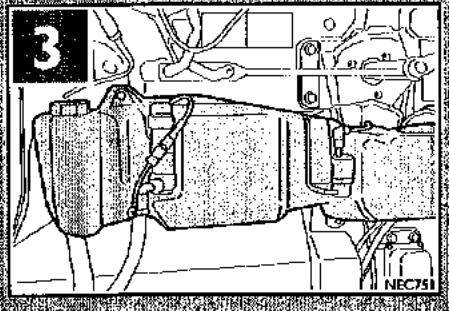
- Carry out the check only with the engine off and sufficiently cooled, otherwise opening the plug could cause hot fluid to spray out.

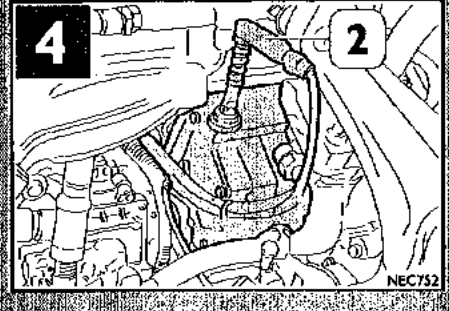
Use the specific recommended product for topping up:

Paraflù 11









3. Check the fluid level in the windscreen washer tank: should a top-up be necessary, we recommend a mixture of water and Tutela Professional SC 35 fluid.

Also check that the lines are not clogged; if necessary, clean the nozzles with a pin.

Attention!

- Some commercial windscreen washer additives are inflammable.
- pay attention to contact with hot parts of the engine.

4. Remove the power steering tank cap (2) (after detaching the sender) and check that the fluid level reaches the upper mark on the dipstick with the engine running and wheels straight. After the engine is stopped and with the wheels straight, the oil level should exceed the MIN level on the dipstick by 1 to 2 cm; Top-up if necessary.

Use the specific recommended product for topping up:

Tutela GI/A

In any case, refer to the fluid and lubricant tables provided in the chapter "Technical Specifications" (➠ Page 268).

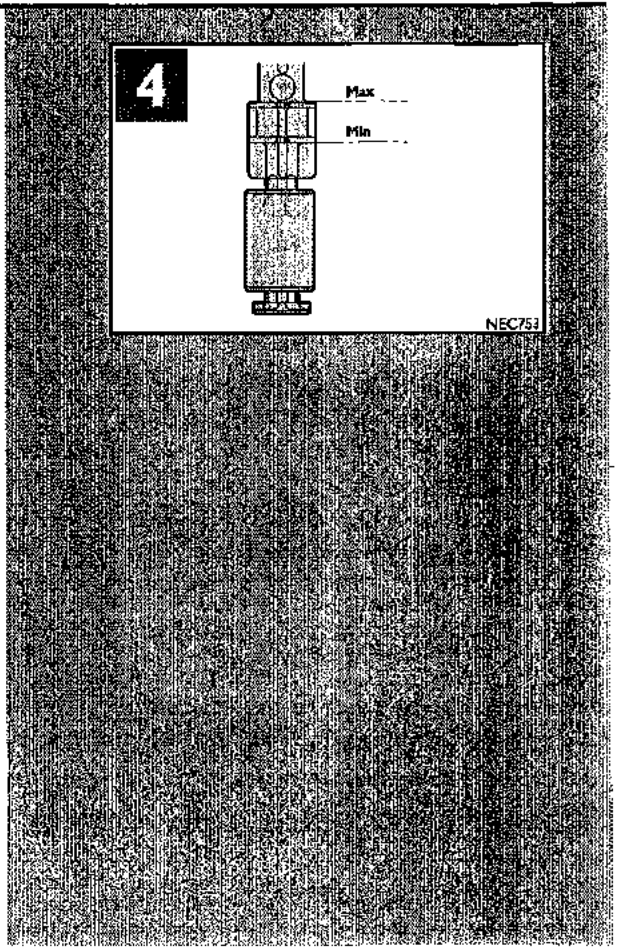
Moreover, check:

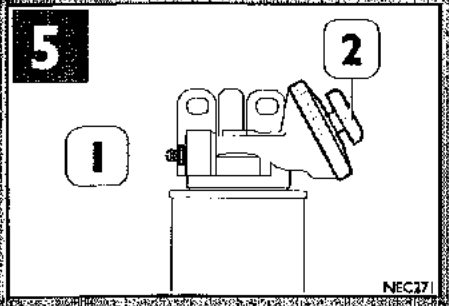
- The condition of tow hook (if fitted).
- The conditions of the tyres.
- The operation of the service brake, the parking brake and the engine brake.
- The operation of the lights, of the warning lights and the windscreen wiper.

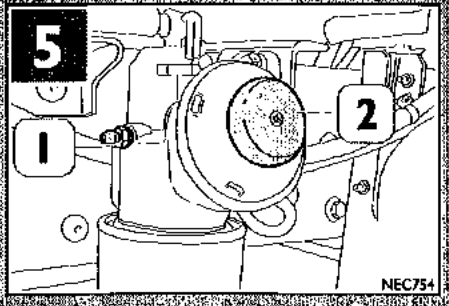
Attention!

► The brake fluid is poisonous and corrosive. In the event of accidental contact, immediately wash with water and neutral soap.

► **Risk of accident!** Make sure that the parking brake lever is mechanically locked into the mechanical position as described in section "Use of parking brake".







Every week

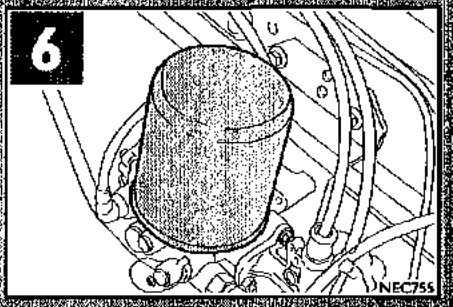
5. Drain off any air that may have accumulated in the diesel oil pre-filter as follows:

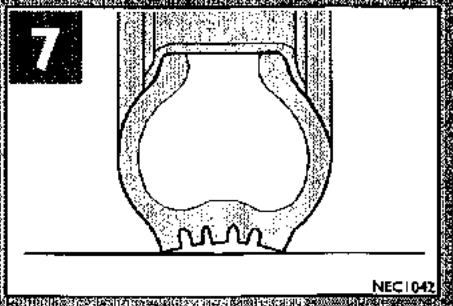
- Loosen the screw (1), connecting it to an appropriate pipe to direct the bleeding residues to suitable containers.
- Operate the manual control of the priming pump (2) until the fuel that exits the bleed screw does not contain air (1).

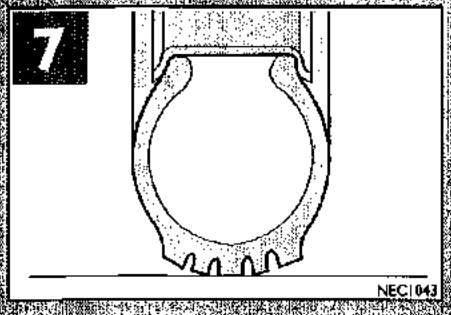
- Retighten the screw (1).
- Continue to activate the manual control until the priming pump (2) begins to run empty.
- Start the engine and let it run idle for a few minutes to remove any residual air.

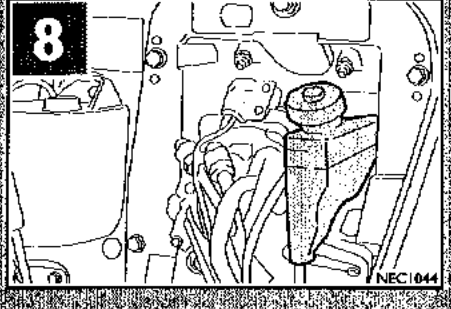
6. Check whether the air dryer works properly by operating one of the air tank bleed valves. In this case the air must exit the tank with little or no trace of condensation. If you start detecting substantial condensation, perform the check at shorter intervals to determine if the dryer is only temporarily overloaded or if its operation is permanently impaired. In the first case the exit of condensation must disappear again quickly as soon as the functionality of the granules has regenerated. Otherwise, it is necessary to replace the cartridge since the capacity of the granules to absorb moisture has been drastically reduced by the action of oil, dirt, carbonaceous deposits, etc.

7. Check the state of wear and pressure of the tyres (including the spare tyre). If pressure is low, tyres tend to wear on the outside part of the tread when driving.









If the pressure is too high, the tyres tend to wear in the centre of the tread when driving. If abnormal wear is found on the front tyres (on the inner or outer section of the tread) have the front wheel alignment checked. Do not exceed the maximum weight per axle (when the vehicle is fully loaded).

Then replace the pair of tyres mounted on an axle when, as a result of the tread pattern wearing out, continuous bands extending over the entire width of the tyre appear clearly on the tread.

In addition, the tyres show other indications of wear: replacement of the tyres is mandatory when the said indicators of wear of tread appear.

8. Check the fluid level in the clutch release control tank.

Top up only using **Tutela TRUCK DOT SPECIAL**. (the MIN clutch fluid tank level corresponds to a new clutch; the MAX clutch fluid tank level corresponds to a worn clutch).

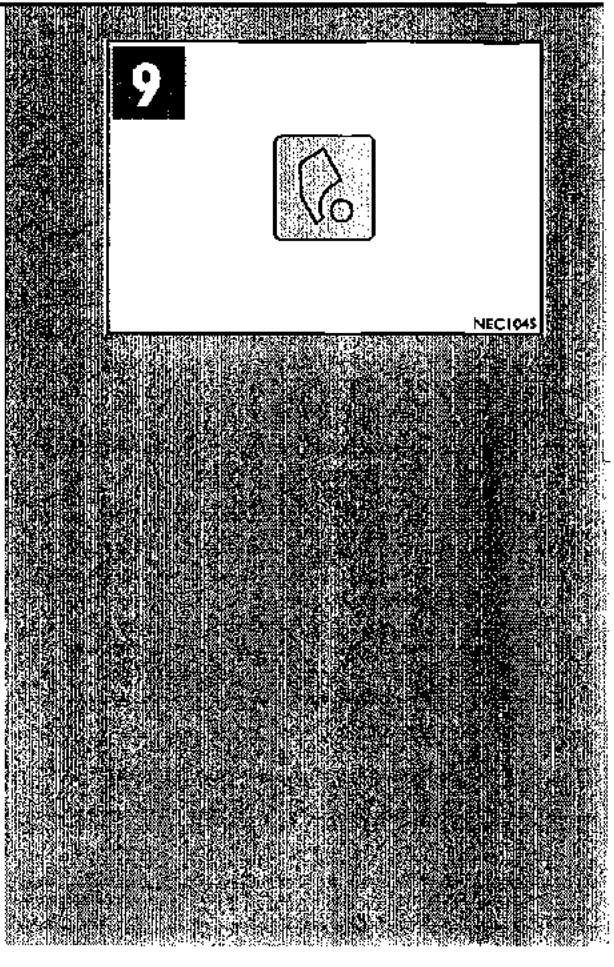
Attention!

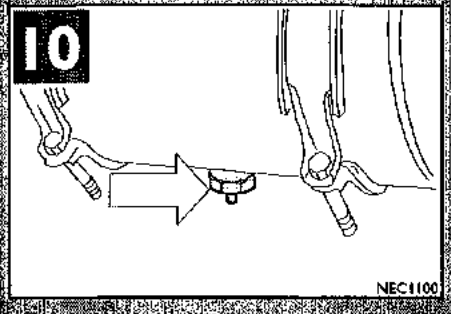
- The clutch fluid is toxic and corrosive: in the event of accidental contact immediately wash with water and neutral soap.

9. Check the operation of the unhooked cab signalling icon.

Carry out the following operations:

- Visual check of the integrity of the exhaust gas system.
- Visual check of radiator protective grille cleanliness. If necessary, remove it and clean it.





Every six months

10. Bleed condensation from the air tanks by operating the device shown in the figure.

▸ **Take care of your eyes!** During bleeding, there is the danger of grains of powder shooting out.

Operating conditions

The operating conditions of the tanks (operating pressure and temperature) are to be found on the plates on the tanks. The area of use must be in compliance with the said conditions. When operating, the tank must not be submitted to stress other than that due to normal operating pressure and its weight. The tank is intended to be used only in compressed air systems.

Maintenance

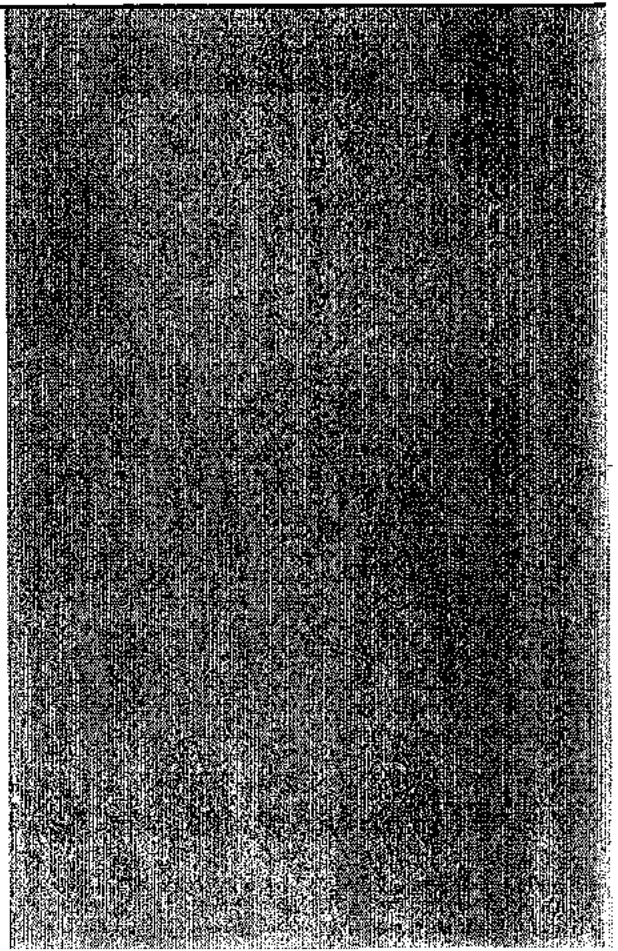
Air tanks are maintenance-free provided the following instructions are complied with:

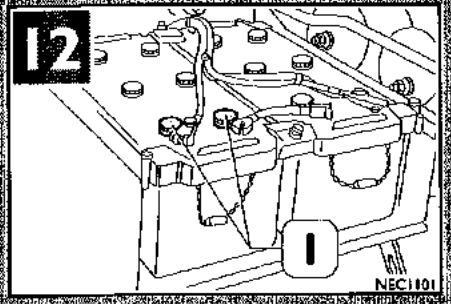
- Any painting must be preceded by a preparatory coat.
- Surface treatment of the fasteners by means of passivation of the components.

- Be extremely careful not to damage threads and/or bleeding devices applied, if any.
- Clean with alcohol-free products.
- Internal inspection through connection.
- Periodic discharge.
- Carry out an external and internal inspection at least once a year, to check whether the thickness of the tank is in compliance with the expected value.

Do not heat-treat or weld tank walls. If dented, replace the tank.

11. Check the level of clogging of the pollen filter. It is accessible by lifting the front grille.





Every year

12. Check the electrolyte level in the batteries through the plugs (1). Refer to the "Operator roadside repairs" chapter for more information about the detailed control operations.

Note If the vehicle will not be used for more than one week, disconnect the battery's negative pole.

Caring for the vehicle

Maintenance of the body

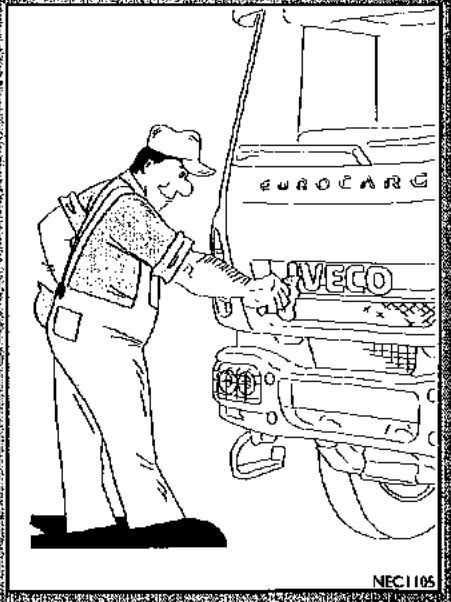
Regularly wash the vehicle with neutral products and water.

The frequency of washing depends on the following factors:

- Areas with high atmospheric pollution.
- Travelling on streets treated with de-icing salt.
- Parking under trees producing resinous substances.
- Do not use brushes with hard bristles or dirty cloths so as to avoid deep scoring of the varnish layer and clouding of external plastic parts.
- Carefully dry to remove any water spots.
- Do not wash the vehicle after prolonged exposure to the sun; otherwise the paint shine may be altered.
- Do not immediately place the vehicle in a closed area, but leave it in the open air to facilitate evaporation of the water.

Attention!
Warning! Detergents pollute water.

- Therefore, wash the vehicle in an area equipped for collection and purification of the fluids used for washing.



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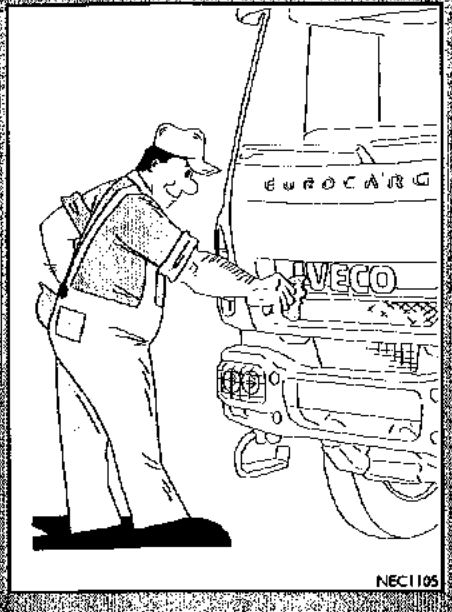


Cleaning plastic parts

The external plastic parts are cleaned using the same washing procedure as the vehicle.

If there are still traces of dirt, the use of specific products is recommended, following the manufacturer's instructions carefully.

The use of such products is also recommended for cleaning the plastic protective coverings inside the passenger compartment (dashboard, doors, etc.). Do not use products for cleaning paints or products containing aromatic solvents, methanol or hydrocarbons.

Window cleaning

Use specific products for cleaning; use well cleaned cloths in order not to scratch the glass or alter its transparency.

Cleaning the plastic sun visor

Use neutral soap and water only. If residue remains and proves difficult to remove (e.g. resinous matter), dab cooking oil on the stains, then wash again with neutral soap and water only. Do not dry-clean the sun visor: this may scratch or damage the surface.

ATTENTION: To clean the sun visor, do not use products containing AROMATIC SOLVENTS, KETONE ESTER, METHANOL, HYDROCARBON, DENATURED ALCOHOL, as these may damage the plastic and result in MICROCRACKS, which may later cause the sun visor to break.

Cleaning the interior and fabric parts

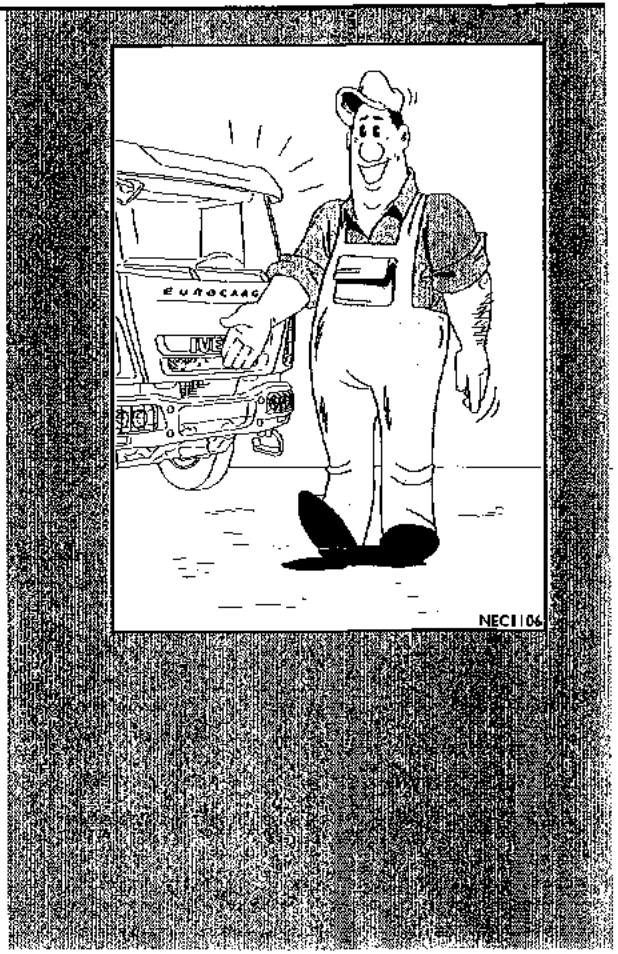
Dust may be removed from the seats and the fabric parts with the help of a soft brush. More intensive cleaning can be carried out with dry foam and solvents in general. Use these substances with care, because they are inflammable and emit vapours. Therefore ensure adequate ventilation of the cab until they dry. Chlorate solvents (trichloroethylene, hyperchlorite, etc.) must not be used. Do not use water jets for interior cleaning because they may damage electrical components installed under the dashboard and/or the underside of the seats; take the necessary precautions to safeguard their correct function.

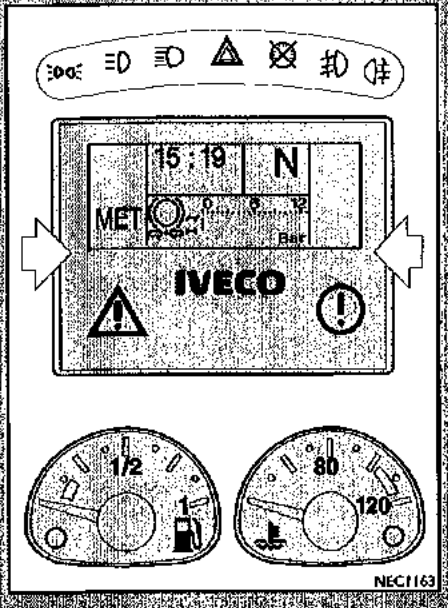
Plastic decorations on the sun visor

Decorating the sun visor by painting or applying decals, stickers, or self-adhesive film is possible if they conform to the following conditions:

- Painting with two-component paints (of the polyurethane type) suitable for the type of plastic of the sun visor only is allowed; do not use paints containing aromatic solvents, ketone or esters;
- do not apply decals, labels, films or any PVC-based stickers; the use of specific polyester or polyethylene-based products for polymethylmethacrylates is recommended.

ATTENTION: non-compliance with the conditions listed above can alter the plastic material of the sun visor, which may cause the sun visor to break.





Windscreen wiper, windscreen washer and headlight washer

Periodically inspect the blades: if they are worn and soiled, they can significantly reduce visibility. Regularly clean the glass removing grease and grime, dirt and tar; the service life of the wipers will thereby be prolonged considerably.

Before operating the windscreen wipers, remove any snow or ice present; in temperatures below zero make sure that ice has not stuck the rubber part to the glass before operating the windscreen wipers. If necessary, use a de-icing product to release the blades. Do not operate the windscreen wipers on dry glass; if the rubber wipers are deformed or have worn tracts, replace the wipers.

Make sure that both the spray nozzles of the windscreen and those of the headlight washers (if provided) eject an adequate jet of liquid and are correctly aligned. In case of malfunction of the nozzles, check that the supply circuits are not obstructed; remove obstructions from the exit holes with a pin, if required.

Display cleaning

Extreme care is to be taken with the display.

Do not use sharp objects as these may scratch or damage the display.

Use a soft, clean and dry cloth to clean the display.

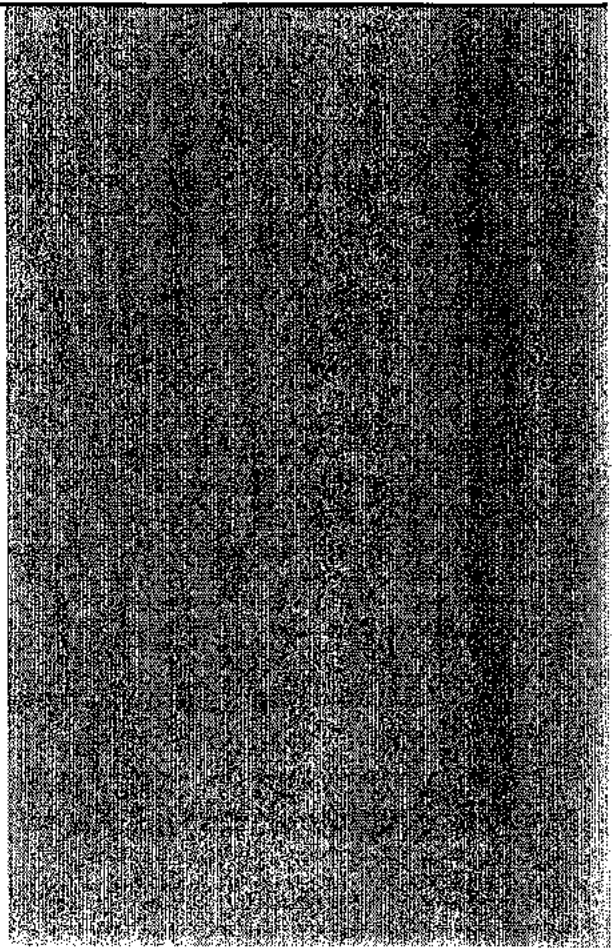
Warning: Do not use alcohol or benzene to clean the instrument panel glass.

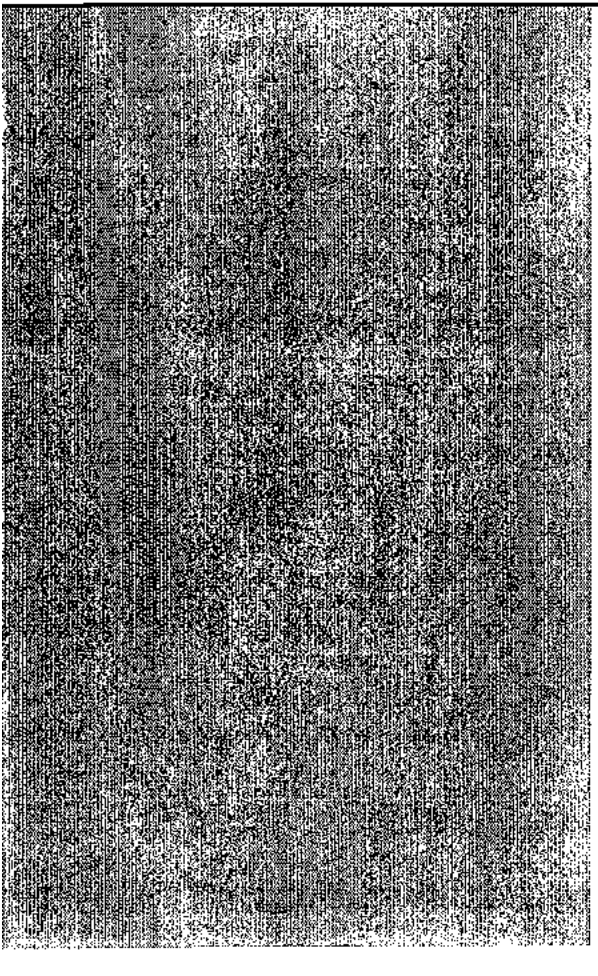
Washing the engine

For these operations it recommended contact specialised workshops; washing must performed when the engine is cold and with great care.

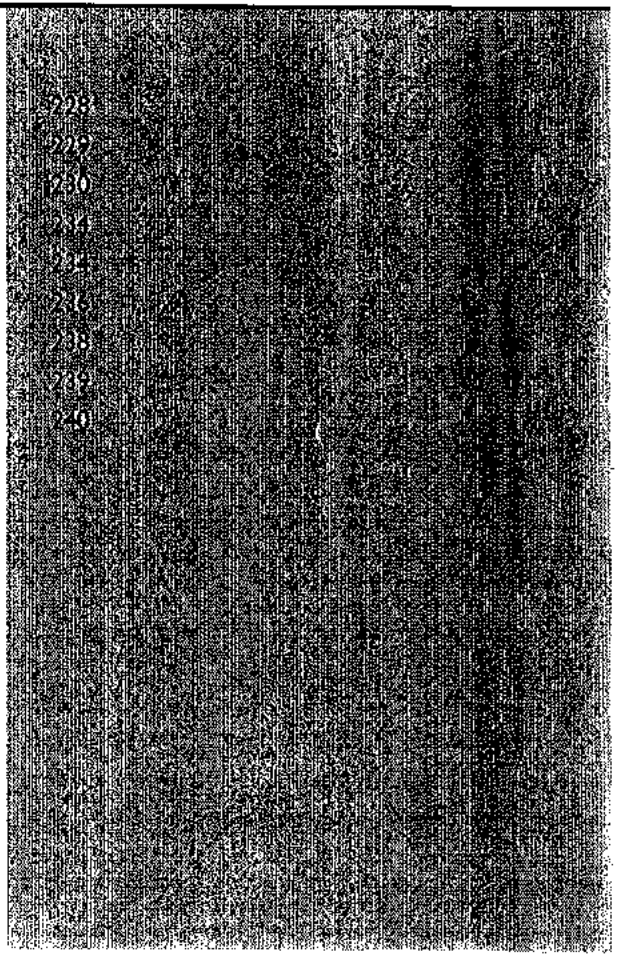
This is to prevent damage to the electrical components of the system.

- **Washing the engine**. This operation must be done by the Service Network which is equipped for collection and purification of the fluids used for washing. Washing must performed when the engine is cold and with great care, to avoid damaging the electronic components of the vehicle.





Scheduled maintenance



The philosophy of scheduled maintenance

In order to ensure consistently excellent service conditions of your vehicle, the inspection, verification and adjustment procedures necessary for the various vehicle systems at the scheduled times are indicated on the following pages. Regular maintenance services are the best guarantee for safe operation and for keeping operating costs as low as possible.

Contact the Service Network for carrying out specified operations.

These procedures must be performed at the established kilometre intervals.

These operations are obligatory during the warranty period and failure to carry them out will invalidate the warranty.

The operations must be carried out exclusively by the Service Network which will confirm it with a date, stamp and signature in special boxes provided in the global maintenance plan.

Recommendations for the user

The intervals pertaining to engine lubrication are based on a percentage of sulphur present in the diesel of less than 0.5%.

Note If using diesel oil with a sulphur content greater than 0.5%, the distance travelled for oil changing must be halved.

Maintenance services table

Scheduled Maintenance includes "Standard" services, plus a set of operations known as "Extra Plan" and others known as "Time".

The standard services are marked with **M = Maintenance**.

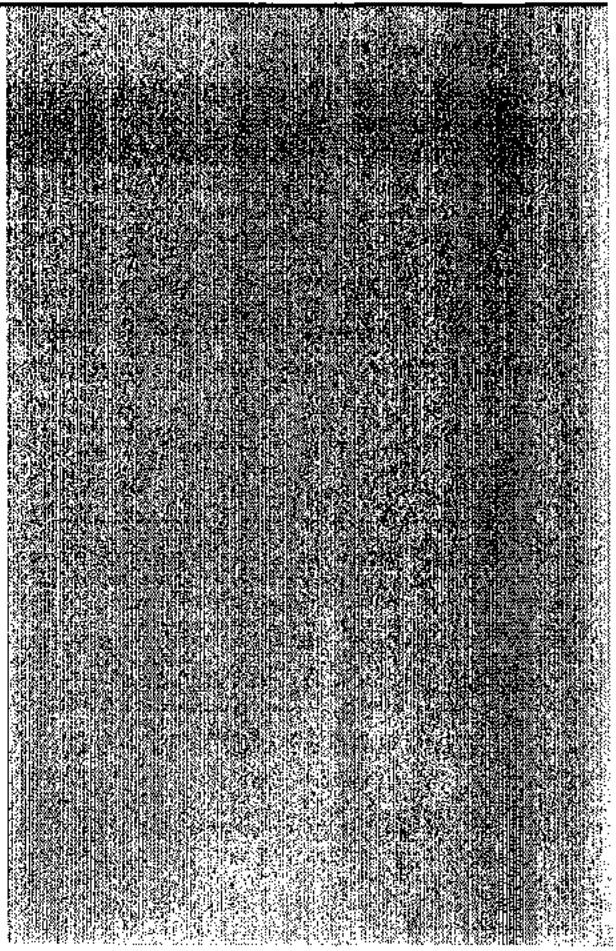
They must be performed at regular kilometric intervals, each being normally a multiple of the other.

The non-scheduled operations marked with **EP = Extra Plan** are operations complementary to the standard services to be carried out at intervals not matching those of the standard services.

The time-based operations are marked with **T = Time**.

They are exclusively carried out in specific time-based intervals and are normally executed during particular seasonal conditions.

To minimise the number of maintenance stops, plan the non-scheduled stops referring to the average yearly distance travelled and try to make them match the preset kilometric intervals.



Maintenance table

TYPE OF USE	ENGINE OIL	STANDARD SERVICES (1) (M)	(2) (M)	(3) (M)
Non-European countries	ACEA (1) E7 Urania LD 7	Every 20,000 km or 400 hours or 1 year	Every 40,000 km or 800 hours or 2 years	Every 80,000 km or 1,600 hours or 4 years
(1) At the first engine oil change interval it is possible to use ACEA E4 SAE 5W30 URANIA FE synthetic oil to obtain benefits in terms of "fuel economy", the range remains the same.				

[illegible]	[illegible]	[illegible]
Non-European countries	ACEA (1) E7 Urania LD 7	Mechanical gearbox maintenance Every 80,000 km and in any case every 2 years

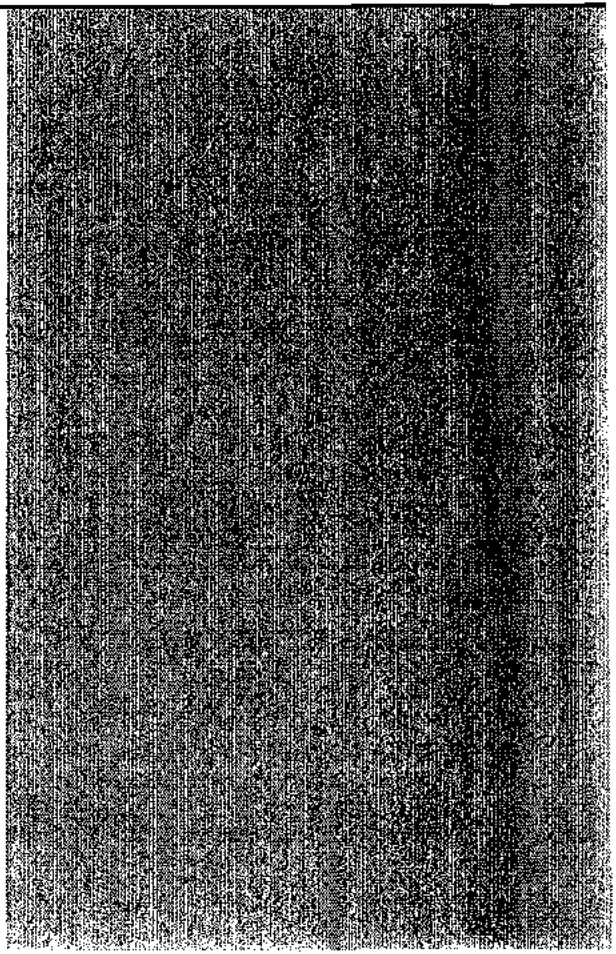
(1) At the first engine oil change interval it is possible to use ACEA E4 SAE 5W30 URANIA FE synthetic oil to obtain benefits in terms of "fuel economy", the range remains the same.

TYPE OF USE	ENGINE OIL	TIME OPERATIONS				
Non-European countries	ACEA (1) E7 Urania LD 7	Every 6 months at beginning of spring	Every year	Every year before winter	Every 2 years	Every 3 years

(1) At the first engine oil change interval it is possible to use ACEA E4 SAE 5W30 URANIA FE synthetic oil to obtain benefits in terms of "fuel economy", the range remains the same.

Notes

- When using a lower class lubricant, e.g. ACEA E2 (Urania Turbo), halve the mileage before the engine oil and filter are replaced.
- When using fuel with a percentage of sulphur that exceeds 0.5%, the distance for replacing the engine oil and the filter must be reduced by half.
- In the case of very low annual distances, the engine oil and filter must be replaced at least every year.
- In the case of very low annual distances, the gearbox and rear axle oil must be changed at least every 2 years.
- For gearboxes, see non-scheduled operations.
- In the case of very low annual distances, general greasing must be performed at least once a year.

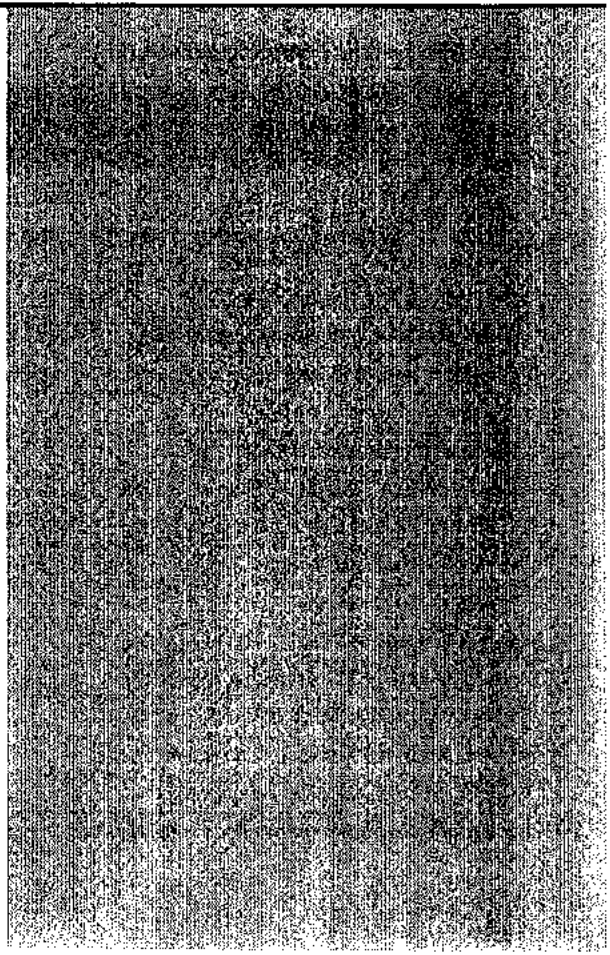


Schedule of maintenance stops

Transport in non-European countries

SCHEDULE OF MAINTENANCE STOPS		
Mileage (1000 km)	Hour	Maintenance
20	400	M1
40	800	M2
60	1200	M1
80	1600	M3
100	2000	M1
120	2400	M2
140	2800	M1
160	3200	M3
180	3600	M1
200	4000	M2
220	4400	M1
240	4800	M3
260	5200	M1
280	5600	M2
300	6000	M1
320	6400	M3
340	6800	M1
360	7200	M2

SCHEDULE OF MAINTENANCE STOPS		
km x 1000	Hours	MS for:
380	7600	M1
400	8000	M3

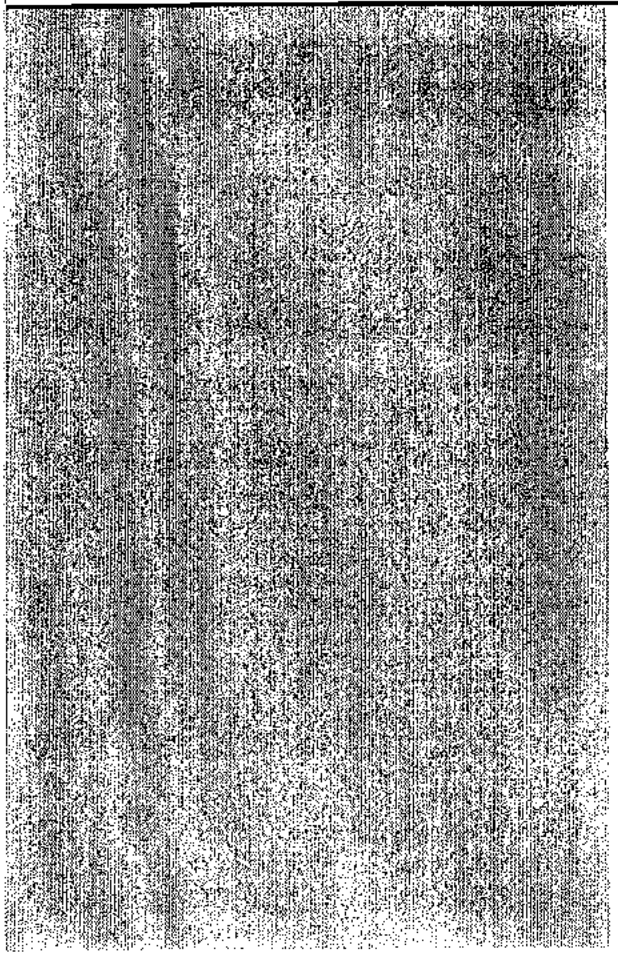


Scheduled maintenance operations

SCHEDULED MAINTENANCE OPERATIONS	M1	M2	M3
Change engine oil	•	•	•
Replace engine oil filter	•	•	•
Check hydraulic clutch fluid level	•	•	•
General greasing of the chassis	•	•	
Check condition of the various drive belts	•	•	•
Check for leaks in the cooling system	•	•	•
Replace the fuel filter cartridge	•	•	•
Replace fuel pre-filter cartridge	•	•	•
Replace the engine blow-by filter (if present)	•	•	•
Cab tilting, bonnet opening and closing and removing-refitting of engine guards	•	•	•
Handling operations (1)	•	•	•
Road functional test	•	•	•
Check headlight levelling		•	•
Check manual gearbox breather efficiency			•
Check rear axle breather efficiency			•
Check fixing of steering box and support		•	•
Check steering joint linkage and support		•	•

(1) Vehicle and equipment handling in the workshop.

SCHEDULED MAINTENANCE OPERATIONS			
Change the transfer unit oil		•	•
Change the driving axle oil		•	•
Change the driving axle wheel reduction unit oil		•	•
Check driving axle breather efficiency		•	•
Check transfer unit breather efficiency			•
Check tappet clearances and adjust if necessary			•
Engine EDC system check-up with E.A.SY.			•
Change rear axle oil			•
Change axle wheel hub oil			•
Replace various drive belts			•



Extra Plan operations

Preferably together with a maintenance service

EP1[1] - Every 80,000 km and in any case every 2 years
Change gearbox oil

(1) The mechanical gearbox oil must be replaced at least every 3 years in the case of long-range national or international transport, mainly on the motorway, with the use of 02E ZF TE-ML 02 class oil for the initial oil fill.

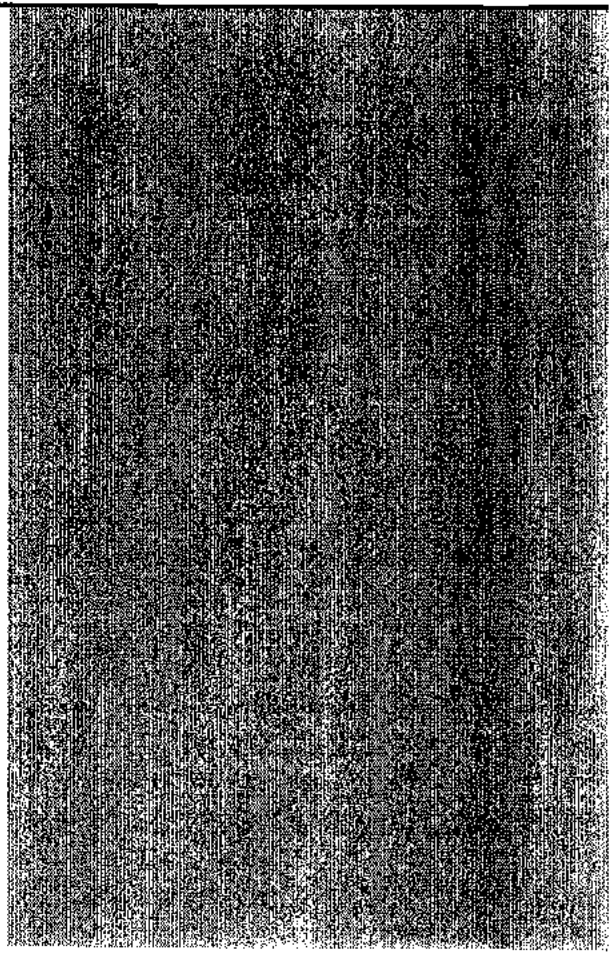
Time operations

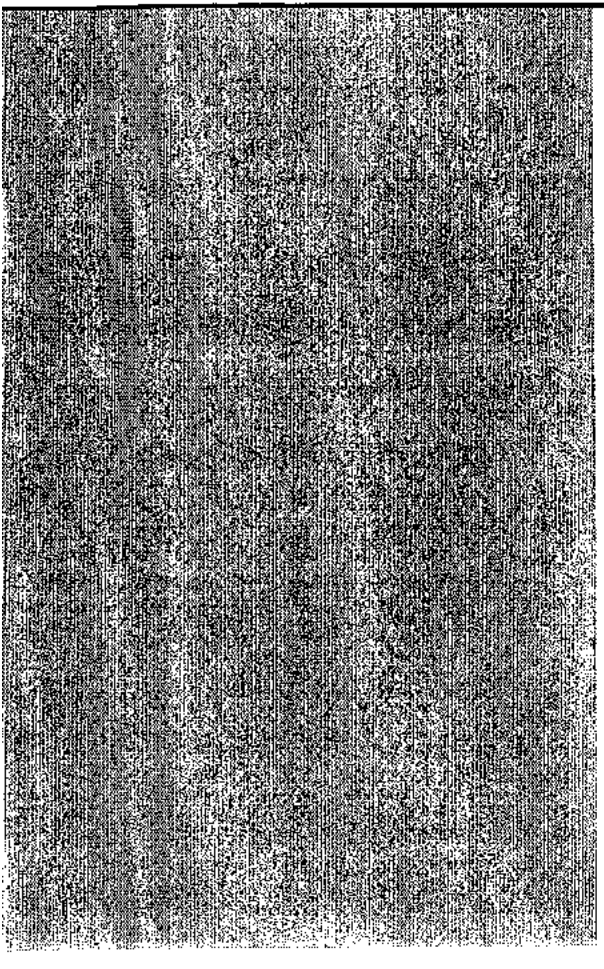
Preferably together with a maintenance service

T1 - Every 6 months - at beginning of spring
Check condition of pollen filters(1)
Wash radiator guard mesh
Check clearance of rear axle brake drum/shoes
Check clearance of front axle brake drum/shoes
T2 - Every year
Replace drier filter (pneumatic system)
T3 - Every year – before winter
Check coolant density
Replace the supplementary heater fuel filter
T4 - Every two years
Change engine coolant
Change cartridge and clean air filter housing (2)
T5 - Every three years
Change fluid and bleed hydraulic clutch drive

(1) In the case of short distances, replace the filters once a year at the beginning of spring

(2) Premature clogging of the air filter is generally due to environmental conditions. Therefore it must be replaced when signalled by the special sensor regardless of the indications, which must in any case be observed when no specific instructions are provided.





Global scheduled maintenance plan

GLOBAL MAINTENANCE AND LUBRICATION PLAN	
Mod.	Chassis
Licence plate	Date of registration
Last name	
First name	
Address	
City	Telephone

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	M1		...../...../.....	
40	M2		...../...../.....	
60	M1		...../...../.....	
80	M3		...../...../.....	
100	M1		...../...../.....	
120	M2		...../...../.....	

KM X 1000	SERVICE	KILOMETRES/MILES OF SERVICE	DATE OF MAINTENANCE/YEAR	VALIDATION OF SERVICE (STAMP)
140	M1		...../...../.....	
160	M3		...../...../.....	
180	M1		...../...../.....	
200	M2		...../...../.....	
220	M1		...../...../.....	
240	M3		...../...../.....	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
260	M1		...../...../.....	
280	M2		...../...../.....	
300	M1		...../...../.....	
320	M3		...../...../.....	
340	M1		...../...../.....	
360	M2		...../...../.....	

KM X 1000	SERVICE	KILOMETRES AT TIME OF SERVICE	DATE OF PAYMENT/YEAR	VALIDATION OF SERVICE BY AUTHORIZED
380	M1		...../...../.....	
400	M3		...../...../.....	
420	M1		...../...../.....	
440	M2		...../...../.....	
460	M1		...../...../.....	
480	M3		...../...../.....	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
500	M1		...../...../.....	
520	M2		...../...../.....	
540	M1		...../...../.....	
560	M3		...../...../.....	
580	M1		...../...../.....	
600	M2		...../...../.....	

KM X1000	SERVICE	RECOMMENDED DATE OF SERVICE	DATE PERFORMED	VALIDATION OF SERVICE DEALER STAMP
620	M1		...../...../.....	
640	M3		...../...../.....	
680	M1		...../...../.....	
700	M2		...../...../.....	
720	M1		...../...../.....	
740	M3		...../...../.....	

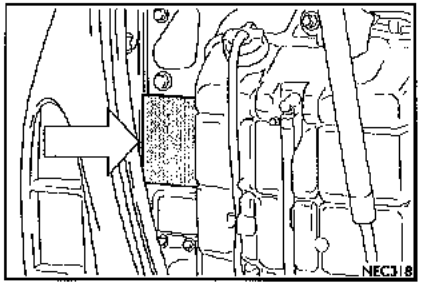
KM X 1000	SERVICE	NUMBER OF SERVICE	DATE (DAY/MONTH/YEAR)	VALIDATION (SERVICE PERFORMED)
760	M1		...../...../.....	
780	M2		...../...../.....	
800	M1		...../...../.....	

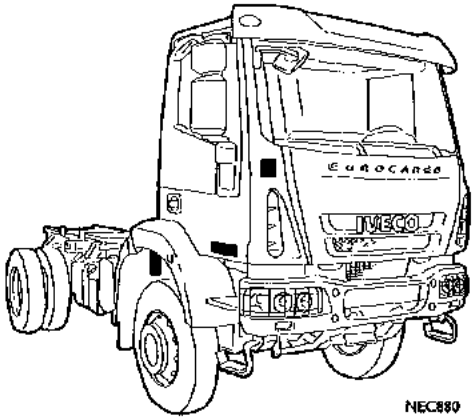
Technical specifications

Vehicle identification data

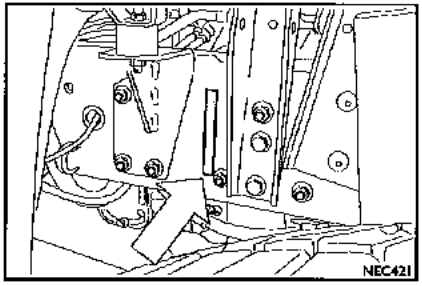
Engine type and number, chassis type and number and manufacturer plate represent the identification data for your vehicle.

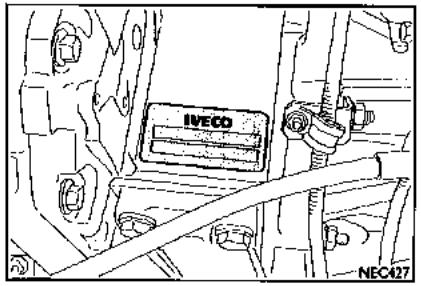
Manufacturer's plate
For identifying the vehicle according to the EEC directive (under the front grille).





Chassis
Stamping (front of chassis right side member).

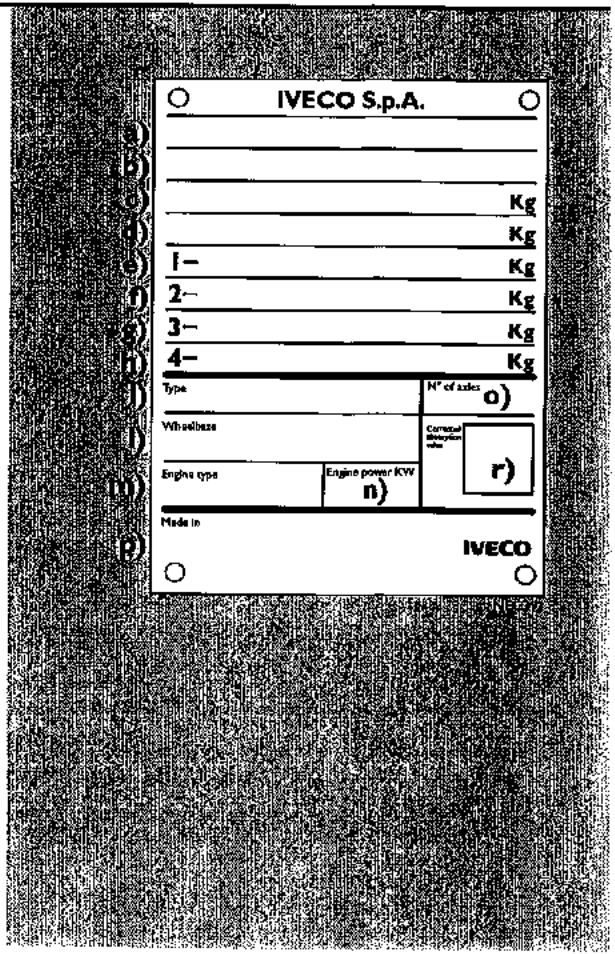


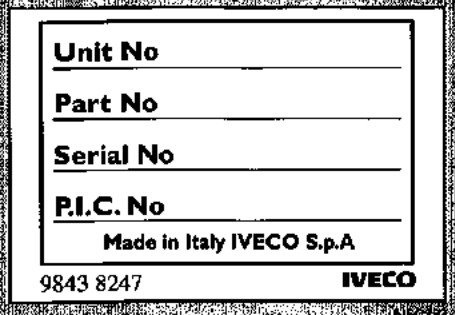


Engine
Marking on the timing gear housing

Vehicle identification plate

a) Type-approval number marking (where applicable).
b) Vehicle identification number (V.I.N.).
c) Total tractor weight.
d) Total tractor + trailer weight (where applicable).
e) Permitted weight limit on the 1st axle.
f) Permitted weight limit on the 2nd axle (where applicable).
g) Permitted weight limit on the 3rd axle.
h) Permitted weight limit on the 4th axle (where applicable).
i) Specific type information.
l) Wheelbase in mm.
m) Engine type.
n) Engine power.
o) Number of axles.
p) Place of production.
r) Permissible smoke grade value.





Product identification plate

This plate indicates the P.I.C. (product identification number), indispensable data for referring to the spare-parts catalogue (electronic catalogue and/or microfiche).

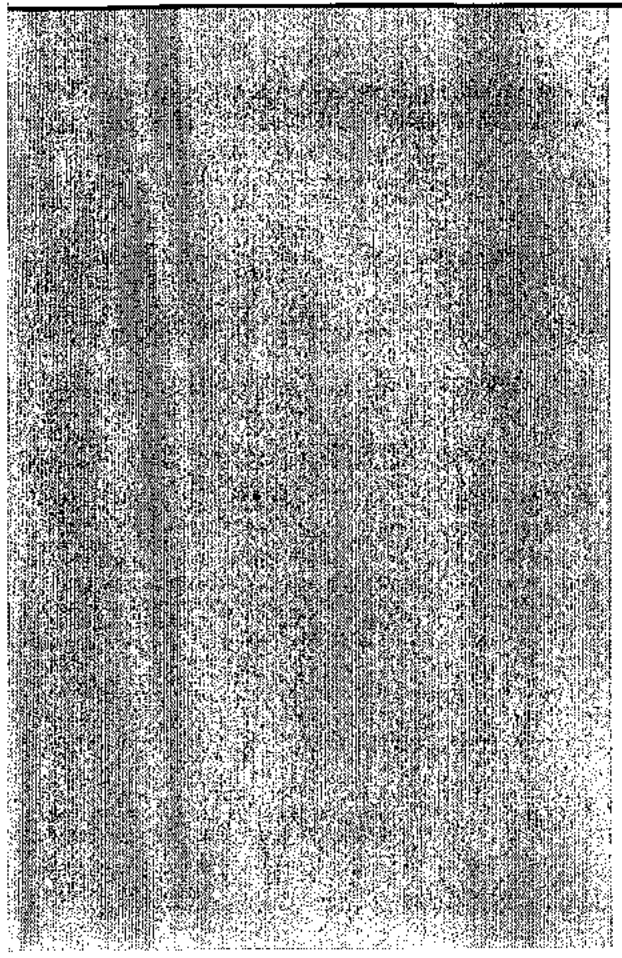
The P.I.C.is also to be found on the warranty card of the vehicle.

Note When referring to the catalogue, use only the first 8 characters of the Production Identification Code.

Model breakdown

MODEL	CAB	ENGINE	GEARBOX	FRONT AXLE	REAR AXLE
ML 110E22W	MLC	TECTOR 220 HP	6S800 TO 6S1005 TO +PTO	5956	451146/1
ML 150E24W	MLL	TECTOR 240 HP			

MLC = short cab.
MLL = long cab.



Engine

ENGINE TYPE		[illegible]
Number of cylinders		6
Bore	mm	102
Stroke	mm	120
Displacement	cm^3	5880
Max. rated output	kW (HP)	160 (217)
Operating at approximately	r.p.m	2700
Maximum torque	Nm (kgm)	680 (69)
Operating at approximately	r.p.m	1200÷2100

ENGINE TYPE		TECTOR
Number of cylinders		6
Bore	mm	102
Stroke	mm	120
Displacement	cm^3	5880
Max. rated output	kW (HP)	176 (240)
Operating at approximately	r.p.m	2500
Maximum torque	Nm (kgm)	950 (97)
Operating at approximately	r.p.m	1250÷2100

Misc. technical data

Clutch

Dry single disc, with friction pads without asbestos.

Gearbox

ZF mechanical gearboxes

6S800: 6 forward gears and 1 reverse gear

6S1005: 6 forward gears and 1 reverse gear

Rear axle

Single reduction.

Steering

Hydraulic servo-assistance on all versions.

Suspensions

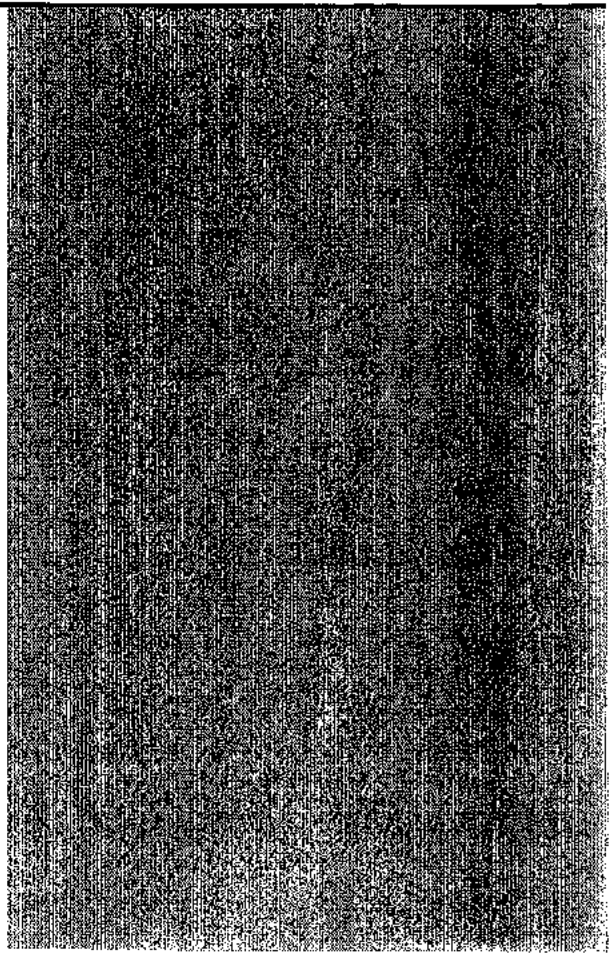
Front suspension

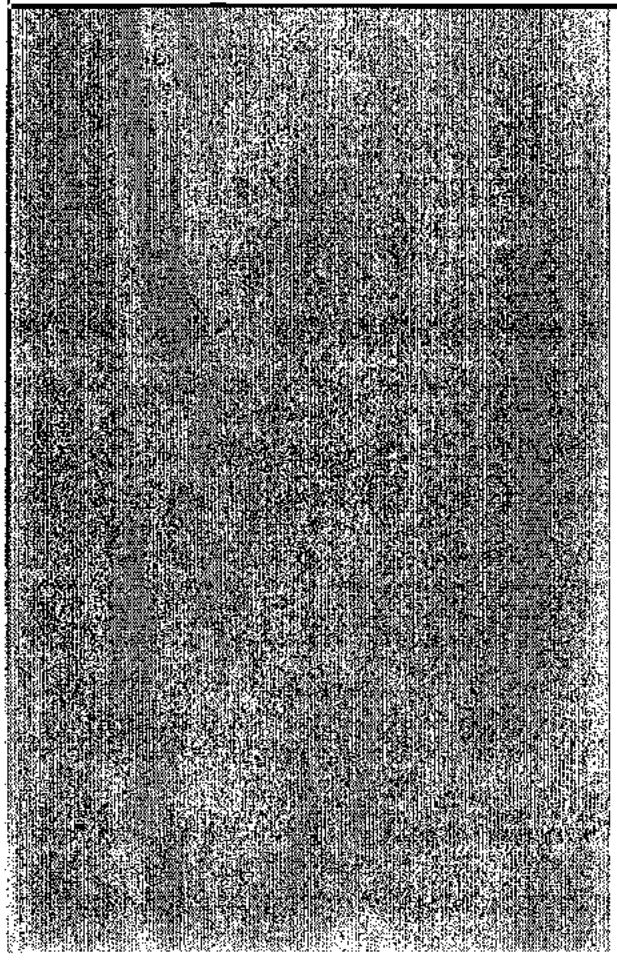
Mechanical

Suspension with parabolic springs (standard).

Suspension with semi-elliptical spring (optional).

Double acting hydraulic shock absorbers.





Stabilizer bars.

Rear suspension

Mechanical

Suspension with parabolic springs (standard).

Suspension with semi-elliptical spring (optional).

Double acting hydraulic shock absorbers.

Stabilizer bars.

Brakes - brake system

Front and rear drum brakes.

Manual parking brake with air control and actuator controlling rear wheels.

Electrical system

24V voltage

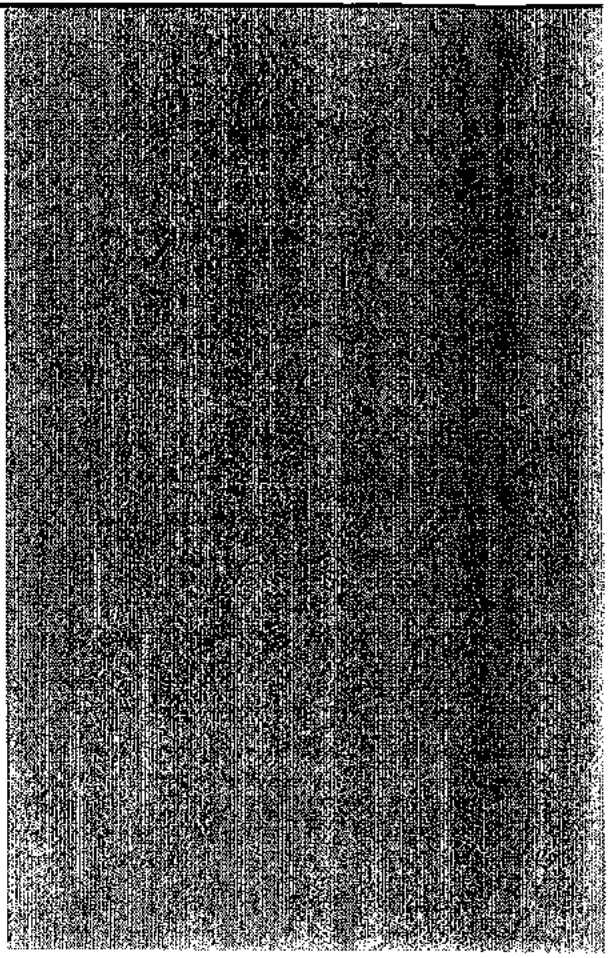
LAMPS	TYPE	POWER (WATT)
Low beams	halogen type	70
High beams	halogen type	70
Fog lights	halogen type	70
Front side lights	round type	5
Front turn indicators	round type	21
Side turn indicators	round type	21
Rear side lights (two)	round type	5
Rear turn indicators	round type	21
Brake lights	round type	21
Licence plate lights	round type	5
Reverse gear light	round type	21
Rear fog light	round type	21
Front markers	cylindrical type	4

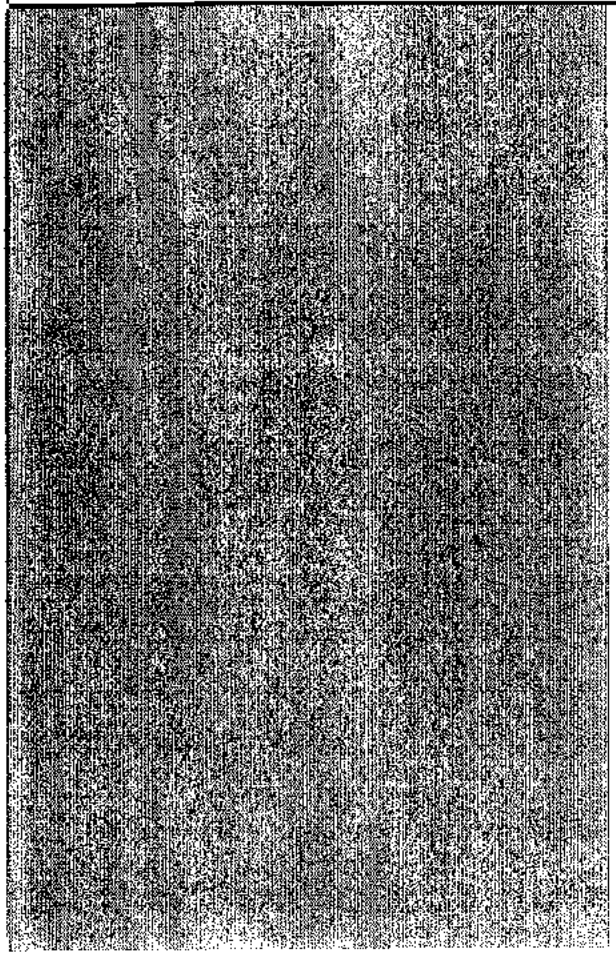
Alternator

70 A (standard)

90 A (optional)

Sensors and connections for ground diagnostics





Batteries

2 x 12V

110 Ah (standard)

143/170 Ah (optional)

Tyres

With vehicle in drive gear, these tables make it possible to determine the correct operating pressure of tyres according to both the type of tyres fitted and of weights acting on front and rear axles.

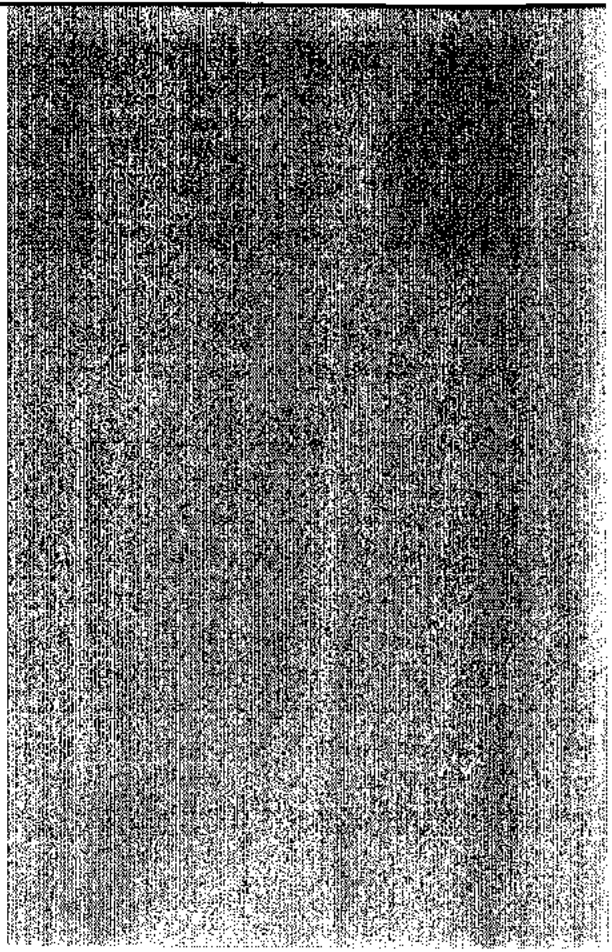
The pressures indicated are for cold tyres and outside temperature of 20°C.

The maximum capacity of a tyre with a smaller load index is lower.

The loads are given as examples. Consult the relevant publications of the tyre manufacturer.

Tyre pressure (in bar)

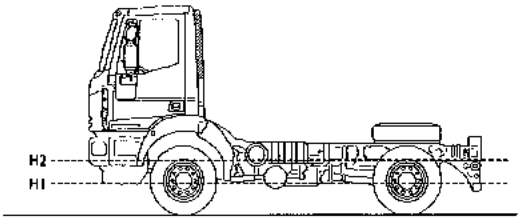
WEIGHT ON THE AXLE (in kg)

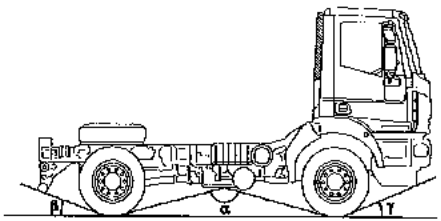


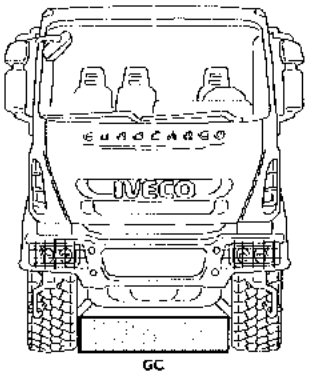
		4.00	4.25	4.5	4.75	5.00	5.25	5.5	5.75	6.00	6.25	6.5	6.75	7.00	7.25	7.5
14.00R20 TL 160/157 G	single	5520	5810	6100	6390	6680	6970	7260	7550	7840	8130	8420	9000	–	–	–
	twin	10110	10650	11180	11710	12240	12770	13310	13840	14370	14900	15440	16500	–	–	–
365/80R20 TL 164 G	single	–	–	6360	6670	6970	7270	7580	7880	8180	8480	8790	–	9390	9700	10000
	twin	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

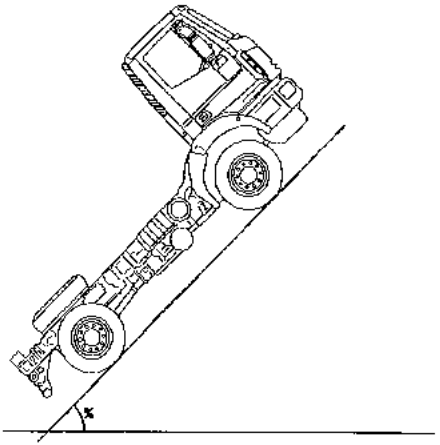
10R22.5 TL 144/142 K	single	3680	3840	4000	4160	4320	4480	4640	4800	4960	5120	5280	5440	5600	–
	twin	6970	7270	7570	7870	8180	8480	8780	9090	9390	9690	9990	10300	10600	–
11R22.5 TL 148/145 K	single	4140	4320	4500	4680	4860	5040	5220	5400	5580	5760	5940	6120	6300	–
	twin	7670	7950	8290	8620	8950	9280	9610	9940	10270	10610	10940	11270	11600	–
395/85R20 TL 168 G	single	–	–	7570	7870	8170	8480	8780	–	9380	9690	9990	10290	10590	11200
	twin	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Off-road performance









NEC958

MODEL [illegible]	WHEELS							
	TWIN REAR WHEELS [illegible]				SINGLE WHEELS [illegible]			
Wheelbase	3240	3690	3915	4150	3240	3690	3915	4150
Ramp angle (α) [degrees]	21	19	18	18	22	20	19	19
Output angle (β) [degrees]	15	15	15	11	17	17	17	12
Connection angle (γ) [degrees]	28				29			
Clearance off the ground (GC)	321				351			
Side camber angle [degrees]	30				28			
Maximum negotiable gradient (%) ON ROAD	41%				38%			
Maximum negotiable gradient (%) OFF ROAD	>100%				>100%			
Fording depth H1 up to [mm]	473				501			
Fording depth H2 up to [mm]	729				770			

4x4 MODEL ML150E..W	WHEELS TWINNED WHEELS 10R22.5				SINGLE WHEELS 325/85R20				SINGLE WHEELS 395/85R20			
Wheelbase	3240	3690	3915	4150	3240	3690	3915	4150	3240	3690	3915	4150
Ramp angle (α) [degrees]	21	19	18	18	22	22	21	21	23	23	22	22
Output angle (β) [degrees]	15	15	15	11	16	16	16	12	17	17	17	13
Connection angle (γ) [degrees]	28				31				32			
Clearance off the ground (GC)	337				392				428			
Side camber angle [degrees]	30				28				26			
Maximum negotiable gradient (%) ON ROAD	38%				33%				31%			
Maximum negotiable gradient (%) OFF ROAD	>100%				>80%				>74%			
Fording depth H1 up to [mm]	489				542				278			
Fording depth H2 up to [mm]	720				802				–			

Refuelling

Refuelling

Use only diesel oil in accordance with EN 590 standard normally commercially available.

Fuel additives are not recommended.

The use of additives could limit the warranty conditions offered for the vehicle.

Refuelling from drums or cans could pollute the diesel, resulting in problems with the fuel supply system; in these cases it is necessary to carry out adequate filtration or sedimentation of any impurities present.

Diesel for low temperatures

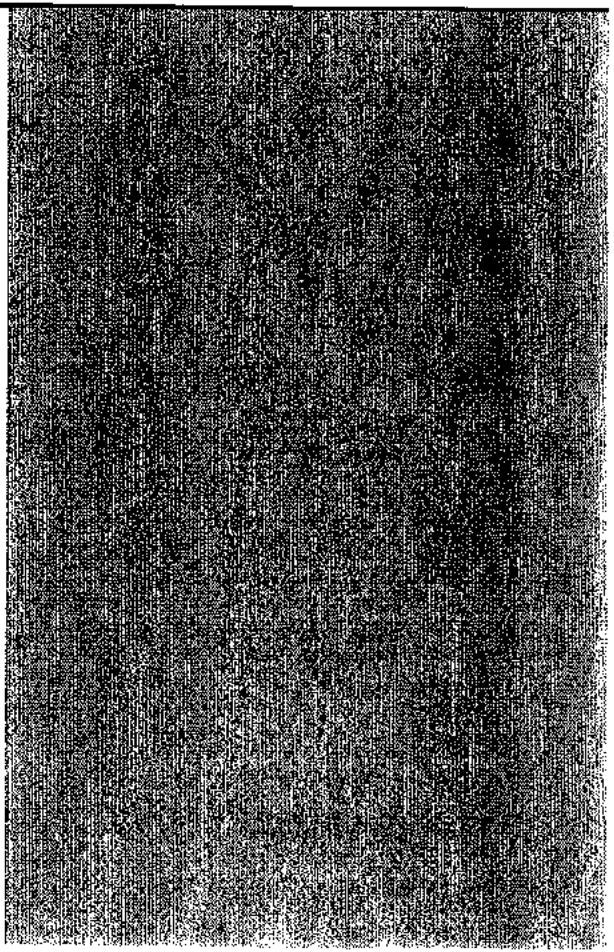
At low temperatures the degree of fluidity of the diesel can become low due to the separation of the paraffin resulting in the filters becoming clogged.

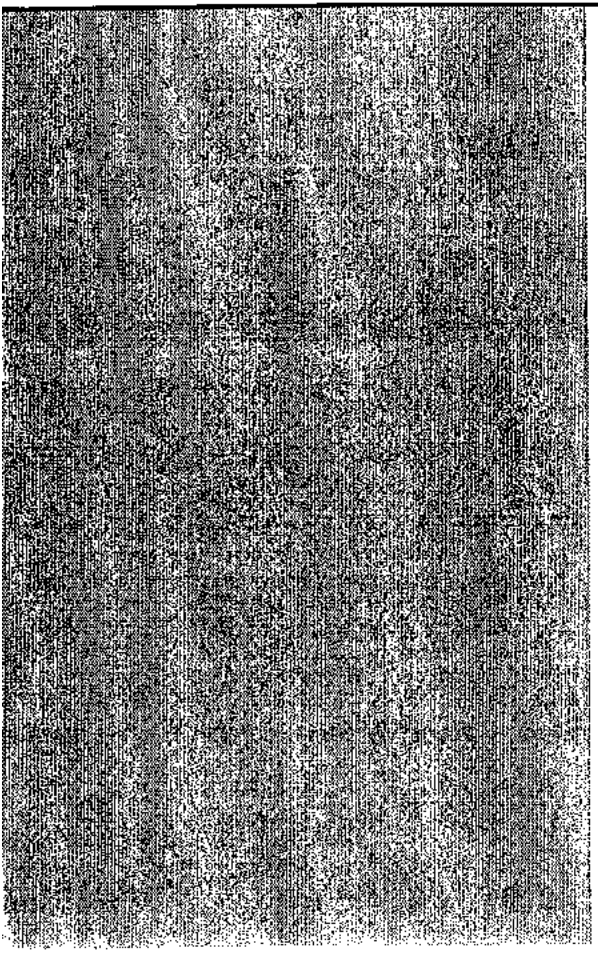
Standard EN 590 foresees various classes of diesel for use at low ambient temperatures.

It is the full responsibility of the oil companies to comply with the standard based on climatic conditions (seasons and geographical position of countries).

Attention!

- The use of special additives could limit claims under the warranty.
- Lubricant additives are not necessary.





Attention!

- The consumables are harmful to health.
- If a product is ingested, see a doctor immediately.
- Keep consumable materials out of the reach of children.

- Dispose of consumable materials and the parts in contact with them (for example, filters) in accordance with the law. The Service Network garages are equipped for this purpose.

		ORIGINAL LUBRICANTS	LITRES	KG
Engine sump	(MAX level)	**Urania LD 7**	10,8	9,7
	(MIN level)	**Urania FE**	8	7,2
Oil filter			1	0,9
6S800 gearbox		**Tutela Truck FE-Gear**	9,8	8,8
6S1005 gearbox			10,4	8,4
Gear reducer - transfer box		**Tutela ZC 90**	5	4,5
Power steering		**Tutela GI/A**	2,3	2,07
Axle		**Tutela W90/M-DA** (1)	5	4,5
Rear axle		**Tutela W140/M-DA** (2)	11,5	10,3
Clutch circuit		**Tutela TRUCK DOT SPECIAL**	0,4	0,37
Cab tilting system		**Tutela LHM**	0,7	0,65
Fuel tank (according to models)		**Diesel oil**	115-200-280	–
Cooling system	180 HP engine	**Paraflù 11** (3)	8	7,24
	240 HP engines		12	10,8

(1) Specific for cold climates.

(2) Hot or temperate climates.

(3) Use diluted 50% with water for protection down to -35 °C.

International lubricant designation

INTERNATIONAL LUBRICANT DESIGNATION		ORIGINAL PRODUCTS
Engine oil Meets specifications: • ACEA E7 with a mineral base Qualification IVECO Standard 18-1804 T2 E7 • ACEA E4 with a synthetic base Qualification IVECO Standard 18-1804	SAE 15W40 SAE 5W30	**Urania LD 7** **Urania FE**
Oil for differential and wheel hubs Meets specifications: • MIL-L-2105D • API GL5 Qualification IVECO Standard 18-1805	SAE 80W90 SAE 85W140	**Tutela W90/M-DA** (1) **Tutela W140/M-DA** (2)

Warning:

IVECO guarantees optimum engine performance with the use of original lubricants.

If non-original products are used, lubricants with minimum ACEA performance are acceptable for the Diesel engines specified in the table. The use of products with features below these ACEA specifications could cause damage to the engine that is not covered by the warranty.

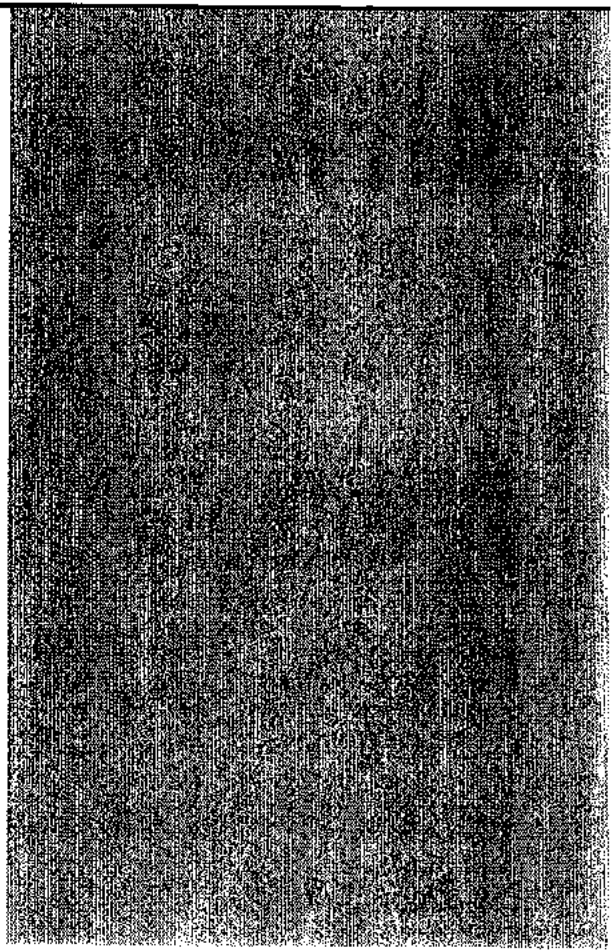
(1) Specific for cold climates.

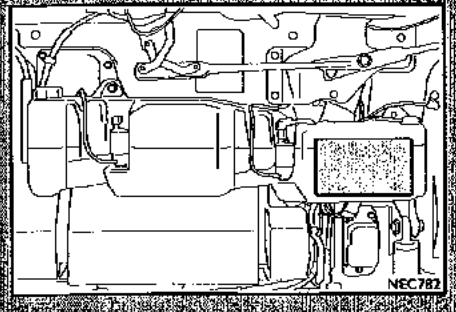
(2) Hot or temperate climates.

INTERNATIONAL LUBRICANT DESIGNATION		ORIGINAL PRODUCT
Oil for mechanical gearboxes Contains non-EP wear resistant additives • Class 02D API GL4 Qualification IVECO Standard 18-1807 Class 02E ZF TE-ML 02	SAE 75W80	**Tutela Truck FE-Gear**
Oil for power steering and hydrostatic transmissions Meets specifications: • ATF Dexron II D Qualification IVECO Standard 18-1807		**Tutela GI/A**
Grease for general greasing Lithium soap based, consistency NLGI 2 Qualification IVECO Standard 18-1810		**Tutela MR2**
Hydraulic brake and clutch control fluid Complies with standards: • NHTSA 116 DOT 4 • ISO 4925 • SAEJ 1704 • CUNA NC 956-01 Qualification IVECO Standard 18-1820		**Tutela TRUCK DOT SPECIAL**
Mineral oil for hydraulic systems With anti-wear characteristics and extremely low pour point Qualification IVECO Standard 18-1823		**Tutela LHM**

INTERNATIONAL LUBRICANT DESIGNATION		IVECO/IVECO ORIGINAL PRODUCTS
Transfer unit oil Meets specifications: • API GL3 mineral based Qualification IVECO Standard 18-1807	SAE 80W90	**Tutela ZC 90**
Windscreen washer fluid Mixture of alcohol, water and surfactants • CUNA NC 956-11 Qualification IVECO Standard 18-1802		**Tutela Professional SC 35**
Specific grease for bearings and wheel hubs Lithium soap based, consistency NLGI 3 Qualification IVECO Standard 18-1810		**Tutela MR3**
Grease for centralised lubrication systems With a synthetic base containing lithium soaps of NLGI grade 2 Qualification IVECO Standard 18-1810		**Tutela COMAR 2** (3)
Concentrated protective fluid for radiators Ethylene glycol based, containing corrosion inhibitors, conforming to standard: • CUNA NC 956-16 Qualification IVECO Standard 18-1830		**Paraflu 11** (4)
(3) Duty temperature from –30 °C to +140 °C. *(4) Use diluted 50% with water for protection down to -35 °C.*		

Plates





This chapter offers a simple explanation of the important plates that are located in various points on your vehicle.

Strictly adhere to the warnings and directions provided on these plates.

The data plate is located on the additional water tank under the grille.

Data plate

IVECO

LUBRIFICANTI E LIQUIDI ORIGINALI
ORIGINAL LUBRIFICANTS AND FLUIDS
LUBRIFIANTS ET LIQUIDES ORIGINAUX
LUBRICANTES Y LIQUIDOS ORIGINALES
ORIGINAL SCHMIERSTOFFE

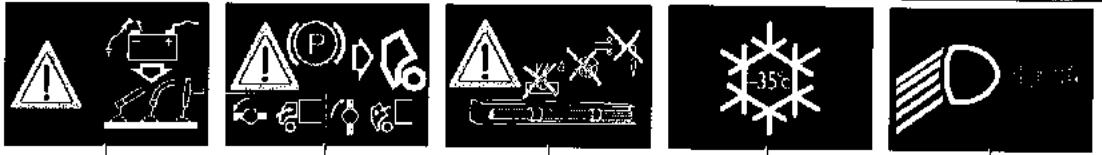
PETRONAS LUBRICANTS

Urania Motor oil	Olio Motore Engine Oil Huile Moteur Aceite del Motor Motorenöl	TUTELA TRANSMISSIONE TRUCK Differenziale Differential Différentiel Diferencial Differenzial
"Paraflu"	Radiatore Radiator Radiateur Radiator Kühler	Trasmissioni Manuale e Semiautomatica Manual and Semi-automatic Transmissions Manuel et semi-automatique Transmissions Manuelle und halbautomatische Getriebe Manual y semiautomática Transmisiones
TUTELA GRAN TURISMO	Circuito Freni e Frizione Brakes and Clutch Circuit Circuit de freins et d'embrayage Bremsen und Kupplung Circuit Circuito de frenos y embrague	TUTELA PROFESSIONAL Lavacristalli Windscreen Washer Lave-glace Lavacristales Scheibenwaschanlage

	Cambio Automatico Gearbox Automatic Transmission Automatique Transmision Automatica Automatisches Getriebe
TUTELA TRANSMISSIONE	Servosterzo Power Steering Direction Assistée Direccion Asistida Hydrolenkung
	Ribaltamento cabina Cab Lifting System Levage de cabine Elevacion de la cabina Fahrerhaus -Kippanlage

6

- Utilizzare i prodotti prescritti sul libretto uso e manutenzione
- Please refer to the product specified in the owner's manual
- Utiliser les produits indiqué sur la notice d'entretien
- Use ed producto aconsejado en el manual de uso y mantenimiento
- Benutzen Sie die Produkte die in der Betriebsanleitung vorgesehen sind



1 2 3 4 5

NEC783

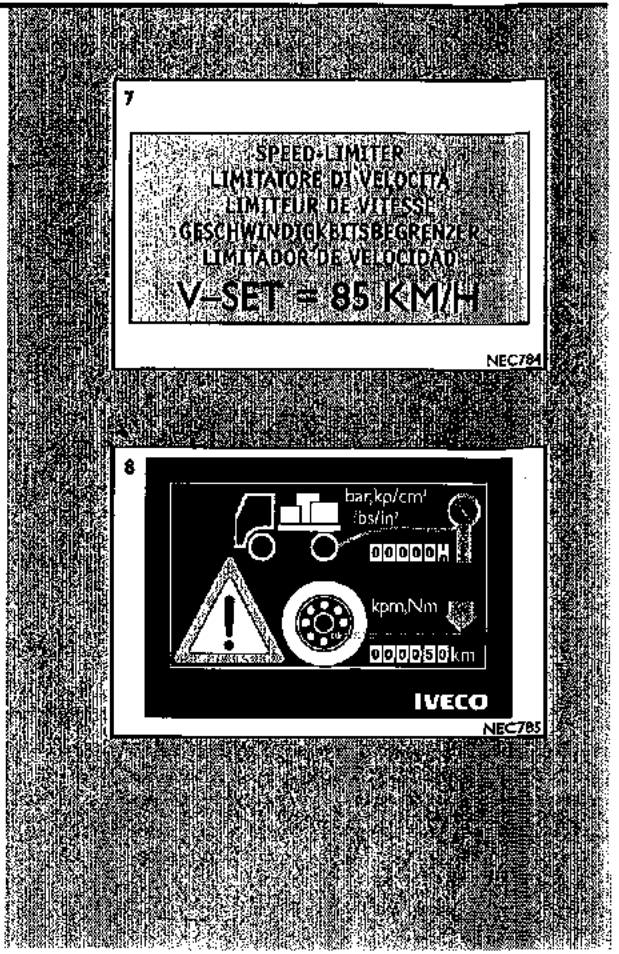
1. Disconnect the negative terminal of the battery before carrying out any operation on the vehicle (repairs, welding, replacement of assemblies/components, etc.).
2. After returning the cab to its normal position, ensure the cab tilt drive pump lever is not in the oil delivery position.
3. Never do any welding, drilling, grinding, etc. on the vehicle near electrical cables and pipes.
4. The antifreeze fluid protecting the cooling circuit has a freezing point of -35°C.
5. The value for the incidence of the beam in accordance with the headlight regulations is specified on the plate (1.25%, 1.50% and 1.75%).
6. Original lubricants and fluids.

Speed limiter plate

7. A speed limiter is installed on the vehicle. Location: on the windscreen.

Axle load plate

8. Before putting the vehicle into service, restore the tyre pressure to the operating values indicated in the Use and Maintenance booklet. The tyre pressure is reduced for vehicle transportation. For a new vehicle and after every tyre change, the nuts of the wheels must be retightened at the intervals specified on the plate. Location: on the windscreen.

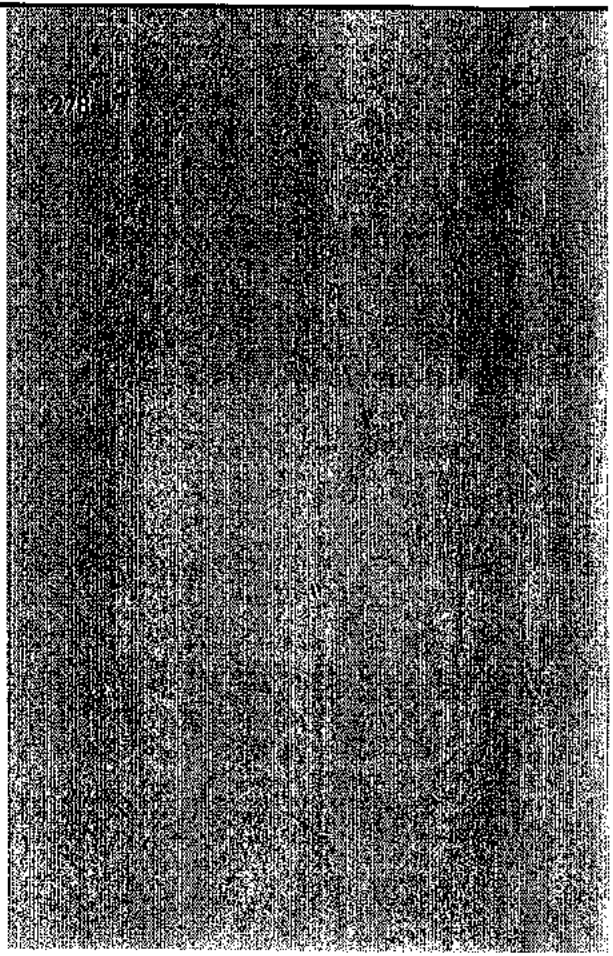


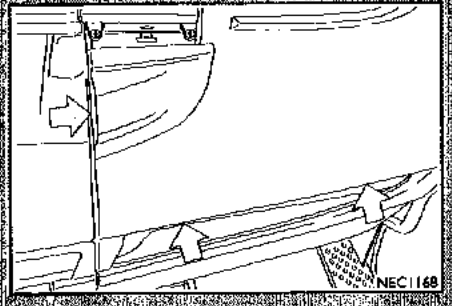
Cab colour code

9. The cab colour code is shown on the plate.

Fuses and contactors

Location of fuses and contactors





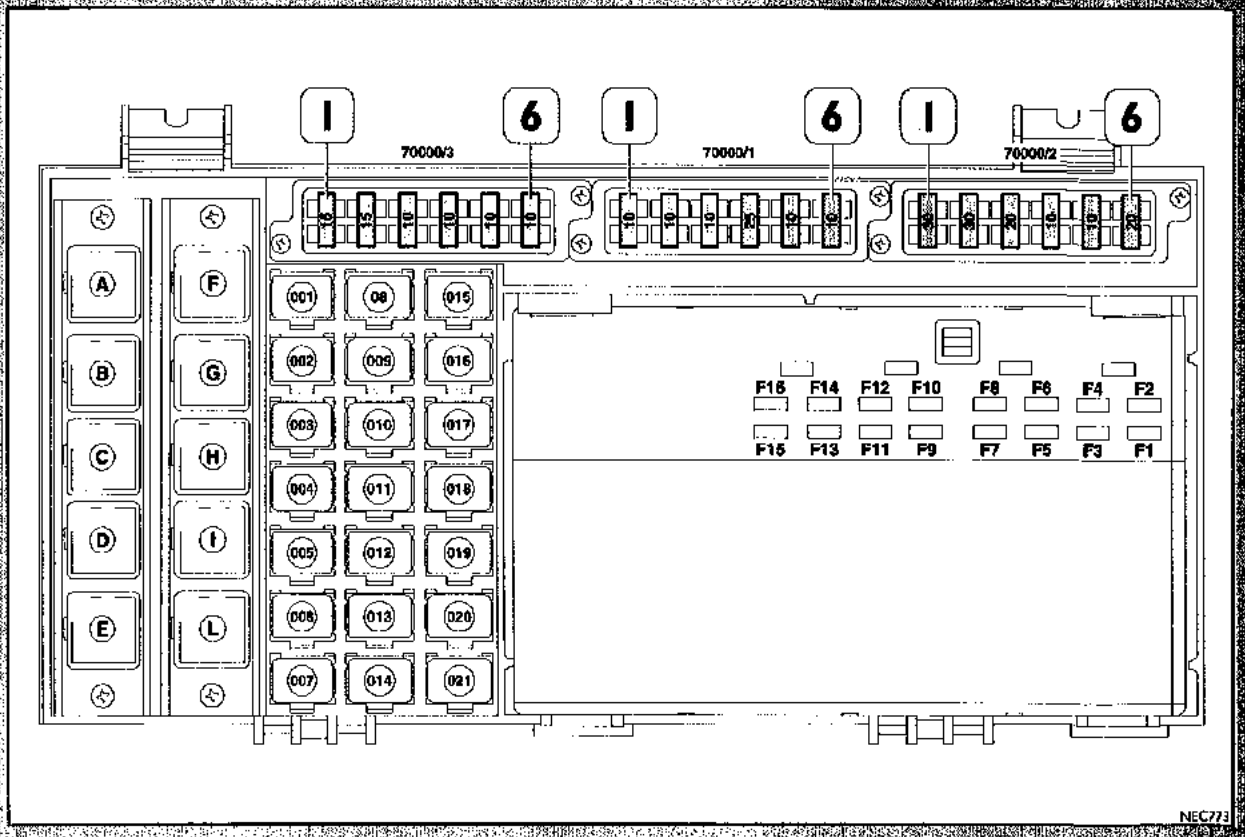
▶ **Attention!** Modifications or repairs to the electrical equipment carried out incorrectly and without taking into account the technical characteristics of the system can cause abnormal function and create a fire hazard. Before intervening on the electrical system, disconnect the battery cables. Avoid any tampering with the electrical system. If this is nonetheless necessary, contact the Service Network. Fire hazard. Use fuses only of the specified value. Replace the fuses only after having eliminated the cause of the problem.

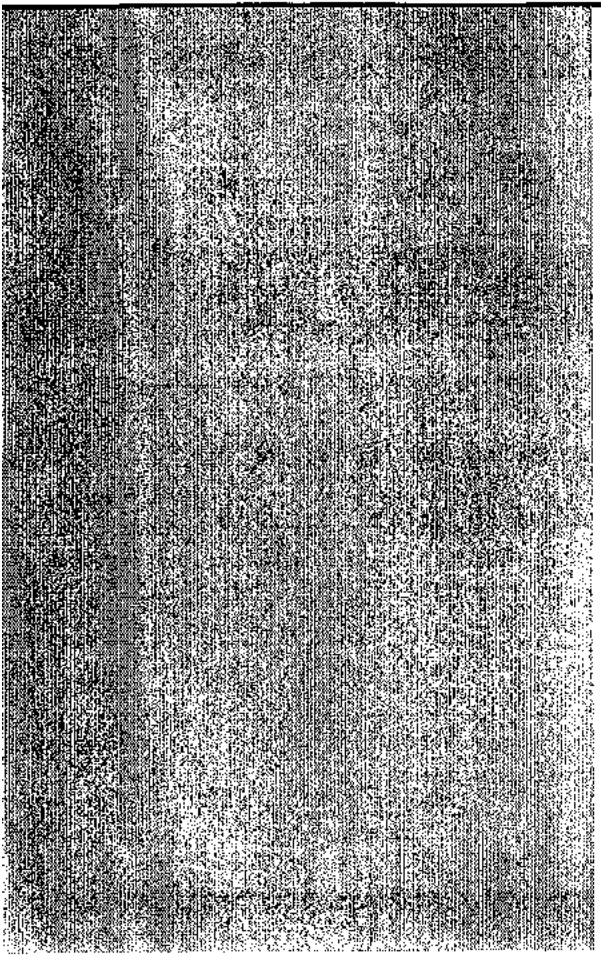
Location of fuses and contactors

The fuses and contactors in the cab are located behind the cover of the dashboard located in front of the passenger.

To overturn the cover, open the passenger side ashtray and unscrew the screws shown in the figure.

Fuses and contactors in the cab





Fuse holder 70000/1 (Red)

1 – F1 – 10A Accessory compartment lighting/ rotary lights/toll collect

2 – F2 - 10A Mid roof cab lighting/electrical hatch

3 – F3 – 10A solenoid valve for deactivating longitudinal differential lock

4 – F4 – Spare

5 – F5 – 10A Emergency lamp/ Expansion Module

6 – F6 – 10A Heated seats / contactor longitudinal differential lock

Fuse holder 70000/2 (Brown)

1 – F1 – 30A Heated windscreen

2 – F2 – 30A Heated windscreen

3 – F3 – 20A Headlamp washer/Eberspächer

4 – F4 – 10A Heated windscreen / central locking/ navigation system / toll collect

5 – F5 – 10A POTR / Refrigerator

6 – F6 - 20A Central locking

Fuse holder 70000/3 (Black)

1 – F1 – 15A Expansion Module

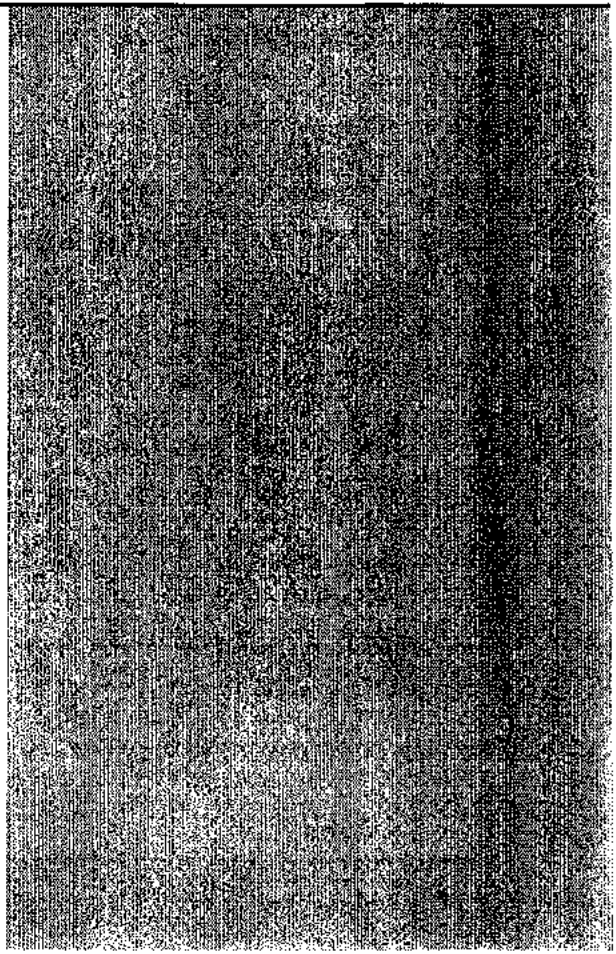
2 – F2 – 15A Expansion Module

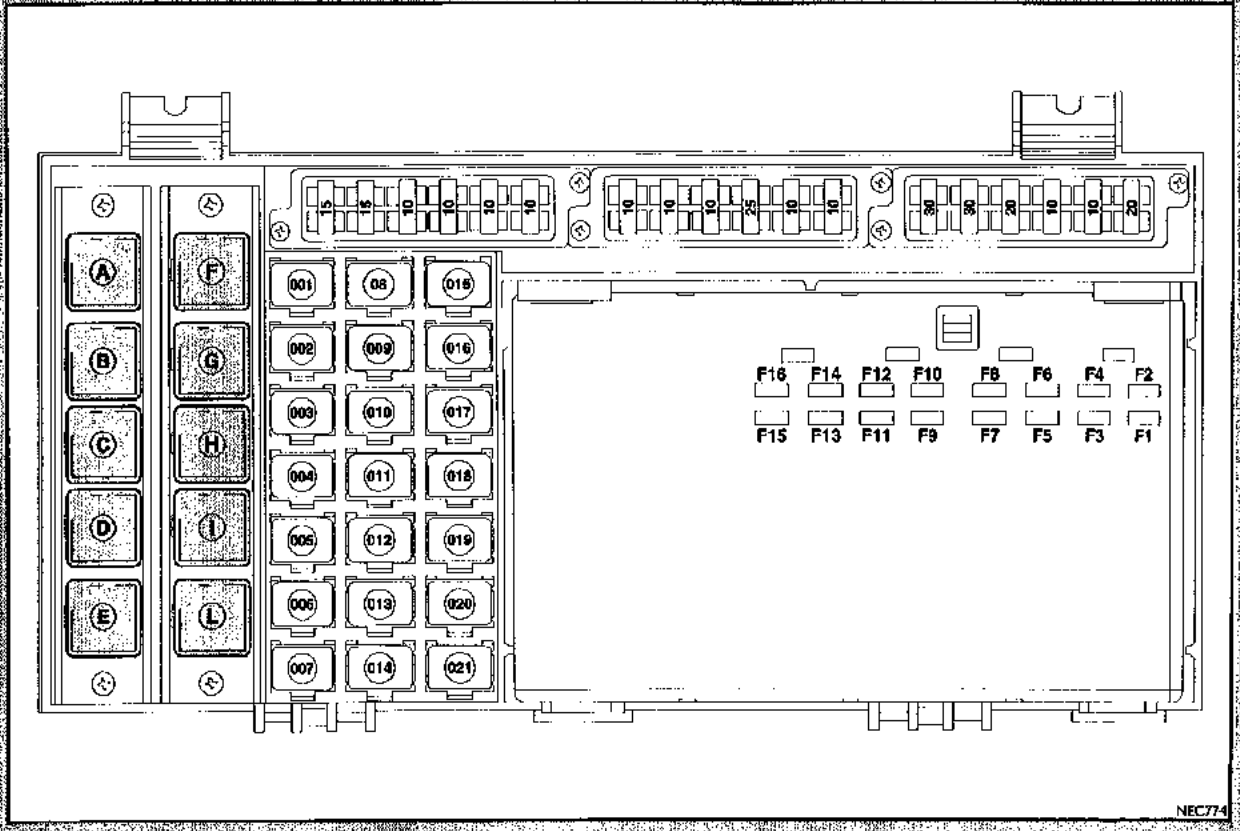
3 – F3 – 10A Expansion Module

4 – F4 – 10A Expansion Module

5 – F5 – Spare

6 – F6 – Spare

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NEC774

Minicontactors

A – Engine start-up contactor

B – Contactor for +15 power supply

C – Contactor for vehicle diagnostics (+15 consent from diagnostics tool)

D - Horn contactor

E – Heated mirror contactor (opt)

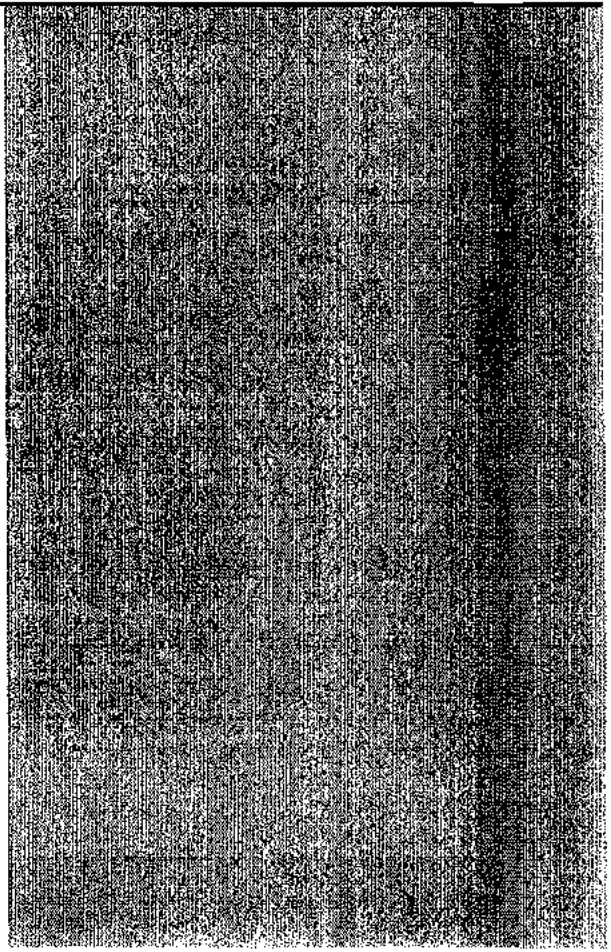
F – Spare

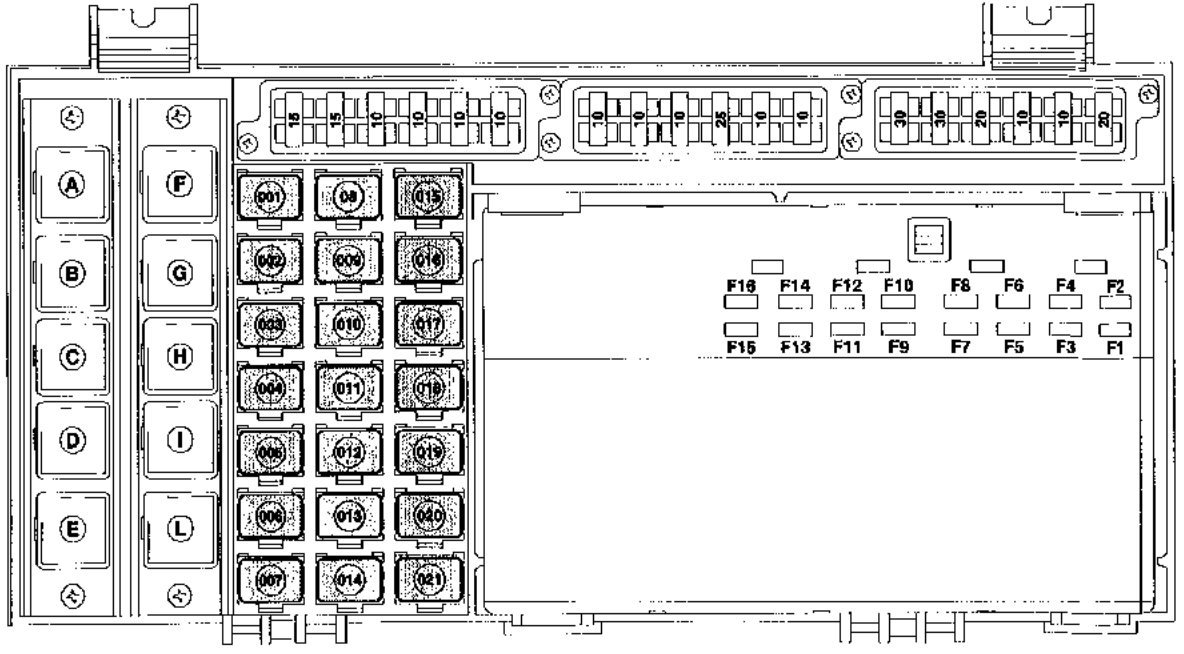
G – Spare

H - Heated windscreen contactor

I - Spare

L – Spare

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NEC775

Micro contactors

1 – Medium roof interior lighting contactor

2 – Headlight washer contactor

3 – Spare

4 – T.G.C. exciting contactor

5 – T.G.C. de-exciting contactor

6 – Spare

7 – Diode holder

8 – Contactor for engaged low gears

9 – Contactor for disengaging the longitudinal differential lock

10 – Spare

11 – Spare

12 – Spare

13 – Contactor for opening the electric hatch

14 – Contactor for closing the electric hatch

15 – Spare

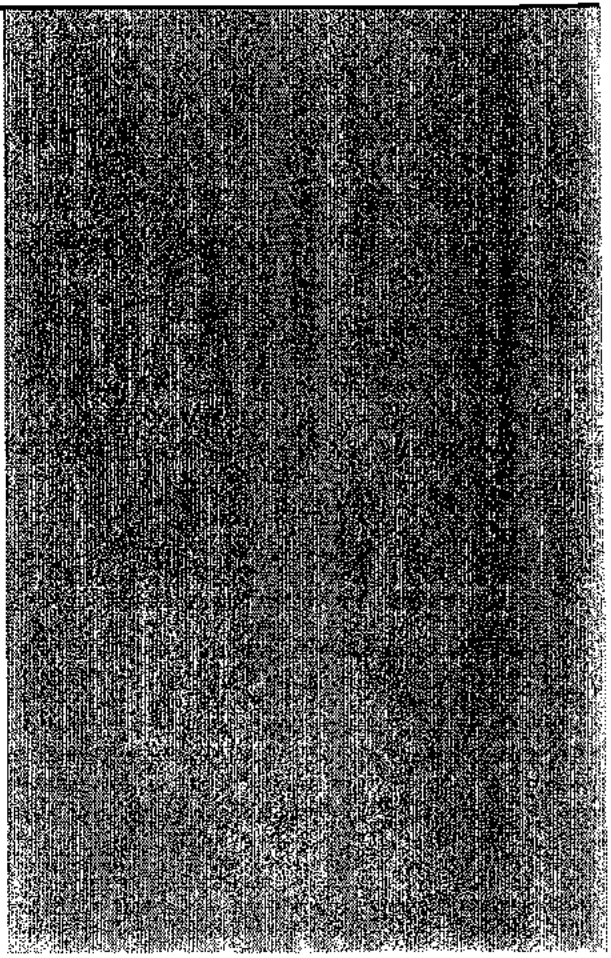
16 – C.C.E. contactor

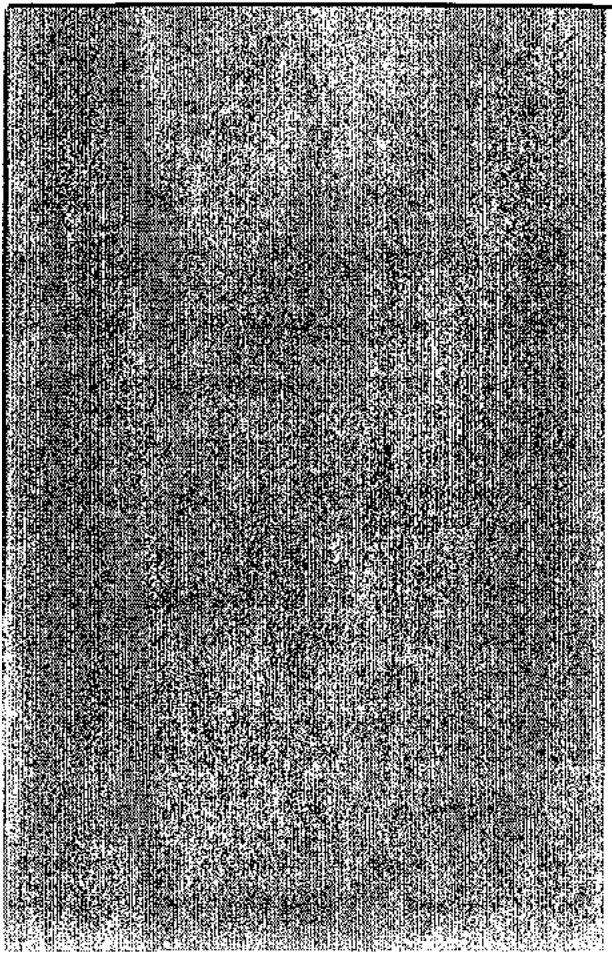
17 – C.C.E. contactor

18 – C.C.E. diode

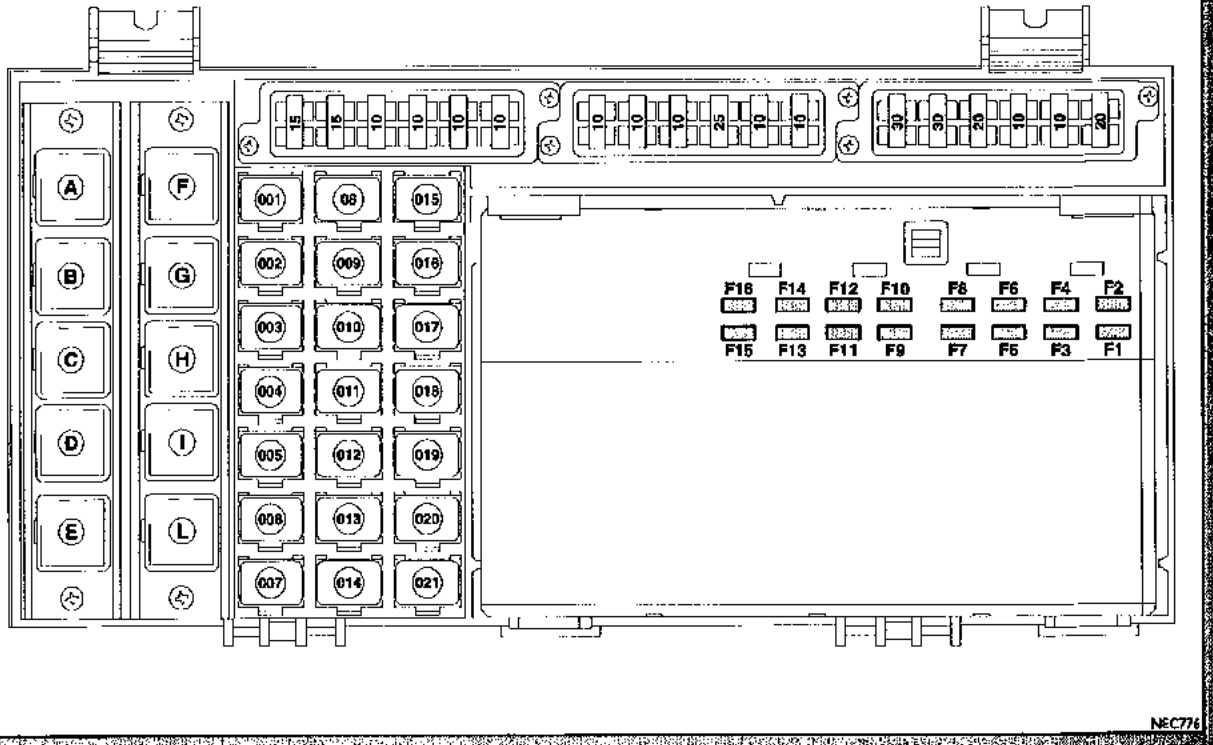
19 – Spare

20 – Spare





21 – Spare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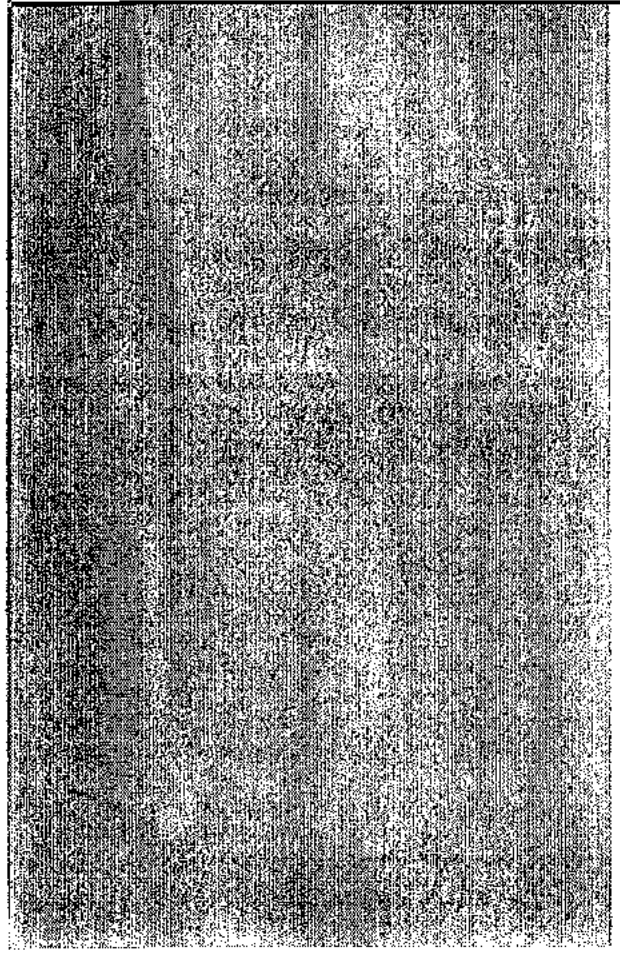


IBC3 fuses

F1 – 10A – Reversing lights/ headlamp alignment corrector

F2 – 20A – Heater/ air conditioner

F3 – 10A – VCM ECU

F4 – 5A – Tachograph / Instrument Cluster

F5 – 20A – ABS

F6 – 20A - Trailer ABS

F7 – 20A – Heated mirrors

F8 – 20 A - Start-up contactor

F9 - 10A – Body builders

F10 – 10A – Horn

F11 – 20A – Voltage reduction

F12 - 10A – Heating / heated rear-view mirrors

F13 – 10A – Spare

F14 – 10A – Cigarette lighter/ bunk light / 30 pole joint / OBD

F15 – 5A – Body builders / FSM / trailer ABS

F16 – 20A – Power windows

Fuses in battery compartment box

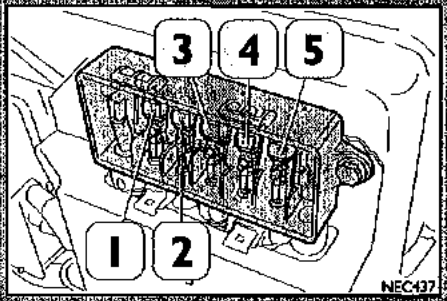
1 – 80A – Electronic chassis module

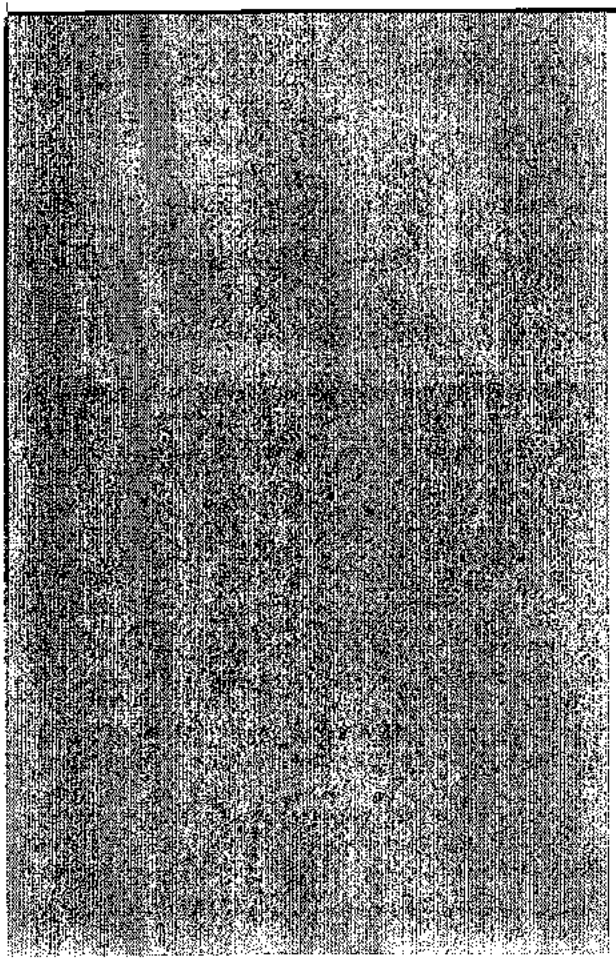
2 – 80A - Cab bulkhead connector pin

3 - 30A - EDC7 control unit

4 - 30A - IVECO body controller 3

5 – Spare





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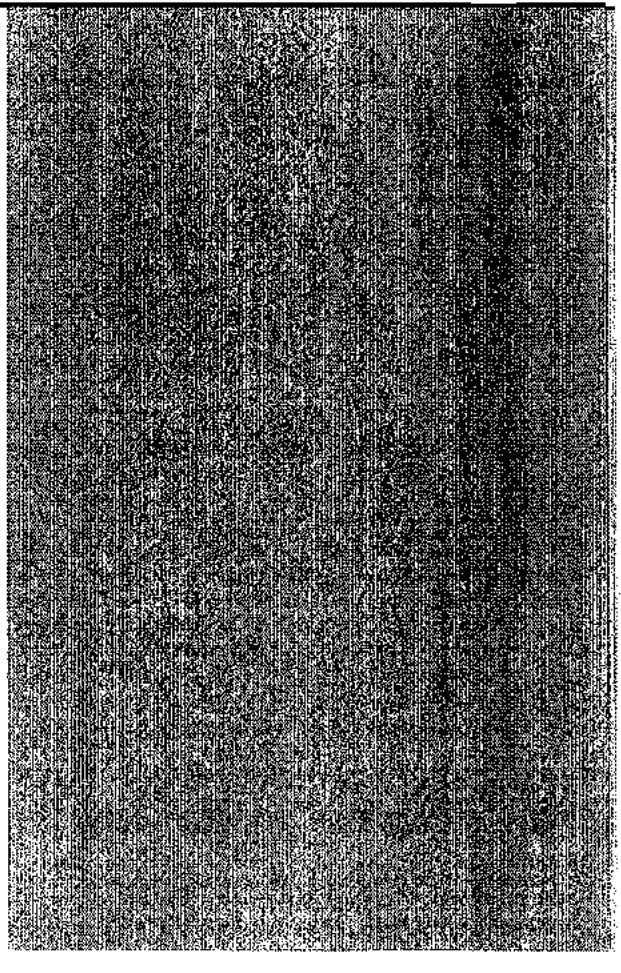

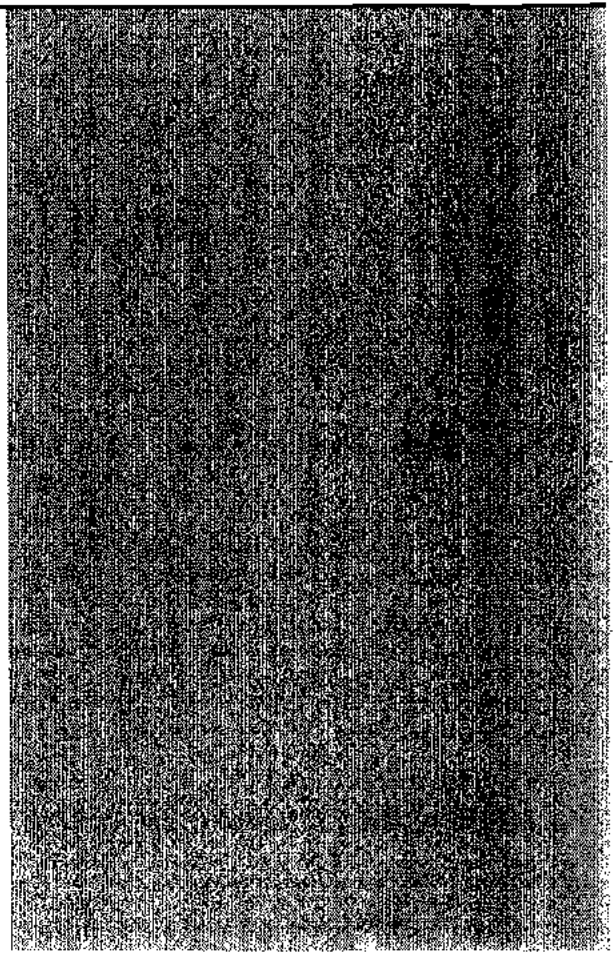

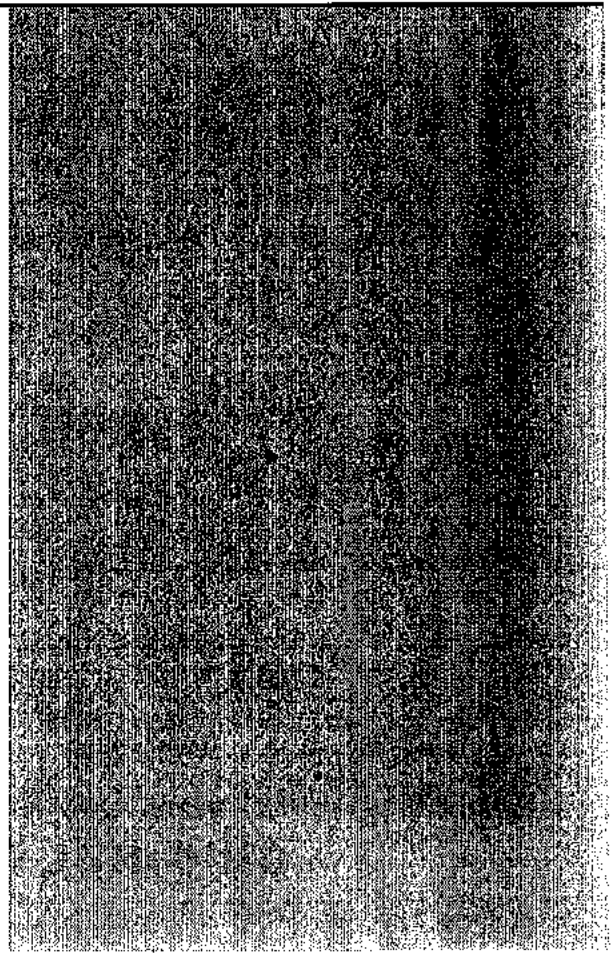

ORIGINAL PRODUCTS FOR IVECO.

Please comply with the recommendations given in this Use and Maintenance manualto ensure efficient and trouble-free vehicle Usage. The illustrations and descriptive text in this issue were Correct at the time of going to print.
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