

## 5 Safety regulations

### 5.1 General warnings

The instructions for use, maintenance and repair described in this handbook must be followed if the vehicle is to be considered as being operated in accordance with the manufacturer's intended uses.



#### DANGER

**THE MACHINES AND EQUIPMENT MAY NOT BE MODIFIED WITHOUT PERMISSION OF THE MANUFACTURER.**

For your safety and the safety of others, do not change the structure or adjustment of the various components of the machine or equipment. The same applies to the deactivation or modification of the safety devices present. Any changes made to the machine or equipment, holds DIECI s.r.l. harmless from any liability arising from damage or injury.

Every vehicle or equipment must be used, assisted or repaired only by persons that have received training in advance on the vehicle and on its safety regulations, in addition to being authorized to use the vehicle or equipment itself.



#### NOTICE

**The user must always observe the general safety regulations as well as those for accident prevention, such as traffic rules if the vehicle is used on public roads (according to the regulations in force in the country of use).**

**DO NOT USE THE VEHICLE OR THE ACCESSORIES IF YOU ARE UNDER THE EFFECT OF ALCOHOL, DRUGS OR IF YOU HAVE TAKEN MEDICINES THAT MAY MAKE YOU DROWSY OR MAY ALTER YOUR REFLEX AND REACTION TIME.**

DIECI s.r.l. is not liable for damage caused by negligent use of this vehicle or the equipment even if said damage is not a result of intentional improper use. Everything possible has been done during the design and construction phases of vehicles and accessories to make your job as safe as possible. Due caution, however, is indispensable and there is no better rule to prevent accidents.



#### DANGER

**THE VEHICLES OR EQUIPMENT IN QUESTION ARE NOT SET-UP FOR USE IN ENVIRONMENTS OR SITES EXPOSED TO THE PRESENCE OF EXPLOSIVE GASES, THUS USE IN THESE PLACES IS PROHIBITED.**

To operate in these environments, the Manufacturer must be contacted so that the necessary modifications can be made to the vehicle.



#### DANGER

All functions and procedures concerning the operation and mounting of the vehicle or its equipment that are not described in this manual are strictly FORBIDDEN.



#### WARNING

Read all of the safety stickers on the vehicle and observe all regulations printed on these stickers before starting up, running or refueling the vehicle or before carrying out maintenance work. Immediately replace damaged, lost or illegible stickers. Clean them when they are covered by mud, concrete or debris.

- Do not use the vehicle without having first read and understood all parts of this manual, and without having attended an adequate training course.
- Do not drive the vehicle when hands or shoes are wet or dirty with grease or greasy substances.
- Verify that all safety devices function before using the vehicle. The operator must always maintain control of the vehicle state and operation.
- Use the acoustic warning device or other signals to alert people in the area before starting up the vehicle.
- Inspect control instruments immediately after start up, while the engine is hot and at regular intervals during use, in order to promptly recognize and resolve any malfunctions.
- Do not start the engine or touch the machine levers if a danger sticker or a maintenance in progress sign is placed inside the cab.
- Do not carry passengers on the vehicle or in the driver's cab or on any other part of the vehicle (including passenger conveying basket).
- It is prohibited to use the mobile hydraulic parts of the vehicle to lift people except when using the passenger baskets with relative personal protective equipment for the operator inside.
- Regardless of the user's experience, become familiar with the position and function of all controls and instruments in a work area free from obstacles and persons, before operating the vehicle.
- Carry out all the described safety checks before resuming operations.
- While the vehicle is running, always keep light signals on. These serve to warn people that the vehicle is about to move.
- Always keep the safety distance adequate for the type of work and persons or objects in the work area. Always look in the forward direction and maintain good road visibility.
- Adjust movement speed based on the load carried and the type of ground; remain at low speeds to reduce the risk of the vehicle tipping over or losing the load.
- Do not drive with the brake pedal pressed.
- Do not use the vehicle force of impact to carry out tasks. These vehicles are not designed for said use; therefore, such use may cause vehicle overturning, damage, the breakage of components and attachments, or serious personal injury for the user.
- Always operate with the engine bonnet closed.
- Do not operate with the vehicle protective parts removed.
- When working in a congested area, designate one person to signal and coordinate the work zone.
- Make sure that everyone follows the directions given by the person in charge of signaling.
- Make sure to use signals that conform with the provisions in force in the country of use of the vehicle.
- For additional information with regard to the presence of a person in charge of signaling, consult the "Signals to more vehicles" chapter.
- When working alongside excavations or on the edge of the road or soft ground, keep at a safe distance as the vehicle may overturn.
  - Designate a person on the ground to be in charge of signaling.
  - Remember that after strong rains, the use of explosives or an earthquake, the ground is more fragile.
- When working on the upper part or inside buildings or other structures, verify their capacity and stability before starting operations. The risk of collapse exists and can cause serious injuries or damage.
- Working on a slope may be dangerous. The conditions of the terrain may vary according to climatic conditions (e.g. rain, snow, ice). Therefore, pay careful attention to the conditions of the terrain on which the vehicle is being used; the use of low speeds is recommended.
- Drive slowly on grass, leaves or wet steel slabs. Even when operating on slight slopes the vehicle may slip, lose balance or overturn.
- Tipping conditions of the vehicle can vary depending on the features of the ground, environmental conditions and the type of work. Complying with all the safety instructions contained in this manual reduces risks for the vehicle and the operator in most operating conditions provided herein.

- It is forbidden to use the tractor if there is any risk of tipping that is not covered herein, as this manual contains an incomplete list.

## 5.2 Safety indications



### CAUTION

Carefully observe and follow all safety signals on the vehicle and on the equipment and read all safety messages in this manual.

- The safety signals must be installed, maintained and replaced when necessary.
- If a safety signal or this manual is damaged or missing, order a replacement from the **DIECI s.r.l.** dealer in the same way in which spare parts are ordered (be sure to communicate the model and serial number of the machine when placing the order).
- Learn how to correctly and safely operate the vehicle and the accessories and their relative controls.
- Allow only trained, qualified and authorized personnel to operate the machine and installed accessories.
- Keep the vehicle and accessories in appropriate working conditions.
- Unauthorized modifications to the vehicle or accessories can jeopardize their operation and/or safety and influence their lifespan.
- The safety messages in this SAFETY REGULATIONS chapter illustrate the basic safety procedures of the vehicles.
- In case of doubt, contact the manager before proceeding to operate or carry out maintenance work on the vehicle or on the accessories.

## 5.3 Personal protective equipment

### 5.3.1 Protective clothing

In some cases, when working in particularly uncomfortable environments, adequate clothing or equipment must be worn.



It is necessary to have:

- Protective helmet
- Safety Shoes
- Protective goggles or face shield
- Protective gloves
- Protection headwear against noise
- Reflective clothing
- Waterproof clothing
- Breathing apparatus or filtering mask

It is mandatory for the operator, before starting to work, to learn from the safety manager or the site manager which are the possible risks of the work and which accident prevention clothes he must wear.



## CAUTION

**Always use PPE that is appropriate for the type of work to be performed.**

The Personal Protective Equipment used by the operators can have different characteristics, depending on the type of construction site and risks present in the work place.



## DANGER

### Danger of crushing

Pay attention to moving parts to avoid danger of crushing or dragging of the lower and upper limbs. Avoid wearing jewellery or pendants that might be trapped in moving parts. Long hair must be tied back to avoid it being caught in moving parts.

Do not wear loose clothing, chains, belts or other accessories that may be caught in the control levers or in other parts of the vehicle.



## CAUTION

**Keep the personal protective equipment in good conditions.**

Accident prevention clothes must always be intact and in good condition. Damaged clothing cannot ensure adequate protection. Do not wear damaged clothing; always replace damaged or torn clothing before operating the vehicle.

### 5.3.2 Protect yourself against noise

Prolonged exposure to loud noise can damage your hearing or may cause hearing loss.



## CAUTION

Always wear anti-noise earmuffs or earplugs to protect yourself from excessive and irritating noise.

### 5.3.3 Protections against objects falling from height

The vehicle is equipped with a protective cab against falling objecting (FOPS).



## DANGER

### Danger of falling objects

Use of a safety helmet is required if there is a risk of falling objects.



### 5.3.4 Protect yourself from flying fragments



## WARNING

During operation in certain conditions, particles of material may be ejected. In such conditions, it is a good idea to wear protective goggles and clear the area of those people not in possession of such goggles.

## 5.4 Preparing for accidents

- Always be prepared in the event of a fire or an accident.
- Keep a fire extinguisher and first aid kit at hand. (Not supplied by the manufacturer, "optional accessories").
- Carry out periodic inspections to ensure that the first aid kit contains all necessary items; replenish content if necessary.
- To properly use the extinguisher, carefully read the instructions located on the extinguisher.
- Carry out periodic inspections and maintenance (six monthly) to ensure that the extinguisher is ready for use at any given moment.
- Create priority procedures to deal with fires or accidents.
- Keep emergency telephone numbers (doctors, ambulance, hospital and fire brigade) clearly visible and near the telephone.
- Adequately trained and educated personnel must be present for managing emergencies with adequate theoretical-practical course carried out on site.

Below are some First Aid procedures that can be activated in case of accident following use of the vehicle or equipment object of this use and maintenance manual.

These procedures may be useful in an emergency for the users or other operators present near-by, during use and various life phases of the vehicle or of the equipment (transport, installation, use, maintenance, adjustment, etc.).

### 5.4.1 First Aider Tasks

1. Activate first aid (emergency call).
2. Evaluate the victim and, if necessary, support vital functions.
3. Stop an external hemorrhage.
4. Protect wounds and burns.
5. Protect the victim against further damages.
6. Do not perform unnecessary or damaging actions, such as giving beverages, moving the victim, reducing dislocations and/or fractures, etc.

### 5.4.2 Emergency call

Good first aid intervention also depends on the timely arrival of rescuers (emergency medical support) to the place of the emergency.

This is why the first aider in charge of calling the emergency must precisely indicate:

- Address of where the accident or illness took place.
- Number of injured or ill persons.
- The possible cause of the event.
- The state of the vital functions of the injured party, specifying whether the same is conscious or not and breathes normally or not.

At the end of the call it is recommended to:

- Give own details, indicating a telephone number where to be contacted.
- Wait for the rescuers outside the company (for example, near the reception).

5.4.3 Traumas

Distortions, dislocations and fractures:

Immobilize the joints in the position after the trauma, using bandages or storage, supporting the analgesic position of the injured party without attempting dangerous manoeuvres. Apply the cold (with bag of ice or other systems). In case of exposed fracture, cover the wound using a sterile gauze pad, after having pressed at a distance on the specific points the relative hemorrhage.

Contusions, crushing:

In case of contusions and/or crushing of ends of the upper and lower limbs (fingers, hand, feet, etc.) it is advised to immediately place the limb underneath running water (cold) and apply ice. Also check for wounds and/or cuts in the hit area and, if necessary, disinfect with the due precautions.

5.4.4 Hemorrhages

It is necessary to press the fingers on the hemorrhage point with sterile gauze pad, lifting the limb and eventually compress upstream of the hemorrhage with tourniquet

Treating superficial wounds:

Carefully expose and clean the wound, disinfect it with physiological solution, medicate it covering it with sterile gauze pads. Bandage avoiding excessive tightening to allow good circulation.

Treating deep wounds:

It is a priority to protect yourself against the risk of infection using gloves and splash shield; pad the hemorrhage by direct pressure or using other pressure points until it stops or the arrival of the ambulance. Call the medical emergency number, informing them that you are padding an arterial hemorrhage.

Treat the wound only after the hemorrhage is under control.



**CAUTION**

Do not use cotton wool, methylated spirit, antibiotic powder to disinfect the wound.

5.5 Preventing fires and accidents

5.5.1 Risks of fires



**DANGER**

**Danger of fire**

It is forbidden to smoke or use naked flames during use of the vehicle or any maintenance operation.

Do not operate the vehicle without the following safety conditions:



**DANGER**

Fuel, oil and lubricant leaks can trigger fires and cause serious injuries.

- Ensure that there are no flammable liquids leaking.

- To avoid oil or diesel leaks, make sure that there are no loose or missing clamps, no twisted tubes and no tubes that rub up against each other.
- Do not bend any tubes/pipes under pressure.
- Never install damaged tubes.
- Do not weld tubes or pipes containing inflammable liquids.
- Do not use a torch head to cut tubes or pipes containing inflammable liquids.



## **DANGER**

**Short circuits may cause fires.**

- Ensure that there are no short circuits.
- Clean and interrupt all electrical connections.
- Check before each work shift that there are no loose, twisted, hardened or damaged wires.



## **DANGER**

**Fuel, oil, grease, waste, deposits or accumulated dust or other components can cause a fire.**

- Remove inflammable materials.
- Prevent fires by inspecting and cleaning the vehicle at every shift, by immediately removing inflammable components.
- Check the ignition switch: in the event of fire, failure to switch off the engine will obstruct the work of the Fire Brigade.
- Do not use naphtha, petrol or inflammable liquids to clean parts of the vehicle. Only use non-flammable detergents.



## **DANGER**

**Safely handle dangerous liquids**

- Handle fuel with care, it is easily inflammable. If fuel is ignited, there may be an explosion and/or a fire.
- Do not refuel the vehicle while smoking and in presence of naked flames or sparks.
- Always stop the engine before refueling the vehicle.
- Fill up the tank outside.
- All fuels, most lubricants and some anti-freezes are inflammable.
- Preserve the flammable fluids away from fire hazards.
- Do not burn or drill pressurized containers.
- Do not keep cloths soaked with lubricant; they may cause fires and spontaneous combustions.

### 5.5.2 Risks of inhaling gas



## **DANGER**

**Exhaust engine gases are toxic and can cause damages to your health.**

If necessary to work in closed ambients, ensure it is sufficiently ventilated and equip the vehicle with special purifiers.

### 5.5.3 Risks of batteries exploding



#### **DANGER**

**The gas of the batteries may explode.**

- a) Keep any sparks, open flames or lit cigarettes away from the upper part of the battery.
- b) Never place a metal object between the terminals to check the battery charge. Use a voltmeter or a densimeter.
- c) Do not create sparks in the battery connection during recharging phases or starting the engine with auxiliary battery.
- d) Do not charge the batteries if they are extremely cold, extremely hot or damages as they might explode.
- e) Heat the batteries up to 16°C.
- f) The electrolyte in the batteries is an extremely corrosive acid.
- g) Should the battery explode, the electrolyte may be sprayed in the eyes with the possibility of causing blindness.
- h) Ensure to be wearing protective goggles when carrying out maintenance on the batteries.
- i) Do not overturn or tilt the battery as acid could come out.

### 5.5.4 Residual risks



#### **DANGER**

**Damage may be caused by entanglement in moving parts.**

Keep away from moving parts.



#### **DANGER**

**Avoid burns.**

Damage may be caused by entanglement in moving parts.

#### **Jets of hot fluids:**

After operation, the engine cooling liquid is hot and under pressure. Contact with hot water or steam may cause serious burns.

Avoid possible injury caused by hot water jets. Do not remove the radiator cap until the engine has cooled down. To open it, unscrew the cap as far as possible. Before removing the cap, release all of the pressure.

#### **Hot surfaces and fluids:**

The engine, reduction gears and hydraulic system oil heat up during vehicle use. The engine, rigid and flexible piping and other components heat up.

Wait until all parts cool down before beginning maintenance or repair work.



#### **DANGER**

**Caution with pressurized fluids.**

Fluids such as fuel or hydraulic oil under pressure can penetrate the skin and eyes causing serious injuries.

Avoid these dangers while repairing or carrying out maintenance on the vehicle, discharging the pressures (using the hydraulic levers of the distributors) before disconnecting or repairing pipes and hydraulic parts.

Before restarting the engine, ensure that all connections have been correctly tightened.

Use a piece of cardboard to check for any leaks; make sure your hands and body are adequately protected against pressurized fluids. Wear a face mask or accident-prevention goggles to protect your eyes.

Should there be an accident, seek medical attention immediately. Any fluids that penetrate the skin must be removed surgically within a few hours to avoid infections.



## **DANGER**

### **Electrocution**

All maintenance and/or adjustment interventions on powered parts must be carried out only and exclusively by qualified and adequately trained personnel.



## **DANGER**

### **Risk of slipping.**

During on-site operations, the areas around the equipment may have debris and liquid (oil, water, etc.) that might make the floor slippery. Pay the utmost attention.



## **DANGER**

### **Risk of falling, tripping.**

Pay the utmost attention when climbing in and out from the vehicle.



## **DANGER**

### **Crushing of hands and feet.**

The presence of moving parts during functioning can cause risks for the ground operators. During vehicle movements, carefully check no unauthorized person is within the required moving area.

## **5.5.5 Contact with dangerous substances**

- Wear the necessary protective clothing.
- Refer to the safety data sheet of the product used and take appropriate precautionary measures when using the product.
- Avoid contact with skin and eyes
  - In case of contact with eyes: rinse them thoroughly with plenty of water for a few minutes keeping the eyelids open and seek medical attention.
  - Should any fluid come into contact with skin, wash the area carefully, remove contaminated clothing, and when skin is dry, apply moisturizing cream. Consult a doctor if necessary.
  - In the event of inhalation, move away from the contaminated area and go to a well-ventilated location. Consult a doctor in the event of respiratory problems.
  - If swallowed: immediately contact a doctor, showing the label or container. Do not induce vomiting to avoid the risk of inhalation via respiratory passageways.

## 5.6 Storing dangerous liquids



### DANGER

**Flammable material danger.**

All fuels, most lubricants and some anti-freezes are inflammable.

Handle fuel with care, it is easily inflammable. If fuel is ignited, there may be an explosion and/or a fire.



### WARNING

All fluids must be kept out of the reach of children and incompetent persons.



### WARNING

Different types of substances must not be stored or mixed together.



### DANGER

**All chemicals are generally very harmful to health.**

Avoid contact with skin and eyes by wearing appropriate protective clothing; do not swallow.



### DANGER

**It is forbidden to smoke and have open flames**

It is forbidden to smoke or to use naked flames near fuels.

**Comply with the following precautions to store dangerous liquids:**

- All inflammable fluids must be stored in special containers, and the content of the containers must be clearly indicated. Containers must be tightly sealed.
- Store inflammable fluids in well-ventilated locations, far away from heat sources, sparks and open flames.
- Keep containers closed and covered. Other substances (e.g. foodstuffs) must not be present in this location.
- Always fill up the tank outside.
- Be careful of fumes and steam which may be formed by chemical products. Avoid inhalation.
- Do not breathe in fuel fumes.
- Ensure that these chemical products do not spill or flow into the ground, sewers or puddles. If necessary, inform the competent local authorities.
- In the event of a fire, use carbon dioxide, dry chemical powder, foam, sprayed water, sand, earth. Use jets of water to cool down surfaces exposed to the fire.
- Verify that there are no leaks of inflammable liquid (fuel, oil, grease, general lubrication leaks) in the storage containers.



### NOTICE

Refer to the safety data sheet of the product for additional precautions and warnings that are to be adopted.

## 5.7 Warnings for safe working

### 5.7.1 Ensuring the vehicle is clean

- Clean the windows, lights and rear-view mirrors
- Clean dirt and waste away from the engine, joints and radiator
- Make sure the cab steps and the handle are clean and dry
- Clean all safety stickers and manoeuvring instructions. Replace any stickers that are illegible or missing



#### **WARNING**

If the vehicle or equipment is not in perfect working order its operation is strictly prohibited.



#### **NOTICE**

For the cleaning procedures, refer to the "CLEANING" chapter.

### 5.7.2 Checking for damage

- Make sure there are no damaged or missing parts
- Make sure all articulated pins are properly fastened
- Make sure there are no signs of possible cracks or flaws or other damage to the windows
- Make sure there are no oil, fuel or cooling liquid leaks underneath the vehicle
- Make sure the wheel bolts are properly tightened



#### **WARNING**

If the vehicle or equipment is not in perfect working order its operation is strictly prohibited.

### 5.7.3 Start working with the vehicle

Regardless of their level of driving experience, operators must familiarize themselves with the position and function of all controls and instruments before operating the machine.

- Before using the vehicle, check location of personnel.
- While the vehicle is running, always keep light signals on. These serve to warn people that the vehicle is about to move.
- When working in a congested area, have another person present for signaling.
- When manoeuvring the vehicle, pay attention to bulky vehicle parts. There are parts that jut out from the cab.
- Never use controls for purposes different than those for which they were created for; e.g. to climb on or off from the vehicle or hang clothing, etc...
- Only use the vehicle from the driver's position
- The vehicle may move suddenly if started up without following the correct procedure, thus, creating the risk of personal injury.
- Start up the engine from the driver's seat only.
- Never start the engine by causing a short circuit between the terminals of the starter.
- Before starting the engine, make sure all control levers are in a neutral position.

### 5.7.4 Passengers transportation

Only the operator must be on board the vehicle, passengers are not admitted.

Passengers may obstruct the operator's view, causing an unsafe operation of the vehicle.



#### **WARNING**

Carrying people on or lifting people up with the vehicle is strictly prohibited unless the vehicle is equipped with an elevation work platform and has a special certificate of conformity regarding the transport of people.



#### **WARNING**

It is strictly forbidden to transport persons inside the basket while the vehicle is moving even in the presence of elevation work platform and certificate of conformity. It is compulsory to use the basket only with the parking brake engaged and the outriggers lowered (if present).

### 5.7.5 Electrical system protection

A burnt fuse must be replaced with another fuse of the same type, amperage and class.

Other types of interventions are not allowed, even if temporary.

Do not connect or remove terminals, fuses, or connectors when the vehicle is switched on or electrically powered.

Any intervention on the electric plant must take place with the vehicle not powered electrically. Restore the power supply only after the intervention has been concluded. Remount the lids and protections.

- Use the battery isolator to cut off power to the vehicle.
- Cut off power by means of the battery cut-off even before replacing the vehicle battery.
- In the event that a connector is damaged or is no longer inserted in its housing, replace it immediately in order to avoid short circuits or sparks.

Damaged, pinched or burnt cables must be replaced immediately even if damage is only to the sheathing or outer insulation.

- Never carry out or interrupt any connection on the load circuit, including connections on the battery, with the engine running.
- Never ground (earth) short circuit any charging component.
- Do not use an auxiliary battery with nominal voltage exceeding 12 volt.
- Make sure the polarity is correct when putting in the battery or when using an auxiliary battery when starting the vehicle with cables. Follow the use and maintenance instructions of the manual when starting up the vehicle with cables.

Always disconnect the negative cable from the battery before performing arc welding on the vehicle or on any connected attachment.

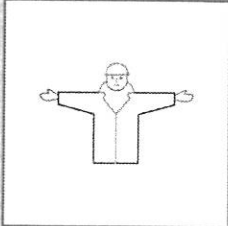


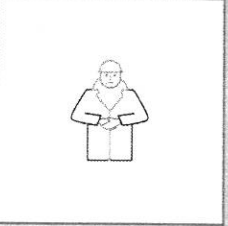
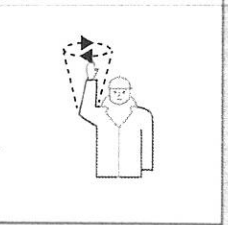
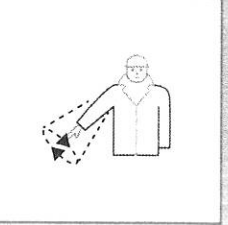
- Position the welding machine's ground terminal as close as possible to the area to be welded.
- If welding is to be carried out near an electrical module, this module must be removed from the vehicle.
- Only qualified and authorized personnel should carry out this operation.
- Do not allow welding machine cables go above, near or cross over any electrical cable or electronic component while welding is in progress.

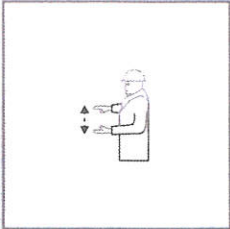
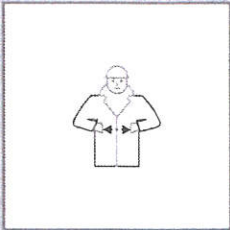


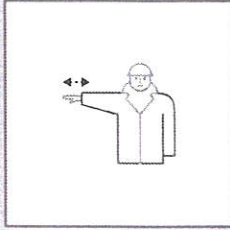
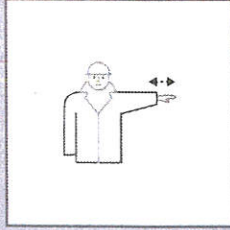
### 5.7.6 Signals to multiple vehicles

When working requiring more vehicles, give signals normally known to all employed personnel. Designate one person to signal and coordinate the work zone.

**Before operating make sure that:**

- The user and signaler are aware of the hand signals to be able to interact between them
- That everyone follows the directions given by the person in charge of signaling
- The signaler must be easily identified by the user of the vehicle
- The signaler must wear or hold one or more adequate recognition elements, like: jacket, helmet, sleeves, bracelets, signal paddles
- The recognition elements must be bright colored, preferably one, and reserved exclusively for the signaler.

Movement	Meaning	Description
	Start - Attention - Order taking	The two arms are open horizontally, the palm of the hands forward
	Stop - Interruption - End of motion	The right arm is stretched upwards, with palm of right hand forward
	Danger - Stop - Emergency stop	Both arms stretched upwards
	End of operations	The two hands are joint at height of chest
	Lift	The right arm, stretched upwards, with palm of right hand forward, makes a circle
	Lower	The right arm, stretched downwards, with palm of the hand towards the body, makes a circle

Movement	Meaning	Description
	Vertical distance	The hands, one on top of the other, indicate the distance
	Horizontal distance	The hands, one next to the other, indicate the distance
	Forward	Both arms are folded, the palms of the hands backwards and the forearms make slow movements towards the body
	Move back	Both arms are folded, the palms of the hands forward and the forearms make slow movements away from the body
	To the right compared to operator	The right arm, stretched horizontally, with palm of right hand downwards, slowly makes small movements towards the direction where to move
	To the left compared to operator	The left arm, stretched horizontally, with palm of left hand downwards, slowly makes small movements towards the direction where to move
-	Quick motion	The conventional signals used to indicate movements are quickly made
-	Slow motion	The conventional signals used to indicate movements are made very slowly

5.7.7 Working with the danger of falling masses and objects

When working in areas where there is a risk of falling, bouncing or interference from objects capable of hitting the operator or entering the cab:

- Mount suitable safety panels to protect the operator
- Always close windows
- Always ensure that other operators near-by are at a safe distance and cannot be hit by bouncing or falling objects.
- Pay careful attention to crumbling walls, landslides, falling material or objects from the installed equipment, that may hit the cab, the protective structure or windows, causing damages to the vehicle and to the operator.
- Never carry out work operations under an overhang; this could give way and fall onto the vehicle.
- Do not excessively weigh down or fill the installed equipment or transport loads that may come out or fall on the ground.



## WARNING

### Danger of falling objects

Use of a safety helmet is required if there is a risk of falling objects.

## 5.7.8 Working near electrical lines

Before working near overhead electrical lines, check that the safety distance is sufficient, in compliance with the current Standard in the country of use. In any case, never work near electrical lines at distances shorter than those in the table below or at the minimum distances indicated by the Standards in force in the country of use of the vehicle.

Damp ground may increase the risk of electrocution.

Operating or parking the vehicle too close to electrical cables leads to increased risk of being struck by lightning or being seriously injured.

Designate someone on the ground to signal when too close to power lines.

Do not allow anyone near the vehicle when working in the vicinity of power lines. To prepare for any possible emergency situation, wear rubber shoes and gloves, cover the seat with a rubber piece of fabric and take care not to touch the chassis with any unprotected body parts.



## DANGER

### High voltage danger

Should the vehicle collide with an electrical cable, the user, to avoid electrocution, must remain inside the driver's cab until certain that the electrical power supply has been properly disconnected.



## DANGER

### High voltage danger

If operating close to overhead electrical lines, check the safety distance in the table below, reported in the Italian Legislative Decree 81/08 Enclosure IX. The table is valid if the vehicle is used on Italian territory. However, refer to the Standards in force in the country of use of the vehicle.

Un (kV)	Distance
≤ 1	3 m (9.84 ft)
1 < Un ≤ 30	3.5 m (11.48 ft)
30 < Un ≤ 132	5 m (16.40 ft)
> 132	7 m (22.96 ft)

### 5.7.9 Working under the snow

Snow can hide obstacles and objects, and cover holes, dug-out areas and ditches, therefore, proceed with caution.



#### **WARNING**

Operation of the vehicle if the quantity of snow does not allow for clear distinction of obstacles and possible dangers along the path, is strictly prohibited.

- Take care when clearing snow and do not venture off the main road; that which is hidden at the sides of the road may cause vehicle overturning or damage to various components.
- Surfaces covered by snow or ice are extremely dangerous. Operate with caution, reducing vehicle speed as much as possible and engaging levers slowly.
- Operate with caution. If the vehicle should sink into the snow, it may overturn or remain buried. Do not venture from the road and avoid remaining entrapped or buried under heaps of snow.
- Extra care should be taken, when working on icy terrain. The ice will melt as the temperature rises and the ground will become slippery.
- Use caution in the presence of electrical cables, ditches, or freshly excavated or worked ground.
- Make sure not to cause risk to others in the area when backing up the vehicle.
- Always check the space around the vehicle before carrying out any manoeuvres



#### **NOTICE**

If working the vehicle at low temperatures (-10°C), empty and refill the tank using lubricants, fuel or cooling liquids suitable for such temperatures.



#### **NOTICE**

There are accessories that can be used to facilitate working with ice or snow, contact your dealer or agent.

### 5.7.10 Working with scarce lighting



#### **CAUTION**

**The standard illumination of the vehicle is not suitable in working conditions with poor visibility or for use at night.**

The vehicle can only be used with sufficient lighting in the work area.



#### **NOTICE**

There are several ways to improve visibility in conditions of poor lighting. Contact your local **DIECI s.r.l.** dealer.

### 5.7.11 Working in closed areas or dangerous atmospheres

**It is FORBIDDEN to use the machine in:**

- Suitably ventilated closed spaces, that are nevertheless not compatible for the use of equipment with running endothermic engines.
- Spaces with dangerous or explosive atmospheres.

- Protected environments such as refineries.



## CAUTION

**The vehicle must be appropriately modified and certified to work in environments with an explosive atmosphere.**

The vehicle can only be used in a tunnel if it has been declared suitable for these environments.

### 5.7.12 Reduce vibrations

Consider the following recommendations to reduce the vibration exposure of the operator:

- Always use the appropriate equipment for the job to be carried out.
- The driver's seat must be properly adjusted to suit the operator needs. Inspect and if required repair the suspensions and the regulation mechanisms of the seat.
- Make sure that the machine is kept efficient, perform machine maintenance as prescribed in this manual.
- Steer, accelerate, brake, shift gears, move the tool in a non-abrupt way.
- During transfers adjust the speed of the machine to minimize the level of vibrations. Reduce speed to avoid the risk of jolting. Transport the machine in the event of significant distance between job sites.
- Maintain the workplace in good condition, remove stones and obstacles, fill depressions or holes etc.
- To avoid back pain problems, use the machine only in good health.
- Take breaks so as to reduce the time of sitting in the same posture.
- Do not exit the cab or go out of the machine with a jerk.
- Avoid to lift and move loads repeatedly.

## 5.8 Working in windy conditions

Wind speed variation can cause a number of problems including the loss of vehicle stability, load oscillation, and a decrease in visibility due to dust, leaves, etc.

Adverse factors to vehicle use are:

- Location of the work site, the aerodynamic effect of buildings, trees and other structures influence wind speed.
- The height of the extended boom: the higher the boom is raised vertically, the higher wind speed becomes.
- Load bulk area: the more space the load occupies, the more the wind force is felt.

### Strong wind

**DIECI** telehandlers can be used up to a wind speed of 45 km/h (12.5 m/s) Km/h, equal to 12.5 m/s (No.6 on the Beaufort scale) measured on the ground.

At 10°C temperature, wind with a speed of 32 km/h (8.9 m/s) Km/h it seems that exposed parts of the body have a temperature of 0°C. The higher you climb the faster the wind speed and the more the sensation of pressure drop increases.



## WARNING

### Strong wind danger

In the presence of strong winds (no.5 Beaufort scale) never lift loads with surfaces exceeding 1 m<sup>2</sup>.

Below you can find the graph of the Beaufort scale for an indication of the wind speed with which you are working and when to suspend operations, if wind speed should exceed determined values.

Beaufort Wind Scale			
No.	Definition	Indicators	Speed (m/s)
0	Calm	Smoke rises vertically	0 - 0,2
1	Light air	Smoke drift wind direction	0.3 - 1,5
2	Light breeze	Wind felt on exposed skin. Leaves rustle; vanes begin to move	1.6 - 3
3	Gentle breeze	Leaves and small twigs constantly moving; light flags extended	3 - 5
4	Moderate breeze	Dust and loose paper raised. Small branches begin to move	5 - 8
5	Fresh breeze	Small trees in leaf begin to sway; glassy water, small waves form	8 - 11
6	Strong breeze	Large branches in motion. Whistling heard in electrical wires. Umbrella use becomes difficult	11 - 14
7	Strong wind	Whole trees in motion. Effort needed to walk against the wind	14 - 17
8	Fresh gale	Some twigs broken from trees. Cars veer on road	17 - 21
9	Strong gale	Slight damage to buildings (falling chimneys and tiles)	21 - 24

## 5.9 Assessing the consistency of the work ground

The ground on which the vehicle can be positioned must be able to support the vehicle and its maximum bearing capacity.



### **DANGER**

#### **Danger of tipping**

The sinking of the machine base support may cause the vehicle tilting.



### **CAUTION**

**Contact a qualified technician to assess the consistency of the ground according to the regulations in the country of use of the vehicle.**

Request in any case the advice of a qualified technician to know whether in the workplace, there are hidden cavities (pipes, wells, old tanks, basements, manure, etc...).



### **NOTICE**

Refer to the "Technical data" chapter in the manual of the vehicle, to know the maximum load that each wheel or outrigger (if any) can apply on the ground while using the vehicle.

## 5.10 Moving safely



### **NOTICE**

The following operations are standard for any type of installed equipment; however, refer to any warnings present in the equipment manual.



### **WARNING**

In the event of scarce visibility, have a person operate on the ground for signaling.



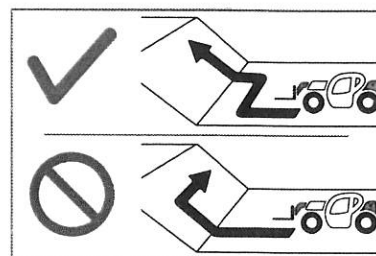
### **WARNING**

Do not lift or lower the loads when the vehicle is in motion.

Operating on sloped terrain can cause overturning or sliding. Move forward and brake gradually and take all necessary cautions.

Always move in a straight line to go up or down a slope. Moving transversally or along the slope is extremely dangerous (fig. 150533-1).

Always use the parking brake when setting down or lifting a load on a slope.



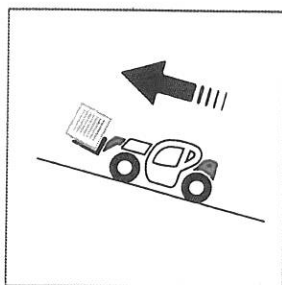
150533-1



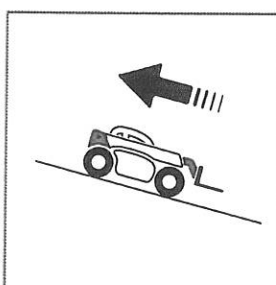
## WARNING

**Check the vehicle is leveled before using the boom on sloped ground.**

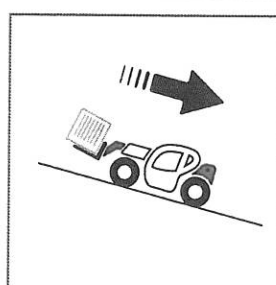
Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.



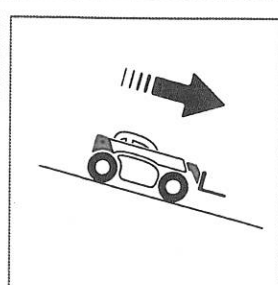
150534-1



150534-2



150534-3



150534-4

- In the event of having to travel uphill while transporting a load, operate always maintaining the load towards the top of the uphill (fig. 150534-1).
- When having to drive uphill without a load, operate with the vehicle facing downhill (fig. 150434-2).
- In the event of having to travel downhill while transporting a load, operate always maintaining the load towards the top of the uphill (fig. 150434-3).
- When having to drive downhill without a load, operate with the vehicle facing downhill (fig. 150534-4).

## 5.11 General warnings for moving the load

**NOTICE! For safe working procedures in the various working conditions refer to the "Safety standards" chapter.**

Always adhere to safety regulations; always transport balanced, properly arranged load to prevent overturning.



## CAUTION

**It is strictly prohibited to work without the respective capacity diagrams for the equipment and the vehicle.**

When using this vehicle, carefully follow the capacity diagrams of the vehicle with the equipment mounted at that moment.

Always adhere to safety regulations; always transport balanced, properly arranged load to prevent overturning.

Do not attempt to carry out operations which exceed the capacity of the assembled equipment or of the vehicle.

Do not modify the structure and vehicle stability in any way by trying to add counterweights, whichever artifice is used.

Always ensure the pallet, the boxes and other supports for the load are in good conditions and adequate to the load to be lifted; the sudden collapse of a rack of material is often caused by a faulty pallet.

**Do not move the load with boom lifted or extended.**

- Handle the vehicle with the boom raised only in exceptional circumstances. In these circumstances, operate with due prudence, reduce speed as much as possible and brake delicately. Make sure that visibility is always sufficient. If necessary, ask an operator on the ground to guide you for the operations.
- Reduce the speed as much as possible and brake gently during handling operations.



## WARNING

Do not handle loads while the vehicle is moving.

Avoid passing over unstable objects. Remove dangerous, unstable objects instead of passing over or around them. Also avoid holes and ditches that might make the load jolt.

Before turning, slow down as much as possible, and monitor the load.

Do not change direction abruptly or at high speed.

Remember that hydraulic steering is very sensitive to steering wheel movements; steer gradually and avoid sudden movements.

Slow down before turning.

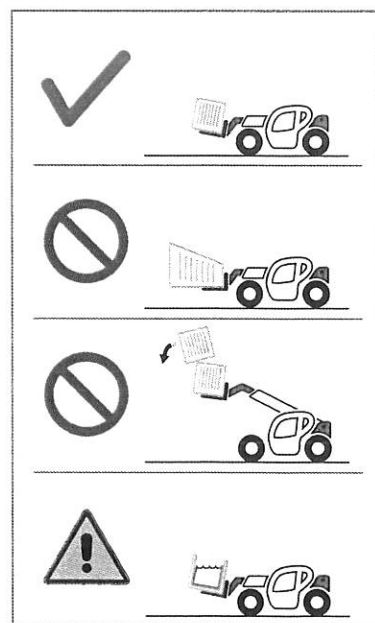
Pay attention to the side space, in particular if transporting wide loads. If possible, keep to the center of the passage to avoid equipment or personnel from obstructing your path.



## WARNING

Handle loads with care, at low speed and without sudden or jolting movements, above all if they are carried at great heights.

- Always ensure good visibility in the work area, including direct vision and visibility using rear view mirrors in order to check for the presence of people, animals, obstacles, holes and changes in slope etc.
- Decrease the working speed of the vehicle in case of rain, fog, snow or in any case where visibility is reduced.
- If visibility on the right side is limited during boom operation, before lifting the load, ensure that the work area is clear and make note of the position of any possible obstacles and irregularities in the terrain.
- Always make sure there is good visibility (clean windows, clean mirrors, clean lights that work properly, etc.).
- Maintain control of the vehicle and its speed in all circumstances. The speed of the loaded vehicle must never exceed 10 Km/h. If the load exceeds the maximum allowed load by 50%, vehicle speed must be reduced to 5 Km/h.
- Do not drive in reverse for long distances.
- Brake gradually; avoid braking abruptly.
- Always maintain the safe distance from other vehicles in order to have sufficient space to brake in every condition.



150532-1

- Always ensure good visibility in the work area, including direct vision and visibility using rear view mirrors in order to check for the presence of people, animals, obstacles, holes and changes in slope etc.
- Decrease the working speed of the vehicle in case of rain, fog, snow or in any case where visibility is reduced.

- If visibility on the right side is limited during boom operation, before lifting the load, ensure that the work area is clear and make note of the position of any possible obstacles and irregularities in the terrain.
- Always make sure there is good visibility (clean windows, clean mirrors, clean lights that work properly, etc.).
- Maintain control of the vehicle and its speed in all circumstances. The speed of the loaded vehicle must never exceed 10 Km/h. If the load exceeds the maximum allowed load by 50%, vehicle speed must be reduced to 5 Km/h.
- Do not drive in reverse for long distances.
- Brake gradually; avoid braking abruptly.
- Always maintain the safe distance from other vehicles in order to have sufficient space to brake in every condition.



## CAUTION

Before lifting loads, operators must be familiar with the weight of the load and its center of gravity.

- Transport the load as close as possible to the ground. Keep the load low, at a height from the ground of 300 mm. Never move with the load lifted more than necessary.
- The load diagrams are valid for centers of gravity of standard loads. For particular loads, contact your dealer.
- Pay the utmost attention during transporting of loads with variable center of gravity (e.g. Liquids). Operate with caution in order to limit such variations and to prevent the risk of vehicle overturning.
- Always ensure the moved load is correctly balanced and cannot fall on the ground. The loss of the load or part of it can entail a danger of damage to things and persons
- Pay the utmost attention to objects that may fall. Ensure there are no unstable objects on the upper part of the load.



## WARNING

**Never lift a load when the vehicle is on a sloped surface. When on a sloped surface, pay attention to the conditions of the ground. When working with the vehicle on a sloped surface with the load high, a jolt or a hole is sufficient to make the vehicle overturn.**

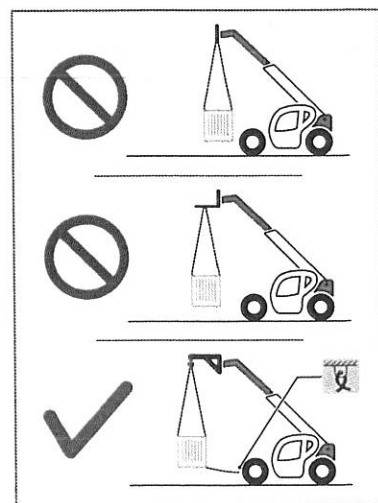
Do not move the boom if the vehicle is located on terrain with a slope greater than 2° (3.5%).

## 5.12 Use of cables, ropes and slings

It is strictly forbidden to lift or move load fastening ropes or chains only to the vehicle's accessory holder plate, to forks or to any other equipment not designed for this purpose.

Various equipment set-up for lifting, provided with suitable hooks for the use of cables, chains and straps are available. For further information contact your **Dieci** dealer.

To keep the suspended load from swaying while being handled, the load can be fixed to the anchoring eyebolts of the vehicle while being transported.



150535-1

## 5.13 Road travel

### 5.13.1 Road travel warnings



#### CAUTION

Before starting the road travel make sure to observe the relevant laws and regulations in the country of use.

The road travel requirements are shown on the Vehicle Registration Document.

Low beam lights must be on even during the day and in streets where there is no obligation to use visual and lighting signaling devices.

Ensure correct operation and cleaning of headlights, direction lights and windscreen wipers.



#### WARNING

**Check the correct position of the rear view mirrors.**

The objects seen through the rear view mirror are closer than they appear.

When driving on the road and/or on a slope it is necessary to be very careful to the engine rpm. A high number of rpm can lead to mechanical failures. Keep under control the motor rpm and speed.

Pay particular attention to loading docks, trenches, scaffolding and land recently excavated or filled

### 5.13.2 Road travel instructions

- Level the vehicle so that the wheel axles are aligned with the chassis (if present).
- Ensure that all outriggers have been perfectly retracted and raised (if present).
- Close the telescopic arm (boom) completely.
- Lower the telescopic boom completely and then raise it slightly to about 20-30 cm from the ground.
- Check the correct operation of the lights before moving on roads. Check that the rotating light for slow vehicle signaling is installed and running; keep the rotating light in operation both at day and at night.
- Perform the wheels alignment, so that they are perfectly aligned with the vehicle chassis.
- **It is mandatory** to arrange the steering as reported in the Vehicle Registration Document and lock the selector lever with the dedicated device.
- Make sure that the amount of fuel is sufficient.
- Assemble all the accessories required for road circulation depending on the country in which the vehicle is operating.
- Install an overhanging load signal panel on the boom head before the entering onto the road.
- Always evaluate the road to be traveled, taking account of suspended structures (e.g. bridges, underpasses, etc.) that could be damaged by the vehicle.
- In some countries it is mandatory to place wedges under the tires when the vehicle is stopped.

- Make sure that your vehicle is in compliance with local legislation in reference to the presence of the license plate when traveling on the road both at day and at night.



### WARNING

Road transfer with equipment assembled to the fork holding plate is not allowed except those accepted by the legal authority of the country where the vehicle operates.



### WARNING

**It is not allowed to travel on public roads with loaded vehicle.**

Comply with the maximum permissible mass written on the vehicle registration document.

## 5.14 Momentary stop



### CAUTION

If it is necessary to leave the driving position, follow the steps in the "Parking the vehicle" paragraph.



### WARNING

Never move away from the vehicle, leaving the engine running or the ignition key on the vehicle.



### WARNING

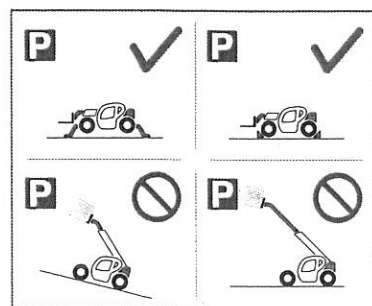
Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.

- Gradually release the accelerator pedal.
- Stop the vehicle on even ground.
- Engage the parking brake
- Bring the movement selection lever to "N".
- During the running-in of the vehicle (50 h), do not keep the diesel engine at minimum revs for too long.

## 5.15 Parking the vehicle

Never leave in any case the vehicle parked with a raised load.

- Always park on flat, firm and level ground, where there is no risk of falling rocks, landslides or flooding.
- Lower outriggers to the ground (if present).
- Retract the boom completely and lower it to the ground.
- Engage the parking brake
- Bring the movement selection lever to "N".
- Run the engine at idle speed for some seconds before turning it off, in order to allow the engine cooling.
- Turn the ignition key to the engine stop position.



150536-1

- Remove the key from the ignition switch.
- Lock the hydraulic controls with the special devices (if present).
- Close the windows and lock them with the handles.
- Close the cab door by key.
- Place wedges under the wheels.
- Make sure that the vehicle is parked so as not to impede its movement and at least 5 meters away from the railroad tracks.

**WARNING**

Do not stop and leave the vehicle parked on a slope exceeding 15%, even with the parking brake engaged.

## 5.16 Starting and stopping the machine

### 5.16.1 General warnings regarding starting up the vehicle



#### **CAUTION**

Do not use the vehicle without having first read and understood all parts of this manual, and without having attended an adequate training course.

- Before starting the engine, make sure all control levers are in a neutral position, the parking brake is engaged, the engine hood is closed and that there is nobody in the area surrounding the machine.
- The machine can only be started up or maneuvered when the operator is seated in the driver's seat, with the seat belt fastened and adjusted.
- The machine may move suddenly if started up without following the correct procedure, thus, creating the risk of damage.
- Never start the engine by causing a short circuit between the terminals of the starter.
- Never start-up the engine by pushing or pulling the vehicle. This could seriously harm people or cause serious damage to the vehicle.
- Be careful when using auxiliary batteries as the gas contained in these may explode, causing serious damage. Follow the instructions provided in the "Emergency procedures" chapter, "Start-up using auxiliary batteries" paragraph to start the engine using auxiliary batteries. An incorrect procedure can cause serious damage to the electrical/electronic system, the vehicle could move suddenly, the battery could explode and damage could be caused to objects and/or people.
- Do not start the engine or touch the levers of the machine if a danger sticker or a maintenance in progress sign is placed inside the cab.

### 5.16.2 Inspections prior to starting-up

#### 5.16.2.1 Inspecting the machine

Carefully inspect your machine every day or before every shift.

Carry out the following inspections and operating checks:

- Parking brake efficiency
- Intact condition of the tires
- Type of tire suitable for the type of work ground
- Engine oil level (check and top-up, if necessary)
- Hydraulic oil level (check and top-up, if necessary)
- Air filter clogging indicator (check and clean, if necessary)
- Tire inflation and pressure (check)
- Fuel level (check)
- Signaling and warning devices (check)
- Steering efficiency
- Service brake efficiency
- Tightness of all nuts and bolts
- Lighting
- Direction indicators
- Emergency Lights

- Switches
- Indicator lights
- Windscreen wipers
- Reverse movement alarm
- Position and condition of rear view mirrors



## DANGER

**Immediately stop using the machine in case of malfunctions or if it does not comply with safety standards.**

Contact an authorized **Dieci s.r.l.** workshop if the machine shows malfunctions. Refer to the "Maintenance" chapter for information regarding routine maintenance.



## NOTICE

A thorough inspection is required if the machine is not used for a prolonged period of time. A detailed description of the operations is provided in the "Machine storage" chapter.

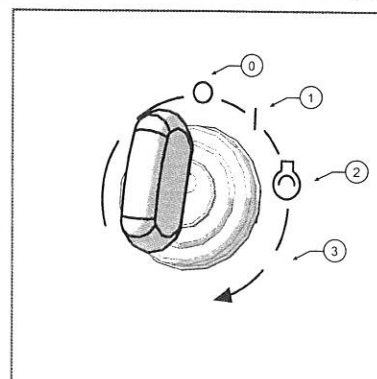
### 5.16.2.2 Inspecting the work area

- Examine the work area when working at the edge of an excavation or on soft ground as the machine could overturn.
- Examine the conformation and condition of the terrain of the work area before beginning to operate.
- Keep the machine well away from the edge of the excavation and the side of the road.
- When working on a slope or near the roadside, have another person present for signaling.
- Pay utmost attention when working on icy ground. The ice will melt as the temperature rises and the ground will become slippery.
- Check for any overhead power lines or underground piping.
- Do not work in places at risk of landslides or falling rocks.
- Take due precautions to prevent any unauthorized persons from entering the working area.
- When moving through or operating in shallow water or soft ground, verify the shape and the conditions of the land, the water depth and flow rate before beginning the operation.

### 5.16.3 Starting-up the engine

**Proceed as follows to start-up the engine of the vehicle:**

1. Press the parking brake switch.
2. Bring the movement selection lever to neutral.
3. Remain seated in the driver's seat.
4. Turn the ignition key (fig. 150538-1) clockwise to position "1".  
With the key in this position:
  - The control panel and instrument panel will be powered
  - A buzzer will sound, indicating that the key has been inserted. This buzzer also serves to warn any persons in the surrounding area that the vehicle has been started up.



150538-1

- A check-up of the instrumentation will be performed with all the indicators lighting up for about 5 seconds. Only the following lights must remain switched on at the end of the check-up:
  - Engine oil pressure indicator light
  - Battery charge indicator light
  - General alarm warning light
  - Intermittent buzzer
  - Other indicators of activated functions (e.g.: Parking brake, gears engaged, etc.)

**WARNING! If other indicators remain on signaling malfunctions or if one of the previous conditions does not occur, do NOT start-up the engine and refer to the "Maintenance" chapter or contact the Dieci service center.**

1. Turn the ignition key (fig. 150538-1) to position "3" to start-up the engine. Release the starter within 5 seconds.
2. Release the key once the engine has started. The indicators related to the engine oil pressure and battery charge must go off once the engine is started up.
3. If the engine does not start within 5 seconds, try again at regular 15 second intervals to prevent overloading the starter.

#### 5.16.4 Warm-up after starting-up

During the first few minutes of use, keep the speed slow in order to warm up the engine and hydraulic oil.



#### **WARNING**

**Serious damage can be caused to the engine and the hydraulic system if the engine reaches high rpm before the operating oil temperature and pressure levels are reached.**

Let the engine run at 1100 - 1300 rpm for about 5 minutes so as to bring the engine oil to the operating temperature, particularly, with outdoor temperatures below 0 °C.

#### 5.16.5 Start-up at low environmental temperatures

Consider the following warnings before starting-up at low environmental temperatures and with a cold engine:

- In order to prevent discharging the battery, do not prolong each attempt to start-up by more than 15 seconds; however, if the engine does not seem to be starting-up, extend the time to a maximum of 30 seconds.
- Wait at least one minute before trying to start-up again.
- It is recommended to not exceed six start-up attempts so as not to discharge the battery excessively.



#### **NOTICE**

It is recommended to use anti-freeze diesel at environmental temperatures lower than 0°C, so as to make sure the engine is optimally supplied, without reducing performance.

## 5.16.6 Causes of failed start-ups

Check the following if the engine does not start-up:

- The parking brake switch is pressed.
- The gear selection lever is in the neutral position.
- No emergency buttons are pressed.

After checking all the previous conditions, remove the cause of failure to start and try the starting procedure again.



### NOTICE

If the problem persists, contact a **Dieci** after-sales center.

## 5.16.7 Turn off the vehicle

It is recommended to perform the following before switching the engine off:

1. Bring all the control levers to the idle position.
2. Bring the engine to low speed for a few seconds.
3. Turn the ignition key to position "0".