

## 1.1 FOREWORD

- This manual has been carried out by Komatsu Utility in order to supply their customers with all the necessary information on the machine and the safety regulations related to it, together with the use and maintenance instructions that enable the operator to exploit the capacity of the machine with optimal results and to keep the machine efficient over time.
- The operation manual, together with the spare parts catalogue, is an integral part of the machine and must accompany it, even when it is resold, until its final disposal.
- The manual must be handled with the greatest care and always kept on board the machine, so that it can be consulted at any moment; it must be placed in the appropriate compartment inside the seat support, where also the ownership documents and the logbook are usually kept.
- This manual must be given to the persons who have to use the machine and carry out the routine maintenance operations; they must read the contents carefully more than once, in such a way as to clearly understand what are the correct operating conditions and the dangerous conditions that must be avoided.  
In case of loss or damage, request a new copy to Komatsu Utility or your Komatsu Utility Dealer.
- The illustrations contained in this manual may represent machine configurations available on request.  
The machines are constantly upgraded in order to increase their efficiency and reliability; this manual sums up all the information regarding the state of technical progress at the moment in which the machine is launched on the market.  
Consult your Komatsu Utility Dealer for any updated information.
- Punctual periodic annotations regarding the maintenance operations that have been carried out are important to have a clear prospect of the situation and to know exactly what has been done and what has to be done after the next maintenance interval. Therefore, it is advisable to consult either the hour meter and the maintenance plan frequently.
- Over the years Komatsu Utility Dealers have gathered considerable experience in customer service.  
If more information is needed, do not hesitate to contact your Komatsu Utility Dealer: he always knows how to get the best performance from the machine, he can suggest the use of the equipment that is most suitable for specific needs and can provide the technical assistance necessary for any change that may be required to conform the machine to the safety standards and traffic rules.  
Furthermore, Komatsu Utility Dealers also ensure their assistance for the supply of Komatsu Utility genuine spare parts, which alone guarantee safety and interchangeability.
- The table included in this manual must be filled in with the machine data, which are the data that must always be indicated to the Dealer when requiring assistance and ordering spare parts.



### CAUTION

- **The incorrect use of the machine and inappropriate maintenance operations may cause serious injuries and even death.**
  - **Operators and maintenance personnel must carefully read this manual before using the machine or performing maintenance operations.**
  - **Any serious accident that may occur during the use of the machine or during maintenance operations is due to failure to comply with the instructions given herein.**
  - **The procedures and precautions described in this manual are valid for application to the machine only when it is used correctly.**  
**If the machine is used for any purpose or in any way other than those described herein, the operator shall be responsible for his own safety and for the safety of any other person involved.**
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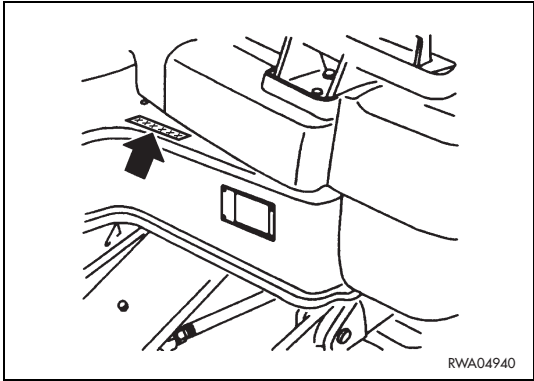
## 1.4 PRODUCT IDENTIFICATION

The Komatsu Utility EXCAVATOR and its main components are identified by serial numbers stamped on the identification plates.

The serial number and the identification numbers of the components are the only numbers that must be indicated to the Dealer when requiring assistance and ordering spare parts.

### 1.4.1 MACHINE SERIAL NUMBER

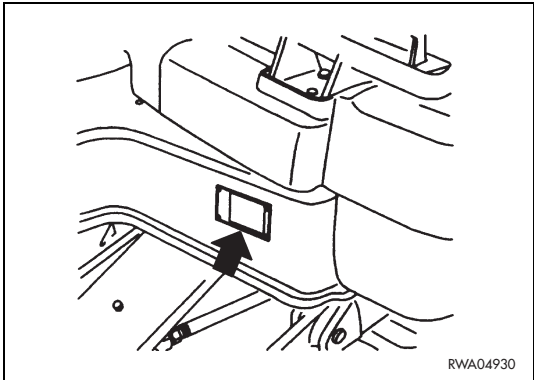
The machine serial number is stamped on the front upper part of the main frame, on the left side.



### 1.4.2 MACHINE IDENTIFICATION PLATE

The Komatsu Utility EXCAVATORS described in this manual are provided with the CE mark, which certifies that they are in compliance with the CE harmonized standards.

The plate with the mark is applied onto the front wall of the main frame, on the left side.



CE	
KOMATSU	
MODELLO TYP	- MODEL - MODELE
MATRICOLA N° FABR. NR.	- SERIAL N° - SERIE NR.
ANNO BAUJAHR	- YEAR - ANNEE
MASSA TOTALE MAX ZUL. GESAMTGEWICHT	- TOTAL MAX WEIGHT - POIDS TOTAL MAX
POTENZA MOTORE LEISTUNG	- ENGINE POWER - PUISSANCE MOTEUR
MASSA MAX. ASSE ANT. ZUL. ACHSLAST VORN	- MAX WEIGHT FRONT AXLE - POIDS MAX ESSIEU AV
MASSA MAX. ASSE POST. ZUL. ACHSLAST HINTEN	- MAX WEIGHT REAR AXLE - POIDS MAX ESSIEU AR
MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) ITALY UNDER LICENSE FROM KOMATSU LTD	

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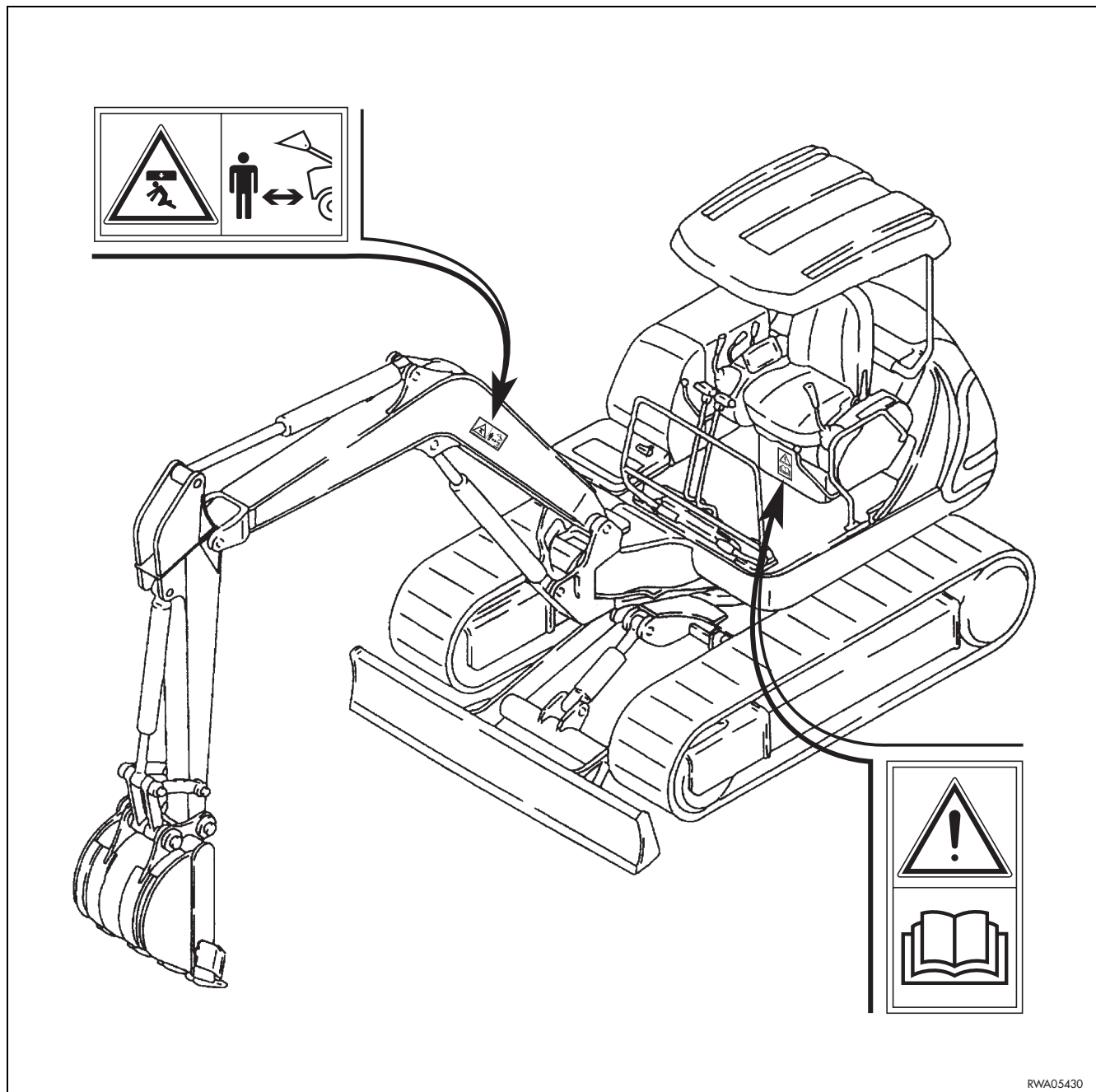
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CE	
KOMATSU	
MODEL	
SERIAL N	
YEAR	
TOTAL MAX WEIGHT	kg
ENGINE POWER	kw
MAX WEIGHT FRONT AXLE	kg
MAX WEIGHT REAR AXLE	kg
MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) ITALY UNDER LICENSE FROM KOMATSU LTD	

## 2.1 SAFETY, NOISE AND VIBRATION PLATES

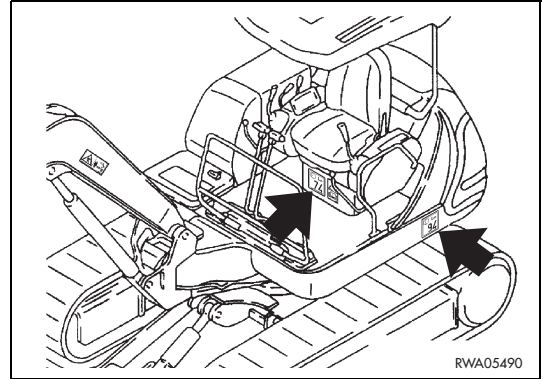
### 2.1.1 POSITION OF THE SAFETY PLATES

- The safety plates must always be legible and in good conditions; for this reason, if they are dirty with dust, oil or grease, it is necessary to clean them with a solution made of water and detergent. Do not use fuel, petrol or solvents.
- If the plates are damaged, ask for new ones to Komatsu Utility or to your Komatsu Utility Dealer.
- In case of replacement of a component provided with a safety plate, make sure that this plate is applied also on the new piece.
- The machine can be provided with other plates in addition to those indicated below; keep also to the instructions given in the additional plates, in any case.



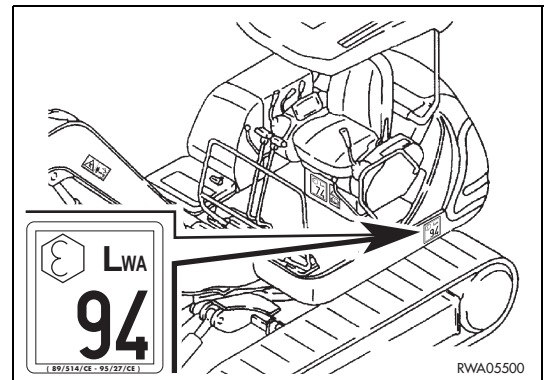
### 2.1.4 POSITION OF THE NOISE PLATES ON MACHINES WITH CANOPY

- The noise plates must always be legible and in good conditions; for this reason, if they are dirty with dust, oil or grease, it is necessary to clean them with a solution made of water and detergent.  
Do not use fuel, petrol or solvents.
- If the plates are damaged, ask for new ones to Komatsu Utility or to your Komatsu Utility Dealer.
- In case of replacement of a component provided with a noise plate, make sure that this plate is applied also on the new piece.



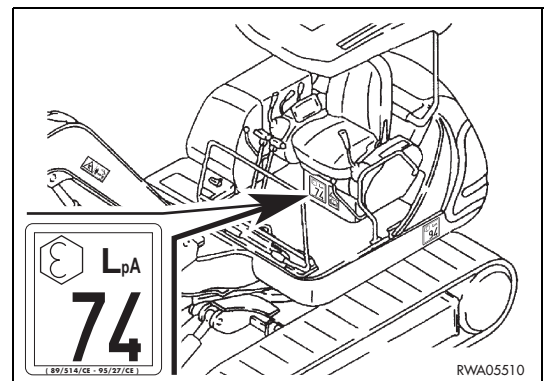
### EXTERNAL NOISE

- This value indicates the noise level outside the machine and refers to the noise perceived by persons in the vicinity of the work area.



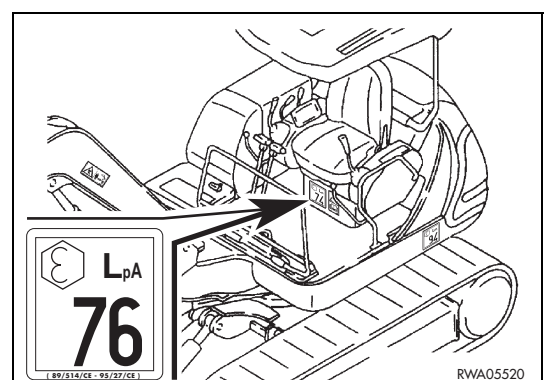
### NOISE PERCEIVED BY THE OPERATOR (PC12R)

- This value indicates the maximum noise level perceived by the operator's ears.



### NOISE PERCEIVED BY THE OPERATOR (PC15R)

- This value indicates the maximum noise level perceived by the operator's ears.



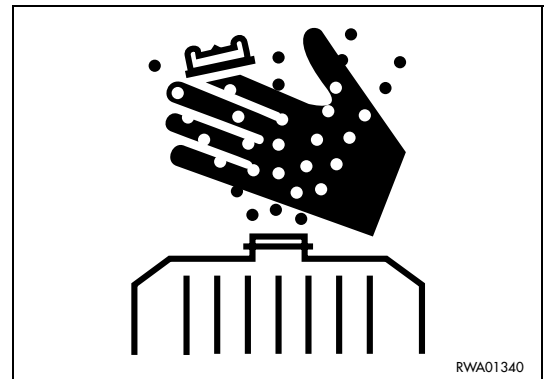
### 2.8.10 RULES TO BE FOLLOWED DURING FUEL OR OIL TOPPING UP

- Keep away from naked flames while refuelling or topping up oil.
- Spilled fuel or oil make the ground slippery and may cause accidents; clean any dirty area immediately and carefully.
- Always tighten the fuel tank and the hydraulic circuit oil safety caps securely.
- Do not use fuel to clean any part of the machine that may be dirty with oil or dust.
- Always top up the fuel and oil tanks in properly ventilated place and avoid smoking.
- When refuelling, hold the fuel gun firmly and keep it constantly in contact with the filler until you have finished, in order to avoid sparks due to static electricity.
- Do not fill the tank completely, in order to leave room for the fuel to expand.



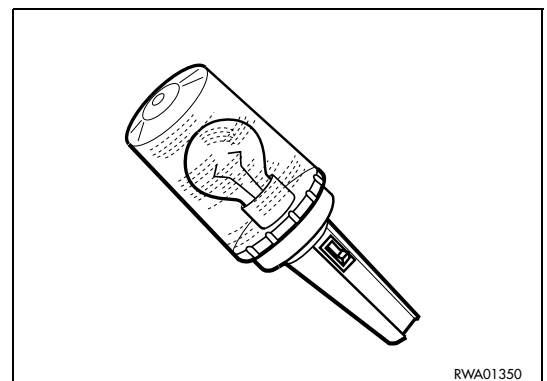
### 2.8.11 CHECKING THE COOLANT LEVEL IN THE RADIATOR

- Let the engine and the radiator cool down before checking the coolant level.
- If it is necessary to remove the cap with hot engine, wear suitable clothes and protections and loosen the cap slowly, in order to gradually release the pressure.



### 2.8.12 USING LAMPS

- When checking the fuel, oil, coolant or battery electrolyte levels, always use homologated explosion-proof lamps. If such lighting equipment is not used, there is danger of fire or explosion.



### 3-4 - TRAVEL AND STEERING CONTROL LEVERS



- Before carrying out any manoeuvre with these levers, the operator must be seated in the work position with fastened safety belt.
- Before moving, make sure that the upper structure is directed towards the blade and that all the safety devices have been engaged; if the upper structure is turned by 180°, the controls are inverted.  
(See “3.6.5 HOW TO MOVE THE MACHINE”).
- Failure to comply with these rules may result in serious accidents.

The levers (3) and (4) serve to operate the left and right travel motors, respectively, and control the forward and the reverse gear according to the movements indicated.

**N** - Neutral

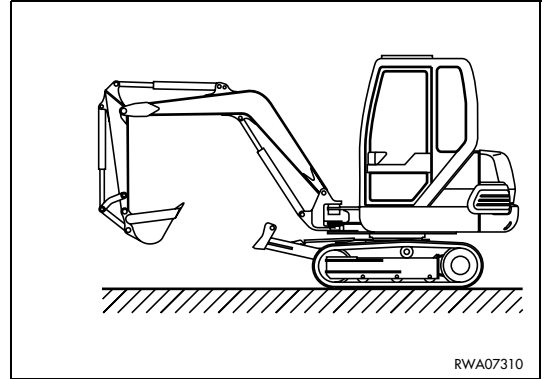
**A** - Forward gear

**B** - Reverse gear

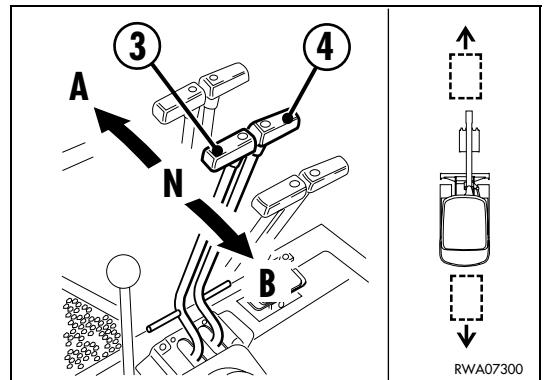


**IMPORTANT**

- All movements are locked by shifting the safety device lever to the lock position (see pos. 8/9).



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### 5 - BOOM SWING CONTROL PEDAL



- Always engage the safety device (1) when the use of this control pedal is not required, during travel and when parking the machine.  
If this control pedal is inadvertently pressed, it may cause serious accidents.

This pedal controls the boom swing to the right and to the left according to the movements indicated.

**N** - Neutral

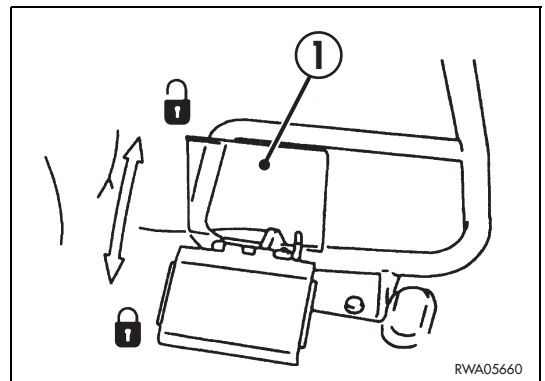
**A** - Swing to the left

**B** - Swing to the right

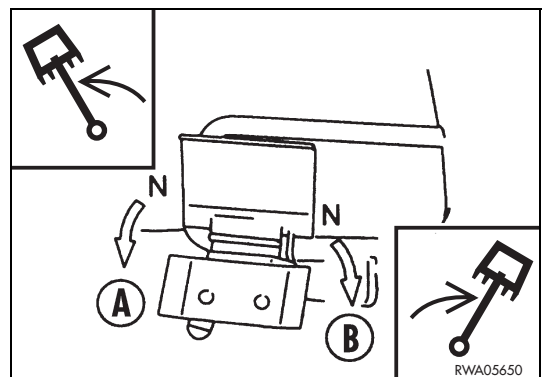


**IMPORTANT**

- All movements are locked by shifting the safety device lever to the lock position (see pos. 8/9).
- The boom swing is useful when it is necessary to dig beyond the track outline; do not use it during the work cycle.



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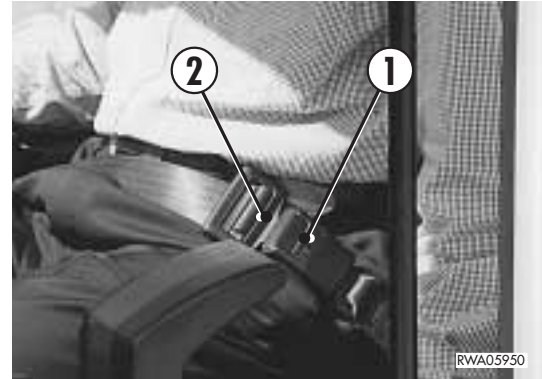
### 3.5.6 SAFETY BELT



**DANGER**

- Before starting the engine, fasten the safety belt.
- The safety belt must be changed when it is frayed, damaged or worn and in any case every 4 years.

The safety belt (1) is of the type with two coupling points and adjustable length (2); it must be well tightened and hold the operator's hips, while leaving the upper part of the body completely free.



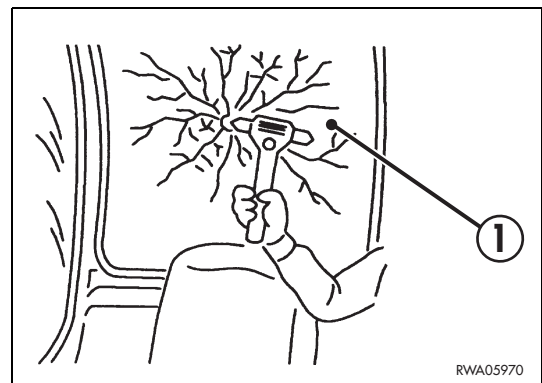
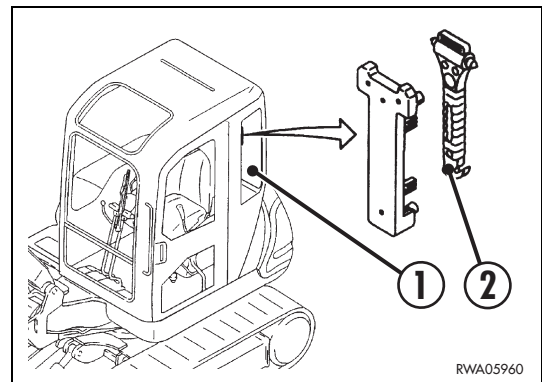
### 3.5.7 EMERGENCY EXIT

The machines with cab are provided with an emergency exit located in the rear window (1). Inside the cab you will find a hammer (2) to be used to break the window (1) in case of emergency.



**IMPORTANT**

- Make sure that the hammer is always available and in the correct position inside the cab.



### 3.6.5.1 STEERING (CHANGING DIRECTION)



#### DANGER

- When the blade is directed backward, the operation of the travel levers is inverted; before operating the travel levers, check the position of the blade.
- If possible, avoid any abrupt change of direction. Counter-rotations should be carried out with the machine at rest.
- Due to the considerable friction created when changing direction, it is advisable not to use the speed increase pedal.

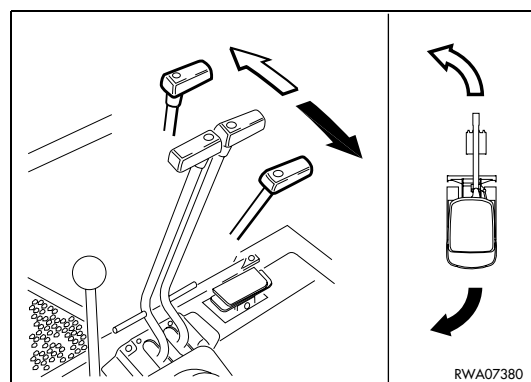
#### CHANGING DIRECTION WHEN THE MACHINE IS NOT MOVING

To turn to the left, operate the RIGHT travel lever as indicated below. To move FORWARD, push the lever. To move BACKWARD, pull the lever.



#### IMPORTANT

- To turn to the right, operate the LEFT travel lever in the same way.



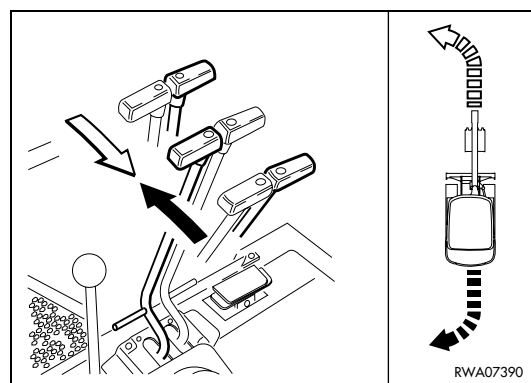
#### CHANGING DIRECTION WHEN THE MACHINE IS MOVING (the left and right travel levers are in the same position)

To turn to the left, shift the LEFT travel lever back to the neutral position; the machine will turn to the left.



#### IMPORTANT

- To turn to the right, operate the RIGHT travel lever in the same way.



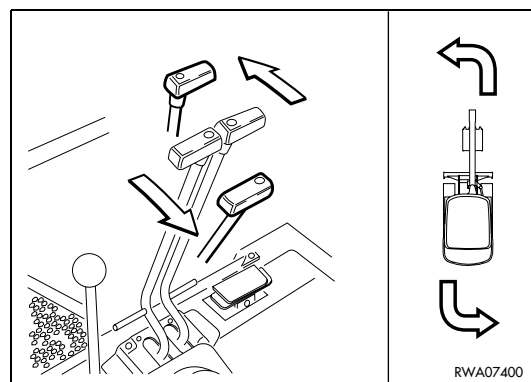
#### HOW TO CARRY OUT A COUNTER-ROTATION (with the machine not moving)

To turn to the left, pull the LEFT travel lever backward and push the RIGHT travel lever forward.



#### IMPORTANT

- To carry out a counter-rotation to the right, pull the RIGHT travel lever backward and push the LEFT travel lever forward.





## 3.14 USING THE MACHINE WITH VARIABLE TRACK GAUGE

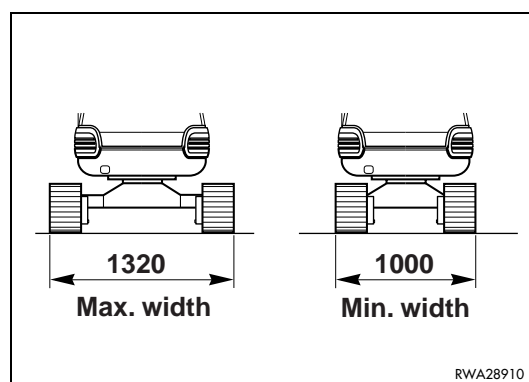
The machine with variable track gauge makes it is easier to pass through narrow spaces and increases safety when carrying out side digging operations.

It is possible to adjust the track gauge as desired within the following range:

Track gauge width:

Max. 1320 mm

Min. 1000 mm

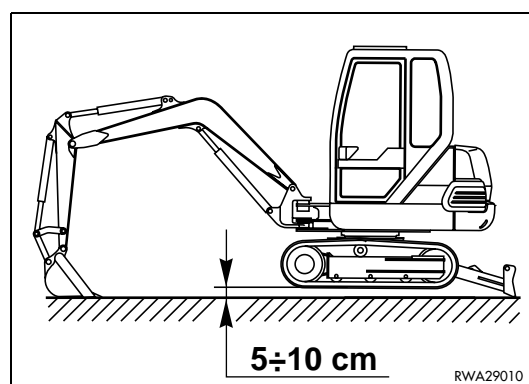


### 3.14.1 HOW TO USE THE VARIABLE TRACK GAUGE



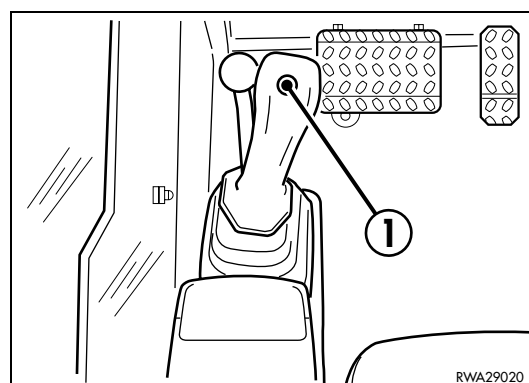
#### DANGER

- If the track gauge width is modified on slopes, the lateral stability of the machine may change. For this reason it is advisable to carry out this operation on level surfaces.
- When the track gauge is reduced as much as possible, the lateral stability of the machine is reduced as well. In working sites where the machine may overturn, widen the track gauge and be careful during travel.

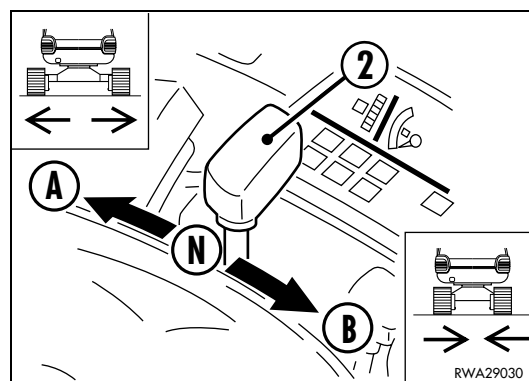


#### CAUTION

- Always raise the machine before modifying the track gauge. If the machine is not raised, the shoes and the hydraulic motors may get damaged.



- 1 - Stop the machine on a level surface.
- 2 - Raise the machine by means of the work equipment and the blade, so that the lower shoes are at a distance of approximately 5-10 cm from the ground.
- 3 - Press the button (1) positioned on the left joystick lever (see "3.3.3 pos. 7 VARIABLE TRACK GAUGE CONTROL PUSH BUTTON").
- 4 - Shift the blade control lever (2) forward to widen the track gauge or backward to narrow it (see "3.3.5 pos. 6 BLADE CONTROL LEVER").



### 3.16.5 OTHER TROUBLES

(●): Always contact your Komatsu Utility Dealer when you have to carry out this operation.

- : If the anomaly or its cause are not included in the failures indicated below, contact your Komatsu Utility Dealer for the necessary repair.

#### 3.16.5.1 ELECTRICAL CIRCUIT

TROUBLE	CAUSE	REMEDY
Lights do not work satisfactorily even with engine running at high speed:	• Faulty cables.	(●) Check and repair any loose terminal and connection.
Lights come on intermittently with engine running:	• Faulty fan belt tension.	• Adjust fan tension (see "EVERY 250 HOURS").
Alternator charge warning light does not go out with engine running and increasing speed:	• Faulty alternator. • Faulty cables.	(●) Change. (●) Check and repair.
Alternator emits an abnormal noise:	• Faulty alternator.	(●) Change.
Starter does not turn with key in START position:	• Faulty cables. • Battery charge insufficient. • Faulty main fuse.	(●) Check and repair. • Charge battery. • Change.
Starter pinion engages and then disengages:	• Battery charge insufficient.	• Charge battery.
Starter makes engine run slowly:	• Battery charge insufficient. • Faulty starter.	• Charge battery. (●) Change.
Starter disengages before engine has started:	• Faulty cables. • Battery charge insufficient.	(●) Check and repair. • Charge battery.
Engine oil pressure warning light does not come on when engine is stopped (ignition key in position «I »):	• Faulty bulb. • Faulty pressure sensor.	(●) Change. (●) Change.
Alternator charge warning light does not come on when engine is stopped (ignition key in position «I »):	• Faulty bulb. • Faulty cables.	(●) Change. (●) Check and repair.

#### 3.16.5.2 HYDRAULIC SYSTEM

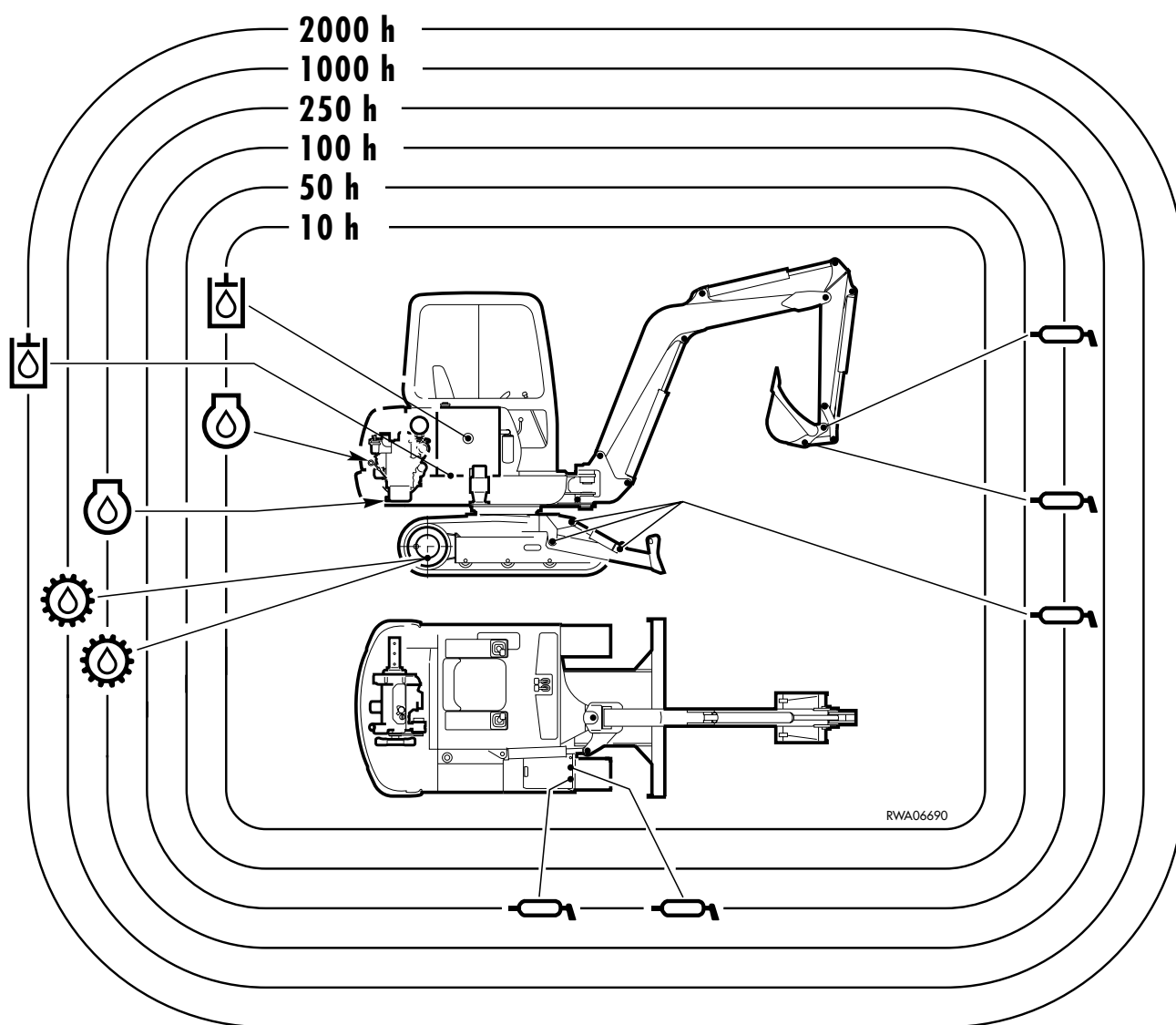
TROUBLE	CAUSE	REMEDY
Pump emits an abnormal noise:	• No oil in the tank. • Faulty pump. • Hydraulic oil unsuitable for the temperature.	• Top up. (●) Repair or change. • Change.
Equipment control levers do not return automatically to neutral position:	• Broken return spring or seized element.	(●) Change spring or distributor element.
Equipment moves only at low speed:	• Faulty pump. • Max. pressure valve setting incorrect, or valves not closed due to impurities. • Dirty drain filter.	(●) Repair or change. (●) Set or change. • Change.

## 4.5 LUBRICATION

### 4.5.1 LUBRICATION DIAGRAM PC12R


**IMPORTANT**

- For the lubrication procedures for the single points, see “4.7 MAINTENANCE PLAN”.
- The type of lubricant to be used is indicated in the lubricant table (See “4.3 FUEL, COOLANT AND LUBRICANTS”).



Engine oil



Hydraulic oil



Transmission oil



Grease

#### 4.7.1.b DRAINING THE FUEL TANK



**DANGER**

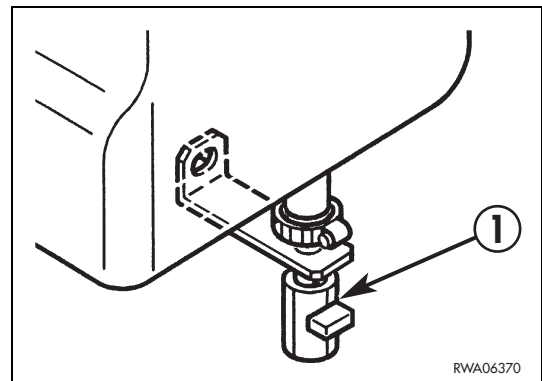
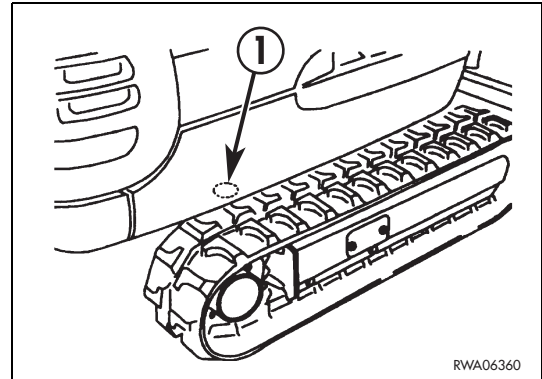
- When draining the fuel tank, avoid spilling fuel, since this may cause fires.
- If some fuel is accidentally spilled, clean the dirty area immediately, in order to prevent it from getting slippery and to avoid fires.

This operation serves to let all the impurities and the condensate flow out of the tank; open the cock (1) at the base of the tank and wait until clean fuel flows out.



**IMPORTANT**

- The tank must be drained before starting the engine, with temperatures exceeding 0°C; when the temperature is below 0°C, the tank must be drained at the end of work or in any case with the machine at operating temperature, to prevent the condensate from freezing.
- The condensate and the impurities that may have accumulated inside the tank must be eliminated before refueling.



#### 4.7.1.c CHECKING THE ELECTRICAL SYSTEM



**DANGER**

- If the fuses are corroded, oxidized or not perfectly held in their seat, replace them only with fuses having the same capacity; before changing a fuse, make sure that the ignition key is in position «O».
- If there are signs of short circuit on the cables, find out the cause and repair them; always contact your Komatsu Utility Dealer for the troubleshooting.

Make sure that there are no disconnected cables or signs of short circuit in the electrical system. Make sure that all the cables are well tightened in the relevant terminals; tighten any loose cables. In particular, check:

1. Battery
2. Starter
3. Alternator

#### 4.7.1.f CHECKING THE RUBBER TRACK TENSION

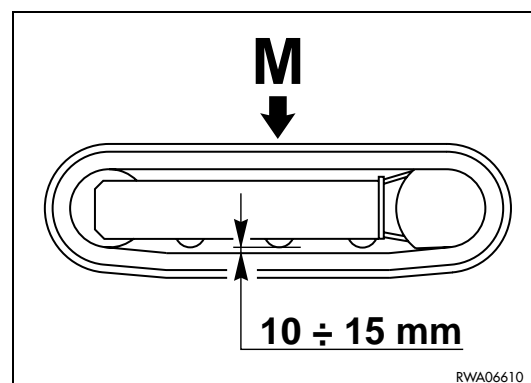

**DANGER**

- This operation must be carried out by two persons. One operator must sit in the cab and move the machine according to the signals of the operator who carries out the check and the adjustment.
- The shoe tension must be checked with the frame lifted from the ground. Do not operate any control lever while the operator is carrying out the check.

#### CHECK

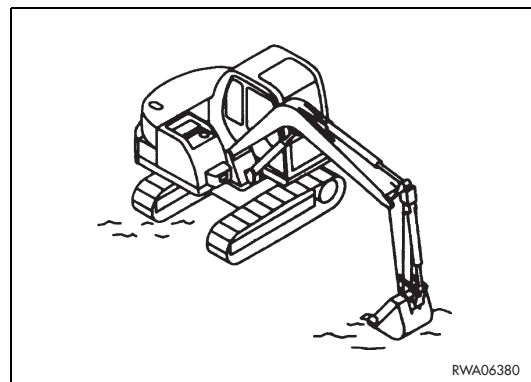
Stop the machine on a firm and level surface, after resting the equipment on the ground.

- 1 - Position the joint of the rubber track marked with M on the upper part of the track, mid-way between the two axes.



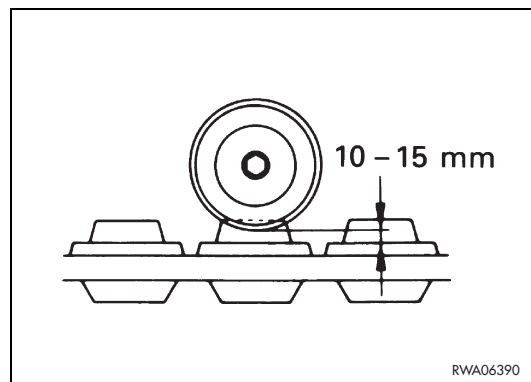
RWA06610

- 2 - Lift each track by means of boom and arm.  
When carrying out this operation, move the control levers slowly.



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- 3 - On model PC12R, measure the distance between the track and the second roller starting from the sprocket.  
On model PC15R, measure the distance between the track and the third roller starting from the sprocket.  
If the distance is included between 10 and 15 mm, the tension is normal.  
If the clearance exceeds the standard value, adjust the tension and restore the correct value.



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**IMPORTANT**

- If the machine is operated with loose rubber tracks, the shoes may come off their seats and consequently off the track, or the steel reinforcement units may wear too quickly.

#### 4.7.7.b CHECKING THE BATTERY ELECTROLYTE LEVEL



**DANGER**

- Check the level only after stopping the engine and if necessary add distilled water only before starting work.
- Always wear safety goggles and waterproof gloves.
- To prevent gas explosions, do not use naked flames, do not smoke and avoid producing sparks due to short circuits.
- The battery electrolyte is dangerous; if it comes in contact with the eyes or skin, rinse with plenty of water and consult a doctor without delay.

The battery (1) can be reached after raising the mat on the left side and opening the door (2).

The electrolyte level in each cell must be about 6 mm above the plate edge; if necessary, top up with distilled water only.

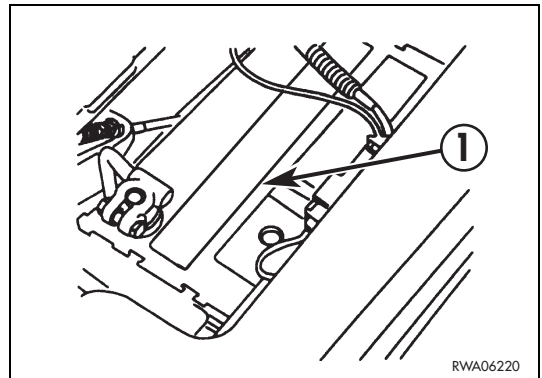
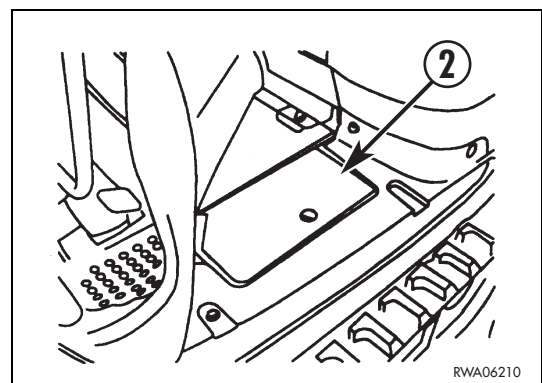
If, on the contrary, the level is low because some fluid has been spilled, add diluted sulphuric acid until reaching the concentration suitable for the ambient temperature.

(See "3.11.3 BATTERY").



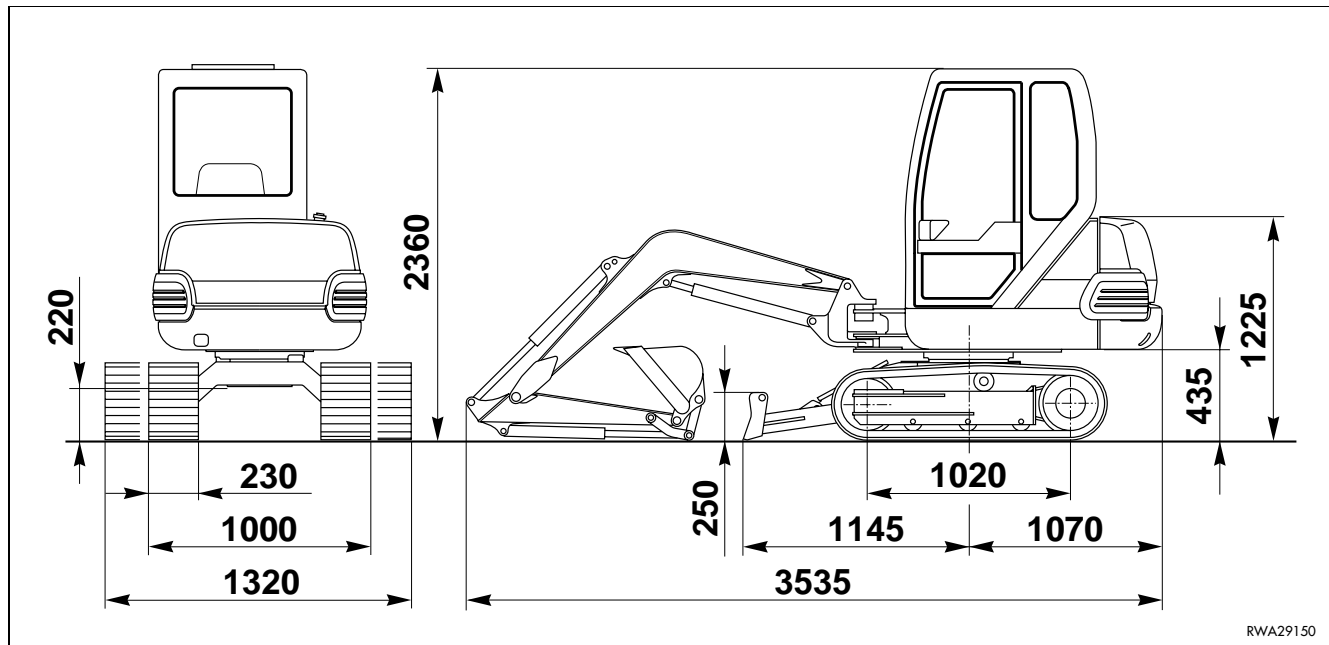
**IMPORTANT**

- It is advisable to add distilled water before starting work, in order to prevent it from freezing.
- Before putting back the cell plugs, make sure that the breather holes are not clogged.
- Make sure that the connection terminals are not oxidized; if necessary, clean them and cover them with anti-oxidation grease.

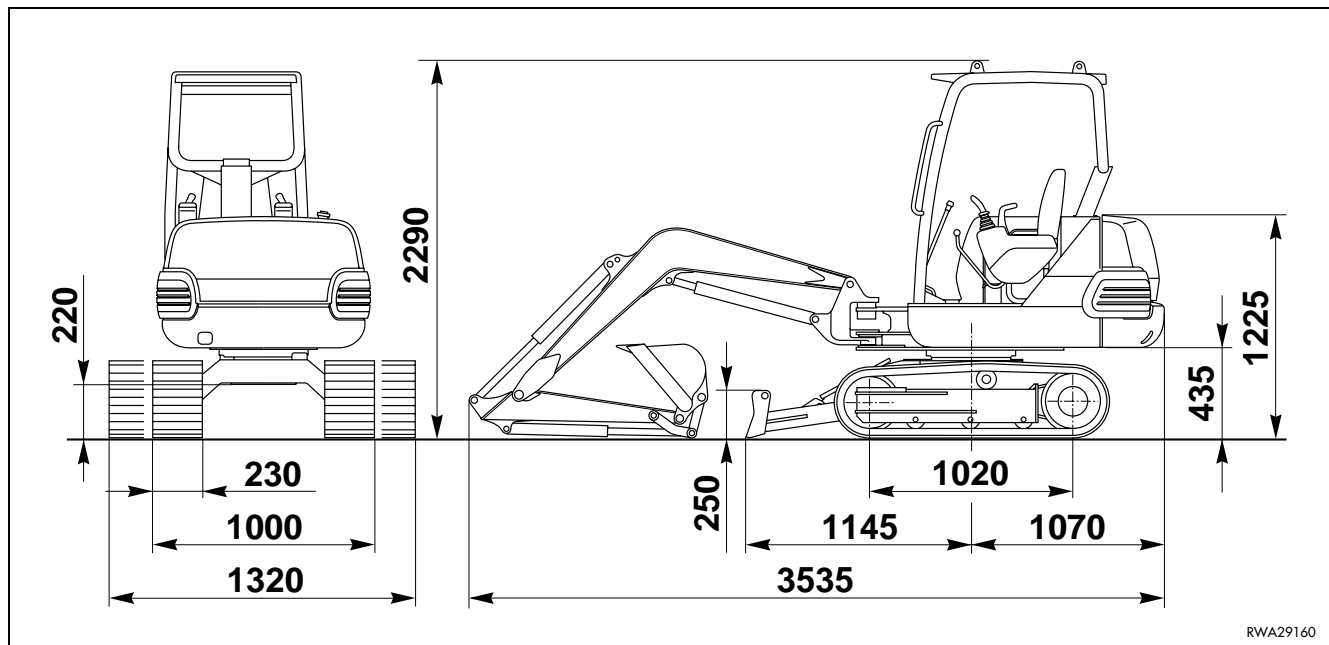


## 5.1.7 STANDARD OVERALL DIMENSIONS PC15R HS (VARIABLE TRACK GAUGE)

### WITH CAB



### WITH CANOPY



### IMPORTANT

- If the machine is equipped with the long arm instead of the standard arm, or with steel tracks instead of rubber tracks, the overall dimensions indicated in the drawing remain unchanged.