

1.4 PRODUCT IDENTIFICATION

The Komatsu backhoe loader 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 IDENTIFICATION NUMBER (PIN)

The machine identification number "PIN" is stamped on the right side of the frame front.



1.4.2 MACHINE IDENTIFICATION PLATE AND PRODUCT IDENTIFICATION NUMBER (PIN) (alternatively for some markets)

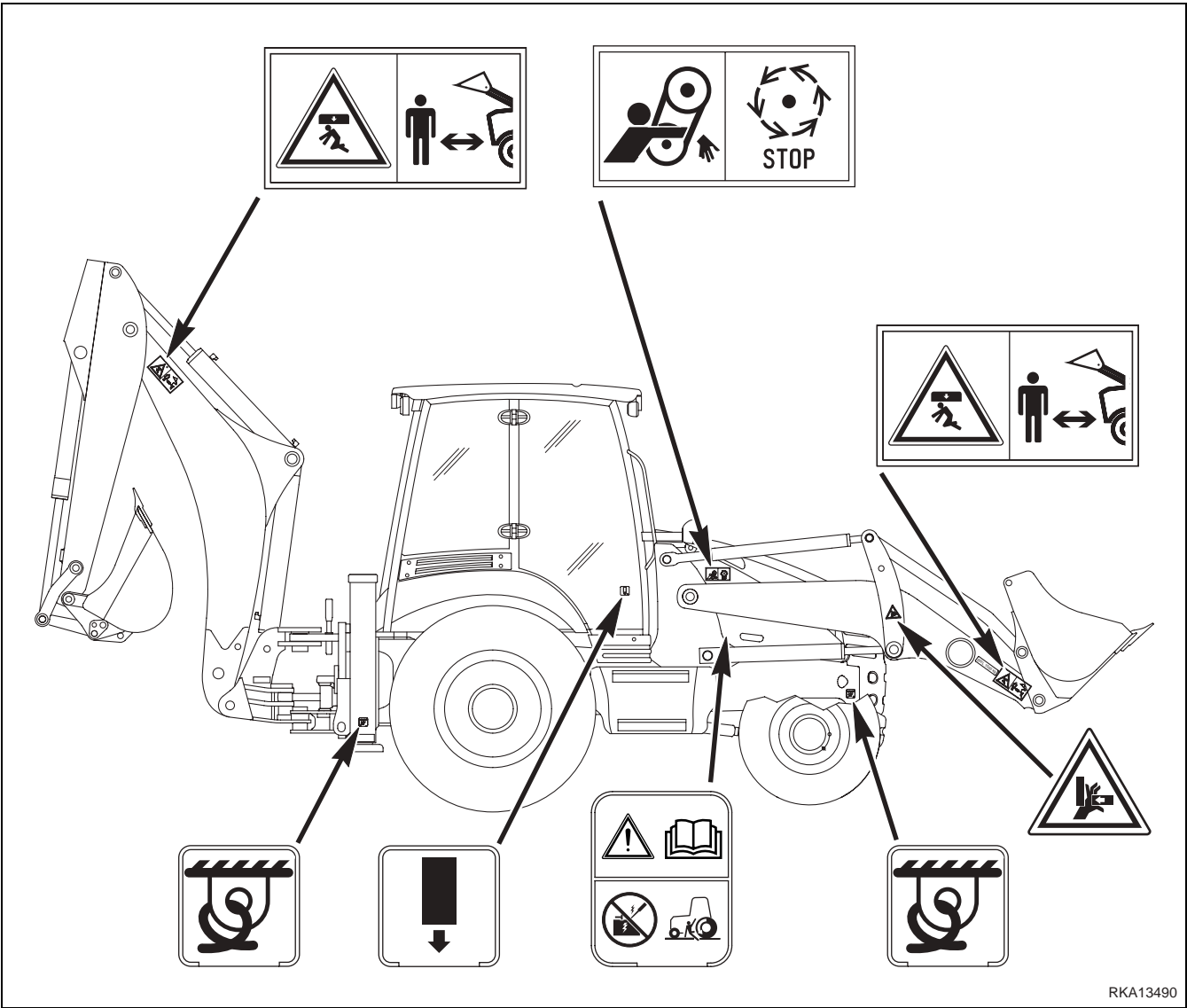
The Komatsu BACKHOE LOADERS described in this manual are CE marked, in fact they are in full compliance with the EU harmonised standards. The Product Identification Number (PIN) is stamped on the lower part of the plate. The customer must be able to indicate the PIN at any time, that is why it must compulsorily be written in the following table. The plate with the CE marking is applied inside the cab, on the left vertical wall of the frame, at the height of the brake pedals.



		MODELLO - MODEL TYP - MODELE	
	KOMATSU	MATRICOLA N° - SERIAL N° FABR. NR. - SERIE NR.	
		ANNO - YEAR BAUJAHR - ANNEE	
		MASSA TOTALE - TOTAL WEIGHT GESAMTGEWICHT - POIDS TOTAL	kg
		POTENZA MOTORE - ENGINE POWER LEISTUNG - PUISSANCE MOTEUR	kw
		Product Identification Number	
		PIN	
		MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) - ITALY	
		37A-98-11820	
		RKA14970	

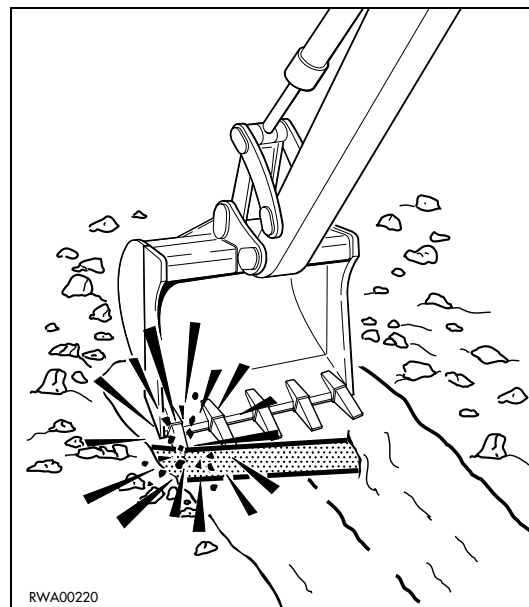
		MODEL	
	KOMATSU	SERIAL N°	
		YEAR	
		TOTAL WEIGHT	kg
		ENGINE POWER	kw
		Product Identification Number	
		PIN	
		MANUFACTURED BY KOMATSU UTILITY EUROPE S.p.A. 36025 NOVENTA VICENTINA (VI) - ITALY	



## 2.3 PRECAUTIONS TO BE TAKEN BEFORE STARTING THE ENGINE

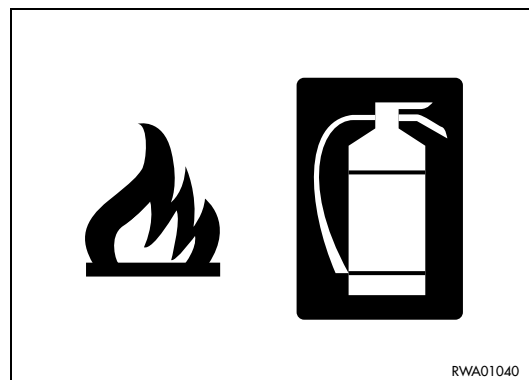
### 2.3.1 SAFETY ON THE WORK SITE

- Before starting the engine, thoroughly check the area for any unusual condition of the ground due to which work may be dangerous.
- Check the conditions of the ground at the work site and before starting the engine define the work plan and the best and safest operating procedure.
- Level the ground surface as much as possible before carrying out any operation.
- In case of work on the road, protect pedestrians and cars by designating a person for work site traffic duty and install fences around the work site.
- If water lines, gas lines, and telephone or high-voltage electrical lines are located under the work site, contact the relevant utility company in order to find out their exact position or to disconnect them until the end of the operations. Be careful not to sever or damage any of these lines.
- Check the water depth and the force and flow direction of the current before operating in water or on river banks.



### 2.3.2 FIRE PREVENTION

- Completely remove all wood chips, rubbish, paper and other flammable materials that may have accumulated inside the engine compartment, since they can cause fires.
- Check the fuel and hydraulic system pipes for leaks and if necessary repair them. Wipe up any excess oil, fuel or other flammable fluids.
- Make sure that fire extinguishers are available in the work area.



### 2.3.3 PRECAUTIONS TO BE TAKEN FOR THE OPERATOR'S CAB

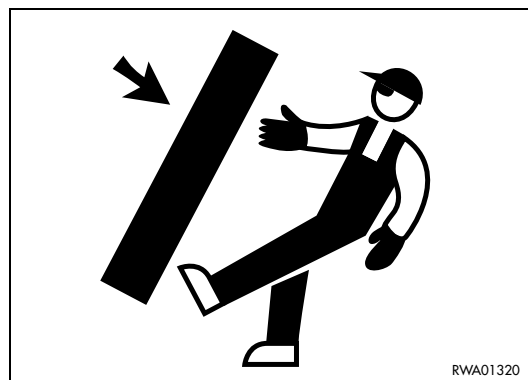
- Do not leave objects or tools lying around in the operator's cab. They may prevent the use of the brakes and cause serious accidents.
- Keep the cab floor and the controls (steering wheel and levers) clean, by removing any trace of oil and grease and, as far as the floor is concerned, remove any excess dirt (earth, stones, etc.).
- Check the safety belt and change it if it is broken or damaged. Replace any component only with homologated parts available at Komatsu or its Dealers.
- Make always sure that the lock of the right door, which is considered the emergency door, is open.

### 2.8.3 PERSONNEL

- Any maintenance operation must be carried out exclusively by authorized and duly trained personnel; specific and personal protection measures must be adopted when grinding, welding and when using sledges or heavy hammers.
- When assembling the equipment or cylinder connection pins, use wooden, plastic or in any case not excessively hard tools to check the centering of the holes.  
Do not use your fingers, since you run the risk of cutting them off.

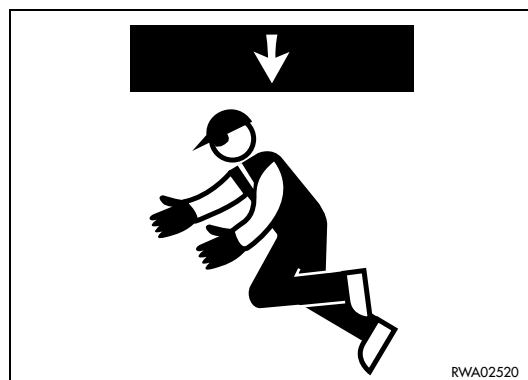
### 2.8.4 EQUIPMENT

- The normal or special equipment that must be installed on the machine or that have been removed must be stored in a safe place and positioned in such a way as to prevent them from falling down.  
If they fall on someone, they may cause serious bodily harm.
- When assembling or removing any equipment, make sure that the ropes and the lifting hook are in good conditions and properly dimensioned for the load to be lifted.



### 2.8.5 WORKING UNDER THE MACHINE

- Before performing service or repairs under the machine, always lower the work equipment to the ground or in any case lower it as much as possible.
- Always lock the tyres of the machine securely.
- Avoid working under the machine if it isn't properly supported.

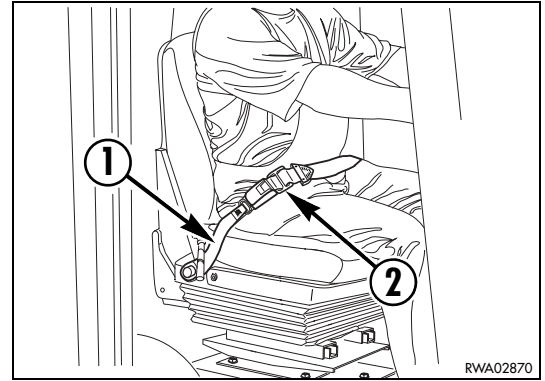


### 3.5.6 SAFETY BELT

#### WARNING

- Fasten the safety belt before starting the engine.
- 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 his body completely free.



### 3.5.7 FIRE EXTINGUISHER

#### CAUTION

- The machine's owner must provide for positioning the fire extinguisher where prescribed.
- Periodically make sure that the fire extinguisher is full.

If the operator fears that he may need a fire extinguisher (1) on the machine, he must position it on the appropriate hole provided on the left console.

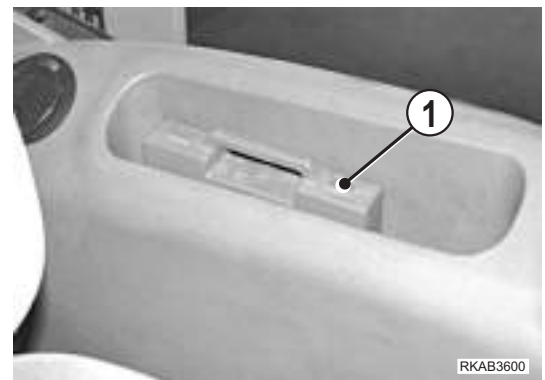


### 3.5.8 FIRST AID KIT

#### CAUTION

- Periodically make sure that the first aid kit contains the necessary disinfectants, bandages, medicins, etc. and check their condition and expiry date.

The first aid kit case (1) must be positioned inside the cab, and precisely in the compartment provided on the left body side, by the owner of the machine.



### 3.5.9 TECHNICAL DOCUMENTATION

#### CAUTION

- The operation manual and the spare parts catalogue are integral parts of the machine and must accompany it even in case of resale.

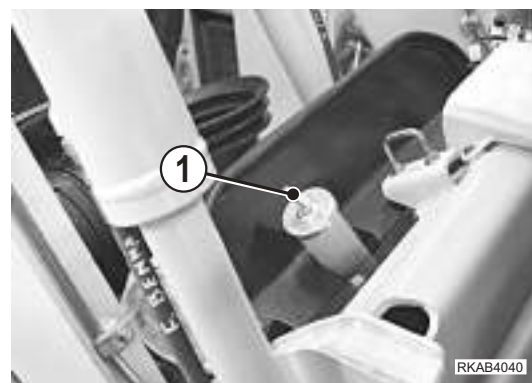
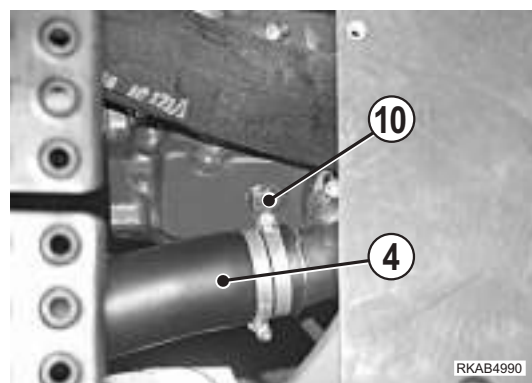
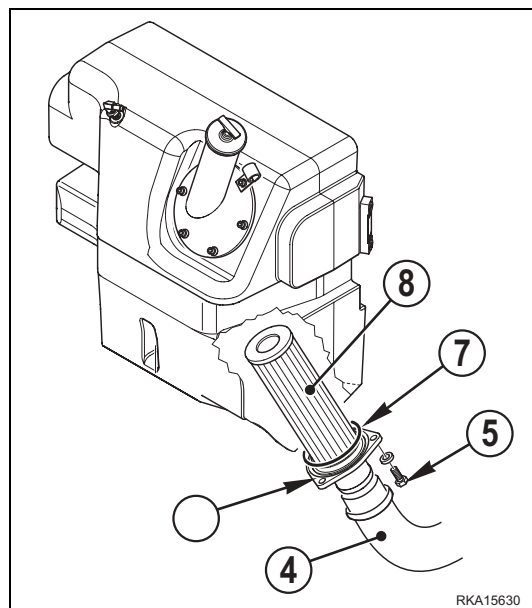
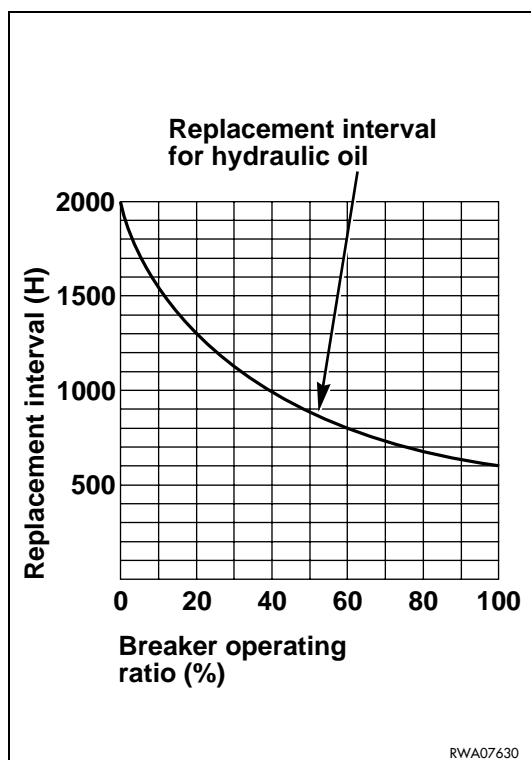
The manual must be handled with care and always kept on the machine, so that it can be quickly consulted when necessary; keep the manual in the rear compartment of the seat, where the ownership documents and the logbook are usually stored.



- 9 - Change the drain filter (see "4.8.10.c CHANGING THE HYDRAULIC SYSTEM OIL FILTER").
- 10 - Put back the drain plugs (2) and (3) and fill the oil tank with the prescribed oil until reaching the correct level.
- 11 - Raise the front mat and remove the cover (9).  
Use a 13 mm wrench.
- 12 - Loosen the bleeder plug (10) positioned on the hydraulic pump, until no air bubbles can be observed in the oil that flows out (use a 19 mm hex wrench). Tighten the bleeder plug (10) and put back the cover (9).
- 13 - Put back the filler cap (1), start the engine and operate the machine making each piston move several times in order to bleed the system.  
Stop the machine in maintenance position, check the oil level again and top up if necessary.  
Always use oil of the prescribed type (see "4.3 FUEL, COOLANT AND LUBRICANTS").
- 14 - Close the engine hood.

#### IMPORTANT

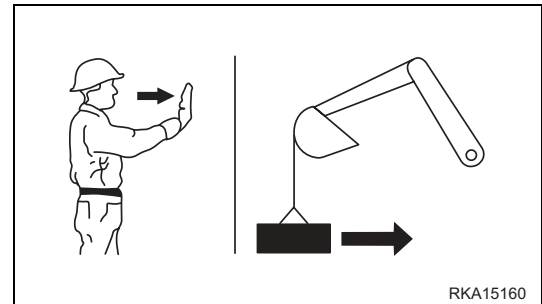
- Do not start the engine with empty tank, since this would certainly damage the pump.
- In machines equipped with demolition hammer hydraulic oil deteriorates more rapidly than in machines used for simple digging operations.  
Perform the oil change according to the indications given in the table below.



## PRECAUTIONS TO BE TAKEN DURING WORK

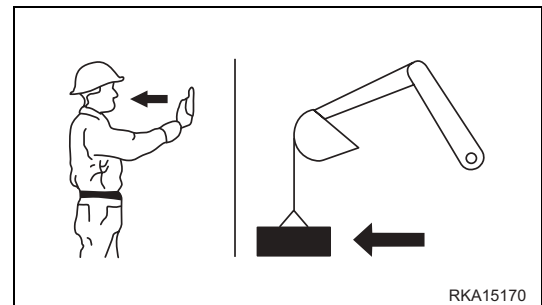
### 3 - MOVE THE LOAD AWAY IN HORIZONTAL DIRECTION

One arm outstretched and hand in vertical position with the palm facing towards the load to be moved away: move the hand in the direction of the movement to be carried out.



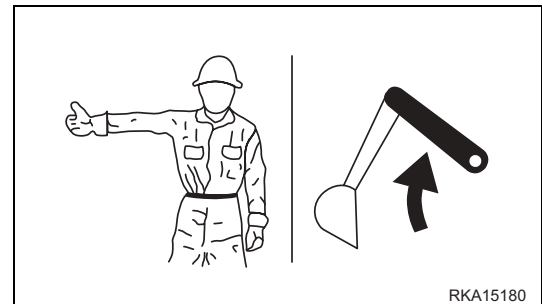
### 4 - BRING THE LOAD NEARER IN HORIZONTAL DIRECTION

One arm outstretched and hand in vertical position with the palm facing towards yourself: move the hand in the direction of the movement to be carried out.



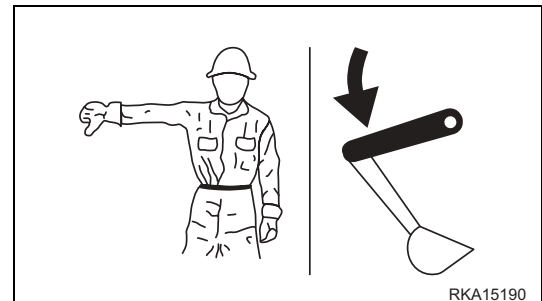
### 5 - LIFT THE BOOM

One arm laterally outstretched in horizontal position and clenched fingers: point the thumb upwards.



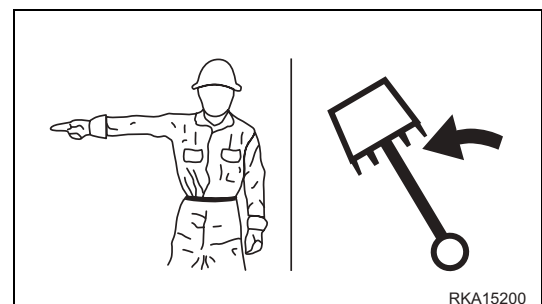
### 6 - LOWER THE BOOM

One arm laterally outstretched in horizontal position and clenched fingers: point the thumb downwards.



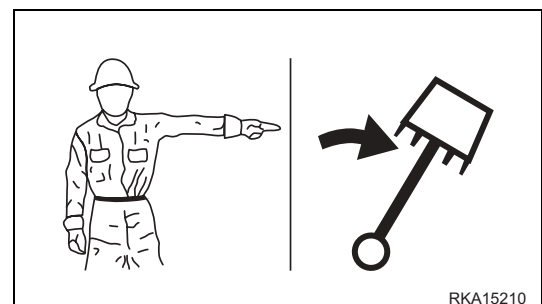
### 7 - SWING THE BOOM

One arm laterally outstretched in horizontal position: point the forefinger towards the desired swing direction.



### 8 - SWING THE BOOM


One arm laterally outstretched in horizontal position: point the forefinger towards the desired swing direction.





## 3.4 FUSES AND RELAYS

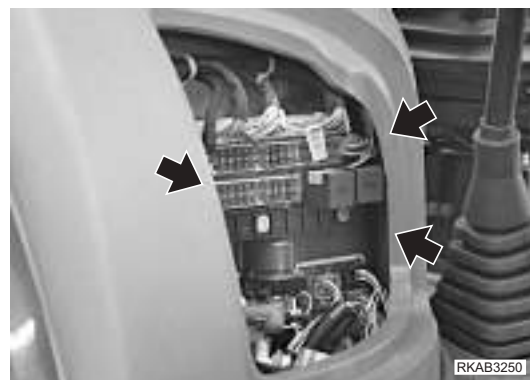
### IMPORTANT

- When changing a fuse, make sure that the ignition key is in position «O».
- If the fuses are oxidized, corroded or do not fit perfectly in their seat, replace them only with new fuses having the same capacity.
- If the engine does not turn when the ignition key is brought to position «» START, check the engine start fuse and if necessary change it.

### 3.4.1 CENTRAL UNIT FUSES – RELAYS AND ENGINE LINE

The fuses and relays are grouped on a single base positioned in the right body side of the cab. They can be reached by removing the cover (1).

The following tables indicate the characteristics and the functions of the single fuses and relays.



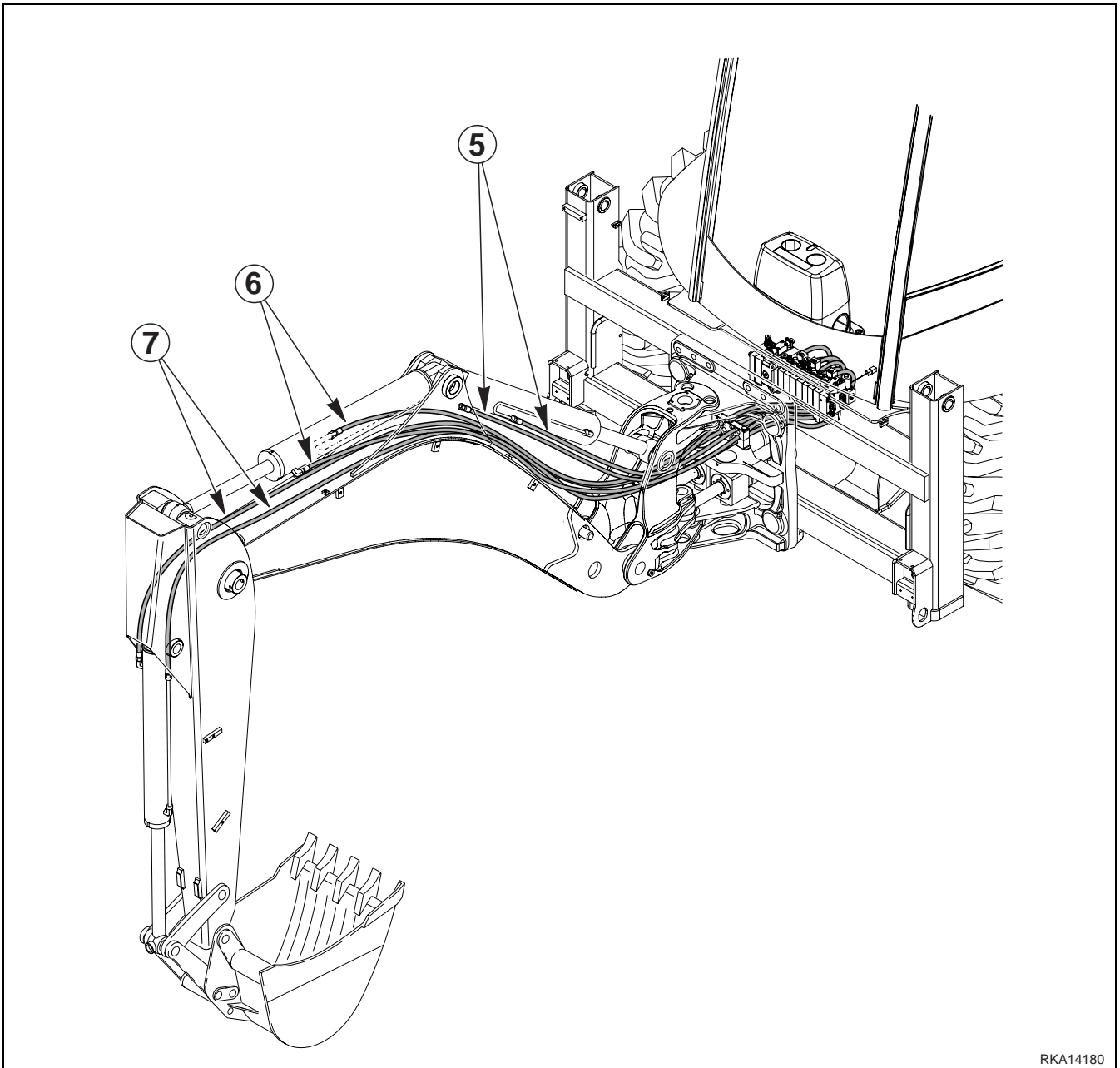
#### 3.4.1.1 FUSES

POSITION	COLOUR	CAPACITY (A)	CIRCUIT INVOLVED
F1	Light blue	15	Central front work lights
F2	Light blue	15	Central rear work lights
F3	Violet	3	Front left and rear right parking light, parking light warning light, instrument backlighting
F4	Violet	3	Front right and rear left parking light, cigarette lighter light
F5	Red	10	Front horn
F6	Light blue	15	Lateral rear work lights
F7	Brown	7,5	Rear windshield wiper, rear horn
F8	Brown	7,5	Stop lights, stop light relay
F9	Light blue	15	Lateral front work lights
F10	Red	10	Front windshield wiper, windshield washer pump
F11	Brown	7,5	Boom locking solenoid valve, plate locking solenoid valve
F12	Orange	5	Buzzer power supply, general alarm power supply, instrument and front dashboard warning light power supply
F13	Red	10	Optional equipment power supply, 4 WD solenoid valve



**4.6.1.4 BACKHOE HYDRALIC SYSTEM**

No.	Safety related components that periodically need changing	Q.ty	Change interval
5	Hydraulic pipes (Cylinder – backhoe boom)	2	Every 2 years or 4000 hours, whichever occurs first
6	Hydraulic pipes (Cylinder – backhoe boom)	2	
7	Hydraulic pipes (cylinder – backhoe bucket)	4	



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#### 4.8.11.b CHANGING THE REAR AXLE OIL

### ⚠ AVVERTENZA

- Change the oil with the machine parked on a level surface and the work equipment resting on the ground.
- Oils, filters, the coolant and the battery are considered special waste and must be collected and disposed of according to the regulations in force.

### ⚠ ATTENZIONE

- On new machines change the front axle oil after the first 250 hours of operation and successively every 1000 hours.

This operation must be carried out with the machine positioned on level ground and at operating temperature, so that the oil becomes fluid and can easily be drained, which facilitates the elimination of any suspended solid particles.

#### DIFFERENTIAL

- 1 - Remove the drain plug (2) of the central body and let the used oil flow out completely, gathering it into a container with suitable capacity. While the oil flows out, remove the level plug (1). (Use a 1/2" square wrench and a 17 mm hex wrench).
- 2 - Once the oil has been drained, put back the drain plug (2) and add oil of the prescribed type through the hole (1), until reaching the level corresponding to the lower edge of the hole itself.

#### IMPORTANTE

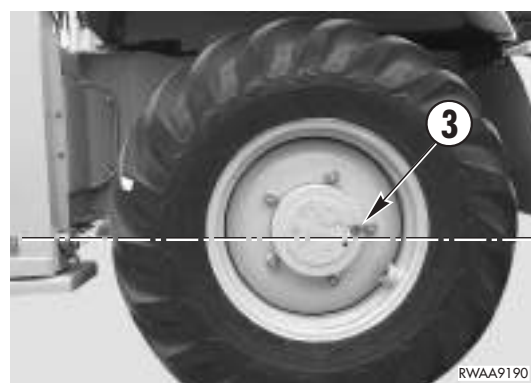
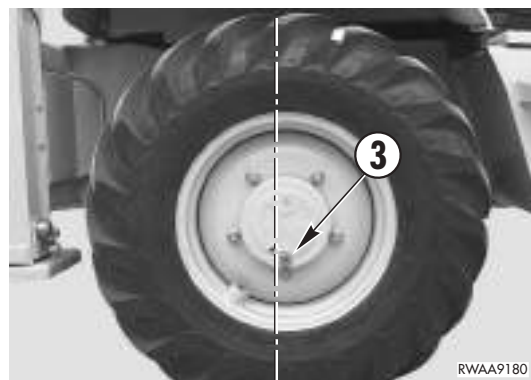
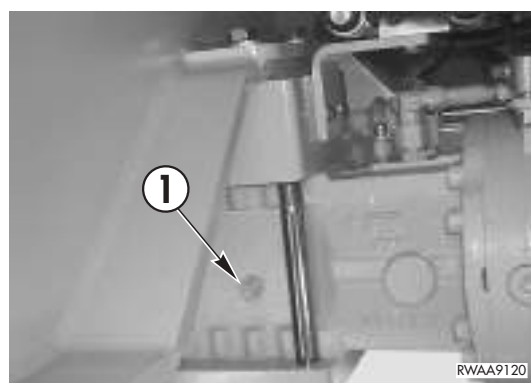
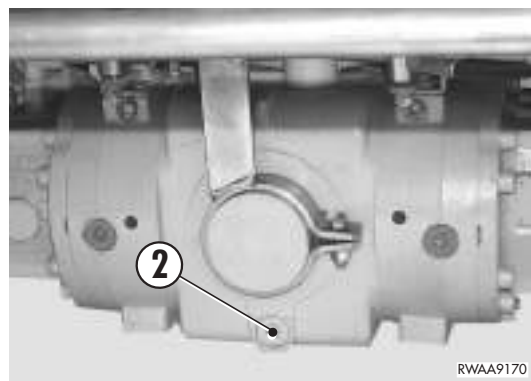
- With this operation both axle shafts are filled with oil; before checking the level definitively and putting back the plug, wait a few minutes, in order to allow the oil to be distributed uniformly.

- 3 - Put back the plug (1).

#### FINAL REDUCTION GEARS

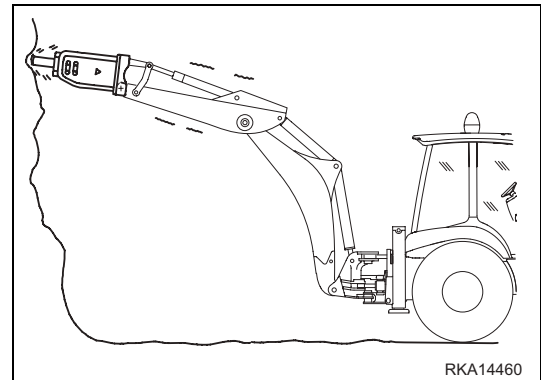
- 1 - Move the machine until the plug (3) is in low position on the vertical axis.
- 2 - Remove the plug (3) and let the used oil flow out, gathering it into a container with suitable capacity. Use a 1/2" square wrench.
- 3 - Once the oil has been drained, move the machine until the plug (3), which serves also as level indicator, is positioned on the horizontal axis.
- 4 - Add oil of the prescribed type until reaching the lower edge of the hole itself.
- 5 - Put back the plug (3).

Carry out some forward and backward movements, stop the machine and check the levels again. Always use oil of the prescribed type (see "4.3 FUEL, COOLANT AND LUBRICANTS").

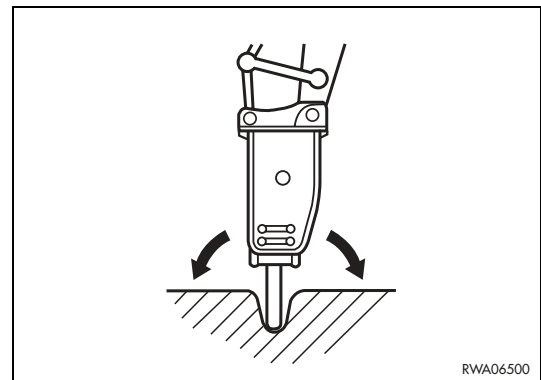


## CONFIGURATION FOR THE INSTALLATION OF THE DEMOLITION HAMMER

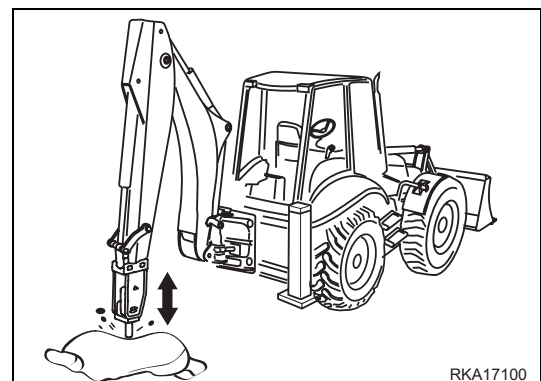
- 4 - Working with the hammer in horizontal position or even with greater inclination.



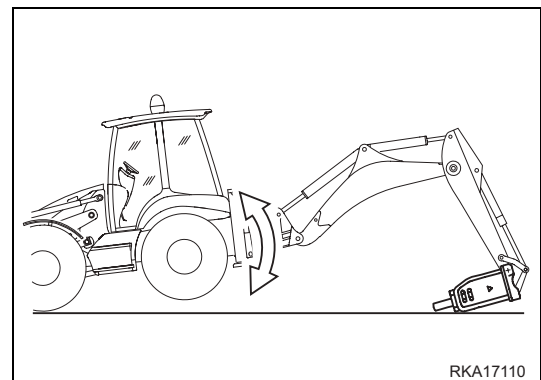
- 5 - Levering with the tool after driving it into the material to be broken.



- 6 - Hitting the ground with the hammer bit.

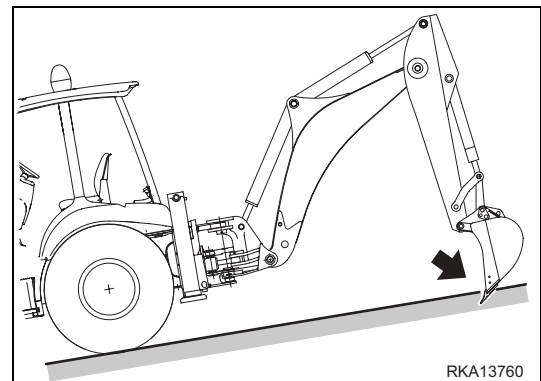
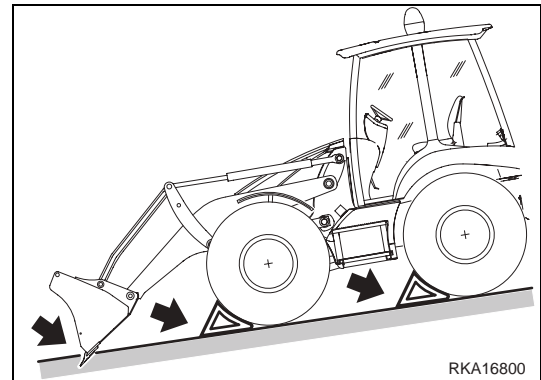


- 7 - Lifting the machine by levering on the hammer bit with the bucket cylinder completely extended.



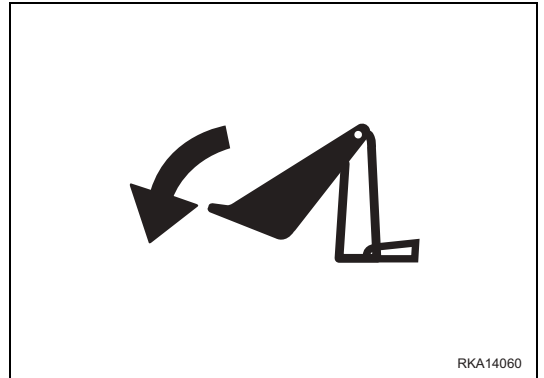
## 2.4.12 PARKING THE MACHINE

- Park the machine on firm and level ground. If this is not possible and it is necessary to park on a slope, position the machine with the front bucket directed downwards and carry out the following operations:
  - 1 - While keeping the machine stopped with the brakes, apply the parking brake.
  - 2 - Dump the front bucket to the unloading position and lower the arms until the teeth are driven into the ground.
  - 3 - Carry out the same operations with the backhoe bucket.
  - 4 - Stop the engine.
  - 5 - Position wedges or safety blocks under the front and rear wheels.
- Always rest the work equipment on the ground; if it is necessary to park with lifted arms, make sure that the safety locks are engaged.
- Always engage the control lever safety locks.
- When leaving the machine, apply the parking brake, make sure that the cab windows are closed, remove the ignition key and finally lock the doors.
- If it is necessary to park on public roads, provide for signalling the presence of the machine according to the local regulations in force (signalling fires, fences, road works ahead, alternated direction and direction signs, etc.).

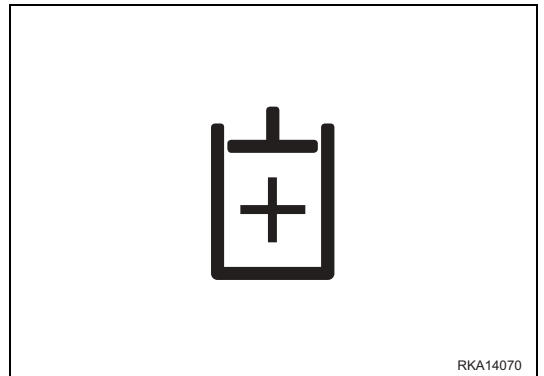


**4 - 4IN1 BUCKET FOLDING PUSH BUTTON**

Press the push button to fold the bucket; when the push button is released, the bucket stops. (See "3.3.5 pos. 12 - 4 IN1 BUCKET OPENING PUSH BUTTON").

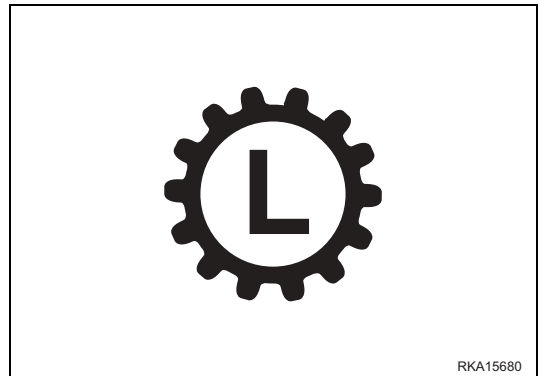
**5 - FRONT LOADER SPEED CONTROL PUSH BUTTON**

This button is used to increase the speed of the front loader movements.

**6 - KICK DOWN BUTTON**

This is a pulse button connected to the electronic management of the gearshift.

It is enabled in both manual and automatic mode and makes it possible to shift down from 2nd to 1st gear and vice versa. For further details, see "3.3.5 pos. 14 - KICK DOWN BUTTON"



## 18/19 - BACKHOE CONTROL LEVERS

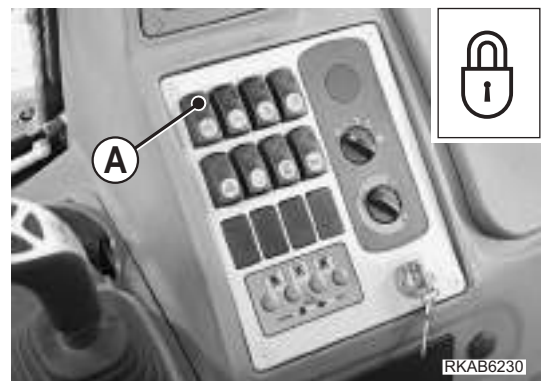
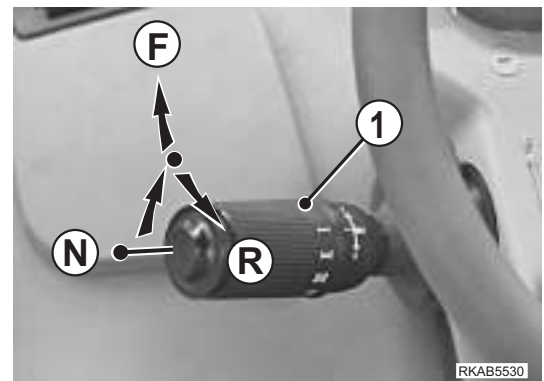
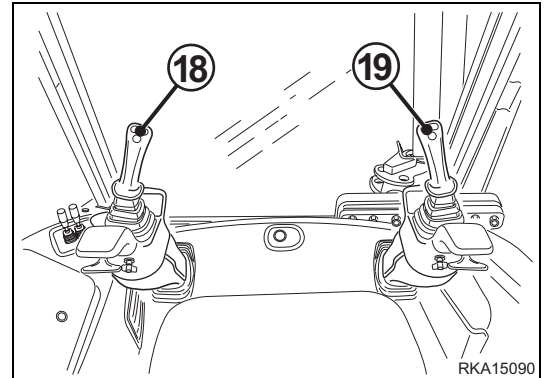
**! WARNING**

- Before carrying out any manoeuvre with these levers, the operator must be seated in working position, that is, with the seat rotated by 180° with respect to the driving position and with fastened safety belt; before any manoeuvre, take all the precautions specified in section "3.13 USING THE MACHINE AS AN EXCAVATOR".
- The machine is equipped with an acoustic alarm that is activated if the operator, with the engine running, shifts the reverse gear lever (1) to position F or R with the seat rotated in any position different from the correct driving position. Remember that the operator is allowed to move the machine only while seated in the correct driving position, with locked seat and fastened safety belt.  
This is a danger signal, since it is absolutely forbidden to move the machine while working with the backhoe equipment or in any case with the seat rotated by 180° with respect to the regular driving position. Remember that the operator is allowed to move the machine only while seated in the correct driving position, with locked seat and fastened safety belt.
- Before leaving the driver's seat, lower the equipment to the ground, engage the safety device to lock the controls and raise both joysticks towards the rear of the machine.
- Before starting work, check the control pattern by carrying out short manoeuvres in order to make sure the all the movements corresponds to those shown on the plates.
- When travelling on roads, always engage the safety device (A) to lock the controls (LED on).

The machine equipped with backhoe servo controls is particularly useful, in fact less effort is required to shift the controls and this reduces the stress to which the operator is subjected, as well as the time required to carry out the various operations.

**IMPORTANT**

- All movements are inhibited when the safety button (A) is in locking position (LED on)  
(see "3.3.2 pos. 12 - SERVO CONTROL LOCKING BUTTON").



## 4.2.5 PARTS SUBJECT TO WEAR THAT PERIODICALLY NEED CHANGING

The parts subject to wear such as filters, bucket teeth, etc. must be replaced according to the periodic maintenance intervals prescribed or when they reach the wear limit.

The timely change of these parts ensures an economic use of the machine.

Use only Komatsu genuine parts, which alone can guarantee excellent quality and interchangeability.

ITEM	CODE	DESCRIPTION	Q.ty	CHANGE INTERVAL
Hydraulic oil drain filter	42N-62-15470	Cartridge	1	EVERY 500 HOURS OF OPERATION
Engine oil filter	EA504074043	Cartridge	1	
Fuel filter	EA504073234	Cartridge	1	
Converter oil filter	CA0040952	Cartridge	1	EVERY 1000 HOURS OF OPERATION
Air filter	848101189	Main cartridge	1	WHEN REQUIRED
	848101190	Safety cartridge	1	WHEN REQUIRED
Front bucket	312204054	Tooth	AR	—
	801580085	Screw	AR	—
	801703012	Nut	AR	—
Backhoe bucket	312204054	Central tooth	AR	—
	801580085	Screw	AR	—
	801703012	Nut	AR	—
	312204052	Right tooth	1	—
	312204053	Left tooth	1	—
	801580085	Screw	AR	—
	801014184	Side screw	4	—
	801703012	Nut	AR	—