

Operation & Maintenance Manual

PC15R-8

HYDRAULIC EXCAVATOR

SERIAL NUMBERS PC15R-8 - F21803 and up

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1.

- Warning Decal.

**WARNING**



Improper operation and maintenance can cause serious injury or death.

Read manual and labels before operation and maintenance.
Follow instructions and warnings in manual and in labels on machine.

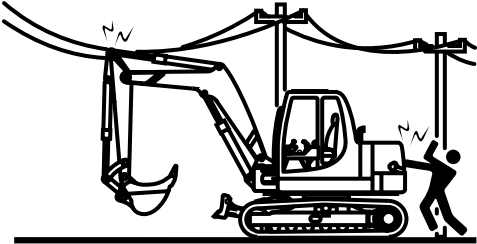
Keep manual in machine cab near operator.
Contact Komatsu distributor for a replacement manual.

RWA16810

2.

- Height Decal

**DANGER**



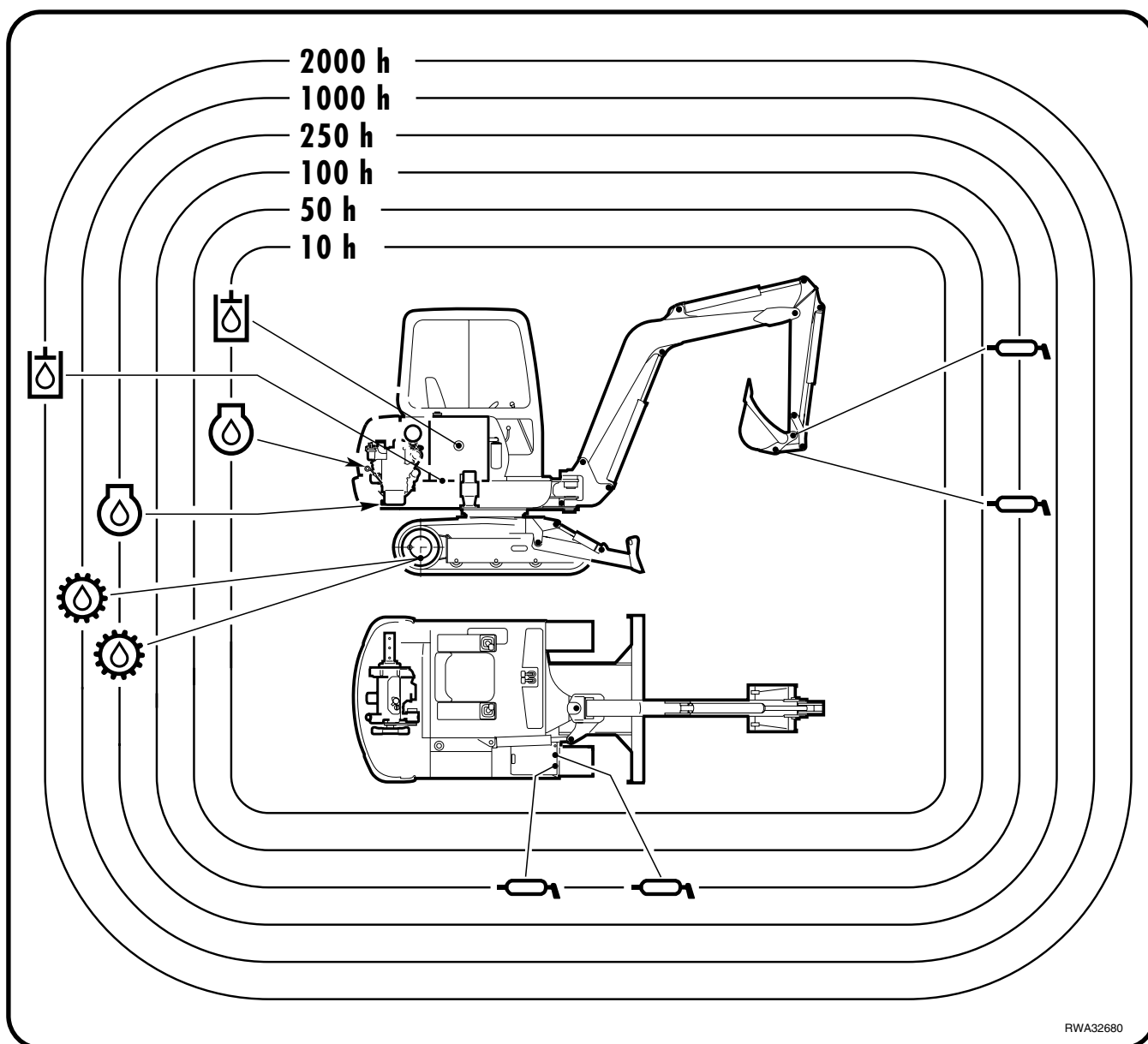
Hazardous voltage hazard. Serious injury or death can occur if machine or attachments are not kept safe distance away from electrical lines.

Line Voltage	Safe Distance
6.6 kV	At least 10ft (3m)
66.0 kV	At least 16ft (5m)
275.0 kV	At least 33ft (10m)

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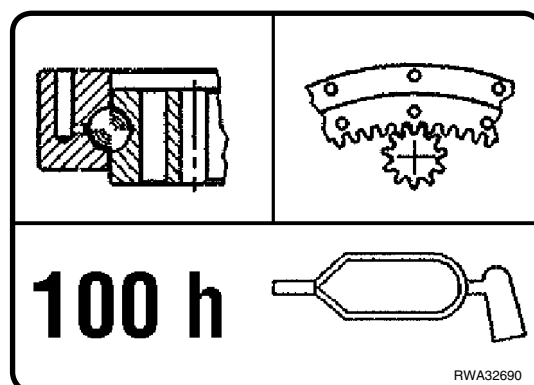
22.

- Lubricating diagram



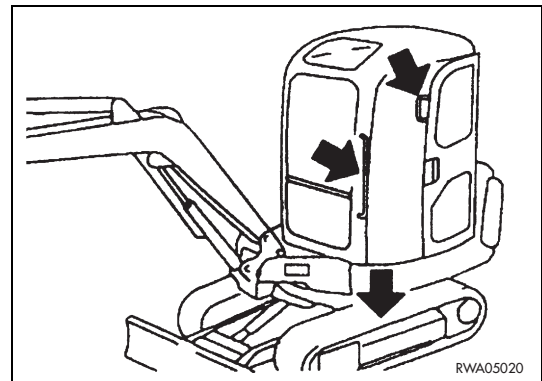
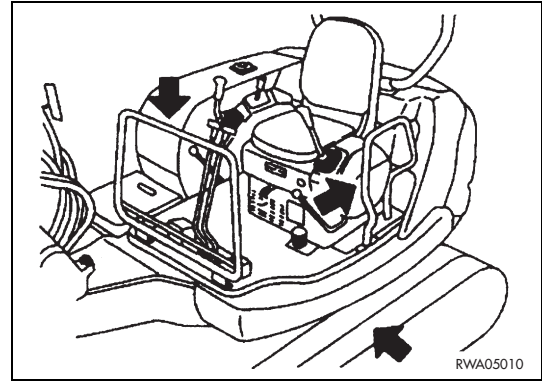
23.

- Swing circle and swing pinion lubricating



2.2.6 GETTING ON AND OFF THE MACHINE

- Do not jump on or off the machine, either when it is at rest and when it is moving.
- When getting on or off the machine, always use the handles and the tracks; get on and off the machine very carefully.
- Never hold or rest on the control levers.
- Either when getting on and when getting off the machine, always maintain three points of contact (holding or resting points), in order to avoid losing your balance and falling down.
- Tighten the handle connection screws if they are loose and clean the handles and tracks if they are dirty with oil or grease. Carefully clean the cab floor if it is dirty with oil, grease, mud or rubble.



2.2.7 PREVENTING FIRES DUE TO FUEL AND OIL

Fuel, oil and some types of antifreeze can be easily ignited if they get in contact with a flame. Fuel is particularly flammable and therefore extremely hazardous.

- Keep any naked flame away from flammable fluids.
- Stop the engine and do not smoke when refuelling.
- Top up with fuel and oil only after stopping the engine and in well ventilated areas.
- Top up with fuel and oil in a well delimited area and do not allow unauthorized persons to approach.
- 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.
- After topping up, tighten the fuel and oil safety caps securely.
- Do not fill the tank completely, in order to leave room for the fuel to expand.
- In case some fuel is spilled, wipe it up immediately.



2.4.9 VISIBILITY

- Switch on the working lights as soon as visibility decreases.
- If visibility decreases due to mist, smoke or heavy rain, stop the machine in a safe position and wait for the weather to improve until visibility becomes acceptable.

2.4.10 WORKING ON ICY OR SNOW-COVERED SURFACES

- If the ground is icy or covered with snow, even a slight slope may cause the machine to slip sideways, therefore it is advisable to move at low speed and to avoid abrupt starts, stops or turns.
- When it has snowed heavily, the road shoulders and any obstacle are buried in the snow and are not visible, therefore proceed with care when clearing the snow.

2.4.11 PREVENTING DAMAGE CAUSED BY THE WORK EQUIPMENT

- When working in tunnels, galleries, under electric cables or other ducts (air, telephone lines) and wherever the height is limited, proceed with the greatest care to prevent the bucket or the arms from causing any damage.

2.4.12 WORKING ON LOOSE GROUND

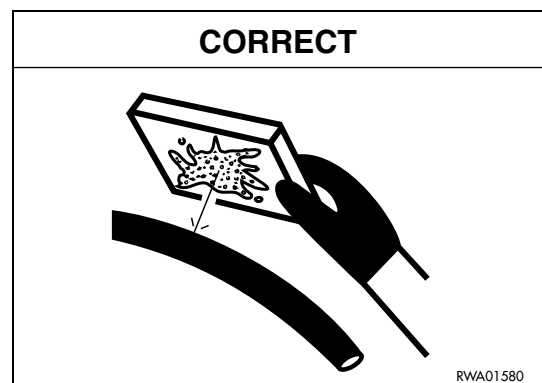
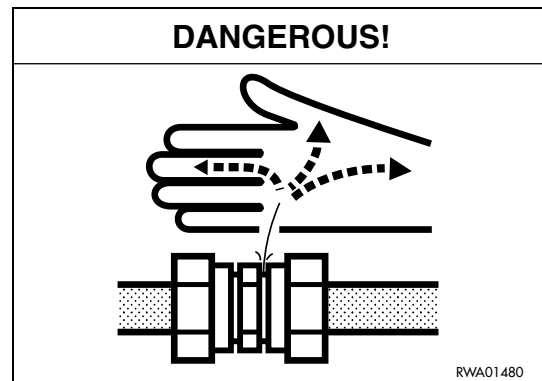
- Avoid operating the machine too close to the edge of cliffs, overhangs and deep ditches.
These areas may collapse, making the machine fall down or tip over and this could result in serious injuries or death.
Remember that after heavy rain or earthquakes these dangerous conditions usually get worse.
- The earth laid near ditches is loose and can easily collapse due to the weight or vibrations of the machine.
Be extremely careful: always fasten the safety belt and close the cab door, if provided.
- In case of work in areas where stones or other material may fall on the machine, install the FOPS protection device.

2.8.15 HANDLING HIGH-PRESSURE PIPES

- Do not bend high-pressure pipes or rub them with abrasive or cutting objects.
Do not use any bent or cracked pipes or hoses that were previously rejected because of leaks or fastening defects, since they may burst during use.
- Always repair or replace any loose or faulty fuel or oil pipe. Any leakage of fuel or oil may cause fires.

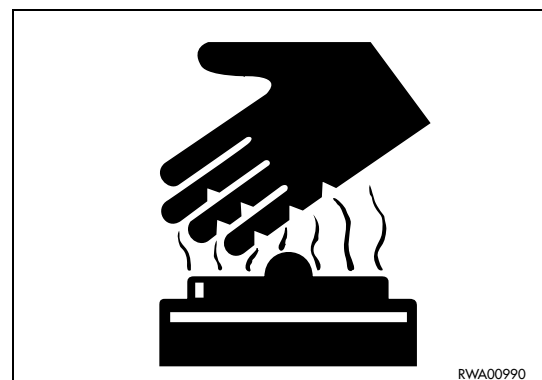
2.8.16 PRECAUTIONS TO BE TAKEN WHEN HANDLING HIGH-PRESSURE OIL

- Do not forget that the work equipment circuits are always under pressure; for this reason, when it is necessary to add or drain hydraulic oil or to perform maintenance operations or inspections on the hydraulic circuit, it is advisable to lower the equipment to the ground and completely release the pressures and the residual pressure present in the tank.
Small leakages from pipes under pressure and the resulting jets are extremely dangerous, since they can perforate the skin and penetrate in the blood circulation or injure the eyes.
For this reason, always wear goggles and thick gloves during the inspections and use a piece of cardboard or a sheet of plywood to check for oil leakages.
If you are hit by a jet of high-pressure oil or are injured, even if slightly, immediately consult a doctor.



2.8.17 PRECAUTIONS FOR MAINTENANCE OPERATIONS AT HIGH TEMPERATURES AND HIGH PRESSURE

- When the machine is stopped at the end of operations, the engine coolant, the oil and all the components are hot and the hydraulic circuits are under pressure.
In these conditions, if the coolant, the hydraulic oil and the engine oil are to be drained in order to change them or the filters, there are serious risks of damage and burns.
Wait for the temperature to lower within the normal operating range 40-45°C (104-113°F) before carrying out the maintenance operations in accordance with the procedures indicated in the relevant sections of this manual).



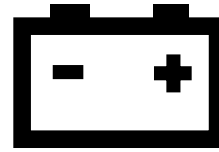
3 - GENERATOR WARNING LIGHT

This warning light comes on when the starting circuit is energized and goes out when the engine exceeds the idling speed; if this warning light remains on even when the engine is running at the normal operating speed, this means that the alternator does not work and the battery is not charged correctly.



IMPORTANT

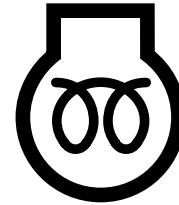
- If the warning light remains off when the ignition key is turned to position «I», this means that the alternator is faulty or broken.



RWA07150

4 - PREHEATING WARNING LIGHT

This warning light comes on when the ignition key is turned to position «» to start the engine at low temperatures. (See “3.6.2.2 Starting with cold engine or in cold climates”).



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6 - BLADE CONTROL LEVER



WARNING

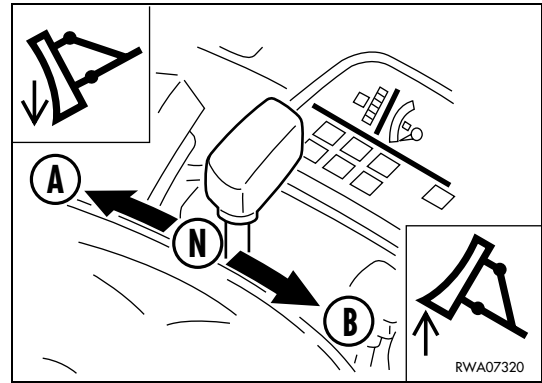
- Before moving the machine, make sure that the blade is completely raised.

This lever controls the raising and lowering of the blade according to the movements indicated.

N - Neutral

A - Blade lowering

B - Blade raising



CAUTION

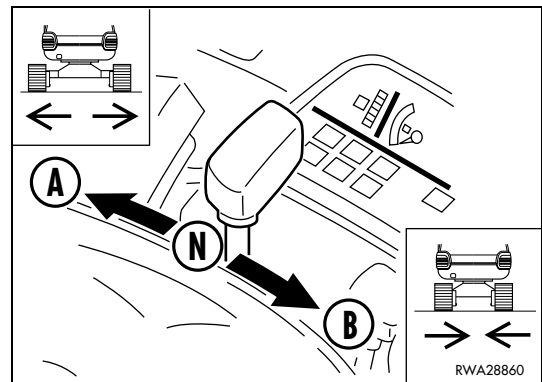
- On machines with variable track gauge this lever is used also to widen or narrow the track gauge. The control is enabled by means of the push button positioned on the left joystick lever. For its use, see "3.3.3 pos. 7 VARIABLE TRACK GAUGE CONTROL PUSH BUTTON".
- Carry out the track gauge widening or narrowing operations with the machine resting on firm and level ground and with the tracks raised from the ground, in order to avoid damaging the shoes and the hydraulic motors.

With pressed button, the lever controls the widening and narrowing of the track gauge according to the movements indicated.

N - Neutral

A - Track gauge widening

B - Track gauge narrowing

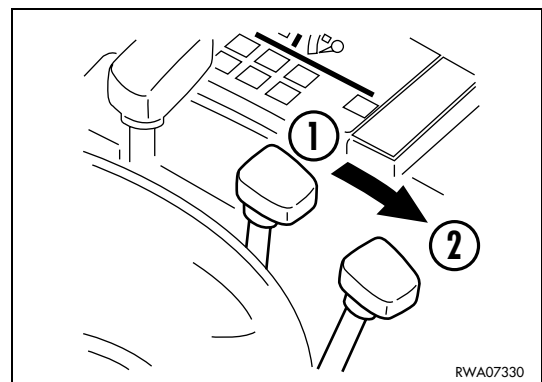


7 - ACCELERATOR LEVER

This lever serves to adjust the speed and power of the engine.

- Idling position (1):
Lever pushed completely forward.
- Maximum speed position (2):
Lever pulled completely backward.

Use the accelerator lever with care, especially when the machine is under strain or is working in difficult conditions. Avoid any useless acceleration, in order to reduce consumption and extend the life of either the engine and the machine.



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3.5.3.2 FRONT OPENING WINDSHIELD



CAUTION

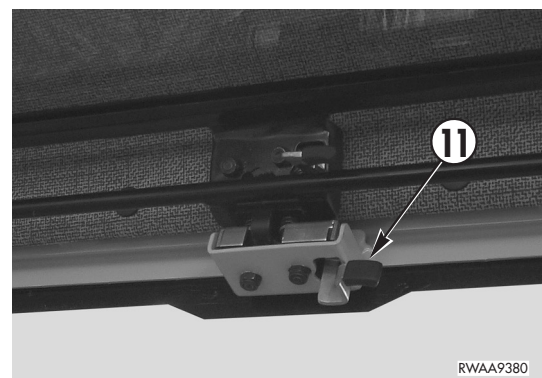
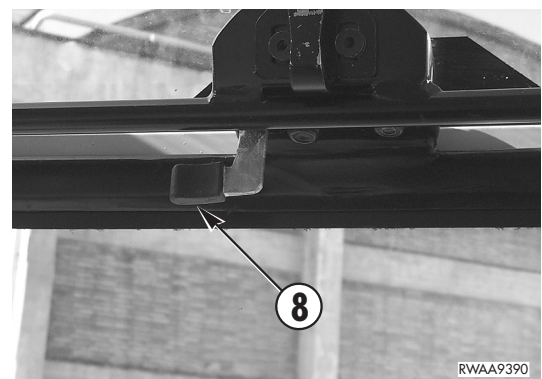
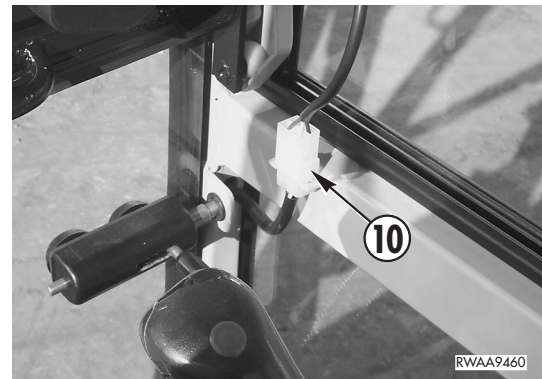
- When opening or closing the front windshield, be careful not to crush your hands.
Always hold the handles firmly with both hands until the windshield is completely opened or closed.
- When the front windshield is open, make sure that the lock engages with the rear coupling.
- When closing the front windshield, seize the handles with both hands and move it slowly until the lock engages.

- Before opening the front windshield (7), disconnect the windshield wiper connector (10) positioned on the right inner side of the cab.



IMPORTANT

- If the front windshield is opened without disconnecting the connector (10), the wiring that supplies power to the windshield wiper motor will certainly be torn.
-
- After pressing the lever (8), open the windshield (7) with the handles (9) while pulling and lifting the windshield. Move the windshield (7) to the correct position, so that it automatically couples with the upper retaining seats. To close the windshield, carry out the same operations in the reverse order, after pressing the lever (11).



3.6.2.2 STARTING WITH COLD ENGINE OR IN COLD CLIMATES



WARNING

- Do not use any fluid or product that facilitate the cold starting of the engine, since these are ether-based and may cause explosions.

- 1 - Pull the accelerator lever until reaching half of its stroke and turn the ignition key to the preheating position «» for maximum 15 seconds in the coldest weather.

The preheating time is determined according to the outside temperature and the recommended ratio is approximately 1 second for each degree below zero.

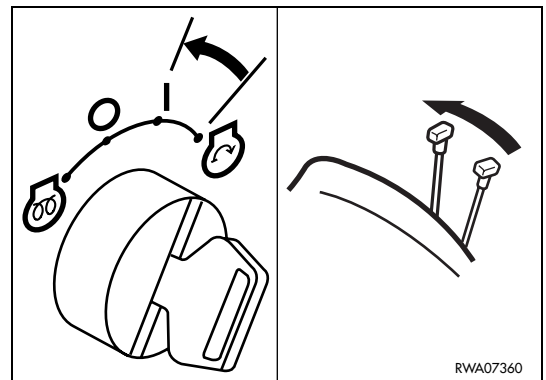
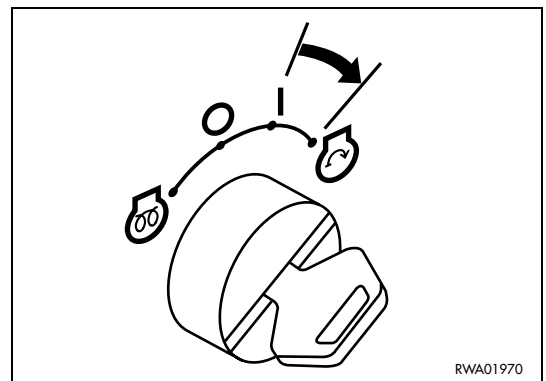
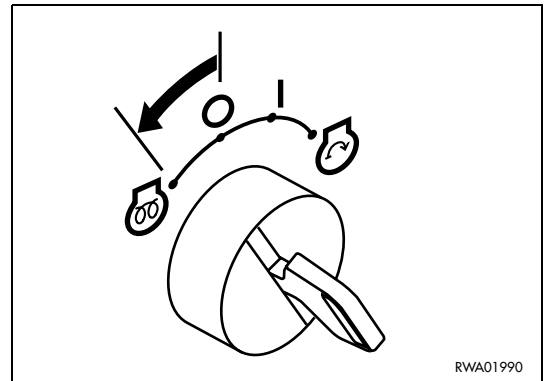
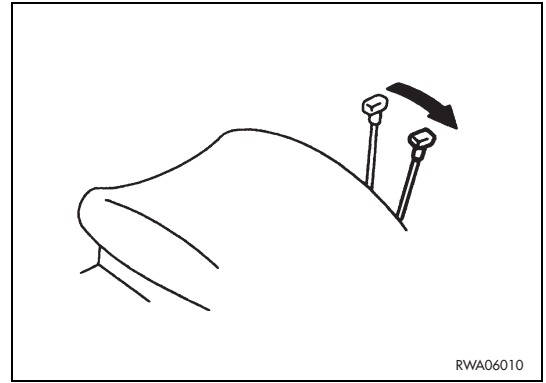
The preheating is signalled by the warning light positioned on the dashboard.

- 2 - Turn the ignition key to position «» (START) until the engine starts and for maximum 15 seconds.
- 4 - As soon as the engine starts, release the ignition key, which will automatically return to position «I» and reduce the speed to idling.



IMPORTANT

- If the engine does not start at the first attempt, repeat the operations 1 and 2 after waiting for at least 1 minute, in order not to overload the battery.



3.9.2 TRANSPORT

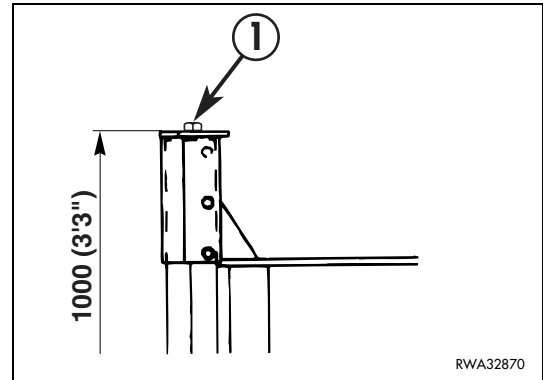
- 1 - Check the overall dimensions; the height, width and weight of the means of transport - machine included - must be compatible with the road and any tunnel, subway, bridge, electric or telephone line that may be found on the way.
- 2 - Keep to the regulations in force regarding signals, speed limits, road traffic, authorizations, etc.

3.14.2 ADJUSTING THE BLADE

The machine with variable track gauge is equipped with adjustable blade and the positions available are two:

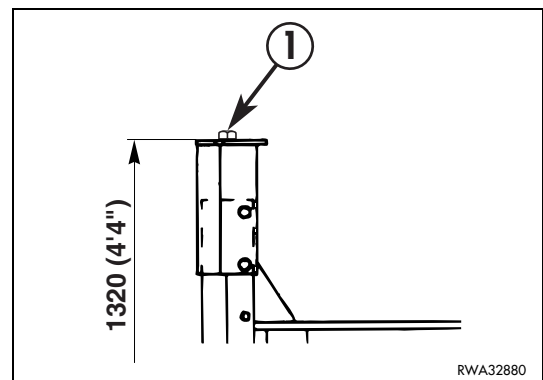
A - Standard position

Blade width: 1000 mm (40 in)



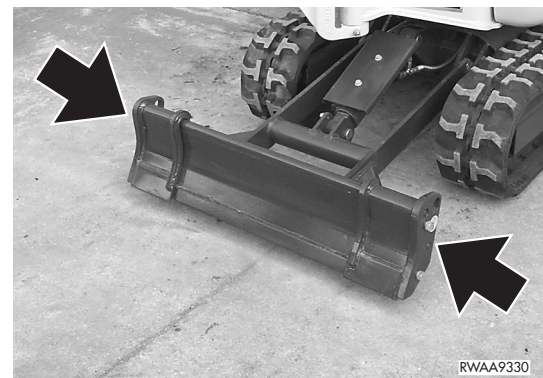
B - Max. extension position:

Blade width: 1320 mm (52 in)



The blade width can be modified by proceeding as follows:

- 1 - Stop the machine on a level surface, lower the equipment to the ground and stop the engine.
- 2 - Remove the bolts (1) that fasten the extensions positioned at the blade ends.
- 3 - Invert their positions, right extension on the left side and left extension on the right side, put back the fastening bolts and tighten according to the prescribed driving torque (see "4.4.1 STANDARD DRIVING TORQUES").



4.1 GUIDE TO MAINTENANCE

- Before opening the engine hood, engage all the safety locks and stop the engine.
- If it is necessary to check the oil level in the hydraulic tank, retract the bucket and arm cylinders completely and lower the bucket teeth to the ground.
- Carry out any operation on firm and level ground.
- Use Komatsu genuine oils and greases; choose oils suitable for the ambient temperature.
- Use clean oils and greases. Keep the oil and grease containers clean. Keep any foreign matter away from oils and greases.
- Always keep the machine clean. This makes it easier to find out any part causing troubles.
In particular, keep the grease nipples, the breathers and the areas near the openings for the level checks clean and prevent any impurities from getting into/on them.
- Draining hot oil or coolant immediately after stopping the engine is hazardous. Wait for the engine to cool down until reaching at least 40-50° C (104-122°F).
- When changing the oils or the filters, check if metal particles are present. If you find large quantities of metal particles, contact your Komatsu Dealer.
- Check and change the oil in a clean place and prevent any impurities from getting into the tank.
- Before carrying out any maintenance operation, hang the warning plates on the ignition switch, the control levers and the cab door, if the machine is provided with cab, in order to prevent anyone from starting the engine by mistake.
- When performing maintenance operations, always take the precautions indicated on the safety plates applied onto the machine.
- Instructions for arc welding.
 - 1 - Turn the ignition key to position «O».
 - 2 - Disconnect the battery (first the negative pole and then the positive pole).
 - 3 - Disconnect the alternator.
 - 4 - Do not apply more than 200V continuously.
 - 5 - Connect the earth cable within 1 m from the point in which the welding must be carried out.
 - 6 - Avoid placing gaskets and bearings between the welding area and the earth cable.
- Do not use flammable fluids to clean the machine parts. Keep naked flames or lit cigarettes away from these fluids.
- When O-rings and gaskets are removed, clean the sealing surfaces thoroughly and replace the O-rings and gaskets with new ones. Fit the O-rings and gaskets correctly when reassembling.
- Avoid keeping loose objects or tools in your pockets: they may fall out and drop into the machine, especially when you open covers and work on the machine while bending over it.
- When washing the machine, do not direct the high-pressure water jet onto the radiator and the heat exchanger.
- When washing the machine, protect the electric system connectors and avoid wetting the ignition switch.
- Before starting work in mud, under the rain, on seashores or river banks, carry out a general lubrication. Wash the machine immediately after work to protect the components from rust. Lubricate the equipment joints more frequently than usual.
- When working at dusty work sites, proceed as follows:
 - 1 - Check the air cleaner for any clogging and clean it more frequently than usual.
 - 2 - Clean the radiator and the heat exchanger frequently, to avoid any clogging of the fins.
 - 3 - Change the diesel oil filter more frequently than usual.
 - 4 - Clean the electrical components, especially the starter and the alternator, to avoid any accumulation of dust.

4.4 NUT AND BOLT TIGHTENING TORQUES

4.4.1 STANDARD TIGHTENING TORQUES

★ Nm (Newton metre): 1 Nm = 0.102 kgm (0.738 lb ft)

Thread diameter (mm)	Pitch (mm)	wrench size (mm)	8.8			10.9		
			kgm	Nm	lb ft	kgm	Nm	lb ft
6	1	10	0.96 ± 0.1	9.5 ± 1	7 ± 0.74	1.3 ± 0.15	13.5 ± 1.5	10 ± 1
8	1.25	13	2.3 ± 0.2	23 ± 2	17 ± 1.5	3.2 ± 0.3	32.2 ± 3.5	24 ± 2.6
10	1.5	17	4.6 ± 0.5	45 ± 4.9	32 ± 3.6	6.5 ± 0.6	63 ± 6.5	47 ± 4.8
12	1.75	19	7.8 ± 0.8	77 ± 8	57 ± 5.9	11 ± 1	108 ± 11	80 ± 8
14	2	22	12.5 ± 1	122 ± 13	90 ± 9.6	17.5 ± 2	172 ± 18	127 ± 13
16	2	24	19.5 ± 2	191 ± 21	141 ± 15	27 ± 3	268 ± 29	198 ± 22
18	2.5	27	27 ± 3	262 ± 28	194 ± 21	37 ± 4	366 ± 36	270 ± 26
20	2.5	30	38 ± 4	372 ± 40	275 ± 30	53 ± 6	524 ± 57	387 ± 42
22	2.5	32	52 ± 6	511 ± 57	377 ± 42	73 ± 8	719 ± 80	531 ± 59
24	3	36	66 ± 7	644 ± 70	475 ± 52	92 ± 10	905 ± 98	668 ± 72
27	3	41	96 ± 10	945 ± 100	698 ± 74	135 ± 15	1329 ± 140	980 ± 103
30	3.5	46	131 ± 14	1287 ± 140	950 ± 103	184 ± 20	1810 ± 190	1336 ± 140

IMPORTANT

- This driving torque table is not valid for screws or nuts that must lock nylon parts or alike onto washers or components made of nylon or nonferrous materials.

4.4.2 SPECIFIC TIGHTENING TORQUES

ITEM	DESCRIPTION	kgm	Nm	lb ft
Engine	Front support central screw	5.5± 0.5	54 ± 5	40 ±3.6
	Rear support central screw	5.5 ± 0.5	54 ± 5	40 ±3.6
Engine supports	Screws for fastening to the engine	6.5± 0.5	64 ± 5	47 ±3.6

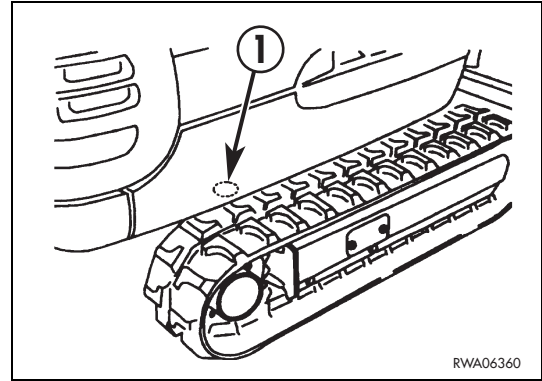
4.7.1.b DRAINING THE FUEL TANK



WARNING

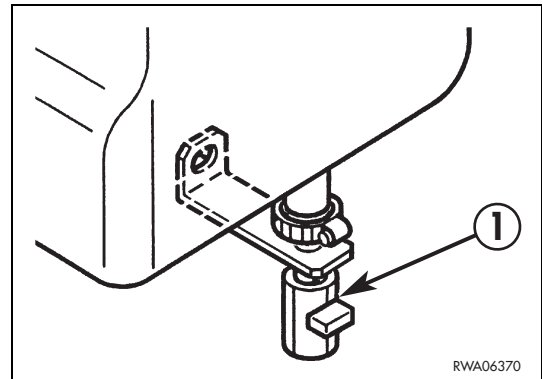
- When draining the fuel tank, avoid spilling fuel, since this may cause fires.
- If some fuel is accidentally spilled, clean the dirty area immediately, in order to prevent it from getting slippery and to avoid fires.

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 (32°F); when the temperature is below 0°C (32°F), 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



WARNING

- 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 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

4.7.3 CHECKS BEFORE STARTING

4.7.3.a VARIOUS CHECKS



WARNING

- **Dirt, oil and fuel spread in the engine compartment near the hot areas may cause fires and damage the machine.**
Check if there are leakages frequently and carry out the necessary repairs immediately; if this occurs repeatedly, contact your Komatsu Dealer.

Before starting the engine, check:

1. if there are loose screws or nuts;
2. if there are oil, fuel or coolant leakages;
3. if the work equipment is worn;
4. the track tension and wear;
5. the conditions and efficiency of the instruments and warning lights on the dashboard, of the working lights and of the horn.

The other general checks concern safety, and precisely:

6. soundness of the safety belt;
7. soundness and legibility of the warning plates;
8. cleanliness of the handles used to reach the driver's seat, cleanliness inside the driver's cab.

4.7.3.b CHECKING THE COOLANT LEVEL

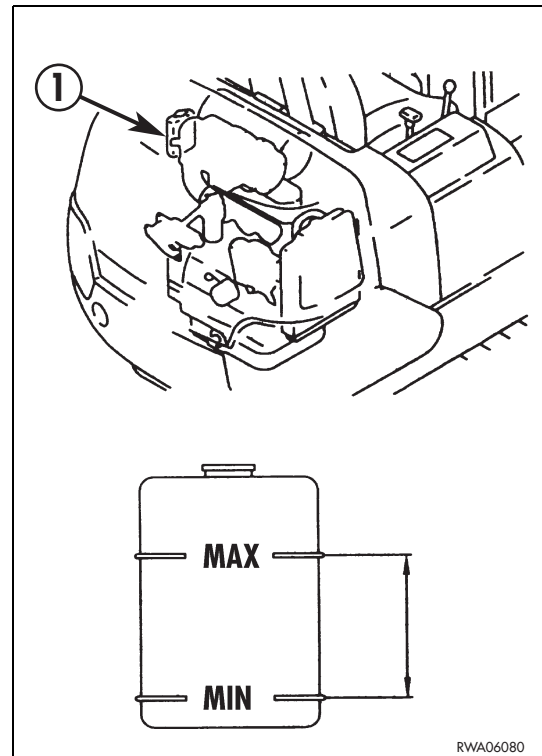


WARNING

- **Do not remove the radiator cap; the coolant must be checked with cold engine, through the compensation tank.**

The coolant tank (1) can be reached after opening the engine hood: the coolant level in the tank must be included between the MINIMUM and MAXIMUM marks.

If necessary, add water or coolant and, if a constant and considerable decrease in the coolant level can be noticed, check the tightness of the radiator-engine unit and of the radiator casing.



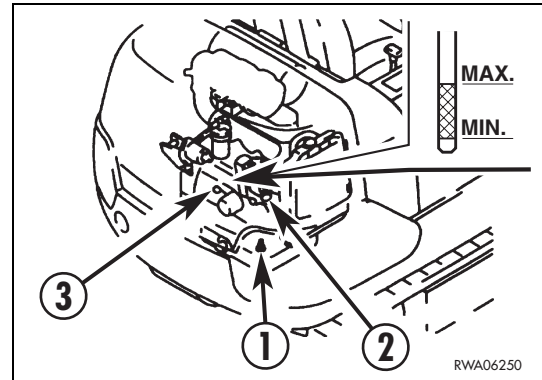
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4.7.6.e CHANGING THE ENGINE OIL



WARNING

- Soon after the machine has been stopped the engine oil is very hot and may cause burns; let the engine cool down until it reaches a temperature of 40-45°C (104-113°F) before draining the oil.
- The oil that may be spilled during the change makes the ground slippery, therefore, use anti-slip shoes and immediately remove any trace of oil from the floor.
- Oils, filters, the coolant and the battery are considered special waste and must be collected and disposed of according to the anti-pollution regulations in force.



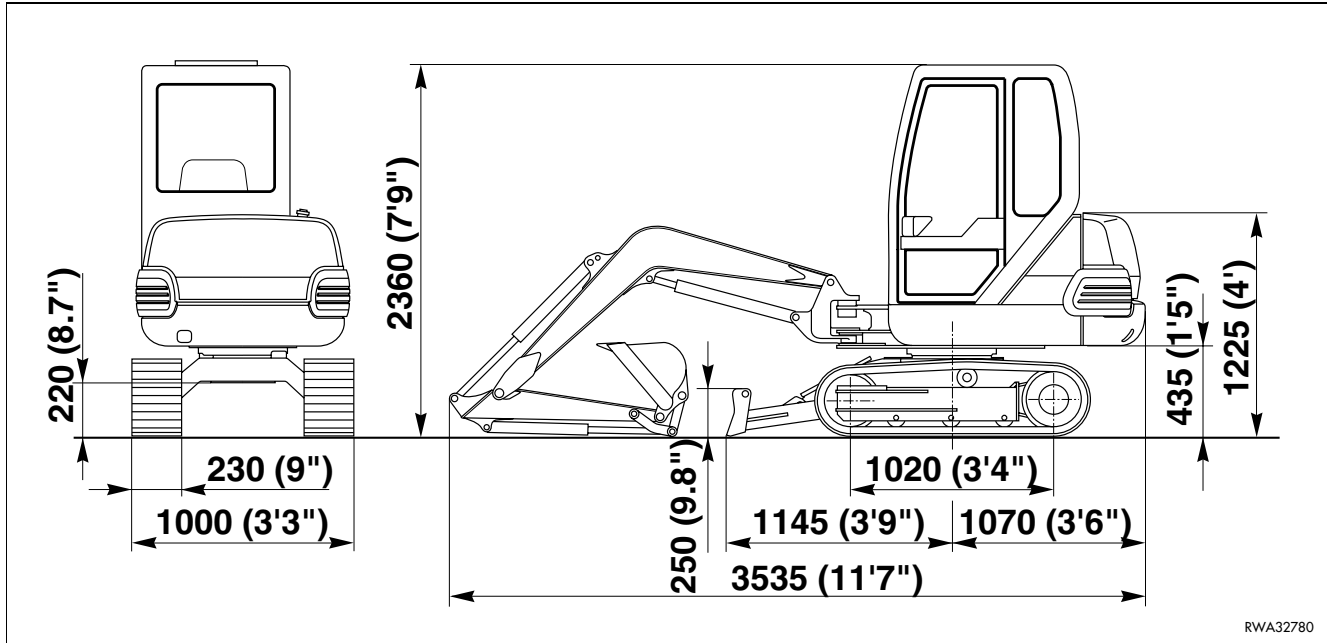
Proceed as follows:

- 1 - Open the engine hood (See "3.5.1 ENGINE HOOD").
- 2 - Remove the drain plug (1) of the oil pan, gathering the used oil that flows out into a container with suitable capacity. (Use a 19 mm spanner).
While the oil flows out, remove the filling cap (2), so that the oil can flow freely.
- 3 - Tighten the plug (1) onto the pan and pour the prescribed quantity of new oil, using the dipstick (3) to make sure that the oil reaches the MAX. level.
To top up, use oil suitable for the ambient temperature (See "4.3 FUEL, COOLANT AND LUBRICANTS").
- 4 - Put back the filling cap (2), start the engine, let it run for 5 minutes and then stop it.
Check the level again and top up if necessary.
- 5 - Close the engine hood.

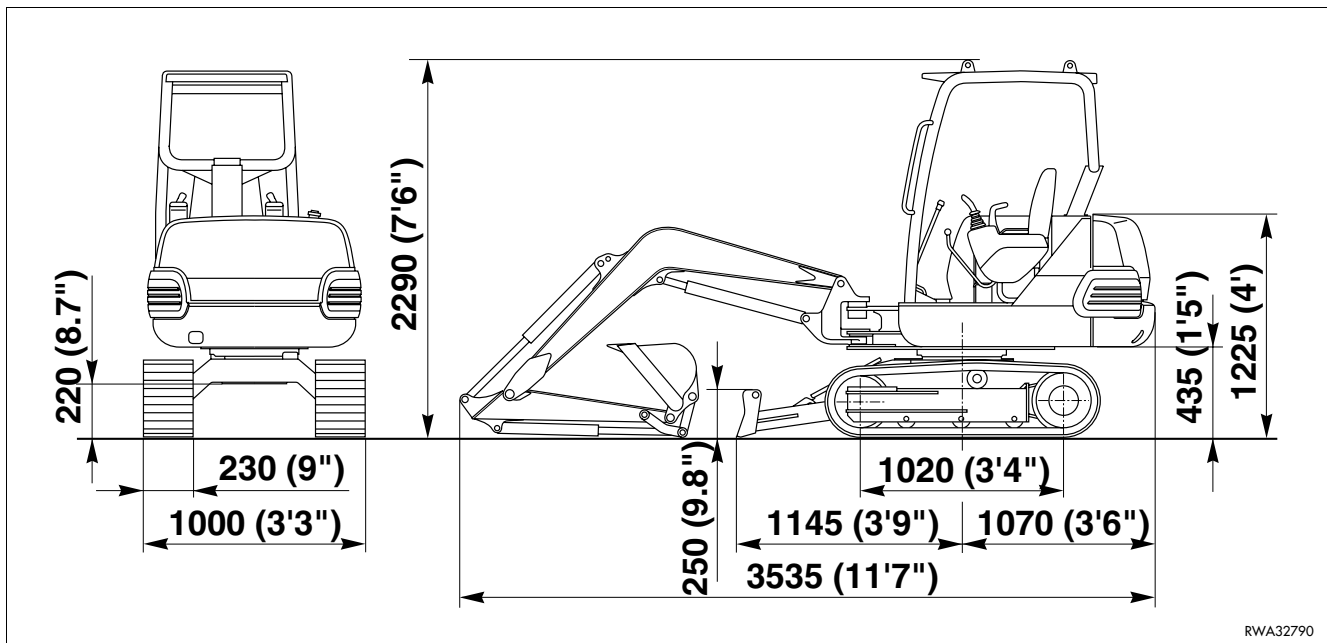
5.1 TECHNICAL DATA

5.1.1 STANDARD OVERALL DIMENSIONS

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.

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