

Shop Manual

SK1020-5

SK1020-5 turbo

SKID-STEER LOADER


SERIAL NUMBERS	SK1020-5	37CF00004 and up
	SK1020-5 turbo	37CTF00003 and up

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HOW TO READ THE MANUAL

1. Removal and Installation of the groups



- (1) The procedures and information needed to carry out the work of removing or Installing units or groups are given in the removal procedure. The sequence of operations is not repeated in the installation procedure.
- (2) Information needed for installation is marked with the symbol ; The same symbol is repeated at the end of each removal procedure for the same item, to indicate to which installation item it refers.

(Example)

REMOVAL GROUP ●●●:Title of operation




.....Safety precautions to be followed when carrying out the operation.

- 1 - Remove XXXX (1): Step in removal procedure.
★: Technique or important point to remember when removing XXXX (1)
- 2 - ▲ ▲ ▲ (2):  This sign means that information is given for the installation procedure
- 3 - Remove ■ ■ ■ (3):
 ℓ: Recovery of oil or water, and the quantity to be recovered.

INSTALLATION GROUP ●●●:Title of operation

- To install, reverse removal procedure.

: Technique to be used for installation

★: Technique or important point to remember when removing ▲ ▲ ▲ (2)





- Addition of water or oil:Step in removal procedure
- ★: Point to remember when adding water or oil.

2. To the precautions to be taken during the removal or installation of the groups, must be added the specific «PRE-CAUTIONS TO BE TAKEN DURING THE OPERATIONS». Always make sure that these precautions are taken.

3. List of special tools

- (1) For details of the descriptions, codes and quantities of each tool (A1; A2 etc.) mentioned in the operational procedures, see the list «SPECIAL TOOLS» supplied in this section.

4. List of the tightening torques and weights, and the quantities oil, liquids or grease needed to fill tanks and containers

- (1) In the operating procedures, you will find the symbols  Nm,  kg,  ,  ; In the following order, these represent the values of «TIGHTENING TORQUES», «WEIGHT OF PARTS OR GROUPS», «QUANTITIES OF OIL OR LIQUIDS TO BE INTRODUCED», «SCREW LOCKING MATERIAL, SEALANTS AND LUBRICATION», «LUBRICATING GREASE».

NOTE

If no symbol is indicated, the values to be used are those given in the introductory sections of this manual.

PRECAUTIONS TO BE TAKEN WHILE WORKING

★ When dismantling or installing a part, always take the following general precautions.

1. Precautions for removal operations

- If not otherwise indicated, lower the work equipment until it rests on the ground.
- If the coolant liquid contains an anti-freeze substance, follow the instructions given for drainage.
- After having removed flanges and tubes, insert plugs to prevent impurities from entering.
- Before removing a cylinder, fully retract the piston and tie it with wire.
- Use a sufficiently large container to collect the oil.
- Before removing a part from the machine, check the alignment reference marks which show the correct installation position. If necessary add further marks to avoid incorrect installation.
- While dismantling the connectors, always grasp them firmly to avoid undue strain on the wiring.
- If necessary, attach markers to the wires and tubes to avoid muddling them up during installation.
- Check the number and height of the adjustments to a given clearance and store them in a safe place.
- When raising the machine or some parts of it, use adequate equipment for the weight of the part concerned.
- When using screws or eyebolts to remove items of the machinery, screw them alternately, and as deeply as they will go.
- Before removing a piece, clean the surrounding area and, after removal, cover the area to prevent dirt or dust from gaining entrance.

2. Precautions to be taken during installation

- Tighten nuts and screws with the specified tightening torques.
- Install the flexible hoses, taking care not to entangle or twist them.
- Bend the cotter pins and stops in such a way as to secure them.
- When coating the threads with adhesives, clean the piece to remove oil and grease, then apply just enough adhesive to cover the threading in a uniform manner.
- When applying a liquid sealant, clean the surface involved, remove residual oil and grease, check that there are no dents or dirt, then apply the liquid sealant in a uniform manner.
- Clean all the parts, remove dirt, rust, burrs, or dents.
- Apply a film of engine oil over all the moving parts.
- Apply a film of anti-friction grease (Lithium EP MS2 NLGI 2) over all surfaces assembled with pressure, to avoid sticking
- After having mounted the snap-rings, check that they are firmly positioned in their seatings.
- When installing electrical system jacks, remove any oil, dust or water that may have penetrated into them, then connect them firmly.
- If using eyebolts, check that they are not distorted, screw them in fully, and then align the eye with the hoisting hook.
- Mount the flanges in a uniform manner, and tighten the screws in criss-cross sequence, to avoid excessive pull on one side only.

3. Precautions to be taken on completion of removal and installation operations.

- If the coolant liquid has been drained away, close the drainage plug and add new liquid up to normal level. Start the engine to circulate the liquid throughout the cooling system and then top up the level once more.
- When the hydraulic equipment has been dismantled, add engine oil to the indicated level. Start up the engine to circulate the oil in the hydraulic circuits, and then top up to the indicated level.
- If hoses or hydraulic equipment, such as hydraulic cylinders, pumps, motors, solenoid valves and valves, are removed for repairs or substitution, bleed air from the hydraulic circuits after having re-assembled the machine.
- ★ For details, see «20. TESTING AND ADJUSTMENTS».
- After having re-assembled cylinder joints or cylinders, or work equipment articulations, lubricate thoroughly.

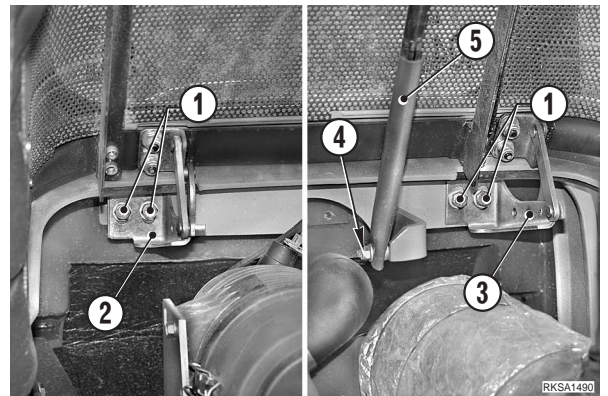
REMOVAL OF ENGINE HOOD

! Completely lower the working equipment to the ground and stop the engine.

- 1 - Remove the retainer screws (1) from hinges (2) and (3).
- 2 - While keeping the hood lifted, remove the retainer nut (4) from the shock absorber (5).



Engine hood: 18.5 kg



INSTALLATION OF ENGINE HOOD

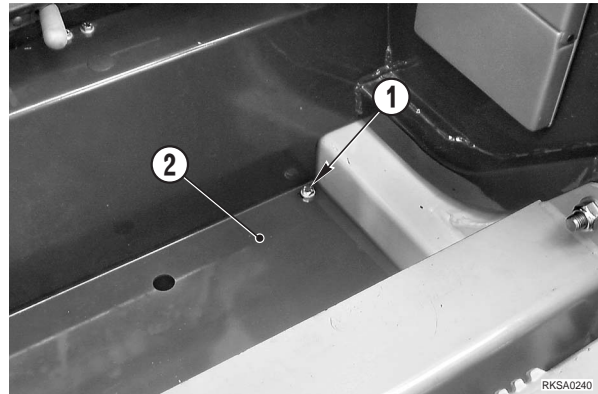
- To replace, reverse removal procedure.



- ★ Check the centre and the lock engagement adjustment.

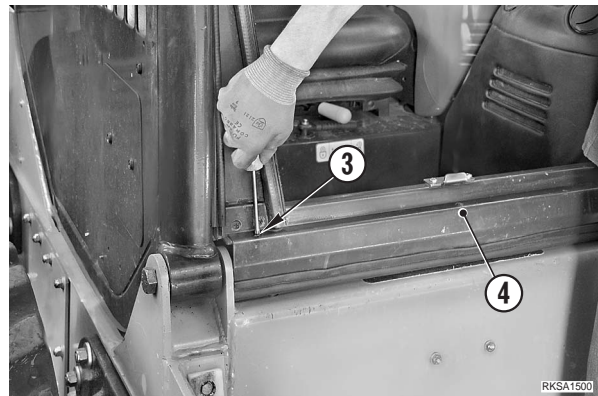
TILTING THE CAB

- 1 - Completely raise the working equipment and secure them in their safety positions.
- 2 - Loosen the four screws (1) and remove the foot-rest (2).
- 3 - **Only if the engine or the complete pump are to be removed.**
Remove the engine hood. (For details see "REMOVAL OF THE ENGINE HOOD").



With front door

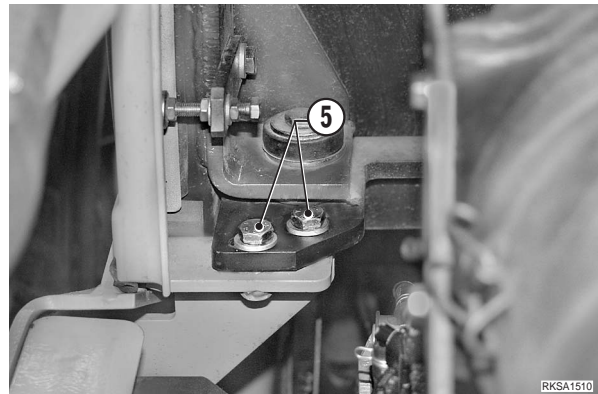
- 4 - Loosen screws (3), remove the bracket (4) and close the front door.



- 5 - Loosen the screws (5) (two to each side) and raise the cab as far as the safety cables allow.

※ 1

- 6 - Insert the safety pin.



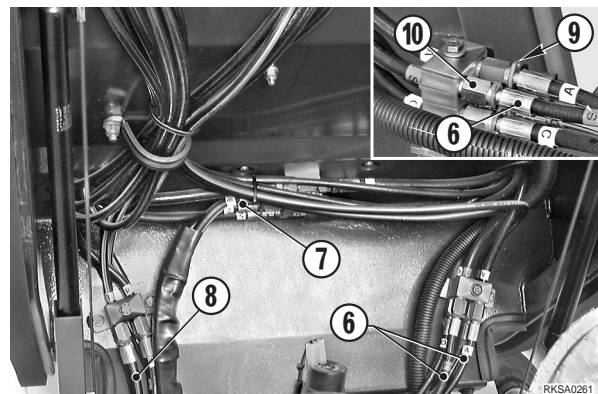
★ If the engine or pump are to be removed, proceed as follows.

- 7 - Disconnect the four pipes (6) on the RH side, the two servo-control supply-pipes (7), and the four pipes (8) on the LH side.

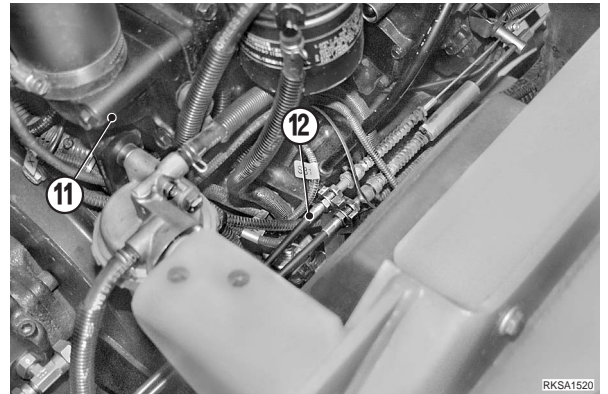
- ★ To disconnect the pipes, remove the retainer (9), push the pipe (6) completely inside the union (10) and extract the pipe (6).

※ 2

- ★ Mark the tubes to avoid exchanging them during re-assembly.

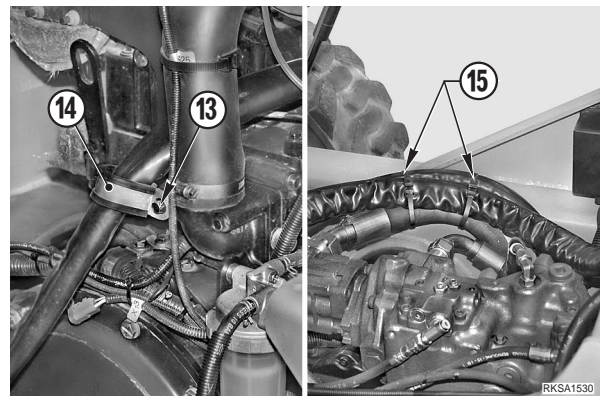


- 8 - Disconnect, the cable (12) of the accelerator command lever from the engine (11).

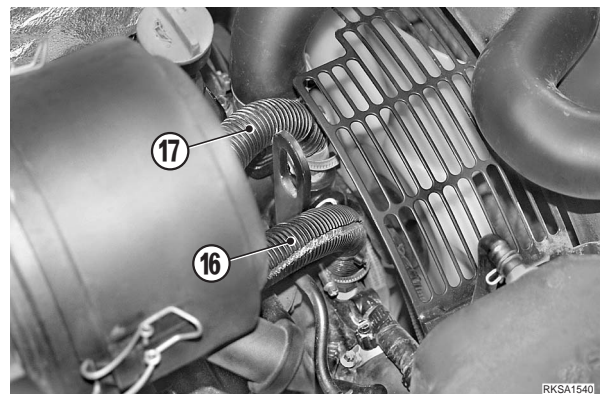


With heating system

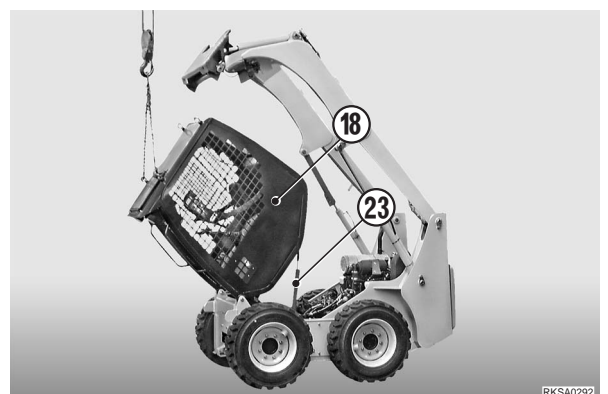
- 9 - Loosen the screw (13) and remove the clamp (14).
10 - Remove the clamps (15).



- 11 - Disconnect the heating system's feed (16) and return (17) pipes from the engine.
Drain engine coolant from the pipes and disconnect the washer pipe from the washer tank.
★ Mark the tubes to avoid exchanging them during re-assembly.



- 12 - Attach the cab (18) to some hoisting tackle.

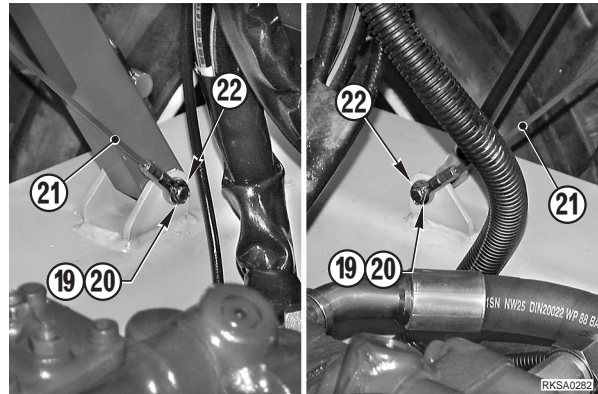


13 - Remove the safety cotter pin (19) and the washers (20).

14 - Remove the safety cotter pin.

15 - Push the cab (18) gently towards its "at rest" position to relieve the tension on the safety cables (21), and disconnect them from the pins (22).

⚠ Apply a slight tension to the hoisting-tackle chains to prevent the cab from moving unexpectedly.



16 - Tilt the cab (18) slowly until the distance between the centres of the dumper fixing hooks (23) is 1100 mm.

★ The distance of 1100 mm corresponds to the maximum stretch of the dumper hooks.

17 - Remove the pins (22) of the dumper fixing hooks (23).



18 - Position a stand "A", about 1200 mm high, and tilt the cab (18) until it is resting on the stand.

★ Make sure that the connecting cables between the cab and the engine are not being strained.



LOWERING THE CAB

- To lower the cab back into position, reverse the tilting procedure.

※ 1

 Screws: 98±7.3 Nm

※ 2

- Connect the pipes by pushing them fully home in their seatings.
Check correct connection by trying to extract them.

※ 3

- Adjust the stroke of the accelerator lever cable.
(For details, see «20. TESTING AND ADJUSTMENTS»).

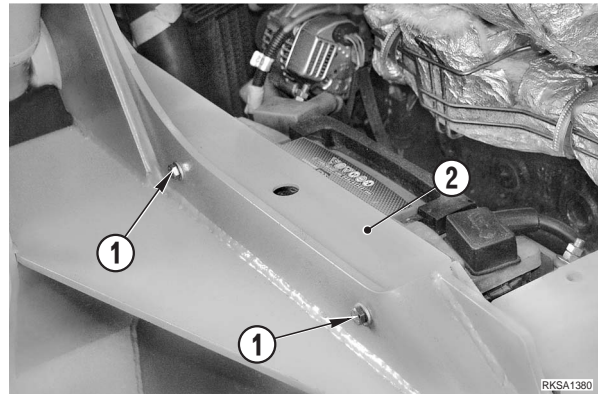
1 - Fill up the cooling circuit.

2 - Start the engine to circulate the liquid through all circuits.

3 - Stop the engine and check the level.

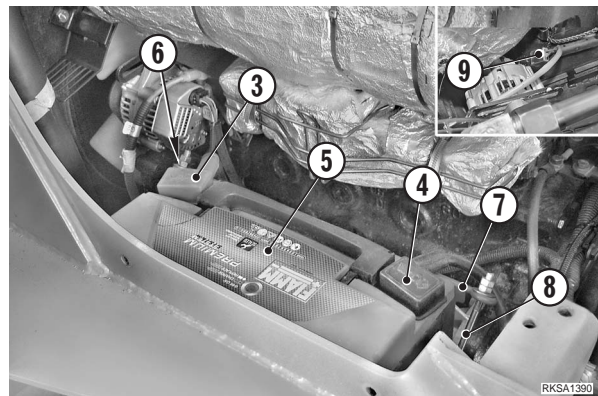
REMOVAL OF THE BATTERY

1 - Loosen the screws and remove the carter (2).



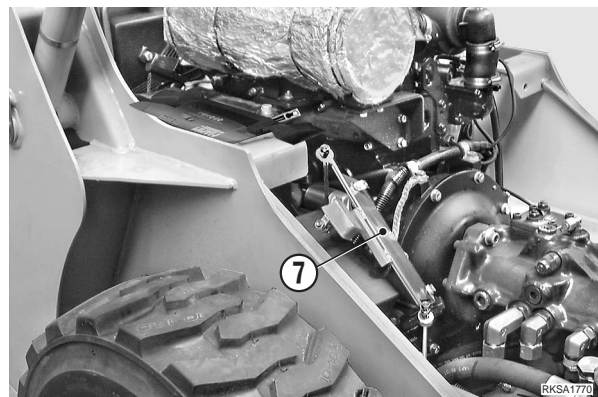
2 - Disconnect the negative cable (-) (3) and the positive cable (+) (4) from the battery (5) in that sequence.

3 - Loosen the nuts (6) that secure the battery clamp (7) and release the tie-rods (8) of the battery support.



4 - Tilt the battery clamp (7) towards the front of the machine and lift out the battery.

★ Disconnect the temperature sensor connector (9) from the battery clamp (7).



INSTALLATION OF THE BATTERY

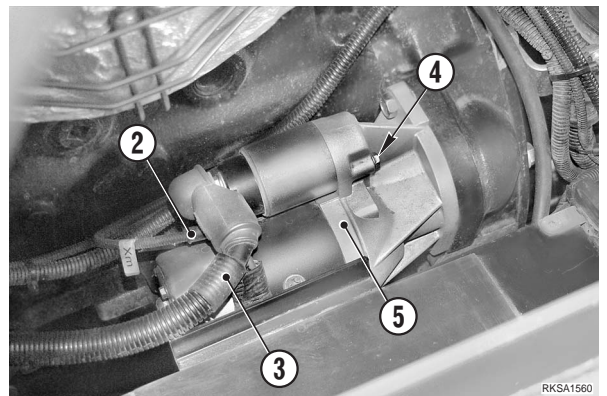
- To replace, reverse removal procedure.

REMOVAL OF THE STARTING MOTOR

- 1 - Tilt the cab and secure it in its safety position.
- 2 - Remove the battery (1).
(For details, see «REMOVAL OF THE BATTERY»).



- 3 - Disconnect the cables (2) and (3).
- 4 - Loosen the screws (4) and take out the starting motor (5).



INSTALLATION OF THE STARTING MOTOR

- To install, reverse removal procedure.



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