

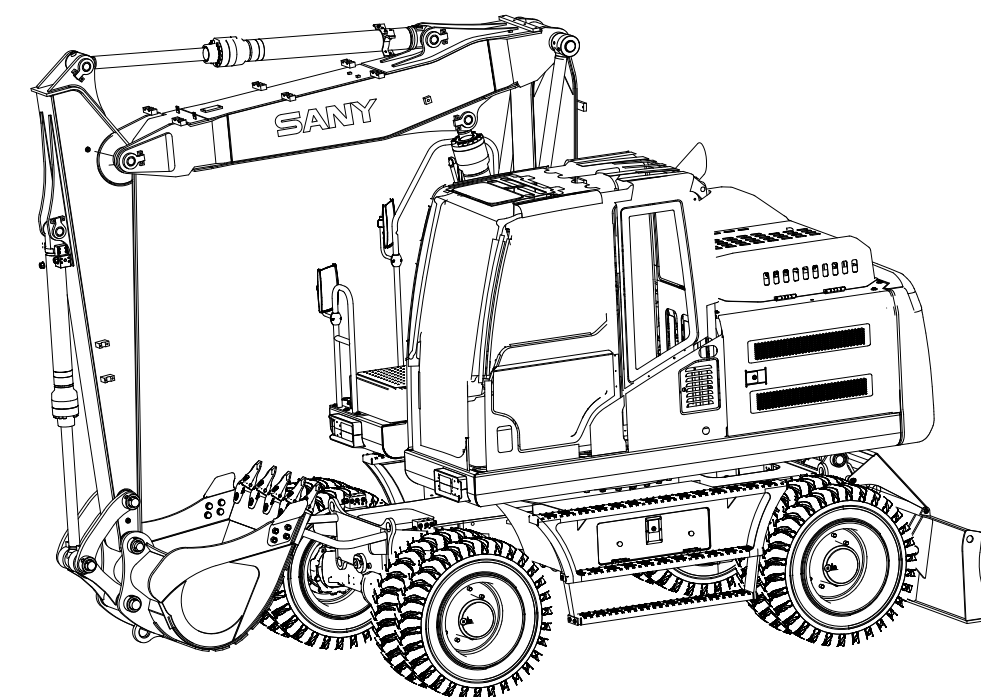
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Wheeled Hydraulic Excavator

SY155W



 **SANY** SANY Heavy Machinery Co.,LTD

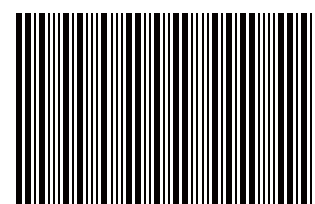
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13603530



Operation and Maintenance Manual

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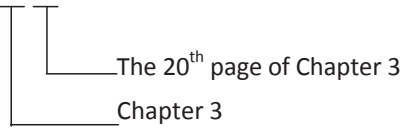
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1.3 Page instruction

The instruction applies the relative page system.

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1.4 Brief introduction

Sany hydraulic excavators are designed for following operations

- Excavating
- Leveling
- Ditching
- Loading
- Demolishing

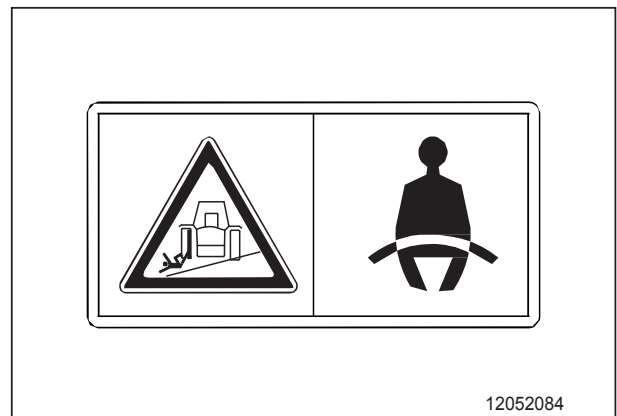
Please refer to related contents for detailed information.

Figures in photos are coincide with figures inside 【 】 symbol in articles. (Ex: 1 → 【1】)

All measurements in this brochure applied with international standard (SI) .

2.1.2 Description of safety plates

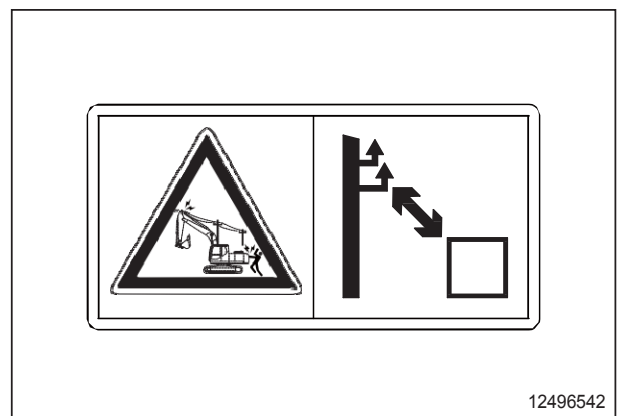
【1】 Buckle up



Pic 2-3

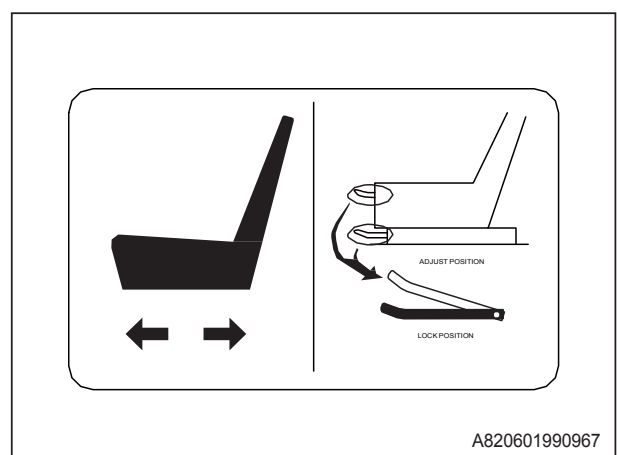
【2】 High voltage

- Electrocution hazard
- Keep the machine a safe distance away from overhead power lines



Pic 2-4

【3】 Cabin seat adjustment



Pic 2-5

2.2 General Precautions

2.2.1 Safety rules

- Only trained personnel are allowed to operate and service the machine.
- All safety rules, precautions and instructions must be followed when operating and servicing the machine.
- Taking alcohol or drug could seriously impair one's ability in operating or repairing the machine, and it is hazardous for you and other persons.
- When working with another operator or worksite traffic signalman, be sure to make all people understand all hand signals to be used.

2.2.2 Abnormal cases

In case of any abnormalities found during operation and maintenance, such as noise, vibration, odor, incorrect gauge display, smoke, or oil leakage, notify Sany dealer and take necessary measures. Do not operate the machine before the fault is corrected.

2.2.14.2 Fire caused by flammable materials

- Remove at any time dry leaves, wood chips, paper pieces, dirt and other flammable materials built up or stuck on engine, exhaust manifold, battery or interior of engine hood to prevent fire.

2.2.14.3 Fire caused by electric lines

Short circuit of electrical system can cause fire.

- Keep electric terminals clean and fastened.
- Check power cables and electric lines for looseness, entanglement, hardening or break each day after operating for 8-10 hours. Check the presence or damage of wiring terminal cover.
- In case of slack or entangled power cables or electric wires, tighten the connections or wire clips, and repair or replace broken wires.

2.2.14.4 Fire caused by hydraulic lines

- Check the clips, guards and gaskets of all hoses and pipes to see whether they are tightened in position.
- In case of loosening, their vibration in operation may lead to friction against other components, resulting damage of hose, ejection of high-pressure oil, disastrous fire or serious injury.

2.2.14.5 Fire caused by illumination equipment

- Anti-blast illumination equipment shall be used to avoid explosion when checking fuel, oil, electrolyte, window cleaning detergent or cooling fluid.
- Instructions in this manual must be followed when power outlet on the machine is used for illumination.。

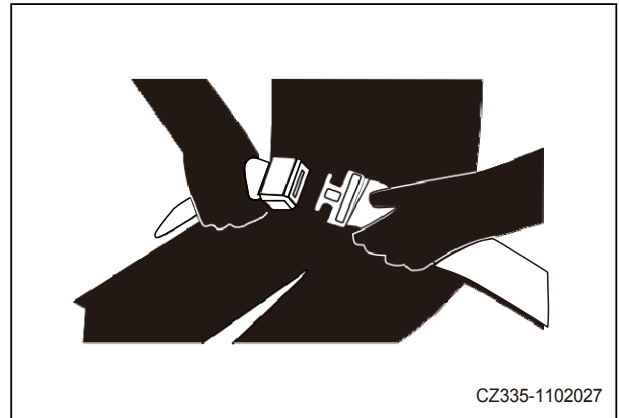
2.2.14.6 Fire caused by heat shield

- Damage or missing of heat shield may lead to fire.
- In case of any abnormality, heat shield must be repaired or replaced prior to operation of machine

2.3.1.3 Seat belt

The operator may get seriously injured or killed when the machine tips over. Before operating the machine, examine your seat belt, the buckles and the anchor point. Replace the seat belt if damage or excessive wear is observed. When the machine is operating, keep your seat belt buckled up.

The seat belt shall be replaced every three years regardless of its condition

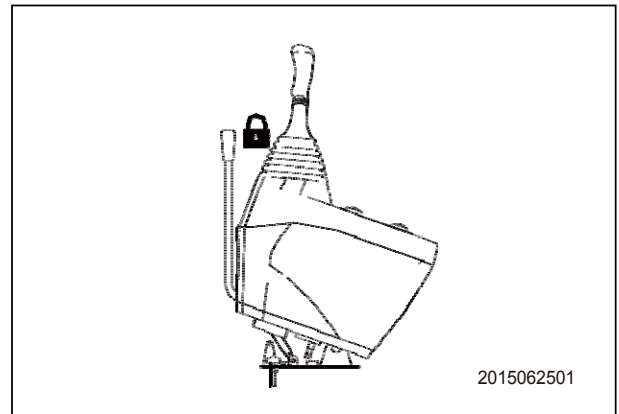


Pic 2-51

2.3.1.4 Before starting the engine

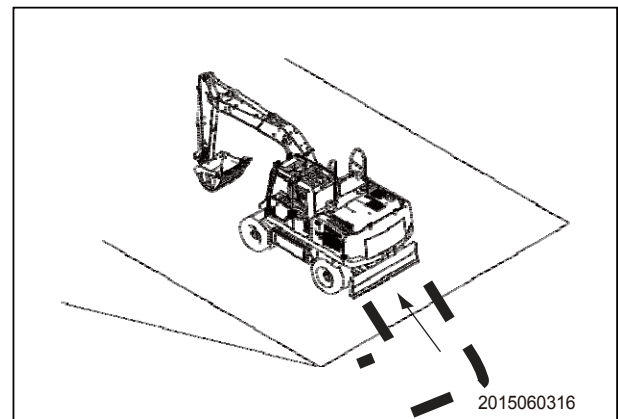
Before starting your daily work, the following items shall be observed prior to start of the engine:

- Clean the front window and the mirrors to ensure good visibility
- Clean the work lamps, and check if they work
- Check coolant level, fuel level and engine oil level
- Check for blocked air filter.
- Check for damaged electrical wires
- Adjust the seat to a position easy for operation; check seat belt and buckles for damage and wear
- Check if the control levers are all in neutral position.
- Check if the hydraulic lockout control lever is in the LOCKED position
- Adjust the rear view mirrors so as to see clearly from the driver's seat what is happening behind the machine



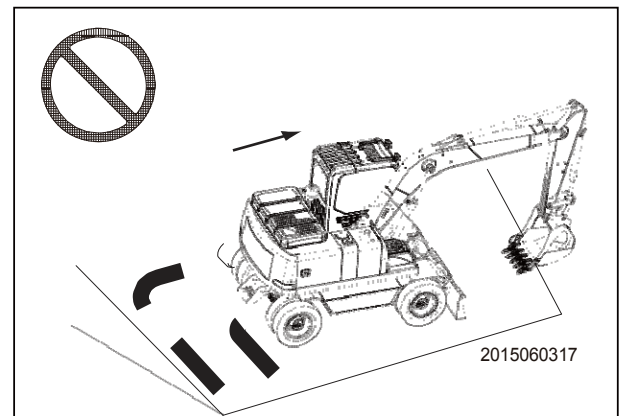
Pic 2-52

- Drive straight up and down a steep slope. It is very dangerous to turn on or drive across a slope



Pic 2-65

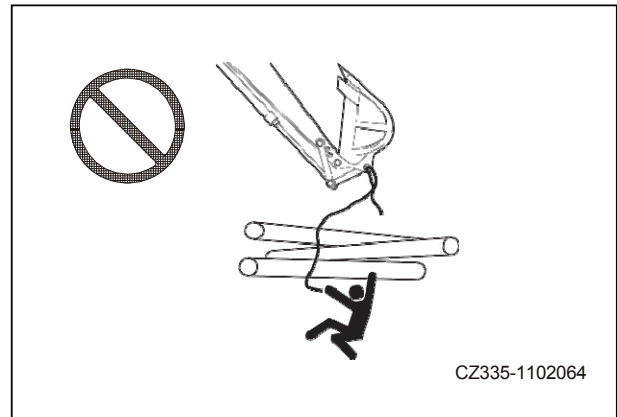
- To adjust the position of the machine on a slope, drive it onto a flat surface, reposition it and driving the machine to the slope again
- Drive at low speed on meadow, fallen leaves or wet steel plate because even a small grade could cause the machine to slip



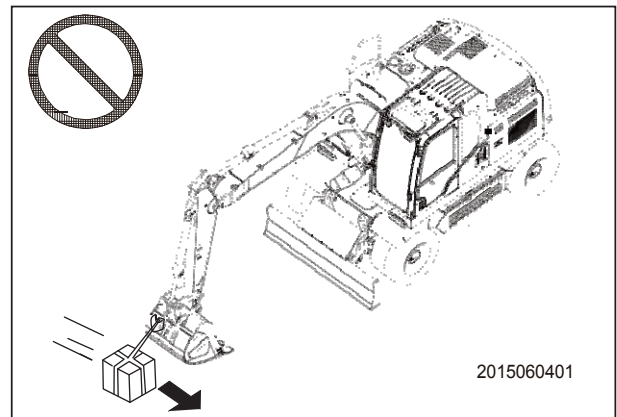
Pic 2-66

2.3.7 Lifting objects with the machine

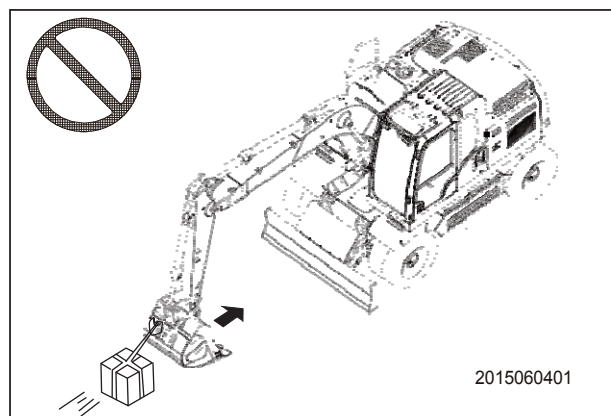
- Nobody is allowed to enter the working area
- Confirm all signals to be used and assign a signalman prior to operation
- Lift a load on a flat surface to prevent the machine from tilting or tipping over
- Observe the loading capacity before lifting, do not exceed the loading capacity
 - Never use chains, wire ropes, shackles and slings that are damaged
 - Anchor wire ropes or slings onto the designated lifting lug. Never attach the shackle or sling onto the bucket tips. Loosened bucket tips could cause the load to fall
 - Never leave the operator seat when lifting is in progress
- To prevent the load from hitting any person or building, inspect carefully the machine surroundings before swinging or operating the work equipment
- Never swing or operate the work equipment suddenly. This may cause the load to drift and the machine to tip over. Use a drag rope if necessary
- Never use the work equipment or the swing force to drag the load in any direction. The work equipment will jerk if the shackle breaks and the load comes free, resulting in serious personal injury



Pic 2-83



Pic 2-84



Pic 2-85

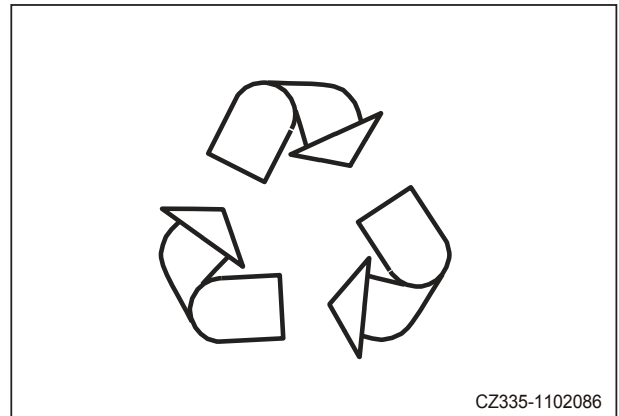
2.4.19 Maintenance operation

- Check all parts and replace the worn, broken and damaged parts during repairing operation. Over-worn and over-damaged parts may fail in operation and cause injury and death. Replace damaged or illegible signs and marks
- Tighten all fasteners and connectors to specified torque
- Install all guards, covers and hoods after repair and service. Replace or repair damaged guards. Only the type of hydraulic oil approved or recommended by Sany should be used to make up the hydraulic system
- Start the engine and check for any leaks (check the hydraulic system), and operate all control devices to be sure of their proper functioning. Make road test if necessary. Shut down the engine and check the work you have done (see if there are missing pins, gaskets and nuts). Check again all hydraulic oil levels prior to operation

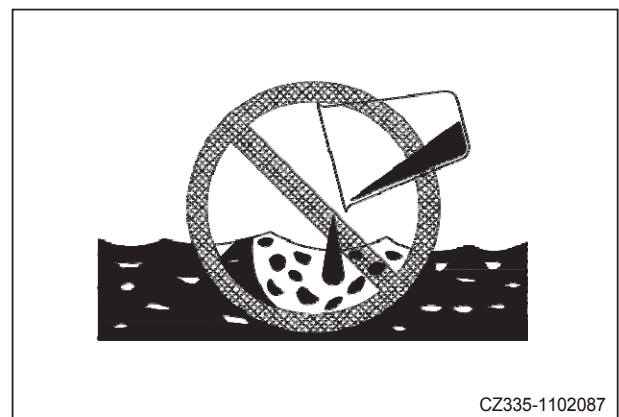
2.4.20 Proper disposal of wastes

Improper disposal of wastes harms the environment and ecology. Consult local environmental protection department or Sany dealers for methods of recycling and waste disposal

- Potential harmful substances used in Sany products include hydraulic oil, fuel, cooling liquid, refrigerant, filter and batteries etc.
- Use leak-proof vessels to hold discharged fluids. Do not use food or beverage containers
- Do not dump waste fluids directly to the ground, sewage or water source
- Leaking of refrigerant from air conditioner can spoil the atmosphere of the globe. Related laws and regulations must be followed to recover or regenerate the refrigerant



Pic 2-101



Pic 2-102

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Drücken Sie F5 auf der Hauptseite des Displays, um es zu öffnen die Hauptmenüseite der Maschineninformation

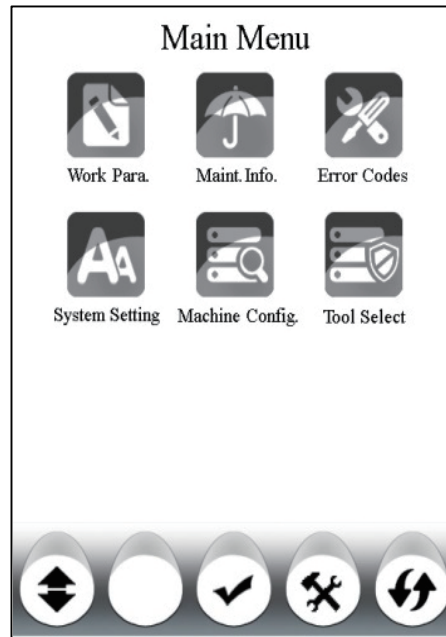


Fig. 3-33

Drücken Sie F1 auf der Menü-Seite, um die Motorinformationsseite zu öffnen.

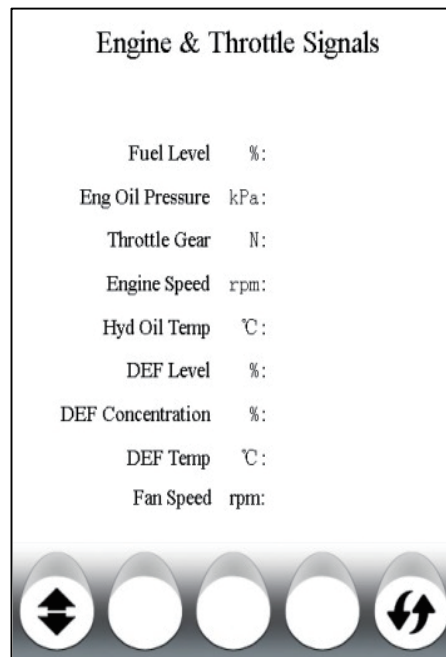


fig. 3-34

4.2.4.1 Sicherheitsverriegelungshebel

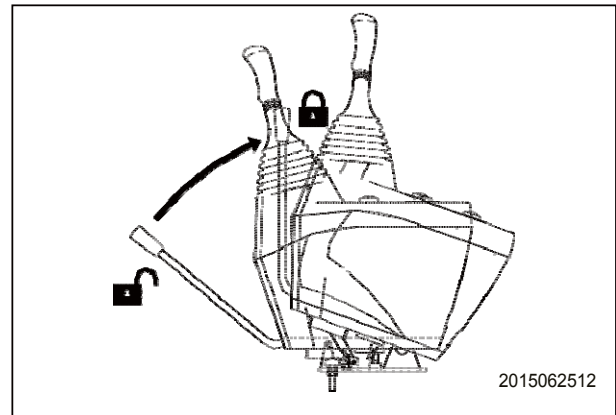
⚠ WARNING

- Verriegeln Sie die Sicherheit beim Verlassen der Kabine sicher Verriegelungshebel in verriegelter Position. Wenn sich der Sicherheitsverriegelungshebel nicht in der verriegelten Position befindet, kann ein versehentliches Berühren des Joysticks zu schweren oder tödlichen Verletzungen führen.
- Wenn der Sicherheitsverriegelungshebel nicht fest im sitzt In der verriegelten Position kann der Joystick bewegt werden, was zu einem schweren Unfall führen kann. Die Joystick-Situation wird wie in der Abbildung gezeigt überprüft.
- Wenn Sie den Sicherheitsverriegelungshebel ziehen oder drücken, Achten Sie darauf, den linken Seitengriff nicht zu berühren..

The safety lock lever is a device for locking the working device, turning, walking and attachment joystick (if equipped).

- Locking position : Lift **up** the safety lock lever and apply the lock. The machine does not move even if the operation handle and the accelerator pedal are operated.
- Unlocked position: Press **down** on the safety lock lever to unlock. This lever is a hydraulic lock lever. Therefore, when it is in the lock position, the joystick or control pedal is moved, but the machine does not move.

When all the switches are in the neutral position, when the safety lock lever is set to the unlock position, if any parts of the machine is activated, the machine failed. In this case, immediately pull the safety lock lever back to the lock position and stop the engine. And then contact with Sany Heavy Machinery or its authorized agent.



Pic 4-36

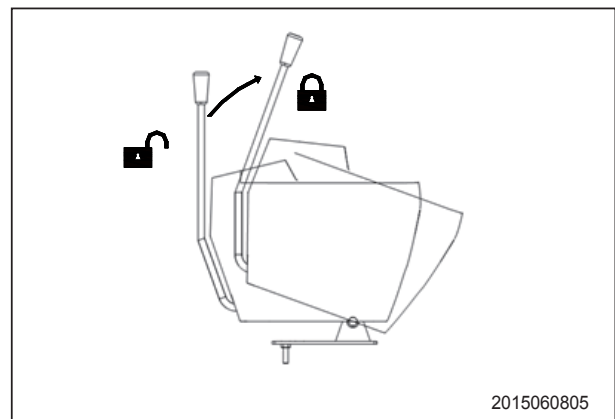
4.2.6 Top window

 **WARNING**

- When leaving the driver's seat, the locking lever is firmly placed in the locking position, and if the safety locking lever is in the unlocked position and the wrong way of touching the joystick or pedal can lead to serious accident.

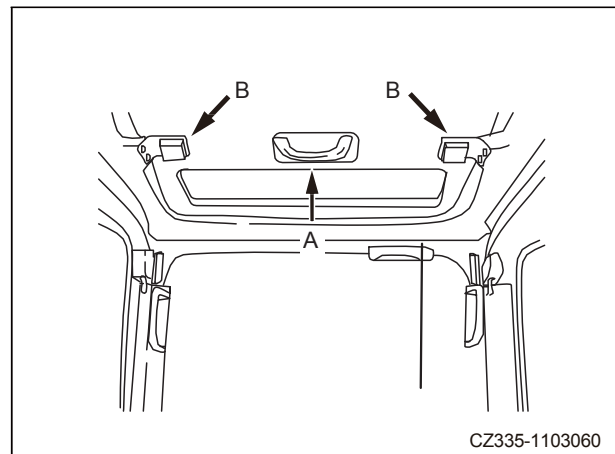
Open up

1. Place the security lock in the "lock" position.



Pic 4-58

2. Push up the top window handle [A] on both sides of the lock [B], and then hold the handle [A] and push up the top window.



Pic 4-59

Close the top window

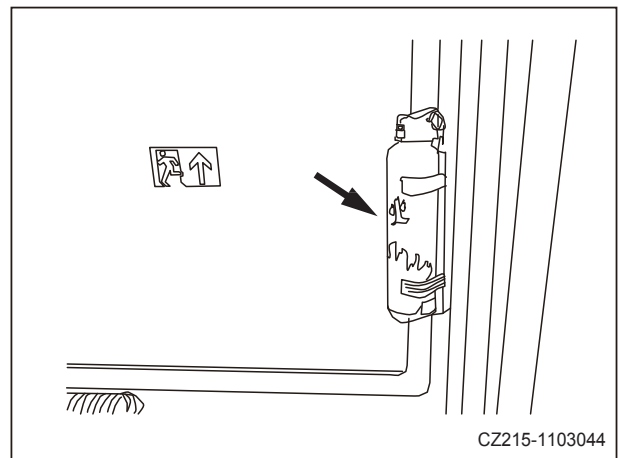
Hold the handle [A] pull down the top window, lock [B] automatic fastening. If the lock can not be properly engaged, then open the top window and try to lock the top window again.

4.2.14 Fire extinguishers

⚠ CAUTION

- Be sure to have a fire extinguisher and read the label, master the use of emergency methods.
- Periodic inspections are required to ensure that the extinguishers are in good condition.
- If the fire extinguisher has expired, must be promptly replaced.

A fire extinguisher is provided in the rear of the cab.

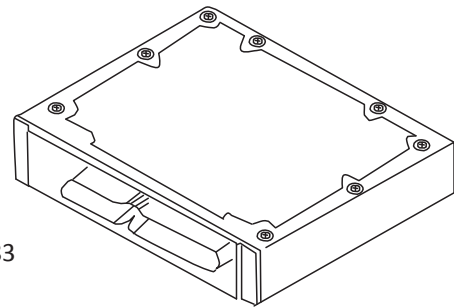


4.2.15 Controller

Be careful not to get water, mud or other liquids on the controller. This can cause a malfunction.

If the controller fails, do not break down, please contact Sany authorized dealer to repair.

Pic 4-82



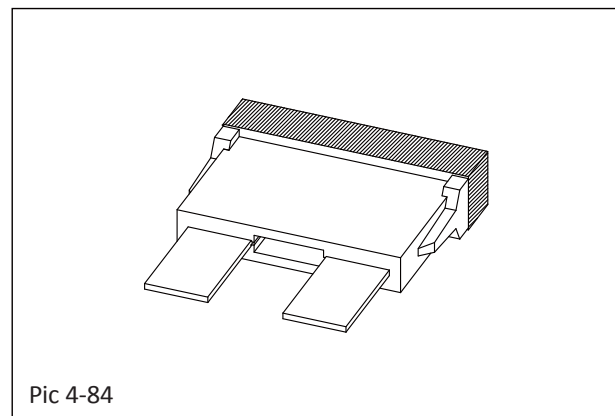
CB13041001-1

4.2.16 Fuse piece

When the start switch is turned to the [ON] position, if the starter motor does not start, there is a possibility that the fuse is disconnected. Open the fuse cover located behind the seat and check and replace it.

Note:

- Fuses (pictured) refer to fuses mounted on the circuit to prevent electrical parts and wires from burning out.
- Fuse with 5A, 10A, 15A, 20A four specifications to distinguish between different colors. Replace with the same capacity of the fuse.
- Be sure to turn off the start switch before replacing the fuse.



4.2.20.2 Open and close the lock cover

Open the cover (locked cover)

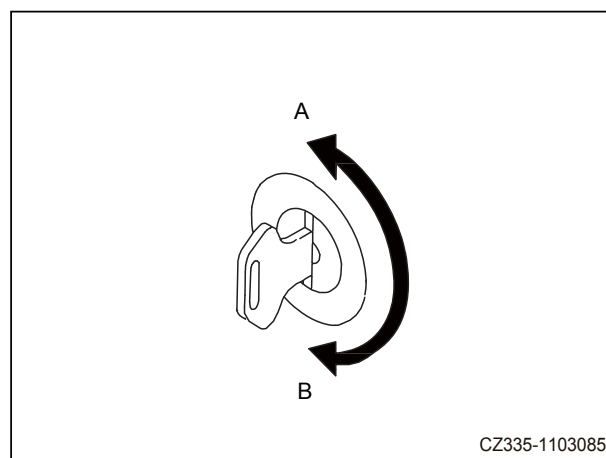
1. Insert the key into the key slot.
2. Turn the key counterclockwise and open the cover by the handle of the pull cover.

Position **【A】** : Open

Position **【B】** : Locked

Lock the cover

1. Close the cover and insert the key into the key slot.
2. Turn the key clockwise and pull out the Key.



Pic 4-100

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4.3.1.3 Adjustment before operation

Operator seat

Adjust the operator seat before operation or operation shifts, so that the operator feels comfortable and can move the joystick, steps and switch freely.

【A】 vertical adjustment

lift up lever 【1】 to the right position during adjustment.

Adjustment scale: 200mm (10mm for each level)

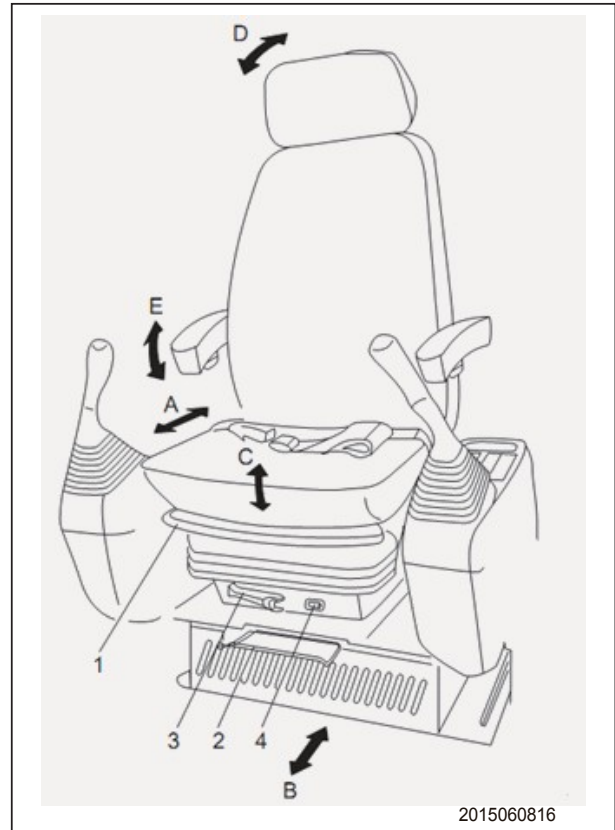
【B】 horizontal adjustment of whole seat

Pull the lever 【2】 up to proper position. In this case, operator seat and left right armrests will move together with pilot lock lever.

【C】 adjust suspension (if equipped)

Turn lever 【3】 to left, the suspension will be hardened, it will suit heavy operator. Turn the level 【3】 to right, then suspension will become soft suiting less heavy operator.

Note: the best match is when readings on meter 【4】 equals with weight (kg) of operator.



Pic 4-118

4.3.4 Engine Preheating

WARNING

- In case of emergency, abnormal running of engine, or other faults, turn the start switch key to OFF position and shut off the engine.
- Do not operate any control lever or pedal suddenly when hydraulic oil remains at low temperature. Make sure to warm up the machine till temperature of hydraulic oil rises to a suitable point.
- Insufficient warm-up of the machine may cause slow response or abrupt movement during operation, resulting in serious accidents. Warm-up is especially necessary in cold areas.
- Do not continuously run the engine at low or high speed for more than 20 minutes, which may cause leaks in the oil supply pipe of the turbocharger.

Do not start machine operation immediately after engine start. Check the following items:

1. Adjust the fuel control dial to run the engine at a low speed (about 1,100 rpm) for about five minutes.
2. Adjust the fuel control dial to run the engine at a moderate speed (about 1,400 rpm), and then slowly operate the bucket for five minutes.
3. Adjust the fuel control dial to run the engine at a high speed, and operate the boom, arm and bucket for 5-10 minutes.
4. Cycle each action of excavator for several times before ending the preheat operation.
5. Check all gauges for normal display after preheating the machine. Continue to warm up the machine if coolant temperature (see monitor display) and hydraulic oil temperature (50~80°C) fail to reach normal values.
6. Check exhaust color, noise or vibration for abnormality. Repair it if any.

2. Drag the machine

a) In case travel system pressure is low or travel motor is damaged, cut the input and output power in emergency gear before dragging the machine.

Max dragging speed: 10km/h Max distance: 5km

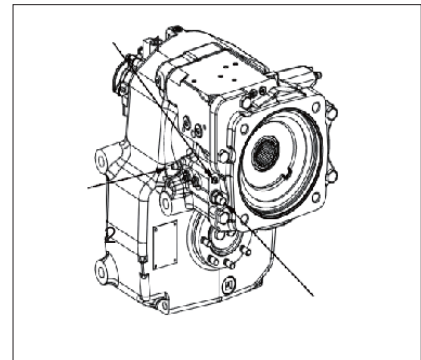
b) If there is no gearbox lubrication, lack of grease will cause damage. A trailer is best used for long distance transport.

c) Use emergency device and use switch to OFF position. Use a pad to prevent movement. Put the brake pedal in the release state. Loose emergency gear and start the switch to OFF position. Put a

Press the grease gun from the grease mouth (1) until the relieve valve (3) is filled.

Remove the emergency unit

d) Open the emergency unit drain port (2), drain the oil, and fully release the pressure. After excavator starts, switch to low gear switch the low gear to provide 30-35bar pressure, so that the clutch gears match



inside the transmission box, and then close the drain port (2).

4.3.9.2 Trenching Operation

- Trenching could be more efficient when the bucket is up to the digging operation and the tires lined parallel to the trench being dug.
- When digging wider trenches, both sides of the trench should be ditched first before moving to the central part.
- When digging longitudinally, the shovel should be extended in front to maximize the excavator stability and the lifting capacity.

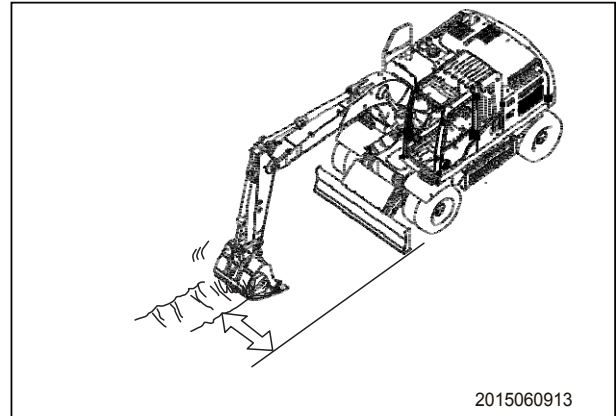


Fig. 4-169

4.3.9.3 Loading Operation

In case of a small swing angle, the dump truck should park in a location easily accessible to the excavator operator for better efficiency.

Loading the truck from the rear is much more convenient than from the sides and also with more loading capacity.

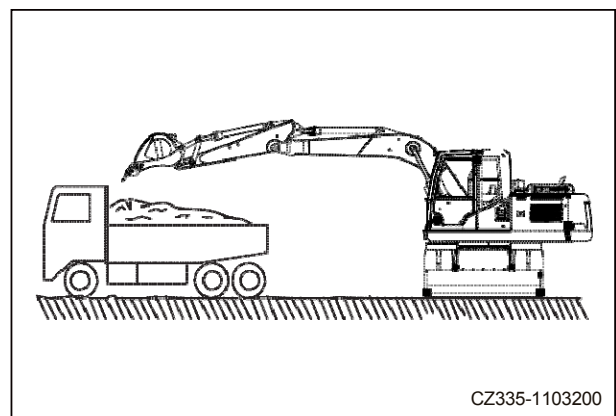


Fig. 4-170

4.4.3.1 Loading

1. Load/Unload only on solid, smooth surface. Maintain a safety distance away from road edge.
 2. Apply brake to the trailer and place wedge under the tire [1] to prevent unexpected trailer movement.
 - Put the left and right springboards [2] in parallel and with equal distance to the trailer central line [3]. The maximum sloping angle [4] is 15°. If the springboard bends greatly under machine weight, place a pad under the springboard.
3. Switch from travel speed to low speed on the monitor screen and turn off automatic idle speed.
 4. Turn the fuel control to [MIN] and set the engine to low idle speed.

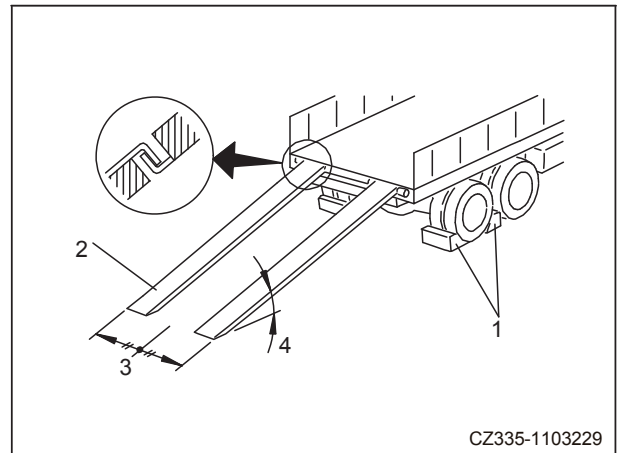


Fig. 4-183

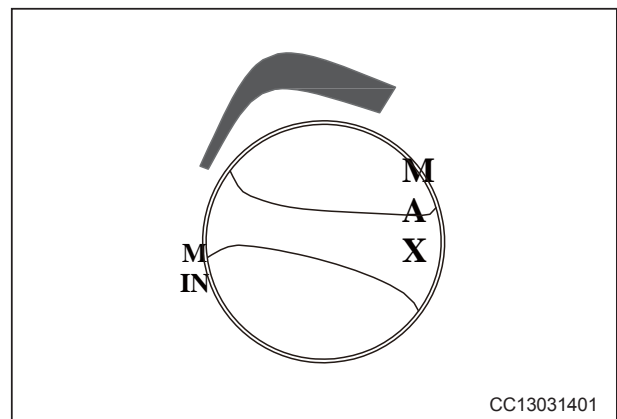


Fig. 4-184

Warning

- Turn off automatic idling when the machine is climbing up or down the trailer. In case that the auto idle is on, the engine speed will change dramatically.
- When the machine is climbing up or down the trailer, keep it in the "low speed" mode. Do not change the speed arbitrarily.

- Never apply more than 200V continuously.

Preventing things from falling into machine

- When opening the access window or tank filler for inspection, make sure that the nuts, bolts or tools are not left inside the machine. Failure to do so may result in unexpected failure or damage to the machine, or accidents. In case that any materials fall into the machine, remove it immediately.
- Do not carry unnecessary items in your pockets except those necessary for inspection.

Dusty work site

Observe the following items before working in a dusty place.

- When inspecting your machine or changing the oil, park your machine in a dust-free place in order to prevent dust from getting into the oil.
- Clean the air filter cartridge immediately if the filter's alarm indicates clogging.
- Clean the fins and other heat exchanger parts frequently to avoid them being clogged.
- Clean and replace the fuel filter frequently.
- Clean the electrical components, especially the start motor and the alternator, to prevent dust from building up on them.

Lubricants of different brands

Never mix lubricants of different brands and/or grades together. If you need to use the lubricant of another brand or grade, drain the old lubricant completely and replace with the new brand.

Securing access cover

When servicing the machine with the access covers open, use a locking lever to secure the cover to certain position. Otherwise, the cover can be swung close by wind and cause bodily injury.

Purging air from hydraulic system

When any hydraulic units have been repaired or replaced or any hydraulic lines have been removed or installed, always bleed the air from the system.

Connecting hydraulic hoses

- In removal of parts with O-rings or gaskets, clean the installation surfaces and replace with new parts. Remember to install the O-rings or gaskets.
- Do not twist or bend the hydraulic hoses when assembling. Failure to do so could cause damage to the hoses and considerably reduce their service life.

After inspection and maintenance

If no checks have been made after inspection and maintenance, unexpected failure may occur, causing severe injury or damage. The following items must be observed:

Table of capacities

Model		Engine oil pan	Swing drive casing	Cooling system	Hydraulic system	Fuel tank	Front axle shell	rear axle shell	Rim gear box
SY155W	L	11.5	3	26	175	240	9	11.2	4X2.4
	US gal	3.0	0.8	4	46	62.4	2.4	3	4X2.6

Table 5-5

5.9.2.4 Bucket tips - replace

Replace the bucket tip before the tip adapter is worn.

CAUTION

- Operating the work equipment by mistake is very dangerous when replacing bucket tips.
- **The pin may fly out can cause personal injury if too much force is applied onto it. Make sure that nobody is in the surrounding area.**
- **Wear safety goggles, gloves and other personal protective gears.**

1. Place a block beneath the bucket and keep the bucket bottom level.

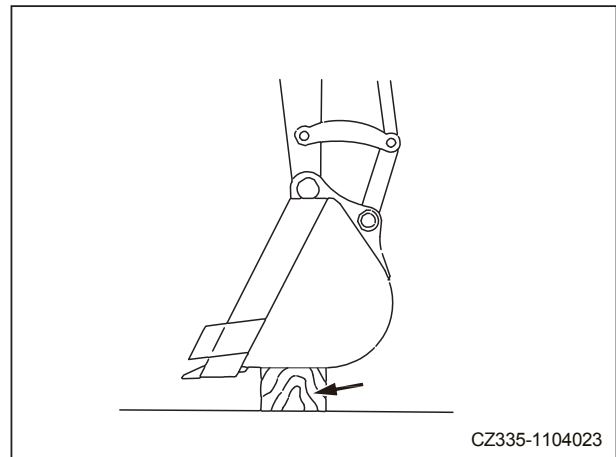


Fig. 5-9

2. Make sure the work equipment is stable and the hydraulic lockout control lever is in the LOCKED position.

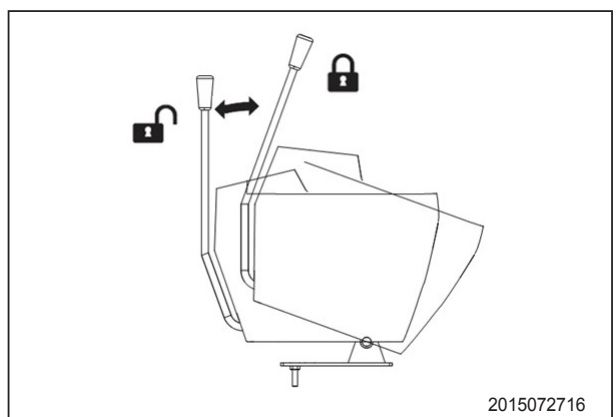


Fig. 5-10

5.9.4 Every 100 service hours

5.9.4.1 Lubrication

NOTICE

- If the lubricated components produce abnormal noise, additional lubrication is required besides regular maintenance.
- After operating in water, the machine's wet pin rolls are to be greased.

1. Adjust the machine to a to-be-greased position, lower the work equipment to the ground and shut down the engine.
2. Use a grease gun to inject grease at the greasing points shown in the following illustration.
3. Finally, wipe off the old grease that has been squeezed out.

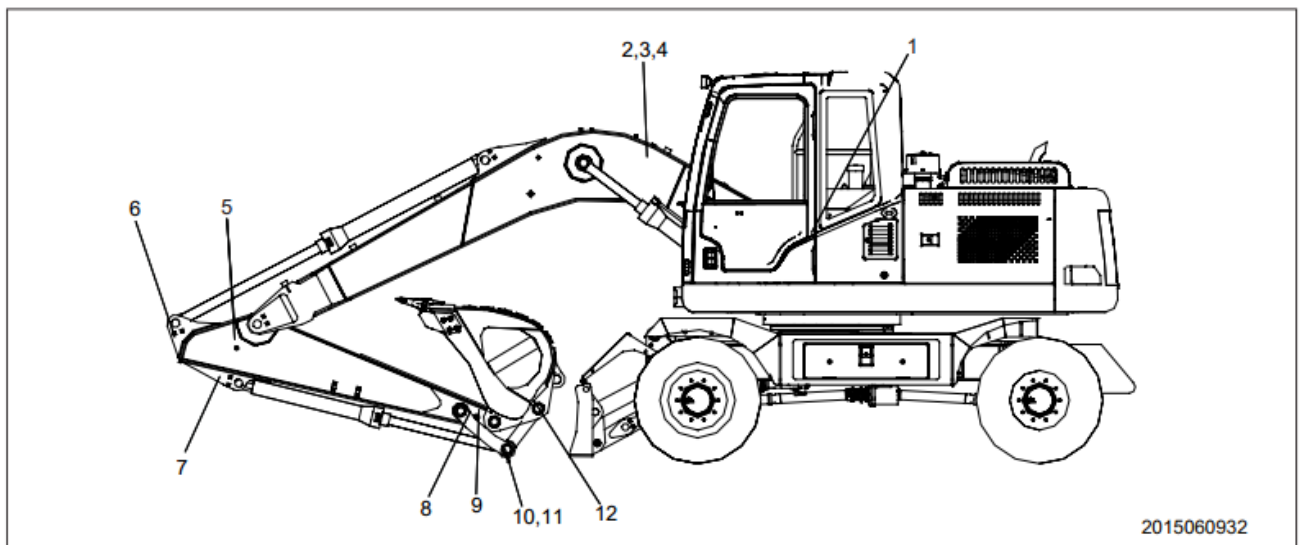


Fig. 5-21

Replacement of the inner filter element

1. Remove the outer filter element (3) and then the inner filter element (4).
2. Cover the air connecting side with a piece of clean cloth to prevent dust from entering the filter element.
3. Clean the inside of the air cleaner body and then remove the covering cloth.
4. Place the new inner filter element (4) onto the connecting side.
5. Install the outer filter element (3).

Push the filter element straight forward into the air cleaner housing. You can hold and shake it slightly to make the task easier.

6. Install the cover (2). Make sure the arrow mark points upward. Lock the clip (or clasp) (1). Check the gap between the housing and the cover. Reinstall the cover if the gap is excessive.

Note:

- Never use the inner filter element after cleaning it. Replace the inner filter element when the outer one is replaced.
- When the outer filter element and the cover have been installed, improper installation of the inner filter element could damage the outer element.
- Fake parts will allow dirt to pass through and damage the engine due to insufficient precision in the sealing area. Therefore, fake parts shall not be used under any circumstances.

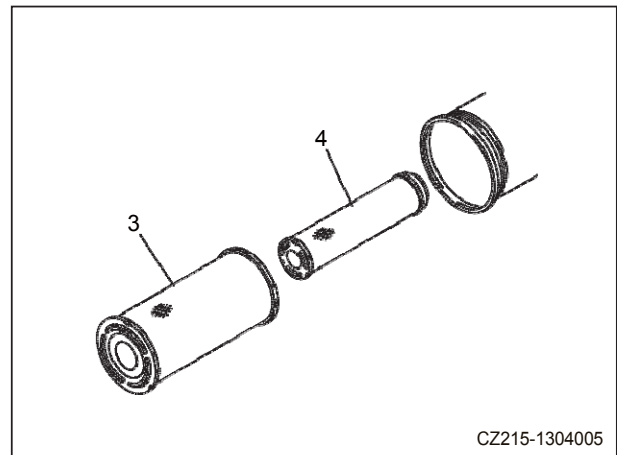


Fig. 5-47

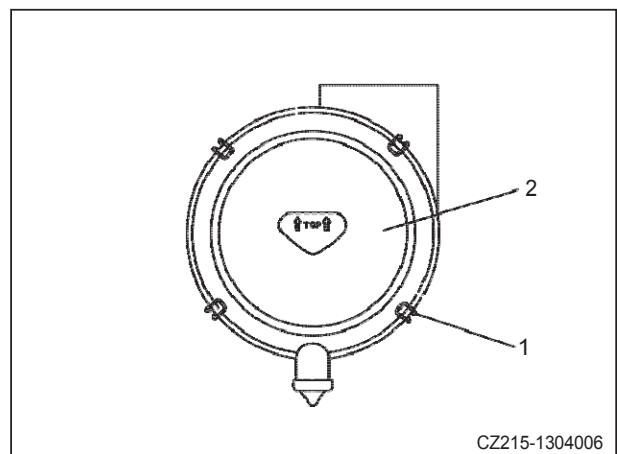


Fig. 5-48

3. Open the right access door of the machine and turn the filter element (1) leftward with filter element spanner in order to disassemble the filter element.
4. Clean the filter element seat (2). Fill the new filter element with clean engine oil. Apply engine oil (or a film of grease) to the filter sealing surface and the threads before installing the filter element to its seat.

Remark:

Check the filter element seat (2) for presence of used seal. The presence of used seal in the filter element seat (2) can cause oil leakage.

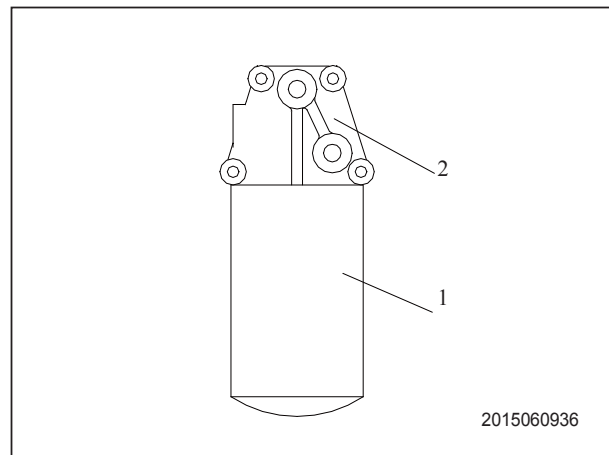


Fig. 5-70

5. The installation requires contact of the sealing surface with that of the filter element seat (2). Turn the filter element 3/4-1 turn.
6. Open the engine hood and add engine oil through the filler. After 15 minutes, check if oil level is between the H and L marks on the dipstick.
7. Run the engine idly for a short time and then turn off the engine. Check again the oil level, which shall be between the H and L marks of the dipstick. For more information, see "Oil level in oil pan - check/add" on page 4-11.
8. Reinstall the bottom cover.

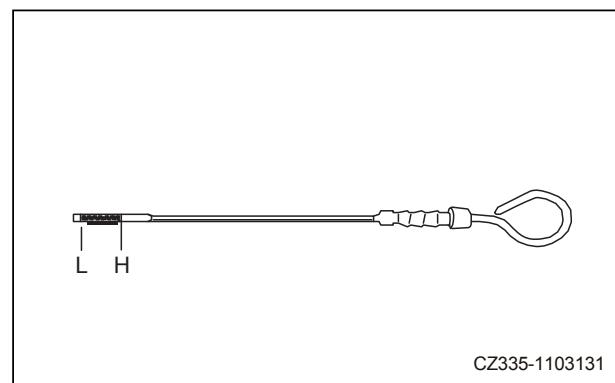


Fig. 5-71

Fresh air filter - clean

1. Unlock and open the cover (4) on the left side of the cab. Remove the locking nut (5) and take out the fresh air filter (6).
2. Use compressed air to clean the filter. If the filter bears oil or too much dirt, clean it with moderate detergent. After the filter has been flushed with water, it must be dried completely before reuse. This filter shall be replaced every year with a new one. If a plugged air filter cannot be cleaned with compressed air or flushing water, replace it immediately.
3. After cleaning, restore the filter (6), tighten the nut (5) and lock the cover.

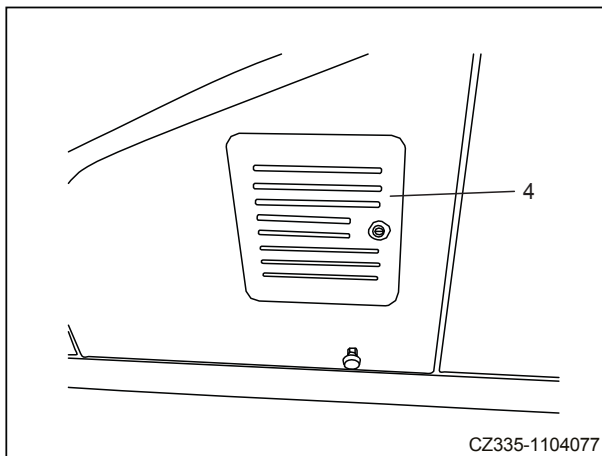


Fig. 5-86

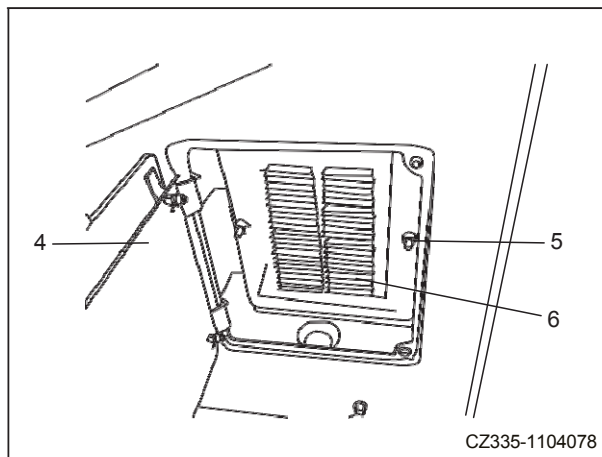


Fig. 5-87

NOTE:

The fresh air filter must be installed correctly. To install the filter, the long end (L) of the filter (6) must be inserted first into the filter box. By inserting the short end (S), the cover (4) will not be closed.

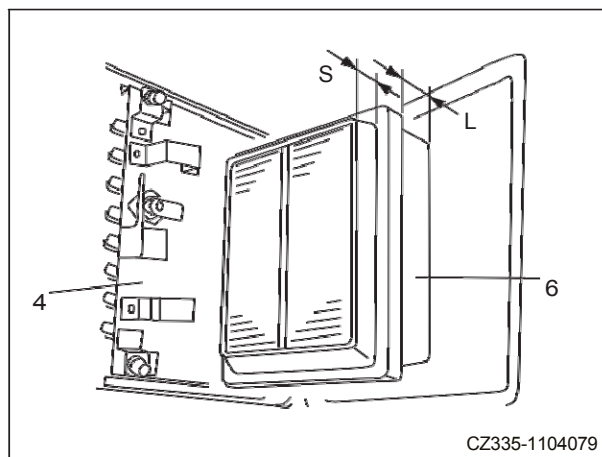


Fig. 5-88

5.9.8.2 Check the nitrogen pressure in the accumulator

⚠ WARNING

- The accumulator contains high pressure nitrogen, which may explode due to improper operation and result in machine damage and personal injury.
- Be away from fire sources.
- Do not bump or roll the accumulator. Keep it free from any impacts.
- Vent the air completely when handling the accumulator. Consult Sany's authorized dealer to do this job.

Note:

In continuous operation with low nitrogen pressure in the accumulator, the remaining pressure in hydraulic circuit will not be released once failure occurs to your machine.

Functions of the accumulator

The accumulator stores the pressure of the control circuit. Even if the engine is turned off, the control oil circuit allows you to achieve the following operations:

- Operate the control lever to lower the work equipment. The work equipment will fall due to gravity.
- The pressure in hydraulic circuit can be re-leased. The installation location of the accumulator is shown in the right illustration.

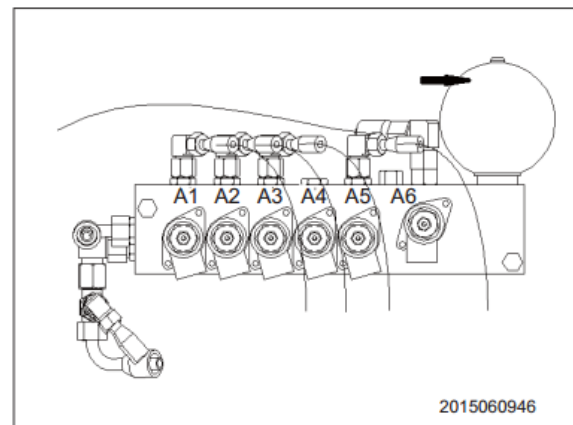


Fig. 5-107

5.9.9.4 Accumulator - replace

Replace the accumulator every two years or 4000 service hours, whichever occurs first.

WARNING

- The accumulator contains pressurized nitrogen, which may explode due to improper operation and result in machine damage and personal injury.
- Be away from fire sources.
- Do not bump or roll the accumulator. Keep it free from any impacts.
- Vent the air completely when handling the accumulator. Consult Sany authorized dealer to do this job.

If your machine is kept operating when the performance of accumulator decreases, the pressure in the hydraulic system will not be released. Consult Sany dealer to replace the accumulator.

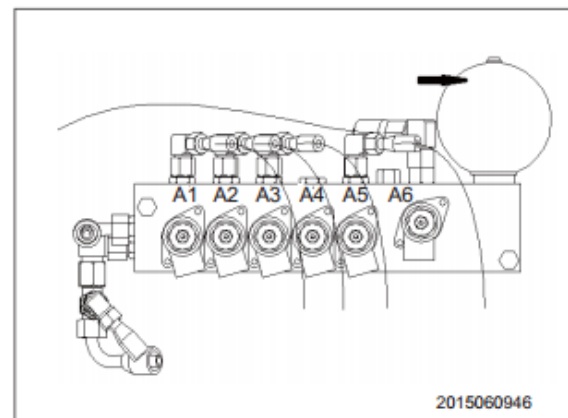


Fig. 5-120

6.2.4 Hydraulic components handling precautions

With the increase in pressure and precision of hydraulic equipment, the most common cause of failure is dirt (foreign material) in the hydraulic circuit. When adding hydraulic oil, or when disassembling or assembling hydraulic equipment, it is necessary to be particularly careful.

1. Be careful of the operating environment

Avoid adding hydraulic oil, replacing filters, or repairing the machine in rain or high winds, or places where there is a lot of dust.

2. Disassembly and maintenance work in the field

If disassembly or maintenance work is carried out on hydraulic equipment in the field, there is danger of dust entering the equipment. It is also difficult to confirm the performance after repairs, so it is desirable to use unit exchange. Disassembly and maintenance of hydraulic equipment should be carried out in a specially prepared dust-proof workshop, and the performance should be confirmed with special test equipment.

3. Do not let any dirt or dust get in during re-filling operations.

Be careful not to let any dirt or dust get in when refilling with hydraulic oil. Always keep the oil filler and the area around it clean, and also use clean pumps and oil containers. If an oil cleaning device is used, it is possible to filter out the dirt that has collected during storage, so this is an even more effective method.

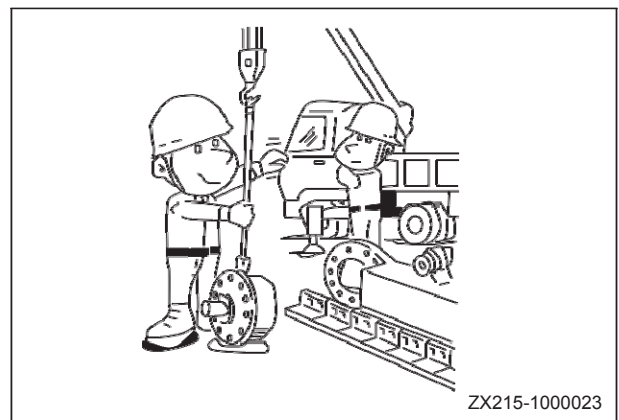


Fig. 6-1

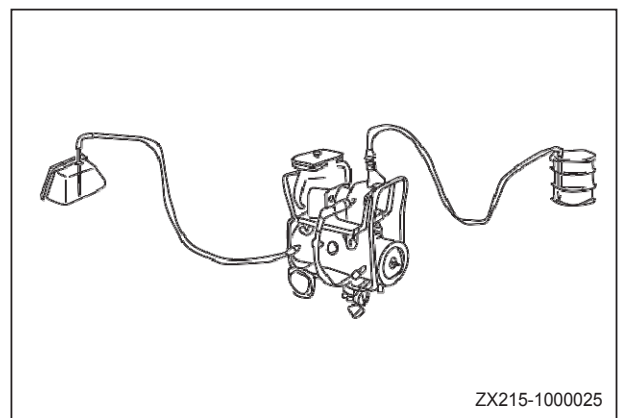


Fig. 6-2

6.3.5 When engine rotates reversely

 WARNING

- Reverse rotation of engine can burn the engine within several minutes or cause severe injury. Shut down the engine immediately once reverse rotation is found. The exhaust gas from air cleaner is possible to cause fire.
-

The following symptoms can be used to identify reverse rotation of engine.

- High colliding sound produced after starting
- Heavy smoke coming out from air cleaner
- Tachometer and oil pressure gauge giving no response
- Low oil pressure alert indicator on

Check and clean the air cleaner and intake hoses after shutting down the engine. Replace any defective air cleaner or hose immediately.

Starting engine

WARNING

- Check the machine and make sure the hydraulic lockout lever is placed in the "LOCKED" position and all the control levers are neutralized.

1. Make sure the clips are firmly connected with terminals of the battery.
2. Start the engine of the good machine and run it at high idle speed.
3. Turn the start switch of the faulty machine to "START" position and start the engine.
If the engine fails to start, wait for two minutes before attempting to restart it.

Connecting jumper cables

Turn the start switches of the normal machine and the faulty one to OFF position.

Connect the jumper cables in the numbered sequence, as shown in the diagram

1. Connect the clip of jumper cable (A) to the positive terminal (+) of battery (C) of the faulty machine.
2. Connect the clip on the other end of jumper cable (A) to the positive terminal (+) of battery (D) of the normal machine.
3. Connect the clip of jumper cable (B) to the negative terminal of battery (D) of the normal machine.
4. Connect the clip on the other end of jumper cable (B) to the swivel frame (E) of the faulty machine.

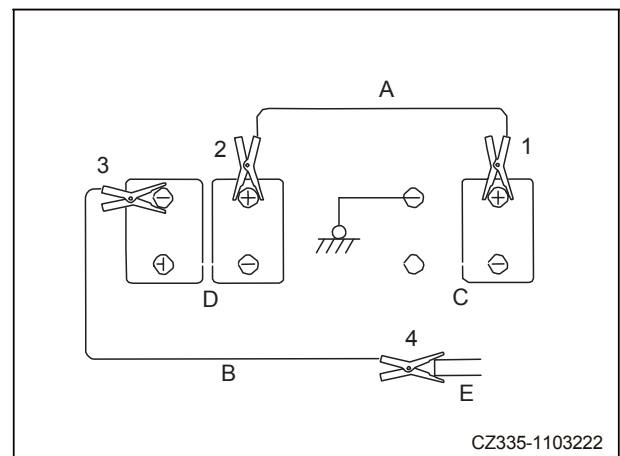


Fig. 6-23

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