ORIGINAL INSTRUCTIONS *- according to Directive 2006/42/EC, Annex I, 1.7.4.1*

CX245D SR

Crawler Excavator

OPERATOR'S MANUAL

Part number 51417196
1st edition English
November 2017

CASE CONSTRUCTION

Manual scope and required training level

Introduction to this manual

This manual gives information about the use of your CASE CONSTRUCTION machine as intended and under the conditions foreseen by CASE CONSTRUCTION during normal operation, routine service, and maintenance.

This manual does not contain all the information that relates to periodic service, conversions, and repairs that only trained service personnel can perform. Some of these activities may require appropriate facilities, technical skills, and/or tools that CASE CONSTRUCTION does not supply with the machine.

The manual contains the chapters as shown on the Contents pages. See the Index at the end of this manual to locate specific items about your CASE CONSTRUCTION machine.

Normal operation

Normal operation consists of the use of this machine for the purpose CASE CONSTRUCTION intends by an operator that:

- Is familiar with the machine and any mounted equipment or towed equipment
- Complies with the information on operation and safe practices as specified by CASE CONSTRUCTION in this manual and by the signs on the machine

Normal operation includes:

- Preparation and storage of the machine
- Addition and removal of ballast
- Connection and disconnection of mounted equipment and/or towed equipment
- Adjustment and configuration of the machine and equipment for the specific conditions of the job site, field, and/or crop
- Movement of components into and out of working positions

Routine service and maintenance

Routine service and maintenance consists of the daily activities necessary to maintain the proper machine function. The operator must:

- Be familiar with the machine characteristics
- Comply with the information on routine service and safe practices as specified by CASE CONSTRUCTION in this manual and by the signs on the machine

Routine service can include:

- Fueling
- Cleaning
- Washing
- Topping up fluid levels
- Greasing
- Replacing consumable items such as light bulbs

Periodic service, conversions, and repairs

Periodic service consists of activities that are necessary to maintain the expected life of the CASE CONSTRUCTION machine. These activities have defined intervals.

Trained service personnel familiar with the machine characteristics must perform these activities at the defined intervals. Trained service personnel must comply with the information on periodic service and safe practices as partly specified by CASE CONSTRUCTION in this manual and/or other company literature.

Periodic service includes:

- Oil change service for the engine, hydraulic circuits, or transmission
- Periodic exchange of other substances or components as required

Conversion activities rebuild the CASE CONSTRUCTION machine in a configuration that is appropriate for a specific job site, crop, and/or soil conditions (e.g., installation of dual wheels). Conversion activities must be done:

- By trained service personnel familiar with the machine characteristics
- By trained service personnel that comply with the information on conversion as partly specified by CASE CONSTRUCTION in this manual, assembly instructions, and/or other company literature

Repair activities restore proper function to a CASE CONSTRUCTION machine after a failure or degradation of performance. Dismantling activities occur during the scrapping and/or dismantling of the machine.

Trained service personnel familiar with the machine characteristics must perform these activities. Trained service personnel must comply with the information for repair as specified by CASE CONSTRUCTION in the service manual.

Before you operate

Read this manual before you start the engine or operate this CASE CONSTRUCTION machine. Contact your CASE CONSTRUCTION dealer if:

- You do not understand any information in this manual
- You need more information
- You need assistance

EC Declaration of Conformity

NOTE: *An original of this EC declaration is supplied with each machine and must be kept carefully by the owner.*

NOTE: *The official documents supplied with the machine must be kept by the owner so as to be able to present them to any inspecting authority which may request them.*

On the following page is provided copy of the EC Declaration of Conformity (EC Declaration of Conformity). The EC Declaration of Conformity is the manufacturer's declaration about equipment compliance to relevant EU provisions. Please keep the original document in a safe place. Local authorities may require you to show this document in order to assure compliance of your equipment.

Translation of this declaration in your own country language is provided on the reverse page of the original document. For your better and easier understanding of the document hereafter you'll find some explanatory notes.

1. Under section 1.2 of this copy, are listed those options or variants which have safety related functions. Some of them are standard provided, like FOPS (Falling Objects Protective Structure) or ROPS (Roll Over Protective Structure). Others, like object handling kit required to lift loose objects, are available upon customer request.
2. Under point 2 of this copy, are listed all information required by EU "Outdoor Noise" Directive **2000/14/EC**. Please refer your own original EC Declaration of Conformity for specific equipment information. On the same page are indicated information about operators station noise level (LpA) which is not matter of above mentioned EU Directive and therefore not indicated on it.
3. Generic serial number for this equipment type. Sequence of letters and numbers may vary depending on equipment configuration.
4. EC Declaration of Conformity serial number. Please make reference to this number when requiring information or support to CASE CONSTRUCTION about EC Declaration of Conformity.
5. Signature of a person authorised to sign the document on behalf of the company.

⚠ Do Not Operate tag ⚠

Before you start servicing the machine, attach a 'Do Not Operate' warning tag to the machine in an area that will be visible.

⚠ Hazardous chemicals ⚠

If you are exposed to or come in contact with hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolant, etc. required for the function of your machine can be hazardous. They may be attractive and harmful to domestic animals as well as humans.

Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product, safe handling and storage procedures, first aid measures, and procedures to take in the event of a spill or accidental release. MSDS are available from your dealer.

Before you service your machine check the MSDS for each lubricant, fluid, etc. used in this machine. This information indicates the associated risks and will help you service the machine safely. Follow the information in the MSDS, and on manufacturer containers, as well as the information in this manual, when you service the machine.

Dispose of all fluids, filters, and containers in an environmentally safe manner according to local laws and regulations. Check with local environmental and recycling centers or your dealer for correct disposal information.

Store fluids and filters in accordance with local laws and regulations. Use only appropriate containers for the storage of chemicals or petrochemical substances.

Keep out of reach or children or other unauthorized persons.

Applied chemicals require additional precautions. Obtain complete information from the manufacturer or distributor of the chemicals before you use them.

⚠ Utility safety ⚠

When digging or using ground-engaging equipment, be aware of buried cables and other services. Contact your local utilities or authorities, as appropriate, to determine the locations of services.

Make sure that the machine has sufficient clearance to pass in all directions. Pay special attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety. Contact local authorities or utilities to obtain safe clearance distances from high voltage power lines.

Retract raised or extended components, if necessary. Remove or lower radio antennas or other accessories. Should a contact between the machine and an electric power source occur, the following precautions must be taken:

- Stop the machine movement immediately.
- Apply the parking brake, stop the engine, and remove the key.
- Check if you can safely leave the cab or your actual position without contact with electrical wires. If not, stay in your position and call for help. If you can leave your position without touching lines, jump clear of the machine to make sure that you do not make contact with the ground and the machine at the same time.
- Do not permit anyone to touch the machine until power has been shut off to the power lines.

⚠ Electrical storm safety ⚠

Do not operate machine during an electrical storm.

If you are on the ground during an electrical storm, stay away from machinery and equipment. Seek shelter in a permanent, protected structure.

If an electrical storm should strike during operation, remain in the cab. Do not leave the cab or operator's platform. Do not make contact with the ground or objects outside the machine.

⚠ Mounting and dismounting ⚠

Mount and dismount the machine only at designated locations that have handholds, steps, and/or or ladders.

Do not jump off of the machine.

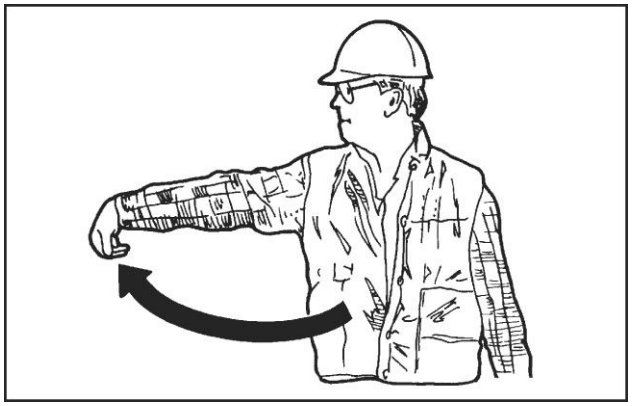
Make sure that steps, ladders, and platforms remain clean and clear of debris and foreign substances. Injury may result from slippery surfaces.

Face the machine when you mount and dismount the machine.

Retract dipper

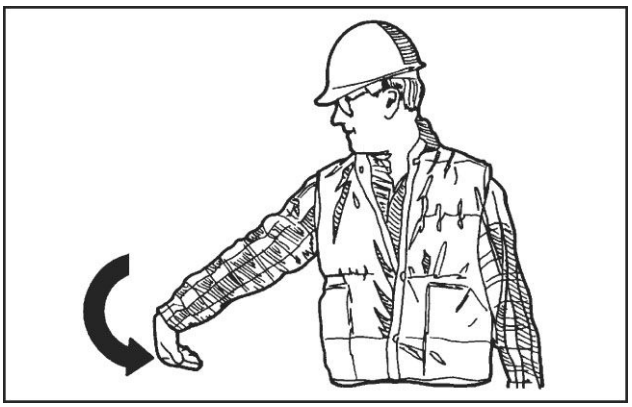
PDE0011ATBP1 19

Extend dipper



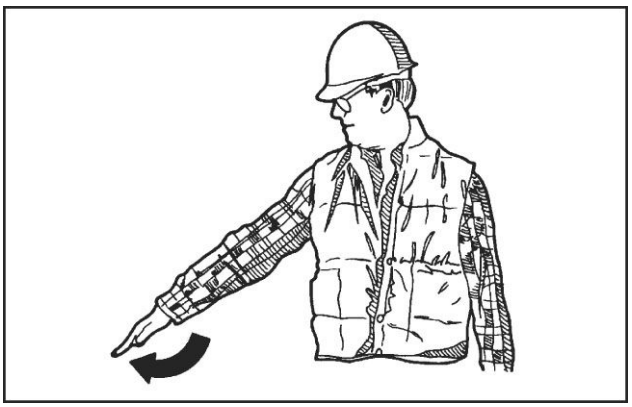
PDE0011TBP1 20

Fill tool



PDE0012ATBP1 21

Empty tool

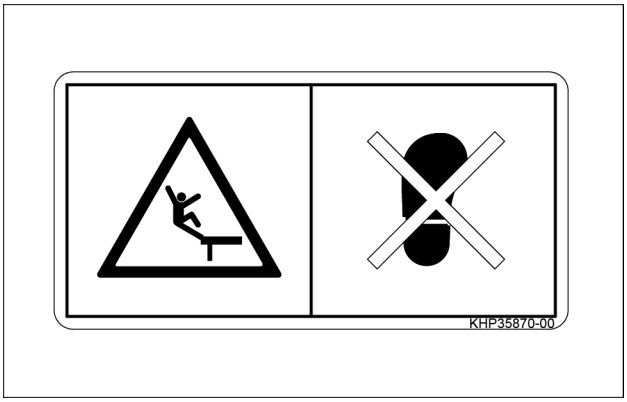


PDE0012TBP1 22

(9) Engine hood

Part number: KHP35870

Do not step over platforms that are not guarded by handrails in order to avoid the risk of falling.



KHP35870 18

(10) Warning decal of high pressure common rail and engine start-up

Part number: KHP25860

Common rail injection system contains fuel under extreme pressure that can cause fatal injuries. Do not open the common rail pump, or loosen the common rail high pressure lines, or touch any other component of the common rail injection system. Consult the CASE CONSTRUCTION dealer for service.

Do not try to start the engine by auxiliary tools. Machine may start to move suddenly and unintendedly causing serious injuries to the operator and to the bystanders.

SMIL14CEX1636AB 19

(11) Check valve

Part number: KHP35930

Track tensioning cylinder contains pressurized fluid.

During maintenance of the track tensioning cylinder, fluid may spray out from the check valve on the tensioning cylinder and can cause serious injuries.

Always make sure to read operator's manual to understand proper practices and precautions to be tackled for maintenance of the track tensioning system.

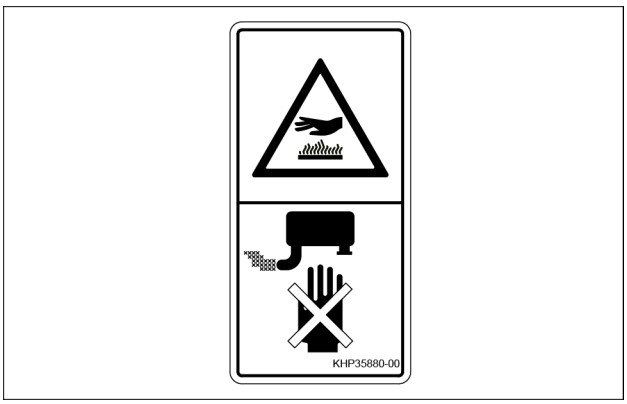
KHP35930 20

(12) Muffler

Part number: KHP35880

Do not touch the muffler right after engine stop.

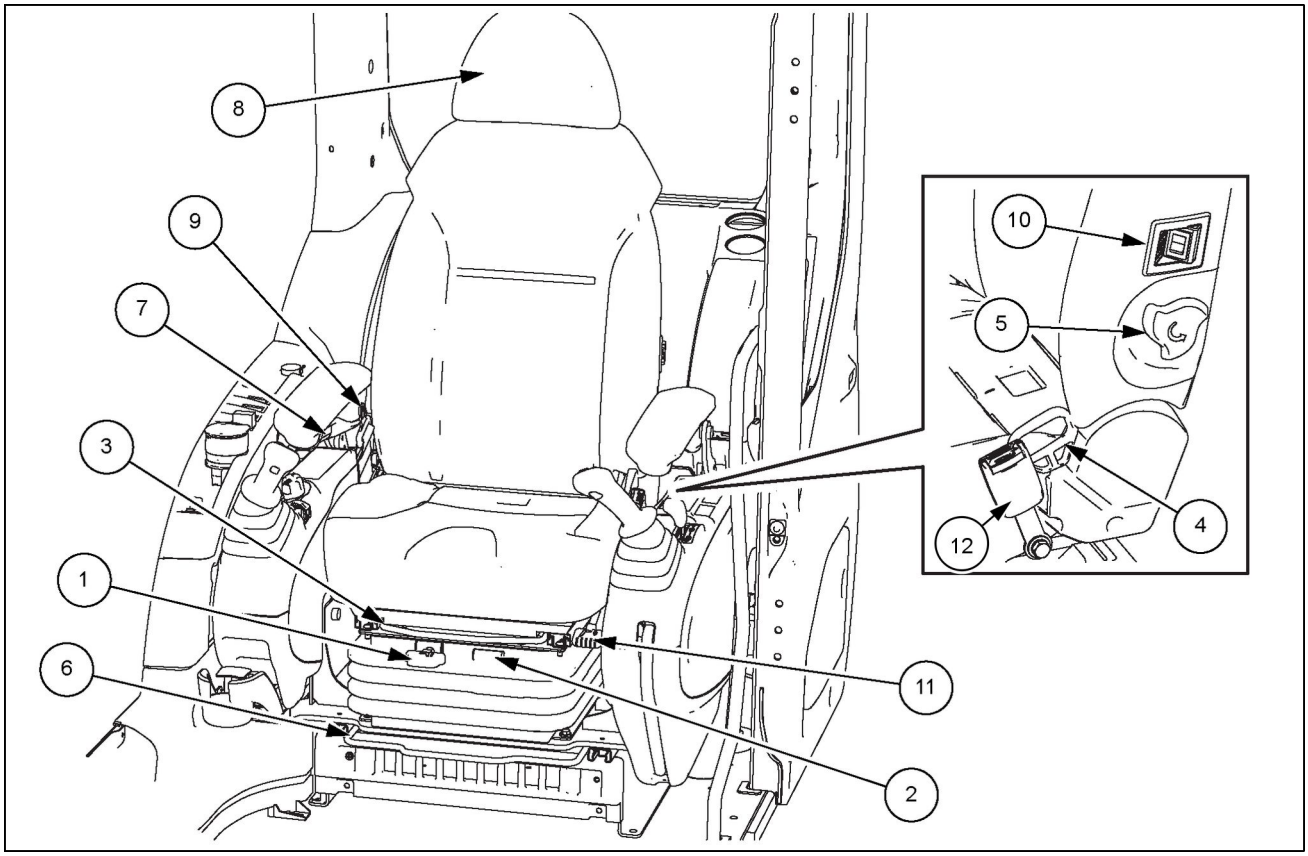
Muffler surface is hot and touching it can cause serious injuries.



KHP35880 21

Operator's seat

Operator's seat



SMIL14CEX1654FB 1

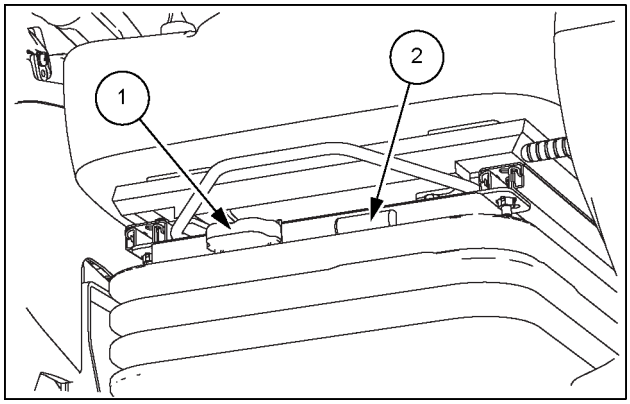
1. Combined height and weight adjustment
2. Weight adjustment indicator
3. Fore and aft adjustment
4. Seat back angle adjustment
5. Lumbar support adjustment
6. Seat and control arm assembly fore and aft adjustment
7. Armrest angle adjustment
8. Headrest adjustment
9. Seat belt
10. Seat heater (optional)
11. Seat angle adjustment (optional)
12. Seat belt buckle

In order to operate the machine correctly and with maximum efficiency and comfort, adjust the seat to suit the weight and size of the operator.

Combined height and weight adjustment

- Lower the handle **(1)** to decrease the rigidity of the suspension.
- Raise the handle **(1)** to obtain harder suspension.

NOTICE: *the indicator* ***(2)*** *must be green when the operator is sitting on the seat.*

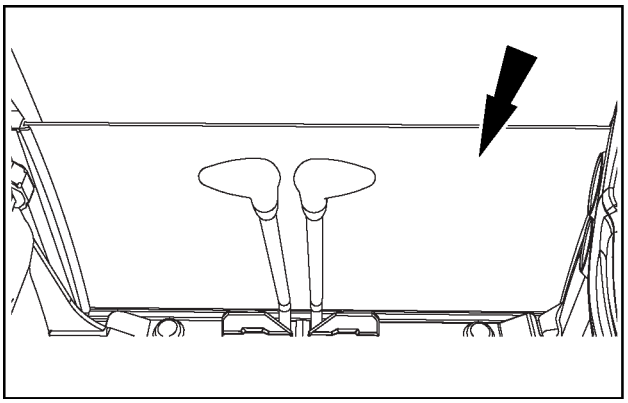


SMIL14CEX1655AB 2

Front lower window

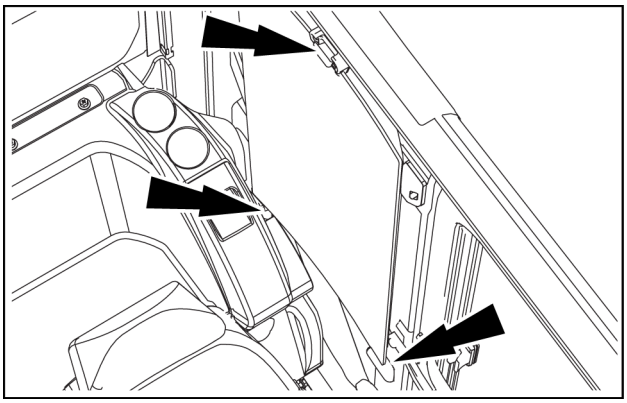
The front lower window may only be removed when the windshield is open.

1. Remove the window from its housing by sliding it upward.



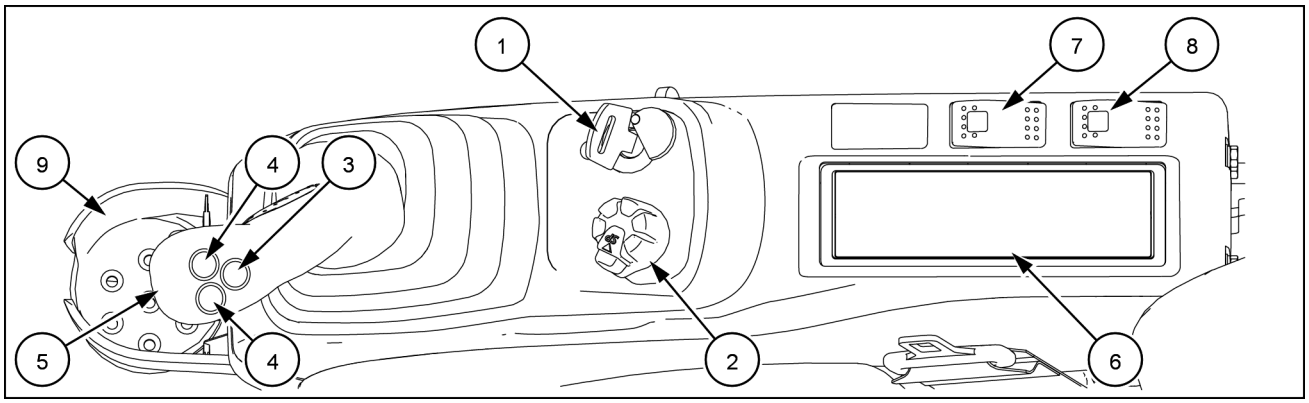
SMIL14CEX1687AA 1

2. Place the window in the storage position provided to the left of the operator's seat and then engage it correctly.



SMIL14CEX1688AA 2

Right-hand side controls



SMIL17CEX1754EA 1

(1) Starter switch (4 positions): ON (contact), START (engine ignition), OFF (engine shut-down) and ACC (accessory current supply).

NOTICE: *when the starter key is in ON position, if the anti-theft protection has been programmed, it will be necessary to enter the password. Refer to page* ***4-1****.*

NOTE: *the starter key is also used to lock the cab door, the* ***DEF/ADBLUE®*** *tank cover, the engine hood, the front storage box, the side doors and the fuel tank cap.*

(2) Engine speed throttle and work mode selector.

(3) Engine low idle speed button: the engine low idle speed button enables to set the engine speed to low idle at a touch without moving the engine speed throttle. If operating at engine speed different from low idle, press and release the engine low idle speed button to get down the engine speed to low idle. Press and release the button again to resume the engine speed set by the engine speed throttle.

(4) Not active.

(5) One-touch wiper button: press and hold down the button to operate the wiper.

(6) Radio.

(7) Rotary light switch: Press the ON side of the switch to activate the rotary light (not supplied). Press the OFF side of the switch to stop the rotary light (not supplied).

NOTE: *The machine has a specific provision to connect a* ***24 V*** *rotary light (not supplied).*

(8) Overload warning switch (optional).

NOTE: *the overload warning alarm is mainly intended for safe operation in loads handling application. Do not activate it during digging or truck loading application.*

(9) Beverage can holder.

1. Work mode icon
2. Travel mode icon
3. Attachment selection icon
4. Idle mode icon
5. Diagnostic Trouble Code
6. Fuel gauge
7. Engine coolant temperature gauge
8. Hydraulic oil temperature gauge
9. Hour meter and trip meter
10. Fuel consumption meter and fuel economy gauge
11. Date and time
12. Working lights icon
13. Wiper icon
14. Radio mute icon
15. Power boost icon, or Seat belt icon
16. Security function icon
17. Messages
18. **DEF/AdBlue®** level gauge
19. SCR detection icon
20. **DEF/AdBlue®** refill warning
21. Engine derate icon
22. Auxiliary hydraulics settings, or SCR failure warnings
23. SCR CLEANING icon
24. Engine preheating icon, or **DEF/AdBlue®** thawing icon, or cooling down icon.

NOTICE: *if a Diagnostic Trouble Code is displayed, contact the CASE CONSTRUCTION dealer.*

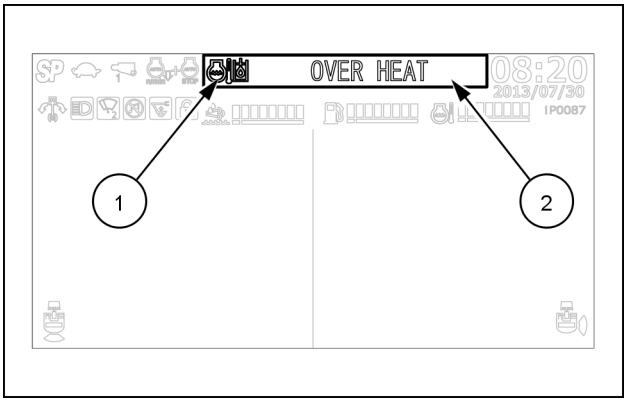
NOTE: *the messages overlap the fuel economy gauge.*

Messages

The messages on the top of the display are intended to provide significant information related to the machine operation.

A message combines an icon **(1)** and a text **(2)**. Some messages are accompanied by an alarm as they are displayed. If there are concurrent messages, they are alternatively displayed.

A message can have a red, orange or green background depending upon the type of message, according to its level of urgency and importance.



SMIL16CEX0716AA 26

Red	Warning	Warning for a failure or for a dangerous condition.
Orange	Caution	Caution for an operation.
Green	Check	Confirmation for an operation.

If a message with red or orange background appears, take an appropriate action by referring to the explanations below. If the message persists, consult the CASE CONSTRUCTION dealer.

NOTE: *The language of the messages can be changed. To change the message language, consult the CASE CONSTRUCTION dealer.*

Messages with red background

Icon and text	Explanation	Action
LOW OIL PRESSURE	LOW OIL PRESSURE: The engine oil pressure is low. The engine goes automatically to low idle.	Stop the engine, and check for oil leaks. If any leak is found, a failure in the hydraulic system can be suspected. Stop the engine, and contact the CASE CONSTRUCTION dealer immediately.
OVER HEAT	OVER HEAT: The temperature of the engine coolant or of the hydraulic oil is too high. The engine goes automatically to low idle. If the high-temperature condition is not promptly addressed, the engine automatically stops.	Let the engine run at low idle to decrease the temperature of coolant and hydraulic fluid. If the coolant level is found low, stop the engine and check for coolant leaks. If any leak is found, start the engine, and if the message persists, contact the CASE CONSTRUCTION dealer immediately.
BOOST TEMP. HIGH	BOOST TEMP HIGH: The temperature of the air flowing into the engine is abnormally high. The engine goes automatically to low idle. If the high-temperature condition is not promptly addressed, the engine automatically stops.	Let the engine run at low idle to decrease the temperature of the turbocharger. If the message persists, contact the CASE CONSTRUCTION dealer immediately.
ALTERNATOR	ALTERNATOR: The battery or the alternator have a problem.	Stop the engine, and contact the CASE CONSTRUCTION dealer immediately.
CHECK ENGINE	CHECK ENGINE: An electric part related to the engine has a problem.	Stop the engine, and contact the CASE CONSTRUCTION dealer immediately.
ELEC. PROBLEM	ELEC. PROBLEM: The electrical system has a problem.	Stop the engine, and contact the CASE CONSTRUCTION dealer immediately.

Storing radio stations

When listening to a radio station, long press one of the radio preset buttons stores it permanently. The current displayed station will be saved. A stored radio station can be recalled by short pressing one of these buttons. The stored radio station can be changed by tuning to a different station and performing a long press.

FM radio

RDS (Radio Data System) is available in many countries. If RDS broadcast is present, RDS functions such as AF and TA can be enabled or disabled in the menu. RDS is only available in FM bands.

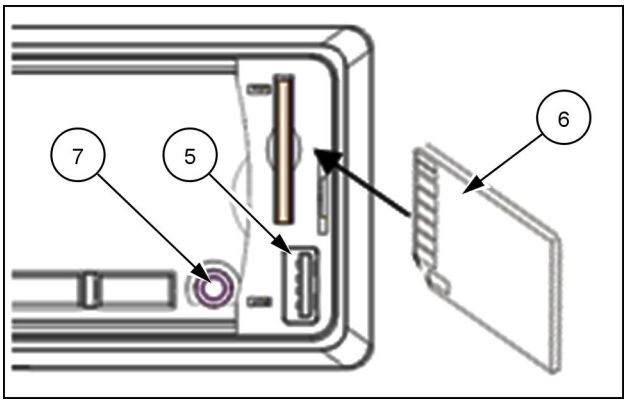
AF: Alternative Frequency

TP: Traffic Program

TA: Traffic Announcement

Playing media files

WMA and/or MP3 files containing music that have been previously stored on a USB memory stick **(5)** or an SD card **(6)** can be played on the unit by inserting into the respective slot for play back. When media is inserted the radio will auto-play from it. Use the SRC button to select one of 'radio', 'media' or 'AUX'. When both slots have media inserted in them, the radio will resume playing from the last slot that had been playing.



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Selecting audio tracks

Use the |<< and >>| buttons: short press for 'previous track' and 'next track'. "Previous track" will first go back to the beginning of the current track. Press and hold to operate "fast forward" and "rewind". When the desirable part of the audio track is reached, let go of the button to resume normal playback.

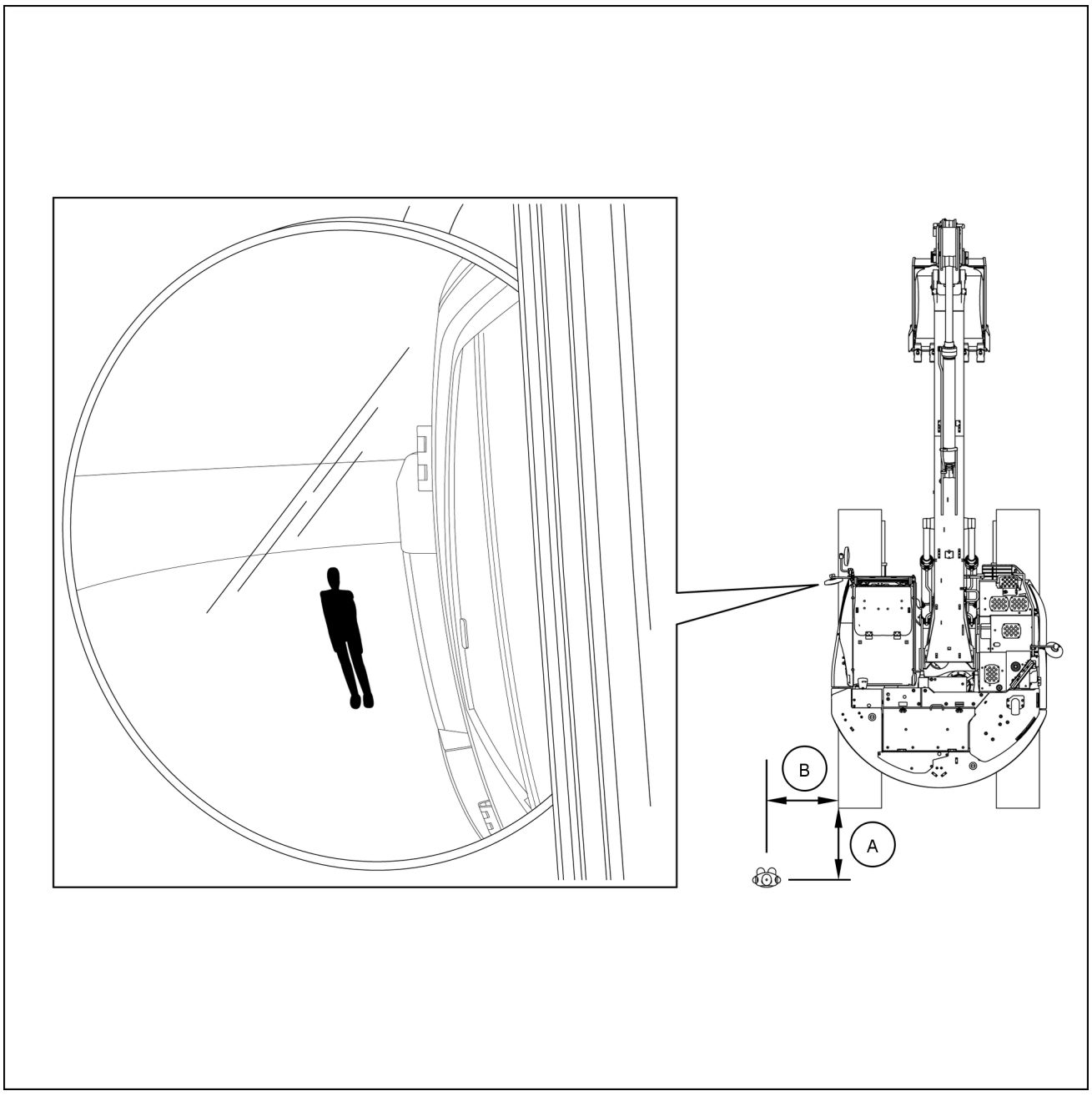
3.5 mm AUX input

On the front panel there is a stereo aux-in port **(7)** . Using a **3.5 mm** stereo plug, the headphone output of a portable media player, for example, can be played back through the loudspeakers in the vehicle.

The mirror shall be positioned according to the references shown in picture:

The side on the rear left of the machine shall be visible.

The area around a reference body positioned **1 m** (**39.4 in**) back from the edge of the left track **(A)** and **1 m** (**39.4 in**) leftward the machine **(B)** shall be visible.



SMIL17CEX0591GA 4

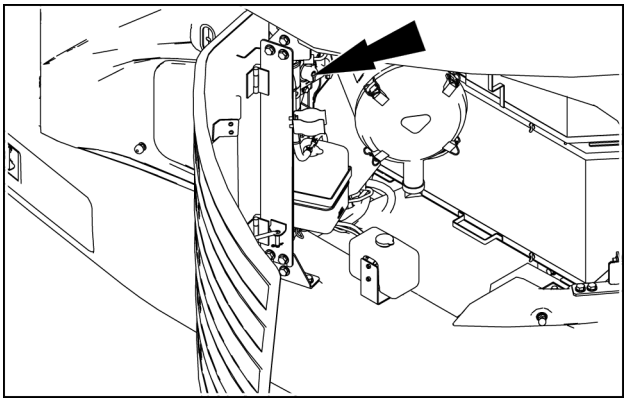
NOTICE: *After installing and positioning all the mirrors, the visibility around the machine shall be checked from the operator's seat. Set the seat into the desired position, and make sure to confirm all the reference views in the mirrors. If necessary, fine tune the positioning of the mirrors in order to ensure proper visibility around the machine.*

Battery disconnect switch

The battery disconnect switch is located near the engine air cleaner. It can thus be reached by opening the left-hand door.

The battery disconnect switch allows to cut off any power supply in the electrical system of the machine.

NOTE: *When the switch is turned to OFF position, all electrical circuits are cut off and the stations stored on the radio presets and the time set for the clock will be cleared.*



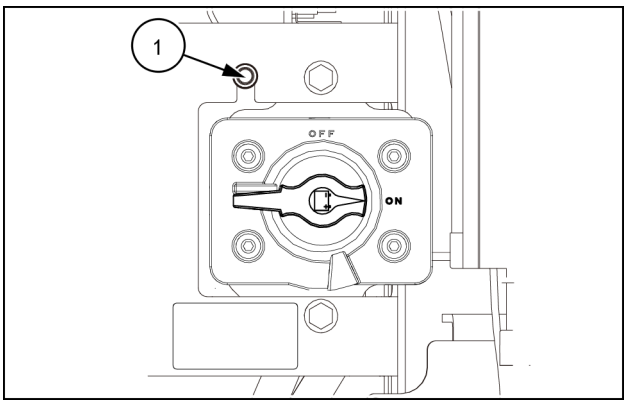
SMIL17CEX0557AA 4

The battery disconnect switch shall be in ON position for normal operation.

The battery disconnect switch shall be turned to OFF position only when taking the actions below for inspection, repair and welding:

1. Batteries removal.
2. Electrical system connectors removal.
3. Service on the electrical system.
4. Long-term storage.

NOTICE: *Never turn the battery disconnect switch to OFF position with the engine running. This could damage the electrical system.*

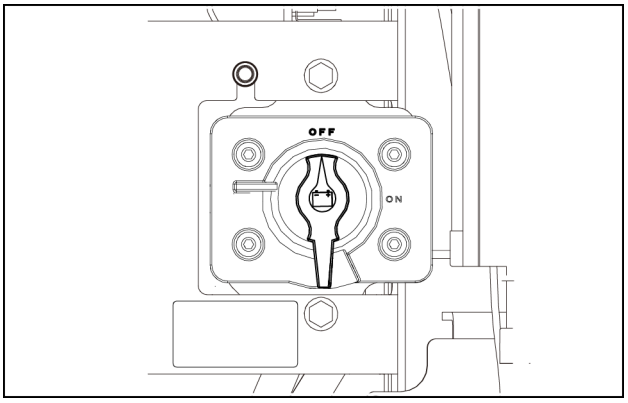


SMIL17CEX0585AA 5

The battery disconnect switch shall never be turned to OFF position within **3 min** after the engine is stopped.

NOTICE: *The SCR system continues to operate for approximately **3 min** after the starter key is turned off in order to suck **DEF/ADBLUE®** back into the tank. **DEF/ADBLUE®** expands when freezing, and it will thus damage the lines of the SCR system.*

NOTICE: *Never turn the battery disconnect switch to OFF position within **3 min** after the starter key is turned off. The machine control system and the engine control system will be damaged.*



SMIL17CEX0584AA 6

The LED indicator **(1)** above the battery disconnect switch is lit up in yellow as the main control systems are still operating after the engine stop. Never turn the battery disconnect switch to OFF position when the LED indicator **(1)** is lit up in yellow.

Follow the steps below to add **DEF/AdBlue®**:

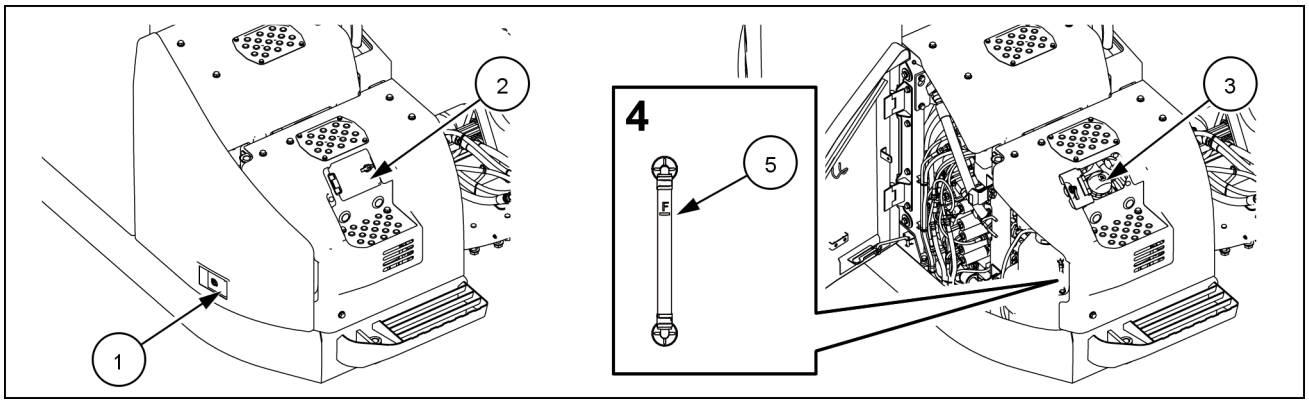
1. Turn the starter key to OFF position. Wait **3 min** for SCR system to completely suck **DEF/AdBlue®** back into the tank.
2. Unlock the right-hand door **(1)** with the starter key.
3. Unlock the **DEF/AdBlue®** tank cover **(2)** with the starter key.
4. Wipe the inlet on the **DEF/AdBlue®** tank **(3)** clean of dirt, mud, and foreign objects.

   NOTICE: *some white powder deposits may form when **DEF/AdBlue®** adheres and dries in places such as the supply inlet. Wipe off these deposits to prevent them from entering the **DEF/AdBlue®** tank.*
5. Turn the cap **(3)** counterclockwise and open the filler neck.

   NOTICE: DEF/AdBlue® *may emit an odor when the tank cap is opened. Do not attempt to smell inside the tank from the supply inlet.*
6. Refill up to the F (upper limit) mark **(5)** on the level gauge **(4)**.

   NOTICE: *never refill **DEF/AdBlue®** over the F (upper limit) mark on the level gauge. Adequate air volume must be present in the top of the tank for proper functionality of the after treatment system. Moreover, **DEF/AdBlue®** may leaks from the breather hose during use, and sensors may be damaged when it becomes frozen.*

   NOTICE: *if **DEF/AdBlue®** spills while adding, wipe off the spillage with a cloth and then rinse the area with fresh water. **DEF/AdBlue®** will cause corrosion on painted and unpainted metallic surfaces, and may distort some plastic and rubber components.*
7. Put the cap **(3)** on the filler neck. Turn the cap clockwise to close the filler neck.



SMIL17CEX0085EA 3

1. Right-hand door
2. **DEF/AdBlue®** tank cover
3. Tank cap
4. Level gauge
5. Upper limit level of **DEF/AdBlue®** to be refilled.

If any of the following occurs within **40 h** after **DEF/AdBlue®** replacement, or after completion of SCR system repair:

The quality of **DEF/AdBlue®** is abnormal and the detection lasts for **10 s**.

An SCR system abnormality is detected and the detection lasts for **10 h**.

The machine control system immediately resumes the inducement sequence to the step **(C)**.

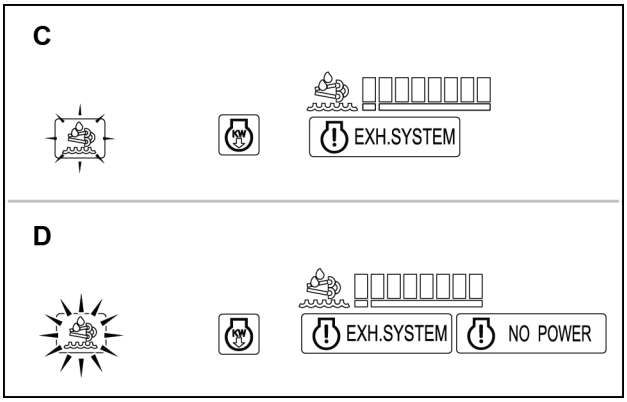
(C) DEF/AdBlue® bad quality, or SCR problem.

SCR detection icon slow flashing.
CHECK SCR SYSTEM displayed.
Three short beeps.

(D) After **30 min** with no action taken.

SCR detection icon fast flashing.
CHECK SCR SYSTEM CHECK ENGINE displayed.
Continuous beep.

At the step **(D)**, the operation of the machine shall be stopped. Reach a safe condition for the machine, and immediately call the CASE CONSTRUCTION dealer for inspection and repair of the SCR system, and for replacement of the fluid into the **DEF/AdBlue®** tank with the proper one.



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Digging and loading operations

Use the H work mode for general digging and truck loading operations.

Use the SP work mode for heavy digging operation.

Filling

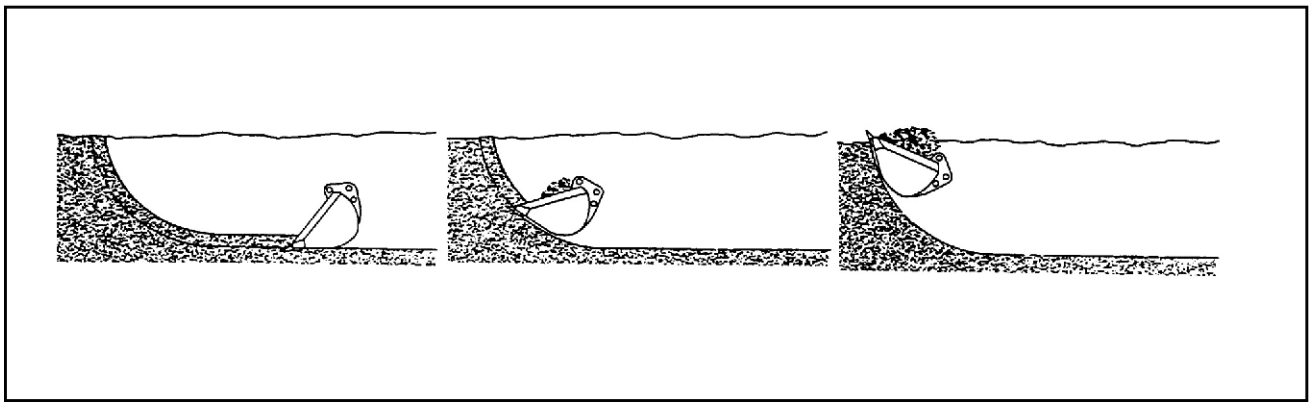
Fill the bucket by manoeuvring the arm.

Keep the bottom of the bucket parallel to the cut.

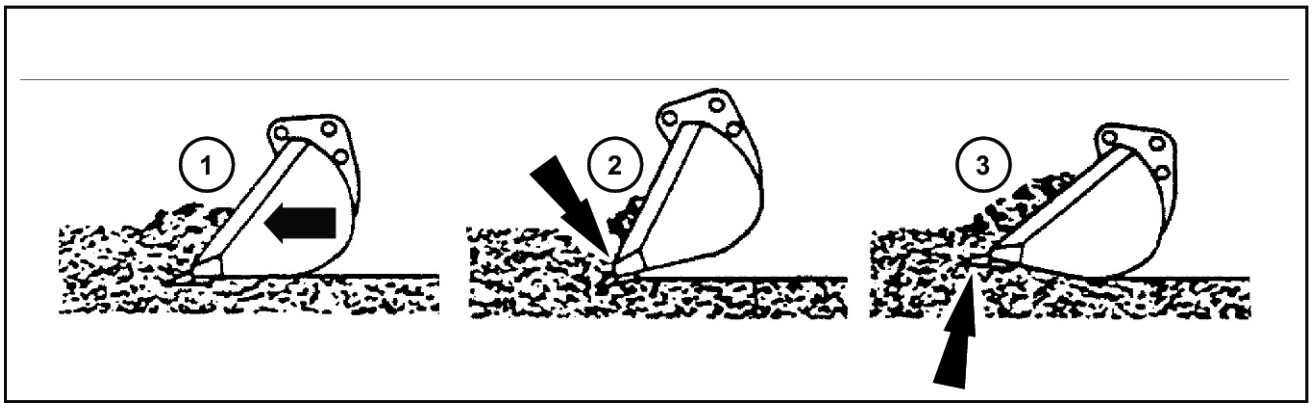
The bucket teeth and blade must cut the ground like the blade of a knife.

The depth of dig varies depending on the type of material.

Excavating method



SMIL13CEX2693EA 2



SMIL13CEX2694EB 3

1. Correct
2. Incorrect. The bucket will dig in and cause a stall.
3. Incorrect. The bucket is pushed upwards. This will also increase the cycle time.

Parking the unit

Parking the machine

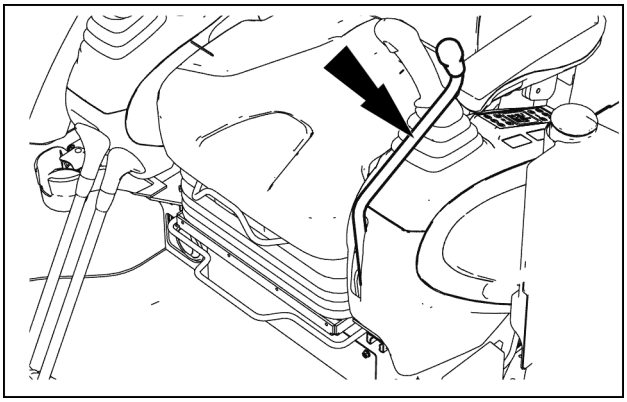
⚠ WARNING

Fall hazard!
Jumping on or off the machine could cause an injury. Always face the machine, use the handrails and steps, and get on or off slowly. Maintain a three-point contact to avoid falling: both hands on the handrails and one foot on the step, or one hand on the handrail and both feet on the steps.
Failure to comply could result in death or serious injury.

W0141A

1. Park the machine on flat and level area away from soft ground, dug holes and ground cavity without solid support.
2. Orient the upper structure frame parallel to the undercarriage, retract the attachment and touch the bucket to ground to firmly secure the machine.

   NOTE: *For machine in BLADE version, make sure to lower the blade to the ground.*
3. Set the gate lock lever to lock position.



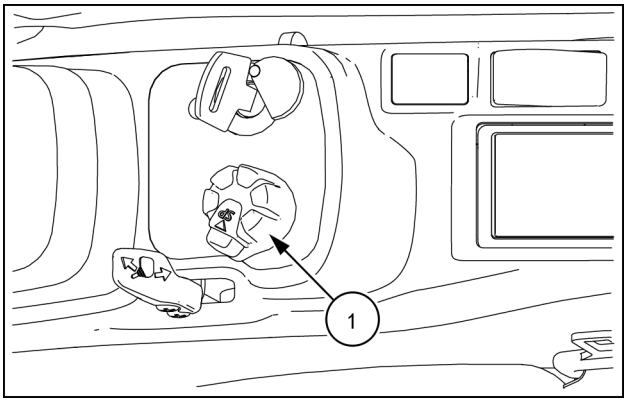
SMIL17CEX0198AA 1

4. Turn the engine throttle **(1)** to low idle position.
5. Wait for the green cooling down icon to appear.

   The engine has cooled down and can be stopped.

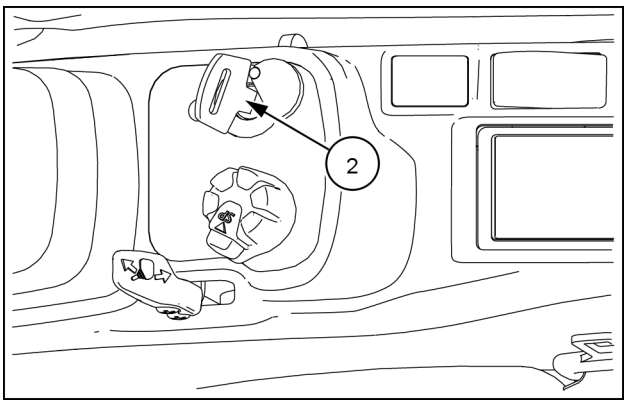
   NOTICE: *If the engine is stopped before the icon appears, the lubricated section on the turbocharger gets dried from the high heat, leading to a turbocharger failure.*



SMIL15CEXY892AB 2

6. Turn the starter key **(2)** to OFF position.

   NOTE: *If the security function is set up, the option for activating the security function is displayed.*



SMIL15CEXY892AB 3

Shipping transport

Lifting the machine with a crane

⚠ WARNING

Improper operation or service of this machine can result in an accident.
Assign a supervisor to direct worksite operations. Agree on all safety measures, procedures, and suitable hand signals.
Failure to comply could result in death or serious injury.

W0287A

⚠ WARNING

Crushing hazard!
The lifting systems must be operated by qualified personnel who are aware of the correct procedures to follow. Make sure all lifting equipment is in good condition, and all hooks are equipped with safety latches.
Failure to comply could result in death or serious injury.

W0256A

⚠ WARNING

Hazard to bystanders!
ALWAYS make sure the work area is clear of bystanders and domestic animals before starting this procedure. Know the full area of movement of the machine. Do not permit anyone to enter the area of movement during this procedure.
Failure to comply could result in death or serious injury.

W0245A

Preparation before lifting the machine

Always lift the machine with the complete front equipment (boom and arm) installed, and fitted with an average size bucket. Never lift the machine fitted with heavy attachments as hydraulic breakers or hydraulic crushers.

NOTICE: *if the machine has to be lifted without the complete front equipment (boom and arm), the counterweight shall be removed from the base machine. Lifting up the base machine with the counterweight installed affects the stability of the base machine during lifting operation.*

Make provision for wire ropes and other lifting devices of proper capacity in order to tackle the machine weight. Refer to Chapter 8 for the machine weights, and always consider **120%** of these reference weights for the selection of the lifting devices.

Refer to the picture on the next page for layout and sizing of the wire ropes and of the other lifting devices to be used. Always make sure to check the machine stability before carrying out the lifting operation.

NOTICE: *As reference guideline, each one of the angles A and B between the wire ropes and the middle of the expander should be preliminary assumed at* ***15°*** *. However, these values shall be checked and thus calibrated to tackle the actual machine configuration. The overall angle A+B shall be anyway kept at* ***30 – 35°****.*

NOTICE: *For lifting of CX245D with blade, it is recommended to position the machine as for road transport, with the blade and the front equipment opposite to each other.*

Make provision for wire ropes and other lifting devices fitted with selflocking hooks in order to avoid unintended opening during lift operation.

Make provision for wire ropes of sufficient length and expander of proper size to prevent interference with the machine body when lifting up the machine. Cover the wire ropes with paddings where they get in contact with the machine frames in order to protect the machine from damaging.

Engine coolant

CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT is the reference genuine product for machine service.

NOTICE: *Never add Supplemental Coolant Additives (SCA) when using* ***CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT****.*

CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT has to be used if refilling of the cooling system is needed. Refer to the dedicated procedure and recommendations described in Chapter 6.

CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT shall be used for the replacement of engine coolant according to the maintenance program of the machine. The replacement shall also be tackled in case of repair or replacement of components of the cooling system. Refer to the dedicated procedure described in Chapter 6.

The engine cooling system shall always be refilled with coolant solution made by mixture of antifreeze and distilled (deionized) water.

NOTICE: *Never refill the cooling system with only antifreeze. Never refill the cooling system with only water.*

Using **CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT**, a 50/50 mixture of antifreeze and distilled (deionized) water grants proper performance of the engine cooling system in the above mentioned operating temperature range of the machine.

CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT is available as:

- 50/50 PREMIXED coolant solution ready for usage.
- CONCENTRATE antifreeze to be mixed 50/50 with distilled (deionized) water.

NOTICE: *If operating in extreme winter climate, a coolant solution made by 60/40 antifreeze/distilled (deionized) water mixture shall be used in order to grant proper performance of the engine cooling system.*

NOTICE: *Never use coolant solution with more than* ***60%*** *of antifreeze. This affects the cooling capacity of the mixture.*

When the coolant solution is prepared starting from the CONCENTRATE product, the antifreeze concentration in the mixture of antifreeze and distilled (deionized) water can be determined with a refractometer designed to measure ethylene glycol content.

If distilled (deionized) water is not available, use water for dilution with the following properties:

Property	Maximum limit
Total Solids	**340 ppm**
Total Hardness	**340 ppm**
Chloride (Cl)	**340 ppm**
Sulfate (SO4)	**100 ppm**
Acidity pH	5.5 to 9.0

NOTICE: *Never use hard water, sea water and softened sea water that has been conditioned with salt. The minerals and salts present in potable water can cause corrosion and deposits resulting in shortened engine life.*

Every 10 hours

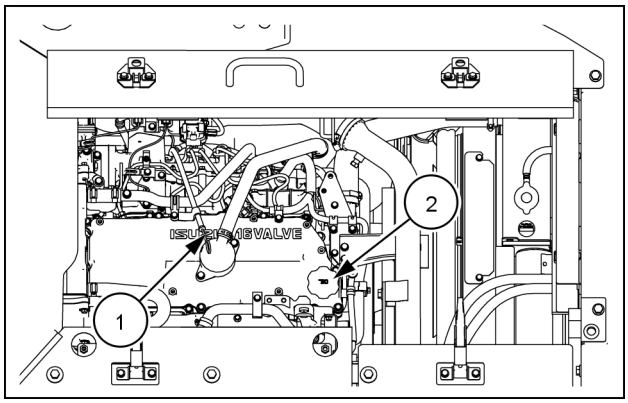
Engine oil level

Check the engine oil level every **10 h** or every day
Lubricant: **CASE AKCELA UNITEK 10W-40**

1. Park the machine on a flat and level place. Stop the engine, and remove the starter key.
2. After stopping the engine for **30 min** or more, raise and fix the engine hood.

   Remove the oil gauge **(1)**, and wipe oil off the gauge with a clean cloth.

   Reinsert the oil gauge into the guide tube as far as it will go, and then take it out.

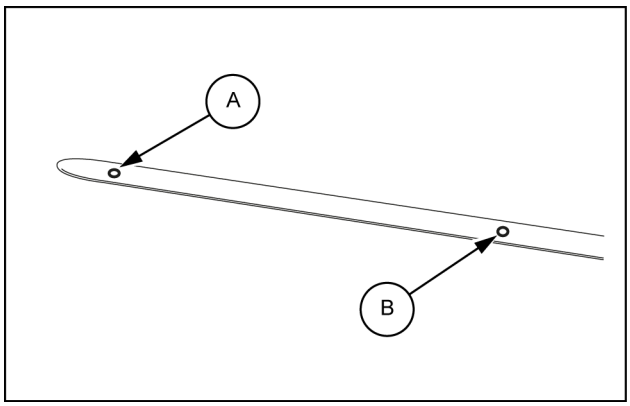


SMIL17CEX0116AA 1

3. The engine oil level is optimal when the oil level is between the mark **(A)** (minimum) and mark **(B)** (maximum).
4. If the oil level is at or below the mark **(A)** (minimum) on the oil gauge, remove the fill plug **(2)** and pour in oil until the level reaches the mark **(B)** (maximum).

NOTE: *Make sure that the oil level is not above the* ***(B)*** *(maximum) on the oil gauge. Doing so will cause such problems as poor fuel economy and an abnormal rise in coolant temperature.*

5. Install the fill plug **(2)**.



SMIL14CEX2746AB 2

Swing reduction unit oil

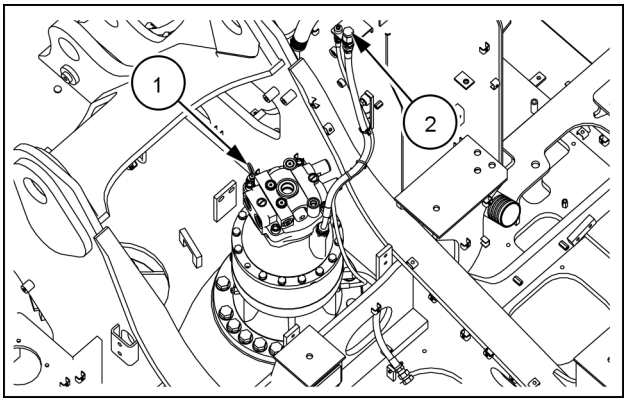
⚠ WARNING

Hot surface possible!
Wait for all components to cool before performing any operation.
Failure to comply could result in death or serious injury.

W0251A

Check the swing reduction gear oil level every **250 h**.
Lubricant: **CASE AKCELA GEAR 135 H EP 80W-90**

1. Park the machine on a flat and level place. Stop the engine, and remove the starter key.
2. Remove the oil gauge **(1)**, clean it with a neat cloth, and check the oil level. Oil needs to reach the hatched area.
   If necessary, supply oil via the fill port **(2)**, and check the oil level again.
3. Attach the oil gauge **(1)**.



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Tightening torques

Check the tightening torques every **250 h** (after the first **50 h** during the run-in period).

NOTICE: *At the end of each working day, check all mounting nuts and screws for tightness and tighten if necessary. Make sure no hardware items are missing. Replace them, if necessary.*

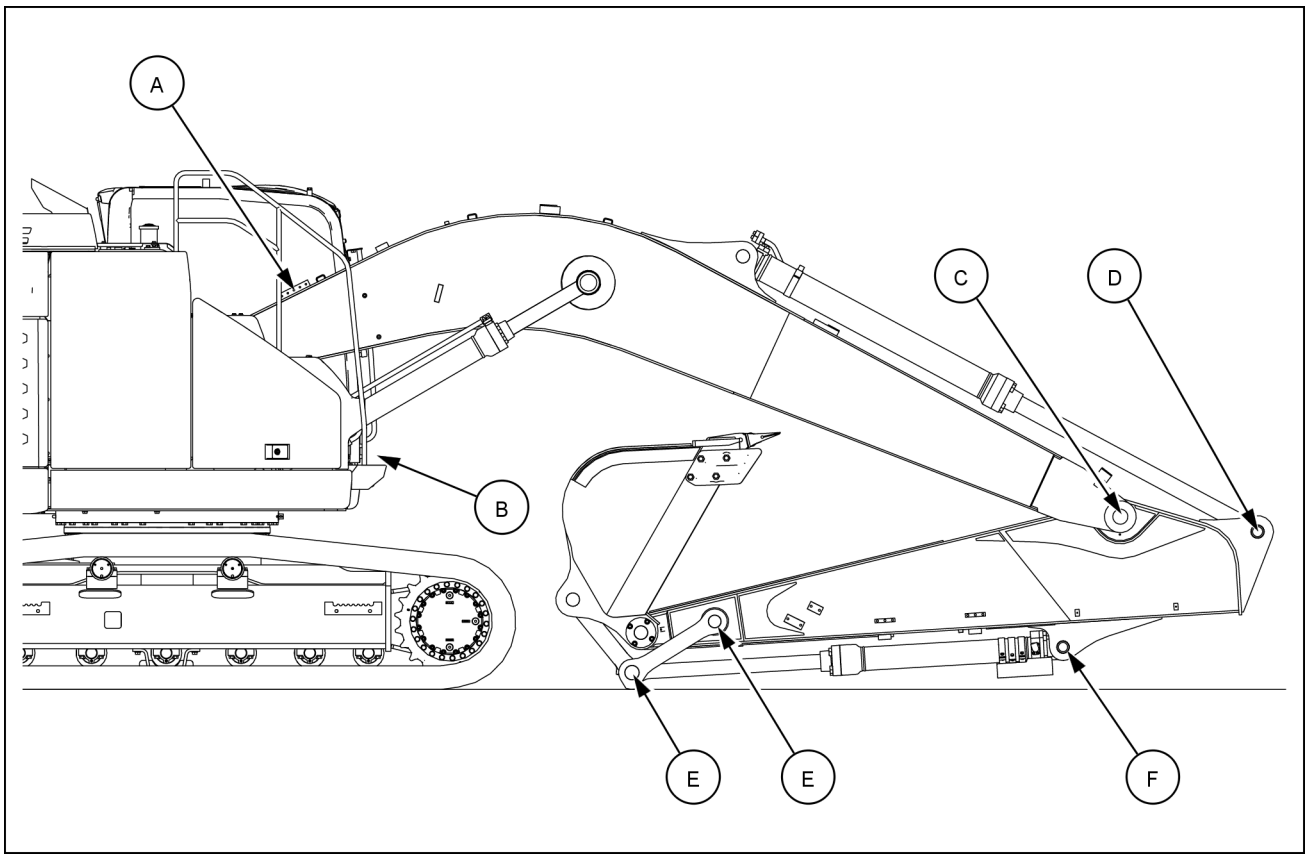
Component	Screw	Wrench	Torque setting
Travel reduction gears (*)	M16	**24 mm**	**267 – 312 N·m** (**197 – 230 lb ft**)
Drive sprocket (*)	M16	**24 mm**	**267 – 312 N·m** (**197 – 230 lb ft**)
Idler wheel (*)	M16	**24 mm**	**267 – 312 N·m** (**197 – 230 lb ft**)
Upper roller (*)	M20	**30 mm**	**521 – 608 N·m** (**384 – 448 lb ft**)
Lower roller (*)	M18	**27 mm**	**371 – 432 N·m** (**274 – 319 lb ft**)
Chain guide (*)	M18	**27 mm**	**400 – 462 N·m** (**295 – 341 lb ft**)
Counterweight	M33	**50 mm**	**1670 – 1860 N·m** (**1232 – 1372 lb ft**)
Turntable (lower frame)	M20	**30 mm**	**468 – 545 N·m** (**345 – 402 lb ft**)
Turntable (swing frame)	M20	**30 mm**	**518 – 590 N·m** (**382 – 435 lb ft**)
Swing reduction gear (*)	M20	**30 mm**	**540 – 630 N·m** (**398 – 465 lb ft**)
Front engine mount (*)	M16	**24 mm**	**265 – 314 N·m** (**195 – 232 lb ft**)
Rear engine mount (*)	M16	**24 mm**	**265 – 314 N·m** (**195 – 232 lb ft**)
Engine front bracket (*)	M10	**17 mm**	**63 – 73 N·m** (**46 – 54 lb ft**)
Engine rear bracket (*)	M16	**24 mm**	**205 – 247 N·m** (**151 – 182 lb ft**)
Radiator	M16	**24 mm**	**147 – 176 N·m** (**108 – 130 lb ft**)
Hydraulic pump flange (*)	M10	**17 mm**	**63 – 72 N·m** (**46 – 53 lb ft**)
Hydraulic pump (*)	M20	Hexagon wrench	**367 – 496 N·m** (**271 – 366 lb ft**)
Hydraulic tank (*)	M16	**24 mm**	**232 – 276 N·m** (**171 – 204 lb ft**)
Fuel tank (*)	M16	**24 mm**	**232 – 276 N·m** (**171 – 204 lb ft**)
DEF/ADBLUE® tank (*)	M16	**24 mm**	**226 – 265 N·m** (**167 – 195 lb ft**)
Center joint (*) (lower frame)	M12	**19 mm**	**109 – 127 N·m** (**80 – 94 lb ft**)
Center joint (*) (swing frame)	M12	**19 mm**	**88 – 107 N·m** (**65 – 79 lb ft**)
Control valve (*)	M16	**24 mm**	**267 – 312 N·m** (**197 – 230 lb ft**)
Cab	M16	**24 mm**	**149 – 173 N·m** (**110 – 128 lb ft**)
Battery	M10	**17 mm**	**19 – 29 N·m** (**14 – 21 lb ft**)

NOTE: *On the screws with mark (*), use **LOCTITE® 262™** or its equivalent.*

Every 1000 hours

Grease points (Boom and arm)

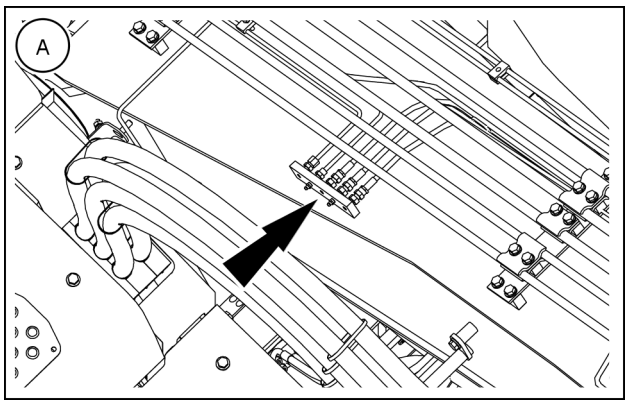
Grease the boom and arm every **1000 h**.
Lubricant: **CASE AKCELA 251H EP MULTI-PURPOSE GREASE**



SMIL17CEX0096FA 1

NOTE: *the boom and the arm shall be lubricated every* ***50 h*** *if non-genuine grease is used.*

Boom bottom pin: two grease fittings.
Boom cylinder top pin: two grease fittings.
Arm cylinder bottom pin: one grease fitting.



SMIL17CEX0097AA 2

Swing reduction unit oil

⚠ WARNING

Hot surface possible!
Wait for all components to cool before performing any operation.
Failure to comply could result in death or serious injury.

W0251A

Replace the swing reduction unit oil every **1000 h** (After **250 h** of operation in run-in period).
Lubricant: **CASE AKCELA GEAR 135 H EP 80W-90**.
Quantity: **5 L** (**1.3 US gal**).

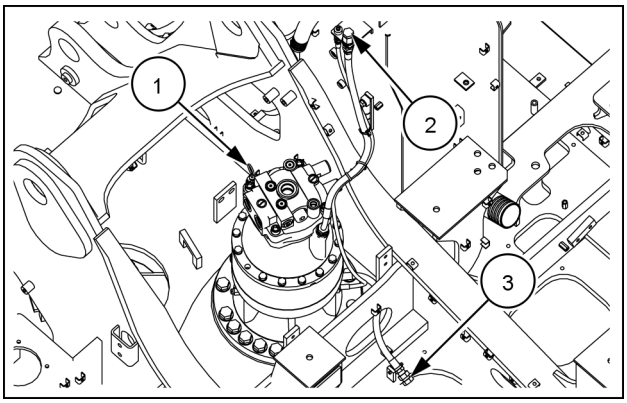
1. Park the machine on a flat and level place. Stop the engine, and remove the starter key.
2. Remove the oil gauge **(1)** and the fill plug **(2)**. Clean the oil gauge with a neat cloth.
3. Place a container with an appropriate capacity under the upper structure frame, remove the oil drain plug **(3)** to drain oil.

NOTE: *Draining oil requires a comparatively long time.*

NOTE: *Check the condition of the drained oil. If foreign objects, such as metal scrapings, are included, consult the CASE CONSTRUCTION dealer.*

4. Attach the drain plug **(3)**.
5. Supply oil via the fill port **(2)**.
6. Attach the oil gauge **(1)** and check that the oil level is in the hatched area.
7. Wait for **10 min** and check the oil level again. If necessary, supply additional oil via the fill port **(2)**.

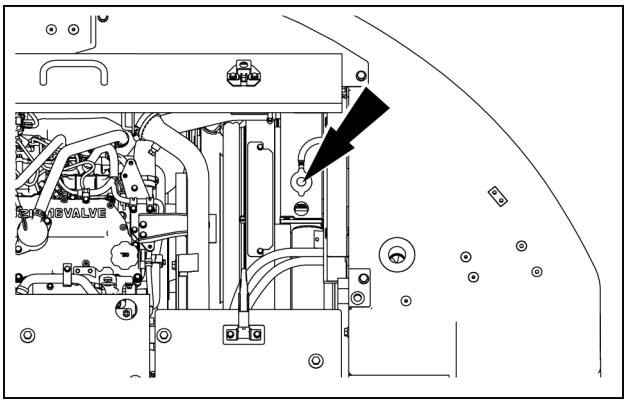
   Attach the fill plug **(2)**.



SMIL17CEX0103AA 1

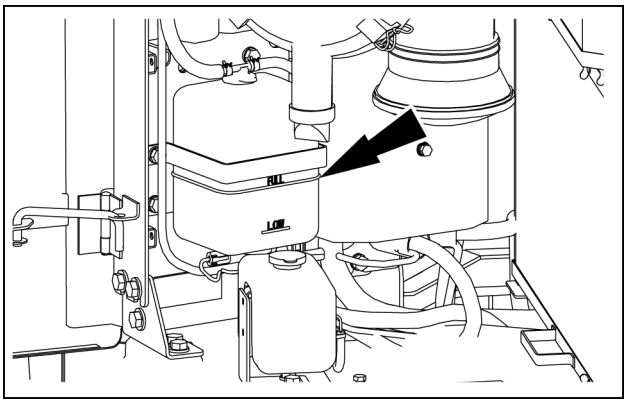
Flushing the engine cooling system

9. Inspect and clean the radiator cap. Inspect hoses and clamps of the engine cooling system. Make sure to replace any damaged parts.
10. Fill the radiator with tap water up to the edge of the coolant inlet.
11. Close the radiator cap.



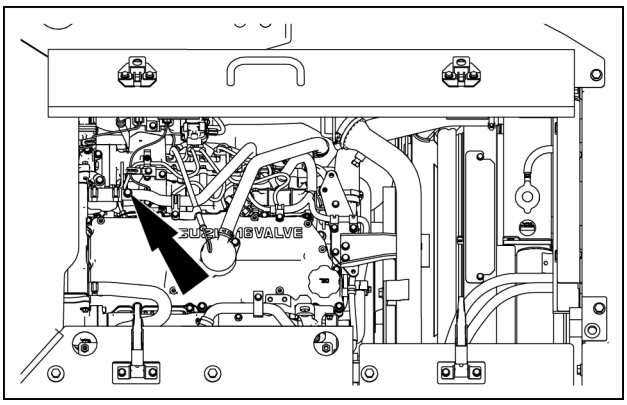
SMIL17CEX0215AA 5

12. Fill the reserve tank with tap water up to the FULL mark. Close the cap of the reserve tank.



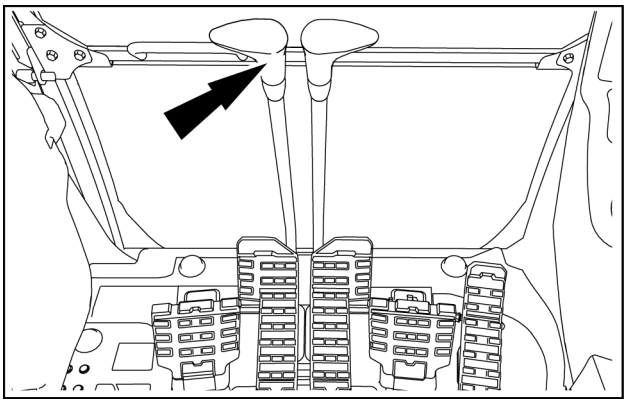
SMIL17CEX0117AA 6

13. Snug tighten the air bleed plug on the EGR cooler when tap water overflows from it.
14. Start the engine and let it run at low idle speed for **20 min**. Turn on the cab heating system, and set the temperature and the fan speed to intermediate level.
15. Stop the engine. Wait until the engine has cooled down. Check for leakages from the hoses of the engine cooling system.
16. Drain water completely from the engine cooling system. Repeat the flushing procedure (steps from 10 to 15) for 2 more times. If drained water is still not clean, further repeat the flushing procedure until clean water is drained from the engine.



SMIL17CEX0216AA 7

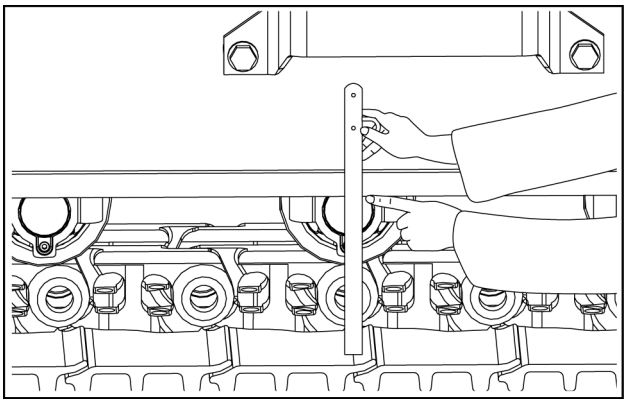
4. Operate the travel control lever to move the raised track forward and backward and shake off the mud.
5. Repeat the same operations for the other track.



SMIL14CEX2854AA 4

Checking the tension

1. If the track is not yet raised, perform the same procedure as for cleaning to put the machine into the required position.
2. Operate the travel control lever to move the raised track rearward for a while.
3. Stop the engine, and remove the starter key.
4. At the center of the track, measure the slack between the base of the undercarriage and the pad. The value must be within: **300 – 330 mm** (**11.8 – 13.0 in**).
5. Adjust the tension as necessary, then lower the track to the ground.
6. Repeat the same operations for the other track.

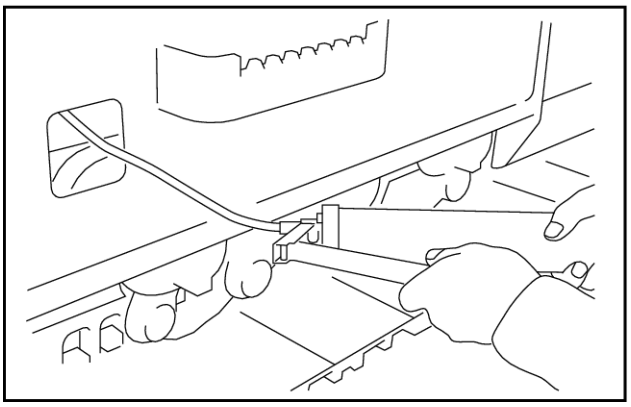


SMIL14CEX2855AA 5

Adjusting the tension

To increase the tension:

1. Clean the grease fitting adapter and the grease fitting.
2. Connect the grease pump. Inject the grease to obtain the right amount of track tension.
3. Remove the grease pump and clean the grease fitting.
4. Repeat the same operations for the other track.



SMIL13CEX2749AA 6

Compressor belt check

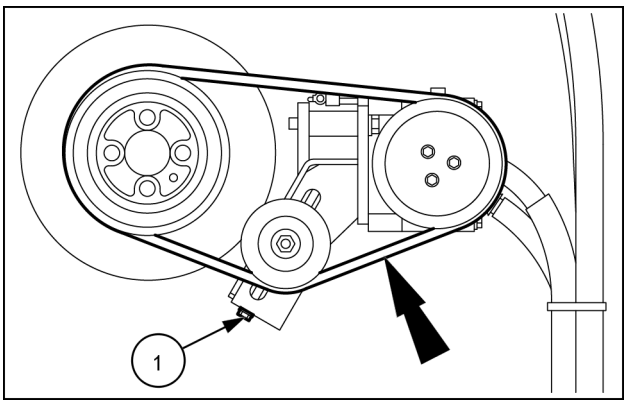
The drive belt of the air-conditioning compressor shall be periodically checked in order to grant the proper operation of the air-conditioning system.

To check the drive belt of the air-conditioning compressor, proceed as follows:

1. Stop the engine, and remove the starter key.
2. Inspect the pulleys and the drive belt for excessive wear or damages. Make sure that the drive belt is correctly engaged to the grooves of the pulleys.

   NOTICE: *The drive belt shall be replaced if it is stretched or cracked in order not to let it worn out.*
3. Check the tension of the drive belt by applying finger pressure of about **10 kg** (**22.0 lb**) on the point indicated by the black arrow. Loose of tension should be about **5 – 7 mm** (**0.2 – 0.3 in**).

   If needed, restore the proper tension by acting on the tensioning screw **(1)**.



SMIL16CEX0572AA 3

Fluids and lubricants

By using appropriate fluids and lubricants the excavator can operate in ambient temperatures ranging from **-20 °C** (**-4 °F**) to **45 °C** (**113 °F**). Refer to the list of fluids and lubricants contained in this manual.

NOTICE: *When operating the machine in ambient temperatures outside the above mentioned range, consult your CASE CONSTRUCTION Dealer for specific machine provision and for specific fluids and lubricants to be used.*

	Quantity		CASE CONSTRUCTION specification	Reference specification
Fuel tank	**320 L** (**84.5 US gal**)	—	—	**EN 590**
DEF/ADBLUE® tank	**45 L** (**11.9 US gal**)	—	—	**ISO 22241-1**
Engine oil	**23.1 L** (**6.1 US gal**)	**CASE AKCELA UNITEK 10W-40**	**MAT3521**	**SAE 10W40** **ACEA E9** **API CJ-4**
Swing reduction unit	**5 L** (**1.3 US gal**)	**CASE AKCELA GEAR 135 H EP 80W-90**	MS 1316	**SAE 80W/90** **API GL-5**
Travel reduction unit	**5 L** (**1.3 US gal**)	**CASE AKCELA GEAR 135 H EP 80W-90**	MS 1316	**SAE 80W/90** **API GL-5**
Engine coolant	**32 L** (**8.5 US gal**)	**CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT** CONCENTRATE (*)	**MAT3624** Grade OAT-EG1	**ASTM D6210** TYPE I-FF
		CASE AKCELA ACTIFULL™ OT EXTENDED LIFE COOLANT 50/50 PREMIXED	**MAT3624** Grade OAT-EG2	**ASTM D6210** TYPE III-FF
Hydraulic oil tank (**)	**114 L** (**30.1 US gal**)	**CASE AKCELA HYDRAULIC LL 46**	—	**ISO 11158** L-HV46
Grease	—	**CASE AKCELA 251H EP MULTI-PURPOSE GREASE**	IH B-27 251H EP	**NLGI 2**

(*) Concentrate antifreeze to be mixed 50/50 with distilled (deionized) water.

(**) The total capacity of the hydraulic system is **252 L** (**66.6 US gal**).

Arm	**2.40 m** (**94.49 in**)	**2.94 m** (**115.75 in**)
(A) Max digging reach	**9.37 m** (**368.90 in**)	**9.86 m** (**388.19 in**)
(B) Max digging reach at ground level **(GL)**	**9.18 m** (**361.42 in**)	**9.68 m** (**382.28 in**)
(C) Max digging depth	**5.85 m** (**230.31 in**)	**6.37 m** (**250.79 in**)
(D) Max dump height	**7.58 m** (**298.43 in**)	**7.92 m** (**311.81 in**)
(E) Max dump distance	**4.75 m** (**187.01 in**)	**5.16 m** (**203.15 in**)
(F) Max working height	**10.47 m** (**412.20 in**)	**10.81 m** (**425.59 in**)
(G) Reach at max working height	**3.44 m** (**135.43 in**)	**3.88 m** (**152.76 in**)
(H) Min equipment swing radius	**2.68 m** (**105.51 in**)	**2.44 m** (**96.06 in**)
(I) Height at min equipment swing radius	**8.26 m** (**325.20 in**)	**8.22 m** (**323.62 in**)
(L) Min clean up distance	**2.21 m** (**87.01 in**)	**1.81 m** (**71.26 in**)
(M) Max clean up distance	**6.99 m** (**275.20 in**)	**7.49 m** (**294.88 in**)
(N) Max digging depth on a vertical face	**4.86 m** (**191.34 in**)	**5.35 m** (**210.63 in**)
(O) Reach at max digging depth on a vertical face	**5.98 m** (**235.43 in**)	**6.15 m** (**242.13 in**)
(P) Max flat-bottomed trenching depth	**5.74 m** (**225.98 in**)	**6.27 m** (**246.85 in**)
(Q) Distance of flat-bottomed trench	**1.56 m** (**61.42 in**)	**1.56 m** (**61.42 in**)
(R) Flat-bottomed trench reference lenght	**2.44 m** (**96.06 in**)	
(S) Swing tail radius	**1.79 m** (**70.47 in**)	
(T) Maximum blade lift	**0.54 m** (**21.26 in**)	
(U) Maximum blade depth	**0.37 m** (**14.57 in**)	

NOTE: *the dimensions of the working range are defined basing on the two reference lines* ***(GL)*** *(ground level) and* ***(CL)*** *(center line, i.e. rotation axis of the machine). All the dimensions related to the* ***(GL)*** *are defined with the grousers indented into the ground.*

Setting ranges for Multi-function auxiliary high-flow hydraulic circuit

The setting ranges of the Multi-function auxiliary high-flow hydraulic circuit are related to the circuit mode selected by the specific page. If breaker page has been selected (Single-acting mode), the maximum flow rate can be selected within Level 1 and Level 10 in the table below. If crusher page has been selected (Double-acting mode), the maximum flow rate can be selected within Level 1 and Level 20 in the table below.

Level	1 pump flow	Level	2 pumps flow
1	**47 L/min** (**12.4 US gpm**)	11	**245 L/min** (**64.7 US gpm**)
2	**70 L/min** (**18.5 US gpm**)	12	**268 L/min** (**70.8 US gpm**)
3	**89 L/min** (**23.5 US gpm**)	13	**287 L/min** (**75.8 US gpm**)
4	**105 L/min** (**27.7 US gpm**)	14	**303 L/min** (**80.0 US gpm**)
5	**122 L/min** (**32.2 US gpm**)	15	**320 L/min** (**84.5 US gpm**)
6	**138 L/min** (**36.5 US gpm**)	16	**336 L/min** (**88.8 US gpm**)
7	**157 L/min** (**41.5 US gpm**)	17	**355 L/min** (**93.8 US gpm**)
8	**172 L/min** (**45.4 US gpm**)	18	**370 L/min** (**97.7 US gpm**)
9	**185 L/min** (**48.9 US gpm**)	19	**383 L/min** (**101.2 US gpm**)
10	**198 L/min** (**52.3 US gpm**)	20	**396 L/min** (**104.6 US gpm**)

NOTE: *in the Single-acting mode, the message THIS EXCEEDS THE ALLOWABLE FLOW RATE appears at the bottom of the setting tab if a value above Level 10 is selected. If attachment operation is anyway started with this setting, the message CHECK FLOW RATE is displayed. Stop attachment operation, and make sure to select a value of maximum flow rate that does not exceed Level 10.*

The maximum flow rate for Breaker 1 combination and the maximum flow rate for Crusher 1 combination are set from factory:

Multi-function circuit	Breaker 1: **172 L/min** (**45.4 US gpm**)
	Crusher 1: **370 L/min** (**97.7 US gpm**)

The maximum working pressure of the circuit can be set according to the mode selected by the specific page. If breaker page has been selected (Single-acting mode), the maximum working pressure can be set within the following range:

Multi-function circuit (Breaker mode)	**14.0 – 34.5 MPa** (**2030.7 – 5004.2 psi**) (in 0.5 increments)

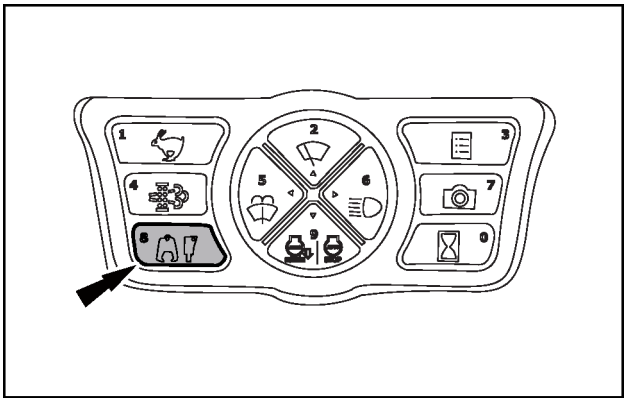
If crusher page has been selected (Double-acting mode), the maximum working pressure can be set within the following range:

Multi-function circuit (Crusher mode)	**16.5 – 34.5 MPa** (**2393.3 – 5004.2 psi**) (in 0.5 increments)

The maximum working pressure for Breaker 1 combination and the maximum working pressure for Crusher 1 combination are set from factory:

Multi-function circuit	Breaker 1: **14.0 MPa** (**2030.7 psi**)
	Crusher 1: **16.5 MPa** (**2393.3 psi**)

7. Start the engine. Press and hold the attachment selector button for **1 s** to get directly to the dedicated tab for operational settings of the auxiliary high-flow hydraulic circuit.

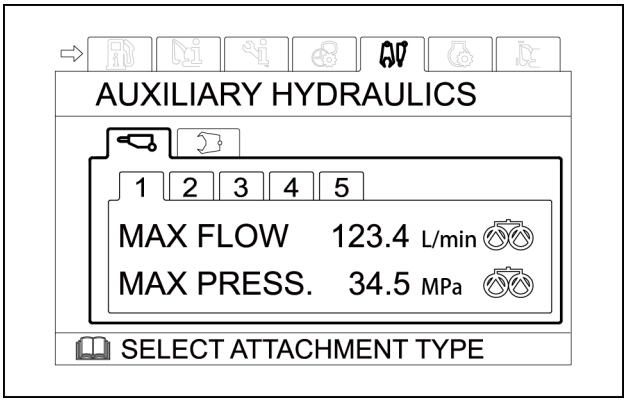


SMIL14CEX1709AA 21

8. Select the breaker page and set the proper flow rate/ pressure combination.

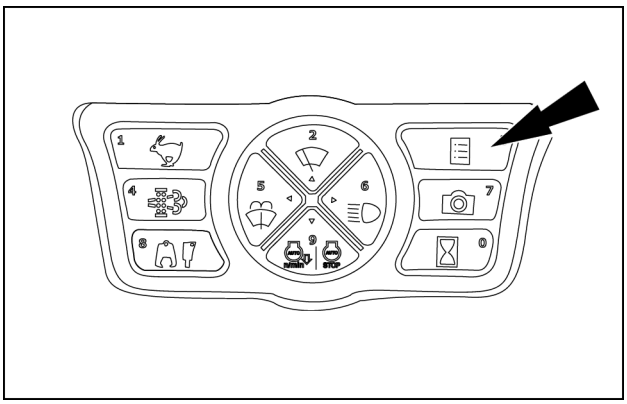
   NOTICE: *the maximum working pressure of the auxiliary high-flow hydraulic circuit shall be set according to the specification of the breaker.*

   NOTICE: *the working pressure of the Single-acting auxiliary high-flow hydraulic circuit shall be set manually by the relief valve located above the main control valve.*



SMIL16CEX0260AA 22

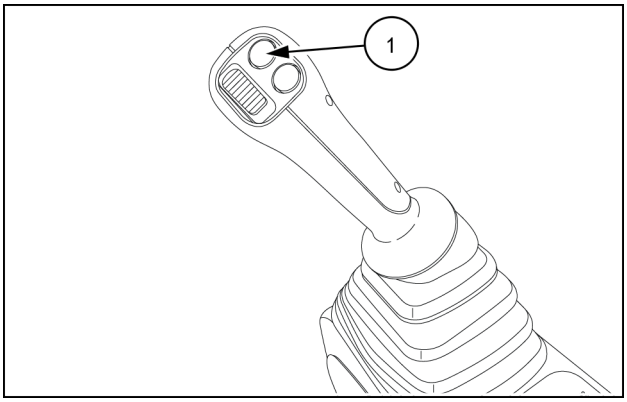
9. Press the display mode selector button to confirm the selection.
10. Select the SP work mode.
11. Set the gate lock lever in unlock position.
12. Operate the controls of boom, arm and bucket in order to position the breaker right to the structure or to the object to be crushed.



SMIL15CEX1234AA 23

13. If the proportional controls on the right-hand lever are equipped, press and hold the ON/OFF button **(1)** to operate the hydraulic breaker with the continuous selected flow providing a constant blowing frequency. Release the button to stop breaker operation.

    NOTE: *To change the blowing frequency, get back to the dedicated tab for operational settings of the auxiliary high-flow hydraulic circuit, and change the flow rate/pressure combination to be used.*

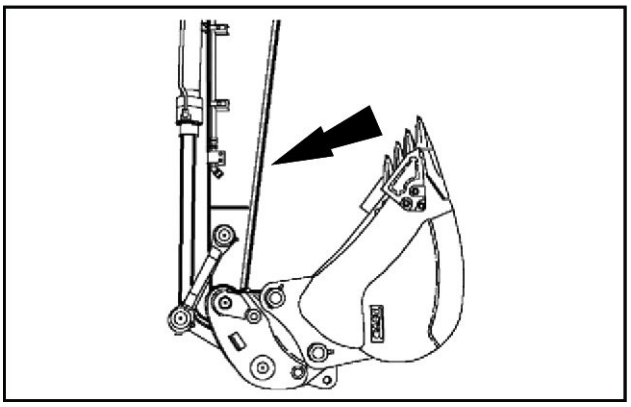


SMIL15CEXZ396AB 24

Attachment disengagement

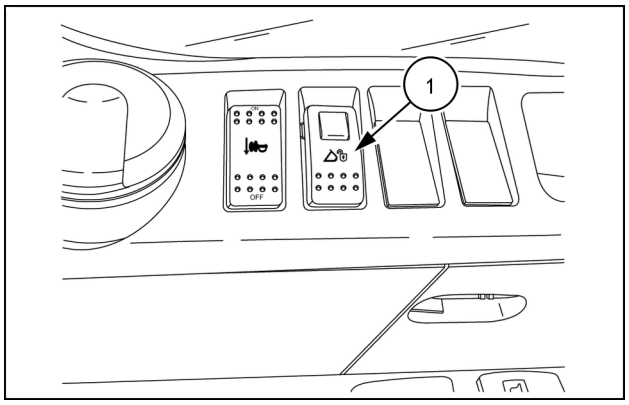
To disengage the attachment using CASE CONSTRUCTION quick coupling system proceed as follows:

1. Operate the arm and bucket controls so that the arm is practically vertical, sloping slightly towards the cab, to release the safety device.



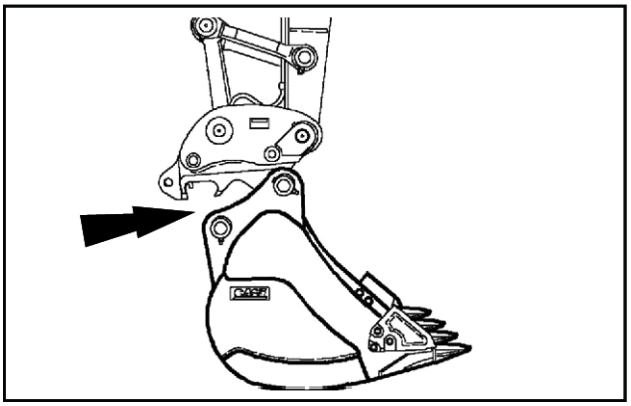
SMIL13CEX2704AB 10

2. Slide the lock device and press the back side of the quick coupler switch **(1)** to set the unlocking status of the quick coupling system. The audible alarm device starts sounding.
3. Extend the bucket cylinder rod completely and maintain the hydraulic pressure for approximately **5 – 10 s** so that the latching hook retracts.



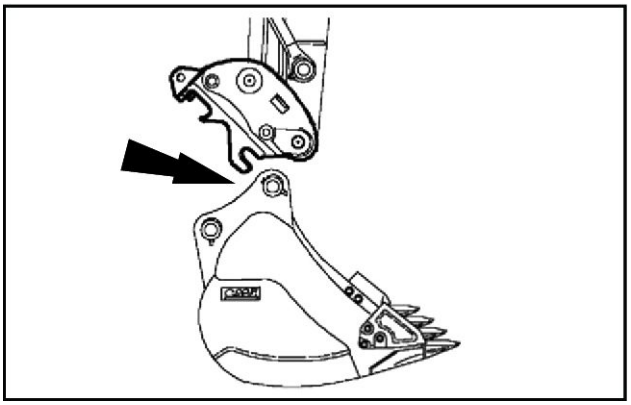
SMIL15CEXY501AA 11

4. Operate the bucket and arm controls to lay the attachment safely on flat, level ground.



SMIL13CEX2705AB 12

5. Operate the arm control to unhook the attachment.
6. Press the front side of the quick coupler switch **(1)** to set the locking status of the quick coupling system. The audible alarm device stops sounding.



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Loads handling chart

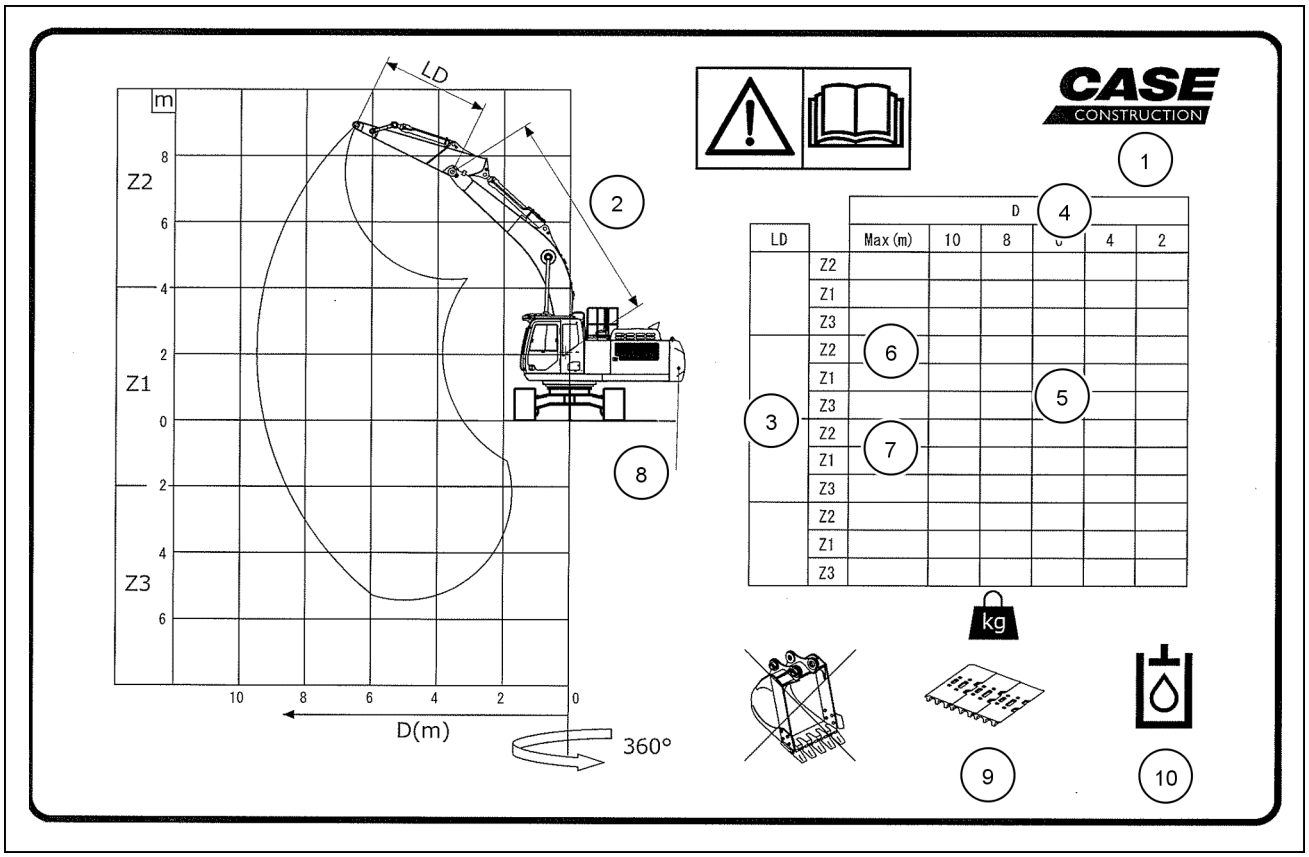
The loads handling chart indicates the rated lift capacities that shall be considered at different distances from the swing axis.

For each distance from the swing axis, a rated lift capacity value is indicated for a specific height zone. The height zones are defined as follows: Z2 over **4 m** (**157 in**) off the ground, Z1 between **4 m** (**157 in**) off the ground and **2 m** (**79 in**) under the ground, Z3 below **2 m** (**79 in**) under the ground.

The rated lift capacity is defined according to **ISO 10567** as the smaller value of either the rated tipping load (**75%** of the tipping load) or the rated hydraulic lift capacity (**87%** of the hydraulic lift capacity).

The values are defined under the following working conditions:

- No tool is equipped.
- Machine on a compact, flat and level ground.
- In a complete swing of the upper structure.
- With retracted bucket cylinder.



SMIL16CEX0257FA 4

1. Model and undercarriage type.
2. Boom length (m).
3. LD: arm length (m).
4. Distance of the load from the swing axis (m).
5. Rated lift capacity (kg).
6. Rated lift capacity (kg) at maximum reach.
7. Maximum reach (m) for each height zone.
8. Counterweight mass (kg).
9. Track shoe width (mm).
10. Working pressure of the hydraulic system (MPa).