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

CX350D (Stage V)
CX370D (Stage V)
Crawler Excavator

OPERATOR'S MANUAL

Part number 51613852
1st edition English
May 2019

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

Finding Diesel Exhaust Fluid (DEF)/AdBlue®

Your CASE CONSTRUCTION dealer is fully equipped to accommodate all your **DEF/ADBLUE®** needs.

Case Construction Toll free number: 00800 2273 7373			
Country	Toll free fax	Local number	E-mail
Italy (0039)	-	02 44412 342	-
La chiamata è gratuita. Tuttavia, con alcuni gestori europei le chiamate da telefono cellulare sono a pagamento. Per qualsiasi informazione sulle tariffe, consultare in anticipo il proprio gestore telefonico. In caso di difficoltà a chiamare il numero verde, è possibile rivolgersi anche al numero 0244412342.			
Country	Toll free fax	Local number	E-mail
United Kingdom (0044)	8000856134	02030245588	EUCaseCEUKROI@cnh.com
The call is free. However some European Operators may apply a charge, if the call is made from a mobile phone. For any information about charge rate, please enquire in advance from your provider. Should you have difficulties getting through to the free phone number, you can also call 02030245588.			
Country	Toll free fax	Local number	E-mail
Republic of Ireland (00353)	-	012421888	EUCaseCEUKROI@cnh.com
In the Republic of Ireland please only use 00800 64655263 if calling from a land line. The call will be free of charge. However, to call using a mobile telephone please dial 01 2421888. A call made from a mobile telephone will not be free but will be charged to you. For information about charge rates, please contact your service provider before making the call.			
Country	Toll free fax	Local number	E-mail
France (0033)	-	0157323204	CaseCustomerAssistance.France@cnh.com
L'appel est gratuit. Toutefois, certains opérateurs européens peuvent facturer l'appel s'il provient d'un téléphone portable. Pour plus d'informations sur les tarifs, veuillez vous renseigner à l'avance auprès de votre opérateur. Si vous rencontrez des difficultés à joindre la ligne téléphonique gratuite, vous pouvez également appeler le 0157323204.			
Country	Toll free fax	Local number	E-mail
Spain (0034)	-	912754405	CaseCustomerAssistance.Spain@cnh.com
La llamada es gratuita. No obstante, con algunos operadores europeos la llamada puede ser de pago si se efectúa desde un teléfono móvil. Para obtener mayor información acerca de las tarifas, consulte previamente a su proveedor. Si tiene problemas para comunicar con el número de teléfono gratuito, puede llamar al número de pago 912754405.			
Country	Toll free fax	Local number	E-mail
Germany (0049)	-	06951709325	CaseCustomerAssistance.Germany@cnh.com
Der Anruf ist gebührenfrei. Bei Anruf aus dem Mobilnetz könnten einige europäische Netzbetreiber Gebühren berechnen. Bitte erfragen Sie die Tarife zuvor bei Ihrem Anbieter. Falls Sie Probleme bei der Anwahl der Freecall-Nummer haben sollten, empfehlen wir Ihnen den Anruf unter unserer kosten- pflichtigen Rufnummer 06951709325.			

- When alighting from or getting into the operator's compartment, always face the machine and use the steps and access handles.
- Be sure you know the position and function of each control. Incorrect operation of the controls can cause serious injuries.
- Check all controls and safety devices in a safe, open area before starting work.
- Keep away from dangerous areas such as ditches, overhangs, rocky areas, etc. Make a survey of the work-site and determine the possible dangers before using the machine.
- Before parking the machine, make sure that the ground is stable. Plan the worksite so that the ground is flat, hard and level.
- Before moving the machine to work in a new area, walk around to determine all possible causes of accidents there. Holes, obstacles, debris and other danger risks in the working area can cause serious injury.
- Be ready to meet emergencies. Always carry a first aid kit and if possible, fire extinguisher (not supplied) within easy reach on board. Make sure the fire extinguisher is regularly serviced in conformance with the manufacturer's instructions.
- Check the fastening of the main components: counterweight, turntable bearing and operator's compartment. In the event of problems, consult your CASE CONSTRUCTION Dealer.
- Make sure you understand the symbols used on the machine safety decals. Keep the decals clean so that they are perfectly legible at all times.
- Work out a means of convenient escape from the machine (emergency exit via the windshield or the rear window glass) in the event of the machine turning over or tipping over or the cab door being jammed.
- Make sure you are perfectly familiar with traffic regulations and special safety equipment requirements before transporting this machine on a public highway.
- When loading trucks, never swing the load over the truck cab.
- Before undertaking any travel on the job site, make sure the itinerary to be followed is completely safe. If bridges are to be crossed, make sure they are perfectly capable of supporting the weight of the machine.
- Always steer round large obstacles such as boulders, big trees, etc.

Quick coupler (optional)

- Every day, check that the locking bar functions correctly and that it is not fouled by foreign matter. Clean the locking system if necessary.
- If you are obliged to use the quick coupler with buckets not manufactured by CASE CONSTRUCTION, make sure the diameter of the pins and the width between the bucket lugs meet the dimensions needed to fit the quick coupler (pins, washers, bushings, etc.). Consult your CASE CONSTRUCTION Dealer.

⚠ Operating the machine⚠

- When working on a public highway, use standard traffic signs and take into consideration the working range of the upperstructure and its attachments. Local or national regulations stipulate the number, type and location of reflector strips.
- Avoid running the engine in a confined space. If there is no alternative, proper ventilation must be provided at all times.
- Do not allow anyone else on the machine. The passenger could fall or cause an accident.
- Never operate the working or travel controls unless you are properly seated in the operator’s seat with the seat belt correctly fastened.
- Before starting the engine, check the direction of travel (in forward drive, the reduction gears should be to the rear of the machine).
- Do not work near overhead high-voltage electric lines without checking beforehand that all necessary measures have been taken to respect the minimum distances:
  Less than 57000 volts: **3 m** (**9.8 ft**).
  More than 57000 volts: **5 m** (**16.4 ft**).
- Study the position of any existing pipelines or conduits before starting work. Electrical cables, gas and water pipes and other underground installations can cause serious injury.
- Always make allowance for working conditions (sloping or rough ground), the site and weather conditions when driving the machine.
- Do not allow anyone to stand in the machine working area. Accidental operation of the upperstructure swing control or of an attachment control could cause an accident. Stop all operations until everyone has moved away.
- Before operating the dozer blade (if equipped) make sure that there is no one in the working area of the latter.
- Operate all controls gradually to ensure smooth machine operation.
- Whenever load handling operations are to be carried out, it is imperative to adhere strictly to the instructions given in this manual and local legislation.
- It is forbidden to use the machine to carry out tasks other than those for which it is intended. Never use the equipment for sweeping the ground to level out rubble or push objects (transversal stress on the attachment).
- Stop the engine and remove the ignition key when the machine is not in use, even for short periods of time.

Vibration levels

The vibration level transmitted to the operator depends mainly upon the conditions of the ground on which operations take place, the mode of operation of the machine and its equipment. The exposure to vibrations can be considerably reduced when the following recommendation are complied with:

- use equipment compatible with the machine and the type of work do be done;
- adjust and lock the seat in the correct position; also inspect regularly the suspensions of the seat, performing the adjustments and repairs as required;
- perform regularly the current maintenance operations of the machine at the prescribed intervals;
- operate the equipment in a uniform manner, preventing, as far as possible, sharp movements or excessive loads;
- when travelling, avoid, as far as possible, particularly rough terrain or the impact against possible obstacles.

This machine is equipped with an operator's seat complying with the requisites of standard **ISO 7096:2008**. This ensures that the exposure of the operator's body to vibrations comply with the protection requisites for the protection against vibrations when the machine operates as required by the operational scopes, in accordance with the prescriptions of this Manual. The operator's seat has been tested in accordance with EM6 input spectral class and has a SEAT transmissibility factor < 0.7.

- The weighted average quadratic acceleration value to which the operator's arms are subjected does not exceed **2.5 m/s²** (**8.20 ft/s²**)
- The weighted average quadratic acceleration value to which the operator's body is subjected does not exceed **0.5 m/s²** (**1.64 ft/s²**). These results were obtained using an acceleration gauge while digging ditches.

NOTE: *the Whole-Body exposure value is determined under particular operating and terrain conditions and therefore may not be representative for all the possible operating conditions within the intended use of the machine. Consequently this single Whole-Body vibration emission value is not intended to determine the Whole-Body vibration exposure as required by European Directive* ***2002/44/EC****. For this purpose it is recommended to conduct working conditions measurement. If this is not feasible use of information provided in the table below from* ***ISO/TR 25398:2006*** *(*).*

Working conditions	Basic emissions value			Standard deviation		
	1.4*aw,eqx	1,4*aw,eqy	aw,eqz	1.4*sx	1.4*sy	sz
Excavation	**0.44 m/s²** (**1.44 ft/s²**)	**0.27 m/s²** (**0.89 ft/s²**)	**0.30 m/s²** (**0.98 ft/s²**)	**0.24 m/s²** (**0.79 ft/s²**)	**0.16 m/s²** (**0.52 ft/s²**)	**0.17 m/s²** (**0.56 ft/s²**)
Hydraulic hammer	**0.53 m/s²** (**1.74 ft/s²**)	**0.31 m/s²** (**1.02 ft/s²**)	**0.55 m/s²** (**1.80 ft/s²**)	**0.30 m/s²** (**0.98 ft/s²**)	**0.18 m/s²** (**0.59 ft/s²**)	**0.28 m/s²** (**0.92 ft/s²**)
Mine	**0.65 m/s²** (**2.13 ft/s²**)	**0.42 m/s²** (**1.38 ft/s²**)	**0.61 m/s²** (**2.00 ft/s²**)	**0.21 m/s²** (**0.69 ft/s²**)	**0.15 m/s²** (**0.49 ft/s²**)	**0.32 m/s²** (**1.05 ft/s²**)
Travel	**0.48 m/s²** (**1.57 ft/s²**)	**0.32 m/s²** (**1.05 ft/s²**)	**0.79 m/s²** (**2.59 ft/s²**)	**0.19 m/s²** (**0.62 ft/s²**)	**0.20 m/s²** (**0.66 ft/s²**)	**0.23 m/s²** (**0.75 ft/s²**)

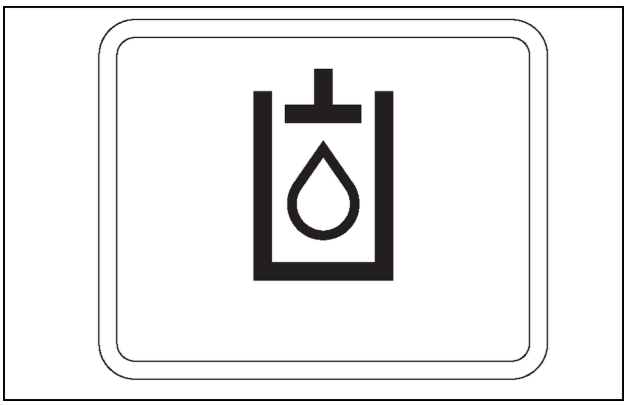
(*) **ISO/TR 25398:2006** Mechanical vibrations – Guidelines for assessment of exposure to whole-body vibration of ride-on machine – Use of harmonized data measured by international institutes, organizations and manufacturers.

(17) Hydraulic tank

Part number: KHP1330

Hydraulic tank contains pressurized hot fluid that can cause serious injuries.

Always shut down the engine, cool down the machine and release pressure in the hydraulic tank before doing any maintenance operation to the hydraulic tank or to the hydraulic system.



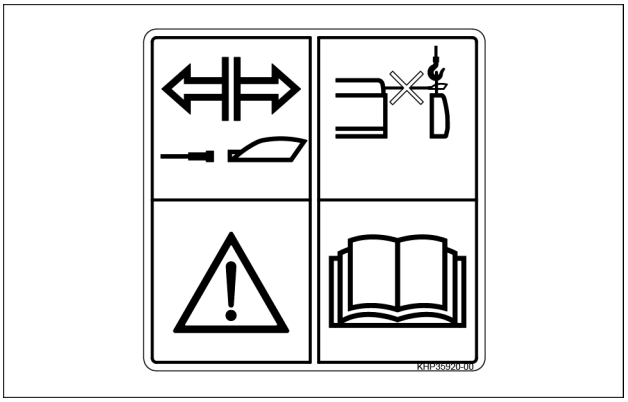
SMIL14CEX1639AB 25

(18) Camera wiring precautions

Part number: KHP35920

Always disconnect the wiring of the cameras before removal of the counterweight.

Make sure to read operator's manual to understand proper procedures to be used for removal of the counterweight.



KHP35920 26

(19) DEF/ADBLUE® tank

Part number: KHP35830

Do not fill the **DEF/ADBLUE®** tank with diesel fuel, water or any fluid other than **DEF/ADBLUE®**.

Using any other kind of fluid will cause serious damages to the machine.

Make sure to read operator's manual to understand proper procedures to be used for storage and usage of **DEF/ADBLUE®**.

KHP35830 27

(20) Engine compartment

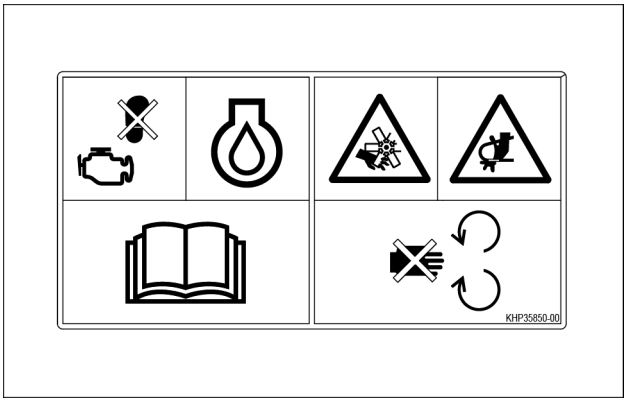
Part number: KHP35850

Always stop and cool down the engine before making any maintenance operation in the engine compartment.

Do not step on the engine as this can cause serious damages to the engine components and serious injuries to the operator.

When the engine is running, keep away from the engine cooling fan, from the fan belt and from the other rotating parts of the mechanical fan drive system. Rotating parts can cause serious injuries.

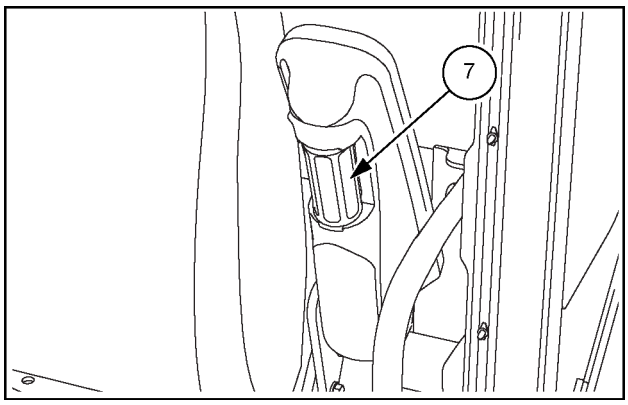
Make sure to read operator's manual to understand proper precautions when working into the engine compartment.



KHP35850 28

Armrest angle adjustment

- Raise the armrest.
- Adjust the armrest to the desired angle using the knob **(7)**.
- Lower the armrest.

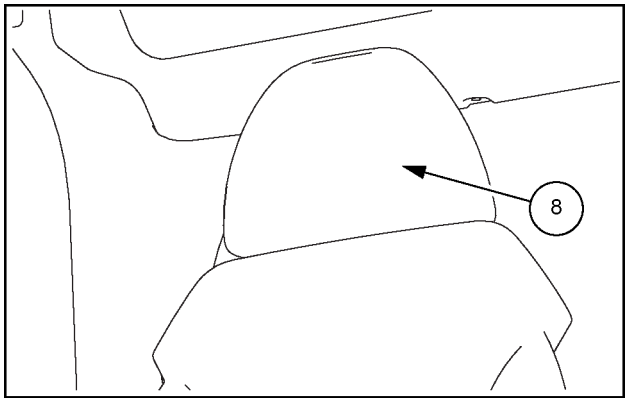


SMIL14CEX1660AB 7

Headrest adjustment

- The headrest **(8)** can be adjusted upwards and downwards and backwards and forwards.

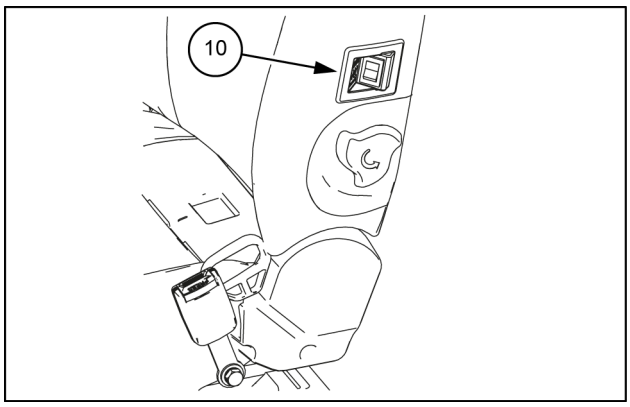
NOTE: *to make the headrest return to its initial position (to the rear), tilt it completely forwards and then release it.*



SMIL14CEX1661AB 8

Seat heater (optional)

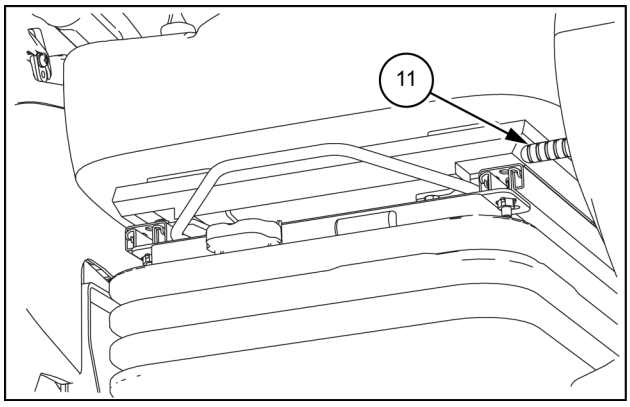
- When the switch **(10)** is turned on, both the backrest and the seat area will be warmed.



SMIL14CEX1662AB 9

Seat angle adjustment section (optional)

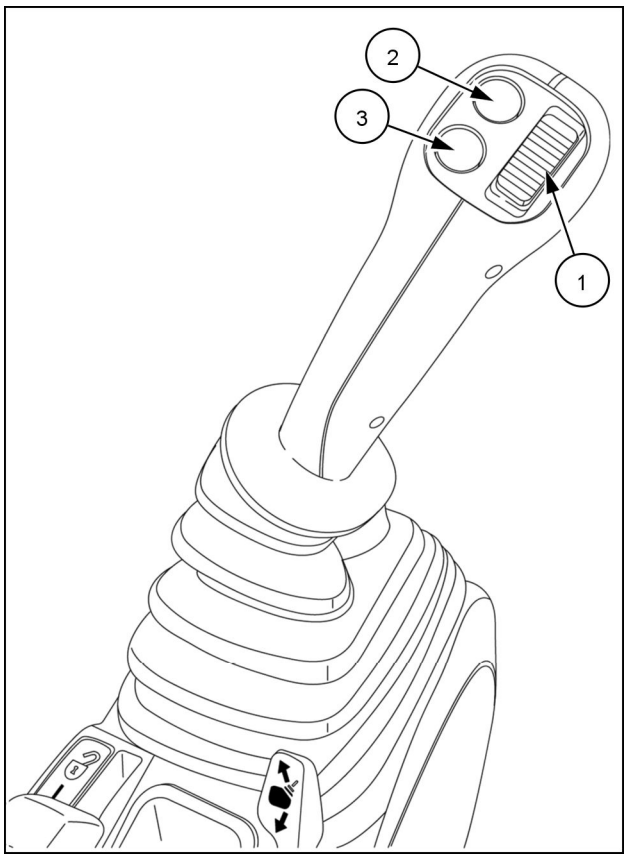
- Pull up the lever **(11)** to adjust the inclination of the seat.
- Release the lever at an appropriate angle.



SMIL14CEX1663AB 10

When the machine is equipped with the auxiliary low-flow hydraulic circuit, the left-hand control lever includes:

1. Proportional switch to operate double-acting hydraulic attachments.
2. ON/OFF button to operate the preferred operating direction of the double-acting hydraulic attachment
3. Horn button.



SMIL15CEXY839BA 2

Instrument cluster

(1) Ambient sensor

NOTE: *Do not place any object on the ambient sensor: the climate control system may not correctly control the temperature inside the cab.*

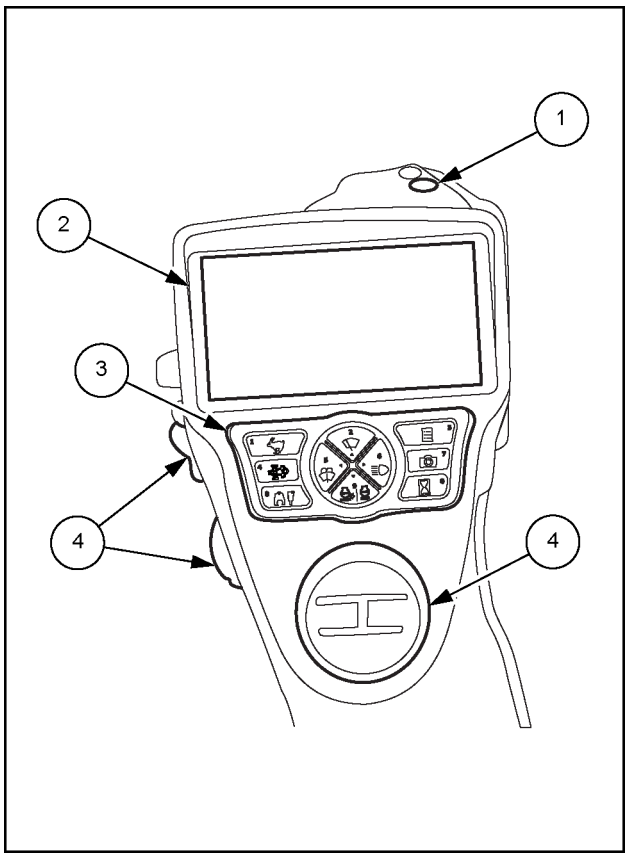
(2) Display

(3) Control buttons

(4) Air vents

NOTE: *The air vents should be manually set. Make sure to set the opening and the direction of the air vents in order to grant the desired condition into the cab environment.*

NOTICE: *If water gets inside the instrument cluster, it can be seriously damaged. Make sure to keep the instrument cluster protected from water and from any kind of fluid. Use only a soft, dry cloth to clean the instrument cluster.*

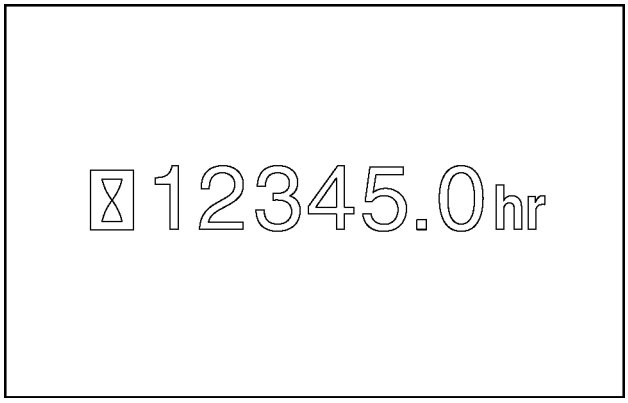


SMIL14CEX1689BB 1

Hour meter button

Hour meter

- The hour meter indicates the total engine operating hours in units of **0.1 h** (**6 min**). The hour meter cannot be reset.

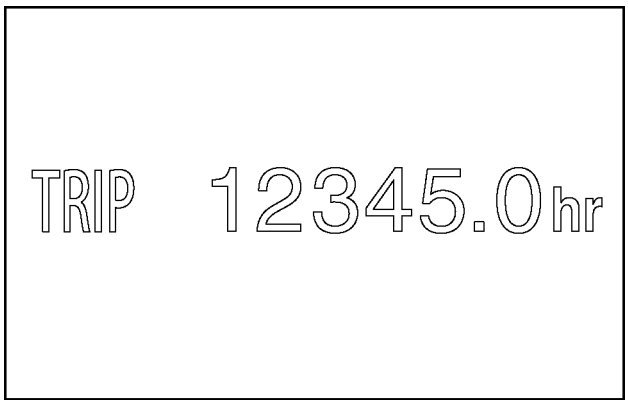


SMIL14CEX1717AA 9

Trip meter

- The trip meter allows to set a partial operating hour counter, which can be reset to **0 h** at any time. The hours are indicated in units of **0.1 h** (**6 min**).

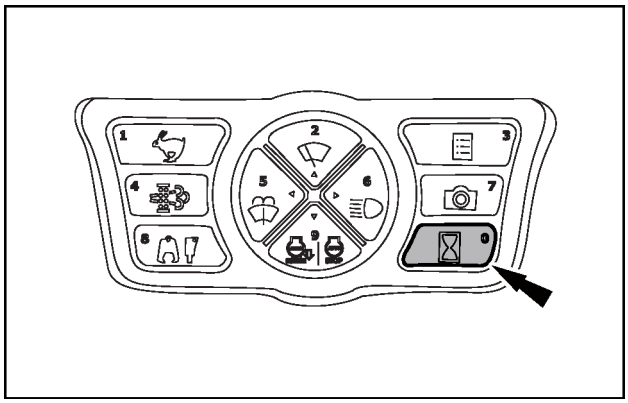
To reset the trip meter press and hold the hour meter button while the trip meter is displayed. The displayed engine operating hours will be reset to **0 h**.



SMIL14CEX1718AA 10

The hour meter is displayed by default. To display the trip meter, press the hour meter button: the trip meter will be thus displayed for approximately **1 min**, after which the hour meter will be displayed again.

NOTE: *the display disappears when the starter key is turned to OFF position. The hour meter can be anyway displayed for* ***20 s*** *by pressing the hour meter button.*



SMIL14CEX1719AA 11

Fuel consumption history

Fuel consumption (fuel economy) over the past 7 days can be checked.

Select the Fuel consumption history tab from **(1)**.

Daily average fuel consumption over the past 7 days can be checked in a simple graph in **(2)**.

By selecting a day in **(2)**, the fuel consumption, the operating hours, and the average fuel consumption of the specified day is displayed in **(3)**.

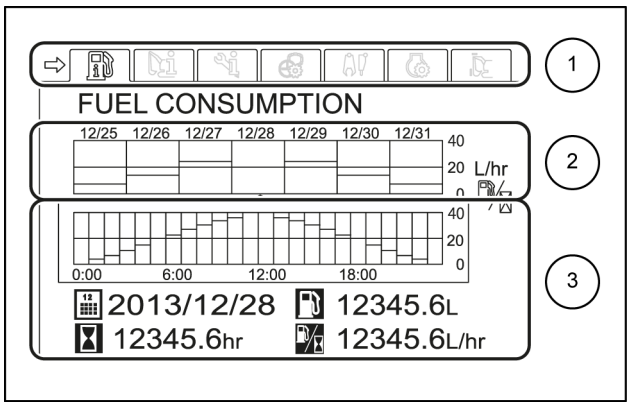
Explanation of the icons in the fuel consumption history screen:

Year/month/day of cursor specified date is displayed.

Fuel consumption of cursor specified date is displayed.

Operating hour of cursor specified date is displayed.

Fuel cost (fuel consumption / operating hour) of cursor specified date is displayed.

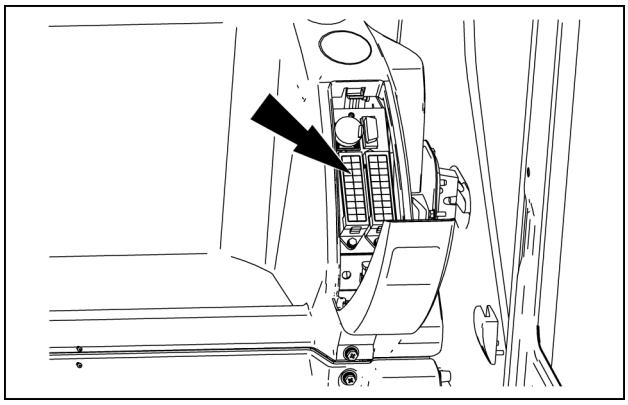


SMIL14CEX1797AB 29

Rearward controls

Fuse box

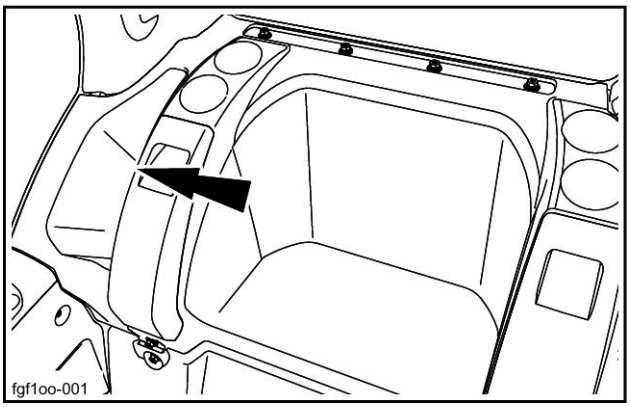
Located on the left-hand side, behind the operator's seat. The fuse box can be readily accessed by opening the protective cover.



SMIL18CEX0782AA 1

Magazine rack

Located on the right-hand side, behind the operator’s seat.

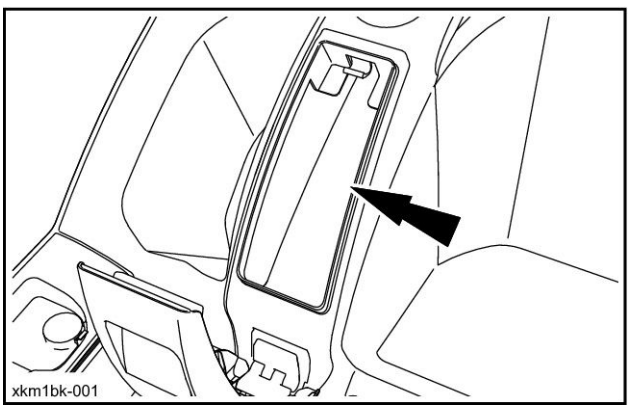


FGF1OO-001A 1

Refrigerated/heated compartment

Located on the right-hand side, behind the operator's seat.
This compartment, associated with the air conditioning system, is designed to store different cold or hot products, drinks, etc.

NOTE: *This is an insulated compartment. The compartment may not cool or heat depending on the conditions.*



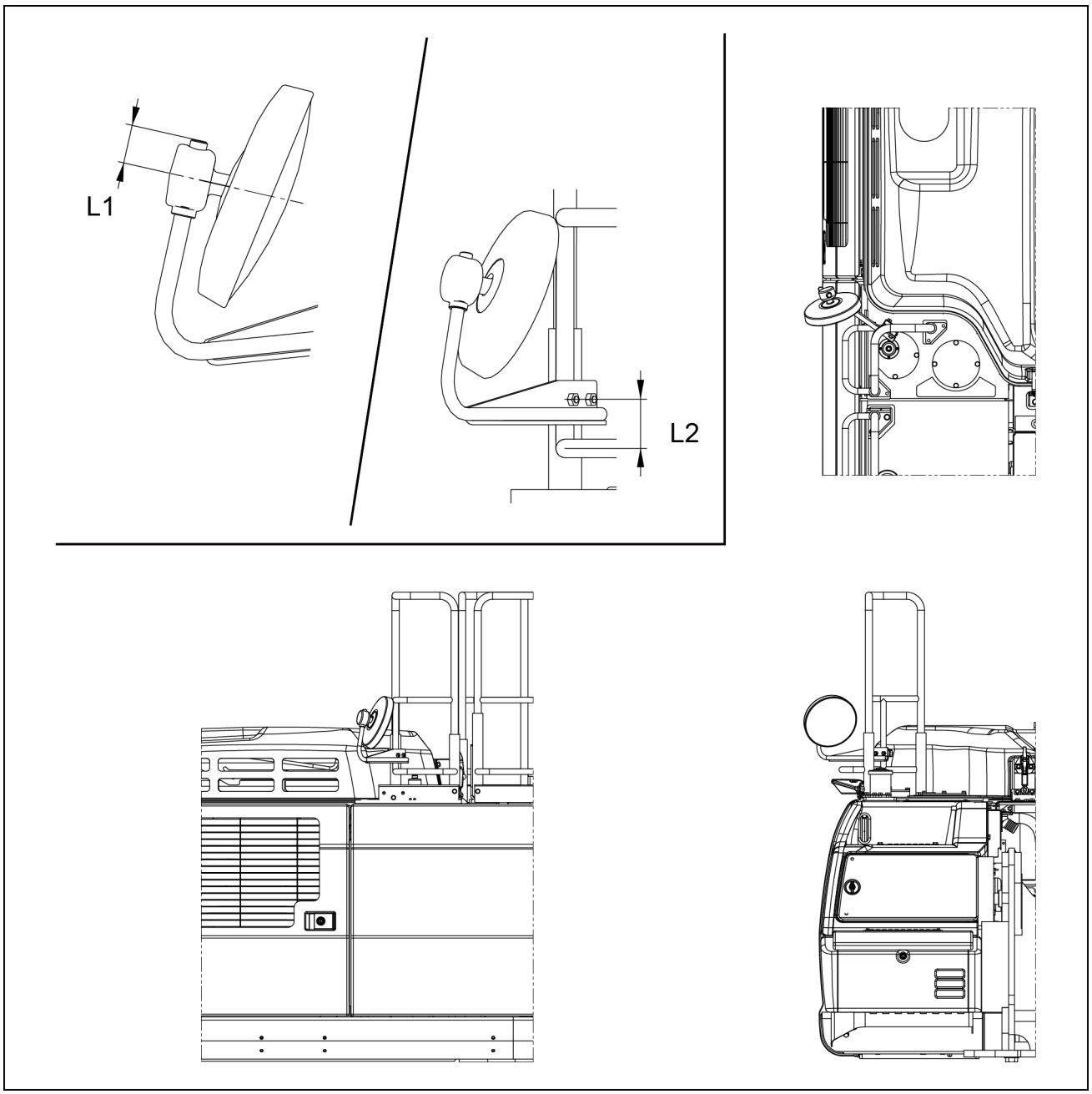
XKM1BK-001A 1

Right-center mirror (C)

The mirror shall be installed as shown in the picture.

The dimension **(L1)** is **42 mm** (**1.7 in**).

The dimension **(L2)** is **72 mm** (**2.8 in**).



SMIL16CEX1217GA 7

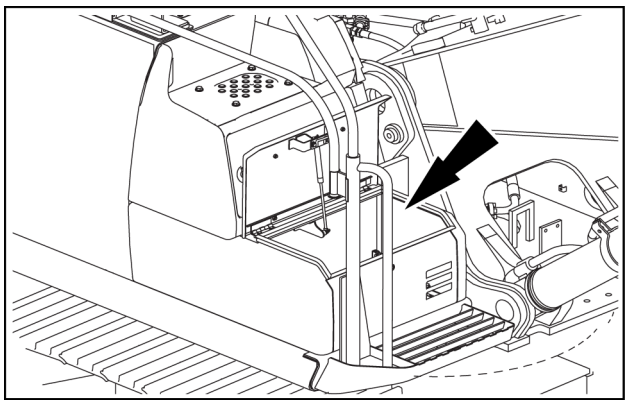
Front storage box

⚠ WARNING

Moving parts!
Make sure the storage box cover is closed properly before driving the machine.
Failure to comply could result in death or serious injury.

W0288A

The storage box is located in the right front of the upperstructure. It is intended for storage of emergency tools and of small spare parts. The storage box also gives access to the fuel tank filler pump (if equipped) and to the right-hand working light.



SMIL15CEX0024AA 1

Unlock the pushrod of the box cover with the starter key, and press the pushrod to open the box.

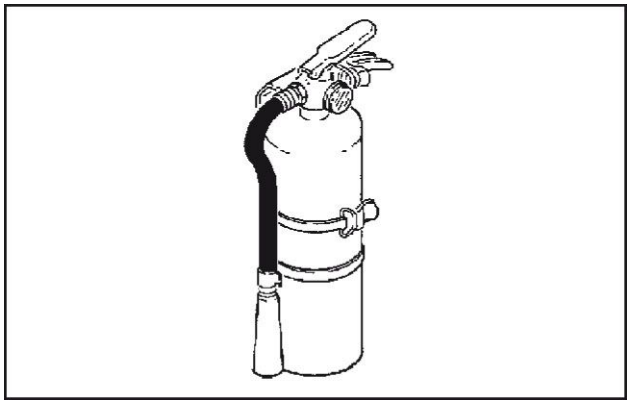
NOTE: *The box cover is fitted with a gas strut. Open by hand to avoid damage to the machine.*

Pull down the cover to close the box, and lock the pushrod of the box cover with the starter key.

NOTICE: *Make sure to close and lock the box before starting machine operation. Leaving the box open can cause serious damages to the machine, and may cause serious injuries to the bystanders.*

Fire extinguisher

It is strongly recommended to have a fire extinguisher available and to keep it inside the front storage box.



CS98M573TBP1 1

Service specifications:

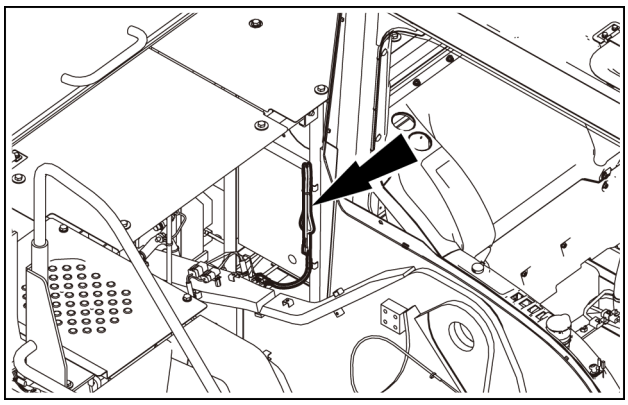
Every month: examine the fire extinguisher and make sure it is not damaged.

Every six months: have an approved specialist empty and refill the powder in the fire extinguisher.

Every year: have an approved specialist examine the fire extinguisher.

Rotary light cable

This cable is located behind the right-hand rear cab pillar. It can be used to connect a **24 V** rotary light (not supplied).



SMIL15CEX6543AA 1

The AUTO ATS CLEANING is suspended if any of the following occurs:

- The ATS cleaning button is pressed by the operator. The ATS CLEANING icon disappears and the message PUSH ATS SWITCH TO ACTIVATE is displayed. Pressing the ATS cleaning button again will resume the process.
- The coolant temperature drops below **65 °C** (**149 °F**). The ATS CLEANING icon starts to flash in green and a warning alarm sounds for approximately **2 s**. When the engine coolant temperature is above the **70 °C** (**158 °F**), AUTO ATS CLEANING will be resumed.
- The coolant temperature rises above **100 °C** (**212 °F**). The ATS CLEANING icon starts to flash in green and a warning alarm sounds for approximately **2 s**. Lower the engine speed throttle to idle and check the coolant temperature. If the engine coolant temperature drops below **90 °C** (**194 °F**), the AUTO ATS CLEANING will be resumed.

NOTE: *Never keep normal machine operation with the AUTO ATS CLEANING process being suspended. The ATS will be damaged. Resume the AUTO ATS CLEANING process immediately.*

NOTICE: *If the AUTO ATS CLEANING is not completed after **8 h**, the ATS CLEANING icon will flash in orange and the MANUAL ATS CLEANING will be requested. If normal machine operation is kept when the ATS CLEANING icon is flashing in orange, serious damages to the engine and to the ATS will occur. Immediately move the excavator to a well ventilated area and activate the MANUAL ATS CLEANING.*

If an EGR system abnormality is detected within **40 h** after completion of EGR system repair, and the detection lasts for **10 s**, the machine control system immediately resumes the inducement sequence to the step **(C)**.

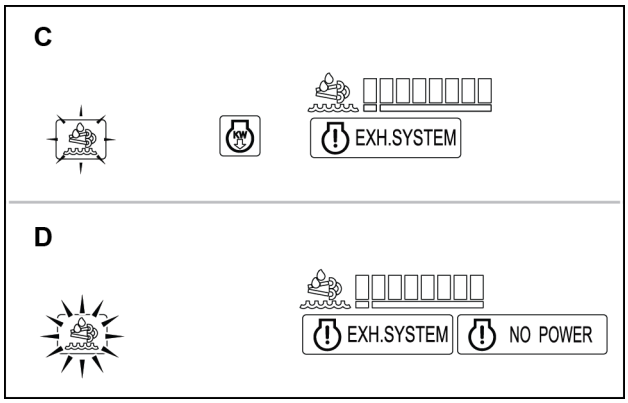
(C) EGR problem.

ATS detection icon slow flashing.
CHECK ATS CHECK ENGINE displayed.
Five short beeps.

(D) After **5 h** with no action taken.

ATS detection icon fast flashing.
CHECK ATS 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 EGR system.



SMIL16CEX1376AA 15

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

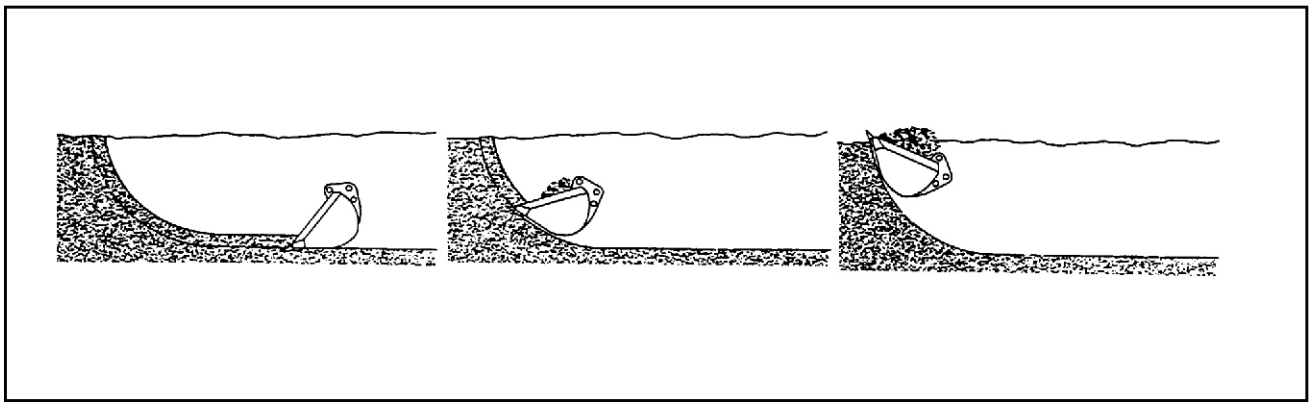
Fill the bucket by maneuvering the arm.

Keep the bottom of the bucket parallel to the cut.

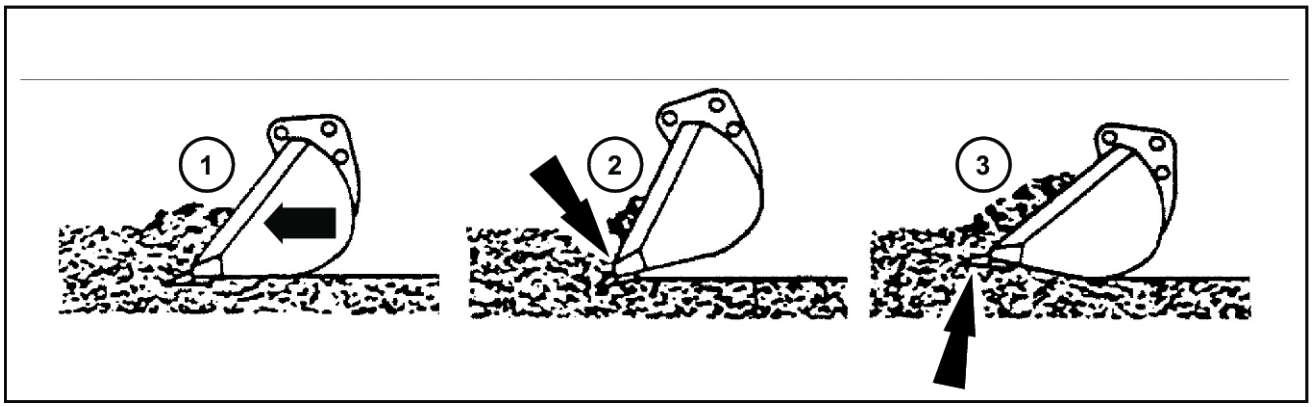
The bucket teeth and blade must cut the ground like the blade of a knife.

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.

Gradual turn on the move

Press one of the pedals or push one of the levers and, at the same time, press the other pedal or push the other lever in the same direction, but slightly harder.

Stopping travel

To come to a complete halt, simply release the levers or pedals and they will return to neutral.

NOTICE: *Allow as much time as possible to stop the machine.*

NOTICE: *Avoid abrupt stopping as much as practicable.*

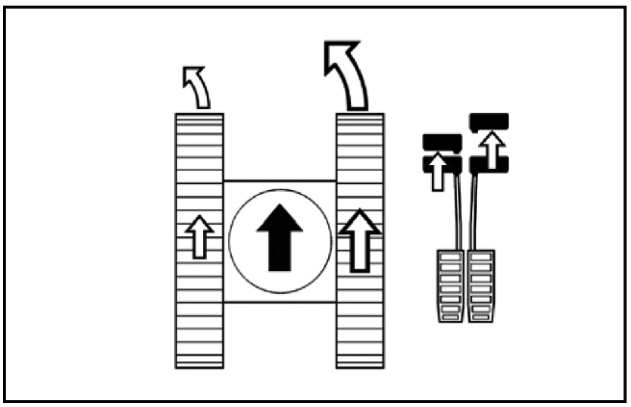
NOTICE: *Park or stop the machine on level solid ground in safe area.*

Cautions for traveling

1. Start traveling operation after checking location of the travel unit before commencing travel operation.
2. Select ground as flat and solid as possible for traveling.
3. Travel bypassing obstructions.

NOTICE: *when using wide shoes avoid traveling on rough ground. Wider shoes tend to cause deformation or crack of the shoes.*

4. Travel with decreased traveling speed on rough ground.
5. Encourage a large turn for changing direction and avoid abrupt pivoting turns or spinning turns as much as possible.
6. Check the route to travel in advance.
7. Prepare a personnel to signal operator whenever moving the machine in a location with poor visibility.
   Pay attention to permissible weight of bridge when crossing the bridge.
8. Take necessary measure such as placing plates so as not to damage surface of paved road.
9. Slow down and loosen tension of the track shoes when traveling on place with gravels and cobbles.



SMIL13CEX2687AB 10

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 the NLC version, the link dimension on the expander shall be decreased to **5300 mm** (**209 in**) in order to keep the angles at **75°**.*

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 must 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 should 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 must 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	**170 ppm**
Chloride (Cl)	**40 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

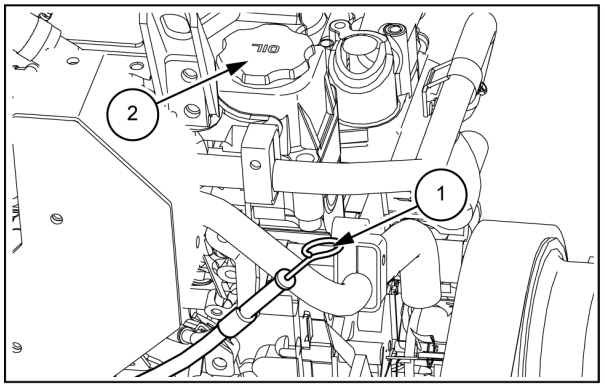
Engine oil level

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.

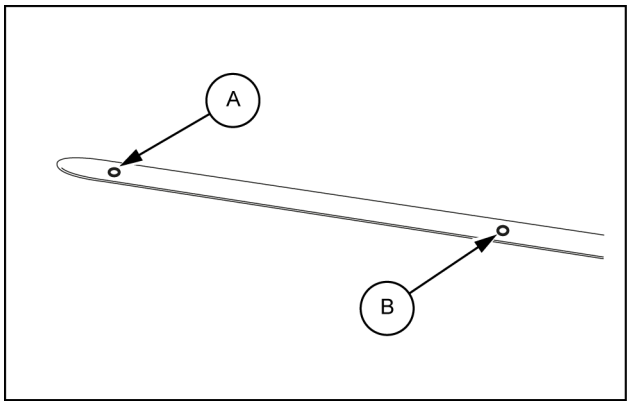


SMIL15CEX0144AB 1

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)**.



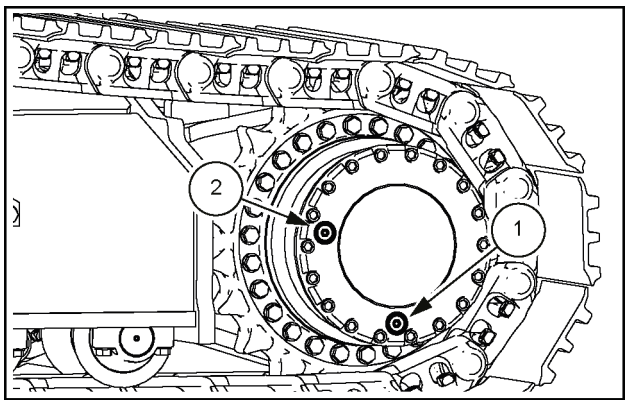
SMIL14CEX2746AB 2

Travel reduction units oil

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

1. Park the machine on flat, horizontal ground.
2. Move the machine so that the drain plug **(1)** comes down to the lowest position.
3. Stop the engine and remove the starter key.
4. Remove the level plug **(2)**, and check the oil level. If the level comes up to the bottom edge of the port **(2)**, it is sufficient.

   If necessary, add oil through the port **(2)** until the oil comes up to the bottom edge of the port **(2)**.
5. Check the O-ring seal of the level plug **(2)** for damages, and replace it if necessary. Insert the level plug **(2)** with seal tape wrapped around it.
6. Repeat Steps **2** to **5** for the other travel reduction gear.
7. Run the machine slowly to check that there are no leaks.



SMIL14CEX4370AB 1

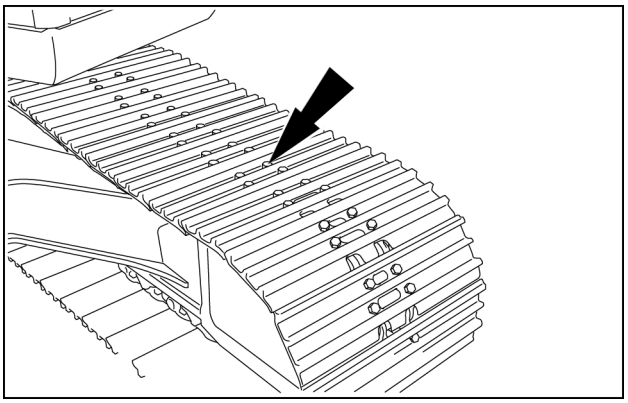
Track shoe bolt torque

Check the torque of the track shoe every **250 h** (after the first **50 h** during the run-in period)

NOTE: *If the tracks are too tight, they wear quickly. If tracks are not tight enough, they wear quickly and the links can catch on the sprocket wheel or slide off the idler wheel or the sprocket wheel. Clean the tracks after work.*

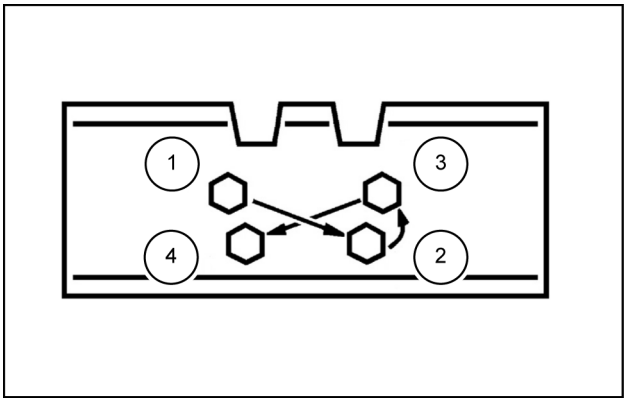
NOTE: *Check the screws for tightness periodically. Do not use the machine with track pad screws loose. Otherwise, the screws may come out to cause damage to tracks.*

The screws tightening torque must be **1236 – 1510 N·m** (**912 – 1114 lb ft**).



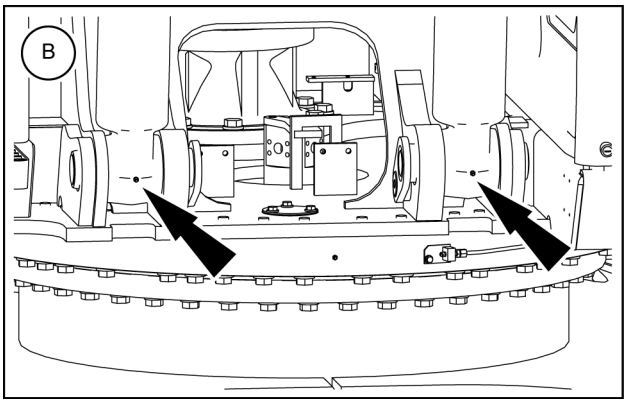
SMIL17CEX3811AA 1

NOTE: *Follow the specified order when tightening the screws.*



SMIL14CEX2859AA 2

Boom cylinder bottom pin: two grease fittings.



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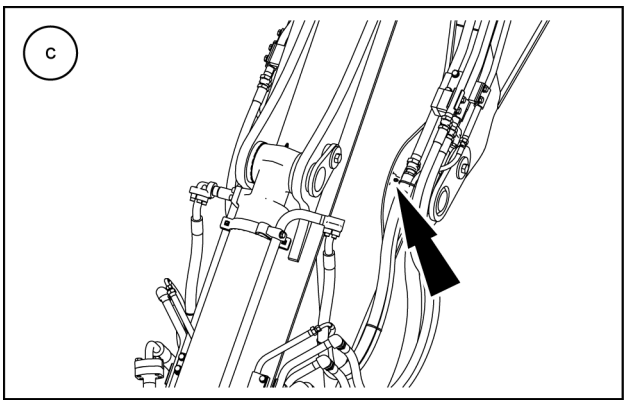
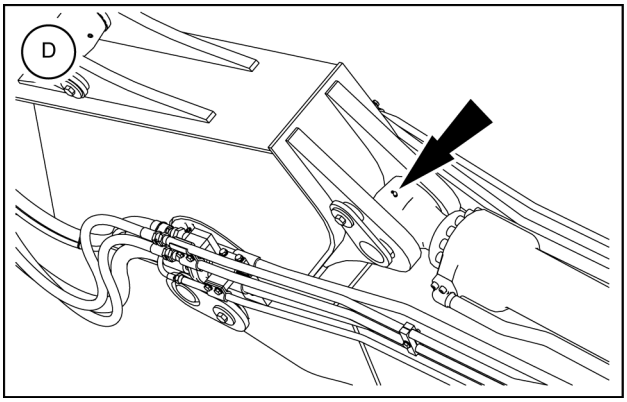
Boom/arm linkage: one grease fitting on each side of the arm.



SMIL15CEX0126AA 4

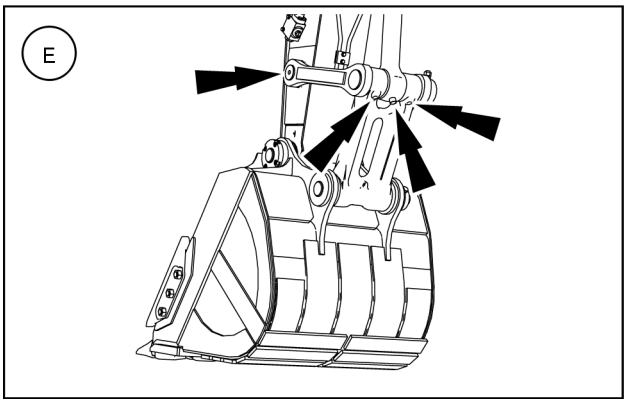
Arm cylinder top pin: one grease fitting.



SMIL15CEX0127AA 5

Arm link / Connecting rod: four grease fittings.

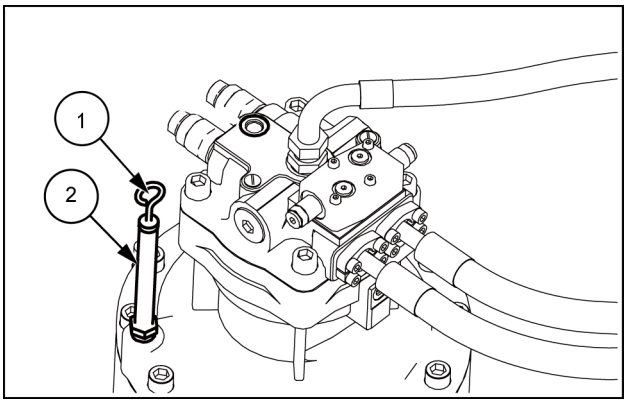
NOTICE: *the arm link and the connecting rod shall be lubricated every* ***10 h*** *if any attachment other than a bucket is used.*



SMIL15CEX0130AA 6

5. Attach the drain plug **(4)**, and install the lower panel **(3)**.
6. Supply oil via the filler neck **(2)**.
7. Attach the oil gauge **(1)** and check that the oil level is in the hatched area.
8. Wait for **10 min** and check the oil level again.

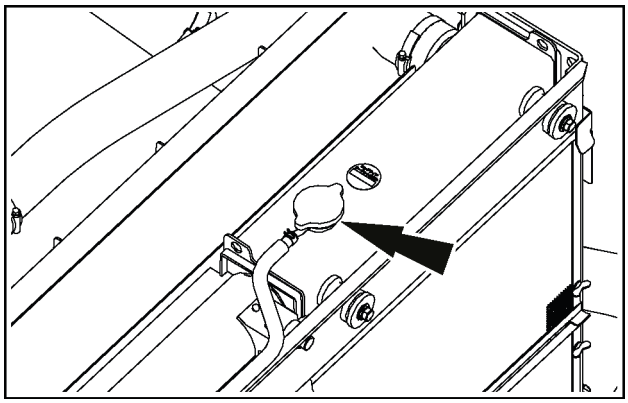
   If necessary, supply additional oil via the filler neck **(2)**.



SMIL15CEX0219AB 4

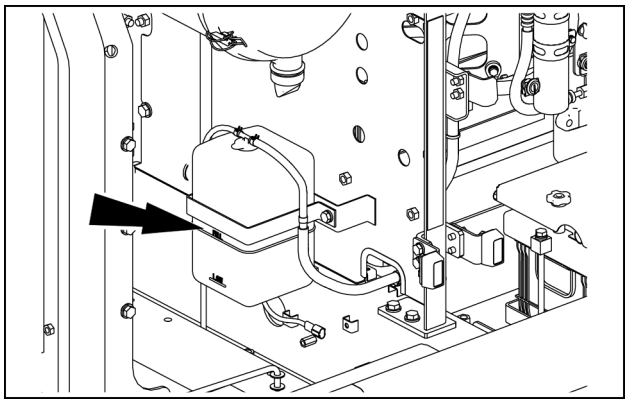
Flushing the engine cooling system

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.



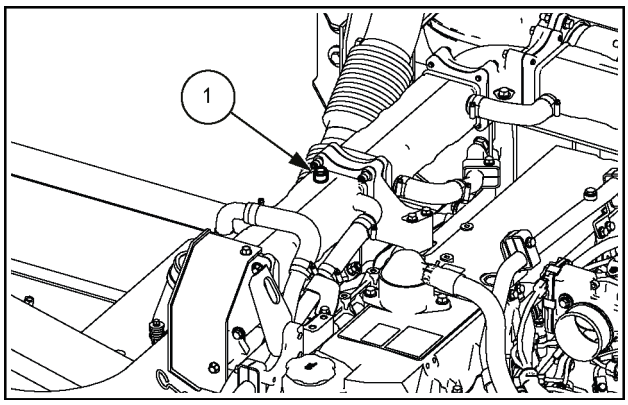
SMIL14CEX4343AA 5

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



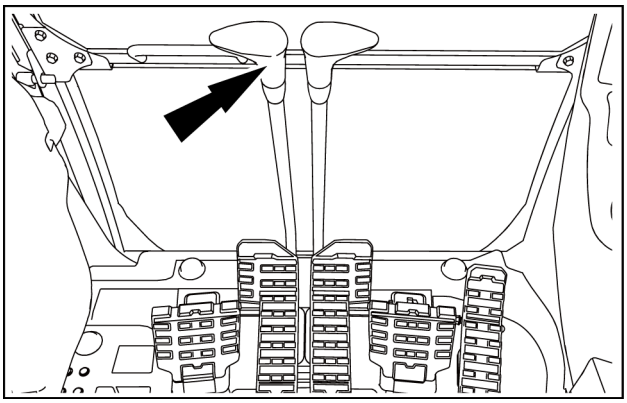
SMIL16CEX0482AA 6

13. Snug tighten the air bleed plug **(1)** 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.



SMIL14CEX4347AB 7

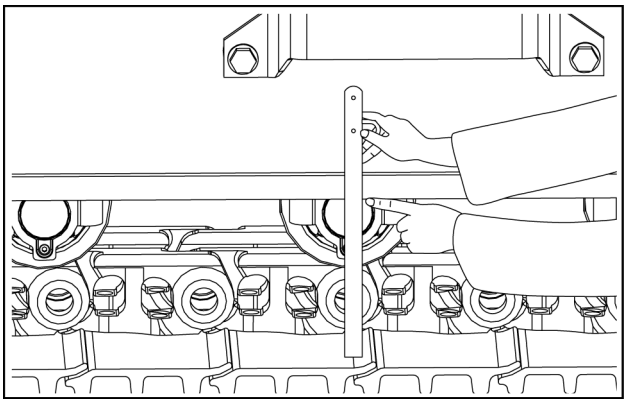
4. Operate the travel control lever to move the raised track forward and backward and shake off the mud.
5. Repeat the same operations for the other track.



SMIL15CEX0225AA 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 **340 – 360 mm** (**13.4 – 14.2 in**).
5. Adjust the tension as necessary, then lower the track to the ground.
6. Repeat the same operations for the other track.

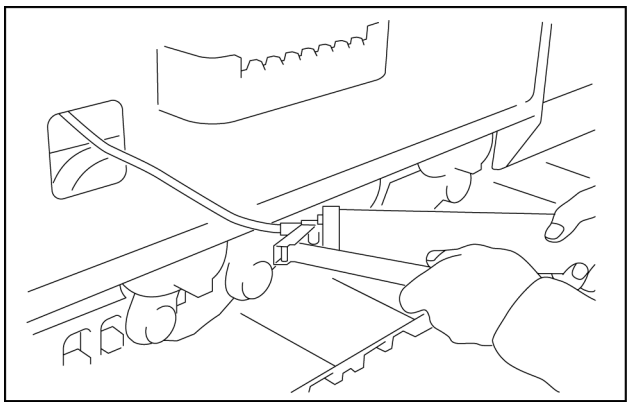


SMIL15CEX0226AA 5

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.



SMIL15CEX0227AA 6

Compressor belt check

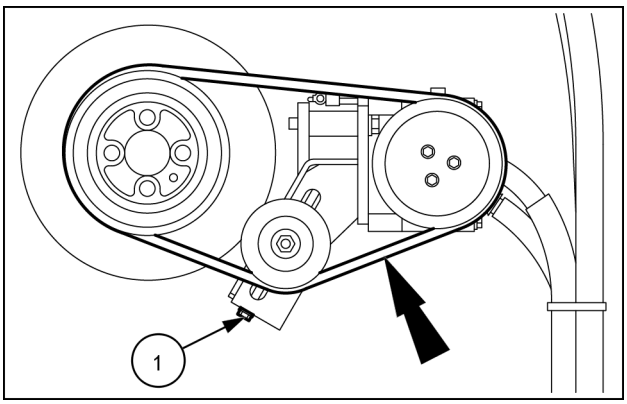
The drive belt of the air-conditioning compressor shall be periodically checked in order to grant the proper operation of the air-conditioning system.

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 **6 – 8 mm** (**0.2 – 0.3 in**).

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



SMIL16CEX0572AA 3

8 - SPECIFICATIONS

Machine specifications

Engine

Manufacturer and model	ISUZU VE-6HK1X
Injection	Electronic-controlled High-pressure common rail
Number of cylinders	6
Bore x stroke	**115 mm** (**4.53 in**) x **125 mm** (**4.92 in**)
Displacement	**7790 cm³/rev** (**475 in³/rev**)
Rated speed	**1900 RPM**
Rated power (**ISO 9249**)	**200 kW** (**271.9 Hp**)
Cooling	Water-cooled
Battery start	2 x **12 V 128 A·h**
Voltage	**24 V**
Alternator	**90 A**
Starter	**24 V**, **5.0 kW**

Hydraulic system

Maximum flow of the main pump (at **1900 RPM**)	2 x **300 L/min** (**79.3 US gpm**)
Rated working pressure	**34.3 MPa** (**4975.2 psi**)
Maximum working pressure (Power boost)	**37.3 MPa** (**5410.4 psi**)
Maximum flow of the pilot pump (at **1900 RPM**)	**28.5 L/min** (**7.5 US gpm**)
Rated pilot pressure	**3.9 MPa** (**565.7 psi**)

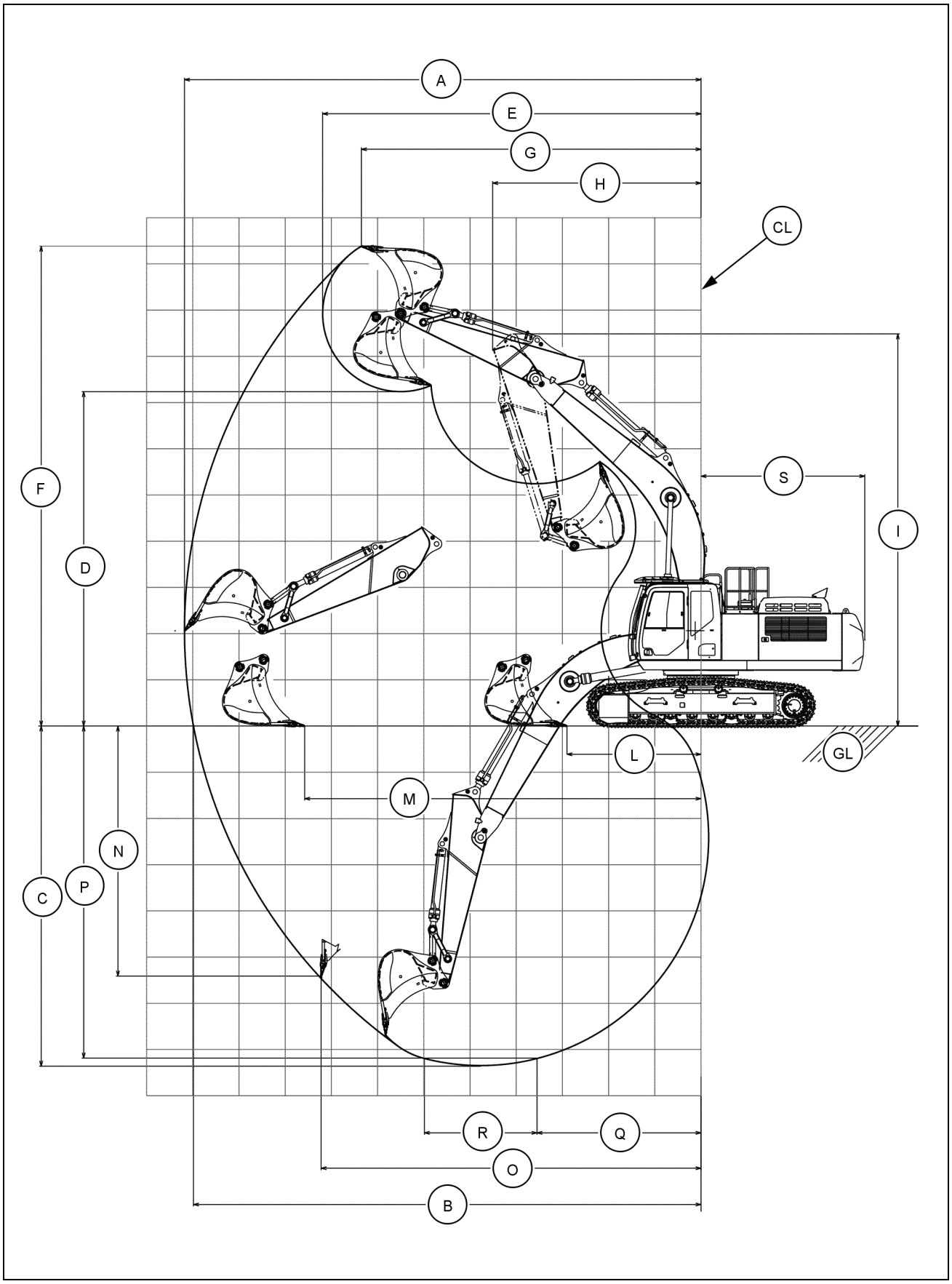
Swing performance

Swing speed	**9.7 RPM**
Swing torque	**112000 N·m** (**82607 lb ft**)

Travel performance

Low speed	**0 – 3.4 km/h** (**0 – 2.1 mph**)
High speed	**0 – 5.7 km/h** (**0 – 3.5 mph**)
Drawbar pull	**263000 N** (**59125 lb**)
Grade ability	**70%** (**35°**)

Working range CX370D



SMIL16CEX1314HA 5

Direct fit buckets application as function of the arm (CX370D NLC)

Heavy Duty buckets			Arm		
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.21 m** (**87.01 in**)	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
0.91 m³ (**1.19 yd³**)	**900 mm** (**35 in**)	**1220 kg** (**2690 lb**)	○	○	○
1.19 m³ (**1.56 yd³**)	**1100 mm** (**43 in**)	**1340 kg** (**2954 lb**)	○	○	○
1.33 m³ (**1.74 yd³**)	**1200 mm** (**47 in**)	**1440 kg** (**3175 lb**)	○	○	○
1.54 m³ (**2.01 yd³**)	**1350 mm** (**53 in**)	**1540 kg** (**3395 lb**)	○	○	●
1.75 m³ (**2.29 yd³**)	**1500 mm** (**59 in**)	**1670 kg** (**3682 lb**)	●	●	■
2.03 m³ (**2.66 yd³**)	**1700 mm** (**67 in**)	**1830 kg** (**4034 lb**)	●	■	■
2.17 m³ (**2.84 yd³**)	**1800 mm** (**71 in**)	**1900 kg** (**4189 lb**)	■	■	x

Rock buckets			Arm		
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.21 m** (**87.01 in**)	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
0.91 m³ (**1.19 yd³**)	**900 mm** (**35 in**)	**1260 kg** (**2778 lb**)	○	○	○
1.19 m³ (**1.56 yd³**)	**1100 mm** (**43 in**)	**1390 kg** (**3064 lb**)	○	○	○
1.33 m³ (**1.74 yd³**)	**1200 mm** (**47 in**)	**1480 kg** (**3263 lb**)	○	○	○
1.54 m³ (**2.01 yd³**)	**1350 mm** (**53 in**)	**1580 kg** (**3483 lb**)	○	○	●
1.75 m³ (**2.29 yd³**)	**1500 mm** (**59 in**)	**1710 kg** (**3770 lb**)	●	●	■
2.03 m³ (**2.66 yd³**)	**1700 mm** (**67 in**)	**1880 kg** (**4145 lb**)	●	■	■
2.17 m³ (**2.84 yd³**)	**1800 mm** (**71 in**)	**1940 kg** (**4277 lb**)	■	■	x

Ditch cleaning buckets			Arm		
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.21 m** (**87.01 in**)	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
1.48 m³ (**1.94 yd³**)	**2130 mm** (**84 in**)	**990 kg** (**2183 lb**)	○	○	○
		1180 kg (**2601 lb**) (*)	○	○	○
1.66 m³ (**2.17 yd³**)	**2440 mm** (**96 in**)	**1080 kg** (**2381 lb**)	○	○	●
		1290 kg (**2844 lb**) (*)	○	○	●

(*) with bolt-on cutting edge

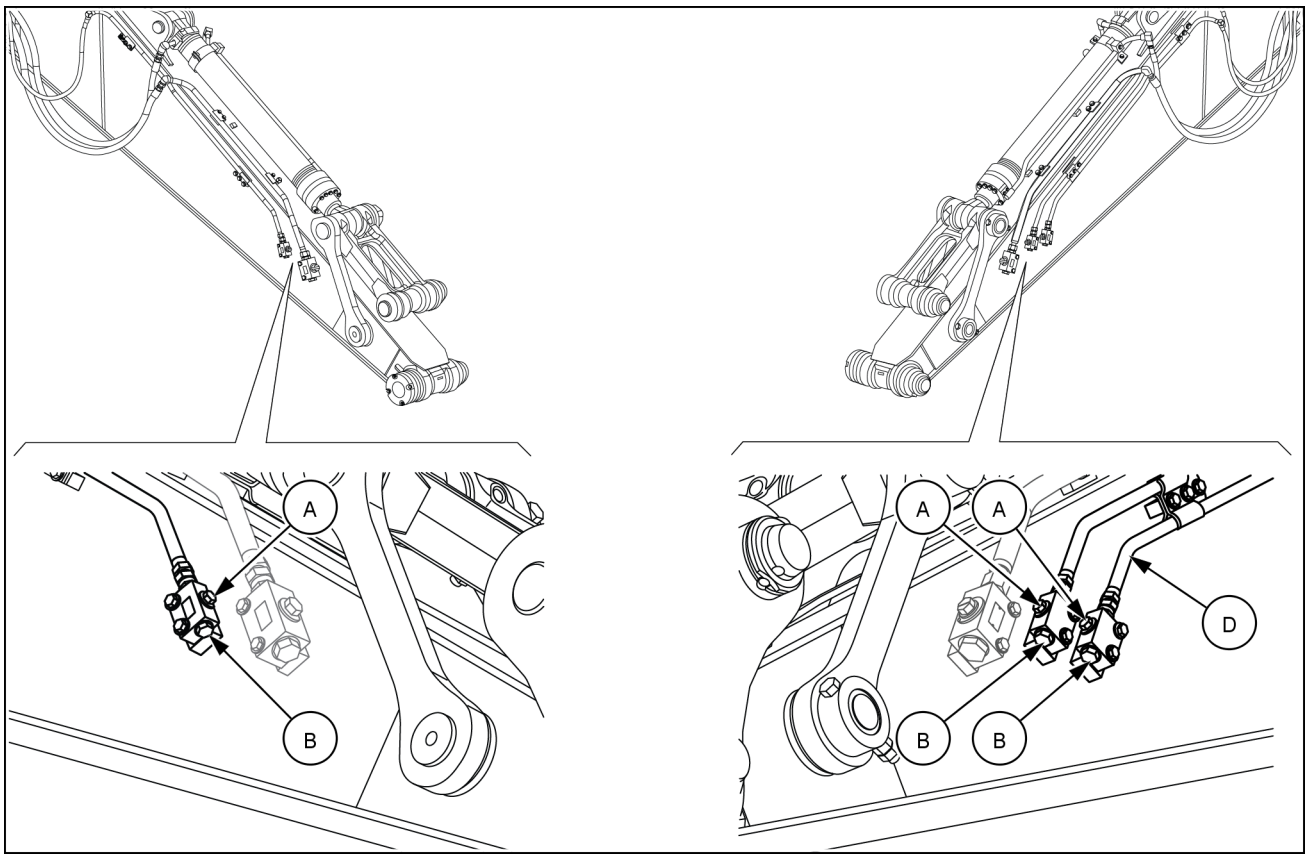
○ Density of material up to 2 t/m^3
● Density of material up to 1.6 t/m^3
■ Density of material up to 1.2 t/m^3
x Not applicable

Auxiliary low-flow hydraulic circuit

The machine can be equipped with an additional auxiliary low-flow hydraulic circuit to operate attachments featuring secondary hydraulic actuation for positioning, such as rotating grabs or tiltable buckets.

Hydraulic connections

The feed valves at the top of the arm allow to install properly and safely the hoses to connect the hydraulic attachment to the lines of the auxiliary low-flow hydraulic circuit.



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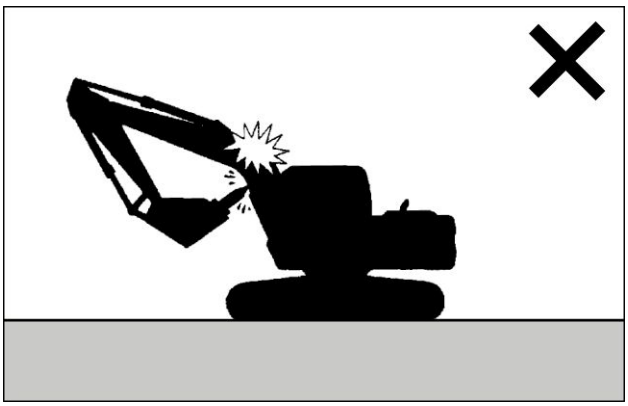
Open/Close tool **(A)**	**24 mm** wrench
Hydraulic connection **(B)**	G 3/4” female port with O-Ring seat

NOTE: *the maximum flow rate of the auxiliary low-flow hydraulic circuit using the SP work mode is* ***63 L/min*** *(****16.6 US gpm****). The maximum working pressure of the auxiliary low-flow hydraulic circuit is* ***20.6 MPa*** *(****2988 psi****).*

NOTE: *an additional drainage line* ***(D)*** *is located on the left side of the arm. The drainage line* ***(D)*** *is intended to allow external drainage from the hydraulic motor which rotates the grab or the crusher.*

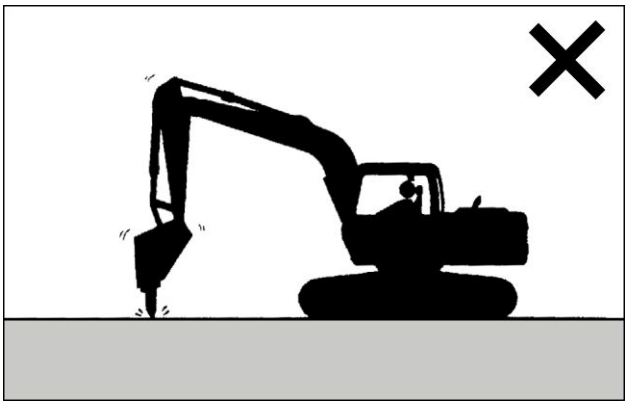
NOTICE: *Always keep each connecting hose on the same side of the arm. Never cross-over the connecting hoses between the two sides of the arm.*

Operate the excavator carefully to avoid hitting the boom with the hydraulic breaker.



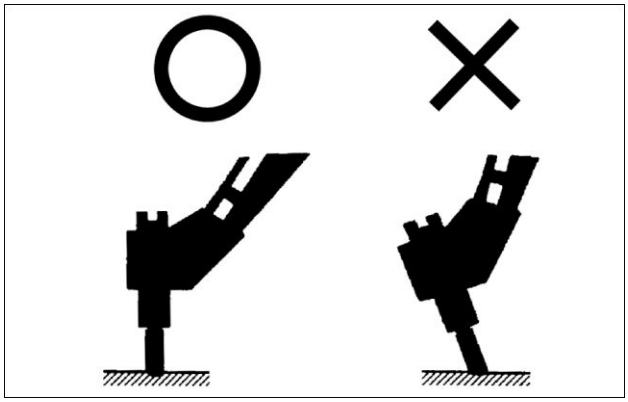
NH0202 33

Do not operate the breaker with the arm positioned vertically. Excessive vibration to the arm cylinder may cause oil leakage.



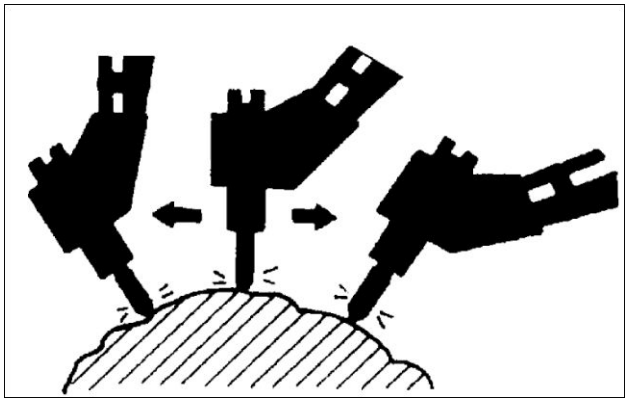
NH0203 34

Press the breaker so that the chisel point thrust is square (perpendicular) to the object to be broken.



NH0204 35

Do not operate the hydraulic breaker continuously longer than **15 s**. Excessive chisel wear will result. If an object could not be broken within **15 s**, apply chisel to other locations, less than **15 s** for each location.



NH0205 36

Hydraulic quick coupling system

⚠ WARNING

Crushing hazard!
Never put your hands inside the quick coupler when the engine is running. Turn off the engine and wait for all movement to stop.
Failure to comply could result in death or serious injury.

W0252A

⚠ 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

NOTICE: *The quick coupler extends the length of the arm. Make sure to check the operating range of the coupled attachment in order to avoid risk of hitting the cab or the machine frame.*

NOTICE: *Never operate with a quick coupled hydraulic breaker over a long period of time, in order to reduce the risk of premature wear, failures or breakage of the quick coupler. Never use the breaker as a lever, as the stress would be borne by the quick coupler cylinder.*

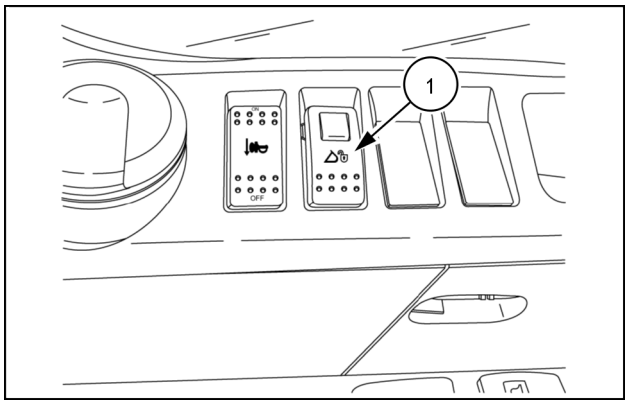
NOTICE: *Make sure to read and understand the Operator's Manual of the hydraulic quick coupler for proper installation, usage and maintenance.*

NOTICE: *The CASE CONSTRUCTION quick coupling system is supplied by the high pressure hydraulic system of the machine. Refer to Chapter 8 for the maximum working pressure of the hydraulic system. Make sure to use a quick coupler that is suitable for proper and safe operation with high pressure hydraulics. For information consult the CASE CONSTRUCTION dealer.*

Attachment engagement

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

1. Make sure the attachment to be installed is laying safely on flat and level ground.
2. Select the H work mode.
3. 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.



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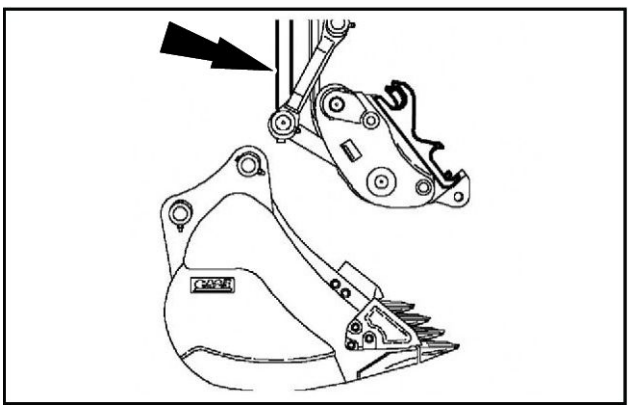
4. Operate the arm and bucket controls so that the arm is practically vertical, sloping slightly towards the cab to release the safety device. Extend the bucket cylinder rod completely and maintain the hydraulic pressure for approximately **5 – 10 s** so that the latching hook retracts.



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Quick coupler buckets application as function of the arm (CX370D NLC 2PB)

SCOOP Heavy Duty buckets			Arm	
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
0.91 m³ (**1.19 yd³**)	**900 mm** (**35 in**)	**1190 kg** (**2624 lb**)	○	○
1.19 m³ (**1.56 yd³**)	**1100 mm** (**43 in**)	**1320 kg** (**2910 lb**)	○	●
1.33 m³ (**1.74 yd³**)	**1200 mm** (**47 in**)	**1420 kg** (**3131 lb**)	●	●
1.54 m³ (**2.01 yd³**)	**1350 mm** (**53 in**)	**1520 kg** (**3351 lb**)	■	■
1.75 m³ (**2.29 yd³**)	**1500 mm** (**59 in**)	**1650 kg** (**3638 lb**)	■	x

SCOOP Rock buckets			Arm	
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
0.91 m³ (**1.19 yd³**)	**900 mm** (**35 in**)	**1210 kg** (**2668 lb**)	○	○
1.19 m³ (**1.56 yd³**)	**1100 mm** (**43 in**)	**1340 kg** (**2954 lb**)	○	●
1.33 m³ (**1.74 yd³**)	**1200 mm** (**47 in**)	**1440 kg** (**3175 lb**)	●	●
1.54 m³ (**2.01 yd³**)	**1350 mm** (**53 in**)	**1540 kg** (**3395 lb**)	■	■
1.75 m³ (**2.29 yd³**)	**1500 mm** (**59 in**)	**1670 kg** (**3682 lb**)	■	x

FP Ditch cleaning buckets			Arm	
Capacity **ISO 7451** (Heaped)	Width	Mass	**2.63 m** (**103.54 in**)	**3.25 m** (**127.95 in**)
1.48 m³ (**1.94 yd³**)	**2130 mm** (**84 in**)	**1080 kg** (**2381 lb**)	●	●
		1260 kg (**2778 lb**) (*)	●	●
1.66 m³ (**2.17 yd³**)	**2440 mm** (**96 in**)	**1180 kg** (**2601 lb**)	●	■
		1380 kg (**3042 lb**) (*)	■	■

(*) with bolt-on cutting edge

○ Density of material up to 2 t/m^3
● Density of material up to 1.6 t/m^3
■ Density of material up to 1.2 t/m^3
x Not applicable

NOTICE: *A bucket mounted on the quick coupler has a longer overall teeth radius. Always check the operating range of the machine with the Coupler bucket. Avoid abrupt operation in order to keep proper clearance between the bucket and the cab or boom or other significant parts of the machine.*

NOTICE: *A bucket mounted on the quick coupler has a longer overall teeth radius. Therefore, the bucket cannot be fully curled after the arm has been fully retracted, and the overall height of the machine in the transport position is increased. The recommended operating practice is to remove the bucket from the coupler before any transport operation in order not to increase the overall height of the machine.*

Front Guard Protective Structure

The Front Guard Protective Structure (FGPS) must be installed if the machine is operated in conditions where there is a risk of projection of rocks or debris towards the front of the cab, or a risk of collision of heavy objects with the front of the cab.

Two types of FGPS are available: a FGPS compliant to Level 1 as defined by ISO 10262, or a FGPS compliant to Level 2 as defined by ISO 10262.

Level 1 FGPS **(1)** is intended for protection from small rocks, light debris, wood chips, and other light objects encountered in applications such as construction site services, secondary sorting of crushed materials, roads maintenance, waste rehandling, landscaping.

NOTICE: *The upper part of the Level 1 FGPS can be opened so to ease cleaning and maintenance of the windshield. Never start machine operation with the upper part of the FGPS opened. Failing to comply may result in death or serious injury.*

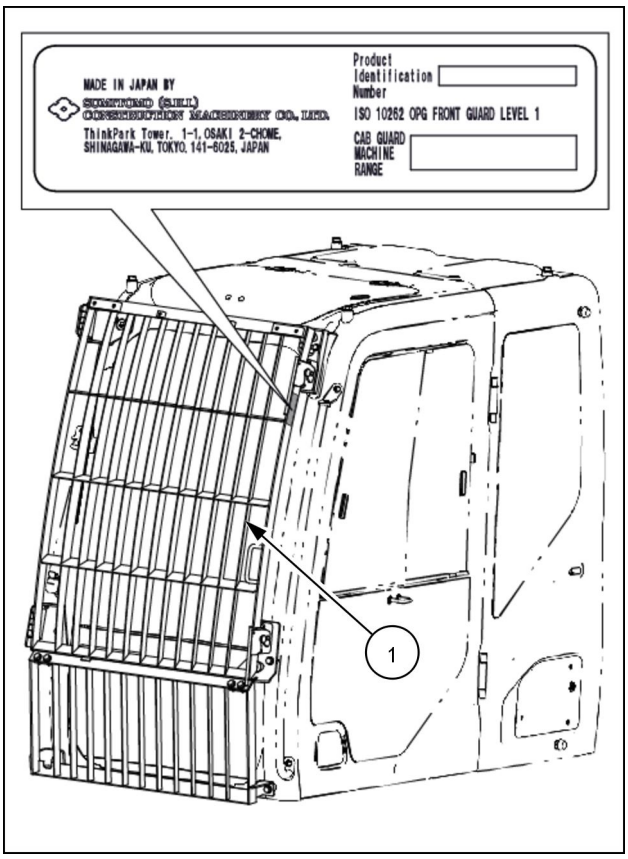
Level 2 FGPS **(2)** is intended for protection from heavy stones, rock or concrete blasts, steel scrap, logs and other heavy objects encountered in applications such as quarry, mining, primary and secondary demolition, scrap loading, log stacking.

The protective structures, the fitting supports and fastening elements on the machine are all parts of an integrated protective system.

Never make modifications, or drill holes, or weld parts on protective structures. Doing so will result in death or serious injury.

Never attach any device to the protective structures for pulling purposes. Doing so will lead to serious damages to the protective structures.

After a fire, a collision, or a tip-over, or in case of corrosion, the cab protective structures shall be carefully checked for damages by specialised and qualified personnel. Moreover, all damaged parts must be replaced with genuine spare parts, in order to return the protective system to its original condition. Make sure to match the part number of each protective structure. Immediately call the CASE CONSTRUCTION dealer for inspection of the conditions of the cab's protective structures, or to get parts or entire structures replaced.



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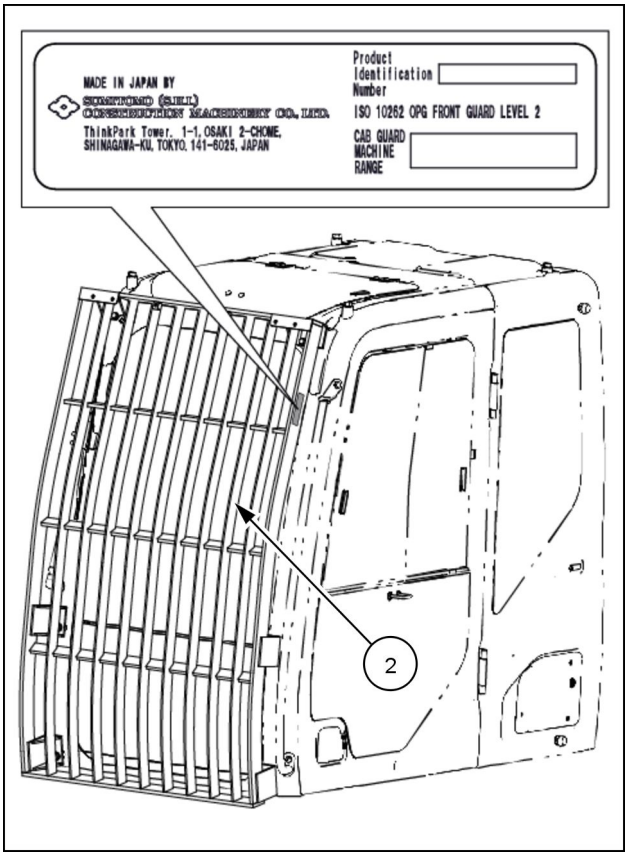

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