The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

All data given in this manual is subject to production variations. Dimensions and weights are provided with approximate values and the machine fitting shown in the illustrations may not correspond with standard models. For precise information on specific machine models and versions, please consult your NEW HOLLAND CONSTRUCTION Dealer.

# Intended use

**⚠ WARNING**

**IMPROPER OPERATION OF THIS MACHINE CAN CAUSE DEATH OR SERIOUS INJURY.**
**MAKE SURE THAT EVERY OPERATOR:**
**-learns and practices the safe use of machine controls in a safe, clear area before operating the machine on a job site.**
**-clears the work area of all bystanders.**
**-observes pertinent laws and regulations.**
**-follows the instructions in this operator's manual.**
**Failure to comply could result in death or serious injury.**

W0189A

***NOTICE:*** *do not use the excavator for operations which are foreign to its specifications and not included in this operator's manual. NEW HOLLAND CONSTRUCTION and NEW HOLLAND CONSTRUCTION dealer are not responsible for damage caused by improper use.*

The excavator has been designed to carry out digging and earth-moving operations through the use of a bucket. Operations that involve the use of hydraulic hammers are also possible. Other operations, such as moving suspended loads, are only possible if the specific variant approved by the NEW HOLLAND CONSTRUCTION is present.

Using the excavator and its equipment for different operations, such as towing, transporting and lifting people, is considered inappropriate and is prohibited.

# Electro-Magnetic Compatibility (EMC)

Interference may arise as a result of add-on equipment that may not necessarily meet the required standards. As such interference can result in serious malfunction of the unit and/or create unsafe situations, you must observe the following:

- The maximum power of emission equipment (radio, telephones, etc.) must not exceed the limits imposed by the national authorities of the country where you use the machine
- The electro-magnetic field generated by the add-on system should not exceed **24 V/m** at any time and at any location in the proximity of electronic components
- The add-on equipment must not interfere with the functioning of the on board electronics

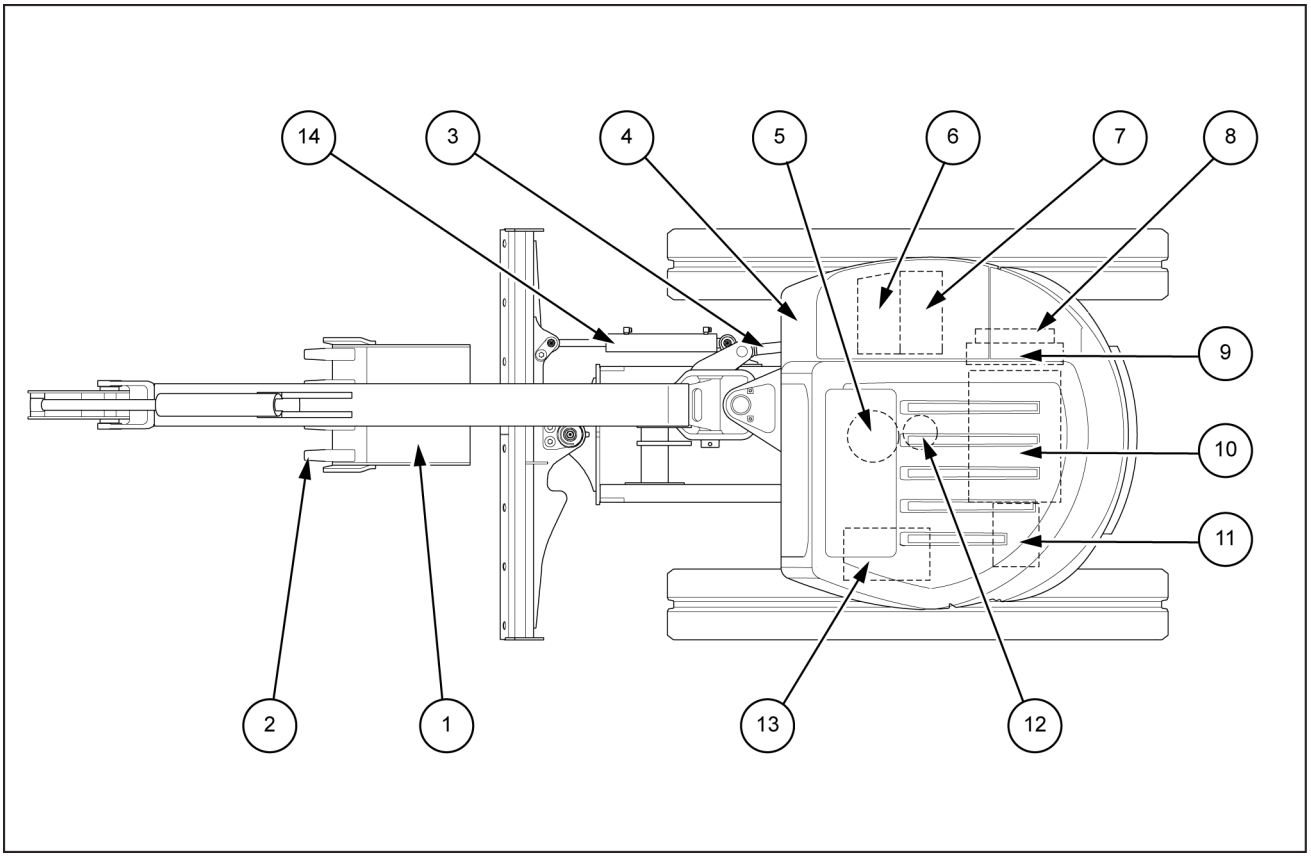
Failure to comply with these rules will render the NEW HOLLAND CONSTRUCTION warranty null and void.

# Telematics (optional)

***NOTE:*** *the NEW HOLLAND CONSTRUCTION**FleetForce™** website (www.newhollandfleetforce.com) will not be accessible until the NEW HOLLAND CONSTRUCTION**FleetForce™** subscription for this machine is registred by an authorized NEW HOLLAND CONSTRUCTION dealer. Contact an authorized NEW HOLLAND CONSTRUCTION for details.*

This machine can be equipped with a telematics system. This is an asset-monitoring system that combines Internet, cellular, and GPS technologies. A transponder unit is mounted on the equipment that wirelessly communicates with the user interface NEW HOLLAND CONSTRUCTION**FleetForce™** at www.newhollandfleetforce.com. Using cellular technology, the transponder can send equipment data, including location, on/off status, usage and production metrics, diagnostic data, movement alarms, and unauthorized usage to the interface. The system will help cut costs and keep accurate records. See the furnished guide for operating your telematics system.

## Angle blade version




SMIL18MEX0106FB 3

1. Bucket
2. Bucket tooth
3. Boom swing cylinder
4. Tool box
5. Swing motor
6. Fuel tank
7. Hydraulic oil tank
8. Oil cooler
9. Radiator
10. Engine
11. Main pump
12. Hydraulic central joint
13. Main control valve
14. Angle blade cylinder

- The working area of the end attachment that is mounted may interfere with the machine. Interference may be caused due to the type of end attachment or installation of parts such as a cab guard. Always maintain a safe margin of distance. (Be careful of tool swing or accidental operations.)
- To access or exit the operator's compartment, the left-hand control arm must be in the raised position. Never forget this basic requirement.
- Never leave the operator's compartment while the engine is running.
- To get in or out of the cab, it is imperative that the upperstructure frame is in line with the undercarriage.
- Dust, smoke, or mist can reduce visibility and cause an accident. Reduce speed or come to a complete halt until visibility has improved.
- Never jump down from the machine. When you exit the machine or the upperstructure, always face the machine and use the steps and access handles.
- In the event of an operating problem or failure, move the machine to a safe place, lower the attachment to the ground, shut down the engine, and remove the ignition key. Locate the problem, report it if necessary, and take the necessary steps to warn others not to attempt to operate the machine.
- Before tilting the seat back forward, it is mandatory to raise the armrests to avoid any accidental operation of the control levers.
- Never turn the key of the battery master switch to "O" (Off) position when engine is running. The electrical systems can be damaged.
- When the engine is stopped, always wait three minutes minimum before you place the key of the battery master switch in "O" (Off) position, otherwise the program of the machine controllers will not exit successfully.

## ⚠ Preventing risks caused by vibrations⚠

The machine's vibration affects the comfort and in some cases the health and safety of the operator. To reduce vibration risks to a minimum:

1. Make sure that the machine, the equipment, and the tool are suitable for the work to be carried out.
2. Make sure that the machine is in good condition and that servicing intervals are complied with.
3. Check the track tension adjustment and the play in equipment linkages.
4. Make sure that the operator's seat and adjustment controls are in good condition and then adjust the seat to suit the operator's size and weight.

During work:

1. Operate all controls gradually to ensure smooth machine operation.
2. Modify the machine's operation to suit the working conditions.
3. During travel, adjust the machine's speed, reducing it if necessary.
4. Make sure that the machine's operating radius is in good condition, and free of obstacles and holes.

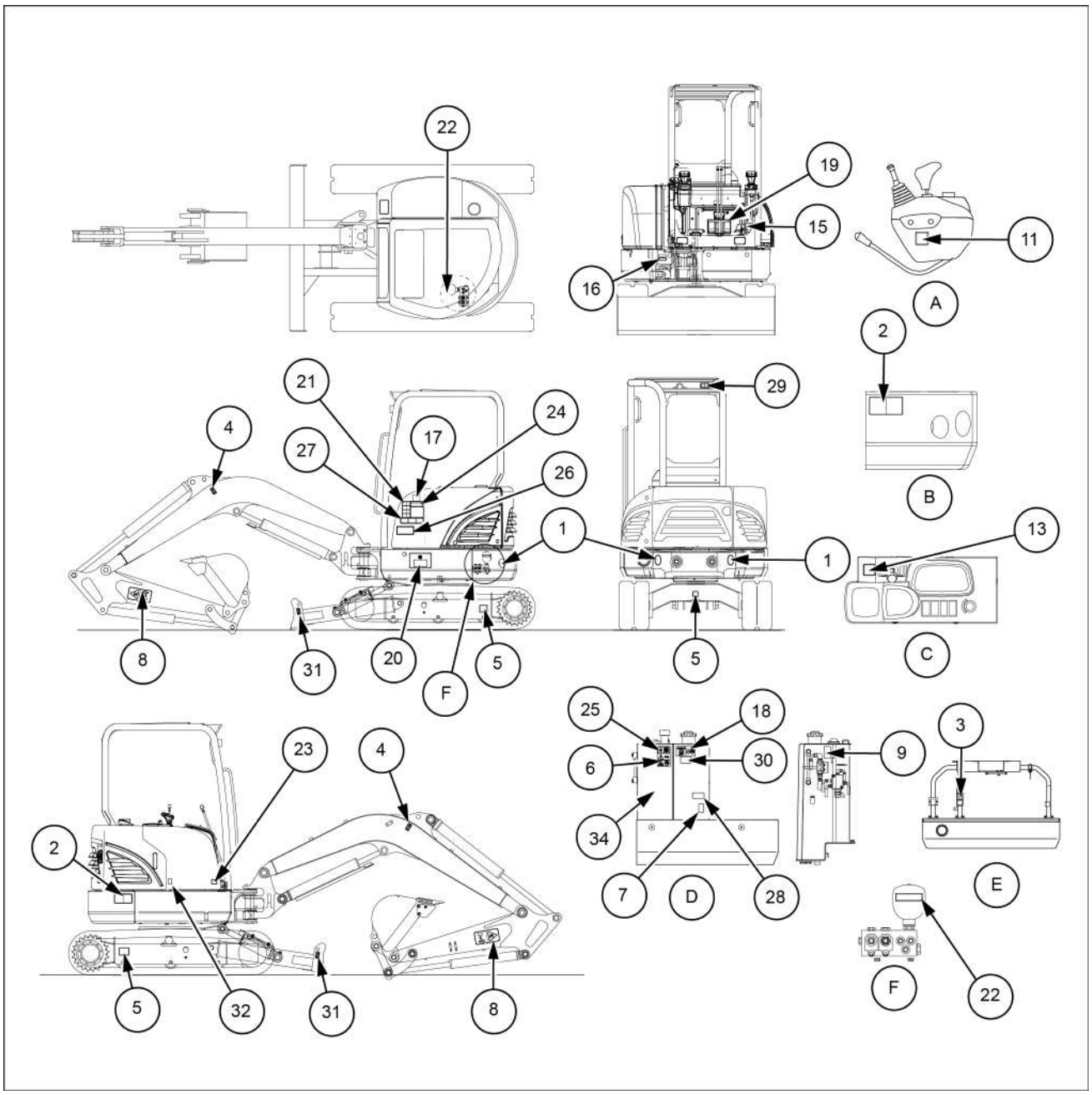
## ⚠ Quick coupler (optional)⚠

- Never place the control switch in the unlocked position when the machine is working.
- Each time a bucket is installed on the quick coupler, close the bucket and raise the attachment so as to be able to make a visual check that the bucket pin is correctly engaged in the latching hook.
- The quick coupler modifies the working range of the machine. In certain attachment positions the tool may damage the machine. Always leave a safe distance between the quick coupler and the machine..
- Never carry out load handling using the front or rear anchoring points used to install the tool on the quick coupler.
- Never put your hands inside the quick coupler. Never attempt to adjust or repair the quick coupler if the engine is running.

## ⚠ Parking the machine⚠

When parking the machine, proceed as follows:

1. Position the machine on flat, level ground, away from soft ground, excavations, or poorly shored cavities.
2. Place the upper-structure and the attachment in line with the undercarriage, retract the attachment, and dig the bucket into the ground.
3. Lower the dozer blade (if equipped) until it rests on the ground.
4. Place the gate lock lever in central position before leaving the operator's compartment.
5. Stop the engine and remove the ignition key.
6. Lock the cab door.
7. Make sure that the hoods and doors are properly latched.




SMIL18MEX0918GB 2

**Canopy version**

A. Console box - Left hand
B. Counterweight
C. Console box - Right-hand
D. Hydraulic tank and fuel tank
E. Cowl support (engine compartment)
F. Accumulator of the solenoid valve

**(21)** Danger electric line - Interference with attachments

**⚠ WARNING**

**Fold zone!**
**The booms may hit the cab when folding. Use extra care during manual boom folding and unfolding.**
**Failure to comply could result in death or serious injury.**

W0032A

**⚠ CAUTION**

**Electrocution hazard!**
**Contact with overhead power lines can cause severe electrical burns or death from electrocution. Make sure there is enough clearance between equipment and overhead power lines.**
**Failure to comply could result in minor or moderate injury.**

C0103A

Cab location: this sign is located on the right-hand side window of the cab.

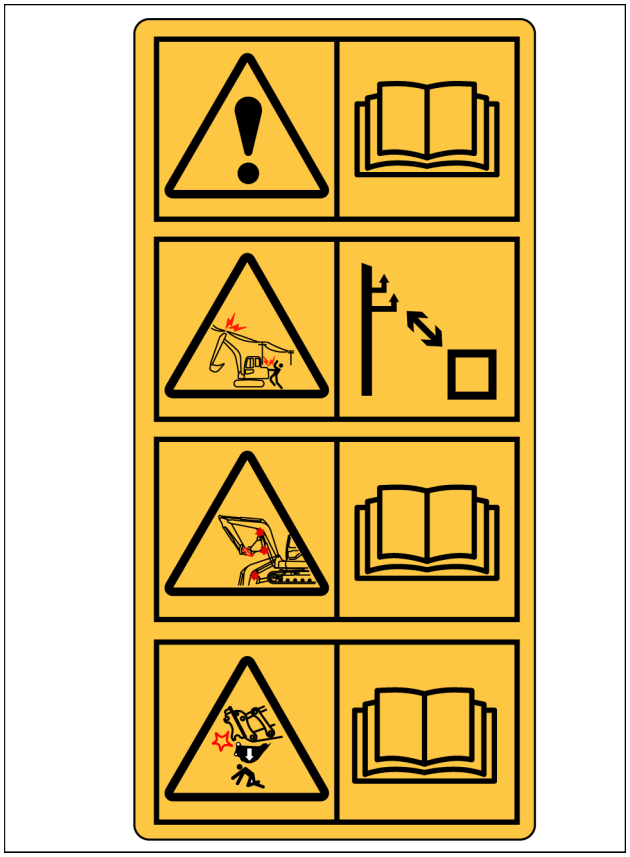
Canopy location: this sign is located on the right-hand side of the canopy.

Quantity: 1

Part number: 91M9-07243

This sign shows that work near overhead high-voltage electric lines must not be done without checking beforehand that all necessary measures have been taken to respect the minimum distances.

The cab/canopy and/or the boom may collide with the arm or the bucket (at the end of the attachment) depending upon the length of the arm, the size of the bucket, the angle of the boom swing, or the installation of a quick coupler or other attachment. Be sure to avoid abrupt operation and secure proper clearance in order to prevent collision with the cab/canopy and the boom.



SMIL19MEX0705BA 25

## Travel control levers and pedals

The travel control levers and pedals are used to move the machine.

**(N)**: neutral

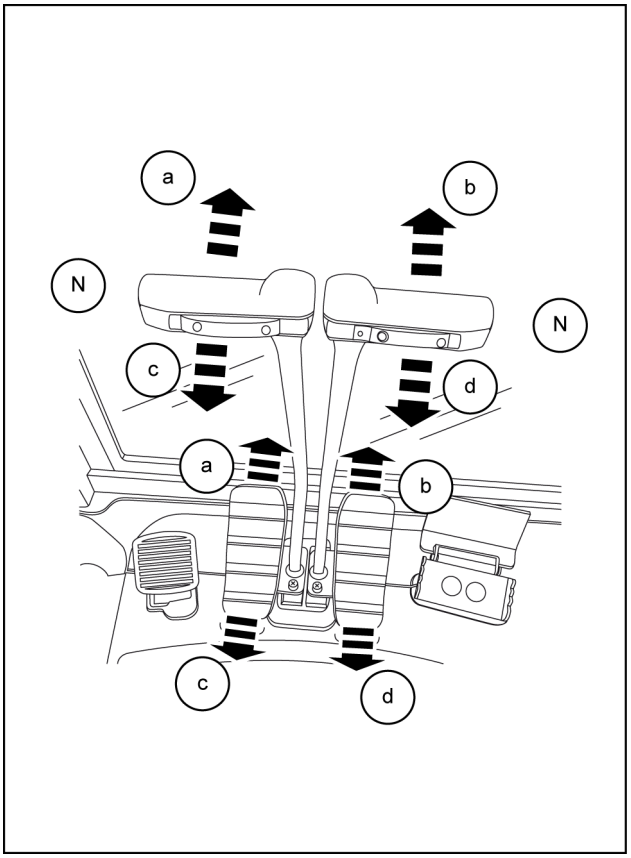
**(a)** + **(b)**: machine moves forward.

**(c)** + **(d)**: machine moves backward.

**(b)** + **(c)**: opposite simultaneous rotation of the tracks with consequent counterclockwise rotation of the machine around its center axis.

**(a)** + **(d)**: opposite simultaneous rotation of the tracks with consequent clockwise rotation of the machine around its center axis.

**(a)**, **(b)**, **(c)**, **(d)**: positions to move one track only. Consequently the machine steers pivoting on the stationary track.

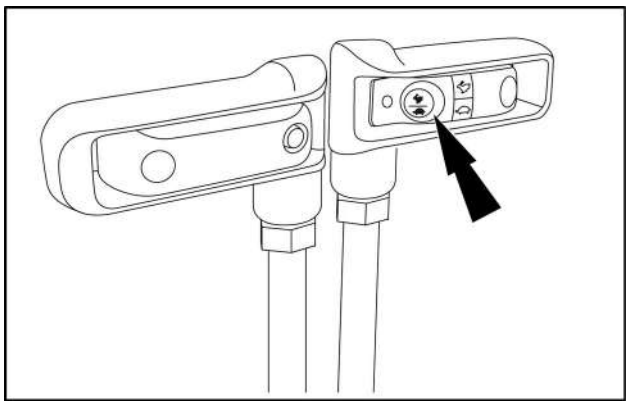



SMIL16MEX0915BA 13

## Travel mode selector switch

The travel mode selector switch allows to set two different travel speed ranges:

- Low speed range: **0 – 2.4 km/h** (**0.0 – 1.5 mph**)
- High speed range: **0 – 4.3 km/h** (**0.0 – 2.7 mph**)



SMIL16MEX1499AA 14

# Dozer blade control lever

**⚠ 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**

## Standard version

The dozer blade control lever is located on the right-hand console.
The basic operation of dozer blade control lever are the following:

- push the dozer blade control lever forward **(A)** to lower the dozer blade.
- pull the dozer blade control lever rearward **(B)** to raise the dozer blade.

The operation of the dozer blade stops when the lever is released. The lever returns to the neutral position.

Use the blade only for light work such as dozing of soft soil or mud.

Do not forcibly push down or dig deeply with the blade.

When operating in an area with many rocks and stones, pay attention not to damage the blade.

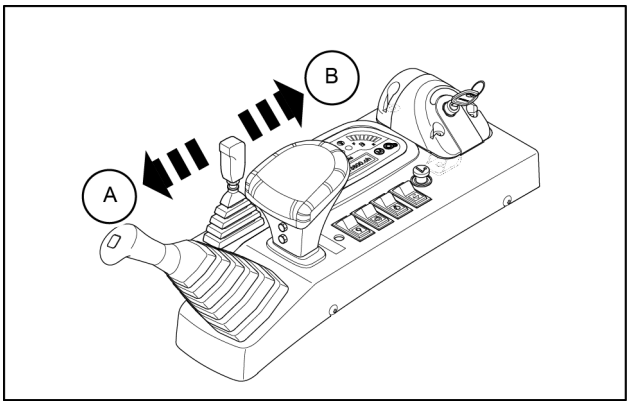
***NOTICE:*** *during blade operations, avoid application of concentrated or lateral load to the blade. Severe damages may be caused to the blade structure.*

When the blade is used as an outrigger during the operation, check that the ground has the sufficient strength, and be sure that the edge surface of the blade is contacting the ground uniformly. Severe damages may be caused to the blade structure if the machine is supported only at one side of the blade.

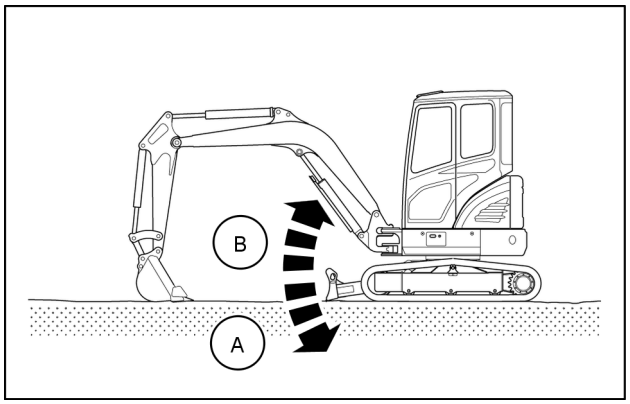
***NOTICE:*** *make sure to lower the blade to the ground before stopping machine operation.*

If the engine is stopped with the blade in raised position, it is still possible to lower the blade proceeding as follows:

1. Turn the starter key to ON position.
2. Set the safety lock lever in forward position.
3. Push the blade control lever to lower the dozer blade.




SMIL16MEX1466AB 1



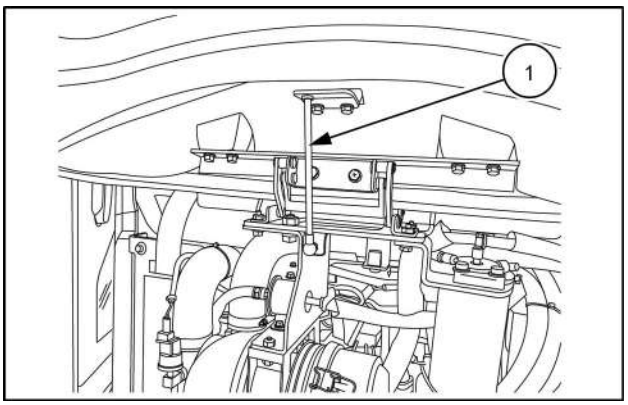

SMIL18MEX0128AA 2

## Opening

1. Use the starter key to unlock the engine door.
2. Use the hook to gently lift up the hood and use the lifting stem **(1)** to secure the hood.

***NOTICE:*** *while lifting the hood, make sure the hood does not contact the cab. Machine damage could result.*

***NOTICE:*** *never leave tools inside the compartment.*

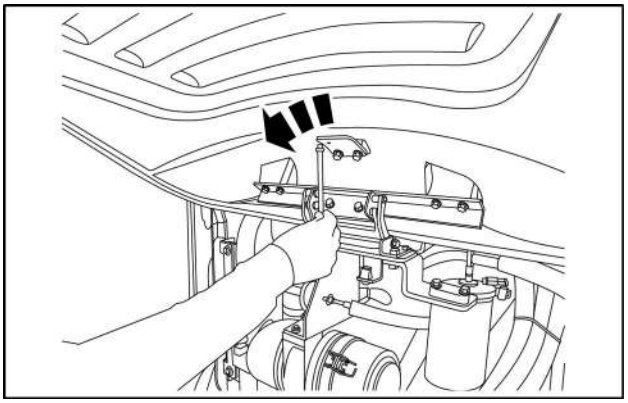



SMIL16MEX1438AA 3

## Closing

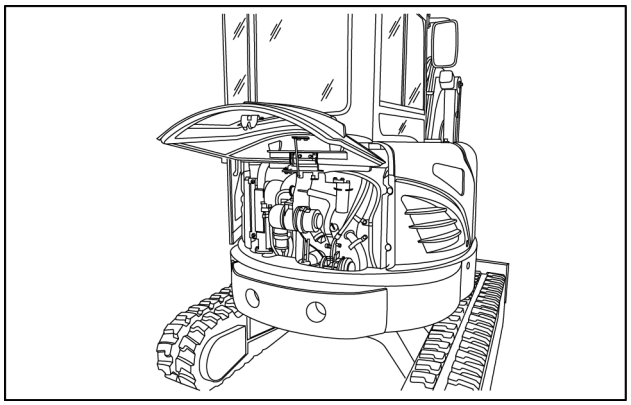
1. Lightly lift up the side hood, lower the lifting stem and use the handle to lower the side hood gently.

   ***NOTICE:*** *when you lower the hood, make sure that the hood does not contact the cab. Machine damage could result.*
2. Make sure to close the side hood firmly.
3. Use the starter key to lock the hood.



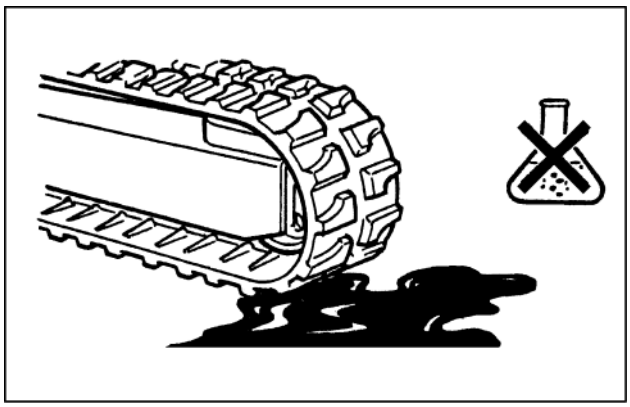
SMIL16MEX1455AA 4

4. Pull the hook in order to unlock the engine access door.
5. Use the handle and close the engine door firmly.
6. Use the starter key to lock the door.



SMIL16MEX1437AA 5

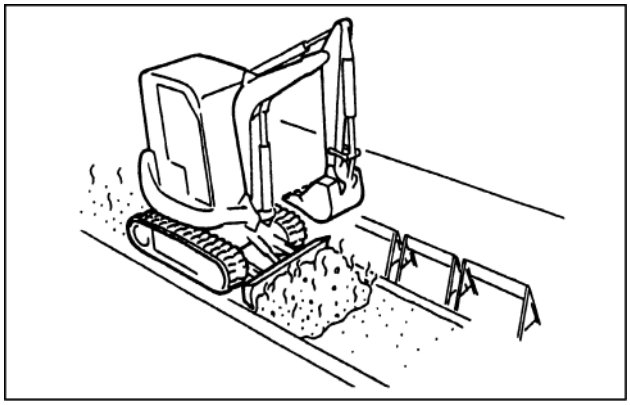
Do not let oil, fuel, solvents, etc., come in contact with rubber shoes. If this happens, wipe off tracks with a cloth immediately.



LELI11E0261AA 3

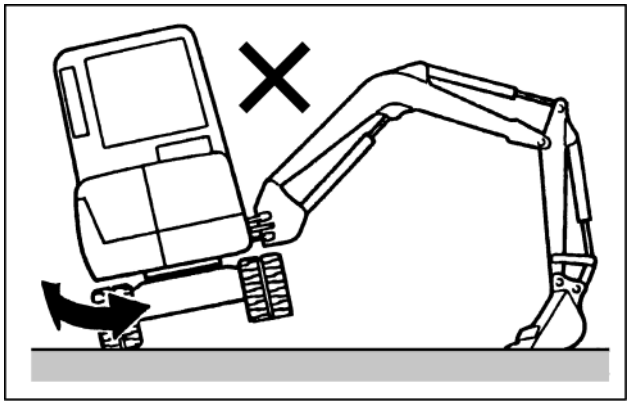
Do not enter such hot places as an open-air fire, or a steel plate left in the open sun.
Do not work in asphalt leveling.

When storing the machine for a long period (more than three months), keep it in a closed room where it will not be exposed to direct sunshine or rain.



LELI11E0262AA 4

When the machine travels only on one side of the track, and keeps the other side floating, the track may come off of the rollers or get damaged.



LELI11E0263AB 5

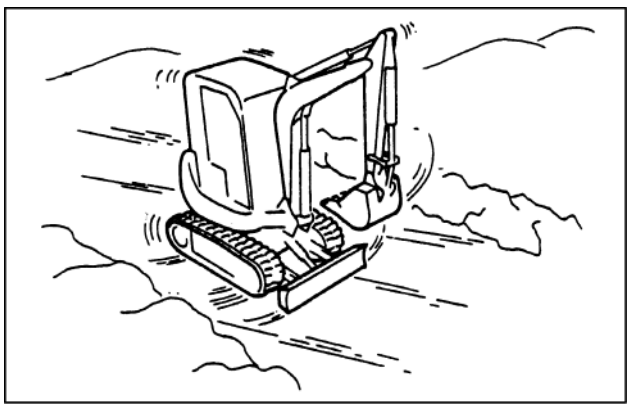
## Precautions for use

Use care of the following when working.

Rubber tracks slip easily on icy surfaces.
Take the necessary safety precautions.

Avoid making a spin turn on concrete surfaces.

Avoid abrupt changes of direction as this will cause an early wear or damage of the rubber tracks.

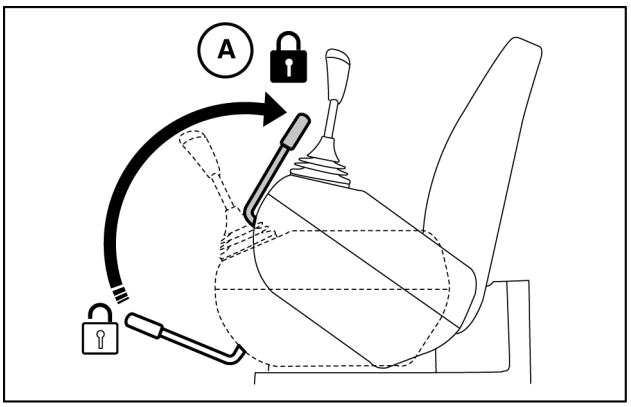


LELI11E0264AA 6

- Set the safety lever to the LOCK position **(A)**.
- Stop the engine, and remove the starter key.

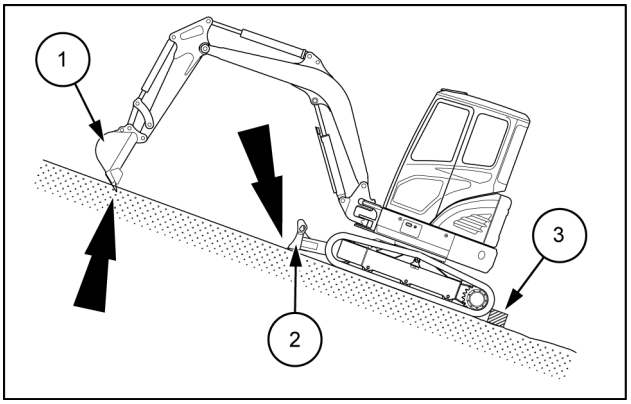
  ***NOTICE:*** *do not shut off the engine when running at full speed, but let it run at low idle speed for* ***5 min*** *in order to cool it down.*
- Block both tracks by means of wedges.
- Close all windows of the cab.
- Using the starter key, lock the cab door, the engine guards, the cooler cover, and the fuel filler cover.

***NOTE:*** *make sure that no part of the machine is interfering with any public road. Install appropriate traffic signs if any portion interferes public road.*



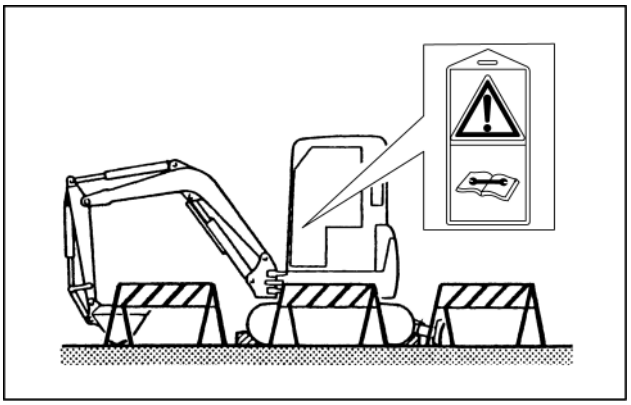

LELI11E0241AB 3

If parking on a slope is unavoidable, orient the undercarriage along the slope, and lower and indent the bucket **(1)** and the dozer blade **(2)** into the ground. Follow the parking procedure described above, and then make sure to block both tracks by means of wedges **(3)** as outlined in the picture.




SMIL18MEX0137AB 4

If the machine is parked after an emergency stop, remove the starter key, and place the "Do not operate" tag on the machine controls. Get off the operator compartment, and close the cab door. Block both tracks by means of wedges, and define a safe area of at least **3 m** (**9.8 ft**) around the machine, cleaning this area from obstacles and bystanders. Call the NEW HOLLAND CONSTRUCTION dealer for assistance.



LELI11E0243AA 5

### Maintenance planning

# Maintenance chart

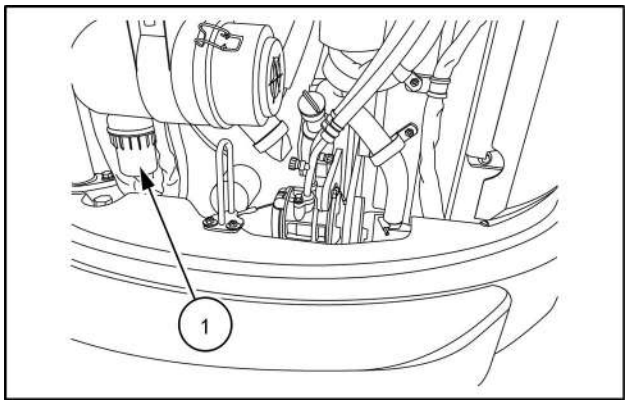
| Maintenance action | Check | Change fluid | Replace | Grease | Charging | Cleaning | Adjust | Drain fluid | Page no. |
|---|---|---|---|---|---|---|---|---|---|
| Break-in period | | | | | | | | | |
| Tightening torques | x | | | | | | | | **6-19** |
| Engine oil and filter | | x | | | | | | | **6-19** |
| Fuel filter | | | x | | | | | | **6-19** |
| Hydraulic oil return filter | | | x | | | | | | **6-19** |
| Pilot line filter | | | x | | | | | | **6-19** |
| Travel reduction gears | | x | | | | | | | **6-19** |
| Boom swing cylinder | | | | x | | | | | **6-20** |
| Grease points (Bucket) | | | | x | | | | | **6-20** |
| Grease points (Boom and arm) | | | | x | | | | | **6-20** |
| Grease points (Blade) | | | | x | | | | | **6-20** |
| Every 10 hours | | | | | | | | | |
| Engine oil level | x | | | | | | | | **6-21** |
| Engine coolant level | x | | | | | | | | **6-22** |
| Hydraulic oil level | x | | | | | | | | **6-23** |
| Fuel filter water separator | | | | | x | | | | **6-24** |
| Fan and alternator drive belt | | | | | | x | | | **6-25** |
| Air-conditioning compressor drive belt | | | | | | x | | | **6-27** |
| Every 50 hours | | | | | | | | | |
| Grease points (Bucket) | | | | x | | | | | **6-28** |
| Grease points (Blade) | | | | x | | | | | **6-29** |
| Swing ring gear | | | | x | | | | | **6-31** |
| Track tension | x | | | | | | | | **6-32** |
| Fuel tank drain | | | | | x | | | | **6-34** |
| Every 100 hours | | | | | | | | | |
| Fuel filter water separator | | | | | | x | | | **6-35** |
| Every 250 hours | | | | | | | | | |
| Battery | x | | | | | | | | **6-37** |
| Swing bearing | | | | x | | | | | **6-40** |
| Boom swing cylinder | | | | x | | | | | **6-41** |
| Grease points (Boom and arm) | | | | x | | | | | **6-42** |
| Tightening torques | x | | | | | | | | **6-43** |
| Every 500 hours | | | | | | | | | |
| Engine oil and filter | | x | | | | | | | **6-44** |
| Fuel filter | | | x | | | | | | **6-46** |
| Air cleaner | | | | | | x | | | **6-48** |
| Radiator and coolers | | | | | | x | | | **6-51** |
| Every 1000 hours | | | | | | | | | |
| Hydraulic oil return filter | | | x | | | | | | **6-52** |
| Pilot line filter | | | x | | | | | | **6-53** |
| Travel reduction gears | | x | | | | | | | **6-54** |
| Valve clearance | x | | | | | | | | **6-54** |
| Injection nozzle | x | | | | | | | | **6-54** |
| Every 2000 hours | | | | | | | | | |
| Air cleaner | | | x | | | | | | **6-55** |
| Engine coolant | | | | | | x | | | **6-58** |
| Hydraulic oil suction filter | | | | | | x | | | **6-61** |

### Every 100 hours

# Fuel filter water separator

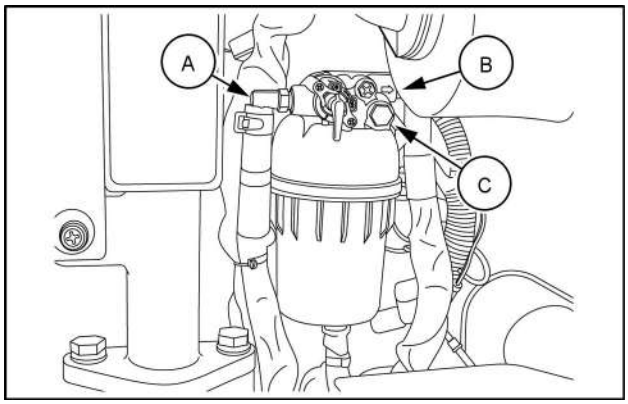
Drain water and sediment from the fuel filter water separator every **10 h** or every day.
Clean the filter element of the fuel filter water separator every **200 h**.

1. Open the engine hood to access to the fuel filter water separator and place a container with an appropriate capacity under the fuel filter water separator **(1)**.



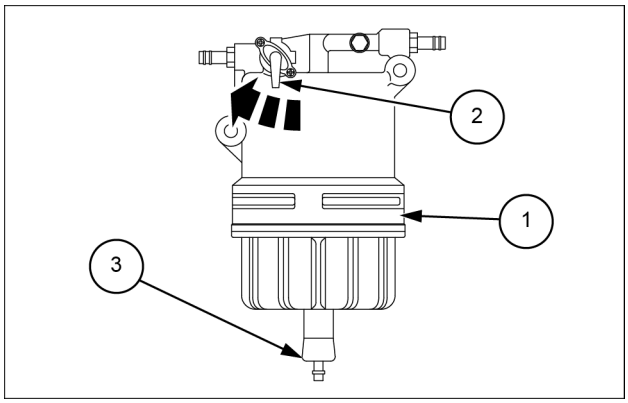

SMIL16MEX1445AA 1

A. IN (to the fuel injector pump)
B. OUT(from the fuel injector pump)
C. Air vent out




SMIL18MEX0535AB 2

2. Rotate clockwise the fuel cock **(2)** located on the fuel filter water separator **(1)** to close the fuel flow.
3. Loosen the drain plug **(3)** located at the bottom of the fuel filter water separator.
4. Drain the water collected inside.
5. Tighten the drain plug **(3)** to **1 – 2 N·m** (**0.7 – 1.5 lb ft**)
6. Open the fuel cock **(2)**.
7. Prime the fuel system.
8. Check for leaks.




SMIL16MEX0600AB 3

# Hydraulic oil suction filter

**⚠ WARNING**

**Burn hazard!**
**Before performing any service on the hydraulic system, you must allow it to cool. Hydraulic fluid temperature should not exceed 40 °C (104 °F).**
**Failure to comply could result in death or serious injury.**

**W0241A**

**⚠ WARNING**

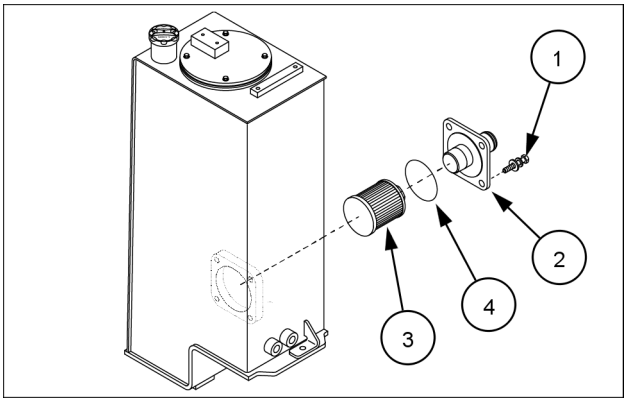
**Pressurized system!**
**Never attempt to drain fluids or remove filters when the engine is running. Turn off the engine and relieve all pressure from pressurized systems before servicing the machine.**
**Failure to comply could result in death or serious injury.**

**W0905A**

Clean the hydraulic oil suction filter every **2000 h**.

***NOTICE:*** *do not remove the hydraulic oil suction filter from the hydraulic tank before the hydraulic tank was empty.*

1. Clean the top of the hydraulic tank, and clean the cover of the inlet filter.
2. Remove the four bolts **(1)**, and the suction cover **(2)** from the hydraulic oil tank.
3. Remove the oil suction filter **(3)**, and clean it with a solvent.
4. Let it dry completely, and check for damage. If any damage is found on its surface, replace it with a new component.
5. Install a new O-ring **(4)**, and install the oil suction filter on the suction cover **(2)**. Lock the suction cover **(2)** with the four bolts **(1)**.
   Tighten the bolts **(1)** to **55 – 83 N·m** (**40.6 – 61.2 lb ft**).
6. Check the hydraulic fluid level, and add if necessary.

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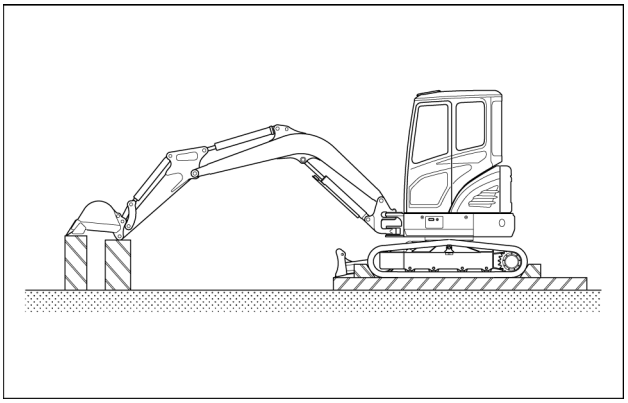
**Storage**

# Preparing for storage

- The following procedure applies when the machine is to be stored for a month or more. Store the machine on flat, level ground, inside a building or, if not possible, outside and covered with a tarpaulin. Before storing the machine, carry out the following operations:



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1. Clean the machine.
2. Make sure that the machine has no damaged or missing parts. Replace them if necessary.
3. Retract the cylinder rods as for as possible and lower the boom until the attachment is resting on the ground. Lower the dozer blade to the ground.
4. Grease the machine thoroughly. The exposed surfaces of the cylinder rods should be greased or covered with a protective film. Consult your NEW HOLLAND CONSTRUCTION Dealer.

***NOTE:*** *when the machine resumes service, the film will disappear automatically.*

5. While the engine is still warm, drain the oil sump, replace the oil filter and fill with specified oil. Check the oil level and add more if necessary.
6. Clean or replace the air filter element.
7. Check the level of coolant solution. If the machine is within **100 h** of the next scheduled coolant change, change the coolant now.
8. Remove the battery, clean the battery housing, and check that there is no adhesion of battery fluid. Store the battery safely in a cool and dry place where temperature is **0 °C** (**32 °F**) or more. Alternatively, cut-off the cable from the negative (-) terminal of the battery, or turn the battery disconnect switch to the OFF position.
9. Plug the air cleaner inlet and the exhaust pipe.
10. Remove the starter key, put the decal "NO OPERATION" on the console, and set the safety lock lever to rearward position (LOCK position).
11. Lock the engine door, and the cab door.
12. Prevent dust and moisture by keeping the machine dry. Store the machine setting wood on the ground.

# Auxiliary hydraulic circuits

## First auxiliary hydraulic circuits (1-way or 2-way)

The machine can be provided with a first auxiliary hydraulic circuit. This type of circuit can be alternatively set as a single acting circuit (1-way) or as a double-acting hydraulic circuit (2-way).

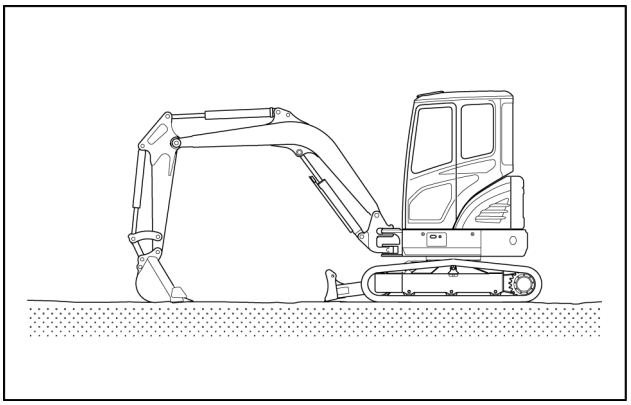
- The single-acting hydraulic circuit is intended for attachments such as a hydraulic breaker.
- The double-acting hydraulic circuit is intended for attachments such as auger, clamshell or nibbler.

## Hydraulic switching

The selection between the single-acting hydraulic circuit and the double-acting hydraulic circuit is done acting on the bolt located on the three-way valve near the hydraulic oil tank.

To select the hydraulic circuit perform the following operations.

Park the machine on a flat and level place. Stop the engine, and remove the starter key.



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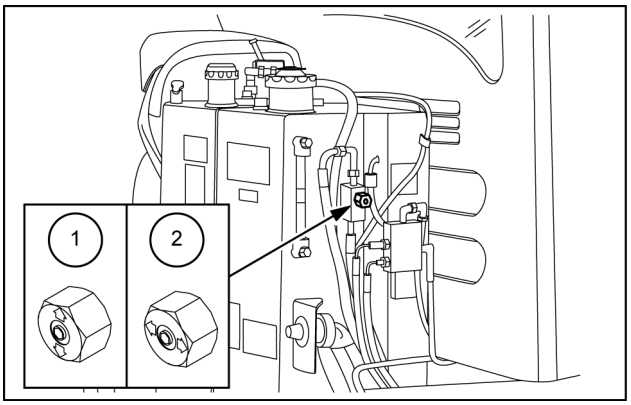
Open the side hood to access to the three-way valve.

Use a wrench to turn the bolt of the three-way valve and select the hydraulic circuit.

- **(1)**: 1-way flow, single-acting hydraulic circuit
- **(2)**: 2-way flow, double-acting hydraulic circuit

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