

CX17B
Tier 4
Hydraulic Excavator

Operator's Manual

Print No. S2PU00014ZE01

1st edition

English 03/10

From serial no. NATN16300



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NOTES

DECALS

Safety decals are placed on your machine as a guide for your safety. Walk around the machine, and note the content and location of these decals before operating your machine.

WARNING

An illegible or missing decal can have far-reaching consequences. Inspect decals daily. Clean and replace damaged decals as necessary. Failure to comply could result in death or serious injury.

CE-NA000

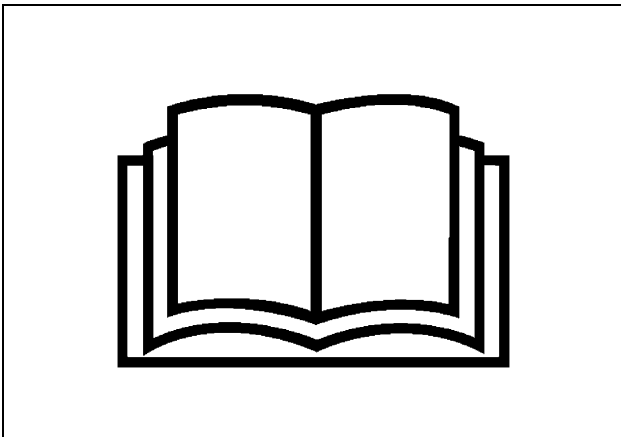
WARNING

Make sure that the decals are perfectly legible, clean them regularly and replace decals that are destroyed, lost, painted over or no longer legible with new ones. When parts bearing decals are replaced, be sure to put new decals on each new part. Failure to comply could result in death or serious injury.

CE-NA000

NOTE: When you clean the decals, use only a cloth, water and soap. Do not use solvents, gasoline, etc.

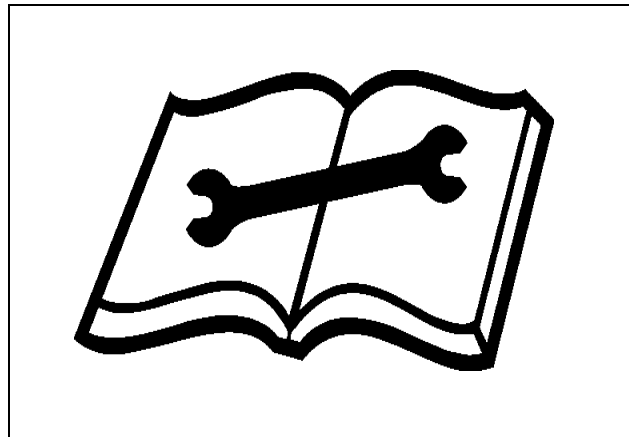
NOTE: This chapter only covers decals relating to safety and machine operation and servicing. For information on all decals for the machine, consult your authorized dealer.



384270A1A

Figure 7

This symbol instructs you to refer the Operator's Manual for further information regarding maintenance, operational guidelines, etc.



BC00G075




Figure 8

This symbol instructs you to refer to the Service Manual. If you doubt your ability to perform service operations, contact your authorized dealer.

NOTE: Safety Decals on this machine use the words **Danger, Warning, or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

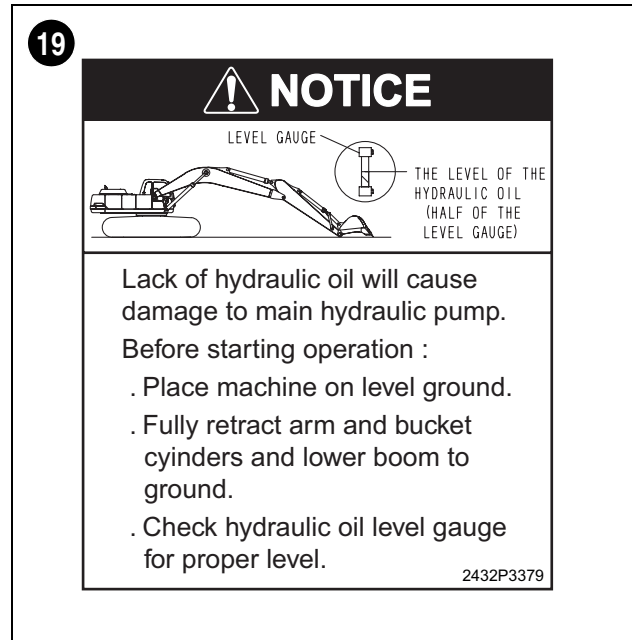
- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW
- Prohibition symbols such as   and  if used are RED.

HYDRAULIC OIL CHECK POSITION - NOTICE

Located on ceiling (canopy and cab).

Part Number 2432P3379

Check hydraulic oil to prevent machine damage.



UPX00100027E01

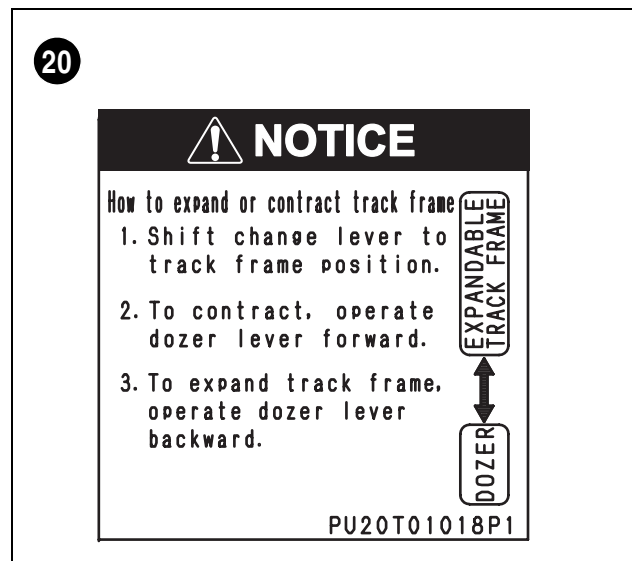
Figure 29

TRACK FRAME/DOZER- NOTICE

Located on seat stand cover.

Part Number PU20T01018P1

Directions for expanding and contracting track frame.

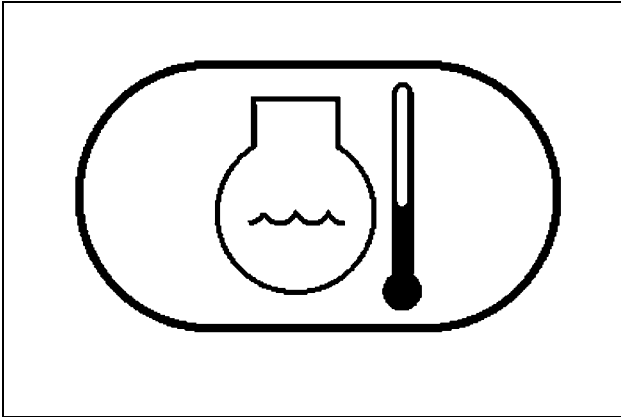


UPU00100013ES1

Figure 30

NOTES

COOLANT TEMPERATURE (Red)



BS07M777

Figure 26

⚠ WARNING ⚠

Hot coolant can spray out if the radiator cap is removed. To remove the radiator cap:

Let the system cool, turn to first notch, then wait until all pressure is released.

Scalding can result from fast removal of radiator cap. Check and service engine cooling system according to maintenance instructions. Failure to comply could result in death or serious injury.

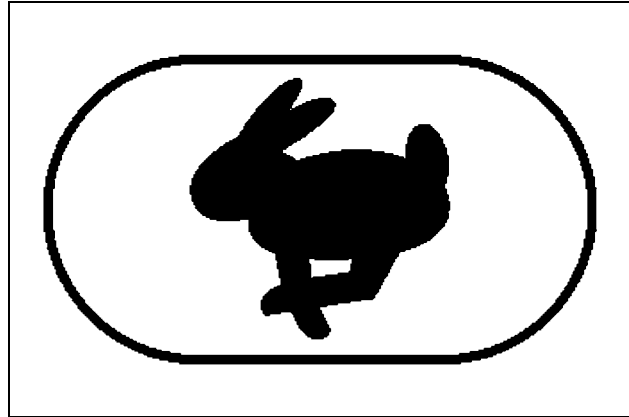
M49-39

If the coolant temperature rises abnormally, the coolant temperature lamp (4) will illuminate. Run the machine at low idle until the coolant temperature drops to a normal range.

Reduce engine RPM to idle, and stop operation until engine coolant temperature reaches a safe operating temperature range.

See the Maintenance Section for checking coolant level.

HIGH (2nd) TRAVEL SPEED LAMP (Yellow)

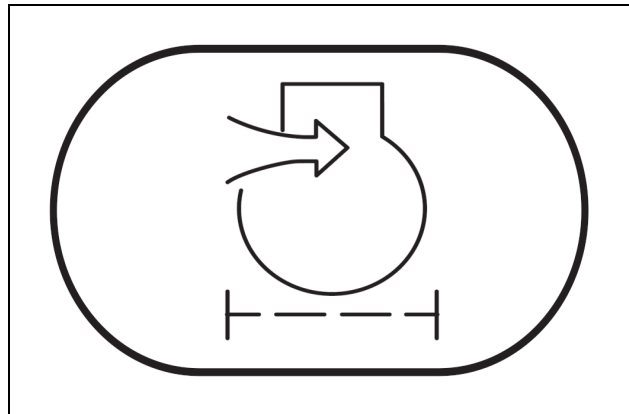


BS07M781

Figure 27

The indicator lamp will illuminate when the travel speed is switched to high (2nd) speed. The travel speed selector switch is located on the grip of the right travel lever. The speed automatically returns to low (1st) speed when the starter key switch is turned to OFF.

AIR FILTER RESTRICTION LAMP



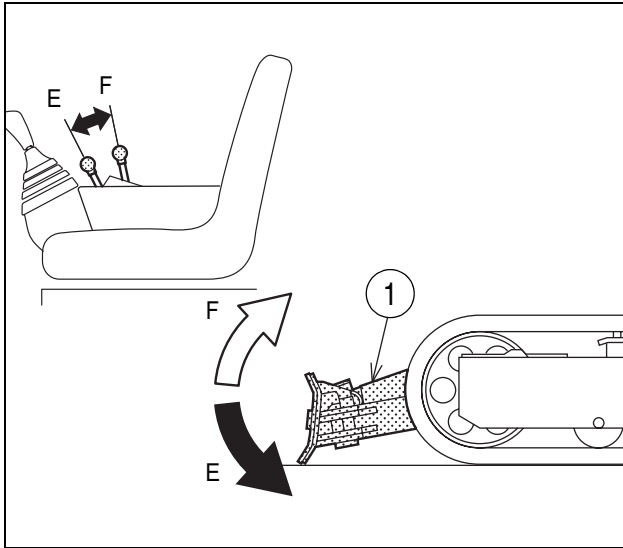
RH09M042

Figure 28

The indicator lamp will illuminate if the air filter cleaner is restricted. If the lamp comes on, stop the engine and clean or replace the air filter element immediately.

See the Maintenance Section for checking air filter.

DOZER CONTROL LEVER



UPUX1502003B01

Figure 47

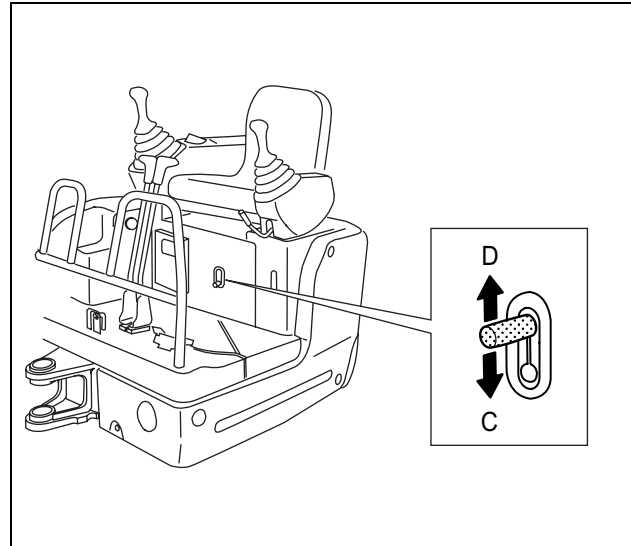
This lever is located on the right side of the operator's right control panel. Use the dozer control lever to move the dozer up or down.

(C) Dozer Blade Up - Pull the lever back.

(D) Dozer Blade Down - Push the lever forward.

When traveling, raise the dozer blade to its maximum height.

ADJUSTABLE CRAWLER FRAME WIDTH CONTROL LEVER/DOZER SELECTOR LEVER



UPU00200008JS1.

Figure 48

NOTICE: This lever is located on the front lower side of the operator's seat. Use it to select the dozer operation or to adjust the crawler frame width. This lever would normally be placed in the (C) position (dozer). Use the (D) position to allow adjustment to the crawler frame width.

C: Dozer

D. Crawler Width

NOTICE: Operating the machine at maximum width is recommended. This will increase the stability of the machine. Use a narrower width only when the job site space is limited.

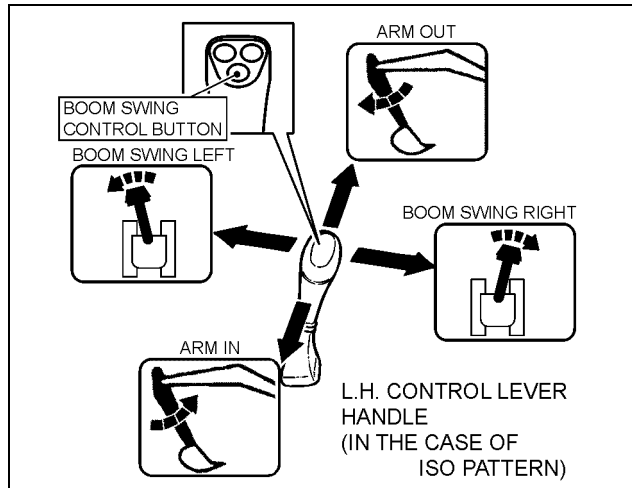
CONTROL DECAL

OPERATING PATTERN

The operating and travel controls of this machine are factory set at ISO/SAE standard operating patterns.

ISO OPERATING PATTERN DECAL

The illustrations are a representation of the CONTROLS decal located inside the right side window of the operator cab. Study this decal and understand the directions each control can be operated and the functions associated with each movement of particular control. Detailed instructions for each control and its functions are explained on the following pages of this chapter. Should this decal become damaged or missing, install a new decal.



BS07M796

Figure 8

WARNING

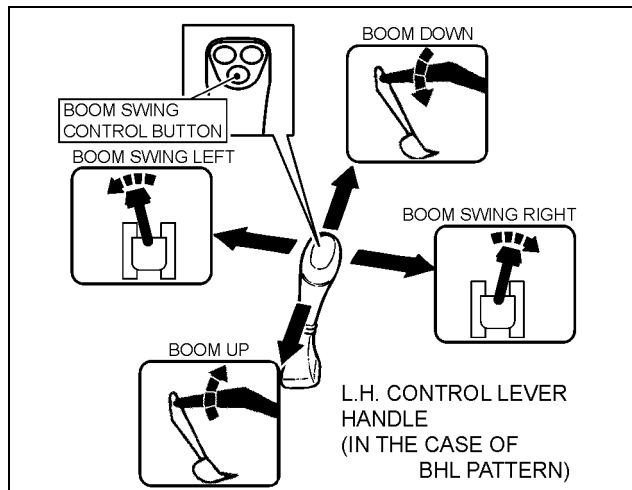
Check and make sure that operations pattern control matches the decal provided inside the right side window. Failure to comply could result in death or serious injury.

M1713

WARNING

If your machine is set to the operational BHL pattern control, change, make sure to remove the ISO/SAE operation pattern control decal inside the right side window and use the decal supplied for the optional BHL pattern control. This decal should be placed inside the door below the handle. See Pattern Control Change (BHL pattern) for detailed information on how to operate the pattern control changer. Failure to comply could result in death or serious injury.

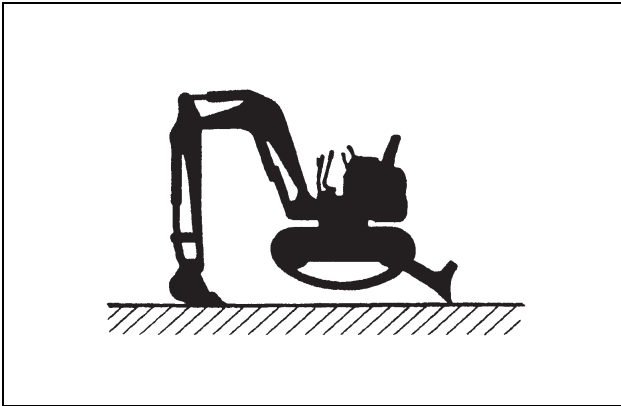
M1716



BS07M797

Figure 9

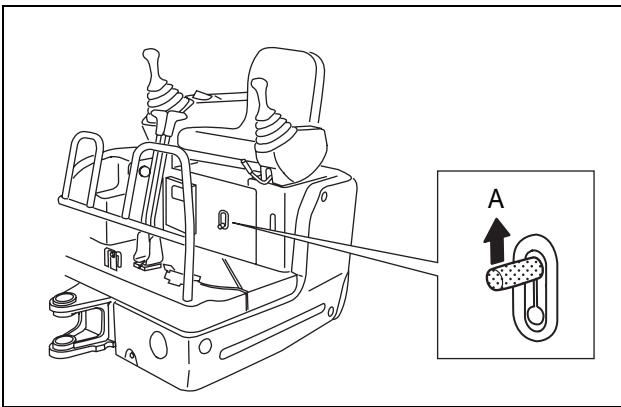
CHANGING CRAWLER FRAME WIDTH



UPU00300018JS1

Figure 36

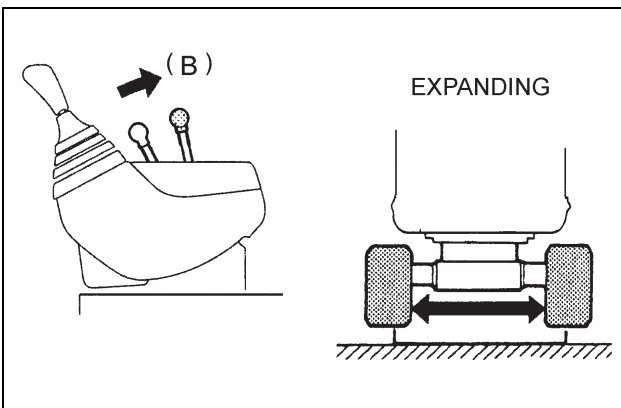
1. Change the machine width on flat, level ground with a firm surface. Keep all unauthorized personnel clear of the area. The machine should be lifted up to change the crawler width. Attempting to change width without lifting the machine body can cause damage to the body and adjusting cylinder.



UPU00300019JS1

Figure 37S

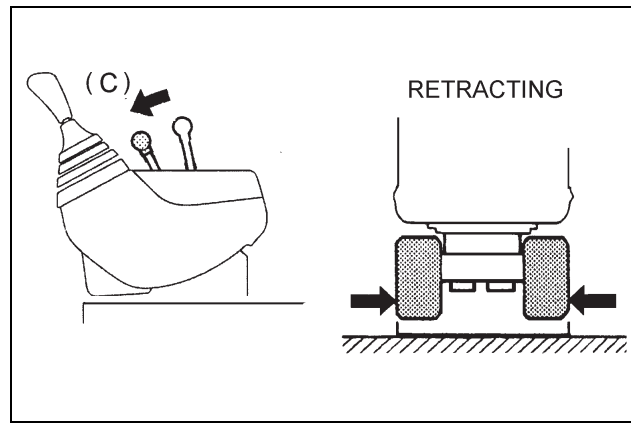
2. Set the crawler dozer shifting lever to the (A) position (crawler frame width side).



UPU00300030ES1

Figure 38

3. Move the adjustable crawler frame width/dozer lever to the (B) position to expand the machine width (crawler frame width).

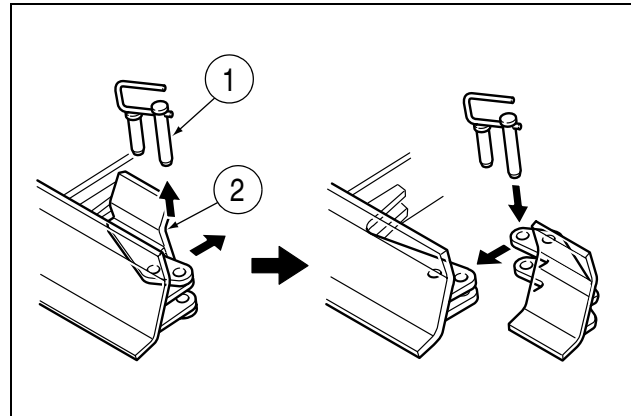


UPU00300031ES1

Figure 39

4. Move the adjustable crawler frame width/dozer lever to the (C) position for retracting the frame.

CHANGING DOZER WIDTH



UPUX1703006B01

Figure 40

1. The width of the dozer blade can be changed as required.
2. Pull out the pin (1) and remove plate (2).
3. Reverse plate (2), and align plate holes with holes in blade.
4. Insert pin (1) into install plate (2)
5. When using the dozer, adjust the height of the dozer with the dozer control lever to avoid overloading the engine.

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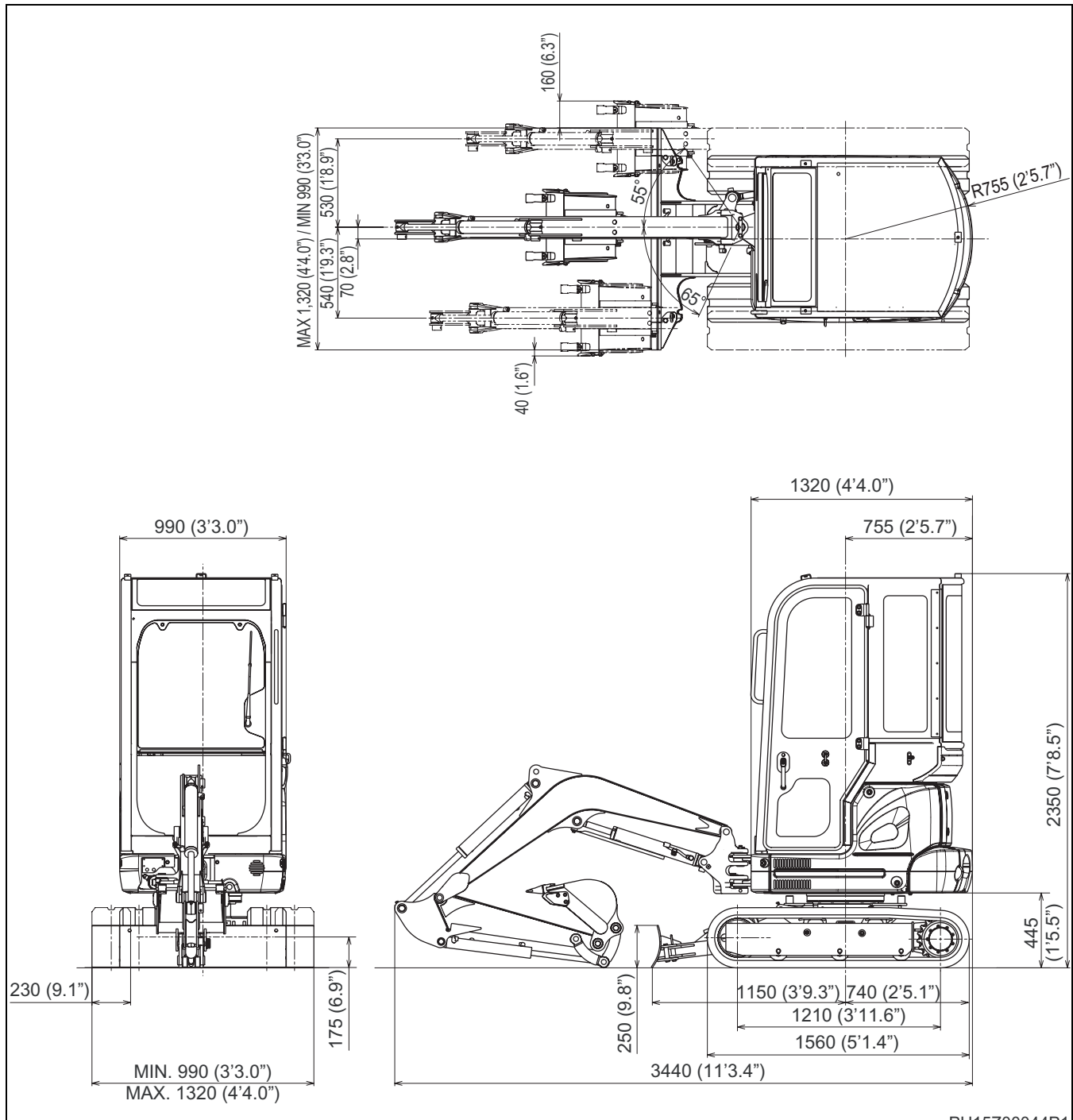
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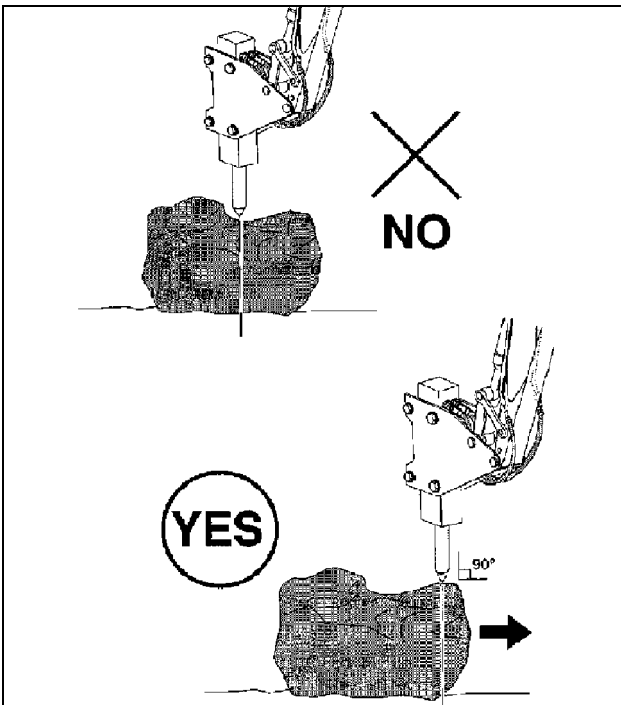
CAB MACHINE



UPUX1306003E01

PU11570004R1

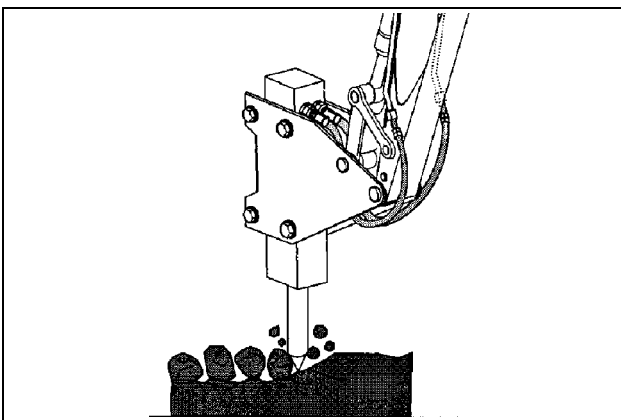
Figure 63

C. BREAKING OVERSIZE ROCKS

DC03M066

Figure 80

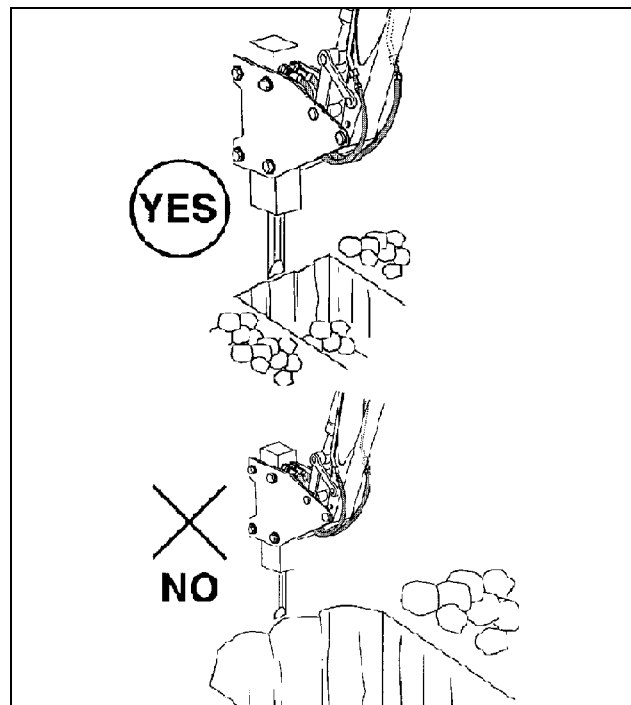
Do not attempt breaking oversized boulders from the center. It is much more efficient to break these type of rocks from the edges. Also, do not break into smaller pieces than necessary. There is a direct relationship between the size of the boulders and the size of the breaker. It is inefficient to break large rocks with small breakers and vice versa.

D. SURFACE ROCK DEMOLITION

DC03M067

Figure 81

Use the breaker just as if it were a hand held breaker, or a plain hammer and chisel. Adjust the breaker's position according to the work to be done, and take small bites at a time. The only difference between a hand held breaker and the hydraulic excavator breaker is the size of the rocks that can be broken. Do not try to break too much at one time.

E. EXCAVATING AND TRENCHING

DC03M068

Figure 82

Lay back side walls a bit at the time so that they do not interfere with the breaker housing. To lessen the opportunity for side loading, approach each wall from the opposite side by positioning the excavator perpendicular to the trench.

F. RULES TO REMEMBER

Use the following rules for correct breaker operation:

1. Make sure to adjust the proper hydraulic flow according to the breaker specifications.
2. Place tool against material to be broken at 90° angle to work surface.
3. Use the boom, arm, and bucket controls to press firmly against surface, keeping perpendicularity while operating the breaker.
4. As material breaks, stop breaker quickly to prevent idle strokes.
5. Reposition breaker if material does not break after 15 seconds of operation.
6. Do not bend or pry with the breaker tool while operating.
7. **DO NOT OPERATE** breaker with attachment cylinders at full extension.
8. **DO NOT OPERATE** breaker submerged in water.
9. **DO NOT OPERATE** breaker for more than a minute at a time.
10. Lubricate breaker every 30 minutes. Keep tool lubricated at all times.

NOTES

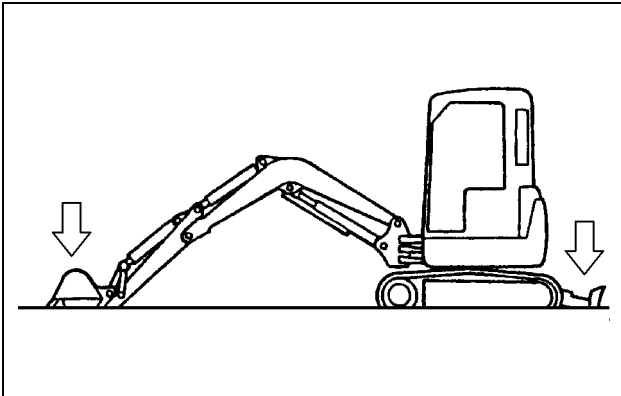
DAILY INSPECTION AND MAINTENANCE

⚠ WARNING ⚠

To help prevent personal injuries during operation and maintenance, use safety shoes, a hard hat, safety glasses or goggles and good fitting clothing. Failure to comply could result in death or serious injury.

M110B.

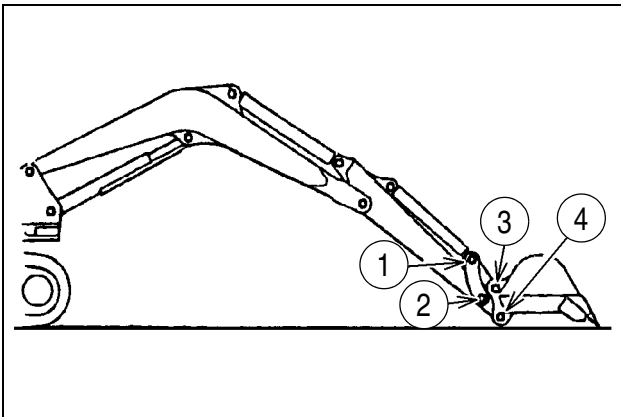
GREASE MACHINE AND ATTACHMENTS



BS07M861 Figure 9

During the initial 50 hours of operation, during the run-in period, grease bucket, boom, arm cylinder and dozer every 8 hours. After the initial run-in period, grease every 50 hours.

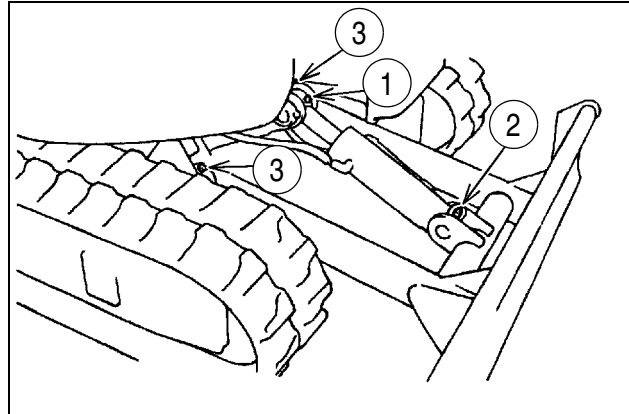
1. Move the machine to firm level ground and place the bucket/attachment on the ground. Turn the engine off.



BS07N028 Figure 10

- | | |
|----------------------------------|------------------------------|
| 1. Bucket Cylinder Rod Pin | 3. Bucket Link Pin |
| 2. Idler Link Arm Connecting Pin | 4. Arm Bucket Connecting Pin |
2. Clean the grease fitting before greasing. Replace any damaged grease fitting.
 3. Lubricate with a grease gun through the grease fittings shown. Wipe off any grease the leaks out of the pin connection.

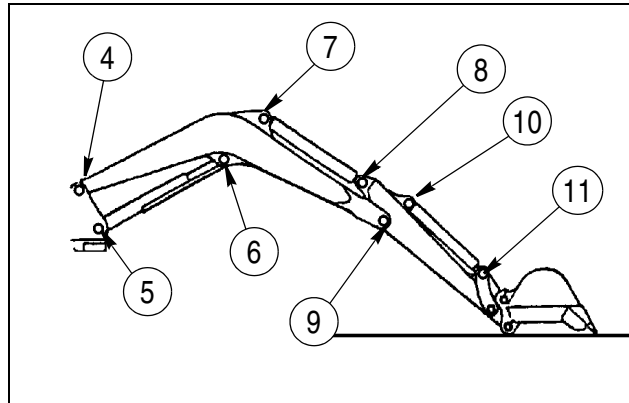
DOZER PIN GREASE POINTS



BS07N035 Figure 11

1. DOZER CYLINDER ROD PIN
2. DOZER CYLINDER FOOT PIN
3. DOZER FOOT PINS (2 - ONE EACH SIDE)

BOOM, ARM, AND ATTACHMENT GREASE POINTS



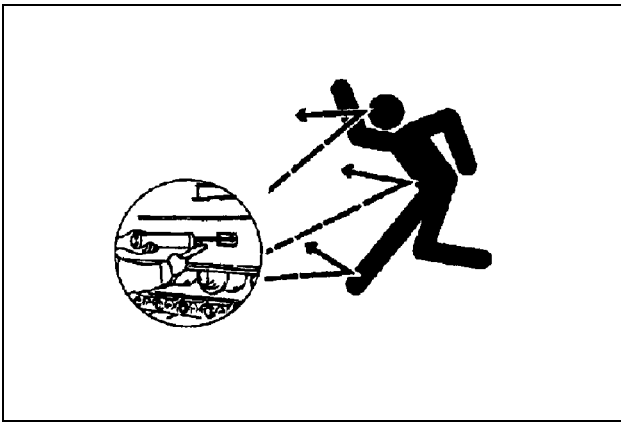
BS07N033 Figure 12

5. BOOM FOOT PIN
6. BOOM CYLINDER FOOT PIN (3 PLACES)
7. BOOM CYLINDER ROD PIN
8. ARM CYLINDER FOOT PIN
9. ARM CYLINDER ROD PIN
10. BOOM/ARM CONNECTING PIN (2 PLACES)
11. BUCKET CYLINDER FOOT PIN
12. BUCKET CYLINDER ROD PIN

NOTICE: Dispose of all waste in accordance with environmental regulations.

⚠ WARNING ⚠

The machine and attachment should not be moved when greasing. Personal injury may result. Move attachment to a different position, stop the engine and lubricate the attachment again. Repeat this procedure until the front attachment is completely lubricated. Failure to comply could result in death or serious injury.



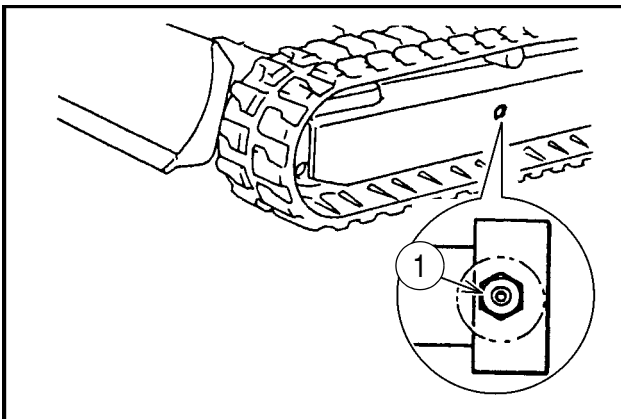
DC04C307-1

Figure 34

⚠ WARNING ⚠

Grease in track tensioning mechanism is under extreme pressure and can penetrate skin causing severe injury. Keep face and body away from grease fitting area. Never loosen grease fitting more than one (1) complete turn. If grease does not release after one (1) turn of the fitting, call your authorized dealer for assistance. Failure to comply could result in death or serious injury.

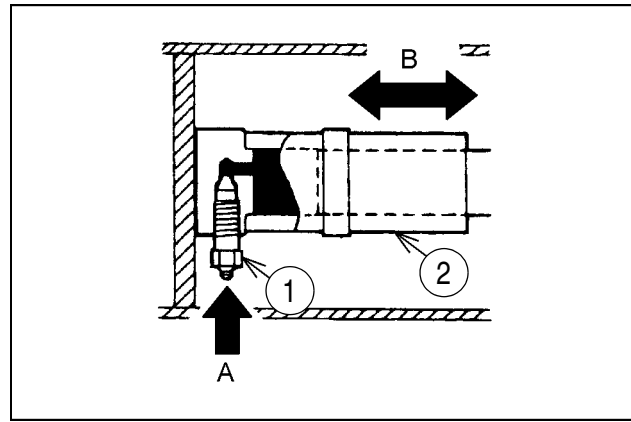
M1720



BS07N044

Figure 35

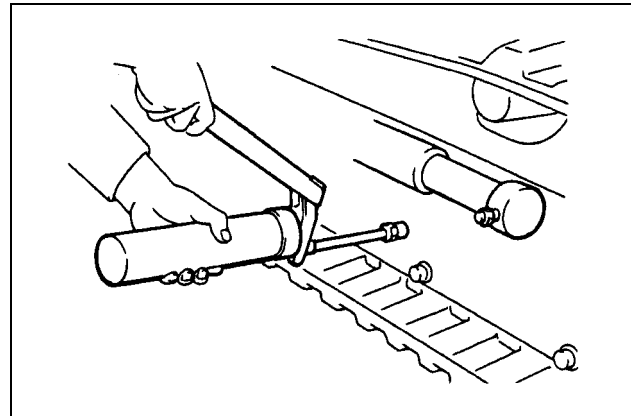
5. Grease in the track tensioning mechanism is under extreme pressure and can penetrate the skin causing severe injury. Keep face and body away from grease fitting area. Never loosen grease fitting more than one (1) complete turn. If grease does not release after one (1) turn of the fitting, call an authorized service dealer for assistance.



BS07N045

Figure 36

- 1. GREASE FITTING
- 2. GREASE CYLINDER
- A. GREASE FILL
- B. PRESSURE



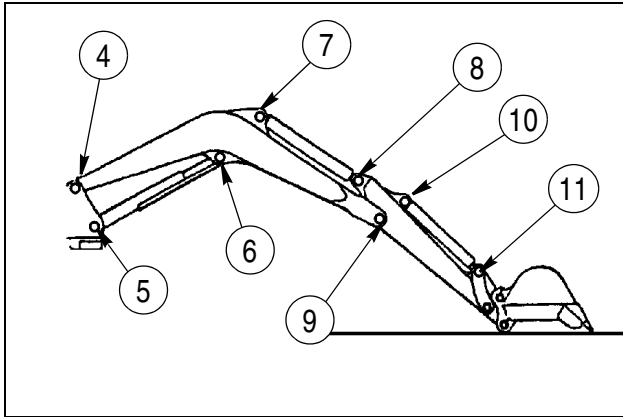
BS07N046

Figure 37

6. To increase track tension, inject extreme pressure No. 2 grease into idler adjustment grease fitting with a grease gun until proper tension is reach.

NOTICE: If the adjustment to the track cannot be maintained, the grease cylinder may need repair. Contact your authorized dealer.

BOOM, ARM, AND ATTACHMENT GREASE POINTS

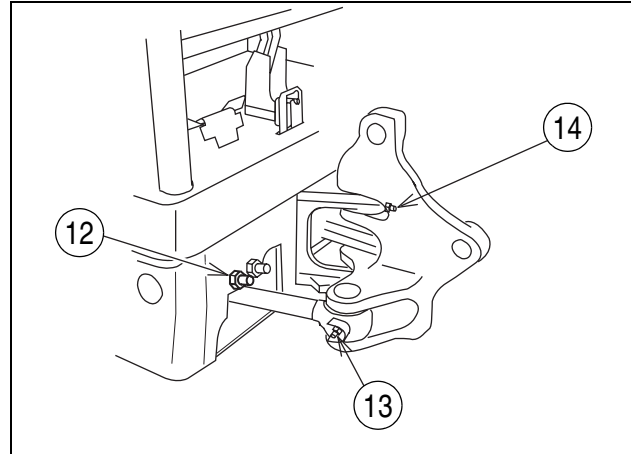


BS07N033

Figure 58

- 4. BOOM FOOT PIN
- 5. BOOM CYLINDER FOOT PIN (3 PLACES)
- 6. BOOM CYLINDER ROD PIN
- 7. ARM CYLINDER FOOT PIN
- 8. ARM CYLINDER ROD PIN
- 9. BOOM/ARM CONNECTING PIN (2 PLACES)
- 10. BUCKET CYLINDER FOOT PIN
- 11. BUCKET CYLINDER ROD PIN

BOOM SWING GREASE POINTS



UPU00400017JS1

Figure 59

- 12. SWING CYLINDER FOOT PIN
 - 13. SWING CYLINDER ROD PIN
 - 14. SWING BRACKET/FRAME CONNECTING PIN (2 PLACES)
1. Move the machine to firm level ground and place the bucket/attachment on the ground. Turn the engine off.
 2. Clean the grease fitting before greasing. Replace any damaged grease fitting.
 3. Lubricate with a grease gun through the grease fittings shown. Wipe off any grease that leaks out of the pin connection.

NOTICE: *Dispose of all waste in accordance with environmental regulations.*

2000 HOUR MAINTENANCE

HYDRAULIC SUCTION STRAINER CLEANING

The hydraulic tank suction strainer should be cleaned when the engine hourmeter registers 2000 hours and every 2000 hours there after.

⚠ WARNING ⚠

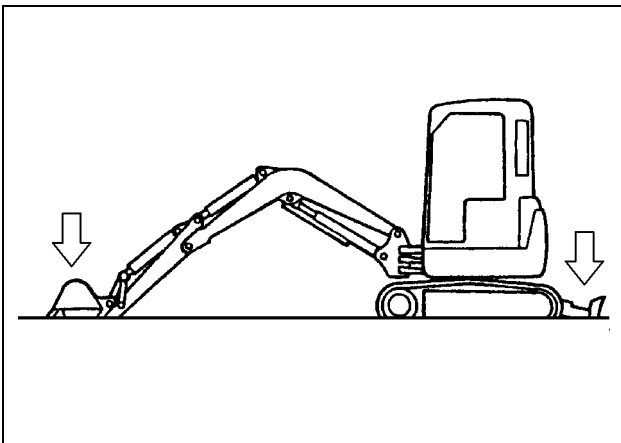
Touching hot surfaces could cause burns. The engine and components will be hot after the machine has been running. Allow the engine and components to cool before servicing the machine. Failure to comply could result in death or serious injury.

M1393

⚠ WARNING ⚠

Make sure that there is no pressure in the hydraulic lines before checking or repairing. Do not use defective hoses or fittings. Always replace worn or defective hoses or fittings. Failure to comply could result in death or serious injury.

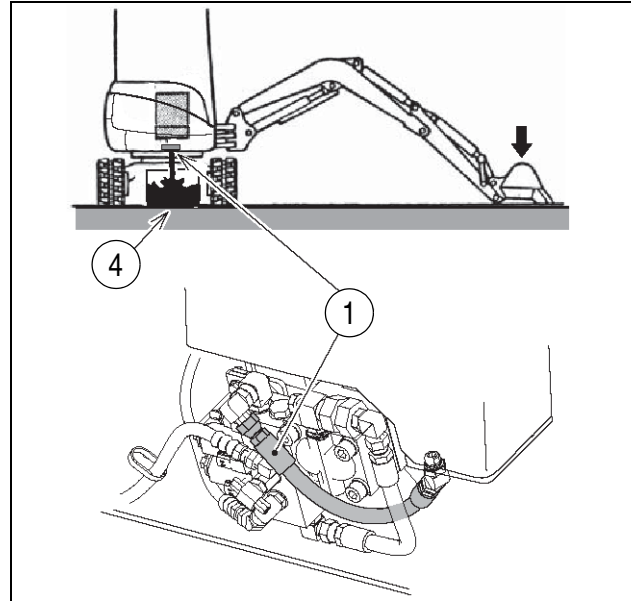
M1502



BS07M861

Figure 79

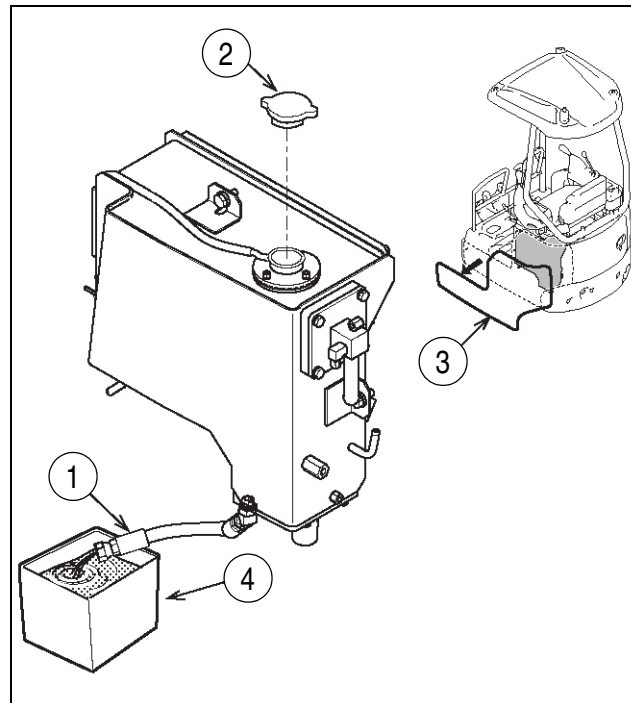
1. Park the machine on a firm, level surface with attachments resting on the ground. Keep all unauthorized personnel clear of the area.
2. Swing the machine so hose (1) on the hydraulic oil tank is midway between both crawlers. Turn the engine off. Place the safety lock lever in the locked position.
3. Remove the left side guard (3).
4. Clean dirt and oil from the tank to avoid contaminating the hydraulic system.



RH09N036

Figure 80

5. Slowly loosen the cap (2) about a half turn to relieve pressure.
6. Relieve the remaining pressure and remove the cap.
7. Put an oil pan under the hose. Loosen the union nut (1) on the hose and drain the remaining oil.
8. Tighten the union nut (1) to 68.5 - 78.5 Nm (50.5 - 70 lbf ft).



RH09N037

Figure 81

SPECIAL PROCEDURES

BUCKET



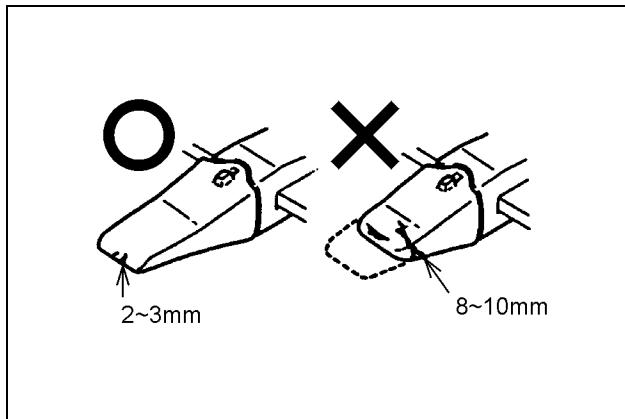
WARNING

To help prevent personal injuries during operation and maintenance, use safety shoes, a hard hat, safety glasses or goggles and good fitting clothing. Failure to comply could result in death or serious injury.

M110B.

ABRASION OR DAMAGE ON TOOTH POINTS AND SIDE CUTTERS

Check for wear and/or looseness of bucket tooth points. Tooth point life cannot be determined only by the number of operating hours.



BS07N270

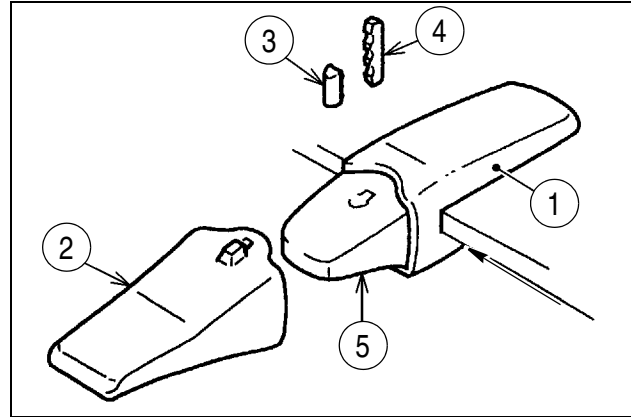
Figure 101



WARNING

When replacing a bucket tooth or side cutters, securely block the bucket to avoid injury. Failure to comply could result in death or serious injury.

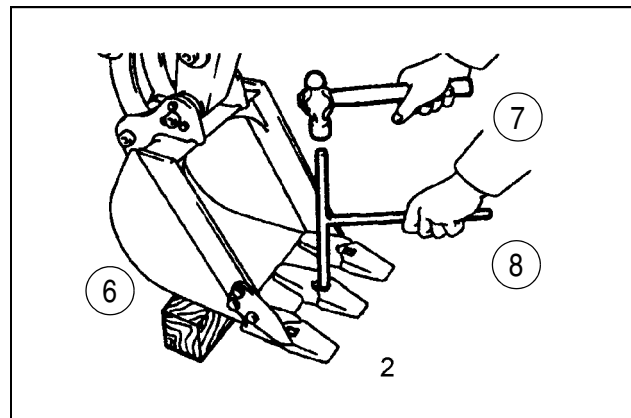
Replace the bucket tooth if small holes appear on the tooth point or when the edge lines of the tooth point are worn.



BS07N271

Figure 102

- 1. ADAPTER
- 2. TOOTH POINT
- 3. RUBBER LOCK PIN
- 4. LOCKING PIN
- 5. ADAPTER NOSE

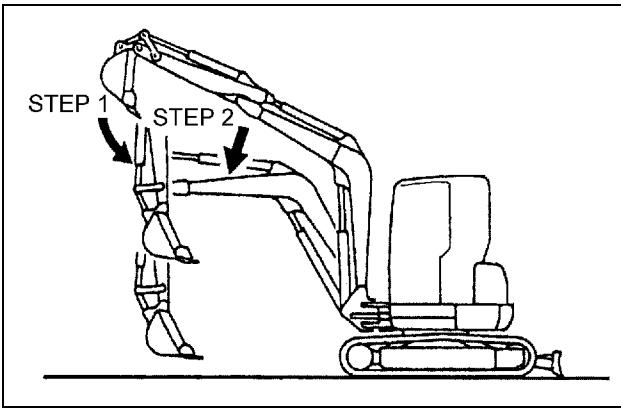


BS07N272

Figure 103

- 6. SAFETY BLOCK
- 7. HAMMER
- 8. PUNCHING TOOL

1. Using a hammer and punch, hammer out the locking pin. Take care not to damage the rubber lock pin (3).



BS07N385

Figure 136

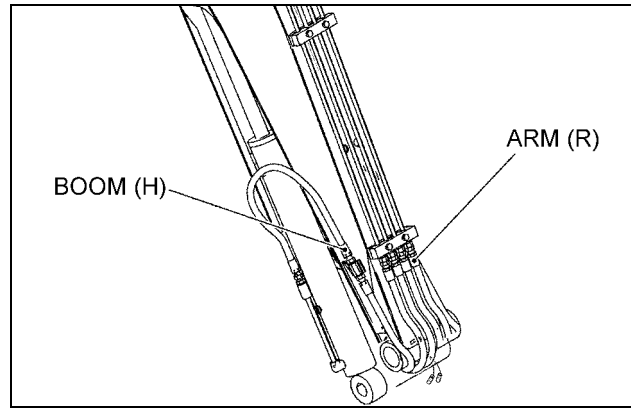
LOWERING THE ARM

Gradually loosen the hose of rod side connected to the arm (R).

⚠ WARNING ⚠

To help prevent personal injuries during operation and maintenance, use safety shoes, a hard hat, safety glasses or goggles and good fitting clothing. Failure to comply could result in death or serious injury.

M110B.



BS07N386

Figure 137

LOWERING THE BOOM

Gradually loosen the hose of head (H) side connected to the boom cylinder.

Stop lowering the attachment at 30 - 40 cm (12 - 16 in.) above ground level to allow for moving the machine.

1. Tighten the hose fitting.
2. After moving the machine to the service area, slowly loosen the hose fitting to lower the attachment to the ground.
3. Contact your dealer for machine repairs.

NOTES

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