

Operator's Manual

ZAXIS

345USLC-6N

Hydraulic Excavator

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MACHINE NUMBERS

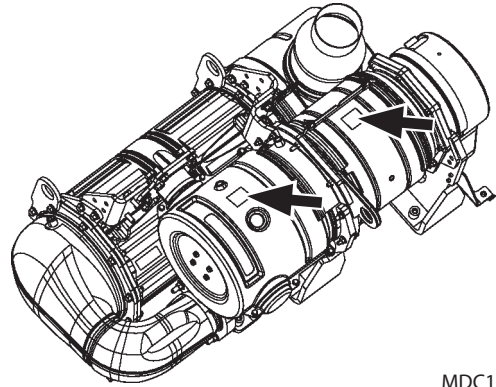
DOC (Diesel Oxidation Catalyst)

TYPE : _____

MFG. NO. : _____

TYPE : _____

MFG. NO. : _____



MDC1-01-510

SAFETY

Ensure Safety Before Rising from or Leaving Operator's Seat

- Before rising from the operator's seat to open/close either side window or to adjust the seat position, be sure to first lower the front attachment to the ground and then move the pilot control shut-off lever to the LOCK position. Failure to do so may allow the machine to unexpectedly move when a body part unintentionally comes in contact with a control lever and/or pedal, possibly resulting in serious personal injury or death.
- Before leaving the machine, be sure to first lower the front attachment to the ground and then move the pilot control shut-off lever to the LOCK position. Turn the key switch OFF to stop the engine.
- Before leaving the machine, close all windows, doors, and access covers and lock them.

Fasten Your Seat Belt

- If the machine should overturn, the operator may become injured and/or thrown from the cab. Additionally the operator may be crushed by the overturning machine, resulting in serious injury or death.
 - Prior to operating the machine, thoroughly examine webbing, buckle and attaching hardware. If any item is damaged or worn, replace the seat belt or component before operating the machine.
 - Be sure to remain seated with the seat belt securely fastened at all times when the machine is in operation to minimize the chance of injury from an accident.
 - We recommend that the seat belt is replaced every three years regardless of its apparent condition.



SA-237

SAFETY

Avoid Injury from Back-Over and Swing Accidents

- If any person is present near the machine when backing or swinging the upperstructure, the machine may hit or run over that person, resulting in serious injury or death.

To avoid back-over and swing accidents:

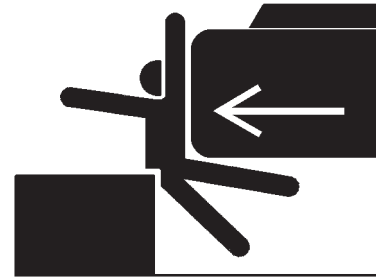
- Always look around **BEFORE YOU BACK UP AND SWING THE MACHINE. BE SURE THAT ALL BYSTANDERS ARE CLEAR.**
- Keep the travel alarm in working condition (if equipped). **ALWAYS BE ALERT FOR BYSTANDERS MOVING INTO THE WORK AREA. USE THE HORN OR OTHER SIGNAL TO WARN BYSTANDERS BEFORE MOVING MACHINE.**
- **USE A SIGNAL PERSON WHEN BACKING UP IF YOUR VIEW IS OBSTRUCTED. ALWAYS KEEP THE SIGNAL PERSON IN VIEW.**

Use hand signals, which conform to your local regulations, when work conditions require a signal person.

- No machine motions shall be made unless signals are clearly understood by both signal person and operator.
- Learn the meanings of all flags, signs, and markings used on the job and confirm who has the responsibility for signaling.
- Keep windows, mirrors, and lights clean and in good condition.
- Dust, heavy rain, fog, etc., can reduce visibility. As visibility decreases, reduce speed and use proper lighting.
- Read and understand all operating instructions in the operator's manual.



SA-383

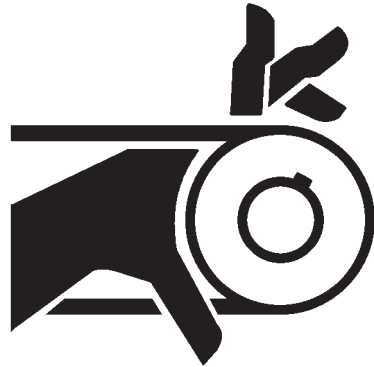


SA-384

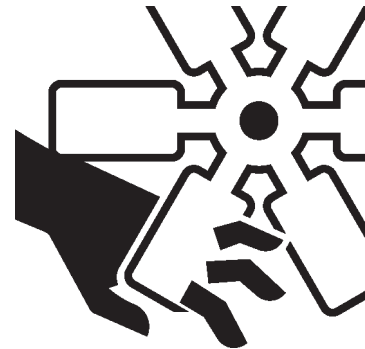
SAFETY

Stay Clear of Moving Parts

- Entanglement in moving parts can cause serious injury.
 - To prevent accidents, care should be taken to ensure that hands, feet, clothing, jewelry and hair do not become entangled when working around rotating parts.



SA-026



SA-2294

Prevent Parts from Flying

- Grease in the track adjuster is under high pressure. Failure to follow the precautions below may result in serious injury, blindness, or death.
 - Do not attempt to remove GREASE FITTING or VALVE ASSEMBLY.
 - Do not attempt to remove the valve stop plate.
 - As pieces may fly off, be sure to keep body and face away from valve.
 - Never attempt to disassemble the track adjuster. Inadvertent disassembling of the track adjuster may cause the parts such as a spring to fly off, possibly resulting in severe personal injury or death.
- Travel reduction gears are under pressure.
 - As pieces may fly off, be sure to keep body and face away from AIR RELEASE PLUG to avoid injury.
 - GEAR OIL is hot. Wait for GEAR OIL to cool, then gradually loosen AIR RELEASE PLUG to release pressure.



SA-344

SAFETY

Handle Chemical Products Safely

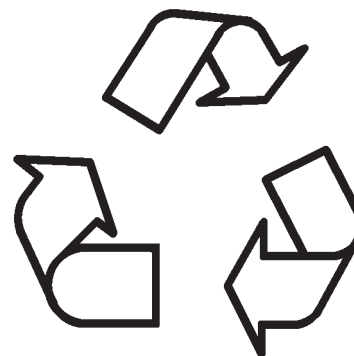
- Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with your machine include such items as lubricants, coolants, paints, and adhesives.
 - Safety Data Sheet (SDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.
 - Check the SDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and use recommended equipment.
 - See your authorized dealer for SDS's (available only in English) on chemical products used with your machine.



SA-2579

Dispose of Waste Properly

- Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with Hitachi equipment includes such items as oil, fuel, coolant, DEF/AdBlue®, brake fluid, filters, and batteries.
 - Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
 - Do not pour waste onto the ground, down a drain, or into any water source.
 - Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.
 - Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your authorized dealer.



SA-226

SAFETY SIGNS

12.

Sign indicates a crush hazard by rotation of upper structure of the machine.
Keep away from swinging area of machine.



SS-024

13.

Sign indicates a burn hazard from spurting hot water or oil if radiator or hydraulic oil tank is uncapped while hot.
Allow radiator or hydraulic oil tank to cool before removing cap.



SSYA00036802-1

OPERATOR'S STATION

Multi Function Monitor

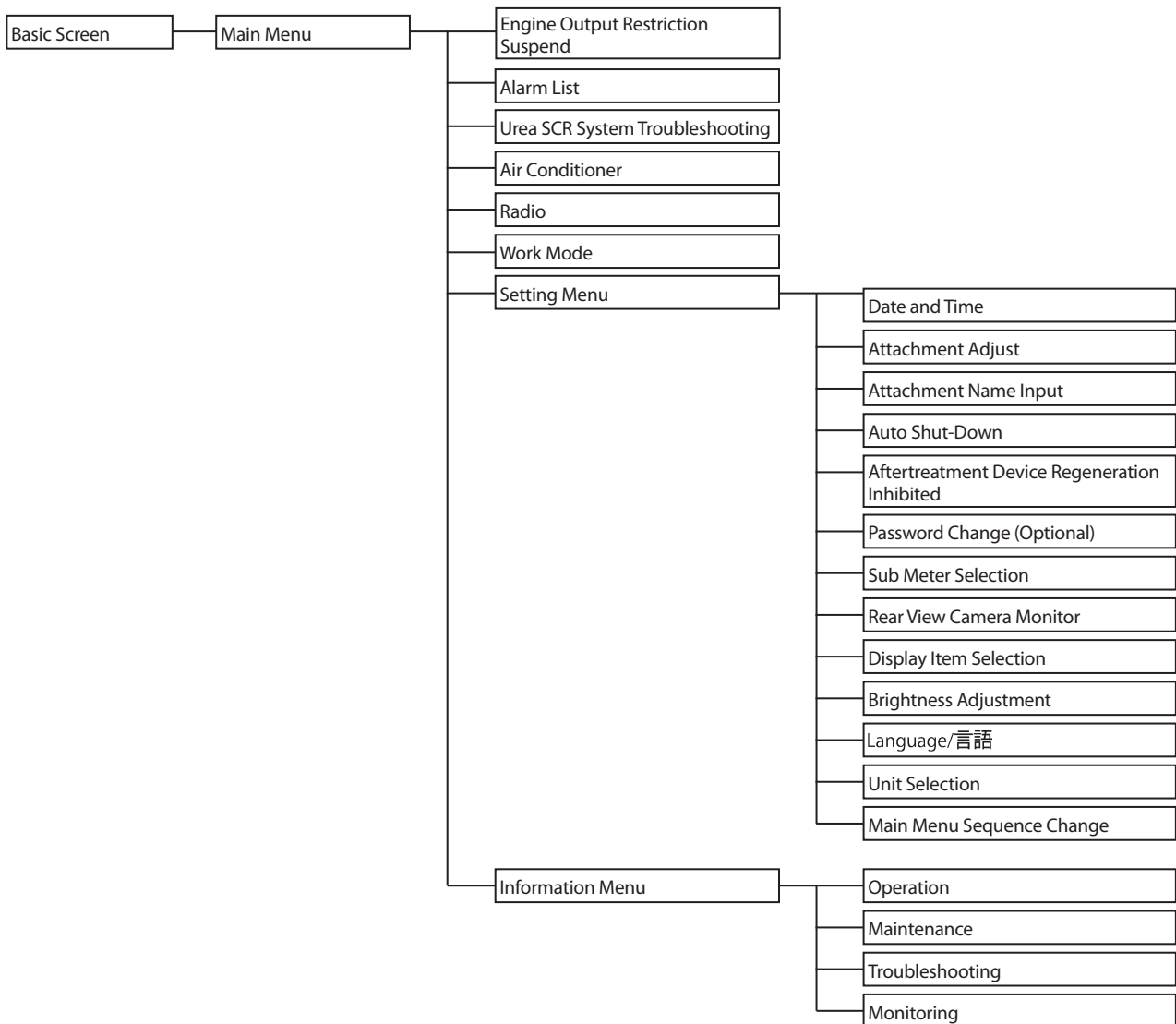
Feature

The multi function monitor displays various meters, indicators, radio and air conditioner, numeric keypad lock function, rearview camera image, work mode selection and maintenance screen.

Screen Configuration

The multi function monitor consists of the following screens.

There are 8 menus, and a further 17 sub menus.



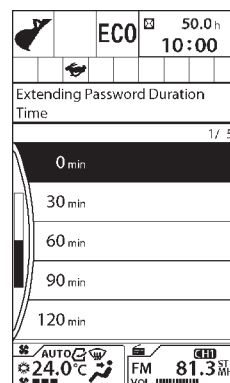
OPERATOR'S STATION

Extending Password Duration Time

IMPORTANT: This operation is applicable only to machines that require a password.

By using the password duration screen, password duration time can be set. When restarting the machine, a password need not be input within the specified timeframe.

1. When turning the key switch from ON to ACC position, the monitor unit displays the password duration screen for 10 seconds.



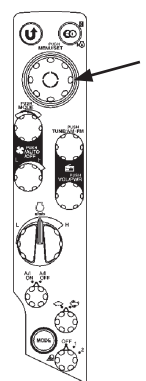
MDAA-01-087EN

Password Duration Screen (Key Switch: OFF)

2. While the password duration screen is still displayed, rotate selector knob (1) to highlight the relevant time. Pushing selector knob (1) sets the password duration time.

- Duration time 0 minute
- Duration time 30 minute
- Duration time 60 minute
- Duration time 90 minute
- Duration time 120 minute

NOTE: If the password duration time is not set explicitly, a duration of 0 is assumed.



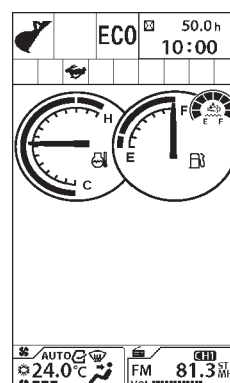
MDCD-01-026

3. If turning the key switch to the ON position within the password duration time, the monitor unit displays the basic screen after the starting screen.



Starting Screen

MDAA-01-003EN



MDC1-01-001

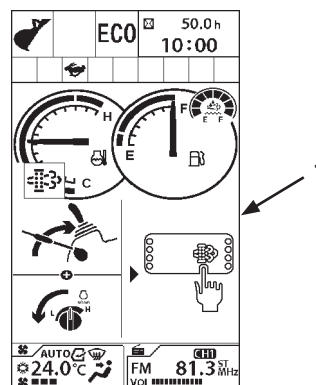
OPERATOR'S STATION

Manual Regeneration Procedure

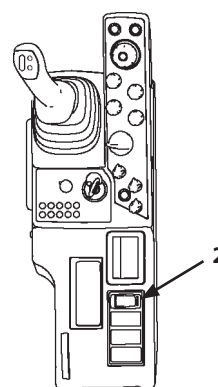
When manual regeneration is needed, screen (1) as shown in the right will be displayed. When this screen (1) is displayed, you need to perform manual regeneration. Before starting manual regeneration, be sure to check the following.

If the rear view camera is equipped on the machine and the camera is enabled, screen (1) is displayed only when the pilot control shut-off lever is in LOCK position.

- No person is present around the machine.
 - Keep flammable materials away from the muffler.
 - Fuel level alarm is not lit.
 - DEF/AdBlue® level alarm does not light.
1. Park the machine in a safe place. Lower the front attachment onto the ground.
 2. Pull the pilot control shut-off lever to the LOCK position.
 3. Set the engine control dial to slow idle.
 4. Push aftertreatment device regeneration switch (2).
 5. When pushing aftertreatment device regeneration switch (2), screen (3) as shown in the right will be displayed and the manual regeneration starts. A bar graph on screen (3) shows the progress of the regeneration process.



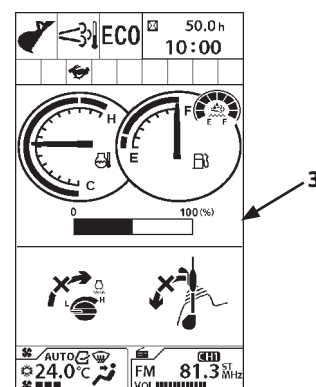
MDC1-01-005



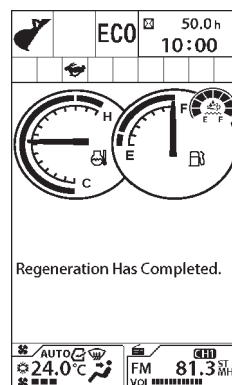
MDC1-01-543

IMPORTANT: The manual regeneration does not start unless the pilot control shut-off lever is in the LOCK position and the engine control dial is in slow idle. When touching the pilot control shut-off lever or the engine control dial during manual regeneration, the regeneration process is aborted. When the process is aborted, start over again.

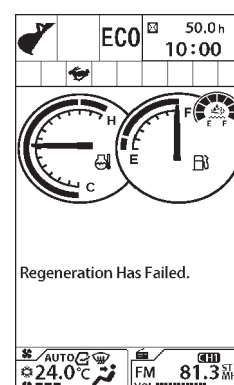
6. When the manual regeneration is complete, the message "Regeneration Has Completed." is displayed. If "Regeneration Has Failed." message is displayed, start over the manual regeneration process once again. Failure of the regeneration process may happen in conditions other than those mentioned above (such as a malfunction of a sensor that affects regeneration, or at low ambient temperature).



MDC1-01-006



MDC1-01-083EN



MDC1-01-084EN

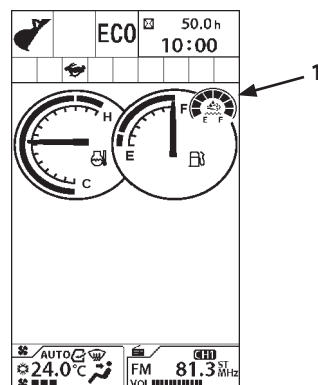
OPERATOR'S STATION

Date and Time

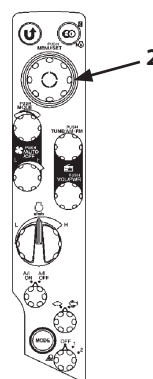
Time, date and display mode can be set on this screen. Year-month-day format and 24h/12h display mode are selected in the display setting.

Time Adjustment

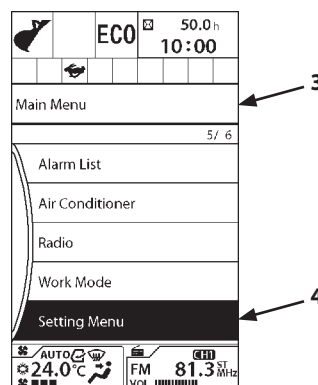
1. Push selector knob (2) while displaying Basic Screen (1) to display Main Menu screen (3).
2. Rotate selector knob (2) to highlight Setting Menu (4).
3. Push selector knob (2) to display Setting Menu screen (5).
4. Rotate selector knob (2) to highlight Date and Time (6).



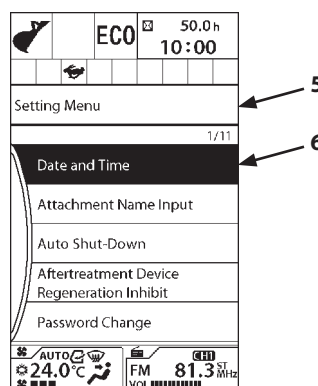
MDC1-01-001



MDCD-01-026



MDAA-01-114EN



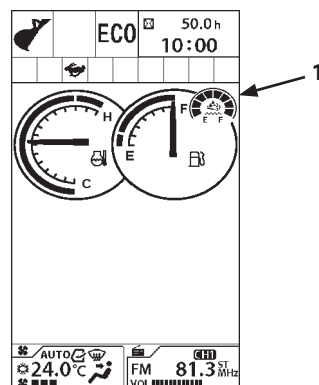
MDC1-01-115EN

OPERATOR'S STATION

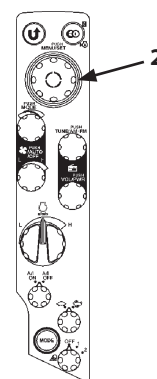
Priority (arm roll-in)

Select an attachment other than the bucket on the work mode screen. (Refer to the page 1-35)

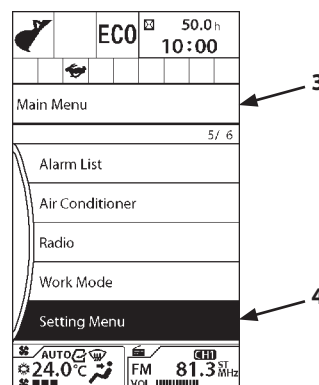
1. Push selector knob (2) while displaying Basic Screen (1) to display Main Menu screen (3).
2. Rotate selector knob (2) to highlight Setting Menu (4).
3. Push selector knob (2) to display Setting Menu screen (5).
4. Rotate selector knob (2) to highlight Attachment Adjustment (6).



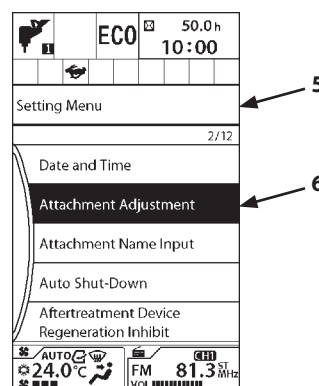
MDC1-01-001



MDCD-01-026



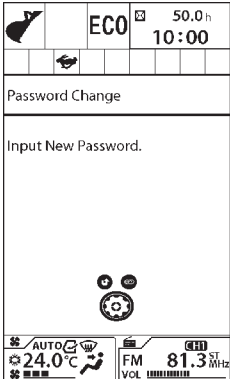
MDAA-01-114EN



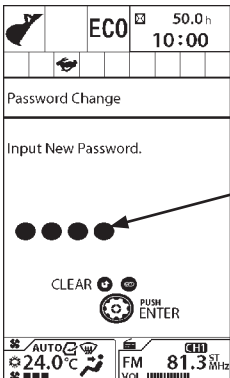
MDC1-01-128EN

OPERATOR'S STATION

- 7. Input the new password and push selector knob (2). 3 to 8 digits can be input for password.



MDAA-01-159EN



MDAA-01-160EN

OPERATOR'S STATION

Lists of Display Language

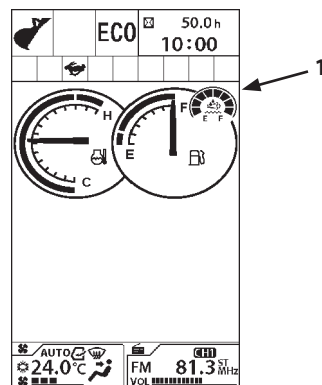
Language	Screen Display
Japanese	日本語
English	English
Spanish	Español
Italian	Italiano
French	Français
German	Deutsch
Dutch	Nederlands
Russian	Русский
Portuguese	Português
Finnish	Suomi
Greek	Ελληνικά
Swedish	Svenska
Norwegian	Norsk
Chinese (Simplified)	简体中文
Chinese (Traditional)	繁體中文
Korean	한국어

Language	Screen Display
Indonesian	Bahasa Indonesia
Thai	ภาษาไทย
Vietnamese	Tiếng Việt
Myanmarese	မြန်မာစာစကား
Arabic	اللغة العربية
Persian	زبان فارسی
Turkish	Türkçe
Danish	Dansk
Estonian	Eesti
Polish	Polski
Icelandic	Íslenska
Croatian	Hrvatski
Slovenian	Slovenščina
Romanian	limba română
Bulgarian	Български език
Lithuanian	Lietuvių kalba

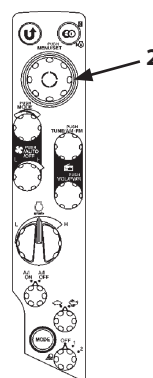
OPERATOR'S STATION

Breaker Operation

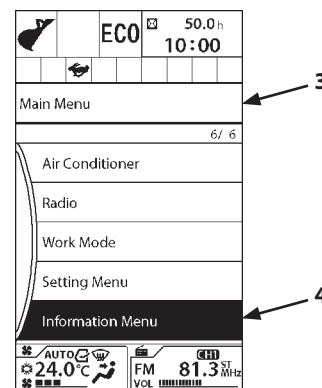
1. Push selector knob (2) while displaying Basic Screen (1) to display Main Menu screen (3).
2. Rotate selector knob (2) to highlight Information Menu (4).
3. Push selector knob (2) to display Information Menu screen (5).
4. Rotate selector knob (2) to highlight Operation (6).



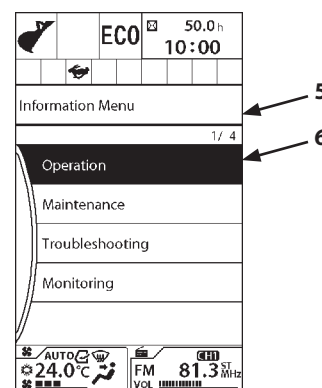
MDC1-01-001



MDCD-01-026



MDAA-01-190EN



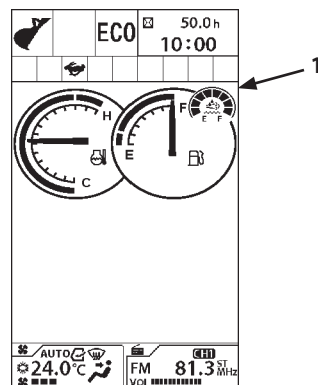
MDAA-01-191EN-NH

OPERATOR'S STATION

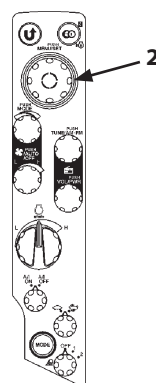
Troubleshooting

A fault code generated by the controller connected to the controller area network is displayed on this screen.

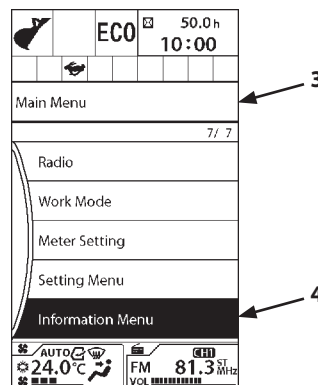
1. Push selector knob (2) while displaying Basic Screen (1) to display Main Menu screen (3).
2. Rotate selector knob (2) to highlight Information Menu (4).
3. Push selector knob (2) to display Information Menu screen (5).
4. Rotate selector knob (2) to highlight Troubleshooting (6).



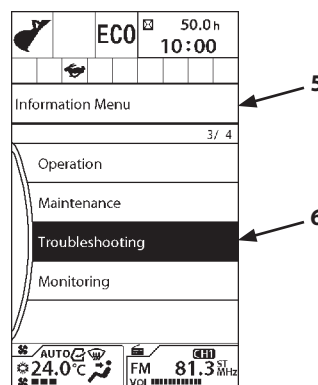
MDC1-01-001



MDCD-01-026



MLBA-01-190EN




MDAA-01-215EN

OPERATOR'S STATION

Power Mode Switch

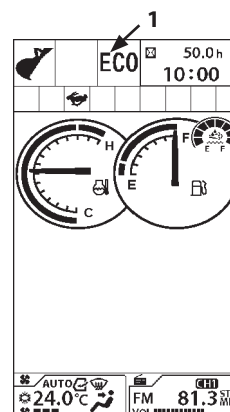
The two engine speed modes, ECO, PWR or H/P mode are selected by operating the power mode switch.

- **ECO (Economy) Mode**
Operate the machine in this mode when performing normal work.
ECO is displayed on Power Mode Display (1).
- **PWR (Power) Mode**
Use PWR (Power) mode when extra horsepower is needed.
PWR is displayed on Power Mode Display (1).
- **H/P (High Power) Mode**
Use the H/P mode when extra fast speed and/or heavy duty work is needed.

 **NOTE:** ECO mode is set automatically when starting the engine. Set PWR mode if necessary.



MDAA-01-274




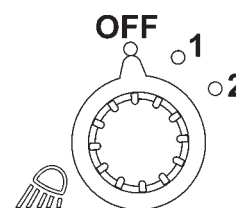
MDC1-01-001

Work Light Switch

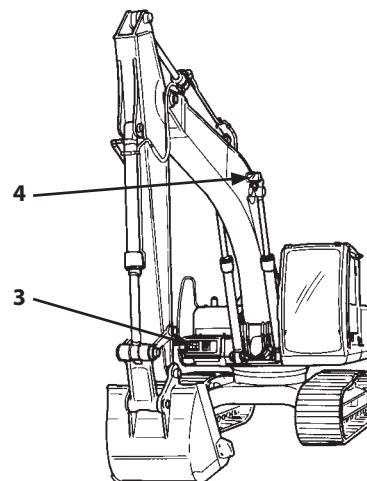
Work light switch has the following positions.

- 1 Position : Work light (3) on the base machine will light. Also, the switch panel illumination will light.
- 2 Position : Work light (4) mounted on the boom and work light (3) on the right side of the machine will light. At the same time, the switch panel illumination will light. The monitor changes to night mode.
- OFF : Work lights (3), (4), and the switch panel illumination will turn off.

 **NOTE:** When the key switch is turned OFF while the work light switch is in 2-position, work light (4) turns ON for 30 seconds.



MDCD-01-029



M157-01-146

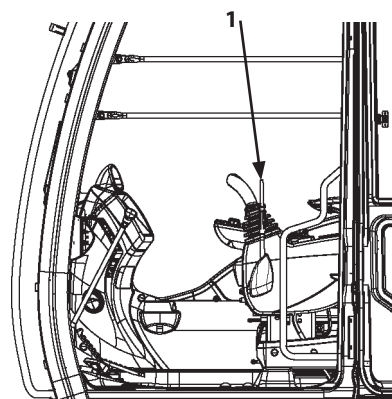
OPERATOR'S STATION

Pilot Control Shut-Off Lever

Pilot control shut-off lever (1) functions to prevent the machine from being mistakenly operated when the operator accidentally touches the control lever or pedals when getting on or off the machine.

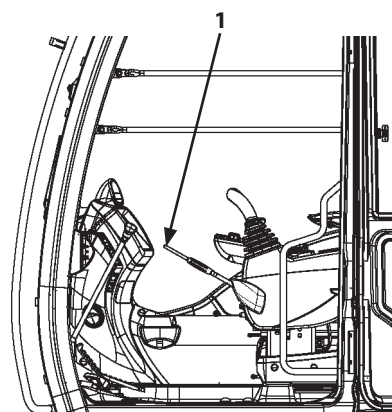
⚠ WARNING:

- **Always pull pilot control shut-off lever (1) into the full LOCK position. Unless pilot control shut-off lever (1) is fully moved to the LOCK position, the control lever is not locked, possibly creating a hazardous situation.**
- **When leaving the machine, always stop the engine. Then, pull pilot control shut-off lever (1) up to the LOCK position.**
- **Always pull pilot control shut-off lever (1) up to the LOCK position before transporting the machine and leaving the machine.**
- **Confirm that pilot control shut-off lever (1) is in the LOCK position before starting the engine. The engine will not start in any position other than the LOCK position.**



LOCK position

MDAA-01-295



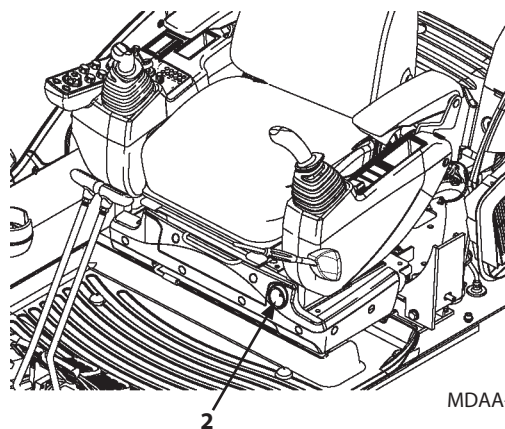
UNLOCK Position

MDAA-01-296

Engine Stop Switch

In case the engine does not stop even if the key switch is turned OFF due to failure of the machine, move switch (2) located at the front-left side of the seat stand downward to stop the engine.

After operating switch (2), be sure to return switch (2) back to the upward position.



MDAA-01-290

OPERATOR'S STATION

AM/FM Radio Operation

CAUTION: Refrain from listening to the radio in the cab while operating the machine.

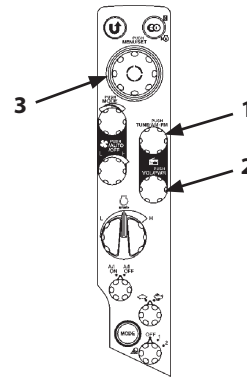
Controls on the Radio

1- AM/FM Selector/Tuning Switch

"FM" or "AM" is switched over alternately each time the switch is pressed. Rotate tuning switch (1) clockwise to increase frequency, counterclockwise to decrease frequency.

2- Power Switch/Volume Control Knob

Push: Turns power ON/OFF. Rotate the volume control knob (2) clockwise to increase the sound volume. Rotate it counterclockwise to decrease the sound volume.



MDCD-01-026

Tuning Procedure

• Manual Tuning Procedure

Rotate tuning switch (1) until the desired station is reached.

• Automatic Search Function

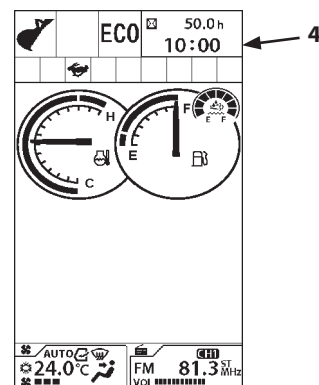
1. Push selector knob (3) while displaying Basic Screen (4) to display Main Menu screen (5).

2. Rotate selector knob (3) to highlight Radio (6).

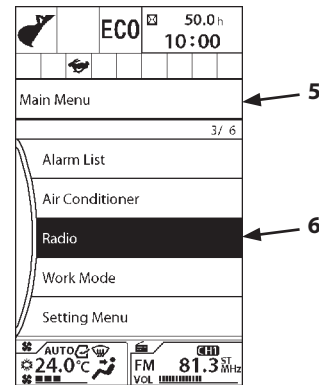
Push selector knob (3) to display the Radio screen.

Rotate selector knob (3) to highlight Seek (8). Push selector knob (3) to go to the next higher frequency station. Push selector knob (3).

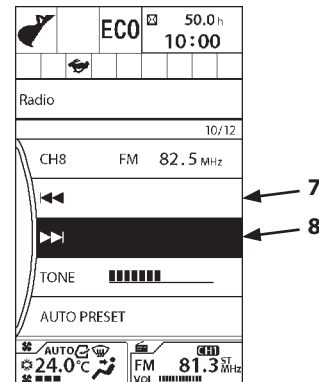
Rotate selector knob (3) to highlight seek (7). Push selector knob (3) to go to the next lower frequency station. Push selector knob (3).



MDC1-01-001



MDAA-01-092EN



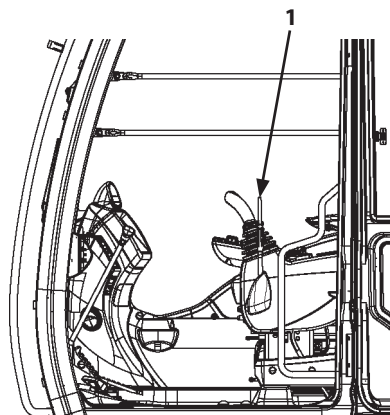
MDAA-01-095EN

OPERATOR'S STATION

Opening/Closing and Removing Cab Inside Window

⚠ WARNING:

- Open, close or remove the upper front cab window, overhead window, cab door window or lower front window only after lowering the front attachment to the ground and pulling up pilot control shut-off lever (1) to the LOCK position. Failure to do so may allow the machine to move unexpectedly if a control lever or pedal is mistakenly touched with a part of the body, possibly resulting in personal injury or death.
- Park the machine on a level surface and stop the engine before opening and closing the upper front window.
- When opening the upper front window, hold the window by hands, hold it until the upper front window is locked.
- When closing the upper front window, it may accidentally fall under its own weight. Hold the upper front window with both hands until it is completely closed. The window stops once before closing completely. Do not operate the machine when the window is in this position. The upper front window is not locked in this position, there is a possibility that the window may drop suddenly.



MDAA-01-295

OPERATOR'S STATION

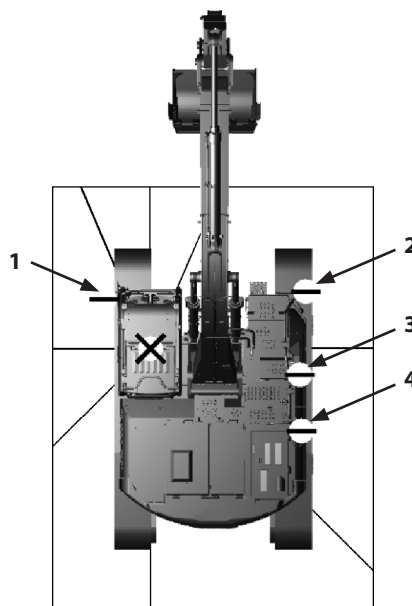
Mirror Installation Diagram

The mirror installation locations (1, 2, 3, 4) on this machine are shown in the right.

Adjust the installation locations of each mirror by following the instructions below to ensure safety.

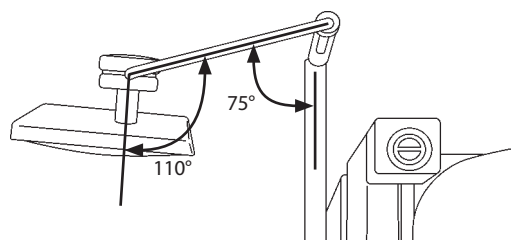
Installation angle and dimension varies depending on the model.

- 1- Operator's Seat Mirror
- 2- Handrail Mirror for Getting ON/OFF the Machine
- 3- Fuel Tank Handrail Mirror
- 4- Aftertreatment Device Cover Mirror



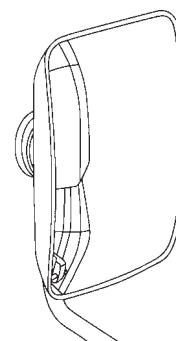
MDD5-01-012

- Operator's Seat Mirror (1)
Adjust the mirror to the specified position.



MDC1-01-549

- Handrail Mirror for Getting ON/OFF the Machine (2)
Adjust the mirror so that the side of the machine appears on the mirror as shown in the right.
Adjust the mirror so that a range of at least 1 m from the right side of the machine can be seen from the operator's seat.



MDC1-01-550

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

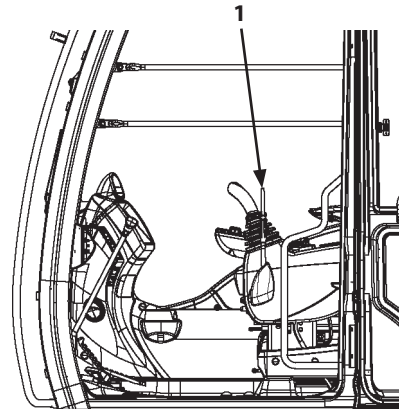
OPERATING THE ENGINE

Starting the Engine

Starting the Engine in Ordinary Temperature

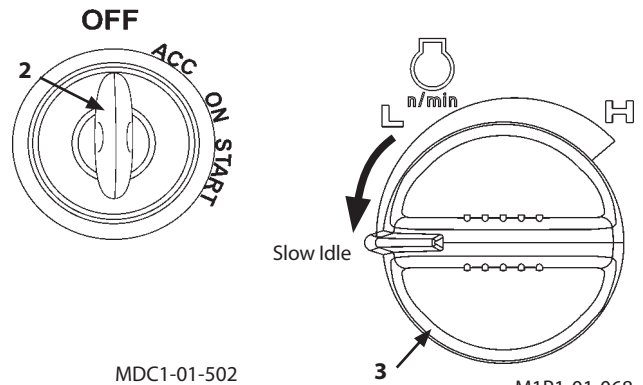
1. Confirm that pilot control shut-off lever (1) is in the LOCK position.
2. Turn engine control dial (3) to the slow idle position.
3. Sound horn to alert bystanders
4. Insert key (2) to the key switch. Turn it to ON position.
5. "Wait-screen (nothing is displayed)" is displayed on the monitor for 2 seconds. Regardless of pilot control shut-off lever (1) position, the engine can not be cranked during this moment.
6. When the Password Input screen is displayed on the monitor, input the password. Unless the numeric keypad function (ignition block system) is activated, this screen is not displayed.

IMPORTANT: When required to activate the numeric keypad function (ignition block system), consult your authorized dealer.



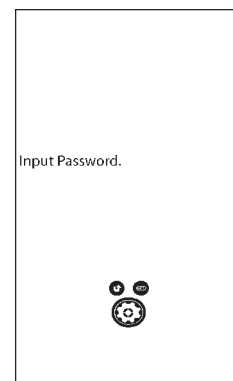
LOCK Position

MDAA-01-295



MDC1-01-502

M1P1-01-068



Password Input Screen

MDAA-01-085EN

OPERATING THE ENGINE

Engine Auto-Stop in Extremely Low Temperature

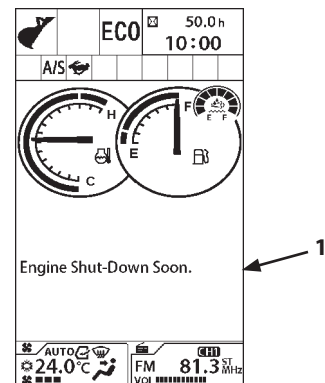
WARNING: This function automatically stops the engine. Take extra care on the work and work environment when using this function.

IMPORTANT: If the machine is left unoperated in an environment with temperatures under -20°C or lower for a long period of time, exhaust gas particles may accumulate in the aftertreatment device, and may result in damage to the device.

In an environment with temperature of -20°C or lower, the engine will automatically stop 60 minutes after the pilot control shut-off lever is pulled to the LOCK position. 30 seconds before the engine stop, the monitor displays "Engine Shut-down soon." message (1) and the indicator starts flashing. The buzzer sounds once 30 seconds before shut-down, and sounds continuously from 15 seconds. The engine speed decreases to idling speed, and then stops after 15 seconds. When the pilot control shut-off lever is pushed down before stopping the engine, the auto shut-down is disabled and the engine will not stop.

IMPORTANT: When the engine stops, turn the key switch to ACC or OFF once and then turn it to START to restart the engine. In the case the engine stops automatically, turn the key switch OFF before leaving the machine for a long period of time. Do not leave the machine after auto shut-down. Failure to do so may discharge the batteries.

NOTE: The engine can stop automatically when related conditions are met regardless of the auto shut-down function being ON or OFF.



MDC1-01-146EN

OPERATING THE MACHINE

Control Lever (ISO Pattern)

⚠ WARNING:

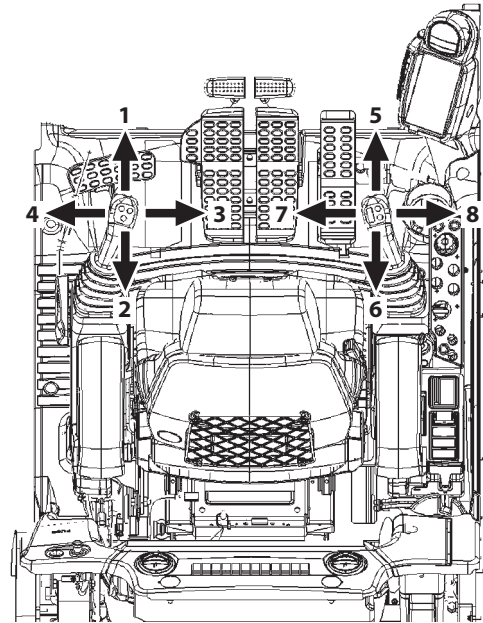
- Never extend any part of body beyond window bars or frame, as it could be crushed, if boom control lever is accidentally bumped or otherwise engaged.

Never remove the window sash bar.

- Make sure you know the location and function of each control before operating.
- Do not change the operation pattern of the control lever. Failure to do so may result in mistaken operation of the machine.

A label showing the control patterns of the levers and pedals is attached on the right side in the cab.

When a lever is released, it will automatically return to neutral, and that machine function will stop.



MDAA-01-363

1- Arm Roll-Out

2- Arm Roll-In

3- Swing Right

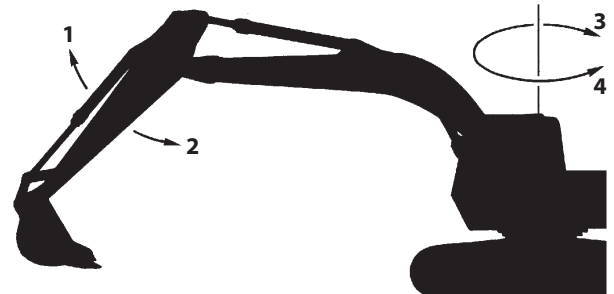
4- Swing Left

5- Boom Lower

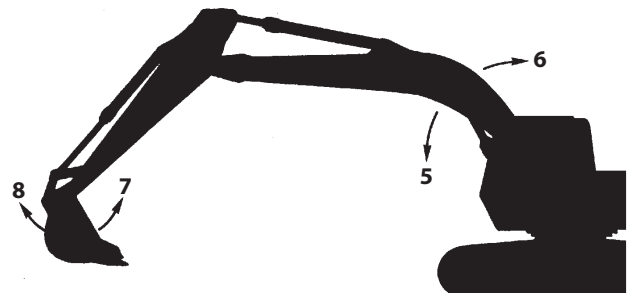
6- Boom Raise

7- Bucket Roll-In

8- Bucket Roll-Out



M104-05-001



M104-05-002

OPERATING THE MACHINE

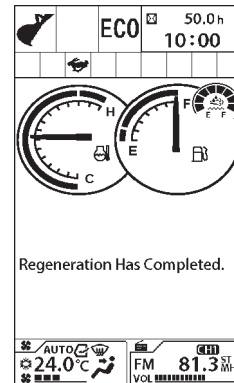
6. When the manual regeneration is finished, "Regeneration Has Completed." message will be displayed. If "Regeneration Has Failed." message is displayed, start the manual regeneration process again. Regeneration process may fall in conditions other than those mentioned above (such as sensor malfunction or low ambient temperature).

 **NOTE:**

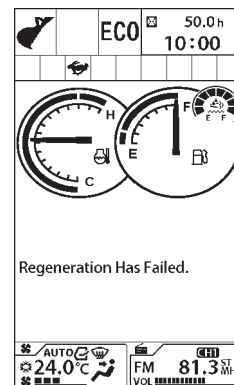
- The engine sound may change and the engine speed may increase when the manual regeneration starts, this is not a malfunction.
- Regeneration time varies depending on the ambient temperature.
- White smoke may temporarily be generated from the tail pipe during the regeneration process, this is not a malfunction.
- Manual regeneration time is shorter directly after machine operation, and longer when engine temperature is low.
- Coolant temperature may increase during the manual regeneration.

IMPORTANT:

- **If regeneration must be interrupted, push the manual regeneration switch again. The message "Regeneration Has Failed." will be displayed on the monitor, but the machine becomes operable. In this case, manual regeneration should be performed again. Restart manual regeneration as soon as possible.**
- **Depending on the working and environmental conditions, there may be occasions when the effectiveness of the catalyst within the aftertreatment device decreases and replacement becomes necessary. If warm up is finished, ordinarily a manual regeneration will take around 15 to 30 minutes to complete. If the regeneration takes over 40 minutes, contact your nearest authorized dealer to arrange an inspection.**



MDC1-01-083EN

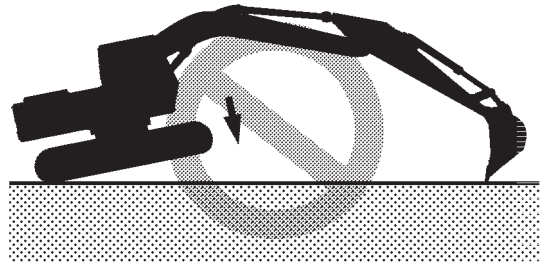
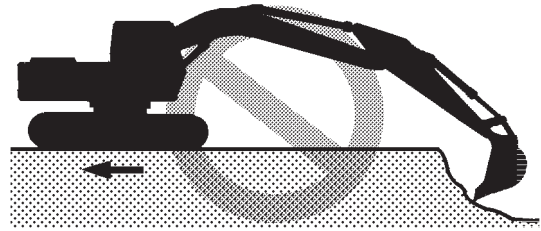


MDC1-01-084EN

OPERATING THE MACHINE

Avoid Abusive Operation

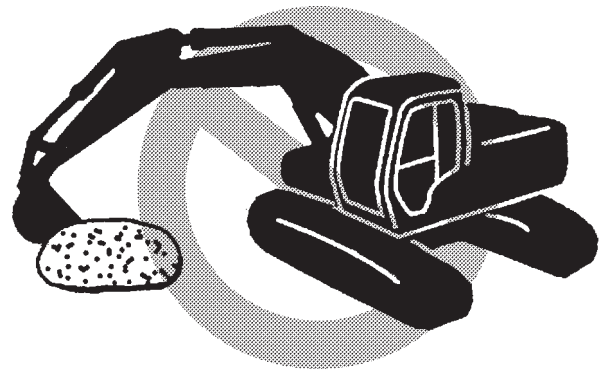
Do not attempt to add additional digging force by using travel, raising the rear of the machine to use the machine's weight.



MZX5-05-005

Never Move an Object Sideways with the Bucket

For example, do not swing the bucket to level material or do not strike objects sideways with the bucket. Doing so may damage the front attachment and the swing system.



MZX5-05-006

TRANSPORTING

Fastening Machine for Transporting

⚠ WARNING: Fasten the machine frame to the deck securely with chains and cables. While traveling, loads may shake around, move forward or backward or to the sides.

1. Place cog stoppers or blocks in front of and behind the tracks to help secure the machine.
2. Fasten each corner of the machine and front attachment to the trailer with appropriate strength of chains or cables.



M1V1-06-001

Unloading

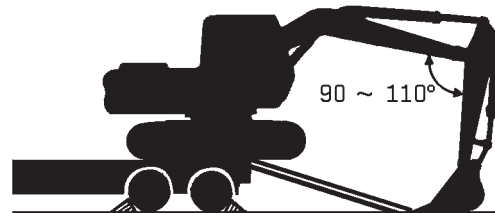
⚠ WARNING: At the point where the ramp meets the level surface there is a sudden change of angle. Take care when traveling over it.

IMPORTANT: Make sure that the angle of the boom and the arm is kept between 90 to 110 ° when unloading the machine.

Damage to the machine is possible if the arm is kept in a suspended state during unloading.

1. Travel extremely slowly with the bucket on the ground and the angle of the arm and the boom kept at between 90 to 110 ° when moving from the edge of the trailer onto the ramp.

IMPORTANT: When driving the machine over the ramp, do not allow the machine to hit the ground with the arm too hard. Possible damage to the hydraulic cylinders may result.



M107-06-014

MAINTENANCE

Preparations for Inspection and Maintenance

Except in special cases, park the machine by following the procedure before servicing the machine.

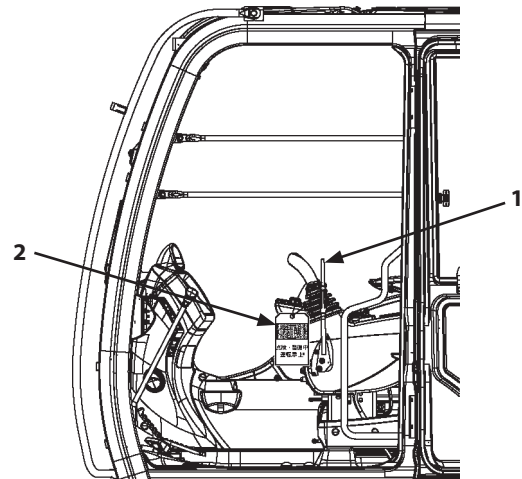
1. Park the machine on a firm, level surface.
2. Lower the bucket to the ground.
3. Turn the auto-idle switch OFF.
4. Turn engine control dial to the slow idle position and run the engine for 5 minutes to cool the engine.
5. Turn the key switch OFF to stop the engine. Remove the key. Be sure to place pilot control shut-off lever (1) to the LOCK position.
6. After putting a tag (2) for "Under Serving" on the easy-to-see cab door or control lever, begin the work.

⚠ WARNING: Never attempt to maintain the machine when the engine is running in order to prevent the accident. If maintenance work while engine running is unavoidable, strictly comply with the following items.

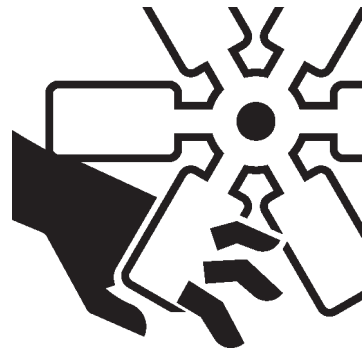
- One person should take the operator's seat to be ready to stop the engine any time while communicating with other workers.
- When working around moving parts is unavoidable, pay special attention to ensure that hands, feet, and clothing do not become entangled.
- If parts or tools are dropped or inserted into the fan or the belt, they may fly off or be cut off. Do not drop or insert parts and tools into the moving parts.
- Move pilot control shut-off lever (1) to LOCK position so that the front attachment will not move.
- Never touch the control levers and pedals. If operating the control levers or pedals is unavoidable, signal co-workers to evacuate to safer place.



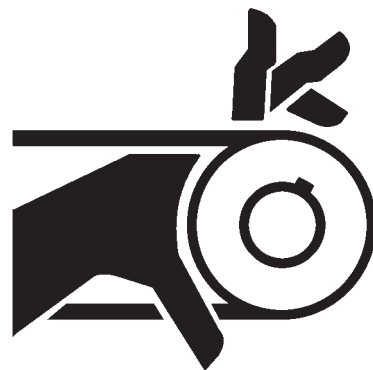
M104-07-021



MDAA-07-028



SA-2294



SA-026

MAINTENANCE

Brand Names of Recommended Oil

Application		Swing and Travel Reduction Gear	Pump Transmission
Kind of Oil		Gear Oil	Engine Oil
Air Temp.		-20 to 40 °C (-4 to 104 °F)	-20 to 40 °C (-4 to 104 °F)
Recommended Products		Hitachi Gear Oil GL-4 90	Hitachi Genuine Engine Oil DH-2 10W-40 Hitachi Genuine Engine Oil DH-1 15W-40
Alternative Products	Specification	API GL-4	API CD, JASO DH-1, JASO DH-2

IMPORTANT:

- **Hitachi Genuine Gear Oil and Hitachi Genuine Engine Oil are specially designed and tested to provide optimum performance for the machine, hence we recommend to use Hitachi Genuine Gear Oil and Hitachi Genuine Engine Oil .**
- **If you do not use Hitachi Genuine Gear Oil or Hitachi Genuine Engine Oil , use gear oil or engine oil conforming to specifications described above. Otherwise, the machine may suffer damage.**
- **Do not use oils which do not meet the above specification or requirements. Use of unsuitable oil may lead to engine damage which is excluded from Hitachi Warranty Policy.**
- **For details, contact your nearest authorized dealer.**

Brand Names of Recommended Hydraulic Oil

Kind of Lubricant		Hydraulic Oil	
Where to be applied		Hydraulic System	
Environmental Temp.		-20 to 40 °C (-4 to 104 °F)	
Recommended Products		Hitachi Super EX 46HN	Hitachi Genuine Hydraulic Multi
Alternative Products	Specification		Product Conforming to JCMAS HK VG46W
Change Interval		5000 hours	1500 hours

 **NOTE:** A different interval of oil change may be required for Alternative Products.

For details, contact your nearest authorized dealer.

IMPORTANT:

- **Hitachi Genuine Hydraulic Oils are specially designed and tested to provide optimum performance for the machine, hence we recommend to use Hitachi Genuine Hydraulic Oils.**
- **If you do not use Hitachi Genuine Hydraulic Oil , use Hydraulic oil conforming to JCMAS HK VG46W. Otherwise, the machine may suffer damage. For the information of JCMAS HK VG46W, refer to JALOS website.**
- **Do not use oils which do not meet the above specification or requirements. Use of unsuitable oil may lead to damage which is excluded from Hitachi Warranty Policy.**

MAINTENANCE

2 Change Engine Oil
--- every 500 hours

3 Replace Engine Oil Filter
--- every 500 hours

⚠ CAUTION: Engine oil may be hot just after operation.
Take extra care to avoid burns.

After refilling, make sure oil filler cap (2) is securely closed.

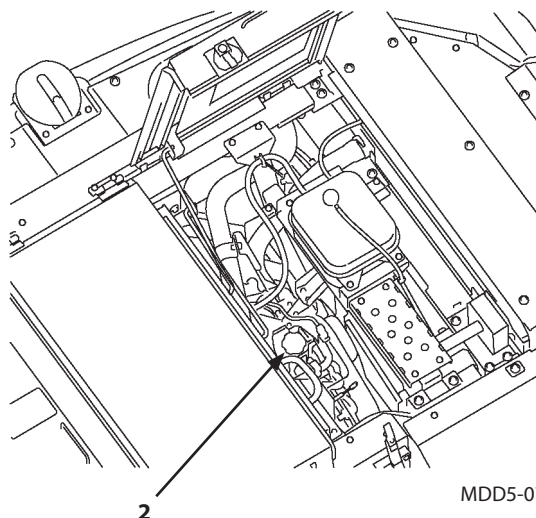
1. Run the engine to warm oil.
DO NOT run the engine until oil is hot.
2. Park the machine on a firm, level surface.
3. Lower the bucket to the ground.
4. Turn the auto-idle switch off.

IMPORTANT: The turbocharger may be damaged if the engine is not properly shut down.

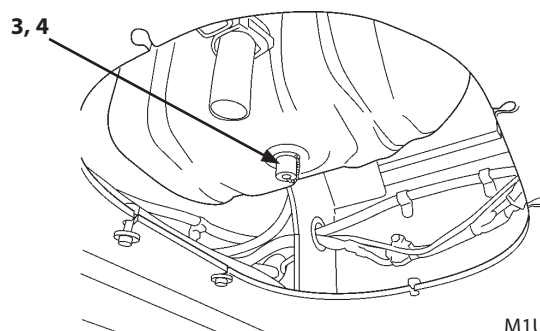
5. Run the engine at slow idle speed without load for 5 minutes.
6. Turn the key switch OFF. Remove the key from the key switch.
7. Pull the pilot control shut-off lever to the LOCK position.

IMPORTANT: Install drainer (5) to drain valve (3) slowly.
Oil may exhaust in large quantities when suddenly tightened.

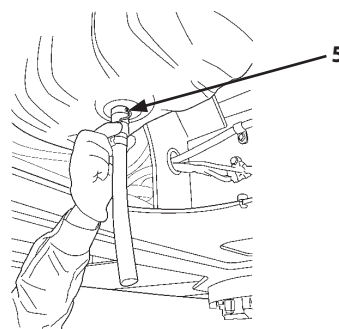
8. Remove oil filler cap (2).
9. Remove cap (4) from oil pan drain valve (3). Install drainer (5) to drain valve (3).
10. Screw drainer (5) into drain valve (3). Drain valve (3) will be opened to drain oil.
11. Then, allow oil to drain through a clean cloth into a container.
- Container: 50-liter (13 US gal)
12. After all oil has been drained, inspect the cloth for any debris such as small pieces of metal.
13. Remove drainer (5). Install cap (4) to drain valve (3).



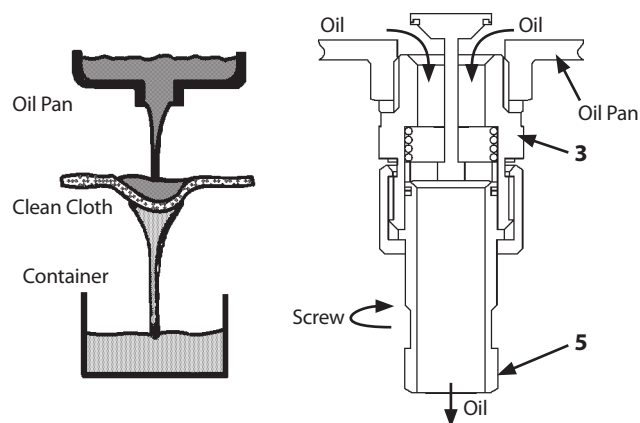
MDD5-07-006



M1U1-07-045



M1U1-07-046



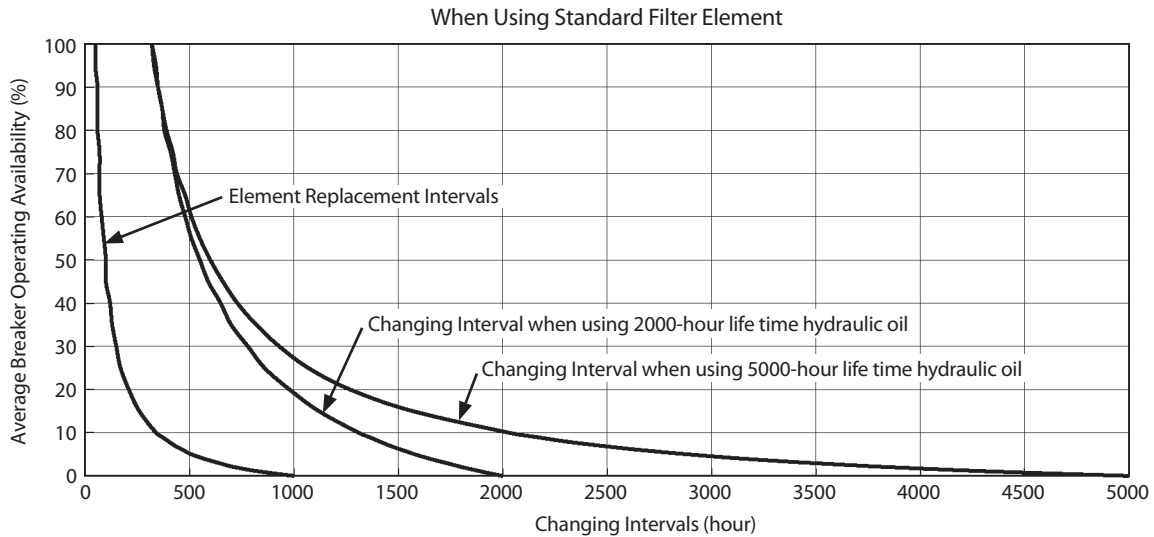
M104-07-010

M1U1-07-002

MAINTENANCE

Changing intervals for the standard full-flow filter (paper filter)

Breaker Operating Availability	0 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	100 %
Full-Flow Filter	1000	340	210	150	120	100	80	70	60	60	50
Hydraulic oil: 2000 hours life time	2000	1310	980	780	650	550	480	430	380	350	320
Hydraulic oil: 5000 hours life time	5000	2030	1270	930	730	600	510	440	390	350	320



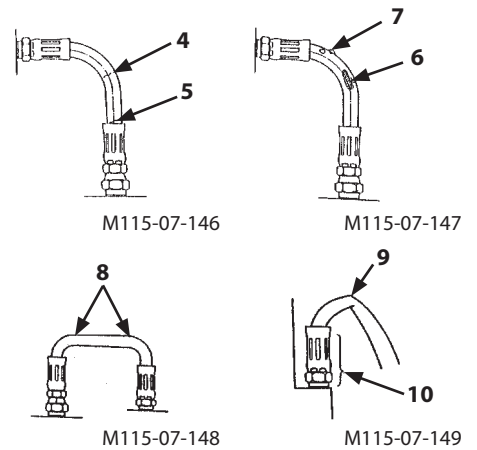
MDAA-07-051

NOTE: Hydraulic oil restriction indicator is optional.

If a filter-paper element is used, this indicator does not operate.

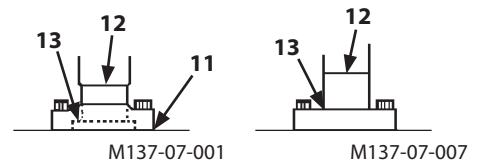
MAINTENANCE

Interval (hours)	Check Points	Abnormalities	Remedies
Every 250 hours	Hose covers	Damage or leak (4)	Replace
	Hose ends	Damage or leak (5)	Replace
	Hose covers	Exposed reinforcement (6)	Replace
	Hose covers	Crack or blister (7)	Replace
	Hose	Bend (8), Collapse (9)	Replace
	Hose ends and Fittings	Deformation or corrosion (10)	Replace



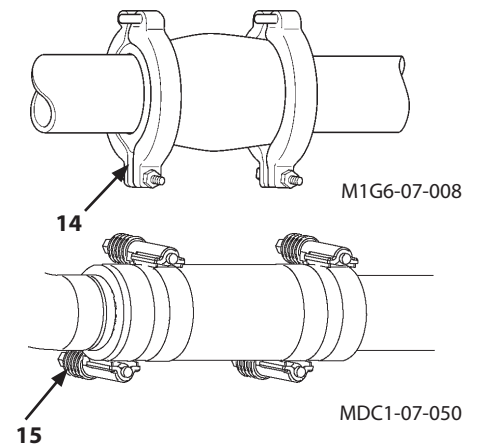
Lines

Interval (hours)	Check Points	Abnormalities	Remedies
Daily	Contact surfaces of flange joints	Leak (11)	Replace
	Bolts	Loose or leak (11)	Retighten or replace O-ring
	Welded surfaces on flange joints	Leak (12)	Replace
Every 250 hours	Flange joint neck	Crack (13)	Replace
	Welded surfaces on flange joints	Crack (12)	Replace
	Clamps	Missing or deformation Loose bolts	Replace or retighten



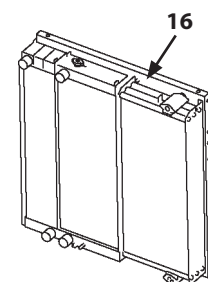
Hose and Lines

Interval (hours)	Check Points	Abnormalities	Remedies
Daily Check	Flexible master coupling	Leak (14)	Replace or retighten
Every 250 hours	Constant torque clamp	Leak (15)	Replace or retighten



Oil Cooler

Interval (hours)	Check Points	Abnormalities	Remedies
Every 250 hours	Oil Cooler	Leak (16)	Replace



MDD5-07-012

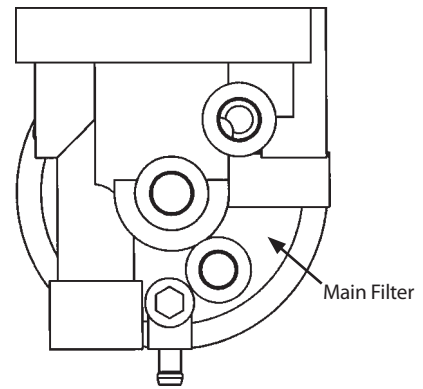
MAINTENANCE

- Place 1 liter (1.1 US qt) or larger capacity container under the drain hose.
- Rotate the bottom of filter element (2) counterclockwise by using a spanner to remove filter element (2) from head cover (3).
- Apply a thin layer of fuel to the cartridge gasket (O-ring).
- Install new filter element (2) on head cover (3) while rotating filter element (2) clockwise. Tightening torque: $25 \pm 2 \text{ N}\cdot\text{m}$ ($2.5 \pm 0.2 \text{ kgf}\cdot\text{m}$, $18.4 \pm 1.5 \text{ lbf}\cdot\text{ft}$)
- Open cock (1) on the bottom of the fuel tank.
- Bleed Air from the Fuel System

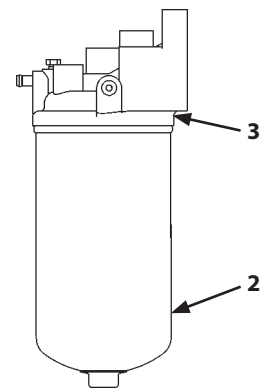
After replacing fuel filter element (2), bleed air from the fuel supply system.

(Refer to "**2** Bleed Air from the Fuel System".)

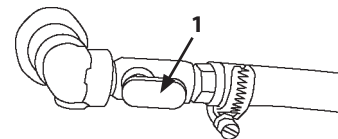
Wrench size: 24 mm



MDC1-07-046



MDC1-07-047



Open Position

MDAA-07-007

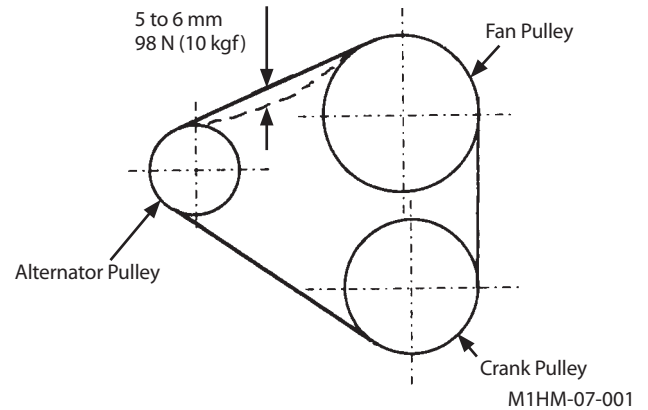
MAINTENANCE

- 2** Check and Adjust Fan Belt Tension
--- every 250 hours (first time after 50 hours)

IMPORTANT: Loose fan belt may result in insufficient battery charging, engine overheating, as well as premature belt wear. A belt that is too tight can damage both water pump/alternator bearings as well as the belt.

Inspect

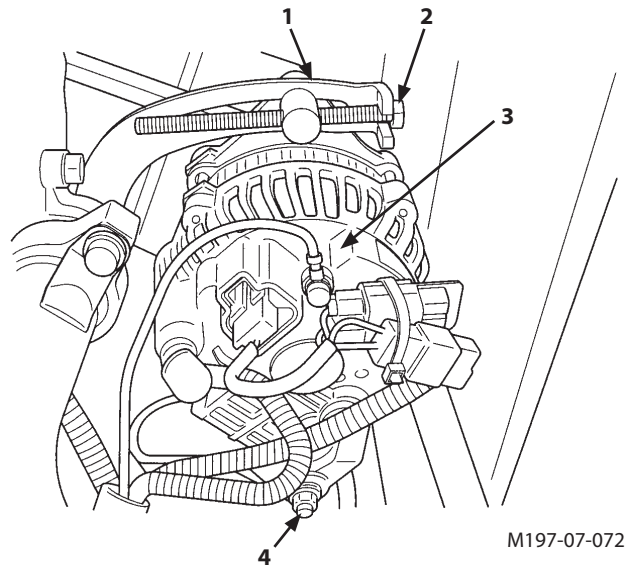
Check fan belt tension by depressing the midpoint between the fan pulley and the alternator pulley by your thumb with a depressing force of approximately 98 N (10 kgf, 22 lbf). Deflection must be within the value illustrated in the right. Visually check the belt for wear. Replace it if necessary.



Adjust Drive Belt Tension

1. Loosen lock nut (1) at the top of alternator (3), and lock nut (4) at the bottom of alternator (3).
2. Adjust belt tension by moving alternator (3) forward or backward by using adjustment bolt (2).
3. Securely tighten lock nuts (1) and (4).

IMPORTANT: When a new belt is installed, be sure to re-adjust the tension after operating the engine for 3 to 5 minutes at slow idle speed to be sure that the new belt is seated correctly.



MAINTENANCE

3. Always keep the area around the battery terminals clean to prevent battery discharge. Check terminals for loose and/or rust.

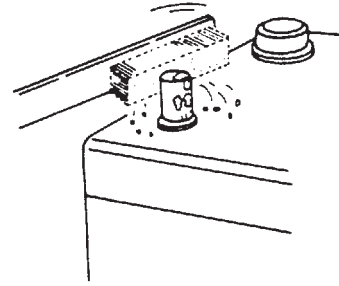
Check terminals for loose and/or rust. Coat terminals with grease or petroleum jelly to prevent corrosion build up.

Replace Battery

IMPORTANT: Turn the battery disconnect switch to OFF before replacing the battery.

This machine is equipped with two 12V batteries. Negative terminal is connected to the ground.

If one battery is damaged on the 24V system, replace the damaged battery with the same type of new battery. If a maintenance free battery is damaged, replace it with new maintenance free battery. Battery charger differs depending on the type of battery. If improper battery is connected, the battery becomes overloaded possibly resulting in malfunction.



M409-07-072

MAINTENANCE

5 Remove Travel Levers

--- as required

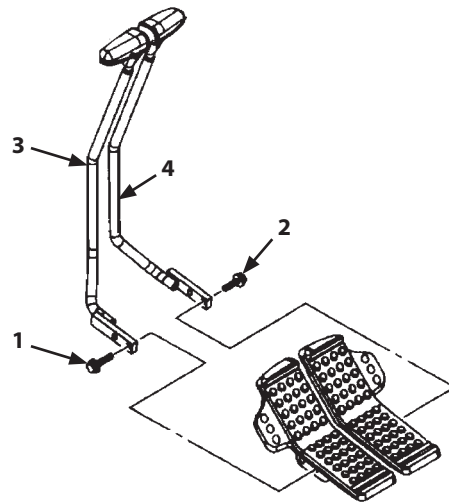
Travel levers (3) and (4) may be removed if desired.

Procedure:

Remove bolts (1) and (2) to remove travel levers (3) and (4) from brackets.

 **NOTE:** Wrench size: 17 mm

Tightening Torque: 50 N·m (5 kgf·m, 36.9 lbf·ft)



M178-07-077

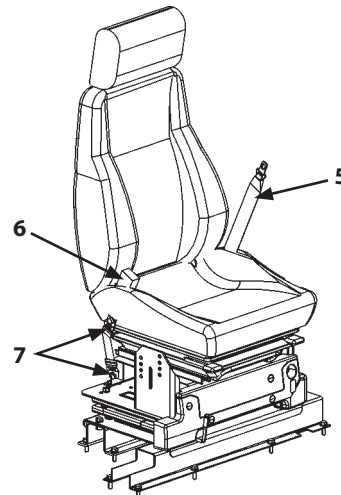
6 Check and Replace Seat Belt

Check --- daily

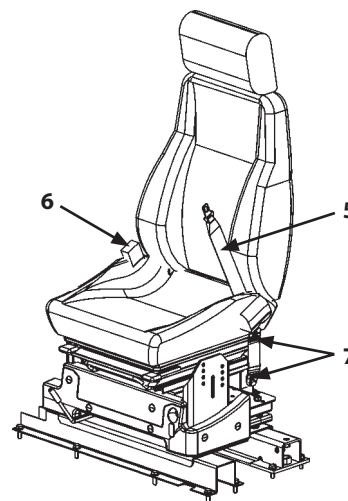
Replace --- every 3 years

Prior to operating the machine, thoroughly examine belt (5), buckle (6) and attaching hardware (7). If any item is damaged or materially worn, replace seat belt (5) or component before operating the machine.

We recommend that seat belt (5) should be replaced every 3 years regardless of its apparent condition.



M1U1-07-008



M1U1-07-009

MAINTENANCE

- 12 Retighten Cylinder Head Bolt**
--- as required

See your authorized dealer.

- 13 Inspect and Adjust Valve Clearance**
--- every 1000 hours

See your authorized dealer.

- 14 Measure Engine Compression Pressure**
--- every 1000 hours

See your authorized dealer.

- 15 Check Starter and Alternator**
--- every 1000 hours

See your authorized dealer.

- 16 Check and Replace EGR Device**
--- as required

See your authorized dealer.

- 17 EGR Cooler Cleaning**
--- every 4500 hours

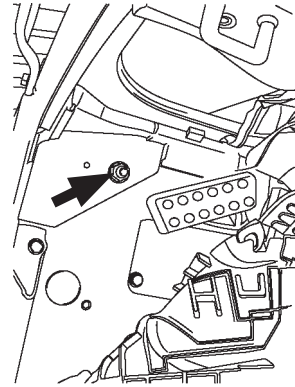
See your authorized dealer.

- 18 Check Turbo Charger**
--- every 4500 hours

See your authorized dealer.

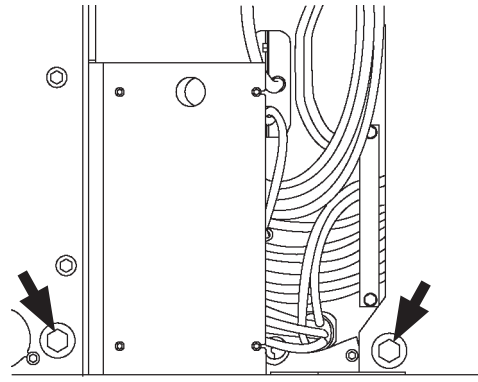
MAINTENANCE

13. Cab mounting nuts



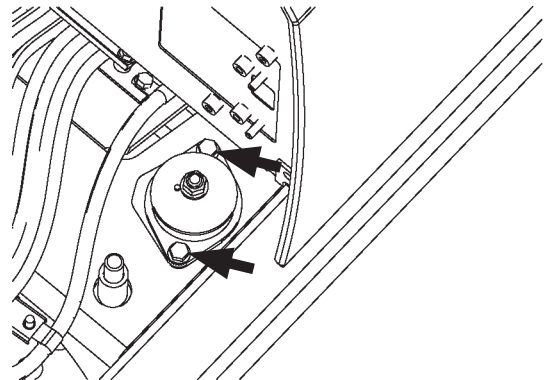
M1U1-07-026

Cab mounting anchor bolt



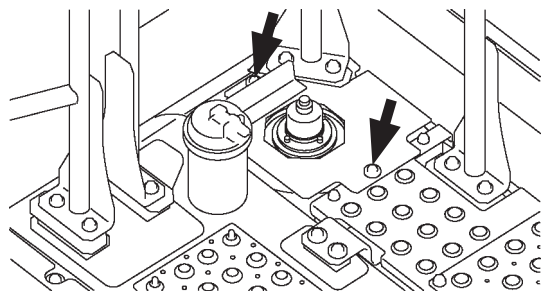
M1U1-07-054

Cab cushion rubber mounting bolt



MDC1-07-052

14. Cover mounting bolts



MDD5-07-011

MAINTENANCE

J. Aftertreatment Device

- 1 Check and Clean Aftertreatment Device
--- as required

IMPORTANT:

- Check and clean flammable materials on the area around the Aftertreatment device.
- Condensation for dew may blow out from exhaust outlet (1) of the aftertreatment device and black deposition may be observed; it is not a malfunction.

Do not disassemble the base machine support parts and sensors.

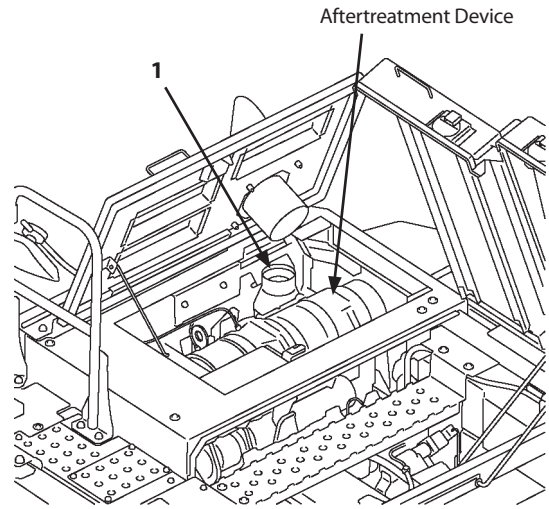
When the machine is operated in dusty areas, refer to the page 9-1 "Maintenance Under Special Environmental Conditions".

Open the engine cover.

Check the NOx sensor, harnesses of exhaust temperature sensors and dosing module for abnormality.

Securely close the engine cover.

Clean it if necessary.



MDD5-07-036

MAINTENANCE UNDER SPECIAL ENVIRONMENTAL CONDITIONS

Maintenance Under Special Environmental Conditions

Operating Conditions	Precautions for Maintenance
Muddy Soil, Rainy or Snowy Weather	After Operation : Clean the machine and check for cracks, damage, loose or missing bolts and nuts. Lubricate all necessary parts without delay.
Near the Ocean	After Operation : The following salt pollution measures must be taken when the machine is operated at sea or near the coastline. <ol style="list-style-type: none"> (1) After completing the work, extend/retract the hydraulic cylinders several times to form an oil film on the rod surface. Store the machine with cylinders retracted as much as possible. (2) Thoroughly clean the machine with fresh water to wash off salt. (3) To prevent corrosion, perform touch up painting periodically on hose fittings, lubrication piping and inserting position of cover, where sea water is easily collected. (4) During storage of the machine, cover the machine with tarpaulin to prevent sea water from entering into the cab vent. Apply rust prevention oil (example: ANTIRUST P-1300NP-3 JX Nippon Oil & Energy Corporation) onto plated part of the cylinder rods.
Dusty Atmosphere	<p>Air Cleaner : Clean the element regularly at shorter service intervals.</p> <p>Radiator : Clean the radiator to prevent clogging of the radiator core.</p> <p>Fuel System, Urea SCR System : Replace the filter element and strainer regularly at shorter service intervals.</p> <p>Engine, Aftertreatment Device : Clean earlier than the normal interval to prevent dust from sticking and accumulating. Inhibit the aftertreatment device regeneration according to the machine operating condition.</p>
Rocky Ground	<p>Tracks : Carefully operate while checking for cracks, damage and loose bolts and nuts. Loosen the tracks a little more than usual.</p> <p>Front Attachment : Standard attachment may be damaged when digging rocky ground. Reinforce the bucket before using it, or use a heavy duty bucket.</p>
Falling Stones	Cab Head Guard : Provide a cab guard to protect the machine from falling stones. Consult your nearest Hitachi dealer.
Freezing Weather	<p>Fuel/Lubricant : Use high quality and low viscosity fuel and oil.</p> <p>Engine Coolant : Be sure to use antifreeze.</p> <p>Battery : Fully charge the batteries at shorter intervals. If not fully charged, electrolyte may freeze.</p> <p>Track : Keep the tracks clean. Park the machine on a hard surface to prevent the tracks from freezing to the ground.</p> <p>DEF/AdBlue® : May become frozen but the machine can be operated normally.</p>

TROUBLESHOOTING

Swing Function		
Problem	Cause	Solution
Upperstructure does not swing.	Faulty swing parking brake	* Repair or replace
	Faulty swing parking brake release valve	* Repair or replace
	Broken swing motor	* Repair or replace
	Faulty pilot valve	* Replace
	Faulty pilot circuit line	* Repair or replace
Swing is not smooth.	Worn swing gear	* Repair or replace
	Damaged swing bearing and bearing balls.	* Repair or replace
	Lack of grease	Refill
	Inversion protective valve	* Repair or replace

Items with * mark: Consult your authorized dealer.

Just after the control valve, swing motor relief valve and/or the swing motor is replaced, a noise may be emitted and/or operation may not be performed smoothly due to air trapped in the hydraulic line.

Slowly continue to operate the machine for approx. 10 minutes to bleed air.

After repair work is complete, be sure to check the oil level in the hydraulic oil tank. Refill hydraulic oil as needed.

OPTIONAL ATTACHMENTS AND DEVICES

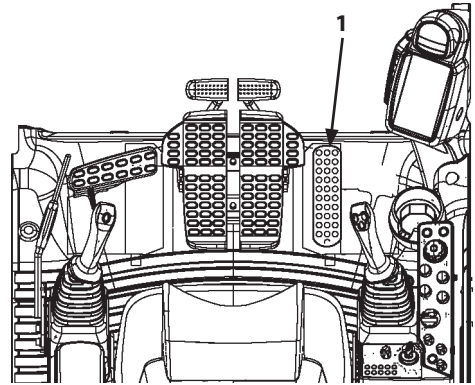
ATTACHMENT PEDAL

Attachment Pedal (Hydraulic Crusher) (Optional)

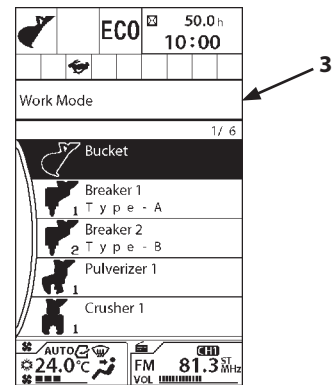
The crusher can be operated using attachment pedal (1) located on the right front of the seat, as illustrated.

CAUTION: Be sure to lock attachment pedal (1) with pedal lock (2) when attachment pedal (1) is not in use. Do not allow your foot to rest on pedal (1) when attachment pedal (1) is not in use. When changing the position of pedal lock (2) pull the pilot control shut-off lever up to the LOCK position.

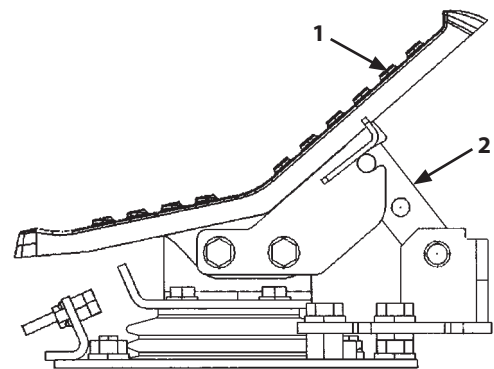
1. Select the proper hydraulic crusher icon on work mode screen (3). Refer to the descriptions about the work mode on page 5-12 for work mode setting procedures.
2. Move pedal lock (2) forward to the UNLOCK position.
3. Push down on attachment pedal (1) either forward or backward to open or close the crusher.
4. Remove foot from attachment pedal (1) to stop the crusher.
5. Always keep attachment pedal (1) locked with pedal lock (2) when attachment pedal (1) is not in use.



MDAA-05-001

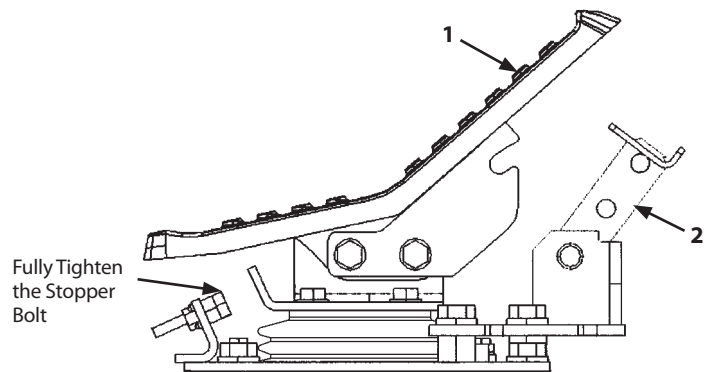


MDAA-01-101EN



Locked Attachment pedal (Crusher)

M1J1-13-012



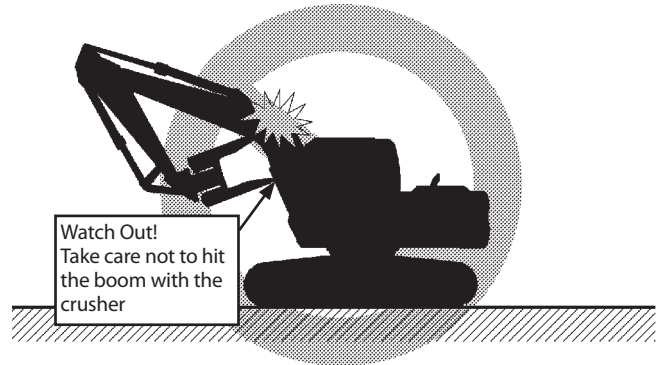
Unlocked Attachment pedal (Crusher)

M1J1-13-006

OPTIONAL ATTACHMENTS AND DEVICES

HYDRAULIC BREAKER, HYDRAULIC CRUSHER AND QUICK COUPLER

- When the arm is rolled in with the crusher equipped, the crusher may come into contact with the boom.

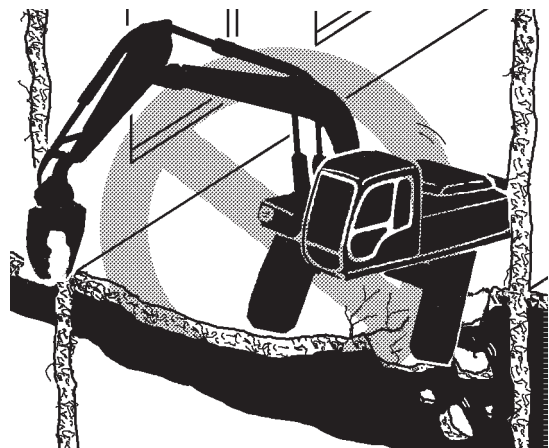


- When operating the crusher with the boom fully raised, be careful of falling objects.



MZX5-13-011

- When operating the crusher on the floor in a building, first confirm that the floor has sufficient strength to support the load caused by crushing, in addition to the machine weight.
Depending on the operation method, a load higher than the machine weight may be applied to the floor.



MZX5-13-012

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