

OPERATOR'S MANUAL

OPERATOR'S MANUAL

MOVING YOU FURTHER

HW100A

EXCAVATOR
HW100A

 **HYUNDAI**
CONSTRUCTION EQUIPMENT

PART NO. : 950106-03090A-EN
Printed in Korea

HYUNDAI

 **HYUNDAI**
CONSTRUCTION EQUIPMENT

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

EC Declaration of Conformity
(Original instruction)

This declaration of conformity is issued under the sole responsibility of manufacturer:

HYUNDAI CONSTRUCTION EQUIPMENT CO., LTD.
12th Fl., Hyundai Bldg. 75, Yulgok-ro, Jongno-gu,
Seoul 03058, Korea

Hyundai Construction Equipment Europe N.V located at Hyundailaan 4, 3980 Tessenderlo, Belgium, as authorized representative in the European Community is authorized to compile the technical construction file and declares that the product:

Type: *****
Model: *****
Serial number (PIN): *****

is in conformity with the relevant provisions of the Community harmonization legislation:

2006/42/EC - Machinery directive
2014/30/EU - Electromagnetic compatibility directive
2000/14/EC - Noise emission outdoor equipment directive
2002/44/EU - Exposure of workers to vibration risks directive
their amendments, and other applicable directives.

EMC (2014/30/EU)

Certificate number: *****
Date: DD/MM/YYYY
Notified body: *****

Noise levels (2000/14/EC)

Certificate number: *****
Date: DD/MM/YYYY
Conformity assessment proc.: Annex VIII Full Quality Assurance
Notified body: *****
Measured sound power level: nnn.n dB(A)
Guaranteed sound power level: nnn.n dB(A)

Engine information

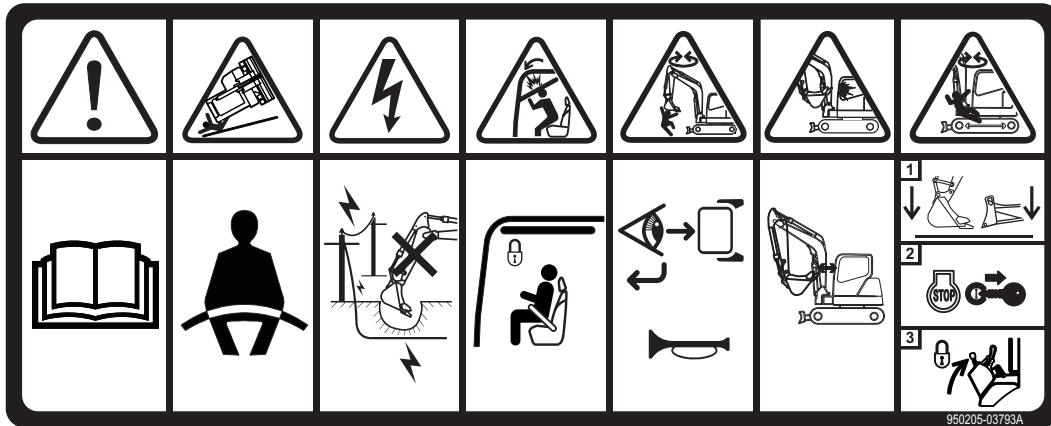
Manufacturer : *****
Engine model name: *****
Type-approval number: *****
Stage (Regulation) : STAGE ** (**/**/**)
Gross Power (SAE J1995): ***kW / ****rpm
Net Power (SAE J1349): ***kW / ****rpm

Harmonized standards, other technical standards and specifications applied:

EN 474-1:2006+A*.**** (EMM - Safety - Part 1); EN 474-3:2006+A*.**** (EMM - Safety - Part 3); EN ISO 3471:2008 (EMM - ROPS: Lateral/Vertical/Longitudinal loads); EN ISO 3449:2008 (EMM - FOPS: Level II cabin); ISO 2631-1:1997 & ISO 2631-1:1997/Amd1 :2010 (Whole-body vibration); EN ISO 5349-1:2001 & EN ISO 5349-2:2001 & EN ISO 5349-2:2001/A1:2015 (Hand-arm vibration)

Managing Director
Place, date of issue: Tessenderlo Belgium, DD MM YYYY

1. General Hazard (950205-03793A)



DS2104658



WARNING

AVOID DEATH OR SERIOUS INJURY

- Never use excavator without instructions.
- Read Operation & Maintenance Manual before operation.
- Sound the horn to alert bystanders before operating.
- Always fasten your seat belt.
- Explosion or electrocution can occur if machine contacts utility lines or pipes. Check for overhead or underground lines before operating.
- Secure and lock front window when it is in raised position.
- Attachment interference can cause death, serious injury or machine damage. Check attachment to machine clearance through full working cycle prior to operation.
- Keep bystanders out of swing area and travel path and always look in the direction of travel.
- Ensure mirrors and rear view camera are clean and working properly.
- Never operate machine from outside the operator's position.
- TO LEAVE THE EXCAVATOR:
 - 1) Lower the attachment and dozer blade (if equipped) to the ground and make sure all controls are in neutral.
 - 2) Stop the engine and remove the key.
 - 3) Upper safety lever to LOCK position.

26. DEF (AdBlue®) (950205-01489A, 950205-06494)

 **NOTICE**

- Use only the specified diesel exhaust fluid.
 - See the Operation & Maintenance Manual for more information.
-



WL1300370

 **WARNING**

Foreign substances flowed into the reductive tank may damage after-treatment device and cause engine shutdown.

1. Fill DEF ONLY and DO NOT fill materials, which are not stipulated herein such as water, fuel, oil etc., and contaminated DEF
2. Make sure to thoroughly clean the surroundings of the injection hole to prevent any dust, iron powder and water from flowing into the reductive tank.
3. During winter season, fill DEF up to only two-thirds of the tank capacity to prevent it from freezing.

950205-06494

DS2100501

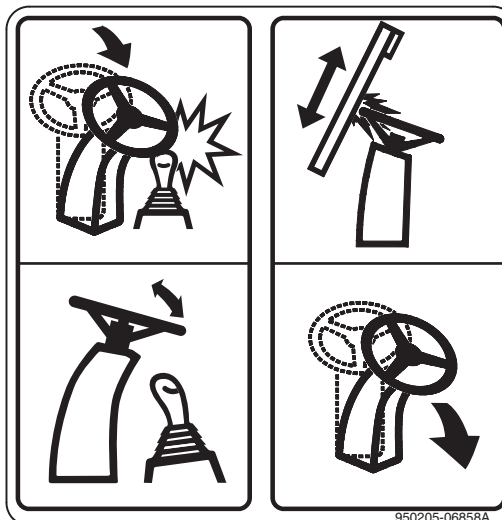
27. Caution for Steering Wheel Interference (950205-06858A)

 **NOTICE**

AVOID INJURY

Be careful not to have the joystick and steering wheel interfere with one another when handling them.

Be careful not to have the steering touch the front windshield when handling it.



950205-06858A

DS1703847

Rollover Protective Structure (ROPS)

The operator's cabin is a ROPS certified structure for protecting the seat-belted operator. It absorbs the impact energy of a rollover impact. Do not allow machine weight (mass) to exceed certified value on certification plate. If weight is exceeded, the ROPS structure will not be able to fulfill its safety function.

Do not increase machine weight beyond certified value by modifying machine or by installing attachments on machine. If weight limit of protective equipment is exceeded, protective equipment will not be able to protect operator, and this can result in death or serious injury. Always observe the following:

- This machine is equipped with a protective structure. Do not remove protective structure and perform operations without it.
- Never modify the operator's cabin by welding, grinding, drilling holes or adding attachments unless instructed by HYUNDAI in writing. Changes to the cabin can cause loss of operator protection from rollover and falling objects, and result in death or serious injury.
- When protective structure is damaged or deformed by falling objects or by rolling over, its strength will be reduced and it will not be able to adequately protect the operator. Contact your HYUNDAI distributor if you have any questions about the ROPS. Never repair a damaged ROPS cabin.
- Always wear your seat belt when operating machine.

ROPS Certification

This HYUNDAI excavator has an operator's cabin that meets ROPS requirements. The seat belt must be worn for rollover protection.

The ROPS certification plate (Figure 18) is found on the left side of the cabin on most models. It may vary slightly in its location on some models.

Check the ROPS cabin, mounting, and hardware for damage.

Never modify the ROPS cabin. Replace the cabin and hardware if damaged. See your HYUNDAI distributor for parts.

ROPS – Roll-over Protective Structure complies with ISO 12117-2:2008, EN 13531:2001.

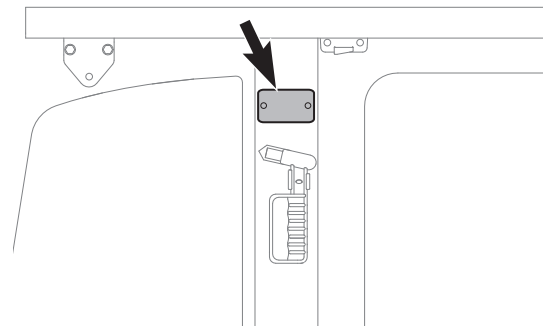


Figure 18

DS1901183



WARNING

AVOID DEATH OR SERIOUS INJURY

Never modify the operator cabin by welding, grinding, drilling holes or adding attachments unless instructed in writing by HYUNDAI. Changes to the cabin can cause loss of operator protection from rollover and falling objects, and can result in death or serious injury.

The Around View Monitoring (AVM) system (if equipped) provides view of surroundings and an operator can find who stands near.



NOTICE

Do not rely solely on AVM. every time swivel and moving, be sure No bystanders nearby and take a slow.

Before moving machine, look around work site and use mirrors and display monitor to confirm that no one is in the work area.

While operating or traveling in places with poor visibility it may be impossible to confirm condition of work site. Inspect and remove any obstacles around the machine that could be damaged and keep other personnel out of the work area.

Inspect equipment and repair immediately if there are problems with visual aids. If machine cannot be fixed immediately, DO NOT use the machine. Contact your HYUNDAI distributor and arrange for repairs.

Restricted Visibility

Some areas may not be seen from the operator's position.

Get aid from proper job site organization and minimize visibility masking hazard.

Refer to "Visibility Information" in the Operation and Maintenance Manual for more information regarding job site organization.

Figure 25 ~ Figure 26 provide an approximate visual indication of the areas at ground level inside a radius of 12 m (39' 4") from the operator of significant restricted visibility for various machine configurations.

Figure 27 provides the position of the attachment and equipment in the Travel position.

- Visible areas without visual aids at the ground level

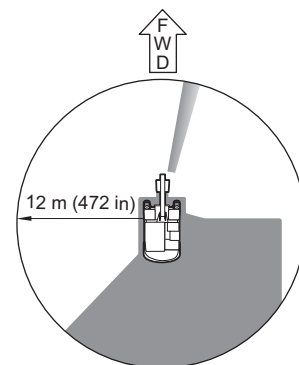


Figure 25

DS2104661

- Do not turn on slopes or travel across slopes. Always go down to a flat place to change position of the machine, then travel backup the slope again.

Towing



NOTICE

Do not tow more than 1.5 times towing machine's own weight.

Be careful to secure the wire rope to both sides of the axle so that force is not applied to one side of the axle.

To prevent death or serious injury when towing, always do the following:

- Follow the instruction given in this manual.
- Use a wire rope of sufficient strength for towing.
- In the event of slipping into swampy ground or towing heavy objects, use a wire rope to tow the machine as shown in the illustration.
- Put wood blocks between the wire rope and the machine to protect the machine and wire rope from damage.
- Only use the towing hole for light objects.
- Be sure to use shackles. Keep the cable horizontal, straight, and parallel to the tires.
- Select the "LOW" travel mode. Slowly drive the machine when towing.
- When performing preparation work for towing with two or more personnel, determine signals to use and correctly follow these signals.
- Always attach wire rope onto left and right hooks and secure in position.
- If engine on problem machine will not start or there is a failure in brake system, always contact your HYUNDAI distributor.
- Never go between towing machine and towed machine during towing operation.
- Do not perform towing on steep slopes, so select a place where slope is gradual. If there is no place where slope is gradual, perform operations to reduce angle of slope before starting towing operation.
- When towing a machine, always use a wire rope with a sufficient towing capacity.
- Do not use a wire rope that is kinked or frayed, or a wire rope with any loss of diameter. Wear leather gloves when handling a wire rope.

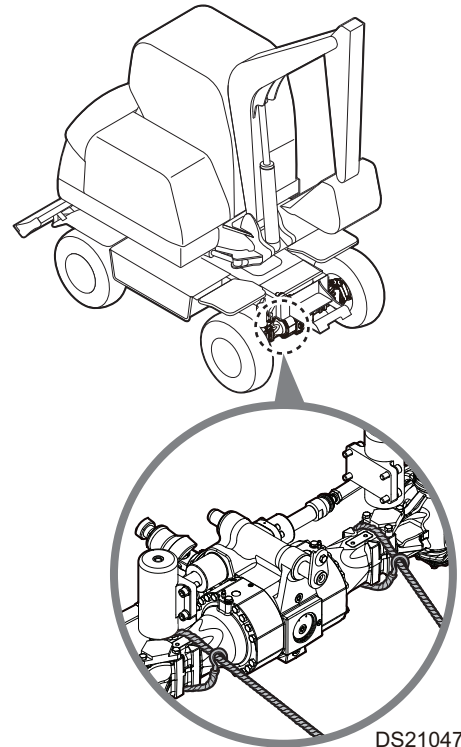


Figure 40

DS2104703

Use of Lighting

When checking fuel, oil, battery electrolyte, window washer fluid, or coolant, always use proper lighting equipment to prevent arcs or sparks that could cause a fire or explosion resulting in death or serious injury.



Figure 48

HDO1040L

Fire and Explosion Prevention

Fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire resulting in property damage or death or serious injury.

Store all fuels and all lubricants in properly marked and approved containers and keep away from all unauthorized personnel.

Store oily rags and other flammable material in a protective container.

Tighten all fuel and oil caps.

Do not smoke while you refuel machine or while you are in a refueling area.

Do not smoke in battery charging areas or in areas that contain flammable material.

Clean all electrical connections and tighten all electrical connections. Check electrical wires daily for wires that are loose or frayed. Tighten all loose, and repair or replace all frayed, electrical wires before operating machine.

Remove all flammable materials and debris from the engine compartment, exhaust system components and hydraulic lines.



Figure 49

HDO1015I

Drop-off or Edge

When working at edge of an excavation or near a drop-off, the machine could tip over, which can result in death or serious injury. Always fasten your seat belt. Check ground conditions of work site before operating to prevent the machine from falling or rollover, and to prevent ground, stockpiles, or banks from collapsing.

Do not travel too close to edge of a drop-off.

Poor Visibility

For good visibility, always do the following:

- When working in dark areas, attach working lights and front lights to the machine. If necessary, set up additional lighting at work site.
- Stop operations when visibility is poor, such as in fog, mist, snow, and rain. Wait for visibility to improve before starting operation.

To avoid hitting work equipment and damaging other property, always do the following:

- When working in tunnels, on bridges, under electrical wires, or when parking the machine or performing other operations in places with limited height, be careful not to hit and damage other equipment or property.
- To prevent hitting objects, operate machine at a slow speed when working in confined spaces, indoors, or in crowded areas.
- Do not swing bucket over the top of personnel or over operator's cabin of dump truck.

Loose or Soft Ground

Do not operate on soft ground or near edge of drop-offs, overhangs, and deep ditches. The ground can collapse because of the weight of the machine causing the machine to fall or rollover.

Check ground conditions before beginning work with the machine. If ground is soft, reposition the machine before operating.

The excavated material must not be dumped too close to edge. How far away from edge of trench excavated material must be dumped depends on soil type and moisture content. If loose clay is being excavated, place it at least 5 m (16 ft) away from edge.

If excavated material is dumped too close to edge, its weight can cause a landslide.

Thawing of frozen ground, rain, traffic, piling and blasting are other factors which increase risk of landslide. The risk also increases on sloping ground. If it is not possible to dig a trench and adequately slope its sides, always install shoring equipment.

Loose ground may easily give way under weight of the machine.

Vibration Information

NOTE: *The level of vibration is influenced by many different parameters such as operator training, job site organization, weather, material, environment, machine type, machine and seat suspension system, attachments, and condition of the machine.*

Measurements are obtained on a representative machine, using measuring procedures as described in the following standards: ISO 2631/1, ISO 5349, and SAE J1166.

Vibration levels were given consideration in accordance with uncertainty (K) determined to manufacturer.

Hand/Arm Vibration Level

The vibration total value to which the hand-arm system is subjected, is less than 2.5 m/s².

Whole Body Vibration Level

The highest root mean square value of weighted acceleration to which the whole body is subjected, is less than 0.5 m/s².

Guidelines for Use and Working Conditions of Earth-moving Machinery to Reduce Vibration Levels (ISO/TR 25398 Annex E)

Properly adjusting and maintaining machines, operating machines smoothly, and maintaining the terrain conditions can reduce whole-body vibrations. The following can help the users of earth-moving machinery reduce whole-body vibration levels.

1. Use the right type and size of machine, equipment, and attachments.
2. Maintain machines according to the manufacturer's recommendations: (for wheeled machine)
 - Tire pressure;
 - Brake and steering systems;
 - Controls, hydraulic system and linkages.
3. Keep the terrain where the machine is working and travelling in good condition:
 - Remove any large rocks or obstacles;
 - Fill any ditches and holes;
 - Provide machines and schedule time to maintain terrain conditions.
4. Use a seat in conformance with ISO 7096 and keep the seat maintained and adjusted:
 - Adjust the seat and suspension for the weight and size of the operator;
 - Inspect and maintain the seat suspension and adjustment mechanisms.

Operational Controls and Panels

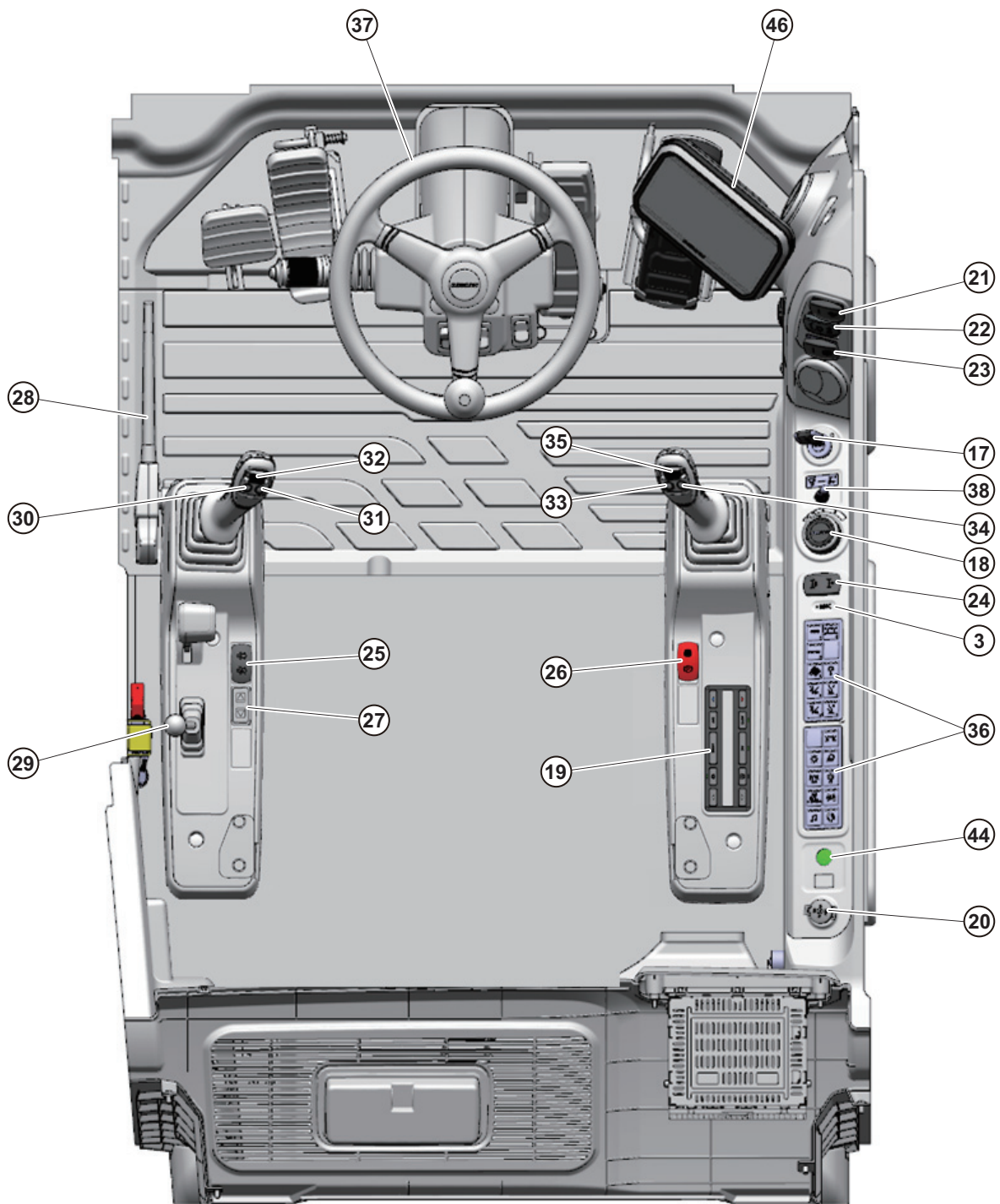
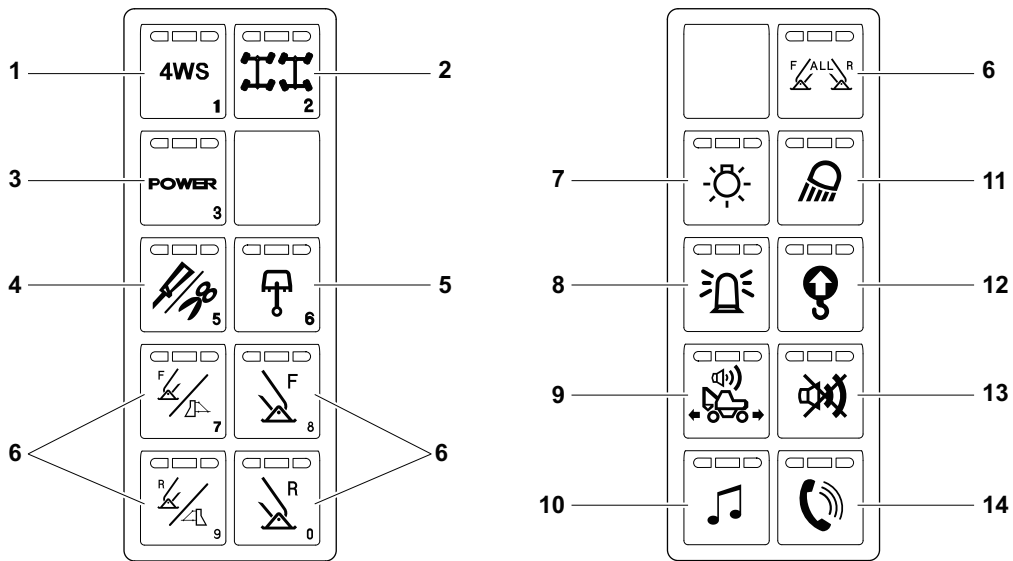


Figure 6

DS2104557

Keypad



DS2104562

Figure 25

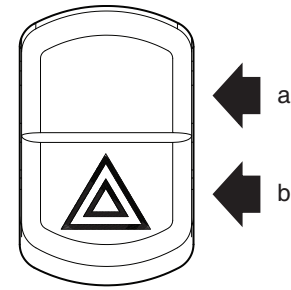
Reference Number	Description
1	2 Wheel / 4 Wheel Selector Button
2	Crab / Round Selector Button
3	Power Mode Selector Button
4	Work Mode Selector Button
5	Boom Swing Button
6	Dozer / Outrigger Selector Button
7	Light Button
8	Warning Light Button

Reference Number	Description
9	Travel Alarm Button
10	Radio Button
11	Working Lamp Button
12	Overload Warning Button
13	Buzzer Stop Button
14	Call Button

Hazard Warning Light Switch

This light is used when the equipment is stopped because of a malfunction or when an emergency occurs. When this switch is pressed the directional indicator lights in front and back of the machine light up and flash, warning others in the area. At the same time the directional indicator lights on the instrument and hazard warning light switch will light up to warn the operator. The hazard warning lights operate independent of the starter switch.

- In this position, hazard warning lights are turned "OFF".
- In this position, hazard warning lights are turned "ON".



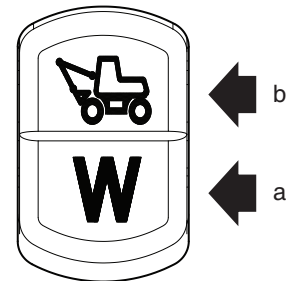
WE1500206

Figure 58

Work/travel Selector Switch

This switch is used to select work or travel modes.

- In work mode position, "Work Mode" is selected for normal operation.
- In travel mode position, "Travel Mode" is selected for street travel.



WE1401071

Figure 59



NOTICE

AVOID INJURY

When the switch is in the "b" position the work levers (joysticks) are not functional.

Although it is possible to travel with the switch in the work mode (a) position, extreme caution must be exercised since the front attachment can be moved by accidentally touching the work levers (joysticks).

In the above condition the engine speed will not increase even though the foot pedal is pressed to the maximum position, this is not a malfunction.

Right Turn Signal Light and Hazard Warning Light

This light blinks when right turn signal is turned "ON". Both turn signal lights blink when hazard warning light switch is turned "ON".

NOTE: *If left and right turn indicators blink together, or if they blink faster than normal, a light bulb is not operating or flasher solenoid is damaged.*

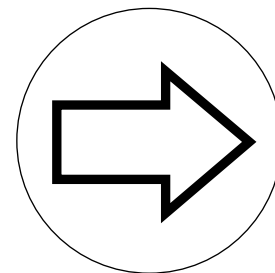


Figure 60

ACO0243L

The following items are reset when "Reset Trip Information" is selected.

- Trip operating time
- Trip fuel level
- Trip fuel consumption

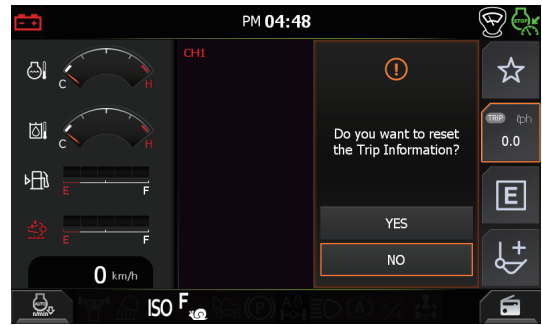


Figure 84

DS2100547

11. Main Information Indicator

Displays the information selected with the main information selector button.

NOTE: *The AVM option shows the soot gauge by default.*

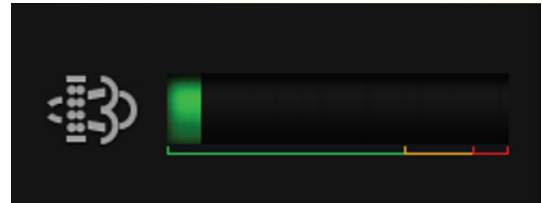


Figure 85

DS1901343

12. Power Mode Selector Button

This button allows you to select the power mode.

The following power modes can be selected.

- POWER+ mode
- POWER mode
- STANDARD mode
- ECONOMY mode

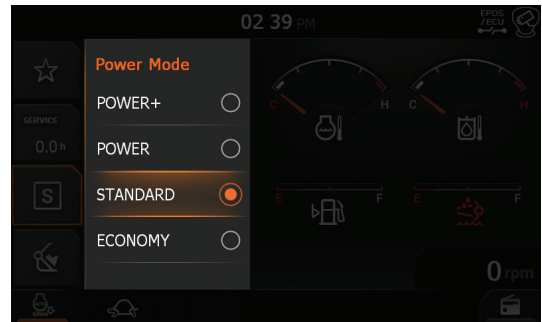


Figure 86

DS1900430

21. Ultrasonic sensor failure

Appears in the event of a failure in the ultrasonic sensor.

22. Engine rpm and starting restricted by TMS or TMS terminal failure

Appears when there is a problem in the TMS terminal.

23. Coolant level warning

Appears when there is a problem with the coolant level.
Add coolant if there is not enough coolant.

24. Seat belt

Appears when the seat belt is not worn.

25. No smart key

Appears when no smart key is detected.

26. Failed to detect smart key

Appears when the machine fails to recognize the smart key.

27. Low smart key battery

Appears when the smart key is low on battery power.

28. Steering warning

There is a problem with the steering system.

29. Return filter clogged

Indicates that the return filter is clogged.

When this symbol appears on the screen, be sure to stop the machine immediately and replace the return filter. After replacing the return filter, start the engine again and check whether the warning symbol is gone.

30. Regeneration prohibition

It is illuminated when regeneration is prohibited.

Refer to "After Treatment System" on page 3-25, for more information.

31. Active regeneration operating

The lamp turns on when automatic regeneration begins.

Refer to "After Treatment System" on page 3-25, for more information.

32. Manual regeneration

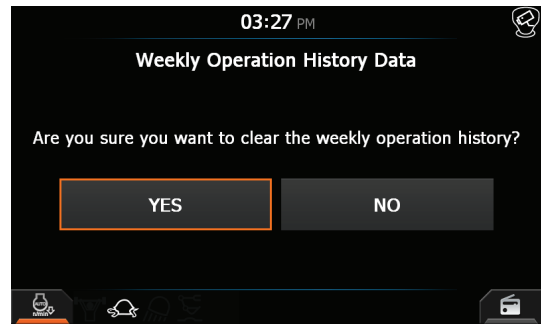
The lamp turns on when forced regeneration begins.

Refer to "After Treatment System" on page 3-25, for more information.

33. GPS antenna failure

Appears when the GPS antenna is malfunctioning or disconnected and cannot be recognized.

The weekly operation history data can be reset by selecting the 'Reset' button.



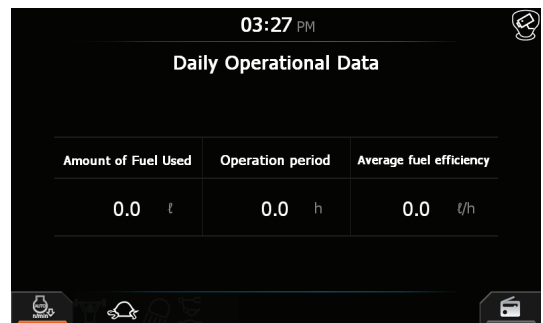
DS1900328

Figure 116

4) Daily Operational Data

This menu displays the machine operating time, average fuel consumption, and amount of fuel used for the current day.

How to access: User Menu → Fuel Efficiency Performance → Fuel Efficiency Data → Daily Operational Data



DS1900329

Figure 117

B. Set Auto Shut-down

The Auto Shut-down Setting menu allows you to set the machine to stop the engine automatically in the event that the machine is not used for a set period of time.

How to access: User Menu → Fuel Efficiency Performance → Set Auto Shut-down

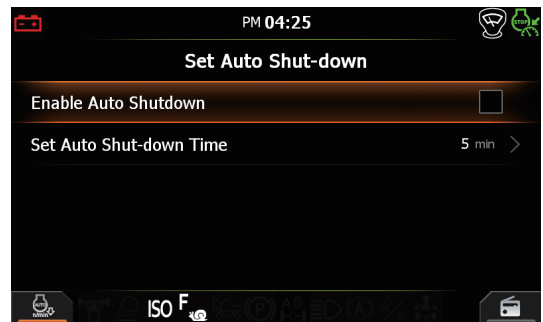
The following menus can be accessed.

- Enable Auto Shutdown
- Set Auto Shut-down Time

1) Enable Auto Shutdown

The auto shutdown function can be toggled on/off.

Auto shutdown conditions



DS2100573

Figure 118

	Input								Output
	GP Menu	Auto Idle Switch	Safety Lever	Engine rpm	Coolant Temperature	Hydraulic Oil Temperature	Dial Condition	Time	
Enabled	ON	ON	ON	Low rpm	50°C or higher	20°C or higher	Normal	In time settings	Stop engine signal
Disabled	In conditions other than those above								Reset time count

5. Gauge Panel Configuration

Items related to the display monitor settings can be managed and set.

The following menus can be checked and changed.

- Set Bookmark
- Set Language
- Set Service Phone Number
- Set AVM Brightness
- Set Camera Brightness
- Set Screen Brightness
- Set Date and Time
- Set Unit

A. Set Bookmark

Bookmarks can be set.

How to access: User Menu → Gauge Panel Configuration → Set Bookmark

Up to 15 bookmarks may be set.



Figure 147

DS2100590

B. Set Language

The display monitor language can be set.

How to access: User Menu → Gauge Panel Configuration → Set Language

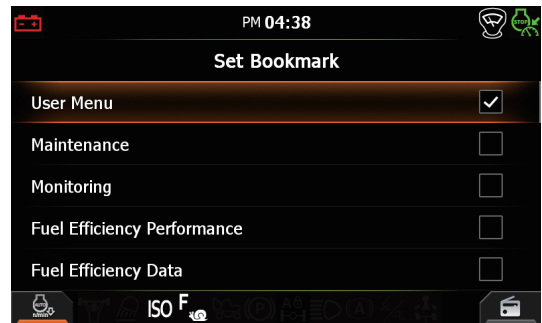


Figure 148

DS2100591

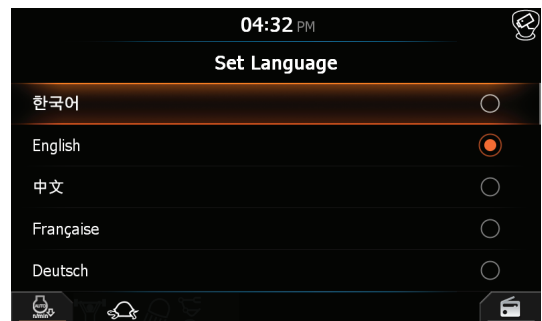


Figure 149

DS1900357

C. Set Service Phone Number

The service phone number can be set.

How to access: User Menu → Gauge Panel Configuration → Set Service Phone Number

The current service phone number is displayed on the left and the new service phone number being entered is displayed on the right.

In case a service phone number is entered, if a warning/alarm occurs, the corresponding phone number is displayed in the pop-up window.



Figure 150

DS2100592

Displaying Outlines of the Vehicle Area

Guidelines are displayed around the contour of the machine in order for the operator to be able to gauge distances around the machine while operating the machine.

- A guideline (red) of 1.6 m distant is displayed around the front/rear/left/right contour of the machine.

NOTE: *The vehicle contour is displayed in top view, rear + corner view, and 3D view.*

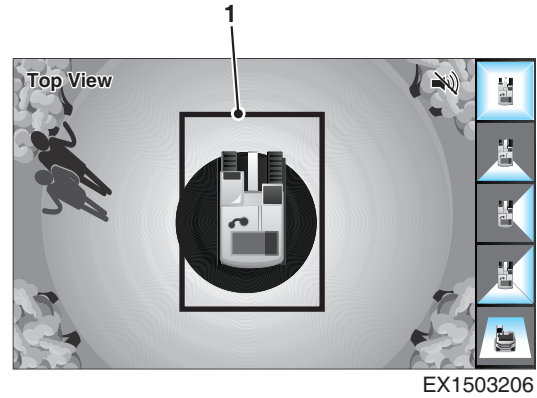


Figure 177

NOTE: *The vehicle guidelines can be turned on and off in the user menu.*

How to access: User Menu → Machine Configuration → Set AVM



WARNING

AVOID DEATH OR SERIOUS INJURY

A camera with a wide-angle lens is installed in order to provide a wider field of vision. Hence, there may be a difference between the distance shown on the screen and the actual distance. For the sake of safety, be sure to check the front/rear/left/right views directly.



WARNING

AVOID DEATH OR SERIOUS INJURY

The field of vision on the AVM screen may be restricted if a door on the machine is open.

Be sure to close all doors before using AVM.

NOTE: *In the event that the around view monitoring (AVM) system does not work properly, be sure to contact a Hyundai service center for inspection and maintenance.*

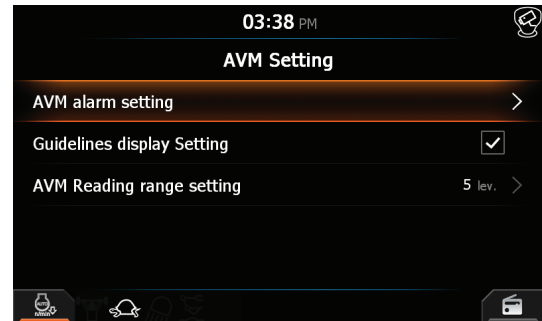


Figure 178

Lumbar Adjustment

Rotate lumbar control knob (5) to increase or decrease support to lower back.

Backrest Adjustment

Pulling up left lever (6) allows seat backrest to be moved forward or backward.

Sit with your back against the seat back when adjusting it. If your back is not touching the seat back, the seat back may suddenly move forward.

Plug Heater (If Equipped)

NOTE: *When temperature drops below -25°C, recommend to Use the Plug Heater.*

1. Installing the plug heater
 - A. Open the flip cover (1).
 - B. Connect extension cord to the receptacle at the flip cover.
 - C. Route the cord to any convenient point and tie cord down to prevent damages and strain. Keep cord away from hot surfaces and moving object.

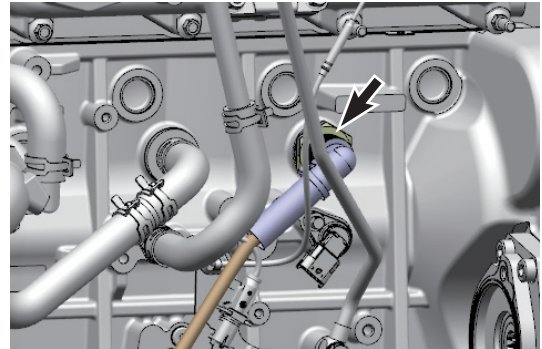


Figure 5

DS2104889

2. Using the plug heater
 - A. Connect the extension cord to power supply.
 - B. Keep the power supplied to rise coolant temperature in the engine block to start the engine.
 - C. Start the engine.
 - D. Remove extension cord and close the flip cover (1).

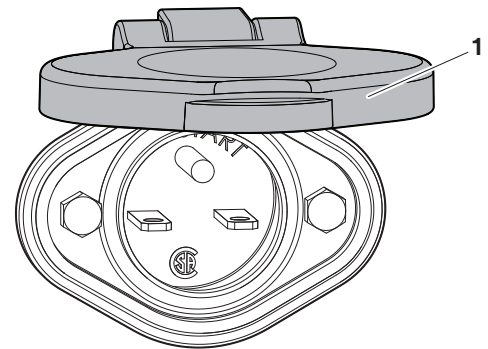


Figure 6

DS1900950

Traveling on a Slope

1. Make sure to fully warm up the engine and the hydraulic system before attempting to travel on a slope.
2. If the engine stops when traveling on a slope, lower the bucket to the ground, make sure all controls are in the "NEUTRAL" position and restart the engine.
3. Before driving down a slope, test the brakes to make sure that they are fully functional.
4. Never drive down a slope with the transmission in "NEUTRAL".
5. When driving down a slope, allow the dynamic braking action of the machine's momentum against the engine's back pressure to slow the machine. Step on the brake to bring the machine to a full and controlled stop. Do not over use the brakes on a slope because they can burn out.

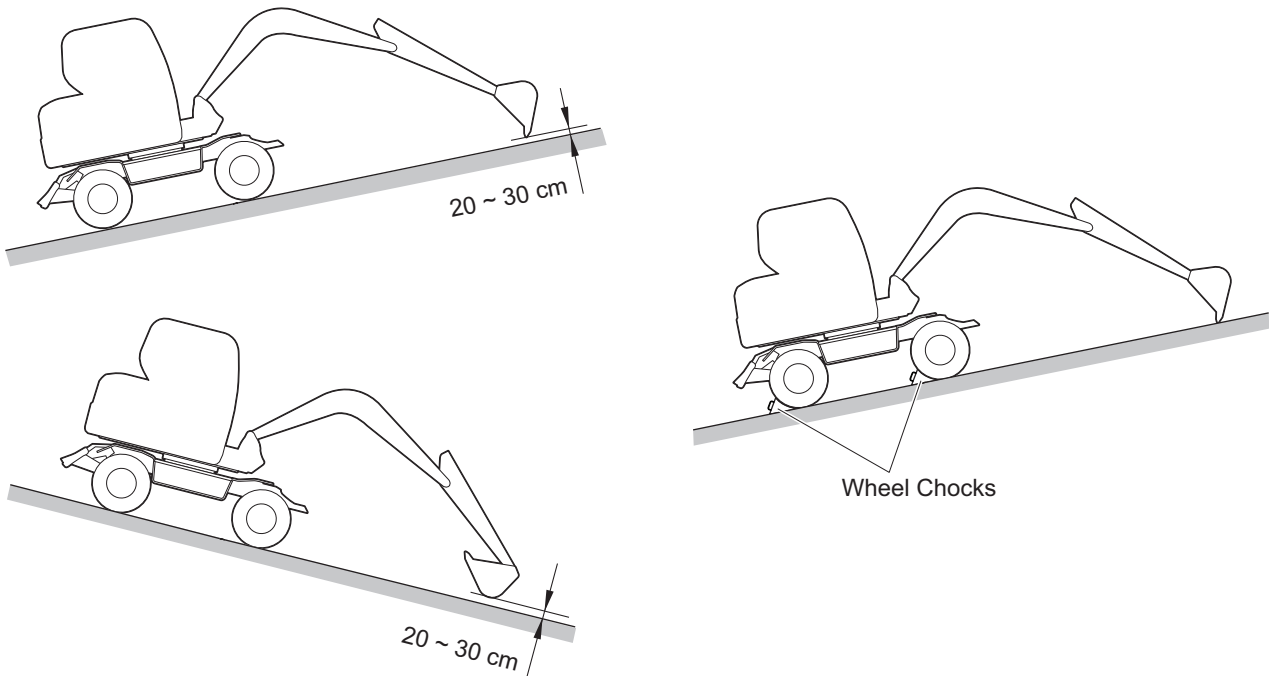


Figure 16

DS2104713

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

Work Mode

1. When the starter switch is turned "ON" the work mode is automatically defaulted to digging mode.
2. Select a proper work mode using button before starting working.

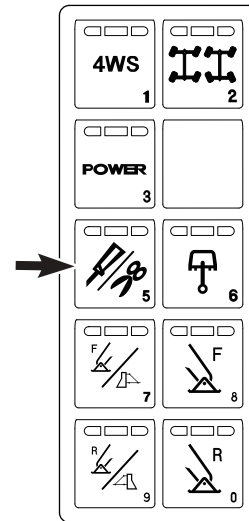


Figure 26

DS2104510

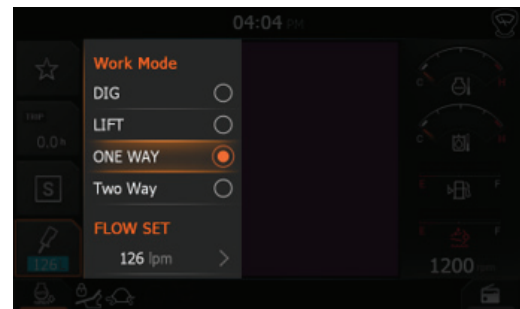


Figure 27

DS1900964

Auto Idle Mode

1. The system will automatically reduce engine speed to idle speed approximately four (4) seconds after all the control levers are in the "NEUTRAL" position. When any lever is operated, engine speed is automatically returned to the preselected range.
2. When the starter switch is turned "ON", the work mode is automatically defaulted to "AUTO IDLE".
3. When the symbol is turned "ON", the auto idle function is activated. Deactivate the auto idle function by again pressing the auto idle selector button. Now the symbol will be turned "OFF".



Figure 28

DS2104511



WARNING

AVOID DEATH OR SERIOUS INJURY

Turn "OFF" auto idle function when performing work in close operating areas, i.e., working in a narrow area and loading/unloading on or off a trailer.

20. When working on soft or muddy ground, make sure that the machine is not sinking.

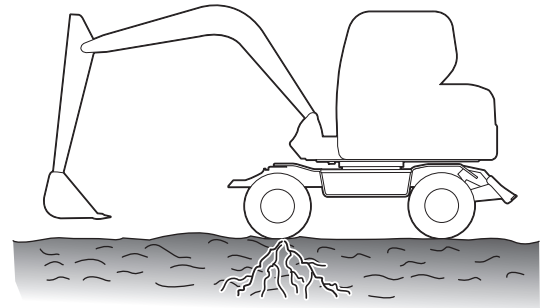


Figure 56

DS2104852

Working in Water

NOTICE

When working in water, do not exceed a slope of more than 15°. If the slope is over 15°, the rear part of the upper structure will be immersed in water, resulting in radiator fan and engine ECU damage.

1. When working in water, do not operate in water over center of axle (1).
If swing bearing gets wet, immediately grease it until all old grease is purged from bearing.
If water gets into swing gear housing, drain water immediately by removing lower inspection cover. Apply new grease.
After working in water, purge old grease on bucket pins.
2. It is possible to work and travel in shallow water if the ground is stable. If the terrain is rough or if the water is flowing heavy it is unsafe to operate the equipment.
3. When working in wet soil, the equipment can sink into the soft ground. Select solid ground to secure the equipment before starting work.

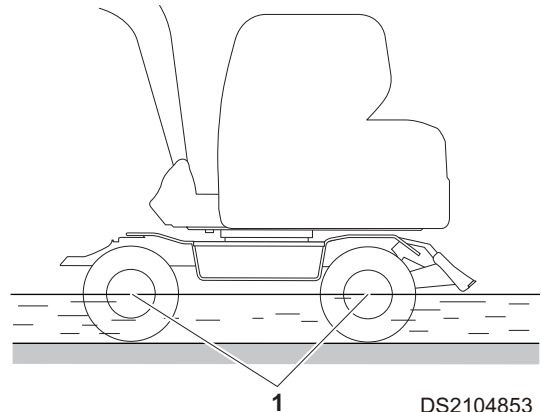


Figure 57

DS2104853

Reversal (If Applicable)

1. Place the bucket on a flat surface.



NOTICE

When removing the pins, place the bucket so it is in resting slightly on the ground. If down pressure is applied to the bucket, the resistance will be increased and it will be difficult to remove pins. After removing the pins, make sure they are clean and do not allow mud, sand, or other debris to get on them. Dust seals are fitted at both ends of the bushings. Be careful not to damage them.

2. Remove double nut on the stopper bolt for arm pin (A, Figure 76) and link pin (B, Figure 76), remove bolt, pull out arm pin (A, Figure 76) and link pin (B, Figure 76), and then remove bucket.

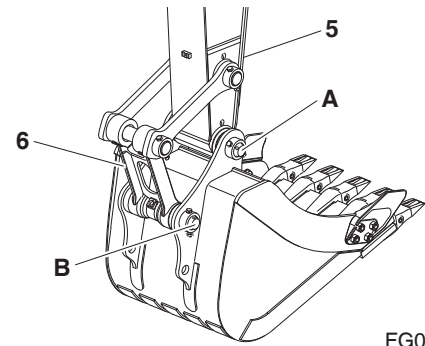


Figure 76

FG023132

3. After removing the bucket, reverse it.
4. Align arm (5, Figure 76) with replacement bucket hole (1, Figure 77), then align link (6, Figure 76) with hole (2, Figure 77), then insert greased coated pins (A, Figure 76) and (B, Figure 76) into hole (1, Figure 77) and hole (2, Figure 77) respectively.

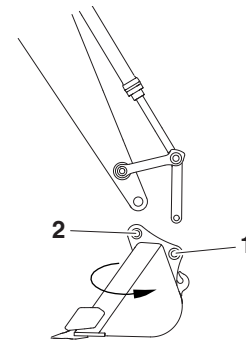


Figure 77

FG018433



NOTICE

When reversing, do not install an O-ring. Keep the O-ring in a safe place until using it next.

5. Install the stopper bolts and nuts for each pin.
6. Lubricate with grease thoroughly until grease comes out from the end face.

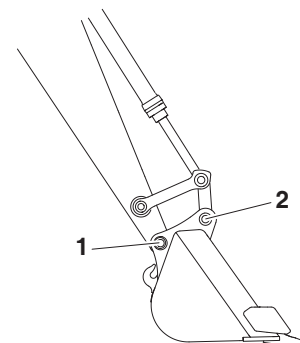


Figure 78

FG018434



NOTICE

When replacing the bucket, replace the dust seal if it has been damaged. If a damaged seal is used without being replaced, sand and dirt may enter the pin portion and cause abnormal wear of the pin.

Pick and Carry

The machine can pick and carry loads. It is recommended that when traveling with a suspended load, you evaluate the prevailing conditions and determine the work site precautions required in each case. The following factors must be considered before attempting to pick and carry a load.

Align the boom with the forward direction of machine travel. Maintain this boom position when turning the machine. Turn only when necessary, at the slowest speed, and at a wide turning radius.

1. Use the shortest lifting radius distance possible.
2. Keep the load as close to the ground as conditions will permit.
3. Provide tag lines to prevent load from swinging back and forth. This can cause a change in the lift radius could exceed the load chart rating or cause a tip over.
4. Travel speed will depend on work site conditions.
5. Avoid sudden starts and stops.

Engine Oil

HYUNDAI engine oils have been developed and tested to provide the full performance and life that has been designed and built into HYUNDAI engines.

HYUNDAI engine oils that meet API CJ-4 are required for use as explained below.

These chemical limits are designed to maintain the expected aftertreatment device list, performance, and service interval.

If oils meeting the API CJ-4 specifications are not available, oils meeting ACEA E9 may be used.

ACEA E9 oils meet the chemical limits designed to maintain aftertreatment device life.

Failure to meet the listed requirements will damage aftertreatment-equipped engines and can negatively impact the performance of the aftertreatment devices.

The cost of repairs caused by improper engine oils will not be covered by the HYUNDAI warranty for your machine.

Other systems may apply.

Therefore the cost of repairs would not be covered by a HYUNDAI warranty.

Grease

- Grease is used to prevent seizure and noises at joints.
- This construction equipment is used under heavy-duty conditions. Always use recommended grease and follow change intervals and recommended ambient temperatures given in this manual.
- Always wipe off all old grease that is pushed out when greasing.

Wipe off old grease where sand or dirt sticking in the grease can cause wear of rotating parts.

Coolant and Water for Dilution

- The coolant has the important function of preventing corrosion and preventing freezing.
Even in areas where freezing is not an issue, use of antifreeze coolant is essential.
HYUNDAI machines are supplied with HYUNDAI coolant. HYUNDAI coolant has excellent anticorrosion, antifreeze and cooling properties and can be used continuously for 1 year or 2,000 hours. Therefore, it is recommended to use authorized genuine HYUNDAI antifreeze solution.
When using HYUNDAI coolant, there is no need to use a corrosion resistor. For details, see "Engine Cooling System" on page 4-96.

Table of Recommended Lubricants



NOTICE

It is highly recommend to use HYUNDAI Genuine Products or products which meet the following specifications. Using other products can damage the equipment.

NOTE: Refer to the "Lubrication and Service Chart" for locations.

Reservoir	Kind of Fluid	Ambient Temperature										
		-58	-40	-22	-4	14	32	50	68	86	104	122°F
		-50	-40	-30	-20	-10	0	10	20	30	40	50°C
Engine Oil Pan	⁵⁾ Engine Oil	²⁾ SAE 5W-40										
		SAE 10W-30										
		³⁾ SAE 10W-40										
		⁴⁾ SAE 15W-40										
Hydraulic Oil Tank	⁶⁾ Hydraulic Oil	ISO VG 15										
		ISO VG 32										
		ISO VG 46										
		ISO VG 68										
Fuel Tank	Diesel Fuel	¹⁾ ASTM D975 No. 2										
		ASTM D975 No. 1										

DEF (AdBlue®) Tank Level - Check

1. At end of each workday, fill DEF (AdBlue®) tank. Add the DEF (AdBlue®) through DEF (AdBlue®) fill cap (1).

NOTE: *Inject until the DEF level gauge (2) reaches the "F" line.*



NOTICE

Do not let impurities get in when storing or adding DEF (AdBlue®).

If impurities get in the tank, drain all DEF (AdBlue®) through the drain port at the bottom of the DEF tank (3).

2. Securely tighten cap after filling.

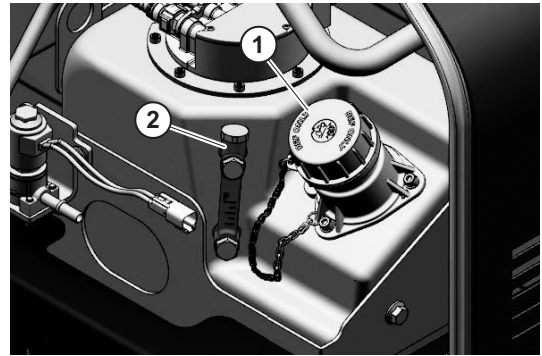


Figure 18

DS2104518

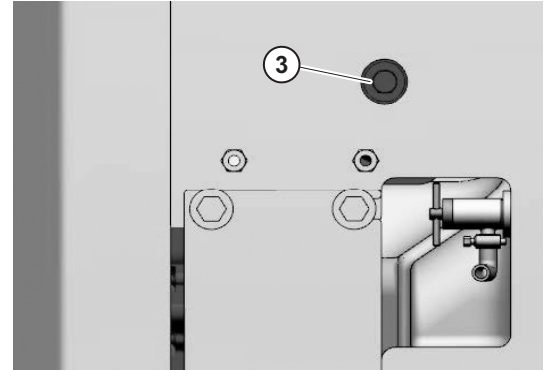


Figure 19

DS2104519

Main Fuel Filter - Check

NOTE: *If water in fuel warning symbol on display monitor comes "ON", drain the collected water in main fuel filter and fuel prefilter.*

1. A main fuel filter (water separator) is inside the engine compartment.
2. Open the bonnet.
3. Turn the cock valve to "CLOSE" position.

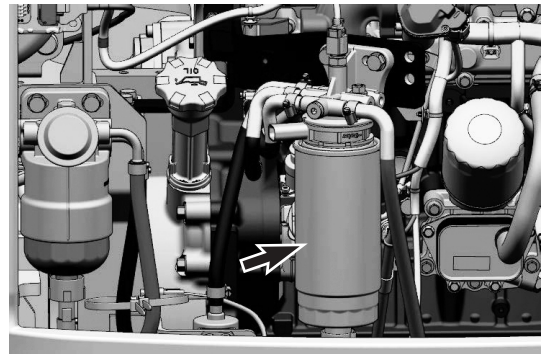
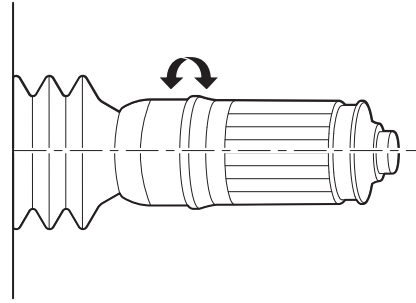


Figure 20

DS2104520

5. With the service brake applied, change the transmission lever to the highest forward gear.



DS2001453

Figure 35

6. With the service brake still applied, gradually increase the engine speed to high idle. The machine should not move.



WARNING

AVOID DEATH OR SERIOUS INJURY

If the machine begins to move during the test, reduce the engine speed immediately and engage the parking brake.

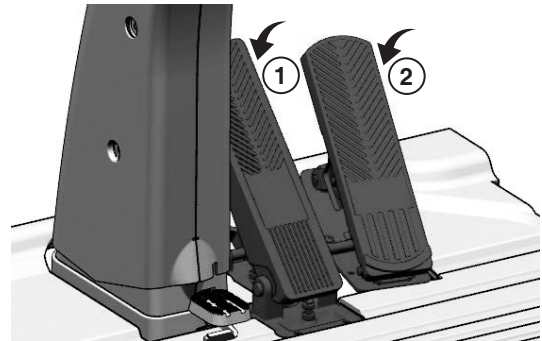
7. Reduce the engine speed to low idle. Move the transmission lever or switch to the neutral position. Engage the parking brake. Lower the work equipment to the ground.
8. Stop engine.



NOTICE

If the machine moved during the test, contact your dealer for a brake inspection.

Make any necessary repairs before the machine is returned to operation.



DS2001463

Figure 36

1. Brake Pedal
2. Accelerator Pedal

J. Bucket cylinder head pin (1 point)



Figure 53

DS2104535

Boom Swing Cylinder - Lubricate

Grease every 10 hours for first 100 hours and every 50 hours thereafter.

NOTE: *If the unit has been running or working in water the front attachment must be greased on a 10 hour/daily basis.*

1. Lower the front attachment to ground.
2. Press the grease fitting and inject grease with grease gun on the marked points.

- A. Boom swing cylinder head (1 point)
- B. Boom swing cylinder rod (1 point)

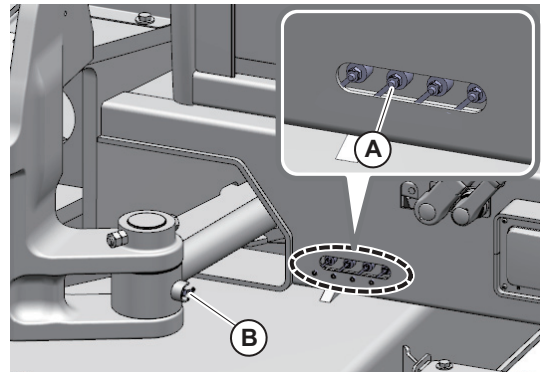


Figure 54

DS2104536

Engine Fan and Alternator Belts - Check

NOTICE

A loose fan belt can cause engine overheating, poor charging, and/or premature belt wear. A belt that is too tight can cause damage to the water pump, alternator bearing, or belt.

Inspect every 250 hours. (Inspect after first 50 hours of operation.)

Belt Tension (N)	
New	667 N (68 kgf)
Used	600 N (61 kgf)

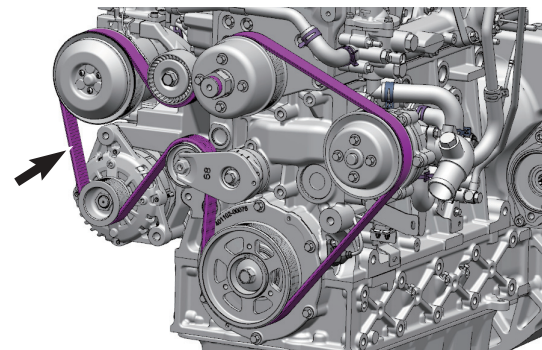


Figure 55

DS2104537

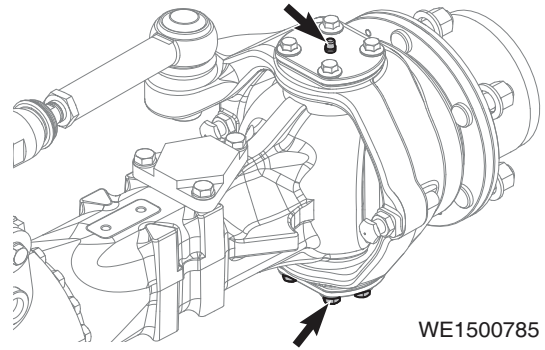
Front/Rear Axle Steering Knuckle - Lubricate

NOTE: *If the unit has been running or working in water the front attachment must be greased 3 months or every 500 hours.*

1. Press the grease fitting and inject grease with the grease gun on the marked point.

NOTE: *There is an upper and lower grease fitting on each end of the front axle.*

2. After greasing, clean off the old grease that has been purged.



WE1500785

Figure 72

Swing Gear and Pinion - Lubricate

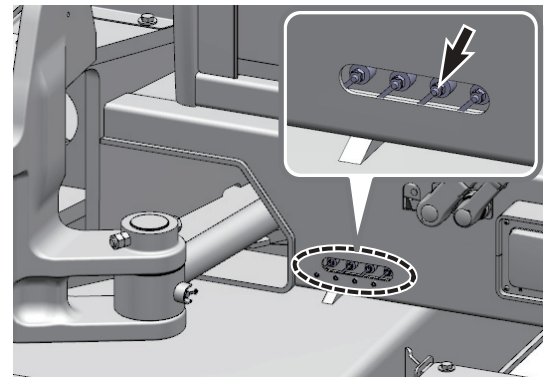


WARNING

AVOID DEATH OR SERIOUS INJURY

Greasing swing gear and pinion must be done by only one person.

1. Lower boom and position bucket on ground.
2. Move safety lever to "LOCK" position.
3. Run engine for five minutes at "LOW IDLE".
4. Stop engine.
5. Inject grease through the grease fitting using a grease gun.
6. Lift bucket about 20 cm (8 in) from ground. Turn upper body 90° at a time for full turn, greasing the swing gear at each stop.



DS2104544

Figure 73

Swing Reduction Gear Oil (After First 500 Hours) - Drain and Refill

NOTE: *Change swing reduction device oil after first 500 hours on a new machine and every 1,000 hours thereafter. (See page 4-62).*

Brake Filter - Replace

NOTE: *Change brake filter after first 250 hours of operation or rebuild, and every 1,000 hours thereafter.*



WARNING

AVOID DEATH OR SERIOUS INJURY

The hydraulic oil will be hot after machine operation.

Allow the system to cool down before changing brake filter.

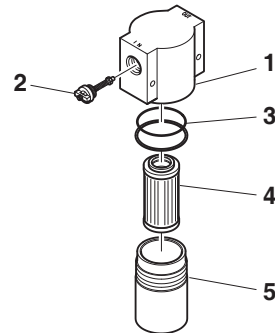
1. Park machine on firm and level ground. Lower bucket or attachment to ground.
2. "LOWER" dozer blade to ground, if equipped.
3. Set parking brake switch to "I" (APPLIED) position.
4. Move safety lever to "LOCK" position.
5. Stop engine.
6. Tip breather cap up slightly to release the internal pressure.
7. Locate brake system filter assembly.
8. Unscrew canister (5) and remove O-ring (3) and filter cartridge (4).

NOTE: *The canister will be filled with oil. Use caution when removing this assembly.*

9. Insert a new filter cartridge and O-ring. Apply a small amount of oil around the entire O-ring and install the canister assembly onto the filter head (1).

NOTE: *Used filter should always be disposed of according to local regulations.*

10. After changing brake filter, vent air from the breather of the front and rear axle and check level of hydraulic oil tank.



FG021270

Figure 94

4,500 Hour / Biennial Service

DEF (AdBlue®) Filter - Replace

NOTICE

The replacement interval of the DEF (AdBlue®) (urea solution) filter is different by the amount of foreign materials in DEF (AdBlue®).

Make sure to use only the specified DEF (AdBlue®) and container and keep the surrounding area of the tank clean to prevent possible foreign materials.

1. Remove filter cover.

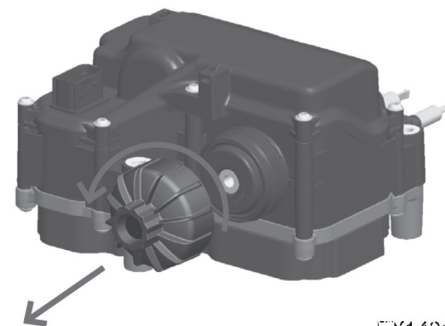


Figure 108

EX1401870

2. Remove equalizing element.

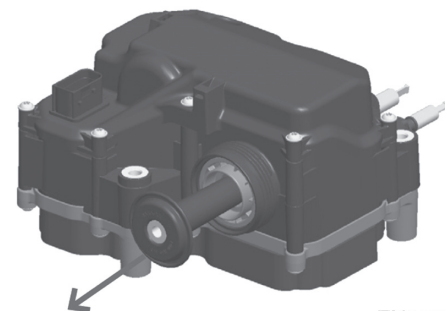


Figure 109

EX1401871

3. Check the color (gray/green) in the filter.

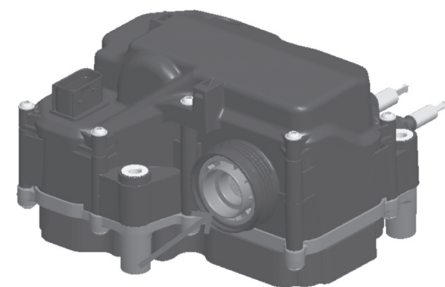


Figure 110

EX1401872

Bucket - Replace



WARNING

AVOID DEATH OR SERIOUS INJURY

Prevent injury from flying metal pieces. Wear safety goggles, safety helmet and safety gloves.

Bucket Disassembly

1. Place bucket as shown in illustration.



NOTICE

In next step, O-rings are removed with pins. Be careful not to damage them.

2. Remove bolts holding pins A and B, remove pins, and remove bucket.

NOTE: *If pins do not come out easily, the bucket may be resting on the ground too "heavily".*

Bucket Installation

1. Clean and grease pins and pinholes.
2. Install new bucket as shown in illustration.
3. Install pins, aligning arm hole A with push link hole B. Install O-rings.
4. Apply grease to pins.
5. Run engine at low idle and move bucket slowly through one stroke to make sure parts are installed correctly.

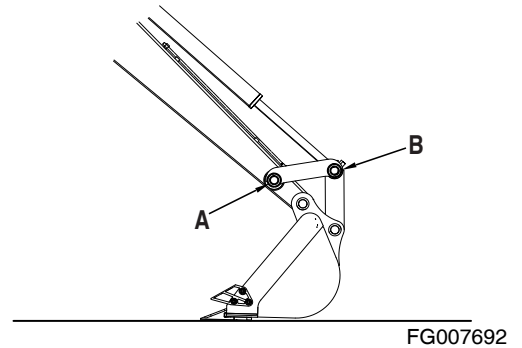


Figure 126

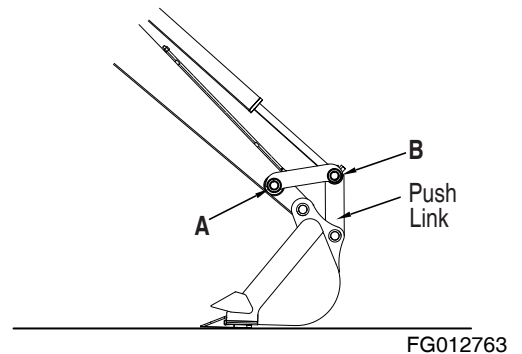


Figure 127



WARNING

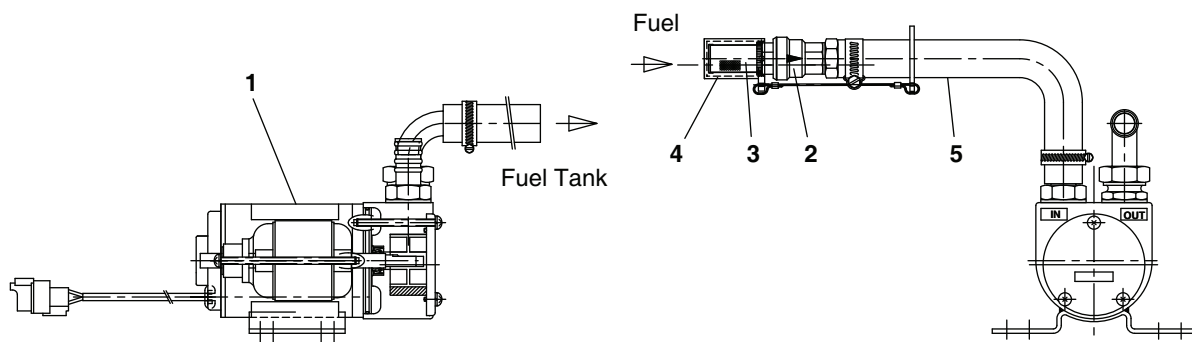
AVOID DEATH OR SERIOUS INJURY

If there is any sign of leakage while operating transfer pump, inspect the following components to prevent fire or hazardous fuel spill:

- Check all hoses leading to and from the transfer pump.
- Check all hose clamps.
- Check transfer pump inlet port.

The transfer pump is used to transfer fuel from a refueling source to the fuel tank. A check valve is installed in the inlet hose to prevent fuel from flowing back from fuel tank to source. A strainer is installed in inlet hose to prevent any foreign material from being introduced into transfer pump or fuel tank.

A thermal limiter, built into the motor, will automatically shut off power if motor is overheating to protect it from being damaged.



FG000161

Figure 134

Reference Number	Description
1	Body
2	Check Valve
3	Strainer

Reference Number	Description
4	Strainer Cap
5	Inlet Hose

Venting and Priming Hydraulic System

Main System Pump

NOTE: *If pump is run without sufficient oil in the main hydraulic pump, damage can occur. Always vent pump of air after draining hydraulic system.*

1. Keep engine less than 1,000 rpm and operate each actuator more than 3 cycle.
2. Allow engine to idle more than 5 minutes.
3. With the engine stopped, remove vent plug to see if any oil is present.
4. If oil is not present, fill oil tank with oil.
5. Install vent plug first.
6. Slowly loosen vent plug several turns, until hydraulic oil flows out of plug. This shows that air has been released.
7. Tighten the plug.

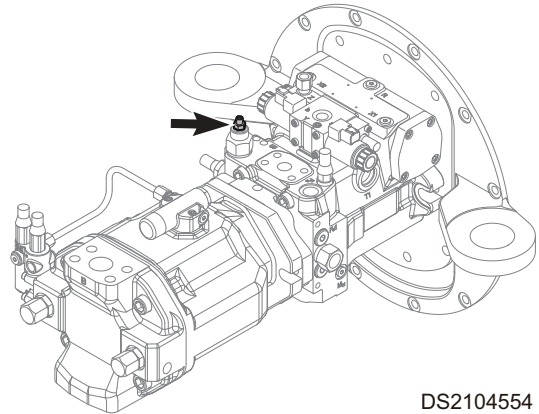


Figure 156

DS2104554

Hydraulic Cylinders

NOTICE

If cylinders are operated in "HIGH IDLE" after the hydraulic system has been drained or the cylinder has been rebuilt, damage to piston packing and seals can occur. Always vent air from cylinders at "LOW IDLE" and at a slow speed.

1. Run engine at "LOW IDLE". Extend and retract each cylinder to within 100 mm (4 in) of fully stroking it 4 ~ 5 times.
2. Operate fully extend and retract each cylinder 3 ~ 4 times.
3. Repeat procedure until cylinders extend and retract smoothly.

16. Before transporting the excavator, make sure that swing lock pin has been fully engaged. This will prevent the upper structure from accidentally rotating during transportation.
17. Make sure to secure the excavator onto the trailer before transporting. Use chains or cable tie-downs as required by local transportation laws. Use the wheel chocks supplied with the machine to secure machine.
18. Refer to "Specification" for overall machine height and width dimensions. Make sure to position the excavator as shown. If not transported in this position, the height measurements may be different.

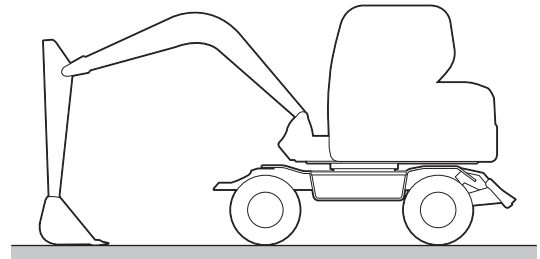


Figure 9

DS2104705

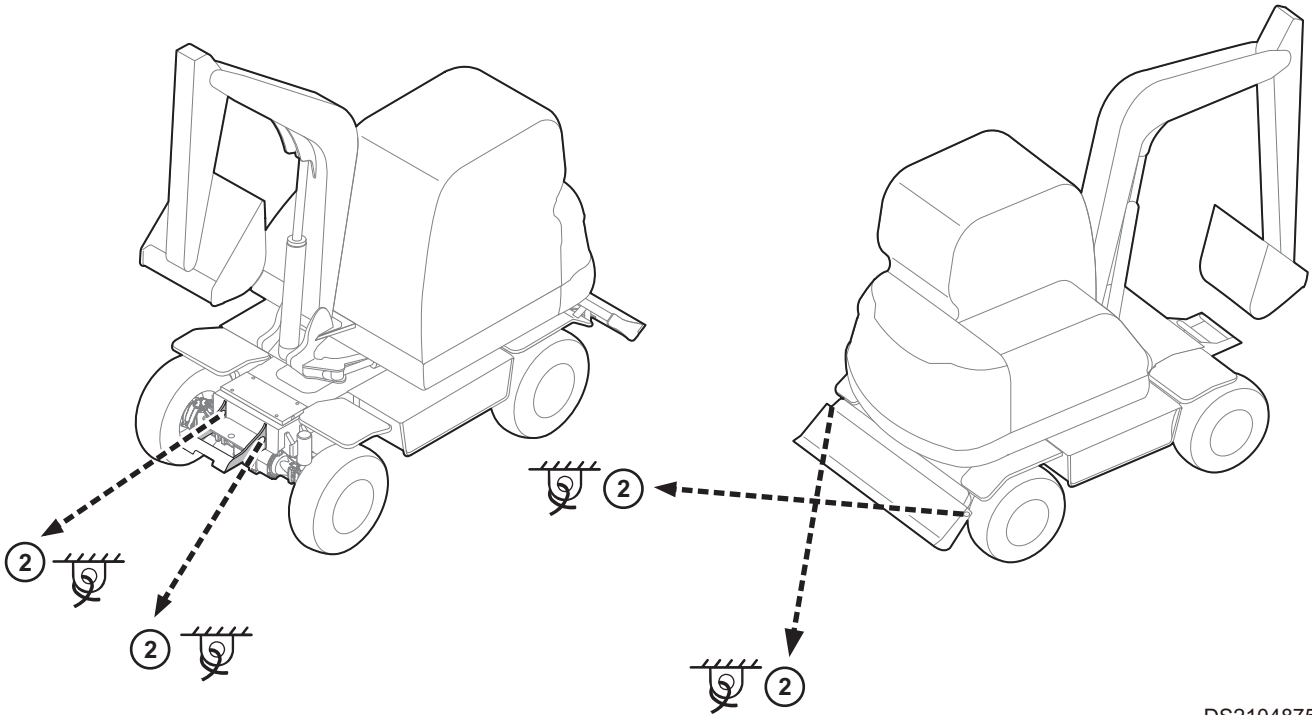


Figure 10

DS2104875

Excavator Rated Lift Capacity Tables

NOTICE

Always keep operators manual in operator station:

Whenever you handling and lifting objects, ensure operator manual available on the station and refer the lifting chart.

See the specification handbook for specifications not listed below.

WARNING

AVOID DEATH OR SERIOUS INJURY

Keep bystanders away from the boom cylinder. While operating, boom, arm or bucket hydraulic hoses could burst causing high-pressure oil to spray or sudden lowering of the load or front structure. This could cause death or serious injury.

When changing the hydraulic hoses, record the part numbers of the hoses to factory log book.

WARNING

AVOID DEATH OR SERIOUS INJURY

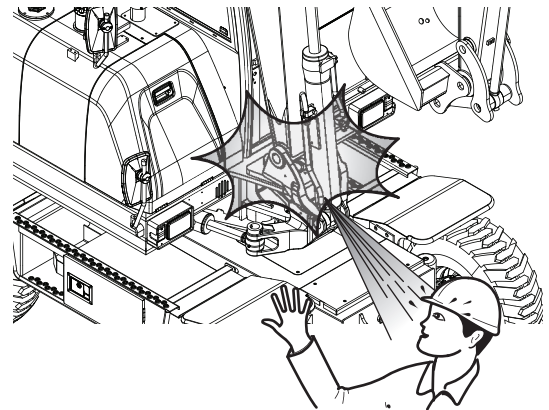
All rated lift capacities are based on the machine and the load both remaining level at all times. **DO NOT EXCEED THE RATED LIFT CAPACITY.** Lifting loads greater than those shown in the rated capacity tables can cause tipping, equipment failure and/or structural failure of the machine.

Operate the excavator on firm and level ground and surfaces that can support the weight of the excavator and the loads that will be lifted. Avoid operating the excavator, if these conditions exist:

- Soft or uneven ground.
- Unlevel terrain.
- Side loads.
- Modifications or poor maintenance of the excavator.
- Failure to lift squarely over the end or over the side of the machine.

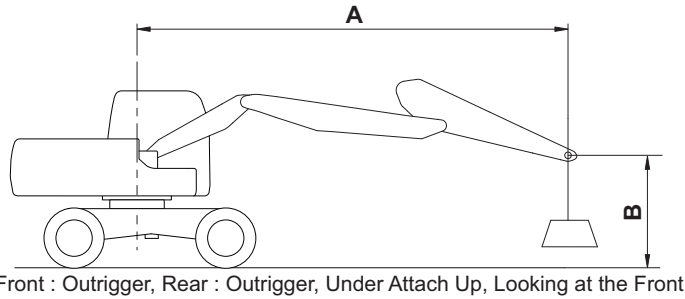
When a load is in the air, the operator must:

- Avoid use of uneven slings that can cause side loads when traveling with a load or swinging the load.



WE1500774

Figure 6















Boom : Upper Boom 1.89 m (14' 5")
 : Lower Boom 1.88 m (15' 1")
 Arm : 2.25 m (6' 11")
 Bucket : Without Bucket
 Counterweight : 1,350 kg (2,976 lb)
 Tire : 2W_Double
 : Rating Over Front
 : Rating Over Side or 360 degree
 Unit : 1,000 kg (1,000 lb) DS2104676

Figure 16











METRIC

1,000 kg

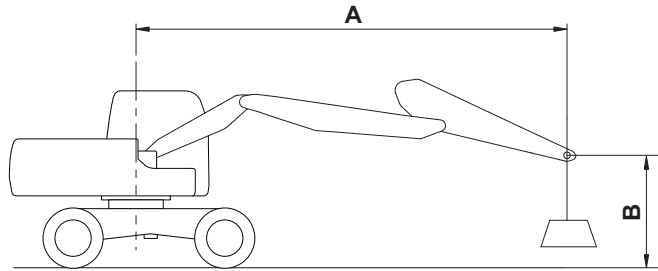
A (m) \ B (m)	1.5		3		4		6		MAX. REACH		A (m)
											
6					* 2.01	* 2.01			* 1.88	1.79	4.91
4.5					* 1.92	* 1.92	* 1.75	1.29	* 1.55	1.25	6.10
3					* 2.24	2.01	* 1.77	1.27	* 1.47	1.06	6.67
1.5					* 2.64	1.85	1.76	1.22	1.45	1.00	6.80
0			* 3.11	3.11	2.59	1.74	1.71	1.18	* 1.41	1.05	6.54
-1.5	* 3.36	* 3.36	* 3.40	3.14	* 2.15	1.73			* 1.17	* 1.17	5.81
-3									* 0.70	* 0.70	4.04

FEET

1,000 lb

A (ft) \ B (ft)	5		10		15		20		MAX. REACH		A (ft)
											
20					* 4.42	* 4.42			* 4.15	3.95	16.13
15					* 4.23	* 4.23	* 3.85	2.85	* 3.42	2.75	20.02
10					* 4.94	4.43	* 3.91	2.81	* 3.23	2.33	21.88
5					* 5.82	4.07	3.87	2.68	3.20	2.21	22.32
0			* 6.87	6.85	5.71	3.84	3.77	2.59	* 3.11	2.31	21.45
-5	* 7.40	* 7.40	* 7.50	6.93	* 4.74	3.82			* 2.58	* 2.58	19.06
-10									* 1.55	* 1.55	13.26

1. Load point is the end of the arm.
2. Capacities marked with an asterisk (*) are limited by hydraulic capacities.
3. Lift capacities shown do not exceed 75% of minimum tipping loads or 87% of hydraulic capacities.
4. The least stable position is over the side.
5. Lift capacities apply only to the machine as originally manufactured and normally equipped by the manufacturer.
6. Lift capacities are in compliance with ISO 10567.



Front : Outrigger, Rear : Outrigger, Under Attach Down, Looking at the Front

- Boom : Upper Boom 1.89 m (14' 5")
- : Lower Boom 1.88 m (15' 1")
- Arm : 2.25 m (6' 11")
- Bucket : Without Bucket
- Counterweight : 1,350 kg (2,976 lb)
- Tire : 2W_Single
- : Rating Over Front
- : Rating Over Side or 360 degree
- Unit : 1,000 kg (1,000 lb)

DS2104686

Figure 26

METRIC

1,000 kg

A (m) \ B (m)	1.5		3		4		6		MAX. REACH		A (m)
6					* 2.01	* 2.01			* 1.88	1.88	4.91
4.5					* 1.92	* 1.92	* 1.75	1.36	* 1.55	1.31	6.10
3					* 2.24	2.11	* 1.77	1.34	* 1.47	1.11	6.67
1.5					* 2.64	1.94	* 1.85	1.28	* 1.51	1.05	6.80
0			* 3.11	* 3.11	* 2.68	1.84	* 1.76	1.24	* 1.41	1.10	6.54
-1.5	* 3.36	* 3.36	* 3.40	3.35	* 2.15	1.83			* 1.17	* 1.17	5.81
-3									* 0.70	* 0.70	4.04

FEET

1,000 lb

A (ft) \ B (ft)	5		10		15		20		MAX. REACH		A (ft)
20					* 4.42	* 4.42			* 4.15	4.14	16.13
15					* 4.23	* 4.23	* 3.85	2.99	* 3.42	2.89	20.02
10					* 4.94	4.66	* 3.91	2.95	* 3.23	2.45	21.88
5					* 5.82	4.29	* 4.08	2.82	* 3.32	2.33	22.32
0			* 6.87	* 6.87	* 5.92	4.05	* 3.88	2.73	* 3.11	2.44	21.45
-5	* 7.40	* 7.40	* 7.50	7.38	* 4.74	4.03			* 2.58	* 2.58	19.06
-10									* 1.55	* 1.55	13.26

1. Load point is the end of the arm.
2. Capacities marked with an asterisk (*) are limited by hydraulic capacities.
3. Lift capacities shown do not exceed 75% of minimum tipping loads or 87% of hydraulic capacities.
4. The least stable position is over the side.
5. Lift capacities apply only to the machine as originally manufactured and normally equipped by the manufacturer.
6. Lift capacities are in compliance with ISO 10567.



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice. The lines are evenly spaced and extend across the entire width of the page.



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice. The lines are evenly spaced and extend across the entire width of the page.

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