CONTENTS

FOREWORD

This manual contains a number of instructions and safety recommendations regarding driving, handling, lubrication, maintenance, inspection and adjustment of the excavator.
The manual is to promote safety maintenance and enhance machine performance.

Keep this manual handy and have all personnel read it periodically.

If you sell the machine, be sure to give this manual to the new owners.

This machine complies with EC directive "2006/42/EC".

1. **Read** and **understand** this manual before operating the machine.

   This operator's manual may contain attachments and optional equipment that are not available in your area. Please consult your local HD Hyundai Construction Equipment distributor for those items you require.

⚠ **Improper operation and maintenance of this machine can be hazardous and could result in serious injury or death.**

   Some actions involved in operation and maintenance of the machine can cause a serious accident, if they are not done in a manner described in this manual.

   The procedures and precautions given in this manual apply only to intended uses of the machine. If you use your machine for any unintended uses that are not specifically prohibited, you must be sure that it is safe for you and others. In no event should you or others engage in prohibited uses of actions as described in this manual.

   Some illustrations in this manual show details or attachments that can be different from your machine. Covers and guards might have been removed for illustrative purposes.

2. **Inspect** the jobsite and **follow** the safety recommendations in the **safety hints** section before operating the machine.

3. Use **genuine HD Hyundai Construction Equipment spare parts** for the replacement of parts.
   We expressly point out that HD Hyundai Construction Equipment will not accept any responsibility for defects resulting from non-genuine parts or non workmanlike repair.
   In such cases HD Hyundai Construction Equipment cannot assume liability for any damage.

Continuing improvements in the design of this machine can lead to changes in detail which may not be reflected in this manual. Consult HD Hyundai Construction Equipment or your HD Hyundai Construction Equipment distributor for the latest available information for your machine or for questions regarding information in this manual.

EMISSION-RELATED COMPONENTS WARRANTY (USA AND CANADA ONLY)

HD Hyundai Construction Equipment shall have obligation under the EPA (Environmental Protection Agency) regulation of warranty about Emission-related components. This warranty shall exist for 3,000 hours or five years, whichever occurs first.
Naturally, this warranty does not cover to damage arising from accident, misuse or negligence, use of non-HD Hyundai Construction Equipment parts, or from alterations not authorized by HD Hyundai Construction Equipment.

※ Emission-related components according to the EPA regulation.

1. Air-induction system.
2. Fuel system.
3. Ignition system.
4. Exhaust gas recirculation systems.
5. After treatment devices.
6. Crankcase ventilation valves.
7. Sensors.
8. Electronic control units.

BEFORE SERVICING THIS MACHINE

It is the responsibility of the owner and all service and maintenance personnel to avoid accidents and serious injury by keeping this machine properly maintained.

It also is the responsibility of the owner and all service and maintenance personnel to avoid accidents and serious injury while servicing the machine.

No one should service or attempt to repair this machine without proper training and supervision.

All service and maintenance personnel should be thoroughly familiar with the procedures and precautions contained in this manual.

All personnel also must be aware of any federal, state, provincial or local laws or regulations covering the use and service of construction equipment.

The procedures in this manual do not supersede any requirements imposed by federal, state, provincial or local laws.

HD Hyundai Construction Equipment can not anticipate every possible circumstance or environment in which this machine may be used and serviced.

All personnel must remain alert to potential hazards.

Work within your level of training and skill.

Ask your supervisor if you are uncertain about a particular task. Do not try to do too much too fast.

Use your common sense.

※ How to set the language of cluster

User can select preferable language and all displays are changed the selected language.

※ Please refer to the page 3-28 for the cluster.

EC REGULATION APPROVED

· Noise level (EN474-1 : 2006 and 2000/14/EC) are as followings.

LWA : 101dB (EU only)

LPA : 70dB

· The value of vibrations transmitted by the operator's seat are lower than standard value of (EN474-1 : 2006 and 2002/44/EC)

CE

EC Declaration of Conformity

(Original instruction)

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

HD HYUNDAI CONSTRUCTION EQUIPMENT CO., LTD.
477 Bundangsuseo-ro, Bundang-gu,
Seongnam-si, Gyeonggi-do 13553, Korea

HD 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

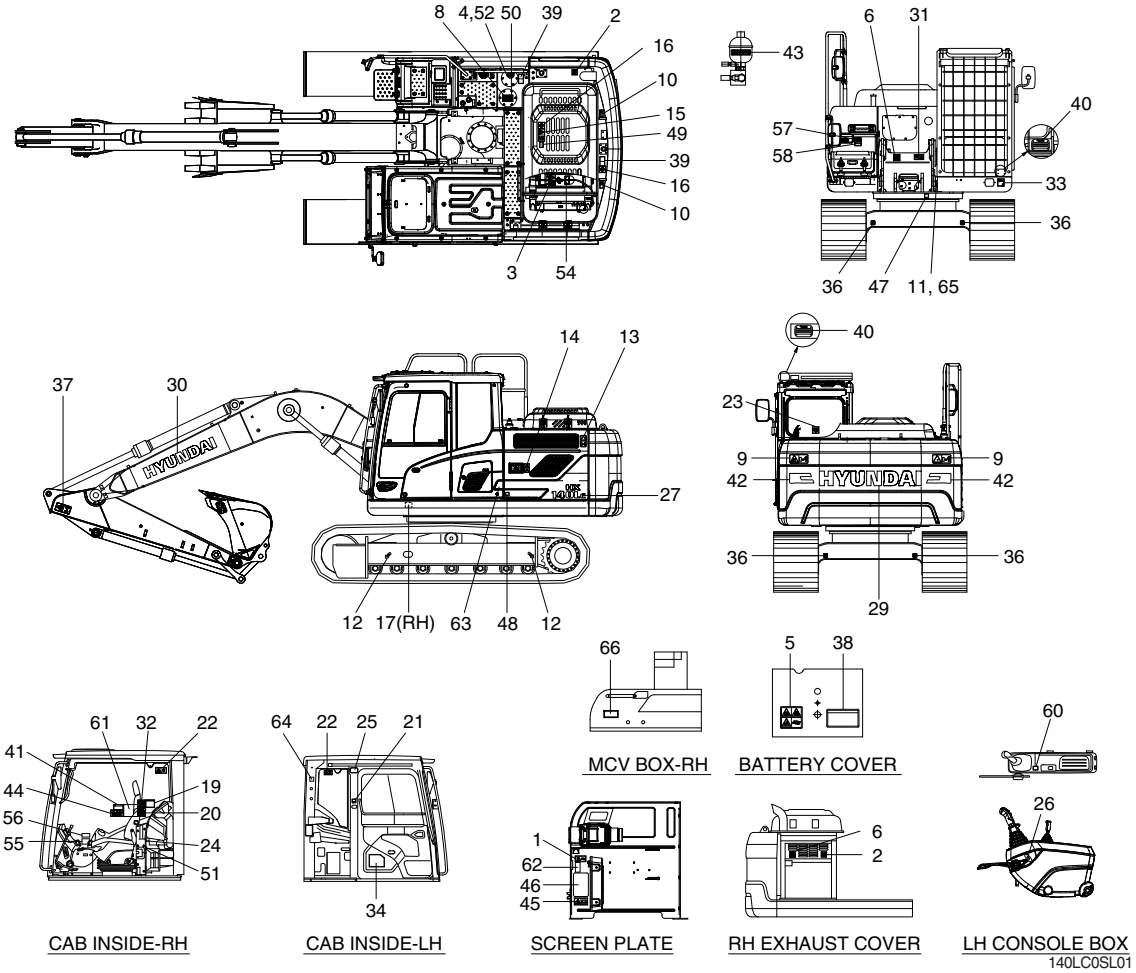
TABLE TO ENTER SERIAL NO. AND DISTRIBUTOR

Machine Serial No.	
Engine Serial No.	
Manufacturing year	
Manufacturer Address	HD Hyundai Construction Equipment Co., Ltd. 477 Bundangsuseo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do 13553, Korea
Distributor for U.S.A Address	HD Hyundai Construction Equipment Americas, Inc. 6100 Atlantic Boulevard Norcross GA 30071 U.S.A
Distributor for Europe Address	HD Hyundai Construction Equipment Europe N. V. Hyundailaan 4 3980 Tessenderlo Belgium
Dealer Address	

SAFETY LABELS

1. LOCATION

Always keep these labels clean. If they are lost or damage, attach them again or replace them with a new label.



1 Air cleaner filter
2 Turbocharger cover
3 Radiator cap
4 Fueling
5 Battery accident
6 High pressure hose
7 Hydraulic oil level
8 Hydraulic oil lub
9 Keep clear-rear
10 Lifting eye
11 Name plate
12 Slinging ideogram
13 Keep clear-side
14 Stay fix
15 Engine hood shearing
16 No step
17 Transporting
19 M/control pattern
20 Ref operator's manual
21 Hammer
22 Safety front window
23 Safety rear window
24 Air conditioner filter
25 ROPS plate
26 Safety knob
27 Model name
29 Trade mark (boom)
30 Trade mark (CWT)
31 Reduction gear grease
32 Clamp locking
33 Noise level LWA
34 Service instruction
36 Tie
37 Keep clear-attach
38 Electric welding
39 Falling
40 FOPS FOG plate
41 Caution (water separator, turbocharger)
42 Reflecting-LH,RH
43 Accumulator
44 M/control pattern change valve
45 M/control pattern change-w/o valve
46 M/control pattern change-w/valve
47 Swing bearing grease
48 Battery position
49 Lubrication oil
50 Fuel shut off
51 MCU/ECM connector
52 Ultra low sulfur diesel
54 Surge tank
55 Key off caution
56 RCV lever
57 Diesel exhaust fluid
58 DEF/AdBlue® fill-up
60 Dozer ideogram
61 Lifting capacity
62 Refrigerant
63 Band-cab front
64 Fire extinguisher
65 EMC
66 Leftover fuel

2. DESCRIPTION

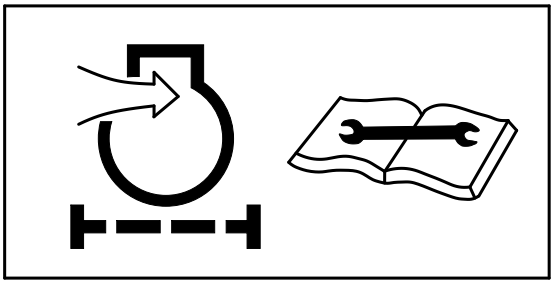
There are several specific warning labels on this machine please become familiarized with all warning labels.

Replace any safety label that is damaged, or missing. If a safety label is attached to a part that is replaced, install a safety label on the replacement part.

1) **AIR CLEANER FILTER** (item 1)

This warning label is positioned on the screen plate.

※ **Periodic and proper inspection, cleaning and change of elements prolong engine life time and maintain the good performance of engine.**



21070FW01

2) **TURBOCHARGER COVER** (item 2)

This warning label is positioned on the top of RH side cowl and RH exhaust cover.

⚠ **Do not touch turbocharger or it may cause severe burn. When the engine is running or immediately after engine shut down.**

21070FW02

3) **RADIATOR CAP** (item 3)

This warning label is positioned on the radiator.

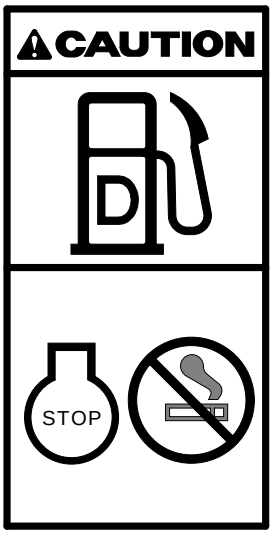
⚠ **Never open the filler cap while engine running or at high coolant temperature. Hot coolant can cause serious burns, injury or death.**

14070FW03

4) **FUELING** (item 4)

This warning label is positioned on the vicinity of fuel filler neck.

⚠ **Stop the engine when refueling. All lights or flames shall be kept at a safe distance while refueling.**



290F0FW02

5) BATTERY ACCIDENT (item 5)

This warning label is positioned on the battery cover.

⚠ Electrolyte containing sulfuric acid cause severe burns. Avoid being in contact with skin, eyes or clothes. In the event of accident flush with sufficient water, call a physician immediately.

※ Maintain the electrolyte at the recommended level. Add distilled water to the battery only when starting up, never when shutting down.

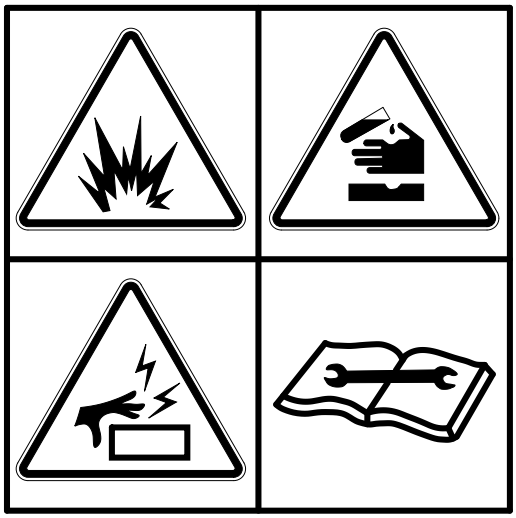
With electrolyte at proper level, less space may cause the gases to be accumulated in the battery.

⚠ Extinguish all smoking materials and open flames before checking the battery.

⚠ Do not use matches, lighters or torches as a light source near the battery for the probable presence of explosive gas.

⚠ Do not allow unauthorized personnel to change the battery or to use booster cables.

⚠ For safety from electric shock, do not battery terminal with a wet hand.



36070FW05

6) HIGH PRESSURE HOSE (item 6)

This warning label is positioned on the RH exhaust cover and front of the upper frame.

⚠ Escaping fluid under pressure can penetrate the skin causing serious injury.

⚠ Avoid the hazard by relieving pressure before disconnecting hydraulic lines or other lines.

※ See the maintenance section for details.

14070FW29

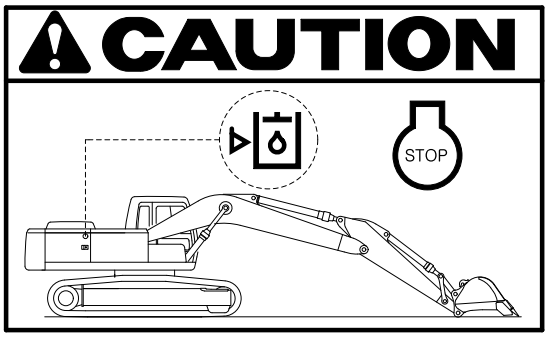
7) HYDRAULIC OIL LEVEL (item 7)

This warning label is positioned on the tank cover.

⚠ Place the bucket on the ground whenever servicing the hydraulic system.

※ Check oil level on the level gauge.

※ Refill the recommended hydraulic oil up to specified level if necessary.



21070FW07

8) HYDRAULIC OIL LUBRICATION (item 8)

This warning label is positioned on the top of the hydraulic tank.

※ Do not mix with different brand oils.

⚠ Never open the filler cap while high temperature.

⚠ Loosen the cap slowly and release internal pressure completely.

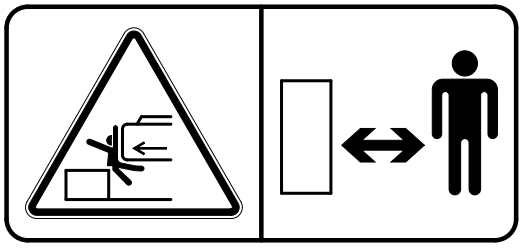
14070FW08

9) KEEP CLEAR-REAR (item 9)

This warning label is positioned on the rear of counterweight.

⚠ To prevent serious personal injury or death keep clear or machine swing radius.

⚠ Do not deface of remove this label from the machine.



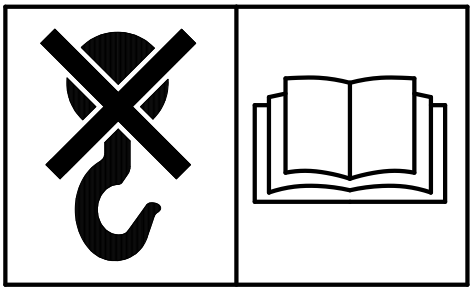
21090FW09

10) LIFTING EYE (item 10)

This warning label is positioned on the counterweight.

⚠ Do not lift the machine by using lifting eyes on the counterweight or the lifting eyes may be subject to overload causing its breaking and possible personal injury.

※ See page 5-8 for proper lifting method of the machine.



21070FW10

11) KEEP CLEAR-SIDE (item 13)

This warning label is positioned on the LH and RH side cover.

⚠ To prevent serious personal injury or death keep clear of machine swing radius.

⚠ Do not deface or remove this label from the machine.

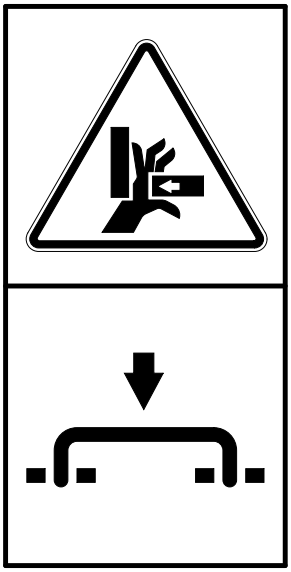
21070FW13

12) STAY FIX (item 14)

This warning label is positioned on the LH and RH side cover.

⚠ Be sure to support the stay when the door needs to be opened.

⚠ Be careful that the opened door may be closed by the external or natural force like strong wind.



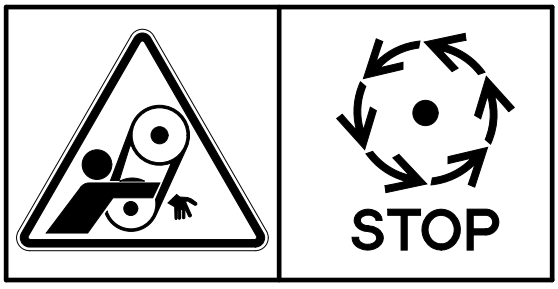
21070FW14

13) ENGINE HOOD SHEARING (item 15)

This warning label is positioned on the engine hood.

⚠ Don't open the engine hood during the engine's running. Stay clear of rotating parts.

⚠ Don't touch exhaust pipe or it may cause severe burn.



21070FW15

14) **NO STEP** (item 16)

This warning label is positioned on the engine hood and counterweight.

△ **Don't step on the engine hood and counterweight.**

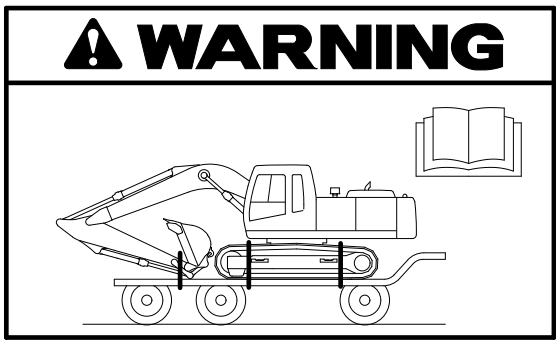
21070FW16

15) **TRANSPORTING** (item 17)

This warning label is positioned on the front right side of upper frame.

⚠ **Study the operator's manual before transporting the machine, if provided and tie down arm and track to the carrier with lashing wire.**

See page 5-7 for details.



14070FW17

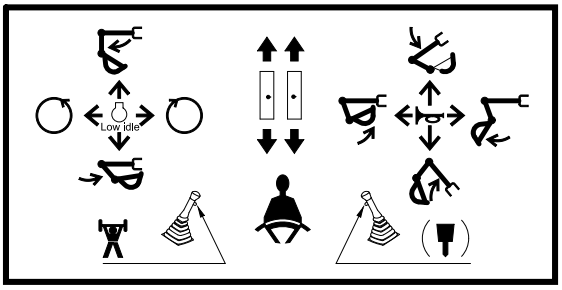
16) **MACHINE CONTROL PATTERN** (item 19)

This warning label is positioned in right window of the cab.

⚠ **Check the machine control pattern for conformance to pattern on this label. If not, change label to match pattern before operating machine.**

⚠ **Failure to do so could result in injury or death.**

See page 4-12 for details.



36070FW19

17) REF OPERATOR'S MANUAL (item 20)

This warning label is positioned on the right side window of the cab.

(1) Ref operator manual

⚠ Study the operator's manual before starting and operating machine.

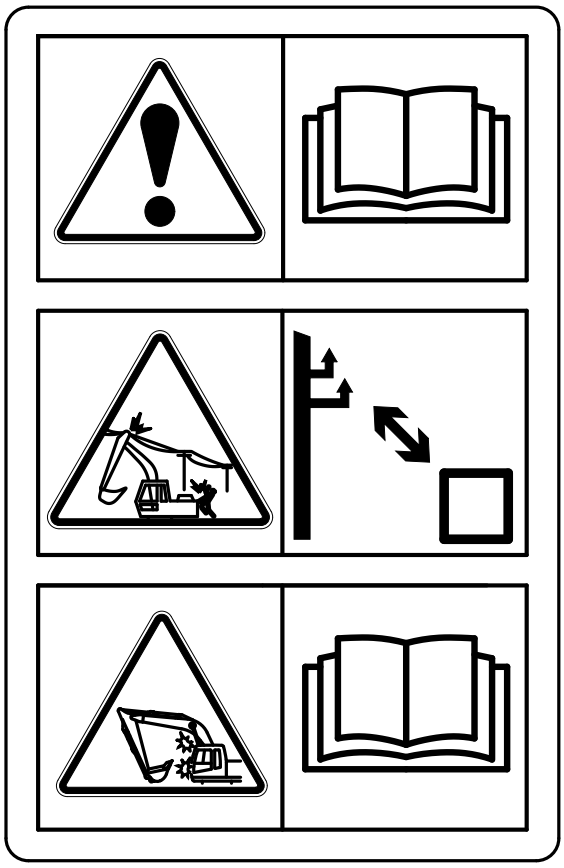
⚠ Do not operate this machine unless you have read and understand the instructions and warnings in this manual.
Failure to follow the instructions or warnings could result in injury or death.

(2) Max height

⚠ Serious injury or death can result from contact with electric lines.
An electric shock being received by merely coming into the vicinity of an electric lines, the minimum distance should be kept considering the supply voltage as page 1-16.

(3) Interference

⚠ Be careful to operate machine equipped with quick clamp or extensions.
Bucket may hit cab or boom, boom cylinders when it reached vicinity of them.



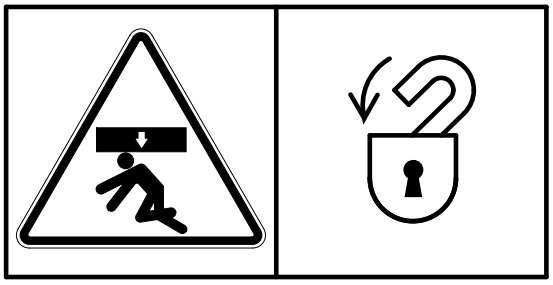
2609A0SL05

18) SAFETY FRONT WINDOW (item 22)

This warning label is positioned on the LH and RH side window of the cab.

⚠ Be careful that the front window may be promptly closed.

※ See page 3-74 for details.



21070FW24

19) **SAFETY REAR WINDOW** (item 23)

This warning label is positioned on the inside of rear window.

※ **The rear window serves as an alternate exit.**

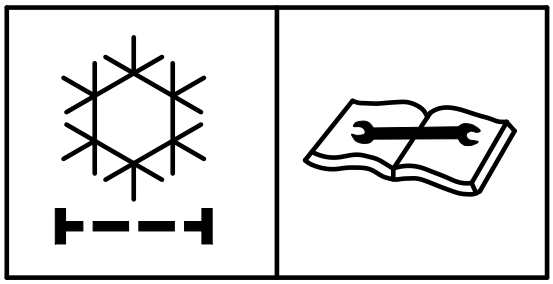
※ **To remove rear window, pull the ring and push out the glass.**

2609A0SL02

20) **AIR CONDITIONER FILTER** (item 24)

This warning label is positioned on the air conditioner cover.

※ **Periodic and proper inspection, cleaning and change of filter prolong air conditioner life time and maintain good performance.**

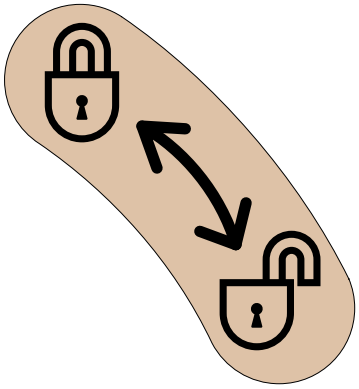


21070FW26

21) **SAFETY KNOB** (item 26)

This warning label is positioned on the cover of the safety knob.

⚠ **Before you get off the machine be sure to place the safety knob LOCKED position.**

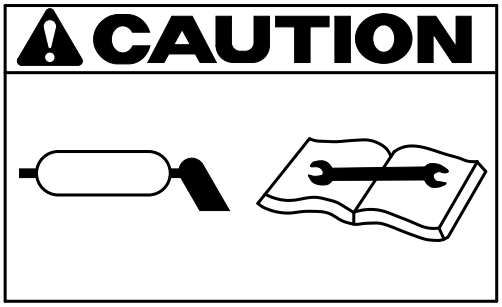


30007A1FW07A

22) **REDUCTION GEAR GREASE** (item 31)

This warning label is positioned on the front side of upper frame.

⚠ **Grease is under high pressure.**
Grease coming out of the grease plug under pressure can penetrate the body causing injury or death.



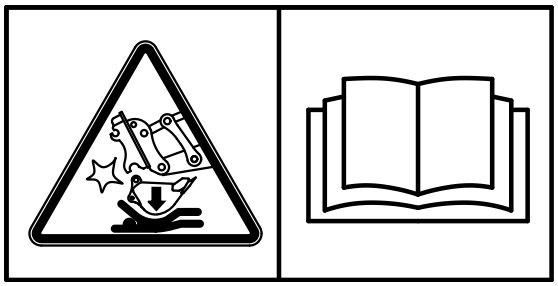
21070FW35

23) **CLAMP LOCKING** (item 32)

This warning label is positioned on the right side window of cab.

⚠ **Serious injury or death can result from dropping bucket.**

⚠ **Operating the machine with quick clamp switch unlocked or without safety pin of moving hook can cause the bucket to drop off.**



14070FW60

24) **TIE** (item 36)

This warning label is positioned on the front and rear side of the lower frame.

⚠ **Never tow the machine using tie hole, because this may break.**

⚠ **See page 4-15 for detail.**

4507A0FW02

25) **KEEP CLEAR-ATTACH** (item 37)

This warning label is positioned on both side of the arm.

⚠ **Serious injury or death can result from falling of the attachment.**

⚠ **To prevent serious injury or death, keep clear the underneath of attachment.**

14070FW31

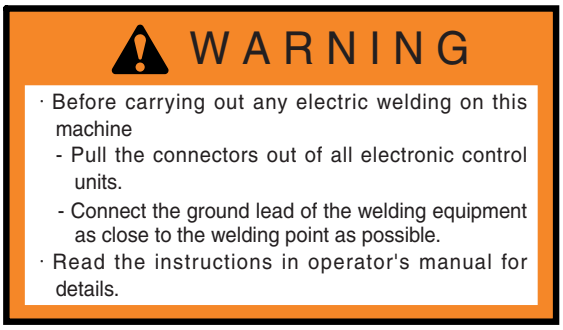
26) **ELECTRIC WELDING** (item 38)

This warning label is positioned on the battery cover.

⚠ **Before carrying out any electric welding on this machine, follow the below procedure.**

- Pull the connector out of all electric control units.
- Connector the ground lead of the welding equipment as close to the welding point as possible.

※ **See page 6-45 for detail.**



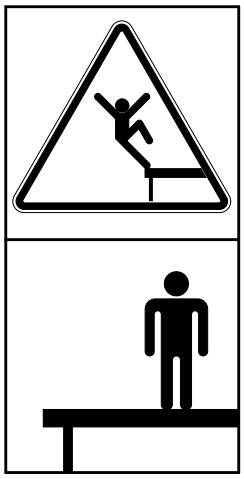
7807AFW20

27) **FALLING** (item 39)

This warning label is positioned on the top of the hydraulic tank and counterweight.

⚠ **Falling is one of the major cause of personal injury.**

⚠ **Be careful of slippery conditions on the platforms, steps and handrails when standing on the machine.**



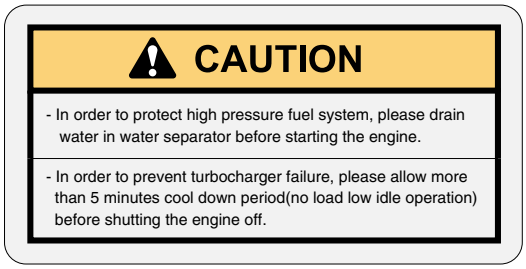
14070FW30

28) **CAUTION (W/SEPARATOR, TURBOCHARGER)** (item 41)

This warning label is positioned on the right window of the cab.

⚠ **In order to protect high pressure fuel system, please drain water in water separator before starting the engine.**

⚠ **In order to prevent turbocharger failure, please allow more than 5 minutes' cool down period (no load low idle operation) before shutting the engine off.**



120090SL02

29) **REFLECTING-COUNTERWEIGHT** (item 42)

This warning label is positioned on the rear of counterweight.

⚠ **To prevent serious personal injury or death keep clear of machine swing radius.**

⚠ **Do not deface or remove this label from the machine.**

290F0FW01

30) **ACCUMULATOR** (item 43)

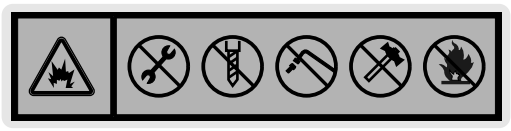
This warning label is positioned on the accumulator of the solenoid valve.

※ **The accumulator is filled with high-pressure nitrogen gas, and it is extremely dangerous if it is handled in the wrong way. Always observe the following precautions.**

⚠ **Never make any hole in the accumulator expose it to flame or fire.**

⚠ **Do not weld anything to the accumulator.**

※ **When carrying out disassembly or maintenance of the accumulator, or when disposing of the accumulator, it is necessary to release the gas from the accumulator. A special air bleed valve is necessary for this operation, so please contact your HD Hyundai Construction Equipment distributor.**



1107A0FW46

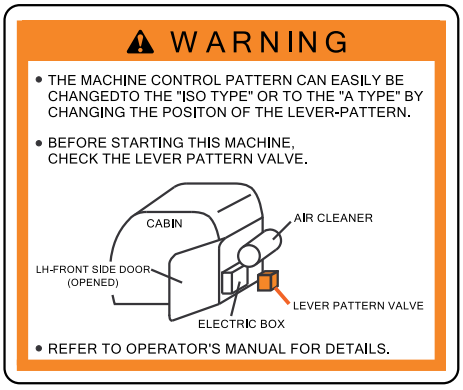
31) **MACHINE CONTROL PATTERN CHANGE VALVE** (item 44)

This warning label is positioned on the right side window of the cab.

⚠ **The machine control pattern can easily be changed to the "ISO type" or to the "A type" by changing the position of the lever of the pattern change valve.**

⚠ **Before starting this machine, check the lever pattern valve.**

※ **See page 4-27 for detail.**



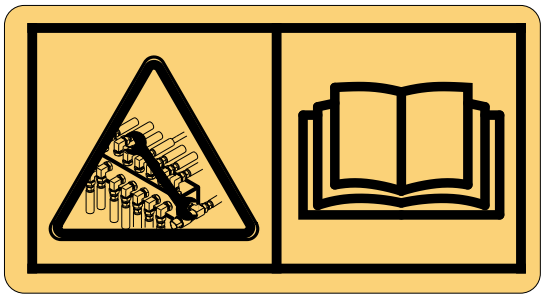
2609A0SL11

32) **MACHINE CONTROL PATTERN CHANGE-W/O VALVE**(item 45)

This warning label is positioned on the screen plate.

⚠ **Check the machine control pattern before starting this machine.**

※ **See page 4-26 for detail.**



14W90FW47

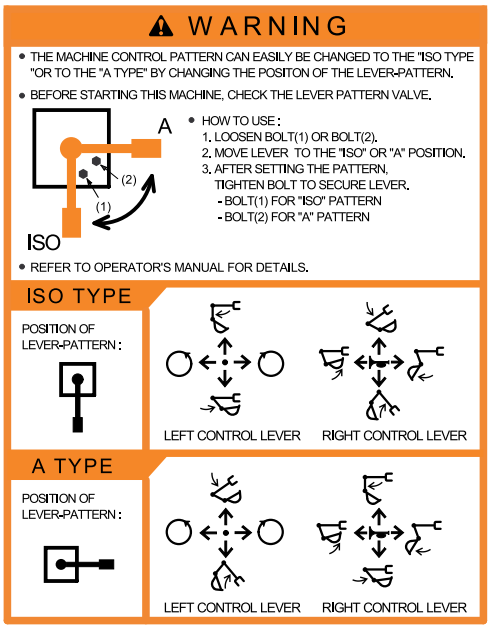
33) **MACHINE CONTROL PATTERN CHANGE-W/VALVE** (item 46)

This warning label is positioned on the screen plate.

⚠ **Check the machine control pattern for conformance to pattern on this label. If not, change label to match pattern before operating machine.**

⚠ **Failure to do so could result in injury or death.**

※ **See page 4-27 for details.**

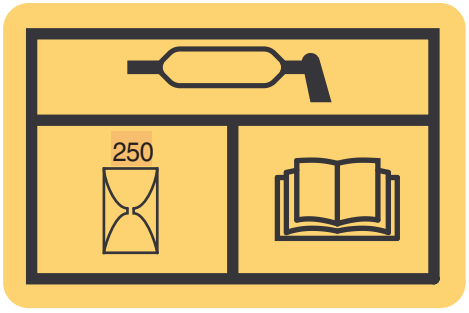


38090FW01A

34) **SWING BEARING GREASE** (item 47)

This warning label is positioned on the front side of swing ring gear.

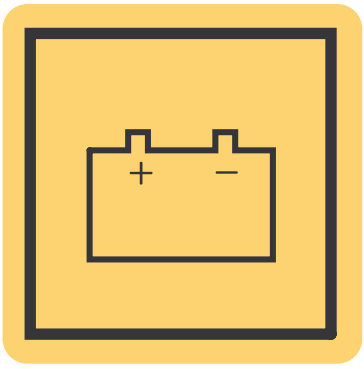
※ **See page 6-36 for details.**



38090FW02

35) **BATTERY POSITION** (item 48)

This warning label is positioned on the LH side cover.



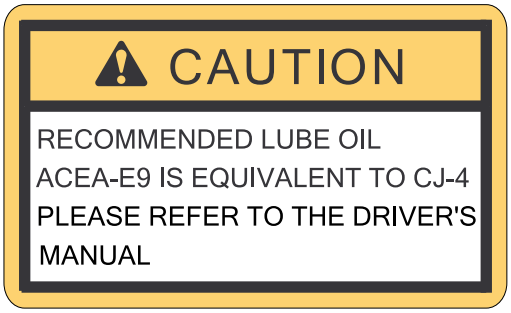
38090FW03

36) **LUBRICATION OIL** (item 49)

This warning label is positioned on the engine hood.

※ **Recommended lubrication oil ACEA-E9 is equivalent to API CJ-4.**

※ **See page 6-9 for details.**



290F0SL03

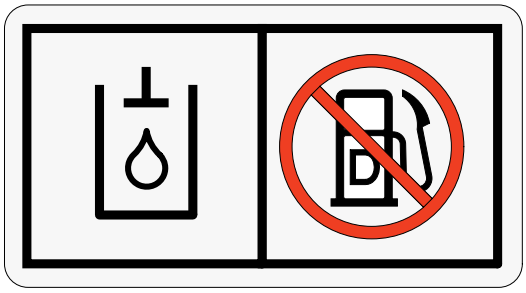
37) **FUEL SHUT OFF** (item 50)

This warning label is positioned on the hydraulic tank.

※ **Fill only the hydraulic oil.**

※ **Do not fill the diesel fuel.**

⚠ **Relieve tank pressure with the engine off by pushing the top of the air breather.**



140WH90FW51

38) **MCU/ECM CONNECTOR** (item 51)

This warning label is positioned on the low cover of the air conditioner in the cab.

※ **MCU communicates the machine data with Laptop computer through RS232 service socket.**

※ **ECM communicates the engine data with cummins INSITE tool adapter through J1939 service socket.**

※ **See page 3-73 for details.**

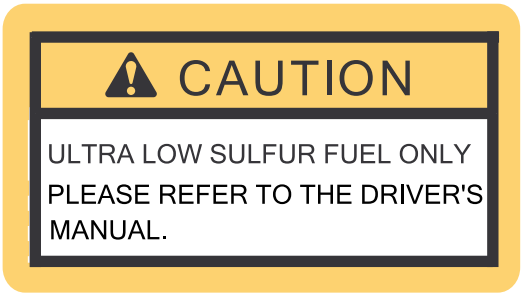
235Z90FW52

39) **ULTRA LOW SULFUR DIESEL** (item 52)

This warning label is positioned on the vicinity of fuel filler neck.

※ **Use ultra low sulfur fuel only.**

※ **Ultra low sulfur fuel**
sulfur content ≤ 15 ppm



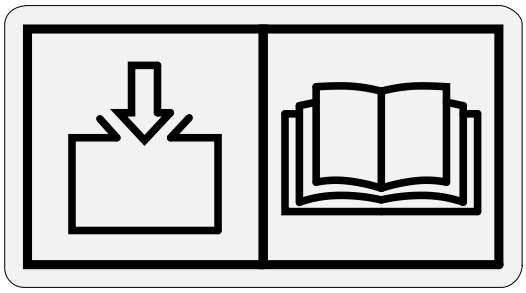
2609A0SL03

40) **SURGE TANK** (item 54)

This warning label is positioned on the top of the surge tank.

This system must be filled slowly to prevent air locks.

※ **Fill rate ≤ 11 lpm**



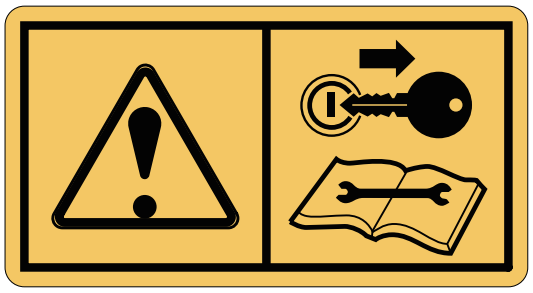
3009A0FW54

41) **KEY OFF CAUTION** (item 55)

This warning label is positioned on the right side window of the cab.

※ **Park on a flat place and stop the engine for inspecting and repairing. Properly TAG machine is not operational. (remove start key)**

Extreme care shall be taken during maintenance work.



290F0FW05

42) **RCV LEVER** (item 56)

This warning label is positioned on the right side window of the cab.

※ **When you work by moving the seat to the front of cab, it is possible to take place interference between cluster and RCV lever at specific position.**

To prevent this interference, handle below works.

(1) Rotate cluster.

(2) Adjust seat position for up-and-downward using seat height adjuster knob in suspension.

(3) Lower the console box height using knob between RH console box and seat cushion.

(4) Push back console and seat position using seat and console box adjust knob between LH console box and seat cushion.

290F0FW04

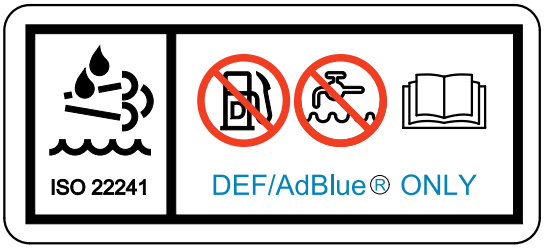
43) **DIESEL EXHAUST FLUID** (item 57)

This warning label is positioned on the front of DEF/AdBlue® tank cover.

※ **Fill only the DEF/AdBlue® (Diesel Exhaust Fluid, standardised as ISO 22241).**

Aqueous urea solution made with 32.5% high-purity urea and 67.5% deionized water.

※ **Do not fill the diesel fuel.**



290F0SL04

44) **DEF/ADBLUE® FILL-UP** (item 58)

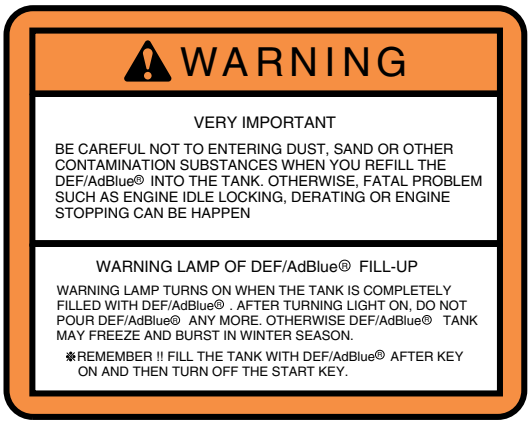
This warning label is positioned on the front of DEF/AdBlue® tank cover.

△ **Be careful not to entering dust, sand or other contamination substances when you refill the DEF/AdBlue® into the tank. Otherwise, fatal problem such as engine idle locking, derating or engine stopping can be happen.**

※ **Warning lamp turns on when the tank is completely filled with DEF/AdBlue®. After turning light on, do not pour DEF/AdBlue® any more. Otherwise DEF/AdBlue® tank may freeze and burst in winter season.**

※ **Fill the tank with DEF/AdBlue® after key on and then turn off the start key.**

※ **See page 6-31 for detail.**



480F0SL06

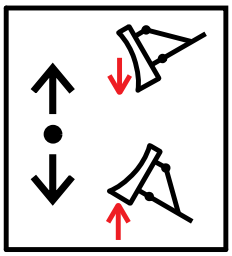
45) **DOZER IDEOGRAM** (item 60)

This warning label is positioned on the top of LH console box.

※ **See page 4-12 for details.**

※ **Guidlines for using the general dozer blade.**

- **Be careful not to apply an excessive load when using a blade.**
- **Avoid impacts and loads on the bottom due to machine modification or excessive working conditions.**
- **Check the BLADE UP status before traveling the machine.**
- **Avoid any collision with the upper working device and the blade.**
- **Do not move machine in the blade jack up state.**
- **When using blade jack up, use it in an environment where the ground is not rough and the machine and ground are same level.**



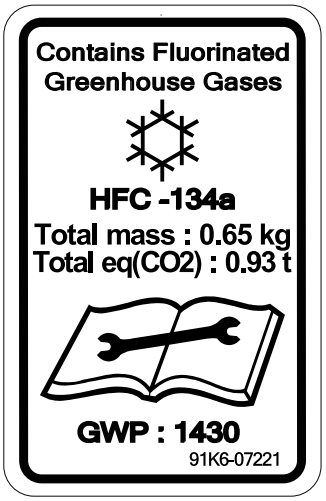
R25Z9A0FW06

46) **REFRIGERANT** (item 62)

This warning label is positioned on the screen plate

⚠ **Inhaling air conditioner refrigerant gas through a lit cigarette or other smoking method or inhaling fumes released from a flame contacting air conditioner refrigerant gas, can cause bodily harm or death.**

※ **Refer to the page 6-48.**



91K6-07221

47) **FIRE EXTINGUISHER** (item 64)

This label is located on the left rear stay of the cabin inside.

※ **Read and understand the instructions adhered decal on the fire extinguisher.**

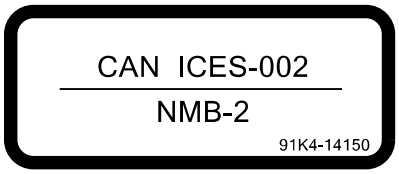
480F0SL06

48) **EMC** (item 65)

This label is positioned on the front side of the upper frame near to the PIN plate.

This machine comply with the EMC directive ICES-002.

※ **EMC : Electro Magnetic Compatibility**



91K4-14150

49) **LEFTOVER FUEL** (item 66)

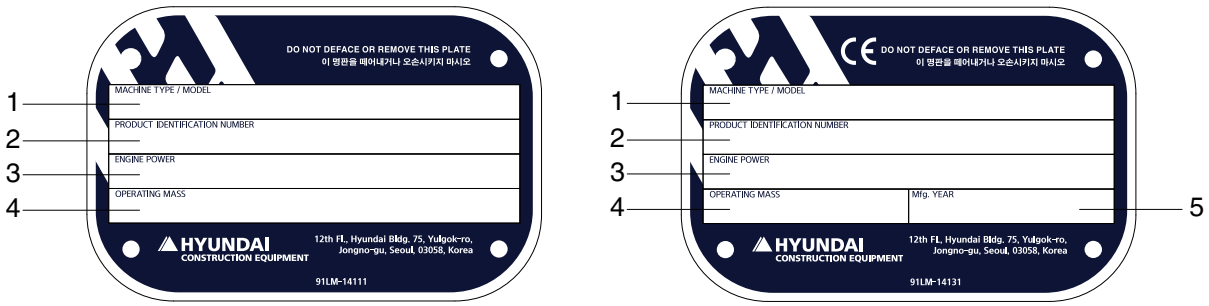
This warning label is positioned on the RH side of the MCV box.

△ **Do not fuel a machine near open flames or sparks.**

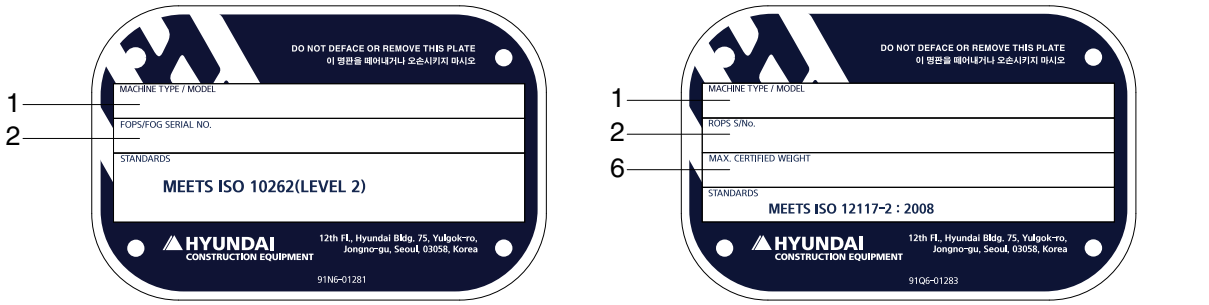
△ **Properly clean areas of spillage.**

91K4-02700

MACHINE DATA PLATE



FOR EU ONLY



FOR FOPS/FOG ROPS

290F0FW06

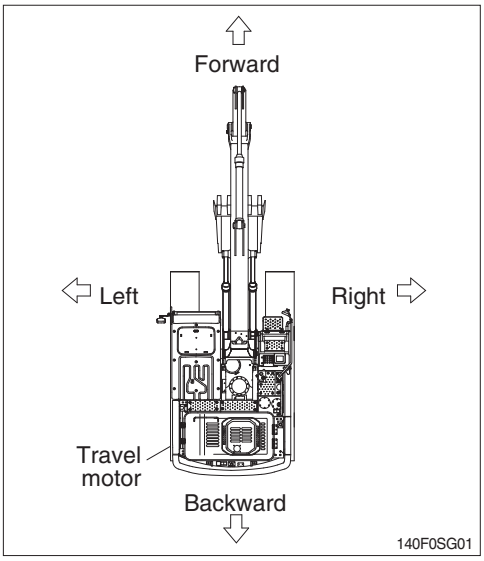
1	Machine type / model	2	Product identification number	3	Engine power
4	Operating mass	5	Manufacturing year	6	Maximum certified weight

※ The machine serial number assigned to this particular machine and should be used when requesting information or ordering service parts for this machine from your authorized HD Hyundai Construction Equipment dealer. The machine serial number is also stamped on the frame.

GUIDE

1. DIRECTION

The direction of this manual indicate forward, backward, right and left on the standard of operator when the travel motor is in the rear and machine is on the traveling direction.

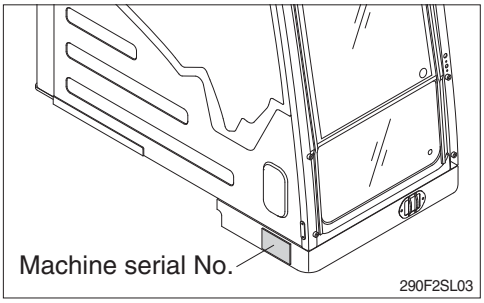


2. SERIAL NUMBER

Inform following when you order parts or the machine is out of order.

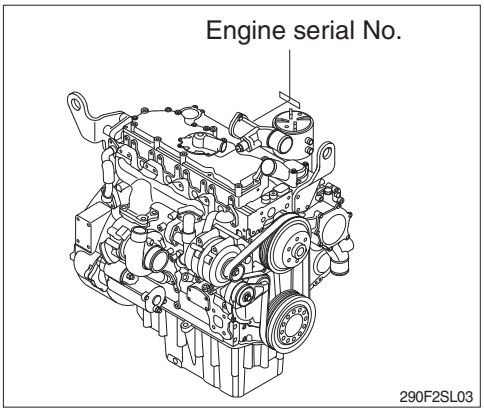
1) MACHINE SERIAL NUMBER

The numbers are located below the right window of the operator's cab.



2) ENGINE SERIAL NUMBER

The numbers are located on the engine name plate.



3. INTENDED USE

This machine is designed to be used mainly for the following work.

- Digging work
- Loading work
- Smoothing work
- Ditching work

※ Please refer to the section 4 (efficient working method) further details.

4. SYMBOLS

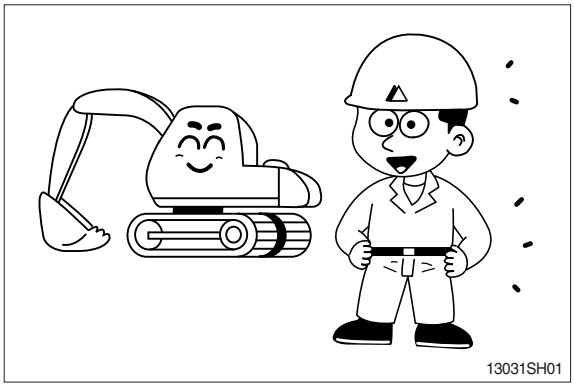
⚠ Important safety hint.

△ It indicates matters which can cause the great loss on the machine or the surroundings.

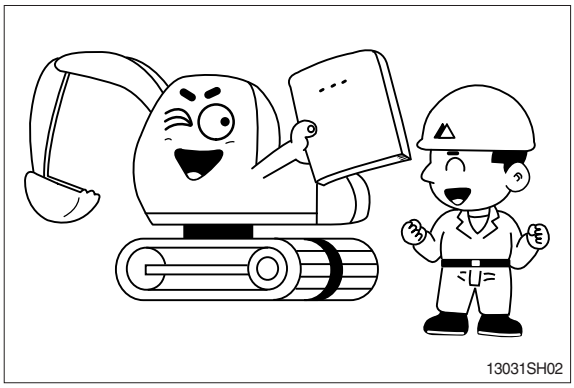
※ It indicates the useful information for operator.

1. BEFORE OPERATING THE MACHINE

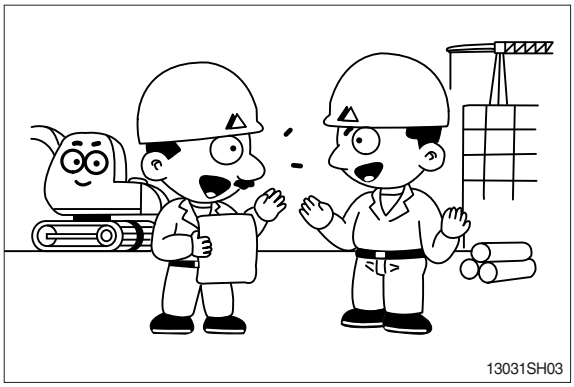
Think-safety first.
In special situation, wear protective clothing including a safety helmet, safety shoes, gloves, safety glasses and ear protection as required by the job condition.
Almost every accident is caused by disregarding the simple and fundamental safety hints.


13031SH01

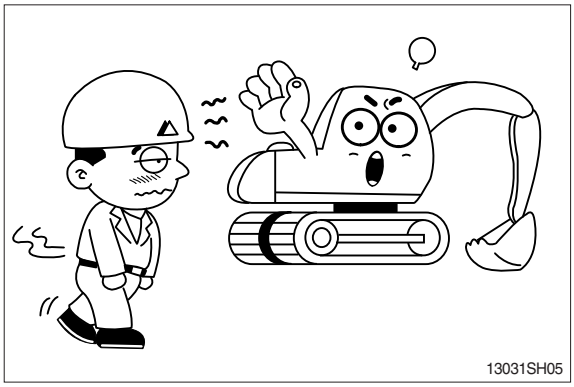
Be sure to understand thoroughly all about the operator's manual before operating the machine.
Proper care is your responsibility.


13031SH02

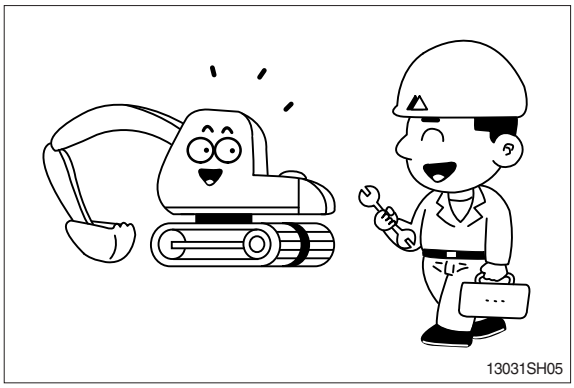
Fully understand the details and process of the construction before starting the work.
If you find anything dangerous on the job, consult with the job supervisor for the preventive measures before operating the machine.


13031SH03

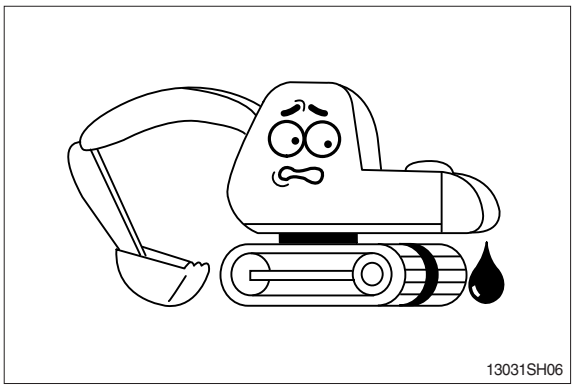
Do not operate when tired, or after drinking alcoholic beverages or any type of drugs.


13031SH05

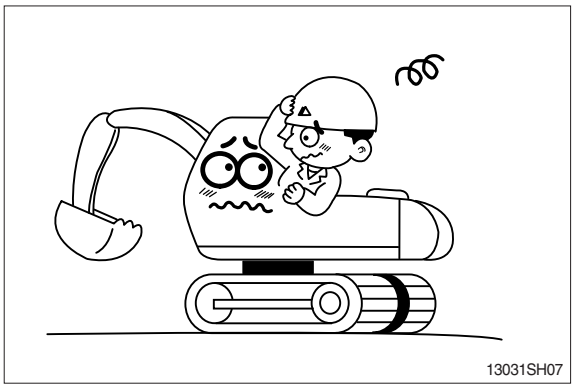
Check daily according to the operation manual.
Repair the damaged parts and tighten the loosened bolts.



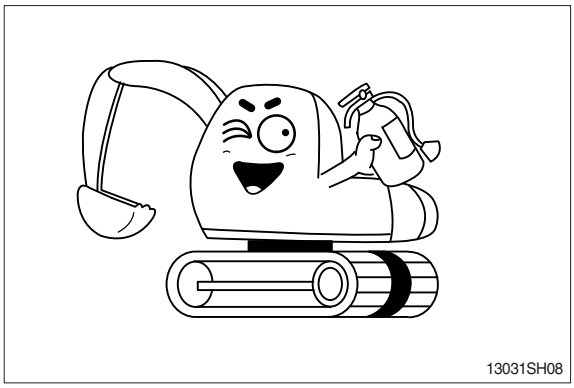
Check for leakage of engine oil, hydraulic oil, fuel and coolant.
Keep machine clean, clean machine regularly.



Do not operate the machine if it requires repairs.
Operate after complete repair.



Be prepared if a fire starts.
Keep a fire extinguisher handy and emergency numbers for a fire department near your telephone.

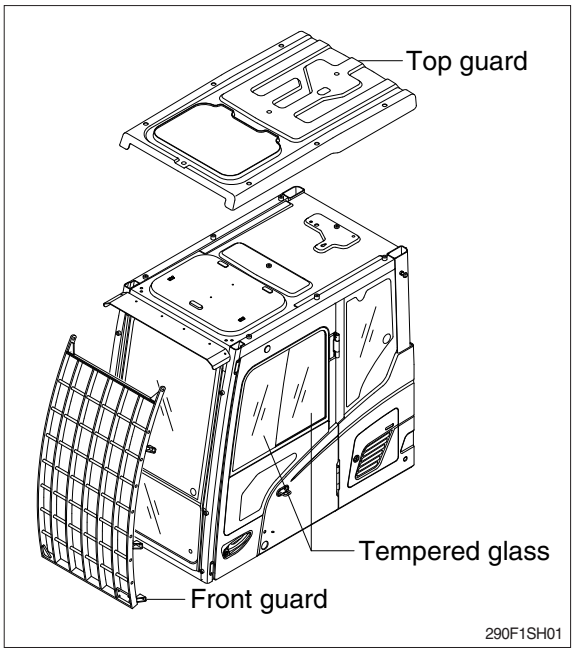


PROTECTION AGAINST FALLING OR FLYING OBJECTS

If there is any danger of falling or flying objects hitting the operator, install protective guards in place to protect the operator as required for each particular situation.

Be sure to close the front window before commencing work.

Make sure to keep all persons other than operator outside the range of falling or flying objects.
In case you need top guard, front guard and FOPS (falling object protective structure), please contact HD Hyundai Construction Equipment distributor.



UNAUTHORIZED MODIFICATION

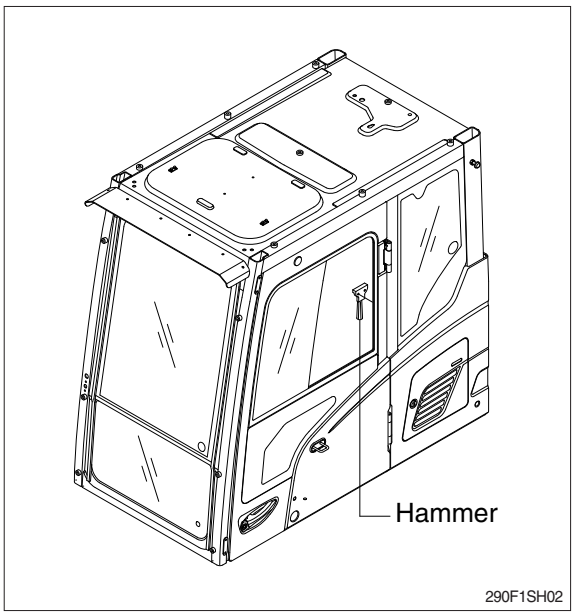
Any modification made without authorization from HD Hyundai Construction Equipment can create hazards.

Before making a modification, consult your HD Hyundai Construction Equipment distributor. HD Hyundai Construction Equipment will not be responsible for any injury or damage caused by any unauthorized modification.

PREPARE FOR EMERGENCY

Only in case of emergency, use the installed hammer for breaking the windshield of the cab, and then exit carefully.

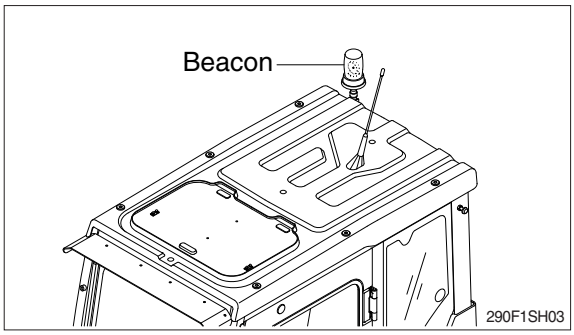
Be sure you know the phone numbers of persons you should contact in case of an emergency.



ROTATING BEACON

When you operate a machine on a road or beside a road, a rotating beacon is required to avoid any traffic accident.

Please contact your HD Hyundai Construction Equipment distributor to install it.



PRECAUTIONS FOR ATTACHMENTS

When installing and using an optional attachment, read the instruction manual for the attachment and the information related to attachments in this manual.

Do not use attachments that are not authorized by HD Hyundai Construction Equipment or your HD Hyundai Construction Equipment distributor. Use of unauthorized attachments could create a safety problem and adversely affect the proper operation and useful life of the machine.

Any injuries, accidents, product failures resulting from the use of unauthorized attachments are not the responsibility of HD Hyundai Construction Equipment.

The stability of this machine is enough to be used for general work. When you operate this machine, allow for the lifting capacity tables. If you want to use other special applications (not covered in this manual), you have to attach additional counterweight or be cautious while running the machine.

SAFETY RULES

Only trained and authorized personnel can operate and maintain the machine.
Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.
When working with another operator or a person on worksite traffic duty, be sure all personnel understand all hand signals that are to be used.

SAFETY FEATURES

Be sure all guards and covers are in their proper position. Have guards and covers repaired if damaged.
Use safety features such as safety lock and seat belts properly.
Never remove any safety features. **Always** keep them in good operating condition.
Improper use of safety features could result in serious bodily injury or death.

MACHINE CONTROL PATTERN

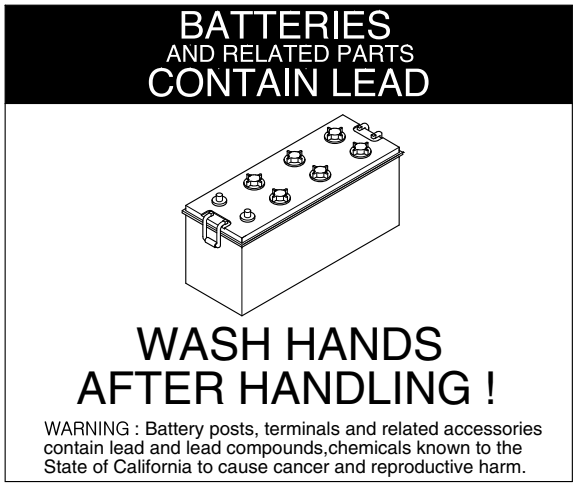
Check machine control pattern for conformance to pattern on label in cab.
If not, change label to match pattern before operating machine.
Failure to do so could result in injury.

CALIFORNIA PROPOSITION 65

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

This product contains or emits chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds.
WASH HANDS AFTER HANDLING



13031SH55

Do not load the machine with the lifting eyes on the counterweight.

⚠ **The wrong loading method can result in serious bodily injury or death.**

FIRE PREVENTION AND EXPLOSION PREVENTION

Regeneration

The exhaust gas temperatures during regeneration will be elevated. Follow proper fire prevention instructions and use the disable regeneration function when appropriate.

General

All fuels, most lubricants, and some coolant mixtures are flammable.

To minimize the risk of fire or explosion, the following actions are recommended.

Always perform a Walk-Around Inspection, which may help you identify a fire hazard.
Do not operate a machine when a fire hazard exists. Contact your dealer for service.

3001SH01

Understand the use of the primary exit and alternative exit on the machine.

Do not operate a machine with a fluid leak. Repair leaks and clean up fluids before resuming machine operation. Fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire. A fire may cause personal injury or death.

Do not weld on or drill holes in the engine cover. Flammable material such as leaves, twigs, papers, trash may accumulate in engine compartment.

Remove flammable material such as leaves, twigs, papers, trash and so on. These items may accumulate in the engine compartment or around other hot areas and hot parts on the machine.

Keep the access doors to major machine compartments closed and access doors in working condition in order to permit the use of fire suppression equipment, in case a fire should occur.

Clean all accumulations of flammable materials such as fuel, oil, and debris from the machine.

Do not operate the machine near any flame.

Keep shields in place. Exhaust shields (if equipped) protect hot exhaust components from oil spray or fuel spray in a break in a line, in a hose, or in a seal. Exhaust shields must be installed correctly.

Do not weld or flame cut on tanks or lines that contain flammable fluids or flammable material. Empty and purge the lines and tanks. Then clean the lines and tanks with a nonflammable solvent prior to welding or flame cutting. Ensure that the components are properly grounded in order to avoid unwanted arcs.

Dust that is generated from repairing nonmetallic hoods or fenders may be flammable and/or explosive. Repair such components in a ventilated area away from open flames or sparks. Use suitable Personal Protection Equipment (PPE).

Inspect all lines and hoses for wear or deterioration. Replace damaged lines and hoses. The lines and the hoses should have adequate support and secure clamps. Tighten all connections to the recommended torque. Damage to the protective cover or insulation may provide fuel for fires.

Store fuels and lubricants in properly marked containers away from unauthorized personnel. Store oily rags and flammable materials in protective containers. Do not smoke in areas that are used for storing flammable materials.

3001SH02

Use caution when you are fueling a machine.
Do not smoke while you are fueling a machine. Do not fuel a machine near open flames or sparks. Always stop the engine before fueling. Fill the fuel tank outdoors. Properly clean areas of spillage.

Never store flammable fluids in the operator compartment of the machine.

3001SH03

Battery and battery cables

The following actions are recommended to minimize the risk of fire or an explosion related to the battery.

3001SH04

Do not operate a machine if battery cables or related parts show signs of wear or damage. Contact your dealer for service.

Follow safe procedures for engine starting with jump-start cables. Improper jumper cable connections can cause an explosion that may result in injury.

Do not charge a frozen battery. This action may cause an explosion.

Gases from a battery can explode. Keep any open flames or sparks away from the top of a battery. Do not smoke in battery charging areas.

Never check the battery charge by placing a metal object across the terminal posts. Use a voltmeter in order to check the battery charge.

Daily inspect battery cables that are in areas that are visible. Inspect cables, clips, straps, and other restraint for damage. Replace any damaged parts. Check for signs of the following, which can occur over time due to use and environmental factors :

- Fraying
- Abrasion
- Cracking
- Discoloration
- Cuts on the insulation of the cable
- Fouling
- Corroded terminals, damaged terminals, and loose terminals

Replace damaged battery cable (s) and replace any related parts. Eliminate any fouling, which may have caused insulation failure or related component damage or wear. Ensure that all components are reinstalled correctly.

An exposed wire on the battery cable may cause a short ground if the exposed area comes into contact with a grounded surface. A battery cable short produces heat from the battery current, which may be a fire hazard.

An exposed wire on the ground cable between the battery and the disconnect switch may cause the disconnect switch to be bypassed if the exposed area comes into contact with a grounded surface. This action may result in an unsafe condition for servicing the machine. Repair components or replace components before servicing the machine.

⚠ Fire on a machine can result in personal injury or death. Exposed battery cables that come into contact with a grounded connection can result in fires. Replace cables and related parts that show signs of wear or damage. Contact your HD Hyundai Construction Equipment dealer.

Wiring

Check electrical wires daily. If any of the following conditions exist, replace parts before you operate the machine.

- Fraying
- Signs of abrasion or wear
- Cracking
- Discoloration
- Cuts on insulation
- Other damage

Make sure that all clamps, guards, clips, and straps are reinstalled correctly. This action will help to prevent vibration, rubbing against other parts, and excessive heat during machine operation.

Attaching electrical wiring to hoses and tubes that contain flammable fluids or combustible fluids should be avoided.

Consult your HD Hyundai Construction Equipment dealer for repair or for replacement parts.

Keep wiring and electrical connections free of debris.

Lines, Tubes, and Hoses

Do not bend high-pressure lines. Do not strike high-pressure lines. Do not install any lines that are bent or damaged. Use the appropriate backup wrenches in order to tighten all connections to the recommended torque.

Check lines, tubes, and hoses carefully. Wear Personal Protection Equipment (PPE) in order to check for leaks. Always use a board or cardboard when you check for a leak. Leaking fluid that is under pressure can penetrate body tissue. Fluid penetration can cause serious injury and possible death. A pin hole leak can cause severe injury. If fluid is injected into your skin, you must get treatment immediately. Seek treatment from a doctor that is familiar with this type of injury.

Replace the affected parts if any of the following conditions are present :

- End fittings are damaged or leaking.
- Outer coverings are chafed or cut.
- Wires are exposed.
- Outer coverings are swelling or ballooning.
- Flexible parts of the hoses are kinked.
- Outer covers have exposed embedded armoring.
- End fittings are displaced.

Make sure that all clamps, guards, and heat shields are installed correctly. During machine operation, this action will help to prevent vibration, rubbing against other parts, excessive heat, and failure of lines, tubes, and hoses.

Do not operate a machine when a fire hazard exists. Repair any lines that are corroded, loose, or damaged. Leaks may provide fuel for fires. Consult your HD Hyundai Construction Equipment dealer for repair or for replacement parts.

Ether

Ether (if equipped) is commonly used in cold weather applications. Ether is flammable and poisonous.

Do not spray ether manually into an engine if the machine is equipped with a thermal starting aid for cold weather starting.

Use ether in ventilated areas. Do not smoke while you are replacing an ether cylinder or while you are using an ether spray.

Do not store ether cylinders in living areas or in the operator compartment of a machine. Do not store ether cylinders in direct sunlight or in temperatures above 49˚C(120.2 ˚F). Keep ether cylinders away from unauthorized personnel.

Fire Extinguisher

As an additional safety measure, keep a fire extinguisher on the machine.

Be familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher regularly. Follow the recommendations on the instruction plate.

Consider installation of an aftermarket Fire Suppression System, if the application and working conditions warrant the installation.

Fire Safety

※ Locate secondary exits and how to use the secondary exits before you operate the machine.
※ Locate fire extinguishers and how to use a fire extinguisher before you operate the machine.

If you find that you are involved in a machine fire, your safety and that of others on site is the top priority. The following actions should only be performed if the actions do not present a danger or risk to you and any nearby people. At all times you should assess the risk of personal injury and move away to a safe distance as soon as you feel unsafe.
Move the machine away from nearby combustible material such as fuel/oil stations, structures, trash, mulch and timber.

Lower any implements and turn off the engine as soon as possible. If you leave the engine running, the engine will continue to feed a fire. The fire will be fed from away damaged hoses that are attached to the engine or pumps.

If possible, turn the battery disconnect switch to the OFF position. Disconnecting the battery will remove the ignition source in the event of an electrical short. Disconnecting the battery will eliminate a second ignition source if electrical wiring is damaged by the fire, resulting in a short circuit.

Notify emergency personnel of the fire and your location.

If your machine is equipped with a fire suppression system, follow the manufacturers procedure for activating the system.

※ Fire suppression systems need to be regularly inspected by qualified personnel. You must be trained to operate the fire suppression system.

Use the on-board fire extinguisher and use the following procedure :

1. Pull the pin.
2. Aim the extinguisher or nozzle at the base of the fire.
3. Squeeze the handle and release the extinguishing agent.
4. Sweep the extinguisher from side to side across the base of the fire until the fire is out.

Remember, if you are unable to do anything else, shut off the machine before exiting. By shutting off the machine, fuels will not continue to be pumped into the fire.
If the fire grows out of control, be aware of the following risks :

- Tires on wheeled machines pose a risk of explosion as tires burn. Hot shrapnel and debris can be thrown great distances in an explosion.
- Tanks, accumulators, hoses, and fittings can rupture in a fire, spraying fuels and shrapnel over a large area.

Remember that nearby all of the fluids on the machine are flammable, including coolant and oils. Additionally, plastics, rubbers, fabrics, and resins in fiberglass panels are also flammable.

Fire extinguisher Location

Make sure that a fire extinguisher is available. Be familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher. Obey the recommendations on the instruction plate.

Mount the fire extinguisher in the accepted location per local regulations.

If your machine is equipped with a ROPS structure, strap the mounting plate to the ROPS in order to mount the fire extinguisher. If the weight of the fire extinguisher exceeds 4.5 kg (10 lb), mount the fire extinguisher near the bottom of the ROPS. Do not mount the fire extinguisher at the upper one-third area on the ROPS.

Do not weld the ROPS structure in order to install the fire extinguisher. Also, do not drill holes in the ROPS structure in order to mount the fire extinguisher on the ROPS.

Consult your HD Hyundai Construction Equipment dealer for the proper procedure for mounting the fire extinguisher.

THE EUROPEAN UNION PHYSICAL AGENTS (VIBRATION) DIRECTIVE 2002/44/EC

Vibration Data for Earth-moving Machines

Information Concerning Hand/Arm Vibration Level

When the machine is operated according to the intended use, the hand/arm vibration of this machine is below 2.5 m/s^2.

Information Concerning 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/s^2.

This section provides vibration data and a method for estimating the vibration level for earth moving machines.

Vibration levels are influenced by many different parameters. Many items are listed below.

- Operator training, behavior, mode and stress
- Job site organization, preparation, environment, weather and material
- Machine type, quality of the seat, quality of the suspension system, attachments and condition of the equipment

It is not possible to get precise vibration levels for this machine. The expected vibration levels can be estimated with the information in below Table in order to calculate the daily vibration exposure. A simple evaluation of the machine application can be used.

Estimate the vibration levels for the three vibration directions. For typical operating conditions, use the average vibration levels as the estimated level. With an experienced operator and smooth terrain, subtract the Scenario Factors from the average vibration level. For aggressive operations and severe terrain, add the Scenario Factors to the average vibration level in order to obtain the estimated vibration level.

※ **All vibration levels are in meter per second squared.**

ISO Reference Table A – Equivalent vibration levels of whole body vibration emission for earthmoving equipment.

Machine family	Machine kind	Typical operating condition	Vibration Levels			Scenario Factors		
			X axis	Y axis	Z axis	X axis	Y axis	Z axis
Excavator	Compact crawler excavator	Excavating	0.33	0.21	0.19	0.19	0.12	0.10
		Hydraulic breaker app.	0.49	0.28	0.36	0.20	0.13	0.17
		Transfer movement	0.45	0.39	0.62	0.17	0.18	0.28
	Crawler excavator	Excavating	0.44	0.27	0.30	0.24	0.16	0.17
		Hydraulic breaker app.	0.53	0.31	0.55	0.30	0.18	0.28
		Mining application	0.65	0.42	0.61	0.21	0.15	0.32
		Transfer movement	0.48	0.32	0.79	0.19	0.20	0.23
	Wheeled excavator	Excavating	0.52	0.35	0.29	0.26	0.22	0.13
		Transfer movement	0.41	0.53	0.61	0.12	0.20	0.19

ISO Reference Table A – Equivalent vibration levels of whole body vibration emission for earthmoving equipment.

Machine family	Machine kind	Typical operating condition	Vibration Levels			Scenario Factors		
			X axis	Y axis	Z axis	X axis	Y axis	Z axis
Loader	skid steer loader (tracks)	V-shaped motion	1.21	1.00	0.82	0.30	0.84	0.32
	Wheel backhoe loader	Excavating	0.28	0.26	0.20	0.09	0.16	0.06
	Wheel loader	Load and carry motion	0.84	0.81	0.52	0.23	0.20	0.14
		Mining application	1.27	0.97	0.81	0.47	0.31	0.47
		Transfer movement	0.76	0.91	0.49	0.33	0.35	0.17
		V-shape motion	0.99	0.84	0.54	0.29	0.32	0.14

※ **Refer to "ISO/TR 25398 Mechanical Vibration-Guideline for the assessment of exposure to whole body vibration of ride on operated earthmoving machines" for more information about vibration. This publication uses data that is measured by international institutes, organizations and manufacturers. This document provides information about the whole body exposure of operators of earthmoving equipment.**

Guidelines for Reducing Vibration Levels on Earthmoving Equipment

Properly adjust machines. Properly maintain machines. Operate machines smoothly. Maintain the conditions of the terrain. The following guidelines can help reduce the whole body vibration level :

1. Use the right type and size of machine, equipment, and attachments.
2. Maintain machines according to the manufacturer's recommendations.
   a. Tire pressures
   b. Brake and steering systems
   c. Controls, hydraulic system and linkages
3. Keep the terrain in good condition.
   a. Remove any large rocks or obstacles.
   b. Fill any ditches and holes.
   c. Provide machines and schedule time in order to maintain the conditions of the terrain.
4. Use a seat that meets "ISO 7096". Keep the seat maintained and adjusted.
   a. Adjust the seat and suspension for the weight and the size of the operator.
   b. Inspect and maintain the seat suspension and adjustment mechanisms.
5. Perform the following operations smoothly.
   a. Steer
   b. Brake
   c. Accelerate
   d. Shift the gears.
6. Move the attachments smoothly.
7. Adjust the machine speed and the route in order to minimize the vibration level.
   a. Drive around obstacles and rough terrain.
   b. Slow down when it is necessary to go over rough terrain.
8. Minimize vibrations for a long work cycle or a long travel distance.
   a. Use machines that are equipped with suspension systems.
   b. Use the ride control system on machines.
   c. If no ride control system is available, reduce speed in order to prevent bounce.
   d. Haul the machines between workplaces.
9. Less operator comfort may be caused by other risk factors. The following guidelines can be effective in order to provide better operator comfort:
   a. Adjust the seat and adjust the controls in order to achieve good posture.
   b. Adjust the mirrors in order to minimize twisted posture.
   c. Provide breaks in order to reduce long periods of sitting.
   d. Avoid jumping from the cab
   e. Minimize repeated handling of loads and lifting of loads.
   f. Minimize any shocks and impacts during sports and leisure activities.

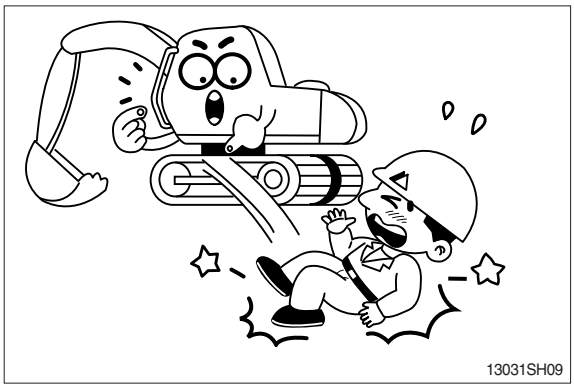
Sources

The vibration information and calculation procedure is based on "ISO/TR 25398 Mechanical Vibration-Guideline for whole body vibration exposure of operators of earthmoving equipment. The method is based on measured vibration emission under real working conditions for all machines.

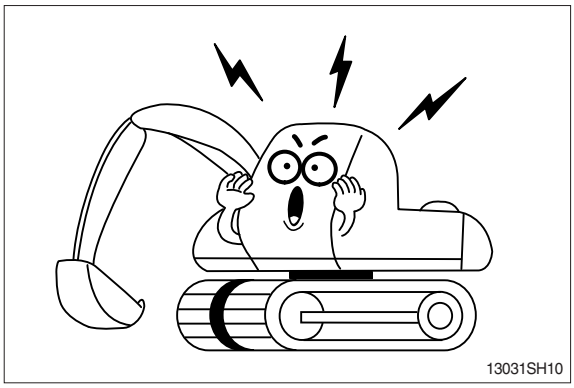
You should check the original directive. This document summarizes part of the content of the applicable law. This document is not meant to substitute the original sources. Other parts of these documents are based on information from the United Kingdom Health and Safety Executive.

2. DURING OPERATING THE MACHINE

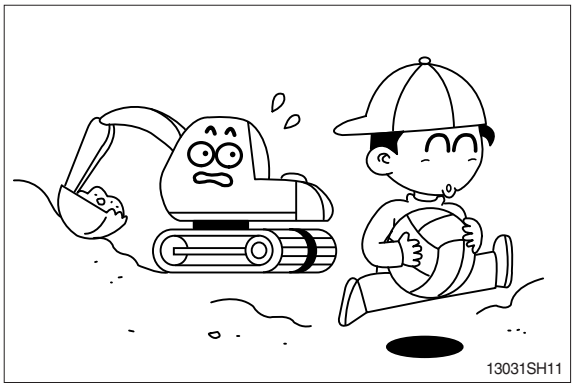
Use the handle and footstep when getting on or off the machine.
Do not jump on or off the machine.



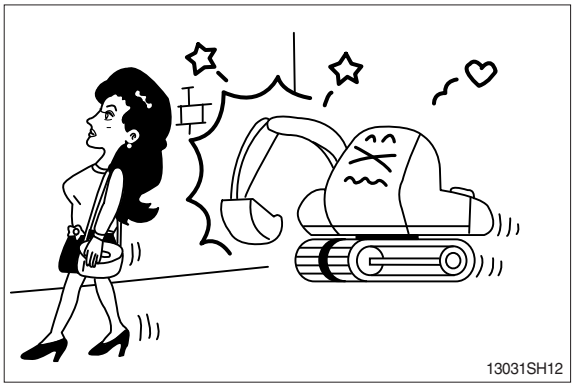
Sound the horn to warn nearby personnel before operating the machine.
Remove all the obstacles like frost on the window before operating the machine for the good visibility.



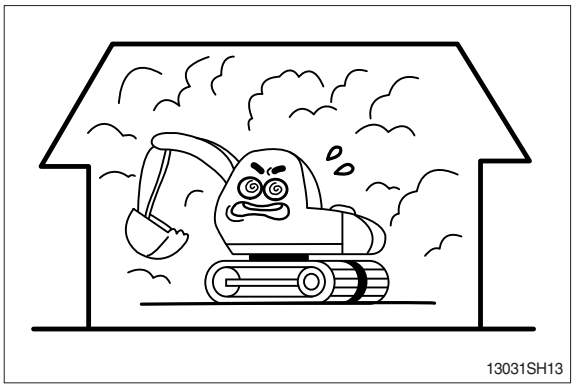
Operate carefully to make sure all personnel or obstacles are clear within the working range of the machine.
Place safety guards if necessary.



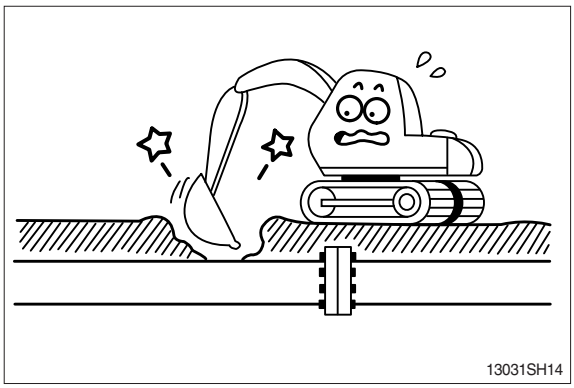
When using the work equipment, pay attention to job site.



Provide proper ventilation when operating engine in a closed area to avoid the danger of exhaust gases.

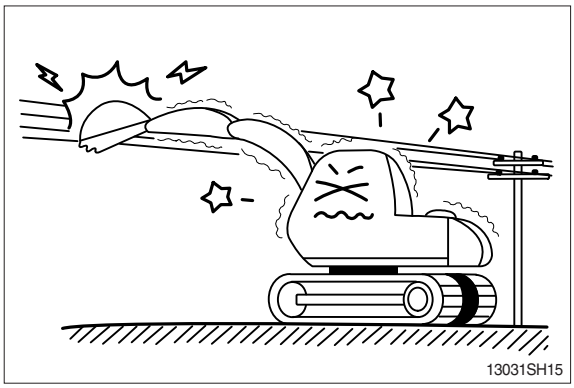


Check the locations of underground gas pipes or water line and secure the safety before operation.

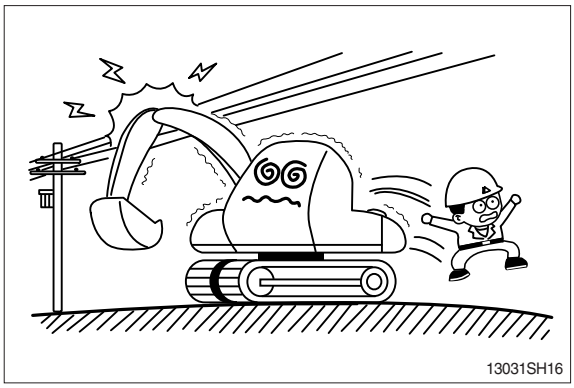


The operating near the electrical lines is very dangerous.
Operate within safe working range permitted as below.

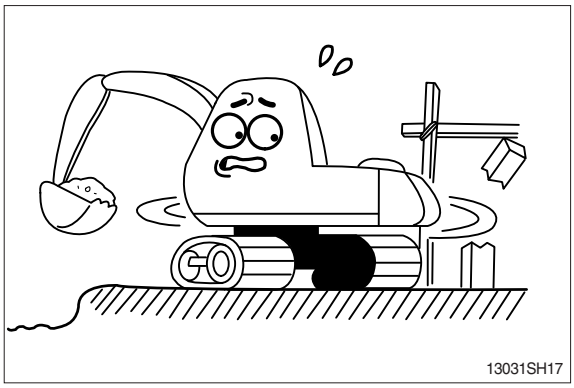
Supply voltage	Min safe separation
6.6 kV	3m (10 ft)
33.0 kV	4m (13 ft)
66.0 kV	5m (16 ft)
154.0 kV	8m (26 ft)
275.0 kV	10m (33 ft)



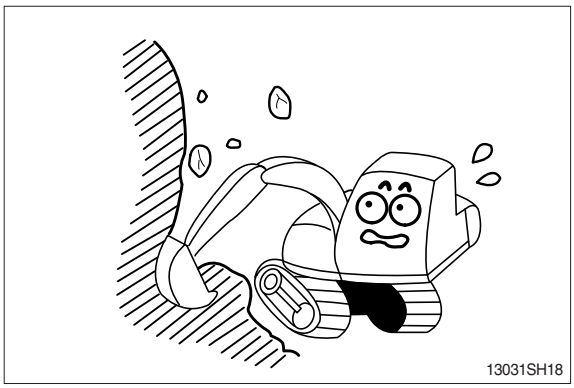
If the machine touches the electric power lines, keep sitting on the operator's seat and make sure the personnel on the ground not to touch the machine until turning off the electric current. Jump off the machine without contacting the machine when you need to get off.



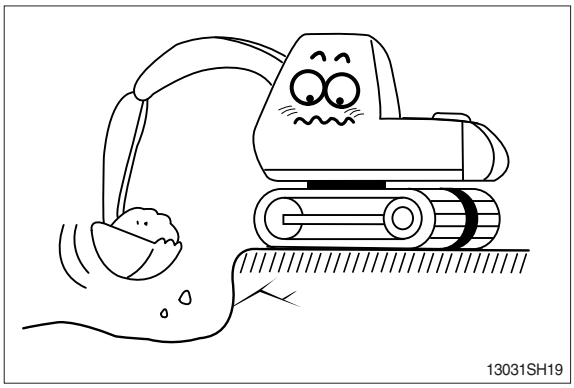
Watch out for obstacles.
Be particularly careful to check the machine clearance during the swing.



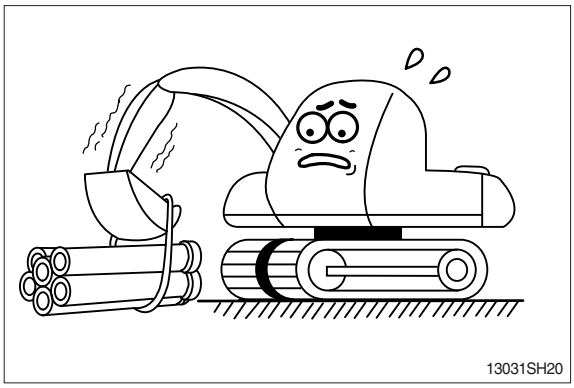
When using the machine as breaker or working in a place where stones may fall down, cab roof guard and head guard should be provided for proper protection.



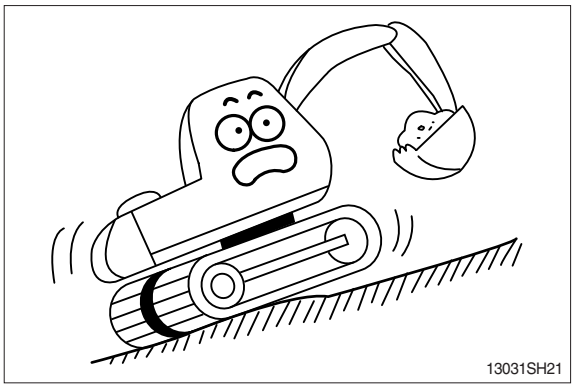
Avoid operating on a cliff or soft ground as there is danger of rolling over.
Make sure to get off easily as keeping the track at a right angle and putting the travel motor into the backward position when working on a cliff or soft ground inevitably.



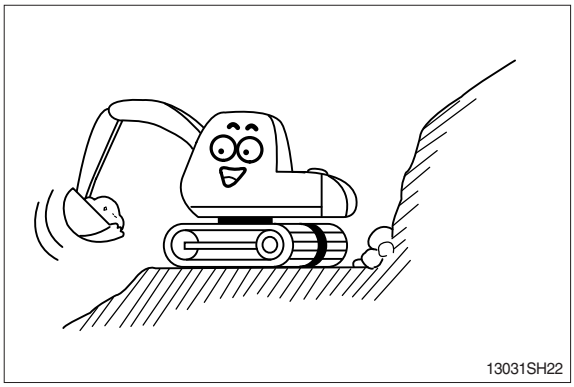
Operate for the lifting work considering the capacity of machine, weight and width of the load.
Be careful not to lift exceeding the machine capacity as it can be the cause of machine damage and safety accident.



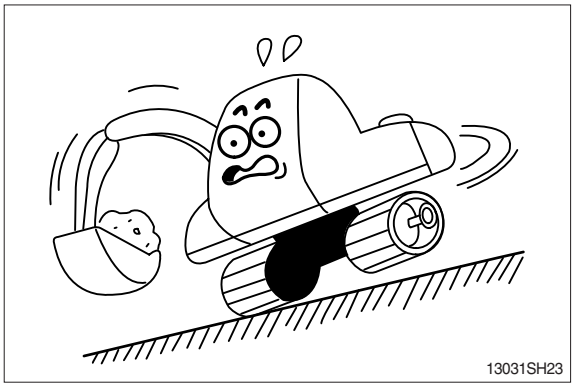
The operation on a slope is dangerous.
Avoid operating the machine on a slope of over 10 degree.



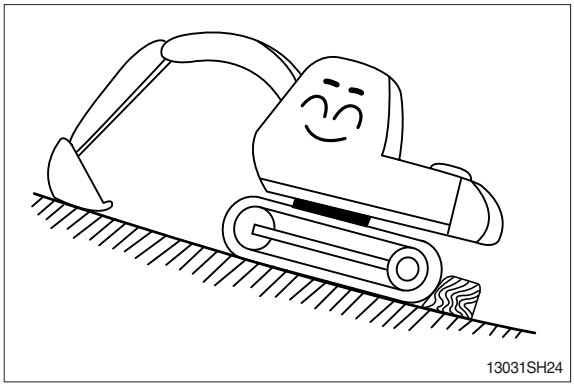
Operate the machine after making ground flat when operation is required on a slope.



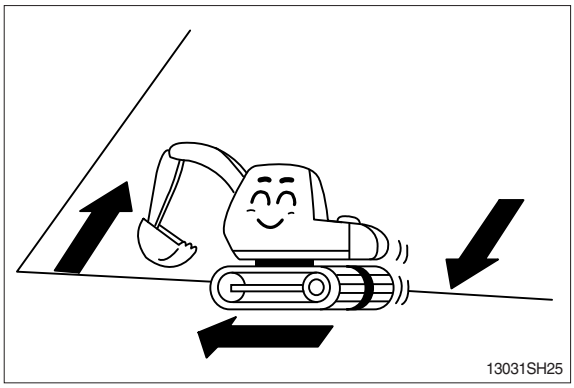
The swing on the slope can be danger of rolling over.
Do not operate to swing the machine with the bucket loaded on a slope since the machine may lose its balance under such an instance.



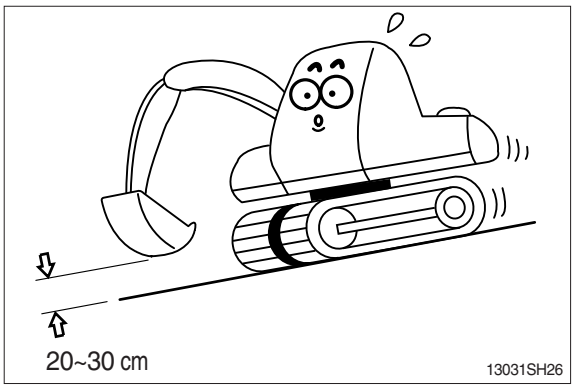
Avoid parking and stopping on a slope.
Lower the bucket to the ground and block the track when parking.



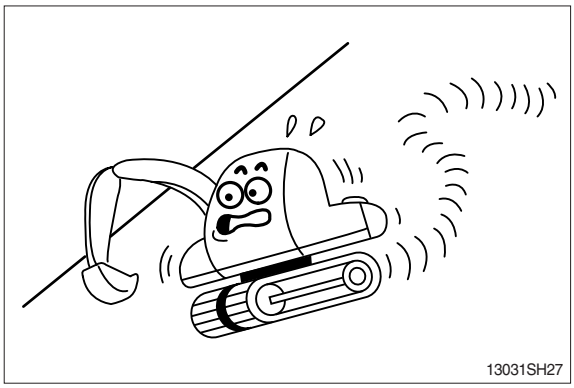
Avoid traveling in a cross direction on a slope as it can cause the danger of rolling over and sliding.



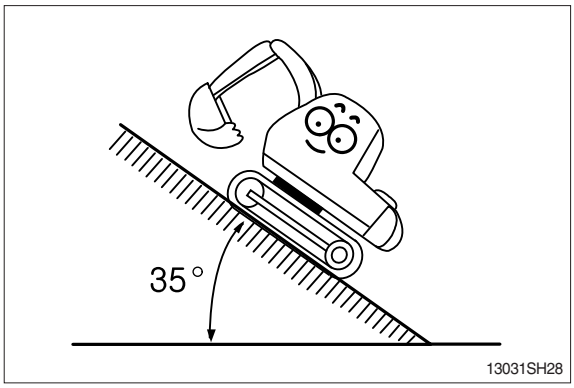
Traveling on a slope is dangerous.
Be sure to operate slowly when traveling down a slope and maintain the bucket at a height of 20~30 ㎝ (1 ft) above the ground so that it can be used as brake in an emergency.



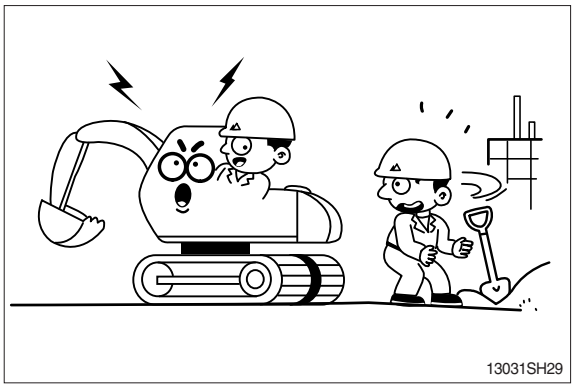
Steering of the machine while traveling on a slope is dangerous.
When an inevitable turning of direction is required, turn on the flat and solid ground.



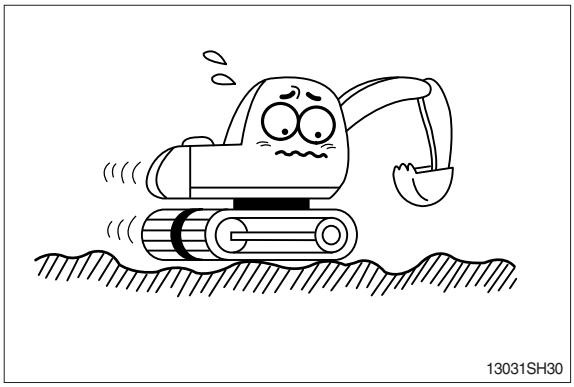
The engine angularity limits are 35 degree.
Do not operate by more than the engine limits in any case.



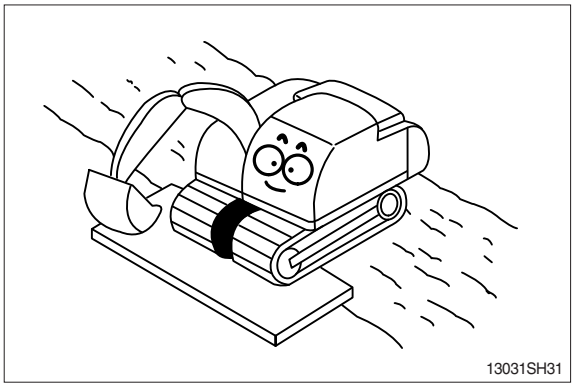
Before traveling the machine, sound the horn to warn nearby personnel.
Operate forward and backward correctly with confirming the location of the travel motor.



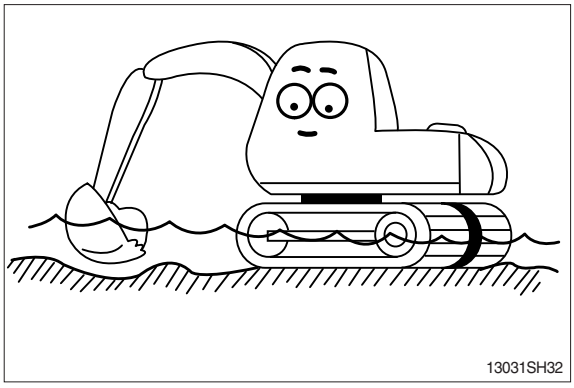
Slow down when traveling through obstacles or uneven ground.



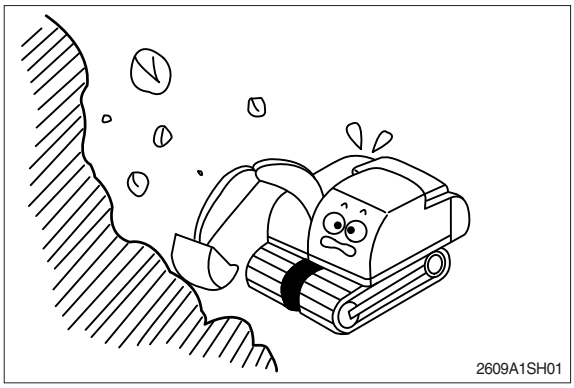
When working on soft ground, place mats or wood boards on the ground to prevent the machine sinking.



When operating in water or when crossing shallow, check the bed soil condition and depth and flow speed of water, then proceed taking care that water is not above carrier roller.



This machine has ROPS / FOG with option.
Do not attempt to repair a rollover protective structure (ROPS) after an accident.
Repaired structures do not provide the original structure and protection.
Test and approved as a protective CAB according to ROPS and FOG standard.
Meets : ISO 10262 / 3449 / 12117-2
SAE J1356 / JISO 3449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MOUNTING AND DISMOUNTING

Never jump on or off the machine. **Never** get on or off a moving machine.

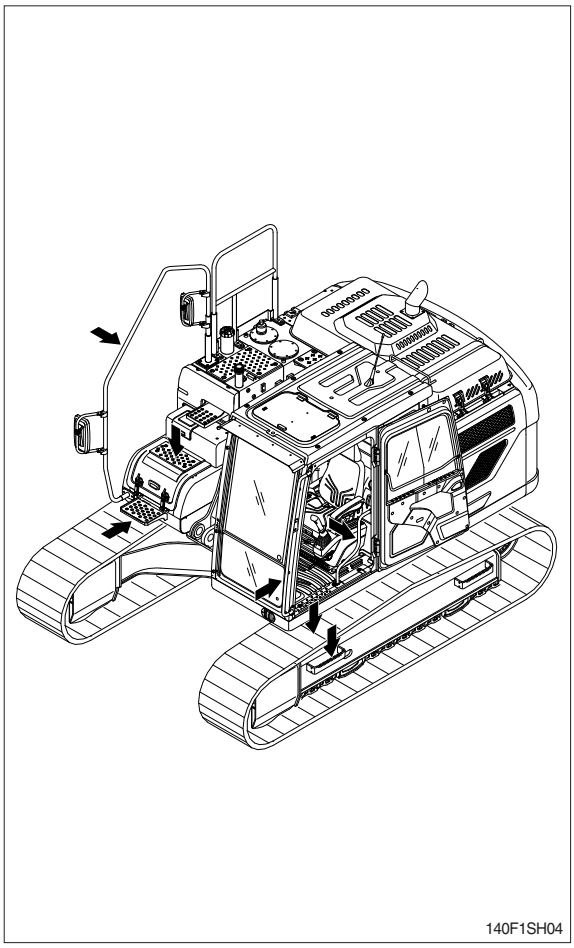
When mounting or dismounting, always face the machine and use the handrails, machine or track frame steps, and track shoes. Additional track frame step can be fitted for wider optional shoe. In this case please contact your HD Hyundai Construction Equipment distributor.

Do not hold any control levers when getting on or off the machine.

Ensure safety by always maintaining at least three-point contact of hands and feet with the handrails, steps or track shoes.

Always remove any oil or mud from the handrails, steps and track shoes. If they are damaged, repair them and tighten any loose bolts.

If grasping the door handrail when mounting or dismounting or moving on the track, open and lock the door securely in the open position. Otherwise, the door may move suddenly, causing you to lose balance and fall.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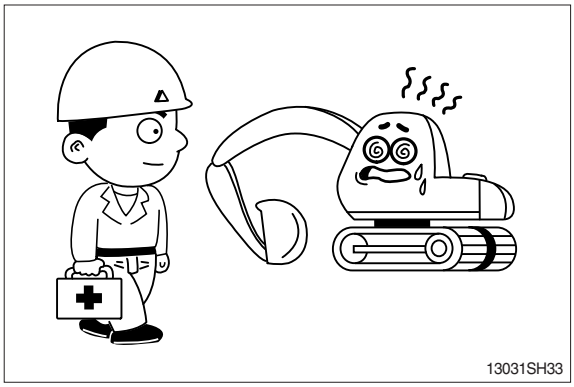
KEEP RIDERS OFF MACHINE

Riders on a machine are subject to injury such as being struck objects and being thrown off the machine.

Only allow the operator on the machine. Keep riders off.

3. DURING MAINTENANCE

Stop the engine immediately when the trouble of the machine is found.
Inspect immediately the cause of trouble such as vibration, overheating and trouble in the cluster then repair.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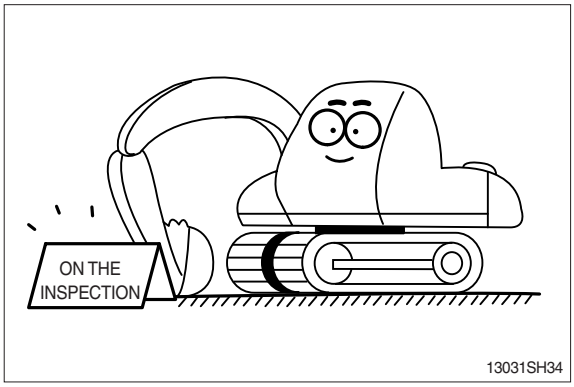
Park on a flat place and stop the engine for inspecting and repairing. Properly TAG machine is not operational. (remove start key)
Extreme care shall be taken during maintenance work. Parts may require additional safe guard.



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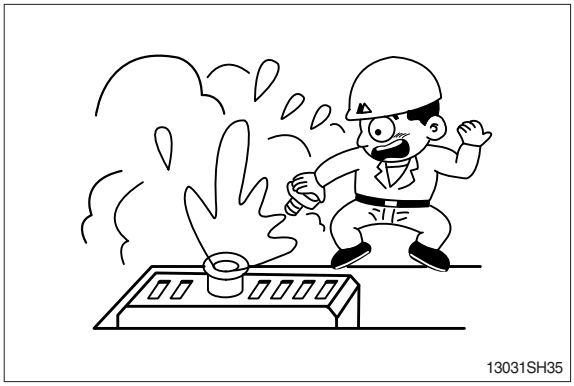
Do not remove the radiator cap from hot engine.
Open the cap after the engine cools, below 50 °C (122 °F) to prevent personal injury from heated coolant spray or steam.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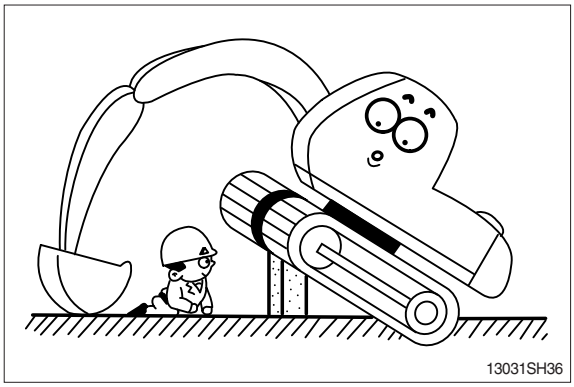
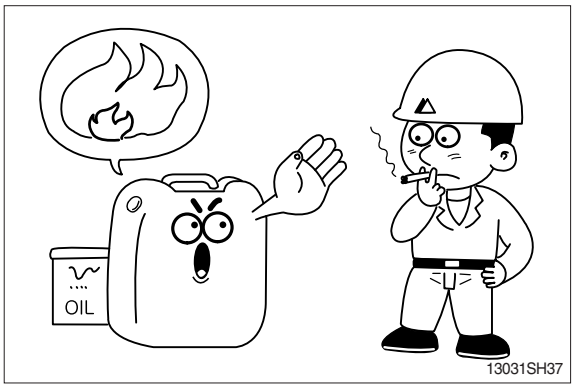
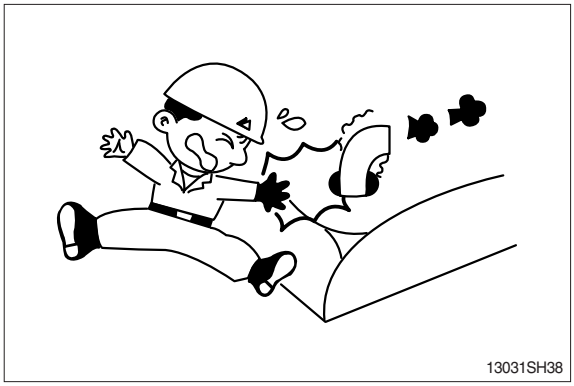
Do not work below the machine.
Be sure to work with proper safety supports.
Do not depend on the hydraulic cylinders to hold up the equipment and attachment.


13031SH36

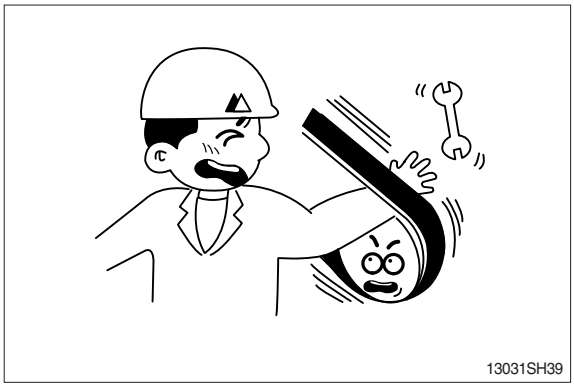
There is the danger of fire in fuel and oil.
Store in cool and dry area, away from any open flames.



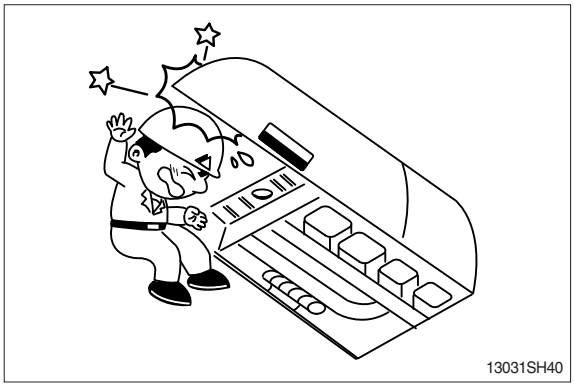
Do not touch exhaust pipe, or may cause severe burn.



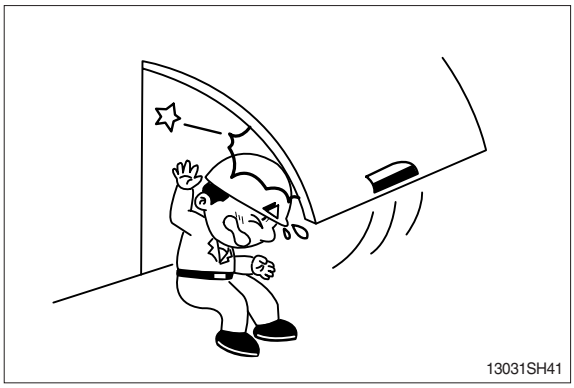
Do not open the engine hood and covers while the engine is running.



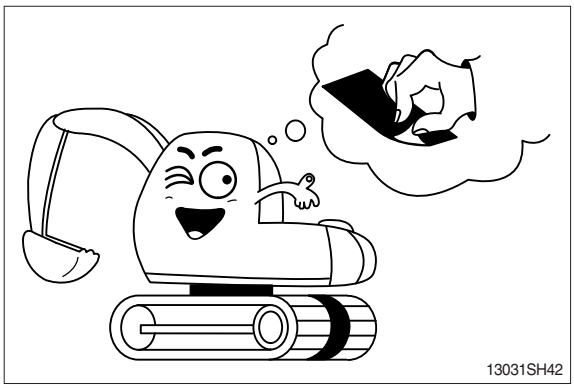
Be careful of not hitting the edges when you service engine.



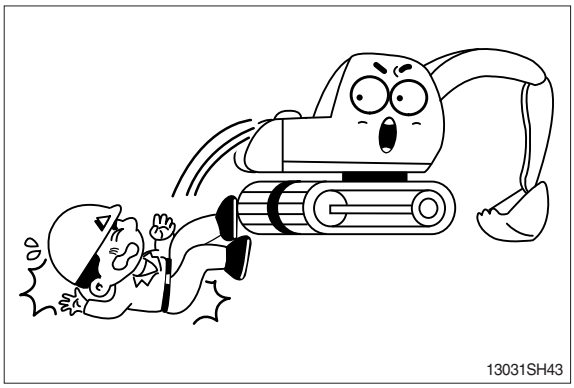
Be careful that the front window may be promptly closed.
Be sure to support stay, when the side door needs to be opened.
Be careful that the open side door may closed by the external or natural force like strong wind.



The antislip protection should be replaced if they have become worn or have been printed over.
Be sure to free of oil, water and grease etc.

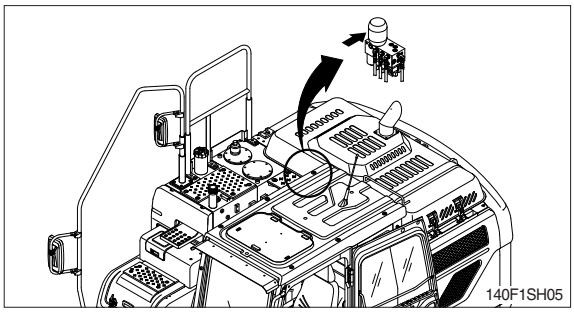


Be careful of not touching slip, fall down etc., when you work at the upper frame to service engine and/or other component.



HIGH PRESSURE GAS

Contain high pressure gas.
To avoid explosion and personal injury, do not expose to fire, do not weld, do not drill.
Relieve pressure before discharging.

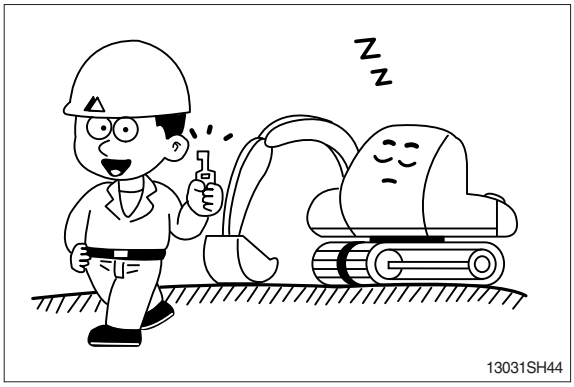


LIFT EYES CAN FAIL

Lift eyes or tank can fail when lifting tank containing fluids resulting in possible personal injury.
Drain tank of all fluids before lifting.

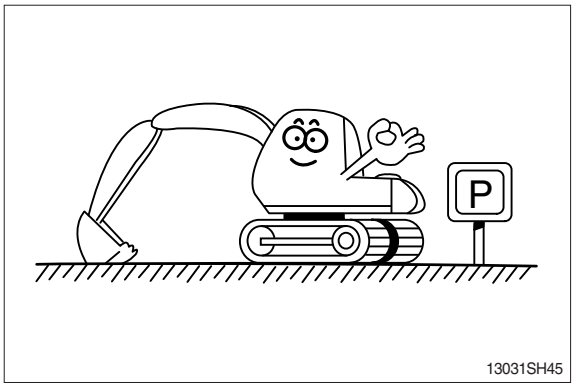
4. PARKING

When leaving the machine after parking, lower the bucket to the ground completely and put the safety knob at the LOCK position then remove the key.
Lock the cab door.



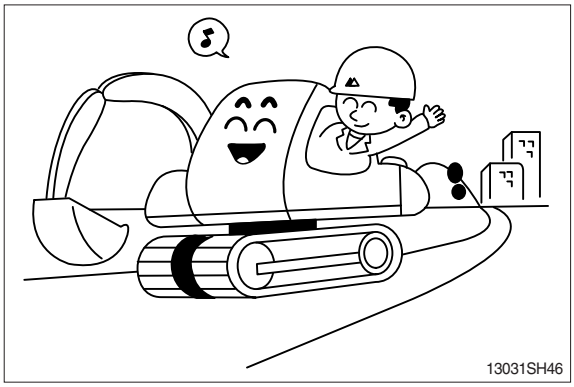
13031SH44

Park the machine in the flat and safe place.

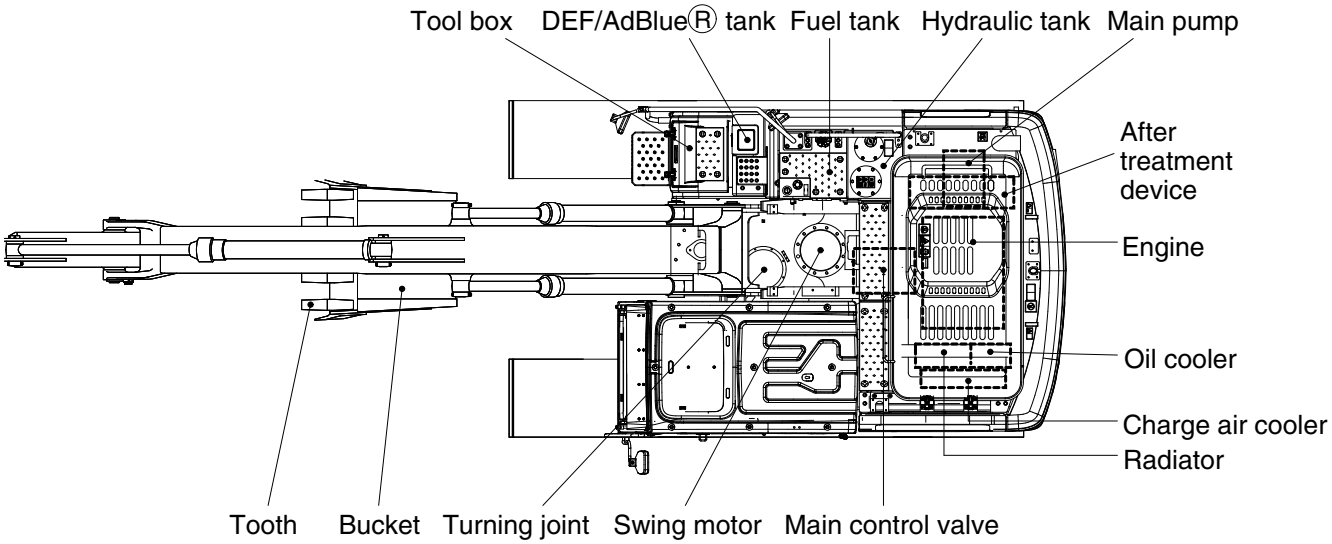


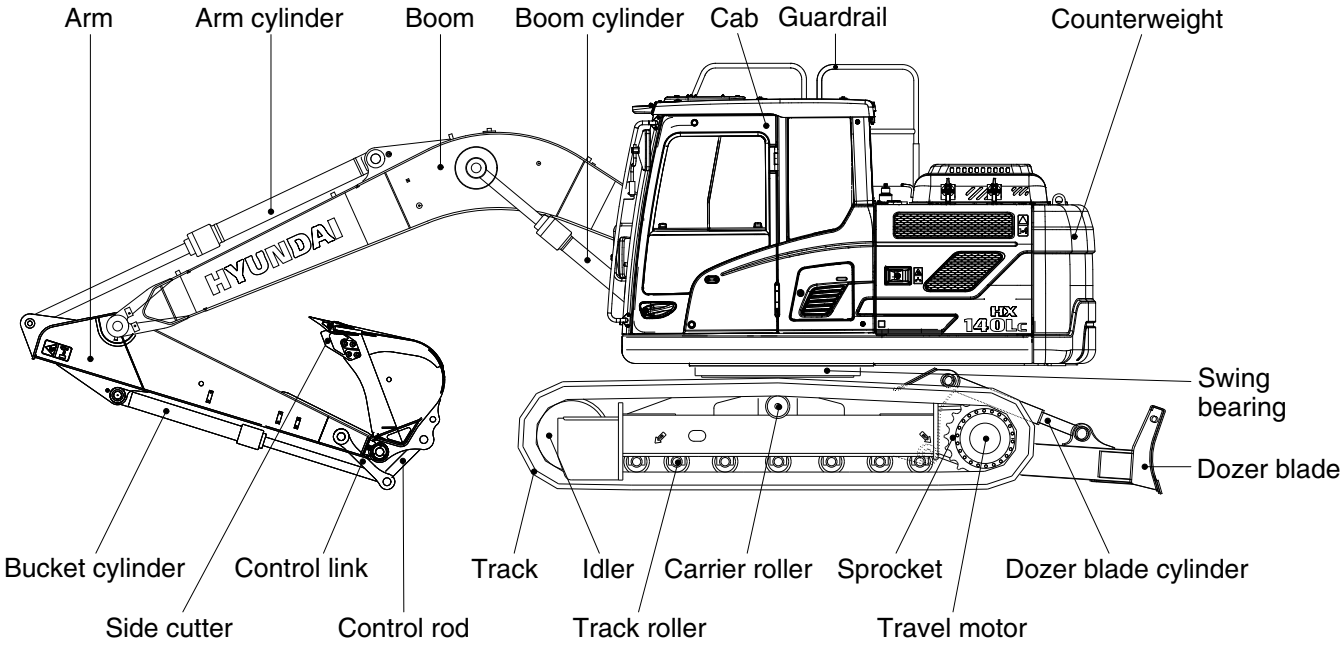
13031SH45

Hope you can work easily and safely observing safety rules.
For safe operation, observe all safety rules.


13031SH46

1. MAJOR COMPONENT

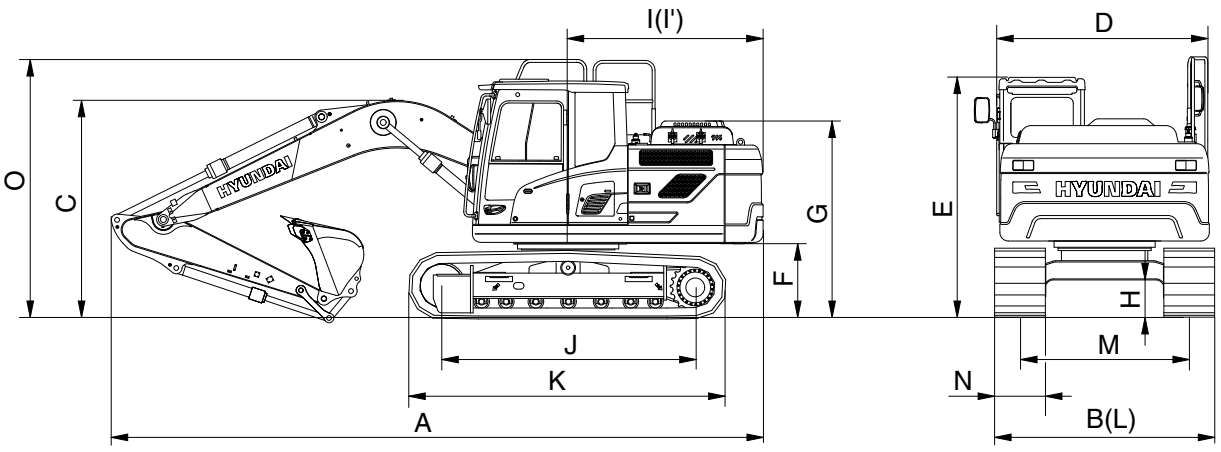




140LC2SP01

2. SPECIFICATIONS

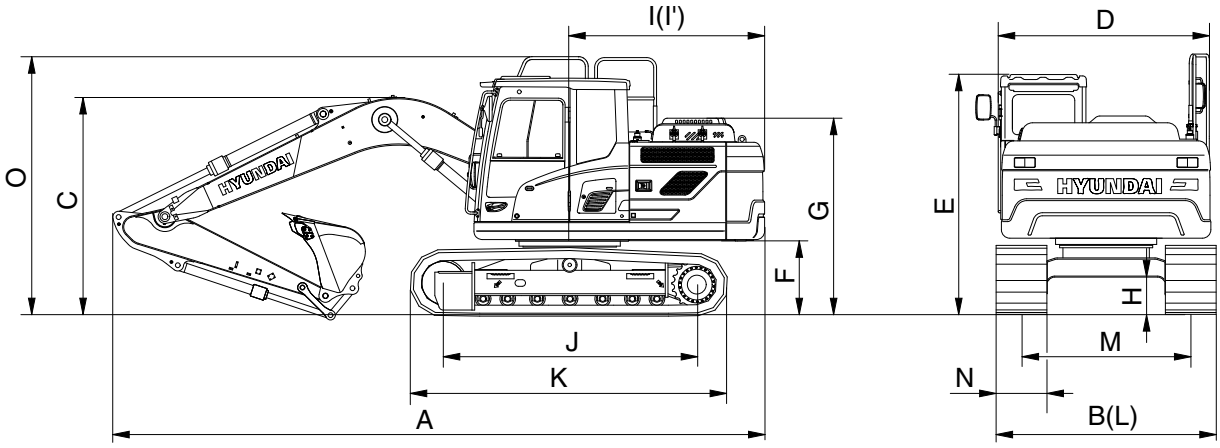
1) HX140 LC, 4.60 m (15' 1") MONO BOOM



140LC2SP02

Description		Unit		Specification			
		m	Boom	4.6			
			Arm	1.9	2.1	2.5	3.0
		mm	Shoe	600			
Operating weight		kg (lb)		13955 (30765)	13990 (30843)	14050 (30975)	14090 (31063)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)	0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		7830 (25' 7")	7855 (25' 8")	7830 (25' 7")	7795 (25' 6")
Overall width, with 600 mm shoe	B			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Overall height of boom	C			2580 (8' 5")	2710 (8' 9")	2680 (8' 8")	3010 (9' 9")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")	2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			2860 (8' 7")	2860 (8' 7")	2860 (8' 7")	2860 (8' 7")
Ground clearance of counterweight	F			940 (3' 1")	940 (3' 1")	940 (3' 1")	940 (3' 1")
Engine cover height	G			2390 (7' 10")	2390 (7' 10")	2390 (7' 10")	2390 (7' 10")
Minimum ground clearance	H			440 (1' 5")	440 (1' 5")	440 (1' 5")	440 (1' 5")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3000 (9' 10")	3000 (9' 10")	3000 (9' 10")	3000 (9' 10")
Undercarriage length	K			3708 (12' 1")	3708 (12' 1")	3708 (12' 1")	3706 (12' 1")
Undercarriage width	L			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Track gauge	M			2000 (6' 7")	2000 (6' 7")	2000 (6' 7")	2000 (6' 7")
Track shoe width, standard	N			600 (24")	600 (24")	600 (24")	600 (24")
Overall height of guardrail	O			3100 (10' 2")	3100 (10' 2")	3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm^2(psi)		0.36 (5.13)	0.36 (5.13)	0.36 (5.13)	0.36 (5.13)
Max traction force		kgf (lbf)		12660 (27910)	12660 (27910)	12660 (27910)	12660 (27910)

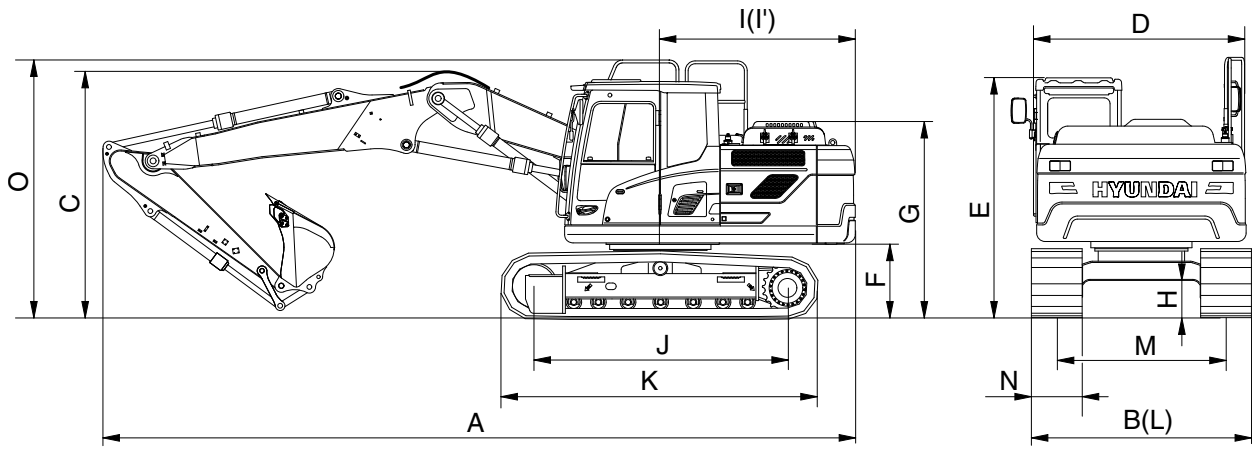
2) HX140 LC, 4.10 m (13' 5") MONO BOOM



140LC2SP02

Description		Unit			
		m	Boom	4.1	
			Arm	1.9	2.1
		mm	Shoe	600	
Operating weight		kg (lb)		13900 (30644)	13935 (30721)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		7325 (24' 1")	7350 (24' 2")
Overall width, with 600 mm shoe	B			2600 (8' 6")	2600 (8' 6")
Overall height of boom	C			2660 (8' 7")	2830 (9' 3")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			2860 (9' 4")	2860 (9' 4")
Ground clearance of counterweight	F			940 (3' 1")	940 (3' 1")
Engine cover height	G			2390 (7' 10")	2390 (7' 10")
Minimum ground clearance	H			440 (1' 5")	440 (1' 5")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3000 (9' 10")	3000 (9' 10")
Undercarriage length	K			3708 (12' 1")	3708 (12' 1")
Undercarriage width	L			2600 (8' 6")	2600 (8' 6")
Track gauge	M			2000 (6' 7")	2000 (6' 7")
Track shoe width, standard	N			600 (24")	600 (24")
Overall height of guardrail	O			3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4
Gradeability			Degree (%)	35 (70)	35 (70)
Ground pressure (600 mm shoe)			kgf/cm^2(psi)	0.36 (5.13)	0.36 (5.13)
Max traction force			kgf (lbf)	12660 (27910)	12660 (27910)

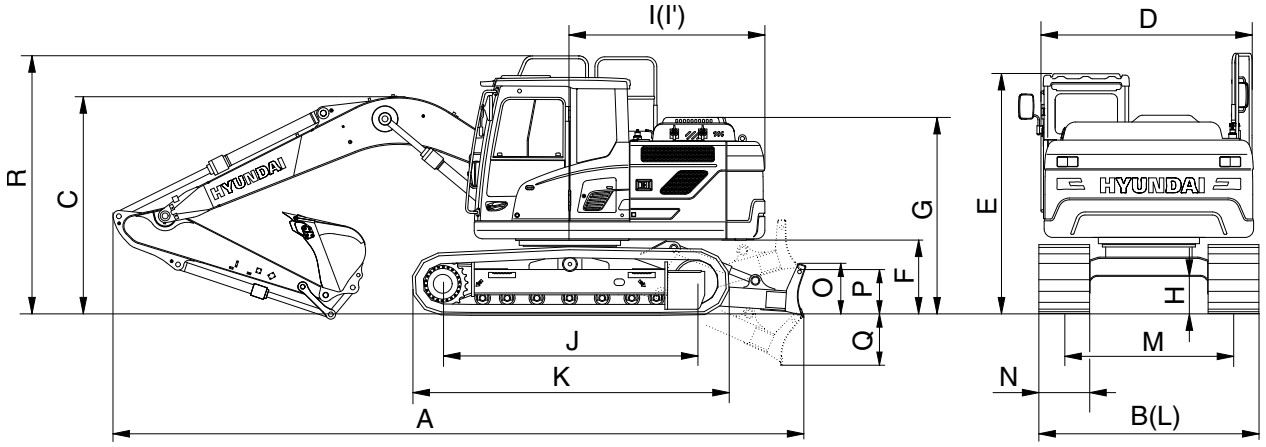
3) HX140 LC, 4.90 m (16' 1") 2-PIECE BOOM



140LC2SP03

Description		Unit		Specification		
		m	Boom	4.9		
			Arm	1.9	2.1	2.5
		mm	Shoe	600		
Operating weight		kg (lb)		14660 (32320)	14700 (32408)	14760 (32540)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		8170 (26' 8")	8175 (26' 8")	8155 (26' 8")
Overall width, with 600 mm shoe	B			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Overall height of boom	C			2670 (8' 8")	2670 (8' 8")	2700 (8' 9")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			2860 (9' 4")	2860 (9' 4")	2860 (9' 4")
Ground clearance of counterweight	F			940 (3' 1")	940 (3' 1")	940 (3' 1")
Engine cover height	G			2390 (7' 10")	2390 (7' 10")	2390 (7' 10")
Minimum ground clearance	H			440 (1' 5")	440 (1' 5")	440 (1' 5")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3000 (9' 10")	3000 (9' 10")	3000 (9' 10")
Undercarriage length	K			3750 (12' 3")	3750 (12' 3")	3750 (12' 3")
Undercarriage width	L			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Track gauge	M			2000 (6' 7")	2000 (6' 7")	2000 (6' 7")
Track shoe width, standard	N			600 (24")	600 (24")	600 (24")
Overall height of guardrail	O			3100 (10' 2")	3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm^2 (psi)		0.38 (5.37)	0.38 (5.37)	0.38 (5.37)
Max traction force		kgf (lbf)		12660 (27910)	12660 (27910)	12660 (27910)

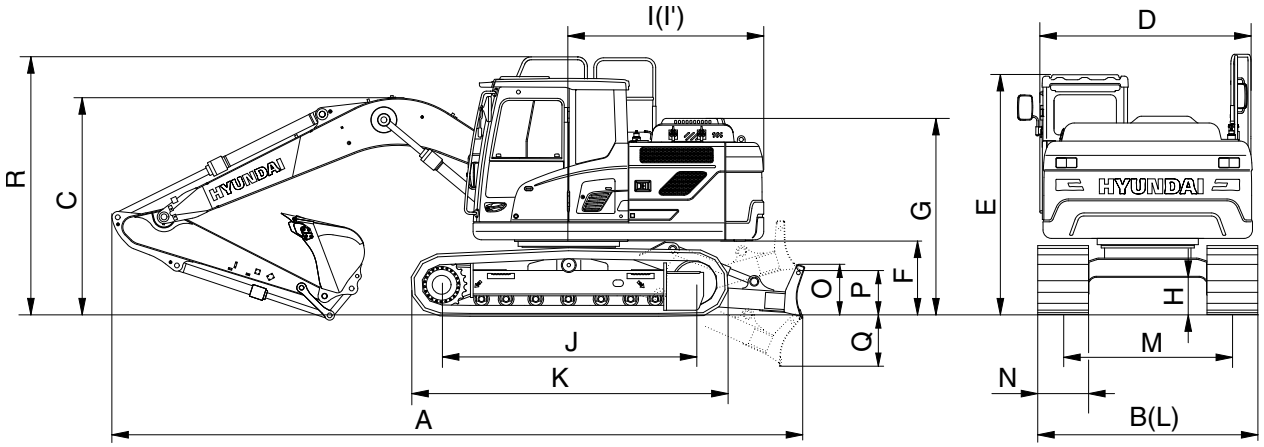
4) HX140 LC, 4.60 m (15' 1") MONO BOOM AND DOZER BLADE



140LC2SP04

Description		Unit		Specification			
		m	Boom	4.6			
			Arm	1.9	2.1	2.5	3.0
		mm	Shoe	600			
Operating weight		kg (lb)		14770 (32562)	14810(32650)	14870(32783)	14910(32871)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)	0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		8360 (27' 5")	8390 (25' 8")	8360 (25' 8")	8330 (25' 8")
Overall width, with 600 mm shoe	B			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Overall height of boom	C			2590 (8' 5")	2710 (9' 1")	2690 (9' 1")	3010 (9' 1")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")	2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			2860 (9' 4")	2860 (9' 4")	2860 (9' 4")	2860 (9' 4")
Ground clearance of counterweight	F			940 (3' 1")	940 (3' 1")	940 (3' 1")	940 (3' 1")
Engine cover height	G			2390 (7' 10")	2390 (7' 10")	2390 (7' 10")	2390 (7' 10")
Minimum ground clearance	H			440 (1' 5")	440 (1' 5")	440 (1' 5")	440 (1' 5")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3000 (9' 10")	3000 (9' 10")	3000 (9' 10")	3000 (9' 10")
Undercarriage length	K			3708 (12' 1")	3708 (12' 1")	3708 (12' 1")	3708 (12' 1")
Undercarriage width	L			2600 (8' 6")	2600 (8' 6")	2600 (8' 6")	2600 (8' 6")
Track gauge	M			2000 (6' 7")	2000 (6' 7")	2000 (6' 7")	2000 (6' 7")
Track shoe width, standard	N			600 (24")	600 (24")	600 (24")	600 (24")
Height of blade	O			575 (1' 9")	575 (1' 9")	575 (1' 9")	575 (1' 9")
Ground clearance of blade up	P			560 (1' 8")	560 (1' 8")	560 (1' 8")	560 (1' 8")
Depth of blade down	Q			500 (1' 7")	500 (1' 7")	500 (1' 7")	500 (1' 7")
Overall height of guardrail	R			3100 (10' 2")	3100 (10' 2")	3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm^2(psi)		0.38 (5.43)	0.38 (5.43)	0.38 (5.43)	0.38 (5.43)
Max traction force		kgf (lbf)		12660 (27910)	12660 (27910)	12660 (27910)	12660 (27910)

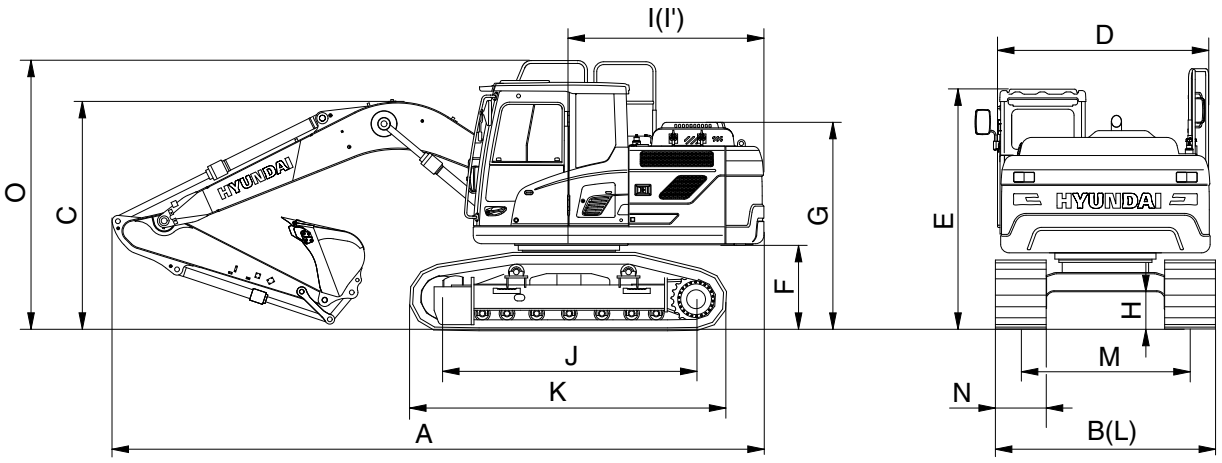
5) HX140 LC, 4.10 m (13' 5") MONO BOOM AND DOZER BLADE



140LC2SP04

Description		Unit			
		m	Boom	4.1	
			Arm	1.9	2.1
		mm	Shoe	600	
Operating weight		kg (lb)		14720(32452)	14760(32540)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		7860 (25' 8")	7920 (25' 8")
Overall width, with 600 mm shoe	B			2600 (8' 6")	2600 (8' 6")
Overall height of boom	C			2660 (8' 7")	2830 (9' 3")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			2860 (9' 4")	2860 (9' 4")
Ground clearance of counterweight	F			940 (3' 1")	940 (3' 1")
Engine cover height	G			2390 (7' 10")	2390 (7' 10")
Minimum ground clearance	H			440 (1' 5")	440 (1' 5")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3000 (9' 10")	3000 (9' 10")
Undercarriage length	K			3708 (12' 1")	3708 (12' 1")
Undercarriage width	L			2600 (8' 6")	2600 (8' 6")
Track gauge	M			2000 (6' 7")	2000 (6' 7")
Track shoe width, standard	N			600 (24")	600 (24")
Height of blade	O			575 (1' 9")	575 (1' 9")
Ground clearance of blade up	P			560 (1' 8")	560 (1' 8")
Depth of blade down	Q			500 (1' 7")	500 (1' 7")
Overall height of guardrail	R			3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm^2(psi)		0.38 (5.43)	0.38 (5.43)
Max traction force		kgf (lbf)		12660(27910)	12660(27910)

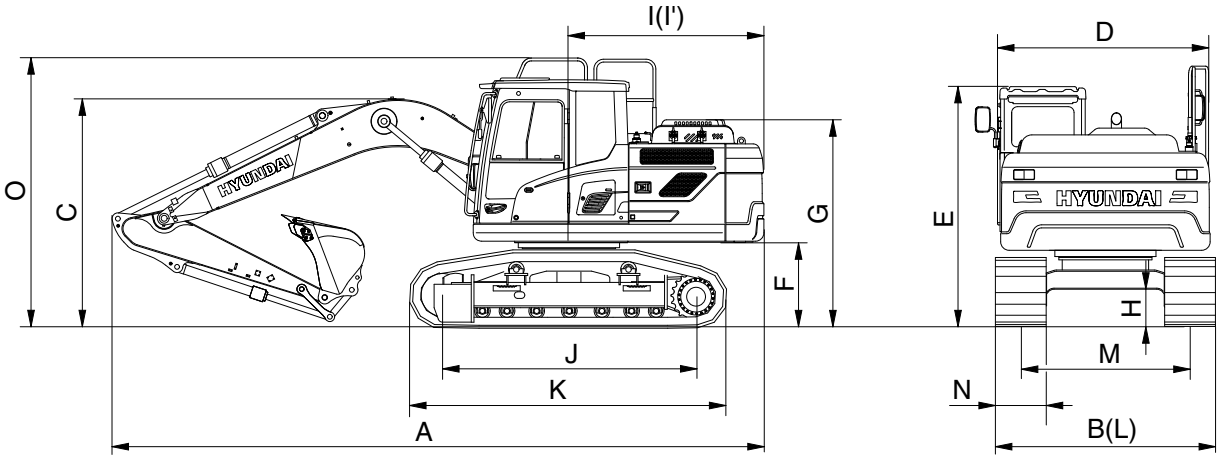
6) HX140 LC, 4.60 m (15' 1") HIGH WALKER



140LC2SP05

Description		Unit		Specification			
		m	Boom	4.6			
			Arm	1.9	2.1	2.5	3.0
		mm	Shoe	800			
Operating weight		kg (lb)		16850 (37148)	16890 (37236)	16950 (37369)	16990 (37457)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)	0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		7775 (25' 6")	7830 (25' 7")	7775 (25' 6")	7840 (25' 7")
Overall width, with 800 mm shoe	B			2840 (9' 4")	2840 (9' 4")	2840 (9' 4")	2840 (9' 4")
Overall height of boom	C			2680 (8' 8")	2800 (9' 2")	2740 (9' 0")	3005 (9' 9")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")	2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			3220 (10' 6")	3220 (10' 2")	3220 (10' 2")	3220 (10' 2")
Ground clearance of counterweight	F			1200 (3' 10")	1200 (3' 11")	1200 (3' 11")	1200 (3' 11")
Engine cover height	G			2630 (8' 7")	2390 (8' 8")	2390 (8' 8")	2390 (8' 8")
Minimum ground clearance	H			600 (2' 0")	600 (2' 0")	600 (2' 0")	600 (2' 0")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")	2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3030 (9' 9")	3030 (9' 9")	3030 (9' 9")	3030 (9' 9")
Undercarriage length	K			3740 (12' 3")	3740 (12' 8")	3740 (12' 8")	3740 (12' 8")
Undercarriage width	L			2800 (9' 2")	2800 (9' 4")	2800 (9' 4")	2800 (9' 4")
Track gauge	M			2040 (6' 8")	2040 (6' 8")	2040 (6' 8")	2040 (6' 8")
Track shoe width, standard	N			800 (32")	800 (32")	800 (32")	800 (32")
Overall height of guardrail	O			3100 (10' 2")	3100 (10' 2")	3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4	11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)	35 (70)	35 (70)
Ground pressure (800 mm shoe)		kgf/cm^2(psi)		0.32 (4.58)	0.32 (4.58)	0.32 (4.58)	0.32 (4.58)
Max traction force		kgf (lbf)		12660 (27910)	12660 (27910)	12660 (27910)	12660 (27910)

7) HX140 LC, 4.10 m (13' 5") HIGH WALKER



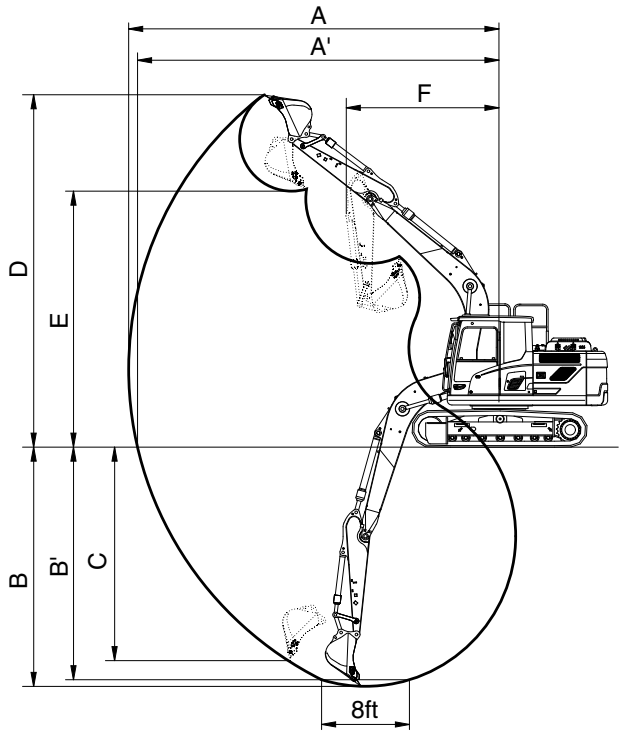
140LC2SP05

Description		Unit			
		m	Boom	4.1	
			Arm	1.9	2.1
		mm	Shoe	800	
Operating weight		kg (lb)		16800 (37038)	16840 (37126)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)		0.58 (0.76)	0.58 (0.76)
Overall length	A	mm (ft-in)		7245 (24' 8")	7320 (24' 0")
Overall width, with 800 mm shoe	B			2840 (9' 4")	2840 (9' 4")
Overall height of boom	C			2640(8' 7")	2825 (9' 3")
Superstructure width	D			2475 (8' 1")	2475 (8' 1")
Overall height of cab	E			3220 (10' 6")	3220 (10' 6")
Ground clearance of counterweight	F			1200 (3' 1")	1200 (3' 1")
Engine cover height	G			2390 (8' 8")	2390 (8' 8")
Minimum ground clearance	H			600 (2' 0")	600 (2' 0")
Rear-end distance	I			2330 (7' 8")	2330 (7' 8")
Rear-end swing radius	I'			2330 (7' 8")	2330 (7' 8")
Distance between tumblers	J			3030 (9' 9")	3030 (9' 9")
Undercarriage length	K			3740 (12' 3")	3740 (12' 3")
Undercarriage width	L			2800 (9' 2")	2800 (9' 2")
Track gauge	M			2040 (6' 8")	2040 (6' 8")
Track shoe width, standard	N			800 (32")	800 (32")
Overall height of guardrail	O			3100 (10' 2")	3100 (10' 2")
Travel speed (low/high)		km/hr (mph)		3.3/5.6 (2.1/3.5)	3.3/5.6 (2.1/3.5)
Swing speed		rpm		11.4	11.4
Gradeability		Degree (%)		35 (70)	35 (70)
Ground pressure (800 mm shoe)		kgf/cm^2(psi)		0.32 (4.58)	0.32 (4.58)
Max traction force		kgf (lbf)		12660 (27910)	12660 (27910)

3. WORKING RANGE

1) HX140 LC

(1) 4.60 m (15' 1") MONO BOOM

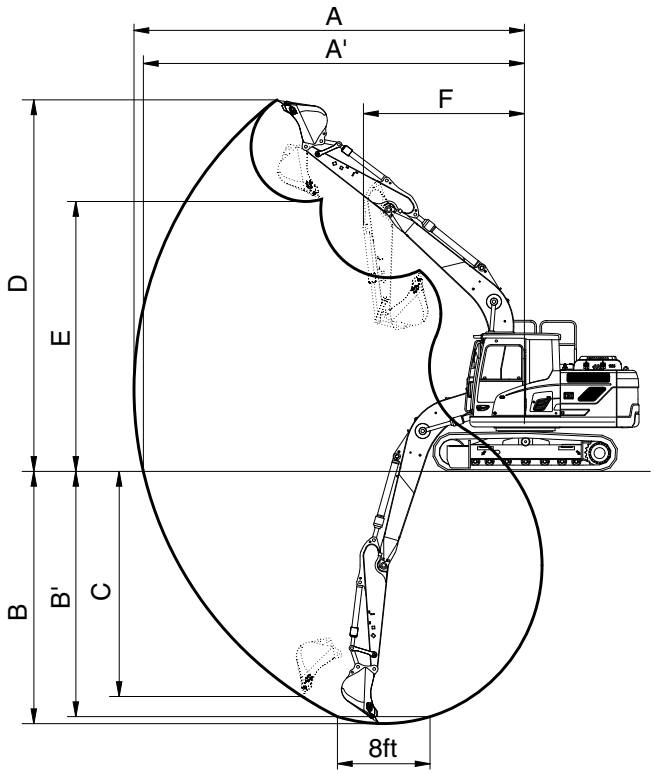


140LC2SP06

Description		1.90 m (6' 3") Arm	2.10 m (6' 11") Arm	※2.50 m (8' 2") Arm	3.00 m (9' 10") Arm
Max digging reach	A	7750 mm (25' 5")	7920 mm (25'11")	8320 mm (27' 4")	8780 mm (28'10")
Max digging reach on ground	A'	7590 mm (24'11")	7760 mm (25' 6")	8175 mm (26'10")	8640 mm (28' 4")
Max digging depth	B	4920 mm (16' 2")	5120 mm (16' 10")	5520 mm (18' 3")	6020 mm (19' 10")
Max digging depth (8ft level)	B'	4655 mm (15' 4")	4870 mm (16' 1")	5310 mm (17' 6")	5840 mm (19' 3")
Max vertical wall digging depth	C	4470 mm (15' 3")	4665mm (16' 1")	5065 mm (17' 6")	5570 mm (19' 2")
Max digging height	D	8130 mm (26' 7")	8195 mm (26' 10")	8525 mm (27'11")	8800 mm (28' 10")
Max dumping height	E	5690 mm (18' 7")	5770 mm (18' 10")	6075 mm (19'11")	6340 mm (20' 9")
Min swing radius	F	2630 mm (8' 8")	2675 mm (8' 9")	2650 mm (8' 8")	2680 mm (8' 10")
Bucket digging force	SAE	87.9 [95.4]] kN	87.9 [95.4] kN	87.9 [95.4] kN	87.9 [95.4] kN
		8960 [9730] kN	8960 [9730] kN	8960 [9730] kN	8960 [9730]] kN
		19750 [21450] kN	19750 [21450] kN	19750 [21450] kN	19750 [21450] kN
	ISO	103 [111.8] kN	103 [111.8] kN	103 [111.8] kN	103 [111.8] kN
		10490 [11390]] kN	10490 [11390] kN	10490 [11390] kN	10490 [11390] kN
		23130 [25120] kN	23130 [25120] kN	23130 [25120] kN	23130 [25120] kN
Arm crowd force	SAE	76.7 [83.2] kN	73.6 [79.9] kN	62.7 [68.1] kN	56.1 [60.9] kN
		7820 [8490] kgf	7510 [8150] kgf	6400 [6940] kgf	5710 [6200] kgf
		17230 [18710] lbf	16550 [17970] lbf	14100 [15310] lbf	12600 [13680] lbf
	ISO	80.6 [87.5] kN	77.1 [83.8] kN	64.4 [71.0] kN	58.2 [63.1] kN
		8210 [8920] kgf	7860 [8540] kgf	6700 [7240] kgf	5930 [6440] kgf
		18110 [19660] lbf	17430 [18820] lbf	14700 [15960] lbf	13070 [14190] lbf

※ : STD [ ] : Power boost

(2) 4.10 m (13' 5") MONO BOOM

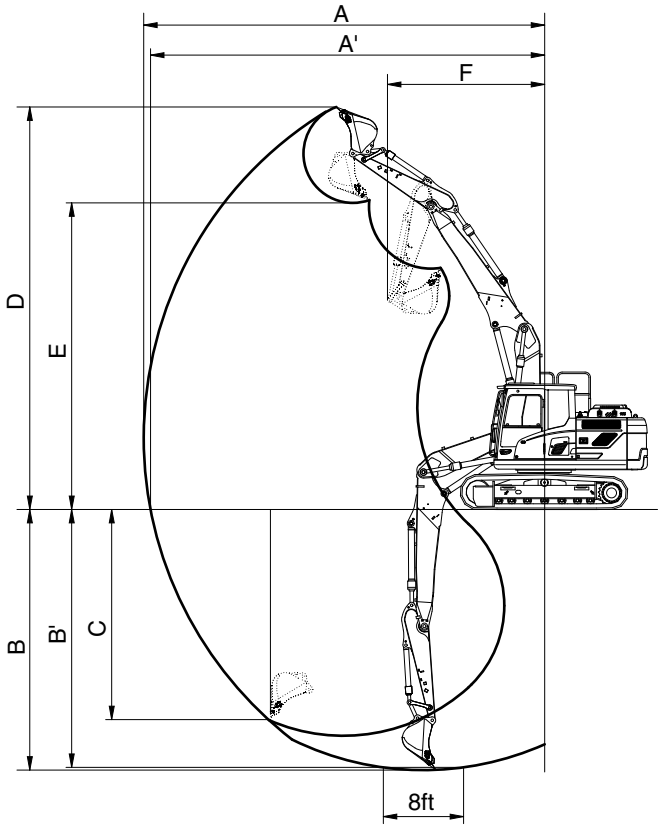


140LC2SP06

Description		1.90 m (6' 3") Arm	2.10 m (6' 11") Arm
Max digging reach	A	7250 mm (23' 10")	7420 mm (24' 4")
Max digging reach on ground	A'	7080 mm (23' 3")	7250 mm (23'10")
Max digging depth	B	4505 mm (14' 11")	4705 mm (15' 7")
Max digging depth (8ft level)	B'	4240 mm (14' 1")	4460 mm (14' 9")
Max vertical wall digging depth	C	4055 mm (13' 11")	4250 mm (14' 3")
Max digging height	D	7730 mm (25' 3")	7790 mm (25' 6")
Max dumping height	E	5280 mm (17' 3")	5360 mm (17' 6")
Min swing radius	F	2350 mm (7' 9")	2460 mm (8' 1")
Bucket digging force	SAE	87.9 [95.4]] kN	87.9 [95.4] kN
		8960 [9730] kN	8960 [9730] kN
		19750 [21450] kN	19750 [21450] kN
	ISO	103 [111.8] kN	103 [111.8] kN
		10490 [11390]] kN	10490 [11390] kN
		23130 [25120] kN	23130 [25120] kN
Arm crowd force	SAE	76.7 [83.2] kN	73.6 [79.9] kN
		7820 [8490] kgf	7510 [8150] kgf
		17230 [18710] lbf	16550 [17970] lbf
	ISO	80.6 [87.5] kN	77.1 [83.8] kN
		8210 [8920] kgf	7860 [8540] kgf
		18110 [19660] lbf	17430 [18820] lbf

[ ] : Power boost

(3) 4.90 m (16' 1") ADJUST BOOM



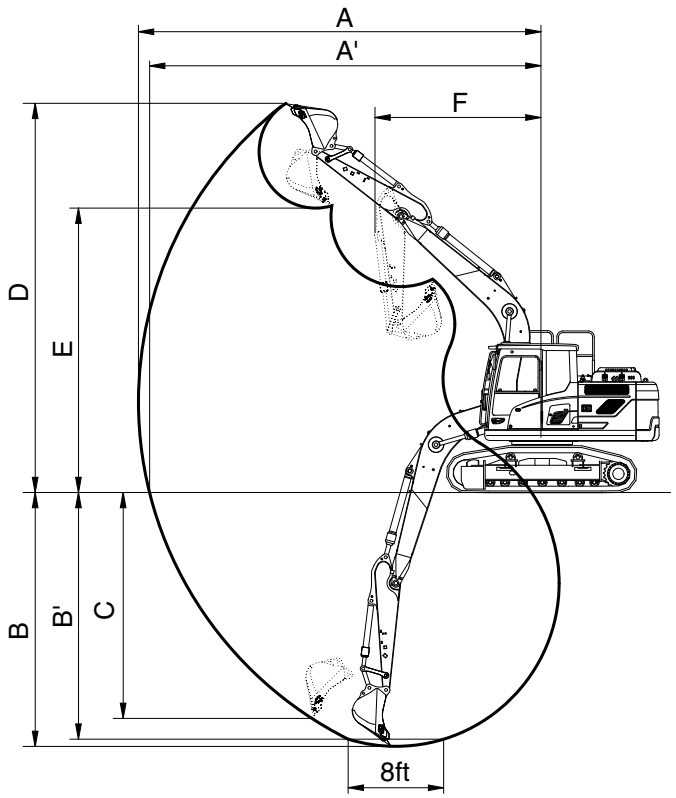
140LC2SP08

Description		1.90 m (6' 3") Arm	2.10 m (6' 11") Arm	2.50 m (8' 2") Arm
Max digging reach	A	8140 mm (26' 8")	8320 mm (27' 4")	8730 mm (28' 7")
Max digging reach on ground	A'	7990 mm (26' 3")	8170 mm (26'10")	8585 mm (28' 2")
Max digging depth	B	5080 mm (16' 9")	5380 mm (17' 5")	5680 mm (18' 9")
Max digging depth (8ft level)	B'	4960 mm (16' 5")	5165 mm (17' 0")	5575 mm (18' 5")
Max vertical wall digging depth	C	4450 mm (14' 9")	4610 mm (15' 3")	5070 mm (16' 10")
Max digging height	D	8850 mm (28' 11")	8860 mm (29' 2")	9310 mm (30' 5")
Max dumping height	E	6370 mm (20' 9")	6490 mm (21' 0")	6820 mm (22' 3")
Min swing radius	F	2660 mm (8' 9")	2820 mm (9' 3")	2690 mm (8' 10")
Bucket digging force	SAE	87.3 [94.8] kN	87.3 [94.8] kN	87.3 [94.8] kN
		8960 [9660] kgf	8960 [9660] kgf	8960 [9660] kgf
		19620 [21300] lbf	19620 [21300] lbf	19620 [21300] lbf
	ISO	102 [110.8] kN	102 [110.8] kN	102 [110.8] kN
		10490 [11290] kgf	10490 [11290] kgf	10490 [11290] kgf
		22930 [24890] lbf	22930 [24890] lbf	22930[24890] lbf
Arm crowd force	SAE	76.5 [83.1] kN	73.6 [79.9] kN	62.8 [68.2] kN
		7820 [8470] kgf	7510 [8140] kgf	6400 [6950] kgf
		17200 [18670] lbf	16530 [17950] lbf	14110 [15320] lbf
	ISO	80.4 [87.3] kN	77.5 [84.1] kN	65.7 [71.4] kN
		8210 [8900] kgf	7860 [8580] kgf	6700 [7270] kgf
		18080 [19630] lbf	17420 [18910] lbf	14770 [16040] lbf

[ ] : Power boost

2) HX140 LC HIGH WALKER

(1) 4.6 m (15' 1") MONO BOOM



140LC2SP09

Description		1.90 m (6' 3") Arm	2.10 m (6' 11") Arm	※2.50 m (8' 2") Arm	3.00 m (9' 10") Arm
Max digging reach	A	7750 mm (25' 5")	7920 mm (26' 0")	8320 mm (27' 4")	8780 mm (28'10")
Max digging reach on ground	A'	7590 mm (24' 9")	7760 mm (25' 4")	8175 mm (26' 7")	8640 mm (28' 2")
Max digging depth	B	4920 mm (15' 5")	5120 mm (16' 1")	5520 mm (17' 4")	6020 mm (19' 0")
Max digging depth (8ft level)	B'	4655 mm (14' 6")	4687 mm (15' 3")	5310 mm (16' 8")	5840 mm (18' 5")
Max vertical wall digging depth	C	4470 mm (14' 9")	4665 mm (15' 3")	5065 mm (16' 8")	5570 mm (18' 4")
Max digging height	D	8130 mm (27' 5")	8195 mm (27' 8")	8525 mm (28' 9")	8800 mm (29' 7")
Max dumping height	E	5690 mm (19' 5")	5770 mm (19' 8")	6075 mm (20' 9")	6340 mm (21' 7")
Min swing radius	F	2630 mm (8' 8")	2675 mm (8' 9")	2650 mm (8' 8")	2680 mm (8' 10")
Bucket digging force	SAE	87.9 [95.4]] kN	87.9 [95.4] kN	87.9 [95.4] kN	87.9 [95.4] kN
		8960 [9730] kN	8960 [9730] kN	8960 [9730] kN	8960 [9730]] kN
		19750 [21450] kN	19750 [21450] kN	19750 [21450] kN	19750 [21450] kN
	ISO	103 [111.8] kN	103 [111.8] kN	103 [111.8] kN	103 [111.8] kN
		10490 [11390]] kN	10490 [11390] kN	10490 [11390] kN	10490 [11390] kN
		23130 [25120] kN	23130 [25120] kN	23130 [25120] kN	23130 [25120] kN
Arm crowd force	SAE	76.7 [83.2] kN	73.6 [79.9] kN	62.7 [68.1] kN	56.1 [60.9] kN
		7820 [8490] kgf	7510 [8150] kgf	6400 [6940] kgf	5710 [6200] kgf
		17230 [18710] lbf	16550 [17970] lbf	14100 [15310] lbf	12600 [13680] lbf
	ISO	80.6 [87.5] kN	77.1 [83.8] kN	64.4 [71.0] kN	58.2 [63.1] kN
		8210 [8920] kgf	7860 [8540] kgf	6700 [7240] kgf	5930 [6440] kgf
		18110 [19660] lbf	17430 [18820] lbf	14700 [15960] lbf	13070 [14190] lbf

※ : STD [ ] : Power boost

4. WEIGHT

1) HX140 LC

Item	HX140 LC		HX140 LC DOZER BLADE	
	kg	lb	kg	lb
Upper structure assembly				
· Main frame weld assembly	1095	2414	←	
· Engine assembly	348	767	←	
· Aftertreatment	38	84	←	
· Main pump assembly	100	220	←	
· Main control valve assembly	140	310	←	
· Swing motor assembly	120	260	←	
· Hydraulic oil tank assembly	150	330	←	
· Fuel tank assembly	150	330	←	
· Counterweight	2000	4410	←	
· Cab assembly	500	1100	←	
Lower chassis assembly				
· Track frame weld assembly	1555	3428	1725	3803
· Swing bearing	214	472	←	
· Travel motor assembly	480	1060	←	
· Turning joint	50	110	←	
· Track recoil spring	89.5	197	←	
· Idler	108	238	←	
· Carrier roller	19	42	←	
· Track roller	33	73	←	
· Track-chain assembly (600 mm standard triple grouser shoe)	1027	2265	←	
· Dozer blade assembly	-		505	1113
Front attachment assembly				
· 4.6 m boom assembly	830	1830	←	
· 2.5 m arm assembly	435	960	←	
· 0.58 m^3 SAE heaped bucket	480	1060	←	
· Boom cylinder assembly	121	267	←	
· Arm cylinder assembly	171	377	←	
· Bucket cylinder assembly	123	271	←	
· Bucket control rod assembly	90	200	←	
· Dozer blade cylinder assembly	-		52	115

※ This information is different with operating and transportation weight because it is not including harness, pipe, oil, fuel so on.

※ Refer to Transportation for actual weight information and Specifications for operating weight.

2) HX140 LC HIGH WALKER

Item	HX140 LC HIGH WALKER	
	kg	lb
Upper structure assembly		
· Main frame weld assembly	1095	2414
· Engine assembly	348	767
· Aftertreatment	38	84
· Main pump assembly	100	220
· Main control valve assembly	140	310
· Swing motor assembly	120	260
· Hydraulic oil tank assembly	150	330
· Fuel tank assembly	150	330
· Counterweight	2000	4410
· Cab assembly	480	1060
Lower chassis assembly		
· Track frame weld assembly	2200	4850
· Swing bearing	214	472
· Travel motor assembly	305	670
· Turning joint	50	110
· Tension cylinder assembly	132	291
· Idler assembly	151	333
· Carrier roller assembly	40	88
· Track roller assembly	40	88
· Track-chain assembly (800 ㎜ standard triple grouser shoe)	1370	3020
Front attachment assembly		
· 4.6 ㎡ boom assembly	830	1830
· 2.5 ㎡ arm assembly	435	960
· 0.58 m^3 SAE heaped bucket	480	1060
· Boom cylinder assembly	121	267
· Arm cylinder assembly	171	377
· Bucket cylinder assembly	123	271
· Bucket control rod assembly	90	200

※ This information is different with operating and transportation weight because it is not including harness, pipe, oil, fuel so on.

※ Refer to Transportation for actual weight information and Specifications for operating weight.

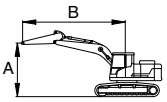
5. LIFTING CAPACITIES

1) 4.6 m (15' 1") MONO BOOM

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2500	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	2610	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	5750	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	3920	3770	2540	*2200	2010	6.93
9.8ft	lb			*14070	*14070	*10210	8640	8310	5600	*4850	4430	(22.7)
1.5m	kg			*7050	6670	5690	3680	3660	2430	*2320	1900	7.07
4.9ft	lb			*15540	14700	12540	8110	8070	5360	*5110	4190	(23.2)
0.0m	kg			*6550	6390	5500	3510	3570	2350	*2590	1950	6.88
0.0ft	lb			*14440	14090	12130	7740	7870	5180	*5710	4300	(22.6)
-1.5m	kg	*4890	*4890	*10080	6370	5430	3450	3550	2330	*3160	2170	6.34
-4.9ft	lb	*10780	*10780	*22220	14040	11970	7610	7830	5140	*6970	4780	(20.8)
-3.0m	kg	*9020	*9020	*8820	6480	5490	3500			4300	2810	5.31
-9.8ft	lb	*19890	*19890	*19440	14290	12100	7720			9480	6190	(17.4)

※ Note

1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *indicates load limited by hydraulic capacity.

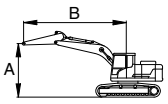
※ Lifting capacities are based upon a standard machine conditions.
Lifting capacities will vary with different work tools, ground conditions and attachments.
The difference between the weight of a work tool attachment must be subtracted.
Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

⚠ Failure to comply to the rated load can cause possible personal injury or property damage.
Make adjustments to the rated load as necessary for non-standard configurations.

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	1900	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

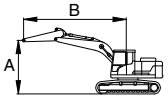


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*4200	*4200			*3650	*3650	4.73
19.7ft	lb					*9260	*9260			*8050	*8050	(15.5)
4.5m	kg					*4330	*4330			*3340	3090	5.80
14.8ft	lb					*9550	*9550			*7360	6810	(19.0)
3.0m	kg					*5220	4420	*4420	2890	*3330	2650	6.35
9.8ft	lb					*11510	9740	*9740	6370	*7340	5840	(20.8)
1.5m	kg					*6220	4210	*4790	2810	*3540	2510	6.50
4.9ft	lb					*13710	9280	*10560	6190	*7800	5530	(21.3)
0.0m	kg			*5750	*5750	*6760	4090	*4990	2750	*4050	2590	6.29
0.0ft	lb			*12680	*12680	*14900	9020	*11000	6060	*8930	5710	(20.6)
-1.5m	kg	*5700	*5700	*9710	7610	*6600	4070			*4960	2970	5.68
-4.9ft	lb	*12570	*12570	*21410	16780	*14550	8970			*10930	6550	(18.6)
-3.0m	kg			*7880	7770	*5100	4190			*5080	4180	4.51
-9.8ft	lb			*17370	17130	*11240	9240			*11200	9220	(14.8)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	1900	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

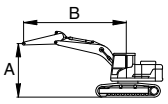


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*4200	*4200			*3650	*3650	4.73
19.7ft	lb					*9260	*9260			*8050	*8050	(15.5)
4.5m	kg					*4330	4280			*3340	2870	5.80
14.8ft	lb					*9550	9440			*7360	6330	(19.0)
3.0m	kg					*5220	4090	3760	2680	*3330	2450	6.35
9.8ft	lb					*11510	9020	8290	5910	*7340	5400	(20.8)
1.5m	kg					5670	3880	3670	2600	3260	2320	6.50
4.9ft	lb					12500	8550	8090	5730	7190	5110	(21.3)
0.0m	kg			*5750	*5750	5530	3760	3620	2540	3380	2390	6.29
0.0ft	lb			*12680	*12680	12190	8290	7980	5600	7450	5270	(20.6)
-1.5m	kg	*5700	*5700	*9710	6880	5510	3740			3910	2740	5.68
-4.9ft	lb	*12570	*12570	*21410	15170	12150	8250			8620	6040	(18.6)
-3.0m	kg			*7880	7040	*5100	3860			*5080	3850	4.51
-9.8ft	lb			*17370	15520	*11240	8510			*11200	8490	(14.8)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	1900	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

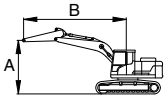


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*4200	4120			*3650	*3650	4.73
19.7ft	lb					*9260	9080			*8050	*8050	(15.5)
4.5m	kg					*4330	4070			*3340	2720	5.80
14.8ft	lb					*9550	8970			*7360	6000	(19.0)
3.0m	kg					*5220	3880	3760	2530	*3330	2320	6.35
9.8ft	lb					*11510	8550	8290	5580	*7340	5110	(20.8)
1.5m	kg					5670	3680	3680	2460	3270	2190	6.50
4.9ft	lb					12500	8110	8110	5420	7210	4830	(21.3)
0.0m	kg			*5750	*5750	5540	3550	3620	2400	3380	2260	6.29
0.0ft	lb			*12680	*12680	12210	7830	7980	5290	7450	4980	(20.6)
-1.5m	kg	*5700	*5700	*9710	6520	5520	3540			3920	2590	5.68
-4.9ft	lb	*12570	*12570	*21410	14370	12170	7800			8640	5710	(18.6)
-3.0m	kg			*7880	6670	*5100	3650			*5080	3640	4.51
-9.8ft	lb			*17370	14700	*11240	8050			*11200	8020	(14.8)

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	1900	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

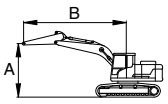


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*4200	*4200			*3650	*3650	4.73
19.7ft	lb					*9260	*9260			*8050	*8050	(15.5)
4.5m	kg					*4330	*4330			*3340	3250	5.80
14.8ft	lb					*9550	*9550			*7360	7170	(19.0)
3.0m	kg					*5220	4650	*4420	3040	*3330	2790	6.35
9.8ft	lb					*11510	10250	*9740	6700	*7340	6150	(20.8)
1.5m	kg					*6220	4430	*4790	2960	*3540	2640	6.50
4.9ft	lb					*13710	9770	*10560	6530	*7800	5820	(21.3)
0.0m	kg			*5750	*5750	*6760	4310	*4990	2910	*4050	2730	6.29
0.0ft	lb			*12680	*12680	*14900	9500	*11000	6420	*8930	6020	(20.6)
-1.5m	kg	*5700	*5700	*9710	8010	*6600	4290			*4960	3130	5.68
-4.9ft	lb	*12570	*12570	*21410	17660	*14550	9460			*10930	6900	(18.6)
-3.0m	kg			*7880	*7880	*5100	4410			*5080	4400	4.51
-9.8ft	lb			*17370	*17370	*11240	9720			*11200	9700	(14.8)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	1900	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

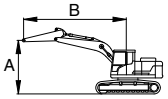


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*4200	*4200			*3650	*3650	4.73
19.7ft	lb					*9260	*9260			*8050	*8050	(15.5)
4.5m	kg					*4330	*4330			*3340	3020	5.80
14.8ft	lb					*9550	*9550			*7360	6660	(19.0)
3.0m	kg					*5220	4300	3940	2820	*3330	2590	6.35
9.8ft	lb					*11510	9480	8690	6220	*7340	5710	(20.8)
1.5m	kg					5940	4090	3850	2740	3430	2450	6.50
4.9ft	lb					13100	9020	8490	6040	7560	5400	(21.3)
0.0m	kg			*5750	*5750	5800	3970	3800	2690	3550	2530	6.29
0.0ft	lb			*12680	*12680	12790	8750	8380	5930	7830	5580	(20.6)
-1.5m	kg	*5700	*5700	*9710	7260	5780	3950			4110	2900	5.68
-4.9ft	lb	*12570	*12570	*21410	16010	12740	8710			9060	6390	(18.6)
-3.0m	kg			*7880	7410	*5100	4070			*5080	4050	4.51
-9.8ft	lb			*17370	16340	*11240	8970			*11200	8930	(14.8)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	1900	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

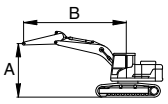


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*4200	*4200			*3650	*3650	4.73
19.7ft	lb					*9260	*9260			*8050	*8050	(15.5)
4.5m	kg					*4330	4280			*3340	2870	5.80
14.8ft	lb					*9550	9440			*7360	6330	(19.0)
3.0m	kg					*5220	4090	3940	2680	*3330	2460	6.35
9.8ft	lb					*11510	9020	8690	5910	*7340	5420	(20.8)
1.5m	kg					5950	3890	3860	2600	3430	2320	6.50
4.9ft	lb					13120	8580	8510	5730	7560	5110	(21.3)
0.0m	kg			*5750	*5750	5810	3770	3800	2550	3550	2390	6.29
0.0ft	lb			*12680	*12680	12810	8310	8380	5620	7830	5270	(20.6)
-1.5m	kg	*5700	*5700	*9710	6890	5790	3750			4110	2750	5.68
-4.9ft	lb	*12570	*12570	*21410	15190	12760	8270			9060	6060	(18.6)
-3.0m	kg			*7880	7050	*5100	3860			*5080	3850	4.51
-9.8ft	lb			*17370	15540	*11240	8510			*11200	8490	(14.8)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

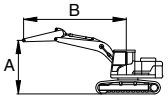


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	*4120			*3210	2940	5.99
14.8ft	lb					*9080	*9080			*7080	6480	(19.7)
3.0m	kg			*7310	*7310	*5030	4430	*4280	2880	*3220	2530	6.52
9.8ft	lb			*16120	*16120	*11090	9770	*9440	6350	*7100	5580	(21.4)
1.5m	kg					*6070	4210	*4680	2800	*3430	2400	6.67
4.9ft	lb					*13380	9280	*10320	6170	*7560	5290	(21.9)
0.0m	kg			*6160	*6160	*6690	4070	*4950	2730	*3910	2470	6.47
0.0ft	lb			*13580	*13580	*14750	8970	*10910	6020	*8620	5450	(21.2)
-1.5m	kg	*5500	*5500	*9870	7550	*6630	4040			*4820	2810	5.88
-4.9ft	lb	*12130	*12130	*21760	16640	*14620	8910			*10630	6190	(19.3)
-3.0m	kg			*8230	7700	*5470	4130			*5000	3830	4.75
-9.8ft	lb			*18140	16980	*12060	9110			*11020	8440	(15.6)

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

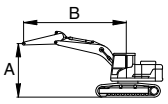


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	*4120			*3210	2730	5.99
14.8ft	lb					*9080	*9080			*7080	6020	(19.7)
3.0m	kg			*7310	*7310	*5030	4090	3760	2670	*3220	2350	6.52
9.8ft	lb			*16120	*16120	*11090	9020	8290	5890	*7100	5180	(21.4)
1.5m	kg					5670	3870	3660	2590	3130	2220	6.67
4.9ft	lb					12500	8530	8070	5710	6900	4890	(21.9)
0.0m	kg			*6160	*6160	5510	3740	3590	2520	3230	2280	6.47
0.0ft	lb			*13580	*13580	12150	8250	7910	5560	7120	5030	(21.2)
-1.5m	kg	*5500	*5500	*9870	6820	5480	3710			3700	2590	5.88
-4.9ft	lb	*12130	*12130	*21760	15040	12080	8180			8160	5710	(19.3)
-3.0m	kg			*8230	6960	*5470	3790			*5000	3530	4.75
-9.8ft	lb			*18140	15340	*12060	8360			*11020	7780	(15.6)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

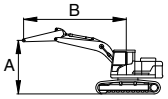


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	4090			*3210	2580	5.99
14.8ft	lb					*9080	9020			*7080	5690	(19.7)
3.0m	kg			*7310	7220	*5030	3890	3760	2530	*3220	2220	6.52
9.8ft	lb			*16120	15920	*11090	8580	8290	5580	*7100	4890	(21.4)
1.5m	kg					5670	3670	3660	2440	3130	2100	6.67
4.9ft	lb					12500	8090	8070	5380	6900	4630	(21.9)
0.0m	kg			*6160	*6160	5520	3530	3600	2380	3230	2150	6.47
0.0ft	lb			*13580	*13580	12170	7780	7940	5250	7120	4740	(21.2)
-1.5m	kg	*5500	*5500	*9870	6460	5480	3500			3700	2450	5.88
-4.9ft	lb	*12130	*12130	*21760	14240	12080	7720			8160	5400	(19.3)
-3.0m	kg			*8230	6600	*5470	3590			*5000	3340	4.75
-9.8ft	lb			*18140	14550	*12060	7910			*11020	7360	(15.6)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

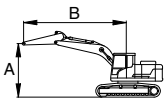


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	*4120			*3210	3090	5.99
14.8ft	lb					*9080	*9080			*7080	6810	(19.7)
3.0m	kg			*7310	*7310	*5030	4650	*4280	3040	*3220	2670	6.52
9.8ft	lb			*16120	*16120	*11090	10250	*9440	6700	*7100	5890	(21.4)
1.5m	kg					*6070	4430	*4680	2950	*3430	2530	6.67
4.9ft	lb					*13380	9770	*10320	6500	*7560	5580	(21.9)
0.0m	kg			*6160	*6160	*6690	4290	*4950	2890	*3910	2610	6.47
0.0ft	lb			*13580	*13580	*14750	9460	*10910	6370	*8620	5750	(21.2)
-1.5m	kg	*5500	*5500	*9870	7950	*6630	4260			*4820	2970	5.88
-4.9ft	lb	*12130	*12130	*21760	17530	*14620	9390			*10630	6550	(19.3)
-3.0m	kg			*8230	8100	*5470	4350			*5000	4040	4.75
-9.8ft	lb			*18140	17860	*12060	9590			*11020	8910	(15.6)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

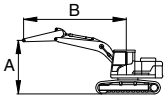


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	*4120			*3210	2870	5.99
14.8ft	lb					*9080	*9080			*7080	6330	(19.7)
3.0m	kg			*7310	*7310	*5030	4300	3940	2820	*3220	2480	6.52
9.8ft	lb			*16120	*16120	*11090	9480	8690	6220	*7100	5470	(21.4)
1.5m	kg					5940	4080	3840	2730	3290	2350	6.67
4.9ft	lb					13100	8990	8470	6020	7250	5180	(21.9)
0.0m	kg			*6160	*6160	5780	3950	3780	2670	3400	2410	6.47
0.0ft	lb			*13580	*13580	12740	8710	8330	5890	7500	5310	(21.2)
-1.5m	kg	*5500	*5500	*9870	7200	5750	3920			3890	2740	5.88
-4.9ft	lb	*12130	*12130	*21760	15870	12680	8640			8580	6040	(19.3)
-3.0m	kg			*8230	7340	*5470	4000			*5000	3730	4.75
-9.8ft	lb			*18140	16180	*12060	8820			*11020	8220	(15.6)

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	2100	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

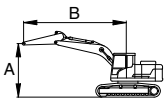


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg					*3910	*3910			*3470	*3470	4.97
19.7ft	lb					*8620	*8620			*7650	*7650	(16.3)
4.5m	kg					*4120	*4120			*3210	2730	5.99
14.8ft	lb					*9080	*9080			*7080	6020	(19.7)
3.0m	kg			*7310	*7310	*5030	4100	3940	2680	*3220	2350	6.52
9.8ft	lb			*16120	*16120	*11090	9040	8690	5910	*7100	5180	(21.4)
1.5m	kg					5940	3880	3850	2590	3290	2220	6.67
4.9ft	lb					13100	8550	8490	5710	7250	4890	(21.9)
0.0m	kg			*6160	*6160	5790	3740	3780	2530	3400	2290	6.47
0.0ft	lb			*13580	*13580	12760	8250	8330	5580	7500	5050	(21.2)
-1.5m	kg	*5500	*5500	*9870	6840	5750	3710			3890	2600	5.88
-4.9ft	lb	*12130	*12130	*21760	15080	12680	8180			8580	5730	(19.3)
-3.0m	kg			*8230	6980	*5470	3800			*5000	3540	4.75
-9.8ft	lb			*18140	15390	*12060	8380			*11020	7800	(15.6)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

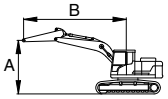


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	2960	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	6530	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	4470	*4000	2890	*2200	*2200	6.93
9.8ft	lb			*14070	*14070	*10210	9850	*8820	6370	*4850	*4850	(22.7)
1.5m	kg			*7050	*7050	*5760	4220	*4480	2790	*2320	2190	7.07
4.9ft	lb			*15540	*15540	*12700	9300	*9880	6150	*5110	4830	(23.2)
0.0m	kg			*6550	*6550	*6530	4050	*4850	2710	*2590	2240	6.88
0.0ft	lb			*14440	*14440	*14400	8930	*10690	5970	*5710	4940	(22.6)
-1.5m	kg	*4890	*4890	*10080	7460	*6670	3990	*4820	2680	*3160	2500	6.34
-4.9ft	lb	*10780	*10780	*22220	16450	*14700	8800	*10630	5910	*6970	5510	(20.8)
-3.0m	kg	*9020	*9020	*8820	7580	*5920	4040			*4580	3230	5.31
-9.8ft	lb	*19890	*19890	*19440	16710	*13050	8910			*10100	7120	(17.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

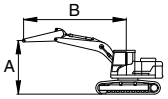


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	2750	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	6060	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	4130	3770	2680	*2200	2130	6.93
9.8ft	lb			*14070	*14070	*10210	9110	8310	5910	*4850	4700	(22.7)
1.5m	kg			*7050	7030	5690	3880	3660	2580	*2320	2020	7.07
4.9ft	lb			*15540	15500	12540	8550	8070	5690	*5110	4450	(23.2)
0.0m	kg			*6550	*6550	5500	3710	3570	2500	*2590	2070	6.88
0.0ft	lb			*14440	*14440	12130	8180	7870	5510	*5710	4560	(22.6)
-1.5m	kg	*4890	*4890	*10080	6730	5430	3660	3540	2470	*3160	2310	6.34
-4.9ft	lb	*10780	*10780	*22220	14840	11970	8070	7800	5450	*6970	5090	(20.8)
-3.0m	kg	*9020	*9020	*8820	6840	5490	3710			4300	2980	5.31
-9.8ft	lb	*19890	*19890	*19440	15080	12100	8180			9480	6570	(17.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

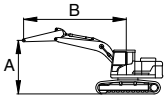


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	3110	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	6860	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	*4630	*4000	3040	*2200	*2200	6.93
9.8ft	lb			*14070	*14070	*10210	*10210	*8820	6700	*4850	*4850	(22.7)
1.5m	kg			*7050	*7050	*5760	4440	*4480	2940	*2320	2310	7.07
4.9ft	lb			*15540	*15540	*12700	9790	*9880	6480	*5110	5090	(23.2)
0.0m	kg			*6550	*6550	*6530	4270	*4850	2860	*2590	2370	6.88
0.0ft	lb			*14440	*14440	*14400	9410	*10690	6310	*5710	5220	(22.6)
-1.5m	kg	*4890	*4890	*10080	7860	*6670	4210	*4820	2830	*3160	2640	6.34
-4.9ft	lb	*10780	*10780	*22220	17330	*14700	9280	*10630	6240	*6970	5820	(20.8)
-3.0m	kg	*9020	*9020	*8820	7980	*5920	4260			*4580	3410	5.31
-9.8ft	lb	*19890	*19890	*19440	17590	*13050	9390			*10100	7520	(17.4)

Unit : mm

Mode	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

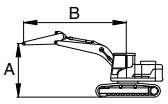


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	2890	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	6370	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	4340	3950	2820	*2200	*2200	6.93
9.8ft	lb			*14070	*14070	*10210	9570	8710	6220	*4850	*4850	(22.7)
1.5m	kg			*7050	*7050	*5760	4090	3840	2720	*2320	2140	7.07
4.9ft	lb			*15540	*15540	*12700	9020	8470	6000	*5110	4720	(23.2)
0.0m	kg			*6550	*6550	5770	3930	3750	2640	*2590	2190	6.88
0.0ft	lb			*14440	*14440	12720	8660	8270	5820	*5710	4830	(22.6)
-1.5m	kg	*4890	*4890	*10080	7110	5700	3870	3720	2620	*3160	2440	6.34
-4.9ft	lb	*10780	*10780	*22220	15670	12570	8530	8200	5780	*6970	5380	(20.8)
-3.0m	kg	*9020	*9020	*8820	7220	5760	3920			4510	3150	5.31
-9.8ft	lb	*19890	*19890	*19440	15920	12700	8640			9940	6940	(17.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

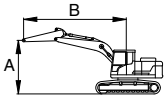


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg					*3400	*3400			*2390	*2390	5.50
19.7ft	lb					*7500	*7500			*5270	*5270	(18.0)
4.5m	kg					*3700	*3700	*3500	2750	*2210	*2210	6.44
14.8ft	lb					*8160	*8160	*7720	6060	*4870	*4870	(21.1)
3.0m	kg			*6380	*6380	*4630	4130	3950	2680	*2200	2130	6.93
9.8ft	lb			*14070	*14070	*10210	9110	8710	5910	*4850	4700	(22.7)
1.5m	kg			*7050	7050	*5760	3890	3840	2580	*2320	2020	7.07
4.9ft	lb			*15540	15540	*12700	8580	8470	5690	*5110	4450	(23.2)
0.0m	kg			*6550	*6550	5770	3720	3750	2500	*2590	2070	6.88
0.0ft	lb			*14440	*14440	12720	8200	8270	5510	*5710	4560	(22.6)
-1.5m	kg	*4890	*4890	*10080	6750	5700	3660	3730	2480	*3160	2310	6.34
-4.9ft	lb	*10780	*10780	*22220	14880	12570	8070	8220	5470	*6970	5090	(20.8)
-3.0m	kg	*9020	*9020	*8820	6860	5760	3710			4510	2980	5.31
-9.8ft	lb	*19890	*19890	*19440	15120	12700	8180			9940	6570	(17.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

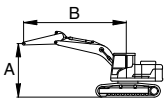


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	3000	*1880	*1880	6.94
14.8ft	lb							*7230	6610	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	*4130	*3670	2910	*1870	*1870	7.40
9.8ft	lb			*11570	*11570	*9110	*9110	*8090	6420	*4120	*4120	(24.3)
1.5m	kg			*8390	7960	*5340	4270	*4220	2800	*1970	*1970	7.53
4.9ft	lb			*18500	17550	*11770	9410	*9300	6170	*4340	*4340	(24.7)
0.0m	kg			*7180	*7180	*6290	4060	*4700	2700	*2180	2020	7.36
0.0ft	lb			*15830	*15830	*13870	8950	*10360	5950	*4810	4450	(24.1)
-1.5m	kg	*4370	*4370	*9280	7410	*6660	3960	*4860	2650	*2610	2220	6.85
-4.9ft	lb	*9630	*9630	*20460	16340	*14680	8730	*10710	5840	*5750	4890	(22.5)
-3.0m	kg	*7550	*7550	*9420	7480	*6270	3970			*3560	2740	5.91
-9.8ft	lb	*16640	*16640	*20770	16490	*13820	8750			*7850	6040	(19.4)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	3000	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

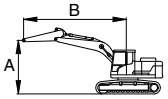


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	2780	*1880	*1880	6.94
14.8ft	lb							*7230	6130	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	*4130	*3670	2700	*1870	*1870	7.40
9.8ft	lb			*11570	*11570	*9110	*9110	*8090	5950	*4120	*4120	(24.3)
1.5m	kg			*8390	7210	*5340	3930	3670	2580	*1970	1830	7.53
4.9ft	lb			*18500	15900	*11770	8660	8090	5690	*4340	4030	(24.7)
0.0m	kg			*7180	6780	5510	3720	3560	2490	*2180	1860	7.36
0.0ft	lb			*15830	14950	12150	8200	7850	5490	*4810	4100	(24.1)
-1.5m	kg	*4370	*4370	*9280	6680	5400	3630	3510	2440	*2610	2040	6.85
-4.9ft	lb	*9630	*9630	*20460	14730	11900	8000	7740	5380	*5750	4500	(22.5)
-3.0m	kg	*7550	*7550	*9420	6750	5420	3640			*3560	2520	5.91
-9.8ft	lb	*16640	*16640	*20770	14880	11950	8020			*7850	5560	(19.4)

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	3000	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

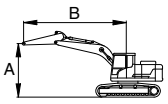


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	2640	*1880	*1880	6.94
14.8ft	lb							*7230	5820	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	3990	*3670	2560	*1870	1810	7.40
9.8ft	lb			*11570	*11570	*9110	8800	*8090	5640	*4120	3990	(24.3)
1.5m	kg			*8390	6840	*5340	3720	3670	2440	*1970	1720	7.53
4.9ft	lb			*18500	15080	*11770	8200	8090	5380	*4340	3790	(24.7)
0.0m	kg			*7180	6420	5510	3520	3560	2340	*2180	1750	7.36
0.0ft	lb			*15830	14150	12150	7760	7850	5160	*4810	3860	(24.1)
-1.5m	kg	*4370	*4370	*9280	6320	5400	3430	3510	2290	*2610	1920	6.85
-4.9ft	lb	*9630	*9630	*20460	13930	11900	7560	7740	5050	*5750	4230	(22.5)
-3.0m	kg	*7550	*7550	*9420	6380	5420	3440			*3560	2380	5.91
-9.8ft	lb	*16640	*16640	*20770	14070	11950	7580			*7850	5250	(19.4)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	3000	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

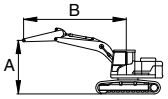


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	3150	*1880	*1880	6.94
14.8ft	lb							*7230	6940	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	*4130	*3670	3060	*1870	*1870	7.40
9.8ft	lb			*11570	*11570	*9110	*9110	*8090	6750	*4120	*4120	(24.3)
1.5m	kg			*8390	8360	*5340	4490	*4220	2950	*1970	*1970	7.53
4.9ft	lb			*18500	18430	*11770	9900	*9300	6500	*4340	*4340	(24.7)
0.0m	kg			*7180	*7180	*6290	4280	*4700	2850	*2180	2140	7.36
0.0ft	lb			*15830	*15830	*13870	9440	*10360	6280	*4810	4720	(24.1)
-1.5m	kg	*4370	*4370	*9280	7810	*6660	4180	*4860	2800	*2610	2350	6.85
-4.9ft	lb	*9630	*9630	*20460	17220	*14680	9220	*10710	6170	*5750	5180	(22.5)
-3.0m	kg	*7550	*7550	*9420	7880	*6270	4190			*3560	2890	5.91
-9.8ft	lb	*16640	*16640	*20770	17370	*13820	9240			*7850	6370	(19.4)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4600	3000	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

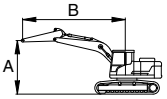


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	2930	*1880	*1880	6.94
14.8ft	lb							*7230	6460	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	*4130	*3670	2840	*1870	*1870	7.40
9.8ft	lb			*11570	*11570	*9110	*9110	*8090	6260	*4120	*4120	(24.3)
1.5m	kg			*8390	7580	*5340	4140	3850	2730	*1970	1940	7.53
4.9ft	lb			*18500	16710	*11770	9130	8490	6020	*4340	4280	(24.7)
0.0m	kg			*7180	7160	5780	3930	3740	2630	*2180	1970	7.36
0.0ft	lb			*15830	15790	12740	8660	8250	5800	*4810	4340	(24.1)
-1.5m	kg	*4370	*4370	*9280	7060	5670	3840	3690	2580	*2610	2170	6.85
-4.9ft	lb	*9630	*9630	*20460	15560	12500	8470	8140	5690	*5750	4780	(22.5)
-3.0m	kg	*7550	*7550	*9420	7120	5690	3850			*3560	2670	5.91
-9.8ft	lb	*16640	*16640	*20770	15700	12540	8490			*7850	5890	(19.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

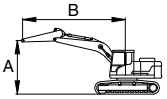


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg							*2230	*2230	*2000	*2000	6.08
19.7ft	lb							*4920	*4920	*4410	*4410	(20.0)
4.5m	kg							*3280	2790	*1880	*1880	6.94
14.8ft	lb							*7230	6150	*4140	*4140	(22.8)
3.0m	kg			*5250	*5250	*4130	*4130	*3670	2700	*1870	*1870	7.40
9.8ft	lb			*11570	*11570	*9110	*9110	*8090	5950	*4120	*4120	(24.3)
1.5m	kg			*8390	7220	*5340	3930	3850	2590	*1970	1830	7.53
4.9ft	lb			*18500	15920	*11770	8660	8490	5710	*4340	4030	(24.7)
0.0m	kg			*7180	6800	5780	3730	3740	2490	*2180	1860	7.36
0.0ft	lb			*15830	14990	12740	8220	8250	5490	*4810	4100	(24.1)
-1.5m	kg	*4370	*4370	*9280	6690	5680	3640	3690	2440	*2610	2050	6.85
-4.9ft	lb	*9630	*9630	*20460	14750	12520	8020	8140	5380	*5750	4520	(22.5)
-3.0m	kg	*7550	*7550	*9420	6760	5690	3650			*3560	2530	5.91
-9.8ft	lb	*16640	*16640	*20770	14900	12540	8050			*7850	5580	(19.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2000	700	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

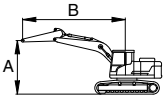


Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5m	kg					*2430	*2430					*2410	*2410	4.51
24.6ft	lb					*5360	*5360					*5310	*5310	(14.8)
6.0m	kg							*2110	*2110			*2010	*2010	6.04
19.7ft	lb							*4650	*4650			*4430	*4430	(19.8)
4.5m	kg							*3260	2720			*1880	*1880	6.92
14.8ft	lb							*7190	6000			*4140	*4140	(22.7)
3.0m	kg					*4070	*4070	*3640	2630			*1870	1870	7.39
9.8ft	lb					*8970	*8970	*8020	5800			*4120	4120	(24.2)
1.5m	kg			*8250	7050	*5280	3830	3850	2510	*2120	1780	*1960	1770	7.53
4.9ft	lb			*18190	15540	*11640	8440	8490	5530	*4670	3920	*4320	3900	(24.7)
0.0m	kg			*7160	6590	5770	3620	3730	2410			*2170	1790	7.37
0.0ft	lb			*15790	14530	12720	7980	8220	5310			*4780	3950	(24.2)
-1.5m	kg	*4260	*4260	*9140	6470	5660	3510	3680	2350			*2580	1960	6.87
-4.9ft	lb	*9390	*9390	*20150	14260	12480	7740	8110	5180			*5690	4320	(22.6)
-3.0m	kg	*7390	*7390	*9440	6530	5660	3520					*3500	2410	5.96
-9.8ft	lb	*16290	*16290	*20810	14400	12480	7760					*7720	5310	(19.6)
-4.5m	kg			*7080	6760							*4500	3830	4.38
-14.8ft	lb			*15610	14900							*9920	8440	(14.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2000	700	down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

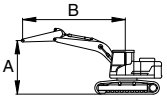


Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5m	kg					*2430	*2430					*2410	*2410	4.51
24.6ft	lb					*5360	*5360					*5310	*5310	(14.8)
6.0m	kg							*2110	*2110			*2010	*2010	6.04
19.7ft	lb							*4650	*4650			*4430	*4430	(19.8)
4.5m	kg							*3260	3020			*1880	*1880	6.92
14.8ft	lb							*7190	6660			*4140	*4140	(22.7)
3.0m	kg					*4070	*4070	*3640	2940			*1870	*1870	7.39
9.8ft	lb					*8970	*8970	*8020	6480			*4120	*4120	(24.2)
1.5m	kg			*8250	8030	*5280	4300	*4180	2820	*2120	2010	*1960	*1960	7.53
4.9ft	lb			*18190	17700	*11640	9480	*9220	6220	*4670	4430	*4320	*4320	(24.7)
0.0m	kg			*7160	*7160	*6240	4080	*4660	2710			*2170	2020	7.37
0.0ft	lb			*15790	*15790	*13760	8990	*10270	5970			*4780	4450	(24.2)
-1.5m	kg	*4260	*4260	*9140	7430	*6630	3980	*4850	2660			*2580	2210	6.87
-4.9ft	lb	*9390	*9390	*20150	16380	*14620	8770	*10690	5860			*5690	4870	(22.6)
-3.0m	kg	*7390	*7390	*9440	7490	*6280	3980					*3500	2710	5.96
-9.8ft	lb	*16290	*16290	*20810	16510	*13850	8770					*7720	5970	(19.6)
-4.5m	kg			*7080	*7080							*4500	4320	4.38
-14.8ft	lb			*15610	*15610							*9920	9520	(14.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2000	700	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



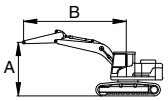
Lift-point height (A)		Lift-point radius (B)										At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
														m (ft)
7.5m	kg					*2430	*2430					*2410	*2410	4.51
24.6ft	lb					*5360	*5360					*5310	*5310	(14.8)
6.0m	kg							*2110	*2110			*2010	*2010	6.04
19.7ft	lb							*4650	*4650			*4430	*4430	(19.8)
4.5m	kg							*3260	2810			*1880	*1880	6.92
14.8ft	lb							*7190	6190			*4140	*4140	(22.7)
3.0m	kg					*4070	*4070	*3640	2720			*1870	*1870	7.39
9.8ft	lb					*8970	*8970	*8020	6000			*4120	*4120	(24.2)
1.5m	kg			*8250	7280	*5280	3960	3800	2600	*2120	1850	*1960	1840	7.53
4.9ft	lb			*18190	16050	*11640	8730	8380	5730	*4670	4080	*4320	4060	(24.7)
0.0m	kg			*7160	6820	5700	3740	3690	2500			*2170	1860	7.37
0.0ft	lb			*15790	15040	12570	8250	8140	5510			*4780	4100	(24.2)
-1.5m	kg	*4260	*4260	*9140	6700	5590	3640	3630	2440			*2580	2040	6.87
-4.9ft	lb	*9390	*9390	*20150	14770	12320	8020	8000	5380			*5690	4500	(22.6)
-3.0m	kg	*7390	*7390	*9440	6760	5590	3650					*3500	2500	5.96
-9.8ft	lb	*16290	*16290	*20810	14900	12320	8050					*7720	5510	(19.6)
-4.5m	kg			*7080	6990							*4500	3970	4.38
-14.8ft	lb			*15610	15410							*9920	8750	(14.4)

2) 4.1 m (13' 5") MONO BOOM

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4100	1900	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg									*3500	*3500	4.01
19.7ft	lb									*7720	*7720	(13.2)
4.5m	kg					*4620	*4620			*3070	*3070	5.24
14.8ft	lb					*10190	*10190			*6770	*6770	(17.2)
3.0m	kg			*7190	*7190	*5320	4510			*3020	*3020	5.83
9.8ft	lb			*15850	*15850	*11730	9940			*6660	*6660	(19.1)
1.5m	kg			*9910	7970	*6300	4320	*3230	2860	*3220	2860	6.00
4.9ft	lb			*21850	17570	*13890	9520	*7120	6310	*7100	6310	(19.7)
0.0m	kg			*10670	7760	*6870	4200			*3720	2970	5.78
0.0ft	lb			*23520	17110	*15150	9260			*8200	6550	(19.0)
-1.5m	kg	*8110	*8110	*9920	7780	*6560	4180			*4950	3530	5.11
-4.9ft	lb	*17880	*17880	*21870	17150	*14460	9220			*10910	7780	(16.7)
-3.0m	kg			*7310	*7310					*5520	*5520	3.75
-9.8ft	lb			*16120	*16120					*12170	*12170	(12.3)

※ Note

1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *indicates load limited by hydraulic capacity.

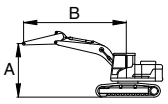
※ Lifting capacities are based upon a standard machine conditions.
Lifting capacities will vary with different work tools, ground conditions and attachments.
The difference between the weight of a work tool attachment must be subtracted.
Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

⚠ Failure to comply to the rated load can cause possible personal injury or property damage.
Make adjustments to the rated load as necessary for non-standard configurations.

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4100	1900	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

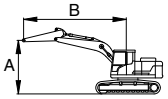


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg									*3500	*3500	4.01
19.7ft	lb									*7720	*7720	(13.2)
4.5m	kg					*4620	4310			*3070	*3070	5.24
14.8ft	lb					*10190	9500			*6770	*6770	(17.2)
3.0m	kg			*7190	*7190	*5320	4170			*3020	2810	5.83
9.8ft	lb			*15850	*15850	*11730	9190			*6660	6190	(19.1)
1.5m	kg			*9910	7230	5790	3980	*3230	2650	*3220	2650	6.00
4.9ft	lb			*21850	15940	12760	8770	*7120	5840	*7100	5840	(19.7)
0.0m	kg			*10670	7030	5650	3860			*3720	2750	5.78
0.0ft	lb			*23520	15500	12460	8510			*8200	6060	(19.0)
-1.5m	kg	*8110	*8110	*9920	7040	5630	3850			4670	3260	5.11
-4.9ft	lb	*17880	*17880	*21870	15520	12410	8490			10300	7190	(16.7)
-3.0m	kg			*7310	7230					*5520	5160	3.75
-9.8ft	lb			*16120	15940					*12170	11380	(12.3)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4100	1900	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

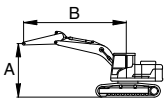


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0m	kg									*3500	*3500	4.01
19.7ft	lb									*7720	*7720	(13.2)
4.5m	kg					*4620	4100			*3070	*3070	5.24
14.8ft	lb					*10190	9040			*6770	*6770	(17.2)
3.0m	kg			*7190	*7190	*5320	3960			*3020	2670	5.83
9.8ft	lb			*15850	*15850	*11730	8730			*6660	5890	(19.1)
1.5m	kg			*9910	6870	5790	3780	*3230	2510	*3220	2500	6.00
4.9ft	lb			*21850	15150	12760	8330	*7120	5530	*7100	5510	(19.7)
0.0m	kg			*10670	6660	5650	3660			*3720	2600	5.78
0.0ft	lb			*23520	14680	12460	8070			*8200	5730	(19.0)
-1.5m	kg	*8110	*8110	*9920	6680	5640	3640			4670	3080	5.11
-4.9ft	lb	*17880	*17880	*21870	14730	12430	8020			10300	6790	(16.7)
-3.0m	kg			*7310	6860					*5520	4900	3.75
-9.8ft	lb			*16120	15120					*12170	10800	(12.3)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4100	2100	2000	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

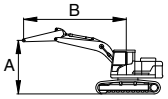


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg									*3360	*3360	4.26
19.7ft	lb									*7410	*7410	(14.0)
4.5m	kg					*4370	*4370			*2990	*2990	5.43
14.8ft	lb					*9630	*9630			*6590	*6590	(17.8)
3.0m	kg			*6740	*6740	*5110	4520	*3030	2910	*2960	2900	6.01
9.8ft	lb			*14860	*14860	*11270	9960	*6680	6420	*6530	6390	(19.7)
1.5m	kg			*9580	8000	*6140	4320	*4480	2850	*3160	2730	6.17
4.9ft	lb			*21120	17640	*13540	9520	*9880	6280	*6970	6020	(20.2)
0.0m	kg			*10620	7730	*6800	4180			*3650	2830	5.95
0.0ft	lb			*23410	17040	*14990	9220			*8050	6240	(19.5)
-1.5m	kg	*7660	*7660	*10090	7720	*6650	4150			*4800	3320	5.30
-4.9ft	lb	*16890	*16890	*22240	17020	*14660	9150			*10580	7320	(17.4)
-3.0m	kg			*7830	*7830					*5510	5020	4.02
-9.8ft	lb			*17260	*17260					*12150	11070	(13.2)

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4100	2100	2000	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

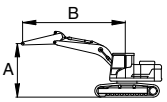


Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg									*3360	*3360	4.26
19.7ft	lb									*7410	*7410	(14.0)
4.5m	kg					*4370	4320			*2990	*2990	5.43
14.8ft	lb					*9630	9520			*6590	*6590	(17.8)
3.0m	kg			*6740	*6740	*5110	4170	*3030	2700	*2960	2690	6.01
9.8ft	lb			*14860	*14860	*11270	9190	*6680	5950	*6530	5930	(19.7)
1.5m	kg			*9580	7250	5790	3980	3720	2640	*3160	2530	6.17
4.9ft	lb			*21120	15980	12760	8770	8200	5820	*6970	5580	(20.2)
0.0m	kg			*10620	7000	5630	3840			*3650	2620	5.95
0.0ft	lb			*23410	15430	12410	8470			*8050	5780	(19.5)
-1.5m	kg	*7660	*7660	*10090	6990	5600	3810			4390	3060	5.30
-4.9ft	lb	*16890	*16890	*22240	15410	12350	8400			9680	6750	(17.4)
-3.0m	kg			*7830	7150					*5510	4610	4.02
-9.8ft	lb			*17260	15760					*12150	10160	(13.2)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	Mono	4100	2100	2000	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



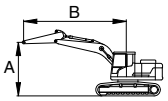
Lift-point height (A)		Lift-point radius (B) 1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		At max. reach Capacity		Reach
												m (ft)
6.0m	kg									*3360	*3360	4.26
19.7ft	lb									*7410	*7410	(14.0)
4.5m	kg					*4370	4120			*2990	*2990	5.43
14.8ft	lb					*9630	9080			*6590	*6590	(17.8)
3.0m	kg			*6740	*6740	*5110	3970	*3030	2550	*2960	2550	6.01
9.8ft	lb			*14860	*14860	*11270	8750	*6680	5620	*6530	5620	(19.7)
1.5m	kg			*9580	6890	5790	3780	3720	2500	*3160	2390	6.17
4.9ft	lb			*21120	15190	12760	8330	8200	5510	*6970	5270	(20.2)
0.0m	kg			*10620	6640	5640	3640			*3650	2480	5.95
0.0ft	lb			*23410	14640	12430	8020			*8050	5470	(19.5)
-1.5m	kg	*7660	*7660	*10090	6630	5600	3610			4390	2900	5.30
-4.9ft	lb	*16890	*16890	*22240	14620	12350	7960			9680	6390	(17.4)
-3.0m	kg			*7830	6790					*5510	4370	4.02
-9.8ft	lb			*17260	14970					*12150	9630	(13.2)

3) 4.9 m (16' 1") ADJUST BOOM

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	2pcs	4939	2500	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5m	kg			*3500	*3500					*3500	*3500	4.50
24.6ft	lb			*7720	*7720					*7720	*7720	(14.8)
6.0m	kg			*3340	*3340	*2970	*2970			*2890	*2890	6.01
19.7ft	lb			*7360	*7360	*6550	*6550			*6370	*6370	(19.7)
4.5m	kg			*3840	*3840	*3710	3130			*2680	2480	6.88
14.8ft	lb			*8470	*8470	*8180	6900			*5910	5470	(22.6)
3.0m	kg			*4930	4650	*4140	3030			*2640	2200	7.35
9.8ft	lb			*10870	10250	*9130	6680			*5820	4850	(24.1)
1.5m	kg			*6170	4370	*4710	2910			*2740	2110	7.48
4.9ft	lb			*13600	9630	*10380	6420			*6040	4650	(24.5)
0.0m	kg	*4510	*4510	*7010	4190	*5170	2810			*2990	2150	7.30
0.0ft	lb	*9940	*9940	*15450	9240	*11400	6190			*6590	4740	(23.9)
-1.5m	kg	*8370	7750	*7230	4140	*5290	2780			*3490	2370	6.78
-4.9ft	lb	*18450	17090	*15940	9130	*11660	6130			*7690	5220	(22.3)
-3.0m	kg	*9850	7880	*6710	4190					*4610	2950	5.84
-9.8ft	lb	*21720	17370	*14790	9240					*10160	6500	(19.2)

※ Note

1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The lift-point is bucket pivot mounting pin on the arm (without bucket mass).
4. *indicates load limited by hydraulic capacity.

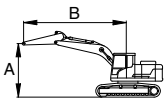
※ Lifting capacities are based upon a standard machine conditions.
Lifting capacities will vary with different work tools, ground conditions and attachments.
The difference between the weight of a work tool attachment must be subtracted.
Consult your HD Hyundai Construction Equipment dealer regarding the lifting capacities for specific work tools and attachments.

⚠ Failure to comply to the rated load can cause possible personal injury or property damage.
Make adjustments to the rated load as necessary for non-standard configurations.

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	2pcs	4939	2500	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

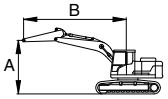


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5m	kg			*3500	*3500					*3500	*3500	4.50
24.6ft	lb			*7720	*7720					*7720	*7720	(14.8)
6.0m	kg			*3340	*3340	*2970	2900			*2890	*2890	6.01
19.7ft	lb			*7360	*7360	*6550	6390			*6370	*6370	(19.7)
4.5m	kg			*3840	*3840	*3710	2900			*2680	2300	6.88
14.8ft	lb			*8470	*8470	*8180	6390			*5910	5070	(22.6)
3.0m	kg			*4930	4290	3950	2800			*2640	2040	7.35
9.8ft	lb			*10870	9460	8710	6170			*5820	4500	(24.1)
1.5m	kg			5910	4020	3820	2680			*2740	1940	7.48
4.9ft	lb			13030	8860	8420	5910			*6040	4280	(24.5)
0.0m	kg	*4510	*4510	5710	3850	3720	2590			2820	1980	7.30
0.0ft	lb	*9940	*9940	12590	8490	8200	5710			6220	4370	(23.9)
-1.5m	kg	*8370	6990	5650	3790	3690	2560			3120	2190	6.78
-4.9ft	lb	*18450	15410	12460	8360	8140	5640			6880	4830	(22.3)
-3.0m	kg	*9850	7110	5710	3840					3910	2720	5.84
-9.8ft	lb	*21720	15670	12590	8470					8620	6000	(19.2)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	2pcs	4939	2500	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

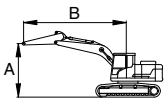


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5m	kg			*3500	*3500					*3500	*3500	4.50
24.6ft	lb			*7720	*7720					*7720	*7720	(14.8)
6.0m	kg			*3340	*3340	*2970	2760			*2890	2750	6.01
19.7ft	lb			*7360	*7360	*6550	6080			*6370	6060	(19.7)
4.5m	kg			*3840	*3840	*3710	2760			*2680	2180	6.88
14.8ft	lb			*8470	*8470	*8180	6080			*5910	4810	(22.6)
3.0m	kg			*4930	4090	3950	2660			*2640	1930	7.35
9.8ft	lb			*10870	9020	8710	5860			*5820	4250	(24.1)
1.5m	kg			5920	3820	3820	2540			*2740	1840	7.48
4.9ft	lb			13050	8420	8420	5600			*6040	4060	(24.5)
0.0m	kg	*4510	*4510	5720	3640	3720	2450			2820	1870	7.30
0.0ft	lb	*9940	*9940	12610	8020	8200	5400			6220	4120	(23.9)
-1.5m	kg	*8370	6630	5650	3590	3690	2420			3120	2070	6.78
-4.9ft	lb	*18450	14620	12460	7910	8140	5340			6880	4560	(22.3)
-3.0m	kg	*9850	6750	5710	3640					3910	2580	5.84
-9.8ft	lb	*21720	14880	12590	8020					8620	5690	(19.2)

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	2pcs	4939	2100	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

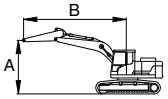


Lift-point height (A)		Lift-point radius (B) 3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		At max. reach Capacity		Reach
												m (ft)
7.5m	kg									*4380	*4380	3.77
24.6ft	lb									*9660	*9660	(12.4)
6.0m	kg			*3810	*3810					*4110	3570	5.50
19.7ft	lb			*8400	*8400					*9060	7870	(18.0)
4.5m	kg	*5010	*5010	*4260	*4260	*4050	3100			*3830	2760	6.44
14.8ft	lb	*11050	*11050	*9390	*9390	*8930	6830			*8440	6080	(21.1)
3.0m	kg			*5340	4610	*4410	3020			*3800	2420	6.93
9.8ft	lb			*11770	10160	*9720	6660			*8380	5340	(22.7)
1.5m	kg			*6500	4360	*4920	2910			*3980	2300	7.07
4.9ft	lb			*14330	9610	*10850	6420			*8770	5070	(23.2)
0.0m	kg			*7190	4220	*5300	2840			*4410	2360	6.88
0.0ft	lb			*15850	9300	*11680	6260			*9720	5200	(22.6)
-1.5m	kg	*9240	7860	*7230	4190	*5260	2830			*4880	2650	6.33
-4.9ft	lb	*20370	17330	*15940	9240	*11600	6240			*10760	5840	(20.8)
-3.0m	kg			*6420	4270							
-9.8ft	lb			*14150	9410							

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	2pcs	4939	2100	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

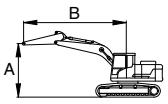


Lift-point height (A)		Lift-point radius (B) 3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		At max. reach Capacity		Reach
												m (ft)
7.5m	kg									*4380	*4380	3.77
24.6ft	lb									*9660	*9660	(12.4)
6.0m	kg			*3810	*3810					*4110	3320	5.50
19.7ft	lb			*8400	*8400					*9060	7320	(18.0)
4.5m	kg	*5010	*5010	*4260	*4260	4030	2880			3580	2560	6.44
14.8ft	lb	*11050	*11050	*9390	*9390	8880	6350			7890	5640	(21.1)
3.0m	kg			*5340	4260	3940	2800			3140	2240	6.93
9.8ft	lb			*11770	9390	8690	6170			6920	4940	(22.7)
1.5m	kg			5890	4010	3830	2690			3000	2130	7.07
4.9ft	lb			12990	8840	8440	5930			6610	4700	(23.2)
0.0m	kg			5730	3870	3750	2620			3090	2180	6.88
0.0ft	lb			12630	8530	8270	5780			6810	4810	(22.6)
-1.5m	kg	*9240	7100	5700	3840	3740	2610			3480	2440	6.33
-4.9ft	lb	*20370	15650	12570	8470	8250	5750			7670	5380	(20.8)
-3.0m	kg			5790	3920							
-9.8ft	lb			12760	8640							

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	2pcs	4939	2100	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

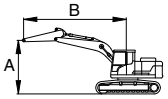


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5m	kg									*4380	*4380	3.77
24.6ft	lb									*9660	*9660	(12.4)
6.0m	kg			*3810	*3810					*4110	3160	5.50
19.7ft	lb			*8400	*8400					*9060	6970	(18.0)
4.5m	kg	*5010	*5010	*4260	*4260	4030	2740			3580	2430	6.44
14.8ft	lb	*11050	*11050	*9390	*9390	8880	6040			7890	5360	(21.1)
3.0m	kg			*5340	4050	3940	2660			3150	2120	6.93
9.8ft	lb			*11770	8930	8690	5860			6940	4670	(22.7)
1.5m	kg			5900	3810	3830	2550			3000	2010	7.07
4.9ft	lb			13010	8400	8440	5620			6610	4430	(23.2)
0.0m	kg			5740	3670	3750	2480			3090	2060	6.88
0.0ft	lb			12650	8090	8270	5470			6810	4540	(22.6)
-1.5m	kg	*9240	6730	5710	3640	3740	2470			3480	2310	6.33
-4.9ft	lb	*20370	14840	12590	8020	8250	5450			7670	5090	(20.8)
-3.0m	kg			5800	3720							
-9.8ft	lb			12790	8200							

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	2pcs	4939	1900	2300	600	Down	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

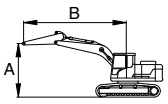


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		Capacity		Reach
												m (ft)
7.5m	kg									*4720	*4720	3.42
24.6ft	lb									*10410	*10410	(11.2)
6.0m	kg			*4060	*4060					*4310	3820	5.27
19.7ft	lb			*8950	*8950					*9500	8420	(17.3)
4.5m	kg	*5420	*5420	*4480	*4480	*4240	3100			*3980	2900	6.24
14.8ft	lb	*11950	*11950	*9880	*9880	*9350	6830			*8770	6390	(20.5)
3.0m	kg			*5550	4600	*4550	3020			*3940	2530	6.75
9.8ft	lb			*12240	10140	*10030	6660			*8690	5580	(22.1)
1.5m	kg			*6670	4360	*5030	2930			*4110	2400	6.89
4.9ft	lb			*14700	9610	*11090	6460			*9060	5290	(22.6)
0.0m	kg			*7270	4240	*5360	2860			*4560	2470	6.70
0.0ft	lb			*16030	9350	*11820	6310			*10050	5450	(22.0)
-1.5m	kg	*9520	7930	*7220	4220	*5210	2870			*5030	2790	6.13
-4.9ft	lb	*20990	17480	*15920	9300	*11490	6330			*11090	6150	(20.1)
-3.0m	kg											
-9.8ft	lb											

Unit : mm

Model	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	2pcs	4939	1900	2300	600	Up	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

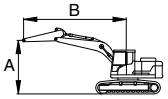


Lift-point height (A)		Lift-point radius (B) 3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		At max. reach Capacity		Reach
												m (ft)
7.5m	kg									*4720	*4720	3.42
24.6ft	lb									*10410	*10410	(11.2)
6.0m	kg			*4060	*4060					*4310	3540	5.27
19.7ft	lb			*8950	*8950					*9500	7800	(17.3)
4.5m	kg	*5420	*5420	*4480	*4480	4020	2870			3760	2690	6.24
14.8ft	lb	*11950	*11950	*9880	*9880	8860	6330			8290	5930	(20.5)
3.0m	kg			*5550	4250	3940	2800			3280	2340	6.75
9.8ft	lb			*12240	9370	8690	6170			7230	5160	(22.1)
1.5m	kg			5890	4010	3840	2710			3130	2220	6.89
4.9ft	lb			12990	8840	8470	5970			6900	4890	(22.6)
0.0m	kg			5760	3890	3770	2640			3230	2290	6.70
0.0ft	lb			12700	8580	8310	5820			7120	5050	(22.0)
-1.5m	kg	*9520	7170	5740	3880	3770	2650			3670	2580	6.13
-4.9ft	lb	*20990	15810	12650	8550	8310	5840			8090	5690	(20.1)
-3.0m	kg											
-9.8ft	lb											

Unit : mm

Mode	Boom Type	Boom Length	Arm Length	Counterweight Weight (kg)	Shoe Width	Dozer Front	Dozer Rear	Outrigger Front	Outrigger Rear
HX140 LC	2pcs	4939	1900	2300	600	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree



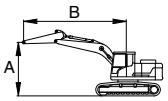
Lift-point height (A)		Lift-point radius (B) 3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		7.5 m (24.6 ft)		At max. reach Capacity		Reach
												m (ft)
7.5m	kg									*4720	*4720	3.42
24.6ft	lb									*10410	*10410	(11.2)
6.0m	kg			*4060	*4060					*4310	3380	5.27
19.7ft	lb			*8950	*8950					*9500	7450	(17.3)
4.5m	kg	*5420	*5420	*4480	4280	4020	2730			3760	2550	6.24
14.8ft	lb	*11950	*11950	*9880	9440	8860	6020			8290	5620	(20.5)
3.0m	kg			*5550	4040	3950	2660			3280	2220	6.75
9.8ft	lb			*12240	8910	8710	5860			7230	4890	(22.1)
1.5m	kg			5900	3810	3840	2570			3130	2100	6.89
4.9ft	lb			13010	8400	8470	5670			6900	4630	(22.6)
0.0m	kg			5760	3690	3770	2500			3230	2160	6.70
0.0ft	lb			12700	8140	8310	5510			7120	4760	(22.0)
-1.5m	kg	*9520	6800	5740	3670	3770	2500			3670	2440	6.13
-4.9ft	lb	*20990	14990	12650	8090	8310	5510			8090	5380	(20.1)
-3.0m	kg											
-9.8ft	lb											

4) 4.6 m (15' 1") HIGH WALKER

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	1900	2000	800	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

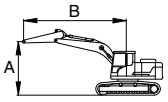


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0 m	kg					*4200	*4200			*3650	*3650	4.73
(19.7 ft)	lb					*9260	*9260			*8050	*8050	(15.5)
4.5 m	kg					*4330	*4330			*3340	3,080	5.8
(14.8 ft)	lb					*9550	*9550			*7360	6,790	(19.0)
3.0 m	kg					*5220	4,380	4,310	2,880	*3330	2,640	6.35
(9.8 ft)	lb					*11510	9,660	9,500	6,350	*7340	5,820	(20.8)
1.5 m	kg					*6220	4,170	4,220	2,800	*3540	2,500	6.5
(4.9 ft)	lb					*13710	9,190	9,300	6,170	*7800	5,510	(21.3)
0.0 m	kg			*5750	*5750	6,350	4,050	4,160	2,750	3,900	2,580	6.29
(0.0 ft)	lb			*12680	*12680	14,000	8,930	9,170	6,060	8,600	5,690	(20.6)
-1.5 m	kg	*5700	*5700	*9710	7,400	6,330	4030			4,500	2,960	5.68
(-4.9 ft)	lb	*12570	*12570	*21410	16,310	13,960	8880			9,920	6,530	(18.6)
-3.0 m	kg			*7880	7,560	*5100	4,150			*5080	4,140	4.51
(-9.8 ft)	lb			*17370	16,670	*11240	9,150			*11200	9,130	(14.8)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2100	2000	800	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

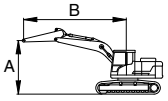


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0 m	kg					*3910	*3910			*3470	*3470	4.97
(19.7 ft)	lb					*8620	*8620			*7650	*7650	(16.3)
4.5 m	kg					*4120	*4120			*3210	2930	5.99
(14.8 ft)	lb					*9080	*9080			*7080	6460	(19.7)
3.0 m	kg			*7310	*7310	*5030	4390	*4280	2870	*3220	2530	6.52
(9.8 ft)	lb			*16120	*16120	*11090	9680	*9440	6330	*7100	5580	(21.4)
1.5 m	kg					*6070	4170	4210	2790	*3430	2400	6.67
(4.9 ft)	lb					*13380	9190	9280	6150	*7560	5290	(21.9)
0.0 m	kg			*6160	*6160	6330	4030	4140	2730	3730	2470	6.47
(0.0 ft)	lb			*13580	*13580	13960	8880	9130	6020	8220	5450	(21.2)
-1.5 m	kg	*5500	*5500	*9870	7340	6300	4000			4260	2800	5.88
(-4.9 ft)	lb	*12130	*12130	*21760	16180	13890	8820			9390	6170	(19.3)
-3.0 m	kg			*8230	7490	*5470	4090			*5000	3800	4.75
(-9.8 ft)	lb			*18140	16510	*12060	9020			*11020	8380	(15.6)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	2500	2000	800	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

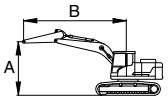


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0 m	kg					*3400	*3400			*2390	*2390	5.50
(19.7 ft)	lb					*7500	*7500			*5270	*5270	(18.0)
4.5 m	kg					*3700	*3700	*3500	2950	*2210	*2210	6.44
(14.8 ft)	lb					*8160	*8160	*7720	6500	*4870	*4870	(21.1)
3.0 m	kg			*6380	*6380	*4630	4420	*4000	2880	*2200	*2200	6.93
(9.8 ft)	lb			*14070	*14070	*10210	9740	*8820	6350	*4850	*4850	(22.7)
1.5 m	kg			*7050	*7050	*5760	4170	4200	2780	*2320	2190	7.07
(4.9 ft)	lb			*15540	*15540	*12700	9190	9260	6130	*5110	4830	(23.2)
0.0 m	kg			*6550	*6550	6320	4010	4120	2700	*2590	2240	6.88
(0.0 ft)	lb			*14440	*14440	13930	8840	9080	5950	*5710	4940	(22.6)
-1.5 m	kg	*4890	*4890	*10080	7250	6250	3950	4090	2680	*3160	2500	6.34
(-4.9 ft)	lb	*10780	*10780	*22220	15980	13780	8710	9020	5910	*6970	5510	(20.8)
-3.0 m	kg	*9020	*9020	*8820	7370	*5920	4000			*4580	3210	5.31
(-9.8 ft)	lb	*19890	*19890	*19440	16250	*13050	8820			*10100	7080	(17.4)

Unit : mm

Model	Boom	Boom	Arm	Counterweight	Shoe	Dozer		Outrigger	
	Type	Length	Length	Weight (kg)	Width	Front	Rear	Front	Rear
HX140 LC	Mono	4600	3000	2000	800	-	-	-	-

· : Rating over-front · : Rating over-side or 360 degree

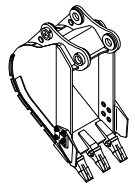
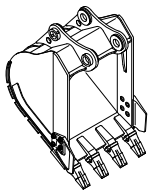
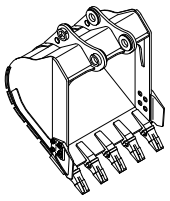


Lift-point height (A)		Lift-point radius (B)								At max. reach		
		1.5 m (4.9 ft)		3.0 m (9.8 ft)		4.5 m (14.8 ft)		6.0 m (19.7 ft)		Capacity		Reach
												m (ft)
6.0 m	kg							*2230	*2230	*2000	*2000	6.08
(19.7 ft)	lb							*4920	*4920	*4410	*4410	(20.0)
4.5 m	kg							*3280	2,990	*1880	*1880	6.94
(14.8 ft)	lb							*7230	6,590	*4140	*4140	(22.8)
3.0 m	kg			*5250	*5250	*4130	*4130	*3670	2,900	*1870	*1870	7.40
(9.8 ft)	lb			*11570	*11570	*9110	*9110	*8090	6,390	*4120	*4120	(24.3)
1.5 m	kg			*8390	7,730	*5340	4,220	4,220	2,790	*1970	*1970	7.53
(4.9 ft)	lb			*18500	17,040	*11770	9,300	9,300	6,150	*4340	*4340	(24.7)
0.0 m	kg			*7180	*7180	*6290	4,020	4,110	2,690	*2180	2,020	7.36
(0.0 ft)	lb			*15830	*15830	*13870	8,860	9,060	5,930	*4810	4,450	(24.1)
-1.5 m	kg	*4370	*4370	*9280	7,200	6,220	3,920	4,050	2,640	*2610	2,220	6.85
(-4.9 ft)	lb	*9630	*9630	*20460	15,870	13,710	8,640	8,930	5,820	*5750	4,890	(22.5)
-3.0 m	kg	*7550	*7550	*9420	7,270	6,240	3,930			*3560	2,730	5.91
(-9.8 ft)	lb	*16640	*16640	*20770	16,030	13,760	8,660			*7850	6,020	(19.4)

6. BUCKET SELECTION GUIDE

1) HX140 LC

(1) General bucket

		
0.23 m³ SAE heaped bucket	0.40, 0.46 m³ SAE heaped bucket	0.52, ※0.58, 0.65, 0.71 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation					
					4.6 m (15' 1") boom				4.1 m (13' 5") boom	
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")	3.0 m arm (9' 10")	1.9 m arm (6' 3")	2.1 m arm (6' 11")
0.23 m³ (0.30 yd³)	0.20 m³ (0.26 yd³)	520 mm (20.5")	620 mm (24.4")	335 kg (740 lb)	●	●	●	⊙	●	●
0.40 m³ (0.52 yd³)	0.35 m³ (0.46 yd³)	760 mm (29.9")	860 mm (33.9")	410 kg (900 lb)	●	●	●	⊙	●	●
0.46 m³ (0.60 yd³)	0.40 m³ (0.52 yd³)	850 mm (33.5")	950 mm (37.4")	435 kg (960 lb)	●	●	●	○	●	●
0.52 m³ (0.68 yd³)	0.45 m³ (0.59 yd³)	935 mm (36.8")	1035 mm (40.8")	460 kg (1010 lb)	●	●	●		●	●
※0.58 m³ (0.76 yd³)	0.50 m³ (0.65 yd³)	1030 mm (40.6")	1130 mm (44.5")	480 kg (1060 lb)	●	●	⊙		●	●
0.65 m³ (0.85 yd³)	0.55 m³ (0.72 yd³)	1110 mm (43.7")	1210 mm (47.6")	500 kg (1100 lb)	⊙	⊙	○		●	⊙
0.71 m³ (0.93 yd³)	0.60 m³ (0.78 yd³)	1205 mm (47.4")	1305 mm (51.4")	540 kg (1190 lb)	○	○			⊙	○

※ : Standard bucket

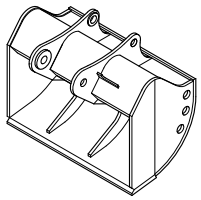
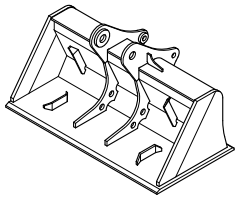
● Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

⊙ Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

○ Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

※ These recommendations are for general conditions and average use.
Work tools and ground conditions have effects on machine performance.
Select an optimum combination according to the working conditions and the type of work that is being done.
Consult your HD Hyundai Construction Equipment dealer for information on selecting the correct boom-arm-bucket combination.

(2) Special bucket

Ditch cleaning bucket	Slope finishing bucket
	
★0.45 m³ SAE heaped bucket	◆0.55 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation					
					4.6 m (15' 1") boom				4.1 m (13' 5") boom	
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")	3.0 m arm (9' 10")	1.9 m arm (6' 3")	2.1 m arm (6' 11")
★0.45 m³ (0.59 yd³)	0.40 m³ (0.52 yd³)	1520 mm (59.8")	-	410 kg (900 lb)	●	●	⊙		●	●
◆0.55 m³ (0.72 yd³)	0.45 m³ (0.59 yd³)	1800 mm (70.9")	-	585 kg (1290 lb)	⊙	⊙	○		●	●

★ : Ditch cleaning bucket ◆ : Slope finishing bucket

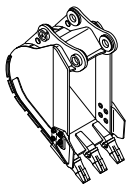
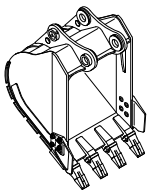
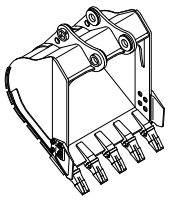
● Applicable for materials with density of 2000 kgf/m³ (3370 lbf/yd³) or less

⊙ Applicable for materials with density of 1600 kgf/m³ (2700 lbf/yd³) or less

○ Applicable for materials with density of 1100 kgf/m³ (1850 lbf/yd³) or less

2) HX140 LC, ADJUST BOOM

(1) General bucket

		
0.23 m³ SAE heaped bucket	0.40, 0.46 m³ SAE heaped bucket	0.52, ※0.58, 0.65, 0.71 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation		
					4.9 m (16' 1") adjust boom		
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")
0.23 m³ (0.30 yd³)	0.20 m³ (0.26 yd³)	520 mm (20.5")	620 mm (24.4")	335 kg (740 lb)	●	●	●
0.40 m³ (0.52 yd³)	0.35 m³ (0.46 yd³)	760 mm (29.9")	860 mm (33.9")	410 kg (900 lb)	●	●	●
0.46 m³ (0.60 yd³)	0.40 m³ (0.52 yd³)	850 mm (33.5")	950 mm (37.4")	435 kg (960 lb)	●	●	⊙
0.52 m³ (0.68 yd³)	0.45 m³ (0.59 yd³)	935 mm (36.8")	1035 mm (40.8")	460 kg (1010 lb)	●	⊙	⊙
※0.58 m³ (0.76 yd³)	0.50 m³ (0.65 yd³)	1030 mm (40.6")	1130 mm (44.5")	480 kg (1060 lb)	⊙	○	○
0.65 m³ (0.85 yd³)	0.55 m³ (0.72 yd³)	1110 mm (43.7")	1210 mm (47.6")	500 kg (1100 lb)	○	○	
0.71 m³ (0.93 yd³)	0.60 m³ (0.78 yd³)	1205 mm (47.4")	1305 mm (51.4")	540 kg (1190 lb)	○		

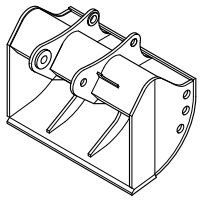
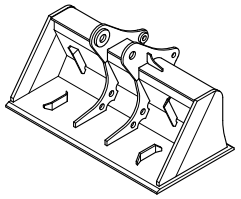
※ : Standard bucket

● Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

⊙ Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

○ Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

(2) Special bucket

Ditch cleaning bucket	Slope finishing bucket
	
★0.45 m³ SAE heaped bucket	◆0.55 m³ SAE heaped bucket

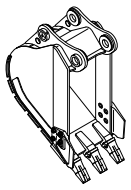
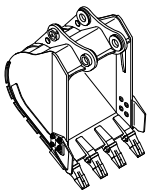
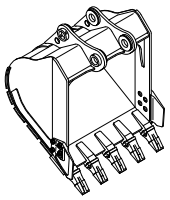
Capacity		Width		Weight	Recommendation		
					4.9 m (16' 1") boom		
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")
★0.45 m³ (0.59 yd³)	0.40 m³ (0.52 yd³)	1520 mm (59.8")	-	410 kg (900 lb)	⊙	⊙	○
◆0.55 m³ (0.72 yd³)	0.45 m³ (0.59 yd³)	1800 mm (70.9")	-	585 kg (1290 lb)	⊙	○	○

★ : Ditch cleaning bucket
◆ : Slope finishing bucket

● Applicable for materials with density of 2000 kgf/m³ (3370 lbf/yd³) or less
⊙ Applicable for materials with density of 1600 kgf/m³ (2700 lbf/yd³) or less
○ Applicable for materials with density of 1100 kgf/m³ (1850 lbf/yd³) or less

3) HX140 LC HIGH WALKER

(1) General bucket

		
0.23 m³ SAE heaped bucket	0.40, 0.46 m³ SAE heaped bucket	0.52, ※0.58, 0.65, 0.71 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation			
					4.6 m (15' 1") boom			
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")	3.0 m arm (9' 10")
0.23 m³ (0.30 yd³)	0.20 m³ (0.26 yd³)	520 mm (20.5")	620 mm (24.4")	335 kg (740 lb)	●	●	●	●
0.40 m³ (0.52 yd³)	0.35 m³ (0.46 yd³)	760 mm (29.9")	860 mm (33.9")	410 kg (900 lb)	●	●	●	⊙
0.46 m³ (0.60 yd³)	0.40 m³ (0.52 yd³)	850 mm (33.5")	950 mm (37.4")	435 kg (960 lb)	●	●	●	⊙
0.52 m³ (0.68 yd³)	0.45 m³ (0.59 yd³)	935 mm (36.8")	1035 mm (40.7")	460 kg (1010 lb)	●	●	●	○
※0.58 m³ (0.76 yd³)	0.50 m³ (0.65 yd³)	1030 mm (40.6")	1130 mm (44.5")	480 kg (1060 lb)	●	●	●	
0.65 m³ (0.85 yd³)	0.55 m³ (0.72 yd³)	1110 mm (43.7")	1210 mm (47.6")	500 kg (1100 lb)	●	⊙	⊙	
0.71 m³ (0.93 yd³)	0.60 m³ (0.78 yd³)	1205 mm (47.4")	1305 mm (51.4")	540 kg (1190 lb)	⊙	⊙	○	

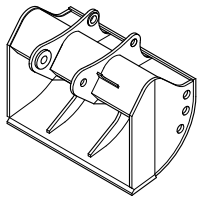
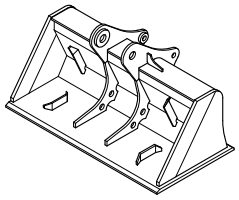
※ : Standard bucket

● Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

⊙ Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

○ Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

(2) Special bucket

Ditch cleaning bucket	Slope finishing bucket
	
★0.45 m³ SAE heaped bucket	◆0.55 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation		
					4.9 m (16' 1") boom		
SAE heaped	CECE heaped	Without side cutter	With side cutter		1.9 m arm (6' 3")	2.1 m arm (6' 11")	2.5 m arm (8' 2")
★0.45 m³ (0.59 yd³)	0.40 m³ (0.52 yd³)	1520 mm (59.8")	-	410 kg (900 lb)	⊙	⊙	○
◆0.55 m³ (0.72 yd³)	0.45 m³ (0.59 yd³)	1800 mm (70.9")	-	585 kg (1290 lb)	⊙	○	○

★ : Ditch cleaning bucket ◆ : Slope finishing bucket

● Applicable for materials with density of 2000 kgf/m³ (3370 lbf/yd³) or less

⊙ Applicable for materials with density of 1600 kgf/m³ (2700 lbf/yd³) or less

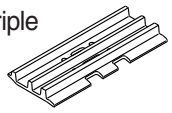
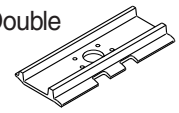
○ Applicable for materials with density of 1100 kgf/m³ (1850 lbf/yd³) or less

7. UNDERCARRIAGE

1) TRACKS

X-leg type center frame is integrally welded with reinforced box-section track frames. The design includes dry tracks, lubricated rollers, idlers, sprockets, hydraulic track adjusters with shock absorbing springs and assembled track-type tractor shoes with triple grousers.

2) TYPES OF SHOES

Model	Shapes		Grouser		
			Triple 		Double 
HX140 LC	Shoe width	mm (in)	500 (20)	※600 (24)	700 (28)
	Operating weight	kg (lb)	13840 (30510)	14050 (30975)	14260 (31440)
	Ground pressure	kgf/cm^2 (psi)	0.43 (6.07)	0.36 (5.13)	0.31 (4.47)
	Overall width	mm (ft-in)	2500 (8' 2")	2600 (8' 6")	2700 (8' 10")
HX140 LC DOZER BLADE	Shoe width	mm (in)	500 (20)	※600 (24)	700 (28)
	Operating weight	kg (lb)	14660 (32320)	14870 (32780)	15080 (33245)
	Ground pressure	kgf/cm^2 (psi)	0.45 (6.43)	0.38 (5.43)	0.33 (4.72)
	Overall width	mm (ft-in)	2500 (8' 2")	2600 (8' 6")	2700 (8' 10")
HX140 LC HIGH WALKER	Shoe width	mm (in)	★700 (28)	※800 (32)	☆960 (38)
	Operating weight	kg (lb)	16715 (36850)	16950 (37370)	17220 (37960)
	Ground pressure	kgf/cm^2 (psi)	0.36 (5.16)	0.32 (4.58)	0.27 (3.88)
	Overall width	mm (ft-in)	2750 (9' 0")	2840 (9' 4")	3000 (9' 10")

※ : Standard ☆ : Single grouser ★ : Double grouser

3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity	
	HX140 LC	HX140 LC HIGH WALKER
Carrier rollers	1 EA	2 EA
Track rollers	7 EA	7 EA
Track shoes	46 EA	47 EA

4) SELECTION OF TRACK SHOE

Suitable track shoes should be selected according to operating conditions.

Method of selecting shoes

Confirm the category from the list of applications in **table 2**, then use **table 1** to select the shoe. Wide shoes (categories B and C) have limitations on applications. Before using wide shoes, check the precautions, then investigate and study the operating conditions to confirm if these shoes are suitable.

Select the narrowest shoe possible to meet the required flotation and ground pressure. Application of wider shoes than recommendations will cause unexpected problem such as bending of shoes, crack of link, breakage of pin, loosening of shoe bolts and the other various problems.

※ **Table 1**

Track shoe	Specification	Category
600 mm triple grouser	Standard	A
500 mm triple grouser	Option	A
700 mm triple grouser	Option	B
700 mm triple grouser	HX140 LC HW only	B
800 mm triple grouser	HX140 LC HW only	B
960 mm single grouser	HX140 LC HW only	B

※ **Table 2**

Category	Applications	Applications
A	Rocky ground, river beds, normal soil	· Travel at low speed on rough ground with large obstacles such as boulders or fallen trees
B	Normal soil, soft ground	· These shoes cannot be used on rough ground with large obstacles such as boulders or fallen trees · Travel at high speed only on flat ground · Travel slowly at low speed if it is impossible to avoid going over obstacles

8. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSF3.8
Type	4-cycle turbocharged charge air cooled diesel engine
Cooling method	Water cooling
Number of cylinders and arrangement	4 cylinders, in-line
Firing order	1-3-4-2
Combustion chamber type	Direct injection type
Cylinder bore × stroke	102 x 115 mm (4.02" x 4.53")
Piston displacement	3800 cc (229 cu in)
Compression ratio	17.2 : 1
Rated net horse power (SAE J1349)	127 Hp (95 kW) at 2200 rpm
Rated gross horse power (SAE J1995)	130 Hp (97 kW) at 2200 rpm
Maximum torque	50 kgf · m (360 lbf · ft) at 1600 rpm
Engine oil quantity	12 liter (3.2 U.S. gal)
Weight (wet)	348 kg (767 lb)
High idling speed	2230 ± 50 rpm
Low idling speed	900 ± 50 rpm
Rated fuel consumption	168 g/Hp · hr at 2000 rpm
Starting motor	24 V-4.8 kW
Alternator	28 V-70 A
Battery	2 × 12 V × 100 Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement axial piston pumps
Capacity	2 × 65 cc/rev
Maximum pressure	350 kgf/cm² (4980 psi) [380 kgf/cm² (5400 psi)]
Rated oil flow	2 × 126.8 ℓ/min (33.4 U.S. gpm / 27.8 U.K. gpm)
Rated speed	1950 rpm

[ ]: Power boost

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	40 kgf/cm^2 (570 psi)
Rated oil flow	29.2 ℓ /min (7.7 U.S. gpm / 6.4 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	11 spools
Operating method	Hydraulic pilot system
Main relief valve pressure	350 kgf/cm^2 (4980 psi) [380 kgf/cm^2 (5400 psi)]
Overload relief valve pressure	400 kgf/cm^2 (5690 psi)

[ ]: Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	72 cc/rev
Relief pressure	285 kgf/cm^2 (4054 psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	Minimum 30 kgf · m (217 lbf · ft)
Brake release pressure	15~50 kgf/cm^2 (213~711 psi)
Reduction gear type	2 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement axial piston motor
Relief pressure	350 kgf/cm^2 (4980 psi)
Capacity (max / min)	77/44.5 cc/rev
Reduction gear type	2-stage planetary
Braking system	Automatic, spring applied hydraulic released
Brake release pressure	12.5 kgf/cm^2 (178 psi)
Braking torque	33.12 kgf · m (240 lbf · ft)

7) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	Ø105× Ø75× 1075 mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	Ø115× Ø80× 1138 mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	Ø100× Ø70× 850 mm
	Cushion	Extend only
Dozer cylinder (opt)	Bore dia × Rod dia × Stroke	Ø100× Ø70× 250 mm
	Cushion	-
Adjust cylinder (opt)	Bore dia × Rod dia × Stroke	Ø145× Ø90× 613 mm
	Cushion	-
Adjust boom cylinder (opt)	Bore dia × Rod dia × Stroke	Ø105× Ø75× 975 mm
	Cushion	Extend only

※ **Discoloration of cylinder rod can occur when the friction reduction additive of lubrication oil spreads on the rod surface.**

※ **Discoloration does not cause any harmful effect on the cylinder performance.**

8) SHOE

Item		Width	Ground pressure	Link quantity	Overall width
HX140 LC	Standard	600 mm (24")	0.36 kgf/cm² (5.13 psi)	46	2600 mm (8' 6")
	Option	500 mm (20")	0.43 kgf/cm² (6.07 psi)	46	2500 mm (8' 2")
		700 mm (28")	0.31 kgf/cm² (4.47 psi)	46	2700 mm (8' 10")
HX140 LC DOZER BLADE	Standard	600 mm (24")	0.38 kgf/cm² (5.43 psi)	46	2600 mm (8' 6")
	Option	500 mm (20")	0.45 kgf/cm² (6.43 psi)	46	2500 mm (8' 2")
		700 mm (28")	0.33 kgf/cm² (4.72 psi)	46	2700 mm (8' 10")
HX140 LC HIGH WALKER	Standard	800 mm (32")	0.32 kgf/cm² (4.58 psi)	47	2840 mm (9' 4")
	Option	700 mm (28")	0.36 kgf/cm² (5.16 psi)	47	2850 mm (9' 0")
		960 mm (38")	0.27 kgf/cm² (3.88 psi)	47	3000 mm (9' 10")

9) BUCKET

Item		Capacity		Tooth quantity	Width	
		SAE heaped	CECE heaped		Without side cutter	With side cutter
HX140 LC	Standard	※0.58 m³ (0.76 yd³)	0.50 m³ (0.65 yd³)	5	1030 mm (40.6")	1130 mm (44.5")
	Option	0.23 m³ (0.30 yd³)	0.20 m³ (0.26 yd³)	3	520 mm (20.5")	620 mm (24.4")
		0.40 m³ (0.52 yd³)	0.35 m³ (0.46 yd³)	4	760 mm (29.9")	860 mm (33.9")
		0.46 m³ (0.60 yd³)	0.40 m³ (0.52 yd³)	4	850 mm (33.5")	950 mm (37.4")
		0.52 m³ (0.68 yd³)	0.45 m³ (0.59 yd³)	5	935 mm (36.8")	1035 mm (40.8")
		0.65 m³ (0.85 yd³)	0.55 m³ (0.72 yd³)	5	1110 mm (43.7")	1210 mm (47.6")
		0.71 m³ (0.93 yd³)	0.60 m³ (0.78 yd³)	5	1205 mm (47.4")	1305 mm (51.4")
		★0.45 m³ (0.59 yd³)	0.40 m³ (0.52 yd³)	-	1520 mm (59.8")	-
		◆0.55 m³ (0.72 yd³)	0.45 m³ (0.59 yd³)	-	1800 mm (70.9")	-

★ : Standard ★ : Ditch cleaning bucket ◆ : Slope finishing bucket

9. RECOMMENDED OILS

HD Hyundai Construction Equipment genuine lubricating oils have been developed to offer the best performance and service life for your equipment. These oils have been tested according to the specifications of HD Hyundai Construction Equipment and, therefore, will meet the highest safety and quality requirements.
We recommend that you use only HD Hyundai Construction Equipment genuine lubricating oils and grease officially approved by HD Hyundai Construction Equipment.

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature ˚C(˚F) -50 (-58) -30 (-22) -20 (-4) -10 (14) 0 (32) 10 (50) 20 (68) 30 (86) 40 (104)
Engine oil pan	Engine oil★3	12 (3.2)	★SAE 0W-40 ★SAE 0W-30 SAE 5W-30 SAE 10W-30 SAE 15W-40
DEF/ AdBlue® Tank	Mixture of urea and deionized water	19 (5.0)	ISO 22241, High-purity urea + deionized water (32.5:67.5)
Swing drive	Gear oil	TYPE 1 : 3.5 (0.9) TYPE 2 : 2.5 (0.7)	★SAE 75W-90
Final drive		2.3 (0.6)	SAE 80W-90
Hydraulic tank	Hydraulic oil	Tank : 124 (32.8) System : 210 (55.5)	★ISO VG 15 ISO VG 32 ISO VG 46, HBHO VG 46★3 ISO VG 68
Fuel tank	Diesel fuel★1	270 (71.3)	★ASTM D975 NO.1 ASTM D975 NO.2
Fitting (grease nipple)	Grease	As required	★NLGI NO.1 NLGI NO.2
Radiator (reservoir tank)	Mixture of antifreeze and soft water★2	15.5 (4.1)	Ethylene glycol base permanent type (50 : 50) ★Ethylene glycol base permanent type (60 : 40)

SAE : Society of Automotive Engineers
API : American Petroleum Institute
ISO : International Organization for Standardization
NLGI : National Lubricating Grease Institute
ASTM : American Society of Testing and Material
DEF : Diesel Exhaust Fluid, DEF compatible with AdBlue®

★ : Cold region (Russia, CIS, Mongolia)
★1 : Ultra low sulfur diesel
- sulfur content ≤ 15 ppm

★2 : Soft water
City water or distilled water

★3 : HD Hyundai Construction Equipment Bio Hydraulic Oil

※ Using any lubricating oils other than HD Hyundai Construction Equipment genuine products may lead to a deterioration of performance and cause damage to major components.

※ Do not mix HD Hyundai Construction Equipment genuine oil with any other lubricating oil as it may result in damage to the systems of major components.

※ Do not use any engine oil other than that specified above, as it may clog the diesel particulate filter(DPF).

※ For HD Hyundai Construction Equipment genuine lubricating oils and grease for use in regions with extremely low temperatures, please contact HD Hyundai Construction Equipment dealers.

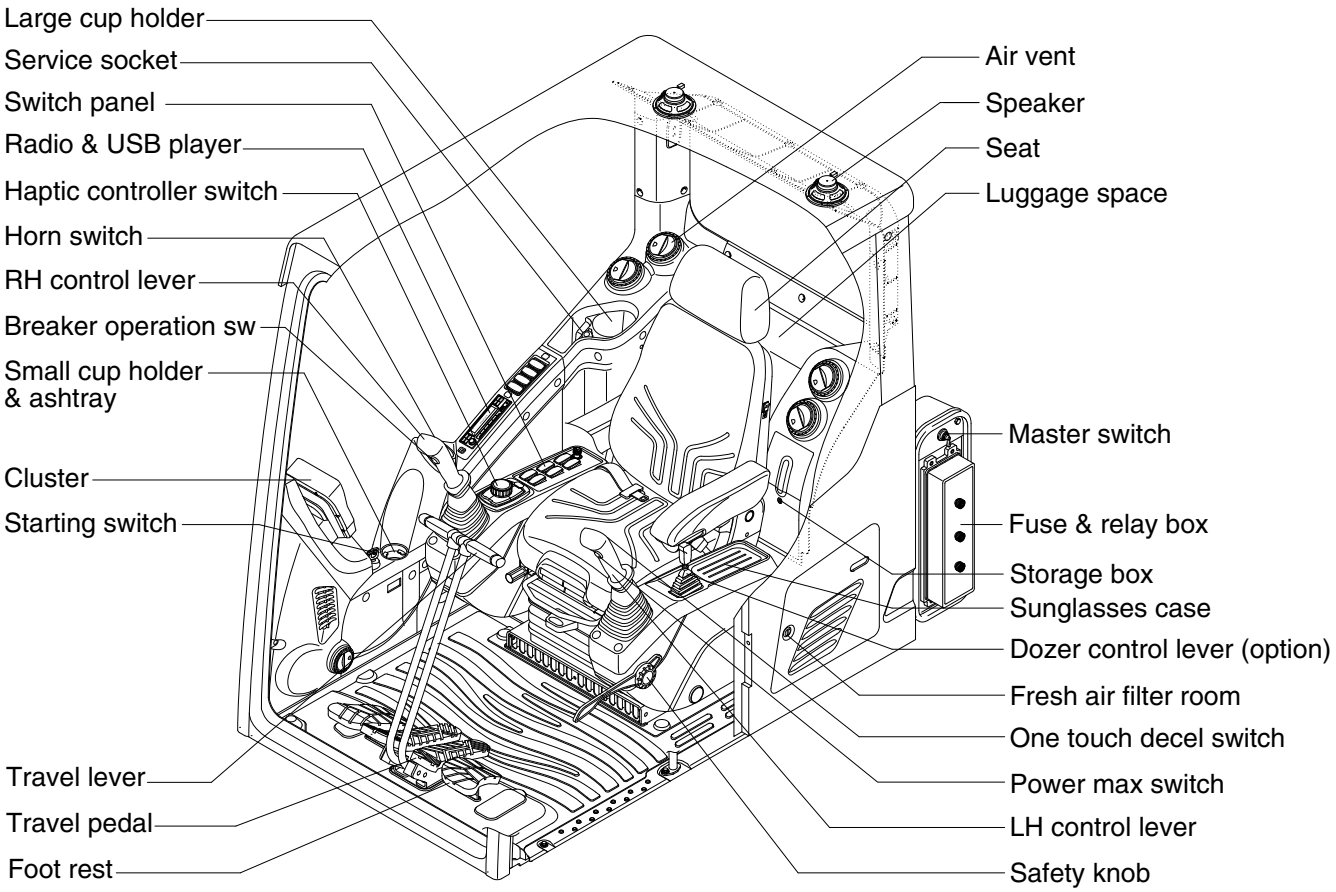
1. CAB DEVICES

1) The ergonomically designed console box and suspension type seat provide the operator with comfort.

2) ELECTRONIC MONITOR SYSTEM

(1) The centralized electronic monitor system allows the status and conditions of the machine to be monitored at a glance.

(2) It is equipped with a safety warning system for early detection of machine malfunction.



140F3CD01

2. CLUSTER

1) STRUCTURE

The cluster consists of LCD and switches as shown below. The LCD is to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection. Also, The LCD is to set and display for modes, monitoring and utilities with the switches.

The switches or touch screen are to set the machine operation modes.

※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, Maintenance.

※ When the cluster provides a warning immediately check the problem, and perform the required action.

140LC3CD50A

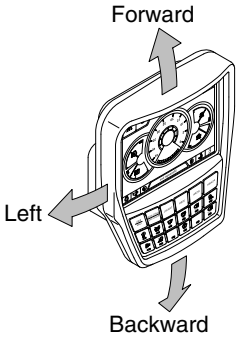
※ The warning lamp pops up and/or blinks and the buzzer sounds when the machine has a problem.

The warning lamp blinks until the problem is cleared. Refer to page 3-6 for details.

※ This cluster is adjustable.

· Vertical (forward/backward) : each 15°

· Horizontal (left only) : 8°



290F3CD47

2) GAUGE

(1) Operation screen

When you first turn starting switch ON, the operation screen will appear.

Default

Option

290F3CD51A

1	RPM / Speed gauge	5	DEF/AdBlue® level gauge
2	Engine coolant temperature gauge	6	Tripmeter display
3	Hydraulic oil temperature gauge	7	Eco guage
4	Fuel level gauge	8	Accel dial gauge

※ Operation screen type can be set by the screen type menu of the display.
Refer to page 3-28 for details.

(2) RPM / Speed gauge

290F3CD49

① This display the engine speed.

(3) Engine coolant temperature gauge

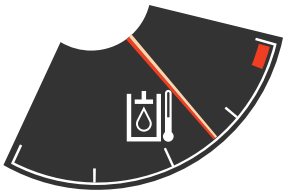
290F3CD53

① This gauge indicates the temperature of coolant.
- White range : 40-107˚C (104-225˚F)
- Red range : Above 107˚C (225˚F)

② If the indicator is in the red range or lamp pops up and the buzzer sounds turn OFF the engine and check the engine cooling system.

※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(4) Hydraulic oil temperature gauge



290F3CD54

① This gauge indicates the temperature of hydraulic oil.
- White range : 40-105˚C(104-221˚F)
- Red range : Above 105˚C(221˚F)

② If the indicator is in the red range or lamp pops up and the buzzer sounds reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.

※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(5) Fuel level gauge

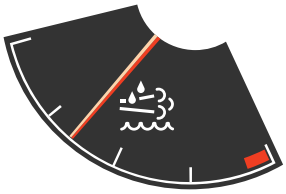
290F3CD55

① This gauge indicates the amount of fuel in the fuel tank.

② Fill the fuel when the red range, or lamp pops up and the buzzer sounds.

※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(6) DEF/AdBlue® Level gauge



290F3CD57

① This gauge indicates the amount of liquid in the DEF/AdBlue® tank.

② Fill the DEF/AdBlue® when the red range, or lamp pops up and the buzzer sounds.

③ Do not pour DEF/AdBlue® any more when the DEF/AdBlue® fill up warning lamp lights ON.

※ Refer to page 3-9.

※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(7) Tripmeter display

290F3CD56

① This displays the engine the tripmeter.

※ Refer to page 3-30 for details.

(8) Eco gauge

290F3CD58

① This gauge indicates the fuel consumption rate and machine load status. So that operators can be careful with fuel economy.

② The fuel consumption rate or machine load is higher, the number of segment is increased.

③ The color of Eco gauge indicates operation status.

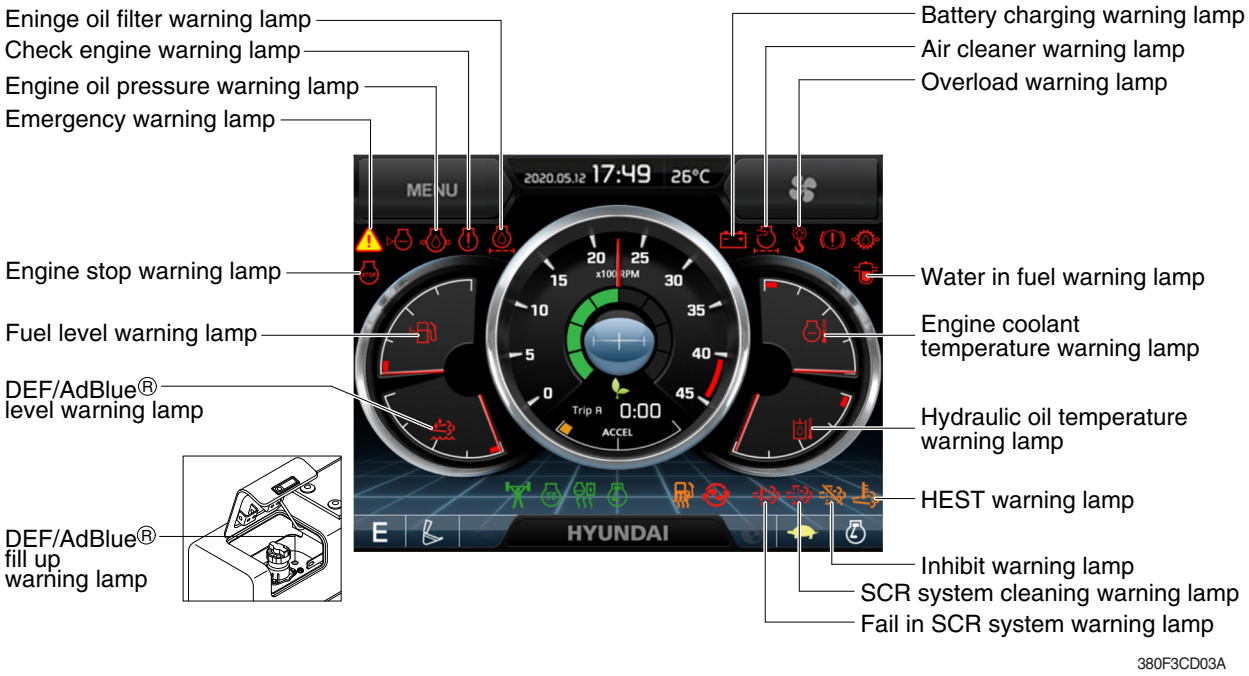
- White : Idle operation
- Green : Economy operation
- Yellow : Non-economy operation at a medium level.
- Red : Non-economy operation at a high level.

(9) Accel dial gauge

290F3CD59

① This gauge indicates the level of accel dial.

3) WARNING LAMPS

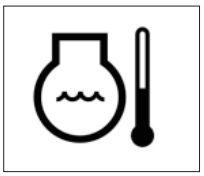


※ **Warning lamps and buzzer**

Warnings	When error happened	Lamps and buzzer
All warning lamps except below	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position and blinks, and the buzzer stops when ; - the buzzer stop switch AUTO IDLE Buzzer Stop is pushed - the knob of the haptic controller is pushed - the lamp of the LCD is touched
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position and light ON or blinks, and the buzzer stops when ; - the buzzer stop switch AUTO IDLE Buzzer Stop is pushed - the knob of the haptic controller is pushed - the lamp of the LCD is touched ※ **Refer to page 3-9 for details.**
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position and lights ON, and the buzzer stops when 2 seconds elapsed.
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position and blinks, and the buzzer stops when 2 seconds elapsed.
	Warning lamp pops up on the center of the LCD and the buzzer sounds	※ **Refer to page 3-7 for details.**

※ **Refer to page 3-14 for the buzzer stop switch** AUTO IDLE Buzzer Stop **and page 3-61 for the haptic controller.**

(1) Engine coolant temperature warning lamp



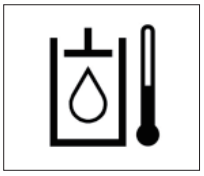
290F3CD61

① Engine coolant temperature warning is indicated two steps.
- 103˚C over : The lamp pops up and the buzzer sounds.
- 107˚C over : The lamp pops up and the buzzer sounds.

② The pop-up , lamps move to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. And the buzzer stops and , lamps keep blink.

③ Check the cooling system when the lamps keep blink.

(2) Hydraulic oil temperature warning lamp



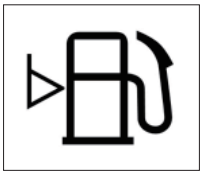
290F3CD62

① Hydraulic oil temperature warning is indicated two steps.
- 100˚C over : The lamp pops up and the buzzer sounds.
- 105˚C over : The lamp pops up and the buzzer sounds.

② The pop-up , lamps move to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. And the buzzer stops and , lamps keep blink.

③ Check the hydraulic oil level and hydraulic oil cooling system.

(3) Fuel level warning lamp



290F3CD63

① This warning lamp pops up and the buzzer sounds when the level of fuel is below 31 ℓ (8.2 U.S. gal).

② Fill the fuel immediately when the lamp blinks.

(4) Emergency warning lamp

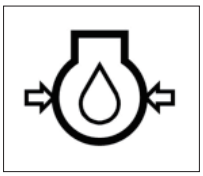
290F3CD64

① This warning lamp pops up and the buzzer sounds when each of the below warnings is happened.
- Engine coolant overheating (over 107˚C)
- Hydraulic oil overheating (over 105˚C)
- MCU input voltage abnormal
- Cluster communication data error
- Engine ECM communication data error

※ The pop-up warning lamp moves to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. And the buzzer stops.

② When this warning lamp blinks, machine must be checked and serviced immediately.

(5) Engine oil pressure warning lamp



290F3CD65

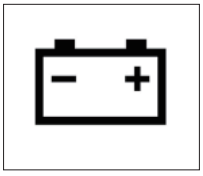
① This warning lamp pops up and the buzzer sounds when the engine oil pressure is low.
② If the lamp blinks, shut OFF the engine immediately. Check oil level.

(6) Check engine warning lamp

290F3CD66

① This warning lamp pops up and the buzzer sounds when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received specific fault code from engine ECM.
② Check the communication line between them.
If the communication line is OK, then check the fault codes on the cluster.

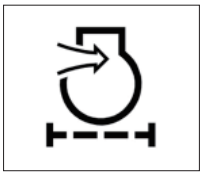
(7) Battery charging warning lamp



290F3CD67

① This warning lamp pops up and the buzzer sounds when the battery charging voltage is low.
② Check the battery charging circuit when this lamp blinks.

(8) Air cleaner warning lamp



290F3CD68

① This warning lamp pops up and the buzzer sounds when the filter of air cleaner is clogged.
② Check the filter and clean or replace it.

(9) Overload warning lamp (opt)

290F3CD69

① When the machine is overload, the overload warning lamp pops up and the buzzer sounds during the overload switch is ON. (if equipped)
② Reduce the machine load.

(10) Engine stop warning lamp

290F3CD252

① This warning lamp pops up and the buzzer sounds when 30 minutes elapsed with empty condition of the DEF/AdBlue® tank, stop the engine immediately and check the DEF/AdBlue® tank.

② Fill the DEF/AdBlue® immediately in the DEF/AdBlue® tank.

(11) DEF/AdBlue® level warning lamp

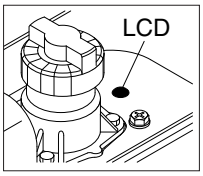
290F3CD257

① This warning lamp indicates when ON, that the DEF/AdBlue® level is low as table below.

※ It is recommended that the DEF/AdBlue® tank be filled completely full of the DEF/AdBlue® in order to correct any fault conditions.

Warning lamp			Description
DEF/AdBlue® level 	Check engine 	Stop engine 	
On	Off	Off	· The DEF/AdBlue® level has fallen below the initial warning level (20%).
On	Off	Off	· The DEF/AdBlue® level has fallen below the critical warning level (14%).
On	On	Off	· The DEF/AdBlue® level has fallen below the initial derate warning level (8%). · 75% torque derate.
On	On	On	· The DEF/AdBlue® level has fallen below the initial warning level (3.5%). · 5 minute control engine speed and then hold idle only.

(12) DEF/AdBlue® fill up warning lamp



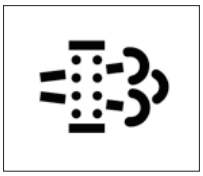
290F3CD272

① This lamp lights ON when the DEF/AdBlue® tank is completely filled with DEF/AdBlue®.

※ Fill the tank with the DEF/AdBlue® after start switch ON and then turn OFF the start switch.

※ Do not pour DEF/AdBlue® any more when this lamp lights ON. Otherwise DEF/AdBlue® tank may freeze and burst in winter season.

(13) SCR (selective catalytic reduction) system cleaning warning lamp

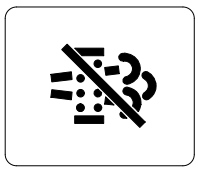


290F3CD70

① This warning lamp lights ON or blinks when the SCR system cleaning is needed as table below.

Warning lamp			Description
SCR 	Check engine 	Stop engine 	
Off	Off	Off	· Automatic SCR system cleaning
Blink	Off	Off	· The status of a manual (stationary) SCR system cleaning when the SCR system cleaning switch has been activated. ※ **Refer to page 3-9-2.**
On	On	Off	· The aftertreatment SCR system needs to be cleaned immediately. · Engine power will be reduced automatically if action is not taken. ※ The SCR system cleaning can be accomplished by : - Changing to more challenging duty cycle. - Performing a manual SCR system cleaning.
On	On	On	· These lamps will be ON when a stationary (manual) SCR system cleaning is not performed. · Stop the engine immediately. · Please contact your HD Hyundai Construction Equipment service center or local dealer.

(14) SCR system cleaning inhibit warning lamp

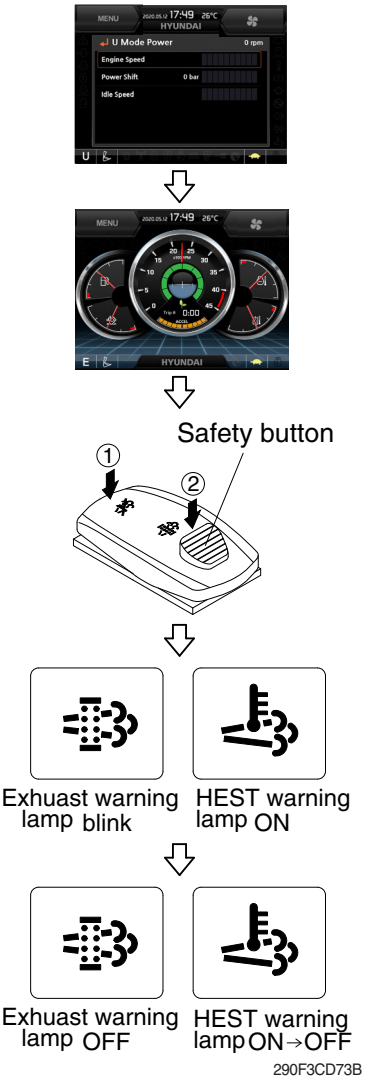


2609A3CD20

① This warning lamp indicates, when illuminated, the SCR system cleaning switch is pushed inhibit position, therefore automatic and manual SCR system cleaning can not occur.

※ **Refer to the page 3-40 for the SCR system cleaning switch.**

※ Manual SCR system cleaning



290F3CD73B

※ Manual SCR system cleaning applies if the machine is in a fireproof area.

※ To stop a manual SCR system cleaning before it has completed, set to the SCR system cleaning switch to the inhibit position or turn OFF the engine.

① Stop and park the machine.

② Pull the safety button and push the switch to position ② to initiate the manual SCR system cleaning.

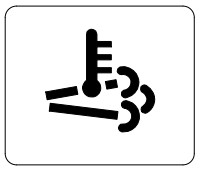
※ Refer to the page 3-40 for the SCR system cleaning switch operation.

※ The engine speed may increase to 950~1050 rpm and SCR system cleaning begins and it will take approximately 20~60 minutes.

③ The SCR system cleaning warning lamp will blink and HEST warning lamp will light ON during the SCR system cleaning is operating.

④ The SCR system cleaning and/or HEST warning lamp will light OFF when the SCR system cleaning is completed.

(15) **HEST** (High exhaust system temperature) **warning lamp**


2609A3CD21

① This warning lamp indicates, when illuminated, that exhaust temperatures are high due to SCR system cleaning.

② The lamp will also illuminate during a manual SCR system cleaning.

③ When this lamp is illuminated, be sure the exhaust pipe outlet is not directed at any surface or material that can melt, burn, or explode.

⚠ When this lamp is illuminated, the exhaust gas temperature could reach 800˚C [1500˚F], which is hot enough to ignite or melt common materials, and to burn people.

※ The lamp does not signify the need for any kind of equipment or engine service; It merely alerts the equipment operator to high exhaust temperatures. It will be common for the lamp to illuminate on and off during normal equipment operation as the engine completes SCR system cleaning.

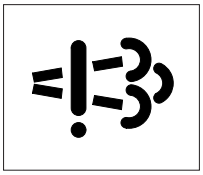
(16) Water in fuel warning lamp

210WF3CD02

① This warning lamp pops up and the buzzer sounds when the water separator is full of water or malfunctioning.

※ **When this lamp blinks, stop the machine and spill water out of the separator.**

(17) Fail in SCR system warning lamp



300A3CD15

① This warning lamp indicates there are faults related to SCR system.

② The lamp lights ON when each of the below warnings is happened.

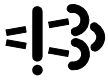
a. Low DEF/AdBlue® level

b. Poor quality of DEF/AdBlue®

c. Tempering or malfunction in the aftertreatment system

③ Once the lamp lights ON, the engine will derate shortly.

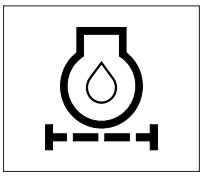
※ **Please contact your HD Hyundai Construction Equipment service center or local dealer.**

Warning lamp		Torque reduction
	Time	
On	Fault detected	-
On	After 2 h 30 min	· Torque is reduced to 50% of the highest torque.
Blink	After 3 h 45 min	· Torque is reduced to 40% of the highest torque.
Blink rapidly	After 4 hours	· Torque is reduced to 0% (low idling) of the hightest torque within 2~10 min.

※ **If a new fault occurs within 40 hours of operation since the first fault, the warning lamp will come ON. After 3 hours of operation, the warning lamp will blink rapidly and torque will be reduced to 0% (low idling) within 2~10 min.**

※ **Once the fault has been remedied and the engine control unit has received an indication that it is working, torque returns to the normal level.**

(18) Eninge oil filter warning lamp

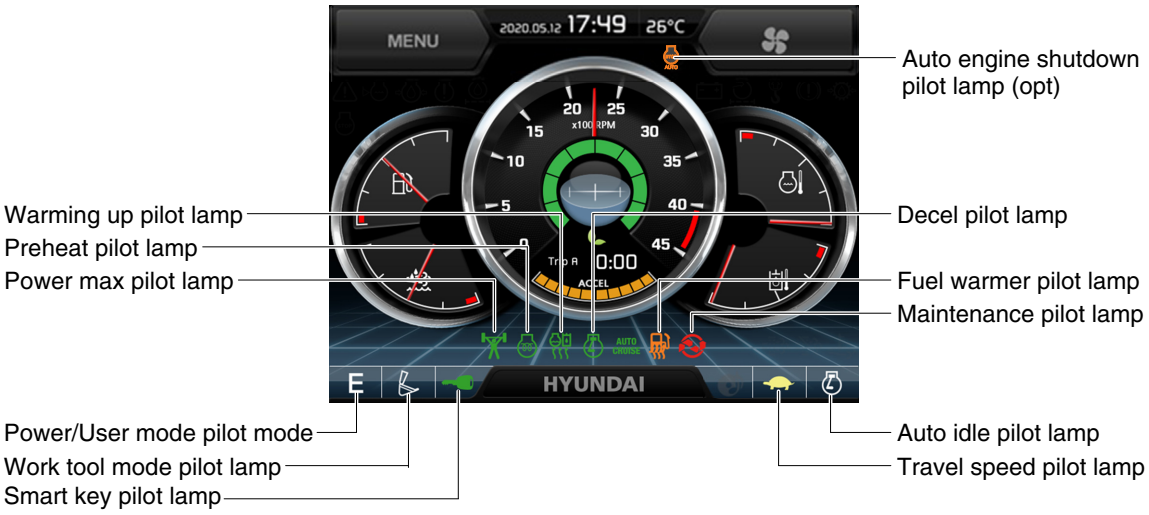


300A3CD306

① This warning lamp pops up and the buzzer sounds when the filter of eninge oil is clogged.

② Check the filter and clean or replace it.

4) PILOT LAMPS



290F3CD74A

(1) Mode pilot lamps

No	Mode	Pilot lamp	Selected mode
1	Power mode	P	Heavy duty power work mode
		S	Standard power mode
		E	Economy power mode
2	User mode	U	User preferable power mode
3	Work tool mode		General operation - IPC speed mode
			General operation - IPC balance mode
			General operation - IPC efficiency mode
			Breaker operation mode
			Crusher operation mode
4	Travel mode		Low speed traveling
			High speed traveling
5	Auto idle mode		Auto idle

(2) Power max pilot lamp

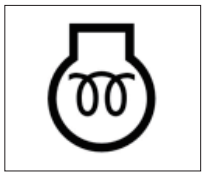
290F3CD78

① The lamp will be ON when pushing power max switch on the LH RCV lever.

② The power max function is operated maximum 8 seconds.

※ **Refer to the page 3-39 for power max function.**

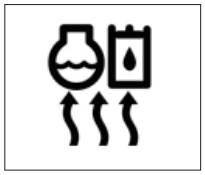
(3) Preheat pilot lamp



290F3CD79

① Turning the start key switch ON position starts preheating in cold weather.
② Start the engine after this lamp is OFF.

(4) Warming up pilot lamp



290F3CD80

① This lamp is turned ON when the coolant temperature is below 30˚C (86˚F).
② The automatic warming up is cancelled when the engine coolant temperature is above 30˚C, or when 10 minutes have passed since starting the engine.

(5) Decel pilot lamp

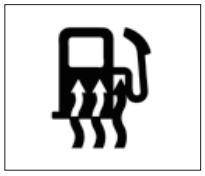
290F3CD81

① Operating one touch decel switch on the RCV lever makes the lamp ON.
② Also, the lamp will be ON and engine speed will be lowered automatically to save fuel consumption when all levers and pedals are at neutral position, and the auto idle function is selected.

※ One touch decel is not available when the auto idle pilot lamp is turned ON.

※ Refer to the page 3-39.

(6) Fuel warmer pilot lamp



290F3CD82

① This lamp is turned ON when the coolant temperature is below 10˚C (50˚F) or the hydraulic oil temperature 20˚C (68˚F).
② The automatic fuel warming is cancelled when the engine coolant temperature is above 60˚C, and the hydraulic oil temperature is above 45˚C since the start switch was ON position.

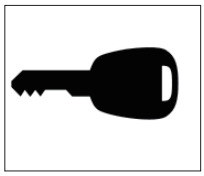
(7) Maintenance pilot lamp

290F3CD83

① This lamp will be ON when the consuming parts are needed to change or replace. It means that the change or replacement interval of the consuming parts remains below 30 hours.
② Check the message in maintenance information of main menu. Also, this lamp lights ON for 3 minutes when the start switch is ON position.

※ Refer to the page 3-23.

(8) Smart key pilot lamp (opt)



290F3CD214

① This lamp is ON when the engine is started by the start button.
② This lamp is red when the a authentication fails, green when succeeds.
※ **Refer to the page 3-24.**

(9) Auto engine shutdown pilot lamp (opt)

220A3CD202A

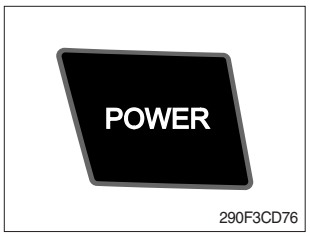
① This lamp is turned ON when the auto engine shutdown is activated
※ **Refer to the page 3-20.**

5) SWITCHES

290F3CD86A

※ **When some of the switches are selected, the pilot lamps are displayed on the LCD. Refer to the page 3-10 for details.**

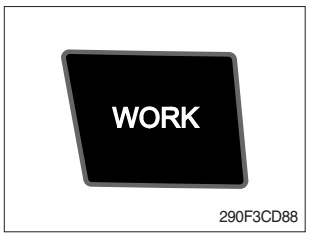
(1) Power mode switch



290F3CD76

① This switch is to select the machine power mode and selected power mode pilot lamp is displayed on the pilot lamp position.
P : Heavy duty power work.
S : Standard power work.
E : Economy power work.
② The pilot lamp changes E S P E in order.

(2) Work mode switch

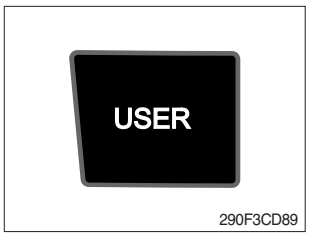


290F3CD88

① This switch is to select the machine work mode, which shifts from general operation mode to optional attachment operation mode.
· : General operation mode
· : Breaker operation mode (if equipped)
· : Crusher operation mode (if equipped)
· Not installed : Breaker or crusher is not installed.

※ **Refer to the page 4-7 for details.**

(3) User mode switch



① This switch is used to memorize the current machine operating status in the MCU and activate the memorized user mode.
- Memory : Automatically saved after key OFF.
- Action : Push this switch.
- Cancel : Push this switch once more.

② Refer to the page 3-18 for another set of user mode.

(4) Travel speed switch

① This switch is used to select the travel speed alternatively.
- : Low speed
- : High speed

※ Do not change the setting of the travel speed switch. Machine stability may be adversely affected.

⚠ Personal injury can result from sudden changes in machine stability.

(5) Auto idle/ buzzer stop switch

① This switch is used to activate or cancel the auto idle function.
- Pilot lamp ON : Auto idle function is activated.
- Pilot lamp OFF : Auto idle function is cancelled.

② The buzzer sounds when the machine has a problem.
In this case, push this switch and buzzer stops, but the warning lamp blinks until the problem is cleared.

(6) Escape/Camera switch

① This switch is used to return to the previous menu or parent menu.

② In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).
Please refer to page 3-30 for the camera.

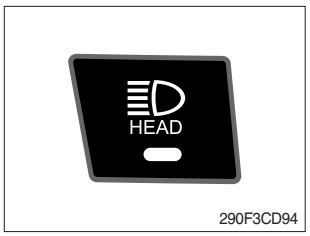
③ If the camera is not installed, this switch is used only ESC function.

(7) Work light switch

① This switch is used to operate the work light.

② The pilot lamp is turned ON when operating the switch.

(8) Head light switch



① This switch is used to operate the head light.
② The pilot lamp is turned ON when operating the switch.

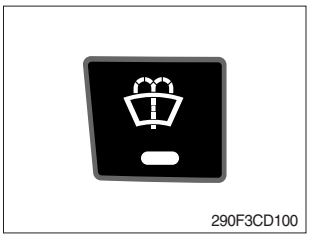
(9) Intermittent wiper switch

① This switch is used to wipe operates intermittently.
② The pilot lamp is turned ON when operating the switch.

(10) Wiper switch

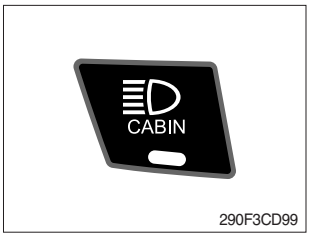
① This switch is used to operate the window wiper.
② Note that the wiper will self-park when switched off.
③ The pilot lamp is turned ON when operating the switch.
※ If the wiper does not operate with the switch in ON position, turn the switch OFF immediately. Check the cause. If the switch remains ON, motor failure can result.

(11) Washer switch



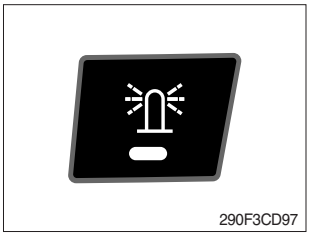
① The washer liquid is sprayed and the wiper is operated only while pressing this switch.
② The pilot lamp is turned ON when operating the switch.

(12) Cab light switch



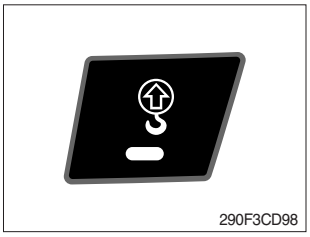
① This switch turns ON the cab light on the cab.
② The pilot lamp is turned ON when operating the switch.

(13) Beacon switch (opt)



① This switch turns ON the rotary light on the cab.
② The pilot lamp is turned ON when operating the switch.

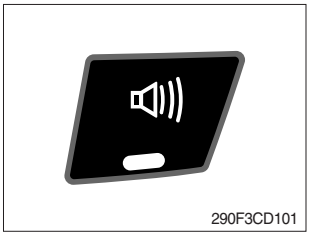
(14) Overload switch (opt)



① When this switch turned ON, buzzer makes sound and overload warning lamp comes ON in case that the machine is overload.
② When it turned OFF, buzzer stops and warning lamp goes out.

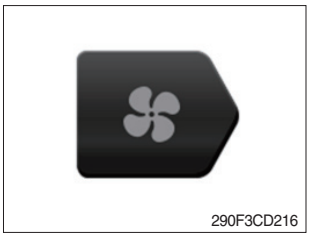
⚠ Overloading the machine could impact the machines stability which could result in tipover hazard. A tipover hazard could result in serious injury or death. Always activate the overload warning device before you handle or lift objects.

(15) Travel alarm switch



① This switch is to activate travel alarm function surrounding when the machine travels.
- ON : The travel alarm function is activated.
- OFF : The travel alarm function is not activated.

(16) Air conditioner quick touch switch



① This switch used to select air conditioner control mode.
※ **Refer to the page 3-32.**

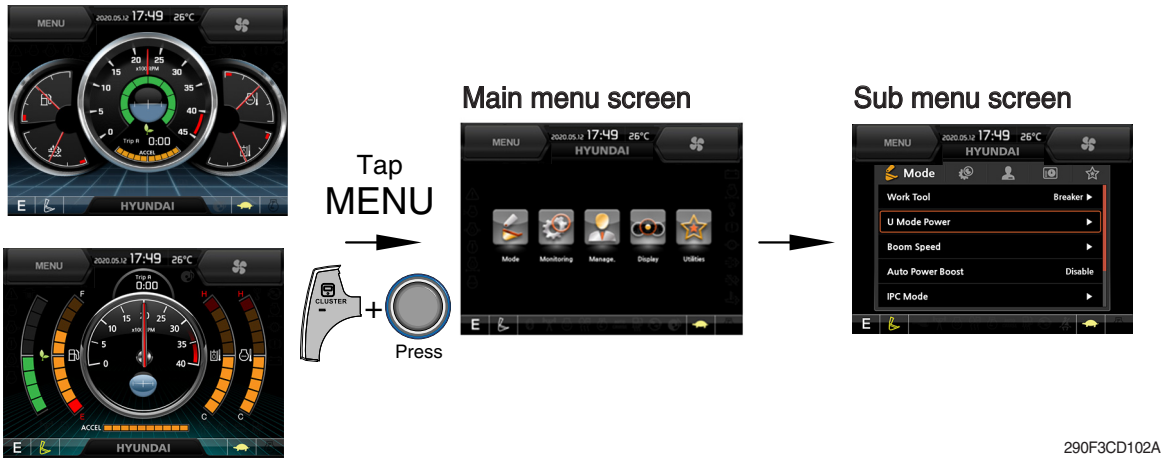
(17) Main menu quick touch switch

① This switch is to activate the main menu in the cluster.
※ **Refer to the page 3-17.**

6) MAIN MENU

※ You can select or set the menu by the haptic controller or touch screen.
On the operation screen, tap MENU to access the main menu screen.
On the sub menu screen, you can tap the menu bar to access functions or applications.

· Operation screen



290F3CD102A

※ Please refer to the haptic controller, page 3-61 for selection and change of menu and input value.

(1) Structure

No	Main menu	Sub menu	Description
1	 Mode 290F3CD103	Work tool U mode power Boom/Arm speed Auto power boost IPC mode Auto engine shutdown (option) Initial mode Emergency mode	Breaker, Crusher, Not installed User mode only Boom speed, Arm speed Enable, Disable Speed mode, Balance mode, Efficiency mode One time, Always, Disable Key on initial mode, Accel initial mode / step Switch function
2	 Monitoring 290F3CD104	Active fault Logged fault Delete logged fault Monitoring	MCU, Engine ECM, Air conditioner, AAVM (option) MCU, Engine ECM, Air conditioner, AAVM (option) All logged fault delete, Initialization canceled Machine information, Switch status, Output status
3	 Management 290F3CD105	Fuel rate information Maintenance information Machine security Machine information Contact Service menu Clinometer Update	General record, Hourly, Daily, Mode record Replacement, Change interval oils and filters ESL mode setting, Password change Model, MCU, Monitor, Haptic / switch controller, RMCU, Relay drive unit, FATC, AAVM (option) A/S phone number, A/S phone number change Power shift, Operating hour, Breaker mode pump acting, EPPR current level, Overload pressure Clinometer setting Cluster, ETC device
4	 Display 290F3CD106	Display item Clock Brightness Unit setup Language selection Screen type	Engine speed, Tripmeter A, Tripmeter B, Tripmeter C Clock Manual, Auto Temperature, Pressure, Flow, Distance, Date format Korean, English, Chinese, ETC A type, B type
5	 Utilities 290F3CD107	Tripmeter Camera	3 kinds (A, B, C) Camera on/off, AAVM (option)

(2) Mode setup

① Work tool

210WF3CD108A

290F3CD253A

A

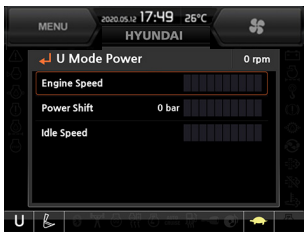
290F3CD254A

B

· Select on installed optional attachment
  - A : It can set the user's attachment.
    It is available in setting #1~#10.
  - B : Max flow - Set the maximum flow for the attachment.
    Relief pressure - Set the relief pressure.

② U mode power

210WF3CD111A



290F3CD112A

· Engine high idle rpm, auto idle rpm and pump torque (power shift) can be modulated and memorized separately in U-mode.
· U-mode can be activated by user mode switch.

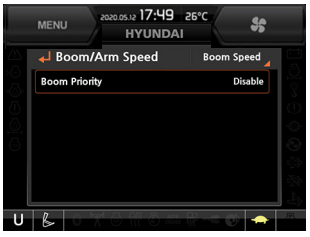
Step (▮)	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1300	750	0
2	1400	800	3
3	1500	850	6
4	1600	900	9
5	1700	950	12
6	1800	1000	16
7	1850	1050	20
8	1900	1100 (auto decel)	26
9	1950	1150	32
10	2000	1200	38

※One touch decel & low idle : 1000 rpm

③ Boom/Arm speed

210WF3CD113A

290F3CD114A

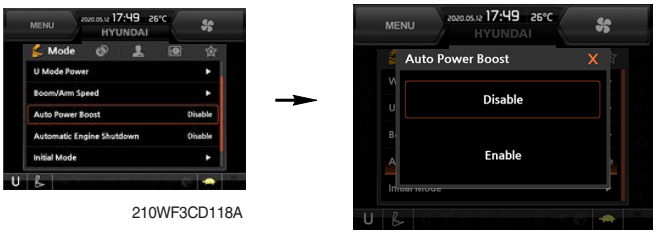


290F3CD115A

· **Boom speed**
  - Boom priority function can be activated or cancelled
    Enable - Boom up speed is automatically adjusted as working conditions by the MCU.
    Disable - Normal operation

· **Arm speed**
  - Arm regeneration function can be activated or cancelled.
    Enable - Arm in speed is up.
    Disable - Normal operation.

④ Auto power boost



210WF3CD118A

290F3CD117A

· The power boost function can be activated or cancelled.
Enable - The digging power is automatically increased as working conditions by the MCU.
It is operated max 8 seconds.
Disable - Not operated.

⑤ IPC mode

290F3CD310A

290F3CD311A

290F3CD304A

290F3CD312A

290F3CD305A

290F3CD313A

290F3CD306A

· The IPC mode can be selected by this menu.
- Speed mode
- Balance mode (default)
- Efficiency mode

· This mode is applied only general operation mode of the work tool mode.

※ Please update the cluster programs if this mode is not displayed in the mode setup menu. Refer to the page 3-26.

⑥ Automatic engine shutdown (option)

210WF3CD11A

210WF3CD12A

210WF3CD13A

· The automatic engine shutdown function can be set by this menu.
  - One time
  - Always
  - Disable
  - Wait time setting : Max 40 minutes, min 2 minutes

⑦ Initial mode

290F3CD122A

290F3CD119A

· **Key on initial mode**
  - Selected the power mode is activated when the engine is started.

· **Accel initial mode**
  - Last setting value
  - User setting value

· **Accel initial step**
  - 0~9 step

⑧ Emergency mode

290F3CD248A

290F3CD249A

· This mode can be use when the switches are abnormal on the cluster.
· The cluster switches will be selected by touched each icon.

(3) Monitoring

① Active fault

290F3CD120A

290F3CD121A

290F3CD125A

· The active faults of the MCU, engine ECM, air conditioner or AAVM (option) can be checked by this menu.

② Logged fault

290F3CD128A

290F3CD123A

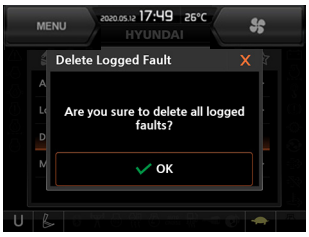
290F3CD124A

· The logged faults of the MCU, engine ECM, air conditioner or AAVM (option) can be checked by this menu.

③ Delete logged fault

290F3CD134A

290F3CD126A

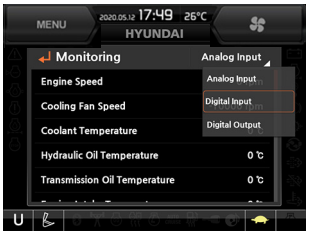


290F3CD127A

· The logged faults of the MCU, engine ECM, air conditioner or AAVM (option) can be deleted by this menu.

④ Monitoring

290F3CD172A



290F3CD188A

290F3CD189A

· The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu (Analog input).
· The switch status or output status can be confirmed by this menu (Digital input & Digital output).
· The activated switch or output pilot lamps ● are light ON.

(4) Management

① Fuel rate information

210WF3CD14A

210WF3CD15A

A

B

C

D

210WF3CD16

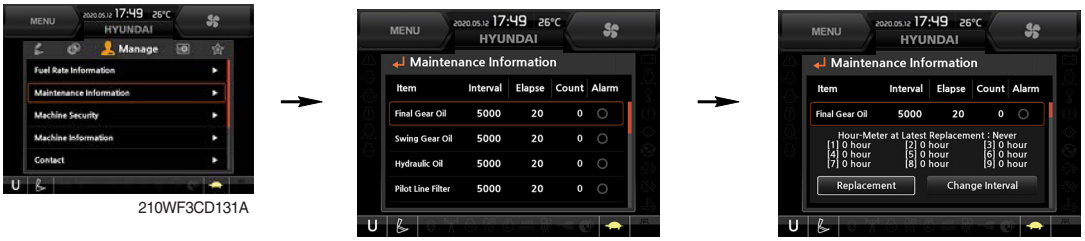
· **General record (A)**
- Average fuel rate (left) (from "Reset" to now)
  Fuel consumption devided by engine run time (service meter time).
- A days fuel used (right)
  Fuel consumption from 24:00 (or "Reset" time) to now (MCU real time).

· **Hourly record (B)**
- Hourly fuel rates for past 12 hours (service meter time).
- No record during key-off time.
- One step shift to the right for every one hour.
- Automatic deletion for 12 hours earlier data.
- All hourly records deletion by "Reset".

· **Daily record (C)**
- Daily fuel consumption for past seven days (MCU real time).
- No record during key-off time.
- One step shift to the right at 24:00 for every day.
- Automatic deletion for 7 days earlier data.
- All daily records deletion by "Reset".

· **Mode record (D)**
- Average fuel rate for each power mode/accel dial (at least 7) from "Reset" to now.
- No record during idle.
- All mode records deletion by "Reset".

② Maintenance information



210WF3CD131A

290F3CD132A

290F3CD133A

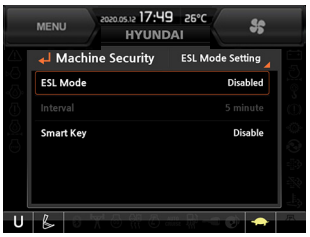
- Alarm lamp (●) is ON when oil or filter needs to be changed or replaced.
- Replacement : The elapsed time will be reset to zero (0).
- Change interval : The change or replace interval can be changed in the unit of 50 hours.

※ **Refer to the maintenance chart for further information of maintenance interval.**

③ Machine security

210WF3CD190B

290F3CD135B



290F3CD136A

· **ESL mode setting**

- ESL : Engine Starting Limit
- ESL mode is desingned to be a theft deterrent or will prevent the unauthorized operation of the machine.
- When you Enable the ESL mode, the password will be required when the starting switch is turned to the on position.
- **Machine security**

  Disable : ESL function is disabled and password is not required to start engine.

  Enable (always) : The password is required whenever the operator starts engine.
- **Interval** : The password is required when the operator starts engine first. But the operator can restart the engine within the interval time without inputting the password. The interval time can be set to a maximum 4 hours.

  ※**Default password : 00000 +** ✔

  ※**Password length : (5~10 digits) +** ✔
- **Smart key** (option) : Refer to next page.

290F3CD137A

290F3CD138A

· **Password change**

- The password is 5~10 digits.

210WF3CD190A

290F3CD140B

290F3CD135C

Enter the current password

290F3CD142B

Enter the new password

290F3CD143B

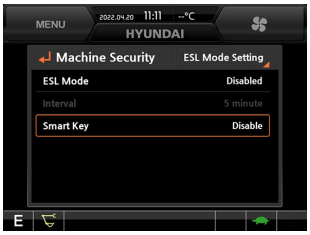
Enter the new password again

※ **Before first use, please set user password and owner password in advance for machine security.**

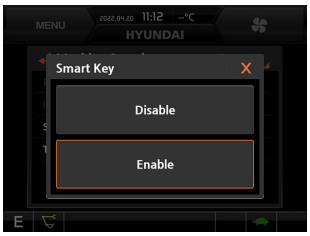
- Smart key

210WF3CD190A

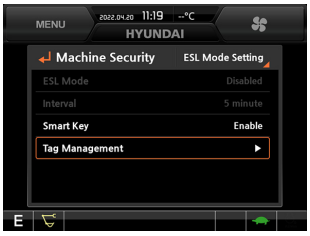
290F3CD135C



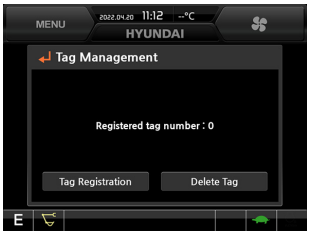
290F3CD001



290F3CD002

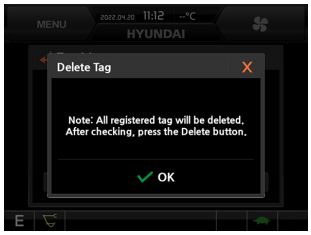


290F3CD003



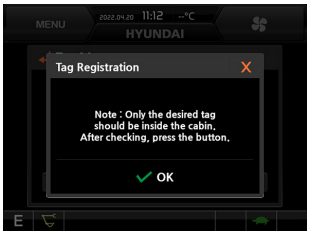
290F3CD004

Deleting



290F3CD006

Registering



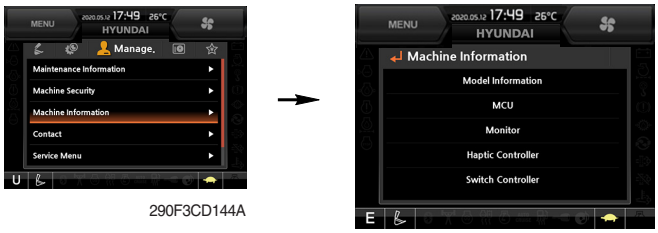
290F3CD005

- Smart key is registered when equipped with optional smart key. If smart key is not inside of the cabin, authentication process fails and the password is needed.
- Tag management menu is activated when the Smart key menu is Enabled.
  You can register and delete the tags.

- Tag management

- When registering a tag : Only the tag you want to register must be in the cabin.
- When deleting a tag : All registered tags are deleted.

④ Machine Information



290F3CD144A

290F3CD145A

· This can confirm the identification of the model information (ECU), MCU, monitor, haptic controller, switch controller, RMCU, relay driver unit, FATC (air conditioner controller), AAVM (opt).

⑤ Contact (A/S phone number)

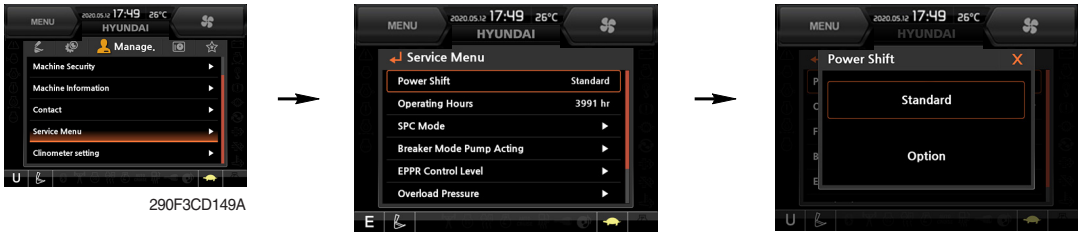
290F3CD146A

290F3CD147A

290F3CD148A

Enter the new A/S phone number

⑥ Service menu



290F3CD149A

290F3CD250A

290F3CD251A

· Power shift (standard/option) : Power shift pressure can be set by option menu.
· Operating hours : Operating hours since the machine line out can be checked by this menu.
· Breaker mode pump acting (1 pump/2 pump)
· EPPR current level (attach flow EPPR 1 & 2, boom priority EPPR, attach relief pressure EPPR 1& 2)
· Overload pressure : 100 ~ 350 bar

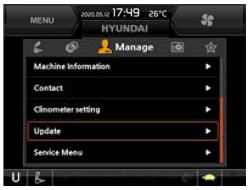
⑦ Clinometer

290F3CD252A

290F3CD253A

· When the machine is on the flatland, if tap the "initialization", the values of X, Y reset "0".
· You can confirm tilt of machine in cluster's operating screen.

⑧ Update (cluster & ETC devices)

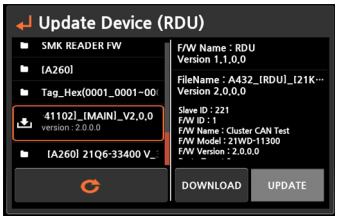


210WF3CD17A

210WF3CD18A

210WF3CD19A

380F3CD04A



380F3CD06

· ETC devices and cluster can be updated through CAN 2 network.
· Insert USB memory stick which includes program files, start download.

(5) Display

① Display item

290F3CD154A

290F3CD155A

290F3CD156A

- The center display type of the LCD can be selected by this menu.
- The engine speed or each of the tripmeter (A,B,C) is displayed on the center display.

② Clock

290F3CD157A

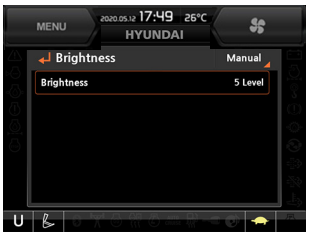
290F3CD158A

- The first line's three spots "**/**/****" represent Month/Day/Year each.
- The second line shows the current time. (0:00~23:59)

③ Brightness

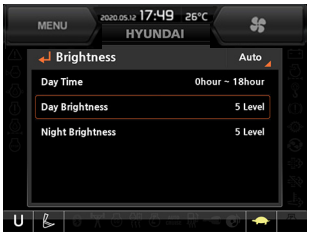
290F3CD159A

290F3CD160A

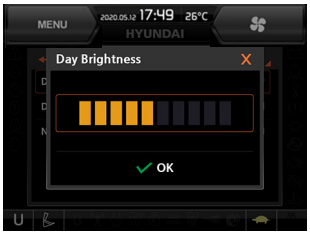


290F3CD139A

290F3CD141A



290F3CD191A



290F3CD192

- If "Auto" is chosen, brightness for day and night can be differently set up. Also by using the bar in lower side, users can define which time interval belongs to day and night.
  (in bar figure, white area represents night time while orange shows day time)

④ Unit

290F3CD161A

210WF3CD162A

290F3CD193A

- Temperature : ˚C ↔ ˚F
- Pressure : bar ↔ MPa ↔ kgf/cm^2
- Volume : ℓ ↔ gal
- Flow : lpm ↔ gpm
- Distance : km ↔ mile
- Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-mm-yy

⑤ Language

290F3CD163A

290F3CD164A

- User can select preferable language and all displays are changed the selected language.

⑥ Screen type

290F3CD165A

A Type (Default) 290F3CD166A

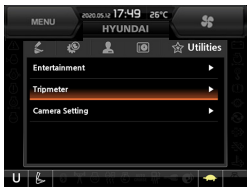
290F3CD156B

B Type (Option) 290F3CD194A

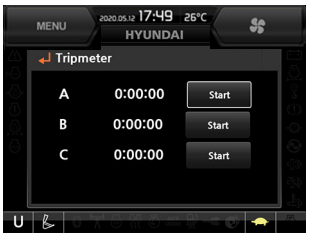
290F3CD167B

(6) Utilities

① Tripmeter



290F3CD168A

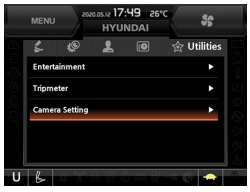


290F3CD169A

- Maximum 3 kinds of tripmeters can be used at the same time.
- Each tripmeter can be turned on by choosing "Start" while it also can be turned off by choosing "Stop".
- If the tripmeter icon is activated in the operation screen, it can be controlled directly there.

② Camera setting

- If the rear camera is not installed on the machine, set disable.
- If the rear camera installed on the machine, set enable.



290F3CD200A

290F3CD255A

290F3CD256A

- In the operation screen, rear camera screen show up when ESC/CAM button is pushed.

290F3CD156A

290F3CD221

④ **AAVM** (All Around View Monitoring, option)

· The AAVM buttons of the cluster consist of ESC/CAM and AUTO IDLE/Buzzer stop.

290F3CD244A

- **Escape button**

· It will enter into the AAVM mode from the beginning screen if the AAVM is installed.

· While in the AAVM mode, select the ESC button to return to the beginning screen.

290F3CD156C

The beginning screen

AAVM mode

290F3CD222

- **Buzzer stop button**

· In AAVM mode, it detects surrounding pedestrians or objects and the warning buzzer sounds.

· User can turn OFF the warning sound by pressing buzzer stop button.

290F3CD246A

· When the worker or pedestrian go to the green line (radius 5 m), an external danger area of equipping on the cluster screen, the warning buzzer sounds and it displays the blue rectangular box for the recognition of the worker and pedestrian.
At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop button. And then, please work after you check whether the danger factors are solved.

290F3CD247A

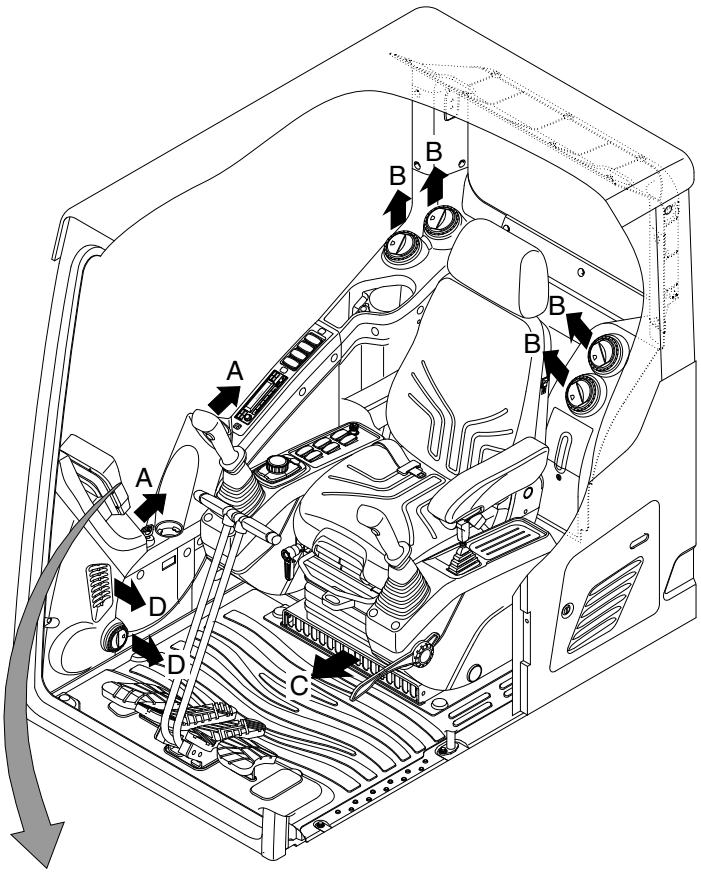
· When the worker or pedestrian go inside of red line (radius 3 m), an internal danger area of equipping on the cluster screen, the warning buzzer sounds and it displays the red rectangular box for the recognition of the worker and pedestrian.
At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop button. And then, please work after you check whether the danger factors are solved.

※ **In AAVM mode, a touch screen of the LCD is available only. The multimodal dial of the haptic controller is not available.**

7) AIR CONDITIONER AND HEATER

Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

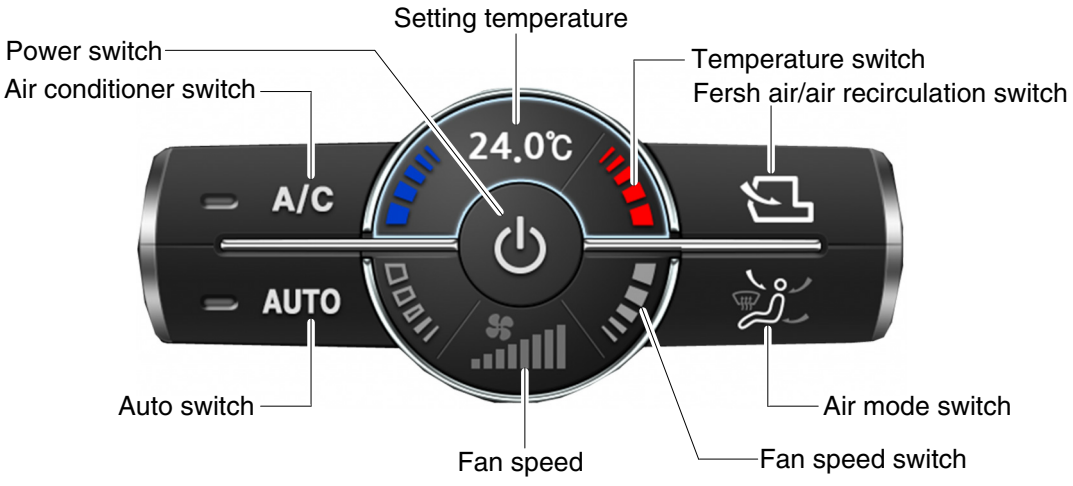
· **Location of air flow ducts**



Cluster LCD

Cluster : or

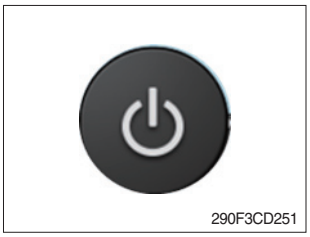
Haptic controller : SET



140F3CD201A

※ **Haptic controller : Refer to page 3-61.**

(1) Power switch



① This switch makes the system ON/OFF.
Just before the power OFF, set values are stored.
② Default setting values

Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

(2) Air conditioner switch

① This switch turns the compressor ON/OFF.
※ Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case that the drain cock at the ending point of drain hose has a problem.
In this case, exchange the drain cock.

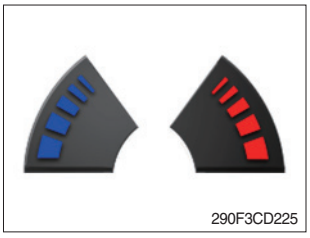
(3) Auto switch

① Auto air conditiner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

(4) Setting temperature

① Display the temperature setting out.

(5) Temperature switch

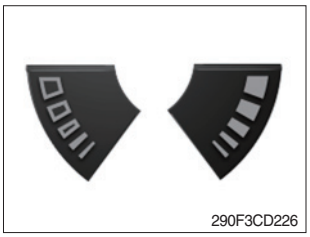


① Setting temperature indication
· Lo (17˚C), 17.5~31.5˚C, Hi (32˚C)
② Max cool and max warm beeps 5 times.
③ The max cool or the max warm position operates as following table.

Temperature	Compressor	Fan speed	In/outlet	Mode
Max cool	ON	Hi (8 step)	Recirculation	Face
Max warm	OFF	Hi (7 step)	Fresh	Def/Foot

④ Temperature unit can be changed between celsius (˚C) and fahrenheit (˚F)
a. Default status (˚C)
b. Push Up/Down temperature switch simultaneously more than 5 second displayed temperature unit change (˚C → ˚F)

(6) Fan speed switch



① Fan speed is controlled automatically by setted temperature.
② This switch controls fan speed manually.
- There are 8 up/down steps to control fan speed.
- The maximum step or the minimum step beeps 5 times.

(7) Fan speed

① Steps 1 through 8 to display the amount of wind.

(8) Fresh air/air recirculation switch

① It is possible to change the air-inlet method.
a. **Fresh air ( )**
Inhaling air from the outside.
b. **Air recirculation ( )**
It recycles the heated or cooled air to increase the energy efficiency.
※ **Change air occasionally when using recirculation for a long time.**
※ **Check out the fresh air filter and the recirculation filter periodically to keep a good efficiency.**

(9) Air mode switch

① Operating this switch, it beeps and displays symbol of each mode in order. (Face → Face/Rear → Face/Rear/Foot → Foot → Def/Foot)

Mode switch		Face	Face/Rear	Face/Rear/Foot	Foot	Def/Foot
Outlet	A	●	●	●		
	B		●	●		
	C			●	●	●
	D					●

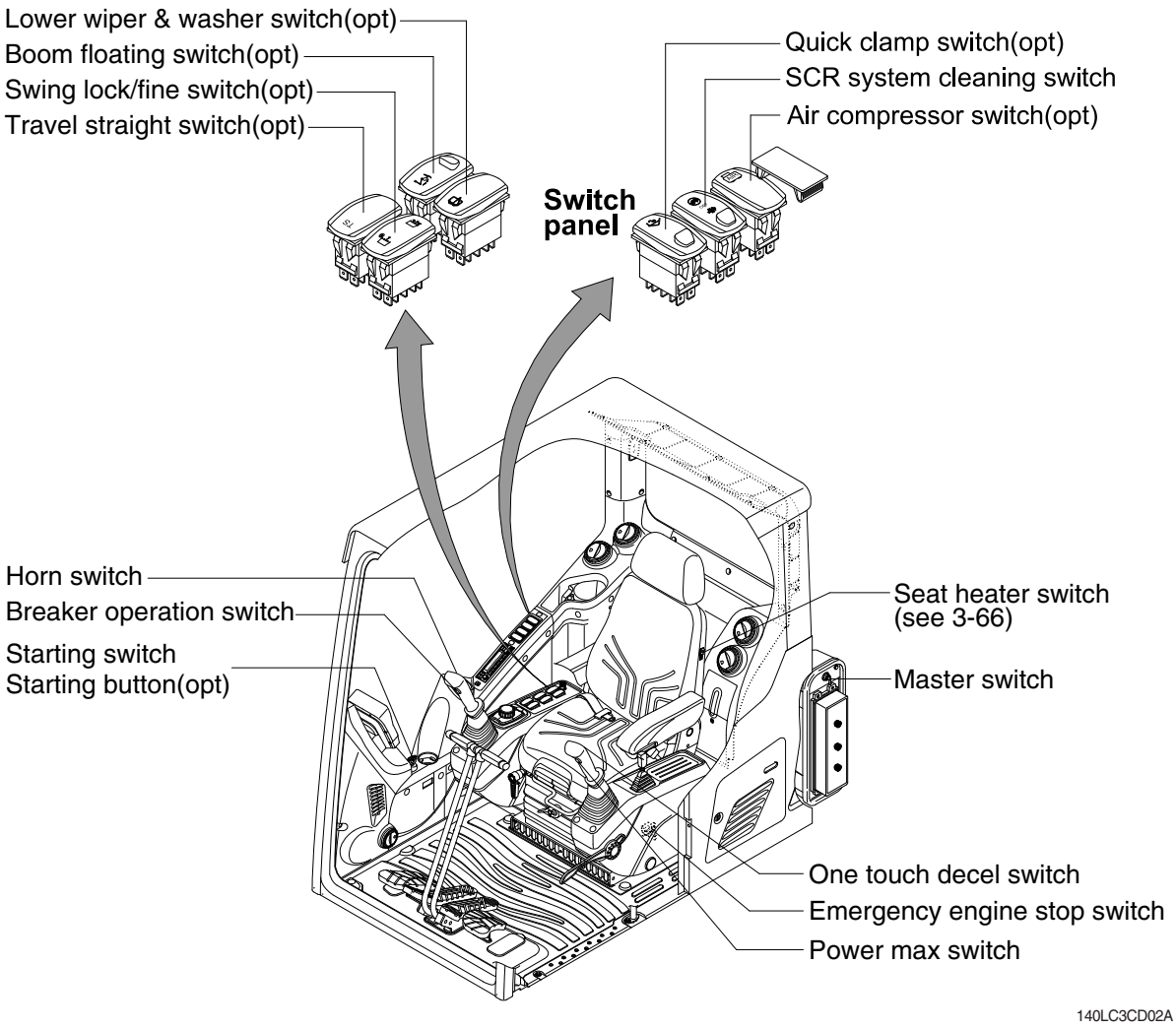
② When defroster mode operating, FRESH AIR/AIR RECIRCULATION switch turns to FRESH AIR mode and air conditioner switch turns ON.

8) SELF DIAGNOSIS FUNCTION

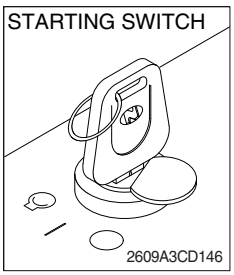
(1) Diagnostic methods : Diagnostic information window, select

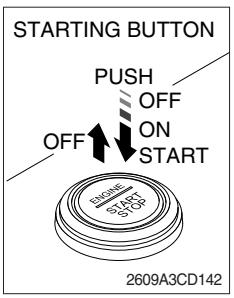
(2) Diagnostic indication (Displays fault)

Fault code	Description	Fail safe function
F01	Ambient temperature sensor open	20˚C alternate value control
F02	Ambient temperature sensor short	
F03	Cab inside temperature sensor open	25˚C alternate value control
F04	Cab inside temperature sensor short	
F05	Evaporate temperature sensor open	0˚C alternate value control
F06	Evaporate temperature sensor short	
F07	Null	-
F08	Null	-
F09	Mode 1 actuator open/short	The alternate value is face
F10	Mode 1 actuator drive circuit malfunction	If not, the alternate value is Def/Foot
F11	Intake actuator open/short	The alternate value is air recirculation
F12	Intake actuator drive circuit malfunction	The alternate fresh air
F13	Temperature actuator open/short	If opening amount is 0 %, the alternate value is 0 %
F14	Temperature actuator drive circuit malfunction	If not, the alternate value is 100 %
F15	Null	-
F16	Null	-



1) STARTING SWITCH & STARTING BUTTON (OPT)





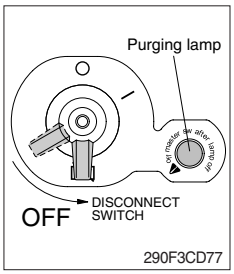
Starting button with smart key tag (opt)

(1) There are three positions, OFF, ON and START.
- ◯(OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- ◯(START) : Use when starting the engine.
  Release key immediately after starting.

※ **If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may take according to ambient temperature.**

※ **Key must be in the ON position with engine running to maintain electrical and hydraulic function and prevent serious machine damage.**

2) MASTER SWITCH



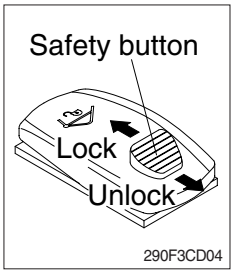
(1) This switch is used to shut off the entire electrical system.

(2) I : The battery remains connected to the electrical system.
O : The battery is disconnected to the electrical system.

※ **Never turn the master switch to O (OFF) with the engine running. Engine and electrical system damage could result.**

※ **Off the master switch after purging lamp OFF.**

3) QUICK CLAMP SWITCH (option)



(1) This switch is used to engage or disengage the moving hook on quick clamp.

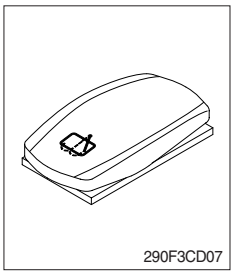
※ **Refer to the page 8-6 for details.**

4) AIR COMPRESSOR SWITCH (option)

(1) This switch is used to activate the air compressor.

(2) The indicator lamp is turned on when operating the switch.

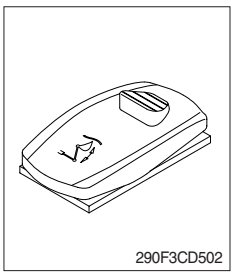
5) LOWER WIPER AND WASHER SWITCH (option)



(1) The washer liquid is sprayed and the wiper is operated only while pressing this switch.

(2) The pilot lamp is turned ON when operating the switch.

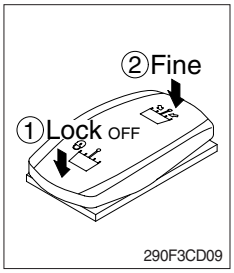
6) BOOM FLOATING SWITCH (option)



(1) This mode is used to smooth boom operation.

(2) Rod and head of boom cylinder are connected to the tank at the same time. So boom can be moved by the ground shape though only arm operation.

7) SWING LOCK / FINE SWITCH (option)



(1) OFF position

Normal operation.

(2) Lock position (①)

In this position, the swing parking brake is locked and swing control is not available by shut off the swing pilot pressure to the swing spool.

(3) Fine position (②)

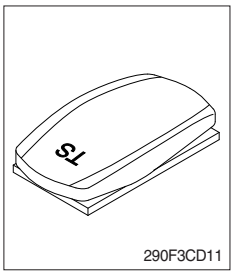
① In this position, the swing parking brake is released.

② Swing control improves during deceleration of a swing because the swing is allowed the drift instead of stopping abruptly.

⚠ If the machine is operating on a slope with the switch in this position, swing motion may became uncontollable which could result in property damage, personal injury or death.

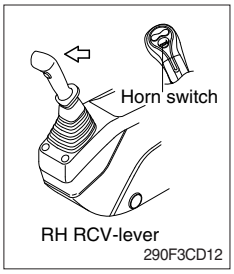
Do not use this position when the machine is operating on a slope.

8) TRAVEL STRAIGHT SWITCH (option)



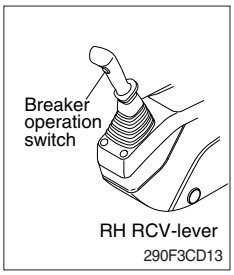
(1) When the travel straight switch is in the ON position, the machine will travel straight by use of only the left pedal or the left lever.

9) HORN SWITCH



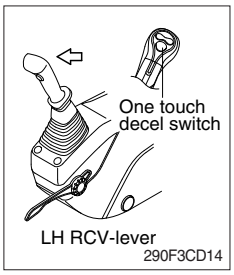
(1) This switch is at the top of right side control lever.
On pressing, the horn sounds.

10) BREAKER OPERATION SWITCH



(1) On pressing this switch, the breaker operates only when the breaker operation mode is selected.

11) ONE TOUCH DECEL SWITCH

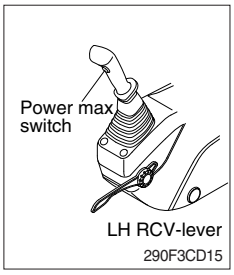


(1) This switch is used to actuate the deceleration function quickly.

(2) The engine speed is increased to previous setting value by pressing the switch again.

(3) One touch decel function is available only when the auto idle pilot lamp is turned OFF.

12) POWER MAX SWITCH

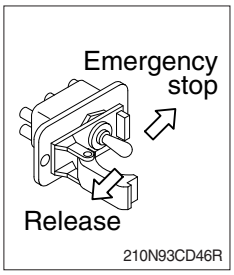


(1) This switch activate power max function.
When this switch is kept pressed, hydraulic power of work equipment will be increased to approx 110 percent during 8 seconds.

(2) After 8 seconds, function is cancelled automatically even the switch keeps pressed.

※ **Do not use for craning purposes.**

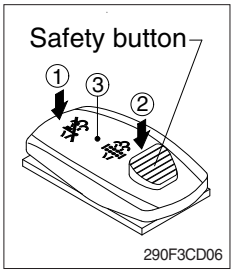
13) EMERGENCY ENGINE STOP SWITCH



(1) This switch is used to emergency stop the engine.

※ **Be sure to keep the emergency switch on the release position when restart the engine.**

14) SCR (selective catalytic reduction) SYSTEM CLEANING SWITCH



(1) This switch is used to select the SCR system cleaning.

(2) Inhibit position (①)

① The inhibit position disallows any automatic or manual SCR system cleaning.

② This may be used by operator to prevent SCR system cleaning when the machine is operating in a hazardous environment is concerned about high temperature.

③ It is strongly recommended that this position is only activated when high temperatures may cause a hazardous condition.

(3) Auto position (③)

This position will initiate a automatic SCR system cleaning.

(4) Manual position (②)

① This position will only initiate a manual SCR system cleaning when the machine is in non-mission condition, engine must run at low idle speed and SCR system levels are high enough to allow cleaning.

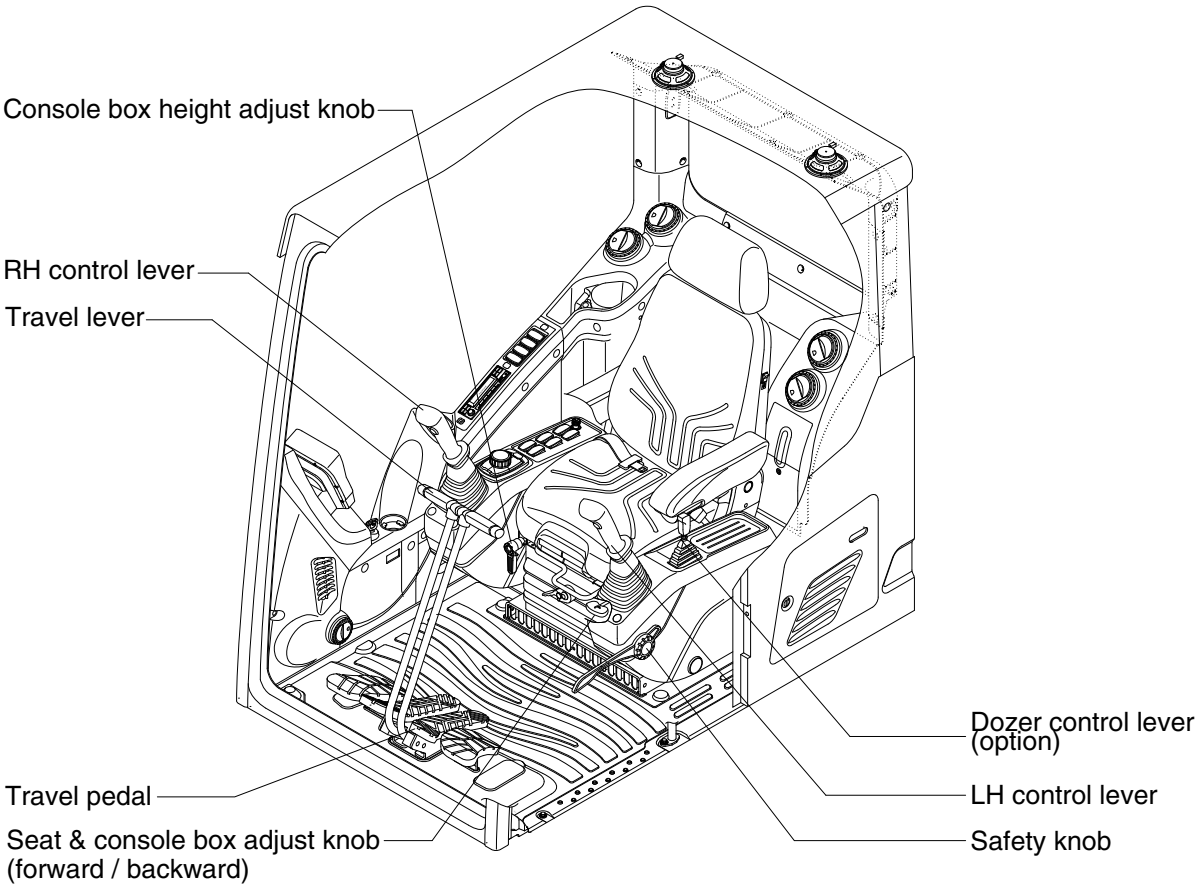
② HEST lamp will be illuminated during the entire SCR system cleaning.

※ **Refer to the page 3-9-2 for ditails.**

※ **This switch can be move to the manual position (②) only when the safety button is pulled to backward.**

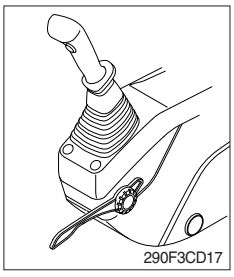
※ **Also, this switch return to the auto position when released the manual position (②).**

4. LEVERS AND PEDALS



140F3CD16

1) LH CONTROL LEVER

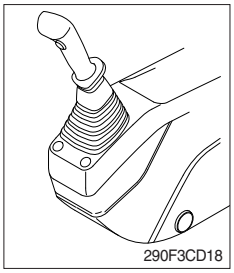


290F3CD17

(1) This joystick is used to control the swing and the arm.

(2) Refer to operation of working device in chapter 4 for details.

2) RH CONTROL LEVER

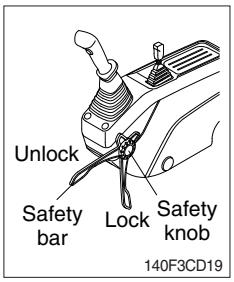


290F3CD18

(1) This joystick is used to control the boom and the bucket.

(2) Refer to operation of working device in chapter 4 for details.

3) SAFETY KNOB



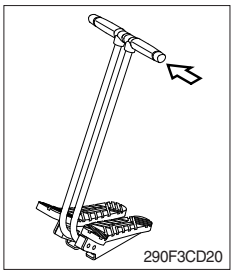
(1) All control levers and pedals are disabled from operation by locating the safety knob to the LOCK position as shown.

※ **Be sure to turn the safety knob to the LOCK position when entering or leaving the operators seat/cabin.**

(2) The machine is operational by turning the safety knob to the UNLOCK position.

※ **Do not use the safety bar for handle when getting on or off the machine.**

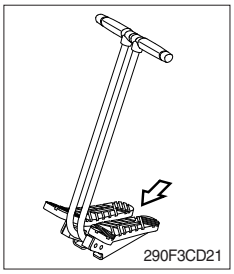
4) TRAVEL LEVER



(1) This lever is mounted on travel pedal and used for traveling by hand. The operation principle is same as the travel pedal.

(2) Refer to traveling of the machine in chapter 4 for details.

5) TRAVEL PEDAL

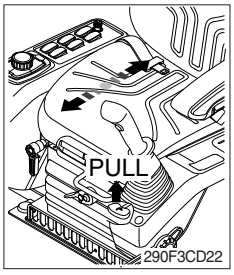


(1) This pedal is used to move the machine forward or backward.

(2) If left side pedal is pressed, left track will move.
If right side pedal is pressed, right track will move.

(3) Refer to traveling of machine in chapter 4 for details.

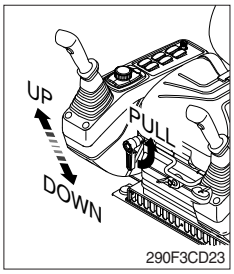
6) SEAT AND CONSOLE BOX ADJUST KNOB (forward/backward)



(1) This knob is used to move the seat and console box to fit the contours of the operator's body.

(2) Pull the knob to adjust forward or backward over 150 mm (5.9").

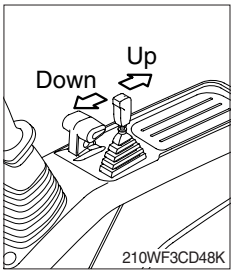
7) CONSOLE BOX (CONTROL LEVER) HEIGHT ADJUST KNOB



(1) This knob is used to move the LH and RH control levers to fit the contours of the operator's body.

(2) The control levers can be moved upward and downward over 80 mm (2.4").

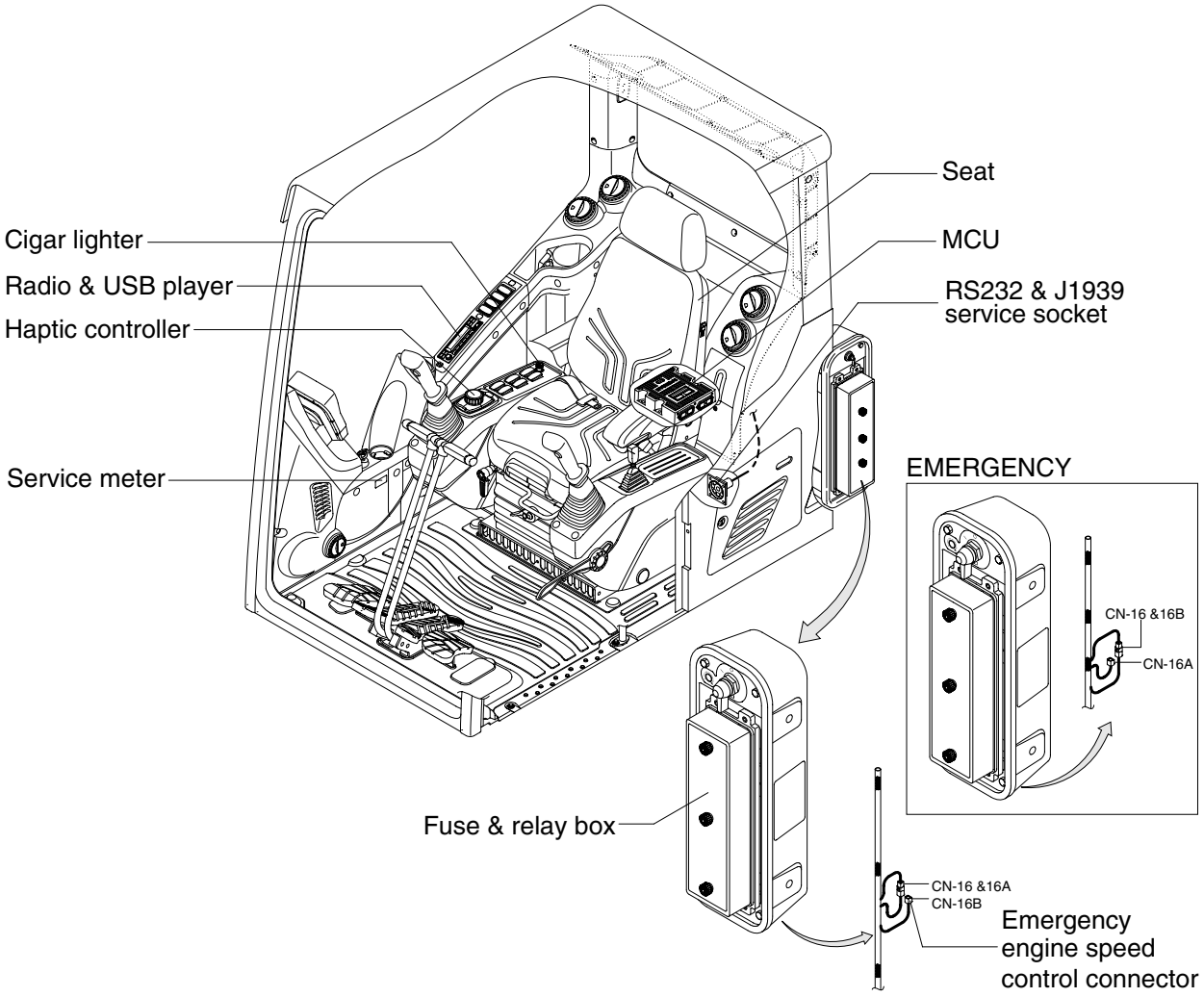
8) DOZER CONTROL LEVER (option)



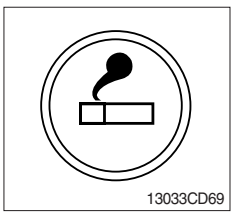
(1) This lever is used to operate the dozer blade.

(2) If the lever is pushed forward, the dozer blade will be going down. And the lever is pulled back, the dozer blade will be going up.

5. OTHERS



1) CIGAR LIGHTER



(1) This can be used when the engine starting switch is ON.

(2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 24 V, 100 W.

2) RADIO AND USB PLAYER

■ WITH BLUETOOTH

9403CD100

■FRONT PANEL PRESENTATION

1 ····· Power ON/OFF, Volume UP/DOWN button

2 ····· Manual UP/DOWN Tuning, File search, SEL button

3 ····· Mode button, Audio mute button

4 ····· Call & Pair button

5 ····· Call end button

6 ····· Station preset 1
DIS ····· Display button

7 ····· Station preset 2

8 ····· Station preset 3
RPT ····· Repeat play button

9 ····· Station preset 4
RDM ····· Random play button

10 ····· Station preset 5
DIR- ····· Directory down button

11 ····· Station preset 6
DIR+ ····· Directory up button

12 ····· Scan play button (SCAN)
Best station memory (BSM) button

13 ····· Auto tune up, Seek up button

14 ····· Auto tune down, Track down button

15 ····· USB connector

16 ····· AUX IN Jack

17 ····· MIC hole

■ WITHOUT BLUETOOTH

9403CD101

■FRONT PANEL PRESENTATION

1 ····· Power ON/OFF,
Volume UP/DOWN button

2 ····· Manual UP/DOWN Tuning,
File search, SEL button

3 ····· Mode button,
Audio mute button

4 ····· Radio seek up button

5 ····· Radio seek down button

6 ····· Station preset 1
DIS ····· Display button

7 ····· Station preset 2

8 ····· Station preset 3
RPT ····· Repeat play button

9 ····· Station preset 4
RDM ····· Random play button

10 ····· Station preset 5
DIR- ····· Directory down button

11 ····· Station preset 6
DIR+ ····· Directory up button

12 ····· Scan play button (SCAN)
Best station memory (BSM) button

13 ····· Track up button

14 ····· Track down button

15 ····· USB connector

16 ····· AUX IN Jack

■GENERAL

(1) Power and volume button

① Power ON / OFF button

Press power button (1) to turn the unit on or off.

② Volume UP/DOWN control knob

Turn VOL knob (1) right to increase the volume level.
Turn VOL knob (1) left to decrease the volume.
After 5 seconds the display will return to the previous display mode.

③ Initial volume level set up

I-VOL is the volume level the unit will play at when next turned on. To adjust the I-VOL level, press and hold VOL button (1) for longer than 2 seconds. The current volume level displays on the display panel.
Then turn button (1) right or left to set the volume level as the I-VOL level.

④ Clock ON/OFF control

The CLOCK was default at off status. To turn CLOCK ON, press and hold VOL button (1) for longer than 2 seconds to display I-VOL, then short press VOL again, turn VOL knob while CLOCK OFF display, then the CLOCK ON will be displayed.

※ Due to time tolerance, the clock display on the Audio unit might have little difference.

⑤ Clock adjustment

With CLOCK ON selected, press VOL knob again after CLOCK ON display, the hour will blink, turn VOL knob right or left to adjust hour.
Simply press VOL again, the minute will blink, turn VOL knob to adjust minute. Then press VOL again to confirm the clock once finished.

(2) Menu Selection

① This button can adjust the sound effect and other things.
Each time you press this button (2), LCD displays as follows :

BAS → TREB → BAL L=R → FAD F=R → EQ → LOUD ON → BEEP 2ND

On each setting, the level can be controlled by turning TUNE knob (2). When the last adjustment is made, after 5 seconds, the display will automatically return to the previous display mode.

② Bass control

To adjust the bass tone level, first select the bass mode by pressing SEL button (2) repeatedly until BASS appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the bass level as desired. The bass level will be shown on the display panel from a minimum of BASS-7 to a maximum of BASS+7.

③ Treble control

To adjust the treble tone level, first select the treble mode by pressing SEL button (2) repeatedly until TREB appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the treble level as desired. The treble level will be shown on the display panel from a minimum of TREB -7 to a maximum of TREB +7.

④ Balance control

To adjust the left-right speaker balance, first select the balance mode by pressing SEL button (2) repeatedly until BAL indication appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the balance as desired. The balance position will be shown by the bars on the display panel from BAL 10R (full right) to BAL 10L (full left).

⑤ Fader control

To adjust the front-rear speaker balance, first select the fader mode by pressing SEL button (2) repeatedly until FADER indication appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the front-rear speaker level as desired. The fader position will be shown by the bars on the display panel from FAD 10F (full front) to FAD 10R (full rear).

⑥ EQ control

You can select an equalizer curve for 4 music types (CLASSIC, POP, ROCK, JAZZ). Press button (2) until EQ is displayed, then turn knob (2) right or left to select the desired equalizer curve. Each time you turn the knob, LCD displays as follows :

EQ OFF → CLASSIC → POP → ROCK → JAZZ

※ When the EQ mode is activated, the BASS and TREBLE modes are not displayed.

⑦ Loud control

When listening to music at low volume levels, this feature will boost the bass and treble response. This action will compensate for the reduction in bass and treble performance experienced at low volume.

To select the loudness feature, press button (2) until LOUD is displayed, then turn knob (2) right or left to activate or deactivate loudness.

⑧ Beep control

To adjust the BEEP mode, first select the BEEP mode by pressing button (2) repeatedly until BEEP indication appears on the display panel. Then turn knob (2) left or right within 5 seconds to select BEEP 2ND, BEEP OFF or BEEP ON.

- BEEP 2ND : You will only hear the beep sound when the buttons are held down for more than 2 seconds.
- BEEP OFF : You can not hear the sound beep when you press the buttons.
- BEEP ON : You can hear the beep sound each time you press the buttons.

(3) Mute control

① Press and hold MUTE button (3) for over 2 seconds to mute sound output and MUTE ON will blink on the LCD. Press the button again to cancel MUTE function and resume to normal playing mode.

(4) Mode selection

① Repeat press MODE button (3) to switch between FM1, FM2, AM, USB, AUX, BT MUSIC.

※ If there is no USB, AUX, Bluetooth Phone connected, it would not display USB, AUX, BT when you press button (3).

■RADIO

(1) Mode button

① Repeat press MODE button to select FM1, FM2 or AM.

(2) Manual tuning button

① To manually tune to a radio station, simply turn encoder TUNE (2) left or right to increase or decrease the radio frequency.

(3) Auto tuning button

① To automatically select a radio station, simply press Seek up or Track down button.

(4) Station preset button

① In radio mode, pressing buttons (6) to (11) will recall the radio stations that are memorized. To store desired stations into any of the 6 preset memories, in either the AM or FM bands, use the following procedure :

a. Select the desired station.
b. Press and hold one of the preset buttons for more than 2 seconds to store the current station into preset memory. Six stations can be memorized on each of FM1, FM2, and AM.

(5) Preset scan (PS) / Best station memory (BSM) button

① Press BSM button (12) momentarily to scan the 6 preset stations stored in the selected band. When you hear your desired station, press it again to listen to it.
Press BSM button (12) for longer than 2 seconds to activate the Best Station Memory feature which will automatically scan and enter each station into memory.

※ If you have already set the preset memories to your favorite stations, activating the BSM tuning feature will erase those stations and enter into the new ones. This BSM feature is most useful when travelling in a new area where you are not familiar with the local stations.

■USB PLAYER

(1) USB playback


9403CD110

① The unit was equipped with a front USB jack and also a rear USB Jack.
With a USB device plugged in the front USB jack, it will be detected as front USB mode. And with a USB device plugged in the rear USB jack, it will be detected as rear USB. To get to a USB mode, press MODE (3) button momentarily or insert the USB device in front or rear USB jack.

※ If no mp3 or wma files in USB device, it will convert to the previous mode after display NO FILE.

(2) Track Up / Down button

9403CD106

① Press SEEK up (13) or TRACK down (14) to select the next or previous track. Press and hold the buttons to advance the track rapidly in the forward or backward direction.

9403CD107

(3) MP3 directory / File searching

9403CD111

① Button (2) is used to select a particular directory and file in the device. Turn button (2) right or left to display the available directories. Press button (2) momentarily when the desired directory is displayed, then turn button (2) right or left again to display the tracks in that directory. Press button (2) to begin playback when the desired file is displayed.

(4) Directory Up / Down button

9403CD112

① During MP3/WMA playback, simply press DIR- button (10) to select the previous directory (if available in the device); simply press DIR+ button (11) to select the next directory (if available in the device).

※ If the USB device does not contain directories, it would play MP3/WMA tracks at 10- file when you press DIR- button (10), and play MP3/WMA tracks at 10+ file when you press DIR+ (11) button.

(5) Track Scan Play (SCAN) button

- SCAN playback : Simply press SCAN (12) button to play the first 10 seconds of each track.
- SCAN folder : Press and hold SCAN button for longer than 2 seconds to scan play the tracks in current folder.
- SCAN off : Simply press it again to cancel SCAN feature.

(6) Track Repeat Play (RPT) button

- REPEAT playback : Simply press RPT (8) button to play current track repeatedly.
- REPEAT folder : Press and hold RPT for longer than 2 seconds to repeat play the tracks in current folder.
- REPEAT off : Simply press it again to cancel REPEAT feature.

(7) Track Random Play (RDM) button

- RANDOM playback : Simply press RDM (9) button to play the tracks in the device in a random sequence.
- RANDOM folder : Press and hold RDM button for longer than 2 seconds to random play the tracks in current folder.
- RANDOM off : Simply press it again to cancel RANDOM feature.

(8) ID3 v2 (DISP)

① While a MP3 file is playing, press DISP button (6) to display ID3 information. Repeat push DISP button (6) to show directory name / file name and album name / performer / title.

※ If the MP3 disc does not have any ID3 information, it will show NO ID3.

* USB Information and Notice

a. Playback FILE SYSTEM and condition allowance.
   - FAT, FAT12, FAT16 and FAT32 in the file system.
   - V1.1, V2.2 and V2.3 in the TAG (ID3) version.

b. Display up to 32 characters in the LCD display.

c. No support any of MULTI-CAED Reader.

d. No high speed playback but only playing with normal full speed.

※ DRM files in the USB may cause malfunction to playback in the radio unit.

※ The temperature below -10 Celsius, the audio unit with USB hook up would be affected to play well.

■AUX OPERATION

It is possible to connect your portable media player to the audio system for playback of the audio tracks via the cab speakers.

To get the best results when connecting the portable media to the audio system, follow these steps :

- Use a 3.5 mm stereo plug cable to connect the media player headphone socket at each end as follows.
- Adjust the portable media player to approximately 3/4 volume and start playback.
- Press the MODE button (3) on the audio unit to change into AUX mode.
- The volume and tone can now be adjusted on the audio unit to the desired level.

※ The audio quality of your media player and the audio tracks on it may not be of the same sound quality as the audio system is CD Player.

※ If the sound of the media player is too low compared with the radio or CD, increase the volume of the player.

※ If the sound of the media player is too loud and/or distorted, decrease the volume of the player.

※ When in AUX mode, only the Volume, Bass, Treble, EQ and Mode functions of the audio unit can be used.

■BLUETOOTH (if equipped)

(1) Using a bluetooth wireless connection

① Your audio unit supports bluetooth wireless technology. You can set up a wireless link with bluetooth cellular phone.

② Keep PAIRING the cellular phone with audio unit in a few minutes as the phone are being switched on well enough.

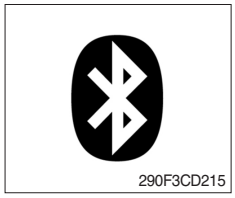
※ Since this audio unit is on standby to connect with your cellular phone via bluetooth wireless technology, using this audio unit without running the engine can result battery drainage.

※ This audio unit phone call reception is on standby when ignition switch is set to ACC OFF or ON.

※ The line-of-sight distance between this audio unit and your cellular phone must be 10 meters or less for sending and receiving voice and data via bluetooth wireless technology. However the transmission distance may become shorter than the estimated distance depending on the environment in use.

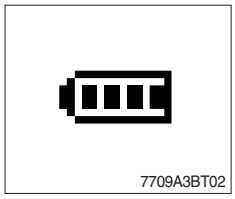
※ Digital Noise & Echo suppression system provides the best sound clarity with little or no distortion (Echo & side tone will happen depending on cellular phone or service network).

※ To ensure the quality of calling, you should select a proper bluetooth VR level. This audio unit has already set with the best bluetooth VR level.



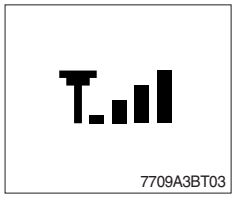
③ Bluetooth icon

It will blink while establishing the bluetooth pairing.
It will light after a bluetooth device connected.



④ Battery icon

It indicates the battery status of the connected bluetooth device.



⑤ Single strength icon

It indicates the signal strength of the connected bluetooth device.

(2) Pairing in hands free modes

① Press and hold CALL button (4) for 2 seconds until you hear beep sound, then appears PAIR STR on the display.

② For the next procedure, go to cellular phone pairing mode.

③ If it is in pairing status with audio unit and cellular phone, PAIRING will show on the display.

④ If you want to exit pairing mode, press CALL END button (5) briefly while pairing, then it will show PAIR CLR on the display.

⑤ Bluetooth Icon and PAIR OK appear on the display when pairing is successful.

(3) Cellular phone pairing mode

① Browse your cellular phone menu and find the connectivity or bluetooth connection section.

② Select search for a new handsfree device function and allow the phone to find the mobile.

③ HYUNDAI should appear on your cellular phone screen.

④ Press connect menu among the handsfree option on your cellular phone.

⑤ The cellular phone should prompt for a pin code. Insert the pin code 1234.

⑥ The cellular phone should confirm that it has established a new paired connection.

⑦ Close the menu. The pairing is now completed. It appears PAIR FAIL on the display for 3 seconds.

※ Each cellular phone type has distinct phone menu so you may need to refer to your manufactures instruction for the correct procedure on how to connect a new bluetooth device.
※ Please retry to the pairing instruction if HYUNDAI does not appear on the cellular phone screen.
※ Please select authorized, if there is authorized menu in the menu of bluetooth connection in your cellular phone.
※ Once the bluetooth pairing is completed between your cellular pone and this audio unit, the both units will be automatically recognized on its paring and when you turn on the key in your car even though this audio unit is turned off.
※ This audio unit can store up to 6 phones pairings. If the memory is full, the first stored paired phone will be deleted.
※ The connecting priority will be given to the last connected cellular phone.
※ If you want to change the connecting priority, try to connect this audio unit from the cellular phone.

(4) Bluetooth connection and disconnection

① When established bluetooth connection between this audio unit and the cellular phone, bluetooth icon on the display appears and then the display shows HF/AV CONN when handsfree & AV profile connected.


9403CD118

② To disconnect bluetooth link
Press and hold CALL END button (4) for 2 seconds, it shows DIS CON and disappears bluetooth Icon on the display.


9403CD117

③ To disconnect bluetooth link
Press CALL button (3) briefly, it blinks bluetooth Icon on the display while bluetooth is being connected. If the connection is completed, it appears bluetooth Icon on the display.

※ When your cellular phone battery is at low charge, the bluetooth connection may occasionally be lost. To maintain good connectivity ensure that your phone battery is adequately charged.

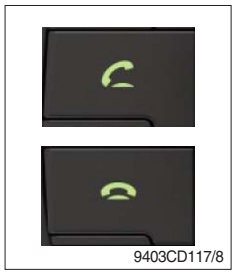
※ In case of failure of bluetooth pairing :
- Delete item in paired list on your phone.
- Reset both phone by power off/on and the audio unit by ACC off/on.

※ Connecting priority of handsfree profile is higher than headset profile.

※ The headset mode does not support caller ID, reject call and call Transfer.

(5) Using the audio unit as a handsfree device

① When the audio unit is ringing, it shows CALL and follows with the phone number ********** on the display.


9403CD117/8

② To accept call
Press CALL button (4), it appears ANSWER CALL and follows TALKING on the display.

③ To end call
To end call, press CALL END button (5), it appears REJECT on the display.

※ If reject call is activated in your phone, then your cellular phone does not support reject call function.

(6) Audio transfer between the audio unit and phone

The audio transfer function is for switching the call from the audio unit to the cellular phone for private conversation.

① Press CALL button (4) briefly during conversation, it appears CALL TRANS on the display. To switch back to the audio unit, press button (4) briefly during private conversation, then it appears CALL TRANS on the display again.

※ This function will be a cause of disconnection of bluetooth link in some nokia phones, but you do not worry just press button (4) during private conversation, then switch back to the audio unit automatically.

※ The quality of calling between cellular phone and audio unit is better than calling between one audio unit and another one.

(7) Last call number dialing

① Press CALL button (4) briefly, it appears CALL TO, then simply press CALL button once again, it would make the last call with phone number display on LCD.
If Reject call is activated in your phone, then your cellular phone does not support Reject Call function.

※ If you are using SAMSUNG phone, then you may need to press once more send button. First press button shows phone contact list in your phone, then second press make the last call.

(8) To make a call by cellular phone

The audio transfer function is for switching the call from the audio unit to the cellular phone for private conversation.

① The audio unit activated automatically when you make a call by cellular phone.
② When you make a call processing by cellular phone, it shows CALLING on the display.
③ When you receive a call, the phone number ******** appears on the display.

(9) Using the audio unit as bluetooth music

The audio unit supports A2DP (Audio Advanced Distribution Profile) and AVRCP (Audio Video Remote Control Profile), and both profiles are available to listen music at the audio unit via cellular phone which is supporting the two profiles above.

① To play music, search the menu on your cellular phone as below :
i.e : Menu → File manager → Music → Option → Play via bluetooth.
It appears BT MP3 on the display.

② During BT MP3 playing, you could select the previous or next track by pressing SEEK up or TRACK down button on audio unit or operate via your cellular phone.

③ To stop music, press button (5) briefly and it will automatically switch into the previous mode.

④ To resume music playing, press the play button on your cellular phone.

※ This function maybe different depends on cellular phone. Please follow the cellular phone menu. Some kinds of phone need to pair once more for bluetooth MP3 connection.

※ This function will be caused to disconnect A2DP, AVRCP depends on cellular phone.

※ Information about songs (e.g.: the elapsed playing time, song title, song index, etc.) cannot be displayed on this audio unit.

■RESET AND PRECAUTIONS

(1) Reset function

Interfere noise or abnormal compressed files in the MP3 disc or USB instrument may cause extraordinary operation (or unit frozen/locking up). It's strongly recommended to use appropriate USB storage not cause any malfunction to the audio unit. In the unlikely event that the player fails to operate correctly, try out to reset unit by any of following two methods.

① press and hold 

simultaneously for about 5 seconds. (without Bluetooth)

Press and hold 


simultaneously for about 5 seconds. (with Bluetooth)

② Take out the fuse for the audio system in the vehicle once and then plug again.

※ It will be necessary to re-enter the radio preset memories as these will have been erased when the microprocessor was reset.
After resetting the player, ensure all functions are operation correctly.

(2) Precautions

When the inside of the car is very cold and the player is used soon after switching on the heater, moisture may form on the disc or the optical parts of the player and proper playback may not be possible.

If moisture forms on the optical parts of the player, do not use the player for about one hour. The condensation will disappear naturally allowing normal operation.

① Operation voltage : 9~32 volts DC, negative

② Output power : 40 watts maximum (20 watts x 2 channels)

③ Tuning range

Area	Band	Frequency range	Step
USA	FM	87.5~107.9 MHZ	200K
	AM	530~1710 KHZ	10K
EUROPE	FM	87.5~108.0 MHZ	50K
	AM	522~1620 KHZ	9K
ASIA	FM	87.5~108.0 MHZ	100K
	AM	531~1602 KHZ	9K
LATIN	FM	87.5~107.9 MHZ	100K
	AM	530~1710 KHZ	10K

● AREA Selection :
- To select an area, press and hold related buttons at FM1 band for about 3 seconds.
- USA Area: Press and hold mode + 1DIS buttons for 3 seconds
- EUROPE Area: Press and hold mode + 2 buttons for 3 seconds
- ASIA Area: Press and hold mode + 3RPT buttons for 3 seconds
- LATIN Area: Press and hold mode + 4RDM buttons for 3 seconds.

④ USB version : USB 1.1

⑤ Bluetooth version : V2.1

⑥ Bluetooth supported profile :
- A2DP : Advanced Audio Distribution Profile
- AVRCP : Audio/Video Remote Control Profile
- HFP : Hands-Free Profile

3) HAPTIC CONTROLLER

The haptic controller consists of buttons, multimodal dial and USB port.

290F3CD173

(1) Cluster button

290F3CD174

① When you push this button, haptic controller execute cluster interlocked mode.

② In cluster interlocked mode, if you push the cluster button, the haptic controller return to previous mode.

③ Cluster interlocked mode ON : Blue lamp is turn ON
Cluster interlocked mode OFF : Blue lamp is turn OFF

(2) Air conditioner button

290F3CD175

① When you push this button, air conditioner system is operated.

② Determines whether to perform a cooling function of air conditioner.

- Blue lamp ON : Air conditioner operation
- Amber lamp ON : Fan only

(3) Set button

290F3CD176

① When you push this button, the haptic controller executes air conditioner mode and displays air conditioner control mode in cluster.

② Air conditioner control mode will be disappear when you push SET button again within 10 seconds or when you do not touch anything more than 10 seconds.

(4) OFF button

290F3CD177

① Only while air conditioner system is operating you can use this button.
② This button is only for air conditioner system off.

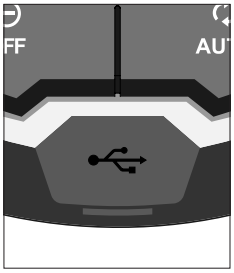
(5) Auto button

290F3CD178

① This button controls air conditioner ON/OFF.

※ **Refer to the page 3-33 for the auto switch of the air conditioner.**

(6) USB port

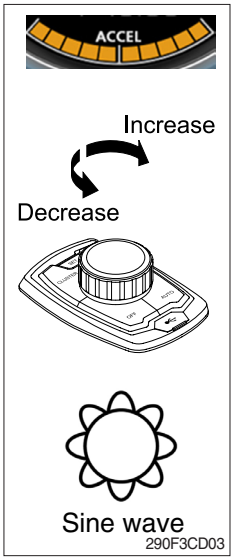

290F3CD179

① This port updates firmware using a dedicated cable.
② Haptic controller has built-in charging circuit supply max 500 mA current.

(7) Multimodal dial

- **Cluster interlocked mode OFF**

① Acceleration mode

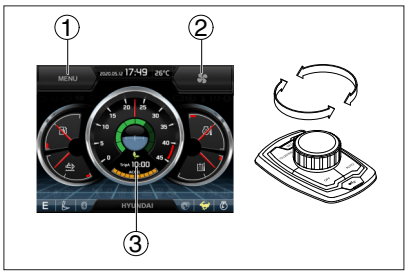


290F3CD03

- There are 10 dial setting.
- Setting 1 is low idle and setting 10 is high idle.
  · By rotating the dial to right : Engine speed increases
  · By rotating the dial to left : Engine speed decreases
- Dial operating pattern is sine wave torque.

- Cluster interlocked mode ON

① Cluster main menu

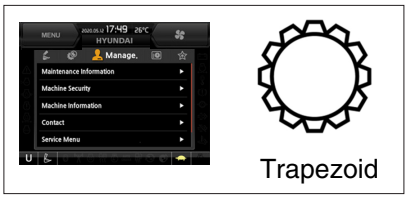


290F3CD240A

- You can select the quick menu by rotating the dial as below.

- CW rotation : move to right direction
- CCW rotation : move to left direction

② Cluster menu move



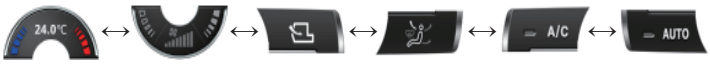
290F3CD180A

- You can move up and down of the cluster sub menu.
- Dial operating pattern is continuous rotation trapezoid torque.

③ Air conditioner menu

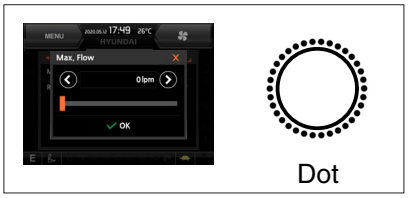
290F3CD181A

- You can move the menu of the air conditioner control mode.



- Dial operating pattern is mixed type trapezoid torque.

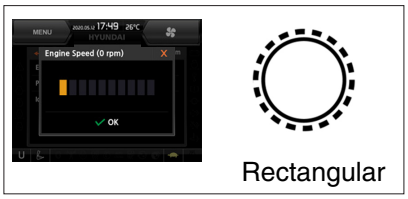
④ Slide choice menu



290F3CD182A

- You can increase or decrease the slide choice bar.
- Dial operating pattern is repeat dot interval torque.

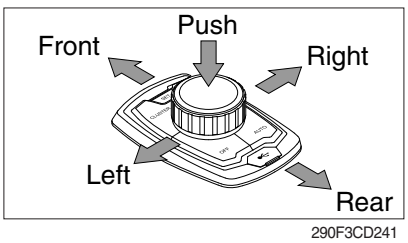
⑤ Level choice menu



290F3CD183A

- You can increase or decrease the level choice bar.
- Dial operating pattern is integrate rectangular torque.

⑥ Push button

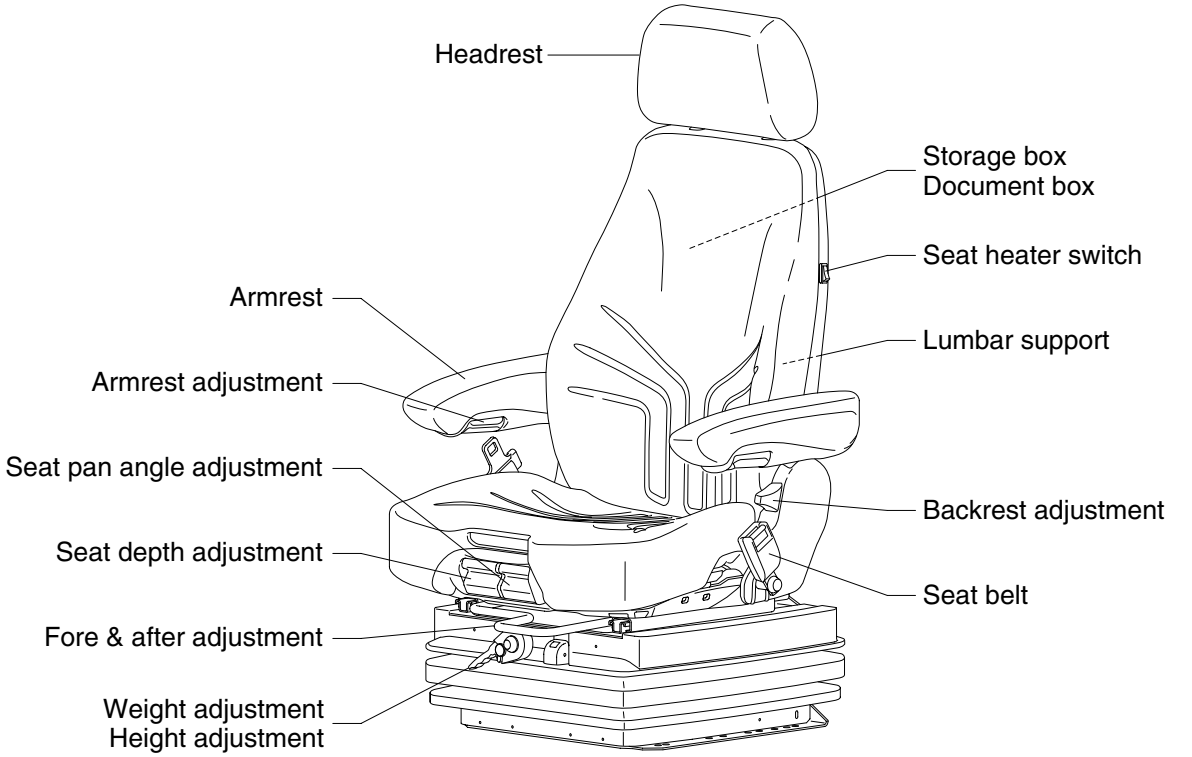


290F3CD241

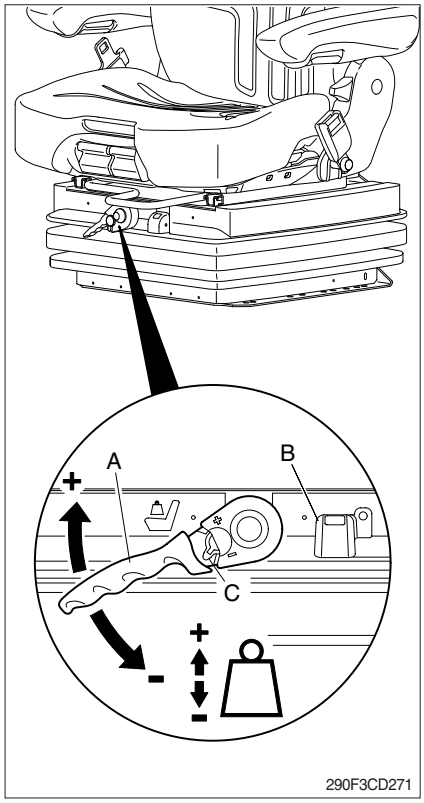
- **Push** : Select the current menu or the pop-up warning lamp move to the original position when warning lamp is happened.
- **Left** : ESC
- **Right** : CAM
- **Front** : Cluster main menu
- **Rear** : Return to acceleration mode

4) SEAT (SUSPENSION, STD)

The seat is adjustable to fit the contours of the operator's body. It will reduce operator fatigue due to long work hours and enhance work efficiency.



(1) Weight and height adjustment



With socket wrench (A) :

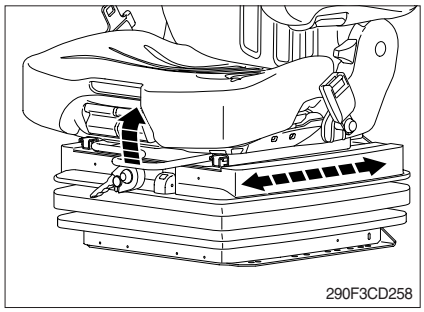
① The seat has to be adjusted for the operator's weight and height by tilting the handle (+) up or down (-) with the operator not sitting on the seat.

② The rotational direction is reversed by toggling the ratchet with the switch (C).

③ The operator's weight and the seat height are adjusted correctly when the green marking is completely visible in the indicator window (B) for weight and height.

④ The height can be adjusted individually as long as the green marking is visible.

(2) Fore/after adjustment



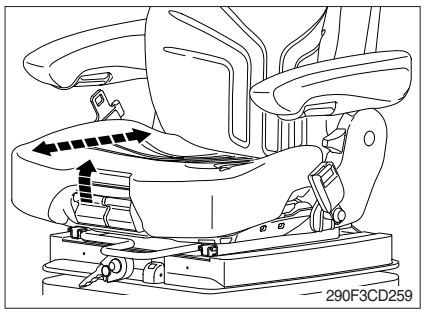
① The fore/after adjustment is released by lifting the locking lever.

⚠ Do not operate the locking lever while operating.

※ After the adjustment, the locking lever must latch into the desired position with an audible click. It should not be possible to move the operator's seat into another position when it is locked.

※ Do not lift the locking lever with your leg or calf.

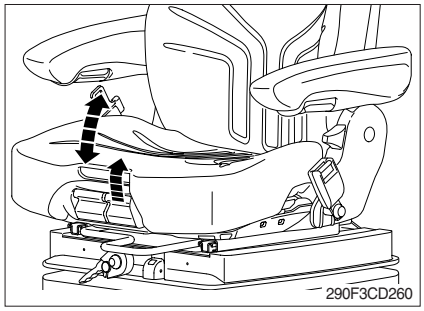
(3) Seat depth adjustment



① The depth of the seat pan can be individually adjusted.

② To adjust the depth of the seat cushion, pull the right handle upwards. By moving the seat pan backwards or forwards the desired seating position can be reached.

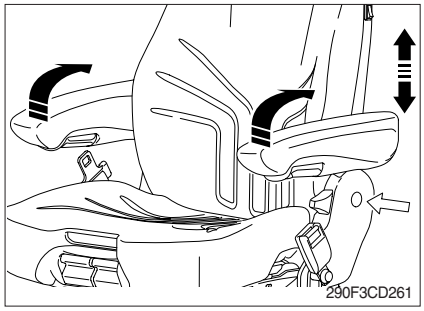
(4) Seat pan angle adjustment



① The angle of the seat pan can be individually adjusted.

② To adjust the angle of the seat pan, pull the left handle upwards. By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired angle position.

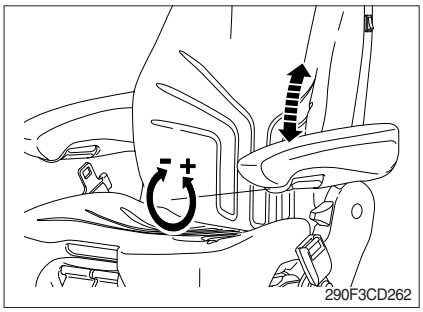
(5) Armrests



① The armrests can be folded up if required and the height can be individually adjusted.

② To adjust the armrest for height, separate the round cap (see arrow) from the cover and loosen the hexagon nut (size 13 mm) behind it adjust the armrests to the desired position (5 steps) and tighten the nut again (25 Nm).
Replace the cap onto the nut.

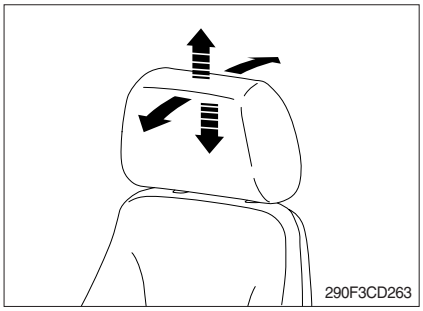
(6) Armrest adjustment



① The inclination of the armrest can be modified by turning the adjustment knob.

② When turning the knob to the outside (+), the front part of the armrest will be lifted; when turning the knob to the inside (-), it will be lowered.

(7) Headrest

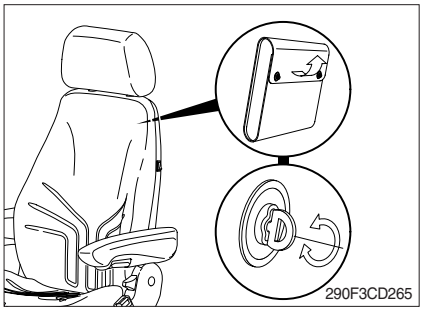


① The headrest can be individually adjusted for height by pulling it upward over the various increments up the end stop.

② By pushing forwards or rearwards the angle of the headrest can be adjusted individually.

③ To remove the headrest, pull it over the end stop.

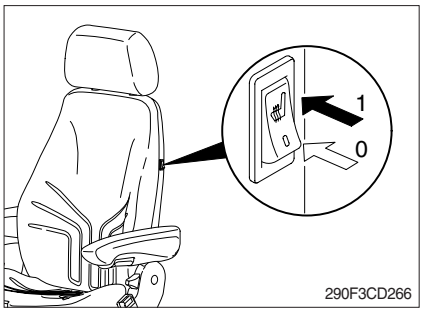
(8) Document box



① The document box is placed on the rear side of the backrest.

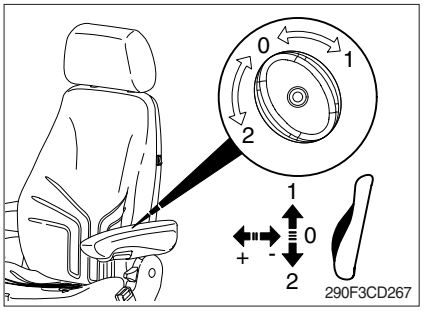
② To open the document box, first twist the turn lock closures 90° to the left or the right and then fold the cover of the document box upwards.

(9) Seat heater switch



① The seat heater can be turned on/off by pressing the switch.

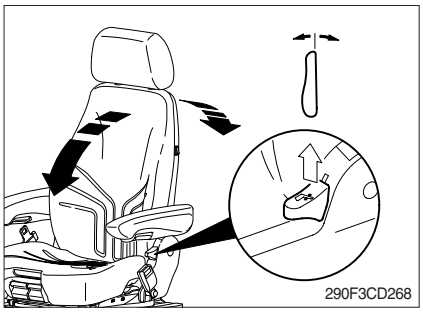
(10) Lumbar support



① By turning the adjustment knob to the left (2) or right (1), both the height and curvature of the backrest cushion can be individually adjusted.

② This increases both the seating comfort and the performance of the operator.

(11) Backrest adjustment



① Pull up the locking lever to release the backrest catch. When releasing the backrest, do not load the backrest by pressing against it.

② By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired position. Release the locking lever to lock the backrest.

※ It should not be possible to move the backrest into another position after it has been locked.

(12) Maintenance

Dirt can impair the function of the seat, so make sure you keep your seat clean.

Upholstery does not need to be removed from the seat frame for cleaning.

⚠ Take care with the backrest - it may jerk forward and cause injury.
When cleaning the backrest cushion, the backrest must be held in place when operating the backrest lever.

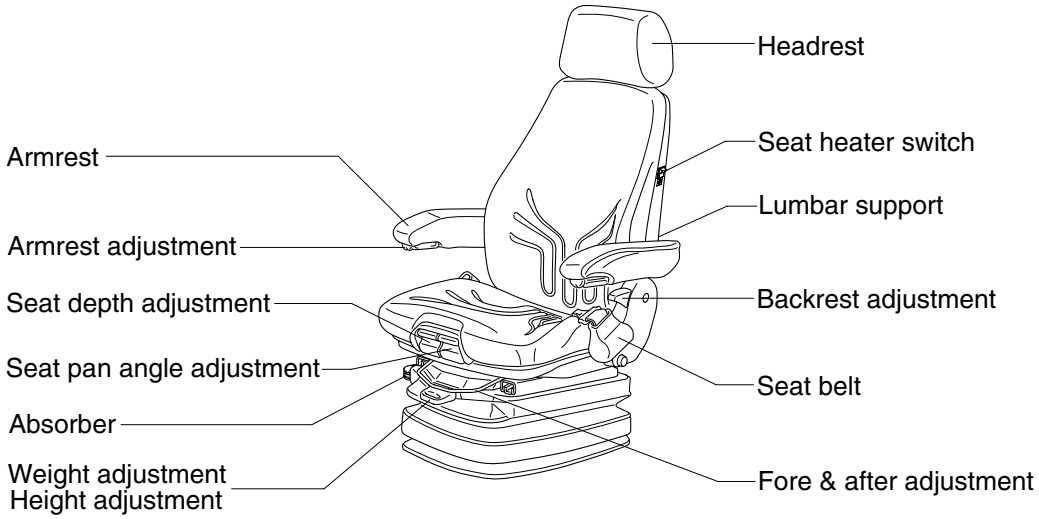
※ Do not clean the seat with a pressure washer.

During cleaning, the upholstery must not be soaked through.

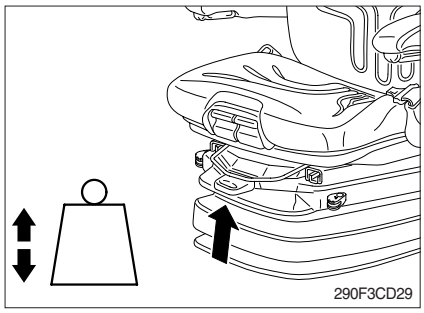
Use standard commercially available upholstery or plastics cleaning agent. Test first for compatibility on a small, concealed area.

5) SEAT (AIR SUSPENSION, OPTION)

The seat is adjustable to fit the contours of the operator's body. It will reduce operator fatigue due to long work hours and enhance work efficiency.



(1) Weight adjustment



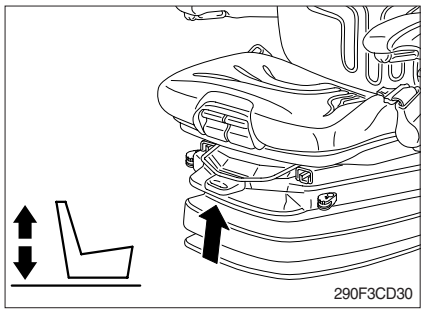
① The seat should be adjusted for the operator's weight by briefly pulling the actuator lever of the automatic weight and height adjuster (arrow) with the machine at a standstill and the operator's sitting on the seat.

The operator must sit absolutely still during adjustment.

※ Before adjusting the weight, adjust shock absorbers to the position "soft".

※ To prevent damage to the health, the setting for the operator's weight must be checked and adjusted before the machine is operated.

(2) Height adjustment



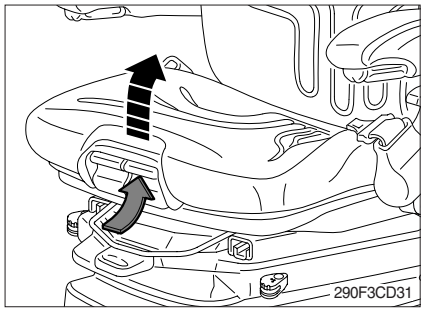
① The seat height can be set pneumatically and is continuously adjustable.

② The seat height can be altered by pulling or pressing the actuator lever fully out or in (arrow). If the adjustment reaches the top or bottom endstop, the height is adjusted automatically in order to guarantee a minimum spring travel.

※ Before adjusting the weight, adjust shock absorbers to the position "soft".

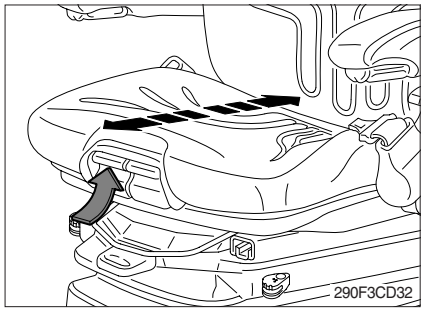
※ In order to avoid damage, do not operate compressor for more than 1 minute.

(3) Seat pan angle adjustment



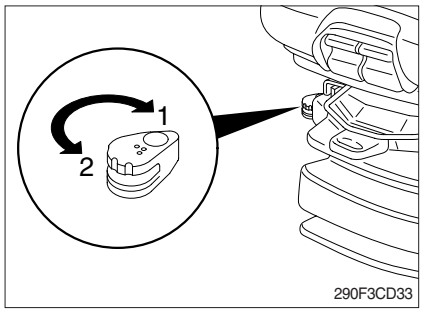
① The angle of the seat pan can be individually adjusted.
② To adjust the angle of the seat pan, lift the LH handle (see arrow). By exerting pressure on or off the seat pan it can be moved to the desired angle position.

(4) Seat depth adjustment



① The depth of the seat pan can be individually adjusted.
② To adjust the depth of the seat cushion, lift the RH handle (see arrow). By moving the seat cushion backwards or forwards the desired seating position can be reached.

(5) Absorber

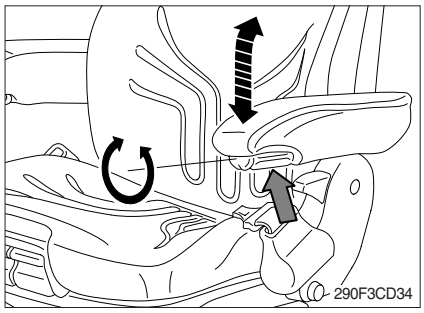


① The absorber setting of the seat can be varied to suit the on and off-road working conditions.
The cushioning effect can be individually adjusted for this purpose.

Turn the lever to the desired position and release.

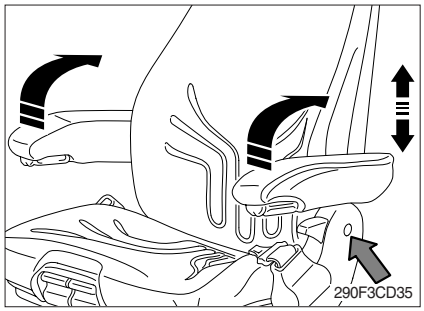
1 Soft
2 Hard

(6) Armrest adjustment



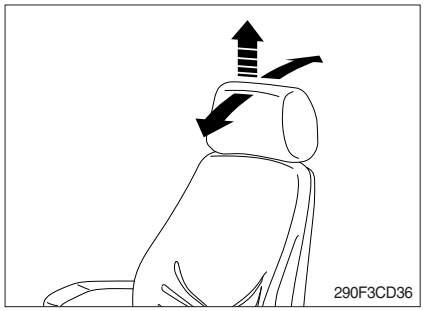
① The inclination of the armrests can be modified by turning the adjustment knob (arrow).

(7) Armrests



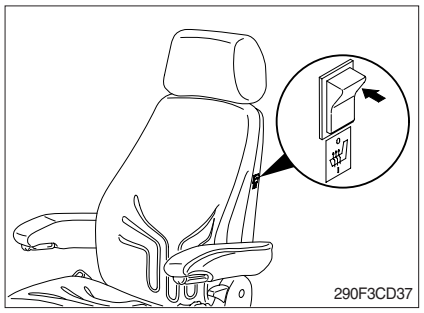
① The armrests can be folded up if required and the height individually adjusted.
② To adjust the armrests for height, separate the round cap (see arrow) from the cover, loosen the hexagon nut (size 13 ㎜), adjust the armrest to the desired position and tighten the nut again. Press the previously separated cap cover back onto the nut.

(8) Headrest



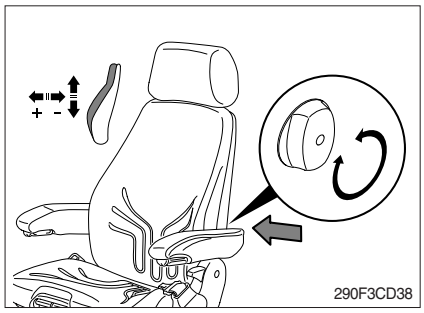
① The headrest can be individually adjusted for height by pulling it upward over the various increments up the end stop.
② By pushing forward or rearward the angle of the headrest can be adjusted individually.
③ To remove the headrest, pull it over the end stop.

(9) Seat heater switch



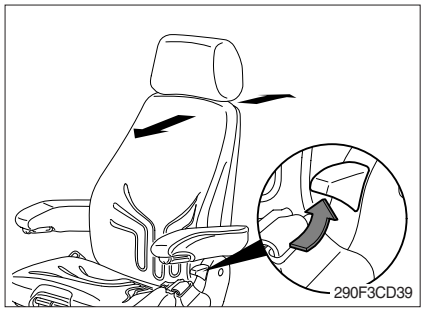
① The seat heater is turned on by pressing the switch.

(10) Lumbar support



① By turning the adjustment knob to the left or right, both the height and curvature of the backrest cushion can be individually adjusted.
② This increases both the seating comfort and the performance of the operator.

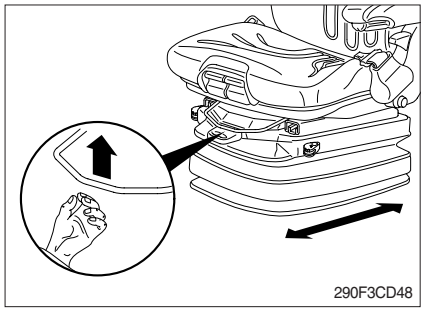
(11) Backrest adjustment



① The backrest is adjusted using the locking lever (arrow).

※ **The locking lever must latch into the desired position. It should not be possible to move the backrest into another position when it is locked.**

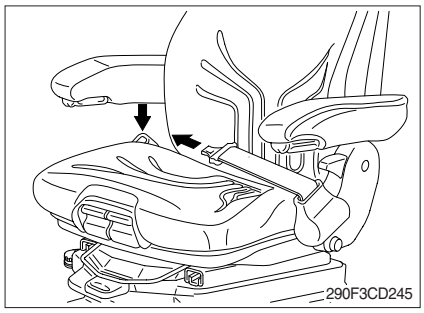
(12) Fore & after adjustment



① The fore/after adjustment is released by lifting the locking lever.

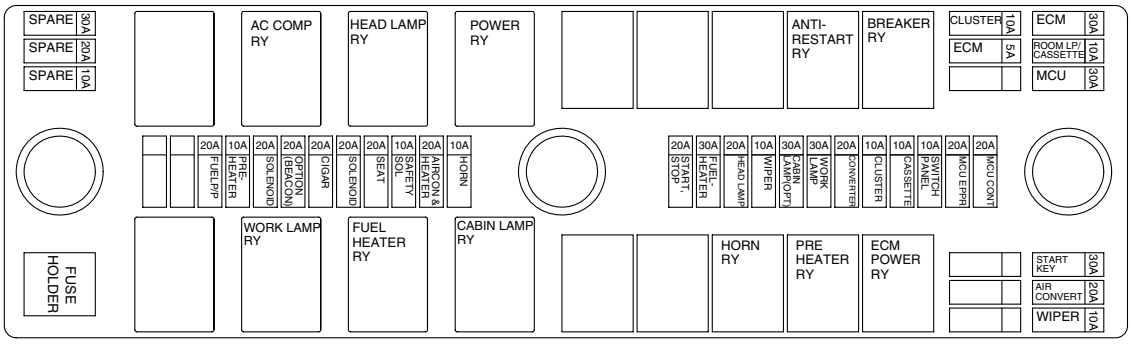
※ **The locking lever must latch into the desired position. It should not be possible to move the operator seat into another position when it is locked.**

(13) Seat belt



⚠ **Fail to wear a seat belt during machine operation may result in serious injury or death in the event of an accident or machine overturn.**

6) FUSE & RELAY BOX



140LC3CD25

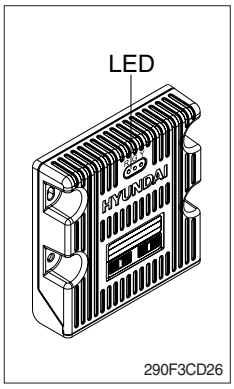
(1) The fuses protect the electrical parts and wiring from burning out.

(2) The fuse box cover indicates the capacity of each fuse and circuit it protects.

※ **Replace a fuse with another of the same capacity.**

⚠ **Before replacing a fuse, be sure to turn OFF the starting switch.**

7) MCU



290F3CD26

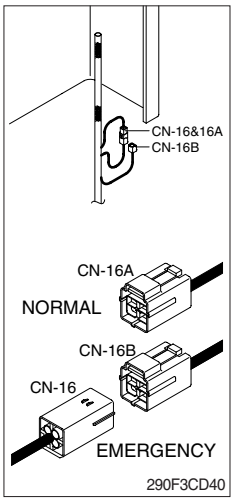
(1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which control pump discharge amount whenever feedbacked engine speed drops under the reference rpm of each mode set.

(2) Three LED lamps on the MCU display as below.

LED lamp	Trouble	Service
G is turned ON	Normal	-
G and R are turned ON	Trouble on MCU	· Change the MCU
G and Y are turned ON	Trouble on serial communication line	· Check if serial communication lines between controller and cluster are disconnected
Three LED are turned OFF	Trouble on MCU power	· Check if the input power wire (24 V, GND) of controller is disconnected · Check the fuse

G : green, R : red, Y : yellow

8) EMERGENCY ENGINE SPEED CONTROL CONNECTOR

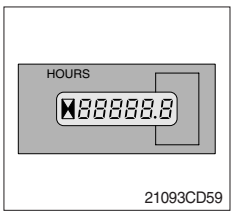


(1) When the CAN communication between the ECM and the MCU is abnormal due to malfunction, change the CN-16 connection from CN-16A to CN-16B and then control the engine speed by rotating the multimodal module of the haptic controller.

※ **Never connect connector CN-16 with CN-16B when MCU is in normal operation.**

※ **Make repair as soon as possible.**

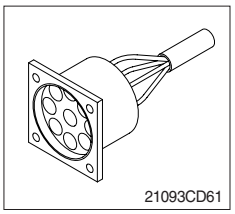
9) SERVICE METER



(1) This meter shows the total operation hours of the machine.

(2) Always ensure the operating condition of the meter during the machine operation. Inspect and service the machine based on hours as indicated in chapter 6, maintenance.

10) MCU/ECM CONNECTOR



(1) MCU communicates the machine data with Laptop computer through the connector.

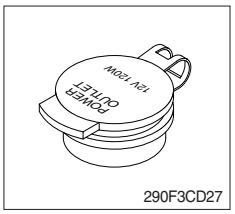
(2) ECM communicates the engine data with Cummins INSITE tool adapter through the connector.

① ECM fault code check

② ECM program change

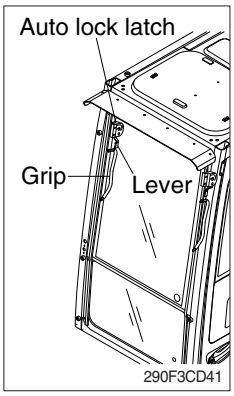
③ Engine data monitoring & test

11) SERVICE SOCKET (12V)



(1) Utilize the power of 12 V as your need and do not exceed power of 12 V, 30 W.

12) UPPER WINDSHIELD

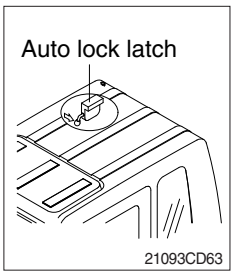


(1) Perform the following procedure in order to open the upper windshield.

① Pull both levers with hold both grips that are located at the top of the windshield frame and push the windshield upward.

② Hold both grips and back into the lock position until auto lock latch is engaged, then release the grips.

⚠ When working, without having locked the windshield by the auto lock (by pushing the windshield to the rear untill it's completely fixed), please be careful as it can cause personal injury if the windshield is not fixed or falls off.



(2) Perform the following procedure in order to close the upper windshield.

① Pull the lever of the auto lock latch in order to release the auto lock latch.

② Reverse above step ① and ② in order to close the upper windshield.

1. SUGGESTION FOR NEW MACHINE

1) It takes about 100 operation hours to enhance its designed performance.

2) Operate according to below three steps and avoid excessive operation for the initial 100 hours.

Service meter	Load
Until 10 hours	About 60 %
Until 100 hours	About 80 %
After 100 hours	100 %

※ **Excessive operation may deteriorate the potential performance of machine and shorten lifetime of the machine.**

3) Be careful during the initial 100 hours operation

(1) Check daily for the level and leakage of coolant, engine oil, hydraulic oil and fuel.

(2) Check regularly the lubrication and fill grease daily all lubrication points.

(3) Tighten bolts.

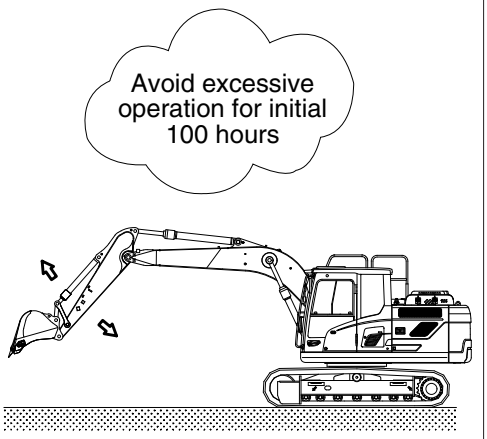
(4) Warm up the machine fully before operation.

(5) Check the gauges occasionally during the operation.

(6) Check if the machine is operating normally during operation.

4) Replace followings after initial 250 hours of operation

Checking items	Hours
Engine oil	250
Engine oil filter element	
Fuel filter	
Prefilter	
Hydraulic oil return filter element	
Hydraulic oil tank drain filter cartridge	
Line filter element	
Swing reduction gear oil	
Travel reduction gear oil	



140LC4OP01

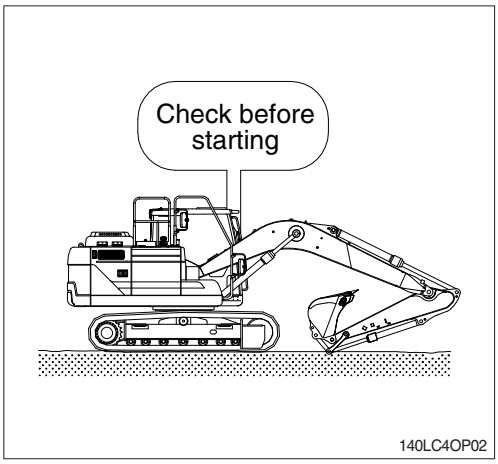
2. CHECK BEFORE STARTING THE ENGINE

1) Look around the machine and under the machine to check for loosen nut or bolts, collection of dirt, or leakage of oil, fuel or coolant and check the condition of the work equipment and hydraulic system. Check also loosen wiring, and collection of dust at places which reach high temperature.

※ **Refer to the daily check on the chapter 6, maintenance.**

2) Adjust seat to fit the contours of the operator's body for the pleasant operation.

3) Adjust the rear view mirror.



140LC4OP02

3. STARTING AND STOP THE ENGINE

1) CHECK INDICATOR LIGHTS

(1) Check if all the operating levers are in the neutral position.

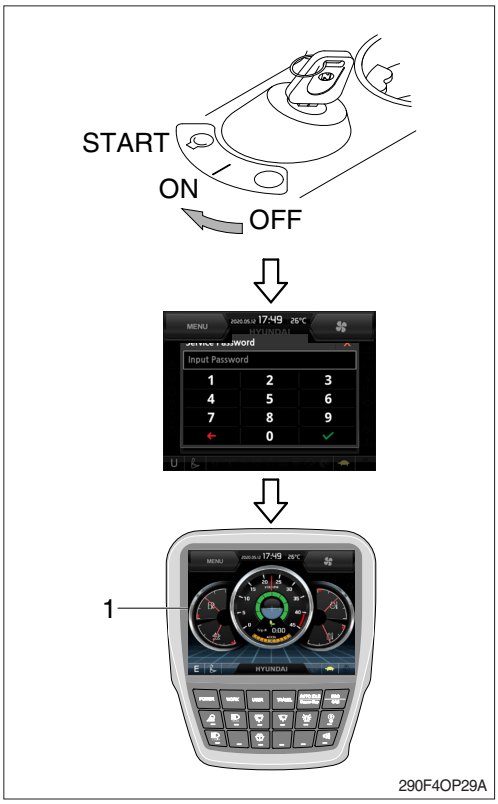
(2) Turn the starting switch to the ON position. Buzzer sounding for 4 seconds with HYUNDAI logo on cluster.

※ **If the ESL mode is set to the enable, enter the password to start engine.**

※ **If the password has failed 5 times, please wait 30 minutes before re-attempting to enter the password.**

※ **Refer to page 3-24 for ESL mode.**

(3) After initialization of cluster, the operating screen is displayed on LCD (1).
Also, self-diagnostic function is carried out.



2) STARTING ENGINE IN NORMAL TEMPERATURE

※ **Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.**

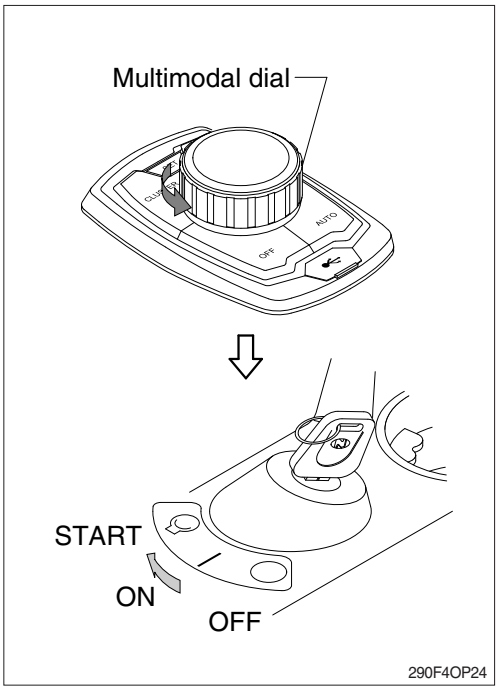
(1) Turn the multimodal dial to low idle position.

(2) Turn the starting switch to START position to start the engine.

※ **Do not hold the starting switch in the START position for longer than 20 seconds.**
The start system may be seriously damaged.

※ **If the engine does not start, allow the stater to cool for about 2 minutes before re-attempting to start the engine again.**

(3) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.



3) STARTING ENGINE IN COLD WEATHER

※ **Sound horn to warn surroundings after checking if there are obstacles in the area.**

※ **Replace the engine oil and fuel referring to recommended oils at page 2-46.**

※ **Fill the anti-freeze solution to the coolant as required.**

※ **If you turn ON the starting switch, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature.**

(1) Check if all the levers are in the neutral position.

(2) Turn the multimodal dial to low idle position.

(3) Turn the starting switch to the ON position, and wait 1~2 minutes. More time may take according to ambient temperature.

(4) Wait for five minutes to warm up the engine after the preheating pilot lamp off, and than turn the starting switch to the START position to start the engine.

※ **If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.**

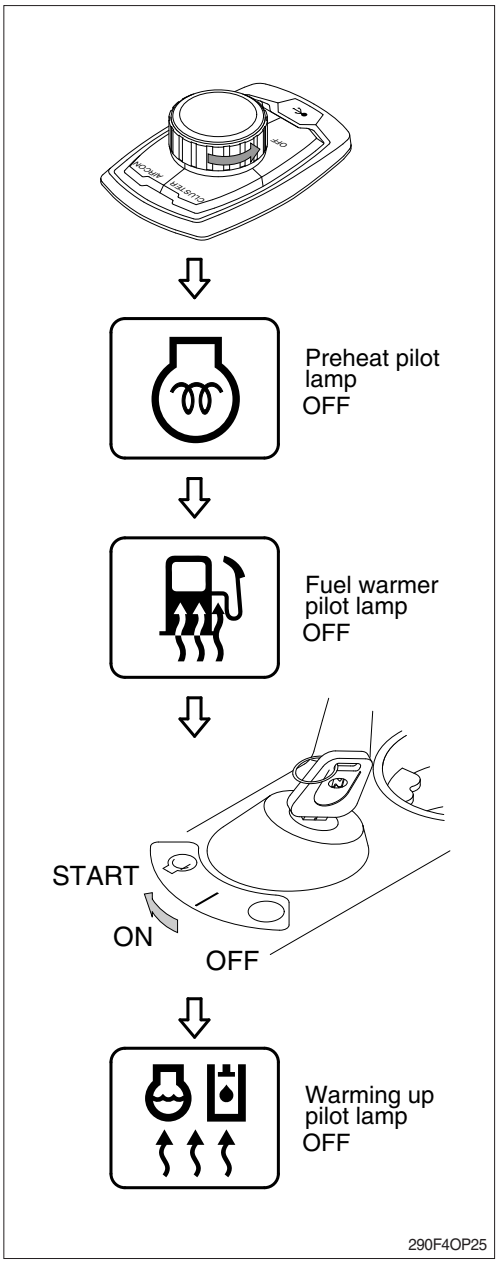
(5) Release the starting switch immediately after starting engine.

(6) If the temperature of the coolant is lower than 30˚C the warming up automatically starts.

※ **Do not operate the working devices, or convert the operation mode into other mode during the warming up.**

※ **In winter season, low idle time (maximum 45 sec) would be controlled automatically just after engine starting for optimum condition of the engine lubricating system.**

※ **Turbocharger protection :**
After starting, the engine may be held at 800 rpm for a period of time. The duration will depend on ambient temperature.



4) INSPECTION AFTER ENGINE START

Inspect and confirm the following after engine starts.

(1) Is the level gauge of hydraulic oil tank in the normal level?

(2) Are there leakages of oil or water?

(3) Are all the warning lamps turned OFF (1-12)?
The seat belt reminder warning lamp (15) pops up and the buzzer sounds until fasten the seat belt.

(4) Are the indicator of water temperature gauge (13) and hydraulic temperature gauge (14) in the operating range?

(5) Are the engine sound and the color of exhaust gas normal?

(6) Are the sound and vibration normal?

※ **Do not increase engine speed quickly after starting, it can damage engine or turbocharger.**

※ **If there are problems in the cluster, stop the engine immediately and correct problems as required.**

290F4OP30A

5) WARMING-UP OPERATION

※ **The most suitable temperature for the hydraulic oil is about 50˚C (122˚F).**
It can cause serious trouble in the hydraulic system by sudden operation when the hydraulic oil temperature is below 25˚C (77˚F).
Then temperature must be raised to at least 25˚C (77˚F) before starting work.

(1) Run the engine at low idle speed for 5 minutes.

(2) Speed up the engine by multimodal dial and run the engine at mid-range speed.

(3) Operate bucket lever for 5 minutes.

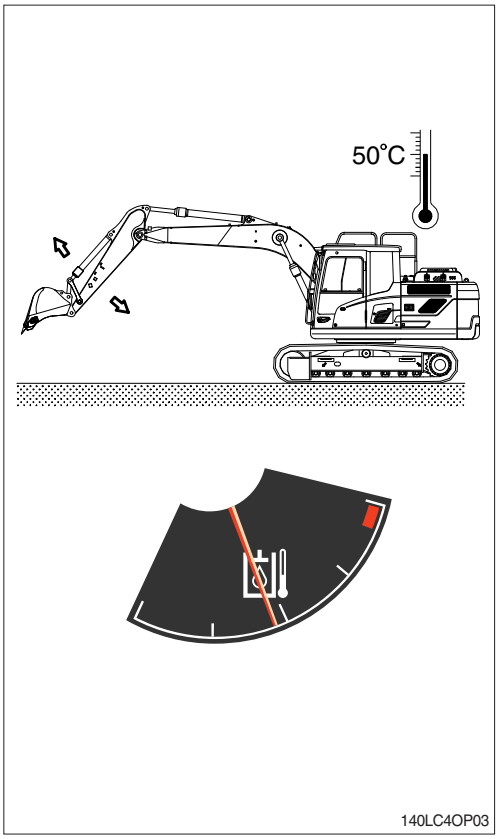
※ **Do not operate anything except bucket lever.**

(4) Run the engine at the high speed and operate the bucket lever and arm lever for 5-10 minutes.

※ **Operate only the bucket lever and arm lever.**

(5) This warming-up operation will be completed by operation of all cylinders several times, and operation of swing and traveling.

※ **Increase the time for warming-up during winter.**



140LC4OP03

△ A cold engine may stall when sudden load is applied in low idling state.
Warm up the engine sufficiently before operate the machine.

※ Coolant temperature should be over 70˚C (158˚F); Normally operate for 3~5 minutes in high idling state.

6) TO STOP THE ENGINE

※ If the engine is abruptly stopped before it has cooled down, engine life may be greatly shortened. Consequently, do not abruptly stop the engine apart from an emergency.

※ In particular, if the engine has overheated, do not abruptly stop it but run it at medium speed to allow it to cool gradually, then stop it.

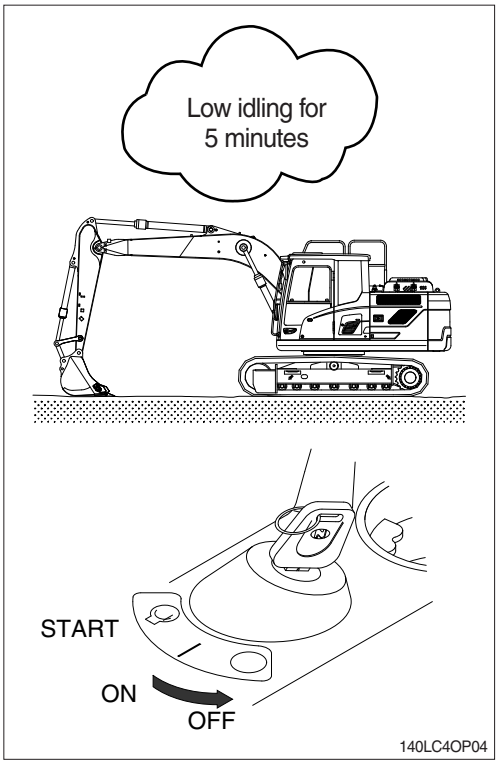
(1) Down the bucket on the ground then put all the levers in the neutral position.

(2) Run the engine at low idle speed for about 5 minutes.

(3) Return the key of starting switch to the OFF position.

(4) Remove the key to prevent other people using the machine and the safety knob.

(5) Lock the cab door.



4. MODE SELECTION SYSTEM

1) STRUCTURE OF MECHATRONICS SYSTEM

CAPO, Computer Aided Power Optimization system, is the name of mode selection system developed by HD Hyundai Construction Equipment.

※ **Please refer to chapter 3, cluster for below modes setting.**

(1) Power mode

Power mode designed for various work loads supports high performance and reduces fuel consumption.

- P mode : Heavy duty power
- S mode : Standard power
- E mode : Economy power

(2) Work mode

One of the two work modes can be selected for the optimal work condition of the machine operation.

① General work mode (bucket)

When key switch is turned ON, this mode is selected automatically.

② Work tool mode (breaker, crusher)

It controls the pump flow and system pressure for the optimal operation of breaker or crusher.

(3) User mode

① User mode is useful for setting the user preperable power quickly.
(engine speed, power shift and idle speed)

② There are two methods for use of user mode.

a. In operation screen

User mode switch is used to memorize the current machine operating status and activate the memorized user mode.
Refer to page 3-14.

b. In menu

Engine high idle rpm, auto idle rpm and pump torque (power shift) can be modulated and memorized separately in menu status.

- Each memory mode has a initial set which are mid-range of max engine speed, power shift and auto idle speed.

290F4OP31A

1 Power mode switch
2 Work mode switch
3 User mode switch
4 Travel mode switch
5 Auto idle mode switch
6 LCD

290F4OP32A

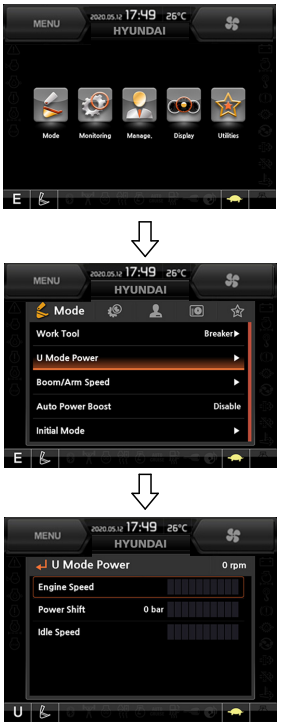
- High idle rpm, auto idle rpm and EPPR pressure can be adjusted and memorized in the U-mode.

※ **Refer to the page 3-18 for setting the user mode (available on U mode only).**

· LCD segment vs parameter setting

Step (▮)	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1300	750	0
2	1400	800	3
3	1500	850	6
4	1600	900	9
5	1700	950	12
6	1800	1000	16
7	1850	1050	20
8	1900	1100 (auto decel)	26
9	1950	1150	32
10	2000	1200	38

※One touch decel & low idle : 1000 rpm



290F4OP33A

(4) Travel mode

: Low speed traveling.

: High speed traveling.

(5) Auto idle mode

Pilot lamp ON : Auto idle function is activated.

Pilot lamp OFF : Auto idle function is canceled.

(6) Monitoring system

Information of machine performance as monitored by the MCU can be displayed on the LCD. Refer to the page 3-21.

(7) Self diagnostic system

① **MCU (Machine Control Unit)**

The MCU diagnoses machine status and problems and displays fault code in the cluster (fault code detected by MCU is composed of HCESPN and FMI).

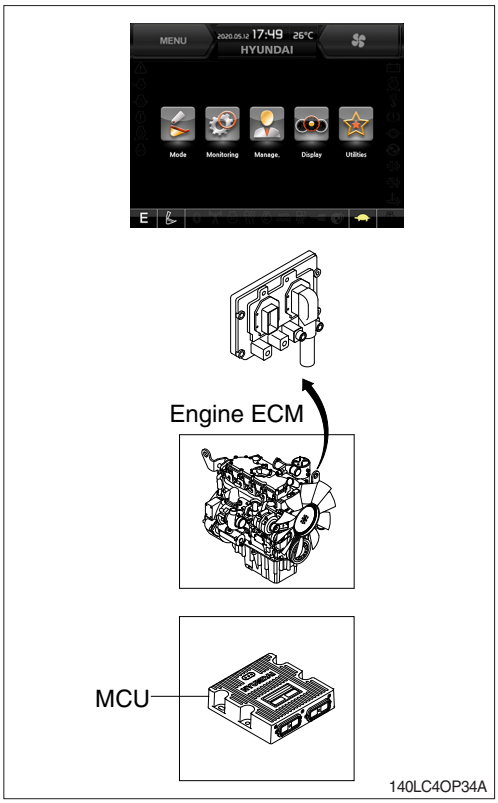
② **Engine ECM (Electronic Control Module)**

If the engine or relevant system has problem, engine ECM detects and displays on the LCD as fault codes (this code is composed of SPN and FMI).

※ **Refer to the page 3-21 for LCD display.**

(8) Anti-restart system

The system protects the starter from inadvertent restarting after the engine is already operational.



2) HOW TO OPERATE MODE SELECTION SYSTEM

(1) When start key switch is turned ON

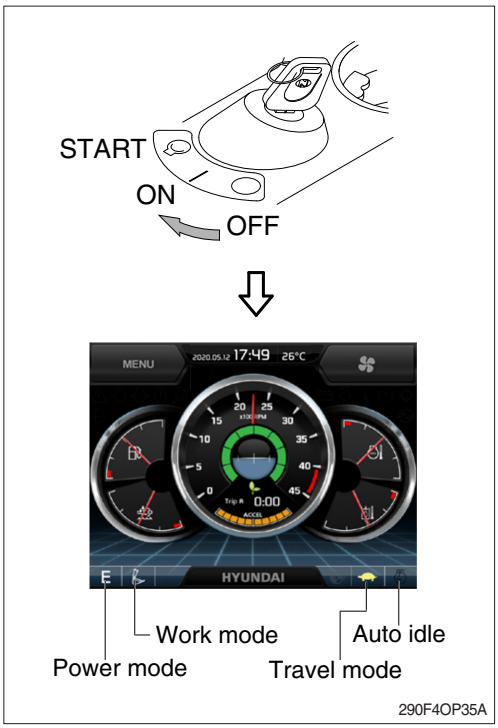
① When start key switch is turned on, the cluster turns on and buzzer sounds for 4 seconds. And then main information as gauges and engine speed are displayed on LCD.

② Initial default mode settings are displayed in the cluster.

Mode		Status
Power mode	E	ON
Work mode		ON
Travel mode	Low ( )	ON
Auto idle		ON

※ **These setting can be changed at U mode.**

③ Self-diagnostic function can be carried out from this point.

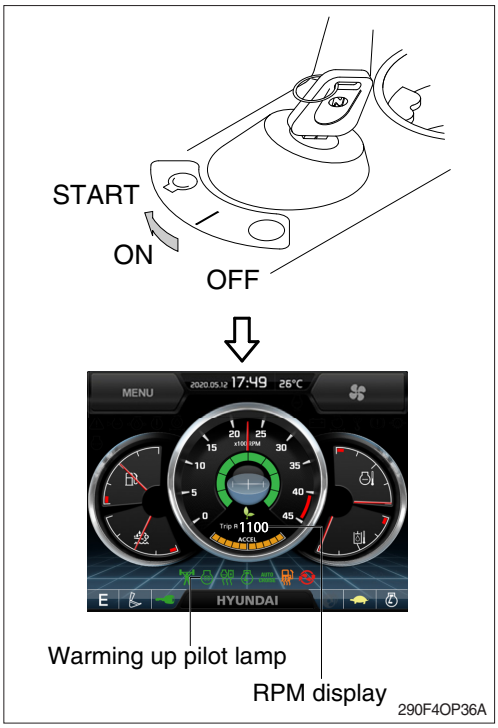


(2) After engine start

① When the engine is started, rpm display indicates low idle, 1000±100 rpm.

② If coolant temperature is below 30˚C, the warm-ing up pilot lamp lights ON and after 4 seconds the engine speed increases to 1100± 100 rpm automatically to warm up the machine.

· After 2-3 minutes, you can select any mode depending on job requirement.



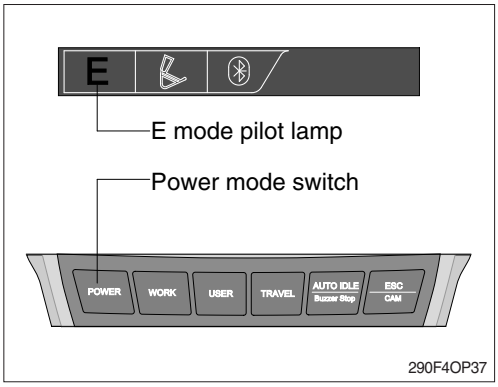
3) SELECTION OF POWER MODE

(1) E mode

The multimodal dial is set 10 and the auto idle mode is canceled.

Engine rpm	Effect
1650±50	Variable power control in proportion to lever stroke (improvement in fuel efficiency) ※ Same power as S mode in full lever operation.

※ When the multimodal dial is located below 9 the engine speed decreases about 50~100 rpm per dial set.

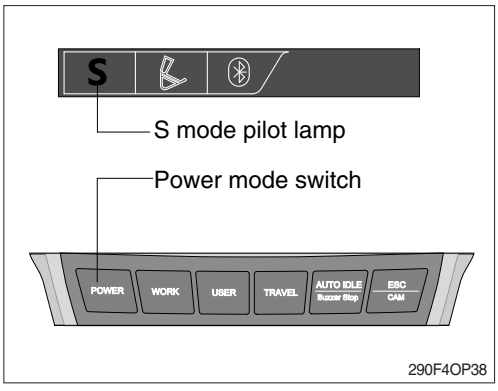


(2) S mode

The multimodal dial is set 10 and the auto idle mode is canceled.

Engine rpm	Effect
1750±50	Standard power

※ When the multimodal dial is located below 9 the engine speed decreases about 50~100 rpm per dial set.

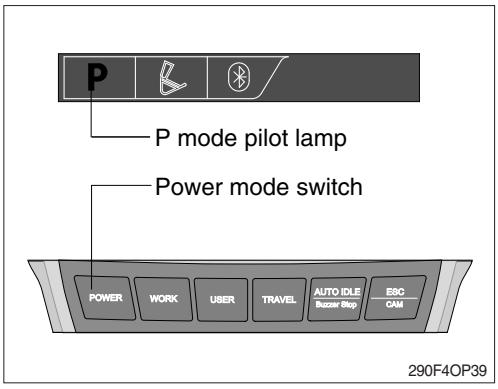


(3) P mode

The multimodal dial is set 10 and the auto idle mode is canceled.

Engine rpm	Effect
1850±50	Approximately 120 % of power and speed available than S mode.

※ **When the multimodal dial is located below 9 the engine speed decreases about 50~100 rpm per dial set.**



5. OPERATION OF THE WORKING DEVICE

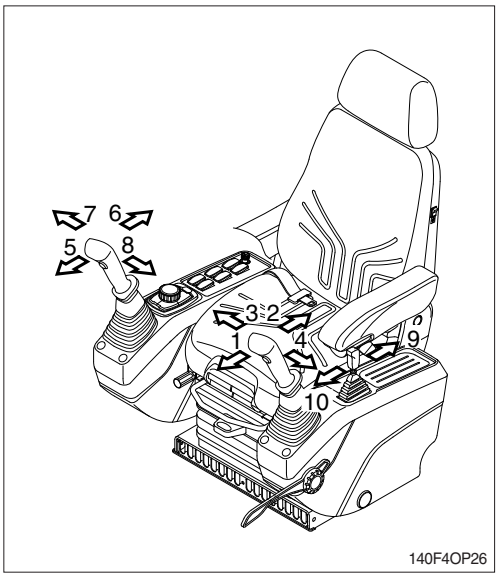
※ Confirm the operation of control lever and working device.

1) Left control lever controls arm and swing.

2) Right control lever controls boom and bucket.

3) When you release the control lever, control lever returns to neutral position automatically.

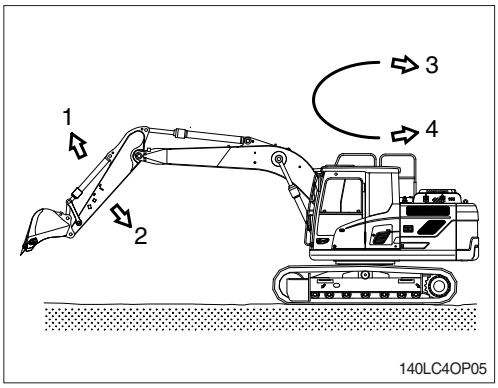
※ When operating swing, consider the swing distance by inertia.



140F4OP26

※ Left control lever

1 Arm roll-out
2 Arm roll-in
3 Swing right
4 Swing left



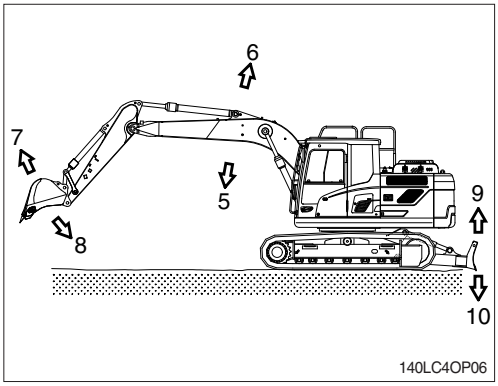
140LC4OP05

※ Right control lever

5 Boom lower
6 Boom raise
7 Bucket roll-out
8 Bucket roll-in

※ Dozer blade control lever

9 Dozer blade up
10 Dozer blade down



140LC4OP06

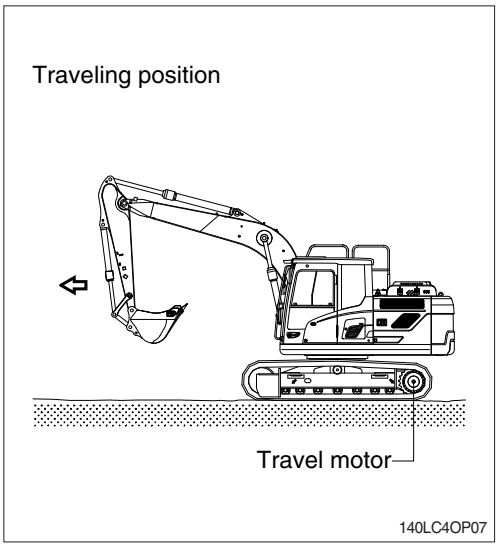
6. TRAVELING OF THE MACHINE

1) BASIC OPERATION

(1) Traveling position

It is the position which the traveling motor is in the rear and the working device is forward.

⚠ Be careful as the traveling direction will be reversed when the whole machine is swinged 180 degree.



(2) Traveling operation

It is possible to travel by either travel lever or pedal.

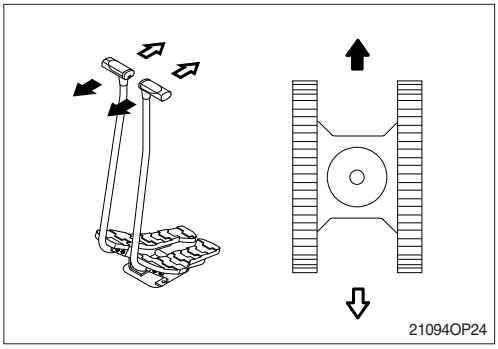
※ **Do not travel continuously for a long time.**

※ **Reduce the engine speed and travel at a low speed when traveling on uneven ground.**

(3) Forward and backward traveling

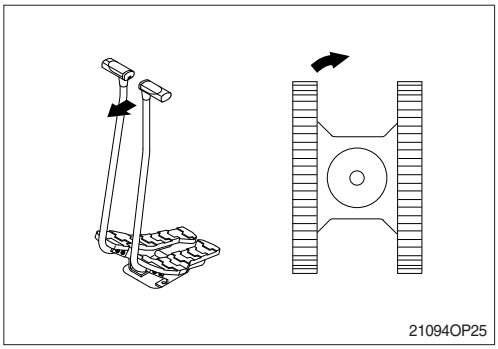
When the left and right travel lever or pedal are pushed at the same time, the machine will travel forward or backward.

※ **The speed can be controlled by the operation stroke of lever or pedal and change of direction will be controlled by difference of the left and right stroke.**



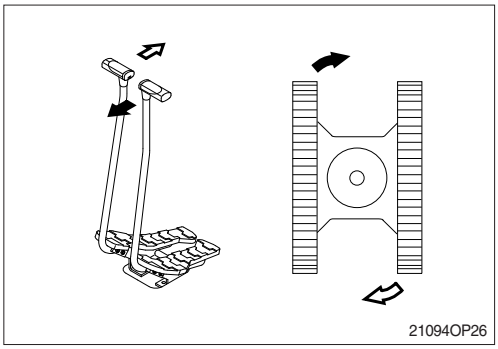
(4) Pivot turning

Operating only one side of lever or pedal make the change of direction possible by moving only one track.



(5) Counter rotation

It is to change the direction at the original place by moving the right and left track. Both side of lever or pedal are operated to the other way at the same time.



2) TRAVELING ON A SLOPE

(1) Make sure that the travel lever is properly maneuvered by confirming the travel motor is in the right location.

(2) Lower the bucket 20 to 30 ㎝ (1 ft) to the ground so that it can be used as a brake in an emergency.

(3) If the machine starts to slide or loses stability, lower the bucket immediately and brake the machine.

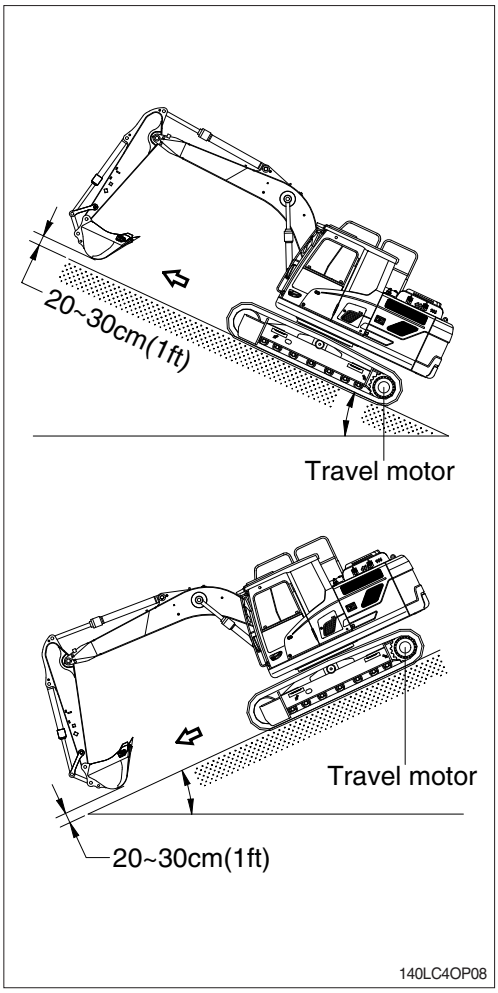
(4) When parking on a slope, use the bucket as a brake and place blocks behind the tracks to prevent sliding.

※ **Machine cannot travel effectively on a slope when the oil temperature is low. Do the warming-up operation when it is going to travel on a slope.**

⚠ **Be careful when working on slopes. It may cause the machine to lose its balance and turn over.**

⚠ **Be sure to keep the travel speed switch on the LOW (turtle mark) while traveling on a slope.**

⚠ **Be sure to keep the swing lock/fine switch on the LOCK while traveling on a slope (if equipped).**



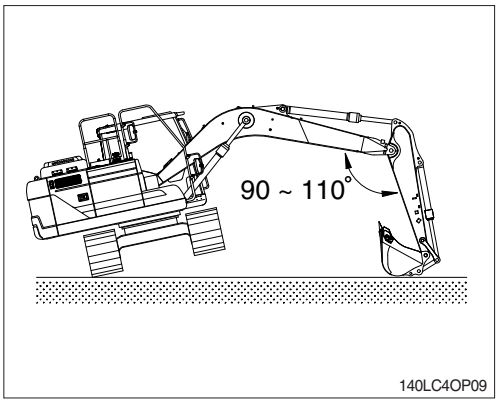
3) TRAVELING ON SOFT GROUND

※ **If possible, avoid to operate on soft ground.**

(1) Move forward as far as machine can move.

(2) Take care not to go beyond the depth where towing is impossible on soft ground.

(3) When driving becomes impossible, lower bucket and use boom and arm to pull the machine.
Operate boom, arm, and travel lever at the same time to avoid the machine sinking.



4) TOWING THE MACHINE

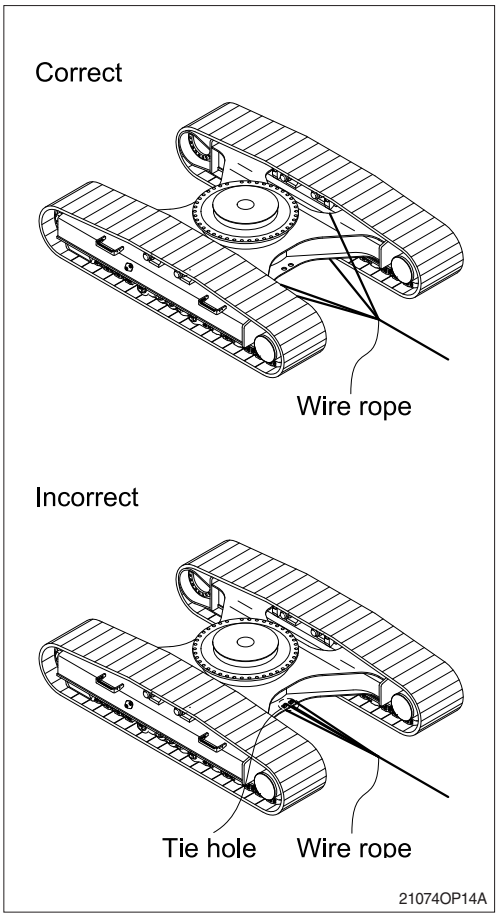
Tow the machine as follows when it can not move on it's own.

(1) Tow the machine by other machine after hook the wire rope to the frame as shown in picture at right.

(2) Hook the wire rope to the frame and put a support under each part of wire rope to prevent damage.

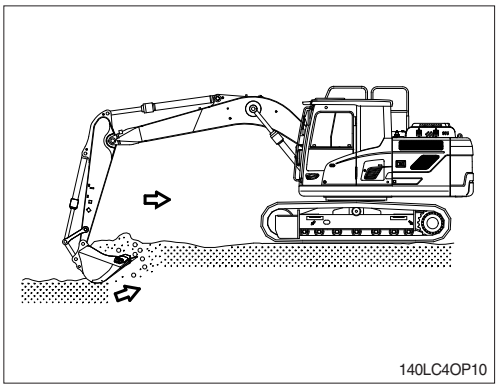
※ **Never tow the machine using only the tie hole, because this may break.**

⚠ **Make sure no personnel are standing close to the tow rope.**

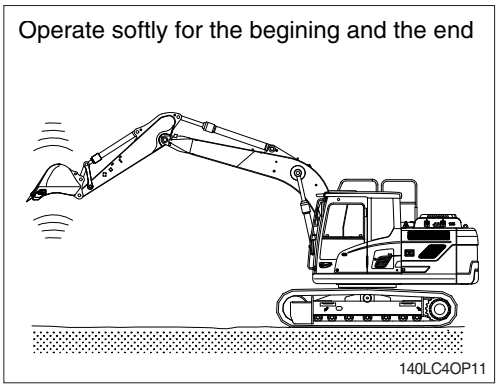


7. EFFICIENT WORKING METHOD

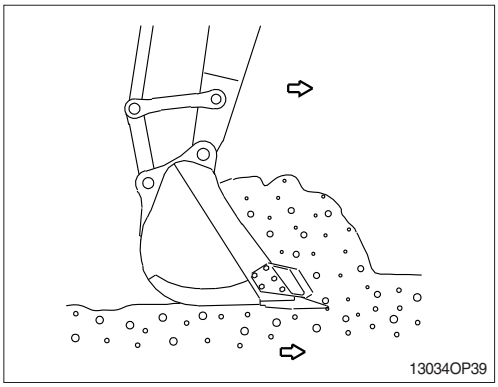
1) Do the digging work by arm.
   Use the pulling force of arm for digging and use together with the digging force of the bucket if necessary.



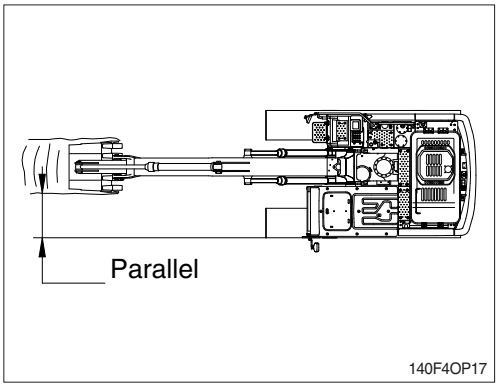
2) When lowering and raising the boom operate softly for the beginning and the end.
   In particularly, sudden stops while lowering the boom may cause damage to the machine.



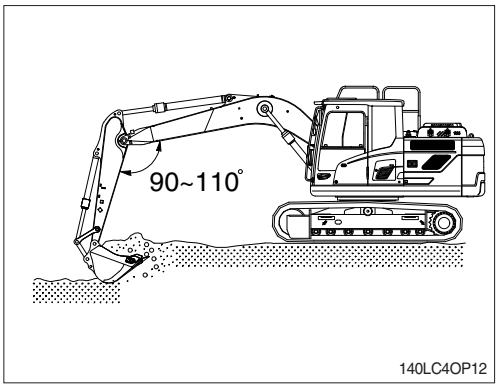
3) The digging resistance and wearing of tooth can be reduced by putting the end of bucket tooth to the digging direction.



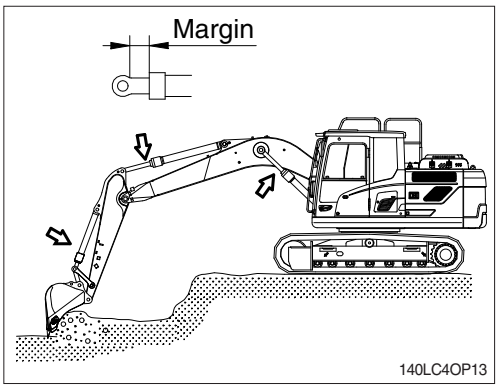
4) Set the tracks parallel to the line of the ditch to be excavated when digging ditch. Do not swing while digging.



5) Dig slowly with keeping the angle of boom and arm, 90-110 degree when maximum digging force is required.

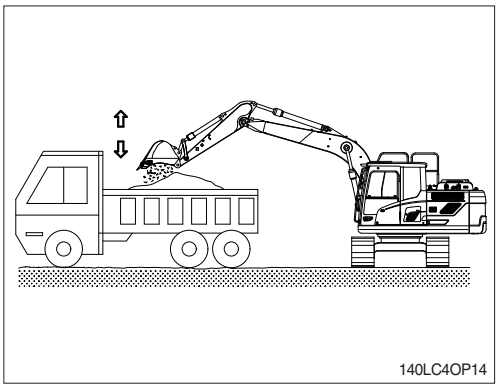


6) Operate leaving a small safety margin of cylinder stroke to prevent damage of cylinder when working with the machine.

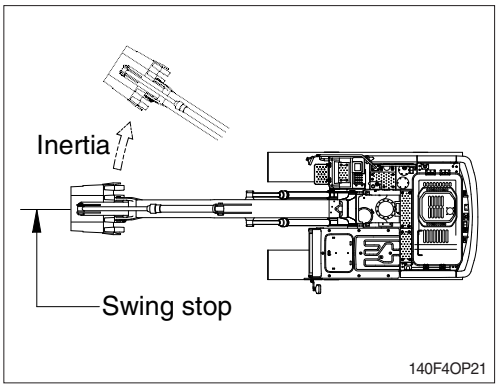


7) Keep the bucket to the dumping position and the arm horizontal when dumping the soil from the bucket.
Operate bucket lever 2 or 3 times when hard to dump.

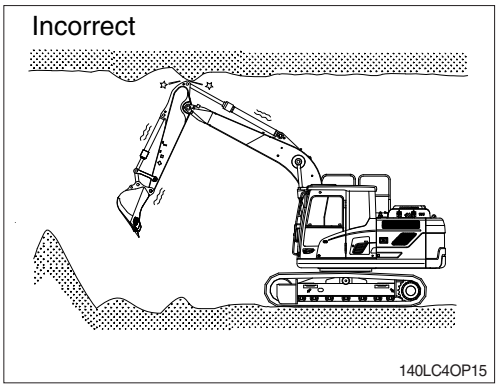
※ **Do not use the impact of bucket tooth when dumping.**



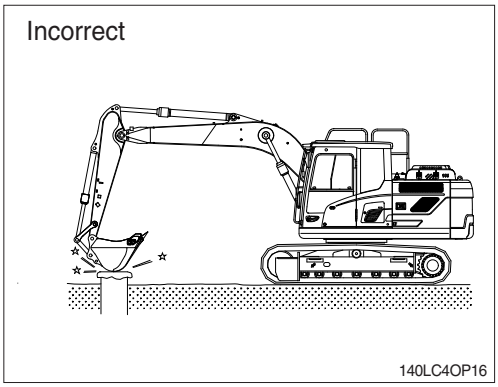
8) Operate stop of swing considering the swing slip distance is created by inertia after neutralizing the swing lever.



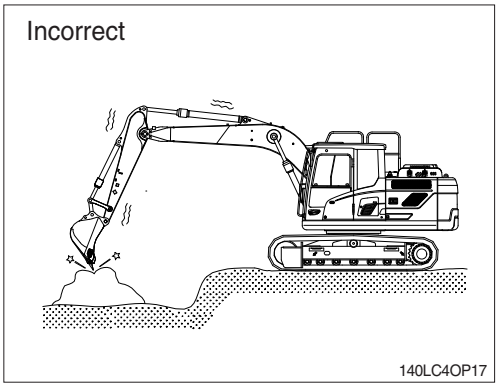
9) If the excavation is in an underground location or in a building, make sure that there is adequate overhead clearance and that there is adequate ventilation.



10) Do not use the dropping force of the work equipment for digging.
The machine can be damaged by the impact.



11) Do not use the bucket to crack hard objects like concrete or rocks.
This may break a tooth or pin, or bend boom.



12) NEVER CARRY OUT EXCESSIVE OPERATIONS

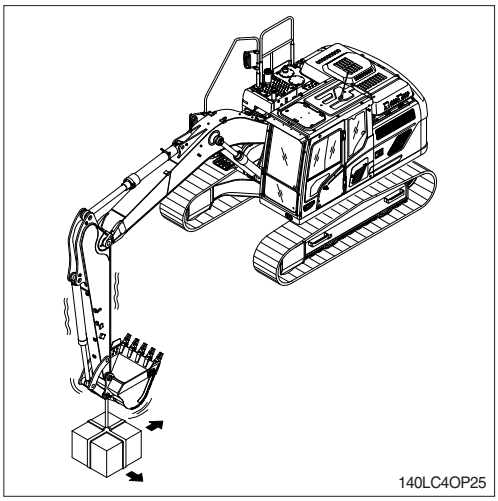
Operation exceeding machine performance may result in accident or failure.

Carry out lifting operation within specified load limit.

Never carry out operations which may damage the machine such as overload or over-impact-load.

Never travel while carrying a load.

In case you need installing over load warning device for object handling procedure, please contact HD Hyundai Construction Equipment distributor.



12) BUCKET WITH HOOK

When carrying out lifting work, the special lifting hook is necessary.

The following operations are prohibited.

- Lifting loads with a wire rope fitted around the bucket teeth.
- Lifting loads with the wire rope wrapped directly around the boom or arm.

When performing lifting operation, securely hook the wire rope onto the special lifting hook.

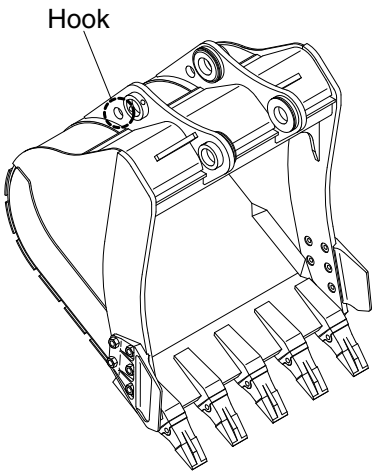
When performing lifting operation, never raise or lower a person.

Due to the possible danger of the load falling or of collision with the load, no persons shall be allowed in the working area.

Before performing lifting operation, designate an operation supervisor.
Always execute operation according to his instructions.

- Execute operating methods and procedures under his direction.
- Select a person responsible for signaling. Operate only on signals given by such person.

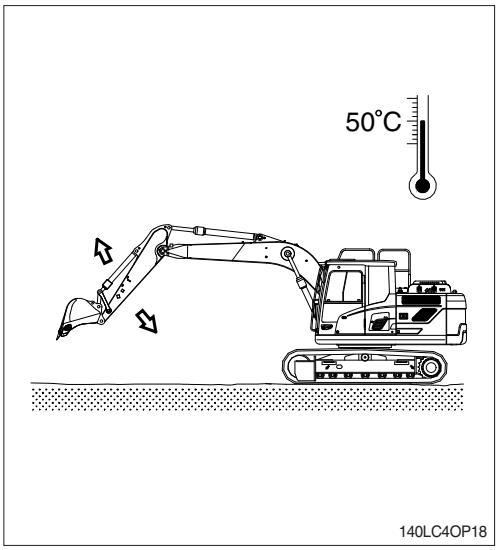
Never leave the operator's seat while lifting a load.



290F4OP42

8. OPERATION IN THE SPECIAL WORK SITES

1) OPERATION THE MACHINE IN A COLD WEATHER



(1) Use proper engine oil and fuel for the weather.

(2) Fill the required amount of antifreeze in the coolant.

(3) Refer to the starting engine in cold weather. Start the engine and extend the warming up operation.

(4) Be sure to open the heater cock when using the heater.

(5) Always keep the battery completely charged.

※ **Discharged batteries will freeze more easily than fully charged.**

(6) Clean the machine and park on the wood plates.

2) OPERATION IN SANDY OR DUSTY WORK SITES

(1) Inspect air cleaner element frequently. Clean or replace element more frequently, if warning lamp comes ON and buzzer sounds simultaneously, regardless of inspection period.

※ **Replace the inner and outer element after 4 times of cleaning.**

(2) Inspect radiator, oil cooler and condenser frequently, and keep cooling fins clean.

(3) Prevent sand or dust from getting into fuel tank and hydraulic tank during refilling.

(4) Prevent sand or dust from penetrating into hydraulic circuit by tightly closing breather cap of hydraulic oil tank. Replace hydraulic oil filter and air breather element frequently. Also, replace the fuel filter frequently.

(5) Keep all lubricated part, such as pins and bushings, clean at all times.

(6) If the air conditioner and heater filters clogged, the heating or cooling capacity will drop. Clean or replace the filter element more frequently.

(7) Clean electrical components, especially the starting motor and alternator to avoid accumulation of dust.

3) SEA SHORE OPERATION

(1) Prevent ingress of salt by securely tightening plugs, cocks and bolts of each part.

(2) Wash machine after operation to remove salt residue.
Pay special attention to electrical parts, and hydraulic cylinders and track tension cylinder to prevent corrosion.

(3) Inspection and lubrication must be carried out more frequently.
Supply sufficient grease to replace all old grease in bearings which have been submerged in water for a long time.

4) OPERATION IN MUD, WATER OR RAIN WORK SITES

(1) Perform a walk around inspection to check for any loose fittings, obvious damage to the machine or any fluid leakage.

(2) After completing operations, clean mud, rocks or debris from the machine. Inspect for damage, cracked welds or loosened parts.

(3) Perform all daily lubrication and service.

(4) If the operations were in salt water or other corrosive materials, make sure to flush the affected equipment with fresh water.

5) OPERATION IN ROCKY WORK SITES

(1) Check for damage to the undercarriage and for looseness, flaws, wear and damage in bolts and nut.

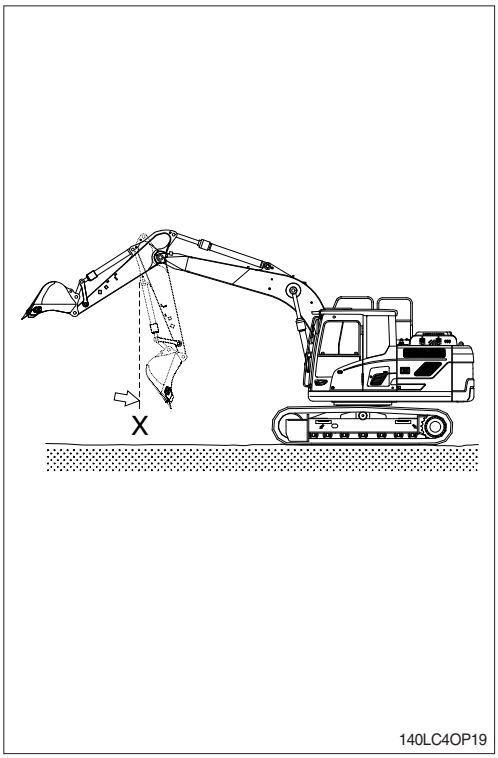
(2) Loosen the track tension a little when working in such areas.

(3) Do not turn the undercarriage directly over the sharp edge rock.

9. NORMAL OPERATION OF EXCAVATOR

Followings may occur during operation due to the nature of a hydraulic excavator.

1) When rolling in the arm, the roll-in movement stop momentary at point X in the picture shown, then recovers speed again after passing point X.
   The reason for this phenomenon is that movement by the arm weight is faster than the speed of oil flow into the cylinder.
2) When lowering the boom, one may hear continuous sound.
   This is caused by oil flow in the valve.
3) Overloaded movement will produce sound caused by the relief valves, which are for the protection of the hydraulic systems.
4) When the machine is started swing or stopped, a noise near the swing motor may be heard. The noise is generated when the brake valve relieves.



10. ATTACHMENT LOWERING (when engine is stopped)

1) On machines equipped with an accumulator, for a short time (within 1 minute) after the engine is stopped, the attachment will lower under its own weight when the attachment control lever is shifted to LOWER. This happens only when the starting switch is ON and the safety knob is the in the UNLOCK position. After the engine is stopped, set the safety knob to the LOCK position.

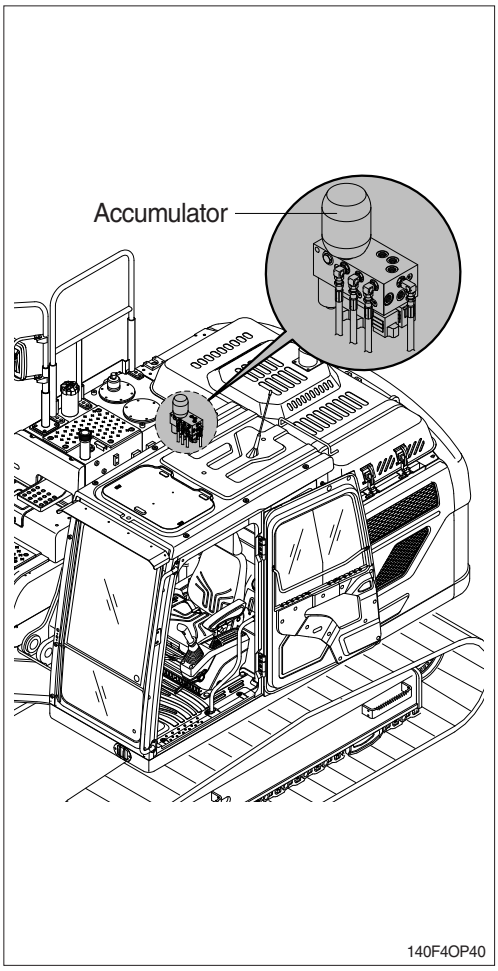
⚠ **Be sure no one is under or near the attachment before lowering the boom.**

2) The accumulator is filled with high-pressure nitrogen gas, and it is extremely dangerous if it is handled in the wrong way. Always observe the following precautions.

⚠ **Never make any hole in the accumulator expose it to flame or fire.**

⚠ **Do not weld anything to the accumulator.**

※ **When carrying out disassembly or maintenance of the accumulator, or when disposing of the accumulator, it is necessary to release the gas from the accumulator.**
A special air bleed valve is necessary for this operation, so please contact your HD Hyundai Construction Equipment distributor.



11. STORAGE

Maintain the machine taking care of following to prevent the deterioration of machine when storing the machine for a long time, over 1 month.

1) BEFORE STORAGE

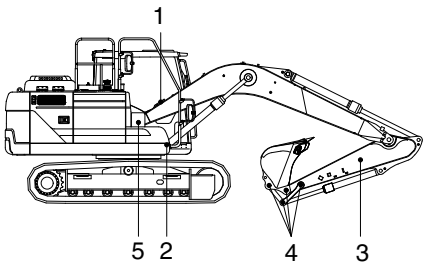
(1) Cleaning the machine

Clean the machine. Check and adjust tracks. Grease each lubrication part.

(2) Lubrication position of each part

Change all oil.

※ Be particularly careful when you reuse the machine.
As oil can be diluted during storage.
Apply an anticorrosive lubricant on the exposed part of piston rod of cylinder and in places where the machine rusts easily.



1 Lubricating manifold (5EA)
2 Boom cylinder pin (2EA)
3 Lubricating manifold (3EA)
4 Arm and bucket (7EA)
5 Boom rear bearing center (1EA)

140LC4OP20

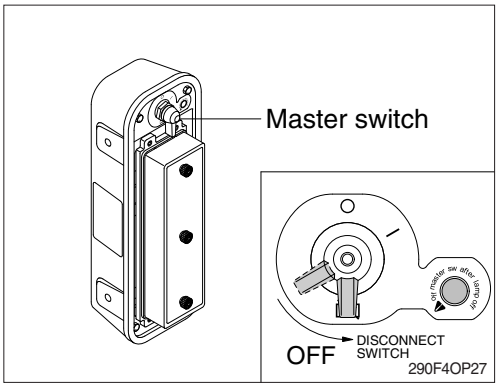
(3) Master switch

Turn OFF the master switch mounted electric box and store the machine.

⚠ Off the master switch after lamp off.

⚠ It may cause severe failure of aftertreatment device.

(4) Be sure to mix anticorrosive antifreezing solution in the radiator.



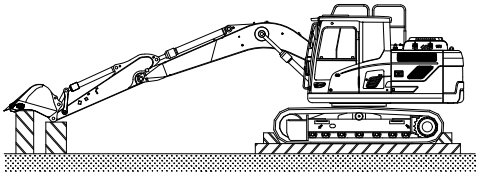
290F4OP27

(5) Prevention of dust and moisture

Keep machine dry. Store the machine setting wood on the ground.

※ Cover exposed part of piston rod of cylinder.

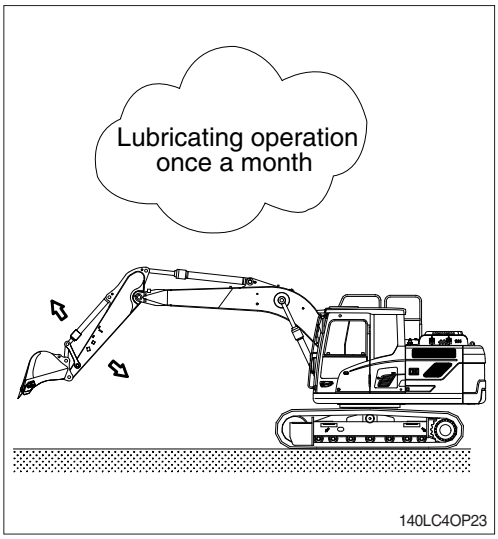
※ Lower the bucket to the ground and set a support under track.



140LC4OP21

2) DURING STORAGE

Start engine and move the machine and work equipment once a month and apply lubrication to each part.



※ Check the level of engine oil and coolant and fill if required when starting engine.

※ Clean the anticorrosive on the piston rod of cylinder.

※ Operate the machine such as traveling, swing and work equipment operation to make sure enough lubrication of all functional components.

※ BATTERY

① Once a month, start the engine for 15 minutes (or use a charger) to charge the battery.

② Every 2 months, check the battery voltage and keep battery voltage over 25.08V.

③ If the machine stock period is over 6 months, disconnect the battery negative (-) terminal.

3) AFTER STORAGE

Carry out the following procedure when taking out of a long time storage.

(1) Wipe off the anticorrosive lubricant on the hydraulic piston rod.

(2) Completely fill fuel tank, lubricate and add oil.

(3) When storage period is 6 months over

If the machine stock period is over 6 months, carry out the following procedure.

This procedure is to drain condensation water for the **swing reduction gear** durability.

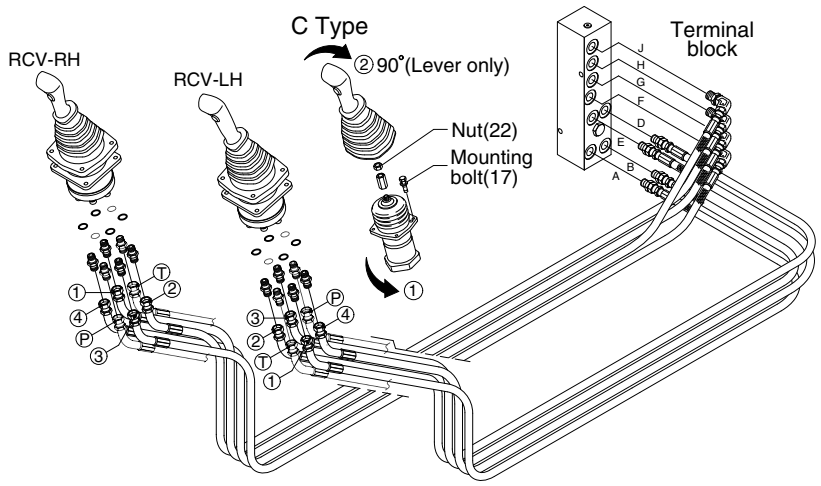
※ Remove the drain port plug and drain the water until the gear oil comes out and then tighten the drain plug.

※ Refer to the service instruction, section 6 for the drain plug location.

※ If the machine is stored without carrying out the monthly lubricating operation, consult your HD Hyundai Construction Equipment dealer for service.

12. RCV LEVER OPERATING PATTERN

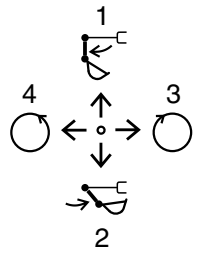
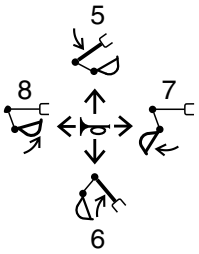
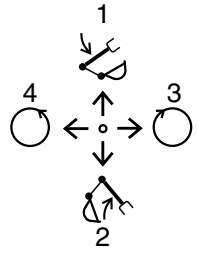
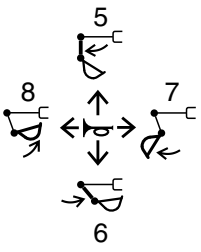
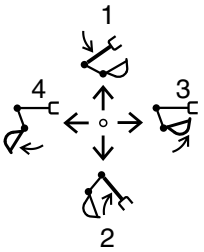
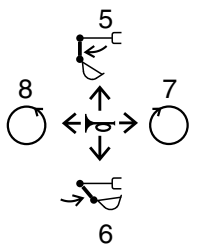
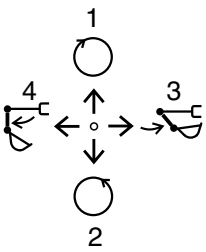
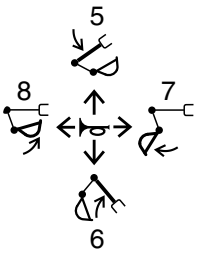
1) PATTERN CHANGE VALVE NOT INSTALL (standard)



※ Whenever a change is made to the machine control pattern also exchange the pattern label in the cab to match the new pattern.

※ The hose modification works must be carried out between RCV lever and terminal block (Not between terminal block and MCV).

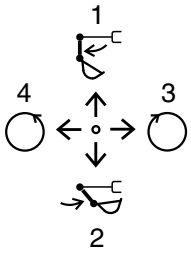
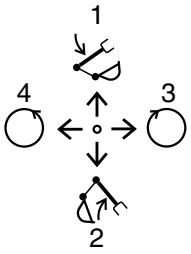
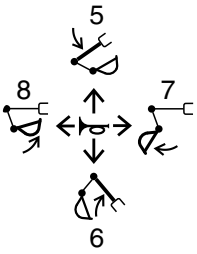
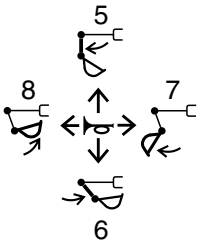
140F4OP41

Pattern	Operation		Control function		Hose connection (port)		
	Left RCV lever	Right RCV lever			RCV lever	Change of Terminal block	
						From	To
ISO Type HD Hyundai Construction Equipment			Left	1Arm out	②	D	-
				2Arm in	④	E	-
				3Swing right	③	B	-
				4Swing left	①	A	-
			Right	5Boom lower	④	J	-
				6Boom raise	②	H	-
				7Bucket out	①	G	-
				8Bucket in	③	F	-
A Type			Left	1Boom lower	②	D	J
				2Boom raise	④	E	H
				3Swing right	③	B	-
				4Swing left	①	A	-
			Right	5Arm out	④	J	D
				6Arm in	②	H	E
				7Bucket out	①	G	-
				8Bucket in	③	F	-
B Type			Left	1Boom lower	②	D	J
				2Boom raise	④	E	H
				3Bucket in	③	B	F
				4Bucket out	①	A	G
			Right	5Arm out	④	J	D
				6Arm in	②	H	E
				7Swing right	①	G	B
				8Swing left	③	F	A
C Type			Left	① Loosen the RCV lever mounting bolt (17) and rotates lever assy 90˚ counterclockwise; then install. ② To put lever in correct position, disassemble nut (22) and rotates only lever 90˚ clockwise.			
			Right	Same as ISO type			

2) PATTERN CHANGE VALVE INSTALL (option)

※ If the machine is equipped with the pattern change valve, the machine operation pattern can be easily changed.

※ Whenever a change is made to the machine control pattern also exchange the pattern label in the cab to match the new pattern.

Operation	ISO type	A type
Left RCV lever		
Right RCV lever		

(1) The machine control pattern can be easily changed from the "ISO type" to "A type" by changing the position of the lever position.

⚠ **Before starting the machine, check the lever position of pattern change valve and actual operating of attachment.**

(2) Change of operating pattern

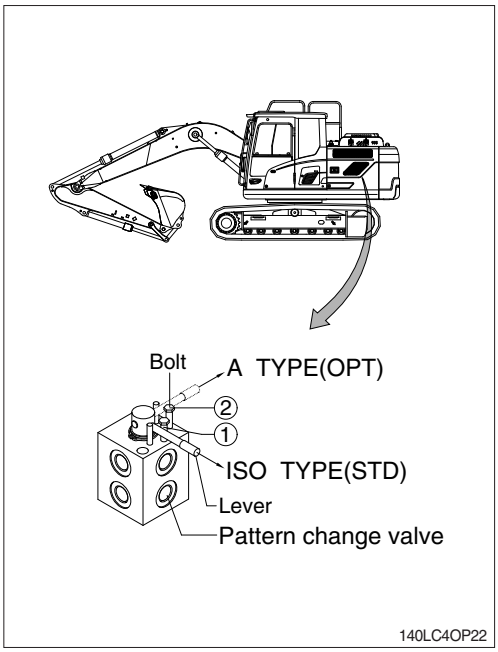
① Loosen bolt.

② Move lever to the "ISO" or "A" position.

③ After the lever is set, tighten the bolt in order to secure the lever.

· Position ① for "ISO" pattern.

· Position ② for "A" pattern.



13. SCR SYSTEM CLEANING

SCR system

※ The SCR system is used to decrease the mono-nitrogen oxides (NOx) emissions from the machine tailpipe.

※ It is unlawful to tamper with, modify, or remove any component of the SCR system.
It is also unlawful to use DEF/AdBlue® that does not meet the specifications provided or to operate the machine with no DEF/AdBlue®.

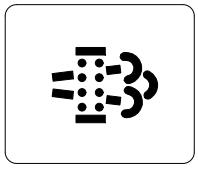
※ The type of SCR system cleaning composes of automatic SCR system cleaning and manual SCR system cleaning.

⚠ SCR system cleaning generates hot exhaust and causes hot exhaust system components.

⚠ Exhaust system components get very hot and can cause severe burns. Risk for fire.

⚠ Do not perform SCR system cleaning in a flammable environment.

(1) SCR system cleaning warning lamp



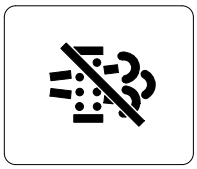
2609A3CD19

This warning lamp will light ON or blink when the SCR system cleaning is needed or activated.

※ Refer to page 3-9-1 for details.

※ The machine must be in a fireproof area during the entire SCR system cleaning process.

(2) SCR system cleaning inhibit warning lamp



2609A3CD20

This warning lamp will light ON when the SCR system cleaning switch is pushed inhibit position.

※ Refer to page 3-9-1 for details.

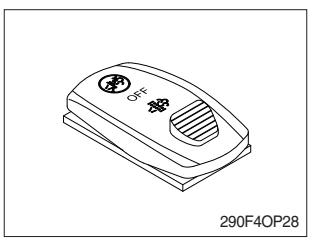
(3) HEST (high exhaust system temperature) warning lamp

2609A3CD21

This warning lamp will light ON when the exhaust temperatures are high due to SCR system cleaning.

※ Refer to page 3-9-2 for details.

(4) SCR system cleaning switch



290F4OP28

This switch is used to select the SCR system cleaning.

※ Refer to page 3-40 for details.

※ Manual SCR system cleaning : refer to page 3-9-2 for details.

1. PREPARATION FOR TRANSPORTATION

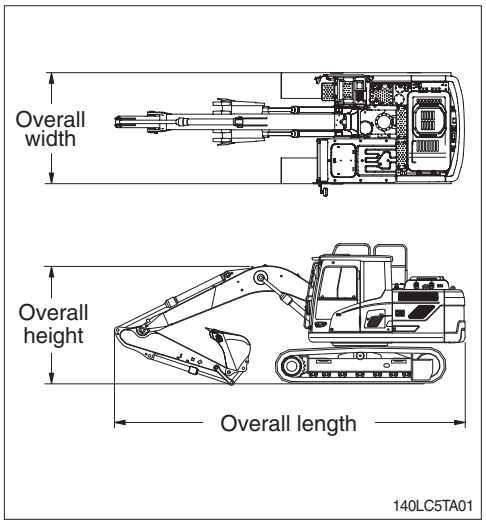
1) When transporting the machine, observe the various road rules, road transportation vehicle laws and vehicle limit ordinances, etc.

2) Select proper trailer after confirming the weight and dimension from the chapter 2, specification.

3) Check the whole route such as the road width, the height of bridge and limit of weight and etc., which will be passed.

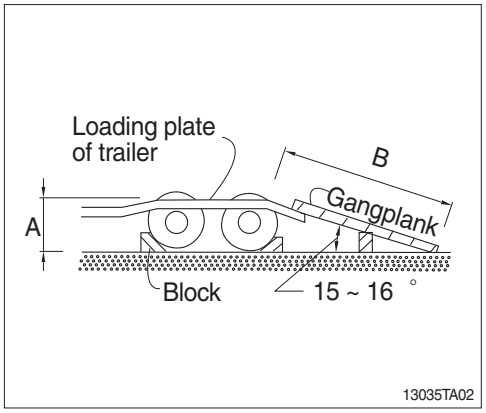
4) Get the permission from the related authority if necessary.

5) Prepare suitable capacity of trailer to support the machine.



6) Prepare gangplank for safe loading referring to the below table and illustration.

A	B
1.0	3.65 ~ 3.85
1.1	4.00 ~ 4.25
1.2	4.35 ~ 4.60
1.3	4.75 ~ 5.00
1.4	5.10 ~ 5.40
1.5	5.50 ~ 5.75

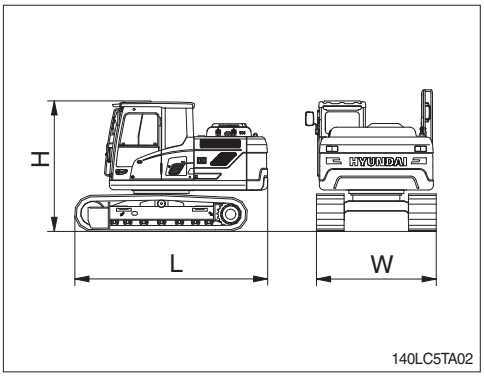


2. DIMENSION AND WEIGHT

1) BASE MACHINE (HX140 LC)

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	4210 (13'10")
H	Height	mm (ft-in)	2860 (9' 5")
W	Width	mm (ft-in)	2600 (8' 6")
Wt	Weight	kg (lb)	11930 (26300)

※ With 600 mm (24") triple grouser shoes and 2000 kg (4410 lb) counterweight.

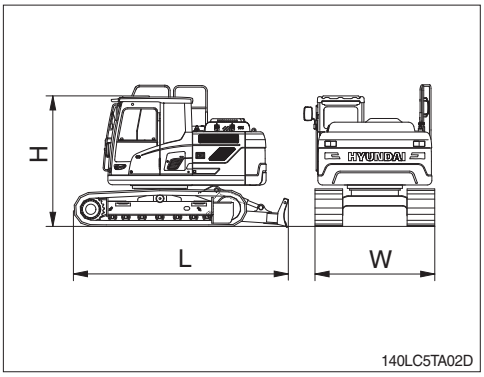


140LC5TA02

2) BASE MACHINE (HX140 LC DOZER BLADE)

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	4500 (14' 9")
H	Height	mm (ft-in)	2860 (9' 5")
W	Width	mm (ft-in)	2600 (8' 6")
Wt	Weight	kg (lb)	12750 (28110)

※ With 600 mm (24") triple grouser shoes and 2000 kg (4410 lb) counterweight.

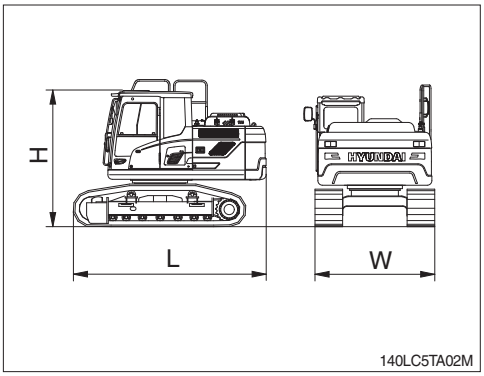


140LC5TA02D

3) BASE MACHINE (HX140 LC HIGH WALKER)

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	4240 (13' 9")
H	Height	mm (ft-in)	3120 (10' 3")
W	Width	mm (ft-in)	2840 (9' 4")
Wt	Weight	kg (lb)	14830 (32695)

※ With 800 mm (32") triple grouser shoes and 2000 kg (4410 lb) counterweight.

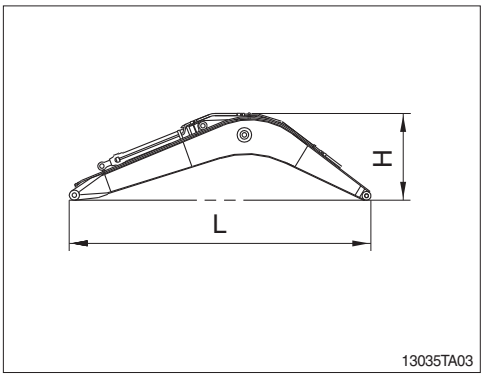


140LC5TA02M

4) BOOM ASSEMBLY

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	4750 (15' 7")
H	Height	mm (ft-in)	1340 (4' 5")
W	Width	mm (ft-in)	520 (1' 8")
Wt	Weight	kg (lb)	1020 (2250)

※ 4.6 m (15' 1") boom with arm cylinder (Included piping and pins).

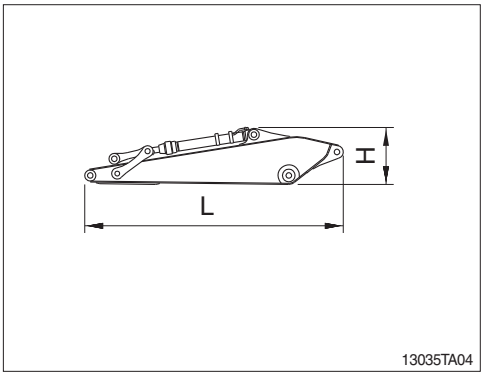


13035TA03

5) ARM ASSEMBLY

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	3240 (10' 8")
H	Height	mm (ft-in)	740 (2' 5")
W	Width	mm (ft-in)	380 (1' 3")
Wt	Weight	kg (lb)	620 (1370)

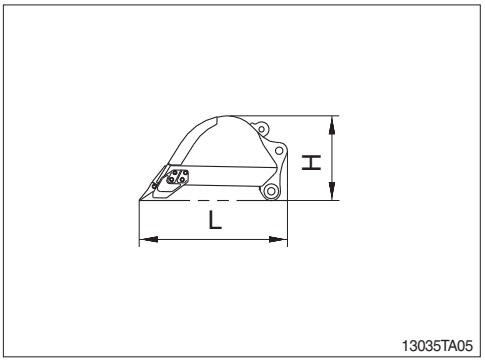
※ 2.50 m (8' 2") arm with bucket cylinder (Included linkage and pins).



6) BUCKET ASSEMBLY

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	1400 (4' 7")
H	Height	mm (ft-in)	800 (2' 7")
W	Width	mm (ft-in)	1130 (3' 8")
Wt	Weight	kg (lb)	480 (1060)

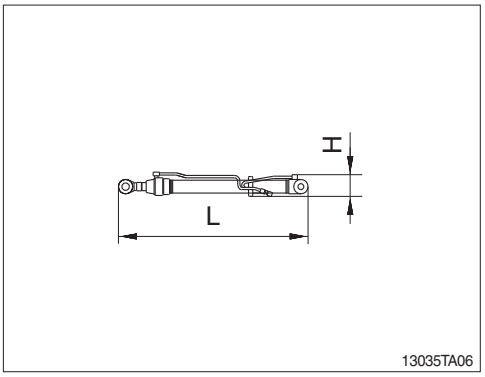
※ 0.58 m^3 (0.76 yd^3) SAE heaped bucket (Included tooth and side cutters).



7) BOOM CYLINDER

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	1760 (5' 9")
H	Height	mm (ft-in)	210 (0' 8")
W	Width	mm (ft-in)	310 (1' 0")
Wt	Weight (2 EA)	kg (lb)	242 (534)

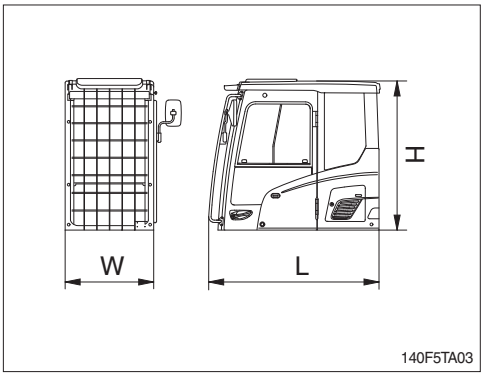
※ Included piping.



8) CAB ASSEMBLY

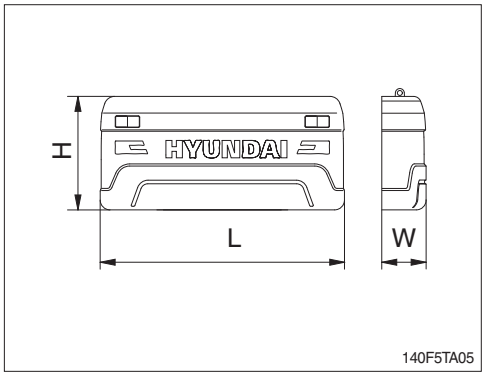
Mark	Description	Unit	Specification
L	Length	mm (ft-in)	1950 (6' 5") [2070 (6' 10")]
H	Height	mm (ft-in)	1780 (5' 10") [1822 (6' 0")]
W	Width	mm (ft-in)	1104 (3' 7") [1126 (3' 8")]
Wt	Weight	kg (lb)	486.8 (1073) [641.7 (1415)]

[ ] : with FOG GUARD



9) COUNTERWEIGHT

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	2475 (8' 1")
H	Height	mm (ft-in)	1150 (3' 9")
W	Width	mm (ft-in)	450 (1' 6")
Wt	Weight	kg (lb)	2000 (4410)

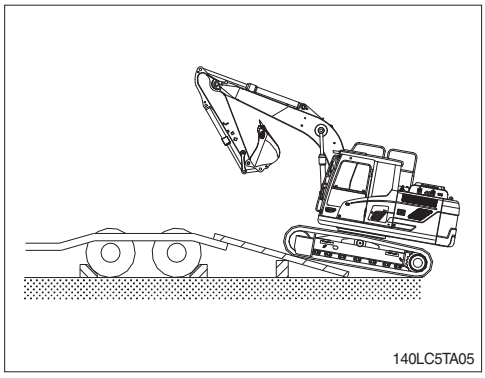


3. LOADING THE MACHINE

1) Load and unload the machine on a flat ground.

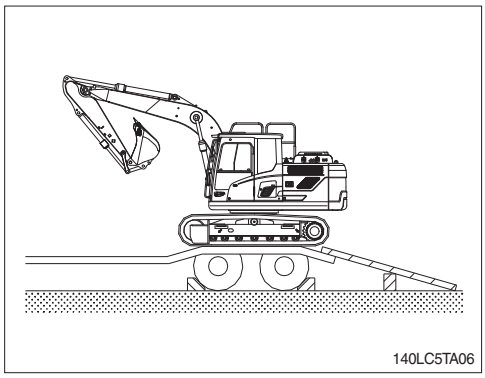
2) Use the gangplank with sufficient length, width, thickness and gradient.

3) Place the swing lock/fine switch to the LOCK position (if equipped) before fixing the machine at the bed of trailer and confirm if the machine parallels the bed of trailer.
   Keep the travel motor in the rear when loading and in the front when unloading.

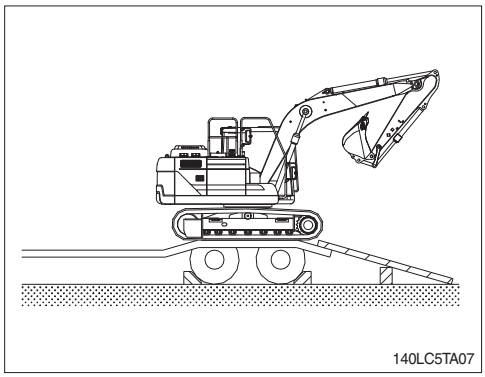

140LC5TA05

4) Do the following after loading the machine to the trailer.

(1) Stop loading when the machine is located horizontally with the rear wheel of trailer.


140LC5TA06

(2) Place the swing lock/fine switch to the LOCK position (if equipped) after the swing the machine 180 degree.


140LC5TA07

(3) Lower the working equipment gently after the location is determined.

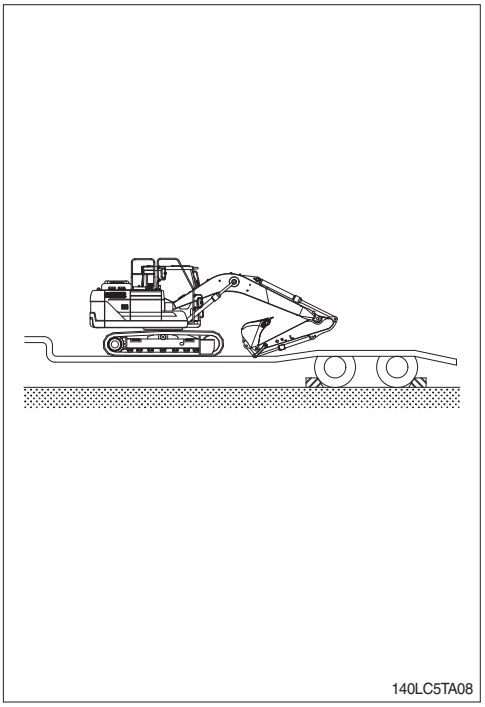
※ **Place rectangular timber under the bucket cylinder to prevent the damage of it during transportation.**

⚠ **Be sure to keep the travel speed switch on the LOW (turtle mark) while loading and unloading the machine.**

⚠ **Avoid using the working equipment for loading and unloading since it will be very dangerous.**

⚠ **Do not operate any other device when loading.**

⚠ **Be careful on the boundary place of loading plate or trailer as the balance of machine will abruptly be changed on the point.**

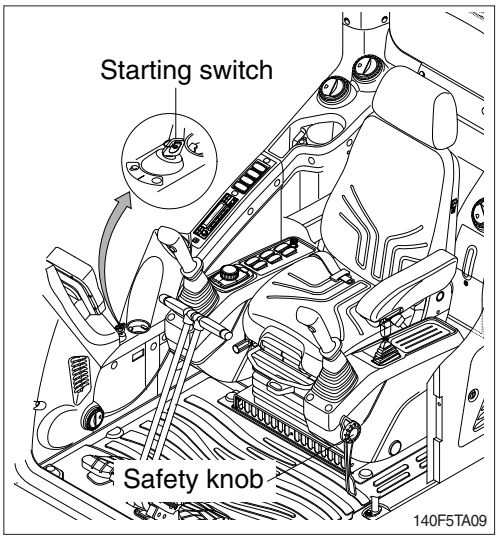

140LC5TA08

4. FIXING THE MACHINE

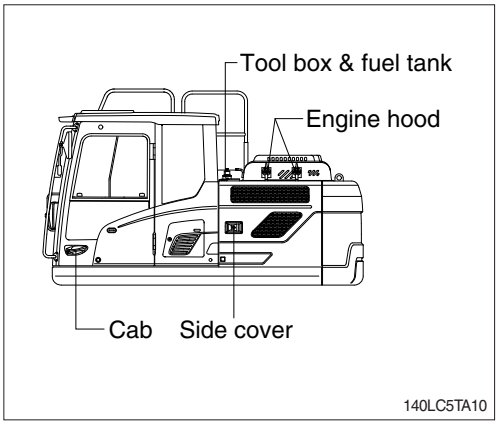
1) Lower down the working device on the loading plate of trailer.

2) Keep the safety knob on the LOCK position.

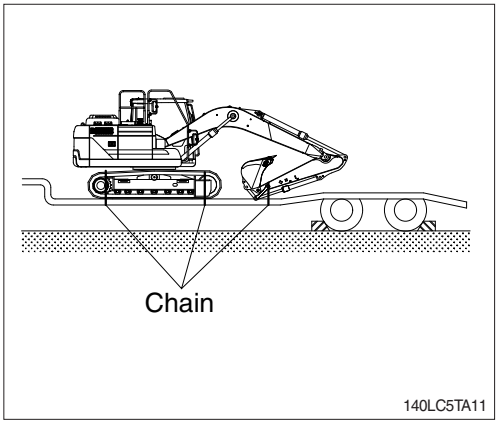
3) Turn OFF all the switches and remove the key.



4) Secure all locks.



5) Place timber underneath of the track and fix firmly with wire rope to prevent the machine from moving forward, backward, right or left.



5. LOADING AND UNLOADING BY CRANE

1) Check the weight, length, width and height of the machine referring to the chapter 2, specification when you are going to hoist the machine.

2) Use long wire rope and stay to keep the distance with the machine as it should avoid touching with the machine.

3) Put a rubber plate contact with wire rope and machine to prevent damage.

4) Place crane on the proper place.

5) Install the wire rope and stay like the illustration.

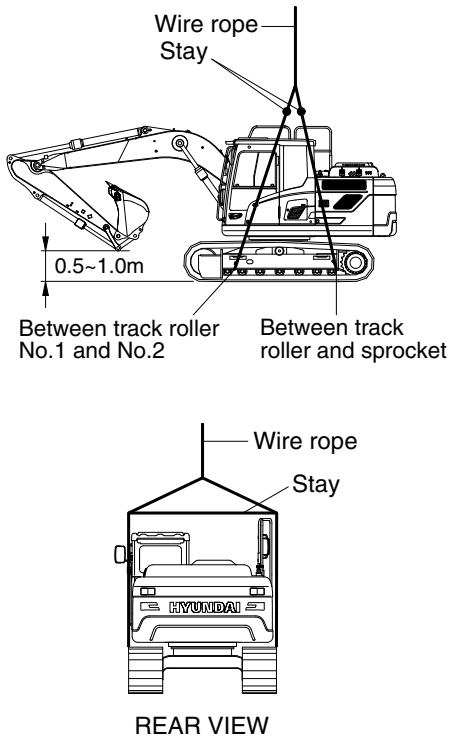
⚠ **Make sure wire rope is proper size.**

⚠ **Place the safety knob to LOCK position to prevent the machine moving when hoisting the machine.**

⚠ **The wrong hoisting method or installation of wire rope can cause damage to the machine.**

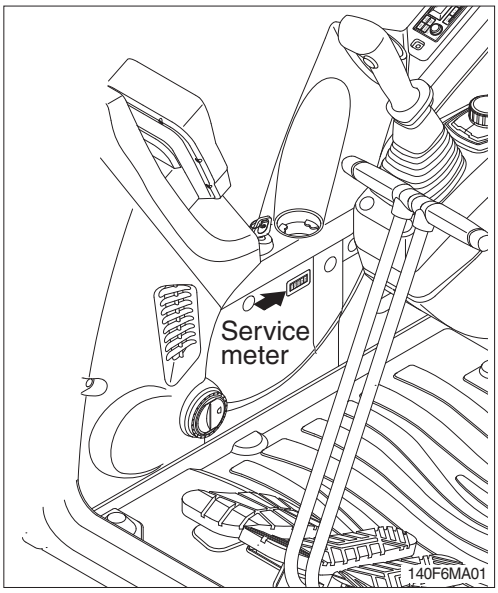
⚠ **Do not load abruptly.**

⚠ **Keep area clear of personnel.**



1. INSTRUCTION

1) INTERVAL OF MAINTENANCE



(1) You may inspect and service the machine by the period as described at page 6-11 based on hour meter at control panel.

(2) Shorten the interval of inspect and service depending on site condition. (such as dusty area, quarry, sea shore and etc.)

(3) Practice the entire related details at the same time when the service interval is doubled.
For example, in case of 100 hours, carry out all the maintenance 「Each 100 hours, each 50 hours and daily service」 at the same time.

2) PRECAUTION

(1) Start to maintenance after you have the full knowledge of machine.

(2) The monitor installed on this machine does not entirely guarantee the condition of the machine.
Daily inspection should be performed according to clause 4, maintenance check list.

(3) Engine and hydraulic components have been preset in the factory.
Do not allow unauthorized personnel to reset them.

(4) Drain the used oil and coolant in a container and handle according to the method of handling for industrial waste to meet with regulations of each province or country.

⚠ Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components to contact skin.

△ Accumulated grease and oil on the machine is a fire hazard. Remove this debris with steam cleaning or high pressure water, at least every 1000 hours.

△ Inspect the engine compartment for any trash build up. Remove any trash build up from the engine compartment.

(5) Ask to your local dealer or HD Hyundai Construction Equipment for the maintenance advice if unknown.

3) PROPER MAINTENANCE

(1) Replace and repair of parts

It is required to replace the wearable and consumable parts such as bucket tooth, side cutter, filter and etc., regularly.

Replace damaged or worn parts at proper time to keep the performance of machine.

(2) Use genuine parts.

(3) Use the recommended oil.

(4) Remove the dust or water around the inlet of oil tank before supplying oil.

(5) Drain oil when the temperature of oil is warm.

(6) Do not repair anything while operating the engine.

Stop the engine when you fill the oil.

(7) Relieve hydraulic system of the pressure before repairing the hydraulic system.

(8) Confirm if the cluster is in the normal condition after completion of service.

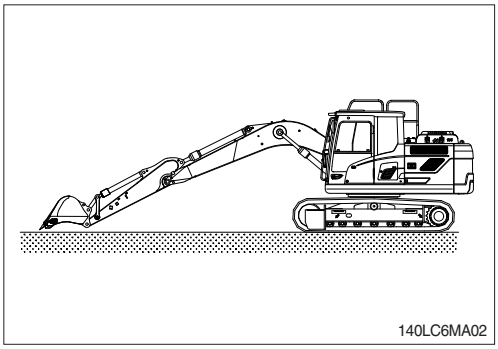
(9) For more detail information of maintenance, please contact local HD Hyundai Construction Equipment dealer.

※ **Be sure to start the maintenance after fully understand the chapter 1, safety hints.**

4) RELIEVING THE PRESSURE IN THE HYDRAULIC SYSTEM

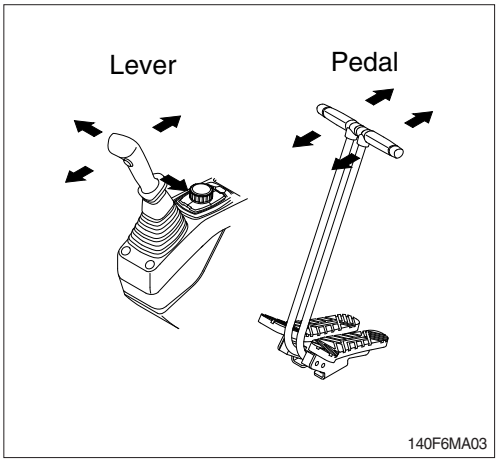
※ **Spouting of oil can cause the accident when loosening the cap or hose right after the operating of machine as the machine or oil is on the high pressure on the condition.**
Be sure to relieve the pressure in the system before repairing hydraulic system.

(1) Place machine in parking position, and stop the engine.

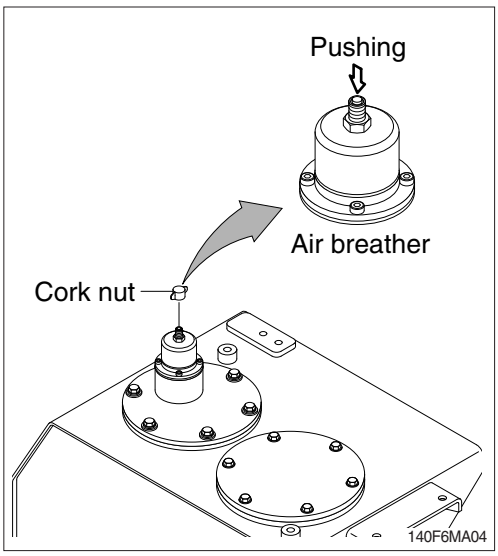


(2) Set the safety knob completely in the UNLOCK position, operate the control levers and pedals fully to the front, rear, left and right, to release the pressure in the hydraulic circuit.

※ **This does not completely release the pressure, so when serving hydraulic component, loosen the connections slowly and do not stand in the direction where the oil spurt out.**



(3) Remove the cork nut and relieve the pressure in the tank by pushing the top of the air breather.



5) PRECAUTION WHEN INSTALLING HYDRAULIC HOSES OR PIPES

(1) Be particularly careful that the joint of hose, pipe and functioning item are not damaged.
Avoid contamination.

(2) Assemble after cleaning the hose, pipe and joint of functioning item.

(3) Use genuine parts.

(4) Do not assemble the hose in the condition of twisted or sharp radius.

(5) Keep the specified tighten torque.

6) PERIODICAL REPLACEMENT OF SAFETY PARTS

(1) It is desirable to do periodic maintenance the machine for using the machine safely for a long time.
However, recommend to replace regularly the parts related safety not only safety but maintain satisfied performance.

(2) These parts can cause the disaster of life and material as the quality changes by passing time and it is worn, diluted, and gets fatigued by using repeatedly.
These are the parts which the operator can not judge the remained lifetime of them by visual inspection.

(3) Repair or replace if an abnormality of these parts is found even before the recommended replacement interval.

<table>
<tr><th colspan="3">Periodical replacement of safety parts</th><th>Interval</th></tr>
<tr><td colspan="2" rowspan="2">Engine</td><td>Fuel hose (tank-engine)</td><td rowspan="2">Every
2 years</td></tr>
<tr><td>Heater hose
(heater-engine)</td></tr>
<tr><td rowspan="6">Hydraulic system</td><td rowspan="3">Main circuit</td><td>Pump suction hose</td><td rowspan="3">Every
2 years</td></tr>
<tr><td>Pump delivery hose</td></tr>
<tr><td>Swing hose</td></tr>
<tr><td rowspan="3">Working device</td><td>Boom cylinder line hose</td><td rowspan="3">Every
2 years</td></tr>
<tr><td>Arm cylinder line hose</td></tr>
<tr><td>Bucket cylinder line hose</td></tr>
</table>

※1. Replace O-ring and gasket at the same time when replacing the hose.

2. Replace clamp at the same time if the hose clamp is cracked when checking and replacing the hose.

2. TIGHTENING TORQUE

Use following table for unspecified torque.

1) BOLT AND NUT

(1) Coarse thread

Bolt size	8.8T		10.9T		12.9T	
	kgf · m	lbf · ft	kgf · m	lbf · ft	kgf · m	lbf · ft
M 6×1.0	0.8 ~ 1.2	5.8 ~ 8.6	1.2 ~ 1.8	8.7 ~ 13.0	1.5 ~ 2.1	10.9 ~ 15.1
M 8×1.25	2.0 ~ 3.0	14.5 ~ 21.6	2.8 ~ 4.2	20.3 ~ 30.4	3.4 ~ 5.0	24.6 ~ 36.1
M10×1.5	4.0 ~ 6.0	29.0 ~ 43.3	5.6 ~ 8.4	40.5 ~ 60.8	6.8 ~ 10.0	49.2 ~ 72.3
M12×1.75	6.8 ~ 10.2	50.0 ~ 73.7	9.6 ~ 14.4	69.5 ~ 104	12.3 ~ 16.5	89.0 ~ 119
M14×2.0	10.9 ~ 16.3	78.9 ~ 117	16.3 ~ 21.9	118 ~ 158	19.5 ~ 26.3	141 ~ 190
M16×2.0	17.9 ~ 24.1	130 ~ 174	25.1 ~ 33.9	182 ~ 245	30.2 ~ 40.8	141 ~ 295
M18×2.5	24.8 ~ 33.4	180 ~ 241	34.8 ~ 47.0	252 ~ 340	41.8 ~ 56.4	302 ~ 407
M20×2.5	34.9 ~ 47.1	253 ~ 340	49.1 ~ 66.3	355 ~ 479	58.9 ~ 79.5	426 ~ 575
M22×2.5	46.8 ~ 63.2	339 ~ 457	65.8 ~ 88.8	476 ~ 642	78.9 ~ 106	570 ~ 766
M24×3.0	60.2 ~ 81.4	436 ~ 588	84.6 ~ 114	612 ~ 824	102 ~ 137	738 ~ 991
M30×3.5	120 ~161	868 ~ 1164	168 ~ 227	1216 ~ 1641	202 ~ 272	1461 ~ 1967

(2) Fine thread

Bolt size	8.8T		10.9T		12.9T	
	kgf · m	lbf · ft	kgf · m	lbf · ft	kgf · m	lbf · ft
M 8×1.0	2.1 ~ 3.1	15.2 ~ 22.4	3.0 ~ 4.4	21.7 ~ 31.8	3.6 ~ 5.4	26.1 ~ 39.0
M10×1.25	4.2 ~ 6.2	30.4 ~ 44.9	5.9 ~ 8.7	42.7 ~ 62.9	7.0 ~ 10.4	50.1 ~ 75.2
M12×1.25	7.3 ~ 10.9	52.8 ~ 78.8	10.3 ~ 15.3	74.5 ~ 110	13.1 ~ 17.7	94.8 ~ 128
M14×1.5	12.4 ~ 16.6	89.7 ~ 120	17.4 ~ 23.4	126 ~ 169	20.8 ~ 28.0	151 ~ 202
M16×1.5	18.7 ~ 25.3	136 ~ 182	26.3 ~ 35.5	191 ~ 256	31.6 ~ 42.6	229 ~ 308
M18×1.5	27.1 ~ 36.5	196 ~ 264	38.0 ~ 51.4	275 ~ 371	45.7 ~ 61.7	331 ~ 446
M20×1.5	37.7 ~ 50.9	273 ~ 368	53.1 ~ 71.7	384 ~ 518	63.6 ~ 86.0	460 ~ 622
M22×1.5	51.2 ~ 69.2	370 ~ 500	72.0 ~ 97.2	521 ~ 703	86.4 ~ 116	625 ~ 839
M24×2.0	64.1 ~ 86.5	464 ~ 625	90.1 ~ 121	652 ~ 875	108 ~ 146	782 ~ 1056
M30×2.0	129 ~ 174	933 ~ 1258	181 ~ 245	1310 ~ 1772	217 ~ 294	1570 ~ 2126

2) PIPE AND HOSE (FLARE type)

Thread size (PF)	Width across flat (mm)	kgf · m	lbf · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	9.5	68.7
3/4"	36	18	130
1"	41	21	152
1-1/4"	50	35	253

3) PIPE AND HOSE (ORFS type)

Thread size (UNF)	Width across flat (mm)	kgf · m	lbf · ft
9/16-18	19	4	28.9
11/16-16	22	5	36.2
13/16-16	27	9.5	68.7
1-3/16-12	36	18	130
1-7/16-12	41	21	152
1-11/16-12	50	35	253

4) FITTING

Thread size	Width across flat (mm)	kgf · m	lbf · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	9.5	68.7
3/4"	36	18	130
1"	41	21	152
1-1/4"	50	35	253

4) TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Descriptions		Bolt size	Torque	
				kgf · m	lbf · ft
1	Engine	Engine mounting bolt (engine-bracket, FR)	M12 × 1.75	11.5 ± 1.0	81.2 ± 7.2
2		Engine mounting bolt (engine-bracket, RR)	M12 × 1.75	11.5 ± 1.0	81.2 ± 7.2
3		Engine mounting bolt (bracket-frame, FR)	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
4		Engine mounting bolt (bracket-frame, RR)	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
5		Radiator mounting bolt	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
6		Coupling mounting socket bolt	M16 × 2.0	32.0 ± 1.6	231 ± 11.6
7		Main pump housing mounting bolt	M10 × 1.5	6.0 ± 1.5	43.4 ± 10.9
8	Hydraulic system	Main pump mounting socket bolt	M16 × 2.0	35.6 ± 7.1	257 ± 51.4
9		Main control valve mounting bolt	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
10		Fuel tank mounting bolt	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
11		Hydraulic oil tank mounting bolt	M20 × 2.5	57.9 ± 8.7	419 ± 62.9
12		Turning joint mounting bolt, nut	M12 × 1.75	12.8 ± 3.0	92.6 ± 21.7
13	Power train system	Swing motor mounting bolt	M16 × 2.0	29.6 ± 3.2	214 ± 23.1
14		Swing bearing upper part mounting bolt	M18 × 2.5	41.3 ± 4.5	299 ± 32.5
15		Swing bearing lower part mounting bolt	M16 × 1.5	31.3 ± 3.2	226 ± 23.1
16		Travel motor mounting bolt	M16 × 2.0	25.7 ± 4.0	186 ± 28.9
17		Sprocket mounting bolt	M16 × 2.0	29.7 ± 3.0	215 ± 21.7
18	Under carriage	Carrier roller mounting bolt, nut	M16 × 2.0	29.7 ± 3.0	215 ± 21.7
19		Track roller mounting bolt	M16 × 2.0	29.7 ± 3.0	215 ± 21.7
20		Track roller mounting bolt (HIGH WALKER)	M 20× 2.5	57.9 ± 6.0	419 ± 43.4
21		Track tension cylinder mounting bolt	M16 × 2.0	29.7 ± 4.5	215 ± 32.5
22		Track shoe mounting bolt, nut	5/8 - 18UNF	42 ± 4.0	304± 28.9
23		Track guard mounting bolt	M16 × 2.0	29.6 ± 3.2	214± 23.1
24	Others	Counterweight mounting bolt	M27 × 3.0	135 ± 15	976 ± 108
25		Cab mounting bolt	M12 × 1.75	12.8 ± 3.0	92.6 ± 21.7
26		Operator's seat mounting bolt	M 8 × 1.25	4.05 ± 0.8	29.3 ± 5.8

※ For tightening torque of engine and hydraulic components, see engine maintenance guide and service manual.

3. FUEL, COOLANT AND LUBRICANTS

1) NEW MACHINE

New machine used and filled with following lubricants.

Description	Specification
Engine oil (API CJ-4, ACEA-E9)	SAE 10W-30, ★SAE 5W-40
DEF/AdBlue®	ISO 22241 (32.5% high-purity urea and 67.5% deionized water)
Hydraulic oil	HD Hyundai Construction Equipment genuine long life (ISO VG 32, VG 46, VG 68) Conventional (ISO VG 15, ★Cold region) HD Hyundai Construction Equipment Bio (HBHO, ISO VG 46)
Swing reduction gear oil	SAE 80W-90 (GL-4/GL-5)
Grease	Lithium base grease NLGI No.2
Fuel	ASTM D975-No. 2, ★1Ultra low sulfur diesel
Coolant	Mixture of 50% ethylene glycol base antifreeze and 50% water. Mixture of 60% ethylene glycol base antifreeze and 40% water.★

SAE : Society of Automotive Engineers
API : American Petroleum Institute
ISO : International Organization for Standardization
NLGI : National Lubricating Grease Institute
ASTM : American Society of Testing and Material
DEF : Diesel Exhaust Fluid
DEF compatible with AdBlue®

★1 : Ultra low sulfur diesel
- sulfur content ≤ 15 ppm

★ : Cold region
Russia, CIS, Mongolia

2) RECOMMENDED OILS

HD Hyundai Construction Equipment genuine lubricating oils have been developed to offer the best performance and service life for your equipment. These oils have been tested according to the specifications of HD Hyundai Construction Equipment and, therefore, will meet the highest safety and quality requirements.
We recommend that you use only HD Hyundai Construction Equipment genuine lubricating oils and grease officially approved by HD Hyundai Construction Equipment.

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature ˚C(˚F) -50 (-58) -30 (-22) -20 (-4) -10 (14) 0 (32) 10 (50) 20 (68) 30 (86) 40 (104)
Engine oil pan	Engine oil★3	12 (3.2)	★SAE 0W-40 ★SAE 0W-30 SAE 5W-30 SAE 10W-30 SAE 15W-40
DEF/ AdBlue® Tank	Mixture of urea and deionized water	19 (5.0)	ISO 22241, High-purity urea + deionized water (32.5:67.5)
Swing drive	Gear oil	TYPE 1 : 3.5 (0.9) TYPE 2 : 2.5 (0.7)	★SAE 75W-90
Final drive		2.3 (0.6)	SAE 80W-90
Hydraulic tank	Hydraulic oil	Tank : 124 (32.8) System : 210 (55.5)	★ISO VG 15 ISO VG 32 ISO VG 46, HBHO VG 46★3 ISO VG 68
Fuel tank	Diesel fuel★1	270 (71.3)	★ASTM D975 NO.1 ASTM D975 NO.2
Fitting (grease nipple)	Grease	As required	★NLGI NO.1 NLGI NO.2
Radiator (reservoir tank)	Mixture of antifreeze and soft water★2	15.5 (4.1)	Ethylene glycol base permanent type (50 : 50) ★Ethylene glycol base permanent type (60 : 40)

SAE : Society of Automotive Engineers
API : American Petroleum Institute
ISO : International Organization for Standardization
NLGI : National Lubricating Grease Institute
ASTM : American Society of Testing and Material
DEF : Diesel Exhaust Fluid, DEF compatible with AdBlue®

★ : Cold region (Russia, CIS, Mongolia)
★1 : Ultra low sulfur diesel
- sulfur content ≤ 15 ppm

★2 : Soft water
City water or distilled water

★3 : HD Hyundai Construction Equipment Bio Hydraulic Oil

※ Using any lubricating oils other than HD Hyundai Construction Equipment genuine products may lead to a deterioration of performance and cause damage to major components.
※ Do not mix HD Hyundai Construction Equipment genuine oil with any other lubricating oil as it may result in damage to the systems of major components.
※ Do not use any engine oil other than that specified above.
※ For HD Hyundai Construction Equipment genuine lubricating oils and grease for use in regions with extremely low temperatures, please contact HD Hyundai Construction Equipment dealers.

4. MAINTENANCE CHECK LIST

1) DAILY SERVICE BEFORE STARTING

Check items	Service	Page
Visual check		
Fuel tank	Check, Refill	6-26
Hydraulic oil level	Check, Add	6-32
Engine oil level	Check, Add	6-18
Coolant level	Check, Add	6-20
Control panel & pilot lamp	Check, Clean	6-43
Prefilter (water, element)	Check, Drain, Clean	6-27
Fan belt tension and damage	Check, Adjust	6-24
DEF/AdBlue® tank	Check, Add	6-31
★ Attachment pin and bushing	Lubricate	6-42
· Boom cylinder tube end		
· Boom foot		
· Boom cylinder rod end		
· Arm cylinder tube end		
· Arm cylinder rod end		
· Boom + Arm connecting		
· Bucket cylinder tube end		

★ Lubricate every 10 hours or daily for initial 100 hours.

2) EVERY 50 HOURS SERVICE

Check items	Service	Page
Fuel tank (water, sediment)	Drain	6-26
Track tension	Check, Adjust	6-38
Swing reduction gear case	Check, Add	6-36
Bucket linkage and blade pin	Lubricate	6-42
· Bucket cylinder rod end		
· Bucket + Arm connecting		
· Bucket control link + Arm		
· Bucket control rod		
· Bucket link connecting		
· Dozer blade cylinder (rod end, tube end)		
· Dozer blade pivot pin		

3) INITIAL 50 HOURS SERVICE

Check items	Service	Page
Bolts & Nuts · Sprocket mounting bolts · Travel motor mounting bolts · Swing motor mounting bolts · Swing bearing mounting bolts · Engine mounting bolts · Counterweight mounting bolts · Turning joint locating bolts · Track shoe mounting bolts and nuts · Hydraulic pump mounting bolts	Check, Tight	6-8

※ Service the above items only for the new machine, and thereafter keep the normal service interval.

4) EVERY 200 HOURS SERVICE

Check items	Service	Page
★ Return filter	Replace	6-34
★ Pilot line filter	Replace	6-35
★ Drain filter cartridge	Replace	6-35

★ Replace 3 filters for continuous hydraulic breaker operation only.

5) INITIAL 250 HOURS SERVICE

Check items	Service	Page
Engine oil	Change	6-18, 19
Engine oil filter	Replace	6-18, 19
Prefilter (element)	Replace	6-27
Fuel filter element	Replace	6-28
Pilot line filter element	Replace	6-35
Hydraulic oil return filter	Replace	6-34
Drain filter cartridge	Replace	6-35
Swing reduction gear case	Change	6-36
Swing reduction gear grease	Check, Add	6-36
Travel reduction gear case	Change	6-37

※ Service the above items only for the new machine, and thereafter keep the normal service interval.

6) EVERY 250 HOURS SERVICE

Check items	Service	Page
Battery (voltage)	Check, Clean	6-43
Swing bearing grease	Check, Add	6-36
Bolts & Nuts	Check, Tight	6-8
· Sprocket mounting bolts		
· Travel motor mounting bolts		
· Swing motor mounting bolts		
· Swing bearing mounting bolts		
· Engine mounting bolts		
· Counterweight mounting bolts		
· Turning joint locating bolts		
· Track shoe mounting bolts and nuts		
· Hydraulic pump mounting bolts		
Attachment pin and bushing	Lubricate	6-42
· Boom cylinder tube end		
· Boom foot		
· Boom cylinder rod end		
· Arm cylinder tube end		
· Arm cylinder rod end		
· Boom + Arm connecting		
· Bucket cylinder tube end		

7) EVERY 500 HOURS SERVICE

Check items	Service	Page
★Engine oil	Change	6-18, 19
★Engine oil filter	Replace	6-18, 19
Radiator, oil cooler and charge air cooler	Check, Clean	6-23
Prefilter (element)	Replace	6-27
Fuel filter (element)	Replace	6-28
Aircon & heater fresh filter	Replace	6-46
Aircon & heater recircutation filter	Replace	6-46
Air cleaner element (primary) ★1	Check, Clean	6-26

★ Use ultra low sulfur fuel only. Ultra low sulfur fuel : Sulfur content≤15 ppm

★1 When working in dusty environments, more frequent cleaning is high recommended.

8) EVERY 1000 HOURS SERVICE

Check items	Service	Page
Air breather element	Replace	6-35
Travel motor reduction gear case	Change	6-37
Swing reduction gear case	Change	6-36
Swing reduction gear grease	Check, Add	6-36
Swing gear and pinion grease	Change	6-37
Hydraulic oil return filter※	Replace	6-34
Drain filter cartridge※	Replace	6-35
Pilot line filter※	Replace	6-35

※Replace the filters every hours below of continuous hydraulie breaker operation.

600 hours : conventional hydraulic oil,
1000 hours : HD Hyundai Construction Equipment genuine long life hydraulic oil.

9) EVERY 2000 HOURS SERVICE

Check items	Service	Page
Coolant	Change	6-20, 21, 22, 23
Hydraulic oil★1	Change	6-33
HBHO★2	Change	6-33
Hydraulic tank suction strainer	Check, Clean	6-34
Air cleaner element (primary, safety)★3	Replace	6-26
RCV lever	Check, Lubricate	6-38
Hoses, fittings, clamps (fuel, coolant, hydraulic)	Check, Retighten, Replace	-

★1 Conventional hydraulic oil

★2 If do not want to change HBHO (HD Hyundai Construction Equipment Bio Hydraulic Oil, ISO VG 46) every 2000 hours, contact HD Hyundai Construction Equipment dealer and ask about SAMPLING.

★3 When working in dusty environments, more frequent replacing is highly recommended.

※Change oil every 600 hours of continuous hydraulic breaker operation.

10) EVERY 4000 HOURS SERVICE

Check items	Service	Page
DEF/AdBlue® supply module filter	Replace	6-29
DEF/AdBlue® tank filter	Replace	6-31-1
Fuel tank air breather filter	Replace	6-32

11) EVERY 5000 HOURS SERVICE

Check items	Service	Page
Hydraulic oil★4	Change	6-33

★4 HD Hyundai Construction Equipment genuine long life hydraulic oil

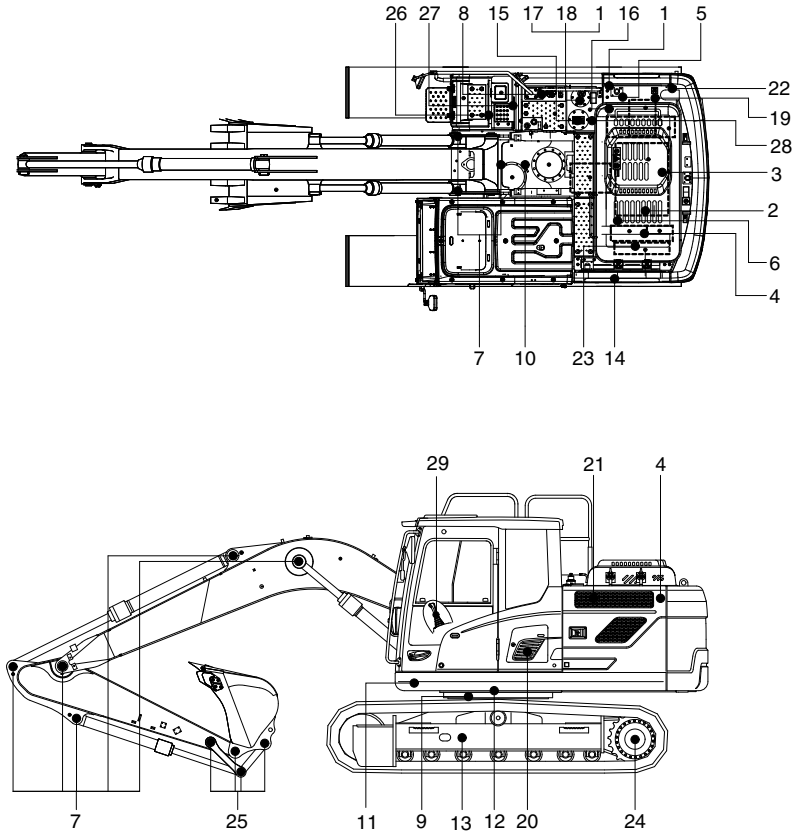
※Change oil every 1000 hours of continuous hydraulic breaker operation.

12) WHEN REQUIRED

Whenever you have trouble in the machine, you must perform the service of related items, system by system.

Check items	Service	Page
Fuel system		
· Fuel tank	Drain or Clean	6-26
· Prefilter	Clean or Replace	6-27
· Fuel filter element	Replace	6-28
Engine exhaust sysem		
· DEF/AdBlue® supply module filter	Replace	6-29
· DEF/AdBlue® tank	Clean	6-31
Engine lubrication system		
· Engine oil	Change	6-18, 19
· Engine oil filter	Replace	6-18, 19
Engine cooling system		
· Coolant	Add or Change	6-20, 21, 22, 23
· Radiator	Clean or Flush	6-20, 21, 22, 23
· Charge air cooler	Check, clean	6-23
Engine air system		
· Air cleaner element (primary)	Clean, Replace	6-26
· Air cleaner element (safety)	Replace	6-26
Hydraulic system		
· Hydraulic oil	Add or Change	6-33
· Return filter	Replace	6-34
· Drain line filter	Replace	6-35
· Pilot line filter	Replace	6-35
· Element of breather	Replace	6-35
· Suction strainer	Clean	6-34
Under carriage		
· Track tension	Check, Adjust	6-38
Bucket		
· Bucket assy	Replace	6-39
· Tooth	Replace	6-40
· Side cutter	Replace	6-40
· Linkage	Adjust	6-41
Air conditioner and heater		
· Fresh air filter	Clean, Replace	6-46
· Recirculation filter	Clean, Replace	6-46

5. MAINTENANCE CHART



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Caution

1. Service intervals are based on the hour meter reading.
2. The number of each item shows the lubrication point on the machine.
3. Stop engine while filling oil, and use no open flames.

Service interval	No.	Description	Service action	Oil symbol	Capacity ℓ (U.S.gal)	Service points No.
10 Hours or daily	1	Hydraulic oil level	Check, Add	HO	124 (32.8)	1
	2	Engine oil level	Check, Add	EO	12 (3.2)	1
	4	Radiator coolant	Check, Add	C	15.5 (4.1)	1
	5	Prefilter (water, element)	Check, Drain, Clean	-	-	1
	6	Fan belt tension and damage	Check, Adjust	-	-	1
	7	Attachment pins & bushing※	Lubricate	PGL	-	11/14★1
	8	Fuel tank	Check, Refill	DF	270 (71.3)	1
	27	DEF/AdBlue® tank	Check, Add	DEF	19.0 (5.0)	1
50 Hours or weekly	8	Fuel tank (water, sediment)	Check, Drain	-	-	1
	10	Swing reduction gear case	Check, Add	GO	3.5 (0.9)	1
	13	Track tension	Check, Adjust	PGL	-	2
	25	Bucket linkage & blade pins	Lubricate	PGL	-	12
Initial 50 hours	-	Major compnent mounting bolts & nuts	Check, Tight	-	-	1
250 Hours	7	Attachment pins & bushing	Lubricate	PGL	-	11/14★1
	9	Swing bearing grease	Check, Add	PGL	-	3
	14	Battery (voltage)	Check, Clean	-	-	1
	-	Major compnent mounting bolts & nuts	Check, Tight	-	-	1

※Lubricate every 10 hours or daily for initial 100 hours.

Service interval	No.	Description	Service action	Oil symbol	Capacity ℓ (U.S.gal)	Service points No.
Initial 250 Hours	2	Engine oil	Change	EO	12 (3.2)	1
	3	Engine oil filter	Replace	-	-	1
	5	Prefilter (element)	Replace	-	-	1
	10	Swing reduction gear case(type 1)	Change	GO	3.5 (0.9)	1
		Swing reduction gear case(type 2)	Change	GO	2.5 (0.7)	1
	11	Swing reduction gear grease	Add	PGL	0.35 (0.09)	1
	15	Hydraulic oil return filter	Replace	-	-	1
	16	Drain filter cartridge	Replace	-	-	1
	19	Pilot line filter element	Replace	-	-	1
	22	Fuel filter element	Replace	-	-	1
	24	Travel reduction gear case	Change	GO	2.3 (0.6)	2
500 Hours	2	Engine oil	Change	EO	12 (3.2)	1
	3	Engine oil filter	Replace	-	-	1
	5	Prefilter (element)	Replace	-	-	1
	20	Aircon & heater fresh filter	Replace	-	-	1
	20	Aircon & heater recirculation filter	Replace	-	-	1
	21	Air cleaner element (primary)	Check, Clean	-	-	1
	22	Fuel filter element	Replace	-	-	1
	23	Radiator, oil cooler, charge air cooler	Check, Clean	-	-	3
1000 Hours	10	Swing reduction gear case(type 1)	Change	GO	3.5 (0.9)	1
		Swing reduction gear case(type 2)	Change	GO	2.5 (0.7)	1
	11	Swing reduction gear grease	Add	PGL	0.35 (0.09)	1
	12	Swing gear and pinion grease	Change	PGL	5.9 kg (13.1 lb)	1
	15	Hydraulic oil return filter	Replace	-	-	1
	16	Drain filter cartridge	Replace	-	-	1
	17	Air breather element	Replace	-	-	1
	19	Pilot line filter element	Replace	-	-	1
	24	Travel reduction gear case	Change	GO	2.3 (0.6)	2
2000 Hours	1	Hydraulic oil ★2	Change	HO	124 (32.8)	1
	1	Hydraulic oil (HBHO★3)	Change	-	124 (32.8)	1
	4	Radiator coolant	Change	C	15.5 (4.1)	1
	18	Hydraulic oil suction strainer	Check, Clean	-	-	1
	21	Air cleaner element (primary, safety)	Replace	-	-	2
	29	RCV lever	Check, Lubricate	-	-	2
	-	Hoses, fittings, clamps (fuel, coolant, hydraulic)	Check, Retighten, Replace	-	-	1
4000 Hours	26	DEF/AdBlue® supply module filter	Replace	-	-	1
	27	DEF/AdBlue® tank filter	Replace	-	-	1
	28	Fuel tank air breather filter	Replace	-	-	1
5000 Hours	1	Hydraulic oil★4	Change	HO	124 (32.8)	1
As required	20	Aircon & heater fresh filter	Replace	-	-	1
	20	Aircon & heater recirculation filter	Clean, Replace	-	-	1
	21	Air cleaner element (primary)	Clean, Replace	-	-	1
	21	Air cleaner element (safety)	Replace	-	-	1

★1 Adjust boom ★2 Conventional hydraulic oil ★3 HD Hyundai Construction Equipment Bio Hydraulic Oil

★4 HD Hyundai Construction Equipment genuine long life hydraulic oil

※ Oil symbol

Please refer to the recommended lubricants for specification.

DF : Diesel fuel GO : Gear oil HO : Hydraulic oil C : Coolant

PGL : Grease EO : Engine oil DEF : Diesel exhaust fluid

1) CHECK ENGINE OIL LEVEL

Check the oil level with the truck on a flat ground before starting engine.

(1) Pull out the dipstick and wipe with a clean cloth.

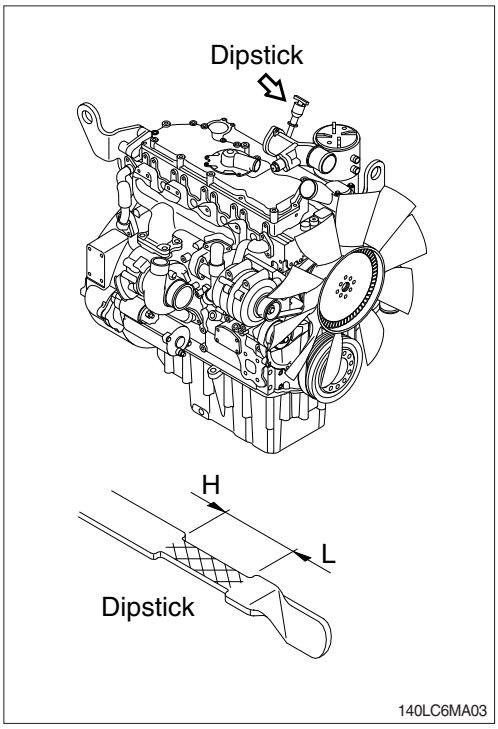
(2) Check the oil level by inserting the dipstick completely into the hole and pulling out again.

(3) If oil level is LOW, add oil and then check again.

※ **If the oil is contaminated or diluted, change the oil regardless of the regular change interval.**

※ **Check oil level after engine has been stopped for 15 minutes.**

⚠ **Do not operate unless the oil level is in the normal range.**

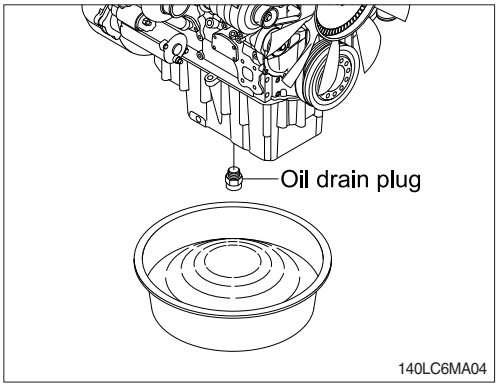


2) REPLACEMENT OF ENGINE OIL AND OIL FILTER

(1) Warm up the engine until the water temperature reaches 60˚C (140˚F).

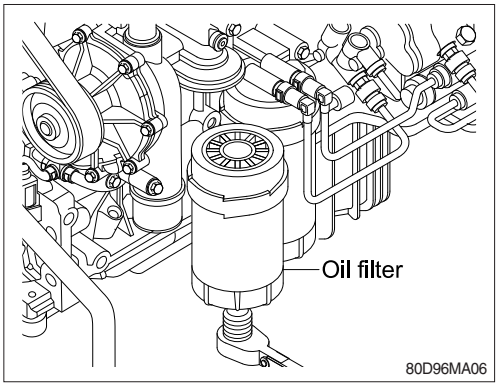
(2) Remove the oil drain plug. Drain the oil immediately to be sure all the oil and suspended contaminants are removed from the engine.

※ **A drain pan with a capacity of 30 liters (7.9 U.S. gallons) will be adequate.**



(3) Clean around the filter head, remove the filter by the 1/2" socket wrench and clean the gasket surface.

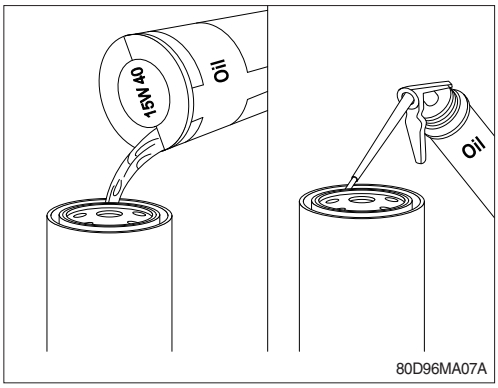
※ **The O-ring can stick on the filter head. Be sure it is removed before installing the new filter.**



(4) Apply a light film of lubricating oil to the gasket sealing surface before installing the filter.

※ **Fill the filter with clean lubricating oil.**

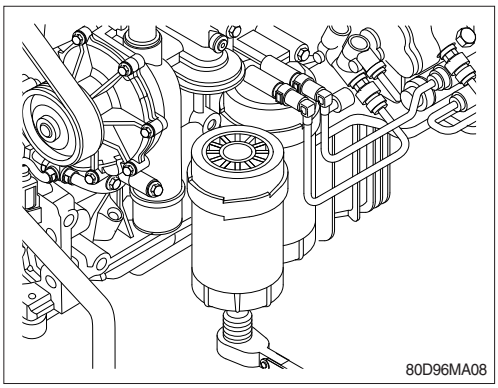
⚠ **The lack of lubrication during the delay until the filter is pumped full of the start-up can damage the engine.**



(5) Install the filter to the filter head.

※ **Mechanical over-tightening may distort the threads or damage the filter element seal.**

- Tighten the filter until the gasket contacts the filter head surface.
- Tighten 3/4 to 1 turn after gasket makes contact with the filter head.

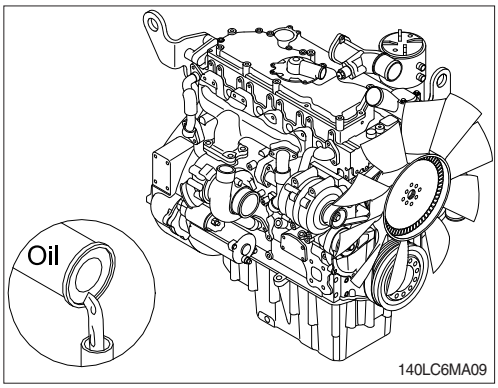


(6) Tighten the engine oil drain plug.

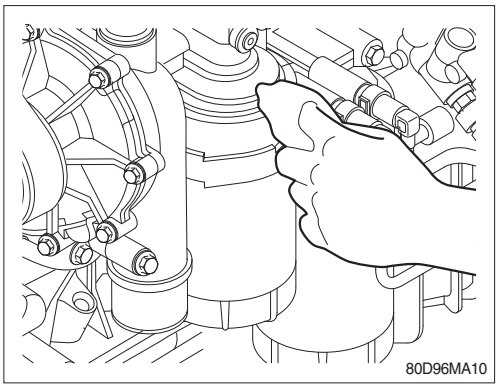
※ **Plastic oil pan drain plug torque 2.4 kgf · m (17.7 lbf · ft)**

(7) Fill the engine with clean oil to the proper level.

- Quantity : 12 ℓ (3.2 U.S.gallons)



(8) Operate the engine at low idle and inspect for leaks at the filter and the drain plug.
Shut the engine off and check the oil level with the dipstick. Allow 15 minutes for oil to drain down before checking.



3) CHECK COOLANT

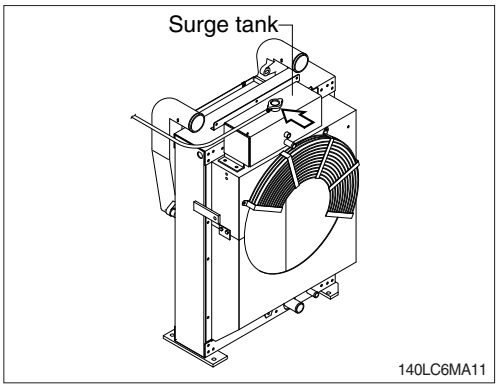
(1) Check if the level of coolant in surge tank is suficient.

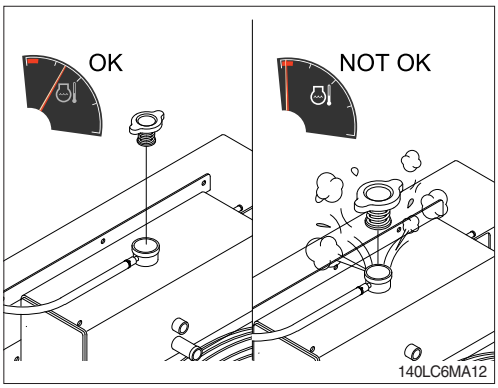
(2) Add the mixture of antifreeze and water after removing the cap of the surge tank if coolant is not sufficient.

(3) Replace gasket of radiator cap when it is damaged.

⚠ **Hot coolant can spray out if surge tank cap is removed while engine is hot. Remove the cap after the engine has cooled down.**

※ **Do not add cold coolant to a hot engine ; engine castings can be damaged. Allow the engine to cool to below 50°C(120°F) before adding coolant.**



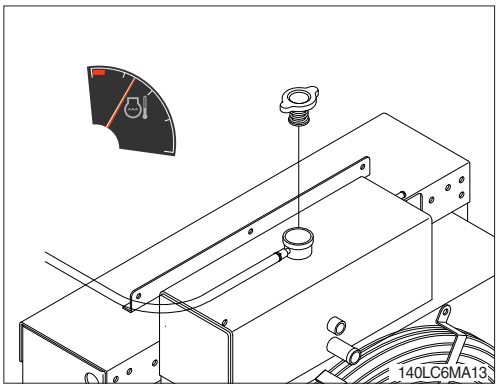


4) FLUSHING AND REFILLING OF RADIATOR

(1) Change coolant

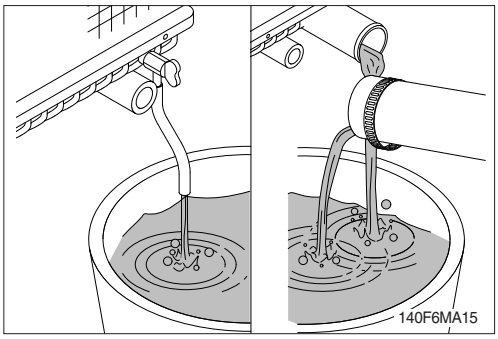
⚠ **Avoid prolonged and repeated skin contact with used antifreeze. Such prolonged repeated contact can cause skin disorders or other bodily injury.**
Avoid excessive contact-wash thoroughly after contact.
Keep out of reach of children.

※ Protect the environment : Handling and disposal of used antifreeze can be subject to federal, state, and local law regulation.
Use authorized waste disposal facilities, including civic amenity sites and garages providing authorized facilities for the receipt of used antifreeze.
If in doubt, contact your local authorities for guidance as to proper handling of used antifreeze.



⚠ **Wait until the temperature is below 50 ˚C (122 ˚F) before removing the coolant system pressure cap.**
Failure to do so can cause personal injury from heated coolant spray.
Drain the cooling system by opening the drain cock on the radiator, remove the hose of the oil cooler and opening the drain plugs of the engine oil cooler housing.
A drain pan with a capacity of 40 liters (10.6 U.S. gallons) will be adequate.
· Tightening torque
- Drain cock : 4.2±0.4 kgf·m (30.4±2.9 lbf·ft)
- Drain plug (engine) : 3.5 kgf·m (25 lbf·ft)

※ **On applications with an EGR system, disconnect the EGR cooler coolant return line to make sure the coolant is drained from the EGR cooler.**

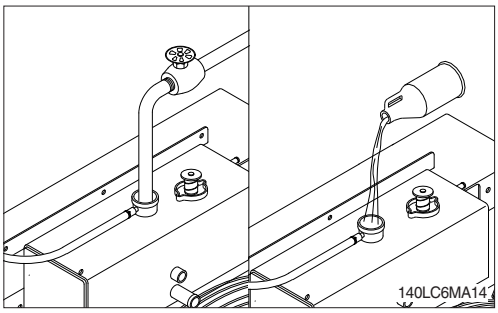


(2) Flushing of cooling system

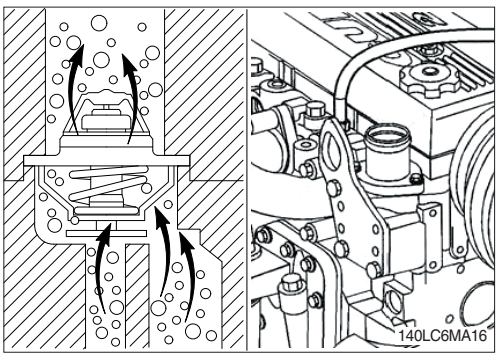
① Fill the system with a mixture of sodium carbonate and water (or a commercially available equivalent).

※ **Use 0.5kg (1.0 pound) of sodium carbonate for every 23 liters (6.0 U.S. gallons) of water.**

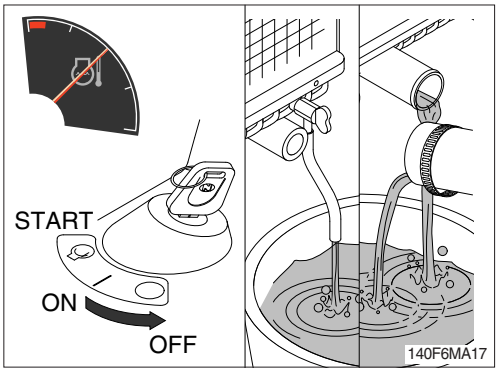
※ **Do not install the surge tank cap. The engine is to be operated without the cap for this process.**



※ **During filling, air must be vented from the engine coolant passages.**
The system must be filled slowly to prevent air locks or serious engine damage can result. Wait 2 to 3 minutes to allow air to be vented, then add mixture to bring the level to the top.



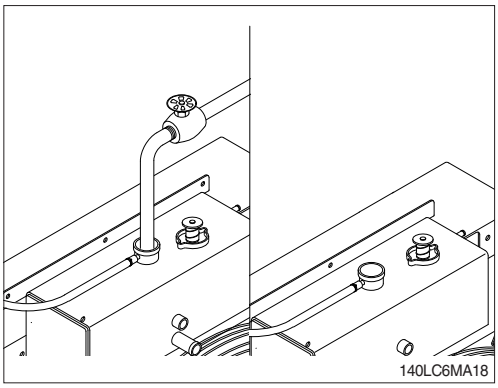
② Operate the engine for 5 minutes with the coolant temperature above 80˚C (176˚F) .
Shut the engine off, and drain the cooling system.



③ Fill the cooling system with clean water.

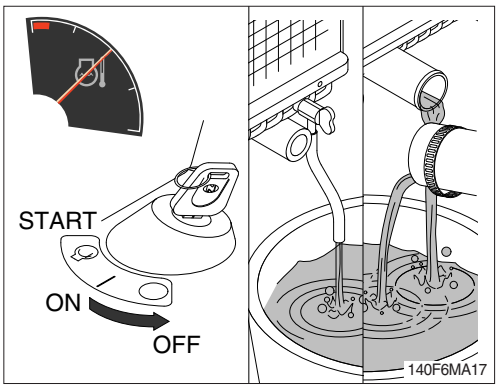
※ **Be sure to vent the engine and aftercooler for complete filling.**

※ **Do not install the surge tank cap or the new coolant filter.**



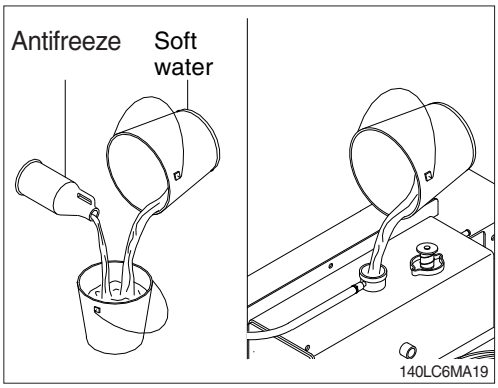
④ Operate the engine for 5 minutes with the coolant temperature above 80˚C (176˚F) .
Shut the engine off, and drain the cooling system.

※ **If the water being drained is still dirty, the system must be flushed again until the water is clean.**



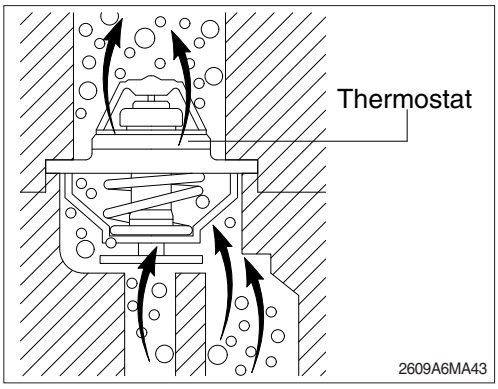
(3) Cooling system filling

① Use a mixture of 50 percent water and 50 percent ethylene glycol antifreeze to fill the cooling system. Refer to the page 6-10.
Coolant capacity : 15.5 ℓ (4.1 U.S. gallons)

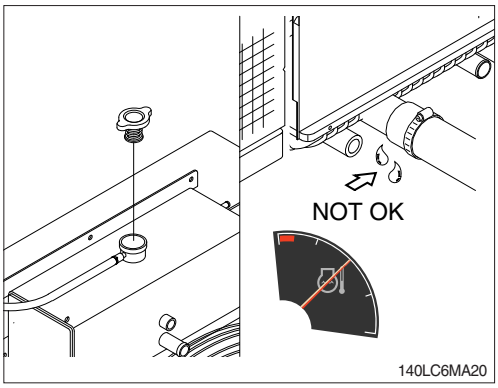


② The system has a maximum fill rate of 5 liters (1.3 U.S. gallons) per minute.
Do not exceed this fill rate.

※ **The system must be filled slowly to prevent air locks.**
During filling, air must be vented from the engine coolant passage.



③ Install the pressure cap. Operate the engine until it reaches a temperature 80˚C (176˚F), and check for coolant leaks.
Check the coolant level again to make sure the system is full of coolant.

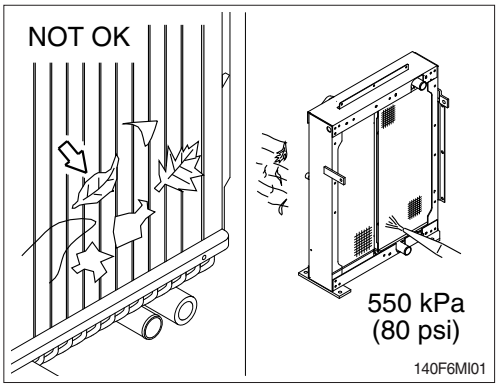


5) CLEAN RADIATOR AND OIL COOLER

Check, and if necessary, clean and dry outside of radiator and oil cooler. After working in a dusty place, clean radiator more frequently.

(1) Visually inspect the radiator for clogged radiator fins.

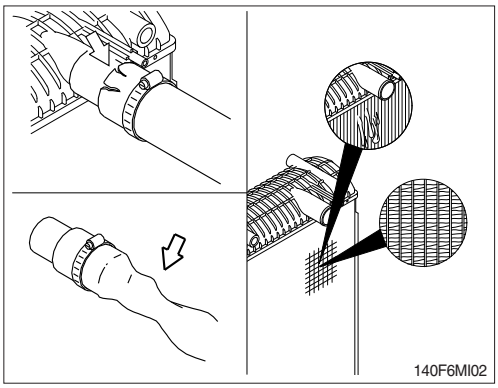
(2) Use 550 kPa (80 psi) air pressure to blow the dirt and debris from the fins.
Blow the air in the opposite direction of the fan air flow.



(3) Visually inspect the radiator for bent or broken fins.

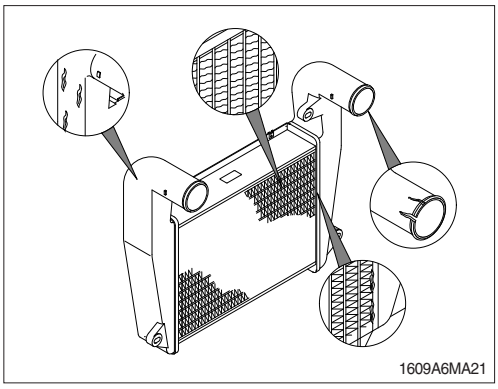
※ **If the radiator must be replaced due to bent or broken fins which can cause the engine to overheat, refer to the manufacturer's replacement procedures.**

(4) Visually inspect the radiator for core leaks.



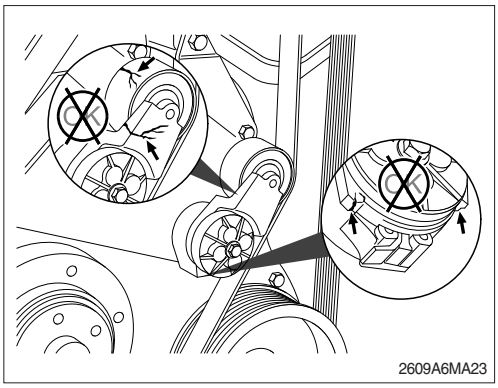
6) CHECK CHARGE AIR COOLER

Inspect the charge air cooler for dirt and debris blocking the fins. Check for cracks, holes, or other damage. If damage is found, please contact HD Hyundai Construction Equipment distributor.

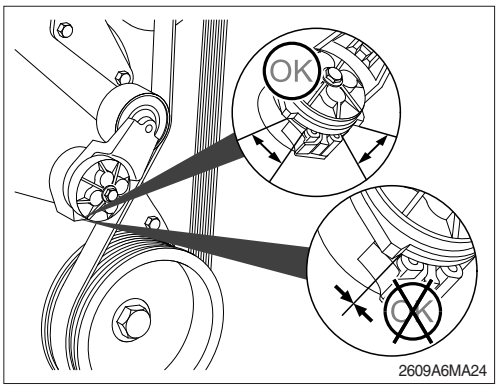


7) FAN BELT TENTIONER

(1) With the engine stopped, check the tensioner arm, pulley, and stops for cracks. If any cracks are found, the tensioner must be replaced.

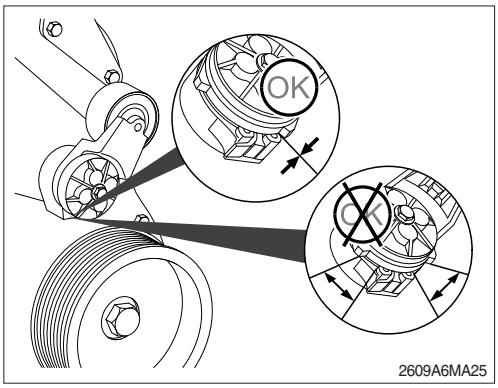


(2) With the belt installed, verify that neither tensioner arm stop is in contact with the spring case stop.
After replacing the belt, if the tensioner arm stops are still in contact with the spring case stop, replace the tensioner.

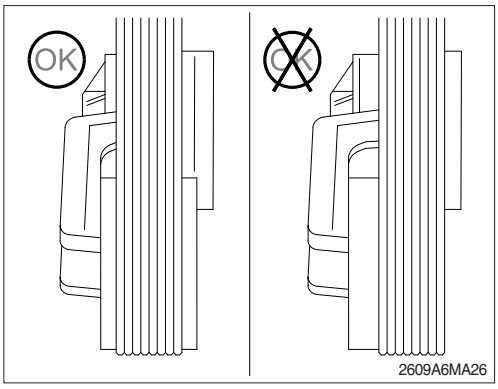


(3) With the belt removed, verify that the tensioner arm stop is in contact with the spring case stop.
If these two are not touching, the tensioner must be replaced.

※ **After replacing the belt, if the tensioner arm stop is still in contact with the spring case stop, the tensioner must be replace.**

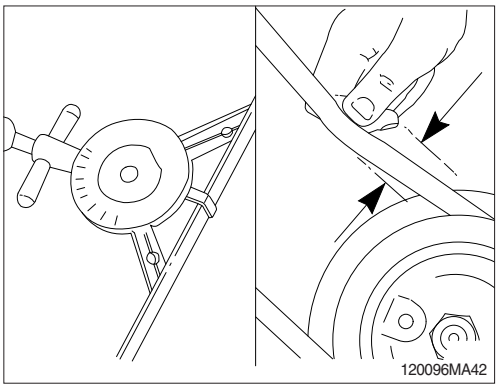


(4) Check the location of the drive belt on the belt tensioner pulley. The belt should be centered on, or close to the middle of, the pulley. Misaligned belts, either too far forward or backward, can cause belt wear, belt roll-offs, or increase uneven tensioner bushing wear.



8) CHECK FAN BELT

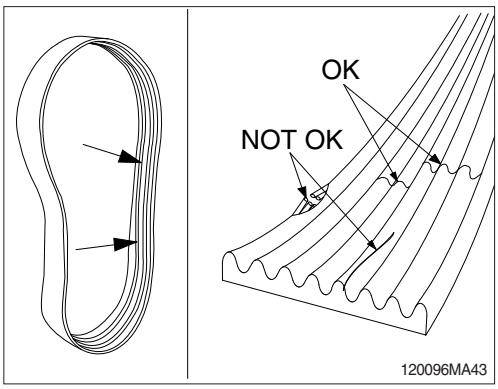
(1) An deflection method can be used to check belt tension by applying 11 kgf (25 lbf) force between the pulleys on V-belts. If the deflection is more than one belt thickness per foot of pulley center distance, the belt tension must be adjusted.



(2) Inspect the fan belt for damage.

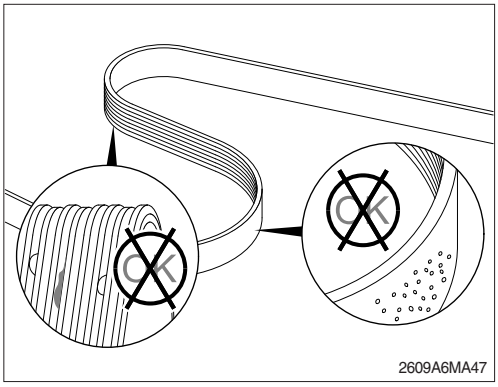
① Transverse (across the belt) cracks are acceptable.

② Longitudinal (direction of belt ribs) cracks that intersect with transverse cracks are not acceptable.



③ Inspect the belt
- Embedded debris
- Uneven/excessive rib wear
- Exposed belt cords
- Glazing (high heat)

※ If any of the above conditions are present, the belt is unacceptable for reuse and must be replaced.



9) INSPECTION OF COOLING FAN

⚠ Personal injury can result from a fan blade failure. Never pull or pry on the fan. This can damage the fan blade and cause fan failure.

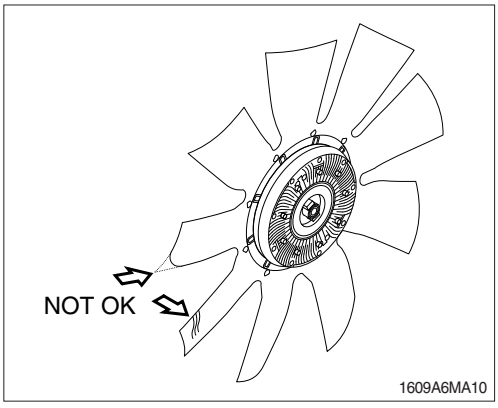
※ Rotate the crankshaft by using the engine barring gear.

※ A visual inspection of the cooling fan is required daily.

Check for cracks, loose rivets, and bent or loose blades.

Check the fan to make sure it is securely mounted. Tighten the capscrews if necessary.

Replace any fan that is damaged.



10) CLEANING OF AIR CLEANER

(1) Primary element

① Turn the cover to the left and remove the element.

② Clean the inside of the body.

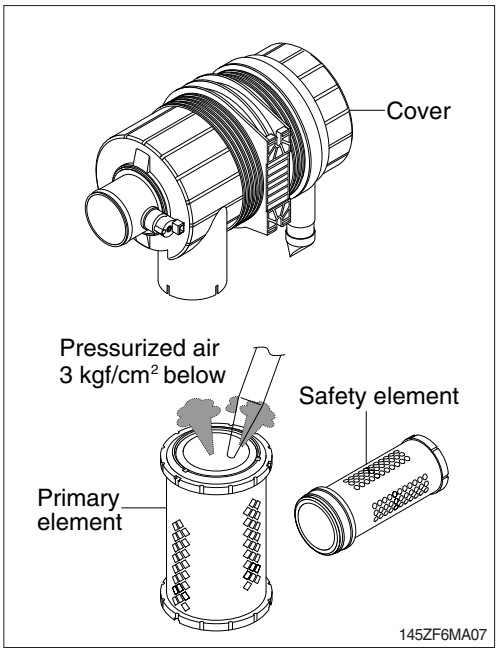
③ Clean the element with pressurized air.

· Remove the dust inside of the element by the pressurized air (below 3 kgf/cm², 40 psi) forward and backward equally.

④ Inspect for cracks or damage of element by putting a light bulb inside of the element.

⑤ Insert element and turn the cover to the right.

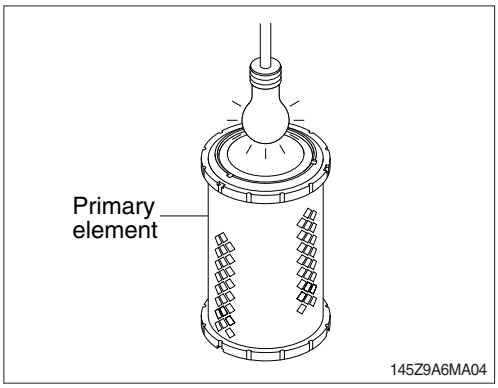
※ Replace the primary element after 4 times cleanings.



(2) Safety element

※ Replace the safety element only when the primary element is cleaned for the 4 times.

※ Always replace the safety element. Never attempt to reuse the safety element by cleaning the element.



11) FUEL TANK

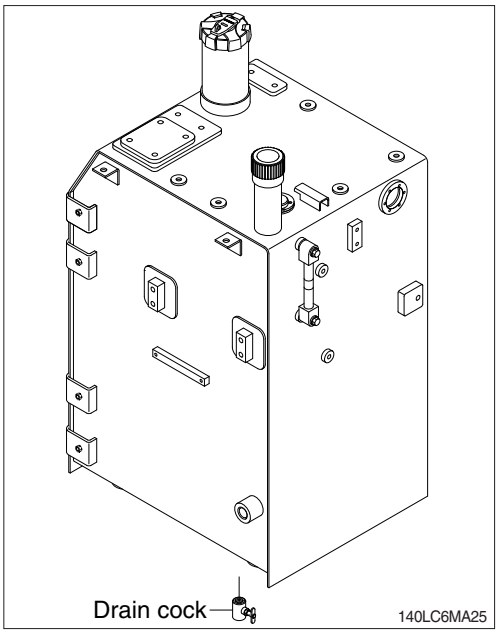
(1) Fill fuel fully when system the operation to minimize water condensation, and check it with fuel gauge before starting the machine.

(2) Drain the water and sediment in the fuel tank by opening the drain cock.

※ Be sure to LOCK the cap of fuel tank.

※ Remove the strainer of the fuel tank and clean it if contaminated.

⚠ Stop the engine when refueling.
All lights and flames shall be kept at a safe distance while refueling.



12) PREFILTER

※ **Inspect or drain the collection bowl of water daily and replace the element every 500hours.**

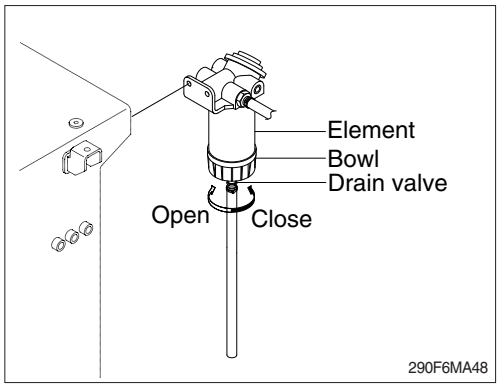
(1) Drain water

① Open bowl drain valve to evacuate water.

② Close drain valve.

※ **Don't tighten up a drain valve so strong.**

※ **Please inspect and drain water frequently for remain water volume to be less than 1/3 volume of a collection bowl.**



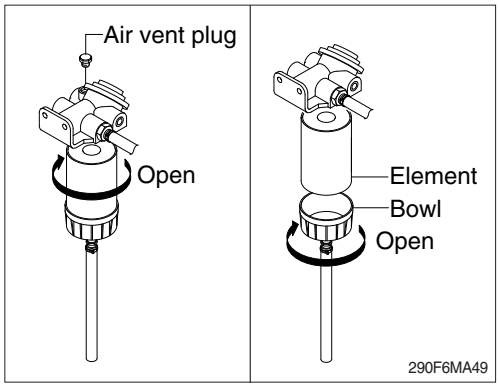
(2) Drain water

① Loosen the air vent plug and drain the unit of fuel. Follow "Drain water" instructions above.

② Remove element and bowl from filter head.

※ **The bowl is reusable, do not damage or discard.**

③ Separate element from bowl. Clean bowl and seal gland.

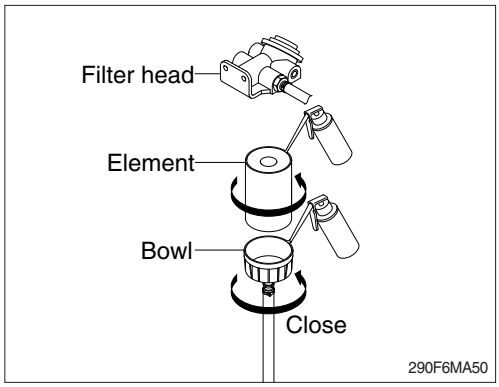


④ Lubricate new bowl seal with clean fuel or motor oil and place in bowl gland.

⑤ Attach bowl to new element firmly by hand.

⑥ Lubricate new element seal and place in element top gland.

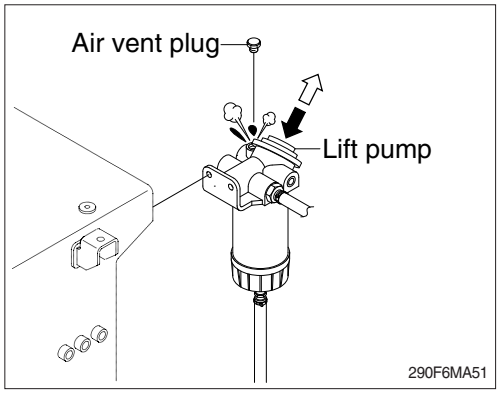
⑦ Attach the element and bowl to the head.



⑧ Do hand-priming the lift pump repeatedly until air bubbles comes out from air vent hole completely.

⑨ Tighten the air vent plug to its origin position.

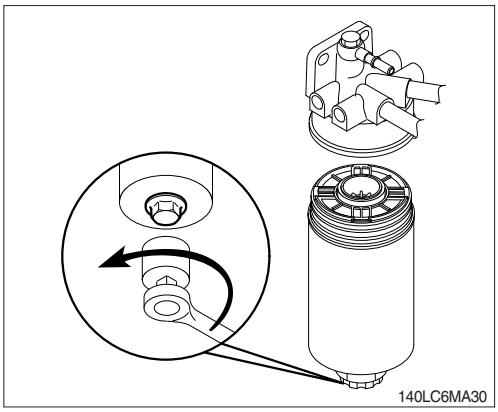
⚠ **The fuel pump, high-pressure fuel lines, and fuel rail contain very high-pressure fuel. Do not loosen any fittings while the engine is running. Personal injury and property damage can result. Wait at least 10 minutes after shutting down the engine before loosening any fittings in the high-pressure fuel system to allow pressure to do decrease to a lower level.**



13) REPLACEMENT OF FUEL FILTER

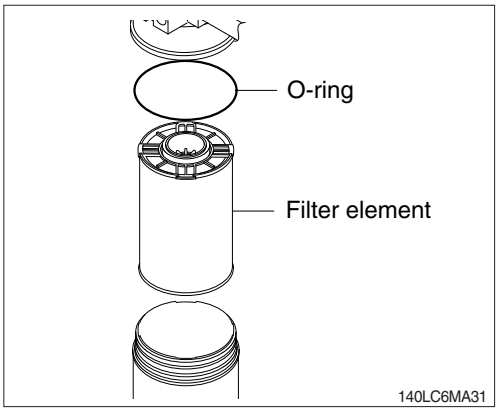
(1) Remove the filter carefully.

(2) Use a 32 mm hex drive on the bottom of the filter canister to remove the canister.



(3) Remove and discard the filter element.

(4) Remove and discard the O-ring seal on the filter canister.



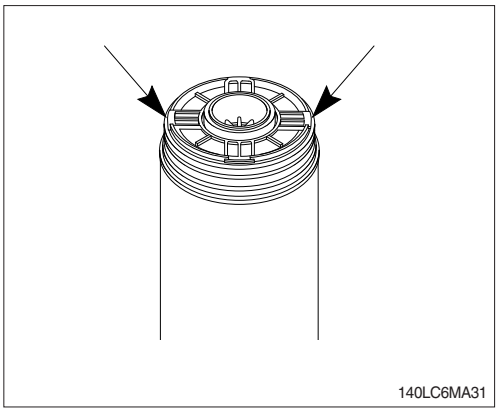
(5) Install a new filter element.

※ **Make sure the tabs of the filter element are properly sealed in the canister.**

※ **Fill the clean fuel prior to assembly.**
Unfiltered fuel can cause damage to fuel system components.

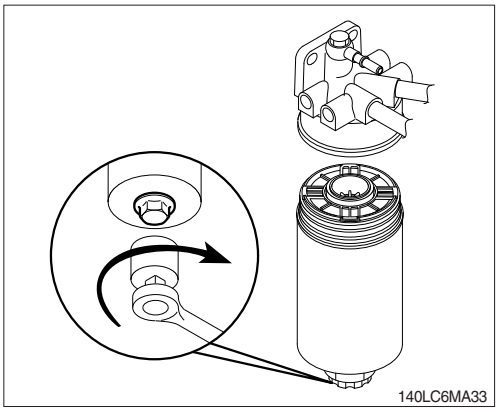
(6) Install the new filter canister O-ring seal.

(7) Lubricate the fuel O-ring with clean lubricating oil.



(8) Install the filter on the filter head.
Install to the point of first contact for the filter and head.
Use a 32 mm hex drive to tighten the canister.

· Tightening torque : 3.3 kgf·m (24 lbf·ft)



14) AFTERTREATMENT DIESEL EXHAUST FLUID DOSING UNIT FILTER

(1) Remove

※ There may be residual DEF in the filter housing. A collection container placed below the DEF filter cap is recommended.

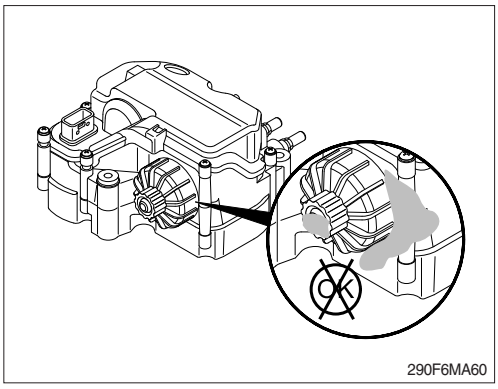
① Inspect the area around the seal and vent of DEF/AdBlue® supply module filter cap for signs of leakage.

② Unscrew the DEF filter cap (1). A 27 ㎜ wrench can be used on the cap to aid in removal.

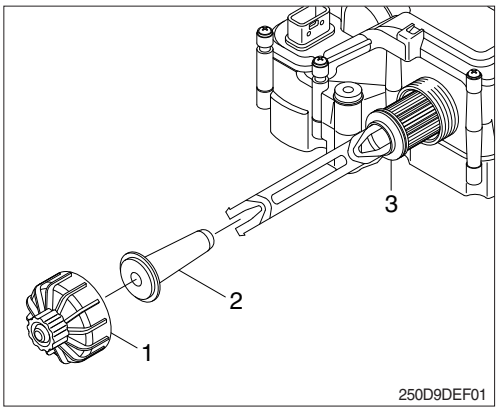
③ Remove the aftertreatment DEF filter equalizing element (2).

④ Remove the old aftertreatment DEF dosing unit filter element (3). A disposable service tool is included with the filter to aid in filter removal.
Use the appropriate end of the tool, depending on the color of the plastic on the filter. When inserting the tool, a "click" sound can be heard which indicates proper engagement with the filter.

※ If the filter element and equalizing element are removed from the aftertreatment DEF dosing unit, they must be discarded and replaced; regardless of condition.



290F6MA60



250D9DEF01

1 DEF dosing unit filter cap
2 DEF filter equalizing element
3 DEF dosing unit filter element

(2) Clean and inspect for reuse

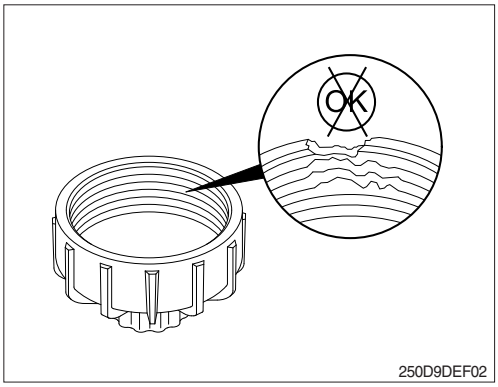
① Inspect the aftertreatment DEF dosing unit filter cap for cracks or holes that could create a DEF leak path.

② Check the condition of the threads on the aftertreatment DEF dosing unit cap.

※ If the threads are damaged, replace the aftertreatment DEF dosing unit filter cap.

③ Inspect the aftertreatment DEF dosing unit threads. This is especially important if the aftertreatment DEF dosing unit cap was damaged.

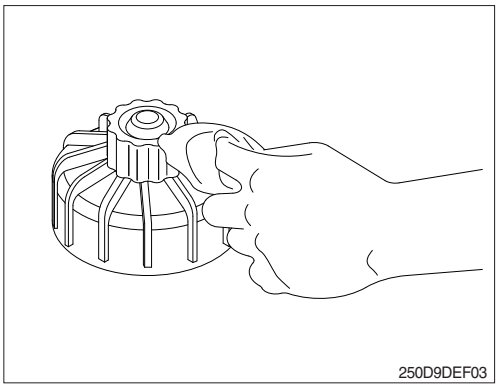
※ If the aftertreatment DEF dosing unit threads are damaged, replace the entire aftertreatment DEF dosing unit.



250D9DEF02

④ Clean the aftertreatment DEF dosing unit cap and threads on the dosing unit with warm water and a clean cloth.

※ Never operate the truck with the DEF cap removed.



(3) Install

① Slide the DEF filter equalizing element (2) into the DEF filter cartridge (3).

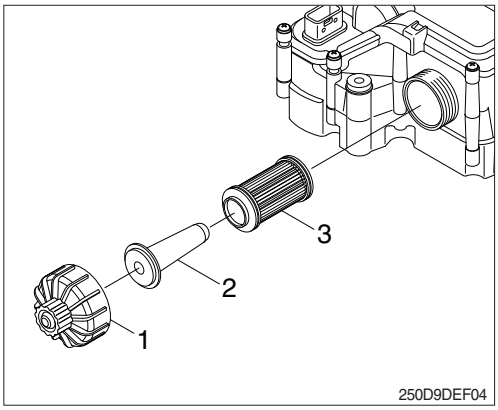
② Insert the assembly into the aftertreatment DEF dosing unit.

③ Install and tighten the cap (1). A 27 mm wrench can be used to install and tighten the filter cap.

· Tightening torque : 2.0 kgf · m (14.5 lbf · ft)

※ Lubrication of the DEF filter O-rings is not required.

※ The aftertreament DEF dosing system will not prime until the correct SCR temperatures are reached. To verify that there are no DEF leaks, test drive the truck for a minimum of 15 mimutes to get the SCR system up to temperature.



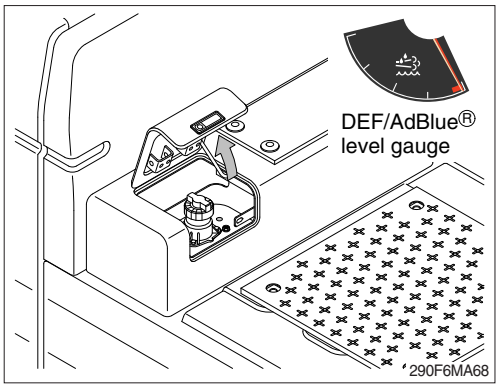
1 DEF dosing unit filter cap
2 DEF filter equalizing element
3 DEF dosing unit filter cartridge

15) DEF/AdBlue® TANK

(1) The DEF/AdBlue® tank level must be checked daily with DEF/AdBlue® level gauge.

(2) If the DEF/AdBlue® level is found to below, DEF/AdBlue® must be added.

⚠ It is unlawful to tamper with or remove any component of the aftertreatment system. It is also unlawful to use a catalyst solution that does not meet the specifications provided or the operate the machine with no catalytic solution.

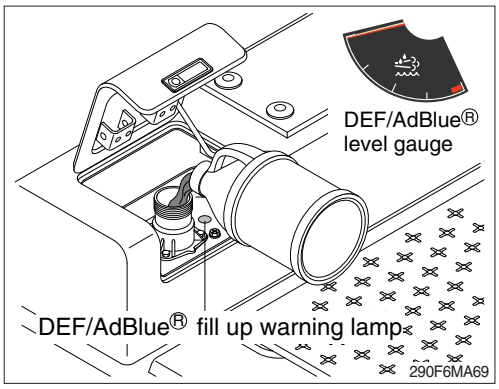


(3) DEF/AdBlue® fill up warning lamp turns on when tank is completely filled with DEF/AdBlue®. After turning light on, do not pour DEF/AdBlue® any more. DEF/AdBlue® will require room for expansion.

※ Fill the tank with DEF/AdBlue® after key on the start key.

※ Be careful to entering dust, sand or other contamination substance when you refill the DEF/AdBlue® into the tank. Otherwise, fatal problem such as engine idle locking, derating or engine stopping can be happen.

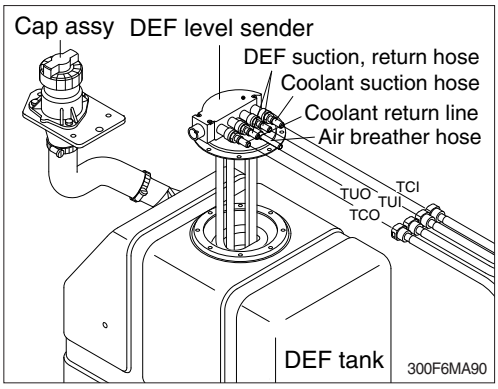
※ Care should be takes when dispensing DEF/AdBlue®. Spills should be cleaned immediately. Spilt DEF/AdBlue® will attack paint and metal.



15-1) DEF/AdBlue® TANK FILTER

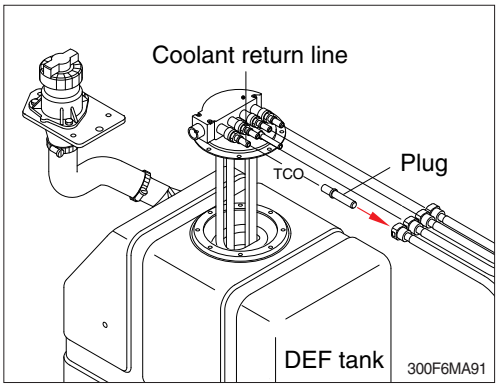
(1) Remove coolant, DEF/AdBlue® and air vent hoses.

※ **Move hoses back and forth 3~4 times to easily remove the hoses.**

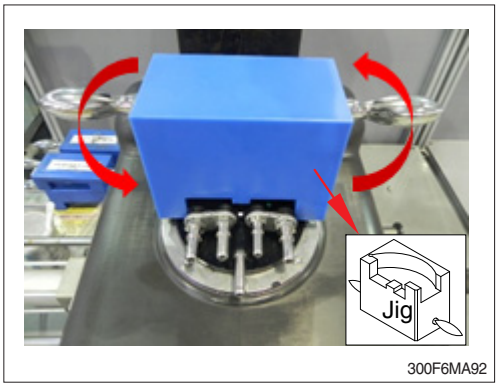


(2) Plugging the coolant return line with the plug (P/no : HDB030-0002).

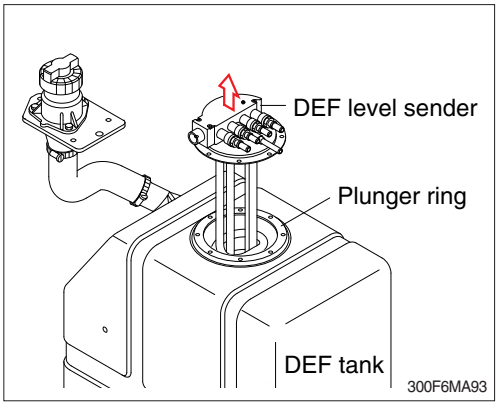
※ **When the coolant return line is removed, the coolant come out from the return line (TCO). Nearly comes out the coolant or DEF from other lines.**



(3) Rotate the DEF/AdBlue® level sender counter-clockwise about 20 degree with the Jig (P/no : HDB030-0001).



(4) Remove the DEF/AdBlue® level sender without removal of the plunger ring.



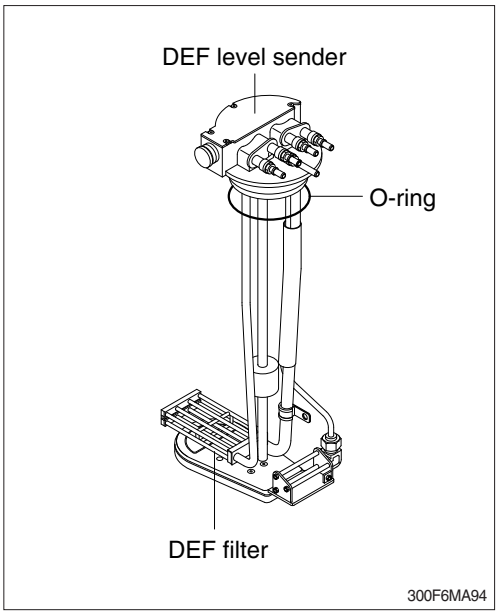
(5) Removed DEF/AdBlue® level sender.

※ **Make sure O-ring is on the right position.**

(6) Replace the DEF/AdBlue® filter and fit with a new filter.

※ **Replace the filter every 4000 hours.**

※ **Carry out installation in the reverse order to removal.**

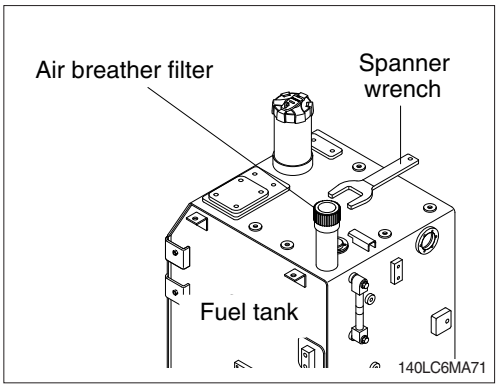


16) REPLACEMENT OF AIR BREATHER FILTER

(1) Stop the engine.

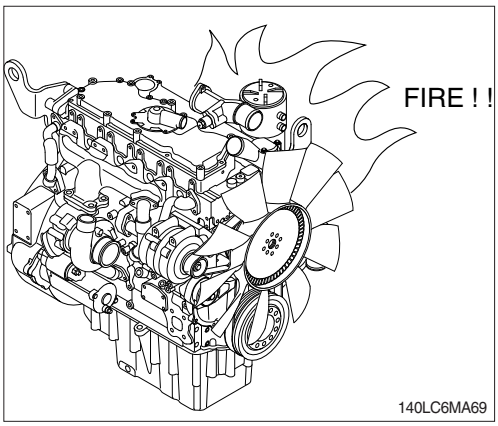
(2) Remove the air ventilation filter using the special spanner wrench and dispose it in accordance with environmental regulations.

(3) Replace the filter with new one.
· Tightening torque : 0.82±0.2 kgf · m
(5.9±1.4 lbf · ft)



17) LEAKAGE OF FUEL

⚠ Be careful and clean the fuel hose, injection pump, fuel filter and other connections as the leakage from these part can cause fire.



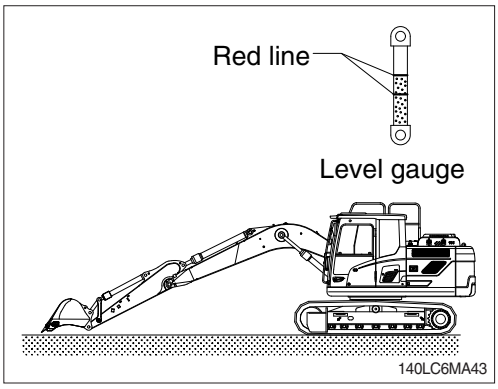
18) HYDRAULIC OIL CHECK

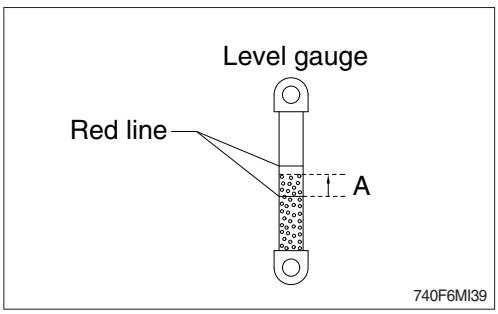
(1) Position the machine as shown in the illustration on the right. Then stop engine.

(2) Check the oil level at the level gauge of hydraulic oil tank.

(3) The oil level is normal if the oil is between the red lines. The oil level depends on the temperature of the hydraulic oil. Refer to the height (A) in the below table to check the level gauge.

Temperature		Height A	
℃	℉	mm	inch
0	32	15	0.6
10	50	25	1.0
20	68	30	1.2
30	86	35	1.4
40	104	40	1.6





※ Refer to page 3-21 for checking the temperature of the hydraulic oil.

※ Add the hydraulic oil, if necessary.

19) FILLING HYDRAULIC OIL

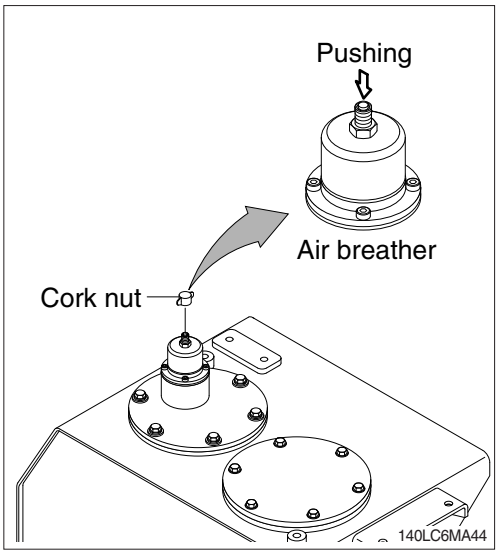
(1) Stop the engine to the position of level check.

(2) Remove the cork nut and relieve the pressure in the tank by pushing the top of the air breather.

(3) Remove the breather on the top of oil tank and fill the oil to the specified level.

(4) Start engine after filling and operate the work equipment several times.

(5) Check the oil level at the level check position after engine stops.



20) CHANGE HYDRAULIC OIL

(1) Lower the bucket on the ground pulling the arm and bucket cylinder to the maximum.

(2) Remove the cork nut and relieve the pressure in the tank by pushing the top of the air breather.

(3) Remove the cover.
· Tightening torque : 6.9±1.4 kgf · m
(50±10 lbf · ft)

(4) Prepare a suitable container.

(5) To drain the oil open the drain valve at the bottom of the oil tank.

(6) Fill proper amount of recommended oil.

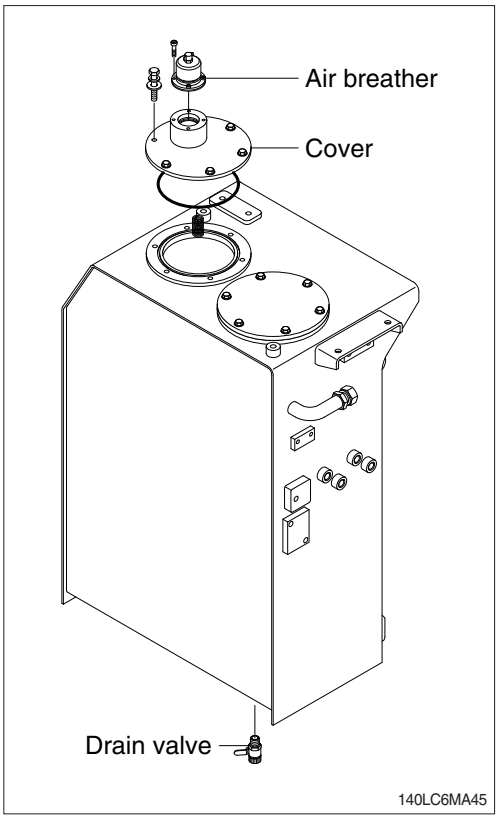
(7) Put the breather in the right position.

(8) Bleed air hydraulic pump loosen the air breather at top of hydraulic pump assembly.

(9) Start engine and run continually. Release the air by full stroke of each control lever.

※ Incase of injecting HBHO (HD Hyundai Construction Equipment Bio Hydraulic Oil) to machines that have formerly used different hydraulic oil, the proportion of residual oil must not exceed 2 %

※ Do not mix any other Bio oil, use only HBHO as bio oil.
If changing to Bio oil, contact HD Hyundai Construction Equipment dealer.



21) CLEAN SUCTION STRAINER

Clean suction strainer as follows paying attention to the cause to be kept during oil filling.

(1) Remove the cover on the top of the oil tank.
· Tightening torque : 6.9±1.4 kgf · m
(50±10 lbf · ft)

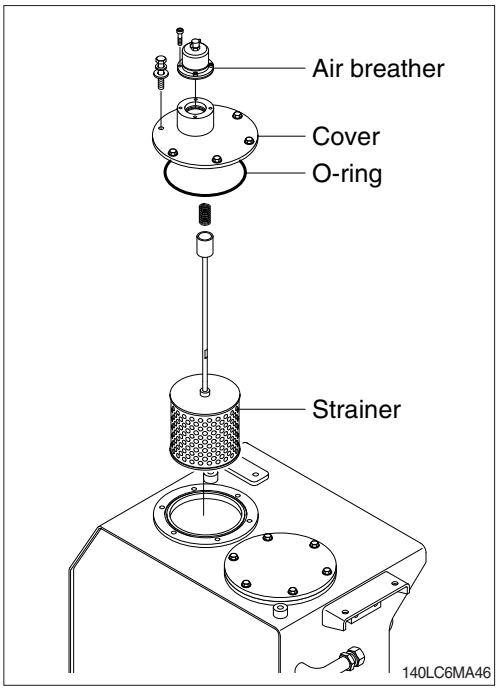
(2) Pull out the strainer in the tank.

(3) Wash the foreign material on the suction strainer with gasoline or cleaning oil.

(4) Replace the suction strainer if it is damaged.

(5) Assemble with reverse order of disassembly.
Be sure to install a new O-ring and reinsert in the oil tank.

※ **Loosen the bolt slowly at the cover can be spring out by the spring when removing it.**



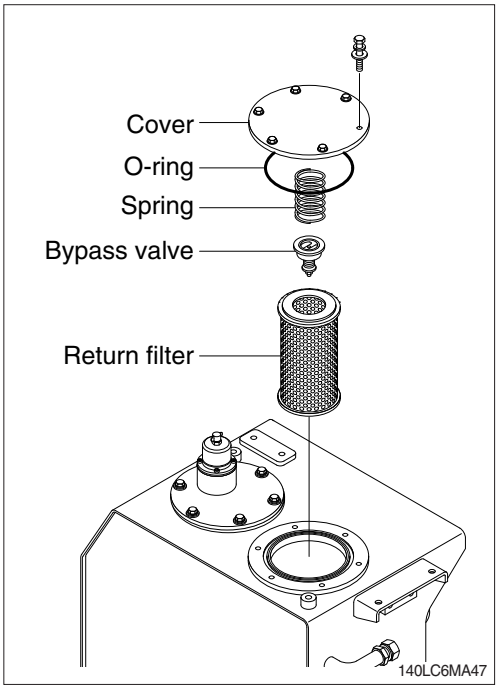
22) REPLACEMENT OF RETURN FILTER

Replace as follows paying attention to the cause to be kept during the replacement.

(1) Remove the cover.
· Tightening torque : 6.9±1.4 kgf · m
(50±10 lbf · ft)

(2) Remove the spring, by-pass valve, and return filter in the tank.

(3) Replace the element with new one.



23) REPLACEMENT OF ELEMENT IN HYDRAULIC TANK BREATHER

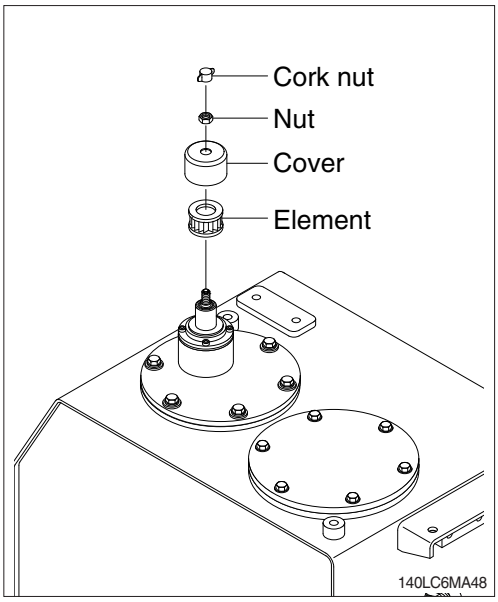
(1) Remove the cork nut and relieve the pressure in the tank by pushing the top of the air breather.

(2) Loosen the nut and remove the cover.

(3) Pull out the filter element.

(4) Replace the filter element new one.

(5) Reassemble by reverse order of disassembly.
- Nut tightening torque : 0.4~0.5 kgf · m
  (2.9~3.6 lbf · ft)

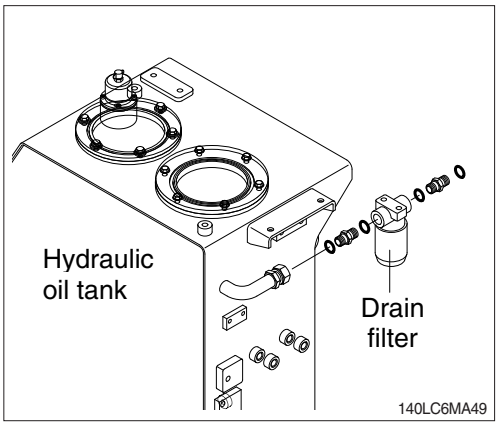


24) REPLACE OF DRAIN FILTER CARTRIDGE

Clean the dust around filter and replace with new one after removing the cartridge.

※ **Tighten about 2/3 turn more after the gasket of cartridge contacts seal side of filter body for mounting.**

※ **Change cartridge after initial 250 hours of operation. Thereafter, change cartridge every 1000 hours.**



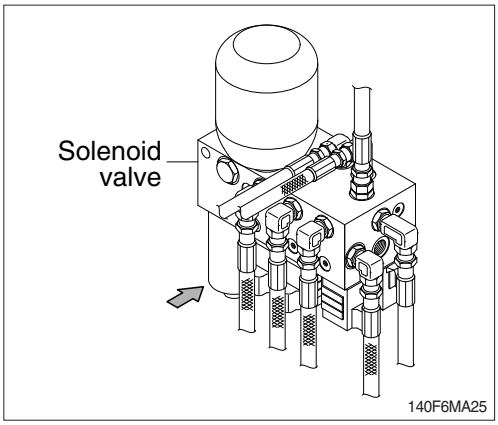
25) REPLACE OF PILOT LINE FILTER

(1) Loosen the nut positioned on the filter body.

(2) Pull out the filter element and clean filter housing.

(3) Install the new element and tighten using specified torque.

※ **Change cartridge after initial 250 hours of operation. Thereafter, change cartridge every 1000 hours.**

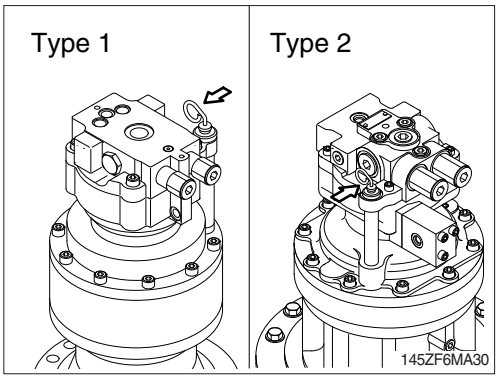


26) CHECK THE SWING REDUCTION GEAR OIL

(1) Pull out the dipstick and clean it.

(2) Insert it again.

(3) Pull out one more time to check the oil level and fill the oil if the level is not sufficient.



27) CHANGE SWING REDUCTION GEAR OIL

(1) Raise the temperature of oil by swinging the machine before replace the oil and park the machine on the flat ground.

(2) Prepare a proper container.

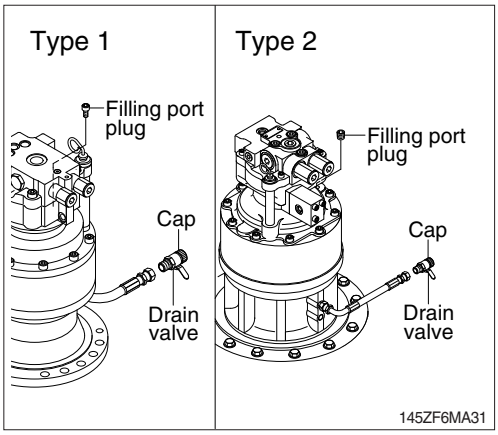
(3) Remove the cap and open the drain valve.

(4) Clean around the valve and close the drain valve and cap.

(5) Fill proper amount of recommended oil.

· Amount of oil

- Type 1 : 3.5 ℓ (0.9 U.S.gal)
- Type 2 : 2.5 ℓ (0.7 U.S.gal)

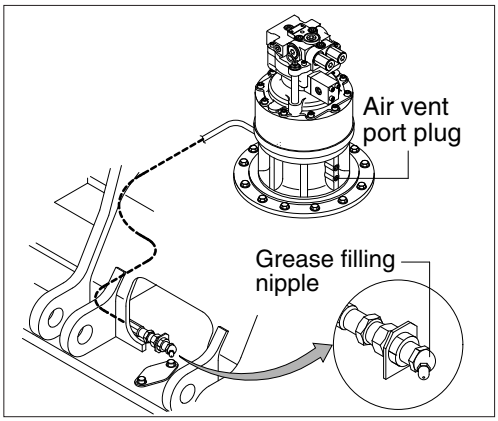


28) LUBRICATE BEARING OF OUTPUT SHAFT IN REDUCTION GEAR (TYPE 2 ONLY)

(1) Remove air vent plug.

(2) Lubricate NLGI No.2 with grease gun until comes out new grease from air vent port.

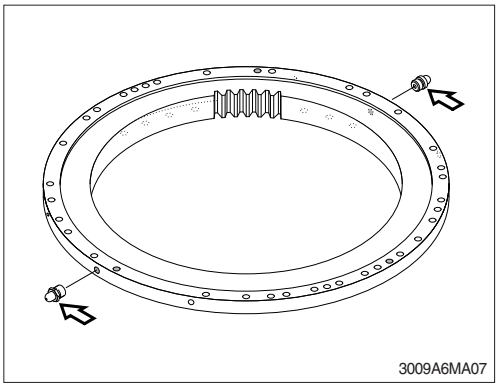
· Amount of oil : 0.35 kg (0.09 lb)



29) LUBRICATE SWING BEARING

(1) Grease at 2 fitting.

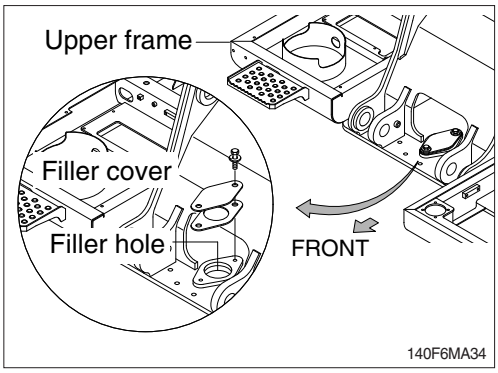
※ **Lubricate every 250 hours.**



30) SWING GEAR AND PINION

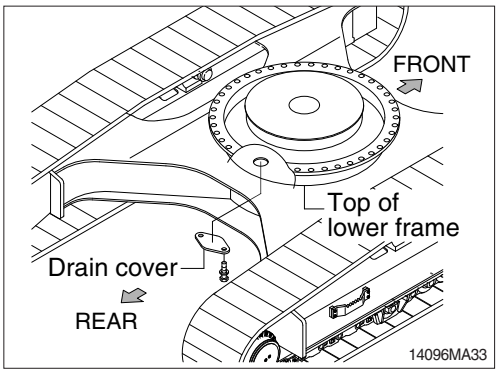
(1) Drain old grease

① Remove under cover of lower frame.
② Remove drain cover of lower frame.
③ Remove filler cover of upper frame.
④ Operate full turn (360˚)of swing several times.



(2) Refill new grease

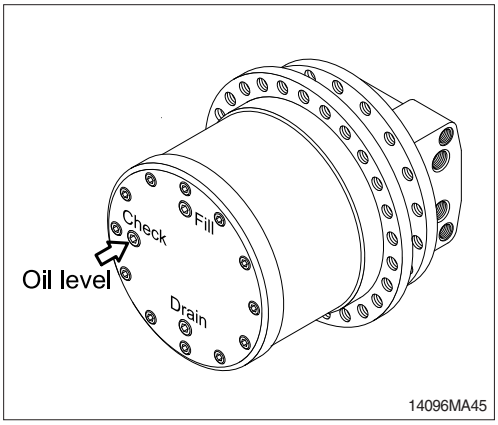
① Install drain cover.
② Fill with new grease.
③ Install filler cover.
· Capacity : 5.9 kg (13.1 lb)



31) CHECK THE TRAVEL REDUCTION GEAR OIL

(1) Operate the machine to the position of drain plug down to the flat ground.

(2) Loosen the level plug and check the oil level.
If the level is at the hole of the plug, it is normal.
Fill the oil if it is not sufficient.
· Amount of gear oil : 2.3 ℓ (0.6 U.S.gal)



32) CHANGE OF THE TRAVEL REDUCTION GEAR OIL

(1) Raise the temperature of the oil by traveling machine first.

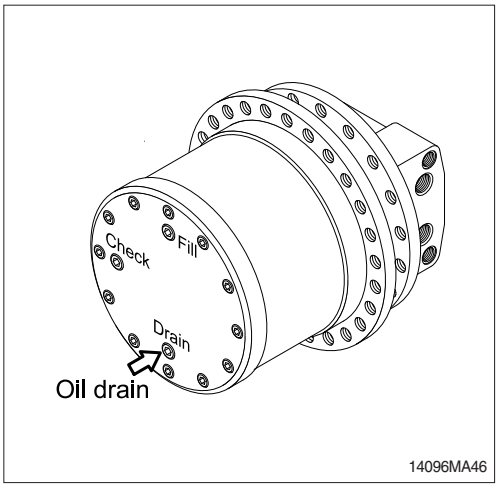
(2) Stop when the position of the drain plug is down.

(3) Loosen the level plug and then the drain plug.

(4) Drain the oil to adequate container.

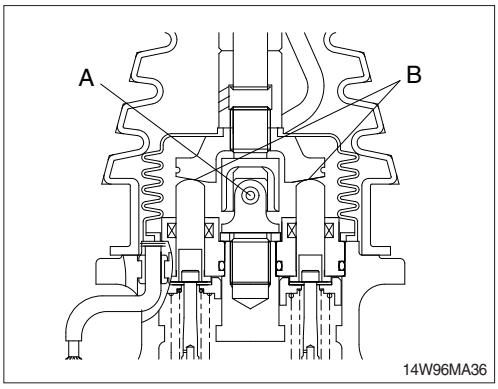
(5) Tighten the drain plug and fill specified amount of oil at filling port.

(6) Tighten the level plug and travel slowly to check if there is any leakage of oil.



33) LUBRICATE RCV LEVER

Remove the bellows and with a grease gun grease the joint part (A) and sliding parts (B).



34) ADJUSTMENT OF TRACK TENSION

※ It is important to adjust the tension of track properly to extend the lifetime of track and traveling device.

※ The wear of pins and bushings on the undercarriage will vary with the working conditions and soil properties.
It is thus necessary to continually inspect the track tension so as to maintain the standard tension on it.

(1) Raise the chassis with the boom and arm.

(2) Measure the distance between bottom of track frame on track center and back of shoe.

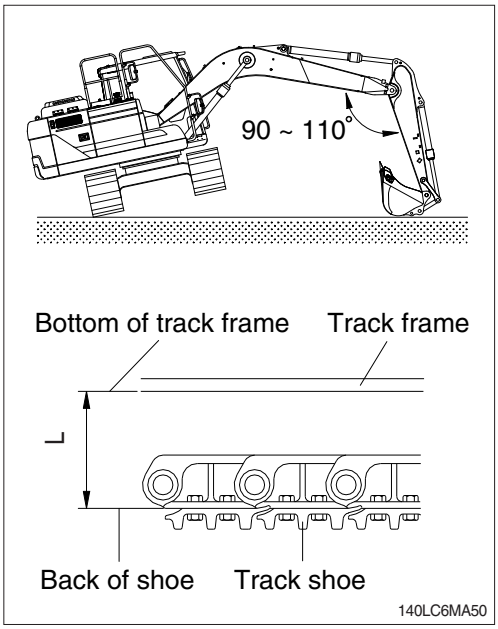
※ Remove mud with rotating the track before measuring.

(3) If the tension is tight, drain the grease in the grease nipple and if the tension is loose, charge the grease.

⚠ Personal injury or death can result from grease under pressure.

⚠ When loosening the grease nipple, do not loosen more than one turn as there is a danger of a spring coming out of the nipple because of the high pressure inside.

※ When the grease is drained, move the track to the forward and backward slightly.
If the track tension is loose even after the grease is charged to the maximum, change the pins and bushings as there are worn seriously.



Length (L)	
270~300 mm	10.6~11.8"

35) REPLACEMENT OF BUCKET

⚠ **When knocking the pin in with a hammer, metal particles may fly and cause serious injury, particularly if they get into your eyes. When carrying out this operation, always wear goggles, helmet, gloves, and other protective equipment.**

※ **When the bucket is removed, place it in a stable condition.**

※ **When performing joint work, make sure signals to each other and work carefully for safety's sake.**

(1) Lower the bucket on the ground as the picture shown in the right.

(2) Lock the safety knob to the LOCK position and stop the engine.

(3) Remove the stopper bolts (1) and nuts (2), then remove pins (3, 4) and remove the bucket.

※ **When removing the pins, place the bucket so that it is in light contact with the ground.**

※ **If the bucket is lowered strongly to the ground, the resistance will be increased and it will be difficult to remove the pins.**

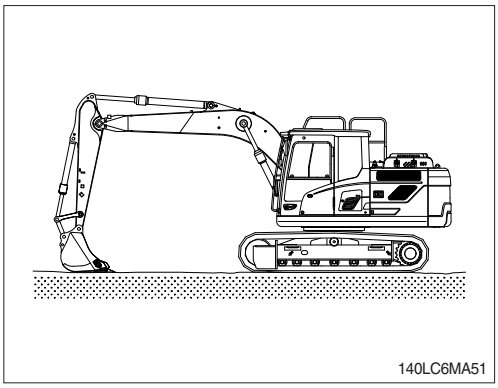
※ **After remove the pins, make sure that they do not become contaminated with sand or mud and that the seals of bushing on both sides do not become damaged.**

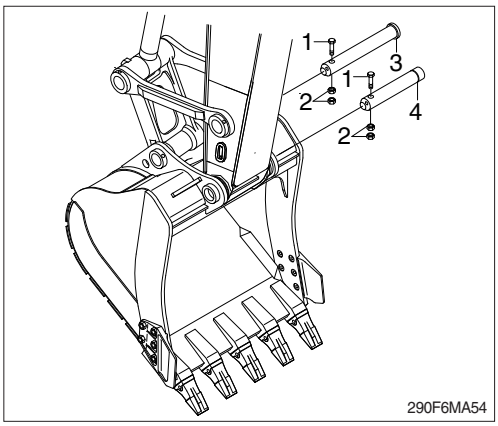
(4) Align the arm with holes (A) and the link with holes (B), then coat with grease and install pins (3, 4)

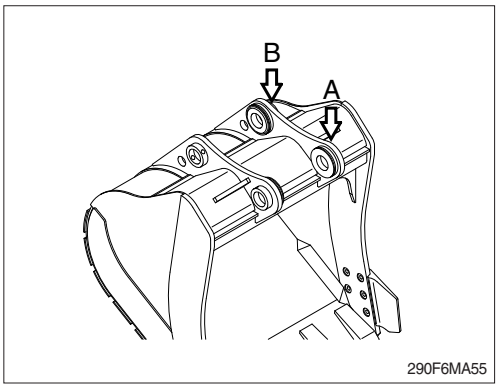
※ **When installing the bucket, the O-rings are easily damaged, so fit the O-rings on the boss of the bucket as shown in the picture. After knocking the pin, move the O-ring down to the regular groove.**

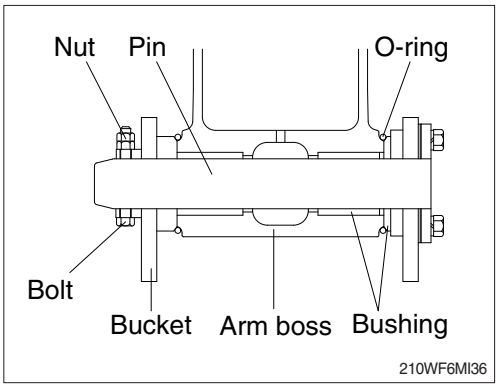
(5) Install the stopper bolt (1) and nuts (2) for each pin, then grease the pin.

· Tightening torque : 29.7±4.5 kgf · m
(215±32.5 lbf · ft)







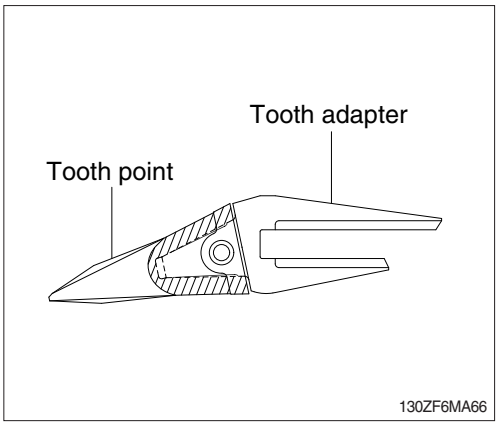


36) REPLACEMENT OF BUCKET TOOTH

(1) Timing of replacement

① Check wearing condition as shown in the illustration and replace tooth tip before adapter starts to wear.

② If excessive use, tooth adapter has worn out, replacement may become impossible.



(2) Instructions for replacement

① Pull out pin by striking pin with punch or hammer, avoiding damage to lock washer.

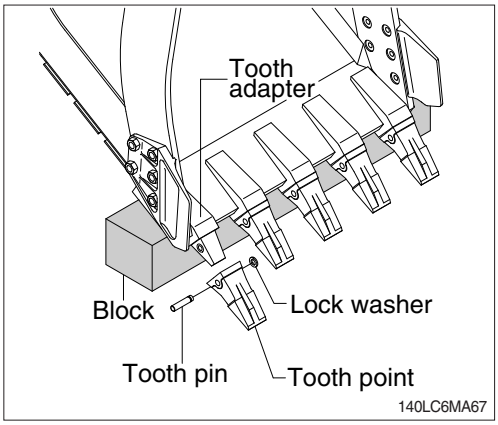
② Remove dust and mud from surface of tooth adapter by using knife.

③ Place lock washer in its proper place, and fit tooth point to adapter.

④ Insert pin until locking washer is positioned at tooth pin groove.

⚠ Personal injury can result from bucket falling.

⚠ Block the bucket before changing tooth tips or side cutters.



37) ADJUSTMENT OF BUCKET CLEARANCE

(1) Lower the bucket on the ground as the picture shown in the right.

(2) Swing to the left and keep the arm boss to be contact to the bucket left.

(3) Lock the safety knob to the LOCK position and stop the engine.

(4) Measure the clearance (A) between bucket and arm boss. This is the total clearance.

(5) Adjusting

① Loosen bolt (2), and remove washer (3), plate (1) and shim (4).

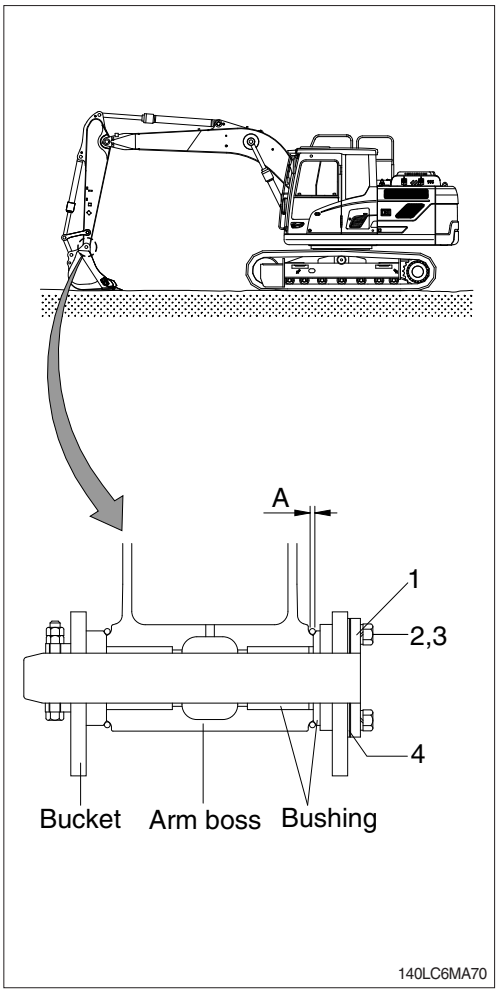
② Remove the shim equivalent value with measuring value.

③ Assemble the parts in the reverse order of removal.

· Tightening torque : 29.6±3.2 kgf · m
(214.0±23.1 lbf · ft)

· Normal clearance : 0.5 ~ 1.0 mm
(0.02 ~ 0.04 in)

※ If the bucket is not adjusted correctly, noise and vibration created during operation, and damaged O-ring, pin and bushing quickly.



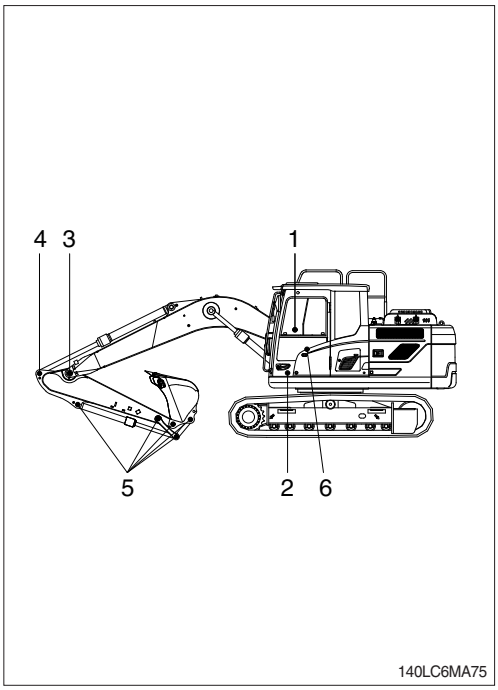
38) LUBRICATE PIN AND BUSHING

(1) Lubricate to each pin of working device

Lubricate the grease to the grease nipple according to the lubricating interval.

No.	Description	Qty
1	Lubrication manifold at boom	5
2	Boom cylinder pin (head side)	2
3	Boom and arm connection pin	1
4	Arm cylinder pin (rod side)	1
5	Bucket cylinder pin (head side, rod side)	2
	Bucket link (control rod)	3
	Arm and control link connection pin	1
	Arm and bucket connection pin	1
6	Boom rear bearing center	1

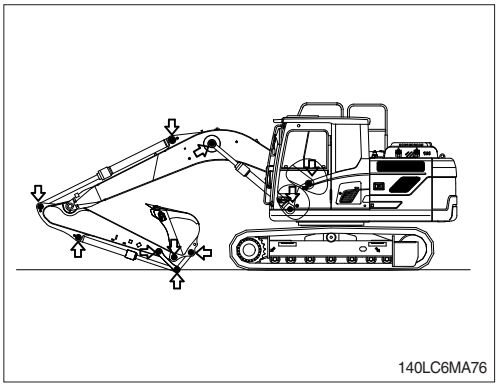
※ **Shorten lubricating interval when working in the water or dusty place.**



140LC6MA75

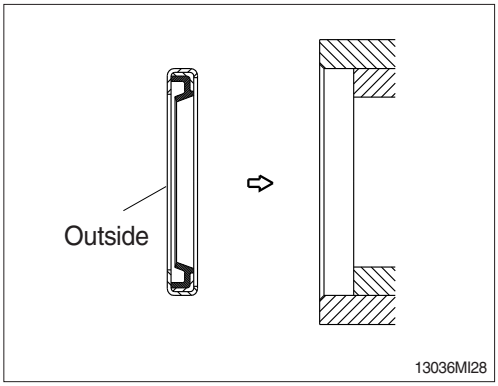
(2) Dust seals are mounted on the rotating part of working device to extend the lubricating interval.

※ **Mount the lip to be faced outside when replace the dust seal.**


140LC6MA76

※ **If it is assembled in wrong direction, it will cause fast wear of pin and bushing, and create noise and vibration during operation.**

※ **Assemble the seal same direction with picture and use with plastic hammer when replace.**



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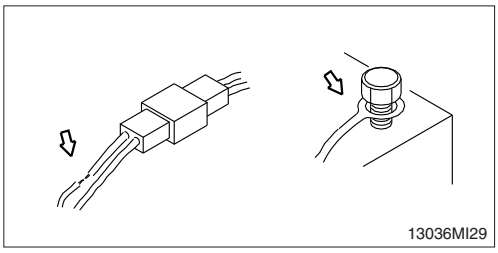
7. ELECTRICAL SYSTEM

1) WIRING, GAUGES

Check regularly and repair loose or malfunctioning gauges when found.



2) BATTERY

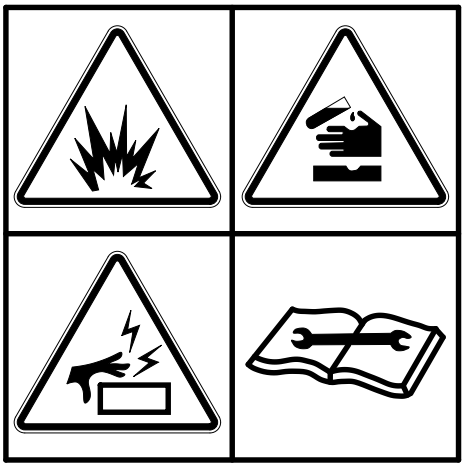
(1) Clean

① Wash the terminal with hot water if it is contaminated, and apply grease to the terminals after washing.

⚠ Battery gas can explode. Keep sparks and flames away from batteries.

⚠ Always wear protective glasses when working with batteries.

⚠ Do not stain clothes or skin with electrolyte as it is acid.
Be careful not to get the electrolyte in eyes.
Wash with clean water and go to the doctor if it enters the eyes.



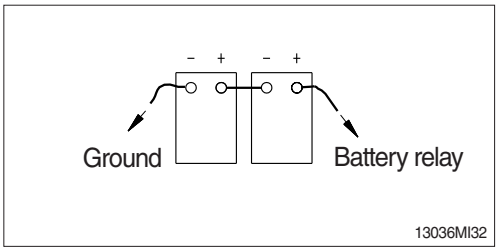
(2) Recycle

Never discard a battery.
Always return used batteries to one of the following locations.

- A battery supplier
- An authorized battery collection facility
- Recycling facility

(3) Method of removing the battery cable

Remove the cable from the ground connection first (⊖ terminal side) and reconnect it last when reassembling.



3) STARTING THE ENGINE WITH A BOOSTER CABLE

Keep following order when you are going to start engine using booster cable.

(1) Connection of booster cable

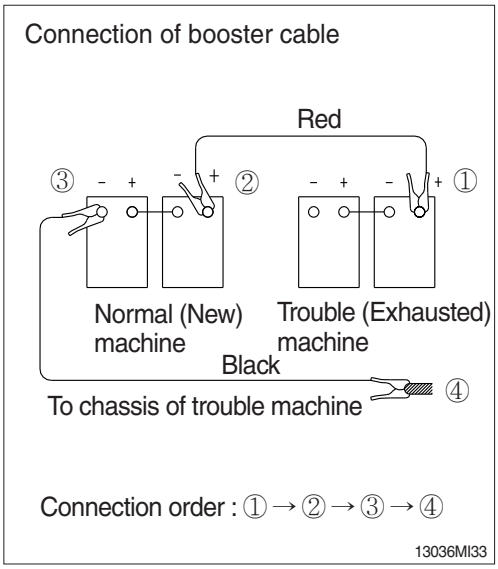
※ Use the same capacity of battery for starting.

① Make sure that the starting switches of the normal machine and trouble machine are both at the OFF position.

② Connect the red terminal of booster cable to the battery (+) terminal between exhausted and new battery.

③ Connect the black terminal of the booster cable between new battery (-) terminal and chassis of trouble machine.

※ Keep firmly all connection, the spark will be caused when connecting finally.

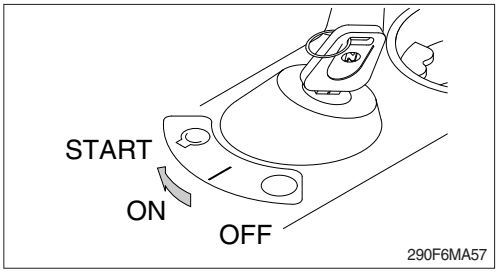


(2) Starting the engine

① Starting the engine of the normal machine and keep it to run at high idle.

② Start engine of the trouble machine with starting switch.

③ If you can not start it by one time, restart the engine after 2 minutes.



(3) Taking off the booster cable

① Take off the booster cable (black).

② Take off the booster cable (red) connected to the (+) terminal.

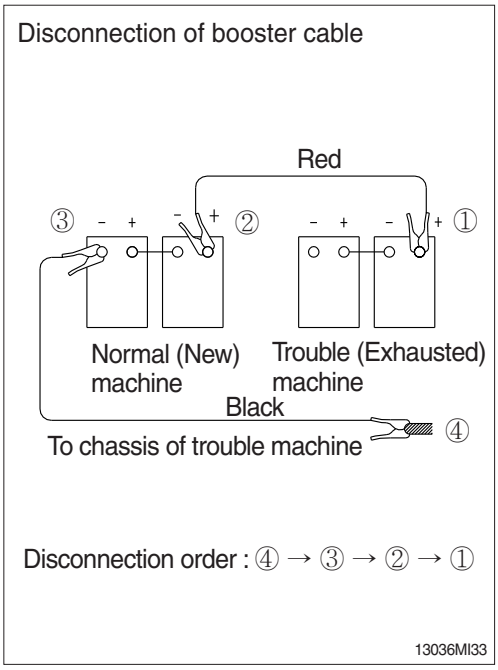
③ Run engine with high idle until charging the exhausted battery by alternator, fully.

⚠ Explosive gas is generated while using the battery or charging it. Keep away flame and be careful not to cause the spark.

※ Charge the battery in the well ventilated place.

※ Place the machine on the earth or concrete. Avoid charging the machine on the steel plate.

※ Do not connect (+) terminal and (-) terminal when connecting booster cable because it will be shorted.



(4) Welding repair

Before start to welding, follow the below procedure.

① Shut off the engine and remove the starting switch.

② Disconnect ground cable from battery by master switch.

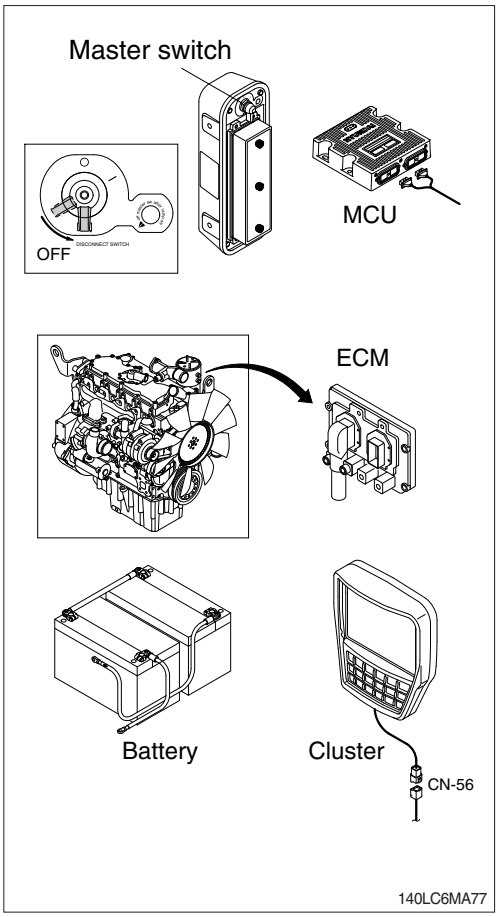
③ Before carrying out any electric welding on the machine, the battery cables should be disconnected and the connectors pulled out of the electronic control units (MCU, ECM and cluster etc).

④ Connect the earth (ground) lead of the welding equipment as close to the welding point as possible.

※ Do not weld or flame cut on pipes or tubes that contain flammable fluids. Clean them thoroughly with nonflammable solvent before welding or flame cutting on them.

⚠ Do not attempt to welding work before carry out the above.

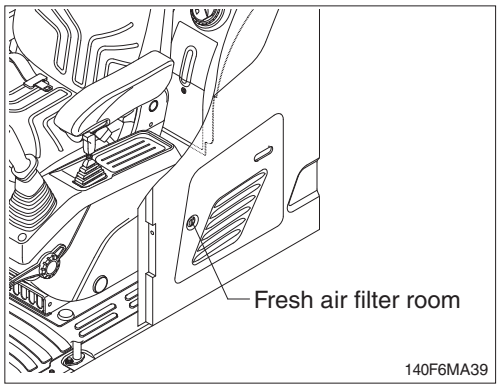
If not, it will caused serious damage at electric system.



1) CLEAN AND REPLACE OF FRESH AIR FILTER

※ **Always stop the engine before servicing.**

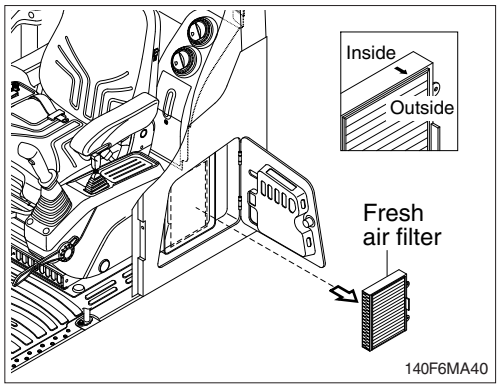
(1) Open the LH side cover.



(2) Remove the fresh air filter.

※ **When installing a filter, be careful not to change the filter direction.**

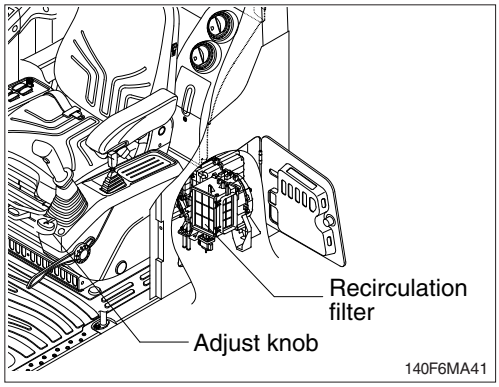
(3) If filter is damaged or badly contaminated, use a new filter.



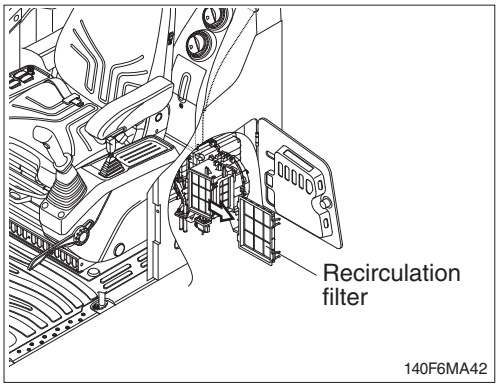
2) CLEAN AND REPLACE OF RECIRCULATION FILTER

※ **Always stop the engine before servicing.**

(1) Move seat and console box to arrow direction using the adjust knob.

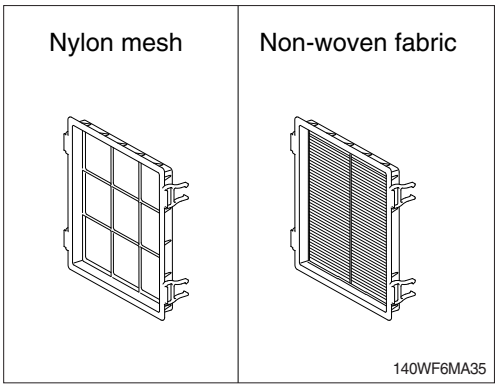


(2) Remove recirculation filter.



(3) Check the recirculation filter type.

(4) Non-woven fabric type
- If filter is damaged or badly contaminated, use a new filter.

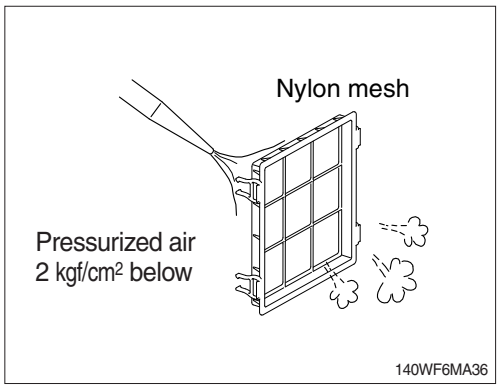


(5) Clean the recirculation filter using a pressurized air (below 2 kgf/cm², 28 psi) or washing with water.

△ **When using pressurized air, be sure to wear safety glasses.**

※ **Dry off after washing with water.**

(6) Inspect the filter after cleaning. If it is damaged or badly contaminated, use a new filter.



3) PRECAUTIONS FOR USING AIR CONDITIONER

(1) When using the air conditioner for a long time, open the window once every one hour.

(2) Be careful not to overcool the cab.

(3) The cab is properly cooled if the operator feels cool when entering there from outside (about 5˚C lower than the outside temperature).

(4) When cooling, change air occasionally.

4) CHECK DURING SEASON

Ask the service center for replenishment of refrigerant or other maintenance service so that the cooling performance is not damaged.

5) CHECK DURING OFF-SEASON

Operate the air conditioner 2 or 3 times a month (each for a few minutes) to avoid loss of oil film in the compressor.

6) REFRIGERANT

(1) Equipment contains fluorinated greenhouse gas.

Model	Type	Quantity	GWP
HX140 LC	HFC-134a	0.65 kg (1.43 lb)	930 CO_2 eq.

※ GWP

Global warming potential (GWP) is a measure of how much heat a gas traps in the atmosphere relative to that of carbon dioxide (CO2). GWP is calculated in terms of the 100-year warming potential of 1 kg of a greenhouse gas relative to 1 kg of CO2.

(2) Environmental precautions

The air conditioning system of the machine is filled with HFC-134a refrigerant at the factory.
HFC-134a refrigerant is a flourinated greenhouse gas and contributes to global warming.
Do not release refrigerant into the environment.

(3) Safety precautions

Work on the air conditioning system must only be performed by a qualified service technician.
Do not attempt to preform work on the air conditioning system.
Wear safety goggles, chemical resistant gloves and appropriate personal protective equipment to protect bare skin when there is a risk of contact with refrigerant.

(4) Action in case of exposure

① Eye contact / Limited skin contact
Rinse with warm water and apply a light bandage. Seek medical attention immediately.

② Extensive skin contact
Rinse with warm water and carefully heat the area with warm water or warm clothing.
Seek medical attention immediately.

③ Inhalation
Leave the area and find fresh air. Seek medical attention immediately.

1. ENGINE

※ **This guide is not intended to cover every conditions, however many of the more common possibilities are listed.**

Trouble	Service	Remark
The engine oil pressure lamp lights ON when engine speed is raised after completion of warm up.	· Add the oil to the specified level. · Replace the oil filter cartridge. · Check oil leakage from the pipe or the joint. · Replace the monitor.	
Steam is emitted from the top part of the radiator (the pressure valve). Coolant level warning lamp lights ON.	· Supply the coolant and check leakage. · Adjust fan belt tension. · Wash out inside of cooling system. · Clean or repair the radiator fin. · Check the thermostat. · Tighten the radiator cap firmly or replace the packing of it. · Replace the monitor.	
The engine does not start when the starting motor is turned over.	· Add fuel. · Repair where air is leaking into fuel system. · Check the injection pump or the nozzle. · Check the valve clearance. · Check engine compression pressure. · In cold weather, check if fuel warmer system is working normal.	Refer to the pages 3-36 and 4-4.
Exhaust gas is white or blue.	· Adjust to specified oil quantity. · Replace with specified fuel.	
Exhaust gas occasionally turns black.	· Clean or replace the air cleaner element. · Check the nozzle. · Check engine compression pressure. · Clean or replace the turbocharger.	
Combustion noise occasionally changes to breathing sound.	· Check the nozzle.	
Unusual combustion noise or mechanical noise.	· Check with specified fuel. · Check over-heating · Replace the muffler. · Adjust valve clearance.	

2. ELECTRICAL SYSTEM

Trouble	Service	Remark
Lamp does not glow brightly even when engine runs at high speed. Lamp flickers while engine runs.	· Check for loose terminals and open-circuit wiring. · Adjust belt tension.	
Battery charging lamp does not go out even when engine runs at high speed.	· Check the alternator. · Check and repair wiring.	
Unusual noise is emitted from the alternator.	· Check the alternator.	
Starting motor does not turn when starting switch is turned ON.	· Check and repair the wiring. · Charge the battery. · Check the starting motor. · Check the safety relay.	
The pinion of the starting motor keeps going in and out.	· Charge the battery. · Check the safety relay.	
Starting motor turns the engine sluggishly.	· Charge the battery. · Check the starting motor.	
The starting motor disengages before the engine starts up.	· Check and repair the wiring. · Charge the battery.	
The engine warming up lamp does not go ON.	· Check and repair wiring. · Check the monitor.	
The engine oil pressure lamp does not light up when engine is stationary (when the starting switch is in ON position.)	· Check the monitor. · Check the caution lamp switch.	
Battery charging lamp does not light up when the engine is stationary. (when the starting switch is in ON position.)	· Check the monitor. · Check and repair the wiring.	

3. OTHERS

Trouble	Service	Remark
Track slip out of place. Excessive wear of the sprocket.	· Adjust tension of track.	
Bucket either rises slowly or not at all.	· Add oil to specified level.	
Slow speed of travel, swing, boom, arm and bucket.	· Add oil to specified level.	
Unusual noise emitted from pump.	· Clean the hydraulic tank strainer.	
Excessive oil temperature rise of hydraulic oil.	· Clean the oil cooler. · Adjust fan belt tension. · Add oil to specified level.	

1. SELECTING HYDRAULIC BREAKER

※ **Read safety hints in this manual and breaker & quick coupler manuals in website (Dealer Portal) before using breaker and quick coupler.**

1) Become familiar with the manual and select breakers suitable to machine specifications.

2) Make careful selection in consideration of oil quantity, pressure and striking force, to enable satisfied performance.

3) When apply a breaker to the machine, consult your local dealer of HD Hyundai Construction Equipment for further explanation.

2. CIRCUIT CONFIGURATION

1) As for breaker oil pressure line, use extra spool of main control valve.

2) Set proper breaker pressure on load relief valve.
※ The initial setting pressure of load relief valve for breaker is 210 bar.

3) The pressure of the HX140 LC system is 350 kgf/cm² (4980 psi).

4) Adjusting oil quantity

(1) Use the breaker mode from work tool of cluster. Use select switch to control the oil flow quantity.
· Setting oil quantity (100 lpm)

Flow set
· Max flow : Set the maximum flow for the attachment.

(2) If the quantity of hydraulic oil is not controlled properly, it causes short lifecycle of the breaker and the machine by increased breaking force and count.

Oil quantity setting

140F3CD230A

5) The accumulator should be used to the breaker charging and return line.
If the accumulator is not used, it will be damage as the input wave is delivered.
※ **Keep the pressure pulsation of pump below 60 kgf/cm² (853 psi) by installing the accumulator.**

6) Do not connect the breaker return line to the main control, but connect to the return line front of the cooler.

7) Do not connect the breaker return line to drain lines, such as of swing motor, travel motor or pump, otherwise they should be damaged.

8) One of spool of the main control valve should be connected to the tank.

9) Select the size of pipe laying considering the back pressure.

10) Shimless tube should be used for the piping. The hose and seal should be used HD Hyundai Construction Equipment genuine parts.

11) Weld the bracket for pipe clamp to prevent damage caused by vibration.

3. MAINTENANCE

1) MAINTENANCE OF HYDRAULIC OIL AND FILTER

(1) As machine with an hydraulic breaker provides the hydraulic oil becomes severely contaminated.

(2) So, unless frequently maintained, the machine may easily go out of order.

(3) Inspect and maintain hydraulic oil and 3 kinds of filter elements in particular, in order to prolong machine life.

2) RELEASE THE PRESSURE IN BREAKER CIRCUIT

When breaker operating is finished, stop engine and push pedal or switch for breaker to release pressure in breaker circuit.

If pressure still remains, the lifetime of the diaphragm in the accumulator will be shortened.

3) Be careful to prevent contamination by dust, sand and etc.

If such pollution become mixed into the oil, the pump moving parts will wear abnormally, shorten lifetime and become damaged.

4) When operating breaker, bolts and nuts of main equipment may be loosened by vibration. So, it must be inspected periodically.

Service interval

unit : hours

Attachment	Operating rate	Hydraulic oil	Filter element
Breaker	100 %	600★1	200
		1000★2	

★1 : Conventional hydraulic oil

★2 : HD Hyundai Construction Equipment genuine long life hydraulic oil

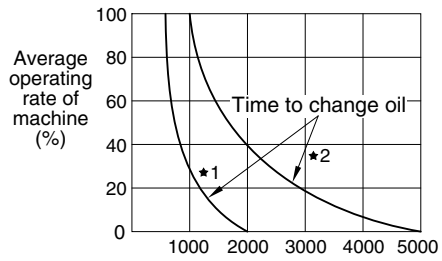
● **Replace following filter same time**

· Hydraulic return filter : 1 EA

· Pilot line filter : 1 EA

· Drain filter cartridge : 1 EA

Hyd oil change guide for hydraulic breaker



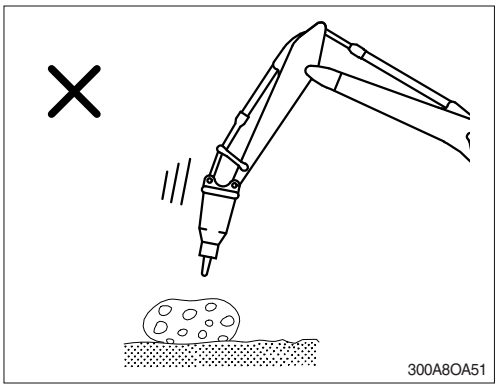
★1 : Conventional hydraulic oil

★2 : HD Hyundai Construction Equipment genuine long life hydraulic oil

4. PRECAUTIONS WHILE OPERATING THE BREAKER

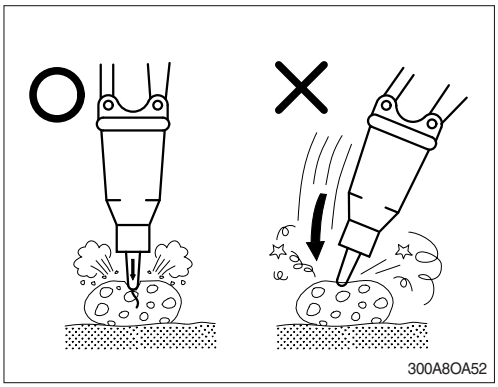
DO NOT BREAK ROCK WHILE LOWERING

As the breaker is heavy in comparison with bucket, it must be operated slowly.
If breaker is rapidly pushed down, working device may be damaged.



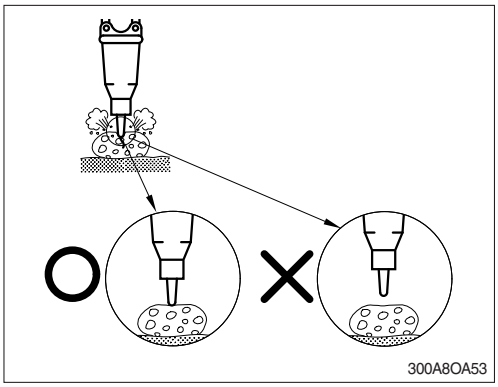
DIRECTION OF THRUST

Apply a thrust in a straight line with the tool. Place the tool on a rock with the hammering side as vertically as possible. If the hammering side is oblique, the tool may slip during hammering, causing the chisel and piston to break, or seized. When breaking, select the point of a rock on which hammering can perform stably and fully stabilize the chisel to the hammer.

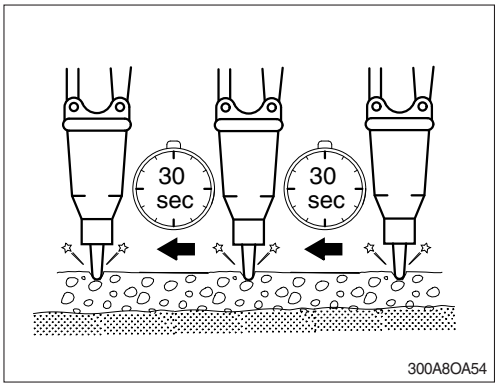


PROPER THRUST

To break effectively, a proper thrust force must be applied to the breaker. If thrust is too low, impact energy of the piston may not be sufficient to break rocks.
Breaking force is transferred to the breaker body, arm and boom resulting in damage of those parts.

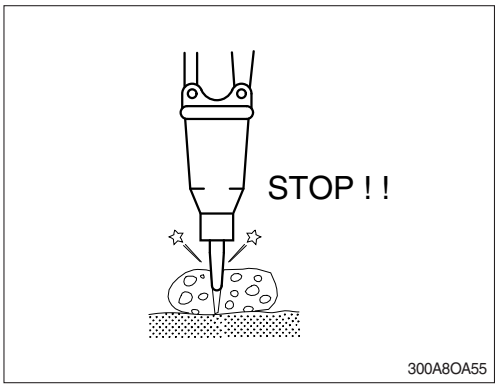


Move the impact point from the edge to the interior. Never try to break off a too large block, if the object has not broken within 30 seconds. The object should be broken up piece by piece in small blocks. Large distance steps will not improve working results.
Operating the breaker longer than 30 seconds may cause damage to the breaker.



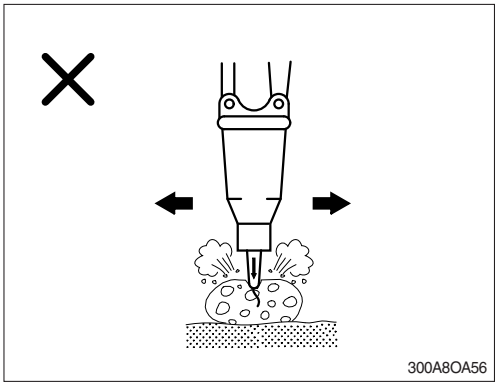
BLANKS THRUST

Blank blows, which are impact on the chisel without contact with the object, are very harmful for the breaker. Always press the chisel down onto the material before starting the breaker. And stop operation immediately as soon as the object has been broken. If operation is continued, blank blows could result in excessive wear to major components.



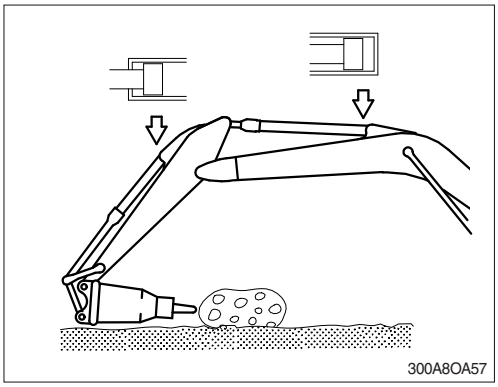
DO NOT MOVE MACHINE OR BREAKER WHILE STRIKING

Do not move hammer while striking.
This will cause damage to the working device and the swing system.



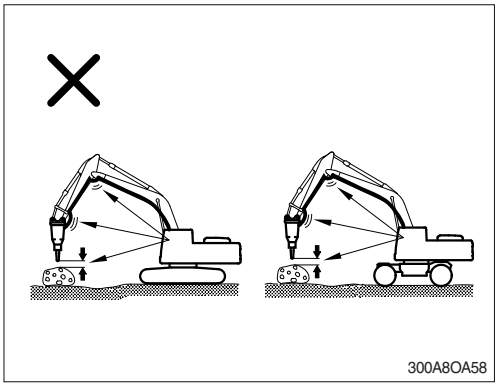
OPERATE BREAKER WITH A GAP IN EXCESS OF 100 mm (4 inches) FROM THE END OF THE STROKE TIP

If breaker is operated with the end tip, the cylinder may be damaged.



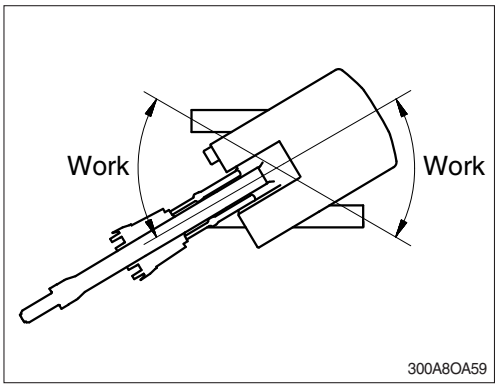
STOP THE OPERATION IMMEDIATELY IF HOSES VIBRATE EXCESSIVELY

Violent pulsations of the high / low pressure breaker hoses could indicate an accumulator fault. Check for oil leaks at the hose fitting points retightening as necessary. Should symptoms persist, contact the service shop appointed by the Hyundal dealer in your territory for repair. An excessive gap between tool and workpiece between strikes may indicate seizure of the tool in the front head. Disassemble the front head, inspect the components and repair or replace defective parts.

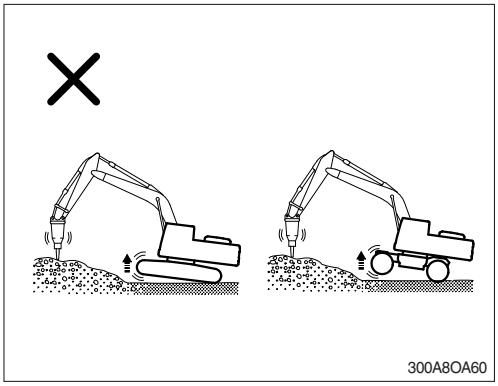


DO NOT WORK WHILE IN A SWING STATE

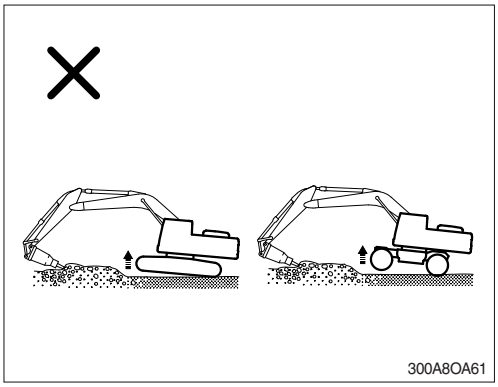
Do not work while swinging the upper structure. It cause oil leakage of the bend in the track shoe and rollers.



Conversely, if thrust is excessive or breaking is performed with boom of the lower chassis raised as shown, the machine may suddenly tip toward the movement. The breaker body may strike the broken rocks violently resulting in damage.

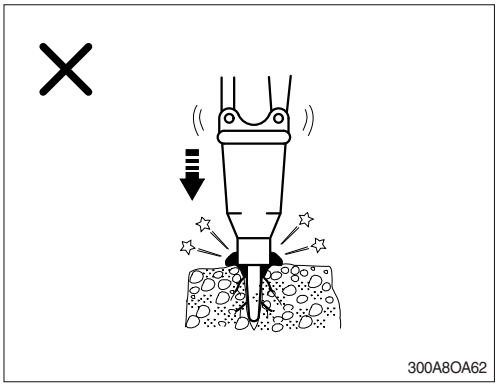


Do not extend the bucket cylinder fully and thrusting to raise the machine off the ground.



Excessive force as above may also result in vibrations being transmitted to the tracks causing damage.

Care is required to ensure adequate but not excessive force is applied to the breaker in operation.



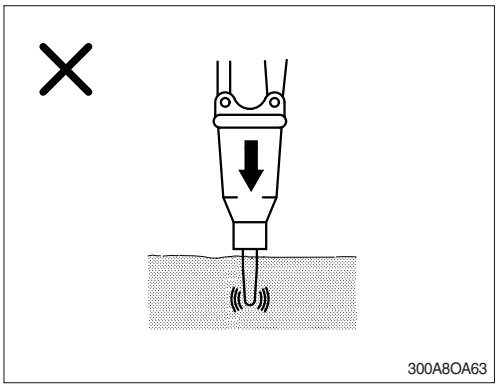
NEVER DRIVE THE CHISEL INTO THE GROUND

If the advance is too large and the chisel is not rocked to release the dust, the chisel will be driven into the material without breaking the material. This causes the chisel tip to glow red-hot and lose its hardness.

As a result, the chisel wears out more quickly. Operating in this way is not permitted.

Dust dampens impact power, when the chisel is inserted into the ground, and reduces the efficiency of the breaker. Tilt the breaker slightly backward and forward, not more than 5°, while operating so that the dust can escape.

Do not rock the breaker at angles greater than 5° or the chisel will be broken.

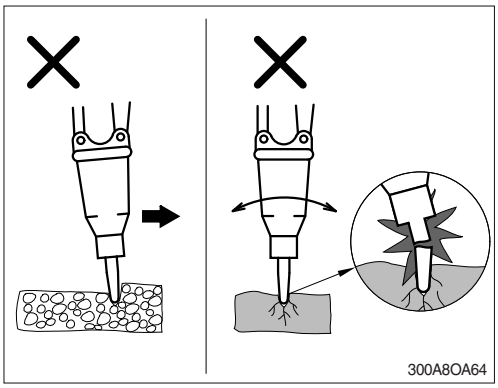


NEVER USE AS A LEVER

Do not use the chisel as a lever; e.g. crowbar, as this will cause the chisel to break.

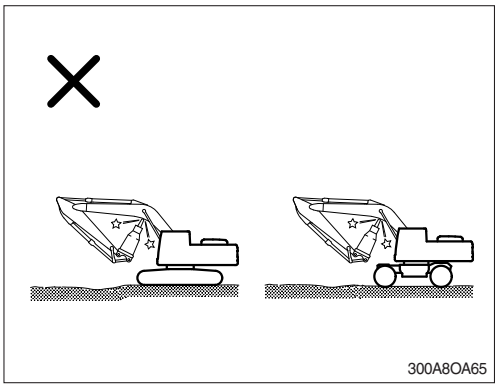
Under any circumstances, operating in this way is not permitted.

Most of bending failure of the chisel may be caused by lever action in stone that is inside hard or frozen ground. Be careful and stop operating if you feel sudden resistance under the chisel.



TAKE CARE OF CHISEL AND BOOM INTERFACE

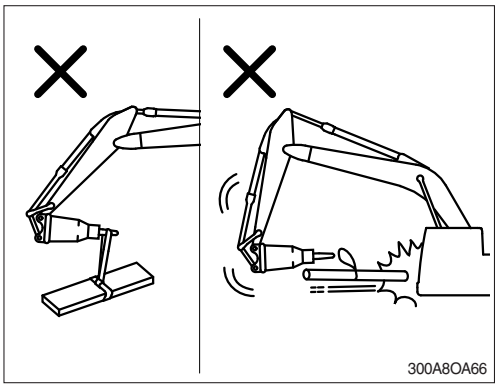
Be aware of clearance between breaker tip and the underside of boom as shown.



NEVER USE FOR LIFT OR TRANSPORT PURPOSES

The hydraulic breaker is not designed to lift or transport loads. Never use the chisel as a lifting point.

This is dangerous and could damage the breaker or the chisel.

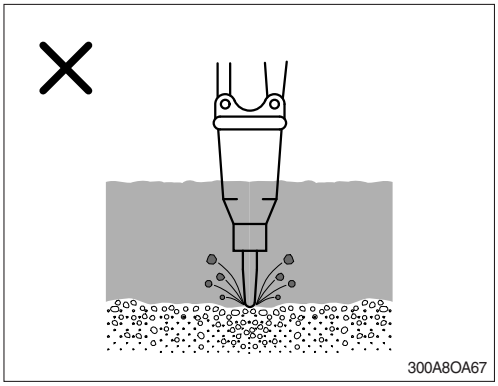


NEVER USE THE HYDRAULIC BREAKER UNDER WATER

The hydraulic breaker, as a standard assembly, never be used in or under water without prior conversion. If you use under water, water fills the impact chamber between the piston and the chisel, a strong hydraulic pressure wave is generated and will damage the seals in the breaker. And, in addition, corrosion, lack of lubrication or penetration of water could result in further damage to components of the breaker and the lower chassis.

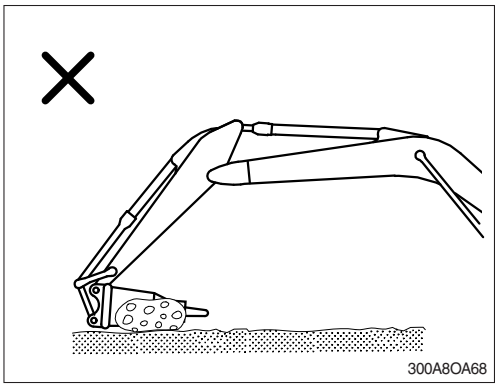
To operate the breaker under water, compressed air must be supplied into the breaker, into the impact chamber of the front-head, prior to use.

Consult your HD Hyundai Construction Equipment dealer for the underwater kit.



DO NOT USE BREAKER TO CARRY BROKEN STONE OR ROCK BY SWING OPERATING

This may damage the operation device and swing system.

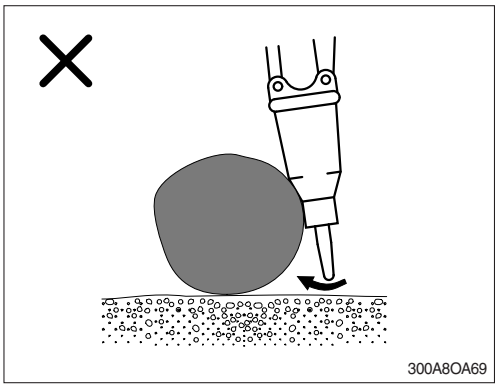


NEVER USE THE CHISEL OR HYDRAULIC BREAKER TO MOVE ROCKS OR OTHER OBJUCTS

The hydraulic breaker is not designed for this usage.

Do not use the breaker or chisel to roll, push the object or reposition the lower chassis.

This may cause damage to the breaker and the lower chassis.

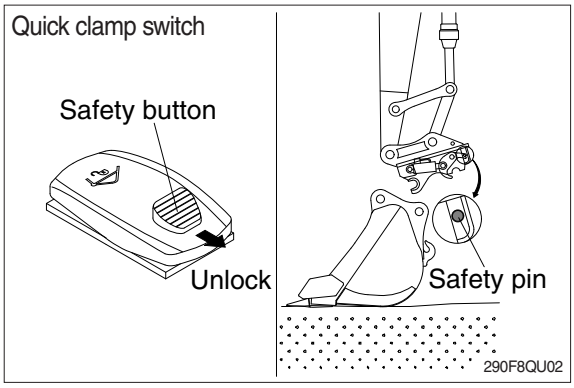


5. QUICK CLAMP

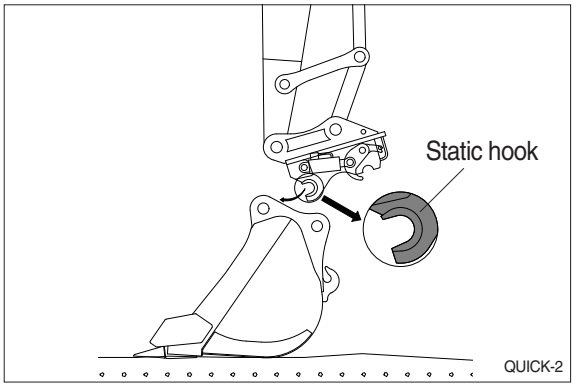
1) FIXING BUCKET WITH QUICK CLAMP

(1) Before fixing bucket, remove safety pin of the moving hook.

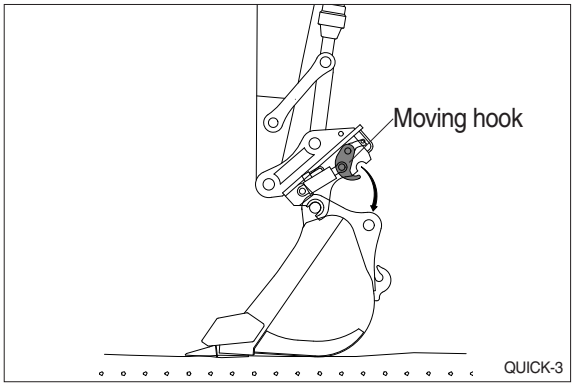
(2) Pulling safety button, press the quick clamp switch to unlock position. Then, the moving hook is placed on release position.



(3) Aligning the arm and bucket, insert static hook of quick clamp to the bucket pin.

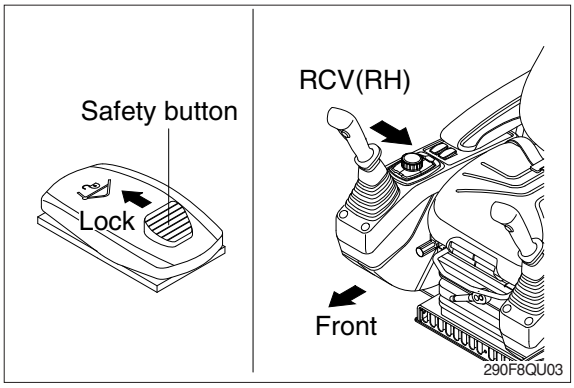


(4) Operate RCV lever to bucket-in position. Then, the moving hook is coupled with the bucket link pin.
Make sure that the moving hook is completely contacted with bucket link pin.

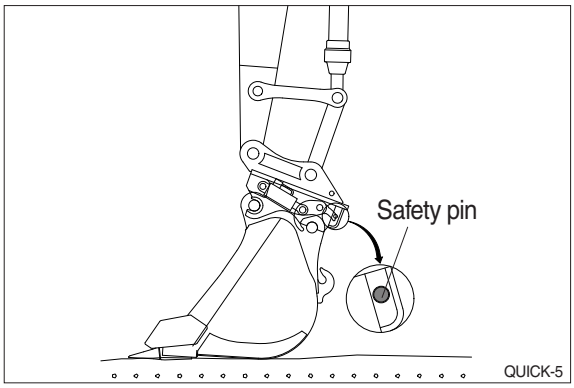


(5) Push safety button to lock position.
Operate RCV lever to bucket-in position.

※ **Be sure to check connection status between bucket pins and hooks of quick clamp.**



(6) After checking the connection status between bucket pins and hooks of quick clamp, **insert safety pin of moving hook to lock position.**



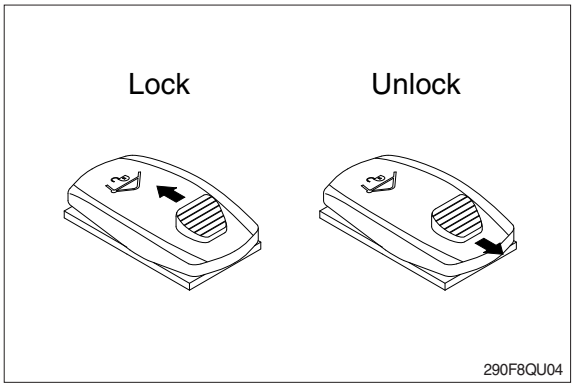
2) REMOVE BUCKET FROM QUICK CLAMP

Removing procedure is reverse of fixing.

3) PRECAUTION OF USING QUICK CLAMP

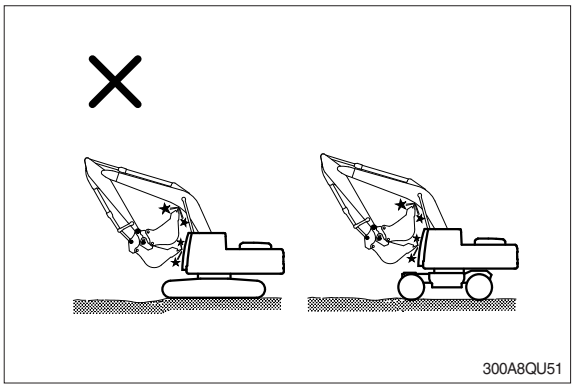
⚠ **When operating the machine with quick clamp, confirm that the quick clamp switch is lock position and safety pin of moving hook is inserted.**
Operating the machine with quick clamp switch unlocked and without safety pin of moving hook can cause the bucket to drop off and bring about the accident.

⚠ **Serious injury or death can result from this accident.**



⚠ **Be careful to operate the machine equipped with quick clamp. The bucket may hit cab, boom and boom cylinders when it reaches vicinity of them.**

HD Hyundai Construction Equipment will not be responsible for any injury or damage in case that safety pin is not installed properly.



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